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EDITORIAL NOTICE

This batch of *Minor Planet Circulars* is again being dated and published a few days after the date of full moon, and the same situation will arise in next month's batch.

Further to the Editorial Notice on *MPC* 33151, L. D. Schmadel, Astronomisches Rechen-Institut, informs us that the *Biography of Minor-Planet Discoverers* questionnaire is available on-line at <http://www.uni-heidelberg.de/zentral/ari/>.

ERRATA

<i>MPC</i>	Line	
7784	20	For F. Börngen and K. Kirsch read F. Börngen
9080	– 6	For F. Börngen and K. Kirsch read F. Börngen
11642	–22	For F. Börngen and K. Kirsch read F. Börngen
22207	–21	For D. Waldron read J. D. Waldron
32562	17	For V. Redeva read V. Radeva
32820	41	For V. Redeva read V. Radeva
33152	–20	For V. Redeva read V. Radeva
33161	–27 to –26	The observations labeled “C/1998 WO ₂ ” should be deleted.
33255	–10	The orbit and identifications for 1997 AJ ₁₀ are to be deleted.

NEW OBSERVATORY CODES

The following listing is a continuation to that on *MPC* 32819. 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	$\rho \cos \phi'$	$\rho \sin \phi'$	
160	10.8833	0.7225	+0.6890	Castelmartini
715	253.2378	0.84572	+0.53222	Las Cruces
723	263.3300	0.82134	+0.56861	Cottonwood Observatory, Ada
726	265.6933	0.69024	+0.72120	Brainerd

CORRECTED OBSERVATIONS

The following observations correct those previously published.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Mag.	N	Obs.
1991 AN ₂	1998 11 11.16218	03 41 35.67	–09 50 20.2	<i>MPS</i>	2993	17.0	V	1 715
1991 AN ₂	1998 11 11.18073	03 41 34.48	–09 50 25.0	<i>MPS</i>	2993	17.2	V	1 715
1991 AN ₂	1998 11 11.20662	03 41 33.02	–09 50 30.2	<i>MPS</i>	2993	16.7	V	1 715
1991 AN ₂	1998 11 12.17640	03 40 39.12	–09 54 13.0	<i>MPS</i>	2993	16.8	V	1 715
1991 AN ₂	1998 11 12.18948	03 40 38.27	–09 54 16.1	<i>MPS</i>	2993	16.9	V	1 715
1991 AN ₂	1998 11 12.20314	03 40 37.54	–09 54 19.3	<i>MPS</i>	2993	17.0	V	1 715
1991 AN ₂	1998 11 14.17010	03 38 47.45	–10 00 57.1	<i>MPS</i>	2993	16.1	V	1 715
1991 AN ₂	1998 11 14.18488	03 38 46.81	–10 00 58.7	<i>MPS</i>	2993	16.2	V	1 715
1991 AN ₂	1998 11 14.20047	03 38 45.77	–10 01 04.4	<i>MPS</i>	2993	16.2	V	1 715
1994 NF ₁	1998 11 22.17309	04 08 47.53	+12 07 39.1	<i>MPS</i>	3001	16.9	V	1 715
1994 NF ₁	1998 11 22.18799	04 08 46.55	+12 07 38.6	<i>MPS</i>	3001	17.0	V	1 715
(1627)	1998 11 09.19040	05 50 57.57	+10 37 57.6	<i>MPS</i>	3236	14.9	V	1 715
(1627)	1998 11 09.20605	05 50 56.69	+10 37 55.7	<i>MPS</i>	3236	15.0	V	1 715
(1627)	1998 11 09.22146	05 50 55.88	+10 37 53.5	<i>MPS</i>	3236	15.1	V	1 715
(6326)	1998 11 11.23547	05 35 22.73	+08 10 03.0	<i>MPS</i>	3269	16.7	V	1 715
(6326)	1998 11 11.24917	05 35 22.40	+08 09 55.8	<i>MPS</i>	3269	16.7	V	1 715
(6326)	1998 11 11.27015	05 35 21.74	+08 09 46.7	<i>MPS</i>	3269	16.3	V	1 715
(6326)	1998 11 14.22853	05 34 00.14	+07 46 20.4	<i>MPS</i>	3269	16.5	V	1 715
(6326)	1998 11 14.24090	05 33 59.70	+07 46 14.3	<i>MPS</i>	3269	16.3	V	1 715
(6326)	1998 11 22.21170	05 29 11.52	+06 45 49.4	<i>MPS</i>	3269	16.6	V	1 715
(6326)	1998 11 22.22478	05 29 10.94	+06 45 43.5	<i>MPS</i>	3269	16.2	V	1 715
(6326)	1998 11 22.24033	05 29 10.26	+06 45 37.0	<i>MPS</i>	3269	16.4	V	1 715
(6326)	1998 11 23.18969	05 28 30.01	+06 38 48.1	<i>MPS</i>	3269	15.9	V	1 715
(6326)	1998 11 23.19659	05 28 29.72	+06 38 44.0	<i>MPS</i>	3269	16.0	V	1 715
(6326)	1998 11 23.20365	05 28 29.47	+06 38 41.2	<i>MPS</i>	3269	15.6	V	1 715
(6326)	1998 11 26.22642	05 26 13.81	+06 17 38.7	<i>MPS</i>	3269	16.5	V	1 715
(6326)	1998 11 26.23790	05 26 13.26	+06 17 34.2	<i>MPS</i>	3269	16.5	V	1 715
(6326)	1998 11 26.24791	05 26 12.74	+06 17 29.8	<i>MPS</i>	3269	16.1	V	1 715

Note 1: Time corrected.

DELETED OBSERVATIONS

The following observations are to be deleted.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	N Obs.
1998 UD ₁₉	1998 10 28.88575	02 45 29.89	+14 56 57.2	<i>MPS</i> 2894		1 120
1998 UD ₁₉	1998 10 28.89859	02 45 29.18	+14 56 54.2	<i>MPS</i> 2894		1 120
1998 UD ₁₉	1998 10 28.91355	03 00 54.41	+10 30 48.8	<i>MPS</i> 2894		120
1998 UD ₁₉	1998 10 28.93565	03 00 53.70	+10 30 45.5	<i>MPS</i> 2894		120

Note 1: These are the first-night observations of 1998 UB₂₀.

IDENTIFICATION CHANGES

Continuation to *MPC* 33151.

Object	Date	UT	α_{2000}	δ_{2000}	Originally	Mag.	Obs.
1981 UZ ₂₉	* 1981 10 28.86102	02 02 45.88	+09 24 50.9	1981 UQ ₁₆	17.5		095
1986 TZ ₁₈	* 1986 10 06.84611	23 21 10.85	-09 05 34.3	1986 SL ₂	16.0	V	095
1991 PW ₃₁	* 1991 08 07.09792	20 51 18.47	-19 56 59.8	1991 PM ₂	19.5		809
1991 PW ₃₁	1991 08 07.11111	20 51 17.58	-19 57 01.6	1991 PM ₂			809
1991 PW ₃₁	1991 08 07.12431	20 51 16.90	-19 57 03.1	1991 PM ₂			809
1991 PX ₃₁	* 1991 08 07.09792	20 51 35.10	-19 57 40.2	1991 PP ₂	19.2		809
1991 PX ₃₁	1991 08 07.11111	20 51 34.35	-19 57 43.0	1991 PP ₂			809
1991 PX ₃₁	1991 08 07.12431	20 51 33.74	-19 57 47.3	1991 PP ₂			809
1994 UF ₁₃	* 1994 10 26.49653	01 33 35.24	+03 55 19.1	1994 TN ₁	16.5		400
1994 UF ₁₃	1994 10 26.51181	01 33 34.22	+03 55 19.6	1994 TN ₁			400
1998 UT ₄₃	* 1998 10 26.83782	05 19 25.11	+22 57 14.6	1998 UG ₃₁			327
1998 UT ₄₃	1998 10 26.84593	05 19 24.94	+22 57 13.3	1998 UG ₃₁	18.8		327
1998 UT ₄₃	1998 10 26.85400	05 19 24.81	+22 57 11.2	1998 UG ₃₁			327
1998 VE ₄₄	* 1998 11 14.77081	05 09 23.97	+25 11 13.0	1998 VT ₃₅	18.1		327
1998 VE ₄₄	1998 11 14.78346	05 09 23.40	+25 11 14.1	1998 VT ₃₅			327
1998 VE ₄₄	1998 11 14.79626	05 09 22.88	+25 11 15.8	1998 VT ₃₅			327
1998 WV ₃₀	* 1998 11 26.07824	04 10 22.25	+20 17 29.8	1998 WV ₇	16.7	R	758
1998 WV ₃₀	1998 11 26.08332	04 10 21.60	+20 17 30.8	1998 WV ₇	16.8	R	758
1998 WB ₃₁	* 1998 11 23.57554	03 27 53.94	+20 26 05.5	1998 WA ₇	16.8	V	376
1998 WB ₃₁	1998 11 23.58312	03 27 53.46	+20 26 02.7	1998 WA ₇			376
1998 WJ ₃₁	* 1998 11 28.57657	05 35 02.39	+25 02 32.9	1998 WX ₈	17.6	V	369

NUMBERING OF A PERIODIC COMET

Continuation to the list on *MPC* 33152.

140P/1983 C1 = 1998 X2 (Bowell-Skiff)

OBSERVATIONS OF COMETS

Observations are published here for the following observatory codes:

046	Kleť. 0.57-m $f/5.2$ reflector + CCD. Observers J. Tichá, M. Tichý and Z. Moravec.
071	Rozhen. 0.5-m $f/1.4$ Schmidt + CCD. Observers V. Radeva and G. Borisov.
104	San Marcello Pistoiese. Observers L. Tesi, A. Boattini and M. Tombelli. Measured by G. Forti, L. Tesi and A. Boattini. 0.40-m $f/5$ reflector + CCD.
107	Cavezzo. 0.40-m $f/5.5$ reflector + CCD. Observers M. Nicolini and M. Facchini. Measured by M. Nicolini.

108	Montelupo. 0.30-m $f/5.7$ Schmidt-Cassegrain + CCD. Observers A. Boattini, M. Tombelli, D. Guidetti, G. Forti, E. Masotti and L. Tesi.
113	Drebach. 0.18-m $f/9$ refractor + CCD. Observers G. Lehmann and J. Kandler.
118	Modra. 0.6-m $f/5.5$ reflector + CCD. Observers A. Galád, D. Kalmančok, P. Kolény, L. Kornoš and J. Tóth.
120	Višňan. 0.4-m $f/4.3$ reflector + CCD. Observer K. Korlević.
143	Gnosca. 0.20-m $f/6.3$ reflector + CCD. Observer S. Sposetti.
160	Castelmartini. 0.25-m $f/6.3$ Schmidt-Cassegrain + CCD. Observer E. Prosperi.
327	Xinglong. 0.60-m Schmidt + CCD. Observers J. Qiu and Q. Qiao.
351	Sakamoto. 0.15-m $f/7.0$ lens + CCD. Observer Y. Kitamura.
355	Hadano. 0.28-m $f/5.0$ reflector + CCD. Observer A. Asami.
360	Kuma Kogen. 0.60-m $f/5.8$ Ritchey-Chrétien + CCD. Observer A. Nakamura.
367	Yatsuka. 0.26-m $f/6.0$ reflector + CCD. Observer H. Abe.
372	Geisei. 0.60-m $f/3.5$ reflector. Observer T. Seki.
400	Kitami. 0.25-m $f/3.4$ hyperboloid astrocamera + CCD. Observer K. Endate.
402	Dynic Astronomical Observatory. 0.60-m $f/4.0$ reflector + CCD. Observers A. Sugie and Y. Ikari.
422	Loomberah. 0.25-m $f/4.1$ reflector + CCD. Observer G. J. Garradd.
426	Woomera. 0.30-m $f/3.3$ Schmidt-Cassegrain + CCD. Observer F. B. Zoltowski.
427	Stockport. 0.50-m $f/5$ Newtonian + CCD. Observer F. Farrell.
476	Bussoleno. 0.30-m $f/4.0$ reflector + CCD. Observer P. Pognant.
504	Le Creusot. 0.40-m $f/5$ reflector + CCD. Observer J. C. Merlin.
511	Haute Provence. 1.2-m $f/6$ reflector + CCD. Observers W. Thuillot, J. Berthier and D. Hestroffer. Measured by J. Berthier, D. Hestroffer, W. Thuillot and A. Fienga.
540	Linz. 0.3-m $f/5.2$ Schmidt-Cassegrain + CCD. Observers E. Meyer, E. Obermair and H. Raab.
557	Ondřejov. 0.65-m $f/3.6$ reflector + CCD. Observers P. Pravec and L. Šarounová.
561	Piszkéstető. 0.60-m Schmidt + CCD. Observers J. Kelemen, K. Sárneczky and L. Kiss.
586	Pic du Midi. 1.05-m $f/6$ reflector. Observers F. Colas and J. Lecacheux.
587	Sormano. 0.5-m reflector + CCD. Observers F. Manca and A. Testa.
605	Marl. 0.2-m $f/10$ Schmidt-Cassegrain + CCD. Observer E. Jung.
610	Pianoro. 0.25-m $f/4$ Schmidt-Cassegrain. Observer V. Goretti.
611	Starkenburg. 0.45-m $f/4.4$ reflector + CCD. Observers M. Busch, R. Stoss, S. Kluegl and P. Geffert.
620	Mallorca. 0.25-m $f/7.6$ Schmidt-Cassegrain + CCD. Observers A. Garcia, M. Pacheco and J. Rodriguez.
658	Dominion Astrophysical Observatory. 1.82-m Plaskett telescope + CCD. Observer G. C. L. Aikman.
662	Lick Observatory. 0.8-m Katzman Automatic Imaging Telescope. Observer W.-d. Li.
670	Camarillo. 0.25-m Schmidt-Cassegrain + CCD. Observer J. E. Rogers.
691	Kitt Peak. 0.91-m Spacewatch telescope. Observers J. V. Scotti, J. Larsen and J. Montani.
693	University of Arizona, Catalina Station. 1.5-m reflector + CCD. Observer M. Hicks. Measured by T. B. Spahr.
696	Mt. Hopkins. 1.2-m telescope + CCD. Observer O. Naranjo.

703	Catalina Sky Survey. 0.41-m $f/3$ Schmidt + CCD. Observer T. B. Spahr.
704	LINEAR. 1.0-m $f/2.15$ reflector + CCD. Observers M. Blythe, F. Shelly and M. Bezpalko. Measured by J. Stuart, H. Viggh and R. Sayer.
709	Cloudcroft. 0.60-m $f/7$ Ritchey-Chrétien + CCD. Observer W. Offutt.
734	Eskridge. 0.30-m Schmidt-Cassegrain + CCD. Observers G. Hug and G. Bell.
750	Hobbs Observatory, Fall Creek. 0.6-m $f/5$ telescope + CCD. Observer R. Elliott.
758	Cocoa. 0.3-m reflector + CCD. Observer I. Griffin.
761	Zephyrhills. 0.18-m $f/9.4$ reflector + CCD. Observer R. A. Kowalski.
808	El Leoncito. 0.5-m $f/7.5$ double astrograph + CCD. Observers C. E. Lopez and H. S. Lepez.
834	Buenos Aires-AAAA. 0.25-m $f/6.3$ reflector + CCD. Observers R. Caprio, R. Mackintosh and H. Ruggiu. Measured by R. Mackintosh and J. R. Carozza.
860	Valinhos. 0.20-m $f/3.3$ reflector + CCD. Observer P. R. Holvorcem.
867	Saji Observatory. 1.03-m $f/4.8$ reflector + CCD. Observers M. Yamanishi, A. Miyamoto, M. Aimoto and T. Oribe.
896	Yatsugatake South Base Observatory. 0.25-m $f/6.3$ Schmidt Cassegrain + CCD. Observer Y. Kushida.
897	Chiyoda. 0.25-m $f/6.0$ reflector + CCD. Observer T. Kojima.
900	Moriyama. 0.25-m $f/6.3$ reflector + CCD. Observer Y. Ikari.
910	ODAS. 0.90-m Schmidt + CCD. Observers A. Maury, D. Albanese, G. Hahn and M. Hoffmann.
958	Dax. 0.32-m $f/5.7$ + CCD. Observers P. Dupouy and P. Marechal. Measured by F. Marechal.

Object	Date	UT	α_{2000}	δ_{2000}	Mag.	N Obs.
C/1995 O1 (Hale-Bopp)						
C/1995 O1	1998 09 05.34297		07 18 00.28	-58 47 08.7		834
C/1995 O1	1998 09 09.33673		07 20 18.85	-59 26 59.9		834
C/1995 O1	1998 09 09.36859		07 20 19.94	-59 27 19.9		834
C/1995 O1	1998 09 13.31325		07 22 24.62	-60 07 25.8		834
C/1995 O1	1998 09 16.32036		07 23 51.26	-60 38 24.6		834
C/1995 O1	1998 09 25.30410		07 27 20.13	-62 12 42.1		1 834
C/1995 O1	1998 09 25.32812		07 27 20.57	-62 12 58.6		1 834
C/1995 O1	1998 09 25.35821		07 27 20.98	-62 13 18.0		1 834
C/1995 O1	1998 09 29.28313		07 28 26.03	-62 55 01.5		834
C/1995 O1	1998 09 29.30659		07 28 26.34	-62 55 17.0		834
C/1995 O1	1998 09 29.33831		07 28 26.76	-62 55 36.9		834
C/1995 O1	1998 10 01.29076		07 28 52.56	-63 16 27.4		834
C/1995 O1	1998 10 02.28899		07 29 03.89	-63 27 05.8		834
C/1995 O1	1998 10 02.32233		07 29 04.22	-63 27 28.1		834
C/1995 O1	1998 10 04.23786		07 29 22.70	-63 47 54.5		1 834
C/1995 O1	1998 10 04.28461		07 29 23.12	-63 48 24.3		834
C/1995 O1	1998 10 09.27241		07 29 48.74	-64 41 34.8		1 834
C/1995 O1	1998 10 09.31059		07 29 48.82	-64 42 00.0		1 834
C/1995 O1	1998 10 15.28950		07 29 33.95	-65 45 17.9		834
C/1995 O1	1998 10 19.27457		07 28 53.88	-66 26 58.1		834
C/1995 O1	1998 10 19.31840		07 28 53.27	-66 27 25.7		834
C/1995 O1	1998 10 24.26399		07 27 26.72	-67 18 15.7		834
C/1995 O1	1998 11 02.29087		07 22 54.80	-68 47 16.8		834
C/1995 O1	1998 11 02.31977		07 22 53.32	-68 47 33.6		834
C/1995 O1	1998 11 04.25517		07 21 34.76	-69 05 47.8		1 834

C/1995 O1	1998 11 04.28320	07 21 33.23	-69 06 05.9		1 834
C/1995 O1	1998 11 04.31906	07 21 31.77	-69 06 25.1		834
C/1995 O1	1998 11 19.27912	07 06 53.36	-71 14 12.3		834
C/1995 O1	1998 11 19.32329	07 06 50.10	-71 14 32.8		834
C/1995 O1	1998 11 20.24972	07 05 39.68	-71 21 31.3		1 834
C/1995 O1	1998 11 29.25389	06 52 40.79	-72 22 05.7		834
C/1995 O1	1998 11 29.28061	06 52 38.14	-72 22 14.1		834
C/1995 O1	1998 11 29.30633	06 52 35.54	-72 22 23.6		834
C/1995 O1	1998 11 30.20113	06 51 09.36	-72 27 39.1		1 834
C/1995 O1	1998 12 01.21948	06 49 29.13	-72 33 26.3		834
C/1995 O1	1998 12 01.24847	06 49 26.51	-72 33 36.2		834
C/1995 O1	1998 12 04.21650	06 44 23.46	-72 49 21.5		834
C/1995 O1	1998 12 04.28803	06 44 15.93	-72 49 43.1		834
C/1995 O1	1998 12 06.20799	06 40 52.01	-72 58 58.5		834
C/1995 O1	1998 12 08.23878	06 37 09.97	-73 07 58.7		834
C/1995 O1	1998 12 11.52479	06 30 58.66	-73 20 42.4	16.1 N	422
C/1995 O1	1998 12 11.52663	06 30 58.60	-73 20 42.3	16.5 N	422
C/1995 O1	1998 12 12.25382	06 29 34.56	-73 23 15.9		1 808
C/1995 O1	1998 12 12.30799	06 29 27.69	-73 23 25.6		1 808
C/1995 O1	1998 12 18.12390	06 17 58.76	-73 39 24.9		834
C/1995 O1	1998 12 18.17388	06 17 52.77	-73 39 31.4		834
C/1995 O1	1998 12 21.60539	06 10 56.32	-73 45 28.1	13.3 N	422
C/1995 O1	1998 12 21.61036	06 10 55.66	-73 45 28.4	13.5 N	422
C/1995 O1	1998 12 21.61095	06 10 55.57	-73 45 28.6	13.5 N	422
C/1995 O1	1999 01 01.15434	05 49 43.65	-73 47 46.4	11.4 T	860
C/1995 O1	1999 01 01.16487	05 49 42.60	-73 47 45.7	11.5 T	860
C/1995 O1	1999 01 01.17855	05 49 41.10	-73 47 44.9	11.8 T	860
C/1995 O1	1999 01 01.57244	05 48 55.15	-73 47 23.1		427
C/1995 O1	1999 01 01.57637	05 48 54.66	-73 47 22.7		427
C/1995 O1	1999 01 01.59709	05 48 52.20	-73 47 22.4		427
C/1995 O1	1999 01 01.60411	05 48 51.39	-73 47 21.5		427
C/1995 O1	1999 01 04.48835	05 43 17.91	-73 43 45.8	16.6 N	422
C/1995 O1	1999 01 04.48891	05 43 17.85	-73 43 45.0	16.5 N	422
C/1995 O1	1999 01 04.49222	05 43 17.53	-73 43 44.9	16.2 N	422

C/1996 J1 (Evans-Drinkwater)

C/1996 J1-B	1998 01 31.56543	02 14 20.24	+31 02 05.7	16.4 T	897
C/1996 J1-B	1998 01 31.56898	02 14 20.79	+31 02 05.4		897
C/1996 J1-B	1998 12 17.59861	03 55 07.97	+34 31 28.2	18.9 T	360
C/1996 J1-B	1998 12 17.60278	03 55 07.83	+34 31 27.9		360
C/1996 J1-B	1998 12 17.60851	03 55 07.62	+34 31 26.0		360

C/1997 BA₆ (Spacewatch)

C/1997 BA ₆	1998 02 17.64491	09 12 17.67	-05 54 37.4		897
C/1997 BA ₆	1998 02 17.65479	09 12 17.12	-05 54 38.6		897
C/1997 BA ₆	1998 02 17.66054	09 12 16.88	-05 54 37.6	17.5 T	897
C/1997 BA ₆	1998 03 17.51745	08 55 05.37	-05 55 21.4		897
C/1997 BA ₆	1998 03 17.54510	08 55 04.39	-05 55 21.0	17.3 T	897
C/1997 BA ₆	1998 12 16.83056	10 06 28.90	-36 16 52.7	14.8 T	360
C/1997 BA ₆	1998 12 16.83299	10 06 28.85	-36 16 55.1		360
C/1997 BA ₆	1998 12 24.81007	10 03 12.11	-38 19 51.1	14.6 T	360
C/1997 BA ₆	1998 12 24.81285	10 03 12.03	-38 19 53.5		360

C/1997 D1 (Mueller)						
C/1997 D1	1998 01 31.48601	02 43 47.14	-13 22 40.2	15.1 T	897	
C/1997 D1	1998 01 31.49295	02 43 46.86	-13 22 40.7		897	
C/1997 D1	1998 01 31.49990	02 43 46.51	-13 22 39.1		897	
C/1997 D1	1998 02 04.45096	02 40 41.94	-13 17 32.7	15.6 T	897	
C/1997 D1	1998 02 04.46486	02 40 41.23	-13 17 28.8		897	
C/1997 D1	1998 09 02.77847	02 33 38.86	-34 41 08.4	17.6 T	1 360	
C/1997 D1	1998 09 02.78247	02 33 38.50	-34 41 12.0		1 360	
C/1997 D1	1998 09 02.78663	02 33 38.17	-34 41 16.4		1 360	

C/1997 J1 (Mueller)						
C/1997 J1	1998 02 17.55709	05 37 29.61	+25 24 55.0	16.2 T	897	
C/1997 J1	1998 02 17.58773	05 37 28.10	+25 24 36.2		897	
C/1997 J1	1998 11 24.99722	05 53 32.77	+00 50 36.3	20.2 T	561	
C/1997 J1	1998 11 25.00139	05 53 32.53	+00 50 35.6	19.6 T	561	
C/1997 J1	1998 11 25.00499	05 53 32.37	+00 50 33.6	20.0 T	561	

C/1997 J2 (Meunier-Dupouy)						
C/1997 J2	1998 03 01.81395	21 13 47.38	+33 01 01.6		897	
C/1997 J2	1998 03 01.82051	21 13 47.94	+33 00 59.7		897	
C/1997 J2	1998 11 07.75528	21 01 35.68	-13 19 31.7	15.7 T	958	
C/1997 J2	1998 11 07.78093	21 01 36.18	-13 19 46.9	15.2 T	958	
C/1997 J2	1998 11 07.81123	21 01 36.70	-13 20 05.4	15.2 T	958	
C/1997 J2	1998 11 21.74961	21 07 36.18	-15 23 20.7	15.7 T	958	
C/1997 J2	1998 11 21.76385	21 07 36.59	-15 23 28.0	15.6 T	958	
C/1997 J2	1998 11 22.74248	21 08 07.19	-15 30 50.6	15.3 T	958	
C/1997 J2	1998 11 22.80139	21 08 09.01	-15 31 15.9	15.4 T	958	
C/1997 J2	1998 11 23.76132	21 08 39.67	-15 38 21.4	14.9 T	958	
C/1997 J2	1998 11 23.81198	21 08 41.23	-15 38 42.9	14.0 T	958	
C/1997 J2	1998 12 05.75110	21 15 48.23	-16 55 30.1	15.3 T	958	
C/1997 J2	1998 12 05.76110	21 15 48.61	-16 55 33.0	15.2 T	958	
C/1997 J2	1998 12 06.76779	21 16 28.16	-17 01 10.8	14.0 T	504	
C/1997 J2	1998 12 06.77241	21 16 28.34	-17 01 12.2	14.1 T	504	
C/1997 J2	1998 12 07.77088	21 17 08.01	-17 06 37.8	15.0 T	958	
C/1997 J2	1998 12 07.77894	21 17 08.39	-17 06 40.6	15.0 T	958	
C/1997 J2	1998 12 12.40521	21 20 18.23	-17 30 20.9	13.4 T	360	
C/1997 J2	1998 12 12.40764	21 20 18.32	-17 30 21.7		360	

C/1997 O1 (Tilbrook)						
C/1997 O1	1998 02 05.72205	16 08 20.07	+50 06 42.9	17.3 T	897	
C/1997 O1	1998 02 05.73300	16 08 20.47	+50 07 05.7		897	
C/1997 O1	1998 02 05.73806	16 08 20.56	+50 07 16.4		897	

C/1997 T1 (Utsunomiya)						
C/1997 T1	1998 03 01.84135	18 39 58.14	-05 58 21.6		897	
C/1997 T1	1998 03 01.84683	18 39 57.98	-05 58 25.1		897	

C/1998 H1 (Stonehouse)						
C/1998 H1	1998 07 20.87049	12 19 38.61	+50 44 27.4	16.7 T	561	
C/1998 H1	1998 07 20.87674	12 19 38.94	+50 44 27.0	16.7 T	561	
C/1998 H1	1998 07 20.88299	12 19 39.07	+50 44 25.8	16.7 T	561	
C/1998 H1	1998 07 20.89097	12 19 39.53	+50 44 27.0	16.7 T	561	
C/1998 H1	1998 07 20.90000	12 19 39.86	+50 44 26.5	17.0 T	561	
C/1998 H1	1998 07 20.90486	12 19 40.0	+50 44 26.6	17.0 T	561	
C/1998 H1	1998 07 20.90938	12 19 40.19	+50 44 26.9	17.1 T	561	

C/1998 H1	1998 07 21.87882	12 20 16.45	+50 44 14.0	16.5 T	561	
C/1998 H1	1998 07 21.88333	12 20 16.66	+50 44 14.2	16.5 T	561	
C/1998 H1	1998 07 21.88750	12 20 16.77	+50 44 14.3	16.4 T	561	
C/1998 H1	1998 07 22.88681	12 20 55.56	+50 44 02.0	14.6 T	561	
C/1998 H1	1998 07 22.89618	12 20 56.00	+50 44 02.1	15.1 T	561	
C/1998 H1	1998 07 22.90104	12 20 56.13	+50 44 01.7	15.9 T	561	

C/1998 K1 (Mueller)						
C/1998 K1	1998 12 18.85819	14 13 47.00	-17 51 52.6	17.4 T	402	
C/1998 K1	1998 12 18.85978	14 13 47.01	-17 51 53.9		402	
C/1998 K1	1998 12 18.86137	14 13 47.15	-17 51 56.6		402	
C/1998 K1	1998 12 18.86295	14 13 47.22	-17 51 57.4		402	
C/1998 K1	1998 12 24.85799	14 19 37.58	-19 04 30.5	17.1 T	360	
C/1998 K1	1998 12 24.86215	14 19 37.84	-19 04 33.4		360	
C/1998 K1	1998 12 27.83711	14 22 26.03	-19 40 19.4	17.9 T	402	
C/1998 K1	1998 12 27.83940	14 22 26.11	-19 40 20.2		402	
C/1998 K1	1998 12 27.84168	14 22 26.13	-19 40 22.8		402	
C/1998 K1	1998 12 27.84397	14 22 26.27	-19 40 24.5		402	

C/1998 K5 (LINEAR)						
C/1998 K5	1998 12 06.80762	02 27 44.88	+08 44 45.5		504	
C/1998 K5	1998 12 06.81404	02 27 44.76	+08 44 44.5	14.7 T	504	
C/1998 K5	1998 12 12.43646	02 27 11.44	+08 37 21.8	16.1 T	360	
C/1998 K5	1998 12 12.43872	02 27 11.44	+08 37 21.9		360	
C/1998 K5	1998 12 16.44066	02 27 17.40	+08 35 48.0	15.2 T	402	
C/1998 K5	1998 12 16.44206	02 27 17.42	+08 35 47.9		402	
C/1998 K5	1998 12 16.44345	02 27 17.43	+08 35 47.9		402	

C/1998 M2 (LINEAR)						
C/1998 M2	1998 07 20.91806	17 38 19.86	+14 00 34.5	14.0 T	561	
C/1998 M2	1998 07 20.92326	17 38 19.59	+14 00 38.7	14.0 T	561	
C/1998 M2	1998 07 20.93125	17 38 19.18	+14 00 44.6	13.8 T	561	
C/1998 M2	1998 07 20.93993	17 38 18.71	+14 00 52.1	14.1 T	561	
C/1998 M2	1998 07 21.89375	17 37 30.44	+14 13 33.1	14.6 T	561	
C/1998 M2	1998 07 21.90069	17 37 30.08	+14 13 38.7	14.6 T	561	
C/1998 M2	1998 07 21.90556	17 37 29.83	+14 13 42.5	14.7 T	561	
C/1998 M2	1998 07 21.91007	17 37 29.60	+14 13 46.0	14.6 T	561	
C/1998 M2	1998 07 22.92604	17 36 39.54	+14 26 54.0	14.3 T	561	
C/1998 M2	1998 07 22.93137	17 36 39.28	+14 26 58.1	14.4 T	561	
C/1998 M2	1998 07 22.93715	17 36 38.99	+14 27 02.5	14.5 T	561	
C/1998 M2	1998 07 22.94271	17 36 38.72	+14 27 06.9	14.5 T	561	
C/1998 M2	1998 07 22.94757	17 36 38.47	+14 27 10.6	14.3 T	561	
C/1998 M2	1998 07 22.95243	17 36 38.24	+14 27 14.2	14.2 T	561	

C/1998 M5 (LINEAR)						
C/1998 M5	1998 07 20.95781	22 53 08.67	+25 10 01.3	13.4 T	561	
C/1998 M5	1998 07 20.96007	22 53 08.49	+25 10 04.3	13.4 T	561	
C/1998 M5	1998 07 20.96493	22 53 08.12	+25 10 10.9	12.6 T	561	
C/1998 M5	1998 07 20.97604	22 53 07.28	+25 10 25.7	12.7 T	561	
C/1998 M5	1998 07 20.98437	22 53 06.64	+25 10 37.2	12.7 T	561	
C/1998 M5	1998 07 20.98958	22 53 06.23	+25 10 44.3	13.4 T	561	
C/1998 M5	1998 07 21.92083	22 51 54.45	+25 31 51.4	13.2 T	561	
C/1998 M5	1998 07 21.92535	22 51 54.08	+25 31 57.5	13.3 T	561	
C/1998 M5	1998 07 21.92986	22 51 53.73	+25 32 03.7	13.1 T	561	
C/1998 M5	1998 07 21.93507	22 51 53.32	+25 32 10.9	13.2 T	561	

C/1998 M5	1998 07 21.93935	22 51 52.97	+25 32 16.7	13.2 T	561
C/1998 M5	1998 07 22.98669	22 50 29.01	+25 56 06.6	13.5 T	561
C/1998 M5	1998 07 22.98854	22 50 28.86	+25 56 09.0	13.5 T	561
C/1998 M5	1998 07 22.99132	22 50 28.63	+25 56 12.9	13.4 T	561
C/1998 M5	1998 07 22.99444	22 50 28.37	+25 56 17.1	13.4 T	561
C/1998 M5	1998 07 22.99688	22 50 28.17	+25 56 20.5	13.4 T	561
C/1998 M5	1998 07 22.99965	22 50 27.94	+25 56 24.3	13.4 T	561
C/1998 M5	1998 07 23.00382	22 50 27.60	+25 56 29.9	13.3 T	561
C/1998 M5	1998 07 23.00660	22 50 27.37	+25 56 33.7	13.3 T	561
C/1998 M5	1998 07 23.00938	22 50 27.15	+25 56 37.4	13.2 T	561
C/1998 M5	1998 07 23.01528	22 50 26.65	+25 56 45.6	13.2 T	561
C/1998 M5	1998 07 23.01806	22 50 26.42	+25 56 49.4	13.3 T	561
C/1998 M5	1998 07 23.02049	22 50 26.22	+25 56 52.8	13.4 T	561
C/1998 M5	1998 07 23.02326	22 50 25.99	+25 56 56.6	13.3 T	561
C/1998 M5	1998 07 23.02604	22 50 25.76	+25 57 00.4	13.3 T	561
C/1998 M5	1998 07 23.02847	22 50 25.56	+25 57 03.7	13.4 T	561
C/1998 M5	1998 07 23.03090	22 50 25.36	+25 57 07.1	13.4 T	561
C/1998 M5	1998 07 23.03333	22 50 25.15	+25 57 10.4	13.4 T	561
C/1998 M5	1998 07 23.03576	22 50 24.96	+25 57 13.8	13.4 T	561
C/1998 M5	1998 07 23.03854	22 50 24.74	+25 57 17.5	13.4 T	561
C/1998 M5	1998 11 06.88405	18 49 53.56	+36 20 20.1	12.4 T	605
C/1998 M5	1998 11 06.89905	18 49 52.98	+36 20 16.7	12.6 T	605
C/1998 M5	1998 12 05.46075	18 46 22.27	+36 43 17.8		351
C/1998 M5	1998 12 05.46348	18 46 22.22	+36 43 19.1	11.9 T	351
C/1998 M5	1998 12 05.46950	18 46 22.33	+36 43 19.0		351
C/1998 M5	1998 12 06.78038	18 46 38.31	+36 50 31.0		504
C/1998 M5	1998 12 06.78531	18 46 38.42	+36 50 32.7		504
C/1998 M5	1998 12 07.74549	18 46 51.42	+36 56 14.6	12.2 T	476
C/1998 M5	1998 12 07.74861	18 46 51.55	+36 56 14.9	12.2 T	476
C/1998 M5	1998 12 07.75314	18 46 51.60	+36 56 16.6	12.2 T	476
C/1998 M5	1998 12 07.76215	18 46 51.82	+36 56 19.5	12.2 T	476
C/1998 M5	1998 12 17.36407	18 49 47.48	+38 11 13.9	11.6 T	402
C/1998 M5	1998 12 17.36512	18 49 47.51	+38 11 14.3		402
C/1998 M5	1998 12 17.36720	18 49 47.54	+38 11 15.6		402
C/1998 M5	1998 12 23.37808	18 52 15.95	+39 16 34.2	11.2 T	402
C/1998 M5	1998 12 23.37912	18 52 16.00	+39 16 34.8		402
C/1998 M5	1998 12 23.38016	18 52 16.02	+39 16 35.3		402
C/1998 M5	1998 12 25.39900	18 53 11.47	+39 41 56.7	12.1 T	351
C/1998 M5	1998 12 25.40121	18 53 11.55	+39 41 57.8		351
C/1998 M5	1998 12 25.40557	18 53 11.70	+39 42 01.2		351
C/1998 M5	1999 01 01.85753	18 56 58.80	+41 31 33.0	11.8 T	351
C/1998 M5	1999 01 01.86096	18 56 58.85	+41 31 34.9		351
C/1998 M5	1999 01 01.86481	18 56 58.94	+41 31 40.0		351

C/1998 M6 (Montani)

C/1998 M6	1998 07 20.99549	20 40 29.23	-16 08 41.4	13.7 T	561
C/1998 M6	1998 07 21.00243	20 40 28.85	-16 08 39.7	13.7 T	561
C/1998 M6	1998 07 21.00764	20 40 28.55	-16 08 38.8	13.7 T	561
C/1998 M6	1998 07 21.94861	20 39 37.52	-16 05 11.5	17.8 T	561
C/1998 M6	1998 07 21.95764	20 39 37.01	-16 05 10.1	17.7 T	561
C/1998 M6	1998 07 21.96528	20 39 36.60	-16 05 08.4	17.7 T	561
C/1998 M6	1998 07 22.96215	20 38 42.39	-16 01 28.5	16.9 T	561

C/1998 M6	1998 07 22.97153	20 38 41.88	-16 01 26.1	16.8 T	561
C/1998 M6	1998 07 22.97951	20 38 41.48	-16 01 24.3	17.5 T	561

C/1998 P1 (Williams)

C/1998 P1	1998 11 28.85229	13 20 22.15	-17 49 34.7	9.0 T	372
C/1998 P1	1998 12 12.84007	13 12 07.11	-13 36 08.1		351
C/1998 P1	1998 12 12.84308	13 12 06.83	-13 36 04.1		351
C/1998 P1	1998 12 12.84911	13 12 06.64	-13 35 56.8		351
C/1998 P1	1998 12 16.81510	13 08 37.64	-12 07 34.1	8.7 T	372
C/1998 P1	1998 12 16.83976	13 08 36.20	-12 06 59.9	10.1 T	360
C/1998 P1	1998 12 16.84167	13 08 36.11	-12 06 57.3		360
C/1998 P1	1998 12 18.85124	13 06 34.56	-11 18 21.4	11.9 T	402
C/1998 P1	1998 12 18.85263	13 06 34.48	-11 18 19.5		402
C/1998 P1	1998 12 18.85402	13 06 34.39	-11 18 17.4		402
C/1998 P1	1998 12 19.78663	13 05 34.28	-10 54 45.7	9.1 T	372
C/1998 P1	1998 12 19.80282	13 05 33.02	-10 54 20.5	11.6 T	355
C/1998 P1	1998 12 19.80703	13 05 32.74	-10 54 13.9		355
C/1998 P1	1998 12 19.80874	13 05 32.62	-10 54 11.5		355
C/1998 P1	1998 12 22.76680	13 02 03.59	-09 35 08.3		900
C/1998 P1	1998 12 22.77602	13 02 02.86	-09 34 52.8		900
C/1998 P1	1998 12 24.83628	12 59 19.69	-08 35 28.2	10.0 T	360
C/1998 P1	1998 12 24.83802	12 59 19.54	-08 35 25.1		360
C/1998 P1	1998 12 27.82760	12 54 54.37	-07 02 09.8	11.9 T	402
C/1998 P1	1998 12 27.82900	12 54 54.24	-07 02 07.1		402
C/1998 P1	1998 12 27.83039	12 54 54.10	-07 02 04.3		402
C/1998 P1	1998 12 30.45795	12 50 29.95	-05 32 27.6	12.2 T	758
C/1998 P1	1998 12 30.46208	12 50 29.34	-05 32 19.4	12.6 T	758
C/1998 P1	1998 12 30.46556	12 50 28.95	-05 32 12.2	12.6 T	758
C/1998 P1	1999 01 01.83534	12 46 04.24	-04 04 40.9	12.2 T	351
C/1998 P1	1999 01 01.83969	12 46 03.70	-04 04 30.4		351
C/1998 P1	1999 01 01.84601	12 46 02.95	-04 04 16.0		351
C/1998 P1	1999 01 01.84946	12 46 02.56	-04 04 09.5		351
C/1998 P1	1999 01 02.77306	12 44 11.70	-03 28 09.0		355
C/1998 P1	1999 01 02.77876	12 44 10.95	-03 27 56.2		355
C/1998 P1	1999 01 02.78465	12 44 10.23	-03 27 41.7		355

P/1998 QP₅₄ (LONEOS-Tucker)

P/1998 QP ₅₄	1998 12 09.82328	00 08 17.14	+25 20 13.7		118
P/1998 QP ₅₄	1998 12 09.82525	00 08 17.24	+25 20 14.3		118
P/1998 QP ₅₄	1998 12 09.82704	00 08 17.37	+25 20 14.3	17.4 T	118
P/1998 QP ₅₄	1998 12 14.13591	00 13 46.83	+25 39 03.5	21.4 N	691
P/1998 QP ₅₄	1998 12 14.14021	00 13 47.09	+25 39 04.3	17.7 T	691
P/1998 QP ₅₄	1998 12 14.14434	00 13 47.43	+25 39 05.5	18.0 T	691
P/1998 QP ₅₄	1998 12 17.41897	00 18 15.73	+25 54 05.2	17.8 T	402
P/1998 QP ₅₄	1998 12 17.42037	00 18 16.00	+25 54 05.5		402
P/1998 QP ₅₄	1998 12 17.42314	00 18 16.11	+25 54 06.6		402
P/1998 QP ₅₄	1998 12 17.45035	00 18 18.28	+25 54 14.0	17.9 T	360
P/1998 QP ₅₄	1998 12 17.45503	00 18 18.70	+25 54 15.6		360

P/1998 S1 (LINEAR-Mueller)

P/1998 S1	1998 12 09.83564	00 45 02.62	+13 54 17.5	16.2 T	118
P/1998 S1	1998 12 09.84197	00 45 02.78	+13 54 18.3		118
P/1998 S1	1998 12 12.44236	00 46 13.19	+14 02 41.7	16.5 T	360
P/1998 S1	1998 12 12.44583	00 46 13.30	+14 02 42.5		360

P/1998 S1	1998 12 12.49337	00 46 14.56	+14 02 51.1	15.3 T	351
P/1998 S1	1998 12 12.49719	00 46 14.74	+14 02 51.7		351
P/1998 S1	1998 12 12.50250	00 46 14.80	+14 02 50.8		351
P/1998 S1	1998 12 12.88694	00 46 26.07	+14 04 10.3		118
P/1998 S1	1998 12 12.89332	00 46 26.26	+14 04 11.4		118
P/1998 S1	1998 12 14.15210	00 47 04.58	+14 08 34.8	19.5 N	691
P/1998 S1	1998 12 14.15645	00 47 04.67	+14 08 35.6	16.6 T	691
P/1998 S1	1998 12 14.16032	00 47 04.81	+14 08 36.4	16.4 T	691
P/1998 S1	1998 12 17.43025	00 48 54.86	+14 20 41.8	16.0 T	402
P/1998 S1	1998 12 17.43164	00 48 54.92	+14 20 42.2		402
P/1998 S1	1998 12 17.43303	00 48 54.98	+14 20 42.5		402
P/1998 S1	1998 12 23.82138	00 53 10.53	+14 47 25.3	16.2 T	118
P/1998 S1	1998 12 23.82868	00 53 10.85	+14 47 27.4		118
P/1998 S1	1998 12 29.76646	00 57 54.07	+15 15 47.3		046
P/1998 S1	1998 12 29.76782	00 57 54.08	+15 15 47.9		046
P/1998 S1	1998 12 31.81223	00 59 40.89	+15 26 16.8		046
P/1998 S1	1998 12 31.81600	00 59 41.05	+15 26 17.2		046
P/1998 S1	1998 12 31.81728	00 59 41.10	+15 26 18.0		046
P/1998 S1	1998 12 31.82139	00 59 41.36	+15 26 18.7		046
P/1998 S1	1999 01 04.69418	01 03 16.39	+15 47 09.0	16.5 T	118
P/1998 S1	1999 01 04.70559	01 03 17.02	+15 47 12.3		118

C/1998 T1 (LINEAR)

C/1998 T1	1998 11 08.47431	00 31 33.58	+14 30 30.3	16.5 T	372
C/1998 T1	1998 11 10.44375	00 27 23.05	+13 55 58.9		372
C/1998 T1	1998 11 26.09807	23 56 42.79	+09 14 54.8	14 T	696
C/1998 T1	1998 11 27.10038	23 56 42.61	+09 14 52.9		696
C/1998 T1	1998 11 27.16071	23 56 36.91	+09 13 55.7		696
C/1998 T1	1998 12 09.11890	23 40 29.82	+06 22 03.1	17.9 T	704
C/1998 T1	1998 12 09.12940	23 40 29.08	+06 21 53.9	18.1 T	704
C/1998 T1	1998 12 09.13990	23 40 28.35	+06 21 45.6	18.0 T	704
C/1998 T1	1998 12 09.15028	23 40 27.58	+06 21 37.2		704
C/1998 T1	1998 12 09.16064	23 40 26.86	+06 21 29.2		704
C/1998 T1	1998 12 11.51736	23 37 51.33	+05 51 32.4	17.1 T	372
C/1998 T1	1998 12 12.43021	23 36 54.14	+05 40 16.7	16.5 T	360
C/1998 T1	1998 12 12.43264	23 36 53.99	+05 40 15.1		360
C/1998 T1	1998 12 16.74705	23 32 45.29	+04 49 48.3		046
C/1998 T1	1998 12 16.74914	23 32 45.17	+04 49 47.0		046
C/1998 T1	1998 12 16.75404	23 32 44.94	+04 49 43.7		046
C/1998 T1	1998 12 17.40331	23 32 10.55	+04 42 31.4	16.6 T	402
C/1998 T1	1998 12 17.40470	23 32 10.47	+04 42 30.4		402
C/1998 T1	1998 12 17.40609	23 32 10.41	+04 42 30.0		402
C/1998 T1	1998 12 17.84422	23 31 47.57	+04 37 41.4	16.1 T	118
C/1998 T1	1998 12 17.85439	23 31 47.07	+04 37 34.3		118
C/1998 T1	1998 12 20.81036	23 29 22.66	+04 06 19.9	16.7 T	071
C/1998 T1	1998 12 20.81230	23 29 22.56	+04 06 19.1	16.8 T	071
C/1998 T1	1998 12 20.81618	23 29 22.33	+04 06 17.0	17.0 T	071
C/1998 T1	1998 12 20.81812	23 29 22.28	+04 06 15.9	16.9 T	071
C/1998 T1	1998 12 20.82006	23 29 22.22	+04 06 15.2	16.8 T	071
C/1998 T1	1998 12 20.82200	23 29 22.03	+04 06 12.9	16.9 T	071
C/1998 T1	1998 12 21.45868	23 28 53.08	+03 59 46.0	16.9 T	372
C/1998 T1	1998 12 23.76358	23 27 13.75	+03 37 08.6		118
C/1998 T1	1998 12 23.76826	23 27 13.56	+03 37 05.6	16.7 T	118

C/1998 T1	1998 12 28.77119	23 24 07.84	+02 52 03.8		046
C/1998 T1	1998 12 28.77588	23 24 07.69	+02 52 01.9		046
C/1998 T1	1998 12 28.78078	23 24 07.54	+02 51 59.4		046

C/1998 U1 (LINEAR)

C/1998 U1	1998 11 18.59028	02 53 56.55	+28 18 55.3	18.5 T	372
C/1998 U1	1998 11 20.57187	02 50 09.29	+27 52 55.7		372
C/1998 U1	1998 11 22.73264	02 46 06.80	+27 24 12.3		372
C/1998 U1	1998 11 23.52569	02 44 39.63	+27 13 37.2		372
C/1998 U1	1998 11 23.54653	02 44 37.29	+27 13 19.7		372
C/1998 U1	1998 11 24.50000	02 42 53.43	+27 00 30.5		372
C/1998 U1	1998 11 28.68333	02 35 32.95	+26 03 56.7		372
C/1998 U1	1998 12 11.56597	02 15 55.55	+23 12 13.4	19.0 T	372
C/1998 U1	1998 12 12.56122	02 14 36.54	+22 59 27.5		372
C/1998 U1	1998 12 13.54236	02 13 20.41	+22 46 59.2		372
C/1998 U1	1998 12 17.44572	02 08 34.36	+21 58 23.7	18.5 T	402
C/1998 U1	1998 12 17.44711	02 08 34.23	+21 58 22.2		402
C/1998 U1	1998 12 17.44850	02 08 34.16	+21 58 21.2		402
C/1998 U1	1998 12 17.47760	02 08 32.08	+21 57 59.1	18.7 T	360
C/1998 U1	1998 12 17.48351	02 08 31.63	+21 57 55.2		360
C/1998 U1	1998 12 17.49271	02 08 31.00	+21 57 48.7		360
C/1998 U1	1998 12 23.42718	02 02 07.86	+20 47 54.9	18.8 T	402
C/1998 U1	1998 12 23.42876	02 02 07.75	+20 47 53.9		402
C/1998 U1	1998 12 23.43035	02 02 07.78	+20 47 51.3		402
C/1998 U1	1998 12 23.43194	02 02 07.58	+20 47 52.0		402

P/1998 U2 (Mueller)

P/1998 U2	1998 10 23.29376	01 23 56.59	+12 24 09.2	16.1 T	691
P/1998 U2	1998 10 23.29927	01 23 56.38	+12 24 08.6	16.2 T	691
P/1998 U2	1998 10 23.30519	01 23 56.24	+12 24 07.3	16.0 T	691
P/1998 U2	1998 10 24.44985	01 23 21.34	+12 21 52.5	16.3 T	691
P/1998 U2	1998 10 24.46148	01 23 20.96	+12 21 52.0	16.4 T	691
P/1998 U2	1998 12 09.82591	01 24 15.99	+12 19 27.9	17.8 T	113
P/1998 U2	1998 12 09.85155	01 24 16.85	+12 19 33.2		118
P/1998 U2	1998 12 09.85568	01 24 17.04	+12 19 33.7		118
P/1998 U2	1998 12 09.87104	01 24 17.66	+12 19 36.3	17.9 T	113
P/1998 U2	1998 12 10.82336	01 24 55.91	+12 22 29.6	18.1 T	113
P/1998 U2	1998 12 10.84523	01 24 56.77	+12 22 33.4	17.7 T	113
P/1998 U2	1998 12 17.44056	01 29 59.72	+12 45 47.2	17.8 T	402
P/1998 U2	1998 12 17.44194	01 29 59.75	+12 45 47.4		402
P/1998 U2	1998 12 17.44333	01 29 59.77	+12 45 48.2		402
P/1998 U2	1998 12 17.46250	01 30 00.72	+12 45 52.9	18.1 T	360
P/1998 U2	1998 12 17.47170	01 30 01.15	+12 45 55.3		360

P/1998 U3 (Jäger)

P/1998 U3	1998 11 06.95567	06 54 46.47	+41 36 16.9	12.8 T	605
P/1998 U3	1998 11 06.96045	06 54 46.67	+41 36 17.5	12.9 T	605
P/1998 U3	1998 11 06.96947	06 54 46.96	+41 36 17.0	12.9 T	605
P/1998 U3	1998 11 10.94343	06 56 58.50	+41 35 17.2	12.4 T	605
P/1998 U3	1998 11 10.96424	06 56 59.15	+41 35 17.0	12.6 T	605
P/1998 U3	1998 11 22.90072	07 00 14.80	+41 24 09.5	12.2 T	605
P/1998 U3	1998 11 22.92157	07 00 14.84	+41 24 08.1	12.3 T	605
P/1998 U3	1998 11 22.93973	07 00 14.89	+41 24 06.4	12.2 T	605
P/1998 U3	1998 11 27.50251	07 00 06.08	+41 15 30.5	11.6 T	696

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M.P.C. 33419

P/1998 U3	1998 12 05.72353	06 57 56.20	+40 51 34.6	11.6 T	900
P/1998 U3	1998 12 05.73283	06 57 55.97	+40 51 31.9		900
P/1998 U3	1998 12 07.80915	06 57 01.13	+40 43 23.7		160
P/1998 U3	1998 12 07.86993	06 56 59.32	+40 43 10.0	13.0 N	610
P/1998 U3	1998 12 07.87376	06 56 59.20	+40 43 09.1		610
P/1998 U3	1998 12 07.87897	06 56 59.04	+40 43 07.9		610
P/1998 U3	1998 12 07.95501	06 56 56.75	+40 42 49.7		610
P/1998 U3	1998 12 07.95867	06 56 56.63	+40 42 48.9		610
P/1998 U3	1998 12 08.80969	06 56 31.31	+40 39 10.4	12.7 T	113
P/1998 U3	1998 12 08.81262	06 56 31.32	+40 39 09.4	13.1 T	113
P/1998 U3	1998 12 08.87108	06 56 29.41	+40 38 55.5	12.8 T	113
P/1998 U3	1998 12 08.87271	06 56 29.40	+40 38 54.9	13.1 T	113
P/1998 U3	1998 12 09.21458	06 56 18.35	+40 37 28.1	11.9 N	761
P/1998 U3	1998 12 09.24415	06 56 17.28	+40 37 20.2	12.2 N	761
P/1998 U3	1998 12 09.53111	06 56 08.83	+40 36 02.2	11.8 T	351
P/1998 U3	1998 12 09.53532	06 56 08.56	+40 36 00.9		351
P/1998 U3	1998 12 09.53719	06 56 08.61	+40 36 00.9		351
P/1998 U3	1998 12 09.80124	06 56 00.04	+40 34 46.8	11.1 T	540
P/1998 U3	1998 12 09.80270	06 56 00.04	+40 34 46.7		540
P/1998 U3	1998 12 09.80404	06 56 00.03	+40 34 46.1		540
P/1998 U3	1998 12 10.65879	06 55 31.14	+40 30 51.8		900
P/1998 U3	1998 12 10.66791	06 55 30.84	+40 30 49.8		900
P/1998 U3	1998 12 10.86546	06 55 24.20	+40 29 49.6	12.6 T	113
P/1998 U3	1998 12 10.88372	06 55 23.44	+40 29 44.5	12.6 T	113
P/1998 U3	1998 12 11.05344	06 55 17.33	+40 28 57.0		118
P/1998 U3	1998 12 11.05665	06 55 17.25	+40 28 56.0		118
P/1998 U3	1998 12 11.18993	06 55 12.71	+40 28 18.5	11.9 N	761
P/1998 U3	1998 12 11.21250	06 55 11.83	+40 28 12.4	12.0 N	761
P/1998 U3	1998 12 14.84519	06 52 52.79	+40 08 51.6	11.7 T	504
P/1998 U3	1998 12 14.84706	06 52 52.75	+40 08 51.2	11.7 T	504
P/1998 U3	1998 12 14.85069	06 52 52.60	+40 08 49.7	11.7 T	504
P/1998 U3	1998 12 14.85256	06 52 52.46	+40 08 49.3	11.8 T	504
P/1998 U3	1998 12 16.02171	06 52 02.73	+40 01 57.4		504
P/1998 U3	1998 12 16.02391	06 52 02.71	+40 01 56.3		504
P/1998 U3	1998 12 16.02767	06 52 02.53	+40 01 54.6		504
P/1998 U3	1998 12 16.02964	06 52 02.42	+40 01 54.1		504
P/1998 U3	1998 12 16.58198	06 51 38.49	+39 58 30.8		355
P/1998 U3	1998 12 16.58368	06 51 38.42	+39 58 30.1		355
P/1998 U3	1998 12 16.58863	06 51 38.17	+39 58 28.6		355
P/1998 U3	1998 12 16.66389	06 51 34.77	+39 58 00.9	11.5 T	360
P/1998 U3	1998 12 16.66632	06 51 34.66	+39 58 00.0		360
P/1998 U3	1998 12 17.40936	06 51 01.10	+39 53 17.5	12.0 T	704
P/1998 U3	1998 12 17.43200	06 50 59.96	+39 53 07.8		704
P/1998 U3	1998 12 17.45474	06 50 58.85	+39 52 59.0		704
P/1998 U3	1998 12 17.47751	06 50 57.76	+39 52 50.1		704
P/1998 U3	1998 12 17.49686	06 50 57.65	+39 52 41.2	13.2 N	896
P/1998 U3	1998 12 17.50018	06 50 56.73	+39 52 40.9		704
P/1998 U3	1998 12 17.56286	06 50 54.64	+39 52 17.3		896
P/1998 U3	1998 12 17.62036	06 50 51.98	+39 51 47.0		896
P/1998 U3	1998 12 17.79567	06 50 44.27	+39 50 44.0	11.2 T	540
P/1998 U3	1998 12 17.79688	06 50 44.20	+39 50 43.6		540
P/1998 U3	1998 12 17.79808	06 50 44.12	+39 50 43.4		540
P/1998 U3	1998 12 18.12007	06 50 28.72	+39 48 36.8	11.5 T	118

P/1998 U3	1998 12 18.12822	06 50 28.29	+39 48 33.6		118
P/1998 U3	1998 12 19.87094	06 49 06.59	+39 36 36.1	11.3 T	504
P/1998 U3	1998 12 19.87227	06 49 06.58	+39 36 34.8		504
P/1998 U3	1998 12 19.87487	06 49 06.40	+39 36 34.3		504
P/1998 U3	1998 12 19.87615	06 49 06.37	+39 36 34.0		504
P/1998 U3	1998 12 19.95868	06 49 02.13	+39 36 00.5	12.3 T	476
P/1998 U3	1998 12 19.96215	06 49 01.96	+39 35 58.3	12.3 T	476
P/1998 U3	1998 12 19.96910	06 49 01.69	+39 35 56.2	12.3 T	476
P/1998 U3	1998 12 19.97379	06 49 01.49	+39 35 53.6	12.3 T	476
P/1998 U3	1998 12 21.61233	06 47 40.76	+39 23 51.9	11.2 T	360
P/1998 U3	1998 12 21.61510	06 47 40.61	+39 23 50.5		360
P/1998 U3	1998 12 22.18692	06 47 11.49	+39 19 27.9		761
P/1998 U3	1998 12 22.54281	06 46 53.83	+39 16 40.4	11.7 T	351
P/1998 U3	1998 12 22.54482	06 46 53.76	+39 16 39.7		351
P/1998 U3	1998 12 22.54775	06 46 53.57	+39 16 37.9		351
P/1998 U3	1998 12 22.79480	06 46 40.32	+39 14 40.3		900
P/1998 U3	1998 12 22.80396	06 46 39.81	+39 14 36.0		900
P/1998 U3	1998 12 22.86587	06 46 37.36	+39 14 05.6		504
P/1998 U3	1998 12 22.86973	06 46 37.21	+39 14 03.7		504
P/1998 U3	1998 12 22.87095	06 46 37.06	+39 14 02.3		504
P/1998 U3	1998 12 22.87361	06 46 36.90	+39 14 02.0		504
P/1998 U3	1998 12 23.16887	06 46 21.49	+39 11 44.0	11.1 T	761
P/1998 U3	1998 12 23.18507	06 46 20.33	+39 11 36.1		761
P/1998 U3	1998 12 25.88380	06 43 59.20	+38 48 53.1		108
P/1998 U3	1998 12 25.88576	06 43 59.11	+38 48 51.9		108
P/1998 U3	1998 12 25.89016	06 43 58.92	+38 48 50.1	10.5 T	108
P/1998 U3	1998 12 26.75973	06 43 12.42	+38 41 03.1	11.0 T	540
P/1998 U3	1998 12 26.76100	06 43 12.34	+38 41 02.3		540
P/1998 U3	1998 12 26.76205	06 43 12.30	+38 41 02.0		540
P/1998 U3	1998 12 26.95055	06 43 01.89	+38 39 20.6	12.8 N	620
P/1998 U3	1998 12 26.95850	06 43 01.42	+38 39 16.6	12.8 N	620
P/1998 U3	1998 12 26.96824	06 43 00.89	+38 39 11.8	12.8 N	620
P/1998 U3	1998 12 26.98679	06 42 59.83	+38 39 02.0	12.9 N	620
P/1998 U3	1998 12 27.63848	06 42 24.62	+38 33 03.8	11.1 T	402
P/1998 U3	1998 12 27.63987	06 42 24.54	+38 33 03.1		402
P/1998 U3	1998 12 27.64126	06 42 24.46	+38 33 02.3		402
P/1998 U3	1998 12 27.81713	06 42 15.28	+38 31 20.6	11.1 T	504
P/1998 U3	1998 12 27.81846	06 42 15.25	+38 31 20.2		504
P/1998 U3	1998 12 27.82231	06 42 14.98	+38 31 18.3		504
P/1998 U3	1998 12 27.82337	06 42 14.95	+38 31 17.0		504
P/1998 U3	1999 01 02.51079	06 37 04.88	+37 33 54.7		355
P/1998 U3	1999 01 02.51443	06 37 04.64	+37 33 52.1		355
P/1998 U3	1999 01 02.51794	06 37 04.47	+37 33 49.6		355

P/1998 U4 (Spahr)

P/1998 U4	1998 11 27.34314	03 53 10.54	-15 10 33.1	17 T	696
P/1998 U4	1998 12 09.13443	03 46 59.42	-15 36 28.0		761
P/1998 U4	1998 12 09.15284	03 46 58.76	-15 36 28.7		761
P/1998 U4	1998 12 09.83362	03 46 38.89	-15 37 02.5	17.0 T	113
P/1998 U4	1998 12 09.87954	03 46 37.45	-15 37 03.5	16.7 T	113
P/1998 U4	1998 12 10.96778	03 46 06.50	-15 37 48.6	16.6 T	118
P/1998 U4	1998 12 10.97384	03 46 06.29	-15 37 48.4		118
P/1998 U4	1998 12 12.59608	03 45 21.33	-15 38 27.2	18.0 T	402

P/1998 U4	1998 12 12.59767	03 45 21.28	-15 38 26.7		402
P/1998 U4	1998 12 12.59926	03 45 21.23	-15 38 27.2		402
P/1998 U4	1998 12 17.57483	03 43 13.70	-15 37 00.3	17.5 T	360
P/1998 U4	1998 12 17.57917	03 43 13.61	-15 36 59.9		360
P/1998 U4	1998 12 18.44858	03 42 53.16	-15 36 15.9	17.9 T	402
P/1998 U4	1998 12 18.45087	03 42 53.13	-15 36 16.0		402
P/1998 U4	1998 12 18.45315	03 42 53.04	-15 36 15.4		402
P/1998 U4	1998 12 24.44464	03 40 47.80	-15 27 06.3	18.7 T	402
P/1998 U4	1998 12 24.44716	03 40 47.76	-15 27 05.6		402
P/1998 U4	1998 12 24.44968	03 40 47.67	-15 27 05.4		402

C/1998 U5 (LINEAR)

C/1998 U5	1998 11 15.87703	02 49 00.96	+60 13 09.0	11.7 T	958
C/1998 U5	1998 11 15.95382	02 46 14.37	+60 15 48.1	12.1 T	958
C/1998 U5	1998 11 15.98044	02 45 16.52	+60 16 40.0	12.0 T	958
C/1998 U5	1998 11 16.04618	02 42 53.57	+60 18 38.8	11.7 T	958
C/1998 U5	1998 11 16.78488	02 16 06.00	+60 29 52.3	11.9 T	958
C/1998 U5	1998 11 16.83546	02 14 15.11	+60 29 55.9	12.0 T	958
C/1998 U5	1998 11 16.88149	02 12 34.19	+60 29 53.1	12.0 T	958
C/1998 U5	1998 11 18.79927	01 05 49.43	+59 19 23.5	12.0 T	958
C/1998 U5	1998 11 18.83380	01 04 42.18	+59 17 02.7	11.9 T	958
C/1998 U5	1998 11 18.88951	01 02 53.96	+59 13 10.4	12.3 T	958
C/1998 U5	1998 11 19.96265	00 30 33.17	+57 42 56.7	12.0 T	958
C/1998 U5	1998 11 19.96888	00 30 22.59	+57 42 20.6	12.3 T	958
C/1998 U5	1998 11 20.80150	00 08 20.71	+56 16 16.4	11.6 T	958
C/1998 U5	1998 11 20.81927	00 07 54.10	+56 14 19.5	11.6 T	958
C/1998 U5	1998 11 21.77508	23 45 51.40	+54 24 00.2	11.7 T	958
C/1998 U5	1998 11 21.78682	23 45 36.26	+54 22 36.2	11.8 T	958
C/1998 U5	1998 11 28.74833	22 16 21.88	+40 44 21.0		160
C/1998 U5	1998 12 01.79486	21 58 15.96	+36 05 56.0	12.8 T	958
C/1998 U5	1998 12 01.81891	21 58 08.84	+36 03 56.7	13.1 T	958
C/1998 U5	1998 12 05.48510	21 43 39.82	+31 38 07.3	15.6 T	351
C/1998 U5	1998 12 05.48791	21 43 39.26	+31 37 57.1		351
C/1998 U5	1998 12 05.49034	21 43 38.67	+31 37 46.9		351
C/1998 U5	1998 12 05.78112	21 42 44.21	+31 19 28.6	13.1 T	958
C/1998 U5	1998 12 05.79301	21 42 41.96	+31 18 44.0	13.2 T	958
C/1998 U5	1998 12 06.79122	21 39 45.78	+30 18 34.0		504
C/1998 U5	1998 12 06.79144	21 39 45.69	+30 18 33.6		504
C/1998 U5	1998 12 06.79183	21 39 45.65	+30 18 32.2	13.0 T	504
C/1998 U5	1998 12 06.79252	21 39 45.52	+30 18 29.3		504
C/1998 U5	1998 12 06.79315	21 39 45.41	+30 18 27.8		504
C/1998 U5	1998 12 06.79350	21 39 45.39	+30 18 25.9		504
C/1998 U5	1998 12 06.79419	21 39 45.24	+30 18 23.7		504
C/1998 U5	1998 12 06.79752	21 39 44.64	+30 18 12.1		504
C/1998 U5	1998 12 06.79848	21 39 44.46	+30 18 08.7		504
C/1998 U5	1998 12 06.79910	21 39 44.39	+30 18 06.9		504
C/1998 U5	1998 12 06.79948	21 39 44.31	+30 18 05.4		504
C/1998 U5	1998 12 07.69678	21 37 20.96	+29 27 26.4		104
C/1998 U5	1998 12 07.70243	21 37 20.120	+29 27 06.9		104
C/1998 U5	1998 12 07.70336	21 37 19.910	+29 27 04.5	8.5 T	104
C/1998 U5	1998 12 07.73265	21 37 15.50	+29 25 30.8		107
C/1998 U5	1998 12 07.73940	21 37 14.39	+29 25 07.0		107
C/1998 U5	1998 12 07.74858	21 37 12.98	+29 24 36.9		107

C/1998 U5	1998 12 07.76710	21 37 10.30	+29 23 35.3	12.9 T	605
C/1998 U5	1998 12 07.77076	21 37 09.42	+29 23 23.2		160
C/1998 U5	1998 12 07.77280	21 37 09.35	+29 23 16.0	12.8 T	605
C/1998 U5	1998 12 07.77683	21 37 08.93	+29 23 07.0	12.2 T	476
C/1998 U5	1998 12 07.78194	21 37 07.95	+29 22 49.8	12.2 T	476
C/1998 U5	1998 12 07.78819	21 37 06.95	+29 22 29.7	12.2 T	476
C/1998 U5	1998 12 07.79566	21 37 05.85	+29 22 05.3	12.2 T	476
C/1998 U5	1998 12 07.79983	21 37 05.30	+29 21 51.3	12.2 T	476
C/1998 U5	1998 12 07.81344	21 37 03.04	+29 21 04.0	13.7 T	958
C/1998 U5	1998 12 07.81618	21 37 02.61	+29 20 55.0	13.7 T	958
C/1998 U5	1998 12 08.76022	21 34 46.36	+28 31 11.8		107
C/1998 U5	1998 12 08.77346	21 34 44.46	+28 30 29.8		107
C/1998 U5	1998 12 08.79059	21 34 42.19	+28 29 39.8		107
C/1998 U5	1998 12 11.04078	21 30 03.54	+26 43 05.3	14.9 T	750
C/1998 U5	1998 12 11.05804	21 30 01.58	+26 42 18.5	15.2 T	750
C/1998 U5	1998 12 11.06936	21 30 00.28	+26 41 48.7	14.0 T	750
C/1998 U5	1998 12 12.42517	21 27 38.45	+25 44 46.4	11.2 T	360
C/1998 U5	1998 12 12.42691	21 27 38.28	+25 44 42.3		360
C/1998 U5	1998 12 12.84875	21 26 57.60	+25 27 53.5	13.7 T	958
C/1998 U5	1998 12 13.77181	21 25 33.55	+24 52 40.3		620
C/1998 U5	1998 12 13.79597	21 25 31.33	+24 51 45.5		620
C/1998 U5	1998 12 13.82298	21 25 28.96	+24 50 45.2		620
C/1998 U5	1998 12 18.38534	21 19 58.05	+22 22 49.5	11.9 T	402
C/1998 U5	1998 12 18.38672	21 19 57.96	+22 22 47.2		402
C/1998 U5	1998 12 18.38811	21 19 57.88	+22 22 44.9		402
C/1998 U5	1998 12 18.46451	21 19 53.22	+22 20 36.0	12.8 T	351
C/1998 U5	1998 12 18.47385	21 19 52.62	+22 20 19.1		351
C/1998 U5	1998 12 18.47679	21 19 52.56	+22 20 14.3		351
C/1998 U5	1998 12 21.88234	21 16 54.35	+20 52 41.7		620
C/1998 U5	1998 12 21.89277	21 16 53.91	+20 52 26.5		620
C/1998 U5	1998 12 21.89600	21 16 53.76	+20 52 21.1		620
C/1998 U5	1998 12 23.37355	21 15 49.88	+20 19 07.8	12.1 T	402
C/1998 U5	1998 12 23.37460	21 15 49.82	+20 19 06.5		402
C/1998 U5	1998 12 23.37564	21 15 49.78	+20 19 05.1		402
C/1998 U5	1998 12 25.45038	21 14 31.00	+19 36 30.8	12.9 T	351
C/1998 U5	1998 12 25.45235	21 14 30.99	+19 36 27.8		351
C/1998 U5	1998 12 27.75422	21 13 16.66	+18 54 11.0	13.1 T	958
C/1998 U5	1998 12 27.76780	21 13 16.19	+18 53 56.1	13.4 T	958
C/1998 U5	1998 12 29.69375	21 12 22.80	+18 22 02.9	12.6 T	118
C/1998 U5	1998 12 29.70030	21 12 22.57	+18 21 56.7		118

P/1998 VS₂₄ (LINEAR)

P/1998 VS ₂₄	1998 10 24.84196	03 03 16.98	+10 45 25.2		120
P/1998 VS ₂₄	1998 10 24.86314	03 03 16.24	+10 45 21.0	18.6 N	120
P/1998 VS ₂₄	1998 10 28.91355	03 00 54.41	+10 30 48.8	17.9 N	120
P/1998 VS ₂₄	1998 10 28.93565	03 00 53.70	+10 30 45.5	18.1 N	120
P/1998 VS ₂₄	1998 11 10.25724	02 53 13.55	+09 48 34.3	18.5 N	704
P/1998 VS ₂₄	1998 11 10.27638	02 53 12.79	+09 48 31.7	18.7 N	704
P/1998 VS ₂₄	1998 11 10.29545	02 53 12.00	+09 48 29.1	18.8 N	704
P/1998 VS ₂₄	1998 11 10.31450	02 53 11.30	+09 48 22.5	18.8 N	704
P/1998 VS ₂₄	1998 11 11.28224	02 52 34.86	+09 45 20.5	18.5 N	704
P/1998 VS ₂₄	1998 11 11.30408	02 52 33.95	+09 45 17.2	18.7 N	704
P/1998 VS ₂₄	1998 11 11.32581	02 52 33.15	+09 45 12.8	18.7 N	704

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P/1998 VS ₂₄	1998 11 26.73186	02 43 34.79	+09 05 16.9		120
P/1998 VS ₂₄	1998 11 26.74710	02 43 34.38	+09 05 15.8	18.6 N	120
P/1998 VS ₂₄	1998 11 26.76285	02 43 33.78	+09 05 12.1		120
P/1998 VS ₂₄	1998 12 18.86841	02 35 54.63	+08 48 01.7	18.3 N	046
P/1998 VS ₂₄	1998 12 18.86978	02 35 54.63	+08 48 01.1		557
P/1998 VS ₂₄	1998 12 18.90339	02 35 54.31	+08 48 01.3		557
P/1998 VS ₂₄	1998 12 18.90598	02 35 54.30	+08 48 01.7		557
P/1998 VS ₂₄	1998 12 18.92041	02 35 54.12	+08 48 02.3		557
P/1998 VS ₂₄	1998 12 18.92273	02 35 54.13	+08 48 02.1		557
P/1998 VS ₂₄	1998 12 19.09594	02 35 52.73	+08 48 08.3	18.5 N	709
P/1998 VS ₂₄	1998 12 19.13508	02 35 52.31	+08 48 09.3	18.7 N	709
P/1998 VS ₂₄	1998 12 19.17147	02 35 51.91	+08 48 10.6	18.2 N	709
P/1998 VS ₂₄	1998 12 19.18387	02 35 51.81	+08 48 10.9	18.2 N	709
P/1998 VS ₂₄	1998 12 19.23638	02 35 51.33	+08 48 11.2		658
P/1998 VS ₂₄	1998 12 19.24513	02 35 51.26	+08 48 12.0		658
P/1998 VS ₂₄	1998 12 19.25479	02 35 51.04	+08 48 12.4		658
P/1998 VS ₂₄	1998 12 21.78809	02 35 32.43	+08 49 46.0		046
P/1998 VS ₂₄	1998 12 21.79016	02 35 32.42	+08 49 45.9		046
P/1998 VS ₂₄	1998 12 23.43452	02 35 23.91	+08 51 07.9	18.4 T	402
P/1998 VS ₂₄	1998 12 23.43612	02 35 23.93	+08 51 09.4		402
P/1998 VS ₂₄	1998 12 23.43771	02 35 24.01	+08 51 08.2		402
P/1998 VS ₂₄	1998 12 23.43931	02 35 24.07	+08 51 03.8		402
P/1998 VS ₂₄	1998 12 24.43580	02 35 20.44	+08 52 08.5	18.9 T	402
P/1998 VS ₂₄	1998 12 24.43831	02 35 20.52	+08 52 08.3		402
P/1998 VS ₂₄	1998 12 24.44082	02 35 20.46	+08 52 09.1		402

P/1998 W1 (Spahr)

P/1998 W1	1998 11 22.65347	04 28 34.79	-09 40 30.3		372
P/1998 W1	1998 11 22.74635	04 28 29.90	-09 39 30.2	15.5 T	372
P/1998 W1	1998 11 23.60139	04 27 47.44	-09 30 02.5	15.5 T	372
P/1998 W1	1998 11 24.54045	04 26 59.73	-09 19 07.0	15.7 T	372
P/1998 W1	1998 11 25.58872	04 26 05.33	-09 06 18.5	15.8 T	372
P/1998 W1	1998 11 25.61424	04 26 03.84	-09 05 59.3		372
P/1998 W1	1998 11 28.64271	04 23 22.92	-08 25 10.5	15.6 T	372
P/1998 W1	1998 11 29.54583	04 22 34.52	-08 11 56.0	16.0 T	367
P/1998 W1	1998 11 29.54861	04 22 34.40	-08 11 53.0		367
P/1998 W1	1998 11 29.55139	04 22 34.25	-08 11 50.8		367
P/1998 W1	1998 12 09.13964	04 13 58.77	-05 21 54.2	14.6 N	761
P/1998 W1	1998 12 09.15938	04 13 57.64	-05 21 30.2	15.4 N	761
P/1998 W1	1998 12 09.86360	04 13 21.33	-05 07 02.1	15.3 T	113
P/1998 W1	1998 12 09.88734	04 13 20.11	-05 06 33.5	15.5 T	113
P/1998 W1	1998 12 10.13958	04 13 07.33	-05 01 16.1	16.2 N	761
P/1998 W1	1998 12 10.18275	04 13 04.93	-05 00 22.1	16.7 N	761
P/1998 W1	1998 12 10.80100	04 12 33.90	-04 47 23.1	15.5 T	113
P/1998 W1	1998 12 10.83021	04 12 32.38	-04 46 46.0	15.3 T	113
P/1998 W1	1998 12 10.98679	04 12 24.03	-04 43 25.7		118
P/1998 W1	1998 12 10.99162	04 12 23.78	-04 43 19.9		118
P/1998 W1	1998 12 10.99321	04 12 23.70	-04 43 18.2	15.6 T	118
P/1998 W1	1998 12 11.57508	04 11 54.88	-04 30 47.5	15.9 T	355
P/1998 W1	1998 12 11.58064	04 11 54.54	-04 30 40.1		355
P/1998 W1	1998 12 11.58542	04 11 54.34	-04 30 33.9		355
P/1998 W1	1998 12 13.13634	04 10 38.81	-03 56 28.3	15.9 N	761
P/1998 W1	1998 12 13.15804	04 10 37.66	-03 55 59.8	15.9 N	761

P/1998 W1	1998 12 13.94145	04 10 00.48	-03 38 21.5		620
P/1998 W1	1998 12 13.94401	04 10 00.28	-03 38 18.1		620
P/1998 W1	1998 12 13.96133	04 09 59.44	-03 37 56.3		046
P/1998 W1	1998 12 13.96259	04 09 59.36	-03 37 54.5		046
P/1998 W1	1998 12 13.96372	04 09 59.26	-03 37 53.1		046
P/1998 W1	1998 12 13.96483	04 09 59.25	-03 37 50.5		046
P/1998 W1	1998 12 13.97369	04 09 58.83	-03 37 38.7		620
P/1998 W1	1998 12 13.97625	04 09 58.67	-03 37 35.2		620
P/1998 W1	1998 12 14.89672	04 09 16.27	-03 16 30.8	16.2 T	504
P/1998 W1	1998 12 14.89774	04 09 16.24	-03 16 29.2	16.3 T	504
P/1998 W1	1998 12 14.89877	04 09 16.16	-03 16 27.6	16.2 T	504
P/1998 W1	1998 12 14.90154	04 09 16.02	-03 16 23.6	16.3 T	504
P/1998 W1	1998 12 14.90255	04 09 15.97	-03 16 23.0	16.3 T	504
P/1998 W1	1998 12 14.90356	04 09 15.88	-03 16 21.7		504
P/1998 W1	1998 12 16.60000	04 08 00.27	-02 36 30.3		355
P/1998 W1	1998 12 16.60176	04 08 00.14	-02 36 27.7	16.1 T	355
P/1998 W1	1998 12 16.60411	04 08 00.02	-02 36 24.2		355
P/1998 W1	1998 12 16.64983	04 07 57.95	-02 35 18.8	15.1 T	360
P/1998 W1	1998 12 16.65243	04 07 57.84	-02 35 15.1		360
P/1998 W1	1998 12 18.46463	04 06 42.83	-01 51 26.6	16.1 T	402
P/1998 W1	1998 12 18.46602	04 06 42.76	-01 51 24.8		402
P/1998 W1	1998 12 18.46741	04 06 42.69	-01 51 22.6		402
P/1998 W1	1998 12 19.06846	04 06 19.08	-01 36 35.0	17.0 T	704
P/1998 W1	1998 12 19.09136	04 06 18.10	-01 36 00.8		704
P/1998 W1	1998 12 19.11424	04 06 17.57	-01 35 28.8	18.1 T	704
P/1998 W1	1998 12 19.13700	04 06 16.19	-01 34 52.5		704
P/1998 W1	1998 12 19.15979	04 06 15.20	-01 34 18.4		704
P/1998 W1	1998 12 19.61406	04 05 57.11	-01 23 00.4	16.5 T	372
P/1998 W1	1998 12 21.57882	04 04 45.67	-00 33 26.9	15.2 T	360
P/1998 W1	1998 12 21.58160	04 04 45.57	-00 33 22.7		360
P/1998 W1	1998 12 21.58403	04 04 45.47	-00 33 19.0		360
P/1998 W1	1998 12 21.59669	04 04 44.96	-00 32 48.5		426
P/1998 W1	1998 12 21.60231	04 04 44.73	-00 32 39.6		426
P/1998 W1	1998 12 21.60853	04 04 44.53	-00 32 30.2	15.2 T	426
P/1998 W1	1998 12 21.82181	04 04 37.73	-00 27 16.5	15.5 T	143
P/1998 W1	1998 12 21.82965	04 04 37.44	-00 27 03.9	15.5 T	143
P/1998 W1	1998 12 22.10312	04 04 28.20	-00 19 59.7	15.1 T	761
P/1998 W1	1998 12 22.11753	04 04 27.63	-00 19 37.3		761
P/1998 W1	1998 12 22.57613	04 04 12.25	-00 07 51.8	17.2 T	400
P/1998 W1	1998 12 22.58040	04 04 11.98	-00 07 45.8		400
P/1998 W1	1998 12 22.58382	04 04 11.88	-00 07 40.7		400
P/1998 W1	1998 12 23.08021	04 03 56.41	+00 05 14.4	15.3 T	761
P/1998 W1	1998 12 23.09242	04 03 55.94	+00 05 34.1		761
P/1998 W1	1998 12 27.50862	04 01 57.29	+02 02 27.9	15.6 T	900
P/1998 W1	1998 12 27.52133	04 01 56.98	+02 02 48.6		900
P/1998 W1	1998 12 28.61605	04 01 34.04	+02 32 22.4	16.5 T	402
P/1998 W1	1998 12 28.61744	04 01 34.00	+02 32 25.2		402
P/1998 W1	1998 12 28.61883	04 01 33.98	+02 32 27.2		402
P/1998 W1	1998 12 28.79339	04 01 31.10	+02 37 09.1		046
P/1998 W1	1998 12 28.79596	04 01 31.04	+02 37 13.1		046
P/1998 W1	1998 12 28.79716	04 01 31.02	+02 37 15.4		046

P/1998 W2 (Hergenrother)					
P/1998 W2	1998 12 13.05987	22 08 32.70	−03 40 06.6		693
P/1998 W2	1998 12 13.06201	22 08 33.00	−03 40 03.1		693
P/1998 W2	1998 12 16.38694	22 16 53.72	−02 01 14.7	18.6 T	402
P/1998 W2	1998 12 16.38853	22 16 53.84	−02 01 13.4		402
P/1998 W2	1998 12 16.39013	22 16 54.00	−02 01 09.8		402
P/1998 W2	1998 12 16.39171	22 16 54.21	−02 01 08.2		402
P/1998 W2	1998 12 17.38723	22 19 24.93	−01 31 38.4	18.8 T	402
P/1998 W2	1998 12 17.38932	22 19 25.24	−01 31 35.4		402
P/1998 W2	1998 12 17.39140	22 19 25.50	−01 31 33.3		402
P/1998 W2	1998 12 19.06688	22 23 39.66	−00 42 02.3	18.2 T	691
P/1998 W2	1998 12 19.07066	22 23 40.20	−00 41 56.1	21.6 N	691
P/1998 W2	1998 12 23.38537	22 34 39.64	+01 24 41.2	18.0 T	402
P/1998 W2	1998 12 23.38696	22 34 39.79	+01 24 42.7		402
P/1998 W2	1998 12 23.38855	22 34 40.11	+01 24 47.2		402
P/1998 W2	1998 12 23.39014	22 34 40.38	+01 24 49.2		402
P/1998 W2	1998 12 23.72125	22 35 31.15	+01 34 28.6		118
P/1998 W2	1998 12 23.72265	22 35 31.35	+01 34 30.4		118
P/1998 W2	1998 12 23.72726	22 35 32.11	+01 34 39.7	18.1 T	118

C/1998 W3 (LINEAR)					
C/1998 W3	1998 12 12.81623	08 30 46.04	+33 30 45.6	16.2 T	402
C/1998 W3	1998 12 12.81852	08 30 45.90	+33 30 47.0		402
C/1998 W3	1998 12 12.82080	08 30 45.73	+33 30 48.8		402
C/1998 W3	1998 12 13.62495	08 29 52.60	+33 41 24.7	16.8 T	355
C/1998 W3	1998 12 13.62788	08 29 52.43	+33 41 26.8		355
C/1998 W3	1998 12 13.63434	08 29 52.02	+33 41 31.2		355
C/1998 W3	1998 12 16.08531	08 27 03.70	+34 13 53.9		046
C/1998 W3	1998 12 16.08723	08 27 03.55	+34 13 55.3		046
C/1998 W3	1998 12 16.08910	08 27 03.40	+34 13 56.6	17.0 T	046
C/1998 W3	1998 12 16.70382	08 26 19.85	+34 22 04.8	16.9 T	360
C/1998 W3	1998 12 16.70799	08 26 19.56	+34 22 08.0		360
C/1998 W3	1998 12 16.71215	08 26 19.25	+34 22 11.3		360
C/1998 W3	1998 12 17.89196	08 24 54.00	+34 37 47.0	16.7 T	113
C/1998 W3	1998 12 17.91556	08 24 52.33	+34 38 07.2	16.5 T	113
C/1998 W3	1998 12 17.93547	08 24 50.79	+34 38 21.6	16.8 T	113
C/1998 W3	1998 12 18.69427	08 23 54.92	+34 48 24.0	16.5 T	402
C/1998 W3	1998 12 18.69705	08 23 54.70	+34 48 26.0		402
C/1998 W3	1998 12 18.69983	08 23 54.48	+34 48 28.1		402
C/1998 W3	1998 12 19.63445	08 22 44.48	+35 00 49.8	16.7 T	355
C/1998 W3	1998 12 19.64527	08 22 43.59	+35 00 57.0		355
C/1998 W3	1998 12 19.64877	08 22 43.36	+35 00 59.6		355
C/1998 W3	1998 12 21.70955	08 20 04.52	+35 28 09.7	16.8 T	360
C/1998 W3	1998 12 21.71458	08 20 04.12	+35 28 13.9		360
C/1998 W3	1998 12 21.71806	08 20 03.84	+35 28 16.6		360
C/1998 W3	1998 12 24.60558	08 16 11.55	+36 06 05.2	16.7 T	355
C/1998 W3	1998 12 24.60870	08 16 11.22	+36 06 07.1		355
C/1998 W3	1998 12 24.61285	08 16 10.87	+36 06 11.3		355
C/1998 W3	1998 12 27.70598	08 11 49.75	+36 46 10.0	16.5 T	402
C/1998 W3	1998 12 27.70737	08 11 49.61	+36 46 11.6		402
C/1998 W3	1998 12 27.70876	08 11 49.46	+36 46 12.6		402

C/1998 X1 (ODAS)					
C/1998 X1	1998 12 15.17384	09 59 03.68	+13 54 35.1	18.3 T	910
C/1998 X1	1998 12 15.19689	09 59 04.07	+13 54 32.5	18.2 T	910
C/1998 X1	1998 12 15.21959	09 59 04.53	+13 54 30.4	18.3 T	910
C/1998 X1	1998 12 16.04458	09 59 20.39	+13 53 16.7		046
C/1998 X1	1998 12 16.06262	09 59 20.68	+13 53 14.3		046
C/1998 X1	1998 12 16.07227	09 59 20.93	+13 53 13.1		046
C/1998 X1	1998 12 16.08374	09 59 21.05	+13 53 12.6	2	557
C/1998 X1	1998 12 16.09164	09 59 21.29	+13 53 12.6	17.5 T	910
C/1998 X1	1998 12 16.09263	09 59 21.20	+13 53 11.2	18.1 T	046
C/1998 X1	1998 12 16.09462	09 59 21.20	+13 53 10.8		046
C/1998 X1	1998 12 16.11538	09 59 21.67	+13 53 10.7	18.1 T	910
C/1998 X1	1998 12 16.13874	09 59 22.04	+13 53 08.5	18.9 T	910
C/1998 X1	1998 12 16.15090	09 59 22.23	+13 53 07.3	19.6 T	910
C/1998 X1	1998 12 16.16045	09 59 22.37	+13 53 05.9	19.1 T	910
C/1998 X1	1998 12 16.16689	09 59 22.58	+13 53 06.8	19.3 T	586
C/1998 X1	1998 12 16.17003	09 59 22.55	+13 53 05.6	19.2 T	910
C/1998 X1	1998 12 16.17472	09 59 22.70	+13 53 06.4	19.4 T	586
C/1998 X1	1998 12 16.18230	09 59 22.83	+13 53 05.5	19.4 T	586
C/1998 X1	1998 12 16.18978	09 59 22.96	+13 53 05.1	19.5 T	586
C/1998 X1	1998 12 16.19675	09 59 23.06	+13 53 04.3	19.3 T	586
C/1998 X1	1998 12 16.20372	09 59 23.16	+13 53 03.7	19.2 T	586
C/1998 X1	1998 12 16.21069	09 59 23.27	+13 53 03.3	19.1 T	586
C/1998 X1	1998 12 16.21766	09 59 23.39	+13 53 02.7	19.0 T	586
C/1998 X1	1998 12 16.22463	09 59 23.53	+13 53 02.1	19.4 T	586
C/1998 X1	1998 12 16.23160	09 59 23.64	+13 53 01.4	19.2 T	586
C/1998 X1	1998 12 16.23857	09 59 23.74	+13 53 00.9	19.3 T	586
C/1998 X1	1998 12 16.24554	09 59 23.86	+13 53 00.4	19.2 T	586
C/1998 X1	1998 12 16.26022	09 59 24.10	+13 52 59.1	19.1 T	586
C/1998 X1	1998 12 16.98021	09 59 36.79	+13 51 58.9	18.9 T	611
C/1998 X1	1998 12 17.01669	09 59 37.17	+13 51 56.2	3	611
C/1998 X1	1998 12 17.18102	09 59 39.81	+13 51 45.5	18.5 T	586
C/1998 X1	1998 12 17.18808	09 59 39.96	+13 51 45.0	18.8 T	586
C/1998 X1	1998 12 17.18946	09 59 39.85	+13 51 43.8		046
C/1998 X1	1998 12 17.19611	09 59 40.06	+13 51 44.1	18.6 T	586
C/1998 X1	1998 12 17.19782	09 59 39.98	+13 51 43.8		046
C/1998 X1	1998 12 17.20122	09 59 40.11	+13 51 43.2	18.5 T	046
C/1998 X1	1998 12 17.20332	09 59 40.17	+13 51 43.8	18.6 T	586
C/1998 X1	1998 12 17.20722	09 59 40.19	+13 51 42.8		046
C/1998 X1	1998 12 17.20978	09 59 40.26	+13 51 42.5		046
C/1998 X1	1998 12 17.21033	09 59 40.24	+13 51 43.2	18.6 T	586
C/1998 X1	1998 12 17.21738	09 59 40.36	+13 51 42.8	18.4 T	586
C/1998 X1	1998 12 17.22509	09 59 40.45	+13 51 42.3	18.4 T	586
C/1998 X1	1998 12 17.23240	09 59 40.57	+13 51 41.6	18.5 T	586
C/1998 X1	1998 12 17.23940	09 59 40.66	+13 51 41.2	18.5 T	586
C/1998 X1	1998 12 17.24711	09 59 40.76	+13 51 40.4	18.6 T	586
C/1998 X1	1998 12 17.25506	09 59 40.91	+13 51 40.0	18.7 T	586
C/1998 X1	1998 12 17.26252	09 59 41.03	+13 51 39.2	19.4 T	586
C/1998 X1	1998 12 18.05597	09 59 53.44	+13 50 43.3	17.9 N	511
C/1998 X1	1998 12 18.06335	09 59 53.53	+13 50 42.8		511
C/1998 X1	1998 12 18.07235	09 59 53.64	+13 50 42.0		511
C/1998 X1	1998 12 18.07857	09 59 53.72	+13 50 41.7		511
C/1998 X1	1998 12 18.08425	09 59 53.79	+13 50 41.4		511

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C/1998 X1	1998 12 18.09075	09 59 53.89	+13 50 41.0		511
C/1998 X1	1998 12 18.09700	09 59 53.96	+13 50 40.6		511
C/1998 X1	1998 12 18.10267	09 59 54.03	+13 50 40.4		511
C/1998 X1	1998 12 18.22370	09 59 55.57	+13 50 31.1		511
C/1998 X1	1998 12 18.80136	10 00 03.50	+13 49 56.9	19.1 T	402
C/1998 X1	1998 12 18.80416	10 00 03.55	+13 49 56.5		402
C/1998 X1	1998 12 18.80692	10 00 03.64	+13 49 56.2		402
C/1998 X1	1998 12 18.80970	10 00 03.62	+13 49 56.5		402
C/1998 X1	1998 12 19.75434	10 00 15.37	+13 49 06.0	19.2 T	372
C/1998 X1	1998 12 19.77257	10 00 15.52	+13 49 04.7		372
C/1998 X1	1998 12 21.70694	10 00 34.05	+13 47 43.6	19.5 T	372
C/1998 X1	1998 12 21.74028	10 00 34.13	+13 47 42.9	18.7 T	360
C/1998 X1	1998 12 21.74514	10 00 34.14	+13 47 42.2		360
C/1998 X1	1998 12 21.74896	10 00 34.12	+13 47 42.3		360
C/1998 X1	1998 12 24.79427	10 00 48.23	+13 46 50.9	18.5 T	360
C/1998 X1	1998 12 24.79948	10 00 48.21	+13 46 51.3		360
C/1998 X1	1998 12 24.80365	10 00 48.27	+13 46 50.8		360
C/1998 X1	1998 12 27.14102	10 00 47.28	+13 47 15.2	18.1 T	958
C/1998 X1	1998 12 27.15360	10 00 47.10	+13 47 12.0	18.5 T	958
C/1998 X1	1998 12 27.73726	10 00 45.45	+13 47 25.6	18.1 T	402
C/1998 X1	1998 12 27.74023	10 00 45.42	+13 47 25.3		402
C/1998 X1	1998 12 27.74619	10 00 45.42	+13 47 26.0		402

C/1998 Y1 (LINEAR)

C/1998 Y1	1998 12 22.30945	07 03 18.04	+20 18 49.8	18.5 N	704
C/1998 Y1	1998 12 22.33232	07 03 17.45	+20 19 34.8	17.8 N	704
C/1998 Y1	1998 12 22.35514	07 03 16.99	+20 20 23.8	18.0 N	704
C/1998 Y1	1998 12 22.37792	07 03 16.45	+20 21 13.1	18.6 N	704
C/1998 Y1	1998 12 23.92050	07 02 47.44	+21 15 44.7	18.2 N	113
C/1998 Y1	1998 12 23.92879	07 02 47.06	+21 16 02.1	16.7 N	113
C/1998 Y1	1998 12 23.93406	07 02 46.90	+21 16 13.6	16.5 T	557
C/1998 Y1	1998 12 23.93640	07 02 46.89	+21 16 18.2	17.8 N	557
C/1998 Y1	1998 12 23.99209	07 02 45.60	+21 18 17.1	17.0 T	046
C/1998 Y1	1998 12 23.99352	07 02 45.57	+21 18 20.0		046
C/1998 Y1	1998 12 23.99603	07 02 45.51	+21 18 25.3		046
C/1998 Y1	1998 12 23.99731	07 02 45.51	+21 18 28.5		046
C/1998 Y1	1998 12 24.00179	07 02 45.35	+21 18 37.4		046
C/1998 Y1	1998 12 24.22660	07 02 41.22	+21 26 36.7	16.0 T	709
C/1998 Y1	1998 12 24.22952	07 02 41.14	+21 26 42.9	16.1 T	709
C/1998 Y1	1998 12 24.23226	07 02 41.06	+21 26 48.9	16.2 T	709
C/1998 Y1	1998 12 24.23512	07 02 41.00	+21 26 54.9	16.2 T	709
C/1998 Y1	1998 12 24.23815	07 02 40.94	+21 27 00.7	16.4 T	709
C/1998 Y1	1998 12 24.33438	07 02 38.66	+21 30 25.7		670
C/1998 Y1	1998 12 24.34132	07 02 38.57	+21 30 41.7		670
C/1998 Y1	1998 12 24.34913	07 02 38.37	+21 30 56.4		670
C/1998 Y1	1998 12 24.35747	07 02 38.03	+21 31 14.8		670
C/1998 Y1	1998 12 24.36719	07 02 38.08	+21 31 35.4	17.4 N	3 670
C/1998 Y1	1998 12 25.61380	07 02 11.59	+22 15 38.1		355
C/1998 Y1	1998 12 25.61553	07 02 11.56	+22 15 41.7		355
C/1998 Y1	1998 12 25.62009	07 02 11.46	+22 15 52.2	16.0 T	355
C/1998 Y1	1998 12 25.63956	07 02 10.93	+22 16 32.5		897
C/1998 Y1	1998 12 25.64436	07 02 10.87	+22 16 43.4		897
C/1998 Y1	1998 12 25.64740	07 02 10.77	+22 16 49.6	16.3 T	402

C/1998 Y1	1998 12 25.64878	07 02 10.73	+22 16 52.9		402
C/1998 Y1	1998 12 25.65017	07 02 10.74	+22 16 55.4		402
C/1998 Y1	1998 12 25.65744	07 02 10.42	+22 17 11.5	16.4 T	897
C/1998 Y1	1998 12 25.90098	07 02 05.31	+22 25 43.9		108
C/1998 Y1	1998 12 25.91160	07 02 05.29	+22 26 07.9		108
C/1998 Y1	1998 12 25.94356	07 02 04.42	+22 27 14.0	17.0 T	046
C/1998 Y1	1998 12 25.94566	07 02 04.35	+22 27 18.6		046
C/1998 Y1	1998 12 25.94681	07 02 04.25	+22 27 20.9		046
C/1998 Y1	1998 12 25.94791	07 02 04.33	+22 27 23.4		046
C/1998 Y1	1998 12 25.94906	07 02 04.26	+22 27 25.7		046
C/1998 Y1	1998 12 26.64167	07 01 48.62	+22 51 52.1		360
C/1998 Y1	1998 12 26.65313	07 01 48.33	+22 52 16.5	16.6 T	360
C/1998 Y1	1998 12 26.65694	07 01 48.22	+22 52 24.6		360
C/1998 Y1	1998 12 27.67990	07 01 24.37	+23 28 19.8	16.9 T	402
C/1998 Y1	1998 12 27.68128	07 01 24.31	+23 28 22.3		402
C/1998 Y1	1998 12 27.68267	07 01 24.27	+23 28 25.4		402
C/1998 Y1	1998 12 27.71131	07 01 23.49	+23 29 25.6	15.8 T	900
C/1998 Y1	1998 12 27.72436	07 01 23.06	+23 29 53.6		900
C/1998 Y1	1998 12 28.69860	07 00 59.83	+24 03 55.7	16.2 T	402
C/1998 Y1	1998 12 28.69999	07 00 59.82	+24 03 58.3		402
C/1998 Y1	1998 12 28.70138	07 00 59.82	+24 04 01.1		402
C/1998 Y1	1998 12 28.74288	07 00 58.66	+24 05 28.5		360
C/1998 Y1	1998 12 28.74670	07 00 58.54	+24 05 36.1	16.5 T	360
C/1998 Y1	1998 12 28.75069	07 00 58.44	+24 05 44.4		360
C/1998 Y1	1998 12 28.97410	07 00 53.37	+24 13 28.9		046
C/1998 Y1	1998 12 28.97819	07 00 53.28	+24 13 37.9		046
C/1998 Y1	1998 12 28.97934	07 00 53.23	+24 13 40.1		046
C/1998 Y1	1998 12 29.61113	07 00 37.69	+24 35 39.9		355
C/1998 Y1	1998 12 29.62152	07 00 37.43	+24 36 00.1		355
C/1998 Y1	1998 12 29.62437	07 00 37.31	+24 36 06.8		355
C/1998 Y1	1998 12 29.79965	07 00 32.37	+24 42 10.6	18.7 T	372
C/1998 Y1	1998 12 29.81111	07 00 32.09	+24 42 34.2		372
C/1998 Y1	1998 12 30.51689	07 00 15.33	+25 06 55.1	16.6 T	897
C/1998 Y1	1998 12 30.52357	07 00 15.04	+25 07 09.4		897
C/1998 Y1	1998 12 30.53824	07 00 14.72	+25 07 38.6		897

P/1998 Y2 (Li)

P/1998 Y2	1998 09 23.35729	03 21 38.23	-14 40 10.4		4 703
P/1998 Y2	1998 09 23.41692	03 21 38.46	-14 40 26.1		4 703
P/1998 Y2	1998 10 28.33932	03 09 56.57	-15 36 59.3		4 703
P/1998 Y2	1998 10 28.34941	03 09 56.18	-15 36 58.3		4 703
P/1998 Y2	1998 10 29.32343	03 09 15.91	-15 34 45.4		4 703
P/1998 Y2	1998 10 29.33176	03 09 15.57	-15 34 43.5		4 703
P/1998 Y2	1998 12 26.23575	02 40 26.37	-05 25 56.4	16.2 T	662
P/1998 Y2	1998 12 26.26623	02 40 26.47	-05 25 27.3	16.1 T	662
P/1998 Y2	1998 12 27.31124	02 40 32.08	-05 08 39.7	15.3 T	662
P/1998 Y2	1998 12 27.31584	02 40 32.12	-05 08 34.1	15.3 T	662
P/1998 Y2	1998 12 27.32030	02 40 32.08	-05 08 29.5	15.5 T	662
P/1998 Y2	1998 12 28.00613	02 40 37.04	-04 57 25.8	15.0 T	761
P/1998 Y2	1998 12 28.00845	02 40 36.60	-04 57 23.8		958
P/1998 Y2	1998 12 28.01296	02 40 36.86	-04 57 17.9		958
P/1998 Y2	1998 12 28.02951	02 40 37.28	-04 57 02.8		761
P/1998 Y2	1998 12 28.04815	02 40 37.20	-04 56 43.1		761

P/1998 Y2	1998 12 28.13387	02 40 37.85	-04 55 23.0	15.5 T	734	21P	1998 11 28.76580	21 10 14.12	-17 24 31.6	160
P/1998 Y2	1998 12 28.14006	02 40 37.87	-04 55 17.3		734	21P	1998 12 06.75215	21 54 08.24	-20 24 43.5	504
P/1998 Y2	1998 12 28.16014	02 40 37.99	-04 54 57.8		734	21P	1998 12 06.75275	21 54 08.50	-20 24 44.8	504
P/1998 Y2	1998 12 28.59207	02 40 41.13	-04 47 56.2		900	21P	1998 12 06.75354	21 54 08.73	-20 24 45.5	504
P/1998 Y2	1998 12 28.59581	02 40 41.17	-04 47 56.0	17.1 T	900	21P	1998 12 06.75440	21 54 09.05	-20 24 46.4	504
P/1998 Y2	1998 12 28.60942	02 40 41.39	-04 47 41.5	16.0 T	402	21P	1998 12 06.75505	21 54 09.27	-20 24 47.4	504
P/1998 Y2	1998 12 28.61081	02 40 41.39	-04 47 40.9		402	21P	1998 12 06.75539	21 54 09.36	-20 24 47.7	504
P/1998 Y2	1998 12 28.61220	02 40 41.41	-04 47 39.1		402	21P	1998 12 06.75576	21 54 09.50	-20 24 47.8	504
P/1998 Y2	1998 12 28.61359	02 40 41.45	-04 47 37.6		402	21P	1998 12 06.75793	21 54 10.21	-20 24 50.2	504
P/1998 Y2	1998 12 28.69056	02 40 42.38	-04 46 22.7		046	21P	1998 12 06.75856	21 54 10.41	-20 24 50.8	504
P/1998 Y2	1998 12 28.69215	02 40 42.40	-04 46 21.9		046	21P	1998 12 06.75890	21 54 10.48	-20 24 51.6	504
P/1998 Y2	1998 12 28.69293	02 40 42.35	-04 46 20.9		046	21P	1998 12 06.75958	21 54 10.74	-20 24 52.5	504
P/1998 Y2	1998 12 28.69608	02 40 42.45	-04 46 18.8		046	21P	1998 12 06.76023	21 54 10.94	-20 24 53.6	504
P/1998 Y2	1998 12 29.49153	02 40 49.34	-04 33 22.2		355	21P	1998 12 06.76125	21 54 11.31	-20 24 54.6	504
P/1998 Y2	1998 12 29.49545	02 40 49.46	-04 33 19.1	15.5 T	327	21P	1998 12 07.74105	21 59 38.18	-20 43 34.9	160
P/1998 Y2	1998 12 29.49722	02 40 49.38	-04 33 18.5		355	21P	1998 12 09.66687	22 10 21.35	-21 17 54.6	118
P/1998 Y2	1998 12 29.51586	02 40 49.59	-04 32 59.9		327	21P	1998 12 09.66997	22 10 22.40	-21 17 58.0	118
P/1998 Y2	1998 12 29.54622	02 40 49.86	-04 32 26.5		327	21P	1998 12 09.67112	22 10 22.78	-21 17 58.8	118
P/1998 Y2	1998 12 29.81759	02 40 52.54	-04 28 06.9		611	21P	1998 12 11.38368	22 19 54.21	-21 45 46.8	372
P/1998 Y2	1998 12 29.83900	02 40 52.86	-04 27 44.0		611	21P	1998 12 12.41302	22 25 37.27	-22 01 12.7	10.6 T 360
P/1998 Y2	1998 12 29.86157	02 40 52.95	-04 27 23.9		611	21P	1998 12 12.41458	22 25 37.78	-22 01 13.9	360
P/1998 Y2	1998 12 30.44696	02 40 59.17	-04 17 51.5		897	21P	1998 12 12.45854	22 25 52.28	-22 01 51.5	12.0 T 351
P/1998 Y2	1998 12 30.45303	02 40 59.23	-04 17 46.2		897	21P	1998 12 12.46051	22 25 52.87	-22 01 52.6	351
P/1998 Y2	1998 12 30.46017	02 40 59.24	-04 17 38.9		897	21P	1998 12 12.46242	22 25 53.60	-22 01 55.8	351
P/1998 Y2	1998 12 31.75991	02 41 14.91	-03 56 26.3	16.2 T	540	21P	1998 12 17.39804	22 53 07.24	-23 02 22.5	12.0 T 402
P/1998 Y2	1998 12 31.76641	02 41 14.93	-03 56 19.9		540	21P	1998 12 17.39943	22 53 07.68	-23 02 23.3	402
P/1998 Y2	1998 12 31.77147	02 41 15.13	-03 56 15.7		540	21P	1998 12 17.40082	22 53 08.14	-23 02 24.2	402
P/1998 Y2	1998 12 31.84720	02 41 15.91	-03 55 00.7		046	21P	1998 12 22.40816	23 20 10.98	-23 41 11.6	13.9 T 372
P/1998 Y2	1998 12 31.84852	02 41 15.88	-03 54 59.6		046	21P	1998 12 23.74800	23 27 17.08	-23 47 51.4	118
P/1998 Y2	1998 12 31.84966	02 41 15.89	-03 54 57.6		046	21P	1998 12 23.75211	23 27 18.37	-23 47 52.6	118
P/1998 Y2	1998 12 31.85302	02 41 15.92	-03 54 54.8		046	21P	1998 12 25.43292	23 36 07.12	-23 54 03.5	13.0 T 351
P/1998 Y2	1999 01 04.42240	02 42 11.93	-02 56 20.5	15.5 T	372	21P	1998 12 25.43678	23 36 08.25	-23 54 03.9	351
P/1998 Y2	1999 01 04.43160	02 42 12.02	-02 56 13.0	15.5 T	372	21P	1998 12 27.41676	23 46 22.46	-23 58 24.3	12.2 T 351
4P/Faye						21P	1998 12 27.41899	23 46 23.13	-23 58 26.1	351
4P	1998 12 07.72884	20 50 33.57	-11 58 18.4		160	21P	1998 12 27.42182	23 46 24.08	-23 58 25.5	351
4P	1998 12 12.39948	20 58 54.27	-11 38 54.9	14.9 T	360	21P	1999 01 04.67881	00 27 10.09	-23 45 20.2	118
4P	1998 12 12.40174	20 58 54.52	-11 38 54.1		360		1999 01 04.68308	00 27 11.33	-23 45 19.0	118
4P	1998 12 25.41483	21 23 32.86	-10 29 59.0		351	29P/Schwassmann-Wachmann 1				
4P	1998 12 25.42127	21 23 33.49	-10 29 54.7		351	29P	1998 02 04.85538	13 41 00.56	-20 24 58.1	13.3 T 897
9P/Tempel 1						29P	1998 02 04.86181	13 41 00.54	-20 24 59.3	897
9P	1998 12 27.04075	09 09 24.33	+28 06 35.7	20.0 T	071	29P	1998 03 01.77692	13 38 45.17	-20 57 13.1	897
9P	1998 12 27.05459	09 09 23.90	+28 06 40.8	20.1 T	071	29P	1998 03 01.77970	13 38 45.13	-20 57 11.8	897
9P	1998 12 27.10191	09 09 22.53	+28 06 58.2	20.9 T	071	43P/Wolf-Harrington				
9P	1998 12 27.11578	09 09 22.19	+28 07 02.4	20.2 T	071	43P	1998 02 08.61382	09 52 16.51	-22 01 01.8	13.4 T 897
9P	1998 12 27.12602	09 09 21.83	+28 07 06.6	20.1 T	071	43P	1998 02 08.62131	09 52 16.04	-22 01 01.5	897
9P	1998 12 27.13731	09 09 21.50	+28 07 10.7	19.8 T	071	43P	1998 02 08.63116	09 52 15.46	-22 01 01.9	897
21P/Giacobini-Zinner						43P	1998 03 02.59419	09 33 07.99	-20 08 52.1	897
21P	1998 11 10.37660	19 37 59.60	-08 29 21.4	12.1 T	372	43P	1998 03 02.60426	09 33 07.57	-20 08 46.9	14.4 T 897
21P	1998 11 10.37882	19 38 00.20	-08 29 25.8	12.1 T	372	43P	1998 03 16.60518	09 26 40.90	-17 48 30.3	14.9 T 897
21P	1998 11 23.39604	20 41 41.48	-15 00 18.2	11.4 T	372	43P	1998 03 16.61116	09 26 40.74	-17 48 28.0	897
21P	1998 11 24.37674	20 46 49.38	-15 27 44.3	13.1 T	372	43P	1998 03 16.61856	09 26 40.65	-17 48 21.1	897

48P/Johnson						
48P	1998 12 21.59792	03 59 17.50	+06 05 20.6	18.1 T	360	
48P	1998 12 21.60226	03 59 17.34	+06 05 21.2		360	
48P	1998 12 21.60608	03 59 17.18	+06 05 21.7		360	

49P/Arend-Rigaux						
49P	1998 12 16.85608	13 46 08.71	+03 42 51.6	18.9 N	360	
49P	1998 12 16.85885	13 46 09.01	+03 42 51.5		360	
49P	1998 12 16.86250	13 46 09.35	+03 42 51.2		360	
49P	1998 12 24.84340	13 58 27.79	+03 31 38.5	18.7 T	360	
49P	1998 12 24.84774	13 58 28.17	+03 31 38.7		360	
49P	1998 12 24.85191	13 58 28.54	+03 31 38.2		360	

52P/Harrington-Abell						
52P	1998 11 11.00020	07 05 10.16	+39 14 49.5	12.9 T	605	
52P	1998 11 11.01324	07 05 10.86	+39 14 53.1	12.9 T	605	
52P	1998 11 11.02287	07 05 11.65	+39 14 57.1	12.9 T	605	
52P	1998 12 05.75064	07 24 50.46	+40 47 38.7	11.5 T	900	
52P	1998 12 05.75989	07 24 50.65	+40 47 40.7		900	
52P	1998 12 09.54398	07 25 41.60	+40 57 09.6	12.5 T	351	
52P	1998 12 09.54618	07 25 41.65	+40 57 09.5		351	
52P	1998 12 09.54801	07 25 41.55	+40 57 10.6		351	
52P	1998 12 10.68219	07 25 49.03	+40 59 38.5		900	
52P	1998 12 10.68949	07 25 49.04	+40 59 39.7		900	
52P	1998 12 14.88668	07 25 49.45	+41 06 34.7	11.4 T	504	
52P	1998 12 14.88988	07 25 49.45	+41 06 35.1	11.4 T	504	
52P	1998 12 16.67917	07 25 35.73	+41 08 32.4	11.7 T	360	
52P	1998 12 16.68160	07 25 35.70	+41 08 32.6		360	
52P	1998 12 17.42150	07 25 27.26	+41 09 04.7	12.0 T	704	
52P	1998 12 17.44423	07 25 26.88	+41 09 05.2		704	
52P	1998 12 17.46692	07 25 26.56	+41 09 05.8		704	
52P	1998 12 17.48967	07 25 26.19	+41 09 06.2		704	
52P	1998 12 17.51290	07 25 25.83	+41 09 06.6		704	
52P	1998 12 17.54804	07 25 26.85	+41 09 09.3	10.9 T	355	
52P	1998 12 17.55419	07 25 26.74	+41 09 09.9		355	
52P	1998 12 17.55603	07 25 26.72	+41 09 10.0		355	
52P	1998 12 19.88347	07 24 53.18	+41 09 56.9		504	
52P	1998 12 22.55291	07 24 00.22	+41 09 12.1	12.0 T	351	
52P	1998 12 22.55513	07 24 00.17	+41 09 11.6		351	
52P	1998 12 22.55744	07 24 00.00	+41 09 11.9		351	
52P	1998 12 23.17407	07 23 45.81	+41 08 45.5		761	
52P	1998 12 23.18970	07 23 45.23	+41 08 42.4	12.7 N	761	
52P	1998 12 25.72338	07 22 39.40	+41 05 27.1	11.7 T	540	
52P	1998 12 25.72469	07 22 39.37	+41 05 27.2		540	
52P	1998 12 25.72569	07 22 39.25	+41 05 26.9		540	
52P	1998 12 25.74787	07 22 38.71	+41 05 26.4		540	
52P	1998 12 25.75060	07 22 38.64	+41 05 25.9		540	
52P	1998 12 25.75294	07 22 38.60	+41 05 25.6		540	
52P	1998 12 27.85932	07 21 35.24	+41 01 16.7	11.0 T	504	
52P	1998 12 27.86297	07 21 35.10	+41 01 16.5	11.0 T	504	
52P	1998 12 28.72817	07 21 06.50	+40 59 13.0	11.6 T	360	
52P	1998 12 28.73333	07 21 06.30	+40 59 12.1		360	

55P/Tempel-Tuttle						
55P	1998 01 31.46502	01 21 52.60	+31 07 55.4		897	
55P	1998 01 31.47561	01 21 51.88	+31 06 43.8		897	
55P	1998 02 04.41862	01 18 50.90	+24 56 07.5		897	
55P	1998 02 04.44690	01 18 49.91	+24 53 54.2		897	
55P	1998 02 17.43882	01 14 50.22	+13 58 02.2		897	
55P	1998 02 17.45146	01 14 50.07	+13 57 37.4		897	
55P	1998 03 02.39917	01 13 11.13	+08 38 02.9		897	
55P	1998 03 02.41356	01 13 11.02	+08 37 45.8		897	

60P/Tsuchinshan 2						
60P	1998 12 16.71875	06 42 26.28	+26 54 47.6	18.2 T	360	
60P	1998 12 16.72396	06 42 26.11	+26 54 46.3		360	
60P	1998 12 21.62604	06 39 19.16	+26 32 02.6	17.9 T	360	
60P	1998 12 21.63264	06 39 18.88	+26 32 00.4		360	
60P	1998 12 22.88520	06 38 26.59	+26 25 43.1	16.6 T	504	
60P	1998 12 22.88691	06 38 26.55	+26 25 42.7	16.7 T	504	
60P	1998 12 22.89120	06 38 26.34	+26 25 41.8	16.2 T	504	
60P	1998 12 22.89416	06 38 26.26	+26 25 41.2	16.4 T	504	
60P	1998 12 27.83118	06 34 47.13	+25 59 25.9	16.8 T	504	
60P	1998 12 27.83568	06 34 46.97	+25 59 24.6	16.5 T	504	
60P	1998 12 27.83775	06 34 46.88	+25 59 23.8	16.7 T	504	

62P/Tsuchinshan 1						
62P	1998 03 02.43500	03 21 12.26	+16 54 40.9		897	
62P	1998 03 02.44527	03 21 13.54	+16 54 52.2	15.2 T	897	
62P	1998 03 02.45221	03 21 14.56	+16 54 56.2		897	
62P	1998 03 18.43584	04 01 32.89	+20 56 52.7	15.9 T	897	
62P	1998 03 18.44163	04 01 33.73	+20 56 58.1		897	
62P	1998 03 22.42002	04 12 34.18	+21 52 08.6	15.0 T	897	
62P	1998 03 22.42956	04 12 35.90	+21 52 17.6		897	

65P/Gunn						
65P	1998 12 17.53889	03 01 24.32	+14 00 17.5	18.0 T	360	
65P	1998 12 17.54340	03 01 24.20	+14 00 17.3		360	
65P	1998 12 18.43807	03 01 00.63	+14 00 09.6	18.6 T	402	
65P	1998 12 18.44035	03 01 00.64	+14 00 10.0		402	
65P	1998 12 18.44264	03 01 00.54	+14 00 09.8		402	

68P/Klemola						
68P	1998 12 17.55035	03 01 31.98	+02 48 46.9	19.1 T	360	
68P	1998 12 17.55799	03 01 31.88	+02 48 47.6	19.8 N	360	

69P/Taylor						
69P	1998 02 04.53865	08 11 22.11	+32 44 42.1	12.8 T	897	
69P	1998 02 04.54907	08 11 21.76	+32 44 51.5		897	
69P	1998 02 04.55538	08 11 21.54	+32 44 57.3		897	
69P	1998 02 17.62700	08 06 49.13	+35 23 50.9	11.9 T	897	
69P	1998 02 17.64024	08 06 48.95	+35 23 58.4		897	
69P	1998 02 02.61060	08 07 44.20	+36 54 57.9	12.6 T	897	
69P	1998 03 02.62119	08 07 44.37	+36 55 00.5		897	
69P	1998 03 15.62153	08 14 36.13	+37 29 49.8	12.9 T	897	
69P	1998 03 15.62832	08 14 36.39	+37 29 50.1		897	
69P	1998 03 15.63263	08 14 36.64	+37 29 49.7	12.8 T	897	
69P	1998 03 17.59391	08 16 07.28	+37 30 59.7	12.8 T	897	

69P	1998 03 17.60921	08 16 08.03	+37 30 59.6		897	93P	1998 12 16.25156	06 29 41.96	+47 45 47.7		761
69P	1998 03 17.61621	08 16 08.35	+37 31 00.1	12.9 T	897	93P	1998 12 16.67118	06 29 21.43	+47 44 01.4	13.4 T	360
74P/Smirnova-Chernykh						93P	1998 12 16.67361	06 29 21.31	+47 44 00.7		360
74P	1998 12 07.95492	03 23 42.85	+15 40 49.8	17.1 T	910	93P	1998 12 17.52934	06 28 39.89	+47 40 08.2	14.0 T	355
74P	1998 12 07.97748	03 23 42.03	+15 40 48.6	16.9 T	910	93P	1998 12 17.53405	06 28 39.65	+47 40 07.2		355
74P	1998 12 08.00026	03 23 41.25	+15 40 47.4	16.9 T	910	93P	1998 12 17.53750	06 28 39.46	+47 40 05.8		355
74P	1998 12 08.81887	03 23 13.21	+15 40 04.7	17.2 T	910	93P	1998 12 19.93368	06 26 38.85	+47 27 46.4	13.6 T	476
74P	1998 12 08.84142	03 23 12.42	+15 40 03.5	17.2 T	910	93P	1998 12 19.93837	06 26 38.67	+47 27 43.5	13.6 T	476
74P	1998 12 08.86413	03 23 11.62	+15 40 02.3	17.2 T	910	93P	1998 12 19.94826	06 26 38.16	+47 27 41.7	13.6 T	476
74P	1998 12 17.56510	03 18 40.05	+15 34 21.3	17.3 T	360	93P	1998 12 22.15104	06 24 45.58	+47 14 22.5	13.5 T	761
74P	1998 12 17.56944	03 18 39.92	+15 34 21.3		360	93P	1998 12 22.18096	06 24 43.79	+47 14 10.5		761
78P/Gehrels 2						93P	1998 12 22.52924	06 24 26.18	+47 11 52.4	14.3 T	351
78P	1998 01 31.62101	06 15 56.60	+14 00 09.6		897	93P	1998 12 22.53325	06 24 26.05	+47 11 51.0		351
78P	1998 01 31.62795	06 15 56.53	+14 00 10.7		897	93P	1998 12 22.53618	06 24 25.84	+47 11 50.3		351
78P	1998 01 31.63490	06 15 56.43	+14 00 11.5	12.9 T	897	93P	1998 12 23.16493	06 23 53.56	+47 07 38.1	14.1 N	761
78P	1998 02 17.53799	06 16 59.06	+14 46 22.1		897	93P	1998 12 23.18096	06 23 52.56	+47 07 30.9		761
78P	1998 02 17.54493	06 16 59.19	+14 46 23.7		897	93P	1998 12 27.84367	06 19 58.33	+46 31 28.5	12.9 T	504
78P	1998 02 17.55187	06 16 59.30	+14 46 24.3		897	93P	1998 12 27.84539	06 19 58.29	+46 31 28.1	12.9 T	504
78P	1998 03 02.56337	06 22 50.38	+15 20 32.4	14.1 T	897	93P	1998 12 27.84876	06 19 58.12	+46 31 26.5	12.9 T	504
78P	1998 03 02.57263	06 22 50.70	+15 20 33.3		897	93P	1998 12 27.85030	06 19 57.97	+46 31 25.0	12.9 T	504
78P	1998 03 02.58189	06 22 51.00	+15 20 35.5		897	93P	1998 12 28.70069	06 19 16.01	+46 24 06.9	13.3 T	360
78P	1998 03 15.48825	06 32 16.44	+15 48 38.7	14.6 T	897	93P	1998 12 28.70330	06 19 15.89	+46 24 05.5		360
78P	1998 03 15.49898	06 32 16.84	+15 48 39.5		897	103P/Hartley 2					
88P/Howell						103P	1998 01 31.42214	02 06 11.99	-01 09 35.0		897
88P	1998 12 12.39306	21 10 11.78	-19 54 47.7	12.3 T	360	103P	1998 01 31.43846	02 06 16.77	-01 09 20.9		897
88P	1998 12 12.39549	21 10 12.20	-19 54 45.3		360	103P	1998 02 19.40456	03 33 51.29	+03 11 50.2		897
88P	1998 12 25.37586	21 48 36.39	-16 38 08.6	16.1 T	351	103P	1998 02 19.41425	03 33 53.64	+03 11 56.6		897
88P	1998 12 25.38022	21 48 37.27	-16 38 04.4		351	103P	1998 03 02.46130	04 18 25.13	+05 18 08.1		897
88P	1998 12 25.38492	21 48 38.15	-16 37 57.6		351	103P	1998 03 02.46309	04 18 25.57	+05 18 10.1		897
93P/Lovas 1						103P	1998 03 17.47662	05 11 46.75	+07 27 32.1		897
93P	1998 11 19.97738	06 38 08.06	+47 28 14.6	14.2 T	605	103P	1998 03 17.50895	05 11 53.12	+07 27 46.1	13.4 T	897
93P	1998 11 19.99116	06 38 08.28	+47 28 19.3	14.1 T	605	104P/Kowal 2					
93P	1998 11 20.01628	06 38 08.93	+47 28 26.2	13.9 T	605	104P	1998 03 02.41872	02 35 26.60	+12 19 03.7	13.1 T	897
93P	1998 11 29.55729	06 38 49.71	+48 01 11.3	13.8 T	367	104P	1998 03 02.42259	02 35 27.24	+12 19 03.5		897
93P	1998 11 29.55938	06 38 49.69	+48 01 11.3		367	104P	1998 03 02.42588	02 35 27.85	+12 19 05.9		897
93P	1998 11 29.56146	06 38 49.72	+48 01 11.5		367	104P	1998 03 02.42922	02 35 28.68	+12 19 07.7		897
93P	1998 12 09.06466	06 34 53.07	+48 05 08.8	16.6 T	750	117P/Helin-Roman-Alu 1					
93P	1998 12 09.08032	06 34 52.50	+48 05 07.8	17.0 T	750	117P	1998 12 17.43906	00 14 13.15	-07 57 20.9	17.3 T	360
93P	1998 12 09.50649	06 34 36.53	+48 04 37.1	15.9 T	351	117P	1998 12 17.44392	00 14 13.23	-07 57 19.7		360
93P	1998 12 09.50916	06 34 36.62	+48 04 35.2		351	117P	1998 12 18.40750	00 14 30.52	-07 52 45.8	17.6 T	402
93P	1998 12 09.51171	06 34 36.34	+48 04 34.2		351	117P	1998 12 18.40978	00 14 30.54	-07 52 44.8		402
93P	1998 12 10.63555	06 33 52.19	+48 02 44.9		900	117P	1998 12 18.41206	00 14 30.59	-07 52 43.7		402
93P	1998 12 10.64467	06 33 51.78	+48 02 44.1		900	117P	1998 12 18.41435	00 14 30.65	-07 52 43.2		402
93P	1998 12 11.08125	06 33 34.74	+48 01 45.4	16.5 T	750	128P/Shoemaker-Holt 1					
93P	1998 12 11.09845	06 33 33.93	+48 01 43.5	16.5 T	750	128P-B	1998 01 31.57512	04 04 52.51	+17 01 47.4	15.9 T	897
93P	1998 12 11.18132	06 33 30.40	+48 01 36.2	18.0 T	750	128P-B	1998 01 31.58528	04 04 52.85	+17 01 46.2		897
93P	1998 12 14.86843	06 30 48.19	+47 51 04.0	13.4 T	504	128P-B	1998 02 17.50078	04 14 35.67	+17 34 02.6		897
93P	1998 12 14.87039	06 30 48.04	+47 51 03.8	13.3 T	504	128P-B	1998 02 17.50771	04 14 35.83	+17 34 03.0		897
93P	1998 12 14.87399	06 30 47.86	+47 51 02.5	13.4 T	504	128P-B	1998 02 17.51465	04 14 36.10	+17 34 02.9	15.8 T	897
93P	1998 12 14.87615	06 30 47.70	+47 51 02.3	13.4 T	504	128P	1998 12 27.78214	10 08 51.49	+05 58 58.1	19.6 T	402
93P	1998 12 16.23443	06 29 42.74	+47 45 51.3	13.8 N	761						

128P	1998 12 27.79405	10 08 51.26	+05 58 58.5		402
128P	1998 12 27.80001	10 08 51.22	+05 58 57.5		402
129P/Shoemaker-Levy 3					
129P	1998 02 04.50339	07 26 03.43	+22 38 58.4	15.9 T	897
129P	1998 02 04.51035	07 26 03.14	+22 38 58.1		897
129P	1998 02 04.51729	07 26 02.80	+22 38 58.2		897
129P	1998 02 17.60237	07 19 58.95	+22 26 17.8		897
129P	1998 03 15.60220	07 20 56.86	+21 42 39.7	16.8 T	897
129P	1998 03 15.61356	07 20 57.18	+21 42 39.5		897
130P/McNaught-Hughes					
130P	1998 12 19.08725	01 46 34.33	+03 48 33.2	19.9 T	691
130P	1998 12 19.09788	01 46 34.44	+03 48 36.3	22.0 N	691
130P	1998 12 19.11052	01 46 34.53	+03 48 39.5	20.5 T	691
138P/Shoemaker-Levy 7					
138P	1998 12 16.68698	08 02 22.52	+29 20 02.0	19.4 T	360
138P	1998 12 16.69184	08 02 22.32	+29 20 00.9		360
138P	1998 12 16.69740	08 02 22.07	+29 20 00.0		360
139P/Väisälä-Oterma					
139P	1998 12 07.76817	03 27 55.38	+18 58 44.0		2 587
139P	1998 12 07.80676	03 27 54.29	+18 58 39.6		587
139P	1998 12 07.83674	03 27 53.26	+18 58 35.5		587
139P	1998 12 07.93803	03 27 49.89	+18 58 20.2	17.5 T	046
139P	1998 12 07.94023	03 27 49.70	+18 58 17.7		046
139P	1998 12 07.94208	03 27 49.72	+18 58 16.8		046
139P	1998 12 08.28970	03 27 38.24	+18 57 25.6	18.6 T	691
139P	1998 12 08.31253	03 27 37.43	+18 57 21.6	18.5 T	691
139P	1998 12 08.33452	03 27 36.73	+18 57 18.2	18.7 T	691
139P	1998 12 08.51914	03 27 30.95	+18 56 50.0	17.9 T	867
139P	1998 12 08.52574	03 27 30.73	+18 56 48.8		867
139P	1998 12 08.53475	03 27 30.45	+18 56 47.7		867
139P	1998 12 08.54100	03 27 30.23	+18 56 46.5		867
139P	1998 12 08.84966	03 27 20.16	+18 55 56.2		108
139P	1998 12 08.85639	03 27 20.03	+18 55 56.7		108
139P	1998 12 08.87045	03 27 19.59	+18 55 54.2	17.5 T	108
139P	1998 12 09.84494	03 26 48.79	+18 53 28.2		046
139P	1998 12 09.84690	03 26 48.75	+18 53 27.8		046
139P	1998 12 09.84941	03 26 48.66	+18 53 27.0		046
139P	1998 12 09.85169	03 26 48.58	+18 53 27.0		046
139P	1998 12 09.88784	03 26 47.46	+18 53 21.8	18.0 T	620
139P	1998 12 09.90798	03 26 46.77	+18 53 18.5	18.1 T	620
139P	1998 12 09.92905	03 26 46.06	+18 53 15.1		620
139P	1998 12 11.00583	03 26 12.93	+18 50 34.9		118
139P	1998 12 11.01126	03 26 12.77	+18 50 34.6	17.5 T	118
139P	1998 12 11.60800	03 25 54.75	+18 49 07.6		355
139P	1998 12 11.61403	03 25 54.54	+18 49 06.7		355
139P	1998 12 12.53159	03 25 28.10	+18 46 56.3	18.2 T	367
139P	1998 12 12.54131	03 25 27.74	+18 46 54.4		367
139P	1998 12 12.54931	03 25 27.37	+18 46 53.2	18.5 T	402
139P	1998 12 12.55089	03 25 27.36	+18 46 52.9		402
139P	1998 12 12.55248	03 25 27.32	+18 46 52.7		402
139P	1998 12 14.27083	03 24 38.94	+18 42 53.6	20.2 N	691

139P	1998 12 14.29292	03 24 38.32	+18 42 50.4	18.4 T	691
139P	1998 12 14.31491	03 24 37.74	+18 42 47.2	18.4 T	691
139P	1998 12 14.82833	03 24 24.03	+18 41 38.1	17.3 T	504
139P	1998 12 14.83446	03 24 23.89	+18 41 36.7	17.6 T	504
139P	1998 12 17.50836	03 23 16.18	+18 35 51.4	18.4 T	402
139P	1998 12 17.51728	03 23 15.97	+18 35 50.7		402
139P	1998 12 17.52344	03 23 15.84	+18 35 50.2	18.1 T	360
139P	1998 12 17.52621	03 23 15.77	+18 35 49.7		402
139P	1998 12 17.52865	03 23 15.68	+18 35 49.1		360
139P	1998 12 17.53368	03 23 15.56	+18 35 48.6		360
139P	1998 12 24.41869	03 20 56.89	+18 23 11.0	18.2 T	402
139P	1998 12 24.42326	03 20 56.90	+18 23 09.7		402
139P	1998 12 24.42691	03 20 56.75	+18 23 09.8		402
140P/Bowell-Skiff					
140P	1998 12 14.44735	07 12 59.06	+28 04 19.7	18.8 N	704
140P	1998 12 14.46919	07 12 58.59	+28 04 19.9	18.8 N	704
140P	1998 12 14.49110	07 12 57.91	+28 04 20.2	19.5 N	704
140P	1998 12 14.51294	07 12 57.22	+28 04 24.6	19.5 N	704
140P	1998 12 17.41385	07 11 36.68	+28 08 41.5	18.5 N	704
140P	1998 12 17.43657	07 11 35.95	+28 08 43.1	18.5 N	704
140P	1998 12 17.45923	07 11 35.30	+28 08 44.5	19.0 N	704
140P	1998 12 17.50490	07 11 33.59	+28 08 48.6	19.3 N	704
140P	1998 12 28.95751	07 04 24.74	+28 23 06.2	17.1 T	046
140P	1998 12 28.95942	07 04 24.66	+28 23 06.5		046
140P	1998 12 28.96124	07 04 24.59	+28 23 06.2		046
140P	1998 12 28.96312	07 04 24.49	+28 23 06.6		046
140P	1998 12 28.96513	07 04 24.40	+28 23 06.6		046

Note 1: bad seeing. 2: involved with star. 3: faint image. 4: predisccovery observations.

OBSERVATIONS OF MINOR PLANETS

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

012 Uccle

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Observers T. Pauwels, S. Ipatov

Measurer T. Pauwels

0.85-m *f*/2.5 Schmidt + CCD

GSC 1.2

1987 SZ₂, 5, 1, 0; 1998 WN, 8, 2, 1; [13, 2, 0*, 1998/12/16–1998/12/17]

046 Kleť

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

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

Measurer M. Tichý

0.57-m $f/5.2$ reflector + CCD
GSC, USNO-SA1.0, USNO-SA2.0

1979 SO, 4, 2, 1; 1981 TW₁, 7, 2, 1; 1984 QM, 4, 1, 0; 1984 UD, 6, 2, 6; 1985 HH, 6, 2, 1; 1987 VR, 6, 2, 1; 1988 UT, 6, 2, 1; 1991 VE, 5, 1, 0; 1993 WD, 4, 1, 0; 1994 TN₃, 5, 2, 1; 1995 JD, 3, 6, 2, 1; 1996 BA, 6, 2, 1; 1996 EH₂, 6, 2, 1; 1996 FG₃, 7, 2, 3; 1997 NV, 6, 2, 1; 1997 PX₁, 6, 2, 1; 1997 PU₂, 6, 2, 11; 1997 PL₄, 7, 2, 7; 1997 QB, 6, 2, 6; 1997 QF, 6, 2, 1; 1997 QK, 6, 2, 1; 1997 QL, 6, 2, 1; 1997 QM, 6, 2, 4; 1997 QS₂, 6, 2, 13; 1997 RL₇, 6, 2, 4; 1997 SE, 7, 2, 1; 1997 SF, 7, 2, 1; 1997 SK₁, 6, 2, 15; 1997 TY₇, 6, 2, 1; 1997 TB₁₂, 6, 2, 5; 1997 VB₁, 9, 3, 2; 1998 KU₂, 3, 1, 0; 1998 ML₁₄, 3, 1, 0; 1998 PG, 4, 1, 0; 1998 QS₅₂, 3, 1, 0; 1998 QQ₆₃, 4, 1, 0; 1998 SJ₁₆₂, 4, 1, 0; 1998 TU₃, 4, 1, 0; 1998 TJ₆, 6, 2, 1; 1998 UM₆, 5, 2, 1; 1998 UA₁₅, 6, 2, 1; 1998 VG, 6, 2, 1; 1998 VR, 7, 2, 13; 1998 VU, 5, 2, 1; 1998 VO₃₃, 6, 2, 8; 1998 WM, 2, 1, 0; 1998 WQ, 21, 7, 22; 1998 WT, 8, 2, 6; 1998 WM₆, 11, 4, 16; 1998 WZ₆, 10, 3, 22; 1998 WO₇, 3, 1, 0; 1998 WL₈, 21, 6, 47; 1998 WT₂₄, 3, 1, 0; 1998 XB, 7, 2, 16; 1998 XG *, 13, 3, 15; 1998 XH *, 8, 2, 1; 1998 XJ *, 7, 2, 1; 1998 XK *, 19, 6, 14; 1998 XN *, 12, 2, 1; 1998 XO *, 8, 2, 1; 1998 XP *, 6, 2, 1; 1998 XQ *, 5, 2, 1; 1998 XM₂, 4, 1, 0; 1998 XN₂, 7, 2, 18; 1998 XX₂, 5, 1, 0; 1998 XM₄, 11, 3, 19; 1998 XY₄, 5, 1, 0; 1998 XZ₄, 6, 1, 0; 1998 XA₅, 9, 2, 17; 1998 XY₈ *, 24, 7, 19; 1998 XB₉, 3, 1, 0; 1998 XC₉, 11, 3, 15; 1998 XD₉, 4, 1, 0; 1998 XV₁₁, 5, 1, 0; 1998 XD₁₂, 8, 2, 4; 1998 XS₁₅ *, 20, 5, 8; 1998 XT₁₅ *, 8, 2, 2; 1998 XU₁₅ *, 8, 2, 2; 1998 XP₁₆, 3, 1, 0; 1998 XQ₁₆, 3, 1, 0; 1998 XR₁₆, 12, 3, 13; 1998 XS₁₆, 11, 3, 14; 1998 XN₁₇, 5, 1, 0; 1998 XM₂₉, 6, 1, 0; 1998 YZ *, 7, 2, 1; 1998 YK₁ *, 9, 2, 1; 1998 YN₁, 12, 3, 12; 1998 YW₁ *, 25, 5, 8; 1998 YO₃ *, 7, 2, 1; 1998 YP₃ *, 11, 2, 1; 1998 YW₃, 9, 2, 12; 1998 YM₄, 13, 3, 9; 1998 YO₄, 8, 2, 3; 1998 YR₄ *, 11, 2, 4; 1998 YW₅, 4, 1, 0; 1998 YK₆ *, 8, 2, 2; 1998 YY₇ *, 10, 2, 2; 1998 YB₈, 13, 3, 7; 1998 YC₈ *, 17, 3, 7; 1998 YM₁₀ *, 9, 2, 3; 1998 YN₁₀ *, 11, 2, 1; 1998 YN₁₁ *, 8, 2, 5; 1998 YO₁₁ *, 11, 2, 5; 1998 YP₁₁, 6, 1, 0; 1998 YQ₁₁, 4, 1, 0; 1998 YR₁₁, 5, 1, 0; 1998 YN₁₂ *, 12, 2, 1; 1998 YO₁₂ *, 8, 2, 1; 1998 YF₂₇, 11, 2, 2; (789), 4, 1, 0; (1266), 3, 1, 0; (3782), 3, 1, 0; (4339), 3, 1, 0; (5446), 3, 1, 0; (5757), 3, 1, 0; (9551), 4, 1, 0; [863, 116, 27*, 1998/11/13–1999/01/02]

071 Bulgarian National Observatory

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

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

Observers V. Radeva, G. Borisov

0.50-m $f/1.4$ Schmidt

GSC

1998 MK₃₀, 7, 1, 0; 1998 VR, 7, 1, 0; 1998 WL, 7, 1, 0; 1998 WM, 3, 1, 0; 1998 WU₂₄, 4, 1, 0; 1998 XA₅, 5, 1, 0; (7072), 5, 1, 0; [38, 7, 0*, 1998/12/20–1998/12/27]

097 Wise Observatory, Mitzpeh Ramon

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

[ilam@trendline.co.il]

Observer A. Gal-Yam

Measurer I. Manulis

1.0-m $f/7$ reflector + CCD

USNO-SA1.0

1995 CD₂, 3, 1, 0; 1996 GG₅, 2, 1, 0; 1998 SG₁₃₄, 2, 1, 0; (760), 3, 1, 0; [10, 4, 0*, 1998/11/14–1998/12/23]

104 San Marcello Pistoiese

L. Tesi, Osservatorio di Pian dei Termini, Viale Panoramico 45, I-51028 San

Marcello Pistoiese (PT), Italy [iau@arcetri.astro.it]

Observers L. Tesi, A. Boattini, M. Tombelli, G. Forti, A. Caronia

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

0.40-m $f/5$ reflector + CCD

GSC

1979 MK₃, 5, 2, 1; 1981 EV₃, 14, 4, 9; 1994 PA, 6, 2, 5; 1994 PG, 7, 2, 5; 1995 DU₃, 5, 2, 1; 1995 KN, 4, 1, 0; 1996 CJ₇, 9, 3, 5; 1996 CX₇, 3, 1, 0; 1996 CY₇, 3, 1, 0; 1996 GJ₂, 5, 2, 1; 1997 NM₁₀, 6, 2, 1; 1997 UJ₅, 3, 2, 1; 1998 SL₂, 2, 1, 0; 1998 TU₃, 3, 1, 0; 1998 VJ₃₃, 2, 1, 0; 1998 VK₃₃, 8, 2, 1; 1998 VL₃₃, 2, 1, 0; 1998 VS₃₄, 4, 2, 1; 1998 WG, 3, 1, 0; 1998 WH, 8, 2, 1; 1998 WP₂, 3, 1, 0; 1998 WQ₂, 2, 1, 0; 1998 WG₈, 6, 2, 1; 1998 WD₂₂, 8, 2, 5; 1998 XB, 3, 1, 0; 1998 XL *, 28, 6, 17; 1998 XM *, 15, 4, 6; 1998 XN₂, 4, 1, 0; 1998 XO₂ *, 10, 4, 19; 1998 XP₂ *, 18, 5, 17; 1998 XQ₂ *, 12, 4, 17; 1998 XV₂ *, 10, 3, 8; 1998 XZ₂ *, 13, 3, 16; 1998 XA₃ *, 9, 4, 16;

1998 XB₃ *, 11, 4, 16; 1998 XM₄, 3, 1, 0; 1998 XB₅ *, 12, 4, 17; 1998 XE₉ *, 13, 4, 11; 1998 XF₉ *, 14, 4, 14; 1998 XG₉ *, 18, 6, 14; 1998 XH₉ *, 14, 4, 11; 1998 XQ₁₇ *, 7, 2, 3; 1998 XR₁₇ *, 12, 3, 8; 1998 YC₇ *, 6, 2, 5; 1998 YN₇, 5, 2, 3; 1998 YB₈, 2, 1, 0; 1998 YG₉ *, 7, 2, 2; 1998 YH₉ *, 9, 3, 3; 1998 YB₁₀ *, 9, 3, 3; 1998 YC₁₀ *, 9, 3, 3; 1998 YD₁₀ *, 5, 2, 1; 1998 YE₁₀ *, 4, 2, 1; 1998 YO₁₀ *, 4, 2, 1; 1998 YP₁₀ *, 6, 2, 1; 1998 YS₁₁ *, 5, 2, 1; 1998 YT₁₁ *, 6, 2, 1; (600), 4, 1, 0; (4757), 8, 2, 3; (7924), 10, 3, 3; [446, 59, 27*, 1998/12/05–1998/12/27]

106 Crni vrh

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

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

0.36-m $f/6.7$ S-C + CCD + V filter, 0.20-m $f/2.1$ Baker-Schmidt + CCD

GSC 1.1

1997 PC₄, 4, 1, 0; 1997 SW₃₀, 4, 1, 0; 1998 XY₄, 5, 1, 0; 1998 XA₅, 6, 1, 0; 1998 XD₉, 4, 1, 0; 1998 XV₁₁, 3, 1, 0; (21), 2, 1, 0; (41), 2, 1, 0; (65), 2, 1, 0; (80), 2, 1, 0; (82), 2, 1, 0; (124), 2, 1, 0; (185), 2, 1, 0; (213), 2, 1, 0; (275), 2, 1, 0; (283), 2, 1, 0; (291), 2, 1, 0; (322), 2, 1, 0; (356), 2, 1, 0; (502), 2, 1, 0; (519), 2, 1, 0; (567), 2, 1, 0; (888), 2, 1, 0; (1110), 2, 1, 0; [62, 24, 0*, 1998/12/08–1998/12/23]

108 Montelupo

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[iau@arcetri.astro.it]

Observers M. Tombelli, A. Boattini, D. Guidetti, E. Masotti, G. Forti, L. Tesi

Measurers M. Tombelli, A. Boattini, L. Tesi, G. Forti, D. Guidetti, E. Masotti,

S. Bartolini

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

GSC

1994 PA, 3, 1, 0; 1996 CJ₇, 6, 2, 4; 1996 CL₇, 3, 1, 0; 1996 CX₇, 6, 2, 3; 1997 NK₁₀, 2, 1, 0; 1997 OC₁, 3, 1, 0; 1998 SL₂, 4, 1, 0; 1998 XQ₂, 2, 1, 0; 1998 XZ₂, 2, 1, 0; 1998 XA₃, 11, 4, 17; 1998 XF₉, 4, 1, 0; 1998 XV₁₁, 3, 1, 0; 1998 XQ₁₆, 2, 1, 0; 1998 XR₁₆, 2, 1, 0; 1998 YN₁, 3, 1, 0; 1998 YN₇ *, 9, 2, 3; 1998 YB₈, 4, 1, 0; (103), 4, 1, 0; (2209), 3, 1, 0; (2802), 4, 1, 0; [80, 20, 1*, 1998/12/08–1998/12/26]

113 Volkssternwarte Drebach, Schönbrunn

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

[g.lehmann@abo.freieipresse.de]

Observers G. Lehmann, J. Kandler

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

USNO-A1.0

1982 DW₃, 2, 1, 0; 1988 RZ₂, 3, 1, 0; 1989 AV₆, 2, 1, 0; 1989 WU₄, 7, 3, 9; 1990 TU₁₁, 8, 4, 9; 1990 TG₁₃, 4, 2, 19; 1991 AC₃, 5, 2, 7; 1991 RS₂, 1, 1, 0; 1991 RB₃, 4, 2, 19; 1991 RT₃, 2, 1, 0; 1991 RJ₇, 3, 1, 0; 1991 TC₃, 6, 3, 13; 1991 TX₄, 2, 1, 0; 1991 TO₁₃, 8, 4, 20; 1991 YL₁, 4, 2, 2; 1992 DJ₄, 2, 1, 0; 1992 HS₄, 8, 3, 9; 1992 SJ₂, 7, 3, 8; 1992 SQ₂₄, 7, 3, 8; 1994 AL₁₆, 5, 2, 12; 1995 EG₈, 3, 1, 0; 1998 VY₃₃, 3, 2, 2; 1998 XL₁₇, 5, 2, 6; 1998 XO₁₇ *, 8, 4, 19; 1998 YV₆ *, 5, 2, 6; 1998 YB₈, 4, 1, 0; (5598), 2, 1, 0; (9742), 4, 2, 1; (9762), 4, 2, 1; (9764), 4, 2, 1; [132, 30, 2*, 1998/12/08–1998/12/30]

116 Giesing

H. Beuchat, European Patent Office, Erhardstrasse 27, D-80331 Munich, Germany

[100341.75@compuserve.com]

Observers J.-L. Dighaye, P. Sala

Measurers P. Sala, H. Beuchat

0.20-m reflector + CCD

1997 SG₁, 3, 1, 0; [3, 1, 0*, 1998/12/26]

118 Modra

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

[ago_modra@center.fmph.uniba.sk]

Observers A. Galád, D. Kalmančok, L. Kornoš, P. Kolény, J. Tóth

0.6-m $f/5.5$ reflector + CCD

GSC, USNO-SA1.0

1993 WD₄, 4, 2, 8; 1996 ER₂, 2, 1, 0; 1996 FG₃, 3, 1, 0; 1997 PZ₁, 4, 2, 2; 1997 TR₆, 2, 1, 1; 1998 MQ₃, 3, 1, 0; 1998 PG₂, 2, 1, 0; 1998 QS₅₂, 5, 2, 20; 1998 TU₃, 5, 2, 14; 1998 UT₁₈, 2, 1, 0; 1998 VF₂, 2, 1, 0; 1998 VR₂, 2, 1, 0; 1998 VE₃₂, 3, 1, 0; 1998 VO₃₃, 3, 1, 0; 1998 WP₅, 3, 1, 0; 1998 WR₆, 14, 6, 26; 1998 WZ₆, 7, 3, 25; 1998 XM₂, 2, 1, 0; 1998 XN₂, 3, 1, 0; 1998 XM₄, 7, 3, 13; 1998 XD₉, 2, 1, 0; 1998 XP₁₆, 2, 1, 0; 1998 XQ₁₆, 3, 1, 0; 1998 XR₁₆, 3, 1, 0; 1998 XS₁₆, 3, 1, 0; 1998 YN₁, 3, 1, 0; (789), 2, 1, 0; (1508), 4, 2, 11; (1866), 6, 3, 16; (3122), 4, 2, 5; (3199), 2, 1, 0; (3352), 2, 1, 0; (4503), 2, 1, 0; (5164), 2, 1, 0; (5738), 2, 1, 0; (6053), 6, 3, 16; (6318), 2, 1, 0; (7201), 2, 1, 0; (7358), 4, 2, 11; [138, 39, 0*, 1998/12/09–1999/01/04]

120 Višnjan

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

Observers K. Korlević, A. Ritosa, P. Korlević, P. Radovan, M. Dusić, M. Juric, B. Lukic

Measurers K. Korlević, M. Jurić

0.41-m $f/4.3$ reflector + CCD

USNO-SA1.0

1973 SX₂, 7, 3, 7; 1978 QY₁, 2, 1, 0; 1978 SE₃, 5, 2, 2; 1979 MK₃, 2, 1, 0; 1981 EU₄₁, 5, 2, 7; 1981 QJ₃, 3, 1, 0; 1981 WE₉, 3, 1, 0; 1985 RJ₃, 3, 1, 0; 1989 GJ₂, 2, 1, 0; 1989 ST₃, 3, 1, 0; 1990 ON₂, 8, 3, 7; 1990 QJ₅, 2, 1, 0; 1990 WE₉, 2, 1, 0; 1991 NZ₆, 1, 1, 0; 1991 RX₂₅, 3, 1, 0; 1991 VE₄, 2, 1, 0; 1992 GC₈, 2, 1, 0; 1992 JQ₂, 2, 1, 0; 1992 PX₂, 3, 1, 0; 1992 SJ₂, 3, 1, 0; 1993 BC₅, 3, 1, 0; 1993 FV₂₇, 2, 1, 0; 1993 FT₃₁, 4, 2, 1; 1993 FX₅₂, 2, 1, 0; 1993 OG₁₃, 3, 1, 0; 1994 AB₂, 1, 1, 0; 1994 PU₃₂, 3, 2, 6; 1994 UT₆, 3, 11; 1994 VQ₁, 6, 3, 5; 1994 WR₃, 4, 2, 1; 1994 YD₄, 2, 1; 1995 DZ₁₁, 3, 1, 0; 1996 DQ₂, 5, 3, 8; 1996 GO₂₀, 2, 1, 0; 1996 JW₃₂, 3, 1, 0; 1997 MD₈, 4, 2, 7; 1997 PG₃, 2, 1, 0; 1997 QF₃, 3, 1, 0; 1997 QP₂, 2, 1, 0; 1997 RA₇, 3, 1, 0; 1997 SG₁₆, 15, 6, 11; 1997 SO₁₇, 10, 5, 8; 1998 QA₉₃, 3, 1, 0; 1998 QS₉₈, 5, 1, 0; 1998 UW₁, 2, 1, 0; 1998 UX₁, 3, 1, 0; 1998 UE₄, 3, 1, 0; 1998 UZ₆, 9, 4, 10; 1998 UA₇, 2, 1, 0; 1998 UB₇, 2, 1, 0; 1998 UF₇, 2, 1, 0; 1998 UM₇, 11, 4, 6; 1998 UO₇, 12, 4, 8; 1998 UR₇, 2, 1, 0; 1998 UE₈, 2, 1, 0; 1998 UG₈, 1, 1, 0; 1998 UN₁₅, 2, 1, 0; 1998 UP₁₅, 4, 2, 1; 1998 UN₁₆, 12, 5, 10; 1998 UQ₁₆, 3, 1, 0; 1998 UR₁₆, 13, 5, 15; 1998 UE₁₉, 2, 1, 0; 1998 UR₂₀, 7, 3, 5; 1998 US₂₀, 5, 2, 2; 1998 UU₂₀, 7, 2, 3; 1998 UV₂₀, 3, 1, 0; 1998 UX₂₀, 3, 1, 0; 1998 UY₂₀, 20, 7, 15; 1998 UM₂₉, 8, 3, 13; 1998 VC₁₃, 4, 7; 1998 VE₂, 4, 1, 0; 1998 VB₃, 3, 1, 0; 1998 VB₄, 5, 2, 2; 1998 VC₄, 11, 4, 10; 1998 VD₄, 15, 7, 24; 1998 VA₅, 3, 1, 0; 1998 VC₅, 3, 1, 0; 1998 VD₅, 2, 1, 0; 1998 VR₂₆, 6, 2, 2; 1998 VT₂₇, 27, 9, 29; 1998 VK₂₈, 3, 1, 0; 1998 VN₂₈, 3, 1, 0; 1998 VQ₃₁, 7, 3, 7; 1998 VH₃₂, 2, 1, 0; 1998 VH₃₃, 2, 1, 0; 1998 VW₃₄, 2, 1, 0; 1998 VO₃₈, 14, 4, 7; 1998 VQ₃₈, 13, 5, 8; 1998 VV₄₁, 4, 2, 2; 1998 VC₄₄ *, 15, 6, 31; 1998 VD₄₄ *, 14, 7, 41; 1998 WO₇, 2, 1, 0; 1998 WU₈, 5, 2, 8; 1998 WD₉, 5, 2, 15; 1998 WE₉, 6, 2, 7; 1998 WG₉, 6, 2, 2; 1998 WJ₉, 4, 2, 8; 1998 WM₉, 4, 2, 3; 1998 WQ₉, 2, 1, 0; 1998 WS₉, 6, 2, 11; 1998 WU₁₀, 3, 1, 0; 1998 WV₁₀, 3, 1, 0; 1998 WN₁₁, 4, 2, 6; 1998 WA₁₂, 4, 2, 1; 1998 WG₁₂, 6, 3, 18; 1998 WL₁₅, 4, 2, 1; 1998 WM₁₅, 5, 3, 8; 1998 WR₂₀, 4, 2, 3; 1998 WU₂₀, 3, 1, 0; 1998 WX₂₆, 2, 1, 0; 1998 WU₃₀ *, 11, 5, 17; 1998 WC₃₁ *, 13, 6, 19; 1998 XY₃, 5, 2, 3; 1998 XN₄ *, 11, 5, 13; 1998 XJ₅ *, 16, 7, 18; 1998 XK₅ *, 6, 2, 2; 1998 XL₅ *, 11, 5, 10; 1998 XM₅ *, 13, 6, 15; 1998 XW₈ *, 11, 5, 20; 1998 XX₈ *, 19, 9, 27; 1998 XK₉ *, 14, 6, 16; 1998 XL₉ *, 5, 2, 3; 1998 XM₉ *, 5, 2, 3; 1998 XN₉ *, 6, 3, 5; 1998 XO₉ *, 8, 4, 8; 1998 XP₉ *, 9, 4, 11; 1998 XQ₉ *, 11, 5, 11; 1998 XR₉ *, 12, 6, 11; 1998 XS₉ *, 16, 8, 25; 1998 XP₁₂ *, 6, 3, 4; 1998 XQ₁₂ *, 10, 5, 36; 1998 XR₁₂ *, 6, 3, 2; 1998 XS₁₂ *, 7, 4, 10; 1998 XT₁₂ *, 4, 2, 1; 1998 XU₁₂ *, 9, 4, 8; 1998 XV₁₂ *, 10, 5, 8; 1998 XW₁₂ *, 3, 2, 1; 1998 XX₁₂ *, 10, 4, 8; 1998 XA₁₃, 9, 3, 3; 1998 XQ₁₄, 2, 1, 0; 1998 XT₁₆ *, 4, 2, 2; 1998 XU₁₆ *, 8, 3, 7; 1998 XV₁₆ *, 11, 4, 24; 1998 XW₁₆ *, 6, 3, 7; 1998 XX₁₆ *, 4, 2, 2; 1998 XY₁₆ *, 8, 3, 10; 1998 XR₂₀, 9, 3, 3; 1998 XS₂₀, 11, 3, 3; 1998 XN₂₁, 5, 2, 2; 1998 XO₂₄, 7, 3, 3; 1998 YA₇ *, 10, 5, 8; 1998 YB₇ *, 9, 6, 8; 1998 YC₇ *, 15, 5, 8; 1998 YD₇ *, 12, 5, 8; 1998 YE₇ *, 11, 4, 7; 1998 YF₇ *, 9, 4, 7; 1998 YG₇ *, 10, 3, 2; 1998 YH₇ *, 10, 4, 7; 1998 YP₁ *, 10, 4, 11; 1998 YQ₁ *, 10, 4, 8; 1998 YR₁ *, 9, 3, 7; 1998 YS₁ *, 6, 3, 2; 1998 YT₁ *, 9, 3, 10; 1998 YU₁ *, 9, 4, 10; 1998 YR₃ *, 8, 4, 8; 1998 YS₃ *, 10, 5, 24; 1998 YT₃ *, 10, 4, 9; 1998 YU₃ *, 10, 4, 9; 1998 YN₅, 4, 2, 3; 1998 YA₆ *, 13, 5, 9; 1998 YB₆ *, 4, 2, 5; 1998 YZ₆ *, 10, 4, 4; 1998 YA₇ *, 11, 4, 4; 1998 YN₈ *, 5, 2, 3; 1998 YO₈ *, 5, 2, 2; 1998 YP₈ *, 8, 3, 3; 1998 YM₉ *, 5, 2, 4; 1998 YN₉ *, 5, 2, 4; 1998 YO₉ *, 6, 2, 1; 1998 YP₉ *, 6, 2, 1; 1998 YQ₉ *, 5, 2, 1; 1998 YR₉ *, 5, 2, 1; 1998 YS₉ *, 3, 2, 1; 1998 YT₉ *, 4, 2, 1; 1998 YU₉ *, 4, 2, 1; 1998 YV₉ *, 5, 2, 1; 1998 YW₉ *, 5, 2, 1; 1998 YX₉ *, 5, 2, 1; 1998 YY₉ *, 5, 2, 1; 1998 YZ₉ *, 4, 2, 1; 5211 T-2, 2, 1, 0; (177), 3, 1, 0; (309), 3, 1, 0; (351), 2, 1, 0; (431), 3, 1, 0; (684), 3, 1, 0; (1066), 1, 1, 0; (1097), 5, 2, 1; (1118), 3, 1, 0; (1143), 2, 1, 0; (1280), 3, 2, 2; (1381), 3, 1, 0; (1404), 2, 1, 0; (1437), 1, 1, 0; (1443), 6, 3, 2; (1692), 5, 2, 1; (1738), 7, 2, 2; (1971), 6, 3, 2; (2119), 3, 1, 0; (2230), 5, 2, 1; (2334), 3, 1, 0; (2477), 3, 1, 0; (2482), 12, 5, 13; (2540), 3, 1, 0; (2886), 3, 2, 5; (2915), 2, 1, 0; (3116), 2, 1, 0; (3319), 3, 1, 0; (3494), 14, 6, 11; (3546), 3, 1, 0; (3659), 9, 4, 7; (3774), 5, 2, 1; (4016), 5, 2, 5; (4206), 3, 1, 0; (4258), 9, 4, 8; (4479), 3, 1, 0; (4503), 3, 1, 0; (4633), 4, 1, 0; (4799), 4, 2, 1; (5016), 4, 2, 1; (5109), 3, 1, 0; (5124), 2, 1, 0; (5215), 2, 1, 0; (5293), 3, 1, 0; (5331), 3, 1, 0; (5454), 5, 2, 2; (5550), 3, 1, 0; (5677), 3, 1, 0; (5721), 2, 1, 0; (5772), 3, 1, 0; (5809), 9, 4, 7; (5902), 3, 1, 0; (5923), 3, 1, 0; (5950), 3, 1, 0; (6062), 3, 1, 0; (6202), 5, 2, 1; (6387), 3, 1, 0; (6389), 12, 6, 9; (6442), 3, 2, 1; (6457), 4,

2, 3; (6464), 2, 1, 0; (6477), 7, 3, 2; (6876), 3, 1, 0; (6953), 2, 1, 0; (6962), 1, 1, 0; (7121), 2, 1, 0; (7598), 8, 3, 3; (8067), 3, 1, 0; (8077), 3, 1, 0; (8144), 5, 2, 5; (8156), 3, 1, 0; (8247), 3, 1, 0; (8260), 1, 1, 0; (8410), 3, 1, 0; (9542), 10, 3, 6; (9609), 8, 3, 7; (9742), 3, 1, 0; [1515, 267, 74*, 1998/11/11–1998/12/27]

122 Pises Observatory

B. Gaillard, 34 rue du mas de Lemasson, F-34070 Montpellier, France

[observatoire.pises@hol.fr]

Observers B. Gaillard, J. Lopez, A. Irlande

Measurer B. Gaillard

0.40-m $f/4.7$ reflector + CCD

USNO-SA1.0

1998 XJ₁₇, 2, 1, 0; [2, 1, 0*, 1998/12/20]

126 Monte Viseggi

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

[mc7316@mclink.it]

Observers P. Pietrapiana, G. Scarfi, L. Zannoni

Measurer P. Pietrapiana

0.40-m $f/5$ reflector + CCD

GSC

1997 RG₃, 7, 2, 4; [7, 1, 0*, 1998/12/18–1998/12/22]

127 Bornheim

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

0.19-m $f/4$ FFC + CCD

GSC

1990 XF₂, 2, 1, 0; 1990 XZ₂, 6, 3, 19; 1993 TV₁₂, 2, 1, 0; 1994 TY₂, 4, 2, 1; 1996 FG₃, 2, 1, 0; 1998 VY₃₃, 4, 2, 1; (1713), 4, 2, 1; (9612), 2, 1, 0; [26, 8, 0*, 1998/11/28–1998/12/17]

130 Lumezzane

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

Observers G. Pizzetti, W. Marinello

0.40-m $f/4$ reflector + CCD

USNO-A1.0

(439), 3, 1, 0; (3352), 4, 1, 0; (5231), 3, 1, 0; [10, 3, 0*, 1998/11/28–1998/12/05]

132 Bedoin

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

[Pierre.Antonini@wanadoo.fr]

0.20-m $f/3.5$ reflector + CCD

GSC

1997 RE₃, 4, 2, 2; 1998 XH₁₁ *, 7, 3, 14; 1998 XG₁₇ *, 7, 3, 7; 1998 XH₁₇ *, 4, 2, 2; 1998 XJ₁₇ *, 5, 2, 2; 1998 XK₁₇ *, 4, 2, 2; 1998 XL₁₇ *, 5, 2, 2; 1998 YQ₆ *, 4, 2, 5; [40, 8, 7*, 1998/12/08–1998/12/22]

133 Les Tardieux

M. Boeuf, Les Tardieux, St Julien, F-13500 Martigues, France

[Michel.Boeuf@wanadoo.fr]

0.20-m $f/3.5$ reflector + CCD

GSC

1997 PJ₄, 3, 1, 0; (2087), 2, 1, 0; [5, 2, 0*, 1998/12/18–1998/12/22]

134 Groszschwabhausen

H.-G. Reimann, Astrophysikalisches Institut und Universitätssternwarte Jena, Schillergäßchen 2, D-07745 Jena, Germany [rei@astro.uni-jena.de]

0.90-m $f/2$ Schmidt + CCD

GSC

(9761), 3, 1, 0; [3, 1, 0*, 1998/12/08]

138 Village-Neuf

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

[Sky.walker@wanadoo.fr]

Observers C. Demeautis, D. Matter

Measurer C. Demeautis

0.30-m $f/4$ reflector + CCD

GSC

1998 QO₉₃, 5, 1, 0; [5, 1, 0*, 1998/12/15]

143 Gnosca

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

0.20-m $f/7.1$ reflector + CCD

GSC, USNO-SA1.0

1998 VT₅, 5, 1, 0; 1998 XA₅, 3, 1, 0; 1998 XD₉, 3, 1, 0; [11, 3, 0*, 1998/12/19]

145 's-Gravenwezel Observatory

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

[Tom.Alderweireldt@ping.be]

0.25-m $f/8.0$ reflector + CCD

GSC

1982 TK₁, 4, 1, 0; 1992 AN, 6, 1, 0; 1993 NB₂, 2, 1, 0; (1209), 3, 1, 0; (2094), 2, 1, 0; (2260), 4, 2, 10; (9569), 5, 2, 10; [26, 7, 0*, 1998/12/07–1998/12/28]

151 Eschenberg Observatory, Winterthur

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

[griesser@spectraweb.ch]

0.25-m $f/8.0$ reflector + CCD

GSC

1996 FG₃, 2, 1, 0; 1998 VO₃₃, 3, 1, 0; 1998 WS, 3, 1, 0; 1998 WZ₆, 17, 5, 17; 1998 XB, 4, 1, 0; 1998 XA₅, 24, 6, 14; 1998 XB₉, 8, 2, 4; 1998 XD₉, 7, 2, 5; 1998 XR₁₆, 16, 4, 7; (1036), 2, 1, 0; (1373), 2, 1, 0; (1866), 4, 2, 8; (3352), 3, 1, 0; (4503), 2, 1, 0; (5131), 2, 1, 0; (5164), 4, 2, 6; (5402), 4, 2, 8; (5732), 2, 1, 0; (6318), 3, 1, 0; (6338), 2, 1, 0; (7358), 2, 1, 0; (7480), 2, 1, 0; [118, 22, 0*, 1998/12/08–1999/01/01]

159 Monte Agliale

M. M. M. Santangelo, Monte Agliale Astronomical Observatory, Borgo a Mozzano,

Lucca, Italy [ilra@comune.lucca.it]

Observers M. M. M. Santangelo, G. Rubini, E. Mazzoni, S. Donati, F. Ciabattari

Measurers M. M. M. Santangelo, E. Mazzoni, S. Donati

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

USNO-A1.0

1998 WK₁, 27, 6, 28; 1998 WL₉, 18, 5, 19; (9364), 4, 1, 0; (9536), 4, 1, 0; [53, 4, 0*, 1998/11/28–1998/12/26]

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 SM₃, 3, 1, 0; 1997 UC₂₂, 6, 2, 3; 1998 QE₂₉, 3, 1, 0; 1998 WR₃₁ *, 14, 5, 24; [26, 4, 1*, 1998/11/28–1998/12/23]

323 Perth

J. Biggs, Perth Observatory, Bickley, WA 6076, Australia

[jamieb@calm.wa.gov.au]

Observers G. Lowe, T. Smith

Measurer T. Smith

0.3-m astrograph

(1), 1, 1, 0; (419), 3, 2, 2; (433), 3, 3, 56; (441), 4, 4, 114; (457), 1, 1, 0; (664), 4, 4, 38; (927), 1, 1, 0; (1237), 2, 2, 26; (1290), 1, 1, 0; (1521), 3, 3, 6; (1843), 2, 2, 1; (1980), 3, 3, 45; (3687), 1, 1, 0; (4295), 1, 1, 0; (5186), 1, 1, 0; (5870), 3, 3, 34; (6708), 2, 2, 27; [36, 17, 0*, 1997/12/01–1998/08/25]

327 Peking Observatory, Xinglong Station

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

Zhongguancun, Peking 100101, Peoples Republic of China

[zj@bac.pku.edu.cn]

Observers J. Zhu, X. Y. Li, X. S. Liu, Y. J. Chen, X. M. Teng, X. M. Teng

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

0.60-m Schmidt + CCD

1993 VA₃, 6, 2, 6; 1994 TQ₁, 6, 2, 4; 1995 BW, 6, 2, 4; 1997 GX₂₃, 6, 2, 1; 1998 SG₁₃₀, 6, 2, 7; 1998 UL₃₂, 6, 2, 4; 1998 UN₃₂, 6, 2, 7; 1998 VW, 5, 2, 1; 1998 VL₉, 7, 2, 6; 1998 VB₁₃, 7, 2, 8; 1998 VP₃₅, 6, 2, 8; 1998 WH₄, 3, 1, 0; 1998 WB₁₀, 6, 2, 9; 1998 WA₁₄, 9, 3, 3; 1998 WK₁₉, 7, 2, 1; 1998 XB, 38, 9, 18; 1998 XE, 3, 1, 0; 1998 XF, 3, 1, 0; 1998 XS₂ *, 9, 3, 2; 1998 XT₂ *, 9, 3, 6; 1998 XU₂ *, 15, 4, 23; 1998 XE₃ *, 6, 2, 2; 1998 XF₃ *, 9, 3, 5; 1998 XG₃ *, 9, 3, 5; 1998 XH₃ *, 6, 2, 1; 1998 XY₄, 4, 1, 0; 1998 XZ₄, 4, 1, 0; 1998 XA₅, 4, 1, 0; 1998 XF₁₂ *, 6, 2, 9; 1998 XH₁₂ *, 12, 3, 21; 1998 XK₁₂ *, 6, 2, 4; 1998 XL₁₂ *, 6, 2, 4; 1998 XM₁₂ *, 9, 3, 12; 1998 XN₁₂ *, 16, 5, 8; 1998 XG₁₆, 6, 2, 1; 1998 XC₂₆ *, 6, 2, 2; 1998 XD₂₆ *, 6, 2, 2; 1998 YO₁, 6, 2, 21; 1998 YY₃, 3, 1, 0; 1998 YL₅, 6, 2, 1; 1998 YO₈, 6, 2, 1; 1998 YQ₈ *, 7, 2, 8; 1998 YR₈ *, 6, 2, 8; 1998 YS₈ *, 9, 3, 9; 1998 YT₈ *, 10, 3, 9; 1998 YU₈ *, 10, 3, 7; 1998 YV₈ *, 6, 2, 1; 1998 YW₈ *, 6, 2, 1; 1998 YX₈ *, 9, 3, 2; 1998 YY₈ *, 9, 3, 4; 1998 YZ₈ *, 6, 2, 1; 1998 YA₉ *, 10, 3, 3; 1998 YB₉ *, 10, 3, 3; 1998 YC₉ *, 6, 2, 1; 1998 YD₉ *, 6, 2, 1; 1998 YE₉ *, 6, 2, 1; 1998 YF₉ *, 9, 3, 3; 1998 YA₁₀ *, 5, 2, 1; 1998 YJ₂₂ *, 7, 2, 8; 1998 YK₂₂ *, 6, 2, 9; 1998 YL₂₂ *, 6, 2, 8; 1998 YM₂₂ *, 7, 2, 1; 1998 YN₂₂ *, 7, 2, 1; 1998 YO₂₂ *, 7, 2, 1; (943), 10, 3, 8; (1388), 6, 2, 6; (1618), 6, 2, 6; (1893), 15, 4, 21; (4121), 6, 2, 1; (4129), 6, 2, 2; (5038), 6, 2, 9; [530, 71, 38*, 1998/12/02–1998/12/30]

355 Hadano

A. Asami, 28-1 Nishitawara, Hadano, Kanagawa-Ken, 257 Japan

[asami@st.rim.or.jp]

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

GSC

1996 FG₃, 3, 1, 0; 1998 WS, 6, 2, 7; 1998 WZ₆, 9, 3, 8; 1998 XB, 3, 1, 0; 1998 XN₂, 4, 1, 0; 1998 YM₄, 2, 1, 0; 1998 YF₇ *, 12, 4, 7; [39, 7, 1*, 1998/12/09–1998/12/29]

360 Kuma Kogen Astronomical Observatory

A. Nakamura, Shimo-Hatanokawa, Kuma, Kamiukena-Gun, Ehime-Ken, 791-1212

Japan [a-nakamu@mx2.nisiq.net]

0.60-m $f/5.8$ Ritchey-Chrétien + CCD

GSC, USNO-A2.0

1991 OL₁, 3, 1, 0; 1991 VE, 6, 2, 8; 1993 DD₁, 3, 1, 0; 1993 WD, 3, 1, 0; 1994 SE, 3, 1, 0; 1994 TU₂, 3, 1, 0; 1995 DG₁, 6, 2, 5; 1995 OX, 6, 2, 5; 1996 FG₃, 3, 1, 0; 1996 HM₁, 9, 3, 6; 1996 HM₁₁, 3, 1, 0; 1997 CU₂₆, 3, 1, 0; 1997 OY, 5, 2, 9; 1998 MQ, 3, 1, 0; 1998 ML₁₄, 3, 1, 0; 1998 PG, 3, 1, 0; 1998 QS₅₂, 3, 1, 0; 1998 QQ₆₃, 3, 1, 0; 1998 ST₄, 3, 1, 0; 1998 SY₁₄, 6, 2, 8; 1998 TU₃, 3, 1, 0; 1998 UT₁₈, 3, 1, 0; 1998 VO, 3, 1, 0; 1998 VR, 3, 1, 0; 1998 VF₃₁, 3, 1, 0; 1998 WQ₃₃, 3, 1, 0; 1998 WM, 6, 2, 6; 1998 WZ₁, 6, 2, 7; 1998 WQ₅, 6, 2, 6; 1998 WS₅, 3, 1, 0; 1998 WZ₆, 3, 1, 0; 1998 WT₂₄, 3, 1, 0; 1998 WU₂₄, 6, 2, 7; 1998 XB, 6, 2, 8; 1998 XN₂, 6, 2, 6; 1998 XZ₄, 3, 1, 0; 1998 XA₅, 3, 1, 0; 1998 XD₁₂, 3, 1, 0; 1998 XR₁₆, 6, 2, 7; 1998 XS₁₆, 6, 2, 7; 1998 YC₁ *, 12, 4, 6; 1998 YD₁ *, 6, 2, 1; 1998 YN₁, 6, 2, 6; 1998 YW₃, 3, 1, 0; 1998 YM₄, 9, 3, 4; 1998 YP₅ *, 12, 4, 5; 1998 YZ₇ *, 9, 3, 4; (4362), 2, 1, 0; (4621), 2, 1, 0; (5980), 3, 1, 0; (6255), 2, 1, 0; (6845), 2, 1, 0; (7484), 2, 1, 0; (7863), 2, 1, 0; (7968), 3, 1, 0; (7991), 3, 1, 0; (8001), 2, 1, 0; (9210), 2, 1, 0; [246, 58, 4*, 1998/12/11–1998/12/28]

365 Kashiwara

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

[nag01736@niftyserve.or.jp]

0.28-m $f/6.3$ refractor + CCD

GSC

1998 WC₂₀, 4, 2, 9; 1998 WD₂₀, 4, 2, 9; 1998 YD₇ *, 4, 2, 2; 1998 YE₇ *, 4, 2, 2; [16, 4, 2*, 1998/12/13–1998/12/22]

367 Yatsuka

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

0.26-m $f/6.0$ reflector + CCD

GSC

1994 AJ₁, 2, 1, 0; 1994 WM₁, 2, 1, 0; 1994 YN, 2, 1, 0; 1994 YX, 2, 1, 0; 1995 AH, 2, 1, 0; 1995 BQ₃, 2, 1, 0; 1995 BS₃, 2, 1, 0; 1995 YM₃, 2, 1, 0; 1996 BR₃, 2, 1, 0; 1996 DC, 2, 1, 0; [20, 10, 0*, 1998/12/12]

369 Chichibu

N. Sato, 743-27, Kitairiso Sayama, Saitama-Ken 350-13, Japan

[mx05524@niftyserve.or.jp]

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

GSC

1981 EE₃₈, 2, 1, 0; 1992 RB₃, 5, 2, 1; 1997 SJ₂₅, 5, 2, 1; 1997 TY₇, 4, 2, 1; 1998 UR₁₈, 5, 2, 2; 1998 VY₃₂, 2, 1, 0; 1998 VZ₃₂, 2, 1, 0; 1998 VB₃₃, 2, 1, 0; 1998 WW₈, 5, 2, 18; 1998 WY₈, 4, 2, 18; 1998 XQ₂, 4, 2, 1; 1998 XW₃ *, 7, 3, 18; 1998 XY₃ *, 7, 3, 18; 1998 XP₄ *, 5, 2, 1; 1998 XC₅₅, 7, 3, 16; (6299), 8, 3, 16; (7738), 5, 2, 2; [79, 17, 3*, 1998/12/09–1998/12/27]

376 Uenohara

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

0.30-m reflector + CCD

GSC

1998 VD₃₄, 2, 1, 0; 1998 VQ₃₄, 2, 1, 0; 1998 WB₇, 1, 1, 0; 1998 WD₇, 1, 1, 0; 1998 WK₈, 2, 1, 0; 1998 WF₂₄, 2, 1, 0; 1998 YZ₂ *, 10, 5, 10; 1998 YA₃ *, 10, 5, 8; 1998 YS₆ *, 8, 4, 7; 1998 YD₈ *, 6, 3, 7; 1998 YE₈ *, 7, 3, 5; 1998 YU₁₁ *, 5, 3, 7; [56, 12, 6*, 1998/12/11–1998/12/26]

385 Nihondaira Observatory

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

[urata@sannet.ne.jp]

0.31-m $f/4.7$ reflector + CCD

GSC, USNO-A1.0

1992 JQ, 2, 1, 0; 1992 WF₁, 2, 1, 0; 1993 US, 2, 1, 0; 1993 UT, 4, 2, 6; 1994 NS, 4, 2, 6; 1994 PH, 4, 2, 8; 1994 UW, 1, 1, 0; 1994 UZ, 2, 1, 0; 1994 UC₁, 1, 1, 0; 1995 BU₂, 2, 1, 0; 1997 PN₅, 4, 2, 1; 1997 QE₂, 2, 1, 0; 1997 QF₂, 2, 1, 0; 1997 QG₄, 2, 1, 0; 1997 RJ₁, 2, 1, 0; 1997 RF₈, 1, 1, 0; 1997 TG₁₉, 2, 1, 0; 1997 UB₁₁, 3, 1, 0; 1997 UC₁₁, 2, 1, 0; 1998 SS₂, 3, 1, 0; 1998 VH₅, 2, 1, 0; 1998 VJ₅, 2, 1, 0; 1998 VK₅, 2, 1, 0; 1998 VM₅, 1, 1, 0; 1998 VE₆, 2, 1, 0; 1998 VF₆, 4, 2, 6; 1998 VG₆, 2, 1, 0; 1998 VH₆, 2, 1, 0; 1998 VK₆, 2, 1, 0; 1998 VO₆, 2, 1, 0; 1998 VP₆, 3, 1, 0; 1998 WW₅, 1, 1, 0; 1998 WZ₅, 2, 1, 0; 1998 WE₇, 2, 1, 0; 1998 WF₇, 2, 1, 0; 1998 XM₃, 6, 3, 10; 1998 XX₃, 2, 1, 0; 1998 YM₄ *, 18, 6, 8; [104, 38, 1*, 1998/12/11–1998/12/28]

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

1991 UN₃, 4, 1, 0; 1998 UL₂₀, 2, 1, 0; 1998 UL₂₃, 2, 1, 0; 1998 VX₂₉, 2, 1, 0; 1998 VY₃₄, 2, 1, 0; 1998 VF₃₅, 4, 2, 18; 1998 WR₃, 2, 1, 0; 1998 WS₃, 2, 1, 0; 1998 WT₃, 3, 2, 28; 1998 WU₃, 2, 1, 0; 1998 WF₄, 2, 1, 0; 1998 WH₄, 2, 1, 0; 1998 WB₆, 2, 1, 0; 1998 WC₈, 4, 2, 18; [35, 14, 0*, 1998/11/12–1998/12/10]

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

1998 YM₄, 3, 1, 0; [3, 1, 0*, 1998/12/21]

402 Dynic Astronomical Observatory

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

Observers A. Sugie, Y. Ikari

0.60-m $f/5.0$ reflector + CCD

GSC

1994 SE, 3, 1, 0; 1996 JY, 5, 2, 4; 1997 NR₁₀, 4, 2, 4; 1997 SF₄, 4, 2, 4; 1997 VY₅, 4, 2, 4; 1997 WM₁₆, 2, 1, 0; 1998 QR₁₅, 3, 1, 0; 1998 QS₅₂, 3, 1, 0; 1998 QQ₆₃, 3, 1, 0; 1998 QA₉₆, 3, 1, 0; 1998 SJ₁₆₂, 4, 1, 0; 1998 UD₁, 3, 1, 0; 1998 VR, 6, 2, 6; 1998 VS, 3, 1, 0; 1998 VO₃₃, 3, 1, 0; 1998 WL, 3, 1, 0; 1998 WM, 6, 2, 12; 1998 WT, 3, 1, 0; 1998 WZ₁, 6, 2, 9; 1998 WA₄, 6, 2, 6; 1998 WP₅, 6, 2, 12; 1998 WQ₅, 3, 1, 0; 1998 WR₅, 6, 2, 5; 1998 WS₅, 6, 2, 11; 1998 WZ₆, 6, 2, 7; 1998 WT₂₄, 3, 1, 0; 1998 WU₂₄, 12, 4, 12; 1998 XB, 9, 3, 10; 1998 XM₂, 12, 4, 11; 1998 XN₂, 9, 3, 6; 1998 XM₄, 12, 4, 11; 1998 XZ₄, 6, 2, 4; 1998 XA₅, 6, 2, 10; 1998 XB₉, 7, 2, 11; 1998 XC₉, 10, 3, 11; 1998 XD₉, 10, 3, 8; 1998 XD₁₂, 13, 4, 7; 1998 XE₁₂, 14, 4, 8; 1998 XP₁₆, 7, 2, 1; 1998 XQ₁₆, 6, 2, 5; 1998 XR₁₆, 12, 4, 11; 1998 XS₁₆, 10, 3, 10; 1998 XS₁₇ *, 5, 2, 4; 1998 XT₁₇ *, 5, 2, 4; 1998 YN₁, 9, 3, 7; 1998 YW₃, 6, 2, 9; 1998 YM₄, 7, 2, 4; 1998 YO₄, 3, 1, 0; 1998 YW₅, 3, 1, 0; 1998 YB₈, 7, 2, 2; 1998 YP₁₁, 8, 2, 1; 1998 YQ₁₁, 8, 2, 1; 1998 YR₁₁, 8, 2, 1; (7968), 2, 1, 0; [333, 54, 2*, 1998/12/12–1998/12/28]

411 Oizumi

T. Kobayashi, 1717-2 Shimo-Koizumi, Oizumi-machi, Ora-gun, Gunma-ken, 370-

0515 Japan [kobataka@sannet.ne.jp]

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

GSC

1979 QF₁, 4, 2, 1; 1990 TY₇, 2, 1, 0; 1991 SK₂, 4, 2, 1; 1991 VJ₄, 2, 1, 0; 1992 AQ, 4, 2, 1; 1992 WK₉, 4, 2, 2; 1994 YD, 6, 3, 7; 1996 CJ₁, 2, 1, 0; 1996 HU₂₅, 4, 2, 1; 1997 QS₂, 4, 2, 2; 1997 WD₁₅, 2, 1, 0; 1998 UA₄, 2, 1, 0; 1998 UH₃₁, 4, 2, 1; 1998 VB, 4, 2, 9; 1998 VV₅, 4, 2, 9; 1998 VR₆, 4, 2, 9; 1998 VS₆, 4, 2, 9; 1998 VT₆, 4, 2, 9; 1998 VU₆, 4, 2, 9; 1998 VV₆, 2, 1, 0; 1998 VW₆, 4, 2, 9; 1998 VH₃₁, 4, 2, 9; 1998 VJ₃₁, 4, 2, 9; 1998 VK₃₁, 5, 2, 9; 1998 VL₃₁, 4, 2, 9; 1998 VM₃₁, 4, 2, 12; 1998 VM₃₃, 4, 2, 9; 1998 VN₃₃, 4, 2, 9; 1998 VP₃₅, 4, 2, 1; 1998 WR, 4, 2, 1; 1998 WU, 4, 2, 8; 1998 WV, 4, 2, 11; 1998 WL₁, 4, 2, 8; 1998 WM₁, 4, 2, 8; 1998 WF₈, 4, 2, 8; 1998 WO₁, 4, 2, 8; 1998 WP₁, 6, 3, 9; 1998 WQ₁, 4, 2, 8; 1998 WR₁, 4, 2, 5; 1998 WS₁, 4, 2, 8; 1998 WT₁, 4, 2, 8; 1998 WU₁, 4, 2, 8; 1998 WV₁, 4, 2, 8; 1998 WG₃, 4, 2, 10; 1998 WH₃, 4, 2, 10; 1998 WJ₃, 4, 2, 10; 1998 WK₃, 4, 2, 10; 1998 WL₃, 4, 2, 10; 1998 WM₃, 4, 2, 10; 1998 WN₃, 4, 2, 10; 1998 WO₃, 4, 2, 10; 1998 WP₃, 4, 2, 10; 1998 WQ₃, 4, 2, 10; 1998 WR₆, 4, 2, 11; 1998 WP₆, 4, 2, 11; 1998 WZ₆, 10, 4, 25; 1998 WD₈, 4, 2, 10; 1998 WE₈, 4, 2, 10; 1998 WF₈, 4, 2, 10; 1998 WG₈, 4, 2, 10; 1998 WH₈, 4, 2, 10; 1998 WY₈, 2, 1, 0; 1998 XC, 4, 2, 1; 1998 XL₃ *, 8, 4, 15; 1998 XN₃ *, 10, 5, 25; 1998 XO₃ *, 10, 5, 25; 1998 XP₃ *, 6, 3, 10; 1998 XQ₃ *, 8, 4, 15; 1998 XR₃ *, 10, 5, 25; 1998 XS₃ *, 8, 4, 15; 1998 XT₃ *, 10, 5, 25; 1998 XU₃ *, 10, 5, 24; 1998 XV₃ *, 10, 5, 25; 1998 XZ₃ *, 8, 4, 15; 1998 XA₄ *, 8, 4, 15; 1998 XB₄ *, 10, 5, 22; 1998 XC₄ *, 10, 5, 22; 1998 XQ₄ *, 8, 4, 14; 1998 XR₄ *, 10, 5, 15; 1998 XS₄ *, 8, 4, 14; 1998 XT₄ *, 8, 4, 14; 1998 XU₄ *, 8, 4, 14; 1998 XV₄ *, 8, 4, 14; 1998 XW₄ *, 8, 4, 14; 1998 XX₄ *, 8, 4, 14; 1998 XJ₁₁ *, 8, 4, 13; 1998 XK₁₁ *, 8, 4, 13; 1998 XL₁₁ *, 8, 4, 13; 1998 XM₁₁ *, 8, 4, 13; 1998 XN₁₁ *, 8, 4, 13; 1998 XO₁₁ *, 8, 4, 13; 1998 XP₁₁ *, 6, 3, 8; 1998 XO₂₄, 4, 2, 1; 1998 XG₅₀, 4, 2, 1; 1998 XD₅₃, 4, 2, 1; 1998 YP *, 6, 3, 8; 1998 YQ *, 6, 3, 8; 1998 YR *, 6, 3, 8; 1998 YS *, 6, 3, 8; 1998 YT *, 4, 2, 1; 1998 YU *, 6, 3, 8; 1998 YV *, 6, 3, 8; 1998 YW *, 6, 3, 8; 1998 YX *, 6, 3, 8; 1998 YY *, 6, 3, 8; 1998 YB₃ *, 6, 3, 9; 1998 YC₃ *, 6, 3, 9; 1998 YD₃ *, 6, 3, 9; 1998 YE₃ *, 6, 3, 9; 1998 YF₃ *, 6, 3, 9; 1998 YG₃ *, 6, 3, 9; 1998 YH₃ *, 6, 3, 9; 1998 YJ₃ *, 6, 3, 9; 1998 YK₃ *, 9, 4, 10; 1998 YL₃ *, 6, 3, 9; 1998 YM₃ *, 6, 3, 9; 1998 YN₃ *, 6, 3, 9; 1998 YZ₃ *, 6, 3, 7; 1998 YA₄ *, 8, 4, 8; 1998 YB₄ *, 6, 3, 7; 1998 YC₄ *, 6, 3, 7; 1998 YD₄ *, 6, 3, 7; 1998 YE₄ *, 6, 3, 7; 1998 YF₄ *, 6, 3, 7; 1998 YG₄ *, 4, 2, 1; 1998 YM₄, 3, 1, 0; 1998 YN₅ *, 8, 4, 13; 1998 YN₅ *, 6, 3, 7; 1998 YO₅ *, 6, 3, 7; 1998 YQ₅ *, 6, 3, 7; 1998 YR₅ *, 6, 3, 7; 1998 YS₅ *, 6, 3, 7; 1998 YG₇ *, 6, 3, 6; 1998 YH₇ *, 4, 2, 2; 1998 YJ₇ *, 4, 2, 2; 1998 YK₇ *, 6, 3, 7; 1998 YL₇ *, 6, 3, 6; 1998 YF₈ *, 6, 3, 4; 1998 YG₈ *, 6, 3, 4; 1998 YH₈ *, 6, 3, 4; 1998 YJ₈ *, 6, 3, 4; 1998 YK₈ *, 6, 3, 5; 1998 YV₁₁ *, 4, 2, 1; 1998 YW₁₁ *, 4, 2, 1; 1998 YX₁₁ *, 4, 2, 1; 1998 YY₁₁ *, 4, 2, 1; 1998 YZ₁₁ *, 4, 2, 1; 1998 YA₁₂ *, 6, 3, 2; 1998 YB₁₂ *, 6, 3, 2; 1998 YC₁₂ *, 6, 3, 2; 1998 YD₁₂ *, 6, 3, 2; 1998 YE₁₂ *, 6, 3, 2; 1998 YF₁₂ *, 6, 3, 2; 1998 YG₁₂ *, 6, 3, 2; 1998 YQ₁₂ *, 4, 2, 1; 1999 AA *, 4, 2, 1; 1999 AB *, 4, 2, 1; 3071 T-2, 4, 2, 2; [863, 158, 90*, 1998/12/09–1999/01/04]

413 Siding Spring

R. H. McNaught, Anglo-Australian Observatory, Coonabarabran, N.S.W. 2357, Australia [rmn@aaocbn2.aao.gov.au] (1)

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

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

Observers R. H. McNaught, G. J. Garradd, K. S. Russell

Measurers R. H. McNaught, A. Gnädig, G. V. Williams

1.2-m U.K. Schmidt, 1.0-m reflector + CCD

(1) 1993 JQ₁, 1, 1, 0; [1, 1, 0*, 1993/05/26]

(5) 1987 MQ, 4, 2, 60; 1992 EM₁₂, 2, 1, 0; 1998 RM₆, 2, 1, 0; 1998 SJ₁₄₁, 5, 3, 3257; [13, 4, 0*, 1977/09/08–1992/04/09]

(6) 1958 TL₁, 4, 2, 62; 1998 WS, 2, 1, 0; (1615), 2, 1, 0; [8, 3, 0*, 1980/09/30–1986/10/02]

422 Loomberah

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

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

ACT, GSC, USNO-A1.0

1998 MQ, 3, 1, 0; 1998 PG, 3, 1, 0; 1998 QK₅₆, 3, 1, 0; 1998 TU₃, 6, 2, 9; 1998 UQ₁, 2, 1, 0; 1998 VO, 2, 1, 0; 1998 VF₃₁, 2, 1, 0; 1998 VO₃₃, 3, 1, 0; 1998 WL, 3, 1, 0; 1998 WA₄, 3, 1, 0; 1998 XM₂, 2, 2, 1; 1998 XN₂, 9, 3, 10; 1998 XA₅, 3, 1, 0; 1998 XD₉, 3, 1, 0; 1998 XD₁₂, 3, 1, 0; 1998 XR₁₆, 3, 1, 0; 1998 XS₁₆, 3, 1, 0; 1998 YN₁, 3, 1, 0; 1998 YW₅, 2, 1, 0; 1998 YB₈, 5, 1, 0; 1998 YP₁₁, 4, 1, 0; 1998 YQ₁₁, 4, 1, 0; 1998 YR₁₁, 4, 1, 0; 1998 YF₂₇, 1, 1, 0; (132), 7, 2, 22; (3352), 3, 1, 0; (3362), 3, 1, 0; [92, 27, 0*, 1998/12/11–1999/01/04]

423 North Ryde

S. McAndrew, 2/32 Twin Rd, North Ryde, NSW 2113, Australia [mcandrew@trinity.nsw.edu.au]

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

GSC

1987 WF₁, 3, 1, 0; 1991 AN₂, 4, 2, 8; 1992 AM, 4, 2, 1; 1992 AN, 15, 7, 18; [26, 4, 0*, 1998/12/06–1998/12/29]

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

1958 TL₁, 5, 2, 2; 1978 PW₃, 6, 2, 2; 1979 MK, 6, 2, 2; 1979 WX₃, 6, 2, 2; 1984 SL, 5, 2, 2; 1988 VK, 5, 2, 2; 1989 AL₃, 5, 2, 2; 1989 XD₂, 6, 3, 3; 1990 DA₃, 4, 2, 2; 1990 RM₉, 5, 2, 4; 1993 GC₁, 5, 2, 2; 1993 GN₁, 5, 2, 5; 1993 TQ, 7, 3, 4; 1997 PQ, 6, 2, 4; 1997 PR, 6, 2, 4; 1997 RY₈, 5, 3, 4; 1997 SR, 5, 2, 4; 1997 SS₃₁, 9, 3, 12; 1997 YZ, 5, 2, 4; 1998 QP₆₃, 3, 1, 0; 1998 SF₂, 5, 2, 2; 1998 ST₄, 2, 1, 0; 1998 SJ₁₆₂, 4, 1, 0; 1998 UQ₁, 2, 1, 0; 1998 UG₁₅, 5, 2, 2; 1998 UZ₂₄, 9, 3, 12; 1998 VF₃₁, 3, 1, 0; 1998 WC₂, 6, 2, 4; 1998 WA₄, 3, 1, 0; 1998 WR₅, 3, 1, 0; 1998 WT₇, 3, 1, 0; 1998 WW₁₉, 6, 2, 2; 1998 WY₁₉, 9, 3, 12; 1998 WZ₁₉, 5, 2, 1; 1998 WA₂₀, 8, 3, 12; 1998 WB₂₀, 8, 3, 12; 1998 XN₂, 4, 1, 0; 1998 XD₃, 9, 4, 12; 1998 XM₄, 3, 1, 0; 1998 XA₅, 4, 1, 0; 1998 XD₉, 4, 1, 0; 1998 XW₉, 11, 4, 7; 1998 XD₁₂, 2, 1, 0; 1998 XS₁₆, 3, 1, 0; 1998 XU₁₇, 6, 3, 5; 1998 YH₄, 5, 2, 4; 1998 YJ₄, 9, 3, 4; 1998 YK₄, 5, 2, 2; 9538 P-L, 6, 2, 2; (6956), 6, 2, 2; (7072), 5, 2, 4; (7709), 5, 2, 4; (7834), 6, 2, 1; [283, 53, 6*, 1998/12/08–1998/12/21]

428 Reedy Creek

J. Broughton, 18 Branch Crescent, Reedy Creek, QLD 4228, Australia [reedyck@yahoo.com]

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

GSC

1989 UR, 7, 2, 3; 1990 WR₂, 2, 1, 0; 1998 QE₄, 3, 2, 10; 1998 QD₉₉, 1, 1, 0; 1998 SA₁₂₉, 2, 1, 0; 1998 TZ₁, 4, 2, 15; 1998 TU₃, 3, 1, 0; 1998 TQ₆, 4, 2, 17; 1998 TY₆, 3, 2, 15; 1998 TZ₆, 2, 2, 13; 1998 UG₄, 3, 1, 0; 1998 US₁₆, 3, 2, 15; 1998 UF₁₈, 2, 2, 3; 1998 UT₂₂, 4, 2, 15; 1998 VF₃₁, 2, 1, 0; 1998 VH₃₂, 4, 2, 17; 1998 VK₃₂, 4, 2, 13; 1998 VE₃₃, 4, 2, 13; 1998 WJ₈, 6, 3, 19; 1998 XA₅, 7, 1, 0; 1998 YP₇, 10, 4, 4; 1998 YB₈, 2, 1, 0; 4013 P-L, 3, 2, 14; (9241), 2, 1, 0; [87, 24, 1*, 1998/12/06–1998/12/26]

468 Astronomical Observatory, Campo Catino

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

Observers M. Di Sora, F. Mallia

Measurers F. Rossi, F. Mallia

0.80-m $f/4$ reflector + CCD

GSC

1998 XD₉, 2, 1, 0; 1998 XR₁₆, 2, 1, 0; 1998 YO₄, 3, 1, 0; (7072), 2, 1, 0; (7553), 2, 1, 0; (7709), 3, 1, 0; [14, 6, 0*, 1998/12/17–1998/12/18]

470 Ceccano

G. Masi, Via Madonna de Loco 47, I-03023 Ceccano (FR), Italy [gianmasi@fr.flashnet.it]

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

USNO-A1.0

1998 UH₈, 3, 1, 0; 4071 T-3, 2, 1, 0; [5, 2, 0*, 1998/12/12]

504 Le Creusot

J.-C. Merlin, 18 rue P. Mendès-France, F-71200 Le Creusot, France [merlin@obsmp.fr]

0.40-m $f/5.1$ reflector + CCD

GSC

1998 XZ₈, 35, 7, 15; (423), 2, 1, 0; [37, 2, 1*, 1998/12/06–1998/12/29]

511 Haute Provence

W. Thuillot, Institut de Mécanique Céleste, Bureau des Longitudes, Observatoire de Paris, 77 Av. Denfert Rochereau, F-75014 Paris, France [thuillot@bdl.fr]

Observers W. Thuillot, J. Berthier, D. Hestroffer

Measurers J. Berthier, D. Hestroffer, W. Thuillot, A. Fienga

1.20-m $f/6$ reflector + CCD

USNO-SA2.0

1998 XB₁₃, 9, 1, 0; [9, 1, 0*, 1998/12/18]

540 Linz

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

Observers E. Meyer, E. Obermair

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

GSC, USNO-A2.0

1985 SM₃, 3, 1, 0; 1997 SE₄, 4, 1, 0; 1998 QT₆₀, 3, 1, 0; 1998 TT₃, 2, 1, 0; 1998 WM, 4, 1, 0; 1998 WS, 15, 4, 22; 1998 WZ₆, 14, 4, 25; 1998 XN₂, 4, 1, 0; 1998 XZ₄, 3, 1, 0; 1998 XA₅, 18, 5, 14; 1998 XB₉, 3, 1, 0; 1998 XD₉, 13, 4, 19; 1998 XV₁₁, 3, 1, 0; 1998 XQ₁₆, 4, 1, 0; 1998 XR₁₆, 9, 3, 17; 1998 XS₁₆, 3, 1, 0; 1998 YN₁, 3, 1, 0; 1998 YL₈, 15, 4, 6; [123, 18, 1*, 1998/12/09–1999/01/03]

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

1996 DS₁, 5, 2, 2; 1998 WO₂, 2, 1, 0; 1998 YQ₃ *, 9, 4, 6; 1998 YX₃ *, 7, 3, 4; 1998 YL₆ *, 5, 2, 1; 1998 YM₆ *, 5, 2, 1; [33, 6, 4*, 1998/11/28–1998/12/23]

557 Ondřejov

P. Pravec, Astronomical Institute, Czech Academy of Sciences, CZ-25165 Ondřejov, Czech Republic [ppravec@asu.cas.cz]

Observers P. Pravec, L. Šarounová, U. Babiakova, T. Rezek, A. Kolar

0.65-m $f/3.6$ reflector + CCD

USNO-SA1.0, GSC

1985 SM₃, 2, 1, 0; 1994 XB₅, 6, 3, 30; 1995 HA, 4, 2, 2; 1996 FG₃, 19, 4, 10; 1996 LJ₁, 2, 1, 0; 1997 QP, 2, 1, 0; 1997 QD₁, 2, 1, 0; 1997 RA₁, 2, 1, 0; 1997 SN, 6, 3, 35; 1997 SQ, 4, 2, 8; 1997 SN₁, 4, 1, 0; 1997 SX₁, 5, 2, 30; 1997 SZ₁, 6, 2, 1; 1997 SA₂, 4, 2, 35; 1997 TM₁₈, 2, 1, 0; 1997 UH, 3, 1, 0; 1997 UJ, 1, 1, 0; 1997 UU₇, 2, 1, 0; 1997 UM₉, 4, 2, 1; 1997 UW₁₄, 6, 3, 35; 1997 VC₅, 4, 2, 35; 1997 WX, 4, 2, 24; 1997 WP₂₈, 4, 2, 14; 1998 AN₈, 2, 1, 0; 1998 QE₂₉, 2, 1, 0; 1998 QO₆₀, 2, 1, 0; 1998 RP₂₀, 2, 1, 0; 1998 SU₂, 2, 1, 0; 1998 SW₁₀, 5, 2, 7; 1998 SA₁₃, 2, 1, 0; 1998 SB₁₃, 2, 1, 0; 1998 SU₂₆, 2, 1, 0; 1998 SV₂₆, 2, 1, 0; 1998 SH₂₇, 2, 1, 0; 1998 SK₃₆, 2, 1, 0; 1998 SJ₁₆₂, 2, 1, 0; 1998 TL₆, 2, 1, 0; 1998 UL, 3, 2, 6; 1998 UB₁, 2, 1, 0; 1998 UC₁₅, 2, 1, 0; 1998 VU₄, 7, 3, 10; 1998 VW₄, 2, 1, 0; 1998 VZ₆, 4, 2, 6; 1998 XB, 7, 2, 1; 1998 XM₂, 2, 1, 0; 1998 XX₂, 2, 1, 0; 1998 XJ₃ *, 6, 3, 6; 1998 XK₃ *, 10, 5, 19; 1998 XM₄, 6, 2, 1; 1998 XB₉, 2, 1, 0; 1998 XC₉, 5, 2, 1; 1998 XD₉, 3, 1, 0; 1998 XJ₉ *, 6, 3, 7; 1998 XV₁₁, 2, 1, 0; 1998 XE₁₂, 2, 1, 0; 1998 XO₁₂ *, 8, 4, 8; 1998 XP₁₆, 2, 1, 0; 1998 XQ₁₆, 2, 1, 0; 1998 XR₁₆, 4, 1, 0; 1998 XS₁₆, 1, 1, 0; 1998 XZ₁₆ *, 7, 3, 10; 1998 XA₁₇ *, 5, 2, 6; 1998 XN₁₇, 2, 1, 0; 1998 XT₅₂, 6, 2, 5; 1998 YN₁, 4, 2, 1; 1998 YV₁ *, 3, 2, 2; 1998 YX₂ *, 6, 3, 4; 1998 YY₂ *, 6, 3, 4; 1998 YV₃ *, 10, 3, 6; 1998 YW₃, 6, 2, 1; 1998 YM₄, 7, 2, 1; 1998 YO₄, 3, 1, 0; 1998 YR₆ *, 11, 3, 4; 1998 YB₈, 3, 1, 0; 1998 YO₁₁, 7, 2, 5; 1998 YP₁₁, 6, 2, 5; 1998 YQ₁₁, 3, 1, 0; 1998 YR₁₁, 6, 2, 5; 1998 YH₁₂ *, 10, 3, 9; 1998 YJ₁₂ *, 6, 2, 2; (1306), 2, 1, 0; (2364), 2, 1, 0; (2742), 2, 1, 0; (4766), 4, 1, 0; (5436), 2, 1, 0; (7349), 3, 2, 4; [351, 86, 13*, 1998/11/23–1998/12/29]

561 Piskéztető

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

Observers K. Sárneczky, L. Kiss

0.60-m Schmidt telescope + CCD

USNO-A2.0

1975 TJ₃, 3, 1, 0; 1991 VZ₂, 3, 1, 0; 1998 WY₆, 3, 1, 0; 1998 WR₈, 3, 1, 0; 1998 WS₈, 3, 1, 0; 1998 XT₉ *, 5, 2, 3; 1998 XU₉ *, 13, 3, 2; 1998 XV₉ *, 8, 2, 1; 1998 XY₁₂ *, 8, 2, 1; (288), 12, 1, 0; (1627), 4, 1, 0; (2060), 3, 1, 0; [68, 12, 4*, 1998/07/20–1998/12/16]

566 Haleakala-NEAT/GEODSS

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

[efh@ipl.jpl.nasa.gov]

Observers E. F. Helin, S. H. Pravdo, K. J. Lawrence, D. L. Rabinowitz, S. Groom, C. Clark, R. Bamberg, S. Levin, J. Lorre, S. Shaklan, R. Byrd, A. Esquibel, C. Cotton, D. Bascon

1-m $f/2.2$ Ritchey-Chrétien + CCD

1994 TM₁₄, 3, 1, 0; (4862), 3, 1, 0; [6, 2, 0*, 1996/03/18–1997/12/29]

568 Mauna Kea

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

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

Observers D. Jewitt, C. Veillet, S. Bahn

Measurers C. Trujillo, C. Veillet, S. Bahn

10-m Keck reflector + CCD, 2.2-m University of Hawaii reflector + CCD, CFHT

3.6-m + CCD

USNO-A1.0, USNO-SA1.0

(1) 1996 TR₆₆, 4, 3, 8; [4, 1, 0*, 1998/11/15–1998/11/23]

(3) 1997 SZ₁₀, 5, 1, 0; [5, 1, 0*, 1998/10/16]

587 Sormano

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

[sormano@tin.it]

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

0.5-m reflector + CCD

GSC

1993 BE₅, 3, 1, 0; 1997 QG₁, 5, 2, 11; 1997 QH₁, 4, 2, 4; 1997 TC, 3, 1, 0; 1997 TV, 4, 2, 20; 1998 VS₃₃, 5, 2, 7; 1998 VT₃₃, 4, 2, 3; 1998 VG₃₄, 4, 2, 11; 1998 WD₂, 4, 2, 7; 1998 WZ₆, 4, 2, 11; 1998 WW₃₀ *, 15, 6, 21; 1998 XY₂ *, 13, 6, 16; 1998 XC₃, 5, 3, 6; 1998 XM₄, 2, 1, 0; 1998 XZ₄, 1, 1, 0; 1998 XA₅, 4, 2, 5; 1998 XB₉, 2, 1, 0; 1998 XC₉, 2, 1, 0; 1998 XD₉, 4, 2, 3; 1998 XD₁₂, 3, 1, 0; 1998 XE₁₂, 3, 1, 0; 1998 XN₁₇, 2, 1, 0; 1998 YW₃, 3, 1, 0; 1998 YM₄, 3, 1, 0; (9796), 2, 1, 0; [104, 25, 2*, 1998/11/18–1998/12/23]

589 Santa Lucia Stroncone

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[vagnozzi@freenet.hut.fi]

Observers A. Vagnozzi, G. Bernabei

0.50-m $f/2.8$ Ritchey-Chrétien + CCD

GSC

1994 WU₁, 2, 1, 0; 1996 PF₁, 4, 1, 0; 1998 QM₈₀, 4, 1, 0; 1998 SR₂₆, 11, 3, 7; 1998 XC₃, 4, 1, 0; (6541), 4, 1, 0; [29, 6, 0*, 1998/12/08–1998/12/15]

595 Farra d'Isonzo

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

[ccaf@tmedia.it]

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

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

0.4-m $f/4.5$ reflector + CCD

GSC

1979 EL, 2, 1, 0; 1993 FA₂₈, 2, 1, 0; 1994 FQ, 4, 2, 1; 1994 TJ, 5, 2, 1; 1994 XN₁, 5, 2, 4; 1996 EB, 5, 2, 6; 1997 MQ₁, 4, 2, 1; 1997 NL₆, 4, 2, 1; 1997 SA₃, 4, 2, 3; 1997 SZ₄, 5, 2, 3; 1998 VZ₃₃, 5, 2, 16; 1998 WH₂, 2, 1, 0; 1998 WJ₂, 4, 2, 1; 1998 WB₄, 4, 2, 1; 1998 WC₄, 5, 2, 1; 1998 WX₃₀ *, 4, 2, 2; 1998 WY₃₀ *, 11, 5, 15; 1998 XR₂ *, 7, 3, 7; 1998 XC₅ *, 9, 4, 12; 1998 XD₅ *, 8, 4, 12; 1998 XV₁₅ *, 10, 4, 8; 1998 YJ₁ *, 9, 3, 7; 1998 YX₅ *, 5, 2, 1; 1998 YW₆ *, 5, 2, 1; 1998 YX₆ *, 5, 2, 1; 1998 YY₆ *, 4, 2, 1; [137, 26, 11*, 1998/11/26–1998/12/24]

596 Colleverde di Guidonia

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[v.casulli@priminet.it]

0.40-m $f/3.2$ reflector + CCD

GSC

1991 DW, 2, 1, 0; 1991 RE₇, 4, 1, 0; 1993 BE₅, 3, 1, 0; 1997 TC, 5, 1, 0; 1998 XC₃ *, 14, 4, 15; 1998 YU₆ *, 13, 4, 4; 1998 YJ₉ *, 7, 2, 1; (8209), 3, 1, 0; [51, 8, 3*, 1998/12/07–1998/12/26]

610 Pianoro

V. Goretti, Via Resistenza 93, I-40065 Pianoro (BO), Italy

[astrofil@astbo1.bo.cnr.it]

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

GSC

1982 UC₁₁, 5, 1, 0; 1985 TU, 10, 2, 1; 1989 SW₈, 5, 1, 0; 1990 TU₁₁, 10, 2, 1; 1991 OL₁, 5, 1, 0; 1991 VQ₁, 5, 1, 0; 1993 YD, 5, 1, 0; 1994 PR₂₀, 5, 1, 0; 1994 PZ₂₉, 5, 1, 0; 1994 TY₂, 5, 1, 0; 1994 WN₃, 5, 1, 0; 1996 BS₁, 5, 1, 0; 1996 FG₃, 5, 1, 0; 1997 QD₂, 10, 2, 1; 1998 WQ₂, 5, 1, 0; (45), 5, 1, 0; (51), 5, 1, 0; (146), 5, 1, 0; (147), 5, 1, 0; (161), 5, 1, 0; (281), 5, 1, 0; (287), 10, 2, 9; (301), 5, 1, 0; (371), 5, 1, 0; (439), 10, 2, 9; (517), 5, 1, 0; (536), 10, 2, 9; (624), 53, 2, 2; (640), 5, 1, 0; (695), 5, 1, 0; (774), 5, 1, 0; (858), 5, 1, 0; (871), 5, 1, 0; (881), 15, 3, 36; (956), 5, 1, 0; (1001), 5, 1, 0; (1026), 5, 1, 0; (1108), 5, 1, 0; (1220), 5, 1, 0; (1401), 5, 1, 0; (1412), 13, 1, 0; (1550), 5, 1, 0; (1558), 5, 1, 0; (1627), 5, 1, 0; (2172), 5, 1, 0; (2336), 10, 2, 1; (2497), 5, 1, 0; (2500), 5, 1, 0; (2742), 5, 1, 0; (2862), 10, 2, 2; (3260), 5, 1, 0; (3494), 5, 1, 0; (3499), 5, 1,

0; (3543), 10, 2, 2; (3606), 5, 1, 0; (3736), 20, 4, 13; (3772), 5, 1, 0; (3793), 5, 1, 0; (3903), 5, 1, 0; (4060), 5, 1, 0; (4139), 5, 1, 0; (4193), 5, 1, 0; (4325), 5, 1, 0; (4339), 5, 1, 0; (4378), 10, 2, 12; (4389), 10, 2, 9; (4489), 5, 1, 0; (4508), 5, 1, 0; (4537), 5, 1, 0; (4589), 5, 1, 0; (4621), 5, 1, 0; (4804), 5, 1, 0; (4836), 5, 1, 0; (4873), 10, 2, 1; (5142), 5, 1, 0; (5164), 15, 2, 1; (5293), 5, 1, 0; (5303), 5, 1, 0; (5402), 5, 1, 0; (5598), 15, 3, 22; (5600), 15, 3, 30; (5606), 5, 1, 0; (5666), 10, 2, 28; (5732), 18, 1, 0; (5826), 5, 1, 0; (5854), 5, 1, 0; (5919), 5, 1, 0; (6085), 5, 1, 0; (6180), 5, 1, 0; (6212), 5, 1, 0; (6238), 5, 1, 0; (6338), 5, 1, 0; (6845), 5, 1, 0; (6877), 5, 1, 0; (6886), 5, 1, 0; (6888), 5, 1, 0; (6992), 5, 1, 0; (7107), 10, 2, 9; (7152), 10, 2, 9; (7172), 10, 2, 1; (7553), 5, 1, 0; (7794), 5, 1, 0; (7801), 5, 1, 0; (7824), 20, 4, 13; (7843), 5, 1, 0; (7991), 5, 1, 0; (9172), 5, 1, 0; (9551), 5, 1, 0; (9565), 5, 1, 0; (9612), 5, 1, 0; (9711), 5, 1, 0; (9771), 5, 1, 0; (9798), 5, 1, 0; (9805), 5, 1, 0; [789, 114, 0*, 1998/11/15–1998/12/23]

611 Starkenburg Sternwarte, Heppenheim

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

Observers M. Busch, R. Stoss, S. Kluegl, E. Schwab, P. Geffert

Measurers E. Schwab, M. Busch, R. Stoss

0.45-m $f/4.4$ reflector + CCD

USNO-SA1.0, USNO-A1.0

1997 PR, 3, 1, 0; 1997 PK₂, 4, 2, 2; 1998 XC₉, 2, 1, 0; 1998 XD₉, 2, 1, 0; 1998 XD₁₂, 2, 1, 0; 1998 XR₁₆, 2, 1, 0; 1998 YG₂₂ *, 4, 2, 1; 4161 T-1, 3, 1, 0; (1026), 2, 1, 0; [24, 9, 1*, 1998/12/15–1998/12/30]

615 St. Véran

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

0.62-m $f/3$ reflector + CCD

GSC

(457), 6, 2, 1; [6, 1, 0*, 1998/10/15–1998/10/17]

619 Sabadell

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

[astrosab@redestb.es]

0.50-m $f/4$ reflector + CCD

GSC

1993 VG₁, 6, 2, 1; [6, 1, 0*, 1998/12/26–1998/12/27]

620 Observatorio Astronómico de Mallorca

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[astroam@dinky.bitel.es]

Observers A. Lopez, R. Pacheco

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

GSC

1995 BS₃, 6, 2, 2; 1996 FQ₄, 7, 2, 2; 1997 LL₆, 5, 2, 2; 1997 PU₄, 7, 2, 2; 1997 QN₄, 6, 2, 2; 1998 WD₄, 7, 2, 4; 1998 XN₂, 5, 1, 0; 1998 XA₅, 4, 1, 0; 1998 XR₁₆, 4, 1, 0; 1998 YB₈, 4, 1, 0; [55, 10, 0*, 1998/12/07–1998/12/27]

621 Bergisch Gladbach

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

0.60-m $f/5$ reflector + CCD

USNO-SA1.0

1997 KC, 4, 2, 1; 1997 RB₉, 6, 2, 1; 1997 UO₂₄, 4, 2, 1; 1998 QK₆₃, 9, 2, 1; 1998 SM₄₉, 3, 1, 0; 1998 SO₄₉, 2, 1, 0; 1998 WO₈, 7, 2, 1; [35, 7, 0*, 1998/12/16–1998/12/18]

627 Blauvac

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

0.26-m $f/4.7$ reflector + CCD

GSC, USNO-SA1.0

1998 WZ₃₀ *, 13, 4, 21; 1998 XO₄ *, 10, 3, 7; 1998 XX₉ *, 7, 2, 3; (5026), 2, 1, 0; (5749), 2, 1, 0; [34, 5, 3*, 1998/11/24–1998/12/15]

628 Mülheim-Ruhr

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

Observers A. Boeker, A. Martin

0.2-m Schmidt-Cassegrain + CCD

USNO-A1.0, USNO-A2.0

1994 TY₂, 6, 2, 10; 1998 WS, 9, 2, 3; 1998 WZ₆, 4, 1, 0; (5785), 4, 1, 0; (6976), 3, 1, 0; [26, 5, 0*, 1998/12/07–1999/01/02]

631 Hamburg-Georgswerder

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

[michael.buck@jovice.net]

0.15-m $f/8$ refractor + CCD

GSC

1979 WX₃, 4, 2, 2; 1998 WS, 4, 2, 3; (3772), 4, 2, 2; (3794), 2, 1, 0; (4268), 4, 2, 2; (6265), 4, 2, 2; (6326), 4, 2, 3; (6985), 4, 2, 3; (7201), 4, 2, 3; (7202), 4, 2, 3; (9515), 4, 2, 2; [42, 11, 0*, 1998/12/08–1998/12/20]

636 Essen

A. Knöfel, Saarbrücker Str. 8, D-40476 Düsseldorf, Germany

[aknoefel@dw.d400.de]

0.318-m $f/5.7$ reflector + CCD

USNO-A1.0

1988 VR₂, 5, 2, 3; 1998 QT₆₀, 6, 3, 9; 1998 WZ₆, 2, 1, 0; 4355 T-1, 10, 4, 14; (2069), 5, 2, 1; (4503), 6, 2, 1; (5204), 5, 2, 1; (5402), 4, 2, 1; (7812), 3, 1, 0; [46, 9, 0*, 1998/12/16–1998/12/31]

639 Dresden

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

0.25-m $f/6.0$ reflector + CCD

USNO-A1.0

1998 QT₆₀, 4, 2, 2; 1998 WS, 2, 1, 0; (453), 4, 1, 0; [10, 3, 0*, 1998/12/09–1998/12/17]

653 Torus Observatory, Buckley

R. J. Williams, 224th Ave. E., Buckley, WA 98321, U.S.A.

[richjwilliams@msn.com]

0.4-m $f/10$ Cassegrain reflector + CCD

GSC

1984 WJ₁, 4, 2, 1; 1992 GH, 3, 2, 1; [7, 2, 0*, 1999/01/03–1999/01/04]

658 Dominion Astrophysical Observatory, Victoria

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

1.82-m Plaskett telescope + CCD

GSC, USNO-A1.0

1993 WD, 3, 1, 0; 1996 FG₃, 6, 2, 5; 1998 QS₅₂, 3, 1, 0; 1998 QA₉₆, 3, 1, 0; 1998 ST₄, 6, 2, 15; 1998 SK₁₄₄, 3, 1, 0; 1998 TT₃, 3, 1, 0; 1998 UD₁, 3, 1, 0; 1998 VR, 3, 1, 0; 1998 VO₃₃, 3, 1, 0; 1998 VD₃₅, 6, 2, 5; 1998 WT, 3, 1, 0; 1998 WA₄, 3, 1, 0; 1998 WP₅, 3, 1, 0; 1998 WZ₆, 3, 1, 0; 1998 XN₂, 9, 3, 20; 1998 XM₄, 6, 2, 23; 1998 XY₄, 3, 1, 0; 1998 XZ₄, 5, 1, 0; 1998 XA₅, 3, 1, 0; 1998 XD₉, 3, 1, 0; 1998 XD₁₂, 3, 1, 0; 1998 XE₁₂, 3, 1, 0; 1998 YN₁, 3, 1, 0; 1998 YM₄, 3, 1, 0; 1998 YO₄, 6, 2, 15; 1998 YQ₇, 3, 1, 0; 1998 YM₈, 3, 1, 0; 1998 YF₁₀, 3, 1, 0; 1998 YF₂₇, 3, 1, 0; [113, 30, 0*, 1998/12/11–1999/01/03]

670 Camarillo

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[72401.3174@compuserve.com]

0.25-m Schmidt-Cassegrain + CCD GSC

1996 FG₃, 4, 1, 0; 1998 QS₅₂, 2, 1, 0; 1998 WM, 2, 1, 0; 1998 WZ₆, 9, 3, 12; 1998 XN₂, 10, 3, 12; 1998 XA₅, 4, 1, 0; 1998 XB₉, 3, 1, 0; 1998 XD₉, 4, 1, 0; 1998 XD₁₂, 3, 1, 0; 1998 XR₁₆, 8, 2, 6; 1998 YM₈, 5, 1, 0; [54, 11, 0*, 1998/12/11–1998/12/26]

673 Table Mountain Observatory

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Pasadena, CA 91109-8099 [wmo@wansor.jpl.nasa.gov]

Observers W. M. Owen, J. M. Young, J. Foster, G. Genevier, G. Miller

Measurer W. M. Owen

0.6-m reflector + CCD

(1), 4, 2, 1; (2), 10, 3, 5; (4), 4, 2, 1; (5), 2, 1, 0; (8), 3, 2, 2; (9), 5, 3, 4; (10), 6, 3, 2; (11), 9, 4, 3; (15), 9, 3, 4; (17), 9, 4, 4; (19), 4, 2, 1; (21), 2, 1, 0; (37), 2, 1, 0; (41), 4, 2, 2; (44), 9, 4, 4; (45), 2, 1, 0; (46), 2, 1, 0; (49), 12, 5, 7; (52), 13, 5, 4; (65), 8, 4, 4; (70), 3, 2, 2; (88), 2, 1, 0; (106), 5, 2, 1; (124), 3, 1, 0; (132), 10, 4, 3; (146), 12, 5, 4; (187), 10, 4, 4; (196), 3, 1, 0; (245), 10, 4, 3; (270), 3, 1, 0; (349), 4, 2, 1; (389), 7, 3, 3; (404), 5, 3, 4; [196, 33, 0*, 1998/12/06–1998/12/13]

675 Palomar

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

G. V. Williams, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A [gwilliams@cfa.harvard.edu] (7)

9 = 6 + 3

Observers T. Gehrels (4, L), H. E. Holt (3, S), C. S. Shoemaker (3, S),

E. M. Shoemaker (3, S), K. W. Zeigler (3, S)

Measurers A. Gnädig (5), B. A. Skiff (6), C. J. van Houten (4), I. van Houten-Groeneveld (4), G. V. Williams (7), A. Wisse (4)

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

(3) 1993 SK₁₆ *, 6, 3, 24; [6, 1, 1*, 1993/09/19–1993/10/13]

(4) 2505 P-L *, 9, 8, 32; 2568 P-L *, 8, 8, 32; 2591 P-L *, 8, 8, 32; 2743 P-L *, 6, 6, 28; 2795 P-L *, 3, 3, 3; 4648 P-L *, 11, 9, 32; 4659 P-L *, 10, 8, 32; 4838 P-L *, 5, 5, 32; 5571 P-L *, 3, 3, 4; 6070 P-L *, 7, 7, 32; 6189 P-L *, 6, 6, 28; 6319 P-L *, 6, 6, 32; 7600 P-L *, 4, 4, 9; 9594 P-L *, 5, 5, 32; 3315 T-1 *, 5, 4, 8; 4170 T-1 *, 5, 4, 9; 2056 T-2 *, 15, 8, 16; 3072 T-2 *, 15, 8, 16; 3130 T-2 *, 15, 8, 16; 3372 T-2 *, 9, 5, 10; 4212 T-2 *, 15, 8, 16; 4215 T-2 *, 15, 8, 16; 4225 T-2 *, 15, 8, 16; 1110 T-3 *, 17, 7, 15; 1157 T-3 *, 11, 6, 15; 1223 T-3 *, 10, 4, 6; 2181 T-3 *, 13, 7, 15; 2367 T-3 *, 10, 5, 10; 3249 T-3 *, 10, 5, 11; 3417 T-3 *, 13, 7, 15; 3423 T-3 *, 13, 7, 15; 4316 T-3 *, 10, 5, 10; 5082 T-3 *, 17, 7, 15; 5282 T-3 *, 5, 3, 5; [329, 34, 34*, 1960/09/24–1977/10/22]

(5) 1992 EM₁₂, 1, 1, 0; 1998 SC₁₂₂, 2, 1, 0; 1998 SJ₁₄₁, 2, 1, 0; [5, 3, 0*, 1950/12/09–1954/12/30]

(7) 1986 WH₃, 2, 1, 0; 1998 QF₁₀₄, 4, 2, 7; 1998 XB₅, 1, 1, 0; 5187 T-2, 1, 1, 0; (1877), 2, 1, 0; (2068), 4, 2, 1857; [14, 6, 0*, 1953/03/10–1994/01/11]

(9) 1996 CZ₂, 2, 1, 0; [2, 1, 0*, 1989/03/07]

676 San Clemente

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

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

GSC

1998 XN₂, 6, 1, 0; [6, 1, 0*, 1998/12/11]

682 Kanab

E. Sheridan, 7205 Sunflower Lane, Kanab, UT 84741, U.S.A

[mened@expressweb.com]

0.25-m *f*/4 Schmidt-Cassegrain + CCD

GSC

1981 UA₂₃, 3, 1, 0; 1998 YB₇ *, 9, 4, 7; (997), 3, 1, 0; [15, 3, 1*, 1998/12/17–1998/12/30]

683 Goodricke-Pigott Observatory, Tucson

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

[tucker@noao.edu]

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

GSC

1997 SW₉, 5, 2, 1; 1998 QA₉₁, 5, 2, 1; 1998 VK, 6, 2, 1; 1998 VL, 6, 2, 1; 1998 VG₃₃, 6, 2, 2; 1998 WF, 6, 2, 1; 1998 XE₅ *, 6, 2, 1; 1998 XF₅ *, 11, 4, 11; 1998 XG₅ *, 12, 4, 11; 1998 YK₁₂ *, 8, 2, 5; 1998 YF₂₇ *, 2, 1, 0; 2546 P-L, 6, 2, 1; (6372), 9, 3, 2; [88, 13, 5*, 1998/12/11–1998/12/28]

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

1990 OX₁, 4, 2, 1; 1994 TT, 2, 1, 0; 1994 WP₃, 4, 2, 1; 1996 HX, 4, 2, 1; 1996 KN, 4, 2, 1; 1997 JT₃, 4, 2, 1; 1997 JB₈, 5, 2, 1; 1997 LA₅, 4, 2, 1; 1997 NY, 4, 2, 1; 1997 NA₁, 4, 2, 1; 1997 NU₁, 2, 1, 0; 1997 OO₁, 4, 2, 2; 1997 PK₁, 4, 2, 1; 1997 PJ₂, 5, 2, 1; 1997 PY₂, 6, 2, 4; 1997 RQ₅, 6, 2, 2; 1997 RX₆, 4, 2, 1; 1998 UP, 2, 1, 0; 1998 US, 4, 2, 1; 1998 UG₇, 4, 2, 1; 1998 VR₃₁, 4, 2, 2; 1998 VB₃₅, 4, 2, 1; 1998 WJ, 4, 2, 2; 1998 WK, 4, 2, 2; 1998 WY, 4, 2, 1; 1998 WG₂, 4, 2, 1; 1998 WR₃, 4, 2, 1; 1998 WK₄, 4, 2, 1; 1998 WH₂₄, 4, 2, 2; 1998 XR *, 4, 2, 1; 1998 XU₈ *, 4, 2, 1; 1998 XV₈ *, 4, 2, 1; 1998 XQ₁₁ *, 8, 3, 12; 1998 XE₁₂, 3, 1, 0; 1998 XG₂₄, 4, 2, 1; 1998 XZ₂₅, 4, 2, 1; 1998 YX₁ *, 5, 2, 1; 1998 YY₁ *, 6, 2, 1; 1998 YZ₁ *, 6, 2, 1; 1998 YT₅ *, 7, 3, 7; 1998 YU₅ *, 8, 4, 8; 1998 YU₇ *, 6, 2, 1; 1998 YV₇ *, 6, 2, 1; 1998 YW₇ *, 6, 3, 2; 1998 YX₇ *, 6, 3, 3; 1998 YB₈, 2, 1, 0; 1998 YK₉ *, 7, 3, 2; 1998 YL₉ *, 4, 2, 1; 1998 YH₁₀ *, 5, 2, 1; 1998 YJ₁₀ *, 4, 2, 1; 1998 YK₁₀ *, 4, 2, 1; 1998 YL₁₀ *, 4, 2, 1; (2180), 4, 2, 1; (2963), 4, 2, 1; (3014), 2, 1, 0; (3298), 2, 1, 0; (4557), 4, 2, 1; (6342), 2, 1, 0; (8100), 2, 1, 0; [253, 59, 19*, 1998/12/08–1998/12/28]

688 Lowell Observatory, Anderson Mesa Station

M. W. Buie, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A. [buie@lowell.edu] (1)

L. A. Marschall, Gettysburg College, 300 N. Washington St., Gettysburg, PA 17325, U.S.A. [marschal@gettysburg.edu] (2)

Observers L. H. Wassermann, L. A. Marschall, M. Seeds

Measurers M. W. Buie, G. A. Snyder

1.8-m reflector + CCD, 0.8-m reflector + CCD

USNO-A2.0

(1) 1995 FN, 2, 1, 0; 1996 FG₃, 4, 1, 0; 1998 WZ₆, 5, 1, 0; [11, 3, 0*, 1997/12/29–1998/12/09]

(2) 1998 SV₈₇, 4, 3, 5; 1998 TC₃₅ *, 4, 2, 1; [8, 2, 1*, 1998/10/10–1998/10/15]

689 U.S. Naval Observatory, Flagstaff Station

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

A. K. B. Monet, U. S. Naval Observatory, Flagstaff Station, P.O. Box 1149, Flagstaff AZ 86002-1149, U.S.A. [alice@nobs.navy.mil]

0.20-m transit telescope + CCD

ACT

1976 YF₃, 2, 2, 1; 1982 TK₁, 1, 1, 0; 1984 UD, 2, 2, 29; 1985 PL, 2, 2, 20; 1985 QP, 1, 1, 0; 1986 RB₁₂, 1, 1, 0; 1987 BS₁, 1, 1, 0; 1987 UR, 1, 1, 0; 1987 WF₁, 2, 2, 1; 1989 AS₁, 2, 2, 1; 1989 AL₃, 1, 1, 0; 1990 RP₉, 1, 1, 0; 1990 WR₂, 1, 1, 0; 1990 XF, 1, 1, 0; 1991 AS₁, 2, 2, 1; 1991 CU, 2, 2, 12; 1991 RF₆, 2, 2, 8; 1991 ST, 1, 1, 0; 1991 TX₄, 1, 1, 0; 1991 TO₁₃, 1, 1, 0;

1991 VM, 1, 1, 0; 1991 VP₁, 1, 1, 0; 1991 VF₂, 1, 1, 0; 1991 VZ₂, 1, 1, 0; 1991 VC₅, 1, 1, 0; 1992 CD₁, 1, 1, 0; 1992 DG₁, 1, 1, 0; 1992 EW₉, 1, 1, 0; 1992 GH, 2, 2, 20; 1992 JS₂, 3, 3, 12; 1993 FZ₅₅, 1, 1, 0; 1993 HL₆, 1, 1, 0; 1993 RP₃, 1, 1, 0; 1993 ST₃, 2, 1, 1; 1993 SX₄, 1, 1, 0; 1993 TQ, 1, 1, 0; 1993 VG₁, 1, 1, 0; 1994 PF₂₂, 1, 1, 0; 1994 TU₃, 1, 1, 0; 1995 CE₂, 1, 1, 0; 1996 AP₃, 1, 1, 0; 1996 BR₃, 3, 3, 20; 1996 BL₁₇, 1, 1, 0; 1997 NG₃, 1, 1, 0; 1997 SG₁₆, 1, 1, 0; 1998 MQ, 1, 1, 0; 1998 MZ₇, 2, 2, 12; 1998 PG, 1, 1, 0; 1998 QT₆₀, 1, 1, 0; 1998 QN₇₅, 1, 1, 0; 4611 P-L, 1, 1, 0; 2272 T-3, 1, 1, 0; (2), 3, 3, 32; (15), 1, 1, 0; (17), 8, 8, 53; (40), 3, 3, 29; (42), 2, 2, 1; (44), 4, 4, 20; (67), 4, 4, 19; (77), 3, 3, 21; (89), 1, 1, 0; (98), 4, 4, 53; (113), 3, 3, 29; (126), 6, 6, 41; (163), 1, 1, 0; (165), 3, 3, 13; (197), 2, 2, 19; (201), 1, 1, 0; (203), 2, 2, 1; (255), 4, 4, 20; (335), 6, 6, 53; (344), 1, 1, 0; (351), 3, 3, 31; (739), 2, 2, 1; (968), 2, 2, 12; (1036), 2, 2, 1; (1093), 4, 4, 20; (1498), 5, 5, 32; (1508), 2, 2, 1; (1515), 1, 1, 0; (1550), 2, 2, 1; (1866), 2, 2, 7; (2066), 1, 1, 0; (2423), 1, 1, 0; (3066), 1, 1, 0; (3352), 5, 5, 32; (3737), 1, 1, 0; (3849), 2, 2, 40; (4055), 1, 1, 0; (4503), 1, 1, 0; (4559), 1, 1, 0; (5402), 6, 6, 40; (5484), 1, 1, 0; (5748), 1, 1, 0; (6318), 2, 2, 31; (6326), 1, 1, 0; (6618), 1, 1, 0; (6837), 1, 1, 0; (6877), 1, 1, 0; (6976), 1, 1, 0; (6985), 2, 2, 7; (7172), 1, 1, 0; (7201), 2, 2, 1; (7202), 1, 1, 0; (7451), 1, 1, 0; (7614), 1, 1, 0; (7813), 1, 1, 0; (7843), 2, 2, 1; (9314), 1, 1, 0; (9515), 1, 1, 0; (9531), 2, 2, 1; (9542), 1, 1, 0; (9550), 1, 1, 0; (9558), 2, 2, 1; (9563), 1, 1, 0; (9564), 1, 1, 0; (9599), 1, 1, 0; (9667), 1, 1, 0; (9669), 1, 1, 0; (9704), 1, 1, 0; (9711), 1, 1, 0; (9717), 2, 2, 1; (9718), 1, 1, 0; (9729), 1, 1, 0; (9730), 2, 2, 1; (9733), 1, 1, 0; (9739), 2, 2, 19; (9741), 1, 1, 0; (9753), 1, 1, 0; (9764), 1, 1, 0; [221, 130, 0*, 1998/11/07-1998/12/30]

691 Kitt Peak, Steward Observatory

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Observers T. Gehrels, J. Larsen, J. Montani, J. V. Scotti, A. Tubiolo
0.91-m Spacewatch telescope + CCD
GSC

1973 SS, 6, 2, 12; 1973 SN₁, 9, 3, 20; 1973 SR₁, 2, 1, 0; 1977 DQ₃, 3, 1, 0; 1979 MG₄, 9, 3, 15; 1981 EE₁₅, 6, 2, 9; 1981 EW₃₆, 6, 2, 6; 1981 EM₃₈, 3, 1, 0; 1982 OF, 8, 3, 16; 1985 QD₆, 2, 1, 0; 1988 CT₂, 9, 3, 8; 1989 AL₆, 3, 1, 0; 1989 AV₆, 3, 1, 0; 1989 CF₃, 3, 1, 0; 1989 SU, 2, 1, 0; 1989 WD₃, 9, 3, 13; 1990 RE₂, 3, 1, 0; 1991 LU₁, 3, 1, 0; 1991 RZ₁₀, 8, 3, 16; 1991 RQ₁₄, 5, 2, 3; 1991 RT₁₇, 6, 2, 4; 1991 RJ₂₂, 9, 3, 13; 1991 XL, 9, 3, 13; 1992 DW₇, 3, 1, 0; 1992 DX₈, 9, 3, 17; 1992 EW₂, 5, 2, 3; 1992 RO₃, 6, 2, 4; 1992 RM₇, 3, 1, 0; 1992 WF₁, 3, 1, 0; 1993 FH₄, 3, 1, 0; 1993 FO₁₂, 6, 2, 4; 1993 NJ₁, 3, 1, 0; 1993 OY₆, 3, 1, 0; 1993 RZ₁, 3, 1, 0; 1993 TK₂₅, 6, 2, 10; 1993 TU₃₈, 6, 2, 13; 1993 VH₅, 6, 2, 3; 1994 AB₂, 6, 2, 8; 1994 PE₁₈, 3, 1, 0; 1994 PE₂₉, 6, 2, 4; 1994 PF₂₉, 9, 3, 5; 1994 RP₁₁, 3, 1, 0; 1994 UC₁, 3, 1, 0; 1994 VH₂, 9, 3, 7; 1994 YD, 6, 2, 4; 1996 HF₁₁, 9, 3, 13; 1996 JT₇, 6, 2, 10; 1996 PR₁, 6, 2, 2; 1996 TT₃₈, 6, 2, 6; 1997 GO₁₃, 3, 1, 0; 1997 GX₂₃, 3, 1, 0; 1997 JR, 12, 4, 6; 1997 NZ₂, 3, 1, 0; 1997 OZ, 3, 1, 0; 1997 SQ, 6, 2, 5; 1997 SE₄, 3, 1, 0; 1997 SR₁₈, 3, 1, 0; 1997 TL₆, 3, 1, 0; 1997 TB₁₂, 6, 2, 5; 1997 WR₄₉, 3, 1, 0; 1998 QR₆, 3, 1, 0; 1998 QJ₉₂, 3, 1, 0; 1998 QH₉₃, 3, 1, 0; 1998 SA₁₃, 6, 2, 9; 1998 SD₆₃, 3, 1, 0; 1998 TW₁, 9, 3, 6; 1998 TU₅, 3, 1, 0; 1998 TQ₁₃, 3, 1, 0; 1998 TS₁₃, 6, 2, 4; 1998 TV₁₃, 3, 1, 0; 1998 TH₁₅, 3, 1, 0; 1998 TQ₂₅, 3, 1, 0; 1998 TH₂₆, 3, 1, 0; 1998 TE₂₇, 3, 1, 0; 1998 TG₃₀, 6, 2, 2; 1998 TC₃₁, 3, 1, 0; 1998 UT₆, 3, 1, 0; 1998 UG₇, 2, 1, 0; 1998 UJ₇, 3, 1, 0; 1998 UJ₈, 3, 1, 0; 1998 UL₈, 6, 2, 10; 1998 UF₁₆, 6, 2, 6; 1998 UC₂₀, 3, 1, 0; 1998 UL₂₀, 9, 3, 14; 1998 UL₂₃, 5, 2, 8; 1998 UM₂₃, 9, 3, 18; 1998 UN₂₃, 9, 3, 13; 1998 UV₂₄, 6, 2, 4; 1998 UO₃₁, 9, 3, 15; 1998 US₃₁, 3, 1, 0; 1998 VG₁, 6, 2, 5; 1998 VU₄, 6, 2, 14; 1998 VB₅, 6, 2, 6; 1998 VC₅, 3, 1, 0; 1998 VD₅, 6, 2, 8; 1998 VC₆, 6, 2, 6; 1998 VZ₆, 3, 1, 0; 1998 VW₁₇, 6, 2, 3; 1998 VA₁₈, 6, 2, 3; 1998 VF₁₉, 6, 2, 6; 1998 VQ₂₀, 6, 2, 4; 1998 VR₂₃, 6, 2, 4; 1998 VT₂₃, 6, 2, 4; 1998 VX₂₃, 6, 2, 4; 1998 VQ₂₅, 6, 2, 4; 1998 VB₃₀, 3, 1, 0; 1998 VG₃₂, 9, 3, 7; 1998 VW₃₂, 3, 1, 0; 1998 VX₃₂, 3, 1, 0; 1998 VY₃₂, 2, 1, 0; 1998 VZ₃₂, 3, 1, 0; 1998 VA₃₃, 9, 3, 5; 1998 VJ₃₃, 3, 1, 0; 1998 VZ₃₃, 3, 1, 0; 1998 VX₃₇, 6, 2, 5; 1998 VY₄₁, 9, 3, 14; 1998 VZ₄₁, 3, 1, 0; 1998 VA₄₃, 6, 2, 1; 1998 VS₄₃, 3, 1, 0; 1998 WE, 6, 2, 12; 1998 WX₃, 3, 1, 0; 1998 WF₄, 6, 2, 4; 1998 WH₄, 6, 2, 9; 1998 WL₅, 3, 1, 0; 1998 WN₅, 6, 2, 7; 1998 WX₅, 3, 1, 0; 1998 WK₆, 3, 1, 0; 1998 WS₆, 9, 3, 16; 1998 WT₆, 12, 4, 13; 1998 WN₇, 3, 1, 0; 1998 WQ₈, 6, 2, 8; 1998 WK₉, 6, 2, 14; 1998 WN₉, 6, 2, 4; 1998 WS₉, 3, 1, 0; 1998 WX₉, 6, 2, 4; 1998 WB₁₀, 3, 1, 0; 1998 WE₁₀, 9, 3, 14; 1998 WR₁₀, 12, 4, 15; 1998 WT₁₀, 6, 2, 3; 1998 WV₁₀, 3, 1, 0; 1998 WE₁₂, 6, 2, 12; 1998 WF₁₂, 3, 1, 0; 1998 WH₁₂, 6, 2, 5; 1998 WJ₁₂, 9, 3, 12; 1998 WZ₁₃, 3, 1, 0; 1998 WA₁₄, 6, 2, 8; 1998 WH₁₄, 6, 2, 7; 1998 WJ₁₄, 12, 4, 13; 1998 WK₁₄, 9, 3, 13; 1998 WM₁₄, 6, 2, 5; 1998 WS₁₄, 3, 1, 0; 1998 WT₁₄, 3, 1, 0; 1998 WV₁₄, 9, 3, 7; 1998 WW₁₄, 9, 3, 16; 1998 WA₁₅, 3, 1, 0; 1998 WC₁₅, 3, 1, 0; 1998 WX₁₅, 3, 1, 0; 1998 WC₁₆, 6, 2, 8; 1998 WE₁₆, 6, 2, 9; 1998 WG₁₆, 6, 2, 4; 1998 WK₁₆, 3, 1, 0; 1998 WL₁₆, 3, 1, 0; 1998 WM₁₆, 6, 2, 7; 1998 WO₁₆, 9, 3, 15; 1998 WR₁₆, 9, 3, 15; 1998 WS₁₆, 3, 1, 0; 1998 WT₁₆, 3, 1, 0; 1998 WU₁₆, 3, 1, 0; 1998 WV₁₆, 9, 3, 17; 1998 WY₁₆, 9, 3, 15; 1998 WG₁₇, 9, 3, 14; 1998 WK₁₇, 6, 2, 8; 1998 WO₁₇, 3, 1, 0; 1998 WW₁₈, 9, 3, 13; 1998 WY₁₈, 9, 3, 14; 1998 WJ₁₉, 3, 1, 0; 1998 WK₁₉, 6, 2, 5; 1998 WR₂₁, 9, 3, 14; 1998 WO₂₂, 9, 3, 13; 1998 WP₂₂, 3, 1, 0; 1998 WR₂₂, 6, 2, 5; 1998 WV₂₂, 9, 3, 14; 1998 WX₂₂, 6, 2, 8; 1998 WB₂₃, 9, 3, 16; 1998 WD₂₃, 6, 2, 9; 1998 WE₂₃, 7, 3, 12; 1998 WX₂₆, 6, 2, 6; 1998 WY₂₆,

6, 2, 4; 1998 WF₂₇, 9, 3, 14; 1998 WR₂₈, 5, 2, 4; 1998 WT₃₀ *, 12, 4, 15; 1998 WD₃₁ *, 9, 3, 2; 1998 XL₁, 3, 1, 0; 1998 XN₁, 3, 1, 0; 1998 XF₂, 3, 1, 0; 1998 XH₂ *, 12, 4, 7; 1998 XJ₂ *, 15, 5, 15; 1998 XK₂ *, 8, 3, 6; 1998 XL₂ *, 6, 2, 2; 1998 XN₂, 12, 3, 9; 1998 XD₄ *, 6, 2, 4; 1998 XE₄ *, 6, 2, 4; 1998 XF₄ *, 6, 2, 4; 1998 XG₄ *, 6, 2, 4; 1998 XH₄ *, 6, 2, 3; 1998 XJ₄ *, 6, 2, 1; 1998 XN₅ *, 6, 2, 5; 1998 XO₅ *, 6, 2, 5; 1998 XP₅ *, 6, 2, 5; 1998 XQ₅ *, 5, 2, 5; 1998 XR₅ *, 6, 2, 5; 1998 XS₅ *, 6, 2, 5; 1998 XT₅ *, 9, 3, 12; 1998 XU₅ *, 6, 2, 5; 1998 XV₅ *, 6, 2, 5; 1998 XW₅ *, 5, 2, 5; 1998 XX₅ *, 6, 2, 5; 1998 XY₅ *, 5, 2, 5; 1998 XZ₅ *, 6, 2, 5; 1998 XA₆ *, 6, 2, 5; 1998 XB₆ *, 6, 2, 5; 1998 XC₆ *, 6, 2, 5; 1998 XD₆ *, 6, 2, 5; 1998 XE₆ *, 6, 2, 5; 1998 XF₆ *, 6, 2, 5; 1998 XG₆ *, 6, 2, 5; 1998 XH₆ *, 9, 3, 12; 1998 XJ₆ *, 9, 3, 17; 1998 XK₆ *, 12, 4, 20; 1998 XL₆ *, 5, 2, 5; 1998 XM₆ *, 12, 4, 20; 1998 XN₆ *, 6, 2, 5; 1998 XO₆ *, 6, 2, 5; 1998 XP₆ *, 6, 2, 5; 1998 XQ₆ *, 6, 2, 5; 1998 XR₆ *, 6, 2, 5; 1998 XS₆ *, 5, 2, 5; 1998 XT₆ *, 6, 2, 5; 1998 XU₆ *, 6, 2, 5; 1998 XV₆ *, 6, 2, 5; 1998 XW₆ *, 9, 3, 12; 1998 XX₆ *, 9, 3, 14; 1998 XY₆ *, 9, 3, 14; 1998 XZ₆ *, 9, 3, 12; 1998 XA₇ *, 9, 3, 14; 1998 XB₇ *, 6, 2, 5; 1998 XC₇ *, 9, 3, 12; 1998 XD₇ *, 6, 2, 5; 1998 XE₇ *, 6, 2, 5; 1998 XF₇ *, 6, 2, 5; 1998 XG₇ *, 5, 2, 5; 1998 XH₇ *, 9, 3, 14; 1998 XJ₇ *, 6, 2, 5; 1998 XK₇ *, 6, 2, 5; 1998 XL₇ *, 6, 2, 5; 1998 XM₇ *, 6, 2, 5; 1998 XN₇ *, 6, 2, 5; 1998 XO₇ *, 6, 2, 5; 1998 XP₇ *, 12, 4, 20; 1998 XQ₇ *, 6, 2, 5; 1998 XR₇ *, 6, 2, 4; 1998 XS₇ *, 6, 2, 4; 1998 XT₇ *, 6, 2, 4; 1998 XU₇ *, 6, 2, 4; 1998 XV₇ *, 6, 2, 4; 1998 XW₇ *, 6, 2, 4; 1998 XX₇ *, 6, 2, 4; 1998 XY₇ *, 6, 2, 4; 1998 XZ₇ *, 6, 2, 4; 1998 XA₈ *, 6, 2, 4; 1998 XB₈ *, 6, 2, 4; 1998 XC₈ *, 6, 2, 4; 1998 XD₈ *, 6, 2, 4; 1998 XE₈ *, 6, 2, 4; 1998 XF₈ *, 6, 2, 4; 1998 XG₈ *, 6, 2, 4; 1998 XH₈ *, 6, 2, 4; 1998 XJ₈ *, 6, 2, 4; 1998 XK₈ *, 6, 2, 3; 1998 XL₈ *, 5, 2, 3; 1998 XM₈ *, 6, 2, 3; 1998 XN₈ *, 6, 2, 2; 1998 XO₈ *, 12, 4, 16; 1998 XP₈ *, 6, 2, 1; 1998 XQ₈ *, 6, 2, 1; 1998 XR₈ *, 8, 3, 10; 1998 XS₈ *, 6, 2, 1; 1998 XD₁₀, 9, 3, 9; 1998 XR₁₃, 6, 2, 9; 1998 XS₁₃, 3, 1, 0; 1998 XT₁₃, 3, 1, 0; 1998 XW₁₃, 1, 1, 0; 1998 XZ₁₆, 6, 2, 3; 1998 XV₁₇ *, 5, 2, 4; 1998 XW₁₇ *, 6, 2, 7; 1998 XX₁₇ *, 6, 2, 7; 1998 XY₁₇ *, 5, 2, 5; 1998 XZ₁₇ *, 6, 2, 6; 1998 XA₁₈ *, 6, 2, 6; 1998 XB₁₈ *, 6, 2, 6; 1998 XC₁₈ *, 6, 2, 6; 1998 XD₁₈ *, 6, 2, 7; 1998 XE₁₈ *, 9, 3, 17; 1998 XF₁₈ *, 6, 2, 6; 1998 XG₁₈ *, 6, 2, 6; 1998 XH₁₈ *, 5, 2, 6; 1998 XJ₁₈ *, 6, 2, 6; 1998 XK₁₈ *, 6, 2, 6; 1998 XL₁₈ *, 6, 2, 6; 1998 XM₁₈ *, 6, 2, 6; 1998 XN₁₈ *, 6, 2, 6; 1998 XO₁₈ *, 6, 2, 6; 1998 XP₁₈ *, 6, 2, 5; 1998 XQ₁₈ *, 5, 2, 4; 1998 XR₁₈ *, 6, 2, 5; 1998 XS₁₈ *, 5, 2, 4; 1998 XT₁₈ *, 6, 2, 5; 1998 XU₁₈ *, 6, 2, 4; 1998 XV₁₈ *, 6, 2, 4; 1998 XW₁₈ *, 5, 2, 4; 1998 XX₁₈ *, 6, 2, 5; 1998 XY₁₈ *, 6, 2, 5; 1998 XZ₁₈ *, 6, 2, 5; 1998 XA₁₉ *, 6, 2, 5; 1998 XB₁₉ *, 6, 2, 5; 1998 XC₁₉ *, 6, 2, 5; 1998 XD₁₉ *, 6, 2, 5; 1998 XE₁₉ *, 6, 2, 4; 1998 XF₁₉ *, 6, 2, 5; 1998 XG₁₉ *, 6, 2, 5; 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Observer C. W. Hergenrother

Measurer T. B. Spahr

1.54-m reflector + CCD

USNO-A1.0

1998 YP₄, 2, 1, 0; 1998 YQ₄, 2, 1, 0; [4, 2, 0*, 1998/12/21]

695 Kitt Peak

M. W. Buie, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff AZ 86001, U.S.A. [buie@lowell.edu]

Observers R. L. Millis, M. W. Buie, R. M. Wagner, J. L. Elliot

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

3.8-m reflector + CCD

USNO-A2.0

1998 WA₃₁ *, 5, 2, 1; [5, 1, 1*, 1998/11/18-1998/11/19]

699 Lowell Observatory-LONEOS

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

Observers W. D. Ferris, M. E. Van Ness, B. A. Skiff

Measurer B. W. Koehn

0.59-m LONEOS Schmidt + CCD

USNO-A1.0

1973 SS, 3, 1, 0; 1973 SJ₁, 3, 1, 0; 1973 SY₅, 3, 1, 0; 1975 TJ₃, 3, 1, 0; 1975 VW₅, 3, 1, 0; 1976 SS₂, 2, 1, 0; 1976 YF₃, 3, 1, 0; 1978 PA₃, 6, 2, 14; 1978 PW₃, 3, 1, 0; 1978 QY₁, 3, 1, 0; 1978 RX₁, 6, 2, 23; 1978 SE₃, 3, 1, 0; 1978 SH₃, 6, 2, 16; 1978 SD₇, 3, 1, 0; 1978 VE₁₁, 6, 2, 23; 1979 MK₃, 3, 1, 0; 1979 MD₈, 3, 1, 0; 1979 QC₁, 3, 1, 0; 1979 XL, 3, 1, 0; 1980 BA, 3, 1, 0; 1981 EP₉, 6, 2, 13; 1981 EK₁₇, 2, 1, 0; 1981 ED₁₈, 3, 1, 0; 1981 ES₂₈, 3, 1, 0; 1981 EW₃₀, 6, 2, 14; 1981 EQ₄₇, 3, 1, 0; 1981 QF, 3, 1, 0; 1981 QJ₃, 3, 1, 0; 1981 RW₄, 3, 1, 0; 1981 UA₂₃, 3, 1, 0; 1981 WJ₉, 3, 1, 0; 1982 DW₃, 3, 1, 0; 1982 TS₁, 9, 3, 16; 1982 US₆, 6, 2, 14; 1982 UC₁₁, 3, 1, 0; 1983 RP₃, 3, 1, 0; 1984 BQ, 3, 1, 0; 1984 CP, 3, 1, 0; 1984 QB, 3, 1, 0; 1984 SO₄, 2, 1, 0; 1985 PB₂, 3, 1, 0; 1985 RD₃, 3, 1, 0; 1985 SX₂, 3, 1, 0; 1986 TT₁₁, 2, 1, 0; 1986 XT, 3, 1, 0; 1987 GA, 3, 1, 0; 1987 QH, 3, 1, 0; 1987 RR, 9, 2, 57; 1987 SL₅, 3, 1, 0; 1987 SP₁₂, 3, 1, 0; 1987 SD₁₃, 6, 2, 16; 1987 UR, 2, 1, 0; 1987 VR, 3, 1, 0; 1987 WJ₁, 6, 2, 16; 1988 CO₁, 3, 1, 0; 1988 CU₁, 3, 1, 0; 1988 CT₂, 6, 1, 0; 1988 FE, 3, 1, 0; 1988 FS₂, 3, 1, 0; 1988 PL, 3, 1, 0; 1988 RQ₈, 6, 2, 16; 1988 RA₁₃, 6, 2, 18; 1988 TT, 3, 1, 0; 1988 UO, 3, 1, 0; 1988 UV, 3, 1, 0; 1988 VM₃, 3, 1, 0; 1988 VP, 3, 1, 0; 1989 AN₅, 3, 1, 0; 1989 AV₆, 3, 1, 0; 1989 CT₂, 3, 1, 0; 1989 CB₈, 3, 1, 0; 1989 CJ₈, 3, 1, 0; 1989 GF₁, 3, 1, 0; 1989 PG, 3, 1, 0; 1989 SA, 9, 2, 23; 1989 SV₅, 6, 2, 26; 1989 SW₈, 3, 1, 0; 1989 TM₁, 3, 1, 0; 19

1, 0; 1990 EF₂, 3, 1, 0; 1990 EN₃, 3, 1, 0; 1990 FK₁, 6, 2, 22; 1990 FM₁, 3, 1, 0; 1990 HG, 2, 1, 0; 1990 KX, 3, 1, 0; 1990 OH₂, 1, 1, 0; 1990 QB, 3, 1, 0; 1990 QB₅, 3, 1, 0; 1990 QN₇, 5, 2, 16; 1990 RE₂, 3, 1, 0; 1990 RF₁₇, 3, 1, 0; 1990 SR₆, 3, 1, 0; 1990 SS₉, 2, 1, 0; 1990 SK₂₈, 3, 1, 0; 1990 TJ, 6, 2, 7; 1990 TG₁₃, 3, 1, 0; 1990 UU₁, 3, 1, 0; 1990 UQ₂, 3, 1, 0; 1990 VL₁, 6, 2, 16; 1990 VD₃, 3, 1, 0; 1990 VH₃, 3, 1, 0; 1990 VK₄, 3, 1, 0; 1990 VN₄, 3, 1, 0; 1990 WS₁, 3, 1, 0; 1991 BK, 3, 1, 0; 1991 BV₁, 3, 1, 0; 1991 DW, 3, 1, 0; 1991 LJ₂, 3, 1, 0; 1991 NQ₆, 3, 1, 0; 1991 PE₅, 3, 1, 0; 1991 PQ₅, 3, 1, 0; 1991 PW₉, 3, 1, 0; 1991 PG₁₁, 3, 1, 0; 1991 PO₁₂, 3, 1, 0; 1991 PR₁₆, 3, 1, 0; 1991 QJ, 3, 1, 0; 1991 RS₂, 3, 1, 0; 1991 RU₂, 3, 1, 0; 1991 RT₃, 3, 1, 0; 1991 RK₅, 3, 1, 0; 1991 RY₈, 3, 1, 0; 1991 RC₉, 6, 2, 16; 1991 RU₉, 3, 1, 0; 1991 RE₁₅, 3, 1, 0; 1991 RA₁₇, 6, 2, 7; 1991 RH₂₇, 6, 2, 23; 1991 RY₂₉, 3, 1, 0; 1991 SC₁, 3, 1, 0; 1991 TN, 6, 1, 0; 1991 TO, 3, 1, 0; 1991 TX₄, 3, 1, 0; 1991 UR, 3, 1, 0; 1991 UK₁, 3, 1, 0; 1991 VE, 3, 1, 0; 1991 VF₂, 3, 1, 0; 1991 VG₃, 3, 1, 0; 1991 VA₄, 6, 2, 18; 1991 VC₅, 3, 1, 0; 1991 XL, 3, 1, 0; 1991 XH₁, 3, 1, 0; 1991 YL₁, 3, 1, 0; 1992 AQ, 3, 1, 0; 1992 AO₁, 3, 1, 0; 1992 AO₂, 6, 2, 25; 1992 CK, 3, 1, 0; 1992 CG₃, 3, 1, 0; 1992 DA, 3, 1, 0; 1992 DG₁, 2, 1, 0; 1992 DJ₄, 3, 1, 0; 1992 DW₇, 3, 1, 0; 1992 DX₈, 6, 2, 13; 1992 EA₆, 3, 1, 0; 1992 EP₆, 3, 1, 0; 1992 EW₉, 3, 1, 0; 1992 EG₁₄, 3, 1, 0; 1992 HS₄, 6, 2, 22; 1992 JB₂, 3, 1, 0; 1992 PH₂, 3, 1, 0; 1992 PK₂, 3, 1, 0; 1992 PX₂, 3, 1, 0; 1992 RZ, 3, 1, 0; 1992 RM₇, 6, 2, 13; 1992 SJ₂, 3, 1, 0; 1992 UM₉, 6, 2, 18; 1992 WK₁, 6, 2, 5; 1992 YC₁, 3, 1, 0; 1992 YW₁, 3, 1, 0; 1993 DF₂, 6, 2, 18; 1993 FL₁, 3, 1, 0; 1993 FK₉, 3, 1, 0; 1993 FH₁₁, 9, 3, 72; 1993 FK₁₃, 6, 2, 16; 1993 FA₁₅, 6, 2, 5; 1993 FJ₁₆, 3, 1, 0; 1993 FG₂₃, 3, 1, 0; 1993 FH₂₅, 6, 2, 59; 1993 FS₃₁, 3, 1, 0; 1993 FT₃₁, 3, 1, 0; 1993 FJ₅₀, 3, 1, 0; 1993 FE₇₆, 3, 1, 0; 1993 FX₇₉, 3, 1, 0; 1993 LZ₁, 3, 1, 0; 1993 OP₃, 3, 1, 0; 1993 OS₁₀, 3, 1, 0; 1993 QN₃, 3, 1, 0; 1993 RS, 3, 1, 0; 1993 RQ₅, 3, 1, 0; 1993 RM₁₄, 6, 2, 20; 1993 SO₂, 3, 1, 0; 1993 SX₄, 6, 2, 23; 1993 TQ, 3, 1, 0; 1993 TV₁₂, 3, 1, 0; 1993 TV₁₉, 3, 1, 0; 1993 TC₂₀, 3, 1, 0; 1993 TM₂₄, 3, 1, 0; 1993 TJ₃₁, 3, 1, 0; 1993 TQ₃₆, 6, 2, 14; 1993 TU₃₈, 6, 2, 15; 1993 TY₃₈, 3, 1, 0; 1993 UK, 3, 1, 0; 1993 VG₁, 3, 1, 0; 1993 VA₃, 6, 2, 18; 1993 VV₄, 6, 2, 22; 1993 VH₅, 3, 1, 0; 1993 VV₇, 3, 1, 0; 1993 XJ₁, 3, 1, 0; 1993 YD, 3, 1, 0; 1994 AB₂, 3, 1, 0; 1994 BD₄, 3, 1, 0; 1994 NF₁, 6, 2, 23; 1994 NS₁, 3, 1, 0; 1994 PL₁₃, 3, 1, 0; 1994 PW₂₇, 3, 1, 0; 1994 PE₂₉, 3, 1, 0; 1994 PQ₃₂, 3, 1, 0; 1994 PU₃₂, 3, 1, 0; 1994 PN₃₇, 3, 1, 0; 1994 QA, 3, 1, 0; 1994 RE₁₁, 3, 1, 0; 1994 TJ₁, 2, 1, 0; 1994 TB₃, 3, 2, 59; 1994 TZ₁₄, 6, 2, 19; 1994 UD, 3, 1, 0; 1994 UF, 3, 1, 0; 1994 UM₁, 6, 2, 16; 1994 UP₁, 6, 2, 16; 1994 UQ₁, 3, 1, 0; 1994 VL, 3, 1, 0; 1994 VT, 3, 1, 0; 1994 VU, 3, 1, 0; 1994 VH₁, 3, 1, 0; 1994 VA₂, 5, 2, 22; 1994 VH₂, 6, 2, 14; 1994 WJ, 3, 1, 0; 1994 WE₁, 3, 1, 0; 1994 WH₁, 3, 1, 0; 1994 WM₁, 3, 1, 0; 1994 WR₃, 3, 1, 0; 1994 WA₄, 3, 1, 0; 1994 XQ₄, 6, 2, 18; 1994 YD, 3, 1, 0; 1994 YF₁, 3, 1, 0; 1995 AO₁, 3, 1, 0; 1995 BY, 3, 1, 0; 1995 CD, 3, 1, 0; 1995 CJ, 3, 1, 0; 1995 DD, 3, 1, 0; 1995 DZ₁, 3, 1, 0; 1995 EE₈, 3, 1, 0; 1995 FN, 3, 1, 0; 1995 FG₁, 3, 1, 0; 1995 JD, 3, 1, 0; 1995 SX₄₈, 3, 1, 0; 1995 UQ, 3, 1, 0; 1995 UD₄, 9, 3, 72; 1995 UW₄, 6, 2, 13; 1995 VR₁, 3, 1, 0; 1995 VW₁, 3, 1, 0; 1995 WE, 5, 2, 57; 1995 WS₁, 3, 1, 0; 1995 YY₁, 3, 1, 0; 1995 YN₃, 3, 1, 0; 1996 AW₄, 3, 1, 0; 1996 BC₁, 3, 1, 0; 1996 BS₁, 6, 1, 0; 1996 BE₂, 3, 1, 0; 1996 BL₂, 3, 1, 0; 1996 BR₃, 3, 1, 0; 1996 CW₃, 3, 1, 0; 1996 CT₇, 9, 3, 72; 1996 CX₇, 3, 1, 0; 1996 DT, 3, 1, 0; 1996 DQ₂, 3, 1, 0; 1996 EJ₁, 3, 1, 0; 1996 EL₁, 3, 1, 0; 1996 EE₂, 3, 1, 0; 1996 FD₄, 3, 1, 0; 1996 FL₅, 6, 2, 23; 1996 GL₁, 2, 1, 0; 1996 GV₁, 6, 2, 15; 1996 GU₈, 3, 1, 0; 1996 HY, 9, 3, 16; 1996 HC₁, 3, 1, 0; 1996 HE₂, 3, 1, 0; 1996 HX₁₆, 3, 1, 0; 1996 HD₂₂, 3, 1, 0; 1996 JF, 3, 1, 0; 1996 JV, 3, 1, 0; 1996 JN₆, 6, 2, 17; 1996 JT₇, 3, 1, 0; 1996 KN, 3, 1, 0; 1996 UX₃, 3, 1, 0; 1997 EB₅₄, 3, 1, 0; 1997 FN₃, 3, 1, 0; 1997 FQ₃, 3, 1, 0; 1997 GG₇, 3, 1, 0; 1997 GZ₁₆, 3, 1, 0; 1997 GB₁₉, 6, 2, 16; 1997 GJ₂₃, 3, 1, 0; 1997 GX₂₃, 9, 3, 19; 1997 GR₂₄, 3, 1, 0; 1997 GA₂₆, 3, 1, 0; 1997 GD₃₈, 3, 1, 0; 1997 HH₃, 3, 1, 0; 1997 HJ₈, 3, 1, 0; 1997 HG₁₀, 3, 1, 0; 1997 HV₁₁, 3, 1, 0; 1997 JR, 3, 1, 0; 1997 JU₇, 6, 2, 80; 1997 JC₁₄, 3, 1, 0; 1997 JD₁₄, 3, 1, 0; 1997 JJ₁₅, 3, 1, 0; 1997 JH₁₆, 3, 1, 0; 1997 KJ₂, 3, 1, 0; 1997 MQ₁, 3, 1, 0; 1997 MJ₂, 3, 1, 0; 1997 NV, 3, 1, 0; 1997 NK₁, 3, 1, 0; 1997 NU₁, 3, 1, 0; 1997 NG₃, 6, 2, 25; 1997 OZ, 3, 1, 0; 1997 PQ, 3, 1, 0; 1997 PM₁, 6, 2, 22; 1997 PG₃, 3, 1, 0; 1997 PV₃, 3, 1, 0; 1997 QF, 3, 1, 0; 1997 QU₁, 3, 1, 0; 1997 QD₂, 3, 1, 0; 1997 QZ₂, 6, 2, 21; 1997 QC₄, 3, 1, 0; 1997 RX₆, 3, 1, 0; 1997 RB₇, 3, 1, 0; 1997 SD₁, 3, 1, 0; 1997 SG₁₆, 3, 1, 0; 1997 TT₉, 3, 1, 0; 1997 VV, 3, 1, 0; 1997 WO₇, 3, 1, 0; 1997 YA, 3, 1, 0; 1998 HD₁₀₅, 3, 1, 0; 1998 HT₁₀₇, 6, 2, 54; 1998 KU₂, 3, 1, 0; 1998 MU₇, 3, 1, 0; 1998 ML₃₄, 3, 1, 0; 1998 MK₃₀, 6, 2, 59; 1998 OZ₆, 3, 1, 0; 1998 OA₁₃, 3, 1, 0; 1998 ON₁₃, 3, 1, 0; 1998 PG, 3, 1, 0; 1998 QW, 3, 1, 0; 1998 QG₆, 3, 1, 0; 1998 QL₁₉, 3, 1, 0; 1998 QM₂₀, 3, 1, 0; 1998 QY₂₅, 3, 1, 0; 1998 QB₂₆, 3, 1, 0; 1998 QL₃₀, 3, 1, 0; 1998 QB₃₂, 3, 1, 0; 1998 QG₃₅, 3, 1, 0; 1998 QR₃₇, 3, 1, 0; 1998 QP₃₈, 3, 1, 0; 1998 QQ₃₉, 6, 2, 15; 1998 QB₄₀, 1, 1, 0; 1998 QR₄₂, 3, 1, 0; 1998 QQ₄₅, 3, 1, 0; 1998 QR₄₅, 3, 1, 0; 1998 QW₄₆, 3, 1, 0; 1998 QF₄₇, 3, 1, 0; 1998 QF₄₈, 3, 1, 0; 1998 QF₄₈, 3, 1, 0; 1998 QF₄₉, 3, 1, 0; 1998 QT₅₀, 3, 1, 0; 1998 QV₅₀, 3, 1, 0; 1998 QQ₅₁, 3, 1, 0; 1998 QQ₅₁, 3, 1, 0; 1998 QT₅₁, 3, 1, 0; 1998 QU₅₁, 3, 1, 0; 1998 QV₅₁, 3, 1, 0; 1998 QY₅₁, 3, 1, 0; 1998 QZ₅₁, 3, 1, 0; 1998 QB₅₂, 3, 1, 0; 1998 QE₅₂, 6, 2, 59; 1998 QG₅₂, 3, 1, 0; 1998 QH₅₂, 3, 1, 0; 1998 QJ₅₄, 3, 1, 0; 1998 QV₅₄, 6, 2, 7; 1998 QA₅₅, 3, 1, 0; 1998 QZ₅₅, 3, 1, 0; 1998 QH₅₆, 3, 1, 0; 1998 QG₆₃, 3, 1, 0; 1998 QW₆₃, 6, 2, 7; 1998 QD₇₂, 3, 1, 0; 1998 QB₇₄, 3, 1, 0; 1998 QC₇₅, 3, 1, 0; 1998 QN₇₅, 3, 1, 0; 1998 QS₇₅, 6, 2, 8; 1998 QX₇₅, 3, 1, 0; 1998 QE₇₆, 6, 2, 8; 1998 QN₇₆, 3, 1, 0; 1998 QS₇₆, 6, 2, 8; 1998 QT₇₆, 3, 1, 0; 1998 QZ₇₆, 6, 2, 59; 1998 QC₇₇, 6, 2, 9; 1998 QU₇₇, 3, 1, 0; 1998 QT₈₆, 3, 1, 0; 1998 QM₈₇, 6, 2, 8; 1998 QG₈₈, 6, 2, 9; 1998 QU₉₀, 3, 1, 0; 1998 QF₉₁, 3, 1, 0; 1998 QO₉₁, 3, 1, 0; 1998 QG₉₂, 3, 1, 0; 1998 QJ₉₂, 3, 1, 0; 1998 QL₉₂, 3, 1, 0; 1998 QS₉₂, 6, 2, 22; 1998 QX₉₂, 3, 1, 0; 1998 QA₉₃, 3, 1, 0; 1998 QH₉₃, 3, 1, 0; 1998 QR₉₃, 3, 1, 0; 1998 QA₉₈, 3, 1, 0; 1998 QS₉₈,

6, 2, 27; 1998 QD₉₉, 6, 2, 23; 1998 QF₉₉, 3, 1, 0; 1998 QO₉₉, 3, 1, 0; 1998 QT₉₉, 3, 1, 0; 1998 QU₉₉, 3, 1, 0; 1998 QZ₉₉, 3, 1, 0; 1998 QC₁₀₀, 3, 1, 0; 1998 QF₁₀₀, 3, 1, 0; 1998 QO₁₀₀, 3, 1, 0; 1998 QR₁₀₀, 3, 1, 0; 1998 QS₁₀₀, 3, 1, 0; 1998 QZ₁₀₀, 3, 1, 0; 1998 QA₁₀₁, 3, 1, 0; 1998 QE₁₀₁, 3, 1, 0; 1998 QF₁₀₁, 3, 1, 0; 1998 QP₁₀₁, 3, 1, 0; 1998 QZ₁₀₁, 3, 1, 0; 1998 QD₁₀₂, 3, 1, 0; 1998 QG₁₀₂, 3, 1, 0; 1998 QK₁₀₂, 3, 1, 0; 1998 QP₁₀₂, 3, 1, 0; 1998 QR₁₀₂, 3, 1, 0; 1998 QV₁₀₂, 3, 1, 0; 1998 QX₁₀₂, 6, 2, 3; 1998 QZ₁₀₂, 3, 1, 0; 1998 QD₁₀₃, 3, 1, 0; 1998 QK₁₀₃, 3, 1, 0; 1998 QL₁₀₃, 3, 1, 0; 1998 QQ₁₀₃, 3, 1, 0; 1998 QW₁₀₃, 3, 1, 0; 1998 QA₁₀₄, 3, 1, 0; 1998 QF₁₀₄, 3, 1, 0; 1998 QO₁₀₄, 3, 1, 0; 1998 QP₁₀₄, 3, 1, 0; 1998 QM₁₀₅, 3, 1, 0; 1998 QN₁₀₅, 3, 1, 0; 1998 QO₁₀₅, 3, 1, 0; 1998 QQ₁₀₅, 3, 1, 0; 1998 QS₁₀₅, 3, 1, 0; 1998 QW₁₀₅, 3, 1, 0; 1998 QB₁₀₆, 5, 2, 23; 1998 QE₁₀₆, 3, 1, 0; 1998 QU₁₀₆, 9, 3, 80; 1998 QX₁₀₆, 3, 1, 0; 1998 RB, 3, 1, 0; 1998 RY, 3, 1, 0; 1998 RG₃, 3, 1, 0; 1998 RZ₃, 3, 1, 0; 1998 RA₄, 3, 1, 0; 1998 RD₄, 3, 1, 0; 1998 RE₄, 3, 1, 0; 1998 RH₄, 3, 1, 0; 1998 RR₄, 2, 1, 0; 1998 RT₄, 3, 1, 0; 1998 RA₆, 3, 1, 0; 1998 RO₃₁, 3, 1, 0; 1998 RK₃₄, 3, 1, 0; 1998 RM₃₄, 3, 1, 0; 1998 RQ₃₄, 6, 2, 9; 1998 RZ₃₄, 3, 1, 0; 1998 RG₃₇, 6, 2, 2; 1998 RL₃₇, 3, 1, 0; 1998 RA₃₉, 3, 1, 0; 1998 RB₃₉, 3, 1, 0; 1998 RP₃₉, 3, 1, 0; 1998 RQ₃₉, 3, 1, 0; 1998 RV₃₉, 3, 1, 0; 1998 RD₄₀, 3, 1, 0; 1998 RO₄₀, 3, 1, 0; 1998 RP₄₀, 3, 1, 0; 1998 RY₄₀, 3, 1, 0; 1998 RJ₄₂, 3, 1, 0; 1998 RP₄₂, 3, 1, 0; 1998 RQ₄₂, 3, 1, 0; 1998 RW₄₂, 3, 1, 0; 1998 RY₄₂, 3, 1, 0; 1998 RZ₄₂, 3, 1, 0; 1998 RB₄₃, 3, 1, 0; 1998 RD₄₄, 3, 1, 0; 1998 RO₄₄, 3, 1, 0; 1998 RS₄₄, 3, 1, 0; 1998 RD₄₆, 3, 1, 0; 1998 RE₄₆, 3, 1, 0; 1998 RF₄₆, 3, 1, 0; 1998 RK₄₆, 3, 1, 0; 1998 RN₄₆, 3, 1, 0; 1998 RP₄₆, 6, 2, 72; 1998 RE₄₇, 3, 1, 0; 1998 RF₄₇, 3, 1, 0; 1998 RK₄₇, 3, 1, 0; 1998 RM₄₇, 3, 1, 0; 1998 RP₄₇, 3, 1, 0; 1998 RQ₄₇, 3, 1, 0; 1998 RR₄₇, 3, 1, 0; 1998 RS₄₇, 3, 1, 0; 1998 RU₄₇, 3, 1, 0; 1998 RW₄₇, 3, 1, 0; 1998 RJ₄₈, 3, 1, 0; 1998 RT₅₀, 3, 1, 0; 1998 RZ₅₀, 1, 1, 0; 1998 RC₅₁, 3, 1, 0; 1998 RD₅₁, 3, 1, 0; 1998 RF₅₁, 3, 1, 0; 1998 RT₅₁, 3, 1, 0; 1998 RJ₅₂, 3, 1, 0; 1998 RJ₅₂, 3, 1, 0; 1998 RL₅₂, 3, 1, 0; 1998 RM₅₂, 3, 1, 0; 1998 RJ₅₃, 3, 1, 0; 1998 RL₅₃, 3, 1, 0; 1998 RO₅₃, 3, 1, 0; 1998 RS₅₃, 3, 1, 0; 1998 RA₅₄, 3, 1, 0; 1998 RF₅₄, 3, 1, 0; 1998 RL₅₄, 3, 1, 0; 1998 RM₅₄, 3, 1, 0; 1998 RO₅₄, 3, 1, 0; 1998 RJ₅₆, 3, 1, 0; 1998 RL₅₆, 3, 1, 0; 1998 RQ₅₆, 3, 1, 0; 1998 RS₅₆, 3, 1, 0; 1998 RY₅₆, 3, 1, 0; 1998 RK₅₇, 3, 1, 0; 1998 RN₅₈, 3, 1, 0; 1998 RN₆₁, 6, 2, 7; 1998 RA₆₃, 3, 1, 0; 1998 RB₆₃, 3, 1, 0; 1998 RF₆₃, 3, 1, 0; 1998 RJ₆₆, 3, 1, 0; 1998 RK₆₈, 3, 1, 0; 1998 RH₇₁, 3, 1, 0; 1998 RL₇₁, 3, 1, 0; 1998 RK₇₂, 3, 1, 0; 1998 RT₇₂, 6, 2, 13; 1998 RH₇₃, 3, 1, 0; 1998 RK₇₅, 3, 1, 0; 1998 RB₇₇, 3, 1, 0; 1998 RF₇₇, 3, 1, 0; 1998 RF₇₉, 3, 1, 0; 1998 RH₈₀, 3, 1, 0; 1998 RM₈₀, 3, 1, 0; 1998 RP₈₀, 6, 2, 7; 1998 SK₁, 3, 1, 0; 1998 SF₂, 1, 0; 1998 SK₂, 3, 1, 0; 1998 SL₂, 6, 2, 86; 1998 SM₄, 3, 1, 0; 1998 SG₅, 3, 1, 0; 1998 SX₉, 3, 1, 0; 1998 SR₁₄, 3, 1, 0; 1998 SV₂₂, 3, 1, 0; 1998 SH₂₃, 3, 1, 0; 1998 SG₂₄, 3, 1, 0; 1998 SQ₂₄, 3, 1, 0; 1998 SC₂₅, 3, 1, 0; 1998 SH₂₅, 3, 1, 0; 1998 SY₂₅, 3, 1, 0; 1998 SB₂₆, 3, 1, 0; 1998 SV₂₆, 6, 2, 25; 1998 SO₂₇, 3, 1, 0; 1998 SX₃₃, 3, 1, 0; 1998 SJ₃₆, 3, 1, 0; 1998 SA₄₃, 3, 1, 0; 1998 SN₄₃, 3, 1, 0; 1998 SW₄₃, 3, 1, 0; 1998 SM₄₆, 3, 1, 0; 1998 SH₄₉, 6, 2, 13; 1998 SK₅₀, 3, 1, 0; 1998 SU₅₂, 3, 1, 0; 1998 SK₅₃, 3, 1, 0; 1998 SP₅₃, 3, 1, 0; 1998 SX₅₃, 3, 1, 0; 1998 SY₅₃, 3, 1, 0; 1998 SZ₅₃, 3, 1, 0; 1998 SB₅₄, 3, 1, 0; 1998 SL₅₄, 3, 1, 0; 1998 SM₅₄, 3, 1, 0; 1998 SN₅₄, 3, 1, 0; 1998 SO₅₄, 3, 1, 0; 1998 SQ₅₄, 3, 1, 0; 1998 SR₅₄, 3, 1, 0; 1998 ST₅₄, 3, 1, 0; 1998 SC₅₅, 3, 1, 0; 1998 SH₅₅, 3, 1, 0; 1998 SD₅₆, 3, 1, 0; 1998 SG₅₆, 3, 1, 0; 1998 SN₅₇, 3, 1, 0; 1998 SD₅₈, 6, 2, 21; 1998 SE₆₁, 3, 1, 0; 1998 SD₆₃, 3, 1, 0; 1998 SF₆₃, 3, 1, 0; 1998 SJ₆₃, 3, 1, 0; 1998 SM₆₃, 3, 1, 0; 1998 ST₆₃, 6, 2, 72; 1998 SG₆₅, 3, 1, 0; 1998 SR₆₅, 3, 1, 0; 1998 SB₆₆, 3, 1, 0; 1998 SD₆₇, 3, 1, 0; 1998 SN₆₇, 3, 1, 0; 1998 SJ₆₇, 3, 1, 0; 1998 SH₇₂, 3, 1, 0; 1998 SQ₇₂, 6, 1, 0; 1998 SA₇₃, 3, 1, 0; 1998 SH₇₃, 3, 1, 0; 1998 SJ₇₃, 3, 1, 0; 1998 SV₇₃, 3, 1, 0; 1998 SW₇₃, 6,

0; 1998 UJ₇, 3, 1, 0; 1998 UW₇, 3, 1, 0; 1998 UX₇, 3, 1, 0; 1998 UY₇, 3, 1, 0; 1998 UZ₇, 3, 1, 0; 1998 UB₈, 6, 2, 14; 1998 UD₈, 3, 1, 0; 1998 UF₈, 3, 1, 0; 1998 UG₈, 3, 1, 0; 1998 UH₈, 3, 1, 0; 1998 UL₈, 6, 2, 13; 1998 UM₈, 3, 1, 0; 1998 UF₁₁, 3, 1, 0; 1998 UF₁₄, 3, 1, 0; 1998 UF₁₅, 3, 1, 0; 1998 UH₁₅, 3, 1, 0; 1998 UO₁₅, 3, 1, 0; 1998 UP₁₅, 3, 1, 0; 1998 UL₁₆, 3, 1, 0; 1998 UM₁₆, 3, 1, 0; 1998 UN₁₆, 3, 1, 0; 1998 UQ₁₆, 3, 1, 0; 1998 UP₁₈, 3, 1, 0; 1998 UR₁₈, 3, 1, 0; 1998 UW₁₈, 3, 1, 0; 1998 UE₁₉, 3, 1, 0; 1998 UR₁₉, 3, 1, 0; 1998 UY₁₉, 3, 1, 0; 1998 UZ₁₉, 3, 1, 0; 1998 UL₂₀, 6, 2, 13; 1998 UO₂₀, 3, 1, 0; 1998 UR₂₀, 3, 1, 0; 1998 UY₂₀, 3, 1, 0; 1998 UE₂₁, 3, 1, 0; 1998 UF₂₁, 3, 1, 0; 1998 UT₂₂, 3, 1, 0; 1998 UU₂₂, 3, 1, 0; 1998 UX₂₂, 6, 2, 19; 1998 UY₂₂, 3, 1, 0; 1998 UA₂₃, 3, 1, 0; 1998 UB₂₃, 3, 1, 0; 1998 UC₂₃, 3, 1, 0; 1998 UL₂₃, 3, 1, 0; 1998 UM₂₃, 3, 1, 0; 1998 UN₂₃, 3, 1, 0; 1998 UO₂₃, 3, 1, 0; 1998 UO₂₄, 6, 2, 17; 1998 UP₂₄, 3, 1, 0; 1998 UR₂₄, 3, 1, 0; 1998 US₂₄, 3, 1, 0; 1998 UT₂₄, 3, 1, 0; 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1998 XF, 3, 1, 0; 1998 XS₁, 3, 1, 0; 1998 XW₃, 3, 1, 0; 1998 XY₃, 3, 1, 0; 1998 XE₅, 3, 1, 0; 1998 XP₉, 3, 1, 0; 1998 XW₉, 3, 1, 0; 1998 XE₁₃, 6, 2, 5; 1998 XW₁₆, 3, 1, 0; 1998 XX₁₆, 3, 1, 0; 1998 XY₁₆, 3, 1, 0; 1998 XL₁₇, 3, 1, 0; 1998 XH₂₀, 3, 1, 0; 1998 XR₂₀, 3, 1, 0; 1998 XD₂₁, 3, 1, 0; 1998 XN₂₁, 3, 1, 0; 1998 XZ₂₃, 3, 1, 0; 1998 XO₂₄, 3, 1, 0; 1998 XR₂₅, 6, 2, 6; 1998 YC, 3, 1, 0; 1998 YG₁, 3, 1, 0; 1998 YO₁, 3, 1, 0; 1998 YF₁, 3, 1, 0; 1998 YE₃, 3, 1, 0; 1998 YH₃, 3, 1, 0; 1998 YF₄, 3, 1, 0; 1998 YG₄, 3, 1, 0; 1998 YH₄, 3, 1, 0; 1998 YQ₅, 3, 1, 0; 1998 YH₇, 6, 2, 2; 1998 YJ₇, 3, 1, 0; 1998 YP₇, 3, 1, 0; 1998 YL₈, 3, 1, 0; 2076 P-L, 6, 2, 18; 2530 P-L, 3, 1, 0; 2808 P-L, 6, 2, 14; 3087 P-L, 3, 1, 0; 4013 P-L, 3, 1, 0; 4105 P-L, 3, 1, 0; 4525 P-L, 3, 1, 0; 4602 P-L, 3, 1, 0; 4611 P-L, 3, 1, 0; 4646 P-L, 3, 1, 0; 4812 P-L, 3, 1, 0; 6075 P-L, 3, 1, 0; 6523 P-L, 6, 2, 15; 6541 P-L, 6, 2, 23; 6577 P-L, 3, 1, 0; 6605 P-L, 3, 1, 0; 7639 P-L, 3, 1, 0; 2140 T-1, 3, 1, 0; 2175 T-1, 3, 1, 0; 3306 T-1, 3, 1, 0; 1259 T-2, 3, 1, 0; 2078 T-2, 6, 2, 23; 4257 T-2, 3, 1, 0; 5211 T-2, 3, 1, 0; 1084 T-3, 3, 1, 0; 2349 T-3, 6, 2, 14; 2496 T-3, 3, 1, 0; 3101 T-3, 3, 1, 0; 3320 T-3, 3, 1, 0; 4032 T-3, 3, 1, 0; 4052 T-3, 6, 2, 16; 4205 T-3, 6, 2, 15; 4310 T-3, 3, 1, 0; 4327 T-3, 3, 1, 0; 4336 T-3, 6, 2, 22; 5041 T-3, 3, 1, 0; (62), 6, 2, 7; (75), 2, 1, 0; (77), 3, 1, 0; (107), 2, 1, 0; (108), 6, 2, 15; (143), 3, 1, 0; (144), 3, 1, 0; (147), 3, 1, 0; (188), 3, 1, 0; (195), 6, 2, 13; (197), 3, 1, 0; (203), 3, 1, 0; (206), 3, 1, 0; (208), 3, 1, 0; (209), 3, 1, 0; (212), 3, 1, 0; (215), 6, 2, 22; (229), 3, 1, 0; (238), 3, 1, 0; (240), 3, 1, 0; (255), 3, 1, 0; (268), 3, 1, 0; (271), 3, 1, 0; (272), 3, 1, 0; (274), 3, 1, 0; (281), 6, 2, 16; (282), 5, 2, 57; (288), 6, 2, 18; (291), 3, 1, 0; (297), 3, 1, 0; (309), 3, 1, 0; (362), 3, 1, 0; (376), 3, 1, 0; (407), 6, 2, 23; (424), 3, 1, 0; (431), 3, 1, 0; (435), 3, 1, 0; (439), 3, 1, 0; (446), 3, 1, 0; (447), 2, 1, 0; (450), 3, 1, 0; (453), 3, 1, 0; 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0; (7830), 5, 2, 22; (7835), 3, 1, 0; (7836), 3, 1, 0; (7837), 3, 1, 0; (7838), 3, 1, 0; (7841), 3, 1, 0; (7849), 3, 1, 0; (7852), 3, 1, 0; (7854), 3, 1, 0; (7859), 3, 1, 0; (7860), 3, 1, 0; (7866), 3, 1, 0; (7868), 3, 1, 0; (7875), 3, 1, 0; (7876), 3, 1, 0; (7886), 3, 1, 0; (7887), 3, 1, 0; (7895), 3, 1, 0; (7898), 3, 1, 0; (7920), 3, 1, 0; (7929), 3, 1, 0; (7931), 3, 1, 0; (7935), 3, 1, 0; (7936), 3, 1, 0; (7948), 3, 1, 0; (7955), 3, 1, 0; (7992), 3, 1, 0; (7993), 3, 1, 0; (7996), 3, 1, 0; (7999), 6, 2, 23; (8008), 3, 1, 0; (8020), 3, 1, 0; (8029), 3, 1, 0; (8033), 3, 1, 0; (8038), 3, 1, 0; (8045), 3, 1, 0; (8046), 6, 2, 23; (8053), 3, 1, 0; (8059), 3, 1, 0; (8074), 3, 1, 0; (8077), 3, 1, 0; (8084), 6, 2, 19; (8085), 3, 1, 0; (8101), 3, 1, 0; (8104), 3, 1, 0; (8110), 3, 1, 0; (8138), 3, 1, 0; (8171), 3, 1, 0; (8182), 3, 1, 0; (8184), 3, 1, 0; (8188), 3, 1, 0; (8189), 3, 1, 0; (8197), 6, 2, 21; (8199), 3, 1, 0; (8208), 3, 1, 0; (8231), 3, 1, 0; (8234), 3, 1, 0; (8294), 3, 1, 0; (8982), 6, 2, 15; (9021), 3, 1, 0; (9050), 3, 1, 0; (9083), 3, 1, 0; (9150), 3, 1, 0; (9173), 2, 1, 0; (9179), 3, 1, 0; (9198), 3, 1, 0; (9200), 3, 1, 0; (9206), 6, 2, 7; (9215), 3, 1, 0; (9216), 3, 1, 0; (9218), 6, 2, 13; (9223), 3, 1, 0; (9241), 3, 1, 0; (9253), 3, 1, 0; (9260), 9, 3, 72; (9261), 6, 2, 16; (9263), 1, 1, 0; (9264), 3, 1, 0; (9276), 3, 1, 0; (9285), 3, 1, 0; (9290), 3, 1, 0; (9298), 3, 1, 0; (9299), 3, 1, 0; (9302), 3, 1, 0; (9322), 3, 1, 0; (9325), 3, 1, 0; (9328), 3, 1, 0; (9329), 3, 1, 0; (9333), 2, 1, 0; (9334), 3, 1, 0; (9338), 3, 1, 0; (9362), 9, 3, 80; (9374), 9, 3, 20; (9376), 3, 1, 0; (9379), 6, 2, 13; (9390), 3, 1, 0; (9399), 3, 1, 0; (9401), 3, 1, 0; (9403), 6, 2, 57; (9407), 6, 2, 59; (9408), 6, 2, 57; (9443), 6, 2, 13; (9447), 3, 1, 0; (9474), 3, 1, 0; (9492), 6, 2, 23; (9512), 3, 1, 0; (9513), 3, 1, 0; (9514), 3, 1, 0; (9516), 3, 1, 0; (9527), 3, 1, 0; (9529), 3, 1, 0; (9532), 6, 2, 19; (9533), 3, 1, 0; (9534), 3, 1, 0; (9535), 6, 2, 22; (9536), 3, 1, 0; (9541), 6, 2, 15; (9544), 3, 1, 0; (9545), 3, 1, 0; (9546), 3, 1, 0; (9549), 3, 1, 0; (9552), 3, 1, 0; (9553), 3, 1, 0; (9555), 3, 1, 0; (9557), 3, 1, 0; (9558), 6, 2, 14; (9559), 2, 1, 0; (9562), 6, 2, 13; (9565), 3, 1, 0; (9569), 3, 1, 0; (9570), 3, 1, 0; (9573), 3, 1, 0; (9582), 3, 1, 0; (9588), 6, 2, 13; (9592), 3, 1, 0; (9593), 6, 2, 57; (9594), 3, 1, 0; (9595), 3, 1, 0; (9596), 3, 1, 0; (9600), 3, 1, 0; (9610), 6, 2, 15; (9616), 3, 1, 0; (9621), 3, 1, 0; (9622), 3, 1, 0; (9623), 3, 1, 0; (9624), 3, 1, 0; (9626), 3, 1, 0; (9629), 3, 1, 0; (9639), 6, 2, 16; (9649), 3, 1, 0; (9650), 3, 1, 0; (9651), 3, 1, 0; (9652), 3, 1, 0; (9655), 3, 1, 0; (9659), 3, 1, 0; (9663), 3, 1, 0; (9665), 3, 1, 0; (9666), 3, 1, 0; (9669), 3, 1, 0; (9670), 6, 2, 22; (9671), 2, 1, 0; (9672), 6, 2, 21; (9677), 3, 1, 0; (9683), 3, 1, 0; (9684), 3, 1, 0; (9687), 3, 1, 0; (9688), 6, 2, 1; (9690), 3, 1, 0; (9693), 3, 1, 0; (9699), 3, 1, 0; (9700), 3, 1, 0; (9702), 3, 1, 0; (9705), 3, 1, 0; (9709), 6, 2, 22; (9711), 3, 1, 0; (9718), 3, 1, 0; (9731), 3, 1, 0; (9733), 3, 1, 0; (9740), 3, 1, 0; (9741), 3, 1, 0; (9743), 6, 2, 22; (9745), 6, 2, 14; (9748), 3, 1, 0; (9749), 3, 1, 0; (9755), 3, 1, 0; (9756), 3, 1, 0; (9764), 3, 1, 0; (9765), 3, 1, 0; (9766), 3, 1, 0; (9771), 3, 1, 0; (9772), 6, 2, 20; (9774), 3, 1, 0; (9775), 3, 1, 0; (9776), 3, 1, 0; (9782), 3, 1, 0; (9783), 3, 1, 0; (9784), 3, 1, 0; (9785), 6, 2, 16; (9787), 6, 2, 14; (9788), 6, 2, 13; (9789), 3, 1, 0; (9792), 3, 1, 0; (9793), 3, 1, 0; (9795), 6, 2, 19; (9797), 6, 2, 6; (9798), 6, 1, 0; (9800), 3, 1, 0; (9801), 3, 1, 0; (9802), 3, 1, 0; (9807), 3, 1, 0; (9809), 3, 1, 0; (9814), 6, 2, 14; (9818), 3, 1, 0; (9821), 3, 1, 0; (9824), 3, 1, 0; (9826), 6, 2, 14; [7651, 2150, 26*, 1998/04/04–1998/12/27]

703 Catalina Sky Survey

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Observers C. W. Hergenrother, T. B. Spahr, J. W. Brownlee

Measurer T. B. Spahr

0.41-m $f/3$ Schmidt + CCD

GSC-1.0

1974 PC, 3, 1, 0; 1993 RS, 2, 1, 0; 1994 TT₃, 2, 1, 0; 1996 JU, 2, 1, 0; 1996 UX₃, 3, 1, 0; 1998 SU₁₂, 3, 1, 0; 1998 SQ₂₇, 2, 2, 35; 1998 UV₁₆, 3, 1, 0; 1998 UM₁₈, 2, 1, 0; 1998 UN₁₈, 3, 1, 0; 1998 VR₃₂, 3, 1, 0; 1998 WC, 3, 1, 0; 1998 WD, 2, 1, 0; 1998 WH₁, 2, 1, 0; 1998 WA₄, 3, 1, 0; 1998 WO₄, 3, 1, 0; 1998 WP₄, 2, 1, 0; 1998 WQ₄, 3, 1, 0; 1998 WR₄, 2, 1, 0; 1998 WS₄, 3, 1, 0; 1998 WU₄, 3, 1, 0; 1998 WX₄, 2, 1, 0; 1998 WY₄, 2, 1, 0; 1998 WZ₄, 3, 1, 0; 1998 WA₅, 2, 1, 0; 1998 WH₅, 3, 1, 0; 1998 WE₃₁ *, 8, 3, 38; 1998 WF₃₁ *, 9, 3, 31; 1998 WG₃₁ *, 9, 3, 33; 1998 WH₃₁ *, 7, 3, 31; 1998 YL₄, 3, 1, 0; 1998 YP₄ *, 3, 1, 0; 1998 YQ₄ *, 5, 2, 3; 1998 YH₅ *, 6, 2, 2; 1998 YJ₅ *, 6, 2, 2; 1998 YK₅ *, 6, 2, 2; 1998 YE₆ *, 5, 2, 1; 1998 YF₆ *, 7, 3, 2; 1998 YG₆ *, 4, 2, 1; 1998 YH₆ *, 4, 2, 1; 1998 YJ₆ *, 5, 2, 1; 1998 YT₆ *, 5, 2, 3; 1998 YQ₇ *, 6, 2, 1; 1998 YR₇ *, 8, 2, 1; 1998 YS₇ *, 5, 2, 1; 1998 YT₇ *, 5, 2, 1; 1998 YM₈ *, 4, 1, 0; 1998 YS₈, 3, 1, 0; (4672), 3, 1, 0; [192, 49, 20*, 1998/09/24–1998/12/25]

704 Lincoln Laboratory Experimental Test System, New Mexico

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

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

1.0-m $f/2.15$ reflector + CCD

USNO-SA1.0

1967 JQ₉, 2, 3; 1969 TM₁, 5, 1, 0; 1972 TC₄, 1, 0; 1972 TE₁₅, 3, 7; 1973 SF₁, 10, 2, 3; 1973 SX₂, 9, 2, 7; 1974 PC₅, 1, 0; 1975 LY₁₀, 2, 3; 1975 SE₁, 8, 2, 3; 1975 SM₁, 5, 1, 0; 1975 TJ₃, 5, 1, 0; 1975 VV₂, 4, 1, 0; 1975 VW₅, 4, 1, 0; 1976 QA₈, 2, 3; 1976 UN₂, 10, 2, 3; 1976 UJ₄, 15, 3, 3; 1976 UR₁₅, 8, 2, 3; 1977 DT₂, 8, 2, 1; 1977 QD₂, 5, 1, 0; 1977 RD₂, 5, 1, 0; 1977 TU₃, 5, 1, 0; 1977 TO₆, 4, 1, 0; 1978 CK₄, 1, 0; 1978 PX₃, 5, 1, 0; 1978 PG₄, 5, 1, 0; 1978 RX₁, 5, 1, 0; 1978 RB₈, 5, 1, 0; 1978 RB₁₀, 3, 1, 0; 1978 SD₃, 14, 3, 3; 1978 SH₃, 5, 1, 0; 1978 SA₅, 3, 1, 0; 1978 TR₂, 8, 2, 3; 1978 UP₂, 5, 1, 0; 1978 VY₅, 4, 1, 0; 1978 VH₁₀, 4, 1, 0; 1978 VE₁₁, 3, 1, 0; 1978 WU₄, 1, 0; 1978 YM₅, 1, 0; 1979 HW₆, 2, 1, 0; 1979 MK₁₀, 2, 7; 1979 MV₁, 5, 1, 0; 1979 MY₅, 9, 2, 3; 1979 SO₁₀, 2, 3; 1979 VS₂, 5, 1, 0; 1979 WX₃, 14, 3, 7; 1979 XL₃, 1, 0; 1980 FO₁, 10, 2, 3; 1981 DQ₁, 13, 3, 5; 1981 DV₂, 3, 1, 0; 1981 EH₃, 10, 2, 3; 1981 EZ₆, 8, 2, 7; 1981 EQ₁₀, 4, 1, 0; 1981 EY₁₀, 15, 3, 7; 1981 EB₁₁, 2, 1, 0; 1981 EO₂₁, 9, 2, 3; 1981 EB₂₃, 10, 2, 2; 1981 EB₂₄, 10, 2, 3; 1981 EU₂₄, 9, 2, 3; 1981 EN₂₆, 4, 1, 0; 1981 EY₂₇, 5, 1, 0; 1981 EZ₃₀, 5, 1, 0; 1981 EG₃₄, 4, 1, 0; 1981 EJ₃₆, 14, 3, 3; 1981 EE₃₈, 9, 2, 3; 1981 QG₈, 2, 3; 1981 QJ₂, 5, 1, 0; 1981 QW₂, 5, 1, 0; 1981 RB₂, 4, 1, 0; 1981 RB₃, 10, 2, 7; 1981 TW₁, 4, 1, 0; 1981 UT₂₉, 5, 1, 0; 1981 YG₅, 1, 0; 1982 SW₃, 9, 2, 7; 1982 TK₁, 9, 2, 7; 1982 TS₁, 10, 2, 3; 1982 US₆, 5, 1, 0; 1982 VP₃, 5, 1, 0; 1982 VF₄, 15, 3, 7; 1983 RP₃, 4, 1, 0; 1983 RQ₃, 9, 2, 3; 1984 CP₅, 1, 0; 1984 HO₁, 9, 2, 3; 1984 QU₄, 1, 0; 1984 SL₄, 1, 0; 1984 SO₄, 4, 1, 0; 1984 UD₃, 5, 1, 0; 1984 UR₅, 5, 1, 0; 1984 YL₁, 5, 1, 0; 1984 YE₄, 4, 1, 0; 1985 CU₁, 5, 1, 0; 1985 CS₂, 5, 1, 0; 1985 HH₁₀, 2, 7; 1985 PL₅, 1, 0; 1985 PO₁₀, 2, 7; 1985 PT₅, 1, 0; 1985 PE₁, 4, 1, 0; 1985 PB₂, 5, 1, 0; 1985 QP₅, 5, 1, 0; 1985 QP₅, 5, 1, 0; 1985 RU₅, 5, 1, 0; 1985 RD₃, 3, 1, 0; 1985 RN₃, 4, 1, 0; 1985 SX₂, 5, 1, 0; 1985 SM₃, 9, 2, 3; 1985 TU₁₀, 2, 7; 1985 UA₅, 4, 1, 0; 1986 AA₂, 4, 1, 0; 1986 EK₁, 7, 2, 1; 1986 JC₁₄, 3, 7; 1986 PN₄, 8, 2, 3; 1986 QU₄, 1, 0; 1986 QZ₁, 10, 2, 7; 1986 QS₃, 5, 1, 0; 1986 RP₅, 5, 1, 0; 1986 RB₁₂, 5, 1, 0; 1986 TG₁, 4, 1, 0; 1986 TV₆, 10, 1, 0; 1986 TT₁₁, 4, 1, 0; 1987 DK₆, 5, 1, 0; 1987 QH₅, 5, 1, 0; 1987 QT₁, 4, 1, 0; 1987 QC₃, 14, 3, 3; 1987 QS₅, 4, 1, 0; 1987 RN₆, 5, 1, 0; 1987 SP₁, 5, 1, 0; 1987 SJ₂, 4, 1, 0; 1987 SV₃, 10, 2, 3; 1987 SL₅, 5, 1, 0; 1987 SM₁₂, 10, 2, 3; 1987 SP₁₂, 5, 1, 0; 1987 SR₁₂, 15, 3, 7; 1987 UR₅, 5, 1, 0; 1987 UT₉, 9, 2, 3; 1987 UX₅, 5, 1, 0; 1987 VR₁₀, 2, 7; 1987 WP₅, 5, 1, 0; 1987 WF₁, 5, 1, 0; 1987 YU₁, 3, 1, 0; 1988 BL₅, 5, 1, 0; 1988 CH₅, 3, 1, 0; 1988 CF₆, 5, 1, 0; 1988 DE₅, 5, 1, 0; 1988 FE₅, 1, 0; 1988 GL₁₀, 2, 3; 1988 KA₁₄, 3, 7; 1988 PU₉, 2, 7; 1988 PG₁, 4, 1, 0; 1988 RQ₂, 5, 1, 0; 1988 RL₉, 5, 1, 0; 1988 RV₁₂, 3, 1, 0; 1988 RF₁₃, 3, 1, 0; 1988 SZ₂, 5, 1, 0; 1988 TT₄, 4, 1, 0; 1988 UT₁₀, 2, 7; 1988 VK₅, 1, 0; 1988 VR₂, 5, 1, 0; 1988 XK₁₀, 2, 7; 1988 XT₁, 5, 1, 0; 1989 AS₁, 10, 2, 3; 1989 AB₃, 9, 2, 7; 1989 AL₃, 10, 2, 7; 1989 AV₆, 4, 1, 0; 1989 CX₄, 1, 0; 1989 CW₂, 3, 1, 0; 1989 CW₇, 10, 2, 7; 1989 EG₁, 4, 1, 0; 1989 ET₁, 9, 2, 3; 1989 GF₁, 3, 1, 0; 1989 GJ₂, 10, 2, 7; 1989 GH₄, 5, 1, 0; 1989 GR₄, 5, 1, 0; 1989 LT₁₀, 2, 3; 1989 OL₅, 5, 1, 0; 1989 PF₅, 5, 1, 0; 1989 PK₅, 5, 1, 0; 1989 RB₅, 5, 1, 0; 1989 RX₅, 5, 1, 0; 1989 RD₁, 5, 1, 0; 1989 RY₁, 5, 1, 0; 1989 SJ₂, 4, 1, 0; 1989 ST₃, 4, 1, 0; 1989 SZ₃, 5, 1, 0; 1989 SN₄, 4, 1, 0; 1989 SY₁₃, 5, 1, 0; 1989 TN₁, 4, 1, 0; 1989 TR₁₁, 5, 1, 0; 1989 TR₁₁, 10, 2, 3; 1989 TF₁₄, 10, 2, 3; 1989 TA₁₆, 4, 1, 0; 1989 TD₁₆, 5, 1, 0; 1989 UA₅, 5, 1, 0; 1989 UL₅, 5, 1, 0; 1989 UL₁, 4, 1, 0; 1989 US₁, 5, 1, 0; 1989 UJ₃, 3, 1, 0; 1989 UA₆, 9, 2, 3; 1989 UX₇, 4, 1, 0; 1989 VS₂, 10, 2, 3; 1989 WF₁, 10, 2, 3; 1989 WU₄, 10, 2, 3; 1990 DA₃, 9, 2, 7; 1990 EF₂, 9, 2, 3; 1990 FM₁, 5, 1, 0; 1990 KX₅, 5, 1, 0; 1990 OS₁, 4, 1, 0; 1990 OX₁, 9, 2, 7; 1990 OF₂, 4, 1, 0; 1990 OX₂, 5, 1, 0; 1990 OY₃, 10, 2, 3; 1990 QT₁, 13, 3, 7; 1990 QB₂, 15, 3, 7; 1990 QN₂, 4, 1, 0; 1990 QJ₅, 4, 1, 0; 1990 QO₅, 4, 1, 0; 1990 QB₆, 9, 2, 3; 1990 QN₇, 5, 1, 0; 1990 QX₁₇, 5, 1, 0; 1990 RE₂, 4, 1, 0; 1990 RF₂, 9, 2, 7; 1990 RN₃, 3, 1, 0; 1990 RA₇, 3, 1, 0; 1990 RA₈, 4, 1, 0; 1990 RM₉, 9, 2, 7; 1990 RP₉, 14, 3, 7; 1990 RF₁₇, 5, 1, 0; 1990 SZ₅, 1, 0; 1990 SF₄, 4, 1, 0; 1990 SK₆, 10, 2, 3; 1990 SN₆, 15, 3, 7; 1990 SA₈, 5, 1, 0; 1990 SG₈, 5, 1, 0; 1990 ST₈, 2, 1, 0; 1990 ST₁₅, 5, 1, 0; 1990 SK₂₈, 5, 1, 0; 1990 TN₃, 3, 1, 0; 1990 TO₄, 4, 1, 0; 1990 TM₅, 9, 2, 7; 1990 TU₁₁, 15, 3, 3; 1990 UO₁, 4, 1, 0; 1990 UC₂, 10, 2, 7; 1990 UG₃, 5, 1, 0; 1990 VL₁, 5, 1, 0; 1990 VV₁, 9, 2, 7; 1990 VH₃, 4, 1, 0; 1990 VM₃, 5, 1, 0; 1990 VS₄, 5, 1, 0; 1990 VK₅, 7, 2, 7; 1990 VG₆, 4, 1, 0; 1990 VW₈, 4, 1, 0; 1990 WD₂, 13, 3, 7; 1990 WN₂, 5, 1, 0; 1990 WS₂, 4, 1, 0; 1990 XF₁₀, 2, 3; 1990 XN₅, 5, 1, 0; 1990 XZ₅, 5, 1, 0; 1990 YX₁₀, 2, 3; 1991 AC₃, 10, 2, 6; 1991 BD₁, 9, 2, 7; 1991 CU₁₀, 2, 7; 1991 DE₅, 5, 1, 0; 1991 DW₅, 5, 1, 0; 1991 EB₁₀, 2, 7; 1991 EJ₄, 1, 0; 1991 EN₁, 42, 4, 9; 1991 GJ₁, 5, 1, 0; 1991 GX₁, 5, 1, 0; 1991 CX₇, 9, 2, 3; 1991 LB₅, 5, 1, 0; 1991 LJ₂, 2, 1, 0; 1991 OV₃, 3, 1, 0; 1991 OL₁, 12, 3, 7; 1991 PK₁₅, 3, 7; 1991 PO₄, 3, 1, 0; 1991 PT₄, 22, 4, 7; 1991 PO₅, 5, 1, 0; 1991 PW₉, 5, 1, 0; 1991 PG₁₁, 5, 1, 0; 1991 PO₁₂, 10, 2, 6; 1991 PB₂₀, 4, 1, 0; 1991 RE₁, 5, 1, 0; 1991 RL₁, 4, 1, 0; 1991 RE₂, 5, 1, 0; 1991 RS₂, 4, 1, 0; 1991 RB₃, 10, 2, 7; 1991 RT₅, 9, 2, 1; 1991 RA₆, 5, 1, 0; 1991 RF₆, 15, 3, 7; 1991 RE₇, 5, 1, 0; 1991 RJ₇, 10, 2, 3; 1991 RS₈, 4, 1, 0; 1991 RR₉, 3, 1, 0; 1991 RB₁₀, 5, 1, 0; 1991 RR₁₀, 5, 1, 0; 1991 RZ₁₁, 14, 3, 3; 1991 RN₁₃, 14, 3, 3; 1991 RA₁₅, 12, 3, 3; 1991 RK₁₅, 4, 1, 0; 1991 RD₁₆, 4, 1, 0; 1991 RV₁₆, 10, 2, 3; 1991 RZ₁₆, 15, 3, 3; 1991 RA₁₇, 9, 2, 1; 1991 RX₁₇, 5, 1, 0; 1991 RJ₂₂, 5, 1, 0; 1991 SA₄, 4, 1, 0; 1991 SG₄, 1, 0; 1991 ST₅, 1, 0; 1991 SN₁, 8, 2, 7; 1991 TK₁, 2, 1, 0; 1991 TP₁, 14, 3, 7; 1991 TC₃, 8, 2, 2; 1991 TV₄, 4, 1, 0; 1991 TO₁₃, 10, 2, 7; 1991 UN₁, 4, 1, 0; 1991 UQ₁, 5, 1, 0; 1991 UR₁, 4, 1, 0; 1991 UO₂, 5, 1, 0; 1991 UN₃, 4, 1, 0; 1991 VE₅, 5, 1, 0; 1991 VM₁₀, 2, 3; 1991 VP₁, 14, 3, 7; 1991 VQ₁, 10, 2, 3; 1991 VF₂, 5, 1, 0; 1991 VJ₂, 4, 1, 0; 1991 VZ₂, 5, 1, 0; 1991 VJ₄, 8, 2, 3; 1991 VC₅, 5, 1, 0; 1991 VM₅, 5, 1, 0; 1991 XK₅, 5, 1, 0; 1991 XN₁₀, 2, 3; 1992 AN₅, 5, 1, 0; 1992 AQ₅, 5, 1, 0; 1992 BM₂, 5, 1, 0; 1992 CF₅, 5, 1, 0; 1992 CK₅, 5, 1, 0; 1992 CD₁, 10, 2, 7; 1992 CF₁, 9, 2, 3; 1992 DA₄, 10, 2, 3; 1992 DJ₄, 7, 2, 3; 1992 DA₆, 9, 2, 1; 1992 DW₇, 4, 1, 0; 1992 DB₉, 3, 1, 0; 1992 EF₂, 4, 1, 0; 1992 EH₄, 5, 1, 0; 1992 EM₆, 4, 1, 0;

1992 EP₆, 3, 1, 0; 1992 EW₇, 25, 4, 7; 1992 EW₉, 4, 1, 0; 1992 EZ₁₁, 4, 1, 0; 1992 EB₁₃, 4, 1, 0; 1992 ES₁₃, 4, 1, 0; 1992 EB₁₄, 5, 1, 0; 1992 EN₁₇, 5, 1, 0; 1992 EJ₂₄, 5, 1, 0; 1992 FA₂, 5, 1, 0; 1992 GH₁₀, 2, 1; 1992 GD₃, 4, 1, 0; 1992 JS₂, 10, 2, 7; 1992 KF₁₀, 2, 3; 1992 KQ₁₀, 10, 2, 7; 1992 NS₄, 1, 0; 1992 OF₁, 5, 1, 0; 1992 OP₁, 5, 1, 0; 1992 OV₆, 8, 2, 7; 1992 OY₇, 10, 2, 3; 1992 OB₉, 9, 2, 7; 1992 PL₂, 4, 1, 0; 1992 PX₂, 5, 1, 0; 1992 QA₄, 1, 0; 1992 QR₃, 3, 1, 0; 1992 RZ₅, 5, 1, 0; 1992 RD₁, 4, 1, 0; 1992 RB₃, 24, 4, 7; 1992 RF₅, 4, 1, 0; 1992 RX₆, 15, 2, 3; 1992 RM₇, 4, 1, 0; 1992 ST₁, 5, 1, 0; 1992 SJ₂, 9, 2, 7; 1992 SR₂₅, 10, 2, 3; 1992 TW₇, 2, 7; 1992 UZ₃, 3, 1, 0; 1992 UZ₅, 9, 2, 3; 1992 WK₁, 5, 1, 0; 1992 WA₄, 14, 3, 3; 1992 WK₉, 9, 2, 1; 1992 YW₁, 3, 1, 0; 1993 BJ₂, 5, 1, 0; 1993 BY₄, 5, 1, 0; 1993 BE₅, 10, 2, 3; 1993 DQ₉, 9, 2, 3; 1993 DD₁, 15, 3, 3; 1993 FB₁, 4, 1, 0; 1993 FT₇, 10, 2, 1; 1993 FV₇, 8, 2, 3; 1993 FZ₇, 11, 3, 3; 1993 FH₁₁, 4, 1, 0; 1993 FR₁₁, 4, 1, 0; 1993 FK₁₃, 4, 1, 0; 1993 FS₁₃, 9, 2, 2; 1993 FZ₁₈, 10, 2, 3; 1993 FD₁₉, 5, 1, 0; 1993 FR₂₃, 10, 2, 3; 1993 FH₂₅, 5, 1, 0; 1993 FF₂₆, 10, 2, 3; 1993 FY₂₇, 9, 2, 1; 1993 FA₂₈, 4, 1, 0; 1993 FY₃₇, 11, 2, 7; 1993 FZ₄₀, 9, 2, 3; 1993 FZ₅₅, 10, 2, 7; 1993 FP₇₃, 13, 3, 7; 1993 FX₇₉, 5, 1, 0; 1993 GC₁, 5, 1, 0; 1993 GN₁, 10, 2, 7; 1993 HH₁, 5, 1, 0; 1993 HS₁, 9, 2, 3; 1993 HW₁, 13, 3, 3; 1993 HL₆, 9, 2, 7; 1993 JD₂, 1, 0; 1993 JX₁₀, 2, 1; 1993 KQ₁₅, 3, 7; 1993 KZ₁₄, 14, 3, 7; 1993 LS₁, 5, 1, 0; 1993 LZ₁, 5, 1, 0; 1993 NB₅, 1, 0; 1993 NA₂, 5, 1, 0; 1993 NB₂, 5, 1, 0; 1993 OY₂, 4, 1, 0; 1993 OM₃, 4, 1, 0; 1993 OS₁₂, 4, 1, 0; 1993 OG₁₃, 4, 1, 0; 1993 PY₅, 9, 2, 3; 1993 QE₁, 8, 2, 7; 1993 QR₄, 10, 2, 3; 1993 QX₄, 5, 1, 0; 1993 RK₃, 3, 1, 0; 1993 RS₅, 1, 0; 1993 RF₃, 14, 3, 7; 1993 RQ₄, 4, 1, 0; 1993 RV₇, 9, 2, 3; 1993 RY₁₁, 9, 2, 1; 1993 RM₁₄, 5, 1, 0; 1993 SG₁, 4, 1, 0; 1993 ST₃, 9, 2, 3; 1993 SA₄, 8, 2, 7; 1993 SX₄, 4, 1, 0; 1993 SU₆, 5, 1, 0; 1993 SB₁₅, 5, 1, 0; 1993 TQ₅, 1, 0; 1993 TS₁, 5, 1, 0; 1993 TV₁₂, 5, 1, 0; 1993 TH₁₄, 9, 2, 7; 1993 TN₁₈, 10, 2, 3; 1993 TO₂₄, 14, 3, 7; 1993 TK₃₃, 9, 2, 3; 1993 TW₃₃, 4, 1, 0; 1993 UL₄, 1, 0; 1993 US₈, 2, 6; 1993 UJ₁, 5, 1, 0; 1993 UZ₇, 2, 1, 0; 1993 VG₁, 5, 1, 0; 1993 VV₇, 5, 1, 0; 1993 WD₅, 5, 1, 0; 1993 XM₄, 4, 1, 0; 1993 XN₅, 5, 1, 0; 1994 AH₁₀, 2, 7; 1994 AS₈, 2, 3; 1994 AJ₁, 9, 2, 3; 1994 AL₁, 4, 1, 0; 1994 AP₁, 5, 1, 0; 1994 BJ₄, 9, 2, 3; 1994 CK₁, 4, 1, 0; 1994 CV₁, 9, 2, 3; 1994 CF₂, 13, 3, 7; 1994 CK₂, 10, 2, 3; 1994 FQ₄, 4, 1, 0; 1994 GB₁, 3, 1, 0; 1994 LY₁, 3, 1, 0; 1994 NF₁, 3, 1, 0; 1994 NS₁, 33, 3, 5; 1994 PA₉, 9, 2, 7; 1994 PK₁₁, 10, 2, 3; 1994 PQ₁₆, 9, 2, 3; 1994 PG₁₈, 4, 1, 0; 1994 PR₂₀, 9, 2, 7; 1994 PG₂₄, 5, 1, 0; 1994 PQ₃₁, 10, 2, 7; 1994 PW₃₁, 3, 1, 0; 1994 PE₃₃, 5, 1, 0; 1994 RL₄, 4, 1, 0; 1994 RH₉, 10, 2, 1; 1994 RJ₁₁, 5, 1, 0; 1994 RP₁₁, 3, 1, 0; 1994 SE₄, 1, 0; 1994 SH₁₁, 5, 1, 0; 1994 TT₅, 1, 0; 1994 TW₅, 5, 1, 0; 1994 TJ₁, 5, 1, 0; 1994 TQ₁, 10, 2, 3; 1994 TR₁, 5, 1, 0; 1994 TU₁, 9, 2, 3; 1994 TU₂, 8, 2, 7; 1994 TY₂, 5, 1, 0; 1994 TA₃, 4, 1, 0; 1994 TB₃, 5, 1, 0; 1994 TN₃, 8, 2, 3; 1994 TT₃, 4, 1, 0; 1994 TM₁₄, 9, 2, 7; 1994 TZ₁₄, 5, 1, 0; 1994 TW₁₅, 4, 1, 0; 1994 TS₁₆, 8, 2, 7; 1994 UF₅, 5, 1, 0; 1994 UH₄, 1, 0; 1994 UT₄, 1, 0; 1994 UV₅, 5, 1, 0; 1994 UZ₅, 5, 1, 0; 1994 UC₁, 5, 1, 0; 1994 UJ₁, 5, 1, 0; 1994 UT₁, 5, 1, 0; 1994 VU₅, 5, 1, 0; 1994 VB₂, 2, 1, 0; 1994 VD₂, 4, 1, 0; 1994 VF₂, 5, 1, 0; 1994 VW₂, 5, 1, 0; 1994 VZ₂, 5, 1, 0; 1994 VU₆, 5, 1, 0; 1994 VY₆, 4, 1, 0; 1994 VM₇, 10, 2, 3; 1994 WC₄, 4, 1, 0; 1994 WQ₉, 2, 1; 1994 WH₁, 10, 2, 3; 1994 WM₁, 9, 2, 3; 1994 WP₁, 5, 1, 0; 1994 WE₂, 5, 1, 0; 1994 WN₃, 9, 2, 7; 1994 WD₄, 5, 1, 0; 1994 WJ₁₂, 10, 2, 3; 1994 XH₅, 5, 1, 0; 1994 XJ₅, 1, 0; 1994 XP₄, 8, 2, 3; 1994 XB₅, 5, 1, 0; 1994 YC₄, 4, 1, 0; 1994 YD₅, 5, 1, 0; 1994 YN₁₉, 19, 3, 7; 1994 YR₉, 2, 7; 1994 YX₉, 9, 2, 2; 1994 YZ₉, 2, 1; 1994 YJ₂, 5, 1, 0; 1994 YM₂, 5, 1, 0; 1995 AF₂₀, 3, 5; 1995 AH₁₄, 3, 7; 1995 AE₄, 15, 3, 7; 1995 AV₄, 4, 1, 0; 1995 BA_{4</}

5, 1, 0; 1997 OC₁, 10, 2, 7; 1997 OO₁, 8, 2, 7; 1997 OZ₁, 4, 1, 0; 1997 PE, 5, 1, 0; 1997 PQ, 5, 1, 0; 1997 PR, 8, 2, 3; 1997 PK₁, 9, 2, 7; 1997 PX₁, 5, 1, 0; 1997 PY₁, 4, 1, 0; 1997 PC₂, 9, 2, 3; 1997 PM₂, 10, 2, 3; 1997 PU₂, 5, 1, 0; 1997 PJ₄, 12, 3, 3; 1997 PU₄, 13, 3, 3; 1997 QF, 4, 1, 0; 1997 QK, 8, 2, 3; 1997 QP, 10, 2, 3; 1997 QG₁, 12, 3, 7; 1997 QH₁, 5, 1, 0; 1997 QD₂, 10, 2, 7; 1997 QS₂, 10, 2, 3; 1997 QZ₂, 5, 1, 0; 1997 QN₄, 5, 1, 0; 1997 QS₄, 4, 1, 0; 1997 RA₁, 10, 2, 3; 1997 RJ₁, 11, 3, 7; 1997 RY₂, 8, 2, 6; 1997 RG₃, 4, 1, 0; 1997 RR₃, 5, 1, 0; 1997 RQ₅, 8, 2, 6; 1997 RA₇, 4, 1, 0; 1997 RB₇, 4, 1, 0; 1997 RJ₇, 5, 1, 0; 1997 RL₇, 5, 1, 0; 1997 RF₈, 4, 1, 0; 1997 RY₈, 3, 1, 0; 1997 RG₉, 7, 2, 9; 1997 RJ₁₀, 9, 2, 7; 1997 SF, 10, 2, 3; 1997 SR, 4, 1, 0; 1997 SK₁, 5, 1, 0; 1997 SM₁, 9, 2, 7; 1997 SM₃, 5, 1, 0; 1997 SE₄, 5, 1, 0; 1997 SW₉, 4, 1, 0; 1997 SF₁₁, 5, 1, 0; 1997 SX₁₅, 4, 1, 0; 1997 SG₁₆, 5, 1, 0; 1997 SO₁₇, 4, 1, 0; 1997 SJ₂₅, 5, 1, 0; 1997 SW₃₀, 9, 2, 7; 1997 SS₃₁, 9, 2, 7; 1997 TC, 9, 2, 3; 1997 TR, 9, 2, 3; 1997 TV, 7, 2, 3; 1997 TK₁, 9, 2, 3; 1997 TY₇, 13, 3, 7; 1997 TZ, 8, 2, 3; 1997 TT₉, 5, 1, 0; 1997 TM₁₈, 9, 2, 3; 1997 TS₂₅, 9, 2, 7; 1997 UJ, 9, 2, 7; 1997 UA₄, 10, 2, 6; 1997 UZ, 4, 1, 0; 1997 UM₉, 5, 1, 0; 1997 UD₁₁, 8, 2, 3; 1997 UC₂₂, 9, 2, 3; 1997 VB₁, 4, 1, 0; 1997 VV₁, 5, 1, 0; 1997 VM₂, 4, 1, 0; 1997 VK₅, 4, 1, 0; 1997 VX₅, 3, 1, 0; 1997 VE₇, 4, 1, 0; 1997 WF₂₈, 4, 1, 0; 1997 YA, 3, 1, 0; 1997 YR₃, 4, 1, 0; 1997 YY₅, 5, 1, 0; 1998 HD₁₀₅, 15, 3, 53; 1998 HK₁₃₈, 4, 1, 0; 1998 KU₂, 5, 1, 0; 1998 MU₇, 5, 1, 0; 1998 MY₇, 3, 5; 1998 ML₁₄, 10, 2, 3; 1998 MS₂₄, 4, 1, 0; 1998 MK₃₀, 5, 1, 0; 1998 ML₃₁, 4, 1, 0; 1998 MD₃₃, 4, 1, 0; 1998 NA, 5, 1, 0; 1998 ND, 4, 1, 0; 1998 OW₆, 4, 1, 0; 1998 OZ₆, 3, 1, 0; 1998 OER₇, 5, 1, 0; 1998 OK₁₂, 3, 1, 0; 1998 OV₁₂, 3, 1, 0; 1998 OA₁₃, 4, 1, 0; 1998 ON₁₃, 5, 1, 0; 1998 OR₁₃, 5, 1, 0; 1998 OH₁₄, 4, 1, 0; 1998 OM₁₄, 3, 1, 0; 1998 OT₁₄, 4, 1, 0; 1998 OX₁₄, 5, 1, 0; 1998 OZ₁₄, 5, 1, 0; 1998 PG, 5, 1, 0; 1998 PU, 4, 1, 0; 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1998 QE₅₂, 5, 1, 0; 1998 QH₅₂, 4, 1, 0; 1998 QK₅₂, 2, 1, 0; 1998 QH₅₃, 5, 1, 0; 1998 QO₅₃, 3, 1, 0; 1998 QW₅₃, 5, 1, 0; 1998 QF₅₄, 4, 1, 0; 1998 QG₅₄, 47, 3, 5; 1998 QM₅₄, 5, 1, 0; 1998 QS₅₄, 4, 1, 0; 1998 QY₅₄, 18, 3, 5; 1998 QZ₅₄, 7, 1, 0; 1998 QA₅₅, 5, 1, 0; 1998 QT₆₀, 5, 1, 0; 1998 QT₆₂, 5, 1, 0; 1998 QA₆₉, 4, 1, 0; 1998 QP₆₉, 4, 1, 0; 1998 QC₇₁, 4, 1, 0; 1998 QE₇₃, 4, 1, 0; 1998 QG₇₃, 4, 1, 0; 1998 QN₇₃, 5, 1, 0; 1998 QO₇₃, 4, 1, 0; 1998 QB₇₄, 5, 1, 0; 1998 QK₇₅, 5, 1, 0; 1998 QN₇₅, 4, 1, 0; 1998 QM₇₆, 5, 1, 0; 1998 QH₇₇, 5, 1, 0; 1998 QW₇₇, 5, 1, 0; 1998 QX₇₇, 5, 1, 0; 1998 QF₈₀, 5, 1, 0; 1998 QC₈₄, 4, 1, 0; 1998 QL₈₄, 5, 1, 0; 1998 QO₈₄, 4, 1, 0; 1998 QW₈₅, 4, 1, 0; 1998 QY₈₅, 4, 1, 0; 1998 QE₈₆, 3, 1, 0; 1998 QG₈₆, 3, 1, 0; 1998 QK₈₆, 4, 1, 0; 1998 QN₈₆, 5, 1, 0; 1998 QV₈₈, 5, 1, 0; 1998 QL₈₉, 5, 1, 0; 1998 QP₉₀, 5, 1, 0; 1998 QS₉₀, 4, 1, 0; 1998 QU₉₀, 5, 1, 0; 1998 QF₉₂, 5, 1, 0; 1998 QN₉₂, 3, 1, 0; 1998 QO₉₃, 5, 1, 0; 1998 QR₉₃, 5, 1, 0; 1998 QO₉₅, 4, 1, 0; 1998 QA₉₈, 5, 1, 0; 1998 QD₉₉, 5, 1, 0; 1998 QJ₉₉, 5, 1, 0; 1998 QM₉₉, 4, 1, 0; 1998 QZ₉₉, 4, 1, 0; 1998 QG₁₀₁, 4, 1, 0; 1998 QY₁₀₂, 5, 1, 0; 1998 QZ₁₀₂, 17, 3, 5; 1998 QQ₁₀₃, 5, 1, 0; 1998 QF₁₀₄, 4, 1, 0; 1998 QN₁₀₅, 5, 1, 0; 1998 QB₁₀₆, 4, 1, 0; 1998 QM₁₀₆, 4, 1, 0; 1998 QU₁₀₆, 3, 1, 0; 1998 RE, 9, 2, 3; 1998 RY, 5, 1, 0; 1998 RG₃, 5, 1, 0; 1998 RM₃, 5, 1, 0; 1998 RK₆, 4, 1, 0; 1998 RJ₁₇, 3, 1, 0; 1998 RN₃₁, 5, 1, 0; 1998 RQ₄₆, 3, 1, 0; 1998 RW₄₆, 5, 1, 0; 1998 RE₄₇, 5, 1, 0; 1998 RK₄₇, 5, 1, 0; 1998 RC₄₈, 2, 1, 0; 1998 RG₄₉, 2, 1, 0; 1998 RK₄₉, 5, 1, 0; 1998 RC₅₂, 4, 1, 0; 1998 RM₅₂, 5, 1, 0; 1998 RK₅₇, 4, 1, 0; 1998 RZ₅₇, 3, 1, 0; 1998 RD₆₂, 5, 1, 0; 1998 RH₆₃, 4, 1, 0; 1998 RQ₆₄, 4, 1, 0; 1998 RJ₆₆, 5, 1, 0; 1998 RL₆₇, 7, 1, 0; 1998 RM₆₇, 4, 1, 0; 1998 RU₆₇, 13, 2, 4; 1998 RA₆₈, 5, 1, 0; 1998 RC₆₈, 17, 2, 1; 1998 RK₆₈, 4, 1, 0; 1998 RS₆₈, 5, 1, 0; 1998 RW₆₈, 22, 2, 1; 1998 RW₇₀, 4, 1, 0; 1998 RL₇₁, 4, 1, 0; 1998 RT₇₂, 13, 2, 4; 1998 RX₇₂, 5, 1, 0; 1998 RS₇₃, 5, 1, 0; 1998 RY₇₃, 5, 1, 0; 1998 RE₇₄, 4, 1, 0; 1998 RB₇₅, 5, 1, 0; 1998 RL₇₉, 5, 1, 0; 1998 SD₅, 1, 0; 1998 SR₁, 4, 1, 0; 1998 SL₂, 5, 1, 0; 1998 SO₂, 9, 2, 3; 1998 SL₄, 8, 1, 0; 1998 SG₅, 15, 2, 6; 1998 SA₁₀, 5, 1, 0; 1998 SW₁₂, 5, 1, 0; 1998 SH₂₂, 5, 1, 0; 1998 SQ₂₂, 5, 1, 0; 1998 SD₂₄, 5, 1, 0; 1998 SU₂₆, 10, 2, 3; 1998 SV₂₆, 5, 1, 0; 1998 SO₂₇, 10, 2, 1; 1998 SP₂₇, 4, 1, 0; 1998 SR₂₇, 4, 1, 0; 1998 SN₃₃, 4, 1, 0; 1998 SP₃₃, 5, 1, 0; 1998 SR₃₃, 5, 1, 0; 1998 SM₃₄, 4, 1, 0; 1998 SP₄₂, 4, 1, 0; 1998 SN₅₄, 4, 1, 0; 1998 ST₅₄, 5, 1, 0; 1998 SC₅₅, 12, 2, 6; 1998 SP₅₆, 2, 1, 0; 1998 SX₅₆, 4, 1, 0; 1998 SN₅₇, 4, 1, 0; 1998 SH₅₈, 5, 1, 0; 1998 SY₅₈, 4, 1, 0; 1998 SV₆₀, 4, 1, 0; 1998 SF₆₁, 5, 1, 0; 1998 SK₆₁, 3, 1, 0; 1998 SS₆₁, 5, 1, 0; 1998 SR₆₂, 10, 2, 3; 1998 SB₆₃, 4, 1, 0; 1998 SM₆₃, 4, 1, 0; 1998 SG₈₇, 5, 1, 0; 1998 SX₁₀₁, 19, 2, 4; 1998 SE₁₀₂, 13, 2, 4; 1998 SE₁₁₁, 4, 1, 0; 1998 SW₁₂₂, 5, 1, 0; 1998 SC₁₃₀, 4, 1, 0; 1998 SG₁₃₀, 5, 1, 0; 1998 SG₁₃₄, 4, 1, 0; 1998 SJ₁₆₂, 5, 1, 0; 1998 SK₁₆₄, 5, 1, 0; 1998 TB, 10, 2, 7; 1998 TC, 5, 1, 0; 1998 TR₁, 5, 1, 0; 1998 TU₁, 5, 1, 0; 1998 TG₃, 5, 1, 0; 1998 TS₆, 5, 1, 0; 1998 TA₁₈, 5, 1, 0; 1998 UB, 4, 1, 0; 1998 UQ, 4, 1, 0; 1998 UX, 4, 1, 0; 1998 UD₈, 5, 1, 0; 1998 UH₈, 5, 1, 0; 1998 UL₈, 3, 1, 0; 1998 UP₁₅, 4, 1, 0; 1998 UL₁₆, 4, 1, 0; 1998 UB₁₇, 5, 1, 0; 1998 UM₁₈, 4, 1, 0; 1998 UO₁₈, 9, 2, 3; 1998 UP₁₈, 10, 2, 3; 1998 UR₁₉, 10, 2, 3; 1998 UL₂₀, 4, 1, 0; 1998 UB₂₃, 5, 1, 0; 1998 UL₂₃, 5, 1, 0; 1998 UN₂₃, 3, 1, 0; 1998 UZ₂₄, 10, 2, 3; 1998 UH₃₁, 9, 2, 3; 1998 UR₃₁, 10, 2, 3; 1998 US₃₁, 9, 2, 3; 1998 UJ₃₂, 9, 2, 1; 1998 UL₃₂, 9, 2, 3; 1998 UM₃₂, 8,

2, 3; 1998 VB, 10, 2, 3; 1998 VJ, 10, 2, 3; 1998 VN₁, 9, 2, 85; 1998 VU₄, 4, 1, 0; 1998 VW₄, 9, 2, 3; 1998 VB₅, 4, 1, 0; 1998 VV₅, 9, 2, 3; 1998 VY₅, 10, 2, 7; 1998 VZ₅, 12, 3, 3; 1998 VC₆, 4, 1, 0; 1998 VT₆, 4, 1, 0; 1998 VM₃₀, 5, 1, 0; 1998 VU₃₀, 8, 2, 3; 1998 VV₃₀, 5, 1, 0; 1998 VZ₃₀, 10, 2, 3; 1998 VA₃₁, 10, 2, 3; 1998 VH₃₁, 9, 2, 3; 1998 VJ₃₁, 10, 2, 3; 1998 VL₃₁, 10, 2, 3; 1998 VM₃₁, 10, 2, 3; 1998 VR₃₁, 5, 1, 0; 1998 VC₃₂, 9, 2, 3; 1998 VP₃₂, 4, 1, 0; 1998 VY₃₂, 4, 1, 0; 1998 VC₃₃, 7, 2, 1; 1998 VN₃₃, 15, 3, 7; 1998 VS₃₃, 5, 1, 0; 1998 VY₃₃, 5, 1, 0; 1998 VA₃₅, 5, 1, 0; 1998 VP₃₅, 10, 2, 3; 1998 VS₃₅, 7, 2, 3; 1998 VD₄₄, 10, 2, 3; 1998 WC, 5, 1, 0; 1998 WF, 5, 1, 0; 1998 WP, 9, 2, 1; 1998 WQ, 4, 1, 0; 1998 WR, 7, 2, 3; 1998 WU, 10, 2, 3; 1998 WV, 9, 2, 3; 1998 WC₁, 5, 1, 0; 1998 WG₁, 2, 1, 0; 1998 WL₁, 11, 3, 7; 1998 WM₁, 9, 2, 1; 1998 WN₁, 11, 3, 7; 1998 WQ₁, 15, 3, 7; 1998 WR₁, 15, 3, 7; 1998 WT₁, 9, 2, 1; 1998 WU₁, 9, 2, 3; 1998 WV₁, 10, 2, 1; 1998 WD₂, 10, 2, 3; 1998 WJ₂, 9, 2, 3; 1998 WG₃, 4, 1, 0; 1998 WJ₃, 9, 2, 3; 1998 WL₃, 8, 2, 3; 1998 WQ₃, 4, 1, 0; 1998 WS₃, 5, 1, 0; 1998 WA₄, 4, 1, 0; 1998 WB₄, 9, 2, 3; 1998 WX₄, 5, 1, 0; 1998 WZ₄, 10, 2, 3; 1998 WE₅, 4, 1, 0; 1998 WO₆, 15, 3, 3; 1998 WP₆, 10, 2, 3; 1998 WQ₆, 9, 2, 3; 1998 WZ₆, 5, 1, 0; 1998 WE₇, 2, 3; 1998 WG₇, 4, 1, 0; 1998 WK₇, 5, 1, 0; 1998 WO₇, 5, 1, 0; 1998 WD₈, 10, 2, 3; 1998 WE₈, 10, 2, 3; 1998 WF₈, 10, 2, 3; 1998 WG₈, 8, 2, 3; 1998 WH₈, 8, 2, 3; 1998 WL₈, 10, 2, 3; 1998 WV₈, 9, 2, 3; 1998 WW₈, 14, 3, 3; 1998 WY₈, 10, 2, 3; 1998 WL₉, 7, 2, 3; 1998 WB₁₀, 9, 2, 3; 1998 WP₁₃, 8, 2, 3; 1998 WQ₁₃, 8, 2, 3; 1998 WZ₁₇, 9, 2, 3; 1998 WG₁₈, 8, 2, 3; 1998 WJ₁₈, 9, 2, 3; 1998 WK₁₈, 8, 2, 3; 1998 WO₁₈, 9, 2, 3; 1998 WL₁₉, 5, 1, 0; 1998 WA₂₀, 10, 2, 1; 1998 WB₂₀, 5, 1, 0; 1998 WC₂₀, 5, 1, 0; 1998 WD₂₀, 10, 2, 3; 1998 WR₂₈, 5, 1, 0; 1998 WZ₃₀, 9, 2, 3; 1998 XA, 5, 1, 0; 1998 XK, 9, 2, 3; 1998 XO, 8, 2, 3; 1998 XM₂ *, 9, 2, 2; 1998 XN₂ *, 13, 3, 2; 1998 XP₂, 12, 3, 7; 1998 XQ₂, 13, 3, 3; 1998 XS₂, 9, 2, 3; 1998 XW₂ *, 13, 3, 5; 1998 XX₂ *, 18, 3, 4; 1998 XY₂, 10, 2, 3; 1998 XC₃, 9, 2, 3; 1998 XE₃, 9, 2, 3; 1998 XF₃, 9, 2, 3; 1998 XG₃, 10, 2, 3; 1998 XL₃, 13, 3, 3; 1998 XM₃, 10, 2, 3; 1998 XN₃, 10, 2, 3; 1998 XO₃, 10, 2, 3; 1998 XQ₃, 9, 2, 1; 1998 XR₃, 10, 2, 3; 1998 XS₃, 10, 2, 3; 1998 XT₃, 9, 2, 1; 1998 XU₃, 9, 2, 3; 1998 XV₃, 10, 2, 3; 1998 XW₃, 10, 2, 3; 1998 XX₃, 7, 2, 3; 1998 XY₃, 9, 2, 3; 1998 XZ₃, 10, 2, 3; 1998 XA₄, 9, 2, 3; 1998 XB₄, 10, 2, 3; 1998 XC₄, 10, 2, 1; 1998 XK₄ *, 9, 2, 1; 1998 XL₄ *, 16, 3, 2; 1998 XM₄ *, 11, 2, 3; 1998 XO₄, 9, 2, 3; 1998 XQ₄, 9, 2, 3; 1998 XR₄, 9, 2, 3; 1998 XS₄, 10, 2, 3; 1998 XT₄, 10, 2, 3; 1998 XU₄, 8, 2, 3; 1998 XV₄, 8, 2, 3; 1998 XW₄, 9, 2, 3; 1998 XX₄, 8, 2, 3; 1998 XY₄ *, 12, 2, 1; 1998 XZ₄ *, 10, 2, 3; 1998 XA₅ *, 10, 2, 2; 1998 XW₈, 4, 1, 0; 1998 XY₈, 9, 2, 3; 1998 XZ₈, 9, 2, 3; 1998 XB₉ *, 10, 2, 3; 1998 XC₉ *, 20, 3, 5; 1998 XD₉ *, 20, 3, 3; 1998 XS₉, 4, 1, 0; 1998 XX₉, 10, 2, 3; 1998 XK₁₁, 9, 2, 3; 1998 XL₁₁, 9, 2, 3; 1998 XM₁₁, 9, 2, 3; 1998 XN₁₁, 10, 2, 3; 1998 XR₁₁ *, 8, 2, 2; 1998 XS₁₁ *, 15, 3, 3; 1998 XT₁₁ *, 14, 3, 3; 1998 XU₁₁ *, 13, 3, 3; 1998 XV₁₁ *, 12, 3, 3; 1998 XW₁₁ *, 9, 2, 1; 1998 XX₁₁ *, 9, 2, 1; 1998 XY₁₁ *, 9, 2, 2; 1998 XZ₁₁ *, 15, 3, 3; 1998 XA₁₂ *, 14, 3, 3; 1998 XB₁₂ *, 14, 3, 7; 1998 XC₁₂ *, 14, 3, 7; 1998 XD₁₂ *, 20, 3, 3; 1998 XE₁₂ *, 10, 2, 2; 1998 XK₁₂, 10, 2, 3; 1998 XM₁₂, 10, 2, 3; 1998 XO₁₂, 10, 2, 3; 1998 XF₁₄, 4, 1, 0; 1998 XS₁₅, 9, 2, 3; 1998 XW₁₅ *, 10, 2, 3; 1998 XX₁₅ *, 9, 2, 3; 1998 XY₁₅ *, 9, 2, 3; 1998 XZ₁₅ *, 10, 2, 3; 1998 XA₁₆ *, 10, 2, 3; 1998 XB₁₆ *, 9, 2, 3; 1998 XC₁₆ *, 14, 3, 3; 1998 XD₁₆ *, 9, 2, 3; 1998 XE₁₆ *, 9, 2, 3; 1998 XF₁₆ *, 9, 2, 3; 1998 XG₁₆ *, 13, 3, 48; 1998 XH₁₆ *, 10, 2, 3; 1998 XJ₁₆ *, 10, 2, 3; 1998 XK₁₆ *, 9, 2, 3; 1998 XL₁₆ *, 8, 2, 3; 1998 XM₁₆ *, 10, 2, 3; 1998 XN₁₆ *, 10, 2, 3; 1998 XO₁₆ *, 8, 2, 3; 1998 XP₁₆ *, 7, 2, 2; 1998 XQ₁₆ *, 27, 3, 5; 1998 XR₁₆ *, 15, 2, 2; 1998 XS₁₆ *, 19, 3, 7; 1998 XX₁₆, 4, 1, 0; 1998 XM₁₇ *, 8, 2, 4; 1998 XN₁₇ *, 9, 2, 2; 1998 XO₁₇, 9, 2, 1; 1998 XP₁₇, 10, 2, 1; 1998 XO₂₄, 5, 1, 0; 1998 XJ₂₆ *, 9, 2, 7; 1998 XK₂₆ *, 10, 2, 7; 1998 XL

3; 1998 XU₃₀ *, 10, 2, 3; 1998 XV₃₀ *, 8, 2, 3; 1998 XW₃₀ *, 9, 2, 3; 1998 XX₃₀ *, 10, 2, 3; 1998 XY₃₀ *, 8, 2, 3; 1998 XZ₃₀ *, 9, 2, 3; 1998 XA₃₁ *, 9, 2, 3; 1998 XB₃₁ *, 9, 2, 3; 1998 XC₃₁ *, 10, 2, 3; 1998 XD₃₁ *, 8, 2, 3; 1998 XE₃₁ *, 10, 2, 3; 1998 XF₃₁ *, 9, 2, 3; 1998 XG₃₁ *, 10, 2, 3; 1998 XH₃₁ *, 9, 2, 3; 1998 XJ₃₁ *, 10, 2, 3; 1998 XK₃₁ *, 9, 2, 3; 1998 XL₃₁ *, 10, 2, 3; 1998 XM₃₁ *, 10, 2, 3; 1998 XN₃₁ *, 10, 2, 3; 1998 XO₃₁ *, 9, 2, 3; 1998 XP₃₁ *, 10, 2, 3; 1998 XQ₃₁ *, 9, 2, 3; 1998 XR₃₁ *, 10, 2, 3; 1998 XS₃₁ *, 10, 2, 3; 1998 XT₃₁ *, 9, 2, 3; 1998 XU₃₁ *, 9, 2, 3; 1998 XV₃₁ *, 8, 2, 3; 1998 XW₃₁ *, 7, 2, 3; 1998 XX₃₁ *, 8, 2, 3; 1998 XY₃₁ *, 10, 2, 3; 1998 XZ₃₁ *, 9, 2, 3; 1998 XA₃₂ *, 10, 2, 3; 1998 XB₃₂ *, 9, 2, 3; 1998 XC₃₂ *, 10, 2, 3; 1998 XD₃₂ *, 9, 2, 3; 1998 XE₃₂ *, 8, 2, 3; 1998 XF₃₂ *, 7, 2, 3; 1998 XG₃₂ *, 7, 2, 3; 1998 XH₃₂ *, 9, 2, 3; 1998 XJ₃₂ *, 9, 2, 3; 1998 XK₃₂ *, 9, 2, 3; 1998 XL₃₂ *, 10, 2, 3; 1998 XM₃₂ *, 10, 2, 3; 1998 XN₃₂ *, 8, 2, 3; 1998 XO₃₂ *, 8, 2, 3; 1998 XP₃₂ *, 9, 2, 3; 1998 XQ₃₂ *, 9, 2, 3; 1998 XR₃₂ *, 12, 2, 3; 1998 XS₃₂ *, 10, 2, 3; 1998 XT₃₂ *, 9, 2, 3; 1998 XU₃₂ *, 10, 2, 3; 1998 XV₃₂ *, 8, 2, 3; 1998 XW₃₂ *, 10, 2, 3; 1998 XX₃₂ *, 8, 2, 3; 1998 XY₃₂ *, 10, 2, 3; 1998 XZ₃₂ *, 8, 2, 3; 1998 XA₃₃ *, 10, 2, 3; 1998 XB₃₃ *, 10, 2, 3; 1998 XC₃₃ *, 10, 2, 3; 1998 XD₃₃ *, 8, 2, 3; 1998 XE₃₃ *, 9, 2, 3; 1998 XF₃₃ *, 7, 2, 3; 1998 XG₃₃ *, 8, 2, 3; 1998 XH₃₃ *, 10, 2, 3; 1998 XJ₃₃ *, 10, 2, 3; 1998 XK₃₃ *, 8, 2, 3; 1998 XL₃₃ *, 9, 2, 3; 1998 XM₃₃ *, 9, 2, 3; 1998 XN₃₃ *, 10, 2, 3; 1998 XO₃₃ *, 10, 2, 3; 1998 XP₃₃ *, 10, 2, 3; 1998 XQ₃₃ *, 10, 2, 3; 1998 XR₃₃ *, 10, 2, 3; 1998 XS₃₃ *, 8, 2, 3; 1998 XT₃₃ *, 9, 2, 3; 1998 XU₃₃ *, 10, 2, 3; 1998 XV₃₃ *, 10, 2, 3; 1998 XW₃₃ *, 8, 2, 3; 1998 XX₃₃ *, 10, 2, 3; 1998 XY₃₃ *, 9, 2, 3; 1998 XZ₃₃ *, 10, 2, 3; 1998 XA₃₄ *, 9, 2, 3; 1998 XB₃₄ *, 10, 2, 3; 1998 XC₃₄ *, 10, 2, 3; 1998 XD₃₄ *, 10, 2, 3; 1998 XE₃₄ *, 10, 2, 3; 1998 XF₃₄ *, 10, 2, 3; 1998 XG₃₄ *, 10, 2, 3; 1998 XH₃₄ *, 9, 2, 3; 1998 XJ₃₄ *, 9, 2, 3; 1998 XK₃₄ *, 10, 2, 3; 1998 XL₃₄ *, 9, 2, 3; 1998 XM₃₄ *, 8, 2, 3; 1998 XN₃₄ *, 6, 2, 3; 1998 XO₃₄ *, 10, 2, 3; 1998 XP₃₄ *, 10, 2, 3; 1998 XQ₃₄ *, 10, 2, 3; 1998 XR₃₄ *, 9, 2, 3; 1998 XS₃₄ *, 9, 2, 3; 1998 XT₃₄ *, 9, 2, 3; 1998 XU₃₄ *, 8, 2, 3; 1998 XV₃₄ *, 9, 2, 3; 1998 XW₃₄ *, 9, 2, 3; 1998 XX₃₄ *, 10, 2, 3; 1998 XY₃₄ *, 10, 2, 3; 1998 XZ₃₄ *, 9, 2, 3; 1998 XA₃₅ *, 9, 2, 3; 1998 XB₃₅ *, 9, 2, 3; 1998 XC₃₅ *, 8, 2, 3; 1998 XD₃₅ *, 10, 2, 3; 1998 XE₃₅ *, 9, 2, 3; 1998 XF₃₅ *, 9, 2, 3; 1998 XG₃₅ *, 7, 2, 3; 1998 XH₃₅ *, 8, 2, 3; 1998 XJ₃₅ *, 9, 2, 3; 1998 XK₃₅ *, 9, 2, 3; 1998 XL₃₅ *, 10, 2, 3; 1998 XM₃₅ *, 9, 2, 3; 1998 XN₃₅ *, 8, 2, 3; 1998 XO₃₅ *, 7, 2, 3; 1998 XP₃₅ *, 8, 2, 3; 1998 XQ₃₅ *, 9, 2, 3; 1998 XR₃₅ *, 9, 2, 3; 1998 XS₃₅ *, 8, 2, 3; 1998 XT₃₅ *, 7, 2, 3; 1998 XU₃₅ *, 9, 2, 3; 1998 XV₃₅ *, 8, 2, 3; 1998 XW₃₅ *, 9, 2, 3; 1998 XX₃₅ *, 8, 2, 3; 1998 XY₃₅ *, 9, 2, 3; 1998 XZ₃₅ *, 8, 2, 3; 1998 XA₃₆ *, 7, 2, 3; 1998 XB₃₆ *, 9, 2, 3; 1998 XC₃₆ *, 10, 2, 3; 1998 XD₃₆ *, 10, 2, 3; 1998 XE₃₆ *, 10, 2, 3; 1998 XF₃₆ *, 10, 2, 3; 1998 XG₃₆ *, 9, 2, 3; 1998 XH₃₆ *, 8, 2, 3; 1998 XJ₃₆ *, 9, 2, 3; 1998 XK₃₆ *, 7, 2, 3; 1998 XL₃₆ *, 8, 2, 3; 1998 XM₃₆ *, 8, 2, 3; 1998 XN₃₆ *, 10, 2, 3; 1998 XO₃₆ *, 8, 2, 3; 1998 XP₃₆ *, 10, 2, 3; 1998 XQ₃₆ *, 10, 2, 3; 1998 XR₃₆ *, 9, 2, 3; 1998 XS₃₆ *, 10, 2, 3; 1998 XT₃₆ *, 10, 2, 3; 1998 XA₃₇ *, 10, 2, 3; 1998 XB₃₇ *, 10, 2, 3; 1998 XC₃₇ *, 10, 2, 3; 1998 XD₃₇ *, 9, 2, 3; 1998 XE₃₇ *, 10, 2, 3; 1998 XF₃₇ *, 9, 2, 3; 1998 XG₃₇ *, 7, 2, 3; 1998 XH₃₇ *, 9, 2, 3; 1998 XJ₃₇ *, 8, 2, 3; 1998 XK₃₇ *, 10, 2, 3; 1998 XL₃₇ *, 10, 2, 3; 1998 XM₃₇ *, 10, 2, 3; 1998 XN₃₇ *, 10, 2, 3; 1998 XO₃₇ *, 10, 2, 3; 1998 XP₃₇ *, 9, 2, 3; 1998 XQ₃₇ *, 7, 2, 3; 1998 XR₃₇ *, 7, 2, 3; 1998 XS₃₇ *, 8, 2, 3; 1998 XT₃₇ *, 10, 2, 3; 1998 XU₃₇ *, 8, 2, 3; 1998 XV₃₇ *, 10, 2, 3; 1998 XW₃₇ *, 9, 2, 3; 1998 XX₃₇ *, 10, 2, 3; 1998 XY₃₇ *, 9, 2, 3; 1998 XZ₃₇ *, 10, 2, 3; 1998 XA₃₈ *, 8, 2, 3; 1998 XB₃₈ *, 9, 2, 3; 1998 XC₃₈ *, 8, 2, 3; 1998 XD₃₈ *, 8, 2, 3; 1998 XE₃₈ *, 9, 2, 3; 1998 XF₃₈ *, 10, 2, 3; 1998 XG₃₈ *, 8, 2, 3; 1998 XH₃₈ *, 7, 2, 3; 1998 XJ₃₈ *, 10, 2, 3; 1998 XK₃₈ *, 9, 2, 3; 1998 XL₃₈ *, 9, 2, 3; 1998 XM₃₈ *, 9, 2, 3; 1998 XN₃₈ *, 9, 2, 3; 1998 XO₃₈ *, 9, 2, 3; 1998 XP₃₈ *, 9, 2, 3; 1998 XQ₃₈ *, 8, 2, 3; 1998 XR₃₈ *, 9, 2, 3; 1998 XS₃₈ *, 8, 2, 3; 1998 XT₃₈ *, 8, 2, 3; 1998 XU₃₈ *, 9, 2, 3; 1998 XV₃₈ *, 8, 2, 3; 1998 XW₃₈ *, 9, 2, 3; 1998 XX₃₈ *, 8, 2, 3; 1998 XY₃₈ *, 9, 2, 3; 1998 XZ₃₈ *, 8, 2, 3; 1998 XA₃₉ *, 9, 2, 3; 1998 XB₃₉ *, 9, 2, 3; 1998 XC₃₉ *, 8, 2, 3; 1998 XD₃₉ *, 10, 2, 3; 1998 XE₃₉ *, 7, 2, 3; 1998 XF₃₉ *, 10, 2, 3; 1998 XG₃₉ *, 9, 2, 3; 1998 XH₃₉ *, 9, 2, 3; 1998 XJ₃₉ *, 8, 2, 3; 1998 XK₃₉ *, 10, 2, 3; 1998 XL₃₉ *, 8, 2, 3; 1998 XM₃₉ *, 9, 2, 3; 1998 XN₃₉ *, 8, 2, 3; 1998 XO₃₉ *, 10, 2, 3; 1998 XP₃₉ *, 10, 2, 3; 1998 XQ₃₉ *, 9, 2, 3; 1998 XR₃₉ *, 7, 2, 3; 1998 XS₃₉ *, 10, 2, 3; 1998 XT₃₉ *, 10, 2, 3; 1998 XU₃₉ *, 9, 2, 3; 1998 XV₃₉ *, 8, 2, 3; 1998 XW₃₉ *, 9, 2, 3; 1998 XX₃₉ *, 9, 2, 3; 1998 XY₃₉ *, 9, 2, 3; 1998 XZ₃₉ *, 8, 2, 3; 1998 XA₄₀ *, 8, 2, 3; 1998 XB₄₀ *, 9, 2, 3; 1998 XC₄₀ *, 9, 2, 3; 1998 XD₄₀ *, 10, 2, 3; 1998 XE₄₀ *, 10, 2, 3; 1998 XF₄₀ *, 10, 2, 3; 1998 XG₄₀ *, 10, 2, 3; 1998 XH₄₀ *, 10, 2, 3; 1998 XJ₄₀ *, 10, 2, 3; 1998 XK₄₀ *, 8, 2, 3; 1998 XL₄₀ *, 8, 2, 3; 1998 XM₄₀ *, 9, 2, 3; 1998 XN₄₀ *, 8, 2, 3; 1998 XO₄₀ *, 10, 2, 3; 1998 XP₄₀ *, 9, 2, 3; 1998 XQ₄₀ *, 7, 2, 3; 1998 XR₄₀ *, 9, 2, 3; 1998 XS₄₀ *, 10, 2, 3; 1998 XT₄₀ *, 9, 2, 3; 1998 XU₄₀ *, 9, 2, 3; 1998 XV₄₀ *, 20, 2, 3; 1998 XW₄₀ *, 10, 2, 3; 1998 XX₄₀ *, 8, 2, 3; 1998 XY₄₀ *, 8, 2, 3; 1998 XZ₄₀ *, 9, 2, 3; 1998 XA₄₁ *, 10, 2, 3; 1998 XB₄₁ *, 10, 2, 3; 1998 XC₄₁ *, 8, 2, 3; 1998 XD₄₁ *, 7, 2, 3; 1998 XE₄₁ *, 7, 2, 3; 1998 XF₄₁ *, 7, 2, 3; 1998 XG₄₁ *, 10, 2, 3; 1998 XH₄₁ *, 10, 2, 3; 1998 XJ₄₁ *, 9, 2, 3; 1998 XK₄₁ *, 8, 2, 3; 1998 XL₄₁ *, 10, 2, 3; 1998 XM₄₁ *, 8, 2, 3; 1998 XN₄₁ *, 9, 2, 3; 1998 XO₄₁ *, 9, 2, 3; 1998 XP₄₁ *, 9, 2, 3; 1998 XQ₄₁ *, 8, 2, 3; 1998 XR₄₁ *, 7, 2, 3; 1998 XS₄₁ *, 8, 2, 3; 1998 XT₄₁ *, 8, 2, 3; 1998 XU₄₁ *, 10, 2, 3; 1998 XV₄₁ *, 8, 2, 3; 1998 XW₄₁ *, 9, 2, 3; 1998 XX₄₁ *, 9, 2, 3; 1998 XY₄₁ *, 9, 2, 3; 1998 XZ₄₁ *, 8, 2, 3; 1998 XA₄₂ *, 10, 2, 3; 1998 XB₄₂ *, 8, 2, 3; 1998 XC₄₂ *, 9, 2, 3; 1998 XD₄₂ *, 9, 2, 3; 1998 XE₄₂ *, 9, 2, 3; 1998 XF₄₂ *, 9, 2, 3; 1998 XG₄₂ *, 7, 2, 3; 1998 XH₄₂ *, 7, 2, 3; 1998 XJ₄₂ *, 10, 2, 3; 1998 XK₄₂ *, 10, 2, 3; 1998 XL₄₂ *, 8, 2, 3; 1998 XM₄₂ *, 7, 2, 3; 1998 XN₄₂ *, 8,

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(6506), 5, 1, 0; (6524), 5, 1, 0; (6528), 5, 1, 0; (6533), 5, 1, 0; (6545), 10, 2, 3; (6563), 10, 2, 3; (6629), 4, 1, 0; (6679), 5, 1, 0; (6680), 5, 1, 0; (6681), 5, 1, 0; (6690), 5, 1, 0; (6707), 3, 1, 0; (6709), 5, 1, 0; (6728), 8, 2, 3; (6735), 5, 1, 0; (6737), 4, 1, 0; (6741), 4, 1, 0; (6743), 5, 1, 0; (6753), 5, 1, 0; (6762), 5, 1, 0; (6768), 5, 1, 0; (6774), 14, 3, 3; (6779), 3, 1, 0; (6789), 4, 1, 0; (6790), 5, 1, 0; (6792), 10, 1, 0; (6801), 5, 1, 0; (6804), 5, 1, 0; (6807), 5, 1, 0; (6808), 10, 2, 3; (6809), 10, 2, 3; (6818), 10, 2, 3; (6819), 15, 3, 3; (6823), 5, 1, 0; (6825), 4, 1, 0; (6827), 5, 1, 0; (6831), 4, 1, 0; (6834), 5, 1, 0; (6845), 9, 2, 1; (6846), 5, 1, 0; (6850), 5, 1, 0; (6852), 4, 1, 0; (6854), 5, 1, 0; (6855), 9, 2, 3; (6856), 10, 2, 3; (6857), 9, 2, 3; (6861), 5, 1, 0; (6867), 5, 1, 0; (6872), 10, 2, 1; (6874), 15, 3, 3; (6876), 4, 1, 0; (6877), 5, 1, 0; (6882), 5, 1, 0; (6891), 5, 1, 0; (6893), 5, 1, 0; (6895), 10, 2, 3; (6900), 10, 2, 3; (6901), 5, 1, 0; (6903), 5, 1, 0; 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(7202), 9, 2, 3; (7205), 5, 1, 0; (7209), 10, 2, 3; (7210), 5, 1, 0; (7274), 8, 2, 3; (7315), 4, 1, 0; (7337), 10, 2, 3; (7342), 4, 1, 0; (7358), 5, 1, 0; (7439), 9, 2, 3; (7474), 5, 1, 0; (7480), 5, 1, 0; (7534), 5, 1, 0; (7543), 4, 1, 0; (7553), 4, 1, 0; (7571), 4, 1, 0; (7576), 4, 1, 0; (7580), 5, 1, 0; (7585), 5, 1, 0; (7601), 5, 1, 0; (7611), 5, 1, 0; (7614), 9, 2, 3; (7620), 10, 2, 1; (7633), 5, 1, 0; (7654), 5, 1, 0; (7660), 4, 1, 0; (7666), 5, 1, 0; (7667), 5, 1, 0; (7677), 4, 1, 0; (7679), 5, 1, 0; (7686), 9, 2, 3; (7688), 5, 1, 0; (7695), 4, 1, 0; (7702), 5, 1, 0; (7709), 5, 1, 0; (7714), 15, 3, 3; (7724), 12, 3, 3; (7729), 10, 2, 1; (7732), 10, 2, 3; (7735), 5, 1, 0; (7736), 5, 1, 0; (7738), 9, 2, 3; (7747), 4, 1, 0; (7749), 5, 1, 0; (7750), 5, 1, 0; (7757), 4, 1, 0; (7759), 5, 1, 0; (7760), 14, 3, 3; (7761), 9, 2, 3; (7765), 5, 1, 0; (7783), 5, 1, 0; (7785), 5, 1, 0; (7786), 5, 1, 0; (7787), 9, 2, 1; (7794), 10, 2, 1; (7798), 5, 1, 0; (7799), 5, 1, 0; (7801), 10, 2, 3; (7809), 8, 2, 3; (7810), 3, 1, 0; (7811), 5, 1, 0; (7812), 5, 1, 0; (7814), 5, 1, 0; (7833), 8, 2, 1; (7838), 5, 1, 0; (7841), 4, 1, 0; (7843), 15, 3, 3; (7848), 5, 1, 0; (7849), 8, 2, 1; (7850), 4, 1, 0; (7856), 13, 3, 3; (7857), 5, 1, 0; (7858), 5, 1, 0; (7861), 4, 1, 0; (7862), 5, 1, 0; (7863), 19, 3, 3; (7864), 5, 1, 0; (7873), 5, 1, 0; (7874), 5, 1, 0; (7880), 10, 2, 3; (7881), 14, 2, 2; (7883), 5, 1, 0; (7884), 5, 1, 0; (7894), 9, 2, 1; (7898), 5, 1, 0; (7899), 15, 3, 3; (7900), 5, 1, 0; (7901), 4, 1, 0; (7905), 5, 1, 0; (7906), 5, 1, 0; (7907), 14, 3, 3; (7908), 8, 2, 3; (7909), 8, 2, 3; (7910), 5, 1, 0; (7912), 4, 1, 0; (7913), 9, 2, 1; (7917), 5, 1, 0; (7919), 4, 1, 0; (7922), 5, 1, 0; (7923), 5, 1, 0; (7924), 3, 1, 0; (7925), 4, 1, 0; (7926), 9, 2, 3; (7928), 8, 2, 3; (7941), 10, 2, 3; (7943), 4, 1, 0; (7944), 5, 1, 0; (7945), 9, 2, 3; (7950), 9, 2, 3; (7951), 5, 1, 0; (7955), 5, 1, 0; (7956), 8, 2, 1; (7960), 15, 3, 3; (7964), 5, 1, 0; (7966), 5, 1, 0; (7970), 4, 1, 0; (7972), 15, 3, 3; (7973), 10, 2, 1; (7979), 9, 2, 3; (7991), 9, 2, 1;

(7995), 4, 1, 0; (8000), 10, 2, 3; (8001), 9, 2, 1; (8006), 5, 1, 0; (8007), 5, 1, 0; (8010), 5, 1, 0; (8025), 9, 2, 3; (8027), 4, 1, 0; (8028), 5, 1, 0; (8030), 10, 2, 3; (8036), 5, 1, 0; (8042), 10, 2, 3; (8045), 10, 2, 3; (8052), 4, 1, 0; (8057), 5, 1, 0; (8060), 10, 2, 3; (8061), 7, 2, 1; (8064), 2, 1, 0; (8072), 10, 2, 3; (8074), 5, 1, 0; (8091), 3, 1, 0; (8095), 14, 3, 3; (8104), 8, 2, 3; (8106), 9, 2, 3; (8125), 9, 2, 3; (8130), 10, 2, 1; (8150), 10, 2, 1; (8158), 10, 2, 1; (8169), 9, 2, 3; (8230), 4, 1, 0; (8241), 4, 1, 0; (8250), 5, 1, 0; (8317), 4, 1, 0; (8982), 5, 1, 0; (9000), 4, 1, 0; (9002), 5, 1, 0; (9021), 5, 1, 0; (9038), 5, 1, 0; (9083), 5, 1, 0; (9095), 4, 1, 0; (9143), 4, 1, 0; (9144), 5, 1, 0; (9147), 5, 1, 0; (9150), 4, 1, 0; (9156), 5, 1, 0; (9157), 5, 1, 0; (9161), 4, 1, 0; (9165), 5, 1, 0; (9167), 5, 1, 0; (9170), 5, 1, 0; (9172), 9, 2, 3; (9173), 5, 1, 0; (9177), 5, 1, 0; (9185), 5, 1, 0; (9197), 5, 1, 0; (9198), 5, 1, 0; (9199), 5, 1, 0; (9200), 5, 1, 0; (9204), 5, 1, 0; (9206), 5, 1, 0; (9214), 5, 1, 0; (9215), 5, 1, 0; (9233), 4, 1, 0; (9252), 4, 1, 0; (9254), 5, 1, 0; (9260), 5, 1, 0; (9261), 5, 1, 0; (9263), 4, 1, 0; (9264), 5, 1, 0; (9276), 8, 1, 0; (9280), 4, 1, 0; (9281), 3, 1, 0; (9296), 4, 1, 0; (9300), 4, 1, 0; (9302), 5, 1, 0; (9308), 5, 1, 0; (9310), 4, 1, 0; (9321), 3, 1, 0; (9328), 4, 1, 0; (9329), 4, 1, 0; (9332), 4, 1, 0; (9333), 5, 1, 0; (9334), 5, 1, 0; (9335), 4, 1, 0; (9338), 4, 1, 0; (9342), 4, 1, 0; (9343), 4, 1, 0; (9345), 3, 1, 0; (9348), 5, 1, 0; (9353), 5, 1, 0; (9354), 5, 1, 0; (9358), 5, 1, 0; (9361), 3, 1, 0; (9362), 4, 1, 0; (9364), 4, 1, 0; (9368), 5, 1, 0; (9374), 5, 1, 0; (9381), 4, 1, 0; (9386), 4, 1, 0; (9392), 5, 1, 0; (9399), 4, 1, 0; (9401), 5, 1, 0; (9403), 4, 1, 0; (9405), 4, 1, 0; (9407), 5, 1, 0; (9414), 5, 1, 0; (9415), 8, 1, 0; (9417), 4, 1, 0; (9419), 5, 1, 0; (9422), 3, 1, 0; (9423), 5, 1, 0; (9424), 4, 1, 0; (9428), 5, 1, 0; (9443), 4, 1, 0; (9449), 8, 2, 1; (9472), 4, 1, 0; (9474), 4, 1, 0; (9476), 5, 1, 0; (9493), 5, 1, 0; (9495), 4, 1, 0; (9501), 4, 1, 0; (9512), 4, 1, 0; (9517), 5, 1, 0; (9524), 3, 1, 0; (9531), 5, 1, 0; (9536), 5, 1, 0; (9541), 4, 1, 0; (9546), 5, 1, 0; (9551), 5, 1, 0; (9553), 5, 1, 0; (9565), 4, 1, 0; (9569), 5, 1, 0; (9576), 10, 2, 3; (9580), 5, 1, 0; (9582), 5, 1, 0; (9584), 5, 1, 0; (9585), 5, 1, 0; (9593), 4, 1, 0; (9599), 10, 2, 3; (9600), 5, 1, 0; (9601), 3, 1, 0; (9602), 10, 2, 3; (9605), 5, 1, 0; (9612), 9, 2, 3; (9615), 5, 1, 0; (9617), 4, 1, 0; (9619), 4, 1, 0; (9621), 4, 1, 0; (9622), 4, 1, 0; (9627), 5, 1, 0; (9628), 9, 2, 3; (9637), 3, 1, 0; (9643), 5, 1, 0; (9648), 4, 1, 0; (9661), 5, 1, 0; (9663), 3, 1, 0; (9680), 10, 2, 3; (9700), 5, 1, 0; (9705), 5, 1, 0; (9710), 10, 2, 3; (9711), 10, 1, 0; (9712), 3, 1, 0; (9716), 5, 1, 0; (9723), 9, 2, 3; (9724), 4, 1, 0; (9729), 5, 1, 0; (9746), 9, 2, 1; (9749), 3, 1, 0; (9750), 3, 1, 0; (9752), 10, 2, 3; (9759), 10, 2, 3; (9761), 10, 2, 3; (9762), 2, 1, 0; (9771), 4, 1, 0; (9774), 9, 2, 3; (9781), 3, 1, 0; (9782), 5, 1, 0; (9783), 5, 1, 0; (9785), 5, 1, 0; (9788), 3, 1, 0; (9789), 5, 1, 0; (9793), 9, 2, 3; (9796), 10, 2, 3; (9798), 5, 1, 0; (9799), 5, 1, 0; (9805), 5, 1, 0; (9810), 5, 1, 0; (9824), 5, 1, 0; [28781, 3912, 1413*, 1997/10/31–1998/12/23]

709 W & B Observatory, Cloudcroft

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

[offutt@galileo.apo.nmsu.edu]

0.60-m $f/7$ Ritchey-Chrétien + CCD

USNO-SA1.0

(5164), 3, 1, 0; [3, 1, 0*, 1998/12/24]

711 McDonald Observatory

J. G. Ries, McDonald Observatory, University of Texas, Austin, TX 78712-1013,

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

Observers E. S. Barker, J. G. Ries

0.76-m $f/3.0$ reflector + CCD

GSC

1991 EE, 3, 2, 1; 1992 KD, 3, 2, 1; 1998 ML₁₄, 3, 2, 1; 1998 XM₄, 3, 1, 0; 1998 XY₄, 6, 2, 1; 1998 XZ₄, 3, 1, 0; 1998 XA₅, 6, 2, 1; (4486), 3, 2, 1; (6050), 3, 2, 1; [33, 9, 0*, 1998/12/13–1998/12/14]

715 Las Cruces

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

[ddixon@lascruces.com]

0.2-m $f/4.3$ Schmidt-Cassegrain + CCD

GSC

1991 AN₂, 6, 2, 2; 1992 KQ, 5, 2, 2; 1994 YN, 6, 3, 3; 1998 YP₁₂ *, 5, 2, 1; (2898), 5, 2, 1; [27, 5, 1*, 1998/12/26–1998/12/31]

716 Palmer Divide Observatory

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

[brianw_mpo@compuserve.com]

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

GSC, USNO-A2.0

1993 FV₇, 4, 2, 1; 1994 RJ₁₁, 2, 1, 0; 1994 TY₂, 4, 2, 1; 1994 XP, 3, 2, 1; 1995 AF, 4, 2, 1; 1997 UC₂₂, 4, 2, 1; 3087 P-L, 2, 1, 0; 5211 T-2, 4, 2, 1; (9612), 4, 2, 1; (9628), 4, 2, 1; (9637), 4, 2, 1; (9680), 4, 2, 1; (9771), 4, 2, 1; (9798), 4, 2, 1; *[51, 14, 0*, 1998/12/13–1998/12/14]*

720 Universidad de Monterrey

P. V. Sada, Apartado Postal 134-C, MX-66270 San Pedro Garza García, Nuevo Leon 66270, Mexico [psada@ix.netcom.com]

0.18-m $f/15.0$ Maksutov + focal reducer + CCD
USNO-A2.0

(245), 8, 2, 3; (344), 3, 1, 0; (3849), 2, 1, 0; (4268), 4, 2, 3; (5402), 4, 2, 3; (6054), 2, 1, 0; (6324), 2, 1, 0; (6877), 4, 2, 3; *[29, 8, 0*, 1998/12/10–1998/12/13]*

721 Lime Creek

R. Linderholm, R2 Box 79, Cambridge, NE 69022, U.S.A. [lindh@swnebr.net]

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

1989 CW₇, 2, 1, 0; 1998 VY₅, 2, 1, 0; *[4, 2, 0*, 1998/12/11]*

723 Cottonwood Observatory, Ada

J. Waller, Rt#3 Box 175c, Ada, OK 74820, U.S.A. [jwaller@chickasaw.com]

0.30-m $f/6$ Schmidt-Cassegrain + CCD
GSC

(760), 6, 3, 2; (784), 7, 3, 2; (1028), 3, 2, 1; (1186), 6, 3, 2; (1188), 4, 2, 1; (2892), 6, 3, 2; *[32, 6, 0*, 1998/12/13–1998/12/15]*

725 Fair Oaks Ranch

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

0.46-m $f/4.5$ Newtonian reflector + CCD
USNO-SA1.0, USNO-SA2.0

1975 VW₅, 4, 2, 1; 1991 VL₁, 4, 2, 4; 1993 FL₈₄, 5, 2, 4; 1995 YN₃, 4, 2, 1; 1996 GV₂₀, 5, 2, 4; 1996 HP₂₃, 5, 2, 4; 1998 SQ₁₄₂, 2, 1, 0; 1998 VS₅, 4, 2, 13; 1998 VH₃₄, 9, 3, 13; 1998 VE₃₇, 8, 3, 17; 1998 WR₇, 5, 2, 13; 1998 WS₇, 12, 5, 18; 1998 WA₉, 3, 1, 0; 1998 XM₄, 3, 1, 0; 1998 XA₉ *, 5, 2, 1; 1998 YG₂₇ *, 6, 2, 4; 2507 P-L, 3, 1, 0; 2175 T-1, 2, 1, 0; 3398 T-3, 4, 2, 4; (245), 2, 1, 0; (4492), 2, 1, 0; *[97, 21, 2*, 1998/11/26–1999/01/03]*

726 Brainerd

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

[jimw@brainerd.net]

0.280-m Schmidt-Cassgrain + CCD
GSC-1.1

1998 YM₇ *, 11, 4, 7; (1000), 4, 2, 4; (1081), 3, 2, 2; (1373), 4, 2, 5; (1406), 3, 2, 4; (1647), 4, 2, 2; (2386), 5, 2, 1; (2423), 1, 1, 0; (2515), 4, 2, 1; (2892), 5, 2, 4; (3127), 3, 2, 1; (3658), 4, 2, 2; (4323), 2, 1, 0; (4554), 4, 2, 2; (5164), 3, 2, 1; (6100), 4, 2, 1; (9566), 4, 2, 1; (9760), 3, 2, 5; *[71, 18, 1*, 1998/12/04–1998/12/30]*

727 Zeno Observatory, Edmond

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

[tstaffor@aig.vialink.com]

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

1997 RJ₇, 10, 3, 9; 1998 UZ, 3, 1, 0; 1998 UA₁, 6, 2, 9; 1998 VY₄, 6, 2, 9; 1998 VG₃₂, 6, 2, 6; 1998 WK₆, 6, 2, 9; (899), 3, 1, 0; *[40, 7, 0*, 1998/12/09–1998/12/18]*

732 Oaxaca

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

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

1978 SA₅, 3, 1, 0; 1982 DW₃, 4, 2, 1; 1992 DA, 6, 2, 1; 1992 DG₁, 6, 2, 1; 1993 FG₂₃, 7, 2, 1; 1993 LZ₁, 6, 2, 1; 1995 CD, 6, 2, 1; 4028 P-L, 6, 2, 1; 6629 P-L, 6, 2, 1; *[50, 9, 0*, 1998/12/26–1998/12/29]*

734 Farpoint Observatory, Eskridge

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

Observers G. Hug, G. Bell

0.30-m Schmidt-Cassegrain + CCD
GSC, USNO-SA1.0

1990 RN₃, 5, 2, 2; 1990 VP₆, 4, 2, 2; 1998 SJ₁₆₂, 3, 1, 0; 1998 VZ₅, 13, 5, 19; 1998 XM₂, 4, 1, 0; 1998 XN₂, 3, 1, 0; 1998 XM₄, 4, 2, 2; 1998 XQ₁₆, 3, 1, 0; 1998 XR₁₆, 3, 1, 0; 1998 XS₁₆, 3, 1, 0; 1998 YN₁, 3, 1, 0; 1998 YL₄ *, 12, 3, 10; 1998 YB₈, 3, 1, 0; *[63, 13, 1*, 1998/12/09–1998/12/28]*

739 Sunflower Observatory, Olathe

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

[lrobinson@ix.netcom.com]

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

(1433), 2, 1, 0; (1479), 2, 1, 0; *[4, 2, 0*, 1998/12/18]*

744 Doyan Rose Observatory, Indianapolis

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

[jruthroff@sprintmail.com]

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

1987 UT, 5, 2, 1; 1988 XK, 4, 2, 5; 1989 AS₁, 2, 1, 0; 1989 WF₁, 2, 1, 0; 1990 RP₉, 3, 1, 0; 1991 TO₁₃, 4, 2, 1; 1991 VM, 3, 1, 0; 1991 VP₁, 2, 1, 0; 1992 JS₂, 4, 2, 4; 1993 FV₇, 4, 2, 5; 1994 AB₂, 3, 1, 0; 1994 VM₇, 5, 2, 1; 1996 BL₁₇, 3, 1, 0; *[44, 13, 0*, 1998/12/10–1998/12/16]*

746 Brooks Observatory, Mt. Pleasant

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

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

Measurer W. Osborn

0.40-m $f/12$ Cassegrain reflector + CCD
USNO-A2.0

(108), 2, 1, 0; (1016), 2, 1, 0; (1030), 2, 1, 0; (1101), 2, 1, 0; (1114), 2, 1, 0; (1115), 2, 1, 0; *[12, 6, 0*, 1998/10/24]*

747 Baton Rouge Observatory

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

[walt@sprintmail.com]

Observers W. R. Cooney, P. M. Motl, M. Hair, T. Martin, M. Collier, G. Burks, R. Miller, C. Myers

Measurer W. R. Cooney

0.51-m $f/8.4$ reflector + CCD
USNO-A2.0

1981 EN₂₆, 6, 2, 1; 1986 QZ₁, 6, 2, 1; 1988 CU₁, 3, 1, 0; 1990 QX₁₇, 5, 2, 3; 1990 RF₂, 4, 2, 3; 1991 SG, 5, 2, 1; 1991 VJ₂, 5, 2, 1; 1993 FZ₁₈, 12, 3, 23; 1993 SX₄, 4, 1, 0; 1993 SB₁₅, 5, 2, 1; 1993 YD, 4, 1, 0; 1994 AH, 4, 2, 1; 1994 TU₁, 2, 1, 0; 1995 EY₇, 4, 2, 1; 1996 BR₁, 4, 2, 1; 1996 CQ₁, 4, 2, 2; 1996 HM₁₁, 5, 2, 1; 1998 WS₆, 5, 1, 0; 1998 WW₆, 9, 3, 9; 1998 WN₇, 6, 2, 2; 1998 WQ₈, 11, 3, 9; 1998 WK₉, 12, 3, 7; 1998 YJ *, 11, 2, 1; 1998 YK *, 7, 2, 1; 1998 YL *, 9, 2, 1; 1998 YO₁ *, 8, 2, 1; 1998 YH₂₂ *, 7, 2, 1; (2528), 5, 2, 2; (4803), 4, 1, 0; *[176, 29, 5*, 1998/11/24–1998/12/31]*

750 Hobbs Observatory, Fall Creek

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

[elliottb@uwec.edu]

0.60-m $f/5$ reflector + CCD

GSC

1988 KA, 4, 2, 2; 1991 EB, 5, 2, 2; 1993 DD₁, 2, 1, 0; 1993 QX₄, 8, 2, 2; 1998 WS, 4, 1, 0; [23, 5, 0*, 1998/12/09–1998/12/14]

757 High Point

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

[dkchesney@aol.com]

0.25-m Schmidt-Cassegrain + CCD

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

1993 FY₃₇, 2, 1, 0; 1998 WP, 4, 2, 11; 1998 XH₅ *, 6, 3, 17; 1998 XZ₁₂ *, 6, 3, 3; [18, 4, 2*, 1998/12/10–1998/12/27]

758 BCC Observatory, Cocoa

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

[griffini@brevard.cc.fl.us]

0.30-m $f/5$ Maksutov + CCD

USNO-A2.0

1985 UA₅, 3, 1, 0; 1991 TX₄, 3, 1, 0; 1991 UQ₁, 3, 1, 0; 1991 UN₃, 3, 1, 0; 1991 VF₂, 3, 1, 0; 1995 BS₁, 4, 1, 0; 1998 UF₁₅, 3, 1, 0; 1998 VJ, 6, 2, 10; 1998 VM₃₂, 3, 1, 0; 1998 VN₃₂, 6, 2, 7; 1998 VO₃₂, 6, 2, 6; 1998 WK₂, 6, 2, 10; 1998 WW₇, 5, 2, 13; 1998 WP₈, 6, 2, 12; 1998 XA, 8, 3, 12; 1998 XN₂, 6, 1, 0; 1998 YW₄ *, 9, 3, 5; 1998 YC₆ *, 6, 2, 1; 1998 YD₆ *, 6, 2, 1; (1713), 3, 1, 0; (5816), 6, 2, 6; (9724), 3, 1, 0; [107, 22, 3*, 1998/12/09–1998/12/30]

761 Zephyrhills

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

[bitnik@bitnik.com]

0.178-m $f/9.45$ reflector + CCD

GSC, USNO-A2.0

1998 VA, 3, 1, 0; 1998 XA₅, 2, 1, 0; 1998 XD₉, 2, 1, 0; 1998 YS₇, 3, 1, 0; (132), 2, 1, 0; (270), 4, 2, 1; (695), 4, 2, 1; (6976), 4, 2, 2; (7451), 3, 2, 2; (7553), 2, 1, 0; [29, 10, 0*, 1998/12/13–1998/12/31]

808 Carlos U. Cesco Observatory, El Leoncito

C. E. Lopez, Felix Aguilar Observatory, Benavidez 8175 (Oeste), AR-5407

Marquesado-San Juan, Argentina [clopez@iinfo.unsj.edu.ar]

Observers M. I. Canada, M. R. Cesco, G. V. Coldwell, R. A. Gil-Hutton,

H. S. Lopez, J. G. Sanguin, J. E. Torres, J. A. Vicentela

Measurers R. Gil-Hutton, C. E. Lopez, J. G. Sanguin

0.5-m $f/7.5$ double astrograph

PPM

(8), 2, 1, 0; (61), 4, 2, 26; (102), 2, 1, 0; (183), 2, 1, 0; (216), 5, 3, 23; (403), 2, 1, 0; (433), 4, 2, 3; (479), 2, 1, 0; (516), 4, 2, 24; (535), 2, 1, 0; (550), 3, 2, 29; (584), 2, 1, 0; (614), 2, 1, 0; (704), 2, 1, 0; (745), 2, 1, 0; (746), 2, 1, 0; (751), 6, 3, 84; (771), 2, 1, 0; (775), 2, 1, 0; (916), 4, 2, 26; (924), 2, 1, 0; (928), 10, 5, 57; (1011), 2, 1, 0; (1018), 2, 1, 0; (1022), 6, 3, 36; (1124), 2, 1, 0; (1159), 5, 3, 22; (1211), 2, 1, 0; (1252), 2, 1, 0; (1376), 2, 1, 0; (1466), 2, 1, 0; (1487), 1, 1, 0; (1527), 2, 1, 0; (1534), 2, 1, 0; (1576), 2, 1, 0; (1583), 1, 1, 0; (1584), 2, 1, 0; (1586), 2, 1, 0; (1609), 4, 2, 2; (1631), 2, 1, 0; (1640), 2, 1, 0; (1675), 1, 1, 0; (2002), 2, 1, 0; (2060), 6, 3, 115; (2138), 2, 1, 0; (2264), 2, 1, 0; (2420), 2, 1, 0; (2453), 2, 1, 0; (2510), 2, 1, 0; (2555), 2, 1, 0; (2740), 2, 1, 0; (3066), 1, 1, 0; (3146), 2, 1, 0; (3225), 6, 3, 3; (3259), 2, 1, 0; (3353), 2, 1, 0; (3863), 2, 1, 0; (3902), 2, 1, 0; (4060), 2, 1, 0; (4489), 4, 2, 2; (4617), 2, 1, 0; (4834), 2, 1, 0; (4931), 5, 3, 3; (5230), 2, 1, 0; (5264), 2, 1, 0; (5284), 2, 1, 0; (5732), 7, 3, 3; (6148), 4, 2, 1; (6326), 4, 2, 2; (6524), 2, 1, 0; [191, 70, 0*, 1996/09/10–1998/12/14]

809 European Southern Observatory

E. W. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels,

Belgium [ericelst@helios.oma.be] (4)

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

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

Observers C.-I. Lagerkvist, M. Lindgren, G. Pizarro, O. Pizarro

Measurers E. W. Elst, O. Hernius, C.-I. Lagerkvist

1.0-m Schmidt

(4) 1992 OO₁₀, 3, 1, 0; 1996 HZ₂₀, 3, 1, 0; 1996 JF₁, 3, 1, 0; 1998 TZ₁₈, 3, 1, 0; [12, 4, 0*, 1992/07/26–1998/09/20]

(8) 1992 EN₃₆ *, 1, 1, 0; [1, 1, 1*, 1992/03/02]

816 Rand Observatory

G. R. Viscome, 30 Hyland Avenue, Lake Placid, NY 12946, U.S.A.

[GeorgeV@nct.org]

0.37-m $f/6$ reflector + CCD

USNO-SA1.0

1996 OH, 9, 2, 3; 1997 LC₄, 4, 1, 0; 1997 NR₂, 6, 2, 3; 1998 XP₁₇ *, 6, 2, 3; [25, 4, 1*, 1998/12/13–1998/12/16]

817 Sudbury

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

[dicicco@skypub.com]

0.41-m Schmidt-Cassegrain + CCD

GSC

1994 UB, 4, 1, 0; 1996 TW, 2, 1, 0; [6, 2, 0*, 1998/12/12]

825 Granville

R. G. Davis, 209 Edgebrook Drive, Boylston, MA 01505, U.S.A.

[richdave@ma.ultranet.com]

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

GSC

(5732), 6, 2, 3; [6, 1, 0*, 1998/11/29–1998/12/02]

836 Furnace Brook Observatory, Cranston

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

[DPPRAY@worldnet.att.net]

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

GSC-1.1

1998 XN₂, 5, 2, 3; [5, 1, 0*, 1998/12/12–1998/12/15]

860 Valinhos

P. R. Holvorcem, Departamento de Matematica/IMECC, Universidade Estadual de
Campiñas SP, BR-13081-970, Brazil [canis@mpc.com.br]

0.20-m $f/3.3$ reflector + CCD

GSC

1998 XA₅, 3, 1, 0; [3, 1, 0*, 1999/01/01]

867 Saji Observatory

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

[sajinet@infosakyu.ne.jp]

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

1.03-m $f/4.2$ reflector + CCD

GSC

1998 YM₄, 3, 1, 0; [3, 1, 0*, 1998/12/21]

886 Susono

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

0.25-m $f/6.3$ reflector + CCD

GSC

1988 XK, 2, 1, 0; 1989 TU₁, 2, 1, 0; 1991 DE, 5, 2, 12; 1991 TP₁, 2, 1, 0; 1991 VM, 4, 2, 1; 1997 QD₂, 2, 1, 0; 1997 SJ₂₅, 2, 1, 0; 1998 TB, 4, 2, 13; 1998 WG₇, 2, 1, 0; 1998 XM₃, 6, 3, 11; 1998 XX₃ *, 4, 2, 12; 1998 XS₃₉, 5, 2, 5; [40, 12, 1*, 1998/12/09–1998/12/29]

888 Gekko Observatory

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

0.50-m $f/4.0$ reflector

GSC 1.1

1987 UR₃, 3, 2, 14; 1988 VM₃, 4, 2, 14; 1988 XK₄, 4, 2, 10; 1989 TU₁, 2, 1, 0; 1989 WD₃, 1, 1, 0; 1991 DE₂, 2, 1, 0; 1994 UT₄, 4, 2, 14; 1994 UW₂, 2, 1, 0; 1994 UZ₂, 2, 1, 0; 1994 UC₁, 2, 1, 0; 1994 VZ₂, 2, 1, 0; 1994 WP₃, 2, 1, 0; 1997 PN₅, 2, 1, 0; 1997 QF₂, 1, 1, 0; 1997 RQ₃, 2, 1, 0; 1997 RF₈, 1, 1, 0; 1997 TG₁₉, 2, 1, 0; 1997 UB₁₁, 2, 1, 0; 1997 UC₁₁, 2, 1, 0; 1997 UD₁₁, 2, 1, 0; 1998 SS₂, 2, 1, 0; 1998 TA₂, 1, 0; 1998 TB₅, 2, 11; 1998 TE₂, 2, 1, 0; 1998 UP₆, 2, 1, 0; 1998 UT₆, 5, 3, 12; 1998 UU₆, 4, 2, 14; 1998 UH₈, 2, 1, 0; 1998 UU₂₂, 2, 1, 0; 1998 VC₂, 2, 1, 0; 1998 VD₂, 2, 1, 0; 1998 VH₅, 2, 1, 0; 1998 VN₅, 2, 1, 0; 1998 VO₅, 1, 1, 0; 1998 VP₅, 3, 2, 7; 1998 VQ₅, 2, 1, 0; 1998 VR₅, 1, 1, 0; 1998 VU₅, 4, 2, 8; 1998 VX₅, 4, 2, 12; 1998 VD₆, 4, 2, 7; 1998 VM₆, 2, 1, 0; 1998 VN₆, 2, 1, 0; 1998 VP₆, 1, 1, 0; 1998 VQ₆, 4, 2, 11; 1998 VG₃₁, 4, 2, 8; 1998 VE₃₄, 4, 2, 13; 1998 WD₃, 2, 1, 0; 1998 WE₃, 2, 1, 0; 1998 WF₃, 3, 2, 9; 1998 WE₄, 2, 1, 0; 1998 WL₅, 6, 3, 15; 1998 WM₅, 3, 2, 9; 1998 WN₅, 1, 1, 0; 1998 WV₅, 4, 2, 11; 1998 WW₅, 4, 2, 13; 1998 WX₅, 4, 2, 8; 1998 WZ₅, 2, 1, 0; 1998 WE₇, 4, 2, 7; 1998 WF₇, 3, 2, 8; 1998 WG₇, 2, 1, 0; 1998 WH₇, 4, 2, 7; 1998 XM₃, 5, 3, 5; 1998 XT₈ *, 9, 5, 15; 1998 XB₁₃, 2, 1, 0; 1998 YA₁ *, 4, 2, 1; 1998 YB₁ *, 12, 5, 11; 1998 YE₁ *, 10, 5, 11; 1998 YF₁ *, 4, 2, 1; 1998 YG₁ *, 9, 4, 9; 1998 YH₁ *, 8, 4, 9; 1998 YY₃ *, 8, 4, 7; 1998 YM₄, 22, 7, 9; 1998 YL₅ *, 8, 4, 7; 1998 YO₇ *, 7, 3, 4; 1998 YA₈ *, 4, 2, 2; 1998 YL₁₂ *, 4, 2, 1; 1998 YM₁₂ *, 6, 3, 2; [282, 77, 13*, 1998/12/09–1998/12/29]

897 YGCO Chiyoda Station

T. Kojima, 45 Shimonakamori, Chiyoda, Ohra-Gun, Gunma-Ken, 370-0724 Japan
[kojitaku@sannet.ne.jp]

0.25-m $f/6.0$ reflector + CCD

GSC

1998 BZ₇, 1, 1, 0; 1998 BP₂₆, 3, 1, 0; 1998 YM₄, 6, 1, 0; [10, 3, 0*, 1998/01/31–1998/12/20]

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

1997 TS₂₅, 2, 1, 0; 1998 XT₁₇, 2, 1, 0; 1998 YM₄, 2, 1, 0; 1998 YF₇, 2, 1, 0; (5164), 2, 1, 0; (5732), 2, 1, 0; [12, 6, 0*, 1998/12/21–1998/12/29]

905 Nachi-Katsuura Observatory

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

[urata@sannet.ne.jp]

Observer Y. Shimizu

Measurer T. Urata

0.40-m $f/3.3$ Baker-Schmidt

GSC

1993 JQ₁ *, 2, 1, 0; 1994 PH₃, 3, 1, 0; 1997 QD₂, 2, 1, 0; 1998 XM₃ *, 2, 1, 0; [9, 4, 2*, 1993/05/15–1998/12/09]

908 Toyama

M. Aoki, 6-1339, Tsukioka-Cho, Toyama, 939 Japan

0.43-m $f/6$ reflector + CCD

GSC

1998 YM₄, 3, 1, 0; [3, 1, 0*, 1998/12/20]

910 Caussols-ODAS

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

[maury@obs-azur.fr]

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

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

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

Measurers A. Maury, G. Hahn, M. Hoffmann

0.90-m Schmidt + CCD

GSC

1973 SS₁₂, 12, 4, 14; 1973 SJ₁, 3, 1, 0; 1978 UN₅, 3, 1, 0; 1979 SU₁₁, 3, 1, 0; 1980 EB₉, 9, 3, 2; 1981 DV₂, 3, 1, 0; 1981 EP₉, 9, 2, 6; 1981 ED₁₈, 3, 1, 0; 1981 QL₂, 3, 1, 0; 1987 SJ₂, 3, 1, 0; 1987 UA₁, 6, 2, 1; 1989 GY₁, 6, 2, 27; 1990 QR₅, 3, 1, 0; 1990 SG₁₂, 3, 1, 0; 1991 LA₃, 3, 1, 0; 1991 LB₆, 6, 2, 2; 1991 RP₃, 3, 1, 0; 1991 RC₅, 3, 1, 0; 1991 RQ₇, 3, 1, 0; 1991 UV₁, 3, 1, 0; 1992 DX₇, 3, 1, 0; 1992 DX₈, 3, 1, 0; 1993 FH₇, 12, 4, 14; 1993 FX₁₁, 6, 2, 52; 1993 FA₁₅, 3, 1, 0; 1993 FO₄₀, 6, 2, 1; 1993 TD₁₇, 6, 2, 6; 1994 PG₃, 3, 1, 0; 1994 PF₁₁, 3, 1, 0; 1994 PP₁₆, 3, 1, 0; 1994 SS₉, 9, 2, 1; 1995 BJ₁₁, 6, 2, 8; 1995 DZ₁, 6, 2, 1; 1995 YO₃, 3, 1, 0; 1996 BM₆, 3, 1, 0; 1996 GU₈, 12, 4, 14; 1996 HY₃, 3, 1, 0; 1996 NC₆, 6, 1, 0; 1996 RS₅, 3, 1, 0; 1996 UQ₆, 6, 2, 1; 1997 EO₄₂, 3, 1, 0; 1997 HW₇, 3, 1, 0; 1997 PZ₁, 3, 1, 0; 1997 SG₇, 3, 1, 0; 1997 UK₃, 3, 1, 0; 1997 VY₅, 6, 2, 5; 1997 WP₂₂, 6, 2, 1; 1997 YG₁, 6, 2, 2; 1998 OP₇, 3, 1, 0; 1998 OB₁₅, 3, 1, 0; 1998 QE₃, 3, 1, 0; 1998 QT₃, 3, 1, 0; 1998 QL₁, 3, 1, 0; 1998 QJ₄, 3, 1, 0; 1998 QE₃₃, 3, 1, 0; 1998 QS₃₄, 3, 1, 0; 1998 QR₄₂, 3, 1, 0; 1998 QF₄₅, 3, 1, 0; 1998 QM₈₀, 6, 1, 0; 1998 QX₉₂, 3, 1, 0; 1998 QV₉₃, 3, 1, 0; 1998 QF₉₆, 3, 1, 0; 1998 RE₁, 3, 1, 0; 1998 RF₁₇, 3, 1, 0; 1998 RC₁₈, 3, 1, 0; 1998 RP₂₈, 3, 1, 0; 1998 RK₄₉, 3, 1, 0; 1998 RD₅₄, 3, 1, 0; 1998 RV₅₇, 3, 1, 0; 1998 RD₇₇, 3, 1, 0; 1998 RT₇₈, 3, 1, 0; 1998 RX₇₈, 3, 1, 0; 1998 RC₈₀, 3, 1, 0; 1998 SE₁, 3, 1, 0; 1998 SB₁₂, 3, 1, 0; 1998 SR₃₄, 3, 1, 0; 1998 SA₄₆, 3, 1, 0; 1998 SC₅₅, 3, 1, 0; 1998 SX₆₆, 3, 1, 0; 1998 SS₉₅, 3, 1, 0; 1998 SX₉₅, 3, 1, 0; 1998 SA₉₆, 3, 1, 0; 1998 SK₁₀₄, 3, 1, 0; 1998 SM₁₀₄, 3, 1, 0; 1998 SP₁₀₄, 3, 1, 0; 1998 SS₁₀₄, 3, 1, 0; 1998 ST₁₀₄, 3, 1, 0; 1998 SV₁₀₄, 3, 1, 0; 1998 SW₁₀₄, 3, 1, 0; 1998 SP₁₁₂, 3, 1, 0; 1998 SB₁₁₃, 3, 1, 0; 1998 SC₁₁₃, 3, 1, 0; 1998 SE₁₁₃, 3, 1, 0; 1998 SF₁₁₃, 3, 1, 0; 1998 SX₁₁₉, 3, 1, 0; 1998 SU₁₂₀, 3, 1, 0; 1998 SV₁₃₀, 3, 1, 0; 1998 SO₁₃₂, 3, 1, 0; 1998 SX₁₃₂, 3, 1, 0; 1998 SK₁₃₈, 3, 1, 0; 1998 SZ₁₃₈, 3, 1, 0; 1998 SC₁₃₉, 3, 1, 0; 1998 SV₁₄₀, 3, 1, 0; 1998 SV₁₄₁, 3, 1, 0; 1998 SX₁₄₁, 6, 1, 0; 1998 SY₁₄₁, 3, 1, 0; 1998 SD₁₄₂, 3, 1, 0; 1998 SN₁₄₂, 3, 1, 0; 1998 SH₁₄₃, 3, 1, 0; 1998 SH₁₄₅, 3, 1, 0; 1998 SU₁₄₆, 6, 2, 39; 1998 SW₁₄₆, 3, 1, 0; 1998 SX₁₄₆, 3, 1, 0; 1998 SD₁₄₇, 3, 1, 0; 1998 SJ₁₄₇, 3, 1, 0; 1998 SR₁₄₇, 3, 1, 0; 1998 SS₁₄₇, 3, 1, 0; 1998 SW₁₅₁, 3, 1, 0; 1998 SU₁₅₃, 3, 1, 0; 1998 SV₁₅₃, 3, 1, 0; 1998 SW₁₅₃, 3, 1, 0; 1998 SX₁₅₃, 3, 1, 0; 1998 SY₁₅₃, 3, 1, 0; 1998 SA₁₅₄, 3, 1, 0; 1998 SO₁₅₅, 3, 1, 0; 1998 SZ₁₅₈, 3, 1, 0; 1998 SB₁₆₂, 3, 1, 0; 1998 SC₁₆₂, 3, 1, 0; 1998 SL₁₆₂, 3, 1, 0; 1998 SD₁₆₂, 3, 1, 0; 1998 SA₁₆₃, 3, 1, 0; 1998 TJ₃, 3, 1, 0; 1998 TA₃, 3, 1, 0; 1998 TN₆, 3, 1, 0; 1998 TD₁₃, 3, 1, 0; 1998 TB₁₅, 3, 1, 0; 1998 TC₁₉, 3, 1, 0; 1998 TD₁₉, 3, 1, 0; 1998 TO₁₉, 3, 1, 0; 1998 TP₁₉, 1, 1, 0; 1998 TP₂₈, 3, 1, 0; 1998 TX₂₈, 3, 1, 0; 1998 TG₂₉, 3, 1, 0; 1998 TH₂₉, 3, 1, 0; 1998 TK₂₉, 3, 1, 0; 1998 TY₃₀, 3, 1, 0; 1998 TN₃₂, 3, 1, 0; 1998 TC₃₃, 3, 1, 0; 1998 UK₃, 3, 1, 0; 1998 UO₃, 3, 1, 0; 1998 UP₃, 1, 0; 1998 UY₃, 3, 1, 0; 1998 UW₂, 3, 1, 0; 1998 UV₃, 3, 1, 0; 1998 UW₃, 3, 1, 0; 1998 UY₃, 3, 1, 0; 1998 UZ₃, 3, 1, 0; 1998 UC₇, 3, 1, 0; 1998 UP₇, 3, 1, 0; 1998 UF₇, 3, 1, 0; 1998 US₇, 3, 1, 0; 1998 UB₁₀, 3, 1, 0; 1998 UD₁₀, 3, 1, 0; 1998 UE₁₀, 3, 1, 0; 1998 UF₁₀, 3, 1, 0; 1998 UR₁₅, 3, 1, 0; 1998 UJ₁₆, 6, 2, 1; 1998 UP₁₉, 3, 1, 0; 1998 UY₁₉, 3, 1, 0; 1998 UZ₁₉, 3, 1, 0; 1998 UA₂₀, 3, 1, 0; 1998 UE₂₂, 3, 1, 0; 1998 UZ₂₂, 9, 3, 28; 1998 UR₂₄, 6, 2, 13; 1998 UT₂₄, 9, 3, 14; 1998 UH₃₆, 3, 1, 0; 1998 UH₃₉, 3, 1, 0; 1998 UP₃₉, 3, 1, 0; 1998 UX₃₉, 3, 1, 0; 1998 UF₄₁, 3, 1, 0; 1998 VG₂, 3, 1, 0; 1998 VJ₂, 3, 1, 0; 1998 VK₂, 3, 1, 0; 1998 VR₂, 3, 1, 0; 1998 VS₂, 3, 1, 0; 1998 VT₂, 3, 1, 0; 1998 VV₂, 6, 2, 37; 1998 VW₂, 3, 1, 0; 1998 VX₂, 3, 1, 0; 1998 VB₃, 4, 1, 0; 1998 VJ₃, 3, 1, 0; 1998 VX₃, 3, 1, 0; 1998 VC₅, 3, 1, 0; 1998 VT₅, 3, 1, 0; 1998 VN₆, 3, 1, 0; 1998 VX₇, 3, 1, 0; 1998 VM₁₅, 3, 1, 0; 1998 VL₁₇, 3, 1, 0; 1998 VF₂₆, 3, 1, 0; 1998 VG₂₆, 3, 1, 0; 1998 VR₂₇, 3, 1, 0; 1998 VM₂₉, 3, 1, 0; 1998 VN₃₁, 3, 1, 0; 1998 VZ₃₂, 3, 1, 0; 1998 VB₃₃, 3, 1, 0; 1998 VH₃₃, 6, 2, 1; 1998 VJ₃₃, 3, 1, 0; 1998 VX₃₃, 6, 2, 6; 1998 VP₃₄, 6, 2, 1; 1998 VN₃₆, 9, 3, 6; 1998 VN₄₀, 6, 2, 1; 1998 VC₄₁, 3, 1, 0; 1998 VO₄₁, 9, 2, 6; 1998 WE₃, 3, 1, 0; 1998 WG₃, 3, 1, 0; 1998 WU₂, 3, 1, 0; 1998 WF₃, 9, 3, 6; 1998 WT₃, 3, 1, 0; 1998 WX₃, 6, 2, 1; 1998 WA₆, 3, 1, 0; 1998 WK₆, 3, 1, 0; 1998 WN₇, 9, 3, 8; 1998 WD₉, 3, 1, 0; 1998 WP₉, 9, 3, 13; 1998 WX₉, 6, 2, 6; 1998 WT₁₀, 3, 1, 0; 1998 WW₁₀, 12, 4, 14; 1998 WX₁₀, 6, 2, 1; 1998 WB₁₂, 3, 1, 0; 1998 WD₁₂, 6, 2, 1; 1998 WE₁₂, 9, 3, 8; 1998 WF₁₂, 6, 2, 1; 1998 WG₁₂, 9, 3, 43; 1998 WH₁₂, 15, 5, 70; 1998 WH₁₄, 6, 2, 1; 1998 WM₁₄, 9, 3, 60; 1998 WQ₁₄, 6, 2, 6; 1998 WT₁₄, 6, 1, 0; 1998 WZ₁₄, 6, 2, 6; 1998 WC₁₆, 3, 1, 0; 1998 WE₁₆, 3, 1, 0; 1998 WY₁₆, 3, 1, 0; 1998 WA₁₇, 3, 1, 0; 1998 WD₁₇, 3, 1, 0; 1998 WB₁₉, 12, 4, 14; 1998 WV₂₀, 6, 2, 1; 1998 WW₂₀, 9, 3, 8; 1998 WV₂₁, 6, 2, 27; 1998 WZ₂₁, 6, 2, 6; 1998 WA₂₂, 9, 3, 6; 1998 WP₂₂, 6, 2, 1; 1998 WS₂₂, 9, 3, 14; 1998 WX₂₂, 3, 1, 0; 1998 WH₂₃, 6, 2, 1; 1998 WS₂₄, 3, 1, 0; 1998 XS₅, 6, 2, 1; 1998 XT₅ *, 9, 3, 8; 1998 XU₅ *, 6, 2, 1; 1998 XV₅ *, 6, 2, 1; 1998 XW₅ *, 9, 3, 8; 1998 XX₅ *, 12, 3, 8; 1998 XY₅ *, 6, 2, 1; 1998 XZ₅ *, 6, 2, 1; 1998 XA₁ *, 12, 4, 9; 1998 XB₁ *, 12, 4, 14; 1998 XC₁ *, 12, 4, 14; 1998 XD₁ *, 6, 2, 1; 1998 XE₁ *, 12, 4, 14; 1998 XF₁ *, 15, 4, 9; 1998 XG₁ *, 6, 2, 1; 1998 XH₁ *, 12, 4, 14; 1998 XJ₁ *, 9, 2, 1; 1998 XK₁ *, 15, 4, 14; 1998 XL₁ *, 6, 2, 1; 1998 XM₁ *, 6, 2, 1; 1998 XN₁ *, 9, 3, 9; 1998 XO₁ *, 9, 2, 1; 1998 XP₁ *, 6, 2, 1; 1998 XQ₁ *, 6, 2, 1; 1998 XR₁ *, 6, 2, 1; 1998 XS₁ *, 6, 2, 1; 1998 XT₁ *, 6, 2, 1; 1998 XU₁ *, 6, 2, 1; 1998 XV₁ *, 6, 2, 1; 1998 XW₁ *, 6, 2, 1; 1998 XX₁ *, 6, 2, 1; 1998 XY₁ *, 6, 2, 1; 1998 XZ₁ *, 6, 2, 1; 1998 XA₂ *, 6, 2, 1; 1998 XB₂ *, 6, 2, 1; 1998 XC₂ *, 6, 2, 1; 1998 XD₂ *, 6, 2, 1; 1998 XE₂ *, 6, 2, 1; 1998 XF₂ *, 15, 4, 14; 1998 XG₂ *, 6, 2, 1; 1998 XH₂ *, 9, 3, 9; 1998 XO₅, 9, 3, 9; 1998 XS₅, 6, 2, 6; 1998 XT₅, 3, 1, 0; 1998 XU₅, 12, 3, 6; 1998 XV₅, 9, 2, 8; 1998 XP₆, 6, 2, 1; 1998 XQ₆, 3, 1, 0; 1998 XV₆, 3, 1, 0; 1998 XX₆, 6, 2, 1; 1998 XY₆, 3, 1, 0; 1998 XZ₆, 4, 2, 1; 1998 XA₇, 6, 2, 1; 1998 XB₇, 3,

1, 0; 1998 XC₇, 3, 1, 0; 1998 XD₇, 6, 2, 6; 1998 XH₇, 6, 2, 1; 1998 XY₉ *, 6, 2, 8; 1998 XZ₉ *, 6, 2, 8; 1998 XA₁₀ *, 6, 2, 8; 1998 XB₁₀ *, 6, 2, 8; 1998 XC₁₀ *, 6, 2, 8; 1998 XD₁₀ *, 6, 2, 8; 1998 XE₁₀ *, 9, 3, 8; 1998 XF₁₀ *, 9, 3, 13; 1998 XG₁₀ *, 6, 2, 7; 1998 XH₁₀ *, 6, 2, 7; 1998 XJ₁₀ *, 9, 3, 8; 1998 XK₁₀ *, 6, 2, 7; 1998 XL₁₀ *, 6, 2, 7; 1998 XM₁₀ *, 6, 2, 7; 1998 XN₁₀ *, 6, 2, 1; 1998 XO₁₀ *, 6, 2, 1; 1998 XP₁₀ *, 6, 2, 1; 1998 XQ₁₀ *, 6, 2, 1; 1998 XR₁₀ *, 6, 2, 1; 1998 XS₁₀ *, 6, 2, 1; 1998 XT₁₀ *, 6, 2, 1; 1998 XU₁₀ *, 6, 2, 1; 1998 XV₁₀ *, 6, 2, 1; 1998 XW₁₀ *, 6, 2, 1; 1998 XX₁₀ *, 6, 2, 1; 1998 XY₁₀ *, 6, 2, 1; 1998 XZ₁₀ *, 6, 2, 1; 1998 XA₁₁ *, 6, 2, 1; 1998 XB₁₁ *, 6, 2, 1; 1998 XC₁₁ *, 12, 4, 3; 1998 XD₁₁ *, 6, 2, 1; 1998 XE₁₁ *, 9, 2, 1; 1998 XF₁₁ *, 12, 3, 2; 1998 XG₁₁ *, 6, 2, 1; 1998 HA₁₃ *, 6, 2, 8; 1998 HB₁₃ *, 9, 3, 3; 1998 HC₁₃ *, 6, 2, 1; 1998 HD₁₃ *, 6, 2, 1; 1998 HE₁₃ *, 6, 2, 1; 1998 HF₁₃ *, 6, 2, 1; 1998 HG₁₃ *, 6, 2, 1; 1998 HH₁₃ *, 6, 2, 1; 1998 XJ₁₃ *, 6, 2, 1; 1998 XK₁₃ *, 6, 2, 1; 1998 XL₁₃ *, 6, 2, 1; 1998 XM₁₃ *, 9, 3, 6; 1998 XN₁₃ *, 9, 3, 6; 1998 XO₁₃ *, 6, 2, 1; 1998 XP₁₃ *, 6, 2, 1; 1998 XQ₁₃ *, 6, 2, 1; 1998 XR₁₃ *, 6, 2, 1; 1998 XS₁₃ *, 9, 3, 6; 1998 XT₁₃ *, 9, 3, 6; 1998 XU₁₃ *, 6, 2, 1; 1998 XV₁₃ *, 6, 2, 1; 1998 XW₁₃ *, 6, 2, 1; 1998 XX₁₃ *, 6, 2, 1; 1998 XY₁₃ *, 9, 3, 7; 1998 XZ₁₃ *, 9, 3, 7; 1998 XA₁₄ *, 9, 3, 7; 1998 XB₁₄ *, 9, 3, 2; 1998 XC₁₄ *, 9, 3, 7; 1998 XD₁₄ *, 6, 2, 1; 1998 XE₁₄ *, 6, 2, 1; 1998 XF₁₄ *, 9, 3, 7; 1998 XG₁₄ *, 6, 2, 1; 1998 XH₁₄ *, 6, 2, 1; 1998 XJ₁₄ *, 15, 5, 7; 1998 XK₁₄ *, 6, 2, 1; 1998 XL₁₄ *, 9, 3, 2; 1998 XM₁₄ *, 6, 2, 1; 1998 XN₁₄ *, 6, 2, 1; 1998 XO₁₄ *, 6, 2, 1; 1998 XP₁₄ *, 6, 2, 1; 1998 XQ₁₄ *, 6, 2, 1; 1998 XR₁₄ *, 6, 2, 1; 1998 XS₁₄ *, 6, 2, 1; 1998 XT₁₄ *, 9, 3, 10; 1998 XU₁₄ *, 6, 2, 1; 1998 XV₁₄ *, 6, 2, 1; 1998 XW₁₄ *, 6, 2, 1; 1998 XX₁₄ *, 6, 2, 1; 1998 XY₁₄ *, 6, 2, 1; 1998 XZ₁₄ *, 6, 2, 1; 1998 XA₁₅ *, 6, 2, 1; 1998 XB₁₅ *, 6, 2, 1; 1998 XC₁₅ *, 15, 5, 10; 1998 XD₁₅ *, 6, 2, 1; 1998 XE₁₅ *, 6, 2, 1; 1998 XF₁₅ *, 6, 2, 1; 1998 XG₁₅ *, 6, 2, 1; 1998 XH₁₅ *, 6, 2, 1; 1998 XJ₁₅ *, 6, 2, 1; 1998 XK₁₅ *, 12, 4, 10; 1998 XL₁₅ *, 6, 2, 1; 1998 XM₁₅ *, 6, 2, 1; 1998 XN₁₅ *, 6, 2, 1; 1998 XO₁₅ *, 6, 2, 1; 1998 XP₁₅ *, 6, 2, 1; 1998 XQ₁₅ *, 12, 4, 36; 1998 XR₁₅ *, 6, 2, 1; 1998 XS₁₇ *, 6, 2, 9; 1998 XC₁₇ *, 9, 3, 17; 1998 XD₁₇ *, 12, 4, 17; 1998 XE₁₇ *, 15, 5, 17; 1998 XF₁₇ *, 9, 3, 10; 1998 XY₂₄, 3, 1, 0; 1998 XE₂₅, 3, 1, 0; 1998 XM₂₅, 3, 1, 0; 1998 XE₂₆ *, 6, 2, 6; 1998 XF₂₆ *, 6, 2, 6; 1998 XG₂₆ *, 6, 2, 6; 1998 XH₂₆ *, 6, 2, 6; 1998 XH₂₇ *, 6, 2, 7; 1998 YM *, 6, 2, 1; 1998 YN *, 9, 3; 1998 YO *, 6, 2, 1; 1998 YA₂ *, 6, 2, 2; 1998 YB₂ *, 6, 2, 2; 1998 YC₂ *, 6, 2, 1; 1998 YD₂ *, 12, 3, 5; 1998 YE₂ *, 6, 2, 1; 1998 YF₂ *, 15, 3, 5; 1998 YG₂ *, 12, 4, 9; 1998 YH₂ *, 15, 4, 9; 1998 YJ₂ *, 12, 3, 5; 1998 YK₂ *, 12, 3, 5; 1998 YL₂ *, 15, 3, 5; 1998 YM₂ *, 15, 4, 9; 1998 YN₂ *, 12, 3, 5; 1998 YO₂ *, 9, 3, 9; 1998 YP₂ *, 6, 2, 1; 1998 YQ₂ *, 9, 3, 5; 1998 YR₂ *, 6, 2, 1; 1998 YS₂ *, 6, 2, 1; 1998 YT₂ *, 12, 3, 5; 1998 YU₂ *, 6, 2, 1; 1998 YV₂ *, 6, 2, 1; 1998 YW₂ *, 6, 2, 1; 1998 YX₄ *, 9, 3, 8; 1998 YY₄ *, 9, 3, 8; 1998 YZ₄ *, 9, 3, 8; 1998 YA₅ *, 9, 3, 8; 1998 YB₅ *, 6, 2, 4; 1998 YC₅ *, 9, 2, 4; 1998 YD₅ *, 6, 2, 4; 1998 YE₅ *, 9, 2, 4; 1998 YF₅ *, 9, 2, 4; 1998 YG₅ *, 9, 2, 4; 1998 YN₆ *, 6, 2, 5; 1998 YO₆ *, 9, 3, 4; 1998 YP₆ *, 9, 3, 4; 1998 YT₈, 3, 1, 0; 1998 YB₉, 3, 1, 0; 1998 YQ₁₀ *, 6, 2, 9; 1998 YR₁₀ *, 6, 2, 8; 1998 YS₁₀ *, 6, 2, 8; 1998 YT₁₀ *, 6, 2, 8; 1998 YU₁₀ *, 6, 2, 8; 1998 YV₁₀ *, 6, 2, 8; 1998 YW₁₀ *, 6, 2, 8; 1998 YX₁₀ *, 6, 2, 8; 1998 YY₁₀ *, 6, 2, 8; 1998 YZ₁₀ *, 6, 2, 8; 1998 YA₁₁ *, 6, 2, 8; 1998 YB₁₁ *, 6, 2, 8; 1998 YC₁₁ *, 6, 2, 8; 1998 YD₁₁ *, 6, 2, 8; 1998 YE₁₁ *, 6, 2, 8; 1998 YF₁₁ *, 6, 2, 8; 1998 YG₁₁ *, 6, 2, 8; 1998 YH₁₁ *, 6, 2, 8; 1998 YJ₁₁ *, 6, 2, 4; 1998 YK₁₁ *, 6, 2, 4; 1998 YL₁₁ *, 6, 2, 4; 1998 YM₁₁ *, 4, 2, 4; 6063 P-L, 3, 1, 0; 6577 P-L, 3, 1, 0; 9072 P-L, 3, 1, 0; 3300 T-1, 9, 2, 4; 1320 T-2, 3, 1, 0; 3222 T-2, 3, 1, 0; 2407 T-3, 3, 1, 0; 4205 T-3, 6, 2, 6; (97), 6, 2, 2; (212), 12, 4, 9; (222), 6, 2, 2; (492), 3, 1, 0; (536), 12, 3, 8; (640), 6, 1, 0; (1335), 15, 5, 17; (1643), 6, 2, 1; (2256), 3, 1, 0; (2286), 9, 3, 2; (2290), 3, 1, 0; (2310), 6, 2, 1; (2315), 3, 1, 0; (2496), 12, 4, 14; (2657), 9, 3, 7; (2708), 6, 2, 3; (2844), 3, 1, 0; (2916), 3, 1, 0; (3005), 6, 2, 1; (3049), 6, 2, 1; (3504), 9, 3, 8; (3677), 3, 1, 0; (3756), 9, 3, 9; (4004), 3, 1, 0; (4126), 3, 1, 0; (4193), 12, 4, 14; (4511), 6, 2, 1; (4589), 9, 3, 8; (4661), 6, 2, 1; (4695), 3, 1, 0; (4889), 6, 2, 5; (5244), 3, 1, 0; (5373), 9, 3, 2; (5455), 3, 1, 0; (5669), 9, 3, 2; (5705), 6, 2, 2; (6016), 3, 1, 0; (6088), 9, 3, 9; (6201), 3, 1, 0; (6305), 6, 2, 1; (6320), 6, 2, 8; (6426), 3, 1, 0; (6451), 6, 2, 1; (6709), 3, 1, 0; (6850), 3, 1, 0; (6932), 3, 1, 0; (6953), 3, 1, 0; (7093), 3, 1, 0; (7400), 9, 2, 1; (7653), 6, 2, 1; (7818), 6, 2, 1; (7852), 12, 3, 14; (7882), 15, 4, 3; (8076), 3, 1, 0; (8374), 9, 3, 2; (9197), 3, 1, 0; (9252), 6, 2, 7; (9334), 6, 2, 9; (9381), 3, 1, 0; (9386), 3, 1, 0; (9397), 3, 1, 0; (9401), 3, 1, 0; (9474), 6, 2, 9; (9736), 6, 2, 1; (9776), 6, 2, 1; (9795), 12, 3, 6; [3133, 562, 211*, 1997/01/15–1998/12/26]

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2.5-m Isaac Newton Telescope + CCD

GSC

1997 CT₂₉, 2, 2, 2; 1997 SZ₁₀, 2, 2, 2; 1998 FS₁₄₄, 3, 3, 3; 1998 UN₁₆, 5, 2, 1; 1998 WH₂₄, 1, 1, 0; [13, 5, 0*, 1998/12/11–1998/12/16]

952 Marxuquera

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

GSC, USNO-SA1.0

1989 TH₁, 2, 1, 0; 1990 XF, 2, 1, 0; 1996 FG₃, 5, 1, 0; 1998 QO₉₃, 2, 1, 0; 1998 TV₁, 2, 1, 0; [13, 5, 0*, 1998/12/12–1998/12/13]

955 Sasseoires

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0.25-m $f/8.0$ Schmidt-Cassegrain + CCD

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

(75), 29, 1, 0; (2076), 12, 3, 2; (3564), 14, 3, 2; (4075), 4, 1, 0; [59, 4, 0*, 1998/12/05–1998/12/07]

958 Observatoire de Dax

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Observers P. Dupouy, F. Marechal

Measurers P. Dupouy, J.-F. Lahitte, F. Marechal

0.318-m $f/5.6$ reflector + CCD, 0.20-m $f/3.3$ Schmidt-Cassegrain + CCD

GSC, USNO-SA1.0

1996 UX₃, 3, 1, 0; 1997 PJ₄, 3, 1, 0; 1997 UV₁₀, 3, 1, 0; 1997 VV, 4, 2, 4; 1998 QR₅₃, 4, 2, 3; 1998 VT₅, 8, 3, 31; 1998 XO₄, 4, 1, 0; 1998 XX₉, 3, 1, 0; (6755), 2, 1, 0; (7342), 3, 1, 0; (9449), 3, 1, 0; (9734), 1, 1, 0; [41, 12, 0*, 1998/08/29–1998/12/25]

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C/1996 J1-B (Evans-Drinkwater)

Epoch 1996 Dec. 23.0 TT = JDT 2450440.5

T	1996 Dec. 30.4184 TT		Nakano	
q	1.297571	(2000.0)	P	Q
z	−0.000700	ω 14.8415	+0.3715366	+0.8474929
	±0.000002	Ω 278.1671	−0.8860605	+0.2017490
e	1.000908	i 22.5186	−0.2772316	+0.4909716

From 505 observations 1996 May 10–1998 Dec. 17, mean residual 0".7.

C/1997 J2 (Meunier-Dupouy)

Epoch 1998 Mar. 8.0 TT = JDT 2450880.5

<i>T</i>	1998 Mar. 10.4430 TT		Nakano	
<i>q</i>	3.051134	(2000.0)	P	Q
<i>z</i>	−0.000199	ω 122.6743	+0.4716741	+0.7141388
	±0.000001	Ω 148.8447	−0.5763166	−0.1942815
<i>e</i>	1.000607	<i>i</i> 91.2733	+0.6673700	−0.6725032

From 1298 observations 1997 May 5–1998 Dec. 12, mean residual 0^{''}.7.**C/1998 K1 (Mueller)**

Epoch 1998 Aug. 15.0 TT = JDT 2451040.5

<i>T</i>	1998 Sept. 1.0190 TT		Nakano	
<i>q</i>	3.416643	(2000.0)	P	Q
<i>z</i>	+0.016055	ω 165.2463	−0.9831931	+0.0043514
	±0.000017	Ω 18.2556	−0.1566168	−0.5338556
<i>e</i>	0.945146	<i>i</i> 35.6368	+0.0938219	−0.8455645

From 159 observations 1998 Apr. 22–Dec. 27, mean residual 0^{''}.6.**C/1998 T1 (LINEAR)**

Epoch 1999 July 1.0 TT = JDT 2451360.5

<i>T</i>	1999 June 25.2578 TT		Nakano	
<i>q</i>	1.468118	(2000.0)	P	Q
<i>z</i>	+0.000579	ω 226.3361	+0.2974424	−0.9516585
	±0.000033	Ω 153.3540	−0.8194065	−0.2132565
<i>e</i>	0.999150	<i>i</i> 170.1601	−0.4900010	−0.2210604

From 214 observations 1998 Oct. 2–Dec. 28, mean residual 0^{''}.6.**C/1998 U1 (LINEAR)***T* 1998 May 2.4365 TT

<i>q</i>	3.975186	(2000.0)	P	Q
	ω 124.6371		+0.1076741	+0.9732998
	Ω 210.4581		+0.7298647	+0.0610639
<i>e</i>	1.0	<i>i</i> 156.4277	+0.6750583	−0.2212661

From 110 observations 1998 Oct. 18–Dec. 23.

P/1998 U4 (Spahr)

Epoch 1999 Mar. 3.0 TT = JDT 2451240.5

<i>T</i>	1999 Feb. 27.4026 TT		Nakano	
<i>q</i>	3.842143	(2000.0)	P	Q
<i>n</i>	0.0749506	ω 251.9013	+0.2864305	−0.9579750
<i>a</i>	5.571252	Ω 181.7034	+0.9492448	+0.2815458
<i>e</i>	0.310363	<i>i</i> 31.5131	−0.1299689	−0.0549164

P 13.2From 64 observations 1998 Oct. 27–Dec. 24, mean residual 0^{''}.6.**P/1998 VS₂₄ (LINEAR)***T* 1998 Nov. 4.3597 TT

<i>q</i>	3.404748	(2000.0)	P	Q
<i>n</i>	0.1030953	ω 244.7967	+0.7182702	−0.6950666
<i>a</i>	4.504468	Ω 159.1894	+0.6657452	+0.6735813
<i>e</i>	0.244140	<i>i</i> 5.0302	+0.2021663	+0.2513377

P 9.56

From 34 observations 1998 Oct. 24–Dec. 24.

P/1998 W1 (Spahr)*T* 1999 Jan. 17.9442 TT

<i>q</i>	1.725647	(2000.0)	P	Q
<i>n</i>	0.1491484	ω 346.6723	+0.0072146	−0.9306686
<i>a</i>	3.521467	Ω 101.9769	+0.9483311	−0.1096676
<i>e</i>	0.509964	<i>i</i> 21.9583	+0.3172004	+0.3490400

P 6.61

From 154 observations 1998 Nov. 16–Dec. 28.

P/1998 W2 (Hergenrother)*T* 1998 Dec. 6.0885 TT

<i>q</i>	1.418195	(2000.0)	P	Q
<i>n</i>	0.1462476	ω 13.9958	+0.9819970	−0.1875731
<i>a</i>	3.567880	Ω 356.5709	+0.1163483	+0.6936984
<i>e</i>	0.602510	<i>i</i> 21.9112	+0.1488118	+0.6954127

P 6.74

From 45 observations 1998 Nov. 21–Dec. 23.

C/1998 W3 (LINEAR)*T* 1998 Oct. 6.2046 TT

<i>q</i>	4.913632	(2000.0)	P	Q
	ω 6.8198		−0.4917484	+0.5868503
	Ω 123.9145		+0.7577964	−0.0754293
<i>e</i>	1.0	<i>i</i> 129.1824	+0.4288684	+0.8061744

From 57 observations 1998 Nov. 25–Dec. 27.

C/1998 X1 (ODAS)*T* 1998 Aug. 22.4487 TT

<i>q</i>	1.819580	(2000.0)	P	Q
	ω 61.8356		+0.3507816	−0.9364529
	Ω 7.6309		+0.8514196	+0.3176494
<i>e</i>	1.0	<i>i</i> 1.2394	+0.3899190	+0.1488452

From 71 observations 1998 Dec. 15–27.

C/1998 Y1 (LINEAR)*T* 1998 Nov. 21.0971 TT

<i>q</i>	1.788310	(2000.0)	P	Q
	ω 339.8951		+0.1485656	−0.8604376
	Ω 98.9896		+0.9613272	+0.0100776
<i>e</i>	1.0	<i>i</i> 29.5695	+0.2319014	+0.5094562

From 58 observations 1998 Dec. 23–30.

P/1998 Y2 (Li)

Epoch 1998 Dec. 13.0 TT = JDT 2451160.5

<i>T</i>	1998 Dec. 17.9191 TT		Marsden	
<i>q</i>	2.518872	(2000.0)	P	Q
<i>n</i>	0.0650189	ω 319.0200	+0.5731973	−0.7084687
<i>a</i>	6.125053	Ω 91.8270	+0.8172272	+0.4575499
<i>e</i>	0.588759	<i>i</i> 24.3264	+0.0598706	+0.5373269

P 15.2From 44 observations 1998 Sept. 23–1999 Jan. 4, mean residual 0^{''}.7.

140P/Bowell-Skiff

Epoch 1999 May 22.0 TT = JDT 2451320.5

T 1999 May 14.8910 TT

		Williams	
<i>q</i>	1.972018	(2000.0)	
<i>n</i>	0.0609128	ω 173.1109	P Q
<i>a</i>	6.397303	Ω 343.4528	−0.9175798 −0.3970946
<i>e</i>	0.691742	<i>i</i> 3.8366	+0.3614797 −0.8134123
<i>P</i>	16.2		+0.1654683 −0.4250602

From 37 observations 1983–1998, mean residual 1".1.

(9827)* 1958 TL₁ = 1986 RE₁₁ = 1996 KY₂

Discovered 1958 Oct. 8 at the Lowell Observatory.

Id. G. V. Williams (*MPC* 27441)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams	
<i>M</i>	77.97434	(2000.0)	
<i>n</i>	0.17570776	ω 161.97834	P Q
<i>a</i>	3.1570061	Ω 203.75945	+0.98909482 −0.08185634
<i>e</i>	0.1892227	<i>i</i> 17.69156	+0.06661475 +0.99007123
<i>P</i>	5.61	<i>H</i> 12.5	+0.13135413 +0.11427377
		<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1958 10 07	690 (4.0+ 3.6−)	1996 06 07	327 0.4+ 0.2+	1997 09 17	610 0.6+ 0.2+
1958 10 08	690 (2.9+ 4.5−)	1996 06 07	327 0.7+ 0.0	1997 09 17	610 0.3+ 0.2+
1958 10 10	690 0.2− 0.8−	1996 06 07	327 0.0 0.2+	1997 10 10	610 0.0 1.1+
1983 03 08	413 0.1− 2.2+	1996 06 07	327 0.8+ 0.3−	1997 10 10	610 0.1+ 1.2+
1983 03 08	413 2.4+ 0.1+	1996 06 13	327 0.9+ 0.2−	1997 10 10	610 0.0 1.2+
1983 05 09	413 1.5+ 0.6+	1996 06 13	327 0.1+ 0.2−	1997 10 20	689 0.6− 0.1+
1983 05 09	413 1.4− 0.5−	1996 06 13	327 0.4+ 0.2−	1997 12 28	566 0.9− 0.9−
1986 09 09	095 (0.8+ 3.1−)	1996 06 13	327 1.2+ 0.6−	1997 12 28	566 0.3− 0.9−
1986 09 12	095 (2.5+ 3.6−)	1996 06 23	327 0.2− 0.7−	1997 12 28	566 0.7− 0.7−
1996 05 19	327 0.7− 0.0	1996 06 23	327 0.0 0.8−	1998 10 19	658 0.2+ 0.3+
1996 05 19	327 0.6− 0.2+	1996 06 23	327 0.3+ 0.2−	1998 10 19	658 0.1+ 0.4+
1996 05 19	327 0.3− 0.4+	1996 06 23	327 0.6− 0.6−	1998 10 19	658 0.3− 0.8+
1996 05 21	327 0.2− 0.1−	1997 09 04	610 0.3− 1.3+	1998 11 11	658 1.5− 0.2+
1996 05 21	327 0.4− 0.4+	1997 09 04	610 0.0 1.1+	1998 11 11	658 1.7− 0.7+
1996 05 21	327 0.3− 0.8+	1997 09 04	610 0.5+ 0.9+	1998 11 20	561 0.6+ 0.2+
1996 05 24	327 0.6− 0.0	1997 09 06	127 1.1− 1.2−	1998 11 20	561 0.6+ 0.0
1996 05 24	327 0.1+ 0.4−	1997 09 06	127 1.0− 1.4−	1998 11 20	561 0.5+ 0.3+
1996 05 24	327 0.0 0.0	1997 09 10	610 1.2+ 1.2+	1998 11 20	561 0.1+ 0.6−
1996 05 27	327 0.1+ 0.0	1997 09 10	610 1.9+ 1.4+	1998 12 16	426 0.3+ 0.0
1996 05 27	327 0.6− 0.4+	1997 09 10	610 2.5+ 1.6+	1998 12 16	426 0.0 0.5−
1996 05 27	327 0.1− 0.4+	1997 09 11	127 1.1− 1.1−	1998 12 18	426 0.5− 0.2−
1996 05 28	327 0.8− 0.6+	1997 09 11	127 1.3− 1.4−	1998 12 18	426 0.2− 0.3−
1996 05 28	327 0.3+ 0.6+	1997 09 11	127 0.9− 1.5−	1998 12 18	426 0.1− 0.5−
1996 05 28	327 1.5− 0.4+	1997 09 17	610 0.9+ 0.1+		

(9828)* 1973 SS = 1996 RO₃₃

Discovered 1973 Sept. 19 at Palomar.

Id. G. V. Williams (*MPC* 29606)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams	
<i>M</i>	314.42855	(2000.0)	
<i>n</i>	0.08407103	ω 18.25225	P Q
<i>a</i>	5.1606589	Ω 97.08572	−0.42746744 −0.90231475
<i>e</i>	0.0864050	<i>i</i> 3.21616	+0.82228573 −0.41366730
<i>P</i>	11.72	<i>H</i> 11.7	+0.37565645 −0.12127428
		<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1973 09 19	675 (3.4+ 2.1−)	1997 11 04	046 0.2− 1.0+	1998 11 24	704 1.3+ 0.1−
1973 09 19	675 1.1− 0.5+	1997 11 04	046 1.0− 1.0−	1998 11 24	704 (2.6+ 0.8−)
1973 09 20	675 0.5+ 1.0+	1997 11 04	046 0.8− 0.1−	1998 11 24	704 0.4+ 0.3−
1973 09 24	675 0.2− 1.6−	1997 11 04	046 0.9+ 1.0+	1998 11 24	704 (3.0− 2.4+)
1973 09 24	675 (1.5+ 3.7+)	1998 10 29	704 (2.7− 1.6−)	1998 12 07	910 0.2+ 1.2+

1973 09 25	675 (2.3+ 4.0−)	1998 10 29	704 0.5+ 0.4+	1998 12 07	910 0.3+ 0.8+
1973 09 25	675 (0.9+ 2.9+)	1998 10 29	704 (2.4+ 0.6−)	1998 12 07	910 0.1+ 1.1+
1973 09 29	675 1.2+ 2.1−	1998 10 29	704 0.8− 1.4+	1998 12 08	691 1.0− 0.1−
1973 09 29	675 1.4+ 0.5+	1998 11 15	691 0.9− 0.1−	1998 12 08	691 1.0− 0.1−
1973 09 30	675 (0.8+ 3.0−)	1998 11 15	691 0.7− 0.2−	1998 12 08	691 0.7− 0.4−
1973 09 30	675 0.3− 0.3−	1998 11 15	691 0.8− 0.1+	1998 12 08	910 0.1− 0.1+
1973 10 04	675 (5.1+ 2.9−)	1998 11 18	704 0.8+ 0.2−	1998 12 08	910 0.2− 0.5+
1973 10 04	675 1.4− 1.2+	1998 11 18	704 0.6+ 1.6−	1998 12 08	910 0.4− 0.2+
1973 10 05	675 (2.7+ 3.4−)	1998 11 18	704 (0.6+ 3.7−)	1998 12 15	910 1.2+ 0.1−
1973 10 05	675 0.3+ 0.1+	1998 11 18	704 (1.8− 3.2−)	1998 12 15	910 1.3+ 0.0
1996 09 15	809 0.6+ 0.4−	1998 11 23	699 1.0+ 0.8+	1998 12 15	910 1.1+ 0.1−
1996 09 16	809 0.3− 0.3−	1998 11 23	699 1.3+ 1.0−	1998 12 20	691 1.5− 0.2−
1997 11 02	046 0.0 0.0	1998 11 23	699 1.1+ 0.4−	1998 12 20	691 1.4− 0.0
1997 11 02	046 0.0 0.1+	1998 11 23	561 0.3− 0.9−	1998 12 20	691 1.2− 0.2−
1997 11 02	046 0.2− 0.4+	1998 11 23	561 0.9− 0.4−	1998 12 21	910 0.5+ 0.4−
1997 11 02	046 0.3+ 0.7+	1998 11 23	561 0.8+ 0.2+	1998 12 21	910 0.4+ 0.6−
1997 11 02	046 0.1− 0.4+	1998 11 23	561 1.2− 0.5−	1998 12 21	910 0.5+ 0.2−

(9829)* 1973 SJ₁ = 1978 JR₃

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

Id. E. Bowell (*MPC* 13164)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams	
<i>M</i>	249.67498	(2000.0)	
<i>n</i>	0.12518595	ω 8.53783	P Q
<i>a</i>	3.9576039	Ω 181.94201	−0.98332431 +0.18185398
<i>e</i>	0.1238376	<i>i</i> 2.63549	−0.16945175 −0.91930622
<i>P</i>	7.87	<i>H</i> 12.1	−0.06602578 −0.34900601
		<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1973 09 19	675 0.9+ 0.0	1997 09 06	121 0.6− 0.2+	1998 11 24	704 0.5+ 0.4−
1973 09 19	675 1.9− 0.2−	1997 09 07	121 0.6− 0.3+	1998 11 24	747 0.2+ 0.5+
1973 09 20	675 0.4− 0.2+	1997 10 25	552 0.7+ 1.6+	1998 11 24	747 0.1+ 0.5+
1973 09 24	675 0.7− 0.2+	1997 10 25	552 0.5− 0.4+	1998 11 24	704 0.9+ 0.2−
1973 09 24	675 0.6− 0.5+	1997 10 30	704 0.0 0.2+	1998 11 24	704 0.5− 0.3−
1973 09 25	675 (1.4+ 2.9−)	1997 10 30	704 0.6− 0.6−	1998 11 24	704 0.5+ 0.9−
1973 09 25	675 0.4+ 0.2−	1997 10 30	704 1.3− 0.9+	1998 11 24	704 0.8− 1.6+
1973 09 29	675 0.4+ 0.2+	1997 10 30	704 1.4− 0.1−	1998 11 24	561 0.4− 0.6+
1973 09 29	675 1.3+ 0.9+	1997 10 30	704 1.0− 0.2+	1998 11 24	561 0.1− 0.5+
1973 09 30	675 0.7+ 1.1−	1997 11 02	552 0.0 0.3−	1998 11 24	561 0.4− 0.7+
1973 09 30	675 0.4− 0.4−	1997 11 02	552 0.2− 0.4+	1998 11 25	699 1.5+ 0.4−
1973 10 04	675 1.4+ 0.8−	1998 11 18	704 0.1− 0.1+	1998 11 25	699 0.9+ 0.8−
1973 10 04	675 0.9− 0.5+	1998 11 18	704 0.9− 0.5−	1998 11 25	699 0.8+ 0.5−
1973 10 05	675 0.9+ 1.8−	1998 11 18	704 0.5− 1.2+	1998 11 27	747 0.8+ 0.1−
1973 10 05	675 0.8+ 1.0−	1998 11 18	704 0.8+ 0.2+	1998 11 27	747 1.1+ 0.8+
1978 05 09	675 1.1+ 0.2+	1998 11 21	704 1.0− 0.0	1998 11 27	747 0.6+ 0.1+
1978 05 10	675 0.2+ 1.2+	1998 11 21	704 (0.0 2.1−)	1998 11 27	747 1.2+ 0.9+
1991 12 07	691 1.5− 0.0	1998 11 21	704 0.0 1.2−	1998 11 27	747 0.0 0.1+
1991 12 07	691 1.6− 0.6+	1998 11 21	704 0.6+ 0.6−	1998 12 22	910 0.6+ 0.6−
1991 12 07	691 1.6− 0.4+	1998 11 21	704 (0.5− 3.0−)	1998 12 22	910 0.6+ 0.3−
1997 09 06	121 0.6− 0.2+	1998 11 24	747 0.3+ 0.3+	1998 12 22	910 0.6+ 0.5−
1997 09 06	121 0.7− 0.1−	1998 11 24	747 0.4+ 0.4+		

(9830)* 1978 VE₁₁ = 1981 UN₂₈

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

Id. S. J. Bus (*MPC* 20628)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams	
<i>M</i>	327.94776	(2000.0)	
<i>n</i>	0.29922723	ω 265.24145	P Q
<i>a</i>	2.2137843	Ω 245.72110	−0.86909133 −0.48494739
<i>e</i>	0.0574208	<i>i</i> 6.14012	+0.48557157 −0.79880700
<i>P</i>	3.29	<i>H</i> 15.2	+0.09434254 −0.35599637
		<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1951 09 09	675	0.9+	0.0	1996 02 29	608	0.2-	0.2-	1997 08 09	824	0.1+	0.6-
1951 09 09	675	0.3+	0.7-	1996 02 29	608	0.3-	0.5-	1998 11 23	699	0.4+	1.0+
1978 11 05	675	0.1-	0.2+	1996 03 01	608	0.0	0.4-	1998 11 23	699	0.1+	0.4-
1978 11 06	675	0.5-	0.4-	1996 03 01	608	0.1+	0.4-	1998 11 23	699	0.6-	0.6+
1978 11 07	675	0.7-	0.8+	1996 03 02	608	0.7-	0.1-	1998 12 16	699	0.2-	0.8-
1978 11 08	675	0.1-	0.0	1996 03 02	608	0.7-	0.1-	1998 12 16	699	1.3+	0.4-
1978 11 29	675	0.7+	0.4+	1997 08 07	824	0.2+	0.2-	1998 12 16	699	0.8+	0.3-
1978 11 30	675	0.6-	0.2-	1997 08 07	824	0.3+	0.2-	1998 12 22	704	0.0	0.7-
1981 10 24	675	0.0	0.2-	1997 08 07	824	0.2+	0.2-	1998 12 22	704	0.1+	1.1-
1981 10 25	675	0.4+	0.1-	1997 08 09	824	0.1-	0.5-	1998 12 22	704	(1.0-	2.5-)
1981 10 26	675	0.7-	0.1-	1997 08 09	824	0.0	0.7-				

(9831)* 1979 QZ = 1995 YE₁₆ = 1997 JO₁ = 1998 SS₁₂₉

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

Id. G. V. Williams (*MPC* 33219)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams		Williams	
<i>M</i>	42.87040	(2000.0)	
<i>n</i>	0.26250045	ω	187.35368
<i>a</i>	2.4157353	Ω	168.69442
<i>e</i>	0.2093192	<i>i</i>	2.39500
<i>P</i>	3.75	<i>H</i>	15.2

Residuals in seconds of arc

1979 08 22	809	0.3-	0.9+	1997 05 02	910	0.3+	0.8+	1998 10 28	704	0.0	0.0
1979 08 22	809	0.5-	1.2+	1997 05 03	910	0.2+	0.8+	1998 10 28	704	0.2+	0.3-
1979 08 22	809	0.7+	0.8+	1998 09 18	699	0.3+	0.2+	1998 10 28	704	0.5-	0.3+
1979 08 23	809	0.5-	0.0	1998 09 18	699	0.2+	0.2+	1998 10 28	704	0.5+	0.0
1979 08 23	809	2.3+	0.7-	1998 09 18	699	0.0	0.2+	1998 10 29	704	0.9-	0.1-
1979 08 26	809	2.1+	0.6-	1998 09 26	704	0.7+	0.1-	1998 10 29	704	1.0-	0.3-
1979 08 26	809	1.2-	0.2-	1998 09 26	704	0.9+	0.4-	1998 10 29	704	1.4-	0.0
1979 08 26	809	1.2-	0.3+	1998 09 26	704	0.6+	1.2-	1998 10 29	704	1.6-	0.3+
1979 08 30	809	0.7-	0.0	1998 09 26	704	0.0	1.0-	1998 10 29	704	2.0-	0.7-
1979 08 30	809	1.1-	0.3-	1998 09 26	704	0.3+	0.3-	1998 11 10	704	1.0+	0.1+
1995 12 20	691	0.2-	0.2-	1998 09 27	704	0.4+	0.3-	1998 11 10	704	1.2+	1.5+
1995 12 20	691	0.3+	0.5-	1998 09 27	704	0.2-	0.2-	1998 11 10	704	0.7+	0.7+
1995 12 26	691	0.0	0.1+	1998 09 27	704	0.5+	0.1-	1998 11 10	704	0.1+	0.9+
1995 12 26	691	0.1-	0.2+	1998 09 27	704	0.2-	0.7-	1998 11 10	704	0.2-	0.2+
1995 12 26	691	0.3+	0.5+	1998 09 27	704	0.3-	0.5-	1998 11 11	704	0.1+	0.1+
1997 05 01	910	0.0	0.5+	1998 10 11	699	0.4+	0.1+	1998 11 11	704	0.3+	0.4+
1997 05 01	910	0.2+	0.3+	1998 10 11	699	0.2+	0.6+	1998 11 11	704	0.2-	1.1+
1997 05 01	910	0.1+	0.5+	1998 10 11	699	0.2+	0.4+	1998 11 11	704	0.0	0.9+
1997 05 02	910	0.3+	0.7+	1998 10 28	704	0.2+	0.1-	1998 11 11	704	1.0-	0.8+

(9832)* 1981 EH₃

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

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams		Williams	
<i>M</i>	73.07918	(2000.0)	
<i>n</i>	0.26038198	ω	97.29963
<i>a</i>	2.4288206	Ω	263.86896
<i>e</i>	0.1214528	<i>i</i>	7.01345
<i>P</i>	3.79	<i>H</i>	15.0

Residuals in seconds of arc

1979 11 26	675	0.9-	0.9-	1990 09 17	675	(0.0	2.6-)	1998 09 29	704	0.4-	0.4-
1979 11 27	675	1.1+	0.3+	1990 09 17	675	(0.0	2.2-)	1998 09 29	704	(4.3-	0.5-)
1981 02 02	413	0.2-	0.3-	1990 09 20	675	(0.1-	3.8-)	1998 12 14	704	0.2+	0.1-
1981 02 14	413	1.0+	1.5-	1990 09 20	675	1.0-	0.4-	1998 12 14	704	(2.0+	1.7-)
1981 03 02	413	2.4+	0.2-	1990 10 12	413	0.6+	0.6-	1998 12 14	704	0.9-	0.2-
1981 03 07	413	1.9-	1.8+	1990 10 12	413	1.6+	0.7+	1998 12 14	704	0.7+	0.3-
1981 03 07	413	0.7+	0.2+	1994 10 01	675	1.0-	0.6-	1998 12 14	704	(2.3-	1.6-)
1981 03 10	413	1.2-	1.6+	1994 10 01	675	0.2-	1.6+	1998 12 17	704	0.1-	0.1+
1981 03 10	413	0.0	0.3+	1994 12 02	675	1.6-	0.4-	1998 12 17	704	1.2+	0.7+

1981 03 12	413	0.1-	0.3+	1994 12 02	675	0.3+	0.2+	1998 12 17	704	0.7-	0.4-
1981 04 09	413	1.4-	0.4-	1998 09 29	704	1.2+	0.1-	1998 12 17	704	0.2-	0.0
1981 04 29	413	0.7+	2.2-	1998 09 29	704	(2.6+	0.2-)	1998 12 17	704	0.6+	0.3+

(9833)* 1982 DW₃ = 1994 TK₂

Discovered 1982 Feb. 21 by R. Ziener and K. Kirsch at Tautenburg.

Id. S. Nakano (*MPC* 24384)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano		Nakano	
<i>M</i>	29.98834	(2000.0)	
<i>n</i>	0.28702485	ω	317.71394
<i>a</i>	2.2760915	Ω	129.95257
<i>e</i>	0.1125113	<i>i</i>	3.76653
<i>P</i>	3.43	<i>H</i>	14.0

Residuals in seconds of arc

1953 10 10	675	0.2+	0.6-	1994 10 07	400	1.8+	0.4-	1998 11 23	704	0.2+	0.2-
1953 10 10	675	1.0-	0.4-	1994 10 26	400	1.0-	0.2+	1998 11 23	704	1.5-	1.3-
1982 02 20	033	0.9+	0.1-	1994 10 26	400	0.1+	1.7-	1998 11 23	704	(1.5+	2.3-)
1982 02 20	033	0.6+	0.2-	1994 11 07	675	0.4+	0.1-	1998 11 23	699	0.3+	0.5+
1982 02 20	033	0.3+	0.4+	1996 04 15	113	0.3-	0.0	1998 11 23	704	0.9-	0.3-
1982 02 21	033	0.3+	0.9+	1996 04 15	113	0.7-	0.4-	1998 11 23	699	0.1-	0.4+
1982 02 21	033	1.0+	0.5+	1996 04 17	113	0.4-	1.4-	1998 11 23	699	0.0	0.8+
1982 02 25	010	(8.1+	4.0-)	1996 04 17	113	0.2+	0.1-	1998 12 28	732	0.9-	0.3+
1982 02 26	010	(5.5+	0.2+)	1996 04 23	691	0.7-	0.8-	1998 12 29	732	0.1-	0.1+
1994 10 02	400	0.2-	0.2+	1996 04 23	691	0.7-	0.7-	1998 12 29	732	0.0	0.1-
1994 10 02	400	0.8+	0.0	1996 04 23	691	0.6-	1.0-	1998 12 29	732	0.4-	0.1+
1994 10 03	400	0.7+	1.3+	1998 11 22	113	0.5+	0.2-	1998 12 30	113	0.0	0.3-
1994 10 03	400	1.5-	0.6+	1998 11 22	113	0.2+	0.0	1998 12 30	113	0.3-	0.0
1994 10 07	400	0.7+	2.0-	1998 11 23	704	1.2+	1.4-				

(9834)* 1982 TS₁ = 1996 LW₁

Discovered 1982 Oct. 14 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. G. V. Williams (*MPC* 27442)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams		Williams	
<i>M</i>	28.38016	(2000.0)	
<i>n</i>	0.18758896	ω	155.36896
<i>a</i>	3.0222557	Ω	246.59583
<i>e</i>	0.0832169	<i>i</i>	8.76194
<i>P</i>	5.25	<i>H</i>	12.9

Residuals in seconds of arc

1982 10 14	095	0.5-	0.7-	1998 08 31	704	0.6+	0.9-	1998 11 24	704	1.2+	0.6-
1982 10 20	095	0.1-	1.6+	1998 08 31	704	(2.4-	1.9-)	1998 11 25	699	0.3+	0.3-
1982 10 21	095	(1.2+	3.8+)	1998 11 11	127	0.4+	0.4+	1998 11 25	699	0.5+	0.2-
1982 10 22	095	0.4-	1.5+	1998 11 11	127	0.4+	0.1+	1998 11 25	699	0.6+	0.3-
1982 10 22	095	(3.8+	1.6-)	1998 11 17	127	0.4-	0.3-	1998 12 08	699	0.3-	0.5+
1982 10 24	095	0.2+	0.4-	1998 11 17	127	0.4-	0.4-	1998 12 08	699	0.2+	0.2+
1982 11 08	095	(0.6+	5.9+)	1998 11 17	127	0.0	0.3-	1998 12 08	699	0.2-	0.1+
1982 11 12	095	0.2+	0.7+	1998 11 18	704	0.2-	0.3-	1998 12 11	699	0.2+	0.0
1996 06 14	566	0.1-	0.1-	1998 11 18	704	0.4+	0.6+	1998 12 11	699	0.2+	0.2-
1996 06 14	566	0.4+	0.6-	1998 11 18	704	0.5-	1.5-	1998 12 11	699	0.3-	0.3-
1996 06 14	566	0.5+	0.3-	1998 11 18	704	0.8+	0.7+	1998 12 14	704	0.7-	0.5+
1996 06 21	566	0.2-	0.3-	1998 11 18	704	1.6-	1.8-	1998 12 14	704	0.3-	0.2-
1996 06 21	566	0.6-	1.1-	1998 11 19	127	0.1+	0.1+	1998 12 14	704	0.5+	0.3+
1996 06 21	566	0.3-	0.6-	1998 11 19	127	0.3+	0.3+	1998 12 14	704	0.0	0.1+
1997 10 25	688	0.3+	0.2-	1998 11 19	127	0.2+	0.5+	1998 12 14	704	0.8-	0.4+
1997 10 25	688	0.2+	0.3-	1998 11 20	127	0.4+	0.1+	1998 12 17	704	0.2+	0.4+
1997 10 26	688	0.0	0.2-	1998 11 20	127	0.3+	0.2+	1998 12 17	704	0.3+	0.2-
1997 10 26	688	0.1-	0.1-	1998 11 24	704	0.7+	0.1-	1998 12 17	704	1.0-	0.1+
1998 08 31	704	1.0-	0.2+	1998 11 24	704	0.5-	0.6-	1998 12 17	704	0.9-	0.5-
1998 08 31	704	0.8+	0.0	1998 11 24	704	0.1+	0.9-	1998 12 17	704	0.2-	0.1+
1998 08 31	704	1.4-	0.1-	1998 11 24	704	0.5+	1.3-				

(9835)* 1984 UD = 1993 TP₁

Discovered 1984 Oct. 17 by Z. Vávrová at Kleť.

Id. S. Nakano (*MPC* 22683)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21673882	ω	24.20109	+0.62296319	−0.77876291		
<i>a</i>	2.7448055	Ω	27.44436	+0.68906268	+0.50165074		
<i>e</i>	0.2456465	<i>i</i>	9.21315	+0.37028298	+0.37666281		
<i>P</i>	4.55	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1984 10 17	046	1.4+	0.4−	1993 09 21	675	1.9−	0.9+	1998 12 01	689	0.0	0.4+
1984 10 17	046	0.9+	1.1+	1993 09 23	675	1.8−	1.2+	1998 12 04	046	0.4+	0.7+
1984 10 18	046	2.0+	1.3−	1993 10 10	894	0.6+	0.4+	1998 12 04	046	0.2+	0.5+
1984 10 18	046	2.1+	1.9+	1993 10 10	894	1.1−	0.8+	1998 12 04	046	0.4+	0.5+
1984 10 26	688	0.3−	1.7−	1993 10 12	675	0.0	1.6+	1998 12 10	046	0.3+	0.5+
1984 10 26	688	1.3−	2.0−	1993 10 12	675	0.1+	0.6+	1998 12 10	046	0.4+	0.4+
1984 10 28	046	0.4−	1.4−	1993 10 18	894	0.3−	1.6+	1998 12 10	046	0.4+	0.4+
1984 10 28	046	2.0+	0.5−	1993 10 18	894	(3.1−	0.9+)	1998 12 17	704	0.1−	0.1+
1984 10 29	046	(2.5+	2.3−)	1995 03 27	675	0.3−	0.0	1998 12 17	704	0.4−	0.0
1984 10 29	046	1.3+	1.5−	1996 05 22	046	0.4−	0.4−	1998 12 17	704	0.3+	0.3+
1984 10 30	046	0.7−	1.9−	1996 05 22	046	0.9−	0.6−	1998 12 17	704	0.0	0.3+
1984 10 30	046	(3.1+	1.0−)	1996 05 22	046	0.1−	0.5−	1998 12 17	704	0.1−	1.3−
1984 11 20	688	0.1+	1.9−	1996 06 05	046	0.3+	0.6−	1998 12 30	689	0.6−	0.5+
1984 11 20	688	0.5−	1.6−	1996 06 05	046	0.4−	0.4−				
1993 09 21	675	1.3−	1.1+	1996 06 05	046	0.1−	0.7−				

(9836)* 1985 TU = 1964 WE₁ = 1993 OK₅

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

Id. B. G. Marsden (*MPC* 22590)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23222594	ω	152.67014	+0.84480670	−0.53455805		
<i>a</i>	2.6213734	Ω	239.66297	+0.48582594	+0.78467359		
<i>e</i>	0.2199202	<i>i</i>	1.55612	+0.22422039	+0.31390292		
<i>P</i>	4.24	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1964 11 30	330	0.3−	2.3+	1993 07 20	809	0.4−	0.7+	1998 12 09	610	0.4−	0.7+
1985 09 20	095	0.8+	1.7+	1993 07 20	809	0.8−	0.1+	1998 12 09	610	0.4−	0.6+
1985 09 22	095	2.2−	1.3+	1993 07 24	809	0.5+	0.3+	1998 12 09	610	0.5−	0.5+
1985 10 11	010	0.0	0.9+	1994 12 08	691	0.1−	0.6−	1998 12 09	610	0.5−	0.4+
1985 10 11	010	0.3−	1.3−	1994 12 08	691	0.2−	0.7−	1998 12 15	704	1.8+	1.2−
1985 10 15	688	1.2−	0.8−	1994 12 08	691	0.4−	0.5−	1998 12 15	704	1.0+	0.3−
1985 10 15	688	1.8−	0.1−	1994 12 27	292	(0.3−	2.4−)	1998 12 15	704	0.4−	0.6+
1985 10 18	095	(3.9−	1.7+)	1998 10 18	327	1.2−	1.0+	1998 12 15	704	0.4+	0.7−
1985 10 20	688	1.6+	1.0−	1998 10 18	327	1.6−	0.7+	1998 12 15	704	0.2+	0.4+
1985 10 20	688	2.0+	2.2−	1998 10 18	327	0.2−	0.4+	1998 12 22	704	0.2+	0.7−
1985 11 07	688	(3.6+	0.4−)	1998 12 08	610	0.1+	0.3+	1998 12 22	704	1.5+	0.1+
1985 11 07	688	2.5+	0.5−	1998 12 08	610	0.1−	0.2+	1998 12 22	704	0.2−	0.3−
1993 07 13	809	1.4+	0.2−	1998 12 08	610	0.1−	0.0	1998 12 22	704	0.3+	1.2−
1993 07 13	809	0.3+	0.3−	1998 12 08	610	0.2−	0.0	1998 12 22	704	0.3+	0.4−
1993 07 13	809	0.6−	0.4−	1998 12 08	610	0.1−	0.2−				
1993 07 20	809	0.3−	0.3−	1998 12 09	610	0.4−	0.8+				

(9837)* 1986 AA₂ = 1978 JO₁ = 1989 WX₃

Discovered 1986 Jan. 12 by I. Horowitz at the Anderson Mesa Station of the Lowell Observatory.

Id. A. Lowe (*MPC* 16579), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22111744	ω	61.39528	−0.99530546	−0.03526396		
<i>a</i>	2.7084493	Ω	116.45897	+0.00101686	−0.93501722		
<i>e</i>	0.0237278	<i>i</i>	5.77809	+0.09677811	−0.35284451		
<i>P</i>	4.46	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 05 06	095	0.1+	0.5−	1991 03 16	801	0.8+	0.2−	1995 02 05	560	1.5−	0.1−
1980 11 29	675	1.0+	0.4−	1991 03 16	801	1.0+	0.0	1996 05 08	596	0.7−	1.0+
1980 12 01	675	1.4+	1.4−	1993 10 13	675	0.6−	0.1+	1996 05 08	596	0.4−	0.9+
1986 01 12	688	0.0	0.1+	1993 10 13	675	0.7−	0.5−	1996 05 08	596	0.4−	0.9+
1986 01 12	688	1.8−	0.9−	1993 10 15	675	0.3+	0.3−	1996 05 18	801	0.0	0.2−
1986 01 17	688	1.1−	0.3−	1995 01 31	560	1.1+	1.8+	1996 05 18	801	0.1+	0.8−
1989 11 28	033	0.7−	0.1+	1995 01 31	560	0.8+	0.2+	1996 05 20	801	0.5+	1.1−
1989 11 29	033	(4.1+	0.4−)	1995 01 31	560	0.0	0.4+	1996 05 20	801	0.2+	1.0−
1989 12 02	033	0.3+	0.1−	1995 02 01	560	0.9+	0.4+	1998 09 29	704	0.7+	0.5−
1989 12 03	033	(3.7+	0.9−)	1995 02 01	560	1.0+	0.2+	1998 09 29	704	0.2+	1.9−
1991 03 13	801	0.6+	0.3−	1995 02 01	560	0.1+	0.6+	1998 09 29	704	1.2−	1.2−
1991 03 13	801	0.7+	0.4−	1995 02 04	560	(2.8−	0.2+)	1998 09 29	704	(2.7+	0.6−)
1991 03 14	046	0.9−	1.6−	1995 02 04	560	1.3−	0.5+	1998 12 15	704	0.1+	0.5+
1991 03 14	046	1.7−	1.0−	1995 02 04	560	0.0	0.8−	1998 12 15	704	0.6+	0.3+
1991 03 15	046	(0.9−	2.2−)	1995 02 05	560	0.8−	0.1−	1998 12 15	704	0.9+	0.8+
1991 03 15	046	(1.0−	3.3−)	1995 02 05	560	0.8−	0.4+	1998 12 15	704	0.3+	1.4+

(9838)* 1987 RN₆

Discovered 1987 Sept. 4 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19063059	ω	310.00124	+0.86037948	−0.49933939		
<i>a</i>	2.9900216	Ω	80.18042	+0.49344954	+0.76609115		
<i>e</i>	0.0584050	<i>i</i>	5.94266	+0.12749397	+0.40467829		
<i>P</i>	5.17	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1987 09 04	095	0.7+	0.9+	1995 04 03	801	0.1−	0.4−	1998 11 24	557	0.2−	0.1+
1987 09 24	095	1.2−	1.2−	1995 04 05	327	0.3+	0.0	1998 11 25	684	0.0	0.0
1987 09 27	095	1.1+	0.9−	1995 04 05	327	0.3−	0.6−	1998 11 25	684	0.1+	0.1+
1995 02 22	411	1.5+	0.0	1995 04 05	327	1.1−	0.1−	1998 11 25	684	0.3−	0.1−
1995 02 22	411	0.2−	1.0+	1997 08 30	566	0.3−	0.5+	1998 11 25	684	0.0	0.1−
1995 02 26	411	0.4−	1.2+	1997 08 30	566	0.1−	0.3+	1998 11 28	120	0.1−	0.1−
1995 02 26	411	0.4−	0.5−	1997 08 30	566	0.0	0.3+	1998 12 22	704	0.9+	0.4+
1995 03 27	675	0.2+	0.4+	1998 11 15	120	0.8−	0.6+	1998 12 22	704	0.6+	0.1−
1995 04 02	801	0.0	0.5−	1998 11 16	120	0.9−	0.4+	1998 12 22	704	0.6+	0.4−
1995 04 02	801	0.3+	0.3−	1998 11 24	557	0.2−	0.3+	1998 12 22	704	0.5+	0.2+
1995 04 03	801	0.1+	0.3−	1998 11 24	557	0.1−	0.2+	1998 12 22	704	0.0	0.9−

(9839)* 1988 CT₂ = 1978 RN₄ = 1989 LQ

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

Id. C. M. Bardwell (*MPC* 14951), T. Kobayashi (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Bardwell

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25481058	ω	147.45851	−0.00928954	+0.99896444		
<i>a</i>	2.4640967	Ω	121.97316	−0.92831074	+0.00794079		
<i>e</i>	0.1082115	<i>i</i>	3.00966	−0.37168921	−0.04479937		
<i>P</i>	3.87	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 09 05	095	(5.3−	0.9+)	1989 07 03	675	1.1−	0.7+	1998 11 10	360	0.2−	0.5−
1985 05 24	675	0.3+	1.7+	1990 11 11	809	1.3−	0.9−	1998 11 10	360	0.1−	0.7−
1985 05 24	675	0.9−	0.7+	1990 11 11	809	1.1+	0.1−	1998 11 11	699	1.1+	0.4−
1988 01 19	071	(4.8−	2.3−)	1990 11 11	809	0.9+	0.7−	1998 11 11	699	0.9+	1.0−

1988 01 19	071	(2.4+ 3.6-)	1990 11 12	809	0.2+ 1.2+	1998 11 11	699	0.4+ 0.4-
1988 02 11	809	0.6- 0.3-	1990 11 12	809	0.2+ 0.7+	1998 11 23	699	0.0 0.6-
1988 02 15	809	(3.5+ 0.7-)	1990 11 12	809	0.7+ 0.6+	1998 11 23	699	0.1- 0.0
1988 02 16	809	1.2+ 1.1-	1990 11 14	809	0.0 0.5-	1998 11 23	699	0.0 0.2+
1988 02 16	809	1.1+ 1.0-	1990 11 14	809	1.3+ 0.3-	1998 11 23	699	0.7+ 0.8+
1988 02 16	809	0.1- 0.1+	1990 11 14	809	1.0- 0.5+	1998 11 23	699	0.1- 0.5-
1988 02 17	809	0.9+ 0.3-	1990 11 17	809	1.1- 0.3+	1998 11 23	699	0.2+ 0.6+
1988 02 17	809	0.6+ 0.0	1990 11 17	809	0.1+ 0.6-	1998 11 24	704	0.3- 0.3-
1988 02 17	809	1.3+ 0.6-	1990 11 17	809	0.2+ 0.6-	1998 11 24	704	0.7- 1.0-
1988 02 21	809	1.1+ 1.6-	1990 11 20	809	0.8+ 1.0-	1998 11 24	704	0.5- 0.2+
1988 02 21	809	1.5+ 0.6-	1990 11 20	809	0.2- 1.0-	1998 11 24	704	0.9+ 0.2-
1988 02 21	809	0.9+ 0.1-	1990 11 20	809	0.7+ 1.3-	1998 11 24	704	0.2+ 1.1+
1988 02 23	809	(7.8- 1.1+)	1996 01 27	411	1.4- 1.7-	1998 12 20	691	1.6- 0.2+
1988 02 23	809	(8.4- 2.4+)	1996 01 27	411	0.4- 1.5-	1998 12 20	691	1.8- 0.4-
1988 02 23	809	(7.0- 3.9+)	1997 07 05	566	0.9+ 1.7-	1998 12 20	691	1.9- 0.3-
1989 06 03	675	1.5- 0.1-	1997 07 05	566	1.0+ 1.6-	1998 12 25	691	0.9- 0.0
1989 06 03	675	1.2- 1.0-	1997 07 05	566	1.3+ 1.7-	1998 12 25	691	0.9- 0.0
1989 06 05	675	1.0- 1.0-	1997 07 14	886	1.5+ 0.2-	1998 12 25	691	0.8- 0.0
1989 06 05	675	0.8- 1.4-	1997 07 14	886	1.9+ 0.5+	1998 12 28	691	1.1- 0.1-
1989 06 30	675	1.1- 1.0-	1997 07 24	886	0.1- 1.5+	1998 12 28	691	0.9- 0.1-
1989 06 30	675	0.5+ 1.2-	1997 07 24	886	(0.4- 2.3+)	1998 12 28	691	1.0- 0.2+
1989 07 03	675	0.2+ 0.3-	1998 11 10	360	0.3- 0.6-			

(9840)* 1988 RQ₂ = 1981 AW₂ = 1992 PC₆

Discovered 1988 Sept. 8 by P. Jensen at Brorfelde.

Id. G. V. Williams (*MPC* 21570)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams					
<i>M</i>	237.32639	(2000.0)	P	Q				
<i>n</i>	0.21274314	ω	252.33481	-0.90164914	+0.40861397			
<i>a</i>	2.7790669	Ω	311.52566	-0.28895334	-0.81289650			
<i>e</i>	0.0706808	<i>i</i>	10.90604	-0.32176824	-0.41501073			
<i>P</i>	4.63	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	1	
Residuals in seconds of arc								
1954 04 09	675	0.6- 0.5+	1992 08 27	675	0.4+ 1.2+	1998 11 08	758	1.0- 0.1-
1954 04 09	675	0.1+ 0.4+	1995 03 05	801	0.2+ 0.5-	1998 11 08	758	0.2+ 0.6-
1981 01 08	381	0.9+ 1.1+	1995 03 05	801	0.1+ 0.5-	1998 11 14	704	0.6+ 0.1-
1981 01 08	381	0.4+ 0.7-	1995 03 30	801	1.3+ 1.7-	1998 11 14	704	0.5- 0.4-
1988 09 08	054	0.0 0.2+	1995 03 30	801	0.3- 1.0-	1998 11 14	704	(1.9+ 2.2-)
1988 09 08	054	0.1+ 1.5-	1995 04 01	801	0.5+ 0.2-	1998 11 14	704	1.0+ 1.4-
1988 09 09	054	0.9+ 1.0-	1995 04 01	801	0.3+ 0.1-	1998 11 16	704	1.4- 0.2-
1988 09 16	054	0.1+ 1.2-	1996 03 19	689	1.3- 0.6-	1998 11 16	704	0.1+ 0.0
1992 08 01	809	0.2- 0.1-	1996 03 21	689	1.0- 0.0	1998 11 16	704	0.5+ 0.0
1992 08 01	809	0.3- 0.1+	1996 03 22	689	1.3- 0.7-	1998 11 16	704	0.3- 0.3+
1992 08 01	809	0.2- 0.4+	1997 09 20	557	0.2- 0.0	1998 12 14	704	0.2- 0.0
1992 08 02	809	1.1+ 0.1+	1997 09 20	557	0.3- 0.2+	1998 12 14	704	0.2- 0.1+
1992 08 02	809	1.2+ 0.1+	1997 09 21	557	0.5- 0.0	1998 12 14	704	0.9- 0.0
1992 08 02	809	1.3+ 0.0	1997 09 21	557	0.5- 0.1+	1998 12 14	704	0.8- 0.6+
1992 08 27	675	0.7+ 0.3+	1998 11 08	758	0.1+ 1.2+	1998 12 14	704	0.4- 0.7+

(9841)* 1988 UT = 1991 PD₁₆

Discovered 1988 Oct. 18 by Z. Vávrová at Kleť.

Id. H. E. Holt (*MPC* 19023)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams					
<i>M</i>	47.95125	(2000.0)	P	Q				
<i>n</i>	0.30434934	ω	264.25070	+0.73166633	-0.68119378			
<i>a</i>	2.1888759	Ω	138.68250	+0.63959366	+0.67320845			
<i>e</i>	0.1599692	<i>i</i>	2.19495	+0.23576331	+0.28768979			
<i>P</i>	3.24	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	1	
Residuals in seconds of arc								
1988 10 18	046	(3.2+ 4.1+)	1996 01 17	046	0.0 0.1-	1998 11 30	426	0.2- 0.2-
1988 10 18	046	(3.3+ 1.5+)	1996 02 16	010	(0.5- 4.9+)	1998 11 30	426	0.1+ 0.1-
1988 11 05	046	0.4+ 1.7-	1996 02 16	010	(0.7- 4.6+)	1998 11 30	426	0.8+ 0.0
1988 11 05	046	0.1+ 0.5-	1996 02 16	010	(0.4- 4.5+)	1998 12 10	046	0.2+ 0.5+

1988 11 10	046	(3.0- 1.4-)	1996 02 17	010	(0.6- 3.7+)	1998 12 10	046	0.3+ 0.5+
1988 11 10	046	(4.4- 1.7-)	1996 02 17	010	(0.1+ 2.5+)	1998 12 10	046	0.1+ 0.6+
1991 08 06	675	0.7+ 0.3-	1996 02 17	010	(0.2+ 3.1+)	1998 12 11	046	0.2+ 0.5+
1991 08 06	675	0.3+ 0.3-	1996 02 25	046	0.7+ 0.5-	1998 12 11	046	0.2+ 0.6+
1991 08 10	675	0.4+ 0.6-	1996 02 25	046	0.1+ 0.8-	1998 12 11	046	0.1+ 0.5+
1991 08 10	675	0.3- 0.1-	1996 02 25	046	0.1- 0.3-	1998 12 15	704	0.4+ 0.4-
1995 11 28	046	0.5- 0.2-	1996 02 25	046	0.1- 0.4-	1998 12 15	704	0.7- 0.2-
1995 11 28	046	0.5- 0.4-	1996 02 25	046	0.3- 0.1-	1998 12 15	704	0.6+ 0.0
1995 11 28	046	0.4- 0.3-	1996 02 25	046	0.1- 0.2-	1998 12 15	704	1.8- 0.4-
1995 12 18	046	0.3- 0.0	1997 07 11	696	0.9- 0.8-	1998 12 15	704	0.2+ 0.7+
1995 12 18	046	0.6- 0.2-	1997 07 11	696	1.5- 1.0-	1998 12 22	704	0.1- 1.0-
1995 12 18	046	0.1- 0.3-	1997 07 12	696	0.4+ 0.4-	1998 12 22	704	0.1- 0.7-
1996 01 16	046	0.3+ 0.4-	1997 07 12	696	0.5+ 0.4-	1998 12 22	704	0.1+ 0.8-
1996 01 16	046	0.1+ 0.7-	1997 07 12	696	0.5+ 0.3-	1998 12 22	704	1.5- 0.1+
1996 01 16	046	0.1+ 0.5-	1998 11 29	426	0.1+ 0.6-	1998 12 22	704	0.4+ 1.0+
1996 01 17	046	0.0 0.1-	1998 11 29	426	0.0 0.8+			
1996 01 17	046	0.1- 0.0	1998 11 29	426	0.7+ 0.3-			

(9842)* 1989 AS₁ = 1990 HA₄ = 1996 EV₁

Discovered 1989 Jan. 15 by K. Endate and K. Watanabe at Kitami.

Id. K. Watanabe (*MPC* 26900), S. Nakano (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Nakano					
<i>M</i>	320.85319	(2000.0)	P	Q				
<i>n</i>	0.29287202	ω	102.25020	-0.90182130	-0.43024128			
<i>a</i>	2.2456951	Ω	52.28065	+0.37411094	-0.82388261			
<i>e</i>	0.0907434	<i>i</i>	2.90832	+0.21623910	-0.36893072			
<i>P</i>	3.37	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2	
Residuals in seconds of arc								
1989 01 13	400	0.3- 0.0	1990 04 30	413	0.3+ 1.5-	1998 12 14	704	0.2+ 0.4-
1989 01 13	400	(3.2+ 2.7-)	1996 02 27	372	(2.4+ 0.7+)	1998 12 14	704	0.1- 0.2-
1989 01 13	400	(1.7+ 5.1-)	1996 02 27	372	1.3- 0.7+	1998 12 14	704	0.2+ 0.4-
1989 01 15	400	0.2- 0.2+	1996 02 28	358	0.2- 0.9+	1998 12 14	704	(2.8+ 0.3-)
1989 01 15	400	1.1- 0.0	1996 02 28	372	0.4- 1.0+	1998 12 14	704	0.5+ 0.2+
1989 01 15	400	0.9- 1.9-	1996 02 28	358	0.3+ 0.0	1998 12 16	744	0.5- 0.1-
1989 01 29	400	(2.2+ 4.0+)	1996 02 28	372	0.9- 0.6-	1998 12 16	744	0.1- 0.6-
1989 01 29	400	1.0- 0.4-	1996 03 10	400	0.4+ 0.6-	1998 12 17	704	0.4+ 0.1+
1989 01 29	400	(1.2- 3.7+)	1996 03 10	400	0.3+ 1.8-	1998 12 17	704	0.3- 0.2-
1989 01 30	400	1.4+ 1.4+	1996 03 13	400	0.5- 0.1+	1998 12 17	704	0.2+ 0.4-
1989 01 30	400	(3.9- 0.2-)	1996 03 13	400	1.3+ 1.4-	1998 12 17	704	0.3- 0.3-
1989 01 30	400	2.1+ 0.4+	1998 10 30	704	0.2+ 0.5-	1998 12 17	704	0.4+ 0.7-
1989 01 30	400	2.1+ 1.1+	1998 10 30	704	1.7- 1.4-	1998 12 29	689	0.9- 1.0+
1989 02 07	400	0.7- 0.9+	1998 10 30	704	0.7+ 1.5-	1998 12 30	689	0.0 0.3+
1989 02 07	400	1.1- 1.0+	1998 10 30	704	1.0+ 1.5+			

(9843)* 1989 AL₃ = 1991 VS₅

Discovered 1989 Jan. 4 by R. H. McNaught at Siding Spring.

Id. B. G. Marsden (*MPC* 19677)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

$\dot{M}$	3.20837		(2000.0)		P		Q		
n	0.29053513	ω	332.13167		-0.16280709		-0.98414440		
a	2.2577210	Ω	127.15368		+0.92086792		-0.17717614		
e	0.0837942	i	5.06621		+0.35425431		+0.00827128		
P	3.39	H	14.7	G	0.15	U	1		
Residuals in seconds of arc									
1988 12 29	413	(4.2- 2.5+)	1991 11 12	809	(4.9+ 3.1-)	1998 11 23	704	0.4+ 0.1+	
1988 12 29	413	1.1- 0.0	1991 11 12	809	(2.6+ 3.4-)	1998 11 23	704	0.3- 0.8-	
1989 01 04	413	0.4+ 1.6+	1991 11 12	809	(3.3+ 3.0-)	1998 12 01	689	0.2- 0.8+	
1989 01 04	413	1.3+ 0.1-	1994 08 03	675	0.3+ 0.2-	1998 12 15	704	0.2+ 0.5+	
1989 01 08	675	0.6- 0.9+	1994 08 03	675	0.3- 0.1+	1998 12 15	704	0.1+ 0.3+	
1989 01 08	675	1.0- 1.1+	1994 09 12	675	0.1- 0.9-	1998 12 15	704	0.2- 0.1+	
1989 01 10	413	0.5- 1.2+	1994 09 12	675	0.4- 0.1+	1998 12 15	704	0.7- 0.2+	
1989 01 10	413	0.9+ 1.0-	1994 10 01	675	0.1+ 0.1-	1998 12 15	704	0.7+ 1.5-	
1989 01 13	413	1.5- 1.9-	1994 10 01	675	0.1- 0.3+	1998 12 16	426	0.7- 0.7+	

1989 01 15	413	0.5+	0.3+	1996 02 18	411	0.5-	0.6-	1998 12 16	426	0.1+	0.4+
1991 11 02	809	1.7+	0.8+	1996 02 18	411	0.8+	0.0	1998 12 16	426	0.2+	0.2+
1991 11 02	809	0.5-	0.5+	1996 02 25	292	0.0	0.5-	1998 12 18	426	0.6-	0.4+
1991 11 02	809	(2.1-	0.3+)	1996 02 25	292	0.9-	1.4-	1998 12 18	426	0.2-	0.4+
1991 11 06	809	1.7+	0.4-	1996 03 10	292	1.9+	0.0	1998 12 22	704	0.0	0.1+
1991 11 06	809	0.9+	0.3+	1996 03 10	292	(2.5-	1.0-)	1998 12 22	704	0.4-	0.8-
1991 11 06	809	1.3-	1.0-	1997 07 09	104	0.2-	0.1+	1998 12 22	704	(0.6+	2.8-)
1991 11 09	809	(2.5+	1.2+)	1997 07 09	104	0.2-	0.3+	1998 12 22	704	0.0	0.7-
1991 11 09	809	0.1+	0.5-	1997 07 09	104	0.2-	0.6+	1998 12 22	704	0.4+	0.5+
1991 11 09	809	0.3+	0.6-	1998 11 23	704	(2.3+	0.4-)				

(9844)* 1989 WF₁ = 1980 VF₁ = 1996 HA₂₆

Discovered 1989 Nov. 23 by Y. Kushida and O. Muramatsu at the
Yatsugatake South Base Observatory.

Id. B. G. Marsden (*MPC* 27307), G. V. Williams (*MPC* 29913)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	31.79502		(2000.0)		P		Q
<i>n</i>	0.22218851	ω	352.93032		+0.58703817		-0.78564240
<i>a</i>	2.6997382	Ω	60.92979		+0.75326811		+0.44168550
<i>e</i>	0.2166941	<i>i</i>	12.91343		+0.29660299		+0.43322043
<i>P</i>	4.44	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1949 11 19	675	0.3-	0.9+	1996 04 20	809	1.7+	0.8+	1998 10 30	704	1.0-	0.9+
1949 11 19	675	1.5-	0.9+	1996 04 21	809	(2.2+	0.2-)	1998 10 30	704	1.4-	0.2+
1980 11 08	879	2.0+	0.5-	1996 04 21	809	0.7+	1.5+	1998 12 14	704	0.2-	0.2-
1980 11 08	879	0.3+	1.7-	1996 04 21	809	0.6+	0.5-	1998 12 14	704	0.0	1.9-
1989 11 23	896	0.6+	0.6+	Y 1996 05 20	691	0.9-	0.4-	1998 12 14	704	0.2+	0.2+
1989 11 28	896	(0.6-	2.7-)	1996 05 20	691	0.9-	0.3-	1998 12 14	704	0.2+	0.0
1989 11 29	896	1.7-	2.2-	1996 05 20	691	1.0-	0.0	1998 12 14	704	0.9-	0.1-
1989 11 29	896	(2.9-	3.1-)	1996 05 22	809	0.7-	0.1+	1998 12 16	744	0.4-	0.2+
1989 12 21	896	0.6+	2.4+	1996 05 22	809	0.2+	0.9-	1998 12 16	744	0.3-	0.2+
1989 12 21	896	2.3+	1.6+	1996 05 22	809	0.2-	1.4-	1998 12 17	704	0.4-	1.1+
1989 12 29	896	(0.3+	3.3+)	1996 05 24	809	(1.4-	2.2-)	1998 12 17	704	0.2-	0.4-
1989 12 29	896	0.7+	0.2-	1996 05 24	809	(2.0-	2.9-)	1998 12 17	704	0.9+	0.4-
1993 07 27	675	0.0	0.4-	1996 05 24	809	1.5-	0.8-	1998 12 17	704	0.6-	1.3+
1993 07 27	675	1.5-	0.7+	1998 10 30	704	0.8+	1.9-	1998 12 17	704	0.9+	0.6+
1996 04 20	809	(2.3+	1.8+)	1998 10 30	704	0.1+	1.7-				
1996 04 20	809	1.9+	1.0+	1998 10 30	704	0.6-	0.2-				

(9845)* 1990 FM₁ = 1976 GM₆

Discovered 1990 Mar. 27 by K. Endate and K. Watanabe at Kitami.

Id. H. Kaneda (*MPC* 16437)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	348.47826		(2000.0)		P		Q
<i>n</i>	0.21090575	ω	41.86046		-0.95420747		-0.27345551
<i>a</i>	2.7951842	Ω	121.88292		+0.22224088		-0.91941361
<i>e</i>	0.1649714	<i>i</i>	8.21194		+0.20024259		-0.28266712
<i>P</i>	4.67	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 04 03	095	0.2-	1.3-	1990 04 30	385	(0.4-	2.9+)	Y 1998 11 25	704	0.4+	0.9-
1976 04 07	095	0.4-	0.0	1995 05 28	675	0.5+	1.5+	1998 11 25	704	0.4-	0.0
1990 03 27	400	(3.0+	2.2+)	1995 05 28	675	1.4+	0.8+	1998 11 25	704	0.4-	0.1-
1990 03 27	400	0.8+	0.0	1995 05 30	675	(3.0-	0.7+)	1998 12 01	704	0.1+	0.4-
1990 03 30	400	(3.6+	0.0)	1995 05 30	675	0.1+	1.4+	1998 12 01	704	0.7+	1.5+
1990 03 30	400	(4.9+	0.8+)	1995 06 29	801	0.8-	0.4-	1998 12 01	704	0.6-	0.3-
1990 04 19	400	0.1-	0.9-	1995 06 29	801	0.7-	0.0	1998 12 01	704	0.5+	0.3+
1990 04 19	400	0.7-	0.6-	1995 07 01	801	0.9+	1.9-	1998 12 01	704	0.9+	0.2+
1990 04 23	385	0.7-	0.4-	1995 07 01	801	1.7-	0.4-	1998 12 17	699	0.3+	0.5+
1990 04 23	385	0.1+	1.0-	1996 08 23	817	0.1-	0.3+	1998 12 17	699	0.0	0.3+
1990 04 29	385	0.1+	2.0+	Y 1996 08 23	817	0.8-	0.1-	1998 12 17	699	0.2+	0.4+
1990 04 29	385	(2.4-	1.1+)	Y 1996 08 23	817	1.1+	0.4-	1998 12 21	704	1.2-	0.1-
1990 04 29	385	0.4-	0.2+	Y 1997 12 09	725	0.1-	0.4+	1998 12 21	704	0.2-	1.7-
1990 04 29	898	0.6+	1.3+	1997 12 09	725	0.7-	1.3+	1998 12 21	704	1.0-	0.2-

1990 04 29	898	1.3+	1.1+	1998 11 25	704	0.2+	0.2+	1998 12 21	704	0.7+	1.1-
1990 04 30	385	(2.2+	0.7-)	Y 1998 11 25	704	0.2+	1.0+	1998 12 21	704	0.1-	0.5+

(9846)* 1990 OS₁ = 1993 FH₁

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

Id. S. Nakano (*MPC* 22053)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	190.41313		(2000.0)		P		Q
<i>n</i>	0.27191769	ω	226.13095		-0.64594253		+0.76330957
<i>a</i>	2.3596327	Ω	3.68219		-0.64324896		-0.53661155
<i>e</i>	0.1886023	<i>i</i>	9.68573		-0.41108275		-0.35973121
<i>P</i>	3.62	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1953 04 15	675	0.0	0.6-	1993 03 21	809	1.0-	0.1-	1998 11 02	725	0.1+	1.2+
1953 04 15	675	0.5-	0.4-	1993 03 22	809	0.1+	0.3-	1998 11 02	725	0.4+	1.1+
1989 02 01	675	0.0	1.0+	1993 03 22	894	1.0+	1.8-	1998 11 14	704	0.6-	0.2+
1990 07 29	675	0.5+	0.8-	1993 03 22	894	0.7-	0.6-	1998 11 14	704	0.3-	0.2-
1990 07 29	675	0.2-	0.2-	1993 03 26	809	0.3-	0.4+	1998 11 14	704	1.5+	0.8-
1990 07 30	675	0.5-	0.5-	1993 04 17	675	0.9+	0.1-	1998 11 14	704	1.5+	0.6-
1990 07 30	675	0.9-	0.1-	1993 04 17	675	0.5-	0.2-	1998 11 14	704	0.0	0.9-
1990 09 14	675	0.0	1.3-	1993 04 18	675	0.3+	0.3+	1998 12 09	704	1.4+	0.9-
1990 09 14	675	0.7+	1.0-	1993 04 18	675	0.3+	0.2+	1998 12 09	704	0.1-	1.5-
1990 09 16	675	0.0	0.7+	1993 04 18	413	1.8-	0.1-	1998 12 09	704	0.4-	1.4-
1990 09 16	675	1.4+	0.0	1994 11 07	675	2.1+	0.7+	1998 12 09	704	1.1-	1.5-
1993 03 20	894	0.4+	0.7-	1994 11 07	675	1.4-	0.6-				
1993 03 20	894	1.0-	0.7-	1998 11 02	725	0.3-	0.8+				

(9847)* 1990 QJ₅ = 1990 SM₄ = 1990 SM₂₆ = 1992 EB₁₁

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

Id. S. Nakano (d, *MPC* 17178; d, *MPC* 20912), G. V. Williams (*MPC* 23859)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	78.12972		(2000.0)		P		Q
<i>n</i>	0.26834133	ω	359.82990		+0.94162510		-0.33627185
<i>a</i>	2.3805520	Ω	19.84362		+0.30893896		+0.84391991
<i>e</i>	0.2109361	<i>i</i>	2.74045		+0.13378672		+0.41799572
<i>P</i>	3.67	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 08 16	809	1.1+	0.5-	1990 09 14	675	0.3-	0.1-	1997 07 02	704	0.9+	0.0
1990 08 16	809	1.2+	0.4-	1990 09 16	400	(6.2+	5.5+)	1997 07 02	704	0.5-	1.1-
1990 08 16	809	0.1-	0.7-	1990 09 16	400	(5.8+	5.4+)	1997 07 02	704	0.8-	0.4-
1990 08 20	809	(2.4+	1.6-)	1990 09 19	675	0.1-	0.1-	1997 07 02	704	0.4-	0.8+
1990 08 20	809	1.2+	1.4-	1990 09 19	675	1.1+	0.7+	1997 07 02	704	0.4+	0.3+
1990 08 20	809	0.6+	1.3-	1990 09 21	095	1.1+	1.5+	1997 07 02	704	0.6+	1.5-
1990 08 23	675	0.6-	1.4+	1992 03 06	809	0.4-	0.8+	1997 07 02	704	0.7+	0.1+
1990 08 23	675	0.7-	1.0+	1992 03 08	809	0.6+	1.0+	1997 07 02	704	0.0	1.6+
1990 08 25	675	0.3+	1.1-	1992 03 09	809	1.0+	1.0+	1997 07 02	704	0.7+	0.9+
1990 08 25	675	0.8+	0.2+	1997 06 28	704	0.6-	0.1+	1997 07 02	704	0.0	0.9+
1990 08 26	809	0.2+	0.2-	1997 06 28	704	0.2+	0.0	1997 07 02	704	0.8+	1.3+
1990 08 26	809	0.0	0.4-	1997 06 28	704	0.8-	0.1-	1998 11 27	120	0.3-	0.8+
1990 08 26	809	0.1-	1.2-	1997 06 29	704	0.2-	0.3-	1998 11 27	120	0.6-	0.6+
1990 08 27	675	0.3-	1.3-	1997 06 29	704	0.3+	0.2+	1998 11 27	120	0.0	0.5+
1990 08 27	675	0.6-	0.5+	1997 06 29	704	0.4-	0.1-	1998 12 21	704	1.0+	0.7-
1990 09 13	809	(2.1-	0.8+)	1997 06 29	704	0.7+	0.5+	1998 12 21	704	1.2+	0.1-
1990 09 13	809	1.4-	0.9+	1997 06 29	704	0.2+	0.6+	1998 12 21	704	1.9+	0.2+
1990 09 13	809	0.6-	0.6+	1997 07 02	704	1.3-	0.2-	1998 12 21	704	2.5-	1.6-
1990 09 14	809	1.5-	1.2+	1997 07 02	704	0.3-	0.7-	1998 12 22	120	0.7-	1.0+
1990 09 14	809	0.9-	1.1+	1997 07 02	704	0.3-	0.7-	1998 12 23	120	0.2+	0.5+
1990 09 14	809	0.5-	1.0+	1997 07 02	704	0.2+	0.6-				
1990 09 14	675	0.1-	0.1-	1997 07 02	704	0.3-	1.0+				

(9848)* 1990 QX₁₇ = 1990 QD₁₈ = 1990 RD₁₁ = 1979 QG₆ = 1979 SP₆
= 1994 VE₇

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

Id. S. Nakano (*MPC* 20912, *MPC* 24563)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Nakano			
<i>M</i>	86.55362	(2000.0)	P	Q	
<i>n</i>	0.26833265	ω 111.42187	+0.99976589	-0.00742578	
<i>a</i>	2.3806033	Ω 249.00823	-0.00110086	+0.92059019	
<i>e</i>	0.2265816	<i>i</i> 1.24729	+0.02160910	+0.39045941	
<i>P</i>	3.67	<i>H</i> 13.5	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1979 08 19	095	1.9-	0.9+	1994 11 27	408	1.4+	0.6-	1998 12 02	327	0.0	0.2+
1979 09 23	095	1.8+	0.4-	1994 11 27	408	0.8+	0.2+	1998 12 02	327	0.2+	0.1+
1990 08 26	095	(0.2-	2.6+)	1994 11 28	675	0.7+	0.3-	1998 12 02	327	0.1-	0.4-
1990 08 26	095	(0.2+	3.4+)	1994 11 28	675	0.4+	0.2-	1998 12 14	747	0.6-	0.4+
1990 08 28	095	0.2-	0.3+	1994 12 04	408	(2.0+	2.7+)	1998 12 14	747	1.2+	0.3+
1990 08 28	095	(1.6-	4.9-)	1994 12 04	408	0.2+	0.2-	1998 12 14	747	0.1+	0.0
1990 09 14	675	0.6+	0.2-	1994 12 09	408	0.3+	0.7+	1998 12 17	747	0.4+	0.5+
1990 09 14	675	0.1-	0.9-	1994 12 09	408	0.5-	0.2+	1998 12 17	747	1.0+	0.2+
1994 11 05	675	1.2-	1.0-	1995 01 09	691	1.2-	0.0	1998 12 22	704	0.0	1.6-
1994 11 11	408	0.9-	0.3+	1995 01 09	691	1.1-	0.2+	1998 12 22	704	1.0-	0.1-
1994 11 11	408	0.8-	0.6+	1995 01 09	691	0.7-	0.1-	1998 12 22	704	0.6-	0.3+
1994 11 12	408	0.9-	0.2-	1998 12 01	327	0.1+	0.3-	1998 12 22	704	0.3+	0.2-
1994 11 12	408	1.1+	0.9+	1998 12 01	327	0.2+	0.2-	1998 12 22	704	1.1-	0.2+
1994 11 27	408	1.0+	0.3+	1998 12 01	327	0.1+	0.1-				

(9849)* 1990 RF₂ = 1990 QR₁₈ = 1990 UH₁₁ = 1995 WR₃₁

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

Id. S. Nakano (d, *MPC* 20912), G. V. Williams (*MPC* 26397)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	162.90688	(2000.0)	P	Q	
<i>n</i>	0.26864966	ω 41.69931	+0.07377510	+0.99698342	
<i>a</i>	2.3787302	Ω 232.54553	-0.92283065	+0.05908272	
<i>e</i>	0.1615001	<i>i</i> 1.74043	-0.37807515	+0.05033181	
<i>P</i>	3.67	<i>H</i> 13.5	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1990 08 29	095	0.4-	0.8-	1995 12 26	691	0.2-	0.5-	1998 11 27	747	0.2-	0.8+
1990 08 29	095	0.8-	1.3-	1995 12 26	691	0.4-	0.5-	1998 11 27	426	1.0-	0.7+
1990 09 14	675	(2.3+	2.3-)	1995 12 26	691	0.3-	0.5-	1998 11 27	426	0.2-	0.4+
1990 09 14	675	(2.3+	2.8-)	1996 02 12	411	0.5+	0.5+	1998 11 27	426	0.1-	0.4+
1990 09 15	675	0.7+	0.8+	1996 02 12	411	1.0+	0.3-	1998 11 29	426	0.7-	1.5+
1990 09 15	675	0.3-	0.8+	1997 07 01	688	0.1+	0.2+	1998 11 29	426	0.6+	1.3+
1990 09 18	675	1.0+	1.2-	1997 07 01	688	0.0	0.3+	1998 11 29	426	0.3+	0.7+
1990 09 18	675	(2.9+	1.9-)	1997 07 01	688	0.0	0.2+	1998 12 15	704	1.2+	0.1+
1990 10 22	675	0.8+	1.0-	1997 07 01	688	0.1-	0.2+	1998 12 15	704	0.4+	0.6+
1990 10 22	675	0.7+	1.2-	1997 07 14	886	0.3+	0.0	1998 12 15	704	0.3-	0.9+
1995 11 19	691	0.4-	0.7-	1997 07 14	886	0.4-	0.2+	1998 12 15	704	0.1-	1.3+
1995 11 19	691	0.6-	0.4-	1997 07 24	886	0.1+	0.2-	1998 12 15	704	2.0-	0.7-
1995 11 19	691	0.6-	0.4-	1997 07 24	886	0.2-	0.4+	1998 12 22	704	0.8-	1.9-
1995 11 29	691	0.4-	0.6-	1998 11 24	747	0.6-	0.4+	1998 12 22	704	0.3-	0.7-
1995 11 29	691	0.5-	0.4-	1998 11 24	747	0.7+	1.1+	1998 12 22	704	1.3+	1.5-
1995 11 29	691	0.4-	0.4-	1998 11 27	747	0.3-	1.0+	1998 12 22	704	1.7+	1.1-

(9850)* 1990 TM₅ = 1992 CW₂

Discovered 1990 Oct. 9 by R. H. McNaught at Siding Spring.

Id. B. G. Marsden (*MPC* 20149)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Marsden			
<i>M</i>	122.09526	(2000.0)	P	Q	
<i>n</i>	0.27036058	ω 78.42264	+0.80893601	+0.57972532	
<i>a</i>	2.3686840	Ω 246.07224	-0.57240652	+0.73878552	
<i>e</i>	0.1338459	<i>i</i> 6.13449	-0.13406459	+0.34367792	
<i>P</i>	3.65	<i>H</i> 14.2	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1990 09 18	675	2.0+	1.5-	1992 02 12	809	0.9-	0.5-	1998 11 23	704	0.1+	0.7-
1990 09 18	675	(3.6+	2.4-)	1992 02 12	809	1.5-	0.7-	1998 11 23	704	0.9+	0.7+
1990 09 20	675	(2.7+	2.2-)	1994 11 06	675	0.9-	0.2-	1998 11 23	704	(2.9-	2.2+)
1990 09 20	675	0.0	0.5+	1994 11 06	675	0.7-	0.1-	1998 12 15	704	0.1-	0.1+
1990 10 09	413	1.6-	0.8+	1994 11 07	675	0.2-	1.0-	1998 12 15	704	0.4+	0.3-
1990 10 11	413	1.5+	0.9-	1994 11 07	675	0.1+	1.4-	1998 12 15	704	0.3-	1.2+
1992 02 02	809	(2.8+	1.2-)	1994 11 30	675	0.3-	0.8+	1998 12 15	704	1.2+	0.3-
1992 02 02	809	0.6+	1.5-	1994 11 30	675	0.4-	0.7+	1998 12 22	704	0.2-	0.0
1992 02 02	809	(2.4-	2.6-)	1994 12 02	675	0.5+	0.5+	1998 12 22	704	0.2-	0.4+
1992 02 06	809	0.1-	1.2-	1994 12 02	675	0.4-	0.4+	1998 12 22	704	1.2+	1.6+
1992 02 06	809	0.6-	0.1+	1997 08 28	589	0.5-	1.9-	1998 12 22	704	0.2+	0.6-
1992 02 06	809	0.0	1.3-	1997 08 28	589	(1.1+	2.8-)	1998 12 22	704	(0.1+	2.7+)
1992 02 12	809	(0.1-	2.4-)	1998 11 23	704	(0.9-	2.1+)				

(9851)* 1990 UG₃ = 1969 TO₃ = 1983 CP = 1986 XG₃

Discovered 1990 Oct. 24 by K. Endate and K. Watanabe at Kitami.

Id. H. Kaneda (*MPC* 18634)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Nakano			
<i>M</i>	341.16442	(2000.0)	P	Q	
<i>n</i>	0.23541842	ω 359.26955	+0.53548852	-0.83906198	
<i>a</i>	2.5976208	Ω 58.34870	+0.77542370	+0.44340766	
<i>e</i>	0.3159642	<i>i</i> 6.47916	+0.33461939	+0.31522157	
<i>P</i>	4.19	<i>H</i> 13.4	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1969 10 09	095	0.6-	1.1+	1990 11 15	095	(7.6+	0.8-)	1994 10 02	397	1.0+	0.3-
1983 02 11	688	0.9-	0.9-	1990 11 15	095	(0.7-	3.6-)	1994 10 02	397	0.1+	0.3+
1983 02 11	688	0.8+	1.2-	1990 11 18	400	(2.8+	1.1-)	1994 10 03	397	0.8+	0.2-
1986 12 04	010	(8.4-	3.1+)	1990 11 18	400	0.6-	1.6-	1994 10 03	397	1.3-	0.3+
1986 12 04	010	(5.0-	1.5+)	1990 11 21	364	(3.2-	0.3+)	1994 10 03	397	0.3+	0.2+
1986 12 04	010	(3.1-	2.7+)	1990 11 21	364	(2.4-	0.1-)	1996 03 20	400	0.0	0.7+
1990 10 24	400	0.4+	0.0	1990 11 21	095	(2.9-	1.9-)	1996 03 20	400	0.1-	0.2+
1990 10 24	400	0.7-	0.1-	1990 11 21	095	(2.7-	4.5+)	1998 09 21	704	0.2+	0.3-
1990 11 11	400	1.8+	1.0-	1990 11 22	364	0.5-	0.5+	1998 09 21	704	0.3+	0.2-
1990 11 11	400	1.4+	1.7-	1990 11 22	364	0.8+	0.2+	1998 09 21	704	0.8-	0.1-
1990 11 12	364	1.2-	0.4+	1990 11 23	095	(3.6-	0.6+)	1998 09 21	704	0.5+	0.7-
1990 11 12	364	0.5-	0.5+	1990 11 23	095	(3.4-	1.5-)	1998 09 21	704	0.6+	0.1+
1990 11 14	403	(0.7+	2.7-)	Y 1990 11 24	399	0.6+	0.8+	1998 12 08	704	0.9-	1.1-
1990 11 14	403	(5.0-	0.9-)	Y 1990 11 24	399	0.9+	0.3-	1998 12 08	704	0.4-	0.4-
1990 11 14	095	1.2-	1.7+	1994 09 10	675	0.7-	0.5-	1998 12 08	704	1.1-	0.8+
1990 11 14	095	(3.0-	0.1-)	1994 09 10	675	0.7-	0.5-	1998 12 08	704	1.5+	0.3-
1990 11 15	403	0.3-	0.0	1994 10 02	397	1.3+	0.7+	1998 12 08	704	0.7+	0.6+
1990 11 15	403	1.3-	0.7+	1994 10 02	397	0.1+	0.9-				

(9852)* 1990 YX = 1977 UW

Discovered 1990 Dec. 24 by T. Seki at Geisei.

Id. S. Nakano (*MPC* 17966)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Nakano			
<i>M</i>	2.72736	(2000.0)	P	Q	
<i>n</i>	0.24164084	ω 77.85335	+0.06783224	-0.99760957	
<i>a</i>	2.5528335	Ω 8.29109	+0.87612088	+0.05323744	
<i>e</i>	0.1365552	<i>i</i> 5.24742	+0.47729550	+0.04405586	
<i>P</i>	4.08	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1977 10 16	675	0.0	0.4−	1991 01 13	372(31.5−	1.3+)	1998 12 14	704	0.1+	1.1+
1977 10 17	675	0.1−	0.8−	1991 01 23	372	0.0	1998 12 14	704	0.8−	0.3+
1981 09 03	675	0.2−	0.5+	1991 01 23	372	(3.2−	1998 12 14	704	1.1+	1.0+
1981 09 04	675	0.1+	0.1−	1993 07 25	675	0.7−	1998 12 14	704	1.7−	1.4+
1990 12 24	372	0.7+	1.9−	1993 07 25	675	0.8+	1998 12 17	704	0.7−	0.6+
1990 12 24	372	1.1−	0.4−	1998 09 17	327	1.4+	1998 12 17	704	0.1−	0.9−
1990 12 24	372	0.4+	0.2−	1998 09 17	327	1.2+	1998 12 17	704	0.2+	1.2−
1991 01 06	372	1.0+	0.5+	1998 09 17	327	1.4+	1998 12 17	704	1.6−	1.1−
1991 01 06	372	(1.0+	2.6+)	1998 09 17	327	1.2+	1998 12 17	704	0.7−	0.6−
1991 01 07	372	0.5−	0.4+	1998 12 14	704	0.3+				

(9853)* 1991 AN₂ = 1936 OD = 1977 QK₄ = 1981 LL = 1992 EY₃

Discovered 1991 Jan. 7 by R. H. McNaught at Siding Spring.

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

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams			
<i>M</i>	86.51925	(2000.0)	P	Q		
<i>n</i>	0.24095157	ω	173.02629	+0.77324564	+0.61243795	
<i>a</i>	2.5576997	Ω	147.33957	−0.59549966	+0.79040837	
<i>e</i>	0.1792844	<i>i</i>	17.73074	−0.21787919	+0.01320486	
<i>P</i>	4.09	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1977 07 16	024	(8.9+	4.6−)	1994 10 07	801	1.3−	0.3−	1998 11 12	715	0.6+	1.3+
1977 08 18	095	(0.7−	5.3−)	1994 10 07	801	0.2+	1.6−	1998 11 13	704	1.1−	0.7+
1981 06 06	688	(1.2−	4.0−)	1995 10 27	104	0.7+	0.2−	1998 11 13	704	1.4−	1.4+
1981 06 06	688	(0.3+	4.1−)	1995 10 27	104	0.5+	0.0	1998 11 13	704	1.1−	0.0
1991 01 07	413	0.3+	0.3+	1995 10 27	104	1.0+	0.4−	1998 11 13	704	(2.0−	0.6+)
1991 01 08	413	0.1−	0.2−	1996 03 17	801	0.6+	0.4−	1998 11 13	704	(3.1−	1.0−)
1991 01 12	413	(1.3−	2.1+)	1996 03 17	801	0.7+	0.4−	1998 11 14	715	0.4+	0.1+
1991 01 17	413	0.5+	1.6−	1996 03 21	801	0.6+	0.2+	1998 11 14	715	(3.5+	1.3+)
1991 02 04	413	1.2+	0.1−	1996 03 21	801	0.7+	0.1+	1998 11 14	715	1.4+	1.5−
1991 02 04	413	0.9+	1.5−	1997 05 24	127	0.7−	0.3+	1998 12 19	423	0.3−	0.6+
1992 02 27	675	0.2−	0.0	1997 05 25	127	0.7−	0.2+	1998 12 19	423	0.2−	0.0
1992 02 27	675	1.2−	0.3+	1997 05 28	127	(3.6−	0.9−)	1998 12 26	715	0.2+	1.1−
1992 02 28	675	0.3+	0.5−	1997 05 28	127	(3.8−	0.8−)	1998 12 26	715	1.0−	0.1+
1992 02 28	675	0.2+	0.2−	1997 06 10	104	0.4+	1.8+	1998 12 26	715	1.1−	1.5+
1992 03 01	809	0.0	1.3+	1997 06 10	104	1.6+	1.8+	1998 12 27	423	1.0−	0.0
1992 03 04	809	0.6−	1.2+	1998 11 11	715	2.1+	1.4+	1998 12 27	423	0.8−	0.2+
1992 03 06	809	0.7−	0.7+	1998 11 11	715	0.1+	1.1+	1998 12 28	715	0.1−	0.4−
1992 04 04	809	0.7−	0.8+	1998 11 11	715	(0.4+	2.1+)	1998 12 28	715	0.8−	0.4−
1994 10 03	801	(2.1−	1.6−)	1998 11 12	715	1.3+	1.6+	1998 12 28	715	0.8−	0.5+
1994 10 03	801	(2.7−	0.1+)	1998 11 12	715	0.2−	1.4+				

(9854)* 1991 AC₃ = 1993 TL₃₄

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

Id. G. V. Williams (*MPC* 23238)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams			
<i>M</i>	198.34058	(2000.0)	P	Q		
<i>n</i>	0.22930691	ω	119.15129	−0.25326114	+0.96584901	
<i>a</i>	2.6435729	Ω	136.06632	−0.91271644	−0.21981479	
<i>e</i>	0.1580310	<i>i</i>	4.52361	−0.32063607	−0.13717561	
<i>P</i>	4.30	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1991 01 15	033	0.1+	1.6+	1993 10 21	809	0.2+	1.6−	1996 05 10	691	0.5−	0.4−
1991 01 15	033	0.5−	0.4+	1993 10 21	809	1.3−	1.6−	1997 09 10	611	0.2−	0.1−
1991 01 16	033	0.4−	1.0+	1996 03 27	691	0.3−	0.2−	1997 09 10	611	0.6−	0.6−
1991 01 22	675	0.7+	2.0+	1996 03 27	691	0.0	0.8+	1997 09 26	611	0.8−	0.8−
1991 02 09	675	0.2+	1.4−	1996 03 27	691	0.5−	0.0	1997 09 26	611	0.5−	0.2−
1991 02 09	675	1.5−	0.4−	1996 04 12	411	1.1+	0.9+	1998 11 22	113	0.4−	0.2−
1991 02 09	413	0.3+	0.2−	1996 04 12	411	0.5+	0.7−	1998 11 22	113	1.8−	1.9−
1991 02 10	413	0.7+	0.3−	1996 04 12	596	0.1+	0.5−	1998 12 10	113	0.7−	0.0
1991 02 11	675	1.1−	0.2−	1996 04 12	596	0.0	0.5−	1998 12 10	113	1.1−	0.3+
1993 10 09	809	0.1+	0.6−	1996 04 12	596	0.4+	0.1−	1998 12 16	704	1.0+	0.0

1993 10 09	809	1.0+	0.9+	1996 04 15	801	1.1+	1.0−	1998 12 16	704	2.5+	0.7+
1993 10 09	809	0.2+	1.1+	1996 04 15	801	0.7+	1.5−	1998 12 16	704	0.8+	1.6−
1993 10 09	809	(0.7−	3.6−)	1996 04 15	113	1.2−	0.2+	1998 12 16	704	1.4+	0.2+
1993 10 09	809	0.4−	0.8−	1996 04 15	113	1.2−	0.3−	1998 12 16	704	0.2+	0.3−
1993 10 09	809	(1.9−	2.7−)	1996 04 16	113	0.6−	0.3−	1998 12 17	113	0.9−	0.9+
1993 10 11	809	1.6+	0.3+	1996 04 16	113	0.4−	0.0	1998 12 17	113	0.4−	1.4+
1993 10 11	809	1.6+	0.1+	1996 04 17	113	0.0	0.1−	1998 12 17	113	0.8−	0.2+
1993 10 11	809	1.0+	0.5+	1996 04 17	113	0.4−	0.2−	1998 12 22	704	0.2−	1.1−
1993 10 11	809	(2.2−	1.2+)	1996 04 18	801	0.3+	0.6−	1998 12 22	704	0.3+	0.6−
1993 10 11	809	(2.0−	0.8+)	1996 04 18	801	0.5+	0.7−	1998 12 22	704	0.7+	1.0−
1993 10 11	809	(2.0−	1.3+)	1996 05 10	691	0.3−	0.4−	1998 12 22	704	0.0	0.5−
1993 10 21	809	0.1+	0.7−	1996 05 10	691	0.3−	0.5−	1998 12 22	704	0.2+	0.8−

(9855)* 1991 CU = 1981 UQ₁₅

Discovered 1991 Feb. 7 by R. H. McNaught at Siding Spring.

Id. G. V. Williams (*MPC* 29613)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams			
<i>M</i>	99.73681	(2000.0)	P	Q		
<i>n</i>	0.23762013	ω	214.08450	+0.99037183	+0.08416259	
<i>a</i>	2.5815502	Ω	140.63054	−0.05189490	+0.96177991	
<i>e</i>	0.0936723	<i>i</i>	9.97819	−0.12833766	+0.26056873	
<i>P</i>	4.15	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1981 10 23	095	0.2−	1.0+	1997 08 02	124	0.3−	0.3+	1998 11 19	689	0.2−	0.1+
1991 01 22	675	0.1+	1.8+	1997 08 02	124	0.1+	0.0	1998 12 01	689	0.4+	0.5−
1991 01 22	675	0.0	1.3+	1997 08 02	124	0.0	0.2+	1998 12 15	704	0.4−	0.3−
1991 02 07	413	0.5+	0.2−	1997 08 22	367	0.1+	0.2−	1998 12 15	704	0.3+	0.1+
1991 02 07	413	0.3−	0.0	1997 08 22	367	0.0	0.5−	1998 12 15	704	1.6+	0.5+
1991 02 09	675	0.4+	0.5−	1997 08 25	629	0.4−	0.3−	1998 12 15	704	0.8−	1.3−
1991 02 09	675	0.1−	0.1+	1997 08 25	629	0.3+	0.5+	1998 12 15	704	0.0	1.2−
1991 02 09	413	0.3−	0.5−	1997 08 25	629	0.2+	0.0	1998 12 22	704	(0.1−	2.2+)
1991 02 10	413	0.6+	0.0	1997 09 01	566	0.0	0.4−	1998 12 22	704	1.0+	1.0−
1991 02 11	675	0.9−	0.8−	1997 09 01	566	0.1+	0.5−	1998 12 22	704	1.5−	0.7+
1991 02 11	675	1.0−	0.3+	1997 09 01	566	0.1−	0.4−	1998 12 22	704	0.8−	0.7+
1991 02 21	413	1.1+	0.3−	1997 10 29	566	0.1+	0.2+	1998 12 22	704	0.5+	0.2−
1993 09 21	675	0.1+	0.4+	1997 10 29	566	0.1+	0.3+				
1993 09 21	675	0.4−	0.2+	1997 10 29	566	0.2+	0.1+				

(9856)* 1991 EE

Discovered 1991 Mar. 13 by Spacewatch at Kitt Peak.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams			
<i>M</i>	80.58274	(2000.0)	P	Q		
<i>n</i>	0.29296815	ω	115.11605	+0.24823175	+0.96817088	
<i>a</i>	2.2452038	Ω	169.11039	−0.93860296	+0.24856663	
<i>e</i>	0.6242982	<i>i</i>	9.76244	−0.23959441	+0.02932197	
<i>P</i>	3.36	<i>H</i>	17.4	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1991 03 13	691	0.1+	1.4−	1991 06 05	691	0.1−	0.9−	1991 09 09	046	(4.0−	2.0+)
1991 03 13	691	0.1+	1.2−	1991 08 27	413	1.7−	0.1−	1991 09 10	323	0.5+	0.1−
1991 03 13	691	0.2−	1.1−	1991 08 29	413	1.1+	0.3+	1991 09 10	046	1.2+	0.0
1991 03 13	691	0.3−	0.4−	1991 09 01	691	(4.0+	0.7−)	1991 09 10	046	(3.3−	1.2+)
1991 03 13	691	0.4−	0.7−	1991 09 01	691	0.5+	0.1+	1991 09 13	801	0.3+	0.3−
1991 03 13	691	0.0	0.7−	1991 09 02	046	(6.0+	0.2+)	1991 09 13	801	0.1+	0.2−
1991 03 13	691	0.9+	0.7−	1991 09 02	046	(3.4−	2.3+)	1991 09 13	413	1.1+	0.5+
1991 03 14	691	0.3−	0.1−	1991 09 03	474	(2.3+	0.3+)	1991 09 13	413	0.9+	0.1−
1991 03 14	691	0.8−	0.5−	1991 09 03	474	0.1−	0.1−	1991 10 01	657	0.6+	0.4+
1991 03 14	691	0.1−	0.5−	1991 09 03	474	0.5+	0.6−	1991 10 01	657	0.4+	0.6+
1991 03 14	691	0.4−	0.0	1991 09 03	046	(8.5−	1.5+)	1991 10 01	657	0.3+	0.5−
1991 03 14	691	0.2−	0.8−	1991 09 03	046	(6.8−	3.2+)	1991 10 03	568	(0.1−	2.5−)
1991 03 15	691	0.3−	0.2−	1991 09 04	675	(7.7−	0.9+)	1991 10 04	801	0.9+	1.4−
1991 03 15	691	0.1−	0.2−	1991 09 04	675	(1.0−	2.5−)	1991 10 04	801	0.0	0.5−
1991 03 15	691	0.1−	0.3−	1991 09 04	474	(2.7−	1.5+)	1991 10 06	675	0.2−	0.1−
1991 03 17	691	0.0	0.3−	1991 09 04	474	0.3+	0.0	1991 10 06	675	0.1+	0.2+

1991 03 17	691	0.1-	0.0	1991 09 04	323	0.5+	0.2-	1991 10 08	801	0.5-	1.2-
1991 03 17	691	0.2-	0.2-	1991 09 05	657	0.2-	0.5+	1991 10 08	801	0.5-	1.2-
1991 03 20	691	0.5-	0.2-	1991 09 05	657	0.1+	0.2+	1991 10 08	658	0.7-	1.0-
1991 03 20	691	0.0	0.3+	1991 09 05	474	1.2-	0.2-	1991 10 08	658	0.7-	0.9-
1991 03 20	691	0.0	0.0	1991 09 05	474	0.4+	0.4-	1991 10 08	658	0.9-	0.9-
1991 04 05	691	0.2+	0.1+	1991 09 05	323	1.3+	0.0	1994 02 02	691	1.3+	0.8-
1991 04 05	691	0.3+	0.2+	1991 09 06	046	(2.6+	0.9-)	1994 02 02	691	0.7-	0.6-
1991 04 05	691	0.2+	0.2-	1991 09 06	046	(11.1+	5.4-)	1994 03 18	691	0.8+	0.9-
1991 04 18	691	0.0	0.2-	1991 09 07	801	0.1+	0.1+	1994 03 18	691	(2.2-	0.0)
1991 04 18	691	0.2+	0.4-	1991 09 07	801	0.6+	0.0	1994 03 18	691	1.1-	1.3-
1991 04 18	691	0.1+	0.2-	1991 09 07	801	0.3+	0.4-	1998 09 23	658	0.4-	0.4+
1991 05 10	691	0.7-	0.7-	1991 09 08	801	0.7-	0.2-	1998 09 23	658	0.2-	0.2+
1991 05 10	691	1.1-	0.3-	1991 09 08	801	0.3-	0.5-	1998 09 23	658	0.2+	0.6-
1991 05 10	691	1.1-	0.1+	1991 09 08	675	0.9-	0.4-	1998 10 27	658	0.7+	0.1+
1991 05 19	691	0.4+	1.1-	1991 09 08	675	1.2-	0.3-	1998 10 27	658	(2.7+	1.1+)
1991 05 19	691	0.8+	0.5-	1991 09 09	801	0.5-	0.6+	1998 10 27	658	0.5-	1.3+
1991 05 19	691	0.3-	0.3-	1991 09 09	801	0.1+	0.6+	1998 12 13	711	0.0	0.1+
1991 06 05	691	0.1-	0.6-	1991 09 09	323	0.2+	0.1+	1998 12 14	711	0.4-	0.3+
1991 06 05	691	0.1+	1.0-	1991 09 09	046	0.6-	1.1+	1998 12 14	711	0.5-	0.1+

(9857)* 1991 EN = 1994 NH₁

Discovered 1991 Mar. 10 by R. H. McNaught at Siding Spring.

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

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	134.56853	(2000.0)		P	Q		
<i>n</i>	0.08494957	ω	5.15000	+0.41028345	+0.85505492		
<i>a</i>	5.1250166	Ω	289.38259	-0.84824940	+0.23013051		
<i>e</i>	0.0248705	<i>i</i>	19.64221	-0.33487377	+0.46467304		
<i>P</i>	11.60	<i>H</i>	10.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 03 06	413	(2.9+	0.4-)	1995 07 05	691	0.6-	0.3+	1998 12 17	704	0.3+	0.1-
1991 03 10	413	0.2+	1.0-	1995 08 14	292	(2.7+	1.0+)	1998 12 17	704	0.2-	0.1+
1991 03 12	413	0.9+	0.4-	1995 08 14	292	1.2+	1.6-	1998 12 17	704	0.2-	0.2-
1991 03 24	413	0.2-	0.3-	1998 11 14	704	0.6-	0.6+	1998 12 17	704	0.6-	0.6-
1991 04 05	413	1.2-	0.4+	1998 11 14	704	1.4-	0.6-	1998 12 17	704	0.2-	0.3+
1991 05 13	413	0.4-	0.1-	1998 11 14	704	(2.9-	1.4+)	1998 12 17	704	0.5-	0.5-
1994 07 04	675	0.5+	0.7-	1998 11 14	704	(2.5-	0.6-)	1998 12 17	704	0.2-	0.5+
1994 07 04	675	0.6-	0.4-	1998 11 16	704	0.1+	0.6+	1998 12 17	704	0.4-	1.5-
1994 07 07	675	0.7+	0.2-	1998 11 16	704	0.5+	0.2+	1998 12 17	704	1.2-	0.8-
1994 07 07	675	0.9-	0.1-	1998 11 16	704	0.0	0.2+	1998 12 19	704	0.2-	0.2-
1994 07 08	809	(1.1+	2.2-)	1998 11 16	704	0.9-	0.7+	1998 12 19	704	0.3+	0.3-
1994 07 08	809	0.6+	1.9-	1998 11 16	704	0.7-	0.4+	1998 12 19	704	1.6+	1.0+
1994 07 08	809	0.4-	1.5-	1998 12 14	704	0.3+	0.3+	1998 12 19	704	0.3-	0.4-
1994 07 09	809	1.4+	1.0-	1998 12 14	704	1.9-	0.1+	1998 12 19	704	0.2+	0.8-
1994 07 09	809	1.1+	1.0-	1998 12 14	704	(1.2-	2.8-)	1998 12 19	704	1.0+	0.3+
1994 07 09	809	0.3-	0.3-	1998 12 14	704	0.9-	0.4-	1998 12 19	704	(2.2+	2.4-)
1994 07 11	809	(2.2-	0.2-)	1998 12 17	704	0.2+	0.3+	1998 12 19	704	(2.2+	1.1-)
1994 07 11	809	(2.4-	0.3-)	1998 12 17	704	0.1+	0.4+	1998 12 19	704	0.4+	0.1-
1994 07 11	809	(2.2-	0.6-)	1998 12 17	704	0.6+	0.8-	1998 12 19	704	1.7+	0.3+
1994 07 12	809	(0.8-	2.6+)	1998 12 17	704	0.7+	0.9+	1998 12 19	704	1.4-	0.3-
1994 07 12	809	0.3+	1.8+	1998 12 17	704	0.8+	0.4-	1998 12 19	704	0.9+	1.0-
1994 07 12	809	0.5-	1.6+	1998 12 17	704	0.4+	0.2-	1998 12 19	704	1.1+	0.5+
1995 06 26	691	0.1-	0.6+	1998 12 17	704	0.2+	0.2+	1998 12 19	704	0.1-	1.9-
1995 06 26	691	0.1+	0.3+	1998 12 17	704	0.0	0.4-	1998 12 23	704	0.7+	1.5+
1995 06 26	691	0.3-	0.6+	1998 12 17	704	0.6-	0.8-	1998 12 23	704	(0.2+	2.6+)
1995 07 05	691	0.6-	0.5+	1998 12 17	704	0.1-	0.9-	1998 12 23	704	(1.7-	2.2+)
1995 07 05	691	0.5-	0.5+	1998 12 17	704	0.1-	0.7+	1998 12 23	704	0.8+	0.4-

(9858)* 1991 OL₁ = 1977 DH₁ = 1986 TK₁₃ = 1992 WJ₄

Discovered 1991 July 18 by H. Debehogne at the European Southern Observatory.

Id. S. Nakano (*MPC* 21265), G. V. Williams (unpublished)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

				Williams			
<i>M</i>	71.36411	(2000.0)		P	Q		
<i>n</i>	0.17168759	ω	246.66689	+0.99900370	-0.00387467		
<i>a</i>	3.2060978	Ω	113.53064	+0.02047849	+0.92494571		
<i>e</i>	0.1936883	<i>i</i>	2.77942	-0.03965140	+0.38007950		
<i>P</i>	5.74	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 02 18	381	(91.0+	47.5-)	1992 11 28	675	0.6-	0.3-	1998 12 11	360	1.1-	0.8+
1977 02 19	381	0.4-	0.2+	1992 12 17	372	0.3-	1.2-	1998 12 15	704	1.2-	0.2+
1977 02 19	381	1.1-	0.2+	1992 12 17	372	0.1+	0.3+	1998 12 15	704	0.5-	0.5+
1986 10 05	095	0.0	0.4-	1992 12 21	372	(2.6-	3.5-)	1998 12 15	704	0.8+	0.3+
1991 07 18	809	0.8+	0.1-	1992 12 21	372	0.3-	1.2-	1998 12 15	704	0.3+	0.4-
1991 07 18	809	0.6+	0.0	1994 02 12	675	1.2-	0.5+	1998 12 16	704	0.7-	1.3-
1991 07 18	809	0.9+	0.3+	1994 02 12	675	0.1-	0.2-	1998 12 16	704	1.8+	0.6-
1991 07 19	809	0.8+	0.1-	1997 09 22	540	0.7-	0.5+	1998 12 16	704	0.2+	0.3-
1991 07 19	809	1.1+	0.1-	1997 09 22	540	0.7-	0.4+	1998 12 16	704	0.6-	0.0
1991 08 05	809	0.5+	1.8-	1997 09 22	540	1.2-	0.0	1998 12 18	610	(6.0+	0.1-)
1991 08 05	809	0.0	2.0-	1997 09 23	540	2.0-	0.5+	1998 12 18	610	(4.0+	0.3-)
1991 08 05	809	(0.3-	2.5-)	1997 09 23	540	0.4-	0.7+	1998 12 18	610	2.1+	0.5-
1992 11 21	399	(3.1-	0.3+)	1998 11 23	704	1.5+	0.3+	1998 12 18	610	1.5+	0.5-
1992 11 21	399	(6.4-	0.6+)	1998 11 23	704	1.8+	0.8+	1998 12 18	610	1.9-	0.9-
1992 11 25	675	0.3+	0.8+	1998 11 23	704	0.2+	0.3-	1998 12 22	704	0.8+	0.1+
1992 11 25	675	0.5+	0.2+	1998 11 23	704	2.2-	0.4+	1998 12 22	704	0.7+	0.7-
1992 11 27	399	(3.8-	0.2+)	1998 11 23	704	0.3-	0.1+	1998 12 22	704	0.7+	0.1-
1992 11 27	399	(2.8-	0.2+)	1998 12 11	360	1.1-	1.1+	1998 12 22	704	1.2+	1.0-
1992 11 28	675	0.6+	0.1-	1998 12 11	360	0.9-	1.0+				

(9859)* 1991 PE₅ = 1980 GB₁

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

Id. G. V. Williams (*MPC* 18829)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

				Williams			
<i>M</i>	346.47754	(2000.0)		P	Q		
<i>n</i>	0.20200327	ω	274.52412	-0.93883502	-0.34382499		
<i>a</i>	2.8767168	Ω	245.36678	+0.32377947	-0.86221205		
<i>e</i>	0.0096214	<i>i</i>	1.21773	+0.11728451	-0.37198758		
<i>P</i>	4.88	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 04 14	805	1.5+	0.2+	1991 09 06	809	(1.0-	2.8+)	1995 05 28	801	0.2-	0.1-
1980 04 15	805	1.3-	0.4-	1991 09 07	809	(3.3-	0.8+)	1995 05 28	801	0.3-	0.7-
1980 04 16	805	0.3+	1.5+	1991 09 07	809	(2.3-	1.4+)	1995 05 31	801	0.5-	0.6-
1991 08 03	809	0.8+	0.4+	1992 10 21	675	0.0	0.2-	1995 05 31	801	0.3-	0.4-
1991 08 03	809	0.3+	0.8+	1992 10 21	675	1.3+	0.3-	1995 06 16	689	0.3-	1.2-
1991 08 03	809	0.5+	0.6+	1992 10 28	399	(2.2-	2.4+)	1997 11 17	104	1.0-	0.0
1991 08 04	809	0.2+	0.1+	1992 10 28	399	(2.7-	1.8+)	1997 11 17	104	0.3+	0.9-
1991 08 05	809	0.9+	0.4-	1992 11 02	399	0.7-	1.4-	1997 11 17	104	0.4-	0.4+
1991 08 05	809	0.3+	0.4-	1992 11 02	399	0.6+	1.0+	1997 11 17	104	0.0	0.5-
1991 08 05	675	0.9-	1.1-	1992 11 26	691	0.5-	0.6+	1997 11 29	704	0.3+	0.5-
1991 08 05	809	0.1-	0.2-	1992 11 26	691	0.7-	0.7+	1997 11 29	704	0.0	0.5-
1991 08 05	675	0.2-	0.5-	1992 11 26	691	1.6-	0.3+	1997 11 29	704	0.0	0.8-
1991 08 07	675	0.3+	1.6-	1992 11 27	675	0.3+	0.5+	1997 11 29	704	0.9+	0.8-
1991 08 07	675	0.3-	1.7-	1992 11 27	675	0.2+	0.2+	1997 11 29	704	0.6+	0.8-
1991 09 04	809	(0.4-	2.1+)	1994 02 12	675	0.8+	0.6-	1998 11 25	704	0.8-	1.6+
1991 09 04	809	0.4-	1.5+	1994 02 12	675	0.5-	1.3+	1998 11 25	704	1.2+	1.2+
1991 09 04	809	0.5+	1.3+	1994 02 12	675	0.7+	0.4-	1998 11 25	704	(2.2+	0.2-)
1991 09 05	809	0.7-	1.5+	1994 02 12	675	0.5-	1.8+	1998 11 25	704	0.1+	1.6-
1991 09 05	809	1.9-	1.9+	1994 02 15	675	0.3-	0.1-	1998 11 25	704	1.7+	1.4+
1991 09 05	809	(2.3-	1.6+)	1994 02 15	675	0.7+	0.4-	1998 12 17	699	0.5-	0.4+
1991 09 06	809	1.0+	1.3+	1994 02 15	675	0.6-	0.2-	1998 12 17	699	0.3+	0.2+
1991 09 06	809	1.0-	1.7+	1994 02 15	675	0.3+	0.2-	1998 12 17	699	0.3+	0.0

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	122.98011		(2000.0)			P		Q			
<i>n</i>	0.17562168	ω	157.20733			+0.64660105		+0.75873141			
<i>a</i>	3.1580376	Ω	152.87833			−0.72385718		+0.64293129			
<i>e</i>	0.0805309	<i>i</i>	9.97333			−0.24070285		+0.10471869			
<i>P</i>	5.61	<i>H</i>	12.9			<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc											
1991 08 05	675	0.0	0.7+	1991 09 05	809	0.5+	0.7−	1997 11 29	688	0.8−	0.8+
1991 08 05	675	0.2+	1.1+	1991 09 06	809	0.9+	1.9−	1997 12 27	688	0.9−	0.4−
1991 08 06	809	0.6+	0.0	1991 09 06	809	0.1+	1.1−	1997 12 27	688	0.1+	0.7+
1991 08 06	809	0.1−	1.4−	1991 09 06	809	(0.8−	2.2−)	1998 11 13	704	1.2+	0.7−
1991 08 06	809	(0.4+	2.5−)	1991 09 07	809	0.9−	1.3−	1998 11 13	704	0.5−	0.5−
1991 08 08	675	1.4+	1.4+	1991 09 07	809	0.2+	0.6−	1998 11 13	704	0.5+	0.4−
1991 08 08	675	0.8+	1.0+	1992 10 26	675	1.2−	0.5−	1998 11 13	704	0.3+	0.2−
1991 08 11	809	0.7+	1.1+	1995 02 25	098	0.3+	1.8+	1998 12 15	704	1.3+	0.5+
1991 08 11	809	1.0−	1.0−	1995 02 25	098	(2.5+	2.2−)	1998 12 15	704	0.2+	1.2−
1991 08 11	809	(0.2−	2.1−)	1995 02 25	691	0.5−	1.1−	1998 12 15	704	0.1−	0.9−
1991 09 04	809	0.8−	1.3−	1995 02 25	691	0.2−	0.8−	1998 12 15	704	1.0+	0.3−
1991 09 04	809	(0.6−	2.4−)	1995 02 25	691	0.2−	0.7−	1998 12 15	704	1.6−	0.0
1991 09 04	809	(0.6−	2.7−)	1995 03 04	691	0.6−	0.9−	1998 12 16	699	0.0	0.6+
1991 09 05	809	0.9−	0.5+	1995 03 04	691	0.0	0.5−	1998 12 16	699	0.0	0.4+
1991 09 05	809	0.0	0.3−	1997 11 29	688	0.9−	1.0+	1998 12 16	699	0.2+	0.5+

(9861)* 1991 RB₃ = 1993 FN₃₀

Discovered 1991 Sept. 9 by F. Börngen and L. D. Schmadel at Tautenburg.

Id. G. V. Williams (*MPC* 23517)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	46.26019			(2000.0)		P		Q			
<i>n</i>	0.29689784	ω	147.22077			+0.73797832		-0.67301773			
<i>a</i>	2.2253484	Ω	255.16178			+0.60762589		+0.69452317			
<i>e</i>	0.1450016	<i>i</i>	2.92619			+0.29356222		+0.25433188			
<i>P</i>	3.32	<i>H</i>	14.9		<i>G</i>	0.15		<i>U</i>	2		
Residuals in seconds of arc											
1991 09 09	033	0.4-	0.4-	1993 03 26	809	0.7+	0.2-	1998 12 15	704	0.1+	0.6-
1991 09 10	033	0.2-	0.4+	1993 04 17	413	1.0+	1.3+	1998 12 15	704	0.6+	0.9+
1991 09 12	033	0.3+	0.4-	1994 07 10	675	0.3+	0.2-	1998 12 15	704	0.3-	0.3+
1991 09 12	033	0.0	0.7+	1994 07 10	675	1.1-	0.8+	1998 12 15	704	0.1-	0.3+
1991 09 13	033	0.1-	0.2-	1994 08 07	292	0.2+	1.5+	1998 12 22	704	0.0	0.4+
1991 09 14	033	0.5+	0.6+	1994 08 07	292	(4.1+	0.6-)	1998 12 22	704	0.1-	0.1-
1991 10 04	033	0.1+	0.4-	1998 11 22	113	0.1-	0.9-	1998 12 22	704	1.0+	0.7+
1991 10 04	033	0.3+	0.1-	1998 11 22	113	0.3+	0.1-	1998 12 22	704	0.7+	0.2-
1991 10 05	033	0.7-	0.1+	1998 12 10	113	0.3-	0.4-	1998 12 22	704	1.7+	0.7-
1993 03 21	809	1.6-	0.5+	1998 12 10	113	1.5-	0.8+	1998 12 29	113	1.1-	0.7+
1993 03 22	809	0.6+	0.1-	1998 12 15	704	0.7+	0.5+	1998 12 29	113	1.5-	0.3+

(9862)* 1991 RA₆ = 1973 UP₃ = 1995 WZ

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

Id. S. Nakano (*MPC* 26170)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	63.62559		(2000.0)		P		Q				
<i>n</i>	0.27311922	ω	235.93341		+0.34858916		+0.93397292				
<i>a</i>	2.3527072	Ω	54.66003		-0.82505255		+0.34556719				
<i>e</i>	0.2018537	<i>i</i>	5.53030		-0.44471775		+0.09098298				
<i>P</i>	3.61	<i>H</i>	13.9		<i>G</i>	0.15	<i>U</i>	2			
Residuals in seconds of arc											
1973 10 29	095	1.3+	0.2+	1991 10 14	691	1.0-	0.1-	1995 11 28	691	0.3-	0.0
1991 09 12	675	0.6+	1.5-	1991 10 14	691	1.1-	0.0	1995 11 28	691	0.4-	0.1-
1991 09 12	675	0.7-	0.8+	1994 04 15	691	0.2-	0.3-	1995 11 28	691	0.2-	0.1-
1991 09 13	675	1.0-	0.1-	1994 04 15	691	0.1-	0.3-	1998 08 23	689	0.8-	0.6+
1991 09 13	675	0.2-	0.8+	1994 04 15	691	0.4-	0.5-	1998 09 21	704	0.2+	0.1+
1991 09 16	675	0.3+	1.1-	1995 11 15	691	0.2-	0.4-	1998 09 21	704	0.8-	0.7+

1991 09 16	675	0.1+	0.7-	1995 11 15	691	0.1+	0.2-	1998 09 21	704	0.6+	0.4+
1991 09 17	675	0.3+	1.4-	1995 11 15	691	0.0	0.4-	1998 09 21	704	(1.0+	2.7+)
1991 09 17	675	0.4+	1.5-	1995 11 16	399	1.3-	2.0+	1998 09 21	704	0.1+	2.0+
1991 10 02	675	0.1-	0.8-	1995 11 16	399	1.5+	0.0	1998 12 08	704	1.5+	0.7-
1991 10 02	675	0.3+	1.2+	1995 11 17	399	1.8+	1.9+	1998 12 08	704	0.5-	0.8+
1991 10 07	675	1.6+	0.1+	1995 11 17	399	(2.9+	0.1-)	1998 12 08	704	1.2+	1.9+
1991 10 07	675	0.7+	1.8-	1995 11 21	691	0.3-	0.0	1998 12 08	704	0.9+	1.0+
1991 10 08	675	0.2+	0.9-	1995 11 21	691	0.5-	0.3-	1998 12 08	704	0.3+	0.1-
1991 10 14	691	1.1-	0.0	1995 11 21	691	0.3-	0.2-				

(9863)* 1991 RJ₇ = 1995 YD₃

Discovered 1991 Sept. 13 by F. Börngen and L. D. Schmadel at Tautenburg.

Id. S. Nakano (*MPC* 26561), T. Kobayashi (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	214.14438		(2000.0)			P		Q			
<i>n</i>	0.29441692	ω	300.31048			-0.61370351		+0.78766589			
<i>a</i>	2.2378323	Ω	291.73210			-0.70282340		-0.57635306			
<i>e</i>	0.1180914	<i>i</i>	3.35222			-0.35973221		-0.21771448			
<i>P</i>	3.35	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1		<td></td>		
Residuals in seconds of arc											
1991 09 13	033	0.1-	0.5+	1995 12 30	411	0.6-	0.6+	1998 11 22	113	1.1-	0.1-
1991 09 13	033	0.5-	0.2+	1995 12 31	411	0.2-	0.8-	1998 11 24	704	0.7+	0.8-
1991 09 14	033	0.6-	0.3-	1995 12 31	411	0.9-	0.1-	1998 11 24	704	0.8+	2.0-
1991 09 15	033	0.1+	0.4+	1996 01 07	608	0.1+	0.6-	1998 11 24	704	0.4+	1.9-
1991 10 05	033	0.1+	0.4+	1996 01 07	608	0.2+	0.8-	1998 11 24	704	(0.3+	2.3-)
1991 10 06	033	0.3+	1.0+	1996 01 08	608	0.2+	0.2+	1998 11 24	704	(0.7-	2.2-)
1991 10 06	033	0.6+	0.3+	1996 01 08	608	0.5+	0.9+	1998 12 10	113	0.9-	0.1-
1991 10 09	033	1.4+	0.7+	1996 01 17	887	0.1-	0.3-	1998 12 10	113	1.0-	1.3-
1991 10 09	033	0.0	0.3-	1996 01 17	887	0.8-	0.3-	1998 12 10	113	2.0-	1.0-
1991 10 10	033	1.4+	0.7+	1996 01 17	887	0.5-	0.1-	1998 12 14	704	0.2-	0.4+
1991 11 06	691	1.6-	0.2+	1996 01 24	887	0.4-	0.2+	1998 12 14	704	0.4+	0.9-
1991 11 06	691	1.6-	0.5+	1996 01 24	887	0.0	0.5+	1998 12 14	704	0.0	0.5-
1991 11 06	691	1.5-	1.1+	1996 01 24	887	0.2+	0.8+	1998 12 14	704	0.2+	0.2+
1995 12 27	566	0.7+	1.6+	1996 01 26	887	0.1-	0.1+	1998 12 14	704	(0.2+	2.2+)
1995 12 27	566	1.2+	1.8+	1996 01 26	887	0.2+	0.1+	1998 12 17	704	0.1-	0.6+
1995 12 27	566	1.2+	1.6+	1996 01 26	887	0.0	0.0	1998 12 17	704	1.0+	0.1+
1995 12 28	608	0.2+	0.4+	1997 07 14	886	0.8-	0.5-	1998 12 17	704	1.6+	1.2-
1995 12 28	608	0.3+	1.0+	1997 07 14	886	0.7-	1.3+	1998 12 17	704	1.2+	0.2-
1995 12 29	608	0.5+	0.4+	1997 07 24	886	0.6+	1.1+	1998 12 17	704	1.5+	0.1-
1995 12 29	608	0.6+	0.3+	1997 07 24	886	0.6+	0.1-				
1995 12 30	411	0.8-	0.0	1998 11 22	113	1.3-	0.3-				

(9864)* 1991 RT₁₇ = 1953 QN = 1981 XP = 1997 WR₁

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

Id. G. V. Williams (*MPC* 30977)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	158.52464		(2000.0)				P		Q		
n	0.18286022	ω	54.57263				+0.69518080		+0.71835444		
a	3.0741370	Ω	259.49181				-0.66787828		+0.63195053		
e	0.1435024	i	1.53151				-0.26582372		+0.29087013		
P	5.39	H	12.8			G	0.15		U		1
Residuals in seconds of arc											
1953 08 16	024	0.1-	1.6+	1997 10 29	704	0.7-	1.1+	1997 11 29	704	0.9+	0.6-
1981 12 04	511	0.5-	0.8+	1997 10 29	704	0.2-	1.3+	1997 11 29	704	1.1-	0.6-
1981 12 04	511	1.4-	0.2-	1997 10 29	704	0.1-	1.7+	1997 11 29	704	0.2+	1.2-
1991 08 08	675	0.4+	1.0-	1997 11 21	327	0.3-	0.2+	1997 12 01	327	0.5+	0.2+
1991 08 08	675	0.8+	0.1-	1997 11 21	327	0.4-	0.1+	1997 12 01	327	0.4+	0.2+
1991 09 12	691	1.1-	0.4+	1997 11 21	327	0.3-	0.1-	1997 12 01	327	0.2+	0.3-
1991 09 12	691	0.8-	0.1-	1997 11 22	327	0.1-	0.2+	1997 12 08	327	0.6+	0.0
1991 09 12	691	0.8-	0.1-	1997 11 22	327	0.3-	0.2+	1997 12 08	327	0.3+	0.4+
1991 09 13	675	0.5+	1.4-	1997 11 22	327	0.3-	0.3+	1997 12 08	327	0.1-	0.6+
1991 09 13	675	0.0	0.2-	1997 11 22	327	0.1-	0.3+	1998 10 29	691	0.2-	0.7-
1991 09 15	675	0.1+	0.1+	1997 11 26	566	0.6+	0.1-	1998 10 29	691	0.1-	0.8-

1991 09 15	675	0.8+	0.7-	1997 11 26	566	0.6+	0.3-	1998 10 29	691	0.2-	0.8-
1991 09 17	675	0.7+	1.4-	1997 11 26	566	1.0+	0.3-	1998 12 10	691	0.0	0.6-
1991 09 17	675	0.8+	0.6-	1997 11 28	327	0.1-	0.2-	1998 12 10	691	0.0	0.8-
1991 09 17	675	0.2+	0.9-	1997 11 28	327	0.5+	0.2+	1998 12 10	691	0.1-	0.7-
1991 09 17	675	0.5+	0.6-	1997 11 28	327	0.3+	0.1+	1998 12 14	691	0.1-	0.5-
1997 10 29	704	(0.7-	2.1+)	1997 11 29	704	0.2-	0.2-	1998 12 14	691	0.0	0.7-
1997 10 29	704	0.8-	2.0+	1997 11 29	704	0.8-	0.1-	1998 12 14	691	0.1-	0.7-

(9865)* 1991 TP₁ = 1994 NH₂

Discovered 1991 Oct. 3 by K. Suzuki and T. Urata at Toyota.

Id. G. V. Williams (*MPC* 23978)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>			Williams		
120.95375			(2000.0)		
<i>n</i>			<i>P</i>		
0.30122284			<i>Q</i>		
<i>a</i>			+0.72433880		
2.2039959			+0.68735015		
<i>e</i>			-0.65576418		
0.2157019			+0.66281740		
<i>P</i>			-0.21285356		
3.27			+0.29702334		
<i>H</i>			<i>U</i>		
14.4			2		

Residuals in seconds of arc

1991 09 13	675	0.2-	0.3-	1994 07 12	033	0.4+	0.4+	1997 05 07	704	0.2-	0.2+
1991 09 13	675	0.5+	0.6-	1994 07 13	033	0.1-	0.9+	1997 05 07	704	0.0	0.1-
1991 09 15	675	0.2-	0.1+	1995 11 18	385	(3.8+	0.1+)	1997 05 07	704	0.2-	0.4+
1991 09 15	675	0.4+	0.0	1995 11 18	385	0.7-	1.2+	1997 07 04	385	1.3+	1.2-
1991 09 28	385	(0.5-	2.5-)	1995 12 01	385	0.2+	0.8+	1997 07 04	385	0.7-	0.8-
1991 10 03	881	1.2-	0.4-	1995 12 01	385	0.7+	0.8+	1998 11 23	704	1.0-	1.6-
1991 10 03	881	(0.5+	2.0+)	1995 12 01	385	1.2+	0.1+	1998 11 23	704	(0.5+	2.2-)
1991 10 03	046	(0.2-	2.3-)	1995 12 15	385	1.5-	1.4+	1998 11 23	704	1.8-	0.4-
1991 10 03	046	(3.2-	5.3-)	1995 12 15	385	1.5+	0.9-	1998 12 09	886	1.7-	0.9+
1991 10 04	046	(2.3-	3.9-)	1995 12 19	887	0.0	1.3+	1998 12 09	886	0.6-	0.6+
1991 10 04	046	(2.9-	3.9-)	1995 12 19	887	0.6+	1.2+	1998 12 15	704	0.9+	1.5-
1991 10 07	033	0.0	1.4-	1995 12 19	887	0.9+	1.3+	1998 12 15	704	0.7+	0.1-
1991 10 07	033	(3.8-	0.1+)	1996 01 27	385	1.7-	0.2-	1998 12 15	704	0.8-	0.4-
1991 10 08	033	(2.8-	0.6+)	1996 01 27	385	0.2+	1.1-	1998 12 15	704	0.2+	1.3-
1991 10 09	033	1.7-	0.7+	1996 01 27	385	0.9-	0.1+	1998 12 15	704	1.4-	0.4+
1991 10 13	881	1.7+	0.7+	1997 04 11	704	0.5+	0.4-	1998 12 16	704	0.7+	1.2-
1991 10 13	881	0.3+	1.3-	1997 04 11	704	0.7+	0.1+	1998 12 16	704	2.0+	1.1-
1991 10 15	881	(4.5+	1.6+)	1997 04 11	704	0.5+	0.0	1998 12 16	704	(2.9+	0.8-)
1991 10 31	033	0.2+	0.7+	1997 04 11	704	0.2+	0.1+	1998 12 16	704	0.8+	1.3-
1991 10 31	033	0.1+	1.8+	1997 05 01	704	0.3-	0.1+	1998 12 16	704	1.6+	0.6+
1991 11 04	881	0.7-	0.9+	1997 05 01	704	0.6-	0.1+	1998 12 22	704	0.5-	0.5-
1991 11 04	881	0.6+	0.6+	1997 05 01	704	0.1-	0.5-	1998 12 22	704	0.1+	0.9-
1991 11 10	881	0.8+	0.1-	1997 05 01	704	0.1+	0.5-	1998 12 22	704	0.2+	0.3+
1991 11 10	881	1.0+	0.6-	1997 05 01	704	0.2-	0.5-	1998 12 22	704	0.4+	0.7+
1994 07 12	033	0.5-	0.4-	1997 05 07	704	0.2+	0.0				
1994 07 12	033	0.7-	0.3-	1997 05 07	704	0.3-	0.2+				

(9866)* 1991 TV₄ = 1977 DS₁₀ = 1978 ST₃ = 1994 RH₁₁

Discovered 1991 Oct. 15 by S. Otomo at Kiyosato.

Id. S. Nakano (*MPC* 24106)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>			Nakano		
139.62584			(2000.0)		
<i>n</i>			<i>P</i>		
0.30793257			<i>Q</i>		
<i>a</i>			+0.89153689		
2.1718624			+0.45092910		
<i>e</i>			-0.40545994		
0.1748195			+0.83654888		
<i>P</i>			-0.20190147		
3.20			+0.31120559		
<i>H</i>			<i>U</i>		
14.2			2		

Residuals in seconds of arc

1977 02 19	381	1.1-	0.0	1994 08 13	809	0.9-	1.7+	1997 06 24	689	(3.1+	1.3-)
1977 02 19	381	(19.9+	4.7+)	1994 08 13	809	1.4-	1.6+	1997 06 29	367	0.7+	0.1+
1978 09 27	095	(5.1-	4.1+)	1994 09 01	399	0.4+	0.2+	1997 06 29	367	0.2+	0.7-
1991 10 15	894	1.3+	0.8-	1994 09 01	399	0.8+	0.4+	1997 07 04	367	0.1+	0.3-
1991 10 15	894	0.3+	0.0	1994 09 10	905	0.1+	0.7-	1997 07 04	367	0.2+	0.3-
1991 11 04	894	2.0+	0.4-	1994 09 10	905	0.7+	0.6-	1998 10 22	910	1.3-	0.5+
1991 11 04	894	0.9+	0.1+	1994 09 11	675	0.6+	0.3-	1998 10 22	910	0.9-	0.9+
1991 11 05	894	0.5+	1.4+	1994 09 11	675	0.8+	0.5-	1998 10 22	910	0.9-	0.7+

1991 11 05	894	0.3+	0.0	1994 09 25	905	0.9-	1.1-	1998 10 23	910	0.3-	0.8+
1991 11 11	894	0.2-	0.3-	1994 09 25	905	0.5-	1.4-	1998 10 23	910	0.4-	0.7+
1991 11 11	894	0.2+	0.7-	1994 10 01	675	0.5+	0.0	1998 10 23	910	0.4-	0.7+
1994 08 12	809	0.3-	0.7+	1994 10 01	675	0.2-	0.6-	1998 12 21	704	1.5+	0.5+
1994 08 12	809	0.7-	0.4+	1994 10 01	399	2.1-	1.2+	1998 12 21	704	0.3-	0.5-
1994 08 12	809	1.4-	0.4-	1994 10 01	399	1.9-	0.0	1998 12 21	704	0.0	0.2-
1994 08 13	809	(0.5+	2.5+)	1997 06 23	689	1.8+	0.1-	1998 12 21	704	(1.1-	3.4+)

(9867)* 1991 VM = 1994 PJ

Discovered 1991 Nov. 3 by A. Natori and T. Urata at the JCPM Yakiimo

Station.

Id. T. Urata (*MPC* 23860)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>			Nakano		
52.52453			(2000.0)		
<i>n</i>			<i>P</i>		
0.28930938			<i>Q</i>		
<i>a</i>			+0.79326018		
2.2640936			-0.60116921		
<i>e</i>			+0.58591214		
0.1908427			+0.71049197		
<i>P</i>			+0.16566606		
3.41			+0.36578236		
<i>H</i>			<i>U</i>		
14.2			1		

Residuals in seconds of arc

1955 03 22	675	0.8-	1.5+	1993 04 15	691	1.3-	0.4-	1998 12 14	704	0.5+	0.6-
1955 03 22	675	1.8+	0.2-	1994 08 02	905	1.5+	0.7-	1998 12 14	704	0.0	0.9-
1989 02 02	675	0.2-	1.4+	1994 08 02	905	0.4-	0.2+	1998 12 14	704	0.1-	0.8-
1991 11 03	885	(1.5-	4.2-)	1994 08 04	905	0.2+	1.3-	1998 12 14	704	0.3-	1.4-
1991 11 03	885	0.7+	0.0	1994 08 04	905	0.1+	0.2+	1998 12 16	744	0.8+	0.5-
1991 11 05	885	0.2-	0.0	1996 04 12	385	0.8+	0.0	1998 12 16	744	0.1+	0.4+
1991 11 05	885	0.1+	0.5+	1996 04 12	385	0.2-	0.6-	1998 12 16	744	0.1-	0.4+
1991 11 09	399	(3.3-	1.4+)	1996 04 12	385	0.2+	0.8-	1998 12 16	886	0.3+	0.2+
1991 11 09	399	(3.0-	0.5+)	1996 04 13	385	0.2+	0.4-	1998 12 16	886	0.4+	0.3-
1991 11 11	399	(1.4-	2.5+)	1996 04 13	385	0.4-	0.4-	1998 12 17	704	0.1+	0.2+
1991 11 11	399	(2.3-	1.2+)	1996 04 13	385	0.9+	0.1+	1998 12 17	704	0.8+	0.0
1991 11 12	885	0.7-	0.8+	1998 10 30	704	0.8-	0.8+	1998 12 17	704	1.3-	0.2-
1991 11 12	885	0.7-	0.6-	1998 10 30	704	0.2+	0.2+	1998 12 17	704	1.3-	1.0-
1991 12 03	885	0.5+	0.8-	1998 10 30	704	1.1+	0.3-	1998 12 17	704	0.3-	1.9+
1991 12 03	885	1.5-	0.7-	1998 10 30	704	0.9+	0.9-	1998 12 17	886	0.6+	0.1+
1991 12 14	885	0.6+	0.7+	1998 10 30	704	1.5-	0.8-	1998 12 17	886	0.5+	0.3-
1993 04 15	691	0.5-	0.6-	1998 12 08	689	0.5-	0.2+				
1993 04 15	691	1.3-	0.5-	1998 12 14	704	0.7+	0.2-				

(9868)* 1991 VP₁ = 1994 PQ₂₇

Discovered 1991 Nov. 4 by S. Ueda and H. Kaneda at Kushiro.

Id. B. G. Marsden (*MPC* 24566)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		
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M.P.C. 33462

1999 JAN. 6

1994 08 13	809	1.3+	0.6-	1998 11 23	704	0.6+	0.8-	1998 12 22	704	0.8+	0.7-
1994 09 05	809	0.7+	0.4+	1998 11 23	704	0.6+	0.7-				
1994 09 05	809	0.3+	0.3-	1998 12 01	689	0.2+	0.7+				

(9869)* 1992 CD₁ = 1952 DJ₁ = 1996 HL₁₅

Discovered 1992 Feb. 9 by K. Endate and K. Watanabe at Kitami.

Id. B. G. Marsden (*MPC* 27308)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	337.61531	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.27143142	ω	311.21367	-0.75665912
<i>a</i>	2.3624501	Ω	187.96873	+0.61405911
<i>e</i>	0.1293081	<i>i</i>	2.91745	+0.22449584
<i>P</i>	3.63	<i>H</i>	13.6	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1952 02 18	711	0.1+	0.3-	Y	1996 04 18	809	0.6-	0.1+	1997 10 06	327	0.6-	0.1+
1952 02 19	711	(4.0+	6.2-)	Y	1996 04 18	809	0.2-	0.5+	1997 10 06	327	0.6-	0.1+
1992 02 09	400	0.7+	0.7-		1996 04 18	809	0.5+	1.2-	1998 10 30	704	1.3+	0.6+
1992 02 09	400	0.9+	0.6+		1996 04 18	809	0.3+	1.5-	1998 10 30	704	0.1+	1.3-
1992 02 24	400	0.1+	0.9+		1996 04 18	809	0.3+	1.2-	1998 10 30	704	0.9-	1.7-
1992 02 24	400	0.3+	0.2+		1996 05 19	809	(0.9+	3.5+)	1998 10 30	704	(0.8+	2.9-)
1992 02 25	675	0.5-	0.0		1996 05 19	809	(0.6+	2.4+)	1998 12 15	704	0.8+	0.1+
1992 02 25	675	0.4-	1.1-		1996 05 19	809	(0.9+	3.5+)	1998 12 15	704	0.2-	0.7+
1992 02 29	809	1.0-	0.4+		1996 05 22	809	1.9+	1.4+	1998 12 15	704	0.3+	0.2+
1992 03 04	809	0.9-	0.8+		1996 05 22	809	1.6+	2.0+	1998 12 15	704	0.5-	0.3+
1992 03 04	400	(0.4+	3.2-)		1996 05 22	809	0.4+	1.5+	1998 12 15	704	0.3+	0.7+
1992 03 04	400	1.3+	0.3-		1997 08 07	816	0.1+	0.5+	1998 12 22	704	0.0	0.1+
1992 03 07	809	0.7-	0.2+		1997 08 07	816	0.1-	0.5+	1998 12 22	704	0.4+	0.0
1992 03 08	400	0.8-	0.5-		1997 08 07	816	0.2-	0.4+	1998 12 22	704	0.6+	0.5+
1992 03 08	400	(0.9-	2.7-)		1997 08 07	816	0.2+	0.0	1998 12 22	704	0.9-	1.5+
1996 04 17	809	1.4-	0.7+		1997 09 28	327	0.2+	0.2+	1998 12 22	704	0.0	0.4+
1996 04 17	809	(2.1-	0.5+)		1997 09 28	327	0.1-	0.0	1998 12 29	689	0.2+	0.3+
1996 04 17	809	(2.1-	0.7+)		1997 09 28	327	0.1-	0.2+				
1996 04 18	809	1.0-	0.2-		1997 10 06	327	0.4-	0.3+				

(9870)* 1992 DA = 1974 DW = 1979 SM₁₃

Discovered 1992 Feb. 24 by T. Seki at Geisei.

Id. S. Nakano (*MPC* 19874)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	304.68777	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.27516003	ω	164.62469	-0.97666399
<i>a</i>	2.3410597	Ω	27.70823	-0.20325208
<i>e</i>	0.1687366	<i>i</i>	3.71468	-0.06939767
<i>P</i>	3.58	<i>H</i>	13.6	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1954 09 04	675	1.5+	0.6+		1992 02 27	372	1.1-	1.8+	1997 10 30	566	0.6+	0.5-
1954 09 04	675	0.7-	0.0		1992 02 27	372	1.1+	1.5+	1997 10 30	566	0.5+	0.3-
1974 02 16	095	(2.4+	3.9-)		1992 03 05	372	0.0	0.0	1998 11 19	699	0.2+	0.1-
1979 09 20	675	0.4+	0.5-		1992 03 05	372	0.8-	0.1-	1998 11 19	699	0.4+	0.6-
1979 09 21	675	0.7-	0.3-		1994 11 03	411	0.8+	0.0	1998 11 19	699	0.3-	0.2-
1992 02 24	372	1.5-	0.1+		1994 11 03	411	0.3+	0.6+	1998 12 26	732	0.4+	0.5-
1992 02 24	372	0.4+	0.9-		1994 11 27	675	0.6-	0.0	1998 12 26	732	0.2+	0.5-
1992 02 25	372	0.5+	0.2-		1994 11 27	675	1.0-	1.2+	1998 12 26	732	0.3+	0.4-
1992 02 25	372	0.6-	0.6-		1994 12 04	372	(2.7-	1.2-)	1998 12 27	732	0.6+	0.1+
1992 02 26	372	1.1+	0.7-		1994 12 04	372	2.1-	0.3+	1998 12 27	732	0.1+	0.3-
1992 02 26	372	0.1-	0.4-		1997 10 30	566	0.5+	0.4-	1998 12 27	732	0.0	0.2-

(9871)* 1992 DG₁ = 1952 HD₂ = 1959 EN = 1970 EH₃ = 1988 BN₁

Discovered 1992 Feb. 28 by T. Fujii and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 20033), H. Kaneda (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	286.97822	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.27027172	ω	231.27178	-0.77070312
<i>a</i>	2.3692032	Ω	348.24348	-0.55031462
<i>e</i>	0.1526589	<i>i</i>	5.57547	-0.32120168
<i>P</i>	3.65	<i>H</i>	13.0	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1952 04 23	711	(0.5-	4.6-)	Y	1992 03 04	400	0.3+	0.0	1997 11 03	327	0.4-	0.3-
1952 04 23	711	(3.7-	1.7-)	Y	1992 03 07	391	(1.2-	4.0-)	1998 11 18	699	0.4-	1.2+
1952 04 24	711	(4.1+	7.8-)	Y	1992 03 07	391	(1.9-	3.9-)	1998 11 18	699	0.5-	0.8+
1952 04 24	711	(3.7+	0.9+)	Y	1992 03 08	400	1.8+	1.8-	1998 11 25	704	0.7+	0.4-
1959 03 06	690	0.2-	0.7-		1992 03 08	400	1.7+	1.1+	1998 11 25	704	0.6-	0.4+
1959 03 09	690	0.7-	0.2+		1992 03 11	391	(3.6+	1.2-)	1998 11 25	704	0.8+	1.3-
1970 03 10	805	0.2-	0.5+		1992 03 11	391	(8.7-	0.3-)	1998 11 25	704	0.7+	1.4-
1970 03 10	805	0.2+	1.0+		1992 03 22	400	0.5-	0.7+	1998 11 25	704	0.8-	0.4+
1970 03 10	805	0.2-	0.0		1992 03 22	400	0.7-	0.1+	1998 12 28	732	0.4-	1.0+
1988 01 22	511	0.4-	1.7-		1993 09 14	809	(5.6+	3.6+)	1998 12 28	732	0.1-	0.9+
1988 01 22	511	1.4+	0.8-		1993 09 14	809	(4.5+	2.4+)	1998 12 28	732	0.2-	0.5+
1988 01 23	511	0.9+	1.6-		1993 09 14	809	(4.7+	2.2+)	1998 12 29	732	0.1-	0.8+
1988 01 23	511	0.8+	0.9-		1997 11 02	327	0.4+	0.3+	1998 12 29	732	0.1-	0.9+
1992 02 28	400	1.0-	0.3+		1997 11 02	327	0.0	0.4+	1998 12 29	732	0.8-	0.7+
1992 03 02	400	0.0	0.5+		1997 11 02	327	(0.3+	3.1+)	1998 12 30	689	0.5-	0.7+
1992 03 02	400	0.5-	1.2-		1997 11 03	327	(0.5-	2.5-)				
1992 03 04	400	(3.3+	0.1+)		1997 11 03	327	0.5-	0.0				

(9872)* 1992 DJ₄ = 1992 FS₂ = 1997 XB₄

Discovered 1992 Feb. 27 by F. Börngen at Tautenburg.

Id. G. V. Williams (d, *MPC* 26884; *MPC* 30978)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	240.51028	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.27041814	ω	229.15803	-0.55444066
<i>a</i>	2.3683479	Ω	7.21308	-0.72479275
<i>e</i>	0.0893103	<i>i</i>	6.59856	-0.40898780
<i>P</i>	3.64	<i>H</i>	14.6	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1992 01 31	691	0.6-	0.2-		1996 03 18	566	0.2+	0.5-	1997 12 06	910	0.2+	0.2-
1992 01 31	691	0.6-	0.4-		1996 03 18	566	0.8+	0.5-	1997 12 06	910	0.2+	0.3-
1992 01 31	691	0.4-	0.1-		1996 03 18	566	0.5+	0.1-	1997 12 06	910	0.1+	0.2-
1992 02 08	033	1.2+	0.1-		1996 04 23	566	0.4+	0.2+	1998 11 24	699	0.2-	1.0+
1992 02 08	033	0.2+	0.3-		1996 04 23	566	0.7+	0.4+	1998 11 24	699	0.1+	0.1-
1992 02 09	033	0.4-	0.1+		1996 04 23	566	0.0	0.0	1998 11 24	699	1.4+	0.4+
1992 02 27	033	0.5+	0.9+		1997 10 06	691	0.6-	1.2+	1998 12 14	704	0.7+	0.1-
1992 02 27	033	0.6+	0.5+		1997 10 06	691	0.4-	0.9+	1998 12 14	704	1.9+	0.1+
1992 02 28	033	0.7-	0.5+		1997 10 06	691	0.5-	0.7+	1998 12 14	704	0.6-	0.3-
1992 02 29	033	0.7+	0.5+		1997 10 23	691	0.4-	0.8+	1998 12 17	704	0.3-	0.4+
1992 03 30	033	0.2-	0.0		1997 10 23	691	0.4-	0.7+	1998 12 17	704	0.2+	0.1-
1992 03 30	033	0.4+	0.1+		1997 10 23	691	0.5-	0.7+	1998 12 17	704	1.3-	0.5-
1996 03 16	691	0.4-	1.1+		1997 12 05	910	0.4+	0.6-	1998 12 17	704	0.6-	0.6-
1996 03 16	691	0.5-	0.8+		1997 12 05	910	0.2+	0.2-	1998 12 17	113	0.6-	0.1-
1996 03 16	691	0.5-	0.9+		1997 12 05	910	0.1+	0.4-	1998 12 17	113	0.4-	0.1+

(9873)* 1992 GH = 1985 SO = 1990 SC₁₇

Discovered 1992 Apr. 9 by R. H. McNaught at Siding Spring.

Id. G. V. Williams (*MPC* 20343)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	90.28626	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.38803508	ω	7.15283	+0.99892226
<i>a</i>	1.8616101	Ω	351.99683	-0.03624606
<i>e</i>	0.0762280	<i>i</i>	19.23327	+0.02899211
<i>P</i>	2.54	<i>H</i>	13.5	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1982 04 15	413	1.5+	0.8-	1992 04 30	413	0.8-	0.6-	1998 12 09	689	0.4+	0.1+
1985 09 18	046	1.0+	0.2-	1992 05 08	413	0.1+	0.5-	1998 12 11	704	0.3-	0.3+
1985 09 18	046	0.4-	0.2+	1992 05 09	413	0.2+	0.5+	1998 12 11	704	0.6+	0.3-
1985 09 19	046	1.0-	1.1-	1992 05 09	413	0.1+	0.7+	1998 12 11	704	0.9-	0.6+
1985 09 19	046	0.8-	0.1-	1992 05 10	413	0.8+	0.2+	1998 12 11	704	0.6-	1.2-
1990 09 14	675	0.2+	0.5-	1992 05 10	413	0.3+	0.3+	1998 12 11	704	(1.0-	2.7+)
1990 09 14	675	0.3+	1.2-	1992 05 24	413	0.4-	0.6+	1998 12 12	704	1.3+	0.6+
1990 09 16	675	0.3+	0.9+	1992 05 24	413	0.5-	0.6+	1998 12 12	704	0.1-	0.2-
1990 09 16	675	0.6+	0.9+	1992 06 18	413	0.3+	0.1+	1998 12 12	704	0.5-	0.0
1992 04 09	413	1.0+	1.2-	1992 06 18	413	0.3+	0.2+	1998 12 12	704	0.3+	0.3-
1992 04 09	413	1.7+	1.4-	1992 06 28	474	0.2-	0.8+	1998 12 12	704	0.8+	0.9+
1992 04 10	413	0.7-	0.2-	1992 06 28	474	0.9+	0.1+	1999 01 03	653	0.0	0.1-
1992 04 11	413	1.1-	0.2+	1997 03 09	689	1.2-	0.2+	1999 01 03	653	0.1+	0.1-
1992 04 12	413	0.7-	0.0	1997 03 10	689	1.1-	0.8+	1999 01 04	653	0.1+	0.1+
1992 04 22	413	0.0	0.1+	1998 10 09	689	0.0	0.3-				
1992 04 22	413	0.1-	0.1+	1998 11 19	689	(3.5-	1.6+)				

(9874)* 1993 FG₂₃ = 1988 VA₄ = 1991 RP₁₀ = 1991 VD₁₄

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

Id. G. V. Williams (*MPC* 23524)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	60.64149	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.30709255	ω 156.00059	+0.51722006	-0.85517376
<i>a</i>	2.1758212	Ω 262.83751	+0.77956807	+0.48717758
<i>e</i>	0.0721272	<i>i</i> 1.96822	+0.35320962	+0.17701935
<i>P</i>	3.21	<i>H</i> 14.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1988 11 15	400	0.1+	2.1+	1994 08 11	809	(1.6+	3.7+)	1996 03 18	801	0.0	1.3-
1988 11 15	400	(2.1+	5.8+)	1994 08 12	809	1.0+	0.4+	1996 03 18	801	1.8+	1.6-
1988 11 15	400	(3.0-	4.7+)	1994 08 12	809	0.3+	0.5-	1998 11 22	691	(2.3-	0.3-)
1988 11 16	400	0.5+	1.2+	1994 08 12	809	0.3+	0.1-	1998 11 22	691	(2.4-	0.2-)
1988 11 16	400	(0.3+	3.2+)	1994 08 13	809	0.6+	0.4-	1998 11 22	691	(2.6-	0.2-)
1988 11 16	400	(5.4-	1.8-)	1994 08 13	809	0.3+	0.4-	1998 11 23	704	1.5-	0.3-
1991 09 10	675	(1.5+	2.2-)	1994 08 13	809	0.4-	1.0-	1998 11 23	704	0.8+	0.5-
1991 09 10	675	(0.7-	3.3-)	1994 09 03	801	0.5+	0.1-	1998 11 23	704	0.9+	0.3-
1991 09 14	675	0.5-	0.8-	1994 09 03	801	0.9+	0.2-	1998 11 23	704	0.1+	1.5-
1991 09 14	675	0.1+	0.5-	1994 09 03	809	(3.0+	4.3+)	1998 11 23	699	0.5-	0.1-
1991 09 16	675	(0.1-	2.1-)	1994 09 03	809	(4.2+	4.1+)	1998 11 23	699	0.5-	0.7+
1991 09 16	675	(0.0	3.9-)	1994 09 03	809	(4.2+	4.3+)	1998 11 23	699	0.6-	0.5-
1991 11 08	675	(0.7-	3.5-)	1994 09 04	809	1.1+	1.0+	1998 11 25	704	(0.1-	2.1+)
1991 11 08	675	1.2-	1.3-	1994 09 04	809	0.3+	0.0	1998 11 25	704	0.7+	0.8-
1993 03 21	809	1.3-	0.7+	1994 09 04	809	0.7+	1.0+	1998 11 25	704	0.2+	1.2+
1993 03 22	809	0.1-	0.6+	1994 09 05	809	0.9-	0.4-	1998 11 25	704	0.9+	0.7+
1993 03 26	809	1.1-	1.0+	1994 09 05	809	1.2-	0.1-	1998 11 25	704	0.1-	0.1-
1993 03 27	809	0.4+	0.8+	1994 09 05	809	1.7-	0.0	1998 12 26	732	0.6-	0.1-
1993 04 16	413	(2.5-	0.5+)	1994 09 06	809	0.0	0.1-	1998 12 26	732	0.2+	0.1-
1993 04 18	413	(4.2+	4.1+)	1994 09 06	809	0.8+	0.4+	1998 12 26	732	0.1-	0.3+
1994 08 10	809	(1.5+	3.0+)	1994 09 06	809	0.2-	1.2-	1998 12 27	732	1.2-	0.2-
1994 08 10	809	(1.4+	3.0+)	1994 10 07	801	0.5+	1.0-	1998 12 27	732	0.8-	0.7-
1994 08 10	809	(0.6+	3.0+)	1994 10 07	801	(2.2+	0.9-)	1998 12 27	732	0.7-	0.5+
1994 08 11	809	(2.1+	4.2+)	1996 02 19	801	0.4+	1.4-	1998 12 27	732	0.2+	0.0
1994 08 11	809	(1.7+	4.0+)	1996 02 19	801	0.1-	1.7-				

(9875)* 1993 FH₂₅ = 1997 GK₄₂

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

Id. G. V. Williams (*MPC* 30080)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	103.89699	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.25739646	ω 78.60402	+0.17645784	+0.98379701
<i>a</i>	2.4475656	Ω 201.63749	-0.93330766	+0.15698985
<i>e</i>	0.0534780	<i>i</i> 4.93475	-0.31272901	+0.08658890
<i>P</i>	3.83	<i>H</i> 13.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1987 11 26	675	0.4-	1.7+	1998 09 16	699	0.0	0.0	1998 10 10	120	0.4-	0.4-
1987 11 26	675	0.4-	0.9+	1998 09 16	699	0.4+	0.2+	1998 10 10	120	0.4-	0.6-
1993 03 21	809	0.0	0.1+	1998 09 16	699	0.2+	0.0	1998 10 10	120	0.0	0.7-
1993 03 22	809	0.6+	0.2-	1998 09 18	704	0.3-	0.1-	1998 10 13	120	0.1-	0.3-
1993 03 26	809	0.3+	0.4+	1998 09 18	704	0.8+	0.2+	1998 10 13	120	0.3+	0.0
1993 04 21	413	0.0	0.3-	1998 09 18	704	0.8+	0.1-	1998 10 14	704	0.1-	0.4-
1997 04 11	809	0.5+	1.2+	1998 09 18	704	0.7-	0.9+	1998 10 14	704	0.1+	0.0
1997 04 11	809	0.5+	1.7+	1998 09 18	704	1.9+	0.3-	1998 10 14	704	1.1+	0.0
1997 04 11	809	0.9+	1.0+	1998 09 26	704	0.5+	0.0	1998 10 14	704	0.8-	0.9-
1997 04 12	809	0.8-	1.7-	1998 09 26	704	0.1-	0.2+	1998 10 14	704	0.2+	0.2-
1997 04 12	809	(1.0-	2.3-)	1998 09 26	704	(2.9-	0.5+)	1998 10 14	699	0.4-	0.6-
1997 04 12	809	1.6-	0.9-	1998 09 26	704	1.5-	0.4-	1998 10 14	699	0.3-	0.7-
1998 06 29	704	0.5-	1.1+	1998 09 26	704	0.0	0.0	1998 10 14	699	0.2-	0.6-
1998 06 29	704	0.2-	1.4+	1998 09 27	699	0.2+	0.2+	1998 10 15	704	0.4-	0.4-
1998 06 29	704	0.2+	1.6+	1998 09 27	699	0.5+	0.2+	1998 10 15	704	0.2+	0.4-
1998 06 29	704	1.5-	0.1-	1998 09 27	704	0.5+	0.1+	1998 10 15	704	0.7-	1.1-
1998 08 23	704	0.4+	0.4+	1998 09 27	704	0.7-	0.4+	1998 10 15	704	0.5-	0.8-
1998 08 23	704	0.4-	0.8+	1998 09 27	699	0.2+	0.6+	1998 10 15	704	0.0	1.8-
1998 08 23	704	0.6-	1.3+	1998 09 27	704	1.0+	0.2+	1998 11 25	699	0.8-	0.1+
1998 08 23	704	0.3+	0.4+	1998 09 27	704	0.5+	0.7-	1998 11 25	699	1.3-	1.0+
1998 08 23	704	0.2-	1.3-	1998 09 27	704	0.2+	0.5+	1998 11 25	699	0.2-	1.1+
1998 09 14	704	0.6-	1.0-	1998 09 29	120	0.7+	0.3-	1998 12 08	704	0.2+	0.3-
1998 09 14	704	0.1+	0.5-	1998 09 29	120	1.3-	0.9-	1998 12 08	704	0.8-	1.2+
1998 09 14	704	0.9+	0.4+	1998 10 02	120	0.1-	0.7+	1998 12 08	704	1.5-	0.3-
1998 09 14	704	0.4+	0.8+	1998 10 02	120	0.1+	0.7+	1998 12 08	704	0.9+	2.0-
1998 09 14	704	0.2+	1.4+	1998 10 02	120	1.1+	0.4+	1998 12 08	704	0.1+	1.2+

(9876)* 1993 FY₃₇ = 1991 VQ₄ = 1997 NS₁₀

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

Id. E. Bowell (*MPC* 30451), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	52.32286	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28429181	ω 211.25347	+0.92775321	-0.37299692
<i>a</i>	2.2906557	Ω 170.62321	+0.35593074	+0.87459218
<i>e</i>	0.1860511	<i>i</i> 4.27178	+0.11219309	+0.30977705
<i>P</i>	3.47	<i>H</i> 14.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1991 11 13	894	0.3+	0.1+	1997 07 02	688	0.6+	0.3+	1998 12 15	757	0.7+	0.2+
1991 11 13	894	0.5-	0.9+	1997 07 02	688	0.6+	0.2+	1998 12 15	757	0.9+	0.7-
1991 11 14	894	0.2-	1.0-	1997 07 02	691	0.9-	0.4-	1998 12 15	704	0.6+	0.3+
1991 11 14	894	0.1+	1.7+	1997 07 03	688	0.4+	0.4+	1998 12 15	704	0.0	0.8-
1993 03 19	809	(1.0-	2.3+)	1997 07 03	688	0.4+	0.2+	1998 12 15	704	1.0+	1.1+
1993 03 20	809	0.0	1.5+	1997 07 03	688	0.2+	0.2+	1998 12 15	704	0.5-	0.2-
1993 03 24	809	0.1+	0.7+	1997 07 08	691	0.7-	0.0	1998 12 15	704	1.0+	0.4+
1993 04 14	691	1.1+	0.3-	1997 07 08	691	0.7-	0.5-	1998 12 22	704	0.0	1.9-
1993 04 14	691	(4.0-	2.9-)	1997 07 08	691	1.0-	0.5-	1998 12 22	704	0.8-	0.3-
1993 04 14	691	0.6-	0.7-	1998 09 29	704	0.7+	2.0+	1998 12 22	704	1.3-	0.2+
1997 07 02	688	0.8+	0.1-	1998 09 29	704	0.2+	0.9-	1998 12 22	704	0.1-	0.7+
1997 07 02	688	0.2+	0.3+	1998 09 29	704	(0.4-	2.2+)	1998 12 22	704	0.6-	1.3-
1997 07 02	691	0.3-	0.1-	1998 09 29	704	0.3+	0.2+	1998 12 22	704	1.5-	1.1+

(9877)* 1993 ST₃ = A922 VB = 1989 YY₅ = 1991 ES = 1992 JE₃

Discovered 1993 Sept. 18 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 30275)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	73.09610	(2000.0)	P		Q	
<i>n</i>	0.22190095	ω	316.64845	+0.99557275	-0.00821200	
<i>a</i>	2.7020701	Ω	44.08580	+0.05262302	+0.87411908	
<i>e</i>	0.2333575	<i>i</i>	7.73456	-0.07788273	+0.48564226	
<i>P</i>	4.44	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1922 11 15	754 (6.1+ 1.9-)	Y	1992 05 07	809 0.5- 0.9-	1993 10 15	675 0.2- 0.1+
1922 11 17	754(13.1- 5.2+)	Y	1992 05 08	809 (7.6- 0.1-)	1993 10 15	675 0.3- 0.1+
1922 11 21	754(10.7+ 8.4+)	Y	1992 05 08	809 (7.4- 0.2-)	1998 11 19	689 (0.2- 2.5-)
1922 11 23	754(30.3+ 4.9+)	Y	1992 05 08	809 (7.5- 0.0)	1998 11 20	689 0.3- 1.3-
1989 12 28	511 0.4+ 1.3-		1992 05 10	809 (3.0+ 0.7-)	1998 12 14	704 0.1- 0.2-
1989 12 28	511 0.7+ 0.5-		1992 05 10	809 (2.9+ 0.9-)	1998 12 14	704 0.0 0.5-
1989 12 29	511 0.0 0.9+		1993 09 18	675 0.5+ 0.4+	1998 12 14	704 0.5+ 0.1+
1989 12 29	511 1.0- 0.5-		1993 09 18	675 0.1+ 0.2+	1998 12 14	704 0.8- 0.5-
1991 03 09	372 0.5- 1.3+		1993 09 21	675 0.4- 0.0	1998 12 17	704 0.5+ 0.3+
1991 03 09	372 1.8+ 0.6+		1993 09 21	675 0.2- 0.1-	1998 12 17	704 0.6- 1.9-
1991 03 13	372 1.1+ 0.6+		1993 09 22	675 0.3- 0.2-	1998 12 17	704 0.4+ 0.4+
1991 03 13	372 0.7- 0.4-		1993 09 22	675 0.0 0.0	1998 12 17	704 0.2+ 1.6+
1992 05 07	809 0.7- 1.1-		1993 10 13	675 0.6+ 0.0	1998 12 17	704 0.1+ 0.4+
1992 05 07	809 0.5- 1.0-		1993 10 13	675 0.1+ 0.3-		

(9878)* 1994 FQ

Discovered 1994 Mar. 17 at Farra d'Isonzo.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	326.25178	(2000.0)	P		Q	
<i>n</i>	0.18153431	ω	344.54725	-0.78907821	-0.60443544	
<i>a</i>	3.0890876	Ω	157.16133	+0.58928795	-0.79520062	
<i>e</i>	0.1213429	<i>i</i>	16.40280	+0.17347994	-0.04810179	
<i>P</i>	5.43	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1994 02 12	675 0.2- 0.8+		1995 05 28	595 1.6- 1.6-	1997 10 25	595 1.2- 0.1+
1994 02 12	675 0.4+ 0.2-		1995 05 28	595 1.0+ 0.8-	1997 10 25	595 (2.8- 0.3-)
1994 02 15	675 (2.4+ 0.7-)		1995 05 29	595 0.5+ 0.4-	1998 11 21	595 0.2+ 0.1-
1994 02 15	675 0.1- 0.8+		1995 05 29	595 0.8- 1.3+	1998 11 21	595 0.3+ 0.1-
1994 03 17	595 0.5+ 0.2-		1995 05 29	595 1.3- 0.9+	1998 11 22	595 0.3- 1.6+
1994 03 17	595 0.0 0.2+		1995 05 30	595 0.2+ 1.1+	1998 11 22	595 0.6+ 0.8+
1994 03 29	595 1.6+ 0.6-		1995 05 30	595 1.7+ 0.9+	1998 12 15	595 1.2- 0.4+
1994 03 29	595 0.3- 0.1-		1996 07 13	595 0.1+ 0.1+	1998 12 15	595 0.0 0.4+
1994 03 29	595 1.4- 0.8-		1996 07 13	595 0.4+ 0.4+	1998 12 15	595 0.5- 0.3+
1994 03 30	595 0.2- 0.7+		1996 07 13	595 1.8+ 1.1+	1998 12 15	595 0.4+ 0.5+
1994 03 30	595 0.1- 1.0+		1996 07 13	595 0.2- 0.3-	1998 12 19	704 1.0- 1.2+
1994 03 30	595 1.2- 0.3+		1996 08 16	595 0.8- 0.2+	1998 12 19	704 0.5+ 0.3+
1994 03 31	595 0.4+ 1.3+		1996 08 16	595 0.3+ 0.3-	1998 12 19	704 1.7+ 1.1-
1994 03 31	595 1.0+ 0.2-		1996 08 20	595 0.1- 1.8+	1998 12 19	704 0.5- 2.5-
1994 05 06	595 0.1+ 1.2-		1996 08 20	595 0.4- 1.1-		
1994 05 06	595 0.7- 1.2-		1997 10 25	595 (2.3+ 1.3+)		

(9879)* 1994 PZ₂₉ = 1993 FD₆₆

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

Observatory.

Id. G. V. Williams (*MPC* 24901)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	69.37662	(2000.0)	P		Q	
<i>n</i>	0.26812323	ω	102.97341	+0.93925630	+0.33890144	
<i>a</i>	2.3818427	Ω	237.24059	-0.33457455	+0.86884607	
<i>e</i>	0.2476762	<i>i</i>	3.69896	-0.07653409	+0.36090488	
<i>P</i>	3.68	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1971 03 26	675 0.7- 1.1+		1994 09 06	809 0.5- 0.6-	1998 11 21	704 0.7- 1.1-
1971 03 26	675 0.3+ 2.1-		1994 09 06	809 0.0 1.0-	1998 11 24	704 0.1- 0.4-

1971 03 27	675 (1.3- 3.4+)		1998 11 16	610 1.3+ 0.9-	1998 11 24	704 0.3- 0.1+
1993 03 21	809 1.5- 1.4+		1998 11 17	610 1.1+ 0.9-	1998 11 24	704 0.1- 1.4+
1993 03 22	809 1.8+ 0.0		1998 11 17	610 0.9+ 0.8-	1998 11 24	704 0.8- 1.1+
1993 04 17	413 0.0 0.9-		1998 11 17	610 0.7+ 0.6-	1998 11 24	704 (4.0- 1.7+)
1994 08 12	809 0.8+ 0.1+		1998 11 17	610 0.6+ 0.4-	1998 12 10	691 0.6- 0.1+
1994 08 12	809 1.0- 0.5+		1998 11 17	610 0.2+ 0.1-	1998 12 10	691 0.3- 0.2+
1994 08 12	809 0.5- 0.1-		1998 11 17	610 0.3+ 0.0	1998 12 10	691 0.4- 0.2+
1994 08 13	809 1.1+ 0.3+		1998 11 17	610 0.4+ 0.1+	1998 12 14	691 1.4- 0.1+
1994 08 13	809 0.7+ 0.5+		1998 11 17	610 0.6+ 0.3+	1998 12 14	691 1.2- 0.1+
1994 08 13	809 0.0 0.8+		1998 11 17	610 0.8+ 0.4+	1998 12 14	691 1.6- 0.1+
1994 09 05	809 0.4+ 0.3+		1998 11 21	704 0.2+ 0.3+	1998 12 15	691 0.3+ 0.1-
1994 09 05	809 0.0 0.5-		1998 11 21	704 0.9+ 0.2+	1998 12 15	691 0.0 0.0
1994 09 05	809 0.1- 0.3-		1998 11 21	704 1.0- 1.1-	1998 12 15	691 0.1- 0.2+
1994 09 06	809 1.0- 0.0		1998 11 21	704 0.1- 1.3+		

(9880)* 1994 PQ₃₁ = 1977 UF₄ = 1980 PO₄ = 1989 CS₈ = 1991 WQ

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

Observatory.

Id. G. V. Williams (*MPC* 24901)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	14.71424	(2000.0)	P		Q	
<i>n</i>	0.28486423	ω	232.17410	+0.27357441	-0.96158500	
<i>a</i>	2.2875860	Ω	201.98099	+0.90037593	+0.26428862	
<i>e</i>	0.1101559	<i>i</i>	3.46357	+0.33834928	+0.07420124	
<i>P</i>	3.46	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1977 10 18	675 0.6+ 0.5+		1994 09 04	809 (5.4- 4.4-)	1998 11 17	012 0.7- 0.2+
1977 10 19	675 1.4+ 0.8+		1994 09 04	809 (5.4- 3.5-)	1998 11 18	012 0.5- 0.1+
1980 08 04	675 0.3+ 1.9+		1994 09 05	809 0.1+ 0.8+	1998 11 18	012 0.9- 0.3+
1980 08 05	675 1.4- 1.2+		1994 09 05	809 0.5- 0.2+	1998 11 18	012 0.5+ 0.2+
1989 02 13	809 0.0 0.3+		1994 09 05	809 0.8- 0.7+	1998 11 18	012 0.9- 0.3+
1989 02 13	809 0.3- 0.0		1994 09 06	809 0.3- 0.6+	1998 11 18	012 0.7- 0.4+
1989 02 13	809 0.6- 0.3-		1994 09 06	809 0.8- 0.7-	1998 12 15	704 0.3- 0.8-
1991 11 29	691 1.7- 0.1-		1994 09 06	809 0.8- 1.3-	1998 12 15	704 0.2- 0.5-
1991 11 29	691 1.7- 0.2+		1997 07 02	704 0.1+ 0.0	1998 12 15	704 0.6+ 0.6-
1991 11 29	691 1.5- 0.3+		1997 07 02	704 0.2+ 0.7-	1998 12 15	704 0.4+ 0.1+
1994 08 12	809 (3.7+ 1.0-)		1997 07 02	704 0.7- 0.4-	1998 12 15	704 0.2+ 1.0-
1994 08 12	809 (2.7+ 1.3-)		1997 07 02	704 0.4+ 0.4-	1998 12 22	704 0.9+ 0.2+
1994 08 12	809 1.7+ 1.0-		1997 07 03	704 0.5+ 0.1-	1998 12 22	704 1.0+ 0.2-
1994 08 13	809 1.0- 0.7-		1997 07 03	704 0.4+ 0.9-	1998 12 22	704 1.4+ 0.8-
1994 08 13	809 1.0+ 0.8-		1997 07 03	704 0.3+ 0.7-	1998 12 22	704 1.7+ 0.7-
1994 08 13	809 1.7+ 1.1-		1997 07 03	704 0.1- 0.8-	1998 12 22	704 1.0+ 1.4-
1994 09 04	809 (5.5- 3.8-)		1998 11 17	012 0.6+ 0.8+		

(9881)* 1994 SE

Discovered 1994 Sept. 25 by R. H. McNaught at Siding Spring.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	77.60033	(2000.0)	P		Q	
<i>n</i>	0.27510373	ω	274.15294	+0.90341407	+0.41049099	
<i>a</i>	2.3413791	Ω	61.65123	-0.31587830	+0.83251316	
<i>e</i>	0.4091546	<i>i</i>	8.09027	-0.28993780	+0.37204701	
<i>P</i>	3.58	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1976 05 29	413 0.3+ 0.2-		1994 10 23	360 0.4- 0.1-	1995 01 13	413 1.7- 0.3-
1976 05 29	413 1.0+ 0.5-		1994 10 26	608 1.0+ 0.3+	1995 02 01	413 0.8- 0.1+
1976 05 31	413 0.1+ 0.5-		1994 10 26	608 1.2+ 0.5+	1995 02 01	413 0.9- 0.1-
1976 05 31	413 0.3+ 0.8-		1994 10 30	360 0.1+ 0.1+	1995 02 02	413 0.1- 0.2-
1976 07 27	413 0.9- 0.3+		1994 10 30	360 0.3- 0.4+	1995 02 02	413 0.6- 0.2-
1983 06 03	413 (4.6- 0.4+)		1994 11 11	413 0.4- 1.1+	1997 04 10	658 0.0 0.0
1983 06 03	413 1.4- 0.5+		1994 11 11	413 0.5- 0.6+	1997 04 10	658 (2.0+ 0.7+)
1983 06 14	413 0.3- 0.5+		1994 11 12	413 0.8- 0.6+	1997 04 10	658 0.4- 0.0
1983 06 14	413 0.5- 1.0+		1994 11 12	413 0.7- 0.5+	1998 11 25	561 0.2+ 0.0
1994 09 25	413 0.6- 0.7-		1994 11 24	360 0.6- 0.2-	1998 11 25	561 0.0 0.2+

1994 09 25	413	1.1–	0.1–	1994 11 24	360	0.4–	0.4–	1998 11 25	561	0.1+	0.0
1994 10 03	413	0.2–	0.3–	1994 12 18	413	0.1+	0.4–	1998 12 16	402	0.3–	0.5–
1994 10 04	413	0.2–	0.5–	1994 12 18	413	0.1+	0.7–	1998 12 16	402	0.5+	0.7–
1994 10 05	413	0.8+	0.2–	1994 12 18	413	0.1+	0.6–	1998 12 16	402	0.4+	0.3–
1994 10 09	670	0.9+	1.5+	1994 12 19	413	0.3–	0.6–	1998 12 17	704	1.8+	1.4+
1994 10 09	670	0.9+	1.2–	1994 12 19	413	0.1–	0.8–	1998 12 17	704	1.5+	0.6+
1994 10 09	670	(2.3+	0.6–)	1994 12 20	413	0.1–	0.7–	1998 12 17	704	0.5+	0.4+
1994 10 10	670	1.1+	0.0	1994 12 20	413	0.8–	0.5–	1998 12 17	704	0.7+	1.0–
1994 10 10	670	1.3+	0.8–	1994 12 21	413	0.4–	0.2–	1998 12 20	360	0.5–	0.7–
1994 10 11	413	0.7+	0.6+	1994 12 21	413	0.2–	0.3–	1998 12 20	360	0.3–	0.8–
1994 10 14	360	0.3–	0.5+	1995 01 12	413	0.1–	0.1–	1998 12 20	360	0.5–	0.6–
1994 10 14	360	0.3–	0.5+	1995 01 12	413	0.3–	0.4+				
1994 10 23	360	0.1+	0.6–	1995 01 13	413	0.9–	0.2–				

(9882)* 1994 SS₉ = 1979 QV₄ = 1997 HE₁₈

Discovered 1994 Sept. 28 by Spacewatch at Kitt Peak.

Id. S. Nakano (*MPC* 32238)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	105.40115	ω	156.25789	+0.57542842	+0.81780387		
<i>a</i>	2.3914168	Ω	148.86960	–0.75309047	+0.53406909		
<i>e</i>	0.1843391	<i>i</i>	0.98483	–0.31896218	+0.21439924		
<i>P</i>	3.70	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 08 26	809	0.4–	0.7+	1994 10 12	691	0.9–	0.1+	1997 05 05	704	0.2+	0.4+
1979 08 26	809	0.0	1.1–	1997 04 30	704	0.3–	0.1+	1998 11 21	691	1.4–	0.4–
1979 08 26	809	0.2+	0.6–	1997 04 30	704	0.4–	0.5+	1998 11 21	691	1.3–	0.1–
1979 08 30	809	1.5+	0.2–	1997 04 30	704	0.5+	0.2+	1998 11 21	691	1.2–	0.4–
1979 08 30	809	(1.1+	10.0–)	1997 04 30	704	0.2+	0.7+	1998 12 07	910	0.2–	1.0+
1993 03 19	809	0.7–	0.4–	1997 04 30	704	0.3+	0.8+	1998 12 07	910	0.1+	0.8+
1993 03 20	809	1.3–	0.2–	1997 04 30	704	0.2–	1.4+	1998 12 07	910	0.3+	0.9+
1993 03 24	809	0.8–	1.0+	1997 04 30	704	1.2+	0.9+	1998 12 08	910	1.4+	0.4+
1994 09 28	691	0.1–	0.5+	1997 04 30	704	0.5–	0.2–	1998 12 08	910	1.3+	0.3+
1994 09 28	691	0.5–	0.4+	1997 04 30	704	0.3+	0.4+	1998 12 08	910	1.0+	0.7+
1994 09 28	691	0.3–	0.3+	1997 04 30	704	0.3+	0.5+	1998 12 08	910	1.1+	0.9+
1994 10 11	691	0.5–	0.4+	1997 05 05	704	0.8+	0.6+	1998 12 08	910	0.6+	1.0+
1994 10 11	691	0.6–	0.7+	1997 05 05	704	1.4+	1.3+	1998 12 08	910	0.6+	1.3+
1994 10 12	691	1.3–	0.4+	1997 05 05	704	0.0	0.2+				
1994 10 12	691	0.8–	0.3+	1997 05 05	704	0.5+	0.2–				

(9883)* 1994 TU₁

Discovered 1994 Oct. 8 by J. E. Rogers at Camarillo.

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	112.69848	ω	357.30961	+0.85651204	+0.51298138		
<i>a</i>	2.3528281	Ω	331.59978	–0.47127574	+0.73236705		
<i>e</i>	0.1439291	<i>i</i>	6.87042	–0.21044310	+0.44775954		
<i>P</i>	3.61	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 07 21	675	(0.5–	2.3+)	1994 12 03	671	0.4–	0.4+	1996 04 03	494	0.3+	0.8+
1990 07 21	675	1.2–	1.5+	1994 12 03	671	0.6–	0.4+	1996 04 04	494	1.1+	0.4+
1990 07 23	675	(2.6–	1.0+)	1996 02 24	671	1.0+	0.9+	1996 04 04	494	0.2–	0.6+
1990 07 23	675	1.3–	0.6+	1996 02 24	671	0.1–	0.7–	1997 06 07	424	0.9+	1.1+
1994 10 01	675	1.0–	0.9+	1996 02 24	671	0.4+	0.0	1997 06 07	424	(0.1+	2.9–)
1994 10 01	675	0.4–	0.6–	1996 02 27	817	0.2+	0.4+	1997 06 09	424	0.2+	0.5–
1994 10 08	670	0.3–	1.0–	1996 02 27	817	1.8+	0.3–	1997 06 09	424	0.6–	1.2–
1994 10 08	670	0.2+	0.8–	1996 02 27	817	0.2+	0.0	1998 11 27	747	0.2–	0.8–
1994 10 09	670	0.6–	0.7–	1996 02 27	817	1.5–	0.1+	1998 11 27	747	0.6+	0.6+
1994 10 09	670	0.6+	0.1–	1996 02 27	817	0.5+	0.6+	1998 11 27	747	0.6+	0.6–
1994 10 10	670	0.3–	0.5+	1996 03 15	424	(4.5–	2.3–)	1998 12 14	704	0.6–	0.5–
1994 10 10	670	0.2+	0.6+	1996 03 15	424	1.7+	0.8–	1998 12 14	704	0.3+	0.8–
1994 10 11	670	0.6–	0.2–	1996 03 15	424	(2.3+	1.0–)	1998 12 14	704	0.9–	0.0
1994 10 11	670	1.1–	0.5+	1996 03 15	424	0.1+	0.3–	1998 12 14	704	0.6+	0.3+

1994 10 23	670	0.2+	0.5+	1996 03 17	424	0.2+	0.6+	1998 12 16	747	0.3+	0.7+
1994 10 23	670	0.8+	0.1+	1996 03 17	424	0.9–	0.5–	1998 12 16	747	0.5–	0.4+
1994 10 29	671	0.9+	0.6+	1996 03 17	424	1.0+	0.5–	1998 12 17	704	1.1–	1.3+
1994 10 29	671	0.9+	0.4+	1996 03 18	424	0.3–	0.6–	1998 12 17	704	0.8–	0.1–
1994 11 06	670	0.7+	1.8+	1996 03 18	424	0.4–	0.5+	1998 12 17	704	0.6–	1.2–
1994 11 06	670	1.4+	1.4+	1996 03 18	424	0.5–	0.5+	1998 12 17	704	0.4–	0.6–
1994 11 29	675	1.3+	1.3–	1996 03 18	424	1.0–	1.8+	1998 12 17	704	0.5–	1.0+
1994 11 29	675	0.4–	0.9–	1996 04 03	494	0.3–	0.1–				

(9884)* 1994 TN₃ = 1974 HB₂ = 1992 EO₁₉

Discovered 1994 Oct. 12 by M. Tichý and Z. Moravec at Kleť.

Id. G. V. Williams (*MPC* 24397)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	1.46917	ω	73.88675	–0.16775227	–0.98572737		
<i>a</i>	2.3773469	Ω	25.78329	+0.89157749	–0.15783064		
<i>e</i>	0.1383175	<i>i</i>	1.86656	+0.42065277	–0.05857504		
<i>P</i>	3.67	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1974 04 24	805	(7.8–	5.4–)	1994 11 06	046	0.6+	1.5+	1997 07 28	046	1.1–	0.5+
1974 04 25	805	0.6–	0.2+	1994 11 06	046	0.6+	0.2+	1997 08 04	046	0.5+	0.1–
1992 02 25	675	(1.2+	2.2–)	1994 12 03	046	0.6+	1.6+	1997 08 04	046	0.5+	0.3+
1992 02 25	675	0.8+	1.1–	1994 12 03	046	0.6–	0.0	1997 08 04	046	1.2+	0.1–
1992 02 27	675	0.2–	1.0+	1994 12 03	046	0.4–	1.9–	1997 08 04	046	0.2+	0.6–
1992 02 27	675	0.3–	0.6–	1994 12 06	046	0.2–	1.0–	1998 11 24	046	0.8+	0.3–
1992 02 28	675	1.1+	0.2–	1996 03 28	046	(3.0+	1.3+)	1998 11 24	046	0.8+	0.2–
1992 02 28	675	0.6+	0.5–	1996 03 28	046	(2.1+	0.1+)	1998 11 24	046	0.5+	0.3–
1992 03 01	809	0.1–	1.2+	1996 03 28	046	1.6+	0.4–	1998 11 25	046	0.4+	0.2–
1992 03 04	809	0.1–	1.3+	1996 04 16	046	0.2+	0.0	1998 11 25	046	0.5+	0.4–
1994 10 12	046	0.2–	0.6+	1996 04 16	046	0.5+	0.2+	1998 11 25	046	0.5+	0.5–
1994 10 12	046	0.1–	0.3–	1996 04 16	046	0.5+	0.5+	1998 12 10	046	0.4–	0.1+
1994 10 12	046	0.3+	0.7–	1996 04 18	046	0.8–	0.4–	1998 12 10	046	0.4–	0.1+
1994 10 14	046	0.2–	0.2–	1996 04 18	046	0.2+	1.4–	1998 12 11	046	0.3–	0.1+
1994 10 14	046	0.9–	0.2–	1996 04 18	046	0.0	1.0–	1998 12 11	046	0.4–	0.0
1994 10 14	046	0.3+	0.2+	1996 05 16	046	1.2–	0.1–	1998 12 11	046	0.3–	0.0
1994 10 14	046	0.5–	0.0	1996 05 16	046	0.2–	0.6+	1998 12 14	704	0.8–	1.6–
1994 10 15	046	0.3–	0.3+	1996 05 16	046	0.3–	0.8+	1998 12 14	704	0.1+	0.0
1994 10 15	046	0.2+	0.2+	1996 05 18	046	1.7–	0.5–	1998 12 14	704	0.2+	0.8+
1994 10 15	046	0.1+	0.5+	1996 05 18	046	(2.2–	1.7–)	1998 12 17	704	0.1–	0.3+
1994 10 27	046	0.4–	0.4–	1996 05 18	046	(2.2–	0.3+)	1998 12 17	704	0.4+	0.5+
1994 10 27	046	0.4–	0.4–	1997 07 28	046	0.1+	0.3–	1998 12 17	704	1.6–	1.0–
1994 10 27	046	1.2+	0.3–	1997 07 28	046	1.1–	0.4–	1998 12 17	704	0.4–	0.1+
1994 11 06	046	1.0+	0.7+	1997 07 28	046	0.6–	0.8+	1998 12 17	704	0.2–	0.9+

(9885)* 1994 TM₁₄ = 1985 CT₂

Discovered 1994 Oct. 12 by Spacewatch at Kitt Peak.

Id. S. Nakano (*MPC* 24235)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	8.66070	ω	253.37039	–0.02978972	–0.99898913		
<i>a</i>	2.3581990	Ω	198.43538	+0.95286111	–0.01820830		
<i>e</i>	0.0660907	<i>i</i>	6.11092	+0.30194084	–0.04109954		
<i>P</i>	3.62	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1989 05 07	675	0.2+	1.8-	1994 10 31	894	0.9+	1.6+	1998 12 15	704	0.7+	0.8+
1989 05 07	675	0.9+	0.6+	1994 10 31	894	0.6+	0.2+	1998 12 22	704	0.3-	0.2-
1994 10 12	691	0.6+	0.0	1996 03 18	566	0.5+	0.6+	1998 12 22	704	0.6-	0.1-
1994 10 12	691	0.6+	0.4-	1996 03 18	566	0.5+	0.4+	1998 12 22	704	0.1+	0.4-
1994 10 12	691	0.3+	0.4-	1996 03 18	566	0.5+	0.5+	1998 12 22	704	0.9-	0.2-
1994 10 12	691	0.1+	0.2-	1997 06 14	691	0.1-	0.3+	1998 12 22	704	0.1+	0.3-
1994 10 12	691	0.1+	0.2-	1997 06 14	691	0.3-	0.0				

(9886)* 1994 VM₇ = 1979 WR₆ = 1984 BM₁

Discovered 1994 Nov. 8 by S. Otomo at Kiyosato.

Id. G. V. Williams (*MPC* 24574)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	29.45628	(2000.0)		P	Q
<i>n</i>	0.26303981	ω	15.70517	+0.40184680	-0.91463462
<i>a</i>	2.4124319	Ω	50.62267	+0.83385303	+0.34550400
<i>e</i>	0.1761902	<i>i</i>	3.28558	+0.37842869	+0.20992973
<i>P</i>	3.75	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1979 11 17	095	1.1+	1.6-	1994 11 25	894	0.1-	0.4-	1998 12 14	744	0.0	0.2-
1984 01 24	381	0.4-	0.6+	1994 11 25	894	0.8-	0.6+	1998 12 14	744	0.1+	0.1-
1984 01 24	381	0.2+	0.6+	1994 11 30	894	1.3+	1.7+	1998 12 14	744	0.2+	0.1-
1984 01 24	381	0.6+	1.7+	1994 11 30	894	0.0	1.6+	1998 12 14	704	0.1+	0.1-
1984 01 24	381	1.0-	0.8+	1994 12 03	675	0.1-	0.4-	1998 12 14	704	0.3+	0.1-
1994 10 13	691	1.0-	0.4+	1994 12 03	675	0.3+	0.5-	1998 12 14	704	0.6-	0.4-
1994 10 13	691	(2.5-	0.6+)	1996 04 12	691	0.3-	0.1-	1998 12 14	704	0.2+	0.0
1994 10 13	691	0.1-	1.4+	1996 04 12	691	0.0	0.0	1998 12 14	704	0.6-	0.3+
1994 11 04	675	1.0+	1.1-	1996 04 12	691	0.2-	0.0	1998 12 15	744	0.1+	0.2+
1994 11 04	675	0.3-	1.8-	1996 04 19	691	0.1-	0.5-	1998 12 15	744	0.1-	0.1-
1994 11 06	675	0.3+	1.3-	1996 04 19	691	0.1-	0.3-	1998 12 17	704	0.3+	0.3-
1994 11 06	675	0.6+	0.5-	1996 04 19	691	0.1+	0.4-	1998 12 17	704	0.0	0.9-
1994 11 08	894	1.5-	0.4+	1998 10 30	704	0.2+	0.1-	1998 12 17	704	1.5+	0.4-
1994 11 08	894	0.5-	0.3+	1998 10 30	704	0.6-	1.2-	1998 12 17	704	(0.9-	2.2-)
1994 11 10	894	0.3-	0.4+	1998 10 30	704	1.0+	1.4+	1998 12 17	704	1.6-	1.6-
1994 11 10	894	0.5+	0.4+	1998 10 30	704	0.3-	0.4+				

(9887)* 1995 AH = 1993 PO₂

Discovered 1995 Jan. 2 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 24754)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	39.11903	(2000.0)		P	Q
<i>n</i>	0.23327321	ω	268.51879	+0.68225423	-0.72952949
<i>a</i>	2.6135218	Ω	138.32440	+0.69627212	+0.62825310
<i>e</i>	0.1275593	<i>i</i>	4.15046	+0.22301190	+0.27034193
<i>P</i>	4.23	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1989 09 02	675	0.5+	0.5-	1995 01 10	411	0.9-	1.4+	1998 11 30	426	0.4-	0.0
1989 09 02	675	1.0+	0.2+	1996 04 19	691	0.2+	0.2-	1998 12 12	367	0.6-	0.2-
1989 09 29	675	0.5+	0.6+	1996 04 19	691	0.0	0.1+	1998 12 12	367	1.7-	0.8+
1989 09 29	675	0.3+	0.4+	1996 04 19	691	0.2+	0.2-	1998 12 15	704	0.6+	0.1-
1993 08 15	691	0.9-	0.1+	1997 08 01	566	0.5+	0.9+	1998 12 15	704	1.5+	0.6-
1993 08 15	691	0.9-	0.1+	1997 08 01	566	1.0+	0.9+	1998 12 15	704	0.7+	0.2+
1993 08 15	691	0.8-	0.1+	1997 08 01	566	0.1+	1.1+	1998 12 15	704	1.4+	0.6+
1993 08 22	691	(2.6-	0.2-)	1998 11 23	704	0.6+	0.5-	1998 12 15	704	1.3+	0.3+
1993 08 22	691	2.1-	0.3-	1998 11 23	704	0.9+	1.2-	1998 12 16	704	1.2-	0.2-
1993 08 22	691	(2.8-	0.4-)	1998 11 23	704	(2.5-	0.8+)	1998 12 16	704	1.6+	0.4+
1995 01 02	411	1.0-	0.6-	1998 11 23	704	1.7-	0.8+	1998 12 16	704	0.0	0.3+
1995 01 02	411	0.1+	0.5+	1998 11 23	704	0.9-	0.7+	1998 12 16	704	(0.7+	2.3+)
1995 01 05	411	0.5-	0.7+	1998 11 27	426	0.7-	0.2-	1998 12 16	704	0.8+	0.9+
1995 01 05	411	0.1+	0.9+	1998 11 27	426	0.1+	0.6-	1998 12 22	704	0.1+	0.8-
1995 01 06	411	0.1-	0.9+	1998 11 27	426	0.4-	0.5-	1998 12 22	704	1.4+	0.1+
1995 01 06	411	0.5+	0.2+	1998 11 29	426	0.7-	0.4-	1998 12 22	704	1.5-	0.6-
1995 01 07	411	0.4+	0.1+	1998 11 29	426	0.2-	0.3-	1998 12 22	704	0.2+	0.8-

1995 01 07	411	0.7+	1.0+	1998 11 30	426	0.1-	0.2-
1995 01 10	411	0.3+	0.5+	1998 11 30	426	0.4-	0.2-

(9888)* 1995 CD = 1982 DS₃ = 1982 HL₂ = 1987 JH

Discovered 1995 Feb. 1 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 24906)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	203.61122	(2000.0)		P	Q
<i>n</i>	0.22678756	ω	244.66222	+0.14532290	+0.98866034
<i>a</i>	2.6631149	Ω	33.76128	-0.88150423	+0.14674992
<i>e</i>	0.0560408	<i>i</i>	3.90447	-0.44925665	+0.03186222
<i>P</i>	4.35	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 02 20	033	0.1+	0.0	1995 02 07	411	0.7+	0.1+	1998 11 25	699	0.2-	0.6+
1982 02 20	033	0.0	0.2+	1995 02 10	411	0.1+	0.2-	1998 11 25	699	0.4-	0.3+
1982 02 20	033	0.7+	0.3-	1995 02 10	411	0.2+	0.1-	1998 12 21	704	1.4+	0.3-
1982 02 21	033	0.4-	0.6+	1995 02 22	411	0.7+	0.8+	1998 12 21	704	2.0-	2.0-
1982 02 21	033	0.1+	0.1-	1995 02 22	411	0.6+	0.6+	1998 12 21	704	1.0+	0.0
1982 04 27	033	0.5+	0.1-	1995 02 26	411	0.7-	0.6+	1998 12 21	704	0.7+	0.7+
1982 04 27	033	0.2+	0.5-	1995 02 26	411	0.6+	0.1-	1998 12 21	704	2.1-	0.5+
1987 05 02	801	0.1-	0.8+	1995 02 26	411	0.1-	0.7-	1998 12 26	732	0.1-	0.3-
1991 04 17	675	1.1-	0.9+	1995 03 04	033	0.4+	0.2-	1998 12 26	732	0.0	0.4-
1991 04 17	675	1.5-	0.2+	1995 03 04	033	0.3-	0.6+	1998 12 26	732	0.7+	0.2-
1995 02 01	411	0.6-	0.8-	1996 07 18	689	1.1+	1.4-	1998 12 27	732	0.1+	0.2-
1995 02 01	411	(1.2+	2.9-)	1997 12 06	910	0.4-	0.0	1998 12 27	732	0.1-	0.2-
1995 02 03	411	0.6+	0.5-	1997 12 06	910	0.2-	0.1+	1998 12 27	732	0.1-	0.4-
1995 02 03	411	0.4-	1.0-	1997 12 06	910	0.3-	0.1+				
1995 02 07	411	0.3+	0.5+	1998 11 25	699	0.0	0.8+				

**(9889)* 1995 FG₁ = 1953 TJ₁ = 1953 UG₁ = 1977 RB₉ = 1978 WX₇
= 1980 FZ₉ = 1982 SG₅**

Discovered 1995 Mar. 28 by S. Ueda and H. Kaneda at Kushiro.

Id. T. Kobayashi (*MPC* 25963), A. Lowe (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	232.90847	(2000.0)		P	Q
<i>n</i>	0.20175790	ω	294.56250	-0.51363082	+0.85790340
<i>a</i>	2.8790488	Ω	304.52469	-0.78111456	-0.47410104
<i>e</i>	0.0224736	<i>i</i>	0.94627	-0.35502594	-0.19806553
<i>P</i>	4.89	<i>H</i>	12.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1953 10 08	760	0.3+	1.1+	1995 03 28	399	0.3-	0.2+	1998 11 25	699	0.6+	0.4-
1953 10 08	760	(2.5-	2.0+)	1995 03 31	399	0.7+	0.2-	1998 11 25	699	1.0+	0.3-
1953 10 31	675	1.0-	0.2+	1995 03 31	399	0.4+	0.5+	1998 12 14	704	0.5+	0.1-
1953 10 31	675	0.1-	0.1+	1995 04 04	399	0.5+	0.2+	1998 12 14	704	0.1+	1.2+
1977 09 08	675	0.3+	0.7+	1995 04 04	399	1.1+	0.4+	1998 12 14	704	0.9+	0.4+
1977 09 09	675	0.2-	0.8+	1995 04 06	691	0.9-	0.0	1998 12 14	704	0.5+	0.6+
1978 11 29	675	0.9-	0.3-	1995 04 06	691	0.9-	0.1+	1998 12 17	704	0.2-	0.4+
1978 11 30	675	0.6-	0.7+	1995 04 06	691	0.9-	0.1+	1998 12 17	704	0.0	0.6-
1980 03 16	095	1.7+	1.0+	1997 10 11	399	0.9+	0.4-	1998 12 17	704	0.7-	0.7-
1982 09 16	095	0.8-	1.1+	1997 10 11	399	0.1-	1.6-	1998 12 17	704	0.8-	0.4-
1995 03 28	399	0.7-	0.0	1998 11 25	699	0.1+	0.2-	1998 12 17	704	0.5-	0.5-

(9890)* 1995 SY₂ = 1979 SG₅ = 1992 VA

Discovered 1995 Sept. 20 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 25965)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	5.75312	(2000.0)		P	Q
<i>n</i>	0.30824497	ω	281.20865	+0.98130098	-0.19208468
<i>a</i>	2.1703947	Ω	89.86668	+0.18105624	+0.89944153
<i>e</i>	0.1411060	<i>i</i>	0.70607	+0.06532242	+0.39256643
<i>P</i>	3.20	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1979 09 23	095	0.3+	0.0	1994 04 19	691	1.1-	0.1+	1997 03 09	689	0.0	0.1-
1992 10 21	675	0.4-	0.3-	1995 09 20	399	1.4-	1.5-	1997 03 10	689	0.9+	1.0-
1992 10 21	675	0.5+	0.6+	1995 09 20	399	0.5-	1.6-	1998 08 17	704	0.7+	0.6+
1992 10 28	400	2.0+	0.8-	1995 09 21	399	(2.5-	1.7-)	1998 08 17	704	0.2+	0.1-
1992 10 28	400	1.3-	0.9+	1995 09 21	399	1.1-	1.1-	1998 08 17	704	0.6+	0.1+
1992 10 28	399	1.4+	1.3-	1995 09 30	399	(2.1-	3.7-)	1998 08 17	704	0.3+	0.0
1992 10 28	399	(2.6+	1.1-)	1995 09 30	399	(3.6-	2.9-)	1998 08 17	704	0.4-	0.2-
1992 11 02	399	0.0	0.0	1995 10 12	905	1.7-	0.4+	1998 08 19	566	0.5+	0.3-
1992 11 02	399	(2.9+	2.2+)	1995 10 12	905	0.5+	1.3+	1998 08 19	566	0.8+	0.6-
1992 11 27	675	0.3+	0.7-	1995 10 12	905	1.4-	0.3-	1998 08 19	566	0.9+	0.4-
1992 11 27	675	0.6+	0.7-	1995 10 16	905	0.3+	0.4+	1998 12 12	704	0.5+	1.3+
1994 04 19	691	1.1-	0.6-	1995 10 16	905	0.5+	0.8+	1998 12 12	704	0.2-	0.0
1994 04 19	691	0.9-	0.6-	1995 10 16	905	0.4+	0.5+	1998 12 12	704	0.8-	0.5+

(9891)* 1995 XN₁ = 1978 WK₁₆ = 1993 GU

Discovered 1995 Dec. 15 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26413), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	109.49134		(2000.0)	P	Q
<i>n</i>	0.23564161	ω	175.15213	-0.37527724	+0.89726476
<i>a</i>	2.5959803	Ω	72.65608	-0.85840596	-0.24176253
<i>e</i>	0.1332154	<i>i</i>	14.10117	-0.34972304	-0.36941418
<i>P</i>	4.18	<i>H</i>	12.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1978 11 30	675	0.9+	0.7-	1995 12 25	411	0.5+	0.2-	1997 06 06	801	0.7+	0.1+
1978 12 01	675	0.9-	0.8-	1995 12 30	411	0.6+	1.5+	1997 06 06	801	0.2+	0.0
1993 04 14	402	0.2-	0.1+	1995 12 30	411	0.0	0.4-	1998 09 21	704	0.3+	0.3-
1993 04 14	402	1.5+	0.0	1997 01 25	327	0.2+	0.4+	1998 09 21	704	0.3-	1.8+
1993 04 17	402	1.6+	0.8+	1997 01 25	327	0.9+	0.3+	1998 09 21	704	0.4-	1.1+
1993 04 17	402	(2.6+	0.3+)	1997 01 25	327	0.4-	0.2+	1998 09 21	704	0.0	2.0+
1993 05 26	675	0.4-	0.7+	1997 04 26	689	1.4-	1.4+	1998 09 21	704	(1.8+	3.7+)
1993 05 26	675	0.3-	0.0	1997 05 04	411	0.3-	0.3-	1998 09 27	423	0.2-	0.4-
1995 12 15	411	0.8+	0.7+	1997 05 04	411	0.3-	0.0	1998 09 27	423	0.3-	0.3-
1995 12 15	411	0.8+	0.7+	1997 05 04	411	0.2-	0.1+	1998 09 27	423	0.9-	0.2+
1995 12 16	411	0.1+	0.6+	1997 05 12	689	0.4+	0.0	1998 12 08	704	1.3-	0.5-
1995 12 16	411	0.1-	1.4+	1997 05 13	689	0.1-	0.7+	1998 12 08	704	1.0-	1.3+
1995 12 22	411	0.4-	0.7+	1997 05 25	689	0.9-	1.5+	1998 12 08	704	0.5+	1.9+
1995 12 22	411	1.6-	0.6+	1997 05 26	689	0.8+	0.3+				
1995 12 25	411	0.6-	0.0	1997 05 27	689	1.3+	0.0				

(9892)* 1995 YN₃ = 1976 GM₈ = 1976 HT = 1980 PT₃

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

Id. T. Kobayashi (*MPC* 26574), B. G. Marsden (d, *ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	241.39535		(2000.0)	P	Q
<i>n</i>	0.28967341	ω	289.83722	-0.87636241	+0.46962018
<i>a</i>	2.2621963	Ω	278.30024	-0.39148901	-0.82391060
<i>e</i>	0.1428786	<i>i</i>	6.20681	-0.28058025	-0.31721951
<i>P</i>	3.40	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1976 04 05	808	0.2-	0.1-	1995 12 29	411	0.2+	1.4+	1998 11 24	704	0.7+	0.9-
1976 04 05	808	1.3+	0.5-	1995 12 31	411	1.7-	0.2-	1998 11 24	704	1.2+	0.4-
1976 04 23	808	0.6+	0.1+	1995 12 31	411	0.7-	0.5-	1998 11 24	704	1.5+	0.7-
1976 04 23	808	1.1-	0.2+	1997 09 07	910	0.1+	0.4+	1998 12 11	699	1.6-	0.3+
1980 08 03	675	0.9-	0.3-	1997 09 07	910	0.1+	0.3+	1998 12 11	699	0.1+	0.2-
1980 08 05	675	0.4-	0.3-	1997 09 07	910	0.2+	0.2+	1998 12 11	699	0.9-	0.9+
1994 06 12	691	(2.3-	0.8-)	1998 11 21	704	0.6+	0.6+	1998 12 13	725	0.2-	0.4+
1994 06 12	691	(2.4-	0.0)	1998 11 21	704	0.4+	0.3-	1998 12 13	725	0.3-	0.3+
1994 06 12	691	(2.2-	0.8-)	1998 11 21	704	0.5+	0.1-	1998 12 14	725	0.0	0.3+
1995 12 27	411	0.6+	0.0	1998 11 21	704	0.9+	1.2-	1998 12 14	725	0.1-	0.3+
1995 12 27	411	0.3+	0.1-	1998 11 21	704	0.4-	0.7-				
1995 12 29	411	0.1-	0.5+	1998 11 24	704	0.7-	1.2+				

(9893)* 1996 AA₁ = 1981 UU₃ = 1994 RH₂₅

Discovered 1996 Jan. 12 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 26576), S. Nakano (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	203.43890		(2000.0)	P	Q
<i>n</i>	0.29457358	ω	320.90279	-0.34062313	+0.94001311
<i>a</i>	2.2370388	Ω	289.17522	-0.85756262	-0.31879471
<i>e</i>	0.1288490	<i>i</i>	1.13696	-0.38543771	-0.12143020
<i>P</i>	3.35	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1981 10 30	381	0.2+	0.4-	1995 12 18	566	(1.6-	2.7-)	1998 12 14	704	0.2-	0.0
1981 10 30	381	1.2+	0.3-	1996 01 12	411	0.3+	0.5-	1998 12 14	704	1.0-	0.7+
1990 05 26	675	0.6-	0.6+	1996 01 12	411	0.3+	0.5+	1998 12 14	704	(1.1+	2.6+)
1990 05 26	675	0.1+	0.0	1996 01 13	411	0.4-	0.8+	1998 12 14	704	0.2-	0.3+
1994 09 13	691	0.0	0.3+	1996 01 13	411	0.8+	1.1+	1998 12 14	704	0.3+	1.7+
1994 09 13	691	0.0	0.1-	1996 01 18	411	0.2+	0.6+	1998 12 16	704	0.1+	0.4-
1994 09 13	691	0.2-	0.3+	1996 01 18	411	0.9-	1.2+	1998 12 16	704	0.8+	0.1+
1994 09 28	691	0.7-	0.0	1997 08 01	566	0.1+	0.8+	1998 12 16	704	0.4+	0.7-
1994 09 28	691	1.1-	0.1+	1997 08 01	566	0.2+	0.9+	1998 12 16	704	0.5-	0.2-
1994 09 28	691	0.7-	0.0	1997 08 01	566	0.8+	0.6+	1998 12 17	704	0.2+	0.2+
1995 11 18	327	0.5+	0.2-	1998 11 19	704	1.2-	1.1+	1998 12 17	704	1.3-	0.8-
1995 11 18	327	0.3+	0.3+	1998 11 19	704	1.7+	0.8-	1998 12 17	704	0.6-	0.1-
1995 11 18	327	0.2+	0.4+	1998 11 19	704	0.5+	0.8-	1998 12 17	704	0.3+	0.0
1995 12 18	566	(0.8-	2.8-)	1998 11 19	704	0.9-	0.2+	1998 12 17	704	0.5+	0.9-
1995 12 18	566	(1.5-	2.6-)	1998 11 19	704	1.4+	0.8-				

(9894)* 1996 BS₁ = 1990 OQ₂ = 1990 SL₁₈ = 1993 HV₇

Discovered 1996 Jan. 23 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26577)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	112.72366		(2000.0)	P	Q
<i>n</i>	0.26900801	ω	283.15521	+0.73735401	+0.67425627
<i>a</i>	2.3766173	Ω	34.47472	-0.58825362	+0.67081857
<i>e</i>	0.0877817	<i>i</i>	4.16183	-0.33206437	+0.30883804
<i>P</i>	3.66	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1990 07 25	675	0.3-	0.2-	1996 01 24	411	1.0+	0.2+	1998 11 24	704	0.3+	0.7+
1990 07 25	675	0.5+	0.5-	1996 01 27	411	0.1-	0.9-	1998 11 24	704	0.6+	0.5+
1990 07 28	675	(0.6-	3.4-)	1996 01 27	411	0.8+	0.5-	1998 12 05	610	0.3-	0.3-
1990 07 28	675	(1.0+	2.9-)	1996 01 30	411	1.8-	0.1+	1998 12 05	610	0.3-	0.2-
1990 07 29	675	0.4-	0.1-	1996 01 30	411	1.2-	0.6+	1998 12 05	610	0.3-	0.1-
1990 07 29	675	0.6-	0.8-	1996 02 12	411	0.2-	0.0	1998 12 05	610	0.3-	0.1-
1990 09 16	675	0.5+	0.1-	1996 02 12	411	0.6+	1.1+	1998 12 05	610	0.4-	0.1+
1990 09 16	675	0.7+	1.2+	1998 11 10	704	0.1-	0.5-	1998 12 11	699	0.4+	0.1+
1993 03 23	675	0.0	0.1+	1998 11 10	704	0.3+	0.4-	1998 12 11	699	0.0	0.0
1993 03 23	675	1.7+	0.3-	1998 11 10	704	0.1+	0.3-	1998 12 11	699	0.1-	0.2+
1993 04 26	691	0.5-	0.2+	1998 11 10	704	1.1+	0.2-	1998 12 11	699	0.4-	0.4+
1993 04 26	691	0.4-	0.1-	1998 11 10	704	0.8-	0.0	1998 12 11	699	0.5+	0.2+
1993 04 29	691	0.5-	0.6-	1998 11 14	367	0.5-	0.2-	1998 12 11	699	0.3-	0.6+
1993 04 29	691	0.6-	0.5-	1998 11 14	367	0.1-	0.4-	1998 12 14	704	0.3-	0.1-
1993 04 29	691	0.4-	0.4-	1998 11 16	566	0.2-	0.2-	1998 12 14	704	0.4-	1.0-
1993 05 21	675	0.2+	0.4-	1998 11 16	566	0.3-	1.2-	1998 12 14	704	1.5+	1.0-
1996 01 23	411	0.1+	0.5+	1998 11 16	566	0.4-	0.3-	1998 12 14	704	0.5+	0.3+
1996 01 23	411	0.8+	0.8-	1998 11 24	704	0.5+	0.1+	1998 12 14	704	0.2+	0.6+
1996 01 24	411	0.1-	0.2-	1998 11 24	704	0.0	0.4+				

(9895)* 1996 BR₃ = 1977 QR = 1993 FN₄₅ = 1994 PO₂

Discovered 1996 Jan. 27 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 26753)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	93.67520		(2000.0)	P		Q	
<i>n</i>	0.29010022	ω	336.95190	+0.99365905	+0.11009688		
<i>a</i>	2.2599769	Ω	16.77509	-0.08686494	+0.88052978		
<i>e</i>	0.1682425	<i>i</i>	4.53331	-0.07138755	+0.46102710		
<i>P</i>	3.40	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1977 08 18	095	0.2-	0.6+	1996 01 30	411	0.1-	0.1+
1993 03 19	809	0.4-	0.1-	1996 01 30	411	1.2-	0.1+
1993 03 20	809	1.2+	0.9-	1996 01 30	411	0.1+	1.0-
1993 03 24	809	0.5+	0.5-	1996 02 12	411	0.3+	0.0
1993 04 17	413	0.4+	0.3+	1996 02 12	411	0.5-	0.1-
1994 08 09	675	0.6-	0.0	1996 02 23	411	0.2-	1.5+
1994 08 09	675	0.2+	0.1-	1996 02 23	411	0.3+	1.8+
1994 08 11	675	0.5-	0.5+	1998 10 30	704	1.0-	1.2-
1994 08 11	675	0.2+	0.2+	1998 10 30	704	0.1+	0.6+
1996 01 19	691	1.0-	0.2-	1998 10 30	704	0.8+	1.9-
1996 01 19	691	0.9-	0.0	1998 11 19	689	0.5-	0.3+
1996 01 19	691	0.9-	0.1+	1998 11 24	699	0.1+	0.3+
1996 01 27	411	0.9+	0.5+	1998 11 24	699	0.8-	0.5+
1996 01 27	411	0.6+	0.4+	1998 11 24	699	1.4+	0.8-
						1998 12 17	704 (0.1+
							2.4+)

(9896)* 1996 BL₁₇ = 1981 UJ₂₄ = 1990 MP₁

Discovered 1996 Jan. 22 at Lincoln Laboratory ETS, New Mexico.

Id. G. V. Williams (*MPC* 26908)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	277.80142		(2000.0)	P		Q	
<i>n</i>	0.29277261	ω	95.90800	-0.99339034	-0.02876279		
<i>a</i>	2.2462034	Ω	82.48065	-0.01930201	-0.91245212		
<i>e</i>	0.0912945	<i>i</i>	6.43563	+0.11315063	-0.40817133		
<i>P</i>	3.37	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 10 24	675	0.5-	0.4+	1996 01 25	704	0.1+	0.3+	1996 05 21	704	1.3-	0.6-
1981 10 25	675	0.2+	0.5+	1996 01 25	704	(2.0-	1.6+)	1996 06 19	704	0.1-	1.2+
1990 06 25	808	(2.8+	2.0+)	1996 01 25	704	0.0	0.2+	1996 06 19	704	0.8+	0.0
1990 06 25	808	0.1-	0.5-	1996 01 26	704	0.1+	0.1+	1996 06 19	704	0.7+	0.3-
1995 11 22	691	1.0-	0.2-	1996 01 26	704	0.4+	0.5+	1996 06 19	704	0.4+	0.7+
1995 11 22	691	1.1-	0.2-	1996 01 26	704	0.4+	0.3+	1998 11 20	689	0.7-	0.3+
1995 11 22	691	1.1-	0.2-	1996 04 18	704	0.1-	0.2+	1998 12 15	704	0.3-	0.3-
1995 12 19	704	1.0+	0.6-	1996 04 18	704	0.3+	0.2-	1998 12 15	704	0.4-	0.6+
1995 12 19	704	1.7+	1.1-	1996 04 18	704	0.4+	0.2-	1998 12 15	704	0.5-	0.8+
1995 12 19	704	(2.1+	1.2-)	1996 04 18	704	0.1-	0.1+	1998 12 15	704	0.6-	0.3+
1995 12 19	704	1.7+	1.7-	1996 04 19	704	0.1+	0.2-	1998 12 15	704	0.1+	0.2+
1996 01 22	704	0.3-	0.6+	1996 04 19	704	(6.1+	3.4-)	1998 12 16	744	0.3-	0.0
1996 01 22	704	0.2-	0.7+	1996 04 19	704	0.1-	0.3-	1998 12 16	744	0.3-	0.3-
1996 01 22	704	0.6-	0.4+	1996 05 19	704	0.4+	0.6-	1998 12 16	744	0.1-	0.3-
1996 01 22	704	0.4-	0.5+	1996 05 19	704	0.2+	0.5-	1998 12 22	704	0.1+	0.7-
1996 01 24	704	0.3+	0.1+	1996 05 19	704	0.3+	0.0	1998 12 22	704	0.4+	0.6-
1996 01 24	704	0.4-	0.4+	1996 05 19	704	0.1-	0.4-	1998 12 22	704	0.5+	1.1-
1996 01 24	704	0.8-	0.7+	1996 05 21	704	0.8-	0.1+	1998 12 22	704	0.4+	0.5-
1996 01 24	704	0.4+	0.0	1996 05 21	704	1.5-	0.4-	1998 12 22	704	2.3+	0.4-
1996 01 25	704	0.6+	0.2+	1996 05 21	704	1.2-	0.9-				

(9897)* 1996 CX₇ = 1994 PQ₂ = 1994 RQ₁

Discovered 1996 Feb. 14 by U. Munari and M. Tombelli at Cima Ekar.

Id. G. V. Williams (*MPC* 27112)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	106.92330		(2000.0)	P		Q	
<i>n</i>	0.29755486	ω	227.03217	+0.99094215	+0.10089423		
<i>a</i>	2.2220715	Ω	126.98356	-0.06585347	+0.94023899		
<i>e</i>	0.2019281	<i>i</i>	6.36973	-0.11703407	+0.32522452		
<i>P</i>	3.31	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 12 02	675	0.7+	0.5-	1996 03 14	098	1.2-	0.6-	1998 11 23	699	0.4+	1.1+
1991 12 02	675	1.1+	1.7-	1996 03 14	098	1.1-	0.0	1998 11 23	699	0.1+	0.8+
1993 03 23	675	0.2+	0.0	1996 03 20	098	0.1-	0.3-	1998 12 12	104	0.2+	0.3+
1993 03 23	675	0.0	0.3+	1996 03 20	098	(2.6-	0.9-)	1998 12 12	104	0.6+	0.5+
1994 08 09	675	0.3-	1.1-	1997 05 31	108	1.0+	0.6+	1998 12 12	104	0.2+	0.3+
1994 08 09	675	0.2-	1.1-	1997 05 31	108	1.2-	0.2-	1998 12 22	108	0.4+	1.1+
1994 08 11	675	0.2-	0.9+	1997 05 31	108	0.8+	0.5-	1998 12 22	108	1.2-	0.6+
1994 08 11	675	0.8-	1.5+	1997 07 03	108	0.4-	1.6+	1998 12 23	108	0.8-	0.5+
1994 09 08	905	0.1+	0.9-	1997 07 03	108	1.1+	0.3-	1998 12 23	704	0.5+	0.3-
1994 09 08	905	0.6-	1.0-	1997 07 09	108	1.4+	0.7+	1998 12 23	704	0.2-	1.5+
1994 09 10	905	0.2+	0.3-	1997 07 09	108	0.7-	0.1-	1998 12 23	704	1.3+	0.6+
1994 09 10	905	0.8+	0.4+	1997 07 26	108	0.8+	0.0	1998 12 23	704	1.8-	0.6+
1996 02 14	098	(2.6-	0.5+)	1997 07 26	108	1.1+	1.2-	1998 12 23	704	(0.7-	2.3+)
1996 02 14	098	1.8-	0.7-	1997 07 27	104	(1.4+	2.2+)	1998 12 25	108	0.6-	0.6-
1996 02 15	098	1.0+	0.7-	1997 07 27	104	0.1-	0.3+	1998 12 25	108	1.3+	0.4+
1996 02 15	098	(2.0+	2.3-)	1997 07 29	104	0.7-	1.0+	1998 12 26	108	0.3-	1.0+
1996 02 24	098	0.9-	1.8-	1997 07 29	104	1.2-	0.6-				
1996 02 24	098	0.4+	2.0-	1998 11 23	699	1.5+	0.1+				

(9898)* 1996 DF = 1992 AP₅ = 1993 KE₂

Discovered 1996 Feb. 18 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 27113)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	34.89170		(2000.0)	P		Q	
<i>n</i>	0.27042139	ω	280.46760	+0.65768395	-0.74891849		
<i>a</i>	2.3683289	Ω	128.09499	+0.72515168	+0.60029321		
<i>e</i>	0.0674369	<i>i</i>	5.91295	+0.20397762	+0.28065844		
<i>P</i>	3.64	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1989 03 30	675	0.8+	0.1+	1996 02 19	411	0.6+	0.5+	1998 11 27	744	0.3-	0.1-
1989 03 30	675	0.2+	0.3+	1996 02 27	411	0.9-	0.4-	1998 12 02	744	0.2-	0.1+
1992 01 12	303	(4.4+	2.0-)	1996 02 27	411	0.2+	0.6-	1998 12 02	744	0.1-	0.0
1992 02 04	675	1.0-	0.1+	1996 03 09	411	0.2+	0.3-	1998 12 15	704	0.4+	0.4+
1992 02 04	675	0.1-	0.9-	1996 03 09	411	0.3+	0.6-	1998 12 15	704	1.1+	0.0
1993 05 18	675	0.5+	0.7+	1998 09 29	704	1.3+	0.4+	1998 12 15	704	0.0	0.4-
1993 05 18	675	1.1-	1.0+	1998 09 29	704	(2.4+	1.1+)	1998 12 15	704	0.6+	0.4+
1993 05 19	675	0.1-	1.0+	1998 09 29	704	0.0	0.9+	1998 12 15	704	0.5+	1.0+
1994 09 11	675	0.1+	0.7+	1998 09 29	704	0.4-	0.1+	1998 12 22	704	0.8-	0.1+
1994 09 11	675	0.3+	1.2+	1998 11 25	744	0.4-	0.2-	1998 12 22	704	0.5-	0.5-
1996 02 18	411	0.9+	0.5+	1998 11 25	744	0.4-	0.1-	1998 12 22	704	0.5-	0.0
1996 02 18	411	1.2+	1.5+	1998 11 27	744	0.4-	0.1+	1998 12 22	704	0.3-	0.3-
1996 02 19	411	0.5-	0.2+	1998 11 27	744	0.0	0.1+	1998 12 22	704	0.3-	0.5+

(9899)* 1996 EH = 1990 SD₂₈ = 1993 MN

Discovered 1996 Mar. 12 by R. H. McNaught at Siding Spring.

Id. S. Nakano (*MPC* 26911)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	237.94824		(2000.0)	P		Q	
<i>n</i>	0.27147642	ω	342.62558	-0.65275598	+0.74712570		
<i>a</i>	2.3621890	Ω	246.42992	-0.67779990	-0.64987967		
<i>e</i>	0.1540858	<i>i</i>	7.86043	-0.33837394	-0.13949771		
<i>P</i>	3.63	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 07 16	413	0.3-	0.3-	1996 04 13	900	1.0+	0.2-	1998 12 15	704	0.6-	0.3-
1990 09 23	095	(1.9-	2.8-)	1996 04 13	900	0.8-	0.0	1998 12 15	704	0.1-	0.6-
1993 06 18	675	1.5+	0.9-	1997 10 10	557	0.0	0.3-	1998 12 15	704	0.2+	0.4-
1993 06 20	675	1.3+	0.5+	1997 10 10	557	0.1+	0.5-	1998 12 15	704	0.9+	1.1-
1996 03 12	413(63.0+	31.8+)		1997 10 11	691	1.0-	0.4-	1998 12 15	704	0.2+	0.4+
1996 03 12	413(64.3+	35.9+)		1997 10 11	691	1.0-	0.9-	1998 12 16	704	(2.8+	1.4-)
1996 03 15	897	1.4+	0.9-	1997 10 11	691	1.0-	0.5-	1998 12 16	704	1.1+	1.3-
1996 03 15	897	0.6-	0.4-	1997 10 17	557	0.2+	0.7-	1998 12 16	704	(1.7+	3.2-)
1996 03 15	897	0.5+	0.1+	1997 10 17	557	0.6+	0.1-	1998 12 16	704	(3.0+	2.9-)

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1996 03 18	900	1.0−	0.0	1998 11 23	704	0.9+	0.0	1998 12 22	704	0.3−	0.2−
1996 03 18	900	1.0−	0.1−	1998 11 23	704	0.9−	0.3+	1998 12 22	704	0.0	0.5+
1996 03 20	900	0.7−	0.1−	1998 11 23	704	1.2+	0.0	1998 12 22	704	0.3+	0.1−
1996 03 20	900	0.8−	0.1+	1998 11 23	704	0.5−	0.6+	1998 12 22	704	0.3−	0.7+

(9900)* 1997 LL₆ = 1956 GD = 1969 PT = 1975 JB = 1978 GC₂
= 1979 YQ₃ = 1984 DA₂ = 1991 PC₂₁ = 1991 SD

Discovered 1997 June 13 by M. Blasco at Observatorio Astronómico de Mallorca.

Id. G. V. Williams (*MPC* 30284)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.31483112	ω	119.56447	−0.23048599	+0.97219145		
<i>a</i>	2.1400189	Ω	137.04514	−0.91251480	−0.20114400		
<i>e</i>	0.2120266	<i>i</i>	3.48930	−0.33792446	−0.11993695		
<i>P</i>	3.13	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1956 04 12	760	2.1+	0.5−	1997 06 16	620	1.7+	0.4+	1998 11 21	620	0.2−	0.1−
1956 04 12	760	0.7−	2.5+	1997 07 03	620	0.1+	0.3+	1998 11 22	620	0.6−	0.3−
1969 08 13	095	(8.6+	1.8−)	1997 07 03	620	0.1−	0.5+	1998 12 07	620	0.1−	0.4+
1975 05 10	095	0.7−	0.6+	1997 07 03	620	0.2−	0.5+	1998 12 07	620	0.1−	0.2+
1975 05 14	095	0.3+	0.6+	1997 07 04	620	0.1+	1.1−	1998 12 07	620	0.4−	0.2−
1978 04 07	095	1.6−	0.9+	1997 07 04	620	0.1+	0.1−	1998 12 09	620	0.3−	0.5+
1979 12 18	095	0.6+	1.0+	1997 07 04	620	0.1+	0.1+	1998 12 09	620	0.5−	0.2+
1984 02 26	095	2.0+	2.3−	1997 07 10	620	0.6−	0.3−	1998 12 15	704	0.0	0.8−
1991 08 08	675	0.1+	0.2−	1997 07 10	620	0.6−	0.3−	1998 12 15	704	0.4−	0.6+
1991 08 08	675	0.9−	1.3+	1997 07 10	620	0.3−	0.0	1998 12 15	704	0.3−	1.3+
1991 09 29	413	0.8+	0.1+	1998 11 14	620	1.0−	0.7+	1998 12 15	704	0.1+	0.8+
1991 09 30	413	0.0	0.0	1998 11 14	620	0.1−	0.5+	1998 12 15	704	0.3−	1.5+
1997 06 13	620	(1.9+	3.7−)	1998 11 14	620	0.1+	0.6+	1998 12 22	704	0.2−	0.2−
1997 06 14	620	0.4+	1.2−	1998 11 20	620	0.1+	0.1+	1998 12 22	704	0.4+	0.8−
1997 06 16	620	0.5+	1.6+	1998 11 21	620	0.3−	0.4+	1998 12 22	704	1.2+	1.4−
1997 06 16	620	(3.1+	0.0)	1998 11 21	620	0.2+	0.1+	1998 12 22	704	0.1+	0.9−
1997 06 16	620	0.7−	0.1+	1998 11 21	620	0.3−	0.3+				

(9901)* 1997 NV = 1983 RD₅ = 1990 RF₁₂

Discovered 1997 July 1 at Klet.

Id. B. G. Marsden (*MPC* 30464), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.27405084	ω	98.47702	+0.99520367	−0.03123565		
<i>a</i>	2.3473722	Ω	263.34958	−0.00701639	+0.92242023		
<i>e</i>	0.1282868	<i>i</i>	5.35531	+0.09757263	+0.38492241		
<i>P</i>	3.60	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1983 09 05	095	0.3+	0.2+	1997 07 12	046	0.5+	0.0	1997 09 21	046	0.4−	0.4+
1983 09 07	095	1.5+	0.4−	1997 07 23	046	0.8−	0.4−	1997 10 22	046	0.6+	0.3+
1983 09 09	095	0.4−	1.1−	1997 07 23	046	1.1−	0.2−	1997 10 22	046	0.3+	0.6+
1990 09 15	675	0.6−	1.0−	1997 07 23	046	0.5−	0.6−	1997 10 22	046	0.6+	0.4+
1990 09 15	675	0.7−	0.3−	1997 07 23	046	0.3−	0.4−	1997 10 24	046	0.3−	0.6+
1997 07 01	046	0.3+	0.2+	1997 07 27	046	1.0−	1.1−	1997 10 24	046	0.9+	0.8+
1997 07 01	046	0.6+	0.2+	1997 07 27	046	0.5−	0.2+	1997 10 24	046	0.7+	0.6+
1997 07 01	046	0.9+	0.1−	1997 07 27	046	0.1+	1.0−	1997 10 24	046	0.2−	0.1−
1997 07 01	046	0.7+	0.1−	1997 08 01	046	0.7−	0.2−	1998 11 25	699	0.7−	1.4+
1997 07 02	046	0.4+	0.2−	1997 08 01	046	0.3−	0.0	1998 11 25	699	0.2−	0.7+
1997 07 03	046	0.2+	0.3+	1997 08 07	046	0.2−	0.1−	1998 11 25	699	0.2+	1.3+
1997 07 03	046	1.1+	0.8+	1997 08 07	046	0.5−	0.0	1998 12 10	046	0.0	0.1−
1997 07 03	046	0.6+	0.2+	1997 08 07	046	0.5−	0.1+	1998 12 10	046	0.1−	0.1−
1997 07 03	046	0.7+	0.1+	1997 08 21	046	1.0−	0.1−	1998 12 10	046	0.1−	0.1−
1997 07 08	046	0.6+	0.4+	1997 08 24	046	1.2−	0.3+	1998 12 11	046	0.0	0.1+
1997 07 08	046	0.6+	0.3+	1997 08 24	046	1.5−	0.2+	1998 12 11	046	0.1+	0.1+
1997 07 08	046	0.4+	0.4+	1997 08 26	046	0.6−	0.2−	1998 12 11	046	0.0	0.1+

1997 07 09	046	0.5+	0.4+	1997 08 26	046	0.6−	0.0	1998 12 22	704	0.0	0.6−
1997 07 09	046	0.7+	0.3+	1997 08 26	046	1.2−	0.1+	1998 12 22	704	0.2+	0.9−
1997 07 09	046	0.7+	0.4+	1997 09 18	046	0.0	0.4−	1998 12 22	704	0.8+	0.5−
1997 07 12	046	0.3+	0.3+	1997 09 18	046	0.3−	0.8+	1998 12 22	704	0.1−	0.9+
1997 07 12	046	0.8+	0.2+	1997 09 21	046	0.1+	1.2+	1998 12 22	704	0.2+	0.3+

(9902)* 1997 NY = 1988 XS₄ = 1994 RK₂₉ = 1996 EJ₁₆

Discovered 1997 July 3 by P. G. Comba at Prescott.

Id. G. V. Williams (*MPC* 30673)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.29990680	ω	176.21412	−0.01425687	−0.99562716		
<i>a</i>	2.2104389	Ω	274.58656	+0.91493909	+0.02425484		
<i>e</i>	0.0819577	<i>i</i>	5.31425	+0.40334006	−0.09021227		
<i>P</i>	3.29	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1988 12 11	808	0.5−	1.5−	1997 07 11	684	0.0	0.2+	1998 12 13	684	0.4+	0.3−
1988 12 11	808	1.1+	1.9+	1997 07 11	684	0.1+	0.4+	1998 12 13	684	0.4+	0.3−
1994 09 09	033	(2.1+	0.8−)	1997 07 11	684	0.3−	0.4+	1998 12 14	684	0.2−	0.2+
1994 09 09	033	1.5−	0.8−	1997 07 29	684	1.1+	0.3−	1998 12 14	684	0.1−	0.3+
1996 03 13	691	0.3−	0.5−	1997 07 29	684	1.3+	0.2−	1998 12 14	704	0.2−	0.3−
1996 03 13	691	0.3−	0.0	1997 07 29	684	1.2+	0.3−	1998 12 14	704	0.6−	0.0
1996 03 13	691	0.6−	0.2−	1997 08 05	684	0.8+	0.4−	1998 12 14	704	0.1−	0.0
1997 07 03	684	0.4+	0.0	1997 08 05	684	0.5+	0.3−	1998 12 14	704	0.8−	0.1−
1997 07 03	684	0.0	0.3+	1997 08 05	684	0.6+	0.2−	1998 12 14	704	0.2−	0.1+
1997 07 04	684	0.2−	0.1+	1997 08 23	684	0.2+	0.2−	1998 12 17	704	0.1−	0.8+
1997 07 04	684	0.3−	0.3+	1997 08 23	684	0.6−	0.6−	1998 12 17	704	0.8−	0.6+
1997 07 04	684	0.3−	0.1−	1997 08 25	684	0.2+	0.4−	1998 12 17	704	0.2−	0.1+
1997 07 05	684	0.3−	0.3+	1997 08 25	684	0.1−	0.4−	1998 12 17	704	0.3+	1.6−
1997 07 05	684	0.4−	0.4+	1997 08 25	684	0.0	0.9−	1998 12 17	704	0.2−	0.4−
1997 07 05	684	0.5−	0.3+	1998 11 29	426	0.2+	0.1+	1998 12 22	704	0.3+	0.5−
1997 07 06	684	0.4−	0.0	1998 11 29	426	0.2+	0.4−	1998 12 22	704	1.2+	1.1+
1997 07 06	684	0.2−	0.0	1998 11 29	426	0.6+	0.2+	1998 12 22	704	1.5−	0.8+
1997 07 09	684	0.1−	0.4+	1998 11 30	426	0.0	0.1−	1998 12 22	704	1.0+	0.2−
1997 07 09	684	0.4−	0.4+	1998 11 30	426	0.2+	0.6−				
1997 07 09	684	0.7−	0.0	1998 11 30	426	0.5+	0.2+				

(9903)* 1997 NA₁ = 1976 UG₆

Discovered 1997 July 4 by P. G. Comba at Prescott.

Id. B. G. Marsden (*MPC* 30464)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.18313641	ω	139.31968	+0.91073515	+0.41290851		
<i>a</i>	3.0710455	Ω	196.29843	−0.38612526	+0.84423411		
<i>e</i>	0.2471554	<i>i</i>	1.68441	−0.14652225	+0.34172405		
<i>P</i>	5.38	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 10 22	381	0.1−	0.0	1997 07 06	684	1.3−	0.4−	1997 08 22	684	0.4+	0.3+
1976 10 22	381	0.4−	0.1−	1997 07 11	684	0.3+	0.0	1998 11 13	684	0.0	0.4+
1976 10 24	381	0.6+	0.2−	1997 07 11	684	0.2−	0.2+	1998 11 13	684	0.2−	0.2+
1992 10 01	691	0.1−	0.1+	1997 07 11	684	0.1+	0.3+	1998 11 14	684	0.1+	0.9−
1992 10 01	691	0.1−	0.2−	1997 07 29	684	0.6+	0.6−	1998 11 14	684	0.1+	0.6−
1992 10 01	691	0.1−	0.0	1997 07 29	684	1.1+	0.5−	1998 11 14	684	0.4+	0.9−
1997 07 04	684	0.9−	0.3−	1997 07 29	684	1.3+	0.2−	1998 12 10	684	0.2+	0.5+
1997 07 04	684	0.7−	0.0	1997 08 05	684	0.7+	0.3−	1998 12 10	684	0.2+	0.6+
1997 07 04	684	0.3−	0.3−	1997 08 05	684	0.5+	0.2−	1998 12 11	684	0.2−	0.5+
1997 07 05	684	1.4−	0.2+	1997 08 05	684	0.8+	0.2−	1998 12 11	684	0.7−	0.7+
1997 07 05	684	0.8−	0.4+	1997 08 22	684	0.5+	0.2+				
1997 07 05	684	0.2−	0.3+	1997 08 22	684	0.6−	1.6+				

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	31.48231	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.21808432	ω 265.15531	+0.50304793	-0.86189713
<i>a</i>	2.7335043	Ω 154.32984	+0.83982633	+0.47005073
<i>e</i>	0.1864000	<i>i</i> 8.47526	+0.20404539	+0.19022525
<i>P</i>	4.52	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1993 09 21	675	0.6+	1.0-	1997 07 30	108	1.9-	1.0+	1998 11 29	104	1.0+	0.1+
1993 09 21	675	0.2-	0.5-	1997 07 30	610	(0.5+	2.3+)	1998 12 15	704	1.1-	1.2+
1993 09 23	675	0.4+	0.1-	1997 07 30	108	0.1-	0.1-	1998 12 15	704	0.9+	0.2+
1993 10 09	675	0.3+	1.1-	1997 07 30	610	1.1+	1.8+	1998 12 15	704	0.5+	0.3-
1993 10 09	675	0.0	1.0-	1997 07 30	610	1.7+	1.2+	1998 12 15	704	0.8+	0.9+
1996 06 16	691	0.0	0.1-	1997 08 02	108	0.4-	0.6-	1998 12 15	704	0.1-	0.5+
1996 06 16	691	0.0	0.4-	1997 08 03	108	0.5+	0.6+	1998 12 22	704	1.2-	0.2-
1996 06 21	691	0.0	0.6-	1997 08 14	104	(0.9-	3.6-)	1998 12 22	704	0.8-	0.1-
1996 06 21	691	0.3-	0.4-	1997 08 15	104	0.2+	0.9-	1998 12 22	704	0.1-	0.2-
1996 06 21	691	0.2+	0.5-	1997 08 24	104	1.1-	0.2-	1998 12 22	704	0.9-	0.7+
1997 07 29	104	0.4+	0.7+	1997 08 24	104	0.3-	0.5-	1998 12 22	704	0.5+	0.4+
1997 07 29	104	0.7-	1.4+	1998 11 29	104	0.4+	0.1-	1998 12 25	108	0.4-	0.4-
1997 07 29	104	0.2+	1.0+	1998 11 29	104	0.2-	0.2-	1998 12 25	108	0.7+	0.7+
1997 07 30	108	0.6-	0.0	1998 11 29	104	0.0	0.1+	1998 12 25	108	(0.9+	2.1+)

(9905)* 4611 P-L = 1990 TD₁₀

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

Id. B. G. Marsden (*MPC* 17462)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	335.16653	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.26441378	ω 130.72321	-0.76414746	-0.64404295
<i>a</i>	2.4040675	Ω 9.37797	+0.50528705	-0.63223581
<i>e</i>	0.1285239	<i>i</i> 12.72023	+0.40095343	-0.43068150
<i>P</i>	3.73	<i>H</i> 14.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1960 09 24	675	0.0	0.3+	1990 10 11	033	0.3-	0.1-	1998 10 13	557	0.4+	0.2+
1960 09 26	675	0.0	0.4+	1990 10 11	033	0.6+	0.3-	1998 12 12	704	0.1+	1.1-
1960 09 27	675	0.5-	0.9+	1990 10 12	033	0.6+	0.2+	1998 12 12	704	0.3+	0.0
1960 09 28	675	0.0	0.5+	1990 10 13	033	0.2+	0.4-	1998 12 12	704	0.5+	0.5-
1960 10 17	675	0.3-	1.6+	1990 10 14	033	0.6-	0.1+	1998 12 12	704	0.3-	0.3+
1960 10 22	675	0.0	1.9-	1992 03 23	400	(2.5-	0.4+)	1998 12 12	704	0.4+	0.4+
1960 10 25	675	0.3+	1.7-	1992 03 23	400	1.6-	0.4-	1998 12 27	699	0.3-	0.5+
1960 10 26	675	0.6+	0.9+	1992 03 24	400	1.4+	0.1+	1998 12 27	699	0.2-	0.4+
1960 10 26	675	0.3-	1.0-	1992 03 24	400	(2.2+	0.1+)	1998 12 27	699	0.7-	0.3+
1990 10 10	033	0.4-	0.0	1998 10 13	557	0.7+	0.4-	1998 12 30	689	0.3-	0.0

(9906)* 6523 P-L = 1997 EP₄₇

Discovered 1960 Sept. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 30681)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	27.08673	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.23232806	ω 326.43432	+0.93719246	+0.34443323
<i>a</i>	2.6206053	Ω 13.74747	-0.24663972	+0.76605537
<i>e</i>	0.1819230	<i>i</i> 13.40672	-0.24665593	+0.54270150
<i>P</i>	4.24	<i>H</i> 13.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1960 09 26	675	0.5+	0.5+	1997 03 12	809	1.3+	0.3-	1998 10 13	704	1.3+	0.7-
1960 09 27	675	1.1+	0.0	1997 03 13	809	1.9+	0.8+	1998 10 13	704	0.9-	0.3+
1960 09 28	675	0.8+	0.5-	1997 03 13	809	(2.3+	0.1+)	1998 10 13	704	1.8-	0.2-
1960 10 17	675	0.3-	0.4-	1997 03 13	809	0.7+	0.9+	1998 11 24	699	0.4-	0.3+
1960 10 22	675	0.1+	0.1+	1997 04 01	809	(1.4-	4.0+)	1998 11 24	699	0.4+	0.3-
1960 10 22	675	1.8-	0.5-	1997 04 01	809	(2.1-	3.6+)	1998 11 24	699	0.2-	0.6+

1960 10 24	675	0.3-	0.3+	1997 04 01	809	(2.0-	2.3+)	1998 12 08	704	0.5-	0.8+
1960 10 26	675	0.5-	0.6+	1997 04 11	704	0.5-	0.4-	1998 12 08	704	1.6-	0.9+
1994 10 12	033	0.1-	0.6+	1997 04 11	704	0.7-	0.3+	1998 12 08	704	0.6-	1.5+
1994 10 13	033	0.3+	0.0	1998 09 21	704	0.8+	0.4+	1998 12 08	704	0.3-	0.2-
1997 02 10	910	1.0-	1.5+	1998 09 21	704	0.8+	0.3-	1998 12 08	704	0.1+	0.1+
1997 02 10	910	0.8-	1.4+	1998 09 21	704	0.2-	0.5+	1998 12 09	699	0.2+	0.2-
1997 02 10	910	0.9-	1.5+	1998 09 21	704	0.4-	0.4+	1998 12 09	699	1.6-	0.5+
1997 03 12	809	1.4+	1.0-	1998 09 21	704	0.7+	0.0	1998 12 09	699	0.5-	0.1+
1997 03 12	809	0.8+	0.4-	1998 10 13	704	0.5+	0.9-				

(9907)* 6541 P-L = 1977 CC₁

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

Id. E. Bowell (*MPC* 10832)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	13.59608	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.08067220	ω 262.13920	+0.55576165	-0.82898646
<i>a</i>	5.3046099	Ω 153.79326	+0.80760225	+0.52051482
<i>e</i>	0.0683732	<i>i</i> 8.14061	+0.19725005	+0.20456239
<i>P</i>	12.22	<i>H</i> 11.6	<i>G</i> 0.15	<i>U</i> 0

Residuals in seconds of arc

1960 09 24	675	0.5-	0.3-	1977 02 13	675	0.4-	0.2-	1998 11 23	699	0.5+	0.7+
1960 09 26	675	0.8-	0.3+	1977 02 14	675	0.2-	0.1-	1998 11 23	699	0.6-	0.3+
1960 09 27	675	0.3+	0.9-	1991 04 14	675	0.3+	1.8+	1998 11 23	699	0.6-	0.3+
1960 09 28	675	0.7+	0.2+	1991 04 16	675	0.9+	0.5-	1998 12 16	699	0.5+	0.6-
1960 10 17	675	0.6-	0.4+	1992 04 08	691	0.1-	0.4+	1998 12 16	699	0.4+	0.6+
1960 10 22	675	0.3+	0.4+	1992 04 08	691	0.0	0.4+	1998 12 16	699	0.1-	0.3+
1960 10 25	675	0.5-	0.8+	1992 04 08	691	0.0	0.3+				
1960 10 26	675	1.0+	0.8+	1996 09 14	809	0.3-	0.6-				

(9908)* 2140 T-1 = 1984 YJ₆ = 1991 HC₃ = 1998 SZ₁₂₃

Discovered 1971 Mar. 25 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. A. Gnädig (*MPC* 33326), G. V. Williams (*ibid.*)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	341.07533	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.19959250	ω 20.67199	+0.43967334	-0.89766392
<i>a</i>	2.8998347	Ω 43.25954	+0.81782137	+0.38641968
<i>e</i>	0.0530185	<i>i</i> 2.49057	+0.37128905	+0.21184739
<i>P</i>	4.94	<i>H</i> 13.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1971 03 24	675	0.2-	0.2+	1991 04 19	809	0.0	0.1+	1998 10 28	704	0.1-	0.3+
1971 03 25	675	0.5-	1.1+	1991 04 19	809	0.1-	0.1-	1998 10 28	704	0.8+	0.3+
1971 03 25	675	0.4+	0.4+	1991 04 19	809	0.1+	0.2+	1998 10 28	704	0.0	0.5+
1971 03 26	675	0.6-	0.8+	1998 09 26	704	0.5+	0.4+	1998 10 28	704	0.4-	0.3-
1971 03 27	675	0.2+	1.4+	1998 09 26	704	1.4+	0.1-	1998 10 28	704	0.3-	0.1+
1971 04 02	675	1.8+	0.5+	1998 09 26	704	0.9+	0.2-	1998 10 29	704	0.0	0.8+
1971 04 16	675	0.6-	0.6-	1998 09 26	704	0.1+	0.3+	1998 10 29	704	0.2-	0.5-
1971 04 16	675	1.4+	0.2+	1998 09 26	704	0.9+	0.3+	1998 10 29	704	0.2-	0.2+
1971 05 13	675	0.2+	0.7-	1998 09 27	704	0.1+	0.6+	1998 10 29	704	0.4+	0.9-
1971 05 14	675	1.0-	0.7-	1998 09 27	704	0.9-	1.4+	1998 10 29	704	0.2-	0.8-
1971 05 16	675	0.7+	1.2+	1998 09 27	704	0.2-	0.4+	1998 11 23	699	1.4-	0.3+
1984 12 23	010	0.1-	1.6-	1998 09 27	704	0.4-	0.0	1998 11 23	699	1.6-	0.5+
1984 12 23	010	(7.3-	8.8-)	1998 09 27	704	0.6-	0.0	1998 11 23	699	1.2-	0.4+

(9909)* 4355 T-1 = 1969 VD₂ = 1994 RW₄

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* 23987)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	57.81692	(2000.0)	P		Q	
<i>n</i>	0.27401767	ω	240.11832	+0.88619398	-0.46152789	
<i>a</i>	2.3475616	Ω	147.31814	+0.44680615	+0.82811243	
<i>e</i>	0.1642759	<i>i</i>	4.31714	+0.12257442	+0.31815376	
<i>P</i>	3.60	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1969 11 15	095	0.4-	0.8+	1994 09 05	691	0.0
1971 03 24	675	2.0-	0.3-	1994 09 05	691	0.1+
1971 03 26	675	0.8+	1.4-	1994 09 05	691	0.1+
1971 03 26	675	0.7+	0.5-	1994 09 09	691	0.0
1971 03 27	675	(0.6-	2.7-)	1994 09 09	691	0.0
1971 04 02	675	1.0+	0.8-	1994 09 09	691	0.1-
1971 04 16	675	0.2-	0.0	1998 11 23	704	1.1+
1971 04 16	675	0.5+	1.2+	1998 11 23	704	0.8+
1971 05 13	675	0.1-	0.1-	1998 11 23	704	1.0-
1971 05 14	675	0.1-	0.6+	1998 12 15	704	0.8-
1971 05 16	675	0.5-	2.1+	1998 12 15	704	0.3-
1987 11 23	675	0.4+	0.1+	1998 12 15	704	0.9-
1987 11 26	675	0.4+	0.4+	1998 12 15	704	0.8-
1987 11 26	675	0.5-	0.2+	1998 12 15	704	1.4-

(9910)* 3181 T-2 = 2115 T-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* 19330)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	42.23094	(2000.0)	P		Q	
<i>n</i>	0.20266095	ω	299.31966	+0.82088946	-0.56808512	
<i>a</i>	2.8704898	Ω	95.35577	+0.54222201	+0.74315804	
<i>e</i>	0.0296603	<i>i</i>	3.36723	+0.17926459	+0.35354690	
<i>P</i>	4.86	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1971 03 24	675	0.6-	1.3-	1973 09 25	675	0.5-
1971 03 25	675	1.5-	0.4-	1973 09 29	675	0.0
1971 03 25	675	0.4+	1.8-	1973 09 29	675	0.2-
1971 03 26	675	0.6-	0.7-	1973 09 30	675	1.0-
1971 05 13	675	0.1-	1.9-	1973 09 30	675	1.0-
1971 05 14	675	0.8-	1.9-	1973 10 04	675	1.0+
1973 09 19	675	1.2+	1.2+	1973 10 04	675	1.1+
1973 09 19	675	1.0+	0.9+	1973 10 05	675	1.1+
1973 09 20	675	0.2+	0.3-	1973 10 05	675	1.2+
1973 09 24	675	0.4-	2.4-	1991 05 15	675	0.6-
1973 09 24	675	0.1-	2.2-	1993 11 21	691	1.2-
1973 09 25	675	0.7+	1.7-	1993 11 21	691	1.6-

(9911)* 4129 T-2 = 1986 GR = 1989 CL₄

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Id. S. Nakano (*MPC* 15085)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	216.39109	(2000.0)	P		Q	
<i>n</i>	0.28263860	ω	199.38505	-0.65463238	+0.75460208	
<i>a</i>	2.2995793	Ω	29.77473	-0.68103183	-0.56282527	
<i>e</i>	0.1459694	<i>i</i>	5.20834	-0.32810380	-0.33734760	
<i>P</i>	3.49	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1973 09 19	675	1.7+	0.9-	1989 02 02	033	(3.1-
1973 09 19	675	1.0+	0.4-	1989 02 02	033	0.5+
1973 09 20	675	1.3-	0.2-	1993 03 29	413	0.5-
1973 09 24	675	(2.5-	0.0)	1993 03 29	413	0.4-

1973 09 24	675	1.4-	0.5-	1993 04 24	809	0.5-	0.9-	1998 11 21	704	0.1+	0.1-
1973 09 25	675	1.5-	1.1-	1993 04 24	809	0.3+	0.9-	1998 11 21	704	0.6+	1.9-
1973 09 25	675	0.5-	0.3-	1993 04 24	809	1.7+	1.1-	1998 11 21	704	0.4+	0.8+
1973 09 29	675	(1.9+	2.6-)	1993 04 24	809	0.4-	0.3+	1998 11 24	704	0.5+	0.6-
1973 09 29	675	(1.5+	3.6-)	1993 04 25	809	0.3+	0.9+	1998 11 24	704	0.3-	1.1-
1973 09 30	675	1.7+	1.5-	1993 04 25	809	0.4+	0.6+	1998 11 24	704	0.1-	0.3-
1973 09 30	675	1.9+	1.4-	1993 04 25	809	0.7+	0.4+	1998 11 24	704	0.1-	1.5+
1973 10 04	675	0.0	0.4-	1993 04 27	809	2.0-	0.3-	1998 12 14	704	1.3+	0.2+
1973 10 04	675	0.8+	0.3+	1993 04 27	809	1.4-	0.1-	1998 12 14	704	1.4+	0.8-
1973 10 05	675	1.0+	1.5-	1993 04 27	809	1.1-	0.3-	1998 12 14	704	1.2+	1.0-
1973 10 05	675	0.4+	1.2-	1993 04 28	809	0.7-	0.7-	1998 12 17	704	0.9-	0.5-
1986 04 09	688	0.4+	1.5-	1993 04 28	809	0.7-	0.7-	1998 12 17	704	(1.2-	2.6-)
1986 04 09	688	0.5-	1.6-	1993 04 28	809	0.2-	0.7-	1998 12 17	704	1.4-	1.5-
1989 02 01	033	0.3+	0.8-	1994 10 01	675	0.9+	0.5+				

(9912)* 2078 T-3 = 1979 BH₁ = 1989 SJ₁₀

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 16243)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	228.85101	(2000.0)	P		Q	
<i>n</i>	0.24003693	ω	227.76372	-0.84581981	+0.53236955	
<i>a</i>	2.5641928	Ω	344.30313	-0.44458615	-0.73890387	
<i>e</i>	0.1466691	<i>i</i>	7.26804	-0.29484234	-0.41304205	
<i>P</i>	4.11	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1977 10 07	675	1.7+	0.3-	1989 09 28	809	0.6-
1977 10 11	675	0.2+	0.4+	1989 09 29	809	0.5+
1977 10 11	675	0.6-	0.8+	1989 09 29	809	0.6+
1977 10 12	675	0.9-	0.5-	1989 09 29	809	0.9+
1977 10 12	675	1.4-	0.3-	1989 09 29	809	0.6+
1977 10 16	675	0.1-	0.2-	1989 09 29	809	0.4+
1977 10 16	675	0.3+	1.6-	1992 02 06	801	0.5+
1977 10 16	675	1.6+	0.2-	1992 02 06	801	0.5+
1977 10 16	675	0.6+	1.5-	1993 08 13	675	0.2+
1977 10 17	675	0.1-	0.9-	1993 08 13	675	0.2+
1977 10 17	675	1.2-	0.4+	1996 03 17	801	0.0
1977 10 17	675	(1.1-	2.9-)	1996 03 17	801	0.1-
1977 10 17	675	1.3-	1.0+	1996 03 19	801	0.0
1977 10 21	675	0.0	0.9-	1996 03 19	801	0.2+
1977 10 21	675	0.9+	0.2+	1996 06 15	801	0.3+
1977 10 22	675	0.5+	0.2+	1996 06 15	801	0.1-
1977 10 22	675	0.8+	0.5+	1997 08 07	953	0.3-
1979 01 24	095	0.7-	1.2+	1997 08 07	953	0.1-
1989 09 04	675	0.5+	0.0	1997 08 07	953	0.0
1989 09 04	675	0.5+	0.4-	1997 08 07	953	0.0
1989 09 28	809	1.0-	0.3-	1997 08 07	953	0.0
1989 09 28	809	0.9-	0.0	1997 08 07	953	0.2-

(9913)* 4071 T-3 = 1982 BA₇ = 1984 UU₁

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 12702)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	6.17755	(2000.0)	P		Q	
<i>n</i>	0.28490456	ω	18.04900	+0.16219876	-0.98373893	
<i>a</i>	2.2873701	Ω	62.67680	+0.89429671	+0.11351426	
<i>e</i>	0.1444794	<i>i</i>	4.98056	+0.41704310	+0.13918418	
<i>P</i>	3.46	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>
Residuals in seconds of arc						
1977 10 07	675	1.3+	0.3-	1982 01 26	381	0.8+
1977 10 11	675	0.9+	1.9-	1984 10 29	688	(1.6+
1977 10 11	675	0.6+	1.2-	1984 10 29	688	0.4+

1977 10 12	675	0.5+	0.0	1990 04 29	413	1.1+	0.4-	1998 12 12	470	1.3-	1.1+
1977 10 12	675	0.6-	1.5-	1993 04 25	691	1.6-	0.4-	1998 12 14	704	1.0+	0.0
1977 10 16	675	0.4-	1.0+	1993 04 25	691	0.6-	1.0-	1998 12 14	704	0.3-	1.4-
1977 10 16	675	0.4-	0.4+	1993 04 25	691	0.7-	1.9-	1998 12 14	704	1.0+	0.8-
1977 10 17	675	0.3-	1.8-	1994 09 09	675	0.1+	1.8+	1998 12 14	704	1.3+	1.5-
1977 10 17	675	0.2+	0.1-	1996 03 08	689	0.1+	0.4-	1998 12 14	704	0.7+	0.6-
1977 10 21	675	0.4-	1.2+	1998 09 29	704	0.5+	1.4+	1998 12 17	704	0.6+	0.3+
1977 10 21	675	0.7-	1.6+	1998 09 29	704	0.9-	1.1-	1998 12 17	704	0.0	0.8-
1977 10 22	675	1.0-	0.5-	1998 09 29	704	(2.3+ 0.9+)		1998 12 17	704	0.7+	0.2+
1977 10 22	675	1.7+	1.4-	1998 09 29	704	0.8-	0.4+	1998 12 17	704	1.2-	0.5-
1982 01 26	381	0.1-	0.2-	1998 11 11	704	(0.2+ 2.5+)		1998 12 17	704	0.1+	0.1-

1940 AB = 1988 RZ₄ = 1989 WL₆ = 1989 WK₇ = 1998 KD₅₃

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

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
P				Q			
<i>M</i>	220.47462	(2000.0)		<i>M</i>	220.47462	(2000.0)	
<i>n</i>	0.17565665	ω	296.92222	<i>n</i>	0.17565665	ω	296.92222
<i>a</i>	3.1576184	Ω	129.11588	<i>a</i>	3.1576184	Ω	129.11588
<i>e</i>	0.0940306	<i>i</i>	14.17288	<i>e</i>	0.0940306	<i>i</i>	14.17288
<i>P</i>	5.61	<i>H</i>	12.0	<i>P</i>	5.61	<i>H</i>	12.0
		<i>G</i>	0.15			<i>U</i>	1

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

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

1971 QO₁ = 1971 SC₄ = 1982 VV₁ = 1984 CE₁ = 1998 XA₃₂

Id. H. Oishi (d, *JAM* 1814), G. V. Williams, T. Kobayashi

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
P				Q			
<i>M</i>	76.13554	(2000.0)		<i>M</i>	76.13554	(2000.0)	
<i>n</i>	0.18807845	ω	32.50930	<i>n</i>	0.18807845	ω	32.50930
<i>a</i>	3.0170096	Ω	321.74894	<i>a</i>	3.0170096	Ω	321.74894
<i>e</i>	0.1092617	<i>i</i>	9.45421	<i>e</i>	0.1092617	<i>i</i>	9.45421
<i>P</i>	5.24	<i>H</i>	12.3	<i>P</i>	5.24	<i>H</i>	12.3
		<i>G</i>	0.15			<i>U</i>	3

Residuals in seconds of arc

1971 08 30	095	1.6+	1.0-	1998 12 14	704	0.2-	0.2+	1998 12 17	704	0.3-	0.3+
1971 09 16	095	3.2-	2.5+	1998 12 14	704	0.1+	0.1-	1998 12 17	704	0.5-	0.0
1971 09 26	095	1.6+	1.5-	1998 12 14	704	0.3+	0.5-	1998 12 17	704	0.3-	1.1+
1982 11 14	033	0.3+	0.7-	1998 12 14	704	0.0	0.9-	1998 12 17	704	0.0	1.0+
1984 02 04	688	0.7+	0.4-	1998 12 14	704	0.5+	0.6-				
1984 02 04	688	0.9-	0.0	1998 12 17	704	0.2+	0.4+				

1973 SY₁ = 1996 SY₇ = 1998 VO₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler				Doppler			
P				Q			
<i>M</i>	13.41094	(2000.0)		<i>M</i>	13.41094	(2000.0)	
<i>n</i>	0.08359427	ω	38.32074	<i>n</i>	0.08359427	ω	38.32074
<i>a</i>	5.1802620	Ω	358.42336	<i>a</i>	5.1802620	Ω	358.42336
<i>e</i>	0.0582429	<i>i</i>	5.73329	<i>e</i>	0.0582429	<i>i</i>	5.73329
<i>P</i>	11.79	<i>H</i>	12.5	<i>P</i>	11.79	<i>H</i>	12.5
		<i>G</i>	0.15			<i>U</i>	4

Residuals in seconds of arc

1973 09 19	675	0.5-	1.4-	1973 09 30	675	1.0-	1.4+	1996 10 07	327	0.3+	0.0
1973 09 19	675	0.7+	0.3+	1973 10 04	675	0.2+	1.5-	1998 11 10	704	0.6+	0.7-

1973 09 20	675	0.6+	0.4+	1973 10 04	675	0.1-	0.2-	1998 11 10	704	0.3+	1.4+
1973 09 24	675	0.2-	0.4+	1973 10 05	675	(2.5+ 2.1-)		1998 11 10	704	(0.5- 2.3-)	
1973 09 24	675	0.4+	0.3-	1973 10 05	675	0.9+	0.1+	1998 11 11	704	0.1-	0.9-
1973 09 25	675	0.1+	1.0-	1996 09 20	327	0.3-	0.4+	1998 11 11	704	0.2+	0.3+
1973 09 25	675	0.1-	0.2+	1996 09 20	327	0.2+	0.4+	1998 11 11	704	1.0-	0.8-
1973 09 29	675	0.4+	0.1+	1996 09 20	327	0.4-	0.6+	1998 11 11	704	0.4-	0.6+
1973 09 29	675	0.5-	0.1+	1996 10 07	327	0.1+	0.2-	1998 11 11	704	0.2+	0.6+
1973 09 30	675	0.2-	0.7+	1996 10 07	327	0.1-	0.5-				

1975 VZ₈ = 1998 XA₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
P				Q			
<i>M</i>	52.34572	(2000.0)		<i>M</i>	52.34572	(2000.0)	
<i>n</i>	0.21551258	ω	71.58854	<i>n</i>	0.21551258	ω	71.58854
<i>a</i>	2.7552074	Ω	302.76593	<i>a</i>	2.7552074	Ω	302.76593
<i>e</i>	0.1733763	<i>i</i>	11.67420	<i>e</i>	0.1733763	<i>i</i>	11.67420
<i>P</i>	4.57	<i>H</i>	13.4	<i>P</i>	4.57	<i>H</i>	13.4
		<i>G</i>	0.15			<i>U</i>	6

Residuals in seconds of arc

1975 11 08	095	2.0-	0.3+	1998 12 14	704	0.8-	0.3+	1998 12 17	704	0.2-	0.8+
1975 11 12	095	2.2+	0.3-	1998 12 14	704	0.0	0.3+	1998 12 17	704	0.3+	1.2-
1975 11 27	095	0.7-	2.6+	1998 12 14	704	0.8+	0.9-	1998 12 17	704	0.1-	0.8+
1975 11 28	095	0.5+	2.6-	1998 12 14	704	0.1+	0.9-				
1998 12 14	704	0.2+	0.5+	1998 12 17	704	0.3-	0.4+				

1978 PV₂ = 1978 RY₂ = 1978 SE₂ = 1998 XC₆₄

Id. S. Nakano (d, *MPC* 10630), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
P				Q			
<i>M</i>	87.47967	(2000.0)		<i>M</i>	87.47967	(2000.0)	
<i>n</i>	0.30076845	ω	4.76823	<i>n</i>	0.30076845	ω	4.76823
<i>a</i>	2.2062151	Ω	319.35387	<i>a</i>	2.2062151	Ω	319.35387
<i>e</i>	0.2686890	<i>i</i>	5.37454	<i>e</i>	0.2686890	<i>i</i>	5.37454
<i>P</i>	3.28	<i>H</i>	14.1	<i>P</i>	3.28	<i>H</i>	14.1
		<i>G</i>	0.15			<i>U</i>	4

Residuals in seconds of arc

1978 08 08	095	0.1-	1.2-	1998 12 14	704	0.7-	0.2+	1998 12 17	704	0.6-	0.3+
1978 09 03	095	1.2+	1.1+	1998 12 14	704	0.2+	0.2+	1998 12 17	704	0.6-	0.3-
1978 09 26	095	0.4-	0.6+	1998 12 14	704	1.2+	0.2+	1998 12 17	704	1.1-	0.8-
1978 10 02	095	0.9-	0.6-	1998 12 14	704	0.2+	0.2+	1998 12 17	704	1.5+	0.5-

1978 PC₃ = 1978 RA₃ = 1978 SD₂ = 1978 TX = 1998 XG₅₁

Id. B. G. Marsden (d, *MPC* 7139), L. D. Schmadel (d, *MPC* 7447),

G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams				Williams			
P				Q			
<i>M</i>	123.84561	(2000.0)		<i>M</i>	123.84561	(2000.0)	
<i>n</i>	0.25742416	ω	2.50857	<i>n</i>	0.25742416	ω	2.50857
<i>a</i>	2.4473900	Ω	326.98674	<i>a</i>	2.4473900	Ω	326.98674
<i>e</i>	0.1705643	<i>i</i>	6.29451	<i>e</i>	0.1705643	<i>i</i>	6.29451
<i>P</i>	3.83	<i>H</i>	14.0	<i>P</i>	3.83	<i>H</i>	14.0
		<i>G</i>	0.15			<i>U</i>	4

Residuals in seconds of arc

1978 08 08	095	0.0	0.2-	1978 09 26	095	0.5-	0.7-	1998 12 14	704	0.5+	0.9-
1978 09 03	095	(4.8-	3.0+)	1978 10 02	095	0.4+	0.0	1998 12 17	704	0.1-	0.9+
1978 09 06	809	1.0+	0.5-	1998 12 14	704	0.0	1.5+	1998 12 17	704	0.6+	0.6+
1978 09 10	809	0.8-	1.3+	1998 12 14	704	0.4-	0.3-	1998 12 17	704	(4.0+	1.1-)
1978 09 10	809	(2.4+	3.7+)	1998 12 14	704	0.6+	2.0-	1998 12 17	704	1.2-	0.0

Residuals in seconds of arc

1978 11 05	675	0.5−	0.1+	1998 11 11	704	1.4−	0.4−	1998 11 24	704	0.3+	0.9+
1978 11 06	675	0.4+	0.4−	1998 11 11	704	1.2−	1.3−	1998 11 24	704	1.1−	1.3−
1978 11 07	675	0.8+	0.7+	1998 11 11	704	1.1−	0.7−	1998 11 24	704	0.6+	0.8+
1978 11 08	675	0.4−	0.1+	1998 11 11	704	1.2+	0.1−	1998 11 24	704	0.5+	0.1−
1978 11 29	675	0.6+	0.6−	1998 11 21	704	0.5+	0.1+	1998 11 24	704	0.3+	0.3−
1978 11 30	675	0.9−	0.1+	1998 11 21	704	0.4+	0.0	1998 12 07	910	0.1−	0.1+
1998 11 10	704	0.6+	1.0+	1998 11 21	704	0.8+	0.3−	1998 12 07	910	0.3−	0.1+
1998 11 10	704	1.1−	0.5−	1998 11 21	704	1.1+	0.5−	1998 12 07	910	0.3−	0.3+
1998 11 10	704	2.0−	1.0+	1998 11 21	704	2.1+	1.2+				

1978 VU₈ = 1998 XS₁

Id. G. V. Williams, E. Bowell

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	1.77701	(2000.0)	
<i>n</i>	0.24513028	ω	352.69901
<i>a</i>	2.5285492	Ω	82.40753
<i>e</i>	0.2027266	<i>i</i>	2.45313
<i>P</i>	4.02	<i>H</i>	15.9
Residuals in seconds of arc			
1978 11 05	675	0.8+	0.2−
1978 11 06	675	0.2−	0.1−
1978 11 07	675	0.9−	0.1+
1978 11 08	675	0.1+	0.4+
1978 11 29	675	0.6+	0.1+

1978 11 30	675	0.4−	0.1−	1998 12 08	699	0.1+	0.7−
1998 12 07	910	0.2−	0.3+	1998 12 08	699	0.1+	0.3−
1998 12 07	910	0.1−	0.4+	1998 12 08	910	0.0	0.1+
1998 12 07	910	0.0	0.1+	1998 12 08	910	0.2+	0.1+
1998 12 08	699	0.3−	0.1−	1998 12 08	910	0.3+	0.1+

1978 VQ₉ = 1998 XE₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	57.26742	(2000.0)	
<i>n</i>	0.24034954	ω	250.68296
<i>a</i>	2.5619689	Ω	67.95782
<i>e</i>	0.2087418	<i>i</i>	13.26699
<i>P</i>	4.10	<i>H</i>	14.1
Residuals in seconds of arc			
1978 11 05	675	0.8+	0.4−
1978 11 06	675	0.6−	0.6−
1978 11 07	675	0.9−	0.8+
1978 11 08	675	0.0	0.2+
1978 11 29	675	0.4+	0.0

1978 11 30	675	0.1+	0.1−	1998 12 13	683	0.3−	0.4−
1998 12 12	683	0.9+	0.2−	1998 12 13	683	1.0−	0.5+
1998 12 12	683	0.3−	0.1−	1998 12 18	699	0.3+	0.7+
1998 12 12	683	0.6+	0.0	1998 12 18	699	0.2−	0.1−
1998 12 13	683	0.3−	0.4−	1998 12 18	699	0.4+	0.0

1979 QF₁ = 1990 SK₁₈ = 1994 UO₂

Id. T. Kobayashi (1998 observations), S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano			
<i>M</i>	72.52798	(2000.0)	
<i>n</i>	0.26862732	ω	163.57820
<i>a</i>	2.3788621	Ω	212.85710
<i>e</i>	0.2099236	<i>i</i>	1.60334
<i>P</i>	3.67	<i>H</i>	14.6
Residuals in seconds of arc			
1979 08 22	809	0.7+	0.4+
1979 08 22	809	0.9−	0.1+
1979 08 22	809	1.1+	0.4−
1979 08 23	809	0.8+	0.4+
1979 08 23	809	(3.0+ 1.5−)	
1979 08 30	809	1.0−	0.7+
1979 08 30	809	1.3−	0.4+

1990 09 16	675	0.3+	1.1−	1994 11 23	399	0.0	0.6−
1990 09 16	675	0.3+	0.8−	1998 12 19	411	0.1+	0.5−
1994 10 31	399	1.0+	0.2+	1998 12 19	411	1.3+	0.6+
1994 10 31	399	0.1+	0.7+	1998 12 20	411	0.4−	0.8−
1994 11 07	399	0.1−	0.8+	1998 12 20	411	1.0−	0.8+
1994 11 07	399	1.4−	0.0				
1994 11 23	399	0.4+	1.0−				

1980 PC₃ = 1998 WC₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Gnädig			
<i>M</i>	111.21554	(2000.0)	
<i>n</i>	0.23258313	ω	277.22758
<i>a</i>	2.6186889	Ω	64.86544
<i>e</i>	0.2510415	<i>i</i>	15.79608
<i>P</i>	4.24	<i>H</i>	13.6
Residuals in seconds of arc			
1980 07 19	413	(9.2− 10.0−)	
1980 07 19	413	(8.1− 10.5−)	
1980 08 08	413	1.0+ 1.0+	
1980 08 09	413	1.3− 0.6+	
1980 08 10	413	1.2+ 1.4+	
1980 08 12	413	0.2− 0.1+	
1980 08 15	413	0.0 2.0−	
1980 08 16	413	1.0− 1.6−	
1980 08 17	413	1.0+ 0.5−	
1980 08 22	413	0.5− 1.1+	

1980 11 25	704	2.3+	0.0	1998 11 28	046	0.3−	0.3+
1980 11 25	704	0.4−	0.1−	1998 11 28	046	0.2+	0.1−
1980 11 25	704	1.2+	0.3−	1998 11 29	557	0.4−	0.2−
1980 11 25	704	(3.7− 1.9+)		1998 11 29	557	0.6−	0.2−
1980 11 26	734	0.9−	0.6+	1998 11 29	557	0.6−	0.3−
1980 11 26	734	0.7+	0.5+	1998 11 29	402	0.1−	0.3−
1980 11 26	734	0.6+	1.2+	1998 11 29	402	0.4−	1.2−
1980 11 28	046	0.1−	0.5+	1998 11 29	402	0.4−	0.5−
1980 11 28	046	0.3−	0.5+	1998 11 29	402	0.2−	0.7−
1980 11 28	046	0.2−	0.6+				

1981 EV₃

Id. G. Forti (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	114.00471	(2000.0)	
<i>n</i>	0.26018911	ω	70.65351
<i>a</i>	2.4300207	Ω	254.02400
<i>e</i>	0.0786538	<i>i</i>	5.58671
<i>P</i>	3.79	<i>H</i>	15.7
Residuals in seconds of arc			
1981 02 02	413	0.1− 0.7−	
1981 02 14	413	0.9− 0.1+	
1981 03 01	413	1.3+ 0.5+	
1981 03 01	413	(3.3+ 1.5−)	
1981 03 02	413	1.2+ 0.4+	
1981 03 07	413	1.4+ 0.5+	
1981 03 07	413	0.1+ 0.1−	
1981 03 07	413	0.9− 1.2+	
1981 03 10	413	(6.8+ 1.7−)	
1981 03 11	413	0.8− 0.2+	

1981 03 11	413	0.1−	0.2−	1981 03 12	413	0.9−	1.6+
1981 04 06	413	0.7−	0.1−	1981 04 06	413	0.7−	0.1−
1981 04 06	413	1.5−	0.4−	1981 04 06	413	1.5−	0.4−
1981 04 29	413	0.7+	2.0−	1981 04 29	413	0.7+	2.0−
1981 12 06	104	0.1+	0.9−	1981 12 06	104	0.1+	0.9−
1981 12 06	104	0.1−	0.8−	1981 12 06	104	0.1−	0.8−
1981 12 06	104	1.2+	0.1−	1981 12 06	104	1.2+	0.1−
1981 12 06	104	0.1+	0.4+	1981 12 06	104	0.1+	0.4+
1981 12 07	104	0.1−	0.2−	1981 12 07	104	0.1−	0.2−

1981 ED₂₀ = 1977 AH₂ = 1998 XF₅₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	18.89937	(2000.0)	
<i>n</i>	0.26831234	ω	75.16659
<i>a</i>	2.3807235	Ω	7.77386
<i>e</i>	0.1997104	<i>i</i>	4.88587
<i>P</i>	3.67	<i>H</i>	15.2
Residuals in seconds of arc			
1977 01 13	095	0.1+ 0.1+	
1981 02 02	413	0.5+ 1.3−	
1981 02 13	413	2.1+ 0.9−	
1981 03 02	413	2.0− 1.1+	
1981 03 03	413	1.5− 0.0	
1981 03 07	413	0.5− 0.9+	
1981 03 07	413	0.9+ 0.2+	
1981 03 11	413	0.0 1.1+	
1981 03 11	413	1.4+ 0.4−	

1981 03 16	413	2.8−	0.5+	1998 12 14	704	0.6+	0.5+
1981 03 29	413	0.9+	0.8+	1998 12 14	704	0.2−	0.5−
1981 04 07	413	2.3−	0.2+	1998 12 14	704	1.2−	0.1+
1981 04 07	413	1.5+	0.3−	1998 12 17	704	0.5+	0.5+
1981 04 11	413	1.1−	0.4−	1998 12 17	704	0.2+	0.0
1981 04 11	413	1.2+	1.0−	1998 12 17	704	0.3+	0.3−
1981 05 02	413	1.5+	0.5−	1998 12 17	704	0.2−	0.4−
1981 05 03	413	0.9+	0.6−	1998 12 17	704	0.2+	0.4−
1981 12 14	704	0.3−	0.4+				

1982 KH₁ = 1998 YD₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	194.62083		(2000.0)	P	Q
<i>n</i>	0.21357635	ω	189.87371	-0.06268342	+0.98276455
<i>a</i>	2.7718343	Ω	76.68664	-0.90305610	+0.01833953
<i>e</i>	0.1322949	<i>i</i>	10.29479	-0.42492408	-0.18394971
<i>P</i>	4.61	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1982 05 15	675	0.7+	0.0	1998 12 14	704	0.4-	0.8+	1998 12 17	704	1.1+	0.7-
1982 05 16	675	0.0	0.3-	1998 12 14	704	2.3-	0.8-	1998 12 17	704	0.1-	0.5-
1982 05 16	675	1.7-	0.1-	1998 12 14	704	1.0-	0.5+	1998 12 17	704	0.2+	0.5-
1982 05 17	675	1.3-	0.2+	1998 12 14	704	0.3-	0.3+	1998 12 17	704	1.6+	1.6+
1982 05 18	675	0.6-	0.2-	1998 12 16	360	0.0	0.1+	1998 12 17	360	0.3+	0.3-
1982 05 24	675	1.8+	1.2+	1998 12 16	360	0.2+	0.1+	1998 12 17	360	0.4+	0.2-
1982 05 27	675	1.3+	0.7-	1998 12 16	360	0.1-	0.2+	1998 12 17	360	0.4+	0.3-

1983 RQ₃ = 1954 QA₁ = 1993 FO₆₈Id. G. V. Williams (*MPC* 23668, unpublished)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	88.63515		(2000.0)	P	Q
<i>n</i>	0.27205428	ω	7.70598	+0.92237259	+0.38411522
<i>a</i>	2.3588428	Ω	329.60263	-0.35861028	+0.81191005
<i>e</i>	0.2427132	<i>i</i>	4.65226	-0.14362266	+0.43961069
<i>P</i>	3.62	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1954 08 27	675	0.2-	0.1+	1983 09 09	809	0.5+	0.0	1996 02 16	010	(0.5+	4.2+)
1954 08 27	675	0.0	0.4+	1983 09 11	809	1.0-	0.7-	1996 02 16	010	(0.3+	3.4+)
1983 08 16	095	1.4-	0.8+	1983 09 11	809	0.8-	0.6-	1996 02 16	010	(0.4+	4.1+)
1983 09 02	809	0.4+	0.4-	1983 09 11	809	0.9-	0.7-	1996 02 17	010	(1.7+	4.0+)
1983 09 02	809	0.7+	0.1-	1983 09 13	809	1.1-	0.2+	1996 02 17	010	(0.4+	3.8+)
1983 09 02	809	1.2+	0.2-	1983 09 13	809	0.7-	0.0	1996 02 17	010	(1.4+	4.0+)
1983 09 06	809	0.1+	0.0	1983 09 13	809	0.7-	0.1-	1998 12 14	704	1.1+	0.5-
1983 09 06	809	0.3+	0.0	1983 09 15	809	0.2+	0.4+	1998 12 14	704	(2.3+	0.5-)
1983 09 06	809	0.5+	0.1-	1983 09 15	809	0.0	0.7+	1998 12 14	704	0.6+	0.6+
1983 09 07	809	0.4+	0.1+	1983 09 15	809	0.0	0.5+	1998 12 14	704	0.5+	0.3+
1983 09 07	809	0.2+	0.1+	1983 09 16	809	0.1+	0.6-	1998 12 17	704	0.6-	0.7+
1983 09 07	809	0.4+	0.1+	1983 09 16	809	0.3+	0.7-	1998 12 17	704	0.3+	0.9-
1983 09 08	809	0.1-	0.0	1983 09 17	809	0.4+	0.2+	1998 12 17	704	0.1+	1.0-
1983 09 08	809	0.4+	0.0	1983 09 17	809	0.4+	0.2+	1998 12 17	704	1.1-	0.1+
1983 09 08	809	0.3+	0.0	1993 03 21	809	0.5-	0.2-	1998 12 17	704	0.8-	0.6+
1983 09 09	809	0.1-	0.1+	1993 03 22	809	0.2+	0.4-				
1983 09 09	809	0.2+	0.0	1993 04 18	413	(5.7-	2.8+)				

1985 CF₂ = 1998 UK₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	267.79485		(2000.0)	P	Q
<i>n</i>	0.26758631	ω	359.49642	-0.99663113	-0.08114967
<i>a</i>	2.3850278	Ω	175.79327	+0.07580181	-0.96672217
<i>e</i>	0.1644642	<i>i</i>	9.32007	+0.03131270	-0.24261693
<i>P</i>	3.68	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1985 02 13	809	0.1-	0.5+	1985 02 19	809	0.4-	0.3+	1985 02 26	809	0.1+	0.7-
1985 02 13	809	0.1-	0.2+	1985 02 19	809	0.1-	0.2+	1985 02 27	809	0.6-	0.7-
1985 02 13	809	0.0	0.1-	1985 02 20	809	0.1+	0.3+	1985 02 27	809	0.6-	0.3-
1985 02 15	809	0.7-	1.1-	1985 02 20	809	0.4+	0.6+	1985 02 27	809	0.3-	0.3-
1985 02 15	809	0.1-	1.2-	1985 02 20	809	0.3+	0.5+	1985 02 28	809	(1.5+	2.2-)
1985 02 15	809	0.2+	0.8-	1985 02 22	809	0.0	0.1+	1985 02 28	809	(1.7+	2.3-)
1985 02 17	809	0.2-	0.1-	1985 02 22	809	0.3+	0.1+	1998 10 18	809	0.2+	1.0-
1985 02 17	809	0.1+	0.2-	1985 02 22	809	0.6+	0.1+	1998 10 18	809	0.3+	1.3-
1985 02 17	809	0.5+	0.2-	1985 02 24	809	0.3+	1.1+	1998 10 18	809	0.5-	1.1-
1985 02 18	809	0.0	0.0	1985 02 24	809	0.6+	1.0+	1998 10 19	809	0.4+	0.8+
1985 02 18	809	0.0	0.3+	1985 02 24	809	0.7+	0.9+	1998 10 19	809	0.7-	1.1+

1985 02 18	809	0.2+	0.3+	1985 02 26	809	0.6-	0.3-	1998 10 19	809	0.3+	1.4+
1985 02 19	809	0.6-	0.3+	1985 02 26	809	0.3-	0.7-				

1985 RF₃ = 1998 QX₁₀₂

Id. B. G. Marsden, S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	40.87455		(2000.0)	P	Q
<i>n</i>	0.22884410	ω	213.69453	+0.91401100	+0.39594147
<i>a</i>	2.6471359	Ω	122.73874	-0.34515800	+0.87345423
<i>e</i>	0.2497469	<i>i</i>	6.03251	-0.21318969	+0.28338676
<i>P</i>	4.31	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1985 09 06	809	0.3+	0.4-	1985 09 14	809	0.2-	0.3+	1998 08 26	809	0.3+	0.7+
1985 09 06	809	0.6+	0.2-	1985 09 16	809	0.4-	0.2-	1998 08 26	809	0.2-	0.1-
1985 09 06	809	0.7+	0.2-	1985 09 16	809	0.4-	0.3-	1998 08 26	809	0.2-	0.2-
1985 09 08	809	0.2+	0.3+	1985 09 16	809	0.2-	0.5-	1998 08 27	809	(3.0+	4.5+)
1985 09 08	809	0.3+	0.3+	1985 09 18	809	0.5-	0.1+	1998 08 27	809	(3.8+	4.6+)
1985 09 08	809	0.5+	0.3+	1985 09 18	809	0.3-	0.0	1998 08 27	809	(3.2+	4.3+)
1985 09 10	809	0.7-	0.2+	1985 09 18	809	0.2-	0.1-	1998 09 24	699	0.5-	0.4-
1985 09 10	809	0.5-	0.2+	1985 09 19	095	(3.0-	0.6-)	1998 09 24	699	0.4-	0.5-
1985 09 10	809	0.6-	0.2+	1985 09 20	809	0.9-	0.8-	1998 09 24	699	0.2+	0.5-
1985 09 11	809	0.1+	0.7+	1985 09 20	809	0.9-	0.8-	1998 09 27	699	0.3+	0.3+
1985 09 11	809	0.2+	0.6+	1985 09 20	809	0.9-	0.9-	1998 09 27	699	0.0	1.2+
1985 09 11	809	0.6+	0.6+	1985 09 20	095	(3.1-	1.7+)	1998 09 27	699	0.2+	0.6+
1985 09 14	809	0.0	0.4+	1985 09 22	809	2.0+	0.7-				
1985 09 14	809	0.3-	0.4+	1985 09 22	809	1.9+	0.9-				

1985 RL₄ = 1982 VE₈ = 1998 VG₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	84.49156		(2000.0)	P	Q
<i>n</i>	0.30904817	ω	299.21721	+0.90071283	+0.43307525
<i>a</i>	2.1666326	Ω	35.15125	-0.37518033	+0.81505716
<i>e</i>	0.1570736	<i>i</i>	3.39468	-0.21898887	+0.38487355
<i>P</i>	3.19	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1982 11 09	095	0.2-	0.9+	1985 09 18	809	0.2-	0.7-	1998 11 11	704	0.7-	0.5-
1985 09 11	809	0.4+	1.3+	1985 09 19	809	1.3-	0.7-	1998 11 12	120	0.0	0.8+
1985 09 11	809	0.6+	1.3+	1985 09 19	809	1.1-	0.9-	1998 11 12	120	(3.4+	0.9+)
1985 09 11	809	0.6+	1.3+	1985 09 19	809	1.1-	0.9-	1998 11 13	120	0.9+	0.3+
1985 09 14	809	0.1-	1.0+	1985 09 20	809	1.1-	0.1+	1998 11 13	120	1.7-	1.3+
1985 09 14	809	0.3+	1.1+	1985 09 20	809	0.6-	0.3-	1998 11 16	566	0.3+	0.3-
1985 09 14	809	0.5+	1.0+	1985 09 21	809	0.1-	0.2+	1998 11 16	566	0.0	0.5-
1985 09 15	809	0.3+	0.4-	1985 09 21	809	0.1+	0.0	1998 11 16	566	0.1+	0.4-
1985 09 15	809	0.5+	0.6-	1985 09 21	809	0.3+	0.0	1998 11 21	704	0.2+	1.7-
1985 09 15	809	0.6+	0.7-	1985 09 22	809	0.1+	0.6-	1998 11 21	704	0.2-	2.0-
1985 09 16	809	0.2-	0.1+	1985 09 22	809	0.4+	0.5-	1998 11 21	704	(1.2+	3.0-)
1985 09 16	809	0.0	0.1+	1998 11 10	704	0.7+	0.4+	1998 11 21	704	(1.5+	4.3-)
1985 09 16	809	0.3+	0.1-	1998 11 10	704	0.2-	0.5-	1998 11 24	704	0.0	0.2+
1985 09 17	809	0.4+	0.1-	1998 11 10	704	1.0+	0.7+	1998 11 24	704	0.6+	0.4+
1985 09 17	809	0.7+	0.1-	1998 11 10	704	2.1-	0.7+	1998 11 24	704	0.0	0.6-
1985 09 17	809	1.0+	0.1-	1998 11 11	704	0.4+	0.8+	1998 11 24	704	0.2+	0.4-
1985 09 18	809	0.7-	0.7-	1998 11 11	704	0.1-	0.1-	1998 11 24	704	0.7+	0.6+
1985 09 18	809	0.4-	0.6-	1998 11 11	704	0.2+	0.5+				

1986 EL₅ = 1976 YP₆ = 1998 DZ₃₅ = 1998 FJ₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	164.05071		(2000.0)	P	Q
<i>n</i>	0.24362118	ω	69.87096	+0.30246358	-0.95315245
<i>a</i>	2.5389804	Ω	2.53377	+0.83698179	+0.26357412
<i>e</i>	0.0776090	<i>i</i>	5.22355	+0.45604525	+0.14842202
<i>P</i>	4.05	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 5

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Residuals in seconds of arc

1976 12 20	095	0.0	0.1-	1998 02 25	809	0.5+	0.3-	1998 03 20	704	0.1+	0.9-
1986 03 06	809	0.0	1.1-	1998 02 25	809	0.1+	0.5-	1998 03 20	704	(2.3-	1.9-)
1986 03 06	809	1.2+	0.2+	1998 02 25	809	1.5-	1.0+	1998 03 22	704	0.3-	0.1+
1986 03 07	809	1.1+	1.1-	1998 02 26	809	0.2+	0.3+	1998 03 22	704	0.0	1.0+
1986 03 07	809	0.6+	0.4+	1998 02 26	809	1.3+	0.1+	1998 03 22	704	0.2-	0.1-
1986 03 11	809	1.0-	0.2-	1998 02 26	809	1.6+	0.2+	1998 03 22	704	0.7-	0.6-
1986 03 11	809	1.2-	0.5+	1998 03 20	704	0.2-	0.0	1998 03 22	704	0.9-	1.0-
1986 03 17	809	0.5-	0.9+	1998 03 20	704	0.1+	0.4+				
1986 03 17	809	0.0	0.7+	1998 03 20	704	0.2-	0.1-				

1987 QZ₆ = 1998 XU₄₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	150.85660		(2000.0)	P	Q
<i>n</i>	0.29036058	ω	16.10644	+0.60811838	+0.78965573
<i>a</i>	2.2586258	Ω	291.41867	-0.73765546	+0.52417100
<i>e</i>	0.0667572	<i>i</i>	5.02004	-0.29335382	+0.31888648
<i>P</i>	3.39	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1987 08 22	809	0.3-	0.1+	1987 08 25	809	3.7-	0.1+	1998 12 14	704	1.2+	0.2+
1987 08 22	809	0.7+	0.0	1987 08 26	809	0.3-	0.5-	1998 12 14	704	1.6-	1.2+
1987 08 22	809	0.8-	0.2+	1987 08 26	809	0.4+	0.1+	1998 12 17	704	0.6+	0.0
1987 08 24	809	0.6+	0.3+	1987 08 26	809	1.5+	0.2-	1998 12 17	704	0.5+	0.5-
1987 08 24	809	2.6+	0.2-	1987 09 01	095	1.7+	0.5-	1998 12 17	704	0.8-	0.1+
1987 08 24	809	3.6+	0.1+	1998 12 14	704	0.1-	0.6-	1998 12 17	704	0.2+	0.1-
1987 08 25	809	2.9-	0.8+	1998 12 14	704	0.9+	0.6-				
1987 08 25	809	2.8-	0.3-	1998 12 14	704	0.7-	0.5+				

1987 SF = 1998 YJ₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	54.78094		(2000.0)	P	Q
<i>n</i>	0.27795294	ω	243.08427	+0.91930619	-0.38991834
<i>a</i>	2.3253511	Ω	139.80309	+0.38397957	+0.85903407
<i>e</i>	0.2331951	<i>i</i>	4.73613	+0.08623124	+0.33169890
<i>P</i>	3.55	<i>H</i>	15.2	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1987 09 16	372	2.0-	1.5-	Y	1987 10 01	372	0.3-	0.6+	1998 12 17	595	0.1+	0.1+
1987 09 17	372	1.0+	1.2+	Y	1998 12 16	595	0.1+	0.3-	1998 12 18	595	0.4+	0.4+
1987 09 18	372	1.7+	0.9-	Y	1998 12 16	595	0.2-	0.0	1998 12 23	595	0.5-	0.5+
1987 09 19	372	0.4-	0.6+	Y	1998 12 16	595	0.4+	0.5-	1998 12 23	595	0.4-	0.3+
1987 09 22	095	(2.7-	0.4-)		1998 12 17	595	0.0	0.4-				
1987 09 26	372	(0.9+	4.6+)		1998 12 17	595	0.1+	0.3-				

1988 MH = 1951 RE₁ = 1955 QP = 1998 XO₂₄

Id. G. V. Williams, T. Kobayashi (1998 observations), B. G. Marsden, S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	136.08622		(2000.0)	P	Q
<i>n</i>	0.23591702	ω	36.25658	+0.84345529	+0.49534410
<i>a</i>	2.5939595	Ω	292.78008	-0.53048731	+0.70703799
<i>e</i>	0.1936531	<i>i</i>	13.03084	-0.08465451	+0.50470932
<i>P</i>	4.18	<i>H</i>	12.5	<i>G</i>	0.15
				<i>U</i>	5

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

1951 09 01	094(0.31+	0.18+)	X	1998 12 16	699	1.2+	0.1-	1998 12 23	704	1.1+	1.3-
1951 09 02	094(0.32+	0.18+)	X	1998 12 16	699	1.2+	0.2+	1998 12 23	704	1.0+	0.2-
1951 09 07	094(0.33+	0.19+)	X	1998 12 16	699	1.1+	0.3+	1998 12 23	704	1.6+	1.0+
1955 08 23	760(0.30+	0.20+)	X	1998 12 16	691	1.6-	0.3-	1998 12 23	704	(2.5-	0.6+)
1988 06 16	675	1.6+	0.6+	1998 12 16	691	1.6-	0.1+	1998 12 23	120	0.2+	0.5+
1988 06 19	675	1.6-	0.0	1998 12 16	691	1.6-	0.2-	1998 12 23	120	0.1+	0.2+
1988 07 12	675	1.1-	0.1-	1998 12 21	411	0.4+	0.4+	1998 12 25	120	0.5-	0.0
1988 07 15	675	1.1+	0.9-	1998 12 21	411	0.4-	0.1-	1998 12 25	120	0.2-	0.1+
1998 12 11	691	1.0-	0.4-	1998 12 22	411	0.3-	0.2+	1998 12 25	120	0.1+	0.2+

1998 12 11	691	0.8-	0.5-	1998 12 22	411	0.2+	0.6+	1998 12 26	120	0.4-	0.2+
1998 12 11	691	0.7-	0.6-	1998 12 23	704	1.4+	1.2-	1998 12 27	120	0.6-	0.8+

1988 NW = 1971 QL = 1998 XJ₅₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	163.51391		(2000.0)	P	Q
<i>n</i>	0.23039523	ω	353.70945	+0.47284340	+0.86103737
<i>a</i>	2.6352414	Ω	304.35652	-0.79823289	+0.32861758
<i>e</i>	0.1797737	<i>i</i>	13.10448	-0.37315328	+0.38810454
<i>P</i>	4.28	<i>H</i>	13.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1971 08 18	095	0.1-	0.2+	1998 12 14	704	0.2-	0.4+	1998 12 17	704	0.2+	0.3+
1988 07 10	675	0.9+	2.4-	1998 12 14	704	0.7+	0.3-	1998 12 17	704	0.1+	0.0
1988 07 12	675	0.2-	2.5+	1998 12 14	704	0.5+	0.2-	1998 12 17	704	0.2-	0.2-
1988 08 08	675	0.3-	0.3+	1998 12 14	704	0.5+	0.1+	1998 12 17	704	0.1+	0.6-
1988 08 10	675	0.1-	0.9-	1998 12 14	704	2.2-	0.4+	1998 12 17	704	0.2+	0.4-

1988 PW₂ = 1997 GL₃₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	81.15101		(2000.0)	P	Q
<i>n</i>	0.19066772	ω	79.15932	-0.25208937	+0.96762607
<i>a</i>	2.9896334	Ω	176.17325	-0.94410902	-0.24313840
<i>e</i>	0.0287693	<i>i</i>	10.60079	-0.21238905	-0.06770163
<i>P</i>	5.17	<i>H</i>	13.7	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1988 08 10	413	0.1-	0.3-	1988 08 19	413	0.8-	0.1-	1997 04 07	809	0.2+	0.2+
1988 08 10	413	0.2+	0.6+	1988 08 20	413	0.2+	0.2+	1997 04 08	809	1.2+	0.5-
1988 08 11	413	0.5-	1.3-	1997 04 07	809	0.9-	1.0+	1997 04 08	809	0.3-	0.6-
1988 08 11	413	1.3+	1.1+	1997 04 07	809	0.4-	1.1+	1997 04 08	809	0.1+	1.2-

1988 RH₆ = 1958 VG = 1978 TA₁ = 1985 VN₅ = 1998 QQ₉ = 1998 QT₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	4.71063		(2000.0)	P	Q
<i>n</i>	0.29285069	ω	52.33135	+0.97726028	-0.19623972
<i>a</i>	2.2458041	Ω	318.81027	+0.13480371	+0.86739023
<i>e</i>	0.1308636	<i>i</i>	7.00603	+0.16367745	+0.45730096
<i>P</i>	3.37	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1958 11 11	760	0.4-	2.0+	1988 09 10	809	0.9-	0.9-	1998 08 23	691	0.2-	0.4+
1958 11 11	760	1.2-	1.3+	1988 09 13	809	1.1-	0.7-	1998 08 23	704	0.6+	0.1+
1978 09 30	049(66.5+	48.3+)		1988 09 13	809	1.1-	0.7-	1998 08 23	704	0.2+	1.1+
1978 09 30	049(66.4+	48.0+)		1988 09 13	809	1.1-	0.8-	1998 08 23	704	0.4-	0.1-
1978 10 02	095	0.7+	1.1+	1988 09 17	809	1.7+	0.3-	1998 08 23	704	0.6+	0.3+
1985 11 11	095	0.4+	1.7-	1988 09 17	809	1.5+	0.4-	1998 08 23	704	0.8-	0.3+
1988 09 06	809	1.7+	0.6-	1988 09 17	809	1.4+	0.5-	1998 08 27	691	1.3-	0.8+
1988 09 06	809	1.9+	0.9-	1998 08 17	704	0.4+	0.0	1998 08 27	691	1.3-	0.4+
1988 09 06	809	2.1+	1.1-	1998 08 17	704	0.8+	0.2+	1998 08 27	691	1.2-	0.4+
1988 09 08	809	(2.3-	0.9+)	1998 08 17	704	0.4-	0.3-	1998 08 27	699	0.7+	0.5+
1988 09 08	809	1.8-	0.7+	1998 08 17	704	0.4+	0.6-	1998 08 27	699	0.7+	0.3+
1988 09 08	809	1.2-	0.6+	1998 08 17	704	0.2+	0.1+	1998 08 27	699	(4.2+	0.6+)
1988 09 10	809	0.5-	0.5-	1998 08 23	691	0.4-	0.8+				
1988 09 10	809	0.6-	0.5-	1998 08 23	691	0.3-	0.6+				

1988 XE₂ = 1984 MN = 1991 RW₂₅ = 1998 VB₃₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	102.38407		(2000.0)	P	Q
<i>n</i>	0.29538633	ω	234.25080	+0.73024310	+0.66985789
<i>a</i>	2.2329335	Ω	83.28050	-0.57501747	+0.70877919
<i>e</i>	0.2458397	<i>i</i>	7.77163	-0.36891724	+0.22118426
<i>P</i>	3.34	<i>H</i>	13.5	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1984 06 27	323(16.6– 15.4+)	1988 12 15	888	0.8–	0.1+	1998 11 13	358	0.4+	1.5+
1984 06 28	323 0.2+ 1.1+	1991 09 12	675	0.4+	0.0	1998 11 14	358	0.9+	0.2–
1988 12 10	888 (3.3– 7.5–)	1991 09 12	675	0.2–	0.2–	1998 11 14	358 (4.7+ 2.0–)		
1988 12 10	888(14.2– 7.1–)	1991 09 16	675	0.0	0.2+	1998 11 15	358	0.5–	0.6–
1988 12 11	888 1.2– 1.2+	1991 09 16	675	0.1–	0.0	1998 11 15	358	0.4+	1.9–
1988 12 11	888 (3.7– 1.0–)	1998 11 12	358	0.6–	0.7+	1998 12 10	684	0.4+	0.1–
1988 12 14	888 0.9+ 1.2+	1998 11 12	358	0.4+	2.2–	1998 12 10	684	0.4+	0.1–
1988 12 14	888 0.5+ 1.2+	1998 11 13	358	0.1–	1.1+	1998 12 11	684	0.5–	0.4–
1988 12 15	888 0.5– 0.4+	1998 11 13	358 (2.5+ 1.2+)			1998 12 11	684	0.5–	0.5–

1988 XY₄ = 1998 VK₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	39.62033	(2000.0)	P	Q	
<i>n</i>	0.19098766	ω 296.22872	+0.98613155	–0.02588513	
<i>a</i>	2.9862936	Ω 65.63133	+0.09954074	+0.88262860	
<i>e</i>	0.0937852	<i>i</i> 10.36789	–0.13280138	+0.46935777	
<i>P</i>	5.16	<i>H</i> 12.6	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1988 12 05	381	0.1–	1.0–	1998 11 10	704	0.1+	0.1+	1998 11 11	704	0.3+	0.1–
1988 12 06	381	0.5–	0.5+	1998 11 10	704	1.1–	0.5+	1998 11 11	704	0.6–	0.1+
1988 12 07	381	0.1+	0.0	1998 11 10	704	0.3+	0.0	1998 11 11	704	0.2+	0.1–
1988 12 08	381	0.4+	0.4+	1998 11 10	704	0.4+	0.5–	1998 12 11	699	0.4–	0.0
1998 10 20	699	0.2+	0.1+	1998 11 10	704	0.5–	0.4+	1998 12 11	699	0.0	0.2–
1998 10 20	699	0.5+	0.1+	1998 11 11	704	0.2–	0.6–	1998 12 11	699	0.7+	0.0
1998 10 20	699	0.7+	0.0	1998 11 11	704	0.8–	0.1+				

1989 BR = 1991 XS₄ = 1998 XJ₄₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	330.60617	(2000.0)	P	Q	
<i>n</i>	0.29045304	ω 171.74814	–0.77832417	–0.62649639	
<i>a</i>	2.2581464	Ω 329.33722	+0.57131921	–0.67934443	
<i>e</i>	0.0920826	<i>i</i> 4.65606	+0.26039555	–0.38209086	
<i>P</i>	3.39	<i>H</i> 14.2	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1989 01 29	872	0.6+	2.5+	1989 03 05	033	1.2–	0.4+	1998 12 14	704	0.4+	0.4–
1989 01 29	872	0.1+	2.0+	1989 03 05	033	1.1–	0.9+	1998 12 17	704	0.1–	1.1+
1989 02 04	872	1.4+	2.3–	1991 12 03	675	0.4–	0.5+	1998 12 17	704	0.2–	0.3+
1989 02 04	872	0.0	0.7–	1991 12 03	675	0.5+	1.3–	1998 12 17	704	0.3+	0.1+
1989 02 05	872	1.5–	0.1+	1998 12 14	704	0.6–	0.8+	1998 12 17	704	0.6+	0.3–
1989 02 05	872	1.2–	1.6–	1998 12 14	704	0.3–	0.4–	1998 12 17	704	0.1–	0.1+
1989 02 10	872	0.8+	1.1–	1998 12 14	704	0.0	0.1–				
1989 02 10	872	1.7+	0.7–	1998 12 14	704	0.2+	0.0				

1989 EN₅ = 1998 XA₆₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	294.51415	(2000.0)	P	Q	
<i>n</i>	0.28079063	ω 230.91486	–0.94431291	–0.32250775	
<i>a</i>	2.3096578	Ω 290.18372	+0.31928055	–0.85008219	
<i>e</i>	0.0926862	<i>i</i> 3.98839	+0.07958055	–0.41635204	
<i>P</i>	3.51	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1989 03 02	413	0.0	0.6+	1998 12 14	704	0.1+	1.0–	1998 12 17	704	0.1–	0.8–
1989 03 02	413	1.0+	0.3–	1998 12 14	704	1.1+	0.3+	1998 12 17	704	0.4–	0.3–
1989 03 04	413	0.4+	0.3+	1998 12 14	704	0.7+	1.4+	1998 12 17	704	0.4+	1.0–
1989 03 10	372	2.5–	0.3+	1998 12 14	704	1.2–	1.6+	1998 12 17	704	0.4–	0.2–
1989 03 10	372	1.2+	0.9–	1998 12 17	704	0.3–	0.1–				

1989 GL = 1998 XP₆₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	315.39148	(2000.0)	P	Q	
<i>n</i>	0.28680080	ω 156.62393	–0.98616082	–0.12543466	
<i>a</i>	2.2772767	Ω 17.25672	+0.01608184	–0.72318999	
<i>e</i>	0.1921445	<i>i</i> 21.43511	+0.16500976	–0.67916300	
<i>P</i>	3.44	<i>H</i> 14.2	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1989 03 05	675	0.6–	0.7–	1989 04 08	675	0.1–	0.6+	1998 12 11	704	0.1–	0.4–
1989 03 05	675	2.0–	1.5–	1989 04 08	675	1.4+	0.9+	1998 12 11	704	0.8–	1.3+
1989 03 06	675	0.2–	1.4–	1989 04 29	675	0.2–	1.0–	1998 12 12	704	0.2–	0.3+
1989 03 29	675	0.2+	0.7+	1989 04 29	675	0.7+	3.0–	1998 12 12	704	0.1–	0.2+
1989 03 29	675	0.1+	0.1+	1989 05 01	675	0.2–	0.3–	1998 12 12	704	0.0	0.7–
1989 04 03	675	0.3–	2.0+	1989 05 01	675	1.5+	0.7–	1998 12 12	704	0.7–	0.2+
1989 04 03	675	0.1+	1.5+	1998 12 11	704	0.1+	0.3–	1998 12 12	704	1.0+	0.4–
1989 04 06	675	0.2+	1.6+	1998 12 11	704	1.4+	0.5+				
1989 04 06	675	0.6–	0.4+	1998 12 11	704	0.4–	0.1+				

1989 GN₃ = 1998 VH₁₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	298.00690	(2000.0)	P	Q	
<i>n</i>	0.17260954	ω 306.21999	–0.68088625	–0.73195828	
<i>a</i>	3.1946714	Ω 186.86172	+0.72115587	–0.66406435	
<i>e</i>	0.1860406	<i>i</i> 12.13715	+0.12778156	–0.15249795	
<i>P</i>	5.71	<i>H</i> 13.3	<i>G</i> 0.15	<i>U</i> 4	

Residuals in seconds of arc

1989 04 03	809	1.3–	1.7–	1989 04 12	809	(5.3+ 5.1+)	1998 11 10	704	1.8–	1.5+
1989 04 03	809	1.7–	0.6–	1998 09 18	699	0.0	0.1–	1998 11 11	704	0.7+ 1.3–
1989 04 03	809	1.1–	0.7–	1998 09 18	699	0.3–	0.1+	1998 11 11	704	1.1+ 0.2–
1989 04 05	809	0.3+	0.2–	1998 09 18	699	0.1+	0.4–	1998 11 11	704	0.3+ 0.3+
1989 04 05	809	1.0+	0.1+	1998 10 12	699	0.2–	0.3–	1998 11 11	704	0.6– 0.0
1989 04 05	809	0.8+	0.0	1998 10 12	699	0.6+	0.3+	1998 11 11	704	0.6– 0.3–
1989 04 06	809	0.0	0.8+	1998 10 12	699	0.7+	0.3+	1998 12 11	699	0.4+ 0.4–
1989 04 06	809	0.5+	1.3+	1998 11 10	704	0.5–	0.4–	1998 12 11	699	0.2+ 0.3+
1989 04 06	809	1.6+	1.1+	1998 11 10	704	1.9–	0.7–	1998 12 11	699	0.8+ 0.2–
1989 04 12	809	(4.8+ 5.9+)		1998 11 10	704	1.2+ 1.6+				

1989 HC = 1991 TN₁ = 1998 XH₄₈

Id. A. Lowe, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams			
<i>M</i>	117.38636	(2000.0)	P	Q	
<i>n</i>	0.17189912	ω 263.10854	+0.89377066	+0.23625299	
<i>a</i>	3.2034671	Ω 82.68619	–0.06444276	+0.90885106	
<i>e</i>	0.0154389	<i>i</i> 22.60566	–0.44387064	+0.34376485	
<i>P</i>	5.73	<i>H</i> 12.5	<i>G</i> 0.15	<i>U</i> 3	

Residuals in seconds of arc

1989 04 30	675	1.5+	0.9–	1991 10 13	413	0.5–	0.3+	1998 12 17	704	0.3+	0.3+
1989 04 30	675	0.6–	0.3–	1998 12 14	704	0.2–	0.4+	1998 12 17	704	0.3+	0.2+
1989 05 04	675	0.3–	1.1+	1998 12 14	704	0.9–	0.2+	1998 12 17	704	1.4+	1.8+
1989 05 04	675	0.6–	0.1+	1998 12 14	704	0.3+	0.5–	1998 12 17	704	0.5+	0.3–
1991 10 12	413	0.3–	0.2–	1998 12 14	704	0.8–	0.7–	1998 12 17	704	0.2+	0.2+
1991 10 12	413	0.8+	0.0	1998 12 14	704	1.1–	1.7–				

1989 OD = 1976 SK₂ = 1981 SR₇ = 1981 TJ₁ = 1990 TY₈

Id. A. Doppler, G. V. Williams

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	355.51136	(2000.0)	P		Q	
<i>n</i>	0.21252055	ω	287.74796	+0.28658228	+0.95805104	
<i>a</i>	2.7810071	Ω	358.89245	−0.81055022	+0.24080687	
<i>e</i>	0.1338447	<i>i</i>	8.83001	−0.51076309	+0.15540353	
<i>P</i>	4.64	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1976 09 24	095	1.6−	1.6+	1989 07 25	413	0.1−	0.5−	1990 10 13	033	0.4+	0.1+
1976 09 28	095	(6.3+	2.1+)	1989 08 02	413	(18.2−	4.7−)	1990 10 14	033	0.3−	0.1+
1976 09 29	095	0.2+	0.4+	1989 08 02	413	(18.9−	4.9−)	1990 10 15	046	1.8+	0.7−
1981 09 29	095	0.9−	1.9+	1990 10 11	033	0.9+	0.1−	1990 10 15	046	1.1+	0.5+
1981 10 02	095	0.3+	0.1−	1990 10 12	033	0.7−	0.1−	1990 10 16	046	1.7−	1.8−
1989 07 21	413	0.1+	0.5+	1990 10 12	033	0.8−	0.2+	1990 10 16	046	1.2+	1.5−

1989 OJ = 1998 YM₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	96.99980	(2000.0)	P		Q	
<i>n</i>	0.23864902	ω	287.20147	+0.76525667	+0.62341710	
<i>a</i>	2.5741249	Ω	34.73024	−0.42958246	+0.68016666	
<i>e</i>	0.2115737	<i>i</i>	16.35413	−0.47941750	+0.38564807	
<i>P</i>	4.13	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1989 07 27	413	0.5−	0.4+	1998 12 16	704	0.9+	0.1+	1998 12 17	704	1.6−	0.1+
1989 07 27	413	0.7−	0.4+	1998 12 16	704	0.3+	0.6+	1998 12 17	704	1.1−	0.0
1989 08 03	413	0.1+	1.1−	1998 12 16	704	0.8+	0.7+	1998 12 17	704	0.7−	1.2−
1989 08 03	413	2.3+	0.4−	1998 12 16	704	1.5−	1.5+	1998 12 17	704	0.3−	0.6+
1989 08 09	413	0.1+	0.3−	1998 12 16	704	0.2+	0.5−	1998 12 17	704	0.0	0.1+
1989 08 09	413	1.2−	1.1+	1998 12 17	704	0.8+	0.4−	1998 12 23	704	0.2−	0.1−
1998 12 14	704	0.9−	0.2+	1998 12 17	704	0.7+	1.2−	1998 12 23	704	1.3−	0.7+
1998 12 14	704	0.2−	0.5−	1998 12 17	704	(2.3−	0.4−)	1998 12 23	704	1.1−	0.7−
1998 12 14	704	0.1+	0.1+	1998 12 17	704	1.0+	1.8−	1998 12 23	704	(3.3−	0.1+)
1998 12 14	704	1.5+	0.3+	1998 12 17	704	1.2+	1.4+				
1998 12 14	704	0.4−	0.4+	1998 12 17	704	1.9+	0.4−				

1989 SP₁ = 1998 YS₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	286.43608	(2000.0)	P		Q	
<i>n</i>	0.24026374	ω	55.28645	−0.99008407	+0.12420003	
<i>a</i>	2.5625788	Ω	131.75299	−0.13925950	−0.92914630	
<i>e</i>	0.0864643	<i>i</i>	5.04736	+0.01844773	−0.34822624	
<i>P</i>	4.10	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1989 09 26	809	0.5+	0.5−	1989 10 07	809	0.3+	0.4−	1998 12 08	120	(3.9+	1.3+)
1989 09 26	809	0.4−	1.4−	1989 10 07	809	1.0+	1.1+	1998 12 08	120	1.3−	0.3+
1989 09 26	809	0.8−	1.9−	1989 10 07	809	0.4+	1.6+	1998 12 17	120	1.6−	0.4+
1989 09 28	809	0.3+	1.3+	1989 10 08	809	0.1+	0.1−	1998 12 17	120	0.4−	0.7+
1989 09 28	809	1.3−	0.1+	1989 10 08	809	0.3+	1.0+	1998 12 18	120	0.8+	0.3+
1989 09 28	809	(2.7−	1.6−)	1989 10 08	809	0.6−	0.8−	1998 12 22	120	0.1+	0.2−
1989 10 03	809	(5.8+	1.0+)	1998 11 28	120	1.1+	1.8−	1998 12 22	120	1.0+	0.1+
1989 10 03	809	(5.2+	0.4+)	1998 11 28	120	0.4+	0.2−				
1989 10 03	809	(4.6+	0.5+)	1998 11 29	120	0.1−	0.1+				

1989 TY₂ = 1998 YJ₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	171.20634	(2000.0)	P		Q	
<i>n</i>	0.24334575	ω	238.06828	+0.63522241	+0.76862487	
<i>a</i>	2.5408959	Ω	71.55819	−0.67899298	+0.60239519	
<i>e</i>	0.0272497	<i>i</i>	4.56807	−0.36805029	+0.21525763	
<i>P</i>	4.05	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1989 09 28	809	1.3+	0.3−	1989 10 07	809	0.2−	1.8−	1989 10 08	809	0.5+	0.7+
1989 09 28	809	0.2+	0.2−	1989 10 07	809	0.2+	1.4−	1989 10 08	809	0.0	0.5+
1989 09 28	809	0.3+	0.1+	1989 10 07	809	0.4+	0.2−	1998 12 16	699	0.4−	0.8+
1989 09 29	675	0.1−	1.2−	1989 10 07	809	0.7+	0.6−	1998 12 16	699	0.4−	1.7+
1989 09 29	675	(1.4+	2.6−)	1989 10 07	809	0.3+	0.5−	1998 12 16	699	0.2+	0.1−
1989 10 03	809	1.7−	0.3+	1989 10 08	809	0.6+	1.2+	1998 12 22	411	0.1−	0.2−
1989 10 03	809	(2.8−	1.0+)	1989 10 08	809	0.3−	1.6+	1998 12 22	411	0.4−	0.3−
1989 10 03	809	1.6−	1.1+	1989 10 08	809	1.9−	0.8+	1998 12 24	411	0.9+	1.4−
1989 10 07	809	(0.1+	2.6−)	1989 10 08	809	1.4+	0.1+	1998 12 24	411	0.1+	0.4−

1989 TJ₁₄ = 1993 KQ₃ = 1998 FN₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	221.26685	(2000.0)	P		Q	
<i>n</i>	0.17024708	ω	184.78248	+0.99816499	+0.03159234	
<i>a</i>	3.2241577	Ω	172.77314	−0.03220509	+0.99941995	
<i>e</i>	0.0615908	<i>i</i>	24.24521	−0.05127841	−0.01271571	
<i>P</i>	5.79	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1989 10 02	809	0.6−	0.1+	1989 10 04	809	0.0	0.8−	1998 03 20	704	0.4+	0.3−
1989 10 02	809	0.3−	0.1−	1993 05 18	693	0.6−	0.7+	1998 03 20	704	0.1−	0.2−
1989 10 02	809	0.0	0.1+	1993 05 18	693	1.1+	0.1−	1998 03 22	704	0.3+	0.8+
1989 10 03	809	0.2+	0.7+	1993 05 26	675	0.3−	0.9−	1998 03 22	704	0.1−	0.1−
1989 10 03	809	0.5+	0.6+	1993 05 26	675	0.2−	0.4+	1998 03 22	704	0.5−	0.0
1989 10 03	809	0.7+	0.5+	1998 03 20	704	0.2+	0.1−	1998 03 22	704	0.1−	0.3−
1989 10 04	809	0.3−	0.5−	1998 03 20	704	0.2+	0.6+	1998 03 22	704	0.5−	0.1−
1989 10 04	809	0.2−	0.5−	1998 03 20	704	0.1+	0.3−				

1989 WN₂ = 1998 WL₁₉

Id. A. Gnädig

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	54.47903	(2000.0)	P		Q	
<i>n</i>	0.22817666	ω	164.15919	+0.54092175	−0.81769712	
<i>a</i>	2.6522955	Ω	252.71190	+0.74754650	+0.57470645	
<i>e</i>	0.1398461	<i>i</i>	11.90156	+0.38545804	+0.03292280	
<i>P</i>	4.32	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1989 11 30	896	(3.3−	3.5−)	1990 01 03	896	1.3+	0.1+	1998 11 25	704	0.2+	0.6+
1989 12 01	896	0.8+	0.9+	1998 11 23	704	1.5−	0.6−	1998 11 25	704	(2.1−	2.7−)
1989 12 04	896	0.6−	0.4+	1998 11 23	704	1.2−	0.2−	1998 12 23	704	0.7+	0.3+
1989 12 04	896	0.2+	1.1−	1998 11 23	704	0.8−	0.1+	1998 12 23	704	(2.5+	0.7−)
1989 12 19	896	1.9−	0.3+	1998 11 23	704	0.4+	0.4+	1998 12 23	704	1.3+	0.6+
1989 12 19	896	1.1−	0.4−	1998 11 23	704	1.7+	0.7+	1998 12 23	704	0.2−	1.0+
1989 12 22	896	0.8+	0.4+	Y 1998 11 25	704	0.9−	1.1−	1998 12 23	704	0.4−	0.4−
1989 12 29	896	0.4+	0.4+	1998 11 25	704	0.6+	0.3−				
1989 12 29	896	0.3+	0.6−	1998 11 25	704	0.5−	1.8−				

1990 BB = 1998 XX₃

Id. M. Akiyama

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	321.32822	(2000.0)	P		Q	
<i>n</i>	0.21428735	ω	226.13221	−0.85737741	−0.48140984	
<i>a</i>	2.7656998	Ω	284.30548	+0.50945185	−0.74345141	
<i>e</i>	0.1558462	<i>i</i>	10.82988	+0.07323103	−0.46424623	
<i>P</i>	4.60	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1990 01 17	881	0.1−	1.0−	1998 12 09	886	0.9+	0.1+	1998 12 17	704	0.3+	0.2+
1990 01 17	881	0.6−	0.3−	1998 12 09	886	0.1−	0.5+	1998 12 17	704	2.0+	0.7−
1990 01 21	881	0.1+	0.3+	1998 12 11	385	0.5−	0.1−	1998 12 17	704	1.5+	0.8−
1990 01 21	881	0.1+	0.7+	1998 12 11	385	0.3−	0.1+	1998 12 17	704	1.2−	0.3−
1990 01 25	889	(3.2−	1.8+)	1998 12 14	704	0.9−	0.2−	1998 12 21	886	0.3+	0.5+

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1990 01 25	889	0.7+	0.7+	1998 12 14	704	1.5-	0.8-	1998 12 21	886	0.5-	0.1+
1990 02 20	881	0.2-	0.4-	1998 12 14	704	0.1+	1.4+				

1990 DV = 1998 YO₁₁

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	353.70149		(2000.0)		P		Q
<i>n</i>	0.21855406	ω	270.30793		-0.92358038		-0.36606505
<i>a</i>	2.7295861	Ω	248.22125		+0.38207948		-0.85406118
<i>e</i>	0.2184559	<i>i</i>	7.05146		+0.03185191		-0.36956173
<i>P</i>	4.51	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 02 27	657	0.8-	0.9+	1990 03 20	095	0.7-	1.2-	1998 12 29	046	0.1-	0.0
1990 02 27	657	0.1-	1.5-	1998 12 24	046	0.4-	0.2+	1998 12 29	046	0.8+	0.2-
1990 02 28	399	(5.8+	3.4+)	1998 12 24	557	0.1-	0.2-	1998 12 29	046	0.4+	0.2-
1990 02 28	399	(4.1+	0.5+)	1998 12 24	046	0.2-	0.1+	1998 12 29	046	0.3+	0.4-
1990 03 02	657	(0.2-	2.4+)	1998 12 24	046	0.4-	0.0	1998 12 29	046	0.3+	0.2-
1990 03 02	657	1.0+	0.8+	1998 12 24	557	0.2-	0.2-	1998 12 29	557	0.1+	0.0
1990 03 02	399	(0.6+	3.1+)	1998 12 24	046	0.3-	0.1+	1998 12 29	557	0.2+	0.1+
1990 03 02	399	(0.4+	5.1+)	1998 12 24	046	0.2-	0.1+	1998 12 29	557	0.0	0.0
1990 03 02	399	1.8+	1.9+	1998 12 24	557	0.2-	0.1-	1998 12 29	557	0.2+	0.1+
1990 03 20	095	1.1-	0.4-	1998 12 24	046	0.3-	0.3+				

1990 QG₁ = 1998 XM₅₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	118.73541		(2000.0)		P		Q
<i>n</i>	0.27190194	ω	350.95098		+0.90913842		+0.41534670
<i>a</i>	2.3597238	Ω	344.39708		-0.37458021		+0.78296453
<i>e</i>	0.1363598	<i>i</i>	6.59568		-0.18209065		+0.46309142
<i>P</i>	3.62	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 08 16	809	0.7-	0.3-	1990 08 28	675	2.0+	0.0	1990 09 16	809	0.8-	1.0+
1990 08 16	809	0.1+	0.7-	1990 08 28	095	0.6+	0.3-	1990 09 19	675	0.2-	1.5-
1990 08 16	809	1.5-	0.9-	1990 08 28	095	0.6+	0.0	1990 09 19	675	0.4+	1.9-
1990 08 20	809	0.0	0.6+	1990 09 13	809	0.7-	0.5+	1990 09 20	675	3.4-	1.5-
1990 08 20	809	0.5-	1.2+	1990 09 13	809	0.0	0.6+	1990 09 20	675	2.2-	0.1-
1990 08 20	809	0.9-	0.9+	1990 09 13	809	0.8+	0.6+	1998 12 14	704	0.1-	1.1-
1990 08 22	675	1.1+	0.4+	1990 09 14	809	0.5-	0.1+	1998 12 14	704	0.0	0.1+
1990 08 22	675	0.5+	0.5-	1990 09 14	809	0.2+	0.1+	1998 12 14	704	2.2+	0.9-
1990 08 23	675	0.4+	1.1-	1990 09 14	809	0.4+	0.3+	1998 12 14	704	0.6-	1.0-
1990 08 23	675	0.2+	1.1-	1990 09 14	675	1.9+	1.5-	1998 12 14	704	0.9-	0.6+
1990 08 26	809	0.8-	1.9+	1990 09 14	675	0.9+	1.8-	1998 12 17	704	0.1+	0.1+
1990 08 26	809	0.4-	2.2+	1990 09 15	809	0.0	1.7+	1998 12 17	704	0.2-	0.3-
1990 08 26	809	0.5-	1.8+	1990 09 15	809	0.5+	1.3+	1998 12 17	704	0.4-	0.2+
1990 08 27	675	0.6+	3.1-	1990 09 15	809	0.9+	1.5+	1998 12 17	704	0.5-	0.4+
1990 08 27	675	0.0	1.3-	1990 09 16	809	0.0	1.0+	1998 12 17	704	0.3+	1.7+
1990 08 28	675	1.5+	1.1-	1990 09 16	809	0.6-	0.9+				

1990 QA₄ = 1991 YM₂ = 1998 XQ₄₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	235.36119		(2000.0)		P		Q
<i>n</i>	0.27831625	ω	253.38635		-0.61929860		+0.78452649
<i>a</i>	2.3233270	Ω	338.25530		-0.68416486		-0.55884437
<i>e</i>	0.0459710	<i>i</i>	4.86568		-0.38521122		-0.26872134
<i>P</i>	3.54	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 08 16	809	0.3+	0.1+	1990 08 24	809	0.3+	1.0+	1991 12 31	675	0.5-	3.9-
1990 08 16	809	0.7+	0.5+	1990 08 24	809	0.5-	0.8+	1991 12 31	675	0.4-	0.4-
1990 08 16	809	0.6+	0.7+	1990 08 24	809	0.1-	1.1+	1998 12 14	704	0.6-	1.0+
1990 08 18	809	1.0+	0.2-	1990 08 26	809	0.9-	0.9+	1998 12 14	704	0.2+	0.2-
1990 08 18	809	0.2+	0.1+	1990 08 26	809	0.1+	1.8+	1998 12 14	704	1.0+	0.9+
1990 08 18	809	0.5-	0.2+	1990 08 26	809	0.8+	2.4+	1998 12 14	704	1.4+	1.0+

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1990 08 22	675	1.0-	1.3-	1990 08 29	675	0.3-	1.6-	1998 12 17	704	0.1-	0.9+
1990 08 22	675	0.0	1.4-	1990 08 29	675	0.3-	2.1-	1998 12 17	704	0.7-	0.1-
1990 08 23	675	0.8+	1.0-	1990 09 13	675	0.1-	0.8-	1998 12 17	704	0.7-	0.5+
1990 08 23	675	0.2-	1.5-	1990 09 13	675	0.4-	0.4-				

1990 QE₅ = 1998 XV₇₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	134.33493		(2000.0)		P		Q
<i>n</i>	0.27132332	ω	311.21436		+0.66225927		+0.74927456
<i>a</i>	2.3630775	Ω	0.25983		-0.64778220		+0.57290825
<i>e</i>	0.1283552	<i>i</i>	6.70311		-0.37655129		+0.33221043
<i>P</i>	3.63	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 08 23	675	0.8-	0.1+	1990 09 12	809	0.9+	0.0	1990 09 18	675	0.1+	0.3-
1990 08 23	675	0.0	0.5-	1990 09 13	675	1.7-	0.4-	1998 12 14	704	0.1+	0.1-
1990 08 25	675	0.1+	0.3-	1990 09 13	675	1.3-	0.2+	1998 12 14	704	1.6+	0.4-
1990 08 25	675	0.1-	0.7+	1990 09 14	809	0.5-	0.3+	1998 12 14	704	0.3+	0.2+
1990 08 26	675	0.4+	0.7+	1990 09 14	809	0.0	0.5+	1998 12 14	704	1.0-	0.9-
1990 08 26	675	0.1-	0.4+	1990 09 14	809	0.6+	0.5+	1998 12 17	704	0.1-	0.3+
1990 08 27	675	0.2+	1.7-	1990 09 15	809	0.2-	0.1-	1998 12 17	704	0.5-	0.1+
1990 08 27	675	0.8+	0.4+	1990 09 15	809	0.0	0.1+	1998 12 17	704	0.2+	0.7-
1990 09 12	809	0.1-	0.0	1990 09 15	809	0.3+	0.0	1998 12 17	704	0.1+	1.4+
1990 09 12	809	0.5+	0.1-	1990 09 18	675	1.1+	0.6-	1998 12 17	704	0.7-	0.2+

1990 UC₁ = 1998 XL₄₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	132.60547		(2000.0)		P		Q
<i>n</i>	0.26599132	ω	301.31027		+0.64575733		+0.76302201
<i>a</i>	2.3945527	Ω	9.07526		-0.62563593		+0.54993042
<i>e</i>	0.2163262	<i>i</i>	10.29669		-0.43769528		+0.33966741
<i>P</i>	3.71	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 10 11	033	0.3-	0.3+	1990 10 23	372	2.9-	1.2-	1998 12 14	704	0.8+	1.2+
1990 10 11	033	1.3+	1.4+	1990 10 26	372	0.7+	0.4+	1998 12 14	704	0.5-	1.6-
1990 10 12	033	0.4-	0.2+	1990 10 26	372	1.0+	0.7-	1998 12 17	704	0.1+	0.2+
1990 10 13	033	0.1+	0.2+	1990 11 10	372	1.6+	0.5+	1998 12 17	704	0.8-	2.0+
1990 10 14	033	0.4+	0.1+	1990 11 10	372	0.7+	0.2+	1998 12 17	704	0.4+	0.7+
1990 10 20	372	0.4+	0.2+	1998 12 14	704	1.0-	1.9-				
1990 10 23	372	2.5-	1.6-	1998 12 14	704	0.9+	0.4-				

1991 BJ₂ = 1998 XC₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	340.59350		(2000.0)		P		Q
<i>n</i>	0.23655321	ω	89.70815		-0.47616692		-0.87884216
<i>a</i>	2.5893067	Ω	28.78827		+0.77996140		-0.43786851
<i>e</i>	0.1677469	<i>i</i>	3.57463		+0.40610994		-0.18949308
<i>P</i>	4.17	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 01 23	400	0.5+	0.1+	1998 12 14	704	0.7-	0.0	1998 12 17	704	1.0+	0.2-
1991 01 23	400	0.3-	0.3+	1998 12 14	704	0.2-	0.3+	1998 12 17	704	0.3-	0.4-
1991 02 04	400	2.7-	1.0-	1998 12 14	704	0.3+	0.0	1998 12 17	704	0.5+	0.1+
1991 02 04	400	0.2-	2.0-	1998 12 14	704	1.2-	0.4+	1998 12 17	704	0.8+	0.7-
1991 02 14	400	2.0+	1.6+	1998 12 14	704	0.6-	0.1+				
1991 02 14	400	0.8+	0.9+	1998 12 17	704	0.4+	0.5+				

1991 CG₁ = 1998 WO₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	354.57178		(2000.0)	P	Q
<i>n</i>	0.24137900	ω	133.11062	-0.49945127	-0.86614789
<i>a</i>	2.5546793	Ω	346.81744	+0.76967651	-0.43390752
<i>e</i>	0.1974911	<i>i</i>	4.61206	+0.39767638	-0.24801632
<i>P</i>	4.08	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 01 17	033	0.2-	0.5-	1991 03 05	400	0.0	1.5+	1991 03 11	809	1.5+	0.0
1991 01 17	033	0.8-	0.6-	1991 03 05	400	0.6+	1.7+	1998 11 19	699	0.2-	0.2+
1991 01 18	033	0.9-	0.6-	1991 03 09	809	2.4-	0.5-	1998 11 19	699	0.2-	0.3+
1991 02 07	400	0.4-	0.7-	1991 03 09	809	1.3-	0.7-	1998 11 19	699	0.1-	0.5+
1991 02 07	400	1.3+	0.2+	1991 03 09	809	0.3-	0.8-	1998 11 24	699	0.3-	0.4+
1991 02 14	400	0.3+	0.4+	1991 03 11	809	1.1+	0.0	1998 11 24	699	0.4+	0.5+
1991 02 14	400	0.2-	0.3+	1991 03 11	809	1.2+	0.0	1998 11 24	699	0.6+	1.2-

1991 HN = 1998 XC₅₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	66.33508		(2000.0)	P	Q
<i>n</i>	0.08549709	ω	287.52675	+0.93817141	-0.31504799
<i>a</i>	5.1031129	Ω	91.02514	+0.34616973	+0.85266980
<i>e</i>	0.0123580	<i>i</i>	8.24912	+0.00096107	+0.41677209
<i>P</i>	11.53	<i>H</i>	10.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 04 19	675	0.8-	1.6-	1991 05 18	675	1.9-	0.9+	1998 12 15	704	1.2-	2.8-
1991 04 19	675	0.1+	0.5+	1991 06 06	675	0.3+	0.2+	1998 12 15	704	1.3-	0.9+
1991 04 20	675	0.7+	0.4-	1991 06 06	675	0.2-	0.9-	1998 12 16	704	0.1-	0.5+
1991 04 20	675	1.3+	1.1-	1991 06 07	675	1.3+	1.6+	1998 12 16	704	2.2+	0.0
1991 05 14	675	0.1-	0.5-	1991 06 07	675	0.4+	0.8+	1998 12 16	704	1.3+	1.0+
1991 05 16	675	1.0-	0.7+	1998 12 15	704	1.7-	0.5-	1998 12 16	704	0.8+	1.1+

1991 LM₃ = 1998 XP₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	112.13731		(2000.0)	P	Q
<i>n</i>	0.30718239	ω	63.51490	+0.41216440	+0.90853974
<i>a</i>	2.1753969	Ω	230.99576	-0.86412669	+0.36601788
<i>e</i>	0.2860749	<i>i</i>	5.04833	-0.28880023	+0.20146081
<i>P</i>	3.21	<i>H</i>	16.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 05 18	809	0.0	0.1+	1991 06 06	809	0.2-	0.2-	1998 12 15	910	0.3+	0.1+
1991 05 18	809	0.2+	0.7-	1991 06 08	809	1.1+	0.2-	1998 12 15	910	0.3+	0.4-
1991 05 18	809	0.2-	0.3+	1991 06 08	809	0.5+	0.9-	1998 12 16	910	0.3-	0.1-
1991 06 06	809	0.7-	0.9+	1991 06 08	809	0.2-	0.0	1998 12 16	910	0.7-	0.1-
1991 06 06	809	0.5-	0.5+	1998 12 15	910	0.3+	0.1-	1998 12 16	910	0.1+	0.1+

1991 PY₇ = 1977 DQ₁₀ = 1998 XB₇₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	23.55845		(2000.0)	P	Q
<i>n</i>	0.30719993	ω	341.73711	+0.40000733	-0.91589593
<i>a</i>	2.1753141	Ω	84.67314	+0.84503352	+0.35437036
<i>e</i>	0.0953553	<i>i</i>	1.93371	+0.35484148	+0.18856378
<i>P</i>	3.21	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1977 02 19	381	0.9-	1.0-	1991 09 04	809	0.2+	0.1-	1998 12 15	704	0.1-	1.8+
1977 02 19	381	0.0	1.1-	1991 09 04	809	0.3-	0.7-	1998 12 15	704	1.1+	0.5-
1991 08 06	809	1.4+	0.6-	1991 09 06	809	0.9-	1.5-	1998 12 15	704	0.8-	1.5+
1991 08 06	809	1.4+	0.5-	1991 09 06	809	1.2-	1.4-	1998 12 16	704	0.3+	0.4+
1991 08 06	809	1.4+	0.7-	1991 09 06	809	1.1-	0.8-	1998 12 16	704	0.2+	1.0-
1991 08 14	809	0.4-	1.7+	1991 09 07	809	0.4-	0.4+	1998 12 16	704	0.4+	2.0-
1991 08 14	809	0.2-	0.5+	1991 09 07	809	0.1+	0.2+	1998 12 16	704	0.9+	1.7-

1991 08 14	809	0.9-	0.8+	1991 09 07	809	0.0	0.3-
1991 09 04	809	1.6+	0.6+	1998 12 15	704	1.9-	1.0+

1991 PU₁₁ = 1967 RG₁ = 1974 SE₃ = 1998 SP₁₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	38.80864		(2000.0)	P	Q
<i>n</i>	0.28753854	ω	24.04774	+0.99140643	-0.12840155
<i>a</i>	2.2733799	Ω	343.27199	+0.10144265	+0.87538130
<i>e</i>	0.1790366	<i>i</i>	4.98819	+0.08259956	+0.46606934
<i>P</i>	3.43	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1967 09 11	095	0.1-	0.5+	1991 09 11	675	0.2+	0.4-	1998 09 27	704	0.0	0.3+
1974 09 20	095	(2.4-	4.0-)	1991 09 17	675	0.8+	0.8-	1998 10 28	704	0.3+	0.5-
1974 09 22	095	(3.1-	5.2-)	1991 09 17	675	0.8+	0.4-	1998 10 28	704	0.6+	1.0-
1974 09 25	095	0.6-	0.7+	1998 09 26	704	0.2+	0.5+	1998 10 28	704	1.2+	0.0
1991 08 07	675	0.9-	0.6-	1998 09 26	704	1.0-	0.0	1998 10 28	704	0.9+	0.1+
1991 08 07	675	0.7-	0.6-	1998 09 26	704	0.9+	0.9-	1998 10 28	704	0.2+	0.8-
1991 08 08	675	0.3+	0.5+	1998 09 26	704	0.5+	1.6+	1998 10 29	704	0.4-	0.6+
1991 08 08	675	0.2-	0.9+	1998 09 26	704	1.7-	0.5+	1998 10 29	704	0.4+	0.4-
1991 09 06	403	(4.0-	4.6+)	1998 09 27	704	0.2-	0.2+	1998 10 29	704	0.3-	0.0
1991 09 06	403	(3.6-	5.4+)	1998 09 27	704	0.1+	0.1-	1998 10 29	704	0.5-	0.5+
1991 09 11	675	0.3+	0.3-	1998 09 27	704	0.7-	0.4-	1998 10 29	704	0.5-	0.3+

1991 RB₇ = 1998 YW₂₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	64.29682		(2000.0)	P	Q
<i>n</i>	0.29452872	ω	4.56899	+0.98616803	-0.16561047
<i>a</i>	2.2372659	Ω	4.97901	+0.14949420	+0.87108502
<i>e</i>	0.1889594	<i>i</i>	4.47156	+0.07158283	+0.46236788
<i>P</i>	3.35	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 09 02	413	0.6-	0.2+	1998 12 16	704	0.3-	0.2-	1998 12 17	704	2.6-	0.2-
1991 09 02	413	0.9+	0.1-	1998 12 16	704	0.2-	0.2+	1998 12 17	704	0.0	0.2-
1991 09 03	413	0.4-	0.0	1998 12 16	704	0.5-	0.1-	1998 12 17	704	0.0	0.8-
1991 09 17	675	0.3-	0.0	1998 12 16	704	1.0+	1.2+	1998 12 17	704	1.5+	2.2-
1991 09 17	675	0.4+	0.1-	1998 12 16	704	1.1+	2.3+				

1991 RL₁₃ = 1998 XT₃₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	105.87378		(2000.0)	P	Q
<i>n</i>	0.29946270	ω	31.82988	+0.82791082	+0.55955855
<i>a</i>	2.2126237	Ω	294.09791	-0.52295554	+0.74556526
<i>e</i>	0.1747492	<i>i</i>	2.39726	-0.20268493	+0.36197607
<i>P</i>	3.29	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1991 09 13	675	0.2-	0.5-	1991 10 06	691	0.0	0.0	1998 12 17	704	1.1-	0.5-
1991 09 13	675	0.2+	0.0	1998 12 14	704	2.1+	0.5-	1998 12 17	704	0.0	0.5-
1991 09 15	675	0.3-	0.4+	1998 12 14	704	0.3-	0.6-	1998 12 17	704	0.6+	0.6-
1991 09 15	675	0.1+	0.3+	1998 12 14	704	1.9-	2.1+	1998 12 17	704	0.4+	0.6-
1991 10 06	691	0.0	0.2-	1998 12 14	704	1.6+	1.4+				
1991 10 06	691	0.1+	0.1-	1998 12 17	704	1.4-	0.2-				

1991 SK₂

Id. T. Kobayashi (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	157.69129		(2000.0)	P	Q
<i>n</i>	0.18503762	ω	351.93909	+0.77600506	+0.62496176
<i>a</i>	3.0499732	Ω	328.86746	-0.56911392	+0.63565040
<i>e</i>	0.1207407	<i>i</i>	9.47182	-0.27189243	+0.45317918
<i>P</i>	5.33	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 4

M.P.C. 33480

Residuals in seconds of arc

1991 08 08	675	0.1+	0.3+	1991 09 16	675	1.5+	1.4-	1998 12 27	411	0.1-	0.4+
1991 08 08	675	0.3+	0.6-	1991 09 16	675	1.0+	0.4-	1998 12 28	411	1.0+	0.4+
1991 09 12	691	1.9-	0.2+	1991 09 17	675	1.2+	0.3+	1998 12 28	411	0.5-	0.2+
1991 09 12	691	1.7-	0.6+	1991 09 17	675	1.2+	0.1-				
1991 09 12	691	1.6-	1.0+	1998 12 27	411	0.5-	1.0-				

1991 VF₁ = 1998 XO₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	84.06660	(2000.0)		P	Q		
<i>n</i>	0.29171194	ω	352.16602	+0.99963655	+0.02603142		
<i>a</i>	2.2516449	Ω	6.35494	-0.01999828	+0.89040701		
<i>e</i>	0.1204850	<i>i</i>	3.63096	-0.01807874	+0.45442020		
<i>P</i>	3.38	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 11 04	399	0.1+	0.5-	1998 12 10	113	0.5-	0.0	1998 12 17	704	0.3-	0.1+
1991 11 04	399	1.0+	0.4+	1998 12 16	704	1.4+	0.0	1998 12 17	113	1.2-	0.1-
1991 11 05	399	0.7-	0.9+	1998 12 16	704	1.7+	0.6-	1998 12 17	113	1.3-	0.2+
1991 11 05	399	1.4-	1.6-	1998 12 16	704	(2.7+ 1.3-)		1998 12 23	113	0.2-	0.0
1991 11 11	399	1.0+	0.3+	1998 12 16	704	(1.4+ 2.6-)		1998 12 23	113	0.1+	0.5+
1991 11 11	399	0.6+	0.4-	1998 12 16	704	(0.2+ 2.8-)		1998 12 29	113	0.1+	1.2+
1991 12 04	399	1.1-	0.7+	1998 12 17	704	0.1+	0.3-	1998 12 29	113	0.6-	0.2+
1991 12 04	399	0.3+	0.6+	1998 12 17	704	0.2+	1.0-				
1998 12 10	113	0.5-	0.4-	1998 12 17	704	1.1+	0.3-				

1991 VO₁ = 1998 XB₅₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	24.50675	(2000.0)		P	Q		
<i>n</i>	0.29030784	ω	313.49255	+0.39853052	-0.91293293		
<i>a</i>	2.2588993	Ω	112.83055	+0.86659792	+0.34344685		
<i>e</i>	0.1229185	<i>i</i>	5.47289	+0.30030229	+0.22044891		
<i>P</i>	3.40	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 11 04	399	0.3-	0.7-	1991 11 11	399	0.9-	0.3+	1998 12 15	704	0.4+	0.1+
1991 11 04	399	0.1+	0.4-	1998 12 15	704	0.4+	1.1-	1998 12 16	704	1.3-	0.4-
1991 11 05	399	0.6+	0.4-	1998 12 15	704	0.3-	0.0	1998 12 16	704	0.7+	1.6+
1991 11 05	399	0.5+	0.5+	1998 12 15	704	0.5+	0.4-	1998 12 16	704	0.7+	0.3-
1991 11 11	399	0.0	0.7+	1998 12 15	704	0.8-	0.7+	1998 12 16	704	0.3-	0.3-

1991 VY₂ = 1998 XP₃₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	107.67728	(2000.0)		P	Q		
<i>n</i>	0.28530517	ω	59.73943	+0.84457589	+0.52280444		
<i>a</i>	2.2852284	Ω	268.51252	-0.52236365	+0.75709646		
<i>e</i>	0.1059627	<i>i</i>	6.64141	-0.11759156	+0.39176582		
<i>P</i>	3.45	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 11 05	402	0.3-	0.7-	1991 12 11	033	0.4-	0.4-	1998 12 14	704	0.2+	1.2+
1991 11 05	402	0.4-	0.7-	1991 12 12	033	0.7+	0.4+	1998 12 17	704	0.1+	0.0
1991 11 09	402	0.3+	1.3+	1998 12 14	704	0.3+	0.6-	1998 12 17	704	0.1-	0.4-
1991 11 09	402	0.5+	0.3+	1998 12 14	704	0.6+	0.3+	1998 12 17	704	0.8-	1.0-
1991 12 10	033	0.1-	0.7-	1998 12 14	704	0.3+	0.1+	1998 12 17	704	1.5-	1.1+
1991 12 11	033	0.4-	0.3+	1998 12 14	704	0.8+	0.6-				

1991 VJ₄ = 1956 TX = 1983 GX₂

Id. T. Kobayashi, S. Nakano

1999 JAN. 6

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	112.44806	(2000.0)		P	Q		
<i>n</i>	0.28520182	ω	278.23498	+0.77036423	+0.63220340		
<i>a</i>	2.2857805	Ω	42.60598	-0.52618913	+0.70371580		
<i>e</i>	0.1491321	<i>i</i>	7.02661	-0.36008880	+0.32419581		
<i>P</i>	3.46	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1956 10 10	839	1.0+	1.2-	1991 12 03	675	0.9-	0.8-	1998 12 14	704	0.2-	0.7-
1983 04 12	095	1.1-	1.9-	1991 12 03	675	0.1+	1.3-	1998 12 14	704	0.1+	0.6-
1991 11 09	402	1.3-	0.7-	1998 12 11	411	1.5+	0.4+	1998 12 17	704	0.2-	0.1+
1991 11 09	402	0.0	1.2+	1998 12 11	411	0.2-	0.4-	1998 12 17	704	0.2-	0.7+
1991 11 15	402	0.8+	0.3-	1998 12 14	704	0.1+	0.2-	1998 12 17	704	0.7+	0.9+
1991 11 15	402	1.1-	1.0+	1998 12 14	704	0.0	0.9-	1998 12 17	704	1.0+	0.3+

1991 YE₁ = 1998 KC₅₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>	266.87985	(2000.0)		P	Q		
<i>n</i>	0.22532460	ω	294.48764	+0.81728887	-0.52202531		
<i>a</i>	2.6746295	Ω	97.83413	+0.57620168	+0.73631633		
<i>e</i>	0.1929479	<i>i</i>	14.25768	+0.00552563	+0.43049720		
<i>P</i>	4.37	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 12 28	033	0.0	0.2+	1998 05 23	704	0.2-	0.1+	1998 05 24	704	0.6-	0.1-
1992 01 02	033	0.2+	0.4-	1998 05 23	704	0.3+	0.1+	1998 05 24	704	0.8+	0.1+
1992 01 03	033	0.2-	0.1-	1998 05 23	704	0.5-	0.0	1998 05 24	704	0.5-	0.3+
1992 01 07	033	0.0	0.3+	1998 05 23	704	0.0	0.0	1998 05 24	704	0.8-	0.5+
1998 05 23	704	0.6+	0.0	1998 05 24	704	0.8+	1.0-				

1991 YN₁ = 1998 XH₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	28.09031	(2000.0)		P	Q		
<i>n</i>	0.28567322	ω	161.04738	+0.07733031	-0.99089015		
<i>a</i>	2.2832652	Ω	284.39997	+0.89939905	+0.11705376		
<i>e</i>	0.0708377	<i>i</i>	6.53637	+0.43023409	-0.06659677		
<i>P</i>	3.45	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 12 28	033	0.6+	0.1-	1998 12 11	691	0.7+	0.1+	1998 12 16	691	0.1-	0.1-
1992 01 02	033	0.4-	0.2+	1998 12 11	691	0.4-	0.1+	1998 12 16	691	0.1+	0.0
1992 01 03	033	0.1-	0.1-	1998 12 11	691	0.2-	0.1-				
1992 01 07	033	0.1-	0.1-	1998 12 16	691	0.0	0.0				

1992 AQ

Id. T. Kobayashi (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	357.25879	(2000.0)		P	Q		
<i>n</i>	0.28280764	ω	18.78178	-0.53794094	-0.73750462		
<i>a</i>	2.2986629	Ω	105.77415	+0.70886228	-0.65787905		
<i>e</i>	0.2195491	<i>i</i>	25.10478	+0.45621685	+0.15258471		
<i>P</i>	3.49	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 12 31	691	0.0	0.3+	1992 02 01	675	0.3+	0.1-	1998 12 22	411	0.3-	0.6-
1991 12 31	691	0.4+	0.6+	1992 02 01	675	0.6-	0.1-	1998 12 22	411	0.2-	0.2-
1991 12 31	691	0.5+	0.2+	1992 02 05	675	0.9-	0.1-	1998 12 23	704	0.3-	0.7-
1992 01 10	675	1.2-	1.2+	1992 02 05	675	0.2-	0.1-	1998 12 23	704	0.4-	1.4-
1992 01 10	675	(0.6+ 2.3+)		1998 12 16	699	0.3+	0.0	1998 12 23	704	0.6-	0.8-
1992 01 11	675	1.2+	1.9+	1998 12 16	699	0.2-	0.8+	1998 12 23	704	1.2+	0.2-
1992 01 11	675	(3.6+ 0.5-)		1998 12 16	699	0.3-	0.9+	1998 12 23	704	0.3+	0.1+
1992 01 31	675	0.6-	0.0	1998 12 21	411	0.4+	0.4-				
1992 01 31	675	0.1+	0.9-	1998 12 21	411	0.9+	0.9-				

1999 JAN. 6

M.P.C. 33481

1992 BJ = 1998 XF₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	350.42578		(2000.0)		P		Q				
<i>n</i>	0.27108422	ω	333.39770		-0.14023501		-0.98923504				
<i>a</i>	2.3644668	Ω	124.63620		+0.91722747		-0.14569793				
<i>e</i>	0.1334398	<i>i</i>	2.91287		+0.37286446		-0.01364366				
<i>P</i>	3.64	<i>H</i>	14.7		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1992 01 11	303	0.7+	0.5+	1992 02 01	691	0.0	0.8+	1998 12 16	910	0.3+	0.4-
1992 01 12	303	(4.1+	0.8-)	1992 02 04	675	0.1-	0.3-	1998 12 22	704	(2.6-	0.1+)
1992 01 24	399	0.4+	1.1+	1992 02 04	675	1.7+	1.2-	1998 12 22	704	0.4-	0.9+
1992 01 24	399	1.8-	0.1-	1998 12 15	910	0.2+	0.1-	1998 12 22	704	1.2-	0.0
1992 01 25	399	1.6+	0.3-	1998 12 15	910	0.1+	0.1-	1998 12 22	704	0.6-	0.6+
1992 01 25	399	1.9-	0.7-	1998 12 16	910	0.0	0.2-	1998 12 22	910	0.1+	0.3+
1992 02 01	691	0.0	0.1-	1998 12 16	910	0.7+	0.8-	1998 12 22	910	0.1+	0.2+
1992 02 01	691	0.4-	0.2+	1998 12 16	910	0.5+	0.5-	1998 12 22	910	0.3+	0.1+

1992 BW₃ = 1998 XK₃₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	81.08619		(2000.0) <th></th> <th>$\mathbf{P}$</th> <th></th> <th>$\mathbf{Q}$</th> <th></th> <th></th> <th></th>		$\mathbf{P}$		$\mathbf{Q}$				
n	0.28708892	ω	295.31404		+0.97657393		+0.19528755				
a	2.2757529	Ω	53.55161		-0.13366006		+0.87962979				
e	0.1919254	i	6.45031		-0.16863675		+0.43372135				
P	3.43	H	15.7		G	0.15	U	5			
Residuals in seconds of arc											
1991 11 11	691	0.4-	0.3-	1992 01 28	691	1.1+	0.2+	1998 12 14	704	0.1-	1.2+
1991 11 11	691	0.7-	0.7-	1992 01 31	691	1.3-	0.0	1998 12 17	704	0.5+	0.7-
1991 11 11	691	0.5+	1.1-	1992 01 31	691	0.4-	0.7+	1998 12 17	704	0.1-	0.6-
1991 12 01	675	0.5+	2.7+	1992 01 31	691	0.6-	0.7+	1998 12 17	704	0.4-	0.2-
1991 12 01	675	(8.2+	0.9+)	1998 12 14	704	0.3-	1.0-	1998 12 17	704	0.3-	0.6-
1992 01 28	691	0.4-	0.8-	1998 12 14	704	0.0	0.1+	1998 12 17	704	0.1+	1.8-
1992 01 28	691	0.8+	0.0	1998 12 14	704	0.9+	2.5+				

1992 DF₆ = 1998 XH₅₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	357.06539		(2000.0)		P		Q				
<i>n</i>	0.26640895	ω	349.92054		-0.20413746		-0.97730285				
<i>a</i>	2.3920496	Ω	111.84076		+0.90235581		-0.21028256				
<i>e</i>	0.1491313	<i>i</i>	3.49778		+0.37958121		-0.02569788				
<i>P</i>	3.70	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	7				
Residuals in seconds of arc											
1992 02 29	809	0.2+	0.4-	1998 12 15	704	0.2+	0.4+	1998 12 16	704	1.5+	0.3-
1992 03 03	809	0.1-	0.4+	1998 12 15	704	0.5-	0.3+	1998 12 16	704	0.1-	1.6-
1992 03 07	809	0.1-	0.0	1998 12 15	704	0.8-	0.6+	1998 12 16	704	0.4+	0.0
1998 12 15	704	0.6-	0.8+	1998 12 15	704	0.0	0.2+	1998 12 16	704	0.0	0.6-

1992 DY₈ = 1998 XC₃₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	248.61144		(2000.0)			P		Q			
<i>n</i>	0.25896581	ω	146.64388			-0.82368366		+0.56498837			
<i>a</i>	2.4376673	Ω	67.83075			-0.53100028		-0.73862678			
<i>e</i>	0.0917816	<i>i</i>	2.98996			-0.19895708		-0.36772085			
<i>P</i>	3.81	<i>H</i>	14.6		<i>G</i>	0.15		<i>U</i>	6		
Residuals in seconds of arc											
1992 02 29	809	0.5-	0.8-	1998 12 14	704	0.3+	0.9+	1998 12 14	704	1.0-	0.3+
1992 03 03	809	0.0	0.1+	1998 12 14	704	0.5+	0.3+	1998 12 17	704	0.4+	0.4+
1992 03 07	809	0.2+	0.2+	1998 12 14	704	0.2+	0.2-	1998 12 17	704	2.2-	0.7-
1992 04 06	809	0.3+	0.5+	1998 12 14	704	1.1+	0.8-	1998 12 17	704	0.8+	0.2-

1992 EC₁₀ = 1998 HK₁₃₈

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	237.36632		(2000.0)			P		Q			
n	0.18534217	ω	223.50349			+0.95425501		-0.28137369			
a	3.0466312	Ω	152.35624			+0.29696368		+0.93126863			
e	0.1360396	i	12.58889			-0.03478425		+0.23144674			
P	5.32	H	12.9	G	0.15	U	5				
Residuals in seconds of arc											
1992 02 25	675	0.2+	0.5+	1998 03 24	704	0.8+	1.1+	1998 04 24	704	0.6+	0.5-
1992 02 25	675	0.1+	1.7-	1998 03 24	704	1.7+	1.7-	1998 04 24	704	0.4+	0.9-
1992 03 02	809	0.3-	0.8+	1998 04 21	704	0.0	1.1-	1998 04 24	704	1.3-	0.0
1992 03 04	809	0.1+	0.3+	1998 04 21	704	2.1-	1.8+	1998 04 24	704	1.2+	0.5+
1992 03 07	809	0.1-	0.0	1998 04 21	704	0.8-	0.9+	1998 04 24	704	0.4-	0.4+
1998 03 24	704	1.0+	0.3-	1998 04 21	704	0.1-	0.3-				
1998 03 24	704	0.2+	0.6+	1998 04 21	704	1.1-	0.3-				

1992 EQ₁₀ = 1995 VK₅ = 1998 HX₁₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	9.47038		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$				
n	0.17501374	ω	75.05157		-0.60708883		+0.79387384				
a	3.1653468	Ω	157.45911		-0.75945788		-0.56679310				
e	0.0188069	i	5.20081		-0.23380948		-0.22024963				
P	5.63	H	15.0		G	0.15	U	3			
Residuals in seconds of arc											
1992 03 06	809	0.9-	1.0+	1995 11 14	691	0.1-	0.1+	1998 04 19	704	0.2-	0.9-
1992 03 06	691	0.0	0.9-	1995 11 19	691	0.1-	0.0	1998 04 20	704	(0.2-	1.7+)
1992 03 06	691	0.2+	0.1-	1995 11 19	691	0.1+	0.3-	1998 04 20	704	(1.6-	1.3+)
1992 03 08	809	0.5+	0.1+	1995 11 19	691	0.1+	0.1+	1998 04 20	704	0.2+	0.7+
1992 03 09	809	0.1+	0.0	1998 04 19	704	0.5+	0.7+	1998 04 20	704	0.1-	0.3+
1995 11 14	691	0.3-	0.1-	1998 04 19	704	0.1-	0.0				
1995 11 14	691	0.3+	0.1+	1998 04 19	704	0.3-	0.8-				

1992 EM₁₂ = 1970 EM₃ = 1994 PM₁₈ = 1994 RK₁₉ = 1996 YE₁ = 1998 HZ₈₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	64.01085		(2000.0)			P		Q			
n	0.17897379	ω	51.63290			-0.96283925		+0.26992810			
a	3.1184810	Ω	144.02460			-0.25227955		-0.88712852			
e	0.1143220	i	0.86915			-0.09641374		-0.37435519			
P	5.51	H	14.2	G	0.15	U	1				
Residuals in seconds of arc											
1951 11 28	675	1.0+	0.1+	1994 08 12	809	0.0	1.5-	1996 12 21	411	0.8+	0.3+
1970 03 10	805	1.6+	0.1+	1994 08 13	809	(3.4+	2.8+)	1996 12 21	411	0.7+	0.9+
1970 03 10	805	0.8-	1.1+	1994 08 13	809	(2.4+	2.8+)	1998 04 21	704	0.0	0.1+
1970 03 10	805	0.3+	0.1+	1994 08 13	809	(2.0+	2.5+)	1998 04 21	704	0.7+	0.7-
1977 09 08	413	0.9-	0.3+	1994 09 05	809	0.1+	0.7+	1998 04 21	704	0.6+	0.6-
1977 09 08	413	0.3-	0.4-	1994 09 05	809	0.8-	1.7+	1998 04 21	704	0.2-	0.8+
1992 03 06	809	2.3-	1.1+	1994 09 05	809	1.5-	1.3+	1998 04 21	704	0.7+	1.6+
1992 03 08	809	1.2-	0.3+	1994 09 06	809	(0.5+	3.8+)	1998 04 22	704	0.7+	0.2+
1992 03 09	809	0.3-	0.4-	1994 09 06	809	(0.0	3.6+)	1998 04 22	704	0.9-	0.3-
1992 04 06	809	0.4+	0.5+	1994 09 06	809	(1.1-	2.8+)	1998 04 22	704	0.1+	0.3-
1994 08 12	809	0.6+	0.1+	1996 12 20	411	0.1+	0.2-	1998 04 22	704	0.3+	0.2+
1994 08 12	809	0.5+	0.1+	1996 12 20	411	0.1-	0.5-	1998 04 22	704	0.5+	1.5-

1992 GV₃ = 1973 VO = 1998 WB₄

Id. A. Doppler

M.P.C. 33482

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24030106	ω	146.57209	−0.99540987	−0.00747812		
<i>a</i>	2.5623135	Ω	33.39787	−0.04388860	−0.85026300		
<i>e</i>	0.0351447	<i>i</i>	9.98166	+0.08504697	−0.52630495		
<i>P</i>		<i>H</i>		<i>G</i>		<i>U</i>	
	4.10		14.1		0.15		4

Residuals in seconds of arc

1973 11 02	033	1.8+	2.9−	1998 11 20	595	0.0	0.8−	1998 12 15	595	0.3−	1.1+
1992 04 04	809	0.6+	0.6+	1998 11 20	595	0.1+	0.8−	1998 12 15	595	0.2−	0.8+
1992 04 04	809	0.9+	0.1−	1998 11 21	595	0.1−	0.6−	1998 12 16	595	0.4−	0.6+
1992 04 04	809	1.1+	0.5+	1998 11 21	595	0.0	1.4−	1998 12 16	595	0.4−	0.9+
1992 04 06	809	0.7−	0.6−	1998 11 26	595	0.3−	0.4+	1998 12 17	704	0.5−	0.9+
1992 04 06	809	0.5−	0.8−	1998 11 26	595	0.2+	0.4+	1998 12 17	704	1.0−	0.4+
1992 04 06	809	0.3−	0.4−	1998 12 14	704	1.4+	1.1+	1998 12 17	704	0.3+	0.3+
1992 04 25	809	0.1+	0.9−	1998 12 14	704	0.0	1.5−	1998 12 17	704	0.5−	0.1−
1992 04 25	809	1.4−	0.7−	1998 12 14	704	1.1+	0.6−	1998 12 17	704	0.0	1.0−
1992 04 25	809	1.7−	1.0−	1998 12 14	704	0.5+	0.9−				

1992 JL = 1998 XU₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22965994	ω	163.10981	+0.05917221	+0.96652632		
<i>a</i>	2.6408630	Ω	109.72054	−0.94379165	+0.13563858		
<i>e</i>	0.1640111	<i>i</i>	15.37915	−0.32520143	−0.21778213		
<i>P</i>		<i>H</i>		<i>G</i>		<i>U</i>	
	4.29		13.5		0.15		6

Residuals in seconds of arc

1992 05 01	675	1.7+	0.3−	1998 12 14	561	0.1+	0.7+	1998 12 15	561	0.8+	0.2+
1992 05 01	675	0.5−	0.6+	1998 12 14	561	0.6+	0.6+	1998 12 16	561	0.9−	0.6−
1992 05 03	675	0.3+	1.4−	1998 12 14	561	0.2+	0.9+	1998 12 16	561	0.6−	0.3−
1992 05 03	675	0.5+	0.4−	1998 12 14	561	0.5+	0.5+	1998 12 16	561	0.2+	0.7−
1992 05 03	675	0.0	0.5+	1998 12 15	561	0.5+	0.0	1998 12 16	561	1.0−	1.1−
1992 05 07	801	1.1−	0.5+	1998 12 15	561	0.5+	0.0	1998 12 16	561	1.5−	0.4−
1992 05 07	801	0.9−	0.6+	1998 12 15	561	0.5+	0.1+				

1992 JL₁ = 1993 TW₄₂ = 1998 WK₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21503417	ω	269.60497	+0.44224405	+0.89662259		
<i>a</i>	2.7592925	Ω	26.67693	−0.80207069	+0.40639186		
<i>e</i>	0.1601392	<i>i</i>	2.82073	−0.40137614	+0.17582263		
<i>P</i>		<i>H</i>		<i>G</i>		<i>U</i>	
	4.58		14.5		0.15		3

Residuals in seconds of arc

1992 05 08	809	(0.1+	2.8−)	1992 05 13	809	0.5+	0.2−	1998 11 21	704	0.3+	0.4−
1992 05 08	809	(0.2+	2.8−)	1992 05 13	809	0.5+	0.1+	1998 11 21	704	(2.9+	2.1−)
1992 05 08	809	(0.3+	2.7−)	1992 05 13	809	0.4+	0.5+	1998 11 21	704	0.4−	0.9−
1992 05 11	809	0.4−	0.5+	1993 10 10	809	0.5+	0.2+	1998 11 21	704	0.1−	0.0
1992 05 11	809	0.5−	0.5+	1993 10 10	809	1.3−	0.4−	1998 11 21	704	0.0	1.1−
1992 05 11	809	0.6−	0.7+	1993 10 10	809	(2.2−	0.9−)	1998 11 24	704	0.5−	1.4+
1992 05 12	809	0.4−	0.5−	1993 10 22	809	(2.3+	0.5−)	1998 11 24	704	0.8+	0.9+
1992 05 12	809	0.5−	0.6−	1993 10 22	809	0.8+	0.4−	1998 11 24	704	(1.3+	2.6+)
1992 05 12	809	0.5−	0.7−	1993 10 22	809	0.3−	0.5+	1998 11 24	704	(0.4−	2.5+)

1992 PR₆ = 1987 SG₁₄ = 1987 SQ₁₆ = 1989 BJ₂ = 1998 XY₆₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18456387	ω	25.74553	+0.99497993	+0.05705569		
<i>a</i>	3.0551902	Ω	330.62487	−0.09195546	+0.84540117		
<i>e</i>	0.2992131	<i>i</i>	9.64886	+0.03948588	+0.53107580		
<i>P</i>		<i>H</i>		<i>G</i>		<i>U</i>	
	5.34		13.4		0.15		1

1999 JAN. 6

Residuals in seconds of arc

1987 09 22	095	1.5+	0.1+	1992 08 07	809	0.6+	0.4−	1998 12 14	704	0.1+	0.2+
1987 09 25	095	2.3−	1.5+	1992 08 07	809	0.3+	0.0	1998 12 14	704	0.2+	0.8+
1989 01 29	888	0.3−	1.0−	1992 08 07	809	0.5+	0.1+	1998 12 14	704	0.4−	0.6+
1989 01 29	888	0.0	0.1+	1992 08 07	809	0.7+	0.1+	1998 12 17	704	0.9−	0.6+
1992 08 05	809	0.2−	0.3−	1992 08 09	809	0.6−	0.1+	1998 12 17	704	0.2−	0.4−
1992 08 05	809	0.1−	0.3−	1992 08 09	809	0.1−	0.2+	1998 12 17	704	1.1+	0.6+
1992 08 05	809	0.1−	0.3−	1992 08 09	809	0.6+	0.2+	1998 12 17	704	0.1+	0.7−
1992 08 07	809	0.3−	0.8−	1998 12 14	704	1.2+	2.7−	1998 12 17	704	0.7−	0.8−
1992 08 07	809	0.2−	0.5−	1998 12 14	704	0.4−	0.0				

1992 RE₂ = 1998 XN₃₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19644449	ω	90.21795	+0.19966134	−0.97985510		
<i>a</i>	2.9307323	Ω	348.26211	+0.89019342	+0.18326279		
<i>e</i>	0.0771939	<i>i</i>	1.23833	+0.40950094	+0.07936454		
<i>P</i>		<i>H</i>		<i>G</i>		<i>U</i>	
	5.02		13.7		0.15		6

Residuals in seconds of arc

1992 09 02	809	0.7+	1.8+	1992 09 23	809	0.4+	0.7−	1998 12 14	704	1.5−	0.5+
1992 09 02	809	1.1−	1.5+	1992 09 23	809	0.9+	0.0	1998 12 17	704	0.7+	0.2+
1992 09 02	809	1.4−	0.7+	1992 09 23	809	0.6+	0.1+	1998 12 17	704	1.6+	0.1+
1992 09 03	809	1.5−	1.2−	1998 12 14	704	1.5−	0.0	1998 12 17	704	0.2+	0.2−
1992 09 22	809	1.2+	1.1−	1998 12 14	704	0.8−	0.0	1998 12 17	704	0.6+	0.4+
1992 09 22	809	0.1+	0.2−	1998 12 14	704	0.8−	0.3+	1998 12 17	704	1.7+	0.3−
1992 09 22	809	0.3+	1.1−	1998 12 14	704	0.1−	0.6−				

1992 RG₅ = 1998 XG₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18664528	ω	195.80963	+0.41654343	+0.90833372		
<i>a</i>	3.0324341	Ω	98.81928	−0.82990826	+0.39685467		
<i>e</i>	0.1188746	<i>i</i>	2.18653	−0.37113857	+0.13204631		
<i>P</i>		<i>H</i>		<i>G</i>		<i>U</i>	
	5.28		14.7		0.15		6

Residuals in seconds of arc

1992 09 02	809	1.0+	0.2+	1992 09 22	809	0.5−	0.4+	1998 12 15	910	0.1+	0.1+
1992 09 02	809	0.1−	0.7+	1992 09 23	809	0.3+	1.0−	1998 12 21	910	0.1+	0.1+
1992 09 02	809	1.0−	0.3−	1992 09 23	809	0.1−	0.3−	1998 12 21	910	0.0	0.0
1992 09 03	809	0.4−	0.1+	1992 09 23	809	0.3−	0.2−	1998 12 21	910	0.7−	0.1−
1992 09 22	809	1.0+	0.4+	1998 12 15	910	0.1+	0.0				
1992 09 22	809	0.1+	0.1−	1998 12 15	910	0.3+	0.0				

1992 RE₆ = 1978 WY₈ = 1998 YTId. A. Milani, S. Nakano; 1978 WY₈ = 1968 UR₃ = 1992 SN₂₂ (*MPC* 23336) is invalid

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<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20087568	ω	358.29322	+0.27024178	−0.96124053		
<i>a</i>	2.8874721	Ω	76.02540	+0.88401065	+0.22524332		
<i>e</i>	0.0447172	<i>i</i>	3.22810	+0.38143748	+0.15900341		
<i>P</i>		<i>H</i>		<i>G</i>		<i>U</i>	
	4.91		14.0		0.15		4

Residuals in seconds of arc

1978 11 29	675	0.1−	0.3−	1992 09 22	809	2.1−	0.9+	1998 12 16	411	0.2−	0.6+
1978 11 30	675	0.2+	0.0	1992 09 22	809	(3.0−	1.1+)	1998 12 16	411	0.2−	0.3+
1992 09 02	809	0.7+	0.5−	1992 09 22	809	(4.3−	0.1−)	1998 12 17	411	0.0	0.8−
1992 09 02	809	0.6+	0.9−	1992 09 23	809	1.5+	0.9+	1998 12 17	411	0.3+	0.0
1992 09 02	809	0.3−	1.2−	1992 09 23	809	0.5−	0.3+				
1992 09 03	809	0.6−	0.1−	1992 09 23	809	0.7+	0.7+				

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1992 RV₆ = 1998 XF₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	74.42901		(2000.0)	P	Q
<i>n</i>	0.18027120	ω	247.71990	+0.85426833	+0.51843954
<i>a</i>	3.1035004	Ω	81.03386	-0.46164542	+0.79024359
<i>e</i>	0.1985309	<i>i</i>	2.20629	-0.23897516	+0.32670401
<i>P</i>	5.47	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1992 09 02	809	1.9+	0.0	1992 09 23	809	0.1+	1.0+	1998 12 15	910	0.2-	0.1-
1992 09 02	809	1.0+	0.4-	1992 09 23	809	0.8-	0.1+	1998 12 15	910	0.2-	0.1-
1992 09 02	809	0.5+	0.7-	1992 09 23	809	0.5+	0.2+	1998 12 21	910	0.9+	0.4-
1992 09 03	809	1.2-	2.2-	1998 12 08	910	0.2-	0.1+	1998 12 21	910	0.7+	0.1-
1992 09 22	809	0.6-	0.4+	1998 12 08	910	0.5-	0.3+	1998 12 21	910	0.4+	0.0
1992 09 22	809	0.4-	1.0+	1998 12 08	910	0.4-	0.1-				
1992 09 22	809	1.1-	0.7+	1998 12 15	910	0.3-	0.0				

1992 SA₄ = 1998 HD₁₀₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	127.08990		(2000.0)	P	Q
<i>n</i>	0.27802693	ω	354.78579	-0.85841267	-0.51050418
<i>a</i>	2.3249385	Ω	154.32351	+0.47471500	-0.82763774
<i>e</i>	0.0734607	<i>i</i>	6.64400	+0.19435369	-0.23324077
<i>P</i>	3.55	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 09 24	691	0.5+	0.1+	1998 03 24	704	1.0-	0.3+	1998 04 23	704	0.4+	0.6-
1992 09 24	691	0.3+	0.1-	1998 03 24	704	0.3-	0.4+	1998 04 23	704	0.6+	0.5-
1992 09 24	691	0.4+	0.1-	1998 03 24	704	0.4-	0.7+	1998 04 24	704	0.5+	0.6-
1992 09 26	691	0.9-	1.0+	1998 04 04	699	0.4-	0.4+	1998 04 24	704	0.3+	0.1-
1992 09 26	691	0.3-	0.1-	1998 04 04	699	0.1-	0.3-	1998 04 24	704	0.6+	0.1-
1992 09 26	691	0.1-	0.2-	1998 04 04	699	1.2-	0.4+	1998 04 24	704	1.1+	0.0
1992 09 27	691	0.0	0.1-	1998 04 21	704	0.1+	0.6-	1998 04 24	704	0.2+	0.6-
1992 09 27	691	0.2-	0.1+	1998 04 21	704	0.8+	0.0	1998 05 16	704	0.1+	0.5-
1992 09 27	691	(4.1+	1.5-)	1998 04 21	704	0.5+	0.6+	1998 05 16	704	0.5-	0.6+
1992 09 29	691	0.4+	0.2-	1998 04 21	704	0.4-	0.3+	1998 05 16	704	0.4-	0.3+
1992 09 29	691	0.2-	0.2+	1998 04 21	704	0.1+	1.1+	1998 05 16	704	0.7-	0.0
1992 09 29	691	0.1-	0.1-	1998 04 23	704	0.5+	0.4-	1998 05 16	704	0.8-	0.2-
1998 03 24	704	0.5-	0.3+	1998 04 23	704	0.1-	0.5-				
1998 03 24	704	0.2+	0.6+	1998 04 23	704	0.4+	0.7-				

1992 SM₁₆ = 1978 JW = 1982 HC₃ = 1995 KP₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	55.33230		(2000.0)	P	Q
<i>n</i>	0.23373720	ω	308.09527	-0.65130236	-0.75877384
<i>a</i>	2.6100620	Ω	182.58938	+0.74063606	-0.63330312
<i>e</i>	0.0576013	<i>i</i>	10.47778	+0.16511652	-0.15228070
<i>P</i>	4.22	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1978 05 05	095	0.3+	0.4+	1992 09 22	033	0.4-	0.0	1995 05 24	693	0.1+	1.5+
1982 04 27	033	0.0	1.4-	1992 09 24	033	0.6+	0.0	1995 05 25	693	1.1-	1.2-
1982 04 27	033	0.4-	1.2-	1992 09 24	033	0.6-	0.6-	1995 05 25	693	(1.1-	3.8+)
1992 09 21	033	0.4+	1.0-	1992 09 26	033	0.6+	0.1-				
1992 09 21	033	(0.1-	2.1-)	1995 05 24	693	1.3+	0.6+				

1992 SY₂₄ = 1998 XZ₃₉

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Williams

<i>M</i>	80.52352		(2000.0)	P	Q
<i>n</i>	0.18996811	ω	10.05323	+0.99945424	-0.01601178
<i>a</i>	2.9969690	Ω	350.71703	-0.00266007	+0.83282463
<i>e</i>	0.1085911	<i>i</i>	10.31846	+0.03292650	+0.55330531
<i>P</i>	5.19	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 08 03	033	0.8-	0.2+	1992 10 03	675	0.3+	0.4+	1998 12 14	704	0.9+	0.0
1992 08 05	033	0.2+	0.4-	1992 10 03	675	0.2-	0.3-	1998 12 14	704	0.6+	0.9-
1992 08 06	033	0.6+	0.2+	1998 12 14	704	1.1-	1.8-	1998 12 17	704	1.6-	0.2-
1992 09 30	675	0.7+	0.1-	1998 12 14	704	1.9+	1.5-	1998 12 17	704	1.5-	2.4+
1992 09 30	675	0.8-	0.0	1998 12 14	704	1.0+	0.5+	1998 12 17	704	0.3-	1.4+

1992 SR₂₅ = 1997 SR₁₈

Id. A. Doppler

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Williams

<i>M</i>	47.99021		(2000.0)	P	Q
<i>n</i>	0.19148558	ω	52.76079	+0.66711880	-0.74481918
<i>a</i>	2.9811146	Ω	355.31965	+0.61737925	+0.56331847
<i>e</i>	0.1101390	<i>i</i>	9.90235	+0.41688773	+0.35765443
<i>P</i>	5.15	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1992 09 30	675	0.2+	0.3+	1997 09 28	691	0.2+	0.1-	1998 12 14	704	0.8-	1.3+
1992 09 30	675	0.2+	0.9-	1997 10 03	691	0.0	0.1+	1998 12 14	704	1.4+	0.5+
1992 10 02	691	0.0	0.0	1997 10 03	691	0.1-	0.3+	1998 12 14	704	0.5-	1.1+
1992 10 02	691	0.3-	0.0	1997 10 03	691	0.2+	0.2+	1998 12 17	704	0.4+	0.1-
1992 10 02	691	0.5-	0.5+	1997 10 09	691	0.4-	0.3+	1998 12 17	704	0.1-	0.7-
1992 10 03	675	0.6+	0.7-	1997 10 09	691	0.4-	0.2+	1998 12 17	704	0.3+	1.3-
1992 10 03	675	0.3+	0.1+	1997 10 09	691	0.3-	0.1+	1998 12 17	704	0.2-	0.6-
1997 09 28	691	0.1+	0.2-	1998 12 14	704	0.5+	0.3+	1998 12 17	704	1.7-	0.8-
1997 09 28	691	0.2+	0.2-	1998 12 14	704	0.8+	0.5+				

1992 TV = 1982 QF = 1987 ST₁₈ = 1990 FM₄ = 1998 YJ₈

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Nakano

<i>M</i>	106.95221		(2000.0)	P	Q
<i>n</i>	0.20214484	ω	170.52305	+0.98934516	-0.14527564
<i>a</i>	2.8753736	Ω	197.83869	+0.13145113	+0.91953833
<i>e</i>	0.0762184	<i>i</i>	1.78596	+0.06258405	+0.36516332
<i>P</i>	4.88	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1982 08 19	046	(2.3+	4.1-)	1992 10 01	691	0.3+	0.6-	1998 12 24	411	0.7-	0.5-
1982 08 19	046	0.6+	1.6-	1992 10 01	400	(2.7+	2.4+)	1998 12 24	411	0.2+	0.1-
1987 09 16	095	(3.9+	1.9-)	1992 10 01	400	2.0+	1.1-	1998 12 25	411	0.3+	0.6+
1990 03 27	675	0.8-	2.2-	1992 10 02	400	0.2-	0.5-	1998 12 25	411	0.1-	0.4+
1990 03 27	675	1.0-	2.1-	1992 10 02	400	0.7+	0.1+	1998 12 28	411	0.2+	0.1-
1992 10 01	691	1.3-	0.3-	1992 10 19	400	1.8+	0.2+	1998 12 28	411	0.1+	0.9-
1992 10 01	691	1.5-	0.5-	1992 10 19	400	0.7-	0.1-				

1992 WK₉ = 1986 PS

Id. T. Kobayashi (1998 observations), S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	51.18024		(2000.0)	P	Q
<i>n</i>	0.17677509	ω	322.87875	+0.95722783	-0.28907836
<i>a</i>	3.1442857	Ω	53.92843	+0.26894876	+0.87345815
<i>e</i>	0.2248277	<i>i</i>	0.86408	+0.10668384	+0.39179657
<i>P</i>	5.58	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1986 08 01	675	(31.3+	3.4-)	1992 10 22	399	(1.6-	2.6+)	1998 12 16	704	0.9-	1.1-
1986 08 01	675	(27.8+	3.2-)	1992 11 16	399	0.0	0.1-	1998 12 16	704	0.7+	0.4-

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1986 08 02	675 (11.8+	3.6−)	1992 11 16	399 0.3−	0.6−	1998 12 16	704 (1.1+	2.3+)
1986 08 02	675 (12.7+	2.6−)	1992 11 18	399 0.8+	0.3+	1998 12 16	704 0.2+	0.0
1986 08 04	675 0.4+	0.8−	1992 11 18	399 (3.8−	2.1+)	1998 12 17	704 0.6−	0.8−
1986 08 04	675 0.8+	2.1−	1998 12 09	411 0.6−	0.3−	1998 12 17	704 1.3+	0.9+
1992 10 19	399 0.1+	1.8+	1998 12 09	411 0.0	0.1−	1998 12 17	704 0.0	0.7−
1992 10 19	399 0.8−	1.1+	1998 12 11	411 0.8+	1.1−	1998 12 17	704 0.1+	0.6−
1992 10 22	399 0.9−	0.3+	1998 12 11	411 0.4−	0.5+	1998 12 17	704 0.2−	0.3+

1993 FS₆ = 1998 TE₆

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			Williams		
<i>M</i>	55.04731	(2000.0)	P	Q	
<i>n</i>	0.27992122	ω	301.45480	+0.99735141	−0.05123728
<i>a</i>	2.3144377	Ω	61.52758	+0.06830669	+0.90365575
<i>e</i>	0.0859412	<i>i</i>	3.36668	−0.02498723	+0.42518353
<i>P</i>	3.52	<i>H</i>	14.1	<i>G</i>	0.15 <i>U</i> 4

Residuals in seconds of arc

1993 03 17	809 0.8+	0.2+	1998 10 16	120 0.5+	0.2+	1998 11 10	704 0.6+	0.6−
1993 03 18	809 0.3−	0.0	1998 10 16	120 0.1−	0.3−	1998 11 10	704 1.7+	0.9−
1993 03 23	809 1.4+	0.8−	1998 10 17	691 1.2−	0.2+	1998 11 11	704 0.0	0.0
1993 04 14	691 0.0	0.2+	1998 10 17	691 1.4−	0.0	1998 11 11	704 0.1+	0.1−
1993 04 14	691 0.1+	0.6+	1998 10 17	691 1.2−	0.2+	1998 11 11	704 0.5+	0.3−
1993 04 14	691 0.0	0.6+	1998 10 18	699 1.4−	1.2+	1998 11 11	704 0.2−	0.1−
1993 04 16	413 1.3−	0.8+	1998 10 18	699 0.3−	0.9+	1998 11 11	704 0.1−	0.4+
1996 01 11	411 0.9−	0.1−	1998 10 18	699 0.6+	0.4+	1998 11 11	120 0.0	0.2+
1996 01 11	411 1.2−	1.5−	1998 10 20	120 0.2−	0.3+	1998 11 11	120 0.1−	0.2+
1996 01 12	411 1.7+	1.0+	1998 10 20	120 0.3−	0.2+	1998 12 08	699 0.2+	0.1+
1996 01 12	411 0.4+	0.2+	1998 11 10	704 0.5+	0.1+	1998 12 08	699 0.0	0.3+
1998 10 15	120 0.5+	0.5−	1998 11 10	704 0.2+	0.0	1998 12 08	699 0.1+	0.0
1998 10 16	120 0.0	0.0	1998 11 10	704 0.4+	0.8−			

1993 FC₇ = 1977 UM₃ = 1998 XH₃₇

Id. G. V. Williams, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	75.82526	(2000.0)	P	Q	
<i>n</i>	0.28532939	ω	321.95510	+0.99579579	+0.06564145
<i>a</i>	2.2850991	Ω	34.44489	−0.02693440	+0.87647297
<i>e</i>	0.1948192	<i>i</i>	6.48582	−0.08755162	+0.47695528
<i>P</i>	3.45	<i>H</i>	15.3	<i>G</i>	0.15 <i>U</i> 4

Residuals in seconds of arc

1977 10 18	675 0.0	0.1−	1993 03 20	691 0.3−	0.0	1998 12 14	704 1.7+	0.4−
1977 10 19	675 0.0	0.2+	1993 03 23	809 1.2+	2.1−	1998 12 17	704 0.3+	0.6+
1993 03 17	809 0.4−	1.3+	1993 04 16	413 (9.8−	5.1+)	1998 12 17	704 0.3−	0.0
1993 03 18	809 0.5+	0.7+	1998 12 14	704 0.3−	0.4−	1998 12 17	704 1.1−	0.4−
1993 03 20	691 0.6−	0.2+	1998 12 14	704 0.0	1.6−	1998 12 17	704 0.0	1.7+
1993 03 20	691 0.4−	0.1−	1998 12 14	704 0.3+	0.8−	1998 12 17	704 0.5−	1.4+

1993 FP₁₄ = 1998 XW₅₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	173.87510	(2000.0)	P	Q	
<i>n</i>	0.28940858	ω	249.43292	+0.29985478	+0.95067633
<i>a</i>	2.2635762	Ω	38.30322	−0.82062484	+0.29947613
<i>e</i>	0.1699528	<i>i</i>	7.35827	−0.48647917	+0.08079954
<i>P</i>	3.41	<i>H</i>	14.2	<i>G</i>	0.15 <i>U</i> 5

Residuals in seconds of arc

1993 03 17	809 0.8+	0.4−	1993 04 16	413 0.3−	0.1−	1998 12 17	704 1.5−	1.3+
1993 03 18	809 1.0+	0.5−	1998 12 14	704 0.8+	2.5−	1998 12 17	704 0.1−	0.6−
1993 03 19	691 0.5−	0.0	1998 12 14	704 1.0+	0.0	1998 12 17	704 2.3−	1.0+
1993 03 19	691 0.9−	0.7+	1998 12 14	704 1.4+	0.7+	1998 12 17	704 0.3−	0.2+
1993 03 19	691 0.7−	0.0	1998 12 14	704 1.2+	0.1+			
1993 03 23	809 0.6+	0.3+	1998 12 17	704 0.2−	0.2−			

1993 FA₁₅

Id. E. Bowell (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	26.46056	(2000.0)	P	Q	
<i>n</i>	0.26527219	ω	314.69664	+0.99075016	−0.08742111
<i>a</i>	2.3988784	Ω	50.60192	+0.12645207	+0.87227453
<i>e</i>	0.1281603	<i>i</i>	7.71857	−0.04923409	+0.48113896
<i>P</i>	3.72	<i>H</i>	14.0	<i>G</i>	0.15 <i>U</i> 3

Residuals in seconds of arc

1993 03 17	809 1.2−	0.2−	1997 05 02	910 0.0	0.0	1998 09 22	699 0.1+	0.1−
1993 03 18	809 0.4−	0.5−	1997 05 02	910 0.0	0.1−	1998 09 27	699 0.2+	0.2+
1993 03 23	809 0.9+	0.2−	1997 05 03	910 0.1−	0.0	1998 09 27	699 0.6−	0.1−
1993 03 24	675 0.2+	0.9+	1998 09 22	699 0.0	0.1−	1998 09 27	699 0.2+	0.0
1993 04 16	413 0.6+	0.1+	1998 09 22	699 0.1+	0.1+			

1993 FT₁₉ = 1998 XL₃₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	102.59294	(2000.0)	P	Q	
<i>n</i>	0.27233470	ω	279.17488	+0.83583134	+0.53929039
<i>a</i>	2.3572233	Ω	48.26680	−0.43395695	+0.76363693
<i>e</i>	0.2250855	<i>i</i>	7.91193	−0.33625487	+0.35499933
<i>P</i>	3.62	<i>H</i>	13.8	<i>G</i>	0.15 <i>U</i> 6

Residuals in seconds of arc

1993 03 17	809 0.4−	0.1−	1998 12 14	704 0.6+	0.6−	1998 12 17	704 0.1+	1.0+
1993 03 18	809 0.5+	0.6−	1998 12 14	704 0.5+	0.3+	1998 12 17	704 0.7−	0.6+
1993 03 23	809 0.7+	0.0	1998 12 14	704 0.3−	1.0−	1998 12 17	704 0.1−	0.4+
1993 04 16	413 0.9−	0.6+	1998 12 14	704 0.6+	0.3−			
1998 12 14	704 0.9+	1.1−	1998 12 17	704 0.3−	0.7+			

1993 FD₂₀ = 1998 XT₄₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	26.50530	(2000.0)	P	Q	
<i>n</i>	0.30077049	ω	17.52641	+0.27251860	−0.95806382
<i>a</i>	2.2062052	Ω	56.74376	+0.86958071	+0.20584904
<i>e</i>	0.0898838	<i>i</i>	6.08101	+0.41178028	+0.19934867
<i>P</i>	3.28	<i>H</i>	15.1	<i>G</i>	0.15 <i>U</i> 6

Residuals in seconds of arc

1993 03 17	809 0.5−	0.3−	1998 12 14	704 1.4+	0.8+	1998 12 17	704 0.9−	0.1+
1993 03 18	809 0.8−	0.4+	1998 12 14	704 0.2+	1.8−	1998 12 17	704 2.6−	0.3−
1993 03 23	809 2.1+	0.2−	1998 12 14	704 1.0+	0.2−	1998 12 17	704 0.1−	1.0+
1993 04 16	413 1.0−	0.0	1998 12 14	704 0.2+	0.4−	1998 12 17	704 0.8+	0.8+

1993 FC₄₈ = 1998 YF₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

			Williams		
<i>M</i>	273.39301	(2000.0)	P	Q	
<i>n</i>	0.31212513	ω	73.15664	−0.66909270	+0.74315887
<i>a</i>	2.1523698	Ω	154.84369	−0.68665336	−0.61537296
<i>e</i>	0.1604012	<i>i</i>	0.73646	−0.28429231	−0.26273754
<i>P</i>	3.16	<i>H</i>	15.5	<i>G</i>	0.15 <i>U</i> 5

Residuals in seconds of arc

1993 03 19	809 0.6−	0.2+	1998 12 22	691 0.0	0.2+	1998 12 28	691 0.1−	0.0
1993 03 20	809 0.8+	0.3−	1998 12 22	691 0.0	0.2−	1998 12 28	691 0.1+	0.1+
1993 03 24	809 0.2−	0.2+	1998 12 22	691 0.1+	0.1−			
1993 04 17	413 0.0	0.1−	1998 12 28	691 0.1−	0.1−			

1999 JAN. 6

M.P.C. 33485

1993 KX₁ = 1998 XB₄₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	180.21948		(2000.0)		P		Q				
<i>n</i>	0.27494167	ω	191.53644		+0.24454669		+0.86829982				
<i>a</i>	2.3422990	Ω	93.78163		-0.85167109		+0.40511302				
<i>e</i>	0.2008870	<i>i</i>	25.62704		-0.46352268		-0.28624964				
<i>P</i>	3.58	<i>H</i>	12.9		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1993 05 23	675	0.3-	1.0-	1993 06 15	675	0.4-	1.3-	1998 12 17	704	0.8+	0.4+
1993 05 24	675	0.5+	1.2+	1993 06 18	675	0.1+	0.8+	1998 12 17	704	0.3+	0.6-
1993 05 24	675	0.3+	0.8-	1993 06 18	675	1.0-	0.6+	1998 12 17	704	1.6-	0.2-
1993 05 25	675	1.7+	0.5+	1998 12 14	704	0.0	0.8-	1998 12 17	704	0.3+	0.4+
1993 05 26	675	0.4-	0.4+	1998 12 14	704	0.4-	0.8+	1998 12 17	704	0.6+	0.2+
1993 06 15	675	0.6-	0.6-	1998 12 14	704	0.1+	0.6-				

1993 LO₁ = 1998 QS₇₆

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	110.65249		(2000.0)		P		Q				
<i>n</i>	0.23156636	ω	291.16700		-0.42823208		+0.89331640				
<i>a</i>	2.6263488	Ω	312.72005		-0.74487732		-0.43439507				
<i>e</i>	0.2621592	<i>i</i>	10.69906		-0.51163959		-0.11526806				
<i>P</i>	4.26	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1993 05 24	675(74.3-	64.7-)	1993 06 18	413	1.1+	0.4-	1998 08 27	704	1.0+	0.6+	
1993 05 24	675(74.6-	62.2-)	1993 06 18	413	0.2-	0.1+	1998 08 27	704	0.4-	0.7-	
1993 06 13	413	0.7-	0.6+	1998 08 24	704	0.2+	0.1+	1998 08 27	704	0.9+	1.3-
1993 06 13	413	1.6-	1.0-	1998 08 24	704	0.1+	0.7-	1998 09 19	699	0.2-	0.4+
1993 06 14	413	0.9+	0.1-	1998 08 24	704	1.4-	0.7+	1998 09 19	699	0.4-	0.0
1993 06 14	413	1.0-	0.5-	1998 08 24	704	0.8-	0.2-	1998 09 19	699	0.5+	1.2+
1993 06 15	413	1.0+	0.3+	1998 08 24	704	0.3+	0.3-	1998 09 27	699	0.4+	0.3-
1993 06 15	413	0.1+	0.4+	1998 08 27	704	0.5+	0.2+	1998 09 27	699	0.4+	0.1-
1993 06 15	413	0.5+	0.6+	1998 08 27	704	1.1-	0.1-	1998 09 27	699	0.0	0.6+

1993 LW₁ = 1998 XS₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	158.14255		(2000.0)		P		Q				
<i>n</i>	0.26077508	ω	205.23906		-0.05331794		+0.98053050				
<i>a</i>	2.4263791	Ω	62.20416		-0.87612107		+0.04487546				
<i>e</i>	0.2418404	<i>i</i>	12.33580		-0.47913366		-0.19117045				
<i>P</i>	3.78	<i>H</i>	13.5		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1993 04 15	675	0.1-	0.4+	1993 06 15	675	0.2+	0.0	1998 12 17	704	0.6-	0.3+
1993 04 15	675	0.0	0.1-	1993 06 15	675	0.6-	0.4+	1998 12 17	704	1.1-	0.5+
1993 05 27	808	1.9-	1.8+	1998 12 14	704	0.8-	0.1-	1998 12 17	704	1.3-	0.3+
1993 05 27	808	1.1+	1.0-	1998 12 14	704	1.1+	1.6-	1998 12 17	704	0.2-	0.2+
1993 05 27	675	0.8+	0.1-	1998 12 14	704	1.8+	1.6-	1998 12 17	704	0.0	1.2+
1993 05 27	675	0.4+	1.5-	1998 12 14	704	1.2+	0.6+				

1993 QV₁ = 1998 YD₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	65.03303			(2000.0)			P		Q		
<i>n</i>	0.22426646	ω		157.33543			+0.99901779		-0.04231433		
<i>a</i>	2.6830360	Ω		205.10052			+0.03439726		+0.92766403		
<i>e</i>	0.0987887	<i>i</i>		1.77657			+0.02793363		+0.37101071		
<i>P</i>	4.39	<i>H</i>		13.5		<i>G</i>	0.15		<i>U</i>	5	
Residuals in seconds of arc											
1993 08 13	675	2.1+	0.1-	1993 09 18	010	1.9+	0.2+	1998 12 22	758	0.4+	0.4-
1993 08 13	675	2.1+	0.4-	1993 09 18	010	1.1+	0.5-	1998 12 22	758	0.8+	0.7+
1993 08 16	010	0.7-	0.7+	1993 09 18	010	0.9+	0.8+	1998 12 23	758	1.1-	0.8-

1993 08 16	010	0.9-	0.4+	1993 09 20	675	1.4-	0.7-	1998 12 23	758	0.8-	0.2-
1993 08 16	010	1.6-	0.0	1993 09 20	675	1.9-	0.8+	1998 12 23	758	0.2-	0.2-
1993 08 17	010	1.6-	1.3-	1998 12 22	758	0.9+	0.8+				

1993 QT₆ = 1998 TG₁₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	33.86767	(2000.0)		P			Q				
n	0.21327811	ω	18.60410	+0.96361197			-0.26727487				
a	2.7744178	Ω	356.88970	+0.23490356			+0.85387699				
e	0.0899876	i	4.24185	+0.12756286			+0.44660746				
P	4.62	H	15.5	G	0.15	U	5				
Residuals in seconds of arc											
1993 08 20	809	0.9+	0.4+	1993 09 10	691	0.2-	0.1+	1998 10 15	327	0.2-	0.3-
1993 08 20	809	0.2-	0.4+	1993 09 10	691	0.3+	0.4+	1998 10 15	327	0.3+	0.0
1993 08 20	809	0.0	0.8+	1993 09 10	691	(2.7+	2.9-)	1998 10 15	327	0.1-	1.5+
1993 08 24	809	(3.1+	0.6-)	1998 10 14	327	0.5+	0.0	1998 10 18	327	0.5-	0.5+
1993 08 24	809	0.2-	1.2-	1998 10 14	327	0.2-	0.9-	1998 10 18	327	0.3+	0.4-
1993 08 24	809	0.5-	0.9-	1998 10 14	327	0.2-	0.6-	1998 10 18	327	0.0	0.1+

1993 RS

Id. E. Bowell (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	352.36524		(2000.0)		P		Q				
<i>n</i>	0.38129188	ω	45.47349		+0.78976711		-0.61086849				
<i>a</i>	1.8834945	Ω	351.61861		+0.39568081		+0.57677884				
<i>e</i>	0.0478034	<i>i</i>	22.48525		+0.46872659		+0.54237059				
<i>P</i>	2.58	<i>H</i>	14.4		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1993 09 12	400	(0.8-	2.9+)	1993 09 25	367	0.5-	1.5+	1998 09 21	704	0.5+	0.3-
1993 09 15	400	(4.6+	1.0-)	1993 09 26	367	0.1-	1.0+	1998 09 21	704	0.2-	0.4-
1993 09 15	400	1.2+	1.4+	1993 09 26	367	0.3+	0.5-	1998 09 21	704	0.5-	0.5+
1993 09 16	400	1.7+	1.2-	1993 09 27	900	0.1+	0.2+	1998 11 06	699	0.5-	0.3-
1993 09 16	400	(1.1-	4.0+)	1993 09 27	900	0.6-	0.7-	1998 11 06	699	0.6-	0.2-
1993 09 18	675	0.8-	0.3-	1993 10 04	900	0.9-	0.1+	1998 11 06	699	0.4+	1.3+
1993 09 22	675	0.2-	1.4-	1993 10 04	900	0.5-	1.5-	1998 11 22	703	0.3+	0.4-
1993 09 22	675	0.6-	0.1+	1998 09 21	704	0.1-	0.3+	1998 11 22	703	0.1+	0.4-
1993 09 25	367	1.0+	1.2+	1998 09 21	704	0.3+	0.1+				

1993 RA₈ = 1997 GP₄₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	333.93678		(2000.0)		P		Q				
n	0.16110058	ω	153.50277		+0.96753450		+0.25102503				
a	3.3450657	Ω	192.06895		-0.24957521		+0.93060549				
e	0.0237422	i	8.07877		-0.03986485		+0.26638293				
P	6.12	H	13.5		G	0.15	U	5			
Residuals in seconds of arc											
1993 09 15	809	0.4+	0.0	1993 09 22	809	0.6+	1.2+	1997 04 09	809	0.4-	0.0
1993 09 15	809	0.5+	0.5-	1993 09 22	809	0.6+	0.3+	1997 04 09	809	0.3+	0.0
1993 09 15	809	0.1-	0.6+	1993 09 22	809	0.4-	0.4+	1997 04 10	809	0.2+	0.3-
1993 09 17	809	0.8-	0.6-	1993 09 24	809	0.5+	0.2+	1997 04 10	809	0.4-	0.1+
1993 09 17	809	0.4-	0.1-	1993 09 24	809	0.8-	1.5-	1997 04 10	809	0.1-	0.0
1993 09 17	809	(2.1-	0.2-)	1993 09 24	809	(1.2-	2.1-)				
1993 09 18	675	(2.5-	0.1-)	1997 04 09	809	0.4+	0.0				

1993 SK₁₆ = 1981 BT = 1983 VG₂ = 1990 VF₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	258.64075		(2000.0)		P		Q				
<i>n</i>	0.28723181	ω	32.41702		+0.38962356		+0.91154547				
<i>a</i>	2.2749980	Ω	260.80755		−0.87082978		+0.31818508				
<i>e</i>	0.1484011	<i>i</i>	7.65207		−0.29974820		+0.26046711				
<i>P</i>	3.43	<i>H</i>	12.3	<i>G</i>	0.15	<i>U</i>	3				
Residuals in seconds of arc											
1981 01 30	095	0.4+	1.6+	1990 11 14	095	0.5+	1.6−	1993 10 12	675	0.3−	1.9+
1983 11 08	381	0.7−	1.1−	1990 11 20	095	(4.3+	3.5+)	1993 10 12	675	0.6+	1.0+
1983 11 08	381	0.8+	1.0−	1993 09 19	675	0.6−	1.5−	1993 10 13	675	0.4+	0.5+
1990 11 14	095	0.6−	1.0+	1993 09 19	675	1.1−	1.3−	1993 10 13	675	0.3+	1.1+

1993 TE₂ = 1961 VE = 1979 SC₄ = 1998 XU₃₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	100.93218		(2000.0)		P		Q				
<i>n</i>	0.21577254	ω	314.73545		+0.89604155		+0.44027249				
<i>a</i>	2.7529940	Ω	19.36617		−0.34279878		+0.76793634				
<i>e</i>	0.1659238	<i>i</i>	9.92959		−0.28213213		+0.46522458				
<i>P</i>	4.57	<i>H</i>	13.0		<i>G</i>	0.15	<i>U</i>	3			
Residuals in seconds of arc											
1961 11 04	760	2.2−	0.2+	1993 10 16	400	0.7+	0.5−	1998 12 14	704	0.2+	0.9+
1961 11 04	760	1.6+	1.0+	1993 10 16	400	0.0	1.1+	1998 12 14	704	0.9−	1.3+
1979 09 24	095	0.5−	0.6+	1993 11 11	400	1.4+	1.0−	1998 12 17	704	0.2−	0.2+
1993 10 13	095	0.4+	0.7+	1993 11 11	400	(5.2+	1.0+)	1998 12 17	704	0.4+	0.6+
1993 10 14	095	0.5+	1.8−	1998 12 14	704	0.3+	0.2+	1998 12 17	704	0.4+	0.0
1993 10 15	400	1.1−	0.1+	1998 12 14	704	0.3−	0.3−	1998 12 17	704	0.3+	2.2−
1993 10 15	400	0.6−	0.5−	1998 12 14	704	0.2−	0.1−				

1993 TH₄ = 1998 XL₆₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	48.13498		(2000.0)		P		Q				
<i>n</i>	0.21362214	ω	37.02572	+0.88566711	-0.46422358						
<i>a</i>	2.7714383	Ω	350.61995	+0.41082647	+0.79299896						
<i>e</i>	0.1047431	<i>i</i>	3.34131	+0.21636862	+0.39452391						
<i>P</i>	4.61	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1993 10 08	691	0.1+	0.2+	1993 11 06	691	0.0	0.2-	1998 12 17	704	0.9+	1.0+
1993 10 08	691	0.5+	0.1-	1993 11 06	691	0.3+	0.0	1998 12 17	704	0.5+	0.1-
1993 10 08	691	0.3+	0.2+	1998 12 14	704	0.8-	0.1+	1998 12 17	704	0.4+	0.4-
1993 10 13	691	0.5-	0.2+	1998 12 14	704	1.3+	0.3+	1998 12 17	704	0.6+	0.9-
1993 10 13	691	0.3-	0.1-	1998 12 14	704	1.0-	1.4+	1998 12 17	704	0.7-	3.0-
1993 10 13	691	0.3-	0.2-	1998 12 14	704	1.1-	1.7+				

1993 TP₂₅ = 5571 P-L = 1998 WP₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	70.26188		(2000.0)			P		Q			
<i>n</i>	0.20990360	ω	307.25876			+0.98224554		+0.16894412			
<i>a</i>	2.8040739	Ω	43.18640			-0.11077123		+0.87316916			
<i>e</i>	0.0970496	<i>i</i>	6.84424			-0.15140487		+0.45720183			
<i>P</i>	4.70	<i>H</i>	15.5		<i>G</i>	0.15		<i>U</i>	6		
Residuals in seconds of arc											
1960 10 22	675	0.5-	0.5-	1993 10 11	809	0.4+	0.1+	1998 11 18	704	0.1+	0.3-
1960 10 25	675	0.3+	0.0	1993 10 11	809	0.0	0.2-	1998 11 18	704	0.7+	1.0-
1960 10 26	675	0.1-	0.7+	1993 10 20	809	(0.5+	5.5+)	1998 11 21	704	0.4+	0.7-
1993 10 09	809	0.3+	0.1-	1993 10 20	809	(0.4+	5.3+)	1998 11 21	704	0.7-	1.0+
1993 10 09	809	0.1+	0.3-	1993 10 20	809	(1.4+	6.1+)	1998 11 21	704	1.8-	1.9+
1993 10 09	809	1.5-	0.3-	1998 11 18	704	0.9+	0.6+				
1993 10 11	809	0.9+	0.5+	1998 11 18	704	0.2+	1.5-				

1993 TV₂₇ = 1998 XO₇₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	5.76530		(2000.0)		P		Q				
n	0.22070080	ω	349.02464		+0.05785473		-0.99736764				
a	2.7118569	Ω	97.64814		+0.91925288		+0.03614348				
e	0.0437061	i	2.52774		+0.38939308		+0.06286048				
P	4.47	H	14.2		G	0.15	U	7			
Residuals in seconds of arc											
1993 10 09	809	0.3+	0.3+	1993 10 20	809	0.5+	0.6+	1998 12 16	704	0.4-	0.9-
1993 10 09	809	0.5+	0.2-	1993 10 20	809	0.9-	0.4-	1998 12 16	704	1.8-	0.4-
1993 10 09	809	0.1+	0.2+	1998 12 15	704	1.1+	0.5+	1998 12 16	704	0.7+	0.6+
1993 10 11	809	0.5-	0.1-	1998 12 15	704	0.2+	1.1-	1998 12 16	704	0.8+	0.9+
1993 10 11	809	0.5-	0.6-	1998 12 15	704	0.7+	0.2+	1998 12 16	704	0.8-	0.8+
1993 10 11	809	0.3-	0.1+	1998 12 15	704	0.1+	0.5+				
1993 10 20	809	0.7+	0.0	1998 12 15	704	0.6-	1.2-				

1993 VA₂ = 1996 GT₃ = 1998 VB₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

M	60.11059		(2000.0)		P		Q				
n	0.18472715	ω	289.91768		+0.86527624		+0.48490070				
a	3.0533896	Ω	41.35165		-0.35694416		+0.77406300				
e	0.0946059	i	11.09643		-0.35197712		+0.40705992				
P	5.34	H	12.5	G	0.15	U	4				
Residuals in seconds of arc											
1993 11 11	399	0.7-	0.4-	1996 04 15	691	0.5-	0.3-	1998 10 29	704	0.5-	0.4-
1993 11 11	399	0.9-	0.8+	1996 04 15	691	0.3-	0.2-	1998 10 29	704	0.7-	1.0-
1993 11 16	399	1.4+	0.8+	1998 10 28	704	0.7+	0.2-	1998 11 10	704	0.2-	0.4-
1993 11 16	399	1.5+	1.0+	1998 10 28	704	0.1-	0.3+	1998 11 10	704	0.1-	0.2+
1993 11 22	399	1.4-	2.1-	1998 10 28	704	0.8+	0.4+	1998 11 10	704	0.3+	0.1-
1993 11 22	399	(3.2-	1.1-)	1998 10 28	704	0.8-	0.8+	1998 11 10	704	(2.2-	1.8-)
1996 04 09	691	0.4+	0.2+	1998 10 28	704	0.6-	0.2-	1998 11 11	704	1.0+	0.3+
1996 04 09	691	0.4+	0.0	1998 10 29	704	0.1-	0.1-	1998 11 11	704	0.4+	0.0
1996 04 09	691	0.3+	0.2+	1998 10 29	704	0.2+	0.0	1998 11 11	704	0.1-	0.3+
1996 04 15	691	0.5-	0.2-	1998 10 29	704	0.0	0.4-	1998 11 11	704	0.2+	0.0

1993 XG = 1996 LV₂ = 1998 WB₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	49.27236		(2000.0)		P		Q				
n	0.20297373	ω	295.03822		+0.80869106		-0.53864442				
a	2.8675401	Ω	98.38183		+0.58792867		+0.72719497				
e	0.1235552	i	13.82421		+0.01893812		+0.42549931				
P	4.86	H	12.7	G	0.15	U	3				
Residuals in seconds of arc											
1993 12 06	372	(4.3-	2.3+)	1998 11 30	426	0.0	0.4+	1998 12 18	426	0.2-	0.3+
1993 12 08	372	1.0+	0.6-	1998 11 30	426	0.1+	0.1-	1998 12 18	426	0.1-	0.4+
1993 12 12	372	1.3-	1.9+	1998 11 30	426	0.6-	0.1-	1998 12 20	426	0.1-	0.3+
1993 12 14	372	0.0	0.5-	1998 12 01	426	0.8-	0.4-	1998 12 20	426	0.3-	0.4+
1996 06 11	691	0.1+	0.1-	1998 12 01	426	0.0	0.5-	1998 12 22	704	0.7+	0.4-
1996 06 11	691	0.2-	0.0	1998 12 01	426	0.3-	0.2-	1998 12 22	704	0.7-	0.2-
1996 06 11	691	0.5-	0.2+	1998 12 08	426	0.0	0.1-	1998 12 22	704	1.4+	0.1-
1996 06 22	691	0.3+	0.2+	1998 12 08	426	0.1+	0.1-	1998 12 22	704	1.0+	0.3-
1996 06 22	691	0.4+	0.2+	1998 12 08	426	0.0	0.2-	1998 12 22	704	0.0	0.0
1996 06 22	691	0.0	0.1-	1998 12 18	426	0.0	0.4+				

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1994 AN₁₅ = 1998 XN₅₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18945678	ω	70.50496	+0.94517170	−0.30718125		
<i>a</i>	3.0023590	Ω	307.22872	+0.22215348	+0.85359844		
<i>e</i>	0.1761959	<i>i</i>	8.00346	+0.23937063	+0.42072482		
<i>P</i>	5.20	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 01 09	411	0.0	1.0−	1994 02 02	411	1.4−	1.3+	1998 12 14	704	0.1−	1.2−
1994 01 09	411	0.5+	0.6−	1994 02 02	411	0.5+	0.2−	1998 12 14	704	0.4−	1.1−
1994 01 14	411	1.1+	1.7+	1994 02 02	411	0.6+	1.8+	1998 12 17	704	0.3+	0.7+
1994 01 14	411	1.0−	0.6−	1994 02 10	411	0.4+	0.7−	1998 12 17	704	0.6+	0.7+
1994 01 14	411	0.3−	1.1−	1994 02 10	411	1.2−	1.2−	1998 12 17	704	0.3−	0.7+
1994 01 15	411	0.8+	1.2+	1994 02 10	411	1.1+	0.6−	1998 12 17	704	0.1+	0.1+
1994 01 15	411	0.2−	0.5+	1998 12 14	704	0.2+	0.2−	1998 12 17	704	0.6−	0.3−
1994 01 15	411	0.9−	0.7−	1998 12 14	704	0.3+	0.6+				

1994 CN₈ = 1979 WY₁ = 1998 HX₆₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29219994	ω	271.98836	+0.80393146	−0.59379525		
<i>a</i>	2.2491373	Ω	124.44009	+0.56039502	+0.73766442		
<i>e</i>	0.1416309	<i>i</i>	2.30626	+0.19912717	+0.32133846		
<i>P</i>	3.37	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1979 11 16	095	0.3−	0.1−	1998 04 21	704	0.3+	0.7−	1998 04 22	704	0.3+	0.5+
1994 02 08	303	0.5−	0.5+	1998 04 21	704	0.2+	0.5+	1998 04 22	704	0.4−	0.3+
1994 02 08	303	0.5−	0.1+	1998 04 21	704	0.5−	0.5+	1998 04 22	704	0.2+	0.4−
1994 02 08	303	0.8+	0.3−	1998 04 21	704	0.3+	0.9−	1998 04 22	704	0.9−	0.8+
1994 02 09	303	(2.8+	0.3−)	1998 04 21	704	0.4+	1.1−				
1994 02 10	303	0.2+	0.4−	1998 04 22	704	0.0	0.5+				

1994 PB₈ = 1998 XZ₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30937500	ω	240.06796	−0.80870137	+0.58746542		
<i>a</i>	2.1651064	Ω	335.87105	−0.51145748	−0.72726662		
<i>e</i>	0.0878474	<i>i</i>	4.17676	−0.29053975	−0.35491921		
<i>P</i>	3.19	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 08 10	809	0.1+	0.3−	1994 08 13	809	1.0−	1.9+	1994 09 08	691	0.8−	0.2+
1994 08 10	809	0.3+	0.3−	1994 08 13	809	0.9+	2.9+	1998 12 14	704	0.6−	0.8+
1994 08 10	809	0.3+	0.4−	1994 09 03	809	0.6−	0.5−	1998 12 14	704	1.8+	0.9+
1994 08 11	809	1.1+	0.4+	1994 09 03	809	1.5+	0.2−	1998 12 14	704	0.7+	0.7+
1994 08 11	809	1.5+	0.7+	1994 09 03	809	0.2−	0.2+	1998 12 14	704	2.9−	0.8+
1994 08 11	809	1.4+	0.0	1994 09 04	809	0.2+	0.1−	1998 12 17	704	2.1+	1.2−
1994 08 12	809	2.5−	2.2−	1994 09 04	809	0.6+	0.6−	1998 12 17	704	1.4−	0.4−
1994 08 12	809	2.1−	1.2−	1994 09 04	809	0.6+	0.5−	1998 12 17	704	0.2+	1.7−
1994 08 12	809	1.6−	1.9−	1994 09 08	691	0.7−	0.4+				
1994 08 13	809	1.3+	0.9+	1994 09 08	691	0.4−	0.7+				

1994 PG₁₁ = 1994 RF₁₆ = 1998 YW₄

Id. S. Nakano (d, MPC 27429), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26897554	ω	189.39778	+0.99995442	−0.00889478		
<i>a</i>	2.3768085	Ω	171.10966	+0.00954686	+0.92603374		
<i>e</i>	0.2298683	<i>i</i>	1.28683	+0.00014222	+0.37733592		
<i>P</i>	3.66	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 08 09	675	0.5−	0.0	1994 09 03	809	1.1+	1.1+	1998 12 16	704	1.9+	1.0−
1994 08 09	675	1.8−	3.1−	1994 09 04	809	1.2−	1.1−	1998 12 16	704	0.7−	0.4−
1994 08 10	809	1.0+	0.8+	1994 09 04	809	0.8−	0.6−	1998 12 19	758	0.4−	0.0
1994 08 10	809	0.5+	0.5+	1994 09 04	809	1.3−	0.9−	1998 12 19	758	0.9−	0.4+
1994 08 10	809	0.3−	0.7+	1998 11 24	704	0.2+	0.6−	1998 12 19	758	0.8−	0.0
1994 08 11	809	2.0+	1.2+	1998 11 24	704	0.0	0.7−	1998 12 22	758	0.2−	0.9+
1994 08 11	809	1.0+	0.5+	1998 11 24	704	0.6−	0.3−	1998 12 22	758	0.8−	1.2+
1994 08 11	809	0.1−	1.1+	1998 11 24	704	0.5−	2.4+	1998 12 22	758	0.2−	0.5+
1994 08 11	675	1.6−	2.2−	1998 12 16	704	0.6+	0.3+	1998 12 24	758	0.3−	0.8+
1994 09 03	809	1.0+	1.5+	1998 12 16	704	1.2+	2.0−	1998 12 24	758	0.3−	0.6+
1994 09 03	809	1.2+	0.5+	1998 12 16	704	2.0+	2.4−	1998 12 24	758	0.2−	0.2+

1994 PV₁₇ = 1998 XH₅₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30554254	ω	70.46804	−0.68188923	+0.73092839		
<i>a</i>	2.1831736	Ω	156.46912	−0.69446715	−0.63502392		
<i>e</i>	0.0736035	<i>i</i>	3.98747	−0.22965724	−0.24997663		
<i>P</i>	3.23	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 08 10	809	0.7−	0.5+	1994 09 03	809	0.0	1.6+	1998 12 15	704	1.2+	0.2+
1994 08 10	809	0.4−	0.1−	1994 09 03	809	0.4+	0.6+	1998 12 15	704	0.9−	0.6+
1994 08 10	809	0.6−	0.3+	1994 09 04	809	0.6+	1.2−	1998 12 16	704	0.1−	0.4−
1994 08 11	809	0.9+	0.4−	1994 09 04	809	0.6−	1.0−	1998 12 16	704	0.0	0.1+
1994 08 11	809	1.4+	0.0	1994 09 04	809	1.3−	1.6−	1998 12 16	704	0.6+	0.5−
1994 08 11	809	0.3−	0.4−	1998 12 15	704	0.5−	1.0−	1998 12 16	704	0.4+	1.3+
1994 09 03	809	0.7+	1.8+	1998 12 15	704	0.7−	0.2−				

1994 PG₃₁ = 1998 RJ₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23742059	ω	40.43351	+0.51076682	+0.85705872		
<i>a</i>	2.5829964	Ω	260.38170	−0.80540592	+0.44951952		
<i>e</i>	0.2349470	<i>i</i>	3.93058	−0.30073006	+0.25175892		
<i>P</i>	4.15	<i>H</i>	16.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 08 12	809	1.1−	0.3+	1994 09 05	809	0.8−	0.4+	1998 09 09	910	0.0	0.5−
1994 08 12	809	1.5−	0.3+	1994 09 05	809	0.6+	0.6−	1998 09 09	910	0.1−	0.2−
1994 08 12	809	1.2−	0.0	1994 09 05	809	0.9+	0.8−	1998 09 09	910	0.2+	0.3−
1994 08 13	809	1.0+	1.4+	1994 09 06	809	0.1−	0.3−	1998 09 19	910	0.4+	0.5−
1994 08 13	809	0.7+	0.6+	1994 09 06	809	0.5+	0.6−	1998 09 19	910	0.3+	0.5−
1994 08 13	809	0.4+	1.4+	1994 09 06	809	0.3−	0.0	1998 09 19	910	0.0	0.5−

1994 QN = 1998 XF₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27651810	ω	293.82099	+0.92955049	+0.01319135		
<i>a</i>	2.3333883	Ω	67.20128	+0.18891842	+0.84115711		
<i>e</i>	0.2804452	<i>i</i>	23.55852	−0.31661603	+0.54062992		
<i>P</i>	3.56	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 08 26	413	0.3+	0.3−	1994 08 28	413	0.5−	0.2−	1998 12 14	704	1.0+	0.0
1994 08 26	413	1.5+	0.9+	1994 08 28	413	0.4−	0.3−	1998 12 14	704	0.1−	0.3+
1994 08 27	413	0.0	0.0	1994 09 17	413	0.1+	0.1−	1998 12 14	704	0.5+	0.1−
1994 08 27	413	0.2−	0.2+	1994 09 17	413	0.1−	0.0	1998 12 17	704	0.6−	0.2+
1994 08 27	413	0.1−	0.0	1994 09 18	413	0.1+	0.1−	1998 12 17	704	0.1−	0.3+
1994 08 27	413	0.1−	0.0	1994 09 18	413	0.1+	0.0	1998 12 17	704	0.5+	1.8−
1994 08 28	413	0.4−	0.1−	1998 12 14	704	0.2−	1.0+	1998 12 17	704	0.9−	0.0
1994 08 28	413	0.3−	0.1−	1998 12 14	704	0.1−	0.0				

1994 RK₁₁ = 1972 TG₁ = 1998 XU₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26745743	ω	68.44421	+0.99469509	-0.10103443		
<i>a</i>	2.3857940	Ω	297.35008	+0.08448133	+0.90957687		
<i>e</i>	0.2308537	<i>i</i>	1.24715	+0.05869064	+0.40306570		
<i>P</i>	3.69	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1972 10 07	095	0.0	0.1-	1994 09 30	894	0.8+	0.2+	1998 12 14	704	1.5-	1.9+
1994 09 11	691	0.5-	0.3+	1994 09 30	894	1.7+	1.1+	1998 12 17	704	0.3-	0.6-
1994 09 11	691	0.7-	0.2+	1994 10 10	033	0.8-	0.5-	1998 12 17	704	0.3-	0.6-
1994 09 11	691	1.1-	0.5+	1994 10 10	033	0.8-	0.0	1998 12 17	704	0.8+	0.2-
1994 09 11	894	0.2-	0.3-	1994 10 12	033	0.0	0.0	1998 12 17	704	1.1+	0.1-
1994 09 11	894	0.8+	0.1+	1998 12 14	704	0.0	0.6-	1998 12 17	704	0.6+	0.9-
1994 09 25	894	0.5+	0.3-	1998 12 14	704	0.0	0.3+				
1994 09 25	894	0.1+	1.3-	1998 12 14	704	0.4-	0.9+				

1994 RT₁₁ = 1998 XB₇₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28728861	ω	104.57019	+0.98381127	+0.15551286		
<i>a</i>	2.2746982	Ω	246.54649	-0.17738416	+0.91575708		
<i>e</i>	0.1394618	<i>i</i>	5.57089	+0.02550002	+0.37041155		
<i>P</i>	3.43	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 09 02	033	0.6+	0.1+	1998 12 15	704	0.2+	0.1+	1998 12 17	704	0.2+	0.3+
1994 09 02	033	0.3-	0.1-	1998 12 15	704	0.1-	1.2+	1998 12 17	704	1.1+	0.2+
1994 09 04	033	0.3+	0.4-	1998 12 15	704	0.5-	0.6+	1998 12 17	704	2.5-	1.7-
1994 09 06	033	0.7-	0.4+	1998 12 15	704	2.2+	0.4-	1998 12 17	704	0.1-	0.8+
1994 10 04	033	0.5-	0.1+	1998 12 17	704	0.5+	0.5-	1998 12 17	704	0.9-	1.1-
1994 10 06	033	0.4+	0.1-	1998 12 17	704	0.3-	0.4-				
1994 10 07	033	0.1+	0.1-	1998 12 17	704	0.1+	0.8+				

1994 RN₁₂ = 1970 QP = 1991 VZ₁₃ = 1998 XQ₅₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28724477	ω	166.68141	+0.81285343	+0.58153947		
<i>a</i>	2.2749296	Ω	157.66197	-0.54201879	+0.77586824		
<i>e</i>	0.1717104	<i>i</i>	4.96300	-0.21327198	+0.24462280		
<i>P</i>	3.43	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1970 08 28	095	0.5+	2.5-	1994 09 01	691	2.9-	0.6+	1994 09 05	675	0.9-	1.4+
1970 08 31	095(33.7+ 38.4+)			1994 09 01	691	2.8-	0.6+	1998 12 15	704	0.7+	0.3-
1991 11 07	675	0.5+	1.3+	1994 09 03	809	0.1+	1.9-	1998 12 15	704	1.5+	0.4+
1991 11 07	675	1.3+	0.2-	1994 09 03	809	0.1+	2.0-	1998 12 15	704	0.2-	0.5+
1994 08 10	809	2.8+	1.4+	1994 09 03	809	0.1+	1.6-	1998 12 15	704	0.7-	0.6-
1994 08 10	809	2.1+	0.8+	1994 09 03	675	1.6-	2.1+	1998 12 15	704	0.5+	0.4+
1994 08 10	809	2.1+	0.8+	1994 09 03	675	1.2-	1.5+	1998 12 16	704	0.9+	0.6-
1994 08 11	809	3.2+	1.1+	1994 09 04	809	0.2-	2.0-	1998 12 16	704	0.2+	0.8-
1994 08 11	809	2.7+	1.0+	1994 09 04	809	0.1+	2.5-	1998 12 16	704	1.3-	0.1-
1994 08 11	809	1.4+	1.1+	1994 09 04	809	0.2-	2.2-	1998 12 16	704	1.0-	0.7+
1994 09 01	691	2.6-	0.5+	1994 09 05	675	3.0-	1.8+	1998 12 16	704	2.0-	0.0

1994 SE₅ = 1997 GY₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19613923	ω	159.62631	-0.99125878	+0.13073868		
<i>a</i>	2.9337723	Ω	27.90412	-0.12567926	-0.89491880		
<i>e</i>	0.0518894	<i>i</i>	2.16798	-0.04013417	-0.42664709		
<i>P</i>	5.03	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 09 28	691	0.2+	0.1+	1994 10 04	691	0.1-	0.5-	1997 04 08	691	0.3+	0.5-
1994 09 28	691	0.1-	0.8+	1994 10 04	691	0.0	0.2+	1997 04 08	691	0.2-	0.1+
1994 09 28	691	0.5+	0.2-	1994 10 04	691	0.5+	0.5+	1997 04 08	691	0.1+	0.5+
1994 09 29	691	0.1-	0.3-	1994 10 12	691	0.7+	0.9-	1997 04 16	691	0.2-	0.2-
1994 09 29	691	0.0	0.2+	1994 10 12	691	0.2-	0.1-	1997 04 16	691	0.3-	0.4-
1994 09 29	691	0.9-	0.4-	1994 10 12	691	0.2-	0.3+	1997 04 16	691	0.1+	0.0

1994 SV₉ = 1998 XS₄₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28522272	ω	118.15093	-0.71626692	-0.69730894		
<i>a</i>	2.2856688	Ω	17.68246	+0.60520655	-0.63990728		
<i>e</i>	0.1156798	<i>i</i>	5.07502	+0.34739996	-0.32292246		
<i>P</i>	3.46	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 09 28	691	0.0	0.0	1994 10 11	691	0.1-	0.1+	1998 12 14	704	0.1-	0.2+
1994 09 28	691	0.0	0.1-	1994 10 11	691	0.2-	0.0	1998 12 17	704	0.1+	0.3+
1994 09 28	691	0.3-	0.1-	1998 12 14	704	1.0+	1.3-	1998 12 17	704	2.4-	1.0-
1994 10 04	691	0.1+	0.2+	1998 12 14	704	0.5+	0.4-	1998 12 17	704	1.8+	0.8+
1994 10 04	691	0.2+	0.0	1998 12 14	704	0.8-	0.6+	1998 12 17	704	0.0	0.4+
1994 10 11	691	0.3+	0.1-	1998 12 14	704	0.2-	0.2-	1998 12 17	704	0.1+	0.7+

1994 TE = 1998 WD₂₂

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27149606	ω	258.31087	+0.44217126	-0.89681656		
<i>a</i>	2.3620750	Ω	165.42118	+0.84346971	+0.41033905		
<i>e</i>	0.0696916	<i>i</i>	3.25798	+0.30503020	+0.16535394		
<i>P</i>	3.63	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 10 04	104	0.1-	0.9+	1994 10 10	104	0.4+	0.3-	1998 11 18	704	0.2+	1.1-
1994 10 04	104	0.1+	0.4+	1994 10 10	104	0.2-	0.6-	1998 11 21	704	0.1+	0.5-
1994 10 04	104	0.4+	0.9+	1994 10 11	104	0.2+	0.3+	1998 11 21	704	0.4-	0.4-
1994 10 04	104	0.2+	1.0+	1994 10 11	104	0.1-	0.2+	1998 11 21	704	0.6-	0.0
1994 10 05	104	0.9-	0.4-	1994 10 11	104	0.5-	0.3-	1998 11 21	704	0.9-	1.3+
1994 10 05	104	0.2-	0.5-	1994 10 12	104	0.1-	0.9-	1998 11 21	704	0.9-	0.9+
1994 10 05	104	0.2-	0.5-	1994 10 12	104	(0.9+ 3.5-)		1998 12 11	699	0.4-	0.2+
1994 10 05	104	0.0	0.2-	1994 10 12	104	(0.1+ 5.3-)		1998 12 11	699	1.3+	0.6+
1994 10 06	104	0.7-	0.5+	1994 10 22	104	0.7-	0.9+	1998 12 11	699	1.3+	0.9-
1994 10 06	104	0.3-	0.0	1994 10 22	104	0.0	0.8+	1998 12 18	104	1.6-	0.6+
1994 10 06	104	0.1-	0.4-	1994 10 22	104	0.1-	0.7+	1998 12 18	104	1.2-	0.6+
1994 10 06	104	0.2-	1.6-	1994 10 22	104	0.2-	0.2+	1998 12 18	104	0.5-	0.6+
1994 10 06	104	0.0	1.2-	1998 11 11	699	1.0+	0.1+	1998 12 18	104	0.1-	0.5+
1994 10 07	104	0.7+	0.9-	1998 11 11	699	(2.2+ 1.1+)		1998 12 23	104	0.7+	0.2-
1994 10 07	104	0.6+	1.0+	1998 11 11	699	(1.1+ 2.5+)		1998 12 23	104	0.0	0.1+
1994 10 07	104	0.3+	0.8+	1998 11 18	704	0.9+	0.2+	1998 12 23	104	0.5+	0.3-
1994 10 10	104	0.8+	0.1-	1998 11 18	704	0.4+	0.6-	1998 12 23	104	0.4+	0.4-
1994 10 10	104	0.5+	0.0	1998 11 18	704	0.1-	1.7-				

1994 TR₃ = 1992 CP = 1998 YH₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26729850	ω	301.49369	+0.93687552	-0.34528466		
<i>a</i>	2.3867396	Ω	78.75501	+0.33685402	+0.84894613		
<i>e</i>	0.2265477	<i>i</i>	3.22407	+0.09377437	+0.40008620		
<i>P</i>	3.69	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 02 08	372	0.1-	0.4-	1994 10 27	400	0.5-	0.2-	1998 12 25	104	1.2+	0.0
1992 02 08	372	(0.6+ 3.1+)		1994 10 27	400	(2.1+ 0.5+)		1998 12 25	104	0.8-	0.0
1994 10 05	400	0.1+	0.1+	1998 12 24	104	0.2+	0.4-	1998 12 25	104	0.0	0.5+

1994 10 05	400	1.0+	0.2-	1998 12 24	104	0.2+	0.2+	1998 12 26	104	0.5-	0.1-
1994 10 06	400	0.5-	0.1+	1998 12 24	104	0.3+	0.3+	1998 12 26	104	0.4-	0.0
1994 10 06	400	(2.2-	0.2-)	1998 12 25	104	0.2-	0.1-				

1994 UR = 1998 XQ₄₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	23.44942		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.25818080	ω	350.97393	+0.30128577	-0.95083984
a	2.4426060	Ω	81.46674	+0.87930806	+0.24799106
e	0.1599993	i	4.15353	+0.36884173	+0.18548326
P	3.82	H	15.5	G 0.15	U 5

Residuals in seconds of arc

1994 10 31	411	0.0	1.0+	1994 11 27	411	0.4+	0.8+	1998 12 14	704	0.8-	0.2-
1994 10 31	411	0.5+	0.8+	1994 11 27	411	0.4-	0.5+	1998 12 14	704	0.7+	0.9-
1994 11 03	411	0.7+	1.5-	1994 11 28	675	0.3-	0.2+	1998 12 17	704	0.8+	0.2-
1994 11 03	411	0.1-	0.3-	1994 11 28	675	0.4-	0.0	1998 12 17	704	0.3-	0.0
1994 11 09	411	0.8-	1.4-	1998 12 14	704	1.3-	0.1+	1998 12 17	704	0.5-	0.0
1994 11 09	411	0.4+	0.2+	1998 12 14	704	0.1+	0.6-	1998 12 17	704	1.2+	1.5+

1994 UU₁ = 1998 XJ₅₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	139.03332		(2000.0)	P	Q		
n	0.29129168	ω	279.37776	+0.72504353	+0.68665364		
a	2.2538102	Ω	37.28637	-0.59247836	+0.66118649		
e	0.2034764	i	5.02774	-0.35111435	+0.30222376		
P	3.38	H	14.4	G	0.15	U	6

Residuals in seconds of arc

1994 10 29	114	0.2+	0.4+	1994 11 10	691	0.4-	0.9+	1998 12 17	704	0.9-	0.7-
1994 10 29	114	1.8-	1.1-	1994 11 10	691	0.3-	0.5+	1998 12 17	704	0.8+	0.9-
1994 11 01	114	0.6+	0.2-	1994 11 10	691	0.1-	0.3+	1998 12 17	704	0.1-	0.3+
1994 11 01	114	2.9+	0.1-	1998 12 14	704	0.9-	0.5+	1998 12 17	704	0.1+	1.2+
1994 11 09	691	0.5-	0.9-	1998 12 14	704	1.1-	0.2-	1998 12 17	704	0.7+	1.7+
1994 11 09	691	0.5-	0.0	1998 12 14	704	1.7+	0.9-				
1994 11 09	691	0.3-	0.4+	1998 12 14	704	0.3-	1.2-				

1994 US₂ = 1986 RR₁₆ = 1998 VA₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	10.78659		(2000.0)	P	Q
n	0.25409151	ω	18.56982	+0.26585419	-0.96296245
a	2.4687433	Ω	56.03558	+0.87744993	+0.22238590
e	0.1517179	i	3.11013	+0.39925327	+0.15247241
P	3.88	H	14.2	G 0.15	U 4

Residuals in seconds of arc

1986 09 14	095	0.7+	1.4-	1998 11 10	704	0.2+	0.1-	1998 12 14	704	0.0	0.0
1994 10 31	399	1.8+	0.3+	1998 11 10	704	1.0+	1.4-	1998 12 14	704	0.6+	0.7+
1994 10 31	399	0.6-	1.9+	1998 11 10	704	2.0-	2.6-	1998 12 14	704	1.1-	0.5+
1994 11 07	399	0.7-	1.5+	1998 11 11	704	0.8+	0.1+	1998 12 17	704	0.8+	0.1-
1994 11 07	399	0.6+	0.1-	1998 11 11	704	1.3+	0.3+	1998 12 17	704	0.8-	0.3-
1994 11 23	399	2.0-	0.4-	1998 11 11	704	0.6-	1.1-	1998 12 17	704	0.5+	0.5-
1994 11 23	399	0.7-	1.2+	1998 12 14	704	1.1-	0.1+	1998 12 17	704	2.2+	0.4-
1998 11 10	704	0.2-	0.5+	1998 12 14	704	0.5-	0.3-	1998 12 17	704	0.4-	0.5+

1994 VE = 1998 XA₄₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	319.57361		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.27033673	ω	110.75589	-0.80590736	-0.58207322		
a	2.3688234	Ω	33.91162	+0.44495697	-0.71603404		
e	0.0389027	i	11.18110	+0.39054657	-0.38533883		
P	3.65	H	13.6	G	0.15	U	5

Residuals in seconds of arc

1994 11 01	411	0.1+	0.2+	1994 11 07	675	1.1+	1.0+	1998 12 14	704	0.2-	0.5-
1994 11 01	411	0.1+	0.4-	1994 11 07	675	0.4+	0.3+	1998 12 14	704	0.4+	1.0-
1994 11 02	411	0.5+	0.4+	1994 11 08	411	0.8+	0.0	1998 12 14	704	0.1+	0.2-
1994 11 02	411	0.3+	0.2+	1994 11 08	411	0.6-	0.5-	1998 12 14	704	0.0	0.5-
1994 11 04	675	0.5-	1.3-	1994 11 23	411	0.6-	0.3-	1998 12 14	704	0.7-	1.0-
1994 11 04	675	1.8-	0.9-	1994 11 23	411	0.2+	0.0	1998 12 17	704	0.1+	1.0+
1994 11 06	675	0.1+	0.3+	1994 11 30	675	1.6+	0.2-	1998 12 17	704	0.3-	0.2+
1994 11 06	675	0.2-	0.7-	1994 11 30	675	0.2+	0.9-	1998 12 17	704	0.1-	0.1+
1994 11 06	675	1.7-	0.5+	1994 12 02	675	0.2-	0.6+	1998 12 17	704	0.5-	0.9+
1994 11 06	675	0.3-	1.5+	1994 12 02	675	0.7+	0.3+	1998 12 17	704	1.0+	1.1+

1994 VJ = 1998 WJ₃₁ = 1998 XC₄₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	54.82680		(2000.0)	P	Q
n	0.25913791	ω	76.81225	+0.94518463	-0.32595297
a	2.4365879	Ω	302.20796	+0.28995171	+0.86526862
e	0.1832614	i	1.32132	+0.15017996	+0.38087385
P	3.80	H	14.8	G 0.15	U 4

Residuals in seconds of arc

1994 11 01	411	0.6-	0.2+	1994 11 10	399	1.0+	0.8+	1998 12 14	704	0.5+	0.0
1994 11 01	411	0.8-	1.2+	1994 11 24	411	0.5+	0.0	1998 12 14	704	0.3-	0.2+
1994 11 02	411	0.2-	0.5+	1994 11 24	411	1.0+	0.2-	1998 12 14	704	0.7+	0.4+
1994 11 02	411	0.5-	0.0	1994 11 24	411	0.6+	0.4+	1998 12 14	704	0.1+	0.7+
1994 11 04	675	0.4+	0.6-	1994 11 28	675	0.9+	1.5-	1998 12 17	704	0.5+	0.4+
1994 11 04	675	0.5-	0.2-	1994 11 28	675	0.3-	2.5-	1998 12 17	704	0.0	0.1-
1994 11 06	675	0.1-	0.1-	1994 11 30	675	0.5+	1.0-	1998 12 17	704	0.2+	0.4-
1994 11 06	675	0.4-	0.8+	1994 11 30	675	0.3+	0.2-	1998 12 17	704	0.3-	0.9+
1994 11 08	411	0.3+	0.6+	1994 12 03	675	0.3+	1.4-	1998 12 17	704	1.6-	0.7-
1994 11 08	411	0.5+	0.1+	1994 12 03	675	1.3-	0.6-				
1994 11 10	399	0.8-	1.9+	1998 11 28	369	0.2+	0.5+				

1994 WT = 1986 XW₅ = 1998 XU₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	57.76207		(2000.0)	P	Q		
n	0.24617487	ω	305.27846	+0.99572629	-0.04316871		
a	2.5213912	Ω	57.32715	+0.07511119	+0.89290261		
e	0.2202722	i	5.56589	-0.05373509	+0.44817562		
P	4.00	H	14.1	G	0.15	U	5

Residuals in seconds of arc

1986 12 07	046	2.5-	1.2+	1994 11 30	411	0.1-	0.2-	1998 12 14	704	1.4+	0.2-
1986 12 07	046	2.0+	2.0+	1994 12 24	411	0.3+	0.9+	1998 12 17	704	0.3-	0.6-
1994 11 25	411	0.9+	0.3-	1994 12 24	411	0.4-	0.0	1998 12 17	704	0.6-	0.6-
1994 11 25	411	0.4-	0.1+	1998 12 14	704	0.4+	0.3-	1998 12 17	704	0.1+	0.6-
1994 11 26	411	0.8-	0.5+	1998 12 14	704	0.6+	0.6-	1998 12 17	704	1.5-	0.2-
1994 11 26	411	0.9-	0.0	1998 12 14	704	0.3+	0.1-	1998 12 17	704	0.3+	0.0
1994 11 30	411	0.4+	0.1-	1998 12 14	704	0.8+	0.9-				

1994 XR₄ = 1998 XL₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	63.04077		(2000.0)	P	Q		
n	0.23539143	ω	269.45822	+0.91116277	-0.13037864		
a	2.5978194	Ω	97.98932	+0.26556762	+0.91112884		
e	0.1625752	i	23.24769	-0.31504960	+0.39095479		
P	4.19	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1994 12 09	411	0.2+	0.5-	1995 01 06	411	0.1-	0.7+	1998 12 15	704	0.2+	1.1+
1994 12 09	411	0.2+	0.6-	1995 01 06	411	0.7-	0.1-	1998 12 22	704	0.4-	0.4-
1994 12 10	411	0.9+	0.6+	1998 12 15	704	0.5-	0.4-	1998 12 22	704	0.1-	0.7-
1994 12 10	411	0.3+	0.1+	1998 12 15	704	0.5+	0.1+	1998 12 22	704	1.0-	1.3-
1994 12 24	411	0.7-	0.0	1998 12 15	704	1.6+	2.0+	1998 12 22	704	0.4-	0.2-
1994 12 24	411	0.1-	0.4-	1998 12 15	704	0.2-	0.0	1998 12 22	704	0.2+	0.2-

1994 XB₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	346.40188		(2000.0)	P			Q				
<i>n</i>	0.25426676	ω	263.23474		-0.63214385		-0.76678886				
<i>a</i>	2.4676088	Ω	226.60831		+0.75763644		-0.58150868				
<i>e</i>	0.1972628	<i>i</i>	8.82509		+0.16242285		-0.27181335				
<i>P</i>	3.88	<i>H</i>	16.1	<i>G</i>	0.15	<i>U</i>	3				
Residuals in seconds of arc											
1994 12 02	557	0.1-	0.0	1995 01 03	557	0.2+	1.8+	1995 03 24	557	0.5-	0.8+
1994 12 02	557	0.0	0.7-	1995 01 03	557	0.0	0.0	1995 03 24	557	0.1-	0.0
1994 12 03	557	0.2-	0.2-	1995 01 03	557	0.1+	0.6+	1998 11 23	557	0.3-	0.0
1994 12 03	557	0.4-	0.3-	1995 01 26	557	0.2-	0.3-	1998 11 24	557	0.4+	0.7-
1994 12 03	809	0.2+	0.0	1995 01 26	557	0.8-	0.3-	1998 12 10	557	0.3-	0.1+
1994 12 03	809	0.1+	0.1-	1995 01 27	557	0.4-	0.3-	1998 12 10	557	0.5-	0.7-
1994 12 03	809	0.2+	0.1-	1995 01 27	557	0.5+	0.6-	1998 12 22	704	0.5-	0.3+
1994 12 03	809	0.3+	0.0	1995 01 27	557	0.7-	0.9-	1998 12 22	704	0.9+	1.6-
1994 12 03	809	0.3+	0.1-	1995 02 22	557	0.2+	0.7-	1998 12 22	704	0.6+	1.0+
1994 12 15	557	0.3-	0.4+	1995 02 22	557	0.1-	0.1-	1998 12 22	704	0.8+	0.8-
1994 12 15	557	0.5-	0.2-	1995 02 22	557	0.5-	0.4-	1998 12 22	704	0.5+	1.6+
1995 01 01	557	0.1+	0.7+	1995 03 01	557	1.2+	0.3+	1998 12 24	557	0.7-	0.1+
1995 01 02	557	0.1+	0.0	1995 03 01	557	0.5+	0.5-	1998 12 24	557	0.9-	0.2+
1995 01 02	557	0.3+	0.8+	1995 03 01	557	0.4+	0.4+				

1994 YD

Id. T. Kobayashi (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	11.79500		(2000.0)	P			Q		
n	0.25423801	ω	171.27425	-0.24005676			-0.95358987		
a	2.4677949	Ω	292.45407	+0.87836457			-0.13364175		
e	0.1271276	i	11.34274	+0.41333817			-0.26982633		
P	3.88	H	14.5	G	0.15		U	4	
Residuals in seconds of arc									
1994 12 24	411	1.8-	0.5+	1995 01 06	411	0.6-	0.4+	1998 12 23	704 0.0 0.0
1994 12 24	411	1.0-	0.3+	1995 01 06	411	0.4-	0.3-	1998 12 23	704 0.3- 1.0-
1994 12 25	411	0.0	1.0-	1995 01 19	411	0.2+	0.3-	1998 12 23	704 0.6- 0.0
1994 12 25	411	0.6+	0.4-	1995 01 19	411	0.2-	0.4+	1998 12 23	704 1.1- 1.4+
1995 01 02	411	0.6+	1.3-	1998 12 16	699	0.5+	0.4-	1998 12 23	704 1.5- 0.9-
1995 01 02	411	0.3-	0.4-	1998 12 16	699	0.5+	0.6+	1998 12 25	120 1.0+ 0.5-
1995 01 04	010	1.4+	1.3-	1998 12 16	699	1.6+	0.3+	1998 12 25	120 0.8+ 0.6-
1995 01 04	010	0.6+	0.3-	1998 12 21	411	0.1-	0.9+	1998 12 26	120 0.9+ 0.6-
1995 01 04	010	0.9+	1.1-	1998 12 21	411	0.2+	0.9+	1998 12 26	691 0.7- 0.2+
1995 01 04	010	0.4+	1.4+	1998 12 22	691	(0.2+ 2.6+)		1998 12 26	691 0.6- 0.2+
1995 01 05	010	0.5-	1.6+	1998 12 22	691	1.0-	0.5+	1998 12 26	691 0.6- 0.1+
1995 01 05	010	0.4-	1.6+	1998 12 22	691	1.3-	0.4+	1998 12 27	120 1.4+ 0.5-
1995 01 05	411	0.2-	0.2+	1998 12 22	411	0.4+	0.2-	1998 12 28	411 0.2- 0.7-
1995 01 05	411	0.3+	0.2+	1998 12 22	411	0.4+	0.1+	1998 12 28	411 0.4+ 0.2-

1994 YS = 1998 XR₅₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	318.79651		(2000.0)		P		Q				
n	0.23449329	ω	26.83868		-0.75537669		-0.64914741				
a	2.6044485	Ω	112.39138		+0.58249087		-0.72774271				
e	0.0987170	i	5.55603		+0.30018401		-0.22135536				
P	4.20	H	14.8		G	0.15	U	5			
Residuals in seconds of arc											
1994 12 28	411	0.1+	1.1-	1995 01 06	411	0.6-	0.3+	1998 12 15	704	0.2+	0.6-
1994 12 28	411	0.2-	0.2+	1995 01 06	411	0.4+	0.5+	1998 12 16	704	0.4+	0.7-
1994 12 29	411	0.4-	0.4-	1995 01 20	411	0.6-	0.3+	1998 12 16	704	1.1+	0.6+
1994 12 29	411	0.4+	0.9+	1995 01 20	411	0.0	0.5-	1998 12 16	704	0.2-	1.8+
1995 01 02	411	0.7+	0.4-	1998 12 15	704	1.7-	2.2-	1998 12 16	704	1.6+	0.5+
1995 01 02	411	0.1+	0.1+	1998 12 15	704	2.1-	0.1-	1998 12 16	704	0.6+	0.6+

1995 BH = 1998 US₄₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	311.65559		(2000.0)	P			Q				
<i>n</i>	0.21617570	ω	188.99101		-0.67367233			-0.73850513			
<i>a</i>	2.7495701	Ω	303.36575		+0.68010318			-0.60476917			
<i>e</i>	0.2774423	<i>i</i>	1.91111		+0.28918030			-0.29810136			
<i>P</i>	4.56	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1995 01 23	411	0.3-	0.6+	1995 01 30	033	0.6+	0.4+	1998 10 28	704	0.3+	1.0-
1995 01 23	411	0.3+	0.5+	1995 01 31	033	0.1+	0.5+	1998 10 28	704	0.1+	0.5+
1995 01 25	411	0.1-	0.1+	1995 02 03	033	0.5+	0.5+	1998 10 28	704	0.3-	0.9+
1995 01 25	411	0.0	0.4-	1995 02 03	399	1.5-	0.2+	1998 10 29	704	0.7+	1.0+
1995 01 27	399	0.1+	1.1-	1995 02 03	399	(3.0-	1.0-)	1998 10 29	704	0.7-	1.8-
1995 01 27	399	0.9-	0.9-	1995 02 06	411	0.3+	0.6+	1998 10 29	704	1.7-	0.0
1995 01 28	399	0.3+	0.0	1995 02 06	411	0.7+	0.5+	1998 10 29	704	1.4+	1.7+
1995 01 28	399	0.4-	1.6-	1995 02 17	411	1.1+	0.6-	1998 10 29	704	0.0	0.9-
1995 01 29	411	0.1+	0.4+	1995 02 17	411	1.2-	0.3+				
1995 01 29	411	0.4+	0.1+	1998 10 28	704	0.2+	0.3-				

1995 BO₃ = 1998 XT₅₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	3.72610		(2000.0)			P		Q			
n	0.22584258	ω	290.78605			-0.00019690		-0.99970489			
a	2.6705384	Ω	159.18071			+0.94102427		-0.00840411			
e	0.1818857	i	3.91902			+0.33833900		+0.02279261			
P	4.36	H	14.9			G	0.15	U	5		
Residuals in seconds of arc											
1995 01 31	411	0.7+	0.1-	1995 02 10	411	0.4+	0.1+	1998 12 15	704	0.8-	0.3-
1995 01 31	411	0.2+	0.2+	1995 02 19	411	0.1-	1.6-	1998 12 15	704	0.6-	0.0
1995 02 01	411	0.9-	0.2-	1995 02 19	411	1.1-	0.3-	1998 12 15	704	0.1+	0.3-
1995 02 01	411	0.6+	0.0	1995 02 27	411	0.6+	0.7+	1998 12 16	704	0.6+	0.5+
1995 02 06	411	0.6-	0.4+	1995 02 27	411	0.4+	0.1+	1998 12 16	704	0.7+	0.2-
1995 02 06	411	0.4-	0.1+	1998 12 15	704	0.0	0.3+	1998 12 16	704	0.0	0.1+
1995 02 10	411	0.3+	0.6+	1998 12 15	704	0.3-	0.7-	1998 12 16	704	0.3+	0.7+

1995 BL₄ = 1991 FQ₆ = 1998 XX₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

$\dot{M}$	34.10189		(2000.0)		P		Q				
n	0.23826007	ω	121.24024		+0.24193741		-0.95822034				
a	2.5769256	Ω	313.93192		+0.80251861		+0.28599974				
e	0.1700174	i	12.23170		+0.54537159		+0.00423423				
P	4.14	H	13.6		G	0.15	U	4			
Residuals in seconds of arc											
1991 03 16	413	0.4-	0.3-	1995 02 08	400	0.3+	0.9-	1998 12 18	699	0.6-	0.6-
1995 01 28	400	0.9-	1.5+	1995 02 25	400	0.1+	0.7+	1998 12 18	699	0.0	0.1+
1995 01 28	400	(2.5-	1.9+)	1995 02 25	400	0.7+	0.5+	1998 12 18	699	0.7+	0.5-
1995 01 30	400	0.6+	0.8-	1998 12 15	120	0.1-	0.3-	1998 12 21	704	0.6+	1.4+
1995 01 30	400	(4.8-	1.0-)	1998 12 16	120	0.8-	0.2-	1998 12 21	704	0.7+	0.3+
1995 02 06	400	0.3-	0.8-	1998 12 18	120	0.4-	0.2-	1998 12 21	704	0.2+	0.3+
1995 02 08	400	0.1-	0.0	1998 12 18	120	0.4-	0.3-	1998 12 21	704	(0.2+	2.7-)

1995 BN₄ = 1998 XY₇₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	14.40515	(2000.0)	P			Q		
<i>n</i>	0.22401886	ω	108.49914	+0.12124738	-0.98924805			
<i>a</i>	2.6850126	Ω	334.11360	+0.82535593	+0.14624090			
<i>e</i>	0.1656846	<i>i</i>	10.79570	+0.55144054	-0.00137288			
<i>P</i>	4.40	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4	

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Residuals in seconds of arc

1995 01 28	399	0.1+	0.5-	1995 02 23	033	2.1+	0.0	1998 12 14	704	0.3+	0.3-
1995 01 28	399	0.8-	0.1-	1995 02 24	033	0.7+	0.1-	1998 12 14	704	0.3+	0.7-
1995 01 31	033	0.4+	0.2-	1995 03 05	399	1.6-	0.5-	1998 12 14	704	0.5+	0.3-
1995 02 03	033	0.9+	0.2+	1995 03 05	399	1.2-	0.4+	1998 12 17	704	0.7+	0.9+
1995 02 03	033	0.3+	0.5-	1995 03 06	399	1.5-	0.1+	1998 12 17	704	1.0-	0.0
1995 02 03	399	1.3-	0.5+	1995 03 06	399	0.6+	0.1+	1998 12 17	704	0.2+	1.1+
1995 02 03	399	0.4-	0.4+	1998 12 14	704	0.1+	0.1-	1998 12 17	704	1.7-	0.1+
1995 02 22	033	1.6+	0.4+	1998 12 14	704	0.7+	0.7-				

1995 BJ₅ = 1998 XZ₂₅

Id. G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Marsden			
				P	Q		
<i>M</i>	109.55607		(2000.0)				
<i>n</i>	0.24617500	ω	240.75569	+0.99762127	+0.05071181		
<i>a</i>	2.5213903	Ω	116.30339	-0.02947662	+0.92612562		
<i>e</i>	0.1020916	<i>i</i>	2.98558	-0.06231324	+0.37379093		
<i>P</i>	4.00	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 01 08	691	0.1+	0.3-	1995 01 27	691	0.2-	0.3+	1998 12 14	691	0.9+	0.0
1995 01 08	691	0.1-	0.2-	1995 01 27	691	0.9-	0.1-	1998 12 16	691	1.1-	0.3-
1995 01 08	691	0.2-	0.4-	1995 01 29	691	0.0	0.3-	1998 12 16	691	1.6-	0.0
1995 01 23	691	0.8+	0.1+	1995 01 29	691	0.6-	0.3+	1998 12 24	684	0.1+	0.2+
1995 01 23	691	0.7+	0.2+	1995 01 29	691	0.1-	0.1-	1998 12 24	684	0.6+	0.5+
1995 01 23	691	0.7+	0.2+	1998 12 14	691	0.5+	0.3-	1998 12 25	684	0.2+	0.4+
1995 01 27	691	0.3-	0.2-	1998 12 14	691	0.5+	0.2-	1998 12 25	684	0.1-	0.3+

1995 BS₁₁ = 1990 DD₈ = 1998 WJ₁₀

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
				P	Q		
<i>M</i>	2.21788		(2000.0)				
<i>n</i>	0.19848653	ω	54.54318	+0.37712320	-0.92613498		
<i>a</i>	2.9105967	Ω	13.30693	+0.83925426	+0.33842856		
<i>e</i>	0.0397053	<i>i</i>	1.79701	+0.39170189	+0.16655363		
<i>P</i>	4.97	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 02 24	809	1.6+	1.1-	1995 02 01	691	0.2+	0.1-	1998 11 21	704	0.5+	0.5+
1990 02 24	809	0.0	0.1+	1995 02 07	691	0.7-	0.2+	1998 11 21	704	0.8+	1.0+
1990 02 24	809	1.6-	1.3+	1995 02 07	691	0.4-	0.3+	1998 11 21	704	0.3-	1.3+
1995 01 29	691	0.4+	0.2-	1995 02 07	691	0.4-	0.4+	1998 11 24	704	0.1-	0.3-
1995 01 29	691	0.5+	0.0	1998 11 10	699	0.8+	0.0	1998 11 24	704	0.6+	1.8-
1995 01 29	691	0.4+	0.3-	1998 11 10	699	0.7+	2.6+	1998 11 24	704	0.4+	1.2-
1995 02 01	691	0.1+	0.2-	1998 11 10	699	1.6-	1.4+	1998 11 24	704	0.5-	1.5-
1995 02 01	691	0.1-	0.1-	1998 11 21	704	0.5-	0.4-	1998 11 24	704	0.5-	1.4-

1995 DN₁ = 1998 YA₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Nakano			
				P	Q		
<i>M</i>	130.32314		(2000.0)				
<i>n</i>	0.17702428	ω	262.73867	+0.29349025	+0.95458445		
<i>a</i>	3.1413343	Ω	24.51772	-0.82104821	+0.27919455		
<i>e</i>	0.1060236	<i>i</i>	7.10161	-0.48963589	+0.10401410		
<i>P</i>	5.57	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1995 02 22	411	0.6-	0.4+	1995 02 26	411	0.1-	0.2+	1998 12 16	888	0.1-	0.1+
1995 02 22	411	0.8-	0.0	1995 03 05	411	0.0	0.6+	1998 12 16	888	0.1-	0.3+
1995 02 26	411	1.2+	0.5-	1995 03 05	411	0.2+	0.0	1998 12 17	888	0.1-	0.2-
1995 02 26	411	1.2+	1.1-	1995 03 05	411	1.1-	0.5+	1998 12 17	888	0.2+	0.2-

1995 FN

Id. M. W. Buie (1997 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Bowell			
				P	Q		
<i>M</i>	295.74631		(2000.0)				
<i>n</i>	0.23247516	ω	214.42771	-0.67612705	+0.73485682		
<i>a</i>	2.6194996	Ω	13.30475	-0.61318147	-0.52114240		
<i>e</i>	0.1978777	<i>i</i>	13.38401	-0.40848587	-0.43404613		
<i>P</i>	4.24	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1995 03 26	905	0.1-	0.3+	1995 04 04	905	1.8-	0.2-	1995 05 18	905	0.7+	0.1-
1995 03 26	905	0.4-	0.6+	1995 04 04	905	0.6+	0.9+	1997 12 29	688	0.1+	0.2-
1995 03 27	905	0.9+	0.6-	1995 04 23	385	0.6+	0.3+	1997 12 29	688	0.1+	0.0
1995 03 27	905	0.2-	0.9-	1995 04 23	385	0.3-	0.0	1998 12 27	699	1.0+	0.8-
1995 03 31	905	1.7-	1.2-	1995 04 23	385	0.4+	1.2+	1998 12 27	699	0.2+	0.8+
1995 03 31	905	0.3+	0.3-	1995 05 18	905	1.9+	0.0	1998 12 27	699	0.6-	0.9+
1995 04 04	905	0.5-	0.3-	1995 05 18	905	0.1-	0.2-				

1995 HR₂ = 1998 XK₄₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
				P	Q		
<i>M</i>	345.82897		(2000.0)				
<i>n</i>	0.19035760	ω	61.42718	-0.41246890	-0.89676274		
<i>a</i>	2.9928795	Ω	53.82367	+0.75098779	-0.43431126		
<i>e</i>	0.1284256	<i>i</i>	11.45205	+0.51564207	-0.08479580		
<i>P</i>	5.18	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 04 25	691	0.2-	0.6+	1995 05 09	691	0.1+	0.2-	1998 12 14	704	0.3-	0.4-
1995 04 25	691	0.2+	0.3+	1995 05 09	691	0.0	0.5-	1998 12 17	704	0.5-	0.8+
1995 04 25	691	1.0-	0.2+	1995 05 09	691	0.8+	0.4-	1998 12 17	704	1.1-	0.0
1995 05 01	691	0.1+	0.2-	1998 12 14	704	1.0+	0.9-	1998 12 17	704	0.5+	0.7+
1995 05 01	691	0.1-	0.1-	1998 12 14	704	0.8-	0.5-	1998 12 17	704	1.0+	0.7+
1995 05 01	691	0.2+	0.3+	1998 12 14	704	0.1+	0.3-				

1996 BT₁ = 1998 XD₆₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
				P	Q		
<i>M</i>	355.11436		(2000.0)				
<i>n</i>	0.29658013	ω	84.06143	-0.06380959	-0.99788722		
<i>a</i>	2.2269374	Ω	9.62263	+0.88424359	-0.06221286		
<i>e</i>	0.1383610	<i>i</i>	4.19380	+0.46264631	-0.01872586		
<i>P</i>	3.32	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 01 23	411	0.1+	0.6-	1996 01 30	411	0.7-	1.4+	1998 12 14	704	0.0	0.2-
1996 01 23	411	0.1+	1.0-	1996 02 12	411	1.0-	0.8-	1998 12 14	704	0.6+	0.9+
1996 01 24	411	1.0+	0.8+	1996 02 12	411	0.2+	0.6+	1998 12 17	704	0.1-	0.5+
1996 01 24	411	0.1+	0.2-	1996 02 20	411	0.5+	0.7-	1998 12 17	704	0.9-	0.2+
1996 01 27	411	0.3-	0.4-	1996 02 20	411	0.6+	0.5+	1998 12 17	704	1.1-	0.3-
1996 01 27	411	0.1-	0.2-	1998 12 14	704	0.3+	0.6+	1998 12 17	704	0.9+	0.7-
1996 01 30	411	0.4-	0.7+	1998 12 14	704	0.4-	0.0	1998 12 17	704	0.8+	0.9-

1996 BN₂ = 1998 YS₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
				P	Q		
<i>M</i>	293.18112		(2000.0)				
<i>n</i>	0.29271898	ω	304.08124	-0.95304968	-0.30171597		
<i>a</i>	2.2464778	Ω	218.37607	+0.28970324	-0.88371559		
<i>e</i>	0.1045505	<i>i</i>	2.37846	+0.08813820	-0.35779077		
<i>P</i>	3.37	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1996 01 26	411	1.3+	0.4+	1996 02 12	411	0.3+	0.0	1998 12 16	120	0.6+	0.3+
1996 01 26	411	0.5-	1.1+	1996 02 12	411	0.8-	0.2+	1998 12 17	120	0.4-	0.9-
1996 01 27	411	0.1+	0.7-	1996 02 19	411	0.0	1.2-	1998 12 18	120	0.4+	0.1+
1996 01 27	411	0.6-	0.4-	1996 02 19	411	0.2+	0.7-	1998 12 18	120	0.6-	0.3-
1996 01 30	411	0.1-	0.6+	1998 12 16	120	0.1-	0.4+				
1996 01 30	411	0.2+	0.9+	1998 12 16	120	0.2+	0.0				

1996 BU₄ = 1998 XT₃₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	320.50062		(2000.0)		P		Q				
<i>n</i>	0.29737595	ω	79.92745		−0.80297177		−0.59388974				
<i>a</i>	2.2229626	Ω	63.62141		+0.52248193		−0.74200890				
<i>e</i>	0.0993198	<i>i</i>	3.21940		+0.28679082		−0.31099480				
<i>P</i>	3.31	<i>H</i>	16.1		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1996 01 16	691	0.1+	0.1−	1996 01 29	691	0.2−	0.2+	1998 12 17	704	0.5−	0.1−
1996 01 16	691	0.2−	0.4−	1996 01 29	691	0.1−	0.2+	1998 12 17	704	0.8+	0.8−
1996 01 16	691	0.2−	0.5−	1998 12 14	704	0.9−	0.2−	1998 12 17	704	0.6−	0.3−
1996 01 24	691	0.2+	0.2+	1998 12 14	704	1.4+	1.6−	1998 12 17	704	0.1−	0.0
1996 01 24	691	0.2+	0.0	1998 12 14	704	0.4+	0.3+	1998 12 17	704	1.0−	0.8+
1996 01 24	691	0.2+	0.1−	1998 12 14	704	0.2+	0.4+				
1996 01 29	691	0.0	0.4+	1998 12 14	704	0.3+	1.5+				

1996 CZ₂ = 1998 XC₄₅

Id. G. V. Williams, E. Bowell (1989 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	254.56787		(2000.0)			P		Q			
<i>n</i>	0.27836671	ω	194.82996			−0.81605271		+0.57690746			
<i>a</i>	2.3230462	Ω	20.52326			−0.51955235		−0.70555635			
<i>e</i>	0.0884228	<i>i</i>	5.75469			−0.25322585		−0.41154345			
<i>P</i>	3.54	<i>H</i>	14.4			<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc											
1989 03 07	675	0.5−	0.2+	1996 03 10	358	0.1−	0.2+	1998 12 14	704	0.3−	0.1−
1989 03 07	675	0.3+	0.7−	1996 03 10	358	0.6−	1.2−	1998 12 17	704	0.7+	0.2−
1996 02 15	358	0.3+	0.6−	1996 03 13	358	0.5+	1.3−	1998 12 17	704	0.1+	1.0+
1996 02 15	358	0.0	0.6−	1996 03 13	358	1.3−	1.5+	1998 12 17	704	0.3+	0.2−
1996 02 16	358	0.6−	0.6+	1998 12 14	704	0.9−	0.2−	1998 12 17	704	0.9−	1.1+
1996 02 16	358	1.0+	1.5+	1998 12 14	704	0.3+	0.3+	1998 12 17	704	0.1+	0.2+
1996 02 23	358	0.6+	0.3−	1998 12 14	704	1.9+	0.8−				
1996 02 23	358	0.7+	0.7+	1998 12 14	704	1.4−	1.4−				

1996 CB₃ = 1989 ES₂ = 1998 XT₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	288.50559		(2000.0)		P		Q		
<i>n</i>	0.28078555	ω	272.63402		−0.87904008		−0.46894938		
<i>a</i>	2.3096856	Ω	239.41266		+0.46738508		−0.81215584		
<i>e</i>	0.1343232	<i>i</i>	5.72529		+0.09401987		−0.34711579		
<i>P</i>	3.51	<i>H</i>	15.1		<i>G</i>	0.15	<i>U</i>	6	
Residuals in seconds of arc									
1989 03 02	809	0.2+	0.4−	1996 02 13	098	0.3+	1.4−	1998 12 12	691 0.1− 0.2+
1989 03 02	809	0.3−	1.2−	1996 02 14	098	0.3+	1.2+	1998 12 12	691 0.2+ 0.2−
1989 03 02	809	0.6−	1.1−	1996 02 15	098	1.0+	1.0+	1998 12 15	691 0.1− 0.1−
1989 03 03	809	0.3+	0.4+	1996 02 17	098	0.2+	0.7−	1998 12 15	691 0.1− 0.2−
1989 03 03	809	0.1−	0.0	1996 02 24	098	1.9+	0.5+	1998 12 15	691 0.1+ 0.0
1989 03 03	809	0.5−	0.7−	1996 02 24	098	2.9−	2.3+		

1996 DG = 1986 HG₁ = 1998 XU₄₈

Id. G. V. Williams, S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	278.69873		(2000.0)		P		Q				
<i>n</i>	0.28874538	ω	116.13257		−0.96729276		+0.24741334				
<i>a</i>	2.2670409	Ω	78.23362		−0.24833129		−0.87864302				
<i>e</i>	0.0639581	<i>i</i>	3.27679		−0.05173283		−0.40837859				
<i>P</i>	3.41	<i>H</i>	14.5		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1986 04 29	675	2.2+	2.6+	1996 02 27	411	0.6−	1.7−	1998 12 14	704	1.2+	0.9+
1986 04 29	675	0.1−	2.7+	1996 02 27	411	1.1−	0.5−	1998 12 14	704	0.4+	0.3−

1996 02 18	411	0.7−	0.7+	1996 03 09	411	0.1+	0.0	1998 12 14	704	0.4−	1.1+
1996 02 18	411	0.0	1.0+	1996 03 09	411	0.6+	1.5−	1998 12 17	704	0.1+	0.1+
1996 02 19	411	0.6+	0.4+	1996 03 22	411	1.3−	0.2−	1998 12 17	704	0.9−	0.5+
1996 02 19	411	0.1+	0.2−	1996 03 22	411	0.1−	0.8−	1998 12 17	704	0.8−	0.6+
1996 02 23	411	0.6+	1.0−	1998 12 14	704	0.3+	0.2−	1998 12 17	704	0.6+	0.8+
1996 02 23	411	0.2−	1.4−	1998 12 14	704	0.1+	0.3+	1998 12 17	704	0.5−	0.8+

1996 DS₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	334.05369	(2000.0)		P		Q					
n	0.29039108	ω	329.00636	−0.53846193		−0.84157716					
a	2.2584676	Ω	153.50162	+0.79131821		−0.52235303					
e	0.0744019	i	5.46655	+0.28961050		−0.13745980					
P	3.39	H	15.9	G	0.15	U	4				
Residuals in seconds of arc											
1996 02 15	566	0.9−	0.8+	1996 03 10	552	0.0	0.4+	1998 12 18	552	0.0	0.4−
1996 02 15	566	0.5−	0.5+	1996 03 10	552	0.7+	0.8−	1998 12 18	552	0.2+	0.4−
1996 02 15	566	1.3−	0.6+	1996 04 20	552	0.4−	0.3+	1998 12 22	704	0.5−	0.2+
1996 02 16	552	0.7+	0.8+	1996 04 20	552	0.2+	0.3+	1998 12 22	704	0.1+	1.0−
1996 02 16	552	1.0+	0.1+	1996 04 20	552	0.4+	0.2−	1998 12 22	704	0.9+	0.2−
1996 02 24	552	0.3−	0.5−	1998 12 16	552	0.0	0.2−	1998 12 22	704	0.4+	1.1+
1996 02 24	552	0.1+	1.1−	1998 12 16	552	0.5−	0.6+				
1996 03 10	552	0.3+	1.2−	1998 12 16	552	0.5−	0.3+				

1996 ED = 1976 JO₄ = 1998 XH₄₀

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	20.83729			(2000.0)		P		Q			
n	0.28871588		ω	52.94939		+0.29546046		−0.95472725			
a	2.2671953		Ω	19.94976		+0.84114699		+0.24278410			
e	0.1609057		i	5.82470		+0.45296231		+0.17190622			
P	3.41		H	14.3		G	0.15		U	4	
Residuals in seconds of arc											
1976 05 03	809	0.2+	0.4+	1996 03 15	411	1.9−	0.5+	1998 12 14	704	1.9−	0.1−
1996 03 09	411	1.1+	1.2+	1996 03 15	411	1.0−	0.6−	1998 12 14	704	0.3−	0.3+
1996 03 09	411	0.6+	0.5−	1996 03 15	411	2.0−	0.5+	1998 12 14	704	1.1+	0.3+
1996 03 10	400	0.3+	0.9+	1996 03 17	411	1.0−	1.2−	1998 12 14	704	0.9+	0.1−
1996 03 10	400	2.3+	2.2−	1996 03 17	411	0.9−	0.1−	1998 12 17	704	0.1+	0.0
1996 03 10	411	0.2+	0.5+	1996 03 17	411	0.4+	0.5+	1998 12 17	704	0.5−	0.5−
1996 03 10	411	0.4+	0.7+	1996 04 05	411	0.3+	0.8−	1998 12 17	704	0.6−	0.6+
1996 03 13	400	1.0−	0.8+	1996 04 05	411	0.0	0.1−	1998 12 17	704	0.2+	0.2−
1996 03 13	400	2.2+	0.5−	1998 12 14	704	0.7+	0.0	1998 12 17	704	0.2+	0.1−

1996 ED₂ = 1998 XX₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	358.41401	(2000.0)		P		Q					
n	0.27910545	ω	275.52570	−0.01292619		−0.99980870					
a	2.3189453	Ω	175.14182	+0.97227342		−0.01599554					
e	0.1766403	i	9.98156	+0.23348943		+0.01125668					
P	3.53	H	14.4	G	0.15	U	5				
Residuals in seconds of arc											
1996 03 15	566	0.7−	0.8−	1996 03 22	566	0.6+	0.4+	1998 12 16	120	0.2−	0.0
1996 03 15	566	0.6−	0.7−	1996 04 19	566	0.7+	0.8−	1998 12 17	120	0.3+	0.3+
1996 03 15	566	1.3−	0.7−	1996 04 19	566	0.2+	0.6−	1998 12 17	120	0.1+	0.0
1996 03 19	566	0.3+	0.3+	1996 04 19	566	0.4+	0.8−	1998 12 23	120	0.4−	0.3+
1996 03 19	566	0.1+	0.6+	1998 12 15	120	0.3+	0.3−	1998 12 23	120	0.6−	0.2−
1996 03 19	566	0.2+	0.6+	1998 12 15	120	0.1−	0.1−	1998 12 23	120	0.7+	0.1+
1996 03 22	566	0.1−	1.9+	1998 12 16	120	0.1−	0.1−				
1996 03 22	566	0.5+	0.3+	1998 12 16	120	0.0	0.2−				

1999 JAN. 6

M.P.C. 33493

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	279.97210	(2000.0)	P	Q
<i>n</i>	0.28976450	ω 291.67497	-0.94902617	+0.30591845
<i>a</i>	2.2617222	Ω 266.20276	-0.25369416	-0.88429308
<i>e</i>	0.1388856	<i>i</i> 4.36345	-0.18705243	-0.35276005
<i>P</i>	3.40	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 5

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

1996 03 15	413(0.03+ 0.00-)	1996 03 25	367 0.1- 0.7-	1996 04 13	900 0.9+ 0.1+
1996 03 15	413(0.03+ 0.00+)	1996 03 25	367 0.4- 0.5-	1996 04 13	355 0.1- 0.5-
1996 03 19	897 0.7+ 0.6+	1996 04 05	897 1.7+ 0.0	1996 04 13	355 0.7- 0.5-
1996 03 19	897 0.7- 0.2-	1996 04 05	897 0.3+ 0.0	1996 04 13	400 0.3- 0.5+
1996 03 19	897 1.8- 0.9+	1996 04 05	897 0.3+ 0.5-	1998 12 10	046 0.2- 0.1-
1996 03 20	367 1.1+ 0.1+	1996 04 09	367 0.0 0.7+	1998 12 10	046 0.1- 0.1-
1996 03 20	367 1.5+ 0.4+	1996 04 09	367 0.1+ 0.1+	1998 12 10	046 0.1- 0.1+
1996 03 20	900 0.4- 0.1+	1996 04 12	400 0.6- 0.4-	1998 12 11	046 0.0 0.0
1996 03 20	900 0.0 0.3+	1996 04 12	400 0.2- 0.3-	1998 12 11	046 0.2+ 0.1-
1996 03 22	897 0.2+ 0.1+	1996 04 13	900 0.3- 0.8-	1998 12 11	046 0.1+ 0.1-
1996 03 22	897 0.8- 0.3+	1996 04 13	400 0.6- 0.2+		

1996 ES₂ = 1998 YF₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	99.23194	(2000.0)	P	Q
<i>n</i>	0.28814463	ω 12.20558	+0.99699294	+0.07225109
<i>a</i>	2.2701908	Ω 343.57302	-0.07678316	-0.87224594
<i>e</i>	0.1953524	<i>i</i> 5.68545	-0.01046107	+0.48370114
<i>P</i>	3.42	<i>H</i> 13.3	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1996 03 12	691 0.9+ 0.7+	1996 03 17	691 1.2- 0.2+	1998 12 16	888 0.1+ 0.0
1996 03 12	691 0.4- 0.0	1996 03 17	691 0.9- 0.0	1998 12 16	888 0.1- 0.0
1996 03 12	691 0.3- 0.0	1996 03 17	691 1.1- 0.1+	1998 12 17	888 0.0 0.1-
1996 03 15	566 0.9+ 0.2-	1996 03 21	566 0.1+ 0.3+	1998 12 17	888 0.1+ 0.1+
1996 03 15	566 0.6+ 1.0-	1996 03 21	566 0.6+ 0.1+		
1996 03 15	566 0.7+ 0.5-	1996 03 21	566 0.1+ 0.2+		

1996 EK₆ = 1993 SH₄ = 1998 UC₂₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	116.50021	(2000.0)	P	Q
<i>n</i>	0.22171335	ω 122.03555	+0.43398983	+0.90080407
<i>a</i>	2.7035941	Ω 173.63547	-0.86399129	+0.42065093
<i>e</i>	0.1068728	<i>i</i> 7.41851	-0.25528782	+0.10772572
<i>P</i>	4.45	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1993 09 19	010 0.2- 1.0+	1996 03 11	691 0.2+ 0.1+	1998 10 18	809 0.1- 0.5+
1993 09 19	010 0.8- 1.2+	1996 03 18	691 0.2- 0.0	1998 10 18	809 0.2- 0.0
1993 09 20	010 1.0+ 0.9-	1996 03 18	691 0.3- 0.1+	1998 10 18	809 0.5- 0.2+
1993 09 20	010 0.1- 0.1-	1996 03 18	691 0.1- 0.1+	1998 10 19	809 0.4+ 0.1-
1993 09 20	010 0.4- 0.7-	1996 03 19	566 (2.8+ 1.4-)	1998 10 19	809 0.3+ 0.6-
1996 03 11	691 0.3+ 0.2+	1996 03 19	566 (3.0+ 1.1-)	1998 10 19	809 0.2+ 0.1+
1996 03 11	691 0.2+ 0.1+	1996 03 19	566 (2.9+ 1.1-)		

1996 FM₁ = 1998 XZ₅₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	27.45522	(2000.0)	P	Q
<i>n</i>	0.29508494	ω 148.34389	+0.26039841	-0.96274124
<i>a</i>	2.2344536	Ω 286.47584	+0.86919073	+0.26664950
<i>e</i>	0.1158783	<i>i</i> 4.36302	+0.42035715	+0.04502604
<i>P</i>	3.34	<i>H</i> 15.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1996 03 16	608 0.3- 0.8+	1996 03 29	608 0.1+ 1.1+	1998 12 14	704 1.1- 1.5+
1996 03 16	608 0.3- 0.1+	1996 03 29	608 0.4- 0.8+	1998 12 14	704 0.1+ 0.8-

1996 03 17	608 0.3+ 0.3-	1996 04 09	608 0.2+ 0.6-	1998 12 17	704 0.1+ 0.1+
1996 03 17	608 0.5+ 0.3-	1996 04 09	608 0.6- 1.2-	1998 12 17	704 0.4+ 2.4-
1996 03 18	801 0.1- 1.1-	1998 12 14	704 0.8- 0.6+	1998 12 17	704 0.0 0.3-
1996 03 18	801 0.6+ 0.5+	1998 12 14	704 0.3+ 0.6-	1998 12 17	704 1.0+ 1.8+

1996 FM₁₆ = 1997 NT₆ = 1998 SS₁₂₂ = 1998 US₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	99.42393	(2000.0)	P	Q
<i>n</i>	0.18389502	ω 87.08857	+0.47324842	+0.88024621
<i>a</i>	3.0625939	Ω 211.23223	-0.83247880	+0.43399866
<i>e</i>	0.0181238	<i>i</i> 3.83478	-0.28812319	+0.19186393
<i>P</i>	5.36	<i>H</i> 13.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 03 22	809 (0.6+ 2.6+)	1997 07 10	327 0.4+ 0.2+	1998 09 27	704 0.7+ 0.8+
1996 03 22	809 (0.2+ 2.5+)	1997 07 10	327 0.1- 0.3-	1998 09 27	704 0.1- 1.3+
1996 03 22	809 0.4- 1.8+	1997 07 11	327 0.2+ 0.3-	1998 10 28	704 0.7+ 1.0-
1996 03 24	809 0.9- 2.1+	1997 07 11	327 0.2+ 0.1-	1998 10 28	704 1.0+ 0.5-
1996 03 24	809 0.5- 1.3+	1997 07 11	327 0.2- 0.2+	1998 10 28	704 0.9- 0.1-
1996 03 24	809 0.0 0.8+	1998 09 26	704 0.0 0.2-	1998 10 28	704 1.3- 1.0-
1996 03 26	809 (2.8+ 5.9+)	1998 09 26	704 0.4- 0.0	1998 10 28	704 0.4- 0.7-
1996 03 26	809 (2.2+ 4.6+)	1998 09 26	704 0.2+ 0.0	1998 10 29	704 1.0- 1.3-
1996 03 26	809 (1.6+ 3.7+)	1998 09 26	704 0.9+ 0.4+	1998 10 29	704 0.5+ 0.6+
1996 04 23	566 0.8+ 0.4-	1998 09 26	704 0.8- 0.7+	1998 10 29	704 0.3- 0.9-
1996 04 23	566 1.2+ 0.6-	1998 09 27	704 0.5- 1.3+	1998 10 29	704 0.3- 0.0
1996 04 23	566 0.8+ 0.5-	1998 09 27	704 0.1- 1.7+	1998 10 29	704 0.4+ 1.6+
1997 07 10	327 0.3- 0.4-	1998 09 27	704 0.2+ 1.4+		

1996 GA = 1998 XY₃₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	233.20333	(2000.0)	P	Q
<i>n</i>	0.26919473	ω 207.72838	-0.59067265	+0.79988228
<i>a</i>	2.3755181	Ω 26.49010	-0.68921012	-0.43162517
<i>e</i>	0.1372667	<i>i</i> 13.78382	-0.41963702	-0.41699885
<i>P</i>	3.66	<i>H</i> 13.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 04 05	120 1.5+ 0.1-	1996 05 03	120 0.9+ 0.7+	1998 12 14	704 1.1+ 1.5-
1996 04 05	120 1.9+ 0.4+	1996 05 03	120 0.4+ 0.1+	1998 12 14	704 0.2+ 0.7-
1996 04 05	120 1.7+ 0.6+	1996 05 04	120 0.1+ 0.4-	1998 12 17	704 0.9+ 0.6-
1996 04 06	120 0.9- 0.4+	1996 05 04	120 0.9- 0.3-	1998 12 17	704 0.7+ 0.2+
1996 04 06	120 1.2- 0.8-	1996 05 04	120 0.4+ 0.5+	1998 12 17	704 0.2+ 0.0
1996 04 10	120 1.9- 0.4-	1998 12 14	704 1.8- 1.9+	1998 12 17	704 0.2+ 1.0+
1996 04 10	120 1.7- 0.4-	1998 12 14	704 0.1- 0.6-		
1996 05 03	120 0.2- 0.3-	1998 12 14	704 1.4- 0.3+		

1996 GF₁ = 1998 YB₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	350.97885	(2000.0)	P	Q
<i>n</i>	0.29523302	ω 30.57239	-0.85504847	-0.51659974
<i>a</i>	2.2337064	Ω 118.25714	+0.46484803	-0.80200115
<i>e</i>	0.0520773	<i>i</i> 2.92248	+0.22980082	-0.29986473
<i>P</i>	3.34	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 04 12	400 2.5- 1.5+	1996 04 16	120 0.1+ 0.3-	1998 12 18	120 0.4+ 0.6+
1996 04 13	400 1.0+ 0.6+	1996 04 22	400 0.5- 0.8-	1998 12 18	120 0.1- 0.4-
1996 04 13	400 2.4+ 0.5-	1996 04 22	400 0.3- 0.3-	1998 12 23	120 0.2+ 0.5+
1996 04 15	120 0.1- 0.2+	1996 05 06	120 0.1- 0.2+	1998 12 23	120 0.5- 0.8-
1996 04 15	120 0.3- 0.2-	1996 05 06	120 0.0 0.1+		
1996 04 16	120 0.2+ 0.0	1996 05 06	120 0.0 0.5-		

1996 GP₂ = 1998 YG₂₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	298.25271		(2000.0)	P	Q
<i>n</i>	0.27078692	ω	75.85816	-0.98015597	+0.18169407
<i>a</i>	2.3661971	Ω	114.56104	-0.19813086	-0.91046806
<i>e</i>	0.0615732	<i>i</i>	4.99914	+0.00619948	-0.37153085
<i>P</i>	3.64	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 04 14	358	0.4-	0.2-	1996 05 13	358	1.1+	0.5-	1999 01 03	725	0.7-	0.1+
1996 04 14	358	1.5-	0.5+	1996 05 13	358	1.3-	0.7-	1999 01 03	725	0.2+	0.0
1996 04 20	358	0.3+	0.4+	1996 05 19	358	0.6-	0.9+	1999 01 03	725	0.2-	0.1-
1996 04 20	358	2.3+	0.6-	1996 05 19	358	0.2-	0.0	1999 01 03	725	0.2+	0.4-
1996 04 23	358	0.2+	1.6-	1998 12 30	725	0.3+	0.2+				
1996 04 23	358	0.1+	1.9+	1998 12 30	725	0.1+	0.2+				

1996 GV₂ = 1998 YM₁₀

Id. M. Tichý

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	142.26825		(2000.0)	P	Q
<i>n</i>	0.22339294	ω	211.59026	+0.56398650	+0.78830981
<i>a</i>	2.6900257	Ω	93.86832	-0.69695769	+0.61414059
<i>e</i>	0.1579921	<i>i</i>	14.27064	-0.44290994	+0.03740283
<i>P</i>	4.41	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 04 11	327	0.5+	0.2+	1996 05 07	327	0.1+	0.1-	1996 05 15	327	0.2-	0.1-
1996 04 11	327	0.3+	0.0	1996 05 07	327	0.1-	0.1-	1998 12 25	046	0.0	0.4-
1996 04 11	327	0.5-	0.0	1996 05 07	327	0.5+	1.0+	1998 12 25	046	0.1+	0.2-
1996 04 13	327	0.7+	0.5-	1996 05 11	327	0.4+	1.8-	1998 12 25	046	0.1+	0.3-
1996 04 13	327	0.3-	0.1+	1996 05 11	327	0.7-	0.1+	1998 12 25	046	0.4+	0.2-
1996 04 13	327	0.2-	0.0	1996 05 14	327	0.7-	0.4-	1998 12 28	046	0.3-	0.2+
1996 04 13	327	0.0	0.4-	1996 05 14	327	0.5-	0.7+	1998 12 28	046	0.2-	0.0
1996 04 25	327	1.0+	0.1-	1996 05 14	327	0.2-	0.3+	1998 12 28	046	0.1-	0.3+
1996 04 25	327	0.4+	0.1-	1996 05 15	327	0.5-	0.3+	1998 12 28	046	0.0	0.4+
1996 04 25	327	0.2-	0.3+	1996 05 15	327	0.1+	0.7+	1998 12 28	046	0.0	0.1+

1996 GK₅ = 1992 EN₃₆ = 1994 UF₁₃ = 1998 XE₅₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	12.25387		(2000.0)	P	Q
<i>n</i>	0.26584894	ω	353.31605	+0.18788091	-0.98034663
<i>a</i>	2.3954076	Ω	85.84247	+0.90391377	+0.14861405
<i>e</i>	0.1444173	<i>i</i>	3.45908	+0.38424036	+0.12974726
<i>P</i>	3.71	<i>H</i>	15.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1992 03 02	809	0.3+	0.7+	1996 04 12	691	0.2+	0.0	1998 12 15	704	0.8-	0.2-
1994 10 26	400	0.3-	0.7+	1996 04 18	691	0.7+	0.2+	1998 12 15	704	0.3-	1.0+
1994 10 26	400	(2.2-	4.7+)	1996 04 18	691	0.7+	0.0	1998 12 15	704	1.0-	0.1+
1996 04 11	691	0.2+	0.3+	1996 04 23	691	0.7-	0.4-	1998 12 16	704	0.2+	0.2+
1996 04 11	691	0.0	0.2+	1996 04 23	691	0.3-	0.4-	1998 12 16	704	0.0	0.5-
1996 04 11	691	0.2+	0.3+	1996 04 23	691	0.7-	0.3-	1998 12 16	704	1.1+	0.8+
1996 04 12	691	0.4-	0.0	1998 12 15	704	0.4-	0.3-	1998 12 16	704	0.8+	0.4-
1996 04 12	691	0.1-	0.1-	1998 12 15	704	0.6+	1.4-				

1996 GM₅ = 1998 XU₇₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	326.55799		(2000.0)	P	Q
<i>n</i>	0.28160016	ω	11.96666	-0.81474719	-0.57831933
<i>a</i>	2.3052292	Ω	132.61987	+0.52719531	-0.76878543
<i>e</i>	0.1449368	<i>i</i>	3.24380	+0.24135476	-0.27297565
<i>P</i>	3.50	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1996 04 11	691	0.1-	0.0	1996 04 23	691	0.1+	0.1-	1998 12 15	704	0.0	0.4-
1996 04 11	691	0.1-	0.1-	1996 04 23	691	0.2-	0.2+	1998 12 16	704	0.4-	0.6-
1996 04 11	691	0.1+	0.0	1996 04 23	691	0.0	0.2+	1998 12 16	704	0.2+	1.0-
1996 04 22	691	0.2+	0.2+	1998 12 15	704	1.3-	0.1-	1998 12 16	704	0.7+	0.2+
1996 04 22	691	0.2+	0.1-	1998 12 15	704	0.3-	0.0	1998 12 16	704	0.7+	1.6+
1996 04 22	691	0.1-	0.2-	1998 12 15	704	0.3+	0.4+				

1996 GN₁₇ = 1998 XP₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	294.63785		(2000.0)	P	Q
<i>n</i>	0.25732632	ω	333.29940	-0.96363822	-0.26713998
<i>a</i>	2.4480103	Ω	191.21158	+0.25045265	-0.89496825
<i>e</i>	0.1514288	<i>i</i>	1.80732	+0.09313882	-0.35730667
<i>P</i>	3.83	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 03 22	809	0.7+	0.6-	1996 03 27	809	0.1+	0.3-	1996 04 23	566	0.8-	1.2-
1996 03 22	809	0.8+	0.5-	1996 03 27	809	0.4-	0.5+	1996 05 13	566	0.1+	0.4-
1996 03 22	809	0.4+	0.5-	1996 04 15	809	0.6-	0.8+	1996 05 13	566	0.9+	0.2-
1996 03 24	809	(2.8-	3.4-)	1996 04 15	809	0.9-	1.2+	1996 05 13	566	0.2+	0.1-
1996 03 24	809	(2.1-	3.6-)	1996 04 15	809	0.3-	1.5+	1998 12 14	120	0.6-	0.1+
1996 03 24	809	(1.3-	4.5-)	1996 04 17	809	(0.7+	2.3+)	1998 12 14	120	0.1+	0.0
1996 03 26	809	0.2+	0.3-	1996 04 17	809	0.5+	1.5+	1998 12 16	120	(0.3+	2.5-)
1996 03 26	809	0.3-	0.1-	1996 04 17	809	0.9+	1.0+	1998 12 16	120	1.8+	1.0-
1996 03 26	809	1.7-	0.0	1996 04 23	566	0.2+	1.3-	1998 12 16	120	0.6-	1.0+
1996 03 27	809	0.3+	0.0	1996 04 23	566	0.3-	1.2-	1998 12 18	120	0.7-	0.2-

1996 HV = 1998 XN₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	207.97482		(2000.0)	P	Q
<i>n</i>	0.21278848	ω	168.19759	-0.64782601	+0.74883449
<i>a</i>	2.7786721	Ω	61.25151	-0.71126682	-0.52881784
<i>e</i>	0.1634783	<i>i</i>	9.18099	-0.27280208	-0.39949794
<i>P</i>	4.63	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 04 21	557	0.1-	0.2+	1996 05 18	557	0.1-	1.0+	1996 05 23	809	0.0	0.0
1996 04 21	557	0.2+	0.2-	1996 05 18	557	0.6-	0.3+	1996 06 06	557	0.1+	0.7-
1996 04 21	557	0.0	0.0	1996 05 19	809	2.5+	0.5+	1996 06 06	557	0.5+	0.6-
1996 04 21	557	0.1+	0.4-	1996 05 19	809	1.8+	1.0+	1996 06 06	557	0.8+	0.3-
1996 04 21	557	0.2-	0.5-	1996 05 19	809	2.1+	0.4+	1996 06 07	557	0.5-	0.7-
1996 04 23	557	0.6-	0.2+	1996 05 22	809	2.2+	0.6+	1996 06 07	557	0.2+	0.7-
1996 04 23	557	0.7-	0.2+	1996 05 22	809	0.1-	0.5-	1998 12 11	691	0.9+	0.4-
1996 04 23	557	0.2+	0.6-	1996 05 22	809	0.1-	0.1+	1998 12 11	691	0.2+	0.2+
1996 04 27	557	0.0	1.0-	1996 05 22	557	0.1-	0.3+	1998 12 11	691	0.4+	0.2-
1996 04 27	557	0.0	0.7-	1996 05 22	557	0.1-	0.6+	1998 12 19	691	0.7-	0.5+
1996 05 16	557	1.7-	0.9+	1996 05 22	557	1.4-	0.2+	1998 12 19	691	0.5-	0.9+
1996 05 16	557	1.4-	0.0	1996 05 23	809	1.0-	0.3-	1998 12 19	691	0.7-	0.1-
1996 05 16	557	2.3-	0.3+	1996 05 23	809	0.6+	0.5+				

1996 HP₁₈ = 1992 RM₁ = 1998 VN₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	36.90998		(2000.0)	P	Q
<i>n</i>	0.17689875	ω	329.52012	+0.93202608	-0.22867327
<i>a</i>	3.1428203	Ω	46.58832	+0.35756710	+0.70645003
<i>e</i>	0.2225082	<i>i</i>	22.76822	-0.05893345	+0.66980362
<i>P</i>	5.57	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1992 09 02	413	0.4-	1.1+	1996 05 23	809	0.9+	1.6+	1998 11 11	704	1.0-	0.3-
1992 09 04	413	1.5-	1.0+	1998 08 28	704	1.2-	0.4-	1998 11 11	704	1.7-	0.6+
1996 04 18	809	2.7+	1.9+	1998 08 28	704	1.1-	0.7+	1998 11 18	704	0.5-	1.1+
1996 04 18	809	1.6+	0.8+	1998 08 28	704	0.1-	0.9+	1998 11 18	704	0.2+	0.9+

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1996 04 18	809	2.4+	0.8+	1998 08 28	704	(7.3−	1.2+)	1998 11 18	704	0.2−	2.2+
1996 04 20	809	0.6+	0.6−	1998 11 10	704	0.1−	0.6+	1998 11 18	704	0.2−	2.0+
1996 04 20	809	0.2+	0.5+	1998 11 10	704	0.1−	0.4−	1998 11 18	704	0.6+	2.3+
1996 04 20	809	0.2+	0.8−	1998 11 10	704	0.7−	0.8−	1998 11 21	704	0.4−	0.6+
1996 05 22	809	0.7+	2.7+	1998 11 10	704	0.3−	0.4−	1998 11 21	704	0.0	0.4+
1996 05 22	809	1.7+	1.7+	1998 11 10	704	1.6−	1.6−	1998 11 21	704	0.4+	1.0+
1996 05 22	809	0.5+	2.6+	1998 11 11	704	0.8−	0.8+	1998 11 21	704	0.5+	0.3+
1996 05 23	809	0.4+	2.2+	1998 11 11	704	1.3−	0.6+	1998 11 21	704	0.6+	0.1+
1996 05 23	809	0.1+	1.1+	1998 11 11	704	0.1−	0.4+				

1996 HS₂₂ = 1998 YK₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28489992	<i>ω</i>	85.71792	−0.91240298	−0.40858538		
<i>a</i>	2.2873950	<i>Ω</i>	70.16464	+0.36464435	−0.83816210		
<i>e</i>	0.1137131	<i>i</i>	1.46553	+0.18589056	−0.36130635		
<i>P</i>	3.46	<i>H</i>	17.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 04 20	809	(2.3−	0.5+)	1996 05 19	809	0.7−	0.7−	1998 12 17	910	0.1−	0.1−
1996 04 20	809	(3.4−	0.5+)	1996 05 19	809	1.1−	0.2−	1998 12 17	910	0.3+	0.1+
1996 04 20	809	(3.1−	0.8−)	1996 05 22	809	0.5+	0.2+	1998 12 18	910	0.4+	0.3−
1996 04 20	809	(2.5+	0.6+)	1996 05 22	809	1.3+	0.6−	1998 12 18	910	0.4+	0.1+
1996 04 20	809	1.7+	1.5+	1996 05 22	809	0.9−	0.6−	1998 12 21	910	0.8+	0.9+
1996 04 20	809	(2.6+	0.8+)	1996 05 23	809	0.6+	0.1−	1998 12 22	910	0.5−	0.1−
1996 04 21	809	(3.8+	0.1−)	1996 05 23	809	1.0−	1.1+	1998 12 22	910	0.5−	0.6−
1996 04 21	809	(2.8+	1.1−)	1996 05 23	809	0.9−	0.4−	1998 12 22	910	0.5−	0.6−
1996 04 21	809	0.1−	0.5+	1998 12 17	910	0.4+	0.5+	1998 12 22	910	0.2−	0.1−
1996 05 19	809	0.5+	0.6−	1998 12 17	910	0.0	0.0	1998 12 22	910	0.5−	0.2−

1996 HW₂₃ = 1998 XE₅₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27109143	<i>ω</i>	65.30442	−0.70059782	−0.70607687		
<i>a</i>	2.3644249	<i>Ω</i>	69.58657	+0.60849293	−0.66660537		
<i>e</i>	0.1584634	<i>i</i>	6.31239	+0.37269164	−0.23894085		
<i>P</i>	3.64	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 04 20	809	1.1+	0.6+	1996 05 22	809	0.3−	0.4+	1998 12 14	704	0.4−	0.5−
1996 04 20	809	0.6+	0.2−	1996 05 22	809	0.0	0.3−	1998 12 14	704	0.3+	0.4−
1996 04 20	809	0.8+	0.6−	1996 05 22	809	0.2−	0.3+	1998 12 17	704	0.3+	0.5−
1996 04 21	809	3.1−	1.0−	1996 05 23	809	1.5−	0.2−	1998 12 17	704	0.8−	0.4−
1996 04 21	809	0.1+	0.4+	1996 05 23	809	1.1−	0.3−	1998 12 17	704	0.3−	0.2−
1996 04 21	809	0.0	0.9+	1996 05 23	809	1.3−	0.3+	1998 12 17	704	0.0	0.9+
1996 05 19	809	1.7+	0.5+	1998 12 14	704	0.1−	0.3−	1998 12 17	704	0.9+	0.6+
1996 05 19	809	1.7+	0.6−	1998 12 14	704	0.6−	0.3+				
1996 05 19	809	1.5+	0.3−	1998 12 14	704	0.6+	0.5+				

1996 HC₂₅ = 1998 YO₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20626561	<i>ω</i>	92.49447	−0.41501410	+0.90958987		
<i>a</i>	2.8369488	<i>Ω</i>	152.95697	−0.85143032	−0.38044569		
<i>e</i>	0.0333801	<i>i</i>	2.55120	−0.32067072	−0.16705493		
<i>P</i>	4.78	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 04 20	809	1.8+	1.4+	1996 05 12	691	0.8−	0.7−	1996 05 24	809	1.0+	2.0+
1996 04 20	809	1.5+	1.5+	1996 05 12	691	0.6−	0.1−	1996 05 24	809	0.4−	1.4+
1996 04 20	809	1.5+	0.8+	1996 05 12	691	0.2−	1.1−	1998 12 25	691	0.1−	0.2−
1996 04 20	691	1.4−	0.5−	1996 05 18	691	0.5+	0.4−	1998 12 25	691	0.0	0.1−
1996 04 20	691	1.1−	0.0	1996 05 18	691	0.6+	0.7−	1998 12 25	691	1.2+	1.6+
1996 04 20	691	1.7−	0.7−	1996 05 22	809	0.5−	1.1−	1998 12 28	691	0.2−	0.4−
1996 04 21	809	1.5+	0.7−	1996 05 22	809	0.8−	1.3−	1998 12 28	691	0.6−	0.4−

1996 04 21	809	0.2−	0.5−	1996 05 22	809	0.2−	1.3−	1998 12 28	691	0.2−	0.5−
1996 04 21	809	1.3−	0.2−	1996 05 24	809	1.0+	2.5+				

1996 HU₂₅

Id. T. Kobayashi (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Nakano			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22576192	<i>ω</i>	228.96699	+0.99770555	+0.05485056		
<i>a</i>	2.6711745	<i>Ω</i>	127.85113	−0.03638094	+0.92872577		
<i>e</i>	0.1021763	<i>i</i>	2.88100	−0.05709704	+0.36668770		
<i>P</i>	4.37	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 04 20	809	0.9+	0.6−	1996 05 12	691	1.0−	0.2−	1996 05 24	809	0.1+	0.2+
1996 04 20	809	1.0+	0.6−	1996 05 12	691	1.2−	0.4−	1998 12 26	411	0.8−	0.2+
1996 04 20	809	0.0	0.2+	1996 05 22	809	0.2+	0.1−	1998 12 26	411	0.1−	0.2+
1996 04 21	809	0.5−	0.3−	1996 05 22	809	0.1−	0.4−	1998 12 27	411	0.5+	0.0
1996 04 21	809	0.6+	0.2−	1996 05 22	809	0.4+	0.3−	1998 12 27	411	0.4+	0.1−
1996 04 21	809	1.4−	0.4−	1996 05 24	809	1.7+	1.8+				
1996 05 12	691	1.0−	0.1−	1996 05 24	809	0.3+	1.4+				

1996 JE = 1998 XA₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22552758	<i>ω</i>	125.01074	−0.96685663	+0.09533483		
<i>a</i>	2.6730245	<i>Ω</i>	61.53439	−0.20560289	−0.84073701		
<i>e</i>	0.0631833	<i>i</i>	15.63012	+0.15137933	−0.53298457		
<i>P</i>	4.37	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 05 06	721	0.4+	0.7+	1996 05 17	721	0.5−	0.2+	1998 12 08	910	0.2−	0.4+
1996 05 06	721	0.8−	1.0−	1996 05 17	721	0.3−	0.1−	1998 12 15	910	0.2−	0.0
1996 05 11	721	1.0+	0.9+	1998 12 07	910	0.3+	0.3−	1998 12 15	910	0.0	0.0
1996 05 11	721	(2.3+	1.6+)	1998 12 07	910	0.6+	0.2−	1998 12 15	910	0.2−	0.2+
1996 05 12	721	1.3−	1.0−	1998 12 07	910	0.1+	0.2−	1998 12 16	910	0.2+	0.2−
1996 05 12	721	0.4+	0.4+	1998 12 08	910	0.4−	0.3+	1998 12 16	910	0.1−	0.0
1996 05 12	721	1.2+	0.0	1998 12 08	910	0.1−	0.4+	1998 12 16	910	0.0	0.4−

1996 JO = 1998 VS₂₃

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17867772	<i>ω</i>	57.25090	+0.04296180	+0.99633452		
<i>a</i>	3.1219249	<i>Ω</i>	215.43992	−0.95401250	+0.01892546		
<i>e</i>	0.0440701	<i>i</i>	7.32923	−0.29667228	+0.08342270		
<i>P</i>	5.52	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1996 05 12	367	0.0	0.1+	1996 05 15	900	0.5−	0.5+	1998 11 11	704	0.4+	0.3−
1996 05 12	367	0.1+	0.4+	1998 11 10	704	0.6−	0.1−	1998 11 11	704	0.1+	0.3+
1996 05 12	367	0.1+	0.4+	1998 11 10	704	0.5−	0.3−	1998 11 11	699	0.5−	0.0
1996 05 12	900	0.1+	1.4+	1998 11 10	704	0.4−	0.0	1998 11 11	704	1.8+	0.2−
1996 05 12	900	0.3+	1.0−	1998 11 10	704	0.6+	0.3+	1998 11 11	699	0.2−	0.1−
1996 05 13	900	0.0	0.5−	1998 11 10	704	0.2+	0.4−	1998 11 11	699	0.1−	0.5+
1996 05 13	900	0.2+	0.3−	1998 11 11	704	0.5−	0.2+				
1996 05 15	900	0.4−	0.9−	1998 11 11	704	0.4−	0.3+				

1996 JF₁ = 1998 XO₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	294.52453		(2000.0)	P	Q
<i>n</i>	0.24370921	ω	297.06685	-0.86528899	-0.50013870
<i>a</i>	2.5383690	Ω	212.95544	+0.47906326	-0.80528376
<i>e</i>	0.1499356	<i>i</i>	3.55263	+0.14755798	-0.31840124
<i>P</i>	4.04	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 03 24	809	1.3+	0.6+	1996 04 17	809	1.0+	0.9-	1998 12 14	120	0.3+	0.1-
1996 03 24	809	0.5+	0.5+	1996 05 13	566	1.2-	0.4+	1998 12 14	120	0.2-	0.6-
1996 03 24	809	0.3+	0.2+	1996 05 13	566	0.0	0.3+	1998 12 15	120	0.4-	0.6-
1996 03 27	809	0.6-	0.1+	1996 05 13	566	0.2-	0.6+	1998 12 15	120	0.8+	0.3-
1996 03 27	809	1.6-	0.2+	1996 05 16	566	(1.3-	5.3+)	1998 12 17	120	1.1+	1.0+
1996 03 27	809	1.3-	0.5-	1996 05 16	566	(1.5-	5.1+)	1998 12 17	120	0.2-	1.0+
1996 04 17	809	0.6+	0.8-	1996 05 16	566	(1.6-	5.1+)	1998 12 22	120	0.6-	1.7+
1996 04 17	809	1.1+	0.7-	1998 12 14	120	0.8-	2.1-				

1996 JC₆ = 1998 XK₇₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	285.69187		(2000.0)	P	Q
<i>n</i>	0.25606026	ω	31.29625	-0.99958363	+0.01101054
<i>a</i>	2.4560730	Ω	149.30048	-0.01979040	-0.93426833
<i>e</i>	0.1301425	<i>i</i>	2.99454	+0.02099768	-0.35640069
<i>P</i>	3.85	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1996 05 11	691	0.3-	0.1+	1996 05 20	566	0.8+	0.1-	1998 12 15	704	0.5+	0.8+
1996 05 11	691	0.5-	0.0	1996 05 20	566	1.0+	0.2-	1998 12 15	704	0.8+	0.5-
1996 05 11	691	0.4-	0.1+	1996 05 22	691	1.0-	0.2-	1998 12 15	704	1.4-	0.7-
1996 05 15	691	0.4+	0.1+	1996 05 22	691	0.6-	0.3-	1998 12 16	704	0.1-	0.1-
1996 05 15	691	0.5+	0.1+	1996 05 22	691	1.0-	0.2+	1998 12 16	704	0.8+	1.0-
1996 05 15	691	0.2+	0.2+	1998 12 15	704	0.8+	0.4-	1998 12 16	704	0.2-	0.2+
1996 05 20	566	0.9+	0.1-	1998 12 15	704	0.7-	0.3+	1998 12 16	704	0.5-	1.2+

1996 LS₂ = 1998 XJ₇₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	126.89069		(2000.0)	P	Q
<i>n</i>	0.18299263	ω	203.56717	+0.60364881	+0.77974733
<i>a</i>	3.0726539	Ω	103.97733	-0.70153252	+0.61851624
<i>e</i>	0.1943795	<i>i</i>	9.85809	-0.37876145	+0.09711730
<i>P</i>	5.39	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1996 06 11	691	0.3+	0.0	1996 06 23	691	0.4+	0.4-	1998 12 15	704	1.2-	0.5+
1996 06 11	691	0.1-	0.4-	1996 06 23	691	0.3+	0.1+	1998 12 16	704	0.5+	0.2+
1996 06 11	691	0.4-	0.1-	1996 06 23	691	0.3+	0.4+	1998 12 16	704	1.3+	1.8+
1996 06 17	691	0.3-	0.1+	1998 12 15	704	0.6-	0.6+	1998 12 16	704	1.0-	0.8+
1996 06 17	691	0.3-	0.0	1998 12 15	704	0.2+	0.5-	1998 12 16	704	0.3-	0.5-
1996 06 17	691	0.2-	0.4+	1998 12 15	704	1.0+	2.9-				

1996 PT₁ = 1998 XJ₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	178.59325		(2000.0)	P	Q
<i>n</i>	0.17509192	ω	172.41035	+0.46116815	+0.88326910
<i>a</i>	3.1644044	Ω	125.01479	-0.81942512	+0.46052596
<i>e</i>	0.1528007	<i>i</i>	5.93004	-0.34039155	+0.08804283
<i>P</i>	5.63	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 08 09	566	0.3+	0.3+	1996 08 17	566	0.5-	0.1-	1998 12 10	691	0.4-	0.1-
1996 08 09	566	0.2+	0.6+	1996 08 17	566	0.2-	0.0	1998 12 14	691	0.1-	0.1-
1996 08 09	566	0.6+	0.1+	1996 09 13	566	0.1-	0.1-	1998 12 14	691	0.3-	0.4+
1996 08 14	566	0.1+	0.0	1996 09 13	566	0.5+	0.3-	1998 12 14	691	0.3-	0.2+

1996 08 14	566	0.1-	0.3-	1996 09 13	566	0.2-	0.2+	1998 12 23	691	0.3+	0.3+
1996 08 14	566	0.4-	0.0	1998 12 10	691	1.0-	0.6-	1998 12 23	691	0.8+	0.2+
1996 08 17	566	0.2-	0.2-	1998 12 10	691	0.1-	0.0	1998 12 23	691	1.0+	0.2-

1996 TA₈ = 1998 FV₄₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	226.17340		(2000.0)	P	Q
<i>n</i>	0.28696801	ω	163.11522	+0.81531127	-0.57901468
<i>a</i>	2.2763921	Ω	232.26645	+0.53079102	+0.74951712
<i>e</i>	0.1335514	<i>i</i>	0.22371	+0.23136210	+0.32088330
<i>P</i>	3.43	<i>H</i>	17.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 10 12	817	0.3-	0.1+	1996 11 05	817	0.2-	1.1-	1998 03 22	704	1.1+	1.0-
1996 10 12	817	0.1-	0.5-	1996 11 05	817	0.9+	0.5-	1998 03 22	704	1.8+	0.4+
1996 10 13	817	0.6+	0.0	1998 03 20	704	0.9-	0.8-	1998 04 01	704	0.4+	0.2-
1996 10 13	817	0.3+	0.4+	1998 03 20	704	1.1-	0.6+	1998 04 01	704	0.3-	1.7+
1996 10 18	817	0.1+	0.6+	1998 03 20	704	0.8-	0.7-	1998 04 01	704	0.5+	0.6+
1996 10 18	817	0.3-	0.2+	1998 03 20	704	(0.4-	3.6+)	1998 04 01	704	(4.5-	1.5-)
1996 10 18	817	0.6-	0.8+	1998 03 22	704	0.4-	0.5+				
1996 10 18	817	0.6-	0.7+	1998 03 22	704	(0.5+	2.5-)				

1996 TN₄₁ = 1980 ER₁ = 1998 AK₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	169.18924		(2000.0)	P	Q
<i>n</i>	0.20688012	ω	283.66954	+0.98359571	-0.17185123
<i>a</i>	2.8313282	Ω	86.24665	+0.17932448	+0.89858852
<i>e</i>	0.0837354	<i>i</i>	3.15003	+0.01955024	+0.40373980
<i>P</i>	4.76	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1980 03 15	095	0.1-	0.1+	1996 10 10	809	1.0+	0.1-	1998 01 07	327	0.8-	0.0
1996 10 07	809	0.3-	0.2-	1996 10 10	809	0.2-	0.3-	1998 01 07	327	0.5-	0.2+
1996 10 07	809	0.3+	0.2-	1996 10 10	809	0.5+	0.8-	1998 01 07	327	0.0	0.2-
1996 10 07	809	0.1+	1.2+	1998 01 06	327	0.3+	0.3+	1998 01 07	327	0.7+	0.2-
1996 10 08	809	(2.0-	0.3+)	1998 01 06	327	0.4-	0.0	1998 01 07	327	0.3+	0.5-
1996 10 08	809	1.3-	0.1+	1998 01 06	327	0.1-	0.7+	1998 01 07	327	0.4+	0.7-
1996 10 08	809	0.0	0.3+	1998 01 06	327	0.2+	0.3+				

1996 XV = 3315 T-1 = 1998 FD₂₃

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	81.65135		(2000.0)	P	Q
<i>n</i>	0.18094755	ω	87.35671	-0.72560676	-0.68785532
<i>a</i>	3.0957621	Ω	49.18187	+0.62110053	-0.66640494
<i>e</i>	0.0955771	<i>i</i>	1.41629	+0.29619073	-0.28767952
<i>P</i>	5.45	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1971 03 25	675	1.6-	0.2-	1996 12 06	369	0.2+	0.5-	1998 03 20	704	0.1-	1.4+
1971 03 26	675	0.1-	1.4-	1996 12 06	369	0.3+	0.1+	1998 03 20	704	0.6-	1.6+
1971 03 26	675	1.0+	1.4-	1996 12 08	369	0.5-	0.1+	1998 03 22	704	(2.3+	0.5+)
1971 03 27	675	0.9-	0.5-	1996 12 08	369	0.2+	0.5-	1998 03 22	704	1.1+	0.3-
1971 04 02	675(66.3-	54.2+)		1996 12 14	369	0.6+	0.5-	1998 03 22	704	0.1-	0.1+
1996 12 01	369	0.5+	0.2-	1996 12 14	369	0.8+	0.1-	1998 03 22	704	0.7-	0.3+
1996 12 01	369	0.6-	0.1-	1998 03 20	704	1.4+	0.9+	1998 03 22	704	(5.0-	0.7-)
1996 12 02	369	0.1-	0.7+	1998 03 20	704	0.3-	0.1-				
1996 12 02	369	1.0-	0.2-	1998 03 20	704	0.6+	0.9-				

1997 AP₁₅ = 1979 FA₁ = 1990 EB₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	105.12428		(2000.0)	P		Q					
<i>n</i>	0.26783224	ω	271.25762	-0.64038458	+0.76349076						
<i>a</i>	2.3835676	Ω	318.52561	-0.64489713	-0.59362373						
<i>e</i>	0.1741715	<i>i</i>	7.25202	-0.41715140	-0.25434764						
<i>P</i>	3.68	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1979 03 29	808	0.4-	0.0	1990 03 04	809	0.2+	0.4+	1997 01 14	566	0.5+	0.0
1979 03 29	808	0.4+	0.1-	1990 03 04	809	0.2+	1.0+	1997 01 14	566	0.2-	0.0
1990 03 02	809	0.3+	0.5-	1997 01 12	566	0.0	0.0	1997 01 15	566	0.1+	0.2+
1990 03 02	809	0.1+	0.5-	1997 01 12	566	0.2-	0.2-	1997 01 15	566	0.2+	0.0
1990 03 02	809	0.5-	0.9-	1997 01 12	566	0.3+	0.1+	1997 01 15	566	0.5-	0.3-
1990 03 04	809	0.1-	0.5+	1997 01 14	566	0.2-	0.2+				

1997 AU₁₇ = 1995 QA₂ = 1998 HG₁₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	344.74624		(2000.0)	P		Q					
<i>n</i>	0.27332006	ω	211.24951	+0.77514404	+0.62642557						
<i>a</i>	2.3515545	Ω	109.73772	−0.56015972	+0.74154607						
<i>e</i>	0.1403533	<i>i</i>	5.00482	−0.29218625	+0.24020915						
<i>P</i>	3.61	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1995 08 20	905	0.6−	0.0	1997 01 14	658	0.1−	0.0	1998 04 23	704	0.6−	0.1+
1995 08 20	905	0.4+	0.5+	1997 01 14	658	0.0	0.9+	1998 04 23	704	1.3+	0.7−
1995 08 24	905	0.2+	0.2−	1997 01 14	658	0.3+	0.2−	1998 04 23	704	(1.3−	2.2−)
1995 08 24	905	0.0	0.2−	1997 01 15	658	0.1+	0.0	1998 04 24	704	0.8+	0.6+
1997 01 13	566	0.0	0.1+	1997 01 15	658	0.3−	0.4−	1998 04 24	704	0.9−	0.0
1997 01 13	566	0.0	0.1−	1997 01 15	658	0.1−	0.3−	1998 04 24	704	0.2+	0.7−
1997 01 13	566	0.1+	0.1−	1998 04 23	704	0.7−	0.8+	1998 04 24	704	(2.1−	1.4−)

1997 BR_s = 1998 GO₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	335.51417		(2000.0)	P			Q				
<i>n</i>	0.23700861	ω	177.86046	+0.52327748		+0.82417421					
<i>a</i>	2.5859887	Ω	123.61998	-0.78565570		+0.56503725					
<i>e</i>	0.1485885	<i>i</i>	15.07685	-0.33003908		-0.03833768					
<i>P</i>	4.16	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	6				
Residuals in seconds of arc											
1997 01 30	106	0.5-	0.9+	1998 04 02	704	0.1+	0.5-	1998 04 03	704	0.6+	0.3+
1997 01 30	106	0.3+	0.3-	1998 04 02	704	0.4+	0.5+	1998 04 03	704	1.1-	0.8+
1997 02 01	106	0.2+	0.8-	1998 04 02	704	0.8-	0.6-	1998 04 03	704	0.1+	0.7+
1997 02 10	106	0.0	0.2+	1998 04 03	704	0.1-	0.6-	1998 04 03	704	0.9+	0.6-

1997 GA = 1998 RN₃₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	88.71281		(2000.0)	P		Q					
<i>n</i>	0.27166349	ω	46.65951	+0.33813977	+0.93817128						
<i>a</i>	2.3611044	Ω	243.24064	−0.88567916	+0.29060609						
<i>e</i>	0.0705729	<i>i</i>	4.76263	−0.31817277	+0.18810303						
<i>P</i>	3.63	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1997 04 01	118	0.7+	0.4−	1997 04 03	118	0.4+	0.7+	1998 09 14	704	0.6+	0.7−
1997 04 01	118	0.8−	0.2+	1998 08 17	704	1.0+	0.2+	1998 09 14	704	0.6+	0.5−
1997 04 01	118	0.9−	0.1+	1998 08 17	704	0.9+	1.7−	1998 09 14	704	0.6+	0.3−
1997 04 02	118	0.1+	0.6−	1998 08 17	704	0.9−	1.0+	1998 09 18	704	1.6−	0.6+
1997 04 02	118	0.4+	0.1−	1998 08 17	704	0.7−	0.9−	1998 09 18	704	0.7−	1.8+
1997 04 02	118	0.3−	0.3−	1998 08 17	704	0.5−	1.7+	1998 09 18	704	0.7+	0.7−
1997 04 03	118	0.5+	0.5+	1998 09 14	704	0.6+	1.0−	1998 09 18	704	0.6−	0.8+

1997 GP₁₀ = 1998 ST₁₂₉

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	94.09561		(2000.0)	P		Q					
<i>n</i>	0.27855590	ω	114.50060	+0.49185122	+0.87063087						
<i>a</i>	2.3219943	Ω	184.99081	-0.83215322	+0.46696007						
<i>e</i>	0.1427455	<i>i</i>	6.05692	-0.25613162	+0.15475845						
<i>P</i>	3.54	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1997 04 03	704	0.4+	0.5-	1997 04 06	704	0.8+	0.2+	1998 09 26	704	0.1+	0.6-
1997 04 03	704	0.3-	0.2-	1997 04 07	704	0.1+	0.8+	1998 09 27	704	0.1+	0.2+
1997 04 05	704	0.9-	0.5-	1997 04 07	704	0.2+	0.7+	1998 09 27	704	1.1+	0.9+
1997 04 05	704	0.2+	0.9-	1998 09 26	704	0.2-	1.0+	1998 09 27	704	0.6-	0.6+
1997 04 06	704	0.3-	0.1-	1998 09 26	704	0.8-	0.7-	1998 10 11	699	0.1-	0.3+
1997 04 06	704	0.4-	0.3+	1998 09 26	704	0.2+	0.4-	1998 10 11	699	0.9+	0.2+
1997 04 06	704	0.4+	0.8+	1998 09 26	704	1.0-	1.0-	1998 10 11	699	0.2+	0.2-

1997 GR₂₅ = 1998 UE₄₁

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	106.76203		(2000.0)			P		Q			
n	0.26118180	ω	216.89462			+0.28991885		+0.95519398			
a	2.4238595	Ω	70.02647			-0.86224026		+0.28771294			
e	0.1764330	i	3.63549			-0.41531770		+0.06946745			
P	3.77	H	14.9			G	0.15	U	5		
Residuals in seconds of arc											
1997 04 04	400	0.5+	0.1+	1997 04 10	400	0.5-	0.3+	1998 10 28	704	0.2-	1.9+
1997 04 04	400	(0.8-	5.3-)	1997 04 15	400	0.1-	0.4-	1998 10 29	704	0.6-	0.5+
1997 04 09	400	0.4+	1.0+	1997 04 15	400	0.6+	0.0	1998 10 29	704	1.0-	1.1-
1997 04 09	400	0.7-	1.5-	1998 10 28	704	1.0+	0.2-	1998 10 29	704	1.1+	0.9-
1997 04 09	400	0.4-	0.3+	1998 10 28	704	0.5+	0.1+				
1997 04 10	400	0.0	0.1+	1998 10 28	704	0.8-	0.3-				

1997 HQ = 1998 QR₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	302.83610		(2000.0)			P		Q			
n	0.25456673	ω	217.10571			+0.37662735		-0.92484622			
a	2.4656700	Ω	210.87182			+0.87279355		+0.37344728			
e	0.0943492	i	5.93109			+0.31045655		+0.07208741			
P	3.87	H	13.5		G	0.15		U	5		
Residuals in seconds of arc											
1997 04 28	691	0.1+	0.2-	1997 05 08	691	0.2-	0.0	1998 08 17	704	0.2-	0.3-
1997 04 28	691	0.1-	0.2-	1997 05 08	691	0.3-	0.0	1998 08 23	704	0.4+	0.7+
1997 04 28	691	0.2+	0.3-	1997 05 08	691	0.4-	0.1-	1998 08 23	704	1.0-	0.9+
1997 04 29	691	0.1+	0.8+	1998 08 17	704	0.2+	0.3-	1998 08 23	704	1.0+	0.1+
1997 04 29	691	0.3+	0.0	1998 08 17	704	0.5-	0.1+	1998 08 23	704	0.4+	0.7-
1997 04 29	691	0.3+	0.0	1998 08 17	704	0.2-	0.6-				

1997 HX₉ = 1998 XR₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	77.02146		(2000.0)	P			Q				
n	0.27262721	ω	280.67045	+0.86405671			+0.48982610				
a	2.3555369	Ω	50.10783	-0.38210463			+0.78832243				
e	0.1378983	i	8.70246	-0.32772253			+0.37231458				
P	3.62	H	15.9	G	0.15		U	4			
Residuals in seconds of arc											
1997 04 06	704	1.2-	0.1-	1997 05 01	704	0.6+	0.1+	1997 05 08	327	0.8-	0.2-
1997 04 06	704	0.1-	0.5-	1997 05 01	704	0.3+	0.2+	1997 05 08	327	1.3-	0.2+
1997 04 30	704	0.7+	0.5+	1997 05 01	704	0.5-	0.8+	1998 12 09	691	0.8-	0.2-
1997 04 30	704	0.9+	0.2+	1997 05 05	704	0.2+	0.3+	1998 12 09	691	0.3-	0.3+

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1997 04 30	704	0.7+	0.1+	1997 05 05	704	0.6+	0.2-	1998 12 09	691	0.6-	0.3+
1997 04 30	704	0.3-	0.4+	1997 05 05	704	0.0	0.2-	1998 12 13	691	0.7+	0.4-
1997 04 30	704	1.2+	0.8-	1997 05 05	704	1.0-	0.3+	1998 12 13	691	0.2+	0.1+
1997 05 01	704	0.9+	0.0	1997 05 05	704	0.7-	0.0	1998 12 13	691	0.8+	0.0
1997 05 01	704	0.6+	0.9+	1997 05 08	327	0.8-	1.9-				

1997 JY₄ = 1998 VO₁₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24555987	ω	264.70696	+0.70759320	+0.68771678		
<i>a</i>	2.5255993	Ω	51.71970	-0.53825116	+0.67343187		
<i>e</i>	0.1466729	<i>i</i>	11.93594	-0.45781825	+0.27117364		
<i>P</i>	4.01	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5		

Residuals in seconds of arc

1997 05 01	358	0.8+	0.1-	1997 05 09	358	0.7-	0.9-	1998 11 10	704	1.0+	0.1+
1997 05 01	358	0.8-	1.0+	1997 05 11	358	0.3-	0.9+	1998 11 11	704	0.2+	0.0
1997 05 05	358	0.8+	0.1-	1997 05 11	358	1.7+	0.3+	1998 11 11	704	0.6-	0.4+
1997 05 05	358	0.2-	0.6-	1998 11 10	704	0.1-	0.7+	1998 11 11	704	0.6-	0.3-
1997 05 05	358	0.5-	0.5-	1998 11 10	704	0.2+	0.0	1998 11 11	704	0.3-	0.1-
1997 05 09	358	0.4+	0.0	1998 11 10	704	0.1+	0.8+	1998 11 11	704	1.0-	0.9-
1997 05 09	358	1.3-	0.1+	1998 11 10	704	1.1+	0.6-				

1997 JB₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29893117	ω	96.26248	+0.69476109	+0.71726512		
<i>a</i>	2.2152458	Ω	217.92912	-0.68940692	+0.64300340		
<i>e</i>	0.2201863	<i>i</i>	4.97168	-0.20500031	+0.26847231		
<i>P</i>	3.30	<i>H</i>	16.1	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1997 05 03	809	(0.1- 4.4-)	1997 05 11	684	0.3- 0.5+	1997 06 07	684	0.1- 0.2-
1997 05 03	809	(1.0- 3.3-)	1997 05 11	684	0.2+ 0.1+	1997 06 08	809	1.4+ 0.4+
1997 05 03	809	(0.1- 3.9-)	1997 05 29	684	0.1+ 0.1+	1997 06 08	809	(2.1+ 0.3+)
1997 05 04	809	0.6+ 1.8-	1997 05 29	684	0.2+ 0.2+	1997 06 08	809	2.0+ 0.2+
1997 05 04	809	0.6- 1.1-	1997 05 29	684	0.6- 0.4+	1997 07 05	684	0.7- 0.3-
1997 05 04	809	(0.0 2.5-)	1997 06 03	566	0.2- 0.5+	1997 07 05	684	0.5- 0.9-
1997 05 08	684	0.5- 0.3+	1997 06 03	566	0.7- 0.6+	1998 12 13	684	0.1+ 0.0
1997 05 08	684	0.6- 0.3+	1997 06 03	566	0.8- 0.5+	1998 12 13	684	0.4+ 0.7-
1997 05 10	684	0.4- 0.2+	1997 06 07	809	0.9+ 0.8-	1998 12 13	684	0.8- 0.3+
1997 05 10	684	0.5- 0.3+	1997 06 07	809	0.9+ 0.1-	1998 12 14	684	0.2+ 0.4+
1997 05 10	684	0.3- 0.2+	1997 06 07	809	0.7+ 0.4-	1998 12 14	684	0.2+ 0.0
1997 05 11	684	0.4- 0.6+	1997 06 07	684	0.0 0.2-			

1997 JA₁₃ = 1998 VB₂₄

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26253262	ω	167.05157	+0.85231674	+0.52275745		
<i>a</i>	2.4155379	Ω	161.40217	-0.48442878	+0.80109379		
<i>e</i>	0.1513633	<i>i</i>	3.01200	-0.19719263	+0.29150194		
<i>P</i>	3.75	<i>H</i>	16.3	<i>G</i> 0.15	<i>U</i> 6		

Residuals in seconds of arc

1997 05 03	809	0.3-	0.5-	1997 05 07	704	0.4-	0.1-	1998 11 10	704	0.7-	0.2+
1997 05 03	809	(5.0- 0.1-)	1997 05 07	704	0.2+	0.3-		1998 11 11	704	0.4+	0.1-
1997 05 03	809	(4.0- 2.0+)	1997 05 07	704	1.1-	0.1+		1998 11 11	704	0.7+	1.6+
1997 05 04	809	0.8+	0.3-	1997 05 07	704	0.3+	0.1-	1998 11 11	704	0.6+	1.0-
1997 05 04	809	0.4+	0.8-	1998 11 10	704	0.4+	0.1+	1998 11 11	704	0.7+	0.0
1997 05 04	809	0.1-	1.7+	1998 11 10	704	0.7-	0.2-	1998 11 11	704	0.0	0.3-
1997 05 07	704	0.3+	0.2+	1998 11 10	704	1.5-	0.3-				

1999 JAN. 6

1997 KA = 1998 XP₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22809764	ω	62.85742	+0.71222576	+0.66817499		
<i>a</i>	2.6529080	Ω	254.35539	-0.69673641	+0.63563653		
<i>e</i>	0.1509398	<i>i</i>	12.90859	-0.08539816	+0.38666314		
<i>P</i>	4.32	<i>H</i>	12.7	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1997 05 20	327	0.2+	0.4+	1997 05 31	327	0.1+	0.8+	1998 12 14	704	0.8-	0.1-
1997 05 20	327	0.9+	0.5-	1997 05 31	327	0.2+	0.0	1998 12 14	704	1.7-	0.7-
1997 05 20	327	0.2+	0.8-	1997 06 01	327	0.4-	0.1-	1998 12 14	704	0.0	0.2-
1997 05 22	327	0.1+	0.0	1997 06 01	327	0.1-	0.4+	1998 12 17	704	0.3+	0.5+
1997 05 22	327	0.1+	0.2-	1997 06 01	327	0.7-	0.2-	1998 12 17	704	0.1+	0.5+
1997 05 22	327	0.0	0.0	1997 06 01	327	0.1-	0.2+	1998 12 17	704	1.8+	1.9+
1997 05 22	327	0.2+	0.2-	1998 12 14	704	0.9-	0.2-	1998 12 17	704	1.0+	0.4-
1997 05 31	327	0.3-	0.2+	1998 12 14	704	1.2-	1.0-	1998 12 17	704	1.5+	0.3-

1997 KC

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25829848	ω	140.51838	-0.50217248	+0.82868162		
<i>a</i>	2.4418640	Ω	98.00793	-0.84306718	-0.40550445		
<i>e</i>	0.2011173	<i>i</i>	14.45608	-0.19251112	-0.38581461		
<i>P</i>	3.82	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1997 05 24	127	0.8+	0.7-	1997 06 01	127	0.5-	1.2+	1997 06 10	621	0.1+	0.1-
1997 05 24	127	0.2-	0.5-	1997 06 01	127	1.0+	0.8+	1997 06 10	621	0.1+	0.3-
1997 05 24	127	0.6+	0.2+	1997 06 01	127	1.1-	0.8+	1997 06 10	621	0.1-	0.4-
1997 05 28	127	(2.4+ 0.7+)	1997 06 01	127	0.4+	1.2+		1997 06 27	621	1.1+	0.2+
1997 05 28	127	1.8+	1.1+	1997 06 01	127	0.3+	0.2-	1997 06 27	621	0.9+	0.5+
1997 05 29	127	0.8-	1.0-	1997 06 01	127	0.0	1.1+	1997 06 27	621	1.2+	0.4+
1997 05 29	127	(2.4- 1.4-)	1997 06 01	127	0.5-	0.4+		1997 06 27	621	1.4+	0.5+
1997 05 29	127	0.9-	1.2-	1997 06 03	127	0.2+	0.6+	1997 06 27	621	1.1+	0.3+
1997 05 29	127	0.9-	0.7-	1997 06 03	127	1.6-	0.5-	1997 06 28	621	0.4-	0.3-
1997 05 29	127	0.1+	1.5-	1997 06 03	127	(2.6- 1.6-)		1997 06 28	621	0.4-	0.3-
1997 05 29	127	0.7-	1.1-	1997 06 03	127	0.4+	0.4-	1997 06 28	621	0.2-	0.3-
1997 05 29	127	(3.9- 0.0)	1997 06 03	127	0.4+	0.6-		1997 07 29	621	0.6-	0.3+
1997 05 31	127	(2.3+ 0.1-)	1997 06 03	127	0.1+	0.4+		1997 07 29	621	0.9-	0.1-
1997 05 31	127	0.4+	0.7+	1997 06 03	127	(2.0+ 2.2+)		1997 07 29	621	1.2-	0.2-
1997 05 31	127	0.2-	0.2+	1997 06 05	127	0.6-	1.9-	1997 08 04	621	0.5-	0.1-
1997 05 31	127	0.5-	1.0+	1997 06 05	127	0.3+	1.3-	1997 08 04	621	0.3+	0.0
1997 05 31	127	0.9+	0.9+	1997 06 05	127	0.3-	0.5+	1997 08 04	621	0.5+	0.5-
1997 05 31	127	0.2-	0.8+	1997 06 05	127	0.3-	0.5-	1998 12 16	621	0.3+	0.6+
1997 05 31	127	0.6-	1.2+	1997 06 09	621	0.0	0.5-	1998 12 16	621	1.1-	0.2-
1997 05 31	127	0.2+	0.8+	1997 06 09	621	0.0	0.3-	1998 12 17	621	0.3+	0.3+
1997 05 31	127	0.8-	0.0	1997 06 09	621	0.1-	0.3-	1998 12 17	621	0.3+	0.1-
1997 05 31	127	0.6+	0.2+	1997 06 10	621	0.0	0.3-				

1997 KJ₂

Id. E. Bowell (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27352291	ω	263.83260	+0.99105079	+0.08783263		
<i>a</i>	2.3503917	Ω	91.09716	-0.04141323	+0.91817886		
<i>e</i>	0.1678293	<i>i</i>	5.77003	-0.12689871	+0.38630688		
<i>P</i>	3.60	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1997 05 29	691	0.9-	0.7+	1997 06 08	809	(2.3+	1.4-)	1998 12 08	699	0.7+	0.5+
1997 05 29	691	0.8-	0.6+	1997 06 08	809	1.6+	0.3-	1998 12 08	699	0.3+	0.1+
1997 05 29	691	1.0-	0.9+	1997 06 08	809	1.0+	1.4-	1998 12 16	704	0.4-	0.4-
1997 06 05	691	0.7+	0.1-	1998 11 24	704	0.5+	0.3+	1998 12 16	704	1.1+	0.8+
1997 06 05	691	0.6-	0.7+	1998 11 24	704	0.2+	0.1-	1998 12 16	704	0.6-	0.0

1999 JAN. 6

1997 06 05	691	0.7−	0.7+	1998 11 24	704	0.3−	1.1−	1998 12 16	704	0.5−	0.8−
1997 06 07	809	(1.0+	2.7−)	1998 11 24	704	0.8−	0.4−	1998 12 16	704	0.0	1.6−
1997 06 07	809	0.3+	1.3−	1998 11 24	704	0.5+	0.1+				
1997 06 07	809	0.0	1.4−	1998 12 08	699	0.5−	1.8+				

1997 MA₃ = 1998 YH₇

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	111.84814	(2000.0)		P	Q		
<i>n</i>	0.28882977	ω	282.07956	+0.98488211	+0.15135158		
<i>a</i>	2.2665993	Ω	69.26132	−0.10179416	+0.89924757		
<i>e</i>	0.1747553	<i>i</i>	5.16930	−0.14016126	+0.41042234		
<i>P</i>	3.41	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 06 28	704	0.2−	0.4−	1997 07 02	704	0.1−	0.3−	1998 12 21	704	0.4+	0.2−
1997 06 28	704	0.1−	0.2−	1997 07 02	704	0.7+	1.1+	1998 12 21	704	0.5−	0.5−
1997 06 28	704	0.5−	0.6−	1997 07 02	704	0.2−	0.3+	1998 12 21	704	(0.4+	2.5−)
1997 06 29	704	1.2+	0.4−	1998 12 16	699	0.5−	0.4+	1998 12 21	704	0.9−	1.4+
1997 06 29	704	0.2−	0.0	1998 12 16	699	0.2+	0.2−	1998 12 22	411	0.2−	1.1+
1997 06 29	704	0.3−	0.3+	1998 12 16	699	0.5+	0.1−	1998 12 22	411	0.1−	1.0+
1997 06 29	704	0.2−	0.5+	1998 12 18	699	0.2+	0.3−	1998 12 24	411	0.2+	0.1−
1997 06 29	704	0.0	0.4+	1998 12 18	699	0.7+	0.1−	1998 12 24	411	0.4+	0.3+
1997 07 02	704	0.1+	0.4−	1998 12 18	699	0.1−	1.4−				
1997 07 02	704	0.2−	0.3−	1998 12 21	704	0.5−	1.3−				

1997 MS₃ = 1979 QP₁ = 1998 UG₃₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	77.56001	(2000.0)		P	Q		
<i>n</i>	0.21501060	ω	197.75540	+0.90584002	+0.41870988		
<i>a</i>	2.7594941	Ω	137.30763	−0.37625164	+0.86498223		
<i>e</i>	0.1082269	<i>i</i>	5.44241	−0.19464983	+0.27656425		
<i>P</i>	4.58	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1979 08 22	809	0.2+	0.0	1997 06 29	704	1.1+	1.0+	1997 07 02	704	0.1−	0.5−
1979 08 22	809	(2.5+	0.8+)	1997 06 29	704	0.0	0.8−	1998 10 18	809	0.3−	0.5+
1979 08 22	809	0.1+	0.3−	1997 06 29	704	0.4−	0.1+	1998 10 18	809	0.0	0.4+
1979 08 23	809	0.2−	0.1+	1997 06 29	704	0.1+	0.1+	1998 10 18	809	0.0	0.7+
1979 08 23	809	0.1−	0.2+	1997 06 29	704	0.1−	0.2−	1998 10 18	809	0.4+	1.5−
1997 06 28	704	0.6+	0.5−	1997 07 02	704	0.1+	0.7−	1998 10 19	809	(0.3−	3.0−)
1997 06 28	704	0.2−	1.3+	1997 07 02	704	0.5+	0.6+	1998 10 19	809	(0.5+	2.5−)
1997 06 28	704	1.3−	0.4−	1997 07 02	704	0.4−	0.1−				

1997 MT₃ = 1998 XQ₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	119.86279	(2000.0)		P	Q		
<i>n</i>	0.25542702	ω	183.06205	+0.65826984	+0.75132201		
<i>a</i>	2.4601306	Ω	128.11168	−0.68939233	+0.62667307		
<i>e</i>	0.0961924	<i>i</i>	3.41454	−0.30235583	+0.20687218		
<i>P</i>	3.86	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 06 28	704	0.2+	0.4−	1997 06 29	704	0.2+	0.4+	1998 12 15	910	0.1+	0.1+
1997 06 28	704	0.2+	0.4+	1997 07 02	704	0.0	0.4+	1998 12 16	910	0.0	0.4+
1997 06 28	704	0.6−	0.2+	1997 07 02	704	0.1+	0.0	1998 12 16	910	0.0	0.4−
1997 06 29	704	0.2+	0.7−	1997 07 02	704	0.6−	0.4−	1998 12 16	910	0.2−	0.3−
1997 06 29	704	0.5+	0.2−	1997 07 02	704	0.1+	0.5−	1998 12 16	910	0.0	0.2−
1997 06 29	704	0.6−	0.2+	1997 07 02	704	0.1+	0.2+	1998 12 26	120	0.3+	0.6−
1997 06 29	704	0.1+	0.4+	1998 12 15	910	0.0	0.2+	1998 12 26	120	0.3−	0.7+

1997 MY₄ = 1998 VA₃₈

Id. A. Doppler

M.P.C. 33499

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Doppler			
<i>M</i>	180.70453	(2000.0)		P	Q		
<i>n</i>	0.26337891	ω	85.12359	−0.52626489	+0.85003090		
<i>a</i>	2.4103608	Ω	153.08641	−0.79830111	−0.48491099		
<i>e</i>	0.1467562	<i>i</i>	2.81089	−0.29284913	−0.20569102		
<i>P</i>	3.74	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1997 06 28	704	0.0	0.2−	1997 06 29	704	2.7−	0.1+	1998 11 10	704	0.8+	0.7+
1997 06 28	704	1.1+	0.1−	1997 07 02	704	0.1+	0.1−	1998 11 10	704	(0.7−	3.0−)
1997 06 28	704	0.1−	0.1−	1997 07 02	704	0.1−	0.3−	1998 11 10	704	0.5−	0.6−
1997 06 29	704	0.0	0.1+	1997 07 02	704	0.5+	0.1−	1998 11 11	704	(2.9+	0.7+)
1997 06 29	704	0.9+	0.2+	1997 07 02	704	0.4+	0.2−	1998 11 11	704	0.4−	0.0
1997 06 29	704	0.1+	0.4+	1997 07 02	704	0.5−	0.6+	1998 11 11	704	0.4+	0.1+
1997 06 29	704	0.3+	0.4−	1998 11 10	704	0.3−	0.2−				

1997 MW₆ = 1998 XW₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	37.59814	(2000.0)		P	Q		
<i>n</i>	0.26369973	ω	194.84339	+0.85929008	−0.50857709		
<i>a</i>	2.4084054	Ω	196.07471	+0.48705201	+0.84611847		
<i>e</i>	0.2503101	<i>i</i>	11.35090	+0.15620790	+0.15947689		
<i>P</i>	3.74	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 06 28	691	0.2−	0.5−	1997 07 06	691	0.1+	0.1+	1998 12 14	120	0.5−	0.1+
1997 06 28	691	0.0	0.1−	1997 07 06	691	0.5−	0.2+	1998 12 15	120	1.0+	0.0
1997 06 28	691	0.0	0.4−	1998 11 26	120	0.7+	0.7+	1998 12 15	120	0.5+	0.2+
1997 06 30	691	0.3+	0.1−	1998 11 26	120	0.6−	0.1+	1998 12 16	120	1.8+	0.9−
1997 06 30	691	0.5+	0.3−	1998 11 26	120	1.4−	1.1−	1998 12 19	704	0.6−	0.5+
1997 06 30	691	0.4−	0.0	1998 12 08	120	0.6+	0.4+	1998 12 19	704	1.5−	0.6−
1997 07 03	691	0.2+	0.2+	1998 12 08	120	0.6+	0.3−	1998 12 19	704	1.2−	0.6+
1997 07 03	691	0.2+	0.6+	1998 12 08	120	0.8+	0.3+	1998 12 19	704	1.1−	0.3−
1997 07 03	691	0.2−	0.2+	1998 12 14	120	0.7+	0.1+				

1997 MC₈ = 1998 XD₁₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	166.97571	(2000.0)		P	Q		
<i>n</i>	0.22190414	ω	39.21871	−0.12377261	+0.99218548		
<i>a</i>	2.7020442	Ω	223.67798	−0.91606967	−0.12035268		
<i>e</i>	0.0371750	<i>i</i>	1.30745	−0.38144029	−0.03291195		
<i>P</i>	4.44	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 06 29	691	0.1+	0.0	1997 07 06	691	0.0	0.1−	1998 12 10	691	0.8+	0.5+
1997 06 29	691	0.1−	0.3+	1997 07 10	691	0.3+	0.2+	1998 12 10	691	0.3−	0.2−
1997 06 29	691	0.1+	0.1+	1997 07 10	691	0.0	0.1−	1998 12 15	691	0.0	0.1−
1997 07 06	691	0.3−	0.1−	1997 07 10	691	0.2+	0.1−	1998 12 15	691	0.1−	0.1+
1997 07 06	691	0.2−	0.1−	1998 12 10	691	0.3−	0.2−	1998 12 15	691	0.0	0.1−

1997 NM₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	137.99127	(2000.0)		P	Q		
<i>n</i>	0.28488390	ω	42.39217	+0.80965694	+0.55626975		
<i>a</i>	2.2874807	Ω	282.88132	−0.57669936	+0.69485579		
<i>e</i>	0.1883140	<i>i</i>	11.06756	−0.10896549	+0.45578437		
<i>P</i>	3.46	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 07 13	104	0.5−	0.7+	1997 08 09	104	1.0−	0.6+	1997 09 18	104	0.7+	0.5+
1997 07 13	104	0.8−	0.5+	1997 08 09	104	0.3−	0.7+	1997 09 29	104	0.5−	0.5−
1997 07 13	104	0.3−	0.4+	1997 08 10	104	1.5+	0.1−	1997 09 29	104	0.3−	0.3−
1997 07 13	104	0.0	0.4+	1997 08 10	104	1.7+	0.0	1997 09 29	104	0.0	0.0
1997 07 14	104	0.3−	0.0	1997 08 10	104	1.6+	0.2−	1997 10 05	104	1.1−	0.3−

M.P.C. 33500

1997 07 14	104	0.0	0.1−	1997 08 22	104	0.2−	0.1−	1997 10 05	104	0.7−	0.1−
1997 07 14	104	0.4−	0.2+	1997 08 22	104	0.1+	0.3−	1997 10 05	104	0.6−	0.4−
1997 07 15	104	0.6−	0.5+	1997 08 22	104	0.7+	0.3−	1998 12 26	104	1.0+	0.1+
1997 07 15	104	0.2−	0.3+	1997 08 22	104	0.7+	0.3−	1998 12 26	104	0.1−	0.5+
1997 07 15	104	0.3−	0.2+	1997 08 22	104	1.0+	0.5−	1998 12 26	104	0.0	0.3+
1997 07 26	108	2.0−	1.4−	1997 09 17	104	0.0	0.5+	1998 12 27	104	0.7+	0.9+
1997 07 26	108	0.6−	0.0	1997 09 17	104	0.4+	0.5+	1998 12 27	104	0.4−	0.5+
1997 07 27	108	1.5+	0.8−	1997 09 17	104	0.7+	0.6+	1998 12 27	104	0.0	0.7+
1997 08 09	104	1.4−	0.0	1997 09 18	104	0.1+	0.0				
1997 08 09	104	0.5−	0.7+	1997 09 18	104	1.1+	0.2+				

1997 NR₁₀

Id. Y. Ikari (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M				P				Q			
140.24477				(2000.0)							
<i>n</i>	0.26604995	<i>ω</i>	152.65098	+0.62968770		+0.77597819					
<i>a</i>	2.3942009	<i>Ω</i>	156.31901	−0.72842475		+0.60622066					
<i>e</i>	0.2404437	<i>i</i>	5.25119	−0.26998292		+0.17422504					
<i>P</i>	3.70	<i>H</i>	16.7	<i>G</i>	0.15	<i>U</i>	4				

Residuals in seconds of arc

1997 07 06	900	0.2+	0.7−	1997 07 23	900	0.2−	0.2−	1997 08 11	402	0.2+	0.1+
1997 07 06	900	0.4+	0.1+	1997 07 23	900	1.2−	0.1+	1997 08 11	402	0.2+	0.1+
1997 07 06	900	0.9−	0.6+	1997 07 23	900	0.3−	0.4−	1997 09 02	402	0.1+	0.2−
1997 07 18	402	0.1−	0.7+	1997 08 01	367	0.7−	1.0−	1997 09 02	402	0.1+	0.0
1997 07 18	402	0.3+	0.1−	1997 08 01	367	0.4+	0.8−	1997 09 02	402	0.5+	0.5+
1997 07 18	402	0.2−	0.1+	1997 08 01	367	0.2−	0.8−	1997 09 04	402	0.1+	0.5+
1997 07 18	402	0.2−	0.3+	1997 08 02	402	0.1−	0.0	1997 09 04	402	0.2−	0.2+
1997 07 18	900	1.1−	0.1−	1997 08 02	402	0.0	0.1−	1997 09 04	402	0.1+	0.5+
1997 07 18	900	1.8+	0.4−	1997 08 02	402	0.1+	0.0	1998 12 12	402	1.0+	0.7−
1997 07 19	402	0.1+	0.3+	1997 08 11	900	0.6−	0.0	1998 12 12	402	0.3−	0.5−
1997 07 19	402	0.4+	0.0	1997 08 11	900	0.3−	0.2+	1998 12 16	402	0.7−	0.2+
1997 07 19	402	1.0+	0.0	1997 08 11	402	0.6+	0.1+	1998 12 16	402	(3.0+	1.1−)

1997 NE₁₁ = 1941 SB₁ = 1984 YS₃ = 1998 XE₃₆

Id. G. V. Williams, S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M				P				Q			
96.24647				(2000.0)							
<i>n</i>	0.20957997	<i>ω</i>	58.31470	+0.85784286		+0.45437310					
<i>a</i>	2.8069598	<i>Ω</i>	273.66587	−0.51391197		+0.75876834					
<i>e</i>	0.1827539	<i>i</i>	13.92183	+0.00034156		+0.46670729					
<i>P</i>	4.70	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	4				

Residuals in seconds of arc

1941 09 17	053(15.7−	8.2−)	X	1997 07 11	358	1.6+	0.2−	1998 12 14	704	0.3+	0.3−
1941 09 22	053 (1.8−	10.6−)	X	1997 07 12	358	0.1+	1.1−	1998 12 14	704	1.0+	0.4+
1941 09 23	053(20.8+	26.1−)	X	1997 07 12	358	0.6+	1.2+	1998 12 14	704	0.5−	0.8−
1941 09 25	053(23.4+	59.1+)	X	1997 07 14	358	0.1−	0.1+	1998 12 14	704	0.3−	0.4+
1984 12 27	095 0.4+	1.6+		1997 07 14	358	0.4−	0.7+	1998 12 14	704	0.6+	1.5+
1997 07 06	358 2.2−	0.1+		1997 07 18	358	0.5+	1.3−	1998 12 17	704	0.6−	0.1−
1997 07 06	358 0.6−	0.5−		1997 07 18	358	0.6+	0.3−	1998 12 17	704	0.1−	0.7−
1997 07 06	358 0.5−	0.3+		1997 07 25	358	1.1+	1.6+	1998 12 17	704	0.6+	1.5−
1997 07 11	358 0.7−	1.2+		1997 07 25	358	0.2−	1.2−	1998 12 17	704	0.1+	0.4−
1997 07 11	358 0.4−	0.9+		1997 07 25	358	0.4+	1.0−	1998 12 17	704	1.1−	0.5+

1997 OM = 1978 RY₁₁ = 1998 YX₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M				P				Q			
77.48194				(2000.0)							
<i>n</i>	0.20491273	<i>ω</i>	202.32058	+0.97387806		+0.22549222					
<i>a</i>	2.8494219	<i>Ω</i>	144.61400	−0.20073736		+0.90998172					
<i>e</i>	0.0786303	<i>i</i>	2.64620	−0.10614157		+0.34797489					
<i>P</i>	4.81	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	4				

1999 JAN. 6

Residuals in seconds of arc

1978 09 06	809	0.3+	0.9−	1997 07 31	292	0.3−	1.8−	1997 08 07	292	1.4−	0.5+
1997 07 26	816	0.4+	0.1−	1997 07 31	816	0.3+	0.5+	1997 08 10	816	0.2+	0.1+
1997 07 26	816	0.1+	0.1−	1997 07 31	816	0.1+	0.5+	1997 08 10	816	0.2+	0.0
1997 07 26	816	0.0	0.6+	1997 08 01	816	0.4+	0.4+	1997 08 10	816	0.4+	1.0+
1997 07 30	816	0.5+	0.1−	1997 08 01	816	0.3+	0.5+	1997 08 10	816	0.2+	0.7+
1997 07 30	816	0.3+	0.0	1997 08 01	292	0.3−	1.3−	1998 12 25	691	0.2−	0.1−
1997 07 30	816	0.1+	0.0	1997 08 01	292	0.1+	1.1−	1998 12 25	691	0.1−	0.2+
1997 07 30	816	0.0	0.3−	1997 08 01	292	0.3−	0.8+	1998 12 25	691	0.3−	0.0
1997 07 31	292	0.2−	1.1−	1997 08 07	292	1.5−	1.1−	1998 12 28	691	0.3+	0.1+
1997 07 31	292	0.3−	0.8−	1997 08 07	816	0.7+	1.0+	1998 12 28	691	0.1−	0.2+
1997 07 31	816	0.1−	0.4+	1997 08 07	292	1.8−	0.2+	1998 12 28	691	0.2+	0.0
1997 07 31	816	0.7+	0.1+	1997 08 07	816	0.7+	1.3+				

1997 PZ₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M				P				Q			
62.86283				(2000.0)							
<i>n</i>	0.19287811	<i>ω</i>	213.36967	+0.98780797		−0.15426016					
<i>a</i>	2.9667487	<i>Ω</i>	155.47858	+0.15158767		+0.92244871					
<i>e</i>	0.1010275	<i>i</i>	2.89444	+0.03544846		+0.35396635					
<i>P</i>	5.11	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	3				

Residuals in seconds of arc

1997 08 04	118	0.7+	0.1−	1997 08 12	118	0.2−	0.1+	1997 09 05	118	0.5−	0.6+
1997 08 04	118	1.5+	0.1+	1997 08 14	118	0.4−	0.4−	1997 09 05	118	0.6−	1.4+
1997 08 04	118	0.3+	0.4−	1997 08 14	118	0.4−	0.4−	1997 09 08	118	0.0	0.3+
1997 08 05	118	0.1+	1.4−	1997 08 14	118	0.3−	0.4−	1997 09 08	118	0.1+	0.4+
1997 08 05	118	0.7+	0.2+	1997 08 19	118	1.2+	0.7−	1997 09 08	118	0.2−	0.2−
1997 08 05	118	0.3−	1.1−	1997 08 19	118	0.7+	0.5−	1997 09 22	118	0.0	0.3+
1997 08 08	118	0.7−	0.0	1997 08 20	118	0.4−	0.3−	1997 09 22	118	0.1−	0.6+
1997 08 08	118	0.7−	0.0	1997 08 21	118	0.1+	0.8+	1997 09 22	118	0.5+	0.1+
1997 08 10	118	1.1−	0.0	1997 08 21	118	0.5+	0.4+	1998 11 20	910	0.9+	0.2−
1997 08 10	118	0.9−	0.3+	1997 08 26	118	0.6−	0.2−	1998 11 20	910	1.1+	0.1−
1997 08 10	118	0.9−	0.4+	1997 08 26	118	0.1+	0.2−	1998 11 20	910	1.0+	0.3−
1997 08 11	118	0.2−	0.1−	1997 09 01	118	0.9+	0.7+	1998 12 10	118	0.8−	0.0
1997 08 11	118	0.2+	0.1+	1997 09 01	118	0.7+	0.2+	1998 12 10	118	0.7−	0.3−
1997 08 12	118	0.0	0.1−	1997 09 02	118	0.5+	0.0	1998 12 12	118	0.3−	0.0
1997 08 12	118	0.5−	0.1+	1997 09 02	118	0.4+	0.2−	1998 12 12	118	1.1−	0.3+
1997 08 12	118	0.0	0.0	1997 09 02	118	0.1+	0.3−				

1997 PK₂ = 1975 NW

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M				P				Q			
154.40591				(2000.0)							
<i>n</i>	0.27057617	<i>ω</i>	9.13553	+0.66403859		+0.74231899					
<i>a</i>	2.3674257	<i>Ω</i>	302.53110	−0.69253176		+0.56547985					
<i>e</i>	0.1413567	<i>i</i>	6.09568	−0.28187322		+0.35943713					
<i>P</i>	3.64	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3				

Residuals in seconds of arc

1975 07 11	095	0.7−	1.8+	1997 08 25	611	0.7+	0.1+	1997 09 11	611	0.1−	0.5−
1997 08 09	611	0.0	0.1−	1997 08 29	611	0.3+	0.2−	1997 09 23	611	0.7−	0.1+
1997 08 09	611	0.1+	0.0	1997 08 29	611	0.2+	0.1−	1997 09 23	611	0.3−	0.2−
1997 08 10	611	0.3+	0.1−	1997 08 31	611	0.1−	0.5+	1997 10 23	861	0.3−	0.4−
1997 08 10	611	1.8+	0.3−	1997 08 31	611	0.0	0.4+	1997 10 23	861	0.3−	0.4+
1997 08 10	611	0.4−	0.2−	1997 09 01	611	0.4+	0.0	1997 10 28	628	1.3+	1.5−
1997 08 11	611	0.7+	0.1−	1997 09 01	611	0.5+	0.3−	1997 10 28	628	2.2+	0.7+
1997 08 11	611	0.1−	0.1−	1997 09 06	628	0.5−	0.3−	1997 10 28	628	0.3+	0.0
1997 08 12	611	1.2+	0.4+	1997 09 06	628	0.5−	0.2+	1997 10 28	628	2.8−	2.7+
1997 08 12	611	0.2−	0.1−	1997 09 06	628	0.9−	0.1−	1998 12 27	611	0.4+	0.3+
1997 08 24	611	0.4−	0.6−	1997 09 06	628	0.0	0.5−	1998 12 27	611	0.1+	0.5+
1997 08 24	611	0.4−	0.2−	1997 09 09	611	0.4−	0.1+	1998 12 29	611	0.5+	0.7−
1997 08 24	611	0.4−	0.2−	1997 09 09	611	0.2−	0.4−	1998 12 29	611	0.9−	0.6+
1997 08 25	611	0.2+	0.0	1997 09 11	611	0.3−	0.2+				

1999 JAN. 6

M.P.C. 33501

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	98.35221		(2000.0)	P	Q
<i>n</i>	0.26170902	ω	291.78497	+0.95614332	-0.26542427
<i>a</i>	2.4206031	Ω	83.77809	+0.29289786	+0.86516341
<i>e</i>	0.0704471	<i>i</i>	7.15698	+0.00089105	+0.42549057
<i>P</i>	3.77	<i>H</i>	15.5	<i>G</i>	0.15

Residuals in seconds of arc

1997 08 12	684	0.4-	0.0	1997 08 29	684	0.4+	0.1-	1997 10 04	684	0.2-	0.3+
1997 08 12	684	0.3-	0.0	1997 08 29	684	0.8+	0.3+	1997 10 04	684	0.2-	0.1+
1997 08 12	684	0.5-	0.0	1997 09 23	684	0.4-	0.2-	1997 10 04	684	0.0	0.0
1997 08 13	684	0.3-	0.3-	1997 09 23	684	0.1-	0.3-	1998 12 19	684	0.1+	0.2+
1997 08 13	684	0.4-	0.3-	1997 09 24	684	0.2-	0.2-	1998 12 19	684	0.2+	0.2+
1997 08 13	684	0.4-	0.4-	1997 09 24	684	0.1+	0.3-	1998 12 19	684	0.1-	0.3-
1997 08 27	684	0.5+	0.2-	1997 09 24	684	0.1-	0.0	1998 12 23	684	0.4+	0.2-
1997 08 27	684	0.9+	0.5+	1997 10 03	684	0.3-	0.5+	1998 12 23	684	0.3-	0.1-
1997 08 27	684	0.9+	0.0	1997 10 03	684	0.3-	0.1+	1998 12 23	684	0.4-	0.2-
1997 08 29	684	0.5+	0.2-	1997 10 03	684	0.1-	0.4+				

1997 PL₄

Id. M. Tichý (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	252.59045		(2000.0)	P	Q
<i>n</i>	0.28197328	ω	240.99411	-0.69610834	+0.71724152
<i>a</i>	2.3031952	Ω	344.75722	-0.60980410	-0.61391174
<i>e</i>	0.0746148	<i>i</i>	6.90054	-0.37890915	-0.32966191
<i>P</i>	3.50	<i>H</i>	15.3	<i>G</i>	0.15

Residuals in seconds of arc

1997 08 14	046	0.0	0.2+	1997 08 25	046	0.7-	0.1+	1997 09 25	046	0.1-	0.1+
1997 08 14	046	0.4+	0.3+	1997 08 28	046	0.2+	0.2-	1997 09 25	046	0.2+	0.1-
1997 08 14	046	0.0	0.4+	1997 08 28	046	0.1+	0.2-	1997 09 26	046	0.1+	0.1-
1997 08 14	046	0.2-	0.1-	1997 08 28	046	0.0	0.2+	1997 09 26	046	0.3+	0.5+
1997 08 14	046	0.3-	0.4-	1997 08 31	046	0.3+	0.5-	1997 09 26	046	0.1-	0.5+
1997 08 15	046	0.2-	0.1-	1997 08 31	046	0.3+	0.4-	1997 09 28	046	0.0	0.2+
1997 08 15	046	0.2+	0.7-	1997 08 31	046	0.0	0.1-	1997 09 28	046	0.5-	0.2+
1997 08 15	046	0.6+	0.3-	1997 09 11	046	0.3+	0.4-	1997 09 28	046	0.7+	0.2-
1997 08 23	046	0.7+	0.2+	1997 09 11	046	0.1+	0.4-	1998 12 22	046	0.3+	0.5-
1997 08 23	046	0.2-	0.4+	1997 09 11	046	0.7+	0.0	1998 12 22	046	0.3-	0.0
1997 08 23	046	0.3-	0.3+	1997 09 22	046	1.4-	0.7-	1998 12 22	046	0.4+	0.2+
1997 08 24	046	0.0	0.5+	1997 09 22	046	1.0-	0.6-	1998 12 29	046	0.0	0.1-
1997 08 24	046	0.2+	0.4+	1997 09 22	046	0.1-	0.4-	1998 12 29	046	0.1-	0.1+
1997 08 24	046	0.3-	0.4+	1997 09 23	046	0.6+	0.9+	1998 12 29	046	0.0	0.0
1997 08 25	046	0.8-	0.3+	1997 09 23	046	0.5+	0.1+	1998 12 29	046	0.1-	0.2+
1997 08 25	046	0.3-	0.2-	1997 09 25	046	0.1+	0.1+				

1997 PN₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Urata

<i>M</i>	70.54826		(2000.0)	P	Q
<i>n</i>	0.23227171	ω	93.05498	+0.87409055	-0.44573747
<i>a</i>	2.6210291	Ω	293.48569	+0.31815276	+0.82569524
<i>e</i>	0.1925637	<i>i</i>	12.15345	+0.36707566	+0.34575349
<i>P</i>	4.24	<i>H</i>	13.0	<i>G</i>	0.15

Residuals in seconds of arc

1997 06 29	691	0.2+	0.1-	1997 08 28	385	0.6+	0.7-	1997 08 30	566	0.2-	0.8+
1997 06 29	691	0.0	0.1-	1997 08 28	385	0.3+	0.4-	1998 12 27	385	0.2+	0.1+
1997 06 29	691	0.1+	0.0	1997 08 28	385	0.2-	0.7-	1998 12 27	385	0.1-	0.1+
1997 08 11	905	1.1-	0.5+	1997 08 30	566	0.2+	0.4-	1998 12 28	888	0.0	0.1-
1997 08 11	905	1.3-	0.3+	1997 08 30	566	0.4-	0.2+	1998 12 28	888	0.0	0.3-
1997 08 22	905	0.4+	0.3+	1997 08 30	566	0.2+	0.3+	1998 12 28	385	0.1-	0.7+
1997 08 22	905	1.0+	0.0	1997 08 30	566	1.0-	0.5+	1998 12 28	385	0.1-	0.4-
1997 08 23	385	1.1+	0.3-	1997 08 30	566	0.1+	0.3-				

1997 QB

Id. M. Tichý (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	66.59471		(2000.0)	P	Q
<i>n</i>	0.23254568	ω	121.52297	+0.89347804	-0.44036350
<i>a</i>	2.6189700	Ω	264.73473	+0.37615552	+0.84105550
<i>e</i>	0.0643324	<i>i</i>	5.08082	+0.24536507	+0.31417451
<i>P</i>	4.24	<i>H</i>	15.5	<i>G</i>	0.15

Residuals in seconds of arc

1997 08 21	046	0.4+	0.1+	1997 08 26	046	1.0-	0.3-	1997 09 20	046	1.8-	0.8-
1997 08 21	046	0.8+	0.0	1997 08 26	046	0.3+	0.3+	1997 09 22	046	0.2+	0.5+
1997 08 21	046	0.4+	0.3-	1997 08 26	046	0.5-	0.9-	1997 09 22	046	0.5+	0.1-
1997 08 21	046	0.3-	0.1+	1997 08 26	046	0.4-	0.5-	1997 09 22	046	0.1-	0.1+
1997 08 21	046	0.3+	0.2+	1997 08 26	046	0.5-	0.4+	1997 09 23	046	0.6+	0.9+
1997 08 22	046	0.1-	0.4+	1997 08 26	046	0.2+	0.3-	1997 09 23	046	0.1+	0.4-
1997 08 22	046	0.6-	0.3-	1997 08 27	046	0.4-	0.2-	1997 09 23	046	0.5+	0.8+
1997 08 22	046	0.5-	0.8+	1997 08 27	046	0.5+	0.2-	1997 09 23	046	0.4+	0.0
1997 08 22	046	0.9-	0.3+	1997 08 27	046	0.1+	0.1-	1998 12 18	046	0.2-	0.0
1997 08 23	046	0.1+	0.4-	1997 08 30	046	0.3-	0.1+	1998 12 18	046	0.6-	0.6+
1997 08 23	046	0.2+	0.2-	1997 08 30	046	0.6-	0.1+	1998 12 18	046	0.3+	0.4+
1997 08 23	046	0.2+	0.3-	1997 08 30	046	0.3+	0.3-	1998 12 24	046	0.6+	0.7-
1997 08 24	046	0.0	0.5+	1997 09 10	046	0.8+	0.0	1998 12 24	046	0.3+	0.3-
1997 08 24	046	0.2+	0.2+	1997 09 10	046	0.2+	0.2-	1998 12 24	046	0.3-	0.1+
1997 08 24	046	0.4+	0.7+	1997 09 10	046	0.2+	0.3-				
1997 08 25	046	1.1+	0.2+	1997 09 20	046	1.2-	0.6-				

1997 QC = 1998 XQ₅₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	1.40139		(2000.0)	P	Q
<i>n</i>	0.27197698	ω	192.48858	-0.10748925	-0.98888316
<i>a</i>	2.3592898	Ω	263.74837	+0.92082643	-0.06005755
<i>e</i>	0.0834314	<i>i</i>	5.93256	+0.37486629	-0.13602643
<i>P</i>	3.62	<i>H</i>	14.5	<i>G</i>	0.15

Residuals in seconds of arc

1997 08 19	784	1.4-	0.3+	1997 08 22	784	0.5+	0.2+	1997 09 19	784	0.6-	0.2-
1997 08 19	784	0.6+	0.2-	1997 08 22	784	0.3+	0.0	1997 09 19	784	0.6+	0.3-
1997 08 19	784	1.4-	0.1+	1997 08 30	784	0.1-	0.0	1998 12 15	704	0.8-	1.1+
1997 08 19	784	0.1+	0.4-	1997 08 30	784	2.8-	0.2-	1998 12 15	704	0.9-	0.6+
1997 08 19	784	0.1+	0.1+	1997 08 30	784	0.5-	0.3+	1998 12 15	704	0.8+	0.0
1997 08 22	784	0.4+	0.1+	1997 08 30	784	0.1-	0.1+	1998 12 15	704	2.7-	0.4-
1997 08 22	784	0.3-	0.4-	1997 09 05	784	1.3+	0.3+	1998 12 15	704	0.3+	1.0-
1997 08 22	784	0.8+	0.0	1997 09 05	784	0.2+	0.6-	1998 12 16	704	0.9-	0.4+
1997 08 22	784	0.8+	0.1-	1997 09 07	784	0.1-	0.0	1998 12 16	704	1.1+	0.2-
1997 08 22	784	0.5+	0.1+	1997 09 07	784	0.0	0.2+	1998 12 16	704	2.2+	0.7-
1997 08 22	784	0.5+	0.3+	1997 09 07	784	0.1+	0.0	1998 12 16	704	0.9+	0.2+
1997 08 22	784	0.8+	0.3+	1997 09 07	784	0.0	0.0				
1997 08 22	784	0.3-	0.1+	1997 09 19	784	0.2+	0.1-				

1997 QL

Id. M. Tichý (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	345.79373		(2000.0)	P	Q
<i>n</i>	0.21765513	ω	164.23123	-0.11839355	-0.98341582
<i>a</i>	2.7370965	Ω	292.40722	+0.89421071	-0.04543739
<i>e</i>	0.0496479	<i>i</i>	8.54647	+0.43170611	-0.17558123
<i>P</i>	4.53	<i>H</i>	15.1	<i>G</i>	0.15

Residuals in seconds of arc

1997 08 24	046	0.2+	0.7+	1997 08 26	046	0.5-	0.1+	1997 09 21	046	0.1+	0.4-
1997 08 24	046	0.0	0.4-	1997 08 27	046	0.4-	0.3-	1997 09 21	046	0.2+	0.4-
1997 08 24	046	0.2+	0.0	1997 08 27	046	0.0	0.3+	1997 09 21	046	1.9-	0.3+
1997 08 24	046	0.0	0.2+	1997 08 27	046	0.1-	0.1+	1997 09 22	046	0.8+	0.6+
1997 08 25	046	0.1+	0.0	1997 08 30	046	0.0	0.1-	1997 09 22	046	0.3+	0.3-

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1997 08 25	046	0.2+	0.3+	1997 08 30	046	0.1+	0.0	1997 09 22	046	0.6+	0.2+
1997 08 25	046	0.2-	0.3+	1997 08 30	046	0.2+	0.3-	1998 12 09	046	0.1+	0.2+
1997 08 25	046	0.3+	0.1+	1997 08 31	046	0.0	0.2-	1998 12 09	046	0.1-	0.1-
1997 08 25	046	0.6-	0.1+	1997 08 31	046	0.0	0.3-	1998 12 09	046	0.0	0.2-
1997 08 26	046	0.1-	0.5-	1997 08 31	046	0.2-	0.1-	1998 12 10	046	0.2-	0.1-
1997 08 26	046	0.2+	0.1+	1997 09 10	046	0.3+	0.1+	1998 12 10	046	0.1-	0.2+
1997 08 26	046	0.2+	0.1-	1997 09 10	046	0.2-	0.2-	1998 12 10	046	0.2+	0.0

1997 QM

Id. M. Tichý (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden			
<i>M</i>	240.76938	(2000.0)	<i>Q</i>
<i>n</i>	0.24407101	ω 59.73514	-0.64780553 +0.76032851
<i>a</i>	2.5358599	Ω 169.48027	-0.75718498 -0.63578227
<i>e</i>	0.0119264	<i>i</i> 15.05371	-0.08377896 -0.13297164
<i>P</i>	4.04	<i>H</i> 14.5	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1997 08 25	046	0.5-	0.0	1997 09 01	046	0.0	0.0	1997 09 27	610	0.3+	0.2+
1997 08 25	046	0.1+	0.9-	1997 09 01	046	0.3+	0.2+	1997 09 27	610	0.7+	0.5+
1997 08 25	046	0.3-	0.3-	1997 09 11	046	0.1+	0.1+	1997 09 27	610	1.0+	0.7+
1997 08 25	046	0.4-	0.0	1997 09 11	046	0.2+	0.1+	1997 10 06	046	0.5-	1.0-
1997 08 25	046	0.4+	0.1-	1997 09 11	046	0.4+	0.1-	1997 10 06	046	0.2-	0.8-
1997 08 25	046	0.1+	0.1+	1997 09 22	046	0.7-	0.1+	1997 10 06	046	0.3-	1.0-
1997 08 25	046	0.0	0.2-	1997 09 23	046	0.8-	0.4-	1997 10 09	046	0.0	0.7-
1997 08 27	046	0.1-	0.2-	1997 09 23	046	1.1-	0.1-	1997 10 09	046	0.3-	0.9-
1997 08 27	046	0.4+	0.2-	1997 09 25	046	0.5-	0.3-	1997 10 09	046	0.2+	1.4-
1997 08 27	046	0.1+	0.5-	1997 09 25	046	0.9-	0.3-	1998 12 18	046	0.1+	0.3+
1997 08 28	046	0.1+	0.1+	1997 09 25	046	0.4-	0.4-	1998 12 18	046	0.0	0.2+
1997 08 28	046	0.0	0.1-	1997 09 25	610	0.9+	1.0+	1998 12 18	046	0.6-	0.1+
1997 08 28	046	0.0	0.2-	1997 09 25	610	0.5+	1.0+	1998 12 22	046	0.2+	0.4-
1997 08 31	046	0.1-	0.3+	1997 09 25	610	0.2+	0.9+	1998 12 22	046	0.0	0.0
1997 08 31	046	0.0	0.4+	1997 09 26	610	0.7+	1.8+	1998 12 22	046	0.3+	0.1-
1997 08 31	046	0.2+	0.3+	1997 09 26	610	0.3+	1.2+				
1997 09 01	046	0.1-	0.2+	1997 09 26	610	0.0	0.8+				

1997 QH₁ = 1974 QW

Id. M. Cavagna (1998 observations), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	215.56451	(2000.0)	<i>Q</i>
<i>n</i>	0.30100043	ω 349.69991	-0.05177035 +0.99472981
<i>a</i>	2.2050815	Ω 277.29196	-0.90978894 -0.08352309
<i>e</i>	0.1412754	<i>i</i> 5.11889	-0.41182996 +0.05946842
<i>P</i>	3.27	<i>H</i> 14.0	<i>G</i> 0.15 <i>U</i> 3

Residuals in seconds of arc

1974 08 21	095	1.0-	2.3+	1997 09 24	587	0.6-	0.4-	1997 12 29	566	0.1+	0.6+
1997 08 29	587	0.1-	0.7-	1997 09 24	587	0.3-	0.5-	1998 12 19	587	0.1+	0.2+
1997 08 29	587	0.5+	1.2-	1997 09 24	587	0.5-	0.6-	1998 12 19	587	0.6+	0.1-
1997 08 29	587	0.1-	0.6-	1997 09 26	587	0.0	0.1-	1998 12 22	704	0.8+	0.4+
1997 08 30	587	0.2+	0.2-	1997 09 26	587	0.3-	0.1+	1998 12 22	704	0.3+	0.0
1997 08 31	587	0.2-	0.0	1997 10 24	587	0.3-	0.6-	1998 12 22	704	0.0	0.7-
1997 09 01	587	0.2+	0.6+	1997 10 25	587	0.4+	0.0	1998 12 22	704	0.0	0.1-
1997 09 01	587	0.3+	0.2-	1997 10 25	587	0.1+	0.3-	1998 12 22	704	0.7-	0.6-
1997 09 04	587	0.3+	0.1-	1997 11 18	587	0.5+	0.8-	1998 12 23	587	0.4-	0.6+
1997 09 04	587	1.0+	0.6+	1997 11 18	587	0.1-	0.1-	1998 12 23	587	0.6-	0.7+
1997 09 08	587	0.3+	0.6+	1997 12 29	566	0.0	0.5+				
1997 09 08	587	0.1+	0.6+	1997 12 29	566	0.9-	1.3+				

1997 QF₂

Id. T. Urata (1998 observations)

1999 JAN. 6

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Urata			
<i>M</i>	74.90347	(2000.0)	<i>Q</i>
<i>n</i>	0.18408972	ω 5.23876	+0.98285776 -0.18313557
<i>a</i>	3.0604340	Ω 5.45351	+0.15998602 +0.78989188
<i>e</i>	0.1447083	<i>i</i> 12.92652	+0.09162480 +0.58526249
<i>P</i>	5.35	<i>H</i> 13.5	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1997 08 27	905	0.3+	1.0-	1997 09 11	385	0.5-	1.1+	1997 10 26	385	0.8+	0.5-
1997 08 27	905	0.6-	0.2-	1997 09 11	385	0.0	0.2+	1997 10 26	385	0.4+	0.0
1997 08 28	905	1.1+	0.2-	1997 10 08	385	0.2-	1.0+	1997 11 18	385	0.6-	0.6-
1997 08 28	905	(4.0+	1.4-)	1997 10 08	385	0.6-	0.3-	1997 11 18	385	0.9+	0.5+
1997 09 04	385	0.2+	0.3-	1997 10 23	327	0.0	0.1+	1998 12 19	385	0.7+	0.2+
1997 09 04	385	0.0	0.4+	1997 10 23	327	0.1-	0.2-	1998 12 19	385	1.0-	0.6-
1997 09 11	385	0.6-	0.3+	1997 10 23	327	0.3-	0.5-	1998 12 21	888	0.4+	0.5+

1997 QS₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	8.85407	(2000.0)	<i>Q</i>
<i>n</i>	0.17656419	ω 7.30691	+0.18488566 -0.97691302
<i>a</i>	3.1467891	Ω 72.08341	+0.89587772 +0.12276122
<i>e</i>	0.1611640	<i>i</i> 6.45938	+0.40400546 +0.17484458
<i>P</i>	5.58	<i>H</i> 14.0	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1997 08 31	046	0.4+	0.3-	1997 09 23	046	0.1+	0.8+	1998 12 08	046	0.1-	0.0
1997 08 31	046	0.2+	0.4-	1997 09 25	046	0.3-	0.1+	1998 12 09	411	0.3-	0.1-
1997 08 31	046	0.5+	0.3-	1997 09 25	046	1.1+	0.5+	1998 12 09	411	0.3+	0.1-
1997 08 31	046	0.3+	0.6-	1997 09 25	046	1.4-	0.6+	1998 12 11	411	0.0	0.7+
1997 09 01	046	0.1-	0.1-	1997 09 28	046	0.1+	0.1+	1998 12 11	411	0.1+	1.3+
1997 09 01	046	0.2+	0.2-	1997 09 28	046	0.3-	0.2-	1998 12 14	704	0.2-	0.4+
1997 09 02	046	0.0	0.2-	1997 09 28	046	0.2+	0.3-	1998 12 14	704	0.2-	0.4+
1997 09 02	046	0.0	0.1-	1997 09 28	046	0.4+	0.6+	1998 12 14	704	0.4-	0.4-
1997 09 03	046	0.5+	0.4-	1997 10 06	046	0.3-	0.3-	1998 12 14	704	0.9+	0.1+
1997 09 03	046	0.1-	0.7-	1997 10 06	046	0.2-	0.2-	1998 12 14	704	(0.0	2.2+)
1997 09 03	046	0.3+	0.2-	1997 10 06	046	0.4-	0.2-	1998 12 17	704	0.1-	0.1-
1997 09 11	046	0.2-	0.2+	1998 11 25	046	0.3-	0.2-	1998 12 17	704	0.8+	0.3-
1997 09 11	046	0.2-	0.1+	1998 11 25	046	0.1-	0.3-	1998 12 17	704	0.1+	0.6-
1997 09 11	046	0.9-	0.1+	1998 11 25	046	0.2-	0.0	1998 12 17	704	0.7-	0.2-
1997 09 23	046	0.2+	0.8+	1998 12 08	046	0.1-	0.1+	1998 12 17	704	0.7+	0.6-
1997 09 23	046	0.2-	0.5+	1998 12 08	046	0.2-	0.2-				

1997 QP₄ = 1998 YO₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	88.84443	(2000.0)	<i>Q</i>
<i>n</i>	0.29569214	ω 87.63137	+0.77275015 -0.62909765
<i>a</i>	2.2313937	Ω 311.33778	+0.52860348 +0.71132617
<i>e</i>	0.0347349	<i>i</i> 6.44054	+0.35133397 +0.31345051
<i>P</i>	3.33	<i>H</i> 16.6	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1997 08 22	426	0.5+	0.5-	1997 09 20	426	0.1-	0.0	1998 12 18	910	0.9-	0.1+
1997 08 22	426	0.0	0.3-	1997 09 20	426	0.3+	0.7+	1998 12 18	910	1.1-	0.1-
1997 08 22	426	1.1-	0.5+	1997 09 21	426	0.1-	0.0	1998 12 18	910	1.2-	0.1-
1997 09 03	426	0.6+	0.7-	1997 09 21	426	0.4-	0.6+	1998 12 26	910	0.5+	0.0
1997 09 03	426	0.2-	0.7-	1997 09 21	426	0.5+	0.0	1998 12 26	910	0.6+	0.4-
1997 09 03	426	0.1+	0.0	1998 12 17	910	0.6+	0.4+	1998 12 26	910	0.3+	0.5-
1997 09 05	426	0.5+	0.6+	1998 12 17	910	0.4+	0.4+				
1997 09 05	426	0.5-	0.3-	1998 12 17	910	0.5+	0.1+				

1999 JAN. 6

M.P.C. 33503

1997 RF = 1988 DL₄ = 1998 WC

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17035831	ω	297.24751	-0.32200803	-0.94459718		
<i>a</i>	3.2227540	Ω	170.82593	+0.94644043	-0.32286122		
<i>e</i>	0.1920967	<i>i</i>	23.51631	+0.02369265	+0.05913372		
<i>P</i>	5.79	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1988 02 23	809	0.3-	0.7+	1997 09 11	402	0.0	0.3+	1998 12 19	703	0.5+	0.6-
1988 02 23	809	0.6+	0.4+	1997 09 11	402	0.5-	0.1+	1998 12 19	703	1.3-	0.3-
1988 02 23	809	0.3-	0.2+	1997 09 11	402	0.5-	0.4+	1998 12 19	704	0.1+	0.4+
1997 09 01	367	0.6+	0.0	1998 11 16	703	0.7+	0.2+	1998 12 19	703	0.6-	0.4-
1997 09 01	367	0.7+	0.5-	1998 11 16	703	1.0+	0.3+	1998 12 19	704	0.6-	0.1-
1997 09 02	367	0.4+	0.7+	1998 11 16	703	0.4+	0.1+	1998 12 19	704	0.0	0.6-
1997 09 02	367	0.6+	0.3+	1998 11 17	703	0.0	0.5+	1998 12 19	704	0.6-	0.3+
1997 09 09	367	0.2-	0.1-	1998 11 17	703	0.5+	0.1+				
1997 09 09	367	1.0-	0.1-	1998 12 19	704	0.1-	0.1-				

1997 RZ = 1998 XW₄₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21357099	ω	150.82966	-0.06618297	-0.99564234		
<i>a</i>	2.7718808	Ω	302.89308	+0.89963240	-0.03106173		
<i>e</i>	0.0669646	<i>i</i>	4.48744	+0.43160325	-0.08792898		
<i>P</i>	4.61	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 08 24	104	1.1+	0.6-	1997 09 02	108	0.7+	0.3+	1998 12 14	704	0.4-	1.3-
1997 08 24	104	0.1-	0.6-	1997 09 07	108	2.1+	1.0-	1998 12 14	704	0.3-	0.5-
1997 09 01	104	0.2+	0.0	1997 09 07	108	0.2-	1.2+	1998 12 14	704	0.5-	0.1+
1997 09 01	104	0.7-	0.8+	1997 09 29	104	0.1+	0.4-	1998 12 17	704	0.1-	0.3+
1997 09 01	104	1.6-	0.7-	1997 09 29	104	0.0	0.2-	1998 12 17	704	0.7+	0.4+
1997 09 01	104	0.4-	0.8+	1997 09 29	104	0.4-	0.1+	1998 12 17	704	0.0	0.5+
1997 09 02	108	0.8-	0.2+	1998 12 14	704	0.0	0.4-	1998 12 17	704	0.7+	0.8+

1997 RE₃

Id. P. Antonini (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18202392	ω	110.63891	+0.47492491	-0.87779235		
<i>a</i>	3.0835458	Ω	310.84809	+0.77343175	+0.45030955		
<i>e</i>	0.1504928	<i>i</i>	4.75191	+0.41982097	+0.16340715		
<i>P</i>	5.41	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 09 06	122	0.5+	0.2-	1997 09 09	124	0.0	0.1+	1997 10 31	958	0.4-	0.3+
1997 09 06	122	0.4+	0.2-	1997 09 09	124	0.6-	0.3-	1998 12 13	132	0.8-	0.4-
1997 09 06	122	0.4+	0.1-	1997 09 19	122	0.1+	0.0	1998 12 14	132	1.5+	1.2+
1997 09 08	122	0.5-	0.1+	1997 09 19	122	0.3+	0.3+	1998 12 15	132	0.6+	0.4+
1997 09 08	122	0.5-	0.1-	1997 09 19	122	0.3+	0.0	1998 12 16	132	1.3-	1.2-

1997 RY₈

Id. F. B. Zoltowski (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18685119	ω	336.34361	-0.85480380	-0.51836999		
<i>a</i>	3.0302059	Ω	172.29413	+0.50056122	-0.83607382		
<i>e</i>	0.0994564	<i>i</i>	10.55255	+0.13692677	-0.17964722		
<i>P</i>	5.27	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 09 12	327	0.0	0.1+	1997 09 26	327	0.4+	0.3-	1997 10 30	566	0.3-	0.5-
1997 09 12	327	0.1-	0.0	1997 09 26	327	0.0	0.2-	1997 10 30	566	0.6-	0.2+

1997 09 12	327	0.2+	0.0	1997 09 26	327	0.2+	0.2-	1998 12 16	426	0.4-	0.2-
1997 09 13	327	0.1+	0.1-	1997 10 11	327	0.1+	0.2+	1998 12 18	426	0.3-	0.1+
1997 09 13	327	0.4-	0.1+	1997 10 11	327	0.1-	0.0	1998 12 18	426	0.0	0.3+
1997 09 13	327	0.2+	0.2-	1997 10 11	327	0.6+	0.3-	1998 12 18	426	0.0	0.5+
1997 09 23	327	0.4-	0.2+	1997 10 13	327	0.0	0.0	1998 12 20	426	0.1+	0.0
1997 09 23	327	0.4-	0.5+	1997 10 13	327	0.1-	0.1-	1998 12 22	704	0.5+	0.2-
1997 09 23	327	0.3-	0.3+	1997 10 13	327	0.4+	0.3+	1998 12 22	704	0.1+	0.7-
1997 09 26	327	0.1+	0.1-	1997 10 30	566	0.2+	0.1+	1998 12 22	704	0.2+	0.3+

1997 RB₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23303512	ω	356.08761	+0.85170786	+0.52270199		
<i>a</i>	2.6153017	Ω	332.29925	-0.47858409	+0.74707691		
<i>e</i>	0.1563502	<i>i</i>	4.57754	-0.21342675	+0.41068081		
<i>P</i>	4.23	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 09 10	621	0.1-	0.8-	1997 09 28	621	0.1+	0.0	1997 12 30	621	0.9-	0.3+
1997 09 10	621	0.2-	0.9-	1997 09 28	621	0.0	0.0	1997 12 30	621	0.2+	0.3+
1997 09 10	621	0.1+	0.9-	1997 09 28	621	0.0	0.2+	1997 12 30	621	0.8+	0.3-
1997 09 11	621	0.1+	0.8-	1997 10 01	566	0.1-	0.4+	1998 01 26	621	0.3-	0.0
1997 09 11	621	0.0	1.0-	1997 10 01	566	0.7-	1.0+	1998 01 26	621	0.1-	0.1+
1997 09 11	621	0.1+	0.2+	1997 10 01	566	0.2-	0.5+	1998 01 26	621	0.2+	0.3+
1997 09 12	621	0.3+	0.2+	1997 10 21	621	0.0	0.3+	1998 01 27	621	1.5-	0.1+
1997 09 12	621	0.5+	0.2+	1997 10 21	621	0.1-	0.2+	1998 01 27	621	1.1+	0.6+
1997 09 12	621	0.3+	0.2+	1997 10 21	621	0.3-	0.1-	1998 01 27	621	0.4-	0.4-
1997 09 14	621	0.4+	0.7-	1997 10 28	621	0.3-	0.1+	1998 01 27	621	0.1-	0.6+
1997 09 14	621	0.6+	0.8-	1997 10 28	621	0.3-	0.4+	1998 12 17	621	0.5-	0.0
1997 09 21	621	0.1+	0.3+	1997 10 28	621	0.2-	0.1+	1998 12 17	621	0.2+	0.3+
1997 09 21	621	0.0	0.3+	1997 12 01	621	0.7-	0.3+	1998 12 17	621	0.2-	0.5-
1997 09 26	621	0.3+	0.1+	1997 12 01	621	0.7-	0.5+	1998 12 18	621	0.1+	0.4-
1997 09 26	621	0.0	0.1-	1997 12 01	621	0.5-	0.2-	1998 12 18	621	0.0	0.6-
1997 09 26	621	0.2+	0.1+	1997 12 30	621	1.1+	0.4-	1998 12 18	621	0.0	0.5-

1997 SE

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24446596	ω	236.06899	+0.71861499	-0.69284938		
<i>a</i>	2.5331279	Ω	167.41952	+0.69337351	+0.70732467		
<i>e</i>	0.1266343	<i>i</i>	15.88067	+0.05315702	+0.14018400		
<i>P</i>	4.03	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 09 20	046	0.3+	0.0	1997 09 26	046	0.3-	0.1-	1997 10 19	046	0.2+	0.1+
1997 09 20	046	0.1+	0.3+	1997 09 26	046	0.3-	0.3-	1997 10 22	046	0.1+	0.2+
1997 09 20	046	0.2+	0.2+	1997 09 29	046	0.1-	0.2-	1997 10 22	046	0.1+	0.3+
1997 09 20	046	0.2-	0.3-	1997 09 29	046	0.2-	0.4+	1997 10 27	046	0.6+	0.7-
1997 09 21	046	0.3+	0.1-	1997 09 29	046	0.7-	0.2+	1997 10 27	046	0.4-	0.1-
1997 09 21	046	0.4+	0.0	1997 10 05	046	0.2+	0.3+	1997 10 29	046	0.2-	0.3-
1997 09 21	046	0.2+	0.2-	1997 10 05	046	0.3+	0.3+	1997 10 29	046	0.6-	0.6-
1997 09 22	046	0.1+	0.3-	1997 10 05	046	0.0	0.3+	1997 10 29	046	0.3-	0.0
1997 09 22	046	0.0	0.0	1997 10 06	046	0.2-	0.1-	1998 12 29	046	0.2+	0.3-
1997 09 22	046	0.3-	0.0	1997 10 06	046	0.2+	0.1-	1998 12 29	046	0.3+	0.4+
1997 09 23	046	0.1-	0.1-	1997 10 06	046	0.1-	0.0	1998 12 29	046	0.2+	0.1-
1997 09 23	046	0.3-	0.4-	1997 10 18	046	0.2-	0.1+	1998 12 29	046	0.4-	0.8-
1997 09 23	046	0.0	0.0	1997 10 18	046	0.2+	0.2+	1998 12 30	046	0.3-	0.2-
1997 09 24	046	0.0	0.1+	1997 10 18	046	0.9+	0.7+	1998 12 30	046	0.1+	0.4+
1997 09 24	046	0.1-	0.1-	1997 10 19	046	0.5+	0.0	1998 12 30	046	0.1-	0.4+
1997 09 26	046	0.2-	0.1-	1997 10 19	046	0.1-	0.4+				

1997 SF

Id. M. Tichý (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	42.68799		(2000.0)	P	Q
<i>n</i>	0.17949424	ω	315.71955	+0.72754805	-0.67737949
<i>a</i>	3.1124499	Ω	87.25176	+0.65580976	+0.64011863
<i>e</i>	0.1505040	<i>i</i>	6.25162	+0.20146311	+0.36249851
<i>P</i>	5.49	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 20	046	0.1-	0.2+	1997 09 26	046	0.4-	0.1-	1998 12 10	046	0.0	0.5+
1997 09 20	046	0.4-	0.0	1997 10 05	046	0.2-	0.2+	1998 12 10	046	0.2-	0.3+
1997 09 20	046	0.8+	0.1+	1997 10 05	046	0.2-	0.2+	1998 12 11	046	0.0	0.4+
1997 09 20	046	0.1-	0.0	1997 10 05	046	0.2-	0.3+	1998 12 11	046	0.1-	0.4+
1997 09 20	046	0.3-	0.4+	1997 10 06	046	0.2-	0.4+	1998 12 11	046	0.2-	0.4+
1997 09 21	046	0.7+	0.3-	1997 10 06	046	0.2-	0.3-	1998 12 14	704	0.5+	1.2-
1997 09 21	046	0.0	0.1-	1997 10 06	046	0.1+	0.2-	1998 12 14	704	1.4+	0.0
1997 09 21	046	0.7-	0.0	1997 10 06	046	0.0	0.1+	1998 12 14	704	0.0	0.9-
1997 09 22	046	0.2+	0.2+	1997 10 18	046	0.2+	0.0	1998 12 14	704	0.8+	1.8-
1997 09 22	046	0.1-	0.3+	1997 10 18	046	0.4-	0.3+	1998 12 14	704	0.7-	0.5-
1997 09 22	046	0.3+	0.2-	1997 10 18	046	0.1-	0.6+	1998 12 17	704	0.1+	1.1+
1997 09 23	046	0.4+	0.2-	1997 10 19	046	0.3+	0.9-	1998 12 17	704	0.1+	0.5+
1997 09 23	046	0.3+	0.0	1997 10 19	046	0.1-	0.0	1998 12 17	704	0.0	1.0-
1997 09 23	046	0.4+	0.4-	1997 10 19	046	0.3+	0.3-	1998 12 17	704	0.0	0.0
1997 09 26	046	0.3+	0.4-	1998 12 10	046	0.4-	0.6+	1998 12 17	704	0.9-	0.9+
1997 09 26	046	0.7-	0.1-	1998 12 10	046	0.3-	0.5+				

1997 SN

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	272.02327		(2000.0)	P	Q
<i>n</i>	0.28745632	ω	359.61672	-0.77587200	+0.62619774
<i>a</i>	2.2738133	Ω	219.49630	-0.57850879	-0.75472978
<i>e</i>	0.0489834	<i>i</i>	6.93582	-0.25169471	-0.19559999
<i>P</i>	3.43	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 20	557	0.2+	0.2+	1997 09 28	557	0.2-	0.0	1997 11 04	557	0.2-	0.6-
1997 09 20	557	0.1-	0.0	1997 09 28	557	0.1-	0.1+	1997 11 04	557	0.5-	0.5+
1997 09 21	557	0.2+	0.3+	1997 10 04	557	0.2-	0.3-	1998 11 24	557	0.0	0.2-
1997 09 21	557	0.3+	0.0	1997 10 04	557	0.1+	0.2-	1998 11 24	557	0.2+	0.3-
1997 09 21	557	0.1+	0.1+	1997 10 05	557	0.2-	0.1-	1998 12 10	557	0.3+	0.3+
1997 09 21	557	0.1-	0.1-	1997 10 10	557	0.1-	0.5+	1998 12 10	557	0.1-	0.0
1997 09 21	557	0.2+	0.2+	1997 10 10	557	0.2+	0.4+	1998 12 29	557	0.1+	0.1+
1997 09 22	557	0.2+	0.4-	1997 10 27	557	0.1-	0.3-	1998 12 29	557	0.4-	0.1+
1997 09 22	557	0.1-	0.2-	1997 10 27	557	0.2+	0.1-				

1997 SX₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	54.38846		(2000.0)	P	Q
<i>n</i>	0.23009161	ω	248.51824	-0.13573513	-0.99002578
<i>a</i>	2.6375591	Ω	209.36122	+0.93510808	-0.11543140
<i>e</i>	0.1465866	<i>i</i>	4.41544	+0.32733598	-0.08077464
<i>P</i>	4.28	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 09 23	557	0.6+	0.4+	1997 10 05	557	0.2+	0.3-	1997 11 03	704	0.3-	0.3-
1997 09 23	557	0.5+	0.3+	1997 10 05	557	0.3+	0.5-	1997 11 04	557	0.1-	0.2+
1997 09 23	557	0.4+	0.0	1997 10 05	557	0.3+	0.5-	1997 11 04	557	0.3+	0.2+
1997 09 25	557	0.3+	0.2-	1997 10 10	691	0.9-	0.2-	1997 12 30	557	0.0	0.2+
1997 09 25	557	0.2+	0.1+	1997 10 10	691	1.2-	0.1-	1997 12 30	557	0.6-	0.1-
1997 09 25	557	0.3+	0.0	1997 10 10	691	1.0-	0.1-	1998 01 11	557	0.7+	0.1+
1997 09 26	557	0.2+	0.1-	1997 10 19	557	0.1-	0.2+	1998 01 11	557	1.0+	0.6+
1997 09 26	557	0.3+	0.0	1997 10 20	557	0.0	0.1-	1998 01 11	557	0.3-	0.3+
1997 10 04	691	0.9-	0.3-	1997 10 28	557	0.0	0.4+	1998 11 24	557	0.6-	0.3-
1997 10 04	691	1.0-	0.0	1997 10 28	557	0.0	0.3+	1998 11 24	557	0.5-	0.1-
1997 10 04	691	1.0-	0.1-	1997 11 03	704	0.7+	0.3-	1998 12 24	557	0.4+	0.0
1997 10 05	557	0.6+	0.3-	1997 11 03	704	0.3-	1.4+	1998 12 24	557	0.4+	0.2-

1997 10 05	557	0.4+	0.5-	1997 11 03	704	0.2+	0.5+	1998 12 24	557	0.1-	0.2-
1997 10 05	557	0.4+	0.2-	1997 11 03	704	0.4+	0.7-				

1997 SA₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	100.73629		(2000.0)	P	Q
<i>n</i>	0.19103354	ω	351.90783	+0.96314311	-0.26829794
<i>a</i>	2.9858155	Ω	23.68243	+0.24940231	+0.86386866
<i>e</i>	0.1093054	<i>i</i>	2.75067	+0.10076622	+0.42631814
<i>P</i>	5.16	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 05	910	0.1+	0.1-	1997 10 11	557	0.3+	0.0	1997 11 04	557	0.5+	0.3-
1997 09 05	910	0.3+	0.0	1997 10 12	557	0.2+	0.3-	1997 11 04	557	0.6+	0.2+
1997 09 05	910	0.2+	0.0	1997 10 12	557	0.0	0.5-	1997 11 10	557	0.3+	0.1+
1997 09 23	557	0.2+	0.1-	1997 10 23	691	1.2-	0.4+	1997 11 10	557	0.4+	0.2+
1997 09 25	557	0.7+	0.4-	1997 10 23	691	1.1-	0.2+	1997 11 19	557	0.9+	0.5+
1997 09 25	557	0.7+	0.5-	1997 10 23	691	1.2-	0.1+	1997 11 19	557	0.3+	0.2+
1997 09 26	557	0.7+	0.5-	1997 10 28	691	0.4-	0.0	1997 11 20	557	0.6+	0.3-
1997 09 26	557	0.7+	0.6-	1997 10 28	691	0.5-	0.2+	1997 11 20	557	0.4+	0.5+
1997 10 04	691	1.0-	0.3-	1997 10 28	691	0.8-	0.1-	1998 11 24	557	0.4-	0.3-
1997 10 04	691	1.0-	0.0	1997 10 28	557	0.6+	0.2+	1998 11 24	557	0.4-	0.7+
1997 10 04	691	1.0-	0.1-	1997 10 28	557	0.9+	0.1-	1998 12 29	557	0.5+	0.5-
1997 10 05	557	0.8+	0.1+	1997 11 01	691	1.4-	0.2-	1998 12 29	557	0.0	0.3-
1997 10 05	557	1.0+	0.2+	1997 11 01	691	0.2-	0.7+				
1997 10 11	557	0.2+	0.1+	1997 11 01	691	1.3-	0.4+				

1997 SM₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	220.51948		(2000.0)	P	Q
<i>n</i>	0.23052892	ω	265.71657	-0.60590194	+0.78254242
<i>a</i>	2.6342224	Ω	325.65055	-0.59128476	-0.56341600
<i>e</i>	0.0918629	<i>i</i>	14.70354	-0.53222661	-0.26493353
<i>P</i>	4.28	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 09 21	966	0.7+	1.0-	1997 10 24	966	0.5+	1.0+	1998 11 16	704	0.4+	0.6-
1997 09 21	966	0.0	0.7-	1997 10 24	966	0.3-	0.0	1998 11 16	704	0.1+	0.6-
1997 09 22	966	1.4-	1.9-	1997 11 19	327	0.3-	0.0	1998 11 16	704	0.5+	0.5+
1997 09 22	966	1.1-	1.1+	1997 11 19	327	0.3-	0.1-	1998 11 16	704	1.0+	1.6+
1997 09 23	966	0.1+	1.5+	1997 11 19	327	0.1-	0.1+	1998 11 28	292	0.4-	0.1-
1997 10 01	966	0.7+	0.2-	1997 11 21	327	0.1+	0.1-	1998 11 28	292	1.3-	0.3-
1997 10 01	966	0.7+	0.7+	1997 11 21	327	0.4-	0.1-	1998 11 28	292	0.4-	0.2-
1997 10 02	966	0.2-	0.2-	1997 11 21	327	0.2+	0.2+				
1997 10 02	966	0.8+	0.3-	1998 11 16	704	0.2+	0.3-				

1997 SE₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	42.71613		(2000.0)	P	Q
<i>n</i>	0.19751044	ω	55.12322	+0.50105424	-0.86541219
<i>a</i>	2.9201782	Ω	4.80909	+0.78383359	+0.45257943
<i>e</i>	0.0858353	<i>i</i>	1.72884	+0.36680996	+0.21502002
<i>P</i>	4.99	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1992 09 23	691	0.2-	0.6+	1997 09 27	540	0.0	1.0-	1997 12 05	709	0.3-	0.2+
1992 09 23	691	0.2-	0.4+	1997 09 27	540	0.1+	0.4-	1997 12 05	709	0.3-	0.0
1992 09 23	691	0.3-	0.5+	1997 09 28	816	0.7-	0.2-	1997 12 05	709	0.2+	0.5+
1997 09 04	910	1.8+	0.4-	1997 09 28	816	0.7-	0.1+	1997 12 05	709	0.6-	0.5+
1997 09 04	910	1.8+	0.3-	1997 09 28	816	0.8-	0.2-	1997 12 05	709	0.3-	0.1+
1997 09 05	910	1.9+	0.4-	1997 10 05	540	0.9-	0.7+	1998 12 19	704	1.2+	0.1-
1997 09 25	816	0.7-	0.5-	1997 10 05	540	0.4+	0.3+	1998 12 19	704	1.7-	1.1-
1997 09 25	816	0.1-	0.4-	1997 10 05	540	0.3+	0.0	1998 12 19	704	0.6-	0.9-
1997 09 25	816	0.2-	0.3-	1997 10 22	540	1.0+	0.1+	1998 12 19	704	0.8+	0.8+
1997 09 26	540	0.5-	0.1+	1997 10 22	540	0.1+	0.7+	1998 12 19	704	(0.3+	2.3+)

1999 JAN. 6

1997 09 26	540	0.0	0.1−	1997 10 22	540	0.2+	0.6+	1998 12 23	540	0.3+	0.1+
1997 09 26	540	0.8−	0.5−	1997 12 03	684	0.8−	0.2−	1998 12 23	540	0.4+	0.1+
1997 09 27	816	0.5−	0.1−	1997 12 03	684	0.3+	0.2+	1998 12 23	540	0.2−	0.1+
1997 09 27	540	0.1+	0.4−	1997 12 04	684	0.5+	0.1−	1998 12 23	540	0.3−	0.3+

1997 SF₄

Id. Y. Ikari (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	94.57947		(2000.0)	P	Q
<i>n</i>	0.17474473	ω	141.25652	+0.97985952	+0.18289799
<i>a</i>	3.1685945	Ω	208.51274	−0.19759130	+0.94605878
<i>e</i>	0.2115679	<i>i</i>	9.66573	+0.02886182	+0.26743429
<i>P</i>	5.64	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 09 24	900	0.9+	0.1+	1997 10 06	900	1.1+	0.1+	1997 10 29	900	0.5+	0.6+
1997 09 24	900	0.4−	0.1−	1997 10 08	900	0.1+	0.5+	1997 10 30	566	0.5−	0.2−
1997 09 28	900	0.5−	1.0−	1997 10 08	900	0.5−	0.5+	1997 10 30	566	0.6−	0.3+
1997 09 28	900	0.3−	0.4+	1997 10 08	402	0.0	0.2−	1997 10 30	566	0.1+	0.2−
1997 09 29	900	0.1−	0.1+	1997 10 08	402	0.3−	0.3−	1997 11 04	557	0.2+	0.7−
1997 09 29	900	0.1−	0.0	1997 10 08	402	0.1−	0.2−	1997 11 04	557	0.5−	0.4−
1997 09 29	402	0.1−	0.0	1997 10 12	900	0.9+	0.4+	1998 12 12	402	0.1+	0.2−
1997 09 29	402	0.0	0.2−	1997 10 12	900	0.5−	0.3+	1998 12 12	402	0.0	0.1−
1997 09 29	402	0.0	0.2−	1997 10 23	402	0.1−	0.0	1998 12 16	402	0.3−	0.3+
1997 09 30	402	(1.4+	3.4+)	1997 10 23	402	0.1−	0.1−	1998 12 16	402	0.2+	0.0
1997 09 30	402	(1.0+	2.6+)	1997 10 23	402	0.3+	0.1−				
1997 10 06	900	0.1+	0.6+	1997 10 29	900	0.7+	0.1−				

1997 SZ₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	118.88014		(2000.0)	P	Q
<i>n</i>	0.17556623	ω	322.15140	+0.86515146	+0.49862871
<i>a</i>	3.1587026	Ω	8.46698	−0.32281070	+0.63560415
<i>e</i>	0.0846289	<i>i</i>	21.38469	−0.38380490	+0.58938679
<i>P</i>	5.61	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 25	595	0.1−	0.2−	1997 10 11	595	(2.6−	0.9+)	1998 12 18	595	0.3+	0.5+
1997 09 25	595	0.3−	0.4−	1997 10 11	595	0.2−	0.1−	1998 12 18	595	0.0	0.3−
1997 09 25	595	0.1−	0.4−	1997 11 04	595	0.6+	0.3+	1998 12 21	595	0.5+	0.6−
1997 09 26	595	0.3+	0.5+	1997 11 04	595	0.5−	0.3−	1998 12 22	595	0.8−	0.8+
1997 09 26	595	0.4+	0.5+	1998 12 18	595	0.0	0.4−				

1997 SQ₉ = 1998 YU₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	343.66663		(2000.0)	P	Q
<i>n</i>	0.18038852	ω	116.43306	−0.39711200	−0.91768949
<i>a</i>	3.1021547	Ω	356.88752	+0.74184092	−0.31315483
<i>e</i>	0.0796462	<i>i</i>	12.94991	+0.54034628	−0.24449958
<i>P</i>	5.46	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 09 28	691	0.4+	0.1−	1997 10 01	691	0.0	0.0	1998 12 24	327	0.2−	0.2−
1997 09 28	691	0.1+	0.2+	1997 10 03	691	0.2+	0.1+	1998 12 24	327	0.0	0.2−
1997 09 28	691	0.4+	0.1−	1997 10 03	691	0.2−	0.1−	1998 12 24	327	0.0	0.0
1997 09 29	691	0.6−	0.1+	1997 10 03	691	0.5+	0.1−	1998 12 26	327	0.6+	0.1−
1997 09 29	691	0.6−	0.1+	1998 12 19	327	0.2+	0.5+	1998 12 26	327	0.2+	0.6−
1997 09 29	691	0.3−	0.0	1998 12 19	327	0.4+	0.4+	1998 12 26	327	0.7−	0.8−
1997 10 01	691	0.0	0.1+	1998 12 19	327	0.3−	0.7+				
1997 10 01	691	0.0	0.1−	1998 12 24	327	0.1−	0.3+				

1997 SW₉

Id. R. A. Tucker (1998 observations)

M.P.C. 33505

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	335.57021		(2000.0)	P	Q
<i>n</i>	0.18324538	ω	252.42744	−0.63668780	−0.75565902
<i>a</i>	3.0698279	Ω	238.11798	+0.75817835	−0.57709410
<i>e</i>	0.0979288	<i>i</i>	10.42495	+0.14069202	−0.30974482
<i>P</i>	5.38	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 29	683	0.1−	0.1+	1997 10 10	683	0.3+	0.0	1998 12 12	683	0.2+	0.3+
1997 09 29	683	0.1−	0.0	1997 10 10	683	0.6+	0.2+	1998 12 12	683	0.4−	0.3+
1997 09 29	683	0.1+	0.1−	1997 10 10	683	0.4+	0.0	1998 12 13	683	0.1+	0.2+
1997 09 30	683	0.5−	0.2+	1997 10 20	683	0.2−	0.0	1998 12 13	683	0.1+	0.1+
1997 09 30	683	0.4−	0.4+	1997 10 20	683	0.5+	0.3+	1998 12 13	683	0.4+	0.2+
1997 09 30	683	0.4−	0.8+	1997 10 20	683	0.1+	0.4+	1998 12 22	704	0.8+	1.2−
1997 10 05	683	0.0	0.4+	1997 10 20	683	1.3+	0.4−	1998 12 22	704	0.5+	1.5−
1997 10 05	683	0.6−	0.3−	1997 10 20	683	0.0	0.4+	1998 12 22	704	(1.9−	2.4−)
1997 10 05	683	0.2+	0.8−	1997 10 21	683	1.5−	1.6−	1998 12 22	704	1.8−	1.6+
1997 10 06	683	0.0	0.1−	1997 10 21	683	0.2+	0.2+				
1997 10 06	683	0.3+	0.2−	1997 10 21	683	0.0	0.1+				

1997 SZ₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	10.86196		(2000.0)	P	Q
<i>n</i>	0.00290112	ω	340.98772	+0.98490038	+0.16987363
<i>a</i>	48.6884476	Ω	9.42083	−0.12025074	+0.80998230
<i>e</i>	0.3745556	<i>i</i>	11.76664	−0.12454318	+0.56131241
<i>P</i>	340	<i>H</i>	8.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 09 07	675	0.2−	0.2+	1997 10 27	675	0.2−	0.4+	1998 10 16	568	0.4+	0.3−
1997 09 07	675	0.2−	0.3+	1997 10 27	675	0.4−	0.3+	1998 10 16	568	0.2−	0.3−
1997 09 24	568	0.2−	0.2+	1997 10 27	675	0.1−	0.5+	1998 12 12	950	0.4−	0.3+
1997 09 24	568	1.1+	0.4+	1998 10 16	568	0.3+	0.3−	1998 12 14	950	0.1+	0.3+
1997 09 27	696	0.1+	1.3−	1998 10 16	568	0.1−	0.1−				
1997 09 27	696	0.1−	0.9−	1998 10 16	568	0.2−	0.2+				

1997 SN₁₁ = 1998 XF₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	52.13108		(2000.0)	P	Q
<i>n</i>	0.18224373	ω	352.72583	+0.70810973	−0.70609297
<i>a</i>	3.0810658	Ω	52.19276	+0.64806879	+0.64784981
<i>e</i>	0.1946645	<i>i</i>	0.26474	+0.28033454	+0.28587293
<i>P</i>	5.41	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 08 12	691	0.6−	0.4+	1997 09 30	691	0.1+	0.2−	1998 12 11	691	0.5+	0.3−
1997 08 12	691	0.1−	0.2+	1997 10 06	691	0.4+	0.1+	1998 12 11	691	0.6+	0.2−
1997 08 12	691	0.0	0.5+	1997 10 06	691	0.2+	0.2+	1998 12 17	691	0.8−	0.9+
1997 09 27	691	0.4+	0.0	1997 10 06	691	0.0	0.2−	1998 12 17	691	0.7−	0.1+
1997 09 27	691	0.2+	0.4−	1997 10 21	691	0.1+	0.0	1998 12 17	691	1.2−	0.3−
1997 09 27	691	0.3+	0.2−	1997 10 21	691	0.3+	0.2−	1998 12 26	691	0.1+	0.2+
1997 09 30	691	0.0	0.1−	1997 10 21	691	1.6−	0.0	1998 12 26	691	0.1−	0.1−
1997 09 30	691	0.1+	0.1+	1998 12 11	691	1.8+	0.2+	1998 12 26	691	0.0	0.2−

1997 SO₁₁ = 1998 YK₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	34.45030		(2000.0)	P	Q
<i>n</i>	0.22702688	ω	73.58713	+0.20882732	−0.97795055
<i>a</i>	2.6612430	Ω	4.36066	+0.88709878	+0.18858024
<i>e</i>	0.0845878	<i>i</i>	1.48170	+0.41163930	+0.08972294
<i>P</i>	4.34	<i>H</i>	16.7	<i>G</i> 0.15	<i>U</i> 5

M.P.C. 33506

1999 JAN. 6

Residuals in seconds of arc

1997 09 27	691	0.4+	0.4-	1997 10 06	691	0.4+	0.1-	1998 12 25	691	0.2-	0.3+
1997 09 27	691	0.1+	0.1-	1997 10 06	691	0.0	0.3+	1998 12 25	691	0.1+	0.2-
1997 09 27	691	0.2+	0.2-	1997 10 06	691	0.1+	0.0	1998 12 28	691	0.3+	0.0
1997 09 30	691	0.2-	0.1+	1997 10 21	691	0.9+	0.1-	1998 12 28	691	0.1+	0.1+
1997 09 30	691	0.4-	0.3+	1997 10 21	691	0.3+	0.2-	1998 12 28	691	0.4-	0.2-
1997 09 30	691	0.4-	0.1-	1997 10 21	691	1.3-	0.5+				

1997 SG₂₅ = 1985 GJ = 1998 YA₈

Id. T. Kagawa, S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Urata			
<i>M</i>	208.12038		(2000.0)	P	Q		
<i>n</i>	0.26432726	ω	197.33412	-0.06894587	+0.99639023		
<i>a</i>	2.4045921	Ω	68.73498	-0.90888490	-0.04226745		
<i>e</i>	0.1847270	<i>i</i>	3.04649	-0.41130854	-0.07362052		
<i>P</i>	3.73	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1985 04 14	688	0.2-	0.7-	1997 09 30	905	0.5+	0.4+	1997 12 05	385	0.4+	1.0-
1985 04 14	688	0.0	0.1+	1997 10 05	905	1.2+	0.1-	1998 12 22	888	0.3+	0.5-
1997 09 29	905	0.2-	0.8-	1997 10 05	905	0.4-	0.5-	1998 12 22	888	0.0	0.3+
1997 09 29	905	0.6-	0.1+	1997 10 25	385	(0.5-	2.9+)	1998 12 24	888	0.3-	0.1-
1997 09 29	905	0.0	0.6+	1997 10 25	385	0.1+	0.1-	1998 12 24	888	0.0	0.2+
1997 09 30	905	0.1-	0.2-	1997 12 05	385	0.6-	0.8+				

1997 SK₂₅ = 1998 YL₁₂

Id. T. Kagawa

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	80.40781		(2000.0)	P	Q		
<i>n</i>	0.19143238	ω	210.73625	+0.91836343	-0.39508006		
<i>a</i>	2.9816669	Ω	172.42811	+0.38908597	+0.89090047		
<i>e</i>	0.0921618	<i>i</i>	9.96903	+0.07225458	+0.22407165		
<i>P</i>	5.15	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 09 29	905	0.4+	1.2-	1997 10 21	385	0.4-	0.6+	1998 12 22	704	(2.8-	1.4-)
1997 09 29	905	0.3+	0.0	1997 10 21	385	0.1-	0.1+	1998 12 24	888	0.4+	0.1-
1997 09 29	905	1.2-	0.1-	1997 12 05	385	0.6+	0.0	1998 12 24	888	0.3+	0.5-
1997 09 30	905	0.6+	0.3-	1997 12 05	385	0.4-	0.3+	1998 12 25	888	0.3-	0.1-
1997 09 30	905	0.9+	1.8+	1998 12 22	704	0.0	0.5-	1998 12 25	888	0.0	0.8+
1997 10 05	905	0.9-	1.1-	1998 12 22	704	0.6-	0.3+				
1997 10 05	905	0.3+	0.1+	1998 12 22	704	0.1+	0.1-				

1997 TR

Id. A. Galád (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	105.58470		(2000.0)	P	Q		
<i>n</i>	0.18337485	ω	327.58145	+0.89251215	+0.45076446		
<i>a</i>	3.0683827	Ω	5.68997	-0.37393912	+0.75849005		
<i>e</i>	0.1164884	<i>i</i>	8.86541	-0.25217377	+0.47064237		
<i>P</i>	5.37	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 03	118	0.7-	0.2+	1997 10 17	118	0.6+	0.2-	1997 11 20	118	0.4+	0.3-
1997 10 03	118	0.2-	0.7+	1997 10 17	118	0.7+	0.2-	1998 12 09	118	0.6-	0.4-
1997 10 03	118	0.1-	0.0	1997 10 23	691	0.8-	0.4+	1998 12 09	118	0.2-	0.1-
1997 10 04	118	1.3+	0.4-	1997 10 23	691	0.8-	0.0	1998 12 09	118	0.5-	0.2-
1997 10 04	118	0.8+	0.2-	1997 10 23	691	0.6-	0.1-	1998 12 11	118	0.2-	0.1-
1997 10 05	118	1.3-	0.0	1997 10 28	046	0.2-	0.7+	1998 12 11	118	0.2-	0.1-
1997 10 05	118	1.0-	0.0	1997 10 28	046	0.1+	0.5-	1998 12 11	118	0.4-	0.3-
1997 10 05	118	1.2-	0.1-	1997 10 28	046	0.6-	0.6+	1998 12 14	704	0.6+	0.0
1997 10 06	118	0.9+	0.4-	1997 10 29	046	0.2+	0.4+	1998 12 14	704	0.5+	0.4-
1997 10 06	118	0.7+	0.3-	1997 10 29	046	0.0	0.2+	1998 12 14	704	0.4+	0.9-
1997 10 06	118	0.7+	0.1+	1997 10 29	046	0.1-	0.0	1998 12 14	704	0.8-	0.2+

1997 10 07	118	0.6+	0.0	1997 11 03	691	0.6-	0.1+	1998 12 14	704	0.5+	1.6+
1997 10 07	118	0.5+	0.3+	1997 11 03	691	0.4-	0.1+	1998 12 17	704	0.8+	1.0+
1997 10 07	118	0.3-	0.0	1997 11 03	691	0.7-	0.2+	1998 12 17	704	0.3+	1.4-
1997 10 16	118	0.7+	0.6-	1997 11 20	118	0.4+	0.2-	1998 12 17	704	0.6+	1.2+
1997 10 16	118	0.7+	0.2-	1997 11 20	118	0.4+	0.1-	1998 12 17	704	0.9-	0.2-

1997 TV = 1986 VP₃

Id. A. Testa (1998 observations), G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	186.14452		(2000.0)	P	Q		
<i>n</i>	0.17547363	ω	266.91465	-0.06687960	+0.99775887		
<i>a</i>	3.1598136	Ω	359.24110	-0.84146129	-0.05752578		
<i>e</i>	0.0611565	<i>i</i>	9.05795	-0.53616230	-0.03417621		
<i>P</i>	5.62	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1986 11 04	010	(8.0-	0.6+)	1997 10 10	587	0.1+	0.4-	1998 11 18	587	0.4-	0.2-
1986 11 04	010	1.1-	2.0+	1997 10 10	587	0.3+	0.0	1998 12 07	587	0.6-	1.2+
1997 10 02	587	1.3-	1.2+	1997 10 25	587	0.4-	1.6-	1998 12 07	587	0.8-	0.7+
1997 10 02	587	(0.6-	3.2+)	1997 10 25	587	0.4-	1.4-	1998 12 14	704	0.9+	0.5-
1997 10 04	587	0.2+	0.7+	1997 10 25	587	0.5-	0.7-	1998 12 14	704	0.7-	1.1-
1997 10 04	587	0.2+	0.0	1997 10 26	587	1.1+	0.1+	1998 12 14	704	(0.5-	3.0-)
1997 10 04	589	0.4-	0.1-	1997 10 26	587	0.0	0.0	1998 12 17	704	0.5-	0.7-
1997 10 04	589	0.6+	0.8+	1997 10 26	587	0.2+	1.1-	1998 12 17	704	0.4+	0.6-
1997 10 04	589	(5.0+	0.3+)	1997 12 01	587	0.5+	0.0	1998 12 17	704	1.4+	0.3-
1997 10 08	587	0.4+	0.5+	1997 12 01	587	0.4+	0.5-	1998 12 17	704	0.5+	0.1+
1997 10 08	587	0.1+	0.6+	1998 11 18	587	0.2-	1.3+				

1997 TV₁₂ = 1998 XK₂₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	260.40266		(2000.0)	P	Q		
<i>n</i>	0.19573947	ω	269.21290	-0.74589123	+0.66597472		
<i>a</i>	2.9377654	Ω	312.54416	-0.60493798	-0.68433545		
<i>e</i>	0.0327910	<i>i</i>	0.86580	-0.27874059	-0.29692197		
<i>P</i>	5.04	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 02	691	0.4+	0.4+	1997 10 23	691	0.5-	1.6-	1997 11 03	587	1.3+	0.1-
1997 10 02	691	0.5+	0.1+	1997 11 02	691	0.6-	0.2-	1998 12 11	691	1.0-	0.3-
1997 10 02	691	0.4+	0.5+	1997 11 02	691	0.6-	0.1-	1998 12 11	691	0.6-	0.7+
1997 10 09	691	0.4-	0.1-	1997 11 02	691	0.6-	0.1-	1998 12 11	691	1.8+	0.2-
1997 10 09	691	0.4-	0.1+	1997 11 02	587	0.4+	0.3+	1998 12 16	691	0.2-	0.4-
1997 10 09	691	0.5-	0.0	1997 11 02	587	0.4+	0.2+	1998 12 16	691	0.1-	0.3+
1997 10 23	691	0.0	0.4-	1997 11 03	587	0.1-	0.8+	1998 12 16	691	0.0	0.1-
1997 10 23	691	0.1+	0.3-	1997 11 03	587	0.2+	0.8+				

1997 TS₁₈ = 1998 XE₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams			
<i>M</i>	153.40192		(2000.0)	P	Q		
<i>n</i>	0.21435900	ω	303.03041	+0.13199812	+0.98924701		
<i>a</i>	2.7650834	Ω	334.33164	-0.85406037	+0.08124807		
<i>e</i>	0.1328180	<i>i</i>	8.36061	-0.50314748	+0.12161046		
<i>P</i>	4.60	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 10 06	327	0.1-	0.2+	1997 10 17	327	0.0	0.1-	1998 12 14	704	0.3+	0.6+
1997 10 06	327	0.3-	0.1+	1997 10 18	327	0.6+	1.0-	1998 12 14	704	0.8-	0.4+
1997 10 06	327	0.2-	0.3+	1997 10 18	327	0.3+	0.6-	1998 12 14	704	0.5+	0.8-
1997 10 09	327	0.1+	0.4+	1997 10 18	327	0.0	0.4+	1998 12 17	704	0.4-	0.5-
1997 10 09	327	0.5-	0.5+	1997 10 18	327	0.4+	0.0	1998 12 17	704	1.2+	1.1+
1997 10 09	327	0.3-	0.6+	1997 10 19	327	0.2+	0.0	1998 12 17	704	1.8-	1.9-
1997 10 17	327	0.1+	0.2-	1997 10 19	327	0.1+	0.2-	1998 12 17	704	0.1+	0.1-
1997 10 17	327	0.1+	0.1+	1997 10 19	327	0.1-	0.1-	1998 12 17	704	1.1+	0.8+
1997 10 17	327	0.4-	0.3-	1998 12 14	704	0.2-	0.5+				

1997 UC₁₁

Id. T. Urata (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27179473	ω	264.23852	+0.02058530	+0.99844808		
<i>a</i>	2.3603443	Ω	7.54683	-0.68790612	+0.05170297		
<i>e</i>	0.2098745	<i>i</i>	23.20345	-0.72550770	-0.02069370		
<i>P</i>	3.63	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 26	385	0.5-	0.5+	1997 11 04	385	0.4+	0.1+	1998 01 02	385	0.3-	0.7-
1997 10 26	385	0.3-	0.2+	1997 11 04	385	1.0+	0.5+	1998 12 19	385	1.3+	0.1+
1997 10 30	566	0.4-	0.2-	1997 11 18	385	0.1+	0.9-	1998 12 19	385	0.7-	1.0-
1997 10 30	566	0.3+	0.3-	1997 11 18	385	0.4-	0.2-	1998 12 21	888	0.0	0.3+
1997 10 30	566	0.3-	0.1-	1997 12 05	385	0.0	0.1-	1998 12 21	888	0.6-	0.5+
1997 11 01	385	0.2+	0.1-	1997 12 05	385	0.2+	1.3+				
1997 11 01	385	0.0	0.4-	1998 01 02	385	0.1+	0.5+				

1997 UW₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17497616	ω	343.28203	+0.83152235	-0.54854500		
<i>a</i>	3.1657999	Ω	50.31392	+0.52178875	+0.71722882		
<i>e</i>	0.1140156	<i>i</i>	6.53421	+0.19054417	+0.42974550		
<i>P</i>	5.63	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 31	557	0.0	0.1-	1997 11 03	557	0.2-	0.2+	1998 01 11	557	0.7+	0.4+
1997 10 31	557	0.2+	0.2-	1997 11 03	557	0.3-	0.3+	1998 11 24	557	0.1-	0.2+
1997 11 01	557	0.1-	0.2+	1997 11 18	557	0.6-	0.1+	1998 11 24	557	0.3-	0.2+
1997 11 01	557	0.3-	0.1+	1997 11 18	557	0.6-	0.3+	1998 12 10	557	0.1+	0.1-
1997 11 03	704	0.6+	0.3+	1997 11 19	557	0.9-	0.5+	1998 12 10	557	0.0	0.3+
1997 11 03	704	0.9+	0.3-	1998 01 10	557	0.5+	1.0-	1998 12 29	557	0.0	0.2-
1997 11 03	704	0.0	1.4+	1998 01 10	557	0.1+	0.3-	1998 12 29	557	0.2+	0.2+
1997 11 03	704	0.2+	1.3-	1998 01 10	557	0.2-	0.9-				
1997 11 03	704	(2.0-	3.2+)	1998 01 11	557	0.7+	0.2-				

1997 UC₂₂

Id. B. D. Warner (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17161718	ω	51.39687	+0.92803745	+0.24625429		
<i>a</i>	3.2069748	Ω	292.74179	-0.35798972	+0.79693761		
<i>e</i>	0.1541555	<i>i</i>	17.63981	+0.10290701	+0.55158796		
<i>P</i>	5.74	<i>H</i>	12.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 28	327	0.1-	0.5+	1997 12 08	327	0.4+	0.5-	1998 12 14	716	0.2-	0.8-
1997 10 28	327	0.1-	0.2+	1997 12 08	327	0.3+	0.0	1998 12 14	716	0.1+	0.6+
1997 10 28	327	0.1-	0.2+	1997 12 08	327	0.9+	0.3-	1998 12 14	704	0.2+	0.6+
1997 11 06	327	0.1+	0.2-	1997 12 08	327	0.1-	0.9-	1998 12 14	704	0.4+	0.7+
1997 11 06	327	0.3+	0.1-	1998 11 29	292	0.3+	0.5+	1998 12 14	704	0.4-	0.5+
1997 11 06	327	0.3-	0.3-	1998 11 29	292	0.3-	0.1+	1998 12 14	704	0.6-	0.9+
1997 11 19	327	0.1+	0.1+	1998 11 29	292	0.5-	0.8+	1998 12 14	704	0.1+	0.1-
1997 11 19	327	0.2+	0.0	1998 12 02	292	1.0+	0.5-	1998 12 17	704	0.5+	0.5-
1997 11 19	327	0.1+	0.2-	1998 12 02	292	0.9-	0.8-	1998 12 17	704	(0.9+	2.1-)
1997 12 04	327	0.7-	0.2+	1998 12 02	292	0.1+	0.4-	1998 12 17	704	(0.9+	3.4-)
1997 12 04	327	0.4-	0.6+	1998 12 13	716	0.2-	0.4+	1998 12 17	704	0.9+	1.5-
1997 12 04	327	0.5-	0.6+	1998 12 13	716	0.5-	0.5-				

1997 VG₁ = 1998 VD₃₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.08625437	ω	38.85370	-0.04534065	-0.99710979		
<i>a</i>	5.0732001	Ω	53.82796	+0.89666270	-0.06752317		
<i>e</i>	0.0705470	<i>i</i>	4.33096	+0.44038645	+0.03482373		
<i>P</i>	11.43	<i>H</i>	12.0	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1997 11 01	385	0.2+	0.1-	1998 11 10	704	1.0-	0.5-	1998 11 11	704	0.2-	0.1+
1997 11 01	385	0.1-	0.2-	1998 11 10	704	0.8+	0.7+	1998 11 11	704	0.3+	0.2+
1997 11 04	385	0.1+	0.0	1998 11 10	704	1.1+	1.5-	1998 11 11	704	0.3+	0.6+
1997 11 04	385	0.2-	0.3+	1998 11 11	704	0.6-	0.6-				
1998 11 10	704	0.4-	0.2+	1998 11 11	704	0.3-	0.7+				

1997 VJ₁ = 1998 XB₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23215112	ω	250.76079	-0.89840369	+0.39887177		
<i>a</i>	2.6219366	Ω	312.27043	-0.24742493	-0.80542881		
<i>e</i>	0.0655889	<i>i</i>	14.37976	-0.36283840	-0.43838995		
<i>P</i>	4.25	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 01	385	0.2-	0.1+	1998 12 15	910	0.4-	0.5+	1998 12 18	511	0.0	0.0
1997 11 01	385	0.2-	0.4+	1998 12 15	910	0.4-	0.7+	1998 12 18	511	0.1+	0.1-
1997 11 04	385	0.5+	0.4-	1998 12 15	910	0.3-	0.5+	1998 12 18	511	0.0	0.0
1997 11 04	385	0.5+	0.0	1998 12 17	910	0.6+	0.1+	1998 12 18	511	0.0	0.0
1997 11 06	385	0.6-	0.3-	1998 12 17	910	0.0	0.0	1998 12 18	910	0.0	0.2-
1997 11 06	385	0.7-	0.3-	1998 12 17	910	0.1+	0.2-	1998 12 18	910	0.1+	0.1-
1997 11 19	385	0.5+	0.6+	1998 12 18	511	0.1+	0.1-	1998 12 18	910	0.1-	0.2-
1997 11 19	385	0.1-	0.2+	1998 12 18	511	0.1+	0.0	1998 12 18	511	0.1-	0.0
1998 01 02	385	0.6+	0.4-	1998 12 18	511	0.0	0.0	1998 12 28	888	0.1+	0.4-
1998 01 02	385	0.1-	0.0	1998 12 18	511	0.1+	0.0	1998 12 28	888	0.1+	0.3-

1997 VC₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18240272	ω	265.55437	+0.84302146	+0.51186275		
<i>a</i>	3.0792752	Ω	63.57809	-0.39054399	+0.79375936		
<i>e</i>	0.0869212	<i>i</i>	10.63419	-0.36985160	+0.32854620		
<i>P</i>	5.40	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 11 04	557	0.0	0.6-	1997 11 19	557	0.3-	0.7-	1997 12 30	557	0.4+	0.1-
1997 11 04	557	0.1-	0.2-	1997 11 19	557	0.1+	0.6+	1997 12 30	557	0.2+	0.2+
1997 11 04	557	0.0	0.2-	1997 11 29	704	(3.0-	1.9-)	1998 02 01	557	0.0	0.2-
1997 11 04	557	0.5-	0.0	1997 11 29	704	(3.9-	0.8+)	1998 02 01	557	0.0	0.1+
1997 11 04	557	0.3-	0.1-	1997 11 29	704	(4.0-	0.7+)	1998 02 01	557	0.4-	0.1-
1997 11 09	557	0.3-	0.1-	1997 11 29	704	(4.1-	0.4-)	1998 02 23	557	0.6-	1.6+
1997 11 09	557	0.2-	0.1-	1997 12 04	704	0.9+	0.3-	1998 02 23	557	0.8-	1.1+
1997 11 09	557	0.2+	0.2-	1997 12 04	704	(2.4-	1.3+)	1998 11 24	557	0.1-	0.4-
1997 11 10	557	0.6+	0.4+	1997 12 04	704	0.0	0.7+	1998 11 24	557	0.4-	0.4-
1997 11 10	557	0.3+	0.0	1997 12 04	704	0.3+	0.1+	1998 12 29	557	0.3-	0.1+
1997 11 19	557	0.1+	0.1+	1997 12 04	704	0.1-	0.7-	1998 12 29	557	0.4+	0.2-

1997 WX

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27500665	ω	29.87273	+0.77630501	-0.62995818		
<i>a</i>	2.3419301	Ω	9.27474	+0.54725705	+0.65587646		
<i>e</i>	0.0697146	<i>i</i>	8.00087	+0.31282624	+0.41590716		
<i>P</i>	3.58	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 10 28	704	(0.4+ 3.2-)	1997 11 20	557	0.0	0.1-	1998 01 31	557	0.0	0.7-
1997 10 28	704	(1.9+ 3.5-)	1997 11 20	557	0.2+	0.3-	1998 02 23	557	0.1+	0.1+
1997 10 28	704	(1.0- 2.9-)	1997 11 29	557	0.3-	0.4+	1998 02 23	557	0.2-	1.0+
1997 10 28	704	(1.2- 3.6-)	1997 11 29	557	0.0	0.0	1998 02 23	557	0.5+	0.1+
1997 10 30	566	0.4- 0.0	1998 01 10	557	0.2-	1.0-	1998 11 24	557	0.0	0.3+
1997 10 30	566	0.2- 0.2+	1998 01 10	557	0.0	0.0	1998 11 24	557	0.1+	0.0
1997 10 30	566	0.5- 0.5+	1998 01 10	557	0.7+	0.3-	1998 12 18	557	0.1+	0.2+
1997 11 19	557	0.1- 0.3+	1998 01 11	557	0.2+	0.3+	1998 12 18	557	0.0	0.1-
1997 11 19	557	0.3+ 0.1-	1998 01 11	557	0.0	0.3-				
1997 11 19	557	0.9+ 0.1-	1998 01 31	557	0.7-	0.3-				

1997 WD₁₅ = 1949 FM = 1990 DZ₇

Id. T. Kobayashi, S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M			P			Q		
323.44051			(2000.0)					
<i>n</i>	0.21573000	ω	141.90640	-0.99536730	+0.06612891			
<i>a</i>	2.7533559	Ω	42.05006	-0.09116474	-0.87975624			
<i>e</i>	0.1179873	<i>i</i>	5.98115	+0.03054394	-0.47080349			
<i>P</i>	4.57	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4	

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

1949 03 29	760	(0.03+ 0.01+)	X	1997 10 05	910	1.0+	0.3+	1997 11 29	691	1.0-	0.3-
1990 02 27	403	0.4-	1.0-	1997 10 29	566	0.9+	0.6+	1997 11 29	691	0.5-	0.3-
1990 02 27	403	0.4-	0.6-	1997 10 29	566	0.9+	0.3+	1997 12 05	691	1.1-	0.4-
1997 10 04	910	0.3-	0.0	1997 10 29	566	0.8+	0.7+	1997 12 05	691	1.1-	0.3-
1997 10 04	910	0.0	0.1-	1997 11 23	691	0.2-	0.4-	1997 12 05	691	0.7-	0.3-
1997 10 04	910	0.2-	0.1-	1997 11 23	691	0.2+	0.3-	1998 12 26	411	0.3+	0.9+
1997 10 05	910	1.0+	0.2+	1997 11 23	691	0.0	0.5-	1998 12 26	411	0.4+	0.8+
1997 10 05	910	1.3+	0.3+	1997 11 29	691	0.6-	0.7-				

1997 YO₁₄ = 1998 YY₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M			P			Q		
132.98137			(2000.0)					
<i>n</i>	0.23350602	ω	30.72436	+0.95031283	+0.30625209			
<i>a</i>	2.6117844	Ω	311.33462	-0.29858210	+0.84601003			
<i>e</i>	0.2324277	<i>i</i>	4.26289	-0.08805829	+0.43643635			
<i>P</i>	4.22	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1997 12 24	327	0.4+ 0.2+	1998 01 20	327	0.3+	0.0	1998 12 18	910	0.4+	0.1-
1997 12 24	327	0.3+ 0.3-	1998 01 20	327	0.6+	0.1-	1998 12 18	910	0.3+	0.1-
1997 12 24	327	0.1+ 0.4-	1998 01 20	327	0.1+	0.1-	1998 12 18	910	0.3+	0.0
1997 12 31	327	0.4- 0.1+	1998 01 22	327	0.7-	0.3+	1998 12 26	910	0.2-	0.1+
1997 12 31	327	0.2- 0.2+	1998 01 22	327	0.1-	0.1+	1998 12 26	910	0.4-	0.4-
1997 12 31	327	0.2- 0.1+	1998 01 22	327	0.1-	0.0	1998 12 26	910	0.3-	0.4+

1998 DC₆ = 1984 QL = 1990 UN₁₂ = 1993 FK₂₂ = 1996 VB₁₃

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M			P			Q		
138.52573			(2000.0)					
<i>n</i>	0.17246341	ω	299.85978	+0.66920473	-0.74307683			
<i>a</i>	3.1964757	Ω	108.13443	+0.68225343	+0.61370090			
<i>e</i>	0.2236051	<i>i</i>	0.08198	+0.29444064	+0.26684832			
<i>P</i>	5.71	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	2	

Residuals in seconds of arc

1984 08 22	046	0.1+ 1.6-	1998 02 22	566	0.7+	0.7+	1998 03 03	809	0.5+	0.5+
1984 08 23	046	0.2- 0.8+	1998 02 22	566	0.8+	0.2+	1998 03 03	704	0.4-	0.3-
1990 10 23	095	0.7- 3.2+	1998 02 22	566	0.7+	0.6+	1998 03 03	704	0.1+	0.4-
1993 03 21	809	0.1- 1.1+	1998 02 23	566	0.9+	0.1+	1998 03 03	704	0.1-	0.4-
1993 03 22	809	1.2+ 1.2+	1998 02 23	566	0.9+	0.4+	1998 03 04	809	0.8-	0.2+
1993 03 26	809	0.2+ 0.4+	1998 02 23	566	0.6+	0.3+	1998 03 04	809	0.9+	0.2-
1993 03 27	809	0.6+ 1.3+	1998 03 03	809	0.3+	0.9-	1998 03 04	809	0.6+	0.4+

1996 11 05	691	0.2+	0.0	1998 03 03	809	0.4-	0.9-	1998 03 04	704	1.5-	0.4+
1996 11 05	691	0.2+	0.1-	1998 03 03	809	0.2-	0.7-	1998 03 04	704	2.4-	0.1+
1996 11 05	691	0.0	0.0	1998 03 03	704	0.5+	0.1-	1998 03 04	704	2.5-	1.3-
1996 11 17	691	0.1-	0.1-	1998 03 03	809	1.1+	0.7+	1998 03 04	704	2.2-	1.6-
1996 11 17	691	0.2-	0.1+	1998 03 03	704	0.8+	0.3+	1998 03 04	704	1.8-	0.4-
1996 11 17	691	0.4-	0.1+	1998 03 03	809	0.8+	0.9+				

1998 FC₁₄₄ = 1998 HO₆₀ = 1991 RO₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M			P			Q		
3.48568			(2000.0)					
<i>n</i>	0.25177610	ω	52.45119	+0.35718818	+0.93091342			
<i>a</i>	2.4838558	Ω	238.64249	-0.88265870	+0.30970765			
<i>e</i>	0.1458130	<i>i</i>	5.12411	-0.30549996	+0.19360108			
<i>P</i>	3.91	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1991 09 15	675	0.0	0.8-	1998 03 29	704	0.1+	0.3-	1998 04 21	704	0.3-	0.1+
1991 09 15	675	1.0+	0.2+	1998 04 01	704	0.1-	0.5+	1998 04 21	704	0.4+	0.7-
1991 09 17	675	1.4-	0.2+	1998 04 01	704	1.4-	0.8+	1998 04 21	704	0.1+	0.1-
1991 09 17	675	0.4+	0.3+	1998 04 01	704	0.4+	1.6-	1998 04 22	704	0.1+	0.0
1998 03 29	704	1.0+	0.3+	1998 04 01	704	1.5-	1.0+	1998 04 22	704	0.5-	1.0+
1998 03 29	704	0.6+	0.2-	1998 04 01	704	(2.8- 0.5+)		1998 04 22	704	0.1-	0.6+
1998 03 29	704	0.9+	0.6-	1998 04 21	704	0.4+	0.2-	1998 04 22	704	0.1+	0.1+
1998 03 29	704	0.1+	0.3-	1998 04 21	704	0.0	1.1-	1998 04 22	704	0.3-	0.6+

1998 FS₁₄₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M			P			Q		
35.98469			(2000.0)					
<i>n</i>	0.00358072	ω	262.66081	-0.65030374	-0.74863765			
<i>a</i>	42.3144557	Ω	228.74339	+0.74697493	-0.59921815			
<i>e</i>	0.0109756	<i>i</i>	9.88237	+0.13832388	-0.28368871			
<i>P</i>	275	<i>H</i>	6.7	<i>G</i>	0.15			

Residuals in seconds of arc

1998 03 23	807	0.5+ 0.2-	1998 03 24	807	0.6-	0.3-	1998 12 13	950	0.2+	0.1-
1998 03 23	807	0.1- 0.1-	1998 03 27	807	0.1+	0.1+	1998 12 15	950	0.0	0.2+
1998 03 23	807	0.1+ 0.6+	1998 03 27	807	0.1+	0.0	1998 12 16	950	0.2-	0.1-

1998 HT₁₀₇ = 1996 XR₃₃

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M			P			Q		
19.82058			(2000.0)					
<i>n</i>	0.28766296	ω	200.88772	+0.04865713	+0.99247384			
<i>a</i>	2.2727243	Ω	72.03747	-0.89882627	+0.09257445			
<i>e</i>	0.0530831	<i>i</i>	6.78437	-0.43559593	-0.08016011			
<i>P</i>	3.43	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1996 12 10	327	0.6- 0.8-	1998 04 21	704	1.2+	0.2+	1998 04 23	704	0.4+	0.7-
1996 12 10	327	0.5- 0.1+	1998 04 21	704	0.6+	0.5-	1998 04 23	704	0.2-	0.8-
1996 12 10	327	0.6- 0.7-	1998 04 21	704	1.2+	0.5-	1998 04 24	704	0.5+	0.5-
1996 12 18	327	0.5+ 0.3+	1998 04 21	704	0.3+	0.9-	1998 04 24	704	0.2+	1.0+
1996 12 18	327	0.8+ 0.4+	1998 04 22	691	1.6-	0.3+	1998 04 24	704	0.5+	0.1+
1996 12 18	327	0.6+ 0.4+	1998 04 22	691	1.8-	0.3+	1998 04 24	704	0.4+	0.4+
1998 04 04	699	1.0- 0.8+	1998 04 22	691	1.9-	0.0	1998 04 24	704	0.1+	0.1+
1998 04 04	699	0.4+ 0.4+	1998 04 23	704	0.7+	0.0	1998 05 28	699	0.7-	0.1+
1998 04 04	699	0.2+ 0.8+	1998 04 23	704	0.7+	0.6-	1998 05 28	699	0.3-	0.1+
1998 04 21	704	0.8+ 0.5-	1998 04 23	704	1.2-	0.7+	1998 05 28	699	0.0	0.4-

1998 ML₃₁ = 1997 CT₁₄

Id. A. Doppler

1999 JAN. 6

M.P.C. 33509

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5				Williams							
M	41.91009			(2000.0)		P			Q		
n	0.28321646			ω	206.56468	+0.67472733			+0.72985765		
a	2.2964503			Ω	106.08711	−0.65521494			+0.66079110		
e	0.2178176			i	6.56038	−0.33975936			+0.17510835		
P	3.48			H	15.2	G	0.15		U	4	
Residuals in seconds of arc											
1997 02 04	691	0.3−	0.4+	1998 06 24	704	0.7+	2.3−	1998 06 26	704	1.6−	0.8−
1997 02 04	691	0.0	0.4−	1998 06 24	704	1.3−	0.4−	1998 06 27	809	1.1+	0.5−
1997 02 04	691	0.1+	0.1+	1998 06 26	809	2.2+	1.1+	1998 06 27	809	1.1+	1.5−
1997 02 10	691	0.1+	0.1+	1998 06 26	809	1.9+	0.5+	1998 06 27	809	0.5+	1.1−
1997 02 10	691	0.1+	0.1−	1998 06 26	809	2.4+	1.2+	1998 07 26	704	1.3−	0.5−
1997 02 10	691	0.1+	0.0	1998 06 26	704	0.7−	0.0	1998 07 26	704	0.0	0.1+
1998 06 24	704	1.2−	0.3+	1998 06 26	704	1.4−	0.2+	1998 07 26	704	0.6+	0.0
1998 06 24	704	0.8−	0.4+	1998 06 26	704	1.1−	0.9+	1998 07 26	704	0.5+	0.6+
1998 06 24	704	0.3−	1.2+	1998 06 26	704	1.4−	0.5+				

1998 MD₃₃ = 1989 YJ₃ = 1997 GL₂₉

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5						Williams					
<i>M</i>	308.87730			(2000.0)		P			Q		
<i>n</i>	0.18459876			ω	272.54199	+0.71774288			−0.68402752		
<i>a</i>	3.0548052			Ω	130.65641	+0.68738096			+0.66619877		
<i>e</i>	0.1957233			<i>i</i>	9.88216	+0.11114213			+0.29712882		
<i>P</i>	5.34			<i>H</i>	12.7	<i>G</i>	0.15		<i>U</i>	4	
Residuals in seconds of arc											
1989 12 30	413	0.2−	1.1+	1998 06 24	704	0.6−	0.9+	1998 06 26	704	(2.4−	0.3−)
1989 12 30	413	0.2+	1.0+	1998 06 24	704	1.5−	0.1+	1998 06 26	704	(2.3−	0.9+)
1989 12 31	413	0.1−	0.6+	1998 06 24	704	1.9−	0.2−	1998 06 27	809	0.5+	0.8+
1989 12 31	413	0.4+	0.2+	1998 06 24	704	1.2−	0.5−	1998 06 27	809	0.1+	0.3−
1997 04 13	691	0.0	0.2−	1998 06 24	704	(3.3−	0.3+)	1998 06 27	809	0.9+	0.5+
1997 04 13	691	0.0	0.2−	1998 06 26	809	(1.4+	2.1+)	1998 07 26	704	0.1+	0.4+
1997 04 13	691	0.1−	0.1−	1998 06 26	809	1.0+	1.3+	1998 07 26	704	0.8+	0.2+
1997 04 15	691	0.0	0.2−	1998 06 26	809	1.6+	1.4+	1998 07 26	704	1.4+	0.1+
1997 04 15	691	0.0	0.1−	1998 06 26	704	0.7−	0.3−	1998 07 26	704	0.1+	0.9−
1997 04 15	691	0.1+	0.0	1998 06 26	704	1.0−	0.4−				

1998 MW₃₄ = 1980 GE₁ = 1997 AH₂₃

Id. A. Doppler, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5					Williams						
<i>M</i>	85.78084		(2000.0)		P		Q				
<i>n</i>	0.28122755	ω	52.80798		−0.23204250	+0.97237918					
<i>a</i>	2.3072650	Ω	203.81160		−0.91105130	−0.22633818					
<i>e</i>	0.1102202	<i>i</i>	3.57849		−0.34079585	−0.05700660					
<i>P</i>	3.50	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1980 04 14	805	2.7+	0.7−	1998 06 24	704	0.5+	0.2−	1998 06 26	809	0.2+	0.3−
1980 04 15	805	1.9−	0.3+	1998 06 24	704	0.6−	0.2−	1998 06 26	704	0.2−	0.0
1980 04 16	805	0.9−	0.4+	1998 06 24	704	0.0	0.2−	1998 06 26	704	1.4+	0.3+
1997 01 12	568	0.1−	0.1−	1998 06 24	704	0.3+	1.4−	1998 06 26	704	1.7−	1.0+
1997 01 12	568	0.2−	0.1−	1998 06 24	704	0.9+	0.6−	1998 06 27	809	0.2−	0.2+
1997 01 13	568	0.1+	0.2+	1998 06 26	809	0.1−	0.1+	1998 06 27	809	0.9−	0.4+
1997 01 13	568	0.2+	0.0	1998 06 26	809	0.3+	0.1+	1998 06 27	809	0.1+	0.8+

1998 QU₆₀ = 1998 RR₂₀ = 1987 MQ = 1991 RT₁₉

Id. S. Nakano, A. Gnädig

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5						Williams					
<i>M</i>	58.90300		(2000.0)			P		Q			
<i>n</i>	0.27499588		ω	106.31115		+0.53845057		+0.84197810			
<i>a</i>	2.3419912		Ω	196.39985		−0.81162491		+0.50741147			
<i>e</i>	0.1383757		<i>i</i>	6.87994		−0.22657449		+0.18332072			
<i>P</i>	3.58		<i>H</i>	14.9	<i>G</i>	0.15		<i>U</i>	3		
Residuals in seconds of arc											
1983 03 12	413	0.0	0.1+	1991 09 17	675	0.4+	0.4−	1998 09 15	699	0.0	0.1−
1983 03 12	413	0.5+	0.5−	1991 09 17	675	0.2−	0.4−	1998 09 15	699	0.3−	0.3+
1983 05 11	413	0.4−	0.4−	1998 08 23	699	0.2+	0.1+	1998 09 15	699	0.1−	0.0
1983 05 11	413	0.3−	0.0	1998 08 23	699	0.2+	0.0	1998 09 22	699	0.6−	0.0
1987 06 26	675(27.9+	7.8−)		1998 08 23	699	0.4+	0.1+	1998 09 22	699	0.3+	0.5+
1987 06 28	675(35.9+	7.3−)		1998 08 30	699	0.1+	0.3+	1998 09 22	699	0.2−	0.1−
1991 09 14	675	0.3+	0.1+	1998 08 30	699	0.4−	0.1−				
1991 09 14	675	0.1−	0.6−	1998 08 30	699	0.1−	0.1−				

1998 QJ₉₁ = 2181 T-3

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	29.87784		(2000.0)		P		Q				
<i>n</i>	0.23533364	ϖ	138.61536		+0.97662464		−0.20116854				
<i>a</i>	2.5982446	Ω	233.14762		+0.16378492		+0.92460757				
<i>e</i>	0.3417549	<i>i</i>	5.43088		+0.13920779		+0.32346880				
<i>P</i>	4.19	<i>H</i>	16.3		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1977 10 07	675	0.9+	2.6−	1998 08 28	704	1.2+	0.4+	1998 11 10	704	0.1+	0.1−
1977 10 11	675	0.5−	1.3+	1998 08 28	704	0.0	0.3−	1998 11 10	704	0.3−	0.3+
1977 10 11	675	0.8−	1.4+	1998 08 31	704	0.8−	1.2+	1998 11 10	704	1.1−	0.2−
1977 10 12	675	0.2−	0.1+	1998 08 31	704	0.2−	1.2−	1998 11 10	704	0.7−	0.2+
1977 10 12	675	0.7−	0.3+	1998 08 31	704	0.6−	0.5+	1998 11 11	704	0.1−	0.4−
1977 10 16	675	0.5+	1.9−	1998 08 31	704	0.2+	1.1−	1998 11 11	704	0.4+	0.4−
1977 10 16	675	0.2−	1.7−	1998 08 31	704	1.9−	0.2−	1998 11 11	704	0.2−	0.2−
1977 10 17	675	0.5+	0.0	1998 10 28	704	0.3+	0.2+	1998 11 11	704	0.7−	0.6+
1977 10 17	675	0.8+	0.6+	1998 10 28	704	0.9+	0.1−	1998 11 11	704	0.1−	1.3−
1977 10 21	675	1.2+	0.6−	1998 10 28	704	0.6+	0.7+	1998 11 13	120	0.3+	0.5−
1977 10 21	675	2.0+	0.4−	1998 10 28	704	0.8+	0.2+	1998 11 13	120	0.6−	0.4−
1977 10 22	675	0.1−	1.8+	1998 10 29	704	0.2−	0.6+	1998 11 13	120	0.0	0.8+
1977 10 22	675	0.1+	0.3+	1998 10 29	704	0.3+	0.9+	1998 11 15	120	0.0	0.2−
1998 08 28	704	0.7+	1.3+	1998 10 29	704	0.5+	0.4+	1998 11 15	120	0.2−	0.1−
1998 08 28	704	0.0	0.6−	1998 10 29	704	0.4−	0.1+				
1998 08 28	704	0.6+	0.8+	1998 10 29	704	0.3+	0.3+				

1998 QS₉₈ = 1982 VF₇ = 1985 RB₂

Id. A. Gnädig

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5						Williams					
<i>M</i>	71.97038		(2000.0)			P		Q			
<i>n</i>	0.30901191		ω	287.87451		+0.97084956		+0.23409794			
<i>a</i>	2.1668020		Ω	58.61513		−0.19069055		+0.88446519			
<i>e</i>	0.1571335		<i>i</i>	3.45662		−0.14521794		+0.40363285			
<i>P</i>	3.19		<i>H</i>	14.5		<i>G</i>	0.15		<i>U</i>	3	
Residuals in seconds of arc											
1982 11 09	095	0.4+	0.6−	1998 11 10	704	0.8−	0.3−	1998 11 19	699	0.2+	0.3+
1985 09 12	688	0.3+	0.4−	1998 11 10	704	0.9−	0.1+	1998 11 19	699	0.3+	0.4+
1985 09 12	688	1.0−	1.6+	1998 11 10	704	0.6−	1.4+	1998 11 19	910	1.6+	0.3+
1998 08 28	704	0.5+	0.8+	1998 11 10	704	1.8−	1.5+	1998 11 19	910	1.4+	0.3+
1998 08 28	704	0.5+	0.5−	1998 11 11	704	1.9−	1.8−	1998 11 19	910	1.3+	0.3+
1998 08 28	704	0.5+	1.1+	1998 11 11	704	0.7+	0.5−	1998 11 21	704	0.5+	0.2−
1998 08 28	704	1.5+	0.6+	1998 11 11	704	0.4−	0.5−	1998 11 21	704	1.1+	0.6−
1998 08 31	704	0.1−	1.3−	1998 11 13	120	0.5+	0.3−	1998 11 21	704	0.7+	0.7−
1998 08 31	704	1.1−	0.7+	1998 11 13	120	0.4−	0.0	1998 11 21	704	1.4+	1.2−
1998 08 31	704	(0.1+	2.2−)	1998 11 14	691	1.6−	0.1−	1998 11 21	704	0.6+	1.7−
1998 08 31	704	0.0	0.5−	1998 11 14	691	1.6−	0.4−	1998 11 26	691	1.5−	0.0
1998 08 31	704	0.9−	0.2+	1998 11 14	691	1.6−	0.3−	1998 11 26	691	1.5−	0.1+

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1998 10 18	699	0.3−	0.5−	1998 11 17	910	1.3+	0.4+	1998 11 26	691	1.5−	0.1+
1998 10 18	699	0.1−	0.4−	1998 11 17	910	1.5+	0.5+	1998 12 07	120	0.9−	0.6+
1998 10 18	699	0.5−	1.9−	1998 11 18	910	1.5+	0.5+	1998 12 07	120	0.5−	0.8+
1998 10 30	120	0.6+	0.2−	1998 11 18	704	0.2+	0.5+	1998 12 07	120	0.8−	0.5+
1998 10 30	120	0.2−	0.1−	1998 11 18	704	0.4+	0.3−	1998 12 07	120	0.5−	0.9+
1998 10 31	120	0.0	0.5−	1998 11 18	704	0.6+	0.2−	1998 12 07	120	0.6−	0.8+
1998 10 31	120	0.4+	1.0−	1998 11 18	704	1.2+	0.6−	1998 12 16	699	0.6−	0.8+
1998 10 31	120	0.1+	0.3−	1998 11 18	704	1.4+	0.6+	1998 12 16	699	0.7−	0.5+
1998 11 10	704	1.0+	0.3+	1998 11 19	699	0.1+	0.3+	1998 12 16	699	0.7−	1.0+

1998 RM₆ = 1990 WC₁

Id. A. Gnädig, G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	99.21884		(2000.0)		P		Q
n	0.23950679	ω	110.12416		+0.52090466		+0.85269505
a	2.5679753	Ω	191.51928		−0.83839700		+0.50234256
e	0.0918773	i	11.44245		−0.16046434		+0.14339839
P	4.12	H	14.8	G	0.15	U	4

Residuals in seconds of arc

1981 07 26	413	0.6−	0.3−	1998 09 18	699	0.1−	1.2+	1998 10 29	704	1.6−	0.0
1981 07 26	413	1.0+	1.1−	1998 09 20	809	1.7+	1.7+	1998 10 29	704	0.7−	1.9−
1990 11 18	809	1.1+	0.7+	1998 09 20	809	0.8+	1.4+	1998 10 29	704	0.3−	0.7−
1990 11 18	809	0.4+	0.0	1998 09 20	809	0.0	1.8+	1998 11 10	704	(2.5−	0.1−)
1990 11 18	809	0.3−	0.1+	1998 09 21	809	1.6+	0.4+	1998 11 10	704	1.1−	0.8+
1990 11 20	809	1.3−	1.0−	1998 09 21	809	0.6+	0.5−	1998 11 10	704	1.5−	0.8+
1990 11 20	809	(3.4−	0.8−)	1998 09 21	809	0.8+	0.4+	1998 11 11	704	0.1−	0.4−
1990 11 20	809	(2.5−	0.4+)	1998 10 28	704	1.0−	0.4−	1998 11 11	704	1.0+	1.0−
1998 09 14	699	1.2+	0.1−	1998 10 28	704	(2.8−	0.1−)	1998 11 11	704	0.6+	1.2−
1998 09 14	699	1.1+	0.4+	1998 10 28	704	0.2−	0.1+	1998 11 11	704	0.1−	1.6−
1998 09 14	699	0.9+	0.1+	1998 10 28	704	1.3−	0.8+	1998 11 11	704	1.3+	1.9−
1998 09 18	699	0.3−	0.1+	1998 10 29	704	0.7−	0.8+				
1998 09 18	699	0.4−	0.8+	1998 10 29	704	1.3−	1.1−				

1998 RR₂₉ = 1997 JE₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	4.70138		(2000.0)		P		Q
n	0.23452101	ω	243.49361		+0.92964000		−0.36508610
a	2.6042432	Ω	137.86841		+0.35895403		+0.86679335
e	0.1331365	i	4.25866		+0.08319538		+0.33967844
P	4.20	H	16.7	G	0.15	U	5

Residuals in seconds of arc

1997 05 03	691	0.3+	0.1−	1998 09 14	704	0.7+	0.0	1998 09 18	704	0.9+	1.6+
1997 05 03	691	0.3+	0.2+	1998 09 14	704	1.3−	0.9+	1998 09 18	704	0.8+	0.1−
1997 05 03	691	0.1+	0.1−	1998 09 14	704	0.1−	1.2−	1998 09 18	704	1.1+	0.7+
1997 05 08	691	0.1−	0.1+	1998 09 14	704	0.8−	1.3−	1998 09 26	327	0.4−	0.4−
1997 05 08	691	0.3−	0.1−	1998 09 18	704	(0.7+	2.5+)	1998 09 26	327	0.1−	0.9−
1997 05 08	691	0.4−	0.0	1998 09 18	704	0.9−	0.1+	1998 09 26	327	0.1+	0.6+

1998 RK₃₃ = 1998 TF₃₀ = 1994 SK₃ = 1997 EF₄₉

Id. S. Nakano (d), A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	105.70862		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$
n	0.23589457	ω	253.83170		−0.24132395		+0.97040265
a	2.5941241	Ω	2.26287		−0.77995909		−0.18841324
e	0.1364375	i	13.21309		−0.57743100		−0.15106010
P	4.18	H	14.2	G	0.15	U	3

Residuals in seconds of arc

1994 09 28	691	1.0−	1.4+	1997 03 12	809	(3.8+	2.9+)	1998 09 18	704	0.5+	0.7−
1994 09 28	691	0.5−	0.8+	1997 03 12	809	(3.8+	2.7+)	1998 09 18	704	0.9+	0.4+
1994 09 28	691	0.6−	0.7+	1997 03 12	809	(3.5+	2.8+)	1998 09 18	704	0.1+	0.9−
1994 09 29	691	0.8−	1.1+	1998 09 14	704	0.2−	1.0−	1998 10 10	699	0.2−	0.8+
1994 09 29	691	0.7−	1.0+	1998 09 14	704	0.7−	0.3−	1998 10 10	699	0.9+	0.7+

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1994 09 29	691	0.6−	0.8+	1998 09 14	704	0.4−	0.3−	1998 10 10	699	0.5−	0.0
1997 03 11	809	1.4+	1.6+	1998 09 14	704	0.8−	0.5+	1998 10 12	699	0.3+	0.0
1997 03 11	809	1.7+	2.2+	1998 09 18	704	0.4+	0.5−	1998 10 12	699	0.6−	1.1+
1997 03 11	809	0.9+	1.7+	1998 09 18	704	0.3+	0.3+	1998 10 12	699	0.3+	0.2−

1998 RZ₃₄ = 1976 UC₁₄ = 1987 SJ₁₀ = 1997 EZ₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	89.82538		(2000.0)		P		Q
n	0.26569886	ω	146.72125		+0.13284190		+0.99031907
a	2.3963096	Ω	130.87857		−0.92057847		+0.13833648
e	0.1658575	i	3.05257		−0.36727143		+0.01145278
P	3.71	H	15.1	G	0.15	U	4

Residuals in seconds of arc

1976 10 22	381	1.2−	0.3+	1997 03 04	400	0.6−	1.8−	1998 09 18	704	0.7+	0.2−
1976 10 22	381	0.3+	0.6+	1997 03 04	400	1.7−	0.1+	1998 09 18	704	0.4−	0.5−
1987 09 29	033	0.8−	0.4−	1998 09 14	704	0.4+	1.3+	1998 09 18	704	0.5+	0.6+
1987 09 29	033	1.0+	0.2+	1998 09 14	704	0.1−	1.3+	1998 09 27	699	0.3−	0.5−
1987 09 30	033	0.7+	0.2−	1998 09 14	704	0.2−	1.0+	1998 09 27	699	0.9−	0.8−
1987 09 30	033	0.5+	0.8−	1998 09 14	704	0.3−	0.2+	1998 09 27	699	0.5−	0.3−
1997 03 03	400	1.3+	2.0+	1998 09 18	704	0.0	1.2−				
1997 03 03	400	0.9+	0.5−	1998 09 18	704	0.5+	0.6−				

1998 RD₄₀ = 1994 NV₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	99.80020		(2000.0)		P		Q
n	0.26824460	ω	169.93493		−0.06511034		+0.99489851
a	2.3811243	Ω	96.30187		−0.92084018		−0.03015286
e	0.1668666	i	4.44627		−0.38446587		−0.09626917
P	3.67	H	15.3	G	0.15	U	6

Residuals in seconds of arc

1994 07 08	809	0.2+	1.3−	1998 09 14	704	0.7−	0.4+	1998 09 18	704	0.3+	0.5−
1994 07 08	809	0.6−	0.2−	1998 09 14	704	0.7−	0.4−	1998 09 18	704	0.9+	0.2−
1994 07 08	809	0.2−	0.9+	1998 09 14	704	0.3+	0.9−	1998 09 18	704	1.0+	0.7−
1994 07 09	809	0.3+	0.1+	1998 09 14	704	0.5−	0.8+	1998 09 27	699	0.3−	0.3−
1994 07 09	809	1.2+	0.5+	1998 09 18	704	0.6−	1.2+	1998 09 27	699	0.1+	0.3−
1994 07 09	809	0.9−	0.1+	1998 09 18	704	1.0+	0.4−	1998 09 27	699	0.9−	1.2+

1998 RQ₄₂ = 1991 RS₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	54.53777		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$
n	0.28594665	ω	34.11127		+0.88046054		+0.46932847
a	2.2818094	Ω	297.76052		−0.45018426		+0.78307824
e	0.1274490	i	4.35729		−0.14873929		+0.40806772
P	3.45	H	15.8	G	0.15	U	6

Residuals in seconds of arc

1991 09 03	413	0.1−	0.2−	1998 09 14	704	0.0	0.2−	1998 09 18	704	0.7−	0.1+
1991 09 03	413	0.1+	0.2−	1998 09 14	704	1.0−	0.8−	1998 09 18	704	0.3+	0.4+
1991 09 04	413	0.1−	0.7+	1998 09 18	704	0.1−	0.3−	1998 09 27	699	0.3−	0.3+
1998 09 14	704	0.5+	0.0	1998 09 18	704	0.3+	0.3+	1998 09 27	699	0.5−	0.3+
1998 09 14	704	1.5+	0.8−	1998 09 18	704	0.2+	0.5+	1998 09 27	699	0.0	0.1+

1998 RW₄₂ = 1997 LV

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

M	55.49309		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$
n	0.28661419	ω	97.08144		+0.84860571		+0.52571498
a	2.2782651	Ω	231.22079		−0.51036264		+0.78413618
e	0.1745107	i	4.34741		−0.13927787		+0.32977904
P	3.44	H	16.5	G	0.15	U	5

1999 JAN. 6

Residuals in seconds of arc

1997 06 05	568	0.6+	0.1+	1998 09 14	704	0.5−	0.5+	1998 09 18	704	0.5−	0.1+
1997 06 05	568	0.1−	0.2−	1998 09 14	704	1.7−	1.3−	1998 09 18	704	0.4−	0.0
1997 06 05	568	0.5−	0.1+	1998 09 14	704	0.1+	0.5−	1998 09 18	704	0.7+	1.8+
1997 06 06	568	0.0	0.1−	1998 09 14	704	0.6+	0.3+	1998 09 27	699	0.3+	0.1+
1997 06 06	568	0.1−	0.1−	1998 09 18	704	1.6+	0.8−	1998 09 27	699	0.9−	1.5−
1997 06 06	568	0.1+	0.1+	1998 09 18	704	0.8+	0.7+	1998 09 27	699	0.0	0.5+

1998 RJ₅₂ = 1996 GO₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	6.91919		(2000.0)	P	Q
<i>n</i>	0.21703705	ω	328.93988	+0.95230527	−0.29168758
<i>a</i>	2.7422905	Ω	48.29639	+0.29877621	+0.83159171
<i>e</i>	0.0581191	<i>i</i>	6.89485	+0.06202771	+0.47262414
<i>P</i>	4.54	<i>H</i>	14.8	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1996 04 08	327	0.3+	0.1−	1996 04 11	327	0.1−	0.4+	1998 09 18	704	0.4+	0.7+
1996 04 08	327	0.1+	0.1−	1996 04 11	327	0.4+	0.4+	1998 09 18	704	0.1+	0.4−
1996 04 08	327	0.1+	0.3+	1998 09 14	704	0.3−	0.1−	1998 09 18	704	1.0−	0.1+
1996 04 09	327	0.4−	0.3−	1998 09 14	704	0.1−	0.2+	1998 09 27	699	0.1−	0.2+
1996 04 09	327	0.2−	0.2+	1998 09 14	704	1.0+	0.2−	1998 09 27	699	0.2+	0.2+
1996 04 09	327	0.1−	0.2−	1998 09 18	704	0.5+	0.6−	1998 09 27	699	0.1+	0.4−
1996 04 11	327	0.0	0.5−	1998 09 18	704	0.7−	0.4+				

1998 SV₈ = 1996 HZ₂₀

Id. G. V. Williams, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	179.60362		(2000.0)	P	Q
<i>n</i>	0.16931555	ω	58.79643	−0.86361000	+0.50410168
<i>a</i>	3.2359725	Ω	151.47317	−0.46786944	−0.79566298
<i>e</i>	0.1017988	<i>i</i>	0.92360	−0.18781892	−0.33585998
<i>P</i>	5.82	<i>H</i>	14.7	<i>G</i>	0.15
				<i>U</i>	6

Residuals in seconds of arc

1996 04 18	809	0.3−	0.2+	1996 05 23	809	0.6+	0.2+	1998 09 21	691	0.2+	0.1+
1996 04 18	809	0.3−	1.1+	1996 05 23	809	0.1+	0.4+	1998 09 21	691	0.4+	0.0
1996 04 18	809	1.1−	0.1−	1996 05 23	809	0.8−	0.6−	1998 09 21	691	0.3+	0.5+
1996 04 20	809	0.5+	0.3+	1998 09 20	691	0.6+	0.3+	1998 09 23	691	0.6−	0.8−
1996 04 20	809	0.4+	0.7−	1998 09 20	691	0.8−	0.3+	1998 09 23	691	0.4−	0.5−
1996 04 20	809	0.8+	0.7−	1998 09 20	691	0.6+	0.3+	1998 09 23	691	0.2−	0.2−

1998 SR₆₂ = 1997 HA₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	65.10844		(2000.0)	P	Q
<i>n</i>	0.27957648	ω	309.62448	+0.98715551	+0.15762384
<i>a</i>	2.3163399	Ω	41.32555	−0.13181512	+0.89571000
<i>e</i>	0.2729075	<i>i</i>	2.26110	−0.09027060	+0.41576234
<i>P</i>	3.53	<i>H</i>	15.1	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1997 04 29	691	0.4+	0.2+	1998 09 20	327	0.0	0.3+	1998 12 14	704	1.7+	1.9−
1997 04 29	691	0.4+	0.3+	1998 09 23	327	0.6+	0.1−	1998 12 17	704	1.2−	1.6+
1997 04 29	691	0.2+	0.3−	1998 09 23	327	0.9+	0.6−	1998 12 17	704	0.2+	1.0−
1997 04 30	691	0.4−	0.1−	1998 09 23	327	0.4+	0.1−	1998 12 17	704	0.9−	0.5−
1997 04 30	691	0.4−	0.2−	1998 12 14	704	0.2+	0.9+	1998 12 17	704	0.3+	0.1+
1997 04 30	691	0.3−	0.2−	1998 12 14	704	0.8+	0.3−	1998 12 17	704	0.1−	0.6+
1998 09 20	327	0.7−	0.0	1998 12 14	704	0.7−	0.3+				
1998 09 20	327	1.0−	0.2+	1998 12 14	704	0.5−	0.2+				

1998 SH₇₉ = 1991 RP₃₀

Id. S. Nakano

M.P.C. 33511

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	53.45348		(2000.0)	P	Q
<i>n</i>	0.28458231	ω	254.87645	+0.87551321	+0.47648458
<i>a</i>	2.2890966	Ω	76.61112	−0.40558617	+0.81495320
<i>e</i>	0.1518309	<i>i</i>	4.73146	−0.26263372	+0.32986927
<i>P</i>	3.46	<i>H</i>	14.9	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1991 09 14	675	0.0	0.3−	1998 09 27	704	0.5+	0.3−	1998 10 01	327	0.2−	0.4+
1991 09 14	675	0.4−	0.4+	1998 09 27	704	0.9+	0.3+	1998 10 01	327	0.4−	0.5+
1991 09 15	675	0.7+	0.0	1998 09 27	704	1.0−	0.4+	1998 10 12	699	0.7−	0.1+
1991 09 15	675	0.2−	0.3−	1998 09 27	704	0.4+	0.3−	1998 10 12	699	0.6−	0.0
1998 09 26	704	0.4+	0.0	1998 09 27	699	0.4+	0.2+	1998 10 12	699	0.5−	0.2−
1998 09 26	704	0.2+	0.3−	1998 09 27	704	0.1+	0.0	1998 12 16	699	1.0+	0.4+
1998 09 26	704	0.2−	0.6−	1998 09 27	699	0.1+	0.2+	1998 12 16	699	0.0	0.1−
1998 09 26	704	0.3+	0.7−	1998 09 27	699	0.1+	0.1+	1998 12 16	699	0.5−	0.7−
1998 09 26	704	0.0	0.1+	1998 10 01	327	0.2−	0.6+				

1998 SC₁₂₂ = 1982 UG₁₀ = 1986 VJ

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Gnädig

<i>M</i>	359.32919		(2000.0)	P	Q
<i>n</i>	0.24463858	ω	65.62098	+0.54954171	−0.83538254
<i>a</i>	2.5319362	Ω	351.01541	+0.73646612	+0.49105915
<i>e</i>	0.1544235	<i>i</i>	4.34378	+0.39448898	+0.24697553
<i>P</i>	4.03	<i>H</i>	15.3	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1954 12 30	675	0.1+	1.0+	1998 09 26	704	0.0	0.3−	1998 10 28	704	0.9−	0.3+
1954 12 30	675	0.5−	0.7−	1998 09 27	704	0.9+	0.1−	1998 10 28	704	0.5−	0.6−
1982 10 22	095	0.2+	1.6−	1998 09 27	704	0.1+	0.3+	1998 10 29	704	0.9−	0.2−
1986 11 03	046	0.3+	0.4−	1998 09 27	704	0.4+	0.5+	1998 10 29	704	0.9−	1.1+
1986 11 03	046	0.6+	0.5−	1998 09 27	704	0.1−	0.5−	1998 10 29	704	0.8−	1.2+
1998 09 26	704	0.7+	0.5+	1998 09 27	704	0.1+	0.8−	1998 10 29	704	0.6−	1.3+
1998 09 26	704	0.3+	0.1+	1998 10 28	704	1.1−	0.9−	1998 10 29	704	0.6+	0.6+
1998 09 26	704	0.5+	0.6−	1998 10 28	704	1.0+	0.6−				
1998 09 26	704	0.4+	0.0	1998 10 28	704	0.3−	0.9+				

1998 SN₁₃₄ = 2795 P-L

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	9.17865		(2000.0)	P	Q
<i>n</i>	0.25980114	ω	11.88393	+0.74478542	−0.66584638
<i>a</i>	2.4324393	Ω	30.00981	+0.60479313	+0.64562549
<i>e</i>	0.0809892	<i>i</i>	5.05656	+0.28199281	+0.37392020
<i>P</i>	3.79	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1960 09 26	675	1.5+	0.6−	1998 09 27	704	1.8−	0.8+	1998 11 11	704	0.0	0.7−
1960 09 28	675	0.8−	0.2−	1998 09 27	704	0.6−	1.0+	1998 11 11	704	0.9+	0.2+
1960 09 29	675	0.2−	0.2−	1998 09 27	704	0.7−	0.1−	1998 11 11	704	0.2+	0.4+
1998 09 26	704	0.0	0.5−	1998 10 10	699	0.8+	0.3+	1998 11 11	704	0.8−	0.7+
1998 09 26	704	0.2+	1.5−	1998 10 10	699	0.3+	1.2+	1998 11 11	704	0.2−	0.7+
1998 09 26	704	0.1−	1.3−	1998 10 10	699	0.9+	1.1+	1998 12 09	699	0.1−	1.4−
1998 09 26	704	0.1+	0.4−	1998 11 10	704	0.6+	0.1+	1998 12 09	699	0.0	0.0
1998 09 26	704	0.1+	0.4−	1998 11 10	704	0.4+	0.1+	1998 12 09	699	0.0	0.8−
1998 09 27	704	0.1−	0.2+	1998 11 10	704	0.4+	0.6+				
1998 09 27	704	1.1−	0.2−	1998 11 10	704	0.0	0.3+				

1998 SW₁₃₅ = 1997 JX₁₃Id. S. Nakano; 1997 JX₁₃ = 1995 UL₄₈ (*MPC* 32966) is invalid

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	48.45786	(2000.0)	P		Q	
<i>n</i>	0.29026424	ω	285.45204	+0.99753918	-0.02153547	
<i>a</i>	2.2591255	Ω	75.81705	+0.04721937	+0.90982148	
<i>e</i>	0.0152978	<i>i</i>	3.94619	-0.05182581	+0.41444071	
<i>P</i>	3.40	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1997 05 03	809	0.6-	0.6+	1998 09 26	704	0.1-	0.2-	1998 10 28	704	1.6-	0.3-
1997 05 03	809	0.4+	0.6-	1998 09 27	704	0.3-	0.7-	1998 10 28	704	0.0	0.3+
1997 05 03	809	0.3+	0.3+	1998 09 27	704	0.0	0.7-	1998 10 29	704	0.4-	0.3+
1997 05 04	809	0.6+	0.3+	1998 09 27	704	0.5+	0.1+	1998 10 29	704	0.7-	0.4+
1997 05 04	809	0.2-	0.7+	1998 09 27	704	0.3+	0.4-	1998 10 29	704	0.6+	0.2-
1997 05 04	809	(0.6-	3.2+)	1998 09 27	704	0.6-	0.2-	1998 10 29	704	0.0	0.5-
1997 05 07	704	0.1-	0.2-	1998 10 11	699	0.8+	0.0	1998 10 29	704	0.8-	1.2-
1997 05 07	704	0.1-	0.1-	1998 10 11	699	0.2+	0.8+	1998 11 10	704	0.6-	0.4-
1997 05 07	704	0.2-	0.2-	1998 10 11	699	0.4+	0.3+	1998 11 10	704	0.3+	0.9+
1997 05 07	704	0.1+	0.1-	1998 10 20	699	0.3-	0.0	1998 11 10	704	0.3+	0.8+
1997 05 07	704	0.1+	0.3+	1998 10 20	699	0.4-	0.7+	1998 11 10	704	(2.1+	1.6+)
1998 09 26	704	0.0	0.3+	1998 10 20	699	0.0	0.5+	1998 11 11	704	1.8+	0.1-
1998 09 26	704	0.4+	0.4-	1998 10 28	704	0.5+	1.3+	1998 11 11	704	0.7+	0.3-
1998 09 26	704	0.5+	0.3-	1998 10 28	704	0.4-	0.0	1998 11 11	704	0.3+	0.4+
1998 09 26	704	0.3+	0.0	1998 10 28	704	1.1-	1.4-	1998 11 11	704	0.8-	1.3+

1998 SJ₁₄₁ = 1974 FG₁ = 1991 BK₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	235.43944	(2000.0)	P		Q	
<i>n</i>	0.22473513	ω	156.35299	-0.99559520	-0.01750479	
<i>a</i>	2.6793045	Ω	23.21674	-0.03975002	-0.81094011	
<i>e</i>	0.1075505	<i>i</i>	13.51209	+0.08491254	-0.58486727	
<i>P</i>	4.39	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1950 12 09	675	1.1+	0.5-	1998 09 20	809	(4.4+	2.0+)	1998 10 29	704	0.3+	0.2+
1950 12 09	675	0.7-	0.2-	1998 09 20	809	(4.6+	2.2+)	1998 10 29	704	1.5+	0.1+
1974 03 21	095	(2.5-	4.3+)	1998 09 20	809	(4.4+	1.9+)	1998 10 29	704	0.3+	0.5+
1983 05 10	413	0.2-	0.7-	1998 09 26	704	0.2+	0.1+	1998 10 29	704	0.4+	0.0
1983 05 10	413	0.9-	0.5-	1998 09 26	704	0.8+	0.8-	1998 10 29	704	0.3-	0.3+
1991 01 18	033	1.0-	0.7+	1998 09 26	704	0.3+	1.0-	1998 11 10	704	0.6+	0.3-
1991 01 18	033	0.9-	0.3+	1998 09 26	704	0.6+	0.0	1998 11 10	704	0.1-	0.5+
1991 01 19	033	2.1+	0.7-	1998 09 26	704	0.1+	0.3+	1998 11 10	704	0.2+	0.6-
1992 03 31	413	0.4+	0.0	1998 09 27	704	0.4-	0.1-	1998 11 10	704	0.2-	0.3-
1992 04 09	413	0.0	0.6-	1998 09 27	704	1.2-	0.4+	1998 11 10	704	0.5-	0.6-
1992 04 09	413	0.1-	0.7+	1998 09 27	704	0.9-	0.1-	1998 11 11	704	0.8-	1.0-
1998 09 14	699	0.0	0.3+	1998 09 27	704	1.1-	0.4+	1998 11 11	704	0.3+	0.5+
1998 09 14	699	0.2-	0.2-	1998 09 27	704	0.3-	0.1-	1998 11 11	704	0.9+	0.3-
1998 09 14	699	0.4+	0.6-	1998 10 28	704	0.2-	0.3+	1998 11 11	704	0.2+	0.1-
1998 09 18	809	(3.1+	2.4+)	1998 10 28	704	0.3-	0.0	1998 11 11	704	0.0	0.6+
1998 09 18	809	(2.0+	2.0+)	1998 10 28	704	0.3-	0.2+				
1998 09 18	809	(2.3+	2.1+)	1998 10 28	704	0.1+	0.9+				

1998 SX₁₄₆ = 1986 SN

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	99.72951	(2000.0)	P		Q	
<i>n</i>	0.16802746	ω	114.05546	+0.22889838	+0.97339694	
<i>a</i>	3.2524892	Ω	169.16190	-0.91165989	+0.21802874	
<i>e</i>	0.2085680	<i>i</i>	3.10779	-0.34129427	+0.07044047	
<i>P</i>	5.87	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1986 09 30	046	1.5-	1.8+	1998 09 20	809	0.4+	1.6-	1998 10 28	704	0.7+	1.4+
1986 09 30	046	0.6-	1.0+	1998 09 20	809	0.1-	1.5-	1998 10 29	704	0.9-	0.0
1986 10 01	046	0.5+	1.3-	1998 09 21	809	1.6+	1.3-	1998 10 29	704	0.6-	0.9+
1986 10 01	046	1.5+	1.3-	1998 09 21	809	0.9+	0.4-	1998 10 29	704	1.0-	1.8+
1998 09 18	910	1.3-	1.6+	1998 09 21	809	0.0	0.4+	1998 10 29	704	1.1-	0.9-

1998 09 18	910	1.3-	1.5+	1998 10 28	704	0.1+	0.4+	1998 10 29	704	1.4-	0.7-
1998 09 18	910	1.2-	1.5+	1998 10 28	704	1.9+	2.1-				
1998 09 20	809	1.7+	1.4-	1998 10 28	704	1.8+	0.2+				

1998 TZ₁₈ = 1998 UD₃₉ = 1997 HD₁₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	87.53864	(2000.0)	P		Q	
<i>n</i>	0.23641534	ω	99.72179	+0.54831794	+0.83584028	
<i>a</i>	2.5903132	Ω	203.59061	-0.79112780	+0.50806460	
<i>e</i>	0.1795155	<i>i</i>	3.84040	-0.27104289	+0.20794564	
<i>P</i>	4.17	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1997 04 30	704	1.4-	0.9-	1997 05 01	704	0.1+	0.4+	1998 10 18	327	0.4-	1.2-
1997 04 30	704	0.4-	0.0	1997 05 01	704	0.2-	0.0	1998 10 28	704	0.3-	1.1-
1997 04 30	704	0.7+	0.2+	1998 09 20	809	1.1+	1.0+	1998 10 28	704	0.8-	0.7+
1997 04 30	704	0.2-	0.1-	1998 09 20	809	0.4+	1.2+	1998 10 28	704	1.8+	2.1-
1997 04 30	704	0.7+	0.2-	1998 09 20	809	0.6+	0.7+	1998 10 28	704	0.2+	0.3-
1997 04 30	704	0.4+	0.1+	1998 10 14	327	1.2-	0.5-	1998 10 29	704	0.4-	0.3+
1997 04 30	704	0.9+	0.1-	1998 10 14	327	0.4-	0.1+	1998 10 29	704	1.5+	0.7+
1997 04 30	704	0.2-	0.3+	1998 10 14	327	1.0-	0.7-	1998 10 29	704	1.2+	1.5+
1997 05 01	704	0.2-	0.1+	1998 10 18	327	0.6-	0.4-	1998 10 29	704	0.3-	0.5+
1997 05 01	704	0.2-	0.9-	1998 10 18	327	0.9-	1.2-				

1998 TG₃₂ = 1985 UH₁ = 1991 PE₂₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	17.78054	(2000.0)	P		Q	
<i>n</i>	0.30117687	ω	80.57724	+0.71199141	-0.70185657	
<i>a</i>	2.2042202	Ω	323.99369	+0.62898486	+0.65112571	
<i>e</i>	0.0699423	<i>i</i>	2.10347	+0.31216386	+0.28884713	
<i>P</i>	3.27	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1985 10 22	033	0.2+	0.8-	1998 10 19	699	0.2+	0.8-	1998 11 11	704	0.1-	0.8+
1991 08 05	809	0.5+	0.3-	1998 10 19	699	0.4+	1.2-	1998 11 11	704	0.3-	0.1+
1991 08 05	809	0.7-	0.0	1998 10 19	699	0.1+	0.3-	1998 11 11	704	0.6-	1.0+
1991 08 05	809	0.0	0.9+	1998 11 10	704	0.5-	1.0+	1998 11 11	704	0.9-	0.2+
1998 10 11	699	0.8+	0.7-	1998 11 10	704	0.3-	0.0	1998 11 11	704	0.4-	0.2+
1998 10 11	699	0.8+	0.4-	1998 11 10	704	0.1-	0.3+				
1998 10 11	699	0.4+	0.4-	1998 11 10	704	0.1+	0.7+				

1998 UB₁ = 1993 SW₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	48.64903	(2000.0)	P		Q	
<i>n</i>	0.20533701	ω	150.14976	+0.99232769	+0.12359071	
<i>a</i>	2.8454955	Ω	202.75158	-0.11507021	+0.91339322	
<i>e</i>	0.2206794	<i>i</i>	0.49341	-0.04521726	+0.38786360	
<i>P</i>	4.80	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1993 09 18	809	0.9+	0.8+	1998 10 17	557	0.3-	0.7+	1998 10 28	691	1.2-	0.1+
1993 09 18	809	1.4+	1.3+	1998 10 17	557	0.1+	0.2+	1998 11 11	557	0.5+	0.4-
1993 09 18	809	0.9+	1.5+	1998 10 20	557	0.9-	0.6-	1998 11 11	557	0.9+	0.4-
1993 09 22	809	0.8-	0.5-	1998 10 20	557	1.1+	0.0	1998 11 12	557	0.8+	0.5-
1993 09 22	809	3.3-	1.7-	1998 10 20	557	0.1+	0.8+	1998 11 12	557	0.6+	0.4-
1993 09 22	809	2.4-	0.5-	1998 10 20	557	0.7+	0.4+	1998 11 26	691	0.8-	0.2-
1993 09 24	809	2.0+	0.2-	1998 10 25	557	0.6+	0.3-	1998 11 26	691	0.6-	0.1-
1993 09 24	809	1.6+	0.3-	1998 10 25	557	0.7+	0.3-	1998 11 26	691	0.6-	0.3-
1993 09 24	809	0.1-	0.9-	1998 10 28	691	1.2-	0.6+	1998 12 11	557	0.8+	0.3-
1998 10 16	557	0.3-	0.4+	1998 10 28	691	1.2-	0.7+	1998 12 11	557	0.2+	0.4+

1999 JAN. 6

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1998 UA₄ = 1987 UC₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	113.10359		(2000.0)	P	Q
<i>n</i>	0.20100105	ω	244.57047	+0.97849277	+0.06361948
<i>a</i>	2.8862714	Ω	111.26670	+0.00230374	+0.94782345
<i>e</i>	0.1636143	<i>i</i>	12.15544	-0.20626826	+0.31238320
<i>P</i>	4.90	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1987 10 17	675	0.0	0.6-	1998 10 21	910	0.1-	0.4+	1998 10 26	910	0.5+	0.2+
1987 10 18	675	0.1+	0.3+	1998 10 22	910	0.8+	0.2+	1998 10 26	910	0.1-	0.3+
1998 10 20	910	0.4+	0.1+	1998 10 22	910	0.5+	0.2+	1998 10 26	910	0.1-	0.4+
1998 10 20	910	0.4+	0.2-	1998 10 22	910	0.5+	0.0	1998 12 27	411	0.2+	0.6-
1998 10 20	910	0.3+	0.2-	1998 10 23	910	1.1-	0.1-	1998 12 27	411	0.2+	1.1-
1998 10 21	910	0.1-	0.5+	1998 10 23	910	0.9-	0.1+				
1998 10 21	910	0.2-	0.4+	1998 10 23	910	1.1-	0.0				

1998 UM₁₈ = 1989 EP₃

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	44.15704		(2000.0)	P	Q
<i>n</i>	0.08398276	ω	232.02379	+0.87804399	-0.41503391
<i>a</i>	5.1642740	Ω	150.16339	+0.42001224	+0.90695381
<i>e</i>	0.1345537	<i>i</i>	28.61765	-0.22940897	+0.07198355
<i>P</i>	11.74	<i>H</i>	11.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1989 03 02	809	0.1-	0.0	1998 10 28	703	0.7+	0.3-	1998 12 19	704	0.4-	0.4+
1989 03 02	809	0.5-	0.2+	1998 10 29	703	0.4+	0.1-	1998 12 19	703	0.5+	0.4-
1989 03 02	809	0.9-	0.3+	1998 10 29	703	0.3+	0.1-	1998 12 19	703	0.0	0.9-
1989 03 03	809	0.8+	0.7-	1998 11 16	703	0.1-	0.3-	1998 12 19	704	0.7-	1.1-
1989 03 03	809	0.5-	0.3+	1998 11 16	703	0.5-	0.8+	1998 12 19	704	0.7+	0.3-
1989 03 03	809	1.2+	0.1-	1998 11 16	703	0.1+	0.6+	1998 12 19	704	1.0-	0.5-
1998 10 28	703	0.2+	0.3-	1998 11 17	703	1.2-	0.6+				
1998 10 28	703	0.5+	0.0	1998 11 17	703	0.4+	2.0+				

1998 UL₂₅ = 1990 WY

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	60.23046		(2000.0)	P	Q
<i>n</i>	0.24389937	ω	154.65391	+0.89045651	+0.45505756
<i>a</i>	2.5370494	Ω	178.26798	-0.43318315	+0.84972257
<i>e</i>	0.2759257	<i>i</i>	5.95190	-0.13942585	+0.26625958
<i>P</i>	4.04	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1990 11 18	809	1.0+	0.0	1998 10 18	809	1.1-	0.7-	1998 11 10	704	0.6+	0.7-
1990 11 18	809	0.8+	0.0	1998 10 19	809	1.1+	1.3+	1998 11 11	704	0.9-	0.6+
1990 11 18	809	0.5+	0.8-	1998 10 19	809	0.9+	0.1-	1998 11 11	704	0.6-	0.4-
1990 11 20	809	0.5-	0.4+	1998 10 19	809	0.9+	0.9+	1998 11 11	704	0.5-	1.1+
1990 11 20	809	1.6-	0.3+	1998 11 10	704	0.0	0.2-	1998 11 11	704	0.6-	0.1-
1990 11 20	809	0.1-	0.1+	1998 11 10	704	0.5+	0.4-	1998 11 11	704	0.4+	1.2+
1998 10 18	809	0.7-	0.5-	1998 11 10	704	0.4+	0.4-				
1998 10 18	809	1.1-	0.8-	1998 11 10	704	0.5+	0.8-				

1998 UX₂₅ = 1996 JB

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	131.03024		(2000.0)	P	Q
<i>n</i>	0.18899819	ω	74.16712	+0.03437852	+0.99701532
<i>a</i>	3.0072137	Ω	198.22960	-0.98051884	+0.02026339
<i>e</i>	0.1430488	<i>i</i>	12.76641	-0.19339319	+0.07449729
<i>P</i>	5.22	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 05 04	658	0.2+	0.2-	1996 05 13	566	1.1-	1.5+	1998 11 10	704	0.1+	0.3-
1996 05 04	658	0.4+	0.3-	1996 05 13	566	1.3-	1.4+	1998 11 10	704	(0.2-	2.2-)
1996 05 04	658	0.5+	0.5-	1998 10 18	809	(3.8-	2.2-)	1998 11 10	704	0.4-	0.2+
1996 05 04	658	0.9+	0.5-	1998 10 18	809	(3.2-	0.9-)	1998 11 10	704	1.0-	1.7-
1996 05 04	658	0.7+	0.5-	1998 10 18	809	(4.0-	1.6-)	1998 11 11	704	1.1+	0.8+
1996 05 05	658	0.2+	0.6-	1998 10 19	809	0.4-	0.0	1998 11 11	704	0.4+	0.7+
1996 05 05	658	0.4+	0.4-	1998 10 19	809	0.9-	0.6+	1998 11 11	704	0.2-	0.3-
1996 05 05	658	0.4+	0.3-	1998 10 19	809	0.3-	1.0+	1998 11 11	704	1.2+	0.0
1996 05 13	566	1.3-	1.1+	1998 11 10	704	0.2-	0.3+	1998 11 11	704	0.5+	0.8-

1998 UY₂₆ = 1952 OA = 1984 SC₈ = 1989 VY₂ = 1993 RL₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	155.04168		(2000.0)	P	Q
<i>n</i>	0.21943991	ω	64.90245	-0.33385451	+0.94250985
<i>a</i>	2.7222351	Ω	185.65540	-0.90966949	-0.32623326
<i>e</i>	0.2314575	<i>i</i>	8.58388	-0.24706797	-0.07243643
<i>P</i>	4.49	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1952 07 22	024	0.2-	0.9+	1993 09 18	809	1.1+	1.0+	1998 10 19	809	(2.6+	2.1+)
1984 09 21	010	0.1-	1.7+	1993 09 18	809	0.0	0.5-	1998 10 19	809	(3.8+	3.0+)
1989 11 03	809	0.5-	0.0	1993 09 18	809	0.2-	0.2+	1998 11 10	704	0.7+	0.3-
1989 11 03	809	0.2+	0.5-	1993 09 18	675	1.0-	1.2-	1998 11 10	704	0.6+	0.8-
1989 11 03	809	0.4+	0.8-	1993 09 18	675	0.1+	0.4+	1998 11 10	704	0.5-	0.7+
1993 09 15	809	(2.1+	0.1+)	1993 09 22	675	1.6-	0.1+	1998 11 10	704	1.3+	0.8-
1993 09 15	809	1.6+	0.2+	1993 09 22	675	0.7-	0.5-	1998 11 11	704	1.2+	0.7+
1993 09 15	809	0.9+	0.1+	1998 10 18	809	1.2-	0.1+	1998 11 11	704	0.4-	0.7+
1993 09 17	809	(0.7+	2.4-)	1998 10 18	809	0.4+	1.3+	1998 11 11	704	0.1+	0.7+
1993 09 17	809	0.0	1.8-	1998 10 18	809	1.6-	0.5+	1998 11 11	704	0.8+	0.2-
1993 09 17	809	0.2+	1.5-	1998 10 19	809	(5.1+	3.2+)	1998 11 11	704	1.0-	0.5+

1998 UH₃₁ = 1998 UY₃₁ = 1951 XC = 1985 UK₄

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Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	30.54998		(2000.0)	P	Q
<i>n</i>	0.23152222	ω	347.57649	+0.64068971	-0.73604346
<i>a</i>	2.6266826	Ω	62.13837	+0.72390431	+0.48421916
<i>e</i>	0.1390730	<i>i</i>	14.31114	+0.25588912	+0.47304527
<i>P</i>	4.26	<i>H</i>	12.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1951 12 03	760	1.1+	1.9-	1998 10 23	327	0.3-	0.5+	1998 12 12	411	0.4+	0.1+
1951 12 03	760	1.0+	1.3-	1998 10 26	327	0.2-	0.5+	1998 12 14	704	0.2+	0.6+
1985 10 21	095	0.4-	0.6-	1998 10 26	327	0.2-	0.5+	1998 12 14	704	0.2-	0.1+
1985 11 08	095(34.3+	8.3-)		1998 10 26	327	0.1-	0.4+	1998 12 14	704	(2.2-	1.1+)
1985 11 11	095	(2.3-	5.0+)	1998 10 29	327	0.1-	0.3+	1998 12 14	704	0.0	1.0+
1998 10 18	327	(0.9+	3.4+)	1998 10 29	327	1.2-	0.1+	1998 12 17	704	0.7-	0.7+
1998 10 18	327	0.6+	2.0+	1998 10 29	327	1.1-	0.3-	1998 12 17	704	0.4+	0.7-
1998 10 18	327	0.0	0.6+	1998 12 11	411	0.3+	0.9+	1998 12 17	704	0.9+	1.3-
1998 10 23	327	0.4-	0.5+	1998 12 11	411	0.4-	0.7+	1998 12 17	704	1.1+	1.6-
1998 10 23	327	0.4-	0.5+	1998 12 12	411	0.7+	0.0	1998 12 17	704	0.3-	1.2-

1998 UM₃₂ = 1998 VJ₃₅ = 1996 HT₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	78.07507		(2000.0)	P	Q
<i>n</i>	0.19233636	ω	288.76796	+0.97545391	+0.14102688
<i>a</i>	2.9723169	Ω	63.42510	-0.04639635	+0.88239532
<i>e</i>	0.1149459	<i>i</i>	10.90007	-0.21526042	+0.44887628
<i>P</i>	5.12	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 04 20	809	1.3+	0.0	1998 10 30	327	1.1-	0.6-	1998 12 14	704	1.8+	0.0
1996 04 20	809	0.9-	0.4-	1998 10 30	327	0.2+	0.0	1998 12 14	704	0.9+	0.3-
1996 04 20	809	1.3-	1.9-	1998 10 30	327	0.0	0.3+	1998 12 14	704	0.7-	1.4+

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1996 04 21	809	1.2+	1.6+	1998 11 01	327	0.4+	0.2+	1998 12 17	704	0.3-	0.1+
1996 04 21	809	0.4+	0.6+	1998 11 01	327	0.2+	0.1+	1998 12 17	704	0.1-	0.4-
1996 04 21	809	0.7-	0.1+	1998 11 01	327	0.1+	0.1+	1998 12 17	704	0.4+	1.3-
1998 10 29	327	0.1-	0.0	1998 11 03	327	0.6+	0.2+	1998 12 17	704	0.0	0.9+
1998 10 29	327	0.0	0.3-	1998 11 03	327	0.2-	0.4+	1998 12 17	704	1.8-	0.3-
1998 10 29	327	0.1-	0.1-	1998 11 03	327	0.4-	0.3-				

1998 UN₃₂ = 1989 YN₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	345.32752	(2000.0)	
	P	Q	
<i>n</i>	0.22365525	<i>ω</i>	219.41791
<i>a</i>	2.6879219	<i>Ω</i>	276.54168
<i>e</i>	0.1098879	<i>i</i>	11.70902
<i>P</i>	4.41	<i>H</i>	13.1
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1989 12 28	511	3.7-	1.1-	1990 01 04	511	0.5-	0.1-	1998 12 02	327	0.1-	0.4-
1989 12 28	511	1.0+	1.2-	1998 10 29	327	0.2+	0.6-	1998 12 02	327	0.0	0.3-
1989 12 29	511	1.4+	1.5+	1998 10 29	327	0.1-	0.0	1998 12 02	327	0.1+	0.2+
1989 12 29	511	0.6-	0.6+	1998 10 29	327	0.3+	0.1+	1998 12 09	327	0.3-	0.1+
1989 12 29	511	0.1+	0.4+	1998 10 29	327	0.1+	0.1-	1998 12 09	327	0.2+	0.1-
1990 01 03	511	2.1+	0.3-	1998 11 01	327	0.2-	0.4+	1998 12 09	327	0.1+	0.2+
1990 01 03	511	0.8+	0.3+	1998 11 01	327	0.2-	0.1+				
1990 01 04	511	0.5-	0.2+	1998 11 01	327	0.3-	0.2+				

1998 UP₃₉ = 1998 VL₈ = 1981 XB₂ = 1996 KB₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	345.31085	(2000.0)	
	P	Q	
<i>n</i>	0.22940753	<i>ω</i>	232.31550
<i>a</i>	2.6427998	<i>Ω</i>	216.39808
<i>e</i>	0.2643088	<i>i</i>	11.85181
<i>P</i>	4.30	<i>H</i>	14.3
		<i>G</i>	0.15
		<i>U</i>	3

Residuals in seconds of arc

1981 11 25	095	(4.7+	0.0)	1998 10 21	910	0.6+	1.2+	1998 11 10	704	0.3+	0.2+
1981 12 02	511	0.6-	1.0-	1998 10 22	910	0.7+	1.2+	1998 11 10	704	0.3-	0.2-
1981 12 03	511	0.2-	0.2+	1998 10 28	704	0.5+	0.3-	1998 11 10	704	0.7-	1.6-
1981 12 03	511	0.8+	1.3+	1998 10 28	704	0.1+	0.5-	1998 11 10	704	0.1-	0.3-
1996 05 22	809	0.1+	0.2+	1998 10 28	704	0.2-	0.2+	1998 11 11	704	0.2-	0.4+
1996 05 22	809	0.5-	0.7+	1998 10 28	704	0.6-	0.0	1998 11 11	704	0.6+	0.0
1996 05 22	809	0.0	0.8-	1998 10 29	704	0.5-	0.2+	1998 11 11	704	0.6+	0.3-
1996 05 24	809	0.8+	0.1-	1998 10 29	704	0.1+	0.2-	1998 11 11	704	0.2+	1.3-
1996 05 24	809	0.4-	0.5-	1998 10 29	704	0.1+	0.0	1998 12 11	699	0.6-	0.2-
1996 05 24	809	0.1-	0.1+	1998 10 29	704	0.5-	0.2+	1998 12 11	699	0.4-	0.2+
1998 10 21	910	0.7+	1.1+	1998 10 29	704	0.2-	0.0	1998 12 11	699	0.5-	0.6-

1998 VG = 1981 ST₆ = 1987 WV₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	5.81577	(2000.0)	
	P	Q	
<i>n</i>	0.17586585	<i>ω</i>	354.34945
<i>a</i>	3.1551138	<i>Ω</i>	56.28238
<i>e</i>	0.1920502	<i>i</i>	3.82600
<i>P</i>	5.60	<i>H</i>	13.6
		<i>G</i>	0.15
		<i>U</i>	2

Residuals in seconds of arc

1981 09 28	095	0.5+	1.0-	1998 11 10	704	0.2-	0.1+	1998 11 17	046	0.0	0.2+
1987 11 19	054	0.9+	1.1-	1998 11 10	704	0.4-	0.1-	1998 11 17	046	0.1-	0.2+
1987 11 19	054	0.3-	1.1-	1998 11 10	704	0.1+	0.1-	1998 11 23	046	0.1+	0.0
1998 11 07	046	0.2+	0.4+	1998 11 10	704	1.3-	0.3-	1998 11 23	046	0.2+	0.1+
1998 11 07	046	0.2+	0.3+	1998 11 10	704	0.6-	0.1-	1998 11 23	046	0.0	0.0
1998 11 07	046	0.2+	0.4+	1998 11 11	704	0.0	0.3+	1998 12 08	699	0.3+	0.5+
1998 11 07	046	0.2+	0.3+	1998 11 11	704	0.0	0.4-	1998 12 08	699	0.3-	0.3+
1998 11 07	046	0.2+	0.4+	1998 11 11	704	0.1+	0.3+	1998 12 08	699	0.3+	0.3+
1998 11 08	046	0.2+	0.5+	1998 11 11	704	0.3+	0.3-	1998 12 08	046	0.2-	0.2-
1998 11 08	046	0.2+	0.3+	1998 11 11	704	0.4+	2.2-	1998 12 08	046	0.1-	0.3+

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1998 11 08	046	0.5+	0.4+	1998 11 16	566	0.1-	0.4-	1998 12 08	046	0.1-	0.2+
1998 11 08	046	0.3+	0.1+	1998 11 16	566	0.3-	0.3-	1998 12 09	046	0.2-	0.1+
1998 11 08	046	0.1-	0.5+	1998 11 16	566	0.0	0.3-	1998 12 09	046	0.3-	0.1-
1998 11 08	046	0.3-	0.9+	1998 11 17	046	0.3-	0.1+	1998 12 09	046	0.1-	0.1+

1998 VW = 1996 KL₈

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	358.95539	(2000.0)	
	P	Q	
<i>n</i>	0.22885106	<i>ω</i>	16.69485
<i>a</i>	2.6470822	<i>Ω</i>	56.87977
<i>e</i>	0.2810238	<i>i</i>	13.68881
<i>P</i>	4.31	<i>H</i>	14.6
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1996 05 22	809	1.7+	1.7+	1998 11 10	704	1.0-	0.3+	1998 11 11	704	0.3+	0.2+
1996 05 22	809	0.3+	1.9+	1998 11 10	704	0.8-	0.9+	1998 11 16	566	0.8-	0.9+
1996 05 22	809	0.0	1.5+	1998 11 10	704	0.1+	0.2+	1998 11 16	566	0.3-	0.8+
1996 05 23	809	1.5+	1.4+	1998 11 10	704	0.9-	0.7+	1998 11 16	566	0.6-	1.1+
1996 05 23	809	1.2+	0.9+	1998 11 10	704	0.1-	0.5+	1998 12 17	327	0.2-	0.6+
1996 05 23	809	0.7+	1.5+	1998 11 11	704	0.3+	0.1+	1998 12 17	327	0.2-	0.6+
1998 10 12	699	0.5-	0.4-	1998 11 11	704	0.7+	0.5+	1998 12 17	327	0.0	0.8+
1998 10 12	699	0.1+	0.6-	1998 11 11	704	0.2-	0.8+	1998 12 18	327	0.3-	0.7-
1998 10 12	699	0.6+	0.8-	1998 11 11	704	0.5+	0.7+	1998 12 18	327	1.3-	0.8-

1998 VL₃ = 1995 BF₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler			
<i>M</i>	1.69209	(2000.0)	
	P	Q	
<i>n</i>	0.20626434	<i>ω</i>	21.92696
<i>a</i>	2.8369604	<i>Ω</i>	43.30447
<i>e</i>	0.0656434	<i>i</i>	2.20372
<i>P</i>	4.78	<i>H</i>	16.3
		<i>G</i>	0.15
		<i>U</i>	5

Residuals in seconds of arc

1995 01 29	691	0.2-	0.0	1998 11 10	910	0.5+	0.6-	1998 11 17	910	0.3+	0.0
1995 01 29	691	0.2-	0.2+	1998 11 11	910	0.4+	0.4-	1998 11 17	910	0.3-	0.4-
1995 01 29	691	0.8-	0.3-	1998 11 11	910	0.6+	0.4-	1998 11 18	910	0.0	0.2-
1995 02 05	691	0.2+	0.1+	1998 11 11	910	0.0	0.4+	1998 11 19	910	0.7-	0.2-
1995 02 05	691	0.3+	0.0	1998 11 11	910	0.4-	0.6+	1998 11 19	910	0.1-	0.5+
1995 02 05	691	0.7+	0.0	1998 11 11	910	0.0	0.2+	1998 11 19	910	0.3-	0.4+

1998 VB₄ = 1992 SZ₁₃ = 1995 BP₆

Id. G. V. Williams, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams			
<i>M</i>	117.47125	(2000.0)	
	P	Q	
<i>n</i>	0.18822355	<i>ω</i>	180.08331
<i>a</i>	3.0154588	<i>Ω</i>	122.45309
<i>e</i>	0.1750733	<i>i</i>	2.43802
<i>P</i>	5.24	<i>H</i>	13.8
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1992 09 26	033	0.2+	0.3+	1995 02 06	691	0.1-	0.3+	1998 11 15	104	0.7-	0.3+
1992 09 26	033	0.2+	0.3+	1998 11 11	910	0.7+	0.1+	1998 11 15	104	0.3-	1.1-
1992 09 27	033	0.1+	0.3+	1998 11 11	910	0.5+	0.0	1998 12 16	120	0.4-	1.6+
1992 09 28	033	0.9-	0.1+	1998 11 11	910	0.5+	0.0	1998 12 16	120	0.7-	1.0-
1995 01 28	691	0.5+	0.3+	1998 11 13	910	1.0+	1.0-	1998 12 16	120	0.6+	0.2-
1995 01 28	691	0.2+	0.2+	1998 11 13	910	0.6+	0.3-	1998 12 18	120	0.3-	0.2-
1995 01 28	691	0.0	0.0	1998 11 13	910	1.0+	0.3-	1998 12 18	120	1.1-	0.2+
1995 02 06	691	0.2-	0.3+	1998 11 15	104	1.2-	1.1+				

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1998 VD₄ = 1984 BW₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25812583	ω	261.91574	+0.15238892	−0.98832052		
<i>a</i>	2.4429528	Ω	179.31845	+0.91983571	+0.14167707		
<i>e</i>	0.1778156	<i>i</i>	1.98090	+0.36149673	+0.05612628		
<i>P</i>	3.82	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1984 01 25	675	0.5+	0.5+	1998 11 28	120	0.3+	0.2−
1984 01 26	675	0.4−	0.1+	1998 11 28	120	0.5−	0.4−
1998 11 11	910	0.1−	0.3+	1998 12 09	120	0.2−	0.6−
1998 11 11	910	0.4−	0.5+	1998 12 09	120	0.2+	0.3+
1998 11 11	910	0.8−	0.5+	1998 12 09	120	0.5+	1.0−
1998 11 13	910	0.7+	0.3+	1998 12 14	120	0.7−	0.1−
1998 11 13	910	0.4+	0.5+	1998 12 14	120	1.9−	0.4+
1998 11 13	910	0.6+	0.3+	1998 12 15	120	0.4+	0.1−

1998 VA₅ = 1996 FT₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25859930	ω	295.93732	−0.97752606	−0.20903709		
<i>a</i>	2.4399700	Ω	232.00889	+0.20366194	−0.90313577		
<i>e</i>	0.1397092	<i>i</i>	1.98646	+0.05433591	−0.37503237		
<i>P</i>	3.81	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 03 18	566	0.4−	0.1+	1998 11 11	369	1.5+	1.4−
1996 03 18	566	0.0	0.2−	1998 11 11	120	0.3−	0.1+
1996 03 18	566	0.3+	0.4−	1998 11 11	120	0.5−	0.4−
1996 03 24	566	0.0	0.0	1998 11 12	369	1.1−	1.2+
1996 03 24	566	0.0	0.2+	1998 11 12	369	0.7−	0.6+
1996 03 24	566	0.1+	0.2+	1998 11 13	120	0.2+	1.7−
1998 11 11	369	1.9+	1.8−	1998 11 13	120	1.0+	2.2+
1998 11 11	369	0.6+	0.1−	1998 11 14	369	0.4+	0.4+

1998 VD₅ = 1981 UQ₁₆ = 1987 XB₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17597503	ω	3.59507	+0.14436776	−0.98850570		
<i>a</i>	3.1538087	Ω	78.10800	+0.90672275	+0.11398816		
<i>e</i>	0.1531906	<i>i</i>	2.62889	+0.39624715	+0.09931350		
<i>P</i>	5.60	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1981 10 24	095	0.7−	1.8+	1998 11 21	704	0.8+	1.1−
1987 12 15	046	0.9+	0.8+	1998 11 21	704	1.7+	1.9−
1987 12 15	046	1.0−	0.2+	1998 11 21	704	1.8+	2.5−
1998 11 11	120	0.3−	0.2−	1998 11 23	691	0.9−	0.2+
1998 11 11	120	0.7−	0.1−	1998 11 23	691	0.9−	0.0
1998 11 11	120	0.3−	0.1−	1998 11 23	691	0.8−	0.0
1998 11 11	120	0.9−	0.3−	1998 11 24	704	0.2−	0.0
1998 11 12	120	0.1−	1.2−	1998 11 24	704	0.4+	0.5−
1998 11 12	120	1.0+	1.3+	1998 11 24	704	0.3+	0.7+
1998 11 21	704	0.2+	0.1+	1998 11 24	704	0.7+	0.3+
1998 11 21	704	1.4+	1.4−	1998 11 24	704	0.3−	0.3+

1998 VB₆ = 1974 QH = 1988 RC₁₄ = 1992 YC₅

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28743087	ω	66.54733	+0.79799912	+0.59288412		
<i>a</i>	2.2739476	Ω	256.92016	−0.58547955	+0.72015540		
<i>e</i>	0.2182112	<i>i</i>	6.37183	−0.14286740	+0.36036734		
<i>P</i>	3.43	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1974 08 17	095	0.4−	1.5+	1998 11 11	703	1.4+	0.3−
1988 09 15	095	0.2+	1.3+	1998 11 11	703	0.9+	0.5−
1988 09 15	095	1.2−	1.8+	1998 11 14	703	0.5+	0.5−
1992 12 30	033	0.3−	0.4+	1998 11 14	703	0.1+	0.7−
1992 12 30	033	0.6−	0.1−	1998 11 14	703	0.3+	0.6−
1993 01 01	033	1.0+	0.0	1998 11 17	703	0.0	0.2−
1998 11 11	703	0.2+	0.1+	1998 11 17	703	1.6+	0.2−

1998 VT₆ = 1991 RO₃₇ = 1997 LV₁₆

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29956360	ω	274.12130	+0.91392708	−0.40246727		
<i>a</i>	2.2121268	Ω	109.61780	+0.39099275	+0.83829291		
<i>e</i>	0.1445835	<i>i</i>	3.19571	+0.10891264	+0.36781121		
<i>P</i>	3.29	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 09 15	675	0.3+	0.8−	1998 11 12	411	0.3+	0.3+
1991 09 15	675	0.0	0.3−	1998 11 12	411	0.5+	1.0+
1997 06 08	809	(2.9−	0.0)	1998 11 14	411	0.2+	0.8+
1997 06 08	809	1.5−	0.1−	1998 11 14	411	0.4−	0.3+
1997 06 08	809	0.4−	0.1−	1998 11 20	411	0.1−	0.2+
1997 06 09	809	0.3+	0.9−	1998 11 20	411	0.3−	0.1−
1997 06 09	809	0.2+	0.3−	1998 12 12	411	0.1+	0.2−
1997 06 09	809	0.6+	1.6−	1998 12 12	411	0.0	0.1−

1998 VV₆ = 1977 XL₂ = 1993 FW₆₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28172539	ω	210.63671	+0.98355079	−0.18052468		
<i>a</i>	2.3045460	Ω	159.76082	+0.16915734	+0.90844967		
<i>e</i>	0.1827533	<i>i</i>	1.03012	+0.06335326	+0.37700136		
<i>P</i>	3.50	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 12 07	675	0.6+	0.7+	1998 11 12	411	0.4−	0.1+
1977 12 08	675	0.7−	0.2+	1998 11 12	411	0.6+	0.3−
1993 03 19	809	0.4−	0.0	1998 11 14	411	0.2+	0.8+
1993 03 20	809	0.4+	0.1−	1998 11 14	411	0.0	0.1+

1998 VB₁₃ = 1993 FN₄₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28494391	ω	241.72986	+0.79904843	−0.60120642		
<i>a</i>	2.2871596	Ω	155.22356	+0.55852246	+0.73692745		
<i>e</i>	0.1573144	<i>i</i>	1.16376	+0.22265280	+0.30901257		
<i>P</i>	3.46	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 03 19	809	1.0+	0.6−	1998 11 11	704	0.1+	0.3+
1993 03 20	809	0.9−	0.9+	1998 11 11	704	0.1+	0.2+
1993 03 24	809	0.2+	0.4+	1998 11 11	704	0.5+	0.1+
1998 11 10	704	0.2+	0.5−	1998 11 11	704	0.2−	0.1+
1998 11 10	704	0.4+	0.1−	1998 11 11	704	1.6−	0.8+

1998 11 10 704 0.6+ 0.1- 1998 12 17 327 0.4+ 1.0-
 1998 11 10 704 0.9- 0.9+ 1998 12 17 327 0.3+ 0.0

1998 VL₁₆ = 1977 XX₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18464001	ω	301.43229	+0.96372961	-0.20911306		
<i>a</i>	3.0543503	Ω	71.08599	+0.26228741	+0.85690854		
<i>e</i>	0.1140781	<i>i</i>	10.09533	-0.04930070	+0.47114698		
<i>P</i>	5.34	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1977 12 07	675	0.2+	0.1-	1998 11 11	704	0.4-	0.7+	1998 12 11	699	0.2+	0.3-
1977 12 08	675	0.2-	0.1+	1998 11 11	704	0.6+	0.3+	1998 12 11	699	0.4-	0.2+
1998 11 10	704	0.5+	0.3+	1998 11 11	704	0.2+	0.3-	1998 12 11	699	0.3+	0.1+
1998 11 10	704	0.1+	0.0	1998 11 11	704	0.7-	0.0				
1998 11 10	704	0.4+	0.5-	1998 11 11	704	0.6-	0.5-				

1998 VR₂₃ = 1996 HD₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21045949	ω	292.65087	+0.98430762	+0.14709803		
<i>a</i>	2.7991341	Ω	59.01434	-0.08843147	+0.88919488		
<i>e</i>	0.0647885	<i>i</i>	6.52844	-0.15270357	+0.43323740		
<i>P</i>	4.68	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 04 18	691	0.2+	0.1+	1998 11 10	704	0.7+	0.1+	1998 11 11	699	0.4+	1.0+
1996 04 18	691	0.5+	0.0	1998 11 11	704	0.7+	0.4+	1998 12 09	691	0.2+	0.0
1996 04 18	691	0.2+	0.1+	1998 11 11	704	0.0	1.3-	1998 12 09	691	0.1+	0.4-
1996 04 23	691	0.4-	0.0	1998 11 11	704	1.2-	0.6+	1998 12 09	691	0.2+	0.5-
1996 04 23	691	0.3-	0.1-	1998 11 11	704	0.8-	0.6+	1998 12 13	691	0.2+	0.1-
1996 04 23	691	0.3-	0.1-	1998 11 11	704	1.3-	0.6+	1998 12 13	691	0.1+	0.1-
1998 11 10	704	0.4-	0.6-	1998 11 11	699	0.6+	0.6+	1998 12 13	691	0.5-	1.0+
1998 11 10	704	0.1+	1.1-	1998 11 11	699	1.1+	0.9-				

1998 VC₂₅ = 1991 VQ₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28273042	ω	187.92881	-0.37241301	+0.92369562		
<i>a</i>	2.2990815	Ω	60.24648	-0.84569745	-0.29783318		
<i>e</i>	0.1454989	<i>i</i>	5.94848	-0.38223602	-0.24100164		
<i>P</i>	3.49	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 11 04	691	0.1+	0.2-	1998 11 10	704	0.7-	0.6+	1998 11 11	699	0.5+	0.8+
1991 11 04	691	0.2+	0.4-	1998 11 10	704	3.3-	0.8+	1998 12 09	691	0.0	0.4+
1991 11 04	691	0.1+	0.1-	1998 11 11	704	0.4+	0.4+	1998 12 09	691	0.2-	0.2-
1991 11 06	691	0.0	0.3+	1998 11 11	704	0.6+	0.7-	1998 12 09	691	0.1-	0.2-
1991 11 06	691	0.2-	0.3+	1998 11 11	704	1.4+	0.3-	1998 12 13	691	0.2+	0.0
1991 11 06	691	0.3-	0.1+	1998 11 11	704	0.6+	0.9-	1998 12 13	691	0.0	0.1+
1998 11 10	704	0.2+	0.4+	1998 11 11	704	1.4+	2.3-	1998 12 13	691	0.0	0.1-
1998 11 10	704	0.2+	0.6+	1998 11 11	699	0.9-	0.9+				
1998 11 10	704	0.0	0.1+	1998 11 11	699	0.2-	0.1-				

1998 VO₂₆ = 1994 RV₁₇ = 1996 EK₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26906210	ω	66.60081	+0.50977604	-0.86029146		
<i>a</i>	2.3762987	Ω	352.74375	+0.77354047	+0.46099687		
<i>e</i>	0.1818310	<i>i</i>	2.35734	+0.37651499	+0.21767058		
<i>P</i>	3.66	<i>H</i>	17.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 09 03	809	0.9+	0.7+	1996 03 11	691	0.2+	0.1+	1998 11 11	704	0.2-	0.9+
1994 09 03	809	(0.0	2.4+)	1996 03 18	691	0.4+	0.0	1998 11 11	704	0.3-	1.6-
1994 09 03	809	0.2+	0.7+	1996 03 18	691	0.1-	0.3+	1998 11 11	704	1.3-	0.9+
1994 09 04	809	1.5-	0.6-	1998 11 10	704	0.3-	1.5+	1998 11 16	566	0.3+	0.2-
1994 09 04	809	(2.8-	0.3-)	1998 11 10	704	0.9+	1.1-	1998 11 16	566	0.4+	0.7-
1994 09 04	809	(3.1-	0.1+)	1998 11 10	704	0.2-	0.8+	1998 11 16	566	0.3+	0.7-
1996 03 11	691	0.3+	0.4+	1998 11 10	704	0.6+	0.0				
1996 03 11	691	0.3-	0.3+	1998 11 11	704	0.6-	0.3+				

1998 VS₂₈ = 1982 UP₈ = 1991 NX₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30993250	ω	69.10126	+0.58295537	-0.81246357		
<i>a</i>	2.1625092	Ω	345.23154	+0.73311484	+0.53027939		
<i>e</i>	0.0872906	<i>i</i>	1.82623	+0.35029369	+0.24229470		
<i>P</i>	3.18	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1982 10 21	095	0.3+	0.8-	1998 11 10	704	0.9-	0.1-	1998 11 18	704	0.9+	1.6-
1991 07 10	809	0.9-	0.0	1998 11 10	699	0.5+	0.5+	1998 11 21	704	0.4-	0.5-
1991 07 10	809	0.5-	0.2+	1998 11 10	704	0.3+	0.5+	1998 11 21	704	0.5-	1.1-
1991 07 10	809	0.1-	0.3+	1998 11 10	699	0.6+	0.3+	1998 11 21	704	0.1-	1.4+
1991 07 11	809	0.1+	0.0	1998 11 11	704	0.3-	0.1-	1998 11 21	704	0.8-	0.3+
1991 07 11	809	0.4+	0.0	1998 11 11	704	0.4-	0.5+	1998 11 21	704	0.1+	1.6+
1991 07 11	809	0.9+	0.0	1998 11 11	704	0.8-	0.5-	1998 12 16	699	0.5-	0.1+
1998 11 10	699	0.6+	0.7+	1998 11 18	704	0.1+	0.3-	1998 12 16	699	0.4-	0.0
1998 11 10	704	0.5+	0.1+	1998 11 18	704	0.7+	1.2-	1998 12 16	699	0.2+	1.0+
1998 11 10	704	0.6-	0.6+	1998 11 18	704	0.7+	1.0-				

1998 VN₂₉ = 1978 WK₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24552769	ω	167.10558	+0.63853365	-0.75141401		
<i>a</i>	2.5258200	Ω	242.95117	+0.68847946	+0.65429426		
<i>e</i>	0.0551067	<i>i</i>	10.76089	+0.34390524	+0.08529956		
<i>P</i>	4.01	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1978 11 29	675	0.7-	0.4-	1998 11 10	699	0.4-	0.4-	1998 11 18	704	(2.8-	0.7-)
1978 11 30	675	0.7+	0.3+	1998 11 11	704	0.5-	0.4-	1998 11 21	704	0.5+	0.5-
1998 11 10	699	0.3+	0.6+	1998 11 11	704	0.0	0.1-	1998 11 21	704	0.9+	0.1+
1998 11 10	704	0.6+	0.7-	1998 11 11	704	0.3+	0.3-	1998 11 21	704	0.6+	0.5+
1998 11 10	704	0.4-	0.2-	1998 11 18	704	0.1-	0.5-	1998 11 21	704	0.5-	1.3+
1998 11 10	704	0.3-	0.3+	1998 11 18	704	0.1+	0.6-	1998 11 21	704	1.2-	2.8+
1998 11 10	699	0.9+	0.7+	1998 11 18	704	0.4+	1.3-	1998 11 25	376	0.3+	0.4-
1998 11 10	704	0.9-	0.9+	1998 11 18	704	0.7-	1.2-	1998 11 25	376	0.1+	0.5-

1998 VO₂₉ = 1984 BY₂

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19073480	ω	84.31814	+0.78473218	-0.61929457		
<i>a</i>	2.9889324	Ω	313.94314	+0.55351446	+0.71894630		
<i>e</i>	0.2770165	<i>i</i>	2.05962	+0.27895726	+0.31557956		
<i>P</i>	5.17	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1984 01 25	675	0.1-	0.0	1998 11 11	704	0.7-	0.7-	1998 11 21	704	0.4-	0.1+
1984 01 26	675	0.1+	0.1+	1998 11 16	566	0.3+	0.4-	1998 11 21	704	0.0	0.4-
1998 11 10	704	0.3-	0.5+	1998 11 16	566	0.0	0.1+	1998 11 21	704	0.7+	0.2+
1998 11 10	704	0.4-	0.8+	1998 11 16	566	0.2-	0.3-	1998 11 21	704	0.5-	1.6+
1998 11 10	704	0.0	0.8+	1998 11 18	704	0.5-	0.2+	1998 11 21	704	0.4+	0.9+
1998 11 10	704	0.1+	0.2-	1998 11 18	704	0.0	0.5-	1998 12 11	699	0.2-	0.1+

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1998 11 11 704 0.9+ 0.0 1998 11 18 704 0.7+ 1.1- 1998 12 11 699 0.1+ 0.4+
 1998 11 11 704 0.2+ 0.2- 1998 11 18 704 0.0 1.1- 1998 12 11 699 0.0 1.1-

1998 VQ₂₉ = 1981 UG₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		P		Q	
<i>M</i>	67.98547	(2000.0)					
<i>n</i>	0.23274719	ω	85.76010	+0.93509756	+0.29217551		
<i>a</i>	2.6174582	Ω	257.15927	-0.34673362	+0.87128689		
<i>e</i>	0.2016475	<i>i</i>	11.87099	+0.07326904	+0.39432554		
<i>P</i>	4.23	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 10 22	095	0.2-	0.8+	1998 11 11	704	0.2-	0.6-	1998 11 21	704	0.4-	0.4+
1981 10 24	095	0.2+	0.6+	1998 11 11	704	0.7-	0.1+	1998 11 21	704	0.5-	0.6+
1998 11 10	704	1.6+	0.3+	1998 11 11	704	0.9+	1.4-	1998 11 21	704	0.8-	0.5+
1998 11 10	704	0.6-	0.2+	1998 11 18	704	0.6-	0.1+	1998 11 21	704	0.2-	0.7+
1998 11 10	704	0.4-	0.0	1998 11 18	704	2.0-	3.2-	1998 11 21	704	0.6-	0.5+
1998 11 10	704	0.5+	1.9+	1998 11 18	704	0.5+	1.6-	1998 12 11	699	1.6+	1.1+
1998 11 11	704	0.4-	0.0	1998 11 18	704	0.6+	2.0-	1998 12 11	699	1.3+	0.6+
1998 11 11	704	0.3-	0.7+	1998 11 18	704	0.3-	1.5-	1998 12 11	699	1.2+	1.5+

1998 VY₂₉ = 1986 TN₇ = 1986 VK₅

Id. G. V. Williams, D. W. E. Green (d)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		P		Q	
<i>M</i>	3.66225	(2000.0)					
<i>n</i>	0.08380583	ω	163.34058	+0.46671946	-0.86049230		
<i>a</i>	5.1715400	Ω	258.43722	+0.78579425	+0.50945363		
<i>e</i>	0.2041545	<i>i</i>	12.03450	+0.40583289	+0.00316083		
<i>P</i>	11.76	<i>H</i>	10.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1986 10 09	092	0.6-	0.9-	1998 11 10	704	0.7-	1.3-	1998 11 21	704	0.5+	0.3+
1986 10 09	092	1.4+	0.6-	1998 11 11	704	0.6-	0.4+	1998 11 24	704	0.1-	0.3+
1986 10 11	092	1.5-	0.8+	1998 11 11	704	0.3+	0.0	1998 11 24	704	0.6+	1.1+
1986 10 11	092	0.3+	1.3+	1998 11 11	704	0.2-	0.5+	1998 11 24	704	0.3-	0.3-
1986 11 05	688	0.6-	0.8-	1998 11 11	704	0.3-	0.2-	1998 11 24	704	0.6+	1.1+
1986 11 05	688	1.0+	0.2+	1998 11 21	704	0.0	0.1+	1998 11 24	704	2.7-	0.5+
1998 11 10	704	0.7+	0.3+	1998 11 21	704	0.4+	0.5-	1998 12 11	699	0.1+	0.1-
1998 11 10	704	1.2+	1.0-	1998 11 21	704	0.1+	0.0	1998 12 11	699	0.1-	0.2-
1998 11 10	704	0.0	0.7-	1998 11 21	704	0.7+	0.4+	1998 12 11	699	0.2-	0.5-

1998 VZ₂₉ = 1974 WP = 1991 RY₁₀ = 1991 VE₁₄ = 1993 FG₄₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		P		Q	
<i>M</i>	31.53549	(2000.0)					
<i>n</i>	0.28771238	ω	4.92207	+0.79159868	-0.60971788		
<i>a</i>	2.2724640	Ω	32.75479	+0.55805344	+0.69459315		
<i>e</i>	0.1934252	<i>i</i>	4.26050	+0.24889332	+0.38181731		
<i>P</i>	3.43	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1974 11 18	095(40.6-	8.7-)	1998 11 10	704	(0.5+	2.5-)	1998 11 21	704	0.1-	0.4-	
1991 09 10	675	1.2-	0.6+	1998 11 10	704	(2.3+	0.7-)	1998 11 21	704	0.2-	0.2+
1991 09 10	675	0.6-	1.3+	1998 11 10	704	0.9+	1.4-	1998 11 21	704	0.6-	1.1+
1991 09 13	675	0.5+	1.1-	1998 11 10	704	0.3-	0.8-	1998 11 21	704	0.2-	0.8+
1991 09 13	675	1.8+	1.1-	1998 11 11	704	0.3+	0.1+	1998 11 24	704	1.0-	1.0-
1991 09 16	675	0.4-	0.5+	1998 11 11	704	0.2-	0.1-	1998 11 24	704	0.0	0.5-
1991 09 16	675	0.1-	0.1-	1998 11 11	704	1.0+	0.4-	1998 11 24	704	0.7+	1.3-
1991 11 08	675	(0.7+	2.5-)	1998 11 11	704	0.3+	0.1+	1998 11 24	704	0.7-	0.3-
1991 11 08	675	(1.6-	4.1-)	1998 11 12	399	0.6+	1.0+	1998 11 24	704	1.1-	1.3-
1993 03 19	809	1.2-	0.4-	1998 11 12	399	0.4+	1.2+	1998 12 11	699	0.0	0.8+
1993 03 20	809	0.2+	0.9-	1998 11 18	399	0.2+	1.5+	1998 12 11	699	0.2-	0.2+
1993 03 24	809	0.8+	0.9+	1998 11 18	399	0.2-	0.1+	1998 12 11	699	0.1+	1.1+
1998 11 10	704	0.7+	0.7-	1998 11 21	704	0.0	0.0				

1998 VT₃₀ = 1982 YG₄ = 1988 QE₁ = 1993 BD₁₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		P		Q	
<i>M</i>	55.19257	(2000.0)					
<i>n</i>	0.30519110	ω	92.63873	+0.98020962	-0.18237165		
<i>a</i>	2.1848492	Ω	277.87724	+0.13617962	+0.90351322		
<i>e</i>	0.1699912	<i>i</i>	4.45856	+0.14368092	+0.38782012		
<i>P</i>	3.23	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1982 12 23	095	0.1+	0.4+	1998 11 10	704	0.1+	1.5-	1998 11 21	704	0.6+	0.4+
1988 08 18	511	1.0+	1.2-	1998 11 10	704	(0.3+	2.2-)	1998 11 24	704	0.7+	0.2+
1988 08 18	511	0.5-	0.1-	1998 11 11	704	0.3+	0.0	1998 11 24	704	0.6+	0.3+
1988 08 18	511	(3.8+	0.3-)	1998 11 11	704	0.6+	0.5-	1998 11 24	704	0.5-	1.2+
1993 01 23	809	0.3-	0.1-	1998 11 11	704	0.1+	0.2+	1998 11 24	704	0.6-	1.1+
1993 01 28	809	0.9-	0.8-	1998 11 11	704	0.3-	0.2-	1998 11 24	704	(0.4-	2.3+)
1993 01 28	809	0.1+	1.5-	1998 11 21	704	0.1-	0.8+	1998 12 11	699	0.8+	0.5+
1998 11 10	704	0.2-	0.4-	1998 11 21	704	0.5-	0.5+	1998 12 11	699	0.6+	0.2+
1998 11 10	704	0.8-	1.0-	1998 11 21	704	1.4-	1.1-	1998 12 11	699	0.0	0.5+
1998 11 10	704	0.4-	1.5-	1998 11 21	704	0.3+	0.6+				

1998 VH₃₁ = 1969 RJ = 1987 ST₂₀

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		P		Q	
<i>M</i>	45.63299	(2000.0)					
<i>n</i>	0.27530837	ω	324.26875	+0.89502877	-0.44503043		
<i>a</i>	2.3402187	Ω	62.18214	+0.41656712	+0.81046569		
<i>e</i>	0.2095396	<i>i</i>	1.91272	+0.15935917	+0.38091111		
<i>P</i>	3.58	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1969 09 08	095	1.7+	2.2+	1998 11 20	411	1.0+	0.1+	1998 12 17	704	0.5+	0.6-
1969 09 13	095	2.0-	1.4-	1998 12 12	411	0.3-	0.1-	1998 12 17	704	0.4+	1.0-
1987 09 17	095	0.4+	1.0-	1998 12 12	411	0.3-	0.3-	1998 12 17	704	1.8+	0.7-
1998 11 14	411	0.1-	0.2+	1998 12 14	704	0.9-	0.1+	1998 12 17	704	0.2-	0.3+
1998 11 14	411	0.3+	0.1-	1998 12 14	704	0.1-	0.6-	1998 12 21	411	0.3+	0.4+
1998 11 15	411	0.4-	0.7+	1998 12 14	704	1.1-	0.3+	1998 12 21	411	0.2-	0.8+
1998 11 15	411	0.1+	0.4+	1998 12 14	704	0.6-	0.2+				
1998 11 20	411	0.1-	0.1+	1998 12 14	704	0.1-	0.1+				

1998 VJ₃₁ = 1996 EA₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

		Williams		P		Q	
<i>M</i>	12.37545	(2000.0)					
<i>n</i>	0.28509674	ω	150.05080	+0.21959152	-0.97536413		
<i>a</i>	2.2863421	Ω	287.25733	+0.89064748	+0.20924332		
<i>e</i>	0.2003701	<i>i</i>	1.26484	+0.39815402	+0.06987161		
<i>P</i>	3.46	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 03 15	566	0.8+	0.7-	1998 11 15	411	0.1-	0.1+	1998 12 14	704	1.7+	0.7+
1996 03 15	566	0.7+	0.3+	1998 11 20	411	0.6+	0.4+	1998 12 17	704	0.3-	0.2-
1996 03 15	566	1.0+	0.1-	1998 11 20	411	0.4-	0.7+	1998 12 17	704	0.0	0.3-
1996 03 17	566	1.0-	0.1+	1998 12 12	411	0.9-	0.4-	1998 12 17	704	0.2-	0.3-
1996 03 17	566	0.8-	0.4+	1998 12 12	411	0.1-	0.1-	1998 12 17	704	0.7-	0.1+
1996 03 17	566	0.7-	0.3+	1998 12 14	704	1.3+	1.0-	1998 12 17	704	0.2+	0.4-
1998 11 14	411	0.3-	0.0	1998 12 14	704	0.2+	1.0+	1998 12 21	411	0.3-	0.9-
1998 11 14	411	0.7+	0.0	1998 12 14	704	0.1+	0.5+	1998 12 21	411	0.8-	0.2+
1998 11 15	411	0.5-	0.2+	1998 12 14	704	0.3-	0.3-				

M.P.C. 33518

1998 VM₃₂ = 1980 PF₂ = 1997 MF₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28494340	ω	333.52924	−0.18340591	+0.97318633		
<i>a</i>	2.2871623	Ω	285.64112	−0.87443038	−0.22602865		
<i>e</i>	0.2140460	<i>i</i>	8.28846	−0.44914784	+0.04265454		
<i>P</i>	3.46	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1980 08 10	809	0.0	0.1−	1998 11 15	758	0.4−	1.6+
1997 06 28	704	(2.1−	0.2−)	1998 11 15	758	0.9+	0.3+
1997 06 28	704	0.2−	0.2+	1998 11 15	758	0.0	0.4−
1997 06 28	704	0.1+	0.1+	1998 11 16	758	2.0+	0.4+
1997 06 29	704	0.7−	0.1+	1998 11 16	758	0.0	0.7−
1997 06 29	704	0.6−	0.3−	1998 11 16	758	0.5+	0.1+
1997 06 29	704	(2.4+	2.4+)	1998 11 17	758	0.2−	0.4−
1997 06 29	704	0.5+	0.2+	1998 11 17	758	0.3−	0.4+
1997 06 29	704	0.2−	0.4+	1998 11 17	758	0.9+	0.0
1997 07 02	704	0.2−	0.3−	1998 11 18	758	0.3+	0.2−
1997 07 02	704	0.1−	0.2+	1998 11 19	758	0.4+	0.5−
1997 07 02	704	0.0	0.0	1998 11 19	758	0.7+	0.4−
1997 07 02	704	0.2+	0.1−	1998 11 19	758	0.7+	0.4−
1997 07 02	704	1.2+	0.2−	1998 11 20	758	0.8−	0.7−

1998 VE₃₃ = 1981 UH₂₇ = 1985 SN₂

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23994530	ω	60.08770	+0.16844339	+0.97486450		
<i>a</i>	2.5648455	Ω	220.44719	−0.96403223	+0.13206899		
<i>e</i>	0.1467723	<i>i</i>	12.99026	−0.20559351	+0.17943521		
<i>P</i>	4.11	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1981 10 24	675	0.5+	0.8+	1998 11 16	428	0.7+	0.4+
1981 10 25	675	0.1−	0.5−	1998 11 16	428	0.5−	0.1−
1981 10 26	675	0.4−	0.1−	1998 11 17	428	0.3−	0.0
1985 09 19	095	0.0	0.2−	1998 11 17	428	0.1+	0.5−
1998 11 15	428	(2.1+	0.2−)	1998 11 26	428	0.3−	0.1−

1998 VG₃₃ = 1978 WK₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24321073	ω	286.68293	+0.96062809	+0.07993508		
<i>a</i>	2.5418362	Ω	69.36931	+0.05795150	+0.87900752		
<i>e</i>	0.2834590	<i>i</i>	16.51843	−0.27172650	+0.47005975		
<i>P</i>	4.05	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1978 11 29	675	1.0−	0.5−	1998 11 15	683	0.9−	0.9+
1978 11 29	675	1.2+	0.3+	1998 11 15	683	1.1−	0.4+
1978 11 30	675	0.3−	0.5+	1998 11 27	683	1.0+	0.5−
1978 11 30	675	(7.9+	2.3−)	1998 11 27	683	0.7+	1.0−
1998 11 14	683	0.6+	0.4−	1998 11 27	683	0.6−	1.0−
1998 11 14	683	0.7+	0.2−	1998 12 12	683	0.4+	0.1−
1998 11 14	683	0.9+	0.2+	1998 12 12	683	0.2+	1.0−
1998 11 15	683	1.6−	0.6+	1998 12 12	683	0.2+	0.4−

**1998 VN₃₃ = 1989 ER₁₁ = 1991 PM₂ = 1991 PC₃₀ = 1991 PX₃₁
= 1991 RB₃₉ = 1991 RH₃₉ = 1994 AN₆**

Id. S. Nakano

1999 JAN. 6

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18282200	ω	12.62448	−0.53834427	−0.83978076		
<i>a</i>	3.0745654	Ω	109.98575	+0.76652816	−0.52266152		
<i>e</i>	0.0546942	<i>i</i>	4.29507	+0.35017141	−0.14694628		
<i>P</i>	5.39	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1989 03 03	808	0.7+	0.6−	1994 01 07	691	0.6−	1.4+
1989 03 03	808	0.2−	0.1+	1994 01 07	691	0.1+	0.6+
1991 08 02	809	0.4+	0.2−	1994 01 07	691	0.8−	0.3+
1991 08 02	809	0.4+	1.8+	1994 01 17	691	0.0	0.3+
1991 08 02	809	0.7−	0.4+	1994 01 17	691	0.2+	0.4+
1991 08 07	809	0.4+	0.2−	1994 01 17	691	0.5+	0.2+
1991 08 07	809	1.1−	0.3+	1998 11 15	411	0.3+	1.1+
1991 08 07	809	0.7−	0.7−	1998 11 15	411	0.1−	1.4+
1991 08 14	809	0.8+	0.1+	1998 11 17	411	0.5+	0.1−
1991 08 14	809	0.0	0.9+	1998 11 17	411	1.1−	1.0+
1991 08 14	809	0.8+	1.0+	1998 11 26	411	0.4−	0.9+
1991 09 05	809	0.2+	1.2−	1998 11 26	411	0.5−	0.7+
1991 09 05	809	(3.8−	1.2−)	1998 11 26	411	0.7−	0.4+
1991 09 05	809	(4.3−	0.3−)	1998 12 12	411	1.2−	1.2+
1991 09 06	809	1.0−	1.3−	1998 12 12	411	(2.4+	0.5+)
1991 09 06	809	(7.8−	2.4−)	1998 12 15	704	0.2−	1.4−
1991 09 06	809	(12.4−	3.4−)	1998 12 15	704	0.4−	1.1−

1998 VR₃₄ = 1996 HD₁₀

Id. S. Nakano, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.20244225	ω	330.31388	+0.26881082	+0.96309271		
<i>a</i>	2.8725567	Ω	315.27560	−0.87977588	+0.23963104		
<i>e</i>	0.0372155	<i>i</i>	1.13170	−0.39209075	+0.12259441		
<i>P</i>	4.87	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	6
Residuals in seconds of arc							
1996 04 17	809	0.4+	0.5+	1996 04 18	809	0.2+	0.6−
1996 04 17	809	0.2+	0.2−	1998 11 14	376	0.5+	0.4−
1996 04 17	809	0.3−	0.2+	1998 11 14	376	0.4+	0.1+
1996 04 18	809	1.4−	0.1−	1998 11 14	376	1.2−	0.6+
1996 04 18	809	0.7+	0.3+	1998 11 17	376	0.5−	0.0
				1998 11 25	376	0.4+	0.7−
				1998 11 25	376	0.6−	0.8+

1998 VE₃₇ = 1981 AW₃ = 1991 GZ₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21367013	ω	83.67929	−0.04618593	−0.99862300		
<i>a</i>	2.7710233	Ω	9.08041	+0.84283345	−0.05232499		
<i>e</i>	0.1813234	<i>i</i>	9.07007	+0.53618899	−0.00376935		
<i>P</i>	4.61	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	3
Residuals in seconds of arc							
1981 01 08	381	2.1−	0.4+	1991 04 19	809	0.6−	0.4−
1981 01 08	381	2.0+	0.6−	1991 04 19	809	0.4−	1.2−
1991 04 08	809	0.3+	1.5+	1991 04 19	809	1.2−	1.4−
1991 04 08	809	0.1+	0.5+	1998 11 10	704	0.5−	0.2−
1991 04 08	809	0.9−	0.4−	1998 11 10	704	0.4−	0.5−
1991 04 10	809	1.3+	0.7−	1998 11 10	704	0.6−	0.2−
1991 04 10	809	1.4+	0.5−	1998 11 10	704	0.1+	0.1+
1991 04 10	809	0.4−	0.5+	1998 11 11	704	0.3+	0.1−
1991 04 15	675	0.4+	0.4+	1998 11 11	704	0.7+	1.0+
1991 04 15	675	0.6−	1.0+	1998 11 11	704	0.3+	1.0−
				1998 12 13	725	0.0	0.7+
				1998 12 13	725	0.3+	0.7+

1999 JAN. 6

M.P.C. 33519

1998 VX₃₇ = 1981 XT = 1993 FE₃₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	13.86198		(2000.0)	P	Q
<i>n</i>	0.28876762	ω	350.48574	+0.55926452	-0.82619828
<i>a</i>	2.2669245	Ω	65.48026	+0.76541021	+0.48314437
<i>e</i>	0.1870272	<i>i</i>	4.28425	+0.31838720	+0.28977219
<i>P</i>	3.41	<i>H</i>	15.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1981 12 04	511	0.8+	0.7+	1998 11 10	704	0.7+	0.3-	1998 11 11	704	0.0	0.2+
1981 12 04	511	1.1-	0.3+	1998 11 10	704	0.8-	0.2+	1998 12 09	691	0.1-	0.3+
1993 03 19	809	0.6+	0.3-	1998 11 10	704	0.3+	0.1-	1998 12 09	691	0.1-	0.4-
1993 03 20	809	0.6-	0.9-	1998 11 11	704	0.4+	0.6-	1998 12 09	691	0.2+	0.3-
1993 03 24	809	0.4-	0.1+	1998 11 11	704	0.2+	0.0	1998 12 14	691	0.4-	0.2+
1998 11 10	704	0.3+	0.6-	1998 11 11	704	0.2+	0.7-	1998 12 14	691	0.3-	0.2+
1998 11 10	704	0.2+	0.2+	1998 11 11	704	0.1+	0.1+	1998 12 14	691	0.4-	0.2+

1998 VZ₃₇ = 1996 JX₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	273.36587		(2000.0)	P	Q
<i>n</i>	0.23378676	ω	107.00173	-0.92836392	-0.31838368
<i>a</i>	2.6096931	Ω	54.83569	+0.18266577	-0.84017578
<i>e</i>	0.1269976	<i>i</i>	13.56621	+0.32368759	-0.43901764
<i>P</i>	4.22	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 05 11	691	0.4-	0.6+	1998 10 28	120	1.0-	0.9-	1998 11 10	704	0.1+	1.0-
1996 05 11	691	0.6-	0.0	1998 10 28	120	0.1-	0.4-	1998 11 11	704	0.5+	0.9+
1996 05 11	691	0.7-	0.0	1998 11 10	704	0.8+	0.9-	1998 11 11	704	0.0	0.9+
1996 05 20	691	0.6+	0.2-	1998 11 10	704	1.0+	0.9-	1998 11 11	704	1.4+	0.8+
1996 05 20	691	0.5+	0.1-	1998 11 10	704	0.0	0.6+	1998 11 11	704	1.5-	0.9+
1996 05 20	691	0.4+	0.3-	1998 11 10	704	(2.7-	0.8-)	1998 11 11	704	1.3-	0.2-

1998 VQ₃₈ = 1997 LO₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	283.76613		(2000.0)	P	Q
<i>n</i>	0.23694008	ω	268.91871	-0.86108860	-0.49171228
<i>a</i>	2.5864873	Ω	241.61622	+0.50505723	-0.79779645
<i>e</i>	0.0745592	<i>i</i>	8.45812	+0.05868228	-0.34891240
<i>P</i>	4.16	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 06 06	691	0.0	0.5-	1998 11 10	704	0.0	1.3+	1998 12 09	120	0.9-	0.5-
1997 06 06	691	0.0	0.3+	1998 11 11	704	0.3+	0.4+	1998 12 12	120	0.7-	0.4-
1997 06 06	691	0.3-	0.1-	1998 11 11	704	0.0	0.1-	1998 12 12	120	0.1-	0.0
1997 06 09	691	0.2+	0.2+	1998 11 11	704	0.8-	0.4+	1998 12 12	120	0.7-	0.2-
1997 06 09	691	0.1+	0.0	1998 11 11	704	0.9-	0.6+	1998 12 14	120	0.2+	0.7+
1997 06 09	691	0.0	0.1+	1998 11 11	704	1.0-	0.1-	1998 12 14	120	1.3+	0.5+
1998 11 10	704	0.7+	0.0	1998 12 07	120	0.5+	0.0	1998 12 14	120	0.5+	0.6+
1998 11 10	704	1.0+	0.9-	1998 12 07	120	0.0	0.3-	1998 12 15	120	0.5-	0.1-
1998 11 10	704	0.8+	1.5-	1998 12 09	120	0.3-	0.2-	1998 12 15	120	0.4+	0.2-
1998 11 10	704	(2.5+	1.8+)	1998 12 09	120	0.3+	0.1+				

1998 VN₄₀ = 1993 YW₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	38.02174		(2000.0)	P	Q
<i>n</i>	0.19447691	ω	292.34418	+0.92471799	-0.37657652
<i>a</i>	2.9504665	Ω	89.81393	+0.36648594	+0.84131937
<i>e</i>	0.1234948	<i>i</i>	3.18493	+0.10288193	+0.38777809
<i>P</i>	5.07	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1993 12 16	691	1.0+	0.1-	1998 11 14	691	0.9-	0.1+	1998 12 07	910	1.0+	0.2+
1993 12 16	691	0.2-	0.0	1998 11 14	691	1.1-	0.0	1998 12 07	910	1.0+	0.0

1993 12 16	691	0.3-	0.4+	1998 11 14	691	1.2-	0.0	1998 12 07	910	0.8+	0.2+
1993 12 17	691	0.5-	0.3+	1998 11 16	691	0.5+	0.4+	1998 12 08	910	0.0	0.6-
1993 12 17	691	0.1+	0.2+	1998 11 16	691	0.0	0.3+	1998 12 08	910	0.1-	0.8-
1993 12 17	691	0.5-	0.3+	1998 11 16	691	0.2+	0.1+	1998 12 08	910	0.3+	0.9-

1998 VD₄₄ = 1983 WT = 1988 AE₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	27.27356		(2000.0)	P	Q
<i>n</i>	0.26269781	ω	340.26426	+0.61877593	-0.77579697
<i>a</i>	2.4145252	Ω	71.30949	+0.73712530	+0.51903949
<i>e</i>	0.1124321	<i>i</i>	7.49208	+0.27159279	+0.35879948
<i>P</i>	3.75	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1983 11 29	688	0.5+	0.1+	1998 12 14	704	0.1+	0.4+	1998 12 17	704	0.2-	0.0
1983 11 29	688	0.3-	1.0-	1998 12 14	704	0.9+	0.4-	1998 12 17	704	0.4+	0.4+
1988 01 12	033	0.5-	0.3+	1998 12 14	704	0.0	0.3+	1998 12 17	704	1.9+	0.5-
1988 01 12	033	0.5+	0.2-	1998 12 14	704	0.4-	0.6+	1998 12 18	120	0.3-	0.2+
1998 11 15	120	1.5-	0.5-	1998 12 14	704	0.4+	1.1-	1998 12 18	120	0.5-	0.1-
1998 11 16	120	0.9-	0.1+	1998 12 14	120	0.1-	0.0	1998 12 18	120	0.2-	0.2-
1998 11 28	120	0.1+	0.1+	1998 12 14	120	0.3-	0.7+	1998 12 22	120	0.5-	0.7-
1998 11 28	120	0.7-	0.1+	1998 12 15	120	0.3-	0.2+	1998 12 22	120	0.5-	0.1+
1998 12 11	699	0.9+	0.1+	1998 12 15	120	0.4-	0.2+	1998 12 26	120	0.1+	0.6-
1998 12 11	699	0.7+	0.1+	1998 12 17	704	0.0	0.3+				
1998 12 11	699	0.4+	0.6+	1998 12 17	704	0.6+	0.5+				

1998 WQ = 1939 RF = 1977 RW₅

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	97.18897		(2000.0)	P	Q
<i>n</i>	0.28616738	ω	128.28672	+0.80244724	+0.59610563
<i>a</i>	2.2806359	Ω	195.18410	-0.57472457	+0.75983004
<i>e</i>	0.2173731	<i>i</i>	5.94729	-0.16053065	+0.25945402
<i>P</i>	3.44	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1939 09 08	024	0.5+	0.1+	1998 11 25	046	0.8-	0.3+	1998 12 10	046	0.0	0.0
1939 09 09	024	0.5-	0.2-	1998 11 25	046	0.3-	0.2+	1998 12 11	046	0.1-	0.0
1977 09 09	095(15.4-	0.0	)	1998 11 25	046	0.4-	0.2+	1998 12 15	046	0.5+	0.4+
1998 11 18	046	0.1+	0.3-	1998 12 07	046	0.0	0.3+	1998 12 15	046	0.1+	0.2+
1998 11 18	046	0.2+	0.4-	1998 12 07	046	0.3-	0.0	1998 12 15	046	0.2-	0.2+
1998 11 18	046	0.3+	0.2-	1998 12 07	046	0.6-	0.2+	1998 12 16	699	0.3+	0.5+
1998 11 18	046	0.0	0.3-	1998 12 08	046	0.3-	0.3+	1998 12 16	699	0.6+	0.6+
1998 11 18	046	0.2+	0.2+	1998 12 08	046	0.1-	0.3+	1998 12 16	699	1.0+	0.4-
1998 11 18	046	0.0	0.2+	1998 12 08	046	0.8-	0.1-	1998 12 22	704	1.4+	0.0
1998 11 18	046	0.4+	0.1+	1998 12 09	046	0.4-	0.0	1998 12 22	704	0.8-	1.4-
1998 11 23	046	0.6+	0.1+	1998 12 09	046	0.4-	0.2+	1998 12 22	704	0.4-	0.7-
1998 11 23	046	0.2+	0.1+	1998 12 09	046	0.2-	0.1+	1998 12 22	704	0.2-	0.9-
1998 11 23	046	0.3+	0.1-	1998 12 10	046	0.1-	0.1+				

1998 WS = 1976 UA₂₁ = 1982 GD

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	3.73982		(2000.0)	P	Q
<i>n</i>	0.22799797	ω	94.89547	-0.22471135	-0.97165822
<i>a</i>	2.6536811	Ω	9.14471	+0.60510496	-0.19817544
<i>e</i>	0.3954690	<i>i</i>	27.49929	+0.76377536	-0.12886733
<i>P</i>	4.32	<i>H</i>	12.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1976 10 25	095	1.6-	0.8+	1998 11 24	750	0.2-	0.2-	1998 12 14	750	0.3-	0.3-
1980 09 30	413	0.9-	0.7+	1998 11 24	046	0.0	0.2-	1998 12 14	750	0.1+	0.2-
1980 09 30	413	0.6+	0.2-	1998 11 24	046	0.0	0.2-	1998 12 16	355	0.1+	0.1-
1982 04 01	704	1.3+	2.2+	1998 11 24	046	0.0	0.1-	1998 12 16	355	0.2+	0.1+
1982 04 02	704	0.1+	1.3-	1998 11 24	151	0.2-	0.1-	1998 12 16	355	0.1+	0.1-

1998 11 17	704	0.1−	0.4+	1998 11 24	151	0.1−	0.1−	1998 12 17	540	0.1−	0.2−
1998 11 17	704	0.7+	1.1−	1998 11 24	151	0.2−	0.2−	1998 12 17	540	0.0	0.3−
1998 11 17	704	0.8+	0.8−	1998 11 25	540	0.1−	0.0	1998 12 17	540	0.0	0.2−
1998 11 17	704	2.0+	0.5−	1998 11 25	540	0.1+	0.3−	1998 12 17	639	0.1−	0.5−
1998 11 17	704	(4.1+	2.3−)	1998 11 25	540	0.6+	0.4+	1998 12 17	631	0.1+	0.0
1998 11 18	711	0.1+	0.3+	1998 11 26	355	0.1−	0.1+	1998 12 17	639	0.1−	0.4−
1998 11 18	711	0.1+	0.3+	1998 11 26	355	0.2+	0.2+	1998 12 17	631	0.2+	0.7+
1998 11 18	711	0.1+	0.4+	1998 11 26	355	0.1−	0.0	1998 12 20	631	0.1−	0.1+
1998 11 18	540	0.0	0.4+	1998 11 28	750	0.4−	0.0	1998 12 20	631	0.0	0.2−
1998 11 18	540	0.3+	0.3+	1998 11 28	750	0.2−	0.1+	1998 12 23	540	0.2+	0.7+
1998 11 18	540	0.3+	0.3+	1998 11 28	750	0.7−	0.5−	1998 12 23	540	0.3+	0.8+
1998 11 18	540	0.3+	0.4+	1998 11 28	402	0.7−	1.1−	1998 12 23	540	0.2+	0.4+
1998 11 18	151	0.0	0.3+	1998 11 28	402	0.8−	1.1−	1998 12 23	540	0.2+	0.4+
1998 11 18	151	0.0	0.3+	1998 11 28	402	0.7−	1.1−	1998 12 30	628	0.2+	0.1+
1998 11 18	151	0.1−	0.3+	1998 11 28	587	0.0	0.1−	1998 12 30	628	0.2+	0.3+
1998 11 19	355	0.1+	0.2+	1998 11 28	587	0.0	0.3−	1998 12 30	628	0.4+	0.1+
1998 11 19	355	0.5+	0.1+	1998 12 08	151	0.0	0.1+	1998 12 30	628	0.1+	0.0
1998 11 19	355	0.0	0.2+	1998 12 08	151	0.0	0.1+	1998 12 30	628	0.1+	0.3+
1998 11 19	355	0.2+	0.3+	1998 12 08	151	0.3−	0.3+	1998 12 31	540	0.6−	0.1+
1998 11 22	540	0.2+	0.2+	1998 12 09	355	0.0	0.2−	1998 12 31	540	0.4−	0.3+
1998 11 22	540	0.2+	0.2+	1998 12 09	355	0.2+	0.2+	1998 12 31	540	0.5−	0.1+
1998 11 22	540	0.1+	0.2+	1998 12 09	355	0.0	0.2−	1998 12 31	540	0.4−	0.2+
1998 11 22	540	0.1+	0.1+	1998 12 09	540	0.0	0.0	1999 01 02	628	0.1−	0.2+
1998 11 23	355	0.3−	0.0	1998 12 09	540	0.0	0.0	1999 01 02	628	0.0	0.1+
1998 11 23	355	0.1+	0.1+	1998 12 09	540	0.1−	0.1+	1999 01 02	628	0.0	0.3+
1998 11 23	355	0.2+	0.0	1998 12 09	540	0.0	0.1+	1999 01 02	628	0.0	0.4+
1998 11 24	750	0.5−	0.2−	1998 12 14	750	0.2−	0.2−				
1998 11 24	750	0.3−	0.2−	1998 12 14	750	0.2−	0.2−				

1998 WY = 1997 MW₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	332.97369		(2000.0)	P	Q
n	0.27379397	ω	289.53971	−0.60337995	−0.79738226
a	2.3488401	Ω	197.58544	+0.74426769	−0.55827573
e	0.1602913	i	2.02670	+0.28635337	−0.22915004
P	3.60	H	15.9	G 0.15	U 4

Residuals in seconds of arc

1997 06 29	691	0.5+	0.1+	1998 11 17	684	0.3−	0.5+	1998 11 25	684	0.1−	0.3+
1997 06 29	691	0.4+	0.0	1998 11 19	684	0.1+	0.1−	1998 12 12	684	0.2−	0.0
1997 06 29	691	0.7−	0.3−	1998 11 19	684	0.0	0.0	1998 12 12	684	0.5+	0.0
1997 07 06	691	0.0	0.5−	1998 11 19	684	0.1+	0.1−	1998 12 13	684	0.1−	0.0
1997 07 06	691	0.0	0.5+	1998 11 20	684	0.9+	0.4−	1998 12 13	684	0.1−	0.0
1997 07 06	691	0.1−	0.3+	1998 11 20	684	0.6−	0.2−				
1998 11 17	684	0.1−	0.1−	1998 11 25	684	0.2−	0.1+				

1998 WL₁ = 1992 ER₂₂

Id. S. Nakano, A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

$\dot{M}$	21.87728		(2000.0)	P	Q
n	0.26163996	ω	331.31945	+0.37887525	−0.91737248
a	2.4210290	Ω	96.19312	+0.87078573	+0.30875466
e	0.0898014	i	7.04824	+0.31334607	+0.25119374
P	3.77	H	14.8	G	0.15
				U	4

Residuals in seconds of arc

1992 03 01	809	0.6+	0.3−	1998 12 13	411	0.6−	0.9−	1998 12 16	704	0.2−	1.0+
1992 03 04	809	0.6−	0.3+	1998 12 13	411	0.4+	0.4−	1998 12 16	704	1.4−	0.5+
1998 11 18	411	0.2−	0.3−	1998 12 15	704	1.0−	0.4−	1998 12 21	411	0.8−	0.3+
1998 11 18	411	0.0	0.5+	1998 12 15	704	0.4+	1.3−	1998 12 21	411	0.6+	0.3+
1998 11 19	411	0.2+	0.2+	1998 12 15	704	0.7+	0.1+	1998 12 22	704	0.1+	0.2−
1998 11 19	411	0.4+	0.0	1998 12 15	704	0.6+	0.4+	1998 12 22	704	0.2+	0.0
1998 11 25	411	0.3−	0.3−	1998 12 16	704	1.0+	0.4+	1998 12 22	704	0.0	0.1−
1998 11 25	411	0.3−	0.1+	1998 12 16	704	0.2+	0.3+				

1998 WN₁ = 1980 PN₂ = 1987 RV₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	110.93770		(2000.0)	P	Q
n	0.28448031	ω	106.18789	+0.81478302	+0.57768634
a	2.2896437	Ω	218.56196	−0.55745125	+0.75736038
e	0.1578670	i	4.51421	−0.15930076	+0.30444004
P	3.46	H	14.5	G 0.15	U 4

Residuals in seconds of arc

1980 08 05	808	0.6+	0.6−	1998 11 25	411	0.6+	0.2−	1998 12 16	704	0.8+	1.5−
1980 08 05	808	0.8−	1.2+	1998 12 13	411	0.1−	0.1+	1998 12 16	704	0.8+	1.3−
1987 09 01	095	0.2+	0.5−	1998 12 13	411	0.2−	0.0	1998 12 21	411	0.1+	0.7+
1998 11 18	411	0.4−	1.2+	1998 12 15	704	1.0−	0.6−	1998 12 21	411	1.1−	0.0
1998 11 18	411	0.2−	0.0	1998 12 15	704	0.0	0.0	1998 12 22	704	1.1+	1.4−
1998 11 19	411	0.3−	0.0	1998 12 15	704	1.3+	0.7+	1998 12 22	704	0.2−	0.6+
1998 11 19	411	0.1−	0.3−	1998 12 15	704	0.2+	0.2−	1998 12 22	704	1.2+	1.1+
1998 11 25	411	0.5−	0.1+	1998 12 16	704	1.0−	0.0	1998 12 22	704	0.9−	1.5+

1998 WQ₁ = 1997 SZ₂₈

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	3.22083		(2000.0)	P	Q
n	0.17647786	ω	251.46176	+0.04072242	−0.99915483
a	3.1478152	Ω	196.20742	+0.92411591	+0.03979241
e	0.1373875	i	1.14874	+0.37993613	+0.01030488
P	5.58	H	13.7	G 0.15	U 5

Residuals in seconds of arc

1997 09 29	691	0.3+	0.2+	1998 11 25	411	0.4+	1.0−	1998 12 16	704	0.6+	1.9+
1997 09 29	691	0.3+	0.3+	1998 12 13	411	0.3−	0.1−	1998 12 16	704	0.4+	0.7+
1997 09 29	691	0.2+	0.1−	1998 12 13	411	0.5−	0.0	1998 12 21	411	1.4+	1.7−
1997 10 06	691	0.2−	0.3−	1998 12 15	704	0.2+	0.2−	1998 12 21	411	0.1+	0.5−
1997 10 06	691	0.4−	0.1−	1998 12 15	704	0.4−	0.2−	1998 12 22	704	0.6+	0.4+
1997 10 06	691	0.2−	0.1+	1998 12 15	704	(2.4−	0.3+)	1998 12 22	704	0.8−	1.7−
1998 11 18	411	0.2+	0.3+	1998 12 15	704	0.4−	1.2+	1998 12 22	704	0.1−	0.6−
1998 11 18	411	1.0−	0.1−	1998 12 15	704	0.5+	1.4+	1998 12 22	704	0.3+	0.2−
1998 11 19	411	0.7+	1.0−	1998 12 16	704	0.3−	0.3+	1998 12 22	704	0.6−	0.3+
1998 11 19	411	0.2+	0.0	1998 12 16	704	0.9−	1.0+				
1998 11 25	411	0.2−	0.3−	1998 12 16	704	(0.5−	3.1+)				

1998 WR₁ = 1978 VS₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	219.27321		(2000.0)	P	Q
n	0.29937206	ω	350.35684	-0.50209844	$+0.86169698$
a	2.2130703	Ω	249.47232	-0.78814032	-0.49083598
e	0.1182397	i	4.49020	-0.35599438	-0.12867923
P	3.29	H	14.4	G	0.15
				U	6

Residuals in seconds of arc

1978 11 01	010	0.3−	0.4+	1998 12 15	704	1.4+	0.0	1998 12 16	411	0.7−	0.3−
1978 11 01	010	0.3+	0.6−	1998 12 15	704	0.5+	0.3+	1998 12 16	411	0.1+	0.2−
1998 11 18	411	0.4+	0.1−	1998 12 15	704	1.4−	0.4−	1998 12 21	411	1.0−	0.0
1998 11 18	411	0.3−	0.5−	1998 12 15	704	0.0	0.0	1998 12 21	411	1.0−	0.1+
1998 11 19	411	0.9+	0.3+	1998 12 16	704	0.1+	1.0−	1998 12 22	704	0.0	0.5−
1998 11 19	411	0.3+	1.4+	1998 12 16	704	(0.8+	2.2+)	1998 12 22	704	0.7+	0.0
1998 11 25	411	0.2+	0.1−	1998 12 16	704	0.2−	0.4+	1998 12 22	704	0.4+	0.0
1998 11 25	411	0.1+	0.2−	1998 12 16	704	0.4+	0.9+	1998 12 22	704	0.6−	0.4−
1998 12 15	704	0.2−	0.6−	1998 12 16	704	0.6+	0.5+	1998 12 22	704	0.2−	0.6+

1999 JAN. 6

M.P.C. 33521

1998 WK₂ = 1994 XU

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24390125	ω	184.35099	+0.77219590	-0.63501392		
<i>a</i>	2.5370364	Ω	215.10032	+0.58408677	+0.72288145		
<i>e</i>	0.1780982	<i>i</i>	2.16261	+0.25011225	+0.27239627		
<i>P</i>	4.04	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 12 07	557	0.2+	1.2-	1998 11 20	758	0.0	0.6-	1998 11 27	758	0.1-	0.8+
1994 12 07	557	0.3-	0.6-	1998 11 20	758	0.3+	1.1-	1998 12 09	758	0.2-	0.7+
1994 12 07	557	0.2+	0.6-	1998 11 20	758	0.7+	0.8-	1998 12 09	758	0.4+	0.4+
1994 12 07	557	0.3+	1.2-	1998 11 25	758	0.1-	0.6+	1998 12 09	758	0.7+	0.1+
1994 12 07	557	0.1+	0.8-	1998 11 25	758	0.3+	0.4-	1998 12 19	758	0.8-	2.5+
1998 11 19	758	0.1-	0.6-	1998 11 25	758	0.5-	0.1+	1998 12 19	758	0.0	0.2+
1998 11 19	758	0.1-	0.5-	1998 11 27	758	0.3+	2.5+	1998 12 19	758	0.6+	0.5+
1998 11 19	758	0.0	0.8-	1998 11 27	758	2.2-	0.9+				

1998 WG₃ = 1993 VM₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21560307	ω	92.06799	+0.99806634	+0.02939604		
<i>a</i>	2.7544364	Ω	266.25061	-0.04864782	+0.91787158		
<i>e</i>	0.0055889	<i>i</i>	3.14624	+0.03869060	+0.39578737		
<i>P</i>	4.57	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 11 11	399	0.8+	0.8-	1998 11 20	411	0.5+	0.5+	1998 12 22	704	0.0	0.3-
1993 11 11	399	2.0+	0.1+	1998 11 20	411	0.7-	0.1+	1998 12 22	704	0.2-	0.2-
1993 11 16	399	1.4-	0.4+	1998 11 28	411	0.0	0.4-	1998 12 22	704	0.1-	1.6-
1993 11 16	399	1.5-	0.2+	1998 11 28	411	0.3+	0.1-	1998 12 22	704	0.3+	0.5+
1998 11 19	411	0.1-	0.0	1998 12 16	411	0.5+	0.1+	1998 12 26	411	0.3-	0.3+
1998 11 19	411	0.2+	0.0	1998 12 16	411	0.7-	0.7+	1998 12 26	411	0.3+	0.6+

1998 WJ₃ = 1977 AH₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22314524	ω	70.23577	-0.92893972	-0.28050034		
<i>a</i>	2.6920159	Ω	92.87429	+0.17727512	-0.90998766		
<i>e</i>	0.1124820	<i>i</i>	14.00141	+0.32503005	-0.30535555		
<i>P</i>	4.42	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 01 12	675	0.1+	0.1-	1998 11 28	411	0.2-	0.1-	1998 12 16	411	0.1-	0.3+
1977 01 13	675	0.6-	0.8+	1998 11 28	411	0.2+	0.3+	1998 12 17	704	0.6+	0.9+
1977 01 13	095	(1.7-	3.3-)	1998 12 14	704	0.5-	0.2+	1998 12 17	704	0.3-	1.5-
1977 01 20	095	0.5+	0.6-	1998 12 14	704	0.4-	0.5-	1998 12 17	704	0.4+	0.2-
1998 11 19	411	0.3-	0.6-	1998 12 14	704	1.1+	1.6-	1998 12 17	704	0.2+	0.7-
1998 11 19	411	0.3+	0.3+	1998 12 14	704	1.3-	0.2+	1998 12 26	411	0.1+	0.4+
1998 11 20	411	0.2+	0.4+	1998 12 14	704	0.4+	1.1+	1998 12 26	411	0.1-	0.6+
1998 11 20	411	0.3-	0.3+	1998 12 16	411	0.1-	0.0				

1998 WK₃ = 1976 SY₁₀ = 1985 YD₂ = 1989 UG₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23021905	ω	97.73880	+0.98680794	-0.16131521		
<i>a</i>	2.6365856	Ω	271.54517	+0.14261405	+0.90619786		
<i>e</i>	0.2160045	<i>i</i>	0.78485	+0.07662457	+0.39087445		
<i>P</i>	4.28	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1976 09 24	095	0.5-	0.8+	1989 11 01	807	0.6+	1.5-	1998 11 28	411	0.0	0.0
1976 09 28	095	0.6-	1.7+	1998 11 19	411	0.2+	0.6+	1998 12 16	411	0.2+	1.0-
1985 12 17	010	0.1+	1.5-	1998 11 19	411	0.3-	0.4+	1998 12 16	411	1.4-	0.4+
1985 12 17	010	(4.0+	0.4+)	1998 11 20	411	0.1+	0.7+	1998 12 26	411	0.0	1.2+
1985 12 19	010	(9.1-	7.2+)	1998 11 20	411	0.6+	0.2+	1998 12 26	411	1.0+	1.2+
1989 10 30	807	0.4+	1.1-	1998 11 28	411	0.1+	0.2-				

1998 WL₃ = 1993 VO₅

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21332040	ω	229.02542	-0.84527362	-0.51643067		
<i>a</i>	2.7740511	Ω	279.46011	+0.52244563	-0.74493235		
<i>e</i>	0.0986535	<i>i</i>	7.99273	+0.11208512	-0.42234483		
<i>P</i>	4.62	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 11 06	691	0.6+	0.2+	1998 11 20	411	0.0	0.7-	1998 12 16	411	0.8-	1.4+
1993 11 06	691	0.3+	0.1+	1998 11 20	411	0.2+	0.3+	1998 12 16	411	0.4-	0.5-
1993 11 06	691	1.0+	0.1+	1998 11 28	411	0.3+	0.3+	1998 12 17	704	0.0	0.9-
1993 11 09	691	0.6-	0.9+	1998 11 28	411	0.1+	1.2-	1998 12 17	704	(1.4+	2.4-)
1993 11 09	691	1.0-	0.6-	1998 12 14	704	1.0-	1.4+	1998 12 17	704	1.7+	0.2+
1993 11 09	691	0.3-	0.7-	1998 12 14	704	0.3-	0.2-	1998 12 17	704	0.9+	0.2+
1998 11 19	411	0.7+	0.9+	1998 12 14	704	1.8-	1.8-	1998 12 26	411	0.2-	0.3-
1998 11 19	411	0.7-	0.1+	1998 12 14	704	1.2+	1.1+	1998 12 26	411	0.2+	0.2-

1998 WQ₃ = 1992 KM

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24016849	ω	3.32292	+0.01135228	+0.97657098		
<i>a</i>	2.5632563	Ω	267.40520	-0.92231145	-0.07279447		
<i>e</i>	0.1245679	<i>i</i>	12.42236	-0.38628061	+0.20250947		
<i>P</i>	4.10	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 05 27	675	0.1+	0.7+	1998 11 20	411	0.2-	0.3+	1998 12 22	704	0.7+	0.2-
1992 05 27	675	0.1+	0.5-	1998 11 20	411	0.2-	0.0	1998 12 22	704	1.0+	0.5+
1992 05 30	675	0.4-	0.8+	1998 11 28	411	0.6-	0.6+	1998 12 22	704	0.5-	0.3+
1992 05 30	675	0.2+	1.0-	1998 11 28	411	0.8+	0.1+	1998 12 22	704	0.2-	1.0-
1998 11 19	411	0.2-	0.6-	1998 12 16	411	0.1-	0.0	1998 12 26	411	0.4-	0.4+
1998 11 19	411	0.3+	0.2-	1998 12 16	411	0.1-	0.5-	1998 12 26	411	0.4-	0.2+

1998 WH₄ = 1996 LM₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22414109	ω	359.68890	+0.30355167	-0.95011266		
<i>a</i>	2.6840363	Ω	72.63917	+0.87435284	+0.24785726		
<i>e</i>	0.0617295	<i>i</i>	4.30884	+0.37863371	+0.18934812		
<i>P</i>	4.40	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 06 08	809	1.0+	0.4+	1998 11 19	399	0.9-	0.1+	1998 12 13	327	0.5+	0.3-
1996 06 08	809	0.3-	0.4+	1998 11 19	399	0.2-	0.9+	1998 12 13	327	0.3+	0.2-
1996 06 08	809	0.2-	0.0	1998 12 08	699	1.0+	0.6-	1998 12 17	691	0.7-	0.1+
1996 06 10	809	0.4+	0.1-	1998 12 08	699	0.8+	1.0-	1998 12 17	691	0.7-	0.0
1996 06 10	809	1.0-	0.2-	1998 12 08	699	0.8+	1.0-	1998 12 17	691	0.9-	0.1-
1996 06 10	809	0.0	0.8-	1998 12 10	399	1.2+	0.6+	1998 12 26	691	0.3-	0.6+
1998 11 18	399	0.1-	0.8-	1998 12 10	399	0.5-	0.2-	1998 12 26	691	0.3-	0.7+
1998 11 18	399	0.2-	0.7+	1998 12 13	327	0.4+	0.3-	1998 12 26	691	0.2-	0.8+

1998 WP₄ = 1982 UA₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams					
<i>M</i>	358.74959		(2000.0)	P		Q			
<i>n</i>	0.37225467	ω	258.45288	-0.14330025		-0.97756292			
<i>a</i>	1.9138561	Ω	201.70621	+0.98953739		-0.14416684			
<i>e</i>	0.0826519	<i>i</i>	24.67294	-0.01675656		-0.15357946			
<i>P</i>	2.65	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1982 10 21	807	(0.7- 8.0+)	1982 10 27	807	0.5- 1.3-	1998 11 22	703	0.4- 0.2-	
1982 10 22	695	(3.2+ 14.8+)	1998 11 17	703	0.6- 0.4+	1998 11 23	703	1.0+ 0.2+	
1982 10 24	695	0.6+ 0.0	1998 11 17	703	0.2- 0.1+	1998 11 23	703	1.0+ 0.0	
1982 10 25	807	0.9- 0.9+	1998 11 17	703	0.0 0.3+	1998 12 22	703	0.4- 0.1-	
1982 10 26	695	0.8+ 0.4+	1998 11 22	703	0.0 0.6-	1998 12 22	703	0.3- 0.0	

1998 WR₄ = 1994 JM₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams					
<i>M</i>	351.74494		(2000.0)	P		Q			
<i>n</i>	0.36298868	ω	269.39998	-0.36998619		-0.91536423			
<i>a</i>	1.9462890	Ω	204.29495	+0.92886373		-0.36777644			
<i>e</i>	0.1367870	<i>i</i>	22.70432	-0.01795521		-0.16385609			
<i>P</i>	2.72	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1994 05 10	413	0.0 0.3+	1998 11 18	703	0.0 0.0	1998 11 23	703	0.0 0.2-	
1994 05 15	413	1.3+ 2.2-	1998 11 18	703	0.2- 0.6-	1998 11 23	703	0.3+ 0.1-	
1994 05 15	413	1.3- 1.9+	1998 11 21	703	0.4- 1.1+	1998 12 22	703	0.5+ 0.6-	
1998 11 18	703	0.4- 0.0	1998 11 21	703	0.9+ 0.2-	1998 12 22	703	0.7- 0.5+	

1998 WS₄ = 1981 US₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams					
<i>M</i>	353.82455		(2000.0)	P		Q			
<i>n</i>	0.23428518	ω	260.47999	-0.33957930		-0.91122766			
<i>a</i>	2.6059906	Ω	212.59340	+0.93877468		-0.34369102			
<i>e</i>	0.3182146	<i>i</i>	25.64456	-0.05820654		-0.22702563			
<i>P</i>	4.21	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	3		
Residuals in seconds of arc									
1981 10 24	675	0.1- 0.0	1998 11 18	703	1.5- 0.4-	1998 12 22	703	0.5+ 0.3+	
1981 10 25	675	0.2+ 0.2+	1998 11 18	703	0.5- 0.3+	1998 12 22	703	0.7- 0.4-	
1981 10 26	675	0.0 0.1-	1998 11 22	703	0.5+ 0.3-	1998 12 22	703	0.1- 0.1+	
1998 11 18	703	0.6+ 0.4+	1998 11 22	703	1.1+ 0.1-				

1998 WX₄ = 1992 LD

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams					
<i>M</i>	29.76225		(2000.0)	P		Q			
<i>n</i>	0.08104015	ω	283.83984	+0.61150410		-0.67410810			
<i>a</i>	5.2885412	Ω	120.54803	+0.77175633		+0.62363309			
<i>e</i>	0.0236780	<i>i</i>	28.75506	-0.17451335		+0.39580303			
<i>P</i>	12.16	<i>H</i>	9.5	<i>G</i>	0.15	<i>U</i>	3		
Residuals in seconds of arc									
1992 06 01	675	0.8- 0.4+	1998 11 19	703	0.6+ 0.2+	1998 12 19	704	0.8- 0.1+	
1992 06 01	675	0.0 0.2+	1998 11 21	703	0.2+ 0.2-	1998 12 19	704	0.0 0.1-	
1992 06 02	675	0.9+ 0.6-	1998 11 21	703	0.1+ 0.2-	1998 12 19	704	0.0 0.3-	
1998 11 19	703	0.5- 0.1+	1998 12 19	704	1.1+ 0.0	1998 12 22	703	0.5- 0.1-	
1998 11 19	703	0.3- 0.0	1998 12 19	704	0.2+ 0.1-	1998 12 22	703	0.0 0.4+	

1998 WN₅ = 1992 OO₁₀

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams					
<i>M</i>	77.01883		(2000.0)	P		Q			
<i>n</i>	0.19248334	ω	344.67807	+0.94515886		+0.32660935			
<i>a</i>	2.9708036	Ω	356.25835	-0.29797368		+0.86098958			
<i>e</i>	0.1096977	<i>i</i>	0.90575	-0.13374012		+0.38990162			
<i>P</i>	5.12	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	6		
Residuals in seconds of arc									
1992 07 26	809	0.1+ 1.4+	1998 11 18	704	0.4+ 1.9-	1998 11 25	888	0.0 0.6-	
1992 07 26	809	1.0- 0.9-	1998 11 18	704	0.8+ 0.3-	1998 11 29	888	0.0 0.9+	
1992 07 26	809	0.9- 0.9-	1998 11 20	888	0.1- 0.6+	1998 11 29	888	0.5+ 1.7+	
1992 07 30	809	1.7+ 0.2+	1998 11 20	888	0.1+ 0.3+	1998 12 13	888	1.1+ 1.0-	
1992 07 30	809	0.8+ 0.2+	1998 11 21	704	1.1- 0.4-	1998 12 19	691	1.1- 0.5+	
1992 07 30	809	0.7- 0.2+	1998 11 21	704	0.5- 0.6+	1998 12 19	691	1.4- 0.3+	
1998 11 11	888	(0.3+ 2.2+)	1998 11 21	704	0.4- 0.1-	1998 12 19	691	1.1- 0.4+	
1998 11 11	888	0.1+ 0.8+	1998 11 22	888	0.6+ 0.9-	1998 12 26	691	0.4+ 0.1+	
1998 11 11	120	0.1- 0.6+	1998 11 22	888	0.3+ 1.0-	1998 12 26	691	0.3+ 0.4+	
1998 11 11	120	0.2- 0.2-	1998 11 22	385	(2.0+ 2.1-)	1998 12 26	691	0.4+ 0.7+	
1998 11 18	704	0.6+ 0.2+	1998 11 22	385	(2.6+ 3.5-)				
1998 11 18	704	0.7- 1.0-	1998 11 25	888	0.9+ 0.5-				

1998 WY₅ = 1981 WD₃ = 1988 AT₅ = 1992 UU₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams					
<i>M</i>	29.72801		(2000.0)	P		Q			
<i>n</i>	0.17641145	ω	300.44644	+0.68277887		-0.72923973			
<i>a</i>	3.1486052	Ω	106.42103	+0.68538653		+0.61796597			
<i>e</i>	0.1146492	<i>i</i>	2.68723	+0.25309745		+0.29381537			
<i>P</i>	5.59	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	2		
Residuals in seconds of arc									
1981 11 24	033	0.1- 0.4+	1998 11 20	411	0.5- 0.7-	1998 11 28	327	0.1+ 0.0	
1981 11 24	033	0.2- 0.5+	1998 11 20	411	0.3- 0.3-	1998 11 28	327	0.3+ 0.1+	
1988 01 11	033	0.1- 0.0	1998 11 23	411	0.2- 0.5-	1998 12 01	327	0.5+ 0.6+	
1988 01 11	033	0.1+ 0.3+	1998 11 23	411	1.3- 0.8-	1998 12 01	327	0.4+ 0.1+	
1992 10 31	033	0.2- 0.1-	1998 11 26	411	0.3- 0.2-	1998 12 01	327	0.1+ 0.5+	
1992 10 31	033	0.2+ 0.4-	1998 11 26	411	0.5+ 0.2+				
1992 11 01	033	0.1+ 0.2+	1998 11 28	327	0.8+ 0.2+				

1998 WZ₅ = 1986 WH₃ = 1996 RA₃₂

Id. T. Urata

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams					
<i>M</i>	358.40809		(2000.0)	P		Q			
<i>n</i>	0.08235867	ω	272.03865	+0.29625484		-0.95216018			
<i>a</i>	5.2319448	Ω	160.22333	+0.94051294		+0.27715229			
<i>e</i>	0.0943795	<i>i</i>	12.80551	+0.16633845		+0.12875400			
<i>P</i>	11.97	<i>H</i>	10.2	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1986 10 08	675	1.2- 1.1-	1998 11 20	905	0.3- 1.2+	1998 12 22	704	1.6+ 1.3-	
1986 10 08	675	1.0+ 1.9+	1998 11 20	905	0.6- 0.6+	1998 12 22	704	(2.0+ 2.3-)	
1986 11 27	033	0.4+ 0.6-	1998 11 23	385	0.7+ 1.2+	1998 12 22	704	(1.7+ 2.4-)	
1986 11 27	033	0.3- 0.2+	1998 11 23	385	0.1+ 0.1+	1998 12 22	704	1.2+ 1.7-	
1996 09 14	809	0.3+ 0.1+	1998 12 11	385	0.8- 0.4-	1998 12 22	888	0.2- 0.3-	
1996 09 15	809	0.3- 0.4-	1998 12 11	385	1.4- 0.1+	1998 12 22	888	0.2- 0.0	

1998 WK₆ = 1980 SR = 1985 XQ₁ = 1996 HQ₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

				Williams					
<i>M</i>	15.27580		(2000.0)	P		Q			
<i>n</i>	0.22302595	ω	225.26252	+0.54969951		-0.83533071			
<i>a</i>	2.6929758	Ω	191.39762	+0.77646875		+0.51414194			
<i>e</i>	0.1990415	<i>i</i>	2.11244	+0.30810183		+0.19462957			
<i>P</i>	4.42	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4		

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Residuals in seconds of arc

1980 09 19	801	0.7+	1.7+	1998 11 21	704	0.2-	1.1-	1998 12 09	727	0.7+	0.3-
1980 09 20	801	1.1-	0.7-	1998 11 23	727	0.3-	0.2-	1998 12 09	727	0.5+	0.1+
1985 12 14	675(62.2-	0.3+)		1998 11 23	727	0.4-	0.1+	1998 12 09	727	0.7+	0.8+
1985 12 14	675(53.8-	1.4+)		1998 11 23	727	0.0	0.0	1998 12 13	691	1.7-	0.4-
1996 04 17	809	0.9+	1.9+	1998 11 24	727	0.1-	0.4-	1998 12 13	691	1.7-	0.3-
1996 04 17	809	(0.5-	2.5+)	1998 11 24	727	0.2-	0.2-	1998 12 13	691	1.8-	0.4-
1996 04 17	809	(1.5+	2.8+)	1998 11 24	727	0.1+	0.4-	1998 12 18	727	0.1+	0.6+
1996 04 18	809	0.1-	0.4+	1998 11 24	704	0.0	0.8-	1998 12 18	727	0.3+	0.1+
1996 04 18	809	0.4-	0.3-	1998 11 24	704	0.8+	0.1+	1998 12 18	727	0.0	0.1+
1996 04 18	809	0.1+	0.2-	1998 11 24	704	0.0	0.2-	1998 12 21	910	0.6+	0.6+
1998 11 21	704	0.6+	0.0	1998 11 24	704	1.1+	0.6+	1998 12 21	910	0.8+	0.6+
1998 11 21	704	0.2-	0.1-	1998 11 24	704	1.7+	1.7+	1998 12 21	910	0.7+	0.5+
1998 11 21	704	0.2-	0.2-	1998 11 27	691	0.9-	0.5-				
1998 11 21	704	0.9-	0.6+	1998 11 27	691	(0.9-	3.3-)				

1998 WM₆ = 1991 PB₆

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Marsden

<i>M</i>	146.06439		(2000.0)	P	Q
<i>n</i>	0.30954360	ω	200.23717	+0.39401981	+0.91801111
<i>a</i>	2.1643201	Ω	92.98934	-0.83697162	+0.37850998
<i>e</i>	0.0684981	<i>i</i>	2.56926	-0.37977216	+0.11826157
<i>P</i>	3.18	<i>H</i>	15.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 08 06	809	0.3+	0.7+	1998 11 24	557	0.1+	0.2-	1998 12 07	046	1.0+	0.5-
1991 08 06	809	0.5-	0.3-	1998 11 24	046	0.1-	0.2+	1998 12 07	046	0.6+	0.3-
1991 08 06	809	0.2+	1.3+	1998 11 24	046	0.1-	0.2-	1998 12 07	046	0.2+	0.5-
1991 08 14	809	0.1-	0.7-	1998 11 24	046	0.1-	0.1-	1998 12 08	046	0.1+	0.2+
1991 08 14	809	0.3-	0.8-	1998 11 24	046	0.2+	0.1-	1998 12 08	046	0.3+	0.3+
1991 08 14	809	0.5+	0.2-	1998 11 24	046	0.4+	0.4+	1998 12 08	046	0.2+	0.2+
1998 11 24	046	0.2-	0.6+	1998 11 24	046	0.3-	0.5+	1998 12 15	046	0.0	0.3+
1998 11 24	046	0.0	0.1+	1998 11 25	684	0.3-	0.4-	1998 12 15	046	0.3+	0.2-
1998 11 24	046	0.4-	0.1-	1998 11 25	684	0.5-	0.3+	1998 12 15	046	0.1+	0.8-
1998 11 24	046	0.5-	0.1+	1998 11 25	684	0.0	0.1-	1998 12 23	046	0.0	0.7+
1998 11 24	046	0.5-	0.2+	1998 11 25	684	0.1-	0.1-	1998 12 23	046	0.4-	0.3-
1998 11 24	557	0.3+	0.1+	1998 11 26	684	0.0	0.2+				
1998 11 24	557	0.3-	0.1-	1998 11 26	684	0.0	0.1-				

1998 WP₆ = 1995 AE₃

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Williams

<i>M</i>	351.65380		(2000.0)	P	Q
<i>n</i>	0.24281999	ω	48.87771	-0.31703409	-0.94556949
<i>a</i>	2.5445623	Ω	59.74818	+0.84270687	-0.31636117
<i>e</i>	0.1449021	<i>i</i>	4.87446	+0.43512587	-0.07624927
<i>P</i>	4.06	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1995 01 04	010	1.1+	1.1+	1998 11 24	411	1.1+	0.4-	1998 12 14	704	0.7+	0.3+
1995 01 04	010	0.1+	1.3+	1998 11 28	411	0.3-	0.2-	1998 12 17	704	0.1-	0.2+
1995 01 04	010	0.5+	0.7+	1998 11 28	411	0.4-	0.5-	1998 12 17	704	0.4+	0.5-
1995 01 04	010	0.0	1.6-	1998 12 13	411	0.6-	0.4+	1998 12 17	704	0.7-	1.0+
1995 01 05	010	0.6-	1.0-	1998 12 13	411	0.3-	0.2+	1998 12 17	704	0.1+	0.1-
1995 01 05	010	1.0-	1.4-	1998 12 14	704	0.3+	0.4+	1998 12 17	704	0.0	0.1-
1998 11 23	411	0.0	0.0	1998 12 14	704	0.3+	0.8-	1998 12 24	411	0.4-	0.5+
1998 11 23	411	0.2-	0.1-	1998 12 14	704	1.8+	1.2-	1998 12 24	411	1.6-	1.2+
1998 11 24	411	0.1-	0.2+	1998 12 14	704	0.2-	0.0				

1998 WQ₆ = 1979 QA₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	28.05835		(2000.0)	P	Q
<i>n</i>	0.26723724	ω	70.05111	+0.52927025	-0.84842401
<i>a</i>	2.3871043	Ω	347.98515	+0.76523000	+0.48092730
<i>e</i>	0.1939679	<i>i</i>	1.94071	+0.36646426	+0.22110094
<i>P</i>	3.69	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1979 08 22	809	0.5+	0.0	1998 11 23	411	0.5-	0.0	1998 12 14	704	0.8+	0.0
1979 08 22	809	0.7-	0.7+	1998 11 23	411	0.2-	0.0	1998 12 14	704	0.5+	0.8+
1979 08 22	809	0.7-	0.4+	1998 11 24	411	0.2-	0.5+	1998 12 14	704	0.1-	0.6-
1979 08 23	809(12.7+	2.9+)		1998 11 24	411	0.5+	0.6+	1998 12 17	704	0.6-	1.4-
1979 08 23	809	0.1+	0.1+	1998 11 28	411	0.1+	0.1+	1998 12 17	704	0.4-	0.3+
1979 08 26	809	0.0	0.4-	1998 11 28	411	0.0	0.4-	1998 12 17	704	0.5-	0.2+
1979 08 26	809	0.5+	0.7-	1998 12 14	704	0.3+	0.0	1998 12 17	704	0.4-	0.2+
1979 08 26	809	0.2+	0.2-	1998 12 14	704	0.7+	0.3-				

1998 WS₇ = 7600 P-L

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	15.83480		(2000.0)	P	Q
<i>n</i>	0.23480026	ω	26.72176	+0.69954891	-0.71074093
<i>a</i>	2.6021780	Ω	19.19099	+0.60872908	+0.53846286
<i>e</i>	0.1571824	<i>i</i>	13.01296	+0.37427294	+0.45266441
<i>P</i>	4.20	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1960 10 17	675	0.4+	0.1-	1998 11 22	725	0.2+	0.1+	1998 12 09	725	1.2-	0.3-
1960 10 22	675	0.3+	1.0-	1998 11 22	725	0.5+	0.1+	1998 12 13	725	0.1-	0.3+
1960 10 25	675	0.4-	1.0+	1998 11 26	725	0.5+	0.1+	1998 12 13	725	0.2-	0.1-
1960 10 26	675	0.4-	0.3+	1998 11 26	725	0.5+	0.0	1998 12 13	725	0.2+	0.2+
1998 11 16	725	0.3-	0.2-	1998 12 01	725	0.6+	0.0	1998 12 14	725	0.1+	0.2+
1998 11 16	725	0.4-	0.1-	1998 12 01	725	0.1+	0.0	1998 12 14	725	0.0	0.0
1998 11 16	725	0.5-	0.2-	1998 12 01	725	0.6+	0.2+				
1998 11 22	725	0.1-	0.1+	1998 12 09	725	0.4-	0.2-				

1998 WC₈ = 1989 VY₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Nakano

<i>M</i>	22.66979		(2000.0)	P	Q
<i>n</i>	0.21841582	ω	290.19249	+0.77263272	-0.61791253
<i>a</i>	2.7307377	Ω	108.25466	+0.62455975	+0.69866736
<i>e</i>	0.2628004	<i>i</i>	8.82404	+0.11385873	+0.36062172
<i>P</i>	4.51	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1989 11 06	095	0.2-	1.0+	1998 11 18	399	0.2+	0.4+	1998 11 22	399	(1.0+	3.1-)
1989 11 06	095	0.0	0.2-	1998 11 19	399	0.8-	0.1+	1998 12 10	399	1.0+	0.2-
1989 11 24	095	0.2-	0.4+	1998 11 19	399	0.1+	0.0	1998 12 10	399	0.7-	0.2+
1998 11 18	399	0.6+	1.7-	1998 11 22	399	(0.2+	4.9-)				

1998 WD₈ = 1993 VY₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	0.65796		(2000.0)	P	Q
<i>n</i>	0.21714903	ω	33.98326	-0.24028970	-0.96534984
<i>a</i>	2.7413477	Ω	70.10274	+0.86480137	-0.26052096
<i>e</i>	0.0238463	<i>i</i>	6.21437	+0.44088484	-0.01511674
<i>P</i>	4.54	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 11 11	399	1.6+	0.0	1998 11 28	411	0.8+	0.4+	1998 12 16	411	0.9-	0.5+
1993 11 11	399	0.0	1.0+	1998 11 28	411	0.9+	0.3-	1998 12 17	704	0.4+	0.5+
1993 11 16	399	0.4-	0.0	1998 12 14	704	0.5+	0.4-	1998 12 17	704	0.6+	0.3+
1993 11 16	399	1.3-	0.9-	1998 12 14	704	0.7-	1.1-	1998 12 17	704	0.2-	0.3+

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1998 11 25	411	0.1-	0.5-	1998 12 14	704	0.1-	1.1-	1998 12 17	704	0.1-	0.4+
1998 11 25	411	0.6-	0.4-	1998 12 14	704	0.4+	1.0-	1998 12 17	704	0.4-	1.3+
1998 11 26	411	0.3+	0.3+	1998 12 14	704	0.7+	1.9-	1998 12 26	411	0.0	0.7+
1998 11 26	411	0.8-	1.2+	1998 12 16	411	0.0	0.1+	1998 12 26	411	0.8-	0.7+

1998 WH₈ = 1995 AB₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 98.21464 (2000.0)				Williams			
				<i>P</i>		<i>Q</i>	
<i>n</i>	0.24582438	<i>ω</i>	289.71820	+0.99200891		+0.10422632	
<i>a</i>	2.5237873	<i>Ω</i>	64.35379	-0.06405900		+0.90157348	
<i>e</i>	0.1170215	<i>i</i>	4.52361	-0.10869572		+0.41988348	
<i>P</i>	4.01	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 01 02	010	(2.5+	0.2+)	1998 11 28	411	0.1+	0.1+	1998 12 17	704	1.5+	0.3-
1995 01 02	010	0.1+	0.5+	1998 11 28	411	0.1-	0.5+	1998 12 17	704	1.0+	0.7-
1995 01 03	010	0.5-	1.5+	1998 12 14	704	0.7+	0.8+	1998 12 17	704	(0.9+	3.0-)
1995 01 04	010	0.4+	0.8+	1998 12 14	704	(0.4+	2.5-)	1998 12 17	704	0.3-	1.4-
1998 11 25	411	0.8-	0.3+	1998 12 14	704	(0.2+	2.2-)	1998 12 26	411	0.9-	0.4-
1998 11 25	411	0.8+	0.7+	1998 12 16	411	0.3+	1.1-	1998 12 26	411	1.6-	0.9-
1998 11 26	411	0.3+	1.0+	1998 12 16	411	0.9+	0.5-				
1998 11 26	411	0.8-	0.2-	1998 12 17	704	1.0-	0.4-				

1998 WD₉ = 1989 EP₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 17.75542 (2000.0)				Williams			
				<i>P</i>		<i>Q</i>	
<i>n</i>	0.27694072	<i>ω</i>	202.00105	+0.64947345		-0.75744776	
<i>a</i>	2.3310138	<i>Ω</i>	207.63324	+0.71733218		+0.63945901	
<i>e</i>	0.1432451	<i>i</i>	8.27601	+0.25222764		+0.13177654	
<i>P</i>	3.56	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 03 02	413	0.6+	0.2+	1998 11 26	120	0.4-	0.5-	1998 12 07	120	1.3+	0.5+
1989 03 02	413	0.6+	1.1-	1998 11 26	120	1.7-	0.0	1998 12 11	699	0.2-	0.2+
1989 03 07	413	(6.2+	2.7-)	1998 11 26	120	0.0	0.6+	1998 12 11	699	0.9+	0.0
1989 03 07	413	1.4-	0.4+	1998 11 27	120	0.2-	0.4-	1998 12 11	699	0.2-	0.3-
1998 10 02	910	0.0	0.2-	1998 11 27	120	(2.7+	0.2+)	1998 12 22	120	0.1-	0.1-
1998 10 02	910	0.1-	0.4-	1998 12 07	120	0.1-	0.5+	1998 12 22	120	0.1+	0.3+
1998 10 02	910	0.0	0.5-	1998 12 07	120	0.9+	0.2+				

1998 WJ₉ = 1991 CM₆ = 1994 YE₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 336.00485 (2000.0)				Williams			
				<i>P</i>		<i>Q</i>	
<i>n</i>	0.22969759	<i>ω</i>	18.81013	-0.40523309		-0.88023193	
<i>a</i>	2.6405745	<i>Ω</i>	95.72620	+0.80372507		-0.47173807	
<i>e</i>	0.1977190	<i>i</i>	14.36957	+0.43567436		+0.05152612	
<i>P</i>	4.29	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 02 09	675	0.5-	0.4+	1995 01 02	399	1.1-	1.2-	1998 11 28	120	0.6-	0.3+
1991 02 09	675	0.2-	0.9+	1995 01 02	399	0.1-	2.0-	1998 12 07	120	0.5+	0.1-
1991 02 13	675	0.0	0.7-	1998 11 27	120	0.1+	0.2+	1998 12 07	120	1.2-	0.9+
1991 02 13	675	0.9+	0.0	1998 11 27	120	0.1-	0.1+	1998 12 07	120	0.4+	0.1+
1994 12 30	399	0.2+	1.9+	1998 11 27	120	0.7+	1.0-	1998 12 15	120	0.3+	0.2+
1994 12 30	399	1.2+	0.5+	1998 11 28	120	0.5-	0.2-				

1998 WK₉ = 1996 JA₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 25.61832 (2000.0)				Williams			
				<i>P</i>		<i>Q</i>	
<i>n</i>	0.21061482	<i>ω</i>	300.84266	+0.71430128		-0.69499053	
<i>a</i>	2.7977577	<i>Ω</i>	103.32617	+0.66748981		+0.64125472	
<i>e</i>	0.0970187	<i>i</i>	4.84761	+0.21031175		+0.32523923	
<i>P</i>	4.68	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 05 15	691	0.6-	0.4-	1998 11 24	704	0.5-	0.6-	1998 12 10	747	0.0	1.1+
1996 05 15	691	0.5-	0.3-	1998 11 24	704	0.9-	0.6-	1998 12 10	747	0.9+	0.9+
1996 05 15	691	0.6-	0.4-	1998 11 24	704	(2.5-	0.2+)	1998 12 12	691	1.6-	0.4-
1996 05 21	691	0.7+	0.3+	1998 11 29	747	0.5+	0.3+	1998 12 12	691	1.6-	0.4-
1996 05 21	691	0.4+	0.2+	1998 11 29	747	0.3+	0.2+	1998 12 12	691	1.4-	0.0
1996 05 21	691	0.6+	0.3+	1998 11 29	747	0.4+	0.0	1998 12 14	747	0.2+	0.0
1998 11 11	699	0.1+	0.7+	1998 11 29	747	0.3+	0.3+	1998 12 14	747	0.8+	0.7+
1998 11 11	699	1.3+	0.2-	1998 11 30	747	0.5-	1.3+	1998 12 14	747	0.3+	0.8+
1998 11 11	699	0.3+	0.5+	1998 11 30	747	0.4-	0.1+	1998 12 14	747	0.1+	0.3-
1998 11 21	704	0.3-	0.9-	1998 11 30	747	0.4-	0.1-	1998 12 17	747	1.3+	0.2-
1998 11 21	704	0.0	1.1-	1998 12 08	699	0.4+	0.1-	1998 12 17	747	1.1+	1.1-
1998 11 21	704	0.2+	1.4-	1998 12 08	699	0.0	0.8+	1998 12 17	747	(3.9+	2.9-)
1998 11 21	704	(0.5+	2.6-)	1998 12 08	699	1.4+	0.1-	1998 12 26	691	0.5-	0.4-
1998 11 21	704	(1.3-	3.7-)	1998 12 10	747	(2.2+	2.2+)	1998 12 26	691	0.7-	0.6-
1998 11 24	704	0.0	0.5-	1998 12 10	747	0.2+	0.7+	1998 12 26	691	0.4-	0.8-
1998 11 24	704	1.1-	0.5-	1998 12 10	747	0.1-	1.5+				

1998 WU₁₀ = 1986 GW₁ = 1997 GW₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 136.23390 (2000.0)				Williams			
				<i>P</i>		<i>Q</i>	
<i>n</i>	0.27264878	<i>ω</i>	42.82460	+0.13938085		+0.98985273	
<i>a</i>	2.3554127	<i>Ω</i>	235.20574	-0.91738795		+0.11856430	
<i>e</i>	0.2272336	<i>i</i>	1.92956	-0.37278994		+0.07832040	
<i>P</i>	3.61	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1986 04 08	071	1.3+	2.0-	1997 04 07	704	0.0	1.2+	1998 11 21	704	0.5-	0.7-
1986 04 08	071	0.4-	0.1-	1997 04 11	704	1.1+	0.6+	1998 11 24	704	0.2-	1.1+
1986 04 09	071	3.9-	1.1+	1997 04 11	704	0.7-	0.3+	1998 11 24	704	0.7+	1.3+
1986 04 09	071	(4.9-	3.4+)	1998 11 11	120	0.0	0.6-	1998 11 24	704	0.0	0.7+
1986 04 09	071	2.4+	0.7-	1998 11 11	120	1.1+	1.6+	1998 11 24	704	0.1-	0.2+
1986 04 09	071	0.1+	0.3+	1998 11 21	704	0.2-	0.0	1998 12 14	120	1.5-	0.4-
1997 04 06	704	0.3+	0.3+	1998 11 21	704	0.5+	0.8-	1998 12 14	120	1.0-	1.3+
1997 04 06	704	0.0	0.3-	1998 11 21	704	0.5+	1.0-	1998 12 14	120	0.2-	0.4+
1997 04 07	704	0.1-	0.1+	1998 11 21	704	0.5+	2.2-				

1998 WA₁₂ = 1996 GW₂₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 336.87847 (2000.0)				Williams			
				<i>P</i>		<i>Q</i>	
<i>n</i>	0.25786326	<i>ω</i>	291.29597	-0.33447554		-0.94240316	
<i>a</i>	2.4446109	<i>Ω</i>	178.24246	+0.88226760		-0.31370889	
<i>e</i>	0.1500997	<i>i</i>	2.89304	+0.33125517		-0.11603025	
<i>P</i>	3.82	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 04 12	691	0.2-	0.6-	1998 11 21	704	0.8+	0.3+	1998 11 24	704	0.1+	0.1-
1996 04 12	691	0.0	0.3-	1998 11 21	704	0.6+	0.2-	1998 11 24	704	0.0	0.6+
1996 04 12	691	0.0	0.2-	1998 11 21	704	0.2+	1.3-	1998 12 14	120	1.3-	0.3-
1996 04 22	566	0.4+	0.2+	1998 11 21	704	0.7-	1.3-	1998 12 14	120	0.1+	0.3+
1996 04 22	566	0.5-	0.3+	1998 11 24	704	0.2+	0.3+	1998 12 15	120	0.3+	0.8+
1996 04 22	566	0.2+	0.4+	1998 11 24	704	0.5-	0.1+	1998 12 15	120	0.6+	0.4+
1998 11 21	704	0.5+	0.8+	1998 11 24	704	1.2-	0.4-				

1998 WG₁₂ = 1980 RT₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 93.74472 (2000.0)				Williams			
				<i>P</i>		<i>Q</i>	
<i>n</i>	0.27860984	<i>ω</i>	98.55615	+0.80584369		+0.58750026	
<i>a</i>	2.3216945	<i>Ω</i>	225.50444	-0.57582180		+0.74844407	
<i>e</i>	0.1435922	<i>i</i>	5.94565	-0.13800436		+0.30769289	
<i>P</i>	3.54	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1980 09 13	675	0.2+	0.2-	1998 11 21	704	0.4-	1.0+	1998 11 28	120	0.4-	1.
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1998 10 27	910	0.6+	0.2+	1998 11 21	704	(1.3−	2.4+)	1998 11 29	120	0.8−	0.4−
1998 10 27	910	0.0	0.0	1998 11 21	704	(1.3−	3.1+)	1998 11 29	120	1.9+	0.5+
1998 10 27	910	0.0	0.0	1998 11 23	699	0.2−	0.7+	1998 12 07	910	0.3+	0.1−
1998 11 11	120	1.0−	0.5−	1998 11 23	699	0.6−	0.2+	1998 12 07	910	0.2+	0.1−
1998 11 11	120	0.7−	0.6−	1998 11 23	699	0.2−	1.0+	1998 12 07	910	0.3+	0.0
1998 11 19	699	0.6−	0.7−	1998 11 24	704	0.1+	0.7+	1998 12 08	910	0.2−	0.3+
1998 11 19	699	0.4+	0.2+	1998 11 24	704	1.9+	0.1−	1998 12 08	910	0.2−	0.3+
1998 11 19	699	0.3−	0.2−	1998 11 24	704	0.6+	1.4−	1998 12 08	910	0.2−	0.2+
1998 11 21	704	1.2−	1.1+	1998 11 24	704	1.1+	1.4−				

1998 WJ₁₂ = 1223 T-3

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	43.83397		(2000.0)	P	Q
n	0.19058092	ω	140.45261	+0.94818570	−0.29495286
a	2.9905411	Ω	237.08849	+0.24404782	+0.91414546
e	0.1146887	i	8.08676	+0.20343188	+0.27810230
P	5.17	H	14.4	G 0.15	U 5

Residuals in seconds of arc

1977 10 16	675	0.8−	0.4−	1998 11 11	120	1.1+	1.2+	1998 12 10	691	1.9−	0.5−
1977 10 16	675	(1.1−	2.7+)	1998 11 21	704	0.3+	0.9−	1998 12 10	691	1.7−	0.4−
1977 10 17	675	0.7−	2.1+	1998 11 21	704	0.2+	0.6−	1998 12 10	691	(2.1−	0.0)
1977 10 17	675	1.9−	1.0−	1998 11 21	704	1.1+	0.6−	1998 12 15	691	0.8−	0.4+
1977 10 21	675	1.1+	1.5−	1998 11 21	704	0.2+	0.1−	1998 12 15	691	0.8−	0.4−
1977 10 21	675	0.3+	0.6−	1998 11 21	704	0.7−	0.1+	1998 12 15	691	0.9−	0.5−
1977 10 22	675	2.1+	0.5+	1998 11 24	704	0.5−	1.1−	1998 12 22	691	0.3+	0.1+
1977 10 22	675	(0.2−	3.5−)	1998 11 24	704	0.9+	1.6−	1998 12 22	691	0.2+	0.2−
1977 10 22	675	0.1+	0.8+	1998 11 24	704	1.1+	1.8+	1998 12 22	691	0.2+	0.0
1977 10 22	675	(1.4+	3.3−)	1998 11 24	704	1.4+	1.6+				
1998 11 11	120	0.4−	0.9+	1998 11 24	704	0.4+	0.9+				

1998 WQ₁₃ = 1987 SQ₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	37.86554		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.27435574	ω	12.00690	+0.88191221	−0.47113028
a	2.3456327	Ω	16.13136	+0.42750030	+0.78466766
e	0.2196487	i	3.37224	+0.19868150	+0.40290561
P	3.59	H	15.2	G 0.15	U 5

Residuals in seconds of arc

1987 09 17	809	0.3−	0.7−	1998 11 21	704	0.6+	1.1−	1998 12 14	704	0.2−	1.1−
1987 09 17	809	1.2+	0.7−	1998 11 21	704	0.2−	1.6−	1998 12 14	704	1.2−	0.4−
1987 09 17	809	1.5+	1.6−	1998 11 24	704	0.1+	1.1+	1998 12 17	704	0.2−	0.4+
1987 09 24	095	0.6−	2.3+	1998 11 24	704	0.8+	0.5+	1998 12 17	704	0.1+	0.1−
1987 09 27	095	2.0−	1.1+	1998 11 24	704	0.4+	0.2−	1998 12 17	704	0.2+	0.0
1998 11 21	704	0.5+	1.0+	1998 11 24	704	1.6−	1.2−	1998 12 17	704	0.7+	1.0+
1998 11 21	704	0.2−	0.6+	1998 11 24	704	0.4−	0.5+	1998 12 17	704	0.4+	0.5+
1998 11 21	704	0.3+	0.8−	1998 12 14	704	0.1−	0.7+				

1998 WA₁₅ = 1990 EX

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	357.26474		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.08303940	ω	209.62427	+0.37228978	−0.92005479
a	5.2033124	Ω	218.88400	+0.88518491	+0.39152177
e	0.1182011	i	11.21244	+0.27901256	−0.01448740
P	11.87	H	11.3	G 0.15	U 4

Residuals in seconds of arc

1990 03 02	809	0.4+	0.5+	1998 11 11	699	0.1−	0.3−	1998 11 24	704	0.7+	0.4+
1990 03 02	809	0.3+	0.8+	1998 11 11	699	0.5−	0.4−	1998 11 24	704	0.2−	0.3−
1990 03 02	809	0.9−	0.7+	1998 11 21	704	1.0+	1.0−	1998 11 24	704	0.1−	0.6+
1990 03 04	809	0.4−	0.4−	1998 11 21	704	0.8+	0.6−	1998 12 11	691	0.4−	0.2−
1990 03 04	809	0.5+	0.6−	1998 11 21	704	0.1−	0.1−	1998 12 11	691	0.4−	0.1−
1990 03 04	809	0.1+	1.1−	1998 11 21	704	0.1−	1.7+	1998 12 11	691	0.5−	0.1−
1998 11 11	699	0.9−	0.2+	1998 11 24	704	0.8+	0.0				

1998 WD₁₅ = 1995 DO₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	1.68969		(2000.0)	P	Q
n	0.19718198	ω	299.93225	+0.33084760	−0.94280449
a	2.9234201	Ω	130.68989	+0.88327932	+0.29418495
e	0.0668982	i	3.07976	+0.33220101	+0.15676388
P	5.00	H	14.2	G 0.15	U 5

Residuals in seconds of arc

1995 02 26	691	0.5+	0.0	1998 11 11	699	0.0	0.9+	1998 11 24	704	0.1+	0.1+
1995 02 26	691	0.1−	0.1−	1998 11 11	699	0.6+	1.1+	1998 11 24	704	0.4−	0.9−
1995 02 26	691	0.3−	0.0	1998 11 21	704	0.6+	0.3+	1998 11 24	704	0.6+	0.6+
1995 03 05	691	0.1−	0.0	1998 11 21	704	0.4−	1.2−	1998 12 08	699	0.5+	0.8+
1995 03 05	691	0.0	0.1+	1998 11 21	704	0.3−	1.0−	1998 12 08	699	0.0	0.1+
1995 03 05	691	0.1−	0.0	1998 11 21	704	1.6−	2.4−	1998 12 08	699	0.3−	0.0
1998 11 11	699	0.5−	1.1+	1998 11 24	704	1.3+	0.6+				

1998 WR₁₅ = 1986 RX₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	78.11566		(2000.0)	P	Q
n	0.17375038	ω	195.63436	+0.83763990	+0.54138168
a	3.1806719	Ω	131.35689	−0.49021617	+0.80368540
e	0.2046396	i	5.54751	−0.24093050	+0.24697298
P	5.67	H	13.0	G 0.15	U 6

Residuals in seconds of arc

1986 09 07	095	1.6−	1.2+	1998 11 21	704	1.4−	2.5−	1998 11 24	704	0.4−	1.3−
1986 09 12	095	1.6+	1.2−	1998 11 24	704	0.2+	1.3+	1998 12 11	699	0.7+	0.1+
1998 11 21	704	0.4−	0.7+	1998 11 24	704	0.7+	0.2+	1998 12 11	699	0.4+	0.4−
1998 11 21	704	0.1+	0.6+	1998 11 24	704	0.5+	1.2+	1998 12 11	699	0.3+	0.0
1998 11 21	704	0.0	0.5+	1998 11 24	704	0.6−	0.3−				

1998 WM₁₆ = 1993 FF₇₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	19.32811		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.28952339	ω	219.29000	+0.52533249	−0.85081191
a	2.2629777	Ω	199.02885	+0.78968696	+0.49276149
e	0.1009867	i	2.11563	+0.31689158	+0.18249715
P	3.40	H	15.4	G 0.15	U 5

Residuals in seconds of arc

1993 03 21	809	0.4−	0.2−	1998 11 24	704	0.1−	0.3+	1998 12 08	699	0.6+	1.3+
1993 03 22	809	0.4+	0.2+	1998 11 24	704	0.2+	0.3+	1998 12 13	691	0.2−	0.4−
1998 11 21	704	0.3−	0.5+	1998 11 24	704	0.3−	1.3+	1998 12 13	691	0.2−	0.2−
1998 11 21	704	1.0−	0.8+	1998 11 24	704	0.4−	1.3+	1998 12 13	691	0.2−	0.1+
1998 11 21	704	0.1−	1.1−	1998 11 24	704	(0.8−	2.7+)	1998 12 20	691	0.5−	0.3+
1998 11 21	704	0.6+	1.2−	1998 12 08	699	0.4+	1.0−	1998 12 20	691	0.1−	0.1−
1998 11 21	704	0.4+	1.6−	1998 12 08	699	1.0+	0.3−	1998 12 20	691	0.2+	0.4−

1998 WG₁₇ = 1992 ES₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	129.85241		(2000.0)	P	Q
n	0.23876239	ω	118.32506	+0.36823187	+0.92973364
a	2.5733100	Ω	173.28140	−0.85539933	+0.33912901
e	0.1501472	i	0.39322	−0.36427639	+0.14348126
P	4.13	H	14.6	G 0.15	U 5

Residuals in seconds of arc

1992 03 03	809	1.2−	0.3+	1998 11 24	704	1.0+	0.2−	1998 12 14	691	0.5+	0.3+
1992 03 06	809	1.1+	0.5−	1998 11 24	704	1.4−	0.1+	1998 12 14	691	0.7+	0.3+
1998 11 21	704	1.2+	1.4−	1998 11 24	704	(0.9−	2.2+)	1998 12 25	691	0.2−	0.2+
1998 11 21	704	0.3+	0.7+	1998 12 11	691	0.5−	0.5+	1998 12 25	691	0.2−	0.3+
1998 11 21	704	0.1−	1.3−	1998 12 11	691	0.9−	0.2+	1998 12 25	691	0.4−	0.3+

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1998 11 21 704 0.6− 0.3− 1998 12 11 691 0.6− 0.3+
 1998 11 24 704 0.6+ 0.3− 1998 12 14 691 0.5+ 0.2+

1998 WJ₁₈ = 1994 PP₃₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	155.24763		(2000.0)	P	Q
<i>n</i>	0.29250431	ω	344.65042	+0.13735800	+0.98789036
<i>a</i>	2.2475768	Ω	293.20115	−0.90032041	+0.09414878
<i>e</i>	0.0990600	<i>i</i>	4.50217	−0.41298419	+0.12332331
<i>P</i>	3.37	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1994 08 10	809	0.4+	0.4−	1998 11 21	704	0.1−	0.2+	1998 12 14	704	1.0−	2.2−
1994 08 10	809	0.4−	0.6−	1998 11 21	704	0.6−	0.5+	1998 12 14	704	1.4+	0.3+
1994 08 10	809	0.1−	0.1−	1998 11 24	704	0.1+	1.3−	1998 12 14	704	0.5−	1.1−
1994 08 11	809	0.3−	0.1−	1998 11 24	704	0.5+	0.7−	1998 12 14	704	2.5−	0.8+
1994 08 11	809	0.5+	0.8+	1998 11 24	704	1.4−	2.1+	1998 12 17	704	0.2+	0.7+
1994 08 11	809	0.1−	0.3+	1998 11 24	704	0.7+	0.6+	1998 12 17	704	0.4+	0.7+
1998 11 21	704	0.3+	0.9−	1998 11 24	704	0.4+	1.1+	1998 12 17	704	0.2+	0.4−
1998 11 21	704	0.6+	1.1−	1998 12 14	704	1.0+	0.1−	1998 12 17	704	0.5+	0.6+

1998 WJ₁₉ = 1994 VV₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	167.04068		(2000.0)	P	Q
<i>n</i>	0.25582331	ω	54.98366	−0.14966676	+0.98859157
<i>a</i>	2.4575893	Ω	206.42401	−0.91909028	−0.14541604
<i>e</i>	0.1672337	<i>i</i>	2.18010	−0.36451738	−0.03925417
<i>P</i>	3.85	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1994 11 01	691	0.1+	0.4+	1998 11 21	704	0.0	0.9+	1998 12 10	691	0.6−	0.4+
1994 11 01	691	0.3+	0.3+	1998 11 21	704	0.1+	1.5+	1998 12 10	691	0.4−	0.4−
1994 11 01	691	0.0	0.1−	1998 11 21	704	2.3−	0.2−	1998 12 10	691	0.4−	0.1−
1994 11 05	691	0.2−	0.0	1998 11 24	704	0.1+	0.7−	1998 12 15	691	0.1−	0.3+
1994 11 05	691	0.4+	0.4−	1998 11 24	704	2.7+	1.0−	1998 12 15	691	0.1−	0.3+
1994 11 05	691	0.5−	0.2−	1998 11 24	704	0.4+	0.9−	1998 12 15	691	0.1−	0.1−
1998 11 21	704	0.5+	1.2+	1998 11 24	704	0.2+	1.0−				

1998 WC₂₀ = 1989 YW₈ = 1990 BN₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	12.71705		(2000.0)	P	Q
<i>n</i>	0.21399395	ω	174.28922	+0.32068683	−0.93755857
<i>a</i>	2.7682271	Ω	256.94998	+0.86346086	+0.34782643
<i>e</i>	0.1754322	<i>i</i>	7.94777	+0.38935242	+0.00084289
<i>P</i>	4.61	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1989 12 26	033	0.7−	0.4+	1998 11 29	365	0.1+	0.3+	1998 12 22	704	0.0	0.5−
1989 12 26	033	0.8+	0.3−	1998 11 29	365	0.1−	0.2+	1998 12 22	704	0.8−	0.8−
1990 01 24	033	0.0	0.3+	1998 12 13	365	0.4+	0.1−	1998 12 22	704	0.4−	0.6−
1990 01 24	033	0.1−	0.3−	1998 12 13	365	0.4+	0.0	1998 12 22	365	0.3+	0.4+
1998 11 26	365	0.1+	0.2−	1998 12 22	704	0.1−	0.5+	1998 12 22	365	0.2+	0.6+
1998 11 26	365	0.3+	0.2+	1998 12 22	704	0.5−	0.1−				

1998 WD₂₀ = 1976 YS = 1990 HT

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	14.67017		(2000.0)	P	Q
<i>n</i>	0.17904012	ω	12.11186	+0.39871663	−0.91672605
<i>a</i>	3.1177107	Ω	54.39531	+0.83878414	+0.35340121
<i>e</i>	0.1648941	<i>i</i>	1.78083	+0.37076436	+0.18633557
<i>P</i>	5.50	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 5

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Residuals in seconds of arc

1976 12 16	095	1.1−	1.3−	1998 12 13	365	0.7+	0.1−	1998 12 17	704	0.2−	0.4+
1976 12 18	095	1.9+	2.3−	1998 12 13	365	0.8+	0.3−	1998 12 17	704	0.2−	0.4−
1990 04 24	372	1.3+	0.2+	1998 12 14	704	0.6−	0.3+	1998 12 17	704	0.6−	0.2+
1990 04 24	372	1.7−	1.7−	1998 12 14	704	0.4+	0.3+	1998 12 17	704	0.0	0.5−
1998 11 26	365	1.1+	0.9−	1998 12 14	704	0.3−	0.6+	1998 12 22	365	1.4−	1.3+
1998 11 26	365	0.6+	1.1−	1998 12 14	704	0.1−	1.4+	1998 12 22	365	1.1−	0.7+
1998 11 29	365	0.3−	0.6−	1998 12 14	704	1.1+	1.6+				
1998 11 29	365	0.3+	0.9−	1998 12 17	704	0.5−	0.3+				

1998 WE₂₀ = 3249 T-3 = 1982 BP₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	350.60200		(2000.0)	P	Q
<i>n</i>	0.28390376	ω	69.87508	−0.02642780	−0.99939250
<i>a</i>	2.2927425	Ω	21.67694	+0.89265610	−0.03382348
<i>e</i>	0.1462584	<i>i</i>	3.52651	+0.44996296	+0.00840290
<i>P</i>	3.47	<i>H</i>	15.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1977 10 11	675	1.1−	0.4+	1977 10 22	675	2.6+	1.4−	1998 11 18	704	1.8−	2.2−
1977 10 11	675	2.0−	0.2−	1982 01 26	381	0.1−	0.5−	1998 11 21	704	0.2+	0.5−
1977 10 12	675	1.3−	0.1+	1982 01 26	381	0.1−	0.2−	1998 11 21	704	0.0	0.0
1977 10 12	675	1.2−	0.6+	1998 11 10	699	0.9+	0.2+	1998 11 21	704	0.2+	0.2−
1977 10 16	675	0.0	0.9−	1998 11 10	699	1.4+	0.8+	1998 11 21	704	0.1−	0.2+
1977 10 16	675	0.1−	0.0	1998 11 10	699	1.4+	0.3+	1998 12 16	699	0.4−	0.7+
1977 10 17	675	0.0	0.9+	1998 11 18	704	0.2+	0.5+	1998 12 16	699	1.7−	1.5+
1977 10 17	675	0.0	0.3+	1998 11 18	704	0.6−	1.5−	1998 12 16	699	0.4−	2.3+
1977 10 22	675	3.2+	0.2+	1998 11 18	704	0.3+	1.4−				

1998 WT₂₀ = 1991 RC₂₀

Id. A. Doppler

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	196.06279		(2000.0)	P	Q
<i>n</i>	0.30236118	ω	30.04097	−0.54882048	+0.83528087
<i>a</i>	2.1984606	Ω	206.71500	−0.78091426	−0.52645914
<i>e</i>	0.1354191	<i>i</i>	4.23464	−0.29827670	−0.15857691
<i>P</i>	3.26	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1991 09 14	675	0.2+	0.0	1998 11 11	699	0.3−	0.5+	1998 11 21	704	0.1−	0.6−
1991 09 14	675	0.7+	0.5+	1998 11 11	699	0.1−	0.2+	1998 11 21	704	0.8−	0.6−
1991 09 15	691	0.2−	0.2−	1998 11 18	704	0.1−	1.2−	1998 11 21	704	0.5−	1.6+
1991 09 15	691	0.4−	0.0	1998 11 18	704	0.9+	0.2−	1998 11 21	704	0.7−	0.5+
1991 09 15	691	0.4−	0.0	1998 11 18	704	0.0	0.2−	1998 12 11	699	0.3−	0.5+
1991 09 17	675	0.2+	0.1−	1998 11 18	704	0.7+	0.4+	1998 12 11	699	0.1+	0.6−
1991 09 17	675	0.0	0.2−	1998 11 18	704	0.3+	0.2−	1998 12 11	699	0.2+	0.0
1998 11 11	699	0.0	0.2−	1998 11 21	704	0.6+	0.1+				

1998 WU₂₀ = 1987 LA = 1988 VQ₅ = 1991 RB₁₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	209.09704		(2000.0)	P	Q
<i>n</i>	0.29766968	ω	8.74059	−0.69708997	+0.71259339
<i>a</i>	2.2215000	Ω	217.12879	−0.66549862	−0.68418660
<i>e</i>	0.0508012	<i>i</i>	7.54174	−0.26679050	−0.15523966
<i>P</i>	3.31	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1987 06 02	413	1.3−	0.6−	1998 11 11	699	0.1−	1.5+	1998 11 21	704	0.4+	0.6+
1987 06 02	413	1.2+	0.8−	1998 11 11	699	0.1+	1.4+	1998 11 21	704	0.8+	1.2−
1988 11 04	046	1.7+	2.4−	1998 11 11	699	0.2+	1.4+	1998 11 21	704	1.0−	1.3+
1988 11 04	046	(1.1+	5.8−)	1998 11 18	704	0.2−	0.3−	1998 11 29	120	0.3−	0.1+
1988 11 05	046	1.3−	1.4−	1998 11 18	704	0.5−	0.1−	1998 11 29	120	0.9−	1.3−
1988 11 05	046	0.1+	0.2−	1998 11 18	704	0.3−	0.9−	1998 11 29	120	1.0−	0.9−
1991 09 13	675	0.8+	0.1+	1998 11 18	704	0.2+	1.7−	1998 12 11	699	0.9+	0.3+
1991 09 13	675	0.0	0.5+	1998 11 18	704	0.5−	0.9−	1998 12 11	699	0.8+	0.7+

1999 JAN. 6

1991 09 15	675	0.4−	0.2−	1998 11 21	704	0.4+	0.6+	1998 12 11	699	0.7+	0.7+
1991 09 15	675	0.7−	0.8+	1998 11 21	704	0.2+	0.4+				

1998 WZ₂₀ = 1991 RK₂₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29256187	ω	103.23781	+0.82584663	−0.56270922		
<i>a</i>	2.2472820	Ω	291.01692	+0.50102071	+0.76196267		
<i>e</i>	0.1702286	<i>i</i>	2.24378	+0.25875778	+0.32057951		
<i>P</i>	3.37	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 09 15	675	1.1−	0.4−	1998 11 10	699	0.0	0.2+	1998 11 21	704	0.4+	0.2−
1991 09 15	675	0.4−	0.4+	1998 11 18	704	0.9−	0.2−	1998 11 21	704	0.7+	0.1+
1991 09 17	675	1.5+	0.7−	1998 11 18	704	0.1+	0.0	1998 11 21	704	0.2+	0.9−
1991 09 17	675	0.0	0.8+	1998 11 18	704	0.2−	0.5+	1998 12 16	699	0.1−	0.3−
1998 11 10	699	0.6−	0.7−	1998 11 18	704	0.4−	0.3+	1998 12 16	699	0.3+	0.3+
1998 11 10	699	0.2−	0.1−	1998 11 18	704	1.1+	1.1+	1998 12 16	699	0.6−	0.1+

1998 WR₂₁ = 1974 WX = 1986 WS

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.08234021	ω	135.81739	+0.93298062	−0.27887511		
<i>a</i>	5.2327268	Ω	241.66020	+0.21419736	+0.93825450		
<i>e</i>	0.0696765	<i>i</i>	14.98275	+0.28925187	+0.20471237		
<i>P</i>	11.97	<i>H</i>	10.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1974 11 18	095	0.0	2.2+	1998 11 18	704	0.9+	0.8−	1998 11 26	688	0.0	0.5+
1986 11 25	046	1.3−	1.1−	1998 11 18	704	0.7+	0.8−	1998 11 26	688	0.4+	0.5+
1986 11 25	046	1.3−	1.2−	1998 11 18	704	0.2+	1.2−	1998 12 11	691	0.6−	0.4+
1986 11 26	046	1.5+	0.4−	1998 11 18	704	0.6+	1.2−	1998 12 11	691	0.6−	0.3+
1986 11 26	046	1.2+	0.2−	1998 11 19	695	0.1+	0.7+	1998 12 11	691	1.1−	0.2+
1986 11 28	046	0.6+	1.9+	1998 11 19	695	0.0	0.3−	1998 12 17	691	0.1+	0.2−
1986 11 28	046	0.6−	0.8+	1998 11 21	704	0.2+	0.3−	1998 12 17	691	0.0	0.0
1998 10 19	699	0.4−	0.6+	1998 11 21	704	0.1−	0.3−	1998 12 17	691	0.7−	0.1−
1998 10 19	699	0.8−	0.2+	1998 11 21	704	0.1+	0.4−	1998 12 25	691	0.6+	0.1+
1998 10 19	699	0.1−	0.4+	1998 11 21	704	0.7−	0.1+	1998 12 25	691	0.4+	0.0
1998 11 18	704	1.0+	1.1−	1998 11 21	704	0.7−	1.1+	1998 12 25	691	0.5+	0.2−

1998 WZ₂₁ = 1993 PP₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22787408	ω	225.09191	+0.88541166	−0.46477870		
<i>a</i>	2.6546429	Ω	162.60193	+0.43119463	+0.81716093		
<i>e</i>	0.0195835	<i>i</i>	0.99480	+0.17354362	+0.34092342		
<i>P</i>	4.33	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 08 15	010	0.9−	0.5+	1998 11 18	704	0.6+	0.1−	1998 11 21	704	1.9−	1.4+
1993 08 15	010	1.4−	0.4−	1998 11 18	704	1.0+	0.4−	1998 12 15	910	0.3−	0.2+
1993 08 15	010	0.6−	0.2+	1998 11 18	704	0.8−	1.4−	1998 12 15	910	0.2−	0.2+
1993 08 16	010	0.0	0.1−	1998 11 18	704	(4.5−	1.3+)	1998 12 15	910	0.5−	0.2+
1993 08 17	010	1.2+	0.2−	1998 11 21	704	1.3+	0.5+	1998 12 21	910	0.1+	0.2−
1993 08 17	010	1.7+	0.1+	1998 11 21	704	0.1−	0.5−	1998 12 21	910	0.1+	0.2−
1998 11 18	704	0.8+	0.3+	1998 11 21	704	0.4−	0.2−	1998 12 21	910	0.4+	0.2+

M.P.C. 33527

1998 WA₂₂ = 4170 T-1 = 1997 GG₄₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26781245	ω	227.96359	+0.59182663	+0.80389008		
<i>a</i>	2.3836851	Ω	78.41766	−0.72055730	+0.56052442		
<i>e</i>	0.2164095	<i>i</i>	3.46321	−0.36130101	+0.19892995		
<i>P</i>	3.68	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1971 03 24	675	(2.4+	3.2−)	1997 04 10	809	0.4−	1.8+	1998 12 15	910	0.1−	0.1+
1971 03 26	675	0.5+	0.9−	1998 11 18	704	1.5+	0.1+	1998 12 15	910	0.1−	0.2+
1971 03 26	675	0.3−	0.4+	1998 11 18	704	0.9−	0.1−	1998 12 15	910	0.1+	0.2+
1971 03 27	675	1.0−	0.8−	1998 11 18	704	0.8−	0.2−	1998 12 16	910	0.7+	0.4+
1971 04 02	675	0.4+	0.5+	1998 11 18	704	0.9−	0.1−	1998 12 16	910	0.7+	0.2+
1997 04 09	809	0.8+	0.7−	1998 11 21	704	0.1+	0.3−	1998 12 16	910	0.6+	0.4+
1997 04 09	809	0.0	0.4−	1998 11 21	704	0.6−	0.7−	1998 12 21	910	0.1−	0.2−
1997 04 09	809	0.5−	0.7−	1998 11 21	704	1.3+	0.0	1998 12 21	910	0.4−	0.1−
1997 04 10	809	0.6+	0.7+	1998 11 21	704	(2.2+	0.9+)	1998 12 21	910	0.0	0.1−
1997 04 10	809	0.1+	0.7+	1998 11 21	704	1.2−	1.1+				

1998 WX₂₂ = 1993 PL₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22476063	ω	95.71975	+0.62088954	+0.78364630		
<i>a</i>	2.6791018	Ω	212.68796	−0.73298727	+0.57139489		
<i>e</i>	0.2158788	<i>i</i>	2.10808	−0.27789537	+0.24373421		
<i>P</i>	4.39	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 08 15	010	0.0	1.1+	1998 11 18	704	0.5−	0.7−	1998 11 21	704	1.0−	0.8+
1993 08 15	010	0.0	1.7+	1998 11 18	704	0.9+	2.0−	1998 11 21	704	0.9+	0.3+
1993 08 15	010	0.1−	1.4+	1998 11 18	704	0.7+	0.6−	1998 11 21	704	0.7+	0.6−
1993 08 17	010	1.6−	0.9+	1998 11 18	704	0.1−	1.3−	1998 12 15	691	0.1−	0.1+
1993 08 17	010	1.3−	0.4−	1998 11 19	910	0.4+	0.9+	1998 12 15	691	0.5−	0.0
1993 08 19	010	0.4+	2.1−	1998 11 19	910	0.5+	1.0+	1998 12 15	691	0.4−	0.2−
1993 08 19	010	1.0+	1.7−	1998 11 19	910	0.4+	0.9+	1998 12 23	691	0.3+	0.6−
1993 08 19	010	1.6+	1.0−	1998 11 21	704	0.9−	0.7+	1998 12 23	691	0.2+	0.5−
1998 11 18	704	1.6−	0.5+	1998 11 21	704	0.2−	1.6+	1998 12 23	691	0.4+	0.3−

1998 WD₂₃ = 1982 XC₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30879718	ω	294.99195	−0.99253910	−0.10384057		
<i>a</i>	2.1678064	Ω	239.10566	+0.12001025	−0.92458002		
<i>e</i>	0.0409821	<i>i</i>	4.27054	−0.02153309	−0.36656367		
<i>P</i>	3.19	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1982 12 13	381	0.0	0.1−	1998 11 21	704	0.5−	0.2+	1998 12 14	691	0.2−	0.0
1982 12 13	381	0.0	0.3+	1998 11 21	704	0.3−	0.1−	1998 12 14	691	0.5−	0.2−
1982 12 14	381	0.3−	0.3−	1998 11 21	704	0.1+	0.7+	1998 12 14	691	0.6−	0.2−
1982 12 14	381	0.3+	0.2+	1998 11 21	704	0.2−	1.0+	1998 12 23	691	0.2+	0.2+
1998 11 18	704	0.3−	0.6+	1998 11 21	704	0.3−	0.5+	1998 12 23	691	(1.8+	2.6+)
1998 11 18	704	0.2−	0.3−	1998 12 08	699	0.4+	0.4+	1998 12 23	691	0.3+	0.4−
1998 11 18	704	0.7+	1.3−	1998 12 08	699	0.5+	0.1−				
1998 11 18	704	0.6+	1.4−	1998 12 08	699	0.3+	0.2+				

M.P.C. 33528

1998 WF₂₄ = 1998 WB₃₁ = 1987 QQ

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	97.41458		(2000.0)		P	Q	
n	0.27880133	ω	65.42704	+0.80501852		+0.59174762	
a	2.3206314	Ω	258.26495	-0.55869498		+0.73229315	
e	0.1123463	i	2.46963	-0.19951216		+0.33701853	
P	3.54	H	15.0	G	0.15	U	6

Residuals in seconds of arc

1987 08 21	033	0.9+	0.3+	1998 11 23	376	0.1-	0.3-	1998 11 28	376	0.3-	0.2-
1987 08 22	033	0.8-	0.3-	1998 11 25	376	0.2+	0.5-	1998 12 11	376	0.9-	0.6+
1987 08 23	033	0.2-	0.1+	1998 11 25	376	0.1+	0.2-	1998 12 11	376	0.9+	0.6-
1998 11 23	376	0.3-	0.2+	1998 11 28	376	0.3+	1.0+				

1998 WX₂₆ = 1992 AU₂ = 1996 HR₂₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	292.97409		(2000.0)		P	Q	
n	0.28059595	ω	89.80149	-0.91313188		+0.40654657	
a	2.3107260	Ω	114.18648	-0.38594645		-0.83828476	
e	0.1841615	i	1.89512	-0.13128405		-0.36331604	
P	3.51	H	16.0	G	0.15	U	3

Residuals in seconds of arc

1992 01 09	691	0.0	0.1+	1996 04 20	809	0.2-	1.3+	1998 11 21	691	0.2-	0.3+
1992 01 09	691	0.3+	0.0	1996 04 20	809	0.1-	0.8+	1998 12 10	691	0.5+	0.3+
1992 01 09	691	0.1+	0.2+	1996 04 21	809	0.0	0.1-	1998 12 10	691	0.7+	0.2+
1992 01 10	691	0.1-	0.3-	1996 04 21	809	0.4+	1.3-	1998 12 10	691	0.7+	0.2+
1992 01 10	691	0.5-	0.7-	1996 04 21	809	0.6-	1.3-	1998 12 16	691	0.6-	0.1-
1992 01 10	691	1.1-	0.3-	1998 11 16	691	0.1+	0.7+	1998 12 16	691	0.3-	0.9-
1992 01 13	691	0.3+	0.0	1998 11 16	691	0.2+	0.2+	1998 12 16	691	0.4-	0.0
1992 01 13	691	0.4+	0.1+	1998 11 16	691	0.1+	0.1+	1998 12 23	120	0.5+	1.0+
1992 01 13	691	0.3+	0.8-	1998 11 21	691	0.3-	0.4+	1998 12 24	120	(2.9+	0.0)
1996 04 20	809	0.5+	1.2+	1998 11 21	691	0.7-	0.0				

1998 WR₂₈ = 1988 CM₆ = 1994 WF₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	309.34148		(2000.0)		P	Q	
n	0.26376530	ω	266.79703	-0.99408468		-0.04540328	
a	2.4080063	Ω	270.58502	+0.08113869		-0.91432906	
e	0.1102747	i	5.66242	-0.07219531		-0.40241884	
P	3.74	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1988 02 10	033	0.5+	0.3-	1998 11 21	691	0.6-	0.4-	1998 12 14	691	1.0-	0.1-
1988 02 11	033	0.5-	0.3+	1998 11 21	691	0.7-	0.2-	1998 12 16	699	0.7+	0.4+
1994 11 27	010	0.6+	0.3-	1998 11 24	691	0.4+	0.7-	1998 12 16	699	0.4+	0.7+
1994 11 27	010	0.5-	0.2+	1998 11 24	691	0.6+	0.4-	1998 12 16	699	0.1+	0.7+
1994 11 28	010	0.1+	0.3-	1998 11 24	691	0.8+	0.3-	1998 12 22	704	1.1+	0.1+
1994 11 28	010	0.1-	0.6+	1998 12 10	691	0.2-	0.7-	1998 12 22	704	(2.1-	1.1-)
1994 11 28	010	0.5-	0.1-	1998 12 10	691	0.4-	0.0	1998 12 22	704	(3.6+	0.2-)
1994 11 29	010	0.4+	0.3+	1998 12 10	691	0.5-	0.3-	1998 12 22	704	0.8+	0.3+
1998 11 21	691	0.3-	0.0	1998 12 14	691	1.3-	0.2+	1998 12 22	704	(1.4-	2.8+)

1998 WZ₃₀ = 1989 GR₅ = 1990 SD₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	82.23293		(2000.0)		P		Q
n	0.26158995	ω	21.47537		+0.99650641		+0.05051204
a	2.4213376	Ω	335.34437		-0.07802206		+0.84712806
e	0.2179700	i	9.17396		+0.02979134		+0.52898260
P	3.77	H	13.5	G	0.15	U	4

Residuals in seconds of arc

1989 04 05	474	0.3-	0.3+	1998 11 24	627	0.1+	0.3-	1998 12 14	704	0.6+	0.1+
1989 04 05	474	1.2+	0.6+	1998 11 25	627	0.2-	0.2+	1998 12 14	704	0.6+	1.7-

1999 JAN. 6

1989 04 06	474	0.9-	0.8-	1998 12 08	627	0.8-	0.3+	1998 12 14	704	0.3-	1.1-
1989 04 06	474	0.0	0.2-	1998 12 08	627	0.2+	0.5+	1998 12 15	627	0.3-	0.6+
1990 09 16	675	0.4-	0.1+	1998 12 08	627	1.6-	0.9+	1998 12 15	627	0.7+	0.3-
1990 09 16	675	0.1+	0.2-	1998 12 12	627	0.5+	0.5+	1998 12 15	627	0.2+	0.3+
1990 09 17	675	0.3-	0.3-	1998 12 12	627	0.1-	0.3+	1998 12 17	704	0.6+	0.0
1990 09 17	675	0.2-	0.5-	1998 12 12	627	0.5-	0.1+	1998 12 17	704	0.0	0.2+
1990 09 18	675	(0.1-	2.8-)	1998 12 13	627	0.5+	0.3-	1998 12 17	704	1.9-	0.0
1990 09 18	675	0.8+	0.9+	1998 12 14	704	0.0	0.2-	1998 12 17	704	1.0+	0.5+
1998 11 24	627	0.8+	0.5-	1998 12 14	704	0.1-	0.1-				

1998 WC₃₁ = 1997 MU₁₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	2.60774		(2000.0)		P		Q
n	0.28519802	ω	336.99813		+0.10435894		-0.98900928
a	2.2858008	Ω	106.88219		+0.92864125		+0.05920547
e	0.1181634	i	6.28385		+0.35599808		+0.13548195
P	3.46	H	15.1	G	0.15	U	5

Residuals in seconds of arc

1997 06 29	704	0.2-	0.2-	1997 07 02	704	0.6-	0.4+	1998 12 14	120	0.2-	0.0
1997 06 29	704	0.0	0.5+	1998 11 28	120	0.1-	0.3+	1998 12 15	120	0.2-	0.0
1997 06 29	704	0.6+	0.3-	1998 11 28	120	0.8-	0.1+	1998 12 15	120	0.5-	0.2+
1997 06 29	704	(2.5-	0.3-)	1998 12 09	120	0.9+	0.1-	1998 12 16	120	0.1-	0.3+
1997 07 02	704	0.3+	0.7-	1998 12 09	120	0.5+	0.0	1998 12 16	120	0.8-	0.5-
1997 07 02	704	0.2-	0.3+	1998 12 09	120	0.9+	0.3-	1998 12 17	120	0.6-	0.5-
1997 07 02	704	0.1+	0.1-	1998 12 14	120	0.0	1.0-	1998 12 17	120	0.9+	1.5+

1998 XF = 1992 UE₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	274.87633		(2000.0)		P		Q
n	0.21242647	ω	222.29260	-0.40767851		+0.90954839	
a	2.7818282	Ω	23.98982	-0.77559518		-0.29824935	
e	0.1300500	i	11.45518	-0.48192359		-0.28942883	
P	4.64	H	12.4	G	0.15	U	5

Residuals in seconds of arc

1992 10 31	033	0.0	0.1+	1998 12 01	327	0.0	0.4-	1998 12 14	327	0.2-	0.3-
1992 10 31	033	0.2-	0.0	1998 12 02	327	0.2+	0.3+	1998 12 14	327	0.1-	0.3-
1992 11 01	033	0.2+	0.1-	1998 12 02	327	0.5-	0.2-	1998 12 27	699	0.6-	0.1+
1998 12 01	327	0.2+	0.1-	1998 12 02	327	0.2+	0.5+	1998 12 27	699	0.3+	0.0
1998 12 01	327	0.0	0.4+	1998 12 14	327	0.0	0.2-	1998 12 27	699	0.3+	0.2+

1998 XK = 1981 TD₂ = 1986 OQ

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	51.06681		(2000.0)		P		Q
n	0.17655050	ω	40.26767		+0.97330203		-0.22444770
a	3.1469518	Ω	332.59007		+0.17447387		+0.85942226
e	0.1564885	i	5.98809		+0.14913762		+0.45936544
P	5.58	H	12.9	G	0.15	U	3

Residuals in seconds of arc

1981 10 03	095	0.0	0.1-	1998 12 10	046	0.4-	0.0	1998 12 17	704	0.3-	0.5+
1986 07 27	413	1.4-	0.9-	1998 12 13	046	0.6-	0.1+	1998 12 17	704	(0.3-	2.2+)
1986 07 27	413	0.0	1.3+	1998 12 13	046	0.2-	0.2+	1998 12 17	704	0.3+	0.1+
1986 08 01	413	0.4-	0.9-	1998 12 13	046	0.1-	0.3+	1998 12 17	704	0.3+	0.3-
1986 08 01	413	1.7+	0.6+	1998 12 14	704	(2.4+	3.0-)	1998 12 17	704	0.2+	0.4-
1998 12 09	046	0.1+	0.0	1998 12 14	704	(0.9+	2.4-)	1998 12 17	046	0.2-	0.3+
1998 12 09	046	0.1+	0.0	1998 12 14	704	1.5+	1.7-	1998 12 17	046	0.3-	0.3+
1998 12 09	046	0.1+	0.0	1998 12 14	704	0.3+	1.1-	1998 12 17	046	0.2-	0.2+
1998 12 09	046	0.1+	0.0	1998 12 15	046	0.2-	0.2+	1998 12 23	046	0.2-	0.2+
1998 12 10	046	0.0	0.2+	1998 12 15	046	0.0	0.2+	1998 12 23	046	0.3-	0.3+
1998 12 10	046	0.1-	0.3+	1998 12 15	046	0.2-	0.1+	1998 12 23	046	0.0	0.2+

1999 JAN. 6

M.P.C. 33529

1998 XE₁ = 1996 FS₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	41.90277		(2000.0)		P		Q				
<i>n</i>	0.23154978	ω	298.05007		+0.92187655		−0.38338293				
<i>a</i>	2.6264742	Ω	84.53968		+0.37238316		+0.83646157				
<i>e</i>	0.0975832	<i>i</i>	3.23781		+0.10711867		+0.39159875				
<i>P</i>	4.26	<i>H</i>	15.4		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1996 03 20	691	0.0	0.1+	1998 12 07	910	0.7−	0.7−	1998 12 15	910	1.4+	0.3+
1996 03 20	691	0.1−	0.1+	1998 12 07	910	0.3−	0.7−	1998 12 15	910	1.4+	0.4+
1996 03 20	691	0.0	0.2+	1998 12 07	910	0.3−	0.6−	1998 12 15	910	1.2+	0.3+
1996 03 24	691	0.1−	0.2−	1998 12 08	910	0.1+	0.1+	1998 12 21	910	1.0−	0.2+
1996 03 24	691	0.1+	0.0	1998 12 08	910	0.1−	0.0	1998 12 21	910	1.1−	0.5+
1996 03 24	691	0.1+	0.2−	1998 12 08	910	0.3+	0.1−	1998 12 21	910	1.1−	0.3+

1998 XP₂ = 1994 ET₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	312.39239		(2000.0)		P		Q				
<i>n</i>	0.17513305	ω	50.71498		−0.80943049		−0.58639303				
<i>a</i>	3.1639089	Ω	93.36189		+0.52872310		−0.75080448				
<i>e</i>	0.0901315	<i>i</i>	1.78368		+0.25548809		−0.30403265				
<i>P</i>	5.63	<i>H</i>	13.0		<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc											
1994 03 11	098	2.0−	0.4+	1998 12 14	104	0.3−	0.7+	1998 12 16	704	0.2−	1.0−
1994 03 12	098	2.0+	0.4−	1998 12 14	104	0.4−	0.6+	1998 12 22	704	0.1−	0.5+
1998 12 07	104	0.3+	0.2+	1998 12 14	104	0.2−	0.4+	1998 12 22	704	1.4+	0.4+
1998 12 07	104	0.0	0.3+	1998 12 14	104	0.1+	0.6+	1998 12 22	704	1.5+	0.6−
1998 12 07	104	0.3+	0.3−	1998 12 15	704	(0.7+	2.5−)	1998 12 22	704	0.9+	0.9−
1998 12 07	104	0.3+	0.2−	1998 12 15	704	1.3−	1.1−	1998 12 23	104	0.8−	0.9+
1998 12 12	104	0.5+	0.3−	1998 12 15	704	0.2−	0.0	1998 12 23	104	0.2−	0.4+
1998 12 12	104	0.6−	0.7+	1998 12 15	704	0.1+	0.6−	1998 12 23	104	0.2−	0.2+
1998 12 12	104	0.8−	0.2+	1998 12 16	704	0.2+	1.1−	1998 12 23	104	0.4−	0.2+
1998 12 12	104	0.2−	0.2+	1998 12 16	704	0.3+	1.2−	1998 12 23	104	0.8−	0.1−
1998 12 12	104	0.1−	1.1+	1998 12 16	704	0.8+	0.1−				

1998 XL₃ = 1993 BA₁₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	173.76446		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$				
n	0.31280104	ω	348.23336		+0.17327697		+0.98261956				
a	2.1492681	Ω	291.71670		−0.89768988		+0.12976523				
e	0.0096371	i	4.11018		−0.40512711		+0.13273957				
P	3.15	H	15.6	G	0.15	U	6				
Residuals in seconds of arc											
1993 01 22	809	0.6+	0.0	1998 12 11	411	2.0+	0.4+	1998 12 17	704	0.0	0.4−
1993 01 22	809	0.4−	0.2+	1998 12 14	704	0.6−	1.2−	1998 12 17	704	0.5+	0.7+
1993 01 22	809	(2.5−	0.2−)	1998 12 14	704	1.1−	1.8−	1998 12 17	704	0.5+	1.1+
1993 01 28	809	0.5+	0.3−	1998 12 14	704	0.1−	0.6−	1998 12 17	704	0.5−	0.9+
1993 01 28	809	0.4−	0.2+	1998 12 14	704	0.5−	0.0	1998 12 17	704	0.9+	1.1+
1993 01 28	809	0.3−	0.1−	1998 12 16	704	0.2−	1.1+	1998 12 17	411	0.2+	0.4−
1998 12 09	411	0.7−	0.3+	1998 12 16	704	0.7+	0.1+	1998 12 17	411	0.6−	0.4−
1998 12 09	411	0.5−	0.3+	1998 12 16	704	0.5−	0.4−	1998 12 24	411	0.9+	0.9−
1998 12 11	411	1.9+	0.0	1998 12 16	704	1.8−	0.5−	1998 12 24	411	0.5−	0.6+

1998 XP₃ = 1996 FK₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	37.57140		(2000.0)			P		Q			
n	0.27398947	ω	47.15148			+0.69950714		−0.71462452			
a	2.3477227	Ω	358.45934			+0.64137903		+0.62857918			
e	0.1557127	i	2.65985			+0.31515503		+0.30692021			
P	3.60	H	16.1		G	0.15		U	5		
Residuals in seconds of arc											
1996 03 18	691	0.2−	0.4+	1996 03 27	691	0.3+	0.3−	1998 12 11	411	0.0	0.2+
1996 03 18	691	0.1−	0.2+	1996 03 27	691	0.0	0.1+	1998 12 11	411	0.1+	0.4+
1996 03 18	691	0.1+	0.2+	1998 12 09	411	0.8−	0.4+	1998 12 19	411	0.4+	0.4−
1996 03 27	691	0.0	0.6−	1998 12 09	411	0.4+	0.3−	1998 12 19	411	0.1+	0.4−

1998 XR₃ = 1979 QE₄ = 1995 DN₅

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	30.70869			(2000.0)			P			Q		
n	0.21869777	ω	122.31074				+0.54194756			−0.83931181		
a	2.7283902	Ω	294.81422				+0.75426352			+0.50831937		
e	0.0697953	i	2.71499				+0.37064725			+0.19278771		
P	4.51 <th>H</th> <td>14.0</td> <th>G</th> <td>0.15</td> <th>U</th> <td>4</td> <td colspan="5"></td>	H	14.0	G	0.15	U	4					
Residuals in seconds of arc												
1979 08 22	809	0.3−	1.2−	1998 12 11	411	0.6+	0.8+	1998 12 17	704	0.4−	0.6+	
1979 08 23	809	0.5+	0.7+	1998 12 11	411	0.5+	0.0	1998 12 17	704	0.3+	0.1−	
1995 02 22	691	0.1+	0.4−	1998 12 14	704	0.6−	0.2−	1998 12 17	411	0.3−	0.1+	
1995 02 22	691	0.3+	0.1+	1998 12 14	704	0.9−	0.1+	1998 12 17	411	0.3−	0.0	
1995 02 22	691	0.7−	0.3−	1998 12 14	704	0.0	0.1+	1998 12 26	411	1.3+	0.2−	
1995 03 01	691	0.0	0.2+	1998 12 14	704	0.4−	0.5−	1998 12 26	411	0.4+	0.3+	
1995 03 01	691	0.0	0.1−	1998 12 14	704	0.7−	0.3−	1999 01 03	411	1.0+	0.7−	
1995 03 01	691	0.2+	0.1+	1998 12 17	704	0.1+	0.3−	1999 01 03	411	0.0	0.1−	
1998 12 09	411	0.2−	0.0	1998 12 17	704	0.4+	0.5−					
1998 12 09	411	0.5−	0.4+	1998 12 17	704	0.1−	0.4+					

1998 XZ₃ = 1991 VR₁₃ = 1993 JQ₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	292.21989		(2000.0)		P		Q				
n	0.29144581	ω	139.10188		−0.97933249		−0.19601243				
a	2.2530155	Ω	29.70534		+0.14923526		−0.86671447				
e	0.1077427	i	5.77587		+0.13651633		−0.45867762				
P	3.38	H	14.7	G	0.15	U	4				
Residuals in seconds of arc											
1991 11 11	399	0.7−	0.3+	1998 12 12	411	0.8−	0.2−	1998 12 17	704	0.7+	0.0
1991 11 11	399	1.0+	1.1−	1998 12 14	704	0.2−	0.2+	1998 12 17	704	0.7+	0.1+
1993 05 15	905	1.5+	0.8−	1998 12 14	704	0.4−	0.8−	1998 12 17	704	1.0+	0.9+
1993 05 15	905	0.1−	0.3−	1998 12 14	704	1.2−	0.0	1998 12 19	411	0.1−	0.4+
1993 05 26	413	1.9−	0.3+	1998 12 14	704	0.9−	0.1+	1998 12 19	411	0.0	0.5+
1998 12 11	411	1.6+	0.4−	1998 12 14	704	1.1−	0.6−	1998 12 26	411	1.4+	0.0
1998 12 11	411	0.1+	0.8−	1998 12 17	704	0.2−	0.2−	1998 12 26	411	0.1+	0.1−
1998 12 12	411	0.1−	0.2+	1998 12 17	704	0.4−	0.4+				

1998 XA₄ = 1961 XD = 1972 TM₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	50.02541		(2000.0)			P		Q			
n	0.26766659	ω	334.91031			+0.91151293		−0.39692983			
a	2.3845510	Ω	48.91374			+0.39731267		+0.78224696			
e	0.1814713	i	8.21218			+0.10623948		+0.48014206			
P	3.68	H	13.9		G	0.15		U	4		
Residuals in seconds of arc											
1961 12 03	760	2.0+	0.7+	1998 12 12	411	1.1−	0.2−	1998 12 17	704	0.1−	0.6+
1961 12 03	760	0.7−	0.5−	1998 12 14	704	1.2−	0.6−	1998 12 17	704	0.8+	0.2−

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1961 12 06	760	0.4−	1.3+	1998 12 14	704	0.1−	1.8−	1998 12 19	411	0.3+	0.7+
1961 12 06	760	2.1−	0.5+	1998 12 14	704	0.2+	1.9−	1998 12 19	411	0.4+	0.7+
1972 10 06	095	0.5+	0.7−	1998 12 14	704	0.2+	1.7−	1998 12 26	411	0.3−	0.7+
1998 12 11	411	0.5−	0.4−	1998 12 17	704	0.5+	1.0+	1998 12 26	411	0.5+	1.4+
1998 12 11	411	0.1−	0.3−	1998 12 17	704	0.8+	0.4+				
1998 12 12	411	0.8−	0.2−	1998 12 17	704	0.6+	0.5+				

**1998 XB₄ = 1957 YQ = 1965 AH₁ = 1982 BD = 1984 WL₁ = 1989 CE₄
= 1994 RY₂₈**

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	336.82652	<i>ω</i>	155.20318	−0.48489913	−0.87304662		
<i>a</i>	2.2742442	<i>Ω</i>	323.74074	+0.78714528	−0.40995428		
<i>e</i>	0.0800661	<i>i</i>	5.00499	+0.38114977	−0.26405885		
<i>P</i>	3.43	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1957 12 27	760	0.6−	1.4+	1994 09 01	033	0.9−	0.0	1998 12 17	704	0.1+	0.3+
1957 12 27	760	(3.5+	0.7+)	1994 09 02	033	0.2+	0.8+	1998 12 17	704	0.0	1.1+
1965 01 11	330	0.6+	0.8+	1994 09 04	033	0.9−	1.0+	1998 12 17	704	0.1+	0.7−
1982 01 16	688	0.2+	2.1−	1998 12 11	411	0.5+	0.1−	1998 12 17	704	0.0	0.7−
1982 01 16	688	0.5+	1.0−	1998 12 11	411	0.1+	0.5+	1998 12 17	704	0.4−	0.2+
1984 11 20	688	(4.0+	1.3−)	1998 12 12	411	0.2−	0.1−	1998 12 19	411	0.4−	0.2+
1984 11 20	688	2.2+	1.2−	1998 12 12	411	0.2−	0.2−	1998 12 19	411	1.0+	0.2+
1984 11 27	688	1.4−	0.4−	1998 12 14	704	0.5+	0.7−	1998 12 26	411	0.2+	0.2+
1984 11 27	688	2.2+	1.7−	1998 12 14	704	0.0	0.8+	1998 12 26	411	0.4−	0.2+
1989 02 01	220	(2.5+	6.4−)	1998 12 14	704	0.7−	1.3+	1999 01 02	411	0.3−	0.1+
1989 02 01	220	(2.7+	6.8−)	1998 12 14	704	(0.3+	2.4+)	1999 01 02	411	0.7−	0.4+
1989 02 02	220	(0.1−	4.8−)	1998 12 14	704	0.7−	0.8+				

1998 XC₄ = 1978 QL₁ = 1979 YH₇ = 1990 DC₆ = 1996 LC₁

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	32.96542	<i>ω</i>	127.49227	+0.63289391	−0.77406214		
<i>a</i>	2.8419799	<i>Ω</i>	283.23553	+0.70488441	+0.58489958		
<i>e</i>	0.0670055	<i>i</i>	0.97274	+0.32028623	+0.24232268		
<i>P</i>	4.79	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 08 31	095	0.2+	0.3+	1996 06 14	566	0.6−	0.5−	1998 12 17	704	0.2−	0.4+
1978 09 05	095	0.8−	0.9+	1996 06 14	566	1.0+	1.0+	1998 12 17	704	0.0	0.7−
1979 12 18	095	(0.3−	3.8−)	1998 12 11	411	0.2−	0.3+	1998 12 17	704	0.1+	0.5+
1990 02 23	033	0.2+	0.7+	1998 12 11	411	0.4+	0.4−	1998 12 17	704	0.3−	0.2−
1990 02 23	033	0.3+	0.8+	1998 12 12	411	0.1+	0.3−	1998 12 19	411	0.4−	0.4+
1996 06 13	566	0.5−	0.5−	1998 12 12	411	0.4−	0.1+	1998 12 19	411	0.3−	0.0
1996 06 13	566	0.8−	0.6−	1998 12 16	704	0.4+	0.3−	1998 12 26	411	0.4−	0.1+
1996 06 13	566	0.5−	0.6−	1998 12 16	704	0.6+	0.6−	1998 12 26	411	0.2−	0.1+
1996 06 14	566	0.5−	0.6−	1998 12 16	704	0.1−	0.6−	1999 01 02	411	0.5+	0.4+
1996 06 14	566	0.9+	0.6+	1998 12 16	704	0.1+	1.0−	1999 01 02	411	0.1+	1.0+
1996 06 14	566	0.3−	0.3−	1998 12 16	704	0.2+	0.4−				
1996 06 14	566	1.1+	0.7+	1998 12 17	704	0.1+	0.1−				

1998 XV₄ = 1993 UD₂

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	253.07752	<i>ω</i>	242.41857	−0.76199146	+0.64741064		
<i>a</i>	2.6205404	<i>Ω</i>	337.91751	−0.57907361	−0.69163744		
<i>e</i>	0.1025497	<i>i</i>	2.30427	−0.28990129	−0.32015169		
<i>P</i>	4.24	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	6

1999 JAN. 6

Residuals in seconds of arc

1993 10 20	691	0.4−	0.0	1998 12 13	411	0.7+	0.6−	1998 12 17	704	(2.4−	0.2−)
1993 10 20	691	0.1−	0.2−	1998 12 13	411	0.9−	0.2+	1998 12 17	704	0.1−	0.0
1993 10 20	691	0.2+	0.6−	1998 12 14	704	0.8−	0.4−	1998 12 19	411	0.1+	0.3+
1993 10 21	691	0.1+	0.1+	1998 12 14	704	0.7−	0.1+	1998 12 19	411	0.0	1.0+
1993 10 21	691	0.4+	0.2+	1998 12 14	704	0.3−	1.1−	1998 12 26	411	0.4+	0.3+
1993 10 21	691	0.2−	0.4+	1998 12 14	704	(0.0	2.3−)	1998 12 26	411	0.4−	0.4−
1998 12 12	411	0.4+	0.2−	1998 12 17	704	0.4−	0.4+				
1998 12 12	411	0.6+	0.9+	1998 12 17	704	1.4+	0.5−				

1998 XB₅ = 1984 SM₈ = 1997 JK₁₈

Id. G. V. Williams

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	107.25157	<i>ω</i>	146.75679	+0.85217925	+0.52324146		
<i>a</i>	2.2562680	<i>Ω</i>	181.70173	−0.49932171	+0.81149038		
<i>e</i>	0.1647878	<i>i</i>	5.76895	−0.15642367	+0.26019557		
<i>P</i>	3.39	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1984 09 21	010	0.1+	0.1−	1997 05 04	809	0.4+	0.3+	1998 12 14	104	0.3+	0.1+
1991 11 10	675	0.2−	0.3+	1998 12 08	104	0.0	0.5−	1998 12 14	104	0.2+	0.1−
1997 05 03	809	1.0+	0.8−	1998 12 08	104	0.1−	0.3−	1998 12 14	104	0.2+	0.2−
1997 05 03	809	0.6−	0.4+	1998 12 08	104	0.1−	0.1−	1998 12 25	104	0.0	0.3−
1997 05 03	809	1.3−	0.3−	1998 12 08	104	0.2−	0.1−	1998 12 25	104	0.2+	0.2−
1997 05 04	809	0.4+	0.9+	1998 12 12	104	0.5−	0.9+	1998 12 25	104	0.2+	0.2−
1997 05 04	809	0.1+	0.4−	1998 12 12	104	0.1−	0.7+				

1998 XY₆ = 1996 GV₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	115.29706	<i>ω</i>	188.79523	+0.63263035	+0.77411032		
<i>a</i>	2.8024416	<i>Ω</i>	120.45272	−0.70891021	+0.59082418		
<i>e</i>	0.0601692	<i>i</i>	1.53328	−0.31180950	+0.22733236		
<i>P</i>	4.69	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 04 13	691	0.2−	0.1+	1998 12 08	691	0.1−	0.2+	1998 12 15	910	0.4+	0.2+
1996 04 13	691	0.1−	0.3+	1998 12 08	691	0.1+	0.1+	1998 12 15	910	0.9+	0.1+
1996 04 13	691	0.3−	0.1+	1998 12 08	691	0.7+	0.7−	1998 12 15	910	0.5+	0.2−
1996 04 19	691	0.0	0.1+	1998 12 13	691	0.3−	0.2−	1998 12 22	691	0.1−	0.6+
1996 04 19	691	0.1+	0.2−	1998 12 13	691	0.6−	0.4−	1998 12 22	691	0.3−	0.1−
1996 04 19	691	0.5+	0.4−	1998 12 13	691	0.4−	0.0	1998 12 22	691	0.6−	0.5+

1998 XX₈ = 1996 GD₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	327.16066	<i>ω</i>	15.92846	−0.59699379	−0.80044439		
<i>a</i>	2.3909755	<i>Ω</i>	110.75672	+0.72963110	−0.56958310		
<i>e</i>	0.1262676	<i>i</i>	3.29416	+0.33352192	−0.18671871		
<i>P</i>	3.70	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 04 15	691	0.1−	0.0	1998 12 09	120	0.7+	0.1+	1998 12 18	120	0.1+	0.5−
1996 04 15	691	0.5−	0.2+	1998 12 09	120	1.9−	0.5+	1998 12 23	120	0.5−	0.7+
1996 04 15	691	0.3−	0.0	1998 12 14	120	0.1+	0.0	1998 12 23	120	0.5−	0.2+
1996 04 21	691	0.6+	0.1+	1998 12 14	120	1.8−	0.1+	1998 12 23	120	0.6−	0.1+
1996 04 21	691	0.3+	0.2−	1998 12 15	120	0.8+	0.3−	1998 12 23	120	0.6+	0.1+
1996 04 21	691	0.1+	0.1−	1998 12 15	120	0.2+	0.0	1998 12 23	120	0.4−	0.5−
1998 11 28	120	0.5−	0.3+	1998 12 16	120	1.1+	0.0	1998 12 25	120	1.9+	0.0
1998 11 28	120	1.3+	0.2−	1998 12 16	120	0.1+	0.6−				
1998 12 09	120	0.1+	0.2+	1998 12 17	120	0.7−	0.2−				

1998 XS₉ = 1991 VQ₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28932608	ω	122.72432	+0.68749417	+0.72614460		
<i>a</i>	2.2640064	Ω	190.71950	-0.68000848	+0.63981387		
<i>e</i>	0.1570964	<i>i</i>	2.49934	-0.25483373	+0.25169871		
<i>P</i>	3.41	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 11 04	399	0.4-	1.0+	1998 12 09	120	0.0	0.8+	1998 12 18	120	0.1+	0.5+
1991 11 04	399	(2.2+	0.5+)	1998 12 14	120	0.5+	1.1-	1998 12 22	704	0.9+	1.6+
1991 11 09	399	(3.7-	2.5-)	1998 12 14	120	0.0	0.2+	1998 12 22	704	1.6-	0.5-
1991 11 09	399	0.4+	1.1-	1998 12 15	120	0.4-	0.2-	1998 12 22	704	0.1+	1.0-
1998 11 28	120	0.1-	0.3-	1998 12 15	120	0.2-	0.2+	1998 12 22	704	0.2+	0.5-
1998 11 28	120	0.1-	0.4-	1998 12 16	120	0.5-	0.2+	1998 12 23	120	0.3+	0.0
1998 12 09	120	0.3+	0.3+	1998 12 17	120	0.5+	0.1-	1998 12 23	120	0.4+	0.3-
1998 12 09	120	0.2+	0.5+	1998 12 17	120	0.3-	0.1+	1998 12 23	120	0.3-	0.0

1998 XN₁₁ = 1997 RM

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30446425	ω	122.71144	-0.92858258	+0.35333052		
<i>a</i>	2.1883251	Ω	78.19857	-0.36733855	-0.83143972		
<i>e</i>	0.0768289	<i>i</i>	6.66099	-0.05288467	-0.42879546		
<i>P</i>	3.24	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 09 01	566	0.1-	0.0	1998 12 14	704	0.6+	0.0	1998 12 17	704	0.0	0.2-
1997 09 01	566	0.6-	0.1-	1998 12 14	704	0.9-	0.4-	1998 12 17	704	0.3+	0.3-
1997 09 01	566	0.1+	0.2+	1998 12 14	704	0.5+	0.5-	1998 12 17	704	0.0	0.5-
1997 09 02	566	0.3+	0.5+	1998 12 14	704	0.2-	1.4-	1998 12 17	704	0.9+	0.2-
1997 09 02	566	0.2+	0.0	1998 12 14	704	0.4+	0.4+	1998 12 21	411	0.8-	0.4-
1997 09 02	566	0.0	0.6-	1998 12 16	411	0.6-	0.8+	1998 12 21	411	0.3+	0.6+
1998 12 13	411	0.2+	0.8+	1998 12 16	411	0.0	0.3+	1998 12 26	411	0.1-	0.0
1998 12 13	411	0.2-	0.7+	1998 12 17	704	0.7-	0.1+	1998 12 26	411	0.3+	0.1+

1998 XP₁₁ = 1989 AF₅ = 1991 PT₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19197347	ω	263.16586	-0.88966332	+0.43820532		
<i>a</i>	2.9760616	Ω	302.74887	-0.33492218	-0.81730947		
<i>e</i>	0.0491810	<i>i</i>	8.77845	-0.31036480	-0.37414078		
<i>P</i>	5.13	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1989 01 04	413	0.9-	0.8+	1991 08 03	809	0.4+	0.8-	1998 12 16	411	0.1-	0.4-
1989 01 04	413	1.5+	0.1+	1991 08 05	809	0.6-	0.0	1998 12 16	411	0.4+	0.1+
1989 01 10	413	1.1-	0.2-	1991 08 05	809	1.0-	0.2+	1998 12 21	411	1.0-	0.2+
1989 01 10	413	0.4+	1.0-	1991 08 05	809	1.0-	0.8+	1998 12 21	411	0.8-	0.2-
1991 08 03	809	2.1+	0.2-	1998 12 13	411	1.2+	0.8+				
1991 08 03	809	0.3+	0.2-	1998 12 13	411	0.3+	0.7-				

1998 XS₁₅ = 1991 PE₁₉ = 1991 RK₃₉

Id. B. G. Marsden

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18733758	ω	32.72830	-0.57041216	-0.81745880		
<i>a</i>	3.0249586	Ω	92.17156	+0.73533095	-0.55160878		
<i>e</i>	0.0827736	<i>i</i>	4.58867	+0.36594859	-0.16579768		
<i>P</i>	5.26	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 08 02	809	1.2+	0.5+	1998 12 15	046	0.2-	0.4+	1998 12 17	704	0.1+	0.8-
1991 08 02	809	0.4-	1.9+	1998 12 15	046	0.1-	0.2+	1998 12 17	704	0.5+	0.7-
1991 08 02	809	0.3+	0.9+	1998 12 15	046	0.0	0.3+	1998 12 17	704	0.3+	0.4+
1991 08 14	809	1.4+	0.2+	1998 12 15	046	0.0	0.3+	1998 12 18	046	0.1+	0.1+
1991 08 14	809	0.5+	0.3+	1998 12 15	046	0.1-	0.2+	1998 12 18	046	0.1+	0.2+
1991 08 14	809	0.2-	0.2-	1998 12 15	046	0.0	0.3+	1998 12 18	046	0.1+	0.1+
1991 09 06	809	0.1+	0.6-	1998 12 16	046	0.1-	0.3+	1998 12 22	046	0.1+	0.2-
1991 09 06	809	1.7-	1.2-	1998 12 17	046	0.0	0.2+	1998 12 22	046	0.1+	0.1-
1991 09 06	809	1.6-	1.7-	1998 12 17	046	0.1-	0.2+	1998 12 22	046	0.1-	0.0
1998 12 14	704	0.8+	0.5-	1998 12 17	046	0.3-	0.2+	1998 12 24	046	0.1+	0.2-
1998 12 14	704	0.7-	1.0+	1998 12 17	046	0.0	0.0	1998 12 24	046	0.1+	0.3-
1998 12 14	704	1.6-	1.3-	1998 12 17	704	0.1+	0.4-	1998 12 24	046	0.1+	0.2-
1998 12 14	704	0.4+	0.8+	1998 12 17	704	0.4+	0.2-				

1998 XG₁₆ = 1997 LL₁₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.36799928	ω	4.75851	+0.32694862	-0.86419742		
<i>a</i>	1.9285818	Ω	66.57725	+0.85272526	+0.09532038		
<i>e</i>	0.0572303	<i>i</i>	24.63237	+0.40738708	+0.49404133		
<i>P</i>	2.68	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 06 07	809	0.0	0.2-	1998 10 30	704	0.5-	0.0	1998 12 17	704	1.3-	1.0+
1997 06 07	809	0.4-	0.6-	1998 12 14	704	0.6-	0.6+	1998 12 18	327	(0.1+	2.2-)
1997 06 07	809	0.1+	0.3-	1998 12 14	704	0.3-	0.3+	1998 12 18	327	0.2+	0.1+
1997 06 08	809	0.4-	0.4+	1998 12 14	704	0.1-	1.9-	1998 12 18	327	0.1+	0.1+
1997 06 08	809	0.3+	0.0	1998 12 14	704	0.5+	1.3-	1998 12 19	327	0.1+	0.6+
1997 06 08	809	0.5+	0.8+	1998 12 17	704	1.1+	0.8-	1998 12 19	327	0.1-	0.4+
1998 10 30	704	0.1+	0.8-	1998 12 17	704	0.6+	0.7-	1998 12 19	327	0.1+	0.5+
1998 10 30	704	0.4+	1.6+	1998 12 17	704	0.3-	0.9+				
1998 10 30	704	0.1-	0.5-	1998 12 17	704	(1.5-	3.6+)				

1998 XD₁₇ = 1994 YJ₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22310819	ω	254.66076	+0.99508058	+0.00618914		
<i>a</i>	2.6923140	Ω	104.90775	+0.03114636	+0.92789493		
<i>e</i>	0.1817027	<i>i</i>	5.87274	-0.09404544	+0.37279042		
<i>P</i>	4.42	<i>H</i>	16.2	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 12 31	691	0.5+	0.5-	1998 12 09	910	2.0+	0.5-	1998 12 21	910	0.4-	0.2+
1994 12 31	691	0.1+	0.9-	1998 12 09	910	2.6+	0.4-	1998 12 21	910	0.9-	0.1-
1994 12 31	691	0.5+	0.5-	1998 12 17	910	0.8-	0.2+	1998 12 25	910	0.7-	0.1+
1995 01 07	691	0.2-	0.5+	1998 12 17	910	1.1-	0.2+	1998 12 25	910	0.6-	0.3+
1995 01 07	691	0.9-	1.0+	1998 12 17	910	1.1-	0.1-	1998 12 26	910	0.9-	0.1+
1998 12 08	910	1.9+	0.1-	1998 12 21	910	0.4-	0.2+				

1998 XL₁₇ = 1992 FN₁ = 1996 HF₂₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26050841	ω	112.54404	-0.99031771	-0.09906842		
<i>a</i>	2.4280346	Ω	61.88911	+0.04606499	-0.89533111		
<i>e</i>	0.0685410	<i>i</i>	6.32965	+0.13095361	-0.43424377		
<i>P</i>	3.78	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 03 24	400	1.8+	0.6-	1996 04 21	809	0.7-	0.2+	1998 12 17	132	0.3+	0.4-
1992 03 24	400	0.3+	0.1-	1996 04 21	809	1.7-	0.7-	1998 12 17	113	0.1-	0.3+
1992 03 28	400	0.3-	1.5+	1998 12 14	699	0.5+	0.9-	1998 12 17	113	0.2-	0.2+
1992 03 28	400	1.6-	0.4-	1998 12 14	699	0.7+	0.3-	1998 12 17	132	0.2+	0.5+
1996 04 20	809	1.2+	0.5+	1998 12 14	699	0.2-	0.1-	1998 12 18	132	1.3+	1.1-
1996 04 20	809	0.7+	0.3+	1998 12 15	132	0.8-	0.6+	1998 12 23	113	0.2-	0.1+

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1996 04 20 809 0.5+ 0.3- 1998 12 16 132 0.9- 1.5+ 1998 12 23 113 0.9- 0.5-
 1996 04 21 809 0.4- 0.5- 1998 12 17 113 0.4+ 0.2-

1998 YY₂ = 1994 PH₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	227.18292		(2000.0)		P		Q
<i>n</i>	0.29678071	ω	35.75274	-0.81660380			+0.57719840
<i>a</i>	2.2259339	Ω	179.50023	-0.54157737			-0.76591899
<i>e</i>	0.0428512	<i>i</i>	3.16604	-0.19963011			-0.28321388
<i>P</i>	3.32	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 08 10	809	0.6-	0.5-	1998 12 17	557	0.3+	0.3+	1998 12 22	691	1.0-	0.3-
1994 08 10	809	0.6-	0.4+	1998 12 17	557	0.1-	0.0	1998 12 22	691	0.6-	0.3-
1994 08 10	809	1.0-	0.1+	1998 12 18	557	0.2-	0.2+	1998 12 22	691	0.9-	0.3-
1994 08 11	809	1.6+	0.0	1998 12 18	557	0.2+	0.7+	1998 12 26	691	0.3+	0.3-
1994 08 11	809	0.4+	0.1-	1998 12 21	557	1.0+	0.1-	1998 12 26	691	0.1+	0.2-
1994 08 11	809	0.1+	0.1-	1998 12 21	557	0.7+	0.4+	1998 12 26	691	0.1+	0.1-

1998 YA₃ = 1995 CR₄

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	64.76637		(2000.0)		P		Q
<i>n</i>	0.21582942	ω	196.13919	+0.94342498			-0.33158293
<i>a</i>	2.7525103	Ω	183.22676	+0.30697663			+0.87503627
<i>e</i>	0.0554693	<i>i</i>	1.46248	+0.12535811			+0.35265322
<i>P</i>	4.57	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1995 02 01	691	0.0	0.2+	1998 12 16	376	0.6-	0.1+	1998 12 22	704	0.2+	1.1-
1995 02 01	691	0.2+	0.1-	1998 12 17	376	0.9-	1.8+	1998 12 22	704	0.4-	1.1-
1995 02 01	691	0.3+	0.2-	1998 12 17	376	(0.2+ 2.2+)		1998 12 22	704	1.0+	0.7-
1995 02 07	691	0.1-	0.1+	1998 12 19	376	0.4-	0.4+	1998 12 22	704	0.5+	0.1-
1995 02 07	691	0.3-	0.1-	1998 12 19	376	0.6-	0.6+	1998 12 22	704	(2.0- 1.3-)	
1995 02 07	691	0.0	0.2+	1998 12 21	376	0.4+	0.1+	1998 12 24	376	0.0	1.0-
1998 12 16	376	0.3+	0.6+	1998 12 21	376	0.8+	0.5+	1998 12 24	376	0.3-	0.3-

1998 YE₃ = 1993 OH₁₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	331.30695		(2000.0)		P		Q
<i>n</i>	0.27684745	ω	225.96030	-0.85759801			-0.49995396
<i>a</i>	2.3315373	Ω	283.69592	+0.50023785			-0.75626965
<i>e</i>	0.1289753	<i>i</i>	7.13722	+0.11953135			-0.42202164
<i>P</i>	3.56	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 07 12	809	0.5-	1.1+	1993 07 23	809	(2.1- 7.0-)	1998 12 16	699	0.2+	0.1+	
1993 07 12	809	0.0	0.9+	1993 07 23	809	1.5+	0.3-	1998 12 17	704	0.2-	0.1+
1993 07 12	809	1.1+	1.4+	1993 07 23	809	0.5+	0.4-	1998 12 17	704	1.0-	0.8-
1993 07 19	809	(1.4- 4.5-)		1993 07 23	809	1.3+	0.5+	1998 12 17	704	0.4+	1.0+
1993 07 19	809	(1.5- 4.6-)		1998 12 14	704	0.2+	0.7-	1998 12 17	411	0.2+	0.4+
1993 07 19	809	(1.2- 4.5-)		1998 12 14	704	0.7-	1.4-	1998 12 17	411	0.4+	0.4+
1993 07 19	809	1.2-	1.0-	1998 12 14	704	0.3+	0.6-	1998 12 18	411	0.2-	0.3+
1993 07 19	809	1.4-	0.7-	1998 12 14	704	1.0+	0.7+	1998 12 18	411	0.1+	0.4+
1993 07 19	809	1.8-	0.2-	1998 12 14	704	0.6-	0.5-	1998 12 26	411	0.4+	1.2+
1993 07 23	809	(3.1- 6.6-)		1998 12 16	699	0.4-	0.6-	1998 12 26	411	0.7+	0.9+
1993 07 23	809	(3.1- 5.7-)		1998 12 16	699	0.5-	0.2+				

1998 YF₃ = 1956 UC = 1981 UL₁₂ = 1993 PB₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	86.83231		(2000.0)		P		Q
<i>n</i>	0.23778474	ω	72.29637	+0.99444344			-0.00213600
<i>a</i>	2.5803586	Ω	287.72439	-0.04316808			+0.90359619
<i>e</i>	0.2156793	<i>i</i>	6.34389	+0.09601441			+0.42837993
<i>P</i>	4.14	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1956 10 28	760	0.1-	0.7+	1993 08 18	010	1.5+	0.2-	1998 12 17	704	0.3-	0.2-
1956 10 28	760	0.1-	0.1-	1993 08 18	010	1.0+	0.4+	1998 12 17	704	0.9-	0.2+
1981 10 22	095	(14.6+ 5.3+)		1998 12 14	704	0.3+	0.5-	1998 12 17	411	0.2-	0.2+
1981 10 24	095	(11.7+ 4.5+)		1998 12 14	704	0.0	0.8-	1998 12 17	411	0.9-	1.3+
1993 08 14	010	0.5+	0.6-	1998 12 14	704	0.4+	0.4-	1998 12 18	411	0.3-	0.1-
1993 08 14	010	0.5-	0.4-	1998 12 14	704	0.6+	0.1+	1998 12 18	411	0.2-	0.6+
1993 08 14	010	0.6-	0.1-	1998 12 17	704	0.1+	0.6-	1998 12 26	411	0.5+	0.1-
1993 08 15	010	1.6-	0.1+	1998 12 17	704	0.2-	0.8-	1998 12 26	411	0.1+	0.5+
1993 08 18	010	(2.9+ 0.2-)		1998 12 17	704	0.7+	0.5-				

1998 YH₃ = 1953 TT₃ = 1991 RY₉ = 1995 WP₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	147.87415		(2000.0)		P		Q
<i>n</i>	0.30997158	ω	48.45181	+0.77140979			+0.62971377
<i>a</i>	2.1623275	Ω	272.31313	-0.60771337			+0.68635758
<i>e</i>	0.0704369	<i>i</i>	5.25899	-0.18870980			+0.36383216
<i>P</i>	3.18	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1953 10 12	675	0.5-	0.8+	1995 11 19	691	0.1-	0.7-	1998 12 16	699	0.2+	0.9+
1953 10 12	675	0.0	0.9+	1995 11 19	691	0.3-	0.6-	1998 12 17	411	1.8-	0.5+
1991 09 10	675	0.7-	0.0	1995 11 19	691	0.5-	0.4-	1998 12 17	411	0.2+	0.3+
1991 09 10	675	0.3-	1.3-	1995 11 30	691	0.3-	0.8-	1998 12 18	411	0.2+	0.2+
1991 09 12	675	1.2+	0.5+	1995 11 30	691	0.3-	0.7-	1998 12 18	411	0.4+	0.1-
1991 09 12	675	0.5+	0.7+	1995 11 30	691	0.3-	0.8-	1998 12 26	411	0.3+	0.5-
1991 09 14	675	0.2-	1.7-	1998 12 16	699	0.2+	0.8+	1998 12 26	411	0.4+	0.7-
1991 09 14	675	0.4+	0.5-	1998 12 16	699	0.5+	0.5+				

1998 YN₄ = 1991 BO₁ = 1995 AZ₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	43.78785		(2000.0)		P		Q
<i>n</i>	0.23518612	ω	87.63504	+0.86464472			-0.45855312
<i>a</i>	2.5993311	Ω	299.59340	+0.31319319			+0.81141308
<i>e</i>	0.1358696	<i>i</i>	13.65151	+0.39280979			+0.36240565
<i>P</i>	4.19	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 01 16	675	0.3-	0.0	1995 01 05	010	0.0	1.7+	1998 12 17	704	0.2-	0.0
1991 01 16	675	0.8-	0.4-	1998 12 14	704	0.5-	0.1-	1998 12 17	704	1.1-	0.2+
1991 01 18	511	0.5+	1.4-	1998 12 14	704	0.5+	0.4-	1998 12 17	704	0.2-	0.6+
1991 01 18	511	0.8+	1.0-	1998 12 14	704	0.6+	1.0-	1998 12 21	704	0.0	0.1+
1991 01 19	511	2.6-	0.2-	1998 12 14	704	0.7-	0.9-	1998 12 21	704	1.9+	1.3-
1991 01 19	511	1.6-	1.4-	1998 12 14	704	0.3+	1.5-	1998 12 21	704	1.3+	2.1+
1991 01 20	511	0.1-	0.3+	1998 12 16	704	0.3+	0.7+	1998 12 21	704	0.4+	0.8+
1991 01 20	511	1.3+	0.3-	1998 12 16	704	0.6-	0.2+	1998 12 21	704	2.2-	0.4-
1995 01 04	010	0.2+	1.2+	1998 12 16	704	0.1+	0.5+	1998 12 21	704	0.1-	1.3-
1995 01 04	010	0.8-	0.4+	1998 12 16	704	0.6-	0.1-	1998 12 21	704	1.3+	0.0
1995 01 04	010	0.5+	1.7+	1998 12 16	704	1.0-	0.6-	1998 12 21	704	0.4+	0.2+
1995 01 04	010	2.5+	1.7+	1998 12 17	704	0.2-	0.1+	1998 12 21	704	0.4+	0.8-
1995 01 05	010	0.7+	1.2+	1998 12 17	704	0.2-	0.1+	1998 12 21	704	0.1+	1.5-

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1998 YO₄ = 1993 HZ₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	235.36992	(2000.0)	P		Q	
<i>n</i>	0.46354311	ω	199.30009	−0.67178854	+0.73665270	
<i>a</i>	1.6535194	Ω	28.65660	−0.65652685	−0.54352514	
<i>e</i>	0.2482659	<i>i</i>	9.32881	−0.34303447	−0.40239684	
<i>P</i>	2.13	<i>H</i>	16.2	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1993 04 25	675	0.4+	1.1−	1998 12 18	468	0.7−	0.3+	1998 12 21	704	1.0+	0.1−
1993 04 26	675	0.5−	0.7+	1998 12 18	046	0.0	0.4−	1998 12 21	704	0.1−	0.2−
1993 04 26	675	0.1+	0.4+	1998 12 18	046	0.8+	0.3+	1998 12 21	704	0.5+	0.4+
1998 12 17	704	1.0−	0.6−	1998 12 18	046	1.0−	0.1−	1998 12 21	046	0.2−	0.4−
1998 12 17	704	(2.4+	4.8−)	1998 12 18	046	0.5+	0.1−	1998 12 21	046	0.8−	0.1−
1998 12 17	704	0.8+	0.4−	1998 12 18	046	0.5−	0.7−	1998 12 21	046	0.0	0.0
1998 12 17	704	0.7+	0.2−	1998 12 19	704	2.5+	1.3−	1998 12 23	402	0.0	0.8−
1998 12 17	704	0.4−	0.1+	1998 12 19	704	1.8+	0.4−	1998 12 23	402	0.9+	0.7+
1998 12 18	468	0.7−	0.7+	1998 12 19	704	0.6−	0.7+	1998 12 23	402	0.5+	0.2+
1998 12 18	557	0.7−	0.1+	1998 12 19	704	0.1+	0.8+	1999 01 03	658	0.7−	0.3−
1998 12 18	557	0.1+	0.2−	1998 12 19	658	0.6−	0.6+	1999 01 03	658	0.4−	0.3+
1998 12 18	468	0.6−	0.7+	1998 12 19	658	0.8−	0.2+	1999 01 03	658	0.2−	0.2+
1998 12 18	557	0.1−	0.3−	1998 12 19	658	0.3−	0.3+				

1998 YA₅ = 1994 RB₂₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	242.70321	(2000.0)	P		Q	
<i>n</i>	0.29363122	ω	37.71656	−0.89392330	+0.44808884	
<i>a</i>	2.2418225	Ω	168.88910	−0.42370900	−0.83690325	
<i>e</i>	0.0470058	<i>i</i>	3.22486	−0.14619101	−0.31433954	
<i>P</i>	3.36	<i>H</i>	16.4	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1994 09 05	809	1.3−	1.2−	1994 09 06	809	0.1−	0.3+	1998 12 21	910	0.2+	0.2+
1994 09 05	809	0.2−	0.3−	1998 12 17	910	0.1−	0.1+	1998 12 21	910	0.8+	0.2+
1994 09 05	809	0.5−	0.9−	1998 12 17	910	0.1−	0.0	1998 12 25	910	0.4−	0.1−
1994 09 06	809	1.2+	1.2+	1998 12 17	910	0.5−	0.1+	1998 12 26	910	0.1−	0.2−
1994 09 06	809	0.9+	0.8+	1998 12 21	910	0.4+	0.1+	1998 12 26	910	0.2−	0.4−

1998 YN₅ = 1993 TT₁₃

Id. S. Nakano

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	86.42949	(2000.0)	P		Q	
<i>n</i>	0.23120365	ω	256.88608	+0.95716581	−0.17521558	
<i>a</i>	2.6290949	Ω	112.81864	+0.24053071	+0.92435713	
<i>e</i>	0.1917681	<i>i</i>	14.48213	−0.16117878	+0.33891502	
<i>P</i>	4.26	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1993 10 09	675	0.4+	0.6+	1998 12 22	411	0.7+	0.1+	1998 12 24	691	1.2−	0.2−
1993 10 09	675	0.4−	0.8−	1998 12 22	411	0.6+	0.8+	1998 12 26	120	0.2+	0.5−
1993 10 14	675	0.2−	0.6+	1998 12 23	120	0.0	0.4+	1998 12 27	120	0.6+	0.2−
1993 10 14	675	0.1+	0.3−	1998 12 24	120	0.6+	0.0	1998 12 28	411	0.2+	0.4+
1998 12 21	411	0.7+	0.4+	1998 12 24	691	1.1−	0.0	1998 12 28	411	0.4+	0.0
1998 12 21	411	0.5−	1.3−	1998 12 24	691	1.1−	0.1+				

1998 YU₆ = 1992 WQ₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	107.47769	(2000.0)	P		Q	
<i>n</i>	0.17134005	ω	55.80112	+0.78164576	+0.58036336	
<i>a</i>	3.2104319	Ω	267.66878	−0.62054413	+0.68666548	
<i>e</i>	0.1116485	<i>i</i>	13.21940	−0.06288788	+0.43780006	
<i>P</i>	5.75	<i>H</i>	12.4	<i>G</i> 0.15	<i>U</i> 6	

Residuals in seconds of arc

1992 11 23	372	(5.0−	4.9−)	1998 12 17	704	0.4+	0.6+	1998 12 23	596	0.4−	0.4−
1992 11 23	372	0.7−	0.8−	1998 12 17	704	0.3+	0.3−	1998 12 23	596	1.5−	0.2−
1992 11 25	372	0.6+	0.8−	1998 12 17	704	0.1+	0.2+	1998 12 23	596	0.3+	0.6−
1992 11 25	372	0.1+	1.6+	1998 12 17	704	0.6+	0.2−	1998 12 25	596	0.7−	0.9−
1998 12 14	704	0.0	1.2+	1998 12 17	704	0.6+	0.8+	1998 12 25	596	0.3−	0.4−
1998 12 14	704	1.0−	0.6+	1998 12 22	596	1.6−	0.0	1998 12 25	596	0.7−	0.1+
1998 12 14	704	0.3+	0.2−	1998 12 22	596	1.1+	0.5−	1998 12 26	596	0.9−	1.4+
1998 12 14	704	1.1+	0.2−	1998 12 22	596	0.9+	0.7−	1998 12 26	596	1.0−	1.5+
1998 12 14	704	1.0+	1.6−	1998 12 22	596	1.7+	0.0	1998 12 26	596	0.4−	0.2−

1998 YS₇ = 1994 RL

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	39.72481	(2000.0)	P		Q	
<i>n</i>	0.28274318	ω	80.95939	+0.58773463	−0.78495259	
<i>a</i>	2.2990123	Ω	330.17571	+0.49593937	+0.54095151	
<i>e</i>	0.2648804	<i>i</i>	23.21001	+0.63922777	+0.30202797	
<i>P</i>	3.49	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1994 09 04	675	0.4+	0.6+	1998 12 24	703	0.0	0.0	1998 12 25	703	0.1−	0.2−
1994 09 04	675	0.6+	0.8−	1998 12 24	703	0.2−	0.1+	1998 12 31	761	0.3+	0.2+
1994 09 06	675	0.3−	0.3+	1998 12 24	703	0.1−	0.1+	1998 12 31	761	0.8+	0.1−
1994 09 06	675	0.7−	0.1−	1998 12 25	703	0.3−	0.1+	1998 12 31	761	0.5−	0.2−

1998 YC₈ = 1985 ON

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	51.49762	(2000.0)	P		Q	
<i>n</i>	0.23788443	ω	87.27297	+0.96884696	−0.14775993	
<i>a</i>	2.5796376	Ω	281.16810	+0.05050432	+0.90353394	
<i>e</i>	0.2261454	<i>i</i>	11.68839	+0.24245595	+0.40223554	
<i>P</i>	4.14	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1985 07 21	046	0.2+	0.1−	1998 12 17	704	(0.2+	3.2−)	1998 12 25	046	0.0	0.1−
1985 07 21	046	0.3+	0.8−	1998 12 17	704	1.0+	0.6−	1998 12 26	046	0.4−	0.1+
1985 07 24	046	0.5−	0.8+	1998 12 25	046	0.0	0.0	1998 12 26	046	0.2−	0.2+
1985 07 24	046	(3.5+	0.1−)	1998 12 25	046	0.1+	0.0	1998 12 26	046	0.3+	0.3−
1998 12 14	704	1.6−	0.2+	1998 12 25	046	0.0	0.1−	1998 12 26	046	0.2+	0.2−
1998 12 14	704	0.0	0.8+	1998 12 25	046	0.1−	0.1−	1998 12 26	046	0.2+	0.6−
1998 12 14	704	0.1−	0.2+	1998 12 25	046	0.0	0.1−	1999 01 01	046	0.5−	0.2+
1998 12 14	704	0.2−	1.4+	1998 12 25	046	0.1−	0.2−	1999 01 01	046	0.5−	0.0
1998 12 17	704	0.8+	0.2+	1998 12 25	046	0.1−	0.3−	1999 01 01	046	0.5−	0.0
1998 12 17	704	1.6+	0.6−	1998 12 25	046	0.0	0.2−				

1998 YL₈ = 1991 AU

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	68.95971	(2000.0)	P		Q	
<i>n</i>	0.24671078	ω	277.01744	+0.95587624	−0.20516434	
<i>a</i>	2.5177386	Ω	94.98223	+0.27229249	+0.88739664	
<i>e</i>	0.2522786	<i>i</i>	12.18418	−0.11026063	+0.41283749	
<i>P</i>	3.99	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 5	

Residuals in seconds of arc

1991 01 11	675	0.4+	0.0	1998 12 17	704	0.8+	0.5−	1998 12 23	540	0.2−	0.3+
1991 01 11	675	1.0−	0.5+	1998 12 17	704	1.3+	0.2−	1998 12 23	540	0.3−	0.1+
1991 01 14	675	0.3+	0.6−	1998 12 17	704	0.9−	0.1+	1998 12 23	540	0.3−	0.2+
1991 01 14	675	0.3+	0.4+	1998 12 17	704	(0.4−	2.4−)	1998 12 25	540	0.3−	0.3+
1998 12 01	699	0.4−	0.1+	1998 12 19	704	0.2+	0.1−	1998 12 25	540	0.0	0.2+
1998 12 01	699	0.6+	0.4−	1998 12 19	704	0.0	0.7+	1998 12 25	540	0.1−	0.5+
1998 12 01	699	0.1+	0.7+	1998 12 19	704	0.8+	0.1+	1998 12 26	540	0.5+	1.5−
1998 12 14	704	0.3+	0.5+	1998 12 19	704	0.0	0.5+	1998 12 26	540	0.2−	0.3−
1998 12 14	704	0.1+	0.2−	1998 12 19	704	1.3−	0.9+	1998 12 26	540	0.7+	0.6−
1998 12 14	704	1.0−	1.7−	1998 12 23	540	0.2−	0.2+	1998 12 29	540	0.5+	0.0

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1998 12 14	704	0.2+	0.6−	1998 12 23	540	0.1−	0.3+	1998 12 29	540	0.0	0.1−
1998 12 14	704	0.5−	0.0	1998 12 23	540	0.2−	0.2+	1998 12 29	540	0.1−	0.2−

1998 YS₈ = 1993 OB₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	24.91797		(2000.0)		P		Q
<i>n</i>	0.22954110	ω	246.03413		+0.70087698		−0.70748951
<i>a</i>	2.6417745	Ω	158.62045		+0.71073014		+0.68194851
<i>e</i>	0.0841376	<i>i</i>	14.40992		+0.06028375		+0.18548537
<i>P</i>	4.29	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 07 21	691	0.2−	0.5+	1998 11 13	704	0.4−	0.2−	1998 12 17	327	0.1−	0.0
1993 07 21	691	0.3−	0.4−	1998 11 13	704	1.5+	0.5−	1998 12 25	327	0.1+	0.1−
1993 07 21	691	0.3−	0.1−	1998 11 21	703	0.4−	0.1+	1998 12 25	327	0.3+	0.1+
1993 07 25	691	0.5−	0.6−	1998 11 21	703	0.0	0.3−	1998 12 25	327	0.1+	0.0
1993 07 25	691	1.6+	0.5+	1998 11 21	703	0.0	0.2+	1998 12 26	327	0.2−	0.5+
1993 07 25	691	0.4−	0.0	1998 12 17	327	0.2−	0.5−	1998 12 26	327	0.5+	0.2+
1998 11 13	704	0.5−	1.0+	1998 12 17	327	0.5−	0.1+	1998 12 26	327	0.2−	0.4−

2505 P-L = 1998 WP₃₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	48.07083		(2000.0)		P		Q
<i>n</i>	0.26286238	ω	46.15149		+0.62882438		−0.77748538
<i>a</i>	2.4135173	Ω	4.91506		+0.67647424		+0.54081484
<i>e</i>	0.1632426	<i>i</i>	6.57980		+0.38335689		+0.32099190
<i>P</i>	3.75	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1960 09 24	675	0.1+	1.5+	1960 10 22	675	0.8−	0.3+	1998 11 19	699	0.9+	0.3−
1960 09 26	675	0.1−	0.2+	1960 10 25	675	0.3+	0.2+	1998 11 19	699	0.1+	0.7−
1960 09 28	675	0.1+	0.5−	1960 10 26	675	0.0	0.0	1998 11 24	699	0.3−	0.4+
1960 09 29	675	0.4−	1.3−	1960 10 26	675	0.7+	0.2−	1998 11 24	699	0.4+	0.4+
1960 10 17	675	0.1+	0.2−	1998 11 19	699	1.2−	0.3+	1998 11 24	699	0.2+	0.2−

2568 P-L = 1998 XO₃₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	44.45356		(2000.0)		P		Q
<i>n</i>	0.21047788	ω	27.15612		+0.83445649		−0.55103630
<i>a</i>	2.7989711	Ω	6.29355		+0.49435332		+0.74336086
<i>e</i>	0.0996471	<i>i</i>	3.36294		+0.24351008		+0.37917491
<i>P</i>	4.68	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1960 09 24	675	0.2−	0.6+	1960 10 25	675	0.3+	0.1−	1998 12 14	704	1.0+	0.3−
1960 09 26	675	0.1+	0.7−	1960 10 26	675	0.1−	0.3−	1998 12 17	704	0.4−	0.5+
1960 09 28	675	0.4−	0.1+	1998 12 14	704	0.2−	0.4−	1998 12 17	704	0.8+	0.2+
1960 09 29	675	0.8+	0.1−	1998 12 14	704	0.2−	1.0+	1998 12 17	704	0.3−	1.2−
1960 10 17	675	0.4−	0.0	1998 12 14	704	0.3−	0.6−	1998 12 17	704	0.1+	1.2−
1960 10 22	675	0.1−	0.5+	1998 12 14	704	0.4−	1.7+	1998 12 17	704	0.3−	0.3+

2591 P-L = 1998 XU₅₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	31.35774		(2000.0)		P		Q
<i>n</i>	0.21045089	ω	231.66379		+0.62031471		−0.78435302
<i>a</i>	2.7992103	Ω	179.99708		+0.74358482		+0.58807095
<i>e</i>	0.1251469	<i>i</i>	4.88491		+0.24958219		+0.19739023
<i>P</i>	4.68	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1960 09 24	675	0.3+	0.4−	1960 10 25	675	0.6+	0.6−	1998 12 16	704	0.2+	1.1+
1960 09 26	675	0.3−	0.2−	1960 10 26	675	0.5+	0.5+	1998 12 16	704	1.6+	0.3+
1960 09 28	675	0.3+	0.3+	1998 12 15	704	1.6−	0.6−	1998 12 16	704	0.7+	0.5+
1960 09 29	675	0.4+	0.5+	1998 12 15	704	0.6−	0.1−	1998 12 16	704	0.2−	0.1+

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1960 10 17	675	1.4−	0.8−	1998 12 15	704	0.5−	0.3−	1998 12 16	704	0.3+	0.2+
1960 10 22	675	0.3−	0.7+	1998 12 15	704	0.1+	1.2−				

2743 P-L = 1962 CA₁ = 1998 YL

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	322.31112		(2000.0)		P		Q
<i>n</i>	0.26709770	ω	59.36622		−0.99438384		+0.10526184
<i>a</i>	2.3879356	Ω	126.67382		−0.10118512		−0.91513917
<i>e</i>	0.1602323	<i>i</i>	0.78492		−0.03102173		−0.38915324
<i>P</i>	3.69	<i>H</i>	16.1	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1960 09 24	675	0.6+	0.1+	1962 02 10	033	2.2−	0.6+	1998 12 16	747	0.2−	0.2−
1960 09 26	675	1.0+	0.6+	1962 02 10	033	2.2+	0.6−	1998 12 17	747	0.3−	0.3−
1960 09 28	675	0.1+	0.1−	1998 12 16	747	1.0+	0.3−	1998 12 17	747	0.2+	0.6+
1960 09 29	675	2.4−	0.5+	1998 12 16	747	0.5−	0.0	1998 12 17	747	0.4+	0.3+
1960 10 17	675	0.7+	0.6+	1998 12 16	747	0.5−	0.2−	1998 12 17	747	0.1+	0.2+
1960 10 22	675	0.0	1.7−	1998 12 16	747	0.2−	0.0				

4648 P-L = 1998 XL₁₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	131.93979		(2000.0)		P		Q
<i>n</i>	0.26261798	ω	97.58981		+0.24834063		+0.96867079
<i>a</i>	2.4150145	Ω	186.79048		−0.89514170		+0.22871634
<i>e</i>	0.1765783	<i>i</i>	0.94885		−0.37020031		+0.09677673
<i>P</i>	3.75	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1960 09 24	675	0.3−	0.6+	1960 10 22	675	1.1+	0.3−	1998 12 15	910	0.1−	0.1+
1960 09 24	675	0.8−	0.2+	1960 10 24	675	0.3+	0.0	1998 12 15	910	0.0	0.3+
1960 09 25	675	0.3+	0.5+	1960 10 25	675	0.2−	1.4−	1998 12 16	910	0.0	0.0
1960 09 26	675	0.0	0.2+	1960 10 26	675	0.8−	0.8+	1998 12 16	910	0.2+	0.0
1960 09 28	675	0.4+	0.2−	1960 10 26	675	0.2+	0.4−	1998 12 16	910	0.1+	0.1−
1960 10 17	675	0.1−	0.5−	1998 12 15	910	0.2−	0.1+				

4659 P-L = 1998 US₃₀

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	25.00496		(2000.0)		P		Q
<i>n</i>	0.18346727	ω	210.81294		+0.82905274		−0.55909454
<i>a</i>	3.0673523	Ω	183.22533		+0.54058425		+0.80559901
<i>e</i>	0.1414549	<i>i</i>	9.42253		+0.14296929		+0.19601921
<i>P</i>	5.37	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1960 09 24	675	0.3−	0.3+	1960 10 17	675	0.6+	0.7+	1998 10 18	809	1.1−	1.2−
1960 09 24	675	0.7−	0.4−	1960 10 22	675	0.5−	0.5+	1998 10 19	809	1.4+	1.3+
1960 09 25	675	0.4+	0.4+	1960 10 25	675	0.0	0.1+	1998 10 19	809	0.4+	0.5+
1960 09 26	675	0.4+	0.1−	1960 10 26	675	0.2+	0.9−	1998 10 19	809	1.2+	0.8+
1960 09 26	675	0.2−	0.5−	1998 10 18	809	1.3−	0.7−				
1960 09 28	675	0.0	0.1−	1998 10 18	809	0.6−	0.6−				

4838 P-L = 1998 XJ₁₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	1.35174		(2000.0)		P		Q
<i>n</i>	0.28906581	ω	90.62008		−0.38965084		−0.92090665
<i>a</i>	2.2653652	Ω	22.32114		+0.83397325		−0.35750387
<i>e</i>	0.1920350	<i>i</i>	1.53245		+0.39071836		−0.15531235
<i>P</i>	3.41	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1960 09 24	675	0.4−	0.3−	1960 10 26	675	0.2−	0.0	1998 12 17	132	(2.9−	0.2−)
1960 09 26	675	0.1+	0.3−	1998 12 15	132	0.7−	0.4−	1998 12 17	132	1.4+	0.8−
1960 09 27	675	0.5+	0.8+	1998 12 15	132	0.3+	0.6−	1998 12 20	122	0.5−	0.2+
1960 09 28	675	0.1−	0.2−	1998 12 16	132	0.1−	1.1+	1998 12 20	122	0.4−	0.5+

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6070 P-L = 1998 YD₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	25.36068		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$		
n	0.21112423	ω	90.85916		+0.50692413		-0.86174766		
a	2.7932555	Ω	328.65490		+0.77438802		+0.46570708		
e	0.0967284	i	2.25490		+0.37861739		+0.20126570		
P	4.67	H	14.7		G	0.15	U	5	
Residuals in seconds of arc									
1960 09 24	675	0.3-	0.4+	1960 10 26	675	0.0	0.3+	1998 12 17 704 0.4-	0.5+
1960 09 25	675	0.2+	0.1+	1998 12 16	704	0.4-	0.6+	1998 12 17 704 0.3+	0.4-
1960 09 26	675	0.5+	0.4-	1998 12 16	704	1.4+	0.9+	1998 12 17 704 0.1+	0.2+
1960 09 28	675	0.4-	0.0	1998 12 16	704	0.5+	0.7-	1998 12 17 704 0.9-	0.3-
1960 10 17	675	0.3+	0.6-	1998 12 16	704	0.4+	0.5-		
1960 10 22	675	0.3-	0.2+	1998 12 16	704	1.0-	0.2-		

6189 P-L = 1998 YJ₁₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	124.76924		(2000.0)			P		Q		
n	0.29103138	ω	78.62176			+0.96652631		+0.25489755		
a	2.2551538	Ω	266.60572			-0.24533531		+0.88486252		
e	0.1618194	i	1.67767			-0.07508312		+0.38993020		
P	3.39	H	16.8		G	0.15		U	5	
Residuals in seconds of arc										
1960 09 24	675	0.5+	0.8+	1960 10 17	675	0.1+	0.3-	1998 12 22	691	0.1- 0.1+
1960 09 25	675	0.1+	0.8-	1960 10 22	675	0.1+	0.2+	1998 12 27	691	0.1+ 0.1+
1960 09 26	675	0.1-	0.5-	1998 12 22	691	0.3-	0.2+	1998 12 27	691	0.7+ 0.4-
1960 09 28	675	0.7-	0.7+	1998 12 22	691	0.3-	0.1-	1998 12 27	691	0.2- 0.1+

6319 P-L = 1998 XY₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	58.68706			(2000.0)			P			Q					
<i>n</i>	0.31365290			ω	113.96491			+0.95466622			-0.29493191				
<i>a</i>	2.1453748			Ω	263.20852			+0.25621432			+0.88310434				
<i>e</i>	0.1070886			<i>i</i>	2.32847			+0.15154743			+0.36488613				
<i>P</i>	3.14			<i>H</i>	15.1			<i>G</i>	0.15			<i>U</i>	4		
Residuals in seconds of arc															
1960 09 24	675	0.1+	0.6-	1998 12 11	699	0.2-	0.8+	1998 12 15	120	0.1-	0.3-				
1960 09 25	675	0.6+	0.4+	1998 12 11	699	0.3+	0.5+	1998 12 17	704	0.2+	0.2-				
1960 09 26	675	0.1-	0.1-	1998 12 11	369	0.0	0.8+	1998 12 17	704	0.5-	1.1-				
1960 09 28	675	0.6-	0.1+	1998 12 11	369	0.2-	0.4+	1998 12 17	704	0.2+	0.2+				
1960 10 17	675	0.7-	0.1-	1998 12 14	704	0.5-	0.3-	1998 12 17	704	0.8+	0.2-				
1960 10 26	675	0.7+	0.0	1998 12 14	704	0.0	1.0+	1998 12 18	120	0.4+	0.1+				
1998 12 09	369	(0.9+	2.8+)	1998 12 14	704	1.0-	0.8-	1998 12 18	120	0.0	0.1+				
1998 12 09	369	0.4+	0.5+	1998 12 14	704	0.5-	0.2-	1998 12 18	120	0.1+	0.1-				
1998 12 09	369	0.8+	0.3+	1998 12 14	704	0.7-	0.7+	1998 12 27	369	0.1-	1.1-				
1998 12 11	699	0.5+	0.0	1998 12 15	120	0.2+	0.2+	1998 12 27	369	0.2-	1.2-				

9594 P-L = 1998 XB₃₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	333.91234		(2000.0)		$\mathbf{P}$		$\mathbf{Q}$		
n	0.16139260	ω	66.75617		-0.46900663		-0.88273142		
a	3.3410294	Ω	51.24495		+0.79632038		-0.43665741		
e	0.0147287	i	2.10186		+0.38197728		-0.17353832		
P	6.11	H	13.7		G	0.15	U	6	
Residuals in seconds of arc									
1960 09 24	675	2.3+	1.0-	1998 12 14	704	0.1+	0.8-	1998 12 17	704 0.9+ 0.1+
1960 10 17	675	0.2-	0.1+	1998 12 14	704	1.2-	0.3-	1998 12 17	704 0.1- 0.4+
1960 10 22	675	2.2-	0.3-	1998 12 14	704	0.1+	0.4-	1998 12 17	704 0.7- 0.4+
1960 10 24	675	0.2-	0.6+	1998 12 14	704	0.3-	0.1-	1998 12 17	704 1.1+ 0.4+
1960 10 26	675	0.0	0.7+	1998 12 17	704	0.1+	0.0		

2056 T-2 = 1990 RS₁₆ = 1997 SJ₁₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i>	155.71942		(2000.0)		P		Q		
<i>n</i>	0.28846422	ω	6.38691		+0.99899263		+0.04308382		
<i>a</i>	2.2685137	Ω	351.11470		-0.04392305		+0.88151177		
<i>e</i>	0.0749336	<i>i</i>	4.66054		-0.00919141		+0.47019228		
<i>P</i>	3.42	<i>H</i>	16.2		<i>G</i>	0.15	<i>U</i>	4	
Residuals in seconds of arc									
1973 09 19	675	0.8-	0.6+	1973 09 30	675	0.3+	1.3-	1997 09 27 691 0.2+	0.8+
1973 09 19	675	0.2-	0.6+	1973 09 30	675	0.3-	1.1-	1997 09 27 691 0.1+	1.0+
1973 09 20	675	0.8-	1.6-	1973 10 04	675	1.6+	1.5-	1997 09 27 691 0.0	1.0+
1973 09 24	675	0.6+	1.0+	1973 10 04	675	1.4+	1.6-	1997 09 30 691 0.3-	0.5+
1973 09 24	675	1.4+	0.4+	1973 10 05	675	0.6+	2.3-	1997 09 30 691 0.6-	0.5+
1973 09 25	675	1.1-	0.1-	1973 10 05	675	0.1+	0.8-	1997 09 30 691 0.5-	0.5+
1973 09 25	675	1.7-	0.1+	1990 09 15	809	0.4+	1.0+	1997 10 04 691 0.4-	0.1+
1973 09 29	675	0.8+	1.1+	1990 09 15	809	0.3-	0.6+	1997 10 04 691 0.3-	0.0
1973 09 29	675	0.2+	0.5+	1990 09 15	809	1.1-	0.1+	1997 10 04 691 0.2-	0.1-

3071 T-2

Id. T. Kobayashi (1998 observations)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	159.86670		(2000.0)		P		Q				
n	0.24408642	ω	240.87531		+0.31140255		+0.94786624				
a	2.5357531	Ω	47.43259		-0.83682465		+0.30726652				
e	0.0818541	i	5.27125		-0.45028097		+0.08448006				
P	4.04	H	13.9	G	0.15	U	6				
Residuals in seconds of arc											
1973 09 19	675	1.0-	0.3+	1973 09 29	675	0.0	0.6+	1973 10 05	675	0.3-	1.5-
1973 09 19	675	0.0	1.7-	1973 09 29	675	0.7-	0.3-	1998 12 09	411	0.1+	0.2-
1973 09 20	675	1.7+	0.1-	1973 09 30	675	0.8+	1.1+	1998 12 09	411	0.6-	0.7-
1973 09 24	675	0.7-	0.6-	1973 09 30	675	0.1-	1.2+	1998 12 11	411	0.3+	0.3+
1973 09 24	675	0.0	1.2+	1973 10 04	675	0.7+	0.6-	1998 12 11	411	0.1+	0.6+
1973 09 25	675	(3.8+	1.3-)	1973 10 04	675	0.3-	0.9+				
1973 09 25	675	(3.2+	1.7-)	1973 10 05	675	0.3-	0.5-				

3072 T-2 = 1978 TZ₅ = 1998 XA₇₄

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

M	138.51380		(2000.0)		P		Q		
n	0.20623536	ω	239.97131		+0.80460910		+0.59120587		
a	2.8372262	Ω	83.73093		-0.52377032		+0.75063770		
e	0.0695432	i	3.20048		-0.27976570		+0.29498927		
P	4.78	H	13.2	G	0.15	U	5		
Residuals in seconds of arc									
1973 09 19	675	0.5-	1.5+	1973 09 29	675	0.4+	1.5+	1998 12 14 704 0.8-	0.0
1973 09 19	675	0.5-	0.3-	1973 09 30	675	1.0-	0.8-	1998 12 14 704 0.0	0.0
1973 09 20	675	0.9+	0.0	1973 09 30	675	0.6-	0.4+	1998 12 14 704 0.1+	0.5+
1973 09 24	675	0.4-	1.5-	1973 10 04	675	1.1-	1.4+	1998 12 14 704 0.3+	0.8+
1973 09 24	675	0.7+	1.0-	1973 10 04	675	1.5-	1.6+	1998 12 17 704 0.2-	0.1+
1973 09 25	675	1.3+	1.4-	1973 10 05	675	0.1+	0.0	1998 12 17 704 2.5+	0.6+
1973 09 25	675	1.1+	2.0-	1973 10 05	675	0.8+	0.1-	1998 12 17 704 0.2-	0.7-
1973 09 29	675	0.2+	0.7+	1978 10 07	095	0.0	0.1+	1998 12 17 704 1.5-	1.4-

3130 T-2 = 1998 XK₇₁

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>M</i> 312.37551 (2000.0)			<i>P</i>			<i>Q</i>		
<i>n</i>	0.20488673	ω	106.40102	-0.83149775	-0.54972265			
<i>a</i>	2.8496630	Ω	40.34728	+0.45070475	-0.75184909			
<i>e</i>	0.0707531	<i>i</i>	7.10724	+0.32477180	-0.36404388			
<i>P</i>	4.81	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5	

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Residuals in seconds of arc

1973 09 19	675	0.2−	1.0+	1973 09 30	675	0.0	0.6+	1998 12 14	704	0.0	0.8−
1973 09 19	675	1.4−	1.0−	1973 09 30	675	0.9−	0.8+	1998 12 14	704	0.4−	0.1−
1973 09 20	675	0.2+	0.2−	1973 10 04	675	0.2−	0.4+	1998 12 17	704	0.4+	0.2+
1973 09 24	675	1.9−	0.1−	1973 10 04	675	1.1−	0.6−	1998 12 17	704	0.4−	0.4−
1973 09 24	675	0.3−	1.3+	1973 10 05	675	0.0	0.5+	1998 12 17	704	0.3+	0.5+
1973 09 25	675	2.0+	1.7−	1973 10 05	675	1.7+	0.1−	1998 12 17	704	0.3−	0.2+
1973 09 25	675	2.6+	1.2−	1998 12 14	704	0.5−	0.0	1998 12 17	704	0.3−	0.4+
1973 09 29	675	0.3−	0.5+	1998 12 14	704	1.1+	0.3+				
1973 09 29	675	0.3−	0.2−	1998 12 14	704	0.2+	0.3−				

3372 T-2 = 1988 FR = 1991 YR₂ = 1997 GN₃₉ = 1998 MK₃₈

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Doppler

<i>M</i>	225.84166		(2000.0)	P	Q
<i>n</i>	0.22888079	ω	328.45651	−0.39198085	−0.91756620
<i>a</i>	2.6468530	Ω	144.49687	+0.86609864	−0.39243648
<i>e</i>	0.1815540	<i>i</i>	6.57599	+0.31020020	−0.06376425
<i>P</i>	4.31	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1973 09 19	675	0.1+	1.0−	1988 03 18	033	1.2+	0.7−	1997 04 07	809	0.2+	0.4+
1973 09 19	675	1.2−	0.1+	1991 12 31	511	0.7−	1.5+	1997 04 08	809	0.1−	0.1−
1973 09 20	675	0.7+	0.2+	1991 12 31	511	0.3+	1.5−	1997 04 08	809	1.3−	0.2−
1973 09 24	675	0.5−	0.7−	1992 01 02	511	(2.8+	2.8+)	1997 04 08	809	1.0−	0.1−
1973 09 24	675	0.7+	0.7+	1992 01 02	511	(4.0+	3.9+)	1998 06 26	809	0.6+	1.0+
1973 09 25	675	(4.2+	0.2−)	1992 01 03	511	0.3+	1.9+	1998 06 26	809	0.0	1.1+
1973 09 25	675	(3.2+	2.2−)	1992 01 03	511	(4.4+	2.3+)	1998 06 26	809	0.1−	0.7+
1973 09 29	675	(1.5+	3.1+)	1992 01 05	511	(2.8−	2.1+)	1998 06 27	809	(1.1−	4.9−)
1973 09 29	675	(1.3+	2.2+)	1992 01 05	511	(2.1+	2.3+)	1998 06 27	809	(1.3−	3.0−)
1988 03 17	033	0.2−	0.4+	1997 04 07	809	0.4+	0.1+	1998 06 27	809	(0.2−	3.7−)
1988 03 18	033	0.3−	0.1+	1997 04 07	809	0.9+	0.2−				

4212 T-2 = 1998 XV₇₂

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	5.86948		(2000.0)	P	Q
<i>n</i>	0.28114382	ω	44.09051	−0.07022811	−0.99499068
<i>a</i>	2.3077231	Ω	50.06878	+0.88761966	−0.09487594
<i>e</i>	0.1256573	<i>i</i>	5.32352	+0.45519156	+0.03149759
<i>P</i>	3.51	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1973 09 19	675	0.2−	0.0	1973 09 29	675	0.4+	1.8−	1998 12 14	704	0.3+	0.2−
1973 09 19	675	0.8−	0.4+	1973 09 30	675	0.5−	0.1−	1998 12 14	704	0.2+	1.5+
1973 09 20	675	0.8−	1.2−	1973 09 30	675	0.5+	0.4+	1998 12 14	704	0.3−	0.6+
1973 09 24	675	0.7+	2.7+	1973 10 04	675	1.0+	0.9−	1998 12 17	704	0.0	0.1−
1973 09 24	675	0.2−	0.5+	1973 10 04	675	0.4+	0.4−	1998 12 17	704	0.1−	0.2−
1973 09 25	675	1.2−	0.7+	1973 10 05	675	0.3+	0.6+	1998 12 17	704	0.2+	0.6−
1973 09 25	675	0.3+	0.2−	1973 10 05	675	0.4−	0.6+	1998 12 17	704	0.3+	0.4−
1973 09 29	675	0.5+	1.4−	1998 12 14	704	1.2−	0.1+	1998 12 17	704	0.6+	0.6−

4215 T-2 = 1998 YN₂₃

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	24.68005		(2000.0)	P	Q
<i>n</i>	0.24082801	ω	348.93344	+0.49675149	−0.86704109
<i>a</i>	2.5585744	Ω	71.27135	+0.79934320	+0.43981413
<i>e</i>	0.1262460	<i>i</i>	2.32629	+0.33806568	+0.23410102
<i>P</i>	4.09	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1973 09 19	675	0.3−	0.5−	1973 09 29	675	0.5−	2.0−	1998 12 16	704	0.8+	0.8−
1973 09 19	675	2.7+	1.0−	1973 09 30	675	0.3+	0.6+	1998 12 16	704	0.6+	0.6+
1973 09 20	675	2.7−	0.2+	1973 09 30	675	1.5+	1.0−	1998 12 16	704	0.3−	1.7+
1973 09 24	675	0.8−	1.4+	1973 10 04	675	0.3−	0.5+	1998 12 17	704	0.2−	1.0−
1973 09 24	675	0.6−	0.8+	1973 10 04	675	0.3−	0.7+	1998 12 17	704	0.5−	0.6−
1973 09 25	675	0.5−	1.3+	1973 10 05	675	0.6−	1.5−	1998 12 17	704	1.1−	0.4−

1973 09 25	675	0.8+	1.3+	1973 10 05	675	0.7+	0.5+	1998 12 17	704	0.3+	0.7+
1973 09 29	675	0.7+	1.3−	1998 12 16	704	0.3+	0.3−				

4225 T-2 = 1998 XC₃₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	330.67385		(2000.0)	P	Q
<i>n</i>	0.28178779	ω	89.49952	−0.62196097	−0.77992678
<i>a</i>	2.3042058	Ω	39.24351	+0.66733823	−0.57460814
<i>e</i>	0.0777126	<i>i</i>	6.33902	+0.40966356	−0.24807195
<i>P</i>	3.50	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1973 09 19	675	0.4+	0.5−	1973 09 29	675	0.4+	0.6−	1998 12 14	704	0.2−	1.6−
1973 09 19	675	1.7+	0.4−	1973 09 30	675	0.7+	1.0+	1998 12 14	704	1.0−	0.7−
1973 09 20	675	0.3−	0.5+	1973 09 30	675	0.4+	0.6+	1998 12 14	704	0.1−	0.4−
1973 09 24	675	0.1+	0.4+	1973 10 04	675	0.3+	1.3−	1998 12 14	704	1.0+	0.9+
1973 09 24	675	0.9+	0.8+	1973 10 04	675	0.0	0.1−	1998 12 17	704	0.4+	0.1−
1973 09 25	675	2.1−	1.0−	1973 10 05	675	0.5+	1.0+	1998 12 17	704	0.2+	0.4+
1973 09 25	675	1.8−	0.3−	1973 10 05	675	0.3+	0.1−	1998 12 17	704	0.7+	0.3+
1973 09 29	675	1.6−	0.1+	1998 12 14	704	0.5+	0.4+	1998 12 17	704	1.5−	0.9+

1110 T-3 = 1998 XM₆₉

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	275.87592		(2000.0)	P	Q
<i>n</i>	0.28797436	ω	275.95815	−0.99392385	+0.05500138
<i>a</i>	2.2710856	Ω	267.22196	−0.01333445	−0.91998948
<i>e</i>	0.0728721	<i>i</i>	5.47750	−0.10925919	−0.38806470
<i>P</i>	3.42	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 07	675	0.1−	1.0−	1977 10 17	675	1.4−	0.6+	1998 12 14	704	0.5−	0.7+
1977 10 11	675	0.1+	0.6+	1977 10 17	675	0.3+	0.5−	1998 12 14	704	0.0	0.5+
1977 10 11	675	0.5−	1.3+	1977 10 17	675	0.8−	0.4+	1998 12 14	704	0.6−	0.4−
1977 10 12	675	0.1−	0.5+	1977 10 17	675	1.2+	0.7+	1998 12 14	704	2.1−	0.0
1977 10 12	675	0.9−	1.2+	1977 10 21	675	1.6+	0.8−	1998 12 16	704	0.0	0.8+
1977 10 16	675	1.6−	1.8−	1977 10 21	675	0.6+	0.3−	1998 12 16	704	2.7+	1.0−
1977 10 16	675	2.4+	3.0−	1977 10 22	675	0.1−	3.6+	1998 12 16	704	0.4+	0.1+
1977 10 16	675	0.8−	1.1−	1977 10 22	675	0.8−	2.3+	1998 12 16	704	0.1−	0.2−
1977 10 16	675	1.0+	2.5−	1998 12 14	704	0.2+	0.5−				

1157 T-3 = 1998 WP₁₃

Id. A. Gnädig

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	42.30970		(2000.0)	P	Q
<i>n</i>	0.19104787	ω	119.93811	+0.90114289	−0.40595742
<i>a</i>	2.9856661	Ω	264.37946	+0.32603991	+0.86589728
<i>e</i>	0.0959512	<i>i</i>	8.79232	+0.28572620	+0.29226782
<i>P</i>	5.16	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1977 10 07	675	0.9+	1.7−	1977 10 22	675	1.1+	1.1−	1998 11 24	704	1.3−	0.8+
1977 10 11	675	0.7+	0.6+	1998 11 21	704	0.8+	0.7−	1998 12 14	704	1.0−	0.1+
1977 10 11	675	1.8+	1.0−	1998 11 21	704	0.5−	0.9−	1998 12 14	704	0.2+	1.1−
1977 10 12	675	0.5−	0.9+	1998 11 21	704	0.9−	1.0−	1998 12 14	704	0.4−	0.5−
1977 10 12	675	0.0	1.3+	1998 11 21	704	0.2+	0.9+	1998 12 14	704	1.0+	0.3−
1977 10 16	675	2.1−	0.4−	1998 11 21	704	0.7+	0.3+	1998 12 17	704	1.8+	0.6+
1977 10 16	675	1.5−	0.5−	1998 11 24	704	0.7+	0.1−	1998 12 17	704	0.1−	1.4+
1977 10 17	675	0.3−	0.6+	1998 11 24	704	0.5+	0.2+	1998 12 17	704	0.0	0.7+
1977 10 17	675	0.0	1.1+	1998 11 24	704	0.5+	0.0	1998 12 17	704	0.9−	1.0−
1977 10 22	675	0.1−	0.2+	1998 11 24	704	1.3−	0.6+				

2367 T-3 = 1998 XA₆₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	318.57095		(2000.0)	P	Q
<i>n</i>	0.28583671	ω	240.81427	-0.70546189	-0.70450040
<i>a</i>	2.2823945	Ω	254.27345	+0.67501172	-0.63453082
<i>e</i>	0.1015380	<i>i</i>	4.61674	+0.21606178	-0.31788336
<i>P</i>	3.45	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 12	675	0.1+	1.4+	1977 10 21	675	0.9+	1.4-	1998 12 17	704	0.5+	0.3-
1977 10 12	675	0.9+	0.9+	1977 10 22	675	0.4+	0.7-	1998 12 17	704	0.3+	0.3+
1977 10 16	675	0.4-	1.3-	1977 10 22	675	0.6-	0.2+	1998 12 17	704	1.1-	0.6-
1977 10 16	675	0.2-	0.8-	1998 12 14	704	0.6+	1.3+	1998 12 17	704	1.0-	1.1-
1977 10 17	675	0.2-	0.9+	1998 12 14	704	0.8+	0.4-	1998 12 17	704	0.2+	0.7+
1977 10 17	675	1.0-	1.0+	1998 12 14	704	0.3-	0.9+				
1977 10 21	675	0.2+	0.3-	1998 12 14	704	0.0	0.7-				

3417 T-3 = 1987 AM = 1998 WN

Id. A. Gnädig

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	321.16595		(2000.0)	P	Q
<i>n</i>	0.23962311	ω	106.43532	-0.64501794	-0.75490758
<i>a</i>	2.5671441	Ω	24.96598	+0.54885160	-0.56565162
<i>e</i>	0.1204972	<i>i</i>	16.31952	+0.53170835	-0.33189274
<i>P</i>	4.11	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1977 10 07	675	1.4-	1.0-	1987 01 03	675	0.5+	0.5-	1998 11 22	012	0.5-	0.2-
1977 10 11	675	2.5-	1.2+	1987 01 03	675	0.6-	0.4+	1998 11 22	012	0.4-	0.0
1977 10 11	675	2.1-	0.8+	1998 11 17	012	1.0+	0.3-	1998 11 22	012	0.0	0.1-
1977 10 12	675	1.8+	1.0-	1998 11 17	012	0.3-	0.1-	1998 12 16	012	0.0	0.2+
1977 10 12	675	2.1+	1.5-	1998 11 17	012	0.0	0.0	1998 12 16	012	0.3-	0.4+
1977 10 16	675	1.1+	1.2-	1998 11 17	012	0.5+	0.3-	1998 12 16	012	0.4-	0.4-
1977 10 16	675	0.0	0.6-	1998 11 17	012	0.4+	0.5-	1998 12 17	012	0.2+	0.5+
1977 10 17	675	0.7-	1.0+	1998 11 17	012	0.2-	0.4-	1998 12 17	012	0.3+	0.2+
1977 10 17	675	0.6-	0.4+	1998 11 17	012	0.1+	0.3-	1998 12 17	012	0.1-	0.5+
1977 10 21	675	0.5-	1.1+	1998 11 18	012	0.0	0.2-	1998 12 17	012	0.1+	0.3+
1977 10 21	675	0.7-	0.5+	1998 11 18	012	0.1-	0.2-	1998 12 17	012	0.1+	0.3+
1977 10 22	675	1.8+	0.2-	1998 11 18	012	0.1+	0.2-				
1977 10 22	675	1.6+	0.9+	1998 11 22	012	0.7-	0.5+				

3423 T-3 = 1998 YY₇

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Marsden

<i>M</i>	10.94658		(2000.0)	P	Q
<i>n</i>	0.23955419	ω	343.90904	+0.05775106	-0.99795068
<i>a</i>	2.5676365	Ω	102.77403	+0.91903758	+0.04236393
<i>e</i>	0.1663840	<i>i</i>	1.61904	+0.38991632	+0.04795557
<i>P</i>	4.11	<i>H</i>	15.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 07	675	0.6+	1.0+	1977 10 17	675	0.8-	1.1-	1998 12 24	046	0.1+	0.1+
1977 10 11	675	(2.2-	0.8+)	1977 10 21	675	0.7+	0.5+	1998 12 24	046	0.0	0.6-
1977 10 11	675	1.7-	1.0+	1977 10 21	675	0.6-	0.8+	1998 12 24	046	0.1-	0.1-

1977 10 12	675	(1.3+	2.2-)	1977 10 22	675	0.2+	0.7+	1998 12 25	046	0.0	0.1+
1977 10 12	675	1.8+	1.9-	1977 10 22	675	(2.7+	1.2-)	1998 12 25	046	0.2+	0.0
1977 10 16	675	0.7+	0.7-	1998 12 24	046	0.1-	0.1-	1998 12 25	046	0.1-	0.1+
1977 10 16	675	0.1-	1.0-	1998 12 24	046	0.2-	0.0	1998 12 25	046	0.1+	0.4+
1977 10 17	675	0.8-	0.8+	1998 12 24	046	0.0	0.0				

4316 T-3 = 1998 YV₂₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	133.42527		(2000.0)	P	Q
<i>n</i>	0.24100052	ω	258.22279	+0.70716896	+0.70188026
<i>a</i>	2.5573533	Ω	57.12781	-0.60270636	+0.66148678
<i>e</i>	0.0475232	<i>i</i>	5.82914	-0.36967162	+0.26419567
<i>P</i>	4.09	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 11	675	1.8+	0.6+	1977 10 17	675	1.5-	2.1-	1998 12 16	704	1.0+	0.6+
1977 10 11	675	0.5+	0.5+	1977 10 17	675	1.7-	1.3+	1998 12 16	704	2.0+	0.4+
1977 10 12	675	0.7+	0.4-	1977 10 21	675	0.5+	0.5-	1998 12 17	704	0.4-	0.2-
1977 10 12	675	1.4-	1.0-	1977 10 21	675	1.6+	0.5+	1998 12 17	704	0.0	0.0
1977 10 16	675	0.7-	0.9+	1998 12 16	704	0.7+	1.9-	1998 12 17	704	1.5-	1.7+
1977 10 16	675	0.2+	0.4+	1998 12 16	704	0.6+	0.5-	1998 12 17	704	2.5-	0.2-

5082 T-3 = 1998 SE₁₆₅

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	35.41140		(2000.0)	P	Q
<i>n</i>	0.28018171	ω	247.30728	+0.99295039	+0.07449650
<i>a</i>	2.3130030	Ω	108.32095	-0.03555485	+0.92919005
<i>e</i>	0.1487754	<i>i</i>	5.57319	-0.11307245	+0.36201674
<i>P</i>	3.52	<i>H</i>	15.8	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 07	675	3.2+	3.1-	1977 10 12	675	0.1+	1.3-	1977 10 22	675	0.1-	0.4-
1977 10 11	675	0.8-	0.6-	1977 10 16	675	1.2+	0.6-	1998 09 22	699	0.4+	0.1-
1977 10 11	675	0.1+	1.8+	1977 10 16	675	0.9+	0.7-	1998 09 22	699	0.2-	0.5+
1977 10 11	675	0.3+	0.2+	1977 10 17	675	0.5+	0.7-	1998 09 22	699	0.1-	1.0+
1977 10 11	675	0.9-	0.7+	1977 10 17	675	1.0+	0.0	1998 09 27	699	0.3+	0.2-
1977 10 12	675	1.8-	1.9+	1977 10 21	675	0.0	0.2+	1998 09 27	699	0.2-	0.1+
1977 10 12	675	0.0	1.3-	1977 10 21	675	0.1-	0.7+	1998 09 27	699	0.5-	0.7-
1977 10 12	675	1.6-	0.0	1977 10 22	675	1.9-	2.7+				

5282 T-3 = 1998 XK₆₆

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

Williams

<i>M</i>	358.76822		(2000.0)	P	Q
<i>n</i>	0.23828134	ω	23.24478	+0.04224744	-0.97171389
<i>a</i>	2.5767722	Ω	65.01918	+0.87171112	-0.07778599
<i>e</i>	0.1422283	<i>i</i>	14.85250	+0.48819553	+0.22298307
<i>P</i>	4.14	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1977 10 17	675	1.2-	0.7+	1998 12 14	704	0.0	0.7+	1998 12 17	704	0.6+	0.2+
1977 10 17	675	1.8-	0.2-	1998 12 14	704	0.2-	0.8-	1998 12 17	704	1.0+	0.0
1977 10 21	675	1.1+	0.1-	1998 12 14	704	0.7-	0.2+	1998 12 17	704	0.3+	0.0
1977 10 21	675	0.2+	0.2+	1998 12 14	704	0.7-	0.7-	1998 12 17	704	0.1+	0.2+
1977 10 22	675	1.6+	0.6-	1998 12 14	704	0.8-	0.1-	1998 12 17	704	0.3+	0.4+

Object	<i>H</i>	<i>G</i>	Epoch	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	<i>a</i>	Obs.	Opp. & Arc	rms Perts	<i>U</i>	Computer	<i>MPC</i>	Object
(1079)	11.20	0.15	19990122	321.79854	101.80208	329.97534	1.18030	0.0454120	2.8754098	180	24	1927-1998	0.84 M-v 1	Bowell	26921	(1079)
(1393)	12.2	0.15	19990122	180.42150	184.26211	56.92286	5.85228	0.1102296	2.4330460	60	17	1936-1998	0.92 M-v 1	Bowell	26923	(1393)
(1517)	11.1	0.15	19990122	104.11205	230.31381	64.01493	5.27903	0.0444403	2.7168094	82	22	1931-1998	0.87 M-v 1	Bowell	32044	(1517)
(2208)	10.96	0.15	19990122	8.88250	0.44000	79.51328	5.41742	0.0482077	3.4902034	56	11	1968-1998	0.90 M-v 1	Williams	32045	(2208)
(2220)	10.9	0.15	19990122	78.61420	277.00001	95.11441	2.58669	0.1670594	3.1484824	70	12	1975-1998	0.99 M-v 1	Williams	31784	(2220)
(2336)	11.4	0.15	19990122	332.59718	35.73297	87.42499	2.78363	0.1472500	3.1961112	83	11	1974-1998	0.93 M-v 1	Williams	30781	(2336)

(2528)	12.6	0.15	19990122	64.51384	183.26773	162.79959	0.50656	0.1820970	3.1366225	75	17	1950–1998	0.86	M-v	1	Bowell	32742	(2528)
(2791)	11.5	0.15	19990122	325.12393	165.72481	336.22896	31.04668	0.1709214	2.3970343	57	7	1977–1998	0.99	M-v	2	Williams	31274	(2791)
(3672)	13.3	0.15	19990122	11.88697	31.68081	14.38646	6.29949	0.1391486	2.1832736	56	7	1955–1998	0.76	M-v	1	Sicoli	23520	(3672)
(3680)	12.9	0.15	19990122	344.58257	96.03712	26.22067	5.50945	0.0630604	2.2252343	42	8	1971–1998	0.92	M-v	1	Williams	31585	(3680)
(3902)	11.4	0.15	19990122	318.50412	342.66051	294.07290	15.61286	0.0737547	3.2188259	22	8	1934–1998	0.82	M-v	1	Williams	32050	(3902)
(3903)	12.0	0.15	19990122	168.05257	302.91967	342.50425	1.31718	0.0851006	2.9270824	67	11	1955–1998	0.80	M-v	1	Williams	32306	(3903)
(4004)	12.0	0.15	19990122	8.32953	348.07860	18.92526	15.73532	0.2087318	3.0959291	56	6	1971–1998	0.73	M-v	1	Bowell	29662	(4004)
(4008)	13.1	0.15	19990122	17.58273	327.49781	167.37506	25.51419	0.2092590	2.3593996	29	5	1977–1998	0.89	M-v	2	Williams	33339	(4008)
(4057)	9.6	0.15	19990122	347.00382	57.36910	24.46479	2.87451	0.1207569	5.2657465	81	8	1985–1998	0.93	M-v	0	Williams	33235	(4057)
(4350)	12.2	0.15	19990122	340.05532	108.52666	32.73980	13.65992	0.1940581	2.6265155	47	9	1972–1998	0.79	M-v	1	Bowell	31539	(4350)
(4384)	12.1	0.15	19990122	132.22904	43.80117	316.61744	13.29546	0.1794128	2.6203002	20	7	1933–1998	0.95	M-v	2	Williams	27730	(4384)
(4389)	12.3	0.15	19990122	68.02808	217.84404	132.38834	2.76657	0.0769903	2.9121386	91	10	1954–1998	0.72	M-v	1	Sicoli	23126	(4389)
(4411)	13.9	0.15	19990122	314.84220	10.28858	88.51519	2.25611	0.0918171	2.1671786	86	10	1973–1998	0.89	M-v	1	Sicoli	33339	(4411)
(4499)	12.2	0.15	19990122	340.11606	88.48996	318.33689	6.55156	0.1709382	3.1716087	69	10	1931–1998	0.81	M-v	1	Sicoli	31140	(4499)
(4536)	13.3	0.15	19990122	203.27728	237.15147	313.77099	4.17545	0.0830193	2.1956527	95	8	1950–1998	0.67	M-v	1	Sicoli	32051	(4536)
(4543)	9.7	0.15	19990122	21.77303	84.18953	325.40368	14.74268	0.0978193	5.0829721	43	9	1955–1998	0.76	M-v	1	Williams	33240	(4543)
(4559)	12.3	0.15	19990122	84.48423	238.87002	120.54294	11.14149	0.1073085	3.0198647	34	7	1972–1998	0.70	M-v	2	Williams	33072	(4559)
(4862)	12.7	0.15	19990122	148.83622	98.19469	200.80354	8.63880	0.2408399	2.9105686	33	8	1976–1998	0.81	M-v	1	Williams	30092	(4862)
(4866)	11.7	0.15	19990122	55.42967	120.79242	214.14786	9.37219	0.0860948	3.0008243	100	9	1972–1998	0.71	M-v	1	Sicoli	33340	(4866)
(4919)	13.8	0.15	19990122	66.95459	326.80593	350.39912	5.01377	0.2429270	2.2699507	69	8	1933–1998	0.74	M-v	1	Sicoli	29921	(4919)
(4924)	15.3	0.15	19990122	96.21837	148.20944	180.29367	1.72445	0.2146153	2.1533636	61	6	1981–1998	0.88	M-v	1	Williams	33341	(4924)
(5062)	13.6	0.15	19990122	50.83040	14.35079	19.48436	3.30640	0.1671168	2.2596799	49	7	1987–1998	0.89	M-v	1	Williams	33341	(5062)
(5168)	13.0	0.15	19990122	208.18114	201.49998	339.17558	23.47122	0.2046499	2.3417655	52	7	1979–1998	0.63	M-v	1	Sicoli	24907	(5168)
(5232)	12.0	0.15	19990122	114.38204	97.67008	165.84650	12.21272	0.1593721	2.8529287	124	11	1955–1998	0.88	M-v	1	Sicoli	30901	(5232)
(5292)	11.9	0.15	19990122	94.46468	260.66926	94.93632	15.49328	0.1558663	2.5656052	37	9	1972–1998	0.75	M-v	1	Williams	30901	(5292)
(5300)	14.1	0.15	19990122	32.51642	350.42536	10.72658	6.43829	0.1619681	2.2748303	86	7	1974–1998	0.87	M-v	1	Sicoli	31789	(5300)
(5306)	12.3	0.15	19990122	123.61369	251.37145	80.33954	3.13332	0.0702697	2.8547916	45	12	1949–1998	0.74	M-v	1	Williams	27328	(5306)
(5307)	13.5	0.15	19990122	329.02886	9.09201	59.34557	7.06599	0.1218008	2.4151164	35	7	1980–1998	0.81	M-v	2	Sicoli	27731	(5307)
(5372)	11.5	0.15	19990122	109.99417	294.52572	19.61835	12.24153	0.0839809	3.0741560	57	7	1976–1998	0.81	M-v	1	Williams	25733	(5372)
(5382)	12.4	0.15	19990122	334.89607	11.14677	169.25205	12.76163	0.0915679	2.6297143	41	9	1952–1998	0.60	M-v	1	Williams	33342	(5382)
(5398)	11.4	0.15	19990122	26.04965	110.37718	307.96491	9.64104	0.0167625	3.0031321	56	7	1982–1998	0.70	M-v	1	Williams	26568	(5398)
(5596)	13.7	0.15	19990122	339.93631	220.37315	261.98397	4.23269	0.0836048	2.1749030	65	8	1981–1998	0.64	M-v	1	Williams	29665	(5596)
(5809)	12.3	0.15	19990122	170.46438	194.42213	110.33069	3.49782	0.0422867	2.8742607	50	10	1949–1998	0.79	M-v	1	Williams	32750	(5809)
(6091)	13.3	0.15	19990122	145.59539	319.16404	337.41670	8.38705	0.2234237	2.2085961	63	7	1955–1998	0.73	M-v	2	Williams	33076	(6091)
(6213)	14.6	0.15	19990122	352.95363	173.51470	283.85461	1.34133	0.1475548	2.2730496	47	7	1960–1998	0.92	M-v	2	Williams	28863	(6213)
(7451)	12.7	0.15	19990122	115.16494	197.11191	147.37848	10.31898	0.1711934	2.8072956	32	6	1951–1998	0.70	M-v	1	Bowell	31010	(7451)
(7849)	13.9	0.15	19990122	8.75134	346.23846	81.72919	6.02050	0.0943713	2.7317469	60	6	1962–1998	0.68	M-v	1	Bowell	31150	(7849)
(8030)	11.8	0.15	19990122	105.49746	327.34759	11.34363	7.24080	0.0800833	3.2247833	54	5	1991–1998	0.73	M-v	1	Williams	31126	(8030)
(8061)	13.5	0.15	19990122	54.62520	265.33476	115.45041	2.23464	0.1923916	3.1669284	40	5	1975–1998	0.85	M-v	1	Williams	31255	(8061)
1967 JQ	13.7	0.15	19990122	254.90867	299.48394	263.92081	7.93904	0.1958331	2.3769120	19	3	1967–1998	0.61	M-v	4	Williams	33217	1967 JQ
1969 TM ₁	13.9	0.15	19990122	344.50810	357.59009	40.38071	7.42213	0.1340403	2.3775158	24	6	1954–1998	0.81	M-v	2	Williams	32737	1969 TM ₁
1972 TC	13.5	0.15	19990122	97.71754	159.24642	247.41200	12.60531	0.1701862	2.5796984	38	4	1972–1998	0.63	M-v	2	Williams	31271	1972 TC
1972 TE	13.8	0.15	19990122	46.80023	158.07890	218.74274	4.38524	0.2682095	2.6378855	42	5	1959–1998	0.59	M-v	2	Williams	33331	1972 TE
1973 SF ₁	11.4	0.15	19990122	38.98962	338.16916	40.58462	8.44357	0.1511874	5.1615955	39	3	1973–1998	0.77	M-v	4	Williams	33331	1973 SF ₁
1973 SN ₁	11.9	0.15	19990122	268.58818	54.21637	101.99929	4.20461	0.0015991	5.1541492	35	4	1973–1998	0.70	M-v	1	Williams	33332	1973 SN ₁
1973 SR ₁	12.6	0.15	19990122	324.28334	47.14605	40.54384	8.87762	0.0596591	5.2183342	30	2	1973–1998	0.46	M-v	4	Williams	33332	1973 SR ₁
1973 SX ₂	12.3	0.15	19990122	44.39190	186.53351	201.65825	14.67402	0.1146349	2.5668017	33	2	1973–1998	0.64	M-v	4	Williams	33218	1973 SX ₂
1973 SY ₅	13.8	0.15	19990122	358.60245	216.27695	186.43697	15.14075	0.1402295	2.5877075	46	3	1973–1998	0.77	M-v	4	Williams	32916	1973 SY ₅
1974 PC	15.2	0.15	19990122	63.16299	212.29456	139.79598	23.44323	0.2923347	2.2543093	20	4	1974–1998	0.68	M-v	2	Williams	27323	1974 PC
1975 LY	13.5	0.15	19990122	276.96672	243.61910	304.70350	14.41054	0.0526113	2.6066649	24	4	1975–1998	0.70	M-v	3	Williams	31002	1975 LY
1975 SE ₁	15.0	0.15	19990122	84.40433	305.40973	24.28158	9.96384	0.2447673	2.4279194	22	3	1975–1998	0.82	M-v	4	Williams	33332	1975 SE ₁
1975 SM ₁	16.1	0.15	19990122	59.32490	219.40049	155.55788	2.98731	0.2217445	2.4257116	23	5	1975–1998	0.74	M-v	1	Williams	30468	1975 SM ₁
1975 TJ ₃	13.9	0.15	19990122	350.12421	33.58301	35.64796	8.23618	0.2990201	2.7727714	55	4	1975–1998	0.63	M-v	2	Williams	33332	1975 TJ ₃

1975 VV ₂	12.7	0.15	19990122	124.46504	292.97511	40.96564	16.78089	0.1869317	3.1032666	30	4	1975–1998	0.67	M-v	2	Williams	33332	1975 VV ₂
1975 VW ₅	13.4	0.15	19990122	58.76791	270.05350	68.16444	8.46614	0.1452509	2.4475798	43	3	1975–1998	0.75	M-v	3	Williams	33332	1975 VW ₅
1976 QA	14.4	0.15	19990122	80.59286	12.95300	324.48585	2.76405	0.1957770	2.3466320	36	4	1976–1998	1.02	M-v	3	Williams	33332	1976 QA
1976 SS ₂	13.8	0.15	19990122	108.43593	321.87405	21.31199	3.40318	0.2119920	2.3328607	34	7	1976–1998	0.79	M-v	2	Williams	30287	1976 SS ₂
1976 UN ₂	15.2	0.15	19990122	79.72087	96.58359	257.95856	1.90106	0.1360639	2.1325392	31	4	1976–1998	0.70	M-v	2	Williams	29909	1976 UN ₂
1976 UJ ₄	13.7	0.15	19990122	32.82482	324.23463	85.65531	3.46787	0.2050099	2.6734911	29	5	1976–1998	0.62	M-v	2	Williams	27323	1976 UJ ₄
1976 UR ₁₅	13.7	0.15	19990122	70.20902	339.19510	49.56871	9.90109	0.0559962	2.6347828	41	6	1976–1998	0.70	M-v	1	Williams	31003	1976 UR ₁₅
1976 YF ₃	11.9	0.15	19990122	302.73150	243.36547	250.95211	13.39041	0.1030892	3.1486138	46	4	1976–1998	0.71	M-v	2	Williams	33332	1976 YF ₃
1977 DT ₂	13.8	0.15	19990122	187.01714	210.37890	56.95883	1.45856	0.0359884	2.7384146	36	4	1977–1998	0.59	M-v	1	Williams	30777	1977 DT ₂
1977 DQ ₃	13.4	0.15	19990122	32.37457	11.39150	62.23497	2.15149	0.1564463	3.1473713	16	5	1975–1998	0.71	M-v	1	Williams	23347	1977 DQ ₃
1977 QD ₂	14.4	0.15	19990122	44.68821	0.17730	350.30374	5.61099	0.1918407	2.3001074	89	6	1977–1998	0.72	M-v	3	Williams	33064	1977 QD ₂
1977 RD ₂	12.7	0.15	19990122	62.35630	337.64712	50.40012	3.20386	0.1867638	2.9444658	41	9	1977–1998	0.74	M-v	1	Williams	33332	1977 RD ₂
1977 TU ₃	13.0	0.15	19990122	3.42126	174.83883	215.23088	14.75487	0.1977460	3.0460433	38	2	1977–1998	0.71	M-v	3	Williams	33064	1977 TU ₃
1977 TO ₆	14.5	0.15	19990122	53.08630	256.34699	84.35899	6.98122	0.1882928	2.3065010	37	4	1977–1998	0.96	M-v	3	Williams	33332	1977 TO ₆
1978 CK	12.5	0.15	19990122	290.16631	141.51257	310.08380	20.67442	0.0540566	3.1866932	50	4	1978–1998	0.58	M-v	2	Williams	32738	1978 CK
1978 PA ₃	15.3	0.15	19990122	68.85764	170.46799	169.10949	2.16217	0.1950755	2.2129918	59	3	1978–1998	0.74	M-v	3	Williams	33332	1978 PA ₃
1978 PW ₃	14.3	0.15	19990122	117.27968	139.78836	169.37597	6.42444	0.1480603	2.4616996	37	6	1978–1998	0.96	M-v	2	Williams	30468	1978 PW ₃
1978 PX ₃	15.3	0.15	19990122	41.84281	30.87164	309.60754	5.30400	0.2190500	2.2289423	56	5	1955–1998	0.80	M-v	3	Williams	33064	1978 PX ₃
1978 PG ₄	14.5	0.15	19990122	39.97355	36.96283	303.06227	6.11993	0.2220379	2.2327425	70	2	1978–1998	0.60	M-v	2	Williams	33064	1978 PG ₄
1978 QY ₁	14.0	0.15	19990122	80.51002	223.85629	168.49380	4.67399	0.1005906	2.4457846	33	6	1954–1998	0.81	M-v	1	Williams	30778	1978 QY ₁
1978 RX ₁	14.9	0.15	19990122	29.59972	220.70241	137.77522	3.96807	0.2070475	2.2371623	59	2	1988–1998	0.81	M-v	3	Williams	32738	1978 RX ₁
1978 RR ₈	14.1	0.15	19990122	352.19465	325.34664	164.51115	11.11569	0.2349051	2.4384626	39	7	1978–1998	0.84	M-v	2	Williams	33332	1978 RR ₈
1978 RB ₁₀	16.0	0.15	19990122	111.60234	356.71980	341.84506	4.66679	0.1824136	2.1858497	17	3	1978–1998	0.67	M-v	4	Williams	21099	1978 RB ₁₀
1978 SD ₃	14.5	0.15	19990122	130.10066	319.18135	346.21891	4.51289	0.2120763	2.1915249	28	3	1978–1998	0.85	M-v	4	Williams	27118	1978 SD ₃
1978 SE ₃	13.9	0.15	19990122	169.30465	97.24494	210.21779	3.03165	0.1127177	2.4332130	38	8	1978–1998	0.89	M-v	1	Williams	30892	1978 SE ₃
1978 SH ₃	14.8	0.15	19990122	35.44895	159.56964	213.81253	3.94140	0.1735221	2.2245300	75	3	1978–1998	0.77	M-v	3	Williams	33332	1978 SH ₃
1978 SA ₅	15.1	0.15	19990122	51.94484	215.39709	196.49752	0.81358	0.2003686	2.2031475	28	4	1978–1998	0.73	M-v	2	Williams	33064	1978 SA ₅
1978 SD ₇	14.7	0.15	19990122	77.83965	97.32586	216.94387	3.73670	0.2006064	2.2278985	78	3	1988–1998	0.75	M-v	3	Williams	33332	1978 SD ₇
1978 TR ₂	13.0	0.15	19990122	92.38186	76.48997	289.07030	1.01725	0.0832461	2.8500391	38	6	1973–1998	0.96	M-v	2	Williams	30648	1978 TR ₂
1978 UP ₂	13.5	0.15	19990122	168.36758	272.72188	34.13313	9.09249	0.1469448	2.1856824	19	6	1978–1998	1.01	M-v	2	Williams	31579	1978 UP ₂
1978 UN ₅	15.0	0.15	19990122	47.59161	301.52517	11.01568	5.16891	0.2569085	2.5382029	53	6	1954–1998	0.71	M-v	2	Williams	33332	1978 UN ₅
1978 VY ₅	14.8	0.15	19990122	327.23558	10.52620	75.33168	2.16315	0.1589917	2.2569721	66	2	1978–1998	0.65	M-v	4	Williams	32917	1978 VY ₅
1978 VH ₁₀	14.5	0.15	19990122	50.92797	307.26376	85.32605	3.15603	0.0670486	2.9149813	17	3	1978–1998	0.47	M-v	4	Williams	30287	1978 VH ₁₀
1978 WU	14.6	0.15	19990122	43.21550	106.45986	240.37056	8.58987	0.2063431	2.5434736	31	3	1978–1998	0.71	M-v	3	Williams	33332	1978 WU
1978 YM	13.9	0.15	19990122	49.99044	19.63634	0.85118	7.82801	0.1366974	2.2336698	47	4	1974–1998	0.77	M-v	2	Williams	33332	1978 YM
1979 EL	12.2	0.15	19990122	329.46903	319.35513	91.14853	14.77631	0.1596654	2.6359243	19	3	1979–1998	0.99	M-v	5	Williams	33332	1979 EL
1979 HW ₆	13.9	0.15	19990122	282.84451	344.59225	267.86309	0.36118	0.1290475	2.2513436	28	6	1979–1998	0.85	M-v	2	Williams	31271	1979 HW ₆
1979 MK	13.2	0.15	19990122	92.64031	170.08935	163.86095	6.35769	0.1327217	2.3709321	47	4	1979–1998	0.65	M-v	1	Williams	33332	1979 MK
1979 MV ₁	15.0	0.15	19990122	190.52020	136.03595	133.60726	6.75086	0.0803639	2.3351695	23	4	1979–1998	0.80	M-v	2	Williams	30778	1979 MV ₁
1979 MK ₃	13.5	0.15	19990122	32.48376	333.13119	133.95375	6.14954	0.1265531	3.1105391	42	7	1955–1998	0.87	M-v	1	Williams	31003	1979 MK ₃
1979 MG ₄	13.2	0.15	19990122	252.44110	81.75097	162.44402	1.66409	0.1408528	3.0948819	35	4	1979–1998	0.75	M-v	1	Williams	31414	1979 MG ₄
1979 MY ₅	13.3	0.15	19990122	168.09527	347.10241	278.04345	11.78037	0.1103164	2.7025129	38	5	1979–1998	0.74	M-v	2	Williams	31003	1979 MY ₅
1979 MD ₈	14.0	0.15	19990122	260.85433	230.79944	257.60695	7.66612	0.1028236	2.7641187	27	3	1979–1998	0.75	M-v	4	Williams	32738	1979 MD ₈
1979 QC ₁	14.5	0.15	19990122	100.93645	60.54640	326.46247	11.68423	0.1733974	2.3471826	35	5	1954–1998	0.77	M-v	2	Williams	30892	1979 QC ₁
1979 SO	13.5	0.15	19990122	65.09077	350.29507	8.68266	8.17693	0.2296972	2.7747430	48	3	1979–1998	0.70	M-v	3	Williams	33332	1979 SO
1979 SU ₁₁	12.7	0.15	19990122	185.73269	268.24352	88.87194	2.50436	0.1605144	3.1496074	39	9	1955–1998	0.82	M-v	1	Williams	28882	1979 SU ₁₁
1979 VS ₂	13.9	0.15	19990122	106.89072	288.45201	53.99141	22.00035	0.1062851	1.9368318	22	5	1979–1998	0.66	M-v	3	Williams	32738	1979 VS ₂
1979 WX ₃	14.0	0.15	19990122	44.23633	266.77131	124.67510	1.93188	0.1771532	2.4343058	68	9	1950–1998	0.66	M-v	1	Williams	33332	1979 WX ₃
1979 XL	13.7	0.15	19990122	20.20927	7.93433	95.48086	10.06227	0.1083372	2.7877327	45	2	1979–1998	0.72	M-v	4	Williams	32917	1979 XL
1980 BA	14.4	0.15	19990122	348.84980	332.89330	109.13437	6.85707	0.1675591	2.4724942	42	3	1980–1998	0.74	M-v	3	Williams	33332	1980 BA
1980 EB	14.2	0.15	19990122	293.44123	210.73959	2.70438	2.03844	0.0941773	2.4493920	35	6	1954–1998	0.76	M-v	2	Williams	31134	1980 EB
1980 FO ₁	12.3	0.15	19990122	52.38368	90.93342	314.31275	1.24648	0.0646072	2.9061548	46	8	1973–1998	0.68	M-v	1	Williams	33332	1980 FO ₁
1981 DQ ₁	14.1	0.15	19990122	10.75739	164.45690	291.87846	8.39313	0.1618434	2.7857090	49	4	1978–1998	0.68	M-v	2	Williams	33065	1981 DQ ₁

1981 DV ₂	15.1	0.15	19990122	333.52417	245.51335	192.68101	22.36921	0.3019941	2.4209148	49	2	1981–1998	0.88	M-v	3	Williams	33065	1981 DV ₂
1981 EZ ₆	16.0	0.15	19990122	15.19890	176.29643	257.48624	6.06539	0.2454705	2.3953055	23	2	1981–1998	0.59	M-v	3	Williams	33219	1981 EZ ₆
1981 EP ₉	15.2	0.15	19990122	37.18308	153.14138	235.79937	5.13832	0.1222483	2.4297678	46	2	1981–1998	0.80	M-v	4	Williams	33219	1981 EP ₉
1981 EQ ₁₀	15.7	0.15	19990122	0.10456	140.10406	306.25735	3.07916	0.1973101	2.3977205	31	4	1951–1998	0.95	M-v	2	Williams	33332	1981 EQ ₁₀
1981 EY ₁₀	14.8	0.15	19990122	60.90805	170.54221	210.08756	3.09298	0.1075336	2.4178920	63	6	1981–1998	0.72	M-v	1	Williams	30685	1981 EY ₁₀
1981 EB ₁₁	15.5	0.15	19990122	128.84120	33.48619	276.48485	2.64611	0.2009297	2.4446828	17	4	1978–1998	0.89	M-v	2	Williams	22429	1981 EB ₁₁
1981 EE ₁₅	15.6	0.15	19990122	308.41205	252.26800	283.87337	5.01986	0.0691519	2.7843205	24	2	1981–1998	0.88	M-v	4	Williams	33219	1981 EE ₁₅
1981 EK ₁₇	14.4	0.15	19990122	131.61939	76.09270	206.42180	5.67477	0.1236474	2.4636373	18	2	1981–1998	0.74	M-v	5	Williams	32917	1981 EK ₁₇
1981 ED ₁₈	13.9	0.15	19990122	229.01188	10.53518	193.88753	2.62951	0.0342113	2.8461391	34	2	1981–1998	0.89	M-v	5	Williams	33219	1981 ED ₁₈
1981 EO ₂₁	15.3	0.15	19990122	43.72034	84.06366	316.86315	1.61868	0.2117918	2.4014289	25	5	1977–1998	0.90	M-v	2	Williams	29132	1981 EO ₂₁
1981 EB ₂₃	14.3	0.15	19990122	76.36853	326.13217	24.91386	2.70383	0.2111003	2.4388064	35	5	1971–1998	0.98	M-v	3	Williams	27118	1981 EB ₂₃
1981 EB ₂₄	14.3	0.15	19990122	356.93008	81.16942	12.43087	4.41000	0.0690876	2.8107100	33	4	1979–1998	0.76	M-v	1	Williams	27726	1981 EB ₂₄
1981 EU ₂₄	13.7	0.15	19990122	66.74246	63.65109	329.60756	3.23384	0.0939013	2.8058686	28	4	1981–1998	0.80	M-v	1	Williams	30649	1981 EU ₂₄
1981 EN ₂₆	14.2	0.15	19990122	299.28862	358.17930	186.44526	8.14970	0.1557783	2.7845333	28	4	1978–1998	0.84	M-v	2	Williams	21967	1981 EN ₂₆
1981 EY ₂₇	14.0	0.15	19990122	50.87132	301.84112	5.88808	11.78465	0.1836552	2.5278558	54	4	1981–1998	0.94	M-v	2	Williams	33332	1981 EY ₂₇
1981 ES ₂₈	14.7	0.15	19990122	306.51710	133.57972	4.41673	5.80065	0.1348549	2.4130790	31	2	1981–1998	0.84	M-v	4	Williams	33220	1981 ES ₂₈
1981 EW ₃₀	15.2	0.15	19990122	65.52700	174.74691	171.17747	0.92480	0.1735619	2.1574600	67	4	1981–1998	0.79	M-v	2	Williams	33332	1981 EW ₃₀
1981 EZ ₃₀	14.4	0.15	19990122	30.83964	105.69167	332.91120	2.71926	0.0664541	2.7921540	20	3	1981–1998	0.75	M-v	4	Williams	32212	1981 EZ ₃₀
1981 EG ₃₄	15.8	0.15	19990122	47.87051	210.35960	193.77434	7.23967	0.0867649	2.4084673	24	3	1981–1998	0.85	M-v	4	Williams	23857	1981 EG ₃₄
1981 EJ ₃₆	15.7	0.15	19990122	50.60443	18.17232	3.68532	2.07395	0.1976823	2.4170599	24	3	1981–1998	0.82	M-v	5	Williams	27102	1981 EJ ₃₆
1981 EW ₃₆	15.4	0.15	19990122	132.64935	58.27462	286.32530	5.40180	0.0610030	2.7930947	14	3	1978–1998	0.58	M-v	4	Williams	22271	1981 EW ₃₆
1981 EE ₃₈	14.9	0.15	19990122	21.32673	109.48390	314.72459	2.13664	0.1208166	2.8159691	24	4	1978–1998	0.78	M-v	2	Williams	21967	1981 EE ₃₈
1981 EM ₃₈	15.7	0.15	19990122	11.68243	166.14029	304.32939	4.20266	0.1192229	2.7697554	18	3	1979–1998	0.99	M-v	3	Williams	22430	1981 EM ₃₈
1981 EU ₄₁	15.8	0.15	19990122	22.61646	242.05369	203.42540	2.13825	0.1676205	2.3827017	26	4	1981–1998	0.63	M-v	2	Williams	24557	1981 EU ₄₁
1981 EQ ₄₇	15.2	0.15	19990122	17.07249	279.64716	127.19990	1.65083	0.1527002	2.4291204	49	4	1981–1998	0.74	M-v	2	Williams	33332	1981 EQ ₄₇
1981 QF	14.5	0.15	19990122	85.09981	19.57837	341.98235	3.64714	0.2473060	2.5553363	30	8	1976–1998	0.94	M-v	2	Williams	30287	1981 QF
1981 QG	13.5	0.15	19990122	105.82125	341.63543	350.19315	1.19426	0.1906734	3.0567102	31	5	1981–1998	1.04	M-v	1	Williams	31781	1981 QG
1981 QJ ₂	14.4	0.15	19990122	13.61754	210.74048	152.46704	5.76527	0.1890884	2.2737967	26	2	1981–1998	0.88	M-v	4	Williams	33065	1981 QJ ₂
1981 QL ₂	15.3	0.15	19990122	16.35765	6.13549	358.67052	5.77297	0.1900431	2.2663646	53	3	1981–1998	0.67	M-v	3	Williams	32739	1981 QL ₂
1981 QW ₂	15.1	0.15	19990122	128.30739	271.53004	40.75746	3.72882	0.1773489	2.2104309	39	3	1981–1998	0.77	M-v	4	Williams	29132	1981 QW ₂
1981 QJ ₃	13.6	0.15	19990122	61.10488	200.29441	140.03429	2.62788	0.1885157	3.1133154	78	3	1981–1998	0.57	M-v	4	Williams	33332	1981 QJ ₃
1981 RB ₂	12.9	0.15	19990122	92.44159	47.27104	255.74388	12.92609	0.2012589	2.5874288	36	4	1981–1998	0.64	M-v	2	Williams	33332	1981 RB ₂
1981 RR ₃	14.2	0.15	19990122	77.33175	181.31714	170.29588	5.89673	0.2103326	2.2342064	26	3	1981–1998	0.59	M-v	4	Williams	27118	1981 RR ₃
1981 RW ₄	14.3	0.15	19990122	26.02338	334.01786	43.31377	3.88218	0.2252898	2.6133840	39	2	1981–1998	0.64	M-v	3	Williams	33332	1981 RW ₄
1981 TW ₁	14.1	0.15	19990122	123.46312	89.25810	238.25525	6.03267	0.2435476	2.2160365	28	5	1981–1998	0.83	M-v	2	Marsden	30090	1981 TW ₁
1981 UA ₂₃	15.0	0.15	19990122	4.12065	338.45114	93.05136	3.08555	0.1606578	2.2605262	32	2	1981–1998	0.59	M-v	5	Williams	33220	1981 UA ₂₃
1981 UT ₂₉	12.9	0.15	19990122	197.24969	50.12509	224.07384	9.20701	0.0943616	3.0387025	23	5	1981–1998	0.69	M-v	2	Williams	31272	1981 UT ₂₉
1981 WE ₉	14.2	0.15	19990122	111.32326	175.44644	179.61353	2.84150	0.1769196	2.2173644	20	6	1951–1998	0.71	M-v	2	Williams	25537	1981 WE ₉
1981 WJ ₉	14.6	0.15	19990122	355.19298	254.27136	192.01602	5.26441	0.1820935	2.6159186	22	2	1981–1998	0.64	M-v	5	Williams	33220	1981 WJ ₉
1981 YG	13.0	0.15	19990122	5.11127	216.48378	277.58305	14.82878	0.1313855	2.5828642	23	5	1981–1998	0.62	M-v	2	Williams	33333	1981 YG
1982 OF	13.6	0.15	19990122	102.58737	46.30407	303.52958	3.82135	0.2285959	2.4344035	29	6	1982–1998	0.75	M-v	2	Williams	31004	1982 OF
1982 SW ₃	14.8	0.15	19990122	60.56886	176.38792	202.45404	5.82120	0.2203037	2.1585704	23	3	1982–1998	0.83	M-v	3	Williams	33065	1982 SW ₃
1982 TK ₁	12.0	0.15	19990122	19.52594	176.04080	244.15344	9.79001	0.0857135	3.0089659	31	4	1930–1998	0.81	M-v	2	Williams	33333	1982 TK ₁
1982 US ₆	13.8	0.15	19990122	32.25455	323.16187	46.71664	8.06631	0.1577081	2.5351928	76	6	1982–1998	0.81	M-v	3	Williams	33333	1982 US ₆
1982 UC ₁₁	14.6	0.15	19990122	38.32512	133.10908	243.94160	3.41981	0.2086791	2.5194211	60	6	1982–1998	0.75	M-v	3	Marsden	33333	1982 UC ₁₁
1982 VP ₃	12.5	0.15	19990122	220.67541	200.47675	61.79071	13.57481	0.0585018	2.9428222	25	3	1982–1998	0.86	M-v	2	Williams	33065	1982 VP ₃
1982 VF ₄	15.1	0.15	19990122	64.49360	165.31659	206.21429	3.30854	0.2056989	2.1587224	36	4	1982–1998	0.65	M-v	2	Williams	30287	1982 VF ₄
1983 RP ₃	14.2	0.15	19990122	45.57161	196.72825	130.77071	3.09964	0.0630808	2.4137835	62	2	1983–1998	0.65	M-v	4	Williams	33333	1983 RP ₃
1984 BQ	13.2	0.15	19990122	333.04969	133.07624	52.74358	7.79188	0.0654287	2.3883893	42	5	1984–1998	0.74	M-v	2	Williams	31581	1984 BQ
1984 CP	14.0	0.15	19990122	288.43620	78.90070	125.48200	7.45097	0.1050852	2.4362770	50	7	1950–1998	0.73	M-v	2	Williams	30780	1984 CP
1984 HO ₁	14.6	0.15	19990122	208.28261	232.78198	22.97204	3.39973	0.1023884	2.1481412	31	6	1984–1998	0.81	M-v	1	Williams	30468	1984 HO ₁
1984 QB	13.0	0.15	19990122	167.30924	354.16002	310.57429	10.20267	0.2194456	2.6170441	22	6	1950–1998	0.86	M-v	2	Williams	31004	1984 QB
1984 QM	14.7	0.15	19990122	167.33487	343.10100	321.51486	3.26913	0.1785806	2.2050772	33	6	1970–1998	0.79	M-v	2	Marsden	30893	1984 QM

1984 QU	15.2	0.15	19990122	43.16379	26.53770	352.56650	5.21638	0.2496692	2.2765923	23	3	1984–1998	0.81	M-v	3	Williams	33333	1984 QU
1984 SL	12.8	0.15	19990122	49.52513	228.10226	157.37324	9.73410	0.3039270	2.7330034	26	3	1984–1998	0.86	M-v	3	Williams	25061	1984 SL
1984 SO ₄	13.8	0.15	19990122	84.03102	54.53487	286.57690	4.97755	0.1176250	2.2761186	61	3	1984–1998	0.71	M-v	4	Williams	33333	1984 SO ₄
1984 UR	13.6	0.15	19990122	20.36346	306.89503	48.62745	7.23903	0.1837596	2.3339299	22	4	1984–1998	0.88	M-v	3	Williams	33066	1984 UR
1984 WJ ₁	13.7	0.15	19990122	34.74759	351.32513	34.58815	10.75757	0.2047606	2.3195787	43	2	1984–1999	0.67	M-v	3	Williams	33333	1984 WJ ₁
1984 YL ₁	14.1	0.15	19990122	27.78545	41.98265	65.35267	6.22831	0.1363526	2.2655398	22	4	1984–1998	0.86	M-v	2	Williams	33333	1984 YL ₁
1984 YE ₄	13.9	0.15	19990122	345.04766	348.32239	74.49639	6.51884	0.1437835	2.3560202	34	5	1984–1998	0.71	M-v	2	Williams	32740	1984 YE ₄
1985 CU ₁	14.1	0.15	19990122	10.87283	119.87957	324.19076	24.14880	0.2375249	2.3325970	58	3	1985–1998	0.71	M-v	3	Williams	33333	1985 CU ₁
1985 CS ₂	13.8	0.15	19990122	306.66651	294.42843	295.43609	3.99074	0.0927729	2.2925351	49	5	1978–1998	0.80	M-v	2	Williams	31135	1985 CS ₂
1985 HH	13.7	0.15	19990122	247.99655	80.08985	157.48461	2.46710	0.1796912	2.3762132	52	5	1982–1998	0.67	M-v	1	Williams	30893	1985 HH
1985 PL	13.4	0.15	19990122	76.76518	31.45545	320.53480	12.79503	0.2250743	2.5715293	31	7	1950–1998	0.78	M-v	2	Williams	29133	1985 PL
1985 PO	13.8	0.15	19990122	99.02887	201.14330	145.55519	3.41645	0.1433040	2.5420161	52	9	1949–1998	1.03	M-v	2	Williams	31004	1985 PO
1985 PT	13.6	0.15	19990122	24.71617	201.34569	139.66320	12.89495	0.2015540	2.6651508	49	3	1985–1998	0.81	M-v	2	Williams	32740	1985 PT
1985 PE ₁	14.5	0.15	19990122	92.22235	8.99625	308.64754	3.14365	0.2382158	2.1629788	39	4	1979–1998	0.68	M-v	3	Williams	33333	1985 PE ₁
1985 PB ₂	13.2	0.15	19990122	63.01598	213.10660	145.61870	14.10130	0.2004846	2.5935575	19	4	1983–1998	0.69	M-v	2	Williams	33333	1985 PB ₂
1985 QP	15.2	0.15	19990122	45.79740	0.58647	357.85695	3.14656	0.1772475	2.1857846	81	4	1971–1998	0.81	M-v	2	Williams	33333	1985 QP
1985 QP ₅	13.5	0.15	19990122	139.72177	307.27449	358.29550	14.16276	0.0959594	2.5511235	28	7	1965–1998	0.82	M-v	2	Williams	33333	1985 QP ₅
1985 QD ₆	14.9	0.15	19990122	97.52249	225.33187	121.88057	5.17864	0.2954824	2.5529059	19	4	1985–1998	1.15	M-v	4	Williams	33333	1985 QD ₆
1985 RU	13.6	0.15	19990122	94.51802	31.07829	318.41719	16.56901	0.3340237	2.5627111	21	5	1985–1998	0.78	M-v	2	Williams	22492	1985 RU
1985 RD ₃	15.2	0.15	19990122	7.55870	272.17428	117.19897	2.42723	0.1212774	2.1909049	77	4	1969–1998	0.71	M-v	2	Williams	33066	1985 RD ₃
1985 RJ ₃	12.8	0.15	19990122	228.50642	92.83651	174.07996	1.84142	0.1368145	3.1095094	54	5	1969–1998	0.64	M-v	1	Williams	31415	1985 RJ ₃
1985 RN ₃	15.0	0.15	19990122	62.90649	342.16177	353.67705	4.63113	0.1590231	2.1797098	54	2	1985–1998	0.59	M-v	4	Williams	33333	1985 RN ₃
1985 SX ₂	13.6	0.15	19990122	27.17480	77.92384	323.70697	3.67483	0.1401685	2.6207331	51	3	1981–1998	0.69	M-v	2	Williams	33333	1985 SX ₂
1985 SM ₃	14.1	0.15	19990122	63.99495	83.27222	308.18749	3.85686	0.1414275	2.1523723	44	5	1985–1998	0.81	M-v	2	Williams	33066	1985 SM ₃
1985 UA ₅	13.1	0.15	19990122	18.55954	336.74670	59.10648	15.43272	0.2048019	2.6681535	24	2	1985–1998	0.65	M-v	3	Williams	33220	1985 UA ₅
1986 EK ₁	13.1	0.15	19990122	277.55881	107.73463	6.49634	23.33422	0.2315490	2.3222184	25	4	1986–1998	0.93	M-v	2	Williams	32740	1986 EK ₁
1986 JC	13.6	0.15	19990122	170.12140	176.19752	101.81596	8.32386	0.2403658	2.3379679	38	7	1954–1998	0.82	M-v	1	Williams	33333	1986 JC
1986 PN ₄	11.7	0.15	19990122	116.54922	13.28159	310.87289	15.48455	0.1944467	3.0692579	27	4	1981–1998	0.86	M-v	2	Williams	30893	1986 PN ₄
1986 QU	13.1	0.15	19990122	98.85177	322.15257	15.69718	3.53835	0.1548863	3.0934859	42	3	1986–1998	0.63	M-v	4	Williams	31581	1986 QU
1986 QZ ₁	12.7	0.15	19990122	51.07152	262.52062	148.82578	10.66397	0.0613848	3.0281511	43	4	1986–1998	0.76	M-v	2	Williams	30893	1986 QZ ₁
1986 QS ₃	12.8	0.15	19990122	183.33887	148.42206	141.05842	11.25302	0.0687462	3.0072974	55	7	1986–1998	0.60	M-v	1	Williams	30894	1986 QS ₃
1986 RP ₅	13.4	0.15	19990122	40.71631	13.09191	15.17525	14.32297	0.2345315	3.1833887	35	3	1986–1998	0.67	M-v	4	Williams	33333	1986 RP ₅
1986 RB ₁₂	11.8	0.15	19990122	55.29334	85.80962	265.19761	14.68019	0.1177981	3.1936270	35	3	1986–1998	0.68	M-v	3	Williams	33333	1986 RB ₁₂
1986 TG ₁	13.4	0.15	19990122	19.22406	357.58862	359.10125	14.94102	0.1268446	2.5658171	46	4	1986–1998	0.76	M-v	3	Williams	33066	1986 TG ₁
1986 TV ₆	13.4	0.15	19990122	58.27046	356.06952	325.86664	7.44315	0.1905114	2.5578628	72	3	1986–1998	0.64	M-v	3	Williams	33066	1986 TV ₆
1986 TT ₁₁	13.5	0.15	19990122	30.31164	329.23274	4.85014	13.93556	0.1905690	2.5674602	39	5	1986–1998	0.73	M-v	2	Williams	33066	1986 TT ₁₁
1986 XT	14.8	0.15	19990122	17.64721	17.92452	355.16325	3.30612	0.2959929	2.5605355	100	7	1986–1998	0.76	M-v	2	Williams	33066	1986 XT
1987 BS ₁	13.6	0.15	19990122	349.08251	150.77427	295.08194	12.26407	0.1269048	2.5842123	54	6	1987–1998	0.74	M-v	2	Williams	33333	1987 BS ₁
1987 DK ₆	14.3	0.15	19990122	184.06023	293.36783	326.20235	2.48241	0.1822779	2.1646379	50	4	1987–1998	0.61	M-v	2	Williams	29940	1987 DK ₆
1987 GA	12.9	0.15	19990122	218.89267	167.21752	49.65780	11.07049	0.1970804	2.6814062	58	3	1934–1998	0.98	M-v	4	Williams	33333	1987 GA
1987 QH	14.6	0.15	19990122	49.25881	6.67211	318.59549	8.25084	0.2889581	2.3648924	46	2	1987–1998	0.78	M-v	3	Williams	32740	1987 QH
1987 QT	15.3	0.15	19990122	14.27366	45.79220	334.40732	8.34294	0.2201806	2.3810971	52	2	1987–1998	0.96	M-v	4	Williams	33333	1987 QT
1987 QC ₃	14.3	0.15	19990122	60.43237	77.33436	307.67779	5.72744	0.1239640	2.2922016	40	3	1987–1998	0.81	M-v	2	Williams	33066	1987 QC ₃
1987 QS ₅	13.5	0.15	19990122	21.96360	29.27774	333.56427	10.53075	0.1372537	3.0822772	80	3	1987–1998	0.70	M-v	3	Williams	33066	1987 QS ₅
1987 RR	13.2	0.15	19990122	12.78683	208.97530	156.62515	12.88266	0.1888005	3.1079324	87	2	1987–1998	0.69	M-v	3	Williams	33066	1987 RR
1987 SP ₁	14.3	0.15	19990122	104.12873	355.35130	352.41567	5.30131	0.1789984	2.2935561	13	5	1955–1998	0.85	M-v	2	Williams	25537	1987 SP ₁
1987 SJ ₂	14.6	0.15	19990122	55.33134	171.35700	140.01756	2.70039	0.1769340	2.4002600	59	3	1972–1998	0.65	M-v	3	Williams	33333	1987 SJ ₂
1987 SZ ₂	14.5	0.15	19990122	101.92880	355.41398	26.69424	7.45761	0.1359904	2.2639744	22	4	1953–1998	0.56	M-v	2	Marsden	28613	1987 SZ ₂
1987 SV ₃	14.1	0.15	19990122	88.13563	331.81754	3.87440	9.22402	0.1607076	2.3212423	56	4	1980–1998	0.72	M-v	3	Williams	33333	1987 SV ₃
1987 SL ₅	14.6	0.15	19990122	346.73310	210.73978	225.56464	4.47833	0.2024767	2.3777794	45	2	1987–1998	0.55	M-v	4	Williams	33333	1987 SL ₅
1987 SM ₁₂	13.5	0.15	19990122	77.06407	42.71310	340.93021	1.23636	0.0755048	2.9021073	44	5	1980–1998	0.56	M-v	2	Williams	30894	1987 SM ₁₂
1987 SP ₁₂	13.5	0.15	19990122	14.73595	187.32053	186.43247	2.72355	0.2665186	3.1080573	77	3	1976–1998	0.70	M-v	2	Williams	33333	1987 SP ₁₂
1987 SR ₁₂	13.8	0.15	19990122	152.28940	116.30882	177.58368	4.28217	0.1565732	2.2781844	46	6	1976–1998	0.67	M-v	1	Williams	33333	1987 SR ₁₂

1987 SD ₁₃	15.1	0.15	19990122	16.39496	333.59057	65.19891	1.92676	0.1934657	2.3631896	70	2	1987–1998	0.77	M-v	3	Williams	33333	1987 SD ₁₃
1987 UR	13.5	0.15	19990122	42.91970	19.59082	23.89589	6.00397	0.2670732	3.0149530	25	3	1961–1998	0.72	M-v	2	Williams	33334	1987 UR
1987 UT	14.5	0.15	19990122	72.94730	49.00845	296.23800	4.12829	0.2408910	2.3317586	39	3	1987–1998	0.73	M-v	2	Williams	33334	1987 UT
1987 UX	14.8	0.15	19990122	37.35328	159.87755	205.34996	24.44629	0.2443989	2.3846855	60	2	1987–1998	0.71	M-v	3	Williams	33334	1987 UX
1987 UA ₁	13.7	0.15	19990122	61.15246	122.61981	235.91069	11.37534	0.1409645	2.3613324	69	2	1987–1998	0.75	M-v	4	Williams	33334	1987 UA ₁
1987 VR	12.8	0.15	19990122	9.83563	218.81056	212.52027	9.00630	0.0752416	3.0594400	75	4	1987–1998	0.57	M-v	2	Williams	33334	1987 VR
1987 WP	13.3	0.15	19990122	284.03226	293.65742	234.19372	21.08591	0.2787804	2.4027516	19	2	1987–1998	0.55	M-v	4	Williams	33221	1987 WP
1987 WF ₁	13.6	0.15	19990122	64.92512	133.13150	233.57384	23.00345	0.2781932	2.3529749	41	3	1987–1998	0.61	M-v	2	Williams	33334	1987 WF ₁
1987 WJ ₁	13.1	0.15	19990122	12.79496	357.30802	33.11954	7.11128	0.1394778	3.1475892	67	4	1987–1998	0.61	M-v	2	Williams	33334	1987 WJ ₁
1987 YU ₁	10.7	0.15	19990122	18.29665	176.69733	227.57703	21.10646	0.1249788	5.1687672	34	4	1986–1998	0.73	M-v	1	Williams	33334	1987 YU ₁
1988 BL ₅	14.1	0.15	19990122	341.30176	145.47203	282.94047	11.83686	0.1198287	2.5213098	12	4	1984–1998	0.90	M-v	3	Williams	19501	1988 BL ₅
1988 CO ₁	14.0	0.15	19990122	32.83163	315.27075	126.50931	3.97659	0.1394367	2.3711957	39	4	1988–1998	1.03	M-v	2	Williams	33334	1988 CO ₁
1988 CU ₁	14.7	0.15	19990122	271.25633	198.69002	339.45618	1.65268	0.1199977	2.4393016	32	5	1988–1998	0.85	M-v	2	Williams	33334	1988 CU ₁
1988 CH ₅	15.3	0.15	19990122	340.67723	212.54851	270.66785	5.45421	0.0865921	2.4326214	50	3	1988–1998	0.57	M-v	3	Williams	30780	1988 CH ₅
1988 CF ₆	13.3	0.15	19990122	4.93150	237.85445	260.16508	3.64780	0.1408807	2.3725724	26	4	1979–1998	0.56	M-v	2	Williams	33334	1988 CF ₆
1988 DE	13.2	0.15	19990122	217.02404	173.58346	352.94385	13.28378	0.0965546	2.5835688	55	2	1988–1998	0.69	M-v	3	Williams	33334	1988 DE
1988 FE	13.9	0.15	19990122	314.11292	139.49221	47.69132	10.28682	0.1807139	2.4142220	34	3	1988–1998	0.86	M-v	2	Williams	33334	1988 FE
1988 FS ₂	14.0	0.15	19990122	300.84440	202.32741	8.12931	2.53925	0.1370829	2.4097882	41	5	1988–1998	0.77	M-v	2	Williams	30894	1988 FS ₂
1988 GL	13.7	0.15	19990122	269.75360	149.11845	67.96288	15.24310	0.1910721	2.4442016	47	5	1988–1998	0.82	M-v	1	Williams	30894	1988 GL
1988 KA	13.8	0.15	19990122	126.17868	222.45143	86.22780	3.80566	0.1902051	2.1392624	55	9	1982–1998	0.95	M-v	2	Williams	30288	1988 KA
1988 PL	15.1	0.15	19990122	72.27709	135.53911	206.32478	1.96605	0.1389675	2.1848293	44	5	1971–1998	0.94	M-v	2	Williams	33334	1988 PL
1988 PU	12.1	0.15	19990122	165.79466	20.96315	251.54787	11.62596	0.1391650	2.6996392	21	2	1988–1998	0.74	M-v	4	Williams	33221	1988 PU
1988 PG ₁	13.4	0.15	19990122	117.15780	20.89763	315.24468	12.19419	0.2003567	2.7125694	25	6	1955–1998	0.82	M-v	2	Williams	30686	1988 PG ₁
1988 RZ ₂	14.4	0.15	19990122	202.38808	264.05408	12.69306	4.97724	0.2340157	2.6746527	25	6	1978–1998	0.66	M-v	1	Williams	30894	1988 RZ ₂
1988 RQ ₈	14.9	0.15	19990122	68.86767	288.45778	37.92410	4.92854	0.1809618	2.2252947	55	6	1949–1998	0.80	M-v	2	Williams	33334	1988 RQ ₈
1988 RL ₉	13.8	0.15	19990122	2.26151	62.94558	328.12688	5.11877	0.1064266	2.2138191	66	3	1988–1998	0.78	M-v	2	Williams	33334	1988 RL ₉
1988 RV ₁₂	11.9	0.15	19990122	333.60514	307.75660	186.33618	16.22722	0.1663899	3.9869002	20	4	1988–1998	0.72	M-v	2	Williams	29656	1988 RV ₁₂
1988 RA ₁₃	14.9	0.15	19990122	143.31259	84.80287	194.70690	4.45748	0.1478599	2.1674460	28	2	1988–1998	0.66	M-v	5	Williams	33221	1988 RA ₁₃
1988 RF ₁₃	14.0	0.15	19990122	129.31856	270.85139	31.42553	17.12106	0.1444070	2.7532361	25	4	1988–1998	0.53	M-v	2	Williams	33334	1988 RF ₁₃
1988 SZ ₂	12.9	0.15	19990122	261.00928	79.84629	124.45506	2.99284	0.0351968	3.9775114	38	6	1981–1998	0.83	M-v	1	Williams	31136	1988 SZ ₂
1988 TT	13.0	0.15	19990122	21.30803	337.82527	4.29597	10.83102	0.1005421	3.0069969	66	5	1988–1998	0.80	M-v	2	Williams	33334	1988 TT
1988 UO	12.2	0.15	19990122	142.68918	309.49151	31.36983	9.72012	0.1868524	2.7291260	46	4	1988–1998	0.67	M-v	2	Williams	33334	1988 UO
1988 UV	14.9	0.15	19990122	341.57614	206.57178	212.66924	7.46320	0.0972627	2.2510895	64	4	1978–1998	0.77	M-v	4	Williams	33067	1988 UV
1988 VK	14.3	0.15	19990122	67.81939	267.91942	110.36656	5.78245	0.1551008	2.1946509	29	4	1988–1998	0.85	M-v	2	Williams	26419	1988 VK
1988 VR ₂	13.6	0.15	19990122	354.66378	0.55613	88.20137	13.23089	0.2722590	2.9345172	46	3	1988–1998	0.85	M-v	3	Williams	33334	1988 VR ₂
1988 VM ₃	14.3	0.15	19990122	119.97612	340.93001	357.79491	2.21464	0.1696035	2.1712803	40	5	1950–1998	0.60	M-v	2	Williams	31582	1988 VM ₃
1988 VP ₃	15.0	0.15	19990122	19.43658	17.40799	34.18135	6.05742	0.1250476	2.2309305	50	4	1981–1998	0.83	M-v	3	Williams	33334	1988 VP ₃
1988 XK	12.6	0.15	19990122	321.04715	262.71608	236.99343	6.90899	0.1767790	2.9084537	35	6	1953–1998	0.71	M-v	1	Williams	22272	1988 XK
1988 XT ₁	12.4	0.15	19990122	342.30925	6.79086	41.76685	18.02798	0.3022933	3.0531785	28	3	1988–1998	0.64	M-v	2	Williams	32741	1988 XT ₁
1989 AB ₃	12.6	0.15	19990122	28.06734	300.09080	113.71859	11.13384	0.0998270	3.0132932	23	4	1955–1998	0.85	M-v	3	Williams	29656	1989 AB ₃
1989 AN ₅	13.9	0.15	19990122	13.18411	281.33899	129.25010	9.94039	0.1165989	3.0689090	27	3	1989–1998	0.73	M-v	4	Williams	33334	1989 AN ₅
1989 AL ₆	15.0	0.15	19990122	112.77729	247.05666	112.88974	1.78801	0.0890665	2.2391268	26	5	1986–1998	0.61	M-v	2	Williams	33067	1989 AL ₆
1989 AV ₆	13.8	0.15	19990122	199.73969	172.42428	116.44463	6.99687	0.1879093	2.2420881	21	2	1989–1998	0.55	M-v	4	Williams	32920	1989 AV ₆
1989 CX	13.9	0.15	19990122	294.10820	145.90988	328.27476	24.36475	0.2296341	2.3467895	69	3	1989–1998	0.71	M-v	3	Williams	33067	1989 CX
1989 CT ₂	14.2	0.15	19990122	103.36371	72.95948	225.22385	5.79299	0.1080762	2.3725711	59	5	1983–1998	0.71	M-v	1	Williams	33334	1989 CT ₂
1989 CW ₂	12.2	0.15	19990122	173.93085	39.19467	257.44309	9.02094	0.0654907	2.9976670	23	4	1989–1998	1.04	M-v	2	Williams	27911	1989 CW ₂
1989 CF ₃	15.3	0.15	19990122	230.04703	312.28617	243.15999	6.49990	0.0458863	2.3372491	23	2	1989–1998	0.70	M-v	4	Williams	33222	1989 CF ₃
1989 CW ₇	14.8	0.15	19990122	36.61022	220.30383	199.06291	3.49551	0.1162673	2.2380633	20	2	1989–1998	0.67	M-v	5	Williams	33222	1989 CW ₇
1989 CB ₈	14.4	0.15	19990122	291.29430	207.98952	347.20157	2.27073	0.0955249	2.2611316	49	6	1955–1998	0.49	M-v	1	Williams	30780	1989 CB ₈
1989 CJ ₈	13.9	0.15	19990122	158.60130	65.80333	145.15594	8.65989	0.1933025	2.4691478	87	4	1989–1998	0.79	M-v	3	Williams	32741	1989 CJ ₈
1989 EG ₁	14.7	0.15	19990122	356.55374	4.28212	159.06975	5.46114	0.1028810	2.2305903	43	5	1989–1998	0.67	M-v	1	Williams	30894	1989 EG ₁
1989 ET ₁	14.3	0.15	19990122	339.07109	88.17945	37.10294	6.24050	0.1058932	2.2942694	23	4	1984–1998	0.68	M-v	2	Williams	33067	1989 ET ₁
1989 GF ₁	14.3	0.15	19990122	7.32752	151.04546	338.40213	3.74219	0.1048214	2.2778296	37	5	1989–1998	0.55	M-v	1	Williams	33334	1989 GF ₁

1989 GY ₁	14.3	0.15	19990122	217.46676	20.90079	1.70108	9.21703	0.1677561	2.7988826	36	2	1989–1998	0.88	M-v	4	Williams	33223	1989 GY ₁
1989 GJ ₂	14.0	0.15	19990122	57.16367	166.29782	229.80255	7.18783	0.1115982	2.3616784	38	6	1976–1998	0.78	M-v	1	Williams	30469	1989 GJ ₂
1989 GH ₄	14.4	0.15	19990122	159.07332	318.79118	351.16742	4.94015	0.0218913	2.3256079	39	7	1951–1998	0.97	M-v	1	Williams	28613	1989 GH ₄
1989 GR ₄	14.3	0.15	19990122	11.89051	303.09711	186.65842	4.09400	0.1136424	2.2663787	63	5	1989–1998	0.71	M-v	1	Williams	33334	1989 GR ₄
1989 LT	14.2	0.15	19990122	210.60278	247.60480	0.83714	1.69656	0.1442266	2.4107972	45	6	1989–1998	0.83	M-v	1	Williams	30894	1989 LT
1989 OL	14.0	0.15	19990122	125.85923	249.84554	46.87677	13.05971	0.1368032	2.5374028	30	5	1977–1998	0.78	M-v	3	Williams	33334	1989 OL
1989 PF	13.5	0.15	19990122	26.64345	190.83068	147.53325	18.70779	0.2412495	2.7448555	39	3	1984–1998	0.75	M-v	2	Williams	33067	1989 PF
1989 PK	13.6	0.15	19990122	99.63122	5.70371	328.18376	20.28249	0.3180334	2.5969099	27	4	1989–1998	0.75	M-v	2	Williams	26924	1989 PK
1989 RB	13.9	0.15	19990122	110.29897	324.18327	1.10131	19.72242	0.3241807	2.5617002	33	4	1985–1998	0.86	M-v	2	Williams	22081	1989 RB
1989 RX	13.2	0.15	19990122	23.88862	131.58717	237.14577	7.16910	0.2005762	2.6898109	32	2	1989–1998	0.72	M-v	3	Williams	33067	1989 RX
1989 RD ₁	13.5	0.15	19990122	45.10819	261.13573	87.02976	13.28279	0.1936223	2.6662341	40	3	1989–1998	0.72	M-v	3	Williams	33334	1989 RD ₁
1989 RY ₁	13.8	0.15	19990122	45.82044	147.98789	156.76394	15.25413	0.2790506	2.7628831	50	2	1989–1998	0.70	M-v	3	Williams	33067	1989 RY ₁
1989 SA	13.7	0.15	19990122	76.84391	298.86771	78.28578	13.92482	0.1878874	2.5882650	18	3	1976–1998	0.67	M-v	4	Williams	22081	1989 SA
1989 SU	13.4	0.15	19990122	141.45955	31.73713	292.30512	4.10725	0.2371199	2.5317395	26	4	1989–1998	0.88	M-v	4	Williams	30894	1989 SU
1989 SJ ₂	14.4	0.15	19990122	154.29426	120.39487	172.19782	13.27909	0.1525953	2.5799505	25	4	1989–1998	1.06	M-v	4	Williams	30686	1989 SJ ₂
1989 ST ₃	15.3	0.15	19990122	22.62281	307.14473	136.01538	3.03474	0.1105630	2.6060613	30	3	1989–1998	0.81	M-v	3	Williams	30447	1989 ST ₃
1989 SZ ₃	13.7	0.15	19990122	97.27052	219.35062	113.62959	4.02919	0.1178274	2.6378249	24	3	1989–1998	0.89	M-v	6	Williams	24562	1989 SZ ₃
1989 SN ₄	13.6	0.15	19990122	246.44626	52.57856	157.29118	4.25457	0.1292942	2.5996896	42	6	1979–1998	1.04	M-v	2	Williams	33067	1989 SN ₄
1989 SV ₅	14.4	0.15	19990122	9.84171	47.48216	71.95120	6.28146	0.1834310	2.5687066	26	4	1981–1998	1.00	M-v	3	Williams	33335	1989 SV ₅
1989 SW ₈	13.7	0.15	19990122	40.22499	189.35316	183.14618	13.40886	0.1907534	2.6737429	58	3	1989–1998	0.65	M-v	3	Williams	33335	1989 SW ₈
1989 SY ₁₃	13.9	0.15	19990122	294.32873	216.52969	296.64162	12.05724	0.1096346	2.6534191	21	3	1989–1998	0.76	M-v	4	Williams	33335	1989 SY ₁₃
1989 TH ₁	13.0	0.15	19990122	23.99983	45.62572	344.09927	8.20858	0.2918519	2.7163659	61	4	1962–1998	0.82	M-v	2	Williams	33335	1989 TH ₁
1989 TM ₁	13.4	0.15	19990122	55.79859	38.34755	21.95751	9.92588	0.1659245	2.5958802	40	4	1989–1998	0.76	M-v	1	Williams	33335	1989 TM ₁
1989 TN ₁	14.6	0.15	19990122	354.73383	56.35568	342.27958	11.15496	0.2348145	2.7477831	51	2	1989–1998	0.66	M-v	4	Williams	33067	1989 TN ₁
1989 TU ₁	12.9	0.15	19990122	30.24030	160.14858	260.62368	6.66182	0.2841303	2.6699492	51	3	1989–1998	0.60	M-v	2	Williams	33335	1989 TU ₁
1989 TR ₁₁	13.4	0.15	19990122	78.95652	324.53549	14.47322	12.79898	0.1977895	2.6463637	36	3	1979–1998	0.77	M-v	3	Williams	33335	1989 TR ₁₁
1989 TF ₁₄	13.8	0.15	19990122	171.54095	201.14529	72.07929	3.34637	0.0772235	2.5704845	26	4	1989–1998	0.61	M-v	2	Williams	29611	1989 TF ₁₄
1989 TA ₁₆	14.5	0.15	19990122	133.55814	71.52810	233.10290	2.29215	0.1642194	2.5860757	33	6	1981–1998	0.67	M-v	1	Williams	30470	1989 TA ₁₆
1989 TD ₁₆	13.5	0.15	19990122	44.11835	4.94747	348.66325	2.96091	0.0986660	2.7097352	68	3	1989–1998	0.67	M-v	3	Williams	33335	1989 TD ₁₆
1989 UA	12.9	0.15	19990122	87.34366	7.27182	45.59283	10.77177	0.0980850	2.5463259	50	6	1954–1998	0.73	M-v	2	Williams	31136	1989 UA
1989 UL	13.3	0.15	19990122	349.08859	189.28257	217.97607	5.43878	0.1386330	2.7783029	74	4	1980–1998	0.77	M-v	2	Williams	33067	1989 UL
1989 UR	18.5	0.15	19990122	348.74443	289.26005	234.58951	10.30854	0.3559468	1.0802414	156	3	1989–1998	0.66	M-v	3	Williams	33335	1989 UR
1989 UL ₁	13.2	0.15	19990122	143.81364	293.91460	44.59402	10.25826	0.1121273	2.5600128	48	6	1971–1998	0.78	M-v	1	Williams	31783	1989 UL ₁
1989 US ₁	13.3	0.15	19990122	73.78915	339.31681	31.88237	13.86853	0.2350536	2.6362291	39	3	1989–1998	0.95	M-v	3	Williams	33067	1989 US ₁
1989 UG ₃	13.4	0.15	19990122	59.54304	320.13904	87.86667	4.91081	0.1612792	2.6104792	30	5	1982–1998	0.70	M-v	2	Williams	30895	1989 UG ₃
1989 UJ ₃	13.7	0.15	19990122	165.48318	291.20380	359.67470	13.10339	0.1835280	2.5569968	24	5	1989–1998	0.70	M-v	1	Williams	31005	1989 UJ ₃
1989 UA ₆	11.9	0.15	19990122	159.82264	214.51304	58.30982	3.64243	0.1650236	3.9692305	34	6	1977–1998	0.78	M-v	1	Williams	30895	1989 UA ₆
1989 UX ₇	13.9	0.15	19990122	32.50688	155.72614	228.88972	13.88436	0.2912036	2.6900513	57	2	1989–1998	0.71	M-v	3	Williams	33335	1989 UX ₇
1989 VS ₂	13.0	0.15	19990122	103.48957	267.28229	60.96704	14.11818	0.1900470	2.6550783	21	3	1989–1998	0.64	M-v	4	Williams	30870	1989 VS ₂
1989 WH	14.2	0.15	19990122	1.96805	196.77853	223.83127	8.62578	0.1443179	2.7590653	44	2	1989–1998	0.84	M-v	4	Williams	33335	1989 WH
1989 WD ₃	13.9	0.15	19990122	336.57027	227.97489	241.99883	5.07695	0.1488283	2.7340107	48	3	1989–1998	0.82	M-v	4	Williams	33335	1989 WD ₃
1989 WU ₄	13.9	0.15	19990122	14.73217	149.15070	275.62645	3.53006	0.0700519	2.7140942	36	3	1989–1998	0.70	M-v	5	Marsden	33335	1989 WU ₄
1989 XD ₂	14.7	0.15	19990122	66.60158	260.01444	124.57722	7.15112	0.2299918	2.6367306	27	4	1982–1998	0.52	M-v	1	Williams	30470	1989 XD ₂
1990 DA ₃	13.5	0.15	19990122	24.66527	315.00422	117.14665	3.16193	0.0452860	2.8339021	38	7	1988–1998	0.49	M-v	1	Williams	30686	1990 DA ₃
1990 EF ₂	15.0	0.15	19990122	256.29347	301.67292	253.08460	3.70847	0.0764186	2.1718903	24	3	1990–1998	0.64	M-v	3	Williams	33224	1990 EF ₂
1990 EN ₃	14.8	0.15	19990122	152.62611	38.84421	210.16344	5.16065	0.0879811	2.2583909	38	3	1990–1998	0.86	M-v	4	Williams	33335	1990 EN ₃
1990 FK ₁	12.2	0.15	19990122	162.05201	68.42237	175.25133	11.45668	0.1695391	3.1790191	40	4	1984–1998	0.68	M-v	2	Williams	33335	1990 FK ₁
1990 HG	13.8	0.15	19990122	190.49918	166.65683	49.17723	23.75356	0.0753661	2.2810886	24	4	1981–1998	0.79	M-v	2	Williams	33335	1990 HG
1990 KX	13.6	0.15	19990122	207.64303	168.12144	104.92212	5.43644	0.1487312	2.2098611	31	6	1981–1998	0.61	M-v	2	Williams	31417	1990 KX
1990 OX ₁	13.8	0.15	19990122	66.76703	280.06493	86.99445	5.73302	0.1187426	2.3967169	54	4	1989–1998	0.65	M-v	3	Williams	33335	1990 OX ₁
1990 OF ₂	14.6	0.15	19990122	102.65985	349.99940	353.99262	5.01470	0.2414917	2.3593166	19	5	1971–1998	0.84	M-v	2	Williams	27119	1990 OF ₂
1990 OH ₂	12.5	0.15	19990122	214.85794	280.16835	349.40952	4.77885	0.1844020	3.1669038	20	4	1985–1996	0.61	M-v	1	Williams	29657	1990 OH ₂
1990 ON ₂	14.2	0.15	19990122	206.91429	281.02540	2.40910	3.18504	0.0765477	2.2591568	29	7	1950–1998	0.83	M-v	2	Williams	31005	1990 ON ₂

1990 OX ₂	15.3	0.15	19990122	85.75812	206.57779	131.08838	3.04723	0.2364533	2.4009716	21	4	1990–1998	0.66	M-v	1	Williams	30289	1990 OX ₂
1990 OY ₃	14.3	0.15	19990122	105.74285	6.20200	324.92744	5.97503	0.1349935	2.3710899	31	4	1989–1998	0.82	M-v	3	Williams	29657	1990 OY ₃
1990 QB	14.6	0.15	19990122	94.21385	56.73016	332.42084	21.84871	0.2533173	2.3329486	38	9	1975–1998	0.75	M-v	1	Williams	30686	1990 QB
1990 QT ₁	15.1	0.15	19990122	94.34019	197.79299	132.99913	2.93742	0.2207011	2.4109505	40	3	1990–1998	0.86	M-v	3	Williams	30470	1990 QT ₁
1990 QB ₂	14.5	0.15	19990122	114.85143	150.55778	171.86696	2.08525	0.2162348	2.3833953	37	6	1979–1998	0.83	M-v	1	Williams	30289	1990 QB ₂
1990 QN ₂	14.2	0.15	19990122	133.22056	335.50928	346.62066	7.09228	0.1376039	2.3565544	26	4	1954–1998	1.04	M-v	2	Williams	25440	1990 QN ₂
1990 QB ₅	14.1	0.15	19990122	18.17817	337.12207	67.03695	5.92338	0.1816939	2.4621600	32	3	1990–1998	0.60	M-v	3	Williams	33335	1990 QB ₅
1990 QO ₅	15.3	0.15	19990122	167.12289	213.55421	74.42344	1.70157	0.1243368	2.3333823	31	4	1990–1998	0.78	M-v	2	Williams	30470	1990 QO ₅
1990 QR ₅	13.2	0.15	19990122	201.47126	171.72833	125.88893	2.61011	0.1759147	3.1867579	27	4	1972–1998	0.75	M-v	2	Williams	30653	1990 QR ₅
1990 QB ₆	13.6	0.15	19990122	114.74112	318.61503	359.01966	12.39052	0.2323784	2.4027175	23	4	1979–1998	0.69	M-v	2	Williams	22229	1990 QB ₆
1990 QN ₇	14.2	0.15	19990122	162.48022	226.07536	37.84101	2.72430	0.1913594	2.3779705	37	3	1990–1998	0.73	M-v	4	Williams	33335	1990 QN ₇
1990 RE ₂	14.1	0.15	19990122	38.15763	192.97413	195.24567	3.54076	0.1974719	2.4576351	68	6	1986–1998	0.79	M-v	2	Williams	33335	1990 RE ₂
1990 RN ₃	13.7	0.15	19990122	159.77381	94.14226	180.19855	5.48068	0.2020984	2.3769969	30	4	1990–1998	0.94	M-v	1	Williams	30686	1990 RN ₃
1990 RA ₇	13.8	0.15	19990122	245.25244	51.97178	164.35980	10.08161	0.2256641	2.3087408	34	4	1989–1998	0.86	M-v	2	Williams	27444	1990 RA ₇
1990 RA ₈	15.8	0.15	19990122	84.56040	352.93778	7.30322	2.53259	0.1888503	2.3926266	30	3	1990–1998	0.75	M-v	4	Williams	27103	1990 RA ₈
1990 RM ₉	14.3	0.15	19990122	81.44799	105.29940	245.22791	5.37435	0.2626237	2.4051152	36	4	1990–1998	0.55	M-v	1	Williams	33335	1990 RM ₉
1990 RP ₉	13.5	0.15	19990122	150.83531	44.01302	247.48095	5.61737	0.1150916	2.3589476	44	5	1971–1998	0.69	M-v	1	Williams	30686	1990 RP ₉
1990 RF ₁₇	13.3	0.15	19990122	325.19954	225.88717	193.21220	13.44637	0.1612259	2.5760193	25	3	1986–1998	0.64	M-v	3	Williams	33068	1990 RF ₁₇
1990 SZ	13.7	0.15	19990122	342.81924	72.81664	346.98770	10.57808	0.1753616	2.5411142	60	6	1986–1998	0.74	M-v	2	Williams	33335	1990 SZ
1990 SF ₄	14.1	0.15	19990122	67.75388	56.19913	230.44723	10.59245	0.2220445	2.5462838	45	3	1990–1998	0.76	M-v	4	Williams	33068	1990 SF ₄
1990 SK ₆	13.9	0.15	19990122	266.79048	175.04676	30.04759	7.71447	0.0622852	2.3538346	31	7	1978–1998	0.71	M-v	1	Williams	30781	1990 SK ₆
1990 SN ₆	14.2	0.15	19990122	147.86734	182.18573	122.30911	4.86019	0.0802941	2.3805882	33	4	1990–1998	0.83	M-v	2	Williams	30687	1990 SN ₆
1990 SR ₆	14.3	0.15	19990122	5.96664	310.04944	69.55910	2.14357	0.1729582	2.5499924	77	7	1978–1998	0.65	M-v	2	Williams	32742	1990 SR ₆
1990 SA ₈	14.6	0.15	19990122	356.84912	353.34805	100.27090	3.27367	0.1676439	2.4318094	20	2	1990–1998	0.61	M-v	5	Williams	33224	1990 SA ₈
1990 SG ₈	13.9	0.15	19990122	21.98389	24.31928	91.21609	3.44518	0.1825631	2.3412639	48	6	1981–1998	0.77	M-v	1	Williams	33335	1990 SG ₈
1990 ST ₈	15.2	0.15	19990122	135.04994	278.32603	52.01464	3.52174	0.1912160	2.3458415	19	4	1971–1998	0.54	M-v	4	Williams	30687	1990 ST ₈
1990 SS ₉	14.6	0.15	19990122	56.50726	326.16617	93.09336	3.32405	0.1995863	2.3777692	24	6	1979–1998	0.88	M-v	2	Williams	30470	1990 SS ₉
1990 SG ₁₂	14.9	0.15	19990122	8.88154	158.24779	212.73768	3.99877	0.2128098	2.5507299	46	4	1990–1998	0.62	M-v	3	Williams	32742	1990 SG ₁₂
1990 ST ₁₅	13.3	0.15	19990122	171.68815	309.14150	311.99670	6.22017	0.0879200	2.3741310	37	4	1989–1998	0.69	M-v	2	Williams	33335	1990 ST ₁₅
1990 SK ₂₈	13.8	0.15	19990122	34.47072	19.15490	346.90926	2.50708	0.1564699	2.5233357	69	3	1990–1998	0.53	M-v	3	Williams	33335	1990 SK ₂₈
1990 TJ	13.6	0.15	19990122	359.20840	349.79429	56.33205	4.89416	0.0654605	2.5302432	78	6	1978–1998	0.67	M-v	3	Williams	33068	1990 TJ
1990 TN ₃	14.6	0.15	19990122	8.10168	4.31826	21.31490	20.89461	0.0941097	1.9628219	27	3	1989–1998	0.74	M-v	3	Williams	32742	1990 TN ₃
1990 TO ₄	14.4	0.15	19990122	331.13723	5.56722	83.06788	10.40595	0.1649353	2.5456621	22	3	1982–1998	0.80	M-v	4	Williams	33335	1990 TO ₄
1990 TY ₇	15.1	0.15	19990122	342.58079	116.32940	26.61360	2.97536	0.1119664	2.4057281	12	3	1990–1998	0.92	M-v	6	Williams	24564	1990 TY ₇
1990 TU ₁₁	15.1	0.15	19990122	353.35926	126.46899	336.91833	2.29521	0.1282642	2.4281453	62	4	1990–1998	0.65	M-v	3	Williams	33336	1990 TU ₁₁
1990 TG ₁₃	14.7	0.15	19990122	18.55945	23.34559	65.09068	11.49945	0.2004661	2.4263866	24	4	1990–1998	0.77	M-v	3	Williams	33336	1990 TG ₁₃
1990 UO ₁	14.2	0.15	19990122	11.92800	258.33562	126.62757	5.18199	0.1558201	2.5726143	62	4	1990–1998	0.63	M-v	3	Williams	33068	1990 UO ₁
1990 UU ₁	14.4	0.15	19990122	33.07356	174.27352	192.40782	13.59418	0.1771546	2.5528068	78	4	1990–1998	0.53	M-v	2	Williams	33336	1990 UU ₁
1990 UC ₂	13.8	0.15	19990122	67.01285	277.74725	82.15254	9.29277	0.1647654	2.4551162	26	2	1990–1998	0.77	M-v	5	Williams	33225	1990 UC ₂
1990 UQ ₂	13.3	0.15	19990122	105.25326	325.61945	43.77923	8.47444	0.2254170	2.3911183	30	3	1990–1998	0.86	M-v	4	Williams	33336	1990 UQ ₂
1990 VL ₁	14.1	0.15	19990122	42.36642	111.61045	239.13585	8.45025	0.2169267	2.5567681	60	4	1990–1998	0.71	M-v	3	Williams	33068	1990 VL ₁
1990 VV ₁	14.0	0.15	19990122	51.93647	174.79798	215.06342	9.67653	0.2005254	2.4833904	17	4	1982–1998	0.81	M-v	4	Williams	24761	1990 VV ₁
1990 VD ₃	14.4	0.15	19990122	354.96589	228.13410	277.51001	3.23318	0.0617945	2.3728460	26	4	1990–1998	0.82	M-v	2	Williams	31274	1990 VD ₃
1990 VH ₃	14.6	0.15	19990122	342.34025	164.78574	267.07083	3.56079	0.2716621	2.5852440	59	2	1990–1998	0.64	M-v	4	Williams	33068	1990 VH ₃
1990 VM ₃	13.8	0.15	19990122	9.38581	291.46059	78.23376	18.01691	0.2986955	2.6006655	23	3	1990–1998	0.59	M-v	3	Williams	33226	1990 VM ₃
1990 VK ₄	14.8	0.15	19990122	21.58233	268.26184	137.51735	5.36288	0.1835316	2.5266381	31	3	1990–1998	0.79	M-v	4	Williams	33336	1990 VK ₄
1990 VN ₄	13.6	0.15	19990122	199.43392	350.38959	205.82671	12.62938	0.1168773	2.6405524	84	3	1990–1998	0.67	M-v	3	Williams	33336	1990 VN ₄
1990 VS ₄	14.5	0.15	19990122	48.51860	138.63883	206.89583	11.91757	0.1934788	2.5679093	84	5	1986–1998	0.63	M-v	3	Williams	33336	1990 VS ₄
1990 VK ₅	14.1	0.15	19990122	183.23418	152.09340	133.54619	7.38972	0.1247270	2.4250952	25	6	1974–1998	0.75	M-v	2	Williams	30687	1990 VK ₅
1990 VG ₆	13.2	0.15	19990122	294.06416	348.89362	165.23384	8.07424	0.1162272	2.5269734	34	4	1990–1998	0.74	M-v	3	Williams	33336	1990 VG ₆
1990 VP ₆	13.0	0.15	19990122	77.75208	122.69571	203.19792	12.74078	0.0610283	2.5899132	87	3	1990–1998	0.55	M-v	3	Williams	33336	1990 VP ₆
1990 VW ₈	13.7	0.15	19990122	306.48274	238.51464	222.89644	12.95853	0.1637724	2.5896036	42	2	1990–1998	0.65	M-v	4	Williams	33336	1990 VW ₈
1990 WS ₁	13.5	0.15	19990122	208.77909	323.97531	206.18372	12.48022	0.1182202	2.6883199	33	2	1990–1998	0.66	M-v	4	Williams	32742	1990 WS ₁

1990 WD ₂	14.6	0.15	19990122	347.10985	8.80962	103.28583	7.31968	0.0790148	2.4763568	47	5	1990–1998	0.78	M-v	3	Williams	33336	1990 WD ₂
1990 WN ₂	12.9	0.15	19990122	307.30312	359.99404	79.06219	14.60406	0.1340699	2.6583875	24	4	1990–1998	0.83	M-v	1	Williams	32742	1990 WN ₂
1990 WR ₂	14.1	0.15	19990122	4.84150	335.37857	94.07396	8.99751	0.2499628	2.5417073	36	4	1979–1998	0.76	M-v	3	Williams	33336	1990 WR ₂
1990 WS ₂	14.0	0.15	19990122	74.01186	279.46143	149.99260	2.65182	0.1796657	2.3924020	27	6	1975–1998	0.93	M-v	1	Williams	30781	1990 WS ₂
1990 WE ₉	14.7	0.15	19990122	102.77737	197.83137	155.63602	2.69192	0.1849151	2.4226362	20	5	1986–1998	0.71	M-v	2	Williams	30289	1990 WE ₉
1990 XF	12.1	0.15	19990122	313.99902	219.57286	293.19878	11.03896	0.2022258	2.5515954	48	6	1983–1998	0.79	M-v	3	Williams	33336	1990 XF
1990 XN	13.4	0.15	19990122	11.54722	17.45519	86.47696	6.33815	0.1584032	2.4656900	32	2	1990–1998	0.69	M-v	3	Williams	33226	1990 XN
1990 XZ	14.0	0.15	19990122	61.16699	323.39688	53.14710	23.18096	0.0779558	1.9271773	53	2	1990–1998	0.69	M-v	4	Williams	33226	1990 XZ
1991 AS ₁	13.4	0.15	19990122	357.89198	122.25844	317.85061	30.67214	0.2245105	2.6026813	30	3	1991–1998	0.58	M-v	2	Williams	33336	1991 AS ₁
1991 BK	13.8	0.15	19990122	316.32114	48.19779	67.24977	5.73141	0.2799962	2.6289642	68	4	1991–1998	0.71	M-v	2	Williams	33336	1991 BK
1991 BD ₁	13.2	0.15	19990122	289.34335	52.30795	115.45206	6.57456	0.0934139	2.5876014	25	4	1989–1998	0.75	M-v	3	Williams	29658	1991 BD ₁
1991 BV ₁	13.1	0.15	19990122	222.94979	63.86153	154.34303	8.16132	0.2529024	2.7181148	29	5	1991–1998	0.88	M-v	2	Williams	33336	1991 BV ₁
1991 DE	13.2	0.15	19990122	307.28497	81.48391	82.37220	13.10877	0.2301176	2.6019594	38	3	1991–1998	0.70	M-v	3	Williams	33336	1991 DE
1991 DW	12.8	0.15	19990122	239.07091	162.00850	91.40480	16.60668	0.1027018	2.5983759	20	2	1991–1998	0.56	M-v	4	Williams	33227	1991 DW
1991 EB	13.7	0.15	19990122	357.70505	210.35864	256.39068	2.83220	0.1238656	2.6232593	47	5	1951–1998	0.82	M-v	1	Williams	30687	1991 EB
1991 EJ	10.7	0.15	19990122	35.64244	95.29917	280.61943	22.84854	0.1235968	5.2155342	25	3	1991–1998	0.58	M-v	2	Williams	33336	1991 EJ
1991 GJ ₁	13.1	0.15	19990122	11.95700	97.04918	35.24503	13.76055	0.1363372	2.5803225	45	5	1989–1998	0.57	M-v	1	Williams	33336	1991 GJ ₁
1991 GX ₁	10.3	0.15	19990122	340.04670	160.66494	298.89589	9.52658	0.0371279	5.1901338	30	4	1990–1998	0.89	M-v	1	Williams	33336	1991 GX ₁
1991 GX ₇	13.6	0.15	19990122	40.10864	47.27784	3.87578	9.09795	0.1292100	2.7591524	24	5	1984–1998	0.84	M-v	1	Williams	31583	1991 GX ₇
1991 LA	17.5	0.15	19990122	85.75831	242.45986	83.29591	0.94770	0.2069117	2.1545493	34	2	1991–1998	0.56	M-v	6	Williams	33227	1991 LA
1991 LB	14.9	0.15	19990122	31.04407	121.62501	218.85489	4.82858	0.1950547	2.2261713	46	3	1991–1998	0.54	M-v	2	Williams	33069	1991 LB
1991 LU ₁	14.3	0.15	19990122	129.30084	60.90535	221.36614	5.47805	0.0574391	3.0389924	26	3	1991–1998	0.73	M-v	4	Williams	33336	1991 LU ₁
1991 LJ ₂	12.6	0.15	19990122	52.00055	226.97828	90.41806	7.14060	0.0654860	3.2390945	21	3	1984–1998	0.64	M-v	4	Williams	33227	1991 LJ ₂
1991 NQ ₆	14.9	0.15	19990122	10.88038	100.31226	276.08191	4.63211	0.1667407	2.2684501	39	3	1991–1998	0.66	M-v	2	Williams	33069	1991 NQ ₆
1991 NZ ₆	13.0	0.15	19990122	100.38111	285.19246	117.91726	4.39531	0.1530120	2.8928456	42	5	1991–1998	0.79	M-v	1	Williams	31138	1991 NZ ₆
1991 OV	15.1	0.15	19990122	72.23366	146.04814	166.10388	5.16241	0.1899558	2.2660974	59	2	1991–1998	0.70	M-v	4	Williams	33069	1991 OV
1991 PK	15.7	0.15	19990122	70.68303	211.58328	153.89696	2.69372	0.1972772	2.2026898	32	6	1978–1998	0.87	M-v	1	Williams	30091	1991 PK
1991 PO ₄	13.0	0.15	19990122	66.87387	228.39502	155.26906	2.07080	0.1960852	3.1754827	26	6	1969–1998	0.88	M-v	1	Williams	31138	1991 PO ₄
1991 PT ₄	13.8	0.15	19990122	59.14169	130.48503	227.57351	0.93543	0.2604520	3.3220866	50	4	1971–1998	0.84	M-v	1	Williams	31006	1991 PT ₄
1991 PO ₅	14.1	0.15	19990122	73.93321	118.65733	249.37055	0.58362	0.1707729	3.1937056	31	4	1991–1998	0.68	M-v	2	Williams	31138	1991 PO ₅
1991 PQ ₅	15.4	0.15	19990122	71.75715	163.50644	142.50125	6.62548	0.1322371	2.2724941	45	3	1991–1998	0.74	M-v	3	Williams	33069	1991 PQ ₅
1991 PG ₁₁	14.8	0.15	19990122	59.61184	137.52234	179.36093	6.61409	0.2373752	2.3049297	86	4	1977–1998	0.73	M-v	2	Williams	33336	1991 PG ₁₁
1991 PO ₁₂	14.3	0.15	19990122	347.53951	273.40759	145.84502	5.11772	0.1713370	2.2689228	63	2	1991–1998	0.66	M-v	4	Williams	33069	1991 PO ₁₂
1991 PR ₁₆	15.0	0.15	19990122	70.48314	187.47330	138.46219	1.42348	0.1957732	2.2718821	41	3	1991–1998	0.65	M-v	3	Williams	33336	1991 PR ₁₆
1991 PB ₂₀	14.3	0.15	19990122	290.71693	344.45318	118.17531	5.90283	0.0862840	2.2730086	31	3	1991–1998	0.84	M-v	4	Williams	33336	1991 PB ₂₀
1991 QJ	14.3	0.15	19990122	77.84456	162.48439	161.14171	5.98920	0.2062997	2.2516968	40	3	1981–1998	0.82	M-v	3	Williams	33336	1991 QJ
1991 RE ₁	13.9	0.15	19990122	290.17019	173.74328	312.88130	4.36222	0.0953492	2.2414905	34	2	1991–1998	0.73	M-v	5	Williams	33336	1991 RE ₁
1991 RL ₁	14.3	0.15	19990122	86.70828	101.66031	193.17295	11.65992	0.1697491	2.2769336	68	2	1991–1998	0.63	M-v	4	Williams	33069	1991 RL ₁
1991 RE ₂	14.8	0.15	19990122	4.32841	149.60566	265.58333	6.41946	0.1449834	2.2749056	37	3	1991–1998	0.83	M-v	2	Williams	33337	1991 RE ₂
1991 RS ₂	14.0	0.15	19990122	311.86451	242.49769	210.29472	6.48339	0.0638413	2.3062898	100	3	1991–1998	0.60	M-v	3	Marsden	33337	1991 RS ₂
1991 RU ₂	14.6	0.15	19990122	248.75298	271.84417	254.91926	4.47389	0.0919957	2.2778768	46	2	1991–1998	0.74	M-v	4	Williams	33069	1991 RU ₂
1991 RP ₃	16.1	0.15	19990122	27.85589	121.47996	220.19172	4.90747	0.2384436	2.3444732	19	2	1991–1998	0.62	M-v	3	Williams	32448	1991 RP ₃
1991 RT ₃	14.5	0.15	19990122	17.18035	77.06186	224.28367	5.01313	0.1476028	2.2875092	95	5	1977–1998	0.75	M-v	3	Williams	33337	1991 RT ₃
1991 RC ₅	13.6	0.15	19990122	93.70747	172.14192	0.68897	10.88055	0.0914727	3.0084009	23	3	1991–1998	0.60	M-v	3	Williams	31101	1991 RC ₅
1991 RK ₅	12.5	0.15	19990122	166.50201	319.90317	13.21454	10.85419	0.1179064	3.0319289	34	5	1933–1998	0.83	M-v	2	Williams	31138	1991 RK ₅
1991 RT ₅	14.0	0.15	19990122	23.21920	313.23741	33.19354	7.38915	0.1395076	2.3554287	33	3	1982–1998	0.79	M-v	3	Williams	33337	1991 RT ₅
1991 RF ₆	14.8	0.15	19990122	66.62700	250.47577	112.43114	2.95628	0.2091844	2.2420869	45	4	1981–1998	0.69	M-v	2	Williams	33337	1991 RF ₆
1991 RE ₇	12.0	0.15	19990122	166.60058	280.22936	8.00656	17.59140	0.1587706	3.1766688	25	4	1991–1998	0.72	M-v	1	Williams	30896	1991 RE ₇
1991 RQ ₇	12.8	0.15	19990122	179.84510	6.64923	305.84541	7.70227	0.2809720	2.9828654	29	5	1986–1998	0.73	M-v	3	Williams	28615	1991 RQ ₇
1991 RS ₈	14.4	0.15	19990122	343.77191	55.06674	352.52417	8.28425	0.1066877	2.3378572	64	4	1982–1998	0.63	M-v	3	Williams	33069	1991 RS ₈
1991 RY ₈	14.5	0.15	19990122	30.43411	9.87666	8.59456	3.75461	0.1383832	2.2917273	66	3	1991–1998	0.65	M-v	3	Williams	33069	1991 RY ₈
1991 RC ₉	14.7	0.15	19990122	48.61460	337.59626	18.93976	4.05969	0.0978147	2.2904685	47	2	1991–1998	0.51	M-v	4	Williams	33337	1991 RC ₉
1991 RR ₉	14.8	0.15	19990122	21.44785	5.74050	347.24164	3.29255	0.2500740	2.3415458	24	2	1991–1998	0.64	M-v	3	Williams	32449	1991 RR ₉

1991 RU ₉	15.3	0.15	19990122	54.84237	64.34916	281.05542	1.16471	0.1670666	2.2876419	41	2	1991–1998	0.67	M-v	4	Williams	33337	1991 RU ₉
1991 RB ₁₀	14.6	0.15	19990122	59.34693	36.82338	300.52553	4.55013	0.1381301	2.2955949	64	3	1991–1998	0.70	M-v	3	Williams	33069	1991 RB ₁₀
1991 RR ₁₀	15.0	0.15	19990122	18.78536	20.96748	5.06791	6.80205	0.1226086	2.3118294	59	2	1991–1998	0.75	M-v	4	Williams	33069	1991 RR ₁₀
1991 RZ ₁₀	14.0	0.15	19990122	135.92659	242.03978	82.20869	2.49022	0.2570877	3.1795510	34	3	1991–1998	0.74	M-v	4	Williams	31417	1991 RZ ₁₀
1991 RZ ₁₁	14.0	0.15	19990122	100.08777	322.20385	8.58170	1.26444	0.1812348	3.1948221	28	3	1991–1998	0.87	M-v	4	Williams	30977	1991 RZ ₁₁
1991 RN ₁₃	15.1	0.15	19990122	116.77292	43.41391	273.82239	4.24672	0.1951427	2.2035062	32	4	1991–1998	0.86	M-v	2	Williams	29943	1991 RN ₁₃
1991 RQ ₁₄	13.7	0.15	19990122	118.91142	285.39880	58.75602	1.94947	0.1783560	3.1655611	39	7	1986–1998	0.94	M-v	1	Williams	31006	1991 RQ ₁₄
1991 RA ₁₅	13.3	0.15	19990122	168.54972	133.98639	146.02608	0.08385	0.1542935	3.1632596	43	7	1984–1998	0.89	M-v	1	Williams	30896	1991 RA ₁₅
1991 RE ₁₅	14.0	0.15	19990122	85.33106	330.34740	343.22186	7.93921	0.2214460	2.2610081	45	4	1981–1998	0.75	M-v	2	Williams	33337	1991 RE ₁₅
1991 RK ₁₅	14.1	0.15	19990122	44.99501	334.62303	3.86557	5.18485	0.1561920	2.3115196	69	6	1963–1998	0.80	M-v	3	Williams	33337	1991 RK ₁₅
1991 RD ₁₆	15.9	0.15	19990122	71.51692	216.68360	154.56494	4.73891	0.2002175	2.2172797	36	4	1991–1998	0.67	M-v	1	Williams	30470	1991 RD ₁₆
1991 RV ₁₆	14.6	0.15	19990122	37.04482	19.16186	21.69681	7.15036	0.1159236	2.2371675	39	5	1954–1998	0.75	M-v	1	Williams	33337	1991 RV ₁₆
1991 RZ ₁₆	15.5	0.15	19990122	25.95819	355.27482	64.02289	2.53175	0.2050395	2.2440384	48	3	1986–1998	0.51	M-v	3	Williams	33228	1991 RZ ₁₆
1991 RA ₁₇	14.8	0.15	19990122	51.59827	303.58298	35.61340	7.23811	0.1605108	2.3009768	84	3	1991–1998	0.69	M-v	2	Williams	33069	1991 RA ₁₇
1991 RX ₁₇	14.3	0.15	19990122	48.86889	148.34451	177.73749	4.36083	0.1438677	2.3178050	63	2	1991–1998	0.79	M-v	3	Williams	33069	1991 RX ₁₇
1991 RJ ₂₂	14.0	0.15	19990122	131.97180	214.50461	120.63337	4.48067	0.2110145	2.1451781	47	4	1991–1998	0.64	M-v	2	Williams	33069	1991 RJ ₂₂
1991 RX ₂₅	14.3	0.15	19990122	127.04333	252.78761	90.69307	5.05901	0.2033236	2.1629153	30	5	1988–1998	0.68	M-v	2	Williams	33337	1991 RX ₂₅
1991 RH ₂₇	14.5	0.15	19990122	104.42256	167.41237	149.64710	4.83912	0.1868187	2.2445084	20	3	1991–1998	0.65	M-v	2	Williams	30078	1991 RH ₂₇
1991 RY ₂₉	15.0	0.15	19990122	346.84551	136.71297	278.99627	6.02122	0.1480831	2.2952426	37	2	1991–1998	0.70	M-v	5	Williams	32744	1991 RY ₂₉
1991 SA	15.3	0.15	19990122	48.18136	56.38808	267.69267	5.65427	0.2585490	2.3282073	52	2	1991–1998	0.79	M-v	3	Williams	33337	1991 SA
1991 SG	12.8	0.15	19990122	111.83984	187.14945	157.63923	9.87717	0.0878123	3.1679302	24	4	1977–1998	0.60	M-v	1	Williams	29615	1991 SG
1991 ST	13.8	0.15	19990122	115.56995	228.85890	79.72405	6.85614	0.2207155	2.2001149	23	5	1952–1998	0.80	M-v	2	Williams	33070	1991 ST
1991 SC ₁	12.9	0.15	19990122	155.32283	290.18608	42.67550	10.42278	0.0920353	3.0260069	36	5	1981–1998	0.59	M-v	1	Williams	31138	1991 SC ₁
1991 SN ₁	14.8	0.15	19990122	83.04015	160.20139	203.38886	5.79164	0.1674050	2.2195183	39	6	1951–1998	0.81	M-v	1	Williams	29135	1991 SN ₁
1991 TN	14.3	0.15	19990122	169.22644	113.10388	96.89415	5.59714	0.1092123	2.3517411	37	4	1991–1998	0.66	M-v	2	Williams	33070	1991 TN
1991 TO	15.5	0.15	19990122	59.04249	246.00818	122.07151	5.13823	0.1149222	2.2569409	22	3	1991–1998	0.75	M-v	3	Williams	33337	1991 TO
1991 TK ₁	14.6	0.15	19990122	324.13007	114.83054	336.77884	21.98518	0.2940448	2.3490734	44	2	1991–1998	0.82	M-v	4	Williams	33070	1991 TK ₁
1991 TC ₃	15.4	0.15	19990122	349.49730	124.55615	345.32893	3.44603	0.0651906	2.2124563	29	4	1991–1998	0.92	M-v	2	Williams	33337	1991 TC ₃
1991 TX ₄	14.3	0.15	19990122	5.53298	116.05973	358.14305	5.83904	0.1434651	2.2138088	38	4	1991–1998	0.88	M-v	2	Williams	33337	1991 TX ₄
1991 TO ₁₃	13.8	0.15	19990122	115.11473	105.74287	220.94380	6.86970	0.1292176	2.2854886	61	7	1987–1998	0.64	M-v	1	Williams	33337	1991 TO ₁₃
1991 UR	14.3	0.15	19990122	57.40277	331.28143	10.69286	6.92598	0.1283238	2.3186131	65	2	1991–1998	0.63	M-v	4	Williams	33337	1991 UR
1991 UK ₁	14.2	0.15	19990122	67.01989	11.18062	333.26221	4.88060	0.2137639	2.2781083	32	2	1991–1998	0.85	M-v	4	Williams	33337	1991 UK ₁
1991 UN ₁	14.4	0.15	19990122	348.73050	83.92458	313.01047	5.75802	0.1215612	2.3722015	37	3	1989–1998	0.66	M-v	3	Williams	32744	1991 UN ₁
1991 UQ ₁	14.3	0.15	19990122	17.29899	22.66589	38.83873	8.52807	0.1809913	2.2897708	32	3	1984–1998	0.63	M-v	3	Williams	33229	1991 UQ ₁
1991 UR ₁	14.5	0.15	19990122	349.97184	9.49856	41.92057	1.93387	0.1533058	2.3626639	49	4	1980–1998	0.78	M-v	1	Williams	33070	1991 UR ₁
1991 UV ₁	15.4	0.15	19990122	0.76130	41.16301	32.22636	6.92282	0.1721376	2.2989549	22	3	1984–1998	0.75	M-v	4	Williams	33229	1991 UV ₁
1991 UO ₂	14.1	0.15	19990122	14.32586	290.00306	113.13547	4.74125	0.1971986	2.3239624	88	4	1984–1998	0.78	M-v	3	Williams	33337	1991 UO ₂
1991 UN ₃	13.7	0.15	19990122	45.26478	304.65868	84.33886	4.56430	0.0970191	2.2940248	64	3	1991–1998	0.85	M-v	3	Williams	33337	1991 UN ₃
1991 VE	18.2	0.15	19990122	294.29307	193.42829	62.09088	7.22338	0.6644934	0.8907617	92	3	1991–1998	0.69	M-v	4	Marsden	33337	1991 VE
1991 VL ₁	14.6	0.15	19990122	121.11968	256.28627	102.71841	5.96640	0.1262811	2.1752486	44	5	1991–1999	0.60	M-v	2	Williams	33337	1991 VL ₁
1991 VQ ₁	13.7	0.15	19990122	54.24005	297.44503	71.86310	7.34566	0.2070730	2.2806678	74	3	1991–1998	0.73	M-v	3	Marsden	33337	1991 VQ ₁
1991 VF ₂	14.7	0.15	19990122	13.81421	247.07578	216.33545	5.64821	0.1393028	2.2438212	34	4	1989–1998	0.74	M-v	1	Williams	33070	1991 VF ₂
1991 VJ ₂	14.3	0.15	19990122	92.40603	145.86469	204.08009	4.62375	0.2277102	2.2468715	33	3	1991–1998	0.73	M-v	2	Williams	30290	1991 VJ ₂
1991 VZ ₂	15.9	0.15	19990122	38.38546	336.79557	23.40894	3.98517	0.3553155	2.3226260	67	4	1959–1998	0.73	M-v	2	Williams	33337	1991 VZ ₂
1991 VG ₃	14.3	0.15	19990122	31.54916	178.69592	219.03031	25.83847	0.1688090	2.2655307	40	3	1991–1998	0.70	M-v	3	Williams	33337	1991 VG ₃
1991 VA ₄	14.6	0.15	19990122	346.52101	341.68578	105.02602	3.13035	0.2016025	2.3318615	53	2	1991–1998	0.75	M-v	4	Williams	33337	1991 VA ₄
1991 VE ₄	14.3	0.15	19990122	112.74617	205.48541	147.26926	4.83286	0.1880089	2.1977875	37	7	1978–1998	0.81	M-v	2	Williams	29299	1991 VE ₄
1991 VC ₅	13.6	0.15	19990122	327.81948	24.25114	52.18443	7.66564	0.0958093	2.3604143	46	4	1973–1998	0.83	M-v	2	Williams	33070	1991 VC ₅
1991 VM ₅	14.1	0.15	19990122	57.16464	267.31613	70.07035	6.34609	0.2115419	2.3240233	51	3	1977–1998	0.60	M-v	3	Williams	33337	1991 VM ₅
1991 XK	14.1	0.15	19990122	314.28897	290.62082	240.13356	4.85128	0.1062156	2.2405270	32	7	1976–1998	0.78	M-v	2	Williams	30687	1991 XK
1991 XL	14.2	0.15	19990122	120.06344	224.38043	78.21783	5.14958	0.1398503	2.3137991	47	3	1991–1998	0.66	M-v	3	Williams	33337	1991 XL
1991 XN	15.4	0.15	19990122	6.35729	17.23087	64.86622	8.60938	0.2875735	2.3201232	38	2	1991–1998	0.68	M-v	3	Williams	33337	1991 XN
1991 XH ₁	14.6	0.15	19990122	343.46064	11.23211	47.65457	1.92936	0.1771031	2.4134146	34	4	1983–1998	0.61	M-v	2	Williams	33070	1991 XH ₁

1991 YL ₁	14.9	0.15	19990122	287.66608	200.17764	313.02934	0.79142	0.1396598	2.3831854	39	4	1991–1998	0.71	M-v	2	Marsden	33337	1991 YL ₁
1992 AM	15.3	0.15	19990122	23.78413	299.87895	100.11671	23.79803	0.2813902	2.3474411	27	3	1991–1998	0.72	M-v	3	Williams	33337	1992 AM
1992 AN	13.6	0.15	19990122	62.37282	241.00046	117.09792	23.47255	0.2793374	2.3412027	45	5	1989–1998	0.68	M-v	1	Williams	30290	1992 AN
1992 AO ₁	13.8	0.15	19990122	332.19462	41.38956	62.32946	4.08543	0.2084726	2.4118041	53	2	1992–1998	0.74	M-v	4	Williams	33337	1992 AO ₁
1992 AO ₂	14.2	0.15	19990122	244.77406	72.29151	118.12938	8.56479	0.1417564	2.4383188	26	4	1992–1998	0.86	M-v	2	Williams	33337	1992 AO ₂
1992 BM ₂	14.1	0.15	19990122	75.17130	208.35819	213.72241	3.91596	0.0991881	2.2492664	44	8	1977–1998	0.90	M-v	1	Williams	30782	1992 BM ₂
1992 CF	13.1	0.15	19990122	236.96045	308.44284	284.12341	9.69715	0.0555600	2.3791575	26	4	1992–1998	0.80	M-v	2	Williams	33338	1992 CF
1992 CK	14.1	0.15	19990122	45.08013	303.10042	138.93791	6.31599	0.1514251	2.2948859	17	3	1992–1998	0.88	M-v	3	Williams	32662	1992 CK
1992 CF ₁	13.7	0.15	19990122	180.14876	271.24245	356.61773	6.21719	0.1514968	2.4691284	39	5	1982–1998	0.73	M-v	1	Williams	29135	1992 CF ₁
1992 CG ₃	13.9	0.15	19990122	352.80750	257.12070	176.30031	6.24283	0.0984826	2.4142204	46	2	1992–1998	0.76	M-v	4	Williams	33338	1992 CG ₃
1992 DA ₄	15.9	0.15	19990122	303.08223	182.77543	339.63286	2.18071	0.1461807	2.4046799	26	3	1992–1998	0.72	M-v	3	Williams	32662	1992 DA ₄
1992 DA ₆	14.4	0.15	19990122	280.42534	45.29247	140.33407	1.82011	0.1322193	2.4217135	20	4	1981–1998	0.66	M-v	2	Williams	27120	1992 DA ₆
1992 DW ₇	14.9	0.15	19990122	336.64015	37.37496	71.93276	2.64213	0.1015377	2.4384673	17	2	1992–1998	0.55	M-v	5	Williams	33230	1992 DW ₇
1992 DX ₇	14.4	0.15	19990122	100.96376	108.70803	22.34155	4.62806	0.1367399	3.1905566	12	2	1992–1998	0.67	M-v	5	Williams	33230	1992 DX ₇
1992 DX ₈	14.7	0.15	19990122	355.44065	11.62197	73.43652	3.30936	0.0903745	2.4501757	30	2	1992–1998	0.60	M-v	5	Williams	33230	1992 DX ₈
1992 DB ₉	14.2	0.15	19990122	158.30512	306.25889	11.51689	7.31623	0.1052380	2.4022735	19	4	1992–1998	0.68	M-v	2	Williams	30896	1992 DB ₉
1992 EF ₂	14.2	0.15	19990122	241.57564	82.71889	156.71150	12.18742	0.1725355	2.4168160	51	6	1988–1998	0.82	M-v	1	Williams	30290	1992 EF ₂
1992 EW ₂	17.0	0.15	19990122	256.57675	200.28915	39.10918	1.92765	0.1563565	2.3759528	23	3	1992–1998	0.56	M-v	4	Williams	31584	1992 EW ₂
1992 EH ₄	14.5	0.15	19990122	343.82365	12.47366	120.98389	3.08165	0.1160779	2.3563586	20	3	1992–1998	0.90	M-v	4	Williams	27935	1992 EH ₄
1992 EA ₆	14.2	0.15	19990122	349.38734	315.72725	127.86061	7.13211	0.1533756	2.4430456	32	4	1986–1998	0.72	M-v	2	Williams	33338	1992 EA ₆
1992 EM ₆	15.6	0.15	19990122	323.11617	83.06187	67.63671	3.65282	0.1556896	2.3795532	13	3	1992–1998	1.00	M-v	5	Williams	27308	1992 EM ₆
1992 EP ₆	14.6	0.15	19990122	341.43905	65.69975	78.73663	5.73136	0.0386454	2.3555824	29	3	1992–1998	0.83	M-v	3	Williams	33338	1992 EP ₆
1992 EW ₇	14.0	0.15	19990122	156.57862	52.92657	239.54356	1.18315	0.1616087	2.4726465	44	4	1989–1998	0.75	M-v	2	Williams	30687	1992 EW ₇
1992 EW ₉	12.8	0.15	19990122	21.19908	209.52850	154.85633	15.18560	0.1248628	2.5885575	55	4	1971–1998	0.71	M-v	2	Williams	33070	1992 EW ₉
1992 EZ ₁₁	13.6	0.15	19990122	36.93490	191.82553	133.47194	5.49809	0.1412303	2.7091448	45	2	1992–1998	0.73	M-v	3	Williams	33070	1992 EZ ₁₁
1992 EB ₁₃	14.0	0.15	19990122	169.98864	6.72521	306.81287	4.10142	0.1234786	2.3806322	12	4	1986–1998	0.74	M-v	2	Williams	31275	1992 EB ₁₃
1992 ES ₁₃	14.6	0.15	19990122	33.32291	217.60280	210.76913	2.06292	0.1467994	2.3769219	24	4	1992–1998	0.73	M-v	1	Williams	31006	1992 ES ₁₃
1992 EB ₁₄	14.8	0.15	19990122	312.23217	278.72106	235.40077	0.60812	0.1205200	2.4010613	28	4	1992–1998	0.90	M-v	2	Williams	30657	1992 EB ₁₄
1992 EG ₁₄	14.6	0.15	19990122	18.93019	144.30574	320.43313	3.89240	0.1024353	2.3454600	25	3	1992–1998	0.61	M-v	3	Williams	33338	1992 EG ₁₄
1992 EN ₁₇	14.8	0.15	19990122	12.05587	32.23556	64.54323	2.94517	0.1670871	2.3547666	14	3	1992–1998	0.39	M-v	5	Williams	27309	1992 EN ₁₇
1992 EJ ₂₄	14.5	0.15	19990122	61.58186	251.07959	132.24951	9.85895	0.2408769	2.3978397	19	5	1953–1998	0.52	M-v	1	Williams	27729	1992 EJ ₂₄
1992 FA ₂	12.8	0.15	19990122	306.16037	345.89119	74.09396	6.31826	0.0486556	2.7402974	43	4	1992–1998	0.80	M-v	3	Williams	32745	1992 FA ₂
1992 GD ₃	14.7	0.15	19990122	150.93209	97.89092	211.86050	7.93235	0.0432983	2.5328311	30	5	1969–1998	0.74	M-v	1	Williams	30687	1992 GD ₃
1992 GC ₈	13.8	0.15	19990122	123.12080	205.18858	96.26381	5.83005	0.0500716	2.6224826	30	2	1992–1998	0.63	M-v	5	Williams	33231	1992 GC ₈
1992 HS ₄	13.2	0.15	19990122	119.27546	179.51074	100.24351	9.44730	0.1911374	2.8003747	41	3	1992–1998	0.67	M-v	3	Williams	33338	1992 HS ₄
1992 JQ	13.3	0.15	19990122	203.27046	54.17883	184.69573	12.34662	0.1831024	2.6169944	38	4	1992–1998	0.71	M-v	2	Williams	33338	1992 JQ
1992 JB ₂	12.9	0.15	19990122	57.74116	149.19343	218.44859	11.07815	0.0635894	2.6430905	43	3	1992–1998	0.75	M-v	4	Williams	33338	1992 JB ₂
1992 JS ₂	12.6	0.15	19990122	156.42841	79.09720	213.35326	12.96207	0.0531640	2.5661121	40	7	1977–1998	0.69	M-v	1	Williams	30688	1992 JS ₂
1992 KD	15.3	0.15	19990122	309.96114	355.36593	242.16117	28.94840	0.4335384	2.3415882	74	4	1992–1998	0.77	M-v	2	Marsden	33071	1992 KD
1992 KF	13.4	0.15	19990122	221.44598	173.68872	66.31436	15.18990	0.1267924	2.5763049	21	3	1981–1998	0.74	M-v	3	Williams	25441	1992 KF
1992 KQ	12.4	0.15	19990122	153.06944	201.42772	103.69349	14.87585	0.1753862	2.6637404	38	5	1987–1998	0.67	M-v	1	Williams	30896	1992 KQ
1992 NS	13.6	0.15	19990122	181.29711	64.19089	218.35943	10.89459	0.1802968	2.6629719	33	4	1992–1998	0.88	M-v	1	Williams	30896	1992 NS
1992 OF ₁	12.4	0.15	19990122	32.70125	231.03674	125.12895	9.69608	0.2294725	3.1077488	46	5	1970–1998	0.65	M-v	1	Williams	33338	1992 OF ₁
1992 OP ₁	12.7	0.15	19990122	63.73448	101.58810	240.46988	15.04311	0.1107671	3.0372022	40	4	1982–1998	0.59	M-v	2	Williams	33338	1992 OP ₁
1992 OV ₆	13.4	0.15	19990122	358.24918	245.60639	199.11684	1.50338	0.0325258	2.8754996	46	6	1990–1998	0.82	M-v	1	Williams	30688	1992 OV ₆
1992 OY ₇	13.6	0.15	19990122	100.07356	50.75768	278.49741	8.75705	0.2708999	2.8720100	40	3	1992–1998	0.89	M-v	3	Williams	30896	1992 OY ₇
1992 OB ₉	13.4	0.15	19990122	161.91849	171.14533	116.08994	12.00421	0.1817401	2.7610486	38	5	1950–1998	0.76	M-v	2	Williams	31006	1992 OB ₉
1992 PH ₂	13.0	0.15	19990122	64.12588	69.39248	271.45177	9.44134	0.1400423	3.0396386	43	4	1987–1998	0.60	M-v	1	Williams	33338	1992 PH ₂
1992 PK ₂	13.2	0.15	19990122	125.64225	6.24192	236.01901	5.86494	0.1436943	3.1201561	49	2	1992–1998	0.73	M-v	5	Williams	33338	1992 PK ₂
1992 PL ₂	12.2	0.15	19990122	166.82048	264.37756	296.11681	20.41280	0.0557648	3.1949195	42	4	1981–1998	0.66	M-v	2	Williams	32745	1992 PL ₂
1992 PX ₂	13.0	0.15	19990122	262.74562	311.76648	286.75348	11.24930	0.1519354	2.6037102	23	5	1954–1998	0.75	M-v	2	Williams	27729	1992 PX ₂
1992 QA	15.0	0.15	19990122	275.94850	148.97313	53.97294	26.23352	0.1121385	1.8694986	26	5	1974–1998	0.74	M-v	2	Williams	22600	1992 QA
1992 QR	14.4	0.15	19990122	109.62043	239.80285	150.49972	22.99575	0.1044669	1.9236228	15	4	1991–1998	0.74	M-v	2	Williams	30471	1992 QR

1992 RZ	13.4	0.15	19990122	27.11696	163.19704	280.49785	0.94952	0.0281233	2.8802382	32	4	1978–1998	0.64	M-v	2	Williams	31139	1992 RZ
1992 RD ₁	13.2	0.15	19990122	104.42068	333.65687	359.50297	13.68174	0.1019106	2.9920574	34	5	1976–1998	0.79	M-v	2	Williams	33338	1992 RD ₁
1992 RB ₃	13.5	0.15	19990122	79.01386	109.31499	246.50222	0.54262	0.1095356	2.9686042	67	4	1987–1998	0.66	M-v	4	Williams	33338	1992 RB ₃
1992 RO ₃	14.5	0.15	19990122	124.96379	81.22177	199.29374	0.43629	0.1379259	3.0286717	23	3	1992–1998	0.81	M-v	5	Williams	33338	1992 RO ₃
1992 RF ₅	13.7	0.15	19990122	143.27059	149.91090	173.34711	2.05889	0.0471144	2.8252738	22	3	1992–1998	0.65	M-v	4	Williams	30872	1992 RF ₅
1992 RX ₆	13.0	0.15	19990122	40.03139	22.14402	8.39147	9.52779	0.0927064	3.0404887	52	3	1992–1998	0.79	M-v	3	Williams	33338	1992 RX ₆
1992 RM ₇	14.2	0.15	19990122	18.44053	345.78069	65.43103	2.26732	0.1569730	3.0922743	56	4	1992–1998	0.63	M-v	1	Williams	33338	1992 RM ₇
1992 ST ₁	12.7	0.15	19990122	199.67156	333.90195	315.45271	7.54915	0.2082492	2.7904924	30	7	1959–1998	0.80	M-v	2	Williams	31275	1992 ST ₁
1992 SJ ₂	12.4	0.15	19990122	312.33048	325.25227	168.25769	10.92214	0.0504726	2.9997712	50	4	1990–1998	0.70	M-v	2	Williams	33338	1992 SJ ₂
1992 SQ ₂₄	12.5	0.15	19990122	285.52040	309.26957	204.03586	10.11929	0.0516121	2.9882742	43	5	1987–1998	0.77	M-v	2	Williams	33338	1992 SQ ₂₄
1992 TW	13.8	0.15	19990122	76.45709	189.53652	188.51907	10.67872	0.1114039	2.9749422	43	6	1990–1998	0.57	M-v	1	Williams	31585	1992 TW
1992 UZ ₃	13.5	0.15	19990122	90.83687	359.71606	11.30153	2.33180	0.2166358	3.0102551	19	4	1976–1998	0.57	M-v	2	Williams	31139	1992 UZ ₃
1992 UZ ₅	12.7	0.15	19990122	15.28481	14.71283	66.23035	14.44688	0.0984687	3.1258745	23	3	1992–1998	0.77	M-v	4	Williams	31232	1992 UZ ₅
1992 UM ₉	13.2	0.15	19990122	66.53842	161.54398	186.52382	6.46046	0.1309869	3.1864326	55	4	1992–1998	0.69	M-v	1	Williams	33338	1992 UM ₉
1992 WF ₁	11.9	0.15	19990122	101.73040	262.48903	101.77769	11.06704	0.1010797	3.0287183	32	3	1992–1998	0.60	M-v	3	Williams	33338	1992 WF ₁
1992 WK ₁	12.3	0.15	19990122	49.29456	324.53155	76.38241	18.18048	0.2072345	3.1528332	33	3	1990–1998	0.63	M-v	3	Williams	33232	1992 WK ₁
1992 WA ₄	13.0	0.15	19990122	56.79423	307.57362	73.11363	6.39415	0.1586340	3.1973157	29	5	1986–1998	0.87	M-v	2	Williams	28616	1992 WA ₄
1992 YC ₁	13.4	0.15	19990122	326.34613	93.71347	83.20351	2.51855	0.1343887	3.1301846	32	4	1992–1998	0.69	M-v	2	Williams	31007	1992 YC ₁
1992 YW ₁	14.4	0.15	19990122	186.38319	260.70802	302.45275	3.78473	0.1115063	2.2624219	58	3	1990–1998	0.71	M-v	4	Williams	33071	1992 YW ₁
1993 BJ ₂	13.0	0.15	19990122	75.39893	159.40003	122.68396	6.98166	0.1362880	2.4077620	38	2	1993–1998	0.70	M-v	4	Williams	33071	1993 BJ ₂
1993 BY ₄	15.9	0.15	19990122	328.81159	165.26203	315.32199	1.64607	0.0606596	2.1627015	21	3	1971–1998	0.87	M-v	4	Williams	33338	1993 BY ₄
1993 BC ₅	12.8	0.15	19990122	53.38964	283.05293	155.23333	0.49586	0.1631787	3.2248695	55	4	1993–1998	0.80	M-v	1	Williams	31139	1993 BC ₅
1993 BE ₅	12.5	0.15	19990122	41.58113	87.48321	311.70000	2.26634	0.0269683	3.6472246	44	6	1989–1998	0.89	M-v	1	Williams	32745	1993 BE ₅
1993 DQ	14.0	0.15	19990122	220.02441	173.82757	85.06656	2.61757	0.1255819	2.1624029	22	4	1981–1998	0.75	M-v	3	Williams	32453	1993 DQ
1993 DD ₁	14.0	0.15	19990122	313.74690	131.15784	18.21609	4.74373	0.0561581	2.1873549	37	4	1991–1998	0.72	M-v	2	Williams	33071	1993 DD ₁
1993 DF ₂	14.5	0.15	19990122	217.84292	70.27589	151.37089	4.70364	0.0596929	2.2506660	31	4	1991–1998	0.57	M-v	1	Williams	33338	1993 DF ₂
1993 FB ₁	12.8	0.15	19990122	124.12937	160.93861	65.89027	8.62982	0.1455142	2.5725493	42	5	1993–1998	0.61	M-v	1	Williams	32745	1993 FB ₁
1993 FL ₁	13.6	0.15	19990122	193.50194	179.91727	38.90548	7.26843	0.0587053	2.3365361	39	2	1993–1998	0.78	M-v	4	Williams	33338	1993 FL ₁
1993 FH ₇	14.7	0.15	19990122	125.15717	200.33033	88.66836	3.52035	0.2036395	2.3882724	52	3	1993–1998	0.85	M-v	4	Williams	33338	1993 FH ₇
1993 FT ₇	14.9	0.15	19990122	21.79012	215.45098	155.85391	6.41845	0.1182732	2.3811095	52	3	1991–1998	0.80	M-v	3	Williams	33071	1993 FT ₇
1993 FV ₇	13.9	0.15	19990122	127.81440	276.13222	34.88711	7.51139	0.1120513	2.2901174	23	6	1976–1998	0.77	M-v	2	Williams	30291	1993 FV ₇
1993 FZ ₇	15.6	0.15	19990122	25.69155	12.85378	53.73005	4.11241	0.0314247	2.2252524	27	5	1978–1998	0.88	M-v	2	Williams	30291	1993 FZ ₇
1993 FK ₉	15.0	0.15	19990122	324.78300	37.42817	37.51406	5.75450	0.0883385	2.3439776	31	2	1993–1998	0.89	M-v	5	Williams	33071	1993 FK ₉
1993 FH ₁₁	14.2	0.15	19990122	27.64596	342.47036	21.14514	10.66364	0.1511582	2.3994015	34	2	1993–1998	0.58	M-v	3	Williams	33233	1993 FH ₁₁
1993 FR ₁₁	13.8	0.15	19990122	54.20718	129.20521	171.99758	13.77324	0.1646617	2.5663177	34	4	1989–1998	0.59	M-v	2	Williams	33339	1993 FR ₁₁
1993 FX ₁₁	15.5	0.15	19990122	187.56483	200.64371	38.53017	5.62362	0.1132282	2.3267243	16	2	1993–1998	0.60	M-v	4	Williams	33233	1993 FX ₁₁
1993 FO ₁₂	14.7	0.15	19990122	188.00737	184.08217	51.07346	4.72928	0.1006423	2.3338554	20	2	1993–1998	0.58	M-v	4	Williams	33339	1993 FO ₁₂
1993 FK ₁₃	14.1	0.15	19990122	105.51787	272.44043	43.36664	7.04928	0.1273209	2.3431755	22	2	1993–1998	0.70	M-v	5	Williams	33233	1993 FK ₁₃
1993 FS ₁₃	13.6	0.15	19990122	132.99248	256.77903	52.96520	6.01374	0.1581989	2.2997168	19	3	1993–1998	0.77	M-v	3	Williams	31419	1993 FS ₁₃
1993 FJ ₁₆	13.5	0.15	19990122	110.62594	267.30457	76.99651	4.05623	0.2055381	2.2691934	16	6	1977–1998	0.51	M-v	1	Williams	29662	1993 FJ ₁₆
1993 FZ ₁₈	13.9	0.15	19990122	151.06337	211.83984	71.54707	6.14797	0.1513423	2.3343659	29	4	1989–1998	0.63	M-v	2	Williams	28588	1993 FZ ₁₈
1993 FD ₁₉	14.8	0.15	19990122	249.67008	69.36842	137.91267	6.64771	0.0872217	2.2414049	14	3	1993–1998	0.82	M-v	4	Williams	26742	1993 FD ₁₉
1993 FR ₂₃	14.1	0.15	19990122	50.49311	23.27487	359.87098	6.37746	0.2056761	2.2928006	48	5	1984–1998	0.78	M-v	2	Williams	33339	1993 FR ₂₃
1993 FF ₂₆	15.0	0.15	19990122	38.39746	74.27116	342.10657	4.31989	0.1314358	2.2091400	24	5	1988–1998	0.83	M-v	2	Williams	29944	1993 FF ₂₆
1993 FV ₂₇	14.9	0.15	19990122	287.20727	215.68234	293.37724	1.77141	0.0564989	2.2680810	23	4	1993–1998	0.83	M-v	3	Williams	33339	1993 FV ₂₇
1993 FY ₂₇	14.5	0.15	19990122	126.07960	21.33989	295.73565	1.93506	0.1708060	2.3025337	23	4	1987–1998	0.76	M-v	2	Williams	25651	1993 FY ₂₇
1993 FA ₂₈	14.7	0.15	19990122	43.94722	50.91658	341.68155	4.67125	0.0896760	2.2669829	24	2	1993–1998	0.71	M-v	5	Williams	33234	1993 FA ₂₈
1993 FS ₃₁	14.4	0.15	19990122	108.10716	240.97862	51.88126	4.62315	0.0746961	2.4056954	49	2	1993–1998	0.78	M-v	5	Williams	33339	1993 FS ₃₁
1993 FT ₃₁	14.5	0.15	19990122	89.41215	212.45748	148.75550	5.60061	0.2302543	2.2682670	46	7	1953–1998	0.69	M-v	1	Williams	33071	1993 FT ₃₁
1993 FO ₄₀	15.2	0.15	19990122	105.30330	318.33646	60.45041	1.99158	0.0807430	2.1658996	19	5	1988–1998	0.53	M-v	2	Williams	29944	1993 FO ₄₀
1993 FZ ₄₀	14.2	0.15	19990122	88.86759	311.60344	42.54475	3.74685	0.1627949	2.2799920	19	3	1993–1998	0.62	M-v	5	Williams	27915	1993 FZ ₄₀
1993 FJ ₅₀	14.6	0.15	19990122	339.54656	161.98253	341.92421	2.06426	0.0342081	2.1595989	28	5	1991–1998	0.58	M-v	2	Williams	33339	1993 FJ ₅₀
1993 FX ₅₂	15.8	0.15	19990122	259.94161	89.17452	137.16266	4.51671	0.0923592	2.1721361	33	4	1993–1998	0.51	M-v	1	Williams	30782	1993 FX ₅₂

1993 FZ ₅₅	13.5	0.15	19990122	115.74089	176.46056	137.29712	6.11659	0.2428451	2.3658018	21	5	1972–1998	0.62	M-v	2	Williams	30659	1993 FZ ₅₅
1993 FP ₇₃	15.4	0.15	19990122	80.76039	133.73489	222.66239	2.78037	0.1762900	2.3014364	33	4	1993–1998	0.79	M-v	2	Williams	30471	1993 FP ₇₃
1993 FE ₇₆	14.9	0.15	19990122	60.15868	114.57323	206.54358	3.73453	0.3145187	2.5462521	51	2	1993–1998	0.59	M-v	4	Williams	33339	1993 FE ₇₆
1993 FX ₇₉	14.0	0.15	19990122	70.91925	122.14101	195.51693	1.81956	0.1301733	2.4502204	96	3	1993–1998	0.70	M-v	3	Williams	33071	1993 FX ₇₉
1993 FL ₈₄	13.9	0.15	19990122	128.94851	164.61865	183.06922	8.05240	0.1644900	2.2173352	53	5	1981–1999	0.75	M-v	1	Williams	30660	1993 FL ₈₄
1993 GC ₁	13.4	0.15	19990122	130.25491	260.14721	68.51322	5.24755	0.1602687	2.2926348	31	4	1987–1998	0.62	M-v	2	Williams	33339	1993 GC ₁
1993 GN ₁	15.1	0.15	19990122	294.94220	286.35730	258.30596	4.11487	0.1240722	2.2149588	35	4	1978–1998	0.75	M-v	2	Williams	28887	1993 GN ₁
1993 HH ₁	14.2	0.15	19990122	228.09365	294.51832	292.52772	0.76098	0.1659819	2.2900459	26	3	1993–1998	0.71	M-v	4	Williams	29944	1993 HH ₁
1993 HS ₁	14.0	0.15	19990122	241.67971	199.96567	29.72365	8.22985	0.1147684	2.2459366	22	3	1993–1998	0.52	M-v	2	Williams	30660	1993 HS ₁
1993 HW ₁	13.6	0.15	19990122	205.99359	176.73463	76.02818	12.51810	0.2054510	2.2982996	26	4	1989–1998	0.66	M-v	2	Williams	29662	1993 HW ₁
1993 HL ₆	13.8	0.15	19990122	272.29109	345.70871	215.78197	7.51825	0.1444858	2.1958963	42	6	1967–1998	0.89	M-v	2	Williams	33339	1993 HL ₆
1993 JD	13.3	0.15	19990122	136.31019	359.81285	223.57099	12.47556	0.1101598	2.6009535	39	2	1993–1998	0.69	M-v	4	Williams	32746	1993 JD
1993 JX	15.0	0.15	19990122	316.34709	276.78672	226.80240	4.99160	0.0738052	2.3019916	20	3	1989–1998	0.72	M-v	4	Williams	22958	1993 JX
1993 KQ	13.6	0.15	19990122	242.55951	124.73181	97.99406	9.42172	0.2004847	2.2889500	37	8	1958–1998	0.77	M-v	2	Williams	30688	1993 KQ
1993 KZ ₁	13.5	0.15	19990122	198.02851	169.34928	89.95303	25.56558	0.2007941	2.3467043	36	3	1993–1998	0.72	M-v	3	Williams	33339	1993 KZ ₁
1993 LS ₁	13.7	0.15	19990122	63.15594	24.42467	301.40434	12.82201	0.1778324	2.5473794	23	3	1982–1998	0.64	M-v	2	Williams	33339	1993 LS ₁
1993 LZ ₁	13.5	0.15	19990122	105.67049	86.71614	275.50944	5.75350	0.1270895	2.3815882	36	6	1979–1998	0.76	M-v	1	Williams	33071	1993 LZ ₁
1993 NB	13.0	0.15	19990122	134.93714	204.79893	130.17467	14.19360	0.2261524	2.4409225	17	4	1955–1998	0.86	M-v	3	Williams	30660	1993 NB
1993 NJ ₁	15.6	0.15	19990122	170.75269	170.08787	132.97123	3.28470	0.1719422	2.3904850	32	3	1993–1998	0.71	M-v	4	Williams	33072	1993 NJ ₁
1993 NA ₂	13.7	0.15	19990122	351.49816	300.90591	123.70278	9.61397	0.1775642	2.6317919	33	4	1991–1998	0.86	M-v	3	Williams	33339	1993 NA ₂
1993 NB ₂	14.2	0.15	19990122	45.01866	103.96616	297.42424	1.50090	0.1699877	2.5312227	35	7	1949–1998	0.77	M-v	2	Williams	30688	1993 NB ₂
1993 OY ₂	14.7	0.15	19990122	130.23697	317.52003	352.36710	17.20888	0.2046033	2.6113890	67	3	1993–1998	0.56	M-v	2	Williams	26903	1993 OY ₂
1993 OM ₃	14.1	0.15	19990122	305.32684	92.82648	120.63266	6.40324	0.1090894	2.2341135	37	6	1986–1998	0.76	M-v	2	Williams	33339	1993 OM ₃
1993 OP ₃	14.1	0.15	19990122	343.01754	137.32565	314.84692	4.06434	0.1061329	2.5300286	39	3	1986–1998	0.65	M-v	5	Williams	33235	1993 OP ₃
1993 OY ₆	14.8	0.15	19990122	228.03740	148.57321	121.42861	6.15740	0.2206994	2.2966998	15	4	1937–1998	0.64	M-v	3	Williams	28888	1993 OY ₆
1993 OS ₁₀	13.6	0.15	19990122	51.41571	53.60182	274.15570	4.02349	0.0246095	2.7269081	69	3	1989–1998	0.67	M-v	3	Williams	33339	1993 OS ₁₀
1993 OS ₁₂	15.2	0.15	19990122	187.58628	124.41562	137.92169	3.26901	0.1658911	2.4235051	23	3	1993–1998	0.93	M-v	4	Williams	32931	1993 OS ₁₂
1993 OG ₁₃	14.4	0.15	19990122	57.31211	125.17933	303.67886	1.72186	0.1791998	2.3889443	26	5	1977–1998	0.83	M-v	2	Williams	30688	1993 OG ₁₃
1993 PY ₅	14.1	0.15	19990122	245.45838	283.91484	304.27623	7.07429	0.1648280	2.4179422	19	3	1988–1998	0.74	M-v	3	Williams	23981	1993 PY ₅
1993 QE ₁	12.4	0.15	19990122	104.12496	191.63015	124.38482	14.60758	0.1636176	2.6385231	25	4	1979–1998	0.58	M-v	2	Williams	33339	1993 QE ₁
1993 QN ₃	13.8	0.15	19990122	123.04532	134.14282	159.88719	4.82739	0.0573885	2.6993168	24	2	1993–1998	0.91	M-v	5	Williams	33236	1993 QN ₃
1993 QR ₄	14.2	0.15	19990122	355.17415	98.41781	12.37679	3.53489	0.0791403	2.5658366	31	5	1989–1998	0.87	M-v	2	Williams	30688	1993 QR ₄
1993 QX ₄	13.4	0.15	19990122	334.34369	322.87509	160.37899	15.33122	0.0501787	2.5618642	37	5	1975–1998	0.76	M-v	2	Williams	30897	1993 QX ₄
1993 RK	13.9	0.15	19990122	105.25184	11.33078	343.98613	12.32148	0.2665400	2.5827054	32	3	1993–1998	0.85	M-v	2	Williams	31007	1993 RK
1993 RZ ₁	14.5	0.15	19990122	175.47974	60.78030	247.51063	1.04790	0.1430186	2.4621668	31	4	1978–1998	0.68	M-v	2	Williams	33072	1993 RZ ₁
1993 RP ₃	13.5	0.15	19990122	20.00692	165.22681	262.68953	12.10006	0.2486173	2.6558382	33	4	1985–1998	0.83	M-v	1	Williams	33072	1993 RP ₃
1993 RQ ₄	14.2	0.15	19990122	36.29701	191.20625	221.95858	2.50618	0.1424167	2.6931934	23	3	1993–1998	0.72	M-v	4	Williams	30872	1993 RQ ₄
1993 RQ ₅	14.4	0.15	19990122	316.20289	301.79158	183.36290	7.06359	0.0503768	2.6998240	54	5	1979–1998	0.73	M-v	2	Williams	33339	1993 RQ ₅
1993 RV ₇	14.1	0.15	19990122	150.67140	308.66853	357.79631	5.80068	0.0928682	2.5894031	26	3	1993–1998	0.88	M-v	5	Williams	30661	1993 RV ₇
1993 RY ₁₁	13.3	0.15	19990122	46.62752	111.18435	221.30430	1.05063	0.0832988	2.9138879	58	4	1978–1998	0.84	M-v	3	Williams	33339	1993 RY ₁₁
1993 RM ₁₄	13.5	0.15	19990122	5.20289	192.72234	192.55959	1.59982	0.1054007	2.9362380	61	3	1991–1998	0.79	M-v	3	Williams	32932	1993 RM ₁₄
1993 SG ₁	14.0	0.15	19990122	108.65567	175.42901	174.75269	13.86487	0.2921218	2.5826281	39	4	1989–1998	0.62	M-v	2	Williams	30899	1993 SG ₁
1993 SO ₂	13.7	0.15	19990122	222.25203	338.06020	207.97808	7.59769	0.1115323	2.7923007	83	3	1993–1998	0.72	M-v	3	Williams	33339	1993 SO ₂
1993 SA ₄	13.1	0.15	19990122	79.83044	172.26324	178.26595	8.60571	0.1834712	2.7175446	26	5	1962–1998	0.64	M-v	2	Williams	31235	1993 SA ₄
1993 SX ₄	13.7	0.15	19990122	307.71965	22.01254	165.69601	2.61638	0.1321988	2.4200982	31	5	1973–1998	0.68	M-v	2	Williams	33072	1993 SX ₄
1993 SU ₆	14.0	0.15	19990122	184.87121	268.29640	350.02147	0.43935	0.0911161	2.6433748	30	5	1976–1998	0.77	M-v	1	Williams	31139	1993 SU ₆
1993 SB ₁₅	12.9	0.15	19990122	36.72772	295.86685	126.80843	13.36716	0.1618046	2.6850908	25	3	1989–1998	0.73	M-v	4	Williams	30452	1993 SB ₁₅
1993 TQ	13.4	0.15	19990122	86.96121	292.15192	67.23209	8.48807	0.2063672	2.6909496	37	7	1971–1998	0.63	M-v	1	Williams	30688	1993 TQ
1993 TS ₁	13.1	0.15	19990122	358.87708	171.83928	196.86941	13.97132	0.1036734	3.1342105	38	3	1987–1998	0.70	M-v	2	Williams	32746	1993 TS ₁
1993 TV ₁₂	13.5	0.15	19990122	351.34292	46.98857	43.03948	9.67367	0.1405187	2.7968527	49	2	1993–1998	0.69	M-v	4	Williams	33339	1993 TV ₁₂
1993 TH ₁₄	13.2	0.15	19990122	234.25071	68.76292	157.24421	3.60005	0.1928082	2.5898634	29	4	1989–1998	0.76	M-v	2	Williams	27936	1993 TH ₁₄
1993 TD ₁₇	14.7	0.15	19990122	136.79004	199.99683	87.74661	1.78148	0.0407046	2.7765670	27	3	1993–1998	0.49	M-v	3	Williams	33339	1993 TD ₁₇
1993 TN ₁₈	13.4	0.15	19990122	162.47645	212.00543	61.57160	3.40963	0.0339569	2.7304854	29	3	1993–1998	0.77	M-v	4	Williams	32934	1993 TN ₁₈

1993 TV ₁₉	12.9	0.15	19990122	104.72665	214.95865	84.10999	3.43856	0.0183172	2.8909209	38	2	1993–1998	0.66	M-v	5	Williams	33339	1993 TV ₁₉
1993 TC ₂₀	14.4	0.15	19990122	112.91007	267.54928	39.35780	4.25576	0.0847338	2.7837852	25	2	1993–1998	0.73	M-v	5	Williams	33237	1993 TC ₂₀
1993 TM ₂₄	14.6	0.15	19990122	13.24544	348.39860	56.89748	4.62382	0.1826925	2.8755826	42	2	1993–1998	0.56	M-v	4	Williams	33237	1993 TM ₂₄
1993 TO ₂₄	14.4	0.15	19990122	307.22347	61.33276	99.78864	3.06752	0.1305421	2.6621151	40	3	1993–1998	0.70	M-v	4	Williams	25083	1993 TO ₂₄
1993 TK ₂₅	15.5	0.15	19990122	102.65594	139.88623	179.38082	3.29955	0.0959923	2.7825786	31	3	1993–1998	0.60	M-v	4	Williams	33237	1993 TK ₂₅
1993 TJ ₃₁	14.0	0.15	19990122	9.53512	251.34423	115.56429	5.19410	0.0535695	3.0708680	23	2	1993–1998	0.64	M-v	5	Williams	33072	1993 TJ ₃₁
1993 TK ₃₃	14.2	0.15	19990122	72.66735	304.47347	70.41617	5.06054	0.1056249	2.7160502	18	3	1975–1998	0.53	M-v	5	Williams	32232	1993 TK ₃₃
1993 TW ₃₃	13.5	0.15	19990122	101.91940	236.62608	99.47039	5.23891	0.0524562	2.7469206	18	3	1993–1998	0.66	M-v	3	Williams	27557	1993 TW ₃₃
1993 TQ ₃₆	13.5	0.15	19990122	27.87084	328.21293	66.33466	10.50676	0.1377765	2.7979729	30	2	1993–1998	0.67	M-v	4	Williams	33238	1993 TQ ₃₆
1993 TU ₃₈	14.3	0.15	19990122	334.77837	3.44584	98.47825	5.52434	0.0245062	2.7969225	41	5	1988–1998	0.90	M-v	1	Williams	33339	1993 TU ₃₈
1993 TY ₃₈	14.4	0.15	19990122	53.46613	270.43183	161.94365	7.78351	0.1471961	2.6224346	14	3	1978–1998	0.43	M-v	3	Williams	23784	1993 TY ₃₈
1993 UK	12.9	0.15	19990122	83.11044	254.92948	80.70726	3.32553	0.0669223	2.8532855	39	2	1993–1998	0.72	M-v	5	Williams	33238	1993 UK
1993 UL	14.1	0.15	19990122	119.98939	131.12790	196.47398	12.70510	0.1919571	2.6696231	28	5	1992–1998	0.74	M-v	1	Williams	31007	1993 UL
1993 US	14.6	0.15	19990122	108.74043	169.36600	166.71071	1.85911	0.0942063	2.6884041	51	6	1953–1998	0.77	M-v	1	Williams	30662	1993 US
1993 UT	13.7	0.15	19990122	112.67111	244.23880	63.47035	32.32384	0.3367059	2.7188477	38	3	1984–1998	0.62	M-v	3	Williams	33238	1993 UT
1993 UJ ₁	14.8	0.15	19990122	343.20467	244.82062	207.56809	20.77879	0.0845878	1.8539872	50	3	1992–1998	0.82	M-v	3	Williams	33339	1993 UJ ₁
1993 UZ ₇	13.3	0.15	19990122	325.97731	264.56491	144.22820	7.32794	0.1434394	3.1657231	48	2	1993–1998	0.70	M-v	4	Williams	32746	1993 UZ ₇
1993 VG ₁	12.5	0.15	19990122	65.09028	315.25535	72.05004	11.72921	0.2524077	2.7471661	36	5	1961–1998	0.69	M-v	1	Williams	33072	1993 VG ₁
1993 VA ₃	12.0	0.15	19990122	57.78220	283.46659	54.11722	10.39264	0.1261305	3.0182379	38	3	1993–1998	0.64	M-v	3	Williams	33238	1993 VA ₃
1993 VV ₄	12.7	0.15	19990122	354.55614	339.40715	83.67992	9.72199	0.0461460	3.0376450	57	3	1993–1998	0.79	M-v	3	Williams	33339	1993 VV ₄
1993 VH ₅	14.6	0.15	19990122	61.09854	228.71306	124.50238	3.98006	0.2134825	2.8333674	26	2	1993–1998	0.66	M-v	5	Williams	33238	1993 VH ₅
1993 VV ₇	13.7	0.15	19990122	49.60221	301.06588	110.48979	33.51900	0.3340076	2.7381700	40	3	1993–1998	0.59	M-v	2	Williams	33339	1993 VV ₇
1993 WD	16.9	0.15	19990122	296.22237	132.26299	56.58643	63.46284	0.2666085	1.0067276	331	7	1991–1998	0.61	M-v	3	Marsden	33339	1993 WD
1993 XM	12.8	0.15	19990122	305.76374	37.65435	107.67413	16.71084	0.1523460	3.0500910	34	3	1993–1998	0.74	M-v	2	Williams	33339	1993 XM
1993 XN	12.7	0.15	19990122	347.94111	280.43598	268.49977	12.16509	0.1250972	2.6480433	36	3	1993–1998	0.55	M-v	3	Williams	31788	1993 XN
1993 XJ ₁	13.3	0.15	19990122	56.99764	334.16259	81.26205	6.97941	0.1068773	2.7536299	16	2	1993–1998	0.65	M-v	5	Williams	33239	1993 XJ ₁
1993 YD	13.0	0.15	19990122	245.51809	74.09505	100.31744	14.79842	0.0204404	3.1739335	56	4	1993–1998	0.66	M-v	1	Williams	33340	1993 YD
1994 AH	13.2	0.15	19990122	150.43708	174.16537	136.46248	2.75439	0.0734580	2.9329390	52	4	1994–1998	0.61	M-v	1	Williams	31140	1994 AH
1994 AS	13.1	0.15	19990122	219.01006	202.10264	31.78354	1.80828	0.1631979	3.1085107	41	7	1981–1998	0.84	M-v	1	Williams	32307	1994 AS
1994 AJ ₁	13.2	0.15	19990122	46.16342	128.17903	287.49385	9.35776	0.0945438	2.9909642	35	4	1989–1998	0.65	M-v	2	Williams	33340	1994 AJ ₁
1994 AL ₁	15.3	0.15	19990122	307.28429	54.03673	101.26461	28.56132	0.1666804	1.8823689	29	3	1994–1998	0.50	M-v	2	Williams	33340	1994 AL ₁
1994 AP ₁	12.7	0.15	19990122	331.34888	192.88706	316.81828	19.49591	0.2164939	2.9851898	28	4	1994–1998	0.54	M-v	2	Williams	31008	1994 AP ₁
1994 AB ₂	13.2	0.15	19990122	2.41496	240.94493	232.73823	0.76340	0.0222233	2.9325474	37	6	1977–1998	0.66	M-v	1	Williams	31140	1994 AB ₂
1994 AL ₁₆	13.1	0.15	19990122	356.55490	282.88171	180.28534	9.81846	0.0624247	3.0569878	14	3	1989–1998	0.76	M-v	4	Williams	23676	1994 AL ₁₆
1994 BD ₄	13.6	0.15	19990122	335.16539	305.95559	157.22042	5.95647	0.0876657	3.1536356	17	3	1981–1998	0.45	M-v	4	Williams	33340	1994 BD ₄
1994 BJ ₄	13.5	0.15	19990122	254.93433	290.82079	276.09099	8.45187	0.0448291	3.0702069	26	4	1991–1998	0.62	M-v	1	Williams	28888	1994 BJ ₄
1994 CK ₁	17.3	0.15	19990122	53.91714	26.92006	328.80896	4.57691	0.6328982	1.9006090	73	3	1994–1998	0.49	M-v	2	Williams	32747	1994 CK ₁
1994 CV ₁	13.2	0.15	19990122	335.09028	74.78073	66.49852	3.89637	0.1797039	3.0776407	29	4	1992–1998	0.51	M-v	1	Williams	31140	1994 CV ₁
1994 CF ₂	13.1	0.15	19990122	339.11705	357.15556	122.29460	2.24395	0.1550648	3.1753472	37	2	1994–1998	0.67	M-v	5	Williams	30453	1994 CF ₂
1994 CK ₂	13.8	0.15	19990122	317.45157	79.56806	57.90072	2.45310	0.1179906	3.1861513	42	4	1992–1998	0.55	M-v	1	Williams	32747	1994 CK ₂
1994 GB ₁	13.8	0.15	19990122	88.76151	238.39272	40.38660	5.51940	0.1973161	2.2712918	35	2	1994–1998	0.78	M-v	4	Williams	33072	1994 GB ₁
1994 LY ₁	15.4	0.15	19990122	17.23717	299.91959	126.96646	8.50013	0.0764669	2.2405052	21	3	1994–1998	0.44	M-v	2	Williams	26744	1994 LY ₁
1994 NS	14.5	0.15	19990122	151.24771	78.94262	203.79699	6.48284	0.2398824	2.1665642	29	5	1988–1998	0.76	M-v	2	Williams	33340	1994 NS
1994 NF ₁	13.8	0.15	19990122	126.64016	199.05905	99.24188	8.19710	0.1399467	2.2168163	32	4	1994–1998	0.63	M-v	2	Williams	33340	1994 NF ₁
1994 NS ₁	14.6	0.15	19990122	41.64488	115.59177	240.24851	1.64585	0.0989104	2.3553092	73	3	1987–1998	0.83	M-v	2	Williams	33340	1994 NS ₁
1994 PA	15.0	0.15	19990122	336.74929	237.19162	249.31106	6.11657	0.0272154	2.1809156	60	4	1994–1998	0.86	M-v	2	Williams	30472	1994 PA
1994 PG	14.2	0.15	19990122	229.89430	14.20106	157.70868	12.45475	0.0921956	2.3928284	34	2	1994–1998	0.65	M-v	4	Williams	33241	1994 PG
1994 PH	15.1	0.15	19990122	79.16806	335.00532	352.72089	4.64817	0.1956896	2.3473966	23	2	1994–1998	0.80	M-v	4	Williams	33241	1994 PH
1994 PF ₁₁	15.4	0.15	19990122	197.47633	261.78841	313.82744	2.33498	0.0563164	2.3390008	22	2	1994–1998	0.70	M-v	5	Williams	33242	1994 PF ₁₁
1994 PK ₁₁	14.0	0.15	19990122	22.81640	115.22077	299.92217	4.34057	0.2235395	2.3607110	27	5	1958–1998	0.80	M-v	2	Williams	33242	1994 PK ₁₁
1994 PL ₁₃	15.6	0.15	19990122	304.96359	203.34938	325.46627	6.27617	0.0147236	2.1654418	21	3	1991–1998	0.85	M-v	4	Williams	32458	1994 PL ₁₃
1994 PP ₁₆	15.6	0.15	19990122	160.25549	136.10821	131.97015	1.07496	0.1250271	2.2682629	21	3	1960–1998	0.86	M-v	6	Williams	33242	1994 PP ₁₆
1994 PQ ₁₆	15.0	0.15	19990122	19.15333	98.90385	331.67081	5.37516	0.1116177	2.2849926	30	3	1991–1998	0.79	M-v	3	Williams	33340	1994 PQ ₁₆

1994 PE ₁₈	14.7	0.15	19990122	127.99230	338.57618	316.75588	0.64573	0.1525558	2.2939768	26	2	1994–1998	0.68	M-v	5	Williams	33242	1994 PE ₁₈
1994 PG ₁₈	14.2	0.15	19990122	231.99631	2.22839	157.20809	6.42928	0.0656468	2.4555919	45	2	1994–1998	0.75	M-v	4	Williams	33072	1994 PG ₁₈
1994 PR ₂₀	14.8	0.15	19990122	20.71384	286.03818	143.60789	3.63361	0.1211043	2.2922299	44	4	1994–1998	0.66	M-v	1	Williams	30688	1994 PR ₂₀
1994 PF ₂₂	14.0	0.15	19990122	91.20955	25.87355	337.76426	6.31927	0.1953682	2.2584724	24	8	1972–1998	0.87	M-v	2	Williams	28888	1994 PF ₂₂
1994 PG ₂₄	14.9	0.15	19990122	330.43384	304.79290	139.58545	1.77292	0.1506047	2.4020070	44	2	1994–1998	0.86	M-v	5	Williams	33340	1994 PG ₂₄
1994 PW ₂₇	14.1	0.15	19990122	106.08389	322.06220	357.53262	3.37399	0.0946425	2.2995594	49	5	1966–1998	0.94	M-v	2	Williams	33340	1994 PW ₂₇
1994 PE ₂₉	16.3	0.15	19990122	41.31524	298.18378	82.63874	1.57634	0.2133369	2.3801270	37	2	1994–1998	0.80	M-v	4	Williams	33340	1994 PE ₂₉
1994 PW ₃₁	13.8	0.15	19990122	119.61607	78.29388	175.58789	7.82471	0.1670262	2.4478586	70	4	1990–1998	0.77	M-v	3	Williams	33073	1994 PW ₃₁
1994 PQ ₃₂	15.6	0.15	19990122	74.77918	141.23397	190.33362	5.53468	0.1251099	2.3894802	25	4	1979–1998	0.84	M-v	2	Williams	33340	1994 PQ ₃₂
1994 PU ₃₂	14.5	0.15	19990122	143.07101	80.21895	209.72874	4.43899	0.0338625	2.2926646	29	3	1993–1998	0.75	M-v	4	Williams	33340	1994 PU ₃₂
1994 PE ₃₃	13.9	0.15	19990122	257.82490	253.72414	293.43155	3.94858	0.0861049	2.2479491	36	3	1994–1998	0.83	M-v	4	Williams	33340	1994 PE ₃₃
1994 PN ₃₇	14.9	0.15	19990122	115.44138	126.43057	157.43079	6.09544	0.1844152	2.3434548	35	2	1994–1998	0.93	M-v	4	Williams	33340	1994 PN ₃₇
1994 QA	13.5	0.15	19990122	256.93754	121.66268	69.42780	25.12463	0.2242909	2.3309327	33	4	1950–1998	0.67	M-v	3	Williams	33340	1994 QA
1994 RL ₁	14.4	0.15	19990122	39.66897	153.84156	188.39351	12.94281	0.2088711	2.5447163	72	4	1986–1998	0.72	M-v	3	Williams	33073	1994 RL ₁
1994 RH ₉	14.6	0.15	19990122	69.62797	340.30051	353.48912	9.88456	0.3477399	2.4092394	45	3	1994–1998	0.64	M-v	3	Williams	33340	1994 RH ₉
1994 RE ₁₁	16.5	0.15	19990122	18.41244	208.02377	172.50357	14.33822	0.3682339	2.5298208	54	2	1994–1998	0.71	M-v	2	Williams	33073	1994 RE ₁₁
1994 RJ ₁₁	13.6	0.15	19990122	76.72838	357.78982	345.74395	6.50289	0.1417471	2.3617031	42	4	1987–1998	0.67	M-v	2	Williams	33340	1994 RJ ₁₁
1994 RP ₁₁	15.3	0.15	19990122	60.59367	108.36902	251.80759	5.73418	0.1462939	2.3870338	18	2	1994–1998	0.76	M-v	5	Williams	33244	1994 RP ₁₁
1994 SH ₁₁	14.1	0.15	19990122	216.15887	202.77174	21.43447	6.61782	0.0602216	2.3308773	38	4	1993–1998	0.73	M-v	2	Williams	33340	1994 SH ₁₁
1994 TJ	14.9	0.15	19990122	57.64522	0.88035	345.65179	5.60615	0.0936503	2.4799412	34	2	1994–1998	0.64	M-v	4	Williams	33244	1994 TJ
1994 TT	14.5	0.15	19990122	12.91973	33.02538	358.36964	5.46629	0.2336696	2.5453799	53	3	1990–1998	0.69	M-v	4	Williams	32941	1994 TT
1994 TW	14.6	0.15	19990122	26.18253	351.77313	20.62266	13.81330	0.1779700	2.5313737	44	2	1994–1998	0.61	M-v	3	Williams	33340	1994 TW
1994 TJ ₁	14.7	0.15	19990122	18.82897	194.24449	182.12991	6.34407	0.2463960	2.5641994	56	3	1986–1998	0.64	M-v	3	Williams	33073	1994 TJ ₁
1994 TN ₁	12.1	0.15	19940925	335.80387	13.83344	41.63837	12.93849	0.2115727	3.1534678	6	1	5 days	0.78		E	Williams		1994 TN ₁
1994 TQ ₁	13.7	0.15	19990122	146.00223	223.52661	55.55486	7.10098	0.1472421	2.3472002	32	3	1976–1998	0.65	M-v	4	Williams	33340	1994 TQ ₁
1994 TR ₁	14.2	0.15	19990122	47.64639	119.88413	205.96797	12.09924	0.3049201	2.5573271	54	4	1993–1998	0.77	M-v	2	Williams	33340	1994 TR ₁
1994 TU ₂	15.3	0.15	19990122	78.98150	149.21303	200.16939	3.18195	0.2568403	2.3781423	29	4	1994–1998	0.84	M-v	2	Williams	30900	1994 TU ₂
1994 TY ₂	13.9	0.15	19990122	7.76155	64.12822	17.90795	10.83665	0.2712500	2.4461714	47	4	1988–1998	0.68	M-v	2	Williams	33341	1994 TY ₂
1994 TA ₃	14.4	0.15	19990122	97.52284	354.40474	9.23971	5.45777	0.2097445	2.2900535	21	4	1982–1998	0.89	M-v	3	Williams	29138	1994 TA ₃
1994 TB ₃	13.7	0.15	19990122	6.26049	12.41564	14.62393	14.60090	0.1506135	2.6010898	29	2	1994–1998	0.71	M-v	3	Williams	33341	1994 TB ₃
1994 TT ₃	14.2	0.15	19990122	86.75600	127.40292	208.16028	22.73286	0.2687568	2.4396921	26	4	1986–1998	0.87	M-v	2	Williams	33341	1994 TT ₃
1994 TU ₃	13.6	0.15	19990122	85.67518	140.83629	211.78157	22.62342	0.2687400	2.3296781	17	4	1951–1998	0.56	M-v	2	Williams	29945	1994 TU ₃
1994 TZ ₁₄	14.5	0.15	19990122	19.77384	200.87907	182.78238	5.05232	0.2055491	2.5521298	88	3	1994–1998	0.62	M-v	3	Williams	33341	1994 TZ ₁₄
1994 TW ₁₅	15.3	0.15	19990122	19.82318	150.53871	221.10026	3.57860	0.2267439	2.5556757	76	2	1994–1998	0.65	M-v	3	Williams	33341	1994 TW ₁₅
1994 TS ₁₆	13.5	0.15	19990122	93.71307	147.11621	189.60092	5.96577	0.1362102	2.3913267	19	4	1990–1998	0.79	M-v	3	Williams	33245	1994 TS ₁₆
1994 UB	15.0	0.15	19990122	128.54656	131.88528	154.99889	9.26722	0.1983690	2.3099424	35	4	1990–1998	0.54	M-v	1	Williams	33073	1994 UB
1994 UD	14.2	0.15	19990122	59.97702	327.32433	76.28388	6.05553	0.2254277	2.3330283	36	3	1994–1998	0.58	M-v	2	Williams	27122	1994 UD
1994 UF	14.8	0.15	19990122	51.04344	176.28995	191.20386	13.03765	0.2882519	2.4277794	36	3	1994–1998	0.59	M-v	2	Williams	33245	1994 UF
1994 UH	14.4	0.15	19990122	67.41071	315.20201	117.82089	2.25016	0.1083066	2.2675628	36	6	1955–1998	0.66	M-v	1	Williams	30689	1994 UH
1994 UT	14.6	0.15	19990122	69.67730	123.36723	267.74833	4.61402	0.1372329	2.3282037	44	2	1994–1998	0.62	M-v	3	Williams	33245	1994 UT
1994 UW	14.6	0.15	19990122	67.44608	359.42440	13.20548	6.27737	0.1510766	2.3947062	32	5	1953–1998	0.55	M-v	2	Williams	33341	1994 UW
1994 UZ	14.6	0.15	19990122	55.98149	52.03944	342.97520	1.94404	0.2097926	2.3767929	42	4	1954–1998	0.56	M-v	2	Williams	29138	1994 UZ
1994 UC ₁	13.5	0.15	19990122	140.61890	248.42380	35.08124	1.61116	0.1141713	2.4557472	70	4	1977–1998	0.81	M-v	2	Williams	33341	1994 UC ₁
1994 UJ ₁	14.3	0.15	19990122	31.03149	19.64000	348.00729	3.11084	0.1821444	2.5733445	79	4	1992–1998	0.62	M-v	2	Williams	33341	1994 UJ ₁
1994 UM ₁	13.9	0.15	19990122	69.10893	69.55844	250.46992	3.38699	0.1989137	2.5660452	82	5	1986–1998	0.63	M-v	3	Williams	33341	1994 UM ₁
1994 UP ₁	13.9	0.15	19990122	338.28259	50.25428	34.21447	13.78755	0.1360210	2.5527369	45	4	1976–1998	0.76	M-v	3	Williams	33246	1994 UP ₁
1994 UQ ₁	13.8	0.15	19990122	53.14903	134.27003	201.89036	3.54123	0.1971942	2.5704516	105	5	1980–1998	0.64	M-v	2	Williams	33341	1994 UQ ₁
1994 UT ₁	12.9	0.15	19990122	357.68977	330.94145	45.02953	14.61986	0.1886016	2.7127790	30	3	1994–1998	0.66	M-v	3	Williams	32748	1994 UT ₁
1994 VL	15.2	0.15	19990122	355.04201	50.11841	23.15949	5.56842	0.2194814	2.5441548	67	2	1994–1998	0.65	M-v	4	Williams	33341	1994 VL
1994 VT	14.5	0.15	19990122	8.91670	133.49224	335.80081	1.97866	0.1732432	2.4033014	21	4	1981–1998	0.74	M-v	2	Williams	33341	1994 VT
1994 VU	14.3	0.15	19990122	25.25169	352.08046	56.98467	13.31196	0.1140654	2.5257428	22	2	1994–1998	0.58	M-v	4	Williams	33246	1994 VU
1994 VZ	14.6	0.15	19990122	120.75892	113.29632	222.04396	5.88347	0.1511459	2.3194215	28	5	1993–1998	0.62	M-v	1	Williams	30292	1994 VZ
1994 VH ₁	13.3	0.15	19990122	271.83641	53.92708	87.13090	4.10931	0.0595538	2.6352894	70	2	1994–1998	0.62	M-v	4	Williams	33341	1994 VH ₁

1994 VQ ₁	15.0	0.15	19990122	2.14891	185.50083	247.56243	4.60452	0.2270123	2.5507896	24	2	1994–1998	0.53	M-v	4	Williams	33246	1994 VQ ₁
1994 VA ₂	14.3	0.15	19990122	22.26304	324.26428	71.38771	14.03114	0.1656685	2.5314111	24	3	1978–1998	0.55	M-v	3	Williams	33341	1994 VA ₂
1994 VB ₂	13.6	0.15	19990122	54.88556	204.14039	198.17624	4.62187	0.2761389	2.3796471	20	2	1994–1998	0.78	M-v	3	Williams	33246	1994 VB ₂
1994 VD ₂	13.6	0.15	19990122	339.90161	352.01227	59.32826	8.83586	0.2202339	2.7429896	55	3	1994–1998	0.51	M-v	2	Williams	32748	1994 VD ₂
1994 VF ₂	13.4	0.15	19990122	300.19427	68.32126	55.58782	13.09883	0.2243999	2.6297363	43	5	1970–1998	0.75	M-v	1	Williams	33341	1994 VF ₂
1994 VH ₂	14.3	0.15	19990122	315.61105	62.38900	49.21202	15.90047	0.0581539	2.5898269	37	2	1994–1998	0.57	M-v	4	Williams	33247	1994 VH ₂
1994 VW ₂	13.9	0.15	19990122	356.69397	312.62705	78.10107	5.14839	0.2964026	2.6886286	25	3	1994–1998	0.79	M-v	3	Williams	32748	1994 VW ₂
1994 VZ ₂	13.9	0.15	19990122	80.62321	341.29281	33.74398	9.06579	0.2518009	2.3544632	16	4	1983–1998	0.71	M-v	2	Williams	24573	1994 VZ ₂
1994 VU ₆	13.6	0.15	19990122	27.75187	144.34125	209.77470	13.05021	0.2126965	2.6367550	54	2	1994–1998	0.78	M-v	3	Williams	33341	1994 VU ₆
1994 VY ₆	15.5	0.15	19990122	30.99471	101.70110	266.70051	3.03641	0.2779589	2.5503611	35	2	1994–1998	0.62	M-v	3	Williams	33341	1994 VY ₆
1994 WC	14.7	0.15	19990122	75.36063	303.79445	38.81993	11.44466	0.3304625	2.4190053	31	5	1990–1998	0.80	M-v	2	Williams	29945	1994 WC
1994 WJ	14.9	0.15	19990122	39.96773	316.89880	53.56206	5.62833	0.2857396	2.5484429	48	2	1994–1998	0.60	M-v	4	Williams	33341	1994 WJ
1994 WQ	14.7	0.15	19990122	328.99004	229.14222	261.15843	9.43070	0.0926437	2.4800277	20	3	1994–1998	0.52	M-v	4	Williams	30982	1994 WQ
1994 WE ₁	14.2	0.15	19990122	337.37351	83.10034	64.69617	7.31476	0.0591639	2.3738463	35	4	1987–1998	0.64	M-v	1	Williams	28087	1994 WE ₁
1994 WH ₁	13.1	0.15	19990122	236.08352	319.29247	253.07311	12.46744	0.1114620	2.5410754	33	2	1994–1998	0.57	M-v	5	Williams	33247	1994 WH ₁
1994 WM ₁	14.4	0.15	19990122	4.62210	36.62770	65.72157	15.92944	0.0835158	2.4439741	29	3	1994–1998	0.78	M-v	4	Williams	27559	1994 WM ₁
1994 WP ₁	14.8	0.15	19990122	333.51221	199.23844	277.45565	3.86106	0.1661109	2.5501444	41	3	1994–1998	0.62	M-v	4	Williams	33341	1994 WP ₁
1994 WU ₁	14.5	0.15	19990122	157.96486	123.22317	172.91615	14.82693	0.1605354	2.4455404	104	4	1994–1998	0.66	M-v	1	Williams	31140	1994 WU ₁
1994 WE ₂	13.2	0.15	19990122	12.27273	266.11488	97.01655	9.10626	0.2181444	2.7471302	34	4	1982–1998	0.67	M-v	2	Williams	33341	1994 WE ₂
1994 WN ₃	13.3	0.15	19990122	34.89462	258.74313	133.21485	6.79477	0.2315699	2.5245920	32	2	1994–1998	0.67	M-v	4	Williams	33341	1994 WN ₃
1994 WP ₃	14.4	0.15	19990122	89.90923	261.03246	96.08654	9.05965	0.2575013	2.3659275	32	3	1994–1998	0.51	M-v	2	Williams	30292	1994 WP ₃
1994 WR ₃	12.8	0.15	19990122	12.24380	338.80711	78.69958	14.86130	0.1584955	2.5834664	32	2	1994–1998	0.76	M-v	3	Williams	33247	1994 WR ₃
1994 WA ₄	13.6	0.15	19990122	307.27599	252.04048	209.10005	11.71267	0.0835917	2.7041372	56	2	1994–1998	0.60	M-v	3	Williams	33341	1994 WA ₄
1994 WD ₄	14.0	0.15	19990122	66.61610	277.67813	162.53839	4.17232	0.1462498	2.2423558	27	7	1982–1998	0.89	M-v	2	Williams	30689	1994 WD ₄
1994 WJ ₁₂	13.8	0.15	19990122	35.89222	121.55407	271.55904	9.03924	0.2276417	2.5353551	40	2	1994–1998	0.73	M-v	5	Williams	33247	1994 WJ ₁₂
1994 XH	14.9	0.15	19990122	64.96970	63.04968	320.70003	2.18993	0.2131752	2.4455924	16	3	1990–1998	0.57	M-v	4	Williams	30873	1994 XH
1994 XJ	13.7	0.15	19990122	346.39015	100.94097	64.89730	6.97438	0.0589948	2.3305176	22	4	1988–1998	0.84	M-v	2	Williams	33341	1994 XJ
1994 XP	13.8	0.15	19990122	37.78825	156.40924	225.62353	7.28621	0.2088885	2.5575418	71	2	1994–1998	0.71	M-v	3	Williams	33341	1994 XP
1994 XN ₁	15.8	0.15	19990122	304.63708	119.73777	47.53405	4.42739	0.0724575	2.3838663	21	4	1992–1998	0.56	M-v	1	Williams	27314	1994 XN ₁
1994 XP ₄	15.1	0.15	19990122	319.64602	161.39142	343.49091	3.68681	0.2024585	2.5799863	32	3	1960–1998	0.75	M-v	5	Williams	24915	1994 XP ₄
1994 XQ ₄	14.0	0.15	19990122	19.13826	311.88400	77.77304	4.13254	0.1193412	2.7464509	55	2	1994–1998	0.65	M-v	4	Williams	33341	1994 XQ ₄
1994 YC	15.2	0.15	19990122	311.47559	182.48636	315.52048	4.91869	0.1641842	2.6247390	25	4	1991–1998	0.53	M-v	3	Williams	33341	1994 YC
1994 YN	14.3	0.15	19990122	47.01400	292.03721	101.31983	13.59710	0.2709969	2.5285665	41	3	1991–1998	0.62	M-v	4	Williams	33074	1994 YN
1994 YR	14.4	0.15	19990122	72.35782	243.03088	102.33659	4.29436	0.2905045	2.6206068	42	3	1994–1998	0.71	M-v	2	Williams	33341	1994 YR
1994 YX	14.1	0.15	19990122	22.66056	141.33880	288.29214	4.38365	0.1312943	2.5659441	30	4	1987–1998	0.67	M-v	3	Williams	33074	1994 YX
1994 YZ	13.1	0.15	19990122	88.90872	54.60698	289.81329	12.93293	0.1975844	2.6011624	30	3	1994–1998	0.48	M-v	3	Williams	30761	1994 YZ
1994 YF ₁	13.8	0.15	19990122	289.49041	161.03731	291.11601	8.93520	0.0280778	2.9960395	28	2	1994–1998	0.79	M-v	4	Williams	32669	1994 YF ₁
1994 YJ ₂	12.8	0.15	19990122	276.54140	104.32038	95.10452	14.06288	0.1129690	2.5856569	18	4	1991–1998	0.76	M-v	4	Williams	31277	1994 YJ ₂
1994 YM ₂	13.1	0.15	19990122	324.37784	213.33160	231.17955	12.50643	0.1243707	2.7288532	24	4	1989–1998	0.85	M-v	2	Williams	33341	1994 YM ₂
1995 AF	12.6	0.15	19990122	95.44008	27.96070	294.33473	11.53418	0.1682424	2.6652678	56	5	1967–1998	0.68	M-v	3	Williams	33341	1995 AF
1995 AO ₁	14.4	0.15	19990122	313.21476	307.46177	211.09807	10.04420	0.3205576	2.6970162	38	3	1995–1998	0.48	M-v	2	Williams	33341	1995 AO ₁
1995 AE ₄	14.6	0.15	19990122	42.85507	297.09767	92.81994	5.72009	0.2255818	2.5711235	25	3	1969–1998	0.74	M-v	4	Williams	33247	1995 AE ₄
1995 AV ₄	12.8	0.15	19990122	327.78315	119.95579	302.93339	8.94655	0.0906576	2.9821954	36	2	1995–1998	0.63	M-v	4	Williams	33074	1995 AV ₄
1995 BA	14.7	0.15	19990122	11.36278	57.41933	68.82412	1.74789	0.1664314	2.4256402	25	3	1995–1998	0.55	M-v	3	Williams	33342	1995 BA
1995 BD	12.0	0.15	19990122	67.95903	181.80523	92.20846	10.00974	0.1111822	3.4192868	45	3	1995–1998	0.59	M-v	3	Williams	30455	1995 BD
1995 BW	14.1	0.15	19990122	42.14368	7.07325	29.01931	2.95360	0.0851730	2.7347972	31	4	1995–1998	0.70	M-v	2	Williams	31008	1995 BW
1995 BY	13.3	0.15	19990122	11.94862	0.59806	35.96798	2.61202	0.0820591	2.9266131	81	3	1995–1998	0.64	M-v	4	Williams	33342	1995 BY
1995 BZ	13.7	0.15	19990122	251.34681	99.88582	115.41399	10.30341	0.1654638	2.7374026	28	2	1994–1998	0.58	M-v	4	Williams	33248	1995 BZ
1995 BP ₁	13.5	0.15	19990122	61.42067	306.49974	89.49461	13.50059	0.2565037	2.6304704	22	3	1989–1998	0.66	M-v	3	Williams	33342	1995 BP ₁
1995 BS ₁	12.5	0.15	19990122	60.87269	266.02027	135.06633	14.56606	0.1600987	2.6022335	28	5	1989–1998	0.49	M-v	2	Williams	29106	1995 BS ₁
1995 BW ₁	14.9	0.15	19990122	8.98902	329.26152	131.34542	9.00904	0.2220117	2.5798462	26	3	1995–1998	0.63	M-v	4	Williams	30689	1995 BW ₁
1995 BU ₂	12.4	0.15	19990122	234.50386	311.02313	299.34443	14.10269	0.0968807	2.5769846	33	3	1995–1998	0.58	M-v	2	Williams	30901	1995 BU ₂
1995 BQ ₃	13.3	0.15	19990122	46.68462	256.14828	150.53970	9.43585	0.1922282	2.6417192	28	4	1989–1998	0.52	M-v	1	Williams	30093	1995 BQ ₃

1995 BS ₃	13.8	0.15	19990122	20.35621	281.89744	165.01320	2.50570	0.0262058	2.6753784	40	5	1977–1998	0.71	M-v	1	Williams	30783	1995 BS ₃
1995 BJ ₁₁	14.0	0.15	19990122	132.55374	156.61376	138.27801	4.23004	0.1394513	3.0235096	21	3	1995–1998	0.34	M-v	3	Williams	32943	1995 BJ ₁₁
1995 CH	14.5	0.15	19990122	27.87904	295.26121	131.97159	14.31191	0.1547127	2.6872484	27	4	1986–1998	0.83	M-v	1	Williams	30277	1995 CH
1995 CJ	13.1	0.15	19990122	199.16259	115.19979	126.75966	14.50898	0.2139642	3.0527427	18	4	1991–1998	0.61	M-v	2	Williams	31008	1995 CJ
1995 CT ₁	13.6	0.15	19990122	277.08183	300.70621	270.44690	32.30595	0.2587993	2.7789496	27	3	1995–1998	0.65	M-v	2	Williams	27731	1995 CT ₁
1995 CD ₂	12.0	0.15	19990122	145.70861	22.62260	232.70326	21.12178	0.0425306	3.2357620	40	4	1995–1998	0.63	M-v	2	Williams	33342	1995 CD ₂
1995 CE ₂	12.7	0.15	19990122	237.13584	330.47460	291.15557	28.51724	0.0408604	2.6085765	22	4	1989–1998	0.58	M-v	1	Williams	29138	1995 CE ₂
1995 DA	13.3	0.15	19990122	42.46072	7.45888	49.39119	8.31398	0.1142890	2.7067181	56	5	1987–1998	0.63	M-v	2	Williams	29138	1995 DA
1995 DD	12.5	0.15	19990122	174.64271	321.31332	357.80203	13.07873	0.1766989	2.6663830	27	4	1988–1998	0.38	M-v	2	Williams	31141	1995 DD
1995 DG	12.6	0.15	19990122	312.99671	291.67109	149.00302	17.01126	0.2135296	3.1339488	45	2	1995–1998	0.64	M-v	4	Williams	32669	1995 DG
1995 DK	13.0	0.15	19990122	289.32361	358.48653	161.40864	9.98608	0.1127981	2.8730904	29	5	1990–1998	0.56	M-v	1	Williams	33342	1995 DK
1995 DG ₁	15.1	0.15	19990122	340.53368	272.66896	211.43371	4.30043	0.1120520	2.7577642	34	3	1995–1998	0.39	M-v	3	Williams	33342	1995 DG ₁
1995 DZ ₁	13.2	0.15	19990122	136.01879	202.23751	79.12123	7.31974	0.1250941	3.0957112	70	4	1995–1998	0.68	M-v	2	Williams	33342	1995 DZ ₁
1995 DO ₂	13.8	0.15	19990122	332.30614	15.93280	118.65088	3.65382	0.1343227	2.7540608	52	3	1995–1998	0.56	M-v	4	Williams	33342	1995 DO ₂
1995 DU ₃	15.7	0.15	19990122	357.39962	139.89060	31.42043	0.36460	0.1659450	2.3961608	62	4	1995–1998	0.74	M-v	1	Williams	30901	1995 DU ₃
1995 DZ ₁₁	13.6	0.15	19990122	333.66069	311.61721	140.87541	2.83732	0.0362842	2.9421840	36	4	1990–1998	0.74	M-v	1	Williams	33342	1995 DZ ₁₁
1995 EP ₁	12.8	0.15	19990122	266.31336	209.22710	350.07350	11.89561	0.1072836	2.8597485	27	3	1990–1998	0.59	M-v	4	Williams	25442	1995 EP ₁
1995 EY ₇	13.2	0.15	19990122	5.33823	254.30995	206.77204	8.06203	0.0912291	2.8070767	27	3	1995–1998	0.69	M-v	3	Williams	30665	1995 EY ₇
1995 EE ₈	12.7	0.15	19990122	4.71566	142.50418	350.56471	15.08080	0.1242130	2.6208554	18	5	1978–1998	0.73	M-v	2	Williams	33342	1995 EE ₈
1995 EG ₈	12.4	0.15	19990122	129.54546	310.77581	354.33431	25.95014	0.2431047	3.1621893	18	4	1991–1998	0.42	M-v	1	Williams	30983	1995 EG ₈
1995 FY ₂	14.2	0.15	19990122	12.88317	75.37014	9.60303	9.04364	0.1286648	2.7609696	24	3	1993–1998	0.47	M-v	4	Williams	30277	1995 FY ₂
1995 FW ₁₉	13.5	0.15	19990122	171.39069	298.92578	10.58784	5.45873	0.0611194	2.7395724	30	4	1983–1998	0.70	M-v	2	Williams	30875	1995 FW ₁₉
1995 GL ₇	14.1	0.15	19990122	64.60102	294.80010	69.90462	6.15329	0.1201894	3.0317777	31	2	1995–1998	0.59	M-v	5	Williams	33249	1995 GL ₇
1995 HA	14.8	0.15	19990122	182.10633	76.64082	212.85222	8.79364	0.0815736	3.0758360	48	4	1995–1998	0.61	M-v	1	Williams	30901	1995 HA
1995 JD	14.5	0.15	19990122	311.30007	340.42562	213.86257	4.38321	0.2360694	2.7460886	57	4	1995–1998	0.63	M-v	2	Marsden	30901	1995 JD
1995 KN	14.0	0.15	19990122	29.84610	84.23089	76.30189	4.99338	0.0743172	2.2580697	41	3	1995–1998	0.77	M-v	3	Williams	31277	1995 KN
1995 KZ ₁	12.2	0.15	19990122	233.59676	19.14696	224.51978	16.10273	0.0905942	3.2014700	31	4	1985–1998	1.08	M-v	2	Williams	31008	1995 KZ ₁
1995 OX	14.5	0.15	19990122	283.76410	299.36777	284.81431	20.31757	0.3259985	3.1371687	32	3	1995–1998	0.28	M-v	3	Williams	28076	1995 OX
1995 SX ₄₈	14.2	0.15	19990122	240.96346	308.46733	299.44052	21.99147	0.0227623	1.8439717	26	2	1995–1998	0.87	M-v	4	Williams	33250	1995 SX ₄₈
1995 UQ ₃	14.3	0.15	19990122	138.05371	12.20487	242.95219	2.14608	0.0726432	2.1827992	71	2	1995–1998	0.62	M-v	4	Williams	33074	1995 UQ ₃
1995 UD ₄	15.1	0.15	19990122	26.32717	342.38230	28.56109	5.49172	0.1647401	2.1601223	78	3	1995–1998	0.69	M-v	2	Williams	33074	1995 UD ₄
1995 US ₄	14.5	0.15	19990122	53.46947	259.14341	57.25755	6.27325	0.2030703	2.2610262	21	3	1978–1998	0.54	M-v	4	Williams	26423	1995 US ₄
1995 UW ₄	14.9	0.15	19990122	70.71185	279.56991	48.73050	8.11443	0.1355566	2.1887506	64	2	1995–1998	0.64	M-v	4	Williams	33342	1995 UW ₄
1995 VR ₁	14.9	0.15	19990122	37.83818	257.72481	107.33790	4.98791	0.1838941	2.1615424	31	5	1954–1998	0.63	M-v	2	Williams	33250	1995 VR ₁
1995 VW ₁	14.2	0.15	19990122	314.15375	188.81089	273.42502	7.99916	0.1476648	2.3530662	46	3	1989–1998	0.68	M-v	2	Williams	33074	1995 VW ₁
1995 WE	13.7	0.15	19990122	284.06880	52.28760	68.96191	6.81718	0.1543743	2.2852587	42	4	1988–1998	0.55	M-v	3	Williams	33074	1995 WE
1995 WS ₁	14.2	0.15	19990122	22.76339	316.91008	44.00926	3.87374	0.1895591	2.2340248	66	3	1985–1998	0.77	M-v	2	Williams	33342	1995 WS ₁
1995 WU ₁	12.5	0.15	19990122	256.35658	68.07536	44.08128	11.69058	0.0619714	2.4260481	31	3	1995–1998	0.83	M-v	2	Williams	32749	1995 WU ₁
1995 WA ₈	15.3	0.15	19990122	11.98537	39.13189	0.68966	5.29959	0.1446066	2.2050935	60	3	1988–1998	0.68	M-v	2	Williams	33342	1995 WA ₈
1995 XH ₁	14.8	0.15	19990122	28.83644	92.14704	275.55832	4.12946	0.1607712	2.2555848	48	3	1988–1998	0.60	M-v	3	Williams	33074	1995 XH ₁
1995 YF	14.3	0.15	19990122	31.51556	205.66320	127.82583	3.15372	0.2010348	2.3888412	34	3	1987–1998	0.63	M-v	2	Williams	33074	1995 YF
1995 YH ₁	14.4	0.15	19990122	32.90897	100.70386	277.12559	3.49409	0.1313378	2.2834675	71	3	1991–1998	0.68	M-v	3	Williams	33342	1995 YH ₁
1995 YY ₁	14.5	0.15	19990122	194.18335	138.03684	105.43385	6.21661	0.1305282	2.2748431	24	4	1993–1998	0.70	M-v	2	Williams	33342	1995 YY ₁
1995 YG ₃	15.3	0.15	19990122	5.82855	66.93259	331.41489	3.08710	0.1289065	2.3242020	28	2	1995–1998	0.66	M-v	5	Williams	32947	1995 YG ₃
1995 YM ₃	14.5	0.15	19990122	133.04150	203.71448	114.49519	6.06889	0.0861568	2.1611631	28	3	1991–1998	0.72	M-v	4	Williams	33342	1995 YM ₃
1995 YO ₃	14.8	0.15	19990122	320.07725	221.88966	215.19851	0.59720	0.1610030	2.3983954	62	3	1976–1998	0.61	M-v	2	Williams	33342	1995 YO ₃
1996 AT	13.7	0.15	19990122	159.16579	156.30913	125.82646	3.57304	0.1060041	2.2403193	15	4	1976–1998	0.63	M-v	2	Williams	26748	1996 AT
1996 AP ₃	13.5	0.15	19990122	53.98153	65.76188	273.60045	6.82827	0.1934677	2.2872858	51	3	1988–1998	0.49	M-v	2	Williams	33342	1996 AP ₃
1996 AW ₄	14.8	0.15	19990122	244.78966	116.60631	75.54726	3.27839	0.1661740	2.3574969	25	3	1942–1998	0.75	M-v	5	Williams	33342	1996 AW ₄
1996 AP ₁₅	14.6	0.15	19990122	175.89765	140.81809	135.91197	3.70763	0.1775186	2.3425530	15	4	1950–1998	0.52	M-v	3	Williams	31241	1996 AP ₁₅
1996 BA	14.7	0.15	19990122	111.76293	16.98526	317.05029	6.07433	0.2092008	2.2768200	51	3	1987–1998	0.59	M-v	4	Williams	26928	1996 BA
1996 BC ₁	14.5	0.15	19990122	64.91939	37.18561	317.48822	3.13689	0.1719219	2.2907856	37	2	1996–1998	0.67	M-v	5	Williams	33251	1996 BC ₁
1996 BR ₁	14.3	0.15	19990122	244.93012	126.28197	104.15761	5.62894	0.1099939	2.2107713	30	3	1996–1998	0.65	M-v	3	Williams	33251	1996 BR ₁

1996 BE ₂	13.8	0.15	19990122	273.89962	86.98087	84.93503	6.37699	0.0982677	2.2579086	44	4	1986–1998	0.72	M-v	2	Williams	33342	1996 BE ₂
1996 BH ₂	13.1	0.15	19990122	327.81217	105.61310	320.86143	8.36188	0.0374796	2.5985065	45	2	1996–1998	0.54	M-v	3	Williams	33075	1996 BH ₂
1996 BL ₂	14.9	0.15	19990122	37.07341	155.89574	230.23657	3.93900	0.1702727	2.2840420	53	3	1984–1998	0.71	M-v	3	Williams	33342	1996 BL ₂
1996 BM ₆	17.0	0.15	19990122	56.38371	317.54736	28.75713	3.02081	0.2526391	2.3520649	15	2	1996–1998	0.29	M-v	4	Williams	33252	1996 BM ₆
1996 CJ ₁	15.6	0.15	19990122	286.95271	123.21378	59.84079	3.77820	0.1442108	2.2555328	32	3	1991–1998	0.55	M-v	4	Williams	27123	1996 CJ ₁
1996 CQ ₁	14.9	0.15	19990122	55.95244	40.40981	319.36229	6.21037	0.1319463	2.3649293	35	3	1994–1998	0.78	M-v	4	Williams	33342	1996 CQ ₁
1996 CR ₁	14.4	0.15	19990122	199.28782	91.08221	196.16412	5.70331	0.1282139	2.2706244	44	5	1980–1998	0.66	M-v	1	Williams	30784	1996 CR ₁
1996 CY ₂	14.7	0.15	19990122	332.52710	43.59665	99.05269	2.91760	0.0980519	2.2407243	25	4	1979–1998	0.70	M-v	3	Williams	27112	1996 CY ₂
1996 CW ₃	14.0	0.15	19990122	318.88260	109.54477	317.15873	11.18828	0.0171687	2.6479226	36	2	1996–1998	0.63	M-v	4	Williams	32750	1996 CW ₃
1996 CJ ₇	14.6	0.15	19990122	197.48921	120.73589	135.82191	7.45397	0.0932594	2.3503233	37	3	1996–1998	0.85	M-v	4	Williams	33342	1996 CJ ₇
1996 CL ₇	15.1	0.15	19990122	350.85140	117.52914	338.88884	9.35570	0.1489922	2.2626061	34	2	1996–1998	0.64	M-v	4	Williams	33252	1996 CL ₇
1996 CN ₇	14.6	0.15	19990122	178.39586	252.87269	17.11599	2.41317	0.1463744	2.4110115	37	3	1996–1998	0.89	M-v	4	Williams	33342	1996 CN ₇
1996 CT ₇	14.5	0.15	19990122	357.80484	192.29277	210.89091	6.13514	0.1317626	2.4258226	79	3	1996–1998	0.79	M-v	3	Williams	33342	1996 CT ₇
1996 CY ₇	15.3	0.15	19990122	249.70959	102.59130	104.36123	2.92196	0.1829607	2.3678618	24	3	1993–1998	0.84	M-v	4	Williams	33342	1996 CY ₇
1996 CG ₈	15.6	0.15	19990122	269.53481	57.48429	145.57014	3.81374	0.1420991	2.2572149	38	5	1960–1998	0.77	M-v	1	Williams	30689	1996 CG ₈
1996 DC	13.8	0.15	19990122	248.14981	95.71865	134.41863	6.60639	0.1015927	2.2689116	30	4	1980–1998	0.54	M-v	1	Williams	30668	1996 DC
1996 DT	13.1	0.15	19990122	135.95336	83.88614	151.81453	10.62918	0.0503500	2.9992548	35	2	1996–1998	0.94	M-v	4	Williams	33075	1996 DT
1996 DW	15.3	0.15	19990122	255.08979	226.48183	354.62157	7.51349	0.1645792	2.2876984	37	3	1996–1998	0.57	M-v	3	Williams	30901	1996 DW
1996 DO ₁	12.3	0.15	19990122	113.03704	320.02062	292.50950	10.29345	0.1353321	3.0364928	98	3	1996–1998	0.60	M-v	3	Williams	33075	1996 DO ₁
1996 DY ₁	15.3	0.15	19990122	279.90363	67.80407	115.03157	2.87923	0.1056472	2.2673990	20	3	1994–1998	0.65	M-v	4	Williams	27316	1996 DY ₁
1996 DN ₂	14.2	0.15	19990122	271.75608	145.84600	50.11609	3.63382	0.1278221	2.3211184	29	4	1968–1998	0.65	M-v	3	Williams	29630	1996 DN ₂
1996 DQ ₂	13.9	0.15	19990122	189.46281	145.26841	97.82245	5.14146	0.0509102	2.5245067	44	4	1980–1998	0.59	M-v	3	Williams	33343	1996 DQ ₂
1996 EB	13.7	0.15	19990122	319.91597	345.90676	73.49696	14.72869	0.1468583	2.6039325	22	3	1996–1998	0.81	M-v	4	Williams	32949	1996 EB
1996 EL	13.3	0.15	19990122	243.75431	262.60028	328.09316	7.86410	0.2072373	2.3698326	24	5	1952–1998	0.66	M-v	2	Williams	31009	1996 EL
1996 EB ₁	13.9	0.15	19990122	349.37105	40.18674	2.52686	3.77328	0.1014613	2.3639520	59	2	1996–1998	0.74	M-v	4	Williams	32950	1996 EB ₁
1996 EJ ₁	14.5	0.15	19990122	304.63583	105.45269	30.55672	2.48136	0.1282236	2.3998152	36	2	1996–1998	0.62	M-v	4	Williams	33252	1996 EJ ₁
1996 EL ₁	13.7	0.15	19990122	305.79904	119.84837	340.90939	13.23175	0.1496480	2.5834420	54	2	1996–1998	0.69	M-v	4	Williams	33075	1996 EL ₁
1996 EE ₂	14.7	0.15	19990122	78.74606	207.63103	178.04854	4.37340	0.1316016	2.2765505	29	6	1980–1998	0.61	M-v	2	Williams	27114	1996 EE ₂
1996 ER ₂	15.0	0.15	19990122	316.33162	214.72067	258.05532	2.70796	0.0500212	2.4349704	67	3	1996–1998	0.60	M-v	3	Marsden	33343	1996 ER ₂
1996 EU ₃	14.2	0.15	19990122	125.84474	332.97345	357.65129	7.70358	0.1157421	2.3828112	23	3	1990–1998	0.45	M-v	4	Williams	27719	1996 EU ₃
1996 EO ₁₂	15.2	0.15	19990122	76.13939	78.58448	302.83246	7.46631	0.2501478	2.2095313	18	3	1991–1998	0.49	M-v	3	Williams	33343	1996 EO ₁₂
1996 FG ₃	18.4	0.15	19990122	112.60101	23.76988	300.00909	1.99204	0.3496777	1.0538399	318	4	1996–1998	0.57	M-v	3	Williams	33343	1996 FG ₃
1996 FD ₄	15.3	0.15	19990122	324.90865	138.53259	346.96793	4.46172	0.2051645	2.3607702	25	2	1996–1998	0.76	M-v	5	Williams	33253	1996 FD ₄
1996 FQ ₄	14.4	0.15	19990122	344.34294	319.10979	173.61062	3.93293	0.0771641	2.2869055	41	3	1996–1998	0.50	M-v	4	Williams	30784	1996 FQ ₄
1996 FJ ₅	13.0	0.15	19990122	38.51081	15.85484	12.90267	15.51355	0.1241590	2.5736513	41	4	1977–1998	0.73	M-v	3	Williams	33343	1996 FJ ₅
1996 FL ₅	14.2	0.15	19990122	270.17138	189.11126	28.46981	7.32741	0.1436937	2.3178646	51	5	1978–1998	0.58	M-v	1	Williams	30902	1996 FL ₅
1996 FG ₁₆	15.8	0.15	19990122	335.61938	289.44918	206.21479	1.47168	0.1498419	2.3389608	28	5	1985–1998	0.78	M-v	1	Williams	32751	1996 FG ₁₆
1996 GR	15.0	0.15	19990122	305.37116	85.48079	97.63130	2.69001	0.1544261	2.2983066	31	4	1993–1998	0.71	M-v	2	Williams	28618	1996 GR
1996 GL ₁	14.5	0.15	19990122	341.98937	58.32945	40.20253	6.69801	0.1324953	2.3224321	47	4	1987–1998	0.66	M-v	1	Williams	33343	1996 GL ₁
1996 GP ₁	13.7	0.15	19990122	317.27289	73.42950	3.20195	22.14369	0.0437218	2.6561114	60	2	1996–1998	0.49	M-v	3	Williams	33343	1996 GP ₁
1996 GV ₁	13.3	0.15	19990122	285.96550	101.73186	39.09352	13.23385	0.1196155	2.6366945	26	4	1983–1998	0.69	M-v	1	Williams	33343	1996 GV ₁
1996 GJ ₂	15.2	0.15	19990122	222.35966	86.43576	185.07524	4.28317	0.2106903	2.3895348	34	5	1992–1998	0.79	M-v	2	Williams	31009	1996 GJ ₂
1996 GZ ₂	15.0	0.15	19990122	281.15577	183.47614	15.59648	2.56049	0.1789534	2.3642504	27	4	1956–1998	0.94	M-v	3	Williams	28595	1996 GZ ₂
1996 GG ₅	14.7	0.15	19990122	90.92610	305.63237	67.01610	4.48180	0.2230291	2.4246551	15	3	1995–1998	0.41	M-v	5	Williams	27560	1996 GG ₅
1996 GU ₈	13.8	0.15	19990122	117.04310	228.23890	77.62799	3.85262	0.0595592	2.7379686	63	4	1982–1998	0.76	M-v	1	Williams	33343	1996 GU ₈
1996 GE ₂₀	13.8	0.15	19990122	116.21993	259.45926	67.95320	4.61787	0.0571803	2.7036542	29	3	1993–1998	0.80	M-v	3	Williams	27560	1996 GE ₂₀
1996 GO ₂₀	14.3	0.15	19990122	329.56635	267.81335	197.91128	2.86340	0.1180207	2.6231506	40	3	1981–1998	0.65	M-v	3	Williams	33253	1996 GO ₂₀
1996 GV ₂₀	15.2	0.15	19990122	321.28633	81.02744	91.41432	0.37698	0.1390975	2.2639433	27	4	1989–1999	0.59	M-v	1	Williams	33076	1996 GV ₂₀
1996 HP	14.0	0.15	19990122	285.64247	112.62696	52.48194	14.45964	0.0917365	2.5816094	44	2	1996–1998	0.58	M-v	3	Williams	33343	1996 HP
1996 HT	13.7	0.15	19990122	250.60387	293.97428	288.20557	3.82398	0.0443659	2.4892525	39	7	1982–1998	0.67	M-v	1	Williams	31009	1996 HT
1996 HX	13.9	0.15	19990122	113.08461	316.40313	2.70936	6.22348	0.1694280	3.0163083	55	3	1996–1998	0.45	M-v	3	Williams	33343	1996 HX
1996 HY	14.2	0.15	19990122	262.12869	122.80118	63.03768	12.44973	0.1295503	2.6397483	45	2	1996–1998	0.73	M-v	4	Williams	33254	1996 HY
1996 HC ₁	13.3	0.15	19990122	297.69752	86.61339	56.62020	13.81478	0.1128270	2.5932572	79	3	1996–1998	0.65	M-v	3	Williams	33343	1996 HC ₁

1996 HM ₁	16.1	0.15	19990122	347.70605	126.57608	352.14065	2.11918	0.1317062	2.3844054	36	3	1996–1998	0.68	M-v	4	Williams	33343	1996 HM ₁
1996 HE ₂	12.8	0.15	19990122	131.54313	201.66290	72.45639	10.10441	0.0300181	3.1109099	37	3	1996–1998	0.67	M-v	3	Williams	33343	1996 HE ₂
1996 HF ₁₁	14.4	0.15	19990122	160.61992	181.51486	79.60416	2.58456	0.1727957	2.9838130	31	3	1992–1998	0.80	M-v	4	Williams	33343	1996 HF ₁₁
1996 HM ₁₁	14.4	0.15	19990122	141.94289	125.97117	191.67940	3.68773	0.0682426	2.6144435	30	5	1976–1998	0.70	M-v	1	Williams	30785	1996 HM ₁₁
1996 HB ₁₂	12.0	0.15	19990122	135.14366	248.22282	41.31545	13.64384	0.1408381	2.9863766	29	2	1996–1998	0.86	M-v	3	Williams	33076	1996 HB ₁₂
1996 HX ₁₆	14.4	0.15	19990122	8.64432	345.10304	63.41833	2.79092	0.1001885	2.9250768	34	2	1996–1998	0.61	M-v	4	Williams	33343	1996 HX ₁₆
1996 HD ₂₁	13.7	0.15	19990122	200.52498	215.47204	60.92757	4.45934	0.2195652	2.5944638	29	6	1976–1998	0.74	M-v	2	Williams	28088	1996 HD ₂₁
1996 HD ₂₂	14.2	0.15	19990122	270.33914	107.47996	40.96424	13.43054	0.1094824	2.6189100	44	2	1996–1998	0.78	M-v	4	Williams	33343	1996 HD ₂₂
1996 HP ₂₃	13.7	0.15	19990122	46.38852	12.38308	58.31744	7.01774	0.0700053	2.4527565	24	3	1986–1999	0.81	M-v	4	Williams	33343	1996 HP ₂₃
1996 JF	14.9	0.15	19990122	311.19922	117.63482	71.17077	5.43011	0.1418405	2.3030362	31	5	1982–1998	0.43	M-v	1	Williams	30902	1996 JF
1996 JU	14.4	0.15	19990122	317.70161	352.75834	159.69488	24.78598	0.1820778	2.3331093	22	3	1996–1998	0.72	M-v	3	Williams	30669	1996 JU
1996 JV	13.1	0.15	19990122	216.69912	156.01212	118.51986	24.07780	0.1905911	2.4108047	47	6	1970–1998	0.61	M-v	1	Williams	30902	1996 JV
1996 JY	14.8	0.15	19990122	233.69661	102.26230	185.50238	10.04124	0.2427605	2.4108048	39	4	1989–1998	0.45	M-v	2	Williams	31142	1996 JY
1996 JK ₁	13.9	0.15	19990122	189.34675	55.15228	225.22556	12.60194	0.0313418	2.5637447	36	4	1989–1998	0.61	M-v	1	Williams	30690	1996 JK ₁
1996 JW ₂	14.7	0.15	19990122	261.34182	68.00599	164.29987	8.02975	0.0770963	2.4715185	21	5	1984–1998	0.91	M-v	2	Williams	30293	1996 JW ₂
1996 JK ₃	15.3	0.15	19990122	315.66489	93.28285	60.25875	11.67356	0.1879767	2.3759268	26	2	1996–1998	0.52	M-v	4	Williams	33254	1996 JK ₃
1996 JN ₆	13.2	0.15	19990122	48.41657	251.96942	117.40206	2.96239	0.0494649	2.9265785	40	4	1978–1998	0.68	M-v	3	Williams	33343	1996 JN ₆
1996 JT ₇	14.2	0.15	19990122	38.86321	305.83916	76.84073	7.87431	0.1536025	3.0505096	29	3	1982–1998	0.73	M-v	4	Williams	33254	1996 JT ₇
1996 JK ₁₆	13.3	0.15	19990122	89.00878	231.36493	143.38621	8.02526	0.0891631	2.6718817	23	4	1982–1998	0.71	M-v	1	Williams	27562	1996 JK ₁₆
1996 KN	13.8	0.15	19990122	22.48864	4.78209	38.69853	1.89479	0.1692270	3.1467143	34	2	1996–1998	0.68	M-v	4	Williams	33255	1996 KN
1996 LJ ₁	14.2	0.15	19990122	202.38082	49.00748	219.32077	14.37331	0.1265486	2.7734310	49	3	1996–1998	0.38	M-v	3	Williams	33343	1996 LJ ₁
1996 NC	14.6	0.15	19990122	99.42112	287.21546	102.63506	3.18899	0.0355391	2.8519009	29	4	1978–1998	0.50	M-v	1	Williams	31009	1996 NC
1996 NX	12.9	0.15	19990122	272.32076	317.72958	271.43306	14.02428	0.0569034	2.5721209	22	4	1991–1998	0.79	M-v	1	Williams	31278	1996 NX
1996 OH	13.2	0.15	19990122	302.70311	13.90014	126.66184	6.53207	0.0262381	3.4974265	55	4	1995–1998	0.65	M-v	2	Williams	30785	1996 OH
1996 PF ₁	13.7	0.15	19990122	209.95337	255.95165	359.87339	4.89650	0.1302620	3.1047461	45	4	1989–1998	0.57	M-v	1	Williams	30902	1996 PF ₁
1996 PR ₁	13.7	0.15	19990122	180.55814	139.98348	163.59794	0.55726	0.2999657	3.0505155	28	5	1980–1998	0.64	M-v	1	Williams	31009	1996 PR ₁
1996 PM ₄	13.0	0.15	19990122	270.33537	165.46394	34.47508	1.46982	0.1325866	3.1883913	37	4	1988–1998	0.77	M-v	1	Williams	29666	1996 PM ₄
1996 PY ₄	14.9	0.15	19990122	322.31985	68.79389	151.70246	23.90101	0.2649759	2.3596827	27	3	1988–1998	0.76	M-v	3	Williams	28863	1996 PY ₄
1996 QL	14.0	0.15	19990122	340.24343	230.98099	314.75687	4.82839	0.1671589	2.6334984	21	4	1969–1998	0.56	M-v	1	Williams	31009	1996 QL
1996 RS ₅	12.2	0.15	19990122	182.44066	346.39472	15.10743	14.48987	0.1839464	2.8903954	35	5	1989–1998	0.63	M-v	2	Williams	31791	1996 RS ₅
1996 SO ₈	10.8	0.15	19990122	55.85561	64.02602	303.17521	5.06727	0.1124180	5.2581218	27	3	1996–1998	0.71	M-v	3	Williams	33343	1996 SO ₈
1996 TW	10.9	0.15	19990122	111.96409	314.30305	8.02512	17.97969	0.0897682	5.1877220	38	3	1996–1998	0.43	M-v	3	Williams	33343	1996 TW
1996 TT ₃₈	13.4	0.15	19990122	267.88282	127.24028	98.23171	2.35820	0.1501377	3.1996427	21	4	1982–1998	0.90	M-v	2	Williams	32245	1996 TT ₃₈
1996 TN ₄₉	12.0	0.15	19990122	357.54939	242.69937	206.86081	10.74583	0.0983128	5.1568470	52	3	1996–1998	0.72	M-v	3	Williams	31009	1996 TN ₄₉
1996 TH ₅₂	11.4	0.15	19990122	11.83680	52.81770	4.35861	9.11996	0.0560457	5.1712587	32	3	1973–1998	0.74	M-v	4	Williams	32676	1996 TH ₅₂
1996 TR ₆₆	7.4	0.15	19990122	33.90737	310.55738	342.98757	12.38880	0.4006295	48.2900279	14	3	1996–1998	0.50	M-v	3	Marsden	30765	1996 TR ₆₆
1996 UQ	14.2	0.15	19990122	221.55519	325.34423	1.10993	12.64487	0.1619654	2.6850060	33	4	1990–1998	0.42	M-v	2	Williams	31279	1996 UQ
1996 UX ₃	11.4	0.15	19990122	356.14935	234.33947	211.17789	19.99112	0.1628400	5.1729860	42	3	1996–1998	0.69	M-v	3	Williams	33343	1996 UX ₃
1996 XA ₁₂	14.3	0.15	19990122	71.91775	192.66140	86.62169	5.40192	0.2082356	2.1646375	32	4	1979–1998	0.70	M-v	2	Williams	32751	1996 XA ₁₂
1997 AJ ₁₀	19.5	0.15	19961223	25.64715	305.64935	121.55551	1.57488	0.2269803	2.3280666	9	1	2 days			E	Williams	33255	1997 AJ ₁₀
1997 BB ₁	11.7	0.15	19990122	287.81182	357.21281	254.42022	11.45353	0.0878196	3.1899954	29	5	1973–1998	0.64	M-v	1	Williams	32057	1997 BB ₁
1997 BC ₉	14.7	0.15	19990122	36.99658	186.95908	140.73488	4.23869	0.2342731	2.2314273	65	5	1978–1998	0.80	M-v	2	Williams	33343	1997 BC ₉
1997 CU ₂₆	6.3	0.15	19990122	331.47893	241.94714	300.46373	23.40824	0.1690533	15.7273001	294	3	1997–1998	0.49	M-v	2	Williams	33344	1997 CU ₂₆
1997 CT ₂₉	5.1	0.15	19990122	185.49723	236.01792	74.65194	1.01478	0.0277937	43.6741799	13	3	1997–1998	0.45	M-v	6	Marsden	30878	1997 CT ₂₉
1997 ES ₁₇	14.3	0.15	19990122	64.42528	6.02735	292.90348	3.74681	0.2352860	2.4352398	59	2	1997–1998	0.69	M-v	4	Williams	32752	1997 ES ₁₇
1997 EO ₄₂	15.5	0.15	19990122	63.67648	57.33539	238.93424	1.65757	0.2144446	2.3640097	20	2	1997–1998	0.63	M-v	4	Williams	33256	1997 EO ₄₂
1997 EW ₄₇	13.4	0.15	19990122	91.78223	66.24190	196.22813	9.12035	0.1544440	2.7859910	49	4	1978–1998	0.76	M-v	2	Williams	32752	1997 EW ₄₇
1997 EB ₅₄	14.2	0.15	19990122	85.15145	298.67126	1.30685	2.31039	0.1989667	2.4198941	50	4	1979–1998	0.76	M-v	1	Williams	33344	1997 EB ₅₄
1997 FN ₃	15.1	0.15	19990122	89.17394	275.87992	29.31595	4.88884	0.2117446	2.3708570	53	2	1997–1998	0.72	M-v	4	Williams	33344	1997 FN ₃
1997 FQ ₃	15.2	0.15	19990122	65.41171	332.07381	1.88150	2.45483	0.1612210	2.2524073	75	3	1991–1998	0.69	M-v	3	Williams	33344	1997 FQ ₃
1997 GG ₇	15.5	0.15	19990122	63.78710	169.23334	181.49722	4.36880	0.2004690	2.3164644	28	2	1997–1998	0.59	M-v	4	Williams	33257	1997 GG ₇
1997 GO ₁₃	16.2	0.15	19990122	100.73159	36.23323	282.86082	0.49157	0.1856368	2.1526910	32	4	1991–1998	0.76	M-v	4	Williams	33344	1997 GO ₁₃
1997 GZ ₁₆	15.0	0.15	19990122	58.71540	144.93529	205.68213	7.36184	0.1723705	2.1683769	45	2	1997–1998	0.88	M-v	4	Williams	33258	1997 GZ ₁₆

1997 GB ₁₉	14.2	0.15	19990122	134.80519	46.43686	214.24736	7.20478	0.1171134	2.2876584	53	3	1980–1998	0.55	M-v	3	Williams	33344	1997 GB ₁₉
1997 GH ₂₂	14.7	0.15	19990122	95.67801	298.12459	34.09016	8.18790	0.2680637	2.3151616	40	4	1980–1998	0.71	M-v	1	Williams	30474	1997 GH ₂₂
1997 GJ ₂₃	14.5	0.15	19990122	81.11117	265.17465	42.37253	13.14151	0.1753402	2.6051806	60	2	1997–1998	0.57	M-v	3	Williams	33344	1997 GJ ₂₃
1997 GQ ₂₃	13.9	0.15	19990122	62.60177	331.32581	329.79859	2.02314	0.0627554	2.7621345	49	2	1997–1998	0.61	M-v	3	Williams	33077	1997 GQ ₂₃
1997 GX ₂₃	14.3	0.15	19990122	87.90568	259.86178	60.45523	9.55236	0.2187271	2.4537506	75	2	1997–1998	0.60	M-v	4	Williams	33259	1997 GX ₂₃
1997 GR ₂₄	13.9	0.15	19990122	67.02519	126.37844	195.27047	12.18622	0.1923321	2.6912508	86	2	1997–1998	0.51	M-v	3	Williams	33344	1997 GR ₂₄
1997 GA ₂₆	14.5	0.15	19990122	162.35966	191.65003	51.68271	7.19748	0.1556987	2.2356807	95	2	1997–1998	0.54	M-v	3	Williams	33344	1997 GA ₂₆
1997 GD ₃₈	15.5	0.15	19990122	51.55017	301.33064	58.36330	7.89189	0.1261666	2.2906153	33	2	1997–1998	0.58	M-v	4	Williams	33259	1997 GD ₃₈
1997 HH ₃	15.9	0.15	19990122	308.02922	87.48661	45.43331	21.85633	0.0572993	1.9593499	37	2	1997–1998	0.56	M-v	4	Williams	33259	1997 HH ₃
1997 HW ₇	14.7	0.15	19990122	11.50953	121.83136	240.43045	2.44403	0.1900412	2.7287825	50	3	1996–1998	0.62	M-v	3	Williams	33077	1997 HW ₇
1997 HJ ₈	15.5	0.15	19990122	27.65971	198.21472	176.64090	2.11693	0.2355939	2.3796174	54	2	1997–1998	0.63	M-v	3	Williams	33344	1997 HJ ₈
1997 HG ₁₀	15.8	0.15	19990122	70.53955	278.77317	54.97918	3.78763	0.0868207	2.3367632	38	2	1997–1998	0.86	M-v	4	Williams	33259	1997 HG ₁₀
1997 HV ₁₁	15.3	0.15	19990122	343.62613	17.58045	35.87364	6.80685	0.1059048	2.3054490	29	2	1997–1998	0.60	M-v	4	Williams	33077	1997 HV ₁₁
1997 JR	14.0	0.15	19990122	60.04559	280.98757	58.97945	13.68145	0.2589889	2.4213190	55	2	1997–1998	0.70	M-v	4	Williams	33344	1997 JR
1997 JT ₃	15.5	0.15	19990122	103.19549	246.08970	70.64775	2.88154	0.2232817	2.4091830	30	3	1990–1998	0.78	M-v	4	Marsden	33344	1997 JT ₃
1997 JU ₇	14.4	0.15	19990122	352.43231	208.92518	202.27578	14.44672	0.1786180	2.3854178	52	2	1997–1998	0.63	M-v	3	Williams	33077	1997 JU ₇
1997 JA ₁₁	13.3	0.15	19990122	354.27581	233.27172	149.92458	14.97271	0.3096039	3.1405653	44	2	1997–1998	0.50	M-v	3	Williams	32753	1997 JA ₁₁
1997 JC ₁₄	14.1	0.15	19990122	59.69208	152.94037	195.87983	10.10075	0.2060213	2.5502461	45	3	1996–1998	0.57	M-v	2	Williams	33344	1997 JC ₁₄
1997 JD ₁₄	13.8	0.15	19990122	13.99608	164.62963	208.71318	14.04372	0.0164379	2.5467925	37	2	1997–1998	0.66	M-v	3	Williams	33077	1997 JD ₁₄
1997 JE ₁₅	13.7	0.15	19990122	39.35355	176.40697	145.02618	2.80188	0.0511899	2.9025105	56	3	1996–1998	0.89	M-v	3	Williams	33344	1997 JE ₁₅
1997 JJ ₁₅	14.4	0.15	19990122	126.93383	84.11997	211.67014	5.48809	0.1369403	2.2779911	25	2	1997–1998	0.73	M-v	4	Williams	33260	1997 JJ ₁₅
1997 JN ₁₅	14.9	0.15	19990122	104.79252	225.28111	100.78479	2.13605	0.2485766	2.3399570	35	3	1993–1998	0.94	M-v	4	Williams	30283	1997 JN ₁₅
1997 JH ₁₆	14.9	0.15	19990122	115.08397	93.77050	202.77804	5.45361	0.1288247	2.3811814	41	3	1993–1998	0.81	M-v	3	Williams	33344	1997 JH ₁₆
1997 JP ₁₆	13.0	0.15	19990122	118.64739	128.94471	111.86063	3.54427	0.0407488	2.8722272	48	4	1989–1998	0.64	M-v	1	Williams	32753	1997 JP ₁₆
1997 LL ₂	15.1	0.15	19990122	86.64012	134.41413	208.58548	5.96168	0.1535981	2.3037114	20	3	1996–1998	0.50	M-v	2	Williams	30283	1997 LL ₂
1997 LC ₄	15.6	0.15	19990122	355.36292	34.48184	78.33528	23.70534	0.0777024	1.9229939	45	2	1997–1998	0.50	M-v	3	Williams	33260	1997 LC ₄
1997 LA ₅	15.4	0.15	19990122	96.24425	233.97968	109.52122	15.77287	0.1502457	2.5612877	32	2	1997–1998	0.30	M-v	3	Marsden	33260	1997 LA ₅
1997 MQ ₁	14.7	0.15	19990122	219.35051	15.27501	206.62355	5.85754	0.0897788	2.2538314	28	2	1997–1998	0.85	M-v	5	Williams	33260	1997 MQ ₁
1997 MJ ₂	14.9	0.15	19990122	297.91683	5.72601	94.92944	7.76892	0.0693360	2.3870376	37	3	1980–1998	0.57	M-v	3	Williams	32753	1997 MJ ₂
1997 MQ ₄	14.7	0.15	19990122	56.50012	290.75937	89.97036	13.42606	0.1866143	2.5638595	22	3	1995–1998	0.80	M-v	3	Williams	32968	1997 MQ ₄
1997 MD ₈	14.1	0.15	19990122	280.39290	336.26307	188.63964	1.36043	0.1598895	2.4052690	43	3	1990–1998	0.59	M-v	4	Williams	33345	1997 MD ₈
1997 NA	15.7	0.15	19990122	96.32288	122.82670	220.99758	5.68534	0.1796181	2.2469052	22	3	1996–1998	0.76	M-v	3	Williams	30464	1997 NA
1997 NQ	13.8	0.15	19990122	88.69127	136.10885	212.56054	12.23368	0.1933623	2.6893389	29	2	1997–1998	0.65	M-v	4	Williams	33261	1997 NQ
1997 NK ₁	13.9	0.15	19990122	45.35050	127.83958	245.81575	2.12427	0.0940269	3.1375313	29	2	1997–1998	0.54	M-v	4	Williams	33261	1997 NK ₁
1997 NU ₁	14.3	0.15	19990122	48.90713	140.79915	230.12082	1.09797	0.1031294	2.8510843	51	2	1997–1998	0.66	M-v	4	Williams	33345	1997 NU ₁
1997 NR ₂	14.9	0.15	19990122	50.18635	240.03366	156.62976	1.57843	0.1185274	2.6270256	61	4	1993–1998	0.53	M-v	1	Williams	30673	1997 NR ₂
1997 NZ ₂	14.7	0.15	19990122	119.48676	232.45045	62.06166	4.37888	0.1635942	2.7230978	51	4	1992–1998	0.85	M-v	2	Williams	33345	1997 NZ ₂
1997 NG ₃	12.4	0.15	19990122	90.19949	162.14285	158.54347	10.86665	0.0989874	2.9988634	46	4	1987–1998	0.77	M-v	2	Williams	33345	1997 NG ₃
1997 NL ₆	15.6	0.15	19990122	182.05952	85.39814	192.78242	4.42097	0.1893635	2.1914535	34	6	1977–1998	0.73	M-v	2	Williams	30788	1997 NL ₆
1997 NK ₁₀	14.0	0.15	19990122	28.00626	249.37453	172.96003	15.06191	0.0949473	2.6016867	38	3	1993–1998	0.69	M-v	3	Williams	33345	1997 NK ₁₀
1997 OY	13.9	0.15	19990122	323.25398	149.09486	318.89173	8.21242	0.1434509	2.7339346	51	3	1986–1998	0.50	M-v	3	Williams	33345	1997 OY
1997 OZ	14.1	0.15	19990122	96.44194	230.86287	83.05458	2.71770	0.1919511	3.0710998	32	5	1976–1998	0.70	M-v	1	Williams	33345	1997 OZ
1997 OO ₁	15.2	0.15	19990122	19.58733	313.45549	130.48279	7.63077	0.0883276	2.2507661	43	4	1989–1998	0.61	M-v	2	Williams	30788	1997 OO ₁
1997 OZ ₁	13.5	0.15	19990122	193.07744	88.81080	155.69600	14.85237	0.0861507	2.5753030	29	4	1992–1998	0.81	M-v	1	Williams	33345	1997 OZ ₁
1997 PE	14.1	0.15	19990122	325.66423	286.73782	202.04056	5.96389	0.0566762	2.3360035	34	4	1990–1998	0.54	M-v	2	Williams	33345	1997 PE
1997 PQ	15.2	0.15	19990122	40.31871	306.12502	125.23358	4.69129	0.0799131	2.2025436	39	4	1991–1998	0.52	M-v	1	Williams	32753	1997 PQ
1997 PR	14.9	0.15	19990122	162.78053	333.91087	320.08092	8.54560	0.2107226	2.3857827	59	3	1986–1998	0.69	M-v	3	Williams	30903	1997 PR
1997 PK ₁	13.7	0.15	19990122	6.24138	294.04863	143.35381	6.90805	0.0787278	2.8022609	46	4	1990–1998	0.47	M-v	1	Williams	33345	1997 PK ₁
1997 PM ₁	13.5	0.15	19990122	285.64448	7.57549	126.10269	6.67724	0.0906377	3.1633014	61	3	1991–1998	0.48	M-v	4	Williams	33345	1997 PM ₁
1997 PX ₁	14.6	0.15	19990122	188.98427	179.30010	93.82793	5.93298	0.1228232	2.3361479	82	5	1964–1998	0.54	M-v	1	Williams	33345	1997 PX ₁
1997 PY ₁	14.1	0.15	19990122	163.16516	285.45403	344.93409	10.12839	0.0697582	2.9865591	60	2	1997–1998	0.44	M-v	3	Williams	33261	1997 PY ₁
1997 PC ₂	14.3	0.15	19990122	181.77737	324.91003	319.57668	1.33778	0.0715039	2.3586619	31	4	1989–1998	0.92	M-v	2	Williams	30903	1997 PC ₂
1997 PJ ₂	15.9	0.15	19990122	113.98559	221.02739	124.33574	4.74678	0.1847809	2.5333379	33	3	1973–1998	0.51	M-v	3	Marsden	30768	1997 PJ ₂

1997 PM ₂	14.1	0.15	19990122	33.27043	118.85879	305.18373	4.60015	0.1511361	2.8340719	36	3	1993–1998	0.57	M-v	4	Williams	31010	1997 PM ₂
1997 PU ₂	14.1	0.15	19990122	301.65420	5.62409	150.49301	23.01227	0.1414143	2.2784821	71	2	1997–1998	0.60	M-v	3	Williams	33345	1997 PU ₂
1997 PG ₃	13.8	0.15	19990122	69.22318	199.09381	148.29323	2.84080	0.1087388	3.1816331	44	3	1995–1998	0.66	M-v	4	Williams	33345	1997 PG ₃
1997 PV ₃	12.4	0.15	19990122	119.41878	47.56440	253.66310	8.39450	0.0821910	3.0579029	24	3	1987–1998	0.44	M-v	4	Williams	33262	1997 PV ₃
1997 PC ₄	15.3	0.15	19990122	132.58683	142.71170	162.49166	5.33677	0.2343282	2.6043745	30	5	1971–1998	0.57	M-v	1	Williams	31145	1997 PC ₄
1997 PJ ₄	12.5	0.15	19990122	21.68712	145.87575	282.31280	12.71440	0.1366003	2.6682321	45	2	1997–1998	0.66	M-v	4	Williams	33345	1997 PJ ₄
1997 PU ₄	14.3	0.15	19990122	82.16816	70.38722	289.91624	4.17210	0.0582352	2.7635040	39	4	1993–1998	0.59	M-v	1	Williams	33345	1997 PU ₄
1997 QF	13.6	0.15	19990122	159.63196	137.85141	139.22949	14.08580	0.0677499	2.8708155	61	2	1997–1998	0.34	M-v	3	Williams	33262	1997 QF
1997 QK	13.5	0.15	19990122	90.63189	38.32023	296.63936	9.14664	0.1419450	3.0274636	88	2	1997–1998	0.41	M-v	3	Williams	33262	1997 QK
1997 QP	13.1	0.15	19990122	234.27096	261.74963	328.08093	13.62026	0.0669768	2.5820456	51	2	1997–1998	0.40	M-v	3	Williams	33078	1997 QP
1997 QD ₁	15.3	0.15	19990122	95.61301	84.50682	322.45484	3.89865	0.0586189	2.1450019	35	4	1991–1998	0.43	M-v	2	Williams	30904	1997 QD ₁
1997 QG ₁	14.3	0.15	19990122	262.11755	342.10597	223.27039	5.41170	0.1041848	2.4604970	52	4	1993–1998	0.73	M-v	2	Williams	31010	1997 QG ₁
1997 QU ₁	14.0	0.15	19990122	259.78545	7.39762	162.72381	2.46656	0.0641258	2.9169742	28	3	1995–1998	0.55	M-v	4	Williams	33345	1997 QU ₁
1997 QD ₂	11.9	0.15	19990122	196.07541	95.75881	143.10718	10.92268	0.0704685	3.0030025	53	4	1949–1998	0.58	M-v	1	Williams	33345	1997 QD ₂
1997 QE ₂	13.8	0.15	19990122	57.71905	15.90077	30.88856	4.89464	0.1283391	2.8074294	23	3	1988–1998	0.96	M-v	2	Williams	31010	1997 QE ₂
1997 QZ ₂	14.2	0.15	19990122	316.60164	208.76334	321.08298	4.02356	0.0670056	2.3212831	29	4	1985–1998	0.82	M-v	3	Williams	33345	1997 QZ ₂
1997 QG ₄	12.8	0.15	19990122	160.48813	118.40631	147.93568	12.21372	0.1440765	2.9878389	21	3	1991–1998	0.73	M-v	3	Williams	33345	1997 QG ₄
1997 QN ₄	13.5	0.15	19990122	58.34996	235.62958	164.55408	2.48613	0.1023215	2.9299121	26	4	1977–1998	0.68	M-v	3	Williams	30769	1997 QN ₄
1997 QS ₄	13.7	0.15	19990122	77.95057	153.18236	200.93615	1.24807	0.1906043	3.1028750	24	3	1992–1998	0.80	M-v	4	Williams	33263	1997 QS ₄
1997 RA ₁	13.8	0.15	19990122	87.46803	10.41747	355.31803	8.85886	0.0305052	3.0608487	51	2	1997–1998	0.55	M-v	3	Williams	33263	1997 RA ₁
1997 RJ ₁	13.8	0.15	19990122	71.76954	236.16833	128.17861	6.38023	0.1437523	3.1990148	29	5	1977–1998	0.68	M-v	1	Williams	30904	1997 RJ ₁
1997 RY ₂	15.2	0.15	19990122	102.84795	140.41601	200.83029	3.37395	0.1041853	2.7622076	26	3	1996–1998	0.99	M-v	4	Williams	33345	1997 RY ₂
1997 RG ₃	13.9	0.15	19990122	186.27245	98.29561	173.16618	2.47195	0.1789032	2.4401896	48	4	1977–1998	0.62	M-v	2	Williams	30770	1997 RG ₃
1997 RQ ₃	13.4	0.15	19990122	111.82325	194.74507	133.88812	2.43267	0.1848150	3.1724676	32	5	1980–1998	0.67	M-v	1	Williams	30904	1997 RQ ₃
1997 RR ₃	12.9	0.15	19990122	37.64555	283.09650	177.51183	13.68222	0.1299771	2.5800501	31	4	1970–1998	0.63	M-v	2	Williams	33345	1997 RR ₃
1997 RQ ₅	13.7	0.15	19990122	229.12674	39.57755	190.35423	0.57591	0.0952634	3.1253156	48	2	1997–1998	0.50	M-v	4	Williams	33263	1997 RQ ₅
1997 RX ₆	13.3	0.15	19990122	359.05920	101.22427	15.79351	1.86465	0.0169587	2.8987661	43	5	1977–1998	0.69	M-v	1	Williams	31590	1997 RX ₆
1997 RA ₇	14.7	0.15	19990122	226.68676	20.75564	243.34476	2.40161	0.0922674	2.1677396	27	4	1977–1998	0.74	M-v	2	Williams	31011	1997 RA ₇
1997 RB ₇	12.4	0.15	19990122	176.04983	43.39038	211.59564	8.91548	0.0711189	3.0170893	32	3	1992–1998	0.62	M-v	3	Williams	33345	1997 RB ₇
1997 RJ ₇	13.9	0.15	19990122	115.42110	351.97970	322.14083	5.68893	0.1576123	3.1411196	38	3	1986–1998	0.44	M-v	4	Williams	30904	1997 RJ ₇
1997 RL ₇	14.8	0.15	19990122	148.68289	304.27159	358.53617	13.00337	0.1921652	2.5382490	46	3	1993–1998	0.49	M-v	3	Marsden	30987	1997 RL ₇
1997 RF ₈	13.5	0.15	19990122	155.40546	286.10945	0.81137	13.05681	0.2484432	2.6313495	24	3	1980–1998	0.86	M-v	3	Williams	33263	1997 RF ₈
1997 RG ₉	13.0	0.15	19990122	160.26838	328.04604	299.61874	15.57172	0.1684882	3.1211433	40	3	1991–1998	0.55	M-v	4	Williams	33345	1997 RG ₉
1997 RJ ₁₀	13.1	0.15	19990122	44.82327	248.34231	169.22222	2.06888	0.0364046	2.9395802	39	3	1977–1998	0.50	M-v	3	Williams	33345	1997 RJ ₁₀
1997 SQ	14.8	0.15	19990122	97.35684	303.93038	58.98879	0.71320	0.1592341	2.9696929	48	5	1982–1998	0.56	M-v	1	Williams	30905	1997 SQ
1997 SR	14.1	0.15	19990122	122.84195	353.42586	324.32722	11.92111	0.1743143	2.7163342	45	2	1997–1998	0.51	M-v	3	Williams	33263	1997 SR
1997 SD ₁	14.0	0.15	19990122	223.06445	3.59644	224.04172	11.57920	0.1367017	2.6475441	23	3	1996–1998	0.81	M-v	5	Williams	31011	1997 SD ₁
1997 SG ₁	13.2	0.15	19990122	6.82597	339.66793	161.02439	13.52478	0.1080868	2.6732947	69	3	1977–1998	0.77	M-v	3	Williams	33345	1997 SG ₁
1997 SK ₁	14.2	0.15	19990122	331.00970	156.98984	338.61605	3.88417	0.0862883	2.6302301	60	4	1991–1998	0.62	M-v	3	Williams	32753	1997 SK ₁
1997 SM ₁	12.5	0.15	19990122	252.09861	5.50688	199.20196	13.38873	0.1063537	2.6810971	39	2	1997–1998	0.43	M-v	3	Williams	33078	1997 SM ₁
1997 SN ₁	14.2	0.15	19990122	183.44744	299.42771	336.62789	12.26854	0.1681916	2.6866712	29	2	1997–1998	0.28	M-v	3	Williams	33264	1997 SN ₁
1997 SZ ₁	14.3	0.15	19990122	86.55732	230.80627	200.64995	2.71264	0.1187636	2.4453198	58	4	1991–1998	0.58	M-v	1	Williams	31145	1997 SZ ₁
1997 SA ₃	14.5	0.15	19990122	159.77469	107.19940	202.14638	3.52575	0.0651919	2.7317800	22	3	1991–1998	0.54	M-v	4	Williams	31393	1997 SA ₃
1997 SG ₇	14.3	0.15	19990122	242.27088	169.73991	19.89086	1.21329	0.1159371	3.1468359	24	2	1997–1998	0.45	M-v	5	Williams	33264	1997 SG ₇
1997 SF ₁₁	14.0	0.15	19990122	351.11426	264.61678	215.69826	12.67839	0.0563458	3.0998297	44	2	1997–1998	0.49	M-v	3	Williams	33264	1997 SF ₁₁
1997 SX ₁₅	13.4	0.15	19990122	315.94752	181.12665	23.98243	10.42954	0.1805804	2.4266094	28	3	1993–1998	0.67	M-v	4	Williams	33345	1997 SX ₁₅
1997 SG ₁₆	13.2	0.15	19990122	334.57778	314.60039	187.68043	1.81499	0.0111385	2.8540158	50	6	1985–1998	0.57	M-v	1	Williams	31145	1997 SG ₁₆
1997 SO ₁₇	13.3	0.15	19990122	140.81292	160.43083	168.60751	2.08903	0.0860408	2.8286662	36	4	1978–1998	0.69	M-v	1	Williams	30987	1997 SO ₁₇
1997 SJ ₂₅	12.8	0.15	19990122	141.93876	213.84000	79.85818	2.99866	0.1684119	3.1549559	35	5	1991–1998	0.81	M-v	1	Williams	33345	1997 SJ ₂₅
1997 SW ₃₀	14.0	0.15	19990122	206.79103	77.39230	171.32337	9.25596	0.1785274	2.5356384	29	3	1996–1998	0.47	M-v	3	Williams	30881	1997 SW ₃₀
1997 SS ₃₁	13.2	0.15	19990122	8.74971	192.24339	238.50817	4.32039	0.1653829	3.1831756	40	2	1997–1998	0.54	M-v	3	Williams	33264	1997 SS ₃₁
1997 TC	13.8	0.15	19990122	155.93406	263.31304	21.43038	2.13210	0.0760299	2.9365119	46	2	1997–1998	0.71	M-v	4	Williams	33264	1997 TC
1997 TK ₁	14.7	0.15	19990122	326.69825	153.48936	329.75423	4.02319	0.0949709	2.6460871	23	3	1993–1998	0.68	M-v	5	Williams	33264	1997 TK ₁

1997 TL ₆	15.3	0.15	19990122	182.66269	215.72140	78.87800	3.47371	0.1886205	2.4382703	28	3	1996–1998	0.52	M-v	3	Williams	30881	1997 TL ₆
1997 TY ₇	12.8	0.15	19990122	265.23204	117.38538	80.66873	2.17797	0.1524500	3.2029584	53	5	1977–1998	0.58	M-v	2	Williams	33345	1997 TY ₇
1997 TZ ₇	13.2	0.15	19990122	98.58396	286.32988	50.31052	16.91400	0.2498663	3.1109598	83	4	1981–1998	0.67	M-v	1	Williams	31012	1997 TZ ₇
1997 TT ₉	11.6	0.15	19990122	349.21049	39.07851	44.51035	10.10961	0.0654557	5.1041028	41	2	1997–1998	0.60	M-v	3	Williams	32753	1997 TT ₉
1997 TB ₁₂	11.9	0.15	19990122	10.77984	194.31248	219.17118	9.89001	0.0702853	5.2376319	61	2	1997–1998	0.51	M-v	3	Williams	33345	1997 TB ₁₂
1997 TM ₁₈	13.5	0.15	19990122	191.79415	246.59802	27.15703	10.67697	0.1692405	2.5764229	38	3	1971–1998	0.67	M-v	4	Williams	30909	1997 TM ₁₈
1997 TG ₁₉	14.5	0.15	19990122	219.64461	234.19476	43.27439	2.60187	0.2931567	2.1703148	34	5	1974–1998	0.75	M-v	2	Williams	31013	1997 TG ₁₉
1997 TS ₂₅	10.5	0.15	19990122	46.85569	159.13997	251.10940	11.59216	0.0662755	5.2228514	39	3	1996–1998	0.64	M-v	3	Williams	33345	1997 TS ₂₅
1997 UH	14.0	0.15	19990122	253.97086	78.33911	157.26245	14.29318	0.1138512	2.6284171	22	2	1997–1998	0.65	M-v	4	Williams	33265	1997 UH
1997 UJ	12.1	0.15	19990122	18.27845	204.41467	224.14017	11.11030	0.0635240	5.1106214	35	2	1997–1998	0.77	M-v	4	Williams	33265	1997 UJ
1997 UK	15.0	0.15	19990122	279.71069	354.67888	218.78837	0.37963	0.0193906	2.4668210	24	3	1993–1998	0.68	M-v	5	Williams	30989	1997 UK
1997 UA ₄	14.7	0.15	19990122	320.35603	315.64726	254.06962	3.59217	0.0578274	2.3111545	64	1	87 days	0.81	M-v	4	Williams	31280	1997 UA ₄
1997 UJ ₅	14.8	0.15	19990122	170.14863	339.40904	355.41775	4.38875	0.0981525	2.3078283	44	5	1992–1998	0.70	M-v	2	Williams	31147	1997 UJ ₅
1997 UU ₇	14.4	0.15	19990122	192.93926	122.58757	162.57562	6.59843	0.1443366	2.3080543	20	3	1972–1998	0.34	M-v	3	Williams	33265	1997 UU ₇
1997 UZ ₈	13.5	0.15	19990122	202.07096	102.75495	217.85363	3.83661	0.0765883	2.3909530	42	4	1978–1998	0.74	M-v	2	Williams	31423	1997 UZ ₈
1997 UM ₉	14.1	0.15	19990122	15.75774	88.20029	45.90947	7.52632	0.0380571	2.4316980	46	4	1982–1998	0.47	M-v	2	Williams	33078	1997 UM ₉
1997 UV ₁₀	12.3	0.15	19990122	341.23222	270.62844	240.68943	7.95768	0.1053561	2.7711750	52	6	1979–1998	0.82	M-v	1	Williams	33346	1997 UV ₁₀
1997 UB ₁₁	12.1	0.15	19990122	48.66591	27.12842	0.59753	21.38373	0.0411213	3.2142030	27	2	1997–1998	0.72	M-v	3	Williams	33346	1997 UB ₁₁
1997 UD ₁₁	12.8	0.15	19990122	265.31059	161.38043	52.88973	1.83107	0.1409493	3.1195941	36	5	1978–1998	0.74	M-v	2	Williams	31147	1997 UD ₁₁
1997 UO ₂₄	14.9	0.15	19990122	137.66053	42.59602	276.23627	1.56765	0.0300725	2.7566959	37	3	1991–1998	0.43	M-v	3	Williams	33346	1997 UO ₂₄
1997 VV	11.8	0.15	19990122	69.05058	162.94179	241.63875	12.60777	0.0674747	3.1722985	41	2	1997–1998	0.64	M-v	3	Williams	33265	1997 VV
1997 VB ₁	11.7	0.15	19990122	299.69149	165.33516	343.00847	3.85114	0.0747174	5.1972496	49	3	1978–1998	0.61	M-v	3	Williams	33346	1997 VB ₁
1997 VV ₁	11.5	0.15	19990122	22.00912	12.71801	20.30517	4.67394	0.1422853	5.2244161	57	2	1997–1998	0.60	M-v	3	Williams	33346	1997 VV ₁
1997 VM ₂	13.5	0.15	19990122	199.19826	76.66909	186.83678	10.20625	0.0163947	3.0823963	23	3	1981–1998	0.58	M-v	5	Williams	31017	1997 VM ₂
1997 VK ₅	12.6	0.15	19990122	275.94873	348.08364	269.60709	6.11802	0.1289411	2.4856027	33	6	1950–1998	0.67	M-v	2	Williams	31591	1997 VK ₅
1997 VX ₅	13.1	0.15	19990122	197.60533	157.05567	166.67412	10.67419	0.0529312	2.5374077	26	5	1980–1998	0.38	M-v	1	Williams	31423	1997 VX ₅
1997 VY ₅	15.4	0.15	19990122	190.93649	210.11994	94.37136	2.27227	0.1889111	2.4196307	42	3	1996–1998	0.72	M-v	3	Williams	31149	1997 VY ₅
1997 VE ₇	14.1	0.15	19990122	5.15378	259.09739	255.84311	4.93566	0.1499224	2.4284588	14	3	1978–1998	0.43	M-v	4	Williams	31117	1997 VE ₇
1997 WO ₇	12.9	0.15	19990122	46.89711	34.24378	59.08583	10.66611	0.0721114	3.0682271	34	2	1997–1998	0.65	M-v	4	Williams	33265	1997 WO ₇
1997 WM ₁₆	14.2	0.15	19990122	154.02792	223.01562	116.76744	6.72456	0.1883027	2.2688651	36	4	1973–1998	0.66	M-v	3	Williams	31282	1997 WM ₁₆
1997 WP ₂₂	13.2	0.15	19990122	201.23144	228.55795	114.74727	2.33685	0.1693921	3.1734963	27	3	1984–1998	0.42	M-v	4	Williams	31251	1997 WP ₂₂
1997 WP ₂₈	13.8	0.15	19990122	86.29709	101.53631	275.32487	8.85730	0.1041709	2.9763665	26	3	1989–1998	0.54	M-v	3	Williams	33078	1997 WP ₂₈
1997 WR ₄₉	13.2	0.15	19990122	162.29949	166.58450	143.98319	1.81270	0.2417990	3.1691576	54	4	1985–1998	0.86	M-v	2	Williams	33078	1997 WR ₄₉
1997 YA	13.4	0.15	19990122	77.21244	330.03692	69.68016	12.35806	0.1099416	3.0344267	37	3	1992–1998	0.63	M-v	3	Williams	31253	1997 YA
1997 YZ	12.5	0.15	19990122	312.86874	301.44944	237.23920	17.13633	0.0954148	3.1118938	48	3	1986–1998	0.74	M-v	3	Williams	33346	1997 YZ
1997 YG ₁	15.1	0.15	19990122	48.68987	53.31337	62.21525	2.94834	0.1443818	2.4490644	27	3	1978–1998	0.46	M-v	2	Williams	31254	1997 YG ₁
1997 YR ₃	12.6	0.15	19990122	46.94458	213.98840	250.08894	17.32699	0.2243761	2.9942745	21	3	1992–1998	0.33	M-v	2	Williams	31127	1997 YR ₃
1997 YY ₅	11.3	0.15	19990122	217.94729	9.14553	311.87130	9.37808	0.0822020	3.0110480	21	4	1978–1998	0.78	M-v	2	Williams	31256	1997 YY ₅
1998 AN ₈	14.2	0.15	19990122	118.16959	324.42775	44.61224	15.55797	0.0962307	2.6783833	29	2	1997–1998	0.44	M-v	3	Williams	33346	1998 AN ₈
1998 BZ ₇	17.7	0.15	19990122	96.79516	102.87706	112.47884	6.47881	0.5553600	2.0404110	247	1	238 days	0.48	M-v	3	Williams	32753	1998 BZ ₇
1998 BP ₂₆	17.7	0.15	19990122	149.17206	186.43167	331.16686	20.23471	0.2572397	1.7230243	131	1	82 days	0.54	M-v	4	Williams	31798	1998 BP ₂₆
1998 FL ₄₁	15.9	0.15	19980328	304.01338	259.70761	355.47515	3.54849	0.1613887	2.2772836	18	1	9 days	0.68		D	Nakano		1998 FL ₄₁
1998 FG ₄₈	16.1	0.15	19980328	4.98906	185.05511	352.26511	12.83062	0.1658228	2.4393246	18	1	30 days	0.92		D	Nakano		1998 FG ₄₈
1998 FH ₆₈	15.6	0.15	19980417	25.64644	155.30514	12.00819	2.75035	0.1241818	2.3805629	18	1	33 days	0.59		D	Nakano		1998 FH ₆₈
1998 FR ₇₄	15.9	0.15	19980328	343.64356	106.87393	93.87260	1.44942	0.2469444	2.4683795	14	1	6 days	0.70		D	Nakano		1998 FR ₇₄
1998 FP ₁₁₉	16.7	0.15	19980417	349.81581	68.76400	123.42231	1.11255	0.1648748	2.3294471	13	1	34 days	0.54		D	Nakano		1998 FP ₁₁₉
1998 GO ₂	15.2	0.15	19980527	357.39922	103.64519	100.94703	9.06593	0.1829410	2.3448542	14	1	52 days	0.69		D	Nakano		1998 GO ₂
1998 HD ₂₅	16.0	0.15	19980417	78.24092	299.02982	171.26623	5.37761	0.0652445	2.3351747	13	1	11 days	0.57		D	Nakano		1998 HD ₂₅
1998 KU ₂	16.7	0.15	19990122	41.44263	119.14322	206.67054	4.88904	0.5539355	2.2507734	377	1	237 days	0.55	M-v	3	Williams	33346	1998 KU ₂
1998 MQ	16.6	0.15	19990122	38.59101	138.54185	221.26832	24.21107	0.4082158	1.7830995	223	1	203 days	0.52	M-v	3	Williams	33346	1998 MQ
1998 MU ₇	14.6	0.15	19990122	29.03361	84.24923	262.16476	4.87426	0.2048046	2.2414532	44	1	192 days	0.63	M-v	3	Williams	33078	1998 MU ₇
1998 MY ₇	14.2	0.15	19990122	41.99610	60.97730	255.87371	10.54351	0.2547706	2.6088329	35	1	173 days	0.71	M-v	3	Williams	33078	1998 MY ₇
1998 MZ ₇	12.6	0.15	19990122	20.68329	93.29003	246.95407	14.16272	0.2907757	3.1029654	49	3	1987–1998	0.68	M-v	2	Williams	33346	1998 MZ ₇

1998 ML ₁₄	17.6	0.15	19990122	35.09227	19.31961	339.38664	2.47077	0.6167089	2.4153346	231	2	1998–1998	0.58	M-v	3	Marsden	33346	1998 ML ₁₄
1998 MS ₂₄	14.3	0.15	19990122	52.03313	137.65846	145.40788	15.25338	0.3345811	2.6115186	59	2	1997–1998	0.47	M-v	3	Williams	32756	1998 MS ₂₄
1998 MK ₃₀	15.8	0.15	19990122	30.30993	154.49144	203.74198	5.41268	0.4346673	2.4670647	333	1	185 days	0.56	M-v	3	Marsden	33346	1998 MK ₃₀
1998 NA	13.3	0.15	19990122	21.58181	37.81813	334.09746	9.18658	0.1776773	2.5783694	66	2	1992–1998	0.71	M-v	3	Williams	33346	1998 NA
1998 ND	15.2	0.15	19990122	37.97006	79.31783	276.78734	22.46764	0.3363730	2.2818144	38	1	171 days	0.65	M-v	3	Williams	33078	1998 ND
1998 OW ₆	14.8	0.15	19990122	19.20032	212.57615	142.88789	19.03302	0.2862697	2.5988458	34	2	1992–1998	0.66	M-v	3	Williams	32757	1998 OW ₆
1998 OZ ₆	14.3	0.15	19990122	12.93534	104.85900	264.90662	4.33763	0.2386950	2.6307215	59	2	1997–1998	0.57	M-v	3	Williams	33079	1998 OZ ₆
1998 OE ₇	14.1	0.15	19990122	351.98053	87.22376	310.77728	12.05748	0.2070781	2.5371580	52	3	1986–1998	0.58	M-v	4	Williams	33079	1998 OE ₇
1998 OP ₇	15.9	0.15	19990122	30.25385	118.20962	223.70002	1.57355	0.2116093	2.3957435	27	3	1976–1998	0.73	M-v	3	Williams	32973	1998 OP ₇
1998 OK ₁₂	15.7	0.15	19990122	10.67363	323.85951	44.01534	7.51664	0.1262373	2.3332381	23	1	131 days	0.46	M-v	4	Williams	33079	1998 OK ₁₂
1998 OV ₁₂	13.6	0.15	19990122	36.98218	178.76799	145.08546	4.99584	0.0665520	2.7902271	28	2	1995–1998	0.65	M-v	3	Williams	33079	1998 OV ₁₂
1998 OA ₁₃	15.1	0.15	19990122	33.64723	24.65024	319.59155	6.26408	0.1738489	2.2693460	28	1	158 days	0.59	M-v	3	Williams	33079	1998 OA ₁₃
1998 ON ₁₃	14.2	0.15	19990122	23.03490	36.04202	318.20414	9.52805	0.0684848	2.2644614	49	2	1981–1998	0.74	M-v	4	Williams	33079	1998 ON ₁₃
1998 OR ₁₃	14.5	0.15	19990122	12.10854	221.71554	150.14773	1.55517	0.1950882	2.4082815	68	3	1987–1998	0.71	M-v	3	Williams	33346	1998 OR ₁₃
1998 OH ₁₄	13.7	0.15	19990122	299.71429	323.73875	131.72755	6.80861	0.2357537	2.3863164	40	4	1936–1998	0.78	M-v	2	Williams	32758	1998 OH ₁₄
1998 OM ₁₄	14.4	0.15	19990122	352.50884	249.88755	145.64256	11.53027	0.2308317	2.6569858	38	1	135 days	0.68	M-v	4	Williams		1998 OM ₁₄
1998 OT ₁₄	15.8	0.15	19990122	24.76164	35.27858	326.15273	5.08009	0.1947416	2.2278238	37	1	158 days	0.77	M-v	4	Williams	33079	1998 OT ₁₄
1998 OX ₁₄	13.7	0.15	19990122	75.26175	313.65215	326.95130	12.50421	0.1364587	2.5861406	39	1	136 days	0.67	M-v	4	Williams	33079	1998 OX ₁₄
1998 OZ ₁₄	14.0	0.15	19990122	3.29862	238.76279	140.47193	12.00066	0.1526942	2.4533264	55	3	1981–1998	0.72	M-v	2	Williams	32758	1998 OZ ₁₄
1998 OB ₁₅	15.0	0.15	19990122	15.64671	5.79602	343.20285	1.85275	0.0671463	2.8949733	15	1	109 days	0.28	M-v	6	Williams	33346	1998 OB ₁₅
1998 PG	17.1	0.15	19990122	33.30114	155.71170	222.92042	6.48693	0.3919683	2.0150554	457	1	139 days	0.53	M-v	3	Williams	33346	1998 PG
1998 PU	14.9	0.15	19990122	22.25816	31.30656	332.28831	6.11868	0.2050266	2.3954445	51	1	130 days	0.57	M-v	4	Williams	33079	1998 PU
1998 QE	14.3	0.15	19990122	303.38575	93.97550	341.82774	2.32269	0.0509465	2.6639182	47	1	113 days	0.55	M-v	5	Williams		1998 QE
1998 QT	15.1	0.15	19990122	93.44675	293.14039	327.11692	4.62772	0.1761155	2.2436557	33	1	121 days	0.64	M-v	5	Williams		1998 QT
1998 QW	14.1	0.15	19990122	39.95971	109.89183	212.38817	14.40978	0.1526497	2.6048247	33	2	1990–1998	0.69	M-v	3	Williams	33080	1998 QW
1998 QL ₁	14.1	0.15	19990122	358.83773	171.15974	207.21417	3.79461	0.1226900	2.6810811	42	1	120 days	0.66	M-v	5	Williams		1998 QL ₁
1998 QN ₂	15.4	0.15	19990122	59.54068	41.08200	265.98075	5.75523	0.1983495	2.2285879	35	3	1968–1998	0.79	M-v	4	Williams	32759	1998 QN ₂
1998 QU ₂	13.8	0.15	19990122	9.77361	202.80259	162.73642	15.62800	0.2110682	2.5661326	39	2	1994–1998	0.60	M-v	3	Williams	33347	1998 QU ₂
1998 QE ₄	14.3	0.15	19990122	37.12623	218.09625	113.43414	10.73479	0.0909036	2.9948441	16	1	124 days	0.46	M-v	4	Williams	33347	1998 QE ₄
1998 QJ ₄	15.2	0.15	19990122	340.82871	359.77181	60.68247	3.47853	0.2062345	2.3667302	56	2	1991–1998	0.64	M-v	4	Williams	33080	1998 QJ ₄
1998 QS ₅	14.5	0.15	19990122	356.44981	56.01849	338.41422	6.71656	0.2288743	2.7368799	43	1	114 days	0.48	M-v	4	Williams	33080	1998 QS ₅
1998 QG ₆	13.8	0.15	19990122	8.90264	202.86589	202.04502	20.79394	0.1345479	3.1891693	27	1	87 days	0.72	M-v	4	Williams	33347	1998 QG ₆
1998 QR ₆	15.7	0.15	19990122	57.48047	282.05135	62.79812	1.10348	0.1937735	2.6535783	24	1	107 days	0.60	M-v	5	Williams	33347	1998 QR ₆
1998 QR ₁₅	18.0	0.15	19990122	21.33827	54.07377	322.56140	9.69585	0.5651677	2.7543989	227	1	128 days	0.50	M-v	3	Williams	33347	1998 QR ₁₅
1998 QZ ₁₅	13.1	0.15	19990122	63.10227	7.76206	287.29777	12.74685	0.1568629	2.5505865	60	1	163 days	0.66	M-v	4	Williams	33347	1998 QZ ₁₅
1998 QL ₁₉	14.2	0.15	19990122	38.55455	277.35034	52.13220	3.38984	0.1832519	2.4309044	42	3	1987–1998	0.75	M-v	2	Williams	33081	1998 QL ₁₉
1998 QA ₂₀	14.1	0.15	19990122	359.71659	79.91010	304.93610	11.39025	0.2200913	2.6694952	26	1	114 days	0.47	M-v	5	Williams		1998 QA ₂₀
1998 QC ₂₀	14.4	0.15	19990122	41.18932	136.86240	168.09755	16.88601	0.3001474	3.0970431	53	1	128 days	0.56	M-v	3	Williams	33081	1998 QC ₂₀
1998 QM ₂₀	12.8	0.15	19990122	229.92668	322.52654	169.70684	11.67424	0.0371046	3.0323492	48	1	133 days	0.53	M-v	4	Williams	33347	1998 QM ₂₀
1998 QD ₂₃	14.0	0.15	19990122	96.10478	250.00350	17.80498	5.68257	0.0597068	2.4233885	38	3	1987–1998	0.75	M-v	2	Williams	32761	1998 QD ₂₃
1998 QL ₂₄	13.8	0.15	19990122	254.74111	278.14330	201.83734	3.86521	0.0266529	2.4312294	26	2	1982–1998	0.86	M-v	5	Williams	33347	1998 QL ₂₄
1998 QN ₂₅	14.3	0.15	19990122	48.66866	336.01401	338.27342	13.40717	0.1478681	2.5662884	34	3	1990–1998	0.52	M-v	3	Williams	32762	1998 QN ₂₅
1998 QY ₂₅	13.5	0.15	19980904	356.19041	192.25560	160.52821	18.27797	0.1325814	3.1539226	28	1	41 days	1.01			Williams		1998 QY ₂₅
1998 QB ₂₆	14.7	0.15	19990122	49.40308	348.38920	337.65745	1.92627	0.2334816	2.3983695	50	1	163 days	0.64	M-v	4	Williams	33081	1998 QB ₂₆
1998 QE ₂₉	13.8	0.15	19990122	45.27157	94.88539	292.74190	11.72474	0.1894732	2.6993668	34	1	113 days	0.46	M-v	4	Williams	33347	1998 QE ₂₉
1998 QL ₃₀	14.5	0.15	19990122	20.83021	233.73254	129.93684	4.96782	0.1374198	2.3370344	57	3	1986–1998	0.63	M-v	3	Williams	32763	1998 QL ₃₀
1998 QN ₃₀	15.2	0.15	19990122	55.07134	157.46608	164.58985	1.95572	0.2069032	2.1849987	68	3	1981–1998	0.56	M-v	2	Williams	33081	1998 QN ₃₀
1998 QR ₃₀	12.9	0.15	19990122	167.38095	15.13566	181.50182	13.26249	0.0814256	2.6053563	36	3	1949–1998	0.70	M-v	3	Williams	33081	1998 QR ₃₀
1998 QW ₃₁	15.1	0.15	19990122	18.33651	21.08184	349.38305	6.61580	0.2202871	2.2878640	44	2	1991–1998	0.73	M-v	3	Williams	33082	1998 QW ₃₁
1998 QB ₃₂	12.9	0.15	19990122	349.78114	38.07386	346.23772	10.91719	0.2882070	3.9843943	43	1	131 days	0.61	M-v	4	Williams	33347	1998 QB ₃₂
1998 QD ₃₂	13.4	0.15	19990122	3.82560	230.98000	143.53199	17.60258	0.2682297	3.0785820	29	1	161 days	0.56	M-v	3	Williams	32763	1998 QD ₃₂
1998 QE ₃₃	14.8	0.15	19990122	287.62819	233.38983	227.35105	3.38943	0.1138374	2.3190613	28	2	1993–1998	0.80	M-v	4	Williams	32699	1998 QE ₃₃
1998 QJ ₃₃	14.8	0.15	19990122	16.19651	64.57758	304.19769	6.12514	0.1320871	2.3202209	33	2	1977–1998	0.79	M-v	4	Williams	32699	1998 QJ ₃₃

1998 QK ₃₄	13.8	0.15	19990122	24.19846	13.76120	334.84482	14.53010	0.1278992	2.5968321	39	1	130 days	0.62	M-v	3	Williams	33082	1998 QK ₃₄
1998 QS ₃₄	14.4	0.15	19990122	70.59046	98.92628	194.54364	6.04736	0.0954839	2.5942699	32	3	1992–1998	0.73	M-v	2	Williams	32699	1998 QS ₃₄
1998 QW ₃₄	13.4	0.15	19990122	52.08187	130.57842	175.60462	14.83189	0.2002230	2.7742089	31	2	1992–1998	0.65	M-v	4	Williams	33082	1998 QW ₃₄
1998 QG ₃₅	14.0	0.15	19990122	4.34415	29.27363	344.92367	8.70987	0.1793455	2.7644318	24	1	116 days	0.52	M-v	4	Williams	33347	1998 QG ₃₅
1998 QZ ₃₅	14.0	0.15	19990122	15.80154	21.23983	337.80898	8.31437	0.1591440	2.7503692	27	2	1980–1998	0.61	M-v	4	Williams	32701	1998 QZ ₃₅
1998 QR ₃₇	12.6	0.15	19990122	65.62582	15.33862	273.47826	2.64794	0.1575398	3.0650142	39	5	1971–1998	0.82	M-v	2	Williams	32702	1998 QR ₃₇
1998 QP ₃₈	14.7	0.15	19990122	337.07851	252.17526	175.27374	7.80839	0.2769995	2.6612215	28	1	114 days	0.70	M-v	5	Williams		1998 QP ₃₈
1998 QV ₃₈	14.6	0.15	19990122	306.76957	203.01181	249.03850	4.41965	0.1376281	2.2660181	32	2	1978–1998	0.67	M-v	4	Williams	33082	1998 QV ₃₈
1998 QA ₃₉	14.1	0.15	19990122	55.74570	349.98052	319.79661	12.87904	0.1661556	2.6731623	31	2	1989–1998	0.72	M-v	4	Williams	32975	1998 QA ₃₉
1998 QQ ₃₉	13.4	0.15	19990122	99.65847	257.35773	8.41217	5.49378	0.0947752	2.4241722	43	7	1953–1998	0.74	M-v	2	Williams	33348	1998 QQ ₃₉
1998 QR ₃₉	15.2	0.15	19990122	101.14665	263.22806	1.32103	6.15291	0.1085342	2.3681276	23	1	114 days	0.80	M-v	5	Williams	33082	1998 QR ₃₉
1998 QT ₃₉	14.1	0.15	19990122	353.25835	255.44795	142.95106	7.69206	0.1937262	2.5533908	37	2	1992–1998	0.53	M-v	4	Williams	33348	1998 QT ₃₉
1998 QX ₃₉	15.3	0.15	19990122	38.19071	198.84979	147.42149	5.17678	0.1980190	2.2467236	29	1	113 days	0.55	M-v	4	Williams		1998 QX ₃₉
1998 QB ₄₀	14.4	0.15	19990122	31.42155	178.79635	161.61478	10.04328	0.1877209	2.7415410	34	3	1971–1998	0.71	M-v	3	Williams	33082	1998 QB ₄₀
1998 QH ₄₀	14.8	0.15	19990122	358.06411	142.82570	259.23905	2.94711	0.2225133	2.3972602	28	2	1987–1998	0.70	M-v	4	Williams	32975	1998 QH ₄₀
1998 QM ₄₀	14.1	0.15	19990122	41.79104	16.73408	313.28880	11.22493	0.1886712	2.6580025	31	1	114 days	0.53	M-v	4	Williams	33348	1998 QM ₄₀
1998 QP ₄₀	13.1	0.15	19990122	282.47945	147.30394	319.91856	12.43334	0.1140534	2.6090580	36	4	1975–1998	0.69	M-v	4	Williams	33083	1998 QP ₄₀
1998 QN ₄₁	14.1	0.15	19980924	201.52965	170.13691	335.44717	1.59042	0.0168709	2.8808127	18	1	32 days	1.13		D	Nakano		1998 QN ₄₁
1998 QE ₄₂	14.7	0.15	19990122	32.57841	309.28695	40.99688	4.13465	0.1668009	2.2723338	40	2	1988–1998	0.70	M-v	3	Williams	32707	1998 QE ₄₂
1998 QN ₄₂	14.2	0.15	19990122	35.85550	10.16118	326.36471	8.52096	0.1848160	2.7266875	52	2	1996–1998	0.76	M-v	3	Williams	33348	1998 QN ₄₂
1998 QR ₄₂	12.9	0.15	19990122	205.08495	347.31194	177.89634	15.77412	0.1271198	3.1528354	25	1	127 days	0.74	M-v	4	Williams		1998 QR ₄₂
1998 QQ ₄₃	14.9	0.15	19990122	13.37196	5.01445	10.00112	7.38287	0.1363275	2.3008726	40	1	114 days	0.56	M-v	4	Williams	33348	1998 QQ ₄₃
1998 QB ₄₄	13.2	0.15	19990122	51.73935	310.39263	358.95577	10.10633	0.1149828	3.0628647	38	2	1993–1998	0.46	M-v	4	Williams	33083	1998 QB ₄₄
1998 QS ₄₄	13.3	0.15	19990122	158.29932	240.41924	329.78197	6.15919	0.0756263	2.7687670	31	2	1996–1998	0.66	M-v	3	Williams	33083	1998 QS ₄₄
1998 QD ₄₅	14.8	0.15	19990122	358.29985	112.84071	283.60356	5.61860	0.1265335	2.3382013	39	2	1991–1998	0.64	M-v	5	Williams	33083	1998 QD ₄₅
1998 QF ₄₅	14.6	0.15	19990122	346.46587	223.77178	183.56552	12.86641	0.1644003	2.6304293	31	1	126 days	0.54	M-v	4	Williams	33348	1998 QF ₄₅
1998 QQ ₄₅	12.2	0.15	19990122	223.38579	189.99491	324.33952	13.55767	0.0769959	3.1286327	49	2	1979–1998	0.63	M-v	4	Williams	33083	1998 QQ ₄₅
1998 QR ₄₅	15.1	0.15	19990122	354.87214	226.09446	178.80176	13.16461	0.1893551	2.4179608	36	1	113 days	0.53	M-v	4	Williams	33348	1998 QR ₄₅
1998 QV ₄₆	14.9	0.15	19990122	27.79333	32.19029	324.10383	14.49205	0.2761955	2.6338651	51	1	114 days	0.64	M-v	4	Williams		1998 QV ₄₆
1998 QW ₄₆	16.6	0.15	19980904	347.70105	90.34453	277.21154	3.98962	0.2407743	2.3183966	31	1	41 days	0.73			Williams		1998 QW ₄₆
1998 QP ₄₇	12.7	0.15	19990122	21.43482	203.14636	149.60186	2.57623	0.0835038	2.8920425	59	4	1974–1998	0.71	M-v	2	Williams	33348	1998 QP ₄₇
1998 QF ₄₈	14.7	0.15	19980904	41.97189	356.57713	298.64756	6.37867	0.1312109	2.3263819	23	1	55 days	0.71			Williams		1998 QF ₄₈
1998 QW ₄₈	14.1	0.15	19990122	117.94506	80.28837	164.53590	12.42471	0.1400133	2.6976215	33	1	82 days	0.77	M-v	5	Williams	33084	1998 QW ₄₈
1998 QF ₄₉	14.0	0.15	19990122	339.84878	270.34923	148.25638	8.72045	0.2287879	2.7662230	33	2	1977–1998	0.52	M-v	4	Williams	32713	1998 QF ₄₉
1998 QT ₅₀	13.9	0.15	19980904	32.64533	138.90915	146.63082	10.23802	0.3104301	3.1064817	25	1	41 days	0.60			Williams		1998 QT ₅₀
1998 QV ₅₀	15.7	0.15	19990122	25.97191	268.41002	98.19301	2.33632	0.2202399	2.2955051	31	1	63 days	0.65	M-v	4	Williams		1998 QV ₅₀
1998 QX ₅₀	14.4	0.15	19990122	63.16530	316.05709	353.25648	7.41825	0.1329689	2.4816719	36	3	1977–1998	0.66	M-v	3	Williams	33084	1998 QX ₅₀
1998 QH ₅₁	13.4	0.15	19990122	24.24658	165.73912	189.82651	3.63596	0.1112845	2.7955689	34	2	1997–1998	0.68	M-v	4	Williams	32976	1998 QH ₅₁
1998 QO ₅₁	16.2	0.15	19990122	51.24360	343.41721	322.02799	6.85785	0.3618716	2.6720173	31	1	63 days	0.71	M-v	5	Williams	32768	1998 QO ₅₁
1998 QQ ₅₁	15.3	0.15	19980904	305.94285	106.99971	308.93497	5.56572	0.1248974	2.4155845	30	1	41 days	0.66			Williams		1998 QQ ₅₁
1998 QR ₅₁	13.8	0.15	19990122	317.77771	122.48244	338.19791	22.72567	0.2809347	2.4442045	45	3	1992–1998	0.68	M-v	3	Williams	33084	1998 QR ₅₁
1998 QT ₅₁	14.6	0.15	19990122	66.40907	355.70609	316.80720	6.45764	0.1492728	2.3052643	39	2	1991–1998	0.71	M-v	4	Williams	33084	1998 QT ₅₁
1998 QU ₅₁	15.0	0.15	19980904	355.35999	103.04745	255.04503	4.08687	0.1780361	3.0648913	24	1	41 days	0.94			Williams		1998 QU ₅₁
1998 QV ₅₁	14.7	0.15	19990122	54.27244	11.17566	316.31452	7.61618	0.1371385	2.3938366	52	3	1987–1998	0.65	M-v	3	Williams	33084	1998 QV ₅₁
1998 QY ₅₁	15.8	0.15	19980904	315.91315	168.64348	238.45758	4.73557	0.1495708	2.3696966	34	1	55 days	0.82			Williams		1998 QY ₅₁
1998 QZ ₅₁	15.9	0.15	19980904	36.49792	87.00157	208.95157	5.37978	0.1952751	2.2473191	28	1	41 days	0.58			Williams		1998 QZ ₅₁
1998 QA ₅₂	15.8	0.15	19990122	11.52840	95.80676	294.36401	5.27897	0.1285208	2.1598306	17	1	114 days	0.69	M-v	5	Williams		1998 QA ₅₂
1998 QB ₅₂	13.7	0.15	19990122	39.37037	155.53752	183.01449	13.00267	0.1809477	2.6695525	60	3	1985–1998	0.64	M-v	2	Williams	33084	1998 QB ₅₂
1998 QC ₅₂	13.8	0.15	19990122	221.14561	340.30980	181.30896	22.08909	0.0105612	2.5967304	51	3	1973–1998	0.82	M-v	3	Williams	33084	1998 QC ₅₂
1998 QE ₅₂	13.2	0.15	19990122	303.88688	209.33373	244.61696	5.78076	0.1424130	2.7829751	44	3	1992–1998	0.79	M-v	4	Williams	33084	1998 QE ₅₂
1998 QG ₅₂	15.5	0.15	19980904	96.48830	338.39499	263.57875	3.35139	0.1152439	2.2088925	27	1	41 days	0.70			Williams		1998 QG ₅₂
1998 QH ₅₂	13.7	0.15	19990122	241.65377	189.25241	319.22700	7.55409	0.0547341	2.4564031	47	2	1994–1998	0.68	M-v	4	Williams	33084	1998 QH ₅₂
1998 QK ₅₂	14.8	0.15	19990122	26.56004	174.16170	187.68443	6.84155	0.1203559	2.4535073	40	3	1991–1998	0.72	M-v	3	Williams	33084	1998 QK ₅₂

1998 QS ₅₂	14.2	0.15	19990122	351.11966	242.11151	261.32965	17.70058	0.8588002	2.1997534	255	1	132 days	0.58	M-v	4	Williams	33348	1998 QS ₅₂
1998 QH ₅₃	15.4	0.15	19990122	24.15929	78.07332	297.13037	3.56685	0.3103804	2.6066124	42	1	111 days	0.77	M-v	4	Williams	33348	1998 QH ₅₃
1998 QO ₅₃	14.3	0.15	19990122	57.45275	111.67274	204.30447	24.11755	0.2700552	2.7347709	45	1	102 days	0.54	M-v	4	Williams	33348	1998 QO ₅₃
1998 QR ₅₃	14.0	0.15	19990122	338.55198	75.01038	335.33990	8.36169	0.1427561	2.7488288	33	1	88 days	0.76	M-v	5	Williams	33348	1998 QR ₅₃
1998 QW ₅₃	13.9	0.15	19990122	91.81311	116.81211	176.38242	6.40808	0.1177224	2.3283996	75	2	1993–1998	0.58	M-v	4	Williams	33084	1998 QW ₅₃
1998 QF ₅₄	15.4	0.15	19990122	28.64086	165.82110	209.00310	6.18218	0.1199929	2.2498163	44	1	103 days	0.68	M-v	4	Williams	33348	1998 QF ₅₄
1998 QG ₅₄	14.6	0.15	19990122	29.02568	140.52492	225.24962	5.95093	0.1740304	2.5421759	84	3	1978–1998	0.87	M-v	3	Williams	33348	1998 QG ₅₄
1998 QJ ₅₄	14.0	0.15	19990122	332.48314	211.61356	223.23516	5.98902	0.0886272	2.3838191	39	1	103 days	0.51	M-v	4	Williams		1998 QJ ₅₄
1998 QM ₅₄	14.7	0.15	19990122	38.18164	57.87128	301.77433	3.99184	0.1732277	2.2298509	24	1	129 days	0.61	M-v	4	Williams	33085	1998 QM ₅₄
1998 QS ₅₄	15.5	0.15	19990122	29.56305	55.49751	316.13079	4.71486	0.2523028	2.3273111	20	1	104 days	0.60	M-v	5	Williams		1998 QS ₅₄
1998 QH ₅₄	12.8	0.15	19990122	2.75416	175.70216	210.00382	4.70347	0.0366671	3.2238578	43	4	1964–1998	0.71	M-v	4	Williams	33348	1998 QH ₅₄
1998 QY ₅₄	14.3	0.15	19990122	10.34898	167.42151	220.71391	4.16285	0.1661616	2.7694986	35	2	1979–1998	0.75	M-v	4	Williams	33348	1998 QY ₅₄
1998 QZ ₅₄	14.4	0.15	19990122	311.88750	129.02309	329.46415	6.12020	0.1110644	2.4471811	36	2	1996–1998	0.94	M-v	5	Williams	32977	1998 QZ ₅₄
1998 QA ₅₅	15.3	0.15	19990122	38.13551	170.22310	190.55533	5.64010	0.2239946	2.2459447	63	2	1997–1998	0.61	M-v	3	Williams	33085	1998 QA ₅₅
1998 QZ ₅₅	13.5	0.15	19980904	345.91436	72.52154	299.14879	2.70386	0.1328385	2.7711242	36	1	28 days	0.68			Williams		1998 QZ ₅₅
1998 QH ₅₆	17.9	0.15	19990122	350.65662	266.21389	176.51373	32.22218	0.0306583	1.5506105	58	1	47 days	0.68	M-v	5	Williams	33085	1998 QH ₅₆
1998 QK ₅₆	17.4	0.15	19990122	16.68563	285.75164	173.38450	13.54835	0.5125685	1.8840355	74	1	117 days	0.59	M-v	4	Williams	33348	1998 QK ₅₆
1998 QB ₆₀	16.2	0.15	19980904	34.98941	144.00779	168.37837	10.20634	0.0927511	3.0217675	12	1	28 days	0.26		D	Nakano		1998 QB ₆₀
1998 QO ₆₀	13.3	0.15	19990122	118.78505	283.62031	7.89108	11.21951	0.1867804	2.6701871	29	1	103 days	0.46	M-v	4	Williams	33348	1998 QO ₆₀
1998 QT ₆₀	13.2	0.15	19990122	21.60567	127.06884	298.92042	21.89784	0.3495634	2.4467413	100	2	1990–1998	0.56	M-v	2	Williams	33085	1998 QT ₆₀
1998 QT ₆₂	13.5	0.15	19990122	54.19676	140.84900	181.29915	9.57105	0.2669413	2.7468744	72	1	102 days	0.54	M-v	4	Williams	33348	1998 QT ₆₂
1998 QG ₆₃	16.5	0.15	19980904	20.81968	309.88585	12.72307	6.45188	0.0824478	2.1563609	26	1	49 days	0.88			Williams		1998 QG ₆₃
1998 QK ₆₃	16.0	0.15	19990122	12.26360	184.19821	211.01697	5.15164	0.1311731	2.1315595	57	1	112 days	0.61	M-v	4	Williams	33349	1998 QK ₆₃
1998 QP ₆₃	18.0	0.15	19990122	24.16857	221.44880	159.00977	9.39436	0.4962703	2.6774704	98	1	99 days	0.77	M-v	4	Williams	33349	1998 QP ₆₃
1998 QG ₆₃	18.7	0.15	19990122	35.12839	265.41619	104.52871	1.66778	0.5479100	2.3651382	47	1	120 days	0.53	M-v	4	Marsden	33349	1998 QG ₆₃
1998 QV ₆₃	13.4	0.15	19990122	17.38648	200.70048	180.91487	4.26827	0.1099657	2.8142336	78	4	1979–1998	0.67	M-v	3	Williams	33349	1998 QV ₆₃
1998 QA ₆₉	15.1	0.15	19990122	4.78910	202.68715	179.70209	12.71602	0.2227239	2.5232960	25	1	106 days	0.74	M-v	4	Williams	33349	1998 QA ₆₉
1998 QP ₆₉	14.3	0.15	19990122	11.20297	125.67884	244.81870	14.13433	0.1457231	2.5927153	28	2	1990–1998	0.68	M-v	4	Williams	32979	1998 QP ₆₉
1998 QC ₇₁	14.6	0.15	19990122	23.97696	112.32376	237.40867	7.23003	0.2845340	2.8513039	34	2	1979–1998	0.72	M-v	3	Williams	33349	1998 QC ₇₁
1998 QD ₇₂	14.8	0.15	19990122	50.48837	72.13733	238.12655	10.48525	0.2629160	2.6823141	25	1	149 days	0.50	M-v	4	Williams	33086	1998 QD ₇₂
1998 QE ₇₃	12.7	0.15	19990122	60.45713	10.77650	294.77069	8.73393	0.0633497	3.0082033	33	3	1962–1998	0.49	M-v	4	Williams	32980	1998 QE ₇₃
1998 QG ₇₃	12.5	0.15	19990122	273.12653	216.10924	247.04298	8.38096	0.0472941	3.0194399	32	2	1978–1998	0.59	M-v	5	Williams	32981	1998 QG ₇₃
1998 QN ₇₃	13.5	0.15	19990122	48.08460	49.88836	269.66227	10.63886	0.2048397	2.6898387	35	3	1954–1998	0.72	M-v	2	Williams	32981	1998 QN ₇₃
1998 QO ₇₃	14.6	0.15	19990122	62.90813	92.97578	205.08318	14.45325	0.2177696	2.5971969	38	2	1997–1998	0.58	M-v	4	Williams	32981	1998 QO ₇₃
1998 QB ₇₄	12.7	0.15	19990122	39.73401	104.53072	224.46548	9.70011	0.1092126	2.9993037	46	4	1962–1998	0.62	M-v	2	Williams	32981	1998 QB ₇₄
1998 QC ₇₅	13.9	0.15	19980904	36.84617	66.18258	238.41910	8.96448	0.0953552	3.4328303	22	1	34 days	0.72			Williams		1998 QC ₇₅
1998 QK ₇₅	12.7	0.15	19990122	349.18606	150.66122	244.62387	9.09989	0.1108895	2.9985647	35	3	1978–1998	0.74	M-v	3	Williams	33349	1998 QK ₇₅
1998 QN ₇₅	12.4	0.15	19990122	355.28038	202.64084	188.16460	22.01246	0.0956785	2.6611652	38	4	1968–1998	0.74	M-v	2	Williams	32982	1998 QN ₇₅
1998 QS ₇₅	15.3	0.15	19980904	338.71220	182.64915	199.67720	17.66796	0.2229810	3.1501002	14	1	34 days	1.17			Williams		1998 QS ₇₅
1998 QX ₇₅	14.8	0.15	19980904	359.51747	160.58290	189.04035	17.85890	0.1569214	3.1275846	31	1	34 days	0.73			Williams		1998 QX ₇₅
1998 QE ₇₆	15.0	0.15	19980904	30.00748	63.66060	235.05033	7.81087	0.2635230	2.7264462	16	1	34 days	0.65			Williams		1998 QE ₇₆
1998 QF ₇₆	14.6	0.15	19980815	28.66363	79.70253	217.83086	9.06931	0.2245085	2.5880290	19	1	9 days	0.76		D	Nakano		1998 QF ₇₆
1998 QM ₇₆	12.8	0.15	19990122	207.71485	290.96418	245.08911	9.90763	0.1334305	2.6437227	33	3	1986–1998	0.61	M-v	3	Williams	33087	1998 QM ₇₆
1998 QN ₇₆	14.7	0.15	19980904	348.97845	135.48732	228.67333	7.80182	0.1027921	2.4475763	13	1	34 days	0.69			Williams		1998 QN ₇₆
1998 QT ₇₆	14.9	0.15	19980904	159.38199	272.58952	275.09426	5.92033	0.0850712	2.1964806	19	1	48 days	0.68			Williams		1998 QT ₇₆
1998 QZ ₇₆	15.3	0.15	19990122	10.57504	190.07400	196.77343	13.52750	0.2528226	2.6310949	29	1	93 days	0.63	M-v	4	Williams	33349	1998 QZ ₇₆
1998 QC ₇₇	15.3	0.15	19980904	87.28605	56.00485	197.61071	17.40879	0.0913899	2.5216968	14	1	34 days	0.87			Williams		1998 QC ₇₇
1998 QH ₇₇	12.8	0.15	19990122	358.69257	92.76627	296.07628	13.72101	0.1078377	3.2232045	44	3	1989–1998	0.64	M-v	3	Williams	32982	1998 QH ₇₇
1998 QU ₇₇	16.7	0.15	19980904	6.93748	119.84060	218.69704	5.86463	0.2495950	2.3502886	32	1	59 days	0.93			Williams		1998 QU ₇₇
1998 QW ₇₇	12.5	0.15	19990122	118.16928	286.97249	324.00797	11.94705	0.1622343	2.6767350	33	2	1992–1998	0.65	M-v	5	Williams	32983	1998 QW ₇₇
1998 QX ₇₇	13.7	0.15	19990122	25.30387	40.84071	324.09147	13.65914	0.1498512	2.5991781	52	2	1996–1998	0.64	M-v	3	Williams	32983	1998 QX ₇₇
1998 QF ₈₀	13.6	0.15	19990122	36.99406	41.27634	293.88062	11.69570	0.2658859	2.3453767	25	1	107 days	0.42	M-v	5	Williams	33349	1998 QF ₈₀
1998 QM ₈₀	16.3	0.15	19990122	21.43756	173.05924	182.76964	13.97218	0.3293024	2.5876499	43	1	107 days	0.83	M-v	4	Williams	33349	1998 QM ₈₀

1998 QC ₈₄	14.6	0.15	19990122	23.47420	64.22826	282.85432	12.63980	0.2870626	3.0541361	31	1	169 days	0.53	M-v	3	Williams	33087	1998 QC ₈₄
1998 QL ₈₄	13.9	0.15	19990122	347.24291	108.95744	295.29301	11.93104	0.1768428	2.6719826	35	1	107 days	0.45	M-v	4	Williams		1998 QL ₈₄
1998 QO ₈₄	14.5	0.15	19990122	50.31102	20.25949	288.12148	10.01227	0.2997544	2.6580998	55	1	107 days	0.43	M-v	4	Williams		1998 QO ₈₄
1998 QW ₈₅	14.4	0.15	19990122	48.35235	100.21593	230.27641	6.60538	0.1407060	2.3924942	29	2	1987–1998	0.41	M-v	4	Williams	33268	1998 QW ₈₅
1998 QY ₈₅	15.0	0.15	19990122	348.27365	126.08606	287.14732	11.05708	0.2365946	2.6654219	24	1	107 days	0.86	M-v	5	Williams		1998 QY ₈₅
1998 QE ₈₆	14.8	0.15	19990122	22.68704	159.70710	206.26477	17.19232	0.2327358	2.5353406	26	1	106 days	0.56	M-v	3	Williams		1998 QE ₈₆
1998 QG ₈₆	13.8	0.15	19990122	305.38764	169.26392	286.46239	12.13872	0.1920677	2.7744102	35	2	1997–1998	0.61	M-v	4	Williams	32984	1998 QG ₈₆
1998 QK ₈₆	14.0	0.15	19990122	16.05174	114.26572	246.65234	9.38047	0.1107255	2.9928634	26	2	1978–1998	0.71	M-v	4	Williams	32984	1998 QK ₈₆
1998 QN ₈₆	13.5	0.15	19990122	347.85804	118.40831	286.29344	8.08209	0.1601691	2.7606469	34	2	1989–1998	0.76	M-v	4	Williams	32984	1998 QN ₈₆
1998 QT ₈₆	15.4	0.15	19980904	334.97219	190.22043	202.19688	14.31229	0.2878264	3.0727001	19	1	34 days	0.71			Williams		1998 QT ₈₆
1998 QJ ₈₇	14.7	0.15	19980815	346.83523	57.51204	305.55716	11.23763	0.1823374	2.7551773	19	1	9 days	0.85			D Nakano		1998 QJ ₈₇
1998 QM ₈₇	15.0	0.15	19980904	351.59768	161.62642	200.69904	16.30536	0.1895911	3.0605118	16	1	34 days	0.84			Williams		1998 QM ₈₇
1998 QG ₈₈	16.3	0.15	19980904	358.81308	92.55403	257.97690	4.73057	0.2208616	2.2801534	16	1	34 days	0.65			Williams		1998 QG ₈₈
1998 QV ₈₈	15.0	0.15	19990122	45.71761	72.89360	262.31122	7.42178	0.2782114	2.3854726	19	1	107 days	0.72	M-v	4	Williams		1998 QV ₈₈
1998 QL ₈₉	14.7	0.15	19990122	45.87134	106.25523	225.46853	12.63525	0.2455540	2.5938948	36	2	1994–1998	0.81	M-v	4	Williams	33349	1998 QL ₈₉
1998 QP ₉₀	15.2	0.15	19990122	33.22095	353.37585	12.92904	9.50820	0.1684842	2.1646364	68	2	1997–1998	0.77	M-v	3	Williams	33349	1998 QP ₉₀
1998 QS ₉₀	14.9	0.15	19990122	81.56183	258.08040	35.56867	6.11135	0.1962894	2.3140254	52	2	1977–1998	0.78	M-v	4	Williams	32985	1998 QS ₉₀
1998 QU ₉₀	14.0	0.15	19990122	298.07847	53.75361	52.78930	5.96675	0.0772736	2.2667499	62	3	1993–1998	0.76	M-v	4	Williams	33088	1998 QU ₉₀
1998 QA ₉₁	13.7	0.15	19990122	57.64340	154.58451	166.88130	13.80587	0.2020022	2.6016204	38	1	133 days	0.71	M-v	4	Williams		1998 QA ₉₁
1998 QF ₉₁	14.5	0.15	19990122	59.91422	291.74917	23.86854	12.89314	0.2040649	2.6986701	29	1	102 days	0.62	M-v	4	Williams		1998 QF ₉₁
1998 QO ₉₁	13.5	0.15	19990122	60.36713	165.53687	166.08540	14.01189	0.1758323	2.5468048	19	1	112 days	0.74	M-v	4	Williams		1998 QO ₉₁
1998 QY ₉₁	14.9	0.15	19990122	21.64354	347.69900	50.42991	3.47319	0.2391260	2.3106566	20	1	75 days	1.14	M-v	6 D	Williams		1998 QY ₉₁
1998 QF ₉₂	15.3	0.15	19990122	105.99433	283.23215	23.16318	21.89093	0.0774897	1.9384652	38	1	103 days	0.77	M-v	4	Williams	33349	1998 QF ₉₂
1998 QG ₉₂	15.6	0.15	19990122	53.43701	226.51787	113.86304	4.50376	0.3138969	2.3732570	28	1	83 days	0.74	M-v	5	Williams	33349	1998 QG ₉₂
1998 QJ ₉₂	15.1	0.15	19990122	25.21767	325.30353	71.63680	3.28216	0.2367182	2.3084186	50	2	1991–1998	0.68	M-v	3	Williams	33349	1998 QJ ₉₂
1998 QL ₉₂	14.1	0.15	19990122	20.74420	226.27997	177.74209	2.01610	0.2127704	2.3738447	28	3	1954–1998	0.68	M-v	3	Williams	33269	1998 QL ₉₂
1998 QN ₉₂	13.1	0.15	19990122	40.09926	1.26321	8.50442	13.80019	0.1680193	2.9674789	40	2	1992–1998	0.69	M-v	4	Williams	33349	1998 QN ₉₂
1998 QS ₉₂	13.9	0.15	19990122	60.21826	251.87367	91.97745	6.54847	0.2219261	2.2715646	26	1	105 days	0.55	M-v	5	Williams	33349	1998 QS ₉₂
1998 QX ₉₂	13.6	0.15	19990122	10.36751	217.93367	193.38441	8.98675	0.1477000	2.7717351	29	1	105 days	0.75	M-v	4	Williams	33349	1998 QX ₉₂
1998 QA ₉₃	13.8	0.15	19990122	17.24368	11.75101	40.01114	3.94593	0.1365868	2.2868879	43	5	1951–1998	0.73	M-v	2	Williams	33269	1998 QA ₉₃
1998 QH ₉₃	13.5	0.15	19990122	349.09506	212.15500	245.20004	11.20334	0.2256155	2.6622300	33	1	108 days	0.72	M-v	5	Williams	33349	1998 QH ₉₃
1998 QO ₉₃	12.7	0.15	19990122	346.29092	227.49416	237.99119	12.85471	0.1264142	2.5739947	34	1	116 days	0.68	M-v	4	Williams		1998 QO ₉₃
1998 QR ₉₃	13.7	0.15	19990122	31.20304	332.94910	58.05224	13.93886	0.1655919	2.6824990	48	2	1989–1998	0.70	M-v	4	Williams	33269	1998 QR ₉₃
1998 QV ₉₃	16.2	0.15	19980815	296.78779	242.60859	165.02383	11.89773	0.1514180	2.3182409	12	1	9 days	0.71			Williams		1998 QV ₉₃
1998 QO ₉₅	14.8	0.15	19990122	359.99182	184.96771	206.27074	6.94977	0.1519307	2.3642268	38	3	1980–1998	0.63	M-v	2	Williams	33089	1998 QO ₉₅
1998 QA ₉₆	15.6	0.15	19990122	13.71626	71.78265	310.18625	25.04373	0.4266868	3.1586084	37	1	137 days	0.54	M-v	3	Williams	33349	1998 QA ₉₆
1998 QF ₉₆	15.1	0.15	19990122	102.74750	31.76192	229.97076	5.86214	0.1672237	2.3393520	23	3	1991–1998	0.63	M-v	3	Williams	33349	1998 QF ₉₆
1998 QA ₉₈	13.4	0.15	19990122	276.26333	187.17186	310.94830	6.59358	0.1617445	2.4523169	48	2	1997–1998	0.60	M-v	4	Williams	32986	1998 QA ₉₈
1998 QD ₉₉	13.6	0.15	19990122	4.49290	284.51590	93.30404	3.29789	0.0715358	2.9121594	59	2	1989–1998	0.68	M-v	4	Williams	33090	1998 QD ₉₉
1998 QF ₉₉	16.1	0.15	19980904	243.91100	71.46283	38.18908	3.95047	0.0399185	2.2325992	24	1	32 days	0.81			Williams		1998 QF ₉₉
1998 QJ ₉₉	15.0	0.15	19990122	24.23018	269.22497	99.31475	3.58756	0.2116572	2.4006746	53	2	1993–1998	0.84	M-v	3	Williams	33090	1998 QJ ₉₉
1998 QM ₉₉	15.3	0.15	19990122	48.54775	327.39601	357.70665	7.84509	0.3015452	2.4166501	38	1	105 days	0.93	M-v	4	Williams		1998 QM ₉₉
1998 QO ₉₉	14.7	0.15	19990122	226.06477	37.35106	128.78352	6.11324	0.1039688	2.2392248	43	3	1991–1998	0.89	M-v	4	Williams	33090	1998 QO ₉₉
1998 QT ₉₉	16.7	0.15	19980904	26.96570	177.18679	129.02646	4.49821	0.2281714	2.3642148	20	1	32 days	0.72			Williams		1998 QT ₉₉
1998 QU ₉₉	17.0	0.15	19980904	342.52547	279.19628	97.16695	3.04271	0.2233728	2.3270823	34	1	47 days	0.82			Williams		1998 QU ₉₉
1998 QZ ₉₉	15.0	0.15	19990122	16.23932	322.21443	54.92256	3.42273	0.1671905	2.4506098	34	1	104 days	0.74	M-v	4	Williams		1998 QZ ₉₉
1998 QC ₁₀₀	15.2	0.15	19980904	46.00571	159.38987	126.97929	6.22581	0.1801600	2.4532788	31	1	47 days	0.83			Williams		1998 QC ₁₀₀
1998 QF ₁₀₀	14.8	0.15	19980904	280.90694	294.29892	154.84389	12.26022	0.1586355	2.6388645	26	1	32 days	0.85			Williams		1998 QF ₁₀₀
1998 QO ₁₀₀	14.7	0.15	19990122	329.75302	294.38771	124.72700	5.64942	0.0602631	2.7198359	30	1	74 days	0.73	M-v	5	Williams	33090	1998 QO ₁₀₀
1998 QR ₁₀₀	15.5	0.15	19980904	23.52130	187.88976	128.52104	4.37795	0.1909992	2.6690764	31	1	32 days	0.67			Williams		1998 QR ₁₀₀
1998 QS ₁₀₀	16.5	0.15	19980904	343.54351	304.91089	70.69016	3.33881	0.2218136	2.3966166	28	1	47 days	0.68			Williams		1998 QS ₁₀₀
1998 QZ ₁₀₀	14.9	0.15	19990122	34.43259	241.70745	90.84576	2.63226	0.2734966	3.0693532	36	2	1997–1998	0.67	M-v	4	Williams	33090	1998 QZ ₁₀₀
1998 QA ₁₀₁	15.9	0.15	19980904	328.52814	263.16857	132.47316	3.93617	0.2086993	2.5874290	18	1	32 days	0.87			Williams		1998 QA ₁₀₁

1998 QE ₁₀₁	15.1	0.15	19990122	355.34116	65.90338	348.34109	29.64158	0.3101881	2.6420889	35	1	70 days	0.80	M-v	4	Williams	33349	1998 QE ₁₀₁
1998 QF ₁₀₁	15.8	0.15	19980904	355.74380	297.72920	56.93274	3.09429	0.2212164	2.6638870	21	1	47 days	0.75			Williams		1998 QF ₁₀₁
1998 QP ₁₀₁	14.5	0.15	19980904	257.73384	54.29810	43.07656	3.74843	0.0500517	2.6673410	19	1	32 days	0.68			Williams		1998 QP ₁₀₁
1998 QQ ₁₀₁	13.2	0.15	19990122	6.76434	213.13935	165.13806	16.84807	0.1922004	3.0885835	37	2	1971–1998	0.61	M-v	4	Williams	33349	1998 QQ ₁₀₁
1998 QZ ₁₀₁	14.9	0.15	19990122	120.13484	103.52478	157.06504	9.92356	0.0270167	2.5597426	29	2	1992–1998	0.83	M-v	5	Williams	33090	1998 QZ ₁₀₁
1998 QD ₁₀₂	13.9	0.15	19980904	214.71652	348.55772	155.67403	12.79280	0.1352076	2.8680130	30	1	32 days	0.96			Williams		1998 QD ₁₀₂
1998 QG ₁₀₂	14.4	0.15	19980904	283.49219	292.87178	142.33351	5.88101	0.0709860	2.8407106	40	1	47 days	0.82			Williams		1998 QG ₁₀₂
1998 QK ₁₀₂	15.1	0.15	19980904	353.64761	231.36352	125.92367	5.69854	0.1224456	2.6638411	34	1	47 days	0.65			Williams		1998 QK ₁₀₂
1998 QP ₁₀₂	13.6	0.15	19980904	103.79499	89.41858	154.21902	10.19846	0.0400450	3.0500141	26	1	32 days	0.60			Williams		1998 QP ₁₀₂
1998 QR ₁₀₂	15.3	0.15	19980904	297.36689	358.91154	59.51198	4.17042	0.0632635	2.3976353	33	1	47 days	0.86			Williams		1998 QR ₁₀₂
1998 QV ₁₀₂	12.8	0.15	19990122	9.35508	322.69190	47.16274	6.34520	0.2925753	3.9568264	44	3	1975–1998	0.69	M-v	3	Williams	32987	1998 QV ₁₀₂
1998 QZ ₁₀₂	13.3	0.15	19990122	65.19816	166.16877	131.38315	6.19448	0.2252008	2.8565623	51	4	1977–1998	0.75	M-v	2	Williams	32987	1998 QZ ₁₀₂
1998 QD ₁₀₃	16.0	0.15	19980904	328.70254	349.62936	45.89265	5.46767	0.1805256	2.3002788	25	1	47 days	1.15			Williams		1998 QD ₁₀₃
1998 QK ₁₀₃	16.5	0.15	19980904	343.88045	256.25637	119.20554	4.12955	0.1952513	2.2200398	32	1	32 days	0.60			Williams		1998 QK ₁₀₃
1998 QL ₁₀₃	15.5	0.15	19990122	241.76725	72.85355	83.31579	4.37127	0.0586169	2.1878847	35	2	1995–1998	0.84	M-v	5	Williams	33091	1998 QL ₁₀₃
1998 QQ ₁₀₃	15.1	0.15	19990122	17.30705	350.45734	31.02142	4.47767	0.1148056	2.2791467	61	2	1991–1998	0.61	M-v	4	Williams	33349	1998 QQ ₁₀₃
1998 QW ₁₀₃	15.7	0.15	19980904	9.79751	284.76133	53.99818	5.07992	0.1380871	2.2410816	17	1	32 days	0.59			Williams		1998 QW ₁₀₃
1998 QA ₁₀₄	15.7	0.15	19980904	340.35465	341.79814	39.70717	7.24954	0.1787328	2.6074500	19	1	32 days	0.56			Williams		1998 QA ₁₀₄
1998 QF ₁₀₄	13.7	0.15	19990122	92.09504	272.60757	13.21986	14.94642	0.1001287	2.5375495	52	2	1990–1998	0.61	M-v	4	Williams	33349	1998 QF ₁₀₄
1998 QO ₁₀₄	14.5	0.15	19980904	224.16088	63.50209	69.87254	5.77284	0.0276184	2.4643914	19	1	32 days	0.46			Williams		1998 QO ₁₀₄
1998 QP ₁₀₄	12.7	0.15	19990122	273.48246	85.27272	24.89541	13.68293	0.0225000	3.1849003	59	5	1976–1998	0.81	M-v	2	Williams	33091	1998 QP ₁₀₄
1998 QM ₁₀₅	16.6	0.15	19980904	324.83934	12.36569	28.81378	5.94790	0.2141863	2.3334115	31	1	33 days	0.83			Williams		1998 QM ₁₀₅
1998 QN ₁₀₅	14.9	0.15	19990122	15.73455	337.62545	42.57992	5.00482	0.1529209	2.3156690	51	2	1991–1998	0.73	M-v	4	Williams	33091	1998 QN ₁₀₅
1998 QO ₁₀₅	14.1	0.15	19990122	186.87799	148.57701	48.91075	5.73858	0.0977396	2.2586049	48	2	1997–1998	0.57	M-v	4	Williams	33091	1998 QO ₁₀₅
1998 QQ ₁₀₅	15.7	0.15	19990122	0.92701	7.28462	31.75517	7.02465	0.2145019	2.5296718	39	3	1978–1998	0.89	M-v	4	Williams	32988	1998 QQ ₁₀₅
1998 QS ₁₀₅	15.4	0.15	19980904	334.99132	262.45072	120.33775	5.74146	0.1383905	2.5200685	26	1	33 days	0.75			Williams		1998 QS ₁₀₅
1998 QW ₁₀₅	15.3	0.15	19990122	353.97882	268.24284	138.43186	9.80747	0.1689110	2.4642309	18	2	1994–1998	0.64	M-v	4	Williams	32988	1998 QW ₁₀₅
1998 QB ₁₀₆	15.4	0.15	19990122	22.57282	266.99170	106.11707	3.97732	0.1978315	2.2766793	39	3	1981–1998	0.94	M-v	4	Williams	32989	1998 QB ₁₀₆
1998 QE ₁₀₆	15.5	0.15	19980904	353.43621	294.21389	63.90976	3.80598	0.2377526	2.6081304	21	1	48 days	0.57			Williams		1998 QE ₁₀₆
1998 QM ₁₀₆	14.1	0.15	19990122	34.72510	326.36642	14.31770	11.33197	0.1659265	2.7488069	33	2	1989–1998	0.81	M-v	4	Williams	33091	1998 QM ₁₀₆
1998 QU ₁₀₆	13.9	0.15	19990122	356.23370	325.07743	68.80182	4.52635	0.1711126	2.8775631	40	1	113 days	0.72	M-v	4	Williams	33349	1998 QU ₁₀₆
1998 QX ₁₀₆	15.7	0.15	19990122	351.97492	25.56013	28.61819	7.22072	0.1956814	2.3058108	21	2	1993–1998	0.69	M-v	5	Williams	33091	1998 QX ₁₀₆
1998 RB	14.4	0.15	19980904	104.06595	45.85062	197.43546	15.25779	0.0114256	2.5663482	56	1	48 days	0.76			Williams		1998 RB
1998 RE	12.6	0.15	19990122	266.28496	127.63019	58.31923	13.67428	0.0921921	3.1433201	35	3	1939–1998	0.59	M-v	3	Williams	33349	1998 RE
1998 RY	15.4	0.15	19990122	18.59103	154.81208	233.40896	3.39362	0.2993498	2.5761135	57	1	111 days	0.69	M-v	4	Williams	33350	1998 RY
1998 RE ₁	14.7	0.15	19990122	44.67649	314.50084	356.36900	17.11095	0.1686517	3.0392560	29	1	95 days	0.46	M-v	4	Williams	33350	1998 RE ₁
1998 RG ₃	15.8	0.15	19990122	30.23711	131.45443	229.92626	8.06338	0.3523159	2.6771623	50	1	84 days	0.63	M-v	4	Williams	33350	1998 RG ₃
1998 RM ₃	14.2	0.15	19990122	4.32372	45.11221	350.11787	24.92405	0.1833516	2.2814069	28	1	86 days	0.61	M-v	4	Williams		1998 RM ₃
1998 RZ ₃	16.1	0.15	19980904	28.00366	331.79439	341.39672	14.10148	0.1843505	2.5555638	24	1	13 days	0.86			Williams		1998 RZ ₃
1998 RA ₄	16.7	0.15	19980904	23.17392	334.57107	343.30122	10.33228	0.1928982	2.2651820	22	1	13 days	0.76			Williams		1998 RA ₄
1998 RD ₄	14.9	0.15	19980904	28.11903	317.55121	350.85560	17.84943	0.2538662	2.6037698	26	1	13 days	0.64			Williams		1998 RD ₄
1998 RE ₄	16.1	0.15	19980904	5.35556	353.41731	350.26354	13.81240	0.2373453	2.3556913	21	1	13 days	0.50			Williams		1998 RE ₄
1998 RH ₄	17.1	0.15	19980904	1.50534	354.46455	355.14160	13.26379	0.2795801	2.5701650	27	1	13 days	0.67			Williams		1998 RH ₄
1998 RR ₄	15.4	0.15	19980904	336.29431	229.30727	162.45490	17.37824	0.2581924	2.7260588	20	1	13 days	0.87			Williams		1998 RR ₄
1998 RT ₄	14.5	0.15	19980904	332.47260	244.47363	170.70868	31.85893	0.4057024	2.7437407	19	1	13 days	0.57			Williams		1998 RT ₄
1998 RA ₆	15.5	0.15	19980924	359.60229	313.64728	40.19306	4.02008	0.2526825	2.6859020	24	1	37 days	0.32			Williams		1998 RA ₆
1998 RK ₆	13.5	0.15	19990122	49.70964	156.37712	151.31066	6.37962	0.1423809	3.1878391	30	2	1997–1998	0.60	M-v	3	Williams	33270	1998 RK ₆
1998 RF ₁₇	16.7	0.15	19980904	16.80052	29.22998	281.65749	2.26139	0.1716701	2.6159786	11	1	7 days	0.93			Williams		1998 RF ₁₇
1998 RJ ₁₇	14.4	0.15	19990122	318.51331	261.64818	179.00029	10.55619	0.2306987	2.4257826	29	3	1987–1998	0.64	M-v	3	Williams	33350	1998 RJ ₁₇
1998 RC ₁₈	14.2	0.15	19990122	36.28088	311.82094	1.48795	12.27488	0.3088386	3.0678114	31	1	110 days	0.59	M-v	4	Williams	33350	1998 RC ₁₈
1998 RC ₂₀	13.7	0.15	19980924	315.89870	106.36701	307.09412	1.55852	0.2723154	3.8742012	11	1	7 days	0.59		D	Nakano		1998 RC ₂₀
1998 RP ₂₀	15.7	0.15	19990122	75.32333	81.67039	250.28467	11.05201	0.1998967	2.6729482	16	1	89 days	0.49	M-v	5	Williams	33350	1998 RP ₂₀
1998 RP ₂₈	14.3	0.15	19990122	81.43732	122.19075	151.56561	2.94665	0.1412298	3.1582229	25	3	1991–1998	0.61	M-v	3	Williams	33270	1998 RP ₂₈

1998 RO ₃₁	14.9	0.15	19990122	262.58068	223.26098	268.13396	4.83277	0.0804188	2.2662933	24	3	1978–1998	0.65	M-v	5	Williams	32992	1998 RO ₃₁
1998 RK ₃₄	15.9	0.15	19980904	317.03265	10.52648	24.54297	6.49610	0.0783812	2.2300368	11	1	13 days	0.94			Williams		1998 RK ₃₄
1998 RL ₃₄	15.7	0.15	19980924	336.81595	11.01822	13.65710	6.24333	0.1553987	2.1831977	15	1	28 days	0.38			D Nakano		1998 RL ₃₄
1998 RM ₃₄	15.8	0.15	19980904	155.65670	48.23564	140.63163	7.57287	0.0464683	2.2509869	12	1	13 days	0.56			Williams		1998 RM ₃₄
1998 RQ ₃₄	15.6	0.15	19980904	231.89492	119.11264	8.23190	9.84326	0.1522057	2.3726923	14	1	13 days	0.69			Williams		1998 RQ ₃₄
1998 RG ₃₇	15.0	0.15	19980904	310.16997	184.86854	235.15276	4.85077	0.1924742	2.4210076	15	1	13 days	0.49			Williams		1998 RG ₃₇
1998 RL ₃₇	16.6	0.15	19980904	4.93596	37.08200	304.47969	4.37711	0.2007752	2.5289009	21	1	28 days	0.71			Williams		1998 RL ₃₇
1998 RA ₃₉	15.0	0.15	19980904	328.04607	229.96393	159.83881	10.06485	0.1317560	2.7293888	13	1	13 days	0.48			Williams		1998 RA ₃₉
1998 RB ₃₉	17.0	0.15	19980924	15.42054	182.21174	147.50775	4.38733	0.2409020	2.2983756	18	1	28 days	0.43			D Williams		1998 RB ₃₉
1998 RP ₃₉	16.2	0.15	19980904	315.34879	14.11908	27.57420	4.85231	0.1222046	2.1929577	12	1	13 days	0.56			Williams		1998 RP ₃₉
1998 RQ ₃₉	16.3	0.15	19980904	337.78175	301.03875	77.90548	3.22762	0.1924515	2.4703585	11	1	13 days	0.83			Williams		1998 RQ ₃₉
1998 RV ₃₉	16.1	0.15	19980904	356.52243	213.45327	138.39579	6.66168	0.1532248	2.5418648	12	1	13 days	0.59			Williams		1998 RV ₃₉
1998 RO ₄₀	14.0	0.15	19980904	355.20283	278.14221	75.38931	5.45682	0.0623675	3.2015957	12	1	13 days	0.47			Williams		1998 RO ₄₀
1998 RP ₄₀	16.3	0.15	19980904	336.76682	273.37027	107.50823	4.27997	0.1935296	2.3188110	12	1	13 days	0.61			Williams		1998 RP ₄₀
1998 RY ₄₀	16.6	0.15	19980904	2.63569	186.38053	157.29246	10.92075	0.2332568	2.5964716	20	1	13 days	0.76			Williams		1998 RY ₄₀
1998 RJ ₄₂	15.1	0.15	19980904	328.12814	156.74879	239.34921	4.50947	0.1749093	3.2039237	13	1	13 days	0.53			Williams		1998 RJ ₄₂
1998 RP ₄₂	14.6	0.15	19980904	296.66168	163.37315	265.65599	4.45409	0.1235287	2.5505281	12	1	13 days	0.41			Williams		1998 RP ₄₂
1998 RY ₄₂	14.5	0.15	19980904	240.34715	289.34902	186.78572	22.16509	0.0387963	2.6617268	22	1	13 days	0.61			Williams		1998 RY ₄₂
1998 RZ ₄₂	15.8	0.15	19980904	26.07675	78.25708	232.83357	3.76769	0.2213876	2.6091503	21	1	13 days	0.65			Williams		1998 RZ ₄₂
1998 RB ₄₃	16.2	0.15	19990122	17.03550	62.23874	312.96589	4.24167	0.1449402	2.4740970	33	2	1994–1998	0.67	M-v	5	Williams	33350	1998 RB ₄₃
1998 RD ₄₄	15.1	0.15	19990122	18.62770	337.75449	26.56522	5.86891	0.0998000	2.7377681	29	2	1992–1998	0.68	M-v	5	Williams	33350	1998 RD ₄₄
1998 RO ₄₄	13.9	0.15	19980924	206.13033	90.96231	61.57518	5.90838	0.0994911	3.2222287	24	1	55 days	0.71			Williams		1998 RO ₄₄
1998 RS ₄₄	16.5	0.15	19980904	318.16240	259.50861	145.57501	7.11216	0.1576936	2.3115732	20	1	13 days	0.87			Williams		1998 RS ₄₄
1998 RD ₄₆	15.9	0.15	19980904	2.02062	7.76417	339.06100	7.26921	0.2268499	2.4775218	22	1	13 days	0.49			Williams		1998 RD ₄₆
1998 RE ₄₆	15.7	0.15	19980904	306.14307	134.47611	293.69585	2.73327	0.2144403	2.3627678	22	1	13 days	0.53			Williams		1998 RE ₄₆
1998 RF ₄₆	14.4	0.15	19980924	85.54939	327.58221	298.89077	2.98225	0.0534949	2.6465499	25	1	30 days	0.50			Williams		1998 RF ₄₆
1998 RK ₄₆	14.7	0.15	19980904	6.56665	47.59012	296.33914	3.72762	0.1805178	3.1024663	22	1	13 days	0.43			Williams		1998 RK ₄₆
1998 RN ₄₆	16.3	0.15	19980904	16.86371	9.58212	313.38550	4.51754	0.2429289	2.3922211	23	1	13 days	0.53			Williams		1998 RN ₄₆
1998 RP ₄₆	16.2	0.15	19990122	13.48493	164.69884	228.07726	3.32736	0.2460582	2.3286132	33	1	85 days	0.53	M-v	4	Williams		1998 RP ₄₆
1998 RQ ₄₆	16.2	0.15	19990122	49.15774	21.66788	312.39650	3.58611	0.2581021	2.2869163	24	1	86 days	0.64	M-v	5	Williams		1998 RQ ₄₆
1998 RW ₄₆	15.4	0.15	19990122	35.75613	104.71920	249.61574	3.63181	0.2258239	2.3613909	34	3	1969–1998	0.57	M-v	3	Williams	33350	1998 RW ₄₆
1998 RE ₄₇	14.9	0.15	19990122	34.21110	143.23323	214.80140	6.30291	0.1529538	2.3233010	33	3	1984–1998	0.62	M-v	3	Williams	33350	1998 RE ₄₇
1998 RF ₄₇	15.8	0.15	19980904	61.17565	338.81495	301.69570	5.64671	0.1113943	2.4405155	21	1	13 days	0.67			Williams		1998 RF ₄₇
1998 RK ₄₇	14.6	0.15	19990122	77.66077	351.80130	311.72452	6.22157	0.1363690	2.3338712	44	2	1987–1998	0.76	M-v	4	Williams	33350	1998 RK ₄₇
1998 RM ₄₇	15.6	0.15	19980924	33.75911	34.80281	278.21709	3.69275	0.1684174	2.5327050	25	1	30 days	0.55			Williams		1998 RM ₄₇
1998 RP ₄₇	13.2	0.15	19990122	89.96544	318.41308	326.53547	8.77780	0.0666176	3.0583259	50	3	1985–1998	0.67	M-v	3	Williams	32994	1998 RP ₄₇
1998 RQ ₄₇	14.8	0.15	19980924	74.67116	322.44769	308.62359	4.85075	0.1223012	2.3846110	25	1	30 days	0.49			Williams		1998 RQ ₄₇
1998 RR ₄₇	15.6	0.15	19990122	354.83257	90.81658	317.09670	5.34726	0.1391046	2.4001712	34	2	1996–1998	0.68	M-v	5	Williams	33350	1998 RR ₄₇
1998 RS ₄₇	15.0	0.15	19980904	212.05210	222.63787	284.68101	4.71676	0.0625244	2.6429829	12	1	13 days	0.77			Williams		1998 RS ₄₇
1998 RU ₄₇	13.7	0.15	19980924	229.79242	295.74614	198.36615	12.43527	0.0527524	2.9871581	24	1	30 days	0.81			Williams		1998 RU ₄₇
1998 RW ₄₇	15.3	0.15	19980904	111.96593	20.60186	214.64683	5.95034	0.0703864	2.4289458	21	1	13 days	0.76			Williams		1998 RW ₄₇
1998 RC ₄₈	15.3	0.15	19990122	48.31631	107.61145	217.51849	3.57306	0.2600481	2.5830476	36	2	1997–1998	0.51	M-v	4	Williams	33350	1998 RC ₄₈
1998 RJ ₄₈	14.1	0.15	19980904	196.25920	176.36575	345.28217	11.42780	0.0675612	2.7769538	22	1	13 days	0.97			Williams		1998 RJ ₄₈
1998 RG ₄₉	15.2	0.15	19990122	86.86702	108.62634	184.31350	3.03000	0.1461849	2.1929205	29	3	1985–1998	0.58	M-v	3	Williams	33271	1998 RG ₄₉
1998 RK ₄₉	14.9	0.15	19990122	345.54074	254.28559	169.60880	5.36157	0.1709446	2.2553985	34	5	1951–1998	0.79	M-v	2	Williams	33271	1998 RK ₄₉
1998 RT ₅₀	14.0	0.15	19990122	131.26697	251.30547	350.00662	8.11248	0.1673250	2.3794598	33	5	1971–1998	0.68	M-v	2	Williams	33271	1998 RT ₅₀
1998 RZ ₅₀	13.5	0.15	19990122	109.77327	60.51697	191.20059	16.50553	0.1771636	3.1279139	25	2	1993–1998	0.80	M-v	5	Williams	33272	1998 RZ ₅₀
1998 RC ₅₁	15.0	0.15	19990122	136.43267	285.46350	313.88725	4.11568	0.1628021	2.3907551	32	2	1993–1998	0.86	M-v	6	Williams	33350	1998 RC ₅₁
1998 RD ₅₁	13.5	0.15	19990122	109.86902	37.40021	234.24623	5.10268	0.0556441	2.6514060	49	2	1981–1998	0.54	M-v	5	Williams	33351	1998 RD ₅₁
1998 RF ₅₁	16.0	0.15	19980904	348.08706	88.42443	280.58711	4.06665	0.1238894	2.4459133	23	1	13 days	0.69			Williams		1998 RF ₅₁
1998 RT ₅₁	14.6	0.15	19980904	342.66152	104.70202	270.97503	5.12204	0.0867289	3.1794147	20	1	13 days	0.93			Williams		1998 RT ₅₁
1998 RC ₅₂	15.8	0.15	19990122	47.55965	307.31543	23.58104	5.81438	0.3004334	2.3470341	30	1	86 days	0.68	M-v	4	Williams		1998 RC ₅₂
1998 RF ₅₂	15.0	0.15	19990122	346.85215	40.60480	12.96835	12.71981	0.1677120	2.5713686	33	2	1996–1998	0.59	M-v	5	Williams	33351	1998 RF ₅₂

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1998 RL ₅₂	16.9	0.15	19980924	5.03734	299.52003	49.91046	4.43892	0.2510668	2.3396711	27	1	28 days	0.54		Williams	1998 RL ₅₂
1998 RM ₅₂	15.3	0.15	19990122	43.78281	307.38122	36.56935	5.63830	0.1584555	2.2919118	31	1	85 days	0.58	M-v 4	Williams	1998 RM ₅₂
1998 RJ ₅₃	17.1	0.15	19980904	12.96912	41.05514	291.71793	1.68823	0.1966019	2.4273416	16	1	13 days	0.79		Williams	1998 RJ ₅₃
1998 RL ₅₃	14.0	0.15	19990122	322.87253	81.02851	346.82186	9.62863	0.0824355	3.0718292	33	2	1996–1998	0.59	M-v 4	Williams	33272 1998 RL ₅₃
1998 RO ₅₃	15.6	0.15	19980924	28.19519	7.32989	315.58020	3.88448	0.1522076	2.3084030	32	1	36 days	0.89		Williams	1998 RO ₅₃
1998 RR ₅₃	15.5	0.15	19990122	65.06905	100.68557	206.15902	7.27751	0.2003723	2.6103714	33	2	1997–1998	0.71	M-v 4	Williams	33351 1998 RR ₅₃
1998 RT ₅₃	15.5	0.15	19980904	174.83855	292.88585	246.99020	4.76669	0.0418119	2.2534280	23	1	13 days	0.76		Williams	1998 RT ₅₃
1998 RA ₅₄	14.5	0.15	19980904	12.10151	136.37062	204.74164	9.90143	0.1184401	3.0738613	28	1	13 days	0.71		Williams	1998 RA ₅₄
1998 RD ₅₄	15.1	0.15	19990122	107.30795	49.87005	225.81031	4.91169	0.0857868	2.4136427	32	3	1989–1998	0.70	M-v 3	Williams	33351 1998 RD ₅₄
1998 RF ₅₄	14.9	0.15	19980904	32.32750	337.96454	325.74465	5.46357	0.2432339	2.6670787	22	1	13 days	0.52		Williams	1998 RF ₅₄
1998 RL ₅₄	14.0	0.15	19980924	321.49174	116.37316	299.10842	4.91564	0.1702704	3.0907797	26	1	31 days	0.48		Williams	1998 RL ₅₄
1998 RM ₅₄	14.9	0.15	19980924	227.51059	213.65375	284.48353	3.86164	0.0399982	2.3232153	30	1	43 days	0.81		Williams	1998 RM ₅₄
1998 RO ₅₄	15.6	0.15	19990122	20.34371	130.77328	250.59877	3.77577	0.1496065	2.2641689	35	1	61 days	0.45	M-v 4	Williams	33351 1998 RO ₅₄
1998 RJ ₅₆	14.8	0.15	19980924	330.82374	63.56468	333.01222	5.68989	0.0966115	2.3882342	32	1	36 days	0.50		Williams	1998 RJ ₅₆
1998 RL ₅₆	15.0	0.15	19990122	67.95815	328.71855	348.58048	11.39152	0.0907050	2.4671369	29	2	1994–1998	0.74	M-v 6	Williams	33351 1998 RL ₅₆
1998 RQ ₅₆	14.9	0.15	19980904	256.54585	270.49418	194.47533	6.41051	0.0507873	2.3709609	26	1	13 days	0.72		Williams	1998 RQ ₅₆
1998 RR ₅₆	15.3	0.15	19980924	62.89214	24.50055	255.06188	1.69741	0.1700926	2.4278361	30	1	43 days	0.83		Williams	1998 RR ₅₆
1998 RY ₅₆	14.3	0.15	19980924	32.84025	83.20156	223.44764	2.09597	0.2553011	3.0559040	39	1	36 days	0.60		Williams	1998 RY ₅₆
1998 RK ₅₇	14.5	0.15	19990122	86.55697	128.36100	154.33031	2.60864	0.1965955	2.4279107	41	2	1994–1998	0.70	M-v 5	Williams	32999 1998 RK ₅₇
1998 RV ₅₇	16.5	0.15	19980924	78.55759	244.79865	16.64264	4.48148	0.1701253	2.2971097	20	1	29 days	0.80		Williams	1998 RV ₅₇
1998 RZ ₅₇	14.5	0.15	19990122	296.11349	107.70537	2.39178	6.30962	0.1151236	2.3135023	31	2	1991–1998	0.72	M-v 5	Williams	32999 1998 RZ ₅₇
1998 RN ₅₈	14.0	0.15	19990122	4.35210	114.46888	275.72019	1.15125	0.1298557	2.6675725	33	1	85 days	0.50	M-v 5	Williams	1998 RN ₅₈
1998 RN ₆₁	14.9	0.15	19990122	8.09538	120.47917	272.50713	1.71926	0.1687806	2.5715873	27	1	92 days	0.51	M-v 5	Williams	1998 RN ₆₁
1998 RD ₆₂	14.0	0.15	19990122	343.98322	85.13717	345.97438	4.14744	0.1667536	2.2464514	30	2	1991–1998	0.54	M-v 4	Williams	33001 1998 RD ₆₂
1998 RA ₆₃	16.7	0.15	19980904	352.43311	218.01708	146.00682	7.37706	0.2243961	2.7899243	11	1	13 days	0.68		Williams	1998 RA ₆₃
1998 RB ₆₃	15.6	0.15	19980924	325.07582	252.27348	155.91255	11.58571	0.1838833	2.6795132	26	1	28 days	0.63		Williams	1998 RB ₆₃
1998 RF ₆₃	16.5	0.15	19980924	352.97192	317.21998	54.87054	3.82711	0.2680108	2.3224778	23	1	33 days	0.48		Williams	1998 RF ₆₃
1998 RH ₆₃	15.4	0.15	19990122	42.39514	241.90814	108.09113	3.14786	0.1876469	2.2078677	20	1	85 days	0.65	M-v 5	Williams	1998 RH ₆₃
1998 RQ ₆₄	14.3	0.15	19990122	25.13650	187.53192	170.29562	1.97382	0.2389351	3.0567205	32	2	1997–1998	0.69	M-v 4	Williams	33351 1998 RQ ₆₄
1998 RJ ₆₆	15.3	0.15	19990122	42.80905	124.25437	214.73914	2.36719	0.2894111	2.5704580	37	2	1996–1998	0.55	M-v 4	Williams	33273 1998 RJ ₆₆
1998 RL ₆₇	15.7	0.15	19990122	40.57420	99.27796	261.15872	2.65707	0.1316895	2.2335315	33	2	1978–1998	0.89	M-v 4	Williams	33004 1998 RL ₆₇
1998 RM ₆₇	14.1	0.15	19990122	320.61415	170.00636	291.18336	3.26429	0.1701750	2.2914068	43	3	1981–1998	0.73	M-v 4	Williams	33352 1998 RM ₆₇
1998 RU ₆₇	15.4	0.15	19990122	56.04370	87.20530	249.97845	2.05355	0.1797098	2.2097388	33	1	107 days	0.61	M-v 5	Williams	1998 RU ₆₇
1998 RA ₆₈	13.1	0.15	19990122	48.96773	336.60821	357.39074	10.29772	0.1689674	2.8092955	37	3	1979–1998	0.67	M-v 3	Williams	33352 1998 RA ₆₈
1998 RC ₆₈	14.9	0.15	19990122	17.16025	158.99490	227.01328	2.01034	0.0865434	2.3433042	49	1	109 days	0.74	M-v 4	Williams	33352 1998 RC ₆₈
1998 RK ₆₈	13.9	0.15	19990122	298.81647	271.49325	195.30613	4.69290	0.0854918	2.5847226	52	4	1973–1998	0.80	M-v 4	Williams	33274 1998 RK ₆₈
1998 RS ₆₈	14.6	0.15	19990122	19.56106	21.81365	1.63677	9.14802	0.1010551	2.3145201	37	3	1982–1998	0.56	M-v 3	Williams	33005 1998 RS ₆₈
1998 RV ₆₈	14.9	0.15	19980924	45.34932	278.92692	26.32886	1.53654	0.1717518	2.7982110	17	1	13 days	0.70		D Nakano	1998 RV ₆₈
1998 RW ₆₈	15.0	0.15	19990122	72.38580	294.78212	15.60379	2.91686	0.1904645	2.3155888	43	1	91 days	0.74	M-v 5	Williams	1998 RW ₆₈
1998 RH ₆₉	15.2	0.15	19980924	330.80215	31.71441	25.83960	1.04812	0.3007872	2.9737739	18	1	13 days	0.77		D Nakano	1998 RH ₆₉
1998 RW ₇₀	15.1	0.15	19990122	26.82676	243.45206	131.70717	4.48742	0.1472024	2.1980201	35	3	1990–1998	0.70	M-v 3	Williams	33352 1998 RW ₇₀
1998 RH ₇₁	13.7	0.15	19990122	24.07686	324.87514	40.15279	4.80662	0.2175778	2.7990737	37	2	1992–1998	0.63	M-v 3	Williams	33007 1998 RH ₇₁
1998 RL ₇₁	15.1	0.15	19990122	11.38434	281.92122	112.48462	3.11620	0.2033125	2.3957216	37	2	1996–1998	0.65	M-v 4	Williams	33007 1998 RL ₇₁
1998 RK ₇₂	13.0	0.15	19990122	82.75432	172.33357	115.97294	2.20544	0.1560463	3.1859908	42	1	115 days	0.52	M-v 4	Williams	33352 1998 RK ₇₂
1998 RT ₇₂	15.2	0.15	19990122	359.05363	47.58565	10.52690	2.55905	0.2260234	2.3605495	61	2	1980–1998	0.71	M-v 4	Williams	33008 1998 RT ₇₂
1998 RX ₇₂	13.9	0.15	19990122	6.15094	211.51358	182.95232	8.64264	0.2484767	3.0592387	41	1	128 days	0.44	M-v 3	Williams	33352 1998 RX ₇₂
1998 RA ₇₃	14.3	0.15	19980924	43.85383	36.68822	274.55415	0.72229	0.1532161	3.0927300	14	1	13 days	0.64		D Nakano	1998 RA ₇₃
1998 RH ₇₃	15.0	0.15	19990122	14.73441	192.00814	198.38177	6.51384	0.1205540	2.3618378	48	3	1993–1998	0.72	M-v 3	Williams	33352 1998 RH ₇₃
1998 RS ₇₃	15.0	0.15	19990122	34.42608	113.97496	243.81500	2.56130	0.2339506	2.5946423	48	3	1977–1998	0.66	M-v 3	Williams	33352 1998 RS ₇₃
1998 RY ₇₃	14.9	0.15	19990122	44.46889	31.22674	322.68463	5.76396	0.1318642	2.3234740	40	1	111 days	0.65	M-v 4	Williams	33352 1998 RY ₇₃
1998 RE ₇₄	15.3	0.15	19990122	14.08706	86.70324	308.99831	3.96480	0.1587823	2.3200363	39	2	1993–1998	0.71	M-v 4	Williams	33352 1998 RE ₇₄
1998 RB ₇₅	15.0	0.15	19990122	13.06375	32.53615	2.12959	7.26425	0.1119391	2.2629239	32	1	129 days	0.65	M-v 4	Williams	33102 1998 RB ₇₅
1998 RK ₇₅	13.1	0.15	19990122	238.85125	149.82687	13.85163	11.48826	0.1058743	2.6673556	39	1	92 days	0.49	M-v 4	Williams	1998 RK ₇₅

1998 RB ₇₇	13.7	0.15	19990122	346.11817	282.36332	130.18128	4.70310	0.0920800	2.7564361	35	3	1989–1998	0.69	M-v	4	Williams	33275	1998 RB ₇₇
1998 RD ₇₇	15.4	0.15	19980924	260.27969	345.23900	134.61665	5.31596	0.1385036	2.2380281	22	1	33 days	0.64			Williams		1998 RD ₇₇
1998 RF ₇₇	13.5	0.15	19990122	58.98920	283.21887	33.68456	7.16851	0.1291816	3.1752740	26	1	85 days	0.51	M-v	5	Williams		1998 RF ₇₇
1998 RT ₇₈	16.4	0.15	19980904	11.69896	197.63478	143.43686	7.07005	0.1551992	2.3032139	11	1	9 days	0.57			Williams		1998 RT ₇₈
1998 RX ₇₈	15.6	0.15	19980904	308.59017	287.06989	131.61878	6.69669	0.0550731	2.7077725	18	1	13 days	0.91			Williams		1998 RX ₇₈
1998 RF ₇₉	14.9	0.15	19990122	340.02744	21.80371	51.40449	5.84894	0.1072816	2.2247138	20	1	92 days	0.69	M-v	5	Williams		1998 RF ₇₉
1998 RL ₇₉	14.5	0.15	19990122	49.23476	229.02066	115.21349	3.78079	0.1785228	2.3142165	46	5	1977–1998	0.70	M-v	2	Williams	33353	1998 RL ₇₉
1998 RC ₈₀	13.5	0.15	19980904	337.25105	237.34359	155.11173	11.11149	0.1145015	3.0701854	11	1	10 days	0.57			Williams		1998 RC ₈₀
1998 RH ₈₀	13.0	0.15	19990122	42.93436	294.87688	44.98043	5.95201	0.1808461	3.1103923	45	2	1987–1998	0.56	M-v	4	Williams	33353	1998 RH ₈₀
1998 RM ₈₀	13.3	0.15	19990122	30.42272	344.03402	16.64309	9.34732	0.1348558	3.1762264	39	1	86 days	0.57	M-v	4	Williams		1998 RM ₈₀
1998 RP ₈₀	12.9	0.15	19990122	66.69709	122.41879	198.65777	8.88024	0.0889556	3.1638822	51	1	92 days	0.66	M-v	5	Williams		1998 RP ₈₀
1998 SD	14.4	0.15	19990122	263.78097	204.65625	314.51867	19.36843	0.0175717	1.9351962	38	3	1987–1998	0.70	M-v	4	Williams	33353	1998 SD
1998 SE ₁	14.4	0.15	19980904	39.79789	117.38710	196.93679	9.79969	0.2718625	3.5285736	15	1	5 days	0.54			Williams		1998 SE ₁
1998 SK ₁	13.5	0.15	19990122	320.56980	36.06364	64.04071	1.60252	0.1374061	3.1376774	37	2	1992–1998	0.84	M-v	5	Williams	33353	1998 SK ₁
1998 SR ₁	14.9	0.15	19990122	43.06199	254.00766	95.93048	4.56111	0.1961295	2.3192708	38	3	1991–1998	0.53	M-v	3	Williams	33353	1998 SR ₁
1998 SF ₂	15.8	0.15	19990122	48.59192	232.79819	105.88341	5.39706	0.2163380	2.1865907	29	1	92 days	0.35	M-v	4	Williams	33353	1998 SF ₂
1998 SG ₂	19.7	0.15	19990122	31.69047	219.56314	152.45006	2.50311	0.4587047	2.2461472	153	1	94 days	0.58	M-v	4	Williams	33353	1998 SG ₂
1998 SK ₂	13.8	0.15	19990122	31.51210	317.56292	30.74347	1.40891	0.2245765	3.1566102	59	1	85 days	0.43	M-v	4	Williams		1998 SK ₂
1998 SL ₂	14.2	0.15	19990122	8.68094	67.33422	328.91321	6.11123	0.2694261	2.5465594	80	2	1990–1998	0.70	M-v	3	Williams	33353	1998 SL ₂
1998 SO ₂	14.6	0.15	19990122	31.34171	328.46925	73.76821	14.25746	0.1702850	2.5598500	20	1	90 days	0.78	M-v	4	Williams	33353	1998 SO ₂
1998 SS ₂	13.4	0.15	19990122	74.02751	57.54408	259.25285	12.34265	0.1823624	2.5761709	54	1	99 days	0.53	M-v	4	Williams	33353	1998 SS ₂
1998 SU ₂	14.9	0.15	19990122	32.82026	7.61106	356.16377	1.69667	0.0414459	2.6789127	27	1	86 days	0.62	M-v	4	Williams	33353	1998 SU ₂
1998 SL ₄	14.8	0.15	19990122	94.51411	307.13896	347.99632	2.08227	0.1553312	2.1686755	54	2	1997–1998	0.59	M-v	4	Williams	33353	1998 SL ₄
1998 SM ₄	15.0	0.15	19990122	25.27443	174.35517	203.96879	1.75589	0.2162635	2.4209864	28	1	81 days	0.40	M-v	4	Williams		1998 SM ₄
1998 ST ₄	16.6	0.15	19990122	355.88583	206.98708	239.39589	9.28956	0.5969934	2.8184110	68	1	132 days	0.58	M-v	4	Williams	33354	1998 ST ₄
1998 SG ₅	13.6	0.15	19990122	23.45051	179.58652	183.27494	12.77904	0.1730557	2.6702705	63	2	1979–1998	0.59	M-v	3	Williams	33014	1998 SG ₅
1998 SX ₉	15.1	0.15	19990122	39.08804	162.77988	184.12646	6.03057	0.3247774	2.5922735	66	1	91 days	0.68	M-v	4	Williams		1998 SX ₉
1998 SA ₁₀	13.3	0.15	19990122	27.06882	131.24185	213.98848	34.33135	0.2120882	2.8584031	43	2	1997–1998	0.88	M-v	3	Williams	33354	1998 SA ₁₀
1998 SW ₁₀	16.0	0.15	19990122	58.88986	152.11354	183.38955	12.45168	0.3024221	2.5713783	25	1	89 days	0.46	M-v	4	Williams	33354	1998 SW ₁₀
1998 SB ₁₂	15.6	0.15	19980924	345.99521	211.66945	197.34131	3.29212	0.2385558	3.0577296	15	1	50 days	0.45			Williams		1998 SB ₁₂
1998 SU ₁₂	16.3	0.15	19990122	15.53293	251.94892	156.41385	20.64616	0.3006188	2.3089901	10	1	87 days	0.43	M-v	6	Williams		1998 SU ₁₂
1998 SW ₁₂	14.7	0.15	19990122	39.39074	303.21597	50.18916	32.37263	0.3064060	2.6071218	30	2	1997–1998	0.53	M-v	3	Williams	33277	1998 SW ₁₂
1998 SA ₁₃	13.6	0.15	19990122	230.95526	326.03619	292.25969	14.52636	0.0807753	2.6482706	24	1	91 days	0.38	M-v	5	Williams	33354	1998 SA ₁₃
1998 SB ₁₃	15.7	0.15	19990122	85.62160	150.26162	148.02462	6.46087	0.2143601	2.2365843	31	1	80 days	0.57	M-v	5	Williams	33354	1998 SB ₁₃
1998 SR ₁₄	15.0	0.15	19990122	9.71912	344.26548	54.44370	5.47391	0.1478853	2.4312245	51	2	1960–1998	0.78	M-v	5	Williams	33277	1998 SR ₁₄
1998 SY ₁₄	20.6	0.15	19990122	12.21380	21.72291	40.24895	3.51893	0.6649482	2.8490215	64	1	95 days	0.56	M-v	5	Williams	33354	1998 SY ₁₄
1998 SH ₂₂	15.6	0.15	19990122	359.91853	58.54949	350.33363	6.31242	0.1842461	2.2713640	35	2	1981–1998	0.68	M-v	4	Williams	33018	1998 SH ₂₂
1998 SQ ₂₂	14.7	0.15	19990122	18.97585	17.85871	1.05106	8.03367	0.2421076	2.7958957	49	1	129 days	0.66	M-v	3	Williams	33354	1998 SQ ₂₂
1998 SV ₂₂	14.8	0.15	19990122	6.82010	206.10766	205.32507	5.90914	0.1050645	2.3872661	61	2	1994–1998	0.65	M-v	4	Williams	33354	1998 SV ₂₂
1998 SH ₂₃	13.4	0.15	19990122	53.28262	168.90122	142.77195	5.69010	0.2107194	3.1491284	108	2	1981–1998	0.66	M-v	4	Williams	33019	1998 SH ₂₃
1998 SD ₂₄	15.6	0.15	19990122	80.39757	306.35982	25.03657	21.53567	0.0618442	1.9251748	45	2	1990–1998	0.76	M-v	4	Williams	33020	1998 SD ₂₄
1998 SG ₂₄	15.2	0.15	19990122	341.80334	352.36497	61.91668	3.91953	0.0794188	2.4086639	35	3	1972–1998	0.61	M-v	4	Williams	33020	1998 SG ₂₄
1998 SQ ₂₄	15.1	0.15	19990122	342.33228	24.76862	33.58107	6.39630	0.1492033	2.5501524	34	2	1978–1998	0.77	M-v	5	Williams	33107	1998 SQ ₂₄
1998 SG ₂₅	12.7	0.15	19990122	222.43420	140.18542	46.29405	13.64133	0.1146710	2.6585979	50	5	1979–1998	0.61	M-v	2	Williams	33278	1998 SG ₂₅
1998 SH ₂₅	12.9	0.15	19990122	122.04498	208.86454	71.88822	6.33404	0.0208309	2.7424336	52	2	1997–1998	0.56	M-v	4	Williams	33354	1998 SH ₂₅
1998 SY ₂₅	13.9	0.15	19990122	25.01512	341.16525	33.33744	6.06308	0.0972341	2.6907885	33	2	1976–1998	0.51	M-v	4	Williams	33278	1998 SY ₂₅
1998 SB ₂₆	14.1	0.15	19990122	51.37959	305.18684	28.66098	13.20594	0.2022882	2.6949173	24	1	78 days	0.44	M-v	4	Williams		1998 SB ₂₆
1998 SR ₂₆	14.3	0.15	19990122	336.77824	222.67909	207.16707	8.56500	0.1519740	2.7430501	59	1	92 days	0.58	M-v	4	Williams		1998 SR ₂₆
1998 SU ₂₆	13.5	0.15	19990122	11.90800	138.96918	308.40656	16.61124	0.1140973	3.1561053	25	1	84 days	0.51	M-v	5	Williams	33355	1998 SU ₂₆
1998 SV ₂₆	13.5	0.15	19990122	300.86012	294.26020	265.14538	12.23168	0.1473842	2.6329208	28	1	90 days	0.48	M-v	5	Williams	33355	1998 SV ₂₆
1998 SH ₂₇	16.2	0.15	19990122	26.97053	298.87394	97.14925	6.01268	0.2093855	2.4065741	19	1	75 days	0.42	M-v	4	Williams	33355	1998 SH ₂₇
1998 SO ₂₇	14.6	0.15	19990122	36.15397	321.01109	50.44305	23.38148	0.2356883	2.2738927	24	1	76 days	0.48	M-v	4	Williams		1998 SO ₂₇
1998 SP ₂₇	15.1	0.15	19990122	312.58819	57.51056	64.13018	23.35872	0.1026637	1.9337961	12	1	75 days	0.43	M-v	4	Williams		1998 SP ₂₇

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1998 SQ ₂₇	14.4	0.15	19980924	63.97483	177.50559	144.49808	22.31391	0.0252826	2.5731545	7	1	35 days	0.42		Williams	1998 SQ ₂₇	
1998 SR ₂₇	14.7	0.15	19990122	11.40855	136.73019	269.71296	23.08057	0.2687882	2.3663175	17	1	76 days	0.51	M-v	4	Williams	1998 SR ₂₇
1998 SN ₃₃	15.9	0.15	19990122	36.12388	337.67240	13.73465	14.85342	0.2692350	2.3672222	30	2	1997–1998	0.69	M-v	3	Williams	33355 1998 SN ₃₃
1998 SP ₃₃	14.7	0.15	19990122	342.07270	99.76538	347.38835	4.87240	0.3020779	2.2613801	31	1	129 days	0.51	M-v	4	Williams	33355 1998 SP ₃₃
1998 SR ₃₃	15.1	0.15	19990122	3.10606	64.41459	348.49845	12.89085	0.3258856	2.6116621	44	2	1981–1998	0.47	M-v	3	Williams	33022 1998 SR ₃₃
1998 SX ₃₃	16.6	0.15	19980924	43.56064	298.09518	8.45894	21.27731	0.0973643	1.9162128	24	1	15 days	0.84			Williams	1998 SX ₃₃
1998 SM ₃₄	14.6	0.15	19990122	351.92671	50.83369	15.13579	10.58710	0.2237618	2.3435450	34	3	1973–1998	0.68	M-v	3	Williams	33023 1998 SM ₃₄
1998 SR ₃₄	16.7	0.15	19980924	74.91323	243.98516	29.20490	10.76264	0.1428786	2.3135399	13	1	3 days	1.14		E	Williams	1998 SR ₃₄
1998 SJ ₃₆	18.3	0.15	19980924	342.20443	30.77973	6.72117	27.59772	0.3582270	2.1973019	55	1	17 days	0.84			Williams	1998 SJ ₃₆
1998 SK ₃₆	16.3	0.15	19990122	24.37991	308.32066	87.16256	6.17096	0.2931059	2.5716681	19	1	72 days	0.27	M-v	4	Williams	33355 1998 SK ₃₆
1998 SY ₃₉	16.0	0.15	19980924	58.43230	112.91860	187.04464	5.35320	0.1102629	2.3726341	15	1	4 days	0.66		D	Nakano	1998 SY ₃₉
1998 SP ₄₂	14.8	0.15	19990122	343.59539	71.55028	351.34343	2.09338	0.1211666	2.3156811	57	3	1989–1998	0.75	M-v	3	Williams	33355 1998 SP ₄₂
1998 SA ₄₃	13.1	0.15	19990122	17.87483	255.28357	126.23922	1.64916	0.0859590	2.7428101	81	4	1980–1998	0.61	M-v	3	Williams	33356 1998 SA ₄₃
1998 SN ₄₃	14.2	0.15	19990122	354.56219	359.13270	52.13203	5.16534	0.0871202	2.7232314	42	1	75 days	0.64	M-v	5	Williams	1998 SN ₄₃
1998 SW ₄₃	12.6	0.15	19990122	2.79945	137.88560	240.79366	5.25040	0.1773696	3.9595154	53	2	1990–1998	0.63	M-v	4	Williams	33356 1998 SW ₄₃
1998 SA ₄₆	17.2	0.15	19980924	5.48873	355.40388	16.08341	7.07206	0.1861420	2.6596008	15	1	31 days	0.45			Williams	1998 SA ₄₆
1998 SD ₄₆	15.4	0.15	19980924	296.07044	89.94686	2.55101	1.70555	0.0701065	2.4152282	15	1	34 days	0.53		D	Nakano	1998 SD ₄₆
1998 SM ₄₆	12.9	0.15	19990122	64.94630	25.25701	299.76167	0.26459	0.1751895	3.1054332	52	4	1976–1998	0.68	M-v	1	Williams	33356 1998 SM ₄₆
1998 SZ ₄₈	16.1	0.15	19980924	328.02253	90.64355	316.18680	1.26815	0.2030082	2.5530838	16	1	6 days	0.78		D	Nakano	1998 SZ ₄₈
1998 SH ₄₉	14.3	0.15	19990122	80.17311	102.96535	201.79955	12.74793	0.1886586	2.5577194	56	2	1990–1998	0.53	M-v	4	Williams	33356 1998 SH ₄₉
1998 SM ₄₉	14.8	0.15	19990122	18.55234	309.05859	73.52416	0.43322	0.2437195	3.1441752	69	2	1995–1998	0.54	M-v	3	Williams	33279 1998 SM ₄₉
1998 SO ₄₉	13.6	0.15	19990122	105.36641	114.78462	180.32309	1.61438	0.0409456	2.8337810	67	3	1988–1998	0.65	M-v	3	Williams	33356 1998 SO ₄₉
1998 SK ₅₀	15.0	0.15	19990122	9.87995	355.77560	47.25682	4.30863	0.2489057	2.5402455	35	1	81 days	0.72	M-v	4	Williams	1998 SK ₅₀
1998 SN ₅₀	15.5	0.15	19980924	264.80093	237.62066	253.60964	1.40237	0.1322493	2.3637377	15	1	33 days	0.87		D	Nakano	1998 SN ₅₀
1998 SU ₅₂	11.4	0.15	19990122	333.38552	147.73504	285.16027	2.28053	0.1131896	5.1415583	51	1	85 days	0.65	M-v	4	Williams	33356 1998 SU ₅₂
1998 SK ₅₃	14.2	0.15	19980904	63.01415	85.91383	194.71232	14.53615	0.0955363	3.2186525	28	1	13 days	0.75			Williams	1998 SK ₅₃
1998 SP ₅₃	14.2	0.15	19980924	355.30518	55.10477	309.31226	4.56910	0.1381921	2.8458668	22	1	28 days	0.46			Williams	1998 SP ₅₃
1998 SX ₅₃	14.9	0.15	19980904	340.55459	175.65639	198.61049	8.84255	0.0868881	2.7651857	24	1	42 days	0.56			Williams	1998 SX ₅₃
1998 SY ₅₃	15.1	0.15	19990122	34.79008	159.46731	196.11406	9.28092	0.0993197	2.4447474	38	2	1997–1998	0.49	M-v	4	Williams	33027 1998 SY ₅₃
1998 SZ ₅₃	14.7	0.15	19980924	356.05505	44.22581	321.59958	3.76694	0.1230425	2.3320757	38	1	43 days	0.49			Williams	1998 SZ ₅₃
1998 SB ₅₄	15.6	0.15	19990122	10.21273	165.52270	227.53608	2.80236	0.1396473	2.2907002	75	2	1997–1998	0.64	M-v	4	Williams	33356 1998 SB ₅₄
1998 SL ₅₄	14.7	0.15	19990122	60.40902	90.77271	228.03051	1.77737	0.1783994	2.4254701	45	2	1997–1998	0.76	M-v	4	Williams	33356 1998 SL ₅₄
1998 SM ₅₄	14.9	0.15	19980904	1.32327	4.95084	348.35513	12.50632	0.0865210	2.5272239	34	1	13 days	0.55			Williams	1998 SM ₅₄
1998 SN ₅₄	14.1	0.15	19990122	194.81134	216.23660	341.00699	6.74340	0.0509700	2.3299122	53	2	1991–1998	0.66	M-v	5	Williams	33356 1998 SN ₅₄
1998 SO ₅₄	15.7	0.15	19980904	72.65400	78.33201	189.59708	11.15221	0.1244473	2.3397858	18	1	11 days	0.66			Williams	1998 SO ₅₄
1998 SQ ₅₄	15.4	0.15	19980924	46.54299	68.24667	229.14335	2.39288	0.1782939	2.4569971	30	1	43 days	0.58			Williams	1998 SQ ₅₄
1998 SR ₅₄	15.4	0.15	19980924	61.82710	92.33041	188.25882	12.25732	0.1698054	2.6478128	24	1	29 days	0.79			Williams	1998 SR ₅₄
1998 ST ₅₄	14.6	0.15	19990122	66.11989	305.61172	11.28677	6.48832	0.1399415	2.3600698	48	4	1980–1998	0.81	M-v	2	Williams	33356 1998 ST ₅₄
1998 SC ₅₅	14.9	0.15	19990122	347.40788	252.73347	172.81773	9.06584	0.2164586	2.3786110	44	3	1987–1998	0.62	M-v	3	Williams	33356 1998 SC ₅₅
1998 SH ₅₅	16.6	0.15	19980924	19.12664	330.83006	353.99992	5.03939	0.2973785	2.2854310	25	1	33 days	0.43			Williams	1998 SH ₅₅
1998 SV ₅₅	13.2	0.15	19980924	289.15165	275.01469	175.60472	1.65855	0.1604648	3.1973917	16	1	11 days	0.77		D	Nakano	1998 SV ₅₅
1998 SD ₅₆	15.3	0.15	19980904	64.11721	290.94056	339.46467	5.31745	0.1628110	2.2051295	29	1	13 days	0.69			Williams	1998 SD ₅₆
1998 SG ₅₆	13.0	0.15	19980924	350.99634	22.80358	347.12240	12.22923	0.0212121	3.1792633	43	1	38 days	0.51			Williams	1998 SG ₅₆
1998 SP ₅₆	13.8	0.15	19990122	52.69458	310.52866	15.52660	3.66999	0.0749017	2.8101176	34	2	1992–1998	0.57	M-v	4	Williams	33030 1998 SP ₅₆
1998 SX ₅₆	15.4	0.15	19990122	0.60502	25.75408	24.43805	3.06063	0.2460612	2.3866784	36	1	86 days	0.61	M-v	5	Williams	1998 SX ₅₆
1998 SN ₅₇	14.0	0.15	19990122	8.23608	328.07348	56.33477	2.18674	0.1613056	2.7788205	46	2	1975–1998	0.56	M-v	4	Williams	33030 1998 SN ₅₇
1998 SD ₅₈	12.9	0.15	19990122	295.24049	277.59478	178.79990	9.68746	0.0451901	3.0211621	55	2	1993–1998	0.74	M-v	4	Williams	33357 1998 SD ₅₈
1998 SH ₅₈	13.9	0.15	19990122	39.30242	170.11787	178.40317	8.30761	0.1760185	2.5739739	53	2	1997–1998	0.73	M-v	3	Williams	33031 1998 SH ₅₈
1998 SY ₅₈	15.3	0.15	19990122	51.05852	314.00840	27.39225	3.05454	0.1646074	2.3249109	28	2	1997–1998	0.52	M-v	4	Williams	33280 1998 SY ₅₈
1998 SL ₆₀	14.2	0.15	19980924	39.63962	238.39666	80.19872	2.99457	0.0876280	2.9218944	15	1	10 days	0.78		D	Nakano	1998 SL ₆₀
1998 SV ₆₀	15.0	0.15	19990122	5.21000	254.05591	143.44488	3.43685	0.1330863	2.3948455	44	2	1997–1998	0.76	M-v	4	Williams	33034 1998 SV ₆₀
1998 SF ₆₁	14.0	0.15	19990122	334.54299	116.88938	319.59562	6.35658	0.0737705	2.3342183	28	4	1984–1998	0.68	M-v	2	Williams	33035 1998 SF ₆₁
1998 SK ₆₁	13.5	0.15	19990122	15.48947	42.65728	344.55273	11.75441	0.1346698	2.7242388	44	4	1980–1998	0.73	M-v	3	Williams	33035 1998 SK ₆₁

1998 SS ₆₁	13.9	0.15	19990122	346.07507	210.77614	209.08855	12.46647	0.1157139	2.6074328	65	2	1994–1998	0.72	M-v	4	Williams	33357	1998 SS ₆₁
1998 SB ₆₃	12.9	0.15	19990122	323.80396	59.12230	23.00474	22.40229	0.0481861	2.6530024	57	3	1981–1998	0.68	M-v	3	Williams	33036	1998 SB ₆₃
1998 SD ₆₃	14.9	0.15	19990122	3.03066	213.08091	225.71554	6.56675	0.0929906	2.3385294	30	1	77 days	0.48	M-v	4	Williams		1998 SD ₆₃
1998 SF ₆₃	15.5	0.15	19980904	341.77032	291.30588	85.48097	4.20488	0.1837664	2.2972474	32	1	17 days	0.48			Williams		1998 SF ₆₃
1998 SJ ₆₃	14.6	0.15	19990122	20.02551	96.95450	297.33995	3.51997	0.3221409	2.4690732	37	1	79 days	0.57	M-v	4	Williams		1998 SJ ₆₃
1998 SM ₆₃	14.2	0.15	19990122	321.14764	116.55312	324.55189	5.68081	0.0618824	2.3044094	54	2	1991–1998	0.62	M-v	5	Williams	33036	1998 SM ₆₃
1998 ST ₆₃	14.0	0.15	19990122	351.96183	200.93549	211.97941	3.17305	0.2064240	2.6061933	48	1	85 days	0.53	M-v	5	Williams		1998 ST ₆₃
1998 SG ₆₄	14.5	0.15	19980924	268.59622	22.41111	114.51810	2.61086	0.2202371	2.3872911	14	1	39 days	0.97			D Nakano		1998 SG ₆₄
1998 SG ₆₅	14.5	0.15	19990122	49.18400	219.46670	140.04438	2.86512	0.1009217	2.3454720	32	2	1993–1998	0.62	M-v	4	Williams	33281	1998 SG ₆₅
1998 SR ₆₅	14.7	0.15	19990122	45.87762	256.82432	98.94954	2.79590	0.1902964	2.4749428	18	1	82 days	0.52	M-v	5	Williams		1998 SR ₆₅
1998 SB ₆₆	14.2	0.15	19990122	54.84238	258.46356	78.08489	4.99665	0.2348868	2.5782466	37	1	84 days	0.59	M-v	4	Williams		1998 SB ₆₆
1998 SX ₆₆	13.8	0.15	19990122	31.79727	263.67447	110.03122	3.20948	0.1017572	2.9192249	24	3	1989–1998	0.76	M-v	4	Williams	33282	1998 SX ₆₆
1998 SD ₆₇	14.6	0.15	19990122	56.18227	298.68036	48.58901	5.93847	0.1925892	2.2282926	51	2	1988–1998	0.69	M-v	4	Williams	33358	1998 SD ₆₇
1998 SN ₆₇	14.0	0.15	19990122	318.07384	70.32816	40.64959	15.63809	0.1670011	2.6495194	29	2	1996–1998	0.89	M-v	4	Williams	33282	1998 SN ₆₇
1998 SS ₆₇	14.9	0.15	19990122	80.35749	238.29709	76.96342	5.38124	0.2040146	2.1922759	36	2	1991–1998	0.75	M-v	4	Williams	33358	1998 SS ₆₇
1998 SH ₇₂	15.1	0.15	19990122	27.50002	339.94150	42.77359	3.11304	0.2043100	2.3977911	37	1	79 days	0.65	M-v	4	Williams		1998 SH ₇₂
1998 SQ ₇₂	14.6	0.15	19990122	56.13143	147.87518	189.36275	13.32498	0.2061502	2.5590913	27	1	84 days	0.64	M-v	5	Williams		1998 SQ ₇₂
1998 SA ₇₃	14.9	0.15	19990122	26.91181	353.36024	33.81674	6.93538	0.1781547	2.2770990	54	2	1991–1998	0.56	M-v	3	Williams	33358	1998 SA ₇₃
1998 SH ₇₃	15.1	0.15	19990122	18.37493	300.69740	94.28236	2.32072	0.1929914	2.3858880	53	1	82 days	0.74	M-v	4	Williams		1998 SH ₇₃
1998 SJ ₇₃	14.7	0.15	19990122	26.40106	248.34964	132.77011	3.41606	0.1870666	2.4623341	43	2	1997–1998	0.62	M-v	4	Williams	33358	1998 SJ ₇₃
1998 SV ₇₃	14.9	0.15	19990122	66.53401	287.52974	43.04840	7.10453	0.1598376	2.2998986	50	2	1991–1998	0.73	M-v	4	Williams	33358	1998 SV ₇₃
1998 SW ₇₃	14.5	0.15	19990122	77.86680	283.97530	35.29125	8.06565	0.1386301	2.3066209	49	3	1977–1998	0.70	M-v	4	Williams	33358	1998 SW ₇₃
1998 SL ₇₄	13.6	0.15	19990122	278.18451	95.90924	37.07240	12.29456	0.0509559	2.7383435	40	2	1996–1998	0.71	M-v	4	Williams	33359	1998 SL ₇₄
1998 SN ₇₈	16.1	0.15	19981014	43.92418	92.14314	219.91880	5.97341	0.1316039	2.3053979	16	1	22 days	0.55			D Nakano		1998 SN ₇₈
1998 SF ₇₉	14.8	0.15	19980924	31.13428	288.65696	27.69048	10.53372	0.1270143	3.0263139	16	1	16 days	0.76			Williams		1998 SF ₇₉
1998 SN ₈₁	14.6	0.15	19980924	27.70228	316.15216	9.47293	2.46028	0.1195031	2.7913233	12	1	11 days	0.53			D Nakano		1998 SN ₈₁
1998 SG ₈₇	15.5	0.15	19990122	20.09060	135.32585	245.70306	4.54171	0.2923041	2.6433316	22	1	77 days	0.84	M-v	4	Williams		1998 SG ₈₇
1998 SV ₈₇	15.7	0.15	19980924	321.76419	210.05131	203.11606	6.42948	0.1104531	2.4000101	21	1	19 days	0.83			Williams		1998 SV ₈₇
1998 SS ₉₅	18.2	0.15	19980904	352.55436	222.16064	143.14837	6.79468	0.1314874	2.3111752	10	1	9 days	0.95			Williams		1998 SS ₉₅
1998 SX ₉₅	15.0	0.15	19980924	97.88889	196.03847	53.96751	5.58728	0.1394107	2.5808272	12	1	5 days	0.61			E Williams		1998 SX ₉₅
1998 SA ₉₆	16.3	0.15	19980924	46.35580	187.42111	106.30940	3.41360	0.2297941	2.3652363	13	1	3 days	0.24			Williams		1998 SA ₉₆
1998 SX ₁₀₁	15.3	0.15	19990122	61.83377	307.87992	11.56025	4.15472	0.2572782	2.3382435	33	1	78 days	0.75	M-v	5	Williams		1998 SX ₁₀₁
1998 SE ₁₀₂	14.8	0.15	19990122	341.76719	52.75233	18.52304	4.68330	0.0998470	2.2578072	32	1	78 days	0.69	M-v	5	Williams		1998 SE ₁₀₂
1998 SK ₁₀₄	15.0	0.15	19980924	137.66025	185.87504	35.47956	9.36871	0.0698854	2.6764212	12	1	5 days	0.47			E Williams		1998 SK ₁₀₄
1998 SM ₁₀₄	18.4	0.15	19980924	9.38855	241.58332	107.45928	3.18936	0.2033589	2.2228585	11	1	3 days	0.76			Williams		1998 SM ₁₀₄
1998 SP ₁₀₄	16.8	0.15	19980924	11.58672	189.01491	157.61681	10.02568	0.1959119	2.5733931	12	1	4 days	0.91			Williams		1998 SP ₁₀₄
1998 SS ₁₀₄	16.9	0.15	19980924	89.11177	205.73277	55.33901	6.25206	0.1265965	2.2517276	12	1	5 days	0.63			Williams		1998 SS ₁₀₄
1998 ST ₁₀₄	17.1	0.15	19980924	68.92718	142.27061	136.86255	6.31744	0.1502885	2.2963767	13	1	5 days	0.71			Williams		1998 ST ₁₀₄
1998 SV ₁₀₄	16.2	0.15	19980924	89.84712	199.67663	65.21078	6.05268	0.0917487	2.4108839	13	1	5 days	0.63			Williams		1998 SV ₁₀₄
1998 SW ₁₀₄	17.7	0.15	19980924	323.03993	340.34521	67.04955	4.77066	0.0734796	2.2474538	11	1	3 days	0.98			Williams		1998 SW ₁₀₄
1998 SJ ₁₀₉	14.5	0.15	19990122	339.93106	226.41840	211.56421	14.67753	0.1854217	2.6858035	42	2	1996–1998	0.77	M-v	4	Williams	33359	1998 SJ ₁₀₉
1998 SD ₁₁₀	14.1	0.15	19990122	213.78640	329.96666	224.87241	8.34439	0.0357808	2.2757038	35	2	1997–1998	0.73	M-v	4	Williams	33359	1998 SD ₁₁₀
1998 SE ₁₁₁	15.3	0.15	19990122	359.73657	198.38830	219.21682	1.79298	0.1943819	2.3770971	33	2	1987–1998	0.59	M-v	5	Williams	33285	1998 SE ₁₁₁
1998 SH ₁₁₁	15.1	0.15	19990122	47.91087	145.20998	196.91075	12.40366	0.1894810	2.5880353	38	2	1997–1998	0.72	M-v	3	Williams	33360	1998 SH ₁₁₁
1998 SP ₁₁₂	16.7	0.15	19980924	323.38861	257.54621	159.15827	9.40791	0.1733578	2.5409660	12	1	3 days	0.82			E Williams		1998 SP ₁₁₂
1998 SB ₁₁₃	15.3	0.15	19980924	356.24348	244.66372	126.41390	6.32312	0.0430400	2.7700049	12	1	3 days	0.44			Williams		1998 SB ₁₁₃
1998 SC ₁₁₃	16.4	0.15	19980924	350.50561	305.36587	73.56136	5.32288	0.1315273	2.6996336	13	1	3 days	0.73			E Williams		1998 SC ₁₁₃
1998 SE ₁₁₃	14.5	0.15	19980924	64.25977	240.90324	47.56439	9.59856	0.1329199	3.0389076	13	1	3 days	0.69			E Williams		1998 SE ₁₁₃
1998 SF ₁₁₃	16.9	0.15	19980924	292.53057	352.02551	98.42554	5.03149	0.1428135	2.3357219	13	1	3 days	0.83			E Williams		1998 SF ₁₁₃
1998 SB ₁₁₆	14.2	0.15	19990122	13.18117	170.26336	217.70923	5.41245	0.2320041	3.0904882	37	1	83 days	0.61	M-v	4	Williams		1998 SB ₁₁₆
1998 SH ₁₁₆	13.5	0.15	19990122	4.95597	156.82468	241.66812	5.07399	0.0632995	2.7835288	21	1	74 days	0.49	M-v	5	Williams		1998 SH ₁₁₆
1998 SM ₁₁₆	13.2	0.15	19990122	346.12655	193.63203	229.59693	5.42286	0.1051059	2.7980153	29	1	83 days	0.40	M-v	5	Williams		1998 SM ₁₁₆
1998 SY ₁₁₈	15.0	0.15	19981014	284.99900	277.89986	189.34805	1.34250	0.1188848	2.5893485	18	1	23 days	0.66			D Nakano		1998 SY ₁₁₈

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1998 SX ₁₁₉	15.5	0.15	19980924	54.68510	244.14989	48.18170	6.04852	0.1536795	2.6079332	11	1	5 days	0.72		Williams		1998 SX ₁₁₉
1998 SU ₁₂₀	16.1	0.15	19980924	74.87707	243.18107	34.78284	12.28156	0.1163975	2.7693835	11	1	5 days	0.81		Williams		1998 SU ₁₂₀
1998 SK ₁₂₁	13.1	0.15	19990122	219.75349	317.81159	227.68927	9.22136	0.1028665	3.0437546	41	2	1996–1998	0.54	M-v	4	Williams	33361 1998 SK ₁₂₁
1998 SD ₁₂₂	13.0	0.15	19990122	157.05609	23.97667	217.64461	8.85779	0.0385824	3.0524610	45	3	1991–1998	0.71	M-v	3	Williams	33287 1998 SD ₁₂₂
1998 SH ₁₂₂	13.9	0.15	19990122	27.18230	148.00892	220.13818	5.02685	0.1574610	3.1964555	24	1	74 days	0.68	M-v	4	Williams	1998 SH ₁₂₂
1998 SW ₁₂₂	15.7	0.15	19990122	19.58003	114.65620	277.48549	0.70755	0.2161317	2.4177356	39	2	1987–1998	0.65	M-v	4	Williams	33287 1998 SW ₁₂₂
1998 SD ₁₂₃	15.0	0.15	19990122	6.55843	36.13430	13.26692	4.62329	0.1210972	2.2638463	33	3	1981–1998	0.61	M-v	4	Williams	33361 1998 SD ₁₂₃
1998 SM ₁₂₃	14.0	0.15	19990122	100.81761	254.36979	21.80595	5.57376	0.2383609	2.5596112	35	3	1993–1998	0.64	M-v	3	Williams	33361 1998 SM ₁₂₃
1998 SS ₁₂₃	13.5	0.15	19990122	30.90194	175.32465	190.96580	8.44243	0.0915620	2.9958475	34	1	73 days	0.57	M-v	4	Williams	1998 SS ₁₂₃
1998 ST ₁₂₃	13.8	0.15	19990122	329.60254	248.40235	191.89285	9.53843	0.0786710	2.7405599	38	2	1996–1998	0.55	M-v	4	Williams	33287 1998 ST ₁₂₃
1998 SX ₁₂₃	15.4	0.15	19990122	356.65195	25.12283	39.02132	2.64829	0.1808782	2.3528666	33	3	1971–1998	0.81	M-v	4	Williams	33288 1998 SX ₁₂₃
1998 SH ₁₂₄	14.7	0.15	19990122	3.02691	25.23719	28.35685	6.17709	0.1612003	2.3602889	23	1	74 days	0.53	M-v	5	Williams	1998 SH ₁₂₄
1998 SK ₁₂₇	15.5	0.15	19990122	52.87960	186.59667	149.77877	5.27552	0.2690859	2.3133094	21	1	79 days	0.51	M-v	5	Williams	1998 SK ₁₂₇
1998 SW ₁₂₇	15.1	0.15	19990122	57.81580	193.46802	148.42637	3.78367	0.1565945	2.1904012	45	3	1971–1998	0.68	M-v	2	Williams	33289 1998 SW ₁₂₇
1998 SD ₁₂₈	13.4	0.15	19990122	318.68863	341.03144	113.39982	3.01696	0.1086548	2.7635103	44	5	1980–1998	0.54	M-v	1	Williams	33362 1998 SD ₁₂₈
1998 SA ₁₂₉	15.3	0.15	19990122	351.83574	250.71266	184.69603	15.28748	0.3033064	2.7779883	26	1	72 days	0.44	M-v	4	Williams	1998 SA ₁₂₉
1998 SO ₁₂₉	13.5	0.15	19990122	19.46728	336.62382	45.27214	2.60931	0.0559981	2.9390385	45	2	1996–1998	0.66	M-v	4	Williams	33289 1998 SO ₁₂₉
1998 SQ ₁₂₉	15.0	0.15	19990122	82.31348	281.72287	28.25014	6.17690	0.1600874	2.3222577	31	2	1997–1998	0.73	M-v	4	Williams	33289 1998 SQ ₁₂₉
1998 SW ₁₂₉	14.0	0.15	19990122	305.26925	94.48219	20.70713	13.13002	0.1429064	2.6763438	37	2	1996–1998	0.65	M-v	4	Williams	33289 1998 SW ₁₂₉
1998 SC ₁₃₀	15.5	0.15	19990122	39.27818	353.01523	12.31268	4.08909	0.1969790	2.2843254	43	2	1991–1998	0.68	M-v	4	Williams	33290 1998 SC ₁₃₀
1998 SG ₁₃₀	14.1	0.15	19990122	37.79101	354.65292	13.32906	8.72209	0.2160197	2.2643512	33	3	1981–1998	0.71	M-v	2	Williams	33290 1998 SG ₁₃₀
1998 SN ₁₃₀	13.8	0.15	19990122	61.55811	86.81365	234.66723	0.79410	0.1923116	3.1229082	34	2	1992–1998	0.71	M-v	4	Williams	33290 1998 SN ₁₃₀
1998 SR ₁₃₀	13.4	0.15	19990122	86.80255	98.03532	213.75032	5.62952	0.0518481	2.7775540	50	3	1975–1998	0.61	M-v	2	Williams	33290 1998 SR ₁₃₀
1998 SV ₁₃₀	14.7	0.15	19981014	294.69556	97.12945	12.45183	9.11105	0.1856882	2.7263868	21	1	48 days	1.11			Williams	1998 SV ₁₃₀
1998 SE ₁₃₁	14.0	0.15	19990122	54.06992	124.81855	224.65827	12.93798	0.0654112	2.5961321	45	3	1990–1998	0.73	M-v	3	Williams	33291 1998 SE ₁₃₁
1998 SE ₁₃₂	13.1	0.15	19990122	96.14021	81.37887	219.93764	12.46008	0.0696666	2.8498918	55	2	1992–1998	0.67	M-v	4	Williams	33291 1998 SE ₁₃₂
1998 SO ₁₃₂	14.5	0.15	19980924	327.16283	193.65344	230.83137	7.02942	0.1569138	2.8035001	22	1	33 days	0.70			Williams	1998 SO ₁₃₂
1998 SW ₁₃₂	13.3	0.15	19990122	4.74489	184.63765	217.72684	9.51457	0.1080946	3.0708799	51	3	1991–1998	0.77	M-v	3	Williams	33292 1998 SW ₁₃₂
1998 SX ₁₃₂	14.9	0.15	19980924	147.75225	259.74690	330.42600	3.11392	0.0257221	2.5188305	30	1	45 days	0.88			Williams	1998 SX ₁₃₂
1998 SZ ₁₃₃	14.6	0.15	19990122	344.42347	232.67084	200.34853	5.67352	0.0972547	2.4486028	39	2	1977–1998	0.66	M-v	4	Williams	33293 1998 SZ ₁₃₃
1998 SC ₁₃₄	15.4	0.15	19990122	3.75030	234.33934	184.49219	2.29078	0.2133958	2.3498600	39	1	82 days	0.54	M-v	5	Williams	1998 SC ₁₃₄
1998 SG ₁₃₄	14.4	0.15	19990122	26.70265	359.88987	19.61303	13.52833	0.1287660	2.5659605	35	1	93 days	0.52	M-v	4	Williams	1998 SG ₁₃₄
1998 SL ₁₃₇	15.8	0.15	19990122	355.57123	17.98616	51.59262	7.77486	0.2717238	2.5692392	26	1	74 days	0.58	M-v	4	Williams	1998 SL ₁₃₇
1998 SK ₁₃₈	16.1	0.15	19981014	358.98148	8.29703	17.45623	2.68186	0.2184756	2.3715211	37	1	54 days	1.00			Williams	1998 SK ₁₃₈
1998 SQ ₁₃₈	15.5	0.15	19980924	68.28675	282.55232	9.99706	0.94395	0.1487370	2.1770705	15	1	9 days	0.64		D	Nakano	1998 SQ ₁₃₈
1998 SZ ₁₃₈	15.9	0.15	19981014	66.64128	53.50227	228.56478	4.99586	0.3027450	2.1176695	74	1	46 days	0.76			Williams	1998 SZ ₁₃₈
1998 SC ₁₃₉	15.4	0.15	19980924	81.15143	48.58123	236.06814	4.16632	0.1208917	2.3221297	34	1	33 days	0.63			Williams	1998 SC ₁₃₉
1998 SW ₁₃₉	15.2	0.15	19980924	332.67095	192.09103	222.45801	11.62355	0.1112268	2.5159696	17	1	33 days	0.92		D	Nakano	1998 SW ₁₃₉
1998 SC ₁₄₀	14.0	0.15	19990122	347.06959	217.69690	216.98832	13.61790	0.1471465	2.6162472	37	1	74 days	0.59	M-v	4	Williams	1998 SC ₁₄₀
1998 SO ₁₄₀	15.0	0.15	19990122	56.92090	128.30508	221.70919	3.60563	0.1497830	2.1546601	55	4	1979–1998	0.62	M-v	2	Williams	33295 1998 SO ₁₄₀
1998 SV ₁₄₀	14.7	0.15	19981014	57.01687	289.03536	17.46699	14.89457	0.2036259	2.5400024	40	1	54 days	0.81			Williams	1998 SV ₁₄₀
1998 SF ₁₄₁	14.1	0.15	19990122	114.42844	260.87288	27.28462	1.65103	0.0622428	2.5698465	38	2	1992–1998	0.73	M-v	5	Williams	33364 1998 SF ₁₄₁
1998 SV ₁₄₁	15.9	0.15	19980924	109.02238	161.74758	98.30804	4.66789	0.0786875	2.1714313	19	1	24 days	0.66			Williams	1998 SV ₁₄₁
1998 SX ₁₄₁	16.2	0.15	19980924	22.69685	166.58946	179.92838	15.10575	0.1732216	3.0373520	14	1	5 days	0.49			Williams	1998 SX ₁₄₁
1998 SY ₁₄₁	16.0	0.15	19980924	22.42871	257.58222	82.11632	4.16041	0.2035950	2.1719382	22	1	33 days	0.42			Williams	1998 SY ₁₄₁
1998 SD ₁₄₂	16.2	0.15	19980924	10.53833	293.59664	67.72799	6.00678	0.1157532	2.3773750	13	1	5 days	0.97		E	Williams	1998 SD ₁₄₂
1998 SN ₁₄₂	15.2	0.15	19980924	356.22289	271.14288	112.56969	5.22672	0.0907384	2.7603998	18	1	24 days	0.59			Williams	1998 SN ₁₄₂
1998 SQ ₁₄₂	15.2	0.15	19990122	307.89075	2.95720	118.62402	3.93874	0.1413986	2.2414595	16	1	79 days	0.56	M-v	5	Williams	1998 SQ ₁₄₂
1998 SH ₁₄₃	13.2	0.15	19980924	213.14358	97.17141	84.46850	6.79133	0.2439069	3.1107444	12	1	5 days	0.64		E	Williams	1998 SH ₁₄₃
1998 SY ₁₄₃	15.2	0.15	19990122	80.32062	330.64615	349.04218	2.30716	0.1467892	2.2216348	40	2	1997–1998	0.69	M-v	4	Williams	33365 1998 SY ₁₄₃
1998 SK ₁₄₄	14.8	0.15	19990122	341.95692	53.38256	28.16549	5.92416	0.0848722	2.1861440	30	1	107 days	0.74	M-v	5	Williams	1998 SK ₁₄₄
1998 ST ₁₄₄	13.0	0.15	19990122	8.97841	197.38046	200.29766	9.20618	0.0748976	3.2045619	27	3	1981–1998	0.72	M-v	4	Williams	33297 1998 ST ₁₄₄
1998 SH ₁₄₅	16.2	0.15	19980904	353.49826	350.74852	30.54294	2.84452	0.2276468	2.5391932	9	1	3 days	0.74		E	Williams	1998 SH ₁₄₅

1998 ST ₁₄₆	14.6	0.15	19990122	58.22109	286.00013	61.86454	2.31305	0.1648733	2.2002828	27	2	1997–1998	0.75	M-v	5	Williams	33298	1998 ST ₁₄₆
1998 SU ₁₄₆	14.0	0.15	19980924	331.38288	221.59585	195.95640	10.75784	0.0561642	3.0850673	24	1	41 days	1.13			Williams		1998 SU ₁₄₆
1998 SW ₁₄₆	14.9	0.15	19980924	10.78592	308.96505	57.80331	2.29712	0.2029123	3.0571486	18	1	41 days	0.77		D	Williams		1998 SW ₁₄₆
1998 SD ₁₄₇	16.1	0.15	19980904	53.10305	162.40673	134.00796	1.65722	0.2469531	2.4387139	9	1	3 days	0.65		E	Williams		1998 SD ₁₄₇
1998 SJ ₁₄₇	16.0	0.15	19981014	326.68192	261.31786	171.72459	3.73389	0.1549220	2.3699245	23	1	52 days	0.77			Williams		1998 SJ ₁₄₇
1998 SR ₁₄₇	13.9	0.15	19980904	51.95852	112.41950	192.05755	9.21522	0.2289654	2.9690541	9	1	3 days	0.37			Williams		1998 SR ₁₄₇
1998 SS ₁₄₇	12.9	0.15	19980924	187.97786	168.48024	31.90020	21.99493	0.0517887	3.2370918	21	1	41 days	0.86			Williams		1998 SS ₁₄₇
1998 SW ₁₅₁	16.3	0.15	19980924	28.63434	194.44683	138.00796	5.78516	0.0465765	2.4619289	12	1	3 days	0.72		E	Williams		1998 SW ₁₅₁
1998 SU ₁₅₃	15.9	0.15	19980924	326.77510	344.83223	63.49878	4.58316	0.1497639	2.8014997	12	1	3 days	0.47			Williams		1998 SU ₁₅₃
1998 SV ₁₅₃	16.4	0.15	19980924	107.26447	102.62993	140.13414	6.38222	0.1435556	2.3840135	12	1	3 days	0.78		E	Williams		1998 SV ₁₅₃
1998 SW ₁₅₃	15.7	0.15	19980924	229.34188	12.89700	141.64290	8.40296	0.2638380	2.4179831	11	1	4 days	0.80			Williams		1998 SW ₁₅₃
1998 SX ₁₅₃	17.1	0.15	19980924	334.51377	240.32568	161.86953	12.02412	0.1888167	2.5992308	11	1	5 days	0.75			Williams		1998 SX ₁₅₃
1998 SY ₁₅₃	17.1	0.15	19980924	262.90502	66.46916	51.60808	7.05847	0.1453295	2.2789483	11	1	5 days	0.45			Williams		1998 SY ₁₅₃
1998 SA ₁₅₄	17.0	0.15	19980924	11.25080	258.90793	88.71839	3.87165	0.1954733	2.5977047	11	1	3 days	0.84			Williams		1998 SA ₁₅₄
1998 SO ₁₅₅	16.2	0.15	19980924	108.81783	182.98130	65.09238	6.33383	0.0931970	2.4036874	11	1	3 days	0.82			Williams		1998 SO ₁₅₅
1998 SL ₁₅₆	14.6	0.15	19980924	117.10982	44.18643	198.39190	7.72300	0.1629209	2.7637513	15	1	23 days	0.87		D	Nakano		1998 SL ₁₅₆
1998 SZ ₁₅₈	17.3	0.15	19980924	2.67561	264.12424	96.09987	3.72974	0.2213422	2.6368673	10	1	3 days	0.44			Williams		1998 SZ ₁₅₈
1998 SB ₁₆₂	16.0	0.15	19980924	1.34639	219.50281	157.10280	7.84510	0.1091655	3.0599017	9	1	5 days	0.53			Williams		1998 SB ₁₆₂
1998 SC ₁₆₂	14.2	0.15	19981014	314.68556	35.49251	39.75920	16.93513	0.0883772	3.1981999	39	1	48 days	0.97			Williams		1998 SC ₁₆₂
1998 SJ ₁₆₂	16.4	0.15	19990122	20.49465	190.37969	207.26922	5.47559	0.3208134	2.3714031	62	1	93 days	0.56	M-v	4	Williams		1998 SJ ₁₆₂
1998 SL ₁₆₂	16.2	0.15	19980924	82.36379	49.33224	232.44584	4.89939	0.1346671	2.3542505	16	1	26 days	0.67			Williams		1998 SL ₁₆₂
1998 SZ ₁₆₂	15.2	0.15	19980924	16.58463	160.52604	199.67141	14.02803	0.1300736	3.1878148	20	1	39 days	1.00		D	Williams		1998 SZ ₁₆₂
1998 SA ₁₆₃	14.7	0.15	19980924	212.27164	337.00565	198.13253	5.73243	0.0928291	2.6749045	20	1	39 days	0.82			Williams		1998 SA ₁₆₃
1998 SV ₁₆₃	13.3	0.15	19990122	230.03834	120.48227	62.77934	11.06535	0.0323163	3.0219520	33	3	1951–1998	0.67	M-v	4	Williams	33300	1998 SV ₁₆₃
1998 SZ ₁₆₃	13.4	0.15	19990122	269.97608	101.54215	55.37409	13.82792	0.1105003	2.5858693	25	2	1977–1998	0.76	M-v	5	Williams	33301	1998 SZ ₁₆₃
1998 SE ₁₆₄	13.7	0.15	19990122	102.49577	245.45916	42.59491	14.28235	0.2215328	2.7090938	27	1	81 days	0.56	M-v	4	Williams		1998 SE ₁₆₄
1998 SK ₁₆₄	12.9	0.15	19990122	238.48327	83.20777	104.08571	7.54669	0.1442393	2.6637822	25	2	1994–1998	0.77	M-v	4	Williams	33301	1998 SK ₁₆₄
1998 TA	13.9	0.15	19990122	144.53867	258.27627	0.32026	7.34537	0.0892476	2.3152514	60	1	93 days	0.58	M-v	5	Williams	33366	1998 TA
1998 TB	13.8	0.15	19990122	350.20019	352.63963	110.31092	5.95074	0.1154135	2.4356843	45	3	1979–1998	0.54	M-v	2	Williams	33366	1998 TB
1998 TC	14.0	0.15	19990122	8.10798	198.64241	284.11990	11.87922	0.1227000	2.4001194	20	1	82 days	0.77	M-v	5	Williams	33366	1998 TC
1998 TE	14.8	0.15	19990122	1.57225	189.12428	233.33325	5.63988	0.1018447	2.2635241	53	1	68 days	0.53	M-v	4	Nakano		1998 TE
1998 TJ	15.5	0.15	19990122	75.21822	315.48056	13.69087	5.73781	0.1384583	2.3047605	37	1	72 days	0.72	M-v	5	Williams		1998 TJ
1998 TR ₁	15.1	0.15	19981103	31.31915	179.86384	116.13778	12.68183	0.2269234	2.7098482	20	1	57 days	0.77			Williams		1998 TR ₁
1998 TU ₁	14.0	0.15	19990122	24.56782	161.31536	216.45206	13.07615	0.1823655	2.5832706	43	2	1994–1998	0.74	M-v	3	Williams	33301	1998 TU ₁
1998 TV ₁	13.3	0.15	19990122	24.82368	341.17687	54.46970	13.63970	0.2490667	2.3934948	61	3	1961–1998	0.61	M-v	3	Williams	33301	1998 TV ₁
1998 TW ₁	14.1	0.15	19990122	29.35980	332.53987	54.32408	10.14761	0.1456032	2.7374198	35	1	64 days	0.41	M-v	4	Williams		1998 TW ₁
1998 TZ ₁	14.0	0.15	19990122	39.52752	207.04461	171.68041	12.74052	0.0136085	2.5676341	44	3	1973–1998	0.76	M-v	4	Williams	33366	1998 TZ ₁
1998 TE ₂	15.0	0.15	19981014	314.92151	195.62066	259.13835	3.66009	0.2121952	3.1041589	15	1	16 days	0.74		D	Nakano		1998 TE ₂
1998 TG ₂	17.0	0.15	19981014	18.61524	23.51406	335.12938	2.66534	0.2055729	2.3149555	14	1	16 days	0.89		D	Nakano		1998 TG ₂
1998 TA ₃	17.6	0.15	19980924	325.71755	43.09973	13.48088	21.05758	0.1059719	1.8688595	20	1	30 days	0.74			Williams		1998 TA ₃
1998 TG ₃	14.2	0.15	19990122	61.19564	109.22248	203.68376	21.43568	0.2990287	2.4128455	37	2	1983–1998	0.60	M-v	4	Williams	33302	1998 TG ₃
1998 TT ₃	18.6	0.15	19990122	11.43857	48.06749	27.82057	21.71875	0.5014867	2.3244948	111	1	66 days	0.58	M-v	5	Williams	33367	1998 TT ₃
1998 TU ₃	14.9	0.15	19990122	286.49927	84.49370	102.40598	5.40870	0.4838346	0.7872166	138	1	77 days	0.53	M-v	6	Marsden	33367	1998 TU ₃
1998 TG ₅	14.6	0.15	19981103	324.87306	29.38389	59.67754	7.53731	0.1737665	2.5457157	41	1	55 days	0.78			Williams		1998 TG ₅
1998 TK ₅	14.4	0.15	19990122	324.84608	45.59532	59.25275	7.23782	0.0833472	2.4108139	32	2	1977–1998	0.59	M-v	5	Williams	33367	1998 TK ₅
1998 TU ₅	15.6	0.15	19981103	57.65060	271.75242	50.84432	5.64055	0.1872068	2.2773769	28	1	56 days	0.79			Williams		1998 TU ₅
1998 TA ₆	13.4	0.15	19990122	299.81235	308.52899	183.92777	12.68162	0.1153932	2.6615557	25	2	1997–1998	0.44	M-v	3	Williams	33367	1998 TA ₆
1998 TF ₆	15.1	0.15	19981103	352.55140	343.04126	68.68550	3.07688	0.1424039	2.4407020	35	1	53 days	0.51			Williams		1998 TF ₆
1998 TJ ₆	13.1	0.15	19981103	95.73880	179.29122	103.05827	2.51461	0.1888820	3.1672375	38	1	58 days	0.48			Marsden		1998 TJ ₆
1998 TL ₆	15.7	0.15	19990122	337.80923	339.84815	122.00704	7.78778	0.1773772	2.5887606	22	2	1977–1998	0.96	M-v	5	Williams	33302	1998 TL ₆
1998 TN ₆	16.0	0.15	19981014	115.58696	271.71983	348.50451	4.50003	0.0915688	2.4845864	8	1	2 days	0.35		E	Williams		1998 TN ₆
1998 TQ ₆	14.5	0.15	19990122	60.88381	242.39053	113.15743	7.75365	0.1427899	2.3486795	29	1	70 days	0.39	M-v	4	Williams		1998 TQ ₆
1998 TS ₆	15.8	0.15	19990122	28.08425	0.92500	25.92531	22.33939	0.0700919	1.9157141	39	2	1997–1998	0.48	M-v	3	Williams	33367	1998 TS ₆

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1998 TT ₆	13.9	0.15	19981103	117.66852	217.24787	57.49278	7.17872	0.0936096	2.3914378	18	1	53 days	0.64		Williams		1998 TT ₆
1998 TU ₆	14.1	0.15	19990122	71.77972	247.40395	84.16992	2.74919	0.1289473	2.9319441	40	2	1997–1998	0.68	M-v	4	Williams	33367 1998 TU ₆
1998 TY ₆	14.7	0.15	19990122	70.63997	223.66154	104.08838	8.74323	0.2350580	2.6884383	26	1	68 days	0.76	M-v	5	Williams	1998 TY ₆
1998 TZ ₆	14.8	0.15	19990122	76.72728	143.84014	183.98349	13.29272	0.1954563	2.6879225	24	2	1997–1998	0.67	M-v	4	Williams	33303 1998 TZ ₆
1998 TD ₁₃	15.5	0.15	19981014	34.88664	315.55888	39.70733	2.35535	0.0958187	2.6567671	16	1	29 days	0.36			Williams	1998 TD ₁₃
1998 TJ ₁₃	15.3	0.15	19981103	15.01881	341.73635	41.17505	3.30053	0.1224630	2.2101667	21	1	56 days	0.45			Williams	1998 TJ ₁₃
1998 TS ₁₃	15.9	0.15	19990122	301.09126	91.99463	48.80122	2.75861	0.1483297	2.3935134	11	1	63 days	0.18	M-v	5	Williams	1998 TS ₁₃
1998 TV ₁₃	15.3	0.15	19981103	37.98013	150.86752	201.03259	2.02488	0.1659805	2.5198510	24	1	57 days	0.73			Williams	1998 TV ₁₃
1998 TB ₁₅	16.6	0.15	19980924	47.19015	295.47806	30.75823	4.20388	0.1675716	2.5622685	11	1	32 days	0.39			Williams	1998 TB ₁₅
1998 TH ₁₅	17.3	0.15	19990122	318.97980	261.80242	216.71660	0.59512	0.1374042	2.4543084	16	2	1992–1998	0.34	M-v	5	Williams	33303 1998 TH ₁₅
1998 TH ₁₆	14.7	0.15	19981103	47.90931	256.07054	93.84793	5.14672	0.0492986	2.3131691	29	1	58 days	0.61			Williams	1998 TH ₁₆
1998 TK ₁₆	14.3	0.15	19990122	338.35215	302.13997	148.24476	7.09043	0.0814839	2.3697907	22	2	1979–1998	0.78	M-v	4	Williams	33368 1998 TK ₁₆
1998 TA ₁₈	13.4	0.15	19990122	39.56566	96.78224	261.74002	6.87111	0.2760599	2.3502396	25	5	1973–1998	0.74	M-v	2	Williams	33368 1998 TA ₁₈
1998 TF ₁₈	14.3	0.15	19990122	0.03907	217.23102	204.26686	4.51275	0.1896134	2.5687435	45	1	62 days	0.36	M-v	5	Williams	1998 TF ₁₈
1998 TY ₁₈	14.4	0.15	19981103	107.97836	236.35518	38.31922	2.67498	0.0864508	2.6827655	13	1	14 days	0.56			D Nakano	1998 TY ₁₈
1998 TA ₁₉	16.0	0.15	19981014	323.33573	91.00097	347.62146	1.55585	0.1804059	2.4397496	15	1	15 days	0.99			D Nakano	1998 TA ₁₉
1998 TB ₁₉	16.8	0.15	19981014	15.75669	349.30424	8.63746	3.99098	0.2782905	2.5263800	13	1	14 days	0.80			D Nakano	1998 TB ₁₉
1998 TC ₁₉	14.9	0.15	19981014	15.93315	140.18181	224.19423	5.43949	0.1910208	3.0302668	21	1	15 days	0.68			D Williams	1998 TC ₁₉
1998 TD ₁₉	15.9	0.15	19981014	14.22180	104.16016	257.49032	1.54943	0.2655451	2.5664857	29	1	34 days	0.70			Williams	1998 TD ₁₉
1998 TO ₁₉	15.6	0.15	19981014	314.08863	223.32695	229.49277	3.06932	0.2070334	2.3441014	29	1	19 days	0.52			Williams	1998 TO ₁₉
1998 TP ₁₉	13.0	0.15	19981014	188.51558	346.93856	214.75979	17.05788	0.0872097	3.1869865	19	1	15 days	0.61			Williams	1998 TP ₁₉
1998 TQ ₂₅	15.6	0.15	19981103	79.42166	80.98583	232.32553	2.36186	0.0724055	2.6849627	15	1	56 days	0.15			Williams	1998 TQ ₂₅
1998 TH ₂₆	16.7	0.15	19981103	333.57165	205.63360	231.11767	2.98795	0.1563072	2.5487054	15	1	56 days	0.19			Williams	1998 TH ₂₆
1998 TD ₂₇	13.9	0.15	19990122	168.08196	211.44188	39.71661	6.24345	0.0454359	2.7619200	29	2	1995–1998	0.56	M-v	5	Williams	33304 1998 TD ₂₇
1998 TX ₂₈	14.0	0.15	19990122	329.69965	59.98810	32.43281	7.34309	0.1034338	3.1998935	20	1	82 days	0.48	M-v	5	Williams	1998 TX ₂₈
1998 TH ₂₉	13.5	0.15	19990122	330.55359	92.58056	355.12325	1.51828	0.0499845	2.9377137	20	2	1990–1998	0.48	M-v	5	Williams	33304 1998 TH ₂₉
1998 TG ₃₀	15.9	0.15	19990122	33.83306	352.33118	31.04242	1.60705	0.2066816	2.3048168	47	2	1993–1998	0.67	M-v	4	Williams	33304 1998 TG ₃₀
1998 TY ₃₀	12.8	0.15	19990122	66.10400	293.84368	28.63083	16.96610	0.2381019	3.1650424	33	5	1981–1998	0.67	M-v	1	Williams	33305 1998 TY ₃₀
1998 TC ₃₁	11.8	0.15	19990122	329.86754	219.19936	226.19129	24.20354	0.1248922	5.1736972	16	1	63 days	0.65	M-v	5	Williams	1998 TC ₃₁
1998 TN ₃₂	14.4	0.15	19981014	356.98701	172.70984	221.11218	11.15961	0.1622723	3.0575523	26	1	31 days	0.58			Williams	1998 TN ₃₂
1998 TW ₃₂	13.5	0.15	19981103	17.29454	168.19899	206.24043	14.90843	0.0867469	2.5811173	18	1	58 days	0.58			Williams	1998 TW ₃₂
1998 TC ₃₃	15.7	0.15	19981014	50.34920	261.54601	63.91593	1.76615	0.1682682	2.8351330	16	1	50 days	0.68			Williams	1998 TC ₃₃
1998 TM ₃₃	14.7	0.15	19981103	191.46095	165.88486	43.10111	6.00588	0.0755139	2.1865409	14	1	28 days	0.70			D Nakano	1998 TM ₃₃
1998 TP ₃₃	15.7	0.15	19981103	55.49431	277.55424	51.37817	7.28445	0.1420343	2.2904164	19	1	55 days	0.58			Williams	1998 TP ₃₃
1998 TQ ₃₃	13.3	0.15	19990122	249.97343	136.79092	42.23254	14.64817	0.1449457	2.7620290	30	1	72 days	0.58	M-v	5	Williams	1998 TQ ₃₃
1998 TA ₃₄	12.8	0.15	19990122	278.76450	314.79005	197.35055	12.75690	0.1142178	2.6629052	39	3	1989–1998	0.68	M-v	4	Williams	33307 1998 TA ₃₄
1998 TD ₃₄	13.4	0.15	19990122	25.23584	190.38891	195.78131	10.05919	0.1053615	2.9992651	22	2	1996–1998	0.52	M-v	3	Williams	33307 1998 TD ₃₄
1998 TG ₃₄	14.6	0.15	19990122	92.49605	122.69641	183.61837	6.61369	0.1929875	2.3026537	28	2	1997–1998	0.42	M-v	4	Williams	33307 1998 TG ₃₄
1998 UB	15.2	0.15	19990122	1.40636	170.80947	236.09308	24.33155	0.1870166	2.3301809	25	2	1996–1998	0.63	M-v	3	Williams	33049 1998 UB
1998 UH	13.6	0.15	19981103	26.66095	30.24338	323.33767	25.55341	0.3466013	3.1394049	13	1	38 days	0.32			Williams	1998 UH
1998 UK	15.0	0.15	19981014	62.24047	82.23896	221.03335	10.62419	0.1742849	3.1174915	20	1	6 days	0.52			Williams	1998 UK
1998 UL	14.0	0.15	19990122	123.46510	329.92633	284.24247	9.31815	0.0671817	2.9691666	21	1	90 days	0.59	M-v	5	Williams	33369 1998 UL
1998 UO	17.0	0.15	19981014	333.89642	60.27040	1.53145	5.84612	0.1794604	2.6315229	7	1	3 days	0.26			Williams	1998 UO
1998 UP	16.5	0.15	19990122	34.51118	144.63116	228.52596	5.02641	0.2066701	2.3301891	39	1	74 days	0.71	M-v	4	Williams	1998 UP
1998 UQ	16.2	0.15	19990122	40.89181	303.12454	37.58456	9.91311	0.3333674	2.3288250	78	2	1991–1998	0.57	M-v	3	Williams	33369 1998 UQ
1998 US	15.4	0.15	19981103	64.45375	54.72236	226.39036	12.78616	0.2918537	2.3808605	14	1	52 days	0.41			Marsden	1998 US
1998 UX	15.8	0.15	19990122	30.86016	120.51771	254.56509	21.31016	0.2937369	2.3206040	19	1	75 days	0.58	M-v	4	Williams	1998 UX
1998 UY	15.2	0.15	19981014	2.78892	357.76596	36.60455	6.63819	0.0773135	3.0927489	11	1	30 days	0.15			Williams	1998 UY
1998 UZ	13.4	0.15	19990122	316.62309	266.75437	215.05627	12.07629	0.1988982	2.6214175	62	4	1953–1998	0.49	M-v	2	Williams	33308 1998 UZ
1998 UA ₁	15.2	0.15	19990122	4.79069	14.37802	49.75796	4.87005	0.1728350	2.3091995	48	1	60 days	0.34	M-v	4	Williams	1998 UA ₁
1998 UC ₁	15.4	0.15	19990122	17.08334	275.04027	139.59529	5.92319	0.1476281	2.3146724	45	2	1991–1998	0.44	M-v	3	Williams	33370 1998 UC ₁
1998 UD ₁	16.1	0.15	19990122	15.37728	67.24199	317.70128	20.34762	0.4230790	3.1449252	50	1	101 days	0.45	M-v	3	Williams	33370 1998 UD ₁
1998 UQ ₁	16.5	0.15	19990122	11.76643	182.97070	222.54147	64.53475	0.5198239	3.1975042	108	1	53 days	0.65	M-v	5	Williams	33370 1998 UQ ₁

1998 UW ₁	12.3	0.15	19981103	48.70244	243.06065	102.85793	14.03024	0.1956341	2.6684406	16	1	53 days	0.38		Williams	1998 UW ₁
1998 UX ₁	12.9	0.15	19981103	52.51400	209.00124	142.94982	11.11917	0.1270367	3.0126993	13	1	53 days	0.41		Williams	1998 UX ₁
1998 UW ₂	15.9	0.15	19980924	25.08354	326.33594	22.48590	5.63481	0.1835940	2.5424954	18	1	59 days	0.88		Williams	1998 UW ₂
1998 UV ₃	17.1	0.15	19981014	102.36726	40.83615	233.13841	4.85543	0.0877729	2.4577435	9	1	7 days	0.19		Williams	1998 UV ₃
1998 UW ₃	16.0	0.15	19981014	259.26834	266.24290	232.50676	5.16476	0.1055658	2.7696830	9	1	7 days	0.08		Williams	1998 UW ₃
1998 UY ₃	17.0	0.15	19981014	40.40221	87.48370	250.10838	2.96800	0.1016859	2.7703833	9	1	7 days	0.08		Williams	1998 UY ₃
1998 UZ ₃	16.9	0.15	19981014	9.89681	11.26706	1.61431	3.60877	0.1341711	2.4154748	9	1	7 days	0.11		Williams	1998 UZ ₃
1998 UC ₄	13.3	0.15	19990122	130.22974	66.51995	209.33877	12.24863	0.1680113	2.6259138	38	4	1972–1998	0.61	M-v 2	Williams	33370 1998 UC ₄
1998 UE ₄	14.3	0.15	19981103	34.86657	234.35130	127.14026	9.86708	0.2343189	2.3399904	12	1	48 days	0.34		Williams	1998 UE ₄
1998 UG ₄	14.4	0.15	19990122	6.49775	323.73144	43.34057	12.33286	0.1556681	3.2009225	17	1	85 days	0.70	M-v 5	Williams	1998 UG ₄
1998 UL ₆	12.8	0.15	19981103	334.80926	28.46086	111.57552	12.19782	0.0538132	3.0018434	21	1	53 days	0.86		Williams	1998 UL ₆
1998 UM ₆	14.9	0.15	19981103	70.09087	251.54000	57.65282	5.17616	0.1691906	2.6208504	31	1	51 days	0.46		Marsden	1998 UM ₆
1998 UP ₆	13.0	0.15	19990122	78.77888	299.89175	23.74483	17.56198	0.2555730	2.6026252	37	3	1981–1998	0.80	M-v 3	Williams	33370 1998 UP ₆
1998 UT ₆	14.0	0.15	19990122	36.04920	351.78225	37.33726	1.72039	0.1108825	2.9439550	29	1	68 days	0.51	M-v 4	Williams	1998 UT ₆
1998 UU ₆	13.0	0.15	19990122	81.63971	299.11344	64.71046	14.23391	0.2224559	2.5393676	20	1	68 days	0.24	M-v 5	Nakano	1998 UU ₆
1998 UZ ₆	13.3	0.15	19981103	263.80223	18.87333	148.86368	12.83292	0.1000143	2.6872134	25	1	58 days	0.77		Williams	1998 UZ ₆
1998 UA ₇	12.7	0.15	19981103	50.44370	268.87717	93.26492	22.69149	0.0743016	3.1526352	14	1	48 days	0.41		Williams	1998 UA ₇
1998 UB ₇	14.7	0.15	19990122	46.66811	285.38393	76.68726	7.78112	0.2504340	2.3379950	27	1	66 days	0.58	M-v 4	Williams	1998 UB ₇
1998 UC ₇	13.3	0.15	19990122	350.41242	213.37974	219.43601	11.34301	0.0220024	2.9333865	20	1	70 days	0.39	M-v 4	Williams	1998 UC ₇
1998 UD ₇	14.0	0.15	19990122	85.95042	271.42508	34.11728	3.06621	0.2871925	2.5918128	36	4	1968–1998	0.73	M-v 3	Williams	33309 1998 UD ₇
1998 UF ₇	13.8	0.15	19981103	43.18111	179.66837	186.43108	15.05198	0.1231737	2.6324311	15	1	46 days	1.06		Williams	1998 UF ₇
1998 UG ₇	14.5	0.15	19981103	271.36250	107.19023	24.97519	1.63814	0.0092095	2.9627343	20	1	53 days	0.62		Williams	1998 UG ₇
1998 UH ₇	15.4	0.15	19981103	345.83325	312.72760	107.64387	5.48919	0.1302240	2.4106325	20	1	58 days	1.01		Williams	1998 UH ₇
1998 UJ ₇	14.0	0.15	19981103	71.60251	227.87494	97.90631	1.79258	0.0643261	2.6927780	25	1	56 days	0.66		Williams	1998 UJ ₇
1998 UM ₇	14.9	0.15	19981103	20.35041	292.60173	72.23526	5.69098	0.3064258	2.5300053	16	1	54 days	0.77		Williams	1998 UM ₇
1998 UO ₇	15.0	0.15	19981103	346.60630	20.91832	43.47019	4.64410	0.1710183	2.5506614	31	1	56 days	0.76		Williams	1998 UO ₇
1998 UP ₇	15.6	0.15	19981014	344.90849	13.91020	43.00166	7.58511	0.0955216	2.3417008	25	1	48 days	0.59		Williams	1998 UP ₇
1998 UR ₇	15.3	0.15	19990122	26.16098	177.89765	207.80644	10.12642	0.2288446	3.0085231	13	1	77 days	0.52	M-v 4	Williams	1998 UR ₇
1998 US ₇	14.2	0.15	19990122	192.66699	17.89392	211.42230	14.48456	0.0865701	2.6181102	25	3	1992–1998	0.64	M-v 4	Williams	33309 1998 US ₇
1998 UW ₇	14.4	0.15	19990122	329.99281	294.80126	170.28051	7.79802	0.1156373	2.5449473	24	2	1990–1998	0.80	M-v 6	Williams	33309 1998 UW ₇
1998 UX ₇	12.9	0.15	19981103	42.54123	150.61241	202.30677	11.43049	0.1220004	3.2117792	16	1	48 days	0.58		Williams	1998 UX ₇
1998 UY ₇	13.4	0.15	19990122	36.60163	188.30717	194.98581	9.70628	0.1092372	2.5826153	23	3	1969–1998	0.58	M-v 3	Williams	33309 1998 UY ₇
1998 UZ ₇	15.4	0.15	19990122	4.71294	224.24593	205.03558	13.14381	0.2657438	2.6336690	37	2	1996–1998	0.58	M-v 3	Williams	33371 1998 UZ ₇
1998 UB ₈	14.7	0.15	19990122	75.35977	280.23101	50.91359	2.21680	0.1694289	2.6469313	36	2	1996–1998	0.67	M-v 5	Williams	33371 1998 UB ₈
1998 UD ₈	12.9	0.15	19990122	129.20713	212.40381	77.51587	3.10230	0.0428937	2.8902390	39	3	1981–1998	0.75	M-v 4	Williams	33309 1998 UD ₈
1998 UE ₈	12.9	0.15	19981103	326.36983	280.92260	170.39970	1.76495	0.1363312	3.2197715	24	1	58 days	0.54		Williams	1998 UE ₈
1998 UF ₈	13.6	0.15	19981103	220.68469	141.54156	50.67369	7.30044	0.0877917	2.2593347	24	1	51 days	0.63		Williams	1998 UF ₈
1998 UG ₈	12.6	0.15	19981103	306.91798	238.31129	227.73487	21.21123	0.0495192	3.2393965	21	1	57 days	0.40		Williams	1998 UG ₈
1998 UH ₈	15.2	0.15	19990122	58.65196	308.16561	44.74661	10.82530	0.2486269	2.3431346	42	2	1997–1998	0.62	M-v 4	Williams	33371 1998 UH ₈
1998 UL ₈	13.1	0.15	19990122	349.52371	2.59671	87.50877	2.55463	0.1454923	3.0993141	36	3	1986–1998	0.84	M-v 4	Williams	33309 1998 UL ₈
1998 UM ₈	13.9	0.15	19990122	157.04711	174.34852	95.33065	4.67790	0.1748821	2.2471782	30	4	1950–1998	0.68	M-v 3	Williams	33309 1998 UM ₈
1998 UB ₁₀	15.4	0.15	19981014	60.56881	329.89966	331.75106	2.07096	0.2589114	2.5800219	9	1	5 days	0.17		Williams	1998 UB ₁₀
1998 UD ₁₀	17.1	0.15	19981014	20.95886	7.43007	349.29183	2.03387	0.2487916	2.9422626	9	1	5 days	0.41	E	Williams	1998 UD ₁₀
1998 UF ₁₀	18.1	0.15	19981014	38.43726	357.74478	339.62400	1.61142	0.1755183	2.2576710	8	1	5 days	0.28		Williams	1998 UF ₁₀
1998 UF ₁₁	15.7	0.15	19981103	338.45003	18.92387	69.80259	3.82112	0.3621239	3.0696181	19	1	52 days	0.63		Williams	1998 UF ₁₁
1998 UF ₁₄	13.4	0.15	19981103	39.31964	283.67653	69.41387	3.06046	0.0944668	2.9371657	22	1	49 days	0.59		Williams	1998 UF ₁₄
1998 UA ₁₅	14.6	0.15	19981103	283.39018	70.09156	52.64487	6.14107	0.0662716	2.3853021	43	1	51 days	0.49		Marsden	1998 UA ₁₅
1998 UC ₁₅	15.4	0.15	19990122	323.89365	336.08899	139.44315	6.81235	0.1041503	2.4773022	16	1	62 days	0.34	M-v 5	Williams	1998 UC ₁₅
1998 UF ₁₅	14.1	0.15	19981103	358.69287	117.26781	290.23834	5.53905	0.1261840	2.4377541	68	1	52 days	0.69		Williams	1998 UF ₁₅
1998 UG ₁₅	14.6	0.15	19981103	149.43464	105.17652	114.09058	7.50858	0.0540598	2.3342985	17	1	52 days	0.38		Williams	1998 UG ₁₅
1998 UH ₁₅	13.4	0.15	19981103	64.62996	127.12856	193.48103	13.15044	0.2143164	2.6365599	18	1	55 days	0.31		Williams	1998 UH ₁₅
1998 UN ₁₅	13.2	0.15	19981103	35.52015	268.55838	88.47653	1.91342	0.1981500	3.1662947	14	1	54 days	0.58		Williams	1998 UN ₁₅
1998 UO ₁₅	15.0	0.15	19990122	73.99250	51.31640	284.05984	0.34343	0.1775993	2.4773557	38	3	1986–1998	0.64	M-v 5	Williams	33310 1998 UO ₁₅

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1998 UP ₁₅	14.3	0.15	19990122	279.87869	74.63873	84.63655	3.13099	0.0979767	2.4423362	35	3	1977–1998	0.72	M-v	4	Williams	33310	1998 UP ₁₅
1998 UR ₁₅	13.5	0.15	19990122	353.83064	64.17530	10.55889	0.67309	0.1531247	3.1697624	33	1	62 days	0.62	M-v	5	Williams		1998 UR ₁₅
1998 UT ₁₅	12.3	0.15	19990122	253.44878	309.59381	221.93424	14.41404	0.0205495	2.9886496	35	5	1962–1998	0.76	M-v	2	Williams	33371	1998 UT ₁₅
1998 UJ ₁₆	14.6	0.15	19981103	24.36993	330.02882	101.59414	6.13324	0.1590440	2.3177508	12	1	56 days	0.36			Williams		1998 UJ ₁₆
1998 UL ₁₆	14.9	0.15	19990122	62.44740	266.16274	69.49332	5.04350	0.2775489	2.5667166	33	2	1996–1998	0.69	M-v	4	Williams	33310	1998 UL ₁₆
1998 UM ₁₆	15.9	0.15	19981103	10.65302	190.26100	199.88468	5.31947	0.2068319	2.4480986	18	1	54 days	1.05			Williams		1998 UM ₁₆
1998 UN ₁₆	13.2	0.15	19990122	327.47929	57.90946	53.42002	14.57956	0.1797513	3.0778516	30	1	65 days	0.51	M-v	5	Williams		1998 UN ₁₆
1998 UQ ₁₆	10.5	0.15	19981103	246.58272	106.00707	58.08668	9.30390	0.0305901	5.2439240	18	1	52 days	0.77			Williams		1998 UQ ₁₆
1998 UR ₁₆	12.8	0.15	19990122	119.19243	204.74722	81.80868	2.68689	0.1424605	3.1181618	31	2	1996–1998	0.62	M-v	4	Williams	33311	1998 UR ₁₆
1998 US ₁₆	15.5	0.15	19990122	92.79223	190.33219	124.69563	6.46113	0.1873940	2.2791561	25	1	65 days	0.61	M-v	5	Williams		1998 US ₁₆
1998 UV ₁₆	17.2	0.15	19981014	8.47636	251.44260	118.02796	13.45915	0.3715695	2.6103268	12	1	27 days	0.88			Williams		1998 UV ₁₆
1998 UB ₁₇	14.3	0.15	19990122	69.34477	241.72072	97.40314	24.38551	0.2633758	2.2741854	18	2	1994–1998	0.60	M-v	4	Williams	33311	1998 UB ₁₇
1998 UF ₁₈	15.1	0.15	19990122	307.43003	328.70140	164.54359	7.78331	0.1036604	2.3501955	25	2	1983–1998	0.65	M-v	5	Williams	33372	1998 UF ₁₈
1998 UN ₁₈	13.5	0.15	19981123	352.85272	309.15069	133.18282	27.18079	0.1545477	3.1732807	14	1	53 days	0.70			Williams		1998 UN ₁₈
1998 UO ₁₈	15.6	0.15	19990122	48.14808	13.08000	2.31456	2.24107	0.2202039	2.3691291	32	2	1994–1998	0.71	M-v	4	Williams	33372	1998 UO ₁₈
1998 UP ₁₈	14.0	0.15	19990122	21.74155	157.32753	261.44178	5.49958	0.0847190	2.3141618	25	2	1980–1998	0.73	M-v	5	Williams	33311	1998 UP ₁₈
1998 UQ ₁₈	12.2	0.15	19981103	181.44755	186.79051	55.15633	11.13655	0.0563038	2.9983141	18	1	53 days	0.45			Williams		1998 UQ ₁₈
1998 UR ₁₈	15.6	0.15	19981103	13.39689	141.24852	255.04450	6.47732	0.2202228	2.5419390	17	1	47 days	0.54			Williams		1998 UR ₁₈
1998 UT ₁₈	19.5	0.15	19990122	9.29820	49.83822	64.78032	13.58594	0.3294987	1.4052831	75	1	58 days	0.61	M-v	5	Williams	33372	1998 UT ₁₈
1998 UW ₁₈	13.6	0.15	19990122	14.31927	8.21119	41.06456	5.77553	0.1503249	3.1720335	16	2	1994–1998	0.60	M-v	4	Williams	33311	1998 UW ₁₈
1998 UE ₁₉	15.8	0.15	19990122	13.16771	256.26139	160.75627	3.50041	0.1489296	2.2246148	20	1	62 days	0.58	M-v	5	Williams		1998 UE ₁₉
1998 UP ₁₉	17.6	0.15	19981014	295.82665	245.78139	212.78057	19.43706	0.0818657	1.9122811	12	1	7 days	0.82			Williams		1998 UP ₁₉
1998 UR ₁₉	14.9	0.15	19990122	34.77805	329.63486	40.99835	14.60317	0.2134827	2.3449442	41	2	1997–1998	0.70	M-v	3	Williams	33311	1998 UR ₁₉
1998 UY ₁₉	12.1	0.15	19981103	171.62724	4.09123	233.35508	16.81975	0.1533569	3.1095005	45	1	50 days	0.87			Williams		1998 UY ₁₉
1998 UZ ₁₉	14.8	0.15	19990122	41.54145	358.49952	16.32468	1.54739	0.1738185	2.7291630	26	2	1993–1998	0.52	M-v	4	Williams	33312	1998 UZ ₁₉
1998 UA ₂₀	16.7	0.15	19990122	27.71510	336.53703	55.23737	1.56920	0.1838159	2.3995584	21	1	86 days	0.60	M-v	5	Williams		1998 UA ₂₀
1998 UC ₂₀	15.4	0.15	19981103	60.89518	266.12476	49.72134	2.92528	0.2203534	2.3836754	26	1	42 days	0.70			Williams		1998 UC ₂₀
1998 UL ₂₀	12.4	0.15	19990122	95.75881	79.23478	244.12584	8.90024	0.1108411	3.0206735	47	3	1982–1998	0.86	M-v	4	Williams	33312	1998 UL ₂₀
1998 UO ₂₀	13.8	0.15	19981103	290.38024	261.86581	227.33897	12.09754	0.0948038	2.6112090	23	1	43 days	0.76			Williams		1998 UO ₂₀
1998 UR ₂₀	14.1	0.15	19990122	104.23920	25.35025	292.82658	0.98998	0.0094300	2.8531718	43	3	1978–1998	0.67	M-v	4	Williams	33312	1998 UR ₂₀
1998 US ₂₀	13.7	0.15	19981103	340.32703	238.81084	188.62632	1.74236	0.0511179	2.4663489	9	1	41 days	0.88			Williams		1998 US ₂₀
1998 UU ₂₀	14.9	0.15	19981103	61.07185	276.32132	48.22100	5.95021	0.1849855	2.2175067	29	1	44 days	0.92			Williams		1998 UU ₂₀
1998 UV ₂₀	13.3	0.15	19990122	271.20158	299.22187	223.27669	12.52642	0.0729584	2.6297187	24	3	1953–1998	0.55	M-v	4	Williams	33313	1998 UV ₂₀
1998 UX ₂₀	14.6	0.15	19981103	5.68277	174.74700	223.77691	12.71020	0.1762320	2.6967238	22	1	46 days	0.65			Williams		1998 UX ₂₀
1998 UY ₂₀	14.5	0.15	19981123	339.66645	45.72204	34.49790	1.74559	0.1478442	2.4312521	24	1	54 days	0.77			Williams		1998 UY ₂₀
1998 UE ₂₁	15.1	0.15	19981103	37.66614	129.66651	230.09137	0.25054	0.1382265	2.3014763	37	1	51 days	0.83			Williams		1998 UE ₂₁
1998 UF ₂₁	11.9	0.15	19981103	136.66577	223.31805	46.58647	11.43213	0.0666454	3.0000820	34	1	58 days	0.76			Williams		1998 UF ₂₁
1998 UE ₂₂	14.1	0.15	19981014	151.76659	209.44499	20.74369	11.52100	0.1455268	3.0992402	11	1	7 days	0.85			Williams		1998 UE ₂₂
1998 UT ₂₂	15.5	0.15	19981123	19.19714	314.57873	71.29964	14.07051	0.1591615	2.5443332	26	1	55 days	0.78			Williams		1998 UT ₂₂
1998 UU ₂₂	13.8	0.15	19981103	16.99415	152.98952	234.31774	9.63437	0.0934416	2.9754972	39	1	53 days	0.59			Nakano		1998 UU ₂₂
1998 UW ₂₂	15.4	0.15	19981103	14.06868	146.80662	232.91753	23.16271	0.2642165	2.4207859	30	1	56 days	0.91			Williams		1998 UW ₂₂
1998 UX ₂₂	15.2	0.15	19990122	14.22328	353.94117	61.90336	3.21817	0.1225634	2.5829842	35	2	1994–1998	0.86	M-v	4	Williams	33313	1998 UX ₂₂
1998 UY ₂₂	16.1	0.15	19990122	47.03758	333.00000	39.10194	3.68706	0.2074884	2.2617363	24	2	1991–1998	0.74	M-v	5	Williams	33313	1998 UY ₂₂
1998 UZ ₂₂	16.1	0.15	19981123	8.56091	180.43621	223.72956	2.46007	0.1932016	2.2962744	14	1	46 days	0.42			Williams		1998 UZ ₂₂
1998 UA ₂₃	14.4	0.15	19981123	294.29416	82.09104	56.86611	2.93253	0.1540504	2.3914487	26	1	46 days	1.06			Williams		1998 UA ₂₃
1998 UB ₂₃	15.0	0.15	19990122	39.81248	343.16105	42.05003	4.93332	0.1669722	2.3097530	34	2	1993–1998	0.66	M-v	4	Williams	33313	1998 UB ₂₃
1998 UC ₂₃	14.1	0.15	19990122	47.39892	88.21849	283.73235	5.52267	0.1392909	2.3685433	17	2	1994–1998	0.57	M-v	4	Williams	33313	1998 UC ₂₃
1998 UL ₂₃	14.8	0.15	19990122	5.81534	13.50602	59.94431	3.77191	0.1477737	2.4431118	47	2	1996–1998	0.74	M-v	4	Williams	33313	1998 UL ₂₃
1998 UM ₂₃	14.3	0.15	19990122	9.65733	200.16460	227.56741	6.06332	0.0866473	2.3938186	28	1	61 days	0.75	M-v	5	Williams		1998 UM ₂₃
1998 UN ₂₃	13.1	0.15	19990122	2.70133	330.39793	99.93989	2.12525	0.1370993	3.1974599	40	3	1975–1998	0.64	M-v	4	Williams	33314	1998 UN ₂₃
1998 UO ₂₃	13.6	0.15	19981103	16.99713	131.99182	249.44286	22.86285	0.2561009	3.1325854	19	1	51 days	0.60			Williams		1998 UO ₂₃
1998 UO ₂₄	14.0	0.15	19990122	0.81151	227.79648	203.06503	6.47269	0.1243220	2.7000357	25	3	1989–1998	0.72	M-v	4	Williams	33314	1998 UO ₂₄
1998 UP ₂₄	16.1	0.15	19981103	23.93285	235.47051	141.50965	2.83067	0.1315488	2.4053097	22	1	54 days	0.67			Williams		1998 UP ₂₄

1998 UR ₂₄	14.7	0.15	19990122	27.25899	295.61528	93.08582	2.40387	0.2335711	3.1597004	33	2	1992–1998	0.75	M-v	4	Williams	33314	1998 UR ₂₄
1998 US ₂₄	11.1	0.15	19990122	336.78349	353.83969	96.30851	6.63614	0.1061533	5.2293056	27	2	1996–1998	0.52	M-v	4	Williams	33314	1998 US ₂₄
1998 UT ₂₄	13.0	0.15	19990122	84.53750	267.96916	63.51476	16.22223	0.0797830	3.1929479	28	1	64 days	0.67	M-v	5	Williams		1998 UT ₂₄
1998 UV ₂₄	13.8	0.15	19990122	28.55457	331.45768	54.43111	2.79819	0.0805515	2.9481826	27	3	1978–1998	0.53	M-v	4	Williams	33314	1998 UV ₂₄
1998 UZ ₂₄	13.8	0.15	19990122	45.22170	318.73282	63.42127	6.23687	0.1690939	2.7519847	40	4	1975–1998	0.60	M-v	1	Williams	33315	1998 UZ ₂₄
1998 UQ ₂₅	13.6	0.15	19990122	99.83156	176.95632	124.41756	6.00681	0.1253218	2.9835191	16	1	60 days	0.47	M-v	5	Williams		1998 UQ ₂₅
1998 UJ ₂₆	14.4	0.15	19990122	9.95190	272.32799	134.88517	5.85573	0.1823722	3.1609787	22	2	1992–1998	0.80	M-v	5	Williams	33315	1998 UJ ₂₆
1998 UM ₂₆	14.7	0.15	19990122	108.12611	169.72957	126.67496	4.92702	0.1697468	2.2544728	25	2	1991–1998	0.81	M-v	5	Williams	33315	1998 UM ₂₆
1998 UZ ₂₆	15.2	0.15	19981103	32.37430	189.25291	157.18021	4.81149	0.2740403	2.5411362	22	1	58 days	0.77			Williams		1998 UZ ₂₆
1998 UA ₂₇	14.0	0.15	19990122	173.65086	133.81858	110.84696	4.66026	0.1415336	2.2263719	23	2	1991–1998	0.65	M-v	5	Williams	33315	1998 UA ₂₇
1998 UZ ₂₇	13.9	0.15	19981103	149.99471	108.00138	140.37017	6.20649	0.0881986	2.6433287	17	1	54 days	0.57			Williams		1998 UZ ₂₇
1998 UU ₂₈	13.3	0.15	19990122	60.49362	275.04246	75.21322	10.82962	0.1030638	3.0634450	17	2	1982–1998	0.49	M-v	5	Williams	33315	1998 UU ₂₈
1998 UM ₂₉	14.0	0.15	19990122	354.73514	10.50124	67.08619	12.91926	0.1627902	2.6511185	14	1	69 days	0.49	M-v	5	Williams		1998 UM ₂₉
1998 UO ₃₁	15.8	0.15	19990122	111.99806	237.24030	64.79816	3.50166	0.2316194	2.2259222	15	1	64 days	0.34	M-v	6	Williams		1998 UO ₃₁
1998 UR ₃₁	13.7	0.15	19981103	176.95530	177.09498	62.92373	8.17928	0.1701996	2.2214680	19	1	56 days	0.66			Williams		1998 UR ₃₁
1998 US ₃₁	13.6	0.15	19990122	94.57517	264.05498	68.34937	3.92720	0.0845477	2.6426124	18	1	62 days	0.42	M-v	6	Williams		1998 US ₃₁
1998 UJ ₃₂	13.5	0.15	19981103	21.85089	170.87352	226.10707	5.93240	0.1129005	2.1962242	15	1	50 days	0.65			Williams		1998 UJ ₃₂
1998 UL ₃₂	14.3	0.15	19981123	14.46194	357.34443	56.83865	7.46369	0.0353683	2.3083055	24	1	48 days	0.65			D Williams		1998 UL ₃₂
1998 UH ₃₆	15.6	0.15	19981014	352.22449	147.58737	251.19979	3.26678	0.2406078	3.0549408	12	1	2 days	0.76			E Williams		1998 UH ₃₆
1998 UH ₃₉	14.8	0.15	19981014	7.88572	163.27375	211.71067	18.77943	0.1961577	3.1239173	12	1	16 days	0.54			Williams		1998 UH ₃₉
1998 UX ₃₉	15.2	0.15	19981014	21.30498	330.14705	25.85131	14.36413	0.2126542	3.1786517	12	1	7 days	1.05			E Williams		1998 UX ₃₉
1998 UF ₄₁	13.9	0.15	19981014	11.09507	178.71147	194.18495	9.46956	0.1450919	2.9861411	21	1	20 days	0.55			Williams		1998 UF ₄₁
1998 UV ₄₁	15.0	0.15	19981103	11.24062	276.77983	100.33999	2.74116	0.2080637	2.4251948	21	1	44 days	0.39			Williams		1998 UV ₄₁
1998 VA	13.2	0.15	19990122	352.70878	44.36974	41.63248	17.72534	0.1492604	2.5991706	57	1	113 days	0.49	M-v	4	Williams	33374	1998 VA
1998 VB	15.1	0.15	19981123	13.85053	84.38653	316.82921	1.68253	0.2403288	2.2995875	22	1	44 days	0.55			Williams		1998 VB
1998 VC	14.0	0.15	19990122	217.83211	303.06826	272.55514	1.38507	0.1547469	2.3788813	52	3	1978–1998	0.51	M-v	4	Williams	33316	1998 VC
1998 VD	16.1	0.15	19981123	15.74147	352.39831	36.55526	3.32173	0.2266503	2.3610933	27	1	47 days	0.31			Nakano		1998 VD
1998 VF	14.8	0.15	19990122	76.42635	245.70021	51.39936	5.68354	0.1941389	2.1922001	37	2	1985–1998	0.74	M-v	4	Williams	33316	1998 VF
1998 VJ	14.1	0.15	19981123	338.50576	27.02952	65.95762	15.37685	0.1627399	2.6403751	69	1	41 days	0.48			Williams		1998 VJ
1998 VO	20.4	0.15	19990122	141.27491	75.85842	228.30810	10.05396	0.2264329	1.0734916	112	1	37 days	0.59	M-v	6	Williams		1998 VO
1998 VR	18.5	0.15	19990122	288.76115	170.65024	46.48490	21.80221	0.3182853	0.8759337	209	1	48 days	0.70	M-v	6	Marsden		1998 VR
1998 VS	21.9	0.15	19990122	60.41087	147.85628	230.46608	6.82467	0.2778800	1.4007389	52	1	32 days	0.52	M-v	6	Nakano		1998 VS
1998 VU	14.0	0.15	19981103	31.82403	311.38837	47.92770	11.39573	0.1052714	3.0342413	35	1	57 days	0.59			D Williams		1998 VU
1998 VG ₁	16.0	0.15	19981123	44.29745	273.43620	62.07599	8.42975	0.2993775	2.3038454	34	1	34 days	0.45			Williams		1998 VG ₁
1998 VJ ₁	15.0	0.15	19981123	15.72678	156.03979	226.67174	16.34137	0.2913249	2.7402642	20	1	31 days	0.55			Williams		1998 VJ ₁
1998 VE ₂	15.6	0.15	19981123	333.36495	53.07551	42.02176	1.53633	0.2036615	2.8883192	10	1	28 days	0.80			Williams		1998 VE ₂
1998 VG ₂	16.5	0.15	19981103	357.69986	346.93141	19.40818	3.04808	0.2789559	2.3455196	9	1	2 days	0.36			E Williams		1998 VG ₂
1998 VJ ₂	15.4	0.15	19981103	69.58662	281.69950	37.29588	6.02656	0.1583658	2.5677101	9	1	3 days	0.23			Williams		1998 VJ ₂
1998 VK ₂	15.8	0.15	19981103	19.88026	345.83345	31.63728	3.62370	0.1831323	2.8079003	9	1	3 days	0.11			Williams		1998 VK ₂
1998 VP ₂	15.3	0.15	19981123	348.06772	198.04494	234.06695	6.94319	0.1903666	2.4632947	18	1	28 days	0.35			Williams		1998 VP ₂
1998 VR ₂	18.2	0.15	19981103	18.56742	329.59351	46.17743	4.96870	0.2425212	2.3374117	9	1	3 days	0.16			Williams		1998 VR ₂
1998 VS ₂	15.2	0.15	19981103	132.41669	221.03914	49.45598	6.78200	0.0888013	2.7375373	9	1	3 days	0.27			E Williams		1998 VS ₂
1998 VT ₂	15.7	0.15	19981103	7.13979	357.17066	42.47390	2.17889	0.1425513	2.8995407	14	1	8 days	0.30			Williams		1998 VT ₂
1998 VV ₂	11.9	0.15	19990122	130.76342	46.80849	233.57810	8.76987	0.1136849	3.9732884	31	1	60 days	0.76	M-v	5	Williams		1998 VV ₂
1998 VW ₂	15.9	0.15	19981103	67.68984	272.18791	50.10489	5.32206	0.1692103	2.2713666	14	1	8 days	0.54			Williams		1998 VW ₂
1998 VX ₂	13.7	0.15	19981103	195.15719	168.71446	50.40481	7.25525	0.1025737	3.0872007	12	1	13 days	0.23			Williams		1998 VX ₂
1998 VB ₃	14.1	0.15	19981123	92.14816	314.54092	332.70292	1.25517	0.2825994	2.9710580	25	1	30 days	1.18			Williams		1998 VB ₃
1998 VV ₃	15.1	0.15	19981123	280.46752	277.74073	230.18144	8.19838	0.1223680	3.1126104	18	1	27 days	0.48			Williams		1998 VV ₃
1998 VX ₃	16.5	0.15	19981103	356.77428	348.79384	71.72562	6.77714	0.1998145	2.4453574	12	1	8 days	0.60			Williams		1998 VX ₃
1998 VA ₄	14.5	0.15	19990122	285.89332	101.69836	71.04218	12.89548	0.1552231	2.3870616	16	2	1992–1998	0.48	M-v	5	Williams	33316	1998 VA ₄
1998 VC ₄	15.7	0.15	19981123	8.01153	255.88764	157.18902	1.58143	0.1822047	2.4018427	24	1	45 days	0.50			Williams		1998 VC ₄
1998 VU ₄	11.2	0.15	19990122	301.36956	282.11432	217.65587	8.16128	0.1101033	3.9497365	49	5	1982–1998	0.68	M-v	1	Williams	33316	1998 VU ₄
1998 VW ₄	14.1	0.15	19981123	11.96173	62.60161	353.08638	8.36472	0.2328372	3.2062103	19	1	35 days	0.63			Williams		1998 VW ₄

1998 VY ₄	14.9	0.15	19981123	337.23893	131.83063	319.86791	1.44860	0.1375992	2.4431506	32	1	37 days	0.58		Williams		1998 VY ₄
1998 VB ₅	13.0	0.15	19990122	163.19372	225.30891	37.50171	1.30609	0.0588585	3.0585612	53	3	1981–1998	0.92	M-v 4	Williams	33317	1998 VB ₅
1998 VC ₅	14.8	0.15	19981123	284.12242	22.25474	119.25861	1.17164	0.0661898	2.3915008	30	1	34 days	0.85		Williams		1998 VC ₅
1998 VF ₅	15.1	0.15	19981103	15.86632	334.78820	49.07162	10.05283	0.2457553	2.4332771	32	1	49 days	0.89		Williams		1998 VF ₅
1998 VH ₅	14.2	0.15	19990122	212.19148	298.23735	281.02214	5.99977	0.0831862	2.2975271	36	3	1979–1998	0.75	M-v 3	Williams	33317	1998 VH ₅
1998 VJ ₅	13.5	0.15	19990122	87.62921	287.34058	22.09935	11.48885	0.2409444	2.8622629	30	2	1993–1998	0.57	M-v 5	Williams	33317	1998 VJ ₅
1998 VK ₅	15.1	0.15	19981123	9.54331	48.85785	350.08664	3.65268	0.2111583	2.6063054	29	1	38 days	0.76		Williams		1998 VK ₅
1998 VM ₅	14.6	0.15	19981123	33.28460	342.35556	22.22124	7.72795	0.2060087	2.5779696	24	1	35 days	0.62		Nakano		1998 VM ₅
1998 VN ₅	13.1	0.15	19981123	4.60767	26.06668	22.19550	10.66212	0.1421866	3.1631873	25	1	35 days	0.49		Nakano		1998 VN ₅
1998 VO ₅	16.1	0.15	19981123	43.24941	291.77577	50.21782	8.60703	0.3231100	2.3782352	29	1	33 days	0.55		Nakano		1998 VO ₅
1998 VP ₅	14.6	0.15	19981123	297.05237	118.55152	12.54092	6.33483	0.1062544	2.4044137	16	1	37 days	0.69		Nakano		1998 VP ₅
1998 VQ ₅	14.8	0.15	19981123	354.77189	49.54616	15.62184	6.03393	0.2040619	2.5365075	15	1	32 days	0.42		Nakano		1998 VQ ₅
1998 VR ₅	14.6	0.15	19981123	40.69720	350.38734	357.97967	4.87255	0.2853772	2.6210142	14	1	32 days	0.48		Nakano		1998 VR ₅
1998 VS ₅	13.4	0.15	19981103	284.14792	93.37031	27.05619	22.41366	0.0180475	2.6494440	14	1	37 days	0.40		Williams		1998 VS ₅
1998 VT ₅	12.7	0.15	19981123	0.54444	186.13146	239.47121	27.19963	0.1488013	3.1155181	50	1	41 days	0.61		Williams		1998 VT ₅
1998 VU ₅	14.3	0.15	19981123	285.52507	177.06532	318.44911	3.48483	0.0732047	2.5273572	23	1	37 days	0.47		Williams		1998 VU ₅
1998 VV ₅	12.7	0.15	19990122	16.76374	352.82425	71.13718	6.60210	0.1109568	3.1592611	36	3	1975–1998	0.58	M-v 3	Williams	33317	1998 VV ₅
1998 VX ₅	13.4	0.15	19990122	62.65428	318.31246	32.23943	2.81423	0.1677770	3.0100507	32	2	1996–1998	0.61	M-v 4	Williams	33317	1998 VX ₅
1998 VY ₅	14.0	0.15	19981123	23.48789	292.89228	107.21144	13.89156	0.1947080	2.4230519	17	1	39 days	0.57		Williams		1998 VY ₅
1998 VZ ₅	15.0	0.15	19981123	89.54948	257.24872	77.91300	7.28001	0.1356883	2.2883105	49	1	45 days	0.67		Williams		1998 VZ ₅
1998 VC ₆	16.2	0.15	19990122	25.66743	141.35172	262.67564	1.32257	0.2062101	2.3863190	32	2	1994–1998	0.61	M-v 4	Williams	33317	1998 VC ₆
1998 VD ₆	14.1	0.15	19981123	114.38056	243.68414	51.02857	10.44181	0.0971933	2.5367402	28	1	39 days	0.58		Williams		1998 VD ₆
1998 VE ₆	15.7	0.15	19981123	353.84051	35.01878	27.55446	11.74800	0.2271158	2.5702669	27	1	31 days	0.59		Nakano		1998 VE ₆
1998 VF ₆	13.6	0.15	19990122	331.93313	149.96678	306.32975	4.41871	0.1005691	3.1530195	30	3	1976–1998	0.61	M-v 4	Williams	33318	1998 VF ₆
1998 VG ₆	15.2	0.15	19981123	12.19590	24.84043	8.71909	6.69993	0.2314220	2.3877834	13	1	32 days	0.60		Nakano		1998 VG ₆
1998 VH ₆	15.1	0.15	19981123	326.03369	68.23354	24.75902	9.43706	0.0989328	2.3015091	27	1	36 days	0.66		Williams		1998 VH ₆
1998 VK ₆	14.9	0.15	19981123	343.71081	122.03337	314.59727	4.66673	0.1994498	2.7754620	24	1	33 days	0.54		Nakano		1998 VK ₆
1998 VM ₆	12.0	0.15	19981123	344.19949	127.20603	309.36425	6.28361	0.2202913	5.2325975	27	1	51 days	0.66		Nakano		1998 VM ₆
1998 VN ₆	15.6	0.15	19990122	356.14858	55.43874	29.64984	11.45890	0.2587418	2.6234371	22	1	83 days	0.65	M-v 4	Williams		1998 VN ₆
1998 VO ₆	13.5	0.15	19981123	334.84000	153.11235	289.90278	6.10359	0.0892714	2.7578419	25	1	36 days	0.50		Williams		1998 VO ₆
1998 VP ₆	15.8	0.15	19981123	7.67711	110.93765	293.29886	4.03520	0.2559553	2.3926663	9	1	38 days	0.47		Nakano		1998 VP ₆
1998 VQ ₆	15.4	0.15	19990122	24.35793	82.83496	323.03669	4.31491	0.2005786	2.3238995	28	1	82 days	0.49	M-v 4	Williams		1998 VQ ₆
1998 VR ₆	13.3	0.15	19981213	122.86628	89.78192	211.17856	5.77158	0.1146537	2.2734611	10	1	39 days	0.52		Nakano		1998 VR ₆
1998 VS ₆	13.3	0.15	19981213	81.17680	103.99240	237.36942	8.26499	0.1029522	2.6549212	10	1	39 days	0.39		Nakano		1998 VS ₆
1998 VU ₆	10.7	0.15	19981213	29.49457	306.51600	96.62655	7.32865	0.0445944	5.1976018	11	1	39 days	0.73		Nakano		1998 VU ₆
1998 VW ₆	13.8	0.15	19990122	53.99136	137.89028	242.65459	11.89587	0.1133616	2.6701231	13	1	64 days	0.62	M-v 5 D	Nakano		1998 VW ₆
1998 VZ ₆	16.9	0.15	19981123	17.22099	212.48424	182.54772	2.27298	0.1899302	2.3896579	25	1	35 days	0.54		Williams		1998 VZ ₆
1998 VF ₇	13.7	0.15	19981103	353.52628	176.40101	225.58337	13.00914	0.2493339	2.6039259	37	1	55 days	0.42		Williams		1998 VF ₇
1998 VL ₇	13.9	0.15	19990122	13.91856	169.19401	221.67546	0.98221	0.1231909	2.9506463	35	3	1978–1998	0.67	M-v 4	Williams	33318	1998 VL ₇
1998 VX ₇	14.7	0.15	19981103	334.09348	213.81256	217.26391	8.33562	0.2036313	2.7897088	26	1	57 days	0.72		Williams		1998 VX ₇
1998 VL ₉	13.9	0.15	19981123	12.76783	321.36180	63.68672	5.36245	0.0747965	2.3960346	29	1	56 days	0.38		Williams		1998 VL ₉
1998 VM ₁₅	11.3	0.15	19990122	75.78636	88.77856	221.13951	6.32961	0.2029994	3.9946258	34	6	1957–1998	0.73	M-v 1	Williams	33318	1998 VM ₁₅
1998 VL ₁₇	16.4	0.15	19981014	13.37890	327.33833	45.49232	3.32173	0.1919535	2.3935935	18	1	59 days	0.49		Williams		1998 VL ₁₇
1998 VW ₁₇	13.6	0.15	19981123	62.91087	99.00660	230.76160	14.48880	0.1109625	3.1335889	15	1	34 days	0.37		Williams		1998 VW ₁₇
1998 VA ₁₈	15.0	0.15	19981123	283.80447	264.20345	236.31605	12.65897	0.1611906	2.5662584	15	1	35 days	0.79		Williams		1998 VA ₁₈
1998 VF ₁₉	17.2	0.15	19981123	354.86748	3.13782	54.64080	7.91568	0.2281879	2.4079393	14	1	37 days	0.90		Williams		1998 VF ₁₉
1998 VQ ₂₀	15.4	0.15	19981123	354.78242	356.31446	60.55738	5.65695	0.1758629	2.4639577	19	1	33 days	0.38		Williams		1998 VQ ₂₀
1998 VY ₂₀	14.1	0.15	19990122	8.91494	218.39744	193.81291	1.18858	0.1451670	2.9085634	19	2	1997–1998	0.42	M-v 5	Williams	33319	1998 VY ₂₀
1998 VT ₂₃	14.5	0.15	19981123	100.14573	225.37190	72.09675	3.10473	0.0893172	3.1097823	12	1	33 days	1.09		Williams		1998 VT ₂₃
1998 VX ₂₃	15.0	0.15	19981123	304.94004	64.26395	59.11109	6.03664	0.1828381	2.3645853	19	1	33 days	0.22		Williams		1998 VX ₂₃
1998 VB ₂₅	13.9	0.15	19981123	336.76360	325.69803	118.42760	1.84438	0.2048750	3.1093438	21	1	28 days	0.53		Williams		1998 VB ₂₅
1998 VQ ₂₅	14.7	0.15	19981123	180.17762	170.87746	58.78899	4.37084	0.0799723	2.3006377	24	1	35 days	0.41		Williams		1998 VQ ₂₅
1998 VF ₂₆	15.3	0.15	19981103	57.68003	70.90976	244.78909	4.24045	0.2782211	2.3496607	16	1	3 days	0.60		Williams		1998 VF ₂₆

1998 VG ₂₆	13.6	0.15	19981103	287.25147	110.58110	32.46042	5.92590	0.2142806	3.1899024	12	1	3 days	0.94	E	Williams	1998 VG ₂₆
1998 VR ₂₆	13.9	0.15	19981123	15.36822	148.01158	240.49239	13.75313	0.1897476	3.0611094	16	1	35 days	0.74		Williams	1998 VR ₂₆
1998 VL ₂₇	12.2	0.15	19981123	332.63338	153.14199	294.68340	3.21513	0.1747394	5.3989898	9	1	36 days	0.77		Williams	1998 VL ₂₇
1998 VR ₂₇	12.9	0.15	19981103	267.45573	270.06191	239.62370	5.32400	0.0957101	3.1528996	19	1	13 days	0.81		Williams	1998 VR ₂₇
1998 VT ₂₇	13.4	0.15	19981123	51.11531	298.54031	50.83738	10.62230	0.1090973	2.9735214	43	1	45 days	0.71		Williams	1998 VT ₂₇
1998 VK ₂₈	15.4	0.15	19981123	354.45013	349.31011	73.25810	4.91235	0.2134700	2.3956179	19	1	37 days	0.69		Williams	1998 VK ₂₈
1998 VN ₂₈	14.5	0.15	19990122	332.22082	39.63536	69.69734	5.45071	0.1254029	2.3599538	29	2	1980–1998	0.56	M-v 5	Williams	33319 1998 VN ₂₈
1998 VX ₂₈	16.4	0.15	19981123	29.01310	111.87831	268.57580	5.77235	0.1283096	2.2562748	24	1	36 days	0.96		Williams	1998 VX ₂₈
1998 VC ₂₉	12.6	0.15	19990122	62.11771	212.51594	138.08906	4.98847	0.1126800	3.1891711	30	4	1975–1998	0.48	M-v 2	Williams	33319 1998 VC ₂₉
1998 VD ₂₉	13.1	0.15	19981123	358.16750	344.71686	69.54266	17.26223	0.1354272	3.1805214	11	1	31 days	0.49		Williams	1998 VD ₂₉
1998 VH ₂₉	14.1	0.15	19981123	352.49124	352.13075	72.25842	13.76300	0.1413311	2.6470920	20	1	31 days	0.63		Williams	1998 VH ₂₉
1998 VM ₂₉	14.5	0.15	19981123	339.28161	204.73279	239.07627	12.09007	0.1379411	2.7678238	38	1	36 days	0.67		Williams	1998 VM ₂₉
1998 VU ₂₉	13.0	0.15	19981123	351.97138	169.20175	260.36484	9.10214	0.1447305	2.8057902	26	1	31 days	1.09		Williams	1998 VU ₂₉
1998 VV ₂₉	15.1	0.15	19981123	316.13042	198.72237	270.87737	6.16146	0.0783541	2.3530562	21	1	31 days	1.19		Williams	1998 VV ₂₉
1998 VX ₂₉	15.0	0.15	19981123	9.08949	132.38147	270.33801	4.59691	0.2890824	2.5022792	13	1	9 days	0.67		Nakano	1998 VX ₂₉
1998 VB ₃₀	15.6	0.15	19981123	5.16843	145.64893	266.00146	2.39741	0.1211782	2.3622603	22	1	31 days	0.60		Williams	1998 VB ₃₀
1998 VD ₃₀	10.7	0.15	19990122	329.68463	233.12833	225.42983	24.92091	0.1007550	5.2242113	26	2	1986–1998	0.71	M-v 5	Williams	33320 1998 VD ₃₀
1998 VF ₃₀	10.7	0.15	19981123	349.19092	0.14636	67.00825	25.61744	0.1285266	5.2170478	19	1	31 days	0.60		Williams	1998 VF ₃₀
1998 VJ ₃₀	13.9	0.15	19981123	8.41904	328.50549	76.13275	12.24913	0.1572040	3.1591586	23	1	31 days	0.78		Williams	1998 VJ ₃₀
1998 VM ₃₀	15.1	0.15	19990122	24.96938	23.03115	25.62372	2.80259	0.1072499	2.3050399	41	2	1992–1998	0.67	M-v 4	Williams	33320 1998 VM ₃₀
1998 VU ₃₀	9.9	0.15	19981123	348.55731	179.86562	253.47825	16.19447	0.0497523	5.2133721	26	1	37 days	0.68		Williams	1998 VU ₃₀
1998 VV ₃₀	14.9	0.15	19990122	8.01160	77.59369	353.70386	1.96652	0.1853559	2.4135098	34	3	1983–1998	0.73	M-v 4	Williams	33320 1998 VV ₃₀
1998 VX ₃₀	14.3	0.15	19981123	355.30342	168.23968	252.75329	13.50467	0.1442957	2.5434958	13	1	36 days	0.49		Williams	1998 VX ₃₀
1998 VZ ₃₀	13.2	0.15	19981123	266.47752	102.33354	70.19621	14.18442	0.1010782	2.5679920	23	1	37 days	0.55		Williams	1998 VZ ₃₀
1998 VF ₃₁	17.1	0.15	19990122	293.97245	310.50059	221.38366	31.30740	0.1004511	1.5243198	69	1	52 days	0.58	M-v 5	Williams	1998 VF ₃₁
1998 VG ₃₁	14.3	0.15	19981123	73.74979	321.57587	9.15215	6.07987	0.0807982	2.6156922	16	1	35 days	0.33		Nakano	1998 VG ₃₁
1998 VK ₃₁	13.7	0.15	19981213	168.34856	18.59419	249.28533	8.23692	0.0858863	2.4662829	11	1	37 days	0.65		Nakano	1998 VK ₃₁
1998 VL ₃₁	14.0	0.15	19981123	293.10346	81.21498	74.12374	14.49812	0.1350521	2.5637742	27	1	55 days	0.55		Williams	1998 VL ₃₁
1998 VM ₃₁	13.4	0.15	19981123	42.47886	305.01258	65.31353	17.44760	0.2262651	3.0433468	20	1	40 days	0.44		Williams	1998 VM ₃₁
1998 VN ₃₁	13.8	0.15	19981014	331.43283	181.74620	239.13485	6.52082	0.0470974	3.1549563	16	1	32 days	0.97		Williams	1998 VN ₃₁
1998 VO ₃₁	12.4	0.15	19981123	65.49783	95.82308	301.63641	20.91569	0.0721184	3.1125770	16	1	41 days	0.66		Williams	1998 VO ₃₁
1998 VR ₃₁	14.7	0.15	19990122	344.84803	226.28649	241.18690	3.89670	0.0945020	2.2383854	18	2	1981–1998	0.49	M-v 5	Williams	33320 1998 VR ₃₁
1998 VC ₃₂	15.9	0.15	19981123	334.42537	189.59506	265.65246	20.13706	0.1028401	1.9210633	17	1	33 days	0.93		Williams	1998 VC ₃₂
1998 VE ₃₂	15.0	0.15	19981123	44.76731	100.29348	237.73312	26.98459	0.2902219	1.8571761	81	1	26 days	0.55		Williams	1998 VE ₃₂
1998 VG ₃₂	14.9	0.15	19981103	329.64503	12.33128	80.98027	4.18748	0.1531042	2.3438811	46	1	56 days	0.66		Williams	1998 VG ₃₂
1998 VH ₃₂	16.6	0.15	19981123	7.28758	305.69792	106.52015	6.11110	0.2475706	2.3523566	14	1	44 days	0.56		Williams	1998 VH ₃₂
1998 VK ₃₂	15.0	0.15	19981123	46.75064	123.23592	225.53590	15.32470	0.3284080	2.6053292	12	1	38 days	0.27		Williams	1998 VK ₃₂
1998 VN ₃₂	13.3	0.15	19981123	10.18636	320.85392	92.77289	3.25099	0.0725426	2.9097456	24	1	31 days	0.46		Williams	1998 VN ₃₂
1998 VO ₃₂	12.9	0.15	19981123	97.93502	3.55043	304.83368	9.55389	0.1470998	2.6444244	29	1	31 days	0.32		Williams	1998 VO ₃₂
1998 VP ₃₂	15.4	0.15	19981123	320.20845	5.99198	110.71578	25.61428	0.2150380	2.2936188	11	1	34 days	0.73		Williams	1998 VP ₃₂
1998 VR ₃₂	16.6	0.15	19981123	55.75453	234.54660	126.19576	24.24499	0.0895239	1.9525591	11	1	34 days	0.42		Williams	1998 VR ₃₂
1998 VW ₃₂	15.2	0.15	19981123	113.69508	238.35985	54.15759	0.77505	0.1213129	2.4578741	17	1	33 days	0.58		Williams	1998 VW ₃₂
1998 VY ₃₂	14.7	0.15	19990122	314.13535	79.66381	55.73607	3.10107	0.1451328	2.4646679	37	2	1996–1998	0.72	M-v 4	Williams	33320 1998 VY ₃₂
1998 VZ ₃₂	15.2	0.15	19981123	331.65276	230.05035	232.38111	8.17909	0.2171963	2.7150365	34	1	28 days	1.03		Williams	1998 VZ ₃₂
1998 VA ₃₃	15.3	0.15	19981123	243.22049	315.09580	234.91372	1.29597	0.1588934	2.3703185	30	1	34 days	0.82		Williams	1998 VA ₃₃
1998 VB ₃₃	16.3	0.15	19981103	346.85721	18.56358	55.70038	4.95226	0.2570297	2.6487908	26	1	47 days	0.93		Williams	1998 VB ₃₃
1998 VC ₃₃	13.5	0.15	19981123	220.33802	147.62349	85.61100	13.46196	0.1738519	2.6889846	12	1	35 days	0.75		Williams	1998 VC ₃₃
1998 VH ₃₃	15.5	0.15	19981123	77.14609	240.78908	75.03944	3.54809	0.1920101	2.2619278	15	1	35 days	0.72		Williams	1998 VH ₃₃
1998 VJ ₃₃	14.3	0.15	19981123	348.12663	198.90387	231.08706	8.53035	0.0488100	2.9690895	29	1	23 days	0.57		Williams	1998 VJ ₃₃
1998 VK ₃₃	13.7	0.15	19981123	134.35594	240.47093	32.64464	4.98081	0.1104655	2.9012789	20	1	21 days	0.58		Williams	1998 VK ₃₃
1998 VL ₃₃	15.5	0.15	19981123	321.74791	59.56750	57.35770	14.72575	0.2314062	2.6605660	35	1	29 days	0.80		Williams	1998 VL ₃₃
1998 VM ₃₃	14.2	0.15	19981213	354.77220	260.34631	184.80773	1.81182	0.1374520	2.5246280	10	1	36 days	0.44		Nakano	1998 VM ₃₃
1998 VO ₃₃	17.0	0.15	19990122	87.88214	209.70255	64.47347	14.96047	0.8093341	1.2479384	135	1	46 days	0.54	M-v 6	Williams	1998 VO ₃₃

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1998 VS ₃₃	15.9	0.15	19981123	296.91675	229.77435	263.27846	17.86646	0.0681456	1.9161820	25	1	31 days	0.52		Williams	1998 VS ₃₃
1998 VT ₃₃	15.1	0.15	19981123	9.49654	114.88177	323.27536	5.24974	0.1639962	2.2960138	15	1	33 days	0.58		Williams	1998 VT ₃₃
1998 VX ₃₃	16.2	0.15	19981123	31.86392	148.80063	224.43874	2.00918	0.1545178	2.2853505	15	1	40 days	0.34		Williams	1998 VX ₃₃
1998 VY ₃₃	13.8	0.15	19990122	22.80863	137.35424	270.00854	1.53719	0.2178369	2.6647139	51	5	1976–1998	0.71	M-v 1	Williams	1998 VY ₃₃
1998 VZ ₃₃	15.8	0.15	19981123	39.33109	191.04423	182.07943	3.62322	0.1074087	2.6796609	17	1	40 days	0.45		Williams	1998 VZ ₃₃
1998 VD ₃₄	14.6	0.15	19981123	324.05770	216.88665	241.05869	8.15099	0.0772885	2.7273294	11	1	27 days	0.78		Nakano	1998 VD ₃₄
1998 VE ₃₄	16.7	0.15	19981123	350.08513	140.63675	292.34612	4.43097	0.3208877	2.6011759	22	1	41 days	0.60		Nakano	1998 VE ₃₄
1998 VG ₃₄	13.8	0.15	19981123	79.16367	205.59053	109.01559	13.15450	0.2513817	3.0490796	17	1	34 days	0.46		Williams	1998 VG ₃₄
1998 VH ₃₄	12.8	0.15	19981123	39.29602	49.97649	303.18022	6.97589	0.1544777	3.1707067	17	1	28 days	0.30		Williams	1998 VH ₃₄
1998 VP ₃₄	15.5	0.15	19981123	86.78196	99.23254	221.83176	1.10751	0.0607663	2.9050873	15	1	36 days	0.40		Williams	1998 VP ₃₄
1998 VQ ₃₄	15.3	0.15	19981123	24.25570	138.11925	240.07153	8.36209	0.2273140	2.8408229	28	1	27 days	0.60		Williams	1998 VQ ₃₄
1998 VS ₃₄	14.9	0.15	19981123	13.08806	246.71395	175.48872	14.79210	0.1168707	2.5650503	18	1	21 days	0.52		Williams	1998 VS ₃₄
1998 VW ₃₄	13.2	0.15	19990122	24.37722	187.95974	211.88961	1.37566	0.0649938	2.8653971	33	4	1989–1998	0.77	M-v 2	Williams	1998 VW ₃₄
1998 VY ₃₄	14.1	0.15	19981103	16.72007	274.43593	109.09602	6.64170	0.1944304	2.3125687	15	1	44 days	1.07		Williams	1998 VY ₃₄
1998 VA ₃₅	14.4	0.15	19990122	66.59081	353.99432	359.94913	2.51733	0.1578579	2.3410627	33	5	1980–1998	0.85	M-v 2	Williams	1998 VA ₃₅
1998 VD ₃₅	20.2	0.15	19990122	339.48283	295.87140	227.63224	6.97162	0.4763029	1.5644211	18	1	34 days	0.56	M-v 7	Williams	1998 VD ₃₅
1998 VF ₃₅	12.0	0.15	19990122	303.01190	301.03086	188.20018	10.12602	0.0518416	3.0120389	25	3	1985–1998	0.76	M-v 4	Williams	1998 VF ₃₅
1998 VP ₃₅	13.5	0.15	19981123	348.85501	16.86515	68.64351	10.10811	0.1302656	2.7595146	26	1	43 days	0.42		Williams	1998 VP ₃₅
1998 VS ₃₅	14.1	0.15	19981123	232.66012	267.74759	301.03672	1.65536	0.1316335	2.4070694	13	1	37 days	0.80		Williams	1998 VS ₃₅
1998 VN ₃₆	15.8	0.15	19981123	33.57260	126.99832	240.86092	11.77548	0.1899900	2.5365848	19	1	38 days	0.68		Williams	1998 VN ₃₆
1998 VO ₃₈	12.8	0.15	19981123	338.22324	201.03356	242.25302	7.60725	0.1890599	3.1490471	24	1	35 days	0.34		Williams	1998 VO ₃₈
1998 VC ₄₁	16.1	0.15	19981103	324.09132	225.31115	226.93630	4.47892	0.0759485	2.7838964	9	1	4 days	0.18		E Williams	1998 VC ₄₁
1998 VO ₄₁	16.9	0.15	19981123	356.27824	215.81170	207.93750	1.66845	0.1886391	2.4069501	15	1	38 days	0.52		Williams	1998 VO ₄₁
1998 VV ₄₁	14.2	0.15	19981123	215.16637	5.22901	249.57445	2.75817	0.1505958	2.2031553	13	1	33 days	0.36		Williams	1998 VV ₄₁
1998 VY ₄₁	16.5	0.15	19981123	28.21820	300.62490	115.40222	3.25750	0.2335349	2.0616212	15	1	40 days	0.27		Williams	1998 VY ₄₁
1998 VZ ₄₁	15.9	0.15	19981123	1.17395	350.32219	111.72628	4.88732	0.0354971	2.6382009	9	1	32 days	0.93		Williams	1998 VZ ₄₁
1998 VA ₄₃	15.3	0.15	19981123	98.36250	241.62507	45.64715	13.13159	0.1789403	2.6957977	12	1	30 days	0.42		Williams	1998 VA ₄₃
1998 VS ₄₃	15.6	0.15	19981123	3.87962	350.02751	106.44203	5.42069	0.0385211	2.4343729	9	1	25 days	0.16		Williams	1998 VS ₄₃
1998 VC ₄₄	14.2	0.15	19981123	24.20479	217.76243	176.07084	4.29259	0.1397847	2.4872612	15	1	31 days	0.31		Williams	1998 VC ₄₄
1998 WD	15.1	0.15	19981123	23.82829	186.36480	206.54971	24.57732	0.2632830	2.3110695	10	1	36 days	0.23		Williams	1998 WD
1998 WE	13.6	0.15	19981123	320.35938	352.00566	118.85391	2.51663	0.1401971	3.2173221	34	1	41 days	0.68		Williams	1998 WE
1998 WF	15.0	0.15	19990122	21.70305	243.08014	132.16239	5.90749	0.3032575	2.6329933	29	1	141 days	0.61	M-v 4	Williams	1998 WF
1998 WG	15.5	0.15	19981123	69.95110	230.66315	101.49175	3.67605	0.2198859	2.5569324	19	1	25 days	0.87		Williams	1998 WG
1998 WH	14.0	0.15	19981123	231.83544	132.45415	77.63505	6.11663	0.1780284	2.4148292	21	1	21 days	1.08		Williams	1998 WH
1998 WJ	16.1	0.15	19990122	38.95825	179.49395	223.95585	3.89054	0.0819531	2.2466706	16	2	1993–1998	0.34	M-v 5	Marsden	1998 WJ
1998 WK	15.6	0.15	19981123	34.28418	140.30552	244.67270	2.21803	0.1310569	2.6087922	14	1	26 days	0.22		Marsden	1998 WK
1998 WL	16.7	0.15	19990122	28.86603	304.40609	69.63405	6.52145	0.4446124	2.5935626	54	1	34 days	0.38	M-v 5	Williams	1998 WL
1998 WM	16.7	0.15	19990122	274.42491	172.42969	45.71181	22.50913	0.3153641	1.2244740	71	1	40 days	0.45	M-v 5	Williams	1998 WM
1998 WP	13.8	0.15	19981123	50.72247	110.55512	246.59281	10.77491	0.2719128	2.6550917	21	1	35 days	0.99		Williams	1998 WP
1998 WR	12.8	0.15	19981123	44.14960	312.05961	61.77106	13.80221	0.1785127	2.6562083	21	1	29 days	0.71		Williams	1998 WR
1998 WT	17.3	0.15	19990122	119.30082	324.34065	307.79309	3.20752	0.5696152	1.2181686	68	1	34 days	0.59	M-v 6	Nakano	1998 WT
1998 WU	12.9	0.15	19981123	66.44203	69.80005	271.37068	8.25814	0.2533732	2.6264718	20	1	34 days	0.63		Williams	1998 WU
1998 WV	13.7	0.15	19981123	17.77659	350.19309	66.90850	11.84105	0.1107492	3.2488399	20	1	37 days	0.82		Williams	1998 WV
1998 WC ₁	14.6	0.15	19981123	23.58394	267.53657	111.76748	22.02825	0.2715690	2.3072425	14	1	33 days	0.63		Williams	1998 WC ₁
1998 WG ₁	14.9	0.15	19990122	17.82708	217.53084	203.65711	25.10591	0.2405960	2.3060286	14	1	110 days	0.68	M-v 4	Williams	1998 WG ₁
1998 WH ₁	14.9	0.15	19981123	6.89488	218.18817	206.08233	24.29719	0.2337977	2.3212999	10	1	34 days	0.27		Williams	1998 WH ₁
1998 WK ₁	14.6	0.15	19981123	61.71251	350.19332	336.19402	15.14219	0.1444923	2.5190038	40	1	40 days	0.59		Williams	1998 WK ₁
1998 WM ₁	13.6	0.15	19981123	102.23205	59.00015	255.88850	4.69390	0.1935446	2.5360418	20	1	33 days	0.61		Williams	1998 WM ₁
1998 WO ₁	12.4	0.15	19981213	78.02003	190.32035	152.12814	2.62928	0.1896202	3.1538013	10	1	33 days	0.51		Nakano	1998 WO ₁
1998 WP ₁	13.4	0.15	19981213	14.37612	333.80508	91.64143	10.86717	0.0769691	2.9961425	12	1	34 days	0.51		Nakano	1998 WP ₁
1998 WS ₁	14.8	0.15	19981213	14.54815	200.32094	218.94682	2.05086	0.2187203	2.4732304	11	1	33 days	0.63		Nakano	1998 WS ₁
1998 WT ₁	15.6	0.15	19981213	33.41563	139.90112	253.17537	12.67140	0.1995172	2.4249072	17	1	33 days	0.44		Nakano	1998 WT ₁
1998 WU ₁	14.4	0.15	19981123	109.11689	236.96674	82.88405	11.65431	0.0782836	2.3725755	19	1	33 days	0.69		Williams	1998 WU ₁

1998 WV ₁	14.8	0.15	19981123	347.98943	9.22553	80.84039	3.61306	0.1010336	2.2787866	19	1	33 days	0.52		Williams	1998 WV ₁
1998 WZ ₁	19.8	0.15	19990122	3.40643	137.13661	345.16499	4.30874	0.5564186	2.1632899	34	1	42 days	0.50	M-v 6	Williams	1998 WZ ₁
1998 WC ₂	18.9	0.15	19981123	344.69754	269.67402	209.12075	26.48552	0.5609333	2.5325434	24	1	27 days	0.55		Williams	1998 WC ₂
1998 WD ₂	13.8	0.15	19981123	328.00279	195.23269	298.45881	11.22400	0.2823215	2.9065396	26	1	29 days	0.65		Williams	1998 WD ₂
1998 WG ₂	14.5	0.15	19981123	322.81973	330.58435	150.02637	2.08853	0.1484089	3.2189237	12	1	22 days	0.21		Marsden	1998 WG ₂
1998 WH ₂	15.6	0.15	19981123	153.49127	223.28985	38.04954	13.95985	0.2224628	2.4049265	8	1	10 days	0.41		Williams	1998 WH ₂
1998 WJ ₂	14.0	0.15	19981123	312.51954	200.58827	277.14594	10.30763	0.0775135	3.1209956	19	1	28 days	0.63		Williams	1998 WJ ₂
1998 WO ₂	14.0	0.15	19981123	50.29158	236.45549	120.38624	2.43445	0.0469114	3.1236431	6	1	11 days	0.30		Marsden	1998 WO ₂
1998 WP ₂	16.2	0.15	19981123	327.84047	343.61008	120.13181	3.65896	0.2347560	2.5813164	18	1	25 days	1.00		Williams	1998 WP ₂
1998 WQ ₂	14.7	0.15	19981123	332.86640	247.17784	211.24975	10.11586	0.2545903	2.7720255	34	1	30 days	0.78		Williams	1998 WQ ₂
1998 WU ₂	15.7	0.15	19981123	25.67939	151.18936	232.99487	13.26726	0.0704709	3.0891567	12	1	20 days	0.28		Williams	1998 WU ₂
1998 WD ₃	15.8	0.15	19981123	26.06979	270.77105	92.19111	8.65876	0.3214707	2.7432563	12	1	23 days	0.41		Nakano	1998 WD ₃
1998 WE ₃	14.0	0.15	19990122	13.49848	73.43222	339.43939	4.50179	0.0277226	2.7400173	18	2	1993–1998	0.88	M-v 6	Williams	1998 WE ₃
1998 WF ₃	14.3	0.15	19981213	2.30202	179.61410	240.71863	19.16679	0.1576669	3.1116924	36	1	33 days	0.64		Nakano	1998 WF ₃
1998 WH ₃	13.6	0.15	19981213	26.04829	145.73527	272.32919	12.20620	0.1302408	2.5978484	10	1	37 days	0.31		Nakano	1998 WH ₃
1998 WM ₃	13.2	0.15	19981213	294.37047	113.85035	55.66852	3.39712	0.1018062	2.5470848	10	1	37 days	0.58		Nakano	1998 WM ₃
1998 WN ₃	12.0	0.15	19981213	168.37292	19.79859	265.72908	9.35296	0.0542831	3.0485921	10	1	37 days	0.62		Nakano	1998 WN ₃
1998 WO ₃	13.3	0.15	19981213	63.41662	116.48094	271.74761	8.62498	0.0275833	3.0462363	10	1	37 days	0.48		Nakano	1998 WO ₃
1998 WP ₃	13.7	0.15	19981213	14.07152	330.87974	107.79650	3.27359	0.0592060	2.9308687	10	1	37 days	0.46		Nakano	1998 WP ₃
1998 WR ₃	13.4	0.15	19981123	124.60013	223.63397	58.50814	8.13360	0.1684525	2.2596281	23	1	25 days	0.73		Williams	1998 WR ₃
1998 WS ₃	14.1	0.15	19990122	263.52003	125.65144	58.01355	4.54401	0.0812019	2.1805346	45	5	1987–1998	0.76	M-v 3	Williams	1998 WS ₃
1998 WT ₃	14.0	0.15	19981123	29.96958	319.62922	57.70063	10.26798	0.1983472	2.3853085	25	1	44 days	0.74		Nakano	1998 WT ₃
1998 WU ₃	13.6	0.15	19981123	44.90705	306.19302	53.43932	7.24015	0.1815865	2.4583976	7	1	28 days	0.42		Nakano	1998 WU ₃
1998 WX ₃	14.0	0.15	19981123	32.89985	285.70207	72.97932	13.53425	0.3105707	2.6508645	30	1	36 days	0.79		Williams	1998 WX ₃
1998 WA ₄	17.4	0.15	19990122	11.99933	287.46354	134.24310	12.37733	0.4797216	2.6905248	46	1	45 days	0.44	M-v 5	Williams	1998 WA ₄
1998 WC ₄	15.3	0.15	19981123	26.41349	27.67988	7.53568	6.05333	0.0784148	2.7525132	12	1	26 days	0.41		Williams	1998 WC ₄
1998 WD ₄	15.7	0.15	19981123	47.90879	193.73111	167.12200	2.69293	0.2146883	2.3688349	13	1	21 days	0.35		Williams	1998 WD ₄
1998 WE ₄	16.3	0.15	19981123	29.22157	64.07655	310.62286	4.30586	0.1367824	2.2446525	15	1	23 days	0.41		Nakano	1998 WE ₄
1998 WF ₄	14.0	0.15	19981123	33.23049	312.59398	56.42530	2.70566	0.2283389	3.0893004	27	1	35 days	1.28		Williams	1998 WF ₄
1998 WK ₄	15.4	0.15	19981123	31.98994	307.22654	73.56833	2.87309	0.2417738	2.7087016	12	1	22 days	0.14		Marsden	1998 WK ₄
1998 WO ₄	16.0	0.15	19981123	246.51714	354.10709	190.34203	22.93487	0.0143821	1.9227127	15	1	35 days	0.61		Williams	1998 WO ₄
1998 WQ ₄	15.0	0.15	19981123	50.92723	185.96050	149.68462	17.61557	0.2818572	2.5239804	8	1	32 days	0.33		Williams	1998 WQ ₄
1998 WU ₄	14.3	0.15	19981123	285.42352	337.74528	193.92118	22.23699	0.0983973	2.4174071	8	1	34 days	0.60		Williams	1998 WU ₄
1998 WY ₄	14.9	0.15	19981123	358.98392	269.63812	163.73618	16.24678	0.2752187	3.2059318	7	1	33 days	0.26		Williams	1998 WY ₄
1998 WZ ₄	15.4	0.15	19981123	36.40845	259.10034	100.80815	28.10866	0.3266261	2.6752513	18	1	33 days	0.43		Williams	1998 WZ ₄
1998 WA ₅	15.5	0.15	19981123	322.83485	11.84700	96.44074	28.37866	0.0580834	1.9365656	7	1	30 days	0.17		Williams	1998 WA ₅
1998 WH ₅	14.2	0.15	19981123	315.60979	320.98503	175.22296	24.26172	0.1412663	3.1682559	8	1	31 days	0.62		Williams	1998 WH ₅
1998 WL ₅	14.0	0.15	19981213	316.33218	72.83557	38.47857	2.29811	0.0603268	2.9251265	24	1	38 days	0.51		Nakano	1998 WL ₅
1998 WM ₅	14.6	0.15	19981123	187.95327	182.29705	49.44232	4.74366	0.0877744	2.2780149	12	1	30 days	0.48		Nakano	1998 WM ₅
1998 WP ₅	18.6	0.15	19990122	347.30284	97.54932	36.20669	19.48286	0.1949139	1.3734105	57	1	35 days	0.70	M-v 6	Nakano	1998 WP ₅
1998 WQ ₅	15.3	0.15	19990122	288.11602	269.68274	285.88797	27.66524	0.3548051	1.7211571	47	1	37 days	0.63	M-v 5	Williams	1998 WQ ₅
1998 WR ₅	18.0	0.15	19981123	11.57365	117.53659	257.37136	28.13679	0.5151998	2.5778094	45	1	28 days	0.84		Nakano	1998 WR ₅
1998 WS ₅	17.8	0.15	19990122	29.93791	98.56331	273.17842	25.88391	0.4749764	2.5545417	41	1	34 days	0.74	M-v 6	Nakano	1998 WS ₅
1998 WV ₅	12.2	0.15	19981213	167.06736	350.78493	250.88231	13.49710	0.1051531	3.0342538	13	1	34 days	0.61		Nakano	1998 WV ₅
1998 WW ₅	14.4	0.15	19981213	101.04724	305.18743	358.29240	5.56811	0.1384666	2.3390314	15	1	33 days	0.38		Nakano	1998 WW ₅
1998 WX ₅	14.3	0.15	19981123	216.14730	135.43876	78.29881	3.09002	0.1049438	2.1525413	22	1	36 days	0.47		Williams	1998 WX ₅
1998 WA ₆	15.1	0.15	19981123	17.61256	332.52747	50.28307	5.66726	0.2827688	2.6851612	24	1	36 days	0.61		Williams	1998 WA ₆
1998 WB ₆	13.8	0.15	19981123	313.13009	226.67353	245.40774	4.97659	0.1127203	2.2326954	6	1	4 days	0.48		Nakano	1998 WB ₆
1998 WO ₆	14.3	0.15	19990122	21.54583	351.20792	73.09883	19.38851	0.2102376	2.6653107	26	2	1996–1998	0.59	M-v 5	Williams	1998 WO ₆
1998 WR ₆	15.7	0.15	19981213	55.68517	277.94730	85.55909	8.03508	0.1453864	2.3054632	23	1	42 days	0.36		Marsden	1998 WR ₆
1998 WS ₆	16.4	0.15	19981123	23.35288	230.69381	158.45502	0.46409	0.1442301	2.3865007	28	1	30 days	0.65		Williams	1998 WS ₆
1998 WT ₆	17.0	0.15	19981123	343.79842	215.25171	228.94777	2.06982	0.1870152	2.5340958	18	1	29 days	0.70		Williams	1998 WT ₆
1998 WW ₆	14.9	0.15	19981123	145.51337	35.71997	250.81597	14.14431	0.1169512	2.6360799	18	1	23 days	0.34		Williams	1998 WW ₆

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1998 WY ₆	14.3	0.15	19981123	221.61963	222.37282	342.61205	6.00242	0.0364917	2.4036821	13	1	20 days	0.23		Williams	1998 WY ₆
1998 WZ ₆	17.2	0.15	19990122	332.12928	110.58113	68.86306	24.75054	0.4083646	1.4523526	183	1	42 days	0.49	M-v 5	Marsden	1998 WZ ₆
1998 WB ₇	13.5	0.15	19981123	79.84820	357.39261	326.77164	0.93242	0.1099494	2.9470239	22	1	28 days	0.61		Williams	1998 WB ₇
1998 WD ₇	16.0	0.15	19981123	346.40182	41.92135	35.81429	2.57660	0.1824499	2.4151025	7	1	22 days	0.49		Nakano	1998 WD ₇
1998 WE ₇	14.0	0.15	19981123	191.59522	167.79542	66.91862	15.44185	0.1340223	2.5341531	25	1	31 days	0.63		Williams	1998 WE ₇
1998 WF ₇	14.4	0.15	19981213	121.71499	218.87710	69.63091	8.03023	0.2083573	2.4186391	11	1	32 days	0.59		Nakano	1998 WF ₇
1998 WG ₇	13.7	0.15	19990122	108.60296	216.10008	97.17314	6.10140	0.2310624	2.3784914	17	3	1986–1998	0.73	M-v 4	Williams	33322 1998 WG ₇
1998 WH ₇	15.5	0.15	19981213	14.89250	152.65903	254.39071	5.97212	0.0984252	2.3548914	18	1	29 days	0.56		Nakano	1998 WH ₇
1998 WK ₇	15.2	0.15	19981123	355.58414	192.76295	274.87885	24.00888	0.2404426	2.3495141	17	1	30 days	0.96		Williams	1998 WK ₇
1998 WN ₇	14.7	0.15	19981123	327.01897	29.98593	72.53943	10.57161	0.1558320	2.7337085	40	1	39 days	0.61		Williams	1998 WN ₇
1998 WO ₇	16.4	0.15	19981123	14.11977	330.36378	78.34471	45.76759	0.3048498	2.1328713	56	1	24 days	0.56		Williams	1998 WO ₇
1998 WR ₇	15.5	0.15	19981123	19.17819	124.36005	252.90211	11.83734	0.2268639	2.5756783	10	1	23 days	0.31		Williams	1998 WR ₇
1998 WT ₇	18.9	0.15	19981123	318.82570	235.48603	248.34485	40.77390	0.1109602	1.1538766	30	1	22 days	0.83		Williams	1998 WT ₇
1998 WW ₇	15.3	0.15	19981123	27.91019	148.89940	233.64919	3.21296	0.1870949	2.3617015	20	1	27 days	0.70		Williams	1998 WW ₇
1998 WY ₇	16.2	0.15	19981123	14.15079	329.57646	64.13838	7.13757	0.1844522	2.1738122	16	1	27 days	0.62		Williams	1998 WY ₇
1998 WE ₈	14.5	0.15	19981213	56.68345	2.10884	29.52300	3.02756	0.0597761	2.3475584	20	1	31 days	0.66		Nakano	1998 WE ₈
1998 WF ₈	14.7	0.15	19981213	28.40109	137.38929	282.54961	6.12553	0.0908494	2.2874417	18	1	31 days	0.56		Nakano	1998 WF ₈
1998 WG ₈	14.2	0.15	19981123	355.86186	159.78712	290.86135	6.73271	0.1172835	2.2272873	24	1	31 days	0.68		Williams	1998 WG ₈
1998 WJ ₈	13.0	0.15	19981123	64.59107	256.87551	79.99508	17.22559	0.0815646	3.1266024	18	1	30 days	0.31		Williams	1998 WJ ₈
1998 WK ₈	12.8	0.15	19981123	310.31808	223.83623	252.18539	9.44581	0.1090517	3.0013592	8	1	18 days	0.41		Nakano	1998 WK ₈
1998 WL ₈	16.1	0.15	19981123	332.42917	51.62115	68.37339	4.31615	0.2583580	2.5560476	37	1	47 days	0.53		Williams	1998 WL ₈
1998 WO ₈	17.0	0.15	19981123	33.70153	314.65237	77.17555	3.29821	0.2050437	2.4236722	19	1	27 days	0.20		Williams	1998 WO ₈
1998 WP ₈	14.9	0.15	19981123	43.88375	300.96255	66.96826	8.40537	0.1266765	2.3941755	13	1	27 days	1.00		D Williams	1998 WP ₈
1998 WQ ₈	14.9	0.15	19981123	42.23452	295.40111	76.33687	6.92048	0.0842232	2.4103455	30	1	26 days	0.72		Williams	1998 WQ ₈
1998 WR ₈	16.6	0.15	19981123	358.32701	32.99102	30.40663	20.37282	0.0885309	1.9319823	10	1	18 days	0.54		Williams	1998 WR ₈
1998 WS ₈	14.0	0.15	19981123	102.54861	40.63895	276.28831	12.32674	0.0373995	2.8835017	10	1	18 days	0.18		Williams	1998 WS ₈
1998 WU ₈	15.3	0.15	19981123	33.56463	248.16664	113.23632	8.36623	0.2879272	2.3079063	9	1	18 days	0.32		Williams	1998 WU ₈
1998 WV ₈	14.6	0.15	19981123	85.63691	250.84425	67.85821	2.22588	0.1640875	2.4051848	17	1	19 days	1.19		Williams	1998 WV ₈
1998 WW ₈	15.0	0.15	19981123	271.45352	116.82953	66.55218	5.55985	0.1804203	2.2849877	23	1	39 days	0.73		Williams	1998 WW ₈
1998 WY ₈	11.5	0.15	19981213	19.14251	144.43140	275.25220	4.15062	0.0906614	5.1405423	21	1	39 days	0.73		Nakano	1998 WY ₈
1998 WA ₉	14.4	0.15	19981123	168.07191	244.83812	349.95129	7.32583	0.1629960	2.2646751	7	1	17 days	0.78		Williams	1998 WA ₉
1998 WE ₉	12.4	0.15	19981123	104.07295	256.88859	102.75673	11.15088	0.0885214	3.0070255	19	1	26 days	0.71		Williams	1998 WE ₉
1998 WG ₉	14.3	0.15	19981123	37.19700	350.73201	53.74065	5.38483	0.2192071	2.2844814	11	1	21 days	0.68		Williams	1998 WG ₉
1998 WL ₉	14.6	0.15	19981213	318.78914	184.40928	311.10990	4.38176	0.1586253	3.1749619	35	1	28 days	0.79		Williams	1998 WL ₉
1998 WM ₉	14.2	0.15	19981123	352.46077	11.72388	51.32437	9.22176	0.1617476	2.5630663	10	1	19 days	0.69		Williams	1998 WM ₉
1998 WN ₉	15.4	0.15	19981123	340.48782	17.05568	64.19713	7.44343	0.0785454	2.3935324	25	1	23 days	0.66		Williams	1998 WN ₉
1998 WO ₉	15.2	0.15	19990122	87.74500	270.79647	67.45064	5.12908	0.0701580	2.2990865	40	2	1997–1998	0.66	M-v 4	Williams	33322 1998 WO ₉
1998 WP ₉	14.7	0.15	19981123	294.30169	1.30881	138.26671	0.96717	0.1515875	2.3329208	29	1	33 days	0.74		Williams	1998 WP ₉
1998 WQ ₉	15.4	0.15	19981123	7.76694	189.22750	214.41597	5.36387	0.2385924	2.5599286	22	1	37 days	0.93		Williams	1998 WQ ₉
1998 WS ₉	13.9	0.15	19981123	117.38268	221.71973	69.42895	6.78845	0.0996439	2.3569537	26	1	44 days	0.61		Williams	1998 WS ₉
1998 WX ₉	11.4	0.15	19990122	358.00059	336.23859	89.53781	4.91858	0.0675714	5.1441058	38	2	1996–1998	0.80	M-v 4	Williams	33323 1998 WX ₉
1998 WB ₁₀	15.0	0.15	19981123	333.37426	200.82591	258.09096	1.56781	0.1623050	2.4271914	30	1	28 days	0.69		Williams	1998 WB ₁₀
1998 WC ₁₀	15.1	0.15	19981123	23.83151	148.48739	242.95996	4.99894	0.1297293	2.2546270	13	1	17 days	0.95		Williams	1998 WC ₁₀
1998 WE ₁₀	15.3	0.15	19981123	35.99857	121.76074	247.29205	3.07135	0.1992856	2.5833012	19	1	34 days	0.63		Williams	1998 WE ₁₀
1998 WO ₁₀	15.6	0.15	19981123	16.49685	342.07674	54.72453	7.11401	0.1132243	2.3114709	12	1	25 days	0.81		Williams	1998 WO ₁₀
1998 WR ₁₀	12.2	0.15	19981123	342.48723	199.16798	237.82028	26.60368	0.0840661	5.1569891	22	1	32 days	0.73		Williams	1998 WR ₁₀
1998 WT ₁₀	16.4	0.15	19981123	343.10681	205.00591	240.85342	11.89611	0.2399345	2.6524261	17	1	25 days	0.80		Williams	1998 WT ₁₀
1998 WV ₁₀	15.0	0.15	19981123	119.71029	69.55689	225.53524	1.57171	0.0276103	2.3767733	17	1	34 days	0.78		Williams	1998 WV ₁₀
1998 WW ₁₀	14.6	0.15	19990122	57.89083	284.18232	77.76255	4.38217	0.1247707	2.5668770	43	2	1973–1998	0.61	M-v 5	Williams	33323 1998 WW ₁₀
1998 WX ₁₀	15.5	0.15	19981123	20.25008	249.34160	139.06863	1.72461	0.1831192	2.4146933	16	1	18 days	0.60		Williams	1998 WX ₁₀
1998 WF ₁₁	14.1	0.15	19990122	33.46249	266.98883	124.94244	3.18139	0.0728969	2.8956713	20	2	1996–1998	0.54	M-v 4	Williams	33323 1998 WF ₁₁
1998 WN ₁₁	11.1	0.15	19981123	346.41252	325.72063	110.78884	4.47935	0.1882557	5.2436662	13	1	33 days	0.96		Williams	1998 WN ₁₁
1998 WQ ₁₁	14.5	0.15	19981123	159.57259	80.98279	172.27507	3.18351	0.1308296	2.2156180	12	1	20 days	0.48		Williams	1998 WQ ₁₁

1998 WD ₁₂	14.5	0.15	19981123	192.56664	61.84431	167.50357	2.37245	0.1789697	2.3727512	16	1	18 days	1.13		Williams	1998 WD ₁₂
1998 WE ₁₂	13.3	0.15	19981123	209.96883	115.30859	95.16472	3.30614	0.0349910	2.8930919	28	1	29 days	0.77		Williams	1998 WE ₁₂
1998 WF ₁₂	15.5	0.15	19981123	9.86328	175.53031	229.42758	5.58380	0.1282431	2.4086795	20	1	27 days	0.96		Williams	1998 WF ₁₂
1998 WH ₁₂	15.4	0.15	19990122	72.02488	132.72958	207.41238	2.09218	0.1966128	2.4266464	35	1	70 days	0.66	M-v 5	Williams	1998 WH ₁₂
1998 WS ₁₂	15.4	0.15	19981123	3.80346	13.36217	40.06756	6.39616	0.1382824	2.3081189	12	1	20 days	0.55		Williams	1998 WS ₁₂
1998 WC ₁₃	14.2	0.15	19981123	41.04327	26.58369	343.18702	3.04064	0.1020552	2.7877272	12	1	20 days	0.75		Williams	1998 WC ₁₃
1998 WZ ₁₃	14.9	0.15	19981123	36.90783	121.97593	252.95249	5.89269	0.1090239	2.3891297	23	1	46 days	0.69		Williams	1998 WZ ₁₃
1998 WA ₁₄	15.7	0.15	19981123	323.16303	94.55718	18.01815	0.43694	0.1966579	2.3451870	24	1	34 days	0.62		Williams	1998 WA ₁₄
1998 WB ₁₄	16.4	0.15	19981103	2.00708	19.98814	27.12185	0.18933	0.2033657	2.2181096	16	1	6 days	0.69		Williams	1998 WB ₁₄
1998 WH ₁₄	14.7	0.15	19981123	27.06122	154.74073	230.33006	5.32400	0.1165397	2.8000869	26	1	34 days	0.60		Williams	1998 WH ₁₄
1998 WJ ₁₄	15.2	0.15	19981123	347.67176	246.08854	189.52991	0.63071	0.1406807	3.0950087	20	1	32 days	0.84		Williams	1998 WJ ₁₄
1998 WK ₁₄	15.5	0.15	19981123	34.24465	309.43575	68.43200	6.08022	0.0914630	2.7545265	17	1	32 days	0.81		Williams	1998 WK ₁₄
1998 WM ₁₄	15.3	0.15	19990122	95.73290	127.18112	191.92501	1.87497	0.1886823	2.2517554	25	1	60 days	0.63	M-v 5	Williams	1998 WM ₁₄
1998 WQ ₁₄	14.1	0.15	19981123	250.13092	306.16391	229.88120	8.11728	0.0645059	3.0842576	16	1	31 days	0.78		Williams	1998 WQ ₁₄
1998 WS ₁₄	16.5	0.15	19981123	30.38425	205.86447	176.86114	1.50319	0.1024993	2.3648092	12	1	17 days	0.84		Williams	1998 WS ₁₄
1998 WT ₁₄	15.1	0.15	19981123	5.93207	223.98446	186.61337	2.10516	0.1741868	2.3951150	21	1	26 days	0.79		Williams	1998 WT ₁₄
1998 WV ₁₄	16.1	0.15	19981123	8.96920	327.82865	79.36585	4.40600	0.1463202	2.1738062	19	1	24 days	0.65		Williams	1998 WV ₁₄
1998 WW ₁₄	14.3	0.15	19981123	43.01704	287.31881	64.61611	21.81843	0.2427426	3.1096253	18	1	35 days	0.94		Williams	1998 WW ₁₄
1998 WZ ₁₄	15.0	0.15	19981123	318.68378	14.27184	96.15886	3.52686	0.1129048	2.4071804	14	1	31 days	0.30		Williams	1998 WZ ₁₄
1998 WL ₁₅	15.1	0.15	19981123	337.95734	358.64440	86.18629	7.29811	0.0942777	2.3219387	15	1	34 days	0.79		Williams	1998 WL ₁₅
1998 WM ₁₅	14.2	0.15	19981123	353.51975	338.36195	87.63598	7.42325	0.0864594	2.4807870	17	1	42 days	0.51		Williams	1998 WM ₁₅
1998 WP ₁₅	13.2	0.15	19981123	341.68705	3.81801	74.20313	17.17247	0.0564146	3.1976787	15	1	30 days	0.57		Williams	1998 WP ₁₅
1998 WC ₁₆	13.0	0.15	19981123	100.14389	233.95740	74.96910	11.40109	0.0955820	2.9774480	22	1	31 days	0.71		Williams	1998 WC ₁₆
1998 WE ₁₆	14.4	0.15	19981123	339.34027	4.56756	80.38217	6.62771	0.0915678	3.2164293	15	1	32 days	0.87		Williams	1998 WE ₁₆
1998 WG ₁₆	15.4	0.15	19981123	27.65212	157.65468	227.34439	6.32803	0.1236449	2.4454181	18	1	35 days	0.67		Williams	1998 WG ₁₆
1998 WK ₁₆	15.3	0.15	19981123	341.43117	219.50708	228.41990	7.61319	0.1862031	2.7049496	15	1	21 days	0.65		Williams	1998 WK ₁₆
1998 WL ₁₆	14.1	0.15	19981123	336.40326	20.97010	69.04517	11.91775	0.1115231	3.1161574	16	1	23 days	0.98		Williams	1998 WL ₁₆
1998 WO ₁₆	14.6	0.15	19981123	296.05428	67.51257	64.64334	6.35781	0.0765641	3.2262361	17	1	35 days	0.73		Williams	1998 WO ₁₆
1998 WR ₁₆	15.9	0.15	19981123	30.65985	314.13675	62.86586	3.29190	0.1742867	2.5495255	18	1	35 days	0.76		Williams	1998 WR ₁₆
1998 WS ₁₆	13.7	0.15	19981123	117.01324	236.76113	59.41382	2.94265	0.0762405	2.8517375	15	1	20 days	0.49		Williams	1998 WS ₁₆
1998 WT ₁₆	14.3	0.15	19981123	63.30914	99.32128	237.36594	14.74408	0.1858537	2.5915732	16	1	17 days	0.72		Williams	1998 WT ₁₆
1998 WU ₁₆	14.8	0.15	19981123	80.90998	76.71088	237.32056	16.83379	0.2266161	2.7906900	12	1	22 days	1.23		Williams	1998 WU ₁₆
1998 WW ₁₆	14.6	0.15	19981123	331.85815	240.28126	226.58570	4.67173	0.2473486	2.6677734	25	1	34 days	0.62		Williams	1998 WW ₁₆
1998 WY ₁₆	14.7	0.15	19981123	29.38690	152.94489	231.49417	7.78985	0.1126856	3.0451002	22	1	39 days	0.81		Williams	1998 WY ₁₆
1998 WA ₁₇	14.8	0.15	19981103	347.81390	235.01563	197.17311	1.46149	0.1140360	3.1741312	12	1	5 days	0.64	E	Williams	1998 WA ₁₇
1998 WD ₁₇	15.9	0.15	19981103	352.03096	0.61126	64.20323	4.81358	0.1733708	2.4161114	14	1	42 days	0.30		Williams	1998 WD ₁₇
1998 WK ₁₇	12.8	0.15	19981123	245.68718	300.10918	244.81327	21.49244	0.1016969	3.1726870	16	1	34 days	0.63		Williams	1998 WK ₁₇
1998 WO ₁₇	13.7	0.15	19981123	325.81451	218.81358	244.62408	20.56545	0.1119793	3.1907840	15	1	20 days	0.67		Williams	1998 WO ₁₇
1998 WR ₁₇	15.0	0.15	19981123	174.22648	342.59496	263.39174	2.98010	0.1046591	2.2724060	11	1	20 days	0.67		Williams	1998 WR ₁₇
1998 WZ ₁₇	13.3	0.15	19981123	301.34144	206.66565	285.55557	4.98395	0.1086349	3.0545694	19	1	26 days	0.94		Williams	1998 WZ ₁₇
1998 WG ₁₈	13.7	0.15	19981123	333.36982	55.35846	39.40758	10.27885	0.0911312	3.0265556	17	1	26 days	0.85		Williams	1998 WG ₁₈
1998 WK ₁₈	14.8	0.15	19981123	53.28312	21.07467	328.66410	3.24133	0.1859867	2.1992936	16	1	26 days	0.66		Williams	1998 WK ₁₈
1998 WO ₁₈	15.2	0.15	19981123	44.41125	322.65975	32.84933	5.10618	0.2371285	2.3140067	18	1	26 days	0.88		Williams	1998 WO ₁₈
1998 WR ₁₈	14.0	0.15	19981123	146.16910	14.86895	254.88805	7.09827	0.1216516	2.6891254	12	1	20 days	0.62		Williams	1998 WR ₁₈
1998 WW ₁₈	13.9	0.15	19981123	91.44016	81.09544	242.03139	6.33708	0.0603063	2.7304966	20	1	36 days	0.57	D	Williams	1998 WW ₁₈
1998 WX ₁₈	15.5	0.15	19981123	7.07148	352.93080	60.53055	6.80378	0.0706656	2.2659049	12	1	20 days	0.65		Williams	1998 WX ₁₈
1998 WY ₁₈	15.3	0.15	19981123	343.45045	177.78557	259.59482	2.03350	0.0570087	2.6915348	17	1	34 days	0.49		Williams	1998 WY ₁₈
1998 WB ₁₉	15.9	0.15	19981123	31.99628	284.13008	77.93025	6.89169	0.2868341	2.6138599	24	1	31 days	0.99		Williams	1998 WB ₁₉
1998 WF ₁₉	15.8	0.15	19981123	292.88813	208.14095	290.86847	5.14700	0.1019470	2.2753485	11	1	20 days	0.75		Williams	1998 WF ₁₉
1998 WK ₁₉	12.6	0.15	19981123	14.75128	163.85980	278.20173	12.92614	0.1238740	2.5765106	29	1	55 days	0.81		Williams	1998 WK ₁₉
1998 WW ₁₉	13.5	0.15	19990122	60.80343	266.65129	96.50941	7.86072	0.0637165	3.1803123	31	4	1975–1998	0.45	M-v 1	Williams	33323 1998 WW ₁₉
1998 WY ₁₉	15.0	0.15	19981123	341.95563	327.23376	113.42698	14.21100	0.1390260	2.6833587	15	1	21 days	0.44		Williams	1998 WY ₁₉
1998 WZ ₁₉	14.7	0.15	19981123	43.62760	129.29027	243.84477	7.76032	0.1029458	2.7031260	10	1	10 days	0.50		Williams	1998 WZ ₁₉

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1998 WA ₂₀	12.9	0.15	19981123	255.20812	85.65422	105.32782	10.97628	0.0374522	3.0183751	21	1	21 days	0.53	Williams	1998 WA ₂₀
1998 WO ₂₀	15.1	0.15	19981123	23.09181	157.12299	229.66956	13.66158	0.1155474	2.5733261	11	1	23 days	0.68	Williams	1998 WO ₂₀
1998 WR ₂₀	13.5	0.15	19981123	0.16089	336.85375	76.87421	11.83383	0.2055241	3.1724579	13	1	28 days	0.63	Williams	1998 WR ₂₀
1998 WV ₂₀	15.4	0.15	19981123	243.82501	90.15423	88.07963	2.60327	0.0584493	2.1768611	18	1	28 days	0.79	Williams	1998 WV ₂₀
1998 WW ₂₀	13.6	0.15	19981123	174.24667	175.94186	64.71874	11.52779	0.0697518	2.9848491	23	1	32 days	0.56	Williams	1998 WW ₂₀
1998 WV ₂₁	13.4	0.15	19981123	200.89655	349.27593	229.81488	4.68769	0.1148126	3.1504071	17	1	37 days	0.93	Williams	1998 WV ₂₁
1998 WK ₂₂	14.5	0.15	19981123	352.14602	158.31418	270.46804	8.91796	0.0578652	3.0643866	10	1	23 days	0.51	Williams	1998 WK ₂₂
1998 WO ₂₂	13.9	0.15	19981123	70.79160	245.42198	67.70016	5.81604	0.3011369	2.5879005	20	1	37 days	0.71	Williams	1998 WO ₂₂
1998 WP ₂₂	14.5	0.15	19981123	294.40680	284.95203	223.39362	3.21809	0.2083380	2.6078573	21	1	34 days	0.74	Williams	1998 WP ₂₂
1998 WR ₂₂	15.4	0.15	19981123	356.73946	234.05960	190.47119	1.81839	0.1868065	2.8488626	18	1	25 days	0.76	Williams	1998 WR ₂₂
1998 WS ₂₂	15.5	0.15	19981123	119.06016	208.56970	78.36166	6.09450	0.1324037	2.3266567	18	1	34 days	1.13	Williams	1998 WS ₂₂
1998 WV ₂₂	14.6	0.15	19981123	14.05593	335.68080	67.98899	10.45618	0.0685189	3.1544687	21	1	36 days	0.97	Williams	1998 WV ₂₂
1998 WB ₂₃	15.2	0.15	19981123	63.20394	95.39586	236.64560	2.88595	0.2236675	2.6358038	18	1	36 days	0.84	Williams	1998 WB ₂₃
1998 WE ₂₃	14.7	0.15	19981123	93.39093	211.39387	96.57187	3.98618	0.1718011	2.7272136	14	1	32 days	0.50	Williams	1998 WE ₂₃
1998 WH ₂₃	16.1	0.15	19981123	331.57986	19.62286	69.50849	4.78843	0.0665167	2.2431481	14	1	29 days	0.94	Williams	1998 WH ₂₃
1998 WH ₂₄	4.6	0.15	19981123	0.00000	6.65800	50.08958	12.24723	0.0000000	42.7483234	34	1	23 days	0.30	E Marsden	1998 WH ₂₄
1998 WS ₂₄	14.0	0.15	19981123	357.77045	336.59040	80.23130	2.72414	0.0671473	5.1608411	8	1	27 days	0.16	Williams	1998 WS ₂₄
1998 WT ₂₄	17.5	0.15	19981123	198.77816	167.37233	82.07045	7.35958	0.4176157	0.7182475	33	1	23 days	0.55	Nakano	1998 WT ₂₄
1998 WU ₂₄	15.0	0.15	19990122	2.62157	304.00519	103.04069	42.57714	0.9071771	15.2073971	47	1	33 days	0.67	M-v 4 Marsden	1998 WU ₂₄
1998 WY ₂₆	16.2	0.15	19981123	289.28327	276.45805	269.19853	3.09260	0.1270823	2.5807021	12	1	28 days	0.27	Williams	1998 WY ₂₆
1998 WF ₂₇	15.4	0.15	19981123	276.43080	275.64891	286.61229	4.14974	0.1210606	2.6945187	15	1	37 days	0.60	Williams	1998 WF ₂₇
1998 WT ₃₀	20.4	0.15	19981123	302.19564	121.13341	32.88820	0.41512	0.3313138	1.7905138	12	1	15 days	0.58	Williams	1998 WT ₃₀
1998 WU ₃₀	13.0	0.15	19981123	1.05773	298.68749	120.30108	14.57346	0.0776624	3.0706073	11	1	17 days	0.55	Williams	1998 WU ₃₀
1998 WW ₃₀	15.4	0.15	19981123	24.20572	245.56068	138.49593	7.83294	0.2307851	2.6869344	15	1	21 days	0.46	Williams	1998 WW ₃₀
1998 WY ₃₀	15.1	0.15	19981123	112.08486	288.56636	5.02882	6.08191	0.2012122	2.1951615	11	1	15 days	0.58	Williams	1998 WY ₃₀
1998 WA ₃₁	7.1	0.15	19981103	281.96916	113.86750	22.28761	10.40610	0.1793171	39.5951758	5	1	1 days	0.16	E Marsden	1998 WA ₃₁
1998 WD ₃₁	23.5	0.15	19981123	338.35432	60.07682	70.47332	1.68495	0.5429848	2.0725226	9	1	2 days	1.16	Williams	1998 WD ₃₁
1998 WE ₃₁	14.4	0.15	19981103	333.34965	297.83385	132.05749	19.74725	0.1193912	3.2333087	8	1	38 days	0.31	Williams	1998 WE ₃₁
1998 WF ₃₁	15.3	0.15	19981123	279.28092	60.10648	88.54302	23.76292	0.2455186	2.3104314	9	1	31 days	0.38	Williams	1998 WF ₃₁
1998 WG ₃₁	16.8	0.15	19981123	293.92498	35.01895	92.07442	22.65182	0.0864902	1.8984395	9	1	33 days	0.44	Williams	1998 WG ₃₁
1998 WH ₃₁	15.6	0.15	19981123	50.54091	232.30005	125.55201	24.85273	0.2301934	2.2868426	7	1	31 days	0.58	Williams	1998 WH ₃₁
1998 WR ₃₁	14.5	0.15	19981123	18.50006	81.38028	324.28186	7.47970	0.1744214	2.2419900	14	1	24 days	0.58	Williams	1998 WR ₃₁
1998 XA	15.2	0.15	19981123	19.54548	305.88458	86.17853	13.75351	0.3062475	2.5620302	22	1	21 days	0.52	Williams	1998 XA
1998 XB	15.4	0.15	19990122	247.72353	202.57261	75.87018	13.59487	0.3511429	0.9077700	122	1	38 days	0.49	M-v 7 Marsden	1998 XB
1998 XC	12.8	0.15	19981213	94.83462	88.91418	261.14486	3.53823	0.1337603	2.2337023	10	1	17 days	0.39	Nakano	1998 XC
1998 XE	12.1	0.15	19981123	56.06786	333.25453	84.38501	13.08307	0.1642600	2.6205736	12	1	13 days	0.24	Williams	1998 XE
1998 XG	15.9	0.15	19981213	59.47314	200.54295	153.89309	4.77805	0.1849915	2.2927876	13	1	15 days	0.34	Williams	1998 XG
1998 XL	16.4	0.15	19981213	55.12135	285.69774	75.76169	9.02454	0.1945117	2.2522681	28	1	17 days	0.53	Williams	1998 XL
1998 XM	17.7	0.15	19981123	358.88526	177.83522	253.65233	2.09620	0.1794658	2.4289116	15	1	6 days	0.41	E Williams	1998 XM
1998 XO	15.1	0.15	19981213	267.00458	197.88209	345.92699	2.99843	0.1186770	2.6074466	16	1	7 days	0.67	Williams	1998 XO
1998 XT	16.8	0.15	19981123	8.24471	334.93690	66.53032	9.73367	0.2521570	2.4564871	9	1	8 days	0.17	Williams	1998 XT
1998 XW	15.9	0.15	19981123	177.76165	166.28911	71.17418	3.57716	0.0818076	2.2478559	9	1	8 days	0.14	Williams	1998 XW
1998 XX	16.4	0.15	19981123	22.38575	320.07838	64.04563	14.18698	0.1649739	2.6063805	12	1	8 days	0.40	Williams	1998 XX
1998 XB ₁	16.5	0.15	19981213	1.36846	233.23911	188.28054	0.96130	0.1231259	2.3719313	12	1	14 days	0.25	Williams	1998 XB ₁
1998 XC ₁	15.1	0.15	19981213	21.49180	313.87996	77.82697	3.23177	0.1368561	3.1267628	12	1	14 days	0.38	Williams	1998 XC ₁
1998 XF ₁	17.5	0.15	19981123	328.08469	31.04797	71.92482	7.12750	0.1856071	2.3081725	15	1	9 days	0.44	Williams	1998 XF ₁
1998 XH ₁	14.5	0.15	19981213	253.70774	66.53106	110.77771	1.98650	0.0956074	2.8337175	12	1	14 days	0.17	Williams	1998 XH ₁
1998 XK ₁	16.1	0.15	19981213	14.52244	319.84260	82.42649	4.64027	0.1964522	2.7394525	15	1	14 days	0.20	Williams	1998 XK ₁
1998 XN ₁	14.7	0.15	19981123	75.34702	263.42051	66.69703	17.22261	0.1039782	2.9175565	12	1	9 days	0.55	Williams	1998 XN ₁
1998 XF ₂	14.9	0.15	19981213	53.59822	285.72298	71.25358	12.06759	0.1179119	2.9721680	18	1	14 days	0.60	Williams	1998 XF ₂
1998 XH ₂	16.6	0.15	19981123	345.05046	199.16642	241.66629	10.96832	0.1945561	3.2101087	12	1	7 days	0.56	Williams	1998 XH ₂
1998 XJ ₂	17.1	0.15	19981213	326.57582	224.44199	241.42933	5.69209	0.1076290	2.5170126	15	1	15 days	0.38	Williams	1998 XJ ₂
1998 XK ₂	15.7	0.15	19981123	83.45496	73.27511	239.89415	7.92452	0.2025410	2.7765007	8	1	6 days	0.26	E Williams	1998 XK ₂

1998 XM ₂	16.9	0.15	19981213	33.69996	98.99290	248.69865	27.10604	0.3411830	1.8069342	34	1	14 days	0.66	Nakano	1998 XM ₂
1998 XN ₂	19.6	0.15	19981213	15.08347	125.67692	256.27349	1.76689	0.5413916	1.9944031	110	1	25 days	0.61	Williams	1998 XN ₂
1998 XO ₂	16.0	0.15	19981213	29.71856	150.31448	249.90250	2.87318	0.1550774	2.6090544	10	1	19 days	0.59	Williams	1998 XO ₂
1998 XQ ₂	16.2	0.15	19981213	356.75675	137.45405	307.10685	0.18692	0.1105826	2.2441211	29	1	17 days	0.65	Williams	1998 XQ ₂
1998 XR ₂	15.5	0.15	19981123	137.91554	310.49564	328.83677	5.78943	0.1046763	2.4068610	7	1	7 days	0.28	Williams	1998 XR ₂
1998 XS ₂	13.7	0.15	19981123	41.83458	351.49167	38.40112	15.65977	0.1110617	2.5292142	18	1	10 days	0.72	Williams	1998 XS ₂
1998 XT ₂	11.6	0.15	19981123	139.05609	287.62100	5.16304	13.29660	0.1775754	2.6849523	9	1	6 days	0.24	Williams	1998 XT ₂
1998 XU ₂	13.4	0.15	19981213	47.61689	38.84811	341.64410	12.12023	0.1757534	2.6722007	15	1	23 days	0.45	Williams	1998 XU ₂
1998 XV ₂	18.5	0.15	19981123	5.91132	342.31296	79.39201	1.44503	0.1275810	2.1256899	10	1	8 days	0.80	E Williams	1998 XV ₂
1998 XW ₂	15.1	0.15	19981123	355.67189	279.45172	107.06385	4.25881	0.2147243	2.3730624	13	1	5 days	1.13	E Williams	1998 XW ₂
1998 XX ₂	20.1	0.15	19981123	201.45728	152.67917	74.77608	6.92773	0.3661891	0.7416663	25	1	4 days	1.08	Marsden	1998 XX ₂
1998 XY ₂	14.6	0.15	19981213	311.77702	94.22117	50.38830	13.94252	0.1145548	2.6565026	23	1	16 days	0.87	Williams	1998 XY ₂
1998 XZ ₂	13.9	0.15	19981213	95.72181	256.27986	75.74035	12.35812	0.0787226	3.0882094	15	1	16 days	0.44	Williams	1998 XZ ₂
1998 XA ₃	14.2	0.15	19981213	50.94075	247.88791	123.23122	4.22145	0.1988215	2.5328149	18	1	18 days	0.71	Williams	1998 XA ₃
1998 XB ₃	16.3	0.15	19981213	49.74146	248.10130	125.31449	7.49317	0.1849554	2.3564365	11	1	16 days	0.69	Williams	1998 XB ₃
1998 XC ₃	15.7	0.15	19981213	359.00397	21.24202	58.19442	4.31873	0.1979940	2.5511956	32	1	15 days	0.63	Williams	1998 XC ₃
1998 XD ₃	15.7	0.15	19981213	42.56799	291.88027	81.43918	5.87593	0.1944148	2.5634719	9	1	12 days	0.40	Williams	1998 XD ₃
1998 XE ₃	12.5	0.15	19981123	35.29821	43.38760	352.90034	11.49484	0.1258324	2.9330380	15	1	9 days	0.52	Williams	1998 XE ₃
1998 XF ₃	14.0	0.15	19981213	12.68398	103.97359	323.23385	9.80471	0.1503677	2.5314130	18	1	9 days	0.49	Williams	1998 XF ₃
1998 XG ₃	15.0	0.15	19981213	37.28263	40.94641	349.32697	7.53984	0.1982834	2.3086490	18	1	8 days	0.38	Williams	1998 XG ₃
1998 XJ ₃	15.1	0.15	19981213	348.55395	296.93942	173.55653	7.80749	0.0946903	2.9213503	6	1	6 days	0.12	Williams	1998 XJ ₃
1998 XK ₃	14.9	0.15	19981213	43.63490	134.13243	271.98375	18.23672	0.2498980	2.6119701	10	1	19 days	0.17	Williams	1998 XK ₃
1998 XM ₃	14.9	0.15	19981213	38.43918	337.48078	33.30193	8.61380	0.3943252	2.5503666	29	1	15 days	0.60	Nakano	1998 XM ₃
1998 XN ₃	13.0	0.15	19981213	86.74759	297.42837	35.06226	1.77841	0.2027907	3.1953364	20	1	25 days	0.65	Nakano	1998 XN ₃
1998 XO ₃	15.6	0.15	19981213	42.92060	108.51903	267.40702	7.66007	0.2358345	2.3513797	19	1	25 days	0.59	Nakano	1998 XO ₃
1998 XQ ₃	14.5	0.15	19981213	339.17395	26.45331	77.58816	6.82945	0.0199592	2.7604886	17	1	15 days	0.77	Williams	1998 XQ ₃
1998 XS ₃	13.5	0.15	19981213	13.59717	19.46486	45.91675	3.54068	0.1097395	3.0572173	18	1	15 days	0.67	Williams	1998 XS ₃
1998 XT ₃	14.8	0.15	19981213	351.03192	188.46092	263.79607	7.16461	0.0493036	2.5993370	15	1	25 days	0.71	Nakano	1998 XT ₃
1998 XU ₃	14.8	0.15	19981213	53.75545	297.98611	67.13447	1.84275	0.2184081	2.3745659	19	1	24 days	0.50	Nakano	1998 XU ₃
1998 XV ₃	15.4	0.15	19981213	27.34140	117.29474	278.46148	3.31168	0.2652205	2.5439399	20	1	25 days	0.53	Nakano	1998 XV ₃
1998 XW ₃	12.1	0.15	19981213	306.14516	66.48631	64.59856	10.04072	0.0703384	3.0685217	19	1	18 days	0.56	Nakano	1998 XW ₃
1998 XL ₄	14.1	0.15	19981213	0.24371	306.14752	78.57811	5.34317	0.1543265	2.4335389	16	1	2 days	0.77	E Williams	1998 XL ₄
1998 XM ₄	15.0	0.15	19981213	262.82284	301.37336	235.70437	62.70376	0.4173712	1.6562584	70	1	24 days	0.68	Williams	1998 XM ₄
1998 XN ₄	13.6	0.15	19981213	10.12041	303.53668	100.36681	3.05588	0.0955621	2.6482693	11	1	13 days	0.73	Williams	1998 XN ₄
1998 XO ₄	14.4	0.15	19981213	57.42630	357.68845	13.97518	7.67747	0.2173153	2.2957778	23	1	16 days	0.89	Williams	1998 XO ₄
1998 XQ ₄	14.3	0.15	19981213	115.05071	26.42301	302.22603	5.95805	0.0866180	2.2547136	17	1	14 days	0.87	Nakano	1998 XQ ₄
1998 XR ₄	13.3	0.15	19981213	90.22316	49.74143	308.10355	5.26070	0.0474219	2.6872133	19	1	15 days	0.57	Nakano	1998 XR ₄
1998 XS ₄	13.1	0.15	19981213	169.78428	349.45695	292.10264	12.32483	0.1645875	2.6337501	18	1	14 days	0.55	Nakano	1998 XS ₄
1998 XT ₄	14.4	0.15	19981213	63.41147	295.96231	80.08392	7.21821	0.1204467	2.3067149	18	1	14 days	0.54	Nakano	1998 XT ₄
1998 XU ₄	13.8	0.15	19981213	353.41496	58.34682	42.85012	2.51635	0.0313499	2.8264974	15	1	14 days	0.62	Nakano	1998 XU ₄
1998 XW ₄	14.7	0.15	19981213	74.90189	344.09940	24.01227	2.71264	0.0890004	2.4178921	17	1	14 days	0.72	Nakano	1998 XW ₄
1998 XX ₄	13.1	0.15	19981213	51.24455	311.01498	79.00285	13.32484	0.1383793	3.0168217	16	1	14 days	0.67	Nakano	1998 XX ₄
1998 XY ₄	16.3	0.15	19981213	347.83891	59.22211	58.27349	30.02873	0.3695123	2.5745925	33	1	2 days	0.61	Williams	1998 XY ₄
1998 XZ ₄	16.3	0.15	19981213	36.56030	9.37318	324.64732	23.18413	0.6387117	1.9400587	40	1	16 days	0.79	Nakano	1998 XZ ₄
1998 XA ₅	18.5	0.15	19990122	358.57146	211.22767	274.25762	31.69505	0.3050774	1.5544604	119	1	23 days	0.67	M-v 6 Williams	1998 XA ₅
1998 XC ₅	15.9	0.15	19981213	333.87769	112.27512	354.36990	5.53971	0.1597798	2.6553399	9	1	12 days	0.58	Williams	1998 XC ₅
1998 XD ₅	16.2	0.15	19981213	342.79926	144.52703	305.89189	6.38442	0.0639306	2.3486269	8	1	12 days	0.25	Williams	1998 XD ₅
1998 XH ₅	12.9	0.15	19981213	7.69200	338.16168	112.72505	12.36804	0.0541771	3.1761715	6	1	17 days	0.45	Williams	1998 XH ₅
1998 XJ ₅	11.0	0.15	19981213	335.83026	26.05733	60.14987	8.73267	0.1979955	5.2046564	16	1	18 days	0.89	Williams	1998 XJ ₅
1998 XL ₅	12.2	0.15	19981213	97.69120	176.12849	142.96281	11.12384	0.1051746	2.9881503	11	1	10 days	0.23	Williams	1998 XL ₅
1998 XM ₅	12.5	0.15	19981213	280.45705	8.59875	153.11824	13.96073	0.0868247	3.0872715	13	1	15 days	0.74	Williams	1998 XM ₅
1998 XN ₅	17.1	0.15	19981123	25.97365	290.99915	88.64937	2.59681	0.1919677	2.3679341	15	1	9 days	0.52	Williams	1998 XN ₅
1998 XO ₅	16.0	0.15	19981123	100.22709	219.32827	86.45302	3.26356	0.1009796	2.8055549	9	1	8 days	0.12	Williams	1998 XO ₅

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1998 XS ₅	16.0	0.15	19981213	338.78237	287.64779	162.74498	1.24769	0.0950891	2.3997385	12	1	14 days	0.36	Williams	1998 XS ₅
1998 XT ₅	15.4	0.15	19981213	338.19066	18.50944	69.94004	10.98775	0.1041651	3.2294819	12	1	12 days	0.81	Williams	1998 XT ₅
1998 XU ₅	15.8	0.15	19981213	248.16371	83.33017	94.88287	2.65741	0.0341419	2.6002330	18	1	14 days	0.50	Williams	1998 XU ₅
1998 XV ₅	17.0	0.15	19981123	54.48321	259.70948	73.95459	8.09400	0.2719821	2.6997501	15	1	8 days	0.81	Williams	1998 XV ₅
1998 XJ ₆	17.7	0.15	19981213	29.30188	151.44202	225.07712	4.58007	0.2789986	2.6338321	9	1	17 days	0.22	Williams	1998 XJ ₆
1998 XK ₆	13.0	0.15	19981213	32.74152	153.34120	229.43023	13.34345	0.0860506	5.2192772	12	1	20 days	0.26	Williams	1998 XK ₆
1998 XM ₆	14.1	0.15	19981213	116.69570	183.95492	113.88015	3.06926	0.0952725	2.9293824	12	1	20 days	0.14	Williams	1998 XM ₆
1998 XP ₆	15.3	0.15	19981213	168.50039	177.45025	74.61444	4.92141	0.0515801	2.5783111	12	1	9 days	0.30	E Williams	1998 XP ₆
1998 XQ ₆	15.5	0.15	19981123	61.40297	119.15264	233.35579	9.93246	0.0318761	3.0124387	9	1	8 days	0.19	Williams	1998 XQ ₆
1998 XV ₆	18.0	0.15	19981123	359.42308	333.59459	85.78341	2.62082	0.1978295	2.2840104	9	1	8 days	0.23	Williams	1998 XV ₆
1998 XX ₆	14.9	0.15	19981213	74.63228	156.09240	162.44328	1.38296	0.2447467	3.2254548	15	1	14 days	0.60	Williams	1998 XX ₆
1998 XZ ₆	13.0	0.15	19981213	313.91695	37.79304	71.12317	8.90347	0.0477099	5.2121633	13	1	12 days	0.28	Williams	1998 XZ ₆
1998 XA ₇	12.7	0.15	19981213	84.87773	173.13691	146.85701	1.81636	0.1252358	5.1836754	15	1	14 days	0.52	E Williams	1998 XA ₇
1998 XB ₇	15.0	0.15	19981123	131.58106	49.06744	230.93586	10.09786	0.0905881	3.1248356	9	1	8 days	0.24	Williams	1998 XB ₇
1998 XC ₇	15.4	0.15	19981213	94.76966	94.73036	211.83377	3.11748	0.1926119	3.0231113	12	1	12 days	0.36	Williams	1998 XC ₇
1998 XD ₇	15.5	0.15	19981213	36.70199	146.43477	231.08860	5.57797	0.1502752	2.4151385	12	1	14 days	0.28	Williams	1998 XD ₇
1998 XH ₇	16.9	0.15	19981213	320.78020	24.70317	90.98862	3.38518	0.1242602	2.3756420	15	1	14 days	0.69	Williams	1998 XH ₇
1998 XP ₇	14.0	0.15	19981213	230.24978	325.70971	234.49746	12.67114	0.0759309	3.1128085	12	1	20 days	0.33	Williams	1998 XP ₇
1998 XO ₈	15.3	0.15	19981213	14.93215	324.56824	81.14573	11.93427	0.1441005	3.1629266	12	1	16 days	0.20	Williams	1998 XO ₈
1998 XR ₈	16.8	0.15	19981213	174.18141	146.28577	105.49430	5.03662	0.1135042	2.2217728	8	1	10 days	0.54	Williams	1998 XR ₈
1998 XT ₈	15.7	0.15	19981213	0.16994	330.52301	105.72981	3.24919	0.1676548	2.3667312	9	1	15 days	0.14	Nakano	1998 XT ₈
1998 XY ₈	14.1	0.15	19981213	13.87480	134.11124	277.98139	10.79517	0.1936666	2.3638962	33	1	19 days	0.51	Marsden	1998 XY ₈
1998 XZ ₈	12.0	0.15	19981213	33.72163	78.54653	310.71934	17.03604	0.3171523	3.0960411	44	1	16 days	0.53	Marsden	1998 XZ ₈
1998 XB ₉	16.1	0.15	19981213	6.78237	106.14835	320.54753	13.44661	0.4756294	2.7093090	36	1	15 days	0.50	Nakano	1998 XB ₉
1998 XC ₉	18.2	0.15	19981213	1.57808	120.75361	320.35863	9.31264	0.5308581	2.7515559	50	1	19 days	0.39	Marsden	1998 XC ₉
1998 XD ₉	17.9	0.15	19981213	351.17081	27.67455	83.41387	15.42833	0.4884504	2.5694662	84	1	20 days	0.56	Williams	1998 XD ₉
1998 XE ₉	16.2	0.15	19981213	327.70173	221.98579	256.28753	13.35777	0.1284462	2.6073643	13	1	11 days	0.38	Williams	1998 XE ₉
1998 XF ₉	16.4	0.15	19981213	46.58527	111.20425	259.36738	5.88751	0.2052648	2.1995487	18	1	14 days	1.04	Williams	1998 XF ₉
1998 XG ₉	15.4	0.15	19981213	223.51324	150.63467	71.61048	3.76206	0.1306348	2.4250064	18	1	14 days	0.51	Williams	1998 XG ₉
1998 XH ₉	16.5	0.15	19981213	24.88891	165.61632	248.05491	1.59849	0.0397541	2.3797489	14	1	11 days	0.88	E Williams	1998 XH ₉
1998 XJ ₉	15.6	0.15	19981213	357.79626	345.30807	84.48692	7.36257	0.0941587	2.3716212	6	1	7 days	0.26	Williams	1998 XJ ₉
1998 XK ₉	13.5	0.15	19981213	54.59582	279.77039	88.25467	6.87432	0.0808152	2.7681367	14	1	16 days	0.72	Williams	1998 XK ₉
1998 XN ₉	13.1	0.15	19981213	130.27266	57.08239	222.28945	12.79217	0.1233124	2.5167622	6	1	5 days	0.70	E Williams	1998 XN ₉
1998 XP ₉	13.9	0.15	19981213	316.81115	51.61504	69.71458	11.47326	0.0850720	3.0284110	12	1	15 days	0.85	Williams	1998 XP ₉
1998 XQ ₉	14.2	0.15	19981213	70.28085	93.27097	229.40446	4.47407	0.3336825	2.3280728	11	1	11 days	0.80	Williams	1998 XQ ₉
1998 XR ₉	13.9	0.15	19981213	306.53553	285.27869	227.97386	4.41483	0.2609403	2.7229452	12	1	11 days	1.07	E Williams	1998 XR ₉
1998 XW ₉	13.8	0.15	19981213	323.21401	334.14835	173.99932	2.27819	0.0300087	2.8021079	14	1	7 days	0.41	E Williams	1998 XW ₉
1998 XX ₉	14.2	0.15	19981213	327.04086	81.55825	56.19263	12.79619	0.1411371	2.6010395	20	1	10 days	0.75	Williams	1998 XX ₉
1998 XD ₁₀	16.6	0.15	19981213	88.98345	246.01277	75.36766	7.34120	0.1182523	2.4277029	15	1	14 days	0.46	Williams	1998 XD ₁₀
1998 XE ₁₀	16.8	0.15	19981213	37.52699	291.17580	69.71151	10.17711	0.2793823	2.4869648	9	1	8 days	0.14	Williams	1998 XE ₁₀
1998 XJ ₁₀	16.9	0.15	19981213	60.34414	251.77051	78.52134	4.83243	0.2911244	2.4239684	9	1	8 days	0.20	Williams	1998 XJ ₁₀
1998 XC ₁₁	16.4	0.15	19981213	4.63683	160.42555	307.75782	4.43284	0.2132106	2.2707326	12	1	3 days	0.17	E Williams	1998 XC ₁₁
1998 XF ₁₁	14.4	0.15	19981213	254.69096	133.52193	126.87129	16.26451	0.2559475	2.7873666	12	1	2 days	0.28	E Williams	1998 XF ₁₁
1998 XH ₁₁	13.6	0.15	19981213	337.89512	26.38814	73.75901	13.52729	0.1350547	2.7041899	7	1	14 days	0.72	Williams	1998 XH ₁₁
1998 XJ ₁₁	12.8	0.15	19990102	51.54239	308.06360	93.25510	12.07174	0.1029452	3.0906247	8	1	13 days	0.44	Nakano	1998 XJ ₁₁
1998 XK ₁₁	14.4	0.15	19981213	50.53055	88.87455	305.64046	3.58355	0.1097090	2.3396596	17	1	13 days	0.65	Nakano	1998 XK ₁₁
1998 XL ₁₁	13.8	0.15	19981213	39.73469	338.05453	66.81845	2.66321	0.1620681	3.1011717	17	1	13 days	0.90	Nakano	1998 XL ₁₁
1998 XM ₁₁	15.0	0.15	19981213	353.15135	18.48780	85.41527	6.87029	0.1595204	2.2542010	17	1	13 days	0.52	Nakano	1998 XM ₁₁
1998 XO ₁₁	13.2	0.15	19981213	142.08588	324.88160	349.32128	1.61793	0.0489255	2.8579814	8	1	13 days	0.46	Nakano	1998 XO ₁₁
1998 XQ ₁₁	14.6	0.15	19981213	118.03081	35.94694	261.68731	8.06655	0.3674125	2.2593151	8	1	12 days	0.24	Marsden	1998 XQ ₁₁
1998 XS ₁₁	15.9	0.15	19981213	11.94758	148.19429	275.54972	7.59652	0.1931076	2.1932147	15	1	3 days	0.79	Williams	1998 XS ₁₁
1998 XT ₁₁	15.5	0.15	19981213	45.65801	341.98038	43.72954	4.82539	0.1266204	2.1175829	14	1	3 days	0.91	Williams	1998 XT ₁₁
1998 XU ₁₁	14.6	0.15	19981213	54.33800	294.48467	75.70117	24.30114	0.1982977	2.4337334	13	1	3 days	0.72	Williams	1998 XU ₁₁

1998 XV ₁₁	14.2	0.15	19981213	263.19795	301.78559	272.84558	29.06455	0.3311105	2.4359234	28	1	5 days	0.63	Williams	1998 XV ₁₁
1998 XZ ₁₁	15.6	0.15	19981213	21.98721	318.40099	83.03139	33.75799	0.3167647	2.9471101	15	1	3 days	0.98	Williams	1998 XZ ₁₁
1998 XA ₁₂	15.1	0.15	19981213	44.87253	92.66541	276.49413	17.04575	0.2892031	2.2061472	14	1	3 days	0.77	Williams	1998 XA ₁₂
1998 XB ₁₂	15.2	0.15	19981213	47.12568	126.34059	252.21231	19.85723	0.1632938	2.1413075	14	1	7 days	0.44	Williams	1998 XB ₁₂
1998 XC ₁₂	16.7	0.15	19981213	83.95830	264.74600	88.26904	18.53968	0.0437052	1.8072171	14	1	7 days	0.71	Williams	1998 XC ₁₂
1998 XD ₁₂	20.3	0.15	19981213	35.26588	69.26848	259.98516	13.50727	0.6232427	1.3970832	60	1	10 days	0.64	Nakano	1998 XD ₁₂
1998 XE ₁₂	18.8	0.15	19981213	112.80185	352.97817	280.19686	13.37868	0.7381872	0.8779501	34	1	10 days	0.68	Nakano	1998 XE ₁₂
1998 XH ₁₂	13.7	0.15	19981213	231.63788	135.24524	69.51350	4.94155	0.1120757	2.5372392	12	1	21 days	0.32	Williams	1998 XH ₁₂
1998 XK ₁₂	14.8	0.15	19981213	344.73958	49.49334	52.02165	4.72781	0.2490193	2.6115323	16	1	8 days	0.29	Williams	1998 XK ₁₂
1998 XM ₁₂	13.6	0.15	19981213	56.88421	82.80748	266.22519	10.94493	0.2631210	2.6557916	19	1	12 days	1.10	Williams	1998 XM ₁₂
1998 XN ₁₂	12.3	0.15	19981213	344.41794	85.38447	73.71670	14.81110	0.1042773	2.6336468	16	1	8 days	0.17	Williams	1998 XN ₁₂
1998 XO ₁₂	15.6	0.15	19981213	7.52722	355.39392	77.40686	3.57240	0.1915922	2.4217534	18	1	10 days	0.53	Williams	1998 XO ₁₂
1998 XQ ₁₂	12.2	0.15	19981123	166.55407	129.50003	126.27118	14.28189	0.1317500	3.0136469	10	1	36 days	0.31	Williams	1998 XQ ₁₂
1998 XR ₁₂	13.1	0.15	19981213	279.28675	10.42816	163.14386	2.15703	0.2002618	3.1463139	6	1	2 days	1.17	E Williams	1998 XR ₁₂
1998 XS ₁₂	14.9	0.15	19981213	35.21592	298.95608	89.28740	7.62900	0.1182794	2.3288519	7	1	10 days	0.72	Williams	1998 XS ₁₂
1998 XU ₁₂	13.5	0.15	19981213	78.60659	98.15795	230.58731	6.95686	0.1994058	2.7903745	9	1	8 days	0.83	E Williams	1998 XU ₁₂
1998 XV ₁₂	12.7	0.15	19981213	342.78124	339.92423	110.55738	7.10860	0.0914955	3.3499336	10	1	8 days	0.55	Williams	1998 XV ₁₂
1998 XZ ₁₂	14.6	0.15	19981213	196.35509	355.08049	261.04503	6.88901	0.0351749	2.3329125	6	1	3 days	0.36	E Williams	1998 XZ ₁₂
1998 XA ₁₃	11.2	0.15	19981213	327.60879	28.19627	84.25838	12.38268	0.1759773	5.2451066	15	1	18 days	0.31	Williams	1998 XA ₁₃
1998 XE ₁₃	14.2	0.15	19981123	70.87622	269.47765	67.01172	3.00480	0.0691633	2.8672514	12	1	28 days	0.29	Williams	1998 XE ₁₃
1998 XM ₁₃	14.9	0.15	19981213	72.52944	80.61978	232.57073	8.11335	0.2923970	3.1891713	9	1	6 days	0.15	Williams	1998 XM ₁₃
1998 XN ₁₃	15.0	0.15	19981213	284.02492	88.21568	73.03523	5.36853	0.2080861	2.6684076	9	1	6 days	0.13	Williams	1998 XN ₁₃
1998 XR ₁₃	16.6	0.15	19981213	331.95962	281.47833	191.36598	1.33150	0.2777468	3.1076428	12	1	9 days	0.57	Williams	1998 XR ₁₃
1998 XS ₁₃	16.0	0.15	19981213	179.24830	129.13915	116.30706	1.91709	0.0690023	2.2331407	12	1	6 days	0.57	E Williams	1998 XS ₁₃
1998 XT ₁₃	14.8	0.15	19981213	293.68719	342.27678	180.19654	1.80095	0.2784442	2.7333754	12	1	6 days	0.42	E Williams	1998 XT ₁₃
1998 XB ₁₄	14.6	0.15	19981213	336.69887	275.67997	184.38783	2.90649	0.1361104	2.8613058	9	1	2 days	0.25	E Williams	1998 XB ₁₄
1998 XJ ₁₄	15.7	0.15	19981213	22.33825	190.57633	208.50306	3.58967	0.1764407	2.5925288	15	1	7 days	0.33	Williams	1998 XJ ₁₄
1998 XL ₁₄	16.3	0.15	19981213	113.58240	202.09939	108.08482	4.58460	0.0720042	2.2210205	9	1	2 days	0.15	E Williams	1998 XL ₁₄
1998 XT ₁₄	16.3	0.15	19981213	179.27022	90.84991	160.61049	2.87036	0.1291238	2.2733190	9	1	10 days	0.14	Williams	1998 XT ₁₄
1998 XC ₁₅	14.8	0.15	19981213	11.22818	184.18657	233.30513	8.05634	0.1493005	2.7700515	15	1	10 days	0.22	Williams	1998 XC ₁₅
1998 XK ₁₅	17.4	0.15	19981213	20.21088	160.99712	234.97030	6.96704	0.3076388	2.6927416	12	1	10 days	0.27	Williams	1998 XK ₁₅
1998 XQ ₁₅	17.7	0.15	19981123	14.85641	185.24535	220.75407	4.72321	0.1747371	2.3737128	12	1	36 days	0.30	Williams	1998 XQ ₁₅
1998 XV ₁₅	15.8	0.15	19981213	236.41097	213.91398	346.30825	5.47752	0.0630833	2.4740368	10	1	8 days	0.44	Williams	1998 XV ₁₅
1998 XP ₁₆	15.1	0.15	19981213	155.01922	19.99488	258.47740	6.47129	0.1508188	2.2431839	21	1	3 days	0.62	E Nakano	1998 XP ₁₆
1998 XQ ₁₆	18.0	0.15	19981213	352.27070	150.96351	315.59924	8.97063	0.4270787	2.3787555	50	1	16 days	0.73	Williams	1998 XQ ₁₆
1998 XR ₁₆	18.5	0.15	19981213	339.99341	67.94511	92.13357	20.59279	0.5810250	2.2792020	97	1	19 days	0.59	Williams	1998 XR ₁₆
1998 XS ₁₆	16.3	0.15	19981213	187.94013	358.21884	273.05867	26.48451	0.4958437	1.2119760	62	1	15 days	0.85	Marsden	1998 XS ₁₆
1998 XU ₁₆	12.2	0.15	19981213	353.23322	39.82156	84.45975	10.67962	0.0552981	3.1932055	8	1	7 days	0.34	Williams	1998 XU ₁₆
1998 XV ₁₆	13.1	0.15	19981123	109.14787	258.17979	94.82325	7.56850	0.1007878	2.3724240	11	1	24 days	0.57	Williams	1998 XV ₁₆
1998 XW ₁₆	12.5	0.15	19981213	56.06976	358.94791	40.24924	2.15908	0.1789530	3.2000682	9	1	7 days	0.35	E Williams	1998 XW ₁₆
1998 XY ₁₆	12.8	0.15	19981213	74.09637	215.01567	167.97439	5.39679	0.1089807	3.1724695	11	1	10 days	0.48	Williams	1998 XY ₁₆
1998 XZ ₁₆	15.9	0.15	19981213	343.62871	23.14176	101.70838	6.81816	0.0597194	2.4367048	13	1	18 days	0.43	Williams	1998 XZ ₁₆
1998 XC ₁₇	13.0	0.15	19981213	7.14895	330.73729	86.90995	11.32084	0.1276529	5.1680419	9	1	17 days	0.12	Williams	1998 XC ₁₇
1998 XE ₁₇	13.1	0.15	19981213	358.84875	261.76413	171.20279	3.78807	0.0392978	3.1711955	15	1	17 days	0.44	Williams	1998 XE ₁₇
1998 XF ₁₇	17.9	0.15	19981213	7.88937	260.50874	159.53322	2.71506	0.2429523	2.6938316	9	1	10 days	0.19	Williams	1998 XF ₁₇
1998 XG ₁₇	13.8	0.15	19981213	316.34106	50.94739	82.06782	4.66461	0.1970018	2.7032871	7	1	7 days	0.48	Williams	1998 XG ₁₇
1998 XN ₁₇	22.7	0.15	19981213	108.87366	226.20140	86.21752	7.46076	0.2150997	0.9821740	18	1	5 days	0.66	Williams	1998 XN ₁₇
1998 XP ₁₇	15.5	0.15	19981213	352.40618	342.36795	115.33179	2.70639	0.1803971	2.4054844	16	1	3 days	0.66	Williams	1998 XP ₁₇
1998 XR ₁₇	14.6	0.15	19981213	277.65310	94.90500	77.15388	6.84516	0.1176892	3.0841787	12	1	8 days	0.37	Williams	1998 XR ₁₇
1998 XT ₁₇	13.7	0.15	19981213	52.55692	183.28492	207.94862	5.00397	0.1284788	3.1830011	7	1	15 days	0.13	Nakano	1998 XT ₁₇
1998 XU ₁₇	15.9	0.15	19981213	42.24453	271.59297	139.39543	3.22907	0.1381631	2.3587155	6	1	5 days	0.22	Williams	1998 XU ₁₇
1998 XE ₁₈	15.6	0.15	19981213	196.18982	164.17657	65.80447	7.04472	0.0756957	2.4377173	9	1	17 days	0.21	Williams	1998 XE ₁₈
1998 XH ₂₀	14.1	0.15	19981213	3.07899	351.95286	109.46680	15.46716	0.0638952	2.6516439	8	1	6 days	0.38	Williams	1998 XH ₂₀

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1998 XN ₂₀	16.0	0.15	19981213	302.19813	258.44191	280.63037	6.67247	0.1268744	2.7367934	9	1	13 days	0.25	Williams	1998 XN ₂₀
1998 XR ₂₀	14.2	0.15	19981213	26.64206	207.01951	232.93218	1.02665	0.0609029	2.8989693	21	1	17 days	0.89	Williams	1998 XR ₂₀
1998 XS ₂₀	12.9	0.15	19981213	215.42470	339.98360	290.31635	15.83504	0.2453242	2.7487777	20	1	17 days	0.51	Williams	1998 XS ₂₀
1998 XH ₂₁	15.0	0.15	19981213	22.79363	307.73050	130.28479	1.59992	0.1361882	3.0929589	9	1	14 days	0.31	E Williams	1998 XH ₂₁
1998 XN ₂₁	13.7	0.15	19981213	44.94295	288.51695	116.94422	2.70926	0.2055167	3.1974306	14	1	16 days	0.40	Williams	1998 XN ₂₁
1998 XU ₂₁	15.8	0.15	19981213	307.30791	62.36142	110.69992	6.56117	0.1236125	3.0742684	8	1	16 days	0.19	Williams	1998 XU ₂₁
1998 XY ₂₁	14.8	0.15	19981213	217.29244	142.71289	115.17725	1.63861	0.0932660	2.7423740	9	1	14 days	0.28	E Williams	1998 XY ₂₁
1998 XA ₂₂	14.8	0.15	19981213	5.04605	175.34042	288.96913	5.12364	0.0893577	3.2092200	8	1	14 days	0.15	Williams	1998 XA ₂₂
1998 XX ₂₂	16.6	0.15	19981213	348.84624	14.67855	65.97091	6.12408	0.1322150	2.7928671	9	1	15 days	0.13	Williams	1998 XX ₂₂
1998 XS ₂₃	15.5	0.15	19981213	37.60280	197.16465	184.59410	4.12642	0.0549743	3.2248615	9	1	11 days	0.14	Williams	1998 XS ₂₃
1998 XT ₂₃	16.9	0.15	19981213	290.46740	359.85164	153.84227	2.96250	0.1583705	2.3990935	9	1	11 days	0.16	Williams	1998 XT ₂₃
1998 XZ ₂₃	15.0	0.15	19981213	2.85488	176.73984	281.38228	18.95912	0.2058636	2.5262649	9	1	5 days	0.14	Williams	1998 XZ ₂₃
1998 XG ₂₄	12.0	0.15	19981213	71.03169	96.44829	290.44374	14.46520	0.1114545	3.2129569	13	1	14 days	0.97	Williams	1998 XG ₂₄
1998 XQ ₂₄	16.3	0.15	19981213	61.60717	283.85859	105.17301	4.27731	0.1591055	2.9531091	9	1	15 days	0.29	Williams	1998 XQ ₂₄
1998 XW ₂₄	15.5	0.15	19981213	49.96544	219.07992	139.52343	3.40895	0.1674767	2.9510546	12	1	15 days	0.19	Williams	1998 XW ₂₄
1998 XX ₂₄	18.4	0.15	19981213	346.95439	232.26909	220.89168	5.15919	0.2788221	2.5841997	9	1	10 days	0.15	Williams	1998 XX ₂₄
1998 XG ₂₅	16.2	0.15	19981213	40.48437	204.91658	173.86040	2.27927	0.0766444	2.8783686	12	1	15 days	0.15	Williams	1998 XG ₂₅
1998 XM ₂₅	17.4	0.15	19981213	21.25112	149.32682	242.45300	9.05428	0.2614186	2.3718083	9	1	9 days	0.13	Williams	1998 XM ₂₅
1998 XR ₂₅	15.3	0.15	19981123	75.93871	268.11570	64.35546	7.01468	0.0836340	2.8135051	12	1	26 days	0.54	Williams	1998 XR ₂₅
1998 XM ₂₉	15.0	0.15	19981213	97.80533	0.50310	320.63136	6.63544	0.1133941	2.3518768	12	1	10 days	0.65	Marsden	1998 XM ₂₉
1998 XS ₃₉	13.5	0.15	19981213	56.64560	62.25640	300.27064	12.20949	0.2338369	2.6868006	15	1	15 days	0.61	Nakano	1998 XS ₃₉
1998 XZ ₄₃	12.9	0.15	19981213	240.74388	142.55630	74.17629	19.29915	0.0968507	2.9085491	25	1	3 days	0.76	E Williams	1998 XZ ₄₃
1998 XG ₅₀	14.4	0.15	19981213	290.68521	244.88751	294.79136	5.35030	0.1213765	2.2868611	12	1	13 days	0.60	Williams	1998 XG ₅₀
1998 XT ₅₂	15.1	0.15	19981213	91.98218	261.59414	89.28580	7.34235	0.1573923	2.4638998	15	1	15 days	0.51	Williams	1998 XT ₅₂
1998 XD ₅₃	15.0	0.15	19981213	13.59886	138.93386	301.44860	2.80727	0.1764323	2.6293829	13	1	13 days	0.54	Williams	1998 XD ₅₃
1998 XC ₅₅	13.5	0.15	19981213	127.68680	225.54844	83.07445	3.54402	0.0453310	2.8722371	15	1	16 days	0.77	Nakano	1998 XC ₅₅
1998 YA	15.1	0.15	19981213	40.67567	132.35194	277.82825	0.58612	0.1436336	2.3740294	13	1	8 days	0.79	Williams	1998 YA
1998 YB	13.6	0.15	19981213	318.93931	76.68925	83.17016	0.17904	0.1288066	3.1658631	12	1	8 days	0.69	E Williams	1998 YB
1998 YC	14.7	0.15	19981213	50.20459	120.25180	281.93584	3.02213	0.1125158	2.2533278	21	1	8 days	0.63	Williams	1998 YC
1998 YD	12.7	0.15	19981213	303.72626	239.27839	288.21334	21.01107	0.0528576	2.6886514	12	1	8 days	0.43	Williams	1998 YD
1998 YE	13.0	0.15	19981213	286.82977	337.13800	240.21155	4.29915	0.0763005	2.2240791	11	1	7 days	0.48	Williams	1998 YE
1998 YF	13.2	0.15	19981213	0.26318	249.57645	243.95507	3.08269	0.0646057	2.2837610	9	1	7 days	0.53	E Williams	1998 YF
1998 YG	13.9	0.15	19981213	44.57888	208.55305	218.51822	1.33487	0.2064716	2.2895554	10	1	2 days	1.26	E Williams	1998 YG
1998 YH	13.7	0.15	19981213	304.07844	259.38699	304.43480	4.20722	0.1534553	2.1899657	10	1	7 days	0.75	E Williams	1998 YH
1998 YN	15.4	0.15	19981213	359.23619	159.44457	8.31220	7.57249	0.0613728	2.5623272	9	1	2 days	0.48	E Williams	1998 YN
1998 YP	12.0	0.15	19981213	139.58452	34.53232	279.05553	14.87338	0.1113961	2.5653131	6	1	8 days	0.35	Nakano	1998 YP
1998 YQ	14.7	0.15	19981213	2.89884	7.21081	85.36575	2.91166	0.1392426	2.3665899	6	1	8 days	0.25	Nakano	1998 YQ
1998 YR	11.8	0.15	19981213	72.47164	95.35167	275.94301	8.28005	0.1611888	3.2673173	6	1	8 days	0.46	E Nakano	1998 YR
1998 YS	13.8	0.15	19981213	345.91352	35.63287	82.01328	3.58118	0.1093283	3.0245785	15	1	10 days	0.56	Williams	1998 YS
1998 YU	14.9	0.15	19981213	294.39239	246.77350	304.15471	2.83833	0.2458202	2.2120304	16	1	10 days	1.27	E Williams	1998 YU
1998 YV	13.2	0.15	19981213	359.73852	222.28840	238.61816	0.62646	0.1299917	3.1181311	6	1	8 days	0.38	E Nakano	1998 YV
1998 YW	15.8	0.15	19981213	29.92956	149.22325	249.67668	0.67449	0.3204618	2.3967209	6	1	8 days	0.43	E Nakano	1998 YW
1998 YX	11.9	0.15	19981213	305.69397	59.80381	99.90463	12.34300	0.0433349	2.9516184	15	1	10 days	1.13	E Williams	1998 YX
1998 YY	14.1	0.15	19981213	120.22777	239.12586	98.01258	22.99133	0.0348931	2.5824009	15	1	10 days	0.72	Williams	1998 YY
1998 YB ₁	13.8	0.15	19990102	19.31897	33.16805	53.17278	10.69963	0.1198305	2.7746326	12	1	11 days	0.25	Nakano	1998 YB ₁
1998 YC ₁	13.6	0.15	19981213	315.50647	303.43959	194.42022	4.28245	0.0382061	3.1835160	12	1	6 days	0.17	Nakano	1998 YC ₁
1998 YE ₁	14.3	0.15	19990102	84.18053	19.95336	351.72616	7.04473	0.1227913	2.2788519	10	1	11 days	0.17	Nakano	1998 YE ₁
1998 YG ₁	14.4	0.15	19981213	228.98303	233.50353	11.49190	4.60456	0.0998681	2.2390422	12	1	11 days	0.32	Nakano	1998 YG ₁
1998 YH ₁	13.4	0.15	19981213	64.05529	330.59726	69.12530	11.76831	0.0475729	3.0193921	8	1	9 days	0.18	Nakano	1998 YH ₁
1998 YL ₁	13.1	0.15	19981213	160.47042	304.23073	320.61287	11.76731	0.1641725	2.6603943	34	1	7 days	0.93	Williams	1998 YL ₁
1998 YN ₁	17.7	0.15	19981213	289.53843	147.40070	62.02558	6.33893	0.4666763	1.5586482	66	1	13 days	0.75	Marsden	1998 YN ₁
1998 YO ₁	16.0	0.15	19981213	18.51559	334.09958	69.38867	5.90103	0.1688944	2.4714552	17	1	21 days	0.54	Williams	1998 YO ₁
1998 YP ₁	14.6	0.15	19981213	271.88838	76.39692	122.98345	6.09188	0.0593277	2.2422705	13	1	11 days	0.47	Williams	1998 YP ₁

1998 YQ ₁	14.1	0.15	19981213	351.14968	11.23951	104.58148	8.44605	0.1867615	2.5319916	16	1	8 days	0.61	Williams	1998 YQ ₁
1998 YR ₁	12.3	0.15	19981213	227.97598	129.14319	156.89610	12.96993	0.1712206	2.4973978	9	1	7 days	1.10	Williams	1998 YR ₁
1998 YT ₁	13.4	0.15	19981213	47.59610	244.63029	174.45082	1.96040	0.2689486	2.5697952	9	1	10 days	0.86	E Williams	1998 YT ₁
1998 YU ₁	13.5	0.15	19981213	102.27994	214.62456	171.70291	2.85421	0.0533350	2.1360471	9	1	10 days	0.63	E Williams	1998 YU ₁
1998 YW ₁	11.4	0.15	19981213	219.03075	262.14089	307.90495	8.09131	0.0198116	5.0588144	25	1	8 days	0.40	E Williams	1998 YW ₁
1998 YD ₂	13.1	0.15	19981213	253.21395	301.98436	313.86048	4.66339	0.2538850	2.7747167	12	1	5 days	0.28	E Williams	1998 YD ₂
1998 YF ₂	15.5	0.15	19981213	8.89661	355.95943	107.01986	2.29429	0.1851960	2.5454498	15	1	5 days	0.12	Williams	1998 YF ₂
1998 YG ₂	17.3	0.15	19981213	41.33695	110.17831	306.36826	5.26855	0.2015252	2.3611230	12	1	9 days	0.12	Williams	1998 YG ₂
1998 YH ₂	15.9	0.15	19981213	239.04141	307.88887	310.21484	12.63274	0.1458836	2.6021459	15	1	9 days	0.13	Williams	1998 YH ₂
1998 YJ ₂	17.3	0.15	19981213	259.95187	275.43995	312.65012	5.85429	0.0702337	2.2906214	12	1	5 days	0.20	Williams	1998 YJ ₂
1998 YL ₂	17.6	0.15	19981213	323.17972	70.97000	93.53546	2.17345	0.1081084	2.4147150	15	1	5 days	0.46	E Williams	1998 YL ₂
1998 YM ₂	17.2	0.15	19981213	44.64088	110.71960	313.47133	5.36440	0.1089816	2.2802676	15	1	9 days	0.13	Williams	1998 YM ₂
1998 YN ₂	16.8	0.15	19981213	324.05140	66.24807	99.04518	3.40596	0.1238020	2.4525496	12	1	5 days	0.17	E Williams	1998 YN ₂
1998 YQ ₂	17.2	0.15	19981213	56.47614	304.06361	93.86301	3.24149	0.2401778	2.4714802	9	1	5 days	0.17	Williams	1998 YQ ₂
1998 YT ₂	13.5	0.15	19981213	144.74356	220.47421	120.27973	11.42294	0.0712636	3.0593714	12	1	5 days	0.11	E Williams	1998 YT ₂
1998 YX ₂	15.3	0.15	19981213	47.58772	136.78046	232.83550	10.63376	0.1125978	2.5453094	9	1	4 days	0.68	E Williams	1998 YX ₂
1998 YZ ₂	15.5	0.15	19981213	18.55471	185.76417	227.73340	1.88152	0.1928257	2.4785280	10	1	10 days	0.45	Nakano	1998 YZ ₂
1998 YB ₃	12.8	0.15	19981213	256.15385	294.15519	290.80944	13.74391	0.1729902	2.8439509	15	1	12 days	0.58	Nakano	1998 YB ₃
1998 YC ₃	14.7	0.15	19981213	315.84801	202.62432	308.97683	4.09882	0.0971112	2.3075649	15	1	12 days	0.42	Nakano	1998 YC ₃
1998 YD ₃	12.2	0.15	19981213	67.71770	323.86283	49.98791	3.12355	0.1595951	2.3096775	6	1	9 days	0.24	Nakano	1998 YD ₃
1998 YG ₃	12.7	0.15	19981213	109.33985	249.92956	94.42604	10.56956	0.1006933	3.0151193	15	1	12 days	0.53	Nakano	1998 YG ₃
1998 YJ ₃	13.6	0.15	19981213	154.65109	352.90681	307.60898	6.88759	0.1410629	2.1819581	6	1	9 days	0.57	E Nakano	1998 YJ ₃
1998 YK ₃	15.3	0.15	19981213	40.74605	89.14466	301.13202	2.47839	0.2943263	2.59933456	9	1	10 days	1.18	E Nakano	1998 YK ₃
1998 YL ₃	13.5	0.15	19981213	31.96666	46.74106	12.95328	1.01643	0.1665020	3.3187196	14	1	12 days	0.68	Nakano	1998 YL ₃
1998 YM ₃	10.8	0.15	19981213	326.54588	98.04862	45.85922	2.55638	0.0375411	5.1022714	6	1	9 days	0.44	E Nakano	1998 YM ₃
1998 YN ₃	13.2	0.15	19981213	102.23157	275.60030	72.28222	6.04668	0.1144064	2.5493389	6	1	9 days	0.42	Nakano	1998 YN ₃
1998 YQ ₃	14.1	0.15	19981213	16.48981	182.83540	236.74017	14.37735	0.1060580	2.8102251	9	1	6 days	0.33	Marsden	1998 YQ ₃
1998 YR ₃	13.5	0.15	19981213	42.84541	300.98824	119.32100	9.90274	0.0469639	2.7547877	8	1	8 days	0.53	Williams	1998 YR ₃
1998 YT ₃	13.1	0.15	19981213	45.06639	251.08953	154.56100	2.33508	0.1212305	3.0029399	10	1	9 days	0.46	Williams	1998 YT ₃
1998 YU ₃	14.2	0.15	19981213	313.11730	67.49234	99.49872	9.12612	0.1827947	2.5421376	10	1	9 days	0.73	Williams	1998 YU ₃
1998 YV ₃	14.4	0.15	19981213	57.04467	240.97231	139.44338	2.62703	0.1953749	3.0908522	10	1	6 days	0.16	E Williams	1998 YV ₃
1998 YW ₃	17.9	0.15	19981213	144.94268	194.79865	94.33619	28.74850	0.4621695	1.0999127	32	1	14 days	0.68	Marsden	1998 YW ₃
1998 YX ₃	14.5	0.15	19981213	5.32187	308.06100	123.89284	8.40493	0.1379951	2.7338475	7	1	4 days	0.34	Marsden	1998 YX ₃
1998 YY ₃	14.7	0.15	19981213	359.53942	0.27970	70.62632	8.04337	0.2113053	2.5453560	21	1	11 days	0.28	Williams	1998 YY ₃
1998 YZ ₃	12.1	0.15	19981213	1.88613	197.56893	264.83484	10.10038	0.1050269	3.0174744	6	1	7 days	0.24	Nakano	1998 YZ ₃
1998 YA ₄	13.6	0.15	19990102	85.22577	262.34846	115.27881	6.63905	0.0447372	2.4824134	8	1	8 days	0.44	E Nakano	1998 YA ₄
1998 YB ₄	14.9	0.15	19981213	41.30591	133.36654	260.93582	6.52042	0.2523163	2.2853356	6	1	7 days	0.41	Nakano	1998 YB ₄
1998 YC ₄	13.9	0.15	19981213	25.97761	298.04489	121.92216	6.27205	0.2070022	2.3334805	6	1	7 days	0.26	Nakano	1998 YC ₄
1998 YD ₄	12.5	0.15	19981213	35.05032	206.85010	204.40138	2.41140	0.2220919	3.2827607	6	1	7 days	0.46	Nakano	1998 YD ₄
1998 YE ₄	13.2	0.15	19981213	25.44893	170.19339	266.16492	10.15438	0.0851603	3.1679197	6	1	7 days	0.41	Nakano	1998 YE ₄
1998 YF ₄	15.2	0.15	19981213	31.87900	282.01757	131.26871	6.13611	0.2026094	2.3752539	9	1	10 days	0.56	Nakano	1998 YF ₄
1998 YG ₄	14.0	0.15	19981213	243.52115	63.38605	180.42596	1.59744	0.2536306	2.3447444	7	1	4 days	0.47	E Williams	1998 YG ₄
1998 YJ ₄	13.3	0.15	19981213	12.84387	271.64681	169.45563	10.83184	0.1261514	3.2352032	9	1	4 days	0.26	Williams	1998 YJ ₄
1998 YK ₄	15.4	0.15	19981213	337.20923	204.22423	261.56704	9.00631	0.1865461	2.8051680	13	1	6 days	0.70	Williams	1998 YK ₄
1998 YL ₄	14.6	0.15	19981213	286.53176	258.94308	312.69635	6.53518	0.0609501	2.3487039	15	1	10 days	0.57	Williams	1998 YL ₄
1998 YM ₄	19.7	0.15	19981213	30.45199	344.31178	341.95230	3.43504	0.7193647	1.4754808	99	1	15 days	0.59	Williams	1998 YM ₄
1998 YQ ₄	16.3	0.15	19981213	318.21353	291.61686	217.85965	22.49741	0.2713620	2.2700267	7	1	3 days	0.24	Williams	1998 YQ ₄
1998 YX ₄	17.5	0.15	19981213	1.19885	293.68800	136.92322	2.68108	0.1981003	2.2832789	9	1	8 days	0.13	Williams	1998 YX ₄
1998 YY ₄	15.7	0.15	19981213	17.16985	304.62417	102.90765	6.33101	0.1410753	3.1267802	9	1	8 days	0.17	Williams	1998 YY ₄
1998 YZ ₄	17.8	0.15	19981213	32.29452	244.14370	137.95884	3.07702	0.2333192	2.3752057	9	1	8 days	0.26	Williams	1998 YZ ₄
1998 YL ₅	15.0	0.15	19981213	300.14298	76.36938	69.83953	6.57875	0.1527414	2.2588685	22	1	12 days	0.49	Williams	1998 YL ₅
1998 YM ₅	14.7	0.15	19990102	32.93906	320.96329	89.56441	14.79667	0.0607721	2.5813570	17	1	19 days	0.66	Nakano	1998 YM ₅
1998 YO ₅	13.4	0.15	19990102	168.27057	8.96105	295.02734	13.97901	0.0595550	2.6455789	6	1	7 days	0.25	Nakano	1998 YO ₅

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1998 YP ₅	14.8	0.15	19990102	318.20375	7.51197	146.97371	1.61948	0.0518401	3.1320894	12	1	5 days	0.17	Nakano	1998 YP ₅
1998 YQ ₅	14.9	0.15	19981213	23.87870	120.12956	312.55014	2.48274	0.1466954	2.3497585	15	1	12 days	0.50	Williams	1998 YQ ₅
1998 YR ₅	12.5	0.15	19990102	255.73834	295.89795	296.08108	20.34768	0.1124564	3.1669885	6	1	7 days	0.60	Nakano	1998 YR ₅
1998 YS ₅	11.7	0.15	19990102	63.64044	288.39679	110.58240	11.28059	0.1178547	3.0075597	6	1	7 days	0.22	Nakano	1998 YS ₅
1998 YT ₅	14.8	0.15	19981213	351.57121	67.16960	46.20658	2.06757	0.2199091	3.1429435	16	1	12 days	0.55	Williams	1998 YT ₅
1998 YU ₅	16.1	0.15	19981213	4.27703	174.94078	278.65316	8.32224	0.1315658	2.4117665	8	1	8 days	0.28	Marsden	1998 YU ₅
1998 YW ₅	19.6	0.15	19981213	299.42870	354.56079	220.54006	8.52539	0.6285754	1.2503613	20	1	5 days	1.01	Nakano	1998 YW ₅
1998 YX ₅	15.4	0.15	19981213	26.16116	107.04599	312.53317	5.39465	0.1193209	2.4647378	12	1	9 days	0.81	Williams	1998 YX ₅
1998 YA ₆	14.2	0.15	19981213	243.40466	16.87263	176.88250	3.84914	0.0527949	2.1697425	13	1	9 days	0.48	Williams	1998 YA ₆
1998 YC ₆	12.2	0.15	19981213	174.80943	359.08965	251.58397	14.04622	0.1347941	2.7604580	15	1	9 days	0.43	Williams	1998 YC ₆
1998 YF ₆	15.6	0.15	19981213	346.75644	307.22970	153.63024	24.54117	0.1886655	2.1935927	7	1	2 days	0.13	Williams	1998 YF ₆
1998 YO ₆	15.5	0.15	19981213	357.23971	345.14426	90.99047	10.64091	0.1634134	2.5238775	9	1	4 days	0.07	Williams	1998 YO ₆
1998 YP ₆	11.5	0.15	19981213	359.25596	351.87358	76.85318	30.65002	0.0714057	5.1759120	9	1	4 days	0.41	E Williams	1998 YP ₆
1998 YR ₆	16.2	0.15	19981213	357.32570	26.00591	75.95857	4.48221	0.1717796	2.6103881	11	1	4 days	0.18	Williams	1998 YR ₆
1998 YS ₆	12.8	0.15	19981213	57.00207	137.53810	221.51051	0.13506	0.2260217	3.1551482	17	1	11 days	1.60	E Williams	1998 YS ₆
1998 YZ ₆	13.3	0.15	19981213	49.78563	264.45408	97.84462	9.90201	0.1806675	2.7956018	10	1	4 days	0.42	Williams	1998 YZ ₆
1998 YA ₇	13.5	0.15	19981213	8.07982	324.34272	94.70159	11.50428	0.1605200	2.9355160	11	1	4 days	0.29	Williams	1998 YA ₇
1998 YB ₇	13.3	0.15	19981213	15.76173	92.79382	296.87425	12.63007	0.1910085	2.5676228	9	1	7 days	0.35	Williams	1998 YB ₇
1998 YD ₇	12.8	0.15	19981213	341.84442	95.66125	21.84680	1.68816	0.1073795	2.8685897	13	1	8 days	0.51	Williams	1998 YD ₇
1998 YF ₇	12.2	0.15	19990102	100.76251	113.01290	228.51676	12.69959	0.1942322	3.1715453	14	1	7 days	0.38	Nakano	1998 YF ₇
1998 YG ₇	12.0	0.15	19990102	43.53804	102.04612	322.43320	9.41192	0.0993290	3.1887220	6	1	6 days	0.44	Nakano	1998 YG ₇
1998 YK ₇	14.4	0.15	19990102	7.31895	24.20232	81.60431	5.93487	0.1350758	2.6210257	6	1	7 days	0.32	Nakano	1998 YK ₇
1998 YL ₇	14.7	0.15	19990102	85.19945	309.52406	60.98118	6.02984	0.1684137	2.3110108	6	1	6 days	0.36	Nakano	1998 YL ₇
1998 YM ₇	14.0	0.15	19981213	58.17965	28.80690	331.70898	13.70528	0.2129076	2.5158005	11	1	7 days	0.55	Williams	1998 YM ₇
1998 YN ₇	13.9	0.15	19981213	321.20973	250.70890	240.73687	14.06484	0.1163738	2.6536056	14	1	4 days	0.80	Williams	1998 YN ₇
1998 YO ₇	15.2	0.15	19990102	18.76006	323.28392	87.95771	11.41891	0.2583057	2.7095884	7	1	4 days	0.14	Nakano	1998 YO ₇
1998 YP ₇	14.3	0.15	19981213	26.14391	295.65011	103.49944	11.41594	0.1195496	2.9728992	13	1	10 days	0.50	Williams	1998 YP ₇
1998 YQ ₇	15.1	0.15	19981213	302.27388	150.84510	20.87122	26.91562	0.1610928	2.3246652	9	1	10 days	0.46	Williams	1998 YQ ₇
1998 YU ₇	15.3	0.15	19981213	92.05916	77.44965	282.94319	7.33513	0.1522215	2.8312837	9	1	2 days	0.90	E Williams	1998 YU ₇
1998 YV ₇	14.1	0.15	19981213	66.42075	110.83810	287.22046	13.35131	0.0560098	3.2081918	9	1	2 days	0.77	E Williams	1998 YV ₇
1998 YW ₇	16.5	0.15	19981213	253.65870	298.62015	284.06337	4.35964	0.0965911	2.2328670	9	1	2 days	0.31	E Williams	1998 YW ₇
1998 YX ₇	15.7	0.15	19981213	24.43897	326.47820	111.67855	7.42777	0.0503545	2.2909043	6	1	3 days	0.19	Marsden	1998 YX ₇
1998 YZ ₇	17.1	0.15	19990102	64.50783	233.46594	138.67470	4.35860	0.1649004	2.1585850	9	1	4 days	0.15	Nakano	1998 YZ ₇
1998 YB ₈	18.8	0.15	19981213	359.48652	342.28048	106.77373	8.89084	0.4726338	2.4231090	58	1	16 days	0.63	Marsden	1998 YB ₈
1998 YD ₈	13.7	0.15	19990102	282.60938	83.34036	101.98786	15.88129	0.0515277	2.5974026	6	1	7 days	0.19	Nakano	1998 YD ₈
1998 YE ₈	16.1	0.15	19981213	352.49183	9.26260	85.37857	7.70400	0.2783817	2.6403196	16	1	11 days	0.76	Nakano	1998 YE ₈
1998 YF ₈	12.5	0.15	19990102	319.84479	301.70512	230.37461	4.59719	0.1554062	2.9850391	6	1	4 days	0.32	Nakano	1998 YF ₈
1998 YG ₈	13.7	0.15	19990102	283.28325	47.48612	188.83047	3.76541	0.3765807	2.1604617	6	1	4 days	0.35	E Nakano	1998 YG ₈
1998 YH ₈	12.9	0.15	19990102	20.94957	180.40204	261.25507	3.78123	0.2520846	2.8967590	6	1	4 days	0.13	Nakano	1998 YH ₈
1998 YK ₈	14.2	0.15	19990102	284.30099	88.44140	129.36837	5.72927	0.2176368	2.3175870	6	1	5 days	0.51	Nakano	1998 YK ₈
1998 YM ₈	16.1	0.15	19981213	12.50749	80.16212	338.77138	25.64048	0.3894069	2.4707555	10	1	9 days	0.33	Williams	1998 YM ₈
1998 YO ₈	13.3	0.15	19981213	274.24167	60.69820	143.06804	5.18399	0.0939254	2.2606691	11	1	7 days	0.33	E Williams	1998 YO ₈
1998 YP ₈	14.8	0.15	19981213	302.23300	47.58758	136.50710	2.18819	0.1776215	2.5365922	11	1	4 days	0.61	E Williams	1998 YP ₈
1998 YT ₈	13.4	0.15	19981213	51.81823	258.11485	105.63182	3.35990	0.1128523	2.8999210	16	1	9 days	0.38	Williams	1998 YT ₈
1998 YX ₈	15.2	0.15	19981213	330.85047	355.58940	106.78947	2.95182	0.0946458	2.8169812	11	1	2 days	0.43	E Williams	1998 YX ₈
1998 YY ₈	14.7	0.15	19981213	154.49024	168.92087	95.36987	3.70468	0.1864452	2.5989143	12	1	4 days	0.26	E Williams	1998 YY ₈
1998 YA ₉	13.8	0.15	19981213	99.64411	66.80293	237.97350	10.61851	0.2002718	2.9843454	13	1	4 days	0.25	E Williams	1998 YA ₉
1998 YB ₉	15.7	0.15	19981213	104.46786	94.72509	211.54450	2.91204	0.1644279	2.2761094	16	1	5 days	0.34	E Williams	1998 YB ₉
1998 YC ₉	17.3	0.15	19981213	11.36062	290.79943	122.01556	2.03416	0.1828989	2.4104937	8	1	2 days	0.39	E Williams	1998 YC ₉
1998 YF ₉	15.1	0.15	19981213	10.61728	291.83757	121.59909	2.15425	0.0994556	3.1994878	12	1	4 days	0.34	E Williams	1998 YF ₉
1998 YK ₉	14.8	0.15	19981213	275.57599	308.89844	259.98688	1.97154	0.1859660	2.8392561	7	1	2 days	0.24	E Marsden	1998 YK ₉
1998 YY ₉	13.9	0.15	19981213	354.27896	354.69752	122.22410	2.35190	0.1001888	2.9765719	8	1	4 days	0.35	E Williams	1998 YY ₉
1998 YB ₁₀	17.6	0.15	19981213	324.69769	219.23744	273.59110	2.01837	0.2335623	2.2281741	9	1	3 days	0.65	Williams	1998 YB ₁₀

1998 YC ₁₀	14.9	0.15	19981213	265.83051	112.64753	73.52189	7.05188	0.1447412	3.0635272	9	1	3 days	0.23	E	Williams	1998 YC ₁₀	
1998 YF ₁₀	20.6	0.15	19981213	32.35198	296.38511	86.03456	15.60286	0.2477061	1.4908627	13	1	12 days	0.38		Williams	1998 YF ₁₀	
1998 YG ₁₀	19.2	0.15	19981213	3.62304	331.84444	91.41509	9.73148	0.4247258	2.5685435	18	1	6 days	0.22		Williams	1998 YG ₁₀	
1998 YJ ₁₀	14.7	0.15	19981213	135.26466	36.32173	290.99811	13.65614	0.0831239	2.5056044	7	1	4 days	0.17	E	Williams	1998 YJ ₁₀	
1998 YK ₁₀	13.9	0.15	19981213	109.85450	50.09193	291.98971	11.69166	0.1806801	2.6033524	7	1	4 days	0.10	E	Williams	1998 YK ₁₀	
1998 YL ₁₀	16.5	0.15	19981213	337.57655	24.35271	110.11809	2.28160	0.1677966	2.3023336	7	1	4 days	0.14	E	Williams	1998 YL ₁₀	
1998 YO ₁₀	15.3	0.15	19981213	24.30331	330.25527	84.95488	3.11015	0.2131227	2.3154918	11	1	12 days	0.62		Williams	1998 YO ₁₀	
1998 YP ₁₁	17.0	0.15	19981213	304.57666	74.54880	145.01774	15.01547	0.3873164	1.7124898	29	1	6 days	0.48		Williams	1998 YP ₁₁	
1998 YQ ₁₁	17.9	0.15	19981213	344.51830	246.07905	255.83073	11.54370	0.3617530	1.7569722	24	1	5 days	0.63		Williams	1998 YQ ₁₁	
1998 YR ₁₁	18.3	0.15	19981213	10.65367	318.31509	111.71418	58.56048	0.4427538	1.8796396	27	1	6 days	0.56		Williams	1998 YR ₁₁	
1998 YU ₁₁	13.3	0.15	19990102	31.22327	314.89648	106.78600	6.93470	0.1369267	3.1029465	5	1	7 days	0.47		Nakano	1998 YU ₁₁	
1998 YA ₁₂	14.2	0.15	19990102	178.35226	334.59798	323.90423	6.28001	0.0815139	2.2102374	6	1	2 days	1.12	E	Nakano	1998 YA ₁₂	
1998 YB ₁₂	11.2	0.15	19990102	301.78925	140.89982	69.77028	3.21916	0.2902189	3.0917400	6	1	2 days	0.20	E	Nakano	1998 YB ₁₂	
1998 YC ₁₂	13.2	0.15	19990102	190.23556	332.10122	315.91925	6.31870	0.0305502	2.3020397	6	1	2 days	0.43	E	Nakano	1998 YC ₁₂	
1998 YD ₁₂	13.0	0.15	19990102	57.49269	102.87459	306.21368	15.46176	0.1081774	2.5905552	6	1	2 days	0.32	E	Nakano	1998 YD ₁₂	
1998 YE ₁₂	12.4	0.15	19990102	102.28610	265.48705	99.45542	10.81116	0.1238168	2.9542551	6	1	2 days	0.14		Nakano	1998 YE ₁₂	
1998 YF ₁₂	11.6	0.15	19990102	178.28936	212.48548	89.08245	8.73477	0.0223350	2.8745977	6	1	2 days	0.35		Nakano	1998 YF ₁₂	
1998 YG ₁₂	14.4	0.15	19990102	28.57380	353.65103	65.71660	3.04350	0.3336334	2.5552900	6	1	2 days	0.15	E	Nakano	1998 YG ₁₂	
1998 YH ₁₂	14.5	0.15	19981213	7.95848	163.00625	289.60778	18.98537	0.0572353	3.2102876	10	1	9 days	0.23		Williams	1998 YH ₁₂	
1998 YM ₁₂	14.2	0.15	19990102	63.32296	346.73913	47.42818	2.62869	0.1125513	2.9483004	6	1	2 days	0.28	E	Nakano	1998 YM ₁₂	
1998 YD ₁₄	15.0	0.15	19981213	153.25823	176.59706	90.29801	8.33309	0.0822784	2.6570893	12	1	8 days	0.13		Williams	1998 YD ₁₄	
1998 YF ₂₇	16.0	0.15	19981213	331.31815	32.53417	119.70150	46.35010	0.1973721	1.8892381	17	1	6 days	0.91		Williams	1998 YF ₂₇	
2076 P-L	14.6	0.15	19990122	42.47328	167.54449	213.34011	6.66695	0.2181687	2.2784895	42	2	1960-1998	0.62	M-v	3	Williams	33383 2076 P-L
2164 P-L	14.3	0.15	19990122	103.29551	50.23395	290.67919	2.18932	0.1855202	2.4117307	18	3	1960-1998	0.69	M-v	5	Williams	22086 2164 P-L
2507 P-L	15.9	0.15	19990122	350.40936	80.44529	2.39250	5.75293	0.1207822	2.2779533	20	2	1960-1998	0.82	M-v	5	Williams	33323 2507 P-L
2530 P-L	14.7	0.15	19990122	349.83303	35.38894	22.95316	4.68756	0.1310102	2.2870427	62	3	1960-1998	0.70	M-v	4	Williams	33383 2530 P-L
2541 P-L	15.1	0.15	19990122	84.75590	321.06677	29.79120	1.02704	0.2153957	2.4157653	19	5	1960-1998	0.60	M-v	2	Williams	21977 2541 P-L
2546 P-L	14.8	0.15	19990122	13.28531	255.72781	185.89349	14.82930	0.0931658	2.5853835	16	4	1960-1998	0.67	M-v	1	Williams	27732 2546 P-L
2577 P-L	14.9	0.15	19990122	128.66228	293.74563	348.80564	0.54220	0.1305155	2.4224013	40	4	1960-1998	0.77	M-v	3	Williams	33383 2577 P-L
2582 P-L	15.7	0.15	19990122	31.69192	24.91541	30.61188	3.31607	0.1507964	2.4190364	18	3	1960-1998	0.68	M-v	4	Williams	24114 2582 P-L
2620 P-L	14.8	0.15	19990122	267.39084	162.59295	29.40678	1.64099	0.1151725	2.5780909	25	4	1960-1998	0.84	M-v	2	Williams	27938 2620 P-L
2648 P-L	15.7	0.15	19990122	21.38573	22.45613	40.98938	1.84200	0.1627022	2.4216398	19	4	1960-1998	0.69	M-v	2	Williams	24409 2648 P-L
2678 P-L	15.5	0.15	19990122	315.14880	32.41358	117.23280	2.13944	0.1273060	2.4095691	27	4	1960-1998	0.71	M-v	1	Williams	27328 2678 P-L
2777 P-L	14.3	0.15	19990122	187.42046	99.82813	159.67387	2.91935	0.1688410	2.4049754	29	9	1949-1998	0.91	M-v	2	Williams	31022 2777 P-L
2808 P-L	15.2	0.15	19990122	309.83815	311.31449	180.30033	2.03994	0.1499407	2.4248549	41	6	1960-1998	0.78	M-v	1	Williams	33383 2808 P-L
2818 P-L	15.1	0.15	19990122	272.50529	170.92893	43.61609	4.71173	0.1413837	2.3915996	16	3	1960-1998	0.65	M-v	4	Williams	27320 2818 P-L
3005 P-L	13.0	0.15	19990122	198.36719	346.70907	280.09197	9.35525	0.0649847	3.0183942	22	3	1960-1998	0.70	M-v	3	Williams	22700 3005 P-L
3039 P-L	14.5	0.15	19990122	49.16147	149.57405	247.40052	6.86114	0.2246194	2.7977143	34	4	1960-1998	0.70	M-v	1	Williams	31022 3039 P-L
3063 P-L	13.0	0.15	19990122	264.82783	247.86230	291.27276	6.92476	0.0157838	3.3560530	26	4	1960-1998	0.62	M-v	1	Williams	27724 3063 P-L
3087 P-L	12.4	0.15	19990122	67.71008	86.99358	261.44230	8.31221	0.1055935	3.0616313	48	3	1960-1998	0.60	M-v	2	Williams	33383 3087 P-L
4013 P-L	15.0	0.15	19990122	71.97006	135.86010	205.69713	7.33509	0.2444013	2.8005305	20	2	1960-1998	0.56	M-v	4	Williams	33324 4013 P-L
4026 P-L	13.2	0.15	19990122	106.18765	249.33103	359.75936	13.28401	0.1243856	2.6276993	42	4	1960-1998	0.74	M-v	4	Williams	33383 4026 P-L
4028 P-L	14.1	0.15	19990122	32.00317	224.19844	207.41367	7.16066	0.1751323	2.5849896	28	6	1960-1998	0.66	M-v	1	Williams	30696 4028 P-L
4070 P-L	14.5	0.15	19990122	17.38404	190.42848	300.66978	3.03560	0.1208733	2.5585488	20	4	1960-1998	0.69	M-v	3	Williams	31022 4070 P-L
4105 P-L	15.6	0.15	19990122	1.24124	204.98872	229.13877	4.03040	0.2463231	2.6051079	24	2	1960-1998	0.45	M-v	4	Williams	33324 4105 P-L
4139 P-L	11.0	0.15	19990122	28.51813	55.62852	3.31093	17.34271	0.0146734	5.2833323	26	4	1960-1998	0.68	M-v	0	Williams	33383 4139 P-L
4525 P-L	13.7	0.15	19990122	6.70793	183.20029	206.86206	1.16753	0.1889965	3.0855608	42	2	1960-1998	0.69	M-v	4	Williams	33054 4525 P-L
4572 P-L	11.5	0.15	19990122	12.23834	43.25183	16.84916	9.06615	0.0819536	5.3275149	27	4	1960-1998	0.68	M-v	1	Williams	31000 4572 P-L
4602 P-L	14.2	0.15	19990122	15.80604	249.56652	150.02047	0.92584	0.1824662	3.0761745	60	2	1960-1998	0.57	M-v	3	Williams	33383 4602 P-L
4646 P-L	12.7	0.15	19990122	293.47719	288.60208	186.08041	10.83153	0.1211471	3.0878040	75	2	1960-1998	0.68	M-v	4	Williams	33383 4646 P-L
4805 P-L	15.1	0.15	19990122	268.21487	198.13585	21.13910	2.31885	0.1633305	2.3888440	54	9	1950-1998	0.80	M-v	2	Williams	30797 4805 P-L
4812 P-L	15.1	0.15	19990122	14.89502	349.79506	59.85616	0.85820	0.2125455	3.0758515	25	3	1960-1998	0.75	M-v	5	Williams	33383 4812 P-L
6059 P-L	13.9	0.15	19990122	25.99227	200.30129	222.37366	3.61384	0.0514073	2.7883294	21	2	1960-1998	0.82	M-v	5	Williams	33325 6059 P-L

6063 P-L	15.5	0.15	19990122	50.70507	5.04021	314.55275	2.39257	0.1454421	2.1628436	38	5	1960-1998	0.71	M-v	2	Williams	33129	6063 P-L
6071 P-L	13.0	0.15	19990122	277.69533	341.59815	196.72254	8.90966	0.0928190	2.7793690	32	6	1954-1998	0.60	M-v	1	Williams	30696	6071 P-L
6075 P-L	16.3	0.15	19990122	17.62541	217.19762	193.23096	6.67590	0.1949697	2.2784313	18	2	1960-1998	0.62	M-v	4	Williams	33325	6075 P-L
6113 P-L	14.8	0.15	19990122	186.72253	319.41949	331.23242	1.18195	0.1415959	2.5583092	23	3	1960-1998	0.51	M-v	4	Williams	30914	6113 P-L
6299 P-L	14.8	0.15	19990122	347.17879	284.42748	195.36621	13.32449	0.1563955	2.7845121	24	3	1960-1998	0.99	M-v	3	Williams	22087	6299 P-L
6519 P-L	13.5	0.15	19990122	340.26947	94.31109	29.39327	3.42459	0.1799701	3.0401540	31	3	1960-1998	0.70	M-v	4	Williams	33383	6519 P-L
6577 P-L	13.8	0.15	19990122	109.87240	179.69429	126.15241	1.86511	0.1506834	2.7953695	22	2	1960-1998	0.62	M-v	5	Williams	33325	6577 P-L
6594 P-L	15.0	0.15	19990122	21.51091	195.46733	177.78078	6.35719	0.0721989	2.4341611	51	3	1960-1998	0.91	M-v	4	Williams	33129	6594 P-L
6599 P-L	14.3	0.15	19990122	332.21466	14.64359	110.39802	1.67769	0.0787310	2.5786085	27	2	1960-1998	0.63	M-v	5	Williams	33325	6599 P-L
6605 P-L	15.3	0.15	19990122	10.33857	258.41637	150.91089	3.68317	0.1879771	2.6041718	28	2	1960-1998	0.75	M-v	4	Williams	33325	6605 P-L
6629 P-L	10.4	0.15	19990122	349.39691	319.25284	162.63379	4.20265	0.0066015	5.1897262	35	5	1960-1998	0.77	M-v	1	Williams	31161	6629 P-L
7061 P-L	15.1	0.15	19990122	13.11343	178.73417	213.48285	5.56143	0.1285260	2.4328377	59	3	1960-1998	0.69	M-v	3	Williams	33384	7061 P-L
7066 P-L	12.3	0.15	19990122	129.80297	109.73409	205.20292	11.73623	0.1604859	3.0269454	17	4	1960-1998	0.70	M-v	3	Williams	33129	7066 P-L
7639 P-L	14.6	0.15	19990122	287.66153	79.04477	93.20245	4.38553	0.1837764	2.5763655	19	6	1960-1998	0.82	M-v	1	Williams	33384	7639 P-L
9070 P-L	13.3	0.15	19990122	61.06484	165.05849	209.58489	7.63456	0.2349754	2.7957825	19	4	1960-1998	0.79	M-v	2	Williams	28892	9070 P-L
9072 P-L	14.4	0.15	19990122	193.60916	25.62377	213.14798	5.98619	0.0586634	2.7898130	24	4	1960-1998	0.59	M-v	1	Williams	33384	9072 P-L
9515 P-L	14.2	0.15	19990122	65.00608	341.62474	52.12942	3.63279	0.0925135	2.5763071	23	5	1960-1998	0.81	M-v	2	Williams	28892	9515 P-L
9525 P-L	15.3	0.15	19990122	47.20767	336.64985	57.23417	3.50030	0.1282330	2.2691875	36	5	1960-1998	0.63	M-v	2	Williams	30474	9525 P-L
9538 P-L	14.7	0.15	19990122	160.52890	129.76073	158.22624	1.57170	0.0364505	2.2622599	34	6	1960-1998	0.77	M-v	2	Williams	30474	9538 P-L
1137 T-1	14.4	0.15	19990122	103.68824	45.01899	285.37174	3.14283	0.1714264	2.1771981	38	5	1971-1998	0.73	M-v	3	Williams	26929	1137 T-1
1252 T-1	14.7	0.15	19990122	285.26397	346.02242	198.42689	6.55225	0.0392916	2.3539884	33	5	1971-1998	0.58	M-v	1	Williams	30797	1252 T-1
1293 T-1	15.1	0.15	19990122	78.69803	32.52913	345.22452	3.91585	0.0941456	2.1609170	27	4	1953-1998	0.91	M-v	2	Williams	23533	1293 T-1
2175 T-1	14.5	0.15	19990122	301.21250	302.92765	177.14648	5.79491	0.0887482	2.3579474	64	3	1971-1998	0.82	M-v	4	Williams	33384	2175 T-1
2198 T-1	13.8	0.15	19990122	338.46677	27.86899	83.68800	2.85860	0.1452713	3.2176232	27	3	1971-1998	0.85	M-v	4	Williams	33384	2198 T-1
2234 T-1	13.9	0.15	19990122	33.30891	94.40937	14.21088	12.93153	0.1103618	2.5283199	20	3	1971-1998	0.93	M-v	3	Williams	25336	2234 T-1
2312 T-1	14.0	0.15	19990122	37.13920	10.67606	36.14019	2.56283	0.0505468	2.8657603	30	5	1949-1998	1.01	M-v	1	Williams	25085	2312 T-1
3089 T-1	15.2	0.15	19990122	11.88025	204.87453	251.17695	2.06349	0.0858365	2.3328736	26	4	1971-1998	0.80	M-v	2	Williams	30285	3089 T-1
3300 T-1	16.1	0.15	19990122	177.63941	344.54800	327.99076	2.33204	0.1937342	2.1574826	29	4	1971-1998	0.90	M-v	2	Williams	33384	3300 T-1
3306 T-1	15.2	0.15	19990122	105.94232	136.22012	167.87321	2.46101	0.2113753	2.3846997	49	4	1971-1998	0.77	M-v	2	Williams	33384	3306 T-1
4161 T-1	13.2	0.15	19990122	119.33907	142.87854	182.93232	14.78046	0.1436781	2.5865853	36	6	1971-1998	0.72	M-v	1	Williams	30474	4161 T-1
4195 T-1	13.9	0.15	19990122	226.35947	135.99902	95.80962	3.18547	0.0184521	2.8587133	40	4	1971-1998	0.75	M-v	1	Williams	30293	4195 T-1
4298 T-1	15.2	0.15	19990122	131.49521	155.04780	135.63467	3.22661	0.1641582	2.3739883	26	6	1971-1998	0.95	M-v	2	Williams	30095	4298 T-1
1259 T-2	13.6	0.15	19990122	297.38644	91.12676	31.98259	2.35982	0.0448396	2.8925172	34	2	1973-1998	1.00	M-v	5	Williams	33326	1259 T-2
1265 T-2	15.0	0.15	19990122	328.14977	285.76262	206.11829	1.41514	0.1265686	2.5449549	22	3	1973-1998	0.79	M-v	5	Williams	22695	1265 T-2
1320 T-2	14.6	0.15	19990122	46.23831	317.69260	358.92953	9.80903	0.0982158	2.9447133	25	2	1973-1998	0.94	M-v	5	Williams	32732	1320 T-2
2078 T-2	15.1	0.15	19990122	58.77455	177.68825	186.13518	4.51179	0.1665114	2.3206038	37	4	1973-1998	0.93	M-v	2	Williams	33384	2078 T-2
3020 T-2	13.7	0.15	19990122	71.84477	334.18386	5.44023	14.19003	0.2215725	2.8831928	31	4	1973-1998	0.85	M-v	3	Williams	33384	3020 T-2
3025 T-2	15.5	0.15	19990122	78.56699	256.98108	121.95202	2.35470	0.1869317	2.3013227	35	6	1973-1998	0.75	M-v	3	Williams	33130	3025 T-2
3222 T-2	15.9	0.15	19990122	63.34613	320.21364	30.91651	3.33859	0.1432656	2.3227128	35	2	1973-1998	0.84	M-v	5	Williams	33327	3222 T-2
4064 T-2	14.5	0.15	19990122	331.89767	324.37946	176.92516	8.51851	0.0309417	2.2926060	30	4	1973-1998	0.91	M-v	2	Williams	31269	4064 T-2
4196 T-2	13.2	0.15	19990122	156.44923	231.92058	76.54709	3.20146	0.0696612	2.8378272	46	4	1973-1998	0.62	M-v	1	Williams	30914	4196 T-2
4216 T-2	12.2	0.15	19990122	123.32790	143.88970	169.28300	9.29952	0.1521393	3.9600460	39	7	1973-1998	0.70	M-v	1	Williams	31161	4216 T-2
4257 T-2	14.5	0.15	19990122	94.92651	246.07724	71.37264	3.12450	0.0627317	2.8928239	32	2	1973-1998	0.89	M-v	6	Williams	33327	4257 T-2
5049 T-2	15.2	0.15	19990122	240.23662	283.00603	280.98154	8.25567	0.1044137	2.3059827	33	3	1973-1998	0.84	M-v	4	Williams	33384	5049 T-2
5148 T-2	14.3	0.15	19990122	109.95723	39.51497	309.00298	6.34622	0.2173063	2.2968045	28	5	1973-1998	0.74	M-v	3	Williams	29142	5148 T-2
5159 T-2	11.2	0.15	19990122	18.27178	91.21520	323.56800	10.54406	0.0082672	5.1491663	43	4	1973-1998	0.68	M-v	2	Williams	31023	5159 T-2
5187 T-2	11.1	0.15	19990122	331.15820	230.74285	240.13453	8.60083	0.0313549	5.1328172	33	7	1954-1998	0.80	M-v	1	Williams	31023	5187 T-2
5211 T-2	12.9	0.15	19990122	355.47671	207.55567	228.67698	9.19000	0.2098173	2.9043580	51	3	1973-1998	0.61	M-v	3	Williams	33384	5211 T-2
5482 T-2	14.2	0.15	19990122	118.36804	6.08240	315.45436	6.95918	0.1998265	2.3033388	20	3	1973-1998	0.90	M-v	6	Williams	15259	5482 T-2
1084 T-3	14.0	0.15	19990122	49.89756	125.10966	248.68535	8.38043	0.0977671	2.9839057	40	3	1977-1998	0.81	M-v	3	Williams	33384	1084 T-3
1107 T-3	13.0	0.15	19990122	177.30873	66.62005	241.50599	13.00546	0.1521577	2.8859617	33	4	1977-1998	0.90	M-v	3	Williams	31436	1107 T-3
1144 T-3	14.1	0.15	19990122	25.46881	75.91778	336.89174	8.66822	0.0569007	2.9726281	31	3	1977-1998	0.96	M-v	4	Williams	33384	1144 T-3
2157 T-3	15.0	0.15	19990122	32.15282	181.13925	240.54312	4.07775	0.1082233	2.2783686	39	4	1977-1998	0.65	M-v	4	Williams	22432	2157 T-3

2272 T-3	15.0	0.15	19990122	359.88779	66.23927	2.49871	4.78517	0.1481697	2.2993642	40	4	1977–1998	0.78	M-v	3	Williams	33384	2272 T-3
2288 T-3	15.1	0.15	19990122	40.53536	7.41109	351.92720	5.07907	0.1977776	2.3062923	66	4	1977–1998	0.71	M-v	3	Williams	33384	2288 T-3
2349 T-3	13.6	0.15	19990122	8.42984	187.30135	223.45746	9.46378	0.0682274	3.0006531	36	2	1977–1998	0.69	M-v	4	Williams	33328	2349 T-3
2407 T-3	15.7	0.15	19990122	133.25092	358.17115	356.34649	1.35180	0.0745227	2.9008821	40	3	1977–1998	0.70	M-v	4	Williams	25540	2407 T-3
2496 T-3	13.9	0.15	19990122	160.16240	48.25683	218.33975	8.94919	0.0203132	2.9785133	23	2	1977–1998	0.96	M-v	6	Williams	33328	2496 T-3
3101 T-3	14.8	0.15	19990122	79.90799	285.36025	39.65593	8.49657	0.0974629	2.3014662	61	3	1977–1998	0.90	M-v	5	Williams	33384	3101 T-3
3178 T-3	14.8	0.15	19990122	34.33035	350.03833	61.12367	0.70096	0.1450347	2.9723221	31	4	1977–1998	0.85	M-v	2	Williams	25337	3178 T-3
3229 T-3	15.7	0.15	19990122	30.38361	342.16935	51.51654	2.43596	0.2228079	2.5887983	23	2	1977–1998	0.85	M-v	4	Williams	33328	3229 T-3
3320 T-3	14.7	0.15	19990122	53.66188	293.35483	77.85147	2.05522	0.1270520	2.5801845	31	2	1977–1998	0.88	M-v	5	Williams	33328	3320 T-3
3398 T-3	14.3	0.15	19990122	61.36197	266.78087	151.63459	2.23404	0.1272818	2.2616149	44	7	1950–1999	0.86	M-v	1	Williams	27732	3398 T-3
3437 T-3	14.7	0.15	19990122	163.20037	272.36153	13.86641	2.62606	0.1458981	2.5441045	38	4	1977–1998	0.88	M-v	4	Williams	30798	3437 T-3
4032 T-3	15.0	0.15	19990122	11.98049	325.75114	54.94665	4.68624	0.1765517	2.3159447	43	4	1949–1998	0.82	M-v	3	Williams	32787	4032 T-3
4052 T-3	14.7	0.15	19990122	233.38044	152.08867	55.02408	7.68807	0.0529372	2.2807447	36	3	1977–1998	0.70	M-v	3	Williams	33385	4052 T-3
4157 T-3	14.9	0.15	19990122	309.83808	345.94958	163.89489	5.93378	0.1024124	2.2761814	46	6	1977–1998	0.99	M-v	2	Williams	27124	4157 T-3
4205 T-3	13.8	0.15	19990122	93.20125	218.33602	97.94346	3.56260	0.2105088	2.5779967	34	2	1977–1998	0.66	M-v	5	Williams	33329	4205 T-3
4310 T-3	14.5	0.15	19990122	198.40546	167.33665	65.72461	5.67587	0.0957201	2.2852643	47	4	1977–1998	0.85	M-v	4	Williams	33385	4310 T-3
4327 T-3	14.1	0.15	19990122	240.61933	138.89228	56.07563	9.28688	0.1103743	2.5738948	39	3	1977–1998	0.91	M-v	4	Williams	33385	4327 T-3
4336 T-3	15.2	0.15	19990122	207.03206	51.51385	161.81621	7.69306	0.0477783	2.2968956	24	3	1977–1998	1.18	M-v	4	Williams	33130	4336 T-3
5041 T-3	12.9	0.15	19990122	99.71519	118.03196	152.26615	11.71318	0.0992967	3.0472807	65	4	1977–1998	0.77	M-v	2	Williams	33130	5041 T-3
5134 T-3	15.5	0.15	19990122	23.74714	289.60502	135.57329	6.49265	0.1522034	2.2855607	26	3	1977–1998	0.82	M-v	4	Williams	24915	5134 T-3

1998 FL₄₁ = 1998 FX₁₃₈ (S. Nakano)
 1998 FG₄₈ = 1998 HU₁₃ (S. Nakano)
 1998 FH₆₈ = 1998 HH₁₃₅ (S. Nakano)
 1998 FR₇₄ = 1998 FU₁₃₁ (S. Nakano)
 1998 FP₁₁₉ = 1998 HY₄ (S. Nakano)
 1998 GO₂ = 1998 KS₉ (S. Nakano)
 1998 HD₂₅ = 1998 HA₁₃₁ (S. Nakano)
 1998 QN₄₁ = 1998 RP₂₄ (S. Nakano)
 1998 QB₆₀ = 1998 SJ₁₆ (S. Nakano)
 1998 QF₇₆ = 1998 QT₉₆ (S. Nakano)
 1998 QJ₈₇ = 1998 QR₉₆ (S. Nakano)
 1998 QY₉₁ = 1998 VR₁₀ (S. Nakano)
 1998 RC₂₀ = 1998 SU₅ (S. Nakano)
 1998 RL₃₄ = 1998 TD₃₀ (S. Nakano)
 1998 RB₃₉ = 1998 TC₃₀ (S. Nakano)
 1998 RV₆₈ = 1998 SF₉₈ (S. Nakano)
 1998 RH₆₉ = 1998 SE₈₆ (S. Nakano)
 1998 RA₇₃ = 1998 SA₉₉ (S. Nakano)
 1998 SY₃₉ = 1998 SR₁₀₆ (S. Nakano)
 1998 SD₄₆ = 1998 UC₃₇ (S. Nakano)
 1998 SZ₄₈ = 1998 SW₇₉ (S. Nakano)
 1998 SN₅₀ = 1998 UZ₃₆ (S. Nakano)
 1998 SV₅₅ = 1998 SS₈₁ (S. Nakano)
 1998 SL₆₀ = 1998 SX₁₀₃ (S. Nakano)
 1998 SG₆₄ = 1998 UG₃₈ (S. Nakano)
 1998 SN₇₈ = 1998 TH₁₈ (S. Nakano)
 1998 SN₈₁ = 1998 SZ₇₅ (S. Nakano)
 1998 SY₁₁₈ = 1998 TE₂₃ (S. Nakano)
 1998 SQ₁₃₈ = 1998 SU₁₄₃ (S. Nakano)
 1998 SW₁₃₉ = 1998 UW₃₆ (S. Nakano)
 1998 SW₁₄₆ = 1998 UH₄₂ (G. V. Williams)
 1998 SL₁₅₆ = 1998 TM₂₄ (S. Nakano)

1998 SZ₁₆₂ = 1998 UT₃₇ (G. V. Williams)
 1998 TE₂ = 1998 UA₄₀ (S. Nakano)
 1998 TG₂ = 1998 UD₄₀ (S. Nakano)
 1998 TY₁₈ = 1998 UC₃₉ (S. Nakano)
 1998 TA₁₉ = 1998 UQ₃₉ (S. Nakano)
 1998 TB₁₉ = 1998 UY₃₉ (S. Nakano)
 1998 TC₁₉ = 1998 UU₃₉ (G. V. Williams)
 1998 TM₃₃ = 1998 VE₁₃ (S. Nakano)
 1998 UL₃₂ = 1998 VT₃₅ (G. V. Williams)
 1998 VU = 1998 TK₃₃ (B. G. Marsden, *MPC* 33385)
 1998 VW₆ = 1998 UG₃₁ (S. Nakano)
 1998 WP₈ = 1998 WV₇ (G. V. Williams)
 1998 WW₁₈ = 1998 WG₄ (G. V. Williams)

EPHEMERIDES

1996 EO		$a, e, i = 1.34, 0.40, 22$				Elements <i>MPC</i> 27328		
Date	TT	α_{2000}	δ_{2000}	Δ	r	Variation		V
1999 01 02		21 47.10	+06 54.8	0.776	0.805	+0.88	−48.0	20.7
1999 01 07		22 00.69	+10 53.9	0.741	0.804	+1.10	−50.4	20.6
1999 01 12		22 14.75	+14 59.1	0.705	0.808	+1.30	−53.0	20.6
1999 01 17		22 29.59	+19 10.1	0.669	0.816	+1.48	−55.7	20.6
1999 01 22		22 45.67	+23 26.4	0.634	0.828	+1.61	−58.6	20.5
1999 01 27		23 03.54	+27 47.4	0.599	0.844	+1.65	−62.1	20.5
1999 02 01		23 23.97	+32 11.6	0.567	0.864	+1.55	−66.0	20.4
1999 02 06		23 48.00	+36 35.8	0.537	0.887	+1.22	−70.4	20.3
1999 02 11		00 16.95	+40 53.6	0.510	0.912	+0.53	−74.8	20.2
1999 02 16		00 52.30	+44 53.2	0.487	0.939	−0.67	−78.1	20.1
1999 02 21		01 35.34	+48 15.4	0.470	0.968	−2.51	−78.1	20.0
1999 02 26		02 26.15	+50 34.3	0.459	0.998	−4.89	−72.3	19.9
1999 03 03		03 22.37	+51 24.1	0.455	1.029	−7.25	−58.9	19.9
1999 03 08		04 19.13	+50 32.9	0.459	1.061	−8.82	−39.2	19.9

1999 03 13	05 11.31	+48 11.2	0.471	1.094	-9.24	-17.7	19.9
1999 03 18	05 56.08	+44 46.1	0.491	1.126	-8.77	+1.2	19.9
1999 03 23	06 33.18	+40 47.9	0.519	1.158	-7.87	+15.6	20.0
1999 03 28	07 03.69	+36 40.6	0.553	1.191	-6.88	+25.2	20.1
1999 04 02	07 29.02	+32 39.5	0.593	1.223	-5.95	+31.0	20.3
1999 04 07	07 50.43	+28 52.7	0.639	1.254	-5.15	+34.1	20.4
1999 04 12	08 08.91	+25 23.4	0.689	1.285	-4.46	+35.2	20.6
1999 04 17	08 25.21	+22 12.1	0.742	1.316	-3.89	+35.2	20.8
1999 04 22	08 39.87	+19 17.9	0.798	1.346	-3.41	+34.4	21.0
1999 04 27	08 53.29	+16 39.0	0.857	1.375	-3.01	+33.2	21.1
1999 05 02	09 05.73	+14 13.6	0.918	1.404	-2.67	+31.7	21.3
1999 05 07	09 17.42	+11 59.8	0.981	1.432	-2.39	+30.2	21.5
1999 05 12	09 28.53	+09 56.0	1.045	1.459	-2.15	+28.6	21.6
1999 05 17	09 39.18	+08 00.7	1.110	1.485	-1.94	+27.1	21.7
1999 05 22	09 49.49	+06 12.5	1.177	1.511	-1.77	+25.6	21.9

1998 TT ₃		$a, e, i = 2.32, 0.50, 22$				Elements <i>MPC</i> 33570	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ V
1999 01 02	22 52.5		+76 07.7	0.443	1.183	105.8	53.1 19.1
1999 01 07	23 05.7		+78 11.1	0.461	1.196	106.0	52.2 19.2
1999 01 12	23 30.4		+80 13.8	0.479	1.210	106.6	51.1 19.3
1999 01 17	00 14.7		+82 08.0	0.496	1.227	107.4	49.9 19.4
1999 01 22	01 30.9		+83 34.4	0.514	1.247	108.5	48.5 19.5
1999 01 27	03 19.9		+83 56.6	0.533	1.268	109.7	47.0 19.5
1999 02 01	05 04.0		+82 51.2	0.552	1.290	110.9	45.5 19.6
1999 02 06	06 14.2		+80 39.0	0.573	1.315	112.2	44.0 19.7
1999 02 11	06 57.7		+77 49.7	0.596	1.340	113.4	42.5 19.8
1999 02 16	07 26.2		+74 40.1	0.621	1.367	114.5	41.1 19.9
1999 02 21	07 46.6		+71 19.2	0.648	1.395	115.3	39.8 20.0
1999 02 26	08 02.30		+67 52.7	0.679	1.424	115.9	38.7 20.1
1999 03 03	08 15.18		+64 24.7	0.712	1.454	116.2	37.7 20.2
1999 03 08	08 26.26		+60 58.0	0.750	1.484	116.1	36.9 20.3
1999 03 13	08 36.16		+57 34.9	0.791	1.515	115.8	36.2 20.5
1999 03 18	08 45.28		+54 17.2	0.835	1.546	115.0	35.7 20.6
1999 03 23	08 53.89		+51 06.2	0.884	1.578	114.0	35.2 20.8
1999 03 28	09 02.13		+48 02.8	0.936	1.610	112.7	34.9 20.9
1999 04 02	09 10.10		+45 07.6	0.991	1.643	111.2	34.5 21.1
1999 04 07	09 17.87		+42 20.6	1.051	1.675	109.5	34.3 21.2
1999 04 12	09 25.48		+39 41.8	1.113	1.708	107.6	34.0 21.4
1999 04 17	09 33.00		+37 11.0	1.179	1.741	105.5	33.7 21.6
1999 04 22	09 40.43		+34 47.6	1.247	1.773	103.4	33.5 21.7
1999 04 27	09 47.81		+32 31.4	1.318	1.806	101.1	33.1 21.9
1999 05 02	09 55.13		+30 21.9	1.392	1.839	98.8	32.8 22.0

P/1998 W2 (Hergenrother)		Elements <i>MPC</i> 33451						
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1999 01 02	22 59.52		+06 01.4	1.500	1.450	67.8	38.9	18.0
1999 01 12	23 25.95		+10 38.3	1.576	1.477	65.8	37.4	18.2
1999 01 22	23 53.02		+15 01.0	1.658	1.511	63.9	35.8	18.4
1999 02 01	00 20.75		+19 06.5	1.748	1.552	62.0	34.1	18.6
1999 02 11	00 49.13		+22 52.1	1.845	1.598	59.9	32.3	18.9
1999 02 21	01 18.17		+26 15.7	1.949	1.650	57.8	30.5	19.1
1999 03 03	01 47.79		+29 15.7	2.059	1.705	55.5	28.6	19.4
1999 03 13	02 17.86		+31 51.0	2.174	1.764	52.9	26.7	19.7

1999 03 23	02 48.26	+34 01.0	2.294	1.826	50.2	24.8	19.9
1999 04 02	03 18.75	+35 46.1	2.418	1.889	47.3	22.9	20.2
1999 04 12	03 49.12	+37 06.6	2.544	1.955	44.2	21.0	20.4
1999 04 22	04 19.14	+38 03.9	2.670	2.022	41.0	19.0	20.7
1999 05 02	04 48.55	+38 39.6	2.796	2.089	37.5	17.1	20.9

1998 XM ₄		$a, e, i = 1.66, 0.42, 63$				Elements <i>MPC</i> 33582	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ V
1999 01 02	00 52.98		+18 40.5	1.488	1.897	98.2	30.9 18.6
1999 01 07	00 57.34		+16 37.2	1.538	1.874	93.4	31.6 18.6
1999 01 12	01 02.23		+14 46.7	1.589	1.850	88.7	32.1 18.7
1999 01 17	01 07.60		+13 08.0	1.641	1.826	84.2	32.4 18.8
1999 01 22	01 13.41		+11 40.0	1.692	1.801	79.8	32.5 18.8
1999 01 27	01 19.60		+10 21.4	1.741	1.775	75.7	32.5 18.8
1999 02 01	01 26.14		+09 11.1	1.789	1.750	71.6	32.3 18.8
1999 02 06	01 33.00		+08 08.1	1.835	1.723	67.8	32.0 18.9
1999 02 11	01 40.16		+07 11.3	1.877	1.696	64.0	31.5 18.9
1999 02 16	01 47.61		+06 19.8	1.917	1.669	60.5	31.0 18.9
1999 02 21	01 55.34		+05 32.9	1.953	1.641	57.1	30.4 18.8
1999 02 26	02 03.32		+04 49.7	1.986	1.612	53.8	29.7 18.8
1999 03 03	02 11.57		+04 09.4	2.014	1.584	50.7	29.0 18.8
1999 03 08	02 20.08		+03 31.4	2.037	1.554	47.7	28.2 18.8
1999 03 13	02 28.84		+02 55.2	2.057	1.525	45.0	27.4 18.7
1999 03 18	02 37.89		+02 20.1	2.071	1.495	42.4	26.7 18.7
1999 03 23	02 47.21		+01 45.7	2.080	1.465	40.0	25.9 18.6
1999 03 28	02 56.83		+01 11.3	2.084	1.434	37.9	25.3 18.5
1999 04 02	03 06.76		+00 36.7	2.084	1.404	36.0	24.7 18.5
1999 04 07	03 17.02		+00 01.2	2.078	1.373	34.4	24.3 18.4
1999 04 12	03 27.64		-00 35.3	2.066	1.342	33.0	24.0 18.3
1999 04 17	03 38.66		-01 13.4	2.050	1.312	32.0	23.9 18.3
1999 04 22	03 50.12		-01 53.4	2.029	1.281	31.3	24.0 18.2

1998 XM ₂		$a, e, i = 1.81, 0.34, 27$				Elements <i>MPC</i> 33582	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ V
1999 01 02	01 29.78		+12 27.8	0.897	1.485	104.2	39.9 19.1
1999 01 07	01 43.52		+11 28.9	0.958	1.507	101.9	39.7 19.3
1999 01 12	01 56.66		+10 41.4	1.021	1.530	99.5	39.3 19.4
1999 01 17	02 09.30		+10 03.9	1.086	1.553	97.2	38.9 19.6
1999 01 22	02 21.54		+09 34.7	1.153	1.577	94.7	38.5 19.7
1999 01 27	02 33.42		+09 12.8	1.221	1.600	92.3	37.9 19.9
1999 02 01	02 45.01		+08 56.7	1.291	1.623	89.9	37.4 20.0
1999 02 06	02 56.35		+08 45.5	1.362	1.646	87.5	36.8 20.1
1999 02 11	03 07.48		+08 38.3	1.433	1.669	85.1	36.1 20.3
1999 02 16	03 18.44		+08 34.3	1.505	1.692	82.7	35.4 20.4
1999 02 21	03 29.26		+08 32.7	1.577	1.715	80.4	34.6 20.5
1999 02 26	03 39.97		+08 32.9	1.649	1.738	78.0	33.9 20.6
1999 03 03	03 50.57		+08 34.4	1.721	1.760	75.7	33.1 20.7
1999 03 08	04 01.08		+08 36.6	1.792	1.782	73.3	32.2 20.8
1999 03 13	04 11.53		+08 39.1	1.864	1.804	71.0	31.4 20.9
1999 03 18	04 21.91		+08 41.7	1.934	1.826	68.7	30.5 21.0
1999 03 23	04 32.25		+08 43.9	2.004	1.848	66.5	29.6 21.0
1999 03 28	04 42.54		+08 45.4	2.073	1.869	64.2	28.7 21.1
1999 04 02	04 52.78		+08 46.0	2.141	1.890	62.0	27.8 21.2

1998 VO ₃₃		$a, e, i = 1.25, 0.81, 15$				Elements <i>MPC</i> 33576		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		02 26.82	+17 37.7	0.972	1.684	118.9	30.7	19.4
1999 01 12		02 31.01	+18 27.3	1.166	1.763	109.9	31.6	19.9
1999 01 22		02 38.06	+19 19.6	1.364	1.836	101.6	31.7	20.3
1999 02 01		02 47.16	+20 13.9	1.562	1.901	93.8	31.1	20.7
1999 02 11		02 57.78	+21 09.0	1.759	1.961	86.3	30.2	21.0
1999 02 21		03 09.60	+22 04.1	1.951	2.014	79.1	28.8	21.2
1999 03 03		03 22.39	+22 58.3	2.136	2.061	72.2	27.2	21.4
1999 03 13		03 35.96	+23 50.6	2.312	2.103	65.5	25.5	21.6
1999 03 23		03 50.21	+24 40.3	2.477	2.140	58.9	23.5	21.7
1999 04 02		04 05.03	+25 27.0	2.630	2.172	52.5	21.4	21.8
1999 04 12		04 20.34	+26 09.8	2.769	2.198	46.2	19.2	21.9
1999 04 22		04 36.09	+26 48.3	2.892	2.220	40.1	17.0	21.9
1999 05 02		04 52.21	+27 22.2	2.999	2.236	34.1	14.6	22.0

P/1998 VS ₂₄ (LINEAR)						Elements <i>MPC</i> 33451		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1999 01 02		02 35.63	+09 04.9	2.840	3.415	118.1	14.7	18.8
1999 01 12		02 37.71	+09 28.8	2.976	3.419	108.6	15.8	18.9
1999 01 22		02 41.59	+10 01.0	3.120	3.424	99.6	16.5	19.0
1999 02 01		02 47.13	+10 39.9	3.268	3.429	90.9	16.7	19.1
1999 02 11		02 54.14	+11 23.9	3.418	3.435	82.7	16.6	19.2
1999 02 21		03 02.46	+12 11.5	3.565	3.441	74.8	16.1	19.3
1999 03 03		03 11.92	+13 01.0	3.708	3.448	67.2	15.4	19.4
1999 03 13		03 22.36	+13 51.2	3.845	3.455	59.9	14.4	19.4
1999 03 23		03 33.65	+14 40.9	3.973	3.463	52.9	13.3	19.5
1999 04 02		03 45.67	+15 29.0	4.091	3.472	46.0	12.0	19.5
1999 04 12		03 58.29	+16 14.6	4.198	3.481	39.3	10.5	19.5
1999 04 22		04 11.43	+16 56.9	4.292	3.491	32.8	9.0	19.5

P/1998 Y2 (Li)						Elements <i>MPC</i> 33451		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1999 01 02		02 41.53	-03 36.1	1.954	2.522	114.2	20.8	15.0
1999 01 12		02 45.18	-00 51.3	2.065	2.527	106.6	21.9	15.1
1999 01 22		02 51.10	+01 53.0	2.186	2.536	99.1	22.5	15.2
1999 02 01		02 59.04	+04 33.6	2.315	2.547	91.9	22.7	15.4
1999 02 11		03 08.76	+07 08.5	2.449	2.560	85.0	22.6	15.5
1999 02 21		03 20.03	+09 36.1	2.586	2.576	78.4	22.1	15.7
1999 03 03		03 32.64	+11 55.3	2.725	2.594	71.9	21.3	15.8
1999 03 13		03 46.40	+14 05.5	2.862	2.615	65.7	20.3	16.0
1999 03 23		04 01.16	+16 05.9	2.998	2.638	59.6	19.0	16.1
1999 04 02		04 16.76	+17 56.3	3.130	2.664	53.7	17.6	16.2
1999 04 12		04 33.08	+19 36.3	3.258	2.691	47.9	16.1	16.4
1999 04 22		04 50.00	+21 05.8	3.379	2.721	42.3	14.4	16.5
1999 05 02		05 07.40	+22 24.7	3.493	2.752	36.7	12.6	16.6
1999 05 12		05 25.16	+23 33.1	3.600	2.785	31.2	10.8	16.7

1998 XE ₁₂		$a, e, i = 0.88, 0.74, 13$				Elements <i>MPC</i> 33584		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		03 17.21	+27 52.2	0.609	1.464	132.4	29.7	19.8
1999 01 12		03 10.23	+24 35.5	0.733	1.494	120.3	34.6	20.4
1999 01 22		03 10.81	+22 31.8	0.864	1.514	109.8	37.7	20.9
1999 02 01		03 16.22	+21 17.8	0.996	1.524	100.6	39.4	21.3

1999 02 11	03 24.90	+20 36.5	1.125	1.525	92.3	40.3	21.6
1999 02 21	03 35.97	+20 16.7	1.247	1.517	84.6	40.5	21.8
1999 03 03	03 48.91	+20 10.4	1.360	1.499	77.5	40.2	21.9
1999 03 13	04 03.33	+20 11.8	1.460	1.472	70.8	39.6	22.0

1998 YO ₄		$a, e, i = 1.65, 0.25, 9$				Elements <i>MPC</i> 33533		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		03 23.60	+30 56.9	1.165	1.979	134.0	20.9	19.0
1999 01 12		03 19.84	+30 24.7	1.241	1.962	123.4	24.8	19.3
1999 01 22		03 20.97	+30 03.5	1.326	1.942	113.6	27.7	19.5
1999 02 01		03 26.43	+29 54.8	1.417	1.922	104.8	29.7	19.7
1999 02 11		03 35.57	+29 57.4	1.510	1.899	96.8	31.1	19.8
1999 02 21		03 47.85	+30 08.4	1.602	1.875	89.5	31.8	19.9
1999 03 03		04 02.83	+30 24.9	1.691	1.850	82.8	32.1	20.0
1999 03 13		04 20.11	+30 43.1	1.776	1.823	76.6	32.0	20.1
1999 03 23		04 39.42	+30 59.9	1.854	1.795	70.9	31.6	20.2
1999 04 02		05 00.51	+31 12.0	1.925	1.766	65.6	31.0	20.2
1999 04 12		05 23.15	+31 16.2	1.989	1.735	60.7	30.2	20.2
1999 04 22		05 47.15	+31 09.8	2.046	1.704	56.1	29.3	20.2
1999 05 02		06 12.29	+30 50.3	2.094	1.671	51.9	28.3	20.2
1999 05 12		06 38.37	+30 15.3	2.134	1.638	47.9	27.2	20.1
1999 05 22		07 05.22	+29 23.1	2.167	1.604	44.2	26.1	20.1
1999 06 01		07 32.61	+28 12.2	2.193	1.570	40.7	24.9	20.0
1999 06 11		08 00.38	+26 41.5	2.211	1.536	37.5	23.7	20.0
1999 06 21		08 28.39	+24 50.6	2.224	1.502	34.5	22.6	19.9
1999 07 01		08 56.49	+22 39.5	2.231	1.468	31.8	21.4	19.8

1998 YW ₅		$a, e, i = 1.25, 0.63, 9$				Elements <i>MPC</i> 33587		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		03 40.17	-12 11.8	0.261	1.143	122.0	46.8	18.7
1999 01 07		03 04.15	-16 01.6	0.252	1.090	108.5	58.8	18.9
1999 01 12		02 26.68	-19 24.3	0.249	1.034	94.8	71.3	19.2
1999 01 17		01 48.74	-22 11.3	0.252	0.977	81.2	84.1	19.5
1999 01 22		01 10.84	-24 20.1	0.259	0.918	67.9	97.0	20.0
1999 01 27		00 33.02	-25 50.6	0.271	0.858	54.9	110.2	20.6
1999 02 01		23 55.36	-26 40.9	0.287	0.797	42.3	123.7	21.5

1998 YG ₁₀		$a, e, i = 2.57, 0.42, 10$				Elements <i>MPC</i> 33588		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		03 59.27	+18 13.8	0.620	1.512	140.3	24.6	20.2
1999 01 12		04 07.36	+21 10.4	0.687	1.534	132.6	28.2	20.6
1999 01 22		04 19.44	+23 44.3	0.768	1.561	125.5	30.9	20.9
1999 02 01		04 34.95	+25 53.8	0.859	1.592	119.2	32.7	21.3
1999 02 11		04 53.18	+27 38.4	0.960	1.626	113.3	33.9	21.6
1999 02 21		05 13.51	+28 58.4	1.070	1.664	107.8	34.5	21.9
1999 03 03		05 35.38	+29 55.1	1.188	1.705	102.6	34.6	22.2

P/1998 W1 (Spahr)						Elements <i>MPC</i> 33451		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1999 01 02		04 00.54	+04 32.4	0.888	1.732	135.5	23.5	15.6
1999 01 12		04 01.14	+09 08.1	0.939	1.727	127.8	26.7	15.7
1999 01 22		04 06.00	+13 35.0	1.005	1.726	120.3	29.5	15.9
1999 02 01		04 14.95	+17 42.9	1.086	1.731	113.3	31.5	16.1
1999 02 11		04 27.58	+21 26.0	1.177	1.740	106.8	32.9	16.3
1999 02 21		04 43.49	+24 41.3	1.277	1.755	100.7	33.6	16.5

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1999 03 03	05 02.19	+27 27.8	1.384	1.774	95.2	33.8	16.7
1999 03 13	05 23.22	+29 45.1	1.498	1.797	90.0	33.6	16.9
1999 03 23	05 46.12	+31 33.4	1.616	1.825	85.1	33.0	17.2
1999 04 02	06 10.44	+32 53.4	1.737	1.856	80.5	32.1	17.4
1999 04 12	06 35.71	+33 46.0	1.862	1.891	76.1	31.0	17.6
1999 04 22	07 01.53	+34 12.6	1.989	1.929	71.9	29.7	17.8
1999 05 02	07 27.49	+34 15.4	2.117	1.970	67.7	28.3	18.1
1999 05 12	07 53.26	+33 56.3	2.246	2.013	63.7	26.7	18.3
1999 05 22	08 18.60	+33 17.8	2.375	2.058	59.7	25.1	18.5
1999 06 01	08 43.29	+32 22.6	2.504	2.106	55.7	23.4	18.7
1999 06 11	09 07.22	+31 13.4	2.631	2.155	51.7	21.7	18.9
1999 06 21	09 30.32	+29 52.5	2.756	2.205	47.8	20.0	19.1
1999 07 01	09 52.56	+28 22.4	2.877	2.256	43.8	18.2	19.3
1999 07 11	10 13.96	+26 45.4	2.995	2.308	39.8	16.4	19.5
1999 07 21	10 34.57	+25 03.3	3.109	2.361	35.8	14.6	19.7
1999 07 31	10 54.42	+23 18.2	3.216	2.415	31.9	12.8	19.9

1998 XN₂ $a, e, i = 1.99, 0.54, 2$ Elements *MPC* 33582

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02	04 22.65	+19 01.3	0.263	1.210	145.8	27.2	18.3
1999 01 07	04 38.94	+19 27.3	0.308	1.247	144.6	27.2	18.7
1999 01 12	04 52.48	+19 46.9	0.357	1.286	142.7	27.6	19.1
1999 01 17	05 04.22	+20 02.6	0.409	1.325	140.4	28.3	19.5
1999 01 22	05 14.80	+20 15.7	0.464	1.364	137.8	29.0	19.9
1999 01 27	05 24.62	+20 26.8	0.521	1.403	135.0	29.7	20.2
1999 02 01	05 33.93	+20 36.2	0.582	1.442	132.2	30.4	20.5
1999 02 06	05 42.91	+20 43.9	0.646	1.481	129.2	31.1	20.8
1999 02 11	05 51.68	+20 50.0	0.712	1.520	126.2	31.6	21.1
1999 02 16	06 00.34	+20 54.5	0.781	1.559	123.2	32.0	21.4
1999 02 21	06 08.94	+20 57.3	0.853	1.597	120.1	32.4	21.6
1999 02 26	06 17.53	+20 58.3	0.927	1.635	117.1	32.6	21.9
1999 03 03	06 26.11	+20 57.6	1.003	1.673	114.1	32.7	22.1

1998 YN₁ $a, e, i = 1.56, 0.47, 6$ Elements *MPC* 33585

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02	05 20.57	+32 18.4	0.563	1.521	158.5	13.7	18.2
1999 01 07	05 06.59	+32 41.4	0.550	1.488	150.8	18.8	18.2
1999 01 12	04 53.25	+32 55.9	0.542	1.454	143.2	23.9	18.3
1999 01 17	04 41.13	+33 03.1	0.538	1.420	135.8	28.9	18.4
1999 01 22	04 30.71	+33 05.2	0.537	1.385	128.7	33.7	18.5
1999 01 27	04 22.25	+33 04.5	0.538	1.349	122.0	38.2	18.5
1999 02 01	04 15.85	+33 03.3	0.541	1.314	115.7	42.5	18.6
1999 02 06	04 11.50	+33 03.2	0.544	1.278	109.8	46.6	18.7
1999 02 11	04 09.09	+33 05.4	0.547	1.241	104.4	50.4	18.7
1999 02 16	04 08.51	+33 10.5	0.548	1.205	99.3	54.0	18.8
1999 02 21	04 09.60	+33 18.9	0.548	1.169	94.7	57.5	18.8
1999 02 26	04 12.19	+33 30.5	0.545	1.133	90.3	60.9	18.8
1999 03 03	04 16.07	+33 44.9	0.540	1.097	86.2	64.4	18.8
1999 03 08	04 21.06	+34 01.4	0.532	1.062	82.4	67.8	18.8
1999 03 13	04 26.98	+34 19.3	0.520	1.028	78.8	71.5	18.8
1999 03 18	04 33.66	+34 37.8	0.505	0.996	75.3	75.3	18.8
1999 03 23	04 40.86	+34 56.2	0.487	0.965	72.0	79.3	18.8
1999 03 28	04 48.31	+35 13.3	0.465	0.936	68.7	83.7	18.8
1999 04 02	04 55.67	+35 28.1	0.440	0.909	65.5	88.4	18.8

1999 04 07	05 02.54	+35 39.0	0.412	0.886	62.1	93.6	18.8
1999 04 12	05 08.42	+35 44.4	0.381	0.866	58.5	99.4	18.9
1999 04 17	05 12.71	+35 42.2	0.349	0.851	54.6	105.8	19.0
1999 04 22	05 14.60	+35 29.1	0.315	0.839	50.3	113.0	19.2
1999 04 27	05 13.05	+34 59.8	0.280	0.833	45.1	121.1	19.5
1999 05 02	05 06.81	+34 05.6	0.246	0.831	39.0	130.3	20.0

1998 XD₉ $a, e, i = 2.57, 0.49, 15$ Elements *MPC* 33583

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02	05 40.40	+37 21.6	0.360	1.326	159.5	15.1	17.1
1999 01 12	05 41.39	+44 02.6	0.375	1.316	148.1	23.3	17.5
1999 01 22	05 49.08	+49 12.0	0.404	1.315	138.7	29.6	17.8
1999 02 01	06 05.29	+52 39.8	0.444	1.322	131.4	34.0	18.2
1999 02 11	06 29.48	+54 31.1	0.493	1.336	125.8	36.8	18.5
1999 02 21	06 59.47	+54 54.4	0.549	1.359	121.6	38.3	18.8
1999 03 03	07 32.25	+54 01.5	0.611	1.389	118.2	39.0	19.1
1999 03 13	08 04.95	+52 06.1	0.681	1.424	115.2	39.1	19.4
1999 03 23	08 35.88	+49 22.7	0.759	1.466	112.5	38.9	19.7
1999 04 02	09 04.39	+46 06.4	0.844	1.512	109.9	38.4	20.0
1999 04 12	09 30.38	+42 29.9	0.939	1.561	107.1	37.9	20.3
1999 04 22	09 54.17	+38 42.7	1.042	1.614	104.1	37.2	20.5
1999 05 02	10 16.16	+34 52.5	1.154	1.669	100.9	36.4	20.8
1999 05 12	10 36.65	+31 04.6	1.276	1.726	97.4	35.5	21.1
1999 05 22	10 56.00	+27 21.9	1.405	1.785	93.8	34.5	21.3
1999 06 01	11 14.45	+23 46.7	1.542	1.844	89.9	33.4	21.6
1999 06 11	11 32.18	+20 20.2	1.685	1.904	85.9	32.1	21.8
1999 06 21	11 49.38	+17 02.7	1.834	1.964	81.7	30.8	22.0

1998 XZ₄ $a, e, i = 1.94, 0.64, 23$ Elements *MPC* 33582

Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02	06 19.51	+61 03.4	0.840	1.722	141.6	20.8	18.1
1999 01 07	06 03.40	+58 47.1	0.885	1.766	141.7	20.2	18.3
1999 01 12	05 51.49	+56 26.7	0.937	1.808	140.7	20.2	18.4
1999 01 17	05 43.11	+54 07.6	0.994	1.850	138.6	20.6	18.6
1999 01 22	05 37.60	+51 53.9	1.057	1.891	135.7	21.3	18.8
1999 01 27	05 34.44	+49 47.9	1.125	1.931	132.3	22.1	19.1
1999 02 01	05 33.14	+47 50.9	1.198	1.970	128.7	23.0	19.3
1999 02 06	05 33.35	+46 03.2	1.275	2.008	124.8	23.8	19.5
1999 02 11	05 34.78	+44 24.6	1.356	2.046	120.9	24.5	19.7
1999 02 16	05 37.21	+42 54.6	1.440	2.083	116.9	25.0	19.8
1999 02 21	05 40.48	+41 32.6	1.528	2.119	113.0	25.4	20.0
1999 02 26	05 44.43	+40 17.8	1.617	2.154	109.0	25.7	20.2
1999 03 03	05 48.95	+39 09.4	1.709	2.189	105.2	25.9	20.3
1999 03 08	05 53.94	+38 06.6	1.802	2.223	101.4	26.0	20.5
1999 03 13	05 59.32	+37 08.7	1.897	2.256	97.7	25.9	20.6
1999 03 18	06 05.04	+36 15.0	1.993	2.288	94.0	25.7	20.8
1999 03 23	06 11.05	+35 25.0	2.089	2.320	90.4	25.4	20.9
1999 03 28	06 17.29	+34 38.0	2.185	2.351	86.8	25.1	21.0
1999 04 02	06 23.73	+33 53.6	2.282	2.382	83.3	24.6	21.1
1999 04 07	06 30.33	+33 11.4	2.377	2.411	79.8	24.1	21.2
1999 04 12	06 37.07	+32 30.9	2.472	2.440	76.4	23.5	21.3
1999 04 17	06 43.92	+31 51.9	2.567	2.469	73.1	22.9	21.4
1999 04 22	06 50.86	+31 14.0	2.659	2.496	69.7	22.2	21.5
1999 04 27	06 57.88	+30 37.0	2.751	2.523	66.4	21.4	21.6

1999 05 02	07 04.94	+30 00.7	2.840	2.550	63.2	20.7	21.6
1999 05 07	07 12.05	+29 24.9	2.928	2.576	60.0	19.8	21.7
1999 05 12	07 19.18	+28 49.3	3.013	2.601	56.8	19.0	21.7
1999 05 17	07 26.33	+28 14.0	3.096	2.625	53.6	18.1	21.8
1999 05 22	07 33.48	+27 38.7	3.177	2.649	50.4	17.1	21.8
1999 05 27	07 40.63	+27 03.4	3.254	2.673	47.3	16.2	21.9
1999 06 01	07 47.76	+26 27.9	3.328	2.696	44.2	15.2	21.9
1999 06 06	07 54.87	+25 52.3	3.400	2.718	41.1	14.2	21.9
1999 06 11	08 01.95	+25 16.4	3.467	2.739	38.0	13.2	22.0

1998 XS ₁₆		$a, e, i = 1.21, 0.50, 26$				Elements <i>MPC</i> 33584	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 01 02	06 30.28	+16 15.9	0.813	1.792	172.0	4.4	17.5
1999 01 12	06 03.65	+13 48.2	0.827	1.776	157.5	12.2	17.9
1999 01 22	05 41.65	+11 37.0	0.870	1.755	142.3	20.1	18.2
1999 02 01	05 26.17	+09 53.8	0.935	1.730	128.5	26.5	18.5
1999 02 11	05 17.28	+08 39.7	1.014	1.700	116.4	31.3	18.8
1999 02 21	05 14.26	+07 50.2	1.098	1.665	105.8	34.8	19.0
1999 03 03	05 16.12	+07 18.1	1.182	1.626	96.5	37.3	19.2
1999 03 13	05 21.92	+06 57.0	1.261	1.582	88.3	38.9	19.4
1999 03 23	05 30.95	+06 41.4	1.332	1.532	80.9	40.0	19.4
1999 04 02	05 42.66	+06 26.6	1.391	1.478	74.4	40.6	19.5
1999 04 12	05 56.65	+06 09.3	1.436	1.419	68.5	41.1	19.5
1999 04 22	06 12.70	+05 46.5	1.465	1.354	63.3	41.5	19.4
1999 05 02	06 30.62	+05 16.0	1.477	1.284	58.6	42.1	19.3
1999 05 12	06 50.37	+04 36.0	1.471	1.209	54.6	42.9	19.2
1999 05 22	07 11.99	+03 45.5	1.445	1.128	51.0	44.2	19.1
1999 06 01	07 35.60	+02 44.3	1.399	1.044	48.1	46.3	18.9
1999 06 11	08 01.43	+01 34.1	1.331	0.956	45.7	49.4	18.7
1999 06 21	08 29.85	+00 19.9	1.242	0.867	43.8	54.1	18.4
1999 07 01	09 01.24	−00 46.4	1.130	0.780	42.2	61.1	18.2
1999 07 11	09 35.97	−01 19.1	0.998	0.702	40.8	71.0	18.0
1999 07 21	10 13.97	−00 28.1	0.851	0.642	39.0	84.5	18.0
1999 07 31	10 53.99	+03 10.4	0.701	0.613	36.3	101.0	18.1
1999 08 10	11 33.33	+11 10.1	0.572	0.621	33.3	116.4	18.6

1998 XQ ₁₆		$a, e, i = 2.38, 0.43, 9$				Elements <i>MPC</i> 33584	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 01 02	06 43.05	+41 17.7	0.397	1.365	161.6	13.1	17.4
1999 01 12	06 41.92	+37 48.3	0.395	1.363	160.6	13.9	17.5
1999 01 22	06 43.46	+33 43.1	0.410	1.367	155.4	17.5	17.7
1999 02 01	06 48.99	+29 31.6	0.438	1.378	148.4	22.0	18.0
1999 02 11	06 58.44	+25 36.7	0.481	1.395	141.3	26.3	18.3
1999 02 21	07 11.24	+22 09.4	0.538	1.419	134.5	29.8	18.7
1999 03 03	07 26.66	+19 10.8	0.606	1.447	128.4	32.5	19.1
1999 03 13	07 43.89	+16 36.9	0.684	1.481	122.8	34.3	19.5
1999 03 23	08 02.37	+14 21.7	0.774	1.519	117.6	35.5	19.8
1999 04 02	08 21.65	+12 19.4	0.872	1.560	112.8	36.2	20.1
1999 04 12	08 41.33	+10 25.3	0.979	1.605	108.1	36.4	20.5
1999 04 22	09 01.21	+08 35.9	1.095	1.651	103.6	36.3	20.8
1999 05 02	09 21.09	+06 48.6	1.217	1.700	99.2	35.8	21.0
1999 05 12	09 40.85	+05 02.1	1.346	1.750	94.9	35.1	21.3
1999 05 22	10 00.44	+03 15.4	1.481	1.802	90.5	34.2	21.6

1999 06 01	10 19.79	+01 27.9	1.621	1.854	86.2	33.1	21.8
1999 06 11	10 38.90	−00 20.3	1.764	1.906	81.8	31.8	22.0

1998 YW ₃		$a, e, i = 1.10, 0.46, 29$				Elements <i>MPC</i> 33586	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 01 02	06 47.26	+32 07.0	0.618	1.597	170.9	5.6	18.3
1999 01 07	06 29.11	+34 24.6	0.631	1.601	165.0	9.1	18.5
1999 01 12	06 11.46	+36 19.3	0.653	1.605	157.2	13.7	18.8
1999 01 17	05 55.15	+37 50.5	0.681	1.607	149.3	18.2	19.0
1999 01 22	05 40.87	+39 00.3	0.716	1.608	141.7	22.3	19.3
1999 01 27	05 28.99	+39 52.7	0.755	1.608	134.7	25.8	19.5
1999 02 01	05 19.65	+40 31.9	0.799	1.606	128.1	28.9	19.7
1999 02 06	05 12.78	+41 01.7	0.845	1.603	122.0	31.4	19.9
1999 02 11	05 08.22	+41 25.0	0.893	1.599	116.4	33.6	20.1

1999 02 21	05 05.25	+42 00.6	0.992	1.586	106.4	36.7	20.4
1999 03 03	05 09.03	+42 29.3	1.091	1.568	97.6	38.8	20.6
1999 03 13	05 18.10	+42 54.7	1.184	1.545	89.9	40.0	20.8
1999 03 23	05 31.42	+43 17.0	1.270	1.516	83.0	40.7	20.9
1999 04 02	05 48.22	+43 34.8	1.345	1.481	76.8	41.1	21.0
1999 04 12	06 07.93	+43 45.6	1.408	1.441	71.2	41.2	21.1
1999 04 22	06 30.21	+43 46.3	1.458	1.395	66.1	41.2	21.1
1999 05 02	06 54.71	+43 33.8	1.491	1.344	61.5	41.2	21.0
1999 05 12	07 21.16	+43 04.1	1.508	1.287	57.4	41.4	21.0
1999 05 22	07 49.34	+42 13.2	1.508	1.223	53.8	41.9	20.9
1999 06 01	08 18.95	+40 56.2	1.490	1.154	50.6	42.8	20.7
1999 06 11	08 49.71	+39 07.3	1.453	1.080	47.9	44.3	20.6
1999 06 21	09 21.33	+36 39.2	1.397	1.000	45.7	46.6	20.4
1999 07 01	09 53.37	+33 22.9	1.322	0.917	43.8	50.1	20.2
1999 07 11	10 25.25	+29 06.3	1.227	0.831	42.2	55.2	20.0
1999 07 21	10 56.10	+23 33.0	1.113	0.748	40.8	62.6	19.7
1999 07 31	11 24.21	+16 21.9	0.983	0.673	39.3	72.9	19.6
1999 08 10	11 46.58	+07 08.9	0.844	0.617	37.4	86.4	19.5
1999 08 20	11 58.26	−04 18.6	0.710	0.592	35.0	101.7	19.7
1999 08 30	11 53.07	−17 21.3	0.603	0.605	33.3	113.5	20.1

1998 XA ₅		$a, e, i = 1.55, 0.31, 32$				Elements <i>MPC</i> 33582	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 01 02	06 51.28	−14 36.8	0.143	1.100	142.4	33.0	15.9
1999 01 12	06 15.08	−39 57.1	0.202	1.087	115.7	54.6	17.2
1999 01 22	05 49.98	−50 44.8	0.281	1.081	102.6	62.8	18.1
1999 02 01	05 35.69	−55 39.1	0.360	1.082	95.7	64.9	18.8
1999 02 11	05 30.05	−58 07.4	0.434	1.092	92.0	64.6	19.2
1999 02 21	05 31.64	−59 25.1	0.499	1.108	90.1	63.2	19.5
1999 03 03	05 39.79	−60 05.7	0.553	1.131	89.6	61.2	19.7
1999 03 13	05 54.20	−60 22.9	0.596	1.160	90.1	59.0	19.8
1999 03 23	06 15.15	−60 22.0	0.628	1.193	91.7	56.6	19.9
1999 04 02	06 42.90	−60 03.7	0.652	1.231	94.0	54.1	20.0
1999 04 12	07 17.34	−59 22.4	0.670	1.271	96.9	51.5	20.1
1999 04 22	07 57.89	−58 09.1	0.685	1.313	100.2	48.9	20.1
1999 05 02	08 42.82	−56 14.7	0.701	1.356	103.7	46.2	20.1
1999 05 12	09 29.51	−53 33.3	0.722	1.400	106.7	43.7	20.2
1999 05 22	10 15.34	−50 08.9	0.754	1.445	108.9	41.5	20.3
1999 06 01	10 58.30	−46 16.8	0.799	1.488	109.8	39.9	20.5

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1999 06 11	11 37.41	-42 16.6	0.860	1.532	109.2	38.8	20.6
1999 06 21	12 12.70	-38 27.3	0.937	1.574	107.3	38.1	20.9
1999 07 01	12 44.56	-35 02.2	1.028	1.615	104.3	37.6	21.1
1999 07 11	13 13.60	-32 06.9	1.133	1.654	100.4	37.2	21.4
1999 07 21	13 40.42	-29 41.9	1.249	1.692	96.1	36.7	21.6
1999 07 31	14 05.54	-27 44.5	1.374	1.728	91.4	36.0	21.8
1999 08 10	14 29.34	-26 10.2	1.505	1.762	86.5	35.0	22.1

C/1998 Y1 (LINEAR)			Elements MPC 33451					
Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 01 02	06 59.19	+26 31.6	0.885	1.867	175.7	2.3	16.4	
1999 01 12	06 54.91	+31 46.8	0.936	1.908	167.0	6.7	16.7	
1999 01 22	06 51.86	+36 05.8	1.016	1.955	155.6	12.0	16.9	
1999 02 01	06 51.44	+39 22.2	1.121	2.009	145.0	16.3	17.3	
1999 02 11	06 54.33	+41 41.0	1.246	2.069	135.5	19.5	17.6	
1999 02 21	07 00.66	+43 11.8	1.388	2.133	126.9	21.8	18.0	
1999 03 03	07 10.14	+44 04.5	1.543	2.202	119.1	23.2	18.4	
1999 03 13	07 22.20	+44 27.4	1.710	2.275	111.9	23.9	18.7	
1999 03 23	07 36.25	+44 26.4	1.885	2.351	105.2	24.1	19.1	
1999 04 02	07 51.74	+44 06.6	2.067	2.430	98.8	24.0	19.4	
1999 04 12	08 08.15	+43 31.3	2.255	2.512	92.8	23.5	19.8	
1999 04 22	08 25.11	+42 43.3	2.447	2.595	86.9	22.8	20.1	
1999 05 02	08 42.30	+41 45.2	2.641	2.680	81.3	21.8	20.4	
1999 05 12	08 59.49	+40 38.9	2.835	2.766	75.8	20.7	20.7	
1999 05 22	09 16.53	+39 26.1	3.030	2.854	70.4	19.5	21.0	

140P/Bowell-Skiff			Elements MPC 33452					
Date TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 01 02	07 01.37	+28 26.5	1.393	2.373	173.8	2.6	17.8	18.9
1999 01 12	06 53.37	+28 29.0	1.349	2.321	168.9	4.7	17.6	18.9
1999 01 22	06 45.85	+28 21.9	1.330	2.272	158.0	9.3	17.5	19.0
1999 02 01	06 40.23	+28 05.1	1.334	2.226	146.9	14.0	17.3	19.2
1999 02 11	06 37.60	+27 40.5	1.359	2.182	136.3	18.2	17.2	19.3
1999 02 21	06 38.55	+27 10.1	1.400	2.142	126.6	21.8	17.2	19.4
1999 03 03	06 43.27	+26 35.2	1.453	2.105	117.7	24.6	17.2	19.6
1999 03 13	06 51.56	+25 56.0	1.516	2.072	109.6	26.9	17.1	19.7
1999 03 23	07 03.06	+25 11.7	1.585	2.044	102.3	28.5	17.2	19.8
1999 04 02	07 17.31	+24 20.9	1.658	2.020	95.7	29.5	17.2	19.9
1999 04 12	07 33.82	+23 21.9	1.735	2.000	89.8	30.1	17.2	20.0
1999 04 22	07 52.14	+22 13.3	1.814	1.986	84.3	30.2	17.3	20.1
1999 05 02	08 11.84	+20 54.0	1.896	1.976	79.4	30.1	17.3	20.2
1999 05 12	08 32.53	+19 23.7	1.980	1.972	74.8	29.6	17.4	20.2
1999 05 22	08 53.89	+17 42.3	2.066	1.973	70.4	28.9	17.5	20.3
1999 06 01	09 15.63	+15 50.4	2.155	1.980	66.4	28.0	17.6	20.4
1999 06 11	09 37.55	+13 49.2	2.246	1.991	62.5	26.9	17.7	20.5
1999 06 21	09 59.47	+11 39.9	2.339	2.008	58.7	25.6	17.9	20.5
1999 07 01	10 21.27	+09 24.2	2.435	2.029	54.9	24.2	18.0	20.6
1999 07 11	10 42.87	+07 03.9	2.533	2.055	51.2	22.7	18.2	20.7
1999 07 21	11 04.24	+04 40.5	2.632	2.086	47.5	21.1	18.4	20.7
1999 07 31	11 25.32	+02 16.0	2.733	2.120	43.8	19.3	18.6	20.8
1999 08 10	11 46.12	-00 08.2	2.835	2.158	39.9	17.5	18.8	20.9
1999 08 20	12 06.67	-02 30.6	2.937	2.200	36.0	15.7	19.0	20.9
1999 08 30	12 26.95	-04 49.8	3.037	2.245	31.9	13.8	19.2	21.0

1998 XR ₁₆		$a, e, i = 2.28, 0.58, 21$				Elements MPC 33584		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		07 10.55	+45 12.3	0.183	1.154	157.3	19.2	16.1
1999 01 07		07 24.07	+59 18.9	0.166	1.121	143.1	31.8	16.2
1999 01 12		08 03.4	+74 27.6	0.162	1.089	127.1	46.1	16.5
1999 01 17		12 46.4	+84 55.9	0.170	1.060	112.3	59.2	16.9
1999 01 22		17 18.2	+76 47.8	0.187	1.034	100.1	69.6	17.4
1999 01 27		17 56.21	+67 36.4	0.210	1.011	91.1	77.0	17.8
1999 02 01		18 09.35	+60 15.0	0.236	0.991	84.5	81.8	18.2
1999 02 06		18 16.12	+54 22.0	0.263	0.975	80.0	84.6	18.5
1999 02 11		18 20.57	+49 33.0	0.291	0.964	77.0	85.9	18.8
1999 02 16		18 24.05	+45 30.0	0.318	0.957	75.2	86.1	18.9
1999 02 21		18 27.12	+42 00.1	0.344	0.955	74.3	85.5	19.1
1999 02 26		18 30.02	+38 54.7	0.368	0.957	74.2	84.1	19.2
1999 03 03		18 32.86	+36 08.1	0.390	0.965	74.7	82.3	19.3
1999 03 13		18 38.27	+31 18.1	0.429	0.992	77.3	77.8	19.4
1999 03 23		18 42.48	+27 09.5	0.457	1.035	81.8	72.3	19.4
1999 04 02		18 44.31	+23 24.9	0.475	1.091	88.0	66.3	19.4
1999 04 12		18 42.58	+19 48.6	0.484	1.156	95.8	59.6	19.4
1999 04 22		18 36.05	+16 02.7	0.486	1.228	105.6	52.0	19.3
1999 05 02		18 24.05	+11 49.3	0.488	1.305	117.2	43.4	19.2
1999 05 12		18 06.78	+06 58.2	0.496	1.385	130.5	33.7	19.1
1999 05 22		17 45.64	+01 34.3	0.517	1.465	144.9	23.4	19.0
1999 06 01		17 23.51	-03 58.2	0.558	1.547	158.4	14.0	19.0
1999 06 11		17 03.44	-09 06.7	0.624	1.628	165.8	8.8	19.1
1999 06 21		16 47.69	-13 29.9	0.715	1.708	160.9	11.2	19.6
1999 07 01		16 37.24	-17 03.1	0.829	1.787	151.0	16.0	20.2
1999 07 11		16 31.92	-19 52.5	0.961	1.865	141.0	20.1	20.8
1999 07 21		16 31.12	-22 07.6	1.111	1.941	131.7	23.0	21.3
1999 07 31		16 34.08	-23 56.8	1.273	2.015	123.0	25.0	21.7

1998 XB ₉		$a, e, i = 2.71, 0.48, 13$				Elements MPC 33583		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		07 11.77	+46 18.4	0.553	1.506	156.2	15.3	16.5
1999 01 12		07 02.06	+42 28.7	0.583	1.540	158.3	13.6	16.7
1999 01 22		06 55.82	+38 22.9	0.632	1.579	154.7	15.4	16.9
1999 02 01		06 54.14	+34 25.9	0.701	1.622	147.8	18.9	17.3
1999 02 11		06 56.78	+30 53.1	0.788	1.668	139.8	22.5	17.8
1999 02 21		07 03.05	+27 49.2	0.891	1.717	131.8	25.4	18.2
1999 03 03		07 12.22	+25 12.4	1.009	1.768	124.3	27.6	18.6
1999 03 13		07 23.51	+22 57.4	1.138	1.821	117.2	29.0	19.0
1999 03 23		07 36.39	+20 58.7	1.277	1.875	110.5	29.9	19.3
1999 04 02		07 50.40	+19 11.3	1.425	1.930	104.1	30.1	19.6
1999 04 12		08 05.18	+17 31.2	1.580	1.986	98.1	30.0	19.9
1999 04 22		08 20.49	+15 55.2	1.740	2.042	92.2	29.5	20.1
1999 05 02		08 36.12	+14 21.2	1.903	2.099	86.5	28.6	20.4
1999 05 12		08 51.91	+12 47.6	2.068	2.155	81.0	27.6	20.6
1999 05 22		09 07.77	+11 13.4	2.235	2.212	75.6	26.3	20.8
1999 06 01		09 23.61	+09 38.0	2.400	2.268	70.2	24.9	20.9
1999 06 11		09 39.36	+08 01.0	2.564	2.323	64.9	23.3	21.1
1999 06 21		09 55.01	+06 22.3	2.724	2.378	59.6	21.6	21.2
1999 07 01		10 10.52	+04 42.0	2.880	2.433	54.4	19.9	21.3
1999 07 11		10 25.87	+03 00.2	3.030	2.486	49.1	18.0	21.4

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1999 07 21	10 41.06	+01 17.1	3.173	2.539	43.8	16.1	21.5
1999 07 31	10 56.08	−00 27.0	3.307	2.591	38.6	14.1	21.6
1999 08 10	11 10.94	−02 11.8	3.431	2.643	33.3	12.1	21.6

1998 YB₈ $a, e, i = 2.42, 0.47, 9$ Elements *MPC* 33587

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		07 36.47	+19 43.1	0.313	1.292	168.4	8.8	17.4
1999 01 12		07 42.66	+24 32.4	0.328	1.311	176.3	2.8	17.3
1999 01 22		07 47.88	+28 36.7	0.358	1.337	169.3	7.9	17.8
1999 02 01		07 53.85	+31 30.9	0.403	1.371	159.9	14.3	18.3
1999 02 11		08 01.61	+33 12.4	0.462	1.410	151.3	19.7	18.9
1999 02 21		08 11.60	+33 50.7	0.535	1.454	143.5	23.9	19.4
1999 03 03		08 23.80	+33 39.9	0.620	1.502	136.4	27.1	19.9
1999 03 13		08 37.69	+32 53.1	0.717	1.554	129.9	29.4	20.3
1999 03 23		08 52.85	+31 40.1	0.824	1.608	123.8	31.0	20.7
1999 04 02		09 08.85	+30 08.5	0.942	1.664	118.0	32.0	21.1
1999 04 12		09 25.31	+28 24.0	1.069	1.722	112.5	32.5	21.5
1999 04 22		09 42.01	+26 30.1	1.204	1.781	107.1	32.7	21.8
1999 05 02		09 58.78	+24 30.0	1.346	1.840	101.8	32.4	22.1

1998 XC₉ $a, e, i = 2.75, 0.53, 9$ Elements *MPC* 33583

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		07 49.86	+42 11.4	0.363	1.325	156.9	16.9	17.5
1999 01 07		07 48.80	+39 59.8	0.371	1.339	160.7	14.1	17.5
1999 01 12		07 47.30	+37 42.2	0.381	1.354	163.7	11.8	17.5
1999 01 17		07 45.75	+35 22.4	0.396	1.371	165.4	10.4	17.5
1999 01 22		07 44.52	+33 04.0	0.416	1.390	165.1	10.5	17.7
1999 01 27		07 43.85	+30 50.3	0.439	1.411	163.0	11.8	17.9
1999 02 01		07 43.91	+28 43.9	0.467	1.433	159.8	13.8	18.1
1999 02 06		07 44.73	+26 46.5	0.499	1.456	156.0	16.0	18.4
1999 02 11		07 46.35	+24 58.7	0.535	1.481	151.9	18.3	18.6
1999 02 16		07 48.74	+23 20.6	0.575	1.506	147.9	20.4	18.9
1999 02 21		07 51.89	+21 51.8	0.619	1.533	143.9	22.3	19.2
1999 02 26		07 55.73	+20 31.4	0.667	1.561	140.0	24.1	19.4
1999 03 03		08 00.20	+19 18.5	0.718	1.589	136.2	25.6	19.7
1999 03 08		08 05.20	+18 12.1	0.773	1.618	132.6	26.8	19.9
1999 03 13		08 10.68	+17 11.1	0.830	1.648	129.1	27.9	20.1
1999 03 18		08 16.57	+16 14.5	0.891	1.679	125.6	28.8	20.3
1999 03 23		08 22.83	+15 21.6	0.955	1.709	122.3	29.5	20.5
1999 03 28		08 29.40	+14 31.5	1.021	1.741	119.1	30.1	20.8
1999 04 02		08 36.23	+13 43.7	1.090	1.772	116.0	30.5	20.9
1999 04 07		08 43.27	+12 57.5	1.161	1.804	112.9	30.7	21.1
1999 04 12		08 50.49	+12 12.5	1.235	1.836	109.9	30.9	21.3
1999 04 17		08 57.86	+11 28.3	1.310	1.868	107.0	30.9	21.5
1999 04 22		09 05.36	+10 44.6	1.387	1.901	104.1	30.9	21.6
1999 04 27		09 12.95	+10 01.1	1.466	1.933	101.2	30.7	21.8
1999 05 02		09 20.61	+09 17.7	1.547	1.966	98.4	30.5	21.9

1994 CK₁ $a, e, i = 1.90, 0.63, 5$ Elements *MPC* 33550

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		09 33.15	+19 25.5	0.859	1.740	141.6	20.6	19.2
1999 01 12		09 12.59	+20 36.2	0.879	1.824	156.6	12.4	19.1
1999 01 22		08 50.49	+21 37.2	0.925	1.904	171.5	4.4	18.9
1999 02 01		08 29.95	+22 18.7	1.001	1.982	172.0	4.0	19.2

1999 02 11	08 13.29	+22 39.2	1.105	2.056	158.5	10.1	19.7
1999 02 21	08 01.60	+22 42.4	1.234	2.126	145.9	15.1	20.2
1999 03 03	07 54.93	+22 33.5	1.384	2.194	134.4	18.8	20.7
1999 03 13	07 52.66	+22 16.5	1.549	2.259	123.9	21.4	21.1
1999 03 23	07 54.03	+21 53.5	1.725	2.321	114.4	23.0	21.4
1999 04 02	07 58.30	+21 25.8	1.909	2.380	105.5	23.9	21.7
1999 04 12	08 04.79	+20 53.8	2.098	2.437	97.3	24.1	22.0

C/1998 X1 (ODAS)Elements *MPC* 33451

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 01 02		10 00.04	+13 51.6	1.664	2.450	133.9	16.8	18.0	
1999 01 12		09 56.62	+14 09.6	1.662	2.530	144.9	12.9	18.1	
1999 01 22		09 50.99	+14 37.5	1.680	2.612	156.5	8.6	18.3	
1999 02 01		09 44.02	+15 10.0	1.724	2.696	168.4	4.2	18.5	
1999 02 11		09 36.72	+15 42.0	1.795	2.781	178.5	0.5	18.7	
1999 02 21		09 30.02	+16 09.1	1.894	2.868	167.7	4.2	19.0	
1999 03 03		09 24.73	+16 28.1	2.020	2.955	156.4	7.7	19.2	
1999 03 13		09 21.29	+16 37.9	2.171	3.043	145.5	10.7	19.5	
1999 03 23		09 19.89	+16 38.3	2.344	3.132	135.3	12.9	19.8	
1999 04 02		09 20.51	+16 29.7	2.535	3.221	125.6	14.6	20.1	
1999 04 12		09 22.96	+16 13.2	2.741	3.310	116.4	15.7	20.4	
1999 04 22		09 27.01	+15 49.4	2.958	3.400	107.6	16.4	20.7	
1999 05 02		09 32.40	+15 19.2	3.183	3.490	99.3	16.6	20.9	

1998 YF₂₇ $a, e, i = 1.89, 0.20, 46$ Elements *MPC* 33588

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02		10 01.83	+13 42.7	0.705	1.554	133.4	27.4	17.4
1999 01 12		10 05.80	+24 03.6	0.631	1.542	144.7	21.6	17.0
1999 01 22		10 05.19	+36 24.8	0.596	1.532	150.8	18.3	16.7
1999 02 01		09 58.73	+48 49.0	0.605	1.525	146.0	21.2	16.9
1999 02 11		09 45.57	+59 07.3	0.651	1.519	135.1	27.3	17.2
1999 02 21		09 26.81	+66 21.3	0.725	1.517	123.8	32.8	17.6
1999 03 03		09 07.3	+70 46.2	0.812	1.517	114.1	36.6	17.9
1999 03 13		08 54.1	+73 07.5	0.905	1.519	106.1	38.9	18.2
1999 03 23		08 52.5	+74 06.9	0.998	1.524	99.7	40.1	18.5
1999 04 02		09 03.7	+74 12.2	1.085	1.531	94.4	40.6	18.7
1999 04 12		09 24.9	+73 35.9	1.167	1.541	90.2	40.6	18.9
1999 04 22		09 52.7	+72 21.7	1.240	1.553	86.9	40.3	19.0
1999 05 02		10 23.4	+70 30.8	1.305	1.567	84.2	39.8	19.1
1999 05 12		10 54.34	+68 03.9	1.362	1.583	82.2	39.2	19.2
1999 05 22		11 24.01	+65 02.3	1.413	1.600	80.7	38.6	19.3
1999 06 01		11 51.82	+61 28.9	1.459	1.619	79.6	38.0	19.4
1999 06 11		12 17.69	+57 26.6	1.502	1.640	78.7	37.4	19.5
1999 06 21		12 41.87	+52 58.9	1.544	1.662	77.9	36.7	19.5
1999 07 01		13 04.63	+48 10.6	1.588	1.684	77.2	36.0	19.6
1999 07 11		13 26.25	+43 06.7	1.635	1.708	76.3	35.3	19.7
1999 07 21		13 47.05	+37 52.9	1.688	1.732	75.1	34.5	19.8
1999 07 31		14 07.23	+32 35.5	1.747	1.757	73.7	33.7	19.8
1999 08 10		14 26.98	+27 20.5	1.815	1.782	71.8	32.7	19.9
1999 08 20		14 46.47	+22 13.5	1.892	1.807	69.5	31.7	20.0
1999 08 30		15 05.82	+17 19.5	1.977	1.832	66.8	30.4	20.1
1999 09 09		15 25.12	+12 42.2	2.069	1.857	63.7	29.1	20.2
1999 09 19		15 44.46	+08 24.4	2.167	1.882	60.2	27.6	20.3

1998 FS ₁₄₄		$a, e, i = 42.31, 0.01, 10$				Elements <i>MPC</i> 33508		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02	11 08.50		-03 54.5	41.575	41.940	111.2	1.3	23.1
1999 01 12	11 08.19		-03 54.4	41.421	41.940	121.3	1.1	23.1
1999 01 22	11 07.75		-03 53.3	41.283	41.940	131.4	1.0	23.0
1999 02 01	11 07.20		-03 51.3	41.166	41.941	141.5	0.8	23.0
1999 02 11	11 06.56		-03 48.3	41.072	41.941	151.3	0.6	23.0
1999 02 21	11 05.86		-03 44.5	41.006	41.941	160.8	0.4	23.0
1999 03 03	11 05.11		-03 40.1	40.968	41.941	168.9	0.3	22.9
1999 03 13	11 04.36		-03 35.2	40.961	41.941	170.6	0.2	22.9
1999 03 23	11 03.63		-03 30.0	40.983	41.941	163.9	0.4	23.0
1999 04 02	11 02.94		-03 24.8	41.035	41.942	154.9	0.6	23.0
1999 04 12	11 02.33		-03 19.6	41.113	41.942	145.4	0.8	23.0
1999 04 22	11 01.81		-03 14.6	41.216	41.942	135.7	1.0	23.0
1999 05 02	11 01.40		-03 10.1	41.341	41.942	126.1	1.1	23.1
1999 05 12	11 01.12		-03 06.2	41.482	41.942	116.5	1.2	23.1
1999 05 22	11 00.98		-03 03.0	41.637	41.943	106.9	1.3	23.1
1999 06 01	11 00.98		-03 00.6	41.800	41.943	97.4	1.4	23.1
1999 06 11	11 01.12		-02 59.0	41.967	41.943	88.0	1.4	23.1
1999 06 21	11 01.41		-02 58.5	42.133	41.943	78.6	1.4	23.1
1999 07 01	11 01.83		-02 58.8	42.293	41.943	69.3	1.3	23.1
1999 07 11	11 02.38		-03 00.1	42.443	41.944	60.0	1.2	23.1
1999 07 21	11 03.05		-03 02.4	42.579	41.944	50.8	1.1	23.1
1999 07 31	11 03.81		-03 05.5	42.698	41.944	41.6	0.9	23.1
1999 08 10	11 04.66		-03 09.4	42.795	41.944	32.5	0.7	23.1

1998 HL ₃		$a, e, i = 1.13, 0.37, 3$				Elements <i>MPC</i> 32075		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02	11 36.90		-00 38.5	0.687	1.347	106.2	44.5	21.5
1999 01 12	11 37.94		-00 36.5	0.637	1.387	116.1	39.5	21.3
1999 01 22	11 32.90		+00 08.9	0.588	1.423	127.8	33.2	21.0
1999 02 01	11 20.94		+01 44.9	0.547	1.453	141.3	25.1	20.7
1999 02 11	11 02.22		+04 10.4	0.521	1.480	156.7	15.3	20.3
1999 02 21	10 38.73		+07 08.8	0.515	1.501	173.2	4.4	19.8
1999 03 03	10 14.56		+10 07.5	0.532	1.518	169.9	6.6	20.0
1999 03 13	09 53.98		+12 36.0	0.573	1.531	154.3	16.3	20.6
1999 03 23	09 39.69		+14 20.0	0.633	1.539	140.5	24.3	21.1
1999 04 02	09 32.35		+15 20.5	0.706	1.542	128.6	30.4	21.5
1999 04 12	09 31.18		+15 44.8	0.787	1.541	118.4	34.9	21.9

1998 YR ₁₁		$a, e, i = 1.88, 0.44, 59$				Elements <i>MPC</i> 33588		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02	11 39.20		+25 37.4	0.347	1.171	114.6	49.8	18.2
1999 01 07	11 53.75		+39 32.1	0.356	1.195	118.5	46.3	18.2
1999 01 12	12 10.07		+51 57.6	0.385	1.220	119.5	44.5	18.4
1999 01 17	12 28.63		+62 02.7	0.431	1.247	118.3	44.0	18.6
1999 01 22	12 50.13		+69 46.7	0.488	1.275	115.8	44.0	19.0
1999 01 27	13 15.7		+75 32.8	0.552	1.303	113.0	44.1	19.3
1999 02 01	13 46.8		+79 47.8	0.621	1.332	110.1	44.0	19.6
1999 02 06	14 26.0		+82 53.6	0.692	1.362	107.3	43.7	19.9
1999 02 11	15 17		+85 06.5	0.764	1.392	104.6	43.3	20.1
1999 02 16	16 23		+86 38.3	0.837	1.423	102.1	42.7	20.3
1999 02 21	17 49		+87 37.8	0.910	1.454	99.8	42.1	20.5
1999 02 26	19 32		+88 13.2	0.981	1.485	97.7	41.4	20.7

1999 03 03	21 24	+88 33.3	1.052	1.516	95.7	40.6	20.9
1999 03 08	23 26	+88 44.7	1.121	1.547	93.9	39.8	21.1
1999 03 13	01 40	+88 48.2	1.188	1.577	92.2	39.0	21.2
1999 03 18	03 57	+88 38.9	1.253	1.608	90.6	38.2	21.4
1999 03 23	05 49	+88 14.0	1.317	1.639	89.1	37.4	21.5
1999 03 28	07 08	+87 35.4	1.378	1.669	87.7	36.7	21.6
1999 04 02	08 04	+86 46.1	1.438	1.699	86.4	35.9	21.7
1999 04 07	08 45	+85 48.1	1.495	1.729	85.3	35.2	21.8
1999 04 12	09 16.3	+84 42.7	1.551	1.759	84.1	34.5	21.9

1998 YQ ₁₁		$a, e, i = 1.76, 0.36, 12$				Elements <i>MPC</i> 33588		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02	11 49.23		-21 27.8	0.493	1.133	94.4	59.9	18.8
1999 01 12	12 24.66		-28 26.4	0.486	1.123	93.5	60.9	18.8
1999 01 22	13 00.11		-34 24.8	0.485	1.122	93.3	61.1	18.8
1999 02 01	13 34.90		-39 12.8	0.486	1.129	94.0	60.5	18.8
1999 02 11	14 07.98		-42 50.4	0.488	1.144	95.8	59.1	18.8
1999 02 21	14 37.79		-45 22.1	0.487	1.167	98.8	56.9	18.7
1999 03 03	15 02.71		-46 54.1	0.483	1.197	103.0	53.8	18.7
1999 03 13	15 21.14		-47 32.9	0.477	1.232	108.6	49.9	18.6
1999 03 23	15 31.64		-47 20.4	0.468	1.272	115.8	44.9	18.5
1999 04 02	15 33.66		-46 12.9	0.459	1.315	124.5	38.7	18.4
1999 04 12	15 27.83		-44 03.8	0.455	1.362	134.9	31.5	18.2
1999 04 22	15 16.34		-40 48.2	0.459	1.410	146.3	23.3	18.1
1999 05 02	15 02.89		-36 36.4	0.476	1.459	157.7	15.2	17.9
1999 05 12	14 50.91		-31 58.5	0.511	1.510	165.1	9.9	18.0
1999 05 22	14 42.62		-27 31.8	0.565	1.560	162.3	11.4	18.3
1999 06 01	14 38.86		-23 45.4	0.638	1.610	153.5	16.3	18.8
1999 06 11	14 39.30		-20 51.0	0.727	1.659	143.9	21.1	19.3
1999 06 21	14 43.34		-18 47.2	0.832	1.708	134.9	24.9	19.8
1999 07 01	14 50.32		-17 26.5	0.948	1.756	126.6	27.7	20.2
1999 07 11	14 59.58		-16 39.3	1.075	1.802	119.0	29.6	20.6
1999 07 21	15 10.70		-16 17.2	1.210	1.847	111.9	30.7	21.0
1999 07 31	15 23.28		-16 13.1	1.350	1.890	105.2	31.2	21.3
1999 08 10	15 37.06		-16 20.9	1.496	1.932	98.9	31.2	21.5
1999 08 20	15 51.83		-16 36.3	1.644	1.972	92.8	30.8	21.8
1999 08 30	16 07.43		-16 55.5	1.794	2.011	86.9	30.1	22.0

1989 ML		$a, e, i = 1.27, 0.14, 4$				Elements <i>MPC</i> 27324		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 02	12 08.04		+03 26.5	0.854	1.416	100.6	43.0	21.6
1999 01 12	12 27.25		+02 29.5	0.768	1.405	106.0	42.3	21.3
1999 01 22	12 45.15		+01 53.5	0.685	1.392	111.8	41.0	21.0
1999 02 01	13 01.35		+01 43.7	0.606	1.377	118.0	39.2	20.7
1999 02 11	13 15.31		+02 05.6	0.531	1.361	124.7	36.6	20.3
1999 02 21	13 26.19		+03 05.5	0.463	1.344	132.2	33.1	19.9
1999 03 03	13 33.09		+04 47.5	0.402	1.326	140.3	28.6	19.4
1999 03 13	13 34.95		+07 12.3	0.350	1.306	148.8	23.2	18.9
1999 03 23	13 30.83		+10 11.4	0.309	1.286	156.5	18.0	18.4
1999 04 02	13 20.83		+13 20.1	0.279	1.265	159.7	15.9	18.1
1999 04 12	13 06.45		+16 01.4	0.261	1.244	155.3	19.7	18.0
1999 04 22	12 50.93		+17 36.7	0.253	1.223	146.2	27.2	18.2
1999 05 02	12 38.26		+17 45.9	0.252	1.203	136.3	35.4	18.4
1999 05 12	12 31.03		+16 32.5	0.257	1.183	127.1	42.9	18.6

1999 05 22	12 30.27	+14 10.1	0.264	1.165	119.4	49.2	18.8
1999 06 01	12 35.79	+10 54.8	0.271	1.148	113.0	54.4	19.0
1999 06 11	12 46.71	+06 59.1	0.279	1.133	107.9	58.5	19.1
1999 06 21	13 02.42	+02 31.3	0.285	1.120	104.0	61.7	19.2
1999 07 01	13 22.41	-02 21.0	0.291	1.110	101.1	64.0	19.3
1999 07 11	13 46.35	-07 29.7	0.297	1.103	99.1	65.5	19.4
1999 07 21	14 14.38	-12 45.8	0.303	1.099	97.8	66.3	19.5
1999 07 31	14 46.61	-17 56.6	0.312	1.099	97.3	66.4	19.5
1999 08 10	15 23.13	-22 45.8	0.322	1.102	97.3	65.9	19.6
1999 08 20	16 04.02	-26 55.6	0.337	1.108	97.6	64.9	19.7
1999 08 30	16 48.65	-30 08.1	0.355	1.117	98.2	63.4	19.7
1999 09 09	17 35.76	-32 09.4	0.379	1.129	98.8	61.8	19.9
1999 09 19	18 23.68	-32 53.8	0.408	1.144	99.3	60.1	20.0
1999 09 29	19 10.47	-32 24.8	0.443	1.160	99.5	58.4	20.2
1999 10 09	19 54.64	-30 52.9	0.484	1.178	99.3	56.8	20.3
1999 10 19	20 35.54	-28 32.2	0.531	1.198	98.7	55.3	20.5
1999 10 29	21 13.01	-25 37.0	0.584	1.218	97.7	53.9	20.7
1999 11 08	21 47.33	-22 19.1	0.643	1.239	96.3	52.6	20.9
1999 11 18	22 19.07	-18 47.7	0.707	1.260	94.6	51.4	21.2
1999 11 28	22 48.69	-15 09.7	0.776	1.281	92.5	50.3	21.4
1999 12 08	23 16.69	-11 29.9	0.849	1.301	90.1	49.2	21.6
1999 12 18	23 43.54	-07 51.7	0.926	1.321	87.5	48.1	21.7
1999 12 28	00 09.56	-04 17.7	1.005	1.340	84.7	47.0	21.9

1995 DW₂		$a, e, i = 24.88, 0.24, 4$				Elements <i>MPC</i> 32308	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 01 02	13 35.12	-08 07.7	19.251	19.039	76.2	2.9	21.1
1999 01 12	13 35.95	-08 11.0	19.083	19.042	86.1	3.0	21.1
1999 01 22	13 36.44	-08 12.3	18.914	19.045	96.2	2.9	21.1
1999 02 01	13 36.60	-08 11.7	18.747	19.048	106.3	2.8	21.1
1999 02 11	13 36.42	-08 09.1	18.590	19.050	116.5	2.7	21.0
1999 02 21	13 35.92	-08 04.7	18.445	19.053	126.7	2.4	21.0
1999 03 03	13 35.12	-07 58.7	18.319	19.056	137.0	2.0	21.0
1999 03 13	13 34.07	-07 51.3	18.215	19.059	147.3	1.6	20.9
1999 03 23	13 32.81	-07 42.8	18.137	19.061	157.5	1.1	20.9
1999 04 02	13 31.40	-07 33.7	18.087	19.064	167.7	0.6	20.8
1999 04 12	13 29.92	-07 24.2	18.066	19.067	177.4	0.1	20.7
1999 04 22	13 28.41	-07 14.8	18.076	19.070	171.5	0.4	20.8
1999 05 02	13 26.96	-07 05.9	18.115	19.073	161.5	1.0	20.8
1999 05 12	13 25.62	-06 57.8	18.182	19.076	151.5	1.4	20.9
1999 05 22	13 24.45	-06 50.9	18.276	19.079	141.5	1.9	20.9
1999 06 01	13 23.50	-06 45.4	18.392	19.082	131.7	2.3	21.0
1999 06 11	13 22.81	-06 41.6	18.528	19.085	121.9	2.6	21.0
1999 06 21	13 22.41	-06 39.6	18.679	19.088	112.3	2.8	21.1
1999 07 01	13 22.31	-06 39.4	18.841	19.091	102.7	3.0	21.1
1999 07 11	13 22.52	-06 41.2	19.009	19.094	93.3	3.0	21.1
1999 07 21	13 23.06	-06 44.9	19.178	19.097	83.9	3.0	21.1
1999 07 31	13 23.89	-06 50.3	19.345	19.100	74.6	2.9	21.1
1999 08 10	13 25.02	-06 57.5	19.504	19.103	65.3	2.8	21.1
1999 08 20	13 26.42	-07 06.1	19.652	19.106	56.1	2.5	21.1
1999 08 30	13 28.06	-07 16.1	19.785	19.109	46.9	2.2	21.1
1999 09 09	13 29.91	-07 27.1	19.900	19.112	37.7	1.8	21.1

1995 LH		$a, e, i = 2.69, 0.41, 11$				Elements <i>MPC</i> 31141	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 01 02	13 47.34	-03 02.7	3.114	3.018	75.3	18.4	19.8
1999 01 12	13 56.38	-03 46.9	2.936	2.981	83.0	19.1	19.7
1999 01 22	14 04.33	-04 23.2	2.756	2.943	91.0	19.5	19.5
1999 02 01	14 10.95	-04 50.8	2.576	2.904	99.4	19.6	19.4
1999 02 11	14 15.94	-05 09.4	2.400	2.865	108.1	19.1	19.2
1999 02 21	14 18.98	-05 18.3	2.231	2.825	117.4	18.1	18.9
1999 03 03	14 19.74	-05 17.6	2.072	2.784	127.1	16.5	18.7
1999 03 13	14 17.97	-05 07.6	1.928	2.743	137.4	14.2	18.4
1999 03 23	14 13.50	-04 49.3	1.802	2.700	148.2	11.2	18.1
1999 04 02	14 06.44	-04 25.1	1.699	2.657	159.3	7.6	17.8
1999 04 12	13 57.21	-03 58.4	1.621	2.614	169.8	3.9	17.5
1999 04 22	13 46.57	-03 33.8	1.572	2.569	171.2	3.4	17.4
1999 05 02	13 35.66	-03 16.6	1.550	2.525	161.1	7.4	17.5
1999 05 12	13 25.61	-03 11.3	1.554	2.479	149.7	11.9	17.6
1999 05 22	13 17.45	-03 21.0	1.582	2.434	138.4	16.0	17.8
1999 06 01	13 11.89	-03 47.3	1.627	2.388	127.8	19.6	17.9
1999 06 11	13 09.25	-04 29.9	1.686	2.341	118.0	22.5	18.1
1999 06 21	13 09.58	-05 27.7	1.754	2.294	108.9	24.8	18.2
1999 07 01	13 12.77	-06 39.2	1.827	2.248	100.5	26.4	18.3
1999 07 11	13 18.58	-08 02.4	1.902	2.201	92.9	27.5	18.3
1999 07 21	13 26.81	-09 35.8	1.976	2.154	85.8	28.1	18.4
1999 07 31	13 37.24	-11 17.5	2.046	2.108	79.3	28.2	18.4
1999 08 10	13 49.70	-13 05.8	2.113	2.062	73.2	28.1	18.4
1999 08 20	14 04.08	-14 59.2	2.174	2.017	67.5	27.6	18.4
1999 08 30	14 20.29	-16 55.6	2.229	1.972	62.2	26.9	18.4
1999 09 09	14 38.30	-18 53.2	2.278	1.929	57.2	26.1	18.4
1999 09 19	14 58.10	-20 49.8	2.320	1.887	52.6	25.0	18.4
1999 09 29	15 19.70	-22 42.8	2.357	1.846	48.2	23.9	18.3
1999 10 09	15 43.10	-24 29.5	2.387	1.808	44.0	22.6	18.3
1999 10 19	16 08.33	-26 06.8	2.412	1.771	40.1	21.3	18.2
1999 10 29	16 35.33	-27 31.1	2.433	1.737	36.5	19.9	18.1
1999 11 08	17 04.03	-28 39.0	2.450	1.706	33.0	18.4	18.1

1992 CC₁		$a, e, i = 1.39, 0.38, 37$				Elements <i>MPC</i> 30091	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1999 01 02	13 55.99	-24 20.5	2.087	1.913	66.1	28.0	19.7
1999 01 12	14 08.99	-27 56.1	1.967	1.912	72.3	29.3	19.7
1999 01 22	14 21.21	-31 43.0	1.843	1.908	78.5	30.4	19.5
1999 02 01	14 32.37	-35 43.7	1.718	1.901	84.7	31.1	19.4
1999 02 11	14 42.04	-40 01.2	1.595	1.891	91.0	31.5	19.2
1999 02 21	14 49.52	-44 38.0	1.477	1.877	97.2	31.5	19.1
1999 03 03	14 53.75	-49 34.7	1.366	1.861	103.1	31.2	18.9
1999 03 13	14 52.98	-54 49.3	1.265	1.841	108.6	30.8	18.7
1999 03 23	14 44.15	-60 12.7	1.177	1.819	113.3	30.2	18.5
1999 04 02	14 22.34	-65 24.0	1.105	1.793	116.8	29.8	18.3
1999 04 12	13 40.66	-69 44.4	1.050	1.765	118.6	29.9	18.1
1999 04 22	12 36.4	-72 14.5	1.011	1.733	118.5	30.6	18.0
1999 05 02	11 24.9	-72 12.4	0.988	1.698	116.6	32.0	18.0
1999 05 12	10 30.4	-70 05.2	0.977	1.661	113.4	33.9	18.0
1999 05 22	09 59.64	-67 01.6	0.975	1.620	109.2	36.2	18.0
1999 06 01	09 46.78	-63 55.0	0.977	1.576	104.6	38.5	18.0

1999 06 11	09 45.66	-61 11.9	0.980	1.529	100.0	40.8	18.0
1999 06 21	09 52.59	-59 03.9	0.981	1.480	95.6	43.1	18.0
1999 07 01	10 05.47	-57 33.8	0.976	1.428	91.5	45.4	18.0
1999 07 11	10 23.45	-56 39.2	0.963	1.374	87.8	47.7	17.9
1999 07 21	10 46.47	-56 15.9	0.941	1.318	84.5	50.1	17.8
1999 07 31	11 14.96	-56 16.0	0.910	1.260	81.6	52.9	17.7
1999 08 10	11 49.95	-56 26.4	0.868	1.201	78.9	55.9	17.6
1999 08 20	12 32.71	-56 27.6	0.817	1.142	76.5	59.5	17.5
1999 08 30	13 23.86	-55 47.1	0.758	1.084	74.1	63.6	17.3
1999 09 09	14 22.17	-53 37.4	0.694	1.029	71.8	68.4	17.2
1999 09 19	15 23.13	-49 03.2	0.630	0.978	69.2	73.8	17.0
1999 09 29	16 20.18	-41 18.1	0.573	0.935	66.5	79.3	16.9
1999 10 09	17 08.37	-30 13.4	0.531	0.900	63.7	84.3	16.9
1999 10 19	17 46.19	-16 42.2	0.512	0.878	61.7	87.4	16.8
1999 10 29	18 14.45	-02 30.5	0.517	0.870	61.0	87.7	16.8
1999 11 08	18 35.18	+10 36.1	0.541	0.876	61.7	85.3	16.9
1999 11 18	18 50.66	+21 47.2	0.576	0.896	63.6	81.3	16.9
1999 11 28	19 03.06	+31 05.8	0.611	0.928	66.2	76.7	16.9
1999 12 08	19 14.56	+39 00.7	0.642	0.970	69.6	72.1	17.0
1999 12 18	19 27.26	+46 08.3	0.664	1.020	73.6	67.8	17.0
1999 12 28	19 43.37	+53 00.3	0.678	1.074	78.2	63.6	17.1
2000 01 07	20 06.45	+60 00.7	0.686	1.132	83.3	59.7	17.1
2000 01 17	20 43.86	+67 19.4	0.692	1.190	88.8	55.7	17.1
2000 01 27	21 56.2	+74 28.8	0.702	1.249	94.1	51.8	17.1
2000 02 06	00 35.4	+79 02.3	0.722	1.307	98.7	48.2	17.2
2000 02 16	03 49.4	+76 26.8	0.758	1.364	101.9	45.1	17.3
2000 02 26	05 28.72	+69 14.0	0.814	1.419	103.3	42.8	17.5
2000 03 07	06 19.30	+61 14.5	0.889	1.471	102.7	41.1	17.7
2000 03 17	06 52.10	+53 42.8	0.983	1.521	100.5	40.0	18.0
2000 03 27	07 17.20	+46 59.4	1.094	1.568	97.0	39.2	18.2
2000 04 06	07 38.47	+41 05.7	1.217	1.612	92.8	38.3	18.5
2000 04 16	07 57.63	+35 56.3	1.349	1.654	88.1	37.3	18.7
2000 04 26	08 15.49	+31 23.3	1.486	1.692	83.1	36.2	19.0
2000 05 06	08 32.54	+27 19.1	1.627	1.727	78.0	34.8	19.2
2000 05 16	08 49.04	+23 37.3	1.767	1.759	72.9	33.3	19.4
2000 05 26	09 05.15	+20 12.4	1.906	1.789	67.8	31.6	19.5
2000 06 05	09 21.00	+17 00.1	2.040	1.815	62.7	29.8	19.6

(8567) 1996 HW ₁		$a, e, i = 2.05, 0.45, 8$				Elements MPC 31512		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 12	15 00.10	-13 07.7	2.886	2.626	65.0	19.8	20.7	
1999 01 22	15 13.08	-13 36.7	2.722	2.593	72.0	21.2	20.6	
1999 02 01	15 25.36	-13 56.2	2.553	2.558	79.2	22.2	20.4	
1999 02 11	15 36.75	-14 05.5	2.380	2.521	86.6	23.0	20.3	
1999 02 21	15 46.98	-14 03.7	2.206	2.483	94.2	23.4	20.1	
1999 03 03	15 55.72	-13 50.0	2.034	2.443	102.2	23.4	19.9	
1999 03 13	16 02.65	-13 23.5	1.865	2.401	110.5	22.8	19.6	
1999 03 23	16 07.32	-12 43.4	1.704	2.358	119.3	21.6	19.4	
1999 04 02	16 09.30	-11 49.1	1.553	2.313	128.7	19.7	19.1	
1999 04 12	16 08.19	-10 40.7	1.416	2.267	138.5	17.0	18.7	
1999 04 22	16 03.67	-09 19.1	1.297	2.219	148.8	13.6	18.4	
1999 05 02	15 55.76	-07 47.6	1.198	2.169	158.9	9.6	18.0	
1999 05 12	15 44.91	-06 12.0	1.124	2.118	166.0	6.6	17.7	

1999 05 22	15 32.13	-04 41.3	1.074	2.065	163.6	8.0	17.6
1999 06 01	15 19.02	-03 25.6	1.050	2.011	154.0	12.7	17.7
1999 06 11	15 07.22	-02 33.7	1.047	1.955	142.9	18.3	17.8
1999 06 21	14 58.16	-02 10.5	1.063	1.898	131.9	23.5	17.9
1999 07 01	14 52.76	-02 16.5	1.091	1.841	121.7	28.0	18.1
1999 07 11	14 51.34	-02 49.0	1.127	1.782	112.3	31.9	18.2
1999 07 21	14 53.93	-03 44.2	1.166	1.722	104.0	34.9	18.3
1999 07 31	15 00.30	-04 57.5	1.205	1.662	96.6	37.4	18.3
1999 08 10	15 10.18	-06 24.8	1.240	1.601	90.0	39.3	18.4
1999 08 20	15 23.37	-08 02.4	1.271	1.541	84.1	40.8	18.4
1999 08 30	15 39.68	-09 46.7	1.296	1.482	78.9	42.0	18.4
1999 09 09	15 59.00	-11 34.3	1.314	1.424	74.3	42.9	18.3
1999 09 19	16 21.34	-13 21.5	1.326	1.368	70.4	43.8	18.3
1999 09 29	16 46.66	-15 04.1	1.330	1.315	66.9	44.5	18.2
1999 10 09	17 15.00	-16 37.4	1.330	1.267	64.1	45.2	18.2
1999 10 19	17 46.39	-17 55.8	1.325	1.223	61.7	45.8	18.1

1994 JR ₁		$a, e, i = 39.29, 0.12, 4$				Elements MPC 32307		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1999 01 12	16 49.43	-18 52.5	35.533	34.765	38.2	1.0	23.1	
1999 01 22	16 50.51	-18 53.7	35.415	34.765	48.1	1.2	23.1	
1999 02 01	16 51.45	-18 54.5	35.278	34.765	58.0	1.4	23.1	
1999 02 11	16 52.22	-18 54.9	35.125	34.765	67.9	1.5	23.1	
1999 02 21	16 52.80	-18 54.9	34.960	34.766	77.8	1.6	23.1	
1999 03 03	16 53.19	-18 54.5	34.790	34.766	87.8	1.6	23.1	
1999 03 13	16 53.37	-18 53.8	34.619	34.766	97.7	1.6	23.1	
1999 03 23	16 53.35	-18 52.7	34.451	34.766	107.7	1.6	23.1	
1999 04 02	16 53.12	-18 51.4	34.292	34.767	117.6	1.5	23.1	
1999 04 12	16 52.71	-18 49.8	34.148	34.767	127.5	1.3	23.1	
1999 04 22	16 52.13	-18 48.1	34.021	34.767	137.4	1.1	23.0	
1999 05 02	16 51.41	-18 46.3	33.916	34.767	147.2	0.9	23.0	
1999 05 12	16 50.57	-18 44.4	33.836	34.768	157.0	0.6	23.0	
1999 05 22	16 49.65	-18 42.5	33.782	34.768	166.7	0.4	22.9	
1999 06 01	16 48.67	-18 40.7	33.758	34.768	175.2	0.1	22.9	
1999 06 11	16 47.69	-18 39.1	33.762	34.769	172.2	0.2	22.9	
1999 06 21	16 46.73	-18 37.7	33.796	34.769	163.0	0.5	22.9	
1999 07 01	16 45.82	-18 36.5	33.857	34.769	153.4	0.7	23.0	
1999 07 11	16 45.01	-18 35.7	33.944	34.769	143.8	1.0	23.0	
1999 07 21	16 44.33	-18 35.2	34.055	34.770	134.1	1.2	23.0	
1999 07 31	16 43.78	-18 35.1	34.185	34.770	124.5	1.4	23.1	
1999 08 10	16 43.41	-18 35.4	34.332	34.770	114.8	1.5	23.1	
1999 08 20	16 43.22	-18 36.1	34.491	34.771	105.2	1.6	23.1	
1999 08 30	16 43.23	-18 37.3	34.658	34.771	95.6	1.7	23.1	
1999 09 09	16 43.43	-18 38.8	34.827	34.771	86.0	1.7	23.1	
1999 09 19	16 43.83	-18 40.6	34.995	34.771	76.4	1.6	23.1	
1999 09 29	16 44.42	-18 42.8	35.155	34.772	66.7	1.5	23.1	
1999 10 09	16 45.19	-18 45.2	35.305	34.772	57.1	1.4	23.1	
1999 10 19	16 46.12	-18 47.7	35.438	34.772	47.4	1.2	23.1	
1999 10 29	16 47.20	-18 50.4	35.553	34.773	37.8	1.0	23.1	

C/1997 D1 (Mueller)		Elements MPC 30957						
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1
1999 02 01	23 59.97	-35 29.5	6.028	5.369	44.4	7.4	18.7	
1999 02 11	00 02.65	-34 37.6	6.185	5.449	38.6	6.5	18.8	

1999 02 21	00 05.93	-33 51.7	6.319	5.529	34.2	5.8	18.9
1999 03 03	00 09.61	-33 12.6	6.429	5.609	31.5	5.3	19.0
1999 03 13	00 13.53	-32 40.6	6.515	5.688	31.2	5.2	19.1
1999 03 23	00 17.56	-32 16.4	6.576	5.767	33.1	5.4	19.2
1999 04 02	00 21.55	-32 00.5	6.613	5.846	37.1	5.9	19.3
1999 04 12	00 25.39	-31 53.3	6.627	5.925	42.4	6.5	19.3
1999 04 22	00 28.93	-31 55.3	6.619	6.004	48.7	7.2	19.4
1999 05 02	00 32.07	-32 07.0	6.593	6.082	55.7	7.9	19.4
1999 05 12	00 34.66	-32 28.6	6.550	6.161	63.2	8.4	19.5
1999 05 22	00 36.59	-33 00.3	6.494	6.239	71.0	8.8	19.5
1999 06 01	00 37.70	-33 42.1	6.429	6.316	79.1	9.1	19.5
1999 06 11	00 37.86	-34 33.7	6.360	6.394	87.4	9.1	19.6
1999 06 21	00 36.93	-35 34.3	6.289	6.471	95.8	9.0	19.6
1999 07 01	00 34.77	-36 42.8	6.224	6.549	104.2	8.7	19.6
1999 07 11	00 31.27	-37 57.1	6.168	6.625	112.6	8.1	19.7
1999 07 21	00 26.34	-39 15.0	6.127	6.702	120.6	7.5	19.7
1999 07 31	00 19.96	-40 33.2	6.105	6.779	128.1	6.8	19.7
1999 08 10	00 12.20	-41 48.2	6.107	6.855	134.4	6.1	19.8
1999 08 20	00 03.20	-42 56.4	6.135	6.931	139.0	5.5	19.8
1999 08 30	23 53.26	-43 54.3	6.192	7.007	141.1	5.2	19.9

105P/Singer BrewsterElements *MPC* 27081

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 02 01		15 54.59	-17 04.1	2.183	2.092	71.6	26.5	18.0	22.5
1999 02 11		16 15.18	-17 17.4	2.064	2.075	76.8	27.6	17.8	22.4
1999 02 21		16 35.10	-17 15.4	1.947	2.061	82.2	28.4	17.7	22.3
1999 03 03		16 54.05	-16 57.8	1.832	2.050	87.8	28.9	17.5	22.1
1999 03 13		17 11.71	-16 25.2	1.722	2.041	93.6	29.1	17.3	22.0
1999 03 23		17 27.73	-15 38.4	1.615	2.035	99.7	28.9	17.2	21.9
1999 04 02		17 41.73	-14 39.1	1.514	2.033	106.1	28.2	17.0	21.7
1999 04 12		17 53.36	-13 29.6	1.421	2.033	112.9	27.0	16.9	21.5
1999 04 22		18 02.22	-12 12.9	1.335	2.036	120.2	25.2	16.8	21.3
1999 05 02		18 08.02	-10 52.8	1.260	2.042	128.1	22.9	16.7	21.1
1999 05 12		18 10.61	-09 34.2	1.198	2.051	136.3	19.9	16.6	20.9
1999 05 22		18 09.99	-08 22.5	1.151	2.063	144.9	16.4	16.5	20.8
1999 06 01		18 06.60	-07 23.8	1.121	2.077	153.3	12.7	16.5	20.6
1999 06 11		18 01.17	-06 43.2	1.110	2.094	160.3	9.4	16.5	20.5
1999 06 21		17 54.77	-06 24.4	1.121	2.114	163.0	8.1	16.6	20.4
1999 07 01		17 48.68	-06 28.3	1.154	2.136	159.5	9.6	16.8	20.6
1999 07 11		17 43.96	-06 52.6	1.207	2.160	152.4	12.6	16.9	20.8
1999 07 21		17 41.43	-07 33.2	1.280	2.186	144.1	15.8	17.1	21.1
1999 07 31		17 41.51	-08 24.9	1.371	2.214	135.8	18.6	17.4	21.4
1999 08 10		17 44.27	-09 22.6	1.476	2.244	127.7	20.9	17.6	21.6
1999 08 20		17 49.60	-10 21.7	1.595	2.276	119.9	22.7	17.9	21.9
1999 08 30		17 57.26	-11 18.8	1.725	2.309	112.6	23.8	18.1	22.1
1999 09 09		18 06.90	-12 10.9	1.864	2.344	105.5	24.5	18.4	22.3
1999 09 19		18 18.27	-12 56.2	2.009	2.379	98.7	24.7	18.7	22.5

137P/Shoemaker-Levy 2Elements *MPC* 31894

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 02 01		18 34.67	-21 01.5	4.348	3.570	33.7	8.8	19.7	21.6
1999 02 11		18 47.87	-20 41.4	4.204	3.515	40.7	10.5	19.6	21.5
1999 02 21		19 00.82	-20 16.5	4.046	3.459	47.7	12.2	19.4	21.5
1999 03 03		19 13.41	-19 47.2	3.877	3.403	54.8	13.8	19.3	21.4

1999 03 13	19 25.54	-19 13.9	3.698	3.346	61.9	15.2	19.1	21.3
1999 03 23	19 37.08	-18 37.1	3.512	3.289	69.0	16.4	18.9	21.2
1999 04 02	19 47.89	-17 57.6	3.320	3.232	76.2	17.5	18.7	21.1
1999 04 12	19 57.84	-17 16.1	3.125	3.174	83.6	18.3	18.5	20.9
1999 04 22	20 06.76	-16 33.5	2.930	3.116	91.1	18.8	18.3	20.8
1999 05 02	20 14.47	-15 51.1	2.736	3.059	98.9	19.0	18.0	20.6
1999 05 12	20 20.77	-15 10.0	2.547	3.001	106.9	18.8	17.8	20.4
1999 05 22	20 25.43	-14 31.6	2.365	2.943	115.3	18.1	17.6	20.2
1999 06 01	20 28.22	-13 57.4	2.192	2.885	124.0	16.9	17.3	19.9
1999 06 11	20 28.94	-13 29.1	2.033	2.827	133.2	15.2	17.1	19.6
1999 06 21	20 27.41	-13 08.0	1.890	2.769	142.9	12.8	16.8	19.3
1999 07 01	20 23.63	-12 55.4	1.766	2.711	153.0	9.8	16.6	19.0
1999 07 11	20 17.79	-12 51.8	1.665	2.654	163.2	6.3	16.3	18.7
1999 07 21	20 10.35	-12 57.1	1.588	2.598	171.9	3.1	16.2	18.4
1999 07 31	20 02.11	-13 09.8	1.536	2.542	169.7	4.1	16.0	18.3
1999 08 10	19 54.06	-13 28.0	1.511	2.486	159.7	8.1	15.9	18.4
1999 08 20	19 47.27	-13 49.0	1.509	2.432	148.9	12.4	15.8	18.6
1999 08 30	19 42.70	-14 10.2	1.527	2.378	138.3	16.4	15.7	18.7
1999 09 09	19 40.94	-14 29.2	1.563	2.326	128.3	19.9	15.6	18.8
1999 09 19	19 42.35	-14 43.6	1.612	2.276	119.0	22.7	15.6	18.9
1999 09 29	19 46.98	-14 51.7	1.670	2.227	110.4	24.9	15.6	19.0
1999 10 09	19 54.66	-14 51.6	1.734	2.180	102.4	26.6	15.6	19.1
1999 10 19	20 05.17	-14 41.7	1.801	2.135	95.1	27.7	15.6	19.2
1999 10 29	20 18.19	-14 20.6	1.870	2.093	88.4	28.3	15.6	19.2
1999 11 08	20 33.39	-13 47.2	1.940	2.053	82.1	28.6	15.6	19.3
1999 11 18	20 50.48	-13 00.4	2.008	2.017	76.3	28.4	15.6	19.3
1999 11 28	21 09.14	-11 59.9	2.075	1.984	70.9	28.0	15.6	19.3
1999 12 08	21 29.10	-10 45.5	2.140	1.954	65.8	27.4	15.6	19.3
1999 12 18	21 50.14	-09 17.5	2.203	1.929	61.0	26.5	15.6	19.3
1999 12 28	22 12.02	-07 36.8	2.265	1.907	56.5	25.5	15.6	19.3
2000 01 07	22 34.58	-05 44.6	2.327	1.891	52.2	24.3	15.6	19.4
2000 01 17	22 57.68	-03 42.6	2.387	1.879	48.1	22.9	15.6	19.3
2000 01 27	23 21.19	-01 32.9	2.447	1.871	44.2	21.5	15.7	19.4
2000 02 06	23 45.02	+00 42.3	2.507	1.869	40.4	20.0	15.7	19.4
2000 02 16	00 09.12	+03 00.6	2.567	1.871	36.7	18.4	15.8	19.4
2000 02 26	00 33.42	+05 19.3	2.628	1.878	33.1	16.7	15.8	19.4

17P/HolmesElements *MPC* 29881

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 02 11		16 45.40	-40 21.2	3.862	3.607	67.8	14.7	21.3	22.5
1999 02 21		16 56.94	-41 15.7	3.692	3.569	75.2	15.5	21.1	22.4
1999 03 03		17 07.45	-42 10.6	3.518	3.531	82.7	16.2	20.9	22.3
1999 03 13		17 16.68	-43 06.4	3.342	3.493	90.3	16.5	20.8	22.2
1999 03 23		17 24.31	-44 03.2	3.168	3.454	98.2	16.6	20.6	22.1
1999 04 02		17 30.00	-45 00.9	2.998	3.415	106.2	16.3	20.4	21.9
1999 04 12		17 33.43	-45 59.0	2.835	3.375	114.5	15.7	20.2	21.8
1999 04 22		17 34.21	-46 55.6	2.683	3.336	122.8	14.7	20.0	21.6
1999 05 02		17 32.10	-47 48.0	2.544	3.296	131.2	13.3	19.8	21.4
1999 05 12		17 26.97	-48 32.1	2.423	3.256	139.2	11.7	19.6	21.2
1999 05 22		17 18.98	-49 02.6	2.323	3.216	146.5	10.0	19.4	21.0
1999 06 01		17 08.76	-49 14.3	2.245	3.176	151.9	8.7	19.3	20.9
1999 06 11		16 57.30	-49 03.1	2.192	3.135	153.8	8.2	19.1	20.8
1999 06 21		16 45.90	-48 27.9	2.164	3.095	151.3	9.1	19.0	20.7

1999 07 01	16 35.90	−47 31.4	2.161	3.054	145.5	10.9	18.9	20.8
1999 07 11	16 28.32	−46 18.9	2.181	3.014	138.0	13.1	18.9	20.9
1999 07 21	16 23.79	−44 57.2	2.220	2.973	129.7	15.3	18.8	20.9
1999 07 31	16 22.56	−43 32.9	2.276	2.933	121.2	17.2	18.8	21.0
1999 08 10	16 24.52	−42 10.7	2.345	2.893	112.8	18.9	18.8	21.1
1999 08 20	16 29.47	−40 53.5	2.423	2.853	104.7	20.1	18.8	21.2
1999 08 30	16 37.08	−39 42.8	2.507	2.813	96.9	20.9	18.7	21.3
1999 09 09	16 47.04	−38 38.3	2.595	2.773	89.4	21.3	18.7	21.3
1999 09 19	16 59.05	−37 38.9	2.683	2.734	82.2	21.3	18.7	21.4
1999 09 29	17 12.83	−36 43.0	2.770	2.696	75.3	21.1	18.7	21.4
1999 10 09	17 28.13	−35 48.8	2.853	2.658	68.7	20.5	18.6	21.4
1999 10 19	17 44.72	−34 54.2	2.931	2.620	62.3	19.7	18.6	21.4
1999 10 29	18 02.40	−33 57.4	3.004	2.584	56.0	18.6	18.6	21.4
1999 11 08	18 20.97	−32 56.5	3.069	2.548	50.0	17.3	18.5	21.4
1999 11 18	18 40.26	−31 50.0	3.126	2.513	44.1	15.9	18.5	21.3
1999 11 28	19 00.08	−30 36.5	3.175	2.479	38.4	14.3	18.4	21.3
1999 12 08	19 20.29	−29 15.1	3.215	2.446	32.8	12.6	18.4	21.2

36P/Whipple

Date TT		α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 03 03	13 58.27	−07 54.4	4.547	5.257	131.6	8.1		22.5	
1999 03 13	13 55.61	−07 24.8	4.436	5.258	142.3	6.6		22.3	
1999 03 23	13 51.91	−06 50.0	4.350	5.258	153.2	4.9		22.2	
1999 04 02	13 47.39	−06 11.8	4.290	5.258	164.0	3.0		22.1	
1999 04 12	13 42.35	−05 32.0	4.261	5.258	173.8	1.2		21.9	
1999 04 22	13 37.14	−04 53.0	4.262	5.258	171.3	1.6		22.0	
1999 05 02	13 32.11	−04 17.0	4.294	5.257	161.1	3.6		22.1	
1999 05 12	13 27.59	−03 46.0	4.354	5.256	150.4	5.4		22.2	
1999 05 22	13 23.85	−03 21.6	4.440	5.254	139.9	7.1		22.4	
1999 06 01	13 21.11	−03 04.8	4.548	5.253	129.6	8.6		22.5	

C/1998 M6 (Montani)

Date TT		α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 03 03	20 32.58	+02 10.6	6.837	6.067	36.4	5.6	19.0		
1999 03 13	20 36.04	+03 34.8	6.754	6.080	44.1	6.5	19.0		
1999 03 23	20 38.90	+05 02.8	6.653	6.093	52.1	7.4	19.0		
1999 04 02	20 41.04	+06 34.3	6.540	6.107	60.3	8.2	18.9		
1999 04 12	20 42.36	+08 08.7	6.415	6.121	68.6	8.8	18.9		
1999 04 22	20 42.73	+09 45.5	6.285	6.137	77.0	9.2	18.9		
1999 05 02	20 42.07	+11 23.6	6.152	6.153	85.4	9.4	18.8		
1999 05 12	20 40.28	+13 01.8	6.021	6.170	93.7	9.4	18.8		
1999 05 22	20 37.29	+14 38.6	5.897	6.187	102.0	9.2	18.8		
1999 06 01	20 33.09	+16 12.2	5.784	6.206	110.1	8.8	18.7		
1999 06 11	20 27.69	+17 40.3	5.686	6.225	117.8	8.3	18.7		
1999 06 21	20 21.19	+19 00.7	5.608	6.244	124.8	7.7	18.7		
1999 07 01	20 13.76	+20 11.2	5.553	6.265	130.8	7.1	18.7		
1999 07 11	20 05.64	+21 09.8	5.523	6.286	135.2	6.5	18.7		
1999 07 21	19 57.14	+21 55.2	5.521	6.307	137.5	6.3	18.7		
1999 07 31	19 48.61	+22 26.8	5.546	6.330	137.3	6.2	18.7		
1999 08 10	19 40.41	+22 45.0	5.598	6.353	134.7	6.5	18.8		
1999 08 20	19 32.87	+22 51.2	5.676	6.377	130.3	7.0	18.8		
1999 08 30	19 26.27	+22 47.3	5.776	6.401	124.4	7.5	18.9		
1999 09 09	19 20.79	+22 35.9	5.895	6.426	117.7	8.0	18.9		
1999 09 19	19 16.55	+22 19.3	6.029	6.452	110.6	8.4	19.0		

1999 09 29	19 13.59	+22 00.5	6.174	6.478	103.2	8.7	19.1
1999 10 09	19 11.89	+21 41.5	6.327	6.505	95.8	8.8	19.1
1999 10 19	19 11.39	+21 24.5	6.481	6.532	88.5	8.8	19.2
1999 10 29	19 11.99	+21 11.3	6.635	6.560	81.4	8.6	19.3
1999 11 08	19 13.58	+21 03.1	6.783	6.589	74.5	8.3	19.3
1999 11 18	19 16.03	+21 01.3	6.924	6.618	68.0	8.0	19.4
1999 11 28	19 19.21	+21 06.6	7.053	6.647	62.0	7.5	19.5
1999 12 08	19 22.99	+21 19.7	7.169	6.677	56.6	7.1	19.5

C/1998 M1 (LINEAR)

Date TT		α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 03 03	20 46.45	−05 07.2	4.149	3.346	31.6	8.9	16.3		
1999 03 13	20 59.91	−03 28.3	4.114	3.382	37.6	10.3	16.4		
1999 03 23	21 12.58	−01 46.6	4.070	3.420	43.7	11.6	16.4		
1999 04 02	21 24.39	−00 03.0	4.017	3.459	49.9	12.8	16.4		
1999 04 12	21 35.27	+01 41.5	3.956	3.501	56.3	13.8	16.4		
1999 04 22	21 45.14	+03 26.0	3.888	3.545	62.9	14.6	16.4		
1999 05 02	21 53.90	+05 09.4	3.815	3.591	69.6	15.3	16.5		
1999 05 12	22 01.47	+06 50.5	3.737	3.638	76.6	15.7	16.5		
1999 05 22	22 07.76	+08 28.0	3.657	3.687	83.7	15.8	16.5		
1999 06 01	22 12.65	+10 00.5	3.577	3.737	91.1	15.7	16.5		
1999 06 11	22 16.09	+11 26.4	3.499	3.789	98.7	15.4	16.5		
1999 06 21	22 17.99	+12 43.9	3.426	3.842	106.6	14.7	16.5		
1999 07 01	22 18.34	+13 50.9	3.360	3.896	114.7	13.7	16.5		
1999 07 11	22 17.20	+14 45.6	3.306	3.951	122.9	12.5	16.6		
1999 07 21	22 14.68	+15 26.0	3.267	4.008	131.0	11.0	16.6		
1999 07 31	22 11.04	+15 50.7	3.245	4.065	138.9	9.4	16.6		
1999 08 10	22 06.59	+15 59.1	3.244	4.124	146.0	7.9	16.7		
1999 08 20	22 01.74	+15 51.6	3.266	4.183	151.4	6.6	16.8		
1999 08 30	21 56.96	+15 29.8	3.314	4.243	153.8	6.0	16.9		
1999 09 09	21 52.67	+14 56.4	3.387	4.304	152.3	6.3	17.0		
1999 09 19	21 49.24	+14 14.8	3.486	4.366	147.4	7.1	17.1		
1999 09 29	21 46.94	+13 29.0	3.608	4.428	140.5	8.3	17.2		
1999 10 09	21 45.95	+12 42.4	3.753	4.491	132.7	9.4	17.4		
1999 10 19	21 46.33	+11 58.4	3.918	4.554	124.3	10.4	17.5		
1999 10 29	21 48.05	+11 19.4	4.098	4.618	115.8	11.2	17.7		
1999 11 08	21 51.05	+10 47.1	4.291	4.683	107.3	11.7	17.9		
1999 11 18	21 55.21	+10 22.8	4.493	4.748	98.9	11.9	18.0		
1999 11 28	22 00.39	+10 07.1	4.700	4.813	90.6	11.8	18.2		
1999 12 08	22 06.45	+09 59.9	4.909	4.879	82.5	11.5	18.3		
1999 12 18	22 13.26	+10 01.3	5.117	4.944	74.4	11.1	18.5		
1999 12 28	22 20.67	+10 10.9	5.320	5.011	66.6	10.4	18.6		
2000 01 07	22 28.56	+10 28.0	5.516	5.077	58.9	9.5	18.8		
2000 01 17	22 36.81	+10 52.2	5.701	5.144	51.3	8.6	18.9		
2000 01 27	22 45.32	+11 22.5	5.874	5.211	44.0	7.5	19.0		
2000 02 06	22 54.00	+11 58.4	6.033	5.279	37.0	6.4	19.1		
2000 02 16	23 02.75	+12 39.2	6.175	5.346	30.3	5.4	19.2		

C/1998 U5 (LINEAR)

Date TT		α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 03 03	21 04.93	+13 40.7	2.355	1.630	34.0	19.9	12.0		
1999 03 13	21 02.66	+14 00.3	2.357	1.726	40.5	22.0	12.2		
1999 03 23	20 58.89	+14 28.9	2.327	1.826	48.5	24.1	12.4		
1999 04 02	20 53.04	+15 04.1	2.271	1.928	57.5	25.9	12.6		

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1999 04 12	20 44.48	+15 42.9	2.194	2.033	67.5	27.1	12.8
1999 04 22	20 32.47	+16 21.0	2.103	2.140	78.3	27.4	12.9
1999 05 02	20 16.24	+16 51.8	2.009	2.247	90.0	26.6	13.0
1999 05 12	19 55.24	+17 06.0	1.922	2.355	102.4	24.8	13.1
1999 05 22	19 29.37	+16 51.7	1.855	2.463	115.3	21.8	13.3
1999 06 01	18 59.53	+15 57.0	1.821	2.572	127.9	18.1	13.4
1999 06 11	18 27.78	+14 16.7	1.832	2.679	138.7	14.5	13.6
1999 06 21	17 56.83	+11 56.0	1.896	2.787	144.6	12.2	13.8
1999 07 01	17 29.21	+09 10.3	2.013	2.894	143.5	12.0	14.1
1999 07 11	17 06.36	+06 17.2	2.178	3.001	136.8	13.4	14.5
1999 07 21	16 48.62	+03 30.1	2.384	3.107	127.3	15.1	14.8
1999 07 31	16 35.65	+00 56.2	2.619	3.212	117.2	16.3	15.2
1999 08 10	16 26.74	-01 22.2	2.876	3.317	107.0	17.0	15.5
1999 08 20	16 21.19	-03 25.5	3.145	3.421	97.1	17.1	15.8
1999 08 30	16 18.33	-05 15.0	3.421	3.524	87.5	16.6	16.1
1999 09 09	16 17.62	-06 52.5	3.696	3.627	78.2	15.8	16.4
1999 09 19	16 18.63	-08 19.7	3.966	3.729	69.2	14.6	16.7
1999 09 29	16 20.98	-09 37.8	4.225	3.830	60.3	13.1	17.0
1999 10 09	16 24.39	-10 48.0	4.471	3.930	51.6	11.5	17.2
1999 10 19	16 28.62	-11 51.2	4.700	4.030	43.1	9.7	17.4
1999 10 29	16 33.45	-12 48.1	4.908	4.129	34.6	7.8	17.6

OPPOSITION DATA

Planet	Opposition	α_{2000}	δ_{2000}	V	$\dot{\alpha}$	$\dot{\delta}$	ϕ_{MIN}	MPC
1985 PB ₂	1998 12 06.0	04 49.24	-00 41.5	16.4	-0.97	+ 1.6	9.5/04.9	33541
1981 EJ ₂₅	1998 12 06.0	04 49.39	+18 51.9	20.7	-1.07	- 2.1	1.3/05.7	22697
1992 PR ₆	1998 12 06.1	04 49.66	+37 27.6	17.0	-1.12	- 3.1	5.5/08.1	33482
1996 DZ	1998 12 06.1	04 49.97	+21 20.2	17.1	-1.08	- 1.2	0.4/06.1	31009
1998 VW ₆	1998 12 06.2	04 50.23	+18 37.5	16.8	-0.99	- 6.9	1.5/05.7	33575
1981 EF ₃₃	1998 12 06.3	04 50.54	+15 15.1	21.3	-1.03	- 3.3	2.5/05.5	26921
1990 SC ₃	1998 12 06.3	04 50.66	+16 37.8	17.9	-1.09	- 0.5	2.2/05.9	31005
1998 WY ₅	1998 12 06.4	04 51.17	+20 15.7	17.1	-0.89	- 0.7	0.8/06.3	33522
1997 PK ₁	1998 12 06.4	04 51.33	+11 57.4	17.2	-0.93	- 0.5	4.0/05.6	33556
(9576)	1998 12 06.4	04 51.36	+26 50.2	16.9	-0.94	- 4.4	1.5/07.0	32883
1994 TS ₁₆	1998 12 06.5	04 51.41	+13 19.6	16.5	-1.06	- 2.7	3.7/05.6	33551
(9852)	1998 12 06.5	04 51.49	+31 13.9	17.0	-1.12	- 0.4	3.9/07.2	33457
1996 AT	1998 12 06.5	04 51.56	+17 45.6	16.7	-1.15	- 0.9	1.9/06.2	33553
(9860)	1998 12 06.5	04 51.64	+08 25.9	17.7	-0.81	- 0.8	4.2/05.3	33459
1988 XK	1998 12 06.5	04 51.68	+19 14.6	15.9	-0.94	- 4.3	1.2/06.2	33542
1993 TW ₃₃	1998 12 06.6	04 51.99	+18 59.4	17.1	-0.99	+ 0.1	1.3/06.4	33550
1996 OH	1998 12 06.6	04 52.00	+15 10.5	18.1	-0.78	- 0.4	2.1/06.0	33555
1993 TB ₁₉	1998 12 06.7	04 52.47	+23 52.4	18.6	-1.03	- 0.4	0.5/06.9	27312
1996 UX ₃	1998 12 06.8	04 52.73	+04 53.7	17.6	-0.58	- 3.2	3.9/04.5	33555
3063 P-L	1998 12 06.8	04 52.89	+28 23.3	17.7	-0.87	- 2.6	1.7/07.5	33588
1997 LL ₂	1998 12 06.8	04 52.96	+14 57.3	17.7	-1.10	- 3.7	3.3/06.1	33556
1991 VY ₂	1998 12 06.8	04 53.14	+25 19.3	17.4	-1.18	- 5.1	1.2/07.2	33480
1991 RJ ₁₁	1998 12 06.9	04 53.14	+20 45.2	18.1	-0.87	- 0.9	0.5/06.8	30290
1998 XZ ₃	1998 12 06.9	04 53.29	+29 56.1	17.3	-1.28	+ 0.5	3.2/07.4	33529
1998 WG ₇	1998 12 06.9	04 53.30	+18 39.9	16.9	-1.15	+ 0.5	1.5/06.7	33579
1991 DE	1998 12 06.9	04 53.41	+19 27.5	16.2	-1.15	+ 3.8	1.2/06.9	33545
(8169)	1998 12 07.0	04 53.65	+22 15.5	17.0	-0.90	- 0.7	0.1/07.0	31079
1978 VW ₉	1998 12 07.0	04 53.76	+25 10.1	18.2	-1.11	- 0.9	1.0/07.3	27302

1976 UN ₂	1998 12 07.0	04 54.07	+22 46.8	16.9	-1.22	- 3.2	0.1/07.1	33539
1998 VV ₅	1998 12 07.1	04 54.19	+23 14.8	16.3	-0.93	+ 0.9	0.2/07.2	33575
1989 SN ₄	1998 12 07.2	04 54.48	+16 03.4	17.4	-0.99	- 1.5	2.3/06.6	33543
1994 UF	1998 12 07.2	04 54.72	+00 00.4	17.1	-0.98	- 3.5	10.9/05.2	33551
(9837)	1998 12 07.2	04 54.80	+16 29.8	16.3	-0.98	0.0	2.2/06.8	33454
(9898)	1998 12 07.2	04 54.91	+13 59.7	15.3	-1.07	+ 0.4	3.8/06.7	33468
1996 CW ₈	1998 12 07.4	04 55.68	+33 38.3	18.7	-1.26	- 0.9	4.4/08.3	30784
2568 P-L	1998 12 07.5	04 55.71	+27 43.9	17.7	-1.03	- 1.1	1.9/07.9	33534
1997 KS	1998 12 07.6	04 56.41	+18 05.4	17.5	-1.05	- 3.3	1.7/07.2	30788
1981 DH ₃	1998 12 07.7	04 56.64	+15 57.1	17.9	-1.06	- 4.7	2.5/07.0	26914
1997 QD	1998 12 07.7	04 56.67	+35 49.3	20.2	-1.14	- 3.7	3.9/09.3	30904
1998 YU ₆	1998 12 07.7	04 56.75	+26 37.7	17.0	-0.90	- 4.4	1.2/08.2	33533
(9832)	1998 12 07.7	04 56.99	+24 25.9	17.6	-1.11	- 5.3	0.7/08.0	33453
1994 NS	1998 12 07.7	04 57.05	+14 27.9	17.9	-1.16	- 3.0	3.1/07.0	33550
(9900)	1998 12 07.8	04 57.03	+17 39.6	16.8	-1.19	- 1.2	1.9/07.4	33469
1997 UY ₂₀	1998 12 07.8	04 57.14	+10 37.0	18.7	-0.82	- 2.5	3.2/06.6	31148
1998 UH ₃₁	1998 12 07.8	04 57.16	+28 46.2	14.8	-1.21	+ 5.8	2.6/07.9	33513
1981 EV ₃	1998 12 07.8	04 57.22	+22 24.8	18.6	-1.09	- 4.0	0.1/07.8	33473
1994 CK ₂	1998 12 07.8	04 57.52	+23 47.3	17.7	-0.91	- 0.6	0.4/08.0	33550
1997 SN ₁₀	1998 12 07.9	04 57.46	+16 57.8	18.0	-0.83	- 1.7	1.6/07.4	30773
1993 FL ₃₉	1998 12 07.9	04 57.57	+25 16.0	18.6	-1.16	- 1.1	0.9/08.1	30688
1998 WC ₂₀	1998 12 08.0	04 57.89	+22 58.6	16.5	-0.96	- 6.0	0.1/08.0	33526
1998 WD ₂₀	1998 12 08.0	04 58.37	+23 44.1	16.4	-0.92	- 0.6	0.4/08.2	33526
1997 VB ₁	1998 12 08.2	04 58.80	+27 29.7	18.4	-0.61	- 0.9	0.9/08.6	33558
1996 EM ₁₁	1998 12 08.2	04 58.81	+13 04.2	19.8	-1.09	- 1.1	4.1/07.4	32951
1997 SM ₃	1998 12 08.2	04 58.92	+43 32.4	17.3	-1.26	- 2.8	7.0/10.4	33504
1981 EJ ₂	1998 12 08.2	04 59.07	+21 52.2	18.2	-0.97	- 4.4	0.3/08.2	26914
1991 VJ ₄	1998 12 08.3	04 59.51	+29 25.2	16.6	-1.28	+ 0.8	2.8/08.8	33480
1997 TC	1998 12 08.4	04 59.64	+25 16.4	18.1	-0.95	- 1.0	0.8/08.6	33557
1993 BE ₅	1998 12 08.4	04 59.69	+25 18.4	17.4	-0.80	- 1.4	0.7/08.6	33548
1991 FQ ₂	1998 12 08.4	04 59.71	+29 24.8	18.4	-1.06	- 1.0	2.2/08.9	29098
1981 EO ₂₂	1998 12 08.4	05 00.01	+23 14.2	19.8	-1.11	- 1.9	0.2/08.5	27118
5187 T-2	1998 12 08.6	05 00.69	+19 45.5	17.7	-0.58	- 1.8	0.6/08.3	33589
2620 P-L	1998 12 08.6	05 00.71	+24 39.0	18.2	-1.07	- 1.1	0.7/08.8	33588
1993 FV ₇	1998 12 08.6	05 00.76	+31 15.8	17.0	-1.28	+ 0.7	3.4/09.1	33548
1993 TS ₃₁	1998 12 08.7	05 01.12	+16 23.9	18.9	-0.96	- 0.8	2.4/08.3	32935
1996 JK ₃	1998 12 08.7	05 01.35	+28 53.1	17.7	-1.30	+ 5.1	2.8/08.8	33555
1998 VH ₃₁	1998 12 08.7	05 01.44	+23 42.5	16.4	-1.13	- 0.1	0.5/08.9	33517
1991 BD ₁	1998 12 08.8	05 01.56	+15 57.8	16.5	-1.03	+ 0.5	2.6/08.4	33545
6071 P-L	1998 12 08.8	05 01.63	+10 57.1	16.9	-0.92	- 2.9	4.1/07.7	33589
(9680)	1998 12 08.8	05 01.93	+30 12.6	16.1	-1.19	- 3.3	3.5/09.6	32908
4157 T-3	1998 12 08.9	05 01.85	+11 58.6	17.4	-1.09	- 1.6	4.8/08.0	33590
1994 AS	1998 12 08.9	05 01.97	+24 32.7	18.0	-0.88	- 1.0	0.5/09.1	33550
1998 TB	1998 12 08.9	05 02.29	+16 40.2	16.2	-1.07	+ 1.5	2.7/08.7	33570
(9729)	1998 12 09.0	05 02.33	+44 34.7	16.7	-1.34	- 3.2	8.8/11.6	33194
2777 P-L	1998 12 09.0	05 02.58	+18 18.0	18.1	-1.07	- 1.4	1.6/08.7	33588
1991 BJ ₂	1998 12 09.0	05 02.79	+27 34.7	16.8	-1.09	+ 0.1	2.1/09.4	33478
1989 TF ₁₄	1998 12 09.1	05 03.01	+23 13.9	17.3	-1.06	- 0.3	0.2/09.2	33543
1990 SK ₈	1998 12 09.1	05 03.10	+18 31.2	18.2	-1.09	+ 1.0	2.0/09.0	23859
(9836)	1998 12 09.2	05 03.29	+21 56.8	16.2	-1.01	- 2.3	0.4/09.2	33454
1998 XA ₄	1998 12 09.2	05 03.40	+30 16.6	16.0	-1.24	+ 3.0	3.5/09.5	33529

1993 FD ₁₉	1998 12 09.2	05 03.41 +12 44.6	17.7	-1.13	-	0.1	4.2/08.6	33548	4215 T-2	1998 12 11.3	05 12.85 +23 33.9	17.9	-1.06	+	0.1	0.2/11.4	33536
1981 EZ ₂₁	1998 12 09.2	05 03.63 +20 58.5	18.9	-0.95	-	1.6	0.6/09.1	31003	1992 RB ₃	1998 12 11.3	05 12.87 +22 49.0	17.2	-0.94	-	1.2	0.1/11.4	33548
1998 XB ₄	1998 12 09.3	05 03.62 +31 20.7	15.9	-1.23	-	2.7	3.9/10.1	33530	1994 RN ₁₂	1998 12 11.4	05 12.87 +14 40.2	17.2	-1.14	-	0.6	3.4/11.0	33488
2244 T-2	1998 12 09.3	05 04.11 +21 16.5	18.8	-1.05	-	1.4	0.6/09.3	31023	1994 YS	1998 12 11.4	05 12.90 +17 51.7	17.8	-1.03	+	0.9	2.1/11.2	33490
1998 VJ ₃₁	1998 12 09.4	05 04.47 +24 12.2	17.0	-1.04	-	2.5	0.7/09.6	33517	1986 RP ₅	1998 12 11.4	05 12.97 +43 39.6	17.2	-1.18	+	1.0	7.6/12.7	33541
1991 TR ₆	1998 12 09.4	05 04.50 +25 25.1	18.6	-1.24	-	2.3	1.0/09.7	24741	1998 QE ₂₉	1998 12 11.5	05 13.42 +34 09.6	16.7	-1.13	-	6.6	4.6/13.0	33559
1997 RF	1998 12 09.5	05 04.76 -13 12.8	17.8	-0.79	-	1.5	12.4/05.4	33503	(9876)	1998 12 11.5	05 13.61 +14 37.7	16.5	-1.09	-	0.8	4.1/11.1	33463
1976 QK ₂	1998 12 09.5	05 04.79 +21 56.8	19.0	-1.07	+	0.3	0.3/09.5	30648	1996 DS ₁	1998 12 11.6	05 13.86 +13 13.2	18.2	-1.10	-	0.4	4.5/11.1	33492
1997 SM ₁	1998 12 09.5	05 04.96 +05 34.8	16.6	-0.92	-	3.5	5.9/07.8	33557	1993 FR ₂₃	1998 12 11.6	05 14.19 +35 31.4	16.1	-1.28	-	1.1	6.2/12.6	33548
(9880)	1998 12 09.6	05 04.92 +17 18.8	16.8	-1.07	-	2.8	2.7/09.1	33464	1994 PQ ₁₆	1998 12 11.7	05 14.62 +32 55.7	17.1	-1.22	-	2.5	4.8/12.6	33550
1992 DA ₄	1998 12 09.6	05 05.14 +26 36.3	18.6	-1.16	-	1.5	1.6/09.9	33547	1989 AB ₃	1998 12 11.8	05 14.91 +13 03.8	16.4	-0.92	+	2.5	3.6/11.6	33542
1992 EA ₄	1998 12 09.6	05 05.32 +18 57.7	18.2	-1.09	-	0.6	1.5/09.4	27913	1990 QT ₁	1998 12 11.8	05 14.94 +19 05.4	18.1	-1.13	-	0.3	1.6/11.7	33544
1993 TH ₁₄	1998 12 09.6	05 05.32 +17 31.9	17.3	-1.00	-	1.2	1.7/09.3	33549	6070 P-L	1998 12 11.8	05 14.97 +26 29.0	17.9	-1.02	-	1.4	1.3/12.1	33535
2648 P-L	1998 12 09.7	05 05.51 +24 59.0	17.5	-1.08	-	0.3	1.0/09.9	33588	1992 CF ₁	1998 12 11.8	05 15.11 +32 30.3	17.6	-1.17	-	0.9	3.3/12.5	33547
3098 T-3	1998 12 09.7	05 05.60 +14 29.6	18.7	-0.97	-	1.7	3.8/09.1	27565	1979 SO	1998 12 11.9	05 15.21 +35 41.8	16.9	-1.17	-	0.4	4.9/12.8	33539
1979 MS ₂	1998 12 09.7	05 05.86 +20 25.7	19.9	-1.11	-	2.1	0.9/09.6	30778	1992 BW ₃	1998 12 11.9	05 15.34 +28 15.3	18.1	-1.29	+	1.7	2.3/12.1	33481
1997 RJ ₇	1998 12 09.8	05 05.82 +30 07.7	18.7	-0.94	-	1.8	2.1/10.4	33557	1991 PY ₇	1998 12 11.9	05 15.37 +22 42.4	16.6	-1.18	+	0.2	0.2/11.9	33479
1998 VE ₃₃	1998 12 09.8	05 05.92 +11 03.1	18.4	-0.97	-	4.2	3.9/08.6	33518	1994 XR ₄	1998 12 11.9	05 15.43 +09 38.2	16.6	-1.17	+	9.4	5.4/12.7	33489
1994 QJ	1998 12 09.8	05 05.92 -13 59.2	17.3	-1.14	+	10.8	16.6/13.8	25084	1992 RD ₁	1998 12 12.0	05 15.93 +42 54.3	17.7	-1.16	-	0.5	6.3/13.4	33548
1996 TW	1998 12 09.8	05 06.04 +43 45.9	18.1	-0.73	-	0.1	3.7/11.5	33555	1981 EB ₂₄	1998 12 12.0	05 15.97 +29 36.2	17.7	-1.04	-	0.3	2.5/12.5	33540
1998 WX ₄	1998 12 09.9	05 06.59 -03 11.4	16.6	-0.56	+	1.5	4.8/08.6	33522	1998 WP ₄	1998 12 12.1	05 16.20 -20 40.8	17.9	-1.10	-10.9	22.1/01.7	33522	
4319 P-L	1998 12 10.0	05 07.13 +22 30.6	18.1	-1.23	-	3.1	0.2/10.1	19875	1997 UC ₂₂	1998 12 12.1	05 16.38 +36 56.1	16.6	-1.04	-	4.9	4.2/13.8	33507
1987 RL ₁	1998 12 10.1	05 07.43 +21 10.4	18.4	-1.19	-	1.1	0.7/10.0	30469	1993 UT	1998 12 12.2	05 16.40 +38 28.7	18.4	-1.39	+	5.1	4.7/12.3	33550
1992 JL	1998 12 10.1	05 07.45 +10 25.6	17.9	-0.99	+	2.2	4.0/09.7	33482	1997 TY ₇	1998 12 12.2	05 16.73 +23 01.9	17.3	-0.88	-	0.4	0.0/12.3	33558
1995 OU ₂	1998 12 10.2	05 07.66 +10 39.3	18.9	-0.55	-	0.9	2.3/09.3	31542	1988 KA	1998 12 12.2	05 16.89 +22 21.5	16.4	-1.27	+	0.4	0.3/12.3	33542
(9716)	1998 12 10.2	05 07.81 +19 17.3	16.7	-1.11	-	1.5	1.4/10.0	33191	6274 P-L	1998 12 12.3	05 17.09 +17 57.7	18.6	-1.00	-	1.7	1.7/12.0	30775
2312 T-1	1998 12 10.2	05 07.95 +25 35.3	17.6	-0.99	-	0.5	1.0/10.5	33589	1990 OX ₂	1998 12 12.3	05 17.12 +19 01.3	18.1	-1.15	-	0.1	1.7/12.2	33544
1997 PE	1998 12 10.3	05 07.98 +14 07.5	16.7	-1.07	-	3.2	3.8/09.5	33556	1992 EZ ₆	1998 12 12.3	05 17.14 +10 16.6	18.9	-0.99	+	0.9	4.1/11.9	30687
1997 HZ ₁₀	1998 12 10.3	05 08.37 +27 23.6	19.0	-1.25	-	0.8	1.8/11.0	32964	1991 RF ₆	1998 12 12.4	05 17.35 +20 01.3	16.7	-1.19	+	0.7	1.5/12.3	33545
1998 VN ₃₃	1998 12 10.4	05 08.52 +19 28.5	17.0	-0.90	0.0		1.1/10.2	33518	1997 PU ₄	1998 12 12.4	05 17.36 +26 18.8	17.9	-1.02	-	2.4	1.2/12.7	33557
1979 WX ₃	1998 12 10.5	05 09.20 +20 16.7	16.0	-1.07	-	0.3	1.2/10.4	33539	1997 SJ ₂₅	1998 12 12.5	05 18.08 +23 07.5	17.6	-0.87	-	0.3	0.0/12.6	33557
1996 HW ₂₀	1998 12 10.5	05 09.29 +20 13.6	18.4	-0.89	-	0.9	0.8/10.4	27938	1985 UC	1998 12 12.5	05 18.12 +46 27.6	17.9	-1.40	+	0.2	7.6/14.0	33333
3111 T-2	1998 12 10.6	05 09.30 +00 57.7	17.8	-0.95	-	2.4	8.7/08.5	17978	(9746)	1998 12 12.5	05 18.14 +20 50.5	16.2	-1.24	+	0.7	1.0/12.5	33198
1998 XC ₄	1998 12 10.6	05 09.34 +23 34.7	17.0	-0.98	-	1.5	0.2/10.7	33530	1998 WS ₄	1998 12 12.6	05 18.42 -15 42.0	17.3	-0.86	-16.3	18.5/30.2	33522	
9525 P-L	1998 12 10.6	05 09.47 +25 23.3	17.2	-1.19	+	0.8	1.2/11.0	33589	1993 OS ₁₂	1998 12 12.6	05 18.44 +18 50.6	19.0	-1.07	-	0.5	1.5/12.4	33549
1991 RL ₁₃	1998 12 10.6	05 09.63 +25 23.1	18.1	-1.25	-	2.5	1.0/11.0	33479	1998 XP ₂	1998 12 12.6	05 18.60 +22 30.2	17.0	-0.90	-	0.4	0.2/12.7	33529
1972 TE	1998 12 10.6	05 09.74 +17 49.1	16.1	-1.01	-	3.0	2.3/10.3	33538	1997 NE ₁₁	1998 12 12.8	05 19.18 +27 54.4	17.0	-1.06	-	5.3	1.6/13.3	33500
9538 P-L	1998 12 10.7	05 10.26 +20 15.6	17.4	-1.15	-	1.2	1.1/10.6	33589	1996 CN ₇	1998 12 12.8	05 19.32 +26 28.9	18.2	-1.14	-	0.7	1.2/13.0	33554
1991 PT ₄	1998 12 10.8	05 10.30 +22 13.5	17.7	-0.90	-	1.3	7.7/31.0	33545	1992 ER ₁₁	1998 12 12.8	05 19.46 +16 08.6	17.0	-1.04	-	0.5	2.4/12.5	29916
1992 ON	1998 12 10.8	05 10.60 +65 11.1	20.1	-2.67	-	2.4	16.5/15.7	21267	1994 VJ	1998 12 12.9	05 19.44 +24 43.2	17.0	-1.12	-	1.8	0.7/13.0	33489
1990 RP ₉	1998 12 10.8	05 10.62 +21 12.1	16.7	-1.11	-	3.4	0.7/10.7	33544	1990 QK ₉	1998 12 12.9	05 19.45 +13 19.2	19.5	-1.08	+	0.4	3.7/12.5	31378
(9893)	1998 12 10.8	05 10.63 +23 54.3	17.2	-1.19	-	1.8	0.4/10.9	33467	1981 EE ₃₈	1998 12 12.9	05 19.60 +25 58.7	17.9	-1.00	-	1.5	1.1/13.1	33540
1998 UM ₁₈	1998 12 10.9	05 10.67 -11 42.5	18.5	-0.57	+	0.7	6.9/09.0	33513	1992 DA ₆	1998 12 12.9	05 19.65 +20 29.5	17.4	-1.11	-	0.7	1.0/12.8	33547
1993 KQ	1998 12 10.9	05 10.94 +17 51.3	17.0	-1.17	+	1.7	1.9/10.8	33549	1996 GE ₂₀	1998 12 12.9	05 19.85 +24 43.4	17.4	-1.04	+	0.6	0.6/13.0	33554
1110 T-3	1998 12 10.9	05 11.10 +24 22.7	17.0	-1.18	-	4.1	0.6/11.0	33536	1990 OY ₃	1998 12 13.0	05 20.34 +32 06.8	17.4	-1.24	-	2.4	3.6/13.7	33544
1974 PC	1998 12 10.9	05 11.11 -16 38.1	17.9	-1.15	+	9.7	18.2/16.2	33538	1979 MQ ₁	1998 12 13.0	05 20.35 +29 39.9	19.2	-1.07	-	4.0	2.1/13.7	30778
1981 EJ ₃₆	1998 12 11.0	05 11.29 +26 45.6	17.8	-1.14	-	1.1	1.8/11.3	33540	1981 EB ₂₃	1998 12 13.1	05 20.58 +27 01.6	17.0	-1.19	-	0.5	1.6/13.3	33540
1993 FA ₄₅	1998 12 11.0	05 11.41 +29 16.0	18.5	-1.19	-	0.9	2.1/11.5	23528	1137 T-1	1998 12 13.1	05 20.83 +25 26.7	16.8	-1.27	-	2.8	1.0/13.4	33589
1996 DY ₁	1998 12 11.1	05 11.66 +19 59.0	17.9	-1.17	-	0.2	1.3/11.0	33554	1998 YA ₃	1998 12 13.3	05 21.56 +20 52.7	17.6	-0.99	-	1.0	0.8/13.2	33532
1981 EJ ₄₇	1998 12 11.2	05 12.37 +13 04.6	20.5	-1.04	-	1.2	3.7/10.6	26923	1992 RE ₂	1998 12 13.4	05 21.88 +25 05.9	17.2	-0.97	-	0.9	0.7/13.6.	

1979 MY ₆	1998 12 13.4	05 22.05 +18 40.3	19.8	-1.11	-	0.9	1.7/13.3	30779	1998 XB ₅	1998 12 15.2	05 29.66 +13 28.7	18.2	-1.13	-	0.9	4.1/14.9	33530
1990 TU ₁₁	1998 12 13.4	05 22.10 +27 17.1	17.3	-1.12	-	1.3	1.9/13.7	33544	1996 DN ₂	1998 12 15.2	05 29.70 +26 37.1	17.1	-1.21	+	0.6	1.4/15.3	33554
1978 VH ₁₀	1998 12 13.5	05 22.13 +22 48.5	18.0	-0.97	+	0.2	0.1/13.5	33539	1991 HN	1998 12 15.2	05 29.86 +21 49.2	17.5	-0.60	+	0.5	0.3/15.2	33479
1991 RZ ₁₆	1998 12 13.5	05 22.29 +24 49.1	16.5	-1.09	+	1.4	0.9/13.6	33546	1996 CJ ₇	1998 12 15.2	05 29.89 +13 35.3	18.0	-1.08	+	0.9	3.7/15.0	33554
2678 P-L	1998 12 13.6	05 22.99 +20 56.6	18.0	-1.11	-	0.1	1.0/13.6	33588	1998 WQ ₁	1998 12 15.3	05 30.24 +21 36.2	17.2	-0.90	-	0.8	0.6/15.3	33520
1996 JC ₆	1998 12 13.7	05 23.14 +18 32.5	17.8	-1.08	-	0.6	1.8/13.5	33496	1995 BO ₃	1998 12 15.3	05 30.37 +16 20.7	17.3	-0.96	-	0.1	3.1/15.1	33490
1997 SW ₃₀	1998 12 13.7	05 23.19 +09 21.8	18.3	-0.97	-	0.9	4.5/13.0	33557	1996 BU ₄	1998 12 15.4	05 30.90 +25 19.2	18.1	-1.22	+	1.2	1.0/15.5	33492
2591 P-L	1998 12 13.8	05 23.41 +15 10.5	17.6	-0.94	-	1.1	3.2/13.4	33534	1992 WK ₉	1998 12 15.4	05 30.93 +23 56.0	17.0	-0.95	-	0.4	0.2/15.5	33483
1998 WN ₁	1998 12 13.8	05 23.71 +17 57.8	17.4	-1.14	-	2.3	2.1/13.5	33520	1996 JU	1998 12 15.4	05 30.97 -19 12.2	17.6	-1.02	+	1.2	18.1/12.5	33555
1981 RR ₃	1998 12 13.8	05 23.86 +12 15.1	16.6	-1.15	-	0.2	5.0/13.5	33540	4258 T-2	1998 12 15.6	05 31.73 +20 28.1	19.0	-1.05	+	0.1	1.0/15.6	27323
(9873)	1998 12 13.8	05 23.90 +62 10.4	15.7	-2.40	-	1.7	19.6/17.9	33462	1983 RQ ₃	1998 12 15.6	05 31.84 +30 31.1	17.1	-1.27	-	2.0	3.0/16.1	33474
1996 GK ₅	1998 12 13.8	05 23.93 +22 41.5	17.2	-1.09	+	1.6	0.2/13.9	33494	1993 SA ₄	1998 12 15.7	05 31.84 +09 41.3	16.8	-0.96	-	0.5	5.0/15.3	33549
1993 JX	1998 12 13.9	05 23.94 +18 02.6	17.4	-1.11	-	3.4	2.3/13.5	33549	5134 T-3	1998 12 15.7	05 32.02 +12 55.8	17.3	-1.06	+	2.7	5.2/15.7	33590
1998 WL ₁	1998 12 13.9	05 23.94 +19 57.3	17.2	-1.11	+	3.1	1.4/13.9	33520	1981 EZ ₉	1998 12 15.8	05 32.70 +03 45.1	19.2	-0.87	-	1.6	5.9/15.0	26916
1991 RB ₇	1998 12 13.9	05 23.96 +31 35.5	16.9	-1.29	-	0.8	4.0/14.4	33479	1991 FW ₃	1998 12 15.9	05 32.85 +15 06.4	17.3	-0.95	-	0.6	2.9/15.6	32447
4225 T-2	1998 12 13.9	05 24.21 +31 04.0	18.0	-1.25	+	1.9	3.6/14.1	33536	1992 AN	1998 12 15.9	05 33.02 -02 00.2	16.2	-1.24	+	13.1	11.5/19.3	33547
1981 EY ₁₀	1998 12 13.9	05 24.28 +18 54.3	17.4	-1.08	-	1.9	1.8/13.7	33540	1993 FZ ₅₅	1998 12 16.0	05 33.54 +15 26.0	17.0	-1.12	+	0.8	2.9/15.9	33549
1998 XL ₃	1998 12 13.9	05 24.40 +26 56.4	17.9	-1.26	-	3.1	1.7/14.3	33529	1995 BZ	1998 12 16.1	05 33.78 +15 10.6	17.9	-0.97	+	1.7	2.7/16.0	33552
1981 ED ₁₁	1998 12 14.0	05 24.33 +33 26.6	20.6	-1.19	-	2.0	3.4/14.6	22270	4316 T-3	1998 12 16.1	05 33.87 +27 32.5	17.7	-1.12	+	1.3	1.6/16.2	33537
1996 HX	1998 12 14.0	05 24.42 +31 59.7	18.5	-1.00	-	0.6	2.7/14.5	33554	4139 P-L	1998 12 16.1	05 34.04 +44 22.7	18.1	-0.74	-	0.1	3.9/17.0	33588
1995 AE ₄	1998 12 14.0	05 24.65 +21 09.1	16.7	-1.07	+	2.8	0.9/14.1	33552	1998 WO ₆	1998 12 16.1	05 34.12 +30 29.7	16.6	-1.27	+	11.7	3.3/15.6	33578
1994 WQ	1998 12 14.0	05 24.75 +22 59.5	17.2	-1.10	-	5.9	0.1/14.1	33552	5143 T-2	1998 12 16.2	05 34.05 +32 08.2	20.3	-1.30	-	3.8	3.7/16.8	26912
1998 WR ₁	1998 12 14.1	05 24.97 +21 34.6	17.3	-1.19	-	2.9	0.6/14.0	33520	1992 EB ₁₄	1998 12 16.2	05 34.10 +22 47.5	17.2	-1.12	-	1.0	0.2/16.2	33547
1994 CF ₂	1998 12 14.2	05 25.37 +20 56.3	16.7	-0.90	-	0.1	0.8/14.1	33550	1993 TV ₂₇	1998 12 16.3	05 34.61 +22 21.4	17.4	-1.02	+	0.4	0.4/16.3	33486
1997 QS ₂	1998 12 14.2	05 25.63 +25 00.7	17.3	-0.95	+	1.9	0.7/14.3	33502	3130 T-2	1998 12 16.3	05 34.71 +31 01.9	17.4	-1.06	+	1.3	2.8/16.5	33535
1996 CJ ₁	1998 12 14.3	05 25.63 +25 44.9	18.1	-1.24	+	0.9	1.1/14.4	33554	1998 WR ₄	1998 12 16.3	05 34.95 -19 34.0	17.2	-1.06	-	11.3	22.5/06.2	33522
1994 TT ₃	1998 12 14.3	05 25.79 -06 49.4	17.8	-1.05	-	4.5	11.5/12.4	33551	1993 FT ₁₉	1998 12 16.4	05 35.03 +31 03.4	17.0	-1.28	+	1.6	3.0/16.5	33484
1981 EZ ₆	1998 12 14.3	05 25.90 +22 07.9	17.0	-0.96	-	7.0	0.6/14.2	33540	1989 LT	1998 12 16.4	05 35.17 +25 56.9	17.8	-1.14	-	0.6	0.9/16.5	33543
1998 XP ₃	1998 12 14.3	05 25.92 +28 19.9	18.0	-1.16	-	0.9	2.5/14.6	33529	1995 DW	1998 12 16.4	05 35.40 +22 54.5	17.3	-0.95	+	0.3	0.1/16.5	24909
1978 SD ₃	1998 12 14.3	05 26.01 +30 39.3	17.7	-1.32	-	1.4	2.9/14.8	33539	1991 VO ₁	1998 12 16.6	05 35.93 +18 09.2	16.3	-1.12	+	3.1	2.6/16.7	33480
1991 RN ₁₃	1998 12 14.4	05 26.35 +24 39.8	17.8	-1.25	-	2.9	0.6/14.5	33546	1997 TR	1998 12 16.6	05 36.01 +35 56.3	18.2	-1.04	-	0.2	3.9/17.1	33506
6599 P-L	1998 12 14.4	05 26.36 +21 52.6	17.1	-1.05	-	0.2	0.5/14.4	33589	1991 RZ ₁₁	1998 12 16.7	05 36.28 +25 04.2	18.6	-0.91	-	0.5	0.5/16.8	33546
1994 YR	1998 12 14.5	05 26.91 +20 46.5	17.4	-1.11	+	1.0	1.0/14.5	33552	1996 GP ₉	1998 12 16.9	05 37.39 +18 40.7	19.8	-1.00	-	0.7	1.6/16.8	30762
1995 DR ₆	1998 12 14.5	05 27.01 +25 07.1	18.2	-0.95	-	0.4	0.6/14.7	28087	1992 DF ₆	1998 12 16.9	05 37.45 +20 15.8	15.8	-1.07	+	1.6	1.5/16.9	33481
1994 PR ₂₀	1998 12 14.6	05 27.35 +17 00.3	16.7	-1.08	+	0.5	3.0/14.5	33551	1981 EY ₄₂	1998 12 17.0	05 37.60 +22 32.3	19.8	-1.12	-	0.7	0.3/17.0	30780
1993 FZ ₄₉	1998 12 14.7	05 27.61 +27 17.5	18.3	-1.21	-	1.0	1.5/14.9	30471	1991 PL ₈	1998 12 17.0	05 37.61 +24 54.9	18.9	-0.90	-	0.3	0.4/17.1	31006
(9854)	1998 12 14.7	05 27.64 +17 50.6	18.2	-0.98	-	0.1	1.7/14.5	33458	1994 PO ₃₇	1998 12 17.1	05 38.42 +20 15.4	18.7	-1.18	-	0.9	1.4/17.1	29138
6059 P-L	1998 12 14.7	05 27.72 +19 31.6	17.3	-0.97	-	1.8	1.4/14.6	33588	1993 TE ₂	1998 12 17.2	05 38.71 +37 10.6	17.1	-1.17	+	0.5	4.7/17.6	33486
1993 TZ ₁₆	1998 12 14.7	05 27.76 +15 23.5	18.6	-0.97	-	0.9	2.9/14.4	23240	1986 GZ	1998 12 17.2	05 38.80 -09 38.7	19.3	-1.06	-	2.6	12.3/16.3	30469
1994 PB ₈	1998 12 14.7	05 27.87 +30 15.2	18.2	-1.31	-	1.5	3.0/15.1	33487	1996 LS ₂	1998 12 17.2	05 38.95 +18 49.7	17.7	-0.89	+	1.5	1.3/17.3	33496
1996 TN ₄₉	1998 12 14.8	05 28.03 +11 59.4	18.4	-0.58	-	1.3	2.4/14.2	33555	1992 KF	1998 12 17.3	05 38.95 +31 03.5	17.3	-1.18	+	3.8	2.6/17.2	33547
1992 JS ₂	1998 12 14.8	05 28.10 +07 47.9	16.4	-0.97	-	3.6	5.6/13.7	33547	9594 P-L	1998 12 17.3	05 39.07 +25 01.7	18.2	-0.87	0.0	0.5/17.4	33535	
1998 XR ₃	1998 12 14.9	05 28.59 +25 35.2	17.2	-1.03	-	1.8	0.9/15.1	33529	1991 TO ₁₃	1998 12 17.3	05 39.15 +15 13.9	16.8	-1.13	-	2.6	3.3/17.0	33546
1993 HW ₁	1998 12 14.9	05 28.79 +25 36.3	17.2	-1.22	+	3.0	0.8/15.0	33549	(8158)	1998 12 17.3	05 39.32 +18 50.6	17.3	-1.00	-	0.8	1.6/17.2	31077
3071 T-2	1998 12 15.0	05 28.88 +28 03.9	17.5	-1.12	+	0.7	1.7/15.2	33535	1992 DY ₈	1998 12 17.4	05 39.57 +24 49.0	17.7	-1.13	+	0.6	0.6/17.5	33481
1985 QP ₅	1998 12 15.1	05 29.34 +45 08.2	17.5	-1.35	-	0.5	7.7/16.2	33541	1996 HY ₁₇	1998 12 17.4	05 39.78 +20 23.1	18.9	-0.91	-	0.1	0.9/17.4	30785
1993 FC ₇	1998 12 15.1	05 29.44 +32 09.9	17.7	-1.32	+	1.2	4.0/16.0	33484	1994 PV ₁₇	1998 12 17.5	05 39.77 +16 46.3	17.7	-1.17	0.0	2.8/17.4	33487	
1981 EN ₉	1998 12 15.1	05 29.47 +34 03.7	20.2	-1.24	-	1.2	3.9/15.6	26916	1993 KZ ₁	1998 12 17.6	05 40.61 +20 03.2	17.2	-1.24	+	6.8	1.2/17.8	33549
(8060)	1998 12 15.1	05 29.53 +31 58.7	17.1	-0.66	-	0.3	1.8/15.6	30958	1997 UJ	1998 12 17.7	05 40.88 +14 05.8	18.6	-0.58	-	1.3	1.9/17.4	33558
1989 TA ₁₆	1998 12 15.1	05 29.62 +21 31.0	18.3	-1.04	-	1.3	0.6/15.1	33543	1987 SR ₁₂	1998 12 17.8	05 41.35 +16 27.2	17.2	-1.13	-	0.5	2.6/17.7	33541
19																	

(9899)	1998 12 17.8	05 41.63 +19 12.8 16.8	-1.12 - 3.2	1.6/17.7	33468	1996 CG ₈	1998 12 19.7	05 50.03 +17 52.2 18.4	-1.16 + 0.5	2.3/19.7	33554
1997 RF ₈	1998 12 17.9	05 41.56 +42 00.1 18.3	-1.23 - 0.3	5.6/18.5	33557	1993 US	1998 12 19.8	05 50.11 +20 35.0 18.2	-1.01 - 0.1	1.0/19.8	33550
1997 US ₄	1998 12 17.9	05 41.78 +13 41.3 19.5	-0.82 - 0.3	2.5/17.7	30911	1993 HL ₆	1998 12 19.8	05 50.52 +13 02.0 16.6	-1.16 - 2.9	4.5/19.5	33549
1990 QB ₆	1998 12 17.9	05 41.79 +42 50.5 17.4	-1.41 - 0.8	7.1/18.7	33544	(9858)	1998 12 19.9	05 50.57 +21 38.5 16.9	-0.91 + 0.5	0.6/19.9	33459
1998 WP ₆	1998 12 17.9	05 41.79 +27 16.0 16.9	-1.10 + 2.2	1.7/17.9	33523	(9883)	1998 12 19.9	05 50.57 +33 37.3 18.0	-1.27 - 1.8	4.0/20.3	33465
1997 TV	1998 12 17.9	05 41.85 +36 08.5 18.6	-1.00 - 0.3	3.7/18.3	33506	1989 ET ₁	1998 12 19.9	05 50.60 +32 32.4 16.5	-1.25 + 2.5	4.3/19.8	33542
1998 WQ ₆	1998 12 17.9	05 42.06 +27 14.0 15.8	-1.10 - 0.8	1.9/18.1	33523	1996 GA	1998 12 20.0	05 50.90 +42 42.4 17.4	-1.41 + 2.3	7.1/19.7	33493
1986 JC	1998 12 17.9	05 42.08 +19 51.4 17.5	-1.12 + 1.8	1.2/18.0	33541	1986 QU	1998 12 20.0	05 51.01 +28 17.8 17.5	-0.96 0.0	1.5/20.1	33541
2582 P-L	1998 12 18.0	05 42.20 +28 31.6 17.8	-1.14 + 0.7	2.4/18.1	33588	1996 GH ₂₀	1998 12 20.0	05 51.01 +23 42.3 16.8	-1.04 + 0.7	0.1/20.0	28863
1993 OQ ₄	1998 12 18.0	05 42.36 +19 51.1 19.1	-1.10 0.0	1.3/18.0	30782	1997 MQ ₄	1998 12 20.0	05 51.34 +22 35.3 17.2	-1.15 + 6.9	0.4/20.1	33556
1991 TC ₃	1998 12 18.0	05 42.43 +29 48.0 17.5	-1.25 - 0.9	3.0/18.3	33546	1997 QS ₄	1998 12 20.1	05 51.38 +21 43.3 17.8	-0.92 - 0.3	0.6/20.1	33557
1991 VF ₁	1998 12 18.1	05 42.56 +29 49.2 17.2	-1.27 - 0.3	2.9/18.3	33480	1993 FP ₇₃	1998 12 20.1	05 51.48 +19 54.0 17.9	-1.17 - 1.1	1.5/20.1	33549
1997 RQ ₅	1998 12 18.1	05 42.80 +22 35.4 18.3	-0.89 - 0.4	0.2/18.2	33557	1997 QG ₁	1998 12 20.1	05 51.48 +17 13.9 17.6	-1.07 - 1.8	2.4/20.0	33557
1996 HJ ₂₀	1998 12 18.1	05 42.83 +23 24.8 18.0	-1.00 + 0.2	0.0/18.2	27720	1997 OK	1998 12 20.1	05 51.62 +34 06.4 19.7	-1.15 - 3.1	3.5/21.0	30788
6519 P-L	1998 12 18.1	05 42.94 +28 01.1 16.8	-0.98 + 0.5	1.8/18.3	33589	1997 RZ	1998 12 20.1	05 51.78 +27 33.7 17.0	-1.04 - 1.7	1.6/20.3	33503
2144 T-2	1998 12 18.2	05 42.90 +30 09.9 18.4	-1.13 - 0.4	2.3/18.4	27732	1981 EL ₃₆	1998 12 20.2	05 52.08 +24 21.0 19.7	-1.11 - 0.9	0.3/20.3	22697
1981 QW ₂	1998 12 18.2	05 42.95 +27 49.9 18.1	-1.28 + 0.5	1.8/18.3	33540	(9865)	1998 12 20.2	05 52.27 +19 53.6 17.4	-1.22 - 1.4	1.4/20.2	33461
1994 QN	1998 12 18.2	05 43.11 +38 27.9 16.8	-1.67 +11.6	6.9/17.1	33487	1995 HR ₂	1998 12 20.2	05 52.28 +33 49.2 17.5	-1.07 + 3.7	3.9/20.0	33491
1993 FS ₁₃	1998 12 18.3	05 43.86 +28 48.5 16.8	-1.24 + 1.4	2.1/18.4	33548	1991 PK	1998 12 20.3	05 52.34 +18 44.5 17.7	-1.20 + 0.8	2.3/21.0	33545
1979 VS ₂	1998 12 18.3	05 43.95 +47 21.9 16.2	-2.01 +11.1	11.6/16.4	33539	2546 P-L	1998 12 20.3	05 52.52 -01 25.3 18.1	-0.93 - 1.0	10.1/19.9	33588
4216 T-2	1998 12 18.4	05 44.13 +11 26.7 18.3	-0.67 0.0	2.7/18.3	33589	1997 GH ₂₂	1998 12 20.3	05 52.56 +34 33.1 17.9	-1.37 + 1.3	4.5/21.0	33556
(8125)	1998 12 18.4	05 44.15 +37 05.1 17.8	-0.69 - 1.1	2.7/19.0	31779	1976 UJ ₄	1998 12 20.4	05 52.85 +23 43.4 15.9	-1.03 + 1.9	0.1/20.4	33539
1994 TQ ₁₆	1998 12 18.5	05 44.25 +32 55.6 18.6	-1.28 + 1.2	3.8/18.6	24902	1997 PR ₃	1998 12 20.4	05 53.08 +22 31.6 19.0	-1.12 + 0.3	0.3/20.5	30677
1997 RJ ₁	1998 12 18.6	05 44.70 +17 07.3 18.1	-0.87 + 1.1	2.0/18.6	33557	1997 JN ₁₅	1998 12 20.5	05 53.12 +22 40.9 17.9	-1.19 + 0.6	9.6/10.0	33556
1994 WC	1998 12 18.6	05 45.10 +38 00.1 17.7	-1.44 + 2.1	6.1/18.8	33552	1987 QC ₃	1998 12 20.5	05 53.59 +30 08.1 16.6	-1.24 - 3.2	3.1/21.0	33541
1993 TO ₂₄	1998 12 18.7	05 45.09 +22 14.7 17.5	-1.04 + 0.9	0.4/18.7	33550	1995 EG ₈	1998 12 20.6	05 53.52 +58 00.2 18.1	-1.44 - 0.7	8.7/21.8	33553
1997 SQ ₉	1998 12 18.7	05 45.36 +42 54.6 19.1	-1.13 - 0.2	6.6/19.2	33505	3178 T-3	1998 12 20.6	05 53.54 +23 56.9 18.0	-0.96 + 0.1	0.2/20.6	33590
1995 EP ₁	1998 12 18.9	05 46.20 +41 00.7 17.1	-1.17 - 0.6	5.8/19.3	33553	(9868)	1998 12 20.6	05 53.80 +17 50.4 16.2	-1.10 + 3.1	2.8/20.8	33461
1993 XG	1998 12 19.0	05 46.46 +18 53.6 16.1	-1.01 + 5.1	1.7/19.2	33486	1975 SE ₂	1998 12 20.7	05 54.25 +32 20.8 17.9	-1.23 + 2.0	3.8/21.0	33332
(9887)	1998 12 19.0	05 46.53 +17 48.1 16.7	-1.01 + 1.1	2.4/19.0	33466	1997 RY ₂	1998 12 20.9	05 54.92 +18 38.0 19.0	-0.97 - 0.5	1.7/21.0	33557
1985 PL	1998 12 19.0	05 46.56 +40 22.5 16.8	-1.33 - 4.2	6.6/20.3	33541	1993 FH ₄₃	1998 12 20.9	05 54.95 +23 58.0 18.0	-1.16 0.0	8.7/10.0	25082
1997 QC	1998 12 19.0	05 46.74 +22 48.0 16.6	-1.13 - 4.0	0.3/19.0	33501	1997 PC ₄	1998 12 20.9	05 55.09 +15 51.7 19.5	-1.00 + 0.4	2.5/21.0	33557
1993 QX ₄	1998 12 19.0	05 46.84 -00 47.7 16.9	-0.95 + 1.5	9.4/19.1	33549	1994 YZ	1998 12 20.9	05 55.29 +30 54.7 16.6	-1.19 - 4.9	2.8/21.4	33552
1994 UW	1998 12 19.0	05 46.85 +34 05.5 17.3	-1.26 + 0.2	4.7/19.3	33551	1996 ED	1998 12 21.0	05 55.60 +34 35.1 16.0	-1.23 + 1.4	5.7/21.0	33492
1977 DT ₂	1998 12 19.0	05 46.92 +24 31.4 17.5	-1.01 + 0.1	0.4/19.1	33539	(8130)	1998 12 21.1	05 55.89 +20 07.9 17.1	-0.71 + 0.7	0.8/21.1	31071
1997 PJ ₄	1998 12 19.1	05 47.19 +29 17.2 15.2	-1.12 - 6.9	2.5/19.7	33557	(8095)	1998 12 21.2	05 56.46 +24 50.9 16.9	-0.89 0.0	0.4/21.3	30965
1997 NK ₁₀	1998 12 19.1	05 47.24 -01 48.1 17.3	-0.93 + 0.5	10.2/19.0	33556	1992 EW ₇	1998 12 21.2	05 56.69 +22 32.4 17.7	-1.08 - 0.4	0.3/21.3	33547
1992 SY ₂₄	1998 12 19.1	05 47.36 +38 44.1 17.5	-1.10 - 0.8	5.1/19.6	33483	(8061)	1998 12 21.3	05 56.79 +21 55.8 17.2	-0.92 + 0.6	0.5/21.3	33538
1993 DD ₁	1998 12 19.1	05 47.38 +31 38.3 16.3	-1.30 + 0.8	3.8/19.2	33548	1975 SM ₁	1998 12 21.3	05 57.04 +18 26.9 18.4	-1.11 + 0.9	2.3/21.4	33538
1991 RA ₁₅	1998 12 19.2	05 47.32 +23 18.5 18.2	-0.86 - 0.3	0.0/19.2	33546	4517 T-3	1998 12 21.3	05 57.13 +12 37.8 19.3	-1.11 + 0.7	4.2/21.4	30467
1998 XG ₁₆	1998 12 19.2	05 47.38 +43 06.6 16.7	-2.01 +19.3	10.2/16.1	33531	1995 YM ₃	1998 12 21.4	05 57.28 +18 52.8 17.1	-1.21 + 2.8	2.0/21.6	33553
(9449)	1998 12 19.2	05 47.65 +29 08.1 16.6	-0.98 - 2.3	1.8/19.5	32641	1996 EL	1998 12 21.4	05 57.36 +33 58.8 17.0	-1.27 - 1.2	3.8/21.6	33554
2110 T-3	1998 12 19.2	05 47.79 +37 31.2 18.6	-1.22 - 0.3	4.8/19.5	30914	1994 YX	1998 12 21.4	05 57.61 +25 58.1 16.5	-1.08 - 2.5	1.1/21.6	33552
1990 WD ₂	1998 12 19.3	05 47.92 +19 50.3 17.2	-1.09 + 3.4	1.5/19.4	33545	1981 EQ ₅	1998 12 21.5	05 57.72 +22 26.9 17.1	-1.08 - 3.6	0.5/21.5	26915
3437 T-3	1998 12 19.3	05 47.93 +27 13.6 18.6	-1.09 - 0.1	1.3/19.4	33590	1994 TU ₂	1998 12 21.6	05 58.18 +18 17.0 18.0	-1.16 - 0.3	2.2/21.6	33551
1996 AP ₁₅	1998 12 19.4	05 48.63 +19 04.9 18.2	-1.11 + 0.5	1.5/19.5	33553	1996 GM ₅	1998 12 21.6	05 58.27 +19 14.6 17.5	-1.12 + 1.4	2.0/21.7	33494
1990 QE ₅	1998 12 19.6	05 49.28 +34 15.4 17.8	-1.27 - 0.3	4.1/19.8	33478	1990 SN ₆	1998 12 21.6	05 58.34 +19 08.1 17.4	-1.11 + 1.6	1.7/21.7	33544
1992 WA ₄	1998 12 19.6	05 49.30 +25 49.5 16.9	-0.94 + 1.7	0.8/19.6	33548	1993 RP ₃	1998 12 21.7	05 58.49 +20 32.9 15.3	-1.03 - 9.2	1.4/21.4	33549
1982 VF ₄	1998 12 19.6	05 49.63 +17 37.4 16.8	-1.20 - 1.1	2.9/19.6	33540	(8150)	1998 12 21.8	05 59.35 +19 10.7 17.0	-0.84 + 1.2	1.2/21.9	31075
1981 EB ₁₁	1998 12 19.7	05 49.59 +24 03.2 19.0	-1.12 - 1.1	0.2/19.7	33540	1997 NR ₂	1998 12 22.0	06 00.23 +20 59.9 17.8	-1.03 + 0.4	1.0/22.1	33556
1989 SJ ₂	1998 12 19.7	05 49.95 +03 39.4 18.7	-0.95 + 0.3	6.5/19.7	33543	1997 LA ₅	1998 12 22.0	06 00.28 +14 48.7 18.9	-1.08 + 5.8	3.2/22.6	33556

1993 FY ₂₇	1998 12 22.1	06 00.47 +24 48.6 17.6	-1.20 - 0.7	0.5/22.2	33548	1994 GX	1998 12 24.6	06 11.45 -15 57.2 18.5	-1.17 + 1.7	17.4/26.3	23785
1981 EO ₃₆	1998 12 22.1	06 00.70 +31 51.6 21.2	-1.18 - 1.6	2.8/22.3	30780	1996 FG ₁₆	1998 12 24.6	06 11.62 +20 49.9 17.7	-1.11 - 0.2	1.2/24.7	33554
1996 PM ₄	1998 12 22.2	06 00.84 +25 10.4 17.5	-0.91 + 0.2	0.5/22.2	33555	1993 RQ ₄	1998 12 24.6	06 11.66 +20 06.2 17.0	-1.01 - 0.5	1.4/24.7	33549
1992 OB ₉	1998 12 22.2	06 01.07 +15 49.6 18.0	-0.95 + 2.6	2.3/22.5	33547	1993 PP ₅	1998 12 24.6	06 11.79 +15 51.4 19.5	-1.02 + 0.8	2.6/24.9	24584
1997 RG ₃	1998 12 22.3	06 01.31 +19 42.7 17.8	-1.07 + 0.1	1.3/22.4	33557	(9885)	1998 12 24.7	06 11.76 +12 48.6 16.3	-1.06 - 0.6	4.7/24.8	33465
1995 DO ₂	1998 12 22.3	06 01.47 +20 33.1 16.8	-1.00 + 1.5	1.2/22.4	33553	1994 PA	1998 12 24.7	06 11.98 +18 52.5 17.2	-1.19 - 3.1	2.1/24.7	33550
1993 OY ₂	1998 12 22.4	06 01.57 +48 35.5 19.2	-1.41 - 1.0	8.1/22.9	33549	1990 DA ₃	1998 12 24.7	06 12.07 +21 21.6 17.0	-0.97 + 1.4	0.7/24.8	33543
4212 T-2	1998 12 22.6	06 02.62 +30 10.9 17.0	-1.19 + 3.1	3.3/22.4	33536	1992 QA	1998 12 24.7	06 12.20 +56 57.9 17.3	-2.46 +15.3	16.1/18.4	33547
4195 T-1	1998 12 22.7	06 02.85 +23 00.2 17.7	-0.97 + 1.1	0.1/22.7	33589	1997 SF	1998 12 24.8	06 12.47 +24 21.2 17.8	-0.94 + 2.5	0.3/24.8	33503
1990 QB ₂	1998 12 22.7	06 02.87 +20 08.5 17.8	-1.13 + 0.3	1.2/22.7	33544	(9844)	1998 12 24.8	06 12.53 +35 46.4 16.4	-1.18 + 6.5	5.5/23.9	33456
1981 DC ₃	1998 12 22.7	06 02.91 +23 01.6 19.7	-1.12 - 1.9	0.2/22.7	26914	1991 PX ₁₀	1998 12 24.8	06 12.61 +08 14.3 17.7	-1.14 + 0.9	6.7/26.0	30781
1991 RT ₄	1998 12 22.7	06 03.00 +24 37.8 18.2	-1.22 - 1.0	0.5/22.7	24565	1982 QA ₂	1998 12 24.8	06 12.72 +26 25.8 18.5	-1.14 - 1.2	1.0/24.9	30755
1997 SR	1998 12 22.7	06 03.21 +37 46.3 18.4	-1.18 - 2.1	4.7/23.1	33557	1992 UZ ₅	1998 12 24.9	06 12.68 +33 27.4 16.6	-1.04 + 4.7	3.5/24.3	33548
2157 T-3	1998 12 22.7	06 03.23 +19 30.4 17.0	-1.12 - 2.3	1.9/22.7	33589	1997 QB	1998 12 24.9	06 12.71 +22 13.4 18.6	-1.05 - 1.8	0.5/24.9	33501
(8106)	1998 12 22.8	06 03.48 +29 57.2 17.2	-1.21 - 2.5	2.3/23.0	30968	1990 UC ₁	1998 12 24.9	06 12.76 +39 13.9 17.7	-1.33 + 0.4	5.6/24.7	33478
2016 P-L	1998 12 22.8	06 03.55 +13 55.6 17.6	-0.94 - 0.4	3.2/22.9	28891	1996 HM ₁	1998 12 24.9	06 12.81 +27 19.8 18.2	-1.14 + 0.1	1.8/24.9	33555
(9884)	1998 12 22.8	06 03.70 +26 41.2 17.5	-1.12 + 0.7	1.6/22.8	33465	1997 UO ₂₄	1998 12 24.9	06 13.03 +23 32.6 18.5	-1.00 - 0.2	0.0/25.0	33558
1981 EG ₃₄	1998 12 22.9	06 03.77 +10 58.9 18.6	-1.04 - 0.6	5.4/22.9	33540	4715 P-L	1998 12 24.9	06 13.06 +19 34.4 19.5	-1.10 + 0.9	1.4/25.1	30775
1985 CU ₁	1998 12 23.0	06 04.75 +64 31.3 16.2	-2.10 -12.6	20.9/31.5	33541	1994 VE	1998 12 24.9	06 13.08 +39 59.3 16.6	-1.34 + 3.3	7.0/24.1	33489
1990 BB	1998 12 23.1	06 05.06 +27 33.4 16.3	-1.09 - 4.5	1.6/23.3	33477	1993 TK ₃₃	1998 12 24.9	06 13.11 +26 30.4 17.5	-1.05 + 2.1	1.2/24.9	33550
1994 PC ₁₀	1998 12 23.1	06 05.10 +24 32.0 19.4	-1.23 + 0.4	0.4/23.2	24914	4339 T-1	1998 12 25.0	06 13.34 +31 47.1 18.9	-1.24 + 2.1	3.2/24.7	30682
1988 CH ₅	1998 12 23.1	06 05.16 +23 21.3 17.6	-1.12 - 2.9	0.0/23.2	33542	1982 KH ₁	1998 12 25.0	06 13.46 +27 39.4 17.2	-1.02 + 2.8	1.3/24.9	33473
5482 T-2	1998 12 23.2	06 05.40 +31 23.1 17.5	-1.28 - 2.0	3.1/23.4	33589	2541 P-L	1998 12 25.0	06 13.57 +24 57.1 17.9	-1.18 + 0.5	0.6/25.1	33588
1984 HO ₁	1998 12 23.3	06 06.04 +28 50.9 17.4	-1.30 + 0.8	2.3/23.3	33540	1995 CT ₁	1998 12 25.1	06 13.82 +20 48.0 17.5	-1.21 - 8.5	0.9/25.0	33553
1997 TW ₁₅	1998 12 23.3	06 06.05 +21 46.4 18.1	-1.02 - 0.2	0.5/23.4	30883	1997 QP	1998 12 25.1	06 13.84 +40 57.3 17.0	-1.29 - 2.3	6.3/25.3	33557
1990 QO ₅	1998 12 23.4	06 06.03 +24 13.7 18.5	-1.16 + 0.8	0.3/23.4	33544	1997 SZ ₄	1998 12 25.2	06 14.14 +53 15.9 19.1	-1.31 + 0.5	8.6/24.7	33505
1997 RA ₁	1998 12 23.4	06 06.16 +36 23.4 18.2	-1.04 - 0.2	4.1/23.4	33557	1994 AL ₁₆	1998 12 25.2	06 14.22 +08 33.1 17.2	-0.85 + 0.5	5.0/25.6	33550
(9850)	1998 12 23.4	06 06.35 +19 07.1 17.4	-1.12 - 2.0	1.7/23.4	33457	1996 CZ ₂	1998 12 25.3	06 14.94 +32 38.3 17.5	-1.26 + 1.3	3.7/25.1	33492
1992 EM ₆	1998 12 23.4	06 06.37 +26 08.8 17.8	-1.16 + 2.4	1.2/23.4	33547	6299 P-L	1998 12 25.4	06 15.20 +01 26.5 18.1	-0.89 - 1.3	8.9/25.5	33589
(9861)	1998 12 23.6	06 07.15 +21 47.3 16.5	-1.17 - 1.9	0.8/23.6	33460	1993 TM ₂₆	1998 12 25.5	06 15.53 +09 35.7 18.6	-0.95 + 0.7	5.2/25.9	30981
1997 NA	1998 12 23.7	06 07.44 +15 44.7 18.4	-1.17 - 1.3	3.3/23.7	33556	1981 EC ₁₂	1998 12 25.5	06 15.68 +21 49.4 19.0	-1.13 - 2.4	0.7/25.6	30779
1994 BJ ₄	1998 12 23.8	06 08.11 +24 21.0 17.7	-0.94 - 2.1	0.3/23.9	33550	1993 HS ₁	1998 12 25.5	06 15.77 +35 47.6 17.1	-1.35 + 2.2	5.0/25.1	33549
1995 DG ₁	1998 12 23.9	06 08.27 +17 14.2 18.2	-0.97 - 0.8	2.4/23.9	33553	1990 VV ₁	1998 12 25.6	06 15.99 +08 26.8 16.7	-1.03 - 1.9	6.6/26.0	33544
1979 MV ₁	1998 12 23.9	06 08.31 +16 03.8 18.2	-1.10 + 2.3	2.9/24.2	33539	1997 NL ₆	1998 12 25.6	06 16.22 +16 22.6 19.0	-1.16 + 0.2	2.6/25.8	33556
1981 EA ₂₁	1998 12 23.9	06 08.39 +24 18.4 18.1	-1.00 0.0	0.3/23.9	26919	(9843)	1998 12 25.6	06 16.22 +18 03.8 16.7	-1.12 + 3.3	2.5/26.0	33455
1997 JB ₈	1998 12 24.0	06 08.73 +16 49.1 19.3	-1.18 - 0.7	2.6/24.1	33498	2159 T-2	1998 12 25.7	06 16.21 +23 54.7 18.0	-1.08 + 0.8	0.2/25.7	27322
1993 PY ₅	1998 12 24.0	06 09.07 +29 25.3 17.6	-1.20 - 1.8	2.2/24.1	33549	(9878)	1998 12 25.7	06 16.26 +01 03.7 18.4	-0.84 + 2.6	7.6/26.8	33464
1996 GZ ₂	1998 12 24.1	06 09.30 +27 37.3 17.9	-1.21 + 0.7	1.7/24.1	33554	1987 SF	1998 12 25.7	06 16.57 +16 49.2 17.2	-1.13 + 3.2	3.1/26.1	33475
4161 T-1	1998 12 24.1	06 09.38 +00 47.2 17.3	-0.95 + 0.5	7.9/24.7	33589	1992 JP ₃	1998 12 25.8	06 16.77 +32 51.4 19.5	-1.16 + 2.0	3.2/25.4	27309
1988 RV ₁₂	1998 12 24.2	06 09.55 +00 58.2 17.1	-0.70 - 0.2	6.3/24.3	33542	1031 T-2	1998 12 25.9	06 17.14 +11 24.6 18.9	-1.09 + 1.0	5.1/26.3	24236
7066 P-L	1998 12 24.2	06 09.81 +08 07.9 17.2	-0.84 - 0.7	4.4/24.4	33589	1975 LY	1998 12 25.9	06 17.40 +35 25.1 17.1	-1.23 - 4.2	4.5/26.3	33538
1998 XS ₁₅	1998 12 24.2	06 09.96 +23 25.7 17.2	-0.94 + 1.8	0.0/24.3	33531	1993 FZ ₄₀	1998 12 25.9	06 17.53 +28 31.2 16.8	-1.25 + 1.5	2.2/26.0	33548
1997 NQ	1998 12 24.3	06 10.18 +06 52.7 17.7	-0.97 - 1.4	5.9/24.4	33556	1982 SW ₃	1998 12 26.0	06 17.74 +12 14.6 16.6	-1.17 0.0	5.6/26.4	33540
1996 GV ₂	1998 12 24.3	06 10.24 +22 50.4 17.5	-1.04 + 4.1	0.2/24.4	33494	1993 NB ₂	1998 12 26.2	06 18.47 +24 25.8 16.5	-1.09 - 0.4	0.5/26.2	33549
1996 DW	1998 12 24.4	06 10.45 +35 42.2 18.6	-1.34 + 0.1	4.8/24.2	33554	1996 EH ₂	1998 12 26.2	06 18.49 +22 17.9 17.0	-1.20 - 1.7	0.5/26.2	33492
1987 WF ₁	1998 12 24.4	06 10.95 -03 32.9 16.4	-1.18 - 7.6	11.9/23.4	33542	2723 P-L	1998 12 26.2	06 18.82 +16 08.3 19.0	-1.13 + 0.6	3.2/26.5	31022
1997 UC ₁₁	1998 12 24.5	06 10.94 +57 43.3 18.0	-1.82 + 0.7	11.2/23.8	33507	1981 ET ₁₉	1998 12 26.2	06 18.91 +21 23.1 20.0	-1.10 + 1.0	0.7/26.4	21967
3423 T-3	1998 12 24.5	06 11.12 +22 52.9 17.8	-1.03 + 1.3	0.2/24.6	33537	4124 T-3	1998 12 26.3	06 18.96 +20 46.4 19.7	-0.93 + 1.2	0.8/26.4	25540
1992 OY ₇	1998 12 24.5	06 11.32 +24 45.0 17.8	-1.02 - 1.9	0.4/24.6	33547	(9909)	1998 12 26.3	06 19.14 +17 00.9 16.1	-1.10 + 2.4	2.9/26.7	33470
1981 QG	1998 12 24.6	06 11.30 +25 05.0 18.0	-0.94 + 0.2	0.5/24.6	33540	1997 RQ ₃	1998 12 26.3	06 19.21 +21 11.9 18.1	-0.87 + 0.8	0.6/26.4	33557
1994 SV ₉	1998 12 24.6	06 11.33 +32 40.9 16.8	-1.25 + 1.4	4.4/24.3	33488	1997 SK ₁	1998 12 26.3	06 19.29 +29 12.7 17.2	-1.10 - 0.3	2.3/26.3	33557

1997 PX ₁	1998 12 26.3	06 19.35 +23 27.5 17.8	-1.15 + 2.7	0.0/26.4	33556	1991 PO ₅	1998 12 29.1	06 31.76 +22 50.2 18.2	-0.91 + 0.6	0.1/29.2	33545
1997 SW ₉	1998 12 26.4	06 19.38 +13 46.5 17.7	-0.90 - 2.5	3.3/26.4	33505	1997 VM ₂	1998 12 29.2	06 32.09 +08 24.2 18.1	-0.84 + 0.7	4.6/30.0	33558
1981 EJ ₂₆	1998 12 26.5	06 19.76 +25 44.7 16.9	-1.29 + 0.9	1.0/26.4	26919	1994 YJ ₂	1998 12 29.3	06 32.59 +24 09.3 16.0	-1.10 + 6.3	0.3/29.3	33552
2030 T-2	1998 12 26.5	06 20.03 +27 29.6 19.2	-1.12 + 0.5	1.7/26.4	17977	1993 RV ₇	1998 12 29.3	06 32.65 +32 03.6 17.9	-1.13 + 0.4	3.1/29.0	33549
1995 FY ₂	1998 12 26.6	06 20.22 +38 29.0 17.4	-1.16 + 0.7	6.1/26.1	33553	4528 P-L	1998 12 29.4	06 32.62 +18 59.5 17.6	-1.12 + 0.9	1.8/29.6	29668
2237 T-2	1998 12 26.6	06 20.37 +16 48.5 18.4	-1.04 + 0.2	2.5/26.8	23988	1997 QC ₂	1998 12 29.5	06 33.02 +17 43.1 19.1	-0.97 + 2.0	1.7/29.8	31010
(9877)	1998 12 26.6	06 20.57 +32 57.1 16.6	-1.16 + 2.1	3.6/26.3	33463	(9904)	1998 12 29.5	06 33.06 +10 54.9 17.2	-0.93 + 3.6	5.2/30.5	33469
1994 WU ₁	1998 12 26.6	06 20.58 +01 15.3 18.6	-0.98 + 1.5	7.6/27.7	33552	1989 UJ ₃	1998 12 29.5	06 33.08 +42 25.6 18.1	-1.28 + 0.2	6.2/28.8	33543
1992 OK ₂	1998 12 26.7	06 20.73 +35 56.0 19.3	-1.11 - 2.1	3.7/26.8	25066	1996 HJ ₁₅	1998 12 29.5	06 33.15 +22 01.3 17.7	-1.07 + 1.2	0.5/29.6	30785
1995 CW ₁	1998 12 26.8	06 21.21 -08 07.4 18.1	-0.95 - 4.2	11.0/26.5	30455	1993 FD ₂₀	1998 12 29.5	06 33.20 +30 56.6 17.1	-1.25 + 4.1	3.7/28.9	33484
1997 LC ₄	1998 12 26.9	06 21.76 +38 57.2 17.0	-1.80 +22.4	8.2/23.6	33556	(9841)	1998 12 29.5	06 33.38 +20 18.8 16.9	-1.16 + 2.4	1.5/29.7	33455
1988 VK	1998 12 26.9	06 21.95 +20 25.2 16.2	-1.20 + 4.5	1.4/27.2	33542	1995 RG	1998 12 29.6	06 33.81 +29 46.1 17.8	-1.65 +17.6	3.2/28.5	26582
1991 PE ₆	1998 12 27.0	06 22.06 +26 43.6 17.4	-0.92 + 0.7	0.9/26.9	30871	1989 TX ₂	1998 12 29.7	06 33.99 -01 56.8 17.4	-0.92 + 1.0	10.0/31.1	33335
1990 RM ₉	1998 12 27.1	06 22.84 +18 45.8 17.2	-1.17 - 1.2	1.9/27.3	33544	1981 EE ₃₄	1998 12 29.7	06 34.01 +25 20.2 19.8	-1.16 0.0	1.0/29.6	26921
1987 QZ ₆	1998 12 27.2	06 23.12 +25 43.5 17.1	-1.22 - 1.6	1.0/27.2	33475	1998 XV ₄	1998 12 29.7	06 34.20 +26 19.7 17.3	-1.07 + 0.5	1.1/29.6	33530
1981 EU ₂₅	1998 12 27.3	06 23.54 +16 05.1 18.5	-1.04 + 1.0	2.4/27.6	30867	1997 RL ₇	1998 12 29.7	06 34.29 +42 21.7 19.2	-1.30 0.0	6.3/29.1	33557
1997 SN ₁	1998 12 27.3	06 23.57 +39 02.7 18.8	-1.18 - 0.9	4.9/27.1	33557	1989 SP ₁	1998 12 29.8	06 34.79 +18 37.3 17.1	-1.03 + 2.6	1.8/30.2	33477
(8230)	1998 12 27.4	06 24.04 +22 48.6 18.4	-1.20 - 0.2	0.2/27.5	31093	1993 TL ₃₂	1998 12 30.0	06 35.73 +21 57.7 17.4	-1.02 + 1.8	0.4/30.2	27730
1985 PO	1998 12 27.4	06 24.04 +19 07.4 17.1	-1.05 + 1.5	1.6/27.6	33541	2164 P-L	1998 12 30.2	06 36.24 +23 56.7 17.4	-1.15 + 0.1	0.3/30.2	33588
1995 DM ₉	1998 12 27.5	06 24.15 +24 08.0 19.8	-0.90 + 0.9	0.2/27.5	32944	1994 XN ₁	1998 12 30.2	06 36.40 +29 08.3 18.5	-1.18 + 2.5	2.5/29.9	33552
9070 P-L	1998 12 27.5	06 24.21 +11 58.2 16.7	-0.97 - 0.3	4.3/27.9	33589	1990 OH ₁	1998 12 30.2	06 36.49 -01 07.8 18.5	-0.80 - 2.1	5.7/30.8	31273
1991 PJ ₁₇	1998 12 27.5	06 24.35 +22 07.5 19.1	-1.24 - 0.1	0.5/27.6	33228	1997 QY	1998 12 30.3	06 36.86 +09 02.8 18.0	-0.98 + 1.4	4.9/31.2	31010
1991 RE ₇	1998 12 27.6	06 25.14 +47 07.2 17.5	-1.13 + 0.5	6.2/26.8	33545	1991 RD ₁₆	1998 12 30.3	06 36.88 +15 48.7 18.1	-1.17 + 3.2	3.4/31.0	33546
1989 CW ₇	1998 12 27.7	06 25.18 +16 40.9 16.7	-1.11 + 0.3	3.2/27.9	33542	1993 QU ₄	1998 12 30.4	06 37.11 +08 11.7 18.4	-0.97 + 2.7	5.2/31.5	31788
1995 BN ₄	1998 12 27.8	06 25.57 +39 38.0 16.2	-1.21 - 2.8	7.1/27.9	33490	1252 T-1	1998 12 30.4	06 37.14 +11 59.0 17.6	-1.07 + 0.3	4.7/30.9	33589
1981 EB ₅	1998 12 27.8	06 25.62 +30 26.8 18.5	-1.08 - 2.0	2.7/27.8	26915	1988 SZ ₂	1998 12 30.4	06 37.23 +21 25.9 18.4	-0.72 + 1.1	0.4/30.5	33542
1996 PF ₁	1998 12 27.8	06 25.82 +30 06.0 18.6	-0.94 + 0.4	1.9/27.6	33555	6511 P-L	1998 12 30.4	06 37.54 +23 49.8 19.5	-1.17 + 1.1	10.4/20.0	27116
1991 GX ₇	1998 12 27.9	06 26.02 +38 16.8 17.0	-1.17 + 0.2	5.9/27.5	33545	1996 BR ₁	1998 12 30.6	06 37.90 +22 14.2 16.9	-1.20 + 3.7	0.4/30.7	33553
1994 UR	1998 12 27.9	06 26.38 +25 16.8 17.4	-1.09 + 3.5	0.9/27.9	33489	1989 BR	1998 12 30.6	06 37.95 +29 57.7 16.4	-1.24 - 0.8	3.2/30.4	33476
(8317)	1998 12 27.9	06 26.40 +22 13.5 17.6	-0.57 + 0.3	0.2/28.0	31222	1993 GN ₁	1998 12 30.6	06 37.99 +20 29.9 17.3	-1.20 - 1.3	1.2/30.7	33549
1986 PN ₄	1998 12 28.1	06 26.93 +36 02.5 16.6	-1.06 - 2.3	3.7/28.1	33541	1995 CH	1998 12 30.6	06 38.17 +09 33.4 17.4	-0.95 + 7.4	5.7/01.4	33553
1991 EB	1998 12 28.2	06 27.49 +21 36.0 16.2	-1.03 - 0.8	0.7/28.3	33545	1991 SN ₁	1998 12 30.6	06 38.24 +12 59.0 17.3	-1.15 + 0.7	4.5/31.2	33546
1981 EO ₂₁	1998 12 28.3	06 27.88 +25 18.7 17.1	-1.14 - 0.3	1.0/28.3	33540	1997 TM ₁₈	1998 12 30.6	06 38.40 +38 06.7 17.9	-1.19 + 1.8	4.8/29.7	33558
1998 WK ₃	1998 12 28.3	06 27.93 +23 10.4 16.8	-1.08 + 0.4	0.0/28.3	33521	1992 NS	1998 12 30.7	06 38.38 +09 15.0 18.2	-0.93 - 0.4	4.3/31.3	33547
1998 WG ₃	1998 12 28.6	06 29.10 +22 22.9 16.9	-1.00 - 0.4	0.3/28.6	33521	1981 EK ₂₉	1998 12 30.7	06 38.49 +15 13.8 19.2	-0.94 - 0.1	2.9/31.1	26920
1979 OG ₈	1998 12 28.6	06 29.21 +02 31.4 18.4	-1.19 +15.5	9.5/01.9	23856	1997 QF ₂	1998 12 30.7	06 38.62 +42 19.1 17.9	-1.14 + 0.3	6.2/29.9	33502
1996 KB	1998 12 28.6	06 29.25 +20 07.9 17.5	-1.05 + 0.1	1.1/28.7	30902	1978 WY ₈	1998 12 30.7	06 38.83 +25 09.1 16.8	-0.98 + 2.0	0.7/30.7	23336
1990 QA ₄	1998 12 28.6	06 29.39 +30 32.3 17.2	-1.23 - 0.2	3.0/28.4	33478	1993 FP ₁₄	1998 12 30.8	06 38.81 +33 19.1 17.8	-1.28 + 2.3	3.8/30.2	33484
1997 LF	1998 12 28.6	06 29.43 +13 39.7 20.8	-1.15 + 2.2	3.8/29.2	32967	4658 P-L	1998 12 30.8	06 38.81 +28 14.1 18.2	-1.03 + 1.2	1.6/30.5	28620
1993 FF ₂₆	1998 12 28.6	06 29.43 +31 06.4 16.8	-1.25 - 0.8	3.9/28.5	33548	1992 CF	1998 12 30.8	06 39.18 +24 37.1 16.0	-1.19 - 3.1	0.6/30.9	33547
1993 RD ₂	1998 12 28.7	06 29.65 +00 22.8 17.1	-0.94 + 1.9	7.9/30.2	31139	1980 FO ₁	1998 12 31.0	06 39.68 +24 14.4 15.9	-0.97 + 0.5	0.4/30.9	33539
(8072)	1998 12 28.8	06 29.92 +27 46.7 17.6	-1.19 + 1.1	2.0/28.6	30960	1993 QR ₄	1998 12 31.0	06 40.09 +29 09.8 17.1	-1.11 + 1.1	2.5/30.7	33549
1992 GD ₃	1998 12 28.8	06 30.14 +11 44.0 18.3	-1.01 - 0.5	4.3/29.2	33547	1997 PR	1998 12 31.1	06 40.10 +31 44.9 18.9	-1.22 - 0.9	3.0/30.8	33556
1995 CD ₃	1998 12 28.8	06 30.26 +17 54.7 19.5	-0.99 + 1.1	2.0/29.1	30761	1998 SU ₂₆	1998 12 31.1	06 40.13 +36 05.2 17.4	-1.11 - 4.2	4.5/31.1	33566
1989 GJ ₂	1998 12 28.9	06 30.49 +13 43.0 16.6	-1.09 - 1.7	4.2/29.1	33543	1997 NR ₁₀	1998 12 31.1	06 40.21 +16 23.9 20.6	-1.07 + 2.0	2.3/31.6	33500
1986 QY ₃	1998 12 28.9	06 30.62 +20 56.1 18.8	-1.12 + 2.1	0.9/29.1	30651	1996 HM ₁₁	1998 12 31.1	06 40.37 +17 22.1 18.1	-1.00 + 1.0	2.0/31.5	33555
1998 WJ ₃	1998 12 29.0	06 31.01 +24 56.7 16.5	-1.07 + 6.7	0.7/28.9	33521	1990 SK ₆	1998 12 31.2	06 40.61 +35 19.7 17.0	-1.27 + 2.5	5.0/30.3	33544
1998 WQ ₃	1998 12 29.0	06 31.05 +19 58.6 17.1	-1.07 - 2.8	1.1/29.1	33521	1998 WZ ₃₀	1998 12 31.2	06 40.65 +36 02.2 16.6	-1.32 - 1.7	5.2/31.0	33528
1998 WL ₃	1998 12 29.0	06 31.21 +23 46.7 17.4	-1.04 - 2.5	0.2/29.1	33521	3005 P-L	1998 12 31.2	06 40.99 +23 16.5 17.3	-0.94 - 1.4	0.1/31.3	33588
1996 CX ₂	1998 12 29.1	06 31.37 +18 05.0 18.0	-1.17 - 1.3	2.1/29.2	30667	1993 UL	1998 12 31.3	06 40.99 +04 16.7 18.4	-0.93 + 0.8	6.1/01.5	33550
1997 TZ ₇	1998 12 29.1	06 31.66 +40 41.9 18.1	-1.11 + 2.9	5.0/28.1	33558	(9710)	1998 12 31.3	06 41.22 +30 23.4 16.4	-1.15 + 5.2	3.5/30.7	33190

1996 DG	1998 12 31.4	06 41.69 +25 11.6 17.0	-1.19 + 2.8	0.9/31.3	33492	1997 LB ₄	1999 01 03.2	06 53.77 +23 47.9 19.0	-1.05 + 1.0	0.3/03.1	30788
1994 RT ₁₁	1998 12 31.4	06 41.95 +17 47.4 17.8	-1.17 - 0.9	2.2/31.7	33488	1996 HW ₂₃	1999 01 03.2	06 53.95 +29 27.7 16.7	-1.14 + 5.4	3.2/02.5	33495
3175 T-3	1998 12 31.6	06 42.71 +26 17.0 18.9	-0.97 + 1.1	1.1/31.5	21127	2241 T-3	1999 01 03.2	06 54.01 +24 08.0 19.7	-1.08 + 0.4	0.5/03.2	30286
(9827)	1998 12 31.7	06 42.77 -01 58.0 17.2	-0.83 + 0.1	7.7/02.4	33452	1984 SL	1999 01 03.2	06 54.15 +09 08.9 15.8	-0.98 + 5.0	5.7/05.0	33541
1997 OO ₁	1998 12 31.7	06 43.06 +15 39.2 17.3	-1.09 + 5.8	3.5/01.5	33556	1997 SG ₂₅	1999 01 03.3	06 54.51 +25 26.9 17.7	-1.12 + 2.2	0.9/03.1	33506
(9855)	1998 12 31.7	06 43.09 +12 41.5 16.7	-0.99 + 4.1	3.8/01.7	33458	1996 FM ₁	1999 01 03.3	06 54.55 +23 26.9 17.4	-1.18 - 1.8	0.3/03.3	33493
1991 PP ₈	1998 12 31.7	06 43.16 +24 17.8 19.1	-0.90 + 1.4	0.4/31.7	33227	1994 TT ₁₆	1999 01 03.4	06 54.69 +27 21.9 19.3	-1.22 + 1.8	1.9/03.1	33245
1997 NE ₅	1998 12 31.8	06 43.37 +25 44.2 18.1	-1.26 + 0.0	1.0/31.7	30692	1994 YN	1999 01 03.4	06 54.77 +23 24.0 16.3	-1.13 +10.1	0.3/03.3	33552
1994 TU ₃	1998 12 31.8	06 43.52 -12 06.2 17.2	-1.10 - 0.9	13.7/03.8	33551	1992 TW	1999 01 03.4	06 54.98 +06 48.1 18.0	-0.86 + 1.6	5.3/05.0	33548
1998 WD ₈	1998 12 31.9	06 43.84 +27 57.1 17.0	-1.04 + 3.1	1.8/31.5	33523	(9902)	1999 01 03.4	06 54.98 +21 22.6 16.5	-1.19 - 2.2	0.7/03.5	33469
1997 TS ₂₅	1998 12 31.9	06 44.12 +15 51.8 17.2	-0.58 - 0.5	1.4/01.4	33558	1992 KQ	1999 01 03.5	06 55.32 +22 27.3 16.5	-1.01 + 5.1	0.1/03.6	33547
1997 QA ₂	1999 01 01.0	06 44.57 +21 34.5 18.1	-0.99 - 0.2	0.5/01.2	30904	1979 MW ₃	1999 01 03.5	06 55.49 +19 44.4 19.2	-1.12 + 0.9	1.1/03.8	26913
1976 UR ₁₅	1999 01 01.2	06 45.10 +35 21.6 17.2	-1.16 + 3.5	4.6/31.2	33539	1998 XN ₁₁	1999 01 03.7	06 55.97 +27 50.0 17.4	-1.25 + 5.1	2.2/03.2	33531
1988 GL	1999 01 01.2	06 45.14 +36 13.1 17.2	-1.29 + 6.4	4.9/30.6	33542	2082 P-L	1999 01 03.7	06 56.11 +19 55.1 18.6	-1.17 + 0.4	1.1/03.9	32502
1989 HC	1999 01 01.3	06 45.46 +33 08.4 17.1	-1.01 + 6.3	3.0/31.1	33476	1979 MF ₃	1999 01 03.7	06 56.27 +19 06.6 19.7	-0.98 + 1.3	1.2/04.0	30778
1998 WH ₈	1999 01 01.3	06 45.78 +27 20.0 17.7	-1.12 + 2.6	1.6/01.0	33524	1996 EU ₃	1999 01 03.7	06 56.47 +34 58.0 17.6	-1.27 + 0.5	4.7/03.0	33554
1994 CV ₁	1999 01 01.4	06 45.85 +26 30.5 16.5	-0.95 + 2.4	1.3/01.1	33550	1981 EL ₂₉	1999 01 03.8	06 56.88 +14 03.8 20.5	-1.05 + 1.3	3.2/04.5	26920
1996 LG ₄	1999 01 01.4	06 45.92 +23 52.2 17.4	-0.96 + 1.7	0.3/01.4	28863	1996 CY ₂	1999 01 03.9	06 57.05 +23 11.1 16.5	-1.15 + 3.6	0.2/03.9	33554
1993 TS ₁₅	1999 01 01.4	06 46.12 +19 53.5 18.3	-1.02 + 1.8	1.2/01.7	30900	1996 DC	1999 01 03.9	06 57.31 +16 58.6 16.7	-1.12 + 4.1	2.4/04.6	33554
1997 UD ₁₁	1999 01 01.4	06 46.20 +24 57.7 17.2	-0.91 + 1.3	0.6/01.3	33558	1990 QG ₁	1999 01 03.9	06 57.34 +32 20.6 17.4	-1.25 + 0.1	3.7/03.4	33478
1997 TX ₁₈	1999 01 01.4	06 46.31 +21 15.6 17.5	-0.95 + 1.9	0.6/01.6	32969	(9867)	1999 01 04.1	06 58.14 +24 31.3 16.0	-1.17 + 5.5	0.8/04.0	33461
1996 LJ ₁	1999 01 01.5	06 46.40 +04 22.9 18.8	-0.90 - 0.8	5.8/02.4	33555	1979 MK ₆	1999 01 04.1	06 58.24 +19 02.0 17.8	-0.99 + 2.0	1.4/04.5	18804
1994 XB ₅	1999 01 01.5	06 46.76 +08 59.8 18.2	-0.99 - 3.1	6.8/01.8	33490	1996 JK ₁	1999 01 04.2	06 58.42 +05 28.8 17.6	-0.98 - 1.1	6.3/05.2	33555
1995 FU ₂	1999 01 01.6	06 46.89 +22 01.1 19.9	-0.95 + 2.0	0.3/01.7	25442	1997 SF ₄	1999 01 04.3	06 58.72 +09 24.3 19.2	-0.84 + 0.8	3.9/05.5	33505
(9886)	1999 01 01.7	06 47.18 +27 52.1 16.6	-1.11 + 2.6	2.3/01.3	33466	(9905)	1999 01 04.4	06 59.24 +45 53.1 17.1	-1.41 + 1.1	10.3/02.3	33470
1992 EF ₂	1999 01 01.8	06 47.69 +07 14.3 18.0	-1.02 + 3.2	5.7/03.1	33547	1975 ST	1999 01 04.4	06 59.42 +06 57.1 18.9	-0.90 + 1.6	4.6/05.8	31002
(9895)	1999 01 01.8	06 47.70 +30 50.9 16.5	-1.29 + 1.3	3.3/01.4	33467	1992 SR ₂₅	1999 01 04.5	06 59.69 +37 24.0 17.5	-1.10 0.0	5.1/03.5	33483
1997 SL ₁₆	1999 01 01.8	06 47.81 +09 16.0 18.1	-0.97 + 3.7	4.7/03.1	31012	1994 AP ₁	1999 01 04.5	06 59.71 +41 17.1 16.1	-1.31 - 5.4	7.2/04.2	33550
1994 TR ₃	1999 01 01.8	06 48.14 +25 11.9 16.0	-1.18 + 3.0	1.0/01.7	33488	1992 JR ₃	1999 01 04.5	06 59.72 +21 41.0 16.9	-1.07 + 0.8	0.4/04.6	30872
1997 RJ ₁₀	1999 01 02.0	06 48.54 +20 02.4 16.9	-0.93 + 1.4	1.0/02.2	33557	1981 EP ₁₀	1999 01 04.5	06 59.98 +27 11.1 19.8	-1.18 - 0.3	1.7/04.3	22696
1293 T-1	1999 01 02.0	06 48.91 +29 34.0 17.3	-1.30 + 0.2	3.1/01.7	33589	1998 XP ₁₁	1999 01 04.7	07 00.49 +27 02.6 16.9	-1.00 - 1.0	1.4/04.5	33531
1993 KX ₁	1999 01 02.1	06 49.03 +28 15.6 16.7	-1.26 + 8.8	1.8/01.4	33485	1978 RB ₁₀	1999 01 04.7	07 00.49 +29 33.3 18.9	-1.32 + 0.4	2.8/04.3	33539
1996 BD ₂	1999 01 02.2	06 49.46 +25 58.4 18.0	-1.24 + 1.5	1.3/02.0	29139	1978 TR ₂	1999 01 04.7	07 00.52 +22 51.0 16.7	-0.97 + 1.1	0.0/04.7	33539
1994 AH	1999 01 02.2	06 49.54 +20 38.2 17.4	-0.92 + 1.7	0.7/02.4	33550	1996 HT	1999 01 04.7	07 00.62 +23 10.8 16.7	-1.10 0.0	0.2/04.7	33554
1997 TV ₁₇	1999 01 02.2	06 49.75 +09 13.5 18.8	-0.82 + 0.4	4.0/03.2	31013	1992 EH ₂₄	1999 01 04.7	07 00.77 +18 38.1 18.8	-1.09 + 4.4	1.6/05.2	30757
1993 FB ₁₈	1999 01 02.2	06 49.81 +23 40.8 17.2	-1.17 + 3.0	0.3/02.2	30471	1997 QM	1999 01 04.7	07 00.78 +00 45.1 18.2	-0.95 + 3.7	8.2/07.3	33502
1997 PC ₂	1999 01 02.2	06 49.91 +24 18.2 17.4	-1.15 + 0.9	0.5/02.2	33556	(9869)	1999 01 04.7	07 00.86 +17 13.5 15.7	-1.06 + 1.7	2.5/05.2	33462
1990 RA ₈	1999 01 02.3	06 50.00 +27 14.6 18.7	-1.20 + 1.1	1.8/02.1	33544	4800 P-L	1999 01 04.8	07 00.95 +19 44.6 19.2	-1.08 + 2.1	1.0/05.1	30681
1997 NY ₆	1999 01 02.4	06 50.27 +09 58.0 17.7	-0.99 + 7.1	5.6/04.1	30692	3072 T-2	1999 01 04.8	07 01.19 +24 21.2 17.2	-0.97 + 2.3	0.5/04.7	33535
1994 WM ₁	1999 01 02.4	06 50.53 +39 26.5 17.2	-1.29 + 8.3	7.1/31.1	33552	1995 BS ₃	1999 01 04.8	07 01.25 +19 09.9 17.1	-0.99 + 2.0	1.3/05.2	33553
(8091)	1999 01 02.4	06 50.57 +10 53.9 16.4	-1.08 + 4.2	4.9/03.6	30965	3039 P-L	1999 01 04.9	07 01.44 +15 42.7 17.6	-1.00 - 0.8	2.8/05.4	33588
1997 RY ₈	1999 01 02.4	06 50.58 +07 41.6 17.5	-0.85 + 2.1	5.3/03.7	33503	1997 PM ₂	1999 01 05.0	07 02.02 +25 26.3 17.1	-1.02 - 0.6	1.1/04.9	33557
1996 BA	1999 01 02.4	06 50.78 +28 49.0 17.8	-1.28 - 0.7	2.3/02.2	33553	1981 EV ₁₇	1999 01 05.0	07 02.04 +20 29.7 20.0	-1.10 + 1.2	0.8/05.2	22697
1995 EY ₇	1999 01 02.6	06 51.30 +10 12.2 16.6	-0.92 + 0.3	4.9/03.4	33553	1996 EK ₁	1999 01 05.0	07 02.11 +18 18.0 17.2	-1.15 + 1.3	1.8/05.4	27328
1981 EN ₂₆	1999 01 02.6	06 51.38 +10 03.7 17.9	-0.93 + 1.2	4.7/03.5	33540	1993 FB ₂₆	1999 01 05.0	07 02.21 +24 43.1 17.6	-1.23 + 1.2	0.8/04.9	26743
1993 OF ₃	1999 01 02.6	06 51.45 +24 15.2 18.9	-1.12 + 1.1	0.5/02.6	31276	1985 HH	1999 01 05.1	07 02.30 +19 29.9 17.0	-1.11 + 2.2	1.2/05.4	33541
1991 VJ ₂	1999 01 02.6	06 51.67 +15 04.0 17.1	-1.18 + 1.4	3.3/03.3	33546	1995 KZ ₁	1999 01 05.1	07 02.49 +02 41.0 17.3	-0.81 - 0.7	5.7/06.5	33553
(9842)	1999 01 02.8	06 52.20 +27 03.1 15.7	-1.20 + 2.7	1.9/02.5	33455	6309 P-L	1999 01 05.2	07 02.74 +12 10.9 19.7	-0.97 + 1.6	3.4/06.2	32730
1990 QN ₂	1999 01 02.8	06 52.53 +33 18.7 17.7	-1.26 + 0.1	3.9/02.3	33544	1986 QZ ₁	1999 01 05.2	07 02.92 +11 27.1 16.8	-0.86 + 3.8	3.7/06.6	33541
1991 SG	1999 01 02.9	06 52.85 +11 18.1 17.5	-0.82 + 2.5	3.4/04.1	33546	1981 EX ₂₆	1999 01 05.3	07 03.35 +18 12.6 19.1	-1.05 + 1.5	1.4/05.7	30893
1991 PC ₁₆	1999 01 03.1	06 53.35 +23 05.1 18.1	-0.88 + 1.2	0.1/03.1	30871	1990 VK ₅	1999 01 05.3	07 03.41 +17 03.4 17.7	-1.05 + 3.8	2.0/06.0	33544

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3089 T-1	1999 01 05.3	07 03.41 +20 30.9 17.3	-1.11 + 0.6	1.0/05.5	33589	1993 TQ	1999 01 07.7	07 14.06 +30 47.0 17.1	-1.10 + 3.8	3.0/06.8	33549
1989 OC	1999 01 05.4	07 03.60 +27 15.4 18.8	-1.15 0.0	1.5/05.1	30781	1991 CG ₁	1999 01 07.8	07 14.14 +30 03.5 15.9	-1.09 + 0.2	3.7/07.2	33479
1988 NW	1999 01 05.4	07 03.66 +29 24.9 17.3	-1.12 - 1.6	2.1/05.1	33475	1989 ST ₃	1999 01 07.8	07 14.33 +19 48.1 18.0	-1.00 + 3.2	1.1/08.2	33543
1994 CF ₁₆	1999 01 05.4	07 03.71 +19 42.9 17.4	-0.88 + 3.9	1.0/05.8	24112	1993 DQ	1999 01 08.0	07 14.85 +24 00.5 16.8	-1.23 + 3.3	0.7/07.8	33548
1996 OJ	1999 01 05.4	07 03.72 +21 31.5 19.5	-0.85 + 1.7	0.3/05.6	31009	(9889)	1999 01 08.0	07 14.88 +22 45.1 16.4	-0.96 + 1.4	0.1/08.0	33466
2203 T-2	1999 01 05.5	07 04.11 +08 45.3 19.5	-0.97 + 2.2	6.0/07.0	27564	1986 RF ₃	1999 01 08.0	07 14.89 +18 37.0 18.6	-1.08 + 2.2	1.3/08.4	30446
1981 UT ₂₉	1999 01 05.5	07 04.33 +11 02.5 17.7	-0.85 + 0.3	3.4/06.5	33540	1994 AJ ₁	1999 01 08.0	07 15.09 +22 22.1 16.7	-0.98 - 1.5	0.0/08.0	33550
1997 OG ₂	1999 01 05.6	07 04.55 +19 38.4 20.2	-1.09 + 1.8	1.0/05.9	30788	3152 T-3	1999 01 08.1	07 15.48 +25 43.6 18.4	-0.95 + 2.0	1.0/07.8	30915
1998 QT ₆₀	1999 01 05.6	07 04.60 +36 38.6 14.1	-1.64 -25.9	7.9/08.2	33561	1981 DQ ₁	1999 01 08.1	07 15.72 +23 27.8 16.7	-1.05 - 2.6	0.5/08.1	33539
(8104)	1999 01 05.6	07 04.79 +27 17.2 17.0	-0.97 - 0.7	1.4/05.4	30967	1991 TL	1999 01 08.2	07 15.88 +17 04.2 18.5	-1.16 + 4.3	2.1/08.9	29317
9515 P-L	1999 01 05.7	07 04.80 +27 24.4 17.3	-1.09 + 2.5	1.9/05.2	33589	1992 ES ₁₃	1999 01 08.3	07 16.18 +18 27.3 16.6	-1.07 + 1.8	1.8/08.7	33547
1978 PC ₃	1999 01 05.7	07 05.18 +29 19.7 17.6	-1.18 0.0	2.4/05.3	33472	1990 QM ₄	1999 01 08.3	07 16.21 +17 57.7 17.3	-1.11 + 3.7	1.6/08.8	31005
1314 T-2	1999 01 05.7	07 05.19 +25 59.7 18.3	-1.08 + 1.5	1.2/05.5	30914	1981 EU ₂₄	1999 01 08.3	07 16.31 +25 43.6 17.2	-1.02 + 0.9	1.2/08.0	33540
1994 VZ	1999 01 05.8	07 05.43 +13 53.2 17.9	-1.11 + 0.9	3.4/06.5	33551	1995 HH ₃	1999 01 08.3	07 16.52 +23 45.8 20.9	-0.87 + 2.3	0.4/08.2	30875
4196 T-2	1999 01 05.8	07 05.45 +24 51.4 17.3	-0.97 + 2.3	0.7/05.6	33589	1997 PL ₄	1999 01 08.5	07 17.33 +32 16.5 18.3	-1.27 + 0.5	4.1/07.7	33501
1989 RB	1999 01 05.9	07 05.87 +51 00.7 18.5	-1.53 - 0.4	8.9/04.3	33543	1987 SP ₁	1999 01 08.6	07 17.46 +30 22.8 17.4	-1.27 + 0.9	3.3/07.9	33541
1997 SF ₁₁	1999 01 06.0	07 06.55 +04 29.8 18.3	-0.84 - 0.1	5.9/07.5	33557	1995 BQ ₃	1999 01 08.6	07 17.58 +11 15.1 16.2	-0.96 + 5.8	4.5/10.3	33552
1362 T-2	1999 01 06.0	07 06.62 +34 11.3 18.9	-1.26 + 1.2	5.3/05.1	24237	1995 HA	1999 01 08.6	07 17.60 +10 02.4 19.6	-0.83 + 1.0	3.6/09.9	33553
1979 MM ₆	1999 01 06.1	07 06.69 +17 39.8 18.9	-0.87 + 0.7	1.5/06.5	31003	1978 RV ₇	1999 01 08.6	07 17.75 +16 56.4 19.2	-0.96 + 1.9	1.8/09.2	21251
(9872)	1999 01 06.2	07 06.98 +33 22.4 17.9	-1.24 + 1.5	4.2/05.2	33462	1992 EJ ₂₄	1999 01 08.6	07 17.82 +14 57.5 17.0	-1.09 + 7.6	3.2/10.0	33547
1993 QA ₉	1999 01 06.3	07 07.47 +19 45.7 18.3	-1.06 + 2.5	0.9/06.6	30897	1991 TJ ₂	1999 01 08.7	07 18.00 +29 48.0 17.0	-1.28 + 3.3	2.8/07.9	30290
1997 QN ₄	1999 01 06.3	07 07.58 +19 13.3 17.2	-0.93 + 2.0	1.2/06.7	33557	1997 UG ₇	1999 01 08.7	07 18.30 +38 05.2 16.5	-1.24 - 1.3	6.1/07.5	31147
1994 UU ₁	1999 01 06.3	07 07.66 +30 01.8 17.8	-1.25 + 2.4	2.8/05.6	33489	2190 T-1	1999 01 08.7	07 18.39 +30 08.5 17.3	-1.11 + 2.7	3.3/07.9	22087
1995 DA	1999 01 06.3	07 07.75 +33 55.1 16.6	-1.11 + 3.5	4.4/05.1	33553	2818 P-L	1999 01 08.8	07 18.40 +29 21.1 18.2	-1.19 + 3.1	2.8/08.0	33588
4805 P-L	1999 01 06.4	07 08.02 +26 21.4 18.2	-1.17 + 2.0	1.5/06.1	33588	1998 YE ₃	1999 01 08.8	07 18.45 +21 09.0 16.7	-1.17 - 2.7	0.5/08.9	33532
1991 TD ₆	1999 01 06.4	07 08.16 +20 51.8 17.5	-1.21 + 0.4	0.8/06.6	24390	1989 CW ₂	1999 01 08.8	07 18.72 +15 19.8 16.7	-0.90 - 0.2	2.1/09.5	33542
1997 PE ₂	1999 01 06.5	07 08.63 +05 56.0 19.0	-0.96 + 5.5	5.2/08.9	30789	1995 OX	1999 01 08.8	07 18.81 +20 19.5 19.0	-1.02 - 2.8	0.6/09.0	33553
1996 HW ₈	1999 01 06.5	07 08.70 +10 43.1 17.6	-0.96 + 1.1	4.0/07.7	28863	1996 HD ₂₁	1999 01 08.9	07 19.11 +26 58.4 18.1	-1.04 + 2.6	1.5/08.4	33555
1992 RE ₆	1999 01 06.5	07 08.76 +24 59.2 17.6	-0.97 + 2.5	0.9/06.3	33482	1991 VE ₅	1999 01 09.0	07 19.22 +21 58.3 17.3	-1.20 + 3.8	0.1/09.0	33337
1994 AN ₁₅	1999 01 06.6	07 08.89 +27 02.5 16.9	-1.01 - 0.9	1.5/06.3	33487	1998 YF ₃	1999 01 09.0	07 19.24 +22 05.3 16.6	-1.11 - 0.3	0.0/09.0	33532
1981 ED ₂₀	1999 01 06.7	07 09.62 +32 23.0 16.9	-1.14 + 0.8	5.0/06.0	33473	1981 EX ₂₀	1999 01 09.0	07 19.32 +12 30.8 18.7	-0.90 + 2.9	3.1/10.2	26918
1985 SM ₃	1999 01 06.8	07 09.74 +25 19.9 15.9	-1.27 - 0.6	1.4/06.6	33541	1998 UU ₆	1999 01 09.0	07 19.34 +37 58.7 16.5	-1.25 + 5.4	5.9/06.9	33572
1994 PV ₂₉	1999 01 06.8	07 10.11 +16 51.9 19.2	-1.16 + 1.5	2.4/07.4	32459	4226 P-L	1999 01 09.0	07 19.36 +20 53.9 17.6	-1.09 + 1.0	0.6/09.2	16439
(9835)	1999 01 06.9	07 10.30 +38 25.8 16.1	-1.17 + 1.9	6.9/05.5	33454	1996 GR	1999 01 09.0	07 19.74 +23 05.8 17.1	-1.15 + 3.8	0.4/09.0	33554
4064 T-2	1999 01 06.9	07 10.34 +08 09.1 17.2	-1.05 + 3.2	6.2/08.5	33589	(8219)	1999 01 09.2	07 20.17 +08 06.3 16.6	-0.93 + 1.5	5.1/10.8	31091
1998 YL ₈	1999 01 06.9	07 10.39 +26 26.9 16.2	-1.16 + 7.2	1.6/06.4	33533	1997 SA ₃	1999 01 09.2	07 20.49 +16 46.4 18.4	-0.95 + 1.8	1.8/09.9	33557
1997 UA ₂₁	1999 01 07.0	07 10.69 +07 59.6 18.0	-0.97 + 1.0	5.0/08.4	31148	(8103)	1999 01 09.2	07 20.57 +12 15.9 17.9	-0.87 + 2.1	3.1/10.4	30967
1987 SM ₁₂	1999 01 07.1	07 11.11 +23 59.0 17.2	-0.97 + 1.4	0.5/07.0	33541	1992 EH ₄	1999 01 09.2	07 20.58 +20 53.8 16.5	-1.07 + 4.1	0.6/09.5	33547
1996 FB ₅	1999 01 07.1	07 11.23 -11 47.7 19.4	-1.05 + 2.3	12.4/10.0	27560	1992 WK ₁	1999 01 09.3	07 20.66 +36 58.0 16.3	-1.05 + 6.7	5.1/06.9	33548
1987 UT ₁	1999 01 07.1	07 11.36 +24 27.2 19.1	-1.27 - 0.2	0.8/07.0	30780	(8427)	1999 01 09.3	07 21.02 +11 57.0 16.8	-0.84 + 4.4	3.4/10.8	31371
6064 P-L	1999 01 07.2	07 11.41 +03 40.4 15.9	-0.87 + 1.7	8.0/09.2	30797	1993 GC ₁	1999 01 09.4	07 21.21 +27 39.2 16.6	-1.20 + 3.7	2.1/08.8	33549
1992 BU ₄	1999 01 07.2	07 11.44 +11 21.4 18.8	-1.10 + 4.4	5.1/08.7	30290	1989 PU	1999 01 09.4	07 21.25 +00 00.3 18.3	-1.01 + 9.3	7.1/13.8	30894
1981 EX ₁₄	1999 01 07.2	07 11.60 +09 50.3 19.9	-0.90 + 1.1	4.0/08.4	30779	1989 TU ₁	1999 01 09.4	07 21.41 +15 58.2 15.0	-1.02 - 1.9	2.9/10.0	33543
1989 PK	1999 01 07.3	07 11.83 +43 51.0 17.9	-1.44 - 2.9	7.1/06.5	33543	1993 SB ₁₅	1999 01 09.5	07 21.49 +15 03.7 15.7	-0.96 + 8.6	2.9/10.8	33549
1992 RF ₅	1999 01 07.3	07 11.85 +19 32.9 17.6	-0.94 + 1.9	1.0/07.6	33548	1977 RD ₂	1999 01 09.5	07 21.52 +26 23.0 16.3	-0.99 + 2.4	1.5/09.0	33539
1989 GH ₄	1999 01 07.3	07 12.31 +30 06.1 17.3	-1.22 + 0.9	3.2/06.7	33543	1981 EH ₄₀	1999 01 09.5	07 21.54 +27 53.8 20.6	-1.02 + 1.7	1.9/08.9	26922
1981 TW ₁	1999 01 07.4	07 12.31 +14 57.3 17.4	-1.17 + 0.8	2.8/08.1	33540	1997 WZ ₁₆	1999 01 09.6	07 22.01 +13 33.9 18.4	-0.96 - 0.1	2.9/10.4	33346
6647 P-L	1999 01 07.5	07 12.67 +27 00.2 17.4	-1.17 + 2.2	1.7/07.1	22087	1998 YH ₃	1999 01 09.6	07 22.12 +19 23.7 15.9	-1.22 - 0.1	1.2/09.9	33532
1997 KW	1999 01 07.5	07 12.88 +18 35.5 17.3	-1.20 + 5.0	1.5/08.0	30087	1993 UW ₈	1999 01 09.6	07 22.13 +25 11.5 18.7	-1.04 + 3.3	1.0/09.3	27558
1997 SE ₄	1999 01 07.6	07 13.22 +25 02.0 17.8	-0.97 + 1.5	0.9/07.4	33504	1981 EX ₃₁	1999 01 09.6	07 22.30 +14 04.3 17.7	-0.93 + 2.7	2.8/10.7	26921
1996 HL ₁₂	1999 01 07.7	07 13.96 +23 12.9 18.4	-1.14 + 1.9	0.3/07.7	27561	(8314)	1999 01 09.9	07 23.56 +20 15.8 17.5	-0.87 + 1.9	0.5/10.0	31221

1996 FL ₅	1999 01 09.9	07 23.62 +34 23.9 17.3	-1.28 + 3.1	5.0/08.4	33554	1996 NS	1999 01 12.1	07 32.72 +16 00.8 18.2	-0.84 + 4.0	1.7/13.0	30984
1991 EL ₄	1999 01 10.0	07 23.61 +04 11.3 18.0	-0.90 + 2.7	5.6/12.2	30895	1991 XK	1999 01 12.1	07 32.91 +14 27.1 16.3	-1.13 + 0.3	3.4/12.9	33546
1990 OF ₂	1999 01 10.0	07 23.67 +29 29.3 18.0	-1.24 + 1.2	2.8/09.3	33543	1993 SO ₁₄	1999 01 12.1	07 33.02 +17 51.1 19.8	-1.06 + 2.7	1.3/12.6	30900
1994 PL ₁₃	1999 01 10.0	07 23.69 +29 02.2 17.9	-1.31 - 0.6	3.2/09.5	33550	1990 QK ₄	1999 01 12.2	07 33.20 +18 31.4 18.0	-1.12 + 3.4	1.3/12.6	28885
1993 TL ₂₅	1999 01 10.0	07 23.81 +21 48.8 18.0	-1.04 + 3.1	0.1/10.1	31139	1995 CL ₁	1999 01 12.2	07 33.31 +13 45.0 16.4	-0.97 + 7.6	3.1/13.6	24907
3074 T-1	1999 01 10.0	07 24.03 +29 45.6 19.0	-0.95 + 1.3	2.6/09.2	32343	1997 RB ₉	1999 01 12.2	07 33.34 +26 19.2 18.2	-1.07 + 1.2	1.5/11.7	33503
(9848)	1999 01 10.1	07 24.20 +20 39.4 16.4	-1.15 + 2.0	0.5/10.3	33457	1988 VM ₃	1999 01 12.3	07 33.63 +25 11.8 17.1	-1.26 + 2.2	1.4/11.9	33542
1997 LQ ₂	1999 01 10.2	07 24.46 -02 49.2 19.4	-1.17 - 2.7	9.0/12.2	30903	1981 EZ ₃₀	1999 01 12.3	07 33.69 +24 36.6 17.8	-1.01 + 1.4	1.1/12.0	33540
2626 P-L	1999 01 10.2	07 24.59 +20 02.2 18.0	-0.90 + 2.2	0.6/10.5	33383	1989 US ₁	1999 01 12.4	07 34.00 +43 35.3 17.0	-1.31 + 2.2	8.1/09.8	33543
1995 HR	1999 01 10.2	07 24.75 +06 42.9 17.9	-0.78 + 1.6	4.0/12.1	28889	1990 KX	1999 01 12.4	07 34.27 +22 44.4 16.6	-1.17 + 4.8	0.4/12.3	33543
1992 EN ₁₇	1999 01 10.3	07 24.92 +26 11.6 16.5	-1.08 + 3.7	2.1/09.8	33547	1997 QH ₁	1999 01 12.4	07 34.48 +19 28.4 17.0	-1.20 + 0.6	0.9/12.7	33502
1979 MV ₄	1999 01 10.3	07 25.14 +18 57.0 18.3	-1.16 + 0.9	1.2/10.6	30778	1988 RN ₄	1999 01 12.6	07 35.00 +33 42.6 17.9	-1.17 + 0.5	3.8/11.2	31004
1979 QF ₁	1999 01 10.3	07 25.19 +19 14.5 17.2	-1.14 + 2.3	1.2/10.7	33473	1994 TF ₁₅	1999 01 12.6	07 35.26 +23 22.2 17.3	-1.20 + 1.9	0.6/12.5	31277
(9901)	1999 01 10.3	07 25.27 +17 52.7 17.3	-1.14 + 0.2	1.7/10.8	33469	6774 P-L	1999 01 12.7	07 35.29 +41 49.3 20.4	-1.26 + 1.5	6.5/10.1	32731
(8250)	1999 01 10.4	07 25.41 +39 46.5 17.7	-1.07 - 0.6	4.7/08.8	31208	1996 TZ ₃₆	1999 01 12.7	07 35.61 +19 04.3 18.8	-0.57 + 1.2	0.5/13.1	28309
6629 P-L	1999 01 10.4	07 25.52 +17 49.5 17.2	-0.56 + 1.4	0.8/11.0	33589	1978 RR ₈	1999 01 12.7	07 35.65 +03 25.8 15.9	-0.85 + 7.3	9.1/16.3	33539
1993 TY ₃₄	1999 01 10.4	07 25.78 +27 49.3 19.4	-1.07 + 2.4	1.9/09.8	27557	2343 T-3	1999 01 12.8	07 35.94 +23 08.1 19.3	-0.95 + 1.9	0.5/12.7	30776
1994 XH	1999 01 10.5	07 26.04 +23 57.6 17.4	-1.15 + 1.3	0.8/10.4	33552	1994 PZ	1999 01 12.8	07 36.04 +18 26.7 18.0	-1.18 + 3.7	1.2/13.3	31140
1992 RZ	1999 01 10.5	07 26.10 +21 43.4 17.0	-0.95 + 1.6	0.1/10.6	33548	1981 EM ₃₁	1999 01 12.8	07 36.05 +19 59.2 19.3	-1.08 + 2.8	0.6/13.1	33332
1997 PK ₂	1999 01 10.6	07 26.56 +24 06.7 17.9	-1.16 + 0.2	0.8/10.5	33500	1993 FE ₂₃	1999 01 12.8	07 36.14 +35 54.5 16.6	-1.36 + 0.7	5.9/11.4	29944
1998 XL ₁₇	1999 01 10.7	07 26.68 +30 03.2 16.9	-1.15 + 4.4	3.3/09.6	33531	1990 UR	1999 01 12.9	07 36.21 +23 59.2 17.0	-1.16 + 1.9	0.9/12.6	30687
1986 QS ₃	1999 01 10.8	07 27.42 +13 38.8 17.4	-0.85 + 4.2	2.5/12.1	33541	1997 UU ₇	1999 01 13.0	07 36.83 +13 28.9 17.9	-1.06 + 4.0	3.0/14.2	33558
1997 QC ₁	1999 01 10.8	07 27.49 +17 09.8 18.4	-1.10 + 3.0	1.8/11.5	31280	1981 DF ₃	1999 01 13.1	07 37.10 +25 59.4 19.5	-1.04 + 0.1	1.3/12.6	26914
1996 HU ₂₅	1999 01 10.8	07 27.53 +20 33.0 17.2	-0.99 + 3.1	0.5/11.1	33495	4028 P-L	1999 01 13.1	07 37.35 +08 36.5 16.8	-0.96 + 2.2	5.6/15.0	33588
5080 T-2	1999 01 10.9	07 27.62 +18 16.0 19.3	-1.15 + 0.5	1.4/11.3	33059	1981 EP ₃₁	1999 01 13.2	07 37.64 +27 17.3 20.0	-1.12 + 2.4	1.9/12.5	26921
1988 RZ ₂	1999 01 10.9	07 27.85 +29 02.4 19.0	-1.03 + 1.9	2.1/10.1	33542	1996 RU ₂₅	1999 01 13.2	07 37.88 +20 47.8 19.2	-0.82 + 2.0	0.2/13.4	29319
1996 FQ ₄	1999 01 11.0	07 27.95 +15 19.0 16.6	-1.07 + 3.4	3.0/11.8	33554	1990 RW ₈	1999 01 13.3	07 37.99 +19 51.9 19.0	-1.15 + 0.5	0.6/13.5	30686
1069 T-2	1999 01 11.0	07 28.39 +17 48.1 20.8	-1.12 + 2.1	1.5/11.6	30682	1997 WP ₂₈	1999 01 13.4	07 38.45 +17 21.5 17.9	-0.94 - 0.2	1.4/13.9	33558
4838 P-L	1999 01 11.1	07 28.78 +25 13.0 16.4	-1.07 + 2.3	1.8/10.8	33534	1992 ER ₁₂	1999 01 13.4	07 38.63 +17 28.8 17.4	-1.09 + 2.6	1.6/14.0	27729
1997 RE ₃	1999 01 11.1	07 28.85 +24 30.8 16.6	-0.96 + 0.3	0.9/10.9	33503	1997 TS ₁₇	1999 01 13.5	07 38.76 +08 01.8 17.6	-0.85 + 1.8	4.1/15.3	30988
1976 SS ₂	1999 01 11.1	07 28.86 +27 27.8 17.1	-1.21 + 2.3	2.1/10.6	33539	1994 PS ₁₆	1999 01 13.7	07 40.11 +13 09.1 19.2	-1.11 + 5.2	3.5/15.1	29945
1994 UZ	1999 01 11.2	07 28.94 +24 44.4 16.8	-1.17 + 1.5	1.3/10.9	33551	1998 WR ₂₈	1999 01 13.7	07 40.12 +17 29.2 17.5	-1.11 - 0.3	1.7/14.2	33528
1989 GL	1999 01 11.2	07 29.16 +61 28.2 17.0	-2.01 + 2.3	17.5/03.0	33476	1993 FJ ₁₆	1999 01 13.7	07 40.14 +25 25.2 16.6	-1.20 + 4.0	1.5/13.2	33548
1991 PO ₄	1999 01 11.2	07 29.19 +19 41.0 17.1	-0.89 + 2.4	0.7/11.6	33545	1997 NM ₁₀	1999 01 13.8	07 40.05 +18 05.7 19.3	-1.19 - 1.0	1.2/14.1	33499
1997 MV ₁	1999 01 11.3	07 29.33 +12 12.4 22.8	-1.05 + 2.5	3.1/12.5	30788	1981 QF	1999 01 13.9	07 40.53 +25 53.9 17.9	-1.13 + 1.6	1.6/13.4	33540
1990 QA ₁	1999 01 11.4	07 29.65 +17 53.3 17.6	-1.11 + 1.8	1.4/11.8	30653	4164 T-1	1999 01 13.9	07 40.61 +24 46.8 17.6	-0.96 + 2.4	1.1/13.5	33056
1995 BW ₁	1999 01 11.4	07 29.88 +15 40.1 16.8	-0.90 + 8.6	2.9/12.6	33552	1282 T-2	1999 01 13.9	07 40.75 +20 13.9 17.7	-0.95 + 2.0	0.4/14.1	22087
1988 PG ₁	1999 01 11.4	07 30.19 +29 42.9 17.6	-1.12 - 0.9	2.5/10.8	33542	1996 DR	1999 01 14.0	07 41.04 +11 04.0 16.3	-1.10 + 5.7	4.3/15.6	27457
1982 UU ₈	1999 01 11.5	07 30.08 +12 25.8 18.0	-1.07 + 0.8	3.3/12.5	21103	1990 WE ₉	1999 01 14.0	07 41.43 +18 26.8 17.9	-1.08 + 3.5	1.1/14.5	33545
1981 EQ ₄₁	1999 01 11.5	07 30.21 +27 38.7 19.5	-1.04 + 0.8	2.1/10.9	26922	1994 UT	1999 01 14.1	07 41.74 +17 42.4 17.1	-1.14 + 0.6	1.6/14.6	33551
(9830)	1999 01 11.5	07 30.60 +13 28.2 17.5	-1.14 - 0.4	3.8/12.3	33452	1993 FX ₅₂	1999 01 14.2	07 41.91 +18 08.1 18.2	-1.15 + 5.0	1.4/14.7	33548
1981 EG ₂	1999 01 11.8	07 31.56 +07 36.6 18.7	-0.93 - 1.5	6.2/13.1	30779	1979 MO ₇	1999 01 14.2	07 42.04 +13 20.9 18.8	-0.85 + 1.4	2.6/15.3	21561
1997 SK ₂₅	1999 01 11.8	07 31.56 +08 41.7 17.6	-0.85 + 3.4	4.3/13.8	33506	(8294)	1999 01 14.2	07 42.10 +09 44.7 16.0	-0.88 + 0.3	4.0/15.7	31217
1996 ER ₁₂	1999 01 11.8	07 31.57 +16 51.4 18.2	-1.17 + 0.9	2.0/12.4	33343	1985 QD ₆	1999 01 14.3	07 42.49 +20 13.4 18.6	-1.06 + 4.2	8.5/04.0	33541
1989 SS ₁	1999 01 11.8	07 31.70 +25 56.5 19.8	-1.06 + 2.8	1.3/11.3	30894	1993 FT ₃₁	1999 01 14.4	07 42.95 +15 49.4 17.3	-1.14 + 5.2	2.2/15.3	33548
1995 SW ₄₈	1999 01 11.8	07 31.80 -19 38.1 18.0	-1.36 - 7.4	20.1/14.0	30472	1998 WX ₂₆	1999 01 14.4	07 43.02 +21 18.5 18.3	-1.15 + 3.9	0.0/14.5	33528
(8064)	1999 01 11.8	07 31.86 +32 08.7 18.1	-1.03 + 1.5	3.0/10.6	30959	2505 P-L	1999 01 14.4	07 43.04 +32 52.4 17.5	-1.22 + 0.9	5.1/13.1	33534
1987 UR	1999 01 11.8	07 31.88 +31 39.0 16.8	-1.04 + 1.8	3.8/10.7	33542	1994 WP ₃	1999 01 14.4	07 43.10 +25 52.2 17.5	-1.18 + 6.1	1.8/13.7	33552
1981 EQ ₄₆	1999 01 11.8	07 31.90 +16 30.3 18.0	-0.94 + 3.1	1.9/12.6	26923	1997 SO ₁₇	1999 01 14.5	07 43.48 +18 45.3 17.4	-0.93 + 2.7	0.8/15.0	33557
1996 JK ₁₆	1999 01 11.9	07 32.11 +15 01.9 16.9	-0.95 + 4.7	2.4/13.0	33555	1994 CX ₁₀	1999 01 14.5	07 43.55 +21 50.0 18.5	-0.86 + 2.7	0.2/14.5	33240
1992 PG ₂	1999 01 12.0	07 32.31 +10 34.4 19.0	-0.88 + 2.3	3.1/13.5	29943	1989 CB ₈	1999 01 14.5	07 43.58 +24 39.0 16.8	-1.19 + 2.2	1.5/14.2	33542

1979 MG ₇	1999 01 14.6	07 43.53 +17 24.6	19.3	-0.97	+	2.8	1.3/15.2	30779
9519 P-L	1999 01 14.7	07 44.21 +28 22.7	19.1	-1.02	+	2.5	2.3/13.7	31023
1981 EU ₄₁	1999 01 14.7	07 44.32 +17 02.8	17.6	-1.03	+	2.7	2.0/15.4	33540
1990 OH ₂	1999 01 14.8	07 44.51 +26 45.3	17.7	-0.88	+	1.6	1.4/14.1	33543
1139 T-2	1999 01 14.8	07 44.57 +12 07.4	19.2	-0.88	+	2.7	2.7/16.2	27939
1987 UE ₁	1999 01 15.0	07 45.43 -20 12.2	18.4	-1.01	+	4.4	16.3/25.5	31273
1984 QM	1999 01 15.0	07 45.48 +23 41.4	17.9	-1.21	+	1.9	0.9/14.7	33540
1982 OF	1999 01 15.0	07 45.71 +22 12.2	16.9	-1.14	+	1.5	0.4/15.0	33540
1989 SZ ₂	1999 01 15.1	07 46.00 +05 27.2	18.2	-0.95	+	4.4	5.7/17.9	30686
1997 SG ₁₆	1999 01 15.1	07 46.04 +18 30.1	16.9	-0.93	+	2.5	0.9/15.6	33557
1986 PU ₁	1999 01 15.2	07 46.13 +24 26.2	18.3	-1.14	+	2.8	1.2/14.8	30288
6113 P-L	1999 01 15.2	07 46.39 +22 16.4	18.6	-1.03	+	2.3	0.4/15.1	33589
1998 UN ₃₂	1999 01 15.2	07 46.53 +14 37.3	16.1	-1.06	-	2.8	2.7/15.8	33514
1989 SA	1999 01 15.2	07 46.55 +34 28.1	17.2	-1.15	+	6.6	5.0/12.9	33543
1994 AB ₂	1999 01 15.3	07 46.55 +20 08.4	16.9	-0.92	+	2.2	0.4/15.5	33550
1997 SN ₃₁	1999 01 15.3	07 46.56 +29 46.5	17.3	-1.25	+	1.9	3.6/14.2	31012
1995 FP ₁₄	1999 01 15.3	07 46.58 +24 01.0	18.6	-0.93	+	3.2	0.9/14.9	30901
1994 VB ₇	1999 01 15.5	07 47.51 +16 07.3	16.5	-1.06	+	2.4	2.3/16.2	33341
1993 NJ ₁	1999 01 15.6	07 47.98 +19 33.0	19.2	-1.06	+	3.7	0.5/15.9	33549
1996 CK ₉	1999 01 15.6	07 48.01 +14 43.3	17.9	-1.07	+	4.8	2.4/16.7	30784
1997 RX ₆	1999 01 15.6	07 48.17 +23 58.4	17.1	-0.95	+	2.3	1.0/15.3	33557
1981 EB ₃₉	1999 01 15.6	07 48.18 +08 27.1	19.9	-1.02	+	3.5	4.4/17.5	30893
1990 TG ₁₃	1999 01 15.6	07 48.27 +38 27.1	16.8	-1.13	+	7.6	8.3/12.2	33544
1988 VE ₁	1999 01 15.7	07 48.28 +32 30.1	17.5	-1.03	+	3.0	3.5/14.0	31004
1996 ES ₂	1999 01 15.7	07 48.67 +28 29.5	16.3	-1.27	+	1.1	3.0/14.9	33493
1975 VV ₂	1999 01 15.8	07 48.72 +43 28.1	17.9	-1.07	+	2.7	6.1/12.2	33539
(9732)	1999 01 15.8	07 48.98 +22 16.0	16.5	-1.25	-	0.8	0.5/15.7	33195
1995 AK	1999 01 15.9	07 49.14 +26 52.7	17.3	-1.06	+	4.4	2.4/15.0	25071
1995 SS	1999 01 15.9	07 49.36 -24 06.1	18.2	-1.31	-	4.3	21.2/20.0	30901
1991 YN ₁	1999 01 16.0	07 49.60 +18 38.4	17.2	-1.17	-	1.0	1.1/16.3	33480
3252 T-1	1999 01 16.0	07 49.65 +18 35.3	18.8	-1.10	+	2.2	0.9/16.4	22701
1996 PT ₁	1999 01 16.0	07 49.81 +19 41.6	19.8	-0.82	+	3.3	0.4/16.3	33496
1997 PJ ₂	1999 01 16.0	07 49.82 +19 54.3	19.5	-1.03	+	4.3	0.4/16.2	33556
1997 UH	1999 01 16.0	07 49.86 +06 22.0	17.9	-0.92	+	5.8	5.1/18.7	33558
1995 BU ₂	1999 01 16.1	07 50.04 +22 37.7	15.9	-1.14	-	1.9	0.6/16.0	33552
1997 PF ₄	1999 01 16.1	07 50.24 +22 31.5	17.3	-1.09	+	0.6	0.6/16.0	30678
(8101)	1999 01 16.2	07 50.44 +24 25.2	17.1	-0.95	+	3.3	1.2/15.7	30967
1994 SN ₉	1999 01 16.2	07 50.73 +10 26.0	18.1	-1.10	+	4.1	4.2/17.9	32941
1996 TT ₃₈	1999 01 16.3	07 50.84 +22 01.2	17.9	-0.86	+	2.8	0.3/16.1	33555
1993 KC	1999 01 16.3	07 51.02 -16 30.4	20.3	-1.14	-	1.7	12.7/19.6	22700
1997 TL ₆	1999 01 16.3	07 51.08 +24 10.3	19.2	-1.07	+	3.6	1.1/15.9	33558
1994 XK	1999 01 16.3	07 51.15 +28 24.5	17.5	-1.15	+	3.7	2.7/15.2	33074
1995 BJ ₅	1999 01 16.4	07 51.49 +20 55.9	18.5	-1.04	+	3.9	0.0/16.5	33491
1997 LR	1999 01 16.5	07 51.83 +19 25.1	20.4	-1.16	+	5.6	0.6/16.8	30088
1989 XD ₂	1999 01 16.6	07 52.27 +19 11.6	17.7	-1.01	+	5.8	0.7/16.9	33543
1981 EO ₃₃	1999 01 16.6	07 52.30 -03 22.3	19.2	-0.87	+	3.2	9.0/20.6	26921
1996 HX ₁₂	1999 01 16.6	07 52.53 +11 17.8	18.3	-0.95	+	2.7	3.1/18.1	27561
1997 PQ	1999 01 16.7	07 52.83 +19 29.7	17.1	-1.11	+	6.2	0.7/17.0	33556
1994 PF ₂₂	1999 01 16.7	07 52.87 +28 23.9	16.8	-1.29	+	0.7	3.1/15.9	33551
1997 SN ₁₁	1999 01 16.7	07 52.87 +21 17.0	19.3	-0.92	+	2.5	0.1/16.7	33505
1991 RZ ₁₀	1999 01 16.7	07 53.01 +22 47.8	19.3	-0.83	+	2.5	0.5/16.5	33546

(8100)	1999 01 16.8	07 53.23 +20 58.7	16.6	-0.96	+	3.8	0.0/16.8	30967
1984 QB	1999 01 16.9	07 53.41 +24 45.0	17.4	-1.06	+	0.4	1.2/16.4	33540
1992 WF ₁	1999 01 16.9	07 53.54 +24 55.5	16.2	-0.90	+	5.2	1.2/16.2	33548
1979 MP ₄	1999 01 16.9	07 53.65 +14 55.1	19.9	-0.96	+	2.5	2.0/17.8	31003
1997 NH	1999 01 17.1	07 54.66 +16 46.5	18.7	-1.00	+	4.5	1.7/17.9	30284
1991 PR ₁	1999 01 17.1	07 54.67 +23 32.5	16.6	-1.02	-	1.5	1.0/16.9	23339
1977 DQ ₃	1999 01 17.1	07 54.71 +23 35.1	17.0	-0.90	+	2.9	1.0/16.8	33539
1981 EE ₁₅	1999 01 17.2	07 54.66 +19 00.4	19.0	-0.98	+	0.8	0.7/17.4	33540
1996 EP ₇	1999 01 17.2	07 54.93 +24 57.8	20.8	-1.17	+	2.7	1.5/16.6	30762
1990 WX ₁	1999 01 17.4	07 55.66 +15 23.9	18.4	-1.03	+	5.0	2.0/18.4	30781
1990 WZ ₁	1999 01 17.4	07 55.72 +15 09.1	18.8	-1.03	+	4.1	1.9/18.4	31005
1995 FL ₂₁	1999 01 17.4	07 55.74 +36 53.5	19.8	-1.03	+	2.4	4.7/14.9	30983
(9864)	1999 01 17.4	07 55.85 +19 26.9	17.6	-0.85	+	2.1	0.4/17.7	33460
1998 YN ₅	1999 01 17.5	07 56.05 +22 24.0	17.1	-1.02	+	8.0	0.6/17.2	33533
1997 SQ	1999 01 17.5	07 56.19 +21 39.6	18.9	-0.92	+	2.6	0.3/17.4	33557
1988 MH	1999 01 17.5	07 56.35 +19 11.7	16.5	-1.07	-	0.6	0.5/17.8	33475
6224 P-L	1999 01 17.8	07 57.24 +13 57.6	18.9	-0.92	+	2.5	2.3/18.9	30775
1981 ES ₂₅	1999 01 17.8	07 57.36 +24 06.2	18.5	-1.11	+	3.0	1.2/17.3	26919
1997 SE	1999 01 17.8	07 57.36 +00 28.3	17.5	-0.92	+	7.5	7.8/22.3	33503
1993 TU ₂₄	1999 01 17.9	07 57.85 +31 02.5	16.5	-1.10	+	4.0	3.8/16.2	31788
1994 YD	1999 01 17.9	07 57.94 +18 45.0	16.7	-1.17	-	3.9	0.9/18.1	33490
1978 SE ₃	1999 01 17.9	07 58.01 +15 49.1	17.5	-1.04	+	2.9	1.7/18.7	33539
1997 TM ₂₀	1999 01 17.9	07 58.03 +43 56.6	20.0	-1.11	+	2.4	7.2/13.9	31013
1980 PC ₃	1999 01 17.9	07 58.05 +39 11.7	18.0	-1.18	+	4.8	5.9/14.7	33473
1990 OV	1999 01 18.0	07 58.17 +10 14.5	17.9	-1.07	+	3.0	3.9/19.6	26925
1995 AZ ₃	1999 01 18.0	07 58.23 +24 07.1	16.8	-1.12	+	1.3	1.3/17.6	33074
1981 JM ₂	1999 01 18.0	07 58.27 +18 06.5	18.3	-1.05	+	2.9	0.9/18.4	33065
1997 VV	1999 01 18.0	07 58.52 +04 41.4	16.3	-0.83	+	0.4	4.9/20.4	33558
(8110)	1999 01 18.0	07 58.57 +23 26.3	16.6	-1.05	+	1.5	1.0/17.7	30969
1997 SO ₁₁	1999 01 18.2	07 59.13 +22 55.6	19.7	-1.02	+	2.5	0.9/17.9	33505
1996 EE ₂	1999 01 18.3	07 59.41 +13 47.0	17.3	-1.09	+	4.5	2.9/19.5	33554
1997 TV ₁₂	1999 01 18.3	07 59.71 +20 55.9	18.8	-0.92	+	2.4	0.1/18.3	33506
1990 SY ₈	1999 01 18.3	07 59.83 +26 30.3	19.1	-1.15	+	3.8	2.1/17.4	24582
1997 TJ ₂₄	1999 01 18.4	08 00.01 +07 17.8	16.5	-0.85	+	1.4	4.5/20.5	31146
1997 YZ	1999 01 18.4	08 00.10 -02 55.1	16.9	-0.85	-	0.6	7.6/21.6	33558
1997 PN ₅	1999 01 18.5	08 00.33 +18 52.8	16.1	-1.13	-	1.8	0.6/18.7	33501
3025 T-2	1999 01 18.5	08 00.40 +20 16.3	17.9	-1.14	+	4.5	0.1/18.6	33589
(8674)	1999 01 18.5	08 00.67 +08 46.4	17.5	-0.80	+	1.1	3.2/20.4	31681
1993 KO	1999 01 18.5	08 00.69 +10 22.9	16.7	-1.10	+	3.4	4.3/20.0	30897
1997 UC	1999 01 18.6	08 01.12 +00 23.8	19.3	-0.94	+	4.2	6.6/22.4	31146
1997 QE ₂	1999 01 18.7	08 01.27 +28 26.5	17.3	-1.02	+	2.7	2.9/17.5	33557
1995 BS ₁	1999 01 18.7	08 01.50 +13 31.8	15.6	-0.96	+	9.4	2.7/20.3	33552
1989 GQ ₁	1999 01 18.9	08 02.37 +17 56.3	18.4	-1.08	+	2.7	0.9/19.4	33067
1993 VE	1999 01 19.0	08 02.48 +40 10.9	17.0	-1.18	+	3.2	6.1/15.6	30900
1989 SU	1999 01 19.0	08 02.54 +19 46.6	17.4	-1.03	+	2.0	0.2/19.1	33543
1990 ST ₈	1999 01 19.0	08 02.69 +25 37.0	18.8	-1.14	+	3.6	1.8/18.2	33544
1997 WR ₄₉	1999 01 19.4	08 04.42 +19 19.5	18.6	-0.80	+	2.6	0.3/19.7	33558
1991 RQ ₁₄	1999 01 19.5	08 04.55 +22 45.3	18.5	-0.86	+	2.7	0.7/19.1	33546
1992 AQ	1999 01 19.5	08 04.66 +32 53.7	16.8	-1.09	+	27.7	6.0/15.1	33480
1996 HT ₂	1999 01 19.7	08 05.35 -00 18.3	18.3	-0.96	+	3.4	7.4/23.3	31009
1996 GJ ₂	1999 01 19.7	08 05.35 +14 12.3	19.0	-1.04	+	3.6	2.1/20.7	33554

5148 T-2	1999 01 19.7	08 05.43 +22 09.9	17.4 -1.21 + 1.0	0.7/19.5	33589	1992 DB ₉	1999 01 22.3	08 16.46 +31 02.8	17.8 -1.18 + 2.4	4.1/20.4	33547
4050 T-3	1999 01 19.7	08 05.52 +17 48.4	17.1 -0.99 + 5.6	1.0/20.2	19332	1990 TY ₇	1999 01 22.3	08 16.74 +25 19.9	17.4 -1.09 + 3.3	2.5/21.4	33544
1993 FX ₇₇	1999 01 19.7	08 05.61 +16 34.7	17.2 -1.17 + 2.8	1.4/20.0	24109	1981 EL ₉	1999 01 22.4	08 16.90 +34 35.1	18.6 -1.01 - 0.8	4.5/20.3	26916
1993 TD ₂₅	1999 01 19.7	08 05.73 +24 49.9	18.5 -1.04 + 3.5	1.5/19.0	32516	1993 SX ₄	1999 01 22.4	08 16.95 +16 26.9	16.2 -1.03 + 4.4	1.4/23.0	33549
(9870)	1999 01 19.9	08 06.18 +27 12.6	16.0 -1.17 + 3.5	3.1/18.7	33462	1997 SD ₂₅	1999 01 22.4	08 17.03 +04 24.2	16.4 -0.81 + 3.6	5.1/25.5	31280
1992 EW ₂	1999 01 19.9	08 06.48 +23 26.9	20.1 -1.13 + 3.5	1.2/19.4	33547	1979 MG ₄	1999 01 22.4	08 17.19 +18 07.8	17.7 -0.85 + 3.1	0.5/22.8	33539
1978 UP ₂	1999 01 20.0	08 06.66 +35 23.3	16.9 -1.32 + 3.5	5.8/17.5	33539	1988 NU	1999 01 22.4	08 17.22 +12 58.8	18.9 -0.94 + 2.8	2.1/23.7	30894
1992 LJ	1999 01 20.0	08 06.68 +17 23.6	17.4 -1.02 + 4.4	1.0/20.5	31275	1998 WS	1999 01 22.6	08 17.6 +78 29.3	14.4 -2.95 -13.5	31.4/04.0	33519
1995 FU ₁₂	1999 01 20.0	08 07.05 +23 03.5	18.6 -0.94 + 2.6	0.9/19.6	31728	1997 SG ₂₁	1999 01 22.6	08 17.64 +05 23.9	16.9 -0.82 + 2.8	4.4/25.3	30881
1995 JD	1999 01 20.2	08 07.82 +12 41.2	17.5 -0.96 + 2.5	3.0/21.5	33553	1989 TY ₂	1999 01 22.6	08 17.68 +25 25.6	17.6 -1.04 + 4.4	2.1/21.5	33477
1997 PS	1999 01 20.3	08 07.91 +22 03.4	18.7 -1.10 - 0.4	0.7/20.1	30768	1998 SV ₂₆	1999 01 22.6	08 17.87 +06 33.5	16.8 -1.03 - 1.4	5.1/24.3	33566
1991 VF ₂	1999 01 20.4	08 08.60 +08 33.1	16.5 -1.02 + 2.7	5.7/22.4	33546	1991 RJ ₂₂	1999 01 22.9	08 18.84 +19 51.1	16.9 -1.17 + 5.6	0.1/22.9	33546
1997 SC	1999 01 20.5	08 08.80 +15 24.6	20.0 -0.93 + 1.6	1.4/21.3	31011	1990 QZ ₈	1999 01 23.0	08 19.27 +19 05.8	16.9 -1.03 + 5.7	0.2/23.1	21974
1992 ED ₁₃	1999 01 20.5	08 08.80 +10 06.0	18.5 -1.02 + 3.8	3.7/22.3	30656	(9672)	1999 01 23.0	08 19.51 +25 05.7	17.6 -0.88 + 2.8	1.7/22.0	32906
1997 RF ₄	1999 01 20.5	08 08.96 +31 54.3	19.7 -1.01 + 2.6	3.4/18.5	31010	1997 SP ₃	1999 01 23.0	08 19.53 +29 32.3	20.0 -1.18 + 2.4	3.4/21.4	31011
1990 XN	1999 01 20.5	08 09.00 +26 47.9	15.5 -1.02 + 6.6	3.0/19.2	33545	1993 OY ₆	1999 01 23.0	08 19.59 +19 46.4	18.1 -1.09 + 5.7	0.1/23.0	33549
(8186)	1999 01 20.5	08 09.11 +15 14.8	16.6 -0.92 + 0.3	1.5/21.3	31083	(8090)	1999 01 23.0	08 19.64 +41 20.0	16.7 -1.07 + 0.9	6.2/19.3	30964
1997 VE	1999 01 20.5	08 09.12 +22 04.3	18.2 -1.02 + 2.7	0.7/20.3	31281	1997 OU ₂	1999 01 23.0	08 19.68 +13 04.8	19.6 -1.04 + 6.2	2.3/24.4	30903
1996 JV	1999 01 20.5	08 09.12 +21 07.1	16.7 -1.07 +10.6	0.3/20.3	33555	2660 P-L	1999 01 23.0	08 19.69 +16 22.1	19.2 -0.84 + 3.1	0.9/23.7	31160
1996 GF ₂₀	1999 01 20.6	08 09.19 +13 36.3	19.1 -1.06 + 3.2	3.0/21.7	30668	1998 BX ₁₃	1999 01 23.1	08 19.83 +20 29.8	17.8 -0.88 + 3.8	0.3/22.9	32683
1981 EO ₁₂	1999 01 20.6	08 09.32 +08 54.8	19.6 -1.01 + 2.8	4.8/22.5	26917	1981 ED ₅	1999 01 23.1	08 19.91 +11 36.6	19.3 -1.08 + 1.2	3.0/24.4	26915
(9888)	1999 01 20.6	08 09.60 +26 14.5	16.7 -1.02 + 3.1	2.1/19.6	33466	1994 PA ₂	1999 01 23.1	08 19.95 +25 02.0	17.5 -1.23 + 2.7	2.2/22.3	33340
1993 LZ ₁	1999 01 20.7	08 09.92 +15 55.6	16.6 -1.11 + 1.3	1.6/21.4	33549	1996 GP ₂	1999 01 23.1	08 19.96 +20 47.9	16.7 -1.05 + 6.1	0.5/22.9	33494
1982 VP ₃	1999 01 20.8	08 10.35 +37 00.9	17.0 -1.02 + 4.5	5.2/17.4	33540	1981 EJ ₃₇	1999 01 23.1	08 20.07 +25 30.2	19.0 -1.18 + 0.2	2.6/22.3	26922
1997 VG ₈	1999 01 20.9	08 10.52 +30 33.8	18.9 -0.96 + 3.8	3.2/19.0	31117	1993 FJ ₅₀	1999 01 23.2	08 20.15 +22 05.5	16.6 -1.19 + 2.8	1.2/22.8	33548
1981 EA ₃₉	1999 01 20.9	08 10.81 +20 32.4	19.5 -1.11 + 2.8	0.2/20.9	23778	1996 GV ₂₀	1999 01 23.2	08 20.17 +19 55.9	16.9 -1.10 + 3.9	0.2/23.1	33554
1981 EP ₄	1999 01 20.9	08 10.87 +01 29.8	18.8 -0.88 + 2.5	6.6/24.3	26915	1994 VT	1999 01 23.3	08 20.73 +21 42.5	16.2 -1.05 + 2.1	1.1/23.0	33551
1981 EL ₂₅	1999 01 21.0	08 11.00 +09 43.9	18.6 -1.00 + 4.5	4.4/22.9	27565	4848 P-L	1999 01 23.3	08 20.79 +16 04.9	18.3 -1.05 + 4.1	1.3/24.0	27457
1985 RU	1999 01 21.0	08 11.06 +28 39.8	17.6 -1.25 - 1.2	2.9/20.0	33541	1107 T-3	1999 01 23.3	08 21.00 +02 26.3	17.9 -0.85 + 1.4	4.9/26.4	33589
1997 TL ₂₁	1999 01 21.1	08 11.30 +23 13.0	20.9 -1.07 + 3.1	1.1/20.6	31989	1990 EN ₁	1999 01 23.3	08 21.01 +08 13.4	17.4 -0.91 + 2.0	3.9/25.3	25213
1984 CP	1999 01 21.1	08 11.52 +18 56.1	16.7 -1.02 + 6.8	0.4/21.4	33540	1997 PY ₂	1999 01 23.4	08 21.04 +27 04.8	18.6 -1.09 + 5.8	2.9/21.9	33500
1997 MA ₃	1999 01 21.1	08 11.78 +26 47.6	17.6 -1.19 + 4.7	2.6/20.0	33499	1992 WH ₂	1999 01 23.4	08 21.16 +02 02.0	16.2 -0.87 + 0.8	5.7/26.3	31232
1998 YS ₇	1999 01 21.2	08 12.02 +46 25.7	16.1 -2.02 -14.0	13.2/22.1	33533	(9718)	1999 01 23.5	08 21.70 +26 42.2	15.8 -1.04 + 6.7	3.4/22.0	33191
(9897)	1999 01 21.3	08 12.39 +18 48.7	16.9 -1.14 + 6.4	0.5/21.6	33468	(9847)	1999 01 23.5	08 21.73 +24 07.9	17.5 -1.15 + 3.3	1.9/22.8	33456
(8231)	1999 01 21.4	08 12.87 +23 48.8	17.0 -0.95 + 3.4	1.3/20.8	31093	(8078)	1999 01 23.5	08 21.79 +13 39.8	17.1 -1.04 + 4.7	2.2/25.0	30962
1997 TE ₁₁	1999 01 21.4	08 12.88 +07 08.0	18.9 -0.88 + 5.1	4.8/24.1	31013	1989 AV ₆	1999 01 23.5	08 21.83 +20 45.0	17.1 -1.11 + 6.2	0.5/23.3	33542
1997 QZ ₂	1999 01 21.5	08 13.18 +22 30.3	16.5 -1.16 + 1.4	1.1/21.2	33557	1986 TQ	1999 01 23.6	08 21.95 +38 10.1	17.3 -1.08 0.0	5.5/20.6	31272
1996 CR ₁	1999 01 21.5	08 13.22 +10 47.4	17.8 -1.06 + 3.9	3.4/23.1	33554	(8236)	1999 01 23.6	08 21.97 +09 29.1	19.1 -0.87 + 2.9	2.8/25.5	31094
1997 TG ₁₉	1999 01 21.6	08 13.39 +23 59.2	18.1 -1.21 + 3.9	1.4/20.9	33558	4264 T-1	1999 01 23.6	08 22.16 +31 35.4	19.3 -0.99 + 2.9	3.5/21.3	31132
1995 DX	1999 01 21.6	08 13.47 +13 11.2	18.5 -0.93 + 7.3	2.4/23.1	27717	1993 VG ₁	1999 01 23.6	08 22.30 +34 00.5	16.1 -1.09 + 5.4	5.3/20.7	33550
1997 RM ₉	1999 01 21.6	08 13.66 +35 44.9	19.1 -1.11 + 1.1	4.8/19.1	31011	1986 TR ₁₁	1999 01 23.7	08 22.23 +07 11.4	17.8 -1.00 + 2.5	3.9/25.9	30868
1995 CP ₃	1999 01 21.6	08 13.77 +16 23.6	20.2 -0.95 + 3.5	1.1/22.3	30901	1989 WN ₂	1999 01 23.7	08 22.25 +03 16.9	16.7 -0.99 + 0.2	6.2/26.3	33477
(8085)	1999 01 21.7	08 14.17 +10 45.0	15.5 -0.90 + 0.7	3.0/23.2	30963	(8197)	1999 01 23.7	08 22.54 +26 21.5	15.6 -0.96 + 5.9	2.6/22.3	31086
3813 T-3	1999 01 21.8	08 14.56 +22 25.6	20.2 -1.04 + 3.2	0.9/21.4	30798	1992 ST ₁	1999 01 23.7	08 22.70 +21 47.8	17.3 -0.96 + 1.6	0.7/23.4	33548
(9730)	1999 01 21.9	08 15.07 +21 59.6	16.0 -1.11 + 4.5	1.0/21.6	33194	1992 TV	1999 01 23.8	08 22.63 +16 45.5	16.9 -0.90 + 3.2	0.9/24.3	33483
1998 SA ₁₃	1999 01 22.0	08 15.57 +15 44.7	17.3 -1.07 - 1.4	1.4/22.6	33566	1994 WW ₇	1999 01 23.8	08 22.87 +12 22.5	17.9 -1.02 + 6.2	3.1/25.0	32943
1996 EK	1999 01 22.1	08 15.85 +13 07.6	16.5 -1.12 + 7.1	2.9/23.5	28318	(8184)	1999 01 23.8	08 22.90 +35 28.3	15.6 -1.00 + 3.6	5.2/20.6	31083
1996 CW ₇	1999 01 22.1	08 15.92 +19 11.5	18.2 -1.12 + 5.6	0.2/22.3	30784	1991 VE ₄	1999 01 23.9	08 23.34 +16 02.7	17.2 -1.12 + 5.9	1.3/24.6	33546
1981 EW ₃₆	1999 01 22.2	08 16.14 +17 28.9	19.3 -0.96 + 1.5	0.8/22.6	33540	1997 TF ₁₉	1999 01 23.9	08 23.43 +22 00.2	18.7 -0.87 + 2.9	0.7/23.5	30989
1978 US ₅	1999 01 22.3	08 16.42 +42 47.3	19.4 -1.14 + 1.9	6.0/18.1	31003	1981 WE ₉	1999 01 24.0	08 23.52 +15 17.7	17.1 -1.12 + 4.7	1.6/25.0	33540
1989 AL ₆	1999 01 22.3	08 16.45 +20 14.2	17.5 -1.13 + 4.5	0.2/22.2	33542	1995 FW ₁₉	1999 01 24.0	08 23.56 +27 13.8	17.5 -1.01 + 2.5	2.6/22.6	33553

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1993 FC ₄₈	1999 01 24.1	08 24.01 +18 36.9	17.7	-1.18	+	4.4	0.3/24.3	33484	1997 RT ₃	1999 01 26.1	08 32.41 +24 07.4	19.3	-1.01	+	3.2	1.8/25.1	30904
1997 RA ₇	1999 01 24.1	08 24.29 +15 33.3	17.3	-1.15	+	3.3	1.6/24.8	33557	4722 P-L	1999 01 26.2	08 32.77 +16 02.5	16.3	-1.05	+	3.8	1.2/26.8	22086
6189 P-L	1999 01 24.2	08 24.43 +17 34.5	19.8	-1.13	+	3.4	0.7/24.5	33535	1998 UA ₄	1999 01 26.2	08 33.01 +23 14.1	17.6	-0.90	+	6.2	1.3/25.3	33513
1995 BL ₄	1999 01 24.3	08 24.93 +23 27.2	16.1	-1.20	-	3.2	1.8/23.9	33490	1993 VT	1999 01 26.2	08 33.06 +34 29.8	17.5	-1.07	+	4.5	4.8/22.9	31007
1991 TX ₄	1999 01 24.3	08 24.98 +29 30.8	16.0	-1.21	+	0.6	5.2/22.7	33546	1976 SD ₅	1999 01 26.3	08 33.20 +04 10.5	17.9	-0.82	+	3.2	4.6/29.4	30866
1992 PX ₂	1999 01 24.3	08 25.23 +13 33.8	16.6	-1.06	-	0.3	2.0/25.0	33547	(8203)	1999 01 26.3	08 33.22 +24 24.9	18.1	-0.86	+	2.3	1.5/25.2	31087
1979 OQ ₅	1999 01 24.4	08 25.41 +19 00.9	17.0	-0.87	+	1.8	0.1/24.5	31134	1996 HP ₂₃	1999 01 26.3	08 33.41 +30 09.0	16.6	-1.10	+	4.8	4.6/24.0	33555
1996 PR ₁	1999 01 24.5	08 25.59 +18 45.2	19.1	-0.81	+	2.8	0.1/24.6	33555	1996 FJ ₉	1999 01 26.4	08 33.64 +15 08.9	17.4	-1.09	+	4.6	1.4/27.1	30762
1995 DH	1999 01 24.5	08 25.70 -04 58.1	16.9	-0.91	+14.6		8.9/01.2	31008	(8182)	1999 01 26.4	08 33.82 +21 29.4	16.6	-0.93	+	3.1	0.9/25.9	31082
1996 KW	1999 01 24.7	08 26.40 +37 37.4	18.3	-1.10	+	3.8	5.4/21.0	31142	1994 TA ₃	1999 01 26.4	08 33.84 +27 13.5	17.5	-1.22	+	2.8	3.3/25.0	33551
1986 QT ₁	1999 01 24.7	08 26.53 +23 33.4	16.6	-1.13	+	3.2	1.8/24.0	33333	1990 SL ₇	1999 01 26.4	08 33.87 +24 01.0	17.8	-1.11	+	4.4	2.2/25.4	24761
1992 YH ₂	1999 01 24.7	08 26.60 +28 30.8	17.3	-0.88	+	5.1	2.8/22.7	33338	1978 SA ₅	1999 01 26.5	08 34.12 +17 11.0	16.8	-1.13	+	4.4	0.7/26.8	33539
1997 PS ₃	1999 01 24.8	08 26.82 +23 38.1	18.7	-1.14	+	3.4	1.8/24.0	30769	4165 T-3	1999 01 26.5	08 34.12 +30 47.9	19.1	-1.20	+	5.1	4.3/24.0	31023
1981 EV ₂₇	1999 01 24.8	08 26.89 +13 02.5	18.5	-0.89	+	4.1	2.0/26.1	30893	2211 P-L	1999 01 26.5	08 34.13 +20 21.0	19.9	-1.11	+	2.7	0.6/26.2	31000
1997 UW ₁₄	1999 01 24.8	08 26.89 +28 31.5	18.4	-0.90	+	3.3	2.9/23.0	33507	1988 CO ₁	1999 01 26.6	08 34.62 +18 40.1	15.9	-1.01	+	6.4	0.0/26.7	33542
1981 EM ₂₄	1999 01 24.8	08 26.98 +21 24.2	17.7	-0.97	+	2.4	0.8/24.4	33332	(9780)	1999 01 26.6	08 34.63 +16 45.4	14.7	-1.18	-	0.6	1.0/26.9	33206
1978 QY ₁	1999 01 24.8	08 27.18 +13 36.1	17.0	-1.00	+	5.2	2.2/26.0	33539	1992 FW ₁	1999 01 26.7	08 34.84 -24 10.3	17.1	-0.71	+10.3		20.1/15.0	30471
(9866)	1999 01 24.8	08 27.24 +18 58.9	17.1	-1.15	+	5.2	9.8/14.0	33461	1997 SL	1999 01 26.7	08 34.98 +15 49.9	19.3	-0.94	+	3.5	1.0/27.3	31011
1989 WU ₁	1999 01 24.8	08 27.25 +04 31.9	18.1	-0.93	+	2.9	4.4/27.7	31784	1995 DA ₁	1999 01 26.7	08 34.98 +24 19.3	17.7	-0.98	+	7.2	2.1/25.4	30901
(8127)	1999 01 25.0	08 27.83 +30 45.0	16.4	-1.24	-	1.5	4.5/23.4	31070	1981 DY	1999 01 26.8	08 35.55 +15 04.6	18.0	-0.95	+	1.7	1.2/27.5	30973
1994 WE ₁	1999 01 25.0	08 27.89 +30 30.0	16.9	-1.12	+	5.6	4.8/22.6	33552	1997 WB ₃₇	1999 01 26.9	08 35.68 +29 29.3	16.2	-0.87	+	5.2	3.1/24.4	31591
1983 GU	1999 01 25.0	08 27.92 +22 16.2	16.6	-0.96	+	7.1	1.0/24.3	27553	4716 P-L	1999 01 26.9	08 35.77 +28 56.1	19.1	-1.02	+	2.8	3.4/24.9	31773
1996 TX ₃₈	1999 01 25.0	08 27.99 +24 24.3	18.1	-0.96	+	3.5	1.5/24.0	33255	(9833)	1999 01 27.0	08 36.32 +18 10.7	15.8	-1.04	+	6.5	0.2/27.2	33453
1991 PA	1999 01 25.0	08 28.14 +19 50.3	18.8	-0.84	+	2.2	0.2/25.0	32223	1981 EM ₃₈	1999 01 27.1	08 36.45 +18 17.1	18.5	-0.97	+	1.5	0.1/27.2	33540
1997 SN	1999 01 25.0	08 28.15 +06 34.2	17.9	-1.05	+	3.2	5.2/27.4	33504	1997 SB ₄	1999 01 27.1	08 36.48 +17 23.1	21.1	-0.92	+	3.7	0.3/27.4	30880
1994 VP	1999 01 25.1	08 28.22 +30 31.0	19.1	-1.22	+	3.6	4.1/23.0	28617	1992 EB ₁₃	1999 01 27.1	08 36.59 +18 35.6	17.3	-1.08	+	2.5	0.0/27.1	33547
1981 EN ₃₉	1999 01 25.1	08 28.26 +14 52.5	19.9	-0.91	+	3.6	1.4/26.0	26922	1981 DH ₂	1999 01 27.1	08 36.69 -02 34.0	18.5	-0.89	+	2.4	8.0/31.6	26914
(8209)	1999 01 25.1	08 28.28 +31 03.2	17.0	-1.05	+	5.3	3.9/22.5	31089	1992 EP ₆	1999 01 27.2	08 37.29 +26 11.8	17.3	-1.08	+	5.9	3.2/25.6	33547
1987 SR ₁₇	1999 01 25.1	08 28.49 +11 33.9	17.9	-1.09	+	4.0	2.8/26.6	24760	6313 P-L	1999 01 27.2	08 37.32 +19 01.3	18.6	-0.96	+	2.6	0.2/27.2	16036
1997 TW ₉	1999 01 25.2	08 28.49 +21 33.9	18.8	-0.87	+	3.7	0.8/24.7	31145	1992 EV ₁₅	1999 01 27.3	08 37.23 +15 52.2	16.6	-0.98	+	5.1	1.3/27.9	30782
1991 DW	1999 01 25.2	08 28.80 +33 05.2	16.7	-1.06	+	8.1	4.7/21.8	33545	4342 T-1	1999 01 27.3	08 37.60 +27 26.3	18.4	-1.05	+	4.3	3.6/25.5	25224
1991 SK ₂	1999 01 25.3	08 28.97 +24 53.1	17.8	-0.93	+	1.2	1.7/24.3	33479	1986 WC ₁	1999 01 27.3	08 37.67 +22 13.0	18.2	-0.87	+	3.4	1.1/26.6	20500
1996 JW ₂	1999 01 25.3	08 29.12 +10 36.6	18.0	-0.96	+	6.0	3.2/27.1	33555	1992 EU ₁₁	1999 01 27.4	08 37.83 +24 15.7	17.7	-1.17	+	2.0	2.2/26.4	28886
1997 SQ ₁₇	1999 01 25.4	08 29.38 +37 35.8	18.2	-1.23	+	2.2	6.1/21.9	31280	1989 SJ ₁	1999 01 27.4	08 37.98 +23 02.5	19.5	-1.02	+	4.3	1.5/26.5	30289
1993 FN ₁₄	1999 01 25.4	08 29.49 +25 36.4	17.6	-1.19	+	5.3	2.8/24.1	30688	1989 UG ₃	1999 01 27.5	08 38.19 +23 45.0	16.5	-1.01	+	5.2	2.0/26.4	33543
1993 SG ₁	1999 01 25.4	08 29.50 +03 21.0	18.4	-0.92	+	5.9	4.9/29.0	33549	2259 T-2	1999 01 27.5	08 38.30 +18 07.7	19.1	-1.00	+	3.7	0.1/27.6	31001
1981 ES ₄₀	1999 01 25.4	08 29.73 +04 58.8	17.6	-0.86	+	6.1	6.0/28.8	26922	1995 BN ₃	1999 01 27.5	08 38.34 +22 24.8	17.7	-0.99	+	4.5	1.3/26.7	31386
1985 RJ ₃	1999 01 25.5	08 29.96 +16 59.0	17.5	-0.82	+	3.2	0.6/25.9	33541	1995 SX ₄₈	1999 01 27.5	08 38.46 +10 53.0	15.6	-1.80	-12.0		4.0/27.8	33553
1997 UW ₈	1999 01 25.5	08 30.19 +16 41.8	19.3	-0.94	+	4.0	0.7/26.0	31280	1990 OH ₄	1999 01 27.5	08 38.55 +10 13.5	17.9	-0.78	+	3.8	2.3/29.4	28316
2182 T-3	1999 01 25.5	08 30.24 +14 39.1	17.2	-1.11	+	3.4	1.8/26.4	30683	1981 RF ₇	1999 01 27.6	08 38.48 +28 18.6	17.8	-1.03	+	1.4	3.1/25.8	30780
(8136)	1999 01 25.6	08 30.20 +13 42.0	18.6	-0.79	+	3.1	1.4/26.7	31072	1978 UV ₇	1999 01 27.6	08 38.54 +11 36.4	17.8	-0.87	+	3.7	2.1/29.1	31271
1981 EZ ₁₀	1999 01 25.6	08 30.42 +15 39.2	17.4	-0.93	+	2.5	1.1/26.3	33065	3553 P-L	1999 01 27.6	08 38.81 +16 57.6	16.5	-0.99		0.0	0.6/27.9	33383
1993 XJ ₁	1999 01 25.6	08 30.67 +26 46.8	16.8	-0.98	+	5.2	2.8/24.0	33550	2778 P-L	1999 01 27.7	08 39.11 +16 36.7	17.4	-1.03	+	4.5	0.7/28.1	28088
1993 RZ ₁	1999 01 25.7	08 30.99 +17 30.7	18.2	-1.02	+	3.5	0.5/26.0	33549	1992 UZ ₃	1999 01 27.7	08 39.26 +21 34.6	17.9	-0.91	+	3.0	0.9/27.1	33548
1997 RW ₂	1999 01 25.8	08 31.42 +22 47.3	18.5	-1.02	+	2.3	1.4/25.2	31010	4555 P-L	1999 01 27.8	08 39.36 +15 50.9	19.0	-1.04	+	4.6	0.9/28.3	32729
1997 UE ₂₁	1999 01 25.8	08 31.44 +37 39.4	18.2	-1.06	+	0.8	6.6/22.4	31148	1997 UV ₁₀	1999 01 27.8	08 39.70 +05 45.9	15.6	-0.91	+	1.8	4.8/30.3	33558
1983 RV ₃	1999 01 25.9	08 31.52 +12 45.2	17.9	-0.89	+	4.1	1.8/27.2	31272	(9765)	1999 01 27.9	08 39.78 +22 06.4	15.2	-1.10	+	0.3	1.9/27.3	33203
1994 XS ₄	1999 01 25.9	08 31.62 +22 54.0	17.4	-1.05	+	6.3	1.4/25.1	30901	1981 EG ₂₁	1999 01 27.9	08 39.91 +13 39.5	17.6	-0.76	+	4.2	1.3/29.0	30893
1994 VB ₃	1999 01 25.9	08 31.68 +12 55.0	17.9	-1.07	+	4.7	2.2/27.1	31008	1986 TZ ₁₁	1999 01 27.9	08 40.02 +15 46.0	17.5	-0.86	+	2.1	0.8/28.5	33066
1993 NB	1999 01 26.0	08 31.87 +17 10.1	16.8	-0.99	+	7.7	0.6/26.4	33549	1997 ME ₃	1999 01 27.9	08 40.09 +20 47.0	18.4	-1.17	+	4.3	0.9/27.5	31010
1997 XX ₅	1999 01 26.0	08 32.13 +17 21.2	17.9	-0.87	+	3.1	0.4/26.4	33078	1993 TV ₁₅	1999 01 28.0	08 40.33 +24 27.5	19.8	-1.03	+	3.4	1.9/26.8	32933

2116 T-2	1999 01 28.2	08 41.13 +19 04.2	16.5 -1.03 + 4.0	0.4/28.1	30474
1996 DD	1999 01 28.2	08 41.22 +22 23.3	16.8 -1.15 + 4.6	1.8/27.4	30784
(8188)	1999 01 28.2	08 41.43 +25 29.4	16.0 -0.85 + 7.2	2.4/26.5	31084
1996 EO ₁₂	1999 01 28.3	08 41.43 +17 00.0	17.5 -1.27 + 0.8	0.6/28.5	33554
1997 SE ₃	1999 01 28.4	08 41.98 +00 52.3	18.6 -0.87 + 8.3	6.8/02.1	31011
1985 SG ₃	1999 01 28.5	08 42.37 +01 28.8	18.2 -0.74 + 2.5	4.0/01.2	28084
1995 WU ₆	1999 01 28.5	08 42.50 +56 29.1	17.4 -1.88 + 5.9	16.3/18.2	26747
1992 WB ₉	1999 01 28.6	08 42.64 +20 01.3	17.6 -0.89 + 2.9	0.6/28.2	22407
1995 AL	1999 01 28.6	08 42.83 +23 21.2	17.5 -1.02 + 6.1	1.8/27.5	30901
1988 FN	1999 01 28.6	08 43.05 +42 18.4	16.3 -1.87 - 9.3	11.6/26.5	27932
1997 QB ₄	1999 01 28.7	08 43.07 +36 42.9	19.0 -1.26 0.0	6.4/25.6	30904
1992 UP ₆	1999 01 28.8	08 43.58 -01 00.7	17.1 -0.82 + 3.2	5.7/02.2	33338
1987 MA ₁	1999 01 28.9	08 44.04 +11 05.3	18.2 -0.87 + 5.8	2.0/30.6	31136
1993 FW ₁₁	1999 01 28.9	08 44.17 +17 50.8	18.1 -1.09 + 5.7	0.1/29.0	30659
1997 ST ₄	1999 01 28.9	08 44.26 +09 01.7	19.6 -1.00 + 4.7	3.2/30.9	31011
1993 FN ₅₀	1999 01 28.9	08 44.34 +08 42.3	19.0 -1.06 + 5.2	3.4/31.0	30758
1994 VZ ₂	1999 01 29.0	08 44.43 +33 47.1	17.1 -1.27 + 3.0	6.1/26.1	33552
4592 P-L	1999 01 29.1	08 44.70 +14 01.9	18.5 -0.87 + 4.5	1.2/30.0	25229
(9673)	1999 01 29.1	08 45.00 +12 33.8	17.4 -1.07 + 5.0	2.0/30.3	32907
1991 RX ₂₅	1999 01 29.1	08 45.10 +23 18.7	17.4 -1.17 + 5.9	2.0/28.0	33546
1996 LX ₂	1999 01 29.2	08 45.11 +09 24.2	18.6 -0.96 + 6.4	3.6/31.2	27563
1981 DT ₁	1999 01 29.2	08 45.24 +05 59.4	18.5 -0.94 + 1.9	4.5/31.5	26914
1988 FE	1999 01 29.2	08 45.41 +37 06.3	16.5 -1.19 + 5.3	8.2/24.6	33542
(9874)	1999 01 29.3	08 45.64 +15 14.5	16.2 -1.13 + 3.6	1.3/30.0	33463
1993 FD ₂₇	1999 01 29.3	08 45.94 +20 03.7	18.0 -1.16 + 4.6	0.9/29.0	27455
1997 UX ₂	1999 01 29.3	08 45.99 +02 05.8	20.2 -1.01 + 4.0	5.2/01.7	31146
1994 VB ₂	1999 01 29.4	08 45.98 +09 53.5	16.0 -1.06 + 5.7	3.5/31.2	33552
1991 RR ₁	1999 01 29.6	08 46.78 +04 25.9	17.0 -0.79 + 2.7	3.7/01.5	31138
1990 ON ₂	1999 01 29.7	08 47.44 +22 23.7	17.1 -1.15 + 3.5	1.8/28.9	33543
1993 FW ₂₄	1999 01 29.7	08 47.57 +17 08.1	18.1 -1.12 + 4.0	9.3/10.0	33339
1997 PD ₆	1999 01 29.7	08 47.62 +17 41.8	19.2 -1.16 + 2.7	9.2/10.0	31280
1997 VD ₄	1999 01 29.8	08 47.71 +15 46.3	16.8 -0.89 + 3.6	0.7/30.3	31149
1993 OB ₁₀	1999 01 29.8	08 48.02 +15 51.5	19.0 -1.06 + 2.5	0.7/30.3	30782
1979 HN ₅	1999 01 29.9	08 48.16 +22 42.1	17.2 -0.81 + 4.2	1.2/28.8	25326
9062 P-L	1999 01 29.9	08 48.39 +13 59.9	17.3 -0.99 + 3.7	1.4/30.8	33384
1997 RN ₁	1999 01 30.0	08 48.52 +16 55.2	20.0 -1.01 + 3.3	0.3/30.2	30680
1982 DP ₁	1999 01 30.0	08 48.73 +30 05.1	16.1 -1.13 + 4.1	5.8/27.4	33333
1981 EC ₆	1999 01 30.0	08 48.78 +16 30.1	18.9 -1.07 + 1.8	0.4/30.3	30779
(8179)	1999 01 30.0	08 48.87 +28 57.5	17.7 -1.14 + 3.9	3.9/27.7	31082
1993 OA ₇	1999 01 30.1	08 49.00 +19 44.5	16.2 -1.01 + 6.0	0.8/29.7	30688
1988 RV ₄	1999 01 30.2	08 49.43 +17 28.8	18.5 -0.94 + 3.3	0.1/30.3	33334
1981 UC ₂₆	1999 01 30.2	08 49.60 +14 56.0	17.8 -0.83 + 4.3	0.9/30.9	29132
1981 EU ₃₄	1999 01 30.3	08 49.66 +18 18.2	18.3 -1.01 + 4.9	0.3/30.2	26921
1993 FL ₈₄	1999 01 30.3	08 49.66 +06 56.9	17.2 -1.04 + 6.3	4.1/01.8	33549
1997 QB ₁	1999 01 30.3	08 50.13 +26 03.6	18.0 -1.08 + 5.6	3.9/28.5	30769
1993 SQ ₆	1999 01 30.4	08 50.08 +22 06.4	19.4 -1.05 + 3.6	1.4/29.5	33236
2303 T-2	1999 01 30.4	08 50.44 +20 03.2	17.8 -1.06 + 5.1	1.1/30.0	24579
(8083)	1999 01 30.5	08 50.44 +31 36.4	17.4 -1.04 + 3.5	4.5/27.5	30963
1996 NG	1999 01 30.5	08 50.67 +21 00.0	17.8 -0.82 + 4.4	0.9/29.8	31009
1977 XZ ₂	1999 01 30.6	08 51.15 +18 42.5	17.3 -0.87 + 3.2	0.3/30.4	28314
1995 BP ₁	1999 01 30.6	08 51.20 +32 09.5	16.8 -1.07 + 7.5	5.4/27.1	33552

3232 T-2	1999 01 30.6	08 51.32 +18 27.9	18.0 -1.08 + 6.3	0.3/30.5	23988
1996 JF	1999 01 30.7	08 51.28 +26 36.1	17.2 -1.10 + 6.3	4.0/28.6	33555
1988 DJ ₂	1999 01 30.7	08 51.35 +18 17.4	18.0 -1.11 + 3.9	0.2/30.6	33334
1981 EU ₅	1999 01 30.7	08 51.35 +07 18.4	19.2 -1.01 + 1.6	4.8/01.7	30779
1991 YX	1999 01 30.8	08 51.98 +16 48.0	16.3 -1.05 + 7.7	0.3/31.1	33337
1997 SA ₂	1999 01 30.9	08 52.19 +21 36.6	18.3 -0.89 + 3.3	1.2/30.0	33504
1997 UU ₂	1999 01 31.0	08 52.68 +17 41.0	17.2 -0.90 + 3.1	0.0/31.0	31280
1995 CE ₂	1999 01 31.0	08 52.81 -02 02.7	16.5 -1.21 - 5.1	7.0/02.4	33553
1989 VS ₁	1999 01 31.0	08 52.81 +18 56.8	16.5 -0.97 + 5.6	0.6/30.7	33335
1994 PR ₃₉	1999 01 31.0	08 52.87 +15 02.1	18.9 -1.11 + 6.0	1.0/31.6	27107
1981 EQ ₃₃	1999 01 31.0	08 52.98 +15 07.5	19.4 -1.06 + 2.5	0.9/31.6	33332
1992 EP	1999 01 31.1	08 52.91 +26 06.1	16.8 -1.11 + 5.6	3.2/29.1	20034
4668 P-L	1999 01 31.1	08 53.14 +30 47.3	17.4 -1.16 + 3.0	5.4/28.4	30696
1993 TD ₂₆	1999 01 31.1	08 53.17 -01 44.3	19.9 -0.89 + 5.5	6.3/04.9	27557
9076 P-L	1999 01 31.1	08 53.23 -02 26.8	16.2 -0.90 + 6.1	7.1/05.4	31023
3281 T-2	1999 01 31.2	08 53.33 +13 49.6	17.9 -1.04 + 5.7	1.3/01.0	30889
1985 VB ₁	1999 01 31.2	08 53.37 +14 23.3	19.4 -0.76 + 7.2	0.7/01.0	27305
1993 RK	1999 01 31.4	08 54.16 +28 35.0	18.0 -1.15 + 1.0	3.6/29.4	33549
2573 P-L	1999 01 31.4	08 54.24 +24 06.9	19.3 -1.01 + 3.6	2.0/30.0	30887
1993 QN	1999 01 31.5	08 54.73 +20 42.7	16.9 -1.33 - 3.4	1.1/31.1	33236
1993 UT ₆	1999 01 31.5	08 54.73 +02 26.4	16.0 -0.81 + 7.9	6.3/04.6	33339
2629 P-L	1999 01 31.6	08 54.98 +19 55.5	19.2 -0.87 + 3.3	0.8/31.0	31000
(8133)	1999 01 31.6	08 55.32 +19 34.4	17.0 -0.82 + 3.7	0.6/31.2	31071
1981 EX ₂₃	1999 01 31.7	08 55.43 +14 21.3	19.1 -0.90 + 3.4	0.9/01.4	21967
1992 EG ₁₄	1999 01 31.7	08 55.67 +18 33.1	16.6 -1.10 + 1.9	0.5/31.5	33547
1992 LS	1999 01 31.7	08 55.70 +11 21.1	18.0 -0.94 + 4.3	1.9/02.1	31275
1996 HQ ₂₂	1999 01 31.7	08 55.82 +10 16.7	19.2 -0.92 + 4.1	2.2/02.4	30902
1990 TG ₁₁	1999 01 31.8	08 55.85 +14 54.3	17.9 -1.08 + 3.5	0.9/01.3	22953
1996 GG ₅	1999 01 31.8	08 56.22 +24 03.6	18.0 -1.09 + 4.8	2.5/30.4	33554
(8063)	1999 01 31.9	08 56.46 +16 21.5	17.4 -0.85 + 4.2	0.3/01.2	30958
1997 TY ₁₇	1999 02 01.0	08 56.78 +21 05.4	16.8 -0.90 + 4.1	1.3/31.2	31146
1981 EQ ₂	1999 02 01.0	08 56.89 +11 00.2	18.2 -1.07 + 1.7	2.6/02.3	26915
(8082)	1999 02 01.1	08 57.01 -00 08.4	17.1 -0.95 + 1.5	5.6/04.7	30963
1997 TY ₂₄	1999 02 01.3	08 57.88 +15 20.1	19.1 -0.94 + 4.5	0.6/01.7	31146
1981 EO ₁₈	1999 02 01.3	08 57.92 +18 39.9	17.3 -1.08 + 3.2	0.6/01.0	33332
1997 UH ₂₂	1999 02 01.3	08 58.12 +12 04.7	18.6 -0.85 + 4.8	1.6/02.6	31115
1992 UK ₁	1999 02 01.5	08 58.69 +08 11.5	17.1 -0.88 + 2.4	2.6/03.4	31006
1981 EW ₁₆	1999 02 01.6	08 59.25 +12 43.2	19.3 -0.94 + 3.7	1.6/02.6	26918
1997 UN ₉	1999 02 01.6	08 59.50 +17 54.8	18.4 -0.95 + 3.6	0.3/01.5	31280
1992 SA ₂₂	1999 02 01.7	08 59.57 +23 58.4	17.4 -0.97 + 3.6	2.3/31.2	22816
4194 T-2	1999 02 01.8	09 00.14 +15 40.5	18.6 -0.88 + 4.8	0.4/02.2	30467
1997 VQ	1999 02 01.9	09 00.29 +03 53.8	17.8 -0.78 + 3.9	3.8/05.1	31116
1997 WJ ₁	1999 02 01.9	09 00.50 +31 24.3	17.7 -1.00 + 2.0	4.6/29.8	31150
1217 T-1	1999 02 01.9	09 00.54 +18 43.7	16.5 -1.02 + 3.1	0.7/01.6	33384
1997 WQ ₁₅	1999 02 01.9	09 00.60 +10 15.0	19.4 -0.79 + 3.6	1.8/03.6	31282
1982 DC ₂	1999 02 01.9	09 00.68 +11 47.8	17.2 -0.94 + 7.4	2.5/03.3	30685
1979 XL	1999 02 01.9	09 00.70 +27 02.4	17.0 -0.92 + 7.2	3.7/30.3	33539
1997 VM ₅	1999 02 02.0	09 00.83 +17 22.6	18.6 -0.79 + 3.4	0.1/01.9	31149
1993 NX	1999 02 02.0	09 00.85 +14 25.7	19.4 -1.03 + 4.3	0.8/02.6	30979
1997 YO ₁₄	1999 02 02.1	09 01.31 +16 46.6	17.7 -0.97 + 3.0	0.1/02.2	33508
1997 TC ₉	1999 02 02.1	09 01.43 +04 10.9	20.1 -0.88 + 4.2	3.8/05.2	30882