

The MINOR PLANET CIRCULARS/MINOR PLANETS AND COMETS are published, on behalf of
Commission 20 of the International Astronomical Union, usually in batches

on the date of each full moon, by:

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EDITORIAL NOTICE

Owing to unusual circumstances, this batch of *Minor Planet Circulars* is being dated four days after the official date.

Contributors of perturbed orbital elements are advised that use of the Epoch 1999 Jan. 22.0 TT (rather than 1998 July 6.0 TT) will become effective *after* the 1998 Oct. 5 batch of *MPCs*.

ERRATA

<i>MPC</i>	Line	
32345	-50	<i>For</i> Horseman <i>read</i> Horsemen
32345	-11	<i>For</i> London Royal Orchestra <i>read</i> Royal Philharmonic Orchestra
32348	25	<i>For</i> (b. 1954) <i>read</i> (b. 1953)
32348	-46	<i>For</i> <i>The CCD Cookbook</i> <i>read</i> <i>The CCD Camera Cookbook</i>
32351	24	<i>Delete</i> and the wife

NEW OBSERVATORY CODES

The following listing is a continuation to that on *MPC* 32127. 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	$\rho \cos \phi'$	$\rho \sin \phi'$	
152	23.3596	0.57036	+0.81868	Moletai Astronomical Observatory
153	9.1758	0.66079	+0.74815	Stuttgart-Hoffeld
154	12.1043	0.68923	+0.72250	Cortina
322	116.1346	0.84882	-0.52702	Perth Observatory, Bickley-MCT
430	149.2123	0.85550	-0.51623	Rainbow Observatory, near Coonabarabran
638	8.8933	0.61778	+0.78374	Detmold
639	13.7233	0.62933	+0.77456	Dresden
659	237.0514	0.66257	+0.74650	Heron Cove Observatory, Orcas
661	245.7117	0.63251	+0.77222	Rothney Astrophysical Observatory, Priddis
746	275.2254	0.72551	+0.68597	Brooks Observatory, Mt. Pleasant
835	288.6428	0.73709	+0.67354	Drum Hill Station, Chelmsford

CORRECTED OBSERVATIONS

The following observations correct those previously published.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	N Obs.
1984 JA ₂	1991 11 09.10434	01 29 54.42	+01 58 37.1	<i>MPC</i> 20448		3 808
1991 PA ₁₁	1991 09 12.18307	23 45 25.87	+02 29 26.7	<i>MPC</i> 20449		4 808
1991 PA ₁₁	1991 09 12.21042	23 45 24.58	+02 29 07.2	<i>MPC</i> 20449		4 808
1991 PQ ₁₁	1991 09 12.18307	23 37 12.61	+04 37 35.0	<i>MPC</i> 20449		5 808
1991 RW ₁₉	1991 09 12.18307	23 44 19.00	+03 08 51.4	<i>MPC</i> 20449		6 808
1991 RW ₁₉	1991 09 12.21042	23 44 17.33	+03 08 39.0	<i>MPC</i> 20449		6 808
1991 RQ ₂₇	1991 11 09.10434	01 29 28.92	+00 41 28.9	<i>MPC</i> 20450		8 808
(86)	1991 11 09.10434	01 20 40.61	+01 30 48.3	<i>MPC</i> 20450		1 808
(214)	1995 06 30.17796	19 11 50.95	-27 10 56.5	<i>MPC</i> 28237		808
(214)	1995 06 30.22298	19 11 48.21	-27 10 59.5	<i>MPC</i> 28237		808
(1006)	1995 06 30.17796	19 16 15.38	-25 51 36.1	<i>MPC</i> 28237		808
(1006)	1995 06 30.22298	19 16 12.80	-25 51 32.6	<i>MPC</i> 28237		808
(1217)	1991 11 09.10434	01 28 49.72	+01 47 17.4	<i>MPC</i> 20451		1 808
(1257)	1991 09 12.18307	23 42 45.43	+02 36 58.4	<i>MPC</i> 20451		808
(1257)	1991 09 12.21042	23 42 43.79	+02 36 45.8	<i>MPC</i> 20451		808
(1348)	1995 06 30.17796	19 17 42.24	-25 01 37.9	<i>MPC</i> 28237		808
(1348)	1995 06 30.22298	19 17 39.71	-25 01 47.2	<i>MPC</i> 28237		808
(1577)	1991 11 09.10434	01 28 25.57	-00 11 58.9	<i>MPC</i> 20452		1 808
(1595)	1991 11 09.10434	01 27 52.19	+02 20 02.8	<i>MPC</i> 20452		1 808
(2085)	1991 11 09.10434	01 22 01.99	+02 04 11.9	<i>MPC</i> 20452		1 808
(2406)	1995 06 30.22298	19 09 24.71	-27 02 30.2	<i>MPC</i> 28238		808
(3371)	1995 06 30.17796	19 16 26.09	-25 02 25.5	<i>MPC</i> 28238		808
(3371)	1995 06 30.22298	19 16 23.44	-25 02 21.5	<i>MPC</i> 28238		808
(3532)	1991 11 09.10434	01 23 56.05	+00 58 59.0	<i>MPC</i> 20454		1 808
(4074)	1991 09 12.18307	23 40 38.00	+02 12 28.8	<i>MPC</i> 20454		808
(4074)	1991 09 12.21042	23 40 36.65	+02 12 16.0	<i>MPC</i> 20454		808

Note 1: time changed slightly. 2: 1984 JA₂ = (5944). 3 = 1 + 2.

4: 1991 PA₁₁ = (6016). 5: 1991 PQ₁₁ = (8859). 6: 1991 RW₁₉ = (7524).

7: 1991 RQ₂₇ = (9049). 8 = 1 + 7.

DELETED OBSERVATION

The following observation is to be deleted.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Obs.
1992 RX ₆	1990 04 01.40660	13 03 02.19	−08 36 08.8		MPC29406	675

IDENTIFICATION CHANGES

Continuation to MPC 32127.

Object	Date	UT	α_{2000}	δ_{2000}	Originally	Mag.	Obs.
1975 EK ₆	* 1975 03 15.87869	11 06 43.08	+05 58 57.0	1975 ER ₁	18.0	095	
1976 KZ ₂	* 1976 05 30.61304	18 00 24.82	−21 51 38.2	1976 KH ₂		413	
1976 KZ ₂	1976 05 30.64429	18 00 23.34	−21 51 32.5	1976 KH ₂		413	
1985 FH ₃	* 1985 03 20.99632	11 41 59.04	+09 16 59.2	1985 EF		046	
1985 FH ₃	1985 03 21.01050	11 41 58.50	+09 17 04.2	1985 EF		046	
1992 WU ₉	* 1992 11 27.50370	03 47 50.45	+15 27 09.6	1992 WB ₄	17	399	
1992 WU ₉	1992 11 27.51806	03 47 49.53	+15 27 07.7	1992 WB ₄		399	
1993 HQ ₈	* 1993 04 17.43889	12 04 26.62	+01 06 51.1	1993 FM ₄₅	17.5	413	
1994 PF ₄₀	* 1994 08 12.23611	23 09 46.66	−07 30 14.4	1994 RR ₁₈	18.2	809	
1994 PF ₄₀	1994 08 12.24792	23 09 46.06	−07 30 14.9	1994 RR ₁₈		809	
1994 PF ₄₀	1994 08 12.25972	23 09 45.49	−07 30 16.3	1994 RR ₁₈		809	
1997 ES ₅₉	* 1997 03 13.23056	13 37 17.68	−08 42 17.6	1997 ER ₄₇		809	
1997 ES ₅₉	1997 03 13.25243	13 37 17.25	−08 42 10.5	1997 ER ₄₇		809	
1997 ES ₅₉	1997 03 13.26181	13 37 16.91	−08 42 05.5	1997 ER ₄₇		809	
1997 ET ₅₉	* 1997 03 13.23056	13 37 22.84	−08 43 20.6	1997 EQ ₄₇		809	
1997 ET ₅₉	1997 03 13.25243	13 37 22.32	−08 43 16.5	1997 EQ ₄₇		809	
1997 ET ₅₉	1997 03 13.26181	13 37 22.02	−08 43 15.7	1997 EQ ₄₇		809	
1997 TW ₂₇	* 1997 10 01.79283	21 14 06.63	−14 20 10.4	1997 OF ₃	20.3 V	910	
1997 TW ₂₇	1997 10 01.84160	21 14 06.23	−14 20 15.0	1997 OF ₃	20.9 V	910	
1997 TW ₂₇	1997 10 01.86664	21 14 06.00	−14 20 17.1	1997 OF ₃	21.3 V	910	
1997 TW ₂₇	1997 10 03.78071	21 13 55.51	−14 22 42.6	1997 OF ₃	21.2 V	910	
1997 TW ₂₇	1997 10 03.83189	21 13 55.25	−14 22 45.9	1997 OF ₃	21.2 V	910	
1997 TW ₂₇	1997 10 03.85659	21 13 55.13	−14 22 47.0	1997 OF ₃	21.1 V	910	

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.
057	Belgrade. 0.14-m $f/12$ astrograph + CCD. Observers V. Protitch-Benishek and Vl. Benishek.
107	Cavezzo. 0.40-m $f/5.5$ reflector + CCD. Observer M. Nicolini.
108	Montelupo. 0.30-m $f/5.7$ Schmidt-Cassegrain + CCD. Observers M. Tombelli, A. Boattini and G. Forti.
118	Modra. 0.6-m $f/5.5$ reflector + CCD. Observers A. Galád, Š. Gajdoš, P. Kolény, L. Kornoš and A. Pravda.
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.
152	Moletai. 0.41-m $f/6.3$ Schmidt-Cassegrain. Observers K. Černis and R. Janulis. Measured by K. Černis.
292	Burlington. 0.30-m $f/3.0$ Schmidt-Cassegrain + CCD. Observer T. Handley.

322	Perth Observatory, Mike Candy Telescope. 0.25-m $f/4.5$ reflector + CCD. Observers D. Crouch and D. Lewis. Measured by J. D. Biggs and D. Crouch.
323	Perth Observatory, Bickley. 0.3-m astrograph. Observers G. Lowe and T. Smith. Measured by T. Smith.
351	Sakamoto. 0.15-m $f/7.0$ lens + CCD. Observer Y. Kitamura.
352	Konan. 0.25-m $f/6$ reflector + CCD. Observer M. Hotta.
355	Hadano. 0.28-m $f/5.0$ reflector + CCD. Observer A. Asami.
360	Kuma Kogen. 0.60-m $f/6.0$ Ritchey-Chrétien + CCD. Observer A. Nakamura.
372	Geisei. 0.21-m $f/3.0$ reflector. Observer T. Seki. From <i>Orient. Astron. Assoc. Comet Bull.</i>
402	Dynic Astronomical Observatory. 0.60-m $f/4.0$ reflector + CCD. Observer A. Sugie.
415	Kambah. Observer D. Herald.
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.
430	Rainbow Observatory. 0.20-m $f/4.5$ reflector + CCD. Observer S. Lee.
476	Bussoleno. 0.30-m $f/4.0$ reflector. Observer P. Pognant.
491	Yebes. 0.40-m $f/5$ astrograph + CCD. Observers J. F. Lahulla, J. García and A. Martin.
504	Le Creusot. 0.40-m $f/5$ reflector + CCD. Observers J. C. Merlin, D. Merlin and G. Merlin. Measured by J. C. Merlin.
517	Geneva. 0.20-m $f/10$ reflector + CCD. Observer R. Behrend.
540	Linz. 0.3-m $f/5.2$ Schmidt-Cassegrain + CCD. Observers E. Meyer and H. Raab.
557	Ondřejov. 0.65-m $f/3.6$ reflector + CCD. Observers P. Pravec and L. Šarounová.
560	Madonna di Dossobuono. 0.40-m $f/3.5$ reflector + CCD. Observer L. Lai.
568	Mauna Kea. 2.2-m University of Hawaii telescope + CCD. Observer J. Bauer. Measured by K. Meech.
587	Sormano. 0.5-m reflector + CCD. Observer V. Giuliani.
596	Colleverde di Guidonia. 0.31-m $f/2.8$ Baker-Schmidt + CCD. Observer V. S. Casulli.
605	Marl. 0.2-m $f/10$ Schmidt-Cassegrain + CCD. Observer E. Jung.
627	Blauvac. 0.26-m $f/4.7$ reflector + CCD. Observer R. Roy. Measured by A. Klotz.
628	Mülheim-Ruhr. 0.2-m Schmidt-Cassegrain + CCD. Observer A. Martin.
639	Dresden. 0.25-m $f/6.0$ reflector + CCD. Observer S. Gebhard.
658	Dominion Astrophysical Observatory, Victoria. 1.82-m Plaskett telescope + CCD. Observers R. Greimel and D. D. Balam. Measured by D. D. Balam.
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.
696	Mt. Hopkins. 1.2-m telescope + CCD. Observer C. W. Hergenrother.
699	LONEOS. 0.59-m Schmidt + CCD. Observers B. A. Skiff and B. W. Koehn. Measured by B. W. Koehn and E. Howell.
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.
711	McDonald. 0.76-m reflector + CCD. Observer P. J. Shelus.
734	Eskridge. 0.30-m Schmidt-Cassegrain + CCD. Observer G. Hug.
750	Hobbs Observatory, Fall Creek. 0.6-m $f/5$ telescope + CCD. Observer R. Elliott.

758 Cocoa. 0.3-m reflector + CCD. Observer I. Griffin.
 834 Buenos Aires-AAAA. 0.25-m $f/6.3$ reflector + CCD. Observers R. Caprio and R. Mackintosh. Measured by R. Mackintosh and J. R. Carozza.
 835 Drum Hill. 0.20-m $f/3.3$ Schmidt-Cassegrain + CCD. Observer R. Sinnott.
 844 Los Molinos. 0.35-m $f/6.4$ reflector + CCD. Observer R. Salvo.
 867 Saji Observatory. 1.03-m $f/4.8$ reflector + CCD. Observers M. Yamanishi, A. Miyamoto, M. Aimoto and T. Oribe.

Object	Date	UT	α_{2000}	δ_{2000}	Mag.	N Obs.
C/1995 O1 (Hale-Bopp)						
C/1995 O1	1997 12 09.76806		07 10 52.45	-62 12 22.5		323
C/1995 O1	1997 12 29.66944		06 20 48.45	-64 22 45.4		323
C/1995 O1	1998 01 17.54583		05 37 01.87	-63 44 24.7		323
C/1995 O1	1998 03 26.49271		04 59 14.69	-53 54 35.5		323
C/1995 O1	1998 04 29.49653		05 21 39.59	-50 35 10.5		323
C/1995 O1	1998 07 10.91971		06 31 08.30	-51 29 17.5		1 834
C/1995 O1	1998 07 30.30237		06 49 23.42	-53 27 50.4	11.0 T	844
C/1995 O1	1998 07 30.30704		06 49 23.74	-53 27 52.1	11.8 T	844
C/1995 O1	1998 07 30.30859		06 49 23.80	-53 27 51.1	11.5 T	844
C/1995 O1	1998 08 14.30309		07 02 15.71	-55 24 22.9	12.2 T	844
C/1995 O1	1998 08 14.30669		07 02 15.94	-55 24 26.6	12.2 T	844
C/1995 O1	1998 08 14.31288		07 02 16.06	-55 24 28.1	12.1 T	844
C/1995 O1	1998 08 29.35072		07 13 30.95	-57 39 23.0		2 834
C/1995 O1	1998 08 30.30824		07 14 09.90	-57 48 29.2	11.3 T	844
C/1995 O1	1998 08 30.30907		07 14 09.97	-57 48 29.5	11.4 T	844
C/1995 O1	1998 08 30.31074		07 14 10.06	-57 48 30.5	11.4 T	844
C/1995 O1	1998 08 30.31406		07 14 10.15	-57 48 32.3	11.4 T	844
C/1995 O1	1998 08 30.33579		07 14 10.99	-57 48 46.5		2 834
C/1995 O1	1998 08 30.79711		07 14 29.45	-57 53 08.9	14.8 N	422
C/1995 O1	1998 08 30.79754		07 14 29.44	-57 53 09.0	14.7 N	422
C/1995 O1	1998 08 30.80159		07 14 29.62	-57 53 11.5	14.8 N	422
C/1997 G2 (Montani)						
C/1997 G2	1998 08 20.80282		05 37 22.73	-67 38 27.0	17.2 N	422
C/1997 G2	1998 08 20.80347		05 37 22.87	-67 38 27.4	17.0 N	422
C/1997 J2 (Meunier-Dupouy)						
C/1997 J2	1998 01 08.72818		19 39 22.42	+39 25 48.3		517
C/1997 J2	1998 01 08.73091		19 39 22.82	+39 25 46.4		517
C/1997 J2	1998 01 08.73466		19 39 23.29	+39 25 44.1		517
C/1997 J2	1998 01 08.73818		19 39 23.79	+39 25 42.2		517
C/1997 J2	1998 07 30.88389		21 57 04.37	+19 53 50.3		152
C/1997 J2	1998 08 02.01576		21 54 41.54	+19 11 46.0		152
C/1997 J2	1998 08 02.93744		21 53 39.32	+18 53 07.4		118
C/1997 J2	1998 08 02.94502		21 53 38.83	+18 52 57.7		118
C/1997 J2	1998 08 04.74965		21 51 35.74	+18 15 41.0	11.7 T	360
C/1997 J2	1998 08 04.75191		21 51 35.57	+18 15 38.1		360
C/1997 J2	1998 08 05.96354		21 50 12.65	+17 50 00.2		046
C/1997 J2	1998 08 05.96488		21 50 12.55	+17 49 58.5		046
C/1997 J2	1998 08 05.96597		21 50 12.47	+17 49 57.1		046
C/1997 J2	1998 08 09.97543		21 45 35.77	+16 22 07.4		118
C/1997 J2	1998 08 09.97892		21 45 35.53	+16 22 02.6	13.2 T	118
C/1997 J2	1998 08 10.91581		21 44 30.78	+16 00 54.3	14.0 T	143
C/1997 J2	1998 08 10.92560		21 44 30.10	+16 00 40.9	14.0 T	143

C/1997 J2	1998 08 10.92906	21 44 29.86	+16 00 35.7	11.5 T	504
C/1997 J2	1998 08 10.93110	21 44 29.68	+16 00 33.1	11.5 T	504
C/1997 J2	1998 08 10.93736	21 44 29.29	+16 00 25.2	14.0 T	143
C/1997 J2	1998 08 10.94535	21 44 28.71	+16 00 13.3		504
C/1997 J2	1998 08 10.95413	21 44 28.08	+16 00 01.8		504
C/1997 J2	1998 08 10.95794	21 44 27.85	+15 59 56.0		504
C/1997 J2	1998 08 10.95860	21 44 27.78	+15 59 55.8		504
C/1997 J2	1998 08 10.96193	21 44 27.57	+15 59 50.7		504
C/1997 J2	1998 08 10.97959	21 44 26.28	+15 59 27.3		046
C/1997 J2	1998 08 10.98081	21 44 26.19	+15 59 25.5		046
C/1997 J2	1998 08 10.98223	21 44 26.09	+15 59 23.6		046
C/1997 J2	1998 08 11.59696	21 43 43.60	+15 45 24.0	11.7 T	402
C/1997 J2	1998 08 11.59801	21 43 43.53	+15 45 22.5		402
C/1997 J2	1998 08 11.60009	21 43 43.38	+15 45 19.7		402
C/1997 J2	1998 08 11.60726	21 43 42.93	+15 45 10.2	13.5 T	351
C/1997 J2	1998 08 11.61032	21 43 42.71	+15 45 05.2		351
C/1997 J2	1998 08 11.61398	21 43 42.50	+15 45 00.8		351
C/1997 J2	1998 08 11.62488	21 43 41.73	+15 44 46.3		351
C/1997 J2	1998 08 11.99646	21 43 15.86	+15 36 13.4		152
C/1997 J2	1998 08 12.00091	21 43 15.58	+15 36 07.4		152
C/1997 J2	1998 08 13.03334	21 42 04.15	+15 12 16.7		152
C/1997 J2	1998 08 14.92725	21 39 53.79	+14 27 55.4		504
C/1997 J2	1998 08 14.92832	21 39 53.68	+14 27 53.7		504
C/1997 J2	1998 08 14.92954	21 39 53.64	+14 27 52.9		504
C/1997 J2	1998 08 14.93212	21 39 53.42	+14 27 49.1		504
C/1997 J2	1998 08 14.93287	21 39 53.40	+14 27 47.8		504
C/1997 J2	1998 08 14.93385	21 39 53.31	+14 27 46.1	12.5 T	504
C/1997 J2	1998 08 14.98381	21 39 49.85	+14 26 33.9	12.8 T	628
C/1997 J2	1998 08 15.01784	21 39 47.47	+14 25 46.5	12.9 T	628
C/1997 J2	1998 08 15.02895	21 39 46.67	+14 25 29.8	12.9 T	628
C/1997 J2	1998 08 15.66215	21 39 03.19	+14 10 32.0	11.8 T	360
C/1997 J2	1998 08 15.66458	21 39 03.01	+14 10 28.4		360
C/1997 J2	1998 08 16.26556	21 38 21.80	+13 56 12.2	11.5 T	844
C/1997 J2	1998 08 16.27193	21 38 21.33	+13 56 03.3	11.5 T	844
C/1997 J2	1998 08 16.27477	21 38 21.10	+13 55 58.5		844
C/1997 J2	1998 08 19.87968	21 34 16.90	+12 28 37.6	12.3 T	628
C/1997 J2	1998 08 19.90051	21 34 15.47	+12 28 06.5	12.3 T	628
C/1997 J2	1998 08 19.90709	21 34 15.00	+12 27 58.0	11.8 T	639
C/1997 J2	1998 08 19.90720	21 34 15.03	+12 27 57.6	11.6 T	504
C/1997 J2	1998 08 19.90794	21 34 14.95	+12 27 56.1		504
C/1997 J2	1998 08 19.90863	21 34 14.92	+12 27 55.7		504
C/1997 J2	1998 08 19.91119	21 34 14.73	+12 27 51.8		504
C/1997 J2	1998 08 19.91213	21 34 14.69	+12 27 50.2		504
C/1997 J2	1998 08 19.91402	21 34 14.56	+12 27 47.1		504
C/1997 J2	1998 08 19.91794	21 34 14.29	+12 27 40.2	12.0 T	639
C/1997 J2	1998 08 20.00064	21 34 08.62	+12 25 39.1	12.8 T	605
C/1997 J2	1998 08 20.01453	21 34 07.69	+12 25 18.3	12.7 T	605
C/1997 J2	1998 08 20.55624	21 33 31.57	+12 12 01.7	12.8 T	351
C/1997 J2	1998 08 20.56014	21 33 31.29	+12 11 56.8		351
C/1997 J2	1998 08 20.56422	21 33 31.03	+12 11 50.3		351
C/1997 J2	1998 08 21.84671	21 32 05.91	+11 40 11.2	14.2 N	143
C/1997 J2	1998 08 21.84867	21 32 05.76	+11 40 08.3	14.2 N	143
C/1997 J2	1998 08 21.85062	21 32 05.63	+11 40 05.2	14.2 N	143

C/1997 J2	1998 08 21.85259	21 32 05.50	+11 40 02.4	14.2 N	143
C/1997 J2	1998 08 21.85455	21 32 05.37	+11 39 59.7	14.2 N	143
C/1997 J2	1998 08 21.85651	21 32 05.23	+11 39 56.4	14.2 N	143
C/1997 J2	1998 08 24.28772	21 29 26.18	+10 39 24.9	16.5 T	704
C/1997 J2	1998 08 24.30427	21 29 25.06	+10 38 59.4		704
C/1997 J2	1998 08 24.32074	21 29 23.93	+10 38 34.7		704
C/1997 J2	1998 08 24.33710	21 29 22.70	+10 38 10.8		704
C/1997 J2	1998 08 24.35356	21 29 21.79	+10 37 44.8		704
C/1997 J2	1998 08 25.55411	21 28 04.93	+10 07 46.1	12.9 T	355
C/1997 J2	1998 08 25.55572	21 28 04.82	+10 07 43.6		355
C/1997 J2	1998 08 25.55806	21 28 04.66	+10 07 39.6		355
C/1997 J2	1998 08 25.66372	21 27 57.83	+10 05 01.3	11.8 T	360
C/1997 J2	1998 08 25.66632	21 27 57.66	+10 04 57.4		360
C/1997 J2	1998 08 25.86315	21 27 45.31	+09 59 59.7	14.1 T	627
C/1997 J2	1998 08 25.87517	21 27 44.56	+09 59 41.8	14.3 T	627
C/1997 J2	1998 08 25.89051	21 27 43.56	+09 59 18.4	14.2 T	627
C/1997 J2	1998 08 26.16353	21 27 26.24	+09 52 27.9		750
C/1997 J2	1998 08 26.18076	21 27 25.13	+09 52 01.7		750
C/1997 J2	1998 08 26.83597	21 26 43.94	+09 35 32.2	14.4 N	143
C/1997 J2	1998 08 26.84223	21 26 43.55	+09 35 22.8	14.3 N	143
C/1997 J2	1998 08 26.85007	21 26 43.06	+09 35 11.0	14.5 N	143
C/1997 J2	1998 08 29.92188	21 23 34.09	+08 17 46.2	13.0 T	476
C/1997 J2	1998 08 29.92674	21 23 33.79	+08 17 38.1	13.0 T	476
C/1997 J2	1998 08 29.93854	21 23 33.09	+08 17 22.9	13.0 T	476
C/1997 J2	1998 08 29.94514	21 23 32.78	+08 17 13.9	13.0 T	476
C/1997 J2	1998 08 31.16322	21 22 19.96	+07 46 31.5	14.9 T	750
C/1997 J2	1998 08 31.17159	21 22 19.45	+07 46 18.8	14.1 T	750
C/1997 J2	1998 08 31.82021	21 21 41.38	+07 29 58.7		046
C/1997 J2	1998 08 31.82215	21 21 41.27	+07 29 55.7		046
C/1997 J2	1998 08 31.82346	21 21 41.19	+07 29 53.8		046
C/1997 J2	1998 09 01.14241	21 21 22.58	+07 21 52.0	13.0 N	758
C/1997 J2	1998 09 01.14561	21 21 22.38	+07 21 46.9	13.0 N	758
C/1997 J2	1998 09 01.14821	21 21 22.24	+07 21 43.1	13.1 N	758
C/1997 J2	1998 09 01.15373	21 21 21.93	+07 21 34.4	12.9 N	758

C/1997 L1 (Zhu-Balam)

C/1997 L1	1998 08 30.13598	16 34 26.15	+27 06 25.8	21.2 T	691
C/1997 L1	1998 08 30.14618	16 34 26.20	+27 06 23.7	21.8 T	691
C/1997 L1	1998 08 30.15644	16 34 26.26	+27 06 22.7	20.9 T	691

C/1998 H1 (Stonehouse)

C/1998 H1	1998 07 26.85185	12 23 42.86	+50 43 34.4		3 118
C/1998 H1	1998 07 26.86580	12 23 43.46	+50 43 34.3	17.0 T	3 118

C/1998 J1 (SOHO)

C/1998 J1	1998 07 07.91419	08 50 18.45	-42 18 04.3		834
C/1998 J1	1998 07 08.93189	08 53 28.48	-42 41 28.6		834
C/1998 J1	1998 07 09.92805	08 56 33.08	-43 03 53.0		834
C/1998 J1	1998 07 10.93686	08 59 38.81	-43 26 04.9		834
C/1998 J1	1998 07 13.93289	09 08 43.00	-44 29 26.3		1 834
C/1998 J1	1998 07 19.93645	09 26 23.70	-46 26 11.1		2 834
C/1998 J1	1998 07 29.96494	09 54 44.02	-49 18 17.3	12.8 T	844
C/1998 J1	1998 07 29.97229	09 54 44.93	-49 18 25.1	13.0 T	844
C/1998 J1	1998 07 29.97610	09 54 45.47	-49 18 27.1	13.4 T	844

C/1998 J1	1998 08 05.40397	10 12 17.32	-50 57 46.2		426
C/1998 J1	1998 08 05.41093	10 12 18.48	-50 57 52.2		4 426
C/1998 J1	1998 08 05.41796	10 12 19.54	-50 57 58.5	15.7 N	426

C/1998 K2 (LINEAR)

C/1998 K2	1998 07 22.55834	14 50 36.55	-49 02 24.3	11.5 T	322
C/1998 K2	1998 07 22.69097	14 50 26.94	-49 03 48.3	12.2 T	322
C/1998 K2	1998 07 22.70694	14 50 25.78	-49 03 57.8	11.8 T	322
C/1998 K2	1998 07 30.01331	14 43 10.94	-50 19 59.6	13.3 T	844
C/1998 K2	1998 07 30.03223	14 43 10.15	-50 20 10.6	13.2 T	844
C/1998 K2	1998 07 30.04617	14 43 09.37	-50 20 19.0	13.0 T	844
C/1998 K2	1998 08 05.42986	14 39 06.37	-51 24 11.5		426
C/1998 K2	1998 08 05.43616	14 39 06.16	-51 24 15.1		426
C/1998 K2	1998 08 05.44359	14 39 05.92	-51 24 19.9	14.0 T	426
C/1998 K2	1998 08 14.36050	14 36 48.06	-52 53 19.2	16.7 N	422
C/1998 K2	1998 08 14.36136	14 36 48.05	-52 53 19.6	16.6 N	422
C/1998 K2	1998 08 14.36198	14 36 48.05	-52 53 20.0	16.6 N	422
C/1998 K2	1998 08 14.36275	14 36 48.06	-52 53 20.5	16.5 N	422
C/1998 K2	1998 08 26.08541	14 39 20.14	-54 54 59.5		844
C/1998 K2	1998 08 26.08673	14 39 20.23	-54 54 59.5		844
C/1998 K2	1998 08 26.11505	14 39 20.90	-54 55 17.2		844
C/1998 K2	1998 08 28.43848	14 40 34.21	-55 20 29.1		426
C/1998 K2	1998 08 28.44386	14 40 34.41	-55 20 32.8		426
C/1998 K2	1998 08 28.45103	14 40 34.67	-55 20 37.2	14.6 T	426

C/1998 K5 (LINEAR)

C/1998 K5	1998 07 04.78472	00 24 49.71	+52 29 39.5		372
C/1998 K5	1998 07 05.70382	00 35 40.40	+52 02 40.6		372
C/1998 K5	1998 07 23.78194	02 36 45.19	+41 52 44.0	13 T	372
C/1998 K5	1998 07 30.74757	02 59 58.79	+38 46 21.4	12.2 T	372
C/1998 K5	1998 08 01.33056	03 04 23.46	+38 08 08.4	12.7 T	292
C/1998 K5	1998 08 01.34098	03 04 25.05	+38 07 54.3	12.6 T	292
C/1998 K5	1998 08 01.35138	03 04 26.64	+38 07 40.0	12.6 T	292
C/1998 K5	1998 08 02.80156	03 08 15.21	+37 33 56.4		372
C/1998 K5	1998 08 03.80330	03 10 45.80	+37 11 14.1		372
C/1998 K5	1998 08 04.76285	03 13 04.98	+36 49 54.0	12.4 T	360
C/1998 K5	1998 08 04.76545	03 13 05.34	+36 49 50.7		360
C/1998 K5	1998 08 05.77014	03 15 25.25	+36 27 59.7		372
C/1998 K5	1998 08 05.99935	03 15 56.59	+36 22 55.9	11.9 T	143
C/1998 K5	1998 08 06.00485	03 15 57.35	+36 22 49.1	12.0 T	143
C/1998 K5	1998 08 06.01113	03 15 58.20	+36 22 41.4	12.0 T	143
C/1998 K5	1998 08 09.01045	03 22 21.83	+35 20 18.0	12.8 T	143
C/1998 K5	1998 08 09.01280	03 22 22.10	+35 20 15.2	12.8 T	143
C/1998 K5	1998 08 09.01476	03 22 22.33	+35 20 12.7	12.9 T	143
C/1998 K5	1998 08 11.63281	03 27 22.00	+34 28 33.0	12.6 T	351
C/1998 K5	1998 08 11.64765	03 27 23.64	+34 28 18.0		351
C/1998 K5	1998 08 12.09928	03 28 11.61	+34 19 36.3		046
C/1998 K5	1998 08 12.10067	03 28 11.75	+34 19 34.8		046
C/1998 K5	1998 08 12.10171	03 28 11.86	+34 19 33.6		046
C/1998 K5	1998 08 14.37727	03 32 02.25	+33 36 50.6	12.5 N	758
C/1998 K5	1998 08 14.38029	03 32 02.54	+33 36 47.3	12.5 N	758
C/1998 K5	1998 08 14.39900	03 32 04.19	+33 36 26.5	12.4 N	758
C/1998 K5	1998 08 20.73472	03 40 49.14	+31 43 55.5		372
C/1998 K5	1998 08 22.75997	03 43 01.55	+31 09 35.1	13.1 T	402

C/1998 K5	1998 08 22.76206	03 43 01.66	+31 09 33.1		402
C/1998 K5	1998 08 22.76414	03 43 01.78	+31 09 31.0		402
C/1998 K5	1998 08 22.77458	03 43 02.34	+31 09 20.9	13.4 T	351
C/1998 K5	1998 08 22.77775	03 43 02.50	+31 09 17.6		351
C/1998 K5	1998 08 22.77998	03 43 02.71	+31 09 16.3		372
C/1998 K5	1998 08 23.71181	03 43 58.41	+30 53 37.8		372
C/1998 K5	1998 08 25.76302	03 45 47.85	+30 19 40.8		372
C/1998 K5	1998 08 25.79826	03 45 49.40	+30 19 07.0	13.0 T	360
C/1998 K5	1998 08 25.80087	03 45 49.50	+30 19 04.4		360
C/1998 K5	1998 08 31.36065	03 49 23.22	+28 48 54.6	16.1 T	704
C/1998 K5	1998 08 31.36954	03 49 23.44	+28 48 46.0		704
C/1998 K5	1998 08 31.37921	03 49 23.67	+28 48 36.9		704
C/1998 K5	1998 08 31.38893	03 49 23.89	+28 48 28.1		704
C/1998 K5	1998 08 31.39864	03 49 24.13	+28 48 18.9		704
C/1998 K5	1998 09 01.08694	03 49 42.30	+28 37 14.7		046
C/1998 K5	1998 09 01.08928	03 49 42.34	+28 37 12.5		046
C/1998 K5	1998 09 01.09117	03 49 42.39	+28 37 10.7		046
C/1998 K5	1998 09 02.75833	03 50 18.88	+28 10 37.7	12.9 T	360
C/1998 K5	1998 09 02.76111	03 50 18.91	+28 10 35.2		360
C/1998 K5	1998 09 02.78422	03 50 19.18	+28 10 13.0	12.4 T	402
C/1998 K5	1998 09 02.78561	03 50 19.19	+28 10 11.7		402
C/1998 K5	1998 09 02.78700	03 50 19.21	+28 10 10.4		402
C/1998 K5	1998 09 02.80764	03 50 19.42	+28 09 51.2		372
C/1998 K5	1998 09 02.81111	03 50 19.46	+28 09 47.4		372
C/1998 K5	1998 09 04.69284	03 50 48.22	+27 39 50.4	12.3 T	355
C/1998 K5	1998 09 04.69378	03 50 48.21	+27 39 49.6		355
C/1998 K5	1998 09 04.69543	03 50 48.21	+27 39 48.1		355

C/1998 M1 (LINEAR)

C/1998 M1	1998 08 08.40123	15 40 50.85	-19 50 01.5		426
C/1998 M1	1998 08 08.41080	15 40 51.26	-19 49 59.1		426
C/1998 M1	1998 08 08.42031	15 40 51.70	-19 49 57.6	15.7 T	426
C/1998 M1	1998 09 04.45817	16 06 34.80	-18 45 47.8	15.7 T	402
C/1998 M1	1998 09 04.45992	16 06 35.06	-18 45 48.1		402
C/1998 M1	1998 09 04.46339	16 06 35.22	-18 45 47.1		402

C/1998 M2 (LINEAR)

C/1998 M2	1998 06 27.63507	18 02 59.02	+07 05 14.8		372
C/1998 M2	1998 06 28.61337	18 01 49.63	+07 26 33.7		372
C/1998 M2	1998 07 03.63542	17 55 58.08	+09 11 07.4		372
C/1998 M2	1998 07 03.66111	17 55 56.27	+09 11 37.5		867
C/1998 M2	1998 07 03.66424	17 55 56.05	+09 11 41.2		867
C/1998 M2	1998 07 03.66701	17 55 55.84	+09 11 44.2		867
C/1998 M2	1998 07 18.62605	17 40 21.07	+13 28 42.4		867
C/1998 M2	1998 07 18.62987	17 40 20.86	+13 28 45.8		867
C/1998 M2	1998 07 18.63404	17 40 20.62	+13 28 49.5		867
C/1998 M2	1998 07 20.96690	17 38 17.50	+14 01 11.2	15.4 T	491
C/1998 M2	1998 07 20.98848	17 38 16.48	+14 01 31.3	15.2 T	491
C/1998 M2	1998 07 23.58403	17 36 07.86	+14 35 14.0	14.5 T	372
C/1998 M2	1998 07 23.59167	17 36 07.57	+14 35 18.5		372
C/1998 M2	1998 08 01.08762	17 30 18.97	+16 09 02.6	14.8 N	835
C/1998 M2	1998 08 01.10421	17 30 18.45	+16 09 12.9	15.0 N	835
C/1998 M2	1998 08 02.06258	17 29 46.47	+16 18 18.9	14.8 N	835
C/1998 M2	1998 08 02.08657	17 29 45.85	+16 18 30.9	14.5 N	835

C/1998 M2	1998 08 06.91468	17 27 26.87	+17 00 07.7		046
C/1998 M2	1998 08 06.91638	17 27 26.82	+17 00 08.5		046
C/1998 M2	1998 08 06.91770	17 27 26.81	+17 00 09.2		046
C/1998 M2	1998 08 06.91965	17 27 26.74	+17 00 10.2		046
C/1998 M2	1998 08 10.89112	17 26 01.70	+17 29 35.1	15.8 T	143
C/1998 M2	1998 08 10.89794	17 26 01.60	+17 29 38.0	13.2 T	504
C/1998 M2	1998 08 10.89896	17 26 01.55	+17 29 38.3	15.8 T	143
C/1998 M2	1998 08 10.89957	17 26 01.55	+17 29 38.5	13.3 T	504
C/1998 M2	1998 08 10.90247	17 26 01.47	+17 29 40.2	13.1 T	504
C/1998 M2	1998 08 10.90681	17 26 01.40	+17 29 41.7	16.0 T	143
C/1998 M2	1998 08 11.51200	17 25 50.77	+17 33 50.6	14.7 T	402
C/1998 M2	1998 08 11.51304	17 25 50.73	+17 33 50.8		402
C/1998 M2	1998 08 11.51409	17 25 50.71	+17 33 51.2		402
C/1998 M2	1998 08 14.88446	17 25 02.42	+17 55 14.5	14.2 T	504
C/1998 M2	1998 08 14.89069	17 25 02.37	+17 55 16.7	13.9 T	504
C/1998 M2	1998 08 14.89267	17 25 02.36	+17 55 18.0	13.9 T	504
C/1998 M2	1998 08 16.89775	17 24 42.46	+18 06 49.9	15.3 T	504
C/1998 M2	1998 08 16.89955	17 24 42.44	+18 06 50.4		504
C/1998 M2	1998 08 16.90131	17 24 42.43	+18 06 51.4	15.1 T	504
C/1998 M2	1998 08 16.90733	17 24 42.36	+18 06 53.4	15.2 T	504
C/1998 M2	1998 08 20.20088	17 24 24.26	+18 24 02.4	15.7 T	699
C/1998 M2	1998 08 20.22321	17 24 24.23	+18 24 09.0		699
C/1998 M2	1998 08 20.24484	17 24 24.19	+18 24 15.6		699
C/1998 M2	1998 08 20.52748	17 24 23.25	+18 25 40.8	15.0 T	351
C/1998 M2	1998 08 20.53361	17 24 23.37	+18 25 41.6		351
C/1998 M2	1998 08 20.54737	17 24 23.25	+18 25 45.0		351
C/1998 M2	1998 08 21.46336	17 24 21.92	+18 30 06.8	15.5 T	402
C/1998 M2	1998 08 21.46440	17 24 21.91	+18 30 06.8		402
C/1998 M2	1998 08 21.46544	17 24 21.91	+18 30 07.0		402
C/1998 M2	1998 08 25.87500	17 24 33.87	+18 49 03.9	15.7 T	504
C/1998 M2	1998 08 25.87756	17 24 33.88	+18 49 04.2	15.4 T	504
C/1998 M2	1998 08 25.88106	17 24 33.89	+18 49 05.7	15.7 T	504
C/1998 M2	1998 08 26.81201	17 24 40.35	+18 52 43.2	16.1 N	143
C/1998 M2	1998 08 26.81984	17 24 40.43	+18 52 45.2	16.1 N	143
C/1998 M2	1998 08 26.82767	17 24 40.47	+18 52 46.9	16.0 N	143
C/1998 M2	1998 08 31.16171	17 25 27.99	+19 08 06.3	18.5 N	691
C/1998 M2	1998 08 31.16571	17 25 28.04	+19 08 07.2	15.2 T	691
C/1998 M2	1998 08 31.17014	17 25 28.10	+19 08 07.7	15.3 T	691
C/1998 M2	1998 09 03.44697	17 26 22.93	+19 18 14.6	14.6 T	402
C/1998 M2	1998 09 03.44832	17 26 22.96	+19 18 15.0		402
C/1998 M2	1998 09 03.44971	17 26 22.98	+19 18 15.1		402
C/1998 M2	1998 09 07.80720	17 27 59.49	+19 30 04.3		046
C/1998 M2	1998 09 07.80840	17 27 59.52	+19 30 04.6		046
C/1998 M2	1998 09 07.80947	17 27 59.54	+19 30 04.9		046

C/1998 M3 (Larsen)

C/1998 M3	1998 08 26.15916	15 49 12.02	+03 00 42.9	20.9 N	691
C/1998 M3	1998 08 26.16546	15 49 11.99	+03 00 43.5	18.2 T	691
C/1998 M3	1998 08 26.16961	15 49 11.98	+03 00 44.1	18.1 T	691

C/1998 M4 (LINEAR)

C/1998 M4	1998 07 03.67431	19 24 19.66	-11 48 31.6		867
C/1998 M4	1998 07 03.67708	19 24 19.19	-11 48 33.9		867
C/1998 M4	1998 07 03.68125	19 24 18.52	-11 48 36.8		867

C/1998 M4	1998 07 03.68611	19 24 17.64	-11 48 39.9		372
C/1998 M4	1998 07 03.69722	19 24 15.91	-11 48 48.7		372
C/1998 M4	1998 07 04.67083	19 21 41.97	-12 00 51.5	17 T	372
C/1998 M4	1998 07 04.70000	19 21 37.28	-12 01 13.2		372
C/1998 M4	1998 07 05.72049	19 18 56.11	-12 13 46.6	16.9 T	372
C/1998 M4	1998 09 04.47208	17 29 24.28	-20 36 32.0	17.4 T	402
C/1998 M4	1998 09 04.47382	17 29 24.25	-20 36 33.8		402

C/1998 M5 (LINEAR)

C/1998 M5	1998 07 03.74722	23 08 27.53	+18 58 39.4		867
C/1998 M5	1998 07 03.75035	23 08 27.42	+18 58 43.0		867
C/1998 M5	1998 07 03.75312	23 08 27.32	+18 58 46.2		867
C/1998 M5	1998 07 05.68785	23 07 18.11	+19 38 22.2		372
C/1998 M5	1998 07 21.02264	22 53 03.65	+25 11 30.3	13.2 T	491
C/1998 M5	1998 07 21.03415	22 53 02.86	+25 11 45.5	13.2 T	491
C/1998 M5	1998 07 23.77674	22 49 23.39	+26 14 08.6		372
C/1998 M5	1998 07 23.79444	22 49 21.85	+26 14 33.4		372
C/1998 M5	1998 07 27.01377	22 44 34.71	+27 28 14.7		118
C/1998 M5	1998 07 27.02049	22 44 34.12	+27 28 26.0	12.6 T	118
C/1998 M5	1998 07 30.61076	22 38 34.58	+28 50 49.5	13.5 T	372
C/1998 M5	1998 08 03.03264	22 32 10.85	+30 08 58.3		118
C/1998 M5	1998 08 04.75590	22 28 42.29	+30 47 58.3	12.8 T	360
C/1998 M5	1998 08 04.75816	22 28 42.00	+30 48 01.3		360
C/1998 M5	1998 08 05.97698	22 26 08.41	+31 15 21.1		046
C/1998 M5	1998 08 05.97826	22 26 08.23	+31 15 22.8		046
C/1998 M5	1998 08 05.97935	22 26 08.09	+31 15 24.2		046
C/1998 M5	1998 08 06.11225	22 25 51.21	+31 18 22.2	12.8 N	758
C/1998 M5	1998 08 06.14210	22 25 47.27	+31 19 02.2	12.7 N	758
C/1998 M5	1998 08 06.14468	22 25 46.90	+31 19 05.4	12.7 N	758
C/1998 M5	1998 08 06.88684	22 24 10.31	+31 35 36.4	12.7 T	540
C/1998 M5	1998 08 06.88787	22 24 10.13	+31 35 37.7		540
C/1998 M5	1998 08 06.88899	22 24 09.97	+31 35 39.7		540
C/1998 M5	1998 08 06.89631	22 24 09.03	+31 35 48.8	12.8 T	628
C/1998 M5	1998 08 06.92409	22 24 05.32	+31 36 26.0	12.8 T	628
C/1998 M5	1998 08 06.93450	22 24 03.93	+31 36 39.5	12.8 T	628
C/1998 M5	1998 08 06.94492	22 24 02.55	+31 36 53.1	12.8 T	628
C/1998 M5	1998 08 07.07363	22 23 45.40	+31 39 45.5	13.0 T	557
C/1998 M5	1998 08 07.85541	22 22 01.22	+31 57 01.7	12.0 T	120
C/1998 M5	1998 08 07.85691	22 22 01.06	+31 57 04.2		120
C/1998 M5	1998 08 07.86189	22 22 00.34	+31 57 10.1		120
C/1998 M5	1998 08 07.86507	22 21 59.93	+31 57 14.4		120
C/1998 M5	1998 08 07.94284	22 21 49.31	+31 58 57.5	12.7 T	628
C/1998 M5	1998 08 07.95950	22 21 47.05	+31 59 19.4	12.6 T	628
C/1998 M5	1998 08 07.97537	22 21 44.80	+31 59 39.7		152
C/1998 M5	1998 08 07.97756	22 21 44.64	+31 59 42.8	12.8 T	628
C/1998 M5	1998 08 09.08935	22 19 11.65	+32 24 03.8	14.5 T	143
C/1998 M5	1998 08 09.09915	22 19 10.25	+32 24 16.2	14.6 T	143
C/1998 M5	1998 08 09.10896	22 19 08.86	+32 24 29.0	14.5 T	143
C/1998 M5	1998 08 09.91139	22 17 16.13	+32 41 53.4	14.6 T	143
C/1998 M5	1998 08 09.91452	22 17 15.65	+32 41 57.1	14.6 T	143
C/1998 M5	1998 08 09.92080	22 17 14.77	+32 42 05.1	14.7 T	143
C/1998 M5	1998 08 10.06233	22 16 54.49	+32 45 08.5	13.2 T	758
C/1998 M5	1998 08 10.06600	22 16 53.92	+32 45 13.6	13.3 T	758

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C/1998 M5	1998 08 11.33132	22 13 50.04	+33 12 18.9	13.0 T	758
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C/1998 M5	1998 08 11.61178	22 13 08.86	+33 18 15.5		402
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C/1998 M5	1998 08 11.98015	22 12 14.00	+33 26 01.1	12.0 T	108
C/1998 M5	1998 08 12.00387	22 12 10.24	+33 26 29.8		152
C/1998 M5	1998 08 12.00899	22 12 09.47	+33 26 37.5		152
C/1998 M5	1998 08 12.01858	22 12 08.02	+33 26 48.8		152
C/1998 M5	1998 08 13.06021	22 09 30.05	+33 48 34.4		152
C/1998 M5	1998 08 13.06285	22 09 29.60	+33 48 37.1		152
C/1998 M5	1998 08 13.91168	22 07 18.48	+34 06 04.9		107
C/1998 M5	1998 08 13.91234	22 07 18.36	+34 06 07.6	13.8 T	560
C/1998 M5	1998 08 13.91376	22 07 18.17	+34 06 07.8		107
C/1998 M5	1998 08 13.91541	22 07 17.81	+34 06 10.4		107
C/1998 M5	1998 08 13.91763	22 07 17.50	+34 06 14.1	13.8 T	560
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C/1998 M5	1998 08 16.94069	21 59 09.19	+35 06 23.8	12.4 T	504
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C/1998 M5	1998 08 19.96681	21 50 30.58	+36 02 53.5	12.8 T	605

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C/1998 M5	1998 08 25.56396	21 33 23.09	+37 35 25.9	12.7 T	355
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C/1998 M5	1998 09 06.88865	20 52 31.16	+39 50 54.7	11.8 T	504
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C/1998 M5	1998 09 06.89295	20 52 30.32	+39 50 57.1	11.7 T	504
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C/1998 M5	1998 09 07.77448	20 49 32.31	+39 56 42.1		057
C/1998 M5	1998 09 07.77524	20 49 32.11	+39 56 41.0	13.0 T	057
C/1998 M5	1998 09 07.77839	20 49 31.67	+39 56 43.9		057
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C/1998 M5	1998 09 07.81542	20 49 24.01	+39 56 56.8		057

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C/1998 M5	1998 09 07.82326	20 49 22.15	+39 57 01.3		057

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C/1998 M6	1998 08 16.88666	20 16 26.98	-14 28 33.9		046
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C/1998 P1	1998 08 17.02810	14 25 19.22	-57 27 14.1		844
C/1998 P1	1998 08 17.52929	14 23 02.36	-56 54 58.8	14.1 N	1 422
C/1998 P1	1998 08 17.52964	14 23 02.27	-56 54 57.4	14.2 N	1 422
C/1998 P1	1998 08 17.98420	14 21 04.75	-56 26 09.4		834
C/1998 P1	1998 08 18.01963	14 20 55.51	-56 23 54.7	11.2 T	844
C/1998 P1	1998 08 18.05821	14 20 46.15	-56 21 26.8	10.4 T	844
C/1998 P1	1998 08 18.99164	14 17 02.37	-55 23 32.2	10.9 T	844
C/1998 P1	1998 08 18.99302	14 17 02.13	-55 23 26.4	10.6 T	844
C/1998 P1	1998 08 18.99979	14 17 00.23	-55 22 59.4	10.9 T	844
C/1998 P1	1998 08 19.00687	14 16 58.74	-55 22 35.3		1 834
C/1998 P1	1998 08 19.01306	14 16 57.18	-55 22 11.4	10.9 T	844
C/1998 P1	1998 08 19.03917	14 16 51.28	-55 20 34.6	10.8 T	844
C/1998 P1	1998 08 19.05638	14 16 47.33	-55 19 31.2		1 834
C/1998 P1	1998 08 21.99146	14 07 08.12	-52 27 55.8	11.0 T	844
C/1998 P1	1998 08 22.01995	14 07 03.09	-52 26 18.9	10.9 T	844
C/1998 P1	1998 08 22.04138	14 06 59.55	-52 25 07.6	10.5 T	844
C/1998 P1	1998 08 23.43472	14 03 17.20	-51 09 22.1		415
C/1998 P1	1998 08 24.95788	13 59 43.80	-49 50 25.3	10.4 T	844

1998 SEPT. 10

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C/1998 P1	1998 08 24.97486	13 59 41.47	-49 49 33.6	10.4 T	844
C/1998 P1	1998 08 24.98625	13 59 40.01	-49 48 59.3		834
C/1998 P1	1998 08 25.02042	13 59 35.49	-49 47 16.0	10.6 T	844
C/1998 P1	1998 08 25.37685	13 58 49.89	-49 29 26.1	14.1 T	430
C/1998 P1	1998 08 25.38264	13 58 49.13	-49 29 09.0	13.9 T	430
C/1998 P1	1998 08 25.40694	13 58 46.03	-49 27 55.9	13.8 T	430
C/1998 P1	1998 08 25.40833	13 58 45.86	-49 27 51.6	13.8 T	430
C/1998 P1	1998 08 25.41458	13 58 45.05	-49 27 32.9	14.0 T	430
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C/1998 P1	1998 08 25.42094	13 58 44.21	-49 27 13.4	14.2 N	422
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C/1998 P1	1998 08 27.03208	13 55 34.57	-48 09 21.0	1	834
C/1998 P1	1998 08 27.99062	13 53 53.31	-47 25 03.0		834
C/1998 P1	1998 08 28.01784	13 53 50.60	-47 23 48.3		844
C/1998 P1	1998 08 28.03772	13 53 48.54	-47 22 52.5		844
C/1998 P1	1998 08 28.04800	13 53 47.38	-47 22 23.7		844
C/1998 P1	1998 08 28.40466	13 53 12.06	-47 06 23.1		426
C/1998 P1	1998 08 28.40948	13 53 11.58	-47 06 10.0		426
C/1998 P1	1998 08 28.41416	13 53 11.11	-47 05 57.3	12.6 N	426
C/1998 P1	1998 08 30.05428	13 50 40.05	-45 54 28.7	9.9 T	844
C/1998 P1	1998 08 30.05595	13 50 39.86	-45 54 24.6	9.9 T	844
C/1998 P1	1998 08 30.06458	13 50 39.12	-45 54 02.9	9.9 T	844
C/1998 P1	1998 08 31.02641	13 49 19.36	-45 14 01.3		834

C/1998 Q1 (LINEAR)

C/1998 Q1	1998 08 24.29673	22 09 01.31	+00 18 34.4	17.7 T	704
C/1998 Q1	1998 08 24.31316	22 09 01.60	+00 17 48.9		704
C/1998 Q1	1998 08 24.32962	22 09 01.88	+00 17 03.8		704
C/1998 Q1	1998 08 24.34604	22 09 02.20	+00 16 18.3	18.0 T	704
C/1998 Q1	1998 08 24.36251	22 09 02.38	+00 15 33.9	18.8 T	704
C/1998 Q1	1998 08 25.11678	22 09 20.19	-00 19 01.8	16.3 T	758
C/1998 Q1	1998 08 25.12859	22 09 20.43	-00 19 34.0	16.2 T	758
C/1998 Q1	1998 08 25.13219	22 09 20.61	-00 19 46.8		734
C/1998 Q1	1998 08 25.13554	22 09 20.60	-00 19 53.6	16.5 T	758
C/1998 Q1	1998 08 25.14039	22 09 20.77	-00 20 08.0		734
C/1998 Q1	1998 08 25.15330	22 09 20.99	-00 20 43.5		734
C/1998 Q1	1998 08 25.32379	22 09 24.30	-00 28 29.4		711
C/1998 Q1	1998 08 25.32828	22 09 24.38	-00 28 41.6		711
C/1998 Q1	1998 08 25.33274	22 09 24.46	-00 28 54.0		711
C/1998 Q1	1998 08 25.35352	22 09 25.05	-00 29 53.6		658
C/1998 Q1	1998 08 25.35571	22 09 25.09	-00 29 59.6		658
C/1998 Q1	1998 08 25.35763	22 09 25.13	-00 30 04.9		658
C/1998 Q1	1998 08 25.50117	22 09 28.85	-00 36 22.3	15.6 T	426
C/1998 Q1	1998 08 25.50527	22 09 28.93	-00 36 33.3	15.5 T	426
C/1998 Q1	1998 08 25.51040	22 09 29.03	-00 36 47.7	15.5 T	426
C/1998 Q1	1998 08 25.51654	22 09 29.16	-00 37 04.5	15.4 T	426
C/1998 Q1	1998 08 25.52149	22 09 29.12	-00 37 18.4	17.7 N	422

C/1998 Q1	1998 08 25.52257	22 09 29.12	-00 37 20.7	17.4 N	422
C/1998 Q1	1998 08 25.52441	22 09 29.16	-00 37 26.9	17.8 N	422
C/1998 Q1	1998 08 25.52645	22 09 29.22	-00 37 32.3	17.5 N	422
C/1998 Q1	1998 08 25.85088	22 09 36.58	-00 52 30.5	14.9 T	587
C/1998 Q1	1998 08 25.85677	22 09 36.71	-00 52 46.2		587
C/1998 Q1	1998 08 25.86134	22 09 36.82	-00 52 59.7		587
C/1998 Q1	1998 08 25.86615	22 09 37.00	-00 53 12.3		587
C/1998 Q1	1998 08 25.89590	22 09 37.54	-00 54 33.6	16.2 T	504
C/1998 Q1	1998 08 25.89699	22 09 37.55	-00 54 37.0		504
C/1998 Q1	1998 08 25.89781	22 09 37.56	-00 54 39.0	16.1 T	504
C/1998 Q1	1998 08 25.89856	22 09 37.59	-00 54 41.1	16.1 T	504
C/1998 Q1	1998 08 25.90047	22 09 37.64	-00 54 46.0	16.1 T	504
C/1998 Q1	1998 08 25.90749	22 09 37.70	-00 55 05.1	15.8 T	504
C/1998 Q1	1998 08 25.90826	22 09 37.76	-00 55 07.2	15.9 T	504
C/1998 Q1	1998 08 25.99811	22 09 39.40	-00 59 12.7	16.9 N	557
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C/1998 Q1	1998 08 26.07078	22 09 41.76	-01 02 27.3	15.3 T	758
C/1998 Q1	1998 08 26.07368	22 09 41.78	-01 02 36.2	15.5 T	758
C/1998 Q1	1998 08 26.07650	22 09 41.80	-01 02 43.1	15.8 T	758
C/1998 Q1	1998 08 26.08130	22 09 41.98	-01 02 55.6	16.1 T	758
C/1998 Q1	1998 08 26.09404	22 09 42.24	-01 03 28.8	16.0 T	758
C/1998 Q1	1998 08 26.21186	22 09 44.42	-01 08 52.1		750
C/1998 Q1	1998 08 26.23630	22 09 44.83	-01 10 00.1		750
C/1998 Q1	1998 08 27.82266	22 10 20.65	-02 21 11.3	15.7 T	596
C/1998 Q1	1998 08 27.83008	22 10 20.86	-02 21 30.4		596
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C/1998 Q1	1998 08 29.23854	22 10 52.05	-03 23 38.5	16.7 T	670
C/1998 Q1	1998 08 29.24653	22 10 52.13	-03 24 00.3		670
C/1998 Q1	1998 08 29.26146	22 10 52.47	-03 24 39.1		670
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C/1998 Q1	1998 08 29.63222	22 11 00.40	-03 40 37.2	15.4 T	426
C/1998 Q1	1998 08 29.89045	22 11 06.51	-03 52 04.5		108
C/1998 Q1	1998 08 29.89508	22 11 06.62	-03 52 15.6		108
C/1998 Q1	1998 08 29.89903	22 11 06.69	-03 52 25.9	16.0 T	108
C/1998 Q1	1998 08 29.94953	22 11 07.64	-03 54 37.5	16.2 T	504
C/1998 Q1	1998 08 29.95071	22 11 07.65	-03 54 41.0	16.0 T	504
C/1998 Q1	1998 08 29.95571	22 11 07.74	-03 54 53.8	16.1 T	504
C/1998 Q1	1998 08 29.95934	22 11 07.84	-03 55 03.0	15.9 T	504
C/1998 Q1	1998 08 30.80134	22 11 27.07	-04 31 18.0		046
C/1998 Q1	1998 08 30.80447	22 11 27.07	-04 31 26.9		046
C/1998 Q1	1998 08 30.80597	22 11 27.11	-04 31 30.1		046
C/1998 Q1	1998 08 30.80674	22 11 27.16	-04 31 33.0		046
C/1998 Q1	1998 08 31.64097	22 11 45.45	-05 06 59.5	15.6 T	360
C/1998 Q1	1998 08 31.64497	22 11 45.52	-05 07 09.0		360
C/1998 Q1	1998 08 31.65313	22 11 45.68	-05 07 29.6	5	360
C/1998 Q1	1998 08 31.85037	22 11 50.55	-05 15 50.8		046
C/1998 Q1	1998 08 31.85220	22 11 50.58	-05 15 55.4		046
C/1998 Q1	1998 08 31.85450	22 11 50.62	-05 16 01.0		046
C/1998 Q1	1998 08 31.90639	22 11 51.67	-05 18 12.3		557

C/1998 Q1	1998 08 31.90837	22 11 51.69	-05 18 17.2		557	21P	1998 08 06.49392	16 18 10.02	+25 29 11.2		351
C/1998 Q1	1998 09 01.11914	22 11 56.81	-05 27 08.2	16.6 N	758	21P	1998 08 06.90809	16 18 08.96	+25 24 29.3		046
C/1998 Q1	1998 09 01.12300	22 11 56.56	-05 27 14.9	17.1 N	758	21P	1998 08 06.91046	16 18 08.96	+25 24 28.1		046
C/1998 Q1	1998 09 01.13063	22 11 57.09	-05 27 36.0	17.1 N	758	21P	1998 08 06.91257	16 18 08.95	+25 24 27.0		046
C/1998 Q1	1998 09 01.68750	22 12 08.94	-05 50 48.1	17.5 T	372	21P	1998 08 09.81939	16 18 14.25	+24 50 45.3		118
C/1998 Q1	1998 09 02.66850	22 12 31.50	-06 31 13.4	16.0 T	402	21P	1998 08 09.82251	16 18 14.22	+24 50 42.7	13.6 T	118
C/1998 Q1	1998 09 02.67009	22 12 31.52	-06 31 17.0		402	21P	1998 08 09.83553	16 18 14.28	+24 50 34.0	15.4 T	143
C/1998 Q1	1998 09 02.67168	22 12 31.57	-06 31 21.0		402	21P	1998 08 09.84532	16 18 14.32	+24 50 26.8	15.4 T	143
C/1998 Q1	1998 09 02.69306	22 12 31.96	-06 32 09.9		372	21P	1998 08 09.85707	16 18 14.35	+24 50 18.4	15.4 T	143
C/1998 Q1	1998 09 02.69514	22 12 32.06	-06 32 18.5	15.7 T	360	21P	1998 08 10.85968	16 18 21.22	+24 38 08.9	12.9 T	504
C/1998 Q1	1998 09 02.69757	22 12 32.09	-06 32 24.6		360	21P	1998 08 10.86606	16 18 21.24	+24 38 03.7		504
C/1998 Q1	1998 09 02.69965	22 12 32.15	-06 32 29.6		360	21P	1998 08 10.86877	16 18 21.28	+24 38 02.2	12.9 T	504
C/1998 Q1	1998 09 02.70313	22 12 32.11	-06 32 36.1		372	21P	1998 08 10.87027	16 18 21.32	+24 38 01.4	13.1 T	504
4P/Faye						21P	1998 08 10.99172	16 18 22.06	+24 36 30.7		046
4P	1998 07 03.72537	20 15 10.84	-06 34 30.5	18.7 T	867	21P	1998 08 10.99270	16 18 22.07	+24 36 30.1		046
4P	1998 07 03.73231	20 15 10.54	-06 34 30.5		867	21P	1998 08 10.99456	16 18 22.08	+24 36 28.7		046
4P	1998 07 03.73995	20 15 10.25	-06 34 30.4		867	21P	1998 08 11.51410	16 18 27.17	+24 30 06.9	14.2 T	351
4P	1998 08 09.83882	19 44 44.63	-07 55 44.9		4 118	21P	1998 08 11.51815	16 18 26.89	+24 30 05.3		351
4P	1998 08 09.84060	19 44 44.57	-07 55 44.8	17 T	4 118	21P	1998 08 11.51921	16 18 26.90	+24 30 03.5	13.4 T	402
4P	1998 08 10.86558	19 43 55.29	-07 59 55.7	17.4 T	143	21P	1998 08 11.52026	16 18 26.92	+24 30 02.6		402
4P	1998 08 10.87344	19 43 54.95	-07 59 59.9	17.5 T	143	21P	1998 08 11.52130	16 18 26.92	+24 30 01.9		402
4P	1998 08 10.88128	19 43 54.52	-08 00 00.8	17.6 T	143	21P	1998 08 11.52250	16 18 26.73	+24 30 00.7		351
4P	1998 08 14.90303	19 40 49.32	-08 17 06.8	16.2 T	504	21P	1998 08 11.52427	16 18 27.14	+24 29 59.6		351
4P	1998 08 14.90867	19 40 49.03	-08 17 08.1		504	21P	1998 08 15.80863	16 19 31.95	+23 34 40.5	13.4 T	118
4P	1998 08 14.91770	19 40 48.59	-08 17 10.2	16.5 T	504	21P	1998 08 15.81351	16 19 32.03	+23 34 36.5		118
4P	1998 08 15.59705	19 40 18.60	-08 20 07.7	16.9 T	360	21P	1998 08 17.85845	16 20 19.31	+23 06 43.9		118
4P	1998 08 15.60156	19 40 18.39	-08 20 09.0		360	21P	1998 08 17.86493	16 20 19.48	+23 06 38.4	13.2 T	118
4P	1998 08 16.43635	19 39 42.44	-08 23 46.2		426	21P	1998 08 19.82988	16 21 15.36	+22 38 58.5	13.5 T	605
4P	1998 08 16.45118	19 39 41.79	-08 23 49.6		426	21P	1998 08 19.84138	16 21 15.74	+22 38 48.6	13.4 T	605
4P	1998 08 16.46594	19 39 41.14	-08 23 53.7	16.0 T	426	21P	1998 08 20.14746	16 21 25.62	+22 34 25.7	13.6 T	699
4P	1998 08 16.92093	19 39 21.61	-08 26 01.3	16.8 T	504	21P	1998 08 20.16236	16 21 26.10	+22 34 14.0		699
4P	1998 08 16.92400	19 39 21.49	-08 26 02.1	16.7 T	504	21P	1998 08 20.17723	16 21 26.61	+22 33 59.3		699
4P	1998 08 17.93141	19 38 39.13	-08 30 33.0		118	21P	1998 08 20.49853	16 21 36.01	+22 29 19.4	12.8 T	351
4P	1998 08 17.93941	19 38 38.79	-08 30 35.7	17.2 T	118	21P	1998 08 20.50730	16 21 36.04	+22 29 17.7		351
4P	1998 08 25.59010	19 33 55.42	-09 06 07.1	16.5 T	360	21P	1998 08 20.52045	16 21 37.05	+22 29 05.9		351
4P	1998 08 25.59427	19 33 55.27	-09 06 08.3		360	21P	1998 08 20.85069	16 21 48.07	+22 24 18.2	13.5 T	476
4P	1998 09 04.49867	19 29 45.28	-09 53 24.1	16.9 T	402	21P	1998 08 20.85695	16 21 48.35	+22 24 13.8	13.5 T	476
4P	1998 09 04.50076	19 29 45.24	-09 53 24.8		402	21P	1998 08 20.86424	16 21 48.55	+22 24 07.4	13.5 T	476
4P	1998 09 04.50285	19 29 45.22	-09 53 25.5		402	21P	1998 08 20.87049	16 21 48.80	+22 24 01.1	13.5 T	476
21P/Giacobini-Zinner						21P	1998 08 21.13655	16 21 57.71	+22 20 11.1	13.4 N	758
21P	1998 07 18.60939	16 26 18.96	+28 02 29.3	14.3 T	867	21P	1998 08 21.14268	16 21 57.86	+22 20 07.0	13.5 N	758
21P	1998 07 18.61460	16 26 18.70	+28 02 27.8		867	21P	1998 08 21.45260	16 22 08.70	+22 15 35.4	12.5 T	402
21P	1998 07 18.61980	16 26 18.46	+28 02 26.5		867	21P	1998 08 21.45399	16 22 08.75	+22 15 34.2		402
21P	1998 07 26.87882	16 21 01.12	+27 10 20.0		118	21P	1998 08 21.45538	16 22 08.79	+22 15 32.9		402
21P	1998 07 26.88646	16 21 00.88	+27 10 16.4	14.2 T	118	21P	1998 08 23.86076	16 23 40.34	+21 39 48.0	13.3 T	476
21P	1998 08 05.83203	16 18 12.71	+25 36 24.8	15.1 T	143	21P	1998 08 23.87326	16 23 40.78	+21 39 37.2	13.3 T	476
21P	1998 08 05.83986	16 18 12.75	+25 36 19.4	15.0 T	143	21P	1998 08 23.87951	16 23 41.29	+21 39 32.0	13.2 T	476
21P	1998 08 05.84769	16 18 12.69	+25 36 15.4	15.1 T	143	21P	1998 08 23.88646	16 23 41.44	+21 39 24.9	13.2 T	476
21P	1998 08 05.85051	16 18 12.50	+25 36 12.3		118	21P	1998 08 24.05828	16 23 48.75	+21 36 51.6	13.4 T	758
21P	1998 08 05.85367	16 18 12.53	+25 36 10.0		118	21P	1998 08 24.06064	16 23 48.81	+21 36 49.1	13.4 T	758
21P	1998 08 05.85501	16 18 12.52	+25 36 09.0	14.7 T	118	21P	1998 08 24.08917	16 23 50.00	+21 36 22.8	13.3 T	758
21P	1998 08 06.48346	16 18 09.98	+25 29 18.9	14.5 T	351	21P	1998 08 24.09442	16 23 50.16	+21 36 18.4	13.3 T	758
						21P	1998 08 24.84117	16 24 21.93	+21 24 56.6	14.7 N	143

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21P	1998 08 24.84705	16 24 22.18	+21 24 51.1	14.6 N	143
21P	1998 08 24.85684	16 24 22.59	+21 24 41.9	14.6 N	143
21P	1998 08 25.04619	16 24 31.19	+21 21 49.2		758
21P	1998 08 25.04874	16 24 31.27	+21 21 46.6	13.7 T	758
21P	1998 08 25.10002	16 24 33.44	+21 20 59.1	13.3 T	758
21P	1998 08 25.10615	16 24 33.68	+21 20 53.7	13.4 T	758
21P	1998 08 25.80309	16 25 05.42	+21 10 08.0	13.0 T	118
21P	1998 08 25.80551	16 25 05.50	+21 10 05.7		118
21P	1998 08 25.82534	16 25 06.17	+21 09 48.5	14.6 N	143
21P	1998 08 25.83514	16 25 06.62	+21 09 39.4	14.5 N	143
21P	1998 08 25.84649	16 25 07.09	+21 09 29.0	14.5 N	143
21P	1998 08 26.02542	16 25 15.73	+21 06 44.9	12.8 T	758
21P	1998 08 26.02852	16 25 15.79	+21 06 41.5	13.1 T	758
21P	1998 08 30.13039	16 28 48.34	+20 01 32.6	17.1 N	691
21P	1998 08 30.14124	16 28 48.95	+20 01 22.2	13.1 T	691
21P	1998 08 30.15134	16 28 49.52	+20 01 12.3	13.0 T	691
21P	1998 08 31.08617	16 29 44.25	+19 45 54.8	14.5 T	750
21P	1998 08 31.10537	16 29 45.31	+19 45 35.4	14.6 T	750
21P	1998 08 31.48059	16 30 07.83	+19 39 25.6	13.7 T	351
21P	1998 08 31.49027	16 30 08.33	+19 39 16.4		351
21P	1998 09 03.45821	16 33 19.19	+18 49 32.8	12.5 T	402
21P	1998 09 03.45925	16 33 19.27	+18 49 31.9		402
21P	1998 09 03.46029	16 33 19.33	+18 49 31.0		402
21P	1998 09 07.80115	16 38 38.38	+17 33 58.2		046
21P	1998 09 07.80234	16 38 38.49	+17 33 57.1		046
21P	1998 09 07.80372	16 38 38.59	+17 33 55.7		046

43P/Wolf-Harrington

43P	1998 01 09.04330	10 14 19.36	-18 17 10.7		517
43P	1998 01 09.05934	10 14 19.08	-18 17 24.5		517
43P	1998 01 09.07328	10 14 18.75	-18 17 37.4		517
43P	1998 01 09.08025	10 14 18.67	-18 17 43.1		517
43P	1998 01 09.08747	10 14 18.52	-18 17 49.5		517
43P	1998 01 09.09443	10 14 18.37	-18 17 55.1		517
43P	1998 01 09.11832	10 14 17.88	-18 18 15.9		517
43P	1998 01 09.14877	10 14 17.26	-18 18 41.9		517
43P	1998 01 09.16024	10 14 17.13	-18 18 52.4		517
43P	1998 01 09.16721	10 14 17.01	-18 18 58.1		517
43P	1998 01 09.17429	10 14 16.79	-18 19 04.0		517

52P/Harrington-Abell

52P	1998 07 23.77640	03 41 33.11	+27 44 09.6		867
52P	1998 07 23.78126	03 41 33.61	+27 44 12.3		867
52P	1998 07 23.78543	03 41 34.09	+27 44 14.4		867
52P	1998 07 30.77639	03 54 44.30	+28 44 41.0	14.5 T	372
52P	1998 08 02.79097	04 00 29.05	+29 10 07.1		372
52P	1998 08 03.78403	04 02 23.01	+29 18 24.4	14.4 T	372
52P	1998 08 04.77361	04 04 16.95	+29 26 37.4		372
52P	1998 08 04.78403	04 04 18.15	+29 26 42.4	13.4 T	360
52P	1998 08 04.78646	04 04 18.43	+29 26 43.7		360
52P	1998 08 04.79948	04 04 19.85	+29 26 50.5		372
52P	1998 08 06.05604	04 06 44.70	+29 37 10.8	14.8 T	143
52P	1998 08 06.06389	04 06 45.61	+29 37 15.1	14.8 T	143
52P	1998 08 06.06608	04 06 45.97	+29 37 16.0	12.7 T	046

52P	1998 08 06.06728	04 06 46.13	+29 37 16.6		046
52P	1998 08 06.06846	04 06 46.27	+29 37 17.2	15.5 N	046
52P	1998 08 06.07173	04 06 46.41	+29 37 18.3	14.7 T	143
52P	1998 08 07.07132	04 08 42.20	+29 45 30.3		118
52P	1998 08 07.07325	04 08 42.38	+29 45 30.9		118
52P	1998 08 07.07515	04 08 42.67	+29 45 31.8	13.3 T	118
52P	1998 08 09.06612	04 12 33.59	+30 01 42.6		118
52P	1998 08 09.06991	04 12 34.06	+30 01 44.7	13.7 T	118
52P	1998 08 10.74331	04 15 48.74	+30 15 12.9		355
52P	1998 08 10.74536	04 15 49.05	+30 15 13.7	13.6 T	355
52P	1998 08 10.74862	04 15 49.36	+30 15 15.1		355
52P	1998 08 11.05203	04 16 24.71	+30 17 39.6	15.0 T	143
52P	1998 08 11.06183	04 16 25.89	+30 17 44.2	14.9 T	143
52P	1998 08 11.06771	04 16 26.58	+30 17 47.5	15.0 T	143
52P	1998 08 20.08366	04 34 06.81	+31 27 51.5		118
52P	1998 08 20.09140	04 34 07.73	+31 27 55.0		118
52P	1998 08 20.10468	04 34 09.30	+31 28 01.5	13.1 T	118
52P	1998 08 20.74777	04 35 25.55	+31 32 52.1		372
52P	1998 08 22.05605	04 38 00.51	+31 42 38.6	15.2 N	143
52P	1998 08 22.06389	04 38 01.41	+31 42 42.1	15.1 N	143
52P	1998 08 22.07370	04 38 02.54	+31 42 46.4	15.1 N	143
52P	1998 08 22.75348	04 39 23.12	+31 47 50.4	14.7 T	351
52P	1998 08 22.76358	04 39 24.57	+31 47 55.1		351
52P	1998 08 22.76757	04 39 24.99	+31 47 57.7		351
52P	1998 08 22.78460	04 39 27.10	+31 48 04.6	13.3 T	402
52P	1998 08 22.78564	04 39 27.23	+31 48 05.1		402
52P	1998 08 22.78668	04 39 27.35	+31 48 05.6		402
52P	1998 08 25.73819	04 45 18.60	+32 09 43.8		372
52P	1998 08 25.81042	04 45 27.19	+32 10 15.6	13.5 T	360
52P	1998 08 25.81285	04 45 27.47	+32 10 16.7		360
52P	1998 08 26.10390	04 46 02.01	+32 12 21.9	16.2 N	143
52P	1998 08 26.11176	04 46 02.87	+32 12 25.3	16.1 N	143
52P	1998 08 26.12353	04 46 04.27	+32 12 30.6	16.0 N	143
52P	1998 08 30.31104	04 54 24.20	+32 42 23.2	14.4 T	758
52P	1998 08 30.31433	04 54 24.62	+32 42 24.5	14.5 T	758
52P	1998 08 30.36460	04 54 30.60	+32 42 45.9	14.7 T	758
52P	1998 08 30.36705	04 54 30.77	+32 42 47.0	14.6 T	758
52P	1998 08 30.81035	04 55 23.81	+32 45 57.6	18.4 N	422
52P	1998 09 01.12541	04 58 01.52	+32 55 00.7		046
52P	1998 09 01.12671	04 58 01.66	+32 55 01.2		046
52P	1998 09 01.12803	04 58 01.82	+32 55 01.8		046
52P	1998 09 01.80990	04 59 23.50	+32 59 45.7		372
52P	1998 09 02.78021	05 01 19.78	+33 06 25.2		372
52P	1998 09 02.80105	05 01 22.20	+33 06 33.0		867
52P	1998 09 02.80403	05 01 22.58	+33 06 33.7		352
52P	1998 09 02.80453	05 01 22.66	+33 06 34.5		867
52P	1998 09 02.80681	05 01 22.86	+33 06 35.1	13.6 T	352
52P	1998 09 02.80868	05 01 23.15	+33 06 36.3	13.6 T	360
52P	1998 09 02.80958	05 01 23.06	+33 06 36.2		352
52P	1998 09 02.81111	05 01 23.44	+33 06 37.4		360
52P	1998 09 05.00748	05 05 46.76	+33 21 27.5		118
52P	1998 09 05.01309	05 05 47.44	+33 21 29.8		118

55P/Tempel-Tuttle						68P	1998 09 02.76979	03 38 15.08	+11 26 43.6		360
55P	1998 01 08.97481	12 24 01.80	+49 52 39.3		517	68P	1998 09 02.77466	03 38 15.27	+11 26 41.7	16.4 T	867
55P	1998 01 08.98021	12 24 00.66	+49 53 44.0		517	68P	1998 09 02.77953	03 38 15.51	+11 26 40.7		867
55P	1998 01 08.98200	12 24 00.35	+49 54 05.7		517	74P/Smirnova-Chernykh					
55P	1998 01 08.98391	12 23 59.98	+49 54 28.5		517	74P	1998 09 02.79827	03 57 25.21	+16 51 08.3	18.3 T	360
59P/Kearns-Kwee						74P	1998 09 02.80313	03 57 25.33	+16 51 08.4		360
59P	1998 07 27.46885	23 30 01.57	+02 57 33.8		696	81P/Wild 2					
59P	1998 07 27.47272	23 30 01.52	+02 57 34.4		696	81P	1989 10 04.50637	03 54 40.70	+16 11 10.7		568
59P	1998 07 27.47659	23 30 01.45	+02 57 35.0	20.5 T	696	81P	1992 08 02.33534	21 52 41.75	-13 20 44.5		568
59P	1998 08 30.34418	23 14 39.82	+02 58 43.8	21.8 N	691	81P	1992 08 02.34087	21 52 41.53	-13 20 45.8		568
59P	1998 08 30.35466	23 14 39.39	+02 58 42.5	20.7 T	691	81P	1992 08 02.35209	21 52 41.05	-13 20 48.6		568
59P	1998 08 30.36642	23 14 38.91	+02 58 41.2	20.2 T	691	81P	1992 08 02.35754	21 52 40.83	-13 20 49.8		568
59P	1998 08 31.24987	23 14 03.38	+02 57 09.8	20.5 T	691	81P	1995 01 02.24491	00 20 19.27	-00 49 33.5		568
59P	1998 08 31.25421	23 14 03.20	+02 57 09.1	20.1 T	691	81P	1995 01 02.25294	00 20 19.37	-00 49 32.1		568
59P	1998 08 31.25888	23 14 03.02	+02 57 08.7	20.4 T	691	81P	1995 01 02.26103	00 20 19.51	-00 49 31.0		568
59P	1998 09 02.70211	23 12 22.59	+02 52 33.6	20.1 T	867	81P	1996 08 17.60339	06 06 22.04	+20 59 44.7		568
59P	1998 09 02.70905	23 12 22.37	+02 52 32.5		6 867	81P	1996 08 17.61221	06 06 22.94	+20 59 44.7		568
59P	1998 09 02.71600	23 12 21.98	+02 52 32.2		867	81P	1998 08 31.18180	20 23 27.28	-19 02 35.4	20.6 N	691
59P	1998 09 02.72294	23 12 21.76	+02 52 31.7		6 867	81P	1998 08 31.19142	20 23 26.95	-19 02 36.6	18.0 T	691
65P/Gunn						81P	1998 08 31.20011	20 23 26.70	-19 02 38.0	18.3 T	691
65P	1998 08 22.72153	03 46 36.01	+15 18 57.2	19.0 T	402	88P/Howell					
65P	1998 08 22.72431	03 46 36.22	+15 18 55.4		402	88P	1998 08 05.45212	14 05 13.34	-14 23 20.2		426
65P	1998 08 22.72708	03 46 36.30	+15 18 55.8		402	88P	1998 08 05.46608	14 05 15.11	-14 23 31.7		426
68P/Klemola						88P	1998 08 05.47934	14 05 16.77	-14 23 43.0	13.7 N	426
68P	1998 08 05.77622	03 05 40.91	+12 39 20.0	16.5 T	360	91P/Russell 3					
68P	1998 08 05.78038	03 05 41.35	+12 39 20.0		360	91P	1998 07 26.90579	20 18 08.01	-01 08 39.0		6 118
68P	1998 08 06.04188	03 06 05.00	+12 39 13.5	18 T	046	91P	1998 07 26.92106	20 18 07.32	-01 08 39.0	18.6 T	6 118
68P	1998 08 06.04422	03 06 05.21	+12 39 12.8		046	91P	1998 08 19.89146	20 02 33.31	-01 54 29.5	18.6 T	504
68P	1998 08 06.04527	03 06 05.37	+12 39 12.9		046	91P	1998 08 19.89846	20 02 33.06	-01 54 30.3	18.4 T	504
68P	1998 08 06.04670	03 06 05.43	+12 39 13.9		046	93P/Lovas 1					
68P	1998 08 07.05334	03 07 35.60	+12 38 43.7		118	93P	1998 07 23.75730	02 31 27.87	+21 47 37.5	15.5 T	867
68P	1998 08 07.05690	03 07 35.93	+12 38 44.3	16.5 T	118	93P	1998 07 23.76251	02 31 28.57	+21 47 43.5		867
68P	1998 08 09.04837	03 10 30.51	+12 37 18.0	16.8 T	6 118	93P	1998 07 23.77050	02 31 29.60	+21 47 51.9		867
68P	1998 08 09.05220	03 10 30.80	+12 37 17.6		6 118	93P	1998 08 05.76354	03 01 02.00	+25 36 36.7	15.7 T	360
68P	1998 08 11.05883	03 13 21.12	+12 35 11.8		046	93P	1998 08 05.76910	03 01 02.76	+25 36 42.4		360
68P	1998 08 11.06303	03 13 21.50	+12 35 11.0		046	93P	1998 08 06.03380	03 01 39.78	+25 41 18.5	15.2 T	046
68P	1998 08 11.06760	03 13 21.87	+12 35 10.6		046	93P	1998 08 06.03574	03 01 40.05	+25 41 20.4		046
68P	1998 08 22.76742	03 27 56.67	+12 09 52.4	16.8 T	402	93P	1998 08 06.03683	03 01 40.22	+25 41 21.6		046
68P	1998 08 22.76950	03 27 56.83	+12 09 52.5		402	93P	1998 08 07.02859	03 03 59.27	+25 58 40.9		118
68P	1998 08 22.77159	03 27 56.95	+12 09 52.1		402	93P	1998 08 07.03157	03 03 59.65	+25 58 43.8	15.5 T	118
68P	1998 08 25.78785	03 31 07.16	+11 59 49.5	17.4 T	360	93P	1998 08 09.03435	03 08 41.94	+26 33 37.2		118
68P	1998 08 25.79201	03 31 07.41	+11 59 48.8		360	93P	1998 08 09.03806	03 08 42.43	+26 33 41.0	15.8 T	118
68P	1998 08 31.40768	03 36 20.16	+11 37 27.2		704	93P	1998 08 11.07019	03 13 30.97	+27 08 55.8		046
68P	1998 08 31.41654	03 36 20.46	+11 37 27.2		704	93P	1998 08 11.07230	03 13 31.25	+27 08 58.3		046
68P	1998 08 31.42623	03 36 21.14	+11 37 25.3		704	93P	1998 08 11.07666	03 13 31.89	+27 09 02.9		046
68P	1998 08 31.43610	03 36 21.69	+11 37 22.5		704	93P	1998 08 20.05317	03 35 10.30	+29 42 35.0		118
68P	1998 08 31.44592	03 36 21.97	+11 37 17.9		704	93P	1998 08 20.05951	03 35 11.19	+29 42 41.4	15.7 T	118
68P	1998 09 01.07975	03 36 53.88	+11 34 29.1		046	93P	1998 08 22.74316	03 41 46.22	+30 27 44.0	15.5 T	402
68P	1998 09 01.08212	03 36 53.98	+11 34 28.4		046	93P	1998 08 22.74524	03 41 46.51	+30 27 46.0		402
68P	1998 09 01.08413	03 36 54.07	+11 34 27.8		046	93P	1998 08 22.74733	03 41 46.83	+30 27 48.3		402
68P	1998 09 02.76580	03 38 14.90	+11 26 44.6	17.6 T	360	93P	1998 08 25.80417	03 49 19.90	+31 18 29.1	15.5 T	360

93P	1998 08 25.80660	03 49 20.27	+31 18 31.3		360
93P	1998 08 26.07722	03 50 00.66	+31 22 57.1	16.4 T	143
93P	1998 08 26.07919	03 50 00.93	+31 22 57.9	16.3 T	143
93P	1998 08 26.08115	03 50 01.18	+31 23 00.2	16.5 T	143
93P	1998 08 26.08311	03 50 01.55	+31 23 02.8	16.2 T	143
93P	1998 08 26.08508	03 50 01.80	+31 23 04.7	16.3 T	143
93P	1998 08 26.08704	03 50 02.03	+31 23 07.0	16.3 T	143
93P	1998 08 26.08900	03 50 02.43	+31 23 08.1	16.4 T	143
93P	1998 08 26.09097	03 50 02.60	+31 23 10.7	16.4 T	143
93P	1998 08 26.09293	03 50 02.97	+31 23 12.2	16.4 T	143
93P	1998 08 26.09490	03 50 03.22	+31 23 14.3	16.3 T	143
93P	1998 08 26.09685	03 50 03.54	+31 23 16.3	16.3 T	143
93P	1998 08 26.09882	03 50 03.82	+31 23 18.1	16.3 T	143
93P	1998 09 02.79132	04 09 17.78	+33 27 17.8	15.1 T	360
93P	1998 09 02.79392	04 09 18.20	+33 27 20.1		360
93P	1998 09 02.81326	04 09 21.00	+33 27 38.6	15.2 T	352
93P	1998 09 02.81604	04 09 21.49	+33 27 40.9		352
93P	1998 09 02.81882	04 09 21.86	+33 27 44.2		352
93P	1998 09 05.02689	04 14 55.96	+34 02 16.4		118
93P	1998 09 05.03164	04 14 56.67	+34 02 20.7	15.7 T	118

103P/Hartley 2

103P	1998 01 08.77170	00 09 22.49	-06 09 50.3		517
103P	1998 01 08.77461	00 09 23.41	-06 09 47.9		517
103P	1998 01 08.77655	00 09 24.01	-06 09 45.8		517

116P/Wild 4

116P	1998 06 19.42912	23 25 06.52	-06 55 12.6	20.2 T	6 696
116P	1998 06 19.43882	23 25 06.58	-06 55 12.4	20.1 T	696
116P	1998 06 19.44616	23 25 06.70	-06 55 11.8	20.0 T	696

117P/Helin-Roman-Alu 1

117P	1998 08 22.67792	00 50 40.08	-07 07 46.5	17.5 T	402
117P	1998 08 22.68139	00 50 40.03	-07 07 47.2		402
117P	1998 08 22.68486	00 50 39.98	-07 07 47.6		402
117P	1998 08 26.03461	00 49 39.28	-07 19 11.6	16.5 T	143
117P	1998 08 26.03853	00 49 39.16	-07 19 11.6	16.7 T	143

130P/McNaught-Hughes

130P	1998 07 28.43398	02 15 50.93	+05 02 01.4		696
130P	1998 07 28.43785	02 15 51.18	+05 02 02.1		696
130P	1998 07 28.44172	02 15 51.38	+05 02 02.7	19.3 T	696
130P	1998 08 04.77014	02 22 29.45	+05 18 56.8	19.1 T	360
130P	1998 08 04.77448	02 22 29.69	+05 18 57.4		360
130P	1998 08 04.77934	02 22 29.96	+05 18 58.2		360
130P	1998 08 31.45646	02 36 23.62	+05 24 56.1	20.5 N	691
130P	1998 08 31.46729	02 36 23.72	+05 24 55.3	19.2 T	691
130P	1998 08 31.47759	02 36 23.79	+05 24 54.5	19.5 T	691
130P	1998 09 02.72714	02 36 44.13	+05 21 36.3	18.4 T	402
130P	1998 09 02.73270	02 36 44.13	+05 21 35.7		402
130P	1998 09 02.73475	02 36 44.18	+05 21 35.4	18.4 T	867
130P	1998 09 02.73825	02 36 44.22	+05 21 36.3		402
130P	1998 09 02.74204	02 36 44.23	+05 21 35.1		867
130P	1998 09 02.74774	02 36 44.25	+05 21 34.5	18.7 T	360

130P	1998 09 02.75106	02 36 44.28	+05 21 34.2		867
130P	1998 09 02.75243	02 36 44.27	+05 21 33.9		360

136P/Mueller 3

136P	1998 08 11.63595	21 22 01.26	-15 29 21.6	18.4 T	402
136P	1998 08 11.63803	21 22 01.04	-15 29 21.8		402
136P	1998 08 11.64012	21 22 00.99	-15 29 22.4		402
136P	1998 08 31.21126	21 10 33.90	-17 15 27.1	20.8 N	691
136P	1998 08 31.22045	21 10 33.60	-17 15 30.0	18.5 T	691
136P	1998 08 31.22959	21 10 33.31	-17 15 32.5	18.5 T	691
136P	1998 08 31.61910	21 10 21.58	-17 17 26.8	18.2 T	360
136P	1998 08 31.62396	21 10 21.46	-17 17 27.8		360
136P	1998 08 31.62847	21 10 21.30	-17 17 29.3		360

Note 1: bad seeing. 2: poor distribution of reference stars. 3: poor image.
4: involved with star. 5: poor sky. 6: faint image.

OBSERVATIONS OF MINOR PLANETS

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

033 Tautenburg

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1.3-m Schmidt telescope
PPM

1992 CK, 3, 2, 1; 1992 DY₁₃ *, 3, 2, 1; 1992 DZ₁₃ *, 3, 2, 1; 1992 DA₁₄ *, 3, 2, 1; 1992 DB₁₄ *, 3, 2, 1; 1992 DC₁₄ *, 3, 2, 1; 1992 DD₁₄ *, 3, 2, 1; 1998 FH₇₇, 3, 2, 1; (1777), 5, 3, 80; (1962), 3, 2, 1; (2271), 3, 2, 1; (2280), 2, 1, 0; (2397), 3, 2, 1; (2584), 5, 3, 80; (3148), 5, 3, 80; (6718), 5, 3, 80; (6904), 3, 2, 1; (7684), 3, 2, 1; [61, 18, 6*, 1991/12/13-1992/03/01]

046 Kleť

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

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

Measurer M. Tichý

0.57-m *f*/5.2 reflector + CCD

GSC, USNO-SA1.0

1981 TT, 6, 2, 1; 1982 UM₂, 6, 2, 2; 1983 RB₂, 7, 2, 1; 1986 UH₃, 6, 2, 3; 1987 OA, 4, 1, 0; 1987 SC₆, 9, 3, 26; 1989 BV₁, 10, 3, 17; 1992 SB₁, 3, 1, 0; 1992 YG₂, 4, 1, 0; 1993 PB, 5, 1, 0; 1996 AE, 9, 3, 20; 1996 AO₁, 9, 3, 17; 1996 XW₁₈, 7, 2, 3; 1997 BG, 3, 1, 0; 1997 CV₁, 5, 2, 3; 1997 CN₁₃, 3, 2, 5; 1997 JA, 4, 1, 0; 1997 MW₁, 4, 1, 0; 1997 US₉, 3, 1, 0; 1998 BZ₇, 3, 1, 0; 1998 KU₂, 11, 3, 31; 1998 KH₁₇, 13, 4, 9; 1998 MQ, 10, 3, 8; 1998 ME₃, 12, 3, 8; 1998 MX₅, 14, 4, 11; 1998 MN₁₄, 11, 3, 8; 1998 MR₁₇, 4, 1, 0; 1998 MR₂₄, 14, 5, 26; 1998 MT₂₄, 19, 6, 26; 1998 MK₃₀, 10, 3, 9; 1998 OH, 17, 5, 9; 1998 OR₂, 5, 1, 0; 1998 OL₁₁, 11, 2, 1; 1998 PF, 13, 3, 5; 1998 PG, 22, 6, 26; 1998 PJ *, 30, 8, 26; 1998 PB₁, 11, 3, 3; 1998 QM, 4, 1, 0; 1998 QN, 4, 1, 0; 1998 QO, 4, 1, 0; 1998 QP, 9, 2, 2; 1998 QQ, 5, 1, 0; 1998 QR *, 14, 4, 14; 1998 QA₁, 8, 2, 12; 1998 QC₁, 9, 2, 2; 1998 QF₁, 4, 1, 0; 1998 QG₁, 4, 1, 0; 1998 QH₁, 4, 1, 0; 1998 QJ₁, 3, 1, 0; 1998 QC₂ *, 10, 2, 12; 1998 QD₂, 4, 1, 0; 1998 QE₂, 7, 1, 0; 1998 QH₂, 3, 1, 0; 1998 QV₃, 3, 1, 0; 1998 QR₁₅, 4, 1, 0; 1998 QK₂₈, 3, 1, 0; 1998 QO₅₂, 3, 1, 0; 1998 QR₅₂, 3, 1, 0; 1998 QS₅₂, 8, 2, 6; 1998 QH₅₆, 5, 1, 0; 1998 QJ₅₆, 3, 1, 0; 1998 QK₅₆, 3, 1, 0; 1998 QT₆₀, 5, 2, 1; 1998 QA₆₂, 5, 1, 0; 1998 QP₆₃, 4, 1, 0; 1998 QQ₆₃, 5, 1, 0; (1039), 3, 1, 0; (2288), 6, 2, 2; (3276), 6, 2, 4; (3278), 3, 1, 0; (3324), 6, 2, 4; (3735), 3, 1, 0; (3753), 2, 1, 0; (3979), 3, 1, 0; (4034), 3, 1, 0; (4277), 6,

2, 3; (4339), 6, 2, 2; (4405), 3, 1, 0; (5026), 12, 4, 8; (5234), 3, 1, 0; (5393), 6, 2, 1; (5844), 6, 2, 4; (5894), 6, 2, 4; (5958), 6, 2, 2; (6134), 4, 1, 0; (6223), 7, 2, 4; (6481), 3, 1, 0; (6627), 6, 2, 2; (6692), 3, 1, 0; (6779), 6, 2, 3; (6801), 3, 1, 0; (6928), 6, 2, 3; (7077), 6, 2, 1; (7358), 3, 1, 0; (7645), 3, 1, 0; (7671), 6, 2, 2; (7699), 3, 1, 0; (8035), 4, 1, 0; (8201), 3, 1, 0; [642, 99, 3*, 1998/08/05–1998/09/07]

071 Bulgarian National Observatory

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

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

Observers V. Radeva, V. Baeva, G. Apostolovska

0.50-m $f/1.4$ Schmidt

(59), 2, 1, 0; (5471), 2, 1, 0; [4, 2, 0*, 1998/06/27–1998/06/28]

091 Aurec-sur-Loire

R. Chanal, Observatoire de Nurol, F-43110 Aurec-sur-Loire, France

0.41-m reflector

(5314), 2, 1, 0; [2, 1, 0*, 1995/03/23–1995/03/24]

098 Asiago Observatory, Cima Ekar

U. Munari, Osservatorio Astronomico di Padova, Sede di Asiago, I-36012 Asiago

(VI), Italy [munari@astras.pd.astro.it]

Observers U. Munari, A. Boattini, M. Tombelli

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

0.67-m $f/3.2$ Schmidt

1995 CG₁, 2, 1, 0; [2, 1, 0*, 1995/02/25–1995/02/26]

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, G. Forti

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

0.40-m $f/5$ reflector + CCD

GSC

1997 AO₇, 3, 1, 0; 1997 EQ₄₀, 7, 2, 2; 1997 GR₅, 7, 2, 3; 1998 OJ, 3, 1, 0; 1998 OK, 5, 1, 0; 1998 OA₁, 11, 3, 28; 1998 OC₁, 3, 1, 0; 1998 OD₁, 11, 3, 12; 1998 OE₁, 4, 1, 0; 1998 OR₆, 8, 2, 2; 1998 PA₁ *, 14, 4, 10; 1998 QA₁, 4, 1, 0; 1998 QB₁, 3, 1, 0; 1998 QY₃ *, 9, 2, 3; 1998 QZ₃ *, 7, 2, 3; [99, 15, 3*, 1995/10/31–1998/08/23]

106 Crni vrh

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

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

0.36-m $f/6.7$ Schmidt-Cassegrain + CCD, 0.2-m $f/2$ Baker Schmidt + CCD

GSC 1.1

1998 PB₁, 5, 1, 0; 1998 QM, 3, 1, 0; 1998 QN, 3, 1, 0; 1998 QO, 3, 1, 0; 1998 QW₃, 3, 1, 0; 1998 QR₁₅, 5, 1, 0; 1998 QS₁₅, 5, 1, 0; 1998 QU₁₅ *, 10, 3, 3; 1998 QK₂₈, 9, 2, 1; 1998 QR₅₂, 4, 1, 0; 1998 QJ₅₆, 5, 1, 0; (678), 2, 1, 0; (3028), 1, 1, 0; (4912), 1, 1, 0; [59, 14, 1*, 1998/08/16–1998/08/30]

108 Montelupo

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

[iau@arcetri.astro.it]

Observers M. Tombelli, D. Guidetti, G. Forti, E. Masotti, S. Amici, L. Badiali

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

GSC

1996 CO₇, 2, 1, 0; 1997 BG₈, 2, 1, 0; 1997 BC₉, 8, 2, 1; 1997 US₉, 3, 1, 0; 1998 ME₃, 2, 1, 0; 1998 MX₅, 12, 4, 26; 1998 MR₁₇, 4, 1, 0; 1998 MT₂₄, 6, 2, 4; 1998 OH, 3, 1, 0; 1998 OK, 3, 1, 0; 1998 PF, 2, 1, 0; 1998 PG, 8, 3, 26; 1998 PB₁, 8, 2, 13; 1998 QP, 4, 1, 0; 1998 QA₁, 4, 1, 0; 1998 QH₂, 3, 1, 0; 1998 QS₅₂, 2, 1, 0; (1386), 4, 1, 0; [80, 18, 0*, 1993/07/01–1998/09/06]

113 Volkssternwarte Drebach, Schönbrunn

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

[g.lehmann@abo.freiepresse.de]

Observers G. Lehmann, J. Kandler

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

USNO-A1.0

1976 DA₁, 8, 3, 5; 1982 SM₇, 5, 2, 2; 1982 UD₄, 3, 2, 5; 1987 QS, 2, 1, 0; 1988 RY₂, 6, 3, 26; 1989 AJ₆, 3, 1, 0; 1989 AC₇, 2, 1, 0; 1989 TH₁, 3, 1, 0; 1991 RT₃, 2, 1, 0; 1991 RB₄, 4, 2, 5; 1991 RD₄, 4, 2, 30; 1991 RH₄₁, 10, 4, 31; 1991 TH₆, 4, 2, 5; 1993 HA₆, 2, 1, 0; 1993 SK₃, 3, 1, 0; 1994 PZ₁, 2, 1, 0; 1998 MK₃₀, 9, 3, 20; 1998 OR₄, 3, 1, 0; 1998 PH₁ *, 11, 3, 5; (457), 5, 2, 4; (2099), 5, 2, 4; (3687), 5, 2, 4; (6787), 2, 1, 0; (9097), 5, 2, 6; [108, 24, 1*, 1998/07/19–1998/08/20]

118 Modra

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

[ago_modra@center.fmph.uniba.sk]

Observers A. Galád, J. Tóth, D. Kalmančok, P. Kolény, A. Pravda

Measurer J. Tóth

0.6-m $f/5.5$ reflector + CCD

GSC, USNO-SA1.0

1987 OA, 15, 7, 15; 1992 ED₁₁, 4, 2, 2; 1993 BX₁₃, 4, 2, 2; 1995 QD₂, 11, 5, 26; 1995 RC, 15, 7, 28; 1997 FG₁, 9, 4, 11; 1997 US₉, 2, 1, 0; 1998 KU₂, 5, 3, 12; 1998 KH₁₇, 13, 6, 15; 1998 MQ, 4, 2, 1; 1998 MX₅, 14, 7, 33; 1998 MN₁₄, 2, 1, 0; 1998 MR₁₇, 2, 1, 0; 1998 MT₂₄, 8, 4, 12; 1998 MK₃₀, 5, 2, 18; 1998 MT₃₄, 4, 2, 2; 1998 OH, 4, 2, 19; 1998 PF, 2, 1, 0; 1998 PG, 7, 3, 19; 1998 QS *, 8, 4, 14; 1998 QA₁, 2, 1, 0; 1998 QD₁ *, 6, 2, 1; 1998 QK₂₈, 3, 1, 0; 1998 QS₆₀ *, 6, 2, 1; 1998 RA *, 5, 2, 1; 9058 P-L, 3, 1, 0; (457), 4, 2, 1; (927), 2, 1, 0; (1951), 4, 2, 12; (2099), 5, 2, 1; (3400), 5, 3, 4; (3445), 2, 1, 0; (3630), 2, 1, 0; (3687), 7, 3, 11; (4034), 2, 1, 0; (4339), 5, 2, 1; (5051), 4, 2, 1; (5186), 2, 1, 0; (5462), 8, 3, 14; (6745), 2, 1, 0; (6838), 2, 1, 0; (6893), 4, 2, 1; (7342), 5, 2, 1; (9023), 2, 1, 0; [230, 44, 4*, 1998/07/26–1998/09/04]

120 Višnjan

K. Korlević, Istarska 5, HR-51463 Višnjan, Croatia [kkorlevic@x400.srce.hr]

Observers K. Korlević, M. Jurič, M. Dusič, A. Ritosa, V. Brcić, P. Kajdič

Measurers K. Korlević, M. Jurič, M. Dusič, V. Brcić

0.41-m $f/4.3$ reflector + CCD

USNO-SA1.0

1971 UN, 3, 1, 0; 1978 RX₁, 3, 1, 0; 1981 EB₂₅, 13, 2, 1; 1983 RB₂, 8, 2, 1; 1990 SR₆, 2, 1, 0; 1991 EM₁, 6, 2, 5; 1991 OO, 3, 1, 0; 1992 CD₃, 3, 1, 0; 1992 WH₈, 3, 1, 0; 1993 OS₁₀, 5, 2, 7; 1994 PS₃₂, 3, 1, 0; 1995 UC₆, 2, 1, 0; 1995 WV₂, 8, 2, 1; 1996 EW₁, 3, 1, 0; 1998 NN, 4, 2, 1; 1998 OF₂, 4, 1, 0; 1998 OV₄, 6, 2, 1; 1998 OE₆, 7, 2, 1; 1998 OD₁₄, 9, 3, 11; 1998 OF₁₄, 3, 1, 0; 1998 PB₁, 6, 1, 0; 1998 PD₁ *, 6, 2, 1; 1998 PE₁ *, 14, 4, 5; 1998 QB *, 8, 2, 1; 1998 QC *, 8, 2, 1; 1998 QK₁ *, 8, 3, 9; 1998 QL₁ *, 9, 3, 9; 1998 QM₁ *, 9, 3, 9; 1998 QN₁ *, 8, 3, 9; 1998 QO₁ *, 10, 3, 6; 1998 QP₁ *, 6, 2, 3; 1998 QQ₁ *, 6, 2, 3; 1998 QM₂ *, 15, 4, 13; 1998 QX₃ *, 7, 2, 6; 1998 QN₈, 6, 2, 1; 1998 QW₂₁, 3, 1, 0; 1998 QW₂₄, 6, 1, 0; 1998 QX₂₅ *, 8, 3, 5; 1998 QY₂₅ *, 6, 2, 1; 1998 QZ₂₅ *, 6, 2, 1; 1998 QA₂₆ *, 6, 2, 1; 1998 QB₂₆ *, 5, 2, 1; 1998 QC₂₆ *, 6, 2, 1; 1998 QD₂₆ *, 6, 2, 1; 1998 QE₂₆ *, 6, 2, 1; 1998 QF₂₆ *, 5, 2, 1; 1998 QG₂₆ *, 4, 2, 1; 1998 QH₂₆ *, 6, 2, 1; 1998 QL₃₀ *, 11, 3, 5; 1998 QM₃₀ *, 10, 3, 5; 1998 QN₃₀ *, 12, 3, 5; 1998 QZ₅₀, 5, 2, 5; 1998 QH₅₁, 6, 1, 0; 1998 QW₅₃ *, 5, 2, 1; 1998 QV₅₅ *, 5, 2, 5; 1998 QW₅₅ *, 6, 2, 5; 1998 QX₅₅ *, 6, 2, 1; 1998 QY₅₅ *, 5, 2, 1; 1998 QZ₅₅ *, 5, 2, 1; 1998 QA₅₆ *, 5, 2, 1; 1998 QB₅₆ *, 5, 2, 1; 1998 QC₅₆, 3, 1, 0; 4587 P-L, 6, 2, 1; (557), 4, 1, 0; (609), 6, 2, 14; (1274), 3, 1, 0; (1635), 4, 1, 0; (2026), 9, 2, 1; (2242), 3, 1, 0; (2662), 2, 1, 0; (3370), 5, 2, 1; (3412), 13, 3, 14; (3719), 5, 2, 6; (3735), 3, 1, 0; (3746), 5, 2, 1; (4038), 3, 1, 0; (4102), 2, 1, 0; (4213), 3, 1, 0; (4277), 3, 1, 0; (4305), 3, 1, 0; (4518), 6, 2, 1; (4740), 11, 2, 5; (4832), 3, 1, 0; (5034), 5, 2, 6; (5336), 3, 1, 0; (5800), 5, 2, 3; (6049), 3, 1, 0; (6152), 6, 2, 2; (6231), 6, 2, 14; (6705), 3, 1, 0; (6779), 5, 2, 3; (6993), 3, 1, 0; (7008), 11, 3, 6; (7679), 5, 2, 9; (8049), 9, 2, 1; [552, 95, 35*, 1998/08/15–1998/09/06]

121 Kharkov University, Chuguevskaya Station

V. G. Shevchenko Astronomical Observatory of Kharkiv State University Sumska

Street 35 Kharkiv 310022 Ukraine [shevchenko@astron.kharkov.ua]

Yu. N. Krugly, Astronomical Observatory of the Kharkov State University,
Sumska Str. 35, UA-310022 Kharkov, Ukraine
[krugly@astron.kharkov.ua]

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

0.70-m $f/4$ reflector + CCD

GSC

1998 PG, 4, 1, 0; 1998 QP, 6, 1, 0; [10, 2, 0*, 1998/08/21–1998/08/29]

126 Monte Viseggi

L. Zannoni, via Del Prione no 42, I-19121 La Spezia, Italy [luzannon@tin.it]

Observers L. Zannoni, L. Sannino

Measurer L. Zannoni

0.40-m $f/6$ reflector + CCD

USNO-SA1.0, GSC

1998 OR₁₃, 17, 3, 6; [17, 1, 0*, 1998/08/23–1998/08/29]

127 Bornheim

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

0.19-m $f/4$ FFC + CCD

GSC

1981 UD₂, 2, 1, 0; 1991 PT₉, 6, 3, 5; 1992 ED₁, 6, 3, 7; 1994 VU₆, 4, 2, 1; 1998 MX₅, 2, 1, 0;
1998 MK₃₀, 2, 1, 0; 1998 OJ₁, 4, 2, 1; (9068), 2, 1, 0; (9083), 4, 2, 4; [32, 9, 0*, 1998/07/30–
1998/08/17]

130 Lumezzane

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

Observers G. Pizzetti, S. Foglia, G. Lupi, L. Cocca

Measurer G. Pizzetti

0.40-m $f/6.5$ reflector + CCD

GSC

(1498), 3, 1, 0; (6009), 3, 1, 0; [6, 2, 0*, 1998/07/17–1998/08/21]

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

1998 QJ₂ *, 11, 4, 10; 1998 QK₂ *, 19, 6, 10; 1998 QK₃, 2, 1, 0; 1998 QW₁₅ *, 8, 3, 7; 1998 QJ₂₆ *,
9, 3, 4; 1998 QH₄₂, 5, 2, 3; (3035), 3, 1, 0; [57, 7, 4*, 1998/08/19–1998/08/30]

133 Les Tardieux

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

[Michel.Boeuf@wanadoo.fr]

0.20-m $f/3.5$ reflector + CCD

GSC

1998 MD₃₈, 3, 1, 0; 1998 OQ₁₀, 6, 2, 1; 1998 QT *, 11, 5, 11; [20, 3, 1*, 1998/08/18–1998/08/29]

138 Village-Neuf

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

[Sky.walker@wanadoo.fr]

Observers C. Demeautis, D. Matter

Measurer C. Demeautis

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

GSC

1998 MD₃₈, 2, 1, 0; (982), 3, 1, 0; (1178), 3, 1, 0; (4628), 3, 1, 0; (5186), 3, 1, 0; (5499), 3, 1, 0;
[17, 6, 0*, 1998/08/19]

143 Gnosca

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

0.20-m $f/7.1$ reflector + CCD

GSC, USNO-SA1.0

1987 OA, 6, 2, 5; 1988 TG₅, 6, 2, 1; 1991 FL₄, 3, 1, 0; 1998 KH₁₇, 4, 1, 0; 1998 MX₅, 15, 5, 19;
1998 MR₁₇, 6, 2, 15; 1998 MT₂₄, 2, 1, 0; 1998 MK₃₀, 7, 2, 19; 1998 MD₃₈, 3, 1, 0; 1998 PF, 2,
1, 0; 1998 PG, 6, 2, 9; 1998 PB₁, 3, 1, 0; 1998 QP, 3, 1, 0; 1998 QA₁, 6, 1, 0; 1998 QR₁₅, 3, 1,
0; 1998 QS₁₅, 3, 1, 0; 1998 QK₂₈, 3, 1, 0; (667), 3, 1, 0; (783), 3, 1, 0; (927), 3, 1, 0; (1036), 6,
2, 20; (1313), 3, 1, 0; (1373), 3, 1, 0; (1508), 3, 1, 0; (1936), 3, 1, 0; (1938), 3, 1, 0; (3199), 3, 1,
0; (3687), 3, 1, 0; (4038), 3, 1, 0; (4628), 4, 1, 0; (4809), 6, 2, 21; (6134), 3, 1, 0; [133, 32, 0*,
1998/08/05–1998/08/30]

145 's-Gravenwezel Observatory

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

[Tom.Alderweireldt@ping.be]

0.20-m $f/2$ Schmidt-Cassegrain + CCD

Hipparcos, ACT, Tycho, PPM, GSC 1.2

(643), 5, 1, 0; (1025), 2, 1, 0; (1172), 9, 3, 12; (2363), 6, 2, 5; [22, 4, 0*, 1998/08/04–1998/08/16]

151 Eschenberg Observatory, Winterthur

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

[griesser@spectraweb.ch]

0.25-m $f/8.0$ reflector + CCD

GSC

1998 MK₃₀, 3, 1, 0; 1998 PG, 2, 1, 0; 1998 QK₂₈, 2, 1, 0; (457), 4, 2, 6; (927), 2, 1, 0; (1036), 8,
3, 30; (1373), 2, 1, 0; (1906), 5, 2, 25; (3630), 2, 1, 0; (5186), 5, 2, 12; [35, 10, 0*, 1998/08/06–
1998/09/05]

153 Stuttgart-Hoffeld

R. Stuber, Hoffeldstrasse 121, D-70597 Stuttgart, Germany [rolf.stuber@swol.de]

0.25-m $f/7.2$ reflector + CCD

GSC

(690), 4, 2, 1; (980), 10, 4, 6; [14, 2, 0*, 1998/08/14–1998/08/20]

154 Cortina

A. Dimai, Via Pecol 95, I-32043 Cortina d' Ampezzo (BL) Italy

Observer A. Dimai

Measurer V. Goretti

0.50-m $f/3.8$ Newton + CCD

GSC

1981 RF₂, 8, 2, 5; [8, 1, 0*, 1998/08/20–1998/08/25]

292 Burlington

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

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

GSC

1998 NT, 5, 2, 5; 1998 PK *, 12, 4, 19; [17, 2, 1*, 1998/07/27–1998/08/20]

322 Perth Observatory, Bickley-MCT

J. Biggs Perth Observatory Walnut Rd Bickley 6076 Western Australia

[jamieb@calm.wa.gov.au]

Observers D. Crouch, D. Lewis

Measurers J. D. Biggs, D. Crouch

0.25-m $f/4.5$ Newtonian

GSC

1998 ML₁₄, 1, 1, 0; [1, 1, 0*, 1998/08/08]

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 B. Zhao, H. T. Zhang, X. M. Teng, X. Y. Li, Y. J. Chen, S. J. Xue,
X. S. Liu

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

0.60-m Schmidt + CCD

1979 KQ₆, 6, 2, 4; 1981 UE₂₈, 4, 1, 0; 1988 RQ₄, 3, 1, 0; 1989 RG₁, 4, 1, 0; 1991 OW₆, 6, 2, 5;
1991 RS₃, 3, 1, 0; 1991 TH₆, 3, 1, 0; 1992 CH₆, 6, 2, 8; 1992 DS₅, 3, 1, 0; 1992 DK₆, 3, 1, 0;
1992 DM₈, 3, 1, 0; 1992 WR₁, 3, 1, 0; 1993 FO₂₄, 3, 1, 0; 1993 FD₃₇, 3, 1, 0; 1993 TD₂₅, 3, 1, 0;
1994 ET₆, 9, 2, 24; 1994 PJ₂₂, 3, 1, 0; 1995 FO₁₀, 3, 1, 0; 1995 UP₁₈, 4, 1, 0; 1995 UE₅₃, 6, 2,
23; 1995 VE₆, 6, 2, 8; 1997 CC₁₇, 6, 2, 4; 1997 CB₃₀, 3, 1, 0; 1998 HS₂₃, 3, 1, 0; 1998 HP₄₂, 3, 1,
0; 1998 HB₄₅, 4, 1, 0; 1998 HQ₅₁, 3, 1, 0; 1998 HW₁₂₅, 3, 1, 0; 1998 KO₆, 4, 1, 0; 1998 KS₃₅, 3,
1, 0; 1998 KM₅₅, 3, 1, 0; 1998 LA₃, 3, 1, 0; 1998 MP₃₂, 3, 1, 0; 1998 OX₆, 16, 5, 34; 1998 OY₆,
19, 6, 41; 1998 OZ₆, 9, 3, 9; 1998 OA₇, 13, 4, 16; 1998 OB₇, 19, 6, 34; 1998 OC₇, 7, 2, 1;
1998 OD₇, 13, 4, 35; 1998 OE₇, 16, 5, 34; 1998 OF₇, 6, 2, 1; 1998 OG₇, 6, 2, 1; 1998 OH₇,
21, 7, 34; 1998 OJ₇, 24, 7, 35; 1998 PP₁, 12, 4, 14; 1998 QA₂, 6, 2, 6; 1998 QE₃, 9, 3, 7;
1998 QG₃, 9, 3, 5; 1998 QP₄, 12, 3, 8; 1998 QQ₄, 9, 3, 5; 1998 QR₄, 6, 2, 1; 1998 QS₄,
9, 3, 5; 1998 QT₄, 15, 5, 9; 1998 QU₄, 12, 4, 8; 1998 QV₄, 16, 5, 8; 1998 QW₄, 7,
2, 1; 1998 QX₄, 16, 5, 9; 1998 QY₄, 19, 6, 10; 1998 QZ₄, 19, 4, 9; 1998 QA₅, 16, 5, 9;
1998 QB₅, 18, 5, 9; 1998 QC₅, 12, 4, 5; 1998 QD₅, 9, 2, 1; 1998 QE₅, 12, 4, 10; 1998 QF₅,
9, 3, 5; 1998 QG₅, 6, 2, 1; 1998 QH₅, 6, 2, 1; 1998 QJ₅, 15, 5, 9; 1998 QK₅, 15, 5, 9;
1998 QL₅, 9, 3, 8; 1998 QV₁₅, 9, 3, 4; 1998 QU₁₇, 6, 2, 2; 1998 QW₁₇, 9, 2, 2; 1998 QT₁₈, 6, 2, 2;
1998 QA₂₀, 12, 3, 4; 1998 QC₂₀, 15, 4, 5; 1998 QD₂₀, 9, 3, 5; 1998 QN₂₀, 6, 2, 4; 1998 QJ₂₂, 6, 2,
5; 1998 QK₂₂, 7, 2, 1; 1998 QY₂₃, 9, 3, 8; 1998 QR₂₈, 15, 4, 8; 1998 QS₂₈, 9, 3, 9; 1998 QT₂₈,
6, 2, 4; 1998 QU₂₈, 9, 3, 8; 1998 QV₂₈, 12, 4, 8; 1998 QW₂₈, 15, 4, 7; 1998 QX₂₈, 9,
3, 4; 1998 QY₂₈, 7, 2, 3; 1998 QF₂₉, 9, 3, 8; 1998 QG₂₉, 9, 3, 8; 1998 QH₂₉, 9, 3, 10;
1998 QJ₂₉, 9, 3, 9; 1998 QK₂₉, 6, 2, 5; 1998 QL₂₉, 9, 3, 8; 1998 QM₂₉, 9, 3, 7; 1998 QN₂₉,
12, 4, 8; 1998 QO₂₉, 6, 2, 4; 1998 QQ₂₉, 9, 3, 7; 1998 QR₂₉, 6, 2, 4; 1998 QS₂₉, 12, 4, 8;
1998 QT₂₉, 6, 2, 4; 1998 QU₂₉, 6, 2, 4; 1998 QV₂₉, 9, 3, 7; 1998 QW₂₉, 9, 3, 8; 1998 QX₂₉,
9, 3, 5; 1998 QY₂₉, 6, 2, 1; 1998 QZ₂₉, 13, 4, 6; 1998 QA₃₀, 10, 3, 6; 1998 QB₃₀, 7,
2, 1; 1998 QC₃₀, 10, 3, 4; 1998 QD₃₀, 6, 2, 1; 1998 QE₃₀, 9, 3, 5; 1998 QF₃₀, 9, 3, 5;
1998 QG₃₀, 6, 2, 1; 1998 QH₃₀, 6, 2, 1; 1998 QJ₃₀, 9, 3, 4; 1998 QK₃₀, 12, 4, 5; 1998 QB₅₆,
6, 2, 3; 1998 QB₆₂, 9, 2, 8; 1998 QC₆₂, 6, 2, 7; 1998 QD₆₂, 6, 2, 7; 1998 QE₆₂, 6, 2, 7;
1998 QF₆₂, 6, 2, 8; 1998 QG₆₂, 7, 2, 4; 1998 QH₆₂, 6, 2, 4; 1998 QJ₆₂, 6, 2, 5; 1998 QK₆₂,
9, 3, 5; 1998 QL₆₂, 6, 2, 5; 1998 QM₆₂, 6, 2, 4; 1998 QN₆₂, 6, 2, 3; 1998 QO₆₂, 6, 2, 4;
1998 QP₆₂, 6, 2, 3; 1998 QQ₆₂, 6, 2, 4; 1998 QR₆₂, 9, 3, 4; 1998 QS₆₂, 6, 2, 3; 1998 QT₆₂,
9, 3, 8; 1998 QU₆₂, 6, 2, 4; 1998 QV₆₂, 6, 2, 1; 1998 QW₆₂, 6, 2, 1; 1998 QX₆₂, 6, 2, 1;
1998 QY₆₂, 6, 2, 1; 1998 QZ₆₂, 6, 2, 1; 1998 QA₆₃, 6, 2, 1; 1998 QB₆₃, 6, 2, 1; 1998 QC₆₃,
6, 2, 1; 1998 QD₆₃, 6, 2, 1; 1998 QE₆₃, 6, 2, 1; 1998 QF₆₃, 6, 2, 1; 1998 QS₆₃, 6, 2, 5;
1998 QT₆₃, 6, 2, 2; 1998 QU₆₃, 6, 2, 5; 1998 QV₆₃, 6, 2, 4; 1998 QW₆₃, 6, 2, 4; 1998 RL*,
6, 2, 3; 2085 P-L, 6, 1, 0; (165), 3, 1, 0; (1930), 13, 4, 4; (3480), 3, 1, 0; (4562), 6, 2, 3; (6707), 15,
5, 9; (7685), 21, 7, 34; (7721), 6, 2, 4; [1331, 164, 109*, 1995/08/23–1998/09/04]

355 Hadano

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

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

GSC

1998 QP, 6, 1, 0; [6, 1, 0*, 1998/08/23]

358 Nanyou

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

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

GSC

1998 ON₁₃, 10, 4, 9; [10, 1, 0*, 1998/07/18–1998/07/27]

360 Kuma Kogen Astronomical Observatory

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

0.60-m $f/6.0$ Ritchey-Chrétien + CCD

GSC, USNO-SA1.0

1987 OA, 3, 1, 0; 1993 PB, 3, 1, 0; 1993 PC, 3, 1, 0; 1994 XZ₄, 6, 2, 10; 1997 CT₂₁, 4, 2, 5;
1997 GR₂₄, 4, 2, 8; 1997 GZ₂₅, 5, 2, 8; 1997 MW₁, 3, 1, 0; 1997 US₉, 3, 1, 0; 1998 BZ₇, 3, 1,
0; 1998 CS₁, 3, 1, 0; 1998 MX₅, 3, 1, 0; 1998 MR₂₄, 3, 1, 0; 1998 MT₂₄, 3, 1, 0; 1998 OR₂, 3,
1, 0; 1998 PF, 6, 2, 1; 1998 PG, 9, 3, 11; 1998 PB₁, 3, 1, 0; 1998 QP, 3, 1, 0; 1998 QQ, 6, 2, 5;
1998 QA₁, 6, 2, 7; 1998 QC₁, 3, 1, 0; 1998 QH₁, 3, 1, 0; 1998 QE₂, 3, 1, 0; 1998 QH₂, 3, 1, 0;
1998 QV₃, 3, 1, 0; 1998 QK₂₈, 7, 2, 1; 1998 QR₅₂, 3, 1, 0; 1998 QS₅₂, 3, 1, 0; (6134), 3, 1, 0;
[116, 30, 0*, 1998/08/04–1998/09/02]

385 Nihondaira Observatory

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

[urata@sannet.ne.jp]

0.31-m $f/4.7$ reflector + CCD

GSC, USNO-A1.0

1994 UN₁, 2, 1, 0; [2, 1, 0*, 1997/02/14]

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

1987 VE₂, *, 8, 4, 27; 1991 VD₁, 2, 1, 0; 1991 XL, 2, 1, 0; 1993 DQ, 2, 1, 0; 1993 HF, 2, 1, 0;
1994 GZ₈, 4, 2, 7; 1994 UO₂, 2, 1, 0; 1995 CG₁, 5, 3, 15; 1995 GZ₈, 6, 3, 23; 1995 WM₆, 2, 1,
0; 1996 GP₂₁, *, 4, 2, 1; 1996 QU₃, *, 6, 3, 14; [45, 12, 4*, 1987/11/15–1996/09/07]

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 FH₂₃, 4, 2, 1; [4, 1, 0*, 1996/11/07–1996/11/08]

402 Dynic Astronomical Observatory

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

0.60-m $f/5.0$ reflector + CCD

GSC

1994 CK₂, 4, 1, 0; 1998 KH₁₇, 9, 3, 22; 1998 MQ, 6, 2, 14; 1998 ME₃, 3, 1, 0; 1998 MX₅, 3, 1, 0;
1998 MN₁₄, 3, 1, 0; 1998 MR₁₇, 9, 3, 23; 1998 MR₂₄, 3, 1, 0; 1998 MT₂₄, 3, 1, 0; 1998 MK₃₀, 9,
3, 24; 1998 OR₂, 4, 1, 0; 1998 OS₄, 7, 2, 24; 1998 PF, 4, 1, 0; 1998 PG, 7, 2, 24; 1998 PB₁, 2, 1,
0; 1998 QP, 11, 2, 1; 1998 QA₁, 10, 3, 14; 1998 QB₁, 4, 1, 0; 1998 QC₁, 7, 2, 15; 1998 QF₁, 3, 1,
0; 1998 QH₁, 3, 1, 0; 1998 QC₂, 4, 1, 0; 1998 QD₂, 11, 3, 15; 1998 QE₂, 6, 2, 2; 1998 QH₂, 10, 3,
13; 1998 QV₃, 3, 1, 0; 1998 QK₂₈, 7, 2, 2; 1998 QR₅₂, 3, 1, 0; 1998 QS₅₂, 3, 1, 0; 1998 QS₅₂, 7,
2, 1; 1998 QJ₅₆, 3, 1, 0; 1998 QA₆₂, 4, 1, 0; 1998 QP₆₃, 8, 2, 2; 1998 QQ₆₃, 4, 1, 0; 1998 RB*,
12, 3, 2; 1998 RD*, 6, 2, 1; 1998 RE*, 7, 2, 1; (5332), 3, 1, 0; (5759), 4, 1, 0; (6139), 3, 1, 0;
[222, 40, 3*, 1998/08/11–1998/09/04]

411 Oizumi

T. Kobayashi, 1717-2 Shimo-Koizumi, Oizumi-machi, Ora-gun, Gunma-ken, 370-
0515 Japan 370-05 Japan [kobataka@sannet.ne.jp]

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

GSC

1995 UR₃, 2, 1, 0; 1995 WS, 2, 1, 0; 1995 XL₁, 1, 1, 0; 1997 BB₂, 2, 1, 0; [7, 4, 0*, 1998/08/12]

413 Siding Spring

R. H. McNaught, Anglo-Australian Observatory, Coonabarabran, NSW 2357,
Australia [rmn@aaocbn2.aao.gov.au]

S. James, School of Physics, Australian Defence Force Academy, Canberra, ACT
2600, Australia [s-james@adfa.edu.au] (4)

Observers R. H. McNaught, S. James

Measurers R. H. McNaught, S. James

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

(4159), 2, 1, 0; [2, 1, 0*, 1994/07/17]

(4) 1994 PP, 2, 1, 0; 1998 KH₉, 3, 1, 0; [5, 2, 0*, 1998/07/19]

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

1994 TW₁, 5, 2, 3; 1994 VH, 3, 1, 0; 1997 UF₉, 3, 1, 0; 1998 KU₂, 3, 1, 0; 1998 KH₉, 2, 1, 0; 1998 ME₃, 5, 2, 5; 1998 ML₁₄, 16, 3, 8; 1998 MR₁₇, 3, 1, 0; 1998 MS₂₄, 7, 2, 1; 1998 OR₂, 6, 2, 3; 1998 OS₄, 3, 1, 0; 1998 PF, 10, 3, 19; 1998 PG, 4, 1, 0; 1998 PB₁, 7, 2, 7; 1998 QM, 6, 2, 1; 1998 QN, 3, 1, 0; 1998 QO, 3, 1, 0; 1998 QP, 7, 2, 1; 1998 QQ, 6, 2, 5; 1998 QB₁, 4, 1, 0; 1998 QC₁, 6, 3, 6; 1998 QG₁, 1, 1, 0; 1998 QH₁, 1, 1, 0; 1998 QJ₁, 6, 2, 1; 1998 QB₂, 7, 2, 1; 1998 QD₂, 2, 1, 0; 1998 QQ₃, 4, 1, 0; 1998 QV₃, 9, 3, 5; 1998 QW₃, 4, 1, 0; 1998 QR₁₅, 8, 2, 1; 1998 QS₁₅, 4, 1, 0; 1998 QA₁₆, 4, 1, 0; 1998 QP₅₂, 5, 1, 0; 1998 QQ₅₂, 3, 1, 0; 1998 QR₅₂, 3, 1, 0; 1998 QS₅₂, 5, 1, 0; 1998 QH₅₆, 8, 3, 3; 1998 QJ₅₆, 8, 3, 3; 1998 QK₅₆, 6, 3, 3; 1998 QP₆₃, 4, 1, 0; (7), 3, 1, 0; (2102), 3, 1, 0; (3753), 2, 1, 0; (5066), 3, 1, 0; (9065), 3, 1, 0; [218, 45, 0*, 1998/08/02–1998/09/01]

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

1955 UN₁, 20, 5, 13; 1976 GG₃, 4, 2, 16; 1987 SJ₃, 15, 4, 14; 1989 GD₅, 5, 2, 1; 1990 OO₂, 2, 1, 0; 1990 TK₃, 4, 2, 1; 1995 UV₄, 3, 1, 0; (13), 5, 1, 0; [58, 8, 0*, 1998/08/10–1998/08/29]

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, GSC

1955 UN₁, 6, 2, 1; 1975 LF₁, 5, 2, 2; 1977 TD₁, 6, 2, 1; 1978 SE₁, 6, 2, 2; 1984 MQ, 5, 2, 6; 1984 YE₄, 6, 2, 2; 1986 QH₃, 4, 2, 1; 1988 EY₁, 8, 2, 1; 1988 RV₁₁, 6, 2, 1; 1988 XT₁, 9, 3, 2; 1989 AK, 9, 3, 6; 1991 XC, 6, 2, 2; 1992 DN₇, 6, 2, 2; 1992 GR, 5, 2, 2; 1993 FK₂₁, 6, 2, 2; 1993 FV₃₁, 6, 2, 4; 1993 PB, 8, 2, 1; 1993 PC, 6, 2, 2; 1994 PN₁₄, 9, 3, 6; 1994 TW₁, 6, 2, 1; 1994 UT₁₁, 6, 2, 2; 1994 VD₂, 6, 2, 2; 1994 XZ₄, 6, 2, 1; 1995 UT₄, 5, 2, 1; 1995 UW₄, 6, 2, 1; 1995 UA₄₅, 6, 2, 2; 1995 WE, 6, 2, 2; 1995 WZ₄, 6, 2, 1; 1995 XW, 6, 2, 2; 1995 YM, 6, 2, 1; 1996 KA₃, 6, 2, 1; 1997 CV₁₉, 10, 4, 5; 1997 EN₄, 5, 2, 1; 1997 FM, 5, 2, 2; 1997 JJ₁₈, 5, 2, 6; 1997 UF₉, 4, 1, 0; 1998 FY₅₇, 3, 1, 0; 1998 HL₅₂, 5, 2, 7; 1998 HM₅₂, 5, 2, 1; 1998 HZ₈₅, 3, 1, 0; 1998 JJ₄, 7, 3, 14; 1998 KD₅, 5, 2, 1; 1998 KX₄₈, 6, 2, 5; 1998 KK₅₆, 3, 1, 0; 1998 LX, 3, 1, 0; 1998 LY, 3, 1, 0; 1998 MD, 4, 2, 1; 1998 ME₃, 10, 3, 12; 1998 MM₇, 10, 4, 19; 1998 MN₇, 3, 2, 1; 1998 MO₇, 4, 2, 4; 1998 MV₁₃, 4, 2, 2; 1998 MW₁₃, 2, 1, 0; 1998 ML₁₄, 13, 3, 2; 1998 MT₂₄, 3, 1, 0; 1998 MZ₄₀, 6, 2, 2; 1998 NP, 5, 2, 1; 1998 NQ, 5, 2, 2; 1998 NR, 6, 2, 1; 1998 NS, 11, 4, 20; 1998 OG₁, 4, 2, 2; 1998 OS₄, 3, 1, 0; 1998 OL₉, 6, 2, 1; 1998 OE₁₀, 6, 2, 1; 1998 OT₁₀, 5, 2, 2; 1998 OE₁₅, 8, 3, 2; 1998 PF, 3, 1, 0; 1998 PG, 3, 1, 0; 1998 PL, 15, 5, 20; 1998 PV, 11, 5, 16; 1998 PW, 11, 4, 12; 1998 PX, 12, 4, 12; 1998 PY, 10, 4, 12; 1998 PZ, 15, 5, 14; 1998 PB₁, 16, 4, 13; 1998 PG₁, 14, 5, 13; 1998 PJ₁, 14, 5, 16; 1998 PK₁, 10, 4, 3; 1998 QK, 6, 2, 1; 1998 QL, 5, 2, 1; 1998 QM, 3, 1, 0; 1998 QN, 3, 1, 0; 1998 QQ, 7, 2, 6; 1998 QU, 6, 2, 3; 1998 QC₁, 6, 2, 11; 1998 QE₁, 3, 1, 0; 1998 QJ₁, 5, 2, 4; 1998 QB₂, 6, 2, 3; 1998 QC₂, 3, 1, 0; 1998 QD₂, 3, 1, 0; 1998 QE₂, 3, 1, 0; 1998 QF₂, 5, 2, 3; 1998 QV₃, 3, 1, 0; 1998 QW₃, 7, 2, 1; 1998 QK₄, 10, 4, 12; 1998 QL₄, 6, 2, 5; 1998 QM₄, 12, 4, 13; 1998 QN₄, 12, 4, 13;

1998 QM₅, 6, 2, 1; 1998 QQ₁₂, 5, 2, 2; 1998 QR₁₅, 8, 2, 1; 1998 QS₁₅, 4, 1, 0; 1998 QK₂₆, 6, 2, 3; 1998 QL₂₆, 6, 2, 1; 1998 QM₂₆, 5, 2, 1; 1998 QK₂₈, 4, 1, 0; 1998 QP₅₂, 8, 2, 1; 1998 QQ₅₂, 7, 2, 1; 1998 QR₅₂, 6, 2, 1; 1998 QS₅₂, 6, 2, 1; 1998 QT₅₃, 5, 2, 1; 1998 QV₅₃, 6, 2, 1; 1998 QJ₅₆, 3, 1, 0; 1998 QK₅₆, 3, 1, 0; 1998 QP₆₃, 7, 2, 2; 1998 RF, 5, 2, 2; 1998 RG, 4, 2, 2; 1998 RH, 5, 2, 2; 1998 RJ, 5, 2, 2; 1998 RK, 5, 2, 2; 3212 T-1, 5, 2, 1; (461), 6, 2, 3; (634), 6, 2, 1; (927), 3, 1, 0; (1778), 6, 2, 1; (2890), 6, 2, 1; (2928), 5, 2, 1; (3445), 6, 2, 1; (3630), 5, 2, 1; (3747), 6, 2, 6; (4085), 7, 2, 1; (4249), 7, 2, 1; (5255), 5, 2, 6; (6298), 6, 2, 1; (6359), 6, 2, 6; (6531), 6, 2, 1; (6745), 5, 2, 1; (6852), 6, 2, 1; (6863), 6, 2, 1; (6881), 5, 2, 1; (7077), 5, 2, 1; (7450), 6, 2, 5; (7498), 5, 2, 5; (9040), 3, 1, 0; [882, 144, 27*, 1998/03/20–1998/09/03]

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

1992 EO₆, 2, 2, 1; 1994 GN, 7, 4, 10; 1997 AK₅, 7, 4, 5; 1997 EQ₃₀, 8, 5, 13; 1997 GR₃₆, 2, 1, 0; 1997 PE₆, 2, 1, 0; 1998 FK₁₂₆, 2, 1, 0; 1998 FN₁₂₆, 2, 1, 0; 1998 HU₁₀₁, 1, 1, 0; 1998 HV₁₀₁, 2, 1, 0; 1998 HW₁₀₁, 5, 3, 28; 1998 HD₁₄₈, 1, 1, 0; 1998 HT₁₄₉, 2, 1, 0; 1998 KH₃₀, 5, 2, 12; 1998 KJ₃₃, 1, 1, 0; 1998 ML₂₉, 12, 5, 9; 1998 MM₂₉, 5, 3, 5; 1998 MA₃₆, 5, 3, 14; 1998 MZ₄₁, 1, 1, 0; 1998 MA₄₂, 12, 6, 46; 1998 NF, 3, 3, 12; 1998 NM₁, 4, 3, 6; 1998 OV₁₁, 7, 3, 4; 1998 OW₁₁, 7, 6, 38; 1998 OX₁₁, 11, 6, 37; 1998 OY₁₁, 15, 7, 34; 1998 OZ₁₁, 10, 6, 34; 1998 OA₁₂, 15, 6, 38; 1998 OB₁₂, 13, 6, 34; 1998 OC₁₂, 12, 7, 37; 1998 OD₁₂, 14, 7, 29; 1998 OE₁₂, 8, 5, 28; 1998 OF₁₂, 4, 3, 4; 1998 OG₁₂, 17, 8, 30; 1998 OH₁₂, 12, 6, 32; 1998 OJ₁₂, 8, 5, 27; 1998 OK₁₂, 11, 6, 27; 1998 OL₁₂, 8, 5, 29; 1998 OM₁₂, 18, 10, 33; 1998 OK₁₄, 6, 3, 3; 1998 PM₁, 10, 6, 15; 1998 PN₁, 8, 6, 15; 1998 PO₁, 6, 4, 5; 1998 QA₄, 6, 4, 4; 1998 QB₄, 5, 4, 8; 1998 QC₄, 5, 3, 2; 1998 QD₄, 7, 4, 15; 1998 QE₄, 5, 3, 2; 1998 QF₄, 6, 4, 7; 1998 QG₄, 6, 4, 9; 1998 QH₄, 6, 3, 4; 1998 QJ₄, 7, 4, 12; 1998 QN₂₆, 7, 4, 5; 1998 QP₂₆, 7, 4, 8; 1998 QQ₂₆, 8, 4, 6; 1998 QZ₂₈, 9, 5, 7; 1998 QA₂₉, 6, 3, 7; 1998 QG₆₃, 7, 3, 8; 1998 QH₆₃, 4, 2, 5; 1998 QN₆₃, 8, 4, 7; (1592), 3, 1, 0; (2747), 3, 1, 0; (3214), 2, 1, 0; (4246), 1, 1, 0; (5473), 2, 1, 0; (8958), 1, 1, 0; [436, 67, 39*, 1998/07/14–1998/09/01]

468 Astronomical Observatory, Campo Catino

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

Observers F. Mallia, G. Masi

Measurers M. Di Sora, F. Mallia, G. Masi

0.25-m $f/3.0$ reflector + CCD

GSC

1998 MX₇, 3, 1, 0; 1998 QZ₁, 2, 1, 0; 1998 QK₂₈, 2, 1, 0; [7, 3, 0*, 1998/08/21–1998/08/27]

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

1989 TZ₁₅, 3, 1, 0; 1990 UU₃, 5, 2, 2; 1993 XD₁, 5, 2, 1; 1995 WJ₅, 5, 2, 2; 1998 QW₃, 2, 1, 0; 1998 QR₁₅, 2, 1, 0; 1998 QT₆₀, 3, 1, 0; 2066 T-1, 3, 1, 0; 2151 T-1, 3, 1, 0; (7640), 3, 1, 0; [34, 10, 0*, 1998/08/22–1998/08/31]

472 Merlette

S. Garro, Horizon 1800, Batiment A, F-05170 Orcieres-Merlette, France

Observer S. Garro

Measurer J.C. Merlin

0.28-m $f/6.9$ reflector + CCD

GSC

1998 QK₃, 7, 2, 6; [7, 1, 0*, 1998/08/24–1998/08/30]

491 Yebes

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

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

0.40-m $f/5$ astrograph + CCD
GSC

1998 MK₃₀, 3, 2, 1; (433), 2, 1, 0; (1036), 12, 2, 36; (7752), 1, 1, 0; (7776), 4, 2, 1; (9000), 3, 2, 1; (9068), 4, 1, 0; [29, 7, 0*, 1998/07/20–1998/08/27]

504 Le Creusot

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

0.40-m $f/5.1$ reflector + CCD
GSC

1998 QK₃, 3, 1, 0; [3, 1, 0*, 1998/08/29]

540 Linz

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

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

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

1997 EV₃₂, 11, 3, 22; 1998 ME₃, 4, 1, 0; 1998 MX₅, 3, 1, 0; 1998 MR₁₇, 3, 1, 0; 1998 PF, 2, 1, 0; 1998 PG, 3, 1, 0; 1998 PB₁, 6, 2, 1; 1998 PC₁ *, 11, 3, 3; [43, 8, 1*, 1998/07/26–1998/08/17]

552 San Vittore

E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy
[ermes.colombini@iol.it]

Observers C. Vacchi, G. Sassi, E. Colombini, R. Di Luca

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

1982 WA, 6, 2, 28; (5986), 3, 1, 0; [9, 2, 0*, 1998/07/17–1998/08/14]

557 Ondřejov

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

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

0.65-m $f/3.6$ reflector + CCD
USNO-SA1.0, GSC

1987 OA, 4, 1, 0; 1989 OB, 2, 1, 0; 1993 PC, 3, 1, 0; 1996 BB₁, 2, 1, 0; 1996 FR₁, 3, 1, 0; 1996 OO, 5, 2, 10; 1997 AE₁₈, 10, 3, 38; 1997 GY₇, 2, 1, 0; 1997 JO, 4, 2, 1; 1997 MW₁, 3, 1, 0; 1997 QP, 4, 2, 5; 1997 SH, 2, 1, 0; 1997 SM₁, 5, 2, 1; 1997 TT₉, 6, 3, 3; 1997 US₉, 5, 2, 32; 1997 VV₁, 5, 2, 1; 1997 VU₂, 5, 2, 17; 1998 KU₂, 4, 1, 0; 1998 MQ, 5, 2, 11; 1998 MX₅, 3, 2, 8; 1998 ML₁₄, 3, 1, 0; 1998 MN₁₄, 4, 2, 11; 1998 MR₂₄, 3, 1, 0; 1998 MT₂₄, 19, 5, 33; 1998 OH, 5, 2, 21; 1998 OY₄, 4, 2, 21; 1998 OZ₄, 4, 2, 11; 1998 PF, 2, 1, 0; 1998 PG, 26, 6, 15; 1998 PB₁, 10, 3, 22; 1998 QM, 2, 1, 0; 1998 QN, 3, 1, 0; 1998 QP, 4, 1, 0; 1998 QQ, 5, 2, 4; 1998 QA₁, 10, 4, 6; 1998 QC₁, 8, 3, 5; 1998 QE₁, 4, 2, 1; 1998 QF₁, 5, 2, 1; 1998 QG₁, 9, 3, 6; 1998 QH₁, 9, 3, 6; 1998 QJ₁, 7, 2, 1; 1998 QR₁ *, 9, 4, 12; 1998 QS₁ *, 9, 4, 8; 1998 QT₁ *, 6, 2, 1; 1998 QC₂, 10, 3, 6; 1998 QD₂, 5, 2, 1; 1998 QE₂, 8, 3, 6; 1998 QH₂, 2, 1, 0; 1998 QV₃, 3, 1, 0; 1998 QO₄ *, 13, 4, 5; 1998 QW₅ *, 11, 4, 7; 1998 QR₁₅, 4, 2, 13; 1998 QS₁₅, 2, 1, 0; 1998 QJ₂₈, 3, 1, 0; 1998 QK₂₈, 9, 2, 11; 1998 QB₂₉ *, 7, 3, 6; 1998 QC₂₉ *, 6, 3, 6; 1998 QD₂₉ *, 5, 2, 2; 1998 QE₂₉ *, 9, 3, 6; 1998 QO₅₂, 3, 1, 0; 1998 QQ₅₂, 3, 1, 0; 1998 QR₅₂, 2, 1, 0; 1998 QS₅₂, 5, 2, 11; 1998 QH₅₆, 3, 1, 0; 1998 QJ₅₆, 3, 1, 0; 1998 QK₅₆, 2, 1, 0; 1998 QN₆₀ *, 5, 2, 4; 1998 QO₆₀ *, 4, 2, 4; 1998 QP₆₀ *, 7, 2, 4; 1998 QE₆₀ *, 4, 2, 4; 1998 QT₆₀, 3, 1, 0; 1998 QA₆₂, 3, 1, 0; 1998 QP₆₃, 2, 1, 0; 1998 QQ₆₃, 3, 1, 0; 4121 P-L, 3, 1, 0; (1865), 2, 1, 0; (3733), 3, 1, 0; (4055), 3, 1, 0; (5209), 2, 1, 0; (6154), 2, 1, 0; (7358), 4, 1, 0; (7889), 3, 1, 0; (8035), 4, 1, 0; [427, 83, 13*, 1998/08/01–1998/09/07]

560 Madonna di Dossobuono

L. Lai, Via Mantovana 130e, I-37062 Dossobuono (Verona), Italy
[astrofil@astboi.bo.cnr.it]

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

0.40-m $f/3.5$ reflector + CCD
GSC

1981 RF₂, 4, 1, 0; 1987 OA, 7, 2, 2; 1988 TL₁, 6, 2, 1; 1995 QD₂, 3, 1, 0; 1995 SD₄, 3, 1, 0; 1997 EQ₁₇, 3, 1, 0; 6242 P-L, 3, 1, 0; 9058 P-L, 3, 1, 0; 1552 T-2, 6, 2, 8; (8993), 6, 2, 12; (9004), 6, 2, 12; (9095), 3, 1, 0; [53, 12, 0*, 1998/06/19–1998/08/25]

566 Haleakala-NEAT/GEODSS

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[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

1976 YG₁, 3, 1, 0; 1978 SE₅, 3, 1, 0; 1978 UN₅, 3, 1, 0; 1980 FH₃, 3, 1, 0; 1981 EA₁₀, 3, 1, 0; 1981 ET₃₇, 3, 1, 0; 1981 ES₄₃, 3, 1, 0; 1981 ET₄₆, 3, 1, 0; 1981 QR₂, 3, 1, 0; 1981 QS₂, 3, 1, 0; 1981 QK₃, 6, 2, 4; 1981 RF₂, 3, 1, 0; 1981 UE₂₈, 3, 1, 0; 1982 QO, 3, 1, 0; 1983 EV, 3, 1, 0; 1983 RB₄, 3, 1, 0; 1986 RA₅, 3, 1, 0; 1986 VW, 3, 1, 0; 1987 BA₂, 3, 1, 0; 1988 RO₂, 3, 1, 0; 1988 SB₂, 3, 1, 0; 1988 TT, 3, 1, 0; 1988 UP, 3, 1, 0; 1989 HA, 3, 1, 0; 1989 SC, 3, 1, 0; 1989 WC₃, 3, 1, 0; 1990 QS₃, 3, 1, 0; 1990 QB₁₉, 3, 1, 0; 1990 SC₈, 3, 1, 0; 1990 SV₁₃, 6, 2, 4; 1991 EK₄, 3, 1, 0; 1991 LB, 3, 1, 0; 1991 OO, 3, 1, 0; 1991 PT₉, 3, 1, 0; 1991 PD₁₀, 3, 1, 0; 1991 PO₁₁, 3, 1, 0; 1991 PM₁₃, 3, 1, 0; 1991 RS₈, 3, 1, 0; 1991 UF₁, 3, 1, 0; 1991 XO₂, 3, 1, 0; 1992 AR₁, 3, 1, 0; 1992 DU₅, 3, 1, 0; 1992 FA₂, 3, 1, 0; 1992 UH₃, 3, 1, 0; 1993 FB₁₀, 3, 1, 0; 1993 FB₃₂, 3, 1, 0; 1993 FS₃₅, 3, 1, 0; 1993 FK₃₈, 3, 1, 0; 1993 FU₃₉, 3, 1, 0; 1993 LF₂, 3, 1, 0; 1993 NV, 3, 1, 0; 1993 PJ₇, 3, 1, 0; 1993 TS₁, 3, 1, 0; 1993 TM₁₆, 3, 1, 0; 1993 TP₃₈, 3, 1, 0; 1993 VU₇, 3, 1, 0; 1994 EH₂, 3, 1, 0; 1994 EZ₆, 3, 1, 0; 1994 FF, 3, 1, 0; 1994 JF, 3, 1, 0; 1994 PO, 3, 1, 0; 1994 PK₉, 3, 1, 0; 1994 PW₃₈, 3, 1, 0; 1994 RN₂₈, 3, 1, 0; 1994 UO, 3, 1, 0; 1994 UK₁, 3, 1, 0; 1995 OR, 3, 1, 0; 1995 RC, 3, 1, 0; 1995 SY₂, 3, 1, 0; 1995 TE₈, 3, 1, 0; 1995 UC₆, 3, 1, 0; 1995 WS, 3, 1, 0; 1995 WH₇, 3, 1, 0; 1995 WZ₄₁, 3, 1, 0; 1995 YS₂₁, 3, 1, 0; 1996 BB, 3, 1, 0; 1996 CC₁, 3, 1, 0; 1996 GP₂₁, 3, 1, 0; 1996 KA₃, 3, 1, 0; 1997 AJ₄, 3, 1, 0; 1997 AN₄, 3, 1, 0; 1997 AO₇, 3, 1, 0; 1997 CW, 3, 1, 0; 1997 CC₁, 3, 1, 0; 1997 CY₁₆, 3, 1, 0; 1997 GQ₂₇, 3, 1, 0; 1998 CV₃, 3, 1, 0; 1998 GL₉, 3, 1, 0; 1998 HY₇₉, 3, 1, 0; 1998 HJ₉₄, 3, 1, 0; 1998 HH₉₇, 3, 1, 0; 1998 HH₁₀₀, 3, 1, 0; 1998 HS₁₀₀, 3, 1, 0; 1998 HW₁₁₉, 3, 1, 0; 1998 HB₁₄₉, 3, 1, 0; 1998 KV₆₀, 3, 1, 0; 1998 ME₃, 6, 2, 1; 1998 MU₇, 3, 1, 0; 1998 MY₃, 1, 0; 1998 MN₁₆, 3, 1, 0; 1998 MO₁₉, 3, 1, 0; 1998 MS₂₄, 3, 1, 0; 1998 MB₃₂, 3, 1, 0; 1998 MN₃₅, 3, 1, 0; 1998 MJ₃₇, 3, 1, 0; 1998 MV₃₇, 3, 1, 0; 1998 MB₃₈, 3, 1, 0; 1998 MT₄₆, 3, 1, 0; 1998 OP, 3, 1, 0; 1998 OD₁, 3, 1, 0; 1998 OP₂, 3, 1, 0; 1998 OC₆, 3, 1, 0; 1998 OJ₇, 3, 1, 0; 1998 OP₇, 6, 2, 28; 1998 OU₇, 3, 1, 0; 1998 OS₈, 3, 1, 0; 1998 OZ₈, 3, 1, 0; 1998 OL₉, 3, 1, 0; 1998 OU₉, 3, 1, 0; 1998 OE₁₀, 3, 1, 0; 1998 OQ₁₀, 3, 1, 0; 1998 OS₁₀, 6, 2, 1; 1998 OY₁₁, 3, 1, 0; 1998 OB₁₂, 3, 1, 0; 1998 OD₁₂, 3, 1, 0; 1998 OL₁₂, 3, 1, 0; 1998 OM₁₂, 3, 1, 0; 1998 ON₁₂, 3, 1, 0; 1998 OS₁₂, 6, 2, 2; 1998 OT₁₂, 3, 1, 0; 1998 OZ₁₂, 3, 1, 0; 1998 OK₁₃, 3, 1, 0; 1998 OK₁₄, 3, 1, 0; 1998 OT₁₄, 3, 1, 0; 1998 OZ₁₄, 3, 1, 0; 1998 OC₁₅, 3, 1, 0; 1998 OE₁₅, 3, 1, 0; 1998 OF₁₅ *, 3, 1, 0; 1998 PB, 3, 1, 0; 1998 PN₁, 3, 1, 0; 1998 QA, 3, 1, 0; 1998 QT, 3, 1, 0; 1998 QV, 3, 1, 0; 1998 QW *, 6, 2, 1; 1998 QX *, 6, 2, 1; 1998 QU₁ *, 6, 2, 2; 1998 QV₁ *, 6, 2, 2; 1998 QW₁ *, 6, 2, 2; 1998 QX₁ *, 6, 2, 2; 1998 QY₁ *, 6, 2, 2; 1998 QZ₁ *, 6, 2, 2; 1998 QA₂ *, 6, 2, 2; 1998 QN₂ *, 6, 2, 2; 1998 QU₂, 3, 1, 0; 1998 QW₃ *, 3, 1, 0; 1998 QA₄, 3, 1, 0; 1998 QX₆, 6, 2, 28; 1998 QV₇, 3, 1, 0; 1998 QK₈, 3, 1, 0; 1998 QF₉, 3, 1, 0; 1998 QS₁₀, 3, 1, 0; 1998 QC₁₂, 3, 1, 0; 1998 QN₁₃, 3, 1, 0; 1998 QZ₁₃, 3, 1, 0; 1998 QE₁₄, 3, 1, 0; 1998 QK₁₄, 3, 1, 0; 1998 QK₁₅, 3, 1, 0; 1998 QC₁₆, 3, 1, 0; 1998 QT₁₆, 3, 1, 0; 1998 QX₁₆, 3, 1, 0; 1998 QY₁₆, 3, 1, 0; 1998 QJ₁₇, 3, 1, 0; 1998 QU₁₇, 3, 1, 0; 1998 QF₁₈, 3, 1, 0; 1998 QL₁₈, 3, 1, 0; 1998 QB₂₀, 3, 1, 0; 1998 QC₂₀, 3, 1, 0; 1998 QY₂₂, 3, 1, 0; 1998 QZ₂₆, 3, 1, 0; 1998 QD₃₂, 3, 1, 0; 1998 QE₃₂, 3, 1, 0; 1998 QK₃₄, 3, 1, 0; 1998 QJ₃₇, 3, 1, 0; 1998 QP₃₈, 3, 1, 0; 1998 QR₃₈, 3, 1, 0; 1998 QE₃₉, 3, 1, 0; 1998 QQ₄₀, 3, 1, 0; 1998 QN₄₂, 3, 1, 0; 1998 QF₄₉, 3, 1, 0; 1998 QV₅₁, 3, 1, 0; 1998 QW₆₄, 3, 1, 0; 4587 P-L, 3, 1, 0; 4593 P-L, 3, 1, 0; 4606 P-L, 3, 1, 0; 7633 P-L, 3, 1, 0; 1171 T-1, 3, 1, 0; 1041 T-2, 6, 2, 1; 2224 T-2, 3, 1, 0; 3336 T-2, 3, 1, 0; 5022 T-3, 3, 1, 0; (18), 3, 1, 0; (71), 6, 2, 4; (96), 6, 2, 5; (150), 3, 1, 0; (157), 3, 1, 0; (188), 3, 1, 0; (238), 3, 1, 0; (280), 3, 1, 0; (284), 3, 1, 0; (321), 3, 1, 0; (434), 3, 1, 0; (458), 6, 2, 4; (473), 3, 1, 0; (474), 3, 1, 0; (488), 3, 1, 0; (490), 3, 1, 0; (557), 3, 1, 0; (560), 3, 1, 0; (627), 3, 1, 0; (678), 3, 1, 0; (723), 3, 1, 0; (750), 3, 1, 0; (754), 3, 1, 0; (758), 3, 1, 0; (765), 3, 1, 0; (781), 3, 1, 0; (788), 3, 1, 0; (902), 3, 1, 0; (942), 3, 1, 0; (980), 3, 1, 0; (1021), 3, 1, 0; (1063), 3, 1, 0; (1084), 3, 1, 0; (1149), 3, 1, 0; (1234), 3, 1, 0; (1294), 3, 1, 0; (1309), 3, 1, 0; (1337), 3, 1, 0; (1338), 3, 1, 0; (1440), 3, 1, 0; (1483), 3, 1, 0; (1549), 3, 1, 0; (1574), 3, 1, 0; (1602), 3, 1, 0; (1623), 3, 1, 0; (1641), 3, 1, 0; (1666), 3, 1, 0; (1667), 3, 1, 0; (1687), 3, 1, 0; (1698), 3, 1, 0; (1700), 3, 1, 0; (1708), 6, 2, 4; (1726), 3, 1, 0; (1759), 3, 1, 0; (1769), 3, 1, 0; (1796), 6, 2, 4; (1828), 3, 1, 0; (1930), 3, 1, 0; (1936), 3, 1, 0; (1967), 3, 1, 0; (1984), 3, 1, 0; (2026), 3, 1, 0; (2154), 3, 1, 0; (2216), 6, 2, 1; (2222), 3, 1, 0; (2227), 3, 1, 0; (2328), 3, 1, 0; (2357), 3, 1, 0; (2372), 3, 1, 0; (2379), 3, 1, 0; (2411), 3, 1, 0; (2463), 3, 1, 0; (2464), 3, 1, 0; (2512), 3, 1, 0; (2514), 3, 1, 0; (2645), 3, 1, 0; (2679), 3, 1, 0; (2710), 6, 2, 1; (2775), 3, 1, 0; (2806), 3, 1, 0; (2834), 3, 1, 0; (2841), 3, 1, 0; (2845), 3, 1, 0; (2848), 3, 1, 0; (2879), 3, 1, 0; (2890), 3, 1, 0; (2943), 3, 1, 0; (2965), 3, 1, 0; (3028), 6, 2, 4; (3086), 3, 1, 0; (3134), 3, 1, 0; (3310), 3, 1, 0; (3315), 3, 1, 0; (3317), 3, 1,

0; (3324), 3, 1, 0; (3373), 3, 1, 0; (3395), 3, 1, 0; (3430), 6, 2, 4; (3435), 6, 2, 4; (3507), 3, 1, 0; (3593), 3, 1, 0; (3615), 3, 1, 0; (3687), 3, 1, 0; (3695), 3, 1, 0; (3796), 3, 1, 0; (3811), 3, 1, 0; (3889), 3, 1, 0; (3904), 3, 1, 0; (3911), 3, 1, 0; (3918), 3, 1, 0; (3957), 3, 1, 0; (3982), 6, 2, 4; (4039), 6, 2, 4; (4050), 3, 1, 0; (4155), 3, 1, 0; (4158), 3, 1, 0; (4159), 3, 1, 0; (4215), 3, 1, 0; (4271), 3, 1, 0; (4277), 3, 1, 0; (4374), 3, 1, 0; (4459), 3, 1, 0; (4551), 3, 1, 0; (4562), 3, 1, 0; (4570), 3, 1, 0; (4575), 3, 1, 0; (4612), 3, 1, 0; (4726), 3, 1, 0; (4794), 6, 2, 2; (4843), 6, 2, 2; (4949), 6, 2, 4; (4962), 3, 1, 0; (4971), 3, 1, 0; (4991), 3, 1, 0; (5019), 3, 1, 0; (5021), 3, 1, 0; (5068), 3, 1, 0; (5105), 3, 1, 0; (5113), 3, 1, 0; (5127), 3, 1, 0; (5156), 3, 1, 0; (5169), 3, 1, 0; (5242), 3, 1, 0; (5286), 3, 1, 0; (5294), 3, 1, 0; (5296), 3, 1, 0; (5301), 3, 1, 0; (5491), 3, 1, 0; (5493), 3, 1, 0; (5501), 3, 1, 0; (5518), 6, 2, 4; (5524), 3, 1, 0; (5537), 3, 1, 0; (5833), 3, 1, 0; (5844), 3, 1, 0; (5952), 3, 1, 0; (5985), 3, 1, 0; (5986), 3, 1, 0; (6009), 3, 1, 0; (6061), 3, 1, 0; (6111), 3, 1, 0; (6114), 3, 1, 0; (6128), 3, 1, 0; (6161), 3, 1, 0; (6223), 3, 1, 0; (6342), 3, 1, 0; (6353), 3, 1, 0; (6532), 3, 1, 0; (6610), 3, 1, 0; (6640), 3, 1, 0; (6663), 3, 1, 0; (6707), 3, 1, 0; (6742), 3, 1, 0; (6778), 3, 1, 0; (6789), 3, 1, 0; (6806), 3, 1, 0; (6810), 3, 1, 0; (6827), 3, 1, 0; (6833), 3, 1, 0; (6854), 3, 1, 0; (6858), 3, 1, 0; (6989), 3, 1, 0; (7063), 3, 1, 0; (7104), 3, 1, 0; (7208), 3, 1, 0; (7358), 3, 1, 0; (7396), 3, 1, 0; (7494), 3, 1, 0; (7654), 6, 2, 4; (7666), 3, 1, 0; (7728), 3, 1, 0; (7735), 3, 1, 0; (7742), 3, 1, 0; (7752), 3, 1, 0; (7821), 3, 1, 0; (7841), 3, 1, 0; (7851), 3, 1, 0; (7946), 3, 1, 0; (8854), 3, 1, 0; (9002), 3, 1, 0; (9009), 3, 1, 0; (9042), 3, 1, 0; (9064), 3, 1, 0; (9065), 3, 1, 0; (9087), 3, 1, 0; (9092), 3, 1, 0; [1329, 408, 12*, 1995/12/20–1998/08/23]

568 Mauna Kea

D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive, Honolulu, HI 96822, U.S.A. [tholen@hale.ifa.hawaii.edu] (2)
C. Veillet, Canada-France-Hawaii Telescope Corporation, P.O. Box 1597, Kamuela, HI 96743, U.S.A. [veillet@cfht.hawaii.edu] (3)

Observers D. J. Tholen (2), C. Veillet (3)

0.6-m $f/15$ reflector + CCD, CFHT 3.6-m + CCD

USNO-A1.0, USNO-SA1.0

(2) 1998 QJ₁, 2, 1, 0; [2, 1, 0*, 1998/08/21]

(3) 1997 QJ₄, 2, 1, 0; 1998 KR₆₅, 3, 1, 0; 1998 KS₆₅, 3, 1, 0; [8, 3, 0*, 1998/05/31–1998/08/14]

587 Sormano

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

Observers M. Cavagna, F. Manca, P. Sicoli, V. Giuliani

0.5-m reflector + CCD

GSC

1994 RZ₄, 4, 2, 2; 1995 UE₇, 7, 3, 12; 1998 KU₂, 1, 1, 0; 1998 KH₁₇, 2, 1, 0; 1998 ME₃, 3, 1, 0; 1998 MX₅, 5, 2, 6; 1998 MN₁₄, 2, 1, 0; 1998 MT₂₄, 2, 1, 0; 1998 MK₃₀, 3, 1, 0; 1998 OH₂, 2, 1, 0; 1998 OS₄, 2, 1, 0; 1998 PB₁, 3, 1, 0; 1998 QP₅, 5, 2, 3; 1998 QQ₂, 2, 1, 0; 1998 QA₁, 9, 4, 6; 1998 QC₁, 3, 1, 0; 1998 QG₁, 2, 1, 0; 1998 QH₁, 2, 1, 0; 1998 QE₂, 2, 1, 0; 1998 QW₃, 2, 1, 0; 1998 QR₁₅, 4, 2, 1; 1998 QS₁₅, 3, 1, 0; 1998 QJ₂₈, 2, 1, 0; 1998 QK₂₈, 9, 3, 11; 1998 QS₅₂, 4, 2, 4; 1998 QT₆₀, 3, 1, 0; 1998 QA₆₂, 2, 1, 0; (4151), 2, 1, 0; [92, 28, 0*, 1998/08/14–1998/09/06]

589 Santa Lucia Stroncone

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

Observers A. Vagnozzi, G. Bernabei, V. Risoldi, V. Scirri

0.50-m $f/2.8$ Ritchey-Chrétien + CCD

GSC

1994 RJ₃, 3, 1, 0; 1996 DO₁, 11, 3, 31; 1998 QR₁₅, 3, 1, 0; [17, 3, 0*, 1998/07/26–1998/08/27]

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

1981 RF₂, 2, 1, 0; 1996 PS₁, 4, 2, 1; 1997 AR₁₇, 4, 2, 2; 1997 JB₁₀, 4, 2, 2; 1997 NQ₂, 4, 2, 1; 1998 MS₂₄, 4, 2, 1; 1998 OJ₁, 4, 2, 1; 1998 OC₆, 6, 3, 14; 1998 QO₅₃, 4, 2, 2; 1998 QS₅₃ *, 7, 3, 4; (6135), 2, 1, 0; [45, 11, 1*, 1998/08/01–1998/08/31]

596 Colleverde di Guidonia

V. S. Casulli, Via M. Rosa 1, I-00010 Colleverde di Guidonia (RM), Italy

[v.casulli@priminet.it]

0.40-m $f/3.2$ reflector + CCD

GSC

1981 EY₂₇, 3, 1, 0; 1989 CX₃, 3, 1, 0; 1990 QC₁₉, 3, 1, 0; 1991 RZ₁, 3, 1, 0; 1992 ED₁, 3, 1, 0; 1997 DC₂, 2, 1, 0; 1998 NA₃, 3, 1, 0; 1998 PG₃, 3, 1, 0; 1998 QA₁, 3, 1, 0; 1998 QR₁₅, 3, 1, 0; 1998 QK₂₈, 3, 1, 0; 1998 QS₅₂, 3, 1, 0; 1998 QO₅₃ *, 9, 3, 6; (3687), 3, 1, 0; (6929), 3, 1, 0; (7600), 3, 1, 0; (7665), 3, 1, 0; (9068), 3, 1, 0; [59, 18, 1*, 1998/07/27–1998/09/02]

610 Pianoro

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[astrofil@astbo1.bo.cnr.it]

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

GSC

1977 TD₁, 4, 1, 0; 1981 RF₂, 7, 2, 32; 1988 CK₄, 4, 1, 0; 1995 WJ₅, 5, 1, 0; 1997 BG₈, 4, 1, 0; (1172), 4, 1, 0; (2256), 4, 1, 0; (4628), 4, 1, 0; [36, 8, 0*, 1998/07/29–1998/08/31]

611 Starkenburg Sternwarte, Heppenheim

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

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

Measurers M. Busch, S. Kluegl, R. Stoss

0.45-m $f/4.4$ reflector + CCD

USNO-SA1.0

1998 OP₃, 3, 1, 0; 1998 PF₅, 5, 2, 2; 1998 PG₈, 8, 3, 16; 1998 QM₂, 2, 1, 0; 1998 QN₃, 3, 1, 0; 1998 QO₃, 3, 1, 0; 1998 QP₃, 3, 1, 0; 1998 QQ₂, 2, 1, 0; 1998 QA₁, 3, 1, 0; 1998 QJ₅₆, 3, 1, 0; 1998 QT₆₀, 2, 1, 0; 1998 QP₆₃, 3, 1, 0; [40, 12, 0*, 1998/08/03–1998/08/31]

619 Sabadell

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

Observers F. Casarramona, E. Vigil, J. Presa

Measurer F. Casarramona

0.51-m $f/3.9$ reflector + CCD

GSC

1998 QZ₁₅, 10, 2, 4; [10, 1, 0*, 1998/08/25–1998/08/29]

620 Observatorio Astronómico de Mallorca

M. Blasco, Afueras s/n, E-07144 Costitx, Balears, Spain
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Observers A. Lopez, S. Sanchez, R. Pacheco

Measurers A. Lopez, S. Sanchez, R. Pacheco, J. Rodriguez

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

GSC

1990 YA₇, 7, 2, 4; 1998 ML₁₄, 6, 1, 0; 1998 MB₃₈, 10, 3, 12; 1998 OW₆ *, 14, 4, 27; 1998 PN *, 7, 2, 8; 1998 PO *, 9, 3, 11; 1998 PF₁ *, 7, 2, 3; 1998 PL₁ *, 9, 3, 12; 1998 QM₃, 3, 1, 0; 1998 QN₃, 3, 1, 0; 1998 QP₁₇, 17, 3, 5; 1998 QU *, 6, 2, 1; 1998 QV *, 6, 2, 1; 1998 QA₁, 6, 2, 4; 1998 QB₁, 3, 1, 0; 1998 QW₃, 3, 1, 0; 1998 QS₂₆ *, 5, 2, 5; 1998 QK₂₈, 8, 2, 4; 1998 QJ₅₆, 3, 1, 0; 1998 QT₆₀, 4, 1, 0; (5685), 3, 1, 0; (6199), 7, 2, 4; [146, 22, 8*, 1998/07/31–1998/08/31]

621 Bergisch Gladbach

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0.60-m $f/5$ reflector + CCD

USNO-SA1.0

1987 QS₅, 5, 2, 1; 1992 EM₁₈, 6, 2, 2; 1998 QX₁₅ *, 9, 3, 2; 1998 QY₁₅ *, 9, 2, 2; 1998 QJ₆₃ *, 5, 2, 1; 1998 QK₆₃ *, 5, 2, 1; 1998 QL₆₃ *, 8, 2, 1; 1998 QM₆₃ *, 8, 2, 1; (3445), 6, 2, 2; [61, 9, 6*, 1998/08/17–1998/09/01]

627 Blauvac

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

0.26-m $f/4.7$ reflector + CCD

GSC

1987 OA, 6, 1, 0; 1998 QR₂₆ *, 9, 3, 4; (1025), 3, 1, 0; (2671), 7, 3, 4; (4628), 3, 1, 0; (5641), 3, 1, 0; (6009), 2, 1, 0; [33, 7, 1*, 1998/08/05–1998/08/29]

628 Mülheim-Ruhr

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Germany [axelm@bph.ruhr-uni-bochum.de]

0.2-m Schmidt-Cassegrain + CCD

USNO-SA1.0

1998 MX₅, 10, 3, 9; 1998 MZ₇, 5, 1, 0; 1998 PF, 2, 1, 0; (2099), 2, 1, 0; [19, 4, 0*, 1998/08/05–1998/08/31]

635 Perpignan

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

Marie.Llapasset@wanadoo.fr]

0.28-m $f/6.3$ reflector + CCD

USNO-SA1.0

1998 PG, 2, 1, 0; (1476), 7, 4, 14; (3904), 14, 8, 22; [23, 3, 0*, 1998/07/30–1998/08/26]

636 Essen

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

[aknoefel@mail.ddorf.rhein-ruhr.de]

0.318-m $f/5.7$ reflector + CCD

USNO-A1.0

1987 ST₁₇, 5, 2, 1; 1998 MK₃₀, 2, 1, 0; (3911), 4, 2, 4; (4809), 2, 1, 0; [13, 4, 0*, 1998/08/06–1998/08/10]

637 Hamburg–Himmelsmoor

D. Husar, Himmelsmoor 18, D-22397 Hamburg, Germany

[100655.3400@compuserve.com]

0.2-m $f/6$ Schmidt-Cassegrain + CCD

GSC

(8934), 4, 1, 0; [4, 1, 0*, 1998/05/17]

638 Detmold

U. Borcheld, Klusstraße 39, D-32756 Detmold, Germany

[100265.2520@compuserve.com]

0.25-m Schmidt-Cassegrain + CCD

GSC

(276), 5, 1, 0; (1498), 1, 1, 0; (3687), 3, 2, 2; [9, 3, 0*, 1998/05/13–1998/08/21]

639 Dresden

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

0.25-m $f/6.0$ reflector + CCD

GSC

1998 MK₃₀, 2, 1, 0; (5186), 2, 1, 0; [4, 2, 0*, 1998/08/19]

658 Dominion Astrophysical Observatory, Victoria

J. B. Tatum, Dept. of Physics, University of Victoria, P.O. Box 3055, Victoria, BC V8W 3P6, Canada [universe@uvvm.uvic.ca]

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

1.82-m Plaskett telescope + CCD

GSC, USNO-A1.0

1955 SF, 3, 1, 0; 1977 TD₁, 5, 2, 1; 1989 UR, 3, 1, 0; 1998 HJ₄₁, 3, 1, 0; 1998 KU₂, 3, 1, 0; 1998 KH₁₇, 3, 1, 0; 1998 MQ, 9, 3, 3; 1998 MX₅, 3, 1, 0; 1998 MN₁₄, 3, 1, 0; 1998 MR₁₇, 3, 1, 0; 1998 MT₂₄, 3, 1, 0; 1998 OH, 9, 3, 3; 1998 OS₄, 9, 3, 5; 1998 OX₄, 2, 1, 0; 1998 PF, 9, 3, 24; 1998 PG, 9, 3, 22; 1998 PB₁, 6, 2, 5; 1998 QQ, 6, 2, 5; 1998 QA₁, 12, 4, 3; 1998 QC₁, 15, 5, 8; 1998 QG₁, 3, 1, 0; 1998 QH₁, 3, 1, 0; 1998 QJ₁, 6, 2, 8; 1998 QC₂, 3, 1, 0; 1998 QD₂, 9, 3, 3; 1998 QE₂, 15, 5, 4; 1998 QH₂, 9, 3, 3; 1998 QV₃, 6, 2, 1; 1998 QW₃, 3, 1, 0; 1998 QR₁₅, 3, 1, 0; 1998 QS₁₅, 6, 2, 1; 1998 QJ₂₈, 3, 1, 0; 1998 QK₂₈, 13, 4, 3; 1998 QO₅₂, 8, 3, 2; 1998 QP₅₂, 5, 2, 1; 1998 QQ₅₂, 9, 3, 2; 1998 QR₅₂, 9, 3, 2; 1998 QS₅₂, 12, 4, 3; 1998 QH₅₆, 9, 3, 2; 1998 QJ₅₆, 9, 3, 2; 1998 QK₅₆, 6, 2, 1; 1998 QT₆₀, 3, 1, 0; 1998 QA₆₂, 5, 2, 1; (1419), 6, 2, 1; (4034), 3, 1, 0; [284, 45, 0*, 1998/08/04–1998/08/31]

659 Heron Cove Observatory, Orcas

J. A. Jamieson, Heron Cove Observatory, Box 303, Orcas, WA 98280, U.S.A.

[JamiesonSE@aol.com]

Observers J. A. Jamieson, E. Sanders

0.5-m Ritchey-Chrétien + CCD

GSC

1998 PF, 6, 2, 1; 1998 PG, 6, 2, 1; 1998 PB₁, 10, 2, 1; 1998 QA₆₂, 6, 2, 1; (4628), 21, 2, 2; [49, 5, 0*, 1998/07/28–1998/09/04]

661 Rothney Astrophysical Observatory, Priddis

M. Mazur, Rothney Astrophysical Observatory, Dept. of Physics and Astronomy, University of Calgary, 2500 University Dr. NW, Calgary, Alberta T2N 1N4, Canada [mazur@geo.ucalgary.ca]

0.40-m Newtonian reflector + CCD

GSC

(456), 11, 2, 3; [11, 1, 0*, 1998/08/10–1998/08/13]

669 Ojai

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

Observers B. Bocala, S. Chang, O. Chu, Z. Cotler, J. Cuenco, E. Deyo, Ri.

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

0.18-m $f/6.7$ astrograph

PPM, SAOC

(7), 6, 6, 19; (18), 2, 1, 0; (43), 5, 5, 16; (72), 5, 5, 23; [18, 4, 0*, 1998/07/11–1998/08/03]

670 Camarillo

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

[72401.3174@compuserve.com]

0.25-m Schmidt-Cassegrain + CCD

GSC

1998 KU₂, 3, 1, 0; 1998 PG, 9, 3, 10; 1998 PB₁, 3, 1, 0; 1998 QM, 4, 1, 0; 1998 QN, 3, 1, 0; 1998 QP, 23, 5, 4; 1998 QA₁, 7, 2, 7; 1998 QB₁, 2, 1, 0; 1998 QV₃, 4, 1, 0; 1998 QW₃, 4, 1, 0; 1998 QR₁₅, 3, 1, 0; 1998 QK₂₈, 9, 2, 3; (2247), 3, 1, 0; [77, 13, 0*, 1998/08/19–1998/09/01]

673 Table Mountain Observatory

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

[dlr@ipl.jpl.nasa.gov]

Observer G. Geneviev
0.6-m reflector + CCD

1991 GQ, 2, 1, 0; 1998 PG, 1, 1, 0; 1998 QW₃, 2, 1, 0; [5, 3, 0*, 1998/07/30–1998/08/23]

675 Palomar

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

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

C. J. van Houten, Sterrewacht Leiden, Postbus 9513, NL-2300 RA Leiden, The Netherlands [vanhouten@rulhl1.leidenuniv.nl] (4)

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

9 = 6 + 3

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

Measurers K. Lawrence (2), T. Melis (6), B. A. Skiff (6), C. S. Shoemaker (3), C. J. van Houten (4), I. van Houten-Groeneveld (4), A. Wisse (4)

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

(2) 1990 SF₄, 2, 1, 0; 1998 OH, 4, 2, 1; (5222), 2, 1, 0; [8, 3, 0*, 1993/11/09–1994/11/01]

(4) 2551 P-L *, 8, 8, 32; 2555 P-L *, 8, 8, 32; 2599 P-L *, 8, 8, 32; 2643 P-L *, 9, 7, 32; 4032 P-L *, 7, 7, 32; 4115 P-L *, 11, 9, 32; 4590 P-L *, 8, 8, 32; 4602 P-L *, 7, 7, 32; 4700 P-L *, 16, 5, 4; 4778 P-L *, 6, 6, 32; 4836 P-L *, 4, 4, 4; 6105 P-L *, 7, 7, 32; 6108 P-L *, 8, 8, 32; 6111 P-L *, 8, 8, 32; 6209 P-L *, 8, 4, 4; 9585 P-L *, 4, 4, 9; 3065 T-1 *, 5, 4, 8; 3314 T-1 *, 11, 9, 53; 4229 T-1 *, 7, 5, 23; 4406 T-1 *, 10, 6, 49; 2039 T-2 *, 21, 8, 16; 3118 T-2 *, 15, 8, 16; 4131 T-2 *, 12, 6, 16; 5205 T-2 *, 10, 5, 10; 1177 T-3 *, 11, 6, 15; 2491 T-3 *, 12, 4, 6; 2676 T-3 *, 18, 7, 15; 3025 T-3 *, 8, 4, 6; 3067 T-3 *, 6, 3, 5; 3076 T-3 *, 12, 4, 6; 4072 T-3 *, 13, 7, 15; 4280 T-3 *, 13, 7, 15; 4309 T-3 *, 13, 7, 15; [324, 33, 33*, 1960/09/24–1977/10/22]

(6) 1986 QC₁, 2, 1, 0; 1986 TR₁, 2, 1, 0; 1989 CV₁, 1, 1, 0; 1993 OK₉, 2, 1, 0; 1994 CS₂, 1, 1, 0; 1997 GT₃₂, 2, 1, 0; 2148 P-L, 2, 1, 0; (4130), 2, 1, 0; (6722), 1, 1, 0; [15, 9, 0*, 1954/08/04–1954/12/22]

(9) 1979 MD₈, 2, 1, 0; 1981 DM₂, 2, 1, 0; [4, 2, 0*, 1988/09/10–1991/01/17]

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

(5186), 2, 2, 4; (5462), 2, 2, 4; (5499), 2, 2, 4; (7324), 1, 1, 0; [7, 4, 0*, 1998/08/23–1998/08/27]

682 Kanab

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

[mened@xpressweb.com]

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

GSC

1998 MS₂₄, 3, 1, 0; [3, 1, 0*, 1998/08/30]

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 MW₁, 7, 2, 1; 1998 MW₁₅, 6, 2, 1; 1998 QR₆₀ *, 6, 2, 1; (5734), 6, 2, 1; [25, 4, 1*, 1998/08/26–1998/09/01]

684 Prescott

P. G. Comba, 1411 Galaxy Lane, Prescott, AZ 86303, U.S.A.

[comba@northlink.com]

0.46-m *f*/4.5 reflector + CCD

GSC

1979 QW₃, 6, 3, 8; 1994 UO, 4, 2, 2; 1996 TO₆₆, 4, 2, 2; 1996 TP₆₆, 6, 3, 4; 1997 CM₁₉, 6, 2, 2; 1997 CC₂₀, 4, 2, 2; 1997 HO₂, 4, 2, 2; 1997 HP₂, 5, 2, 1; 1997 JU₃, 5, 2, 3; 1997 NE₃, 4, 2, 1; 1998 KN₉, 5, 2, 2; 1998 MY₁, 5, 2, 3; 1998 MZ₁, 4, 2, 2; 1998 NH, 4, 2, 2; 1998 OT₁, 4, 2, 1; 1998 OH₂, 4, 2, 1; 1998 OJ₂, 4, 2, 2; 1998 OL₂, 5, 2, 1; 1998 OF₄, 5, 2, 1; 1998 OQ₄, 4, 2, 1; 1998 OW₅, 4, 2, 1; 1998 PP *, 8, 4, 8; 1998 PQ *, 8, 4, 9; 1998 PR *, 8, 4, 7; 1998 PS *, 4, 2, 1; 1998 PT *, 4, 2, 1; 1998 PU *, 8, 4, 7; 1998 QD *, 8, 4, 7; 1998 QE *, 12, 6, 10; 1998 QF *, 8, 4, 7; 1998 QG *, 8, 4, 10; 1998 QH *, 8, 4, 7; 1998 QJ *, 4, 2, 1; 1998 QY *, 8, 4, 7; 1998 QZ *, 9, 4, 8; 1998 QG₂ *, 4, 2, 2; 1998 QS₅ *, 8, 4, 4; 1998 QT₅ *, 8, 4, 4; 1998 QL₂₈ *, 4, 2, 1; 1998 QM₂₈ *, 4, 2, 1; 1998 QN₂₈ *, 5, 2, 1; 1998 QO₂₈ *, 5, 2, 1; 1998 QP₂₈ *, 5, 2, 1; [244, 43, 22*, 1998/08/12–1998/08/27]

691 Kitt Peak, Steward Observatory

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

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

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

0.91-m Spacewatch telescope + CCD

GSC

1978 OQ, 3, 1, 0; 1978 VD₃, 6, 2, 3; 1979 MQ₈, 2, 1, 0; 1981 EB₁₇, 3, 1, 0; 1981 EC₂₂, 6, 2, 4; 1981 ED₂₄, 3, 1, 0; 1981 ER₄₃, 6, 2, 1; 1981 TB₃, 3, 1, 0; 1986 PJ₁, 3, 1, 0; 1989 EJ₆, 3, 1, 0; 1990 QP₈, 12, 4, 11; 1990 TB₄, 6, 2, 1; 1991 EM₁, 3, 1, 0; 1991 GH₁₁, 3, 1, 0; 1991 TH₂, 3, 1, 0; 1991 XL, 2, 1, 0; 1992 HZ₃, 6, 2, 5; 1993 FX₉, 3, 1, 0; 1993 FU₃₉, 2, 1, 0; 1993 OU₇, 3, 1, 0; 1993 QZ₅, 6, 2, 1; 1994 PJ₁, 3, 1, 0; 1994 PS₃₂, 3, 1, 0; 1995 BQ, 3, 1, 0; 1995 SY₁₄, 3, 1, 0; 1995 SK₅₁, 3, 1, 0; 1995 YY₂₅ *, 6, 2, 15; 1996 UJ₅, 3, 1, 0; 1997 AF₄, 3, 1, 0; 1997 BG₈, 3, 1, 0; 1997 CA₁, 6, 2, 6; 1997 CO₂₆, 3, 1, 0; 1997 CB₃₀ *, 3, 1, 0; 1997 DC, 6, 2, 5; 1997 FG₁, 3, 1, 0; 1997 HR₉, 3, 1, 0; 1997 JA₈, 3, 1, 0; 1997 JB₁₃, 3, 1, 0; 1998 HV₃₃, 3, 1, 0; 1998 HA₈₁, 3, 1, 0; 1998 HN₁₁₅, 2, 1, 0; 1998 HD₁₄₈, 3, 1, 0; 1998 KL₃₁, 3, 1, 0; 1998 KS₄₇, 3, 1, 0; 1998 QK₁, 3, 1, 0; 1998 QN₁, 3, 1, 0; 1998 QQ₁, 3, 1, 0; 1998 QO₂ *, 5, 2, 3; 1998 QP₂ *, 9, 3, 6; 1998 QQ₂ *, 6, 2, 3; 1998 QR₂ *, 6, 2, 3; 1998 QS₂ *, 6, 2, 3; 1998 QU₅ *, 6, 2, 1; 1998 QV₅ *, 9, 3, 4; 1998 QK₈, 6, 2, 3; 1998 QB₉, 3, 1, 0; 1998 QE₁₀, 3, 1, 0; 1998 QR₁₀, 3, 1, 0; 1998 QE₂₂, 3, 1, 0; 1998 QG₂₄, 3, 1, 0; 1998 QH₂₄, 3, 1, 0; 1998 QJ₂₄, 2, 1, 0; 1998 QQ₂₄, 3, 1, 0; 1998 QK₂₇ *, 6, 2, 6; 1998 QL₂₇ *, 6, 2, 6; 1998 QM₂₇ *, 6, 2, 6; 1998 QN₂₇ *, 6, 2, 6; 1998 QO₂₇ *, 6, 2, 3; 1998 QP₂₇ *, 6, 2, 4; 1998 QQ₂₇ *, 6, 2, 3; 1998 QR₂₇ *, 6, 2, 3; 1998 QS₂₇ *, 6, 2, 3; 1998 QT₂₇ *, 6, 2, 4; 1998 QU₂₇ *, 6, 2, 3; 1998 QV₂₇ *, 6, 2, 4; 1998 QW₂₇ *, 6, 2, 4; 1998 QX₂₇ *, 6, 2, 3; 1998 QY₂₇ *, 6, 2, 1; 1998 QZ₂₇ *, 12, 4, 5; 1998 QA₂₈ *, 6, 2, 1; 1998 QB₂₈ *, 12, 4, 5; 1998 QC₂₈ *, 9, 3, 4; 1998 QD₂₈ *, 9, 3, 5; 1998 QE₂₈ *, 6, 2, 1; 1998 QF₂₈ *, 9, 3, 4; 1998 QG₂₈ *, 11, 4, 11; 1998 QH₂₈ *, 15, 5, 7; 1998 QQ₂₉, 3, 1, 0; 1998 QR₂₉, 3, 1, 0; 1998 QV₃₀, 3, 1, 0; 1998 QE₃₁, 3, 1, 0; 1998 QQ₃₂, 2, 1, 0; 1998 QR₃₂, 3, 1, 0; 1998 QC₃₄, 3, 1, 0; 1998 QE₃₆, 3, 1, 0; 1998 QH₃₆, 3, 1, 0; 1998 QB₄₆, 3, 1, 0; 1998 QK₄₇, 3, 1, 0; 1998 QO₄₇, 3, 1, 0; 1998 QW₄₈, 3, 1, 0; 1998 QB₅₁, 3, 1, 0; 1998 QO₅₂ *, 9, 3, 5; 1998 QX₅₃ *, 6, 2, 5; 1998 QV₅₅, 3, 1, 0; 1998 QL₅₆ *, 6, 2, 1; 1998 QM₅₆ *, 6, 2, 1; 1998 QN₅₆ *, 6, 2, 1; 1998 QO₅₆ *, 6, 2, 1; 1998 QP₅₆ *, 6, 2, 1; 1998 QQ₅₆ *, 6, 2, 1; 1998 QR₅₆ *, 5, 2, 1; 1998 QS₅₆ *, 6, 2, 1; 1998 QT₅₆ *, 6, 2, 1; 1998 QU₅₆ *, 6, 2, 1; 1998 QV₅₆ *, 6, 2, 1; 1998 QW₅₆ *, 5, 2, 1; 1998 QX₅₆ *, 6, 2, 1; 1998 QY₅₆ *, 6, 2, 1; 1998 QZ₅₆ *, 6, 2, 1; 1998 QA₅₇ *, 5, 2, 1; 1998 QB₅₇ *, 6, 2, 1; 1998 QC₅₇ *, 6, 2, 1; 1998 QD₅₇ *, 6, 2, 1; 1998 QE₅₇ *, 6, 2, 1; 1998 QF₅₇ *, 6, 2, 1; 1998 QG₅₇ *, 6, 2, 1; 1998 QH₅₇ *, 6, 2, 1; 1998 QJ₅₇ *, 6, 2, 1; 1998 QK₅₇ *, 6, 2, 1; 1998 QL₅₇ *, 6, 2, 1; 1998 QM₅₇ *, 6, 2, 1; 1998 QN₅₇ *, 6, 2, 1; 1998 QO₅₇ *, 6, 2, 1; 1998 QP₅₇ *, 6, 2, 1; 1998 QQ₅₇ *, 6, 2, 1; 1998 QR₅₇ *, 6, 2, 1; 1998 QS₅₇ *, 6, 2, 1; 1998 QT₅₇ *, 6, 2, 1; 1998 QU₅₇ *, 6, 2, 1; 1998 QV₅₇ *, 5, 2, 1; 1998 QW₅₇ *, 6, 2, 1; 1998 QX₅₇ *, 6, 2, 1; 1998 QY₅₇ *, 6, 2, 1; 1998 QZ₅₇ *, 6, 2, 1; 1998 QA₅₈ *, 6, 2, 1; 1998 QB₅₈ *, 6, 2, 1; 1998 QC₅₈ *, 6, 2, 1; 1998 QD₅₈ *, 6, 2, 1; 1998 QE₅₈ *, 6, 2, 1; 1998 QF₅₈ *, 6, 2, 1; 1998 QG₅₈ *, 6, 2, 1; 1998 QH₅₈ *, 6, 2, 1; 1998 QJ₅₈ *, 6, 2, 1; 1998 QK₅₈ *, 6, 2, 1; 1998 QL₅₈ *, 5, 2, 1; 1998 QM₅₈ *, 6, 2, 1; 1998 QN₅₈ *, 6, 2, 1; 1998 QO₅₈ *, 6, 2, 1; 1998 QP₅₈ *, 6, 2, 1; 1998 QQ₅₈ *, 6, 2, 1; 1998 QR₅₈ *, 6, 2, 1; 1998 QS₅₈ *, 6, 2, 1; 1998 QT₅₈ *, 6, 2, 1; 1998 QU₅₈ *, 5, 2, 1; 1998 QV₅₈ *, 6, 2, 11; 1998 QW₅₈ *, 5, 2, 7; 1998 QX₅₈ *, 6, 2, 1; 1998 QY₅₈ *, 6, 2, 8; 1998 QZ₅₈ *, 6, 2, 5; 1998 QA₅₉ *, 6, 2, 5; 1998 QB₅₉ *, 6, 2, 5; 1998 QC₅₉ *, 6, 2, 4; 1998 QD₅₉ *, 6, 2, 5; 1998 QE₅₉ *, 6, 2, 5; 1998 QF₅₉ *, 6, 2, 5; 1998 QG₅₉ *, 6, 2, 5; 1998 QH₅₉ *, 6, 2, 5; 1998 QJ₅₉ *, 6, 2, 5; 1998 QK₅₉ *, 6, 2, 5; 1998 QL₅₉ *, 6, 2, 5; 1998 QM₅₉ *, 6, 2, 5; 1998 QN₅₉ *, 6, 2, 5; 1998 QO₅₉ *, 6, 2, 5; 1998 QP₅₉ *, 6, 2, 5; 1998 QQ₅₉ *, 6, 2, 5; 1998 QR₅₉ *, 6, 2, 5; 1998 QS₅₉ *, 6, 2, 4; 1998 QT₅₉ *, 6, 2, 5; 1998 QV₅₉ *, 6, 2, 5; 1998 QW₅₉ *, 6, 2, 5; 1998 QX₅₉ *, 6, 2, 5; 1998 QY₅₉ *, 6, 2, 4; 1998 QZ₅₉ *, 6, 2, 5; 1998 QA₆₀ *, 6, 2, 5; 1998 QB₆₀ *, 6, 2, 4; 1998 QC₆₀ *, 6, 2, 4; 1998 QD₆₀ *, 6, 2, 4; 1998 QE₆₀ *, 6, 2, 5; 1998 QF₆₀ *,

6, 2, 5; 1998 QG₆₀ *, 6, 2, 5; 1998 QH₆₀ *, 6, 2, 5; 1998 QJ₆₀ *, 5, 2, 5; 1998 QK₆₀ *, 6, 2, 3; 1998 QL₆₀ *, 6, 2, 3; 1998 QM₆₀ *, 6, 2, 3; 1998 RC *, 11, 2, 1; 2148 P-L, 6, 2, 5; 2175 P-L, 3, 1, 0; 6077 P-L, 3, 1, 0; 2199 T-2, 3, 1, 0; 3149 T-3, 9, 3, 5; 3378 T-3, 6, 2, 3; (316), 3, 1, 0; (609), 3, 1, 0; (832), 3, 1, 0; (1266), 3, 1, 0; (1376), 3, 1, 0; (1389), 3, 1, 0; (1951), 3, 1, 0; (2549), 3, 1, 0; (2713), 3, 1, 0; (2859), 2, 1, 0; (2882), 3, 1, 0; (2899), 3, 1, 0; (3079), 3, 1, 0; (3331), 3, 1, 0; (3885), 3, 1, 0; (4213), 3, 1, 0; (4359), 3, 1, 0; (4518), 3, 1, 0; (4737), 6, 2, 6; (4994), 3, 1, 0; (5026), 3, 1, 0; (5439), 3, 1, 0; (5448), 3, 1, 0; (5499), 3, 1, 0; (5794), 6, 2, 5; (5952), 3, 1, 0; (5958), 3, 1, 0; (6231), 3, 1, 0; (6273), 3, 1, 0; (6737), 3, 1, 0; (6951), 6, 2, 5; (7064), 3, 1, 0; (7077), 8, 3, 11; (7471), 3, 1, 0; (7613), 3, 1, 0; (8049), 3, 1, 0; (9043), 3, 1, 0; [1256, 250, 138*, 1991/09/07-1998/09/02]

699 Lowell Observatory–LONEOS

E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff AZ 86001,
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Observers C. A. Onken, W. D. Ferris, B. W. Koehn, S. M. Hermann, B. A. Skiff,
M. Van Ness, E. Bowell

Measurers C. A. Onken, B. W. Koehn, E. Bowell

0.59-m LONEOS Schmidt + CCD

USNO-A1.0

1966 PL, 3, 1, 0; 1971 UR, 3, 1, 0; 1975 NC, 3, 1, 0; 1977 DL₂, 3, 1, 0; 1977 EL₁, 9, 3, 30; 1977 QD₂, 3, 1, 0; 1978 OQ, 3, 1, 0; 1978 PX₃, 6, 2, 23; 1978 RX₁, 3, 1, 0; 1978 RC₉, 3, 1, 0; 1978 RD₁₀, 3, 1, 0; 1978 SJ₇, 3, 1, 0; 1978 UN₅, 3, 1, 0; 1978 VY₃, 3, 1, 0; 1978 VT₈, 3, 1, 0; 1980 FF₃, 3, 1, 0; 1980 FS₃, 3, 1, 0; 1980 RB₈, 6, 2, 8; 1980 TT₃, 3, 1, 0; 1980 VZ₂, 3, 1, 0; 1981 DM₂, 3, 1, 0; 1981 EJ₅, 3, 1, 0; 1981 EF₁₁, 9, 3, 26; 1981 EQ₁₄, 3, 1, 0; 1981 EG₁₆, 3, 1, 0; 1981 EP₁₆, 3, 1, 0; 1981 ED₂₄, 3, 1, 0; 1981 EY₂₇, 3, 1, 0; 1981 QK₃, 6, 2, 23; 1981 UE₂₈, 3, 1, 0; 1981 UU₂₉, 3, 1, 0; 1982 SM₇, 3, 1, 0; 1982 TQ₂, 6, 2, 1; 1982 UD₄, 3, 1, 0; 1982 XQ₁, 3, 1, 0; 1983 EV, 3, 1, 0; 1983 RP₃, 6, 2, 22; 1983 RB₄, 6, 2, 29; 1984 MP, 3, 1, 0; 1984 UD₃, 3, 1, 0; 1985 PT, 3, 1, 0; 1985 RJ, 6, 2, 1; 1985 TB₃, 3, 1, 0; 1986 TG₁, 3, 1, 0; 1986 TV₆, 6, 2, 1; 1986 UH₃, 3, 1, 0; 1986 XT, 3, 1, 0; 1987 QS₅, 6, 2, 25; 1987 SQ, 6, 2, 5; 1987 SJ₂, 9, 3, 54; 1987 SL₃, 6, 2, 44; 1987 SS₉, 3, 1, 0; 1987 SV₁₂, 3, 1, 0; 1987 SS₁₇, 3, 1, 0; 1988 CN₄, 3, 1, 0; 1988 RD₁, 6, 2, 3; 1988 RO₂, 3, 1, 0; 1988 RG₉, 3, 1, 0; 1988 TL₁, 3, 1, 0; 1988 TO₁, 3, 1, 0; 1988 TG₅, 3, 1, 0; 1988 VN₃, 3, 1, 0; 1989 AJ₆, 6, 2, 1; 1989 CX, 3, 1, 0; 1989 GG₄, 3, 1, 0; 1989 GN₄, 3, 1, 0; 1989 SP₂, 3, 1, 0; 1989 TZ₁₅, 3, 1, 0; 1989 WC₃, 3, 1, 0; 1990 EF₇, 3, 1, 0; 1990 GE, 3, 1, 0; 1990 QS₃, 3, 1, 0; 1990 QA₈, 3, 1, 0; 1990 QO₈, 6, 2, 27; 1990 RO₇, 3, 1, 0; 1990 RR₇, 3, 1, 0; 1990 SB₁, 3, 1, 0; 1990 SF₄, 3, 1, 0; 1990 SR₆, 3, 1, 0; 1990 SG₁₂, 6, 2, 7; 1990 SV₁₃, 3, 1, 0; 1990 UU₃, 3, 1, 0; 1990 VN₄, 3, 1, 0; 1990 WQ₂, 3, 1, 0; 1990 WP₄, 3, 1, 0; 1990 YA, 3, 1, 0; 1991 AA₁, 3, 1, 0; 1991 DU, 3, 1, 0; 1991 EM₁, 3, 1, 0; 1991 FZ₂, 3, 1, 0; 1991 GH₅, 6, 2, 2; 1991 LB, 3, 1, 0; 1991 NB₄, 3, 1, 0; 1991 OO, 3, 1, 0; 1991 PJ₇, 3, 1, 0; 1991 PO₁₁, 6, 2, 7; 1991 PW₁₁, 3, 1, 0; 1991 PJ₁₅, 3, 1, 0; 1991 PX₁₇, 6, 2, 27; 1991 RX₁, 3, 1, 0; 1991 RS₂, 6, 2, 1; 1991 RB₄, 3, 1, 0; 1991 RE₄, 6, 2, 23; 1991 RS₈, 3, 1, 0; 1991 RA₁₀, 3, 1, 0; 1991 TH₂, 3, 1, 0; 1991 UF₁, 3, 1, 0; 1991 XU, 3, 1, 0; 1991 XO₂, 3, 1, 0; 1992 AR₁, 6, 2, 2; 1992 CH, 3, 1, 0; 1992 DU₅, 3, 1, 0; 1992 ED₁, 3, 1, 0; 1992 EM₁₈, 3, 1, 0; 1992 FA₂, 3, 1, 0; 1992 HH₁, 3, 1, 0; 1992 OF₉, 6, 2, 23; 1992 PB₂, 6, 2, 7; 1992 WX₁, 3, 1, 0; 1992 YC₂, 3, 1, 0; 1993 BJ₃, 3, 1, 0; 1993 BO₃, 3, 1, 0; 1993 BZ₁₂, 3, 1, 0; 1993 DJ₁, 3, 1, 0; 1993 FR₁₁, 6, 2, 23; 1993 FK₂₁, 3, 1, 0; 1993 FV₃₁, 3, 1, 0; 1993 FJ₄₆, 3, 1, 0; 1993 OQ₅, 3, 1, 0; 1993 OK₉, 3, 1, 0; 1993 PJ₇, 3, 1, 0; 1993 QH₃, 3, 1, 0; 1993 SM₃, 3, 1, 0; 1993 TP₁₅, 3, 1, 0; 1993 TM₁₆, 3, 1, 0; 1994 CG₁₂, 3, 1, 0; 1994 EH₂, 6, 2, 28; 1994 EZ₆, 6, 2, 32; 1994 GE₁₀, 3, 1, 0; 1994 JF₃, 1, 0; 1994 PZ₁, 3, 1, 0; 1994 PU₂, 3, 1, 0; 1994 PK₇, 3, 1, 0; 1994 PO₉, 6, 2, 27; 1994 PN₁₄, 3, 1, 0; 1994 PT₁₄, 3, 1, 0; 1994 PU₂₉, 6, 2, 28; 1994 PT₃₁, 3, 1, 0; 1994 PL₃₂, 3, 1, 0; 1994 PB₃₆, 3, 1, 0; 1994 RJ, 6, 2, 7; 1994 RQ, 3, 1, 0; 1994 RZ, 3, 1, 0; 1994 ST₁₂, 3, 1, 0; 1994 VD₂, 3, 1, 0; 1994 VT₆, 3, 1, 0; 1994 WG₂, 3, 1, 0; 1994 WQ₃, 3, 1, 0; 1995 BG₁, 3, 1, 0; 1995 OR, 3, 1, 0; 1995 RC, 3, 1, 0; 1995 SD₄, 3, 1, 0; 1995 UQ₃, 6, 2, 1; 1995 UC₆, 6, 2, 23; 1995 UP₈, 3, 1, 0; 1995 UB₉, 3, 1, 0; 1995 WU, 3, 1, 0; 1995 WV₂, 3, 1, 0; 1995 WB₅, 3, 1, 0; 1995 WO₇, 3, 1, 0; 1995 WA₈, 3, 1, 0; 1995 XS, 3, 1, 0; 1995 XL₁, 3, 1, 0; 1995 XF₂, 3, 1, 0; 1995 YF, 6, 2, 3; 1995 YY₇, 3, 1, 0; 1995 YY₁₀, 3, 1, 0; 1996 AE, 3, 1, 0; 1996 AU, 3, 1, 0; 1996 AO₁, 2, 1, 0; 1996 AP₃, 3, 1, 0; 1996 AT₇, 3, 1, 0; 1996 BB, 3, 1, 0; 1996 BN, 3, 1, 0; 1996 BX, 3, 1, 0; 1996 BO₂, 3, 1, 0; 1996 CG₁, 3, 1, 0; 1996 CE₃, 6, 2, 1; 1996 CT₈, 3, 1, 0; 1996 DV, 3, 1, 0; 1996 DW₂, 3, 1, 0; 1996 KA₃, 6, 2, 27; 1997 AN₄, 3, 1, 0; 1997 AK₅, 3, 1, 0; 1997 AF₁₃, 3, 1, 0; 1997 AX₁₇, 3, 1, 0; 1997 AE₁₈, 3, 1, 0; 1997 BR₂, 9, 3, 30; 1997 BR₆, 6, 2, 25; 1997 BG₈, 3, 1, 0; 1997 CW, 3, 1, 0; 1997 CA₁, 6, 2, 3; 1997 CV₁₉, 3, 1, 0; 1997 CK₂₀, 3, 1, 0; 1997 EY₂₀, 3, 1, 0; 1997 EE₂₃, 6, 2, 28; 1997 EW₄₅, 3, 1, 0; 1997 FB₂, 3, 1, 0; 1997 GA₁₄, 3, 1, 0; 1997 GR₂₀, 3, 1, 0; 1997 GW₃₂, 3, 1, 0; 1997 GA₃₇, 3, 1, 0; 1997 HO₂, 3, 1, 0; 1997 JT₁₁, 3, 1, 0; 1997 JP₁₅, 3, 1, 0; 1997 JP₁₆, 3, 1, 0; 1997 LN, 3, 1, 0; 1997 LJ₃, 3, 1, 0; 1998 DD₁₀, 3, 1, 0; 1998 FB₇₃, 3, 1, 0; 1998 FH₁₁₅, 3, 1, 0; 1998 FQ₁₂₁, 3, 1, 0; 1998 HH₁₅, 3, 1, 0; 1998 HY₈₀, 3, 1, 0; 1998 HH₉₇, 3, 1, 0; 1998 HH₁₀₀, 6, 2, 33; 1998 HS₁₀₀, 6, 2, 10; 1998 HW₁₁₉, 6, 2, 32; 1998 HV₁₂₂, 3, 1, 0; 1998 KZ₅, 3, 1, 0; 1998 KC₆, 3, 1, 0; 1998 KV₃₂, 3, 1, 0; 1998 KT₃₄, 3, 1, 0; 1998 KV₃₇, 3, 1, 0; 1998 KV₃₉, 3, 1, 0;

1998 KV₅₄, 3, 1, 0; 1998 KW₅₉, 3, 1, 0; 1998 KZ₅₉, 3, 1, 0; 1998 KN₆₀, 12, 4, 53; 1998 KU₆₀, 9, 3, 57; 1998 KV₆₀, 3, 1, 0; 1998 KX₆₀, 3, 1, 0; 1998 KO₆₁, 3, 1, 0; 1998 KG₆₄, 3, 1, 0; 1998 KB₆₆, 3, 1, 0; 1998 LN, 3, 1, 0; 1998 MU₇, 9, 3, 87; 1998 MW₇, 6, 2, 28; 1998 MX₇, 3, 1, 0; 1998 MG₁₆, 3, 1, 0; 1998 MZ₂₃, 3, 1, 0; 1998 MS₂₄, 3, 1, 0; 1998 MT₂₄, 3, 1, 0; 1998 MK₃₀, 6, 2, 26; 1998 MM₃₃, 3, 1, 0; 1998 ML₃₄, 3, 1, 0; 1998 ML₃₇, 3, 1, 0; 1998 MM₃₇, 3, 1, 0; 1998 MR₃₇, 3, 1, 0; 1998 MB₃₈, 3, 1, 0; 1998 MD₃₈, 6, 2, 43; 1998 MR₄₆, 6, 2, 43; 1998 MS₄₆, 6, 2, 22; 1998 MT₄₆, 6, 2, 23; 1998 MU₄₆, 3, 1, 0; 1998 MO₄₇, 3, 1, 0; 1998 MF₄₈, 6, 2, 13; 1998 NA, 3, 1, 0; 1998 NB₁, 3, 1, 0; 1998 OK, 3, 1, 0; 1998 OD₁, 6, 2, 30; 1998 OE₁, 3, 1, 0; 1998 ON₁, 3, 1, 0; 1998 OT₁, 6, 2, 55; 1998 OU₁, 6, 2, 19; 1998 OJ₂, 6, 1, 0; 1998 OV₄, 3, 1, 0; 1998 OQ₆ *, 6, 2, 5; 1998 OR₆ *, 6, 2, 5; 1998 OS₆ *, 6, 2, 5; 1998 OT₆ *, 6, 2, 5; 1998 OU₆ *, 9, 3, 32; 1998 OV₆ *, 6, 2, 8; 1998 OX₆, 6, 2, 22; 1998 OY₆, 3, 1, 0; 1998 OB₇, 6, 2, 22; 1998 OF₇, 3, 1, 0; 1998 OH₇, 6, 2, 35; 1998 OJ₇, 6, 2, 57; 1998 OP₇, 3, 1, 0; 1998 OU₇, 3, 1, 0; 1998 OL₈, 9, 3, 43; 1998 OP₈, 6, 2, 2; 1998 OS₈, 3, 1, 0; 1998 OW₈, 3, 1, 0; 1998 OZ₈, 3, 1, 0; 1998 OG₉, 6, 2, 5; 1998 ON₉, 3, 1, 0; 1998 OO₉, 6, 2, 2; 1998 OU₉, 3, 1, 0; 1998 OZ₉, 6, 2, 57; 1998 OA₁₀, 6, 2, 7; 1998 OE₁₀, 3, 1, 0; 1998 OF₁₀, 9, 3, 59; 1998 OP₁₀, 3, 1, 0; 1998 OQ₁₀, 6, 2, 5; 1998 OS₁₀, 3, 1, 0; 1998 OK₁₁, 3, 1, 0; 1998 OL₁₁, 9, 3, 7; 1998 ON₁₁, 3, 1, 0; 1998 OQ₁₁, 3, 1, 0; 1998 OS₁₁, 3, 1, 0; 1998 OT₁₁, 6, 2, 7; 1998 OU₁₁, 3, 1, 0; 1998 OH₁₂, 3, 1, 0; 1998 OK₁₂, 3, 1, 0; 1998 ON₁₂, 6, 2, 22; 1998 OP₁₂, 6, 2, 23; 1998 OS₁₂, 6, 2, 22; 1998 OT₁₂, 6, 2, 27; 1998 OU₁₂, 9, 3, 54; 1998 OV₁₂, 3, 1, 0; 1998 OZ₁₂, 6, 2, 23; 1998 OA₁₃, 3, 1, 0; 1998 OD₁₃, 6, 2, 23; 1998 OF₁₃, 3, 1, 0; 1998 OH₁₃, 3, 1, 0; 1998 OL₁₃, 3, 1, 0; 1998 ON₁₃, 6, 2, 28; 1998 OO₁₃, 3, 1, 0; 1998 OR₁₃, 3, 1, 0; 1998 OT₁₃, 3, 1, 0; 1998 OU₁₃, 6, 2, 28; 1998 OV₁₃, 9, 3, 32; 1998 OX₁₃, 3, 1, 0; 1998 OY₁₃, 3, 1, 0; 1998 OZ₁₃, 9, 3, 58; 1998 OB₁₄, 3, 1, 0; 1998 OC₁₄, 9, 3, 32; 1998 OD₁₄, 3, 1, 0; 1998 OF₁₄, 3, 1, 0; 1998 OH₁₄, 3, 1, 0; 1998 OK₁₄, 3, 1, 0; 1998 OL₁₄, 3, 1, 0; 1998 OM₁₄, 6, 2, 28; 1998 ON₁₄, 3, 1, 0; 1998 OO₁₄, 3, 1, 0; 1998 OR₁₄, 3, 1, 0; 1998 OT₁₄, 6, 2, 50; 1998 OV₁₄, 3, 1, 0; 1998 OX₁₄, 3, 1, 0; 1998 OY₁₄, 6, 2, 59; 1998 OA₁₅, 3, 1, 0; 1998 OC₁₅, 3, 1, 0; 1998 OE₁₅, 3, 1, 0; 1998 OF₁₅, 3, 1, 0; 1998 PB *, 6, 2, 1; 1998 PC *, 6, 2, 1; 1998 PD *, 6, 2, 2; 1998 PE *, 6, 2, 2; 1998 PF *, 9, 3, 28; 1998 PG *, 6, 2, 1; 1998 PJ, 3, 1, 0; 1998 PK, 6, 2, 63; 1998 PN, 3, 1, 0; 1998 PO, 6, 2, 2; 1998 PU, 6, 2, 25; 1998 PX, 3, 1, 0; 1998 PA₁, 3, 1, 0; 1998 PC₁, 3, 1, 0; 1998 PE₁, 9, 3, 53; 1998 PP₁, 6, 2, 57; 1998 QB, 3, 1, 0; 1998 QC, 3, 1, 0; 1998 QH, 3, 1, 0; 1998 QM, 3, 1, 0; 1998 QN, 3, 1, 0; 1998 QU, 6, 2, 7; 1998 QV, 3, 1, 0; 1998 QY, 3, 1, 0; 1998 QB₁, 6, 2, 44; 1998 QB₁, 3, 1, 0; 1998 QL₁, 3, 1, 0; 1998 QM₁, 3, 1, 0; 1998 QN₁, 3, 1, 0; 1998 QO₁, 3, 1, 0; 1998 QP₁, 3, 1, 0; 1998 QQ₁, 3, 1, 0; 1998 QU₁, 3, 1, 0; 1998 QV₁, 3, 1, 0; 1998 QX₁, 9, 3, 35; 1998 QZ₁, 3, 1, 0; 1998 QA₂, 3, 1, 0; 1998 QH₂ *, 3, 1, 0; 1998 QJ₂, 3, 1, 0; 1998 QN₂, 3, 1, 0; 1998 QT₂, 6, 2, 1; 1998 QU₂, 3, 1, 0; 1998 QW₂, 3, 1, 0; 1998 QX₂, 6, 2, 63; 1998 QY₂, 3, 1, 0; 1998 QZ₂, 3, 1, 0; 1998 QB₃, 6, 2, 4; 1998 QD₃, 3, 1, 0; 1998 QF₃, 6, 2, 1; 1998 QG₃, 3, 1, 0; 1998 QJ₃, 3, 1, 0; 1998 QM₃, 6, 2, 27; 1998 QQ₃, 3, 1, 0; 1998 QS₃, 3, 1, 0; 1998 QV₃, 3, 1, 0; 1998 QW₃, 3, 1, 0; 1998 QX₃, 3, 1, 0; 1998 QY₃, 3, 1, 0; 1998 QZ₃, 3, 1, 0; 1998 QV₄, 3, 1, 0; 1998 QW₄, 3, 1, 0; 1998 QX₄, 3, 1, 0; 1998 QY₄, 3, 1, 0; 1998 QZ₄, 3, 1, 0; 1998 QV₅, 3, 1, 0; 1998 QX₅, 6, 2, 42; 1998 QC₇, 9, 3, 61; 1998 QK₇, 3, 1, 0; 1998 QN₇, 3, 1, 0; 1998 QQ₇, 6, 2, 58; 1998 QS₇, 3, 1, 0; 1998 QT₇, 3, 1, 0; 1998 QU₇, 3, 1, 0; 1998 QV₇, 9, 3, 86; 1998 QW₇, 6, 2, 44; 1998 QK₈, 9, 3, 84; 1998 QO₈, 3, 1, 0; 1998 QQ₈, 3, 1, 0; 1998 QT₈, 3, 1, 0; 1998 QU₈, 3, 1, 0; 1998 QX₈, 3, 1, 0; 1998 QB₉, 3, 1, 0; 1998 QC₉, 3, 1, 0; 1998 QF₉, 2, 1, 0; 1998 QH₉, 3, 1, 0; 1998 QM₉, 3, 1, 0; 1998 QS₉, 3, 1, 0; 1998 QU₉, 3, 1, 0; 1998 QV₉, 6, 2, 1; 1998 QX₉, 3, 1, 0; 1998 QY₉, 9, 3, 58; 1998 QB₁₀, 3, 1, 0; 1998 QE₁₀, 3, 1, 0; 1998 QG₁₀, 3, 1, 0; 1998 QH₁₀, 3, 1, 0; 1998 QN₁₀, 6, 2, 23; 1998 QO₁₀, 12, 4, 85; 1998 QR₁₀, 3, 1, 0; 1998 QS₁₀, 9, 3, 55; 1998 QT₁₀, 3, 1, 0; 1998 QV₁₀, 3, 1, 0; 1998 QX₁₀, 9, 3, 3; 1998 QY₁₀, 6, 2, 29; 1998 QA₁₁, 9, 3, 30; 1998 QD₁₁, 12, 4, 98; 1998 QE₁₁, 3, 1, 0; 1998 QF₁₁, 6, 2, 27; 1998 QH₁₁, 6, 2, 29; 1998 QJ₁₁, 3, 1, 0; 1998 QL₁₁, 3, 1, 0; 1998 QR₁₁, 3, 1, 0; 1998 QT₁₁, 3, 1, 0; 1998 QV₁₁, 3, 1, 0; 1998 QW₁₁, 3, 1, 0; 1998 QA₁₂, 3, 1, 0; 1998 QC₁₂, 6, 2, 35; 1998 QD₁₂, 6, 2, 5; 1998 QE₁₂, 3, 1, 0; 1998 QG₁₂, 6, 2, 30; 1998 QJ₁₂, 3, 1, 0; 1998 QK₁₂, 3, 1, 0; 1998 QM₁₂, 3, 1, 0; 1998 QN₁₂, 3, 1, 0; 1998 QP₁₂, 3, 1, 0; 1998 QQ₁₂, 3, 1, 0; 1998 QZ₁₂, 3, 1, 0; 1998 QV₁₂, 6, 2, 2; 1998 QY₁₂, 3, 1, 0; 1998 QZ₁₂, 3, 1, 0; 1998 QE₁₃, 6, 1, 0; 1998 QF₁₃, 3, 1, 0; 1998 QM₁₃, 3, 1, 0; 1998 QN₁₃, 6, 2, 27; 1998 QT₁₃, 3, 1, 0; 1998 QU₁₃, 3, 1, 0; 1998 QW₁₃, 3, 1, 0; 1998 QY₁₃, 3, 1, 0; 1998 QZ₁₃, 3, 1, 0; 1998 QA₁₄, 6, 2, 33; 1998 QB

0: 1998 QR₁₉, 3, 1, 0; 1998 QS₁₉, 3, 1, 0; 1998 QV₁₉, 3, 1, 0; 1998 QY₁₉, 3, 1, 0; 1998 QZ₁₉, 3, 1, 0; 1998 QB₂₀, 3, 1, 0; 1998 QC₂₀, 6, 2, 24; 1998 QD₂₀, 3, 1, 0; 1998 QE₂₀, 3, 1, 0; 1998 QF₂₀, 3, 1, 0; 1998 QG₂₀, 3, 1, 0; 1998 QH₂₀, 3, 1, 0; 1998 QI₂₀, 3, 1, 0; 1998 QJ₂₀, 3, 1, 0; 1998 QK₂₀, 3, 1, 0; 1998 QL₂₀, 3, 1, 0; 1998 QM₂₀, 3, 1, 0; 1998 QN₂₀, 3, 1, 0; 1998 QO₂₀, 3, 1, 0; 1998 QR₂₀, 6, 2, 31; 1998 QY₂₀, 3, 1, 0; 1998 QZ₂₀, 3, 1, 0; 1998 QA₂₁, 3, 1, 0; 1998 QB₂₁, 3, 1, 0; 1998 QC₂₁, 3, 1, 0; 1998 QD₂₁, 3, 1, 0; 1998 QE₂₁, 3, 1, 0; 1998 QF₂₁, 3, 1, 0; 1998 QG₂₁, 3, 1, 0; 1998 QH₂₁, 3, 1, 0; 1998 QI₂₁, 3, 1, 0; 1998 QJ₂₁, 3, 1, 0; 1998 QK₂₁, 6, 2, 27; 1998 QP₂₁, 3, 1, 0; 1998 QQ₂₁, 6, 2, 27; 1998 QR₂₁, 3, 1, 0; 1998 QT₂₁, 3, 1, 0; 1998 QU₂₁, 3, 1, 0; 1998 QW₂₁, 3, 1, 0; 1998 QX₂₁, 3, 1, 0; 1998 QA₂₂, 6, 2, 22; 1998 QC₂₂, 3, 1, 0; 1998 QD₂₂, 3, 1, 0; 1998 QE₂₂, 3, 1, 0; 1998 QF₂₂, 3, 1, 0; 1998 QG₂₂, 6, 2, 27; 1998 QH₂₂, 6, 2, 27; 1998 QI₂₂, 6, 2, 27; 1998 QJ₂₂, 3, 1, 0; 1998 QK₂₂, 3, 1, 0; 1998 QL₂₂, 3, 1, 0; 1998 QM₂₂, 3, 1, 0; 1998 QN₂₂, 3, 1, 0; 1998 QO₂₂, 3, 1, 0; 1998 QR₂₂, 6, 2, 27; 1998 QY₂₂, 3, 1, 0; 1998 QZ₂₂, 3, 1, 0; 1998 QA₂₃, 3, 1, 0; 1998 QB₂₃, 3, 1, 0; 1998 QC₂₃, 6, 2, 28; 1998 QD₂₃, 3, 1, 0; 1998 QE₂₃, 3, 1, 0; 1998 QF₂₃, 3, 1, 0; 1998 QG₂₃, 3, 1, 0; 1998 QH₂₃, 3, 1, 0; 1998 QI₂₃, 3, 1, 0; 1998 QJ₂₃, 3, 1, 0; 1998 QK₂₃, 6, 2, 27; 1998 QP₂₃, 3, 1, 0; 1998 QQ₂₃, 3, 1, 0; 1998 QR₂₃, 3, 1, 0; 1998 QS₂₃, 3, 1, 0; 1998 QT₂₃, 3, 1, 0; 1998 QU₂₃, 3, 1, 0; 1998 QV₂₃, 3, 1, 0; 1998 QW₂₃, 3, 1, 0; 1998 QX₂₃, 3, 1, 0; 1998 QA₂₄, 3, 1, 0; 1998 QB₂₄, 3, 1, 0; 1998 QC₂₄, 3, 1, 0; 1998 QD₂₄, 3, 1, 0; 1998 QE₂₄, 3, 1, 0; 1998 QF₂₄, 3, 1, 0; 1998 QG₂₄, 3, 1, 0; 1998 QH₂₄, 3, 1, 0; 1998 QI₂₄, 3, 1, 0; 1998 QJ₂₄, 3, 1, 0; 1998 QK₂₄, 3, 1, 0; 1998 QL₂₄, 3, 1, 0; 1998 QM₂₄, 3, 1, 0; 1998 QN₂₄, 3, 1, 0; 1998 QO₂₄, 3, 1, 0; 1998 QR₂₄, 6, 2, 28; 1998 QY₂₄, 3, 1, 0; 1998 QZ₂₄, 3, 1, 0; 1998 QA₂₅, 3, 1, 0; 1998 QC₂₅, 3, 1, 0; 1998 QD₂₅, 3, 1, 0; 1998 QE₂₅, 3, 1, 0; 1998 QF₂₅, 3, 1, 0; 1998 QG₂₅, 3, 1, 0; 1998 QH₂₅, 3, 1, 0; 1998 QI₂₅, 3, 1, 0; 1998 QJ₂₅, 3, 1, 0; 1998 QK₂₅, 3, 1, 0; 1998 QL₂₅, 3, 1, 0; 1998 QM₂₅, 3, 1, 0; 1998 QN₂₅, 3, 1, 0; 1998 QO₂₅, 3, 1, 0; 1998 QR₂₅, 6, 2, 27; 1998 QY₂₅, 3, 1, 0; 1998 QZ₂₅, 3, 1, 0; 1998 QA₂₆, 3, 1, 0; 1998 QB₂₆, 3, 1, 0; 1998 QC₂₆, 3, 1, 0; 1998 QD₂₆, 3, 1, 0; 1998 QE₂₆, 3, 1, 0; 1998 QF₂₆, 3, 1, 0; 1998 QG₂₆, 3, 1, 0; 1998 QH₂₆, 3, 1, 0; 1998 QI₂₆, 3, 1, 0; 1998 QJ₂₆, 3, 1, 0; 1998 QK₂₆, 3, 1, 0; 1998 QL₂₆, 3, 1, 0; 1998 QM₂₆, 3, 1, 0; 1998 QN₂₆, 3, 1, 0; 1998 QO₂₆, 3, 1, 0; 1998 QR₂₆, 6, 2, 27; 1998 QY₂₆, 3, 1, 0; 1998 QZ₂₆, 3, 1, 0; 1998 QA₂₇, 3, 1, 0; 1998 QB₂₇, 3, 1, 0; 1998 QC₂₇, 3, 1, 0; 1998 QD₂₇, 3, 1, 0; 1998 QE₂₇, 3, 1, 0; 1998 QF₂₇, 3, 1, 0; 1998 QG₂₇, 3, 1, 0; 1998 QH₂₇, 3, 1, 0; 1998 QI₂₇, 3, 1, 0; 1998 QJ₂₇, 3, 1, 0; 1998 QK₂₇, 3, 1, 0; 1998 QL₂₇, 3, 1, 0; 1998 QM₂₇, 3, 1, 0; 1998 QN₂₇, 3, 1, 0; 1998 QO₂₇, 3, 1, 0; 1998 QR₂₇, 6, 2, 27; 1998 QY₂₇, 3, 1, 0; 1998 QZ₂₇, 3, 1, 0; 1998 QA₂₈, 3, 1, 0; 1998 QB₂₈, 3, 1, 0; 1998 QC₂₈, 3, 1, 0; 1998 QD₂₈, 3, 1, 0; 1998 QE₂₈, 3, 1, 0; 1998 QF₂₈, 3, 1, 0; 1998 QG₂₈, 3, 1, 0; 1998 QH₂₈, 3, 1, 0; 1998 QI₂₈, 3, 1, 0; 1998 QJ₂₈, 3, 1, 0; 1998 QK₂₈, 3, 1, 0; 1998 QL₂₈, 3, 1, 0; 1998 QM₂₈, 3, 1, 0; 1998 QN₂₈, 3, 1, 0; 1998 QO₂₈, 3, 1, 0; 1998 QR₂₈, 6, 2, 27; 1998 QY₂₈, 3, 1, 0; 1998 QZ₂₈, 3, 1, 0; 1998 QA₂₉, 3, 1, 0; 1998 QB₂₉, 3, 1, 0; 1998 QC₂₉, 3, 1, 0; 1998 QD₂₉, 3, 1, 0; 1998 QE₂₉, 3, 1, 0; 1998 QF₂₉, 3, 1, 0; 1998 QG

[illegible]

3, 1, 0; (6778), 3, 1, 0; (6779), 3, 1, 0; (6789), 6, 2, 27; (6790), 3, 1, 0; (6800), 6, 2, 23; (6852), 3, 1, 0; (6854), 3, 1, 0; (6863), 3, 1, 0; (6880), 3, 1, 0; (6881), 6, 2, 27; (6903), 3, 1, 0; (6910), 6, 2, 27; (6912), 6, 1, 0; (6918), 3, 1, 0; (6928), 3, 1, 0; (6958), 3, 1, 0; (6987), 3, 1, 0; (6990), 3, 1, 0; (6996), 6, 2, 22; (7008), 3, 1, 0; (7022), 3, 1, 0; (7035), 3, 1, 0; (7038), 3, 1, 0; (7056), 3, 1, 0; (7077), 3, 1, 0; (7104), 6, 2, 27; (7208), 3, 1, 0; (7210), 2, 1, 0; (7324), 3, 1, 0; (7342), 3, 1, 0; (7529), 6, 2, 22; (7396), 3, 1, 0; (7443), 3, 1, 0; (7477), 3, 1, 0; (7478), 6, 2, 3; (7515), 3, 1, 0; (7542), 3, 1, 0; (7579), 3, 1, 0; (7590), 5, 2, 3; (7594), 3, 1, 0; (7637), 3, 1, 0; (7640), 3, 1, 0; (7642), 3, 1, 0; (7649), 3, 1, 0; (7654), 3, 1, 0; (7665), 3, 1, 0; (7666), 6, 2, 28; (7679), 6, 2, 22; (7685), 3, 1, 0; (7700), 6, 2, 27; (7702), 3, 1, 0; (7706), 3, 1, 0; (7707), 3, 1, 0; (7742), 6, 2, 23; (7755), 3, 1, 0; (7758), 3, 1, 0; (7767), 3, 1, 0; (7771), 3, 1, 0; (7819), 2, 1, 0; (7821), 3, 1, 0; (7831), 6, 2, 7; (7836), 6, 2, 1; (7838), 3, 1, 0; (7841), 3, 1, 0; (8982), 3, 1, 0; (9038), 3, 1, 0; (9042), 3, 1, 0; (9046), 3, 1, 0; (9064), 3, 1, 0; (9065), 3, 1, 0; (9068), 3, 1, 0; (9083), 3, 1, 0; (9092), 6, 2, 29; [5337, 1368, 90*, 1998/03/25-1998/08/30]

701 Sierra Vista

D. Healy, Junk Bond Observatory, 6929 Madera Dr, Sierra Vista, AZ 85635, U.S.A.

[76443.1440@compuserve.com]

Observers D. Healy, J. Medkeff

Measurer J. Medkeff

0.4-m Schmidt-Cassegrain + CCD

GSC

1993 FB₈, 2, 1, 0; [2, 1, 0*, 1998/06/21]

703 Catalina Sky Survey

C. W. Hergenrother, Space Sciences Building, University of Arizona, Tucson, AZ

85721, U.S.A. [chergen@pir1.lpl.arizona.edu]

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

J. L. Levine

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

0.41-m *f*/3 Schmidt + CCD

USNO-A1.0, GSC

1998 KJ₆₀, 3, 1, 0; [3, 1, 0*, 1998/05/27]

704 Lincoln Laboratory Experimental Test System, New Mexico

H. Viggh, MIT Lincoln Laboratory, 244 Wood Street, Lexington, MA 02173,

U.S.A. [viggh@ll.mit.edu]

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

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

1.0-m *f*/2.15 reflector + CCD

USNO-SA1.0

1971 UN, 5, 1, 0; 1971 UR, 4, 1, 0; 1973 RF, 5, 2, 3; 1974 QF, 4, 1, 0; 1975 NC, 10, 2, 6; 1975 RA₂, 5, 1, 0; 1976 DA₁, 5, 1, 0; 1976 SX₅, 5, 1, 0; 1976 YF₃, 4, 1, 0; 1977 DD₁, 3, 1, 0; 1977 DL₂, 9, 2, 6; 1977 EL₁, 5, 1, 0; 1977 TD₁, 10, 2, 3; 1978 CK, 10, 2, 3; 1978 OQ, 5, 1, 0; 1978 PX₃, 9, 2, 6; 1978 RX₁, 10, 2, 6; 1978 RL₇, 9, 2, 6; 1978 RC₉, 9, 2, 6; 1978 RD₁₀, 5, 1, 0; 1978 SE₅, 9, 2, 3; 1978 SJ₇, 4, 1, 0; 1978 UY₄, 5, 1, 0; 1978 UN₅, 5, 1, 0; 1978 VW₆, 9, 2, 3; 1978 VO₈, 9, 2, 6; 1978 XW, 5, 1, 0; 1978 YM, 5, 1, 0; 1979 MK, 4, 1, 0; 1979 MV₈, 5, 1, 0; 1979 QW₃, 9, 2, 6; 1980 BA, 9, 2, 3; 1980 FU, 4, 1, 0; 1980 FR₂, 5, 1, 0; 1980 FF₃, 4, 1, 0; 1980 FS₃, 10, 2, 6; 1980 RB₈, 5, 1, 0; 1980 TT₃, 4, 1, 0; 1980 TA₄, 4, 1, 0; 1980 VZ₂, 10, 2, 6; 1981 DU₁, 13, 3, 8; 1981 EJ₅, 10, 2, 4; 1981 ED₆, 4, 1, 0; 1981 EF₁₁, 3, 1, 0; 1981 ED₁₂, 9, 2, 6; 1981 EY₁₂, 9, 2, 3; 1981 EP₁₃, 4, 1, 0; 1981 EQ₁₄, 9, 2, 6; 1981 EJ₁₅, 5, 1, 0; 1981 EA₁₆, 5, 1, 0; 1981 EG₁₆, 5, 1, 0; 1981 EB₁₇, 5, 1, 0; 1981 EY₁₇, 4, 1, 0; 1981 ED₂₄, 9, 2, 6; 1981 EB₂₅, 4, 1, 0; 1981 EV₂₈, 9, 2, 3; 1981 EW₃₀, 5, 1, 0; 1981 ED₃₅, 9, 2, 6; 1981 ER₄₃, 5, 1, 0; 1981 EV₄₆, 4, 1, 0; 1981 QK, 9, 2, 3; 1981 QK₃, 10, 2, 6; 1981 QN₃, 5, 1, 0; 1981 QR₃, 5, 1, 0; 1981 RF₂, 4, 1, 0; 1981 RQ₂, 9, 2, 3; 1981 UD₂, 9, 2, 3; 1981 UO₁₁, 9, 2, 3; 1981 UO₂₉, 3, 1, 0; 1982 QO, 9, 2, 6; 1982 SF₆, 9, 2, 3; 1982 SM₇, 9, 2, 6; 1982 TS₁, 5, 1, 0; 1982 UD₄, 5, 1, 0; 1982 UC₁₁, 5, 1, 0; 1982 WA, 9, 2, 3; 1982 XQ₁, 10, 2, 6; 1983 AC₁, 12, 2, 6; 1983 CH, 8, 2, 3; 1983 EV, 10, 2, 6; 1983 RB₂, 5, 1, 0; 1983 RP₃, 10, 2, 6; 1983 RB₄, 10, 2, 6; 1983 TU₁, 8, 2, 3; 1984 QU, 4, 1, 0; 1984 SA, 10, 2, 3; 1984 SO₄, 5, 1, 0; 1984 SZ₅, 10, 2, 3; 1984 UD₃, 10, 2, 4; 1985 CU₁, 4, 1, 0; 1985 JM, 10, 2, 3; 1985 JG₂, 10, 2, 3; 1985 PS, 10, 2, 6; 1985 PT, 10, 2, 6; 1985 PE₁, 5, 1, 0; 1985 RJ, 5, 1, 0; 1985 RD₃, 10, 2, 6; 1985 SX₂, 4, 1, 0; 1985 SC₃, 5, 1, 0; 1985 UY, 4, 1, 0; 1985 UO₃, 5, 1, 0; 1986 QQ₁, 5, 1, 0; 1986 QB₃, 5, 1, 0; 1986 QH₃, 10, 2, 6; 1986 RA₅, 10, 2, 6; 1986 TV₆, 5, 1, 0; 1986 UH₃, 7, 2, 6; 1986 XT, 10, 2, 6; 1987 BS₁, 5, 1, 0; 1987 BZ₁, 10, 2, 6; 1987 HE, 9,

2, 3; 1987 SQ, 9, 2, 6; 1987 SJ₁, 9, 2, 3; 1987 SJ₂, 9, 2, 6; 1987 SG₃, 5, 1, 0; 1987 SV₃, 5, 1, 0; 1987 SD₄, 15, 3, 8; 1987 SC₆, 5, 1, 0; 1987 SH₇, 5, 1, 0; 1987 SS₉, 10, 2, 6; 1987 SV₁₂, 9, 2, 6; 1987 SS₁₇, 5, 1, 0; 1987 SU₁₇, 9, 2, 3; 1987 SX₁₇, 8, 2, 3; 1987 UT, 5, 1, 0; 1987 UV₁, 10, 2, 6; 1987 US₄, 4, 1, 0; 1988 BY₂, 5, 1, 0; 1988 BH₅, 8, 2, 3; 1988 CL₂, 10, 2, 3; 1988 CH₃, 15, 3, 8; 1988 CK₄, 9, 2, 6; 1988 CN₄, 10, 2, 6; 1988 DJ₁, 9, 2, 3; 1988 RD₁, 10, 2, 6; 1988 RO₂, 3, 1, 0; 1988 RO₄, 3, 1, 0; 1988 RG₉, 10, 2, 6; 1988 RL₉, 10, 2, 6; 1988 RV₁₁, 9, 2, 6; 1988 SB₂, 5, 1, 0; 1988 SH₂, 10, 2, 6; 1988 TT, 4, 1, 0; 1988 TL₁, 10, 2, 6; 1988 TO₁, 7, 2, 6; 1988 TG₅, 9, 2, 6; 1988 UV, 10, 2, 5; 1988 VN₃, 10, 2, 6; 1988 XB₅, 3, 1, 0; 1989 AK, 10, 2, 6; 1989 BV₁, 4, 1, 0; 1989 CX, 19, 4, 10; 1989 CV₁, 5, 1, 0; 1989 CX₂, 4, 1, 0; 1989 CB₃, 4, 1, 0; 1989 CH₄, 5, 1, 0; 1989 EX, 8, 2, 6; 1989 GR₃, 9, 2, 6; 1989 GG₄, 5, 1, 0; 1989 GL₄, 9, 2, 3; 1989 GN₄, 5, 1, 0; 1989 HA, 5, 1, 0; 1989 SP₂, 10, 2, 6; 1989 SW₂, 9, 2, 6; 1989 TH₁, 10, 2, 3; 1989 TB₁₁, 5, 1, 0; 1989 TR₁₁, 5, 1, 0; 1989 TZ₁₅, 10, 2, 6; 1989 UL, 4, 1, 0; 1989 WC₃, 5, 1, 0; 1989 YA₄, 4, 1, 0; 1989 YA₅, 14, 3, 10; 1990 DD₂, 4, 1, 0; 1990 DL₃, 9, 2, 6; 1990 EO, 10, 2, 3; 1990 EF₇, 4, 1, 0; 1990 EL₇, 4, 1, 0; 1990 FL, 9, 2, 3; 1990 GE, 4, 1, 0; 1990 HL₁, 4, 1, 0; 1990 OL₄, 10, 2, 3; 1990 QE, 4, 1, 0; 1990 QZ₁, 2, 1, 0; 1990 QS₃, 5, 1, 0; 1990 QE₇, 9, 2, 6; 1990 QA₈, 10, 2, 6; 1990 QO₈, 10, 2, 6; 1990 QB₁₉, 9, 2, 6; 1990 QC₁₉, 5, 1, 0; 1990 RR₂, 9, 2, 3; 1990 RV₃, 8, 2, 6; 1990 RJ₅, 9, 2, 6; 1990 RO₇, 10, 2, 6; 1990 RR₇, 9, 2, 6; 1990 SY, 5, 1, 0; 1990 SZ, 5, 1, 0; 1990 SB₁, 10, 2, 6; 1990 SF₄, 15, 3, 58; 1990 SF₅, 4, 1, 0; 1990 SR₆, 10, 2, 6; 1990 SC₈, 9, 2, 6; 1990 SG₁₂, 5, 1, 0; 1990 SV₁₃, 9, 2, 6; 1990 ST₁₅, 5, 1, 0; 1990 TB₄, 4, 1, 0; 1990 UA₂, 5, 1, 0; 1990 UU₃, 10, 2, 3; 1990 VG₆, 4, 1, 0; 1990 VC₁₅, 4, 1, 0; 1990 WQ₂, 9, 2, 6; 1990 WA₅, 5, 1, 0; 1990 YA, 10, 2, 6; 1991 AA₁, 10, 2, 6; 1991 DU, 10, 2, 6; 1991 EM₁, 9, 2, 6; 1991 FO₁, 5, 1, 0; 1991 FH₂, 5, 1, 0; 1991 FN₂, 4, 1, 0; 1991 FZ₂, 7, 2, 6; 1991 GQ, 4, 1, 0; 1991 GB₃, 3, 1, 0; 1991 GK₄, 5, 1, 0; 1991 GH₅, 4, 1, 0; 1991 GT₅, 4, 1, 0; 1991 LB, 5, 1, 0; 1991 LW₁, 4, 1, 0; 1991 NP₂, 5, 1, 0; 1991 NB₄, 5, 1, 0; 1991 NQ₆, 9, 2, 6; 1991 NE₇, 3, 1, 0; 1991 OO, 10, 2, 6; 1991 OW, 10, 2, 6; 1991 PT₁, 10, 2, 6; 1991 PJ₃, 5, 1, 0; 1991 PQ₅, 5, 1, 0; 1991 PJ₇, 10, 2, 6; 1991 PD₁₀, 5, 1, 0; 1991 PG₁₁, 10, 1, 0; 1991 PO₁₁, 5, 1, 0; 1991 PM₁₃, 8, 2, 6; 1991 PJ₁₅, 5, 1, 0; 1991 PQ₁₆, 5, 1, 0; 1991 PX₁₇, 9, 2, 6; 1991 RX₁, 9, 2, 6; 1991 RZ₁, 15, 3, 8; 1991 RT₁, 4, 1, 0; 1991 RB₄, 9, 2, 6; 1991 RE₄, 10, 2, 6; 1991 RR₄, 4, 1, 0; 1991 RU₇, 10, 2, 6; 1991 RS₈, 10, 2, 6; 1991 RA₁₀, 10, 2, 2; 1991 RE₁₁, 10, 2, 3; 1991 RE₁₅, 10, 2, 3; 1991 RK₁₅, 5, 1, 0; 1991 RV₁₆, 4, 1, 0; 1991 RA₁₇, 3, 1, 0; 1991 RH₂₅, 5, 1, 0; 1991 SM₂, 5, 1, 0; 1991 TH₂, 9, 2, 6; 1991 TH₆, 8, 2, 6; 1991 UA, 5, 1, 0; 1991 UF₁, 8, 2, 6; 1991 UR₁, 5, 1, 0; 1991 UO₂, 9, 2, 3; 1991 UP₂, 5, 1, 0; 1991 UB₃, 8, 2, 3; 1991 UE₃, 5, 1, 0; 1991 UN₃, 8, 2, 3; 1991 UU₃, 4, 1, 0; 1991 VQ₁, 10, 2, 3; 1991 VR₁, 4, 1, 0; 1991 VM₄, 5, 1, 0; 1991 VF₇, 5, 1, 0; 1991 XU, 10, 2, 3; 1991 XO₂, 9, 2, 6; 1992 AR₁, 9, 2, 6; 1992 CH, 9, 2, 6; 1992 CD₃, 10, 2, 6; 1992 DU₅, 10, 2, 6; 1992 DN₇, 5, 1, 0; 1992 DY₇, 9, 2, 6; 1992 ED₁, 9, 2, 3; 1992 EX₉, 5, 1, 0; 1992 ED₁₁, 9, 2, 6; 1992 EE₁₄, 4, 1, 0; 1992 EK₁₄, 9, 2, 3; 1992 HH₁, 5, 1, 0; 1992 JB₂, 5, 1, 0; 1992 OF₉, 10, 2, 6; 1992 PL₂, 14, 3, 8; 1992 QL₂, 5, 1, 0; 1992 RQ, 5, 1, 0; 1992 RX₆, 5, 1, 0; 1992 RT₇, 4, 1, 0; 1992 SS₁₆, 4, 1, 0; 1992 SQ₂₄, 5, 1, 0; 1992 UM₉, 5, 1, 0; 1992 WX₁, 8, 2, 6; 1992 WP₅, 9, 2, 6; 1992 WH₈, 9, 2, 6; 1992 YG₂, 9, 2, 6; 1992 YN₂, 8, 2, 6; 1993 BJ₃, 3, 1, 0; 1993 BO₃, 10, 2, 6; 1993 BS₃, 10, 2, 6; 1993 BD₄, 5, 1, 0; 1993 BU₇, 5, 1, 0; 1993 BZ₁₂, 5, 1, 0; 1993 FA₅, 3, 1, 0; 1993 FS₉, 3, 1, 0; 1993 FX₉, 4, 1, 0; 1993 FB₁₀, 10, 2, 6; 1993 FS₁₀, 10, 2, 6; 1993 FR₁₁, 5, 1, 0; 1993 FV₁₂, 8, 2, 3; 1993 FU₁₃, 4, 1, 0; 1993 FU₁₇, 5, 1, 0; 1993 FR₂₃, 7, 2, 3; 1993 FH₂₅, 5, 1, 0; 1993 FV₃₁, 10, 2, 6; 1993 FB₃₂, 10, 2, 6; 1993 FR₃₅, 4, 1, 0; 1993 FY₄₁, 4, 1, 0; 1993 FY₄₃, 5, 1, 0; 1993 HF, 9, 2, 3; 1993 HK, 5, 1, 0; 1993 NO, 4, 1, 0; 1993 NV, 5, 1, 0; 1993 OQ₅, 10, 2, 6; 1993 OK₉, 5, 1, 0; 1993 OS₁₀, 10, 2, 6; 1993 PB, 4, 1, 0; 1993 PJ₇, 5, 1, 0; 1993 QD₃, 4, 1, 0; 1993 QF₃, 5, 1, 0; 1993 QZ₅, 5, 1, 0; 1993 SQ₃, 5, 1, 0; 1993 TB, 4, 1, 0; 1993 TS₁, 10, 2, 3; 1993 TP₁₅, 5, 1, 0; 1993 TM₁₆, 9, 2, 6; 1993 TG₂₆, 5, 1, 0; 1993 TP₂₆, 10, 2, 6; 1993 TX₂₆, 10, 2, 6; 1993 XD₁, 10, 2, 6; 1994 CA, 5, 1, 0; 1994 EH₂, 10, 2, 6; 1994 FF, 9, 2, 6; 1994 GF, 10, 2, 6; 1994 GN, 10, 2, 6; 1994 GM₁, 5, 1, 0; 1994 GL₉, 3, 1, 0; 1994 JF, 10, 2, 6; 1994 JU, 10, 2, 6; 1994 LC, 4, 1, 0; 1994 NF₁, 4, 1, 0; 1994 PO, 4, 1, 0; 1994 PJ₁, 9, 2, 6; 1994 PJ₂, 9, 2, 3; 1994 PU₂, 4, 1, 0; 1994 PT₁₄, 10, 2, 6; 1994 PC₁₅, 5, 1, 0; 1994 PT₁₆, 9, 2, 6; 1994 PA₁₉, 9, 2, 3; 1994 PY₁₉, 4, 1, 0; 1994 PM₂₁, 8, 2, 6; 1994 PL₂₃, 3, 1, 0; 1994 PY₂₅, 4, 1, 0; 1994 PU₂₆, 4, 1, 0; 1994 PW₂₇, 4, 1, 0; 1994 PU₂₉, 10, 2, 6; 1994 PT₃₁, 3, 1, 0; 1994 PW₃₁, 5, 1, 0; 1994 PL₃₂, 5, 1, 0; 1994 PS₃₂, 9, 2, 6; 1994 PD₃₄, 5, 1, 0; 1994 PC₃₉, 9, 2, 6; 1994 RJ, 9, 2, 6; 1994 RV, 4, 1, 0; 1994 RZ, 10, 2, 6; 1994 RL₁, 5, 1, 0; 1994 RH₉, 4, 1, 0; 1994 RJ₁₁, 8, 2, 3; 1994 SF₁₂, 5, 1, 0; 1994 ST₁₂, 10, 2, 6; 1994 TR₁, 5, 1, 0; 1994 TX₂, 24, 4, 5; 1994 TY₂, 4, 1, 0; 1994 UO, 4, 1, 0; 1994 UK₁, 4, 1, 0; 1994 UQ₁₁, 10, 2, 6; 1994 UT₁₁, 14, 3, 8; 1994 VH, 19, 3, 3; 1994 VY₂, 10, 2, 6; 1994 VU₆, 15, 3, 8; 1994 WQ₃, 4, 1, 0; 1994 WS₃, 3, 1, 0; 1995 BC, 5, 1, 0; 1995 BJ, 10, 2, 3; 1995 BG₁, 9, 2, 6; 1995 BJ₁, 9, 2, 6; 1995 BW₂, 5, 1, 0; 1995 CF, 10, 2, 6; 1995 QD₂, 9, 2, 6; 1995 RC, 10, 2, 6; 1995 ST, 5, 1, 0; 1995 SY₂, 5, 1, 0; 1995 SD₄, 9, 2, 6; 1995 SB₂₇, 10, 2, 6; 1995 TX, 9, 2, 3; 1995 UE, 10, 2, 6; 1995 UQ₃, 10, 2, 3; 1995 UR₃, 9, 2, 6; 1995 UX₅, 3, 1, 0; 1995 UC₆, 10, 2, 6; 1995 UP₈, 10, 2, 6; 1995 UB₄₅, 9, 2, 6; 1995 VF, 5, 1, 0; 1995 VS, 9, 2, 6; 1995 VP₁, 5, 1, 0; 1995 VL₂, 9, 2, 6; 1995 VQ₁₂, 10, 2, 3; 1995 WN, 8, 2, 6; 1995 WS, 9, 2, 6; 1995 WU, 10, 2, 6; 1995 WV₂, 10, 2, 6; 1995 WZ₄, 4, 1, 0; 1995 WJ₅, 5, 1, 0; 1995 WL₅, 10, 2, 3; 1995 WM₆, 3, 1, 0; 1995 WH₇, 4, 1, 0; 1995 WP₈, 10, 2, 3; 1995 WL₁₃, 3, 1, 0; 1995 WY₄₁, 4, 1, 0; 1995 XS, 5, 1, 0; 1995 XL₁, 9, 2, 6; 1995 XS₁, 5, 1, 0; 1995 XP₂, 9, 2, 6; 1995 XP₄, 3, 1, 0; 1995 YF, 9, 2, 6; 1995 YU, 5, 1, 0; 1995 YP₁, 4, 1, 0; 1995 YC₅, 9, 2, 6; 1995 YY₇, 10, 2, 6; 1996 AE, 5, 1, 0; 1996 AU, 5, 1, 0; 1996 AB₁, 5, 1, 0; 1996 AO₁, 10, 2, 6; 1996 AO₂, 10, 2, 6; 1996 BB, 9, 2,

6; 1996 BN₅, 5, 1, 0; 1996 BY₁, 4, 1, 0; 1996 BE₂, 4, 1, 0; 1996 BG₂, 4, 1, 0; 1996 BO₂, 5, 1, 0; 1996 CG₁, 5, 1, 0; 1996 CH₁, 5, 1, 0; 1996 CE₃, 10, 2, 3; 1996 CM₇, 10, 2, 3; 1996 CO₇, 10, 2, 6; 1996 CV₇, 5, 1, 0; 1996 CT₈, 10, 2, 6; 1996 CG₉, 5, 1, 0; 1996 DV₉, 9, 2, 6; 1996 DJ₁, 5, 1, 0; 1996 DO₁, 10, 2, 3; 1996 DW₂, 9, 2, 6; 1996 EW₁, 5, 1, 0; 1996 ED₉, 5, 1, 0; 1996 FJ₅, 8, 2, 3; 1996 GL₁, 5, 1, 0; 1996 HW₅, 5, 1, 0; 1996 HC₁, 5, 1, 0; 1996 KA₃, 5, 1, 0; 1996 XA₁₂, 5, 1, 0; 1997 AJ₄, 10, 2, 6; 1997 AN₄, 9, 2, 6; 1997 AQ₄, 3, 1, 0; 1997 AO₇, 10, 2, 6; 1997 AS₁₂, 10, 2, 6; 1997 AR₁₇, 4, 1, 0; 1997 AX₁₇, 4, 1, 0; 1997 AE₁₈, 10, 2, 6; 1997 BN₁, 8, 2, 6; 1997 BB₂, 9, 2, 6; 1997 BJ₂, 4, 1, 0; 1997 BR₃, 5, 1, 0; 1997 BT₃, 4, 1, 0; 1997 BU₅, 9, 2, 6; 1997 BG₈, 9, 2, 6; 1997 BC₉, 4, 1, 0; 1997 CW₃, 3, 1, 0; 1997 CA₁, 9, 2, 6; 1997 CC₁, 8, 2, 6; 1997 CF₃, 5, 1, 0; 1997 CH₄, 10, 2, 6; 1997 CB₁₃, 5, 1, 0; 1997 CC₂₀, 4, 1, 0; 1997 CK₂₀, 5, 1, 0; 1997 EB₁₀, 10, 2, 6; 1997 EI₃, 4, 1, 0; 1997 EA₃, 5, 1, 0; 1997 EY₂₀, 5, 1, 0; 1997 EX₂₅, 4, 1, 0; 1997 EQ₃₀, 5, 1, 0; 1997 EO₃₂, 5, 1, 0; 1997 EV₃₂, 5, 1, 0; 1997 EQ₄₀, 5, 1, 0; 1997 EB₄₂, 5, 1, 0; 1997 EW₄₇, 8, 2, 6; 1997 FG₁, 5, 1, 0; 1997 FZ₁, 5, 1, 0; 1997 FB₂, 10, 2, 6; 1997 GY₇, 4, 1, 0; 1997 GN₈, 9, 2, 6; 1997 GM₁₃, 5, 1, 0; 1997 GA₁₄, 8, 2, 6; 1997 GR₂₀, 5, 1, 0; 1997 GR₂₃, 5, 1, 0; 1997 GQ₂₇, 5, 1, 0; 1997 GW₃₂, 9, 2, 6; 1997 GA₃₇, 9, 2, 6; 1997 HO₂, 5, 1, 0; 1997 JO₅, 5, 1, 0; 1997 JT₁₁, 10, 2, 6; 1997 JE₁₅, 10, 2, 6; 1997 JP₁₅, 9, 2, 6; 1997 JJ₁₆, 3, 1, 0; 1997 JP₁₆, 9, 2, 6; 1997 KR₃, 10, 2, 6; 1997 LN₅, 5, 1, 0; 1997 LJ₃, 8, 2, 6; 1997 MB₉, 4, 1, 0; 1997 NQ₃₂, 5, 1, 0; 1997 NG₃, 5, 1, 0; 1997 RB₇, 5, 1, 0; 1998 HC₁₀₂, 4, 1, 0; 1998 JO₃, 4, 1, 0; 1998 KL₄, 5, 1, 0; 1998 KZ₅, 8, 2, 6; 1998 KA₆, 10, 2, 6; 1998 KV₃₂, 5, 1, 0; 1998 KT₃₄, 5, 1, 0; 1998 KV₃₉, 5, 1, 0; 1998 KK₄₈, 4, 1, 0; 1998 KV₄₅, 5, 1, 0; 1998 KD₄₇, 5, 1, 0; 1998 KW₄₇, 5, 1, 0; 1998 KD₄₈, 5, 1, 0; 1998 KE₄₈, 4, 1, 0; 1998 KC₅₈, 4, 1, 0; 1998 KW₅₉, 5, 1, 0; 1998 KZ₅₉, 4, 1, 0; 1998 KJ₆₀, 5, 1, 0; 1998 KN₆₀, 4, 1, 0; 1998 KU₆₀, 4, 1, 0; 1998 KV₆₀, 5, 1, 0; 1998 KX₆₀, 4, 1, 0; 1998 KO₆₁, 4, 1, 0; 1998 KX₆₃, 5, 1, 0; 1998 KG₆₄, 4, 1, 0; 1998 KK₆₄, 5, 1, 0; 1998 KM₆₄, 4, 1, 0; 1998 KP₆₄, 5, 1, 0; 1998 LV₆₄, 5, 1, 0; 1998 KN₆₅, 5, 1, 0; 1998 LR₅, 5, 1, 0; 1998 LE₂, 4, 1, 0; 1998 LW₄, 1, 0; 1998 LK₂, 4, 1, 0; 1998 LS₂, 4, 1, 0; 1998 LZ₂, 4, 1, 0; 1998 MD₄, 1, 0; 1998 MK₅, 10, 2, 6; 1998 MO₅, 15, 3, 81; 1998 MM₇, 4, 1, 0; 1998 MU₇, 10, 2, 6; 1998 MW₇, 9, 2, 6; 1998 MX₇, 9, 2, 6; 1998 MY₇, 14, 2, 3; 1998 MZ₇, 10, 2, 3; 1998 MA₈, 10, 2, 3; 1998 MZ₈, 4, 1, 0; 1998 MB₁₀, 5, 1, 0; 1998 MA₁₁, 5, 1, 0; 1998 MQ₁₁, 4, 1, 0; 1998 MV₁₃, 5, 1, 0; 1998 MG₁₆, 9, 2, 6; 1998 MN₁₆, 9, 2, 6; 1998 MZ₂₃, 10, 2, 6; 1998 MS₂₄, 5, 1, 0; 1998 MT₂₄, 5, 1, 0; 1998 MH₂₇, 4, 1, 0; 1998 MV₂₇, 4, 1, 0; 1998 MG₂₉, 4, 1, 0; 1998 MK₃₀, 8, 2, 8; 1998 MZ₃₀, 3, 1, 0; 1998 MQ₃₂, 4, 1, 0; 1998 MU₃₃, 4, 1, 0; 1998 MM₃₆, 10, 2, 6; 1998 MF₃₇, 5, 1, 0; 1998 MK₃₇, 5, 1, 0; 1998 ML₃₇, 10, 2, 6; 1998 MM₃₇, 8, 2, 6; 1998 MQ₃₇, 10, 2, 6; 1998 MR₃₇, 10, 2, 6; 1998 MB₃₈, 10, 2, 6; 1998 MD₃₈, 10, 2, 56; 1998 MT₃₈, 4, 1, 0; 1998 MO₄₄, 5, 1, 0; 1998 MD₄₆, 5, 1, 0; 1998 MR₄₆ *, 15, 3, 59; 1998 MS₄₆ *, 5, 1, 0; 1998 MT₄₆ *, 14, 3, 55; 1998 MU₄₆ *, 5, 1, 0; 1998 MW₄₆ *, 9, 2, 30; 1998 MA₄₇, 5, 1, 0; 1998 ME₄₇, 4, 1, 0; 1998 MK₄₇, 4, 1, 0; 1998 MM₄₇, 4, 1, 0; 1998 MO₄₇, 3, 1, 0; 1998 MQ₄₇, 4, 1, 0; 1998 MX₄₇, 5, 1, 0; 1998 MY₄₇, 4, 1, 0; 1998 MF₄₈, 5, 1, 0; 1998 MG₄₈, 5, 1, 0; 1998 NS₈, 2, 25; 1998 OJ₈, 8, 2, 6; 1998 OM₈, 8, 2, 3; 1998 OP₅, 1, 0; 1998 OD₁, 9, 2, 6; 1998 OE₁, 9, 2, 3; 1998 OJ₁, 8, 2, 3; 1998 ON₁, 4, 1, 0; 1998 OJ₂, 9, 2, 6; 1998 OP₂, 5, 1, 0; 1998 OT₃, 9, 2, 6; 1998 OF₄, 10, 2, 6; 1998 OQ₄, 9, 2, 6; 1998 OS₄, 9, 2, 6; 1998 OV₄, 10, 2, 6; 1998 OY₄, 14, 2, 3; 1998 OZ₄, 9, 2, 3; 1998 OW₅, 9, 2, 6; 1998 OX₅, 4, 1, 0; 1998 OR₆, 10, 2, 6; 1998 OT₆, 10, 2, 6; 1998 OU₆, 10, 2, 6; 1998 OV₆, 10, 2, 6; 1998 OW₆, 5, 1, 0; 1998 OX₆, 10, 2, 6; 1998 OY₆, 10, 2, 6; 1998 OZ₆, 10, 2, 6; 1998 OB₇, 9, 2, 6; 1998 OC₇, 10, 2, 6; 1998 OE₇, 10, 2, 6; 1998 OF₇, 10, 2, 6; 1998 OG₇, 9, 2, 6; 1998 OH₇, 10, 2, 3; 1998 OJ₇, 9, 2, 3; 1998 OP₇, 9, 2, 6; 1998 OU₇, 10, 2, 6; 1998 OP₈, 9, 2, 6; 1998 OR₈, 9, 2, 6; 1998 OS₈, 10, 2, 6; 1998 OW₈, 9, 2, 6; 1998 OC₉, 9, 2, 6; 1998 OD₉, 9, 2, 6; 1998 OR₉, 10, 2, 6; 1998 OT₉, 10, 2, 6; 1998 OU₉, 9, 2, 6; 1998 OY₉, 8, 2, 6; 1998 OZ₉, 9, 2, 6; 1998 OE₁₀, 10, 2, 6; 1998 OF₁₀, 10, 2, 6; 1998 OG₁₀, 9, 2, 6; 1998 OH₁₀, 9, 2, 6; 1998 OP₁₀, 10, 2, 6; 1998 OQ₁₀, 9, 2, 6; 1998 OK₁₁, 9, 2, 6; 1998 OL₁₁, 9, 2, 6; 1998 ON₁₁, 9, 2, 6; 1998 OQ₁₁, 10, 2, 6; 1998 OR₁₁, 14, 3, 10; 1998 OS₁₁, 9, 2, 6; 1998 OU₁₁, 10, 2, 6; 1998 OZ₁₁, 8, 2, 6; 1998 OA₁₂, 4, 1, 0; 1998 OB₁₂, 10, 2, 6; 1998 OD₁₂, 10, 2, 6; 1998 OG₁₂, 10, 2, 6; 1998 OJ₁₂, 9, 2, 6; 1998 ON₁₂, 10, 2, 6; 1998 OP₁₂, 9, 2, 6; 1998 OS₁₂, 4, 1, 0; 1998 OT₁₂, 10, 2, 6; 1998 OU₁₂, 10, 2, 6; 1998 OZ₁₂, 10, 2, 6; 1998 OD₁₃, 10, 2, 6; 1998 OF₁₃, 10, 2, 6; 1998 OH₁₃, 10, 2, 6; 1998 OK₁₃, 10, 2, 6; 1998 OL₁₃, 8, 2, 6; 1998 OM₁₃, 9, 2, 6; 1998 ON₁₃, 9, 2, 6; 1998 OO₁₃, 9, 2, 6; 1998 OR₁₃, 10, 2, 6; 1998 OV₁₃, 10, 2, 6; 1998 OW₁₃, 10, 2, 6; 1998 OX₁₃, 10, 2, 6; 1998 OY₁₃, 9, 2, 6; 1998 OZ₁₃, 10, 2, 6; 1998 OB₁₄, 9, 2, 6; 1998 OC₁₄, 10, 2, 6; 1998 OD₁₄, 10, 2, 6; 1998 OE₁₄, 10, 2, 6; 1998 OH₁₄, 10, 2, 6; 1998 OJ₁₄, 10, 2, 6; 1998 OK₁₄, 10, 2, 6; 1998 OL₁₄, 9, 2, 6; 1998 OM₁₄, 10, 2, 6; 1998 ON₁₄, 10, 2, 6; 1998 OO₁₄, 10, 2, 6; 1998 OQ₁₄, 9, 2, 6; 1998 OR₁₄, 10, 2, 6; 1998 OS₁₄, 10, 2, 6; 1998 OT₁₄, 10, 2, 6; 1998 OU₁₄, 10, 2, 6; 1998 OV₁₄, 10, 2, 6; 1998 OX₁₄, 10, 2, 6; 1998 OZ₁₄, 10, 2, 6; 1998 OA₁₅, 10, 2, 6; 1998 OC₁₅, 9, 2, 6; 1998 OD₁₅, 9, 2, 6; 1998 OE₁₅, 10, 2, 6; 1998 OB₁₆, 9, 2, 3; 1998 OC₁₆, 9, 2, 3; 1998 PE₁₀, 10, 2, 3; 1998 PG₁₅, 15, 3, 8; 1998 PJ₉, 9, 2, 6; 1998 PK₅, 5, 1, 0; 1998 PM₅, 5, 1, 0; 1998 PN₉, 9, 2, 6; 1998 PO₉, 9, 2, 6; 1998 PU₁₀, 10, 2, 6; 1998 PX₉, 9, 2, 6; 1998 PB₁ *, 5, 1, 0; 1998 PD₁₀, 10, 2, 6; 1998 PE₁, 10, 2, 6; 1998 PL₁, 10, 2, 6; 1998 PP₁, 10, 2, 3; 1998 QA *, 5, 1, 0; 1998 QB₁₀, 10, 2, 6; 1998 QC₁₀, 10, 2, 6; 1998 QF₁₀, 10, 2, 6; 1998 QH₉, 9, 2, 6; 1998 QL₉, 9, 2, 6; 1998 QM *, 9, 2, 6; 1998 QN *, 9, 2, 6; 1998 QO *, 10, 2, 10; 1998 QP *, 5, 1, 0; 1998 QQ *, 5, 1, 0; 1998 QY₉, 9, 2, 6; 1998 QU₉, 9, 2, 6; 1998 QV₁₀, 10, 2, 6; 1998 QW₁₀, 10, 2, 3; 1998 QX₈, 2, 3; 1998 QY₉, 9, 2, 6; 1998 QA₁ *, 10, 2, 5; 1998 QB₁ *, 9, 2, 52; 1998 QC₁ *, 14, 3, 10; 1998 QE₁ *, 5, 1, 0; 1998 QF₁ *, 9, 2, 10; 1998 QG₁ *, 4, 1, 0; 1998 QH₁ *, 4, 1, 0; 1998 QJ₁ *, 4, 1, 0; 1998 QK₁, 9, 2, 6; 1998 QL₁, 9, 2, 6; 1998 QM₁, 9, 2, 6; 1998 QN₁, 9, 2, 6;

1998 QO₁, 10, 2, 6; 1998 QP₁, 10, 2, 6; 1998 QQ₁, 10, 2, 6; 1998 QR₁, 9, 2, 6; 1998 QW₁, 9, 2, 6; 1998 QA₂, 8, 2, 6; 1998 QB₂ *, 4, 1, 0; 1998 QD₂ *, 9, 2, 5; 1998 QE₂ *, 8, 2, 8; 1998 QH₂, 10, 1, 0; 1998 QJ₂, 9, 2, 6; 1998 QK₂, 10, 2, 6; 1998 QM₂, 10, 2, 6; 1998 QN₂, 10, 2, 3; 1998 QS₂, 10, 2, 6; 1998 QT₂ *, 10, 2, 6; 1998 QU₂ *, 9, 2, 6; 1998 QV₂ *, 9, 2, 6; 1998 QW₂ *, 10, 2, 6; 1998 QX₂ *, 9, 2, 6; 1998 QY₂ *, 9, 2, 6; 1998 QZ₂ *, 10, 2, 6; 1998 QA₃ *, 9, 2, 6; 1998 QB₃ *, 9, 2, 6; 1998 QC₃ *, 9, 2, 6; 1998 QD₃ *, 10, 2, 6; 1998 QE₃ *, 9, 2, 6; 1998 QF₃ *, 9, 2, 6; 1998 QG₃ *, 9, 2, 6; 1998 QH₃ *, 9, 2, 6; 1998 QJ₃ *, 10, 2, 6; 1998 QK₃ *, 9, 2, 6; 1998 QL₃ *, 10, 2, 6; 1998 QM₃ *, 10, 2, 6; 1998 QN₃ *, 10, 2, 6; 1998 QO₃ *, 9, 2, 6; 1998 QP₃ *, 10, 2, 6; 1998 QQ₃ *, 10, 2, 6; 1998 QR₃ *, 10, 2, 6; 1998 QS₃ *, 9, 2, 6; 1998 QT₃ *, 9, 2, 6; 1998 QU₃ *, 9, 2, 6; 1998 QV₃ *, 15, 3, 14; 1998 QW₃, 4, 1, 0; 1998 QX₃, 10, 2, 6; 1998 QY₃, 10, 2, 6; 1998 QJ₄, 10, 2, 6; 1998 QN₄, 10, 2, 6; 1998 QO₄, 9, 2, 3; 1998 QT₄, 10, 2, 6; 1998 QV₄, 9, 2, 3; 1998 QX₄, 9, 2, 3; 1998 QY₄, 9, 2, 3; 1998 QZ₄, 5, 1, 0; 1998 QA₅, 9, 2, 3; 1998 QB₅, 9, 2, 3; 1998 QC₅, 10, 2, 3; 1998 QJ₅, 10, 2, 6; 1998 QN₅ *, 13, 3, 10; 1998 QO₅ *, 14, 3, 8; 1998 QP₅ *, 13, 3, 8; 1998 QQ₅ *, 14, 3, 8; 1998 QR₅ *, 14, 3, 8; 1998 QS₅, 10, 2, 6; 1998 QT₅, 9, 2, 6; 1998 QW₅, 5, 1, 0; 1998 QZ₅, 4, 1, 0; 1998 QX₆ *, 10, 2, 6; 1998 QY₆ *, 10, 2, 6; 1998 QZ₆ *, 9, 2, 6; 1998 QA₇ *, 10, 2, 6; 1998 QB₇ *, 9, 2, 6; 1998 QC₇ *, 10, 2, 6; 1998 QD₇ *, 9, 2, 6; 1998 QE₇ *, 8, 2, 6; 1998 QF₇ *, 9, 2, 6; 1998 QG₇ *, 9, 2, 6; 1998 QH₇ *, 10, 2, 6; 1998 QJ₇ *, 10, 2, 6; 1998 QK₇ *, 10, 2, 6; 1998 QL₇ *, 10, 2, 6; 1998 QM₇ *, 10, 2, 6; 1998 QN₇ *, 10, 2, 6; 1998 QO₇ *, 10, 2, 6; 1998 QP₇ *, 9, 2, 6; 1998 QQ₇ *, 10, 2, 6; 1998 QR₇ *, 10, 2, 6; 1998 QS₇ *, 10, 2, 6; 1998 QT₇ *, 10, 2, 6; 1998 QU₇ *, 9, 2, 6; 1998 QV₇ *, 10, 2, 6; 1998 QW₇ *, 10, 2, 6; 1998 QX₇ *, 10, 2, 6; 1998 QY₇ *, 9, 2, 6; 1998 QZ₇ *, 10, 2, 6; 1998 QA₈ *, 10, 2, 6; 1998 QB₈ *, 10, 2, 6; 1998 QC₈ *, 15, 3, 10; 1998 QD₈ *, 9, 2, 6; 1998 QE₈ *, 10, 2, 6; 1998 QF₈ *, 9, 2, 6; 1998 QG₈ *, 9, 2, 6; 1998 QH₈ *, 10, 2, 6; 1998 QJ₈ *, 10, 2, 6; 1998 QK₈ *, 9, 2, 6; 1998 QL₈ *, 9, 2, 6; 1998 QM₈ *, 9, 2, 6; 1998 QN₈ *, 9, 2, 6; 1998 QO₈ *, 9, 2, 6; 1998 QP₈ *, 8, 2, 6; 1998 QQ₈ *, 9, 2, 6; 1998 QR₈ *, 9, 2, 6; 1998 QS₈ *, 9, 2, 6; 1998 QT₈ *, 10, 2, 6; 1998 QU₈ *, 9, 2, 6; 1998 QV₈ *, 9, 2, 6; 1998 QW₈ *, 10, 2, 6; 1998 QX₈ *, 10, 2, 6; 1998 QY₈ *, 10, 2, 6; 1998 QZ₈ *, 9, 2, 6; 1998 QA₉ *, 9, 2, 6; 1998 QB₉ *, 10, 2, 6; 1998 QC₉ *, 9, 2, 6; 1998 QD₉ *, 10, 2, 6; 1998 QE₉ *, 9, 2, 6; 1998 QF₉ *, 9, 2, 6; 1998 QG₉ *, 9, 2, 6; 1998 QH₉ *, 9, 2, 6; 1998 QJ₉ *, 9, 2, 6; 1998 QK₉ *, 10, 2, 6; 1998 QL₉ *, 10, 2, 6; 1998 QM₉ *, 9, 2, 6; 1998 QN₉ *, 9, 2, 6; 1998 QO₉ *, 9, 2, 6; 1998 QP₉ *, 10, 2, 6; 1998 QQ₉ *, 10, 2, 6; 1998 QR₉ *, 9, 2, 6; 1998 QS₉ *, 9, 2, 6; 1998 QT₉ *, 9, 2, 6; 1998 QU₉ *, 9, 2, 6; 1998 QV₉ *, 10, 2, 6; 1998 QW₉ *, 8, 2, 6; 1998 QX₉ *, 9, 2, 6; 1998 QY₉ *, 10, 2, 6; 1998 QZ₉ *, 9, 2, 6; 1998 QA₁₀ *, 9, 2, 6; 1998 QB₁₀ *, 10, 2, 6; 1998 QC₁₀ *, 10, 2, 6; 1998 QD₁₀ *, 9, 2, 6; 1998 QE₁₀ *, 9, 2, 6; 1998 QF₁₀ *, 9, 2, 6; 1998 QG₁₀ *, 8, 2, 6; 1998 QH₁₀ *, 9, 2, 6; 1998 QJ₁₀ *, 9, 2, 6; 1998 QK₁₀ *, 8, 2, 6; 1998 QL₁₀ *, 10, 2, 6; 1998 QM₁₀ *, 8, 2, 6; 1998 QN₁₀ *, 10, 2, 6; 1998 QO₁₀ *, 10, 2, 6; 1998 QP₁₀ *, 10, 2, 6; 1998 QQ₁₀ *, 8, 2, 6; 1998 QR₁₀ *, 10, 2, 6; 1998 QS₁₀ *, 10, 2, 6; 1998 QT₁₀ *, 10, 2, 6; 1998 QU₁₀ *, 9, 2, 6; 1998 QV₁₀ *, 10, 2, 6; 1998 QW₁₀ *, 9, 2, 6; 1998 QX₁₀ *, 10, 2, 6; 1998 QY₁₀ *, 8, 2, 6; 1998 QZ₁₀ *, 10, 2, 6; 1998 QA₁₁ *, 9, 2, 6; 1998 QB₁₁ *, 8, 2, 6; 1998 QC₁₁ *, 10, 2, 6; 1998 QD₁₁ *, 10, 2, 6; 1998 QE₁₁ *, 10, 2, 6; 1998 QF₁₁ *, 9, 2, 6; 1998 QG₁₁ *, 9, 2, 6; 1998 QH₁₁ *, 9, 2, 6; 1998 QJ₁₁ *, 9, 2, 6; 1998 QK₁₁ *, 9, 2, 6; 1998 QL₁₁ *, 9, 2, 6; 1998 QM₁₁ *, 10, 2, 6; 1998 QN₁₁ *, 9, 2, 6; 1998 QO₁₁ *, 8, 2, 6; 1998 QP₁₁ *, 9, 2, 6; 1998 QQ₁₁ *, 9, 2, 6; 1998 QR₁₁ *, 10, 2, 6; 1998 QS₁₁ *, 8, 2, 6; 1998 QT₁₁ *, 9, 2, 6; 1998 QU₁₁ *, 8, 2, 6; 1998 QV₁₁ *, 10, 2, 6; 1998 QW₁₁ *, 10, 2, 6; 1998 QX₁₁ *, 10, 2, 6; 1

2, 6; 1998 QK₁₆ *, 4, 3, 10; 1998 QL₁₆ *, 9, 2, 6; 1998 QM₁₆ *, 9, 2, 6; 1998 QN₁₆ *, 10, 2, 6; 1998 QO₁₆ *, 9, 2, 6; 1998 QP₁₆ *, 8, 2, 6; 1998 QQ₁₆ *, 9, 2, 6; 1998 QR₁₆ *, 10, 2, 6; 1998 QS₁₆ *, 9, 2, 6; 1998 QT₁₆ *, 8, 2, 6; 1998 QU₁₆ *, 9, 2, 6; 1998 QV₁₆ *, 9, 2, 6; 1998 QW₁₆ *, 9, 2, 6; 1998 QX₁₆ *, 10, 2, 6; 1998 QY₁₆ *, 9, 2, 6; 1998 QZ₁₆ *, 9, 2, 6; 1998 QA₁₇ *, 9, 2, 6; 1998 QB₁₇ *, 8, 2, 6; 1998 QC₁₇ *, 8, 2, 6; 1998 QD₁₇ *, 9, 2, 6; 1998 QE₁₇ *, 9, 2, 6; 1998 QF₁₇ *, 9, 2, 6; 1998 QG₁₇ *, 9, 2, 6; 1998 QH₁₇ *, 9, 2, 6; 1998 QI₁₇ *, 10, 2, 6; 1998 QJ₁₇ *, 8, 2, 6; 1998 QK₁₇ *, 9, 2, 6; 1998 QL₁₇ *, 9, 2, 6; 1998 QM₁₇ *, 8, 2, 6; 1998 QN₁₇ *, 9, 2, 6; 1998 QO₁₇ *, 8, 2, 6; 1998 QP₁₇ *, 9, 2, 6; 1998 QQ₁₇ *, 9, 2, 6; 1998 QR₁₇ *, 9, 2, 6; 1998 QS₁₇ *, 10, 2, 6; 1998 QT₁₇ *, 9, 2, 6; 1998 QU₁₇ *, 8, 2, 6; 1998 QV₁₇ *, 9, 2, 6; 1998 QW₁₇ *, 9, 2, 6; 1998 QX₁₇ *, 9, 2, 6; 1998 QY₁₇ *, 9, 2, 6; 1998 QZ₁₇ *, 9, 2, 6; 1998 QA₁₈ *, 8, 2, 6; 1998 QB₁₈ *, 10, 2, 6; 1998 QC₁₈ *, 10, 2, 6; 1998 QD₁₈ *, 9, 2, 6; 1998 QE₁₈ *, 9, 2, 6; 1998 QF₁₈ *, 9, 2, 6; 1998 QG₁₈ *, 7, 2, 6; 1998 QH₁₈ *, 10, 2, 6; 1998 QI₁₈ *, 9, 2, 6; 1998 QJ₁₈ *, 9, 2, 6; 1998 QK₁₈ *, 9, 2, 6; 1998 QL₁₈ *, 9, 2, 6; 1998 QM₁₈ *, 9, 2, 6; 1998 QN₁₈ *, 9, 2, 6; 1998 QO₁₈ *, 8, 2, 6; 1998 QP₁₈ *, 9, 2, 6; 1998 QQ₁₈ *, 9, 2, 6; 1998 QR₁₈ *, 10, 2, 6; 1998 QS₁₈ *, 9, 2, 6; 1998 QT₁₈ *, 10, 2, 6; 1998 QU₁₈ *, 9, 2, 6; 1998 QV₁₈ *, 10, 2, 6; 1998 QW₁₈ *, 9, 2, 6; 1998 QX₁₈ *, 9, 2, 6; 1998 QY₁₈ *, 7, 2, 6; 1998 QZ₁₈ *, 7, 2, 6; 1998 QA₁₉ *, 10, 2, 6; 1998 QB₁₉ *, 10, 2, 6; 1998 QC₁₉ *, 9, 2, 6; 1998 QD₁₉ *, 8, 2, 6; 1998 QE₁₉ *, 9, 2, 6; 1998 QF₁₉ *, 7, 2, 6; 1998 QG₁₉ *, 9, 2, 6; 1998 QH₁₉ *, 10, 2, 6; 1998 QJ₁₉ *, 9, 2, 6; 1998 QK₁₉ *, 9, 2, 6; 1998 QL₁₉ *, 9, 2, 6; 1998 QM₁₉ *, 9, 2, 6; 1998 QN₁₉ *, 9, 2, 6; 1998 QO₁₉ *, 9, 2, 6; 1998 QP₁₉ *, 10, 2, 6; 1998 QQ₁₉ *, 10, 2, 6; 1998 QR₁₉ *, 10, 2, 6; 1998 QS₁₉ *, 9, 2, 6; 1998 QT₁₉ *, 9, 2, 6; 1998 QU₁₉ *, 9, 2, 6; 1998 QV₁₉ *, 10, 2, 6; 1998 QW₁₉ *, 10, 2, 6; 1998 QX₁₉ *, 10, 2, 6; 1998 QY₁₉ *, 9, 2, 6; 1998 QZ₁₉ *, 8, 2, 6; 1998 QA₂₀ *, 10, 2, 6; 1998 QB₂₀ *, 9, 2, 6; 1998 QC₂₀ *, 10, 2, 6; 1998 QD₂₀ *, 10, 2, 6; 1998 QE₂₀ *, 10, 2, 6; 1998 QF₂₀ *, 10, 2, 6; 1998 QG₂₀ *, 10, 2, 6; 1998 QH₂₀ *, 7, 2, 6; 1998 QJ₂₀ *, 10, 2, 6; 1998 QK₂₀ *, 10, 2, 6; 1998 QL₂₀ *, 9, 2, 6; 1998 QM₂₀ *, 10, 2, 6; 1998 QN₂₀ *, 8, 2, 6; 1998 QO₂₀ *, 9, 2, 6; 1998 QP₂₀ *, 9, 2, 6; 1998 QQ₂₀ *, 10, 2, 6; 1998 QR₂₀ *, 10, 2, 6; 1998 QS₂₀ *, 10, 2, 6; 1998 QT₂₀ *, 8, 2, 6; 1998 QU₂₀ *, 10, 2, 6; 1998 QV₂₀ *, 9, 2, 6; 1998 QW₂₀ *, 10, 2, 6; 1998 QX₂₀ *, 9, 2, 6; 1998 QY₂₀ *, 10, 2, 6; 1998 QZ₂₀ *, 10, 2, 6; 1998 QA₂₁ *, 10, 2, 6; 1998 QB₂₁ *, 9, 2, 6; 1998 QC₂₁ *, 10, 2, 6; 1998 QD₂₁ *, 9, 2, 6; 1998 QE₂₁ *, 10, 2, 6; 1998 QF₂₁ *, 10, 2, 6; 1998 QG₂₁ *, 9, 2, 6; 1998 QH₂₁ *, 9, 2, 6; 1998 QI₂₁ *, 10, 2, 6; 1998 QJ₂₁ *, 10, 2, 6; 1998 QK₂₁ *, 9, 2, 6; 1998 QL₂₁ *, 8, 2, 6; 1998 QM₂₁ *, 8, 2, 6; 1998 QN₂₁ *, 10, 2, 6; 1998 QO₂₁ *, 10, 2, 6; 1998 QP₂₁ *, 10, 2, 6; 1998 QQ₂₁ *, 9, 2, 6; 1998 QR₂₁ *, 10, 2, 6; 1998 QS₂₁ *, 10, 2, 6; 1998 QT₂₁ *, 10, 2, 6; 1998 QU₂₁ *, 10, 2, 6; 1998 QV₂₁ *, 8, 2, 6; 1998 QW₂₁ *, 10, 2, 6; 1998 QX₂₁ *, 8, 2, 6; 1998 QY₂₁ *, 10, 2, 6; 1998 QZ₂₁ *, 10, 2, 6; 1998 QA₂₂ *, 10, 2, 6; 1998 QB₂₂ *, 8, 2, 6; 1998 QC₂₂ *, 9, 2, 6; 1998 QD₂₂ *, 9, 2, 6; 1998 QE₂₂ *, 10, 2, 6; 1998 QF₂₂ *, 10, 2, 6; 1998 QG₂₂ *, 10, 2, 6; 1998 QH₂₂ *, 9, 2, 6; 1998 QJ₂₂ *, 9, 2, 6; 1998 QK₂₂ *, 10, 2, 6; 1998 QL₂₂ *, 9, 2, 6; 1998 QM₂₂ *, 10, 2, 6; 1998 QN₂₂ *, 8, 2, 6; 1998 QO₂₂ *, 10, 2, 6; 1998 QP₂₂ *, 9, 2, 6; 1998 QQ₂₂ *, 9, 2, 6; 1998 QR₂₂ *, 10, 2, 6; 1998 QS₂₂ *, 10, 2, 6; 1998 QT₂₂ *, 10, 2, 6; 1998 QU₂₂ *,

6: 1998 QD₃₁ *, 7, 2, 6; 1998 QE₃₁ *, 10, 2, 6; 1998 QF₃₁ *, 10, 2, 6; 1998 QG₃₁ *, 9, 2, 6; 1998 QH₃₁ *, 10, 2, 6; 1998 QJ₃₁ *, 9, 2, 6; 1998 QK₃₁ *, 9, 2, 6; 1998 QL₃₁ *, 9, 2, 6; 1998 QM₃₁ *, 9, 2, 6; 1998 QN₃₁ *, 9, 2, 6; 1998 QO₃₁ *, 9, 2, 6; 1998 QP₃₁ *, 10, 2, 6; 1998 QQ₃₁ *, 9, 2, 6; 1998 QR₃₁ *, 9, 2, 6; 1998 QS₃₁ *, 10, 2, 6; 1998 QT₃₁ *, 9, 2, 6; 1998 QU₃₁ *, 9, 2, 6; 1998 QV₃₁ *, 10, 2, 6; 1998 QW₃₁ *, 10, 2, 6; 1998 QX₃₁ *, 10, 2, 6; 1998 QY₃₁ *, 8, 2, 6; 1998 QZ₃₁ *, 10, 2, 6; 1998 QA₃₂ *, 9, 2, 6; 1998 QB₃₂ *, 10, 2, 6; 1998 QC₃₂ *, 9, 2, 6; 1998 QD₃₂ *, 9, 2, 6; 1998 QE₃₂ *, 9, 2, 6; 1998 QF₃₂ *, 9, 2, 6; 1998 QG₃₂ *, 7, 2, 6; 1998 QH₃₂ *, 8, 2, 6; 1998 QJ₃₂ *, 9, 2, 6; 1998 QK₃₂ *, 9, 2, 6; 1998 QL₃₂ *, 9, 2, 6; 1998 QM₃₂ *, 10, 2, 6; 1998 QN₃₂ *, 10, 2, 6; 1998 QO₃₂ *, 10, 2, 6; 1998 QP₃₂ *, 9, 2, 6; 1998 QQ₃₂ *, 9, 2, 6; 1998 QR₃₂ *, 9, 2, 6; 1998 QS₃₂ *, 9, 2, 6; 1998 QT₃₂ *, 8, 2, 6; 1998 QU₃₂ *, 8, 2, 6; 1998 QV₃₂ *, 10, 2, 6; 1998 QW₃₂ *, 10, 2, 6; 1998 QX₃₂ *, 10, 2, 6; 1998 QY₃₂ *, 10, 2, 6; 1998 QZ₃₂ *, 9, 2, 6; 1998 QA₃₃ *, 10, 2, 6; 1998 QB₃₃ *, 8, 2, 6; 1998 QC₃₃ *, 9, 2, 6; 1998 QD₃₃ *, 9, 2, 6; 1998 QE₃₃ *, 9, 2, 6; 1998 QF₃₃ *, 9, 2, 6; 1998 QG₃₃ *, 9, 2, 6; 1998 QH₃₃ *, 9, 2, 6; 1998 QJ₃₃ *, 10, 2, 6; 1998 QK₃₃ *, 9, 2, 6; 1998 QL₃₃ *, 10, 2, 6; 1998 QM₃₃ *, 7, 2, 6; 1998 QN₃₃ *, 10, 2, 6; 1998 QO₃₃ *, 10, 2, 6; 1998 QP₃₃ *, 8, 2, 6; 1998 QQ₃₃ *, 9, 2, 6; 1998 QR₃₃ *, 10, 2, 6; 1998 QS₃₃ *, 9, 2, 6; 1998 QT₃₃ *, 9, 2, 6; 1998 QU₃₃ *, 9, 2, 6; 1998 QV₃₃ *, 10, 2, 6; 1998 QW₃₃ *, 9, 2, 6; 1998 QX₃₃ *, 9, 2, 6; 1998 QY₃₃ *, 9, 2, 6; 1998 QZ₃₃ *, 9, 2, 6; 1998 QA₃₄ *, 10, 2, 6; 1998 QB₃₄ *, 9, 2, 6; 1998 QC₃₄ *, 10, 2, 6; 1998 QD₃₄ *, 10, 2, 6; 1998 QE₃₄ *, 10, 2, 6; 1998 QF₃₄ *, 9, 2, 6; 1998 QG₃₄ *, 9, 2, 6; 1998 QH₃₄ *, 9, 2, 6; 1998 QJ₃₄ *, 9, 2, 6; 1998 QK₃₄ *, 9, 2, 6; 1998 QL₃₄ *, 10, 2, 6; 1998 QM₃₄ *, 9, 2, 6; 1998 QN₃₄ *, 10, 2, 6; 1998 QO₃₄ *, 9, 2, 6; 1998 QP₃₄ *, 9, 2, 6; 1998 QQ₃₄ *, 8, 2, 6; 1998 QR₃₄ *, 8, 2, 6; 1998 QS₃₄ *, 9, 2, 6; 1998 QT₃₄ *, 8, 2, 6; 1998 QU₃₄ *, 8, 2, 6; 1998 QV₃₄ *, 8, 2, 6; 1998 QW₃₄ *, 8, 2, 6; 1998 QX₃₄ *, 9, 2, 6; 1998 QY₃₄ *, 9, 2, 6; 1998 QZ₃₄ *, 9, 2, 6; 1998 QA₃₅ *, 9, 2, 6; 1998 QB₃₅ *, 7, 2, 6; 1998 QC₃₅ *, 9, 2, 6; 1998 QD₃₅ *, 8, 2, 6; 1998 QE₃₅ *, 8, 2, 6; 1998 QF₃₅ *, 9, 2, 6; 1998 QG₃₅ *, 9, 2, 6; 1998 QH₃₅ *, 9, 2, 6; 1998 QJ₃₅ *, 8, 2, 6; 1998 QK₃₅ *, 9, 2, 6; 1998 QL₃₅ *, 9, 2, 6; 1998 QM₃₅ *, 8, 2, 6; 1998 QN₃₅ *, 8, 2, 6; 1998 QO₃₅ *, 9, 2, 6; 1998 QP₃₅ *, 9, 2, 6; 1998 QQ₃₅ *, 9, 2, 6; 1998 QR₃₅ *, 9, 2, 6; 1998 QS₃₅ *, 9, 2, 6; 1998 QT₃₅ *, 9, 2, 6; 1998 QU₃₅ *, 9, 2, 6; 1998 QV₃₅ *, 9, 2, 6; 1998 QW₃₅ *, 9, 2, 6; 1998 QX₃₅ *, 9, 2, 6; 1998 QY₃₅ *, 10, 2, 6; 1998 QZ₃₅ *, 9, 2, 6; 1998 QA₃₆ *, 9, 2, 6; 1998 QB₃₆ *, 9, 2, 6; 1998 QC₃₆ *, 8, 2, 6; 1998 QD₃₆ *, 8, 2, 6; 1998 QE₃₆ *, 8, 2, 6; 1998 QF₃₆ *, 9, 2, 6; 1998 QG₃₆ *, 8, 2, 6; 1998 QH₃₆ *, 9, 2, 6; 1998 QJ₃₆ *, 9, 2, 6; 1998 QK₃₆ *, 10, 2, 6; 1998 QL₃₆ *, 9, 2, 6; 1998 QM₃₆ *, 9, 2, 6; 1998 QN₃₆ *, 10, 2, 6; 1998 QO₃₆ *, 10, 2, 6; 1998 QP₃₆ *, 9, 2, 6; 1998 QQ₃₆ *, 9, 2, 6; 1998 QR₃₆ *, 10, 2, 6; 1998 QS₃₆ *, 9, 2, 6; 1998 QT₃₆ *, 9, 2, 6; 1998 QU₃₆ *, 10, 2, 6; 1998 QV₃₆ *, 14, 3, 7; 1998 QW₃₆ *, 9, 2, 6; 1998 QX₃₆ *, 9, 2, 6; 1998 QY₃₆ *, 10, 2, 6; 1998 QZ₃₆ *, 7, 2, 6; 1998 QA₃₇ *, 10, 2, 6; 1998 QB₃₇ *, 10, 2, 6; 1998 QC₃₇ *, 8, 2, 6; 1998 QD₃₇ *, 9, 2, 6; 1998 QE₃₇ *, 8, 2, 6; 1998 QF₃₇ *, 10, 2, 6; 1998 QG₃₇ *, 10, 2, 6; 1998 QH₃₇ *, 9, 2, 6; 1998 QJ₃₇ *, 10, 2, 6; 1998 QK₃₇ *, 9, 2, 6; 1998 QL₃₇ *, 9, 2, 6; 1998 QM₃₇ *, 10, 2, 6; 1998 QN₃₇ *, 10, 2, 6; 1998 QO₃₇ *, 10, 2, 6; 1998 QP₃₇ *, 9, 2, 6; 1998 QQ₃₇ *, 10, 2, 6; 1998 QR₃₇ *, 10, 2, 6; 1998 QS<

2, 6; 1998 QP₄₂ *, 10, 2, 6; 1998 QQ₄₂ *, 9, 2, 6; 1998 QR₄₂ *, 10, 2, 6; 1998 QS₄₂ *, 10, 2, 6; 1998 QT₄₂ *, 10, 2, 6; 1998 QU₄₂ *, 9, 2, 6; 1998 QV₄₂ *, 10, 2, 6; 1998 QW₄₂ *, 10, 2, 6; 1998 QX₄₂ *, 8, 2, 6; 1998 QY₄₂ *, 9, 2, 6; 1998 QZ₄₂ *, 8, 2, 6; 1998 QA₄₃ *, 7, 2, 6; 1998 QB₄₃ *, 8, 2, 4; 1998 QC₄₃ *, 10, 2, 6; 1998 QD₄₃ *, 9, 2, 6; 1998 QE₄₃ *, 10, 2, 6; 1998 QF₄₃ *, 9, 2, 6; 1998 QG₄₃ *, 10, 2, 6; 1998 QH₄₃ *, 9, 2, 6; 1998 QJ₄₃ *, 8, 2, 6; 1998 QK₄₃ *, 10, 2, 6; 1998 QL₄₃ *, 9, 2, 6; 1998 QM₄₃ *, 10, 2, 6; 1998 QN₄₃ *, 9, 2, 6; 1998 QO₄₃ *, 10, 2, 6; 1998 QP₄₃ *, 10, 2, 6; 1998 QQ₄₃ *, 10, 2, 6; 1998 QR₄₃ *, 9, 2, 6; 1998 QS₄₃ *, 10, 2, 6; 1998 QT₄₃ *, 9, 2, 6; 1998 QU₄₃ *, 10, 2, 6; 1998 QV₄₃ *, 10, 2, 6; 1998 QW₄₃ *, 10, 2, 6; 1998 QX₄₃ *, 9, 2, 6; 1998 QY₄₃ *, 9, 2, 6; 1998 QZ₄₃ *, 10, 2, 6; 1998 QA₄₄ *, 8, 2, 6; 1998 QB₄₄ *, 10, 2, 6; 1998 QC₄₄ *, 9, 2, 6; 1998 QD₄₄ *, 9, 2, 6; 1998 QE₄₄ *, 10, 2, 6; 1998 QF₄₄ *, 10, 2, 6; 1998 QG₄₄ *, 10, 2, 6; 1998 QH₄₄ *, 10, 2, 6; 1998 QJ₄₄ *, 10, 2, 6; 1998 QK₄₄ *, 10, 2, 6; 1998 QL₄₄ *, 10, 2, 6; 1998 QM₄₄ *, 8, 2, 6; 1998 QN₄₄ *, 10, 2, 6; 1998 QO₄₄ *, 10, 2, 6; 1998 QP₄₄ *, 9, 2, 6; 1998 QQ₄₄ *, 8, 2, 6; 1998 QR₄₄ *, 10, 2, 6; 1998 QS₄₄ *, 10, 2, 6; 1998 QT₄₄ *, 9, 2, 6; 1998 QU₄₄ *, 10, 2, 6; 1998 QV₄₄ *, 9, 2, 6; 1998 QW₄₄ *, 10, 2, 6; 1998 QX₄₄ *, 10, 2, 6; 1998 QY₄₄ *, 9, 2, 6; 1998 QZ₄₄ *, 10, 2, 6; 1998 QA₄₅ *, 9, 2, 6; 1998 QB₄₅ *, 10, 2, 6; 1998 QC₄₅ *, 15, 3, 10; 1998 QD₄₅ *, 10, 2, 6; 1998 QE₄₅ *, 8, 2, 6; 1998 QF₄₅ *, 10, 2, 6; 1998 QG₄₅ *, 9, 2, 6; 1998 QH₄₅ *, 9, 2, 6; 1998 QJ₄₅ *, 10, 2, 6; 1998 QK₄₅ *, 10, 2, 6; 1998 QL₄₅ *, 10, 2, 6; 1998 QM₄₅ *, 9, 2, 6; 1998 QN₄₅ *, 9, 2, 6; 1998 QO₄₅ *, 10, 2, 6; 1998 QP₄₅ *, 10, 2, 6; 1998 QQ₄₅ *, 10, 2, 6; 1998 QR₄₅ *, 10, 2, 6; 1998 QS₄₅ *, 10, 2, 6; 1998 QT₄₅ *, 10, 2, 6; 1998 QU₄₅ *, 10, 2, 6; 1998 QV₄₅ *, 9, 2, 6; 1998 QW₄₅ *, 10, 2, 6; 1998 QX₄₅ *, 10, 2, 6; 1998 QY₄₅ *, 10, 2, 6; 1998 QZ₄₅ *, 9, 2, 6; 1998 QA₄₆ *, 10, 2, 6; 1998 QB₄₆ *, 9, 2, 6; 1998 QC₄₆ *, 9, 2, 6; 1998 QD₄₆ *, 9, 2, 6; 1998 QE₄₆ *, 8, 2, 6; 1998 QF₄₆ *, 10, 2, 6; 1998 QG₄₆ *, 9, 2, 6; 1998 QH₄₆ *, 10, 2, 6; 1998 QJ₄₆ *, 10, 2, 6; 1998 QK₄₆ *, 9, 2, 6; 1998 QL₄₆ *, 10, 2, 6; 1998 QM₄₆ *, 10, 2, 6; 1998 QN₄₆ *, 10, 2, 6; 1998 QO₄₆ *, 10, 2, 6; 1998 QP₄₆ *, 10, 2, 6; 1998 QQ₄₆ *, 9, 2, 6; 1998 QR₄₆ *, 10, 2, 6; 1998 QS₄₆ *, 9, 2, 6; 1998 QT₄₆ *, 10, 2, 6; 1998 QU₄₆ *, 10, 2, 6; 1998 QV₄₆ *, 39, 4, 16; 1998 QW₄₆ *, 10, 2, 6; 1998 QX₄₆ *, 10, 2, 6; 1998 QY₄₆ *, 10, 2, 6; 1998 QZ₄₆ *, 10, 2, 6; 1998 QA₄₇ *, 9, 2, 6; 1998 QB₄₇ *, 10, 2, 6; 1998 QC₄₇ *, 8, 2, 6; 1998 QD₄₇ *, 8, 2, 6; 1998 QE₄₇ *, 10, 2, 6; 1998 QF₄₇ *, 8, 2, 6; 1998 QG₄₇ *, 10, 2, 6; 1998 QH₄₇ *, 9, 2, 6; 1998 QJ₄₇ *, 9, 2, 6; 1998 QK₄₇ *, 7, 2, 6; 1998 QL₄₇ *, 9, 2, 6; 1998 QM₄₇ *, 10, 2, 4; 1998 QN₄₇ *, 7, 2, 6; 1998 QO₄₇ *, 9, 2, 6; 1998 QP₄₇ *, 10, 2, 6; 1998 QQ₄₇ *, 10, 2, 6; 1998 QR₄₇ *, 9, 2, 6; 1998 QS₄₇ *, 10, 2, 6; 1998 QT₄₇ *, 10, 2, 6; 1998 QU₄₇ *, 10, 2, 6; 1998 QV₄₇ *, 9, 2, 6; 1998 QW₄₇ *, 10, 2, 6; 1998 QX₄₇ *, 10, 2, 6; 1998 QY₄₇ *, 10, 2, 6; 1998 QZ₄₇ *, 9, 2, 6; 1998 QA₄₈ *, 8, 2, 6; 1998 QB₄₈ *, 10, 2, 6; 1998 QC₄₈ *, 10, 2, 6; 1998 QD₄₈ *, 10, 2, 6; 1998 QE₄₈ *, 10, 2, 6; 1998 QF₄₈ *, 10, 2, 6; 1998 QG₄₈ *, 10, 2, 6; 1998 QH₄₈ *, 9, 2, 6; 1998 QJ₄₈ *, 9, 2, 6; 1998 QK₄₈ *, 9, 2, 6; 1998 QL₄₈ *, 8, 2, 6; 1998 QM₄₈ *, 10, 2, 6; 1998 QN₄₈ *, 9, 2, 6; 1998 QO₄₈ *, 8, 2, 6; 1998 QP₄₈ *, 9, 2, 6; 1998 QR₄₈ *, 8, 2, 6; 1998 QS₄₈ *, 10, 2, 6; 1998 QT₄₈ *, 8, 2, 6; 1998 QU₄₈ *, 10, 2, 6; 1998 QV₄₈ *, 9, 2, 6; 1998 QW₄₈ *, 10, 2, 6; 1998 QX₄₈ *, 10, 2, 6; 1998 QY₄₈ *, 9, 2, 6; 1998 QZ₄₈ *, 10, 2, 6; 1998 QA₄₉ *, 10, 2, 6; 1998 QB₄₉ *, 10, 2, 6; 1998 QC

4, 1, 0; 1998 QP₆₀ *, 10, 2, 3; 1998 QQ₆₀ *, 6, 2, 3; 1998 QT₆₀ *, 9, 2, 2; 1998 QP₆₁ *, 4, 1, 0; 1998 QQ₆₁ *, 4, 1, 0; 1998 QR₆₁ *, 9, 2, 6; 1998 QS₆₁ *, 4, 1, 0; 1998 QT₆₁ *, 4, 1, 0; 1998 QU₆₁ *, 8, 2, 6; 1998 QV₆₁ *, 10, 2, 6; 1998 QW₆₁ *, 4, 1, 0; 1998 QX₆₁ *, 4, 1, 0; 1998 QY₆₁ *, 5, 1, 0; 1998 QZ₆₁ *, 5, 1, 0; 1998 QA₆₂ *, 22, 3, 4; 1998 QT₆₂ *, 4, 1, 0; 1998 QV₆₂ *, 10, 2, 3; 1998 QW₆₂ *, 10, 2, 3; 1998 QF₆₃ *, 10, 2, 3; 1998 QG₆₃ *, 32, 2, 2; 1998 QH₆₃ *, 4, 1, 0; 1998 QT₆₃ *, 10, 2, 3; 1998 QX₆₃ *, 8, 2, 3; 1998 QY₆₃ *, 9, 2, 3; 1998 QZ₆₃ *, 9, 2, 3; 1998 QA₆₄ *, 8, 2, 3; 1998 QB₆₄ *, 9, 2, 3; 1998 QC₆₄ *, 9, 2, 3; 1998 QD₆₄ *, 6, 2, 3; 1998 QE₆₄ *, 9, 2, 3; 1998 QF₆₄ *, 8, 2, 3; 1998 QG₆₄ *, 7, 2, 3; 1998 QH₆₄ *, 10, 2, 3; 1998 QI₆₄ *, 9, 2, 3; 1998 QJ₆₄ *, 9, 2, 3; 1998 QK₆₄ *, 9, 2, 3; 1998 QL₆₄ *, 10, 2, 3; 1998 QM₆₄ *, 9, 2, 3; 1998 QN₆₄ *, 8, 2, 3; 1998 QO₆₄ *, 8, 2, 3; 1998 QP₆₄ *, 9, 2, 3; 1998 QQ₆₄ *, 10, 2, 3; 1998 QR₆₄ *, 10, 2, 3; 1998 QS₆₄ *, 9, 2, 3; 1998 QT₆₄ *, 10, 2, 3; 1998 QU₆₄ *, 10, 2, 3; 1998 QV₆₄ *, 10, 2, 3; 1998 QW₆₄ *, 9, 2, 3; 1998 QX₆₄ *, 9, 2, 3; 1998 QY₆₄ *, 10, 2, 3; 1998 QZ₆₄ *, 10, 2, 3; 1998 QA₆₅ *, 8, 2, 3; 1998 QB₆₅ *, 9, 2, 3; 1998 QC₆₅ *, 10, 2, 3; 1998 QD₆₅ *, 9, 2, 3; 1998 QE₆₅ *, 10, 2, 3; 1998 QF₆₅ *, 8, 2, 3; 1998 QG₆₅ *, 8, 2, 3; 1998 QH₆₅ *, 9, 2, 3; 1998 QJ₆₅ *, 9, 2, 3; 1998 QK₆₅ *, 9, 2, 3; 1998 QL₆₅ *, 9, 2, 3; 1998 QM₆₅ *, 8, 2, 3; 1998 QN₆₅ *, 8, 2, 3; 1998 QO₆₅ *, 10, 2, 3; 1998 QP₆₅ *, 10, 2, 3; 1998 QV₆₅ *, 9, 2, 3; 1998 QW₆₅ *, 10, 2, 3; 1998 QX₆₅ *, 10, 2, 3; 1998 QY₆₅ *, 9, 2, 3; 1998 QZ₆₅ *, 10, 2, 3; 1998 QA₆₆ *, 10, 2, 3; 1998 QB₆₆ *, 10, 2, 3; 1998 QC₆₆ *, 10, 2, 3; 1998 QD₆₆ *, 10, 2, 3; 1998 QE₆₆ *, 9, 2, 3; 1998 QF₆₆ *, 10, 2, 3; 1998 QG₆₆ *, 9, 2, 3; 1998 QH₆₆ *, 10, 2, 3; 1998 QI₆₆ *, 10, 2, 3; 1998 QJ₆₆ *, 10, 2, 3; 1998 QK₆₆ *, 10, 2, 3; 1998 QL₆₆ *, 8, 2, 3; 1998 QM₆₆ *, 10, 2, 3; 1998 QN₆₆ *, 8, 2, 3; 1998 QO₆₆ *, 9, 2, 3; 1998 QP₆₆ *, 10, 2, 3; 1998 QQ₆₆ *, 8, 2, 3; 1998 QR₆₆ *, 10, 2, 3; 1998 QS₆₆ *, 10, 2, 3; 1998 QT₆₆ *, 9, 2, 3; 1998 QU₆₆ *, 8, 2, 3; 1998 QV₆₆ *, 9, 2, 3; 1998 QW₆₆ *, 9, 2, 3; 1998 QX₆₆ *, 9, 2, 3; 1998 QY₆₆ *, 8, 2, 3; 1998 QZ₆₆ *, 8, 2, 3; 1998 QA₆₇ *, 9, 2, 3; 1998 QB₆₇ *, 8, 2, 3; 1998 QC₆₇ *, 8, 2, 3; 1998 QD₆₇ *, 8, 2, 3; 1998 QE₆₇ *, 9, 2, 3; 1998 QF₆₇ *, 9, 2, 3; 1998 QG₆₇ *, 7, 2, 3; 1998 QH₆₇ *, 9, 2, 3; 1998 QJ₆₇ *, 9, 2, 3; 1998 QK₆₇ *, 9, 2, 3; 1998 QL₆₇ *, 9, 2, 3; 1998 QM₆₇ *, 9, 2, 3; 1998 QN₆₇ *, 9, 2, 3; 1998 QO₆₇ *, 10, 2, 3; 1998 QP₆₇ *, 9, 2, 3; 1998 QQ₆₇ *, 9, 2, 3; 1998 QR₆₇ *, 9, 2, 3; 1998 QS₆₇ *, 10, 2, 3; 1998 QT₆₇ *, 9, 2, 3; 1998 QU₆₇ *, 9, 2, 3; 1998 QV₆₇ *, 10, 2, 3; 1998 QW₆₇ *, 8, 2, 3; 1998 QX₆₇ *, 9, 2, 3; 1998 QY₆₇ *, 10, 2, 3; 1998 QZ₆₇ *, 9, 2, 3; 1998 QA₆₈ *, 9, 2, 3; 1998 QB₆₈ *, 10, 2, 3; 1998 QC₆₈ *, 9, 2, 3; 1998 QD₆₈ *, 10, 2, 3; 1998 QE₆₈ *, 10, 2, 3; 1998 QF₆₈ *, 10, 2, 3; 1998 QG₆₈ *, 9, 2, 3; 1998 QH₆₈ *, 9, 2, 3; 1998 QJ₆₈ *, 8, 2, 3; 1998 QK₆₈ *, 9, 2, 3; 1998 QL₆₈ *, 7, 2, 3; 1998 QM₆₈ *, 9, 2, 3; 1998 QN₆₈ *, 9, 2, 3; 1998 QO₆₈ *, 9, 2, 3; 1998 QP₆₈ *, 9, 2, 3; 1998 QV₆₈ *, 9, 2, 3; 1998 QW₆₈ *, 8, 2, 3; 1998 QX₆₈ *, 10, 2, 3; 1998 QY₆₈ *, 8, 2, 3; 1998 QZ₆₈ *, 10, 2, 3; 1998 QA₆₉ *, 9, 2, 3; 1998 QB₆₉ *, 10, 2, 3; 1998 QC₆₉ *, 10, 2, 3; 1998 QD₆₉ *, 10, 2, 3; 1998 QE₆₉ *, 9, 2, 3; 1998 QF₆₉ *, 9, 2, 3; 1998 QG₆₉ *, 9, 2, 3; 1998 QH₆₉ *, 10, 2, 3; 1998 QI₆₉ *, 9, 2, 3; 1998 QJ₆₉ *, 10, 2, 3; 1998 QK₆₉ *, 10, 2, 3; 1998 QL₆₉ *, 10, 2, 3; 1998 QM₆₉ *, 10, 2, 3; 1998 QN₆₉ *, 9, 2, 3; 1998 QO₆₉ *, 8, 2, 3; 1998 QP₆₉ *, 10, 2, 3; 1998 QQ₆₉ *, 9, 2, 3; 1998 QR₆₉ *, 10, 2, 3; 1998 QS₆₉ *, 10, 2, 3; 1998 QT₆₉ *, 9, 2, 3; 1998 QU₆₉ *, 9, 2, 3; 1998 QV₆₉

3; 1998 QN₇₄ *, 10, 2, 3; 1998 QO₇₄ *, 9, 2, 3; 1998 QP₇₄ *, 9, 2, 3; 1998 QQ₇₄ *, 9, 2, 3; 1998 QR₇₄ *, 10, 2, 3; 1998 QS₇₄ *, 10, 2, 3; 1998 QT₇₄ *, 10, 2, 3; 1998 QU₇₄ *, 10, 2, 3; 1998 QV₇₄ *, 10, 2, 3; 1998 QW₇₄ *, 10, 2, 3; 1998 QX₇₄ *, 9, 2, 3; 1998 QY₇₄ *, 9, 2, 3; 1998 QZ₇₄ *, 10, 2, 3; 1998 QA₇₅ *, 9, 2, 3; 1998 QB₇₅ *, 10, 2, 3; 1998 QC₇₅ *, 9, 2, 3; 1998 QD₇₅ *, 10, 2, 3; 1998 QE₇₅ *, 10, 2, 3; 1998 QF₇₅ *, 10, 2, 3; 1998 QG₇₅ *, 9, 2, 3; 1998 QH₇₅ *, 9, 2, 3; 1998 QI₇₅ *, 10, 2, 3; 1998 QJ₇₅ *, 10, 2, 3; 1998 QK₇₅ *, 10, 2, 3; 1998 QL₇₅ *, 10, 2, 3; 1998 QM₇₅ *, 8, 2, 3; 1998 QN₇₅ *, 10, 2, 3; 1998 QO₇₅ *, 10, 2, 3; 1998 QP₇₅ *, 9, 2, 3; 1998 QQ₇₅ *, 9, 2, 3; 1998 QR₇₅ *, 9, 2, 3; 1998 QS₇₅ *, 8, 2, 3; 1998 QT₇₅ *, 10, 2, 3; 1998 QU₇₅ *, 10, 2, 3; 1998 QV₇₅ *, 9, 2, 3; 1998 QW₇₅ *, 10, 2, 3; 1998 QX₇₅ *, 10, 2, 3; 1998 QY₇₅ *, 10, 2, 3; 1998 QZ₇₅ *, 10, 2, 3; 1998 QA₇₆ *, 10, 2, 3; 1998 QB₇₆ *, 9, 2, 3; 1998 QC₇₆ *, 10, 2, 3; 1998 QD₇₆ *, 10, 2, 3; 1998 QE₇₆ *, 10, 2, 3; 1998 QF₇₆ *, 9, 2, 3; 1998 QG₇₆ *, 10, 2, 3; 1998 QH₇₆ *, 10, 2, 3; 1998 QI₇₆ *, 8, 2, 3; 1998 QJ₇₆ *, 10, 2, 3; 1998 QK₇₆ *, 10, 2, 3; 1998 QL₇₆ *, 9, 2, 3; 1998 QM₇₆ *, 10, 2, 3; 1998 QN₇₆ *, 10, 2, 3; 1998 QO₇₆ *, 10, 2, 3; 1998 QP₇₆ *, 10, 2, 3; 1998 QQ₇₆ *, 9, 2, 3; 1998 QR₇₆ *, 10, 2, 3; 1998 QS₇₆ *, 10, 2, 3; 1998 QT₇₆ *, 10, 2, 3; 1998 QU₇₆ *, 9, 2, 3; 1998 QV₇₆ *, 10, 2, 3; 1998 QW₇₆ *, 9, 2, 3; 1998 QX₇₆ *, 9, 2, 3; 1998 QY₇₆ *, 9, 2, 3; 1998 QZ₇₆ *, 10, 2, 3; 1998 QA₇₇ *, 10, 2, 3; 1998 QB₇₇ *, 9, 2, 3; 1998 QC₇₇ *, 8, 2, 3; 1998 QD₇₇ *, 9, 2, 3; 1998 QE₇₇ *, 9, 2, 3; 1998 QF₇₇ *, 10, 2, 3; 1998 QG₇₇ *, 9, 2, 3; 1998 QH₇₇ *, 10, 2, 3; 1998 QI₇₇ *, 10, 2, 3; 1998 QJ₇₇ *, 10, 2, 3; 1998 QK₇₇ *, 19, 2, 3; 1998 QL₇₇ *, 15, 2, 3; 1998 QM₇₇ *, 10, 2, 3; 1998 QN₇₇ *, 8, 2, 3; 1998 QO₇₇ *, 10, 2, 3; 1998 QP₇₇ *, 10, 2, 3; 1998 QR₇₇ *, 10, 2, 3; 1998 QS₇₇ *, 9, 2, 3; 1998 QT₇₇ *, 10, 2, 3; 1998 QU₇₇ *, 10, 2, 3; 1998 QV₇₇ *, 10, 2, 3; 1998 QW₇₇ *, 15, 2, 3; 1998 QX₇₇ *, 20, 2, 3; 1998 QY₇₇ *, 15, 2, 3; 1998 QZ₇₇ *, 9, 2, 3; 1998 QA₇₈ *, 9, 2, 3; 1998 QB₇₈ *, 10, 2, 3; 1998 QC₇₈ *, 9, 2, 3; 1998 QD₇₈ *, 10, 2, 3; 1998 QE₇₈ *, 10, 2, 3; 1998 QF₇₈ *, 10, 2, 3; 1998 QG₇₈ *, 7, 2, 3; 1998 QH₇₈ *, 8, 2, 3; 1998 QI₇₈ *, 8, 2, 3; 1998 QJ₇₈ *, 9, 2, 3; 1998 QK₇₈ *, 7, 2, 3; 1998 QL₇₈ *, 7, 2, 3; 1998 QM₇₈ *, 7, 2, 3; 1998 QN₇₈ *, 8, 2, 3; 1998 QO₇₈ *, 8, 2, 3; 1998 QP₇₈ *, 9, 2, 3; 1998 QQ₇₈ *, 9, 2, 3; 1998 QR₇₈ *, 9, 2, 3; 1998 QS₇₈ *, 9, 2, 3; 1998 QT₇₈ *, 7, 2, 3; 1998 QU₇₈ *, 9, 2, 3; 1998 QV₇₈ *, 9, 2, 3; 1998 QW₇₈ *, 8, 2, 3; 1998 QX₇₈ *, 8, 2, 3; 1998 QY₇₈ *, 9, 2, 3; 1998 QZ₇₈ *, 9, 2, 3; 1998 QA₇₉ *, 8, 2, 3; 1998 QB₇₉ *, 9, 2, 3; 1998 QC₇₉ *, 9, 2, 3; 1998 QD₇₉ *, 7, 2, 3; 1998 QE₇₉ *, 9, 2, 3; 1998 QF₇₉ *, 9, 2, 3; 1998 QG₇₉ *, 9, 2, 3; 1998 QH₇₉ *, 8, 2, 3; 1998 QI₇₉ *, 8, 2, 3; 1998 QJ₇₉ *, 9, 2, 3; 1998 QK₇₉ *, 8, 2, 3; 1998 QL₇₉ *, 10, 2, 3; 1998 QM₇₉ *, 10, 2, 3; 1998 QN₇₉ *, 9, 2, 3; 1998 QO₇₉ *, 10, 2, 3; 1998 QP₇₉ *, 10, 2, 3; 1998 QQ₇₉ *, 8, 2, 3; 1998 QR₇₉ *, 9, 2, 3; 1998 QS₇₉ *, 9, 2, 3; 1998 QT₇₉ *, 9, 2, 3; 1998 QU₇₉ *, 8, 2, 3; 1998 QV₇₉ *, 10, 2, 3; 1998 QW₇₉ *, 10, 2, 3; 1998 QX₇₉ *, 10, 2, 3; 1998 QY₇₉ *, 9, 2, 3; 1998 QZ₇₉ *, 10, 2, 3; 1998 QA₈₀ *, 10, 2, 3; 1998 QB₈₀ *, 8, 2, 3; 1998 QC₈₀ *, 9, 2, 3; 1998 QD₈₀ *, 8, 2, 3; 1998 QE₈₀ *, 9, 2, 3; 1998 QF₈₀ *, 10, 2, 3; 1998 QG₈₀ *, 9, 2, 3; 1998 QH₈₀ *, 9, 2, 3; 1998 QI₈₀ *, 8, 2, 3; 1998 QJ₈₀ *, 10, 2, 3; 1998 QK₈₀ *, 10, 2, 3; 1998 QL₈₀ *, 9, 2, 3; 1998 QM₈₀ *, 9, 2, 3; 1998 QN₈₀ *, 9, 2, 3; 1998 QO₈₀ *, 9, 2, 3; 1998 QP₈₀ *, 9, 2, 3; 1998 QQ₈₀ *, 8, 2, 3; 1998 QR₈₀ *, 10, 2, 3; 1998 QS₈₀ *, 9, 2, 3; 1998 QT₈₀ *, 8, 2, 3; 1998 QU₈₀ *, 8, 2, 3; 1998

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(6680), 11, 3, 8; (6685), 10, 2, 6; (6687), 5, 1, 0; (6689), 5, 1, 0; (6692), 4, 1, 0; (6702), 5, 1, 0; (6703), 5, 1, 0; (6705), 10, 2, 6; (6707), 15, 3, 10; (6708), 5, 1, 0; (6709), 10, 2, 6; (6711), 4, 1, 0; (6726), 9, 2, 6; (6736), 5, 1, 0; (6737), 5, 1, 0; (6738), 9, 2, 6; (6741), 9, 2, 6; (6742), 8, 2, 6; (6745), 9, 2, 6; (6746), 5, 1, 0; (6752), 10, 2, 6; (6753), 5, 1, 0; (6755), 10, 2, 6; (6759), 5, 1, 0; (6762), 2, 1, 0; (6764), 3, 1, 0; (6768), 9, 2, 3; (6771), 4, 1, 0; (6778), 7, 2, 6; (6779), 10, 2, 6; (6780), 5, 1, 0; (6789), 5, 1, 0; (6790), 10, 2, 3; (6791), 4, 1, 0; (6793), 5, 1, 0; (6800), 10, 2, 6; (6806), 10, 2, 6; (6809), 4, 1, 0; (6810), 5, 1, 0; (6827), 10, 2, 6; (6829), 9, 2, 6; (6830), 10, 2, 6; (6833), 10, 2, 3; (6844), 9, 2, 3; (6846), 5, 1, 0; (6848), 4, 1, 0; (6850), 10, 2, 6; (6854), 8, 2, 6; (6863), 9, 2, 6; (6864), 5, 1, 0; (6871), 5, 1, 0; (6878), 4, 1, 0; (6880), 10, 2, 6; (6881), 5, 1, 0; (6884), 5, 1, 0; (6890), 5, 1, 0; (6891), 5, 1, 0; (6892), 5, 1, 0; (6897), 3, 1, 0; (6899), 9, 2, 6; (6900), 5, 1, 0; (6903), 10, 2, 6; (6910), 9, 2, 6; (6912), 5, 1, 0; (6916), 4, 1, 0; (6918), 5, 1, 0; (6919), 4, 1, 0; (6923), 9, 2, 5; (6928), 9, 2, 6; (6934), 8, 2, 3; (6935), 4, 1, 0; (6958), 8, 2, 3; (6986), 5, 1, 0; (6989), 10, 2, 6; (6990), 10, 2, 6; (6993), 4, 1, 0; (6996), 9, 2, 6; (7008), 9, 2, 6; (7022), 9, 2, 3; (7035), 8, 2, 6; (7038), 10, 2, 6; (7043), 5, 1, 0; (7051), 5, 1, 0; (7056), 10, 2, 6; (7063), 8, 2, 6; (7

1, 0; (7646), 9, 2, 6; (7647), 4, 1, 0; (7648), 5, 1, 0; (7649), 9, 2, 6; (7653), 5, 1, 0; (7654), 5, 1, 0; (7657), 10, 2, 6; (7658), 9, 2, 6; (7660), 15, 3, 8; (7663), 10, 2, 3; (7665), 5, 1, 0; (7666), 9, 2, 6; (7671), 5, 1, 0; (7675), 5, 1, 0; (7676), 10, 2, 3; (7677), 5, 1, 0; (7679), 9, 2, 6; (7683), 9, 2, 6; (7685), 9, 2, 6; (7686), 4, 1, 0; (7689), 9, 2, 6; (7696), 9, 2, 6; (7698), 4, 1, 0; (7699), 8, 2, 6; (7700), 9, 2, 6; (7702), 3, 1, 0; (7706), 9, 2, 6; (7707), 5, 1, 0; (7716), 9, 2, 3; (7719), 4, 1, 0; (7722), 10, 2, 6; (7728), 10, 2, 6; (7735), 15, 3, 8; (7742), 10, 2, 6; (7752), 5, 1, 0; (7755), 10, 2, 6; (7765), 15, 3, 8; (7767), 10, 2, 6; (7771), 10, 2, 6; (7776), 10, 2, 6; (7777), 5, 1, 0; (7788), 10, 2, 6; (7812), 8, 2, 3; (7819), 5, 1, 0; (7821), 5, 1, 0; (7824), 10, 2, 3; (7825), 4, 1, 0; (7838), 10, 2, 3; (7841), 15, 3, 8; (7847), 9, 2, 6; (7849), 5, 1, 0; (7851), 4, 1, 0; (7852), 5, 1, 0; (7898), 10, 2, 3; (7996), 5, 1, 0; (8074), 5, 1, 0; (8335), 4, 1, 0; (8854), 4, 1, 0; (8895), 5, 1, 0; (8959), 4, 1, 0; (8982), 10, 2, 6; (9000), 10, 2, 3; (9002), 10, 2, 6; (9009), 3, 1, 0; (9017), 5, 1, 0; (9018), 7, 2, 6; (9021), 15, 3, 10; (9024), 10, 2, 6; (9030), 3, 1, 0; (9037), 4, 1, 0; (9038), 5, 1, 0; (9042), 10, 2, 6; (9043), 10, 2, 6; (9044), 4, 1, 0; (9046), 5, 1, 0; (9048), 3, 1, 0; (9050), 10, 2, 3; (9055), 5, 1, 0; (9064), 10, 2, 6; (9065), 9, 2, 6; (9068), 10, 2, 3; (9076), 4, 1, 0; (9083), 8, 2, 3; (9089), 10, 2, 6; (9092), 10, 2, 6; (9095), 9, 2, 6; (9117), 4, 1, 0; (9132), 10, 2, 6; (9133), 9, 2, 3; [30469, 3693, 1992*, 1998/05/26–1998/09/02]

711 McDonald Observatory

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KY16 9SS, Scotland [fjc3@st-and.ac.uk]

0.76-m $f/3.0$ reflector + CCD, 0.9-m $f/13.4$ reflector + CCD
GSC, USNO-A1.0

1990 BA₄, 4, 2, 2; 1995 OO₃, 3, 2, 1; 1998 EC₃, 7, 4, 3; 1998 KU₂, 4, 2, 1; 1998 KH₁₇, 4, 2, 1;
1998 MN₁₄, 3, 2, 1; 1998 QA₁, 5, 1, 0; 1998 QH₂, 3, 1, 0; 1998 QW₃, 3, 1, 0; 1998 QR₁₅, 6, 2,
1; 1998 QS₁₅, 3, 1, 0; 1998 QJ₂₈, 3, 1, 0; 1998 QK₂₈, 3, 1, 0; 1998 QP₅₂, 5, 1, 0; (4034), 2, 1, 0;
(6047), 3, 2, 2; (7490), 3, 2, 1; [64, 17, 0*, 1998/08/22–1998/08/29]

713 Thornton

R. A. Koff, 1915 W. 101st Ave., Thornton, CO 80221, U.S.A.
[Bob.Koff@worldnet.att.net]

0.20-m $f/10$ Schmidt-Cassegrain + CCD
USNO-SA1.0

1998 PB₁, 5, 1, 0; 1998 QA₁, 6, 2, 2; 1998 QW₃, 4, 1, 0; 1998 QR₁₅, 2, 1, 0; 1998 QK₂₈, 10, 2,
1; 1998 QT₆₀, 4, 1, 0; [31, 6, 0*, 1998/08/17–1998/09/02]

720 Universidad de Monterrey

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

0.18-m $f/15.0$ Maksutov + focal reducer + CCD
USNO-A1.0

(59), 6, 2, 1; (1172), 14, 3, 6; (2255), 8, 2, 5; (3305), 7, 2, 1; [35, 4, 0*, 1998/07/17–1998/07/23]

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

1998 QB₂₆, 6, 2, 1; (609), 3, 1, 0; (6049), 3, 1, 0; [12, 3, 0*, 1998/08/31–1998/09/01]

734 Farpoint Observatory, Eskridge

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

Observers G. Hug, C. Hug, D. Anderson
Measurer G. Hug

0.30-m Schmidt-Cassegrain + CCD
GSC

1991 RU₁₇, 2, 1, 0; 1994 VH, 3, 1, 0; 1998 PB₁, 3, 1, 0; 1998 QM, 3, 1, 0; 1998 QN, 3, 1, 0;
1998 QA₁, 3, 1, 0; 1998 QH₂, 10, 3, 7; 1998 QW₃, 3, 1, 0; 1998 QR₁₅, 3, 1, 0; 1998 QS₁₅, 2, 1,

0; 1998 QH₅₆, 2, 1, 0; 1998 QJ₅₆, 3, 1, 0; 1998 QT₆₀, 3, 1, 0; 1998 QP₆₃, 3, 1, 0; (2890), 6, 2, 1;
(5598), 3, 1, 0; (5600), 3, 1, 0; (6863), 6, 2, 1; [64, 18, 0*, 1998/08/17–1998/09/04]

735 George Observatory, Needville

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

[bdillon@houston.geoquest.slb.com]

Observers W. G. Dillon, C. Gustava, R. Pepper

Measurer W. G. Dillon

0.46-m reflector + CCD

USNO-A1.0

1998 QX₆, 3, 1, 0; [3, 1, 0*, 1998/08/30]

746 Brooks Observatory, Mt. Pleasant

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

Observers W. Osborn, R. Ramamurti, R. Miller

Measurers R. Ramamurti, W. Osborn

0.40-m $f/12$ Cassegrain reflector + CCD 0.35-m $f/11$ Schmidt Cassegrain + CCD
GSC

(6), 4, 2, 2; (72), 2, 1, 0; (487), 3, 1, 0; (488), 3, 1, 0; [12, 4, 0*, 1996/01/04–1998/06/20]

747 Baton Rouge Observatory

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

[walt@sprintmail.com]

Observers W. R. Cooney, K. Kinchen, K. Wefel, S. Smith, T. G. Guzik

Measurer W. R. Cooney

0.51-m $f/8.4$ reflector + CCD

USNO-A1.0

1993 BD₄, 3, 2, 1; 1998 QX₆, 7, 2, 1; (1260), 5, 2, 1; (4374), 4, 2, 1; (9046), 6, 2, 1; [25, 5, 0*,
1998/08/29–1998/08/30]

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

1998 MK₃₀, 2, 1, 0; 1998 QP, 8, 1, 0; (457), 4, 2, 5; (927), 2, 1, 0; (1036), 3, 1, 0; (4709), 3, 1, 0;
(4809), 2, 1, 0; (5186), 2, 1, 0; [26, 8, 0*, 1998/08/14–1998/08/31]

757 High Point

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

[dkchesney@aol.com]

0.25-m Schmidt-Cassegrain + CCD

USNO-A1.0

1987 ST₁₇, 2, 1, 0; (3451), 2, 1, 0; (3911), 2, 1, 0; (9000), 2, 1, 0; [8, 4, 0*, 1998/08/03–
1998/08/22]

758 BCC Observatory, Cocoa

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

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

0.30-m $f/5$ Maksutov + CCD

GSC

1998 ME₃, 3, 1, 0; 1998 MX₅, 3, 1, 0; 1998 ML₁₄, 8, 2, 5; 1998 MR₁₇, 3, 1, 0; 1998 MK₃₀, 7,
2, 1; 1998 PF, 2, 1, 0; 1998 QN, 3, 1, 0; 1998 QP, 19, 4, 6; 1998 QW₃, 3, 1, 0; 1998 QR₁₅, 8, 3,
2; 1998 QV₁₅ *, 11, 3, 2; 1998 QK₂₈, 3, 1, 0; 1998 QT₆₀, 5, 1, 0; (6134), 3, 1, 0; [81, 14, 1*,
1998/08/06–1998/08/30]

761 Zephyrhills

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

[bitnik@bitnik.com]

0.178-m $f/9.45$ reflector + CCD

GSC

1978 OQ₄, 4, 2, 1; 1992 EW₉, 2, 1, 0; 1992 WP₅, 3, 2, 1; 1993 FO₁, 4, 2, 1; 1995 VS₄, 4, 2, 1; 1996 DW₂, 4, 2, 1; (44), 4, 2, 1; (433), 4, 2, 2; (457), 4, 2, 1; (1996), 2, 2, 2; (3528), 4, 2, 14; (3630), 2, 1, 0; (3731), 4, 2, 14; (3904), 4, 2, 14; (3906), 4, 2, 14; (3907), 3, 2, 1; (4305), 4, 2, 1; (4339), 4, 2, 1; (4551), 4, 2, 14; (6350), 4, 2, 1; [76, 21, 0*, 1998/07/31–1998/08/27]

784 Alfred University Observatory

D. R. DeGraff, Physics and Astronomy, Alfred University, Alfred, NY 14803,

U.S.A. [david@merlin.alfred.edu]

Observers D. R. DeGraff, A. M. Robbins

Measurer D. R. DeGraff

0.81-m $f/4$ reflector + CCD

USNO-A1.0

(1084), 9, 3, 5; [9, 1, 0*, 1998/07/16–1998/07/21]

808 Carlos U. Cesco Observatory, El Leoncito

C. E. Lopez, Felix Aguilar Observatory, Benavidez 8175 (Oeste), AR-5413

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

Observers J. E. Torres, J. A. I. Vicentela, M. R. Cesco, R. Gil-Hutton, H. S. Lepez,

C. E. Lopez, J. G. Sanguin

0.5-m $f/7.5$ double astrograph

PPM

(93), 2, 1, 0; (236), 2, 1, 0; (238), 2, 1, 0; (247), 10, 5, 106; (463), 3, 2, 3; (491), 6, 3, 30; (542), 2, 1, 0; (681), 4, 2, 79; (683), 1, 1, 0; (732), 2, 1, 0; (777), 2, 1, 0; (792), 2, 1, 0; (865), 2, 1, 0; (907), 8, 4, 55; (952), 2, 1, 0; (980), 2, 1, 0; (1036), 4, 2, 27; (1124), 2, 1, 0; (1207), 2, 1, 0; (1439), 2, 1, 0; (1543), 4, 2, 29; (1572), 1, 1, 0; (1624), 4, 2, 79; (1867), 2, 1, 0; (1922), 2, 1, 0; (2015), 2, 1, 0; (2045), 2, 1, 0; (2292), 4, 2, 79; (2326), 2, 1, 0; (2494), 2, 1, 0; (2865), 8, 4, 24; (3149), 2, 1, 0; (3221), 2, 1, 0; (3459), 2, 1, 0; (3714), 2, 1, 0; (3899), 2, 1, 0; (3976), 2, 1, 0; (4041), 2, 1, 0; (4654), 2, 1, 0; (4702), 2, 1, 0; (5336), 2, 1, 0; [115, 41, 0*, 1995/10/20–1996/10/05]

809 European Southern Observatory

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Belgium [elst@atmos.oma.be] (4)

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

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

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

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

1.0-m Schmidt

(4) 1974 QF₆, 6, 2, 3; 1980 FH₄, 6, 2, 1; 1982 BJ₁₃, 3, 1, 0; 1985 PT₆, 6, 2, 1; 1988 RV₁₁, 6, 2, 1; 1990 QB₁₉, 6, 2, 1; 1990 VM₂, 6, 2, 3; 1991 DU₆, 6, 2, 1; 1991 YV₆, 6, 2, 3; 1992 AR₁, 6, 2, 1; 1992 OF₉, 6, 2, 1; 1992 SS₁₆, 6, 2, 3; 1992 YG₂, 6, 2, 1; 1993 FH₂₀, 6, 2, 1; 1993 FB₃₂, 6, 2, 1; 1993 FR₃₅, 3, 1, 0; 1993 QQ₄, 6, 2, 3; 1994 PU₂₆, 3, 1, 0; 1994 PD₃₄, 6, 2, 1; 1994 RZ₆, 6, 2, 1; 1995 SQ₃, 6, 2, 3; 1995 WL₁₃, 6, 2, 3; 1995 YB₁, 6, 2, 3; 1995 YS₂₁, 6, 2, 3; 1996 AP₆, 6, 2, 3; 1996 DJ₁, 6, 2, 1; 1996 DW₂, 6, 2, 1; 1997 AB₇, 3, 1, 0; 1997 CC₁, 6, 2, 1; 1997 EY₂₀, 6, 2, 1; 1997 JA₃, 3, 1, 0; 1997 JT₁₁, 6, 2, 1; 1997 JE₁₅, 6, 2, 1; 1997 JP₁₅, 6, 2, 1; 1998 KC₆, 6, 2, 1; 1998 MJ₄, 6, 2, 3; 1998 MJ₃₂, 6, 2, 3; 1998 MK₃₂, 6, 2, 3; 1998 MO₃₂, 3, 1, 0; 1998 MP₃₂, 6, 2, 3; 1998 MJ₃₃, 6, 2, 3; 1998 MK₃₃, 6, 2, 3; 1998 ML₃₃, 6, 2, 3; 1998 MM₃₃, 6, 2, 3; 1998 MN₃₃, 6, 2, 3; 1998 MO₃₃, 6, 2, 3; 1998 MP₃₃, 6, 2, 3; 1998 MR₃₃, 3, 1, 0; 1998 MU₃₃, 6, 2, 3; 1998 MF₃₄, 6, 2, 3; 1998 MJ₃₄, 3, 1, 0; 1998 MK₃₄, 3, 1, 0; 1998 ML₃₄, 3, 1, 0; 1998 MN₃₄, 6, 2, 3; 1998 ME₃₅, 3, 1, 0; 1998 MF₃₅, 6, 2, 3; 1998 MG₃₅, 6, 2, 3; 1998 MH₃₅, 6, 2, 3; 1998 MJ₃₅, 3, 1, 0; 1998 ML₃₅, 3, 1, 0; 1998 MJ₃₇, 6, 2, 3; 1998 MW₃₈, 3, 1, 0; 1998 MG₄₆, 6, 2, 3; 1998 MH₄₆, 3, 1, 0; 1998 MV₄₆, 6, 2, 3; 1998 MW₄₆, 6, 2, 3; 1998 MX₄₆, 6, 2, 3; 1998 MY₄₆, 6, 2, 3; 1998 MZ₄₆, 6, 2, 3; 1998 MA₄₇, 6, 2, 3; 1998 MB₄₇, 6, 2, 3; 1998 MC₄₇, 6, 2, 3; 1998 MD₄₇, 6, 2, 3; 1998 ME₄₇, 6, 2, 3; 1998 MF₄₇, 6, 2, 3; 1998 MG₄₇, 6, 2, 3; 1998 MH₄₇, 6, 2, 3; 1998 MJ₄₇, 6, 2, 3; 1998 MK₄₇, 6, 2, 3; 1998 ML₄₇, 6, 2, 3; 1998 MM₄₇, 6, 2, 3; 1998 MN₄₇, 6, 2, 3; 1998 MO₄₇, 6, 2, 3; 1998 MP₄₇, 6, 2, 3; 1998 MQ₄₇, 6, 2, 3; 1998 MR₄₇, 6, 2, 3; 1998 MS₄₇, 6, 2, 3; 1998 MT₄₇, 6, 2, 3; 1998 MU₄₇, 6, 2, 3; 1998 MV₄₇, 6, 2, 3; 1998 MW₄₇, 6, 2, 3; 1998 MX₄₇, 6, 2, 3; 1998 MY₄₇, 6, 2, 3; 1998 MZ₄₇, 6, 2, 3; 1998 MD₄₈, 6, 2, 3; 1998 ME₄₈, 6, 2, 3; 1998 MF₄₈, 6, 2, 3; 1998 MG₄₈, 6, 2, 3; 1998 OH₆, 6, 2, 1; 1998 OK₇, 6, 2, 1; 1998 OL₇, 6, 2, 1; 1998 OM₇, 6, 2, 1; 1998 ON₇, 6, 2, 1; 1998 OO₇, 6, 2, 1; 1998 OP₇, 6, 2, 1; 1998 OQ₇, 6, 2, 1; 1998 OR₇, 6, 2, 1; 1998 OS₇, 6, 2, 1; 1998 OT₇, 6, 2, 1; 1998 OU₇, 6, 2, 1; 1998 OV₇, 6, 2, 1; 1998 OW₇, 6, 2, 1; 1998 OY₇, 6, 2, 1; 1998 OZ₇, 6, 2, 1; 1998 OA₈, 6, 2, 1; 1998 OB₈, 6, 2, 1; 1998 OC₈, 6, 2, 1; 1998 OD₈, 6, 2, 1; 1998 OE₈, 6, 2, 1; 1998 OF₈, 6, 2, 1; 1998 OG₈, 6, 2, 1; 1998 OH₈, 6, 2, 1; 1998 OJ₈, 6, 2, 1; 1998 OK₈, 6, 2, 1; 1998 OL₈, 6, 2, 1; 1998 OM₈, 6, 2, 1; 1998 ON₈, 6, 2, 1; 1998 OO₈, 6, 2, 1; 1998 OP₈, 6, 2, 1; 1998 OQ₈, 6, 2, 1; 1998 OR₈, 6, 2, 1; 1998 OS₈, 6, 2, 1; 1998 OT₈, 6, 2, 1; 1998 OU₈, 6, 2, 1; 1998 OV₈, 6, 2, 1; 1998 OW₈, 6, 2, 1; 1998 OX₈, 6, 2, 1; 1998 OY₈, 6, 2, 1; 1998 OZ₈, 6, 2, 1; 1998 OA₉, 6, 2, 1; 1998 OB₉, 6, 2, 1; 1998 OC₉, 6, 2, 1; 1998 OD₉, 6, 2, 1; 1998 OE₉, 6, 2, 1; 1998 OF₉, 6, 2, 1; 1998 OG₉, 6, 2, 1; 1998 OH₉, 6, 2, 1; 1998 OJ₉, 6, 2, 1; 1998 OK₉, 6, 2, 1; 1998 OL₉, 6, 2, 1; 1998 OM₉, 6, 2, 1; 1998 ON₉, 6, 2, 1; 1998 OO₉, 6, 2, 1; 1998 OP₉, 6, 2, 1; 1998 OQ₉, 6, 2, 1; 1998 OR₉, 6, 2, 1; 1998 OS₉, 6, 2, 1; 1998 OT₉, 6, 2, 1; 1998 OU₉, 6, 2, 1; 1998 OV₉, 6, 2, 1; 1998 OW₉, 6, 2, 1; 1998 OX₉, 6, 2, 1; 1998 OY₉, 6, 2, 1; 1998 OZ₉, 6, 2, 1; 1998 OA₁₀, 6, 2, 1; 1998 OB₁₀, 6, 2, 1; 1998 OC₁₀, 6, 2, 1; 1998 OD₁₀, 6, 2, 1; 1998 OE₁₀, 6, 2, 1; 1998 OF₁₀, 6, 2, 1; 1998 OG₁₀, 6, 2, 1; 1998 OH₁₀, 6, 2, 1; 1998 OJ₁₀, 6, 2, 1; 1998 OK₁₀, 6, 2, 1; 1998 OL₁₀, 6, 2, 1; 1998 OM₁₀, 6, 2, 1; 1998 ON₁₀, 6, 2, 1; 1998 OO₁₀, 6, 2, 1; 1998 OP₁₀, 6, 2, 1; 1998 OQ₁₀, 6, 2, 1; 1998 OR₁₀, 6, 2, 1; 1998 OS₁₀, 6, 2, 1; 1998 OT₁₀, 6, 2, 1; 1998 OU₁₀, 6, 2, 1; 1998 OV₁₀, 6, 2, 1; 1998 OW₁₀, 6, 2, 1; 1998 OX₁₀, 6, 2, 1; 1998 OY₁₀, 6, 2, 1; 1998 OZ₁₀, 6, 2, 1; 1998 OA₁₁, 6, 2, 1; 1998 OB₁₁, 6, 2, 1; 1998 OC₁₁, 6, 2, 1; 1998 OE₁₁, 6, 2, 1; 1998 OF₁₁, 6, 2, 1; 1998 OG₁₁, 6, 2, 1; 1998 OH₁₁, 6, 2, 1; 1998 OJ₁₁, 6, 2, 1; 1998 OK₁₁, 6, 2, 1; 1998 OL₁₁, 6, 2, 1; 1998 OM₁₁, 6, 2, 1; 1998 ON₁₁, 6, 2, 1; 1998 OO₁₁, 6, 2, 1; 1998 OP₁₁, 6, 2, 1; 1998 OQ₁₁, 6, 2, 1; 1998 OR₁₁, 6, 2, 1; 1998 OS₁₁, 6, 2, 1; 1998 OT₁₁, 6, 2, 1; 1998 OU₁₁, 6, 2, 1; 1998 OV₁₁, 6, 2, 1; 1998 OW₁₁, 6, 2, 1; 1998 OX₁₁, 6, 2, 1; 1998 OY₁₁, 6, 2, 1; 1998 OZ₁₁, 6, 2, 1; 1998 OA₁₂, 6, 2, 1; 1998 OB₁₂, 6, 2, 1; 1998 OC₁₂, 6, 2, 1; 1998 OD₁₂, 6, 2, 1; 1998 OE₁₂, 6, 2, 1; 1998 OF₁₂, 6, 2, 1; 1998 OG₁₂, 6, 2, 1; 1998 OH₁₂, 6, 2, 1; 1998 OJ₁₂, 6, 2, 1; 1998 OK₁₂, 6, 2, 1; 1998 OL₁₂, 6, 2, 1; 1998 OM₁₂, 6, 2, 1; 1998 ON₁₂, 6, 2, 1; 1998 OO₁₂, 6, 2, 1; 1998 OP₁₂, 6, 2, 1; 1998 OQ₁₂, 6, 2, 1; 1998 OR₁₂, 6, 2, 1; 1998 OS₁₂, 6, 2, 1; 1998 OT₁₂, 6, 2, 1; 1998 OU₁₂, 6, 2, 1; 1998 OV₁₂, 6, 2, 1; 1998 OW₁₂, 6, 2, 1; 1998 OX₁₂, 6, 2, 1; 1998 OY₁₂, 6, 2, 1; 1998 OZ₁₂, 6, 2, 1; 1998 OA₁₃, 6, 2, 1; 1998 OB₁₃, 6, 2, 1; 1998 OC₁₃, 6, 2, 1; 1998 OD₁₃, 6, 2, 1; 1998 OE₁₃, 6, 2, 1; 1998 OF₁₃, 6, 2, 1; 1998 OG₁₃, 6, 2, 1; 1998 OH₁₃, 6, 2, 1; 1998 OJ₁₃, 6, 2, 1; 1998 OK₁₃, 6, 2, 1; 1998 OL₁₃, 6, 2, 1; 1998 OM₁₃, 6, 2, 1; 1998 ON₁₃, 6, 2, 1; 1998 OO₁₃, 6, 2, 1; 1998 OP₁₃, 6, 2, 1; 1998 OQ₁₃, 6, 2, 1; 1998 OR₁₃, 6, 2, 1; 1998 OS₁₃, 6, 2, 1; 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(627), 6, 2, 1; (993), 6, 2, 1; (1455), 6, 2, 1; (1759), 6, 2, 1; (1830), 6, 2, 1; (2216), 6, 2, 1; (2372), 6, 2, 3; (2499), 6, 2, 3; (2674), 6, 2, 3; (2710), 6, 2, 1; (2879), 6, 2, 1; (2959), 6, 2, 3; (3043), 6, 2, 1; (3264), 3, 1, 0; (3410), 6, 2, 1; (3415), 6, 2, 3; (3528), 3, 1, 0; (3804), 6, 2, 1; (3986), 6, 2, 3; (4229), 6, 2, 1; (4235), 6, 2, 3; (4575), 3, 1, 0; (4726), 6, 2, 1; (4727), 6, 2, 3; (5021), 6, 2, 1; (5059), 6, 2, 3; (5113), 6, 2, 1; (5394), 6, 2, 3; (5524), 3, 1, 0; (5709), 6, 2, 3; (5837), 6, 2, 3; (5880), 6, 2, 1; (6127), 6, 2, 1; (6190), 6, 2, 1; (6210), 6, 2, 1; (6221), 6, 2, 3; (6223), 6, 2, 1; (6287), 6, 2, 1; (6460), 6, 2, 3; (6600), 6, 2, 3; (6826), 6, 2, 3; (6986), 6, 2, 1; (6990), 6, 2, 1; (7515), 6, 2, 1; (7689), 6, 2, 1; (7742), 6, 2, 1; [1974, 341, 214*, 1998/06/28–1998/08/26]

2, 3; 1998 MR₄₇, 6, 2, 3; 1998 MS₄₇, 6, 2, 3; 1998 MT₄₇, 6, 2, 3; 1998 MU₄₇, 6, 2, 3; 1998 MV₄₇, 6, 2, 3; 1998 MW₄₇, 6, 2, 3; 1998 MX₄₇, 6, 2, 3; 1998 MY₄₇, 6, 2, 3; 1998 MZ₄₇, 6, 2, 3; 1998 MA₄₈, 6, 2, 3; 1998 MB₄₈, 6, 2, 3; 1998 MC₄₈, 6, 2, 3; 1998 MD₄₈, 6, 2, 3; 1998 MF₄₈, 6, 2, 3; 1998 MG₄₈, 6, 2, 3; 1998 OT₆, 6, 2, 1; 1998 OU₆, 6, 2, 1; 1998 OK₇, 6, 2, 1; 1998 OL₇, 6, 2, 1; 1998 OM₇, 6, 2, 1; 1998 ON₇, 6, 2, 1; 1998 OO₇, 6, 2, 1; 1998 OP₇, 6, 2, 1; 1998 OQ₇, 6, 2, 1; 1998 OR₇, 6, 2, 1; 1998 OS₇, 6, 2, 1; 1998 OT₇, 6, 2, 1; 1998 OU₇, 6, 2, 1; 1998 OV₇, 6, 2, 1; 1998 OW₇, 6, 2, 1; 1998 OY₇, 6, 2, 1; 1998 OZ₇, 6, 2, 1; 1998 OA₈, 6, 2, 1; 1998 OB₈, 6, 2, 1; 1998 OC₈, 6, 2, 1; 1998 OD₈, 6, 2, 1; 1998 OE₈, 6, 2, 1; 1998 OF₈, 6, 2, 1; 1998 OG₈, 6, 2, 1; 1998 OH₈, 6, 2, 1; 1998 OJ₈, 6, 2, 1; 1998 OK₈, 6, 2, 1; 1998 OL₈, 6, 2, 1; 1998 OM₈, 6, 2, 1; 1998 ON₈, 6, 2, 1; 1998 OO₈, 6, 2, 1; 1998 OP₈, 6, 2, 1; 1998 OQ₈, 6, 2, 1; 1998 OR₈, 6, 2, 1; 1998 OS₈, 6, 2, 1; 1998 OT₈, 6, 2, 1; 1998 OU₈, 6, 2, 1; 1998 OV₈, 6, 2, 1; 1998 OW₈, 6, 2, 1; 1998 OX₈, 6, 2, 1; 1998 OY₈, 6, 2, 1; 1998 OZ₈, 6, 2, 1; 1998 OA₉, 6, 2, 1; 1998 OB₉, 6, 2, 1; 1998 OC₉, 6, 2, 1; 1998 OD₉, 6, 2, 1; 1998 OE₉, 6, 2, 1; 1998 OF₉, 6, 2, 1; 1998 OG₉, 6, 2, 1; 1998 OH₉, 6, 2, 1; 1998 OJ₉, 6, 2, 1; 1998 OK₉, 6, 2, 1; 1998 OL₉, 6, 2, 1; 1998 OM₉, 6, 2, 1; 1998 ON₉, 6, 2, 1; 1998 OO₉, 6, 2, 1; 1998 OP₉, 6, 2, 1; 1998 OQ₉, 6, 2, 1; 1998 OR₉, 6, 2, 1; 1998 OS₉, 6, 2, 1; 1998 OT₉, 6, 2, 1; 1998 OU₉, 6, 2, 1; 1998 OV₉, 6, 2, 1; 1998 OW₉, 6, 2, 1; 1998 OX₉, 6, 2, 1; 1998 OY₉, 6, 2, 1; 1998 OZ₉, 6, 2, 1; 1998 OA₁₀, 6, 2, 1; 1998 OB₁₀, 6, 2, 1; 1998 OC₁₀, 6, 2, 1; 1998 OD₁₀, 6, 2, 1; 1998 OE₁₀, 6, 2, 1; 1998 OF₁₀, 6, 2, 1; 1998 OG₁₀, 6, 2, 1; 1998 OH₁₀, 6, 2, 1; 1998 OJ₁₀, 6, 2, 1; 1998 OK₁₀, 6, 2, 1; 1998 OL₁₀, 6, 2, 1; 1998 OM₁₀, 6, 2, 1; 1998 ON₁₀, 6, 2, 1; 1998 OO₁₀,

1980 VZ₂, 6, 3, 8; 1981 UD₂, 1, 1, 0; 1987 SD₄, 4, 2, 8; 1988 PX₂, 4, 2, 1; 1990 SR₆, 6, 3, 8; 1991 EM₁, 5, 3, 3; [26, 6, 0*, 1998/07/22–1998/08/28]

827 Saint-Félicien

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

GSC

1993 HF, 4, 1, 0; 1998 QP, 38, 2, 1; (982), 3, 1, 0; (1025), 9, 3, 8; (1178), 6, 2, 2; (4709), 2, 1, 0; [62, 6, 0*, 1998/08/12–1998/08/23]

832 Etters

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[jdfetter@mindspring.com]

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

GSC, SA-1.0

(4357), 4, 2, 4; (5040), 4, 2, 3; (7077), 4, 2, 1; (7324), 4, 2, 5; (9043), 4, 2, 1; [20, 5, 0*, 1998/07/29–1998/08/29]

835 Drum Hill Station, Chelmsford

R. Sinnott, Sky & Telescope, P. O. Box 9111, Belmont, MA 02478-9111, U.S.A.

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

GSC

1998 QP, 6, 1, 0; (434), 6, 3, 4; (456), 4, 2, 8; (568), 4, 2, 11; (754), 2, 1, 0; (1712), 4, 2, 11; [26, 6, 0*, 1998/07/28–1998/08/22]

844 Los Molinos

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Observer R. Salvo

0.35-m $f/6.4$ reflector + CCD

GSC

1998 ME₃, 3, 1, 0; 1998 ML₁₄, 3, 1, 0; [6, 2, 0*, 1998/07/30–1998/08/14]

860 Valinhos

P. R. Holvorcem, Departamento de Matematica/IMECC, Universidade Estadual de

Campiñas, Campiñas, SP, BR-13081-970, Brazil [canis@mpc.com.br]

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

GSC

1998 ME₃, 2, 1, 0; 1998 MR₁₇, 3, 1, 0; 1998 MT₂₄, 2, 1, 0; 1998 MK₃₀, 3, 1, 0; 1998 PG, 3, 1, 0; 1998 PB₁, 2, 1, 0; 1998 QA₁, 3, 1, 0; 1998 QR₁₅, 3, 1, 0; 1998 QK₂₈, 3, 1, 0; 1998 QT₆₀, 2, 1, 0; [26, 10, 0*, 1998/09/01–1998/09/02]

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

1990 OL₄, 3, 1, 0; 1998 QJ₁, 2, 1, 0; [5, 2, 0*, 1998/07/23–1998/08/28]

886 Susono

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

0.25-m $f/6.3$ reflector + CCD

GSC

1989 EX, 3, 1, 0; 1995 WO₈, 2, 1, 0; (9033), 2, 1, 0; [7, 3, 0*, 1998/06/15–1998/07/26]

888 Gekko Observatory

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

0.50-m $f/4.0$ reflector

GSC 1.1

1988 VN₃, 3, 1, 0; 1991 DU, 2, 1, 0; 1993 BO₃, 3, 1, 0; 1994 CA, 1, 1, 0; 1994 TS₃, 3, 1, 0; 1994 WQ₃, 3, 1, 0; 1998 QO₄₀, 3, 1, 0; 1998 QP₄₀, 3, 1, 0; [21, 8, 0*, 1998/08/23]

905 Nachi-Katsuura Observatory

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

[urata@sannet.ne.jp]

Observer Y. Shimizu

Measurer T. Urata

0.40-m $f/3.3$ Baker-Schmidt

GSC

1998 FR₅₈, 2, 1, 0; 1998 HT₉₅, 3, 1, 0; [5, 2, 0*, 1998/03/22–1998/04/27]

908 Toyama

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

0.43-m reflector $f/6$ + CCD

GSC

1998 QP, 9, 2, 1; [9, 1, 0*, 1998/08/22–1998/08/23]

910 Caussols-ODAS

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

[maury@obs-azur.fr]

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

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

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

Measurers A. Maury, G. Hahn

0.90-m Schmidt + CCD

GSC

1978 PA₃, 6, 2, 1; 1981 EZ, 3, 1, 0; 1988 RS₆, 6, 2, 1; 1988 UC, 6, 2, 5; 1991 FZ₂, 3, 1, 0; 1993 FC₂₂, 6, 2, 5; 1993 FJ₃₂, 3, 1, 0; 1993 FU₃₉, 3, 1, 0; 1994 TO₁₅, 3, 1, 0; 1995 GZ₈, 3, 1, 0; 1995 QD₂, 3, 1, 0; 1996 ED₉, 3, 1, 0; 1996 UJ₅ *, 3, 1, 0; 1997 CQ, 3, 1, 0; 1997 MJ₂, 3, 1, 0; 1997 TW₂₇, 3, 1, 0; 1998 CV₃, 3, 1, 0; 1998 DQ₂₃, 3, 1, 0; 1998 FS₄₉, 3, 1, 0; 1998 FV₁₃₀, 3, 1, 0; 1998 FJ₁₃₆, 3, 1, 0; 1998 FL₁₃₆, 3, 1, 0; 1998 FR₁₃₆, 3, 1, 0; 1998 FL₁₃₇, 3, 1, 0; 1998 FO₁₄₁, 3, 1, 0; 1998 GM₁, 3, 1, 0; 1998 HX₂, 3, 1, 0; 1998 HH₁₅, 3, 1, 0; 1998 HW₄₅, 3, 1, 0; 1998 HR₆₆, 3, 1, 0; 1998 HS₆₆, 3, 1, 0; 1998 HW₇₁, 3, 1, 0; 1998 HX₇₁, 3, 1, 0; 1998 HA₇₂, 3, 1, 0; 1998 HM₇₃, 3, 1, 0; 1998 HP₇₃, 3, 1, 0; 1998 HQ₇₃, 3, 1, 0; 1998 HU₇₆, 3, 1, 0; 1998 HY₈₀, 3, 1, 0; 1998 HE₈₃, 3, 1, 0; 1998 HD₈₅, 3, 1, 0; 1998 KT₆, 3, 1, 0; 1998 KV₃₇, 3, 1, 0; 1998 KP₆₂, 3, 1, 0; 1998 KF₆₄, 3, 1, 0; 1998 MC₃, 3, 1, 0; 1998 MC₄₅, 3, 1, 0; 1998 MS₄₆, 3, 1, 0; 1998 OJ₃, 3, 1, 0; 1998 OL₃, 3, 1, 0; 1998 OM₃, 3, 1, 0; 1998 ON₃, 3, 1, 0; 1998 OK₅, 3, 1, 0; 1998 OL₅, 3, 1, 0; 1998 OR₅, 3, 1, 0; 1998 OZ₅, 3, 1, 0; 1998 OH₆, 3, 1, 0; 1998 QU₅, 3, 1, 0; 1998 QV₅, 3, 1, 0; 1998 QX₅ *, 6, 2, 1; 1998 QY₅ *, 6, 2, 1; 1998 QZ₅ *, 6, 2, 1; 1998 QA₆ *, 6, 2, 1; 1998 QB₆ *, 6, 2, 1; 1998 QC₆ *, 6, 2, 1; 1998 QD₆ *, 6, 2, 1; 1998 QE₆ *, 6, 2, 1; 1998 QF₆ *, 6, 2, 1; 1998 QG₆ *, 9, 3, 7; 1998 QH₆ *, 9, 3, 7; 1998 QJ₆ *, 6, 2, 1; 1998 QK₆ *, 6, 2, 1; 1998 QL₆ *, 6, 2, 1; 1998 QM₆ *, 4, 2, 1; 1998 QN₆ *, 6, 2, 1; 1998 QO₆ *, 6, 2, 1; 1998 QP₆ *, 6, 2, 1; 1998 QQ₆ *, 6, 2, 1; 1998 QR₆ *, 6, 2, 1; 1998 QS₆ *, 6, 2, 1; 1998 QT₆ *, 6, 2, 1; 1998 QU₆ *, 6, 2, 1; 1998 QV₆ *, 6, 2, 1; 1998 QW₆ *, 6, 2, 1; 1998 QC₇, 3, 1, 0; 1998 QS₁₀, 3, 1, 0; 1998 QC₁₅, 3, 1, 0; 1998 QR₂₀, 3, 1, 0; 1998 QZ₂₁, 3, 1, 0; 1998 QB₂₂, 3, 1, 0; 1998 QX₂₇, 3, 1, 0; 1998 QB₃₃, 3, 1, 0; 1998 QX₃₃, 3, 1, 0; 1998 QJ₅₅ *, 6, 2, 5; 1998 QK₅₅ *, 6, 2, 5; 1998 QL₅₅ *, 6, 2, 5; 1998 QM₅₅ *, 6, 2, 5; 1998 QN₅₅ *, 6, 2, 5; 1998 QO₅₅ *, 6, 2, 5; 1998 QP₅₅ *, 6, 2, 5; 1998 QQ₅₅ *, 6, 2, 5; 1998 QR₅₅ *, 6, 2, 5; 1998 QS₅₅ *, 6, 2, 5; 1998 QT₅₅ *, 6, 2, 5; 1998 QU₅₅ *, 6, 2, 5; 2613 P-L, 3, 1, 0; 2757 P-L, 3, 1, 0; 4587 P-L, 3, 1, 0; 9058 P-L, 3, 1, 0; 3024 T-1, 3, 1, 0; (1419), 6, 2, 1; (1722), 3, 1, 0; (1956), 6, 2, 1; (3383), 3, 1, 0; (3454), 6, 2, 5; (3668), 3, 1, 0; (3735), 3, 1, 0; (4047), 3, 1, 0; (4252), 3, 1, 0; (5173), 3, 1, 0; (5273), 3, 1, 0; (6897), 3, 1, 0; (6955), 3, 1, 0; (7780), 6, 2, 1; (8048), 3, 1, 0; (9095), 3, 1, 0; [517, 126, 38*, 1996/10/18–1998/08/31]

947 Saint-Sulpice

B. Christophe, 63 rue Belliard, F-75018 Paris, France

[bernard.christophe@hol.fr]

0.60-m $f/5.6$ relector + CCD

GSC, USNO-SA1.0

(458), 2, 1, 0; (921), 2, 1, 0; (1025), 1, 1, 0; (1178), 2, 1, 0; (1872), 4, 2, 1; (2223), 4, 2, 1; (3324), 2, 1, 0; (3642), 2, 1, 0; (3904), 2, 1, 0; (4395), 4, 2, 1; (4628), 2, 1, 0; (4709), 2, 1, 0; (4725), 2, 1, 0; (4737), 2, 1, 0; (5104), 3, 2, 1; (5393), 2, 1, 0; (5448), 2, 1, 0; (5641), 1, 1, 0; (5699), 2, 1, 0; (5985), 2, 1, 0; (5986), 4, 2, 1; (6447), 1, 1, 0; (7077), 4, 2, 3; (7324), 2, 1, 0; [56, 24, 0*, 1998/05/21–1998/08/22]

952 Marxuquera

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[astsafor@arrakis.es]

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

GSC

1981 RF₂, 5, 3, 11; 1998 MK₃₀, 6, 2, 3; 1998 PB₁, 9, 2, 1; 1998 QP, 11, 1, 0; (804), 5, 2, 1; (1687), 7, 1, 0; (3919), 2, 1, 0; (9005), 2, 1, 0; (9046), 6, 1, 0; [53, 9, 0*, 1998/07/19–1998/08/25]

953 Montjoia

F. Casarmona, P.O. Box 50, E-08200 Sabadell (BCN), Spain

[astrosab@redestb.es]

Observers A. Vidal, F. Casarmona

Measurer F. Casarmona

0.41-m $f/4$ reflector + CCD

GSC

1998 QZ₁₅ *, 3, 1, 0; [3, 1, 1*, 1998/08/23]**954 Teide Observatory**

R. Casas, Instituto de Astrofísica de Canarias, Via Lactea, E-38200 La Laguna, Tenerife, Canary Islands, Spain [rcr@11.iac.es]

0.8-m $f/11.3$ Cassegrain + CCD

APM

1985 XA, 8, 2, 1; 1995 WO₈, 4, 2, 1; 1998 KH₁₇, 6, 2, 2; 1998 ME₃, 5, 2, 1; 1998 MX₅, 6, 2, 1; 1998 MN₁₄, 5, 2, 1; 1998 MT₂₄, 4, 2, 2; 1998 OH, 4, 2, 1; 1998 PF, 9, 2, 1; 1998 PG, 6, 2, 1; 1998 PH *, 31, 7, 32; 1998 PM *, 19, 5, 28; 1998 QK₃, 8, 2, 1; 1998 QZ₁₅, 9, 3, 2; 1998 QP₅₂, 5, 1, 0; 1998 QQ₅₂, 5, 1, 0; 1998 QR₅₂, 5, 1, 0; 1998 QS₅₂, 12, 3, 8; 1998 QP₆₃, 5, 1, 0; 1998 QQ₆₃, 4, 1, 0; (9140), 5, 1, 0; [165, 21, 2*, 1998/08/03–1998/09/05]

958 Observatoire de Dax

P. Dupouy, Observatoire de Dax, F-40100 Dax, France

[Dupouy.Philippe@compuserve.com]

Observers P. Dupouy, F. Marechal

Measurer F. Marechal

0.254-m $f/6.7$ reflector + CCD

GSC, USNO-SA1.0

1998 QK₃, 5, 1, 0; 1998 QU₄₂, 7, 2, 1; 1998 QQ₅₃ *, 4, 2, 1; 1998 QR₅₃ *, 7, 2, 1; [23, 4, 2*, 1998/08/27–1998/08/30]

959 Ramonville Saint Agne

C. Buil, 10 Domaine de la Cheneraie, F-31520 Ramonville Saint Agne

[c.buil@donald.cst.cnes.fr]

0.20-m $f/5$ reflector + CCD

GSC

1953 TD₁, 2, 1, 0; 1983 RT₁, 3, 1, 0; 1994 NJ₁, 3, 1, 0; 1998 PG, 4, 2, 5; [12, 4, 0*, 1998/08/20–1998/08/29]

960 Rolvenden

M. Armstrong, Butterfly Cottage, Hastings Road, Rolvenden, Kent TN17 4PN, England [fw04@dia1.pipex.com]

0.25-m Schmidt-Cassegrain + CCD

GSC

1998 QL₂ *, 9, 3, 3; [9, 1, 1*, 1998/08/20–1998/08/23]**967 Greens Norton**

R. J. Neville, 19 Bradden Way, Greens Norton, Towcester, Northamptonshire NN12 8BY, England [RJNeville@aol.com]

0.21-m $f/4.4$ reflector + CCD

GSC

1998 QL₂, 7, 2, 2; [7, 1, 0*, 1998/08/23–1998/08/25]**970 Chelmsford**

N. D. James, 11 Tavistock Road, Chelmsford, Essex CM1 6JL, England

[ndj@astro1.demon.co.uk]

0.30-m $f/5.25$ reflector + CCD

GSC

1998 QL₂, 2, 1, 0; [2, 1, 0*, 1998/08/23]**ORBITAL ELEMENTS**

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C/1995 O1 (Hale-Bopp)

Epoch 1997 Mar. 13.0 TT = JDT 2450520.5

<i>T</i> 1997 Apr. 1.1372 TT		Nakano	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	ω 130.5886	−0.1331187	−0.1703051
	Ω 282.4707	+0.2822910	+0.9378060
<i>e</i>	<i>i</i> 89.4300	+0.9500480	−0.3025163

From 2635 observations 1993 Apr. 27–1998 Aug. 30, mean residual 0".8.
Nongravitational parameters $A_1 = +1.11$, $A_2 = +0.1391$.

C/1997 J2 (Meunier-Dupouy)

Epoch 1998 Mar. 8.0 TT = JDT 2450880.5

<i>T</i> 1998 Mar. 10.4469 TT		Nakano	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	ω 122.6752	+0.4716850	+0.7141312
	Ω 148.8446	−0.5763201	−0.1942727
<i>e</i>	<i>i</i> 91.2733	+0.6673592	−0.6725138

From 991 observations 1997 May 5–1998 Sept. 1, mean residual 0".6.

C/1998 K2 (LINEAR)

Epoch 1998 Aug. 15.0 TT = JDT 2451040.5

<i>T</i> 1998 Sept. 1.2050 TT		Marsden	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	ω 221.4074	−0.0056221	+0.5408352
	Ω 68.7812	−0.4987938	+0.7274982
<i>e</i>	<i>i</i> 64.4593	−0.8667024	−0.4221890

From 141 observations 1998 May 24–Aug. 28, mean residual 0".6.

C/1998 K5 (LINEAR)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>T</i> 1998 July 17.4464 TT		Marsden	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	ω 99.4589	+0.6428495	+0.7607934
	Ω 211.1190	−0.7528893	+0.6061423
<i>e</i>	<i>i</i> 9.9269	−0.1410755	+0.2319158

From 426 observations 1998 May 26–Sept. 4, mean residual 0".5.

C/1998 M1 (LINEAR)

Epoch 1998 Nov. 3.0 TT = JDT 2451120.5

<i>T</i> 1998 Oct. 28.1496 TT		Marsden	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	ω 19.4142	+0.0753286	+0.9381012
	Ω 256.0678	−0.9547417	−0.0299786
<i>e</i>	<i>i</i> 20.3844	−0.2877393	+0.3450614

From 136 observations 1998 May 22–Sept. 4, mean residual 0".7.

C/1998 M2 (LINEAR)

Epoch 1998 Aug. 15.0 TT = JDT 2451040.5

<i>T</i> 1998 Aug. 13.1388 TT		Marsden	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	ω 37.2319	+0.1708427	+0.4867429
	Ω 260.8815	−0.9738178	+0.2157542
<i>e</i>	<i>i</i> 60.1856	+0.1499723	+0.8464818

From 245 observations 1998 May 28–Sept. 7, mean residual 0".6.

C/1998 M3 (Larsen)*T* 1998 July 18.7924 TT

<i>q</i> 5.766781		(2000.0)	Nakano	
	ω		P	Q
	Ω 255.5187		−0.3712699	−0.2693525
<i>e</i> 1.0	<i>i</i> 113.3997		−0.9275008	+0.0626462

From 86 observations 1998 May 26–Aug. 26.

C/1998 M4 (LINEAR)*T* 1997 Dec. 10.4241 TT

<i>q</i> 2.601692		(2000.0)	Marsden	
	ω		P	Q
	Ω 92.9151		+0.8798119	−0.2053309
<i>e</i> 1.0	<i>i</i> 154.5807		−0.3815383	−0.8429487

From 109 observations 1998 June 25–Sept. 4.

C/1998 M5 (LINEAR)

Epoch 1999 Jan. 22.0 TT = JDT 2451200.5

<i>T</i> 1999 Jan. 24.5733 TT		Marsden	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	ω 101.2873	−0.1155518	−0.8885406
	Ω 333.3766	−0.1972625	+0.4586266
<i>e</i> 0.996031	<i>i</i> 82.2285	+0.9735170	−0.0125346

From 386 observations 1998 June 30–Sept. 7, mean residual 0".6.

C/1998 M6 (Montani)*T* 1998 Oct. 6.0054 TT

<i>q</i> 5.979902		(2000.0)	Nakano	
	ω		P	Q
	Ω 306.6044		+0.5853436	−0.1157924
<i>e</i> 1.0	<i>i</i> 91.5583		−0.7924643	−0.2909234

From 67 observations 1998 June 30–Aug. 25.

C/1998 P1 (Williams)*T* 1998 Oct. 17.838 TT

<i>q</i> 1.14674		(2000.0)	Marsden	
	ω		P	Q
	Ω 156.379		−0.680931	−0.696727
<i>e</i> 1.0	<i>i</i> 145.730		−0.276114	+0.529586

From 108 observations 1998 Aug. 11–31.

C/1998 Q1 (LINEAR)*T* 1998 June 29.511 TT

<i>q</i> 1.57946		(2000.0)	Nakano	
	ω		P	Q
	Ω 159.775		+0.453401	+0.871857
<i>e</i> 1.0	<i>i</i> 32.388		−0.890856	+0.436678

From 82 observations 1998 Aug. 24–Sept. 2.

130P/McNaught-Hughes

Epoch 1998 Mar. 8.0 TT = JDT 2450880.5

 T 1998 Feb. 23.7839 TT

Nakano

q	2.116292	(2000.0)	P	Q
n	0.1472607	ω 224.3683	+0.6932498	+0.7093974
a	3.551497	Ω 89.9724	-0.6208184	+0.6773997
e	0.404113	i 7.3033	-0.3660454	+0.1946407
P	6.69			

From 63 observations 1991–1998, mean residual 0".6.

(9143)* 1955 SF = 1955 TK = 1978 QV

Discovered 1955 Sept. 16 at the Goethe Link Observatory, Indiana University.

Id. S. Kanda (d, *MPC* 1453), T. Kobayashi (*MPC* 11339)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	359.74190	(2000.0)	P	Q
n	0.29819972	ω 2.91154	+0.92796341	+0.37112755
a	2.2188668	Ω 335.21872	-0.34353190	+0.81661468
e	0.1968302	i 4.63703	-0.14446363	+0.44204617
P	3.31	H 13.7	G 0.15	U 2

Residuals in seconds of arc

1955 09 16	760	(0.1+ 3.3+)	1990 02 25	809	0.6- 0.0	1995 11 18	596	0.2- 0.1-
1955 09 16	760	0.7- 0.2+	1990 02 25	809	0.0 0.0	1995 12 18	801	0.5+ 0.1-
1955 09 17	760	0.8+ 0.7+	1990 02 25	809	0.6+ 0.0	1995 12 18	801	0.2+ 0.4-
1955 10 11	760	(3.1+ 3.9+)	1990 02 26	809	1.1- 0.4+	1995 12 23	801	0.1- 0.3-
1955 10 11	760	(2.5+ 4.1+)	1990 02 26	809	0.5- 0.7+	1995 12 23	801	0.1- 0.5-
1978 08 31	095	0.8- 0.2+	1990 02 26	809	0.6- 0.5+	1998 06 22	426	0.4+ 0.3+
1978 09 05	095	0.5- 0.1+	1990 02 27	809	0.3+ 0.4+	1998 06 22	426	0.6+ 0.3-
1988 09 12	675	1.6- 0.2+	1990 02 27	809	0.8+ 0.2+	1998 06 22	426	0.0 0.5+
1988 09 12	675	1.4- 0.3-	1990 02 27	809	0.8+ 0.0	1998 06 25	426	0.7+ 0.0
1988 09 14	801	(3.0+ 2.4+)	1990 03 02	809	1.9+ 0.3+	1998 06 25	426	0.7+ 0.4+
1988 09 15	675	1.2+ 0.7-	1990 03 02	809	(2.3+ 0.4+)	1998 06 25	426	0.8+ 0.2-
1988 09 15	675	1.8+ 0.1-	1990 03 02	809	(2.3+ 0.3+)	1998 08 27	658	0.6- 0.5+
1988 09 16	675	0.0 0.1-	1995 11 18	596	0.3- 0.1-	1998 08 27	658	0.8- 0.5+
1988 09 16	675	0.4+ 0.1+	1995 11 18	596	0.2- 0.4+	1998 08 27	658	0.4- 0.4+
1988 10 13	801	(0.5+ 2.7+)	1995 11 18	596	0.2- 0.0			

(9144)* 1955 UN₁ = 1955 UP₁ = 1973 SV₃ = 1991 RH₈

Discovered 1955 Oct. 25 at the Goethe Link Observatory, Indiana University.

Id. S. Kanda (d, *MPC* 1453), R. Nagata (*MPC* 19494)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	326.74231	(2000.0)	P	Q
n	0.27326527	ω 328.20926	+0.97910317	+0.19180898
a	2.3518688	Ω 21.05045	-0.12350131	+0.82480717
e	0.2627731	i 10.84366	-0.16156857	+0.53188574
P	3.61	H 13.6	G 0.15	U 1

Residuals in seconds of arc

1955 10 19	012	2.5+ 2.5-	1991 10 16	095	(1.1- 3.5+)	1998 08 10	423	0.1- 0.2+
1955 10 25	760	(0.5- 5.5-)	1991 11 05	095	(0.8+ 3.9+)	1998 08 10	423	0.5+ 0.3-
1955 10 25	760	(1.4- 4.7-)	1995 10 23	801	0.8+ 1.1-	1998 08 10	423	0.1- 0.1+
1955 11 08	388	0.7- 0.1+	1995 10 23	801	0.9+ 1.0-	1998 08 10	423	0.3- 0.1+
1955 11 08	388	(19.9- 9.9+)	1995 10 30	658	0.4- 0.3-	1998 08 10	423	0.2+ 0.0
1973 09 25	095	(7.3- 2.4-)	1995 10 30	658	0.2- 0.2-	1998 08 10	423	0.0 0.2-
1990 03 27	675	0.8+ 0.1-	1995 10 30	658	0.4- 0.3-	1998 08 13	423	0.7- 1.0+
1990 03 27	675	0.2- 0.1+	1995 11 25	801	0.3+ 0.3-	1998 08 13	423	0.6- 0.6+
1990 04 01	675	0.9- 0.9+	1995 11 25	801	0.7+ 0.8-	1998 08 16	426	0.1+ 0.2-
1990 04 01	675	0.6- 1.0-	1995 11 26	801	1.0+ 0.4-	1998 08 16	426	0.1+ 0.2-
1990 04 22	675	0.1- 0.3+	1995 11 26	801	1.1+ 0.2-	1998 08 16	426	0.5+ 0.2-
1991 09 12	675	0.2+ 0.3-	1996 02 29	658	1.4- 0.2-	1998 08 17	426	0.1+ 0.0
1991 09 12	675	0.1+ 0.7+	1996 02 29	658	1.1- 0.6-	1998 08 17	426	0.2+ 0.0
1991 09 14	675	0.8+ 0.3+	1996 03 25	658	0.1+ 0.4+	1998 08 17	426	0.3+ 0.0

1991 09 14	675	0.2+ 0.0	1996 03 25	658	0.1- 0.0	1998 08 18	423	0.6+ 0.0
1991 09 15	095	(0.4+ 3.1-)	1996 03 25	658	0.2- 0.3+	1998 08 18	423	0.3+ 0.2-
1991 09 15	095	0.6- 1.1+	1996 03 25	658	0.0 0.2+	1998 08 18	423	0.7+ 0.1-
1991 09 16	095	(1.8+ 4.1-)	1998 07 16	423	0.1+ 0.3-	1998 08 18	423	0.3+ 0.4-
1991 09 16	095	(2.4+ 2.8-)	1998 07 16	423	0.2- 0.3-	1998 08 22	423	0.3+ 0.0
1991 10 02	403	(1.9- 3.2-)Y	1998 07 16	423	0.1+ 0.3-	1998 08 22	423	0.2- 0.1-
1991 10 02	403	2.7- 0.1+	1998 07 16	423	0.1+ 0.0	1998 08 22	423	0.2- 0.5+
1991 10 03	403	0.8- 0.1+	1998 07 21	423	0.1- 0.3-	1998 08 23	423	0.4+ 0.0
1991 10 03	403	0.5+ 0.5+	1998 07 21	423	0.2- 0.4-	1998 08 23	423	0.0 0.1-
1991 10 05	691	0.6- 0.1+	1998 07 21	423	0.3- 0.7-	1998 08 23	423	0.6+ 0.4-
1991 10 05	691	0.8- 0.0	1998 07 21	423	0.2- 0.3-	1998 08 23	423	0.3+ 0.3-
1991 10 05	691	0.8- 0.2+	1998 07 21	423	0.1+ 0.8-	1998 08 23	423	0.2+ 0.2-

(9145)* 1976 GG₃ = 1973 WN = 1997 EA₄₆

Discovered 1976 Apr. 1 by N. S. Chernykh at the Crimean Astrophysical

Observatory.

Id. G. V. Williams (*MPC* 29607)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	14.73479	(2000.0)	P	Q
n	0.23066956	ω 237.96741	+0.11483082	+0.98072049
a	2.6331515	Ω 39.60156	-0.80711319	+0.18490216
e	0.1573208	i 14.36210	-0.57912191	-0.06323371
P	4.27	H 12.7	G 0.15	U 1

Residuals in seconds of arc

1973 11 22	033	0.3+ 0.1-	1997 03 18	327	0.2- 0.2+	1998 07 31	423	0.2- 0.3-
1976 04 01	095	0.3- 0.2-	1997 03 18	327	0.4+ 0.9+	1998 07 31	423	0.2- 0.2+
1976 04 02	095	0.8+ 0.3+	1997 03 18	327	0.1+ 0.2+	1998 07 31	423	0.0 0.2+
1976 04 04	095	1.3+ 0.2-	1998 07 28	423	0.2- 0.2-	1998 07 31	423	0.1+ 0.1+
1976 04 05	095	0.8- 1.0+	1998 07 28	423	0.0 0.0	1998 07 31	423	0.4- 0.3+
1976 05 02	095	2.3- 2.3-	1998 07 29	423	0.2+ 0.1-	1998 08 13	423	0.1- 0.1-
1993 04 16	413	0.2+ 0.0	1998 07 29	423	0.1- 0.2+	1998 08 13	423	0.3- 0.3+
1997 03 15	327	0.5+ 0.1-	1998 07 29	423	0.0 0.3+	1998 08 29	423	0.5+ 0.0
1997 03 15	327	0.5+ 0.6+	1998 07 29	423	0.2- 0.3+	1998 08 29	423	0.5+ 0.5+
1997 03 15	327	0.3+ 0.7+	1998 07 29	423	0.1- 0.1+			

(9146)* 1976 YG₁ = 1958 AB = 1974 FR₁ = 1983 RA₂ = 1987 SO₂₉ = 1989 EE₆ = 1993 CJ

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

Observatory.

Id. A. Lowe (*MPC* 22049), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	79.69740	(2000.0)	P	Q
n	0.25651649	ω 165.27571	-0.76987489	+0.63041554
a	2.4531599	Ω 54.24216	-0.59721283	-0.65677325
e	0.0373720	i 7.03173	-0.22500997	-0.41379360
P	3.84	H 13.5	G 0.15	U 1

Residuals in seconds of arc

1958 01 11	760	0.2+ 1.5-	1991 10 07	675	(2.8- 1.0+)	1995 12 18	801	0.4+ 0.1-
1958 01 11	760	0.3+ 0.6-	1993 02 13	402	0.2- 1.3+	1995 12 23	801	0.2+ 0.2+
1974 03 21	095	(2.2- 2.8+)	1993 02 13	402	0.1+ 0.7+	1995 12 23	801	0.1- 1.1-
1976 12 16	095	(6.5- 0.9+)	1993 02 14	402	1.7- 0.6-	1997 03 09	689	0.1- 0.0
1976 12 18	095	1.7- 0.2+	1993 02 14	402	0.2+ 1.0+	1998 07 04	699	1.0+ 0.6+
1983 09 08	801	(6.1- 1.1+)	1995 11 12	894	0.4- 0.3-	1998 07 04	699	0.1+ 0.1-
1987 09 24	095	(4.1- 0.1+)	1995 11 12	894	0.2- 0.2-	1998 07 04	699	0.9+ 0.2-
1989 02 01	675	1.2+ 0.7+	1995 11 16	894	0.6+ 0.7+	1998 08 19	566	0.4- 0.1-
1989 02 01	675	0.4+ 1.0+	1995 11 23	104	0.3- 0.7+	1998 08 19	566	0.5- 0.1+
1989 03 07	675	0.9+ 1.2-	1995 11 23	104	0.4- 0.7+	1998 08 19	566	0.7- 0.1-
1989 03 08	675	0.9+ 1.8-	1995 12 18	801	0.2+ 0.1-			

(9147)* 1977 DD₁ = 1951 CJ = 1969 VT₂ = 1982 US₉

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

Id. T. Kobayashi (*MPC* 14780)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	314.00447		(2000.0)	P		Q	
<i>n</i>	0.30369976	ω	252.25886	+0.81887586		-0.57064376	
<i>a</i>	2.1919960	Ω	142.46967	+0.55749263		+0.76518008	
<i>e</i>	0.1061656	<i>i</i>	5.81395	+0.13654408		+0.29810258	
<i>P</i>	3.25	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1951 02 10	760	0.1+	0.8+	1988 08 08	095	(0.2-	2.8-)	1995 11 11	689	0.3-	0.3+
1951 02 10	760	1.5-	0.4-	1988 08 09	095	0.0	1.2+	1995 11 12	689	0.8-	0.5+
1969 11 15	095	2.0+	1.4-	1988 08 09	095	0.7-	2.3-	1998 06 29	704	1.4-	1.4+
1977 02 13	675	0.5-	0.1-	1994 05 07	801	0.7+	0.3-	1998 06 29	704	1.1-	1.8+
1977 02 14	675	0.1-	0.1+	1994 05 07	801	0.6+	0.0	1998 06 29	704	0.5-	1.2-
1977 02 18	381	0.7+	0.2-	1994 05 09	801	0.7+	0.2+	1998 06 29	704	0.5-	0.1-
1977 02 18	381	0.2-	0.0	1994 05 09	801	0.6+	0.3+	1998 06 29	704	0.4-	0.3+
1977 02 19	381	0.3+	0.5+	1994 06 05	596	(2.8-	0.6+)	1998 08 31	704	(0.3+	2.3+)
1977 02 19	381	0.0	0.2+	1994 06 05	596	0.3-	0.5+	1998 08 31	704	0.5+	0.4+
1982 10 22	095	0.5-	1.8+	1994 06 05	596	(0.7+	2.1+)	1998 08 31	704	1.1+	0.7-
1982 10 25	095	0.7+	0.6-	1994 06 09	801	0.6+	0.3-				
1988 08 08	095	(0.5+	5.4-)	1994 06 09	801	1.1-	0.3-				

(9148)* 1977 EL₁ = 1987 ET = 1997 EJ₁₅

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

Id. G. V. Williams (*MPC* 29607)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	176.87580		(2000.0)	P		Q	
<i>n</i>	0.29529638	ω	132.64057	-0.65486153		-0.75574471	
<i>a</i>	2.2333869	Ω	358.26276	+0.66687016		-0.57627983	
<i>e</i>	0.1619250	<i>i</i>	4.75483	+0.35558483		-0.31104902	
<i>P</i>	3.34	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 03 13	095	0.3+	0.7+	1995 09 21	691	1.5-	0.2-	1997 04 08	691	0.9-	0.5-
1977 03 22	095	0.4+	1.0-	1995 09 22	809	0.7+	0.2+	1997 04 14	691	1.5-	0.0
1977 03 25	095	2.1-	0.5-	1995 09 22	809	1.2+	0.5-	1997 04 14	691	0.7-	0.4-
1987 03 03	688	1.3+	0.0	1995 09 23	809	1.0+	0.5-	1997 04 14	691	0.3-	0.4-
1987 03 03	688	0.5+	0.5-	1995 09 24	809	0.7-	0.5-	1998 07 31	699	1.0-	1.0+
1995 08 24	809	1.4+	0.0	1997 03 04	691	0.2+	0.2-	1998 07 31	699	1.2-	0.2+
1995 08 25	809	1.3+	0.5-	1997 03 04	691	0.1+	0.2-	1998 07 31	699	0.2-	0.4+
1995 08 26	809	1.1+	0.4-	1997 03 04	691	0.2+	0.4-	1998 08 17	704	0.8+	0.1+
1995 08 27	809	0.2-	0.6-	1997 03 05	809	(1.6+	2.8-)	1998 08 17	704	0.7+	0.5-
1995 08 28	809	0.6+	0.1-	1997 03 05	809	(1.7+	2.5-)	1998 08 17	704	1.2+	0.4+
1995 08 28	809	1.0+	1.4-	1997 03 05	809	(1.8+	3.6-)	1998 08 17	704	0.1-	0.3-
1995 08 29	809	0.5+	1.6-	1997 03 06	809	(3.7+	1.1-)	1998 08 17	704	1.1-	0.6+
1995 09 01	809	0.5+	0.7-	1997 03 06	809	(3.9+	1.8-)	1998 08 29	699	0.0	0.1+
1995 09 17	809	0.1-	0.9-	1997 03 06	809	(3.4+	1.7-)	1998 08 29	699	0.0	1.4+
1995 09 18	809	0.1+	0.8-	1997 03 10	691	0.3+	0.5-	1998 08 29	699	0.5-	1.0+
1995 09 19	809	1.1+	1.0-	1997 03 10	691	0.4+	0.6-	1998 08 30	699	1.7-	0.3+
1995 09 20	809	0.3+	0.0	1997 03 10	691	0.3+	0.5-	1998 08 30	699	0.7+	0.3-
1995 09 21	691	1.5-	0.2-	1997 04 08	691	0.9-	0.3-	1998 08 30	699	0.9+	0.1+
1995 09 21	691	1.4-	0.4-	1997 04 08	691	0.8-	0.5-				

(9149)* 1977 TD₁ = 1990 UH₃

Discovered 1977 Oct. 12 by P. Wild at Zimmerwald.

Id. S. Nakano (*MPC* 17426)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	288.42955		(2000.0)	P		Q	
<i>n</i>	0.23009709	ω	193.59022	+0.74257466		-0.66148838	
<i>a</i>	2.6375172	Ω	208.69150	+0.63311953		+0.74439838	
<i>e</i>	0.1651207	<i>i</i>	12.62788	+0.21850066		+0.09112724	
<i>P</i>	4.28	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	2

Williams

Residuals in seconds of arc

1977 10 12	026	0.5-	1.1-	1994 10 31	563	1.0-	0.0	1998 08 22	426	0.0	0.0
1977 10 18	026	0.2-	0.0	1994 10 31	563	0.3-	0.2+	1998 08 22	426	0.1+	0.1-
1977 10 19	026	(0.4-	4.2-)	1994 10 31	563	0.4+	0.8-	1998 08 24	704	0.3-	0.1-
1977 10 20	026	2.1+	0.1+	1998 06 19	699	0.3+	0.1-	1998 08 24	704	1.1-	0.2+
1977 11 03	026	1.1-	1.4-	1998 06 19	699	0.0	0.6-	1998 08 24	704	0.2+	0.8-
1977 11 08	026	(5.3-	1.2+)	1998 06 19	699	0.2+	0.6-	1998 08 24	704	0.5+	0.9+
1977 11 10	026	(3.3-	3.6-)	1998 07 18	699	0.1+	0.4-	1998 08 24	704	0.1+	0.1-
1990 10 24	400	(2.9-	0.9-)	1998 07 18	699	0.4-	0.7+	1998 08 26	658	0.7-	0.0
1990 10 24	400	0.7-	0.0	1998 07 18	699	0.7+	0.2+	1998 08 26	658	0.7-	0.1+
1990 11 11	400	1.0+	0.9+	1998 07 30	610	1.1+	0.0	1998 08 27	704	0.6+	0.1+
1990 11 11	400	0.5+	1.0+	1998 07 30	610	0.7+	0.2+	1998 08 27	704	0.8-	0.4-
1990 11 15	675	0.0	0.5-	1998 07 30	610	0.4+	0.4+	1998 08 27	704	0.2-	0.5+
1990 11 15	675	0.6-	0.4+	1998 07 30	610	0.2+	0.6+	1998 08 27	704	0.5+	0.6-
1990 11 16	675	0.2-	0.2+	1998 08 21	426	0.1-	0.0	1998 08 27	704	0.5+	0.1-
1994 10 05	026	0.9+	0.6+	1998 08 21	426	0.5+	0.1-	1998 08 27	658	1.1-	0.5+
1994 10 09	026	0.4-	0.5+	1998 08 21	426	0.3+	0.2-	1998 08 27	658	0.7-	0.2+
1994 10 26	026	0.1+	0.4-	1998 08 22	426	0.3-	0.0	1998 08 27	658	0.7-	0.1-

(9150)* 1978 SE₁ = 1982 SR

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

Id. E. Bowell (*MPC* 7367)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	337.38594		(2000.0)	P		Q	
<i>n</i>	0.24558128	ω	273.62064	+0.99064653		+0.04167342	
<i>a</i>	2.5254525	Ω	84.02182	+0.01494016		+0.91337204	
<i>e</i>	0.1969986	<i>i</i>	7.50682	-0.13563273		+0.40498745	
<i>P</i>	4.01	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1954 11 20	675	0.0	0.2-	1990 09 17	675	0.8-	0.1+	1997 04 08	809	0.6-	0.1-
1954 11 20	675	0.3+	0.2+	1990 09 17	675	0.8-	0.0	1997 04 08	809	0.7-	0.8+
1978 09 27	095	(2.8-	0.9+)	1990 09 20	675	(1.8+	3.0-)	1997 04 08	809	0.2+	0.6+
1978 10 03	095	2.1+	0.9-	1990 09 20	675	0.7-	0.1+	1998 06 29	704	0.9+	1.5+
1978 10 07	095	0.7+	1.3+	1996 04 18	704	0.1-	0.6+	1998 06 29	704	0.0	0.5+
1978 10 22	808	0.2-	1.3+	1996 04 18	704	0.6+	0.7-	1998 06 29	704	0.7-	1.0+
1978 10 22	808	0.5+	1.4+	1996 04 18	704	0.4+	0.9+	1998 06 29	704	1.2-	0.8+
1982 09 22	688	1.4-	0.9-	1996 04 19	704	0.4-	1.4+	1998 06 29	704	0.6+	1.4-
1982 09 22	688	1.3-	2.1-	1996 04 19	704	0.6-	0.1-	1998 09 01	426	0.5+	0.0
1982 10 11	688	0.0	0.5+	1996 04 19	704	0.1+	1.1+	1998 09 01	426	0.5+	0.1+
1982 10 11	688	2.5-	0.2+	1996 04 19	704	0.1+	0.0	1998 09 01	426	0.5+	0.1+
1982 11 09	801	1.4+	0.8+	1997 04 07	809	0.7+	0.2-	1998 09 03	426	0.6+	0.2-
1990 05 29	413	(2.8+	1.2-)	1997 04 07	809	0.8+	0.3+	1998 09 03	426	0.7+	0.1-
1990 05 29	413	(8.8+	4.3+)	1997 04 07	809	0.5+	0.2-	1998 09 03	426	0.6+	0.0

(9151)* 1979 MQ₈ = 1989 EP₉ = 1998 MC₂₄

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

Id. G. V. Williams (*MPC* 32208)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	252.20765		(2000.0)	P		Q	
<i>n</i>	0.26016176	ω	288.47763	+0.48214160		-0.87477085	
<i>a</i>	2.4301910	Ω	132.59930	+0.82644664		+0.43590620	
<i>e</i>	0.1259283	<i>i</i>	3.74808	+0.29073257		+0.21156972	
<i>P</i>	3.79	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 06 24	413	1.6+	0.6+	1989 03 05	033	0.7-	1.5+	1998 06 25	691	0.5+	0.2+
1979 06 25	413	0.3+	0.3+	1991 10 08	691	0.2+	0.1+	1998 07 01	691	0.6-	0.1-
1979 06 29	413	(3.9-	1.1-)	1991 10 08	691	0.3+	0.5+	1998 07 01	691	0.3-	0.3+
1979 07 24	675	(4.2-	0.9+)	1993 03 17	809	0.3+	0.1-	1998 07 01	691	0.5-	0.2-
1979 07 24	413	2.2-	0.6-	1993 03 18	809	0.3+	1.5-	1998 07 16	691	0.1-	0.2-
1979 07 25	675	1.3+	0.7+	1993 03 23	809	1.0+	0.7-	1998 07 16	691	0.2-	0.1+
1979 08 23	675	1.0-	0.4-	1998 06 25	691	0.4+	0.2+	1998 07 16	691	0.5-	0.1-
1989 03 05	033	0.6-	1.6+	1998 06 25	691	0.2+	0.4+				

(9152)* 1980 VZ₂ = 1969 TD₇ = 1996 AV₁₇

Discovered 1980 Nov. 1 by S. J. Bus at Palomar.

Id. G. V. Williams (*MPC* 26737)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27113236	ω	112.37154	+0.97150857	−0.22881259		
<i>a</i>	2.3641869	Ω	260.89897	+0.18785756	+0.90234605		
<i>e</i>	0.2436644	<i>i</i>	3.58680	+0.14450132	+0.36526210		
<i>P</i>	3.64	<i>H</i>	15.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1969 10 08	033	0.1+	0.7+	1998 06 20	688	0.1−	0.2+	1998 08 22	823	0.2−	0.2−
1969 10 08	033	0.4−	0.3+	1998 06 20	688	0.5−	0.2+	1998 08 23	704	1.2+	0.2−
1980 10 14	675	0.5−	0.4−	1998 06 20	688	0.4−	0.3+	1998 08 23	704	0.6−	1.1−
1980 11 01	675	0.4+	0.5−	1998 08 17	704	0.6+	0.1−	1998 08 23	704	0.3−	0.8−
1980 11 02	675	0.2+	0.5−	1998 08 17	704	0.1−	0.9+	1998 08 23	704	1.5+	0.6−
1996 01 13	691	0.4+	0.2+	1998 08 17	704	0.4+	0.7+	1998 08 23	704	0.1−	0.1+
1996 01 13	691	0.3+	0.0	1998 08 17	704	0.7−	0.5+	1998 08 26	699	0.5−	0.0
1996 01 13	691	0.4+	0.3+	1998 08 17	704	0.3+	0.0	1998 08 26	699	0.2+	0.6+
1996 01 20	691	0.9−	1.1+	1998 08 20	823	0.4−	0.3+	1998 08 26	699	0.3−	0.4+
1996 01 20	691	0.3+	0.2+	1998 08 20	823	0.3+	0.1+	1998 08 28	823	0.5−	0.0
1996 01 20	691	0.2+	0.2+	1998 08 22	823	0.2−	0.3−	1998 08 28	823	0.6−	0.4+

(9153)* 1981 UD₂ = 1990 WR₃

Discovered 1981 Oct. 30 by H. Kosai and K. Hurukawa at the Kiso Station of the Tokyo Astronomical Observatory.

Id. B. G. Marsden (*MPC* 17629)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22367723	ω	163.33597	+0.83038182	−0.53223427		
<i>a</i>	2.6877458	Ω	229.99271	+0.48351166	+0.83537556		
<i>e</i>	0.1550078	<i>i</i>	12.43239	+0.27691607	+0.13738399		
<i>P</i>	4.41	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1953 05 18	675	1.2−	0.1+	1994 10 04	494	0.0	1.2+	1998 08 01	823	0.1+	0.4−
1953 05 18	675	0.0	0.5−	1994 10 07	970	1.2−	0.1−	1998 08 02	823	0.3+	0.3−
1981 10 22	095	1.8+	0.2−	1994 10 07	970	0.4−	0.0	1998 08 02	823	0.3+	0.2−
1981 10 24	095	2.2+	0.8−	1994 10 07	970	0.7−	1.1−	1998 08 10	127	0.6+	0.3+
1981 10 30	381	1.0−	0.1−	1994 11 05	563	0.2−	0.5+	1998 08 10	127	0.4+	0.2+
1981 10 30	381	0.5−	0.6−	1994 11 05	563	1.8−	0.4+	1998 08 24	704	0.3−	0.1−
1981 11 24	095	(4.1−	6.4+)	1997 05 07	704	0.2−	0.1+	1998 08 24	704	0.4−	0.0
1990 11 16	675	1.0+	1.3−	1997 05 07	704	0.1+	0.4+	1998 08 24	704	1.1−	0.2−
1990 11 16	675	0.7−	0.8+	1997 05 07	704	0.3+	0.6−	1998 08 24	704	0.1−	0.5−
1990 11 21	809	0.7−	0.1−	1997 05 07	704	0.0	0.4+	1998 08 27	704	0.1+	0.1−
1990 11 21	809	0.3+	0.2−	1997 05 07	704	0.3+	0.6−	1998 08 27	704	0.6+	0.5+
1990 11 21	809	0.4+	0.2+	1998 07 21	823	1.5+	0.3−	1998 08 27	704	0.7−	0.4+
1990 11 22	809	1.1−	0.5−	1998 07 21	823	0.3−	0.0	1998 08 27	704	0.3−	0.7+
1990 11 22	809	0.4−	0.4−	1998 07 22	823	1.7+	0.3−	1998 08 27	704	0.4−	0.3+
1990 11 22	809	0.2+	0.4−	1998 07 30	823	0.1−	0.9−				
1994 10 04	494	0.9+	1.3+	1998 07 30	823	0.2+	0.7−				

(9154)* 1982 SP₆ = 1956 UD = 1987 SU₁₃ = 1987 SN₂₂ = 1995 EA₁ = 1995 FB₄

Discovered 1982 Sept. 16 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. G. V. Williams (*MPC* 25327)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18868237	ω	36.48118	+0.79980958	−0.60025242		
<i>a</i>	3.0105684	Ω	0.41348	+0.49979389	+0.66476077		
<i>e</i>	0.1138843	<i>i</i>	10.28873	+0.33243150	+0.44473605		
<i>P</i>	5.22	<i>H</i>	12.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1956 10 28	760	0.8−	0.8−	1995 03 05	399	1.3+	0.2+	1998 07 20	104	0.0	0.1+
1956 10 28	760	0.6+	0.7−	1995 03 05	399	0.5−	0.1−	1998 07 20	104	0.6−	0.7−
1982 09 16	095	1.2+	1.7−	1995 03 06	399	(0.4+	2.1+)	1998 07 20	104	0.2−	0.0
1982 09 19	095	0.7+	1.3+	1995 03 06	399	(2.8−	0.1+)	1998 08 28	704	0.7−	0.4+
1982 09 21	095	0.4+	1.6+	1995 03 07	033	0.4+	0.4+	1998 08 28	704	0.1+	1.4+
1982 09 28	095	0.4−	1.5+	1995 03 23	691	0.3−	0.5+	1998 08 28	704	1.2−	0.9+
1987 09 20	095	1.1−	1.5+	1995 03 23	691	0.5−	0.3+	1998 08 28	704	0.3+	1.7+
1987 09 22	095	0.6−	0.8+	1995 03 23	691	0.4−	0.4+	1998 08 31	704	0.4+	1.5−
1990 04 22	675	0.5+	1.2+	1995 03 29	691	0.2−	0.1−	1998 08 31	704	0.2+	1.2−
1990 04 22	675	0.3+	0.5+	1995 03 29	691	0.5−	0.2+	1998 08 31	704	0.6+	0.9−
1992 08 24	675	0.3+	0.2−	1995 03 29	691	0.5+	0.5+	1998 08 31	704	0.7+	0.6−
1992 08 24	675	1.0−	1.0−	1995 04 04	691	0.4−	0.1−	1998 08 31	704	1.4−	0.0
1995 03 04	033	1.0+	0.1+	1995 04 04	691	0.1+	0.9−				
1995 03 05	033	1.2+	0.5−	1995 04 04	691	0.5−	0.1−				

(9155)* 1982 SM₇ = 1987 QZ₂ = 1989 AT₇ = 1989 YS₃

Discovered 1982 Sept. 18 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. S. Nakano (*MPC* 16577), G. V. Williams (unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18142470	ω	298.10094	+0.79467179	+0.60680004		
<i>a</i>	3.0903317	Ω	24.55245	−0.54156601	+0.72136464		
<i>e</i>	0.0363948	<i>i</i>	2.35064	−0.27423164	+0.33380649		
<i>P</i>	5.43	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 09 18	095	1.6+	1.2+	1991 04 08	809	1.0−	1.3+	1998 08 01	699	0.7+	0.0
1982 09 20	095	0.1−	1.7+	1991 04 08	809	1.0−	1.3+	1998 08 01	699	0.8+	0.3−
1982 09 26	095	0.6−	0.9+	1991 04 10	809	0.8+	1.2+	1998 08 01	699	1.5+	0.3−
1987 08 22	809	1.2−	2.0−	1991 04 10	809	0.1−	1.6+	1998 08 17	704	0.2−	0.1+
1987 08 22	809	1.4−	0.8−	1991 04 10	809	0.2−	1.1+	1998 08 17	704	0.1−	0.4+
1987 08 22	809	0.3+	0.3−	1991 04 19	809	0.4+	0.2−	1998 08 17	704	1.0−	0.5+
1987 08 25	809	(2.3+	3.1−)	1991 04 19	809	0.4+	0.7−	1998 08 17	704	0.0	0.2+
1987 08 25	809	(1.2+	2.4−)	1991 04 19	809	0.1−	0.8−	1998 08 17	704	0.5−	0.4−
1987 08 25	809	(1.8+	2.6−)	1991 04 19	675	(0.1+	2.8−)	1998 08 17	113	0.1+	0.7+
1987 08 27	809	0.5−	0.0	1991 04 19	675	0.9+	1.6−	1998 08 17	113	1.1−	0.7+
1987 08 27	809	0.8+	1.7+	1991 05 15	675	0.3+	1.1−	1998 08 18	113	0.5+	1.0+
1987 08 27	809	(10.0−	2.4−)	1991 05 17	675	0.1+	0.6−	1998 08 19	113	0.3−	0.1−
1989 01 09	033	1.4−	0.3−	1991 05 17	675	1.1+	1.1−	1998 08 19	113	0.3−	0.1−
1989 01 09	033	1.1−	0.2−	1993 10 10	809	(4.1+	5.2+)	1998 08 23	704	0.9+	0.4−
1989 12 30	413	1.1−	0.8−	1993 10 10	809	(3.0+	4.6+)	1998 08 23	704	0.7+	0.6−
1989 12 30	413	0.1−	0.3+	1993 10 10	809	(1.0+	3.8+)	1998 08 23	704	0.3−	0.1−
1989 12 31	413	0.4−	0.9−	1993 10 22	809	(2.3+	4.1+)	1998 08 23	704	0.2+	1.4−
1989 12 31	413	2.2+	0.7+	1993 10 22	809	(1.3+	4.2+)				
1991 04 08	809	0.7−	1.5+	1993 10 22	809	(0.8+	4.2+)				

(9156)* 1982 TQ₂ = 1982 VQ₉ = 1985 PD₁

Discovered 1982 Oct. 15 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. K. Hurukawa (*MPC* 10292), L. D. Schmadel (*ibid.*), O. Kippes (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	351.36955	(2000.0)	P	Q
<i>n</i>	0.30525587	ω 21.21293	+0.95031551	+0.30659260
<i>a</i>	2.1845402	Ω 320.80396	-0.29646385	+0.83864254
<i>e</i>	0.1500148	<i>i</i> 4.88939	-0.09491901	+0.45019959
<i>P</i>	3.23	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1955 04 20	675	1.0-	0.4-	1985 08 20	688	1.5+	0.2+	1998 06 29	704	0.4+	1.3-
1955 04 20	675	0.2-	0.2+	1985 09 12	688	0.0	0.6+	1998 06 29	704	0.3-	0.7-
1977 01 12	675	0.3+	0.4-	1985 09 12	688	1.9-	0.0	1998 06 29	704	0.2-	0.1-
1977 01 13	675	0.5+	0.5+	1990 01 17	372	0.3+	0.0	1998 06 29	704	0.2+	0.4+
1982 10 15	095	2.4-	0.2-	1990 01 17	372	(3.6+ 1.6+)		1998 08 27	699	0.1-	0.0
1982 10 21	095	1.2+	0.6-	1995 11 25	801	0.8+	1.3-	1998 08 27	699	0.2-	0.1+
1982 10 22	095	(1.5+ 5.6-)		1995 11 25	801	0.3+	0.2-	1998 08 27	699	0.7-	0.3+
1982 11 11	095	(0.5- 3.9-)		1995 12 18	801	1.1+	1.1-	1998 08 28	699	0.2-	0.0
1985 08 14	688	1.5+	0.2+	1995 12 18	801	0.2-	0.4+	1998 08 28	699	0.1-	0.0
1985 08 14	688	0.4+	0.3-	1995 12 23	801	0.5-	0.7+	1998 08 28	699	0.3-	0.2+
1985 08 20	688	(5.3+ 1.4+)		1995 12 23	801	0.4-	0.8+				

(9157)* 1983 RB₄ = 1968 TB = 1987 UB₇

Discovered 1983 Sept. 2 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory.

Id. S. Nakano (*MPC* 26395)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Asher

<i>M</i>	324.94528	(2000.0)	P	Q
<i>n</i>	0.26082681	ω 307.82154	+0.99827335	+0.04333185
<i>a</i>	2.4260582	Ω 49.73122	-0.02221210	+0.90347651
<i>e</i>	0.2197018	<i>i</i> 2.97920	-0.05437770	+0.42644173
<i>P</i>	3.78	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1968 10 02	095	1.0+	0.1-	1997 04 03	704	0.4-	0.4-	1998 08 17	704	0.6-	0.2+
1968 10 02	095	(3.6- 3.3-)		1997 04 05	704	0.6+	1.7-	1998 08 17	704	0.2-	0.2+
1983 09 02	688	0.5+	1.9-	1997 04 05	704	0.1+	0.9-	1998 08 18	566	0.1+	0.2+
1983 09 02	688	1.1+	0.9-	1997 04 06	704	0.1-	0.2+	1998 08 18	566	0.5+	0.1+
1983 09 06	688	0.1-	0.8-	1997 04 06	704	0.1-	0.5+	1998 08 18	566	0.4+	0.1+
1983 09 06	688	0.4+	0.0	1997 04 06	704	0.3-	0.1+	1998 08 23	704	0.5+	0.4+
1983 09 10	688	1.4-	0.8-	1997 04 06	704	1.0+	0.4-	1998 08 23	704	0.2+	0.2+
1983 09 10	688	0.6+	0.1+	1997 04 07	704	0.8+	0.2+	1998 08 23	704	0.3-	0.1+
1983 09 11	095	1.7-	0.3-	1997 04 07	704	0.7-	0.4+	1998 08 23	704	0.2-	1.5+
1987 10 27	095	1.3+	1.2+	1998 07 31	699	0.9-	0.1+	1998 08 23	704	1.2-	0.4-
1995 12 26	411	0.6+	0.8+	1998 07 31	699	0.4-	0.1-	1998 08 29	699	0.6+	0.6+
1995 12 26	411	1.1-	0.5+	1998 07 31	699	0.8-	0.1-	1998 08 29	699	0.9+	0.6+
1995 12 27	411	0.7-	0.6+	1998 08 17	704	0.7+	0.4-	1998 08 29	699	0.6+	0.9+
1995 12 27	411	0.2-	0.4+	1998 08 17	704	0.3-	0.7+				
1997 04 03	704	0.4-	1.1+	1998 08 17	704	0.0	0.1+				

(9158)* 1984 MR = 1981 SF₇ = 1991 NN

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

Id. H. Kaneda (*MPC* 18809)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	322.28286	(2000.0)	P	Q
<i>n</i>	0.28270733	ω 184.28744	+0.88467504	+0.46077282
<i>a</i>	2.2992067	Ω 147.96798	-0.42365932	+0.85810890
<i>e</i>	0.1510289	<i>i</i> 7.69094	-0.19458377	+0.22657788
<i>P</i>	3.49	<i>H</i> 13.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1981 09 28	095	(1.8+ 3.1+)		1997 02 07	327	1.1-	0.6+	1998 06 25	704	0.5-	0.0
1984 06 25	095	1.4-	0.2-	1997 02 10	691	0.2+	0.3-	1998 06 25	704	0.4-	0.0
1984 06 28	095	0.6+	2.0-	1997 02 10	691	0.2+	0.2-	1998 06 25	704	1.2-	0.5+
1984 07 02	095	0.5-	0.2+	1997 02 10	691	0.3+	0.2-	1998 06 25	704	0.7-	1.2+

1988 10 09	675	0.2+	0.2+	1997 02 14	327	0.8+	0.0	1998 06 25	423	0.0	1.3+
1988 10 09	675	0.0	0.6+	1997 02 14	327	0.2-	0.0	1998 07 02	610	1.7+	1.1-
1991 07 10	675	1.0+	0.8-	1997 02 14	327	0.7+	0.1-	1998 07 02	610	1.7+	1.5-
1991 07 10	675	0.7+	1.2-	1998 06 18	423	(0.2- 2.3+)		1998 07 02	610	1.5+	1.9-
1991 07 11	675	0.2+	0.9-	1998 06 19	704	1.0-	0.8-	1998 07 02	610	(1.5+ 2.3-)	
1991 07 11	675	0.2-	0.8-	1998 06 19	704	1.0-	1.5+	1998 07 04	610	0.2+	0.4+
1995 10 25	684	1.0+	0.0	1998 06 19	704	1.5-	1.0+	1998 07 04	610	0.5+	0.8+
1995 10 25	684	0.3-	0.1+	1998 06 19	704	1.8-	0.9+	1998 07 04	610	0.7+	1.3+
1995 10 25	684	1.0-	0.8-	1998 06 19	704	(1.0- 2.4+)		1998 07 04	610	1.0+	1.7+
1997 02 07	327	0.7-	0.2+	1998 06 19	423	0.2-	0.1+				
1997 02 07	327	0.2-	0.0	1998 06 25	704	0.1+	0.1-				

(9159)* 1984 UD₃ = 1991 PR₁₁

Discovered 1984 Oct. 26 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. G. V. Williams (*MPC* 19017)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	292.95143	(2000.0)	P	Q
<i>n</i>	0.27444931	ω 183.48596	+0.85444676	-0.51693314
<i>a</i>	2.3450996	Ω 207.83482	+0.47931924	+0.82293758
<i>e</i>	0.1152320	<i>i</i> 6.39040	+0.20043402	+0.23569869
<i>P</i>	3.59	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1954 04 08	675	0.3-	1.2-	1991 09 14	675	0.3+	0.7-	1998 07 24	566	0.3-	0.1-
1954 04 08	675	0.2-	0.2-	1991 09 14	675	0.2+	0.6-	1998 08 23	699	0.1-	1.2+
1984 10 26	688	1.7-	1.0-	1991 09 17	675	0.3+	0.6-	1998 08 23	699	0.1+	0.6+
1984 10 26	688	0.3-	0.2+	1991 09 17	675	0.4+	0.5-	1998 08 23	704	0.3-	0.3+
1984 10 28	046	0.9-	2.3+	1991 10 05	691	0.3-	0.1+	1998 08 23	704	1.1-	0.3+
1984 10 28	046	2.1+	1.3+	1991 10 05	691	0.6-	0.1+	1998 08 23	699	0.1+	1.3+
1984 10 29	046	1.3+	0.5-	1991 10 05	691	0.9-	0.1-	1998 08 23	704	0.4+	0.2+
1984 10 29	046	1.4-	0.0	1997 04 01	809	0.3+	0.3+	1998 08 23	704	0.7-	0.0
1984 10 30	046	0.8-	0.0	1997 04 01	809	0.3+	0.1-	1998 08 23	704	0.2-	0.3-
1984 10 30	046	1.6+	1.4-	1997 04 01	809	0.3-	0.1+	1998 08 27	704	0.1+	0.1-
1991 08 09	675	1.3+	0.9+	1998 06 19	699	0.7+	0.7+	1998 08 27	704	0.8+	0.4-
1991 08 10	675	0.8+	0.1+	1998 06 19	699	0.8+	0.6+	1998 08 27	704	0.2+	0.5-
1991 09 06	511	0.4-	1.2-	1998 06 19	699	0.8+	0.0	1998 08 27	704	0.1-	0.1+
1991 09 07	511	0.6+	0.4-	1998 07 24	566	0.6-	0.6-	1998 08 27	704	0.3-	0.8-
1991 09 08	511	(2.2+ 0.0)		1998 07 24	566	0.7-	0.3-				

(9160)* 1986 UH₃ = 1986 TF₁₂ = 1990 RZ₁

Discovered 1986 Oct. 28 by Z. Vávrová at Kleť.

Id. B. G. Marsden (d, *MPC* 17633), E. Bowell (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Marsden

<i>M</i>	307.18127	(2000.0)	P	Q
<i>n</i>	0.23937502	ω 72.44479	+0.90143130	-0.43282947
<i>a</i>	2.5689175	Ω 313.20141	+0.39239140	+0.82560623
<i>e</i>	0.2388784	<i>i</i> 0.70424	+0.18289508	+0.36198482
<i>P</i>	4.12	<i>H</i> 14.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1986 10 04	095	1.2+	0.0	1994 09 03	809	(2.5+ 0.0)		1997 04 30	704	0.8-	0.9-
1986 10 12	095	(0.5- 2.6+)		1994 09 03	809	(2.3+ 0.1+)		1997 04 30	704	(2.7- 1.1-)	
1986 10 23	381	(2.9+ 0.9+)		1994 09 04	809	(3.4+ 1.2+)		1997 05 01	704	0.2-	1.0-
1986 10 23	381	(2.6+ 1.8+)		1994 09 04	809	(3.3+ 1.6+)		1997 05 01	704	0.1-	0.4+
1986 10 25	381	0.6+	1.3+	1994 09 04	809	(3.0+ 2.1+)		1997 05 01	704	0.1-	0.6-
1986 10 25	381	0.1+	0.8-	1994 09 09	399	(2.6- 0.8-)		1997 05 01	704	1.1-	0.8-
1986 10 25	381	(3.0+ 0.9+)		1994 09 09	399	(4.8- 0.3+)		1997 05 01	704	0.1-	0.1-
1986 10 25	381	1.7+	1.9+	1994 09 09	046	0.4+	0.6+	1998 07 20	046	0.4-	0.1+
1986 10 28	046	(1.0- 5.5-)		1994 09 09	046	0.0	0.3+	1998 07 20	046	0.8-	0.3-
1986 10 28	046	(1.0- 5.3-)		1994 09 09	046	0.7-	0.5+	1998 07 20	046	0.3-	0.0
1986 11 03	046	(3.6- 2.3-)		1994 09 10	046	0.2-	0.4-	1998 07 26	046	0.0	0.7-
1986 11 03	046	(2.7- 2.4-)		1994 09 10	046	0.3-	0.2-	1998 07 26	046	0.2-	0.1-
1986 11 07	046	1.4+	1.7-	1994 09 10	046	0.4-	0.3-	1998 07 26	046	0.2-	0.2-
1986 11 07	046	0.8+	1.5-	1995 12 18	046	0.4-	0.2-	1998 08 11	046	0.3-	0.1-

1986 11 09	046	2.2−	0.9+	1995 12 18	046	0.0	1.0−	1998 08 11	046	0.3−	0.0
1986 11 09	046	(3.3−	2.2−)	1995 12 18	046	0.6+	0.2−	1998 08 11	046	0.3−	0.6+
1986 11 09	046	0.5−	0.9−	1996 01 16	046	1.1−	0.2−	1998 08 14	046	0.6−	0.1−
1986 11 09	046	2.4−	1.1−	1996 01 16	046	0.6+	0.5+	1998 08 14	046	0.2−	0.0
1990 09 15	675	0.0	0.9−	1996 01 16	046	0.6−	0.7+	1998 08 14	046	0.3−	0.5+
1990 09 17	675	0.0	1.0−	1996 01 17	046	0.1+	0.5−	1998 08 17	704	0.4+	0.4+
1990 09 17	675	0.0	1.3−	1996 01 17	046	0.7+	0.5−	1998 08 17	704	0.2−	0.4−
1990 09 23	095	0.9+	1.2+	1996 01 17	046	0.3+	0.6−	1998 08 17	704	0.0	0.5−
1994 08 10	809	(2.8+	1.0−)	1996 02 25	046	0.3−	0.4−	1998 08 23	704	0.1−	0.8+
1994 08 10	809	(2.1+	0.3−)	1996 02 25	046	0.5+	1.0−	1998 08 23	704	1.1+	0.0
1994 08 10	809	0.9+	0.4−	1996 02 25	046	0.3+	0.7−	1998 08 23	704	0.4+	2.5+
1994 08 11	809	1.9+	2.1−	1996 02 25	046	0.0	1.0+	1998 08 23	704	0.2+	0.6+
1994 08 11	809	1.3+	1.7−	1996 02 25	046	0.6−	0.5+	1998 08 27	699	0.5+	0.1+
1994 08 11	809	(0.6+	2.3−)	1996 02 25	046	0.6−	0.2+	1998 08 27	699	0.5+	0.3+
1994 09 01	399	1.5−	0.8+	1997 04 30	704	0.1−	0.7−	1998 08 27	699	0.2+	0.5+
1994 09 01	399	0.2−	1.0−	1997 04 30	704	0.6+	1.4−				
1994 09 03	809	(3.0+	0.2−)	1997 04 30	704	0.2+	0.0				

(9161)* 1987 BZ₁ = 1996 DM

Discovered 1987 Jan. 26 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 26739)

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	284.09148	(2000.0)		P	Q		
<i>n</i>	0.22724887	ω	279.76020	+0.47959914	−0.86363708		
<i>a</i>	2.6595096	Ω	140.33886	+0.86981895	+0.44455758		
<i>e</i>	0.1327963	<i>i</i>	14.08204	+0.11575690	+0.23769636		
<i>P</i>	4.34	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1987 01 26	809	(10.1−	20.1−)	1996 02 16	566	0.8+	0.7−	1998 06 29	704	1.5+	0.2−
1987 01 26	809	(8.9−	18.8−)	1996 02 20	566	1.1−	0.1+	1998 06 29	704	0.1+	0.8+
1987 01 27	809	0.8+	1.0+	1996 02 20	566	0.9−	0.0	1998 06 29	704	1.4−	1.8+
1987 01 27	809	0.5+	0.8+	1996 02 20	566	0.2−	0.0	1998 06 29	704	(1.1+	2.6+)
1987 01 31	809	0.3+	0.1+	1996 03 22	566	0.1+	1.3+	1998 08 17	704	0.3+	0.3+
1987 01 31	809	0.7−	1.4+	1996 03 22	566	0.5−	0.4+	1998 08 17	704	0.1−	0.4−
1987 02 03	809	1.8−	1.5+	1996 03 22	566	0.4−	0.1−	1998 08 17	704	0.3+	1.0+
1987 02 03	809	0.1+	0.5+	1997 06 09	824	0.4+	0.3+	1998 08 17	704	0.0	1.7+
1987 02 06	809	0.0	0.1+	1997 06 09	824	0.3+	0.2+	1998 08 17	704	0.4−	1.5+
1987 02 06	809	1.0+	1.7−	1997 06 09	824	0.2+	0.2+	1998 08 23	704	1.2+	0.1−
1989 07 29	675	0.2−	1.5−	1997 06 11	824	0.2+	1.0+	1998 08 23	704	0.6−	0.6+
1989 07 29	675	0.0	0.5−	1997 06 11	824	0.1−	0.3+	1998 08 23	704	0.2−	0.2−
1996 02 16	566	1.2+	0.7−	1997 06 11	824	0.0	0.7+	1998 08 23	704	0.6+	0.4−
1996 02 16	566	0.7+	0.7−	1998 06 29	704	1.4−	1.2−	1998 08 23	704	1.0−	0.6−

(9162)* 1987 OA

Discovered 1987 July 29 by J. Mueller at Palomar.

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	308.55378	(2000.0)		P	Q		
<i>n</i>	0.53836801	ω	235.42660	+0.56271663	−0.82664936		
<i>a</i>	1.4965224	Ω	180.33363	+0.80046655	+0.54516843		
<i>e</i>	0.5953971	<i>i</i>	9.01590	+0.20640566	+0.13943538		
<i>P</i>	1.83	<i>H</i>	18.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1987 07 18	413	0.5−	0.5−	1996 07 23	711	0.1+	0.3+	1998 07 30	360	0.1−	0.4+
1987 07 18	413	0.6−	0.3−	1997 02 10	711	(2.4−	0.4+)	1998 07 30	360	0.4−	0.2+
1987 07 29	675	0.7−	1.0−	1997 02 10	711	(3.4−	0.7−)	1998 07 30	360	0.4+	0.0
1987 07 29	675	0.1−	0.1+	1997 02 11	711	0.3−	0.3−	1998 08 02	046	0.9+	0.3+
1987 07 31	675	1.8−	0.2+	1997 02 11	711	0.4−	0.1−	1998 08 02	046	0.1+	0.5+
1987 07 31	675	0.6+	0.8+	1997 02 13	711	2.0−	0.9−	1998 08 02	046	1.0+	0.1−
1987 08 05	675	2.0−	0.8−	1997 02 13	711	0.1+	0.3−	1998 08 02	046	0.6+	0.8−
1987 08 05	675	(2.6+	1.0+)	1997 02 14	608	0.7−	0.1+	1998 08 02	118	0.9+	0.2−
1987 08 05	675	(0.6−	3.1+)	1997 02 14	608	0.1+	0.4−	1998 08 02	118	0.8+	0.4−
1987 08 14	675	(5.1−	2.9+)	1997 02 15	608	1.0+	0.3−	1998 08 03	118	0.1−	0.1+

1987 08 14	675	0.2+	2.5+	1997 02 15	608	1.0+	0.1−	1998 08 03	118	0.0	0.3+
1987 08 17	691	0.6+	0.1−	1997 02 17	608	2.0−	1.5+	1998 08 06	557	0.5−	0.2−
1987 08 17	691	0.6+	0.1−	1997 02 17	608	(1.6−	2.2+)	1998 08 06	557	0.4−	0.1−
1987 08 17	691	0.7+	0.1+	1997 03 09	809	(0.6+	2.2+)	1998 08 06	557	0.5−	0.0
1987 08 21	801	0.1+	2.0+	1997 03 09	809	1.1+	1.1+	1998 08 06	557	0.4−	0.0
1996 06 15	691	(2.5−	0.1+)	1997 03 09	809	2.0+	0.4−	1998 08 09	143	2.0+	0.8−
1996 06 15	691	1.2−	0.8+	1997 03 11	046	0.8+	0.1−	1998 08 09	143	1.6+	0.0
1996 06 15	691	2.0−	0.2+	1997 03 11	046	0.7+	0.0	1998 08 09	143	1.9+	0.2−
1996 06 16	691	0.4−	0.2−	1997 03 11	046	0.0	0.2+	1998 08 10	046	0.0	0.3−
1996 06 16	691	0.9−	0.0	1997 03 15	711	0.4+	0.4−	1998 08 10	046	0.2−	0.3−
1996 06 16	691	0.6−	0.2−	1997 03 15	711	0.6−	0.3−	1998 08 10	046	0.5−	0.3−
1996 06 20	709	1.4−	0.6+	1997 03 16	711	0.4+	0.8−	1998 08 10	046	0.1−	0.6−
1996 06 20	709	1.7−	0.3+	1997 03 16	711	0.2+	0.8−	1998 08 11	118	0.3−	0.7−
1996 06 20	709	0.9−	0.4+	1997 03 17	711	0.1+	0.5−	1998 08 11	118	0.2−	0.7−
1996 06 20	709	0.0	0.0	1997 03 17	711	0.2+	0.7−	1998 08 14	143	0.4−	1.8+
1996 06 20	709	1.1−	0.1−	1998 07 17	046	0.2−	0.1−	1998 08 14	143	0.6+	1.0+
1996 06 20	709	1.1−	0.2+	1998 07 17	046	0.0	0.2−	1998 08 14	143	1.0+	1.0+
1996 06 20	709	1.0−	0.5+	1998 07 17	046	0.2−	0.1−	1998 08 14	118	0.0	0.3+
1996 06 20	709	0.9−	0.1+	1998 07 17	046	0.0	0.2−	1998 08 14	118	0.3+	0.3+
1996 06 20	709	0.7−	0.1+	1998 07 19	118	0.4+	0.6−	1998 08 15	360	0.5−	0.3−
1996 06 21	413	0.6−	0.1−	1998 07 19	118	0.3+	0.5−	1998 08 15	360	0.7−	0.2−
1996 06 21	413	0.7−	0.1+	1998 07 19	046	0.2+	0.6−	1998 08 15	360	0.7−	0.5−
1996 06 21	413	0.9−	0.2+	1998 07 19	046	0.8+	0.1−	1998 08 15	118	0.5−	0.6−
1996 06 21	413	1.2−	0.6+	1998 07 19	046	0.5+	0.5−	1998 08 15	118	0.1−	0.8−
1996 06 21	413	0.9−	0.3+	1998 07 21	557	0.1−	0.5−	1998 08 15	118	0.5−	0.7−
1996 06 22	711	0.1−	0.1+	1998 07 21	557	0.0	0.7−	1998 08 16	118	0.3+	1.1−
1996 06 22	711	1.7−	0.1+	1998 07 22	560	0.5+	2.1+	1998 08 16	118	0.3+	1.0−
1996 06 25	696	0.2+	0.1−	1998 07 22	560	0.5+	0.2+	1998 08 17	118	1.0−	0.2−
1996 06 25	696	0.5+	0.0	1998 07 22	560	1.2+	0.8+	1998 08 17	118	0.8−	0.3−
1996 06 26	711	1.8−	0.1−	1998 07 22	560	1.1+	0.1+	1998 08 20	627	0.6−	0.2+
1996 07 18	413	0.2+	0.2−	1998 07 22	118	0.7+	0.6+	1998 08 20	627	0.0	1.0+
1996 07 18	413	0.3−	0.2−	1998 07 23	118	0.4+	0.4+	1998 08 20	627	0.5+	0.8−
1996 07 20	711	0.1+	0.2−	1998 07 24	560	1.6+	0.9+	1998 08 20	627	0.8+	0.2−
1996 07 20	711	0.1−	0.1−	1998 07 24	560	1.0+	0.9+	1998 08 20	627	0.5+	0.5−
1996 07 23	711	0.2−	0.0	1998 07 24	560	0.2+	0.3+	1998 08 20	627	0.5+	0.5−

(9163)* 1987 RB₁ = 1993 TE₄₃ = 1996 DV₄

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

Id. T. Kobayashi (*MPC* 27554), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	344.07003	(2000.0)		P	Q		
<i>n</i>	0.17447913	ω	121.75887	+0.71230218	+0.70185128		
<i>a</i>	3.1718093	Ω	193.66813	−0.65158828	+0.65833089		
<i>e</i>	0.1948762	<i>i</i>	1.33666	−0.26087989	+0.27203900		
<i>P</i>	5.65	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1987 09 13	809	1.5−	1.2+	1996 02 16	010	(0.2+	3.3−)	1998 06 24	704	0.5−	1.5+
1987 09 13	809	0.9−	0.5+	1996 02 16	010	(1.5+	3.3−)	1998 06 24	704	0.3−	0.5+
1987 09 13	809	2.0−	0.5−	1996 02 16	010	(1.6+	2.5−)	1998 06 26	809	0.5+	0.1+
1987 09 14	809	0.6−	0.2+	1996 02 17	010	(0.8−	3.4−)	1998 06 26	809	1.1+	0.8−
1987 09 14	809	0.6−	0.2+	1996 02 17	010	(0.4−	2.6−)	1998 06 26	809	0.9+	0.5−
1987 09 14	809	0.2−	0.0	1996 02 17	010	(0.4+	3.4−)	1998 06 26	704	0.7−	0.2+
1987 09 16	809	0.7+	0.7+	1997 02 10	910	0.8−	0.0	1998 06 26	704	(1.1−	2.4−)
1987 09 16	809	0.8+	0.5+	1997 02 10	910	0.9−	0.0	1998 06 26	704	(1.2−	2.3+)
1987 09 16	809	0.9+	0.1+	1997 02 10	910	0.5−	0.3−	1998 06 26	704	0.8−	0.3+
1987 09 18	809	0.6+	0.2+	1997 04 03	704	(0.8+	2.6+)	1998 06 27	809	0.9+	0.5−
1987 09 18	809	0.7+	0.1+	1997 04 03	704	0.8+	0.5−	1998 06 27	809	1.2+	0.8−
1987 09 18	809	0.7+	0.2+	1997 04 11	704	0.2+	0.0	1998 06 27	809	0.9+	1.0−
1993 10 10	809	1.3+	0.5+	1997 04 11	704	0.8+	0.6+	1998 07 26	704	1.1−	0.5−
1993 10 10	809	0.0	0.2−	1998 06 16	691	(2.5−	1.3+)	1998 07 26	704	0.4−	0.1−
1993 10 10	809	1.0−	1.1−	1998 06 16	691	(3.4−	0.8+)	1998 07 26	704	1.1−	1.0−
1993 10 22	809	(2.5+	0.8−)	1998 06 16	691	(3.1−	0.8+)	1998 07 26	704	0.3−	0.7−
1993 10 22	809	(1.6+	2.5−)	1998 06 24	704	0.1−	0.9+				
1993 10 22	809	0.7+	1.8−	1998 06 24	704	(2.5−	2.1+)				

(9164)* 1987 SQ = 1961 DL

Discovered 1987 Sept. 19 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. S. Nakano (*MPC* 24735)

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Asher			
<i>M</i>	301.04279	(2000.0)		P	Q		
<i>n</i>	0.17410867	ω	66.52666	+0.84714835	-0.53009305		
<i>a</i>	3.1763068	Ω	325.45323	+0.46091006	+0.76737946		
<i>e</i>	0.1615017	<i>i</i>	3.70255	+0.26438908	+0.36073554		
<i>P</i>	5.66	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1953 10 01	675	0.6-	0.2-	1995 01 25	411	0.1+	1.1-	1998 08 17	704	0.5-	0.1-
1953 10 01	675	0.5+	0.2-	1995 01 25	411	0.0	0.4-	1998 08 17	704	0.3+	0.2-
1961 02 17	033	2.0-	0.4+	1995 01 27	399	1.3-	1.2+	1998 08 17	704	1.2+	1.8-
1961 02 17	033	2.1+	1.7-	1995 01 27	399	0.9-	0.6+	1998 08 17	704	2.0+	0.1-
1987 08 28	095	1.1+	0.2-	1995 01 28	399	0.1-	0.1-	1998 08 23	704	0.1-	0.3-
1987 09 16	095	0.1-	0.5-	1995 01 28	399	0.6-	0.1-	1998 08 23	699	0.2-	0.2+
1987 09 19	688	0.3-	1.9-	1995 01 30	033	0.7+	0.3-	1998 08 23	704	0.8-	1.4+
1987 09 19	688	1.3+	1.8-	1995 01 31	033	0.3+	0.2+	1998 08 23	704	1.6-	0.7-
1993 10 08	691	0.2-	0.6+	1995 01 31	691	0.1-	1.0-	1998 08 23	699	0.4+	0.5+
1993 10 08	691	0.1+	0.3+	1995 01 31	691	0.4-	0.8-	1998 08 23	704	1.1-	1.0-
1993 10 08	691	0.1+	0.6+	1995 01 31	691	0.4-	0.2+	1998 08 23	699	0.5+	0.5+
1993 11 10	691	0.5-	0.7+	1995 02 03	033	0.4+	0.4+	1998 08 28	699	0.2+	0.2-
1993 11 10	691	0.4-	0.8+	1998 07 15	699	0.4-	1.0+	1998 08 28	699	0.2-	0.0
1993 11 10	691	0.2-	0.5+	1998 07 15	699	0.3+	0.2+	1998 08 28	699	0.2+	0.2-
1995 01 23	411	0.4+	0.7-	1998 07 15	699	0.1-	0.1+				
1995 01 23	411	0.2+	0.7-	1998 08 17	704	0.4+	0.4+				

(9165)* 1987 SJ₃ = 1955 BF₁ = 1973 UH

Discovered 1987 Sept. 27 by C. S. Shoemaker and E. M. Shoemaker at Palomar.

Id. C. M. Bardwell (*MPC* 15888), T. Kobayashi (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Bardwell			
<i>M</i>	319.88763	(2000.0)		P	Q		
<i>n</i>	0.35214803	ω	332.01277	+0.96378415	+0.24357637		
<i>a</i>	1.9860303	Ω	15.12125	-0.08887617	+0.67725565		
<i>e</i>	0.0976951	<i>i</i>	24.59825	-0.25143815	+0.69425884		
<i>P</i>	2.80	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1955 01 29	675	(3.9-	0.0)	1990 10 20	675	1.3+	1.0-	1998 07 31	423	0.2-	0.1+
1955 01 29	675	0.3+	0.9-	1990 10 22	801	0.0	0.4-	1998 07 31	423	0.2+	0.5+
1973 10 26	095	(6.8-	3.0+)	1990 10 22	801	0.9+	0.6-	1998 08 10	423	0.1+	0.5-
1987 09 23	071	(1.4-	7.3+)	1990 10 22	675	(1.1-	2.8-)	1998 08 10	423	0.3+	0.5-
1987 09 23	071	(3.2-	17.8+)	1990 11 13	675	0.1+	1.5-	1998 08 10	423	0.4+	0.3-
1987 09 27	675	1.0-	0.0	1990 11 15	675	1.5-	1.5-	1998 08 10	423	0.0	0.0
1987 09 27	675	1.0-	0.5+	1990 11 16	801	0.5+	0.5+	1998 08 10	423	0.0	0.2-
1987 09 29	675	2.1-	0.3-	1990 11 16	801	0.5+	0.6+	1998 08 22	423	0.4+	0.5-
1987 09 29	675	1.4-	0.2+	1992 04 04	675	0.5-	0.0	1998 08 22	423	0.6+	0.4-
1987 09 30	675	0.4-	0.8+	1992 04 04	675	0.5-	1.0-	1998 08 22	423	0.4+	0.2-
1987 09 30	675	0.1-	0.3-	1993 10 13	801	0.1+	0.3-	1998 08 23	423	0.3+	0.7-
1987 10 17	675	0.5+	0.3-	1993 10 13	801	0.3+	0.2-	1998 08 23	423	0.1+	0.5-
1987 10 18	675	0.5+	0.3-	1994 01 04	675	0.0	1.1-	1998 08 23	423	0.1+	0.4-
1987 10 19	675	0.0	0.6+	1994 01 04	675	0.2+	0.9-	1998 08 23	423	0.2+	0.5-
1987 10 20	675	0.0	1.1+	1994 01 07	675	0.1+	0.2-	1998 08 23	423	0.3+	0.9-
1987 11 23	675	0.5+	0.5+	1994 01 07	675	0.1+	1.1-	1998 08 24	423	0.7+	1.4-
1987 11 23	675	0.4-	0.7+	1998 07 30	423	0.2+	1.2+	1998 08 24	423	0.8+	1.3-
1989 04 04	391	(6.8+	1.6+)	1998 07 30	423	0.0	0.6+				
1989 04 04	391	(12.2+	0.7+)	1998 07 30	423	0.0	0.4+				

(9166)* 1987 SC₆ = 1991 GP₂

Discovered 1987 Sept. 21 by Z. Vávrová at Kleč.

Id. B. G. Marsden (*MPC* 18428)

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Marsden			
<i>M</i>	358.03393	(2000.0)		P	Q		
<i>n</i>	0.17376854	ω	151.70163	+0.70007871	+0.71404019		
<i>a</i>	3.1804503	Ω	162.72935	-0.65891515	+0.64924156		
<i>e</i>	0.1663189	<i>i</i>	1.16450	-0.27517380	+0.26197709		
<i>P</i>	5.67	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1987 08 31	095	(0.9-	3.3+)	1991 03 20	809	1.3-	1.1-	1996 02 25	046	0.3+	0.4+
1987 09 04	095	2.2-	2.0+	1991 03 21	809	1.0-	0.1+	1996 02 26	046	0.6+	0.3+
1987 09 17	809	0.0	0.5-	1991 03 21	809	0.5-	0.3-	1996 02 26	046	0.4+	0.1-
1987 09 17	809	0.4+	0.3-	1991 03 21	809	0.2+	0.2-	1996 02 26	046	0.5+	0.2+
1987 09 17	809	0.2+	0.6-	1991 04 08	809	(0.6+	2.2+)	1997 05 25	689	0.4+	0.4-
1987 09 19	809	0.2-	0.3-	1991 04 08	809	0.9+	1.8+	1998 07 21	046	0.0	0.0
1987 09 19	809	0.1-	0.3-	1991 04 08	809	0.5-	0.4+	1998 07 21	046	0.1-	0.0
1987 09 19	809	0.1-	0.3-	1991 04 10	809	(2.2-	1.1-)	1998 07 21	046	0.0	0.1-
1987 09 21	046	0.2+	0.7+	1991 04 10	809	(2.5-	1.5-)	1998 07 26	046	0.3-	0.0
1987 09 21	046	0.6-	1.0-	1991 04 10	809	(2.5-	2.1-)	1998 07 26	046	0.3-	0.2+
1987 09 24	809	0.5+	0.1+	1991 04 15	675	0.2+	0.8-	1998 07 26	046	0.3-	0.0
1987 09 24	809	0.5+	0.1+	1991 04 15	675	1.5-	0.2-	1998 08 05	046	0.1-	0.2+
1987 09 24	809	0.8+	0.1+	1991 04 19	809	0.1+	0.7-	1998 08 05	046	0.4+	0.0
1987 09 24	095	0.8-	1.5+	1991 04 19	809	(2.2-	0.7-)	1998 08 05	046	0.7+	0.3-
1987 09 27	095	(3.6-	0.8+)	1991 04 19	809	(4.0-	0.3-)	1998 08 06	046	0.3-	0.1-
1987 10 01	809	0.5+	0.0	1991 04 20	675	0.0	0.5+	1998 08 06	046	0.2-	0.4-
1987 10 01	809	0.6+	0.0	1991 04 20	675	1.3+	0.8-	1998 08 06	046	0.6-	0.2-
1987 10 01	809	0.6+	0.1+	1992 06 29	801	0.4+	0.6+	1998 08 17	704	0.3+	0.5-
1987 10 02	809	0.1-	1.1-	1992 06 29	801	0.7+	1.0+	1998 08 17	704	0.3+	0.3-
1987 10 02	809	0.0	1.1-	1992 06 30	801	0.3+	0.2+	1998 08 17	704	1.2-	0.1+
1987 10 02	809	0.0	1.1-	1992 06 30	801	0.5+	0.4+	1998 08 17	704	0.4+	0.1-
1991 03 09	675	0.4+	0.3+	1993 10 14	675	0.4+	0.3-	1998 08 17	704	0.2-	0.0
1991 03 09	675	0.1+	0.3-	1993 10 14	675	0.2+	0.3+	1998 08 31	046	0.2+	0.0
1991 03 20	809	1.7-	1.2-	1996 02 25	046	0.3+	0.4+	1998 08 31	046	0.0	0.0
1991 03 20	809	1.3-	1.2-	1996 02 25	046	0.3+	0.3+	1998 08 31	046	0.0	0.1+

(9167)* 1987 SS₁₇ = 1981 SP₂

Discovered 1987 Sept. 18 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (*MPC* 15249)

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Marsden			
<i>M</i>	10.26142	(2000.0)		P	Q		
<i>n</i>	0.17650283	ω	327.85688	+0.84689643	+0.53175788		
<i>a</i>	3.1475183	Ω	0.01896	-0.45865293	+0.73050503		
<i>e</i>	0.1688212	<i>i</i>	6.95610	-0.26907978	+0.42848099		
<i>P</i>	5.58	<i>H</i>	12.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1981 09 01	675	1.0+	0.1+	1993 11 17	691	0.2+	0.0	1996 03 19	566	0.6-	0.6-
1981 09 02	675	1.3+	0.6-	1993 11 17	691	0.7-	0.4-	1996 04 17	566	0.0	0.9-
1981 09 20	809	0.1-	0.1-	1996 03 15	566	0.3+	0.2-	1996 04 17	566	0.1+	0.4-
1981 09 20	809	0.6-	0.1-	1996 03 15	566	0.1+	0.9+	1996 04 17	566	0.5+	0.9-
1981 09 20	809	0.6-	0.2+	1996 03 15	566	0.1-	0.0	1998 06 29	704	0.9-	1.6-
1981 09 22	809	0.3+	0.2-	1996 03 15	566	0.3-	0.6+	1998 06 29	704	0.1-	0.2-
1981 09 22	809	0.4-	0.3-	1996 03 15	566	0.1-	0.0	1998 06 29	704	0.7+	1.6-
1981 09 22	809	0.1-	0.3-	1996 03 15	566	0.3+	0.4+	1998 06 29	704	1.6+	1.8+
1987 09 18	095	(2.4+	6.1-)	1996 03 18	566	0.0	0.1-	1998 08 02	699	2.0+	0.2-
1987 09 26	095	(0.6-	4.1-)	1996 03 18	566	0.3-	0.1-	1998 08 02	699	1.0+	0.8+
1987 10 02	095	0.1-	1.2-	1996 03 18	566	0.1+	0.1-	1998 08 02	699	1.4+	0.5+
1993 11 13	801	0.6+	0.1-	1996 03 18	566	0.3+	0.5+	1998 08 28	704	1.6+	0.4+
1993 11 13	801	0.6+	0.3-	1996 03 18	566	0.1-	0.1+	1998 08 28	704	1.5-	1.2+
1993 11 13	801	0.5+	0.2-	1996 03 18	566	0.3+	0.5-	1998 08 28	704	1.7-	2.9-
1993 11 13	801	0.7+	0.1-	1996 03 19	566	0.8-	0.6-	1998 08 28	704	1.5-	1.8+
1993 11 17	691	0.9-	0.1+	1996 03 19	566	1.0-	0.5-	1998 08 28	704	1.9-	0.0

(9168)* 1987 ST₁₇ = 1983 RJ₅ = 1983 RO₇

Discovered 1987 Sept. 18 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. S. Nakano (*MPC* 15250)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	308.59122	(2000.0)		P		Q					
<i>n</i>	0.26022031	ω	142.70811	+0.98550664		−0.13064336					
<i>a</i>	2.4298264	Ω	225.18053	+0.09374381		+0.95105294					
<i>e</i>	0.1550451	<i>i</i>	8.77469	+0.14138160		+0.28005467					
<i>P</i>	3.79	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2				
Residuals in seconds of arc											
1983 09 01	095	0.1−	1.5−	1994 07 10	033	0.9−	0.0	1998 07 20	566	0.4−	0.3−
1983 09 11	095	1.3+	1.2+	1994 07 10	033	0.1−	0.6+	1998 07 20	566	0.5−	0.2−
1987 09 18	095	0.3−	1.7+	1994 07 11	033	0.3−	0.3+	1998 08 03	757	0.5−	0.1−
1987 09 20	095	1.4−	1.5+	1994 07 12	801	0.4+	1.0+	1998 08 03	757	0.9−	0.2−
1987 09 26	095	1.9−	0.1+	1994 07 12	801	0.3−	0.9+	1998 08 10	636	0.7+	1.2−
1987 10 02	095	1.1+	0.8+	1994 07 13	801	0.5−	0.4+	1998 08 10	636	0.1+	0.6−
1991 10 09	801	(0.5−	2.7−)	1998 06 18	699	1.3+	0.8−	1998 08 10	636	0.4+	0.2+
1991 10 09	801	0.1+	1.2−	1998 06 18	699	1.3+	0.4−	1998 08 10	636	(3.2−	1.4+)
1991 11 07	801	0.2+	0.9−	1998 06 18	699	1.7+	0.8−	1998 08 10	636	(0.5−	2.8+)
1991 11 07	801	0.5+	0.8−	1998 07 20	566	0.5−	0.2−				

(9169)* 1988 TL₁ = 1995 UN₇

Discovered 1988 Oct. 13 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 25955)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	289.50453		(2000.0)			P		Q		
<i>n</i>	0.28603311	ω	175.91466			+0.86137983		−0.50567065		
<i>a</i>	2.2813496	Ω	214.59701			+0.46360749		+0.82138876		
<i>e</i>	0.1400321	<i>i</i>	4.86833			+0.20758828		+0.26385166		
<i>P</i>	3.45	<i>H</i>	14.4			<i>G</i>	0.15	<i>U</i>	1	
Residuals in seconds of arc										
1988 10 07	675	0.1+	1.2−	1988 11 06	399	0.0	0.5+	1997 04 03	704	1.2+ 0.7−
1988 10 07	675	0.1−	1.5−	1995 10 27	365	1.0+	0.4+	1997 04 03	704	0.7+ 0.1+
1988 10 13	675	0.8−	0.6+	1995 10 27	365	0.7+	0.6+	1998 07 29	560	2.0− 0.1−
1988 10 13	675	0.5−	0.4−	1995 10 30	365	0.4−	0.2+	1998 07 29	560	0.5− 1.2−
1988 10 13	399	0.1−	2.1−	1995 10 30	365	0.2−	0.1−	1998 07 29	560	0.2− 1.0−
1988 10 13	399	1.6−	0.1−	1995 11 21	399	0.5+	0.5−	1998 07 30	560	0.1− 0.8+
1988 10 16	399	(2.6−	0.9−)	1995 11 21	399	0.6−	0.3+	1998 07 30	560	1.1− 0.1+
1988 10 16	399	(3.3−	1.3−)	1995 11 25	399	0.2+	1.1+	1998 07 30	560	2.0− 0.5−
1988 10 16	399	0.2−	0.7+	1995 11 25	399	0.3−	0.6−	1998 08 17	704	0.6+ 0.9+
1988 10 19	399	0.6+	0.7+	1995 12 14	399	0.6−	0.7+	1998 08 17	704	0.7+ 0.2+
1988 10 19	399	0.7+	0.6+	1995 12 14	399	1.5−	1.2+	1998 08 17	704	1.2+ 0.6+
1988 10 19	399	0.2−	0.5−	1997 03 11	809	(3.9+ 0.7+)		1998 08 17	704	0.2− 0.0
1988 10 31	399	0.7+	2.0+	1997 03 11	809	(3.7+ 0.8+)		1998 08 17	704	0.3+ 0.1+
1988 10 31	399	2.0+	1.5+	1997 03 11	809	(3.5+ 0.4+)		1998 08 23	704	0.1− 0.5+
1988 10 31	399	(2.5+ 0.2−)		1997 03 11	809	0.2+	1.6+	1998 08 23	704	1.0− 0.9+
1988 11 02	399	0.2+	1.1−	1997 03 11	809	0.9+	1.2+	1998 08 23	704	0.7− 1.7+
1988 11 02	399	0.3+ 0.5−		1997 03 11	809	0.3+	1.0+	1998 08 23	704	1.6+ 0.2−
1988 11 02	399	(0.6− 2.9−)		1997 03 13	809	(1.5− 3.0+)		1998 08 23	704	1.2+ 1.3−
1988 11 03	033	0.0	0.6+	1997 03 13	809	0.7−	2.1+	1998 08 28	699	0.8+ 0.8+
1988 11 03	033	0.4−	0.8+	1997 03 13	809	0.2+	1.2+	1998 08 28	699	0.3+ 0.9+
1988 11 04	033	0.6+	0.1−	1997 03 31	704	0.8+	0.6−	1998 08 28	699	0.2+ 0.3+
1988 11 06	399	1.3−	0.4−	1997 03 31	704	1.8−	0.6−			

(9170)* 1988 TG₅ = 1978 UV₃ = 1991 NN₆ = 1993 BV₁₃

Discovered 1988 Oct. 3 by S. Ueda and H. Kaneda at Kushiro.

Id. G. V. Williams (*MPC* 25729)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	319.44368			(2000.0)			P		Q		
<i>n</i>	0.29272157	ω		165.05916			+0.94028142		−0.33899081		
<i>a</i>	2.2464645	Ω		214.80556			+0.30649057		+0.88264047		
<i>e</i>	0.1567744	<i>i</i>		3.10531			+0.14810262		+0.32562406		
<i>P</i>	3.37	<i>H</i>		14.4		<i>G</i>	0.15		<i>U</i>		2
Residuals in seconds of arc											
1978 10 28	675	1.5+	1.0+	1991 07 12	809	0.1+	0.4−	1998 08 23	704	0.4−	1.0+
1978 10 29	675	1.4+	0.9+	1993 01 23	809	0.7−	0.6−	1998 08 23	704	1.3−	0.7−
1988 09 22	399	0.9−	0.2−	1993 01 28	809	1.2+	0.7+	1998 08 23	704	0.1+	1.4+
1988 09 22	399	(3.0−	1.3−)	1993 01 28	809	1.1−	0.7−	1998 08 23	704	0.8−	0.2−
1988 10 03	399	2.3−	0.9−	1998 06 29	704	(2.4−	0.4+)	1998 08 25	143	0.5+	0.5−
1988 10 03	399	1.1−	0.7−	1998 06 29	704	1.0−	0.6−	1998 08 25	143	0.3+	0.6−
1988 10 05	399	(3.2−	0.6−)	1998 06 29	704	0.4−	1.7−	1998 08 25	143	0.6+	0.5−
1988 10 08	399	1.2−	0.9−	1998 06 29	704	1.8−	1.8+	1998 08 26	143	0.2+	0.3−
1991 07 11	809	0.1+	0.2+	1998 08 17	704	1.5+	0.4+	1998 08 26	143	0.1+	0.7−
1991 07 11	809	0.5+	0.4+	1998 08 17	704	0.7+	0.5+	1998 08 26	143	0.6+	0.1−
1991 07 11	809	0.7+	0.3+	1998 08 17	704	0.3−	0.3+	1998 08 30	699	0.2+	0.6+
1991 07 12	809	0.9−	0.2−	1998 08 17	704	0.5+	0.5−	1998 08 30	699	1.4+	0.8+
1991 07 12	809	0.6−	0.2−	1998 08 23	704	0.7+	0.8−	1998 08 30	699	1.1+	0.7+

(9171)* 1989 GD₅ = 1982 UA₁₀ = 1982 UP₁₀ = 1986 TD₁ = 1993 FD

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

Id. K. Ichikawa (*MPC* 22227)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	353.04684		(2000.0)		P		Q		
<i>n</i>	0.23684764	ω	272.58778		+0.58333982		+0.79918278		
<i>a</i>	2.5871603	Ω	34.44135		−0.60532171		+0.54678113		
<i>e</i>	0.1261547	<i>i</i>	14.85424		−0.54157205		+0.24967435		
<i>P</i>	4.16	<i>H</i>	12.9		<i>G</i>	0.15	<i>U</i>	2	
Residuals in seconds of arc									
1982 10 22	095	2.0+	2.4−	1993 03 17	372	0.1+	0.7+	1998 07 28	423 0.3− 0.0
1982 10 24	095	(4.8−	3.5+)	1993 03 18	809	0.2+	0.2−	1998 07 28	423 0.2+ 0.4+
1986 10 04	688	0.5+	0.5−	1993 03 18	372	0.5−	0.2−	1998 07 28	423 0.0 0.1+
1986 10 04	688	1.0−	0.3+	1993 03 23	809	1.1+	0.1−	1998 07 28	423 0.0 0.3+
1989 04 04	809	0.4−	0.9−	1993 03 29	372	(3.0−	0.1+)	1998 07 31	423 0.3− 0.1+
1989 04 04	809	1.2+	0.7−	1993 03 29	372	1.7−	0.4+	1998 07 31	423 0.2+ 0.3+
1989 04 04	809	1.9+	0.7−	1993 04 16	413	0.9−	0.9−	1998 07 31	423 0.4− 0.4−
1989 04 05	809	1.0−	1.0−	1997 03 27	689	1.3+	1.5−	1998 07 31	423 0.1+ 0.6−
1989 04 05	809	1.1−	0.5−	1998 07 16	423	0.6+	0.9−	1998 08 23	423 0.2− 0.7+
1989 04 05	809	0.7−	0.7+	1998 07 16	423	0.1−	0.5−	1998 08 23	423 0.3− 0.3+
1989 04 10	809	0.2+	0.6+	1998 07 16	423	0.3+	0.4−	1998 08 23	423 0.3− 1.0+
1989 04 10	809	0.7+	0.5+	1998 07 16	423	0.2+	0.4−	1998 08 24	423 0.3+ 0.7−
1989 04 10	809	0.6+	0.3+	1998 07 16	423	0.7+	0.0	1998 08 24	423 0.2+ 0.3−
1993 03 17	809	0.9−	0.4+	1998 07 28	423	0.2−	0.1+		
1993 03 17	372	1.7−	0.4+	1998 07 28	423	0.1+	0.1+		

(9172)* 1989 OB

Discovered 1989 July 29 by C. S. Shoemaker at Palomar.

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	352.29563	(2000.0)		P		Q					
n	0.22272266	ω	71.67293	+0.99116302		−0.02794528					
a	2.6954200	Ω	289.76664	−0.03179012		+0.89902724					
e	0.5603530	i	7.92006	+0.12878375		+0.43700009					
P	4.43	H	16.5	G	0.15	U	1				
Residuals in seconds of arc											
1989 07 07	675	0.4+	0.2−	1989 08 29	413	0.4+	0.7+	1989 10 01	801	1.3+	1.4+
1989 07 07	675	0.2+	0.4−	1989 08 30	091	(4.4−	2.2+)	1989 10 03	026	0.7−	0.0
1989 07 29	675	0.9−	0.3+	1989 08 30	091	(3.3−	1.4−)	1989 10 23	568	1.6−	0.6−
1989 07 29	675	(1.9+	3.0+)	1989 08 30	091	(0.8+	3.6+)	1989 10 23	568	1.4−	0.4+
1989 07 31	675	(0.5−	3.7−)	1989 08 30	091	(1.5−	8.4−)	1989 10 24	568	0.6−	0.9+
1989 07 31	675	0.5+	1.5−	1989 09 01	675	0.6+	0.5−	1989 10 25	801	1.1+	0.5+

1989 08 01	801	1.7-	0.9-	1989 09 03	675	0.4+	1.5-	1989 10 26	801	0.9+	0.0
1989 08 01	675	2.1-	0.7-	1989 09 04	091	(1.9+	7.6+)	1989 10 28	801	0.7-	0.5-
1989 08 02	801	0.8+	1.3+	1989 09 04	091	(3.5-	3.0-)	1989 10 28	801	0.2+	0.6-
1989 08 02	675	0.4-	0.3-	1989 09 06	657	0.4+	0.8-	1989 10 30	675	(0.4-	5.2-)
1989 08 03	413	0.6+	0.3+	1989 09 06	657	1.3+	0.2-	1989 11 01	675	1.2+	2.2-
1989 08 03	413	0.1-	0.3-	1989 09 06	413	0.0	0.5-	1989 11 03	675	0.5+	1.7+
1989 08 03	413	0.1+	0.8+	1989 09 06	413	0.3-	0.5+	1989 11 19	568	0.6+	0.2+
1989 08 05	657	1.3-	0.2-	1989 09 06	413	0.1-	0.3+	1989 11 20	568	0.7-	0.5+
1989 08 05	657	1.4-	0.5+	1989 09 08	657	0.3+	0.8-	1989 11 22	675	(1.3+	3.1-)
1989 08 09	657	0.1-	0.2-	1989 09 21	413	0.2+	0.0	1989 11 25	801	0.6+	0.5+
1989 08 09	657	0.8+	1.1+	1989 09 21	413	0.1+	0.6+	1989 11 25	675	(0.1+	5.0-)
1989 08 11	413	0.0	0.4+	1989 09 21	413	0.2+	0.3+	1989 12 02	801	0.7-	2.2+
1989 08 11	413	0.1+	0.7+	1989 09 22	046	0.1-	0.2+	1989 12 02	801	1.4-	1.5+
1989 08 25	413	0.5+	0.2+	1989 09 22	046	1.1+	0.1-	1989 12 29	801	0.4+	0.1-
1989 08 25	413	0.3+	0.0	1989 09 22	046	1.5+	1.2+	1989 12 29	801	0.6+	0.9-
1989 08 25	413	0.2+	0.3+	1989 09 22	046	0.9+	1.2+	1990 01 25	688	1.3+	0.3-
1989 08 25	091	(3.2-	3.4-)	1989 09 23	657	1.7-	0.5-	1990 01 25	688	0.7+	0.1-
1989 08 25	091	(3.9-	0.7-)	1989 09 24	046	1.2-	2.2-	1995 01 12	413	0.2-	0.3-
1989 08 26	293	(0.1+	2.9+)	1989 09 24	046	1.5-	0.9-	1995 01 12	413	0.5-	0.2-
1989 08 26	801	0.7-	0.9+	1989 09 25	801	0.1-	1.0+	1995 01 14	413	0.7-	0.4-
1989 08 26	657	0.2+	0.2-	1989 09 27	675	0.8+	1.4-	1998 06 22	426	0.4-	1.0-
1989 08 26	657	1.5+	1.2+	1989 09 28	801	0.2+	0.5+	1998 06 22	426	0.2-	0.8-
1989 08 27	801	2.4-	1.7+	1989 09 28	801	0.0	0.7+	1998 06 26	426	0.2+	0.7+
1989 08 28	675	0.5+	2.3-	1989 09 28	657	0.6+	1.4-	1998 06 26	426	0.0	1.1+
1989 08 28	675	0.8+	2.0-	1989 09 28	657	0.4-	1.6-	1998 06 26	426	0.1+	1.4+
1989 08 29	675	0.0	0.7+	1989 09 29	801	0.9-	0.5-	1998 08 26	557	0.1-	0.3-
1989 08 29	413	0.6+	0.8+	1989 09 29	675	0.7+	0.7-	1998 08 26	557	0.3-	0.2+
1989 08 29	413	0.4+	0.8+	1989 09 29	801	0.9-	0.2-				

(9173)* 1989 TZ₁₅ = 1975 TB₁ = 1978 ER₉

Discovered 1989 Oct. 4 by H. Debehogne at the European Southern Observatory.

Id. H. Kaneda (*MPC* 18432)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	61.33570		(2000.0)	P		Q					
<i>n</i>	0.21091240	ω	257.43816	-0.31957402		+0.94742616					
<i>a</i>	2.7951254	Ω	353.85367	-0.80097073		-0.27912034					
<i>e</i>	0.1147031	<i>i</i>	8.59633	-0.50627891		-0.15644650					
<i>P</i>	4.67	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	1				
Residuals in seconds of arc											
1975 10 03	095	2.0-	0.5+	1989 10 08	809	0.6-	0.8+	1998 08 17	704	0.9+	0.2-
1978 03 15	675	0.1+	0.6+	1989 10 08	809	0.3-	1.0+	1998 08 17	704	1.0+	0.2-
1978 03 16	675	0.3+	0.7+	1992 02 06	801	0.5-	0.2+	1998 08 17	704	1.0+	0.5+
1980 10 14	675	0.2+	0.5+	1992 02 06	801	0.6-	0.2-	1998 08 17	704	0.8+	0.5-
1989 10 04	809	0.1+	0.8-	1992 03 13	894	1.5+	0.1+	1998 08 17	704	0.2-	0.1+
1989 10 04	809	0.5+	0.8-	1992 03 13	894	0.5+	0.6-	1998 08 23	704	0.1+	0.5+
1989 10 04	809	0.8+	1.1-	1992 03 13	894	0.6-	0.5+	1998 08 23	704	0.9-	0.7-
1989 10 05	809	1.0+	0.8-	1994 10 03	675	0.9-	0.3-	1998 08 23	704	1.0-	0.5-
1989 10 05	809	1.3+	0.9-	1994 10 03	675	1.1-	0.2+	1998 08 23	704	0.4+	0.7+
1989 10 05	809	1.5+	1.0-	1994 11 07	675	0.5-	0.8+	1998 08 23	704	1.7-	0.7+
1989 10 07	809	0.8+	0.1+	1994 11 07	675	1.0-	1.1+	1998 08 26	470	1.5-	0.3+
1989 10 07	809	1.0+	0.0	1998 07 31	699	0.5+	0.2+	1998 08 26	470	1.4-	0.6+
1989 10 07	809	1.3+	0.0	1998 07 31	699	0.7+	0.4+	1998 08 26	470	1.8-	0.2+
1989 10 08	809	0.7-	0.8+	1998 07 31	699	0.9+	0.4+				

(9174)* 1989 WC₃ = 1953 QW = 1979 TU = 1997 HX₄

Discovered 1989 Nov. 27 by Y. Oshima at the Gekko Observatory.
Id. G. V. Williams (*MPC* 29913)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	232.29549		(2000.0)		P		Q				
<i>n</i>	0.30463937	ω	192.03298		+0.29107332		-0.95577151				
<i>a</i>	2.1874864	Ω	241.05748		+0.88170220		+0.28509704				
<i>e</i>	0.0708734	<i>i</i>	2.76116		+0.37131866		+0.07225303				
<i>P</i>	3.24	<i>H</i>	14.8		<i>G</i>	0.15		<i>U</i>	1		
Residuals in seconds of arc											
1953 08 16	675	0.9+	0.3+	1989 12 28	888	0.8-	1.5+	1998 06 24	699	0.5-	0.3-
1953 08 16	675	0.0	0.5-	1989 12 28	888	0.3-	1.8+	1998 06 24	699	0.0	1.0-
1979 10 14	095	1.1-	0.1-	1994 04 19	691	0.9-	0.5-	1998 07 02	699	0.1-	0.3-
1989 11 27	888	0.2+	0.8-	1994 04 19	691	1.1-	0.3-	1998 07 02	699	0.6-	0.8-
1989 11 27	888	0.3+	1.6-	1994 04 19	691	1.2-	0.4-	1998 07 02	699	0.2-	0.1+
1989 11 29	888	1.5-	0.6-	1997 04 28	704	0.6-	0.4-	1998 08 17	704	0.5-	0.3+
1989 11 29	888	0.0	0.6-	1997 04 28	704	0.8-	0.5-	1998 08 17	704	0.4-	0.1+
1989 12 01	888	0.5+	0.3-	1997 04 28	704	0.9-	0.9-	1998 08 17	704	1.7-	0.2+
1989 12 01	888	0.3+	0.4-	1997 04 28	704	0.8-	0.2-	1998 08 17	704	0.2+	0.3+
1989 12 03	888	0.8-	1.7-	1997 04 28	704	(2.2-	0.5-)	1998 08 17	704	0.2+	1.2-
1989 12 03	888	0.4-	2.4-	1997 04 29	704	1.0+	0.2-	1998 08 18	699	0.9+	0.5-
1989 12 20	888	2.1+	0.0	1997 04 29	704	0.9+	0.3-	1998 08 18	699	0.6+	0.7+
1989 12 20	888	1.4+	0.1-	1997 04 29	704	0.9+	0.5-	1998 08 18	699	0.5+	0.0
1989 12 21	071	(2.8+	1.1-)	1997 04 29	704	1.1+	0.6-	1998 08 21	566	1.7+	0.1-
1989 12 22	071	0.4-	0.3+	1997 04 29	704	0.9+	0.9-	1998 08 21	566	1.7+	0.2+
1989 12 22	071	0.3-	0.8+	1998 06 24	699	0.1+	0.6-	1998 08 21	566	0.1-	1.0-

(9175)* 1990 OO₂ = 1975 CL = 1980 BB₁ = 1986 WS₄ = 1991 XL₂

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

Id. H. E. Holt (*MPC* 20637), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	314.45367		(2000.0)		P		Q				
<i>n</i>	0.23495700	ω	353.72657		+0.81186223		+0.56950795				
<i>a</i>	2.6010206	Ω	330.36959		-0.52372884		+0.61301714				
<i>e</i>	0.1389812	<i>i</i>	15.07782		-0.25804616		+0.54760450				
<i>P</i>	4.19	<i>H</i>	12.4		<i>G</i>	0.15	<i>U</i>	1			
Residuals in seconds of arc											
1975 02 08	033	0.3+	0.3-	1991 12 03	675	1.0-	0.2-	1998 06 14	423	0.2-	0.9+
1975 02 08	033	0.2-	1.0+	1991 12 03	675	(3.1-	1.8-)	1998 06 14	423	0.2-	0.0
1980 01 23	095	(3.8+	1.7-)	1993 02 21	801	0.5-	1.0-	1998 06 14	423	0.6-	0.8+
1986 11 26	010	0.4-	2.0-	1993 02 21	801	0.9-	1.2-	1998 06 14	423	0.4-	0.8+
1986 11 26	010	1.0-	0.2-	1993 04 14	675	1.7-	1.2-	1998 06 16	423	0.3+	0.2+
1986 11 26	010	2.3-	0.2-	1993 04 14	675	0.0	0.6-	1998 06 16	423	0.3+	0.0
1990 07 25	675	0.4+	0.1-	1994 07 06	689	0.1-	1.2-	1998 06 16	423	0.1+	0.3+
1990 07 25	675	0.9+	0.4-	1995 11 22	801	0.3+	0.2+	1998 06 16	423	0.2+	0.6+
1990 07 29	675	0.1-	0.4-	1995 11 22	801	0.3+	0.2+	1998 06 16	423	0.0	0.5+
1990 07 29	675	0.8+	0.7+	1995 11 25	801	0.3+	0.1-	1998 06 28	423	0.3+	0.4+
1990 07 29	675	0.4+	0.2-	1995 11 25	801	0.3+	0.2-	1998 06 28	423	0.7+	0.1-
1990 07 29	675	0.1+	0.1-	1997 03 12	104	0.0	0.3-	1998 06 28	423	0.5+	0.2+
1990 07 30	675	1.0+	0.0	1997 03 12	104	0.1-	0.3-	1998 08 23	423	1.4-	0.4-
1990 07 30	675	1.3+	0.8-	1997 03 12	104	0.1+	0.3-	1998 08 23	423	1.8-	0.2-
1990 09 14	675	1.5+	0.6-	1998 05 26	423	(0.7-	3.3-)				
1990 09 14	675	(2.2+	0.2-)	1998 05 26	423	(1.4-	2.5-)				

Residuals in seconds of arc

1981 10 24	675	0.2+	0.4-	1990 11 19	809	0.5-	0.1+	1998 06 27	104	0.2-	0.0
1981 10 25	675	0.1+	0.7-	1990 11 21	095	(0.0	3.9-)	1998 06 28	104	0.2+	0.2+
1981 10 26	675	0.9-	0.4-	1990 11 21	095	(2.7+	2.9-)	1998 06 28	104	0.2-	0.4+
1981 11 24	033	0.1+	0.3+	1990 11 23	095	(1.8+	3.5-)	1998 06 28	104	0.2-	0.5+
1981 11 24	033	0.7-	0.3-	1990 11 23	095	(0.4+	3.1-)	1998 06 28	104	1.6-	0.6+
1985 08 14	010	0.5+	1.4+	1992 03 01	809	0.0	0.0	1998 08 17	704	0.3+	0.4-
1985 08 16	010	0.2+	1.9+	1992 03 03	809	0.6-	0.5+	1998 08 17	704	(1.7+	3.7-)
1990 11 15	095	(7.8+	0.3-)	1992 03 06	809	1.8+	0.6-	1998 08 17	704	1.4+	1.4-
1990 11 15	095	(0.9+	2.9-)	1992 04 07	809	0.7-	0.6+	1998 08 17	704	0.3-	1.1-
1990 11 19	809	1.0+	0.2+	1996 03 20	689	0.0	0.1+				
1990 11 19	809	0.1-	0.1+	1998 06 27	104	0.4-	0.8-				

(9177)* 1990 YA = 1990 VN₈ = 1986 WL₁₀

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

Id. H. Kaneda (*MPC* 18436)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		316.28268		(2000.0)		P		Q	
<i>n</i>		0.24039962	ω	127.42918		+0.86345405		-0.49865982	
<i>a</i>		2.5616131	Ω	262.59963		+0.43518874		+0.81266384	
<i>e</i>		0.2763727	<i>i</i>	4.39898		+0.25506442		+0.30152259	
<i>P</i>	4.10	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1953 09 16	675	0.6+	0.6-	1994 09 04	675	0.1+	0.5+	1998 06 30	699	0.8-	0.4+
1953 09 16	675	0.3-	0.4-	1994 09 06	675	1.3-	0.5+	1998 06 30	699	1.0-	0.9+
1986 11 30	381	1.4+	1.2+	1994 09 06	675	1.0+	0.6+	1998 06 30	699	1.0-	1.1+
1986 11 30	381	2.0-	1.1-	1994 09 07	801	0.3+	0.3+	1998 08 14	620	0.4+	0.4-
1986 12 01	381	0.1-	1.0+	1994 09 07	801	0.5+	0.2+	1998 08 15	620	0.0	0.1-
1986 12 01	381	0.2+	1.0+	1994 10 08	816	0.1+	0.3-	1998 08 15	620	0.0	0.7+
1990 10 13	095	(2.7+	1.5-)	1994 10 08	675	1.1+	0.9-	1998 08 17	704	0.4+	1.6-
1990 10 13	095	(3.4+	1.2-)	1994 10 08	816	0.3-	0.3-	1998 08 17	704	0.4-	1.3-
1990 10 17	095	(4.1+	1.2-)	1994 10 08	816	0.3-	0.3-	1998 08 17	704	0.2-	1.2-
1990 10 17	095	(3.1+	1.0-)	1994 10 08	675	0.1+	1.5-	1998 08 17	704	0.1+	1.9-
1990 11 13	046	0.6+	1.1-	1994 10 10	675	1.1+	0.5+	1998 08 17	704	0.7-	1.9-
1990 11 13	046	0.1-	1.0-	1994 10 10	675	(1.9+	2.8+)	1998 08 18	620	0.7-	0.1-
1990 11 15	400	0.2-	0.9+	1994 10 29	675	0.4-	0.2-	1998 08 19	620	2.0-	0.8+
1990 11 15	400	0.2-	0.1-	1994 12 08	670	0.4+	1.1+	1998 08 19	620	0.1-	0.1+
1990 12 18	675	0.8-	0.3-	1994 12 08	670	0.6-	0.2+	1998 08 19	620	0.1-	0.1-
1990 12 18	675	0.6-	0.1+	1994 12 08	670	0.6-	1.0+	1998 08 23	704	0.0	0.2+
1990 12 19	675	(2.6-	0.1-)	1996 02 29	608	0.3-	0.3-	1998 08 23	704	0.6+	0.4+
1990 12 19	675	(2.6-	0.4+)	1996 02 29	608	0.1+	0.4-	1998 08 23	704	0.6+	1.7+
1994 08 04	801	0.4+	0.1+	1996 03 14	608	0.4+	0.4+	1998 08 23	704	0.2-	0.2-
1994 08 04	801	0.3+	0.3+	1996 03 14	608	0.3+	0.1+	1998 08 23	704	0.3+	1.2+
1994 08 07	801	0.8+	0.0	1998 06 29	704	1.3+	0.6+	1998 08 26	699	0.4+	0.5+
1994 08 07	801	1.0+	0.3+	1998 06 29	704	1.2-	0.5+	1998 08 26	699	0.4+	0.9+
1994 09 02	801	0.2+	0.1-	1998 06 29	704	0.6-	0.0	1998 08 26	699	0.4+	0.8+
1994 09 02	801	0.1+	0.1-	1998 06 29	704	1.4-	0.3-				
1994 09 04	675	0.5+	0.0	1998 06 29	704	(2.5-	0.8+)				

(9178)* 1991 DU = 1994 WH

Discovered 1991 Feb. 23 by S. Inoda and T. Urata at Karasuyama.

Id. S. Nakano (*MPC* 24565)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		283.85539		(2000.0)		P		Q	
<i>n</i>		0.20163292	ω	14.79955		+0.68904001		-0.72442464	
<i>a</i>		2.8802383	Ω	31.65461		+0.66082780		+0.61624611	
<i>e</i>		0.0818874	<i>i</i>	2.27191		+0.29754071		+0.30894931	
<i>P</i>	4.89	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1989 11 04	675	0.1-	0.9-	1994 12 23	385	0.4-	0.1+	1998 07 26	809	0.2-	0.7+
1989 11 04	675	0.4+	1.1-	1994 12 29	887	0.3+	0.1+	1998 07 27	809	0.6-	0.6+
1991 02 10	675	1.2+	1.1-	1994 12 29	887	0.1+	0.3-	1998 07 27	809	0.4-	0.4-
1991 02 10	675	(0.1-	2.3-)	1994 12 29	887	0.3-	0.1-	1998 07 27	809	1.2-	0.3+

1991 02 21	889	1.3+	0.5-	1995 01 29	385	0.5-	0.2-	1998 08 17	704	0.6-	1.2-
1991 02 21	889	0.3-	0.7+	Y 1995 01 29	385	0.3-	0.6+	1998 08 17	704	0.4-	1.5-
1991 02 23	889	1.5-	1.5+	Y 1996 01 26	691	0.6-	0.5-	1998 08 17	704	0.5-	1.7-
1991 03 06	887	(7.6+	9.1-)	Y 1996 01 26	691	0.7-	0.3-	1998 08 17	704	0.7+	0.1-
1994 11 24	905	0.7-	0.3+	1996 01 26	691	0.8-	0.3-	1998 08 17	704	0.2-	0.8-
1994 11 24	905	0.3+	0.4-	1996 01 27	385	0.5+	0.1+	1998 08 23	699	0.1-	0.4+
1994 11 25	411	0.7+	0.3+	1996 01 27	385	0.1-	0.2-	1998 08 23	704	0.7+	0.8+
1994 11 25	411	0.6+	0.7-	1996 01 27	385	0.8+	0.1-	1998 08 23	704	(2.5+	0.1-)
1994 11 26	411	0.3-	0.1+	1996 02 10	691	0.9-	0.6-	1998 08 23	699	0.2+	0.1-
1994 11 26	411	0.0	0.7+	1996 02 10	691	0.9-	0.4-	1998 08 23	704	1.8+	1.0-
1994 12 03	098	0.0	0.7+	1996 02 10	691	0.8-	0.7-	1998 08 23	704	0.4-	1.3+
1994 12 03	098	(2.5-	0.9-)	1996 03 18	104	0.3+	0.2-	1998 08 23	699	0.4+	0.1+
1994 12 04	411	0.2+	0.5+	1996 03 18	104	0.5+	0.2-	1998 08 23	704	(2.4+	0.6+)
1994 12 04	411	0.4+	0.2+	1996 03 18	104	0.5+	0.1+	1998 08 23	888	0.2+	0.1-
1994 12 23	385	0.9-	0.4-	1998 07 26	809	1.3+	0.0	1998 08 23	888	0.2-	0.4+
1994 12 23	385	0.4+	0.1-	1998 07 26	809	0.3+	0.0				

(9179)* 1991 EM₁

Discovered 1991 Mar. 13 at the Oak Ridge Observatory.

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		340.63259		(2000.0)		P		Q	
<i>n</i>		0.19145842	ω	192.65959		+0.99857370		+0.02425756	
<i>a</i>		2.9813965	Ω	165.69206		-0.01325641		+0.97557986	
<i>e</i>		0.1229186	<i>i</i>	11.09606		-0.05171876		+0.21830139	
<i>P</i>	5.15	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1950 05 10	675	0.8-	0.6-	1997 07 08	824	0.2+	0.6-	1998 08 23	823	0.5-	0.8-
1950 05 10	675	0.3+	0.5+	1997 07 08	824	0.2+	0.4-	1998 08 23	823	0.2+	0.1+
1988 10 09	675	0.1+	0.4+	1997 07 08	816	0.1+	0.0	1998 08 23	704	0.1-	0.8+
1988 10 09	675	0.2+	0.9+	1997 07 08	824	0.1+	0.6-	1998 08 23	704	0.8+	0.4+
1991 03 13	801	0.3-	0.8+	1997 07 08	816	0.1-	0.3+	1998 08 23	704	1.9+	0.1-
1991 03 13	801	0.2-	1.0+	1997 07 11	816	0.4+	0.8+	1998 08 23	704	1.2-	0.4-
1991 03 13	801	0.1-	0.4+	1997 07 11	816	0.3+	0.6+	1998 08 23	704	0.5-	1.1-
1991 03 13	801	0.0	0.7+	1997 07 11	816	0.5+	0.4+	1998 08 25	120	0.1-	0.4+
1991 03 16	801	0.0	0.2-	1998 06 29	704	1.5-	1.5-	1998 08 25	120	0.3+	0.2+
1991 03 16	801	0.2-	0.5-	1998 06 29	704	(0.4+	2.9-)	1998 08 26	120	0.3+	0.2+
1991 03 17	801	0.3+	0.2-	1998 06 29	704	0.5-	0.2-	1998 08 26	699	0.2+	0.5+
1991 03 17	801	0.1+	0.5-	1998 06 29	704	0.4+	1.6-	1998 08 26	699	0.1-	0.5+
1991 03 18	801	0.0	0.0	1998 06 29	704	(2.3-	2.3-)	1998 08 26	699	0.0	0.1-
1991 03 18	801	0.1+	0.5-	1998 08 17	704	1.6-	1.1+	1998 08 30	120	1.1+	0.5-
1991 04 14	801	0.3+	0.1-	1998 08 17	704	1.2-	1.0+	1998 08 30	120	0.1+	0.1+
1991 04 14	801	0.2+	0.4+	1998 08 17	704	0.6-	0.8+	1998 08 30	120	0.5+	0.2-
1991 05 11	801	0.1-	0.4+	1998 08 17	704	2.0+	0.6+	1998 09 01	691	1.3-	0.1-
1991 05 11	801	0.3-	0.0	1998 08 20	823	0.1-	0.6-	1998 09 01	691	1.3-	0.1-
1993 10 13	675	1.1+	0.4+	1998 08 22	823	0.4+	0.1-	1998 09 01	691	1.2-	0.0
1993 10 13	675	0.6+	0.1-	1998 08 22	823	0.3+	0.3-				

(9180)* 1991 GQ = 1988 VX₄ = 1993 QA₅

Discovered 1991 Apr. 8 by E. F. Helin at Palomar.

Id. G. V. Williams (*MPC* 22593)

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	143.59154		(2000.0)	P	Q
n	0.17372199	ω	298.30296	-0.90528557	-0.38869857
a	3.1810185	Ω	219.51508	+0.41769579	-0.88797519
e	0.0652558	i	15.62547	-0.07738382	-0.24579156
P	5.67	H	12.3	G 0.15	U 1

1991 04 08	675	0.5+	1.1-	1996 03 13	608	0.0	0.3-	1998 07 30	673	0.2+	0.4-
1991 04 08	675	0.8-	1.0+	1996 03 13	608	0.1-	0.0	1998 07 30	673	0.6+	0.3-
1991 04 10	675	1.4-	0.5-	1996 03 14	608	0.1-	0.2-	1998 08 24	704	0.6-	0.7-
1991 04 10	675	0.1+	1.3-	1996 03 14	608	0.1-	0.0	1998 08 24	704	0.4-	0.0
1991 05 08	675	1.5+	0.3-	1997 05 03	809	(0.1+	2.6+)	1998 08 24	704	0.7+	0.5+
1991 05 08	675	1.0+	0.3-	1997 05 03	809	(0.1-	2.9+)	1998 08 24	704	1.1-	0.0
1991 05 09	675	0.4-	0.2-	1997 05 03	809	(0.4-	2.8+)				

(9181)* 1991 NP₂ = 1991 PD₃ = 1977 PB₂

Discovered 1991 July 14 by H. E. Holt at Palomar.

Id. H. Kaneda (*MPC* 19029), S. Nakano (d, *ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano

M	349.25365		(2000.0)	P	Q
n	0.27946122	ω	350.35057	+0.61624261	+0.78343753
a	2.3169768	Ω	317.63296	-0.71437662	+0.51306144
e	0.1497589	i	6.85573	-0.33152843	+0.35070443
P	3.53	H	13.8	G 0.15	U 2

Residuals in seconds of arc

1977 08 14	095	1.5-	1.0-	1991 07 19	675	1.3+	0.7-	1998 06 29	704	0.7+	1.0-
1977 09 09	095	1.5-	0.7+	1991 08 02	809	0.3+	1.8+	1998 06 29	704	1.5-	0.3-
1988 11 09	675	0.1+	0.2-	1991 08 02	809	1.0+	2.0+	1998 06 29	704	(0.0	2.8-)
1988 11 09	675	0.4+	0.4-	1991 08 02	809	0.5-	1.6+	1998 06 29	704	(2.6-	0.3-)
1991 07 05	809	0.2+	0.5+	1991 08 07	809	0.9+	1.4-	1998 07 03	699	0.7-	0.1+
1991 07 05	809	0.4+	0.6+	1991 08 07	809	0.3+	0.7-	1998 07 03	699	0.6-	0.4+
1991 07 05	809	0.8+	0.7+	1991 08 07	809	0.1+	1.1-	1998 07 03	699	0.7-	0.2+
1991 07 06	809	0.3+	0.6+	1991 09 13	675	1.2-	0.1+	1998 08 17	704	0.3+	0.0
1991 07 06	809	0.8+	0.7+	1991 09 13	675	1.4-	0.0	1998 08 17	704	0.8-	0.2-
1991 07 06	809	1.4+	0.6+	1994 05 11	675	0.7-	1.2+	1998 08 17	704	1.0-	0.3-
1991 07 08	809	0.9+	0.2+	1994 05 11	675	1.2+	0.3-	1998 08 17	704	0.2-	0.9-
1991 07 08	809	1.3+	0.3+	1995 10 29	292	0.8-	0.5-	1998 08 17	704	0.1+	0.2-
1991 07 14	675	(0.4+	3.7-)	1995 10 29	292	0.8+	1.0+				
1991 07 14	675	0.2-	1.8-	1998 06 29	704	0.3-	1.1-				

(9182)* 1991 NB₄ = 1933 WG = 1992 YU

Discovered 1991 July 8 by H. Debehogne at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 21578)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	237.37975		(2000.0)	P	Q
n	0.28526133	ω	157.00190	+0.36807724	-0.92752106
a	2.2854626	Ω	271.35010	+0.84264891	+0.36230820
e	0.0897705	i	3.72738	+0.39301650	+0.09185563
P	3.46	H	13.9	G 0.15	U 2

Residuals in seconds of arc

1933 11 20	024	(1.6-	6.6-)	1992 12 19	010	0.4-	0.5-	1995 11 25	801	0.3+	0.3+
1991 07 08	809	1.5-	0.5+	1992 12 19	010	0.2+	0.5+	1998 05 27	699	1.8-	0.4-
1991 07 08	809	1.2-	0.7+	1992 12 19	010	0.3-	0.7+	1998 05 27	699	1.0-	0.7+
1991 07 08	809	1.1-	0.9+	1992 12 20	010	0.7-	0.8+	1998 05 27	699	1.0-	0.1+
1991 07 10	809	0.5+	0.2-	1992 12 25	901	(2.1+	1.6+)	Y 1998 06 29	704	0.1-	0.3-
1991 07 10	809	0.5+	0.2-	1992 12 25	901	(4.9+	0.1-)	Y 1998 06 29	704	0.0	0.9+
1991 07 10	809	0.4+	0.2-	1992 12 29	901	0.5+	1.3+	1998 08 17	704	0.2-	0.5-
1991 07 11	809	0.6+	0.8+	1992 12 29	901	1.3-	0.2+	1998 08 17	704	0.1-	0.6-
1991 07 11	809	0.5+	1.0+	1995 10 26	801	0.0	0.1-	1998 08 17	704	0.1+	0.9-
1991 07 11	809	0.3+	1.2+	1995 10 27	801	0.2-	0.3-	1998 08 17	704	0.4+	1.5-
1992 12 18	901	(2.5-	0.8+)	Y 1995 10 27	801	0.0	0.3-	1998 08 17	704	0.1+	1.6-
1992 12 18	901	(1.2+	2.9+)	Y 1995 11 23	801	0.1-	0.1-	1998 08 18	699	1.7+	1.9+
1992 12 18	010	1.9+	0.4+	1995 11 23	801	0.1-	0.1+	1998 08 18	699	(2.7+	2.3+)
1992 12 19	010	0.6+	0.1+	1995 11 24	801	0.0	0.0	1998 08 18	699	1.4+	1.1+

(9183)* 1991 OW = 3121 P-L

Discovered 1991 July 18 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 19029)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	38.96316		(2000.0)	P	Q
n	0.28371720	ω	336.60508	-0.18769396	+0.97711475
a	2.2937475	Ω	282.45753	-0.88421261	-0.21245727
e	0.1983932	i	5.88326	-0.42771373	+0.01042486
P	3.47	H	14.8	G 0.15	U 2

Residuals in seconds of arc

1950 12 09	675	1.5+	0.6+	1997 01 03	691	0.2-	0.7-	1998 08 17	704	0.5+	1.5+
1950 12 09	675	0.1+	0.4-	1997 01 03	691	0.4-	0.1-	1998 08 23	704	0.2-	0.3+
1960 09 24	675	0.6+	0.7-	1997 01 03	691	0.3-	0.3-	1998 08 23	704	0.2+	0.0
1960 09 25	675	1.3-	0.4-	1997 03 05	691	0.1-	0.4-	1998 08 23	704	0.2+	1.1+
1960 09 26	675	0.5-	0.3-	1997 03 05	691	0.3-	0.3+	1998 08 23	704	0.1-	0.8+
1991 07 16	675	0.7-	1.1-	1997 03 05	691	0.0	0.5-	1998 08 23	704	0.7+	0.2+
1991 07 16	675	(0.4+	2.5-)	1998 06 30	699	1.2-	0.1-	1998 08 26	327	0.1-	0.0
1991 07 18	675	0.4+	1.2-	1998 06 30	699	1.0-	0.5+	1998 08 26	327	0.3-	1.6-
1991 07 18	675	0.4+	0.7-	1998 06 30	699	0.4-	0.3+	1998 08 26	327	0.0	0.2-
1991 08 07	675	1.6+	1.5-	1998 08 17	704	1.4-	0.3+	1998 08 31	327	0.2+	0.1+
1991 08 07	675	0.4+	1.3-	1998 08 17	704	0.2-	0.3+	1998 08 31	327	0.3+	0.1-
1991 08 10	675	0.6+	0.0	1998 08 17	704	0.7-	0.7+	1998 08 31	327	0.2+	0.1-
1991 08 10	675	1.2+	0.1-	1998 08 17	704	0.3-	1.3+				

(9184)* 1991 PJ₃ = 1981 UJ₂₇ = 1988 TR₄

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

Id. E. Bowell (*MPC* 20639), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	210.39387		(2000.0)	P	Q		
n	0.28033949	ω	107.07496	-0.11814236	-0.99288342		
a	2.3121351	Ω	349.67528	+0.87627977	-0.09714005		
e	0.0976083	i	4.79977	+0.46709329	-0.06889358		
P	3.52	H	14.4	G	0.15	U	1

Residuals in seconds of arc

1981 10 24	675	1.3+	0.8+	1991 08 14	809	1.0-	1.2-	1995 10 12	400	0.1-	0.8+
1981 10 25	675	1.2+	0.1+	1991 08 14	809	1.3-	1.7-	1997 03 08	809	1.9+	1.1-
1988 10 07	675	0.3-	0.4+	1993 01 22	411	0.3+	0.5-	1997 03 08	809	0.9+	0.9-
1988 10 07	675	0.3+	0.6-	1993 01 22	411	0.2+	0.1-	1997 03 08	809	0.9+	1.4-
1988 10 13	888	(2.7+	4.2-)	1993 01 22	411	0.1+	0.5+	1997 03 09	809	0.2+	0.8-
1988 10 13	888	(3.3+	2.2-)	1993 01 28	411	1.4-	0.8+	1997 03 09	809	0.2-	0.5-
1990 04 01	675	0.6-	1.2+	1993 01 28	411	0.3-	0.9+	1997 03 09	809	0.3-	1.1-
1990 04 01	675	1.1-	1.4+	1993 01 28	411	1.3-	0.6+	1998 07 02	699	0.0	1.1+
1991 08 02	809	(2.0+	1.3-)	1993 01 29	411	0.0	1.6-	1998 07 02	699	0.6-	0.9+
1991 08 02	809	1.4+	1.1-	1993 01 29	411	0.1-	0.1-	1998 07 02	699	0.0	1.0+
1991 08 02	809	0.3+	1.4-	1993 01 29	411	0.1+	0.8-	1998 08 17	704	0.3-	0.3+
1991 08 07	809	(2.4+	1.2+)	1993 01 30	411	0.5-	0.8-	1998 08 17	704	(2.3-	0.0)
1991 08 07	809	0.7+	0.0	1993 01 30	411	0.6-	0.8-	1998 08 17	704	1.3-	1.1+
1991 08 07	809	0.7+	0.8-	1993 01 30	411	0.5-	0.8-	1998 08 17	704	0.7+	1.8-
1991 08 14	809	0.7-	1.0-	1995 10 12	400	0.7+	0.2+	1998 08 17	704	0.1+	0.8-

(9185)* 1991 PX₁₇ = 1962 JW = 1976 GT₅

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

Id. S. Nakano (*MPC* 29098)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Asher

M	25.56683		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.27797530	ω	278.37988	+0.15217813	+0.98835279
a	2.3252264	Ω	0.37583	-0.85499517	+0.13203110
e	0.1119301	i	6.66337	-0.49580750	+0.07567397
P	3.55	H	13.1	G 0.15	U 2

Residuals in seconds of arc

1962 05 07	839	0.3-	0.5-	1991 09 16	675	0.0	0.5+	1998 07 31	699	0.1-	0.4+
1976 04 02	095	(4.0+	0.7-)	1997 02 01	411	0.6-	0.1+	1998 08 17	704	0.7+	0.0
1991 08 07	675	0.5+	0.3-	1997 02 01	411	0.1-	0.2+	1998 08 17	704	1.1+	0.1+
1991 08 07	675	0.9+	0.8+	1997 02 03	411	0.3-	0.5+	1998 08 17	704	0.8+	0.0

1998 SEPT. 10

M.P.C. 32421

1991 09 04	691	1.2−	1.1+	1997 02 03	411	0.0	0.7−	1998 08 17	704	0.6+	0.7−
1991 09 04	691	1.4−	1.0+	1997 03 09	689	0.3−	0.2+	1998 08 17	704	0.1+	1.1−
1991 09 04	691	1.1−	0.8+	1997 03 10	689	0.5−	0.3+	1998 08 23	704	0.1+	0.1−
1991 09 10	675	0.2+	0.2+	1997 03 27	689	0.7+	1.6−	1998 08 23	704	0.0	0.6−
1991 09 10	675	0.3+	0.5+	1997 04 08	689	0.3+	0.7+	1998 08 23	704	0.8−	0.1−
1991 09 12	808	0.1−	2.0−	1997 04 09	801	1.2+	1.3+	1998 08 23	704	1.0−	0.1+
1991 09 12	808	0.5+	1.7−	1997 04 09	801	0.6+	0.4+	1998 08 27	699	0.6−	0.4+
1991 09 14	675	0.6+	0.0	1997 04 09	689	0.1+	0.1−	1998 08 27	699	0.2−	0.7+
1991 09 14	675	0.2+	0.1−	1998 07 31	699	0.6−	0.5+	1998 08 27	699	0.2−	0.7+
1991 09 16	675	0.5+	0.3−	1998 07 31	699	0.2−	0.0				

(9186)* 1991 RZ₁ = 1994 GH₁

Discovered 1991 Sept. 7 by E. F. Helin at Palomar.

Id. E. F. Helin (*MPC* 23517), S. Nakano (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28101503	ω	75.19044	−0.18277395	+0.98264226		
<i>a</i>	2.3084281	Ω	184.64333	−0.98306934	−0.18308889		
<i>e</i>	0.1922550	<i>i</i>	23.08930	−0.01297538	+0.02987706		
<i>P</i>	3.51	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 09 07	675	0.9+	2.0−	1994 05 09	675	1.1+	0.7−	1998 07 24	566	0.5−	0.9−
1991 09 07	675	0.1+	1.7−	1994 05 09	675	0.3−	0.4−	1998 08 14	596	1.1−	0.1+
1991 09 07	675	0.3−	1.0−	1994 06 09	675	0.5+	1.2−	1998 08 14	596	0.7−	0.4+
1991 09 07	675	(2.0−	3.4−)	1994 06 10	675	0.5+	0.4+	1998 08 14	596	0.7−	0.2+
1991 09 09	675	0.9−	1.3−	1995 10 20	608	0.9+	0.8+	1998 08 19	704	0.5+	0.6+
1991 09 09	675	(1.4−	3.1−)	1995 10 20	608	0.7+	0.7+	1998 08 19	704	0.3+	1.1+
1991 09 09	675	0.3−	1.8−	1995 11 01	608	0.4+	0.0	1998 08 19	704	0.5+	1.1+
1991 09 09	675	(6.1−	0.6+)	1995 11 01	608	0.1+	0.0	1998 08 19	704	1.1+	0.7+
1991 10 10	675	0.2+	0.7+	1995 11 06	608	1.2+	0.6−	1998 08 19	704	0.3−	0.3−
1991 10 10	675	0.4+	0.7+	1995 11 06	608	1.3+	0.6−	1998 08 24	704	0.1+	0.1−
1994 04 11	675	0.3−	0.3−	1995 11 25	801	(0.2−	2.6−)	1998 08 24	704	0.8+	0.7+
1994 04 11	675	0.3+	0.2−	1995 11 25	801	0.8−	0.8−	1998 08 24	704	0.3+	1.2+
1994 04 13	675	0.5−	1.5+	1995 11 29	608	0.2−	0.1+	1998 08 24	704	0.3+	0.9+
1994 04 13	675	1.1−	1.4+	1995 11 29	608	0.9−	0.4+	1998 08 24	704	0.5+	1.9+
1994 04 15	400	(0.4−	4.7+)	1995 12 02	608	0.5−	0.8−	1998 08 27	704	(0.8+	3.2+)
1994 04 15	400	(1.3+	4.1−)	1995 12 02	608	1.4−	1.0+	1998 08 27	704	0.2+	0.7+
1994 04 16	400	(0.4+	3.6+)	1995 12 05	608	0.2−	0.4+	1998 08 27	704	0.6−	0.5+
1994 04 16	400	(1.1+	3.6−)	1995 12 05	608	1.0−	0.4+	1998 08 27	704	0.1−	0.2+
1994 05 04	675	0.9+	1.0+	1998 07 24	566	0.1−	0.9−	1998 08 27	704	0.3−	0.0
1994 05 04	675	0.9−	1.3−	1998 07 24	566	0.3−	1.2−				

(9187)* 1991 RD₄ = 1990 EZ₃ = 1990 GC₁

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

Id. K. Ichikawa (*MPC* 20338)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26605693	ω	64.50973	+0.14939501	+0.98785971		
<i>a</i>	2.3941590	Ω	214.16676	−0.93224122	+0.12636429		
<i>e</i>	0.2033883	<i>i</i>	4.34978	−0.32955643	+0.09036180		
<i>P</i>	3.70	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 03 02	809	0.7+	0.9−	1991 10 02	033	0.3−	0.6−	1998 06 24	704	(2.2+	0.5+)
1990 03 02	809	0.7+	1.6−	1991 10 03	033	0.2−	0.9−	1998 06 24	704	0.4+	1.0+
1990 03 02	809	1.2−	1.8−	1991 10 04	033	0.9−	0.8−	1998 06 24	704	0.7+	1.6+
1990 03 04	809	(1.3+	3.8−)	1991 10 09	033	0.2+	0.1−	1998 06 24	704	0.6+	0.2−
1990 03 04	809	(0.9+	3.4−)	1991 10 09	033	0.7+	0.1−	1998 06 24	704	0.8−	0.0
1990 03 04	809	(0.5+	5.0−)	1994 05 09	033	0.4−	0.8+	1998 06 26	704	0.4+	0.2+
1990 04 04	809	(1.1+	2.8−)	1994 05 11	033	0.1−	1.2+	1998 06 26	704	0.1−	0.3−
1990 04 04	809	(0.4+	2.5−)	1994 05 11	033	0.2+	0.1+	1998 06 26	704	0.8−	1.0−
1990 04 04	809	(3.2−	1.4−)	1994 05 13	033	1.6−	0.9−	1998 06 26	704	0.3−	1.8+
1991 09 12	033	0.6+	0.3+	1994 05 15	033	0.3+	0.4−	1998 07 20	113	0.4−	1.2−
1991 09 12	033	0.4+	0.6+	1995 10 14	596	1.2−	0.3+	1998 07 20	113	0.4+	2.3−

1991 09 14	033	0.1−	0.4+	1995 10 14	596	1.7−	0.1+	1998 08 19	113	0.5+	0.3−
1991 09 15	033	0.6−	0.4−	1995 10 15	327	0.6+	0.3+	1998 08 19	113	0.5+	0.5−
1991 09 15	033	1.4+	0.4−	1995 10 15	327	0.4+	0.0				
1991 10 02	033	0.5−	0.3−	1995 10 15	327	1.3+	0.3−				

(9188)* 1991 RM₁₅ = 1980 TP₇

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

Id. K. Ichikawa (*MPC* 20027)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26729037	ω	4.15901	+0.68939226	+0.72383543		
<i>a</i>	2.3867880	Ω	309.42598	−0.66566546	+0.61761742		
<i>e</i>	0.2234639	<i>i</i>	2.09920	−0.28570581	+0.30758899		
<i>P</i>	3.69	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 10 10	095	1.4−	1.4+	1997 03 05	704	0.8+	0.3−	1998 06 24	704	1.2+	0.3−
1980 10 15	095	0.6+	0.3+	1997 03 06	704	0.6+	1.4+	1998 06 24	704	1.6−	0.0
1991 09 11	675	(2.7+	0.5−)	1997 03 06	704	0.2+	0.5+	1998 06 24	704	0.6+	0.0
1991 09 11	675	1.2+	0.9−	1998 05 17	426	0.4+	0.0	1998 06 24	704	0.6−	0.5+
1991 09 15	675	0.5+	0.1−	1998 05 17	426	0.0	0.1−	1998 06 24	704	1.3−	0.6+
1991 09 15	691	0.2+	0.5+	1998 05 17	426	0.9+	0.7−	1998 06 26	704	1.0+	0.6+
1991 09 15	675	(2.3+	1.3−)	1998 05 19	426	0.6+	0.7−	1998 06 26	704	0.1−	0.1+
1991 09 15	691	0.1+	0.7+	1998 05 19	426	0.0	0.2−	1998 06 26	704	0.8−	0.6+
1991 09 17	675	0.7−	0.4+	1998 05 19	426	0.3+	0.2−	1998 06 26	704	0.1+	0.4+
1991 09 17	675	1.2−	0.6−	1998 05 19	426	0.3+	0.2−	1998 06 26	704	1.1−	1.7+
1997 03 05	704	0.6−	1.5+	1998 05 19	426	0.5+	0.3−				

(9189)* 1991 RH₄₁ = 1978 JA = 1987 QW₁₂ = 1995 UL₁₆

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

Id. G. V. Williams (*MPC* 26170)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26466886	ω	279.65521	+0.59456140	−0.80330610		
<i>a</i>	2.4025226	Ω	133.80515	+0.75521880	+0.54317472		
<i>e</i>	0.0796940	<i>i</i>	2.74668	+0.27593713	+0.24425504		
<i>P</i>	3.72	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 05 08	801	0.6−	0.9+	1991 10 07	675	0.8+	0.0	1997 04 02	611	0.7+	0.1−
1987 08 25	809	0.5−	0.4+	1995 10 17	691	0.0	0.2+	1997 04 06	611	0.4−	0.1+
1987 08 25	809	0.1−	0.9+	1995 10 17	691	0.1−	0.5+	1997 04 06	611	0.0	0.2−
1987 08 25	809	1.3−	0.5−	1995 10 17	691	0.3−	0.3+	1998 07 19	113	0.8+	0.2+
1991 09 10	033	0.4−	1.1−	1995 10 23	691	0.0	0.6+	1998 07 19	113	0.6+	0.5+
1991 09 10	033	1.0+	1.0−	1995 10 23	691	0.1+	0.4+	1998 07 19	113	0.4+	0.6+
1991 09 13	033	0.3−	0.8−	1995 11 16	399	1.2−	0.9−	1998 07 20	113	1.0−	0.6+
1991 09 17	675	0.7+	1.0+	1995 11 16	399	1.2−	0.1+	1998 07 20	113	0.7+	0.2+
1991 09 17	675	1.0+	0.5+	1995 11 17	399	(2.6−	0.4−)	1998 07 25	113	0.6−	0.0
1991 10 02	675	0.5−	0.4−	1995 11 17	399	(3.2−	1.8−)	1998 07 25	113	0.9−	0.2−
1991 10 02	675	0.2−	0.6+	1997 04 01	611	0.1+	0.3−	1998 08 19	113	0.8−	0.4−
1991 10 03	675	1.2+	0.4−	1997 04 01	611	0.3+	0.9−	1998 08 19	113	0.2−	0.6−
1991 10 03	675	0.7+	0.9−	1997 04 01	611	0.1−	0.7−	1998 08 19	113	0.5−	0.3−
1991 10 07	675	1.5+	0.2−	1997 04 02	611	0.2−	0.7−				

(9190)* 1991 VR₁ = 1973 AL = 1983 PM = 1985 FE₁

Discovered 1991 Nov. 4 by Y. Kushida and O. Muramatsu at the Yatsugatake South Base Observatory.

Id. S. Nakano (*MPC* 19518)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Asher

<i>M</i>	259.01553		(2000.0)	P	Q				
<i>n</i>	0.25682881	ω	100.70456	+0.53918698	-0.83946138				
<i>a</i>	2.4511707	Ω	316.44405	+0.72920290	+0.50555449				
<i>e</i>	0.2187939	<i>i</i>	5.63757	+0.42135559	+0.19929687				
<i>P</i>	3.84	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc									
1973 01 01	095	(0.1+	5.3-)	1991 12 12	896	0.1-	0.2+	1998 06 24	704 1.3- 1.1+
1973 01 03	095	(2.7+	3.0-)	1995 12 27	896	0.1-	0.7+	1998 06 26	704 0.4+ 0.3-
1983 08 13	688	1.8-	0.6-	1995 12 27	896	0.1+	0.7+	1998 06 26	704 0.6- 0.9-
1983 08 13	688	1.1+	1.2+	1995 12 27	896	0.0	0.5+	1998 06 26	704 0.6+ 0.7-
1985 03 22	688	1.2-	1.0-	1996 02 18	801	0.2-	0.5-	1998 06 26	704 0.8+ 1.2-
1985 03 22	688	0.5+	0.8-	1996 02 18	801	0.4-	0.2-	1998 07 03	699 0.2+ 0.6+
1991 11 04	896	0.6-	0.4-	1996 02 24	801	0.1-	0.7+	1998 07 03	699 0.8+ 0.3+
1991 11 04	896	0.8+	0.1+	1996 02 24	801	0.3+	0.3+	1998 07 03	699 0.2+ 0.8+
1991 11 05	896	0.1-	0.1-	1998 06 24	704	0.3-	1.1-	1998 08 15	704 1.3+ 0.8-
1991 11 05	896	0.3+	0.5-	1998 06 24	704	1.1-	0.0	1998 08 15	704 1.2+ 0.8+
1991 11 10	896	0.4+	0.5-	1998 06 24	704	0.4-	0.3+	1998 08 15	704 (2.9+ 0.2+)
1991 11 17	896	0.4+	1.1-	1998 06 24	704	1.5-	0.4+	1998 08 15	704 0.1- 0.2-

(9191)* 1991 XU = 1995 WV₄₁

Discovered 1991 Dec. 13 by S. Otomo at Kiyosato.

Id. S. Otomo (*MPC* 26399)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	136.64653		(2000.0)	P	Q				
<i>n</i>	0.23492548	ω	251.89472	-0.98054510	+0.01551595				
<i>a</i>	2.6012532	Ω	288.63062	+0.07566664	-0.88995370				
<i>e</i>	0.1134297	<i>i</i>	11.91737	-0.18112388	-0.45578687				
<i>P</i>	4.20	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1991 12 13	894	0.1-	0.2-	1992 01 27	596	(2.3+	1.3+)	1997 04 29	423 0.2- 0.5-
1991 12 13	894	0.8-	0.2-	1992 01 27	565	0.4-	0.7-	1997 04 29	423 0.7- 0.2+
1991 12 15	894	1.1-	0.7-	1992 01 28	596	1.0+	0.2+	1997 04 29	423 0.4- 0.1+
1991 12 15	894	1.9-	0.4-	1992 01 28	596	1.7+	0.5+	1997 04 30	423 0.4+ 0.2-
1991 12 18	894	0.8+	0.5-	1992 01 28	596	(2.0+	0.9+)	1997 04 30	423 0.2+ 0.3-
1991 12 18	894	0.9-	1.4-	1992 01 28	596	1.4+	1.0+	1997 04 30	423 0.1- 0.3-
1991 12 31	565	0.4-	0.1+	1992 01 30	596	(0.6+	4.5+)	1997 04 30	423 0.1+ 0.3-
1991 12 31	565	0.7-	0.6+	1992 01 30	596	(0.5+	4.7+)	1997 04 30	423 0.2+ 0.4-
1992 01 01	886	(2.1-	2.7-)	1992 01 30	565	0.4-	0.1-	1997 05 01	423 0.4- 0.3-
1992 01 01	886	1.9+	0.2+	1992 01 30	596	(0.2+	5.1+)	1997 05 01	423 0.3- 0.1+
1992 01 03	894	0.1+	1.9-	1992 01 30	565	0.2-	0.2-	1997 05 01	423 0.1+ 0.2-
1992 01 03	894	0.4-	1.6-	1992 01 31	596	(3.1+	1.0-)	1997 05 01	423 0.0 0.2+
1992 01 10	894	0.1-	0.4+	1992 01 31	596	0.3+	0.3-	1997 05 01	423 0.1- 0.3-
1992 01 10	894	0.7+	0.5+	1992 02 01	596	0.0	0.4+	1997 06 11	689 0.8+ 0.3-
1992 01 12	372	(3.5-	0.8+)	1992 02 01	596	(3.2+	1.0+)	1998 06 29	704 1.1- 0.7-
1992 01 12	894	0.1+	1.5+	1992 02 01	596	1.1+	0.2+	1998 06 29	704 0.2+ 0.4-
1992 01 12	372	(4.3-	0.8+)	1992 02 02	894	0.4+	0.2-	1998 06 29	704 (1.7- 2.4-)
1992 01 14	894	0.1+	0.2-	1992 02 02	894	0.0	1.3-	1998 08 04	699 1.1+ 0.2+
1992 01 14	372	(3.7-	1.9+)	1992 02 09	894	0.5+	0.9-	1998 08 04	699 1.1+ 0.0
1992 01 14	372	1.7-	1.2+	1995 11 30	894	0.1+	0.3+	1998 08 04	699 0.9+ 0.1+
1992 01 24	894	0.3-	0.8-	1995 11 30	894	0.4-	0.1-	1998 08 24	704 0.8+ 1.1-
1992 01 24	894	0.3+	1.5-	1995 12 02	894	1.0-	0.4+	1998 08 24	704 0.0 0.6+
1992 01 24	894	1.0-	1.5-	1995 12 02	894	0.4-	0.7+	1998 08 24	704 0.3+ 0.5-
1992 01 25	565	0.5-	1.1+	1996 03 17	801	0.4+	0.8-	1998 08 24	704 0.0 0.1-
1992 01 25	565	1.3-	0.1+	1996 03 18	801	0.5+	0.7-	1998 08 24	704 0.1+ 0.7+
1992 01 25	565	1.5-	1.4+	1996 03 18	801	1.1+	0.7-	1998 08 27	704 0.4+ 1.0-
1992 01 26	596	0.9+	0.7+	1996 03 19	801	0.7+	0.7-	1998 08 27	704 (2.2+ 0.4-)
1992 01 26	596	1.0+	0.4-	1997 04 29	423	0.3-	0.3-	1998 08 27	704 0.9- 0.1-
1992 01 27	596	0.9+	1.0+	1997 04 29	423	0.2-	0.4+	1998 08 27	704 0.1+ 0.3-
1992 01 27	565	0.2-	0.8+	1997 04 29	423	0.1+	0.7-	1998 08 27	704 1.0- 1.0-

(9192)* 1992 AR₁ = 1986 TR₇ = 1995 YD₂₂

Discovered 1992 Jan. 14 by S. Ueda and H. Kaneda at Kushiro.

Id. G. V. Williams (*MPC* 26563)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	140.01782		(2000.0)	P	Q				
<i>n</i>	0.22486733	ω	235.38543	-0.96321064	-0.24637989				
<i>a</i>	2.6782543	Ω	290.14432	+0.26839294	-0.86136510				
<i>e</i>	0.1901634	<i>i</i>	6.56531	+0.01380212	-0.44423769				
<i>P</i>	4.38	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc									
1986 10 09	092	0.0	0.2+	1995 12 18	327	0.5+	0.4-	1998 08 17	704 0.5- 0.7+
1986 10 09	092	0.6+	0.4+	1995 12 18	327	0.8+	0.3-	1998 08 17	704 0.3- 0.0
1992 01 06	400	1.6+	0.2+	1997 05 31	367	0.8+	0.7+	1998 08 17	704 0.1+ 0.0
1992 01 06	400	0.3+	0.3-	1997 05 31	367	0.4+	0.9+	1998 08 21	566 1.1- 0.1-
1992 01 14	399	0.5+	1.5-	1998 06 30	699	0.2-	0.1+	1998 08 21	566 0.3- 0.4+
1992 01 14	399	0.9-	0.2-	1998 06 30	699	0.4+	0.3+	1998 08 21	566 0.3- 0.1+
1992 01 24	399	0.7-	0.0	1998 06 30	699	0.1+	0.8-	1998 08 23	704 0.5+ 1.5-
1992 01 24	399	0.3-	1.5-	1998 07 24	566	0.2-	0.7-	1998 08 23	704 1.0+ 0.9+
1992 01 25	399	0.5-	1.3+	1998 07 24	566	0.1+	1.1-	1998 08 23	704 (2.1- 2.5+)
1992 01 25	399	1.2+	0.2+	1998 07 24	566	0.1+	0.9+	1998 08 23	704 (2.1+ 1.7-)
1992 02 04	675	0.4-	0.6+	1998 07 26	809	(3.4+	0.7+)	1998 08 28	699 0.2+ 0.3-
1992 02 04	675	0.6-	0.8+	1998 07 26	809	(3.3+	0.6+)	1998 08 28	699 0.1- 0.4+
1992 02 08	399	0.6-	1.3+	1998 07 26	809	(3.2+	0.6+)	1998 08 28	699 0.2- 0.2+
1992 02 08	399	(2.1-	2.2+)	1998 07 27	809	(2.4+	1.6+)	1998 08 30	699 0.2- 0.4+
1995 12 17	327	0.4-	0.5+	1998 07 27	809	(3.2+	1.5+)	1998 08 30	699 1.0- 0.5+
1995 12 17	327	0.4+	0.9+	1998 07 27	809	(3.3+	1.5+)	1998 08 30	699 0.1+ 0.3-
1995 12 17	327	0.2-	0.8+	1998 08 17	704	0.2+	0.0		
1995 12 18	327	0.2+	0.1-	1998 08 17	704	0.0	0.6+		

(9193)* 1992 ED₁ = 1990 TE₁₅ = 1990 VO₁₃

Discovered 1992 Mar. 10 by D. I. Steel at Siding Spring.

Id. G. V. Williams (*MPC* 20153)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	265.06662		(2000.0)	P	Q				
<i>n</i>	0.23412177	ω	189.47712	+0.33107244	-0.92141259				
<i>a</i>	2.6072030	Ω	241.42767	+0.88020591	+0.37926086				
<i>e</i>	0.1447448	<i>i</i>	13.39469	+0.34004206	-0.08461698				
<i>P</i>	4.21	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	2		

Residuals in seconds of arc

1990 10 13	095	(1.0-	13.5-)	1994 09 03	801	0.0	0.1+	1998 08 02	699 0.2+ 0.1-
1990 10 13	095	0.4-	1.9-	1994 09 03	801	0.0	0.3+	1998 08 10	127 0.7- 1.4-
1990 10 17	095	0.2+	1.8-	1994 09 08	801	0.2-	0.1+	1998 08 10	127 0.6- 1.6-
1990 10 17	095	(3.8+	1.9-)	1994 09 08	801	0.6-	0.1+	1998 08 16	127 (3.2+ 1.1-)
1990 11 14	095	(2.9+	7.8-)	1994 10 03	801	0.9-	0.1+	1998 08 16	127 (3.2+ 1.2-)
1990 11 14	095	(6.0+	9.1-)	1994 10 03	801	0.5-	0.4+	1998 08 17	596 0.7- 0.7-
1991 02 15	493	(6.9+	6.2-)	1994 10 06	801	0.1+	0.7+	1998 08 17	596 0.1- 1.3-
1991 02 15	493	(7.2+	6.6-)	1994 10 06	801	0.9+	0.7+	1998 08 17	596 0.3- 0.6-
1992 03 10	413	0.4-	0.3+	1994 10 25	563	1.6+	1.0+	1998 08 17	127 0.8+ 0.7-
1992 03 10	413	(2.4+	1.2-)	1994 10 25	563	(1.4+	2.5+)	1998 08 17	127 0.7+ 0.5-
1992 03 11	413	0.6+	0.6-	1994 10 31	801	0.4-	0.1+	1998 08 24	704 1.0- 0.5+
1992 03 11	413	0.5-	0.8-	1994 10 31	801	0.3+	0.3+	1998 08 24	704 0.6- 0.8+
1992 03 13	413	0.7-	0.1+	1994 11 04	801	0.1+	1.0+	1998 08 24	704 0.8- 0.2+
1992 03 14	413	1.3+	0.1-	1994 11 05	801	0.3+	0.7+	1998 08 24	704 0.4- 0.1+
1992 03 15	413	0.1-	0.5-	1998 06 23	699	0.6-	0.6+	1998 08 24	704 0.4+ 0.1-
1992 03 31	413	0.1+	0.0	1998 06 23	699	0.0	1.8+	1998 08 27	704 0.2- 0.2+
1992 04 30	413	0.9-	0.2-	1998 06 23	699	0.3-	0.9+	1998 08 27	704 0.6- 0.5+
1993 06 18	801	1.0+	0.2-	1998 08 02	699	0.0	0.4-	1998 08 27	704 1.3- 0.2+
1993 06 18	801	1.4-	0.0	1998 08 02	699	0.3-	0.2+	1998 08 27	704 0.0 0.7+

(9194)* 1

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	151.04151	(2000.0)	P		Q	
<i>n</i>	0.27960900	ω	289.88513	+0.51197349	-0.85107760	
<i>a</i>	2.3161603	Ω	128.76980	+0.83336746	+0.45925615	
<i>e</i>	0.0875454	<i>i</i>	8.58639	+0.20828303	+0.25446163	
<i>P</i>	3.52	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1987 01 27	033	0.0	1.5-	1992 07 30	809	1.2+	1.5-	1996 10 11	104	0.1+	0.5+
1987 01 28	033	0.2-	1.5-	1992 07 30	809	0.5+	1.6-	1996 10 11	104	0.1-	0.3+
1989 11 02	675	0.2+	0.5+	1992 07 30	809	0.2+	0.6-	1998 03 06	888	0.7-	0.6-
1989 11 02	675	0.8-	0.0	1995 05 21	327	0.0	0.7+	1998 03 06	888	0.9-	0.9-
1989 11 25	675	0.1+	0.1+	1995 05 21	327	0.6+	1.7+	1998 03 06	888	0.2-	0.2-
1989 11 25	675	0.1+	0.3-	1995 05 21	327	0.5+	0.9+	1998 04 24	704	0.0	1.6-
1992 07 24	809	0.1-	1.0-	1995 05 21	327	0.7+	0.8+	1998 04 24	704	0.4+	1.1-
1992 07 24	809	(2.1-	2.8-)	1995 05 22	327	0.0	1.2+	1998 04 24	704	0.3-	0.9-
1992 07 24	809	1.2-	1.7-	1995 05 22	327	0.2+	1.2+	1998 04 24	704	0.2-	1.6-
1992 07 26	809	1.0+	1.5-	1995 05 22	327	0.3+	1.1+	1998 04 24	704	1.5-	1.9-
1992 07 26	809	0.1-	1.5-	1995 05 22	327	0.2+	1.5+				
1992 07 26	809	0.1+	1.6-	1996 10 11	104	0.0	0.3-				

(9195)* 1992 OF₉ = 1984 BZ₅ = 1987 SW₂₁ = 1997 JV₁₃

Discovered 1992 July 26 by H. Debehogne and A. Lopez G. at the European Southern Observatory.

Id. G. V. Williams (*MPC* 30079)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	33.97632	(2000.0)	P		Q	
<i>n</i>	0.17002838	ω	172.27999	+0.12495836	+0.99117070	
<i>a</i>	3.2269218	Ω	104.89047	-0.91272487	+0.13236052	
<i>e</i>	0.1399846	<i>i</i>	2.62970	-0.38899707	+0.00783125	
<i>P</i>	5.80	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1984 01 25	675	0.0	0.2-	1997 05 04	809	0.1-	0.7+	1998 07 31	699	0.7-	0.3+
1984 01 26	675	0.0	0.7-	1997 05 04	809	0.2+	0.3+	1998 07 31	699	0.7-	0.5+
1987 09 18	095	0.5-	0.6+	1997 05 04	809	(0.8+	2.6+)	1998 08 17	704	1.1-	0.1-
1992 07 26	809	0.9-	0.2+	1997 05 07	704	0.6-	0.5-	1998 08 17	704	0.4-	0.3+
1992 07 26	809	0.7-	0.1+	1997 05 07	704	0.5-	0.5-	1998 08 17	704	1.4-	0.9+
1992 07 26	809	0.5-	0.2+	1997 05 07	704	0.7-	0.6-	1998 08 17	704	1.5-	0.3+
1992 07 27	809	0.6-	0.4-	1997 05 07	704	0.1-	0.3-	1998 08 17	704	1.6-	0.4+
1992 07 27	809	0.2-	0.8-	1997 05 07	704	0.1-	0.2-	1998 08 23	699	0.5-	0.1-
1992 07 27	809	0.2-	0.6-	1998 07 26	809	(3.2+	0.1+)	1998 08 23	704	0.8-	0.5-
1992 08 04	809	0.7+	0.4+	1998 07 26	809	2.1+	0.3-	1998 08 23	704	0.2-	0.6-
1992 08 04	809	1.3+	0.1+	1998 07 26	809	2.3+	0.0	1998 08 23	699	0.4-	0.1-
1992 08 04	809	1.2+	0.0	1998 07 27	809	2.5+	0.4-	1998 08 23	704	0.4-	0.1-
1997 05 03	809	0.3+	0.6+	1998 07 27	809	1.9+	0.8-	1998 08 23	704	0.3+	0.7-
1997 05 03	809	1.0+	0.3+	1998 07 27	809	1.5+	0.1+	1998 08 23	699	0.6-	0.1-
1997 05 03	809	0.6+	1.1+	1998 07 31	699	1.3-	0.1+	1998 08 23	704	1.1-	0.7+

(9196)* 1992 WP₅ = 1971 KT = 1989 YT₅

Discovered 1992 Nov. 27 by T. Seki at Geisei.

Id. K. Ichikawa (*MPC* 21597), S. Nakano (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	67.97734	(2000.0)	P		Q	
<i>n</i>	0.29944452	ω	145.41617	-0.34211926	+0.93786466	
<i>a</i>	2.2127133	Ω	104.51758	-0.87508108	-0.29551253	
<i>e</i>	0.0692248	<i>i</i>	3.43496	-0.34232662	-0.18188517	
<i>P</i>	3.29	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1971 05 25	095	(0.7-	3.5+)	1992 12 03	372	0.9-	0.2-	1998 06 29	704	1.6-	1.4+
1988 09 10	675	0.0	0.3+	1992 12 16	372	0.7-	0.5+	1998 06 29	704	0.7-	0.6+
1988 09 10	675	0.4-	0.0	1992 12 16	372	0.4-	0.9+	1998 06 29	704	0.7+	1.1+
1989 12 29	511	1.2+	1.0-	1992 12 21	372	1.8-	1.4-	1998 06 29	704	1.6-	1.1+

1989 12 29	511	0.9+	1.0-	1992 12 21	372	2.0-	1.4+	1998 06 29	704	0.5-	0.5-
1989 12 30	511	0.9+	0.7+	1992 12 21	372	(3.4-	4.1-)	1998 08 17	704	0.2-	0.6-
1989 12 30	511	(2.7-	1.5+)	1992 12 21	372	0.1-	1.0+	1998 08 17	704	0.8+	0.9-
1992 11 25	675	0.8+	0.6-	1995 10 02	372	1.0+	0.3+	1998 08 17	704	0.1-	1.3-
1992 11 25	675	1.3+	0.2+	1995 10 02	372	0.9+	0.2+	1998 08 17	704	0.6+	0.5-
1992 11 26	691	1.0-	0.2-	1995 10 19	372	1.9-	0.0	1998 08 17	704	0.1-	0.2-
1992 11 26	691	0.7+	0.2-	1995 10 19	372	0.4-	0.1-	1998 08 23	704	0.1-	0.4+
1992 11 26	691	0.9-	0.4-	1995 10 21	560	0.8+	0.2-	1998 08 23	704	0.4-	0.8+
1992 11 27	372	1.8-	0.5+	1995 10 21	560	1.2+	0.4-	1998 08 23	704	0.5-	1.1-
1992 11 27	372	1.0-	0.7-	1995 10 25	372	0.9+	1.9+	1998 08 23	704	0.9+	0.3-
1992 11 28	675	0.1+	0.9-	1995 10 25	372	1.1+	1.3+	1998 08 25	761	0.3+	0.4+
1992 11 28	675	0.3+	0.6-	1997 03 09	127	0.7-	0.1+	1998 08 25	761	0.4+	0.0
1992 12 01	372	1.6-	0.7+	1997 03 09	127	1.0-	0.0	1998 08 26	761	0.7+	0.4-
1992 12 01	372	1.3+	0.5+	1997 03 10	127	0.7+	0.4+				
1992 12 03	372	1.2+	0.8-	1997 03 10	127	1.0+	0.3+				

(9197)* 1992 WH₈ = 1976 UA₂₀ = 1979 SL₅ = 1979 US₂ = 1995 TA

Discovered 1992 Nov. 24 by M. Hirasawa and S. Suzuki at Nyukasa.

Id. G. V. Williams (*MPC* 25730)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	345.66222	(2000.0)	P		Q	
<i>n</i>	0.30974678	ω	329.05060	+0.87824319	+0.47821372	
<i>a</i>	2.1633735	Ω	2.38096	-0.43508492	+0.79966767	
<i>e</i>	0.1106559	<i>i</i>	1.00553	-0.19846915	+0.36310226	
<i>P</i>	3.18	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1956 05 08	675	1.4+	0.5+	1995 10 02	670	0.0	0.6+	1997 04 28	704	(2.5-	0.5-)
1956 05 08	675	1.1-	0.1+	1995 10 11	112	1.3-	1.3-	1997 04 29	704	(3.0+	1.3+)
1976 10 24	381	1.8+	0.0	1995 10 11	112	1.8-	1.9-	1997 04 29	704	(2.4+	0.2-)
1976 10 24	381	0.6-	0.6-	1995 10 11	112	0.2-	1.8-	1997 04 29	704	(2.8+	0.6+)
1979 09 23	095	(5.1-	1.9-)	1995 10 15	112	0.3-	0.2+	1997 04 29	704	0.6+	0.8-
1979 10 16	095	0.3-	1.6-	1995 10 15	112	1.2+	0.3-	1998 07 24	566	0.4+	0.1-
1992 10 25	675	0.2+	0.3-	1995 10 15	112	0.6-	0.4-	1998 07 24	566	0.2+	0.0
1992 10 25	675	0.4+	0.1-	1995 10 15	112	0.2+	0.4+	1998 07 24	566	0.1+	0.2-
1992 11 17	400	0.2+	0.1-	1995 10 15	112	0.1+	0.5-	1998 08 17	704	0.1+	0.6+
1992 11 17	400	2.0+	1.2+	1995 10 19	112	(3.0-	0.9-)	1998 08 17	704	(2.3-	0.9+)
1992 11 18	408	1.5-	0.5+	1995 10 19	112	(3.0-	0.8+)	1998 08 17	704	0.3-	0.2-
1992 11 18	408	0.5-	1.6+	1995 10 19	112	0.8+	0.8-	1998 08 17	704	0.7-	0.7-
1992 11 18	408	0.4+	1.3+	1995 10 19	112	0.9+	0.5+	1998 08 17	120	0.4+	0.3+
1992 11 24	408	(2.4+	0.6+)	1995 10 19	112	0.4+	1.7+	1998 08 18	120	0.2+	0.4+
1992 11 24	408	(2.8+	1.3-)	1995 10 19	112	0.6-	0.6-	1998 08 18	120	0.3+	0.1-
1994 04 04	675	0.8-	0.5+	1995 10 19	112	1.0-	1.0-	1998 08 23	704	0.3+	0.4+
1994 04 04	675	0.4+	0.1-	1997 04 28	704	0.2-	0.4+	1998 08 23	704	0.1+	0.3+
1995 10 01	670	0.2-	0.5+	1997 04 28	704	0.3-	0.6+	1998 08 23	704	1.1-	0.6+
1995 10 01	670	0.0	0.5-	1997 04 28	704	1.9-	1.7-	1998 08 23	704	0.6+	0.6+
1995 10 02	670	1.1+	1.1+	1997 04 28	704	1.1+	0.2-	1998 08 23	704	0.3+	0.7+

(9198)* 1993 BJ₃ = 1992 YJ₅ = 1978 WQ₁₆ = 1990 HT₄

Discovered 1993 Jan. 25 by T. Seki at Geisei.

Id. K. Kinoshita (*MPC* 24567)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	235.05983	(2000.0)	P		Q	
<i>n</i>	0.29039609	ω	305.46315	-0.46844289	-0.88348957	
<i>a</i>	2.2584417	Ω	172.46862	+0.81718720	-0.43445824	
<i>e</i>	0.0885023	<i>i</i>	1.19325	+0.33580700	-0.17519197	
<i>P</i>	3.39	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1978 11 30	675	0.5+	0.1-	1993 01 25	372	0.5+	0.5-	1995 11 18	372	0.2-	0.7-
1978 12 01	675	0.4-	0.2+	1993 01 26	372	1.0-	1.4-	1997 05 27	689	0.8+	0.5+
1990 04 22	675	1.2-	1.1-	1993 01 26	372	1.2-	0.2-	1998 08 02	699	0.4+	0.1+
1990 04 22	675	(3.2-	0.1-)	1993 01 30	372	0.3-	0.1+	1998 08 02	699	0.9-	0.1+
1992 12 30	033	0.8+	0.0	1993 01 30	372	0.7+	0.7+	1998 08 02	699	0.3-	0.4-
1992 12 30	033	0.7+	0.1-	1995 10 31	372	(2.4-	0.7+)	1998 08 31	704	0.7+	0.2+

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1993 01 01	033	0.2−	0.1−	1995 10 31	372	0.3+	1.1+	1998 08 31	704	0.8+	1.2−
1993 01 25	372	(4.3−	0.8+)	1995 11 18	372	0.3−	0.4+	1998 08 31	704	0.1−	1.6−

(9199)* 1993 FO₁ = 1986 JU = 1987 SE₂₂ = 1991 UE₄

Discovered 1993 Mar. 25 by S. Ueda and H. Kaneda at Kushiro.

Id. K. Ichikawa (*MPC* 22240), S. Nakano (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	335.76296		(2000.0)	P	Q
<i>n</i>	0.26488415	ω	307.93936	+0.99339053	+0.04788320
<i>a</i>	2.4012207	Ω	49.56936	+0.00754038	+0.87964636
<i>e</i>	0.1332084	<i>i</i>	7.87700	−0.11453557	+0.47321189
<i>P</i>	3.72	<i>H</i>	12.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1986 05 04	688	0.2+	0.4+	1993 03 25	399	0.4−	0.4−	1997 05 03	399	1.3−	0.8−
1986 05 04	688	0.3−	0.8−	1993 03 26	399	1.5−	0.1+	1997 05 03	399	1.5+	1.1−
1987 09 18	095	(0.5+	4.3−)	1993 03 26	399	1.8−	0.0	1998 06 29	704	(2.4+	0.6−)
1987 09 21	095	(0.6−	3.4−)	1993 03 29	399	0.2−	0.3−	1998 06 29	704	0.4+	0.4+
1991 10 30	033	0.2−	0.0	1993 03 29	399	0.2−	0.6+	1998 06 29	704	0.2−	0.9+
1991 10 31	033	0.5+	0.2−	1993 04 15	399	0.7+	1.2+	1998 06 29	704	0.5−	0.7+
1991 11 01	033	0.6+	0.0	1993 04 15	399	0.2−	0.4+	1998 08 25	761	0.4−	0.5−
1993 03 22	399	0.4−	1.1+	1993 04 16	399	1.0+	0.3−	1998 08 25	761	0.2−	0.2−
1993 03 23	675	1.8+	0.0	1993 04 16	399	0.4+	0.5−	1998 08 26	761	0.2+	0.3−
1993 03 23	675	0.6+	0.5+	1997 04 30	399	0.7−	0.7+	1998 08 26	761	0.1−	0.1−
1993 03 25	399	0.5−	0.6+	1997 04 30	399	1.2+	1.2−				

(9200)* 1993 FK₂₁ = 1975 TG₁ = 1975 WU₁ = 1979 WO₇ = 1994 PK₃₄

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* 24568)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	351.34596		(2000.0)	P	Q
<i>n</i>	0.25705170	ω	153.45170	+0.97656248	+0.21506502
<i>a</i>	2.4497535	Ω	194.13678	−0.20316254	+0.90798143
<i>e</i>	0.2027577	<i>i</i>	2.00142	−0.07106831	+0.35960640
<i>P</i>	3.83	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1975 10 03	095	0.4+	1.0−	1994 08 11	809	(1.1+	4.5+)	1998 06 29	704	0.8+	0.1−
1975 11 26	381	0.8+	1.6+	1994 09 02	691	0.6−	0.4−	1998 06 29	704	0.6+	0.9+
1975 11 26	381	1.7+	1.2+	1994 09 02	691	0.5−	0.1−	1998 06 29	704	0.3−	1.3+
1979 11 17	095	2.1−	2.0−	1994 09 02	691	0.3−	0.2−	1998 08 02	699	0.3−	0.6−
1993 03 21	809	0.3−	0.8+	1994 09 03	809	(3.1−	1.3−)	1998 08 02	699	0.1−	0.3+
1993 03 22	809	1.0+	0.6+	1994 09 03	809	(3.3−	1.0−)	1998 08 02	699	0.7−	0.4−
1993 03 26	809	0.6+	1.2−	1994 09 03	809	(2.9−	1.5−)	1998 08 21	426	0.7+	0.1+
1993 03 27	809	1.7+	1.5−	1994 09 04	809	1.7−	0.9+	1998 08 21	426	0.8+	0.2+
1993 04 21	413	0.3−	0.4−	1994 09 04	809	1.2−	0.2+	1998 08 21	426	0.9+	0.2+
1994 08 10	809	(1.7+	4.0+)	1994 09 04	809	1.2−	0.2+	1998 08 23	426	0.9+	0.0
1994 08 10	809	(1.5+	4.0+)	1996 01 20	691	0.5−	1.1+	1998 08 23	426	0.9+	0.1+
1994 08 10	809	(0.8+	3.5+)	1996 01 20	691	0.7−	0.7+	1998 08 23	426	1.0+	0.2+
1994 08 11	809	(1.7+	4.8+)	1996 01 20	691	0.7−	1.1+				
1994 08 11	809	(1.6+	4.3+)	1998 06 29	704	0.3+	0.2−				

(9201)* 1993 FU₃₉ = 1976 GX₇ = 1977 LH = 1978 RB₂ = 1983 PR = 1994 NO₆

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

Id. S. Nakano (*MPC* 32230)

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Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	286.74861		(2000.0)	P	Q
<i>n</i>	0.17537906	ω	179.63539	−0.32929905	+0.94413652
<i>a</i>	3.1609495	Ω	71.13834	−0.86634483	−0.29664452
<i>e</i>	0.1170153	<i>i</i>	0.78565	−0.37551135	−0.14355575
<i>P</i>	5.62	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1976 04 04	095	(7.4+	3.4−)	1993 03 19	809	0.5−	0.1+	1994 07 12	809	0.2−	1.7−
1977 06 14	675	0.2−	1.3+	1993 03 20	809	0.5+	0.0	1994 07 12	809	(2.1−	2.9−)
1977 06 14	675	(10.5−	0.5+)	1993 03 22	808	(0.7+	2.6−)	1997 11 08	910	0.2+	0.2+
1978 09 07	095	0.0	0.3+	1993 03 22	808	0.3+	0.2+	1997 11 08	910	0.2−	0.1+
1978 09 12	095	0.5+	0.2−	1993 03 24	809	0.4+	0.1+	1997 11 08	910	0.0	0.2+
1983 08 13	688	(2.7−	2.3−)	1994 07 11	809	0.2+	0.7−	1998 02 25	566	0.4−	1.0−
1983 08 13	688	0.1+	0.9−	1994 07 11	809	0.4+	0.2−	1998 02 25	566	0.3−	0.9−
1991 12 31	691	0.1+	1.0−	1994 07 11	809	0.0	0.3+	1998 02 25	566	0.4−	1.3−
1991 12 31	691	0.7−	0.7−	1994 07 12	809	0.2+	1.8−				

(9202)* 1993 PB

Discovered 1993 Aug. 13 by Spacewatch at Kitt Peak.

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	55.58003		(2000.0)	P	Q
<i>n</i>	0.58023540	ω	212.22494	−0.88877372	−0.06035273
<i>a</i>	1.4236391	Ω	316.02850	+0.41145418	−0.54184140
<i>e</i>	0.6070709	<i>i</i>	40.87473	−0.20195723	−0.83831107
<i>P</i>	1.70	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1993 08 13	691	0.9−	0.4+	1995 07 20	413	0.3+	0.0	1997 11 09	658	0.5+	0.1+
1993 08 13	691	0.9−	0.1+	1995 07 20	413	0.1+	0.2−	1997 11 10	696	0.4+	0.1−
1993 08 13	691	0.4−	0.5+	1995 07 20	413	0.5+	0.1−	1997 11 10	696	0.3+	0.0
1993 08 14	691	0.7−	0.1+	1995 08 06	413	0.2−	1.3−	1997 11 10	696	0.3+	0.0
1993 08 14	691	0.6+	0.5+	1995 08 06	413	0.6−	1.0−	1997 11 11	658	0.5−	0.2+
1993 08 14	691	0.5−	0.5+	1995 08 20	658	(3.0−	0.3+)	1997 11 11	658	0.1−	0.8+
1993 08 15	691	0.6−	0.5+	1995 08 20	658	1.3−	0.3+	1997 11 11	658	0.2−	0.2+
1993 08 15	691	0.6−	0.5+	1995 08 20	658	0.9+	0.3+	1998 02 01	557	1.1+	0.1−
1993 08 15	691	1.0−	0.4+	1995 08 20	658	1.0−	0.1+	1998 02 01	557	0.2+	0.1+
1993 08 17	587	1.1+	0.3−	1995 08 21	658	0.4−	0.2+	1998 02 01	557	0.2−	0.3−
1993 08 17	587	0.2−	0.5+	1995 08 21	658	0.5−	0.4+	1998 02 01	557	0.2−	0.2−
1993 08 17	691	0.8−	0.3+	1995 08 27	658	1.5−	0.2−	1998 02 01	557	0.2+	0.5+
1993 08 17	691	1.2−	0.1+	1995 08 27	658	0.1+	0.0	1998 06 16	426	0.2+	0.1+
1993 08 17	691	0.7−	0.5+	1995 08 27	658	0.8+	0.0	1998 06 16	426	0.1+	0.2−
1993 08 20	587	0.3+	0.7+	1995 09 15	658	1.2−	0.5−	1998 06 16	426	0.0	0.5−
1993 08 20	587	1.5+	0.5−	1995 09 15	658	0.2−	0.4−	1998 06 17	426	0.7−	1.2−
1993 08 20	587	0.6+	0.6+	1995 09 15	658	1.4−	0.4−	1998 06 17	426	0.2+	0.9−
1993 08 22	691	0.5−	0.3+	1995 09 22	587	0.0	0.2+	1998 06 17	426	0.4−	1.2−
1993 08 22	691	0.9−	0.2+	1995 09 22	587	0.7−	0.8−	1998 08 12	426	0.6+	0.3+
1993 08 22	691	0.5−	0.2+	1995 10 29	658	0.2−	0.1+	1998 08 12	426	0.4+	0.1+
1993 08 24	413	0.0	0.6+	1995 10 29	658	0.4−	0.3−	1998 08 12	426	0.4+	0.3+
1993 08 24	413	0.3+	0.7+	1995 11 19	658	0.5+	0.2−	1998 08 12	426	0.3+	0.1+
1993 08 25	413	0.6+	0.8+	1995 11 19	658	0.9−	0.1−	1998 08 13	426	0.8+	0.0
1993 08 25	413	0.5+	0.7+	1995 11 19	658	0.0	0.3−	1998 08 13	426	1.1+	0.2−
1993 09 03	413	0.6+	0.9+	1997 08 27	046	0.8+	0.2+	1998 08 13	426	0.1+	0.2+
1993 09 03	413	0.3+	0.7+	1997 08 27	046	0.7+	0.3+	1998 08 13	426	0.1+	0.1−
1993 09 11	691	1.9−	0.5−	1997 08 28	046	0.2+	0.3+	1998 08 14	046	1.7+	0.4−
1993 09 11	691	(2.3−	0.1+)	1997 09 01	046	0.4−	0.6+	1998 08 14	046	1.3+	0.9−
1993 09 20	658	0.6−	0.5−	1997 09 01	046	0.2−	0.1+	1998 08 14	046	1.3+	0.3−
1993 09 20	658	1.1−	0.5−	1997 09 01	046	0.4+	0.5+	1998 08 14	046	0.4+	0.1−
1993 09 20	658	0.1−	0.4−	1997 09 21	046	0.3−	0.3−	1998 08 14	046	0.4−	0.1+
1993 09 21	658	0.4−	0.5−	1997 09 21	046	0.2+	0.3+	1998 08 17	704	1.4+	1.0−
1993 09 21	658	0.2+	0.6−	1997 09 25	046	0.1−	0.1−	1998 08 17	704	(3.0+	0.0)
1993 09 21	658	0.6−	0.3−	1997 09 25	046	0.4+	0.1+	1998 08 17	704	(2.2+	2.4−)
1995 06 05	413	0.5+	0.3+	1997 10 12	658	1.3+	0.9−	1998 08 17	704	0.6+	1.7−
1995 06 05	413	0.8+	0.3+	1997 10 12	658	1.7+	1.2−	1998 08 20	360	0.0	0.3−
1995 07 20	413	0.3+	0.1+	1997 10 21	658	0.6+	0.2+	1998 08 20	360	0.5−	0.1+

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1995 07 20 413 0.7+ 0.1+ 1997 10 21 658 0.6+ 0.2+ 1998 08 20 360 0.0 0.1+
 1995 07 20 413 0.5+ 0.0 1997 11 09 658 0.1+ 0.9-

(9203)* 1993 TM₁₆ = 1988 XX₄ = 1989 YH₂

Discovered 1993 Oct. 9 by E. W. Elst at the European Southern Observatory.
 Id. T. Kobayashi (*MPC* 24111)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	65.45007	(2000.0)	P	Q	
<i>n</i>	0.17374481	ω	160.03060	-0.41264839	+0.90979371
<i>a</i>	3.1807399	Ω	85.57657	-0.84169607	-0.36208882
<i>e</i>	0.0891835	<i>i</i>	2.56875	-0.34823705	-0.20289677
<i>P</i>	5.67	<i>H</i>	12.7	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1949 11 25	675	0.1-	0.0	1993 09 23	675	1.7-	0.7-	1996 03 21	801	0.1-	0.4+
1949 11 25	675	0.5-	0.2+	1993 10 09	809	0.8+	0.1-	1996 03 21	801	0.1+	0.2+
1988 12 05	381	0.0	0.7-	1993 10 09	809	0.7+	0.5-	1998 07 31	699	1.2+	0.0
1988 12 06	381	0.2-	1.0+	1993 10 09	809	0.7-	0.3-	1998 07 31	699	0.7+	0.4+
1988 12 07	381	0.8+	0.7+	1993 10 11	809	(2.1+ 0.3-)		1998 07 31	699	0.6+	0.2-
1988 12 08	381	0.5+	0.5+	1993 10 11	809	0.8+	1.2-	1998 08 17	704	0.4-	0.1+
1989 12 30	413	1.6-	0.1+	1993 10 11	809	0.3+	1.8-	1998 08 17	704	0.3-	0.0
1989 12 30	413	0.8+	0.2+	1993 10 20	809	1.3+	1.3+	1998 08 17	704	0.1-	0.4+
1989 12 31	413	0.3+	1.2-	1993 10 20	809	1.6+	1.1+	1998 08 17	704	0.4-	0.0
1989 12 31	413	(2.6+ 0.5-)		1993 10 20	809	1.6+	1.3+	1998 08 17	704	0.4-	1.9+
1991 04 14	675	0.0	0.0	1994 12 01	104	1.1-	0.1+	1998 08 19	566	1.8-	0.9-
1991 04 14	675	0.8-	0.1+	1994 12 01	104	0.2-	0.1-	1998 08 19	566	1.9-	1.1-
1991 04 15	675	0.9+	1.3-	1994 12 01	104	0.5+	0.2-	1998 08 19	566	1.6-	1.1-
1991 04 15	675	0.8+	1.0-	1994 12 02	104	0.1-	0.0	1998 08 23	704	0.3+	0.1-
1991 04 16	675	0.4-	0.4+	1994 12 02	104	0.2-	0.2+	1998 08 23	704	0.6+	0.4+
1991 04 16	675	0.1-	0.5+	1994 12 02	104	0.0	0.1+	1998 08 23	704	0.8+	0.5+
1993 09 21	675	0.7-	0.1+	1996 03 18	801	0.0	0.0	1998 08 23	704	0.6+	0.0
1993 09 21	675	1.4-	0.8-	1996 03 18	801	0.1+	0.0				

(9204)* 1994 PZ₁ = 1991 RY₂₇

Discovered 1994 Aug. 4 by F. Börngen at Tautenburg.

Id. G. V. Williams (*MPC* 24113)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	233.62652	(2000.0)	P	Q	
<i>n</i>	0.27655148	ω	212.80074	-0.40020060	-0.91035347
<i>a</i>	2.3332005	Ω	260.98092	+0.86211583	-0.33500529
<i>e</i>	0.0622024	<i>i</i>	6.12261	+0.31079861	-0.24295683
<i>P</i>	3.56	<i>H</i>	13.6	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1991 09 14	675	0.1+	1.4-	1995 11 21	113	0.1+	0.2-	1996 01 17	113	0.7-	0.3-
1991 09 14	675	0.5+	1.0-	1995 11 21	113	0.1-	0.1-	1996 01 22	113	0.5+	0.2-
1991 09 16	675	0.8-	0.4+	1995 11 21	113	0.4-	0.5+	1996 01 22	113	0.1-	0.2-
1991 09 16	675	1.0+	0.9-	1995 12 28	113	1.1+	1.7+	1998 06 30	704	1.5-	1.5-
1991 09 17	095	0.5-	1.3+	1995 12 29	113	(1.9+ 2.2+)		1998 06 30	704	1.9-	0.1-
1991 09 17	675	0.7+	1.0+	1995 12 29	113	1.2+	1.0-	1998 06 30	704	1.5-	1.1-
1991 09 17	675	0.7-	0.9-	1995 12 29	113	0.6+	0.0	1998 08 20	113	0.3-	0.8+
1994 08 04	033	0.5-	0.3-	1996 01 14	113	0.9-	0.0	1998 08 20	113	0.3-	0.3+
1994 08 04	033	0.4+	0.0	1996 01 16	113	0.5-	0.0	1998 08 27	699	1.3+	0.9+
1994 08 06	033	0.7+	0.3-	1996 01 16	113	0.7-	0.6-	1998 08 27	699	0.8+	1.0+
1994 08 09	033	0.1+	0.1-	1996 01 17	113	0.6-	0.0	1998 08 27	699	0.9+	0.6+

(9205)* 1994 PO₉ = 1994 RP₁₅ = 1975 ES₄ = 1978 TO₂ = 1996 YP₁ = 1998 KQ₁₆

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

Id. S. Nakano (d, *MPC* 27543; *MPC* 32235)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		(2000.0)		P		Q	
<i>M</i>	67.72635						
<i>n</i>	0.17586144	ω	42.17337	-0.90677370	-0.42150943		
<i>a</i>	3.1551666	Ω	112.89439	+0.38400445	-0.83502203		
<i>e</i>	0.1334122	<i>i</i>	0.59418	+0.17407483	-0.35364956		
<i>P</i>	5.60	<i>H</i>	12.6	<i>G</i>	0.15 <i>U</i> 1		

Residuals in seconds of arc

1975 03 15	095	0.8-	0.9-	1994 09 04	809	0.2+	1.0-	1998 05 22	704	0.9+	0.1+
1978 10 03	095	(3.2- 1.0-)		1994 09 04	809	0.7-	1.0-	1998 05 22	704	1.1+	0.2-
1978 10 07	095	0.7+	1.0+	1996 12 18	327	0.7+	0.6-	1998 05 22	704	0.3-	0.5-
1994 08 10	809	0.3-	1.2-	1996 12 18	327	0.9-	0.5-	1998 05 22	699	0.2+	0.2+
1994 08 10	809	0.2+	1.0-	1996 12 18	327	0.1+	0.6-	1998 05 22	699	0.2+	0.8+
1994 08 10	809	0.6-	1.2-	1996 12 22	327	0.1+	0.1+	1998 05 22	699	0.0	0.3+
1994 08 11	809	1.5+	0.0	1996 12 22	327	0.4-	1.0-	1998 05 24	704	0.2-	0.1+
1994 08 11	809	1.3+	0.1+	1996 12 22	327	0.8-	1.1-	1998 05 24	704	0.6-	0.8-
1994 08 11	809	1.4+	0.7+	1998 04 25	699	0.3-	0.4-	1998 05 24	704	0.6-	0.2+
1994 09 03	809	0.4-	0.3+	1998 04 25	699	0.1+	0.0	1998 05 24	704	0.4-	0.1+
1994 09 03	809	0.7-	0.1+	1998 04 25	699	0.7-	0.1-	1998 05 24	704	0.7-	1.0-
1994 09 03	809	1.2-	0.7-	1998 05 22	704	1.0+	0.0				
1994 09 04	809	0.1+	0.6-	1998 05 22	704	0.6+	0.5-				

(9206)* 1994 RQ = 1980 BZ₅ = 1990 QU₁₀

Discovered 1994 Sept. 1 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 24233), G. V. Williams (*MPC* 26905)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		(2000.0)		P		Q	
<i>M</i>	330.49058						
<i>n</i>	0.25104481	ω	342.49420	+0.93936786	-0.34236620		
<i>a</i>	2.4886771	Ω	37.54472	+0.31828726	+0.84955935		
<i>e</i>	0.2156107	<i>i</i>	1.81718	+0.12759796	+0.40129078		
<i>P</i>	3.93	<i>H</i>	13.7	<i>G</i>	0.15 <i>U</i> 2		

Residuals in seconds of arc

1980 01 23	095	0.9-	1.1-	1994 09 01	400	0.5+	0.5-	1996 02 15	098	0.5-	0.0
1989 05 07	675	1.6+	1.2-	1994 09 01	400	1.1-	1.0-	1996 02 24	098	1.1+	1.7-
1990 08 27	675	1.5+	0.6-	1994 09 06	400	0.5-	0.1+	1996 02 24	098	1.5+	1.0-
1990 08 27	675	1.6+	0.9-	1994 09 06	400	0.0	1.6+	1997 05 15	711	1.4-	0.1+
1990 09 14	675	0.7-	0.3-	1994 09 12	675	0.4+	0.9-	1997 05 15	711	1.3-	0.0
1990 09 14	675	0.3-	0.9-	1994 09 12	675	0.3+	0.2-	1998 06 29	704	0.1+	1.7+
1992 02 26	691	0.5+	0.1-	1994 10 02	400	0.4-	0.5-	1998 06 29	704	0.8+	0.6-
1992 02 26	691	0.6+	0.1+	1994 10 02	400	0.1-	0.2-	1998 06 29	704	1.0+	1.2-
1992 02 26	691	0.5-	0.0	1996 02 14	098	0.0	0.6-	1998 06 29	704	1.2+	0.2+
1992 02 27	033	0.0	1.2-	1996 02 14	098	0.1+	1.3+	1998 08 02	699	0.8-	0.8+
1992 02 27	033	0.6-	0.5-	1996 02 14	691	0.3+	0.1-	1998 08 02	699	0.3-	0.2-
1992 02 28	033	1.3-	0.0	1996 02 14	691	0.3-	0.3-	1998 08 02	699	0.4-	0.0
1994 08 03	675	0.1-	0.0	1996 02 14	691	0.6-	0.1-				
1994 08 03	675	0.1+	0.3+	1996 02 15	098	0.6-	0.4+				

(9207)* 1994 SF₁₂ = 1995 YZ₃

Discovered 1994 Sept. 29 by Spacewatch at Kitt Peak.

Id. K. Ichikawa (*MPC* 27917)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		(2000.0)		P		Q	
<i>M</i>	337.25145						
<i>n</i>	0.21690873	ω	236.30456	+0.79900458	+0.60089850		
<i>a</i>	2.7433720	Ω	86.75096	-0.54392765	+0.73828050		
<i>e</i>	0.0804541	<i>i</i>	1.29951	-0.25638720	+0.30637052		
<i>P</i>	4.54	<i>H</i>	14.2	<i>G</i>	0.15 <i>U</i> 2		

Residuals in seconds of arc

1992 03 06	809	1.4-	1.3+	1995 12 29	608	0.2-	0.5+	1998 06 26	704	0.2+	1.4-
1994 09 29	691	0.1-	0.6+	1997 03 31	704	0.4+	0.1+	1998 06 26	704	0.5-	1.3+
1994 09 29	691	0.2-	0.7+	1997 03 31	704	0.3+	0.7+	1998 07 02	699	0.0	0.1+
1994 09 29	691	0.4-	0.4+	1997 04 03	704	1.5+	1.0+	1998 07 02	699	0.1+	0.3+
1994 10 06	691	0.9+	0.7+	1997 04 03	704	1.6+	1.1+	1998 07 02	699	0.1+	0.4-

1994 10 06	691	0.5+	0.7+	1997 04 05	704	1.4+	0.2-	1998 07 16	699	0.4+	1.1+
1994 10 06	691	0.4+	0.4+	1997 04 05	704	0.4+	0.3+	1998 07 16	699	0.7+	0.4-
1994 10 12	691	0.6-	1.0+	1997 04 06	704	0.1+	0.3+	1998 07 16	699	0.4+	0.2-
1994 10 12	691	0.5-	0.9+	1997 04 06	704	1.4-	1.3+	1998 08 17	704	1.1-	1.4-
1994 10 12	691	0.6-	0.7+	1997 04 07	704	0.1-	0.7-	1998 08 17	704	0.5-	0.4-
1995 12 28	608	0.0	0.9+	1997 04 07	704	0.5+	0.5+	1998 08 17	704	1.2-	1.3+
1995 12 28	608	0.1-	0.4+	1998 06 26	704	0.3-	1.7+	1998 08 17	704	0.1+	1.2+
1995 12 29	608	0.2-	0.5+	1998 06 26	704	0.4+	0.1+	1998 08 17	704	1.3-	1.0-

(9208)* 1994 TX₂

Discovered 1994 Oct. 2 by K. Endate and K. Watanabe at Kitami.

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano

<i>M</i>	270.82509		(2000.0)	P	Q
<i>n</i>	0.21701453	ω	205.91158	+0.58245120	-0.80820488
<i>a</i>	2.7424803	Ω	208.70916	+0.77370596	+0.58400303
<i>e</i>	0.1013673	<i>i</i>	10.42515	+0.24925827	+0.07579799
<i>P</i>	4.54	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1988 05 10	675	1.1+	0.5-	1994 11 01	033	0.5-	0.1+	1998 08 24	704	0.6+	0.5+
1988 05 10	675	0.3-	0.2-	1994 11 01	033	0.6-	0.2-	1998 08 27	704	0.2-	0.0
1989 08 30	675	0.3-	1.3-	1997 04 30	691	0.2-	0.1+	1998 08 27	704	0.7+	0.7-
1989 08 30	675	0.2+	0.6-	1997 04 30	691	0.2-	0.1+	1998 08 27	704	0.4+	0.6-
1994 10 02	400	0.3+	1.0+	1997 04 30	691	0.1-	0.1-	1998 08 27	704	0.5+	0.0
1994 10 02	400	1.1+	0.1+	1997 05 02	691	0.3-	0.3+	1998 08 27	704	1.5+	0.8-
1994 10 03	400	0.2-	0.3-	1997 05 02	691	0.3-	0.1-	1998 08 28	704	0.2+	0.5-
1994 10 03	400	0.2-	0.1-	1997 05 02	691	0.4-	0.0	1998 08 28	704	(2.8- 1.2-)	
1994 10 07	400	0.3+	0.2+	1997 05 04	809	(3.9+ 1.6+)		1998 08 28	704	1.2-	0.4-
1994 10 07	400	0.5+	1.0+	1997 05 04	809	(3.7+ 1.8+)		1998 08 28	704	(3.8- 1.9+)	
1994 10 10	397	0.3+	0.2-	1997 05 04	809	(3.8+ 1.4+)		1998 08 28	704	1.5-	0.3-
1994 10 10	397	0.2+	0.3-	1997 05 10	691	0.3+	0.3+	1998 08 29	704	0.0	0.1-
1994 10 27	400	0.6-	1.4-	1997 05 10	691	0.1+	0.2-	1998 08 29	704	1.1-	0.1+
1994 10 27	400	1.6+	1.2-	1997 05 10	691	0.2+	0.0	1998 08 29	704	0.2-	0.8-
1994 10 28	033	1.8+	0.1-	1998 06 19	699	0.3-	0.1-	1998 08 29	704	0.3-	0.2+
1994 10 28	033	0.6+	0.2+	1998 06 19	699	0.2-	0.7+	1998 08 29	704	0.9-	0.7+
1994 10 31	691	1.5-	0.1-	1998 06 19	699	0.5+	0.1-	1998 08 29	704	0.1-	0.9+
1994 10 31	691	0.9-	0.3-	1998 08 24	704	0.3-	0.0	1998 08 29	704	1.3+	0.9+
1994 10 31	691	1.0-	0.3-	1998 08 24	704	1.1+	0.4+	1998 08 29	704	0.5-	0.4+
1994 11 01	400	0.6-	1.5+	1998 08 24	704	0.4-	0.1-	1998 08 29	704	0.1-	1.0+
1994 11 01	400	0.5-	0.4+	1998 08 24	704	0.5+	0.8+				

(9209)* 1994 UK₁ = 1985 UE₁ = 1997 EY₁₇

Discovered 1994 Oct. 25 by S. Ueda and H. Kaneda at Kushiro.

Id. G. V. Williams (*MPC* 29302, *MPC* 30081)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	354.12676		(2000.0)	P	Q
<i>n</i>	0.21612521	ω	294.34478	+0.55359579	+0.83264127
<i>a</i>	2.7499983	Ω	9.31590	-0.72516485	+0.49112191
<i>e</i>	0.2858777	<i>i</i>	5.49408	-0.40947239	+0.25594487
<i>P</i>	4.56	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1985 10 22	033	0.9+	0.4+	1997 03 03	400	0.3+	0.6+	1997 04 29	704	(2.1+ 0.3-)	
1993 03 23	675	0.0	0.0	1997 03 04	400	1.0+	0.1+	1997 04 29	704	0.7+	0.8+
1993 03 23	675	0.5-	1.8+	1997 03 04	400	0.2-	0.5+	1997 04 29	704	0.5+	0.1-
1994 10 25	399	1.0+	1.4+	1997 03 12	400	0.8+	0.6+	1998 06 06	689	0.2-	0.5-
1994 10 25	399	0.5+	1.1+	1997 03 12	400	0.4-	0.3+	1998 08 17	704	0.4-	1.6+
1994 10 26	399	1.3-	0.5-	1997 03 12	400	0.3+	0.7-	1998 08 17	704	0.9+	1.0+
1994 10 26	399	0.6-	0.4-	1997 03 16	400	(0.1- 2.3-)		1998 08 17	704	0.2-	1.1+
1994 11 07	399	(4.7- 1.2-)		1997 03 16	400	0.5+	0.2+	1998 08 17	704	0.5-	1.5+
1994 11 07	399	1.0-	1.5+	1997 03 28	400	1.7-	1.4+	1998 08 19	566	0.1+	0.1-
1994 11 10	399	0.5-	0.2+	1997 03 28	400	0.5-	0.1-	1998 08 19	566	0.3-	0.3-
1994 11 10	399	1.2-	0.8+	1997 04 29	704	1.1+	0.2+	1998 08 19	566	0.2+	0.2-
1997 03 03	400	1.6+	1.5+	1997 04 29	704	0.3+	0.6+				

(9210)* 1995 BW₂ = 1977 RC₂₀ = 1990 EC₆

Discovered 1995 Jan. 27 by S. Ueda and H. Kaneda at Kushiro.

Id. K. Kinoshita (*MPC* 24904)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Asher

<i>M</i>	258.40253		(2000.0)	P	Q
<i>n</i>	0.18310485	ω	81.82475	+0.30895586	-0.95083956
<i>a</i>	3.0713984	Ω	350.10050	+0.81675931	+0.27669001
<i>e</i>	0.2315191	<i>i</i>	7.09097	+0.48728893	+0.13909267
<i>P</i>	5.38	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1977 09 09	675	0.8+	0.5-	1993 08 13	675	0.3-	0.9+	1998 07 18	734	1.0-	0.1-
1977 09 10	675	0.2-	0.9-	1995 01 27	399	1.4+	0.8-	1998 07 18	734	0.3+	0.7-
1990 03 02	809	0.7-	0.0	1995 01 27	399	0.1-	1.4-	1998 07 20	734	1.6+	1.2-
1990 03 02	809	0.5-	0.1+	1995 01 28	399	0.1-	0.2+	1998 07 20	734	(3.0- 0.5-)	
1990 03 02	809	0.2-	0.1+	1995 01 28	399	0.5-	0.8+	1998 08 17	704	1.3+	1.3-
1990 03 03	809	0.3-	0.9-	1995 02 03	399	0.9-	0.3-	1998 08 17	704	0.4-	0.4+
1990 03 03	809	0.2+	1.0-	1995 02 03	399	0.6-	0.0	1998 08 17	704	0.6+	0.0
1990 03 03	809	0.7+	0.9-	1998 07 18	734	(2.6- 1.5+)		1998 08 17	704	0.1+	0.5-
1993 08 13	675	0.7+	0.3-	1998 07 18	734	0.4-	0.2+	1998 08 17	704	1.2-	0.1-

(9211)* 1995 SB₂₇ = 1977 DT₉ = 1994 GB₁₀

Discovered 1995 Sept. 19 by Spacewatch at Kitt Peak.

Id. B. G. Marsden (*MPC* 26178), G. V. Williams (unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	11.47202		(2000.0)	P	Q
<i>n</i>	0.29158512	ω	266.54719	+0.19605706	+0.98053401
<i>a</i>	2.2522978	Ω	14.77241	-0.88217728	+0.18113820
<i>e</i>	0.1499851	<i>i</i>	2.40711	-0.42816455	+0.07577604
<i>P</i>	3.38	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1977 02 19	381	1.2-	0.4+	1995 09 24	691	0.1+	0.2+	1998 07 02	699	0.8-	0.1+
1977 02 19	381	1.5+	0.7-	1995 10 20	010	1.8-	0.2-	1998 08 17	704	0.3+	0.9+
1988 09 11	675	0.3-	0.2-	1995 10 20	010	0.1+	0.0	1998 08 17	704	0.4+	0.3+
1988 09 11	675	0.1+	0.2-	1995 10 20	010	0.2+	0.3-	1998 08 17	704	0.5-	1.4-
1994 04 03	033	0.2+	0.6-	1995 10 23	010	0.6+	0.2+	1998 08 17	704	0.6+	0.5-
1994 04 03	033	0.4+	0.3-	1995 10 23	010	1.3+	0.5-	1998 08 17	704	0.4+	1.0-
1994 04 03	033	1.0-	0.2-	1995 10 23	010	0.4+	1.1-	1998 08 23	704	(0.9+ 2.4-)	
1994 04 04	033	0.7-	0.3-	1998 06 24	699	0.5+	0.6+	1998 08 23	704	(1.6+ 2.7-)	
1995 09 19	691	0.1-	0.2+	1998 06 24	699	0.2-	0.6+	1998 08 23	704	1.4-	0.2-
1995 09 19	691	0.1-	0.3+	1998 06 24	699	0.6+	0.0	1998 08 23	704	0.2-	0.4+
1995 09 19	691	0.3-	0.4+	1998 07 02	699	0.1+	0.0	1998 08 23	704	0.9+	0.2-
1995 09 24	691	0.1+	0.3+	1998 07 02	699	0.1-	0.0				

(9212)* 1995 UR₃ = 1988 XR₂

Discovered 1995 Oct. 20 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 25968)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Asher

<i>M</i>	256.41120		(2000.0)	P	Q
<i>n</i>	0.27812126	ω	191.33301	+0.53098458	-0.84427769
<i>a</i>	2.3244128	Ω	226.64307	+0.78503972	+0.52231049
<i>e</i>	0.0976452	<i>i</i>	5.71950	+0.31901101	+0.11994557
<i>P</i>	3.54	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1988 12 01	054	0.3+	0.4-	1995 10 27	411	0.5+	0.3-	1998 07 15	699	0.4-	0.2+
1988 12 07	054	0.4-	1.3+	1997 03 31	704	0.3-	0.1+	1998 07 15	699	0.4+	0.5-
1988 12 07	054	0.0	0.5-	1997 03 31	704	0.4-	0.9-	1998 07 15	699	0.3-	0.6-
1995 10 17	691	0.7-	0.1+	1997 04 03	704	0.1-	0.4+	1998 08 12	411	0.2-	0.1+
1995 10 17	691	0.7-	0.2-	1997 04 03	704	0.1-	0.7+	1998 08 12	411	0.3+	0.1+
1995 10 17	691	0.5-	0.1-	1997 04 03	704	0.1+	0.0	1998 08 17	704	0.3-	0.4-
1995 10 20	411	0.3-	0.1-	1997 04 03	704	0.1-	0.1+	1998 08 17	704	0.8-	0.1+

1995 10 20	411	0.9+	0.4+	1997 04 05	704	1.6+	0.7-	1998 08 17	704	0.1-	0.2+
1995 10 21	411	0.4-	0.2-	1997 04 05	704	1.0+	0.3-	1998 08 17	704	0.5+	0.3+
1995 10 21	411	1.7+	0.2-	1997 04 06	704	1.3-	0.5+	1998 08 23	704	1.6+	0.2+
1995 10 23	691	0.7-	0.0	1997 04 06	704	0.7+	0.0	1998 08 23	704	1.1+	0.7+
1995 10 23	691	0.8-	0.0	1997 04 07	704	0.1+	0.9+	1998 08 23	704	0.4+	0.3-
1995 10 23	691	0.6-	0.2-	1997 04 07	704	0.6-	0.9+	1998 08 23	704	0.3-	0.9+
1995 10 25	411	0.6+	0.3+	1998 06 27	699	0.6-	0.4+	1998 08 23	704	1.1-	0.1+
1995 10 25	411	0.5+	0.2+	1998 06 27	699	0.1+	0.7-				
1995 10 27	411	0.1+	1.1+	1998 06 27	699	0.7-	0.1+				

(9213)* 1995 UX₅ = 1980 RO₅ = 1991 RH₃₃ = 1993 BB₁₄

Discovered 1995 Oct. 21 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 26181)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	207.11722	(2000.0)	P	Q	
<i>n</i>	0.26731034	ω 156.27929	-0.06535874	-0.99307995	
<i>a</i>	2.3866691	Ω 297.34401	+0.89704487	-0.01564375	
<i>e</i>	0.0735253	<i>i</i> 6.30647	+0.43707978	-0.11639365	
<i>P</i>	3.69	<i>H</i> 13.9	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1980 09 13	675	0.8+	0.0	1995 10 27	399	0.3-	0.4+	1997 05 25	954	0.1+	0.1+
1980 09 14	675	0.3+	0.3-	1995 11 12	399	0.0	0.5-	1997 05 25	954	0.1+	0.1-
1991 09 10	675	0.5-	0.5-	1995 11 12	399	0.9-	0.0	1998 07 16	699	0.1-	0.6+
1991 09 10	675	1.0-	0.4-	1995 11 16	399	0.4-	0.1+	1998 07 16	699	1.1-	0.3+
1993 01 23	809	0.1-	0.8+	1995 11 16	399	(2.4- 1.0-)		1998 07 16	699	0.7+	0.2+
1993 01 28	809	0.4+	0.4+	1996 02 04	327	0.9+	0.3+	1998 08 17	704	0.6-	0.3-
1993 01 28	809	0.7-	0.4-	1996 02 04	327	0.6+	0.2-	1998 08 17	704	(2.5+ 1.3-)	
1995 10 21	399	0.2+	0.9+	1996 02 04	327	1.2+	0.1-	1998 08 17	704	1.5+	0.1+
1995 10 21	399	0.2+	0.1-	1997 05 25	954	0.1+	0.1-				
1995 10 27	399	(2.7+ 0.1-)		1997 05 25	954	0.2+	0.1-				

(9214)* 1995 UC₆ = 1972 RQ₂ = 1994 ER₂

Discovered 1995 Oct. 21 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 26406)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	14.46105	(2000.0)	P	Q	
<i>n</i>	0.30409011	ω 335.52887	+0.43680652	+0.89665700	
<i>a</i>	2.1901197	Ω 320.26370	-0.80561200	+0.35424070	
<i>e</i>	0.1790994	<i>i</i> 6.48096	-0.40023665	+0.26555555	
<i>P</i>	3.24	<i>H</i> 13.6	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1972 08 17	095	2.0-	2.0+	1997 02 11	886	0.0	0.9-	1998 08 17	704	0.7-	0.2+
1972 09 04	095	0.6+	1.6+	1997 02 11	886	0.6-	0.2-	1998 08 17	704	0.1-	1.1+
1994 03 14	894	0.7-	1.6+	1997 02 14	886	0.0	0.3-	1998 08 17	704	0.8-	1.2+
1994 03 14	894	1.1-	0.7+	1997 02 14	886	0.4-	0.1+	1998 08 17	704	0.3+	1.8+
1994 03 15	894	1.5+	0.0	1997 03 05	704	1.3+	0.6+	1998 08 21	566	0.2-	1.0-
1994 03 15	894	0.0	0.0	1997 03 05	704	1.3+	0.4+	1998 08 21	566	0.5-	1.1-
1995 10 21	399	0.7-	0.2+	1997 03 06	704	1.2+	0.5+	1998 08 21	566	0.4-	1.1-
1995 10 21	399	1.8+	1.1+	1997 03 06	704	1.2+	0.1-	1998 08 23	704	0.2-	0.5+
1995 10 27	399	1.1-	0.2-	1998 06 29	704	0.1-	0.3+	1998 08 23	704	0.4+	1.1-
1995 10 27	399	1.8-	0.2-	1998 06 29	704	1.2-	0.6+	1998 08 23	704	0.6+	2.0-
1995 11 12	399	0.5+	0.1-	1998 06 29	704	1.1-	0.2-	1998 08 23	704	0.9+	0.1+
1995 11 12	399	0.1-	0.2+	1998 06 29	704	0.6-	0.4+	1998 08 23	704	0.5+	0.3+
1995 11 16	399	0.7-	0.0	1998 06 29	704	0.1+	0.1-	1998 08 23	120	0.6+	0.4-
1995 11 16	399	0.1-	1.0+	1998 08 03	699	0.5+	0.1+	1998 08 24	120	0.4+	1.3-
1997 01 09	691	0.7-	0.1+	1998 08 03	699	0.6+	0.0	1998 08 26	699	0.6+	0.3-
1997 01 09	691	0.8-	0.0	1998 08 03	699	0.6+	0.1+	1998 08 26	699	0.4+	0.2-
1997 01 09	691	0.7-	0.1+	1998 08 17	704	0.0	0.4+	1998 08 26	699	0.2+	0.4-

(9215)* 1995 UB₄₅

Discovered 1995 Oct. 28 by K. Endate and K. Watanabe at Kitami.

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	308.29151	(2000.0)	P	Q	
<i>n</i>	0.29669026	ω 111.53341	+0.93481606	-0.35151819	
<i>a</i>	2.2263863	Ω 269.07550	+0.30425808	+0.86613999	
<i>e</i>	0.1510318	<i>i</i> 2.89712	+0.18315556	+0.35529775	
<i>P</i>	3.32	<i>H</i> 14.4	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1988 08 16	675	1.1-	1.0+	1995 11 15	400	0.5+	0.0	1998 07 26	699	1.1+	0.2+
1988 08 16	675	1.3+	0.4+	1997 03 11	809	(1.3- 3.4+)		1998 07 26	699	0.4+	0.4+
1994 05 10	675	1.1-	1.2+	1997 03 11	809	(0.9- 3.7+)		1998 07 26	699	0.6+	0.6+
1994 05 10	675	0.8-	1.3+	1997 03 11	809	(1.0- 3.2+)		1998 08 17	704	0.2-	0.4-
1994 06 08	675	0.8-	0.5-	1997 03 31	704	0.3+	0.4-	1998 08 17	704	0.9-	0.0
1995 10 28	400	0.2+	0.3+	1997 03 31	704	0.2-	0.1+	1998 08 17	704	0.2+	0.9-
1995 10 28	400	1.1+	0.4+	1997 04 03	704	1.2+	0.0	1998 08 17	704	0.3-	0.3-
1995 10 30	400	1.0-	0.1-	1997 04 03	704	0.5+	0.1-	1998 08 17	704	0.2+	0.2+
1995 10 30	400	0.1-	0.1+	1997 04 05	704	0.6-	1.0-	1998 08 23	704	1.0+	0.3-
1995 11 12	400	1.1-	0.2+	1997 04 05	704	0.5+	0.7-	1998 08 23	704	0.8-	0.7+
1995 11 12	400	0.7-	0.1-	1997 04 06	704	1.1+	0.6+	1998 08 23	704	1.1-	0.9+
1995 11 15	400	0.1+	0.3+	1997 04 06	704	0.2-	0.6+	1998 08 23	704	1.0+	2.0-

(9216)* 1995 VS = 1978 SZ₅ = 1980 FX₇ = 1981 NL = 1988 SO₄

Discovered 1995 Nov. 1 by S. Otomo at Kiyosato.

Id. S. Nakano (*MPC* 26746)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	310.08085	(2000.0)	P	Q	
<i>n</i>	0.29154603	ω 153.03331	+0.97934535	-0.20080397	
<i>a</i>	2.2524991	Ω 218.57411	+0.17798751	+0.91171855	
<i>e</i>	0.1628525	<i>i</i> 2.17593	+0.09593299	+0.35839511	
<i>P</i>	3.38	<i>H</i> 13.8	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1978 09 28	095	0.6+	0.5+	1995 11 12	894	1.2+	1.0+	1998 08 17	704	0.1+	0.1-
1978 10 04	095	0.2+	0.1-	1995 11 16	894	0.4-	0.6+	1998 08 17	704	0.3+	0.8+
1980 03 23	809	0.6-	0.1-	1995 11 16	894	1.0-	1.2-	1998 08 17	704	0.5+	0.3-
1981 07 02	805	(0.6- 12.7-)		1997 03 08	809	1.7+	0.2+	1998 08 17	704	0.6+	1.1+
1981 07 02	805	0.6-	0.4+	1997 03 08	809	1.5+	0.2-	1998 08 23	704	0.7+	0.2+
1988 09 17	095	0.0	0.6-	1997 03 08	809	1.1+	0.2-	1998 08 23	704	0.2+	0.4-
1994 06 08	675	0.9-	0.6+	1997 03 09	809	1.0-	0.7+	1998 08 23	704	0.4+	0.5+
1994 06 08	675	0.1+	0.8+	1997 03 09	809	0.7-	0.4+	1998 08 23	704	0.4+	0.8+
1995 11 01	894	0.0	0.4-	1997 03 09	809	0.4-	0.1-	1998 08 26	761	0.4+	0.8-
1995 11 01	894	0.8-	0.6+	1998 07 20	566	1.0-	0.5-	1998 08 26	761	(1.7- 2.5-)	
1995 11 02	894	0.2-	0.4+	1998 07 20	566	0.5-	0.5-	1998 08 27	761	0.0	0.2-
1995 11 02	894	0.5-	0.3+	1998 07 20	566	0.9-	0.3-	1998 08 27	761	1.3-	0.1-
1995 11 12	894	0.2+	0.3+	1998 08 17	704	0.4+	0.4+				

(9217)* 1995 WN = 1994 JR₉

Discovered 1995 Nov. 16 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 29627)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	331.60373	(2000.0)	P	Q	
<i>n</i>	0.27798729	ω 257.67609	+0.92545386	+0.37031224	
<i>a</i>	2.3251595	Ω 80.54623	-0.30837951	+0.85899547	
<i>e</i>	0.1584943	<i>i</i> 4.65333	-0.22008457	+0.35354721	
<i>P</i>	3.55	<i>H</i> 15.6	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1991 08 06	675	0.3+	0.8+	1995 11 24	411	0.2-	1.0-	1998 07 20	566	0.5+	0.3+
1991 08 06	675	0.5-	1.4-	1995 11 24	411	0.1-	0.5+	1998 07 20	566	0.5+	0.6+
1991 09 16	675	0.4+	0.9+	1995 11 27	411	0.7-	1.1+	1998 07 20	566	0.2+	0.3+
1991 09 16	675	0.2-	0.2+	1995 11 27	411	0.5-	0.3+	1998 08 17	704	1.4-	0.1+
1994 05 15	691	0.0	0.4-	1995 12 01	411	0.1-	0.4+	1998 08 17	704	0.6-	1.3-
1994 05 15	691	0.3-	0.1-	1995 12 01	411	0.4-	0.3+	1998 08 17	704	0.2+	1.4-
1994 05 15	691	0.0	0.3-	1995 12 17	411	0.4+	0.1-	1998 08 17	704	(1.1+	2.5-)

1995 11 16	411	0.2-	0.7-	1995 12 17	411	0.7+	0.9-	1998 08 17	704	(2.4-	1.5-)
1995 11 16	411	0.7-	0.4+	1998 07 02	699	0.0	0.2+	1998 08 23	704	1.2-	0.3-
1995 11 17	411	2.0+	0.9-	1998 07 02	699	0.1-	0.3+	1998 08 23	704	1.0+	0.9-
1995 11 17	411	(2.4+	1.9-)	1998 07 02	699	1.0+	1.1+	1998 08 23	704	0.0	0.9+

(9218)* 1995 WV₂ = 1974 RO = 1974 SB = 1991 RR₃₅ = 1994 JU₅

Discovered 1995 Nov. 20 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26184)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	2.83358	(2000.0)	P	Q	
<i>n</i>	0.28761583	ω	106.00029	+0.76016829	+0.64915805
<i>a</i>	2.2729726	Ω	213.53543	-0.61333499	+0.70316681
<i>e</i>	0.1679281	<i>i</i>	2.81859	-0.21439302	+0.29008665
<i>P</i>	3.43	<i>H</i>	14.3	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1974 09 11	095	(2.2+	5.2+)	1995 11 20	411	0.6-	0.4-	1998 08 17	704	0.7-	0.7-
1974 09 19	095	1.6-	2.1+	1995 11 21	411	0.1+	0.1+	1998 08 17	704	1.0-	0.2+
1991 07 18	033	0.7+	0.5+	1995 11 21	411	1.2+	0.2+	1998 08 18	120	0.2+	0.3+
1991 07 18	033	0.4+	2.1+	1995 11 24	411	0.3+	0.1-	1998 08 18	120	0.4-	0.3+
1991 07 22	033	0.7+	0.0	1995 11 24	411	0.1-	0.2+	1998 08 18	120	0.2-	0.1-
1991 07 22	033	0.5+	0.2+	1998 06 29	704	0.5-	0.4-	1998 08 18	120	0.3-	0.2+
1991 09 14	675	0.3+	0.8-	1998 06 29	704	(2.3-	1.5-)	1998 08 18	120	0.2-	0.1-
1991 09 14	675	0.2-	0.3-	1998 06 29	704	1.5-	0.9-	1998 08 23	704	1.2+	0.3+
1994 05 04	691	0.2-	0.0	1998 06 29	704	0.2-	1.0-	1998 08 23	704	0.6+	0.1-
1994 05 04	691	0.0	0.1-	1998 08 17	120	0.1+	0.0	1998 08 23	704	1.4+	2.0-
1994 05 04	691	0.3+	0.3+	1998 08 17	120	1.0-	0.5+	1998 08 23	704	1.1+	0.7-
1994 05 11	691	0.6-	0.1-	1998 08 17	120	1.3+	1.2-	1998 08 23	704	0.0	0.9-
1994 05 11	691	0.2-	0.1-	1998 08 17	704	0.5+	0.5-	1998 08 30	699	0.3-	0.1+
1994 05 11	691	0.3-	0.7-	1998 08 17	704	0.3-	0.1+	1998 08 30	699	0.1-	0.0
1995 11 20	411	0.1+	0.4-	1998 08 17	704	1.1-	1.7+	1998 08 30	699	0.2-	0.3-

(9219)* 1995 WO₈ = A907 ED = 1952 DZ = 1969 EO₁ = 1980 EJ

Discovered 1995 Nov. 18 by Y. Shimizu and T. Urata at the Nachi-Katsuura

Observatory.

Id. S. Nakano (*MPC* 26412)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	58.53122	(2000.0)	P	Q	
<i>n</i>	0.17506471	ω	58.07554	-0.90123203	+0.41025128
<i>a</i>	3.1647323	Ω	145.56531	-0.43136604	-0.88001829
<i>e</i>	0.2374151	<i>i</i>	14.28768	+0.04128143	-0.23929417
<i>P</i>	5.63	<i>H</i>	11.4	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc (or two decimals in units of degrees)

1907 03 08	803	(1.7-	38.9-)	Y	1995 12 29	385	0.0	0.1-	1998 06 19	704	0.2+	0.5+
1907 03 10	803	(0.01-	0.03-)	Y	1995 12 30	385	0.2-	1.1+	1998 06 19	704	0.1+	1.6-
1952 02 17	711	(1.3-	2.7+)	Y	1995 12 30	385	0.1+	0.8+	1998 06 19	704	0.8+	0.1-
1952 02 18	711	(8.4+	1.3-)	Y	1995 12 30	385	0.0	0.7+	1998 06 19	704	0.1+	0.1+
1952 02 28	760	1.4-	0.6-		1997 01 20	385	0.1+	0.3-	1998 06 25	704	0.8+	0.8-
1952 02 28	760	1.1+	0.0		1997 01 20	385	0.2-	0.2-	1998 06 25	704	0.6+	0.2+
1969 03 13	095	0.5+	0.9+		1997 02 03	385	0.2+	0.0	1998 06 25	704	0.7-	0.5-
1980 03 15	095	(2.2-	3.4-)		1997 02 03	385	0.1+	0.4+	1998 06 25	704	0.4+	0.1-
1991 01 17	675	(0.1-	3.1+)		1997 02 07	098	0.2-	0.9-	1998 06 25	704	0.2-	1.1-
1991 01 17	675	(0.2-	2.6+)		1997 02 07	098	0.3+	1.4-	1998 07 20	886	0.2+	0.2-
1995 11 18	905	0.1-	0.5-		1997 02 08	098	1.1-	0.4+	1998 07 20	886	0.6-	0.3+
1995 11 18	905	1.0-	0.8-		1997 02 08	098	0.8-	0.9+	1998 08 07	954	0.6-	0.1-
1995 11 28	905	0.1+	0.3-		1997 03 01	367	0.7+	0.0	1998 08 07	954	0.5-	0.2+
1995 11 28	905	0.4+	1.1-		1997 03 01	367	0.8+	0.1-	1998 08 08	954	0.3-	0.5+
1995 12 29	385	0.4+	0.5-		1997 03 27	124	0.6-	0.1+	1998 08 08	954	0.3-	0.7+
1995 12 29	385	0.8+	0.2-		1998 06 19	704	0.3-	0.6+				

(9220)* 1995 XL₁ = 1987 QS₄ = 1987 SF₂₄ = 1987 SN₂₆

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

Id. E. Bowell (*MPC* 28303)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	349.47061	(2000.0)	P	Q	
<i>n</i>	0.26407006	ω	43.40723	+0.83362883	+0.54483132
<i>a</i>	2.4061532	Ω	283.36918	-0.52880568	+0.73990557
<i>e</i>	0.1371072	<i>i</i>	5.34772	-0.15946012	+0.39458659
<i>P</i>	3.73	<i>H</i>	13.9	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1987 08 31	010	1.7+	0.7-	1995 12 22	411	0.4-	0.3-	1998 08 12	411	0.5-	0.4-
1987 08 31	010	2.1+	0.6-	1995 12 25	411	0.2-	0.6-	1998 08 17	704	0.1+	0.5-
1987 08 31	010	1.5+	0.5-	1995 12 25	411	0.4-	0.1-	1998 08 17	704	0.3-	0.1-
1987 09 23	095	2.0-	2.2+	1995 12 30	411	0.1+	0.7+	1998 08 17	704	0.4+	0.2-
1987 09 26	095	0.2-	0.9+	1995 12 30	411	0.6+	0.8+	1998 08 17	704	0.5-	0.2-
1987 10 17	675	1.1-	1.0+	1997 03 17	599	0.3+	0.9+	1998 08 17	704	0.6+	0.4-
1987 10 17	675	1.9-	1.4+	1997 03 17	599	0.3+	0.7+	1998 08 23	704	0.6+	0.4+
1987 11 23	675	1.4-	0.3+	1998 06 29	704	0.3+	0.3-	1998 08 23	704	0.4-	0.2-
1987 11 23	675	1.1-	0.1+	1998 06 29	704	1.2-	1.1+	1998 08 23	704	0.3+	0.1+
1995 12 15	411	0.7+	1.2-	1998 06 29	704	0.4-	0.4-	1998 08 23	704	1.3+	0.1-
1995 12 15	411	0.0	1.3-	1998 06 29	704	0.9+	1.3+	1998 08 30	699	0.3-	0.3-
1995 12 16	411	0.4+	1.4-	1998 06 30	699	0.3+	0.5-	1998 08 30	699	0.6-	0.3-
1995 12 16	411	1.1+	0.9-	1998 06 30	699	0.5+	1.0-	1998 08 30	699	0.3-	0.3-
1995 12 22	411	2.0-	0.1+	1998 06 30	699	0.6+	0.5-				

(9221)* 1995 XP₂ = 1978 WP₁₉

Discovered 1995 Dec. 2 by the Beijing Schmidt CCD Asteroid Program at

Xinglong.

Id. G. V. Williams (*MPC* 26572)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	290.51626	(2000.0)	P	Q	
<i>n</i>	0.28903772	ω	180.11461	+0.86142711	-0.50742546
<i>a</i>	2.2655120	Ω	210.40829	+0.46600571	+0.80653319
<i>e</i>	0.1838130	<i>i</i>	2.43573	+0.20194555	+0.30335394
<i>P</i>	3.41	<i>H</i>	14.8	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1978 11 30	675	0.2-	0.3-	1997 03 11	809	(1.6+	2.1+)	1997 04 25	327	0.7-	0.2-
1978 12 01	675	0.3+	0.2-	1997 03 11	809	(2.1+	2.5+)	1997 05 05	691	(2.2-	0.1-)
1995 09 23	033	1.3+	0.5-	1997 03 13	809	0.9+	0.2+	1997 05 05	691	(2.3-	0.0)
1995 09 24	033	0.4+	0.2+	1997 03 13	809	0.4+	0.6+	1997 05 05	691	(2.2-	0.3+)
1995 09 25	033	0.6-	0.3-	1997 03 13	809	0.8+	0.2+	1998 05 26	327	0.5+	0.4-
1995 11 27	114	1.6-	1.9+	1997 03 29	327	0.7-	0.6+	1998 05 26	327	0.2+	0.6-
1995 11 27	114	(2.1+	3.4+)	1997 03 29	327	1.1-	0.3+	1998 05 26	327	0.5+	0.6-
1995 11 28	114	(0.9+	3.0+)	1997 03 29	327	0.6-	0.3+	1998 05 29	327	0.0	0.1+
1995 12 02	327	0.3-	0.4-	1997 03 29	327	0.9-	0.5+	1998 05 29	327	0.0	0.1-
1995 12 02	327	0.1-	0.0	1997 03 31	704	0.8+	0.4-	1998 05 29	327	0.3+	0.2+
1995 12 02	327	0.0	0.3+	1997 03 31	704	1.0-	0.8-	1998 08 14	699	0.2+	0.5+
1995 12 07	327	0.3+	0.2+	1997 04 03	704	0.3+	1.1+	1998 08 14	699	0.2-	0.8+
1995 12 07	327	0.3+	0.6+	1997 04 03	704	0.2+	0.2+	1998 08 14	699	0.5+	0.7+
1995 12 07	327	0.4+	0.6+	1997 04 03	704	1.0+	0.3-	1998 08 17	704	0.4-	0.3+
1996 01 20	327	0.1+	0.3+	1997 04 03	704	0.6+	1.0+	1998 08 17	704	0.5+	0.3+
1996 01 20	327	0.3-	0.6+	1997 04 05	704	1.1+	0.6+	1998 08 17	704	0.1-	0.3-
1996 01 21	327	0.0	0.1+	1997 04 05	704	0.5+	0.7+	1998 08 17	704	0.4+	0.5+
1996 01 21	327	0.1+	0.4+	1997 04 06	704	(0.4+	2.5+)	1998 08 17	704	0.4+	0.4+
1996 01 21	327	0.3-	0.9+	1997 04 06	704	0.4+	0.8+	1998 08 23	704	0.7-	0.7-
1996 01 22	327	0.4-	0.6+	1997 04 07	704	0.9+	0.5-	1998 08 23	704	1.6-	1.4+
1996 01 22	327	0.2-	0.3+	1997 04 07	704	0.2+	0.9+	1998 08 23	704	1.6-	0.8+
1996 01 22	327	0.5-	0.2-	1997 04 25	327	0.3+	0.2+	1998 08 23	704	0.2+	0.9+
1997 03 11	809	(1.5+	2.8+)	1997 04 25	327	0.8-	0.2+				

1998 SEPT. 10

M.P.C. 32429

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano

<i>M</i>	79.43041	(2000.0)	P	Q
<i>n</i>	0.17832687	ω 104.18355	-0.84973778	+0.44037945
<i>a</i>	3.1260184	Ω 102.63530	-0.51971346	-0.79206324
<i>e</i>	0.1803976	<i>i</i> 17.27998	+0.08856422	-0.42273131
<i>P</i>	5.53	<i>H</i> 11.5	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1980 02 21	095	0.3-	1.8-	1996 01 09	411	0.0	0.7+	1997 05 12	127	0.6-	0.2-
1984 12 23	010	(6.2-	18.8-)	1996 01 24	411	0.8-	0.3+	1997 05 15	696	0.5+	0.1+
1984 12 23	010	(5.5-	9.8-)	1996 01 24	411	0.4-	0.3-	1997 05 15	696	0.6+	0.0
1984 12 28	095	(2.6-	5.1-)	1996 03 19	801	0.4+	0.9+	1997 05 15	696	0.6+	0.1+
1995 12 19	411	0.0	0.0	1996 03 19	801	0.6+	0.7+	1997 06 10	689	0.1+	0.0
1995 12 19	411	0.3-	0.3+	1997 03 31	124	0.1+	0.6+	1997 06 11	689	0.4-	0.5+
1995 12 20	411	0.2-	0.7+	1997 03 31	124	0.4+	0.7+	1998 07 04	699	1.8+	0.2+
1995 12 20	411	0.4-	0.1-	1997 03 31	124	0.4+	0.6+	1998 07 04	699	1.3+	0.1+
1995 12 22	566	(2.4+	1.7-)	1997 04 07	127	0.8+	0.4+	1998 07 04	699	0.9+	0.7+
1995 12 22	566	(2.3+	1.5-)	1997 04 07	127	0.6+	0.4+	1998 08 21	426	0.7-	0.8-
1995 12 22	566	(2.3+	1.6-)	1997 05 01	127	0.2+	0.1+	1998 08 21	426	0.8-	0.6-
1995 12 26	411	0.4+	0.2+	1997 05 01	127	0.4-	0.1+	1998 08 21	426	0.7-	0.7-
1995 12 26	411	0.5+	0.6+	1997 05 01	127	0.5-	0.0	1998 08 22	426	0.8-	0.7-
1995 12 30	411	0.7-	0.5+	1997 05 04	411	0.3+	0.7+	1998 08 22	426	0.6-	0.7-
1995 12 30	411	0.1+	0.1-	1997 05 04	411	0.7+	0.5+	1998 08 22	426	0.6-	0.8-
1996 01 09	411	0.3-	0.9+	1997 05 12	127	0.7-	0.2-				

(9223)* 1995 YY₇ = 1949 QK₁ = 1981 UD₅ = 1988 VT₁₀ = 1990 FD₄
= 1991 RK

Discovered 1995 Dec. 18 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 26575)

Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	68.51175	(2000.0)	P	Q
<i>n</i>	0.28224127	ω 23.79751	-0.24402452	+0.96863281
<i>a</i>	2.3017370	Ω 232.11159	-0.89901789	-0.24410171
<i>e</i>	0.0702354	<i>i</i> 3.40915	-0.36361913	-0.04652767
<i>P</i>	3.49	<i>H</i> 13.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1949 08 27	760	(3.1-	3.7-)	1995 11 14	691	0.2+	0.2-	1998 06 30	704	1.6+	1.4-
1949 08 27	760	0.8-	0.0	1995 12 18	691	0.2-	0.1+	1998 08 17	704	0.0	0.0
1981 10 30	381	0.5+	0.3+	1995 12 18	691	0.4-	0.1-	1998 08 17	704	0.5+	0.1-
1981 10 30	381	1.7+	0.2-	1995 12 18	691	0.1-	0.6-	1998 08 17	704	0.7-	0.1+
1981 10 30	381	0.7+	0.1-	1995 12 22	691	0.9-	0.0	1998 08 17	704	0.1-	0.1+
1981 10 30	381	1.1+	0.0	1995 12 22	691	0.8-	0.0	1998 08 17	704	0.4+	0.4+
1988 11 12	046	(3.9-	3.7-)	1995 12 22	691	0.6-	0.2-	1998 08 23	704	0.0	0.1-
1988 11 12	046	(4.5-	1.5-)	1995 12 28	691	0.3-	0.1-	1998 08 23	704	0.0	0.4+
1990 03 18	399	(3.4+	1.4-)	1995 12 28	691	0.7-	0.2-	1998 08 23	704	0.9+	1.4+
1990 03 18	399	0.0	0.3-	1995 12 28	691	0.7-	0.2-	1998 08 23	704	0.5+	1.2+
1990 03 18	399	(0.2+	2.7-)	1997 03 09	689	0.4+	0.1-	1998 08 23	704	0.1-	0.5-
1991 09 04	413	0.9-	0.1+	1997 03 10	689	0.4-	0.1+	1998 08 30	699	0.4-	0.8+
1991 09 05	413	0.1-	0.1+	1998 06 30	704	0.5+	1.8-	1998 08 30	699	0.3-	0.5+
1995 11 14	691	0.1+	0.3-	1998 06 30	704	0.8-	1.7-	1998 08 30	699	0.4-	0.5+
1995 11 14	691	0.0	0.2-	1998 06 30	704	0.8+	1.7-				

(9224)* 1996 AE = 1989 ER₄

Discovered 1996 Jan. 10 at Kleť.

Id. B. G. Marsden (*MPC* 26748)

Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	286.66972	(2000.0)	P	Q
<i>n</i>	0.26961931	ω 166.05152	+0.69560484	-0.71423252
<i>a</i>	2.3730236	Ω 239.80609	+0.65024622	+0.67178491
<i>e</i>	0.1350589	<i>i</i> 5.14415	+0.30547301	+0.19641014
<i>P</i>	3.66	<i>H</i> 14.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1989 03 02	809	0.7-	1.2+	1996 01 15	046	0.1+	0.6+	1997 05 11	046	0.1-	0.2-
1989 03 02	809	0.7-	1.0+	1996 01 15	046	0.1-	0.4+	1997 05 11	046	0.7+	0.6-
1989 03 02	809	0.6-	1.3+	1996 01 15	046	0.1+	0.4+	1997 06 02	046	1.4+	0.5-
1989 03 03	809	1.4+	0.9+	1996 01 16	046	0.1+	0.0	1997 06 02	046	1.1+	0.0
1989 03 03	809	1.4+	0.8+	1996 01 16	046	0.0	0.0	1997 06 02	046	0.9+	0.1-
1989 03 03	809	1.3+	0.6+	1996 01 16	046	0.0	0.0	1997 06 04	046	0.6-	0.0
1996 01 09	596	0.4-	1.1+	1996 02 09	046	0.8-	0.0	1997 06 04	046	0.3+	0.1+
1996 01 09	596	0.4-	0.7+	1996 02 09	046	0.3+	0.8+	1997 06 04	046	0.3+	0.3+
1996 01 09	596	0.6-	0.7+	1996 02 09	046	1.0+	0.2+	1998 07 21	046	0.2+	0.6+
1996 01 10	046	0.1+	0.0	1996 02 24	046	0.5-	0.2+	1998 07 21	046	0.0	0.5+
1996 01 10	046	0.2-	0.2+	1996 02 24	046	0.2-	0.3+	1998 07 21	046	0.2+	0.4+
1996 01 10	046	0.1-	0.3-	1996 02 24	046	0.3-	0.1-	1998 07 26	046	0.2+	0.4-
1996 01 10	046	0.5+	0.2+	1996 02 25	046	0.2+	0.2+	1998 07 26	046	0.0	0.1-
1996 01 11	046	0.2+	0.1-	1996 02 25	046	0.1-	0.0	1998 07 26	046	0.3+	0.1-
1996 01 11	046	0.2+	0.2-	1996 02 25	046	0.4+	0.1-	1998 08 12	046	0.1-	0.1+
1996 01 11	046	0.3+	0.3-	1996 04 06	046	1.5+	0.7-	1998 08 12	046	0.5-	0.2+
1996 01 11	046	0.1-	0.3-	1996 04 06	046	0.3+	0.0	1998 08 12	046	0.5-	0.0
1996 01 12	046	0.5+	0.6-	1996 04 06	046	1.3+	0.3-	1998 08 14	046	0.6-	0.4+
1996 01 12	046	0.8-	0.3-	1996 04 07	046	0.8+	1.7-	1998 08 14	046	0.9-	0.1+
1996 01 12	046	0.7-	0.5-	1996 04 07	046	0.5+	0.7-	1998 08 14	046	0.6-	0.4+
1996 01 13	595	0.5-	0.0	1997 04 03	046	1.1-	0.8+	1998 08 17	704	0.9-	0.1-
1996 01 13	046	0.4-	0.0	1997 04 03	046	0.2-	0.8+	1998 08 17	704	0.3-	0.0
1996 01 13	046	0.1+	0.7-	1997 04 03	046	0.4-	1.3+	1998 08 17	704	0.8-	0.3+
1996 01 13	046	0.0	0.2-	1997 04 09	046	0.1-	0.3+	1998 08 17	704	0.3-	0.2-
1996 01 13	595	0.4+	0.1-	1997 04 09	046	0.1-	0.5+	1998 08 17	704	0.1+	0.5+
1996 01 14	596	0.1+	0.1-	1997 04 09	046	0.0	0.5+	1998 08 23	699	0.2+	0.6+
1996 01 14	596	0.2-	0.0	1997 05 05	046	0.9-	0.5-	1998 08 23	699	1.1+	1.0+
1996 01 14	596	0.2-	0.9+	1997 05 05	046	0.6-	0.0	1998 08 23	699	0.3+	0.5+
1996 01 14	046	0.3+	0.2+	1997 05 05	046	0.7-	0.1-	1998 08 31	046	0.2+	0.8+
1996 01 14	046	0.2+	0.0	1997 05 05	046	0.1-	0.2+	1998 08 31	046	0.3+	0.8+
1996 01 14	046	0.0	0.3+	1997 05 11	046	0.8+	0.3-	1998 08 31	046	0.3+	0.9+

(9225)* 1996 AU = 1985 QG₃ = 1985 VX

Discovered 1996 Jan. 10 by T. Kobayashi at Oizumi.

Id. K. Ichikawa (*MPC* 26748), B. G. Marsden (d, *ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Asher

<i>M</i>	330.39690	(2000.0)	P	Q
<i>n</i>	0.22404267	ω 223.02951	+0.93710569	+0.24542609
<i>a</i>	2.6848224	Ω 121.16831	-0.18504392	+0.95222808
<i>e</i>	0.1472426	<i>i</i> 16.86164	-0.29595892	+0.18173527
<i>P</i>	4.40	<i>H</i> 13.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1985 08 17	809	0.0	0.4+	1996 01 27	411	0.0	2.1+	1998 07 31	699	0.4+	0.9+
1985 11 01	809	0.1+	0.6+	1996 01 27	411	(0.5+	2.5+)	1998 07 31	699	0.4+	0.7+
1985 11 03	809	0.2-	0.7-	1997 05 04	411	0.2-	0.3-	1998 08 17	704	0.7+	0.1+
1996 01 10	411	1.0+	0.2+	1997 05 04	411	0.4+	0.3+	1998 08 17	704	0.4-	0.5+
1996 01 10	411	0.5+	0.5-	1997 05 04	411	0.0	0.3+	1998 08 17	704	0.1+	0.4-
1996 01 13	411	0.6+	0.0	1998 07 03	699	0.9-	0.1-	1998 08 17	704	0.5+	0.3-
1996 01 13	411	1.3-	1.2+	1998 07 03	699	0.7-	0.3+	1998 08 17	704	0.2+	0.3-
1996 01 16	411	0.1+	0.0	1998 07 03	699	0.9-	0.2-				
1996 01 16	411	1.0-	0.5-	1998 07 31	699	0.2+	0.7+				

(9226)* 1996 AB₁ = 1980 WP₁ = 1993 OJ₁₁

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

Id. S. Nakano (*MPC* 26576)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano

<i>M</i>	205.77008	(2000.0)	P	Q
<i>n</i>	0.20364692	ω 339.07478	-0.07337093	-0.99597057
<i>a</i>	2.8612172	Ω 115.10269	+0.92290919	-0.08740340
<i>e</i>	0.0404252	<i>i</i> 3.26462	+0.37796209	+0.02008170
<i>P</i>	4.84	<i>H</i> 13.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1980 11 30	095	1.9−	0.2+	1996 01 13	411	0.0	0.6−	1997 04 12	809	(1.4+	3.7+)
1989 09 29	675	0.3+	0.7−	1996 01 18	411	0.1−	0.8+	1997 04 12	809	(1.7+	4.3+)
1989 09 29	675	0.5+	0.0	1996 01 18	411	0.5+	0.9+	1997 04 12	809	(0.9+	4.0+)
1993 07 12	809	1.0+	2.1+	1996 01 27	411	0.1+	0.3−	1997 04 26	689	2.1−	0.8+
1993 07 12	809	0.1−	1.9+	1996 01 27	411	0.6+	0.0	1998 07 02	699	0.4−	0.7+
1993 07 12	809	0.4+	1.2+	1997 04 09	809	(0.0	3.2−)	1998 07 02	699	0.2+	0.6+
1993 07 19	809	0.8−	1.1−	1997 04 09	809	(0.7−	3.7−)	1998 07 02	699	0.7−	1.3+
1993 07 19	809	0.5+	1.1−	1997 04 09	809	(1.0−	3.8−)	1998 07 16	699	0.5+	0.0
1993 07 19	809	1.7+	1.6−	1997 04 09	689	2.0+	0.4−	1998 07 16	699	0.2+	0.4+
1993 07 23	809	0.3+	0.5+	1997 04 10	809	0.6−	0.8−	1998 07 16	699	0.2−	0.3−
1993 07 23	809	1.7+	0.4+	1997 04 10	809	1.1−	1.5−	1998 08 17	704	1.4−	0.9−
1993 07 23	809	1.1+	0.2+	1997 04 10	809	0.9−	1.4−	1998 08 17	704	0.8−	1.2−
1993 06 12	411	0.3+	0.5+	1997 04 11	809	0.4+	1.4+	1998 08 17	704	0.3−	0.4+
1996 01 12	411	0.5+	0.2+	1997 04 11	809	(0.2+	2.6+)	1998 08 17	704	0.1−	0.5−
1996 01 13	411	0.5+	0.3−	1997 04 11	809	0.4−	1.5+	1998 08 17	704	1.7−	1.0−

(9227)* 1996 BO₂ = 1977 RN₁₁

Discovered 1996 Jan. 26 by T. Kobayashi at Oizumi.

Id. B. G. Marsden (*MPC* 26752)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Marsden

<i>M</i>	141.65795		(2000.0)	P	Q
<i>n</i>	0.18254396	ω	188.60660	−0.96981381	−0.24259978
<i>a</i>	3.0776867	Ω	337.30741	+0.22735317	−0.86308077
<i>e</i>	0.0352525	<i>i</i>	3.66009	+0.08815728	−0.44298637
<i>P</i>	5.40	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1977 09 09	675	0.4+	0.2−	1996 01 31	120	0.1+	0.7−	1996 02 23	411	0.9−	0.3+
1977 09 10	675	0.3−	0.4+	1996 01 31	120	0.3−	0.7+	1996 02 23	120	0.9−	0.9−
1993 08 16	010	0.2−	0.8−	1996 02 01	120	0.4−	0.2−	1996 02 23	120	0.2−	0.8−
1993 08 16	010	0.3−	0.5−	1996 02 01	120	0.2+	0.1+	1996 03 22	566	1.5+	0.0
1993 08 16	010	(0.5−	2.5−)	1996 02 09	120	0.1−	0.1+	1996 03 22	566	1.8+	0.9−
1994 11 27	675	0.3+	0.1−	1996 02 09	120	0.3+	0.2+	1996 03 22	566	1.3+	0.4−
1994 11 27	675	(0.7−	3.4−)	1996 02 09	120	0.2−	0.3−	1998 07 03	699	0.4−	0.9−
1996 01 26	411	1.1−	0.4−	1996 02 12	399	0.2−	0.5−	1998 07 03	699	0.2−	0.2−
1996 01 26	411	0.0	0.1−	1996 02 12	399	(2.9−	0.8+)	1998 07 03	699	0.6−	0.3−
1996 01 27	411	0.7−	1.1+	1996 02 12	411	0.3+	0.2+	1998 08 17	704	0.3+	0.1+
1996 01 27	411	1.1−	0.4+	1996 02 12	411	0.3−	0.2−	1998 08 17	704	0.6+	0.3−
1996 01 28	120	0.2+	1.4−	1996 02 14	120	0.3+	0.3−	1998 08 17	704	0.1−	1.0−
1996 01 28	120	0.2+	0.0	1996 02 14	120	0.3+	0.7−	1998 08 17	704	0.7+	0.5+
1996 01 28	120	0.2−	0.3−	1996 02 15	107	0.5+	0.9+	1998 08 17	704	0.3+	0.1−
1996 01 30	411	0.1+	0.6−	1996 02 15	107	0.6+	0.6+	1998 08 30	699	0.4+	0.2−
1996 01 30	411	0.3+	0.2−	1996 02 16	399	1.0+	0.3−	1998 08 30	699	0.1−	0.2+
1996 01 30	120	0.6−	0.1−	1996 02 16	399	0.5−	0.7+	1998 08 30	699	0.3+	0.3+
1996 01 31	120	0.7−	1.2+	1996 02 16	107	0.2+	0.8+				
1996 01 31	120	0.9−	0.3−	1996 02 23	411	1.1−	0.4−				

(9228)* 1996 CG₁ = 1975 GP = 1980 DD₅ = 1983 VC₃

Discovered 1996 Feb. 11 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 26754)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano

<i>M</i>	82.13726		(2000.0)	P	Q
<i>n</i>	0.18191413	ω	197.31151	−0.65290704	+0.75553651
<i>a</i>	3.0847864	Ω	31.98860	−0.68240130	−0.55601866
<i>e</i>	0.0097171	<i>i</i>	5.81118	−0.32869571	−0.34642145
<i>P</i>	5.42	<i>H</i>	12.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1975 04 15	805	1.3+	0.8+	1996 02 18	691	1.1−	0.3−	1998 07 04	699	0.4+	0.5+
1980 02 21	095	(1.6+	2.5+)	1996 02 18	691	1.2−	0.2−	1998 07 04	699	0.6+	0.4+
1983 11 08	381	1.5−	0.5+	1996 02 18	411	0.5+	0.1−	1998 07 31	699	0.6−	0.5−
1983 11 08	381	0.5−	1.1+	1996 02 18	411	0.0	0.1−	1998 07 31	699	0.2−	0.2−
1983 11 08	381	1.1+	1.7−	1996 02 23	411	0.2+	0.1−	1998 07 31	699	0.1−	0.2−
1991 04 17	675	0.7−	1.4−	1996 02 23	411	0.3+	0.0	1998 08 17	704	0.7+	0.0

1991 04 17	675	1.5−	0.2−	1996 02 27	411	1.7+	1.1+	1998 08 17	704	0.9+	0.3+
1993 07 26	675	0.0	0.0	1996 02 27	411	0.7+	0.0	1998 08 17	704	0.9+	0.5−
1993 07 26	675	0.1+	0.9−	1996 03 12	411	0.9+	0.3−	1998 08 17	704	0.4+	0.3−
1996 02 11	411	0.0	0.3−	1996 03 12	411	0.4+	0.7−	1998 08 17	704	0.8+	0.1−
1996 02 11	411	0.0	0.3+	1997 08 01	566	1.0−	0.6+	1998 08 19	566	0.3−	0.2−
1996 02 12	411	0.3+	0.2−	1997 08 01	566	1.0−	0.6+	1998 08 19	566	0.4−	0.2−
1996 02 12	411	0.1+	0.1−	1997 08 01	566	1.2−	0.7+	1998 08 19	566	0.8−	0.1−
1996 02 18	691	1.1−	0.4−	1998 07 04	699	0.0	1.1+				

(9229)* 1996 DJ₁ = 1991 ET₆

Discovered 1996 Feb. 20 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 29114)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	241.25352		(2000.0)	P	Q
<i>n</i>	0.19859872	ω	162.45635	+0.11333282	−0.99339282
<i>a</i>	2.9095004	Ω	281.03329	+0.90934964	+0.11103615
<i>e</i>	0.0692473	<i>i</i>	1.05465	+0.40029851	+0.02901166
<i>P</i>	4.96	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1988 09 10	675	0.4−	0.1−	1996 02 21	400	0.1+	0.1+	1998 07 26	809	1.7+	0.2+
1988 09 10	675	0.1−	2.3−	1996 03 13	400	0.4−	0.2+	1998 07 26	809	1.5+	0.3+
1989 11 04	675	0.4+	2.1−	1996 03 13	400	0.4−	0.7+	1998 07 26	809	1.1+	0.3+
1989 11 04	675	0.6+	0.6−	1996 03 23	566	0.6−	0.3−	1998 07 27	809	1.3+	0.7+
1991 03 06	372	0.4−	1.9−	1996 03 23	566	0.7−	0.5−	1998 07 27	809	0.8+	0.2−
1991 03 06	372	1.4+	1.8−	1996 03 23	566	0.6−	0.2+	1998 07 27	809	1.5+	0.2−
1994 11 05	675	1.4−	0.5−	1996 05 20	327	0.4−	1.2−	1998 08 17	704	0.8−	0.3−
1994 11 05	675	0.0	0.5+	1996 05 20	327	0.3−	0.8−	1998 08 17	704	1.3−	0.5−
1996 02 20	400	0.6+	0.2+	1996 05 20	327	0.1−	1.3−	1998 08 17	704	1.5−	0.2−
1996 02 20	400	0.0	0.2−	1997 05 27	599	(2.8−	0.8+)	1998 08 17	704	0.5−	0.9−
1996 02 21	400	0.5+	0.3+	1997 05 27	599	1.4−	0.2−	1998 08 17	704	0.2−	0.5−

(9230)* 1996 YY₂ = 1998 EK₁₀

Discovered 1996 Dec. 29 by N. Sato at Chichibu.

Id. B. G. Marsden (*MPC* 31551)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Marsden

<i>M</i>	168.88167		(2000.0)	P	Q
<i>n</i>	0.18063611	ω	302.29758	+0.95192566	−0.30378920
<i>a</i>	3.0993194	Ω	75.41350	+0.29295239	+0.86524832
<i>e</i>	0.1801351	<i>i</i>	2.33125	+0.08953453	+0.39882010
<i>P</i>	5.46	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1992 02 25	691	0.0	1.0−	1997 02 13	369	0.4−	0.3+	1998 03 24	704	2.0+	0.2+
1992 02 25	691	(2.2+	2.3−)	1998 03 01	809	(3.0+	2.4+)	1998 03 24	704	0.4+	1.3+
1992 02 25	691	0.5+	0.6−	1998 03 01	809	(2.3+	2.3+)	1998 03 24	704	0.4−	1.6+
1993 04 18	691	0.7−	0.6−	1998 03 01	809	(2.1+	3.6+)	1998 03 24	704	0.8−	1.0+
1993 04 18	691	1.0−	0.5−	1998 03 02	809	(1.6+	2.5+)	1998 03 24	704	(2.4+	1.4+)
1995 08 25	809	1.0−	1.4+	1998 03 02	809	1.1+	1.9+	1998 03 24	704	0.6+	0.2−
1995 08 26	809	0.3−	0.6+	1998 03 02	809	(0.9+	2.3+)	1998 03 24	704	1.3−	1.3−
1995 08 28	809	0.4+	0.3+	1998 03 22	704	0.0	0.9−	1998 03 24	704	(7.1−	0.2−)
1995 08 29	809	0.9+	0.7+	1998 03 22	704	1.7+	1.5+	1998 03 24	704	0.5+	1.3−
1995 09 19	809	0.4−	1.4+	1998 03 22	704	1.6+	0.8+	1998 03 24	704	0.7+	0.5+
1995 09 20	809	1.7−	1.1+	1998 03 22	704	0.0	0.2−	1998 03 28	704	0.0	1.0−
1995 09 23	809	(5.6+	0.9−)	1998 03 22	704	(2.5−	0.8−)	1998 03 28	704	1.8+	0.8−
1996 12 29	369	0.4−	0.8+	1998 03 22	704	1.0−	1.3+	1998 03 28	704	0.2+	1.5+
1996 12 29	369	0.0	0.3+	1998 03 22	704	(0.8−	2.4+)	1998 03 28	704	1.4+	1.6−
1996 12 29	369	0.2−	0.2+	1998 03 22	704	1.8−	1.6−	1998 03 29	704	(2.1−	2.0+)
1996 12 30	369	0.1−	0.2−	1998 03 22	704	(7.0−	1.0−)	1998 03 29	704	1.6+	1.7+
1996 12 30	369	0.1−	0.4+	1998 03 24	704	0.9−	1.4−	1998 03 29	704	1.0+	1.5+
1997 01 02	369	0.1+	0.2−	1998 03 24	704	0.5+	0.0	1998 03 29	704	0.3+	1.3+
1997 01 02	369	0.2−	0.7−	1998 03 24	704	0.6+	0.5−	1998 03 29	704	0.6−	1.0+
1997 01 15	369	0.3+	0.8−	1998 03 24	704	0.3−	1.2+	1998 04 19	704	(2.1−	0.3−)
1997 01 15	369	0.3+	0.4−	1998 03 24	704	0.7−	0.3−	1998 04 19	704	0.2−	0.3+
1997 01 30	369	0.6+	0.3+	1998 03 24	704	1.6−	1.0+	1998 04 19	704	0.4+	0.4−

1997 02 01	369	0.1-	0.6+	1998 03 24	704	0.3-	0.6-	1998 04 19	704	(2.2-	1.9-)
1997 02 01	369	0.5-	0.1-	1998 03 24	704	0.0	1.2+	1998 04 19	704	1.9-	0.3-
1997 02 13	369	0.2+	0.1+	1998 03 24	704	0.1+	0.2-				

(9231)* 1997 BB₂ = 1976 SX₉ = 1981 AZ₂ = 1991 EO₈ = 1995 SL₉

Discovered 1997 Jan. 29 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29637)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	2.55352	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.31103515	ω	295.30283	+0.45717910	+0.88937279
<i>a</i>	2.1573953	Ω	1.90530	-0.79503257	+0.40959946
<i>e</i>	0.1328634	<i>i</i>	3.13839	-0.39863578	+0.20308698
<i>P</i>	3.17	<i>H</i>	14.1	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1976 09 28	095	1.0+	1.0-	1995 09 22	691	1.5-	0.2-	1998 07 31	699	0.6+	0.1+
1981 01 08	381	(4.3-	0.6+)	1995 09 22	691	1.4-	0.3-	1998 07 31	699	0.5+	0.1+
1981 01 08	381	0.6-	0.3+	1995 09 23	809	1.2+	0.0	1998 08 12	411	0.5+	0.2+
1991 03 12	675	0.8-	0.8-	1995 09 23	809	(7.6+	2.3-)	1998 08 12	411	0.2+	0.2+
1991 03 12	675	0.1+	1.3-	1995 09 24	809	1.0+	0.2+	1998 08 17	704	0.1-	0.2+
1994 03 05	691	0.9-	0.4-	1997 01 29	411	0.5+	1.2+	1998 08 17	704	0.1-	1.1+
1994 03 05	691	1.3-	0.3-	1997 01 29	411	0.4+	0.1+	1998 08 17	704	0.4-	1.2+
1994 03 05	691	0.5-	0.3-	1997 01 30	411	1.1+	0.3+	1998 08 17	704	0.3-	0.6+
1995 08 25	809	0.2+	0.4+	1997 01 30	411	0.4+	0.2+	1998 08 17	704	0.7-	0.9+
1995 08 26	809	0.9+	0.0	1997 02 03	691	0.8-	0.3+	1998 08 23	704	0.1-	0.9+
1995 09 01	809	0.7+	0.1+	1997 02 03	691	0.7-	0.5+	1998 08 23	704	0.4+	0.9+
1995 09 17	691	1.7-	0.1-	1997 02 03	691	0.9-	0.5+	1998 08 23	704	0.2-	0.4+
1995 09 17	691	(2.6-	0.6-)	1997 02 04	411	0.7+	0.5+	1998 08 23	704	0.8-	0.2-
1995 09 17	691	1.9-	0.2-	1997 02 04	411	0.5+	0.8+	1998 08 29	699	0.5-	0.7-
1995 09 18	809	1.0+	0.6-	1997 02 13	411	1.1+	0.8+	1998 08 29	699	0.4-	0.3-
1995 09 19	809	1.3+	0.6-	1997 02 13	411	1.2+	0.0	1998 08 29	699	0.2-	0.2-
1995 09 19	809	0.6+	0.4-	1997 02 26	411	0.1+	0.4-	1998 08 30	699	0.4-	0.4-
1995 09 20	809	0.1-	0.4-	1997 02 26	411	0.7+	0.4+	1998 08 30	699	0.2-	0.4-
1995 09 22	809	1.6+	0.1+	1998 07 27	689	0.6-	0.3-	1998 08 30	699	0.3+	0.5-
1995 09 22	691	1.5-	0.1-	1998 07 31	699	0.8+	0.2+				

(9232)* 1997 BG₈ = 1994 CC₈ = 1995 SG₂

Discovered 1997 Jan. 31 by V. Goretti at Pianoro.

Id. S. Nakano (*MPC* 29127)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	57.88315	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.31069984	ω	284.79034	-0.33251936	+0.94252945
<i>a</i>	2.1589473	Ω	325.73207	-0.84140568	-0.31214683
<i>e</i>	0.0919268	<i>i</i>	3.32905	-0.42598986	-0.11917461
<i>P</i>	3.17	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1994 02 08	303	0.4+	0.4-	1997 02 09	610	0.6+	0.2-	1998 07 29	610	0.7+	0.1-
1994 02 09	303	0.1-	1.2+	1997 02 10	610	0.2-	0.2-	1998 07 30	610	0.4+	0.0
1995 09 23	107	0.5-	0.0	1997 02 10	610	0.1-	0.2-	1998 07 30	610	0.2+	0.2+
1995 09 23	107	0.5-	0.4+	1997 02 10	610	0.2+	0.1-	1998 07 31	610	1.6+	0.5+
1995 09 25	107	0.3+	0.0	1997 02 10	610	0.3+	0.1-	1998 07 31	610	1.6+	0.6+
1995 09 25	107	0.2+	0.1-	1997 02 13	369	0.1-	0.3-	1998 07 31	610	1.7+	0.6+
1995 09 25	107	0.2+	0.4+	1997 02 13	369	0.0	0.5-	1998 07 31	610	1.8+	0.7+
1997 01 31	610	0.2+	0.2-	1997 02 14	610	0.2+	0.1+	1998 07 31	610	1.8+	0.8+
1997 02 01	610	0.7+	0.8-	1997 02 14	610	0.3+	0.5+	1998 08 12	108	0.3-	0.0
1997 02 01	610	1.0+	1.1-	1997 02 14	610	0.4+	1.0+	1998 08 12	108	2.0-	2.1-
1997 02 06	610	0.3-	0.3-	1997 02 16	610	0.8-	0.3-	1998 08 17	704	1.0-	0.3-
1997 02 06	610	0.7-	0.1-	1997 02 16	610	1.4-	0.2+	1998 08 17	704	1.0-	0.4+
1997 02 06	610	1.1-	0.3+	1997 02 16	610	0.6-	0.2+	1998 08 17	704	1.5-	0.7+
1997 02 06	104	0.7-	0.7+	1997 03 01	610	0.0	0.1-	1998 08 17	704	1.3-	0.0
1997 02 06	104	1.3-	0.5+	1997 03 01	610	0.2-	0.1-	1998 08 17	704	1.1-	0.2-
1997 02 06	104	0.2-	0.9+	1997 03 01	610	0.8-	0.0	1998 08 23	699	0.5-	0.3+
1997 02 07	610	0.7-	0.8+	1997 03 02	610	1.0+	0.6+	1998 08 23	704	0.4-	0.1-
1997 02 07	610	0.6-	0.8+	1997 03 02	610	0.3+	0.4+	1998 08 23	704	0.2+	0.8-

1997 02 07	610	0.5-	0.8+	1997 03 02	610	0.2-	0.4+	1998 08 23	699	0.4-	1.0+
1997 02 08	566	1.0-	0.9-	1997 03 05	704	1.0+	0.3-	1998 08 23	704	0.8+	1.4+
1997 02 08	566	1.2-	1.1-	1997 03 05	704	0.7+	0.2+	1998 08 23	704	0.6-	0.1-
1997 02 08	566	1.0-	1.1-	1997 03 06	704	1.4+	0.1+	1998 08 23	699	0.9-	0.1-
1997 02 08	610	1.0+	0.8-	1997 03 06	704	0.2+	0.6+	1998 08 29	610	0.6+	0.1-
1997 02 08	610	0.7+	0.7-	1997 03 12	610	1.9+	0.2-	1998 08 29	610	0.6+	0.2-
1997 02 08	610	0.3+	0.6-	1997 03 12	610	0.6+	0.1-	1998 08 29	610	0.6+	0.3-
1997 02 09	610	0.2-	0.4-	1997 03 12	610	0.7-	0.1-	1998 08 29	610	0.5+	0.4-
1997 02 09	369	0.0	0.4-	1997 03 12	610	(2.3-	0.1+)	1998 09 01	691	0.7-	0.3-
1997 02 09	369	0.4+	0.2+	1998 07 20	104	0.5-	1.2-	1998 09 01	691	0.8-	0.2-
1997 02 09	610	0.4+	0.2+	1998 07 20	104	1.0-	1.4-	1998 09 01	691	(0.2+	2.4+)
1997 02 09	610	0.4+	0.0	1998 07 29	610	1.2+	0.5-				
1997 02 09	610	0.5+	0.1-	1998 07 29	610	0.9+	0.3-				

(9233)* 1997 CC₁ = 1981 FG₁ = 1985 EF = 1986 RV₁₆ = 1994 PV₂₁

Discovered 1997 Feb. 1 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29639; unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	21.29059	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.24103273	ω	130.65699	+0.06800548	+0.99451857
<i>a</i>	2.5571254	Ω	143.01308	-0.95057134	+0.08876293
<i>e</i>	0.2513826	<i>i</i>	7.58593	-0.30296761	-0.05526263
<i>P</i>	4.09	<i>H</i>	13.9	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1981 03 29	095(16.9-	1.3+)	1997 02 03	411	0.7-	0.3+	1998 07 27	809	(3.2+	1.0+)	
1985 03 15	046	0.0	1.9-	1997 02 03	411	0.0	0.7+	1998 08 17	704	0.4-	1.2+
1985 03 15	046	0.4-	0.4-	1997 02 11	411	0.4-	0.3+	1998 08 17	704	0.4-	0.8+
1986 09 14	095	0.3-	1.9-	1997 02 11	411	0.2+	0.5+	1998 08 17	704	0.1-	1.9+
1994 08 12	809	1.1+	0.2-	1997 03 01	411	0.9+	0.7-	1998 08 17	704	0.5-	1.7+
1994 08 12	809	0.8+	0.3-	1997 03 01	411	0.2+	0.2+	1998 08 21	566	0.7+	0.5-
1994 08 12	809	0.2+	0.2-	1998 06 30	699	1.1-	0.4-	1998 08 21	566	0.9+	0.4-
1994 08 13	809	0.3+	0.6-	1998 06 30	699	0.9-	0.5-	1998 08 21	566	0.9+	0.5-
1994 08 13	809	0.0	0.3-	1998 06 30	699	1.2-	0.6-	1998 08 23	704	0.6+	0.6-
1994 08 13	809	0.8+	0.5-	1998 07 26	809	(3.7+	0.9+)	1998 08 23	704	0.3-	0.4+
1994 09 01	399	(2.6-	0.3+)	1998 07 26	809	(3.3+	1.0+)	1998 08 23	704	(3.0-	1.3+)
1994 09 01	399	1.3-	0.6+	1998 07 26	809	(3.2+	0.0)	1998 08 23	704	0.1-	0.7+
1997 02 01	411	0.6-	0.4+	1998 07 27	809	(3.4+	0.8+)				
1997 02 01	411	0.8+	1.3+	1998 07 27	809	(3.0+	0.2+)				

(9234)* 1997 CH₄ = 1987 BG₁ = 1991 KP₂ = 2077 T-1

Discovered 1997 Feb. 3 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29640)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	31.31411	(2000.0)	<i>P</i>	<i>Q</i>	
<i>n</i>	0.30140320	ω	194.92496	+0.26017501	+0.96481300
<i>a</i>	2.2031166	Ω	90.16653	-0.88194559	+0.25348468
<i>e</i>	0.0985923	<i>i</i>	2.17840	-0.39304062	+0.06986690
<i>P</i>	3.27	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1971 03 24	675	1.0-	0.7-	1997 02 03	411	0.3-	1.5-	1998 08 17	704	0.2-	0.4+
1971 03 25	675	0.8+	0.8-	1997 02 06	411	0.2+	0.4-	1998 08 17	704	0.4+	0.5-
1971 03 25	675	0.0	0.4-	1997 02 06	411	0.8-	0.0	1998 08 17	704	0.7+	0.3+
1971 03 26	675	1.4+	0.8-	1997 02 11	411	0.1+	0.4+	1998 08 17	704	0.5+	0.2+
1971 03 27	675	1.1-	0.0	1997 02 11	411	0.3+	0.1+	1998 08 17	704	0.6+	0.3+
1987 01 27	033	1.2-	1.2+	1997 03 01	411	0.1-	0.2-	1998 08 23	704	0.2-	0.7-
1987 01 28	033	1.1-	0.1-	1997 03 01	411	0.8+	0.4+	1998 08 23	704	0.4-	0.6+
1991 05 18	809	0.1-	0.6+	1998 06 29	704	0.5+	0.2-	1998 08 23	704	1.2-	1.0-
1991 05 18	809	0.5-	0.1+	1998 06 29	704	0.0	0.7+	1998 08 23	704	0.2+	0.0
1991 05 18	809	0.4-	0.7+	1998 06 29	704	1.4+	1.8-	1998 08 23	704	0.0	0.7-
1997 02 03	411	1.1+	0.5-	1998 06 29	704	0.1-	0.0				

Id. S. Nakano (*MPC* 29311)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25782162	ω	173.50057	−0.07367712	+0.99438893		
<i>a</i>	2.4448741	Ω	92.25544	−0.91837502	−0.03797651		
<i>e</i>	0.1574048	<i>i</i>	4.35690	−0.38879172	−0.09873418		
<i>P</i>	3.82	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1993 01 22	691	0.7−	0.1+	1995 12 22	691	0.0	0.1−	1997 02 24	360	0.5+	0.7+
1993 01 22	691	0.4−	0.2−	1995 12 22	691	0.5+	0.2−	1997 03 01	360	0.5−	0.1+
1993 01 22	691	0.5−	0.1+	1995 12 28	691	0.4+	0.0	1997 03 01	360	0.2+	0.7−
1993 01 26	691	0.4−	0.1−	1995 12 28	691	0.5+	0.1+	1997 03 01	360	0.1+	0.1−
1993 01 26	691	0.1−	0.2−	1995 12 28	691	0.2+	0.1−	1998 07 30	360	0.0	0.3−
1993 01 26	691	0.5−	0.1+	1997 02 09	360	0.4+	0.1+	1998 07 30	360	0.3+	0.5−
1994 07 08	809	0.7+	0.0	1997 02 09	360	0.1+	0.6+	1998 08 02	360	0.3+	0.1−
1994 07 08	809	0.2+	0.3+	1997 02 09	360	0.4+	0.4+	1998 08 02	360	0.3−	0.0
1994 07 08	809	0.6−	1.1−	1997 02 13	360	0.3+	0.3−	1998 08 15	360	0.8−	0.1−
1994 07 09	809	0.2+	0.6−	1997 02 13	360	0.1−	0.0	1998 08 15	360	0.6−	0.1−
1994 07 09	809	0.5+	0.3−	1997 02 13	360	0.2+	0.1+	1998 08 20	360	0.1−	0.5+
1994 07 09	809	0.2−	0.9+	1997 02 24	360	0.3−	0.5−	1998 08 20	360	0.4−	0.7+
1995 12 22	691	0.1+	0.3+	1997 02 24	360	0.4+	0.1−				

(9236)* 1997 EV₃₂ = 1979 OJ₉ = 1991 TQ₁₄

Discovered 1997 Mar. 12 by E. Meyer at Linz.

Id. G. V. Williams (*MPC* 29645)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26208334	ω	39.92339	−0.89677429	+0.44163421		
<i>a</i>	2.4182978	Ω	166.20702	−0.42968544	−0.85431602		
<i>e</i>	0.0913601	<i>i</i>	6.61849	−0.10567069	−0.27404994		
<i>P</i>	3.76	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1979 07 24	413	0.4+	1.2−	1997 03 19	684	0.1−	0.0	1998 08 14	540	0.8−	1.1−
1979 07 26	675	(4.5+	0.2−)	1997 04 02	540	0.1+	0.4−	1998 08 14	540	1.3+	0.6+
1979 07 28	413	0.0	1.9−	1997 04 02	540	(0.2+	2.2+)	1998 08 17	704	0.3+	0.1+
1991 10 07	691	0.1+	0.6+	1997 04 13	540	1.1+	0.9+	1998 08 17	704	0.9−	1.3+
1991 10 07	691	0.2−	0.4+	1997 04 13	540	0.4−	1.4+	1998 08 17	704	1.8−	1.3+
1991 10 07	691	0.3−	0.4+	1997 05 02	540	0.6−	1.7+	1998 08 17	704	(3.0−	1.1−)
1997 03 12	540	0.8−	0.3+	1998 07 26	540	1.8+	0.9+	1998 08 17	704	1.2−	0.6−
1997 03 12	540	0.2−	0.3+	1998 07 26	540	(2.5+	4.7+)	1998 08 17	540	1.1+	1.1+
1997 03 18	684	0.6+	0.0	1998 07 27	540	1.0−	0.3+	1998 08 17	540	(0.7−	2.2+)
1997 03 18	684	0.6+	0.0	1998 08 14	540	0.8−	0.1−	1998 08 17	540	0.1+	0.9+
1997 03 18	684	0.6+	0.0	1998 08 14	540	(2.4+	0.4+)				
1997 03 19	684	0.0	0.2−	1998 08 14	540	0.9+	0.2+				

(9237)* 1997 GY₇ = 1977 UN₄ = 1992 DT₁₃

Discovered 1997 Apr. 2 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 29932)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22493382	ω	15.47697	−0.36284625	−0.93142916		
<i>a</i>	2.6777265	Ω	95.80458	+0.85194283	−0.34374343		
<i>e</i>	0.1197698	<i>i</i>	1.61103	+0.37753942	−0.11949964		
<i>P</i>	4.38	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 10 18	675	0.1−	0.2−	1997 04 08	809	0.2+	1.3+	1997 05 01	704	0.5+	0.7−
1977 10 19	675	0.2+	0.1+	1997 04 08	809	0.5+	0.9+	1997 05 01	704	0.5+	0.4−
1992 02 27	033	0.1+	0.7−	1997 04 08	809	0.6+	1.3+	1997 05 01	704	0.4+	0.6−
1992 02 27	033	0.1−	0.7−	1997 04 08	704	0.6−	0.1−	1998 06 28	691	0.2−	0.4+
1992 02 28	033	0.5−	0.2−	1997 04 08	704	0.3+	0.6+	1998 06 28	691	0.1−	0.4+

1997 04 02	704	0.3+	0.6+	1997 04 08	704	0.1−	0.8+	1998 06 28	691	0.1−	0.4+
1997 04 02	704	0.1−	0.8+	1997 04 08	704	0.2−	0.3−	1998 08 17	704	0.4−	0.1−
1997 04 06	704	0.2−	0.3−	1997 04 30	704	1.2+	0.6−	1998 08 17	704	0.7+	0.4+
1997 04 06	704	0.3−	0.4−	1997 04 30	704	0.3+	0.3−	1998 08 17	704	0.5+	0.9−
1997 04 07	809	1.3−	0.9−	1997 04 30	704	0.2+	0.3−	1998 08 17	704	0.0	2.0−
1997 04 07	704	0.2−	0.6+	1997 04 30	704	0.4+	0.0	1998 08 25	557	0.1−	0.1−
1997 04 07	809	1.5−	1.1−	1997 04 30	704	0.0	0.2−	1998 08 25	557	0.1−	0.2−
1997 04 07	809	1.4−	1.6−	1997 05 01	704	0.7+	1.5+				
1997 04 07	704	0.3−	0.1+	1997 05 01	704	0.2+	0.6−				

(9238)* 1997 HO₂ = 1982 KM₂

Discovered 1997 Apr. 28 by P. G. Comba at Prescott.

Id. G. V. Williams (*MPC* 29936)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19676375	ω	174.74681	+0.99702502	+0.07707728		
<i>a</i>	2.9275612	Ω	180.83300	−0.07179279	+0.92652205		
<i>e</i>	0.0975036	<i>i</i>	1.76534	−0.02805180	+0.36826076		
<i>P</i>	5.01	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 05 16	675	0.0	0.5−	1997 05 07	566	0.2−	0.7−	1998 07 15	691	1.7−	0.1+
1982 05 16	675	0.2−	1.3+	1997 05 07	566	1.3−	0.3−	1998 07 15	691	0.2−	0.3+
1982 05 17	675	0.5+	0.1−	1997 05 07	566	0.3−	1.0−	1998 07 15	691	0.7−	0.4−
1982 05 18	675	0.1+	1.3+	1997 05 08	684	0.3+	0.2−	1998 07 25	684	0.3−	0.6−
1996 03 25	566	0.3+	0.3+	1997 05 08	684	1.0−	0.4+	1998 07 25	684	0.3−	0.7−
1996 03 25	566	0.1−	0.1+	1997 05 28	684	0.2+	0.6+	1998 07 26	684	0.7+	0.2−
1996 03 25	566	0.2+	0.8+	1997 05 28	684	0.7+	0.8+	1998 07 26	684	0.1−	0.6−
1997 04 28	684	0.1−	0.3−	1997 05 28	684	0.2−	0.3+	1998 08 15	684	0.5−	0.3+
1997 04 28	684	0.0	0.5−	1997 06 07	809	(2.6−	0.3−)	1998 08 15	684	0.3−	0.2+
1997 05 01	684	0.4−	0.5−	1997 06 07	809	0.0	0.2−	1998 08 17	684	0.1−	0.1+
1997 05 01	684	0.3−	0.6−	1997 06 07	809	0.1−	1.0−	1998 08 17	684	0.0	0.2+
1997 05 01	684	0.1−	0.6−	1997 06 09	684	0.5+	0.5+	1998 08 17	704	0.1+	0.0
1997 05 02	684	0.3−	0.3−	1997 06 09	684	0.5+	0.6+	1998 08 17	704	0.1−	1.3+
1997 05 02	684	0.2−	0.3−	1997 06 09	684	0.2+	0.6+	1998 08 17	704	0.3+	0.4−
1997 05 03	809	(1.8+	2.9+)	1997 07 02	684	0.3+	0.4+	1998 08 17	704	1.1+	0.5+
1997 05 03	809	(1.1+	2.5+)	1997 07 02	684	0.5+	0.3+	1998 08 17	704	0.0	0.1−
1997 05 03	809	1.2+	0.6+	1998 06 22	684	0.5+	0.9−	1998 08 23	699	0.1−	1.0+
1997 05 04	809	(1.4+	6.1+)	1998 06 22	684	0.5+	0.4−	1998 08 23	699	0.5+	0.7+
1997 05 04	809	(0.6+	6.2+)	1998 06 24	684	0.3+	0.9−	1998 08 23	699	0.1−	1.2+
1997 05 04	809	(0.3+	5.3+)	1998 06 24	684	0.3+	1.0−				

(9239)* 1997 JP₁₅ = 1982 BM₉ = 1991 RR₃₄ = 1993 FN₅₉

Discovered 1997 May 3 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 30283)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27817997	ω	277.75957	+0.20649529	−0.97838073		
<i>a</i>	2.3240857	Ω	160.31211	+0.91055949	+0.18787605		
<i>e</i>	0.2124291	<i>i</i>	1.94575	+0.35810768	+0.08645079		
<i>P</i>	3.54	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1982 01 19	095	0.4+	2.1−	1997 06 03	566	0.9−	0.7+	1998 08 17	704	0.7−	0.0
1982 01 20	095	0.4−	0.4−	1997 06 03	566	0.9−	0.5+	1998 08 17	704	0.1−	0.6+
1991 09 12	675	0.6−	0.6−	1997 06 07	809	0.9+	0.7−	1998 08 17	704	0.9−	0.8+
1991 09 12	675	0.3−	0.2−	1997 06 07	809	0.7+	1.0−	1998 08 17	704	0.8−	0.2+
1993 03 19	809	1.1−	0.8+	1997 06 07	809	0.3+	1.0−	1998 08 17	704	1.0−	0.4+
1993 03 20	809	0.1+	0.6−	1997 06 08	809	0.4+	1.4+	1998 08 23	704	0.4−	0.9−
1993 04 16	413	(1.5+	2.3−)	1997 06 08	809	0.7+	0.0	1998 08 23	699	0.1−	0.1−
1997 05 03	809	0.6+	1.3−	1997 06 08	809	0.5+	0.5+	1998 08 23	704	0.3−	0.8+
1997 05 03	809	(1.0+	2.5−)	1998 07 26	809	(3.4+	0.4−)	1998 08 23	704	(1.1−	2.1−)
1997 05 03	809	(0.6−	3.7−)	1998 07 26	809	1.7+	1.1−	1998 08 23	699	0.0	0.4+
1997 05 04	809	(3.4−	1.7−)	1998 07 26	809	1.8+	0.6−	1998 08 23	704	1.4−	1.3−
1997 05 04	809	(3.0−	2.4−)	1998 07 27	809	(2.4+	1.3−)	1998 08 23	699	0.5+	0.2−

1998 SEPT. 10

1997 05 04 809 (3.3– 3.8–) 1998 07 27 809 1.9+ 0.6–
 1997 06 03 566 1.8– 0.3– 1998 07 27 809 1.9+ 0.2–

(9240)* 1997 KR₃ = 1984 AD₁ = 1988 YD = 1995 AH₁

Discovered 1997 May 31 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 30088)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	296.96552	ω	280.36611	+0.85595464	–0.50325398		
<i>a</i>	3.1203096	Ω	109.93913	+0.50989143	+0.78352410		
<i>e</i>	0.2173590	<i>i</i>	7.25079	+0.08574609	+0.36445221		
<i>P</i>	5.51	<i>H</i>	12.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1984 01 08	688	(3.7+ 1.6–)	1997 06 07	691	0.0	0.2+	1997 07 06	691	0.6–	0.2+
1984 01 08	688	1.2+ 0.4–	1997 06 07	691	0.1–	0.2+	1997 07 06	691	0.5–	0.1+
1988 12 30	046	(0.9– 3.5+)	1997 06 07	691	0.0	0.1+	1998 06 26	691	0.3–	0.3+
1988 12 30	046	(1.3– 3.4+)	1997 06 08	809	(3.6+ 3.0+)		1998 06 26	691	0.3–	0.3+
1989 01 03	046	1.1+ 1.3–	1997 06 08	809	(3.4+ 2.2+)		1998 06 26	691	0.2–	0.2+
1989 01 03	046	0.9– 1.3+	1997 06 08	809	(3.7+ 1.8+)		1998 08 17	704	0.2+ 0.0	
1989 01 04	046	1.7– 1.3+	1997 06 09	809	(1.9+ 2.3+)		1998 08 17	704	0.1+ 0.3–	
1989 01 04	046	0.8+ 1.6+	1997 06 09	809	(3.1+ 1.4+)		1998 08 17	704	0.8+ 0.8–	
1993 10 10	675	0.7– 0.9–	1997 06 09	809	(2.7+ 1.5+)		1998 08 17	704	0.6+ 0.9–	
1993 10 10	675	0.8– 0.4–	1997 06 11	691	0.3+ 0.0		1998 08 17	704	0.1+ 0.0	
1995 01 06	372	1.3+ 1.0–	1997 06 11	691	0.1– 0.6+		1998 08 23	704	1.3+ 1.2+	
1995 01 06	372	1.3– 0.7–	1997 06 11	691	0.0 0.0		1998 08 23	704	1.0+ 0.7–	
1995 01 08	372	0.2– 0.4–	1997 06 29	691	0.3– 0.2–		1998 08 23	704	(0.9+ 2.5–)	
1997 05 31	691	0.0 0.1–	1997 06 29	691	0.4– 0.3+		1998 08 23	704	0.8+ 0.8+	
1997 05 31	691	0.1+ 0.1+	1997 06 29	691	0.2– 0.1–		1998 08 23	704	1.1– 0.2+	
1997 05 31	691	0.1+ 0.4+	1997 07 06	691	0.4– 0.3+					

(9241)* 1997 PE₆ = 1980 JB = 1982 UX₂

Discovered 1997 Aug. 10 by J. Broughton at Reedy Creek.

Id. G. V. Williams (*MPC* 31250)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.18526552	ω	232.67704	+0.97958960	+0.08385347		
<i>a</i>	3.0474715	Ω	121.81979	–0.02897527	+0.95824578		
<i>e</i>	0.1304742	<i>i</i>	12.41515	–0.19890866	+0.27337450		
<i>P</i>	5.32	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 05 10	046	0.4+ 0.4–	1997 08 10	428	0.3– 0.1–	1997 10 22	428	0.1+ 0.2+
1980 05 10	046	1.2– 2.2–	1997 08 10	428	0.0 0.3–	1997 12 01	428	0.6+ 0.8+
1982 10 18	807	(2.6+ 1.0+)	1997 08 11	428	0.6– 0.9–	1997 12 30	428	1.0+ 0.2+
1982 10 19	695	(3.1– 3.4–)	1997 08 11	428	0.7– 0.0	1998 07 02	428	0.4– 0.5–
1982 10 20	695	0.6+ 0.6–	1997 08 13	428	0.2+ 0.3+	1998 07 02	428	0.1+ 0.2–
1982 10 21	807	0.1– 0.5+	1997 08 25	428	0.2+ 0.2–	1998 07 02	428	0.2+ 0.7–
1982 10 22	695	0.8+ 0.0	1997 08 26	428	0.8+ 0.7–	1998 07 04	428	0.2– 0.8+
1982 10 25	807	2.1– 1.3–	1997 09 05	428	0.6– 1.1+	1998 07 04	428	0.1– 0.5–
1982 10 26	695	1.4+ 0.2–	1997 10 21	428	0.1+ 0.2–	1998 09 01	428	0.3+ 0.4–
1982 10 27	807	(10.6– 1.7+)	1997 10 22	428	0.2+ 0.5+	1998 09 01	428	0.1+ 0.5–

(9242)* 1998 CS₃ = 1991 CO₄ = 1991 EV₇ = 1996 PV₅

Discovered 1998 Feb. 6 by E. W. Elst at the European Southern Observatory.

Id. B. G. Marsden (*MPC* 31739)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.28388680	ω	282.20168	+0.25771029	–0.96537693		
<i>a</i>	2.2928339	Ω	152.76047	+0.91727289	+0.23129833		
<i>e</i>	0.1732821	<i>i</i>	5.06480	+0.30363770	+0.12061705		
<i>P</i>	3.47	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1991 02 12	511	0.1+ 1.8–	1996 08 10	566	0.6– 1.0–	1998 03 03	809	0.3+ 0.9–
1991 02 12	511	0.7+ 1.2–	1996 08 19	566	0.2+ 0.4–	1998 03 03	809	0.4+ 0.8–
1991 03 15	809	0.3– 1.5+	1996 08 19	566	0.2+ 0.5–	1998 03 03	809	0.5+ 1.4–
1991 03 15	809	0.4– 0.8+	1996 08 19	566	0.4– 0.4–	1998 03 04	809	(3.0+ 1.1+)
1991 03 15	809	0.4– 0.1+	1998 01 28	566	(2.3– 1.1–)	1998 03 04	809	(2.7+ 1.6+)
1995 03 31	691	0.3– 0.4+	1998 01 28	566	(2.6– 1.3–)	1998 03 04	809	(2.5+ 1.2+)
1995 03 31	691	0.3+ 0.1+	1998 01 28	566	(2.3– 1.8–)	1998 03 20	704	0.2– 0.2–
1995 03 31	691	0.1+ 0.2–	1998 02 06	809	1.2+ 0.9–	1998 03 20	704	0.9+ 0.9+
1996 07 16	809	(2.8+ 2.5+)	1998 02 06	809	0.6+ 0.1–	1998 03 20	704	0.4– 1.4+
1996 07 16	809	(1.4+ 2.3+)	1998 02 06	809	0.2+ 0.2+	1998 03 20	704	0.9– 0.2–
1996 07 16	809	1.7+ 1.6+	1998 02 07	809	(0.9– 2.5–)	1998 03 21	691	1.1– 0.4–
1996 08 10	566	0.1+ 0.9–	1998 02 07	809	(0.6– 2.8–)	1998 03 21	691	1.2– 0.3+
1996 08 10	566	0.4– 1.1–	1998 02 07	809	(1.5– 3.2–)	1998 03 21	691	1.1– 0.1+

(9243)* 1998 FF₆₈ = 1993 JC₁ = 1994 RZ₁₂

Discovered 1998 Mar. 20 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 31757)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.17994291	ω	272.65905	–0.94341446	+0.33161537		
<i>a</i>	3.1072741	Ω	286.70780	–0.30398648	–0.86557833		
<i>e</i>	0.1161670	<i>i</i>	0.03816	–0.13251935	–0.37524046		
<i>P</i>	5.48	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1992 02 27	691	0.7– 0.9–	1998 03 22	704	0.2+ 0.1–	1998 04 01	704	0.6– 0.9+
1992 02 27	691	0.6– 0.6–	1998 03 22	704	0.0 1.2+	1998 04 18	704	0.8+ 0.2+
1992 02 27	691	0.2– 0.6–	1998 03 22	704	0.4– 0.4+	1998 04 18	704	0.0 0.2–
1993 05 14	809	0.0 0.1–	1998 03 22	704	0.3– 0.5+	1998 04 18	704	0.0 0.2–
1993 05 14	809	0.2– 0.3–	1998 03 22	704	0.3– 1.2+	1998 04 18	704	0.3+ 0.1+
1993 05 14	809	0.5+ 0.5–	1998 03 24	699	0.2– 0.5+	1998 04 18	704	0.1+ 0.5–
1993 05 15	809	0.1+ 1.3–	1998 03 24	699	0.3+ 1.0+	1998 04 20	704	0.5+ 0.2+
1993 05 15	809	0.1– 1.4–	1998 03 24	699	0.3– 0.9+	1998 04 20	704	0.1– 0.2–
1993 05 15	809	0.3+ 1.6–	1998 03 25	704	0.0 0.3+	1998 04 20	704	0.3+ 0.6–
1994 08 10	809	1.0+ 0.9+	1998 03 25	704	(1.8– 2.2+)	1998 04 20	704	1.4+ 0.1+
1994 08 10	809	0.5+ 0.7+	1998 03 25	704	0.5– 0.8+	1998 04 20	704	0.2– 0.7+
1994 08 10	809	0.0 0.8+	1998 03 25	704	0.6+ 0.2–	1998 04 22	704	0.3+ 0.3–
1994 09 03	809	0.2+ 0.4–	1998 03 25	704	0.1– 1.5–	1998 04 22	704	1.4+ 0.2–
1994 09 03	809	0.6– 0.0	1998 03 28	704	0.3– 0.5–	1998 04 22	704	0.7– 0.1–
1994 09 03	809	1.0– 0.6–	1998 03 28	704	0.2– 0.5–	1998 04 22	704	0.2– 0.0
1994 09 04	809	0.7– 0.5+	1998 03 28	704	0.6+ 0.3–	1998 04 22	704	0.7+ 0.2+
1994 09 04	809	1.0– 0.4+	1998 03 28	704	0.0 0.6–	1998 05 01	699	1.2– 0.2+
1994 09 04	809	1.4– 0.1–	1998 03 29	704	0.0 0.2+	1998 05 01	699	0.6+ 0.3–
1995 09 29	691	0.3+ 0.1+	1998 03 29	704	0.3+ 0.0	1998 05 01	699	0.3+ 1.8+
1995 09 29	691	0.7+ 0.2+	1998 03 29	704	0.3+ 0.1–	1998 05 01	566	0.2+ 0.6–
1995 09 29	691	0.8+ 0.0	1998 03 29	704	(3.8+ 0.4–)	1998 05 01	566	0.3+ 0.2–
1998 03 20	704	0.3+ 0.2+	1998 04 01	704	1.0– 0.3+	1998 05 01	566	0.4+ 0.3–
1998 03 20	704	0.4+ 0.4+	1998 04 01	704	0.7– 0.3+	1998 05 02	566	0.3– 0.6–
1998 03 20	704	0.2+ 0.7+	1998 04 01	704	0.7– 0.6+	1998 05 02	566	0.1+ 0.5–
1998 03 20	704	0.4– 0.8+	1998 04 01	704	0.4– 0.6+	1998 05 02	566	0.3+ 0.4–

(9244)* 1998 HV₇ = 1975 TM₅ = 1975 VN₇ = 1990 TR₇ = 1994 NL₇

Discovered 1998 Apr. 21 at Višňjan.

Id. G. V. Williams (*MPC* 32263)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.19663357	ω	122.37494	+0.99979874	–0.01369786		
<i>a</i>	2.9288532	Ω	238.41378	+0.00690905	+0.92102193		
<i>e</i>	0.0798918	<i>i</i>	0.98592	+0.01883455	+0.38926979		
<i>P</i>	5.01	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1975 10 14	095	1.5+	0.8+	1998 03 29	704	0.1+	0.1+	1998 04 21	120	0.2-	0.3+
1975 11 06	095	1.5-	0.2-	1998 03 29	704	0.8-	0.2+	1998 04 22	704	0.4-	0.9-
1990 10 13	033	0.3+	0.4+	1998 04 01	704	0.2-	0.4+	1998 04 22	704	0.4+	0.4-
1990 10 13	033	0.0	0.5+	1998 04 01	704	0.3+	0.4+	1998 04 22	704	1.1-	1.0+
1990 10 14	033	0.1-	0.9+	1998 04 01	704	0.4+	0.2+	1998 04 22	704	1.0-	0.2+
1990 10 18	033	0.7-	0.2-	1998 04 01	704	0.6+	0.7+	1998 04 22	704	0.3-	0.5-
1994 07 11	809	0.9+	0.1+	1998 04 01	704	1.2+	0.8+	1998 04 23	120	0.6+	1.5+
1994 07 11	809	0.0	0.2-	1998 04 20	704	0.2+	0.5-	1998 04 23	120	1.9+	0.7-
1994 07 11	809	1.3+	0.5+	1998 04 20	704	1.3-	1.0-	1998 04 23	120	0.9-	1.0+
1994 07 12	809	0.2-	0.1+	1998 04 20	704	1.2+	0.1+	1998 04 25	699	1.5+	0.3-
1994 07 12	809	1.0-	0.6+	1998 04 20	704	0.0	1.0-	1998 04 25	699	0.7+	0.5-
1994 07 12	809	1.2-	0.5-	1998 04 20	704	1.3-	0.1+	1998 04 25	699	0.8+	0.4+
1998 03 25	704	0.4-	0.2+	1998 04 21	704	0.1-	0.2-	1998 05 16	704	0.6+	0.6-
1998 03 25	704	0.8+	0.0	1998 04 21	704	0.3-	0.1-	1998 05 16	704	1.5-	0.2-
1998 03 25	704	(0.7+ 2.7-)		1998 04 21	704	0.0	0.5+	1998 05 16	704	1.0-	0.4+
1998 03 25	704	(3.2- 2.6+)		1998 04 21	704	0.7+	0.3-	1998 05 16	704	0.0	0.8+
1998 03 29	704	0.1-	0.3+	1998 04 21	704	0.1+	0.6-	1998 05 28	699	0.4+	0.5+
1998 03 29	704	0.5-	0.3-	1998 04 21	120	0.6-	0.4-	1998 05 28	699	0.1+	0.1+
1998 03 29	704	0.2-	0.5-	1998 04 21	120	0.1+	1.5+	1998 05 28	699	0.6+	0.3-

(9245)* 1998 HF₁₀₁ = 1991 JV₃ = 1995 US₄₇

Discovered 1998 Apr. 21 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32021)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	323.03306	(2000.0)	P	Q	
<i>n</i>	0.27749906	ω 181.20223	+0.55109476	+0.83244626	
<i>a</i>	2.3278860	Ω 122.24276	-0.76501583	+0.53164210	
<i>e</i>	0.2612725	<i>i</i> 3.91087	-0.33323468	+0.15617266	
<i>P</i>	3.55	<i>H</i> 14.8	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1991 05 12	809	0.9+	1.1+	1997 01 30	704	0.2+	0.6-	1998 05 22	704	1.6-	0.0
1991 05 12	809	0.6+	0.7+	1998 04 21	704	0.6-	0.4+	1998 05 22	704	0.5-	0.5+
1991 05 12	809	0.4-	0.3+	1998 04 21	704	0.6+	1.1-	1998 05 22	704	0.3-	0.4-
1991 05 17	809	0.1+	0.2-	1998 04 21	704	0.9+	0.2-	1998 05 22	704	0.7-	0.6+
1991 05 17	809	0.6-	0.9-	1998 04 21	704	0.4+	0.0	1998 05 24	704	0.1-	0.2-
1991 05 17	809	0.4-	0.4-	1998 04 22	704	0.8+	0.5-	1998 05 24	704	0.4-	0.7-
1995 10 23	033	0.8-	1.0-	1998 04 22	704	1.0+	0.1+	1998 05 24	704	0.9-	0.0
1995 10 23	033	0.8-	1.0+	1998 04 22	704	0.8+	0.3-	1998 05 24	704	0.3+	0.5+
1995 10 24	033	1.5+	0.2+	1998 04 22	704	0.8+	0.2-	1998 05 24	704	0.8-	0.8+
1995 10 25	033	0.2+	0.2-	1998 04 22	704	0.6+	0.4+	1998 06 02	699	0.0	0.1-
1996 12 18	327	0.4+	0.2-	1998 04 25	699	0.1+	0.1+	1998 06 02	699	0.5-	0.4-
1996 12 18	327	0.5-	0.5+	1998 04 25	699	0.1-	0.5+	1998 06 02	699	0.1-	0.2-
1996 12 18	327	0.3+	0.4+	1998 04 25	699	0.7+	0.5-				
1997 01 30	704	0.5-	0.0	1998 05 22	704	0.7-	0.3+				

(9246)* 1998 HB₁₄₉ = 1977 RO₅ = 1988 VZ₉ = 1988 XS₃ = 1995 UQ₂₇

Discovered 1998 Apr. 25 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 32274)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	293.51816	(2000.0)	P	Q	
<i>n</i>	0.27407038	ω 230.34221	+0.95796414	+0.28596137	
<i>a</i>	2.3472606	Ω 113.03046	-0.25495349	+0.88540211	
<i>e</i>	0.2205187	<i>i</i> 1.43451	-0.13154244	+0.36645492	
<i>P</i>	3.60	<i>H</i> 14.4	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1977 09 09	095	0.9-	0.2-	1998 04 25	809	1.9+	0.9-	1998 06 16	704	1.1-	0.2+
1988 11 15	875	1.7+	0.8+	1998 04 28	809	(2.2+ 0.7-)		1998 06 16	704	0.3-	1.5-
1988 11 15	875	1.5+	0.9+	1998 04 28	809	(2.6+ 0.4+)		1998 06 16	704	(1.9- 3.0-)	
1988 12 01	054	0.1-	0.7-	1998 04 28	809	(2.4+ 2.0+)		1998 06 17	595	0.3+	0.6-

1995 10 20	691	0.2+	0.2-	1998 05 22	704	0.1-	0.8+	1998 06 17	595	0.0	1.1-
1995 10 20	691	0.0	0.0	1998 05 22	704	0.5-	0.2-	1998 06 18	704	0.6+	0.9+
1995 10 20	691	0.1+	0.0	1998 05 22	704	0.3-	1.0+	1998 06 18	704	0.3-	0.8-
1995 10 25	691	0.7-	0.1-	1998 05 22	704	1.0-	0.4+	1998 06 18	704	0.6+	0.7-
1995 10 25	691	0.5-	0.3-	1998 05 22	704	0.3+	0.8+	1998 06 18	704	0.6-	0.4-
1995 10 25	691	0.4-	0.1-	1998 05 24	704	0.3+	1.8-	1998 06 18	704	0.8+	0.2+
1997 02 03	566	1.5-	0.3+	1998 05 24	704	0.2-	0.3+	1998 06 23	595	0.6-	0.4-
1997 02 03	566	0.6-	0.1+	1998 05 24	704	0.2+	1.9+	1998 06 23	595	0.9+	0.2-
1997 02 03	566	0.7-	0.3+	1998 05 24	704	0.4+	1.2+	1998 06 30	699	0.2+	0.3-
1998 04 25	809	0.5+	0.0	1998 05 24	704	0.0	1.7+	1998 06 30	699	0.4-	0.3+
1998 04 25	809	0.7+	1.2-	1998 06 16	704	0.0	0.1+	1998 06 30	699	0.3-	0.2-

(9247)* 1998 MO₁₉ = 1950 SM = 1989 TK₁ = 1991 GS

Discovered 1998 June 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32286)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	171.91684	(2000.0)	P	Q	
<i>n</i>	0.18000571	ω 252.17118	-0.21495891	-0.94509290	
<i>a</i>	3.1065513	Ω 213.49952	+0.97581635	-0.21808978	
<i>e</i>	0.0792893	<i>i</i> 26.48662	-0.03968786	-0.24338501	
<i>P</i>	5.48	<i>H</i> 12.1	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1950 09 19	012	1.8+	1.8+	1998 05 28	704	0.2+	1.2-	1998 06 27	704	0.4-	0.9+
1950 09 22	012	1.7-	0.1+	1998 05 28	704	0.7-	0.9+	1998 06 27	704	0.3+	0.6+
1989 10 05	327	0.1-	0.1+	1998 06 04	704	0.7+	0.8-	1998 06 27	704	0.3-	0.3+
1989 10 05	327	0.2+	0.1-	1998 06 04	704	0.5+	0.0	1998 06 27	704	0.2-	0.3-
1989 10 07	327	0.3-	0.8-	1998 06 04	704	0.5+	0.0	1998 06 27	704	0.7-	0.7+
1989 10 07	327	0.0	0.3+	1998 06 04	704	0.1-	0.4+	1998 07 24	566	0.0	1.9-
1991 04 09	675	0.7+	0.5+	1998 06 04	704	0.4-	0.4+	1998 07 24	566	1.7+	1.2-
1991 04 09	675	0.1-	1.0+	1998 06 23	704	0.5-	1.2+	1998 07 24	566	1.4+	0.8-
1991 04 11	675	0.6+	0.3+	1998 06 23	704	1.0-	1.2+	1998 08 19	566	0.2-	0.9-
1991 04 11	675	1.0-	0.6-	1998 06 23	704	0.2+	0.5+	1998 08 19	566	0.6-	0.4-
1998 05 28	704	0.1-	0.8-	1998 06 23	704	0.1+	1.3+	1998 08 19	566	0.1-	0.2-

(9248)* 4593 P-L = 1977 DB₁₀

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

Id. G. V. Williams (*MPC* 29648)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	306.54958	(2000.0)	P	Q	
<i>n</i>	0.20557887	ω 210.68458	+0.95422636	-0.29895086	
<i>a</i>	2.8432633	Ω 166.70099	+0.28171205	+0.88832125	
<i>e</i>	0.0805596	<i>i</i> 2.23449	+0.10045088	+0.34858821	
<i>P</i>	4.79	<i>H</i> 13.8	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1960 09 24	675	0.1+	0.7-	1997 05 03	809	0.2-	1.6-	1998 08 17	704	0.1-	0.1+
1960 09 26	675	0.1+	0.7-	1997 05 04	809	1.4-	0.5-	1998 08 17	704	0.1-	0.0
1960 09 27	675	0.4+	0.4+	1997 05 04	809	(2.3-	0.1+)	1998 08 17	704	0.5+	0.1+
1960 09 28	675	0.1-	0.5-	1997 05 04	809	(3.0-	0.7-)	1998 08 17	704	0.6-	0.8-
1960 10 22	675	0.3+	0.0	1997 06 07	809	0.5+	0.7-	1998 08 17	704	0.7+	0.3-
1960 10 25	675	0.1+	0.4-	1997 06 07	809	1.2+	0.2+	1998 08 21	566	1.4-	0.0
1960 10 26	675	0.6+	0.3+	1997 06 07	809	1.1+	0.4-	1998 08 21	566	0.9-	0.0
1977 02 19	381	1.6-	0.9+	1997 06 08	809	0.4+	1.1+	1998 08 21	566	1.1-	0.0
1977 02 19	381	0.3-	0.1-	1997 06 08	809	1.0+	0.3+	1998 08 23	704	0.3-	0.6+
1992 04 27	691	(3.6-	0.6+)	1997 06 08	809	0.3+	0.9+	1998 08 23	699	0.8-	1.0+
1992 04 27	691	(3.5-	0.7+)	1997 06 26	809	(3.1+	0.5+)	1998 08 23	704	0.0	0.4+
1992 04 27	691	(3.7-	0.4+)	1998 07 26	809	(2.9+	0.6+)	1998 08 23	699	0.4-	0.7+
1994 11 05	675	0.0	0.9-	1998 07 26	809	(2.8+	0.6+)	1998 08 23	704	(0.6-	2.7+)
1994 11 05	675	1.2+	0.3+	1998 07 27	809	1.4+	1.2-	1998 08 23	704	1.0-	0.8+
1997 05 03	809	0.1+	0.9-	1998 07 27	809	1.4+	0.7-	1998 08 23	699	0.7-	0.5+
1997 05 03	809	0.7-	0.9-	1998 07 27	809	1.6+	0.9-				

(9249)* 4606 P-L = 1991 PA₁₄

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* 18830)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	40.43138		(2000.0)			P		Q			
<i>n</i>	0.28362227	ω	215.22587			-0.05092092		+0.99830334			
<i>a</i>	2.2942593	Ω	51.87209			-0.90785802		-0.03448717			
<i>e</i>	0.0807952	<i>i</i>	2.05735			-0.41617410		-0.04691565			
<i>P</i>	3.48	<i>H</i>	14.9		<i>G</i>	0.15		<i>U</i>	1		
Residuals in seconds of arc											
1960 09 24	675	0.8+	1.0+	1994 05 10	675	0.4+	0.4-	1998 08 17	704	0.4-	0.8+
1960 09 26	675	1.0+	0.4+	1994 06 08	675	0.5+	1.3+	1998 08 19	566	0.5-	0.2-
1960 09 27	675	0.6-	0.9+	1994 06 08	675	0.2-	0.1-	1998 08 19	566	0.4-	0.0
1960 09 27	675	1.4+	0.6+	1997 02 06	411	0.3+	0.5-	1998 08 19	566	0.8-	0.1-
1960 09 28	675	1.1+	0.5+	1997 02 06	411	1.0-	0.1-	1998 08 23	704	0.1+	1.5-
1960 09 28	675	0.9-	0.1-	1997 02 11	411	0.3+	0.0	1998 08 23	704	0.3+	0.3-
1960 10 17	675	0.4-	0.4-	1997 02 11	411	0.0	0.2+	1998 08 23	704	(0.2-	2.3+
1960 10 22	675	1.0-	0.6-	1998 07 31	699	0.2+	0.2+	1998 08 23	704	1.4+	0.2-
1960 10 25	675	0.8-	0.8-	1998 07 31	699	0.0	0.0	1998 08 23	704	1.2+	0.4-
1960 10 26	675	1.5-	0.2-	1998 07 31	699	0.1-	0.3+	1998 08 27	699	0.1+	0.6+
1991 08 06	675	0.5-	0.7-	1998 08 17	704	0.8-	1.0+	1998 08 27	699	0.2+	0.6+
1991 08 06	675	0.5+	1.6-	1998 08 17	704	0.5-	0.5-	1998 08 27	699	0.6+	0.5+
1991 08 10	675	0.1-	1.3-	1998 08 17	704	0.6-	0.2-				
1994 05 10	675	0.0	0.5+	1998 08 17	704	0.2+	1.2+				

(9250)* 4643 P-L = 1993 RU₁₉ = 1997 JX₇

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

Id. G. V. Williams (*MPC* 30088)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	56.03123		(2000.0)		P		Q		
<i>n</i>	0.17794798	ω	51.88352		-0.58804599		+0.80872460		
<i>a</i>	3.1304541	Ω	182.22110		-0.80628223		-0.58738531		
<i>e</i>	0.1916318	<i>i</i>	19.44363		-0.06411605		-0.03070866		
<i>P</i>	5.54	<i>H</i>	13.2	<i>G</i>	0.15		<i>U</i>	1	
Residuals in seconds of arc									
1960 09 24	675	0.7-	0.7+	1997 05 08	327	0.1-	0.0	1998 07 17	699 0.4+ 0.3+
1960 09 26	675	0.3+	0.5-	1997 05 09	327	0.2-	0.0	1998 07 17	699 0.9+ 0.4+
1960 09 27	675	0.3+	1.4+	1997 05 09	327	0.1-	0.2+	1998 07 17	699 0.2+ 0.1-
1960 09 28	675	0.0	0.0	1997 05 09	327	0.3-	0.1+	1998 08 24	704 0.7- 0.0
1960 10 17	675	0.2-	1.1-	1997 06 03	327	0.9-	0.1+	1998 08 24	704 0.7- 0.5+
1960 10 22	675	0.1+	0.4-	1997 06 03	327	0.1-	0.2+	1998 08 24	704 0.6- 1.5-
1960 10 26	675	0.1+	0.5-	1997 06 03	327	0.0	0.3+	1998 08 24	704 0.3- 0.6+
1993 09 15	809	0.6-	1.3+	1997 06 03	327	0.3+	0.5+	1998 08 24	704 1.2- 0.0
1993 09 15	809	0.1+	0.9+	1997 06 06	327	0.3+	0.3+	1998 08 27	704 0.7+ 0.2+
1993 09 15	809	0.7-	0.1-	1997 06 06	327	1.0+	0.3-	1998 08 27	704 0.7+ 0.7-
1993 09 22	809	1.3+	1.3+	1997 06 06	327	0.7+	0.4+	1998 08 27	704 0.8+ 0.9-
1993 09 22	809	0.8+	0.5+	1997 06 06	327	0.4+	0.6+	1998 08 27	704 0.3+ 1.4-
1993 09 22	809	0.6-	0.4+	1998 07 16	596	(0.1-	3.9+)	1998 08 27	704 0.8- 0.1-
1997 05 08	327	0.4-	0.0	1998 07 16	596	(0.4+	2.8+)		
1997 05 08	327	0.2-	0.1+	1998 07 16	596	(0.3+	3.1+)		

(9251)* 4896 P-L = 1982 SR₃ = 1997 HK₁₂

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* 29937)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	323.57333			(2000.0)			P		Q		
<i>n</i>	0.18022337		ω	237.91188			+0.99031528		+0.13257206		
<i>a</i>	3.1040496		Ω	114.44118			-0.10715358		+0.91868670		
<i>e</i>	0.1821800		<i>i</i>	2.59602			-0.08828223		+0.37207445		
<i>P</i>	5.47		<i>H</i>	14.1		<i>G</i>	0.15		<i>U</i>	2	
Residuals in seconds of arc											
1960 09 26	675	0.7-	0.8-	1997 04 30	704	0.6+	0.7+	1997 05 05	704	0.3-	0.1-
1960 09 27	675	0.0	1.2+	1997 04 30	704	0.4+	0.8+	1997 05 05	704	0.1+	0.2-
1960 09 28	675	0.2-	0.1-	1997 04 30	704	0.0	0.4+	1997 05 05	704	0.8-	0.2+
1960 10 17	675	0.3+	0.6+	1997 04 30	704	0.3+	0.0	1997 05 05	704	0.7-	0.3-
1982 09 24	033	1.0+	0.2-	1997 04 30	704	0.3+	0.1-	1998 06 23	691	0.6-	0.1+
1982 09 24	033	0.3-	0.0	1997 05 01	704	1.5+	1.2+	1998 06 23	691	0.9-	0.1+
1993 09 18	675	1.4-	1.4+	1997 05 01	704	0.0	0.8+	1998 06 23	691	0.9-	0.3+
1993 09 22	675	0.3-	0.7+	1997 05 01	704	1.0+	1.0-	1998 07 02	699	0.6+	0.6+
1993 09 22	675	1.0-	1.8+	1997 05 01	704	0.3+	0.1-	1998 07 02	699	0.4+	0.4+
1993 10 13	675	1.1+	1.2-	1997 05 01	704	0.3-	0.8-	1998 07 02	699	0.1-	1.1+
1993 10 13	675	0.2+	0.4-	1997 05 05	704	0.3-	0.3-	1998 08 17	704	0.8-	0.9-
1993 10 15	010	(0.8+	2.3+)	1997 05 05	704	0.8-	1.1+	1998 08 17	704	1.1+	1.4-
1993 10 15	010	(1.3+	3.1+)	1997 05 05	704	0.1+	0.0	1998 08 17	704	1.2+	1.4-
1993 10 15	010	0.4-	1.9+	1997 05 05	704	1.1+	0.1+	1998 08 17	704	0.1+	0.9-
1997 04 06	704	0.1-	0.1-	1997 05 05	704	0.2-	0.4-	1998 08 17	704	0.3-	0.8-
1997 04 06	704	0.8-	0.9+	1997 05 05	704	0.0	1.1+				

(9252)* 9058 P-L = 1982 SM₈ = 1993 TT

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. E. Bowell (*MPC* 22822), G. V. Williams (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	336.54764		(2000.0)			P		Q			
<i>n</i>	0.18119078	<i>ω</i>	85.54973			+0.98831147		+0.14193937			
<i>a</i>	3.0929910	<i>Ω</i>	266.28322			−0.15234948		+0.90646386			
<i>e</i>	0.1714569	<i>i</i>	3.19520			−0.00548387		+0.39771407			
<i>P</i>	5.44	<i>H</i>	13.6			<i>G</i>	0.15	<i>U</i>	1		
Residuals in seconds of arc											
1960 10 17	675	0.8+	0.3−	1993 10 15	675	0.4+	0.9−	1998 08 17	704	0.2−	0.1+
1960 10 22	675	0.5−	1.1−	1993 10 15	691	0.7−	0.2+	1998 08 17	704	0.3−	0.9−
1960 10 24	675	0.5+	0.4−	1993 10 15	691	0.7−	0.2+	1998 08 17	704	1.0−	0.3−
1960 10 26	675	0.2−	0.0	1993 10 15	691	0.4−	0.0	1998 08 17	704	0.2+	1.0−
1982 09 19	095	0.0	1.0+	1993 10 20	399	0.2−	0.2+	1998 08 19	118	0.3−	0.1−
1993 09 25	095	1.3+	1.4+	1993 10 20	399	1.2−	0.4+	1998 08 19	118	0.3−	0.0
1993 10 11	400	(4.3+	2.2−)	1993 11 10	691	0.0	0.1+	1998 08 19	118	0.5−	0.2−
1993 10 11	400	0.7+	1.0−	1993 11 10	691	0.2+	0.1+	1998 08 25	560	0.7−	0.2+
1993 10 12	400	1.2+	1.2+	1997 05 31	566	0.3+	0.1+	1998 08 25	560	0.6−	0.2+
1993 10 12	400	0.4+	1.2−	1997 05 31	566	0.4−	0.1−	1998 08 25	560	0.9−	0.2+
1993 10 14	675	0.5+	0.9−	1997 05 31	566	0.2+	0.1−	1998 08 25	910	0.8+	0.5+
1993 10 14	675	0.1−	0.2−	1998 07 26	699	0.7+	0.6+	1998 08 25	910	0.9+	0.4+
1993 10 15	691	0.4−	0.3+	1998 07 26	699	0.8+	0.5+	1998 08 26	910	1.0+	0.5+
1993 10 15	691	0.8−	0.2+	1998 07 26	699	0.2+	0.3+				
1993 10 15	691	0.2−	0.3+	1998 08 17	704	0.1−	0.6−				

Residuals in seconds of arc

1971 03 24	675	1.0−	1.0−	1991 11 14	894	1.5−	0.8−	1998 08 17	704	0.1+	0.3+
1971 03 25	675	0.8−	1.0+	1991 12 02	675	0.3+	0.6−	1998 08 17	704	0.2−	0.6−
1971 03 25	675	0.5−	1.3−	1991 12 02	675	0.0	2.0−	1998 08 18	566	0.0	1.3−
1971 03 26	675	0.1−	0.5−	1994 07 13	801	0.7−	0.3+	1998 08 18	566	0.2−	0.7−
1971 03 27	675	1.4−	0.0	1994 07 13	801	0.6−	0.1−	1998 08 18	566	0.0	0.9−
1971 04 16	675	0.3−	2.3−	1997 04 15	816	0.1−	0.5+	1998 08 23	704	0.9+	0.7+
1971 04 16	675	0.3−	2.0−	1997 04 15	816	0.2+	0.1+	1998 08 23	704	0.0	0.3+
1971 05 13	675	1.3+	0.0	1997 04 15	816	0.4+	0.0	1998 08 23	704	0.2+	0.5+
1971 05 14	675	0.4+	0.8−	1997 04 15	816	0.1−	0.1+	1998 08 23	704	0.6+	0.5−
1987 09 23	095	0.4−	0.3+	1997 04 16	816	1.2+	1.4−	1998 08 23	704	0.5+	0.1+
1987 10 18	881	0.3+	1.2+	1997 04 16	816	0.1+	0.4−	1998 08 27	704	0.4+	0.3−
1987 10 18	881	0.8+	0.2+	1997 04 16	816	0.5+	0.5+	1998 08 27	704	0.4+	0.2+
1987 10 23	095	(4.1+ 1.2−)		1997 04 16	816	0.4+	0.1−	1998 08 27	704	0.1+	1.0−
1987 10 27	881	(0.1− 3.4−)		1998 06 29	704	0.3+	0.4−	1998 08 27	704	0.1−	0.7−
1987 10 27	881	1.7+	1.1− Y	1998 06 29	704	1.6−	1.2−	1998 08 27	704	0.4+	0.5−
1989 03 03	809	0.5−	0.8+	1998 06 29	704	1.0−	0.6−	1998 08 30	699	0.3−	0.3−
1989 03 03	809	0.4−	0.2−	1998 06 29	704	(3.3− 2.0−)		1998 08 30	699	0.2−	0.2−
1989 03 03	809	0.5+	0.1−	1998 08 17	704	0.3+	1.0+	1998 08 30	699	0.1−	0.0
1991 11 13	894	0.1−	0.1−	1998 08 17	704	0.2+	0.1+				
1991 11 13	894	0.5−	0.3+	1998 08 17	704	0.5−	0.7+				

(9254)* 2151 T-1 = 1987 SO₁₂

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

Id. S. Nakano (*MPC* 19878), T. Kobayashi (*ibid.*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	323.20410	(2000.0)	P	Q	
<i>n</i>	0.27113096	ω 232.88936	+0.86556835	−0.49908646	
<i>a</i>	2.3641951	Ω 156.96315	+0.48640077	+0.81821664	
<i>e</i>	0.1869158	<i>i</i> 6.05548	+0.11918778	+0.28536685	
<i>P</i>	3.64	<i>H</i> 13.6	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1955 12 12	675	0.4−	0.7−	1987 09 23	809	0.4−	1.0−	1994 07 10	675	0.1−	1.1+
1955 12 12	675	0.7−	0.6−	1987 09 23	809	0.2−	1.2−	1998 06 29	704	1.0+	2.0+
1971 03 24	675	1.1−	0.1+	1987 09 23	809	0.3−	1.3−	1998 06 29	704	0.1+	0.2−
1971 03 25	675	0.2−	0.1+	1987 09 27	809	0.3+	0.3+	1998 06 29	704	0.8−	1.0−
1971 03 25	675	0.1+	0.2−	1987 09 27	809	0.2+	0.1+	1998 06 29	704	1.5−	0.3−
1971 03 26	675	0.0	1.3−	1987 09 27	809	0.5+	0.3+	1998 06 29	704	(3.7− 0.4+)	
1971 03 27	675	0.1+	1.4−	1987 10 01	809	0.3−	1.4+	1998 08 02	699	0.4+	0.5−
1971 04 02	675	1.4+	1.7−	1987 10 01	809	0.0	1.3+	1998 08 02	699	0.1+	0.3−
1987 09 16	809	0.3+	0.5−	1987 10 01	809	0.2−	1.1+	1998 08 02	699	0.1−	0.5−
1987 09 16	809	0.6+	0.7−	1993 03 26	691	0.3−	0.1+	1998 08 26	470	0.9+	0.6−
1987 09 16	809	0.6+	0.6−	1993 03 26	691	0.8−	0.2+	1998 08 26	470	0.3+	1.1−
1987 09 18	809	0.2−	0.7−	1993 03 26	691	0.1+	0.4−	1998 08 26	470	0.3+	0.5−
1987 09 18	809	0.1−	0.7−	1993 04 19	691	0.6−	0.9−				
1987 09 18	809	0.2+	0.9−	1993 04 19	691	0.2−	1.1−				

(9255)* 3174 T-1 = 1987 SK₅

Discovered 1971 Mar. 26 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. D. W. E. Green (*MPC* 19323)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Green			
<i>M</i>	21.10081	(2000.0)	P	Q	
<i>n</i>	0.26710431	ω 315.09316	+0.71889911	+0.69510968	
<i>a</i>	2.3878963	Ω 0.88306	−0.58172787	+0.60365212	
<i>e</i>	0.0735163	<i>i</i> 9.59738	−0.38049540	+0.39041855	
<i>P</i>	3.69	<i>H</i> 13.6	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1971 03 24	675	0.1+	1.0+	1987 09 30	054	0.2−	0.4−	1998 08 02	699	1.7+	0.3+
1971 03 25	675	0.6−	1.7−	1987 10 02	054	0.8+	0.1+	1998 08 28	704	1.6+	0.2−
1971 03 26	675	0.8−	0.5−	1991 12 01	675	0.2−	0.9−	1998 08 28	704	1.1−	1.6−

1971 03 26	675	0.3−	1.0−	1991 12 01	675	0.1−	0.2−	1998 08 28	704	1.8+	1.1−
1971 03 27	675	0.9−	0.9−	1991 12 03	675	0.4+	0.8+	1998 08 28	704	1.1−	1.1+
1971 04 02	675	1.2−	0.7−	1998 06 29	704	0.7−	1.1−	1998 08 28	704	1.2−	0.2+
1971 04 16	675	0.0	0.7+	1998 06 29	704	0.9−	0.3+	1998 08 31	704	0.9−	1.7−
1971 04 16	675	0.9+	0.1+	1998 06 29	704	0.8+	0.2+	1998 08 31	704	0.3−	1.8−
1971 05 13	675	0.4−	1.1−	1998 06 29	704	0.5−	0.7+	1998 08 31	704	0.6+	0.7+
1971 05 14	675	0.5+	0.3−	1998 06 29	704	1.7−	1.7+	1998 08 31	704	1.5+	0.4−
1987 09 29	054	0.0	0.1−	1998 08 02	699	0.5+	1.0+	1998 08 31	704	(2.3− 1.0+)	
1987 09 30	054	0.1−	0.5−	1998 08 02	699	1.7+	0.7−				

(9256)* 1324 T-2 = 1972 GQ₁ = 1991 SC

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* 15080), G. V. Williams (*MPC* 19036)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Nakano			
<i>M</i>	19.31089	(2000.0)	P	Q	
<i>n</i>	0.27174603	ω 248.75222	−0.02310834	+0.99930395	
<i>a</i>	2.3606263	Ω 19.99077	−0.88254927	−0.00662971	
<i>e</i>	0.1282968	<i>i</i> 4.91411	−0.46965178	−0.03671062	
<i>P</i>	3.63	<i>H</i> 14.0	<i>G</i> 0.15	<i>U</i> 1	

Residuals in seconds of arc

1954 05 23	675	0.5−	0.4−	1973 09 29	675	1.4+	1.8+	1991 09 16	675	0.4+	1.3−
1954 05 23	675	0.2−	0.8−	1973 09 29	675	(0.4+ 3.0−)		1991 09 16	675	0.1+	1.2−
1972 04 09	805	1.8−	0.9−	1973 09 30	675	0.8+	1.7−	1991 09 29	413	0.7+	0.1+
1972 04 09	805	0.2−	1.9−	1973 09 30	675	1.6+	1.0+	1991 09 30	413	0.9−	0.4−
1972 04 10	805	0.4−	1.2−	1973 09 30	675	1.6+	0.9−	1995 10 02	411	1.5−	1.6+
1972 04 10	805	(0.9+ 3.0−)		1973 09 30	675	1.3+	1.4+	1995 10 02	411	0.7+	0.8+
1973 09 19	675	0.7−	1.5−	1973 10 04	675	1.7−	0.1+	1997 02 01	691	0.1−	0.3−
1973 09 19	675	1.2−	0.6−	1973 10 04	675	0.9+	1.3+	1997 02 01	691	0.1+	0.2−
1973 09 20	675	0.8−	0.5−	1973 10 04	675	0.2−	0.6−	1997 02 01	691	0.1−	0.3−
1973 09 24	675	0.5−	1.4−	1973 10 04	675	1.2+	0.5−	1998 07 20	566	0.1+	0.3−
1973 09 24	675	0.4−	1.4−	1973 10 05	675	0.3−	0.1−	1998 07 20	566	0.1+	0.2−
1973 09 25	675	0.2−	1.4−	1973 10 05	675	0.7+	0.5+	1998 07 20	566	0.3+	0.1+
1973 09 25	675	1.0−	1.2−	1973 10 05	675	0.5+	0.4−	1998 08 17	704	0.3−	0.3+
1973 09 29	675	0.3−	1.0−	1973 10 05	675	0.8+	0.5+	1998 08 17	704	0.5+	0.8+
1973 09 29	675	1.2+	1.9+	1991 08 07	675	0.3+	0.1+	1998 08 17	704	0.2+	1.5+
1973 09 29	675	(1.4+ 3.3−)		1991 09 12	675	0.5−	0.9−	1998 08 17	704	0.6−	1.3+
1973 09 29	675	0.7−	0.6−	1991 09 12	675	0.0	0.8−				

(9257)* 1552 T-2 = 1978 PM₄ = 1979 WR₃ = 1982 HB₁ = 1997 GL₁ = 1998 LO₂

Discovered 1973 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* 32292)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Marsden			
<i>M</i>	339.99105	(2000.0)	P	Q	
<i>n</i>	0.19023774	ω 107.79107	+0.39236552	+0.91966866	
<i>a</i>	2.9941365	Ω 185.39301	−0.89538920	+0.37788630	
<i>e</i>	0.0748160	<i>i</i> 9.85669	−0.21054094	+0.10682462	
<i>P</i>	5.18	<i>H</i> 12.8	<i>G</i> 0.15	<i>U</i> 2	

Residuals in seconds of arc

1973 09 19	675	0.1−	0.1+	1997 04 13	560	0.4+	0.0	1998 06 01	809	(2.9+ 4.3+)	
1973 09 19	675	0.9+	0.1−	1997 04 13	560	0.8+	1.2−	1998 06 02	809	(3.5+ 3.6+)	
1973 09 20	675	0.3+	1.3−	1997 04 25	560	0.7+	0.4−	1998 06 02	809	(3.1+ 2.7+)	
1973 09 24	675	0.5+	0.3−	1997 04 25	560	0.1−	0.4+	1998 06 02	809	(3.3+ 3.0+)	
1973 09 24	675	1.1+	1.3−	1997 04 25	560	0.2+	0.5+	1998 06 03	704	0.5+	0.8−
1973 09 25	675	1.4−	1.6−	1997 04 25	560	0.4−	0.1−	1998 06 03	704	0.3−	0.4−
1973 09 25	675	0.9+	0.5−	1997 05 04	560	0.4−	0.0	1998 06 03	704	0.7+	1.1−
1978 08 09	095	1.2−	0.9−	1997 05 04	560	0.1+	0.6−	1998 06 03	704	0.2−	1.1−
1979 11 16	095	(4.1+ 1.1−)		1997 05 04	560	1.2+	0.4−	1998 06 19	704	0.1+	0

1998 SEPT. 10

M.P.C. 32437

1997 04 04	560	0.4+	1.1-	1997 05 10	560	0.1+	0.6-	1998 06 19	704	0.5+	1.1-
1997 04 04	560	0.0	0.4+	1997 05 28	560	0.5+	0.1+	1998 06 19	704	0.0	1.4-
1997 04 04	560	1.7-	0.2-	1997 05 28	560	0.8-	0.8-	1998 06 19	560	(2.2+)	1.1+)
1997 04 05	560	0.8+	0.2+	1997 05 28	560	0.6-	0.6-	1998 06 19	560	0.0	1.3+
1997 04 05	560	0.5-	0.6-	1997 05 30	560	0.0	0.4-	1998 06 19	560	0.2-	1.3+
1997 04 05	560	0.0	0.1-	1997 05 30	560	0.4+	0.4+	1998 06 25	704	0.7+	0.1+
1997 04 09	560	0.2-	0.8-	1997 05 30	560	1.1-	0.2+	1998 06 25	704	0.2+	0.3+
1997 04 09	560	0.1+	0.3-	1998 05 26	704	1.2+	0.7-	1998 06 25	704	0.0	0.4-
1997 04 09	560	0.1-	0.7+	1998 05 26	704	(2.4-	0.1+)	1998 06 25	704	0.8-	0.1-
1997 04 11	560	0.2+	1.1-	1998 05 26	704	1.0-	0.3-	1998 06 25	704	0.2+	1.3+
1997 04 11	560	0.3-	0.4-	1998 05 26	704	1.4+	0.8+	1998 06 27	560	0.7-	0.4+
1997 04 11	560	0.9-	1.2+	1998 06 01	809	(3.4+	4.7+)	1998 06 27	560	0.5-	0.8+
1997 04 13	560	0.5-	0.3-	1998 06 01	809	(2.9+	4.8+)	1998 06 27	560	1.0-	1.5+

(9258)* 2137 T-2 = 1979 MO₁ = 1979 OX

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 (d, *MPC* 11142; *MPC* 15082)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano

<i>M</i>	337.09274		(2000.0)	P	Q
<i>n</i>	0.31285106	ω	118.84700	+0.89394496	+0.44793786
<i>a</i>	2.1490390	Ω	214.54738	-0.41966061	+0.82516047
<i>e</i>	0.1140828	<i>i</i>	1.47846	-0.15731301	+0.34418290
<i>P</i>	3.15	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1973 09 19	675	0.3-	1.1+	1979 06 23	413	0.3+	0.3-	1997 03 11	704	0.8+	1.1+
1973 09 19	675	1.7-	1.4-	1979 06 24	413	1.5+	0.0	1997 03 12	704	1.6+	0.5+
1973 09 20	675	2.0-	1.5-	1979 06 25	413	1.5-	0.7-	1997 03 12	704	0.7+	0.4+
1973 09 24	675	(2.8-	0.3+)	1979 07 24	675	1.9-	0.5-	1998 07 28	684	0.2-	0.1-
1973 09 24	675	(3.1-	0.5+)	1979 07 24	413	0.3-	0.4-	1998 07 28	684	0.5-	0.1+
1973 09 25	675	0.2-	0.7-	1979 07 25	675	0.6+	0.1+	1998 08 17	704	0.6-	0.2+
1973 09 25	675	0.5-	0.8-	1992 10 23	691	1.3-	1.6+	1998 08 17	704	1.4-	2.1+
1973 09 29	675	0.5+	1.5+	1992 10 23	691	1.3-	1.6+	1998 08 17	704	0.1+	0.2+
1973 09 29	675	0.4+	0.6+	1992 10 23	691	1.5-	1.4+	1998 08 17	704	0.2-	0.7+
1973 09 30	675	1.0+	0.5-	1997 03 05	691	1.1-	0.6-	1998 08 17	704	0.4-	0.8+
1973 09 30	675	1.6+	0.2+	1997 03 05	691	1.8-	0.6-	1998 08 23	704	0.2-	0.3-
1973 10 04	675	1.7+	1.4-	1997 03 05	691	1.2-	0.6-	1998 08 23	704	1.7+	1.2-
1973 10 04	675	1.9+	0.9-	1997 03 10	704	0.9+	0.2+	1998 08 23	704	1.0+	1.5+
1973 10 05	675	0.5+	1.2-	1997 03 10	704	0.5+	1.6-	1998 08 23	704	0.1-	0.7+
1973 10 05	675	1.5+	1.1-	1997 03 11	704	0.6+	1.6+	1998 08 23	704	1.0+	0.0

(9259)* 2189 T-2 = 1993 HJ₆

Discovered 1973 Sept. 29 by C. J. van Houten and I. van Houten-Groeneveld
on Palomar Schmidt plates taken by T. Gehrels.
Id. G. V. Williams (*MPC* 22597)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	26.36589		(2000.0)	P	Q
<i>n</i>	0.23264170	ω	357.58384	+0.05647902	+0.99820767
<i>a</i>	2.6182494	Ω	275.65341	-0.91568379	+0.04389034
<i>e</i>	0.1167507	<i>i</i>	1.13939	-0.39791120	+0.04068273
<i>P</i>	4.24	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1973 09 19	675	0.5+	0.0	1993 04 25	809	0.4-	0.8-	1998 07 03	699	1.0-	0.2+
1973 09 19	675	0.0	0.1+	1993 04 25	809	0.8+	0.0	1998 07 15	699	0.5-	0.7-
1973 09 20	675	0.0	1.0-	1993 04 25	809	0.5+	0.3-	1998 07 15	699	0.4+	0.8-
1973 09 24	675	2.2-	0.2-	1993 04 26	809	0.6+	0.5-	1998 07 15	699	0.1-	0.4+
1973 09 25	675	0.8-	1.4-	1997 04 04	560	1.4+	1.4-	1998 08 17	704	0.3+	0.4-
1973 09 25	675	0.0	1.5-	1997 04 04	560	1.5+	0.1+	1998 08 17	704	0.1+	0.4+
1973 09 29	675	0.0	0.0	1997 04 04	560	0.3-	0.2+	1998 08 17	704	0.5+	0.0
1973 09 29	675	0.9+	1.5+	1997 04 05	560	0.8-	1.0-	1998 08 17	704	0.6+	0.7-
1973 09 30	675	0.0	1.0-	1997 04 05	560	0.5+	0.2-	1998 08 17	704	0.4+	1.8-
1973 09 30	675	(0.9+	2.7-)	1997 04 05	560	0.4-	0.6-	1998 08 23	704	0.4-	0.1-
1973 10 04	675	1.4+	1.6-	1997 04 07	560	0.1+	0.1-	1998 08 23	704	0.7-	0.5-

1973 10 04	675	(1.0+	2.9-)	1997 04 07	560	1.3-	0.4-	1998 08 23	704	0.4-	1.8+
1973 10 05	675	2.2+	1.8-	1997 04 07	560	0.6-	1.7-	1998 08 23	704	0.0	0.7+
1973 10 05	675	1.8+	2.0-	1997 04 09	560	0.6+	0.0	1998 08 27	699	0.3+	1.4+
1993 04 24	809	0.9-	0.5-	1997 04 09	560	1.5-	1.5+	1998 08 27	699	0.4+	1.4+
1993 04 24	809	0.8-	0.4-	1997 04 09	560	0.7-	0.1+	1998 08 27	699	0.6+	1.0+
1993 04 25	809	0.9-	1.2-	1998 07 03	699	0.8-	0.7-				
1993 04 25	809	0.8-	0.9-	1998 07 03	699	0.5-	0.3-				

1971 UT₁ = 1976 QJ = 1982 SZ₅ = 1997 ER₄₇ = 1997 ET₅₉Id. D. W. E. Green (*MPC* 13593), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	296.71004		(2000.0)	P	Q
<i>n</i>	0.17619739	ω	184.12510	+0.99757636	+0.06934203
<i>a</i>	3.1511548	Ω	171.89198	-0.06261475	+0.93069453
<i>e</i>	0.2170267	<i>i</i>	2.33759	-0.03034472	+0.35916483
<i>P</i>	5.59	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1954 12 21	675	0.4-	0.4-	1982 09 26	095	1.6+	0.5+	1997 03 12	809	(3.4+	0.4+)
1954 12 21	675	0.3+	0.1-	1982 10 22	095	2.4-	0.4-	1997 03 12	809	(3.2+	0.8+)
1971 10 26	029	0.2-	0.7-	1988 11 12	046	1.4-	0.2+	1997 03 12	809	(2.4+	2.4+)
1971 10 30	029	0.4+	0.6-	1988 11 12	046	0.1+	0.3-	1997 03 13	809	0.2+	0.4-
1971 11 10	029	1.3+	0.3-	1992 06 03	675	0.0	1.1+	1997 03 13	809	1.9+	0.6-
1971 11 10	029	0.5-	0.0	1992 06 03	675	0.5+	1.9-	1997 03 13	809	1.5+	1.7-
1971 11 19	029	0.5+	1.4-	1992 06 05	675	1.5-	1.8+	1998 06 24	704	(0.2-	3.4+)
1976 08 26	095	(5.2-	0.6+)	1992 06 06	675	0.3+	0.6+	1998 06 24	704	0.3-	1.1-
1980 04 08	675	0.9-	0.2-	1993 09 12	801	0.2+	0.0	1998 06 24	704	0.5-	1.0-
1980 04 09	675	1.6-	0.4-	1993 09 12	801	0.0	0.0	1998 06 24	704	(2.9-	1.7-)
1982 09 16	095	0.8+	1.2+	1993 09 20	801	0.1-	0.7-				
1982 09 20	095	0.4+	0.7+	1993 09 20	801	0.1-	0.4-				

1973 SR₁ = 1998 QT₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	308.58055		(2000.0)	P	Q
<i>n</i>	0.08260329	ω	46.22760	+0.06190669	-0.99303035
<i>a</i>	5.2216105	Ω	40.54571	+0.86568550	+0.00341218
<i>e</i>	0.0594364	<i>i</i>	8.87509	+0.49674559	+0.11780950
<i>P</i>	11.93	<i>H</i>	12.5	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1973 09 20	675	0.8+	0.1+	1973 09 30	675	0.6+	0.5-	1998 08 24	910	0.5-	0.0
1973 09 24	675	0.2-	0.1-	1973 09 30	675	0.3-	0.6+	1998 08 24	910	0.3+	0.4+
1973 09 24	675	0.7+	0.4+	1973 10 04	675	0.9+	0.3-	1998 08 25	910	0.2+	0.2-
1973 09 25	675	0.1-	1.2-	1973 10 04	675	0.3-	0.2-	1998 08 25	910	0.3+	0.3-
1973 09 25	675	0.7-	0.3+	1973 10 05	675	0.2-	0.1+	1998 08 25	910	0.1-	0.1-
1973 09 29	675	1.3-	0.6+	1973 10 05	675	0.5+	0.2-				
1973 09 29	675	0.4-	0.4+	1998 08 24	910	0.2-	0.2+				

1974 RX₁ = 1998 HO₁₂₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano

<i>M</i>	197.52067		(2000.0)	P	Q
<i>n</i>	0.27260213	ω	138.55328	+0.96858708	-0.24680087
<i>a</i>	2.3556814	Ω	235.75990	+0.21734932	+0.89972903
<i>e</i>	0.2428406	<i>i</i>	2.11226	+0.12082362	+0.35996806
<i>P</i>	3.62	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1974 09 14	095	0.9-	0.5+	1998 03 28	704	2.0-	0.3-	1998 04 19	704	0.6+	0.2+
1974 09 19	095	0.5+	1.2-	1998 03 29	704	1.0+	0.5-	1998 04 19	704	1.6+	1.3-
1974 09 21	095	0.6+	0.5+	1998 03 29	704	0.8+	1.2+	1998 04 19	704	0.3+	0.8+
1998 03 20	704	0.2+	1.2+	1998 03 29	704	0.8-	1.7-	1998 04 19	704	0.4-	1.2+
1998 03 20	704	0.5+	1.1-	1998 03 29	704	0.1+	0.1-	1998 04 19	704	(6.0-	1.5+)
1998 03 20	704	1.3+	1.0+	1998 03 29	704	1.4+	1.3+	1998 04 20	704	0.4+	1.4-
1998 03 20	704	1.0+	1.1-	1998 04 01	704	0.2+	0.2+	1998 04 20	704	0.1-	0.9-
1998 03 28	704	1.7-	0.9-	1998 04 01	704	0.8+	0.9+	1998 04 20	704	0.5-	0.6-

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1998 03 28	704	1.5−	0.5+	1998 04 01	704	1.0+	0.2+	1998 04 20	704	0.4−	2.0+
1998 03 28	704	1.6−	1.5−	1998 04 01	704	0.7+	0.4+	1998 04 20	704	0.9−	0.2+
1998 03 28	704	1.7−	1.2−	1998 04 01	704	0.2−	1.1+				

1976 SL₅ = 1976 UD₆ = 1994 SS₁₀ = 1998 QF₄Id. C. M. Bardwell (d, *MPC* 9064), H. Oishi (d, *JAM* 1663), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	267.28342		(2000.0)		P		Q
n	0.21732138	ω	29.94942		+0.70916952		−0.70459556
a	2.7398981	Ω	14.93239		+0.62608804		+0.61307443
e	0.0936416	i	5.56178		+0.32417952		+0.35733017
P	4.54	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1976 09 24	095	1.9−	0.7−	1994 09 29	691	0.8−	0.4+	1998 08 19	428	0.3+	0.1+
1976 10 22	381	0.5+	0.8−	1994 10 06	691	0.5+	0.0	1998 08 22	428	0.2+	0.3−
1976 10 22	381	1.0+	0.2−	1994 10 06	691	0.4+	0.0	1998 08 22	428	0.1+	1.0−
1976 10 24	381	1.0+	0.4+	1994 10 06	691	0.7+	0.5+	1998 08 25	428	0.3−	0.1−
1994 09 29	691	0.8−	0.3+	1998 08 18	428	0.1+	0.4+				
1994 09 29	691	0.9−	0.3+	1998 08 18	428	0.1−	0.2+				

1977 PB = 1990 KE₂ = 1990 SO₁₈ = 1998 KV₆₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	8.04690		(2000.0)		P		Q
n	0.22890773	ω	110.47912		−0.43311997		+0.88478901
a	2.6466453	Ω	132.63583		−0.88927785		−0.38838532
e	0.1343656	i	13.51422		−0.14694218		−0.25749805
P	4.31	H	13.5	G	0.15	U	3

Residuals in seconds of arc

1977 08 06	414	0.1+	0.6−	1990 05 29	413	(0.3−	2.5+)	1998 05 26	704	0.7−	0.5−
1977 08 06	414	0.1−	0.9+	1990 09 16	675	0.4−	1.1−	1998 06 03	704	0.3+	0.1−
1977 08 06	414	(2.7−	14.5+)	Y 1990 09 16	675	0.2+	1.0−	1998 06 03	704	0.2−	1.1+
1977 08 06	414	0.3+	0.6+	1998 05 23	704	0.1−	0.1+	1998 06 03	704	0.1−	0.1+
1977 08 06	414	0.4+	1.1+	1998 05 23	704	0.0	0.1+	1998 06 03	704	0.5−	1.1+
1977 08 09	414	1.4−	0.5+	1998 05 23	704	0.1+	0.0	1998 06 03	704	(1.3−	2.3+)
1977 08 09	414	0.4−	0.8+	1998 05 23	704	0.5+	0.1−	1998 06 15	699	0.2+	0.0
1977 08 12	414	0.3−	0.5+	1998 05 23	704	0.7+	1.1+	1998 06 15	699	0.1+	0.6+
1977 08 12	414	0.5−	1.1+	1998 05 26	704	0.2+	0.6−	1998 06 15	699	0.2+	0.3+
1977 08 20	808	1.9+	0.5−	1998 05 26	704	0.3+	0.4−	1998 06 24	566	0.2+	0.8−
1977 08 22	808	0.3−	1.7−	1998 05 26	704	0.7−	0.5−	1998 06 24	566	0.3−	0.5−
1990 05 29	413	0.7+	1.2−	1998 05 26	704	0.5−	0.9−	1998 06 24	566	0.2+	0.8−

1977 QN₁ = 1998 QA₁₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	10.91869		(2000.0)		P		Q
n	0.23247736	ω	309.07328		+0.39175868		+0.91790780
a	2.6194831	Ω	343.64590		−0.75985396		+0.28416456
e	0.1798894	i	12.93131		−0.51879389		+0.27694001
P	4.24	H	13.0	G	0.15	U	5

Residuals in seconds of arc

1977 08 19	095	2.6−	0.1+	1998 08 17	704	0.5−	0.2+	1998 08 23	704	0.6+	0.0
1977 08 20	095	0.5−	0.9−	1998 08 17	704	0.1−	0.1+	1998 08 23	704	1.4+	1.0+
1977 08 21	095	0.5+	0.9+	1998 08 17	704	0.9−	1.0−	1998 08 23	704	0.0	1.0+
1977 08 23	095	0.6+	1.1+	1998 08 17	704	0.9−	1.1−	1998 08 23	704	0.7+	1.5+
1977 09 09	095	1.6+	1.1−	1998 08 17	704	0.2−	2.0−				

1998 SEPT. 10

1978 PG₄ = 1998 PE₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	340.83243		(2000.0)		P		Q
n	0.29542678	ω	37.03601		+0.93750288		+0.33631059
a	2.2327297	Ω	303.07955		−0.33932608		+0.82664347
e	0.2219858	i	6.12136		−0.07711138		+0.45117153
P	3.34	H	14.5	G	0.15	U	3

Residuals in seconds of arc

1978 08 09	095	0.5+	1.3−	1998 08 16	120	0.5+	0.1−	1998 08 20	120	0.2+	0.1−
1978 09 26	095	0.2+	0.2−	1998 08 16	120	0.5+	0.1−	1998 08 20	120	0.4+	0.3−
1978 10 02	095	0.1−	0.3+	1998 08 16	120	0.5+	0.1−	1998 08 20	120	0.5+	0.3−
1998 07 04	699	0.0	0.5−	1998 08 17	704	0.4−	0.1+	1998 08 20	120	0.2+	0.0
1998 07 04	699	0.3−	0.1−	1998 08 17	704	0.1+	0.4+	1998 08 23	704	0.5−	0.7−
1998 07 04	699	0.2+	0.0	1998 08 17	704	0.4+	0.6+	1998 08 23	704	0.4−	0.8+
1998 07 26	699	0.1−	0.5+	1998 08 17	704	0.8−	0.0	1998 08 23	704	0.4−	0.6+
1998 07 26	699	0.0	0.7+	1998 08 17	704	0.1+	0.7+	1998 08 23	704	0.2−	0.1+
1998 07 26	699	0.2−	0.5+	1998 08 17	120	0.5+	0.5−	1998 08 23	704	1.3−	1.2+
1998 08 15	120	0.4+	0.1−	1998 08 17	120	0.0	0.3−	1998 08 26	699	0.5−	0.4−
1998 08 15	120	0.3+	0.1−	1998 08 17	120	0.0	0.6−	1998 08 26	699	0.3−	0.4−
1998 08 15	120	0.5+	0.2−	1998 08 17	120	0.4+	0.1−	1998 08 26	699	0.6−	0.0

1978 RL₁₀ = 1997 LR₈ = 1998 OC₁₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	339.29050		(2000.0)		P		Q	
n	0.19663492	ω	214.08862		+0.96968227		+0.24139004	
a	2.9288398	Ω	131.89522		−0.21126516		+0.90633883	
e	0.1020426	i	2.92941		−0.12281419		+0.34681517	
P	5.01	H	14.0		G	0.15	U	4

Residuals in seconds of arc

1978 09 02	809	0.2+	0.3+	1997 06 08	809	0.4+	0.2+	1998 08 21	566	0.2+	0.2+
1978 09 02	809	0.1−	1.6+	1997 06 08	809	0.3−	0.2−	1998 08 21	566	0.1−	0.3+
1978 09 02	809	0.2−	0.4+	1998 07 26	809	0.1−	0.7−	1998 08 21	566	0.1−	0.3+
1978 09 02	809	0.6+	0.1+	1998 07 26	809	0.4−	1.9−	1998 08 23	699	0.7+	1.3+
1978 09 02	809	0.1−	0.6−	1998 07 26	809	0.5−	1.5−	1998 08 23	704	0.2+	0.0
1978 09 06	809	0.1+	0.5−	1998 07 27	809	0.3−	0.7−	1998 08 23	704	1.3+	0.9−
1978 09 10	809	1.3−	0.6+	1998 07 27	809	0.7−	1.4−	1998 08 23	699	0.4+	0.7+
1978 09 10	809	0.4−	1.8+	1998 07 27	809	0.6−	1.3−	1998 08 23	704	1.2−	0.5+
1997 06 07	809	0.5+	0.3+	1998 08 17	704	0.2−	1.8+	1998 08 23	704	0.5−	0.1−
1997 06 07	809	0.5−	1.1+	1998 08 17	704	0.1−	0.2+	1998 08 23	699	0.3+	0.2+
1997 06 07	809	0.2−	0.5+	1998 08 17	704	1.9+	1.0−	1998 08 23	704	0.7+	0.6+
1997 06 08	809	0.5+	0.5−	1998 08 17	704	0.1+	0.7−				

1978 VH₅ = 1998 QT₇₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	248.75313		(2000.0)		P		Q
n	0.18701093	ω	194.42204		+0.11180637		−0.98309534
a	3.0284801	Ω	249.32080		+0.92639525		+0.15591009
e	0.0168017	i	8.91550		+0.35957081		−0.09599792
P	5.27	H	13.5	G	0.15	U	5

Residuals in seconds of arc

1978 11 05	675	1.0+	0.4+	1978 11 30	675	0.1+	0.2−	1998 08 24	704	1.2−	0.6−
1978 11 06	675	3.0−	1.8−	1998 08 24	704	0.2−	0.1+	1998 08 27	704	0.1+	0.8+
1978 11 07	675	0.9+	1.0+	1998 08 24	704	1.0+	1.8−	1998 08 27	704	0.4+	0.7+
1978 11 08	675	0.7+	0.4+	1998 08 24	704	1.0+	0.3+	1998 08 27	704	1.0−	0.3+
1978 11 29	675	0.2+	0.3+	1998 08 24	704	1.3+	0.8−	1998 08 27	704	1.4−	1.0+

1978 VL₈ = 1998 HN₃₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17955920	ω	314.39105	+0.88968133	−0.35225100		
<i>a</i>	3.1116992	Ω	68.24331	+0.45418858	+0.74784703		
<i>e</i>	0.2246948	<i>i</i>	18.22644	−0.04668901	+0.56271134		
<i>P</i>	5.49	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1978 11 05	675	0.6−	0.6+	1978 11 30	675	0.0	0.1−
1978 11 06	675	0.9+	0.8−	1998 04 23	691	0.5+	0.1−
1978 11 08	675	0.2−	0.1+	1998 04 23	691	0.2+	0.1+
1978 11 29	675	0.0	0.1+	1998 04 23	691	0.8−	0.1+

1979 MU₄ = 1998 QS₂₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26207885	ω	107.18014	−0.21209513	+0.97705752		
<i>a</i>	2.4183254	Ω	150.55337	−0.91089932	−0.19048650		
<i>e</i>	0.1483622	<i>i</i>	2.25524	−0.35394644	−0.09525486		
<i>P</i>	3.76	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1979 06 23	413	0.8+	0.4+	1979 07 27	675	1.8+	1.1−
1979 06 24	413	0.5−	0.0	1979 08 23	675	0.5−	0.2+
1979 06 25	413	0.9−	0.2+	1998 08 17	704	1.2+	0.2−
1979 07 24	675	0.4−	1.0+	1998 08 17	704	1.4−	0.7−
1979 07 24	413	0.5−	1.4−	1998 08 17	704	0.5+	0.1−
1979 07 25	675	0.2+	0.4+	1998 08 17	704	0.8+	0.4+

1979 MD₈ = 1998 QA₇₆

Id. G. V. Williams, E. Bowell (1991 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21437441	ω	230.22868	−0.60902736	−0.78237130		
<i>a</i>	2.7649508	Ω	257.77663	+0.76236470	−0.53210582		
<i>e</i>	0.1034046	<i>i</i>	7.66225	+0.21882811	−0.32366423		
<i>P</i>	4.60	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1979 06 24	413	0.4−	0.0	1979 07 28	413	(3.4−	1.0−)
1979 06 25	413	(2.9+	0.1−)	1979 08 22	675	0.5−	0.4−
1979 06 29	413	(4.1+	0.2−)	1991 01 17	675	0.1+	0.2+
1979 07 24	413	0.9−	1.3−	1991 01 17	675	0.1−	0.1−
1979 07 26	675	1.1+	0.4+	1998 08 24	704	0.2+	0.2+
1979 07 26	675	0.1+	1.3+	1998 08 24	704	1.1+	1.2+
1979 07 27	675	0.5+	0.1+	1998 08 24	704	1.7−	0.3+

1980 DS₄ = 1980 FL = 1989 XP₂ = 1991 EL₈Id. B. G. Marsden (d. *MPC* 9203), A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26859005	ω	65.37930	−0.50946237	+0.86044996		
<i>a</i>	2.3790822	Ω	173.97132	−0.81613669	−0.48000949		
<i>e</i>	0.2003456	<i>i</i>	4.69670	−0.27270679	−0.17092910		
<i>P</i>	3.67	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1980 02 21	095	1.3+	1.2−	1980 03 17	809	0.0	0.2+
1980 03 16	809	0.0	0.4+	1980 03 17	809	0.7−	1.0+
1980 03 16	809	0.3+	0.2+	1980 03 17	809	0.3−	0.1+
1980 03 16	809	0.1−	0.6+	1980 03 17	809	0.4+	0.4−
1980 03 16	809	0.4−	0.7+	1989 12 02	372	1.1+	0.4−

1981 DO = 1998 QY₇₈

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24434786	ω	54.35855	+0.01882757	+0.99047556		
<i>a</i>	2.5339440	Ω	217.44211	−0.97446265	−0.01235204		
<i>e</i>	0.1232229	<i>i</i>	12.96462	−0.22375896	+0.13713352		
<i>P</i>	4.03	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1981 02 04	413	1.1−	0.7+	1981 03 12	413	3.3+	0.9−
1981 02 09	413	0.3−	2.8−	1981 04 08	413	0.0	1.5+
1981 02 28	413	0.8−	1.6+	1981 04 08	413	1.0+	0.1−
1981 02 28	413	0.5+	0.2+	1981 04 09	413	0.7−	2.3+
1981 03 06	413	1.0−	0.5−	1981 04 09	413	1.0+	0.5−
1981 03 06	413	0.4+	2.4−	1981 05 01	413	1.7−	1.2−
1981 03 08	413	0.8−	0.8+	1981 05 03	413	0.8−	0.6−
1981 03 08	413	1.2+	0.4−	1998 08 24	704	0.4−	1.1−
1981 03 12	413	0.8−	1.6+	1998 08 24	704	0.2−	1.0+

1981 DR = 1998 QM₈₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19624585	ω	106.19618	+0.61396635	−0.77375909		
<i>a</i>	2.9327096	Ω	304.87573	+0.63190168	+0.60026554		
<i>e</i>	0.0470937	<i>i</i>	10.96310	+0.47301753	+0.20243062		
<i>P</i>	5.02	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1981 02 09	413	1.6−	1.6+	1981 03 12	413	1.4+	0.7−
1981 02 09	413	2.0+	0.4−	1981 04 08	413	1.7+	0.4+
1981 02 28	413	1.2−	1.0−	1981 04 09	413	0.1−	0.8+
1981 02 28	413	1.2+	0.9−	1981 04 09	413	1.3+	0.6+
1981 03 06	413	1.5−	0.3+	1981 05 02	413	1.5+	0.1−
1981 03 08	413	2.2−	0.7+	1981 05 02	413	0.8−	0.8−
1981 03 08	413	0.7−	0.8−	1998 08 24	704	0.4−	1.6−
1981 03 12	413	1.2−	0.1−	1998 08 24	704	1.8+	0.7+

1981 DM₂

Id. E. Bowell (1988, 1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19630735	ω	79.14512	+0.75564105	−0.64541635		
<i>a</i>	2.9320971	Ω	320.91141	+0.51028922	+0.68688077		
<i>e</i>	0.1054486	<i>i</i>	10.19063	+0.41062332	+0.33411457		
<i>P</i>	5.02	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1981 02 12	413	0.3−	0.1+	1981 03 08	413	2.5+	0.1−
1981 02 28	413	(3.1−	0.2−)	1981 03 12	413	0.9−	0.3+
1981 02 28	413	1.6−	0.6+	1981 03 12	413	0.6+	0.2−
1981 03 06	413	0.3−	0.2−	1981 04 09	413	0.3−	0.5−
1981 03 06	413	(4.1+	0.9−)	1981 05 01	413	1.2+	0.2−
1981 03 08	413	0.1+	1.3+	1981 05 01	413	0.8−	0.8−

1981 DV₂ = 1998 QB₈₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26163597	ω	245.53784	+0.21908095	−0.97212096		
<i>a</i>	2.4210537	Ω	192.68863	+0.97466393	+0.22200146		
<i>e</i>	0.3023499	<i>i</i>	22.36320	+0.04509734	−0.07547316		
<i>P</i>	3.77	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1981 02 04	413	1.1−	1.8−	1981 04 08	413	2.4+	0.9−	1998 08 24	704	0.7+	0.3+
1981 02 09	413	0.3−	2.3−	1981 04 09	413	0.6−	2.1+	1998 08 24	704	1.4−	1.3+
1981 02 28	413	0.0	2.3+	1981 04 09	413	0.7+	0.5−	1998 08 27	704	0.7+	0.4+
1981 03 06	413	0.2+	2.0+	1981 05 01	413	0.9−	0.1−	1998 08 27	704	0.8+	0.7−
1981 03 06	413	1.3−	0.3+	1981 05 03	413	0.0	3.2−	1998 08 27	704	1.3−	0.1+
1981 03 08	413	0.6−	1.3+	1998 08 24	704	1.0+	0.4−	1998 08 27	704	0.2−	0.6−
1981 03 08	413	0.8+	1.0−	1998 08 24	704	0.6−	0.4+				
1981 04 08	413	0.6+	0.9+	1998 08 24	704	0.3+	0.6−				

1981 EO₂ = 1998 QW₆₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	60.09411		(2000.0)	P	Q
n	0.19113775	ω	11.58340	−0.35873692	+0.92531663
a	2.9847301	Ω	237.50481	−0.86762811	−0.37909301
e	0.0284698	i	8.37651	−0.34428081	−0.00881110
P	5.16	H	14.0	G 0.15	U 5

Residuals in seconds of arc

1981 02 02	413	0.2−	0.7−	1981 04 07	413	0.1−	1.0−	1998 08 24	704	1.0−	0.3−
1981 03 02	413	0.7−	0.7+	1981 04 08	413	1.3−	0.0	1998 08 24	704	(2.4−	2.9+)
1981 03 02	413	1.3+	0.3−	1981 04 08	413	0.3+	0.4−	1998 08 24	704	1.1−	0.4+
1981 03 07	413	1.0−	1.1+	1981 04 09	413	1.3−	1.0+	1998 08 27	704	0.4+	0.0
1981 03 07	413	0.6+	0.4−	1981 04 09	413	1.6+	1.2−	1998 08 27	704	1.3+	0.7−
1981 03 10	413	0.6−	0.5+	1981 04 29	413	1.6+	0.7−	1998 08 27	704	0.6+	1.8+
1981 03 10	413	0.7+	0.5−	1998 08 19	566	0.7−	0.4−	1998 08 27	704	(0.8+	2.4+)
1981 03 12	413	0.1−	0.8+	1998 08 19	566	0.5−	0.0	1998 08 27	704	0.5+	0.6−
1981 03 12	413	1.5+	0.4−	1998 08 19	566	0.5−	0.0				
1981 04 07	413	2.3−	1.3+	1998 08 24	704	0.9+	0.1−				

1981 EC₅ = 1953 SS = 1998 QJ₁₂

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	324.99920		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.30578891	ω	75.01465	+0.97393174	+0.20017871
a	2.1820007	Ω	273.35145	−0.22638459	+0.88756036
e	0.0589847	i	6.13581	+0.01438705	+0.41492781
P	3.22	H	16.0	G 0.15	U 4

Residuals in seconds of arc

1953 09 16	675	0.0	0.0	1981 03 12	413	2.0+	0.1+	1998 08 23	704	1.2−	0.6−
1981 02 09	413	1.6−	0.1−	1981 04 09	413	(2.5−	0.4+)	1998 08 23	704	0.8+	0.2−
1981 02 14	413	1.4+	0.0	1981 04 09	413	0.0	0.1−	1998 08 23	704	(2.7+	2.0−)
1981 03 02	413	2.4−	0.3+	1981 04 29	413	0.8+	2.3−	1998 08 23	704	0.4+	1.8+
1981 03 07	413	0.9−	1.2+	1998 08 17	704	1.4−	1.5−	1998 08 23	704	2.0+	0.5−
1981 03 07	413	1.5+	0.4+	1998 08 17	704	0.6−	0.5+	1998 08 30	699	1.0+	0.4+
1981 03 10	413	(4.4−	2.4+)	1998 08 17	704	0.8−	0.6+	1998 08 30	699	0.2+	0.3−
1981 03 10	413	(2.8+	0.1+)	1998 08 17	704	0.4+	0.6−	1998 08 30	699	0.0	0.5−
1981 03 12	413	0.7−	0.6+	1998 08 17	704	0.9−	1.2+				

1981 EB₈ = 1998 OH₁₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	258.69784		(2000.0)		P	Q	
n	0.25529486	ω	113.71296		+0.27802696	−0.95673177	
a	2.4609795	Ω	319.83112		+0.82573827	+0.28369202	
e	0.1624616	i	7.64575		+0.49077216	+0.06467740	
P	3.86	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1981 02 09	413	0.0	0.6+	1981 03 11	413	0.5−	0.3−	1998 07 26	809	0.1+	1.1+
1981 02 13	413	0.1+	0.6+	1981 03 15	413	0.9+	0.7−	1998 07 26	809	0.1+	0.4+
1981 03 01	413	(2.3−	0.7+)	1981 03 15	413	1.6+	0.9−	1998 07 27	809	0.3+	0.4−
1981 03 01	413	0.3−	1.0−	1981 04 12	413	1.4−	0.7+	1998 07 27	809	0.8−	0.5−
1981 03 07	413	1.3−	0.5+	1981 04 12	413	(2.8+	1.0−)	1998 07 27	809	0.0	1.2−

1981 03 07	413	0.8+	0.3−	1981 04 29	413	0.3−	0.0
1981 03 11	413	0.2+	1.2+	1998 07 26	809	0.2+	0.7+

1981 EJ₁₃ = 1998 QH₃₆

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	226.87304		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.25342570	ω	146.88526	-0.29698761	-0.95076446
a	2.4730655	Ω	320.18980	$+0.84327422$	-0.21762706
e	0.0997017	i	7.95198	$+0.44798097$	-0.22064770
P	3.89	H	15.0	G 0.15	U 5

Residuals in seconds of arc

1981 02 09	413	0.0	0.4+	1981 04 08	413	1.6−	0.4+	1998 08 23	704	0.1−	1.1−
1981 02 12	413	0.7+	0.6+	1981 04 08	413	0.7+	0.9−	1998 08 23	704	0.8+	0.7+
1981 03 01	413	1.6+	0.7+	1981 04 09	413	0.4−	0.2+	1998 08 23	704	0.2−	0.3−
1981 03 01	413	1.3+	0.2−	1981 04 09	413	0.2−	0.0	1998 08 23	704	0.4+	1.4+
1981 03 06	413	0.8−	0.6+	1981 05 03	413	1.3−	2.0−	1998 08 26	699	0.0	0.3+
1981 03 06	413	0.1−	0.2−	1998 08 17	704	0.4+	0.3−	1998 08 26	699	0.5+	0.6+
1981 03 08	413	1.3−	0.7+	1998 08 17	704	0.6+	0.3+	1998 08 26	699	0.7−	0.3+
1981 03 08	413	1.8+	0.8+	1998 08 17	704	0.6−	0.0	1998 08 28	691	0.7−	0.1−
1981 03 12	413	1.0−	0.5+	1998 08 17	704	(2.5+	0.2−)	1998 08 28	691	0.7−	0.0
1981 03 12	413	1.3+	0.1+	1998 08 17	704	0.1−	0.4+	1998 08 28	691	0.7−	0.0

1981 ET₃₂ = 1998 QW₆₁

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	358.33593		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.19297550	ω	54.08473	+0.87066325	+0.46319374
a	2.9657504	Ω	277.79256	−0.48770166	+0.76915762
e	0.1006880	i	9.61712	−0.06397338	+0.44028186
P	5.11	H	15.0	G 0.15	U 5

Residuals in seconds of arc

1981 03 08	413	1.1−	1.9−	1981 05 02	413	1.6−	0.3+	1998 08 30	699	0.5+	0.6+
1981 03 12	413	4.2+	2.1−	1998 08 19	704	0.6+	0.2−	1998 08 30	699	0.1+	1.6+
1981 04 09	413	1.4−	1.1+	1998 08 19	704	3.3−	0.2+	1998 08 30	699	1.8+	1.3+
1981 04 09	413	0.3+	0.7+	1998 08 19	704	0.6+	0.7−				
1981 05 01	413	0.6−	1.7+	1998 08 19	704	0.3−	3.2−				

1981 QL₂ = 1997 EA₅₃ = 1998 QC₁₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	318.51652		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.28892575	ω	6.22350	+0.99633995	−0.08544741
a	2.2660973	Ω	358.67153	+0.07344724	+0.86973424
e	0.1900164	i	5.77315	+0.04372872	+0.48606696
P	3.41	H	15.0	G 0.15	U 4

Residuals in seconds of arc

1981 08 27	809	1.0−	0.5−	1981 09 04	809	0.1−	0.5+	1998 07 31	699	0.4+	0.1−
1981 08 27	809	2.4+	0.5−	1981 09 05	809	0.5−	0.2+	1998 07 31	699	0.2+	0.1−
1981 08 27	809	1.1+	0.3−	1981 09 05	809	0.4−	0.5+	1998 07 31	699	0.1+	0.2−
1981 09 01	809	0.0	0.7−	1981 09 05	809	0.5+	1.3+	1998 08 17	704	0.2−	0.9+
1981 09 01	809	0.2−	0.3−	1981 09 06	809	0.2−	0.6+	1998 08 17	704	0.3−	0.2−
1981 09 01	809	0.2+	0.7−	1981 09 06	809	1.2−	0.7+	1998 08 17	704	0.1−	0.0
1981 09 01	675	0.6−	0.8+	1981 09 06	809	1.1−	0.5+	1998 08 17	704	0.5+	0.1+
1981 09 02	809	0.4+	0.1−	1981 09 07	809	1.3+	0.6+	1998 08 17	704	0.5−	0.3+
1981 09 02	809	0.2+	0.7−	1981 09 07	809	0.7+	0.8−	1998 08 20	566	0.7+	0.4−
1981 09 02	809	0.6+	0.6−	1981 09 07	809	(2.1+	3.9+)	1998 08 20	566	0.3+	0.5−
1981 09 02	675	0.9−	0.5+	1997 03 08	809	0.1−	0.8+	1998 08 20	566	0.5+	0.5−
1981 09 03	809	0.9−	0.2+	1997 03 08	809	0.7+	0.3+	1998 08 23	704	0.1−	0.5−
1981 09 03	809	0.7−	0.7+	1997 03 08	809	0.4+	0.8+	1998 08 23	704	0.2+	0.1−
1981 09 03	809	0.7−	0.1+	1997 03 09	809	(0.2+	3.5+)	1998 08 23	704	0.4−	0.2+
1981 09 04	809	0.3−	0.0	1997 03 09	809	(1.3−	2.9+)	1998 08 23	704	0.1+	0.2+
1981 09 04	809	0.1−	0.4+	1997 03 09	809	(0.5−	4.2+)	1998 08 23	704	0.7−	0.6−

1998 SEPT. 10

M.P.C. 32441

1981 UQ₂₂ = 1998 KB₄₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27509058	ω	166.17301	+0.45483416	+0.88927351		
<i>a</i>	2.3414537	Ω	130.85767	−0.82302055	+0.44037343		
<i>e</i>	0.0830074	<i>i</i>	3.65010	−0.34023972	+0.12354697		
<i>P</i>	3.58	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1981 10 24	675	1.4−	0.3−	1998 05 22	704	0.7−	0.8+	1998 06 24	704	0.3+	1.3−
1981 10 25	675	0.1+	0.3+	1998 05 24	704	1.1+	0.2+	1998 06 24	704	0.0	0.1+
1981 10 26	675	1.0+	0.9+	1998 05 24	704	0.0	0.7−	1998 06 24	704	0.7+	0.0
1998 05 22	704	1.1+	0.3−	1998 05 24	704	1.7+	1.1+	1998 06 26	704	0.9−	0.1−
1998 05 22	704	(2.1−	3.0+)	1998 05 24	704	0.3+	0.2−	1998 06 26	704	0.3−	0.1−
1998 05 22	704	1.1−	2.0+	1998 05 24	704	0.7+	1.0−	1998 06 26	704	1.8−	0.9−
1998 05 22	704	0.0	0.9+	1998 06 24	704	0.6−	0.1−	1998 06 26	704	0.8−	0.5+

1983 RP₃

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26289742	ω	196.56130	+0.84155603	+0.53861611		
<i>a</i>	2.4133029	Ω	130.77700	−0.48926444	+0.79217557		
<i>e</i>	0.0630307	<i>i</i>	3.09917	−0.22891866	+0.28696787		
<i>P</i>	3.75	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1983 09 02	809	0.3−	0.6−	1983 09 09	809	0.3−	0.7+	1998 08 17	704	0.1+	0.3+
1983 09 02	809	0.1−	0.7−	1983 09 09	809	0.1−	0.6+	1998 08 17	704	0.1+	0.4−
1983 09 02	809	0.2+	0.8−	1983 09 11	809	0.1+	0.9−	1998 08 17	704	0.6+	0.0
1983 09 03	809	0.4−	0.2+	1983 09 11	809	(4.5+	0.7+)	1998 08 23	699	0.0	0.3+
1983 09 03	809	0.2−	0.1−	1983 09 11	809	0.2−	1.1+	1998 08 23	704	0.6−	0.4−
1983 09 03	809	(0.4−	6.1+)	1983 09 12	809	0.2+	0.1+	1998 08 23	704	1.2−	0.0
1983 09 04	809	0.7+	0.3+	1983 09 12	809	0.3+	0.3−	1998 08 23	699	0.0	0.6+
1983 09 04	809	0.7+	0.1−	1983 09 12	809	0.4+	0.5−	1998 08 23	704	(3.9−	1.4+)
1983 09 04	809	1.1+	0.0	1998 08 01	699	0.1+	0.1+	1998 08 23	704	0.0	0.5−
1983 09 08	809	1.1−	0.5−	1998 08 01	699	0.1−	0.4−	1998 08 23	699	0.3−	0.4+
1983 09 08	809	1.0−	0.6−	1998 08 01	699	0.0	0.0	1998 08 23	704	0.3+	1.2+
1983 09 08	809	0.7+	0.1+	1998 08 17	704	0.1+	0.6−				
1983 09 09	809	0.4−	0.7+	1998 08 17	704	0.2+	0.7+				

1984 SY₁ = 1979 WL₇ = 1998 KU₄₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19089477	ω	186.40703	+0.57726510	−0.80763024		
<i>a</i>	2.9872623	Ω	228.41091	+0.75614100	+0.58437580		
<i>e</i>	0.0963943	<i>i</i>	9.26444	+0.30824630	+0.07898310		
<i>P</i>	5.16	<i>H</i>	12.2	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1979 11 17	095	0.2−	0.9+	1998 05 22	704	0.4+	0.2−	1998 06 24	704	0.5+	0.4−
1984 09 29	046	0.4−	1.6−	1998 05 22	704	0.2+	0.5−	1998 06 24	704	0.1−	0.3+
1984 09 30	046	0.1−	1.5−	1998 05 22	704	0.2−	0.2+	1998 06 24	704	0.7+	0.1−
1984 09 30	046	0.2−	0.6+	1998 05 24	704	0.4−	1.0+	1998 06 26	704	0.3−	0.6−
1984 10 01	046	0.7−	0.6+	1998 05 24	704	0.3+	0.5+	1998 06 26	704	0.0	0.0
1984 10 06	046	1.6+	1.7+	1998 05 24	704	0.9+	1.8+	1998 06 26	704	0.2−	0.0
1998 05 22	704	0.1−	0.2+	1998 05 24	704	0.8−	0.4+	1998 06 26	704	0.2+	0.2+
1998 05 22	704	0.1−	0.3+	1998 06 24	704	0.0	0.9−	1998 06 26	704	0.9−	1.3−

1984 WJ₁ = 1998 QC₉₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27884787	ω	351.34600	+0.89777287	−0.42752418		
<i>a</i>	2.3203732	Ω	34.59122	+0.41446145	+0.73855251		
<i>e</i>	0.2050176	<i>i</i>	10.75661	+0.14908248	+0.52130919		
<i>P</i>	3.53	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1984 11 20	010	0.5−	0.2−	1998 08 28	704	0.1−	0.7+	1998 08 31	704	0.3+	0.2+
1984 11 20	010	0.2+	0.4−	1998 08 28	704	0.2+	0.2−	1998 08 31	704	0.6+	0.3+
1984 11 21	010	0.9+	0.7−	1998 08 28	704	0.4+	1.0−	1998 08 31	704	0.5+	0.9+
1984 11 22	010	0.7+	0.1+	1998 08 28	704	1.5+	0.3−	1998 08 31	704	0.6−	0.3+
1984 12 20	095	0.5+	0.3+	1998 08 28	704	3.2−	1.0−				
1984 12 27	095	2.1−	0.6+	1998 08 31	704	0.1+	0.5+				

1985 RM₃ = 1998 QL₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29914321	ω	241.14738	+0.78079251	−0.62427959		
<i>a</i>	2.2141988	Ω	157.45248	+0.59373521	+0.72878898		
<i>e</i>	0.1693302	<i>i</i>	3.77709	+0.19452905	+0.28132121		
<i>P</i>	3.29	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1985 08 14	010	(4.9+	6.8+)	1985 09 11	809	0.3−	0.7−	1998 08 17	704	0.2+	0.5−
1985 08 16	010	0.2+	0.8+	1985 09 11	809	0.0	0.5−	1998 08 17	704	0.8−	0.3−
1985 09 07	809	0.2+	1.9+	1985 09 12	809	0.6−	1.3−	1998 08 17	704	0.6−	0.9+
1985 09 07	809	0.4+	1.9+	1985 09 12	809	0.4−	1.2−	1998 08 17	704	0.7−	0.1+
1985 09 07	809	0.5+	2.0+	1985 09 12	809	0.2−	1.2−	1998 08 23	704	1.8+	0.4−
1985 09 10	809	0.0	0.0	1985 09 16	809	0.1+	0.4−	1998 08 23	704	0.9+	0.2−
1985 09 10	809	0.1+	0.1+	1985 09 16	809	0.0	0.2−	1998 08 23	704	1.1−	0.9+
1985 09 10	809	0.3+	0.1+	1985 09 16	809	0.0	0.2−	1998 08 23	704	0.5+	0.3+
1985 09 11	809	0.5−	0.6−	1998 08 17	704	0.3+	0.7+	1998 08 23	704	0.5−	2.2−

1987 CH = 1990 AS = 1998 QQ₄₁

Id. G. V. Williams, T. B. Spahr

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30122415	ω	351.18590	−0.74961853	−0.65989462		
<i>a</i>	2.2039895	Ω	147.33929	+0.61287936	−0.72121107		
<i>e</i>	0.0750300	<i>i</i>	5.43335	+0.24990189	−0.21069808		
<i>P</i>	3.27	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1987 01 27	809	0.4+	0.1+	1987 02 05	809	0.9−	1.3+	1998 08 17	704	(0.6−	2.2+)
1987 01 27	809	0.1+	1.1+	1987 02 05	809	0.8+	0.6+	1998 08 17	704	0.9−	1.7+
1987 02 02	809	0.1−	0.9−	1987 03 04	399	1.9−	0.6+	1998 08 23	704	1.6+	0.2+
1987 02 02	809	1.2+	0.2−	1987 03 04	399	0.5−	1.6−	1998 08 23	704	0.3−	0.3+
1987 02 02	809	0.6+	0.7+	1990 01 02	511	0.3−	0.4−	1998 08 23	704	1.6−	0.7−
1987 02 02	809	0.6+	0.6+	1990 01 02	511	0.0	0.4−	1998 08 23	704	0.1−	0.2−
1987 02 02	809	0.1+	0.4−	1998 08 17	704	1.3−	0.9+	1998 08 30	699	0.8+	0.4−
1987 02 04	809	0.3+	1.9+	1998 08 17	704	0.3+	1.4+	1998 08 30	699	0.4+	0.5+
1987 02 04	809	0.9+	0.7+	1998 08 17	704	0.5−	0.6+	1998 08 30	699	0.2+	0.3−

1987 QH = 1998 OV₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27097751	ω	6.71008	+0.82152139	+0.56222306		
<i>a</i>	2.3650875	Ω	318.60778	−0.52957293	+0.69068089		
<i>e</i>	0.2889173	<i>i</i>	8.25270	−0.21131759	+0.45482430		
<i>P</i>	3.64	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

M.P.C. 32442

1998 SEPT. 10

Residuals in seconds of arc

1987 08 25	675	3.2−	0.0	1998 08 03	699	0.1+	0.2−	1998 08 17	704	0.6−	1.6+
1987 08 27	675	2.5+	0.1+	1998 08 03	699	0.2+	0.1+	1998 08 23	704	1.4+	0.1+
1987 09 18	675	0.7+	0.4−	1998 08 03	699	0.0	0.3−	1998 08 23	704	0.0	0.3+
1987 09 20	675	1.7+	2.6−	1998 08 17	704	0.5−	0.9+	1998 08 23	704	0.3−	1.3+
1998 07 26	699	0.1+	0.3−	1998 08 17	704	0.1−	0.0	1998 08 23	704	0.5+	0.6−
1998 07 26	699	0.4−	0.2−	1998 08 17	704	0.1+	0.9+	1998 08 23	704	0.2−	0.1−
1998 07 26	699	0.3−	0.3−	1998 08 17	704	1.7−	1.0−				

1987 QT = 1998 QV₄₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	320.54183		(2000.0)	P	Q
<i>n</i>	0.26820773	ω	45.93863	+0.93430036	−0.35093628
<i>a</i>	2.3813425	Ω	334.41163	+0.27129924	+0.81399380
<i>e</i>	0.2205019	<i>i</i>	8.34217	+0.23125650	+0.46287992
<i>P</i>	3.67	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1987 08 21	033	0.8+	0.1−	1998 08 17	704	0.3+	0.4+	1998 08 23	704	0.3−	0.5+
1987 08 22	033	0.1−	1.1−	1998 08 17	704	0.5+	0.3−	1998 08 23	704	0.2−	0.7+
1987 08 23	033	0.4+	0.4−	1998 08 17	704	0.8+	0.5−	1998 08 23	704	1.2−	0.1−
1987 09 17	095	0.1+	0.7+	1998 08 17	704	0.4+	0.3−	1998 08 23	704	0.9+	0.8−
1987 09 23	095	0.3−	0.5−	1998 08 17	704	0.6−	0.4+	1998 08 23	704	1.2−	1.2+

1987 RR = 1987 ST₃ = 1998 QX₂₅Id. C. M. Bardwell (d, *MPC* 12936), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	336.68713		(2000.0)	P	Q
<i>n</i>	0.17984681	ω	209.16095	+0.99002996	−0.10963010
<i>a</i>	3.1083808	Ω	156.63063	+0.12546845	+0.97173410
<i>e</i>	0.1889993	<i>i</i>	12.88338	−0.06401832	+0.20907912
<i>P</i>	5.48	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1987 09 03	809	2.2+	0.5−	1987 09 23	809	0.4−	0.2−	1998 08 23	704	0.2−	0.5+
1987 09 03	809	1.1+	0.2+	1987 09 23	809	0.0	0.0	1998 08 23	704	0.4+	0.2+
1987 09 03	809	2.3+	0.9+	1987 09 23	809	0.1−	0.1−	1998 08 23	704	0.0	0.0
1987 09 12	809	1.2−	1.8−	1987 09 26	809	0.3−	0.2+	1998 08 23	704	0.8−	0.1+
1987 09 12	809	0.9−	0.8−	1987 09 26	809	0.4−	0.2+	1998 08 23	704	0.3−	0.2+
1987 09 12	809	0.4−	0.7+	1987 09 26	809	0.5−	0.2+	1998 08 25	120	0.7+	0.4−
1987 09 14	809	(1.7−	2.8+)	1987 09 27	809	0.3+	0.0	1998 08 25	120	0.2+	0.0
1987 09 14	809	0.1−	0.2−	1987 09 27	809	0.3+	0.0	1998 08 25	120	0.5+	0.4−
1987 09 14	809	0.0	0.3−	1987 09 27	809	0.4+	0.0	1998 08 26	120	0.0	0.2−
1987 09 16	809	1.0−	0.0	1987 09 28	809	0.6+	0.5+	1998 08 27	120	0.4+	0.6−
1987 09 16	809	0.9−	0.1+	1987 09 28	809	0.8+	0.5+	1998 08 27	120	0.1+	0.1−
1987 09 16	809	0.8−	0.0	1987 09 28	809	1.0+	0.5+	1998 08 30	699	0.0	0.3−
1987 09 18	809	0.7−	0.2−	1998 08 17	704	0.0	0.6+	1998 08 30	699	0.0	0.1+
1987 09 18	809	0.6−	0.0	1998 08 17	704	0.8−	0.2−	1998 08 30	699	0.1−	0.3−
1987 09 18	809	0.6−	0.2+	1998 08 17	704	0.2−	0.2+	1998 08 30	120	0.2+	0.0
1987 09 20	071	(3.0−	5.0−)	1998 08 17	704	0.1+	1.3+	1998 08 30	120	0.1−	0.7−
1987 09 20	071	(0.6+	4.1+)	1998 08 17	704	(0.0	2.3+)				

1987 SJ₂ = 1987 RT₁ = 1972 RY₂Id. S. Nakano (*MPC* 15523), E. Bowell (1998 observations), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	2.29326		(2000.0)	P	Q
<i>n</i>	0.26509807	ω	171.40505	+0.66175458	+0.74910914
<i>a</i>	2.3999287	Ω	140.02062	−0.69062562	+0.62480876
<i>e</i>	0.1767055	<i>i</i>	2.70046	−0.29174840	+0.22011247
<i>P</i>	3.72	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1972 09 04	095	0.1−	0.1+	1987 09 22	071	0.5−	0.5+	1998 08 17	704	0.5−	0.4+
1987 09 02	809	1.1−	0.9−	1987 09 22	071	2.1+	0.1+	1998 08 17	704	0.1+	0.0
1987 09 02	809	0.4+	0.8−	1987 09 22	071	0.1−	0.3+	1998 08 17	704	0.2−	0.3+

1987 09 02	809	1.8+	0.4−	1987 09 27	095	1.9−	0.9+	1998 08 23	699	0.5−	0.2−
1987 09 19	071	0.8+	0.6−	1998 06 30	699	0.0	0.2−	1998 08 23	704	0.8−	0.6+
1987 09 19	071	(3.9−	3.0−)	1998 06 30	699	0.2−	0.2+	1998 08 23	704	0.2−	0.7−
1987 09 19	071	(5.8−	0.9−)	1998 06 30	699	0.5+	0.4+	1998 08 23	699	0.3−	0.0
1987 09 20	071	(3.9−	2.1−)	1998 08 01	699	0.3+	0.3−	1998 08 23	704	0.4+	0.2−
1987 09 21	071	1.3−	0.1−	1998 08 01	699	0.2+	0.3−	1998 08 23	699	0.3−	0.2+
1987 09 21	046	0.7+	0.6+	1998 08 01	699	0.3+	0.2−	1998 08 23	704	0.4+	1.1+
1987 09 21	046	0.7−	0.9−	1998 08 17	704	1.1+	0.6−				
1987 09 21	071	0.3+	0.7+	1998 08 17	704	0.4−	0.1+				

1987 SL₃ = 1982 UZ₈

Id. E. Bowell (1998 observations), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	278.42493		(2000.0)	P	Q
<i>n</i>	0.17485274	ω	89.32300	+0.66786900	−0.73516866
<i>a</i>	3.1672895	Ω	317.98834	+0.59506624	+0.62112852
<i>e</i>	0.0927607	<i>i</i>	9.98917	+0.44704268	+0.27152608
<i>P</i>	5.64	<i>H</i>	12.5	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1982 10 21	095	0.1−	0.2+	1987 09 24	809	1.0+	0.8+	1987 09 29	809	0.1+	0.0
1987 09 02	095	0.3−	0.7+	1987 09 25	054	0.1+	0.1+	1987 09 29	054	0.2−	0.5+
1987 09 16	809	1.5−	0.8−	1987 09 25	054	0.5+	0.5−	1987 09 29	054	0.3+	1.2−
1987 09 16	809	0.4−	0.9−	1987 09 26	809	0.3+	0.0	1987 09 30	054	0.0	0.0
1987 09 16	809	0.2−	0.7−	1987 09 26	809	0.2+	0.1+	1987 09 30	054	0.4−	0.3−
1987 09 16	095	0.5−	1.4−	1987 09 26	809	0.1+	0.1+	1987 10 01	054	0.3−	1.6+
1987 09 18	809	1.5−	0.1−	1987 09 27	809	0.5+	0.2+	1998 07 15	699	0.5+	0.5+
1987 09 18	809	0.4−	0.3−	1987 09 27	809	0.5+	0.0	1998 07 15	699	0.0	0.0
1987 09 18	809	0.5−	0.1−	1987 09 27	809	0.6+	0.1+	1998 07 15	699	0.2+	0.0
1987 09 23	809	0.4+	0.3−	1987 09 28	809	0.0	0.0	1998 08 28	699	0.4−	0.1+
1987 09 23	809	0.4+	0.3−	1987 09 28	809	0.2−	0.0	1998 08 28	699	0.2−	0.1+
1987 09 23	809	0.5+	0.3−	1987 09 28	809	0.0	0.1+	1998 08 28	699	0.4−	0.1−
1987 09 24	809	1.0+	0.9+	1987 09 29	809	0.6−	0.3+				
1987 09 24	809	0.9+	0.8+	1987 09 29	809	0.2−	0.2+				

1987 SP₁₁ = 1998 OL₉

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	328.24070		(2000.0)	P	Q
<i>n</i>	0.26502901	ω	208.01721	+0.99398141	+0.10546849
<i>a</i>	2.4003456	Ω	145.88882	−0.08802856	+0.92990882
<i>e</i>	0.1832676	<i>i</i>	3.02763	−0.06520678	+0.35234355
<i>P</i>	3.72	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1987 09 04	095	(3.8+	4.1+)	1987 09 24	809	0.2−	0.7−	1998 08 21	566	0.7+	1.3+
1987 09 17	809	1.1+	0.3+	1987 09 24	809	0.0	0.8−	1998 08 21	566	0.6+	1.1+
1987 09 17	809	0.4−	1.2+	1987 09 24	809	0.0	0.5−	1998 08 21	566	0.2−	1.3+
1987 09 17	809	2.0+	0.1+	1987 09 24	095	(2.7−	0.0)	1998 08 25	426	0.2+	0.2+
1987 09 19	809	0.3−	0.1+	1998 07 26	809	0.9−	1.6−	1998 08 25	426	0.2−	0.3+
1987 09 19	809	0.1+	0.1+	1998 07 26	809	(0.6−	2.3−)	1998 08 25	426	0.2−	0.2−
1987 09 19	809	0.3+	0.0	1998 07 26	809	(0.7−	2.7−)	1998 08 26	426	0.4−	0.4+
1987 09 23	809	0.9−	0.3−	1998 07 27	809	1.5+	0.3+	1998 08 26	426	0.1−	0.3+
1987 09 23	809	0.7−	0.3−	1998 07 27	809	0.6−	1.7−	1998 08 26	426	0.0	0.4+
1987 09 23	809	0.5−	0.3−	1998 07 27	809	0.5−	1.6−				

1987 SP₁₂ = 1976 SK₆ = 1998 MU₄₆

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	338.72585		(2000.0)	P	Q
<i>n</i>	0.17974889	ω	187.41060	+0.97096877	−0.23914709
<i>a</i>	3.1095096	Ω	186.43301	+0.22183229	+0.90854628
<i>e</i>	0.2669095	<i>i</i>	2.72236	+0.08949906	+0.34256727
<i>P</i>	5.48	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1976 09 25	095	0.8−	1.9+	1987 09 19	809	0.1+	0.7−	1998 06 29	704	0.2−	0.0
1987 08 28	095	1.8−	1.3−	1987 09 19	809	0.4+	0.5−	1998 06 29	704	0.0	0.4+
1987 09 16	809	0.4+	0.1−	1987 09 19	809	0.3+	0.6−	1998 06 29	704	0.4+	0.3−
1987 09 16	809	0.2+	0.2−	1987 09 24	809	0.3+	0.2+	1998 06 29	704	0.7+	0.8−
1987 09 16	809	0.2+	0.2−	1987 09 24	809	0.5+	0.1+	1998 06 29	704	0.3−	0.3+
1987 09 16	095	0.2+	1.5−	1987 09 24	809	0.2+	0.1+	1998 08 02	699	0.1−	0.2+
1987 09 18	809	0.5−	0.5+	1987 09 27	809	0.3+	0.1+	1998 08 02	699	0.5−	0.6+
1987 09 18	809	0.3−	0.5+	1987 09 27	809	0.4+	0.2+	1998 08 02	699	0.1−	0.3+
1987 09 18	809	0.1−	0.5+	1987 09 27	809	0.4+	0.3+				

1987 UA₁ = 1998 QG₉₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	6.80248		(2000.0)	P	Q		
<i>n</i>	0.27148363	ω	122.62772	+0.98598799	+0.03411035		
<i>a</i>	2.3621472	Ω	235.91994	−0.08080248	+0.95403039		
<i>e</i>	0.1413361	<i>i</i>	11.37043	+0.14594058	+0.29776248		
<i>P</i>	3.63	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1987 09 23	095	1.5−	2.3+	1987 11 15	399	1.6+	0.6+	1998 08 28	704	2.0−	1.5−
1987 10 25	399	0.1+	3.5−	1987 11 15	327	0.5−	1.0+	1998 08 28	704	0.8+	2.3−
1987 10 25	399	3.8+	1.5−	1987 11 15	327	2.5−	0.1+	1998 08 28	704	0.4+	0.3+
1987 10 31	400	0.0	0.5+	1987 11 17	399	0.3−	0.1−	Y 1998 08 31	704	0.0	0.4−
1987 10 31	400	0.3−	0.6+	1987 11 17	399	0.2+	0.6+	Y 1998 08 31	704	0.4+	0.7+
1987 10 31	400	0.5−	1.2+	1987 11 17	399	0.5−	0.2−	Y 1998 08 31	704	0.6−	0.6+
1987 10 31	399	0.0	1.0+	1987 11 22	399	0.4+	1.1+	1998 08 31	704	0.1+	0.5−
1987 10 31	399	0.4−	0.0	1987 11 22	399	1.2+	0.0	1998 08 31	704	0.7+	0.0
1987 11 15	399	0.5−	1.6−	1998 08 28	704	0.3+	1.3+				
1987 11 15	399	0.6−	0.5−	1998 08 28	704	0.2−	0.1−				

1987 VE₂ = 1990 MT₁ = 1996 VZ₂₁ = 1997 YY₁₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Nakano			
<i>M</i>	25.80573		(2000.0)	P	Q		
<i>n</i>	0.20935143	ω	215.04153	−0.62264087	−0.76997315		
<i>a</i>	2.8090023	Ω	273.88092	+0.74608198	−0.53038978		
<i>e</i>	0.1122450	<i>i</i>	8.03735	+0.23596614	−0.35472247		
<i>P</i>	4.71	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1987 11 15	399	0.8−	0.9+	1990 06 28	808	0.3+	0.8−	1997 12 25	566	0.4+	0.3−
1987 11 15	399	1.2−	1.3−	1990 06 28	808	0.2−	0.2+	1997 12 25	566	0.2+	0.0
1987 11 22	399	0.3−	0.3−	1996 11 09	691	0.3−	0.2+	1997 12 25	566	0.3+	0.1−
1987 11 22	399	0.2+	0.9−	1996 11 09	691	0.3−	0.4+	1997 12 30	566	0.1−	0.4+
1987 11 28	399	0.3+	0.0	1996 11 09	691	0.3−	0.4+	1997 12 30	566	0.3−	0.1−
1987 11 28	399	1.0+	0.7−	1996 11 13	691	0.1+	0.4−	1997 12 30	566	0.3−	0.4+
1987 12 12	399	0.7+	0.8+	1996 11 13	691	0.3+	0.3+				
1987 12 12	399	0.7+	0.1+	1996 11 13	691	0.1+	0.4+				

1988 BF₅ = 1998 QP₈₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	97.18654		(2000.0)	P	Q		
<i>n</i>	0.22655769	ω	329.02330	−0.82853045	+0.53459913		
<i>a</i>	2.6649159	Ω	244.20134	−0.46838237	−0.82468270		
<i>e</i>	0.1350429	<i>i</i>	10.66085	−0.30684726	−0.18466785		
<i>P</i>	4.35	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 01 28	413	1.9−	1.3−	1988 03 12	413	0.4+	0.1−	1998 08 27	704	1.1+	1.5−
1988 01 28	413	2.1+	1.1+	1998 08 24	704	0.1+	0.0	1998 08 27	704	1.2+	0.6−
1988 02 23	413	1.0−	0.2−	1998 08 24	704	1.9−	1.6+	1998 08 27	704	1.1+	0.3+
1988 02 23	413	0.2+	1.3+	1998 08 24	704	0.4−	0.6−	1998 08 27	704	0.5−	0.3−
1988 03 12	413	0.3+	0.8−	1998 08 24	704	0.7−	1.0+				

1988 BG₅ = 1998 QX₈₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	36.91045		(2000.0)	P	Q		
<i>n</i>	0.22602860	ω	36.09667	+0.10741578	+0.97596822		
<i>a</i>	2.6690730	Ω	240.77789	−0.95549538	+0.04863657		
<i>e</i>	0.1451325	<i>i</i>	12.54742	−0.27475523	+0.21241589		
<i>P</i>	4.36	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1988 01 28	413	1.3−	0.6−	1998 08 24	704	2.4+	0.3+	1998 08 27	704	0.9−	0.2−
1988 02 23	413	1.7−	0.5+	1998 08 24	704	1.1+	2.5−	1998 08 27	704	1.3−	0.6+
1988 02 23	413	3.1+	0.4+	1998 08 24	704	0.0	0.2−	1998 08 27	704	1.8−	0.9+
1988 03 12	413	0.1−	0.4−	1998 08 24	704	1.3−	0.3−	1998 08 27	704	0.6+	1.2+
1998 08 24	704	1.8+	0.1+	1998 08 27	704	0.5−	0.1+				

1988 EY₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	151.63527		(2000.0)	P	Q		
<i>n</i>	0.22336248	ω	136.05218	−0.82193759	−0.56840262		
<i>a</i>	2.6902702	Ω	9.51400	+0.44216331	−0.67722257		
<i>e</i>	0.0992233	<i>i</i>	12.78100	+0.35904069	−0.46721307		
<i>P</i>	4.41	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1988 03 13	054	0.0	0.1−	1998 08 28	426	0.1+	0.0	1998 08 29	426	0.2+	0.0
1988 03 14	054	0.1−	0.1+	1998 08 28	426	0.1−	0.2−	1998 08 29	426	0.1−	0.1−
1988 04 13	054	0.3−	0.0	1998 08 28	426	0.4+	0.0	1998 08 29	426	0.2−	0.1−
1988 04 20	413	0.3+	0.2−	1998 08 28	426	0.0	0.1+				
1988 04 20	413	0.1+	0.2+	1998 08 29	426	0.3−	0.2+				

1988 PL₂ = 1998 QN₁₃

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	331.63978		(2000.0)	P	Q		
<i>n</i>	0.29261285	ω	7.43485	+0.97189373	+0.23106350		
<i>a</i>	2.2470209	Ω	339.03887	−0.22196117	+0.83555614		
<i>e</i>	0.2214445	<i>i</i>	7.23944	−0.07845902	+0.49845320		
<i>P</i>	3.37	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1988 08 13	033	0.6−	0.3+	1988 09 16	675	0.1+	0.8+	1998 08 19	566	(2.2−	0.4−)
1988 08 13	511	0.5−	0.5+	1988 09 16	675	0.8+	0.9−	1998 08 19	566	(3.1−	1.5+)
1988 08 13	511	0.7+	0.0	1998 07 31	699	0.7+	0.2+	1998 08 23	704	0.1−	1.2−
1988 08 14	033	0.7−	0.3+	1998 07 31	699	0.3+	0.0	1998 08 23	704	0.7−	0.2−
1988 08 14	033	0.4−	0.0	1998 07 31	699	0.3+	0.2−	1998 08 23	704	0.2+	0.4+
1988 09 11	675	0.2−	1.1+	1998 08 17	704	1.1−	0.3−	1998 08 23	704	1.0+	0.1+
1988 09 11	675	0.1−	0.7+	1998 08 17	704	0.5−	0.4+	1998 08 23	704	0.4−	0.3−
1988 09 11	675	0.2+	1.0−	1998 08 17	704	1.3−	0.1+	1998 08 27	699	1.3+	0.1−
1988 09 11	675	0.2−	0.4−	1998 08 17	704	0.3−	0.3+	1998 08 27	699	0.9+	0.3−
1988 09 16	675	0.1−	0.4+	1998 08 17	704	0.9−	0.1+	1998 08 27	699	1.2+	0.0
1988 09 16	675	0.4+	0.7−	1998 08 19	566	(2.9−	0.7−)				

1988 QR = 1998 QA₃₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	16.24133		(2000.0)	P	Q		
<i>n</i>	0.19802152	ω	31.51626	+0.52567183	+0.84769698		
<i>a</i>	2.9151514	Ω	270.28679	−0.79456066	+0.45933705		
<i>e</i>	0.1601745	<i>i</i>	4.08680	−0.30387907	+0.26536635		
<i>P</i>	4.98	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1988 08 10	413	0.4−	0.2−	1998 08 03	699	0.7+	0.0	1998 08 23	704	0.1+	0.6+
1988 08 10	413	0.4−	0.4−	1998 08 03	699	0.3+	0.6−	1998 08 23	704	0.1+	0.4+
1988 08 11	413	1.9−	0.4+	1998 08 17	704	0.3−	0.1−	1998 08 23	704	0.3+	0.9+

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1988 08 11	413	0.5+	1.4+	1988 08 17	704	0.3+	0.5-	1988 08 23	704	0.2-	1.1+
1988 08 19	413	1.5+	0.0	1988 08 17	704	0.1+	0.6-	1988 08 26	699	0.2-	0.1-
1988 08 20	413	0.4+	0.5-	1988 08 17	704	0.4-	0.4-	1988 08 26	699	0.4-	0.3+
1998 08 03	699	0.2+	0.5+	1998 08 17	704	0.5-	1.8-	1998 08 26	699	0.3+	0.3-

1989 PF = 1984 KF₁ = 1998 QX₂

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams							
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21680626	ω	190.90728	+0.92470888	+0.33950936		
<i>a</i>	2.7442363	Ω	147.53950	-0.32064709	+0.93845497		
<i>e</i>	0.2410359	<i>i</i>	18.71171	-0.20518025	+0.06352691		
<i>P</i>	4.55	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1984 05 25	095	0.5-	1.6-	1998 06 25	699	0.1-	0.1+	1998 08 23	704	0.7-	1.1+
1989 08 09	675	1.8+	0.5-	1998 06 25	699	0.0	0.1+	1998 08 23	704	(3.3-	0.2+)
1989 08 09	675	2.2+	0.6-	1998 06 25	699	0.3-	0.1-	1998 08 23	704	0.2-	0.2+
1989 08 10	675	0.3-	0.8-	1998 08 17	704	0.4+	0.3+	1998 08 23	704	0.2-	0.3-
1989 09 05	675	0.0	0.5+	1998 08 17	704	0.7-	0.5+	1998 08 27	699	0.0	0.8+
1989 09 05	675	0.8-	0.8-	1998 08 17	704	0.3+	1.1+	1998 08 27	699	0.0	0.8+
1989 09 08	675	0.3-	0.5-	1998 08 17	704	1.1+	0.6-	1998 08 27	699	0.1-	1.0+
1989 09 08	675	1.5-	2.1-	1998 08 17	704	0.1+	0.0				

1989 RY₁ = 1979 HZ₅ = 1998 MX₇

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams							
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21471959	ω	148.02577	+0.57798549	+0.80941871		
<i>a</i>	2.7619869	Ω	156.76798	-0.79314062	+0.58712413		
<i>e</i>	0.2786605	<i>i</i>	15.25667	-0.19199147	+0.01125195		
<i>P</i>	4.59	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1979 04 28	095	(16.1+	4.7-)	1998 06 25	699	0.1+	0.4-	1998 08 17	704	1.0-	0.6-
1989 09 06	675	1.0+	0.1+	1998 06 25	699	0.5+	0.4-	1998 08 21	468	1.0+	0.1-
1989 09 06	675	0.2-	0.7+	1998 06 30	704	0.5+	0.3+	1998 08 21	468	1.3+	0.3-
1989 09 08	675	(3.0-	0.4-)	1998 06 30	704	0.0	1.0+	1998 08 21	468	1.4+	0.8-
1989 09 08	675	(3.4-	0.1-)	1998 06 30	704	0.8-	0.9+	1998 08 23	699	0.3-	0.5+
1989 10 04	675	0.4-	0.9-	1998 06 30	704	1.4-	0.8+	1998 08 23	704	1.8+	0.4-
1989 10 04	675	0.4-	1.0+	1998 06 30	704	1.2+	1.6+	1998 08 23	704	0.5-	0.5+
1989 10 06	675	0.6+	0.7-	1998 06 30	699	0.6-	0.8-	1998 08 23	699	0.3+	0.4+
1989 10 06	675	0.6-	0.2-	1998 06 30	699	0.0	0.7-	1998 08 23	704	1.4-	0.4+
1998 06 19	699	0.0	0.7-	1998 06 30	699	0.1-	1.0-	1998 08 23	704	0.3-	0.7+
1998 06 19	699	0.1+	0.5+	1998 08 17	704	0.5-	0.0	1998 08 23	699	0.1-	0.3+
1998 06 19	699	0.7+	0.7-	1998 08 17	704	0.9-	0.2+	1998 08 23	704	0.1-	1.6-
1998 06 25	699	0.0	0.5-	1998 08 17	704	0.6-	0.5+				

1989 SW₈ = 1998 QE₉₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams							
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22526866	ω	189.46455	+0.97612790	-0.21682362		
<i>a</i>	2.6750723	Ω	183.14458	+0.21134723	+0.96171075		
<i>e</i>	0.1911991	<i>i</i>	13.40928	+0.05006656	+0.16763040		
<i>P</i>	4.38	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 09 02	675	0.5+	0.2-	1989 09 25	809	0.9-	0.4-	1998 08 28	704	0.2+	0.8+
1989 09 02	675	0.9+	0.5-	1989 09 25	809	0.3-	0.3-	1998 08 28	704	1.4+	0.1-
1989 09 23	809	0.1+	0.2-	1989 09 25	809	0.2-	0.3-	1998 08 28	704	0.9+	0.8-
1989 09 23	809	0.3+	0.3-	1989 09 27	675	0.4-	0.2+	1998 08 31	704	1.4-	1.1+
1989 09 23	809	0.5+	0.3-	1989 09 27	675	0.8-	0.5+	1998 08 31	704	0.0	0.0
1989 09 24	809	0.5-	1.5+	1989 10 08	809	0.1-	1.5-	1998 08 31	704	0.5-	0.0
1989 09 24	809	0.2+	1.6+	1989 10 08	809	0.0	1.4-	1998 08 31	704	0.7-	0.2+
1989 09 24	809	0.8+	1.8+	1989 10 08	809	0.0	0.7-	1998 08 31	704	0.1+	0.6-

1989 TN₁ = 1998 QR₄₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams							
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21634877	ω	56.43524	+0.77543044	-0.62868116		
<i>a</i>	2.7481036	Ω	342.28373	+0.49598016	+0.66414951		
<i>e</i>	0.2351065	<i>i</i>	11.15786	+0.39078296	+0.40455584		
<i>P</i>	4.56	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 09 30	675	0.7+	0.4-	1989 10 31	494	(4.4+	4.6-)	1998 08 23	704	0.6-	0.1+
1989 09 30	675	1.2+	1.1-	1989 10 31	494	(4.8+	5.1-)	1998 08 23	704	0.2-	0.4-
1989 10 04	494	0.7+	0.2+	1989 11 01	413	0.7+	0.2-	1998 08 23	704	1.8-	0.5+
1989 10 04	494	0.1+	0.3+	1989 11 01	413	0.5+	0.2-	1998 08 23	704	1.8-	0.4+
1989 10 05	494	1.3-	0.6+	1998 08 17	704	1.6+	0.5-	1998 08 23	704	(0.9-	2.2+)
1989 10 08	413	0.4-	0.2+	1998 08 17	704	0.4+	0.1-	1998 08 30	699	0.2+	0.1-
1989 10 08	413	0.8-	1.2+	1998 08 17	704	0.4+	0.2-	1998 08 30	699	0.4+	0.0
1989 10 20	413	1.1-	0.7-	1998 08 17	704	0.1+	0.6+	1998 08 30	699	0.7+	0.1-
1989 10 20	413	0.3-	0.1+	1998 08 17	704	0.7+	0.2-				

1989 UX₇ = 1998 QR₉₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams							
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22326364	ω	155.71914	+0.90009700	-0.39641145		
<i>a</i>	2.6910642	Ω	228.89305	+0.35010734	+0.90506232		
<i>e</i>	0.2914782	<i>i</i>	13.88257	+0.25932651	+0.15401353		
<i>P</i>	4.41	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 09 27	675	0.9-	0.7-	1989 11 01	675	0.1+	0.4+	1998 08 28	704	0.5+	0.1+
1989 09 27	675	1.1+	0.0	1989 11 02	675	1.2+	0.5-	1998 08 31	704	0.9-	0.8+
1989 10 24	095	2.1-	3.1+	1989 11 02	675	0.2-	0.4+	1998 08 31	704	0.8-	0.4+
1989 10 24	095	(0.4+	4.8-)	1998 08 28	704	0.6+	0.2+	1998 08 31	704	0.4+	0.2+
1989 10 26	095	(2.9-	7.7+)	1998 08 28	704	0.4-	0.6-	1998 08 31	704	0.9+	0.1-
1989 11 01	675	0.8+	2.3-	1998 08 28	704	0.7-	1.4-	1998 08 31	704	0.2+	0.4-

1990 BA₂ = 1998 QP₁₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams							
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18516482	ω	188.66170	-0.65746456	-0.73750459		
<i>a</i>	3.0485763	Ω	302.60864	+0.70182296	-0.52484652		
<i>e</i>	0.1478949	<i>i</i>	10.55888	+0.27419861	-0.42499777		
<i>P</i>	5.32	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 01 30	399	(3.0-	0.7-)	1998 08 17	704	0.5+	0.7+	1998 08 24	704	0.5-	0.9+
1990 01 30	399	0.5-	0.0	1998 08 19	704	0.5-	1.2+	1998 08 27	704	1.0-	1.0-
1990 02 01	399	0.4-	0.3+	1998 08 19	704	(0.1+	2.2+)	1998 08 27	704	0.6+	0.9-
1990 02 01	399	(3.6-	1.3-)	1998 08 19	704	0.8+	1.4-	1998 08 27	704	0.9-	0.2-
1990 02 28	399	0.7-	0.6+	1998 08 19	704	0.8-	0.9-	1998 08 27	704	0.1-	0.0
1990 02 28	399	1.6+	0.9-	1998 08 19	704	0.8+	0.4-	1998 08 27	704	0.8-	1.1+
1998 08 17	704	0.7+	0.5-	1998 08 24	704	0.9-	0.4+	1998 08 30	699	0.1-	0.1+
1998 08 17	704	0.9-	0.2-	1998 08 24	704	0.6-	0.2+	1998 08 30	699	0.4-	0.4-
1998 08 17	704	0.4+	0.1+	1998 08 24	704	1.7+	1.2+	1998 08 30	699	0.4+	0.1-
1998 08 17	704	0.3+	0.4+	1998 08 24	704	1.4+	0.3-				

1990 QE₄ = 1998 LC

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	318.96799		(2000.0)		P	Q	
n	0.23703575	ω	181.28006		+0.93152541	+0.35102463	
a	2.5857913	Ω	157.43596		-0.33142566	+0.92703213	
e	0.2819528	i	14.34817		-0.14972454	+0.13188308	
P	4.16	H	13.9	G	0.15	U	4

Residuals in seconds of arc

1990 08 23	675	0.0	1.1+	1990 09 13	675	(1.1– 3.2+)	1998 06 04	704	1.0+	0.2+
1990 08 23	675	0.1+	0.3+	1990 09 16	675	0.8+ 0.3–	1998 06 04	704	0.5+	1.2–
1990 08 26	809	1.1–	2.0–	1990 09 16	675	0.3– 0.9+	1998 06 19	704	0.5–	0.5–
1990 08 26	809	0.1+	1.1–	1998 06 03	704	0.3+ 0.3–	1998 06 19	704	0.8+	0.3+
1990 08 26	809	0.7+	0.3–	1998 06 03	704	0.8– 0.6+	1998 06 19	704	0.5–	0.4+
1990 08 27	675	0.3–	0.6–	1998 06 03	704	0.9+ 1.1+	1998 06 19	704	0.8+	0.5+
1990 08 27	675	0.1–	0.8+	1998 06 03	704	0.2– 0.1–	1998 06 25	704	(2.1– 3.6+)	
1990 08 29	675	0.0	0.7+	1998 06 04	704	0.1+ 0.4–	1998 06 25	704	0.8–	1.4–
1990 08 29	675	0.2+	0.7+	1998 06 04	704	0.6+ 0.6–	1998 06 25	704	0.1–	0.2+
1990 09 13	675	(1.4– 3.5+)		1998 06 04	704	1.5– 0.6+	1998 06 25	704	0.5–	0.6+

1990 RF₁₇ = 1990 SS₁ = 1986 VE₉ = 1998 QK₉₇Id. S. Nakano (d, *MPC* 20913), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	277.31330	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.23849284	ω 226.11763	+0.51442819	–0.85588251
<i>a</i>	2.5752486	Ω 193.22453	+0.83825961	+0.51497356
<i>e</i>	0.1614448	<i>i</i> 13.44370	+0.18078847	+0.04761670
<i>P</i>	4.13	<i>H</i> 13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1986 11 04	095	0.1–	2.2–	1990 09 23	095	1.0+ 0.5–	1998 08 24	704	0.1–	0.7–
1990 09 15	095	0.3–	1.8+	1990 10 11	095	(2.6+ 5.0–)	1998 08 24	704	0.5+ 0.5–	
1990 09 15	095	(1.5+ 4.9–)		1990 10 15	095	0.1+ 2.8+	1998 08 27	704	3.5+ 0.9+	
1990 09 18	675	0.4+	0.5+	1990 10 15	095	(0.1– 9.7+)	1998 08 27	704	3.2– 0.4+	
1990 09 18	675	0.1+ 0.1–		1998 08 24	704	0.4+ 0.4–	1998 08 27	704	0.3– 0.2–	
1990 09 20	675	0.3– 0.5–		1998 08 24	704	0.1+ 1.2–	1998 08 27	704	0.5– 0.1–	
1990 09 20	675	0.9– 0.9–		1998 08 24	704	0.3– 0.4+				

1990 SV = 1998 QM₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	342.38641	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.24347686	ω 23.03281	+0.95913166	+0.27860131
<i>a</i>	2.5399836	Ω 320.68421	–0.27024602	+0.85010119
<i>e</i>	0.3033939	<i>i</i> 4.47857	–0.08386628	+0.44688845
<i>P</i>	4.05	<i>H</i> 15.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1990 09 16	675	0.0	0.7+	1998 07 26	699	0.3– 0.1–	1998 08 20	120	0.3– 0.2–
1990 09 16	675	0.6+	0.2+	1998 08 17	704	0.1– 0.6–	1998 08 20	120	0.4+ 0.1+
1990 09 17	675	0.9+	0.9+	1998 08 17	704	0.1+ 0.6–	1998 08 23	704	0.3+ 0.3–
1990 09 17	675	0.5+	0.0	1998 08 17	704	0.5+ 0.1+	1998 08 23	704	1.7– 0.8–
1990 09 18	675	0.7– 0.4–		1998 08 17	704	1.0– 0.1–	1998 08 23	704	0.8+ 1.3+
1990 09 18	675	0.7– 2.0–		1998 08 17	704	0.6+ 0.3+	1998 08 23	704	0.6– 0.9+
1990 09 20	675	0.0	0.7–	1998 08 17	120	0.0	1998 08 26	120	0.2– 0.5–
1990 09 20	675	0.6– 1.4+		1998 08 17	120	0.5+ 0.3+	1998 08 26	120	0.1+ 0.1–
1998 07 26	699	0.3+ 0.3+		1998 08 20	120	0.7+ 0.0	1998 08 26	120	0.1– 0.2–
1998 07 26	699	0.6– 0.2+		1998 08 20	120	0.8+ 0.0			

1990 SX₃ = 1998 QK₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	314.38743	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.23711029	ω 60.31014	+0.97290883	–0.15946930
<i>a</i>	2.5852494	Ω 308.34686	+0.05295270	+0.85848308
<i>e</i>	0.2181542	<i>i</i> 12.32336	+0.22504316	+0.48741803
<i>P</i>	4.16	<i>H</i> 13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1990 09 22	675	1.0–	0.5+	1990 10 17	675	0.5– 0.6–	1998 08 17	704	0.1+ 0.2+
1990 09 22	675	0.8–	0.0	1998 07 02	699	0.1– 0.3+	1998 08 17	704	0.5+ 0.5+
1990 09 24	675	0.4–	0.2+	1998 07 02	699	0.4+ 0.2–	1998 08 23	704	0.2+ 0.0
1990 09 24	675	0.0	0.3+	1998 07 02	699	0.7+ 0.3–	1998 08 23	704	0.3– 0.1–
1990 10 14	675	1.5+	0.1–	1998 08 17	704	0.2– 0.3+	1998 08 23	704	0.4– 0.7–

1990 10 14	675	0.8+	0.4–	1998 08 17	704	0.1– 0.4–	1998 08 23	704	0.0	0.7+
1990 10 17	675	0.4+	0.1+	1998 08 17	704	0.1– 0.0	1998 08 23	704	0.4–	0.5–

1990 SF₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	19.24631	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.24266593	ω 56.19168	+0.27598697	+0.95065214
<i>a</i>	2.5456392	Ω 230.48080	–0.93138315	+0.22808830
<i>e</i>	0.2216331	<i>i</i> 10.58814	–0.23739551	+0.21032414
<i>P</i>	4.06	<i>H</i> 14.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1990 09 18	675	0.9+	1.0–	1994 09 02	675	0.0	1.3–	1998 08 24	704	0.5–	0.1–
1990 09 18	675	1.1+ 1.3–		1994 09 02	675	0.4– 0.3–		1998 08 24	704	0.8–	0.2–
1990 09 23	675	0.1– 0.9+		1998 06 30	704	1.1– 1.0+		1998 08 24	704	0.7+ 0.3+	
1990 09 23	675	0.6+ 0.9+		1998 06 30	704	0.1– 1.5–		1998 08 24	704	0.4– 0.2+	
1990 09 25	675	0.1– 1.3+		1998 06 30	704	0.2+ 0.2+		1998 08 24	704	0.0	0.1–
1990 09 25	675	0.2+ 1.3+		1998 06 30	704	0.4– 0.4+		1998 08 27	704	0.8– 0.4+	
1990 10 14	675	0.1– 0.5–		1998 06 30	704	0.6+ 0.5–		1998 08 27	704	0.4– 0.2–	
1990 10 14	675	0.5– 1.6–		1998 08 02	699	0.9+ 0.0		1998 08 27	704	0.5+ 0.4+	
1990 10 17	675	1.6– 0.2–		1998 08 02	699	0.4+ 0.2–		1998 08 27	704	0.6– 0.6+	
1990 10 17	675	0.1– 0.3+		1998 08 02	699	0.8+ 0.1–		1998 08 27	704	1.0+ 0.4+	

1990 SE₉ = 1998 OV₁₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	309.47856	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.23366755	ω 290.82436	+0.98864659	+0.12623640
<i>a</i>	2.6105806	Ω 62.00087	–0.07855358	+0.89659144
<i>e</i>	0.1429753	<i>i</i> 5.29617	–0.12809081	+0.42448576
<i>P</i>	4.22	<i>H</i> 16.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1990 09 14	809	0.2– 0.6+		1990 09 25	809	0.4– 0.4+		1998 07 19	428	0.2+ 0.5–	
1990 09 14	809	0.6– 0.3–		1990 09 25	809	0.5– 0.1+		1998 07 20	428	0.4– 0.2–	
1990 09 14	809	0.3+ 0.3–		1990 09 25	809	0.8– 0.7–		1998 07 20	428	0.5+ 0.2–	
1990 09 22	809	1.0+ 0.0		1998 07 16	428	0.5+ 0.5+		1998 07 20	428	0.0	0.0
1990 09 22	809	0.8+ 0.1+		1998 07 16	428	0.0	0.0				
1990 09 22	809	0.4+ 0.0		1998 07 19	428	0.7– 0.4+					

1990 UA₁ = 1981 UG₁₃ = 1998 QP₆₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	230.82745	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.22554112	ω 220.34294	–0.11362438	–0.97797889
<i>a</i>	2.6729176	Ω 236.87257	+0.95687410	–0.06030389
<i>e</i>	0.1290085	<i>i</i> 12.06611	+0.26736014	–0.19980171
<i>P</i>	4.37	<i>H</i> 12.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1981 10 23	095	0.7– 2.3+		1990 10 26	372	0.2+ 0.8+		1998 08 24	704	0.0	0.9+
1990 10 19	402	1.7+ 0.5+		1990 10 27	372	0.2– 0.7–		1998 08 24	704	0.3+ 0.5–	
1990 10 19	402	0.3+ 1.0+		1990 10 27	372	0.7+ 0.9–		1998 08 24	704	0.5– 0.2–	
1990 10 20	402	0.3– 0.1+		1990 10 28	402	0.8– 0.4+		1998 08 24	704	0.3– 1.5+	
1990 10 20	402	1.6+ 0.1+		1990 10 28	402	(2.2– 1.4+)		1998 08 24	704	0.3– 1.3+	
1990 10 21	402	(0.3+ 2.1–)		1990 11 24	402	0.3+ 0.4+		1998 08 27	704	(2.2+ 0.2+)	
1990 10 21	402	0.0	0.7–	1990 11 24	402	0.4+ 0.1+		1998 08 27	704	(0.6– 2.5–)	
1990 10 22	675	1.3– 1.3–		1998 07 18	699	0.0	0.0	1998 08 27	704	0.5+ 1.2–	
1990 10 22	675	1.1– 0.8–		1998 07 18	699	0.0	0.4–	1998 08 27	704	0.4+ 1.4–	
1990 10 26	372	1.4– 0.9–		1998 07 18	699	0.3– 0.6–		1998 08 27	704	0.5+ 0.5–	

1990 VP₆ = 1998 QL₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.23625048	ω	123.17916	+0.82459490	+0.55901808						
<i>a</i>	2.5915181	Ω	203.19867	−0.56405397	+0.80063055						
<i>e</i>	0.0613575	<i>i</i>	12.73623	−0.04343226	+0.21561428						
<i>P</i>	4.17	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>			5		

Residuals in seconds of arc

1990 11 15	809	0.9+	0.2−	1998 08 20	960	0.3+	0.2−	1998 08 23	967	0.6+	0.2−
1990 11 15	809	0.3+	0.6−	1998 08 20	960	0.1−	0.2+	1998 08 23	967	0.9−	0.2−
1990 11 15	809	1.0−	0.6+	1998 08 20	960	0.0	0.3−	1998 08 23	967	0.4+	0.3−
1990 11 17	809	0.2+	0.4−	1998 08 22	960	(0.0	2.2+)	1998 08 23	960	0.4+	0.3−
1990 11 17	809	0.3+	0.2−	1998 08 22	960	0.1+	0.1−	1998 08 23	960	0.3+	0.1+
1990 11 17	809	0.5−	0.7+	1998 08 22	960	0.2−	0.0	1998 08 25	967	0.3+	0.7+
1990 11 23	809	0.5+	0.2+	1998 08 23	970	0.8−	0.4+	1998 08 25	967	0.5−	0.6−
1990 11 23	809	0.3+	0.1−	1998 08 23	970	0.5−	0.4+	1998 08 25	967	0.3+	0.6+
1990 11 23	809	1.0−	0.0	1998 08 23	960	0.3+	0.6−	1998 08 25	967	0.1+	0.2+

1990 VW₈ = 1998 QC₇₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.23633512	ω	238.45075	−0.18270896	−0.97124096						
<i>a</i>	2.5908993	Ω	222.93866	+0.96082570	−0.14347540						
<i>e</i>	0.1645232	<i>i</i>	12.95089	+0.20840205	−0.19001530						
<i>P</i>	4.17	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>			5		

Residuals in seconds of arc

1990 11 12	809	1.0−	0.2−	1990 11 21	809	0.3+	0.0	1998 08 24	704	0.1+	0.2−
1990 11 12	809	0.8+	0.4+	1990 11 21	809	0.1+	0.9−	1998 08 24	704	0.6+	1.1−
1990 11 12	809	0.6+	0.2−	1990 11 22	809	0.6−	0.3−	1998 08 27	704	0.4−	0.1+
1990 11 15	809	1.3−	0.3−	1990 11 22	809	0.5+	0.7+	1998 08 27	704	0.3−	0.1+
1990 11 15	809	0.3+	0.1−	1990 11 22	809	0.2+	0.1−	1998 08 27	704	1.2+	0.2−
1990 11 15	809	0.2+	0.3+	1998 08 24	704	0.2−	0.4−	1998 08 27	704	0.9−	1.4+
1990 11 21	809	0.0	0.6+	1998 08 24	704	0.3+	0.5+	1998 08 27	704	0.4−	0.1−

1990 WS₁ = 1998 QS₈₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.22367425	ω	323.39884	−0.97746842	−0.18832978						
<i>a</i>	2.6877697	Ω	206.23261	+0.20472977	−0.95582207						
<i>e</i>	0.1174364	<i>i</i>	12.45458	−0.05139265	−0.22569020						
<i>P</i>	4.41	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>			6		

Residuals in seconds of arc

1990 11 11	809	0.8+	0.1+	1990 11 20	809	1.2−	1.0−	1998 08 27	704	0.8+	0.2+
1990 11 11	809	0.6+	0.1−	1990 11 20	809	0.7−	0.3−	1998 08 27	704	0.9−	0.1+
1990 11 11	809	0.2−	0.2−	1998 08 24	704	0.6+	1.5−	1998 08 27	704	0.4+	0.8+
1990 11 18	809	0.1+	0.7−	1998 08 24	704	0.4−	0.5+	1998 08 27	704	0.6+	0.4−
1990 11 18	809	0.1−	0.8+	1998 08 24	704	0.4−	0.1+	1998 08 27	704	0.1−	0.8−
1990 11 18	809	0.1+	0.3+	1998 08 24	704	0.2+	0.1+				
1990 11 20	809	0.5+	1.2+	1998 08 24	704	0.9−	0.9+				

1990 YP = 1998 QN₉₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.21535978	ω	175.00420	−0.47461210	−0.85875937						
<i>a</i>	2.7565105	Ω	303.20198	+0.79936008	−0.32870488						
<i>e</i>	0.2660302	<i>i</i>	13.34054	+0.36846549	−0.39304637						
<i>P</i>	4.58	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>			4		

Residuals in seconds of arc

1990 12 19	372	0.4+	0.6−	1991 01 15	033	0.7+	0.8−	1998 08 19	704	0.7+	0.3−
1990 12 19	372	2.1−	0.6−	1991 01 16	033	0.1+	0.2+	1998 08 19	704	2.2+	2.0+

1990 12 23	372	2.2+	0.8−	1991 01 21	372	0.9−	0.7+	1998 08 19	704	1.1−	0.7−
1990 12 23	372	0.7+	0.5+	1991 01 21	372	2.1−	2.2+	1998 08 27	704	0.9−	0.5−
1990 12 24	372	1.2−	0.1+	1991 01 22	675	0.4+	1.2+	1998 08 27	704	0.2+	0.6+
1990 12 24	372	0.5−	1.4+	1991 01 22	675	0.2+	1.0+	1998 08 27	704	0.9−	0.5−
1991 01 15	033	0.4+	1.7−	1991 02 08	675	0.8+	0.2−	1998 08 27	704	1.3−	0.4−
1991 01 15	033	0.0	1.1−	1991 02 08	675	0.3+	1.2−				
1991 01 15	033	0.6+	0.2−	1998 08 19	704	1.0+	0.2+				

1991 AF₂ = 1998 QW₅₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.23196536	ω	246.16636	+0.32521196	−0.94546335						
<i>a</i>	2.6233363	Ω	184.96410	+0.92629035	+0.32239991						
<i>e</i>	0.1604098	<i>i</i>	12.23425	+0.19032436	+0.04644734						
<i>P</i>	4.25	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>			4		

Residuals in seconds of arc

1990 11 20	413	0.5−	1.0−	1991 02 04	413	0.6+	0.6−	1998 08 23	704	0.1−	0.5+
1990 11 20	413	0.3−	0.4+	1998 08 17	704	0.3+	0.5+	1998 08 23	704	0.4+	1.0+
1991 01 07	413	0.7+	0.1−	1998 08 17	704	0.6+	1.8−	1998 08 23	704	1.7−	0.1−
1991 01 08	413	0.1+	0.9+	1998 08 17	704	1.2+	0.4+	1998 08 23	704	0.4+	0.3+
1991 01 12	413	0.5+	0.6+	1998 08 17	704	0.3+	0.5+	1998 08 23	704	1.4−	1.4−
1991 02 04	413	0.9−	0.2−	1998 08 17	704	0.1−	0.2+				

1991 CO₁ = 1981 GM = 1989 WU₅ = 1997 GY₃₈

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.18804574	ω	336.73417	−0.92008916	−0.39170851						
<i>a</i>	3.0173594	Ω	180.20804	+0.38085828	−0.89423045						
<i>e</i>	0.0303858	<i>i</i>	9.83847	+0.09155825	−0.21660181						
<i>P</i>	5.24	<i>H</i>	12.0	<i>G</i>	0.15	<i>U</i>			2		

Residuals in seconds of arc

1981 04 05	688	1.9+	2.5−	1991 02 13	391	0.5−	0.3+	1997 04 08	809	1.1−	0.1+
1981 04 05	688	(0.2−	4.8−)	1991 02 13	391	1.1+	0.5+	1997 04 09	809	0.3+	0.9+
1981 04 07	688	1.8−	1.3+	1991 02 17	391	(6.5+	0.1+)	1997 04 09	809	0.4−	0.5+
1981 04 07	688	1.5−	0.3−	1991 02 17	391	(8.0+	5.2+)	1997 04 09	809	0.5−	0.4−
1981 04 09	688	1.1−	0.9−	1997 04 07	809	(0.0	5.2−)	1997 04 10	809	1.4+	1.6+
1981 04 09	688	1.7+	0.8−	1997 04 07	809	(0.9−	4.8−)	1997 04 10	809	1.3+	1.3+
1989 11 24	095	0.6−	3.6+	1997 04 07	809	(1.3−	4.8−)	1997 04 10	809	1.0+	0.9+
1991 01 22	675	0.4−	0.2−	1997 04 08	809	0.6−	1.0+				
1991 01 22	675	0.1−	1.1−	1997 04 08	809	0.4−	0.4+				

1991 FP = 1998 QL₆₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.17253152	ω	24.67714	−0.84049147	+0.54055745						
<i>a</i>	3.1956344	Ω	188.34242	−0.52979660	−0.83423394						
<i>e</i>	0.1849634	<i>i</i>	14.78965	−0.11353261	−0.10886403						
<i>P</i>	5.71	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>			4		

Residuals in seconds of arc

1991 03 17	675	0.3+	0.2+	1991 04 14	675	0.6−	1.2+	1998 08 24	704	0.1−	1.0+
1991 03 17	675	2.0−	0.1+	1991 04 16	675	0.1+	0.6+	1998 08 24	704	0.8+	0.1−
1991 03 18	675	0.6+	0.3+	1991 04 16	675	0.5−	0.8+	1998 08 24	704	2.2+	2.8−
1991 03 18	675	0.3+	0.8−	1991 04 19	675	0.1−	0.3−	1998 08 24	704	1.1+	0.8−
1991 04 09	675	1.3+	0.0	1991 04 19	675	0.3+	0.1−	1998 08 24	704	0.0	0.9+
1991 04 09	675	0.2+	0.2−	1991 05 08	675	0.1−	1.3−	1998 08 27	704	0.2−	0.1+
1991 04 12	675	0.7−	0.3+	1991 05 08	675	0.3+	0.5−	1998 08 27	704	3.0−	0.1−
1991 04 12	675	0.3+	0.1+	1991 05 12	675	0.8+	1.1−	1998 08 27	704	0.6−	

1991 FW₃ = 1996 JM₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	98.17275		(2000.0)	P	Doppler	Q
<i>n</i>	0.21644456	ω	135.86492	+0.62573179		+0.77995374
<i>a</i>	2.7472927	Ω	172.84387	-0.73877848		+0.59729446
<i>e</i>	0.0166166	<i>i</i>	5.28939	-0.25033195		+0.18684615
<i>P</i>	4.55	<i>H</i>	13.5	<i>G</i> 0.15		<i>U</i> 6

Residuals in seconds of arc

1991 03 22	809	0.8-	0.1+	1991 03 24	809	0.5+	1.0+	1996 05 15	120	0.7+	0.3-
1991 03 22	809	0.2-	0.0	1991 03 25	809	0.6+	0.1+	1996 05 15	120	0.8+	0.7+
1991 03 22	809	0.1-	0.2-	1991 03 25	809	0.9+	0.2+	1996 05 16	120	0.1+	1.1+
1991 03 23	809	0.3-	0.5-	1991 03 25	809	1.1+	0.1+	1996 05 16	120	0.2-	0.6+
1991 03 23	809	0.0	0.6-	1991 03 26	809	0.8-	0.5-	1996 05 17	120	0.6+	0.6-
1991 03 23	809	0.2+	0.9-	1991 03 26	809	0.7-	0.6-	1996 05 17	120	1.2-	0.8-
1991 03 24	809	0.0	1.3+	1991 03 26	809	0.4-	0.5-				
1991 03 24	809	0.2+	1.0+	1996 05 15	120	0.8-	0.7-				

1991 HK = 1998 QJ₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	61.06724		(2000.0)	P	Williams	Q
<i>n</i>	0.29877039	ω	54.28746	-0.73683222		+0.67581858
<i>a</i>	2.2160405	Ω	168.19169	-0.64598647		-0.69563668
<i>e</i>	0.1634423	<i>i</i>	5.22682	-0.19944864		-0.24363674
<i>P</i>	3.30	<i>H</i>	14.5	<i>G</i> 0.15		<i>U</i> 4

Residuals in seconds of arc

1991 04 16	402	1.8+	2.6+	1991 05 16	675	0.7-	0.5+	1998 08 23	704	1.1+	1.3+
1991 04 16	402	0.3+	0.7+	1991 05 17	675	0.3+	0.3-	1998 08 23	704	0.9-	1.2+
1991 04 16	372	1.4-	2.1-	1991 05 17	675	0.6+	0.5+	1998 08 23	704	1.6+	1.5+
1991 04 16	372	(7.7-	0.1+)	1998 08 17	704	0.4+	2.7-	1998 08 23	704	0.1-	0.1-
1991 04 21	402	0.1-	1.6-	1998 08 17	704	1.3-	0.2-	1998 08 23	704	1.1-	0.2-
1991 04 21	402	0.6-	0.7-	1998 08 17	704	0.3-	0.2-				
1991 05 16	675	0.2-	0.5+	1998 08 17	704	0.6+	0.7-				

1991 LP₂ = 1998 KN₆₅

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	341.45319		(2000.0)	P	Williams	Q
<i>n</i>	0.28295124	ω	194.09262	+0.39497622		+0.91804827
<i>a</i>	2.2978851	Ω	99.18096	-0.83947505		+0.37586262
<i>e</i>	0.1484471	<i>i</i>	1.99509	-0.37319623		+0.12615333
<i>P</i>	3.48	<i>H</i>	15.0	<i>G</i> 0.15		<i>U</i> 5

Residuals in seconds of arc

1991 05 18	809	0.5-	2.0-	1998 05 22	704	0.0	0.1+	1998 06 24	704	1.0-	0.9-
1991 05 18	809	0.5-	0.8-	1998 05 22	704	0.7-	1.3-	1998 06 24	704	1.5+	0.5-
1991 05 18	809	0.2-	0.8-	1998 05 24	704	0.3+	0.7-	1998 06 24	704	0.3+	0.3-
1991 06 06	809	1.6+	1.0+	1998 05 24	704	0.2+	0.4-	1998 06 24	704	0.6+	0.4-
1991 06 06	809	0.3-	1.7+	1998 05 24	704	0.2+	0.1-	1998 06 24	704	0.2+	0.7-
1991 06 06	809	0.5+	0.8+	1998 05 24	704	0.6+	0.3+	1998 06 26	704	0.0	0.2-
1991 06 08	809	0.2+	0.7+	1998 06 03	704	0.6-	0.1+	1998 06 26	704	1.3+	0.2+
1991 06 08	809	0.0	1.2+	1998 06 03	704	0.9-	0.7+	1998 06 26	704	1.4-	0.2-
1991 06 08	809	0.2-	1.6+	1998 06 03	704	0.8+	0.9-	1998 06 26	704	1.3-	0.5+
1998 05 22	704	1.2+	0.1+	1998 06 03	704	0.3-	0.2+				
1998 05 22	704	0.8-	0.9+	1998 06 03	704	0.6-	0.0				

1991 NC₁ = 1998 QZ₄₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	34.82042		(2000.0)	P	Williams	Q
<i>n</i>	0.28600641	ω	139.94443	-0.06325871		+0.99479471
<i>a</i>	2.2814916	Ω	126.28207	-0.93914098		-0.03225449
<i>e</i>	0.2121126	<i>i</i>	5.68738	-0.33765744		-0.09665986
<i>P</i>	3.45	<i>H</i>	15.0	<i>G</i> 0.15		<i>U</i> 5

Residuals in seconds of arc

1991 07 12	675	0.5+	0.7-	1991 08 04	809	1.7-	0.7+	1998 08 17	704	0.0	0.7+
1991 07 12	675	0.1+	0.6-	1991 08 05	675	0.5+	0.0	1998 08 17	704	1.3-	0.4+
1991 07 14	675	0.9-	0.3-	1991 08 05	675	1.0+	0.5+	1998 08 23	704	0.4+	0.3+
1991 07 17	675	1.1+	0.3+	1991 08 07	675	1.0+	1.1-	1998 08 23	704	0.9+	0.8-
1991 07 17	675	0.2+	1.4+	1991 08 07	675	0.3+	1.3-	1998 08 23	704	0.9+	1.3-
1991 08 03	809	0.4-	0.0	1998 08 17	704	0.4-	0.8+	1998 08 23	704	0.5-	1.0-
1991 08 03	809	1.0-	0.0	1998 08 17	704	0.1+	0.5+	1998 08 23	704	0.5-	0.1+
1991 08 03	809	0.5-	0.7+	1998 08 17	704	0.3+	0.4+				

1991 PM₄ = 1998 ON₉

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	14.76025		(2000.0)	P	Williams	Q
<i>n</i>	0.28314956	ω	331.66836	+0.30271086		+0.95131985
<i>a</i>	2.2968121	Ω	315.88325	-0.85797349		+0.24552814
<i>e</i>	0.1516738	<i>i</i>	4.77413	-0.41502725		+0.18629674
<i>P</i>	3.48	<i>H</i>	15.0	<i>G</i> 0.15		<i>U</i> 4

Residuals in seconds of arc

1991 08 03	809	0.3+	0.4+	1991 08 07	675	0.6+	0.6-	1991 09 06	809	1.6-	0.1-
1991 08 03	809	0.7-	0.5-	1991 08 15	894	(1.2-	2.1+)	1991 09 07	809	1.8+	0.1-
1991 08 03	809	0.0	0.6-	1991 08 15	894	0.0	0.4+	1991 09 07	809	0.5+	0.4+
1991 08 03	894	1.6+	0.3-	1991 08 17	894	1.6-	0.8-	1998 07 26	809	0.2+	1.0+
1991 08 03	894	0.5+	0.1-	1991 09 04	809	0.2+	0.6-	1998 07 26	809	0.4+	0.7+
1991 08 04	809	1.4-	0.6+	1991 09 04	809	0.4-	0.1-	1998 07 26	809	0.1-	0.7+
1991 08 05	809	(0.5+	2.7-)	1991 09 04	809	0.0	0.1-	1998 07 27	809	0.1-	0.2-
1991 08 05	809	(0.2-	2.4-)	1991 09 05	809	0.2-	0.3+	1998 07 27	809	0.6-	0.8-
1991 08 05	675	0.8-	0.1-	1991 09 05	809	0.9+	0.1-	1998 07 27	809	0.9-	0.3-
1991 08 05	809	(1.1-	2.8-)	1991 09 05	809	(2.9+	0.6-)	1998 08 28	699	0.2-	0.6+
1991 08 05	675	1.0+	0.7+	1991 09 06	809	0.4+	0.8-	1998 08 28	699	0.1-	0.6+
1991 08 07	675	(2.6+	2.5+)	1991 09 06	809	0.1-	0.7-	1998 08 28	699	0.0	0.5+

1991 PA₅ = 1998 QO₄₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	8.36794		(2000.0)	P	Williams	Q
<i>n</i>	0.28645824	ω	0.25775	+0.61835860		+0.78469252
<i>a</i>	2.2790919	Ω	307.93901	-0.72114416		+0.54455171
<i>e</i>	0.1643171	<i>i</i>	3.16019	-0.31238396		+0.29617746
<i>P</i>	3.44	<i>H</i>	15.5	<i>G</i> 0.15		<i>U</i> 5

Residuals in seconds of arc

1991 07 12	675	0.8+	0.3-	1991 08 05	809	1.5+	0.3+	1998 08 23	704	0.3-	1.0+
1991 07 12	675	0.7-	0.6+	1991 08 05	809	1.3+	0.3-	1998 08 23	704	0.3-	0.2-
1991 08 03	809	0.4-	0.5+	1998 08 17	704	0.1+	0.3-	1998 08 23	704	0.2+	0.7-
1991 08 03	809	0.5-	0.1+	1998 08 17	704	0.5+	0.8-	1998 08 23	704	0.3-	0.0
1991 08 03	809	0.8-	0.3-	1998 08 17	704	0.2+	0.4-	1998 08 23	704	0.1-	1.0+
1991 08 04	809	3.9-	0.9-	1998 08 17	704	0.1+	0.5+				
1991 08 05	809	2.6+	0.3+	1998 08 17	704	0.2-	0.1-				

1991 PP₁₂ = 1998 MO₄₇

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27514607	ω	70.80905	+0.93401075	−0.35637204		
<i>a</i>	2.3411389	Ω	310.06030	+0.31429544	+0.85292378		
<i>e</i>	0.2420466	<i>i</i>	1.86867	+0.16983018	+0.38147084		
<i>P</i>	3.58	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 08 05	675	0.4−	0.5+	1998 06 28	809	1.0+	0.3+	1998 07 16	699	(0.5−	3.2+)
1991 08 08	675	0.1−	0.3+	1998 06 28	809	0.8+	0.3−	1998 07 16	699	0.2−	1.7+
1991 08 08	675	0.2−	0.5+	1998 06 28	809	0.6+	1.2−	1998 07 26	704	0.4−	1.2+
1991 08 10	675	(0.7−	2.8−)	1998 07 01	809	0.4−	0.8−	1998 07 26	704	0.5−	0.3+
1991 08 10	675	0.2+	0.6−	1998 07 01	809	0.2−	0.4−	1998 07 26	704	0.2−	0.3+
1991 09 12	675	1.0+	0.6+	1998 07 01	809	0.3−	1.0−				
1991 09 12	675	0.5−	1.5−	1998 07 16	699	(0.1−	2.3+)				

1991 QJ = 1981 SY₆ = 1998 QV₉₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29155142	ω	162.56014	+0.80648095	+0.59029754		
<i>a</i>	2.2524713	Ω	161.14217	−0.55414991	+0.77452078		
<i>e</i>	0.2064335	<i>i</i>	5.98897	−0.20617071	+0.22730241		
<i>P</i>	3.38	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1981 09 28	095	0.2−	0.7+	1991 09 10	675	0.2+	0.9+	1998 08 28	704	0.9+	0.4+
1991 08 31	894	0.2−	1.6−	1991 09 16	675	0.0	0.4+	1998 08 28	704	0.5+	1.3−
1991 08 31	894	0.1−	0.5+	1991 09 16	675	0.0	0.5+	1998 08 31	704	0.8−	0.3+
1991 09 03	657	0.6+	1.6−	1991 09 16	894	1.0+	1.5+	1998 08 31	704	0.4−	1.3+
1991 09 03	657	0.6+	0.7−	1991 09 19	894	0.7+	1.1−	1998 08 31	704	0.2+	0.2−
1991 09 09	894	1.3−	0.4+	1991 09 19	894	1.3−	0.5−	1998 08 31	704	1.5−	0.4−
1991 09 09	894	0.4−	0.3+	1998 08 28	704	0.4+	1.0−	1998 08 31	704	1.2+	0.4−
1991 09 10	675	0.1−	1.4+	1998 08 28	704	0.0	0.2−				

1991 RL₁ = 1998 QG₅₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28677679	ω	101.78026	+0.41730231	+0.90760018		
<i>a</i>	2.2774039	Ω	193.17459	−0.89246760	+0.39973622		
<i>e</i>	0.1695698	<i>i</i>	11.65684	−0.17134865	+0.12834664		
<i>P</i>	3.44	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 09 04	675	0.8+	0.2+	1998 08 27	699	0.2+	0.6+	1998 08 28	699	0.4+	0.2+
1991 09 04	675	0.5+	0.6−	1998 08 27	699	0.5+	0.4−	1998 08 28	699	(2.5−	0.1−)
1991 09 08	675	0.8−	0.7+	1998 08 27	699	0.3+	0.3+	1998 08 31	704	0.1+	0.1+
1991 09 08	675	0.5+	0.3+	1998 08 28	704	0.8+	1.1+	1998 08 31	704	1.0+	0.5−
1991 09 12	675	0.3−	0.6+	1998 08 28	704	1.5−	0.7+	1998 08 31	704	0.2−	0.7−
1991 09 12	675	0.6−	1.4−	1998 08 28	704	1.4−	0.3+	1998 08 31	704	0.7+	0.5−
1998 08 20	699	0.1+	0.1+	1998 08 28	704	0.6−	0.1−	1998 08 31	704	0.7−	0.3−
1998 08 20	699	0.2+	0.0	1998 08 28	704	0.2−	0.6−				
1998 08 20	699	0.1−	0.0	1998 08 28	699	0.4+	0.1+				

1991 RC₂ = 1998 QQ₃₂

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27882079	ω	82.96026	+0.55196437	−0.83186227		
<i>a</i>	2.3205234	Ω	333.28308	+0.70529849	+0.50271366		
<i>e</i>	0.1270971	<i>i</i>	7.38623	+0.44484758	+0.23512579		
<i>P</i>	3.53	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 08 08	675	0.4+	0.3+	1991 09 14	095	0.4−	0.4+	1998 08 23	699	0.3+	0.4−
1991 09 05	511	0.5+	1.0−	1991 09 16	675	0.2+	0.0	1998 08 23	704	0.2+	0.6+
1991 09 06	511	1.1−	0.7−	1991 09 16	675	0.7+	0.1+	1998 08 23	704	0.1−	0.5+
1991 09 07	511	1.0−	2.0−	1991 09 17	675	(2.5+	0.4−)	1998 08 23	699	0.5+	0.4−
1991 09 11	675	(2.4+	1.4−)	1991 09 17	675	0.7+	0.9+	1998 08 23	704	0.5+	1.8+
1991 09 11	675	(2.3+	1.0−)	1998 08 17	704	0.5+	0.5+	1998 08 23	699	0.7+	0.2−
1991 09 12	691	0.2−	0.5+	1998 08 17	704	0.3+	0.0	1998 08 23	704	1.0+	0.2+
1991 09 12	691	0.4−	0.3+	1998 08 17	704	0.6−	0.0	1998 09 01	691	1.0−	0.7−
1991 09 12	691	0.4−	0.2+	1998 08 17	704	0.4−	0.2−	1998 09 01	691	1.1−	0.5−
1991 09 12	095	1.3+	0.8+	1998 08 17	704	0.9−	0.8−				

1991 RP₃ = 1998 OF₁₅

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27463524	ω	121.51581	+0.94753420	+0.31485005		
<i>a</i>	2.3440410	Ω	220.20705	−0.31454860	+0.88763742		
<i>e</i>	0.2382995	<i>i</i>	4.90633	−0.05690440	+0.33610901		
<i>P</i>	3.59	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 09 12	033	0.1−	1.0−	1991 10 03	033	0.2+	0.7−	1998 07 20	566	0.1+	0.6+
1991 09 12	033	0.6−	0.5−	1991 10 08	033	0.4+	0.4+	1998 08 14	699	0.4−	0.2−
1991 09 13	033	0.5−	0.3−	1991 10 08	033	0.8+	1.2+	1998 08 14	699	0.8+	0.3+
1991 09 14	033	1.3+	1.4−	1991 10 09	033	0.2−	0.9+	1998 08 14	699	0.4−	0.2−
1991 10 02	033	0.9−	0.9+	1998 07 20	566	0.0	0.1−				
1991 10 02	033	0.4−	0.2+	1998 07 20	566	0.3−	0.1+				

1991 RE₄

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27633717	ω	333.99568	+0.75899107	+0.65073553		
<i>a</i>	2.3344067	Ω	345.34332	−0.58133108	+0.66219127		
<i>e</i>	0.2282572	<i>i</i>	4.94558	−0.29323494	+0.37154541		
<i>P</i>	3.57	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 09 12	033	1.0−	1.5+	1991 10 09	033	0.6+	0.1−	1998 08 17	704	0.1−	0.6−
1991 09 12	033	1.3−	1.7+	1991 10 09	033	0.1−	0.4+	1998 08 23	699	0.3−	0.1−
1991 09 14	033	0.1+	1.2+	1998 07 31	699	0.1+	0.1−	1998 08 23	704	0.6+	0.1+
1991 09 15	033	0.9−	0.2−	1998 07 31	699	0.3−	0.0	1998 08 23	704	0.9+	0.1−
1991 09 15	033	0.8+	1.3−	1998 07 31	699	0.6−	0.2+	1998 08 23	699	0.3−	0.4−
1991 10 02	033	0.2+	0.1−	1998 08 17	704	0.9+	0.4−	1998 08 23	704	0.1+	0.6−
1991 10 02	033	0.9+	0.3+	1998 08 17	704	0.2+	0.4+	1998 08 23	704	0.6−	0.6+
1991 10 03	033	0.3+	1.5−	1998 08 17	704	0.4+	0.1+	1998 08 23	699	0.1+	0.5−
1991 10 04	033	0.1−	1.2−	1998 08 17	704	0.1−	0.1−	1998 08 23	704	0.8−	0.7+

1991 RL₇ = 1998 QO₆₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26429776	ω	118.21354	+0.87578125	+0.46951216		
<i>a</i>	2.4047710	Ω	214.13030	−0.48239949	+0.84299090		
<i>e</i>	0.0459560	<i>i</i>	11.52453	−0.01726079	+0.26253509		
<i>P</i>	3.73	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 09 10	033	0.1−	0.4−	1991 10 07	675	0.6−	0.6−	1998 08 24	704	0.4+	1.6+
1991 09 11	033	0.9+	0.2−	1998 06 23	699	0.2+	0.2+	1998 08 24	704	0.5−	0.4−
1991 09 13	033	0.7−	0.2+	1998 06 23	699	0.0	0.3−	1998 08 27	704	0.2−	0.2−
1991 09 13	033	0.3+	0.8+	1998 06 23	699	0.1+	0.0	1998 08 27	704	0.0	0.2−
1991 09 14	033	0.0	0.1−	1998 08 24	704	0.6+	0.6+	1998 08 27	704	0.2+	1.1−
1991 09 15	033	0.3+	1.8+	1998 08 24	704	0.4+	0.7−	1998 08 27	704	0.4−	0.7−
1991 10 07	675	0.1+	1.1−	1998 08 24	704	0.7−	1.9+	1998 08 27	704	0.1+	0.9−

1991 RR₉ = 1998 QS₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	326.39414		(2000.0)		P		Q				
<i>n</i>	0.27513994	ω	5.79292		+0.99258461		+0.12089204				
<i>a</i>	2.3411736	Ω	347.24255		-0.11370458		+0.88650904				
<i>e</i>	0.2499741	<i>i</i>	3.29311		-0.04297748		+0.44663948				
<i>P</i>	3.58	<i>H</i>	15.0		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1991 09 10	675	0.9+	0.1+	1991 10 07	033	0.5-	0.3-	1998 08 23	704	0.1+	0.1-
1991 09 10	675	0.6-	0.8-	1991 10 07	033	0.9-	0.2-	1998 08 23	704	1.0-	0.6-
1991 09 11	095	(0.8-	3.6+)	1991 10 08	033	0.2-	0.3+	1998 08 23	704	1.0+	0.6+
1991 09 11	095	(2.7+	0.0)	1998 08 17	704	0.2-	0.2+	1998 08 23	704	0.5+	1.1+
1991 09 17	675	0.0	0.1+	1998 08 17	704	0.5+	0.3-	1998 08 23	704	1.4-	1.1+
1991 09 17	675	0.5+	0.3-	1998 08 17	704	0.7+	0.5-	1998 08 29	699	0.2-	0.2-
1991 10 04	303	(2.6-	1.4+)	1998 08 17	704	0.4+	0.8-	1998 08 29	699	0.1-	0.1-
1991 10 05	303	1.0+	0.9+	1998 08 17	704	0.6-	0.5-	1998 08 29	699	0.1+	0.5+

1991 RA₁₀ = 1980 PW₄ = 1993 BQ₇Id. K. Ichikawa (*MPC* 20152), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	11.51634		(2000.0) <th></th> <th>$\mathbf{P}$</th> <th></th> <th>$\mathbf{Q}$</th> <th></th> <th></th>		$\mathbf{P}$		$\mathbf{Q}$				
n	0.27583695	ω	46.56224		+0.65098305		+0.75328136				
a	2.3372280	Ω	264.29653		-0.72083133		+0.57472578				
e	0.0671948	i	5.40598		-0.23795643		+0.31977723				
P	3.57	H	14.5		G	0.15	U	2			
Residuals in seconds of arc											
1980 08 04	675	0.2-	2.3-	1993 01 23	809	0.3+	0.6-	1998 08 17	704	0.0	0.7+
1980 08 05	675	1.4+	1.4-	1993 01 23	809	0.6+	0.5-	1998 08 19	704	(0.2-	2.4-
1991 09 10	675	0.2-	0.3-	1993 01 28	809	0.7-	0.7-	1998 08 19	704	(1.6-	3.8-
1991 09 10	675	0.1+	1.0-	1993 01 28	809	0.6-	0.7-	1998 08 19	704	0.3+	1.8-
1991 09 12	675	0.2+	1.2+	1993 01 28	809	1.7-	1.2-	1998 08 19	704	(0.2-	2.5-
1991 09 12	675	0.1-	0.5-	1998 08 17	704	0.3+	0.0	1998 08 19	704	(0.5-	2.3-
1991 09 14	675	(0.8-	2.8-)	1998 08 17	704	0.4+	0.3+	1998 08 30	699	0.0	0.2-
1991 09 14	675	0.3+	1.2+	1998 08 17	704	0.5-	0.1+	1998 08 30	699	0.2+	0.1-
1993 01 23	809	0.6+	0.3-	1998 08 17	704	0.4-	0.8+	1998 08 30	699	0.5-	0.1+

1991 RB₁₀ = 1998 QD₂₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	2.54295		(2000.0)		P		Q				
n	0.28324047	ω	36.96902		+0.92240483		+0.38013211				
a	2.2963205	Ω	300.55467		-0.37062024		+0.82139584				
e	0.1381841	i	4.55105		-0.10867369		+0.42521578				
P	3.48	H	14.5		G	0.15	U	5			
Residuals in seconds of arc											
1991 09 12	675	0.5+	0.0	1991 10 03	033	0.2-	0.8-	1998 08 26	557	0.0	0.1-
1991 09 12	675	0.3-	0.4-	1991 10 04	033	0.3+	1.0+	1998 08 26	557	0.0	0.1-
1991 09 14	675	0.1+	0.6-	1991 10 07	033	0.0	0.4+	1998 08 27	557	0.1-	0.1+
1991 09 14	675	0.1-	0.9+	1991 10 07	033	0.9+	0.3-	1998 08 27	557	0.1-	0.2+
1991 10 03	033	1.0-	0.3-	1998 08 26	557	0.1+	0.1+				

1991 RH₁₄ = 1998 QY₃₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	242.95103		(2000.0)			P		Q			
<i>n</i>	0.27543255	<i>ω</i>	120.95317			+0.04310149		−0.99706455			
<i>a</i>	2.3395152	<i>Ω</i>	326.39799			+0.87319658		+0.06837317			
<i>e</i>	0.0750589	<i>i</i>	6.56591			+0.48545855		−0.03445865			
<i>P</i>	3.58	<i>H</i>	14.5			<i>G</i>	0.15	<i>U</i>	6		
Residuals in seconds of arc											
1991 09 13	675	0.1+	0.3+	1991 09 17	675	0.8+	0.1+	1998 08 23	704	0.2−	1.7−
1991 09 13	675	1.1−	0.0	1998 08 17	704	0.4−	0.3−	1998 08 23	704	0.4+	0.1−

1991 09 14	675	0.9+	0.2-	1998 08 17	704	0.0	0.0	1998 08 23	704	0.8-	1.5+
1991 09 14	675	0.8-	0.4-	1998 08 17	704	0.2-	0.7+	1998 08 26	699	0.3+	0.5+
1991 09 15	675	0.1-	0.5+	1998 08 17	704	0.3+	0.1-	1998 08 26	699	0.4+	0.0
1991 09 15	675	0.5-	0.3-	1998 08 17	704	0.1-	0.1-	1998 08 26	699	0.0	0.0
1991 09 17	675	0.6+	0.1+	1998 08 23	704	0.2+	0.5-				

1991 RG₁₇ = 1998 QT₃₅

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	325.24329		(2000.0)		P		Q				
<i>n</i>	0.27620762	ω	233.86756		+0.99846170		-0.02939666				
<i>a</i>	2.3351366	Ω	127.76970		+0.04451702		+0.93047020				
<i>e</i>	0.1181407	<i>i</i>	3.40951		-0.03305250		+0.36518632				
<i>P</i>	3.57	<i>H</i>	14.5		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1991 09 13	675	0.6-	1.6+	1991 10 03	675	0.0	0.3-	1998 08 17	704	0.5-	1.0+
1991 09 13	675	0.3+	0.1-	1991 10 07	675	0.5+	0.8+	1998 08 17	704	1.2-	0.3+
1991 09 15	675	(3.3+	0.9-)	1991 10 07	675	0.6-	0.2-	1998 08 17	704	1.0-	0.3-
1991 09 15	675	0.5-	0.9-	1991 10 08	675	0.1+	0.9-	1998 08 23	704	1.0+	0.1+
1991 09 17	675	(0.6-	2.3-)	1998 08 01	699	0.3+	0.4+	1998 08 23	704	0.8+	0.9-
1991 09 17	675	0.7-	0.6-	1998 08 01	699	0.5+	0.3+	1998 08 23	704	0.2+	0.8-
1991 10 02	675	0.1+	0.5+	1998 08 01	699	0.5+	0.6+	1998 08 23	704	0.4+	1.5-
1991 10 02	675	0.8+	0.4+	1998 08 17	704	0.4-	0.1+				
1991 10 03	675	0.2+	0.1+	1998 08 17	704	0.2-	0.5+				

1991 RX₁₇ = 1991 PV₁₀ = 1998 MS₄₆Id. G. V. Williams (d, *MPC* 20484; unpublished), E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	352.90395		(2000.0)		P		Q				
<i>n</i>	0.27934004	ω	148.48497		+0.83127247		+0.55585706				
<i>a</i>	2.3176468	Ω	177.73856		−0.52449910		+0.78614171				
<i>e</i>	0.1436771	<i>i</i>	4.36016		−0.18408360		+0.27019277				
<i>P</i>	3.53	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1991 08 07	675	0.7+	0.3+	1991 10 04	808	(2.4−	0.3+)	1998 08 04	699	0.7−	0.6−
1991 09 13	675	0.0	0.6−	1998 06 29	704	0.6+	0.6−	1998 08 24	910	0.8+	0.9+
1991 09 13	675	0.6−	0.6−	1998 06 29	704	0.1+	1.2+	1998 08 24	910	1.0+	0.7+
1991 09 16	675	0.0	0.1+	1998 06 29	704	0.2+	0.4−	1998 08 24	910	0.8+	0.8+
1991 09 16	675	0.4+	0.2−	1998 06 29	704	0.3−	0.4−	1998 08 26	699	0.6−	0.1+
1991 09 17	675	0.6−	0.7+	1998 06 29	704	0.6−	0.0	1998 08 26	699	0.8−	0.6+
1991 09 17	675	0.4+	0.6−	1998 08 04	699	0.0	0.9−	1998 08 26	699	0.8−	0.1−
1991 10 04	808	(3.0−	0.5−)	1998 08 04	699	0.1−	0.6−				

1991 RO₂₄ = 1998 PK

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	344.37816		(2000.0)			P		Q			
<i>n</i>	0.27935538	ω	179.10949			+0.86354492		+0.49762369			
<i>a</i>	2.3175620	Ω	150.59541			−0.46368201		+0.84718462			
<i>e</i>	0.3082054	<i>i</i>	9.56862			−0.19821493		+0.18614210			
<i>P</i>	3.53	<i>H</i>	17.0			<i>G</i>	0.15	<i>U</i>	3		
Residuals in seconds of arc											
1991 08 08	675	0.6+	1.4−	1998 08 01	292	0.1−	1.8−	1998 08 17	704	0.5+	1.0+
1991 08 08	675	0.3−	0.6−	1998 08 01	292	0.4−	2.0−	1998 08 17	704	0.0	0.1+
1991 09 12	675	0.1+	0.2−	1998 08 01	292	(0.1+	2.7−)	1998 08 17	704	0.0	0.5−
1991 09 12	675	0.5+	0.8−	1998 08 02	292	0.4−	0.4+	1998 08 20	292	1.8−	0.2−
1991 09 14	675	0.2−	0.7+	1998 08 02	292	0.2−	0.8−	1998 08 20	292	0.0	1.5+
1991 09 14	675	0.3+	0.6+	1998 08 02	292	0.3+	0.5+	1998 08 20	292	0.9+	0.7−
1991 09 16	675	0.2+	0.8−	1998 08 03	292	0.8−	0.0	1998 08 27	699	0.8+	1.2+
1991 09 16	675	0.5−	0.4−	1998 08 03	292	0.4−	0.0	1998 08 27	699	0.1+	1.4+
1998 06 25	699	0.2+	0.7+	1998 08 03	292	0.5−	0.3−	1998 08 27	699	1.2+	1.5+
1998 06 25	699	0.1+	0.3−	1998 08 17	704	0.1+	0.2+				
1998 06 25	699	0.0	0.4+	1998 08 17	704	0.5+	0.6+				

1991 RY₂₉ = 1998 QQ₁₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28336771	ω	136.64692	+0.56006790	−0.82194299		
<i>a</i>	2.2956331	Ω	279.03347	+0.72856129	+0.54820486		
<i>e</i>	0.1481852	<i>i</i>	6.02167	+0.39436328	+0.15453529		
<i>P</i>	3.48	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 08 08	675	1.2−	0.0	1998 08 17	704	0.7+	1.2+	1998 08 24	704	(3.7−	0.8−)
1991 08 08	675	1.2+	0.1−	1998 08 19	704	0.1−	0.4+	1998 08 27	704	0.3+	0.1−
1991 09 10	675	0.9−	0.0	1998 08 19	704	1.9−	1.2+	1998 08 27	704	1.5+	0.9+
1991 09 10	675	0.4+	0.2−	1998 08 19	704	0.9+	0.6+	1998 08 27	704	0.2+	0.7+
1991 09 12	675	1.4+	1.1−	1998 08 19	704	0.8−	0.0	1998 08 27	704	0.1−	0.1−
1991 09 12	675	0.4−	0.2+	1998 08 19	704	(2.3−	0.5−)	1998 08 27	704	0.3−	0.9−
1998 08 17	704	0.1−	0.3−	1998 08 24	704	0.3−	0.4+	1998 08 30	699	0.2+	0.1+
1998 08 17	704	1.0+	1.0−	1998 08 24	704	0.9−	0.3+	1998 08 30	699	0.7+	0.3+
1998 08 17	704	0.3−	0.2+	1998 08 24	704	0.8−	0.1−	1998 08 30	699	0.1+	0.2+
1998 08 17	704	0.6+	1.4−	1998 08 24	704	1.2−	1.2−				

1991 SA = 1998 MR₄₆

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27744200	ω	56.42258	+0.80638865	+0.58313486		
<i>a</i>	2.3282052	Ω	267.71623	−0.56998469	+0.72198704		
<i>e</i>	0.2584446	<i>i</i>	5.65404	−0.15765404	+0.37240899		
<i>P</i>	3.55	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 09 10	675	0.8+	1.2−	1991 10 28	894	0.2−	0.5+	1998 08 24	704	0.0	0.1−
1991 09 16	894	1.1−	1.4+	1991 10 28	894	1.6+	0.6−	1998 08 24	704	0.2−	0.4−
1991 09 16	894	0.3+	1.2+	1998 06 29	704	0.4+	1.1−	1998 08 24	704	1.0−	0.5+
1991 09 17	675	0.2+	0.4+	1998 06 29	704	0.4+	0.8−	1998 08 24	704	0.6−	0.0
1991 09 17	675	0.1−	0.4−	1998 06 29	704	0.1+	0.1−	1998 08 24	704	0.6−	0.6+
1991 09 19	894	0.4+	1.1−	1998 06 29	704	0.4−	0.7+	1998 08 27	704	0.9+	0.6−
1991 09 19	894	0.7−	0.5+	1998 06 29	704	0.5+	0.8+	1998 08 27	704	0.3+	0.4+
1991 09 28	894	1.5+	0.6−	1998 08 04	699	0.3+	0.2−	1998 08 27	704	0.5+	1.0−
1991 09 28	894	0.6−	0.5+	1998 08 04	699	0.1+	0.1−	1998 08 27	704	0.2−	0.8+
1991 10 01	894	1.6−	1.2−	1998 08 04	699	0.1+	0.6−	1998 08 27	704	0.3−	1.6+

1991 TK = 1995 WD₅ = 1998 QG₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26632198	ω	45.35638	−0.89054853	−0.44687595		
<i>a</i>	2.3925703	Ω	107.92884	+0.38797264	−0.84372408		
<i>e</i>	0.0635244	<i>i</i>	5.12561	+0.23748798	−0.29737445		
<i>P</i>	3.70	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 10 01	413	(0.8+	30.0−)	1995 11 17	399	0.9+	0.8+	1998 08 19	428	0.3−	0.5−
1991 10 02	413	0.6−	0.1+	1995 11 17	399	0.6−	1.1+	1998 08 22	428	0.6+	0.1+
1991 10 05	413	0.6−	0.4−	1995 11 21	399	1.1+	0.3−	1998 08 22	428	0.5−	0.4+
1991 10 15	413	1.1+	0.3+	1995 11 21	399	1.1+	0.3+	1998 08 27	428	0.4+	0.9+
1995 11 16	399	2.2−	1.3−	1998 08 18	428	0.0	0.7−				
1995 11 16	399	0.3−	0.7−	1998 08 18	428	0.1−	0.3−				

1991 TH₁ = 1998 QZ₉₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28295691	ω	2.70527	+0.93423200	−0.33476758		
<i>a</i>	2.2978544	Ω	18.37906	+0.31947100	+0.63203111		
<i>e</i>	0.2236955	<i>i</i>	22.97066	+0.15858389	+0.69890439		
<i>P</i>	3.48	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 09 11	675	0.6+	0.8−	1991 10 12	675	0.6−	1.8+	1998 08 28	704	0.5−	0.7−
1991 09 11	675	0.4+	0.3−	1991 10 12	675	1.0+	0.2+	1998 08 28	704	0.3−	0.2−
1991 09 13	675	0.3−	0.5+	1991 10 14	675	0.2+	0.2−	1998 08 28	704	0.3−	0.1+
1991 09 13	675	1.4+	0.3−	1991 10 14	675	1.4−	0.1+	1998 08 28	704	0.4+	0.5+
1991 09 13	675	0.6−	0.4+	1991 11 02	675	0.2+	0.8−	1998 08 31	704	0.6−	0.2+
1991 09 15	675	0.5−	0.5−	1991 11 02	675	0.4+	1.1+	1998 08 31	704	0.1+	0.5+
1991 09 15	675	0.0	0.5−	1991 11 04	675	0.0	0.3−	1998 08 31	704	0.3−	0.4+
1991 10 08	675	0.0	0.9−	1991 11 04	675	0.0	0.0	1998 08 31	704	0.5−	0.3+
1991 10 08	675	0.5+	0.7−	1998 08 28	704	0.3+	0.7−	1998 08 31	704	0.0	1.1+

1991 TK₁ = 1998 QQ₂₈

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27367261	ω	114.81849	−0.05400620	−0.98756989		
<i>a</i>	2.3495345	Ω	336.78451	+0.72624171	+0.06260866		
<i>e</i>	0.2944505	<i>i</i>	21.99135	+0.68531475	−0.14417305		
<i>P</i>	3.60	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 10 05	675	0.2−	0.7−	1998 08 17	704	1.4−	1.1+	1998 08 23	704	0.4+	1.4−
1991 10 05	675	0.1−	0.6−	1998 08 17	704	(2.5−	0.6−)	1998 08 23	704	1.0+	0.3−
1991 10 07	675	0.1+	1.5+	1998 08 17	704	(2.5+	0.6+)	1998 08 26	699	0.7+	0.7+
1991 11 07	675	0.3+	0.3−	1998 08 17	704	0.2+	0.7−	1998 08 26	699	0.5−	1.1+
1991 11 07	675	0.0	0.4−	1998 08 23	704	0.1−	0.1+	1998 08 26	699	1.0−	0.1+
1991 11 09	675	0.2−	0.7+	1998 08 23	704	1.5+	1.4−				
1998 08 17	704	0.1−	0.7+	1998 08 23	704	0.6−	0.1−				

1991 TS₆ = 1998 HD₅₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22134332	ω	272.53575	−0.47311835	−0.87677938		
<i>a</i>	2.7066064	Ω	206.25257	+0.86572574	−0.44456625		
<i>e</i>	0.1251400	<i>i</i>	11.22724	+0.16333391	−0.18335423		
<i>P</i>	4.45	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 10 02	033	0.7+	0.3+	1998 03 29	704	0.2+	0.2+	1998 04 21	704	0.2+	0.7−
1991 10 02	033	0.1+	1.5+	1998 03 29	704	0.1+	1.0−	1998 04 21	704	0.0	0.3−
1991 10 03	033	0.0	0.7−	1998 03 29	704	0.4−	0.2−	1998 04 21	704	0.5+	0.5−
1991 10 04	033	0.8−	1.3−	1998 03 29	704	0.5−	0.1−	1998 04 21	704	0.2+	0.5+
1991 10 09	033	0.6+	0.1−	1998 03 29	704	0.4+	0.1−	1998 04 22	704	0.3−	0.0
1991 10 09	033	0.7−	0.3+	1998 04 01	704	0.1+	0.3+	1998 04 22	704	0.4+	0.4+
1998 03 25	704	0.6+	2.0+	1998 04 01	704	0.6+	0.7+	1998 04 22	704	0.7−	0.7+
1998 03 25	704	1.5−	0.0	1998 04 01	704	0.3−	1.9−	1998 04 22	704	0.5−	0.6+
1998 03 25	704	0.8+	0.0	1998 04 01	704	0.9−	0.5−	1998 04 22	704	0.9−	0.4−
1998 03 25	704	0.1+	1.1+	1998 04 01	704	1.3+	0.8−				
1998 03 25	704	0.6+	0.7−	1998 04 21	704	0.1−	0.6+				

1998 SEPT. 10

M.P.C. 32451

1991 TK₈ = 1998 QA₃₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27518051	ω	257.46860	+0.65121413	−0.75723541		
<i>a</i>	2.3409435	Ω	151.70188	+0.73087103	+0.60800575		
<i>e</i>	0.1310691	<i>i</i>	6.07220	+0.20432254	+0.23858656		
<i>P</i>	3.58	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 09 13	675	0.8+	0.3+	1991 10 03	675	0.6+	0.1−	1998 08 17	704	0.1−	1.2+
1991 09 13	675	0.2−	0.8+	1991 10 03	675	0.5+	0.1−	1998 08 17	704	0.0	1.3+
1991 09 16	675	0.9−	0.7−	1991 10 07	675	1.9+	0.8−	1998 08 17	704	0.1−	0.8−
1991 09 16	675	0.3+	0.0	1991 10 07	675	1.7+	1.4−	1998 08 17	704	0.4−	0.4+
1991 10 01	691	1.5−	0.3+	1991 10 08	675	0.2−	0.1+	1998 08 23	704	0.0	0.1−
1991 10 01	691	1.6−	0.4+	1991 10 14	691	1.0−	0.3+	1998 08 23	704	0.1+	0.9−
1991 10 01	691	1.3−	0.4+	1991 10 14	691	0.8−	0.1+	1998 08 23	704	0.2+	0.9−
1991 10 02	675	2.0+	1.0−	1991 10 14	691	0.7−	0.3+	1998 08 23	704	0.4+	0.1−
1991 10 02	675	0.3+	1.5+	1998 08 17	704	0.2−	0.2−				

1991 UK₁ = 1998 QQ₉₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28650435	ω	11.23906	+0.96331021	+0.26564680		
<i>a</i>	2.2788473	Ω	333.26044	−0.25236873	+0.84800610		
<i>e</i>	0.2139948	<i>i</i>	4.88033	−0.09134258	+0.45860378		
<i>P</i>	3.44	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 10 28	399	0.4−	0.3+	1998 08 28	704	1.0−	0.7+	1998 08 31	704	0.1+	0.8−
1991 10 28	399	1.4+	0.5+	1998 08 28	704	1.9−	0.9+	1998 08 31	704	1.0−	1.2−
1991 10 29	399	1.2−	1.5−	1998 08 28	704	0.8−	1.1+	1998 08 31	704	0.7+	0.1−
1991 10 29	399	0.4+	1.0+	1998 08 28	704	1.7+	0.2+	1998 08 31	704	0.6+	0.5−
1991 11 11	399	0.0	0.4+	1998 08 28	704	1.6+	0.9−				
1991 11 11	399	0.2−	0.5−	1998 08 31	704	0.0	0.2+				

1991 UN₁ = 1989 AV₇ = 1998 QR₂₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26980307	ω	84.07334	+0.79384450	−0.60367865		
<i>a</i>	2.3719460	Ω	313.03309	+0.51065671	+0.72725775		
<i>e</i>	0.1217749	<i>i</i>	5.76068	+0.33021303	+0.32660106		
<i>P</i>	3.65	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 01 10	033	0.1+	0.2+	1998 07 26	699	0.7−	0.5+	1998 08 23	704	0.4+	0.7+
1991 10 28	399	0.2−	0.1+	1998 08 17	704	0.2+	0.1−	1998 08 23	704	0.1+	0.8+
1991 10 28	399	(3.3+ 0.4+)		1998 08 17	704	0.6+	0.2+	1998 08 25	910	0.9+	0.2−
1991 10 29	399	0.3+	0.1−	1998 08 17	704	0.2+	0.1−	1998 08 25	910	0.8+	0.1−
1991 10 29	399	(3.4− 4.5−)		1998 08 17	704	0.4+	0.5+	1998 08 26	910	1.0+	0.3−
1991 11 11	399	0.8+	0.3+	1998 08 17	704	0.8−	0.1+	1998 08 26	699	0.3−	0.8−
1991 11 11	399	0.9−	0.0	1998 08 23	704	0.1+	0.7−	1998 08 26	699	0.5−	1.0−
1998 07 26	699	0.4−	0.6+	1998 08 23	704	0.1−	0.1−	1998 08 26	699	0.0	0.9−
1998 07 26	699	1.2−	0.0	1998 08 23	704	0.8−	1.0+				

1991 UZ₃ = 1998 QD₂₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26759451	ω	290.90897	+0.47475577	−0.87980520		
<i>a</i>	2.3849791	Ω	130.72552	+0.81855308	+0.43160098		
<i>e</i>	0.1716900	<i>i</i>	1.77297	+0.32338492	+0.19915674		
<i>P</i>	3.68	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 10 31	399	0.1−	2.2+	1991 11 09	399	0.3−	0.5−	1998 08 23	704	0.9+	2.3−
1991 10 31	399	0.5−	0.6−	1998 08 17	704	0.3−	0.7−	1998 08 23	704	0.5+	0.6−
1991 11 04	399	0.4+	0.5−	1998 08 17	704	0.8−	1.6+	1998 08 23	704	1.0−	1.7+
1991 11 04	399	0.2−	0.7+	1998 08 17	704	1.2+	0.4+	1998 08 23	704	0.1−	1.5−
1991 11 09	399	0.6+	1.1−	1998 08 17	704	0.4−	1.3+				

1991 VZ₂ = 1959 RK = 1998 QK₉₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27835945	ω	336.80728	+0.99961465	−0.00288425		
<i>a</i>	2.3230866	Ω	23.40856	+0.01514421	+0.89019588		
<i>e</i>	0.3533071	<i>i</i>	3.98485	−0.02326360	+0.45556884		
<i>P</i>	3.54	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1959 09 07	760	0.6+	0.2+	1991 11 30	402	0.0	0.7−	1998 08 28	704	1.6+	0.1−
1959 09 07	760	0.7−	0.1+	1991 11 30	402	0.1+	0.4+	1998 08 31	704	0.6−	0.3−
1991 11 05	402	0.0	0.3−	1998 08 28	704	0.1−	0.5+	1998 08 31	704	0.7−	0.0
1991 11 05	402	0.4+	1.1+	1998 08 28	704	0.6+	0.5−	1998 08 31	704	0.7−	0.3−
1991 11 09	402	0.4−	1.6−	1998 08 28	704	0.0	0.0	1998 08 31	704	0.4+	0.3−
1991 11 09	402	0.0	1.1+	1998 08 28	704	0.0	0.6+	1998 08 31	704	0.3−	0.1−

1991 VO₃ = 1998 QY₆₁

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26757561	ω	36.35622	−0.10391966	−0.99260107		
<i>a</i>	2.3850914	Ω	59.68682	+0.89450265	−0.12088052		
<i>e</i>	0.1522583	<i>i</i>	4.17171	+0.43481687	+0.01144661		
<i>P</i>	3.68	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 10 17	675	1.0+	0.3+	1991 11 04	399	0.7−	0.0	1998 08 23	704	0.8−	0.3+
1991 10 31	399	0.5+	0.2−	1991 11 04	399	0.6+	0.5+	1998 08 23	704	1.9−	1.8+
1991 10 31	399	0.5−	1.9−	1991 11 09	399	1.6−	0.5+	1998 08 23	704	0.9−	0.9−
1991 11 03	691	0.1−	0.1−	1991 11 09	399	1.1+	0.9+	1998 08 30	699	0.3−	0.4+
1991 11 03	691	0.1−	0.1+	1998 08 23	704	1.8+	2.3−	1998 08 30	699	0.7+	0.8+
1991 11 03	691	0.2−	0.1−	1998 08 23	704	1.0+	1.1−	1998 08 30	699	0.3+	1.1+

1991 VT₃ = 1983 XA₂ = 1998 KA₁₅

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23835930	ω	114.61684	+0.97309570	+0.13535910		
<i>a</i>	2.5762103	Ω	238.10273	−0.18492553	+0.94154310		
<i>e</i>	0.1847678	<i>i</i>	12.68608	+0.13743110	+0.30850365		
<i>P</i>	4.13	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1983 12 05	561	1.0−	0.7+	1991 12 03	675	1.2+	0.5−	1998 05 22	704	0.4+	0.3−
1983 12 05	561	1.4+	0.7+	1991 12 03	675	0.8+	0.7−	1998 05 22	704	0.3+	0.8−
1991 11 11	399	0.5+	0.2+	1991 12 05	399	0.9−	0.1−	1998 05 22	704	0.5+	1.2−
1991 11 11	399	1.6+	0.0	1991 12 05	399	0.6−	2.0+	1998 05 24	704	0.3−	0.4−
1991 11 13	399	1.4+	0.7+	1991 12 07	399	2.5−	1.1−	1998 05 24	704	0.5−	0.1−
1991 11 13	399	1.5−	2.2−	1991 12 07	399	2.0−	1.5−	1998 05 24	704	0.4−	1.0−
1991 12 01	675	0.3+	0.1−	1998 05 22	704	1.1+	0.1+	1998 05 24	704	0.3+	0.4+
1991 12 01	675	1.5+	0.6−	1998 05 22	704	0.3+	0.2−	1998 05 24	704	2.0−	0.6+

1991 VB₅ = 1998 MK₈

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	254.37009		(2000.0)	P		Q	
<i>n</i>	0.24256464	ω	187.09213	+0.92806521	−0.36654140		
<i>a</i>	2.5463478	Ω	194.93483	+0.35301418	+0.92219986		
<i>e</i>	0.1219984	<i>i</i>	14.81452	+0.11864218	+0.12326729		
<i>P</i>	4.06	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 11 04	402	0.8+	0.8−	1991 11 30	402	1.1−	0.1−	1998 06 19	704	0.3−	1.3−
1991 11 04	402	0.1+	1.0+	1998 06 19	704	0.3−	0.1−	1998 06 25	704	0.2−	1.3+
1991 11 05	402	0.1−	0.3−	1998 06 19	704	0.8−	0.7+	1998 06 25	704	0.1−	0.7−
1991 11 05	402	1.1−	0.0	1998 06 19	704	0.3+	0.7−	1998 06 25	704	0.2+	0.1+
1991 11 30	402	1.4+	0.3+	1998 06 19	704	0.8+	0.0	1998 06 25	704	0.3+	0.6+

1992 BT₂ = 1998 PM

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	201.65350		(2000.0)	P		Q	
<i>n</i>	0.22893234	ω	305.86949	−0.05868526	−0.98956740		
<i>a</i>	2.6464556	Ω	146.74996	+0.97570836	−0.08472559		
<i>e</i>	0.1380447	<i>i</i>	13.88504	+0.21106692	+0.11652441		
<i>P</i>	4.31	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1992 01 28	691	(3.1−	1.1+)	1992 02 12	809	0.3−	0.2+	1998 08 09	954	0.1+	0.1+
1992 01 28	691	(3.8−	1.0+)	1992 02 12	809	0.4−	0.6+	1998 08 09	954	0.0	0.1+
1992 01 28	691	(3.8−	1.1+)	1992 02 12	809	0.9−	0.5+	1998 08 09	954	0.3−	0.2+
1992 01 30	809	0.2−	0.1−	1992 02 12	809	1.0−	0.3+	1998 09 03	954	0.8−	1.3−
1992 01 30	809	1.0−	0.5+	1998 06 25	704	0.1−	0.1+	1998 09 03	954	0.3+	0.1+
1992 01 30	809	(2.5−	1.2+)	1998 06 25	704	0.6+	0.5−	1998 09 03	954	0.0	0.1+
1992 02 02	809	(0.5−	2.2+)	1998 06 25	704	0.2+	0.1−	1998 09 04	954	0.1+	0.2+
1992 02 02	809	(0.9−	2.1+)	1998 06 25	704	0.4+	0.3−	1998 09 04	954	0.3+	0.2+
1992 02 02	809	(1.6−	2.2+)	1998 06 25	704	0.7−	0.6+	1998 09 04	954	0.1+	0.1+
1992 02 06	809	1.2+	1.2−	1998 08 08	954	0.3−	0.0	1998 09 04	954	0.1+	0.1+
1992 02 06	809	0.7+	0.5−	1998 08 08	954	0.3−	0.1−	1998 09 04	954	0.1+	0.1+
1992 02 06	809	0.1−	0.0	1998 08 08	954	0.3−	0.2+	1998 09 05	954	0.2+	0.1+
1992 02 12	809	1.1+	0.1+	1998 08 09	954	0.1−	0.1+	1998 09 05	954	0.2+	0.1+
1992 02 12	809	0.8+	0.2−	1998 08 09	954	0.1+	0.1−	1998 09 05	954	0.2+	0.1+

1992 CG₃ = 1998 QK₉₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	300.36112		(2000.0)	P		Q	
<i>n</i>	0.26256491	ω	257.07366	+0.28584784	−0.95824926		
<i>a</i>	2.4153399	Ω	176.29448	+0.91595815	+0.27106279		
<i>e</i>	0.0990613	<i>i</i>	6.24142	+0.28162330	+0.09101275		
<i>P</i>	3.75	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 01 30	809	(3.3+	2.1−)	1992 02 06	809	0.4−	0.2−	1998 08 28	704	0.6−	0.1+
1992 01 30	809	1.2+	0.2−	1992 02 06	809	1.4−	0.8+	1998 08 28	704	1.4−	0.8−
1992 01 30	809	0.7−	0.5+	1992 02 06	809	0.8−	0.9+	1998 08 28	704	0.7+	1.0+
1992 02 02	809	(1.2−	2.0+)	1992 02 07	809	(4.6+	2.4+)	1998 08 28	704	1.2+	0.2−
1992 02 02	809	(1.6−	2.4+)	1992 02 07	809	(4.3+	2.1+)	1998 08 31	704	0.6+	0.6+
1992 02 02	809	(2.1−	2.3+)	1992 02 07	809	(4.3+	1.3+)	1998 08 31	704	1.5−	0.7−
1992 02 02	809	(5.0+	3.3+)	1992 02 12	809	(2.8+	1.7−)	1998 08 31	704	1.0+	0.1−
1992 02 02	809	(4.8+	2.7+)	1992 02 12	809	1.8+	0.7−				
1992 02 02	809	(4.3+	2.1+)	1992 02 12	809	0.5+	1.2−				

1992 DD₃ = 1998 MJ

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	233.26994		(2000.0)	P		Q	
<i>n</i>	0.21995773	ω	109.43953	+0.31486703	−0.94910418		
<i>a</i>	2.7179611	Ω	322.20490	+0.86600500	+0.29061987		
<i>e</i>	0.0319225	<i>i</i>	0.72426	+0.38845089	+0.12141393		
<i>P</i>	4.48	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 02 25	675	1.8+	0.0	1992 03 06	691	0.0	0.2−	1998 06 18	691	0.1−	0.1+
1992 02 25	675	1.9+	0.1−	1992 03 06	691	0.2−	0.1−	1998 06 18	691	0.3−	0.1−
1992 02 25	691	1.2−	0.4−	1992 03 06	691	0.2−	0.0	1998 06 18	691	0.1+	0.2−
1992 02 25	691	1.4−	0.5−	1992 03 07	809	1.0+	0.6+	1998 06 23	691	0.9+	0.1+
1992 02 25	691	1.1−	0.1−	1998 06 17	691	0.1−	0.8+	1998 06 23	691	0.4−	0.3−
1992 03 02	809	1.4−	0.6+	1998 06 17	691	0.1+	0.1−	1998 06 23	691	0.3−	0.4−
1992 03 04	809	0.8+	0.1+	1998 06 17	691	0.2+	0.1−				

1992 DT₈ = 1998 OG₁₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	64.97023		(2000.0)	P		Q	
<i>n</i>	0.21075440	ω	268.38765	−0.51373282	+0.84958465		
<i>a</i>	2.7965223	Ω	329.73496	−0.66222226	−0.48123517		
<i>e</i>	0.1390298	<i>i</i>	13.71770	−0.54547252	−0.21591348		
<i>P</i>	4.68	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 02 25	675	0.4+	0.5−	1992 03 08	809	0.3−	0.2−	1998 07 27	809	0.0	0.5−
1992 02 25	675	1.0+	0.9−	1992 04 07	809	0.0	0.1−	1998 07 27	809	0.1+	0.2−
1992 02 29	809	0.7−	0.7+	1998 07 26	809	0.5+	0.3+	1998 07 27	809	0.8−	0.2+
1992 03 03	809	0.4+	0.2−	1998 07 26	809	0.0	0.2+				
1992 03 05	809	0.8−	1.1+	1998 07 26	809	0.1+	0.0				

1992 EA₆ = 1986 PZ₂ = 1997 MS₁₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	297.82734		(2000.0)	P		Q	
<i>n</i>	0.25792205	ω	315.65477	+0.10842189	−0.98926222		
<i>a</i>	2.4442394	Ω	127.87477	+0.94311208	+0.07118998		
<i>e</i>	0.1537833	<i>i</i>	7.13215	+0.31429969	+0.12764107		
<i>P</i>	3.82	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1986 08 01	675	1.4−	0.9−	1992 03 07	809	0.1−	0.1−	1997 06 29	704	0.3+	0.7−
1986 08 01	675	1.4+	1.0+	1997 06 28	704	0.2+	0.1+	1997 06 29	704	0.2+	0.6−
1992 03 02	809	1.1+	0.8−	1997 06 28	704	0.7+	1.0+	1997 06 29	704	0.1+	0.5−
1992 03 05	809	1.0−	0.9+	1997 06 28	704	0.3−	0.2+	1997 06 29	704	1.2−	0.5+

1992 EH₇ = 1997 GR₃₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	151.10243		(2000.0)	P		Q	
<i>n</i>	0.21592972	ω	37.12378	−0.87384595	−0.47746898		
<i>a</i>	2.7516578	Ω	114.11539	+0.41846553	−0.83466324		
<i>e</i>	0.0638075	<i>i</i>	5.76881	+0.24754770	−0.27451895		
<i>P</i>	4.56	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1992 03 01	809	0.9−	1.1+	1997 04 07	809	1.2+	0.6−	1997 04 08	809	0.1+	0.6+
1992 03 04	809	0.5+	0.8−	1997 04 07	809	0.2+	0.2−	1997 04 08	809	0.3+	0.2+
1992 03 09	809	0.3+	0.3−	1997 04 07	809	0.1−	0.5+	1997 04 08	809	1.7−	0.5−

1992 EZ₁₁ = 1998 OU₆

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	352.73859		(2000.0)	P		Q	
<i>n</i>	0.22112971	ω	191.79840	+0.82132184	+0.56621046		
<i>a</i>	2.7083491	Ω	133.48760	−0.51528665	+0.78865090		
<i>e</i>	0.1408068	<i>i</i>	5.50032	−0.24476540	+0.23965698		
<i>P</i>	4.46	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 03 06	809	1.1+	1.6−	1998 07 27	809	0.1−	0.7+	1998 08 17	704	0.3−	0.1+
1992 03 08	809	0.1+	0.3+	1998 07 27	809	0.2−	0.0	1998 08 23	704	0.3+	0.3−
1992 03 09	809	0.3−	0.7+	1998 07 27	809	0.2+	0.1+	1998 08 23	704	0.3−	0.2+

1998 SEPT. 10

1992 04 06	809	1.3−	0.4−	1998 07 31	699	0.5+	0.3−	1998 08 23	704	0.4−	0.5+
1998 07 26	809	1.0+	1.1+	1998 07 31	699	0.0	0.0	1998 08 23	704	1.5−	0.2+
1998 07 26	809	0.6+	0.8+	1998 07 31	699	0.6+	0.3−	1998 08 23	704	0.2−	1.1−
1998 07 26	809	0.1+	0.5+	1998 08 17	704	0.5+	0.5−	1998 08 27	699	0.0	0.1−
1998 07 26	699	0.0	0.0	1998 08 17	704	0.6−	0.1−	1998 08 27	699	0.1−	0.4−
1998 07 26	699	0.1−	0.4−	1998 08 17	704	0.6+	0.8−	1998 08 27	699	0.0	0.1−
1998 07 26	699	0.2−	0.3+	1998 08 17	704	0.1+	0.7−				

1992 EQ₁₃ = 1998 MW₄₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

Marsden

<i>M</i>	284.67531		(2000.0)		P		Q
<i>n</i>	0.21890705	ω	98.58283	+0.94257369			−0.32636057
<i>a</i>	2.7266510	Ω	280.48843	+0.27094254			+0.87147683
<i>e</i>	0.0825479	<i>i</i>	4.14180	+0.19530738			+0.36608320
<i>P</i>	4.50	<i>H</i>	14.0	<i>G</i>	0.15		<i>U</i> 6

Residuals in seconds of arc

1992 02 28	675	0.2+	0.4+	1992 03 09	809	0.0	0.5−	1998 07 01	809	0.2+	0.3−
1992 02 28	675	0.3−	0.9−	1998 06 28	809	0.1+	0.2+	1998 07 01	809	0.1+	0.3−
1992 03 02	809	0.2+	0.1−	1998 06 28	809	0.3−	0.1−	1998 07 01	809	0.1+	0.2+
1992 03 05	809	0.0	1.0+	1998 06 28	809	0.2−	0.2+				

1992 HD₇ = 1998 QQ₆₁

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	79.04568		(2000.0)		P		Q
<i>n</i>	0.19005687	ω	68.34771	−0.87934123			+0.45470691
<i>a</i>	2.9960358	Ω	138.33772	−0.47610511			−0.84519235
<i>e</i>	0.2095626	<i>i</i>	12.28359	+0.00910670			−0.28087633
<i>P</i>	5.19	<i>H</i>	13.53	<i>G</i>	0.15		<i>U</i> 4

Residuals in seconds of arc

1992 04 30	033	0.8−	1.0+	1992 05 24	033	0.1−	0.7−	1998 08 17	704	0.9−	0.4−
1992 05 04	033	0.8+	0.7−	1992 05 25	033	0.3−	0.9+	1998 08 17	704	0.6−	0.5−
1992 05 04	033	0.5+	0.6−	1992 05 26	033	0.7+	0.4−	1998 08 30	699	0.2+	0.2+
1992 05 05	033	0.0	0.7−	1992 05 27	033	0.9+	0.2−	1998 08 30	699	0.5+	1.7+
1992 05 05	033	0.5−	0.2+	1992 05 28	033	0.2+	0.5+	1998 08 30	699	0.5+	0.6−
1992 05 23	033	0.1+	0.3+	1998 08 17	704	0.5+	0.8−				
1992 05 23	033	1.4−	0.4+	1998 08 17	704	0.1−	0.4+				

1992 PB₂

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	9.63449		(2000.0)		P		Q
<i>n</i>	0.17546415	ω	84.75138	+0.88636162			+0.45440810
<i>a</i>	3.1599275	Ω	248.19674	−0.45357706			+0.81376961
<i>e</i>	0.1535966	<i>i</i>	5.48509	−0.09290284			+0.36234278
<i>P</i>	5.62	<i>H</i>	14.0	<i>G</i>	0.15		<i>U</i> 6

Residuals in seconds of arc

1992 08 04	675	0.7+	0.1−	1992 08 07	675	0.1−	0.2−	1998 08 27	699	0.2−	0.1+
1992 08 05	675	0.6+	0.2−	1998 08 20	699	0.2+	0.0	1998 08 27	699	0.3−	0.5+
1992 08 05	675	0.1+	0.1+	1998 08 20	699	0.1−	0.2−	1998 08 27	699	0.3+	0.1+
1992 08 07	675	1.4−	0.4+	1998 08 20	699	0.1+	0.6−				

1992 UK₈ = 1992 UM₈ = 1964 TD₂ = 1980 FH₆ = 1985 VS₁Id. G. V. Williams (d, *MPC* 21540), A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	242.54546		(2000.0)		P		Q
<i>n</i>	0.28241121	ω	133.10513	+0.97265134			−0.22488014
<i>a</i>	2.3008136	Ω	239.96920	+0.18880706			+0.91123926
<i>e</i>	0.1634047	<i>i</i>	3.84949	+0.13528219			+0.34506801
<i>P</i>	3.49	<i>H</i>	14.5	<i>G</i>	0.15		<i>U</i> 4

M.P.C. 32453

Residuals in seconds of arc

1964 10 09	330	0.3−	0.2+	1992 10 19	400	0.1+	1.2+	1992 11 20	691	0.2−	0.2−
1980 03 23	809	0.2+	0.4+	1992 10 26	400	0.1−	0.1−	1992 11 20	691	1.1−	0.1−
1985 11 07	688	0.3+	1.7+	1992 10 26	400	0.5−	0.9−	1992 11 20	691	0.2−	0.3+
1985 11 07	688	(1.8−	4.0−)	1992 11 15	400	0.2−	0.8−				
1992 10 19	400	0.6+	0.6−	1992 11 15	400	1.4+	0.7−				

1992 XE = 1990 DA₈ = 1998 QY₁₆

Id. G. V. Williams, S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	212.92855		(2000.0)		P		Q
<i>n</i>	0.29062680	ω	5.85356	−0.27155047			−0.95650502
<i>a</i>	2.2572463	Ω	99.93810	+0.87855947			−0.29157401
<i>e</i>	0.1048228	<i>i</i>	6.21155	+0.39292952			−0.00909649
<i>P</i>	3.39	<i>H</i>	13.5	<i>G</i>	0.15		<i>U</i> 4

Residuals in seconds of arc

1990 02 27	403	0.5−	0.1−	1993 01 17	894	1.2−	1.7+	1998 08 17	704	0.2+	0.1−
1990 02 27	403	0.2+	0.6−	1993 01 19	894	1.2−	0.1−	1998 08 17	704	0.5−	0.5+
1992 12 14	894	0.7−	0.3−	1993 01 19	894	1.4−	0.1+	1998 08 17	704	0.2−	0.0
1992 12 14	894	0.6+	1.5−	1993 01 20	894	0.7−	0.7+	1998 08 17	704	0.8−	0.0
1992 12 15	894	1.1+	0.2−	1993 01 22	894	0.6+	0.5+	1998 08 17	704	0.4−	0.2+
1992 12 15	894	1.6+	0.2+	1993 01 22	894	0.0	0.8+	1998 08 23	704	1.0+	0.3+
1992 12 19	894	0.0	0.6−	1998 07 24	566	0.1+	0.8−	1998 08 23	704	0.9+	0.4+
1992 12 19	894	0.8+	0.7−	1998 07 24	566	0.2+	0.8−	1998 08 23	704	0.1−	0.6+
1992 12 30	894	0.1−	0.4−	1998 07 24	566	0.2−	0.4−	1998 08 23	704	(2.2+	0.5−)

1992 YR₂ = 1998 MW₃₁

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	45.84826		(2000.0)		P		Q
<i>n</i>	0.26922772	ω	168.68931	−0.52789155			+0.84515183
<i>a</i>	2.3753241	Ω	69.39765	−0.78605870			−0.44874865
<i>e</i>	0.0599033	<i>i</i>	5.14601	−0.32162437			−0.29041871
<i>P</i>	3.66	<i>H</i>	14.5	<i>G</i>	0.15		<i>U</i> 5

Residuals in seconds of arc

1992 12 18	010	0.4−	0.6−	1993 01 16	010	0.3−	1.3+	1998 06 24	704	0.1+	1.2+
1992 12 19	010	0.1−	0.4+	1993 01 16	010	0.9−	0.9+	1998 06 24	704	0.1−	1.6−
1992 12 19	010	0.6−	1.2−	1993 01 17	010	0.2+	1.0−	1998 06 26	704	0.8−	0.8−
1992 12 19	010	0.1−	0.7+	1993 01 17	010	0.1+	1.2−	1998 06 26	704	1.5−	0.9+
1992 12 19	010	0.3+	0.6+	1993 01 17	010	0.7+	0.2−	1998 06 26	704	1.6+	0.1+
1992 12 20	010	0.7+	0.2+	1998 06 24	704	0.6+	0.2−	1998 06 26	704	1.4+	0.1+
1993 01 16	010	0.3+	0.2+	1998 06 24	704	1.1−	0.3+				

1993 DQ = 1981 QX₂ = 1990 FX

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano

<i>M</i>	158.01540		(2000.0)		P		Q
<i>n</i>	0.30999894	ω	173.84738	−0.19218331			+0.98030372
<i>a</i>	2.1622002	Ω	85.06589	−0.90231509			−0.15828382
<i>e</i>	0.1257282	<i>i</i>	2.61753	−0.38586662			−0.11811370
<i>P</i>	3.18	<i>H</i>	13.8	<i>G</i>	0.15		<i>U</i> 5

Residuals in seconds of arc (or two decimals in units of degrees)

1981 08 24	809	0.5+	0.0	1990 03 19	896	(8.9−	0.2+)	Y 1993 02 15	399	0.4+	1.0+
1981 08 24	809	0.5+	0.2−	1990 03 20	896	0.5−	0.0	Y 1993 02 21	399	1.8−	0.2−
1981 08 24	809	0.1+	0.3+	1990 03 26	896	0.5+	0.0	1993 02 21	399	0.6−	0.0
1981 08 26	809	0.4+	0.1+	1990 03 26	896	(3.6+	0.6+)	1993 02 25	399	0.5+	0.9−
1981 08 26	809	0.6−	0.2−	1990 03 31	896	(0.03−	0.01+)	Y 1993 02 25	399	1.6+	0.6+
1981 08 26	809	0.9−	0.2+	1993 02 15	399	0.1−	0.4−				

1993 EK = 1998 QT₅₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	248.19274	ω	125.17640	−0.25148805	−0.96691856		
<i>a</i>	2.2852690	Ω	339.26424	+0.84417846	−0.19756387		
<i>e</i>	0.1774393	<i>i</i>	6.92486	+0.47340943	−0.16135991		
<i>P</i>	3.45	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 03 02	385	0.5+	0.2−	1993 03 20	385	1.0+	1.2+
1993 03 02	385	0.1+	0.0	1993 03 21	385	0.1−	0.5−
1993 03 02	385	0.0	0.6−	1993 03 21	385	1.0−	0.2−
1993 03 13	385	0.7+	0.2+	1993 03 21	385	1.5−	0.7+
1993 03 13	385	0.1−	0.4+	1993 04 13	385	0.1+	0.2−
1993 03 13	385	0.4+	0.6+	1993 04 13	385	0.8+	1.4−
1993 03 20	385	1.2+	1.0+	1993 04 13	385	1.1−	1.1+
1993 03 20	385	1.1+	1.5+	1993 04 14	385	0.7−	0.1+
1993 04 14	385			1998 08 30	691	1.3+	1.1−
1998 08 30	691			1998 08 30	691	0.5−	0.6+
1998 08 31	691			1998 08 31	691	0.5−	0.8+

1993 FE₈ = 1998 QA₅₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	351.04727	ω	248.47804	+0.89453912	+0.44096412		
<i>a</i>	2.4683526	Ω	85.29359	−0.37813359	+0.83380242		
<i>e</i>	0.1690415	<i>i</i>	4.20895	−0.23835843	+0.33215082		
<i>P</i>	3.88	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 03 17	809	1.8+	2.7−	1993 04 16	413	2.0−	0.9+
1993 03 18	809	0.6+	0.1+	1998 08 17	704	0.1+	0.6−
1993 03 20	691	0.6−	0.2+	1998 08 17	704	0.6−	0.3−
1993 03 20	691	0.5−	0.2+	1998 08 17	704	0.3+	0.2−
1993 03 20	691	0.4−	0.3+	1998 08 17	704	0.3+	0.3+
1993 03 23	809	1.0+	1.1+	1998 08 17	704	0.1+	0.4+
1998 08 23	704			1998 08 23	704	0.6+	0.7−
1998 08 23	704			1998 08 23	704	0.0	0.8+
1998 08 23	704			1998 08 23	704	0.2+	0.5+
1998 08 23	704			1998 08 23	704	0.3−	0.3−
1998 08 23	704			1998 08 23	704	0.8−	0.2+

1993 FG₈ = 1998 QQ₉₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	340.92579	ω	209.94071	+0.93945976	−0.34050489		
<i>a</i>	2.3073690	Ω	169.74619	+0.34127913	+0.91975474		
<i>e</i>	0.1913255	<i>i</i>	12.44583	+0.03072324	+0.19521179		
<i>P</i>	3.50	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 03 17	809	0.3−	0.1+	1998 08 28	704	0.4+	2.0−
1993 03 18	809	0.5−	0.3−	1998 08 28	704	0.2−	0.9−
1993 03 23	809	0.7+	0.1−	1998 08 28	704	0.9−	0.1−
1993 04 16	413	0.0	0.1−	1998 08 31	704	0.3+	1.0+
1998 08 28	704	0.4−	0.7−	1998 08 31	704	0.4+	0.7+
1998 08 31	704			1998 08 31	704	0.2+	1.1+

1993 FL₁₄ = 1998 QY₉

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	21.40539	ω	172.28899	+0.19365447	+0.97815378		
<i>a</i>	2.5496437	Ω	108.85345	−0.90432312	+0.20784706		
<i>e</i>	0.0799941	<i>i</i>	4.58112	−0.38039144	+0.00384592		
<i>P</i>	4.07	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1993 03 17	809	1.1+	0.4−	1998 07 03	699	1.0−	0.3−
1993 03 18	809	1.2+	0.8−	1998 08 17	704	0.6+	0.5−
1993 03 19	691	0.3−	0.1−	1998 08 17	704	0.1+	0.1−
1993 03 19	691	0.2−	0.1−	1998 08 17	704	1.2+	0.7−
1993 03 19	691	0.5−	0.0	1998 08 17	704	1.1+	1.0−
1998 08 23	704			1998 08 23	704	1.2+	2.5−
1998 08 23	704			1998 08 23	704	0.4+	0.3+
1998 08 23	704			1998 08 29	699	0.1+	0.7+
1998 08 29	699			1998 08 29	699	0.6−	0.4+
1998 08 29	699			1998 08 29	699	0.6−	0.4+

1993 03 23	809	0.9+	0.2+	1998 08 17	704	1.3+	0.4−	1998 08 30	699	0.2−	0.0
1993 04 16	413	1.9−	1.8+	1998 08 23	704	0.0	0.7+	1998 08 30	699	0.4−	1.0+
1998 07 03	699	0.2−	1.3−	1998 08 23	704	1.0−	0.9+	1998 08 30	699	0.1−	0.9+
1998 07 03	699	0.3−	0.4−	1998 08 23	704	0.5−	0.3−				

1993 FR₃₀ = 1998 QH₂₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	30.90384		(2000.0)		P		Q				
n	0.23365253	ω	26.42559		+0.01836645		+0.99862269				
a	2.6106925	Ω	244.66089		−0.92668489		−0.00145322				
e	0.2150675	i	3.11719		−0.37539018		+0.05244632				
P	4.22	H	15.0		G	0.15	U	6			
Residuals in seconds of arc											
1993 03 21	809	(2.1−	2.8+)	1998 08 17	704	0.1+	0.8+	1998 08 23	704	0.7+	0.1−
1993 03 22	809	0.2+	0.1+	1998 08 17	704	0.4+	0.8+	1998 08 23	704	1.2+	0.9−
1993 03 26	809	0.0	1.2+	1998 08 17	704	0.6−	0.3+	1998 08 28	691	0.7−	0.1+
1993 04 17	413	0.2−	1.2−	1998 08 23	704	(2.4+	0.8−)	1998 08 28	691	0.8−	0.1−
1998 08 17	704	0.4+	0.5−	1998 08 23	704	(3.0+	2.8−)	1998 08 28	691	0.9−	0.2−

1993 JD = 1998 QM₆₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	90.52750		(2000.0)		P		Q				
n	0.23526033	ω	358.64283		−0.73941170		+0.65654662				
a	2.5987844	Ω	223.64301		−0.61564551		−0.74896971				
e	0.1098361	i	12.47233		−0.27249025		−0.08939189				
P	4.19	H	13.0		G	0.15	U	5			
Residuals in seconds of arc											
1993 05 14	400	2.3+	0.5−	1993 05 23	894	0.0	1.8+	1998 08 24	704	0.3+	0.7+
1993 05 14	400	2.7+	1.9−	1993 05 23	894	0.6+	0.3−	1998 08 24	704	0.2+	0.2+
1993 05 14	894	1.8−	0.4+	1993 05 24	361	0.3+	1.4−	1998 08 24	704	0.4+	0.2+
1993 05 14	894	0.4−	0.4−	1993 05 24	361	0.6−	1.4+	1998 08 24	704	0.2−	0.5−
1993 05 16	400	(4.5−	1.5+)	1993 05 24	361	0.4+	0.8+	1998 08 27	704	0.1−	0.7−
1993 05 16	894	0.7−	1.2+	1993 05 25	894	0.8−	1.2−	1998 08 27	704	0.4+	0.0
1993 05 16	894	0.5+	1.2+	1993 05 25	894	0.2−	1.2−	1998 08 27	704	0.5−	0.2−
1993 05 16	400	1.9−	0.4−	1993 05 27	361	1.6+	0.5−	1998 08 27	704	0.5−	0.2−
1993 05 17	675	0.9−	0.6+	1993 06 09	894	0.1−	0.1+	1998 08 27	704	0.3+	0.2+
1993 05 17	675	1.6−	0.4−	1993 06 09	894	0.4−	0.1+				
1993 05 19	675	0.8+	0.5+	1998 08 24	704	0.1−	0.4+				

1993 QP₂ = 1992 ET₃₃

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	192.08590			(2000.0)			P		Q		
n	0.27564273	ω		94.23240			−0.07889885		+0.99681055		
a	2.3383258	Ω		171.21531			−0.94293488		−0.07072159		
e	0.1145173	i		4.50186			−0.32349465		−0.03697541		
P	3.58	H		13.5		G	0.15		U		6
Residuals in seconds of arc											
1992 03 03	809	0.9−	0.4+	1993 08 16	010	0.0	0.8+	1993 09 18	010	1.0+	0.9+
1992 03 06	809	0.5+	1.4−	1993 08 16	010	1.3+	1.5−	1993 09 18	010	0.1−	0.8−
1993 08 16	010	1.4−	0.1+	1993 08 17	010	0.0	0.7+	1993 09 18	010	0.5−	1.1−

1993 QP₃ = 1998 QF₁₈

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	311.92948	ω	203.87910	+0.92842336	−0.37152179		
<i>a</i>	2.9863963	Ω	177.92913	+0.34629348	+0.86412581		
<i>e</i>	0.1639521	<i>i</i>	2.02101	+0.13457671	+0.33949690		
<i>P</i>	5.16	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

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Residuals in seconds of arc

1993 08 18	010	0.0	0.9+	1993 09 20	010	0.8+	1.5+	1998 08 17	704	0.2-	0.1-
1993 08 19	010	0.7-	0.2+	1998 07 26	699	0.6-	0.2-	1998 08 21	566	1.3-	0.3-
1993 08 19	010	0.2-	0.6-	1998 07 26	699	0.3-	0.6+	1998 08 21	566	1.0-	0.3-
1993 08 19	010	0.3+	0.8-	1998 07 26	699	1.7+	0.5-	1998 08 21	566	1.0-	0.2-
1993 09 19	010	0.7-	0.6-	1998 08 17	704	0.1-	0.1+	1998 08 23	704	1.4+	1.3-
1993 09 19	010	0.3-	0.1-	1998 08 17	704	0.0	0.6+	1998 08 23	704	0.3+	0.5+
1993 09 20	010	0.5+	0.3+	1998 08 17	704	0.1+	0.9+	1998 08 23	704	0.6+	0.3+
1993 09 20	010	0.2+	0.9-	1998 08 17	704	0.1+	0.1-	1998 08 23	704	0.5+	0.1-

1993 QS₉ = 1998 QD₃₄

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	342.72941		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.19282611	ω	190.55378	+0.96640642	+0.24272577
a	2.9672820	Ω	154.90433	-0.21890260	+0.94963180
e	0.1057183	i	11.49409	-0.13468585	+0.19820101
P	5.11	H	14.5	G 0.15	U 5

Residuals in seconds of arc

1993 08 15	809	0.9+	0.9+	1993 08 24	809	0.8-	0.6+	1998 08 23	704	0.3+	2.0-
1993 08 15	809	0.2-	0.9-	1998 08 17	704	0.9+	0.7+	1998 08 23	699	0.0	0.4+
1993 08 15	809	1.5-	0.6-	1998 08 17	704	0.6-	0.7+	1998 08 23	704	1.1-	0.2+
1993 08 20	809	0.8+	0.2-	1998 08 17	704	1.5+	0.2+	1998 08 23	704	1.9+	2.0-
1993 08 20	809	0.6+	0.3-	1998 08 17	704	0.1+	0.1-	1998 08 23	699	0.9+	1.1+
1993 08 20	809	0.1+	0.6-	1998 08 17	704	2.0-	0.4-	1998 08 23	704	1.8-	0.2-
1993 08 24	809	0.0	0.8+	1998 08 23	699	0.5+	1.1+				
1993 08 24	809	0.2+	0.3+	1998 08 23	704	0.7-	0.3+				

1993 RT₁₉ = 1975 EK₆ = 1980 DO₂ = 1985 BH₁ = 1991 GP₅
= 1998 QW₃₉

Id. A. Gnädig, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	249.27840		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.18925705	ω	91.02841	+0.03781757	-0.99928403
a	3.0044710	Ω	356.80364	+0.90866061	+0.03485380
e	0.0604829	i	1.14975	+0.41581934	+0.01471844
P	5.21	H	13.0	G 0.15	U 1

Residuals in seconds of arc

1975 03 15	095	1.0+	0.8-	1991 04 19	809	0.4-	1.0-	1993 09 23	675	0.0	0.4+
1980 02 20	095	(4.6-	2.7-)	1991 04 19	675	(2.6+	1.6-)	1993 10 10	675	(2.5-	0.2-)
1985 01 18	691	(3.5-	0.8-)	1991 04 19	675	(3.2+	2.7-)	1993 10 10	675	0.5+	0.0
1985 01 18	691	0.4-	0.9-	1993 09 15	809	0.6+	1.6-	1998 08 17	704	0.4+	0.1+
1985 01 18	691	0.1+	0.9-	1993 09 15	809	(0.0	2.8-)	1998 08 17	704	1.1+	0.2-
1991 04 08	809	0.4-	0.8+	1993 09 15	809	(0.4-	2.4-)	1998 08 17	704	0.3+	0.4+
1991 04 08	809	0.6-	0.5+	1993 09 19	675	0.2-	0.3-	1998 08 17	704	0.5+	0.7+
1991 04 08	809	1.7-	0.6+	1993 09 19	675	0.4-	0.0	1998 08 17	704	0.3+	0.0
1991 04 10	809	0.2+	0.7+	1993 09 20	691	2.2-	0.6-	1998 08 23	704	1.0+	0.1-
1991 04 10	809	0.3+	0.2+	1993 09 20	691	1.9-	0.5-	1998 08 23	704	0.8-	1.1+
1991 04 10	809	0.0	0.5-	1993 09 20	691	1.7-	0.7-	1998 08 23	704	1.0-	1.0-
1991 04 14	400	(7.9+	2.8-)	1993 09 22	809	1.0+	0.1+	1998 08 23	704	1.7+	0.3+
1991 04 14	400	(4.2+	3.7-)	1993 09 22	809	0.6+	0.4-	1998 08 23	704	1.5+	0.8-
1991 04 19	809	0.1+	1.5-	1993 09 22	809	0.5-	0.3-				
1991 04 19	809	0.2+	1.1-	1993 09 23	675	0.8+	0.1+				

1993 ST₁ = 1998 QN₁₀

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

$\dot{M}$	295.10540		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.17787858	ω	215.51033	+0.87470776	-0.48412172
a	3.1312683	Ω	173.32603	+0.47737738	+0.85257812
e	0.0979025	i	11.23241	+0.08364910	+0.19681644
P	5.54	H	12.5	G 0.15	U 4

Residuals in seconds of arc

1993 09 16	400	1.1-	0.7-	1998 07 31	699	0.7+	0.4+	1998 08 23	699	0.1+	0.5-
1993 09 16	400	0.4+	0.2+	1998 07 31	699	0.2+	0.3+	1998 08 23	704	0.6-	0.7-
1993 09 18	400	0.8-	0.6-	1998 07 31	699	0.2+	0.5-	1998 08 23	704	0.4-	0.6-
1993 09 18	400	0.8+	0.5+	1998 08 17	704	0.4+	0.6+	1998 08 23	699	0.1+	0.2+
1993 10 11	400	0.4-	0.3+	1998 08 17	704	0.2+	0.1-	1998 08 23	704	0.2-	0.1-
1993 10 11	400	(3.0-	1.5-)	1998 08 17	704	0.4-	0.2+	1998 08 23	704	0.7-	0.9+
1993 10 12	675	(2.2+	0.1+)	1998 08 17	704	0.2+	0.2-	1998 08 23	699	0.1-	0.2+
1993 10 12	675	1.2+	0.2+	1998 08 17	704	0.0	0.2+	1998 08 23	704	0.2+	0.1-

1993 SD₂ = 1998 QV₆₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	226.54948		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.18143157	ω	243.84297	-0.35733840	-0.92883606		
a	3.0902537	Ω	227.45362	+0.89731385	-0.31236049		
e	0.1818823	i	7.63167	+0.25910832	-0.19923480		
P	5.43	H	12.0	G	0.15	U	5

Residuals in seconds of arc

1993 09 19	400	0.1+	0.4+	1998 08 24	704	0.1+	0.6+	1998 08 30	327	0.7+	0.3-
1993 09 19	400	(0.2+	2.5-)	1998 08 24	704	0.0	0.4-	1998 08 30	327	0.4+	0.5-
1993 09 21	400	0.3+	0.6+	1998 08 24	704	0.5-	0.5-	1998 08 30	327	0.6+	0.4-
1993 09 21	400	0.7-	0.3-	1998 08 27	704	0.1-	0.1+	1998 08 31	327	0.5+	0.1-
1993 10 06	400	1.2+	1.1+	1998 08 27	704	0.2+	0.1-	1998 08 31	327	0.0	0.4-
1993 10 06	400	0.9-	1.7-	1998 08 27	704	0.1-	0.7+	1998 08 31	327	0.5+	0.3-
1998 08 24	704	0.0	0.4-	1998 08 27	704	0.4-	0.8+				
1998 08 24	704	0.6-	0.4+	1998 08 27	704	1.3-	0.7+				

1993 SN₃ = 1976 UU₂ = 1998 QB₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	284.07281		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.17272155	ω	226.58815	+0.74505281	-0.66700410
a	3.1932900	Ω	175.24752	+0.61658903	+0.68796176
e	0.1632391	i	0.93601	+0.25439001	+0.28603173
P	5.71	H	12.5	G 0.15	U 5

Residuals in seconds of arc

1976 10 26	095	0.1-	0.2+	1993 10 13	675	0.4-	0.1-	1998 08 23	704	1.7-	0.2-
1993 09 19	691	0.3-	0.7+	1993 10 13	675	0.9+	0.4-	1998 08 23	704	0.9+	0.2+
1993 09 19	691	0.2+	0.4+	1998 08 17	704	0.0	0.1+	1998 08 27	699	0.8+	0.2+
1993 09 19	691	0.1+	0.2+	1998 08 17	704	0.7+	0.0	1998 08 27	699	1.0+	0.2+
1993 09 22	303	(2.3+	0.1+)	1998 08 17	704	0.4+	0.1-	1998 08 27	699	0.7+	0.3+
1993 09 22	303	(2.7+	0.1+)	1998 08 17	704	0.2-	0.4-	1998 08 30	691	1.1-	0.6-
1993 09 22	303	0.4-	0.4+	1998 08 17	704	0.8-	0.1-	1998 08 30	691	0.9-	0.0
1993 09 23	303	1.3+	0.3-	1998 08 23	704	0.2-	0.7-	1998 08 30	691	0.7-	0.1-
1993 10 10	675	0.8-	0.4-	1998 08 23	704	1.1+	0.2-				
1993 10 10	675	0.3-	0.4-	1998 08 23	704	0.1+	1.5+				

1993 SS₆ = 1995 CG₁

Id. K. Ichikawa, S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	319.30713	(2000.0)	P	Q			
<i>n</i>	0.26492447	ω	260.26768	-0.93850520	-0.34441752		
<i>a</i>	2.4009770	Ω	259.58301	+0.32563137	-0.85968592		
<i>e</i>	0.1547574	<i>i</i>	1.40864	+0.11477022	-0.37724884		
<i>P</i>	3.72	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 09 17	809	(3.5+ 2.0+)	1993 09 22	809	2.1- 0.6-	1995 02 19	399	0.8+ 0.2+
1993 09 17	809	2.0+ 1.5+	1993 09 24	809	1.0+ 0.9+	1995 02 19	399	0.5+ 1.3+
1993 09 17	809	(3.0+ 1.4+)	1993 09 24	809	0.5+ 0.3-	1995 02 25	098	(1.4+ 4.6+)
1993 09 18	809	0.4+ 0.0	1993 09 24	809	1.4- 0.6-	1995 02 26	098	1.1+ 1.0+
1993 09 18	809	0.2+ 0.6-	1995 02 03	399	1.0- 0.8-	1995 03 05	399	0.6+ 0.5+
1993 09 18	809	0.2+ 0.1-	1995 02 03	399	1.2- 0.9-	1995 03 05	399	0.1+ 0.2+
1993 09 22	809	1.0- 0.3+	1995 02 06	399	0.5+ 0.3-	1995 03 06	399	1.2- 0.8-
1993 09 22	809	(2.8- 0.6-)	1995 02 06	399	0.2- 0.2-			

1993 TJ = 1998 QJ₇₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		169.28415		(2000.0)	
<i>n</i>		0.18752431		ω 313.76314	
<i>a</i>		3.0229502		Ω 205.93525	
<i>e</i>		0.0494602		<i>i</i> 9.62399	
<i>P</i>		5.26		<i>H</i> 13.0	
				<i>G</i> 0.15	
				<i>U</i> 6	

Residuals in seconds of arc

1993 10 10	589	0.6+ 0.1+	1993 10 18	589	0.1- 0.4+	1998 08 24	704	0.5- 1.2+
1993 10 10	589	0.1+ 0.1-	1993 10 18	589	0.6- 0.6-	1998 08 27	704	0.4+ 1.3-
1993 10 10	589	0.1- 0.2+	1998 08 24	704	0.1- 0.2-	1998 08 27	704	0.8+ 0.7-
1993 10 11	589	0.6+ 0.1+	1998 08 24	704	1.4- 0.6+	1998 08 27	704	1.4+ 0.5-
1993 10 11	589	0.1- 0.0	1998 08 24	704	0.0 1.5+	1998 08 27	704	0.4+ 1.6-
1993 10 11	589	0.4- 0.0	1998 08 24	704	1.1- 1.0+			

1993 TJ₂ = 1998 QP₆₁

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		292.73923		(2000.0)	
<i>n</i>		0.17311879		ω 0.32435	
<i>a</i>		3.1884032		Ω 35.50971	
<i>e</i>		0.1973659		<i>i</i> 2.59767	
<i>P</i>		5.69		<i>H</i> 13.5	
				<i>G</i> 0.15	
				<i>U</i> 6	

Residuals in seconds of arc

1993 10 13	675	0.0 1.0-	1993 10 18	589	0.4+ 0.4-	1998 08 17	704	1.1+ 0.5+
1993 10 13	675	0.4- 1.1-	1993 10 22	596	0.3+ 0.8+	1998 08 30	699	0.2+ 0.9+
1993 10 15	675	0.2- 0.6-	1993 10 22	596	0.8+ 0.6-	1998 08 30	699	0.2+ 0.9-
1993 10 15	565	0.5- 1.6+	1998 08 17	704	1.0- 0.9+	1998 08 30	699	0.6- 0.6+
1993 10 15	565	0.3- 2.5+	1998 08 17	704	0.3- 0.7+			
1993 10 18	589	0.1- 1.3-	1998 08 17	704	0.3+ 2.7-			

1993 TJ₃₀ = 1987 SE₁₉ = 1997 EA₅₇ = 1998 OC₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		1.15820		(2000.0)	
<i>n</i>		0.17532576		ω 110.53252	
<i>a</i>		3.1615901		Ω 188.75128	
<i>e</i>		0.2415316		<i>i</i> 14.45347	
<i>P</i>		5.62		<i>H</i> 13.5	
				<i>G</i> 0.15	
				<i>U</i> 1	

Residuals in seconds of arc

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

1993 TD₃₇ = 1998 QV₂₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		289.73765		(2000.0)	
<i>n</i>		0.17289061		ω 234.64858	
<i>a</i>		3.1912080		Ω 163.19231	
<i>e</i>		0.0398048		<i>i</i> 8.28367	
<i>P</i>		5.70		<i>H</i> 13.5	
				<i>G</i> 0.15	
				<i>U</i> 5	

Residuals in seconds of arc

1993 10 09	809	0.8+ 0.2+	1993 10 21	809	1.4+ 0.5+	1998 08 17	704	0.1+ 0.7+
1993 10 09	809	0.5- 0.5-	1993 10 21	809	1.2+ 0.3+	1998 08 17	704	0.2+ 1.6+
1993 10 09	809	1.2- 0.2+	1993 10 21	809	0.1+ 0.6-	1998 08 23	704	3.0- 0.4-
1993 10 11	809	0.4- 0.5+	1998 08 17	704	0.0 1.0-	1998 08 23	704	0.0 0.5-
1993 10 11	809	0.6- 0.3-	1998 08 17	704	2.1+ 0.3-	1998 08 23	704	1.1- 0.2-
1993 10 11	809	0.8- 0.3-	1998 08 17	704	1.7+ 0.1-	1998 08 23	704	0.1+ 0.1+

1993 UZ₇ = 1998 OE₁₅

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		290.58518		(2000.0)	
<i>n</i>		0.17511677		ω 264.75012	
<i>a</i>		3.1641050		Ω 144.25530	
<i>e</i>		0.1414984		<i>i</i> 7.34446	
<i>P</i>		5.63		<i>H</i> 13.5	
				<i>G</i> 0.15	
				<i>U</i> 5	

Residuals in seconds of arc

1993 10 10	809	(6.4- 4.4+)	1998 07 27	809	0.8- 0.7-	1998 08 23	699	1.0+ 1.0+
1993 10 10	809	(7.1- 4.2+)	1998 07 27	809	1.4- 0.1-	1998 08 23	704	0.7- 0.4+
1993 10 10	809	(8.3- 4.1+)	1998 08 17	704	(3.2+ 0.9+)	1998 08 23	704	0.8+ 0.1+
1993 10 20	809	0.1- 0.1-	1998 08 17	704	(2.2+ 2.4+)	1998 08 23	699	0.8+ 1.2+
1993 10 20	809	0.1- 0.1-	1998 08 17	704	(2.8+ 2.0+)	1998 08 23	704	1.0+ 0.8+
1993 10 20	809	0.8- 0.0	1998 08 17	704	(2.3+ 1.8+)	1998 08 25	426	0.1+ 0.1+
1993 10 21	809	1.4+ 0.2-	1998 08 17	704	1.9+ 1.6+	1998 08 25	426	0.1+ 0.1-
1993 10 21	809	0.4+ 0.1-	1998 08 21	566	0.1+ 0.5-	1998 08 26	426	0.5- 0.2-
1993 10 21	809	0.7- 0.3+	1998 08 21	566	0.6- 0.2-	1998 08 26	426	0.4- 0.2-
1998 07 26	809	0.3- 1.4-	1998 08 21	566	0.0 0.2-	1998 08 26	426	0.2- 0.3-
1998 07 26	809	(0.9- 2.5-)	1998 08 23	699	0.6+ 1.0+	1998 08 27	426	0.8- 0.4-
1998 07 26	809	1.1- 1.1-	1998 08 23	704	0.9+ 0.7+	1998 08 27	426	1.0- 0.5-
1998 07 27	809	0.8- 0.1+	1998 08 23	704	1.9+ 0.4-	1998 08 27	426	0.9- 0.6-

1994 AC₁₃ = 1998 HA₈₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		Williams	
<i>M</i>		40.89069		(2000.0)	
<i>n</i>		0.27237535		ω 137.97404	
<i>a</i>		2.3569888		Ω 45.66133	
<i>e</i>		0.1671546		<i>i</i> 2.54936	
<i>P</i>		3.62		<i>H</i> 17.5	
				<i>G</i> 0.15	
				<i>U</i> 4	

Residuals in seconds of arc

1994 01 08	691	0.4+ 0.1+	1994 01 16	691	2.0- 0.1+	1998 04 22	704	0.2+ 1.5-
1994 01 08	691	0.4- 0.0	1994 01 16	691	1.2+ 1.2+	1998 04 22	704	0.6- 0.2-
1994 01 11	691	0.3+ 0.4-	1998 04 21	704	0.5- 0.3+	1998 05 20	691	0.3+ 0.2+
1994 01 11	691	1.0+ 0.3-	1998 04 21	704	1.0+ 0.4+	1998 05 20	691	0.4+ 0.4+
1994 01 11	691	0.2- 0.5-	1998 04 21	704	1.0- 0.1+	1998 05 20	691	0.0 0.2+
1994 01 16	691	0.2- 0.2-	1998 04 22	704	0.3+ 0.2+			

1994 GR₂ = 1998 QB₁₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	
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1998 SEPT. 10

M.P.C. 32457

Residuals in seconds of arc

1994 04 05	691	0.0	0.0	1994 04 10	691	0.5−	0.2+	1998 08 23	704	0.2+	1.2−
1994 04 05	691	0.1−	0.2−	1994 04 10	691	0.6−	0.7+	1998 08 23	704	1.9−	0.3+
1994 04 05	691	1.5+	0.8−	1998 08 17	704	0.1−	0.1+	1998 08 23	704	1.8+	0.8−
1994 04 06	691	0.1+	0.3−	1998 08 17	704	0.2+	0.5+	1998 08 27	699	0.0	0.2+
1994 04 06	691	0.1+	0.2−	1998 08 17	704	0.2−	0.7+	1998 08 27	699	0.3−	0.2+
1994 04 06	691	0.2−	0.2+	1998 08 17	704	0.3−	0.5−	1998 08 27	699	0.1+	0.5+
1994 04 10	691	0.3−	0.3+	1998 08 17	704	0.6+	0.1−				

1994 HX = 1998 OK₁₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Marsden			
<i>M</i>	320.94617		(2000.0)	P		Q	
<i>n</i>	0.30439938	ω	184.26756	+0.99951475		−0.03113520	
<i>a</i>	2.1886360	Ω	177.51608	+0.02917554		+0.92532832	
<i>e</i>	0.1753418	<i>i</i>	1.22794	+0.01091103		+0.37788637	
<i>P</i>	3.24	<i>H</i>	17.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 04 16	691	0.4−	0.8−	1994 04 20	691	0.3+	0.0	1998 07 26	809	0.1+	0.6+
1994 04 16	691	0.4+	0.9−	1994 04 20	691	0.1+	0.0	1998 07 26	809	0.5−	0.3+
1994 04 16	691	0.0	0.5−	1994 04 20	691	0.2+	0.1−	1998 07 26	809	0.0	0.4+
1994 04 19	691	0.1+	1.1+	1994 05 03	691	0.2+	0.0	1998 07 27	809	0.5+	0.3−
1994 04 19	691	0.1−	0.2−	1994 05 03	691	0.1−	0.3+	1998 07 27	809	0.1+	0.5−
1994 04 19	691	0.5−	1.1+	1994 05 03	691	0.3−	0.0	1998 07 27	809	0.2−	0.5−

1994 NA = 1998 QM₁₅

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	33.32326		(2000.0)	P		Q	
<i>n</i>	0.25735347	ω	154.76819	−0.02828745		+0.99295520	
<i>a</i>	2.4478382	Ω	113.43384	−0.93706723		+0.01373299	
<i>e</i>	0.1084583	<i>i</i>	7.20431	−0.34800119		−0.11769185	
<i>P</i>	3.83	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 07 02	589	0.0	0.3−	1994 07 09	589	0.3+	0.0	1998 07 31	699	0.1−	0.7+
1994 07 02	589	0.2−	0.2−	1994 07 09	589	0.4−	0.2−	1998 07 31	699	0.5+	0.2−
1994 07 02	589	0.8+	0.1+	1994 07 12	589	0.1−	0.9−	1998 07 31	699	0.5+	0.5−
1994 07 02	589	1.3−	0.2−	1994 07 12	589	0.4+	0.0	1998 08 17	704	0.7−	0.3−
1994 07 03	589	0.2+	0.3−	1994 07 14	589	1.1+	0.2+	1998 08 17	704	0.7−	0.0
1994 07 03	589	0.1+	0.1+	1994 07 14	589	0.3−	0.3+	1998 08 17	704	0.7−	1.0−
1994 07 03	589	0.5−	0.7+	1994 07 15	589	0.4+	0.5−	1998 08 17	704	1.4−	0.0
1994 07 04	589	0.8−	0.0	1994 07 15	589	0.5−	0.1+	1998 08 23	704	0.2+	0.3−
1994 07 04	589	0.5+	1.2−	1994 07 15	589	0.7−	0.4−	1998 08 23	704	0.8+	0.2−
1994 07 07	589	0.5−	0.7+	1994 08 02	589	0.0	0.7+	1998 08 23	704	1.5+	0.8+
1994 07 07	589	1.3+	0.8+	1994 08 02	589	0.4+	0.1−	1998 08 23	704	0.2+	0.8+
1994 07 07	589	0.3+	0.6+	1994 08 02	589	0.3−	0.0				

1994 PK₃ = 1997 GR₃

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	175.13075		(2000.0)	P		Q	
<i>n</i>	0.19865713	ω	123.56836	+0.08650953		−0.99613884	
<i>a</i>	2.9089301	Ω	321.46021	+0.90590561		+0.08489979	
<i>e</i>	0.0735976	<i>i</i>	1.37492	+0.41454930		+0.02234790	
<i>P</i>	4.96	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 08 10	809	0.6−	0.7+	1994 09 03	809	0.4−	2.1−	1997 04 09	684	0.7+	0.2+
1994 08 10	809	0.8−	0.6+	1994 09 04	809	1.0−	1.4+	1997 04 12	684	0.1+	0.0
1994 08 10	809	1.3−	0.7+	1994 09 04	809	0.5+	1.7+	1997 04 12	684	0.1+	0.1−
1994 08 11	809	0.6+	0.8+	1994 09 04	809	0.9+	2.1+	1997 04 14	684	1.1−	0.7−
1994 08 11	809	0.2+	0.1−	1994 09 04	809	2.1+	1.2−	1997 04 14	684	0.3−	0.1+
1994 08 11	809	0.4+	1.1+	1994 09 04	809	1.7+	1.0−	1997 04 14	684	0.5−	0.4−
1994 09 03	809	0.0	0.8+	1994 09 04	809	0.5+	1.0−	1997 04 15	684	1.1−	0.0

1994 09 03	809	0.3−	0.2+	1997 04 08	684	1.2+	0.0	1997 04 15	684	1.0−	0.1−
1994 09 03	809	0.9−	0.5−	1997 04 08	684	0.9+	0.0	1997 04 15	684	1.0−	0.0
1994 09 03	809	0.5−	1.9−	1997 04 09	684	0.7+	0.1+				
1994 09 03	809	0.9−	2.7−	1997 04 09	684	0.8+	0.3+				

1994 PL₃ = 1994 RL₁₃ = 1998 QG₁₈Id. G. V. Williams (d, *MPC* 27085; unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	282.65267		(2000.0)	P		Q	
<i>n</i>	0.24470296	ω	91.66449	+0.67230514		−0.73977922	
<i>a</i>	2.5314920	Ω	316.04943	+0.66274074		+0.61777722	
<i>e</i>	0.1179513	<i>i</i>	2.23489	+0.32981890		+0.26660461	
<i>P</i>	4.03	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 08 10	809	0.9−	0.7+	1994 09 03	809	0.3+	1.0+	1998 08 23	704	1.6−	0.8+
1994 08 10	809	0.4−	0.9+	1994 09 04	809	0.6−	0.1−	1998 08 23	699	0.2−	0.9+
1994 08 10	809	1.1−	0.3−	1994 09 04	809	1.3+	0.1+	1998 08 23	704	0.5−	0.7−
1994 08 11	809	0.7+	0.1−	1994 09 04	809	0.4−	0.7+	1998 08 23	704	0.9+	0.8−
1994 08 11	809	0.5+	0.0	1998 08 17	704	0.3+	0.9−	1998 08 23	699	0.6+	0.4+
1994 08 11	809	0.8+	0.5−	1998 08 17	704	1.0+	0.7+	1998 08 23	699	0.0	0.1+
1994 09 03	809	0.5−	0.9−	1998 08 17	704	0.1+	0.2−				
1994 09 03	809	0.0	1.0−	1998 08 17	704	0.3−	0.7−				

1994 PK₅ = 1986 XQ₅ = 1998 MZ₃₁

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	187.07427		(2000.0)	P		Q	
<i>n</i>	0.22416955	ω	134.72900	−0.22927458		−0.96974417	
<i>a</i>	2.6838092	Ω	328.24445	+0.84196530		−0.15436760	
<i>e</i>	0.0077674	<i>i</i>	9.16655	+0.48839287		−0.18912135	
<i>P</i>	4.40	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1986 12 06	482	1.5+	0.0	1994 09 03	809	1.5−	0.6+	1998 06 24	704	0.5+	0.9+
1986 12 06	482	2.2−	1.9+	1994 09 03	809	1.4−	0.2−	1998 06 24	704	0.4−	1.5−
1994 08 10	809	2.3+	1.2+	1994 09 03	809	1.7−	0.1+	1998 06 24	704	2.3−	0.1+
1994 08 10	809	1.3+	1.8+	1994 09 04	809	0.5+	0.8−	1998 06 26	704	1.2−	0.1−
1994 08 10	809	1.8+	1.1+	1994 09 04	809	0.3−	0.8−	1998 06 26	704	2.3+	2.7+
1994 08 11	809	0.6+	1.6−	1994 09 04	809	0.5−	0.6−	1998 06 26	704	0.5+	0.0
1994 08 11	809	0.1+	1.6−	1998 06 24	704	0.4+	0.4−	1998 06 26	704	0.1+	1.7+
1994 08 11	809	0.3+	0.8−	1998 06 24	704	1.1−	0.5−				

1994 PH₉ = 1998 OD₉Id. G. V. Williams; 1994 PH₉ = 1978 UY₇ (*MPC* 24748) is invalid

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	355.50854		(2000.0)	P		Q	
<i>n</i>	0.24232865	ω	113.50814	+0.72570207		+0.68795288	
<i>a</i>	2.5480007	Ω	203.02669	−0.63915340		+0.66938391	
<i>e</i>	0.1327089	<i>i</i>	1.28828	−0.25463589		+0.28043897	
<i>P</i>	4.07	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 08 10	809	1.0+	1.0−	1994 09 04	809	0.6+	0.4+	1998 08 17	704	1.5−	0.9−
1994 08 10	809	0.9+	1.2−	1994 09 04	809	1.0+	0.3−	1998 08 17	704	0.5−	0.7−
1994 08 10	809	0.5+	2.1−	1994 09 04	809	0.4+	0.7+	1998 08 17	704	0.0	0.3+
1994 08 11	809	0.8−	0.3−	1998 07 26	809	1.0+	0.8+	1998 08 17	704	1.6−	1.7−
1994 08 11	809	0.5−	0.6+	1998 07 26	809	0.3+	0.2+	1998 08 17	704	0.1−	0.1+
1994 08 11	809	1.0−	0.3+	1998 07 26	809	0.5+	0.2+	1998 08 23	704	0.6+	0.9+
1994 09 03	809	0.3−	0.5+	1998 07 27	809	0.1−	0.7+	1998 08 23	704	0.6+	0.2−
1994 09 03	809	1.0−	0.9+	1998 07 27	809	0.9−	0.5+	1998 08 23	704	0.8+	1.1−
1994 09 03	809	0.5−	0.8+	1998 07 27	809	0.1−	0.6+	1998 08 23	704	1.0+	1.0+

1994 PW₁₀ = 1998 QO₁₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24420433	ω	133.48170	+0.41091056	+0.91145499		
<i>a</i>	2.5349369	Ω	160.75250	−0.85302647	+0.39214690		
<i>e</i>	0.1815430	<i>i</i>	3.48840	−0.32171160	+0.12438092		
<i>P</i>	4.04	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 08 10	809	0.5+	0.1−	1994 09 03	809	0.7−	0.7+	1998 08 17	704	0.0	1.0−
1994 08 10	809	0.6−	0.2−	1994 09 03	809	0.6−	0.2−	1998 08 23	699	1.0−	0.7+
1994 08 10	809	0.7−	0.5−	1994 09 03	809	1.5−	0.7−	1998 08 23	704	0.7−	0.5−
1994 08 10	809	(3.9+ 4.8+)		1994 09 04	809	1.3+	0.6+	1998 08 23	704	1.0+	0.9+
1994 08 10	809	(4.3+ 3.7+)		1994 09 04	809	0.6+	0.4−	1998 08 23	699	0.2+	0.9−
1994 08 10	809	(4.1+ 3.9+)		1994 09 04	809	0.9+	0.2−	1998 08 23	704	0.4+	0.7+
1994 08 11	809	0.1+	0.2+	1998 08 17	704	0.1−	0.3−	1998 08 23	704	0.3−	0.8−
1994 08 11	809	0.4+	0.0	1998 08 17	704	0.1+	0.5+	1998 08 23	699	0.1−	0.6+
1994 08 11	809	0.3+	0.9+	1998 08 17	704	0.6+	0.1+				

1994 PL₁₃ = 1991 TK₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30932105	ω	204.99127	−0.98473106	−0.16267502		
<i>a</i>	2.1653581	Ω	325.46761	+0.17236658	−0.86126329		
<i>e</i>	0.0146289	<i>i</i>	6.27714	+0.02438247	−0.48141705		
<i>P</i>	3.19	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 10 03	033	0.2−	0.2+	1991 10 07	033	0.1−	0.6+	1994 09 03	809	1.5+	0.1+
1991 10 03	033	0.6+	0.5−	1994 08 10	809	1.9+	0.9+	1994 09 03	809	1.1+	0.1+
1991 10 04	033	0.2−	0.0	1994 08 10	809	1.1+	1.6+	1994 09 03	809	0.1−	0.2−
1991 10 04	033	0.1−	0.0	1994 08 10	809	0.5+	1.3+	1994 09 04	809	0.1−	0.1−
1991 10 04	033	0.5+	0.2−	1994 08 11	809	0.6−	1.2−	1994 09 04	809	1.2−	0.4−
1991 10 05	033	0.4−	0.7−	1994 08 11	809	1.4−	1.0−	1994 09 04	809	1.1−	0.8+
1991 10 07	033	0.2−	0.6+	1994 08 11	809	1.6−	1.8−				

1994 PT₁₃ = 1998 KE₅₇

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18887963	ω	218.05727	+0.92844941	−0.36788102		
<i>a</i>	3.0084720	Ω	163.30273	+0.36931588	+0.89935058		
<i>e</i>	0.0822147	<i>i</i>	10.31206	+0.03984315	+0.23628815		
<i>P</i>	5.22	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 08 10	809	1.6−	1.2−	1994 09 03	809	0.1+	0.5−	1998 05 23	704	0.1+	0.4−
1994 08 10	809	1.0−	0.7−	1994 09 04	809	0.1+	0.9+	1998 05 24	704	0.4−	0.9−
1994 08 10	809	1.8−	0.9−	1994 09 04	809	0.1+	0.4+	1998 05 24	704	0.4−	0.2+
1994 08 11	809	2.3+	1.1+	1994 09 04	809	0.3−	0.3+	1998 05 24	704	0.0	0.3+
1994 08 11	809	1.7+	1.0+	1998 05 23	704	1.5+	0.9+	1998 05 24	704	0.1−	0.1+
1994 08 11	809	0.7+	0.9+	1998 05 23	704	1.0+	0.5−	1998 05 24	704	0.2+	0.0
1994 09 03	809	0.0	0.4−	1998 05 23	704	0.0	0.8+				
1994 09 03	809	0.3−	0.7−	1998 05 23	704	2.0−	0.4−				

1994 PF₁₄ = 1994 RE₁₇ = 1997 EY₅₀

Id. S. Nakano (d, MPC 27543), A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22274049	ω	138.03757	+0.66158325	+0.74979761		
<i>a</i>	2.6952762	Ω	173.35857	−0.70996115	+0.63083509		
<i>e</i>	0.0218342	<i>i</i>	5.22982	−0.24137679	+0.19962621		
<i>P</i>	4.42	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 08 10	809	1.2+	0.1+	1994 09 03	809	0.3+	0.4+	1997 03 05	809	0.2−	0.3+
1994 08 10	809	1.1+	0.0	1994 09 03	809	0.2−	0.2+	1997 03 05	809	0.1+	0.4−
1994 08 10	809	0.5+	0.4+	1994 09 03	809	0.2+	0.8+	1997 03 05	809	0.3−	0.2−
1994 08 11	809	0.5−	0.6−	1994 09 04	809	0.6+	0.3−	1997 03 06	809	0.1+	0.4+
1994 08 11	809	1.5−	0.1−	1994 09 04	809	0.4−	0.3−	1997 03 06	809	0.8+	0.1−
1994 08 11	809	1.1−	0.2+	1994 09 04	809	0.3−	0.8−	1997 03 06	809	0.4−	0.0

1994 PE₁₆ = 1998 NB₁

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24082389	ω	97.47392	+0.64867908	−0.75912513		
<i>a</i>	2.5586036	Ω	311.93591	+0.66633136	+0.60094088		
<i>e</i>	0.1226853	<i>i</i>	4.18315	+0.36771997	+0.25019810		
<i>P</i>	4.09	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 08 10	809	1.1+	0.7+	1994 08 13	809	0.0	0.9+	1994 09 06	809	1.2−	1.9−
1994 08 10	809	0.7+	0.3−	1994 09 03	809	0.1−	1.2+	1994 09 06	809	(1.0− 2.8−)	
1994 08 10	809	0.1−	0.8−	1994 09 03	809	0.3+	0.1−	1998 07 15	691	0.9−	0.1−
1994 08 11	809	(3.1+ 0.1−)		1994 09 03	809	1.0+	0.5+	1998 07 15	691	1.1−	0.1−
1994 08 11	809	(2.6+ 0.1+)		1994 09 04	809	0.7−	0.1−	1998 07 15	691	1.0−	0.2−
1994 08 11	809	1.7+	1.3+	1994 09 04	809	1.0−	0.2−	1998 07 26	691	0.6+	0.2+
1994 08 12	809	(2.1+ 0.7+)		1994 09 04	809	0.7−	0.0	1998 07 26	691	0.7+	0.1−
1994 08 12	809	0.1−	0.9+	1994 09 05	809	0.5+	1.1−	1998 07 26	691	1.0+	0.1−
1994 08 12	809	0.8−	0.4+	1994 09 05	809	(0.4− 2.3−)		1998 08 23	699	1.0+	0.0
1994 08 13	809	0.5+	0.9+	1994 09 05	809	(1.8− 2.6−)		1998 08 23	699	0.2−	0.8−
1994 08 13	809	1.3−	1.2−	1994 09 06	809	(2.5− 1.8−)		1998 08 23	699	0.0	0.3+

1994 PQ₁₆ = 1991 XD₆

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28532651	ω	98.77402	+0.33263431	−0.94200877		
<i>a</i>	2.2851145	Ω	331.67203	+0.82425414	+0.31329827		
<i>e</i>	0.1121948	<i>i</i>	5.37240	+0.45821342	+0.12026500		
<i>P</i>	3.45	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1991 12 11	033	0.4+	0.6+	1994 08 10	809	1.0−	0.5+	1994 09 03	809	0.6+	0.3+
1991 12 11	033	0.5−	0.9−	1994 08 11	809	0.2+	0.6−	1994 09 03	809	0.4+	1.0+
1991 12 12	033	0.1+	0.2+	1994 08 11	809	0.1−	0.1−	1994 09 04	809	0.6+	0.5−
1994 08 10	809	1.0+	0.2+	1994 08 11	809	0.3−	1.0−	1994 09 04	809	0.6−	0.4−
1994 08 10	809	0.2−	0.9+	1994 09 03	809	1.0+	0.4+	1994 09 04	809	1.6−	0.6−

1994 PK₁₇ = 1998 QR₆₁

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24701737	ω	202.90792	+0.99657837	−0.07900384		
<i>a</i>	2.5156548	Ω	161.57391	+0.08259105	+0.94046177		
<i>e</i>	0.1876647	<i>i</i>	4.40718	+0.00320576	+0.33059046		
<i>P</i>	3.99	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 08 10	809	1.1+	0.6+	1994 09 04	809	1.7−	0.3−	1998 08 17	704	0.6+	0.4+
1994 08 10	809	0.2+	0.6+	1994 09 04	809	2.1−	1.0−	1998 08 17	704	0.5−	0.8−
1994 08 10	809	1.1−	1.3+	1994 09 05	809	0.1+	0.4+	1998 08 23	704	1.0−	1.8+
1994 08 11	809	0.3+	0.8−	1994 09 05	809	0.6+	0.5+	1998 08 23	704	2.0+	1.4−
1994 08 11	809	0.7+	0.8−	1994 09 05	809	0.2+	0.3−	1998 08 23	704	0.0	0.2+
1994 08 11	809	0.2−	0.7−	1994 09 06	809	1.1+	0.4+	1998 08 23	704	1.3−	0.5+
1994 09 03	809	(3.3− 2.0−)		1994 09 06	809	0.5+	0.1−	1998 08 23	704	0.8−	0.6−
1994 09 03	809	(3.1− 2.7−)		1994 09 06	809	1.0+	0.4+	1998 08 30	699	1.0+	0.2+

1994 09 03	809	(3.7−	2.6−)	1998 08 17	704	1.2+	1.8−	1998 08 30	699	0.1+	0.6−
1994 09 04	809	0.9−	0.6+	1998 08 17	704	2.3−	1.6+	1998 08 30	699	1.2+	0.1−

1994 PG₁₉ = 1998 QC₃₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	306.43142		(2000.0)		P		Q
<i>n</i>	0.24442810	ω	54.36274	+0.86810461	−0.49523837		
<i>a</i>	2.5333895	Ω	335.27061	+0.42543443	+0.77725611		
<i>e</i>	0.1489381	<i>i</i>	4.61584	+0.25573410	+0.38808748		
<i>P</i>	4.03	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 08 12	809	0.3−	0.4+	1994 09 06	809	0.4+	0.6+	1998 08 23	704	0.1−	0.0
1994 08 12	809	0.7−	0.6+	1994 09 06	809	0.1+	0.8+	1998 08 23	704	(0.2−	2.4−)
1994 08 12	809	1.6−	1.5+	1994 09 06	809	0.3+	0.6+	1998 08 23	704	0.4−	0.4−
1994 08 13	809	(1.3+	3.5+)	1998 08 17	704	0.2+	0.3+	1998 08 23	704	0.3−	0.7+
1994 08 13	809	(0.1+	3.1+)	1998 08 17	704	0.5−	1.1−	1998 09 01	691	0.3+	0.3−
1994 08 13	809	(0.2−	3.1+)	1998 08 17	704	0.4+	0.9+	1998 09 01	691	0.1+	0.3−
1994 09 05	809	0.8+	0.2−	1998 08 17	704	0.1+	1.7−	1998 09 01	691	0.1−	0.4−
1994 09 05	809	0.2−	0.6−	1998 08 17	704	0.2+	0.6−				
1994 09 05	809	0.4−	0.9−	1998 08 23	704	1.6+	0.2+				

1994 PT₂₀ = 1998 QZ₃₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	313.67033		(2000.0)		P		Q
<i>n</i>	0.24457755	ω	73.24786	+0.88251785	−0.46974759		
<i>a</i>	2.5323574	Ω	314.76348	+0.41859643	+0.80630233		
<i>e</i>	0.2213582	<i>i</i>	1.80373	+0.21433450	+0.35946314		
<i>P</i>	4.03	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 08 12	809	0.1+	0.8+	1994 09 05	809	1.0−	0.6−	1998 08 17	704	0.3+	1.1−
1994 08 12	809	0.7−	0.8+	1994 09 06	809	0.4+	1.2+	1998 08 23	704	0.7−	0.1+
1994 08 12	809	1.0−	0.8+	1994 09 06	809	0.5+	0.3−	1998 08 23	704	0.2−	1.7−
1994 08 13	809	(2.6−	0.6+)	1994 09 06	809	1.1+	0.9+	1998 08 23	704	0.6−	1.0+
1994 08 13	809	(3.1−	0.3+)	1998 08 17	704	0.2−	0.5+	1998 08 23	704	0.2−	1.1+
1994 08 13	809	(2.8−	0.7+)	1998 08 17	704	0.6+	0.0	1998 08 26	699	0.1+	0.6−
1994 09 05	809	0.5−	0.1−	1998 08 17	704	0.2+	0.6+	1998 08 26	699	0.6+	0.7−
1994 09 05	809	0.2−	1.0−	1998 08 17	704	0.8+	1.0−	1998 08 26	699	0.5+	0.7−

1994 PL₂₁ = 3067 T-3

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	241.65189		(2000.0)		P		Q
<i>n</i>	0.17080184	ω	210.82119	+0.93906661	+0.34342721		
<i>a</i>	3.2171725	Ω	129.08585	−0.31142785	+0.86795624		
<i>e</i>	0.1343516	<i>i</i>	1.07397	−0.14548745	+0.35876137		
<i>P</i>	5.77	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 10 16	675	0.2−	1.8−	1994 08 12	809	1.0+	0.8+	1994 09 05	809	1.1−	0.3−
1977 10 16	675	1.3+	1.2−	1994 08 12	809	0.5+	0.6+	1994 09 05	809	0.4+	0.8+
1977 10 17	675	1.4−	0.3+	1994 08 12	809	0.2−	0.4−	1994 09 05	809	0.7−	0.7−
1977 10 17	675	0.6−	0.6+	1994 08 13	809	0.0	0.0	1994 09 06	809	1.1+	0.2−
1977 10 21	675	1.0+	1.4+	1994 08 13	809	1.2−	0.1−	1994 09 06	809	0.2+	0.1−
1977 10 21	675	0.2−	0.7+	1994 08 13	809	0.4−	0.2−	1994 09 06	809	0.4+	0.3−

1994 PO₂₈ = 1990 QG₁₉ = 1998 QN₂₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	329.91567		(2000.0)		P		Q
<i>n</i>	0.24547598	ω	321.12901	+0.99809050	+0.05871487		
<i>a</i>	2.5261747	Ω	35.51909	−0.04514640	+0.90537088		
<i>e</i>	0.1685441	<i>i</i>	1.89199	−0.04215630	+0.42054267		
<i>P</i>	4.02	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1990 08 24	809	1.1−	1.1−	1994 08 13	809	1.6+	2.3+	1998 08 17	704	0.1+	0.1+
1990 08 24	809	0.8+	1.6−	1994 09 05	809	1.8+	0.3+	1998 08 17	704	1.8−	0.0
1990 08 24	809	1.9+	1.1−	1994 09 05	809	0.0	0.4+	1998 08 17	704	0.2+	0.0
1994 08 12	809	1.2−	1.3−	1994 09 05	809	0.3+	0.3+	1998 08 17	704	0.5−	0.3+
1994 08 12	809	1.0−	1.5−	1994 09 06	809	0.8−	0.8−	1998 08 23	704	1.0−	0.2+
1994 08 12	809	1.5−	1.5−	1994 09 06	809	1.4−	0.1+	1998 08 23	704	0.5−	1.1−
1994 08 13	809	2.0+	0.4+	1994 09 06	809	1.7−	2.2+	1998 08 23	704	0.5+	0.8+
1994 08 13	809	1.2+	0.8+	1998 08 17	704	0.1+	0.6+	1998 08 23	704	2.0+	1.1+

1994 PC₂₉ = 1998 MW₂₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	339.60362		(2000.0)		P		Q
<i>n</i>	0.21785619	ω	160.13042	+0.42462498	+0.89996210		
<i>a</i>	2.7354122	Ω	134.84779	−0.84836327	+0.43362389		
<i>e</i>	0.0946505	<i>i</i>	8.01066	−0.31618569	+0.04515008		
<i>P</i>	4.52	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 08 12	809	0.9−	0.4−	1994 09 05	809	0.1−	0.2−	1998 06 19	704	1.7+	0.0
1994 08 12	809	0.7−	0.6+	1994 09 05	809	0.5+	0.2−	1998 06 19	704	3.6−	2.6+
1994 08 12	809	1.6−	0.4−	1994 09 06	809	0.2−	1.3+	1998 06 26	704	0.5+	0.1+
1994 08 13	809	0.3+	0.3+	1994 09 06	809	0.5+	0.2−	1998 06 26	704	0.7−	1.2−
1994 08 13	809	0.3+	0.4−	1994 09 06	809	0.5+	0.3+	1998 06 26	704	1.0+	0.2+
1994 08 13	809	0.9+	0.2−	1998 06 19	704	1.1−	0.5−	1998 06 26	704	0.9+	0.6−
1994 09 05	809	0.5+	0.3−	1998 06 19	704	0.4+	0.2−	1998 06 26	704	0.8+	0.5−

1994 PV₂₉ = 1993 FG₇₁

Id. G. V. Williams, A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	33.85925		(2000.0)		P		Q
<i>n</i>	0.29057068	ω	139.69289	+0.99909328	+0.01867543		
<i>a</i>	2.2575369	Ω	219.28758	−0.03103327	+0.93467597		
<i>e</i>	0.1765766	<i>i</i>	3.46407	+0.02914722	+0.35500995		
<i>P</i>	3.39	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 03 21	809	1.1−	0.7+	1994 08 13	809	1.0+	0.9+	1994 09 05	809	0.7−	0.2−
1993 03 22	809	1.1+	0.7−	1994 08 13	809	1.1+	0.7+	1994 09 06	809	0.3+	0.1+
1994 08 12	809	0.7−	0.6−	1994 08 13	809	0.5+	0.5+	1994 09 06	809	0.3+	0.3−
1994 08 12	809	1.0−	0.8−	1994 09 05	809	0.5−	0.5+	1994 09 06	809	0.4+	0.2−
1994 08 12	809	0.6−	0.6−	1994 09 05	809	0.1+	0.1−				

1994 PL₃₃ = 1998 MZ₂₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	156.88290		(2000.0)		P		Q
<i>n</i>	0.17672926	ω	273.25943	+0.17177093	−0.98488365		
<i>a</i>	3.1448292	Ω	166.78624	+0.93820984	+0.15663184		
<i>e</i>	0.1696913	<i>i</i>	5.60784	+0.30042811	+0.07396395		
<i>P</i>	5.58	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 08 10	809	0.7+	2.2+	1994 09 03	809	0.9−	1.1−	1998 06 24	691	0.2−	0.2−
1994 08 10	809	0.8+	1.7+	1994 09 03	809	1.0−	1.2−	1998 06 24	691	0.1−	0.2+
1994 08 10	809	0.1+	1.3+	1994 09 03	809	1.2−	1.8−	1998 06 24	691	0.4+	0.2−
1994 08 11	809	0.9−	1.0−	1994 09 04	809	1.7+	1.1+	1998 06 30	691	0.1−	0.2+

M.P.C. 32460

1994 08 11	809	0.3−	1.9−	1994 09 04	809	0.9+	1.1+	1998 06 30	691	0.1−	0.2+
1994 08 11	809	0.9−	1.9−	1994 09 04	809	1.0+	1.5+	1998 06 30	691	0.1+	0.2−

1994 PL₃₅ = 1998 QQ₁₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24494452	<i>ω</i>	196.85544	+0.75245297	−0.65833027		
<i>a</i>	2.5298274	<i>Ω</i>	204.35397	+0.60985589	+0.70807346		
<i>e</i>	0.1297634	<i>i</i>	2.83429	+0.24877766	+0.25540797		
<i>P</i>	4.02	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 08 10	809	0.5+	0.1+	1994 09 03	809	0.5−	0.8−	1998 08 17	704	0.8+	0.1+
1994 08 10	809	0.5+	0.2−	1994 09 04	809	(1.3+	2.8+)	1998 08 23	699	1.1+	0.6−
1994 08 10	809	0.3−	0.7−	1994 09 04	809	0.8−	0.2+	1998 08 23	704	1.5−	0.5+
1994 08 11	809	0.9−	0.0	1994 09 04	809	1.1+	1.0+	1998 08 23	704	0.8−	0.2−
1994 08 11	809	0.1−	0.2+	1998 08 17	704	0.5−	0.3−	1998 08 23	699	0.2−	0.9−
1994 08 11	809	0.4+	0.3+	1998 08 17	704	0.9−	1.0+	1998 08 23	704	0.1−	0.4−
1994 09 03	809	0.2+	0.7+	1998 08 17	704	0.6−	0.3+	1998 08 23	699	0.5+	0.2−
1994 09 03	809	0.2−	0.6−	1998 08 17	704	0.9+	1.4+	1998 08 23	704	1.5+	1.0−

1994 PU₃₇ = 1998 QE₁₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24520899	<i>ω</i>	241.96110	+0.76562535	−0.64297509		
<i>a</i>	2.5280081	<i>Ω</i>	158.03407	+0.60740246	+0.71231673		
<i>e</i>	0.1596121	<i>i</i>	3.06824	+0.21184920	+0.28140346		
<i>P</i>	4.02	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1994 08 10	809	0.5+	0.7−	1994 09 03	809	1.3+	1.1+	1998 08 17	704	0.0	0.1−
1994 08 10	809	0.5−	0.2−	1994 09 04	809	0.8−	0.6−	1998 08 23	704	2.0−	0.4+
1994 08 10	809	0.7−	1.2−	1994 09 04	809	0.9−	0.2−	1998 08 23	699	0.6−	0.4−
1994 08 11	809	0.1−	0.2−	1994 09 04	809	1.2−	0.1−	1998 08 23	704	0.3+	0.4+
1994 08 11	809	0.0	0.7+	1998 08 17	704	0.9+	0.5−	1998 08 23	699	0.3−	0.1−
1994 08 11	809	0.2+	0.0	1998 08 17	704	0.4+	0.6+	1998 08 23	704	0.0	1.1+
1994 09 03	809	1.5+	0.1+	1998 08 17	704	0.5+	1.3+	1998 08 23	704	0.7+	0.5−
1994 09 03	809	1.2+	0.3−	1998 08 17	704	0.7+	0.1−	1998 08 23	699	1.1−	0.6−

1994 QR = 1953 RZ₁ = 1998 OE₁₀

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24052865	<i>ω</i>	206.73388	+0.99572423	−0.08603778		
<i>a</i>	2.5606969	<i>Ω</i>	158.12374	+0.09227820	+0.94314498		
<i>e</i>	0.1682891	<i>i</i>	5.17788	−0.00424173	+0.32105304		
<i>P</i>	4.10	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1953 09 06	675	0.5+	0.3−	1994 09 05	809	0.9+	0.2+	1998 08 17	704	0.5−	1.4+
1953 09 06	675	0.1−	0.8−	1994 09 05	809	0.1+	0.1+	1998 08 17	704	1.0−	0.1+
1994 08 12	809	(4.3+	3.4+)	1994 09 06	809	0.3+	1.8+	1998 08 17	704	0.9−	0.5+
1994 08 12	809	(2.3+	4.1+)	1994 09 06	809	1.0+	1.4+	1998 08 22	566	0.3−	0.4−
1994 08 12	809	(2.0+	3.6+)	1994 09 06	809	1.5+	1.2+	1998 08 22	566	1.8−	1.2−
1994 08 13	809	(4.9+	3.7+)	1994 09 30	675	0.0	0.2−	1998 08 22	566	1.1−	0.2−
1994 08 13	809	(3.2+	3.5+)	1994 09 30	675	0.5+	0.7+	1998 08 23	704	0.5+	0.5−
1994 08 13	809	(2.7+	2.8+)	1998 07 15	699	0.7+	0.8+	1998 08 23	704	0.3+	0.9+
1994 08 16	411	0.6−	1.4−	1998 07 15	699	0.5+	0.6−	1998 08 23	704	1.3+	0.2+
1994 08 16	411	0.6−	0.7+	1998 07 15	699	0.5+	0.0	1998 08 23	704	0.5+	0.8+
1994 08 17	411	0.2−	0.9−	1998 07 26	809	(3.6+	2.9+)	1998 08 23	704	0.6+	0.7−
1994 08 17	411	0.7−	0.1+	1998 07 26	809	(3.5+	2.5+)	1998 08 25	426	0.4+	0.3−
1994 08 27	411	0.7−	0.0	1998 07 26	809	(3.5+	1.9+)	1998 08 25	426	0.4+	0.0
1994 08 27	411	1.6−	0.3+	1998 07 27	809	(1.8+	3.0+)	1998 08 25	426	0.5+	0.0
1994 09 01	411	0.2+	1.8−	1998 07 27	809	(1.7+	2.9+)	1998 08 26	426	0.6+	0.4−
1994 09 01	411	0.5−	1.1−	1998 07 27	809	(1.3+	3.1+)	1998 08 26	426	0.5+	0.1−

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1994 09 01	411	0.5−	0.9−	1998 08 17	704	0.8−	0.3−	1998 08 26	426	0.3+	0.1−
1994 09 05	809	0.6+	0.5+	1998 08 17	704	0.8−	0.4+				

1994 QX = 1998 OO₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23059893	<i>ω</i>	78.57156	+0.80551185	−0.56761061		
<i>a</i>	2.6336892	<i>Ω</i>	315.72224	+0.40246243	+0.73484380		
<i>e</i>	0.1251058	<i>i</i>	14.11063	+0.43494212	+0.37124492		
<i>P</i>	4.27	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 08 31	376	2.7−	0.4−	1998 07 26	809	0.5+	0.4−	1998 08 28	699	0.4−	0.8−
1994 08 31	376	0.6−	0.0	1998 07 26	809	0.4−	0.3−	1998 08 28	699	0.4−	0.1−
1994 09 03	376	2.7+	0.7+	1998 07 26	809	0.2−	0.6−	1998 08 28	699	0.3−	0.2+
1994 09 03	376	0.6+	1.2+	1998 07 27	809	0.9+	0.8+	1998 08 30	699	0.4−	0.1−
1994 09 09	376	0.1−	1.2−	1998 07 27	809	0.4+	0.7+	1998 08 30	699	0.3−	0.5+
1994 09 09	376	0.2+	0.4−	1998 07 27	809	0.5+	0.3+	1998 08 30	699	0.3+	0.1+

1994 RT₁ = 1998 QZ₂₆

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24061069	<i>ω</i>	201.99617	+0.98021747	−0.18385553		
<i>a</i>	2.5601148	<i>Ω</i>	167.88503	+0.18831999	+0.98030393		
<i>e</i>	0.2912089	<i>i</i>	20.43786	−0.06090403	+0.07212039		
<i>P</i>	4.10	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1994 09 01	675	1.9−	0.5+	1994 10 01	675	0.7−	0.5+	1998 08 24	704	0.1+	0.3+
1994 09 01	675	1.1−	0.0	1994 10 07	675	0.2+	0.3+	1998 08 24	704	0.8−	1.1+
1994 09 04	675	0.2−	0.7−	1994 10 07	675	1.5+	1.6+	1998 08 24	704	0.0	0.7+
1994 09 04	675	0.8−	0.1−	1994 10 09	675	1.4+	0.1+	1998 08 24	704	0.1+	0.1+
1994 09 07	675	(0.4−	3.8−)	1994 10 09	675	1.2+	0.8+	1998 08 24	704	0.2+	0.2+
1994 09 07	675	(1.0−	3.7−)	1998 06 20	699	1.1+	0.4+	1998 08 27	704	0.6−	0.5+
1994 09 12	675	(0.8−	4.1−)	1998 06 20	699	0.1−	0.1−	1998 08 27	704	0.3−	0.4+
1994 09 12	675	0.2+	1.9−	1998 06 20	699	1.1+	0.1+	1998 08 27	704	0.2−	0.2+
1994 09 12	675	(0.3−	2.7−)	1998 08 22	566	0.3+	0.5−	1998 08 27	704	0.5+	0.7−
1994 09 12	675	0.4+	0.9−	1998 08 22	566	0.5−	0.5−	1998 08 27	704	1.0+	0.7−
1994 10 01	675	0.2+	0.7−	1998 08 22	566	1.0−	0.5−				

1994 RE₁₁ = 1998 QB₄₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24489983	<i>ω</i>	208.04787	+0.93444338	−0.35464330		
<i>a</i>	2.5301352	<i>Ω</i>	172.50411	+0.35508434	+0.92101924		
<i>e</i>	0.3683471	<i>i</i>	14.33807	+0.02703107	+0.16109524		
<i>P</i>	4.02	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1994 09 11	413	1.1+	0.1+	1994 11 11	413	0.1−	0.7+	1998 08 17	704	0.6+	0.6−
1994 09 11	413	(0.4−	2.4+)	1994 12 19	413	0.4+	0.2−	1998 08 23	704	0.2+	1.1−
1994 09 17	413	0.1−	0.2−	1994 12 19	413	0.9+	0.9+	1998 08 23	704	0.4+	0.7+
1994 09 17	413	0.1+	0.2−	1994 12 20	413	0.1+	0.5−	1998 08 23	704	1.7−	0.4−
1994 09 17	413	0.1−	0.3−	1994 12 20	413	0.0	0.0	1998 08 23	704	1.5−	0.5−
1994 09 17	413	0.1−	0.3−	1994 12 21	413	0.3−	0.4−	1998 08 23	704	1.8+	0.9−
1994 09 18	413	0.2−	0.1−	1994 12 21	413	0.4−	0.4−	1998 08 30	699	0.6−	1.2+
1994 09 18	413	0.3−	0.1−	1998 08 17	704	0.0	0.2+	1998 08 30	699	0.8−	1.4+
1994 09 18	413	0.1−	0.8−	1998 08 17	704	0.7+	0.7+	1998 08 30	699	0.6+	1.6+
1994 09 18	413	0.0	0.5−	1998 08 17	704	(2.2+	0.2+)				
1994 11 11	413	0.3−	0.6+	1998 08 17	704	0.1+	0.9−				

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	347.97623	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.23456875	ω 155.20847	+0.85038791	+0.52610191
<i>a</i>	2.6038899	Ω 173.03465	-0.49254275	+0.80103294
<i>e</i>	0.2362522	<i>i</i> 3.57490	-0.18504604	+0.28559238
<i>P</i>	4.20	<i>H</i> 16.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1994 10 04	691	1.1-	0.3+	1998 07 26	809	(1.7+	2.3+)	1998 08 17	704	0.4+	0.7-
1994 10 04	691	1.5-	0.4+	1998 07 26	809	1.9+	1.0+	1998 08 17	704	(2.2+	2.5-)
1994 10 12	691	0.0	0.2-	1998 07 26	809	1.3+	1.2+	1998 08 17	704	0.8-	0.6-
1994 10 12	691	0.1+	0.1-	1998 07 27	809	0.7-	0.1-	1998 08 23	704	1.1+	0.2-
1994 10 12	691	0.6+	0.0	1998 07 27	809	1.2-	0.4+	1998 08 23	704	0.0	0.2-
1994 10 13	691	0.5+	0.2+	1998 07 27	809	1.2-	0.1-	1998 08 23	704	1.0-	0.5+
1994 10 13	691	0.7+	0.1-	1998 08 17	704	0.4+	0.4-	1998 08 23	704	0.6+	1.2-
1994 10 13	691	0.5+	0.1+	1998 08 17	704	0.6-	0.1+				

1994 TW₁₅ = 1998 QV₆₁

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	331.63464	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.24116994	ω 150.42546	+0.97909874	-0.19920405
<i>a</i>	2.5561555	Ω 221.13010	+0.17220638	+0.91929437
<i>e</i>	0.2268465	<i>i</i> 3.57621	+0.10821559	+0.33943426
<i>P</i>	4.09	<i>H</i> 15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1994 09 30	675	3.8+	1.8-	1994 10 14	560	0.4-	0.1+	1998 08 23	704	0.4+	0.1-
1994 09 30	675	0.9+	0.2+	1994 10 27	560	1.2-	2.0-	1998 08 23	704	0.4+	1.5+
1994 10 01	675	1.0-	1.2+	1994 10 27	560	0.1+	1.4-	1998 08 23	704	0.7+	1.2-
1994 10 01	675	1.4-	0.7+	1994 10 27	560	0.7+	0.1-	1998 08 23	704	1.2+	0.6-
1994 10 13	560	0.6-	0.5-	1998 08 17	704	1.9+	0.6-	1998 08 23	704	1.1+	1.6-
1994 10 13	560	0.0	0.6+	1998 08 17	704	1.9-	0.1-	1998 08 30	699	0.2+	0.0
1994 10 13	560	0.4-	0.9+	1998 08 17	704	1.7-	0.9+	1998 08 30	699	0.0	0.1+
1994 10 14	560	0.1-	1.5+	1998 08 17	704	1.5-	0.3-	1998 08 30	699	0.3+	0.7+
1994 10 14	560	0.7-	0.7+	1998 08 17	704	1.3-	0.8+				

1994 UA₃ = 1981 UO₇ = 1998 QG₅₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	273.84665	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.22556079	ω 199.77325	+0.14332384	-0.98950869
<i>a</i>	2.6727622	Ω 241.99019	+0.91075967	-0.13906464
<i>e</i>	0.1771840	<i>i</i> 1.18049	+0.38726618	+0.03916097
<i>P</i>	4.37	<i>H</i> 14.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1981 10 30	381	0.8-	0.3-	1994 11 10	399	0.2+	0.6-	1998 08 17	704	1.4+	0.7-
1981 10 30	381	0.8+	0.1+	1994 11 28	675	1.8+	1.4-	1998 08 17	704	1.6-	0.9+
1994 10 26	399	0.5-	0.1-	1994 11 28	675	0.9+	0.8+	1998 08 17	704	1.3-	0.0
1994 10 26	399	0.4+	1.7+	1994 11 29	691	0.8-	0.4+	1998 08 23	704	1.0+	0.5-
1994 11 07	399	1.5-	0.2+	1994 11 29	691	1.0-	0.3+	1998 08 23	704	0.9-	0.0
1994 11 07	399	0.3+	0.4-	1994 11 29	691	0.8-	0.1+	1998 08 23	704	0.4-	0.6+
1994 11 10	399	1.0+	0.6-	1998 08 17	704	1.4+	1.6-	1998 08 23	704	0.4+	1.2+

1994 VD = 1998 QX₇₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	322.93837	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.22790309	ω 150.06545	+0.94800739	-0.28394994
<i>a</i>	2.6544176	Ω 227.16844	+0.23896118	+0.93336260
<i>e</i>	0.1955105	<i>i</i> 11.30146	+0.21018931	+0.21956021
<i>P</i>	4.32	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1994 11 01	411	0.3-	0.1-	1994 11 08	411	0.0	0.9+	1998 08 24	704	0.1+	0.4-
1994 11 01	411	0.4-	0.3+	1994 11 23	411	0.2+	0.2+	1998 08 24	704	0.6-	0.1-
1994 11 02	411	0.1+	0.1+	1994 11 23	411	0.2+	0.7-	1998 08 24	704	0.0	0.8+
1994 11 02	411	0.4+	0.7+	1994 11 28	675	0.4+	1.2-	1998 08 24	704	0.2-	0.3+
1994 11 03	411	0.3-	0.1+	1994 11 28	675	0.1-	0.1-	1998 08 27	704	0.9+	1.4-
1994 11 03	411	0.2+	0.1+	1994 11 29	691	0.7-	0.8+	1998 08 27	704	1.1+	0.2-
1994 11 06	675	0.8-	2.6-	1994 11 29	691	1.3-	0.7+	1998 08 27	704	0.0	0.7+
1994 11 06	675	0.4-	1.2-	1994 11 29	691	1.4-	1.0+	1998 08 27	704	0.3+	0.2+
1994 11 07	675	0.1+	0.5+	1994 12 03	675	1.3+	0.2+	1998 08 27	704	1.1-	0.8+
1994 11 07	675	1.5+	1.2+	1994 12 03	675	0.7+	1.2-				
1994 11 08	411	0.7+	0.2+	1998 08 24	704	0.3-	0.5-				

1994 VZ₆ = 1998 QU₆₁

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	321.03875	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.23575656	ω 156.48765	+0.84378542	-0.53367732
<i>a</i>	2.5951364	Ω 235.88743	+0.48088906	+0.79874041
<i>e</i>	0.2779520	<i>i</i> 3.92676	+0.23826849	+0.27785298
<i>P</i>	4.18	<i>H</i> 15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1994 10 25	399	1.0+	0.2-	1994 11 10	399	1.8-	0.3-	1998 08 17	704	1.5-	0.3-
1994 10 25	399	0.4+	0.9+	1994 11 28	675	0.7+	1.4-	1998 08 17	704	1.1-	1.5-
1994 10 26	399	0.6+	1.8+	1994 11 28	675	1.8+	1.2-	1998 08 17	704	0.3-	0.5-
1994 10 26	399	0.1+	2.5+	1994 11 29	691	1.0-	0.4+	1998 08 17	704	0.3-	0.9-
1994 11 04	675	0.9+	0.5-	1994 11 29	691	1.2-	0.6+	1998 08 23	704	0.4+	0.7+
1994 11 04	675	0.2-	0.8-	1994 11 29	691	0.8-	0.5+	1998 08 23	704	0.6+	1.6+
1994 11 06	675	0.1-	0.6-	1994 11 30	675	0.4-	0.3+	1998 08 23	704	0.6+	0.4-
1994 11 06	675	1.8-	0.8-	1994 11 30	675	0.3+	0.8-	1998 08 30	699	0.4+	0.1+
1994 11 07	399	0.3+	0.9+	1994 12 03	675	0.0	0.9-	1998 08 30	699	0.3-	0.1-
1994 11 07	399	0.1+	1.2+	1994 12 03	675	0.4+	1.5-	1998 08 30	699	0.6+	0.1-
1994 11 10	399	0.4+	0.1-	1998 08 17	704	1.1+	0.0				

1994 WU = 1983 VY₄ = 1998 QY₇₁

Id. G. V. Williams, S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	131.09930	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.18033615	ω 297.51682	-0.95515015	+0.20163582
<i>a</i>	3.1027552	Ω 254.78380	-0.12163912	-0.93487656
<i>e</i>	0.1536220	<i>i</i> 12.98793	-0.26998539	-0.29214519
<i>P</i>	5.47	<i>H</i> 12.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1983 11 08	381	0.0	1.2+	1994 12 04	411	0.1+	0.1-	1998 08 24	704	0.7+	0.8+
1994 11 25	411	0.3+	0.1+	1994 12 04	098	1.2+	0.2+	1998 08 27	704	0.2-	0.3+
1994 11 25	411	0.0	0.4-	1994 12 21	411	0.7+	0.4+	1998 08 27	704	0.9+	0.5-
1994 11 26	411	1.0-	0.4-	1994 12 21	411	1.0+	0.5-	1998 08 27	704	0.9-	0.6+
1994 11 26	411	1.2-	0.4-	1998 08 24	704	0.7-	0.8-	1998 08 27	704	1.0-	0.1+
1994 12 04	098	1.8-	1.9-	1998 08 24	704	0.7+	0.5+	1998 08 27	704	0.2-	0.4+
1994 12 04	098	0.9+	1.9+	1998 08 24	704	0.0	0.5-				
1994 12 04	411	0.3-	0.0	1998 08 24	704	0.6+	1.1-				

1994 WW₂ = 1998 QD₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	42.53750	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.22237328	ω 306.15097	+0.77367780	+0.63342744
<i>a</i>	2.6982426	Ω 14.56229	-0.56214327	+0.69637849
<i>e</i>	0.0615646	<i>i</i> 3.16193	-0.29226290	+0.33738209
<i>P</i>	4.43	<i>H</i> 14.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1994 11 30	411	0.1+	0.4-	1994 12 22	411	0.6-	0.6-	1998 08 24	910	0.5-	0.1-
1994 11 30	411	0.4+	0.4-	1994 12 22	411	0.7-	1.1+	1998 08 25	910	1.1+	0.1+

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1994 12 03	411	0.2+	0.1+	1994 12 24	411	1.2+	0.1-	1998 08 25	910	0.1+	0.1+
1994 12 03	411	0.1-	0.2+	1994 12 24	411	0.8+	0.5+	1998 08 25	910	0.1+	0.3+
1994 12 07	411	1.4-	0.4-	1998 08 24	910	0.6-	0.1-				
1994 12 07	411	0.1+	0.1+	1998 08 24	910	0.2-	0.1-				

1994 WN₃ = 1998 QU₉₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	345.79938		(2000.0)		P		Q
<i>n</i>	0.24558454	ω	258.66360		+0.84408548		-0.52923279
<i>a</i>	2.5254302	Ω	133.22212		+0.52645389		+0.78742020
<i>e</i>	0.2319980	<i>i</i>	6.79443		+0.10181357		+0.31604127
<i>P</i>	4.01	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 11 28	399	0.3+	0.2-	1998 08 28	704	0.5+	1.1-	1998 08 31	704	1.5+	0.0
1994 11 28	399	1.5-	0.3+	1998 08 28	704	1.0+	1.7-	1998 08 31	704	1.9-	0.3-
1994 11 29	399	0.4+	0.5+	1998 08 28	704	0.7+	2.2+	1998 08 31	704	0.3-	0.8-
1994 11 29	399	0.7+	0.4-	1998 08 28	704	0.1+	1.5+	1998 08 31	704	0.2+	0.4-
1994 12 10	399	0.0	0.4+	1998 08 28	704	2.7-	0.1+				
1994 12 10	399	0.1+	0.5-	1998 08 31	704	0.8+	0.3+				

1994 XP = 1998 QJ₉₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	349.59771		(2000.0)		P		Q
<i>n</i>	0.24083029	ω	156.40756		+0.92464555		-0.36988412
<i>a</i>	2.5585582	Ω	225.62741		+0.32609871		+0.89194356
<i>e</i>	0.2091881	<i>i</i>	7.28524		+0.19669836		+0.26004311
<i>P</i>	4.09	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 12 01	400	1.3+	0.1-	1994 12 07	893	0.6+	0.5+	1994 12 22	893	0.0	0.0
1994 12 01	400	0.3-	0.5-	1994 12 08	391	1.3+	1.0+	1998 08 28	704	0.1-	0.3+
1994 12 03	400	0.2-	0.4-	1994 12 08	391	1.4+	1.2+	1998 08 28	704	0.3-	0.6+
1994 12 03	400	0.2-	0.6-	1994 12 08	391	0.4+	1.5-	1998 08 28	704	0.1+	0.3+
1994 12 04	391	1.0-	0.7+	1994 12 10	893	0.2-	0.4-	1998 08 28	704	0.4-	0.7+
1994 12 04	391	1.8-	0.1+	1994 12 10	893	0.3-	0.6-	1998 08 31	704	0.3-	0.6-
1994 12 04	391	0.9-	0.1+	1994 12 20	893	0.6-	0.3+	1998 08 31	704	0.4-	0.1+
1994 12 06	893	0.1-	0.0	1994 12 20	893	0.1-	0.4-	1998 08 31	704	0.2+	0.4-
1994 12 06	893	0.3+	0.2+	1994 12 21	893	0.3-	0.1-	1998 08 31	704	0.2+	0.1+
1994 12 06	893	0.1+	0.6+	1994 12 21	893	0.1-	0.3-	1998 08 31	704	1.1+	1.2-
1994 12 07	893	0.5+	0.3+	1994 12 22	893	0.2+	0.1-				

1994 XZ₄

Id. F. B. Zoltowski (1998 observations), A. Nakamura (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano

<i>M</i>	315.69112		(2000.0)		P		Q
<i>n</i>	0.23447649	ω	342.38401		+0.66110999		-0.73400029
<i>a</i>	2.6045729	Ω	65.92242		+0.70725248		+0.54048036
<i>e</i>	0.4250290	<i>i</i>	9.80572		+0.25045460		+0.41124756
<i>P</i>	4.20	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1994 12 03	098	1.7+	1.5-	1994 12 23	897	0.1-	0.6+	1995 01 07	104	0.3-	1.1+
1994 12 04	411	0.5+	0.3+	1994 12 23	897	0.0	0.2+	1995 01 08	587	0.6-	2.0+
1994 12 04	411	0.1+	0.0	1994 12 23	587	0.1+	0.5+	1995 01 08	587	1.6+	0.3-
1994 12 10	411	0.6+	0.9+	1994 12 23	587	0.0	0.2-	1995 01 09	104	1.2+	0.4+
1994 12 10	411	0.0	0.4+	1994 12 24	411	0.3+	0.2-	1995 01 09	104	0.4+	0.2-
1994 12 14	411	0.5-	0.3+	1994 12 24	411	0.1+	0.4-	1995 01 09	104	0.5+	0.3-
1994 12 14	411	0.5-	0.3-	1994 12 27	817	0.2-	0.4+	1995 01 23	411	0.8+	0.4-
1994 12 14	411	0.1+	0.8+	1994 12 27	817	0.3-	0.2+	1995 01 23	411	0.1+	0.8+
1994 12 14	411	0.6+	0.5+	1994 12 27	817	0.0	0.6+	1995 01 23	411	1.2+	0.4+
1994 12 17	046	1.0+	1.0-	1994 12 27	817	0.3-	0.6+	1995 01 24	411	1.0-	0.4-
1994 12 17	046	0.5-	0.6-	1994 12 27	817	0.6-	0.6+	1995 01 24	411	1.0-	1.3-
1994 12 17	046	0.1+	0.1-	1994 12 27	817	0.3-	0.5+	1995 01 25	608	0.4+	0.6+
1994 12 17	046	1.1+	1.3-	1994 12 27	817	0.5-	0.6+	1995 01 25	411	1.0-	0.3-

1994 12 18	411	0.7-	0.8-	1994 12 27	817	0.0	0.6+	1995 01 25	411	0.9-	0.2+
1994 12 18	411	0.4-	0.5-	1994 12 27	360	0.1-	0.8+	1995 01 25	411	0.7-	1.1-
1994 12 18	411	1.3-	1.6-	1994 12 27	360	0.2-	0.7+	1995 02 01	897	1.0-	1.4-
1994 12 18	897	0.2+	1.0+	1994 12 27	360	0.8-	0.9+	1995 02 01	897	1.5+	0.2-
1994 12 18	897	1.3-	1.6-	1995 01 02	411	0.4+	0.8+	1995 02 01	104	1.2-	0.4-
1994 12 18	540	0.4-	0.5-	1995 01 02	411	0.5-	0.7+	1995 02 02	104	0.4+	0.9+
1994 12 18	540	0.4-	1.1-	1995 01 02	411	0.4-	0.7-	1995 02 02	104	0.2-	0.2-
1994 12 18	540	0.4-	0.4-	1995 01 02	887	0.8-	0.7+	1995 04 03	711	(7.0-	0.6+)
1994 12 18	046	0.3-	1.1-	1995 01 02	887	0.5-	0.0	1995 04 03	711	(2.7-	0.3-)
1994 12 18	046	0.5-	0.8-	1995 01 02	887	0.6-	0.2+	1998 08 14	426	0.6-	0.2+
1994 12 18	046	0.2-	1.1-	1995 01 05	411	0.0	0.3+	1998 08 14	426	0.6+	0.4+
1994 12 18	046	0.0	1.0-	1995 01 05	411	0.3+	0.0	1998 08 14	426	0.4-	0.2-
1994 12 20	817	0.4+	0.8+	1995 01 05	411	0.3+	0.4-	1998 08 15	426	0.5-	0.3-
1994 12 20	817	0.5+	0.7+	1995 01 05	897	0.0	0.0	1998 08 15	426	0.6-	0.3-
1994 12 20	817	0.4+	0.8+	1995 01 05	897	1.2+	0.7+	1998 08 15	426	0.7-	0.6-
1994 12 20	413	0.4+	0.0	1995 01 05	540	0.6+	0.4+	1998 08 15	360	0.4-	0.3-
1994 12 20	413	0.3+	0.1-	1995 01 05	540	0.3-	0.7-	1998 08 15	360	0.5-	0.0
1994 12 21	411	0.2-	0.7-	1995 01 05	540	0.6+	0.0	1998 08 15	360	0.6-	0.1-
1994 12 21	411	0.1-	0.3-	1995 01 07	887	0.9-	1.0-	1998 08 25	360	1.2+	0.4+
1994 12 21	587	0.4-	0.3+	1995 01 07	887	0.1-	0.1-	1998 08 25	360	1.2+	0.7+
1994 12 21	587	0.1+	0.8+	1995 01 07	887	0.4+	0.3+	1998 08 25	360	1.0+	0.6+
1994 12 22	360	0.0	1.2+	1995 01 07	104	1.8+	1.1-				
1994 12 22	360	0.1+	1.2+	1995 01 07	104	0.8+	0.1+				

1994 YC₂ = 1998 QN₈₉

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	322.16778		(2000.0)		P		Q
<i>n</i>	0.22737454	ω	119.35372		+0.83907797		-0.50796011
<i>a</i>	2.6585295	Ω	271.80094		+0.40662581		+0.82341977
<i>e</i>	0.1832696	<i>i</i>	11.23531		+0.36139121		+0.25289605
<i>P</i>	4.33	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 11 27	675	0.1+	2.3-	1995 03 07	413	0.1-	0.6-	1998 08 24	704	0.6-	0.4+
1994 11 27	675	0.8+	0.4+	1995 03 07	413	0.1-	0.7-	1998 08 27	704	0.4+	0.9-
1994 12 26	413	0.7+	2.6+	1998 08 24	704	0.9+	0.8-	1998 08 27	704	0.1-	0.5-
1994 12 26	413	2.3-	1.5-	1998 08 24	704	0.5+	0.7-	1998 08 27	704	0.8+	0.0
1994 12 27	413	(1.0+	5.4+)	1998 08 24	704	0.6+	0.7+	1998 08 27	704	0.9-	0.3-
1994 12 27	413	0.2-	0.9+	1998 08 24	704	0.6-	0.4+	1998 08 27	704	1.2+	0.0
1995 01 15	413	0.3-	0.1+	1998 08 24	704	0.8-	1.1-	1998 08 27	704	0.2+	0.6+
1995 01 15	413	0.3-	0.3+	1998 08 24	704	1.3-	0.5+	1998 08 27	704	0.2+	0.2-
1995 01 15	413	0.2-	0.1+	1998 08 24	704	0.7+	0.1-	1998 08 27	704	1.0+	0.3+
1995 02 01	413	1.1+	0.1+	1998 08 24	704	0.1-	1.3+	1998 08 27	704	0.2-	0.1-
1995 02 01	413	0.8+	0.4+	1998 08 24	704	1.1-	0.1+	1998 08 27	704	0.9-	0.5+

1995 AV₄ = 1998 QS₈₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	289.67253		(2000.0)		P		Q
<i>n</i>	0.19121743	ω	119.80551		+0.44776029		-0.88457787
<i>a</i>	2.9839009	Ω	303.02475		+0.75722954		+0.45275409
<i>e</i>	0.0916754	<i>i</i>	8.95498		+0.47551461		+0.11196306
<i>P</i>	5.15	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 01 05	033	0.2+	0.0	1995 02 06	691	0.4-	0.1-	1998 08 27	704	0.2-	0.4-
1995 01 06	033	0.4-	0.2-	1995 02 06	691	1.1-	0.1+	1998 08 27	704	0.1+	0.1+
1995 01 08	033	0.0	0.2+	1998 08 24	704	0.8+	0.9-	1998 08 27	704	0.3+	0.5+
1995 01 30	033	1.2+	0.3-	1998 08 24	704	0.9-	0.6+	1998 08 27	704	0.3+	0.1+
1995 01 30	033	1.1+	0.2+	1998 08 24	704	0.0	0.3-	1998 08 27	704	0.6-	0.8-
1995 02 02	033	0.4-	0.3+	1998 08 24	704	0.6+	0.1+				
1995 02 06	691	0.3-	0.1-	1998 08 24	704	0.4-	0.9+				

1995 BT = 1998 QY₁₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	289.23356	ω	88.06256	+0.66275878	-0.70705686		
<i>a</i>	3.2296525	Ω	316.80759	+0.45913690	+0.64386171		
<i>e</i>	0.1150125	<i>i</i>	21.11974	+0.59156073	+0.29242554		
<i>P</i>	5.80	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1995 01 23	411	0.2-	0.4+	1995 02 07	411	0.1+	0.1-
1995 01 23	411	0.9-	1.5-	1995 02 10	411	0.9+	0.7+
1995 01 25	411	0.8-	0.2+	1995 02 10	411	0.1+	0.1+
1995 01 25	411	0.3+	0.2-	1995 02 19	411	0.2+	1.1-
1995 01 30	411	1.1+	0.1-	1995 02 19	411	1.2-	0.2-
1995 01 30	411	0.4+	0.5+	1998 08 17	704	0.0	0.2+
1995 01 31	691	0.6-	0.2+	1998 08 17	704	0.1-	0.0
1995 01 31	691	0.9-	0.5+	1998 08 17	704	0.1+	0.4+
1995 01 31	691	0.7+	0.1+	1998 08 17	704	(3.2-	0.6+)
1995 02 07	411	0.7+	0.1+	1998 08 17	704	0.4+	0.4+
				1998 08 30	699	0.8-	0.3+
				1998 08 30	699	0.1-	0.1-

1995 BX = 1998 OH₁₃

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	288.90659	ω	19.64916	+0.58975362	-0.80745266		
<i>a</i>	3.0622648	Ω	34.21578	+0.73744610	+0.53111801		
<i>e</i>	0.1941779	<i>i</i>	1.47980	+0.32918675	+0.25677590		
<i>P</i>	5.36	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1995 01 25	411	0.2-	0.4-	1995 02 10	411	1.1+	0.3-
1995 01 25	411	0.7+	1.1-	1995 02 19	411	0.3-	1.3+
1995 01 26	411	0.2-	0.3+	1995 02 20	411	1.6+	0.2+
1995 01 26	411	0.7+	1.1-	1995 02 20	411	0.2+	0.4+
1995 01 29	691	1.2-	0.1-	1998 07 26	809	0.5+	0.7-
1995 01 29	691	1.0-	0.2-	1998 07 26	809	0.6+	1.5-
1995 01 29	691	1.1-	0.2-	1998 07 26	809	0.1+	0.8-
1995 01 30	411	0.0	0.1+	1998 07 27	809	1.0+	0.1-
1995 01 30	411	0.3+	0.4-	1998 07 27	809	0.7+	0.0
1995 02 06	411	0.0	0.2+	1998 07 27	809	0.4+	0.1+
1995 02 06	411	0.3-	0.0	1998 08 17	704	0.1+	0.4-
1995 02 10	411	0.6-	0.8+	1998 08 17	704	0.3-	0.5-

1995 GZ₈ = 1980 FQ = 1988 PK₃ = 1991 FR₁ = 1996 QJ₃

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	148.17315	ω	206.30656	+0.97386459	-0.22646250		
<i>a</i>	2.3838786	Ω	166.74750	+0.21946555	+0.91851777		
<i>e</i>	0.0746064	<i>i</i>	4.35110	+0.05850323	+0.32409852		
<i>P</i>	3.68	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1980 03 16	809	0.1+	0.3+	1991 03 17	809	0.1+	0.5+
1980 03 16	809	0.2+	0.4+	1991 03 17	809	0.2+	0.5+
1980 03 16	809	0.0	0.0	1991 03 20	809	1.2+	1.0+
1980 03 16	809	0.1+	1.0+	1991 03 20	809	1.4+	1.0+
1980 03 17	809	0.1-	0.7+	1991 03 20	809	(2.1+	0.9+)
1980 03 17	809	0.1-	0.5+	1995 04 04	399	(2.5-	1.2+)
1980 03 17	809	0.2-	0.5+	1995 04 04	399	0.0	1.3-
1980 03 17	809	0.8+	0.3-	1995 04 20	399	0.7-	0.7+
1988 08 04	413	0.1-	1.3-	1995 04 20	399	0.8+	1.3-
1988 08 04	413	1.8-	1.1-	1995 04 27	399	0.7+	1.0+
1991 03 17	809	0.2+	0.7+	1995 04 27	399	0.7-	0.1+

1995 SY₁₄ = 1979 OR₂ = 1998 HC₇₃Id. G. V. Williams (*MPC* 31968, unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	324.42555	ω	352.92467	+0.08656550	+0.99614133		
<i>a</i>	2.4812339	Ω	282.04063	-0.91331243	+0.07355616		
<i>e</i>	0.0976290	<i>i</i>	0.84671	-0.39795329	+0.04787427		
<i>P</i>	3.91	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1979 07 24	675	1.7+	0.5-	1995 09 18	691	0.0	0.6+
1979 07 24	413	0.9-	1.0-	1995 09 18	691	0.6-	0.5+
1991 09 07	691	0.5-	0.8-	1995 09 18	691	0.1+	0.4+
1991 09 07	691	0.5-	0.0	1995 09 23	691	0.1+	0.4+
1991 09 07	691	0.8-	0.5-	1995 09 23	691	0.3-	0.4+
1994 04 06	691	0.1+	0.5-	1995 09 23	691	0.1+	0.5+
1994 04 06	691	0.5-	0.1-	1995 09 27	691	0.3-	0.1+
1994 04 06	691	0.2-	0.2+	1995 09 27	691	0.3+	0.6+
1995 09 01	809	0.4+	0.5+	1995 09 27	691	0.4+	0.2-
				1998 04 21	704	0.2+	1.4-
				1998 04 21	704	0.6-	1.2+
				1998 04 21	704	0.6+	1.0+
				1998 04 21	704	3.9-	1.8+
				1998 04 22	704	1.5+	0.6-
				1998 04 22	704	1.2+	0.4-
				1998 04 22	704	2.0+	0.8+
				1998 04 22	704	0.3+	0.1+

1995 SM₅₃ = 1998 QG₃₇

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	328.25955	ω	150.15647	+0.99938803	-0.00162248		
<i>a</i>	0.30474510	Ω	209.99724	-0.01040603	+0.93990720		
<i>e</i>	0.1434891	<i>i</i>	4.00764	+0.03339577	+0.34142615		
<i>P</i>	3.23	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1995 09 28	327	0.1-	0.5+	1995 11 17	327	0.3-	0.1+
1995 09 28	327	0.2+	0.2+	1995 11 17	327	0.3+	0.2-
1995 09 28	327	0.1-	0.2+	1995 11 23	327	0.1-	0.4-
1995 09 28	327	0.0	0.3-	1995 11 23	327	0.8-	0.3-
1995 09 29	327	0.1+	0.4+	1995 11 23	327	0.6+	0.3-
1995 09 29	327	0.1+	0.2+	1998 08 17	704	0.2+	1.1+
1995 09 29	327	0.1-	0.1+	1998 08 17	704	0.2+	0.3+
1995 09 29	327	0.1+	0.0	1998 08 17	704	0.6+	0.5-
1995 11 17	327	0.1+	0.1-	1998 08 17	704	0.1+	1.0-
				1998 08 17	704	0.1-	0.7+
				1998 08 26	699	0.1+	0.7-
				1998 08 26	699	0.1-	0.3+
				1998 08 26	699	0.7-	0.7+

1995 TZ = 1998 QX₈

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	7.23566	ω	251.87203	+0.31318109	+0.94943003		
<i>a</i>	0.29562632	Ω	36.40319	-0.85646010	+0.29253310		
<i>e</i>	2.2317249	<i>i</i>	2.15979	-0.41035802	+0.11404822		
<i>P</i>	0.1945303	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1995 10 13	369	0.6+	0.4+	1995 10 20	369	0.5-	0.4+
1995 10 13	369	0.7+	0.4+	1995 10 30	369	0.2+	0.3+
1995 10 13	369	0.7+	0.2-	1995 10 30	369	0.0	0.9+
1995 10 14	369	0.1-	0.2-	1995 10 30	369	0.3-	1.2+
1995 10 14	369	0.1+	0.7-	1995 11 11	369	0.1+	0.2-
1995 10 14	369	0.5-	1.1-	1995 11 11	369	0.1-	0.8-
1995 10 15	691	0.5-	0.3-	1995 11 11	369	0.3+	0.5-
1995 10 15	691	0.6-	0.3-	1998 07 31	699	0.1-	0.2-
1995 10 15	691	0.8-	0.4-	1998 07 31	699	0.1-	0.1-
1995 10 20	369	0.1+	0.5+	1998 07 31	699	0.1+	0.0
1995 10 20	369	0.5+	0.4+	1998 08 17	704	0.3+	0.0
				1998 08 17	704	0.6+	0.2-
				1998 08 17	704	0.3-	1.2-
				1998 08 23	704	0.9-	0.4-
				1998 08 23	704	0.0	0.1+
				1998 08 23	704	0.2-	0.5+
				1998 08 23	704	1.1+	0.9+
				1998 08 23	704	1.4-	1.3+

1995 UR = 1998 QX₂₆

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	239.65912		(2000.0)	P		Q	
<i>n</i>	0.28233876	ω	155.09887	-0.08808163	-0.92156859		
<i>a</i>	2.3012072	Ω	297.89956	+0.82719536	+0.14379800		
<i>e</i>	0.2064418	<i>i</i>	25.32908	+0.55496799	-0.36060153		
<i>P</i>	3.49	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 09 24	693	0.7+	1.3-	1995 10 28	658	0.3-	0.6+	1998 08 24	704	0.1-	0.1-
1995 09 24	693	0.5-	0.1-	1995 12 02	692	1.7-	1.7-	1998 08 24	704	1.3+	1.6+
1995 10 18	693	(1.0-	3.0+)	1995 12 02	692	(2.0-	3.1-)	1998 08 24	704	1.1-	0.2+
1995 10 18	693	0.2-	1.3+	1995 12 02	692	(2.3-	2.3-)	1998 08 27	704	0.1+	1.0-
1995 10 20	693	1.3+	0.6-	1998 07 31	699	0.5-	0.3-	1998 08 27	704	1.0+	1.1-
1995 10 20	693	0.6+	0.1-	1998 07 31	699	0.3+	0.3-	1998 08 27	704	(1.3+	2.9+)
1995 10 28	658	0.1+	0.7+	1998 07 31	699	0.2+	0.7-	1998 08 27	704	0.1-	0.5+
1995 10 28	658	0.0	0.7+	1998 08 24	704	0.9-	1.4+	1998 08 27	704	0.3-	0.3-

1995 UA₁ = 1998 OF₁₄

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	162.33337		(2000.0)	P		Q	
<i>n</i>	0.28086236	ω	179.33607	-0.89679605	-0.43976436		
<i>a</i>	2.3092645	Ω	334.39988	+0.40541414	-0.77275152		
<i>e</i>	0.0522162	<i>i</i>	6.46114	+0.17718976	-0.45767063		
<i>P</i>	3.51	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 10 20	120	0.2-	0.7-	1998 07 26	809	1.5+	0.0	1998 08 23	699	1.5-	0.3+
1995 10 21	120	0.5+	0.6-	1998 07 26	809	0.4+	0.8-	1998 08 23	704	1.1+	1.6-
1995 10 22	120	0.1-	0.2-	1998 07 26	809	0.3+	0.5+	1998 08 23	704	0.3-	0.6+
1995 10 22	120	0.1-	0.2-	1998 07 27	809	0.6+	1.0+	1998 08 23	699	0.2+	0.1+
1995 10 24	120	0.0	0.0	1998 07 27	809	0.2-	0.3-	1998 08 23	704	1.7-	0.2+
1995 10 24	120	0.1-	0.3-	1998 07 27	809	0.2+	0.4+	1998 08 23	704	0.0	0.1+
1995 11 18	595	1.3-	1.0+	1998 08 17	704	0.4-	0.1+	1998 08 23	699	0.4+	0.4+
1995 11 18	595	0.2-	0.1-	1998 08 17	704	0.2-	0.4-	1998 08 23	120	0.9-	0.7+
1995 11 20	595	0.1-	0.4+	1998 08 17	704	1.0-	0.0	1998 08 23	120	(2.5+	1.3-)
1995 11 20	595	0.2-	0.1+	1998 08 17	704	0.4+	0.0	1998 08 23	120	0.3-	0.2-
1995 11 20	120	1.0+	0.1+	1998 08 17	704	1.9+	0.5-				
1995 11 20	120	0.7+	0.2+	1998 08 23	704	0.4-	0.2-				

1995 UO₃ = 1998 QT₄₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	240.77749		(2000.0)	P		Q	
<i>n</i>	0.29192469	ω	200.23204	-0.14518227	-0.98745213		
<i>a</i>	2.2505508	Ω	258.15533	+0.91627064	-0.11049060		
<i>e</i>	0.0959648	<i>i</i>	3.63980	+0.37332322	-0.11282785		
<i>P</i>	3.38	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 10 17	358	1.2+	0.0	1995 11 02	411	0.4-	0.1-	1998 08 17	704	0.2+	0.2-
1995 10 17	358	0.7+	0.3-	1995 11 02	411	0.2-	0.2-	1998 08 17	704	0.1+	1.3-
1995 10 19	358	2.1-	1.6-	1995 11 10	358	0.8+	2.3+	1998 08 17	704	0.3-	0.8+
1995 10 19	358	0.3-	2.4-	1995 11 10	358	1.4-	0.3+	1998 08 23	704	0.3-	0.6-
1995 10 28	358	1.4+	2.2+	1995 11 20	358	0.6+	1.1-	1998 08 23	704	0.4-	1.8+
1995 10 28	358	0.6-	1.2+	1995 11 20	358	0.3+	0.0	1998 08 23	704	0.0	0.1+
1995 11 01	411	0.2-	0.3-	1998 08 17	704	0.1-	0.1+	1998 08 23	704	0.4+	1.3-
1995 11 01	411	0.1+	0.3-	1998 08 17	704	0.2-	0.0	1998 08 23	704	0.5+	0.9+

1995 UQ₃

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	76.89402		(2000.0)	P		Q	
<i>n</i>	0.30549417	ω	12.24090	-0.25475033	+0.96643171		
<i>a</i>	2.1834040	Ω	243.00815	-0.89033778	-0.24787009		
<i>e</i>	0.0721852	<i>i</i>	2.14470	-0.37736044	-0.06760298		
<i>P</i>	3.23	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 10 15	691	0.6-	0.2+	1995 11 01	411	0.5+	0.5+	1998 08 28	704	1.3+	0.3-
1995 10 15	691	0.9-	0.1+	1995 11 09	411	1.2-	0.8-	1998 08 28	704	(0.7+	2.3-)
1995 10 15	691	0.6-	0.1+	1995 11 09	411	1.3-	0.4-	1998 08 28	704	1.2-	1.0+
1995 10 20	411	1.1+	0.1-	1995 11 09	411	0.7-	0.3-	1998 08 28	699	0.3-	0.3+
1995 10 20	411	0.2+	1.4+	1995 11 18	411	0.3-	0.2-	1998 08 28	699	0.2-	0.2+
1995 10 23	411	0.2+	0.6-	1995 11 18	411	0.4+	0.1+	1998 08 28	699	0.1-	1.0+
1995 10 23	411	1.3+	0.4-	1998 08 27	699	0.1-	0.4+	1998 08 31	704	0.3-	0.2+
1995 10 23	411	0.3+	0.4-	1998 08 27	699	0.2-	0.5+	1998 08 31	704	0.1-	0.8-
1995 10 27	411	0.8+	0.5+	1998 08 27	699	0.3-	0.4+	1998 08 31	704	0.0	0.4+
1995 10 27	411	0.2+	0.1-	1998 08 28	704	(2.3+	0.7+)	1998 08 31	704	0.3+	0.9-
1995 11 01	411	0.5+	0.4+	1998 08 28	704	1.8+	1.3-	1998 08 31	704	0.5-	1.1-

1995 UW₄

Id. F. B. Zoltowski (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	9.73722		(2000.0)	P		Q	
<i>n</i>	0.30424074	ω	279.68864	+0.84457236	+0.52482667		
<i>a</i>	2.1893967	Ω	48.73997	-0.41905249	+0.77121763		
<i>e</i>	0.1356398	<i>i</i>	8.11296	-0.33330547	+0.36025038		
<i>P</i>	3.24	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 10 26	411	0.2+	0.1-	1995 11 11	411	0.2-	0.5-	1998 08 17	426	0.2+	0.1-
1995 10 26	411	0.0	0.0	1995 11 11	411	0.5-	0.6+	1998 08 17	426	0.1+	0.2+
1995 10 27	411	0.3-	0.4-	1995 11 16	399	0.1-	1.7+	1998 08 17	426	0.1-	0.2-
1995 10 27	411	0.3-	0.0	1995 11 16	399	1.3+	0.1+	1998 08 18	426	0.6+	0.2+
1995 11 02	411	0.0	0.2-	1995 11 29	411	0.3+	0.8-	1998 08 18	426	0.4-	0.4-
1995 11 02	411	0.2+	0.0	1995 11 29	411	0.7-	0.5-	1998 08 18	426	0.4-	0.3+

1995 UT₈ = 1998 QH₃₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	282.38001		(2000.0)	P		Q	
<i>n</i>	0.29366855	ω	310.72496	+0.63240424	-0.77119095		
<i>a</i>	2.2416326	Ω	99.89532	+0.73118611	+0.56315390		
<i>e</i>	0.1258644	<i>i</i>	4.24981	+0.25579630	+0.29685386		
<i>P</i>	3.36	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 10 27	399	0.2+	0.4+	1995 11 17	399	2.3-	1.7-	1998 08 17	704	0.3+	0.3-
1995 10 27	399	0.2+	1.4-	1995 11 25	399	1.7+	0.7+	1998 08 23	704	0.3+	0.2+
1995 10 28	399	0.4-	0.8+	1995 11 25	399	0.0	1.5-	1998 08 23	704	0.3+	1.2-
1995 10 28	399	0.5-	0.8+	1998 08 17	704	0.5-	0.9-	1998 08 23	704	0.5-	0.5-
1995 11 16	399	0.1+	0.2-	1998 08 17	704	0.2+	0.8+	1998 08 23	704	0.6-	0.5+
1995 11 16	399	2.6+	1.3+	1998 08 17	704	0.1+	1.0+				
1995 11 17	399	1.6-	0.9+	1998 08 17	704	0.5+	0.3+				

1995 UB₁₅ = 1997 EJ₅₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	135.30560		(2000.0)	P		Q	
<i>n</i>	0.24092920	ω	142.54714	-0.92016479	-0.39115811		
<i>a</i>	2.5578580	Ω	14.45523	+0.34062506	-0.82128684		
<i>e</i>	0.1660283	<i>i</i>	3.92583	+0.19305781	-0.41531104		
<i>P</i>	4.09	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 10 17	691	0.1+	0.0	1995 11 17	691	0.3-	0.3+	1995 11 28	691	0.1+	0.6-
1995 10 17	691	0.1+	0.0	1995 11 17	691	0.3-	0.2+	1997 03 10	809	0.3-	0.7+
1995 10 17	691	0.0	0.1-	1995 11 23	691	0.2+	0.3+	1997 03 10	809	0.4+	1.0+
1995 10 23	691	0.2+	0.0	1995 11 23	691	0.0	0.4+	1997 03 10	809	0.0	0.7+
1995 10 23	691	0.3-	0.3-	1995 11 23	691	0.1-	0.3+	1997 03 11	809	0.4-	0.6-
1995 10 23	691	0.1+	0.1-	1995 11 28	691	0.4+	0.4-	1997 03 11	809	0.1+	0.8-
1995 11 17	691	0.2-	0.2+	1995 11 28	691	0.1+	0.3-	1997 03 11	809	0.2+	0.9-

1995 UA₄₅

Id. F. B. Zoltowski (1998 observations), E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	274.62307		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.30247484	ω	355.40674	+0.40942787	-0.90716493
a	2.1979099	Ω	70.39914	+0.84030563	+0.33352698
e	0.1348863	i	5.91369	+0.35532418	+0.25653759
P	3.26	H	14.5	G 0.15	U 4

Residuals in seconds of arc

1995 10 20	376	0.4+	0.7+	1995 11 30	327	0.1-	0.0	1998 09 01	426	0.3+	0.1-
1995 10 20	376	0.7-	1.0-	1995 12 02	327	0.2+	0.4+	1998 09 03	426	0.4-	0.3+
1995 10 27	376	0.2+	0.3+	1995 12 02	327	0.1+	0.0	1998 09 03	426	0.4-	0.2+
1995 10 27	376	(0.5-	3.8+)	1995 12 02	327	0.1-	0.4-	1998 09 03	426	0.2-	0.2-
1995 11 30	327	0.4+	0.3-	1998 09 01	426	0.4+	0.1+				
1995 11 30	327	0.4-	0.2+	1998 09 01	426	0.3+	0.3-				

1995 UX₄₈ = 1998 QJ₁₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	260.86489		(2000.0)	P	Q
n	0.28687727	ω	59.22129	+0.40737081	-0.91326115
a	2.2768720	Ω	6.73964	+0.83270226	+0.37064507
e	0.1212223	i	0.85790	+0.37504130	+0.16904525
P	3.44	H	15.0	G 0.15	U 6

Residuals in seconds of arc

1995 10 17	114	(2.6-	0.1+)	1995 10 27	114	0.6-	1.0+	1998 08 21	566	0.8+	0.0
1995 10 17	114	1.7-	0.5-	1998 08 17	704	0.4-	1.5-	1998 08 21	566	(2.2-	1.1-)
1995 10 18	114	1.1-	0.3-	1998 08 17	704	1.3-	0.4+	1998 08 23	704	1.0+	0.2-
1995 10 18	114	0.3+	0.0	1998 08 17	704	0.6-	0.1+	1998 08 23	704	0.5+	0.6+
1995 10 19	114	1.7+	0.1+	1998 08 17	704	0.0	0.9-	1998 08 23	704	1.6-	0.3+
1995 10 25	114	1.4+	0.4-	1998 08 17	704	1.4-	0.5-	1998 08 23	704	0.5+	1.2+
1995 10 25	114	(3.6+	0.9-)	1998 08 21	566	1.0+	0.4-	1998 08 23	704	1.3+	0.8+

1995 VB = 1981 WP₅ = 1998 QT₆₁

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	247.58338		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.28396296	ω	191.93496	-0.09678442	-0.99190326		
a	2.2924238	Ω	263.65964	+0.91984530	-0.05758769		
e	0.1340654	i	4.74547	+0.38015445	-0.11318824		
P	3.47	H	15.0	G	0.15	U	4

Residuals in seconds of arc

1981 11 24	095	0.3+	1.0-	1995 11 17	358	0.5-	0.9+	1995 11 29	587	0.4+	0.5+
1995 11 01	411	0.7-	1.5-	1995 11 17	358	1.3-	2.0+	1995 11 29	587	0.9+	0.1+
1995 11 01	411	1.0-	0.2-	1995 11 24	587	0.1+	0.5+	1998 08 17	704	0.2+	1.7+
1995 11 02	411	0.2-	0.1+	1995 11 24	587	0.0	0.1-	1998 08 17	704	(3.1+	0.7-)
1995 11 02	411	0.1-	0.6-	1995 11 24	587	0.0	1.2+	1998 08 17	704	1.1-	0.3-
1995 11 03	411	0.1-	1.7-	1995 11 26	411	0.5-	1.4+	1998 08 17	704	(3.3-	0.1-)
1995 11 03	411	0.1-	1.1-	1995 11 27	411	0.3-	0.2-	1998 08 30	699	0.2+	0.5+
1995 11 11	411	1.3+	1.0-	1995 11 27	411	0.3+	1.2+	1998 08 30	699	0.0	0.0
1995 11 11	411	0.9-	0.1-	1995 11 28	587	0.1+	0.4+	1998 08 30	699	0.3+	0.8-
1995 11 16	358	0.0	0.4-	1995 11 28	587	0.3+	0.3+				
1995 11 16	358	1.3+	1.9-	1995 11 29	587	0.3+	0.6+				

1995 VD = 1998 PH₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	237.54052		(2000.0)	P	Q		
n	0.27443883	ω	88.22291	-0.09797586	-0.99516982		
a	2.3451593	Ω	7.40815	+0.89307441	-0.09064534		
e	0.1085393	i	2.73147	+0.43911141	-0.03768881		
P	3.59	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1995 11 01	411	0.0	0.2-	1995 11 12	411	1.8+	0.2-	1998 08 17	113	0.3+	0.1-
1995 11 01	411	0.1-	0.3+	1995 11 12	411	0.3+	0.4-	1998 08 17	113	0.5-	0.2-
1995 11 02	411	0.4-	0.7+	1995 11 26	411	0.8-	0.6-	1998 08 17	113	0.5+	0.0
1995 11 02	411	0.8-	0.4+	1995 11 26	411	0.1+	0.6-	1998 08 19	113	0.6-	0.4+
1995 11 03	411	0.8-	1.0+	1998 08 14	113	0.6+	0.3-	1998 08 19	113	0.9-	0.0
1995 11 03	411	0.4-	0.4+	1998 08 14	113	1.6+	0.4-	1998 08 19	113	0.2-	0.3+
1995 11 11	411	0.4+	1.0-	1998 08 14	113	0.3-	0.4-	1998 08 19	113	0.3-	0.0
1995 11 12	411	0.8+	0.2+	1998 08 15	113	0.2-	0.5+				

1995 VZ₄ = 1998 QM₃₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	337.19086		(2000.0)	P	Q
n	0.29806737	ω	232.01482	+0.95905093	+0.27736480
a	2.2195236	Ω	111.81708	-0.23662173	+0.89591948
e	0.0800488	i	3.54225	-0.15566462	+0.34698280
P	3.31	H	16.0	G 0.15	U 5

Residuals in seconds of arc

1995 11 14	691	0.2+	0.2-	1995 11 25	691	0.3+	0.1+	1998 08 17	704	0.5+	0.2-
1995 11 14	691	0.1-	0.1-	1995 11 25	691	0.2-	0.1+	1998 08 17	704	0.1+	0.3+
1995 11 14	691	0.3+	0.0	1995 11 25	691	0.2-	0.2+	1998 08 23	704	2.1-	0.9-
1995 11 19	691	0.0	0.1+	1998 08 17	704	0.1+	0.6+	1998 08 23	704	0.8+	0.1-
1995 11 19	691	0.1-	0.1-	1998 08 17	704	0.7+	0.3+	1998 08 23	704	0.8+	0.3-
1995 11 19	691	0.2-	0.1-	1998 08 17	704	1.0-	0.4+				

1995 WS₁ = 1985 WE = 1998 QR₂₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	323.67313		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.29519602	ω	316.98269	+0.99876541	-0.01626152		
a	2.2338931	Ω	44.01556	+0.03534408	+0.89659463		
e	0.1895392	i	3.87336	-0.03490620	+0.44255353		
P	3.34	H	14.0	G	0.15	U	3

Residuals in seconds of arc

1985 11 17	054	0.2+	0.7-	1995 11 27	046	0.4+	1.0-	1998 08 17	704	0.5-	0.3+
1995 11 16	399	0.7+	2.6+	1995 12 14	399	0.5+	0.6+	1998 08 17	704	0.1+	0.0
1995 11 16	399	0.9+	1.2+	1995 12 14	399	0.0	1.5+	1998 08 23	704	0.2+	0.1+
1995 11 17	399	1.0+	1.0+	1995 12 17	399	0.0	0.1-	1998 08 23	704	0.2-	0.5-
1995 11 17	399	0.2+	0.7+	1995 12 17	399	0.9+	0.1+	1998 08 23	704	1.1-	0.3+
1995 11 25	399	1.2-	0.3-	1998 07 31	699	0.5+	0.4+	1998 08 23	704	1.0-	0.1-
1995 11 25	399	1.8-	0.9-	1998 07 31	699	0.5+	0.5+	1998 08 23	704	0.0	1.2-
1995 11 27	046	2.6-	1.2-	1998 07 31	699	0.1+	0.0	1998 08 27	699	1.3+	0.0
1995 11 27	046	0.0	1.5-	1998 08 17	704	0.7-	0.2+	1998 08 27	699	1.7+	0.3-
1995 11 27	046	0.5+	0.9-	1998 08 17	704	0.7-	0.6+	1998 08 27	699	0.3+	0.3-
1995 11 27	046	0.4+	0.9-	1998 08 17	704	0.2-	0.1-				

1995 WT₁ = 1998 QF₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	287.63342		(2000.0)	P	Q		
<i>n</i>	0.28269716	ω	142.96318	+0.81235559	-0.57709220		
<i>a</i>	2.2992618	Ω	252.49056	+0.51174233	+0.77445354		
<i>e</i>	0.1653765	<i>i</i>	5.04854	+0.27963937	+0.25920320		
<i>P</i>	3.49	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

M.P.C. 32466

Residuals in seconds of arc

1995 11 16	399	0.0	0.1+	1995 12 17	369	0.5-	0.2-	1995 12 26	369	0.5-	1.3-
1995 11 16	399	1.3-	0.4+	1995 12 17	369	0.0	0.8+	1998 08 17	704	0.5+	0.2-
1995 11 17	399	1.5+	0.3-	1995 12 21	369	0.6+	0.1+	1998 08 17	704	0.4+	0.3-
1995 11 17	399	1.7+	0.4+	1995 12 21	369	0.3-	0.1+	1998 08 17	704	1.2+	0.7-
1995 11 25	399	2.1-	1.1-	1995 12 21	369	0.0	0.3+	1998 08 17	704	0.8-	0.3-
1995 11 25	399	0.3-	0.2+	1995 12 25	369	0.3-	0.4+	1998 08 17	704	0.1-	0.6-
1995 12 15	369	0.4+	0.2-	1995 12 25	369	0.2+	0.5+	1998 08 23	704	0.9-	0.3-
1995 12 15	369	0.2+	0.1+	1995 12 25	369	0.1-	0.0	1998 08 23	704	0.5-	2.0+
1995 12 15	369	0.2+	0.0	1995 12 26	369	0.0	0.2-	1998 08 23	704	0.0	0.6-
1995 12 17	369	0.8+	0.7+	1995 12 26	369	0.1-	0.9-	1998 08 23	704	0.2+	0.9+

1995 WK₅ = 1998 QY₃

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	307.31498		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.28040905	ω	341.67512	+0.91242471	-0.40721670
a	2.3117526	Ω	42.42815	+0.38261408	+0.81354323
e	0.1242149	i	3.45771	+0.14521574	+0.41511682
P	3.51	H	15.5	G 0.15	U 5

Residuals in seconds of arc

1995 11 24	411	0.2+	1.0−	1998 07 31	699	0.0	0.6+	1998 08 23	704	0.8+	0.2−
1995 11 24	411	0.5+	0.9−	1998 07 31	699	0.8−	0.5+	1998 08 23	704	0.0	0.7+
1995 11 26	411	0.5+	0.2−	1998 07 31	699	0.2+	1.2+	1998 08 23	704	1.2−	0.3−
1995 11 26	411	0.0	0.2+	1998 08 17	704	0.0	0.0	1998 08 23	704	1.4+	1.1+
1995 11 28	411	0.0	0.8+	1998 08 17	704	0.6+	0.6−	1998 08 23	704	0.4−	0.7+
1995 11 28	411	1.1−	0.7+	1998 08 17	704	0.2+	0.1+	1998 08 23	104	0.0	0.3−
1995 12 01	411	0.9+	0.8+	1998 08 17	704	0.2−	1.5−	1998 08 23	104	0.2−	0.6−
1995 12 01	411	0.6−	1.0+	1998 08 17	704	0.3−	0.8−	1998 08 23	104	0.2−	0.1−
1995 12 10	411	1.8−	0.4−	1998 08 20	104	0.1+	0.2−	1998 08 23	104	0.1+	0.1+
1995 12 10	411	0.4−	0.2+	1998 08 20	104	0.2−	0.2+	1998 08 23	104	0.5−	0.2−
1995 12 16	411	1.3+	0.1+	1998 08 20	104	0.2+	0.0				
1995 12 16	411	0.4+	1.4−	1998 08 20	104	0.2+	0.1−				

1995 WX₅ = 1982 VL₈ = 1998 QH₄₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	320.63340		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.30426948	ω	309.91523	+0.96409526	-0.26517699
a	2.1892589	Ω	65.46646	+0.24815642	+0.88060572
e	0.2035127	i	0.89405	+0.09454480	+0.39270183
P	3.24	H	16.0	G 0.15	U 3

Residuals in seconds of arc

1982 11 09	095	0.2+	0.5-	1995 11 27	691	1.1-	0.1+	1998 08 17	704	0.7-	1.0-
1995 11 16	369	(2.5+	2.7-)	1995 11 27	691	0.9-	0.2-	1998 08 17	704	0.5-	0.2+
1995 11 16	369	1.0+	1.1-	1995 11 27	369	0.2+	0.0	1998 08 17	704	0.5+	1.4+
1995 11 16	369	0.0	0.4+	1995 11 27	369	0.3+	0.2+	1998 08 23	704	0.6-	0.5+
1995 11 18	369	0.2-	0.3+	1995 11 27	369	0.2+	0.1-	1998 08 23	704	1.7-	0.4+
1995 11 18	369	0.1-	0.3-	1995 11 29	369	0.8+	0.2-	1998 08 23	704	0.8+	0.6-
1995 11 18	369	0.2+	0.2+	1995 11 29	369	0.6+	0.7-	1998 08 23	704	0.6-	1.8-
1995 11 20	691	0.8-	0.3-	1995 12 12	887	0.0	0.1-	1998 08 23	704	0.9+	1.5+
1995 11 20	691	0.8-	0.0	1995 12 12	887	0.2+	0.3+	1998 08 30	699	0.0	0.1+
1995 11 20	691	0.6-	0.0	1995 12 12	887	0.2-	1.0+	1998 08 30	699	1.0+	0.0
1995 11 24	369	0.6+	0.4+	Y 1995 12 12	887	0.2+	0.2+	1998 08 30	699	0.7+	0.2+
1995 11 24	369	0.5-	0.1+	Y 1998 08 17	704	0.0	0.1-				
1995 11 24	369	0.6+	0.6+	1998 08 17	704	0.1+	0.4-				

$$1995 \text{ WM}_6 = 1986 \text{ TM}_3 = 1997 \text{ FA}_2$$

Id. S. Nakano

1998 SEPT. 10

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	166.29855		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.22530443	ω	280.95430	-0.46936288	-0.88284126
a	2.6747892	Ω	197.07013	+0.83110368	-0.43518012
e	0.1760007	i	3.32463	+0.29827027	-0.17666233
P	4.37	H	13.0	G 0.15	U 1

Residuals in seconds of arc

1986 10 04	046	1.2+	1.1+	1995 11 21	399	1.0-	0.2-	1997 04 01	809	(3.3+	1.1+)
1986 10 04	046	1.9+	0.5+	1995 11 25	399	0.9-	0.5+	1997 04 01	809	(3.9+	0.6+)
1986 10 05	046	(2.0-	4.3+)	1995 11 25	399	0.4+	1.2+	1997 04 02	327	0.5-	0.2-
1986 10 05	046	1.5-	0.8-	1995 12 14	399	0.2+	0.1+	1997 04 02	327	0.1+	0.7-
1986 10 09	046	1.2-	1.9-	1995 12 14	399	0.0	1.1+	1997 04 02	327	0.2-	0.5-
1986 10 09	046	1.7+	1.5-	1997 03 29	327	0.1+	0.2+	1998 06 26	704	(0.3-	2.8+)
1986 10 10	046	0.2-	1.5-	1997 03 29	327	0.0	0.0	1998 06 26	704	0.6-	0.3+
1986 10 10	046	0.9-	0.7+	1997 03 29	327	0.0	0.2-	1998 06 26	704	0.4+	1.3+
1995 11 21	399	0.8+	0.3-	1997 04 01	809	(3.2+	1.2+)				

1995 WD₃₂ = 1997 LM₁₄

Id. G. V. Williams, A. Gnädig

Epoch 1998 July 6.0 TT = JD^T 2451000.5

Gnädig

M	178.34467		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.19192855	ω	352.35882	-0.60607224	-0.79422507
a	2.9765258	Ω	134.93447	+0.73297787	-0.57885644
e	0.1091830	i	3.51428	+0.30890110	-0.18474783
P	5.14	H	15.0	G 0.15	U 4

Residuals in seconds of arc

1995 11 19	691	0.0	0.1-	1996 01 14	327	0.0	0.8-	1997 05 04	809	(1.2-	8.1-)
1995 11 19	691	0.1+	0.1-	1996 01 18	327	0.3+	1.0+	1997 05 04	809	(2.1-	6.6-)
1995 11 19	691	0.2+	0.1+	1996 01 18	327	0.5-	0.3-	1997 06 08	809	1.0+	0.5+
1995 11 29	691	0.1-	0.2-	1996 01 18	327	0.3+	0.3+	1997 06 08	809	0.0	0.3+
1995 11 29	691	0.1-	0.1+	1996 01 18	327	0.7-	0.0	1997 06 08	809	0.5-	0.7+
1995 11 29	691	0.1-	0.1+	1996 01 18	327	0.9+	0.1+	1997 06 09	809	0.5+	0.2-
1996 01 14	327	0.5-	0.4-	1996 01 18	327	0.4-	0.1-	1997 06 09	809	0.7-	0.7-
1996 01 14	327	0.6+	0.2+	1997 05 04	809	(1.9-	6.8-)	1997 06 09	809	0.4-	0.7-

1995 WS₃₃ = 1998 QG₁₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

$\dot{M}$	23.70764		(2000.0)	P	Q
n	0.27982160	ω	96.32322	+0.06613469	+0.99780427
a	2.3149870	Ω	177.46050	-0.94447096	+0.06375733
e	0.1368322	i	4.63859	-0.32187080	+0.01793429
P	3.52	H	15.5	G 0.15	U 5

Residuals in seconds of arc

1995 11 20	691	0.1−	0.2−	1995 11 27	691	1.2−	0.5−	1998 08 23	704	1.3+	0.3+
1995 11 20	691	0.0	0.2−	1998 08 17	704	0.1−	0.1−	1998 08 23	704	1.0−	0.9+
1995 11 26	691	0.5+	0.2−	1998 08 17	704	0.2−	0.0	1998 08 27	699	0.4−	0.1+
1995 11 26	691	0.1+	1.2+	1998 08 17	704	0.7−	0.1−	1998 08 27	699	0.4−	0.2+
1995 11 26	691	0.5+	0.2+	1998 08 17	704	0.6+	0.1+	1998 08 27	699	0.4+	0.1−
1995 11 27	691	0.0	0.2−	1998 08 23	704	1.6−	0.9−				
1995 11 27	691	0.3+	0.2−	1998 08 23	704	2.1+	0.4−				

1995 XA = 1998 QC₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	9.25805		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.27750623	ω	59.55468	+0.55629728	+0.82608336
a	2.3278459	Ω	244.51387	-0.79254492	+0.49483795
e	0.1309605	i	5.72896	-0.24981172	+0.26966958
P	3.55	H	15.0	G 0.15	U 5

Residuals in seconds of arc

1995 12 01	595	0.0	0.1−	1998 08 23	327	0.1−	0.1+	1998 08 26	699	0.4−	0.1+
1995 12 01	595	0.4−	0.6−	1998 08 23	327	0.2−	0.1+	1998 08 26	699	0.5−	0.7+
1995 12 01	595	0.0	0.8+	1998 08 23	327	0.0	0.3+	1998 08 26	699	0.3+	0.1+
1995 12 01	595	0.1−	0.1−	1998 08 24	704	0.1+	0.3−	1998 08 27	704	0.1−	0.1+
1995 12 10	595	0.2+	0.6−	1998 08 24	704	0.5+	0.0	1998 08 27	704	0.1+	0.2+
1995 12 10	595	0.7+	0.1+	1998 08 24	704	1.0−	0.5−	1998 08 27	704	0.1+	0.9+
1995 12 14	595	0.3+	0.4+	1998 08 24	704	0.6+	1.2−	1998 08 27	704	(2.8−	2.3+)
1995 12 14	595	0.7−	0.1+	1998 08 24	704	0.2−	1.2−	1998 08 27	704	0.4+	0.2−
1998 08 22	327	0.1−	0.0	1998 08 25	327	0.1−	0.2−	1998 08 27	327	0.2+	0.2+
1998 08 22	327	0.0	0.2+	1998 08 25	327	0.0	0.2−	1998 08 27	327	0.6−	0.1+
1998 08 22	327	0.1+	0.2+	1998 08 25	327	0.5+	0.2+	1998 08 27	327	0.2+	0.2+

1995 XE = 1998 QS₆₉

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	128.21209	(2000.0)	
<i>n</i>	0.23863979	ω 276.22308	−0.93783056 +0.25269749
<i>a</i>	2.5741912	Ω 278.60072	−0.13556533 −0.89775941
<i>e</i>	0.0473172	<i>i</i> 13.92498	−0.31952446 −0.36079359
<i>P</i>	4.13	<i>H</i>	13.5
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1995 12 02	411	0.0	0.3+	1995 12 25	411	0.1−	0.1+	1998 08 24	704	1.9−	0.8+
1995 12 02	411	0.4−	0.2+	1995 12 25	411	0.3−	0.1−	1998 08 24	704	0.6+	0.3−
1995 12 04	411	0.2+	0.6−	1996 01 09	411	0.4−	0.1+	1998 08 24	704	0.9−	0.1+
1995 12 04	411	0.1−	0.1+	1996 01 09	411	0.6−	0.2+	1998 08 27	704	0.4+	0.6−
1995 12 16	411	0.1−	0.4−	1998 08 04	699	1.1+	0.0	1998 08 27	704	0.2+	0.2−
1995 12 16	411	0.1+	0.0	1998 08 04	699	0.6+	0.4+	1998 08 27	704	0.2+	1.0−
1995 12 24	566	(2.4+	0.8+)	1998 08 04	699	0.6+	0.3+	1998 08 27	704	0.6−	1.1+
1995 12 24	566	1.8+	0.1+	1998 08 24	704	0.5+	0.0	1998 08 27	704	0.7−	0.7−
1995 12 24	566	(2.3+	0.8+)	1998 08 24	704	(1.1+	2.4−)				

1995 XG₁ = 1998 QX₇₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	100.57769	(2000.0)	
<i>n</i>	0.24087523	ω 302.62366	−0.75355671 +0.61961373
<i>a</i>	2.5582400	Ω 276.63828	−0.50436079 −0.75919982
<i>e</i>	0.1308086	<i>i</i> 12.77354	−0.42163073 −0.19923468
<i>P</i>	4.09	<i>H</i>	14.5
		<i>G</i>	0.15
		<i>U</i>	5

Residuals in seconds of arc

1995 12 15	411	0.6+	0.6−	1995 12 25	411	0.3−	0.7+	1998 08 24	704	0.3−	0.6−
1995 12 15	411	0.7−	1.1+	1995 12 30	411	0.0	0.4−	1998 08 24	704	0.1−	1.1−
1995 12 16	411	0.5−	0.2+	1995 12 30	411	0.6+	0.6−	1998 08 27	704	0.2−	1.6+
1995 12 16	411	0.2+	0.6−	1996 01 09	411	0.6+	0.2+	1998 08 27	704	0.5+	0.8−
1995 12 16	411	1.2−	0.4+	1996 01 09	411	0.4−	0.2−	1998 08 27	704	1.4+	1.1+
1995 12 22	411	0.7+	0.1−	1998 08 24	704	0.2+	1.3+	1998 08 27	704	0.3−	0.5+
1995 12 22	411	0.5−	0.1−	1998 08 24	704	0.7−	1.4−				
1995 12 25	411	0.8+	0.1+	1998 08 24	704	0.6−	0.6−				

1995 YF₁ = 1998 QW₆₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	44.26403	(2000.0)	
<i>n</i>	0.21230419	ω 356.25168	−0.09697025 +0.98513727
<i>a</i>	2.7828962	Ω 268.14556	−0.90942979 −0.14558043
<i>e</i>	0.1117630	<i>i</i> 8.15511	−0.40439364 +0.09116410
<i>P</i>	4.64	<i>H</i>	13.5
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1995 12 21	411	0.3−	0.7+	1996 01 18	411	0.3+	0.4−	1998 08 24	704	1.1+	1.7−
1995 12 21	411	0.1+	0.5+	1996 01 24	411	0.6+	1.6+	1998 08 27	704	0.2+	0.4+
1995 12 22	411	0.1−	0.6+	1996 01 24	411	0.7−	0.4−	1998 08 27	704	0.6−	0.6+
1995 12 22	411	1.1−	0.2−	1998 08 24	704	0.1−	0.0	1998 08 27	704	0.2+	0.4+
1995 12 26	411	1.6+	1.7−	1998 08 24	704	0.2+	0.5+	1998 08 27	704	0.8−	0.2+

1995 12 26	411	0.1−	0.0	1998 08 24	704	0.1−	0.1−
1996 01 18	411	0.2−	0.7−	1998 08 24	704	0.1−	0.3−

1995 YJ₃ = 1992 DD₁₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

Marsden			
<i>M</i>	183.90842	(2000.0)	
<i>n</i>	0.23676683	ω 26.10863	−0.92743721 −0.36754827
<i>a</i>	2.5877490	Ω 132.14848	+0.32474771 −0.88307335
<i>e</i>	0.1935989	<i>i</i> 5.34424	+0.18547009 −0.29170144
<i>P</i>	4.16	<i>H</i>	14.5
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1992 02 29	033	0.0	0.4+	1996 01 01	411	0.9+	0.3+	1996 01 25	411	0.4−	0.4−
1992 02 29	033	0.3+	0.2−	1996 01 01	411	0.9+	0.4−	1996 06 19	704	(1.1+	2.3−)
1992 03 01	033	0.3−	0.0	1996 01 02	411	0.2−	0.2−	1996 06 19	704	0.9−	1.7−
1995 12 27	411	0.4−	1.1+	1996 01 02	411	0.0	0.6+	1996 06 19	704	(2.5+	0.8+)
1995 12 27	411	0.6−	0.6−	1996 01 10	411	0.4+	0.5−	1996 06 20	704	1.5+	0.8+
1995 12 29	411	0.3−	0.1+	1996 01 10	411	0.2−	0.3−	1996 06 20	704	0.4−	0.4+
1995 12 29	411	0.8−	0.4+	1996 01 25	411	0.8+	0.2−	1996 06 20	704	0.2−	0.5+

1995 YO₃ = 1976 SA₅ = 1998 QM₃₈

Id. G. V. Williams, T. B. Spahr, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	267.01030	(2000.0)	
<i>n</i>	0.26534290	ω 221.85189	+0.22260238 −0.97489080
<i>a</i>	2.3984522	Ω 215.28740	+0.89719988 +0.20726647
<i>e</i>	0.1614624	<i>i</i> 0.59601	+0.38141912 +0.08141584
<i>P</i>	3.71	<i>H</i>	15.0
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1976 09 24	095	0.6−	1.6+	1996 01 13	411	0.1−	0.1−	1998 08 17	704	0.5+	0.8−
1995 12 27	411	0.2+	0.1−	1996 01 18	411	0.1−	0.0	1998 08 17	704	0.6−	1.8−
1995 12 27	411	0.4+	0.0	1996 01 18	411	0.4+	0.0	1998 08 17	704	0.4+	1.9−
1995 12 29	411	0.6+	0.5+	1996 01 25	411	0.2+	0.7−	1998 08 23	704	0.3+	0.4+
1995 12 29	411	0.5+	0.3−	1996 01 25	411	0.0	0.3+	1998 08 23	704	(2.7+	0.1−)
1995 12 31	411	0.1−	0.1+	1998 08 03	699	0.5−	1.3+	1998 08 23	704	0.6−	0.3−
1995 12 31	411	0.2−	0.5−	1998 08 03	699	0.5+	1.6+	1998 08 23	704	0.2+	0.6−
1996 01 10	411	0.4−	0.4−	1998 08 03	699	0.8−	1.0+	1998 08 23	704	0.6+	1.0+
1996 01 10	411	0.6−	0.4−	1998 08 17	704	0.1+	1.0−				
1996 01 13	411	1.1−	0.4+	1998 08 17	704	0.5+	0.7−				

1996 AN = 1998 QL₃₅

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	260.90692	(2000.0)	
<i>n</i>	0.26015702	ω 6.96032	+0.16892306 −0.98428311
<i>a</i>	2.4302205	Ω 73.32423	+0.90168617 +0.13322666
<i>e</i>	0.1725078	<i>i</i> 3.08148	+0.39802895 +0.11591989
<i>P</i>	3.79	<i>H</i>	14.0
		<i>G</i>	0.15
		<i>U</i>	5

Residuals in seconds of arc

1996 01 11	411	0.2−	0.2+	1996 01 26	411	0.2+	0.2+	1998 08 17	704	0.1+	0.7+
1996 01 11	411	0.4+	0.3+	1996 01 26	411	0.5+	0.1+	1998 08 17	704	0.3−	0.7+
1996 01 12	399	1.0+	1.0−	1996 02 12	411	0.6−	0.3−	1998 08 17	704	0.0	0.3+
1996 01 12	411	0.1+	0.3+	1996 02 12	411	0.5+	0.5+	1998 08 17	704	0.4−	0.0
1996 01 12	399	0.7+	0.1+	1998 07 31	699	0.5−	0.8+	1998 08 23	704	0.7+	0.0
1996 01 12	411	0.8+	0.5−	1998 07 31	699	0.4−	0.2−	1998 08 23	704	0.4+	0.1+
1996 01 13	399	1.8−	0.2+	1998 07 31	699	0.2+	0.6−	1998 08 23	704	0.6+	0.2−
1996 01 13	399	1.6−	0.3+	1998 08 17	704	0.8−	0.1−	1998 08 23	704	0.2+	1.3−

1996 AO = 1987 SF₁₄ = 1998 PN

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	292.40568			(2000.0)	P		Q			
<i>n</i>	0.26096442	ω		97.12317		+0.75265486		−0.63950270		
<i>a</i>	2.4252053	Ω		302.76780		+0.50623528		+0.71422190		
<i>e</i>	0.1905928	<i>i</i>		10.73835		+0.42099467		+0.28447034		
<i>P</i>	3.78	<i>H</i>		14.5	<i>G</i>	0.15		<i>U</i>	3	
Residuals in seconds of arc										
1987 09 22	095	0.4−	1.1+	1996 01 27	411	(2.6−	2.4+)	1998 08 11	620	1.2+ 0.5+
1996 01 11	411	0.2−	0.2−	1996 01 27	411	0.8−	1.8+	1998 08 17	704	0.0 0.3+
1996 01 11	411	0.2+	0.2−	1996 01 29	411	0.8+	0.0	1998 08 17	704	0.4+ 0.7+
1996 01 12	411	0.8−	1.2−	1996 01 29	411	0.1−	0.3+	1998 08 17	704	0.3− 0.0
1996 01 12	411	0.4−	1.9−	1996 01 29	411	0.4+	0.6+	1998 08 17	704	0.6− 0.4−
1996 01 13	411	1.0−	0.1+	1996 02 12	411	0.6−	0.8+	1998 08 17	704	0.0 0.3+
1996 01 13	411	0.9−	0.3−	1996 02 12	411	0.4+	0.4+	1998 08 23	704	0.1+ 0.6−
1996 01 16	896	(2.5+	1.2−)	1998 08 03	620	1.1−	0.6+	1998 08 23	704	0.1− 0.5−
1996 01 16	896	1.3+	0.6−	1998 08 03	620	0.6−	0.1−	1998 08 23	704	0.9− 0.3−
1996 01 16	896	(2.4+	1.1−)	1998 08 04	620	0.3−	1.3+	1998 08 23	704	0.1+ 1.7−
1996 01 26	411	0.3+	0.4−	1998 08 04	620	0.5−	0.8+	1998 08 28	699	1.1+ 0.8−
1996 01 26	411	0.7+	0.1−	1998 08 11	620	0.2−	0.1+	1998 08 28	699	0.8+ 0.5−
1996 01 26	411	0.4+	0.7+	1998 08 11	620	0.3+	0.3+	1998 08 28	699	0.9+ 0.7−

1996 AE₁ = 1998 MW₄₆

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	101.15277	(2000.0)		P		Q					
n	0.18033667	ω	254.41631	−0.96311217		+0.11854312					
a	3.1027493	Ω	291.89589	+0.01025349		−0.88092679					
e	0.0491611	i	15.09174	−0.26890484		−0.45816538					
P	5.47 <th>H</th> <td>12.5<th>G</th><td>0.15<th>U</th><td>3</td></td></td>	H	12.5 <th>G</th> <td>0.15<th>U</th><td>3</td></td>	G	0.15 <th>U</th> <td>3</td>	U	3				
Residuals in seconds of arc											
1995 12 18	566	0.5+	0.3+	1996 02 12	411	0.3+	0.7+	1998 07 01	809	0.4+	1.3+
1995 12 18	566	0.2+	0.1−	1996 02 12	411	0.9+	0.6−	1998 07 01	809	0.2−	1.3+
1995 12 18	566	0.1+	0.0	1998 06 26	704	0.2+	1.7−	1998 07 01	809	0.7+	1.1+
1996 01 12	411	0.1−	0.9−	1998 06 26	704	0.1−	0.4−	1998 07 26	704	0.6−	0.2+
1996 01 12	411	1.0−	0.5−	1998 06 26	704	0.2+	1.0−	1998 07 26	704	0.3−	0.8+
1996 01 13	411	0.0	0.1+	1998 06 26	704	(0.1−	2.9−)	1998 07 26	704	0.2+	0.7−
1996 01 13	411	0.5−	0.0	1998 06 28	809	0.1+	0.8+	1998 07 26	704	0.2+	1.1−
1996 01 18	411	0.6−	0.0	1998 06 28	809	0.3−	0.4−	1998 07 26	704	0.4−	1.0−
1996 01 18	411	0.1−	0.4+	1998 06 28	809	0.2+	0.3+				

1996 AP₂ = 1998 QV₁₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	254.48261		(2000.0)		P		Q				
n	0.23952240	ω	130.10827		+0.15734579		−0.97661057				
a	2.5678637	Ω	310.20857		+0.83761623		+0.21058270				
e	0.1248075	i	11.06266		+0.52310741		−0.04343645				
P	4.11	H	14.0	G	0.15	U	4				
Residuals in seconds of arc											
1996 01 13	411	0.2−	1.3+	1998 08 23	704	0.6−	0.4+	1998 08 27	758	0.9−	0.4+
1996 01 13	411	1.0−	0.7+	1998 08 23	704	0.7+	0.7+	1998 08 27	758	0.2−	0.5+
1996 01 16	411	0.1+	0.4−	1998 08 23	704	0.8−	1.2+	1998 08 27	758	1.7−	1.5−
1996 01 16	411	0.7−	0.7−	1998 08 23	704	0.3+	0.3+	1998 08 27	758	0.3−	0.4−
1996 01 25	411	1.0+	1.1−	1998 08 23	704	0.5+	0.2−	1998 08 27	327	0.2−	0.4−
1996 01 25	411	0.3+	0.1−	1998 08 25	758	0.9−	0.0	1998 08 27	327	0.2−	0.4−
1996 01 30	411	0.6+	0.2−	1998 08 25	758	0.5−	1.2−	1998 08 27	327	0.4−	0.6−
1996 01 30	411	0.1−	0.2+	1998 08 25	758	0.3+	0.5−	1998 08 30	327	0.2−	0.0
1996 02 12	411	0.1+	0.4+	1998 08 26	758	1.5+	1.0−	1998 08 30	327	0.3−	0.2+
1996 02 12	411	0.2−	0.2+	1998 08 26	758	0.1+	0.9+	1998 08 30	327	0.1−	0.0
1998 08 17	704	0.2+	0.1+	1998 08 26	758	0.2−	0.2+	1998 08 31	327	0.5+	0.3−
1998 08 17	704	0.6+	0.0	1998 08 26	699	0.4+	0.6+	1998 08 31	327	0.5+	0.2+
1998 08 17	704	1.1+	0.8−	1998 08 26	699	0.2+	0.3−	1998 08 31	327	0.5+	0.4+

1998 08 17	704	0.4−	0.6+	1998 08 26	699	0.0	0.1+
1998 08 17	704	1.2+	0.6+	1998 08 27	758	0.7−	0.3+

1996 AP₃ = 1988 XD₄

Id. E. Bowell (1998 observations), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	356.93494	(2000.0)		P		Q					
n	0.28481365	ω	65.83692	+0.92998545		+0.34791866					
a	2.2878569	Ω	273.62582	-0.36539355		+0.83964325					
e	0.1934938	i	6.82838	-0.04018233		+0.41707533					
P	3.46 <th>H</th> <td>13.0<th>G</th><td>0.15<th>U</th><td>5</td></td></td>	H	13.0 <th>G</th> <td>0.15<th>U</th><td>5</td></td>	G	0.15 <th>U</th> <td>5</td>	U	5				
Residuals in seconds of arc											
1988 12 01	054	0.2−	1.4−	1996 01 16	608	0.1+	0.4+	1996 02 08	608	2.8+	2.2−
1996 01 14	608	0.4+	0.8+	1996 01 17	608	1.2−	0.4+	1998 08 23	699	0.2−	0.1+
1996 01 14	608	0.2+	0.7+	1996 01 17	608	1.0−	0.4+	1998 08 23	699	0.1+	0.0
1996 01 16	608	0.1+	0.6+	1996 02 08	608	1.0−	0.1+	1998 08 23	699	0.0	0.2+

1996 AW₆ = 1998 QS₆₁

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	307.09265		(2000.0)		P		Q				
n	0.26710209	ω	11.02427		+0.82166137		−0.56963880				
a	2.3879095	Ω	23.73346		+0.51916838		+0.73378235				
e	0.1904268	i	2.79154		+0.23523773		+0.37023655				
P	3.69	H	16.5		G	0.15	U	5			
Residuals in seconds of arc											
1996 01 12	691	0.0	0.0	1996 01 25	691	0.1+	0.1+	1998 08 17	704	0.7−	0.5−
1996 01 12	691	0.1+	0.2−	1996 01 25	691	0.1−	0.0	1998 08 17	704	(4.1−	1.9+)
1996 01 18	691	0.2−	0.1+	1996 01 25	691	0.1+	0.0	1998 08 30	699	0.8−	0.0
1996 01 18	691	0.1−	0.2−	1998 08 17	704	0.3+	1.1−	1998 08 30	699	0.8+	0.3+
1996 01 18	691	0.1+	0.2+	1998 08 17	704	0.5+	1.6+	1998 08 30	699	0.1−	0.3−

1996 AE₁₈ = 1994 PR₁₉ = 1998 QE₁₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	334.74462		(2000.0)		P		Q		
n	0.24033675	ω	197.84541		+0.96590246		+0.25356505		
a	2.5620598	Ω	147.32271		-0.22416188		+0.92014411		
e	0.2483977	i	5.56083		-0.12955266		+0.29839502		
P	4.10 <th>H</th> <td>15.5<th>G</th><td>0.15<th>U</th><td>4<th></th><th></th></td></td></td>	H	15.5 <th>G</th> <td>0.15<th>U</th><td>4<th></th><th></th></td></td>	G	0.15 <th>U</th> <td>4<th></th><th></th></td>	U	4 <th></th> <th></th>		
Residuals in seconds of arc									
1994 08 12	809	(0.3+ 2.4+)	1996 01 20	691	0.0	0.3+	1998 08 23	704	0.2+ 0.3-
1994 08 12	809	(0.1+ 2.6+)	1996 01 20	691	0.0	0.1+	1998 08 23	704	0.2- 0.2-
1994 08 12	809	0.2+ 1.7+	1996 01 27	691	0.1-	0.1+	1998 08 23	704	1.0- 0.9+
1994 08 13	809	1.1+ 0.2+	1996 01 27	691	0.0	0.2+	1998 08 23	704	0.8+ 0.3-
1994 08 13	809	0.1- 0.5-	1996 01 27	691	0.1+	0.2-	1998 08 27	699	1.2+ 0.0
1994 08 13	809	1.3- 1.2-	1998 08 17	704	0.3+	1.1+	1998 08 27	699	0.8+ 0.0
1996 01 13	691	0.0 0.3+	1998 08 17	704	0.1+	0.4+	1998 08 27	699	0.7+ 0.3-
1996 01 13	691	0.2- 0.4+	1998 08 17	704	0.8+	0.5-	1998 08 28	691	1.0- 0.2+
1996 01 13	691	0.3- 0.3+	1998 08 17	704	0.3-	0.5-	1998 08 28	691	0.8- 0.0
1996 01 20	691	0.5+ 1.7-	1998 08 17	704	0.7-	0.3-	1998 08 28	691	0.7- 0.3-

1996 BU =

1998 SEPT. 10

M.P.C. 32469

Residuals in seconds of arc

1995 12 18	691	0.0	0.1+	1996 01 23	400	0.0	0.2+	1998 08 24	704	0.3-	0.6-
1995 12 18	691	0.1-	0.1+	1996 01 23	400	0.4-	0.1-	1998 08 24	704	0.4-	0.2+
1995 12 18	691	0.0	0.0	1996 02 11	400	1.0+	1.8+	1998 08 27	704	0.4+	0.3-
1996 01 17	400	0.1-	0.4+	1996 02 11	400	0.5-	1.5-	1998 08 27	704	0.4+	0.5+
1996 01 17	400	0.4-	0.8+	1998 08 24	704	0.7-	0.1-	1998 08 27	704	0.7+	0.2-
1996 01 19	400	0.2-	0.5-	1998 08 24	704	0.0	0.1+	1998 08 27	704	0.3+	0.3-
1996 01 19	400	0.7+	1.2-	1998 08 24	704	0.3-	0.6+	1998 08 27	704	0.2-	0.1+

1996 BV = 1990 UC₁₄ = 1998 MR₂₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

Gnädig

M	316.58075		(2000.0)	P	Q
n	0.23768727	ω	241.40320	+0.96667171	+0.11764799
a	2.5810640	Ω	111.06301	-0.04391682	+0.95119760
e	0.2370844	i	14.10308	-0.25222433	+0.28527545
P	4.15	H	15.0	G 0.15	U 4

Residuals in seconds of arc

1990 10 17	413	0.7-	0.5+	1996 01 23	400	1.1+	1.2-	1998 06 26	704	0.1-	0.4-
1990 10 17	413	0.7+	0.5-	1996 02 11	400	0.4-	1.2-	1998 06 26	704	0.2-	0.4-
1996 01 17	400	0.5-	0.3+	1996 02 11	400	2.5-	2.0+	1998 06 26	704	0.2+	0.0
1996 01 17	400	0.2+	0.8+	1998 06 24	704	1.7-	0.6-	1998 06 26	704	0.3+	1.1+
1996 01 19	400	0.1-	0.4-	1998 06 24	704	0.6+	0.4+	1998 06 26	704	0.3+	0.7+
1996 01 19	400	0.7+	1.0+	1998 06 24	704	0.0	1.0-				
1996 01 23	400	1.3+	1.3-	1998 06 24	704	0.7+	0.2+				

1996 BL₂ = 1984 SW₂ = 1998 QY₉₂

Id. G. V. Williams, S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	339.95155		(2000.0)	P	Q
n	0.28538081	ω	155.92359	+0.89673637	-0.43940425
a	2.2848246	Ω	230.24804	+0.39408672	+0.84709540
e	0.1705033	i	3.93794	+0.20139397	+0.29892021
P	3.45	H	14.5	G 0.15	U 5

Residuals in seconds of arc

1984 09 25	688	0.5+	1.6-	1996 01 30	411	0.3+	0.3+	1998 08 28	704	0.6-	0.4+
1984 09 25	688	0.4+	0.7-	1996 02 12	411	0.1-	0.4-	1998 08 28	704	1.5-	0.7-
1996 01 26	411	0.5+	0.2-	1996 02 12	411	0.2-	0.2+	1998 08 31	704	0.2+	1.0+
1996 01 26	411	0.1-	0.8+	1996 02 19	411	1.6-	0.7+	1998 08 31	704	1.8+	0.3+
1996 01 27	411	0.9+	1.0-	1996 02 19	411	0.6-	0.1-	1998 08 31	704	1.4+	2.0+
1996 01 27	411	0.3+	0.5-	1998 08 28	704	0.2+	0.5+	1998 08 31	704	1.3-	0.0
1996 01 30	411	0.3+	0.7-	1998 08 28	704	0.8-	0.5-				

1996 BY₂ = 1998 QY₂₄

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	256.08555		(2000.0)	P	Q
n	0.25230447	ω	287.51563	+0.07372553	-0.99692514
a	2.4803868	Ω	158.20431	+0.93996678	+0.06056965
e	0.1924547	i	4.10020	+0.33320714	+0.04971493
P	3.91	H	14.0	G 0.15	U 5

Residuals in seconds of arc

1996 01 17	400	0.9-	0.2-	1996 02 11	400	0.3-	1.0+	1998 08 17	704	1.0-	0.3+
1996 01 17	400	1.7-	0.4+	1996 02 11	400	0.1-	0.8+	1998 08 17	704	0.4+	1.0+
1996 01 23	400	1.8+	0.4-	1996 02 12	411	0.2+	0.6+	1998 08 23	699	0.3+	0.3+
1996 01 23	400	1.3+	1.5-	1996 02 12	411	0.2-	1.1+	1998 08 23	704	1.3+	0.3-
1996 01 30	400	0.3-	0.3-	1998 07 26	699	0.9-	0.3+	1998 08 23	704	0.0	0.6+
1996 01 30	400	0.1-	0.5-	1998 07 26	699	0.1+	1.3-	1998 08 23	699	0.1+	0.4-
1996 01 30	411	0.1+	0.2-	1998 07 26	699	1.1-	1.4-	1998 08 23	704	0.1+	0.1+
1996 01 30	411	0.0	0.1+	1998 08 17	704	0.4-	0.1-	1998 08 23	699	0.6+	0.2-
1996 01 31	411	0.4+	0.3-	1998 08 17	704	0.1-	0.1+	1998 08 23	704	0.1+	0.4+
1996 01 31	411	0.1-	0.0	1998 08 17	704	0.0	1.0+				

1996 CE₃

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	278.81452		(2000.0)	P	Q
n	0.22572339	ω	79.11887	+0.21467871	-0.97662670
a	2.6714785	Ω	358.36565	+0.68475984	+0.15827654
e	0.0547608	i	21.91886	+0.69643163	+0.14542639
P	4.37	H	13.0	G 0.15	U 3

Residuals in seconds of arc

1996 02 15	358	0.5+	1.5-	1996 03 22	566	0.1+	0.1+	1998 08 27	699	0.2-	0.1+
1996 02 15	358	0.4-	1.0-	1996 03 22	566	0.3-	0.1+	1998 08 27	699	0.5+	0.2+
1996 02 16	358	1.2-	0.6-	1996 03 23	566	0.3-	0.6+	1998 08 28	704	0.1+	0.9-
1996 02 16	358	0.4+	0.2-	1996 03 23	566	0.5-	0.4+	1998 08 28	704	0.5-	0.5+
1996 02 28	358	1.3+	0.6+	1996 03 23	566	0.1-	0.5+	1998 08 28	704	0.0	0.6-
1996 02 28	358	1.3+	0.1-	1996 04 19	566	0.5+	0.3-	1998 08 28	704	0.5+	0.2-
1996 03 10	400	0.6+	0.0	1996 04 19	566	0.1+	0.0	1998 08 28	704	0.4-	0.6+
1996 03 10	400	(2.2+	0.5-)	1996 04 19	566	0.1-	0.0	1998 08 28	699	0.2-	0.1+
1996 03 10	358	0.5-	1.4+	1996 04 22	566	0.1+	0.4-	1998 08 28	699	0.3-	0.2+
1996 03 10	358	0.6+	0.7-	1996 04 22	566	0.1-	0.6-	1998 08 28	699	0.4+	0.4+
1996 03 13	400	0.8-	1.9+	1996 04 22	566	0.2+	0.5-	1998 08 31	704	1.6+	0.6-
1996 03 13	400	0.3+	0.1+	1996 04 23	566	0.4+	0.1+	1998 08 31	704	0.1+	1.1+
1996 03 19	358	1.2+	0.4-	1996 04 23	566	0.2-	0.3+	1998 08 31	704	0.1+	0.8+
1996 03 19	358	1.9-	0.1-	1996 04 23	566	0.1-	0.1-	1998 08 31	704	0.3-	0.5-
1996 03 22	566	0.6-	0.3+	1998 08 27	699	0.2-	0.2+	1998 08 31	704	1.4-	1.1-

1996 CF₃ = 1998 QX₁₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	40.85941		(2000.0)	P	Q
n	0.18364883	ω	146.95559	+0.05597278	+0.98387830
a	3.0653302	Ω	125.69124	-0.9541112	+0.10218011
e	0.0333364	i	12.07172	-0.28992524	-0.14677441
P	5.37	H	12.0	G 0.15	U 4

Residuals in seconds of arc

1996 02 11	400	0.8+	0.3+	1998 07 04	699	0.2-	0.7+	1998 08 21	566	1.2-	0.5-
1996 02 11	400	1.0-	1.5-	1998 07 04	699	0.1-	0.4-	1998 08 23	704	1.2+	0.5+
1996 02 13	400	0.1+	0.8+	1998 08 17	704	0.3+	0.2-	1998 08 23	704	0.1+	0.7+
1996 02 13	400	(1.7-	2.7-)	1998 08 17	704	1.1+	0.6+	1998 08 23	704	0.8+	1.3+
1996 02 26	400	0.1+	0.9-	1998 08 17	704	0.4+	1.1-	1998 08 23	704	0.3+	0.3-
1996 02 26	400	0.2-	0.1+	1998 08 17	704	0.2-	0.3-	1998 08 23	704	0.4-	0.4-
1996 03 13	400	0.0	0.5+	1998 08 17	704	0.4+	1.2-	1998 08 27	699	0.1-	0.4+
1996 03 13	400	0.2+	0.4+	1998 08 21	566	1.3-	0.7-	1998 08 27	699	0.1-	0.6+
1998 07 04	699	(3.1+	0.7-)	1998 08 21	566	1.1-	0.6-	1998 08 27	699	0.1+	0.5+

1996 CW₃ = 1998 QD₅₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	273.14400		(2000.0)	P	Q
n	0.22864699	ω	109.57548	+0.38211055	-0.91465043
a	2.6486570	Ω	317.20245	+0.75829839	+0.39193311
e	0.0178797	i	11.19721	+0.52818091	+0.09901027
P	4.31	H	14.0	G 0.15	U 4

Residuals in seconds of arc

1996 01 18	327	0.2+	0.1+	1996 02 20	566	0.6+	0.9+	1998 08 23	704	1.0+	1.6+
1996 01 18	327	0.0	0.2+	1996 02 20	566	0.5+	0.0	1998 08 23	704	0.4-	0.9+
1996 01 18	327	0.1+	0.1+	1996 02 20	566	0.6+	0.0	1998 08 23	704	0.5-	0.8+
1996 02 10	691	0.5-	0.3-	1998 08 17	704	0.9-	0.5+	1998 08 23	704	0.7+	0.9-
1996 02 10	691	0.3-	0.1-	1998 08 17	704	0.6+	0.1-	1998 08 27	704	0.0	0.1-
1996 02 10	691	0.4-	0.2-	1998 08 17	704	0.8+	0.7-	1998 08 27	704	0.3+	0.2+
1996 02 16	691	0.3-	0.2-	1998 08 17	704	0.8+	0.6-	1998 08 27	704	0.7+	1.0+
1996 02 16	691	0.2-	0.3-	1998 08 17	704	0.7-	0.1-	1998 08 27	704	0.5-	0.2-
1996 02 16	691	0.3-	0.2-	1998 08 23	704	1.4-	0.6-	1998 08 27	704	0.4-	1.8-

1996 CU₈ = 1998 QQ₅₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	185.05137	ω	153.59232	−0.86946429	−0.49391638		
<i>a</i>	2.7846521	Ω	356.76803	+0.42088060	−0.73127016		
<i>e</i>	0.0907460	<i>i</i>	9.03913	+0.25863366	−0.47041530		
<i>P</i>	4.65	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 02 14	098	0.9+	0.5+	1996 02 24	098	0.2+	0.7−	1998 08 17	704	0.6−	1.2+
1996 02 14	098	0.5+	0.2+	1996 03 14	098	0.1+	0.6−	1998 08 17	704	0.4−	0.8+
1996 02 15	098	0.8+	0.3+	1996 03 14	098	0.6+	0.0	1998 08 23	704	0.4−	1.3−
1996 02 15	098	0.1−	0.1+	1996 03 20	098	0.1+	1.2+	1998 08 23	704	1.3+	0.8+
1996 02 18	691	0.1−	0.0	1996 03 20	098	0.3−	0.1−	1998 08 23	704	0.9−	1.5−
1996 02 18	691	1.0−	0.2−	1998 08 17	704	0.1+	0.6−	1998 08 23	704	1.1−	0.9+
1996 02 18	691	1.1−	0.0	1998 08 17	704	0.6+	0.5−				
1996 02 24	098	0.5−	0.5−	1998 08 17	704	1.3+	0.3+				

1996 DE₁ = 1998 OQ₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	246.42040	ω	281.82396	+0.11550476	−0.99316521		
<i>a</i>	2.6791869	Ω	161.51821	+0.93070775	+0.10230850		
<i>e</i>	0.1436078	<i>i</i>	3.03396	+0.34704716	+0.05617676		
<i>P</i>	4.39	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 02 22	587	0.4−	1.0+	1996 02 28	587	0.3−	0.8−	1998 07 26	809	1.2−	1.1−
1996 02 22	587	0.5+	0.0	1996 02 29	587	0.5−	0.1+	1998 07 26	809	0.4−	0.9−
1996 02 23	587	0.3+	0.0	1996 03 10	587	0.5−	0.1+	1998 07 27	809	1.7+	1.8+
1996 02 23	587	0.2+	0.1+	1996 03 10	587	0.8+	0.3+	1998 07 27	809	0.0	1.3+
1996 02 23	587	0.0	0.8−	1998 07 26	809	0.5−	0.9−	1998 07 27	809	0.4+	0.3−

1996 DY₂ = 1998 QG₂₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	283.80478	ω	334.21444	+0.71007676	−0.70230648		
<i>a</i>	2.8875941	Ω	70.49634	+0.65494830	+0.63241468		
<i>e</i>	0.0748664	<i>i</i>	3.07487	+0.25852219	+0.32682914		
<i>P</i>	4.91	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 02 28	966	0.3−	1.3−	1996 03 26	566	0.7−	0.0	1998 08 23	704	1.2+	1.3+
1996 02 28	966	1.1+	1.1−	1996 03 26	566	0.5−	0.1−	1998 08 23	704	1.5+	0.8+
1996 02 28	966	0.9+	0.6+	1996 03 29	966	0.5+	0.7+	1998 08 23	704	0.6−	1.2+
1996 02 28	966	0.9−	0.3+	1996 03 29	966	0.6+	0.2+	1998 08 23	704	(0.3−	3.0+)
1996 02 28	966	0.1+	0.6+	1998 08 17	704	0.3−	1.3−	1998 08 27	699	0.1−	0.2+
1996 02 29	966	1.1−	0.5−	1998 08 17	704	0.9+	0.4−	1998 08 27	699	0.6−	0.0
1996 03 10	966	0.4+	0.8+	1998 08 17	704	0.2−	0.8−	1998 08 27	699	0.4−	0.5−
1996 03 11	966	(2.2+ 1.2−)		1998 08 17	704	1.2−	0.3−				
1996 03 26	566	0.2−	0.3−	1998 08 17	704	0.2−	0.2−				

1996 DB₃ = 1998 QE₄₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	175.07068	ω	197.74894	−0.92628360	−0.34513567		
<i>a</i>	2.5847140	Ω	320.98493	+0.36827411	−0.74408860		
<i>e</i>	0.0780356	<i>i</i>	13.90300	+0.07983023	−0.57202581		
<i>P</i>	4.16	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 02 27	118	0.4+	1.1+	1996 04 10	118	0.2−	0.7+	1998 08 23	704	0.7−	0.7−
1996 02 27	118	0.2+	0.5+	1996 04 17	118	0.5−	0.7−	1998 08 23	704	(2.7−	0.9−)
1996 02 27	118	0.5+	0.3+	1996 04 17	118	0.4−	1.1−	1998 08 23	704	0.7+	1.3+

1996 02 28	118	0.8−	0.3+	1996 04 17	118	0.2−	1.0−	1998 08 23	704	1.0−	1.1−
1996 02 28	118	0.5−	0.0	1996 04 20	118	(0.5+ 2.9+)		1998 08 30	699	0.3−	0.1−
1996 02 28	118	0.2−	1.9−	1998 08 17	704	1.1+	0.9−	1998 08 30	699	0.6+	0.9+
1996 03 09	118	0.4+	0.3−	1998 08 17	704	0.9−	0.2−	1998 08 30	699	1.0+	0.9+
1996 03 20	118	1.4+	0.8+	1998 08 17	704	0.3+	1.4−				
1996 04 10	118	0.7−	0.3+	1998 08 17	704	0.5−	0.6+				

1996 ED₄ = 1998 QX₆₁

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	6.64802	ω	327.52029	+0.83725704	+0.54680555		
<i>a</i>	3.0357501	Ω	359.32094	−0.45663649	+0.69708722		
<i>e</i>	0.0716250	<i>i</i>	10.11861	−0.30080519	+0.46375975		
<i>P</i>	5.29	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 03 11	691	0.3+	0.2−	1996 03 26	691	0.3+	0.0	1998 08 23	704	0.3−	0.8+
1996 03 11	691	0.2+	0.1+	1996 03 26	691	0.2+	0.1+	1998 08 30	699	0.1+	0.9+
1996 03 11	691	0.3+	0.1+	1996 03 26	691	0.3+	0.2−	1998 08 30	699	0.3−	0.4+
1996 03 18	691	0.6−	0.1+	1998 08 23	704	0.5−	1.0−	1998 08 30	699	0.6−	0.4−
1996 03 18	691	0.5−	0.0	1998 08 23	704	1.0+	0.2+				
1996 03 18	691	0.3−	0.2+	1998 08 23	704	0.5+	0.7−				

1996 FM₅ = 1975 VG₆ = 1983 DR

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	230.71660	ω	84.01716	−0.08474135	−0.99586295		
<i>a</i>	3.3542680	Ω	11.00636	+0.83267144	−0.08885795		
<i>e</i>	0.1034273	<i>i</i>	9.89282	+0.54724507	−0.01900665		
<i>P</i>	6.14	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1975 11 06	095	0.1−	0.4+	1996 03 26	358	0.1+	1.6−	1996 04 09	358	1.1−	1.5+
1983 02 19	688	0.2+	0.4+	1996 03 26	358	(1.3−	3.2−)	1996 04 20	358	1.2−	1.0−
1983 02 19	688	0.4−	0.7−	1996 04 08	358	(3.4+ 0.3+)		1996 04 20	358	0.5−	0.8−
1996 03 20	358	2.0+	1.1−	1996 04 08	358	1.0−	2.5+				
1996 03 20	358	1.7+	0.5−	1996 04 09	358	0.6+	1.4+				

1996 FG₁₆ = 1985 DA₃ = 1997 TW₂₇

Id. G. V. Williams, A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	280.54808	ω	289.41867	−0.71456575	−0.69947638		
<i>a</i>	2.3390570	Ω	206.20021	+0.65109177	−0.65903364		
<i>e</i>	0.1497438	<i>i</i>	1.47174	+0.25588141	−0.27641898		
<i>P</i>	3.58	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1985 02 24	675	(4.5−	0.1+)	1996 03 26	809	(3.8−	2.0−)	1997 08 06	910	0.8+	0.2−
1985 02 24	675	(1.2−	2.4−)	1996 03 26	809	(4.7−	1.6−)	1997 08 06	910	0.8+	0.1+
1985 02 27	675	0.2−	0.6−	1996 03 26	809	(6.4−	0.9−)	1997 10 01	910	0.5−	0.6+
1985 02 27	675	(3.6+ 3.0−)		1996 03 26	809	(1.1+ 2.6+)		1997 10 01	910	0.2−	0.1+
1996 03 22	809	0.8+	0.4−	1996 03 26	809	(1.5−	2.3+)	1997 10 01	910	0.5−	0.0
1996 03 22	809	0.2−	0.7+	1996 03 26	809	0.5−	1.6+	1997 10 03	910	0.6−	0.5−
1996 03 22	809	0.3−	0.7+	1996 04 23	566	(1.5−	2.2−)	1997 10 03	910	0.4−	0.2−
1996 03 24	809	0.1+	0.5+	1996 04 23	566	(1.8−	2.2−)	1997 10 03	910	0.3−	0.3+
1996 03 24	809	1.2+	0.5+	1996 04 23	566	1.9−	1.8−				
1996 03 24	809	1.1+	1.0−	1997 08 06	910	0.5+	0.0				

1996 HB₁₂ = 1998 QT₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	96.74632		(2000.0)	P		Q	
<i>n</i>	0.19093566	ω	248.41173	+0.32017362	+0.93445555		
<i>a</i>	2.9868358	Ω	41.31404	-0.75823534	+0.35137627		
<i>e</i>	0.1407035	<i>i</i>	13.65253	-0.56795072	+0.05768479		
<i>P</i>	5.16	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1996 04 17	809	0.7-	1.0+	1996 05 19	809	1.1-	0.4-
1996 04 17	809	0.2-	1.3+	1996 05 19	809	1.1-	0.4-
1996 04 17	809	0.0	0.6+	1996 05 19	809	2.0-	0.8-
1996 04 18	809	0.2+	1.4-	1996 05 22	809	1.5+	0.5+
1996 04 18	809	1.1+	0.3-	1996 05 22	809	1.2+	0.3+
1996 04 18	809	0.4+	1.4-	1996 05 22	809	0.8+	1.1+
1996 05 19	809	1.1-	0.4-	1998 08 20	557	0.1-	0.0
1996 05 19	809	1.1-	0.4-	1998 08 20	557	0.5+	0.2-
1996 05 19	809	2.0-	0.8-	1998 08 20	557	0.4+	0.3+
1996 05 22	809	1.5+	0.5+	1998 08 21	557	0.5-	0.0
1996 05 22	809	1.2+	0.3+	1998 08 21	557	0.5-	0.1-
1996 05 22	809	0.8+	1.1+	1998 08 21	557	0.1+	0.1+

1996 HC₁₂ = 3065 T-1

Epoch 1998 July 6.0 TT = JDT 2451000.5

Gnädig

<i>M</i>	242.77527		(2000.0)	P		Q	
<i>n</i>	0.19999476	ω	274.78614	-0.71304138	-0.70101072		
<i>a</i>	2.8959450	Ω	220.70651	+0.65061887	-0.65493690		
<i>e</i>	0.0095090	<i>i</i>	1.09720	+0.26127970	-0.28220850		
<i>P</i>	4.93	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1971 03 25	675	0.7-	1.1+	1996 04 17	809	0.6-	0.8+
1971 03 26	675	0.3+	2.2-	1996 04 17	809	0.4-	0.1+
1971 03 26	675	1.1+	1.3-	1996 04 18	809	1.1+	1.1-
1971 03 27	675	0.6+	0.5+	1996 04 18	809	0.5-	0.2+
1971 04 02	675	1.4-	2.0+	1996 04 18	809	0.9+	0.0
1996 04 17	809	0.3+	0.2+	1996 05 19	809	0.6+	0.8+
1996 05 19	809	0.6-	0.8+	1996 05 19	809	0.6-	0.4+
1996 05 19	809	0.4-	0.1+	1996 05 19	809	0.2+	0.2+
1996 05 22	809	1.1+	0.9-	1996 05 22	809	1.1+	0.9-
1996 05 22	809	0.5-	0.2+	1996 05 22	809	0.4+	0.5-
1996 05 22	809	0.9+	0.0	1996 05 22	809	2.5-	0.2-

1996 HU₁₈ = 1976 UO₁₁ = 1990 GJ₁

Id. G. V. Williams, A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

Gnädig

<i>M</i>	143.02746		(2000.0)	P		Q	
<i>n</i>	0.17935878	ω	54.37345	-0.73456484	+0.67852471		
<i>a</i>	3.1140169	Ω	168.35291	-0.62927003	-0.67882945		
<i>e</i>	0.1180216	<i>i</i>	1.22783	-0.25383799	-0.28070410		
<i>P</i>	5.50	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1976 10 22	381	0.8-	0.1-	1996 04 20	809	0.3+	0.4-
1976 10 22	381	0.6+	0.6+	1996 04 20	809	0.5+	1.1-
1990 04 04	809	2.1+	0.6-	1996 05 15	566	0.6-	0.2+
1990 04 04	809	0.1-	0.0	1996 05 15	566	0.5-	0.3+
1990 04 04	809	1.8-	1.2+	1996 05 15	566	0.8-	0.1+
1996 04 18	809	0.2+	0.0	1996 05 19	809	1.0+	0.1+
1996 04 18	809	0.2-	0.5-	1996 05 19	809	0.8+	0.5-
1996 04 18	809	0.5-	1.0-	1996 05 19	809	0.3+	0.6-
1996 04 20	809	0.5+	0.2-	1996 05 19	566	0.5-	1.0+
1996 05 19	809	0.3+	0.4-	1996 05 19	566	0.6-	0.9+
1996 05 19	809	0.8+	0.2+	1996 05 22	809	0.8+	0.2+
1996 05 22	809	0.2+	0.2-	1996 05 22	809	0.2+	0.2-
1996 05 22	809	0.3-	0.8+	1996 05 22	809	0.3-	0.6+
1996 05 23	118	0.0	0.3+	1996 06 14	118	0.2-	0.1-
1996 05 23	118	0.0	0.2+	1996 06 14	118	0.1-	0.3+
1996 05 23	118	0.1-	0.1+	1996 06 17	118	0.8-	0.6+
1996 05 23	118	0.3-	0.0	1996 06 17	118	0.2-	0.0
1996 05 23	118	0.3-	0.8+	1996 06 24	118	0.2-	0.1+
1996 05 23	118	0.4+	0.3+	1996 06 24	118	0.1-	0.1-
1996 05 25	118	0.0	0.2-	1996 07 04	118	0.1+	0.5+

1996 HP₂₃ = 1986 WJ₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

Gnädig

<i>M</i>	353.80319		(2000.0)	P		Q	
<i>n</i>	0.25653905	ω	13.39155	+0.31531545	-0.94327363		
<i>a</i>	2.4530161	Ω	58.31772	+0.85903475	+0.23714824		
<i>e</i>	0.0703462	<i>i</i>	7.01822	+0.40328088	+0.23236949		
<i>P</i>	3.84	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1986 11 30	381	2.2-	0.7-	1996 04 21	809	0.1-	0.5-
1986 11 30	381	1.4+	0.4-	1996 04 21	809	0.8-	0.4-
1986 12 01	381	(6.4+	3.3+)	1996 04 21	809	0.7-	0.9-
1996 04 21	809	0.1-	0.5-	1996 05 22	809	0.8-	1.2-
1996 05 22	809	0.2+	1.0-	1996 05 22	809	0.2+	1.0-
1996 05 23	809	0.4-	0.8+	1996 05 23	809	0.4-	0.8+

1986 12 01	381	0.8+	1.0+	1996 05 19	809	0.7+	1.2+
1996 04 20	809	0.1+	0.6+	1996 05 19	809	0.1+	0.5+
1996 04 20	809	0.6+	0.0	1996 05 19	809	0.1-	0.3+
1996 04 20	809	0.6+	1.1+	1996 05 22	809	1.0+	1.3-

1996 JF₂ = 1995 DV₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Gnädig

<i>M</i>	18.45531		(2000.0)	P		Q	
<i>n</i>	0.23810385	ω	260.05127	+0.49815290	-0.86339403		
<i>a</i>	2.5780526	Ω	159.46781	+0.85772256	+0.47715292		
<i>e</i>	0.1509906	<i>i</i>	13.17901	+0.12710506	+0.16393853		
<i>P</i>	4.14	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 02 23	691	0.4+	0.1-	1996 05 11	327	0.5-	0.4-
1995 02 23	691	0.5+	0.2-	1996 05 11	327	0.5-	0.0
1995 02 23	691	1.1+	0.1+	1996 05 11	327	0.1-	0.2+
1995 03 10	691	0.3-	0.0	1996 05 12	327	0.2+	0.0
1995 03 10	691	0.1-	0.4+	1996 05 12	327	0.6-	0.2+
1995 03 10	691	0.2-	0.1-	1996 05 12	327	0.2-	0.2-
1995 03 10	691	0.3-	0.1-	1996 06 06	327	1.4+	0.3-
1995 03 10	691	0.4-	0.1-	1996 06 06	327	0.3-	0.1+
1995 03 10	691	0.7-	0.0	1996 06 06	327	0.5+	0.2+
1996 06 06	327	0.5-	0.4-	1996 06 06	327	0.1-	0.2+
1996 06 06	327	0.1-	0.2+	1996 06 07	327	0.4+	0.6-
1996 06 07	327	0.2+	0.1+	1996 06 07	327	0.2+	0.1+
1996 06 07	327	0.4-	0.7-	1996 06 07	327	0.4-	0.7-
1996 06 07	327	0.8-	0.4-	1996 06 07	327	0.8-	0.4-
1996 06 07	327	0.0	0.2-	1996 06 07	327	0.0	0.2-
1996 06 07	327	0.2-	0.7+	1996 06 07	327	0.2-	0.7+
1996 06 07	327	0.6-	0.6+	1996 06 07	327	0.6-	0.6+

1996 KA = 1998 QM₇₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	206.53572		(2000.0)	P		Q	
<i>n</i>	0.17157780	ω	264.28223	-0.81688191	-0.54835875		
<i>a</i>	3.2074654	Ω	242.33857	+0.57598949	-0.75901110		
<i>e</i>	0.2359857	<i>i</i>	11.65336	+0.03066029	-0.35100547		
<i>P</i>	5.74	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 05 17	118	0.1+	0.2-	1996 05 25	118	0.2+	0.2+
1996 05 17	118	0.4+	0.2+	1996 05 25	118	0.3-	0.1-
1996 05 17	118	0.6+	0.1-	1996 06 13	566	0.2-	0.2-
1996 05 17	118	0.1+	0.1+	1996 06 13	566	0.6-	0.3-
1996 05 17	118	0.2+	0.1+	1996 06 13	566	1.1-	0.5-
1996 05 17	118	0.6+	0.3-	1996 06 14	118	0.2-	0.2+
1996 05 21	118	0.0	0.3+	1996 06 14	118	0.2-	0.1-
1996 05 21	118	0.0	0.2+	1996 06 14	118	0.1-	0.3+
1996 05 21	118	0.1-	0.1+	1996 06 17	118	0.8-	0.6+
1996 05 21	118	0.3-	0.0	1996 06 17	118	0.2-	0.0
1996 05 23	118	0.3-	0.8+	1996 06 24	118	0.2-	0.1+
1996 05 23	118	0.4+	0.3+	1996 06 24	118	0.1-	0.1-
1996 05 25	118	0.0	0.2-	1996 07 04	118	0.1+	0.5+
1996 07 04	118	0.4+	0.5+	1996 07 04	118	0.6+	0.8-
1996 07 14	118	0.6+	0.4-	1996 07 14	118	0.6+	0.4-
1996 07 14	118	0.8+	1.2-	1996 07 14	118	0.8+	1.2-
1998 08 24	704	0.3-	0.3+	1998 08 24	704	0.3-	0.3+
1998 08 24	704	0.6-	1.4+	1998 08 24	704	0.6-	1.4+
1998 08 24	704	1.1-	2.6-	1998 08 24	704	1.1-	2.6-
1998 08 24	704	1.5-	0.2-	1998 08 24	704	1.5-	0.2-
1998 08 27	704	1.5+	0.4+	1998 08 27	704	1.5+	0.4+
1998 08 27	704	0.2+	0.1-	1998 08 27	704	0.2+	0.1-
1998 08 27	704	2.3+	1.2+	1998 08 27	704	2.3+	1.2+
1998 08 27	704	0.5-	0.1-	1998 08 27	704	0.5-	0.1-

1996 NA₂ = 1998 BT₁₀

1996 VA₂₇ = 1998 AD₉

Id. G. V. Williams, A. Doppler

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17139065	ω	54.91725	−0.88698838	+0.46171094		
<i>a</i>	3.2098000	Ω	152.57731	−0.42955715	−0.81806276		
<i>e</i>	0.1210007	<i>i</i>	1.07476	−0.16950597	−0.34292320		
<i>P</i>	5.75	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1996 11 11	691	0.3−	0.1−	1996 11 13	691	0.6+	0.3−	1998 01 06	688	0.7+	0.1−
1996 11 11	691	0.7−	0.1−	1996 11 18	691	0.3−	0.2−	1998 01 07	688	0.3+	0.3−
1996 11 11	691	0.4−	0.2+	1996 11 18	691	0.0	0.1+	1998 01 07	688	0.1−	0.0
1996 11 13	691	0.7+	0.5+	1996 11 18	691	0.2−	0.0				
1996 11 13	691	0.6+	0.0	1998 01 06	688	0.8−	0.5+				

1997 AH₅ = 1998 QO₃₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30311895	ω	223.93343	−0.94506003	+0.32659570		
<i>a</i>	2.1947952	Ω	335.11864	−0.28996841	−0.85734050		
<i>e</i>	0.0856300	<i>i</i>	1.91065	−0.15092996	−0.39787248		
<i>P</i>	3.25	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 12 19	327	0.8−	0.8+	1997 01 18	327	0.0	0.2−	1998 08 17	704	0.6−	0.0
1996 12 19	327	0.6+	0.6+	1997 02 06	657	0.1−	0.4+	1998 08 17	704	1.2−	0.7−
1996 12 19	327	0.3+	0.3+	1997 02 06	657	0.8+	1.1+	1998 08 17	704	1.0−	0.9−
1997 01 03	369	0.5+	0.0	1997 02 06	657	1.3+	1.7+	1998 08 23	704	0.1+	0.4+
1997 01 03	369	0.1−	0.8−	1997 02 06	657	0.1−	0.2+	1998 08 23	704	2.5+	0.5−
1997 01 03	369	0.2+	0.6+	1997 03 24	658	0.1−	0.1+	1998 08 23	704	0.6+	1.1−
1997 01 06	369	0.6−	2.6−	1997 03 24	658	0.2−	0.1+	1998 08 23	704	1.2−	2.6+
1997 01 06	369	1.4−	0.4−	1997 03 24	658	0.2−	0.2−	1998 08 23	704	0.8+	1.9+
1997 01 18	327	0.1+	0.2−	1998 08 17	704	0.7+	0.8−				
1997 01 18	327	0.2+	0.0	1998 08 17	704	1.4−	0.6+				

1997 AK₅

Id. J. Broughton (1998 observations), E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28293602	ω	228.38946	−0.90004459	+0.43418306		
<i>a</i>	2.2979675	Ω	337.26694	−0.36541659	−0.79875539		
<i>e</i>	0.0728470	<i>i</i>	5.56587	−0.23746672	−0.41650317		
<i>P</i>	3.48	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 01 07	411	0.1+	1.2−	1997 01 27	411	0.0	0.3−	1998 07 16	699	0.7+	0.2−
1997 01 07	411	0.3−	1.4−	1997 01 27	411	0.7+	0.4−	1998 07 16	699	0.8+	0.5+
1997 01 08	411	0.4−	0.3+	1997 02 04	566	0.6−	0.2+	1998 07 28	428	1.3−	0.1−
1997 01 08	411	0.6+	1.2+	1997 02 04	566	0.3−	0.0	1998 07 28	428	0.6−	0.2+
1997 01 10	691	0.8−	0.5+	1997 02 04	566	0.3+	0.0	1998 07 29	428	0.8−	0.8−
1997 01 10	691	0.8−	0.5+	1997 02 08	566	0.4+	0.2−	1998 07 31	428	0.5+	0.4−
1997 01 10	691	0.9−	0.3+	1997 02 08	566	0.1+	0.0	1998 07 31	428	0.4+	0.0
1997 01 13	411	0.1−	0.6+	1997 02 08	566	0.1+	0.1+	1998 08 02	428	0.2−	0.1−
1997 01 13	411	1.4+	0.6−	1998 07 16	699	0.7+	0.4+	1998 08 02	428	0.1−	0.1+

1997 AO₅ = 1991 RD₃₇ = 1998 HH₇₂

Id. T. Kobayashi, S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.24543638	ω	295.46304	+0.97080973	−0.21904637		
<i>a</i>	2.5264464	Ω	77.31386	+0.23979006	+0.87720034		
<i>e</i>	0.1991859	<i>i</i>	5.74807	+0.00540304	+0.42724495		
<i>P</i>	4.02	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 09 15	675	0.1+	0.0	1997 01 09	691	0.2−	0.5−	1998 04 21	704	0.3+	1.1−
1991 09 15	675	0.0	0.1−	1997 01 13	411	1.2−	0.1+	1998 04 21	704	0.0	0.2−
1997 01 07	411	0.7+	0.0	1997 01 13	411	0.2+	0.7+	1998 04 22	704	0.2+	0.6+
1997 01 07	411	0.3−	0.5−	1997 01 28	411	0.7+	0.1+	1998 04 22	704	0.7−	0.0
1997 01 08	411	0.0	0.2+	1997 01 28	411	0.6+	0.5+	1998 04 22	704	0.6+	0.1+
1997 01 08	411	0.2−	0.1−	1998 04 21	704	0.2+	0.6+	1998 04 22	704	0.3+	0.4+
1997 01 09	691	0.3−	0.2−	1998 04 21	704	0.8−	0.2+	1998 04 22	704	0.5+	0.6−
1997 01 09	691	0.0	0.5−	1998 04 21	704	0.7−	0.2−				

1997 AG₈ = 1998 QF₉

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28837250	ω	332.44199	−0.30153490	+0.95137546		
<i>a</i>	2.2689947	Ω	279.95222	−0.86259754	−0.30032932		
<i>e</i>	0.1161074	<i>i</i>	3.66379	−0.40620461	−0.06846198		
<i>P</i>	3.42	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 01 02	691	0.3−	0.3−	1997 03 02	691	0.0	0.2−	1998 08 17	704	0.3−	0.7+
1997 01 02	691	0.2−	0.4−	1997 03 02	691	0.1+	0.1−	1998 08 17	704	0.7−	0.7+
1997 01 02	691	0.2−	0.3−	1997 03 09	691	0.9−	0.4−	1998 08 17	704	0.3−	0.3+
1997 01 10	691	0.2+	0.4−	1997 03 09	691	1.0−	0.3−	1998 08 17	704	0.4−	0.2−
1997 01 10	691	0.3+	0.5−	1997 03 09	691	1.0−	0.4−	1998 08 17	704	0.1−	0.2−
1997 01 10	691	0.4+	0.5−	1998 07 14	699	0.7−	0.3−	1998 08 23	704	1.2+	1.2−
1997 02 16	691	0.3+	0.1+	1998 07 14	699	0.1+	0.4−	1998 08 23	704	(2.0−	2.3+)
1997 02 16	691	0.4+	0.3+	1998 07 24	566	1.2+	0.4−	1998 08 23	704	(2.6−	1.5+)
1997 02 16	691	0.3+	0.3+	1998 07 24	566	0.1+	1.0−	1998 08 23	704	1.4+	0.3−
1997 03 02	691	0.3+	0.1−	1998 07 24	566	0.6−	0.2−				

1997 AU₉ = 1989 YN₇ = 1998 OU₁₁

Id. B. G. Marsden, S. Nakano, A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28974417	ω	87.32187	−0.53360610	+0.84513527		
<i>a</i>	2.2618280	Ω	150.35944	−0.79924958	−0.49162947		
<i>e</i>	0.1330764	<i>i</i>	3.68604	−0.27652239	−0.20987337		
<i>P</i>	3.40	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1989 12 26	033	0.9−	0.3+	1997 01 27	411	0.5+	0.8+	1998 08 17	704	0.0	0.0
1989 12 26	033	0.6−	0.4+	1997 01 27	411	0.3+	0.3+	1998 08 17	704	0.1−	0.7−
1989 12 26	033	1.6+	0.1+	1997 01 29	411	0.4+	0.5+	1998 08 17	704	0.6−	1.5−
1996 11 05	691	0.1+	0.2−	1997 01 29	411	0.1+	0.5+	1998 08 23	704	0.4−	0.3+
1996 11 05	691	0.2+	0.2−	1998 07 26	809	0.7+	0.7+	1998 08 23	699	0.6−	0.6−
1996 11 05	691	0.1+	0.4−	1998 07 26	809	0.3+	0.6+	1998 08 23	704	1.5−	0.4−
1997 01 03	691	0.4−	0.2−	1998 07 26	809	0.8+	1.0+	1998 08 23	704	0.7+	1.0+
1997 01 03	691	0.1−	0.2−	1998 07 27	809	1.9+	0.4+	1998 08 23	699	0.5−	0.3−
1997 01 03	691	0.4−	0.4−	1998 07 27	809	(2.3+	0.2+)	1998 08 23	704	1.9−	0.3+
1997 01 10	691	0.3−	0.2−	1998 07 27	809	1.9+	1.0+	1998 08 23	704	(2.1−	0.6−)
1997 01 10	691	0.2−	0.2−	1998 08 17	704	0.4−	0.5−	1998 08 23	699	0.3−	0.4−
1997 01 10	691	0.3−	0.4−	1998 08 17	704	0.0	0.1+				

1997 AU₁₀ = 1998 MZ₃₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Gnädig			
<i>M</i>	76.01314	(2000.0)	P	Q	
<i>n</i>	0.28027474	ω	232.75875	-0.88448268	+0.46390348
<i>a</i>	2.3124911	Ω	334.76617	-0.38244850	-0.78204572
<i>e</i>	0.0699217	<i>i</i>	6.71366	-0.26725182	-0.41617070
<i>P</i>	3.52	<i>H</i>	15.0	<i>G</i>	0.15

Residuals in seconds of arc

1997 01 09	691	0.2-	0.1+	1997 02 07	566	1.4+	0.0	1998 06 24	704	0.3+	0.7-
1997 01 09	691	0.1-	0.1-	1997 02 07	566	0.2+	0.1+	1998 06 24	704	0.5-	1.0-
1997 01 09	691	0.0	0.0	1997 02 08	566	0.9-	0.1+	1998 06 24	704	1.0+	1.2-
1997 01 10	691	0.1+	0.1-	1997 02 08	566	0.9-	0.0	1998 06 26	704	1.1-	0.4+
1997 01 10	691	0.1+	0.1-	1997 02 08	566	0.6-	0.0	1998 06 26	704	1.2+	0.3+
1997 01 10	691	0.1+	0.2+	1998 06 24	704	0.8-	0.5+	1998 06 26	704	0.2+	0.7+
1997 02 07	566	0.8+	0.2-	1998 06 24	704	0.2+	1.0+	1998 06 26	704	0.6-	0.0

1997 AF₁₃ = 1980 DP₁

Id. S. Nakano, A. Gnädig, E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	53.52773	(2000.0)	P	Q	
<i>n</i>	0.28402797	ω	148.45104	-0.44580779	+0.87686436
<i>a</i>	2.2920740	Ω	94.52446	-0.85424197	-0.35671637
<i>e</i>	0.1772446	<i>i</i>	10.39674	-0.26744360	-0.32227680
<i>P</i>	3.47	<i>H</i>	13.5	<i>G</i>	0.15

Residuals in seconds of arc

1980 02 21	033	0.0	1.7-	1997 01 12	411	0.8-	0.6+	1997 02 12	411	0.6+	0.4+
1980 02 22	033	0.1-	1.5+	1997 01 14	411	0.2+	0.2-	1997 02 12	411	0.3+	0.3-
1997 01 11	411	0.6+	0.2-	1997 01 14	411	0.1-	0.4-	1998 08 20	699	0.0	0.1-
1997 01 11	411	0.6+	0.3-	1997 01 27	411	0.3+	0.0	1998 08 20	699	0.0	0.1-
1997 01 12	411	0.6-	0.1+	1997 01 27	411	0.0	0.4+	1998 08 20	699	0.0	0.1+

1997 AE₁₈ = 1988 ON

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	35.45199	(2000.0)	P	Q	
<i>n</i>	0.29832460	ω	311.42011	-0.20271751	+0.97537759
<i>a</i>	2.2182475	Ω	306.67693	-0.86303389	-0.21986720
<i>e</i>	0.1332600	<i>i</i>	6.21724	-0.46268576	-0.01723259
<i>P</i>	3.30	<i>H</i>	14.5	<i>G</i>	0.15

Residuals in seconds of arc

1988 07 17	675	1.3-	0.2-	1997 02 07	691	0.5-	0.1-	1998 08 10	557	0.3+	0.0
1988 07 17	675	1.8+	1.1-	1997 02 08	557	0.2+	0.3+	1998 08 17	704	0.2-	0.5-
1997 01 14	557	0.3+	0.3-	1997 02 08	557	0.3+	0.3+	1998 08 17	704	0.3-	0.2+
1997 01 14	557	0.3+	0.5-	1997 02 08	557	0.4+	0.3+	1998 08 17	704	0.7-	1.0+
1997 01 14	557	0.2-	0.3-	1997 02 26	557	0.6-	0.5-	1998 08 17	704	0.5-	1.7+
1997 01 14	557	0.7+	0.4-	1997 02 26	557	0.3-	0.2-	1998 08 17	704	0.8-	0.5+
1997 01 14	557	0.2+	0.4+	1997 02 26	557	0.4-	0.3-	1998 08 23	704	0.3+	0.2-
1997 01 15	557	0.4+	0.1-	1997 03 11	557	0.1-	0.1-	1998 08 23	704	1.3+	0.6-
1997 01 15	557	0.4+	0.2-	1997 03 11	557	0.1-	0.0	1998 08 23	704	0.9+	0.7-
1997 01 17	557	0.2+	0.0	1997 03 11	557	0.2-	0.1-	1998 08 23	704	1.3+	0.1+
1997 01 17	557	0.3+	0.1+	1997 04 01	557	0.3-	0.1+	1998 08 23	704	0.4+	0.0
1997 02 01	557	0.2+	0.4+	1997 04 01	557	0.0	0.4+	1998 08 27	699	0.0	0.4-
1997 02 01	557	0.1+	0.2-	1998 08 01	557	0.3-	0.1-	1998 08 27	699	0.0	0.6-
1997 02 03	691	1.1-	0.2-	1998 08 01	557	0.2-	0.2-	1998 08 27	699	0.3-	0.8-
1997 02 03	691	0.7-	0.2-	1998 08 01	557	0.3-	0.2-	1998 09 07	557	0.3-	0.1-
1997 02 03	691	0.5-	0.2-	1998 08 01	557	0.2-	0.1-	1998 09 07	557	0.3-	0.1-
1997 02 07	691	0.0	0.3-	1998 08 10	557	0.5+	0.0	1998 09 07	557	0.5-	0.2+
1997 02 07	691	0.5-	0.2-	1998 08 10	557	0.2+	0.1-				

1997 BT₃ = 1985 UY₆ = 1992 DZ₁₃

Id. B. G. Marsden, S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	132.86826	(2000.0)	P	Q	
<i>n</i>	0.20493798	ω	16.36046	-0.59966496	-0.79864080
<i>a</i>	2.8491878	Ω	110.51319	+0.72801217	-0.57076240
<i>e</i>	0.0259854	<i>i</i>	3.10569	+0.33226527	-0.19079612
<i>P</i>	4.81	<i>H</i>	13.0	<i>G</i>	0.15

Residuals in seconds of arc

1985 10 18	095	0.2-	0.5+	1997 02 12	411	0.7-	0.1+	1997 03 11	908	0.4+	0.3-
1992 02 29	033	0.4-	0.4-	1997 02 13	411	0.9-	0.2-	1997 03 11	908	0.1+	0.1+
1992 02 29	033	0.1+	0.4-	1997 02 13	411	0.0	0.3-	1997 03 11	908	0.2+	0.0
1992 03 01	033	0.2-	0.8-	1997 02 16	411	0.2+	0.3-	1997 03 12	908	0.0	1.3+
1997 01 31	411	0.3-	0.0	1997 02 16	411	0.1+	0.0	1997 03 12	908	0.0	0.4+
1997 01 31	411	0.1+	0.1-	1997 03 01	411	0.2+	0.1-	1997 03 12	908	1.8+	1.8+
1997 02 01	411	0.0	0.4+	1997 03 01	411	0.8+	0.6+	1998 06 26	704	0.8+	0.8-
1997 02 01	411	0.3-	0.0	1997 03 09	908	0.5+	0.3-	1998 06 26	704	0.9-	0.7-
1997 02 12	411	1.0-	0.4-	1997 03 09	908	0.5-	0.7-	1998 06 26	704	0.3-	1.6+
1997 02 12	411	0.8-	0.4-	1997 03 09	908	0.6+	0.0	1998 06 26	704	0.3+	0.6-

1997 BV₃ = 1998 QG₃₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	114.18947	(2000.0)	P	Q	
<i>n</i>	0.29434833	ω	89.00806	-0.95044067	+0.30276465
<i>a</i>	2.2381800	Ω	108.61292	-0.30658712	-0.87493316
<i>e</i>	0.1073324	<i>i</i>	4.27733	-0.05164178	-0.37792264
<i>P</i>	3.35	<i>H</i>	15.0	<i>G</i>	0.15

Residuals in seconds of arc

1997 01 31	411	0.1-	0.2-	1997 03 01	411	0.4+	0.4-	1998 08 17	704	0.0	0.6-
1997 01 31	411	0.5+	0.3+	1997 03 01	411	0.5-	0.3+	1998 08 23	704	0.3+	0.6-
1997 02 01	411	0.2-	0.6-	1998 08 17	704	0.5+	0.2-	1998 08 23	704	0.6-	0.8+
1997 02 01	411	0.0	0.7-	1998 08 17	704	0.8-	0.1+	1998 08 23	704	0.4+	0.6+
1997 02 12	411	0.0	0.8+	1998 08 17	704	0.5+	0.8-	1998 08 23	704	0.6+	1.6+
1997 02 12	411	0.1-	0.6+	1998 08 17	704	0.8-	0.9-				

1997 CC₁₇ = 1994 GZ₈

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	60.23113	(2000.0)	P	Q	
<i>n</i>	0.29901898	ω	235.17859	-0.06047055	+0.99798411
<i>a</i>	2.2148120	Ω	31.37139	-0.90329633	-0.04650153
<i>e</i>	0.1870632	<i>i</i>	2.12047	-0.42473409	-0.04318934
<i>P</i>	3.30	<i>H</i>	14.0	<i>G</i>	0.15

Residuals in seconds of arc

1994 04 11	399	(3.2-	2.8+)	1997 02 06	411	0.2+	0.3-	1998 08 31	327	0.4+	0.8-
1994 04 11	399	1.5-	1.4+	1997 02 06	411	0.1-	1.0-	1998 08 31	327	0.3+	0.6-
1994 04 13	399	(3.1-	3.2-)	1997 02 11	411	1.5+	0.6-	1998 08 31	327	0.4+	0.8-
1994 04 13	399	(3.4-	2.7-)	1997 02 11	411	0.4+	0.1-	1998 09 04	327	0.2+	0.5-
1994 05 06	399	0.3+	0.3-	1997 02 14	411	0.5-	0.0	1998 09 04	327	0.0	0.8-
1994 05 06	399	(2.4+	0.4-)	1997 02 14	411	0.1-	0.3-	1998 09 04	327	0.3+	0.3-
1994 05 13	399	1.4+	1.4-	1997 03 01	411	1.5-	0.4-				
1994 05 13	399	0.9-	1.3-	1997 03 01	411	0.7-	0.4+				

1997 CV₁₉

Id. F. B. Zoltowski (1998 observations), E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

		Williams			
<i>M</i>	42.59920	(2000.0)	P	Q	
<i>n</i>	0.26658696	ω	133.56145	-0.15922614	+0.98284549
<i>a</i>	2.3909846	Ω	127.04751	-0.93606453	-0.12034113
<i>e</i>	0.0902209	<i>i</i>	6.69636	-0.31373592	-0.13975966
<i>P</i>	3.70	<i>H</i>	14.0	<i>G</i>	0.15

Residuals in seconds of arc

1997 02 12	411	0.7+	0.0	1997 03 09	411	0.6+	0.9+	1998 08 13	426	0.1-	0.2-
1997 02 12	411	0.3-	0.2-	1997 03 09	411	0.8+	0.5-	1998 08 13	426	0.1+	0.1-
1997 02 13	411	0.2-	0.1-	1998 07 15	699	0.2+	0.2+	1998 08 16	426	0.0	0.0
1997 02 13	411	1.2-	0.2+	1998 07 15	699	0.3+	0.4+	1998 08 16	426	0.1+	0.1+
1997 02 16	411	0.5+	0.6-	1998 07 15	699	0.4-	0.2-	1998 08 17	426	0.1+	0.0
1997 02 16	411	0.1+	0.3-	1998 08 12	426	0.1+	0.3-	1998 08 17	426	0.5-	0.2+
1997 03 01	411	1.0-	0.4+	1998 08 12	426	0.0	0.3-	1998 08 17	426	0.0	0.2+
1997 03 01	411	0.3-	0.2-	1998 08 12	426	0.2+	0.4-				

1997 CD₂₀ = 1979 SV₁₂ = 1998 KZ₃₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	222.28646		(2000.0)	P	Q	Gnädig
<i>n</i>	0.24691298	ω	270.23604	+0.75051080	-0.65742650	
<i>a</i>	2.5163638	Ω	130.86879	+0.63618857	+0.69119403	
<i>e</i>	0.1832088	<i>i</i>	5.10285	+0.17887886	+0.30006867	
<i>P</i>	3.99	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1979 09 20	675	0.5-	0.3-	1997 02 16	411	1.1+	1.0+	1998 05 22	704	1.2+	0.0
1979 09 21	675	0.4+	0.4+	1997 02 26	411	0.3-	0.1+	1998 05 22	704	0.4+	1.5-
1997 02 12	411	0.2+	0.0	1997 02 26	411	0.7+	0.2-	1998 05 24	704	0.1-	0.7+
1997 02 12	411	0.3-	0.1+	1997 03 09	411(13.1-	1.2-)		1998 05 24	704	1.2-	1.5-
1997 02 13	411	0.1+	0.1+	1997 03 09	411(13.3-	2.6-)		1998 05 24	704	0.9+	1.2-
1997 02 13	411	1.0-	0.2-	1998 05 22	704	0.2+	0.9+	1998 05 24	704	0.2-	0.6+
1997 02 16	411	0.4-	0.7-	1998 05 22	704	1.3-	2.1+				

1997 CA₂₂ = 1998 QE₃₄

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	132.75203		(2000.0)	P	Q	Williams
<i>n</i>	0.30462141	ω	27.20999	-0.99797942	+0.06264358	
<i>a</i>	2.1875724	Ω	156.37439	-0.06204593	-0.92480229	
<i>e</i>	0.0681510	<i>i</i>	1.51902	-0.01368879	-0.37525525	
<i>P</i>	3.24	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1997 02 13	411	0.0	1.0+	1997 04 28	704	0.6-	0.3+	1998 08 17	704	0.2+	0.2+
1997 02 13	411	0.6+	0.4-	1997 04 28	704	1.0-	0.6-	1998 08 17	704	0.0	0.6-
1997 02 14	411	0.5-	0.1-	1997 04 28	704	1.0-	0.3-	1998 08 17	704	0.6+	0.8-
1997 02 14	411	0.1+	0.2+	1997 04 28	704	0.2+	0.9+	1998 08 23	699	0.0	1.3+
1997 02 16	411	0.3+	0.1+	1997 04 29	704	0.9+	0.1-	1998 08 23	704	0.2+	0.9+
1997 02 16	411	0.2-	0.1-	1997 04 29	704	0.8+	0.1-	1998 08 23	704	0.5-	1.4-
1997 02 26	411	0.2-	0.4-	1997 04 29	704	0.6+	0.6+	1998 08 23	699	0.2-	0.2-
1997 02 26	411	0.3-	0.8-	1997 04 29	704	0.8+	0.3+	1998 08 23	704	0.8-	0.1-
1997 03 09	411	0.2+	0.1-	1997 04 29	704	0.5+	0.2+	1998 08 23	704	0.1-	0.1-
1997 03 09	411	0.2-	0.6-	1998 08 17	704	0.0	0.1+	1998 08 23	699	0.2+	0.2+
1997 04 28	704	1.1-	0.3-	1998 08 17	704	0.6+	0.2-	1998 08 23	704	0.1-	0.2+

1997 CF₂₉ = 1998 QM₅₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	144.80426		(2000.0)	P	Q	Williams
<i>n</i>	0.28262149	ω	14.88276	-0.99614108	+0.08749699	
<i>a</i>	2.2996722	Ω	170.12921	-0.08406384	-0.92868339	
<i>e</i>	0.1313997	<i>i</i>	2.29756	-0.02522348	-0.36040453	
<i>P</i>	3.49	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1997 02 07	327	0.4+	0.1-	1997 02 20	327	0.1+	0.3-	1998 08 30	691	0.1+	0.1-
1997 02 07	327	0.5+	0.0	1997 02 20	327	0.3-	0.1-	1998 08 30	691	0.0	0.3-
1997 02 07	327	1.3-	0.3-	1997 02 20	327	0.5-	0.3+	1998 08 31	691	0.1+	0.1+
1997 02 14	327	0.1+	0.1+	1997 03 02	327	0.1+	0.3+	1998 08 31	691	0.0	0.2+
1997 02 14	327	0.6+	0.1-	1997 03 02	327	0.8+	0.2+	1998 08 31	691	0.0	0.2+
1997 02 14	327	1.1+	0.2+	1997 03 02	327	0.3-	0.1+				
1997 02 20	327	1.5-	0.3-	1998 08 30	691	0.1-	0.3-				

1997 EQ₂ = 1985 XG₃ = 1998 ME₄₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	259.04476		(2000.0)	P	Q	Kobayashi
<i>n</i>	0.28236580	ω	278.41991	+0.69204163	-0.71714437	
<i>a</i>	2.3010602	Ω	127.45089	+0.69638470	+0.63322173	
<i>e</i>	0.1065938	<i>i</i>	5.95446	+0.19007033	+0.29109140	
<i>P</i>	3.49	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1985 12 14	675	0.0	0.2-	1997 03 09	411	0.0	0.7-	1998 06 26	809	0.5+	0.8+
1985 12 14	675	(7.2+	1.6-)	1997 03 09	411	0.5-	0.5-	1998 06 26	809	1.4+	0.8+
1997 03 04	411	0.3+	0.2-	1998 06 24	704	0.8-	0.4-	1998 06 26	809	0.3+	0.6+
1997 03 04	411	0.5+	1.4+	1998 06 24	704	0.1+	0.2+	1998 06 27	809	0.6-	1.8-
1997 03 05	411	0.7-	0.6+	1998 06 24	704	(0.3-	2.5+)	1998 06 27	809	0.5-	1.1-
1997 03 05	411	0.4+	0.7-	1998 06 24	704	1.0-	0.5+	1998 06 27	809	0.6+	0.2+

1997 EY₂ = 1998 QF₃₂

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	170.67812		(2000.0)	P	Q	Williams
<i>n</i>	0.30410839	ω	29.10993	-0.84581093	-0.53122944	
<i>a</i>	2.1900319	Ω	118.72059	+0.47801740	-0.79543668	
<i>e</i>	0.0661218	<i>i</i>	3.20178	+0.23686121	-0.29167750	
<i>P</i>	3.24	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1997 03 04	411	0.2+	0.5+	1997 03 12	411	1.2+	0.4+	1998 08 23	704	0.1+	1.3+
1997 03 04	411	0.6-	0.4-	1998 08 17	704	0.8+	1.0-	1998 08 23	704	0.4-	0.2-
1997 03 05	411	0.2+	0.1+	1998 08 17	704	0.9+	0.8+	1998 08 23	699	0.2-	0.5-
1997 03 05	411	0.7+	0.6-	1998 08 17	704	0.4+	1.8+	1998 08 23	704	(0.4+	2.8+)
1997 03 09	411	0.8-	0.3-	1998 08 17	704	1.0-	1.1-	1998 08 23	704	1.3+	0.5-
1997 03 09	411	0.4-	0.1+	1998 08 17	704	1.1-	1.0-	1998 08 23	699	0.7-	0.2+
1997 03 12	411	0.5-	0.1+	1998 08 23	699	0.1-	0.0				

1997 EN₄

Id. F. B. Zoltowski (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	333.66488		(2000.0)	P	Q	Williams
<i>n</i>	0.23038057	ω	328.39307	+0.87240897	+0.48869764	
<i>a</i>	2.6353531	Ω	2.40395	-0.39331479	+0.71257990	
<i>e</i>	0.1982316	<i>i</i>	12.09185	-0.29018281	+0.50339299	
<i>P</i>	4.28	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1997 03 02	691	0.3+	0.1+	1997 03 14	691	0.2+	0.3-	1997 04 07	691	0.3-	0.8-
1997 03 02	691	0.0	0.0	1997 03 14	691	0.3-	0.2-	1998 08 16	426	0.5-	0.1-
1997 03 02	691	0.0	0.3+	1997 04 02	691	0.3+	0.2+	1998 08 16	426	0.2-	0.2+
1997 03 07	691	0.2-	0.2+	1997 04 02	691	1.2+	0.3+	1998 08 17	426	0.5+	0.1-
1997 03 07	691	0.2+	0.1+	1997 04 02	691	2.0-	0.2+	1998 08 17	426	0.1+	0.1-
1997 03 07	691	0.1+	0.1-	1997 04 07	691	0.3+	0.2+	1998 08 17	426	0.2+	0.1+
1997 03 14	691	0.3-	0.3-	1997 04 07	691	0.5+	0.1+				

1997 ER₁₁ = 1998 QM₅₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	88.26319		(2000.0)	P	Q	Williams
<i>n</i>	0.27423403	ω	225.38534	-0.64485936	+0.76429922	
<i>a</i>	2.3463267	Ω	4.46059	-0.69467110	-0.58514916	
<i>e</i>	0.1881723	<i>i</i>	1.29633	-0.31872946	-0.27101136	
<i>P</i>	3.59	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1997 03 08	610	1.3-	0.3-	1997 03 15	610	0.6-	0.2+	1997 04 28	704	0.5-	0.3+
1997 03 08	610	0.2-	0.2-	1997 03 15	610	0.5-	0.7+	1997 04 29	704	0.8+	0.2+
1997 03 08	610	1.3+	0.1-	1997 03 17	610	0.4+	0.1-	1997 04 29	704	0.2+	0.5+

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1997 03 09	610	0.2+	0.2-	1997 03 17	610	0.3-	0.1-	1997 04 29	704	0.5+	0.1-
1997 03 09	610	0.1-	0.2-	1997 03 17	610	0.6-	0.1-	1997 04 29	704	0.8+	1.0+
1997 03 09	610	0.2-	0.0	1997 04 07	610	0.5-	0.3+	1997 04 29	704	0.9+	1.1-
1997 03 09	610	0.2-	0.1-	1997 04 07	610	0.3-	0.4+	1997 04 29	704	0.3+	0.8+
1997 03 10	610	0.5+	0.1-	1997 04 07	610	0.0	0.7+	1997 04 29	704	0.4+	0.2+
1997 03 10	610	0.1+	0.1+	1997 04 08	610	0.8+	0.4-	1997 04 29	704	1.7+	0.3+
1997 03 10	610	0.2-	0.4+	1997 04 08	610	0.2+	0.0	1997 04 29	704	0.1-	1.1-
1997 03 11	610	1.4+	0.7-	1997 04 08	610	0.6-	0.4+	1998 08 30	691	0.3-	0.5+
1997 03 11	610	0.4+	0.1-	1997 04 10	610	0.2+	0.5-	1998 08 30	691	0.1-	0.6+
1997 03 11	610	0.3-	0.3+	1997 04 10	610	0.2-	0.7-	1998 08 30	691	0.1-	0.3+
1997 03 12	610	2.1+	0.6+	1997 04 10	610	0.3-	0.8-	1998 08 31	691	0.4-	0.4+
1997 03 12	610	1.0+	1.0+	1997 04 28	704	1.5-	0.6+	1998 08 31	691	0.3-	0.4+
1997 03 12	610	0.3-	1.5+	1997 04 28	704	1.9-	0.2+	1998 08 31	691	0.2-	0.5+
1997 03 15	610	0.9-	0.6-	1997 04 28	704	1.1-	0.5-				

1997 EE₁₆ = 1991 PR₈ = 1998 QQ₅₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>		<i>P</i>	<i>Q</i>
30.15127		(2000.0)	
<i>n</i>	0.29560539	ω	125.85787
<i>a</i>	2.2318302	Ω	183.79256
<i>e</i>	0.1994710	<i>i</i>	3.83973
<i>P</i>	3.33	<i>H</i>	16.0
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1991 08 05	675	1.4-	1.7-	1997 03 10	691	0.1+	0.1+	1998 08 26	910	0.1-	0.1+
1991 08 08	675	1.0-	0.1-	1997 03 10	691	0.1+	0.4-	1998 08 26	910	0.3-	0.2+
1991 08 08	675	2.4+	1.7+	1997 03 10	691	0.2+	0.4-	1998 08 26	910	0.0	0.0
1997 03 05	691	0.4+	0.2+	1997 03 13	691	0.4-	0.1-	1998 08 31	910	0.3+	0.3-
1997 03 05	691	0.1-	0.5+	1997 03 13	691	0.2-	0.3-	1998 08 31	910	0.2+	0.4-
1997 03 05	691	0.0	0.2+	1997 03 13	691	0.2-	0.5-	1998 08 31	910	0.0	0.1-

1997 ES₁₇ = 1979 RH₁ = 1979 SG₃ = 1998 MT₄₆

Id. S. Nakano, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>		<i>P</i>	<i>Q</i>
12.52700		(2000.0)	
<i>n</i>	0.25935948	ω	6.04263
<i>a</i>	2.4352000	Ω	292.95069
<i>e</i>	0.2350492	<i>i</i>	3.74826
<i>P</i>	3.80	<i>H</i>	14.0
		<i>G</i>	0.15
		<i>U</i>	3

Residuals in seconds of arc

1979 09 14	095	(3.5+	2.9-)	1998 06 29	704	0.5+	0.8+	1998 08 18	566	0.1-	0.4-
1979 09 24	095	1.0-	2.1+	1998 06 29	704	0.4-	1.3+	1998 08 18	566	0.1-	0.5-
1997 03 03	400	1.1+	1.5+	1998 06 29	704	0.8+	0.7-	1998 08 18	566	0.0	0.3-
1997 03 03	400	0.8+	0.2-	1998 06 29	704	0.1-	1.0-	1998 08 23	704	0.3+	0.9-
1997 03 04	400	1.1+	1.5-	1998 08 03	699	1.4-	0.5+	1998 08 23	704	0.5+	0.4-
1997 03 04	400	1.2-	0.2-	1998 08 03	699	0.2-	0.4+	1998 08 23	704	0.5+	0.7-
1997 03 12	400	0.4+	1.5+	1998 08 03	699	0.1-	0.3+	1998 08 23	704	0.4-	0.6-
1997 03 12	400	0.4-	0.5+	1998 08 17	704	0.2+	0.2-	1998 08 23	704	0.1+	0.6+
1997 03 16	400	0.4-	0.4+	1998 08 17	704	0.1-	0.7+	1998 08 26	699	0.6+	0.0
1997 03 16	400	0.6+	0.8-	1998 08 17	704	0.1+	0.5+	1998 08 26	699	1.2+	0.2-
1997 03 28	400	(0.3+	2.2+)	1998 08 17	704	1.0-	0.2+	1998 08 26	699	0.7+	0.2-
1997 03 28	400	0.5-	0.5+	1998 08 17	704	1.3-	0.1+				

1997 EE₂₃

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>		<i>P</i>	<i>Q</i>
209.73193		(2000.0)	
<i>n</i>	0.26650868	ω	0.51573
<i>a</i>	2.3914528	Ω	99.44028
<i>e</i>	0.0742624	<i>i</i>	7.82476
<i>P</i>	3.70	<i>H</i>	13.5
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1997 03 02	327	0.4-	0.2-	1997 03 22	327	0.4+	0.4+	1997 04 27	658	0.5-	0.8-
1997 03 02	327	0.9-	0.2-	1997 03 22	327	0.2+	0.5+	1997 05 09	327	0.3+	0.3+
1997 03 02	327	0.6+	0.6-	1997 03 28	327	0.5+	0.6+	1997 05 09	327	0.7+	0.2+
1997 03 09	327	1.1-	0.1-	1997 03 28	327	0.0	0.0	1997 05 09	327	0.5+	0.3+
1997 03 09	327	0.1-	0.6-	1997 03 28	327	0.5+	0.4-	1997 05 20	327	0.7-	0.5-
1997 03 09	327	0.0	0.2+	1997 04 02	327	0.2+	0.1-	1997 05 20	327	0.5-	0.5-
1997 03 16	327	0.5+	0.1-	1997 04 02	327	0.1+	0.0	1997 05 20	327	0.2-	0.1+
1997 03 16	327	0.3-	0.5+	1997 04 02	327	0.1-	0.2-	1998 07 03	699	0.1-	0.2+
1997 03 16	327	1.6+	2.0+	1997 04 13	327	0.4-	0.2-	1998 07 03	699	1.2-	0.5-
1997 03 18	327	0.1+	0.0	1997 04 13	327	0.2-	0.0	1998 07 03	699	1.4-	0.5-
1997 03 18	327	0.0	0.0	1997 04 13	327	0.0	0.0	1998 07 31	699	1.3+	0.0
1997 03 18	327	0.2+	0.0	1997 04 27	658	0.6-	0.2-	1998 07 31	699	0.3+	0.3+
1997 03 22	327	0.2+	0.2+	1997 04 27	658	0.8-	0.5-	1998 07 31	699	0.8+	0.8+

1997 EG₂₇ = 1998 QF₂₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>		<i>P</i>	<i>Q</i>
132.03641		(2000.0)	
<i>n</i>	0.28536377	ω	5.91289
<i>a</i>	2.2849156	Ω	178.42643
<i>e</i>	0.0433686	<i>i</i>	5.93285
<i>P</i>	3.45	<i>H</i>	15.0
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1997 03 05	691	0.3+	0.3+	1997 04 03	816	0.1+	0.3-	1998 08 17	704	0.5-	0.5-
1997 03 05	691	0.1+	0.4+	1997 04 03	816	0.3+	0.4-	1998 08 17	704	0.5+	0.5+
1997 03 05	691	0.3+	0.3+	1997 04 03	816	0.2+	0.1-	1998 08 17	704	0.6+	0.2+
1997 03 13	691	0.3+	0.0	1997 04 03	816	0.3+	0.2-	1998 08 17	704	2.8-	0.6+
1997 03 13	691	0.1+	0.4-	1997 04 05	816	0.2-	0.5+	1998 08 23	704	0.5+	0.2+
1997 03 13	691	0.3+	0.2-	1997 04 05	816	0.2-	0.4+	1998 08 23	704	1.7+	2.1-
1997 03 14	691	0.6-	0.4-	1997 04 05	816	0.0	0.5+	1998 08 23	704	1.5-	0.7-
1997 03 14	691	0.4-	0.3-	1997 04 05	816	0.1-	0.4+	1998 08 23	704	0.8+	0.7+
1997 03 14	691	0.7-	0.4-	1998 08 17	704	0.0	0.1-	1998 08 23	704	0.7+	1.0+

1997 EK₃₅ = 1988 PP₄ = 1998 KV₅₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano			
<i>M</i>		<i>P</i>	<i>Q</i>
319.40712		(2000.0)	
<i>n</i>	0.28830127	ω	190.11070
<i>a</i>	2.2693684	Ω	135.00886
<i>e</i>	0.1900194	<i>i</i>	5.88522
<i>P</i>	3.42	<i>H</i>	14.9
		<i>G</i>	0.15
		<i>U</i>	4

Residuals in seconds of arc

1988 08 08	095	0.1+	0.5-	1997 03 06	704	0.8-	0.3-	1998 06 24	704	0.2-	0.9+
1988 08 08	095	(4.4+	2.9-)	1998 05 23	704	0.3-	0.7+	1998 06 24	704	0.5-	0.3+
1997 02 17	327	0.2-	0.3+	1998 05 23	704	0.3+	0.4+	1998 06 24	704	0.3+	0.2+
1997 02 17	327	0.1-	0.2+	1998 05 23	704	0.5+	0.2+	1998 06 24	704	0.0	0.2+
1997 02 17	327	0.0	0.2+	1998 05 23	704	0.6+	1.5-	1998 06 24	704	0.2-	0.2-
1997 03 04	704	0.6+	0.6+	1998 05 26	704	0.0	0.1+	1998 06 26	704	0.2-	0.0
1997 03 04	704	0.4-	0.6-	1998 05 26	704	0.1-	1.3+	1998 06 26	704	0.6+	0.6-
1997 03 05	704	0.4-	0.2+	1998 05 26	704	(0.4-	4.0-)	1998 06 26	704	0.3-	0.3+
1997 03 05	704	0.1+	0.3+	1998 05 26	704	(2.6-	3.0-)	1998 06 26	704	0.0	0.5-
1997 03 06	704	1.1+	1.6-	1998 05 26	704	0.7-	1.9-	1998 06 26	704	0.0	0.2+

1997 EE₄₆ = 1998 QW₇₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>		<i>P</i>	<i>Q</i>
62.93984		(2000.0)	
<i>n</i>	0.28068014	ω	45.63327
<i>a</i>	2.3102639	Ω	203.27449
<i>e</i>	0.1130777	<i>i</i>	7.87599
<i>P</i>	3.51	<i>H</i>	15.5
		<i>G</i>	0.15
		<i>U</i>	6

Residuals in seconds of arc

1997 03 15	689	1.1-	1.1+	1997 03 16	689	0.2+	0.2-	1998 08 24	704	0.5+	1.6-
1997 03 15	689	0.7+	0.1+	1997 03 16	689	0.2+	0.2-	1998 08 24	704	0.2-	1.4+

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1997 03 15	689	0.6−	0.4+	1997 03 16	689	0.2+	0.1−	1998 08 24	704	0.6−	0.3−
1997 03 15	689	1.0+	0.7−	1997 03 17	689	0.3−	0.0	1998 08 24	704	1.7−	1.8−
1997 03 15	689	0.8−	0.4+	1997 03 17	689	0.6−	0.3+	1998 08 24	704	1.7+	1.0+
1997 03 15	689	0.4+	0.4−	1997 03 17	689	0.2+	0.3+	1998 08 27	704	0.2+	0.2+
1997 03 15	689	0.1−	0.1+	1997 03 17	689	0.1−	0.4−	1998 08 27	704	0.9+	0.3−
1997 03 16	689	0.1+	0.2−	1997 03 17	689	0.5+	0.5−	1998 08 27	704	0.8−	1.6+
1997 03 16	689	0.5−	0.2+	1997 03 29	689	0.2+	0.0				
1997 03 16	689	0.0	0.3−	1997 03 29	689	0.2+	0.1+				

1997 FM

Id. F. B. Zoltowski (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	45.37425	(2000.0)	<i>Q</i>
<i>n</i>	0.22353240	ω 161.37560	+0.20897056 +0.95634396
<i>a</i>	2.6889067	Ω 120.22838	−0.92458425 +0.26126455
<i>e</i>	0.1319235	<i>i</i> 13.67703	−0.31855182 −0.13094684
<i>P</i>	4.41	<i>H</i> 14.0	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1997 03 21	327	0.8−	0.4−	1997 03 28	327	0.0	0.0	1998 09 01	426	0.0	0.1−
1997 03 21	327	0.2+	0.3+	1997 03 28	327	0.2−	0.2+	1998 09 01	426	0.2−	0.2−
1997 03 21	327	0.0	0.4+	1997 03 28	327	0.2−	0.3−	1998 09 01	426	0.4+	0.0
1997 03 22	327	0.0	0.1−	1997 04 27	658	0.2+	0.0	1998 09 03	426	0.3−	0.4−
1997 03 22	327	0.3+	0.1−	1997 04 27	658	0.4−	0.0	1998 09 03	426	0.1+	0.6+
1997 03 22	327	0.7+	0.1+	1997 04 27	658	0.2+	0.0				

1997 FO₃ = 1998 QZ₁₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	34.12583	(2000.0)	<i>Q</i>
<i>n</i>	0.21398180	ω 102.32988	−0.01659207 +0.99976359
<i>a</i>	2.7683319	Ω 166.69538	−0.93945067 −0.01077688
<i>e</i>	0.1093211	<i>i</i> 3.50081	−0.34228224 −0.01888441
<i>P</i>	4.61	<i>H</i> 15.0	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1997 03 10	809	0.8+	0.9−	1997 04 05	704	0.2−	0.2+	1998 08 17	704	0.1−	0.9−
1997 03 10	809	0.4+	0.5−	1997 04 05	704	0.4−	1.0+	1998 08 17	704	0.1+	1.0+
1997 03 10	809	0.5+	0.8−	1997 04 06	566	(2.2−	0.3+)	1998 08 23	704	0.8−	0.7−
1997 03 11	809	0.6−	1.2+	1997 04 06	566	1.8−	0.1+	1998 08 23	704	(2.7−	1.3−)
1997 03 11	809	0.8+	1.3+	1997 04 06	566	(2.9−	0.1+)	1998 08 23	704	0.4−	1.2−
1997 03 11	809	0.3+	1.7+	1997 05 02	910	0.6+	1.1−	1998 08 23	704	0.5+	0.9+
1997 03 31	704	0.4+	0.6−	1997 05 02	910	0.4+	1.2−	1998 08 28	699	0.4−	0.8+
1997 03 31	704	0.6+	1.2−	1997 05 02	910	0.3+	1.3−	1998 08 28	699	0.7−	0.4+
1997 04 03	704	0.8−	1.5+	1998 08 17	704	1.2+	0.7−	1998 08 28	699	0.2−	0.9+
1997 04 03	704	0.8−	1.1+	1998 08 17	704	0.7+	0.2+				

1997 FQ₃ = 1997 GS₂₀ = 1991 PS₁₅Id. B. G. Marsden (d, *MPC* 30798), A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

Gnädig			
<i>M</i>	6.90570	(2000.0)	<i>Q</i>
<i>n</i>	0.29140024	ω 332.25345	+0.89986567 +0.43616485
<i>a</i>	2.2532503	Ω 1.88882	−0.39182188 +0.80979426
<i>e</i>	0.1612160	<i>i</i> 2.45573	−0.19161782 +0.39242002
<i>P</i>	3.38	<i>H</i> 16.0	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1991 08 06	675	0.0	0.1−	1997 03 13	809	(3.8+	4.4+)	1997 04 05	704	0.2−	1.1−
1991 08 06	675	0.4−	0.1−	1997 03 13	809	(3.0+	3.1+)	1997 04 05	704	0.3−	0.5−
1991 08 10	675	0.4−	1.0−	1997 03 13	809	(2.8+	3.7+)	1997 04 06	704	0.4−	1.0+
1991 08 10	675	0.9+	1.2+	1997 03 31	704	0.7+	0.6+	1997 04 06	704	0.7−	0.7+
1997 03 11	809	0.8−	0.2−	1997 03 31	704	0.6+	1.1−	1997 04 07	704	0.3+	0.2−
1997 03 11	809	0.6−	0.2+	1997 04 03	704	0.6+	0.0	1997 04 07	704	0.3−	0.3−
1997 03 11	809	0.2−	0.1+	1997 04 03	704	1.1+	0.7+				

1998 SEPT. 10

1997 GP₆ = 1998 QZ₆₁

Id. E. Bowell, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	142.76133	(2000.0)	<i>Q</i>
<i>n</i>	0.26241187	ω 151.03393	−0.99437502 +0.09459858
<i>a</i>	2.4162789	Ω 34.49536	−0.10590569 −0.88159442
<i>e</i>	0.0764248	<i>i</i> 4.82522	−0.00151502 −0.46243096
<i>P</i>	3.76	<i>H</i> 14.5	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1997 04 02	704	0.2+	0.5−	1997 04 08	704	0.8−	0.8+	1997 05 01	704	0.1−	0.0
1997 04 02	704	0.2+	0.3−	1997 04 08	704	0.0	0.4+	1997 05 01	704	0.2−	0.1+
1997 04 06	704	0.1+	0.2−	1997 04 30	704	0.3+	0.0	1998 08 23	704	0.8−	0.1−
1997 04 06	704	0.1+	0.5+	1997 04 30	704	0.3+	0.1+	1998 08 23	704	0.8−	0.9+
1997 04 07	704	0.2−	0.4−	1997 04 30	704	0.5+	0.3−	1998 08 23	704	0.5+	0.1−
1997 04 07	704	0.3+	0.3+	1997 04 30	704	0.2+	0.2+	1998 08 23	704	0.7−	0.3−
1997 04 07	704	0.3−	0.3−	1997 04 30	704	0.1+	0.1−	1998 08 23	704	0.0	1.3−
1997 04 07	704	0.5+	0.4+	1997 05 01	704	0.8−	0.2−	1998 08 30	699	0.2+	0.3+
1997 04 08	704	0.0	0.1+	1997 05 01	704	0.5−	0.2−	1998 08 30	699	0.8+	0.1−
1997 04 08	704	0.3+	0.1−	1997 05 01	704	0.0	0.1−	1998 08 30	699	0.6+	0.7+

1997 GW₆ = 1998 QJ₈₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	340.39184	(2000.0)	<i>Q</i>
<i>n</i>	0.21596844	ω 128.83307	+0.95396812 +0.23965674
<i>a</i>	2.7513290	Ω 218.29079	−0.27034491 +0.94745023
<i>e</i>	0.1416549	<i>i</i> 16.91637	+0.12984011 +0.21190260
<i>P</i>	4.56	<i>H</i> 14.5	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1997 04 02	704	0.4+	0.6−	1997 05 01	704	0.6+	0.0	1997 05 26	910	0.2+	0.2+
1997 04 02	704	0.1+	0.4+	1997 05 01	704	0.3+	0.4+	1997 05 26	910	0.1−	0.3+
1997 04 06	704	1.0−	0.7+	1997 05 04	327	0.7−	0.3−	1997 05 26	910	0.1+	0.3+
1997 04 06	704	0.6−	0.9−	1997 05 04	327	1.2−	0.5−	1998 08 24	704	1.0+	0.7−
1997 04 08	704	0.4−	0.0	1997 05 04	327	1.1−	0.1−	1998 08 24	704	0.1+	0.4+
1997 04 08	704	0.5+	1.5+	1997 05 04	327	0.5−	0.7−	1998 08 24	704	0.4+	1.0−
1997 04 30	704	0.5+	0.2−	1997 05 05	704	0.8+	0.1−	1998 08 24	704	0.8+	1.6−
1997 04 30	704	0.0	0.0	1997 05 05	704	0.8+	0.0	1998 08 24	704	0.0	0.8−
1997 04 30	704	0.3+	0.4−	1997 05 05	704	0.5+	0.0	1998 08 27	704	0.1−	0.5+
1997 04 30	704	0.8+	0.3−	1997 05 05	704	0.4+	0.1−	1998 08 27	704	1.5−	2.3+
1997 04 30	704	0.5+	0.3−	1997 05 05	704	0.1−	0.3−	1998 08 27	704	0.5−	0.7+
1997 05 01	704	0.9+	0.1−	1997 05 08	327	1.2−	0.2−	1998 08 27	704	0.2−	0.2+
1997 05 01	704	0.6+	0.0	1997 05 08	327	0.8−	0.8+				
1997 05 01	704	0.5+	0.2+	1997 05 08	327	1.0−	0.4+				

1997 GE₇ = 1998 QM₇₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	345.30485	(2000.0)	<i>Q</i>
<i>n</i>	0.22425144	ω 138.71794	+0.96120294 +0.25894329
<i>a</i>	2.6831558	Ω 206.72720	−0.27382690 +0.93730765
<i>e</i>	0.1421879	<i>i</i> 12.20297	+0.03328273 +0.23324396
<i>P</i>	4.40	<i>H</i> 15.0	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1997 04 02	704	1.0+	0.0	1997 04 30	704	0.2+	0.6+	1998 08 24	704	0.6+	1.2−
1997 04 02	704	0.2−	1.2+	1997 05 01	704	0.3+	0.3−	1998 08 24	704	0.5−	0.7+
1997 04 06	704	0.1+	0.3−	1997 05 01	704	0.3−	0.2−	1998 08 27	704	0.2+	0.4+
1997 04 06	704	0.0	0.0	1997 05 01	704	0.1+	0.5−	1998 08 27	704	0.3−	0.4−
1997 04 08	704	0.2+	1.0−	1997 05 01	704	0.1−	0.1−	1998 08 27	704	0.7−	0.8+
1997 04 08	704	1.2−	0.0	1997 05 01	704	0.1+	0.1+	1998 08 27	704	0.5+	0.3−
1997 04 30	704	0.1−	0.3−	1998 08 24	704	0.1−	0.0	1998 08 27	704	0.9−	0.3−
1997 04 30	704	0.3−	0.5+	1998 08 24	704	0.7+	0.9−				
1997 04 30	704	0.1+	0.4+	1998 08 24	704	0.7+	1.1+				

1998 SEPT. 10

1997 GX₁₄ = 1998 QR₉₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	20.80639	ω	298.86280	+0.57553678	+0.81747538		
<i>a</i>	2.6200074	Ω	6.41093	-0.66397733	+0.48294851		
<i>e</i>	0.2003453	<i>i</i>	11.45129	-0.47737986	+0.31383873		
<i>P</i>	4.24	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1997 03 11	809	1.8+	1.3+	1997 04 05	704	0.0	0.3-
1997 03 11	809	0.9+	0.1+	1997 04 05	704	0.2-	0.4+
1997 03 11	809	1.0+	0.3+	1997 04 06	704	0.6-	0.6-
1997 03 13	809	1.2-	0.8-	1997 04 06	704	0.6-	0.1+
1997 03 13	809	1.1-	0.3-	1997 04 07	704	0.6+	0.2+
1997 03 13	809	1.2-	0.8-	1997 04 07	704	1.6+	0.4+
1997 04 03	704	0.8-	0.5-	1998 08 28	704	0.2+	0.1-
1997 04 03	704	0.1-	0.6+	1998 08 28	704	1.0+	1.1-

1997 GD₁₅ = 1998 MY₄₇

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	314.11266	ω	80.12232	+0.97586539	+0.21670121		
<i>a</i>	2.7274460	Ω	267.35866	-0.20944141	+0.89382853		
<i>e</i>	0.0842449	<i>i</i>	1.54703	-0.06181447	+0.39256993		
<i>P</i>	4.50	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1997 03 11	809	0.3+	0.4-	1997 04 05	704	1.1+	0.2+
1997 03 11	809	0.1+	1.5-	1997 04 05	704	0.5+	0.5+
1997 03 11	809	0.5+	1.3-	1997 04 06	704	0.2+	0.3-
1997 03 13	809	0.7-	1.4+	1997 04 06	704	0.5-	0.7+
1997 03 13	809	0.3-	0.3+	1997 04 07	704	1.2+	1.2+
1997 03 13	809	1.2-	0.9-	1997 04 07	704	0.6-	0.0
1997 04 03	704	0.5-	0.7-	1998 06 24	704	0.1+	1.1-
1997 04 03	704	0.2-	0.7+	1998 06 24	704	0.5+	1.5-

1997 GK₁₇ = 1987 DQ₂ = 1998 QU₂₃

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	237.75798	ω	118.67429	+0.01237671	-0.99974056		
<i>a</i>	2.1804372	Ω	330.59783	+0.90328313	+0.01938019		
<i>e</i>	0.0933599	<i>i</i>	2.23214	+0.42886642	-0.01196712		
<i>P</i>	3.22	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	3
Residuals in seconds of arc							
1987 02 23	010	0.3-	0.1-	1997 04 03	704	0.2+	0.5-
1987 02 23	010	0.6-	0.9-	1997 04 04	566	0.2+	0.2+
1987 02 23	010	0.5+	0.2-	1997 04 04	566	0.1+	0.3-
1997 03 12	809	0.6+	0.1+	1997 04 04	566	0.4-	0.2+
1997 03 12	809	0.2-	1.2+	1997 04 05	704	0.4+	0.3+
1997 03 12	809	0.3-	0.1+	1997 04 05	704	0.0	1.2+
1997 03 13	809	0.3-	0.6-	1998 08 17	704	0.3+	0.2-
1997 03 13	809	0.4+	1.0-	1998 08 17	704	0.5+	0.1+
1997 03 13	809	1.3-	1.7-	1998 08 17	704	0.5+	0.4+
1997 04 03	704	0.4+	0.3+	1998 08 17	704	1.3-	0.9+

M.P.C. 32477

1997 GL₁₇ = 1998 QC₃₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	124.67008	ω	218.64985	-0.98416232	+0.17647206		
<i>a</i>	0.26147799	Ω	331.50104	-0.15264008	-0.89179426		
<i>e</i>	0.1455248	<i>i</i>	2.01743	-0.09014177	-0.41660605		
<i>P</i>	3.77	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5
Residuals in seconds of arc							
1997 03 11	809	0.7+	0.6+	1997 03 13	809	0.6-	0.4-
1997 03 11	809	0.7+	0.2+	1997 03 13	809	0.8+	0.9-
1997 03 11	809	0.3+	0.0	1997 03 13	809	1.0-	0.6-
1997 03 12	809	0.3+	1.6-	1997 04 03	704	0.3-	0.0
1997 03 12	809	0.5-	0.2-	1997 04 03	704	0.2-	0.7+
1997 03 12	809	0.9-	0.1-	1997 04 05	704	0.7+	0.4+
1997 03 13	809	0.4-	0.5+	1997 04 05	704	0.0	0.3+
1997 03 13	809	0.3-	0.0	1997 04 07	704	0.2+	0.2-
1997 03 13	809	0.1-	0.4+	1997 04 07	704	0.3+	0.1+

1997 GT₁₈ = 1975 TM₁ = 1977 EW₈ = 1998 QK₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	316.43568	ω	199.69167	+0.95680469	-0.29072725		
<i>a</i>	2.2170334	Ω	177.20842	+0.27086105	+0.88944277		
<i>e</i>	0.1414872	<i>i</i>	1.84059	+0.10563651	+0.35266022		
<i>P</i>	3.30	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1975 10 03	095	0.2+	0.7-	1997 04 10	327	0.4-	0.2+
1977 03 14	381	(1.9+	2.9-)	1997 04 10	327	0.6-	0.1-
1977 03 14	381	0.0	0.6-	1997 04 10	327	0.3-	0.1+
1997 03 12	809	(0.5-	2.7+)	1997 04 11	704	0.8+	0.3+
1997 03 12	809	(1.4-	2.7+)	1997 04 11	704	0.4+	0.9-
1997 03 12	809	(1.5-	2.6+)	1998 08 17	704	0.8+	0.4+
1997 03 13	809	(0.4+	3.5+)	1998 08 17	704	0.3+	0.3+
1997 03 13	809	(1.3+	3.0+)	1998 08 17	704	0.0	0.6+
1997 03 13	809	(0.3+	3.9+)	1998 08 17	704	1.2+	0.9+
1997 04 03	704	0.5+	0.1-	1998 08 17	704	0.7+	0.1-
1997 04 03	704	0.6+	0.3+	1998 08 19	132	0.3-	0.2-
1997 04 05	704	0.1+	0.1+	1998 08 20	132	(2.3-	0.2-)
1997 04 05	704	0.4+	0.2-	1998 08 22	132	0.1-	0.2-
1997 04 06	327	0.5-	0.0	1998 08 22	132	0.8-	1.0+
1997 04 06	327	(2.9-	0.6+)	1998 08 22	132	0.3-	0.0
1997 04 06	327	1.2-	0.2-	1998 08 23	704	0.3-	0.4+
1997 04 10	327	0.3-	0.0	1998 08 23	704	0.2+	0.2+

1997 GL₂₂ = 1998 QH₂₃

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	346.27484	ω	312.92325	+0.93101783	+0.36408502		
<i>a</i>	0.18087936	Ω	25.75672	-0.31547469	+0.83785963		
<i>e</i>	0.02283672	<i>i</i>	3.35802	-0.18352525	+0.40673497		
<i>P</i>	5.45	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1997 04 06	704	0.8+	1.1+	1997 05 01	704	0.4+	0.3-
1997 04 06	704	0.1+	0.0	1997 05 01	704	0.0	0.9+
1997 04 08	704	0.4+	0.1+	1997 05 01	704	0.6-	0.4+
1997 04 08	704	0.8-	0.1-	1997 05 05	704	0.8+	0.5+
1997 04 30	704	0.1+	0.1+	1997 05 05	704	0.5+	0.3+
1997 04 30	704	0.2+	1.0-	1997 05 05	704	0.2-	0.7-
1997 04 30	704	0.4-	0.6+	1997 05 05	704	1.0-	1.2-
1997 04 30	704	0.0	0.2-	1998 07 31	699	0.9-	0.6+
1997 04 30	704	0.4-	0.7-	1998 07 31	699	0.1-	0.6+

M.P.C. 32478

1997 05 01 704 0.1− 0.6+ 1998 07 31 699 0.5− 0.8+
 1997 05 01 704 0.2+ 0.5− 1998 08 17 704 0.0 0.5−

1997 GR₂₄

Id. A. Nakamura (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	22.25158		(2000.0)		P		Q
<i>n</i>	0.22303953	ω	126.54187		+0.78122293		+0.62177281
<i>a</i>	2.6928665	Ω	195.27033		−0.61865348		+0.75924363
<i>e</i>	0.1925076	<i>i</i>	12.18311		−0.08341821		+0.19221782
<i>P</i>	4.42	<i>H</i>	13.8		<i>G</i> 0.15		<i>U</i> 3

Residuals in seconds of arc

1997 04 07 360 0.4+ 0.2− 1997 04 12 360 0.1+ 0.2− 1997 06 04 360 0.3+ 0.1−
 1997 04 07 360 0.2+ 0.4− 1997 04 26 360 0.6+ 0.1− 1997 06 04 360 0.4+ 0.3−
 1997 04 07 360 0.3+ 0.4− 1997 04 26 360 0.3+ 0.3− 1997 07 03 360 0.1− 0.2+
 1997 04 10 360 0.0 0.1+ 1997 04 26 360 0.1+ 0.2+ 1997 07 05 360 0.1+ 0.3+
 1997 04 10 360 0.1+ 0.2+ 1997 05 05 360 0.5− 0.2+ 1997 07 05 360 0.2− 0.4+
 1997 04 12 402 0.2− 0.1− 1997 05 05 360 0.5− 0.2+ 1998 08 25 360 0.1+ 0.1−
 1997 04 12 402 0.4− 0.4+ 1997 05 27 360 0.3− 0.1− 1998 08 25 360 0.1+ 0.2−
 1997 04 12 402 0.0 0.7+ 1997 05 27 360 0.3− 0.1+ 1998 09 02 360 0.0 0.1+
 1997 04 12 360 0.2− 0.0 1997 05 31 360 0.0 0.3− 1998 09 02 360 0.2− 0.0
 1997 04 12 360 0.2− 0.2− 1997 05 31 360 0.0 0.3−

1997 GZ₂₅

Id. A. Nakamura (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	136.93102		(2000.0)		P		Q
<i>n</i>	0.28431345	ω	57.46402		−0.88438637		+0.46480792
<i>a</i>	2.2905395	Ω	150.17020		−0.45180290		−0.82956913
<i>e</i>	0.0782437	<i>i</i>	4.91232		−0.11719592		−0.30946512
<i>P</i>	3.47	<i>H</i>	14.8		<i>G</i> 0.15		<i>U</i> 4

Residuals in seconds of arc

1997 04 10 360 0.0 0.1+ 1997 05 07 704 0.6+ 0.7+ 1997 08 28 709 0.1+ 0.4−
 1997 04 10 360 0.5− 0.2+ 1997 08 16 709 0.5− 0.4− 1998 08 25 360 0.0 0.6+
 1997 04 12 360 0.8− 0.2+ 1997 08 16 709 0.3+ 0.1− 1998 08 25 360 0.1− 0.6+
 1997 04 12 360 0.4− 0.3+ 1997 08 16 709 1.1− 0.4− 1998 08 25 360 0.2+ 0.7+
 1997 04 12 360 0.3− 0.3− 1997 08 16 709 0.4− 1.4− 1998 09 02 360 0.4− 0.3+
 1997 05 07 704 0.9+ 0.4+ 1997 08 28 709 0.6− 0.1− 1998 09 02 360 0.4− 0.0
 1997 05 07 704 0.7+ 0.8+ 1997 08 28 709 0.5+ 0.1+
 1997 05 07 704 1.0+ 0.5+ 1997 08 28 709 0.3− 0.8−

1997 GW₃₂ = 4700 P-L = 1976 JW₉

Id. G. V. Williams, E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	1.70645		(2000.0)		P		Q
<i>n</i>	0.23190950	ω	337.10324		+0.69072001		+0.72301734
<i>a</i>	2.6237575	Ω	336.57800		−0.65856245		+0.62192444
<i>e</i>	0.1081302	<i>i</i>	1.77621		−0.29866600		+0.30075892
<i>P</i>	4.25	<i>H</i>	15.0		<i>G</i> 0.15		<i>U</i> 2

Residuals in seconds of arc

1960 09 24 675 0.6− 0.5+ 1960 09 28 675 0.9− 0.4+ 1997 04 11 704 0.9+ 0.7+
 1960 09 24 675 0.9+ 0.8+ 1960 09 28 675 0.2+ 0.1− 1998 08 17 704 0.5+ 0.4+
 1960 09 24 675 0.3− 0.9− 1960 09 28 675 0.2+ 0.2− 1998 08 17 704 0.5+ 0.6−
 1960 09 24 675 (0.9+ 2.6−) 1976 05 02 809 0.2− 0.6− 1998 08 17 704 1.0+ 0.8−
 1960 09 25 675 1.1− 0.8+ 1997 03 12 809 1.8− 0.0 1998 08 17 704 0.6+ 0.4−
 1960 09 25 675 0.2+ 0.1+ 1997 03 12 809 (3.2− 0.1−) 1998 08 23 704 0.0 1.3−
 1960 09 26 675 0.7− 0.4− 1997 03 12 809 (2.2− 0.4+) 1998 08 23 699 0.2− 0.1+
 1960 09 26 675 0.1+ 0.3− 1997 03 13 809 0.5− 0.5+ 1998 08 23 704 0.4− 0.9+
 1960 09 26 675 0.4+ 1.3− 1997 03 13 809 1.2+ 0.1− 1998 08 23 704 0.0 0.3−
 1960 09 26 675 0.0 0.5− 1997 03 13 809 1.6− 0.4+ 1998 08 23 699 0.5− 0.7+
 1960 09 27 675 1.6+ 0.1+ 1997 04 03 704 0.8+ 0.8− 1998 08 23 704 1.1− 0.8+

1998 SEPT. 10

1960 09 27 675 0.8+ 0.6+ 1997 04 03 704 0.8+ 0.8− 1998 08 23 704 0.7− 1.2+
 1960 09 28 675 0.3− 0.6− 1997 04 11 704 (2.0+ 0.2+) 1998 08 23 699 0.1+ 0.1+

1997 HP₂

Id. P. G. Comba (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	80.62932		(2000.0)		P		Q
<i>n</i>	0.24430604	ω	83.31897		−0.20443639		+0.97887810
<i>a</i>	2.5342332	Ω	174.88340		−0.90610474		−0.18852175
<i>e</i>	0.1089415	<i>i</i>	1.18917		−0.37037813		−0.07910253
<i>P</i>	4.03	<i>H</i>	15.0		<i>G</i> 0.15		<i>U</i> 5

Residuals in seconds of arc

1997 04 28 684 0.8− 0.2+ 1997 05 04 809 (1.5+ 4.4+) 1997 06 07 809 1.1+ 0.2−
 1997 04 28 684 0.2+ 0.2− 1997 05 04 809 (1.0+ 4.2+) 1997 06 07 809 0.2− 0.1+
 1997 05 01 684 0.2− 1.2− 1997 05 04 809 (1.3+ 3.6+) 1997 06 07 809 0.8− 0.5−
 1997 05 01 684 0.9− 0.8− 1997 05 08 684 0.0 0.5− 1997 06 08 809 0.7+ 2.0+
 1997 05 01 684 0.5− 0.9− 1997 05 08 684 0.2+ 0.5− 1997 06 08 809 (0.9+ 2.3+)
 1997 05 02 684 0.4− 0.6− 1997 05 08 684 0.0 0.6− 1997 06 08 809 0.2+ 1.9+
 1997 05 02 684 0.3− 0.6− 1997 05 28 684 0.1− 0.1− 1998 08 19 684 0.1+ 0.2−
 1997 05 02 684 0.0 0.7− 1997 05 28 684 0.4− 0.1− 1998 08 19 684 0.1− 0.2−
 1997 05 03 809 (1.8+ 2.2+) 1997 05 28 684 0.3− 0.1− 1998 08 19 684 0.3+ 0.1−
 1997 05 03 809 1.6+ 1.7+ 1997 05 29 684 0.1+ 0.1− 1998 08 20 684 0.1+ 0.2−
 1997 05 03 809 0.8+ 1.6+ 1997 05 29 684 0.0 0.0 1998 08 20 684 0.1− 0.2−

1997 HF₇ = 1998 QH₁₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	264.88893		(2000.0)		P		Q
<i>n</i>	0.27743072	ω	9.98261		+0.42608377		−0.90444229
<i>a</i>	2.3282683	Ω	54.80104		+0.82825759		+0.38069210
<i>e</i>	0.1788782	<i>i</i>	1.46551		+0.36392581		+0.19250368
<i>P</i>	3.55	<i>H</i>	15.0		<i>G</i> 0.15		<i>U</i> 5

Residuals in seconds of arc

1997 04 02 704 0.6+ 0.1+ 1997 04 30 704 0.1− 0.8− 1998 08 17 704 0.9+ 0.0
 1997 04 02 704 0.4− 0.3+ 1997 04 30 704 0.2− 0.7+ 1998 08 17 704 0.6− 0.4−
 1997 04 06 704 0.3+ 0.4+ 1997 05 01 704 0.3− 0.1+ 1998 08 17 704 0.3+ 0.9+
 1997 04 06 704 0.4+ 0.2+ 1997 05 01 704 0.2− 0.2− 1998 08 23 704 1.1+ 0.7+
 1997 04 06 704 0.8− 0.4− 1997 05 01 704 0.2+ 0.6− 1998 08 23 704 1.6+ 0.0
 1997 04 06 704 0.1− 0.4+ 1997 05 01 704 0.3+ 0.3− 1998 08 23 704 0.4− 1.2−
 1997 04 30 704 0.0 0.0 1997 05 01 704 0.4− 0.0 1998 08 23 704 1.0− 0.3−
 1997 04 30 704 0.1+ 0.2+ 1998 08 17 704 0.5+ 0.7− 1998 08 23 704 2.1− 0.6+
 1997 04 30 704 0.7+ 0.2+ 1998 08 17 704 0.3− 0.4+

1997 JO

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	98.56859		(2000.0)		P		Q
<i>n</i>	0.28128644	ω	235.53648		−0.62415865		+0.78120551
<i>a</i>	2.3069429	Ω	355.78345		−0.65260962		−0.52973392
<i>e</i>	0.1710802	<i>i</i>	9.39053		−0.42956567		−0.33030277
<i>P</i>	3.50	<i>H</i>	14.0		<i>G</i> 0.15		<i>U</i> 4

Residuals in seconds of arc

1997 03 05 809 (2.6+ 2.0+) 1997 05 03 557 0.1− 0.8− 1998 08 17 557 0.6+ 1.1+
 1997 03 05 809 (3.1+ 2.0+) 1997 05 03 557 0.2− 0.2− 1998 08 17 557 0.2+ 1.2+
 1997 03 05 809 (2.6+ 1.4+) 1997 05 04 557 0.5− 0.2+ 1998 08 18 557 0.1+ 1.2+
 1997 03 06 809 1.8+ 0.7+ 1997 05 04 557 0.5− 0.2+ 1998 08 18 557 0.8+ 0.9+
 1997 03 06 809 1.4+ 0.6+ 1997 05 10 557 0.5− 0.2− 1998 08 28 704 1.4− 0.2−
 1997 03 06 809 0.7+ 0.9+ 1997 05 10 557 0.4− 0.0 1998 08 28 704 1.1− 0.6−
 1997 05 02 557 0.4− 0.1− 1997 05 10 557 0.4− 0.2− 1998 08 28 704 1.0− 0.9−
 1997 05 02 557 0.5− 0.4− 1997 06 01 557 0.9+ 1.2+ 1998 08 28 704 0.2+ 0.5+
 1997 05 02 557 0.3− 0.0 1997 06 01 557 (0.4+ 2.0+) 1998 08 28 704 (0.6− 2.8+)
 1997 05 03 557 0.1− 0.4− 1997 06 01 557 0.9+ 1.5+

1997 JU₇ = 1998 QH₇₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	298.92462	ω	208.96808	+0.63171145	-0.76941357		
<i>a</i>	2.3858573	Ω	202.28304	+0.75059629	+0.63758352		
<i>e</i>	0.1789950	<i>i</i>	14.44224	+0.19376752	+0.03860060		
<i>P</i>	3.69	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 05 03	327	0.2-	0.0	1997 05 16	327	0.6-	0.2+	1998 08 24	704	0.1+	0.6-
1997 05 03	327	0.5+	0.3-	1997 05 16	327	0.5-	0.4+	1998 08 24	704	0.6-	0.3-
1997 05 03	327	0.0	0.0	1997 05 18	327	0.8+	0.8-	1998 08 27	704	0.4+	0.5-
1997 05 08	327	0.2-	0.4-	1997 05 18	327	0.3+	0.4+	1998 08 27	704	0.2+	0.0
1997 05 08	327	0.1+	0.4-	1997 05 18	327	0.3+	0.3-	1998 08 27	704	0.0	0.4-
1997 05 08	327	0.7-	0.5+	1998 08 24	704	0.4+	0.2+	1998 08 27	704	0.0	0.4-
1997 05 08	327	0.7+	0.2+	1998 08 24	704	0.0	1.5+	1998 08 27	704	0.3-	0.2-
1997 05 16	327	0.4-	0.3+	1998 08 24	704	0.2-	0.5+				

1997 JB₁₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	174.23424	ω	50.89291	-0.97205164	-0.23014433		
<i>a</i>	2.2818231	Ω	115.75717	+0.19636641	-0.90527163		
<i>e</i>	0.0892516	<i>i</i>	2.95052	+0.12866949	-0.35709503		
<i>P</i>	3.45	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 05 03	596	0.1-	0.4+	1997 05 11	596	0.5-	0.3-	1997 05 26	596	1.1-	0.0
1997 05 03	596	0.4-	1.1-	1997 05 11	596	0.8+	1.9+	1997 05 26	596	0.0	0.3-
1997 05 03	596	0.4-	1.5+	1997 05 11	596	0.9-	0.5-	1998 08 29	595	1.7-	1.6+
1997 05 10	596	0.5+	1.6+	1997 05 13	596	0.6+	0.4-	1998 08 29	595	0.2-	1.2-
1997 05 10	596	0.1+	0.3-	1997 05 13	596	1.1+	0.8-	1998 08 30	595	0.9+	0.0
1997 05 10	596	0.1+	0.8-	1997 05 13	596	0.2+	0.8-	1998 08 31	595	0.9+	0.3-

1997 JA₁₁ = 1997 KS₂ = 1998 QVId. A. Gnädig (d, *MPC* 32093), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	318.77694	ω	233.37948	+0.90473022	-0.40582714		
<i>a</i>	3.1390900	Ω	149.92855	+0.42388067	+0.88783722		
<i>e</i>	0.3095262	<i>i</i>	14.97641	-0.04228951	+0.21690872		
<i>P</i>	5.56	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 05 08	691	0.4-	0.8-	1998 08 17	704	0.3+	0.7+	1998 08 20	566	0.1+	0.2-
1997 05 08	691	0.3-	0.5-	1998 08 17	704	0.4+	0.1-	1998 08 20	566	0.4-	0.3-
1997 05 08	691	0.4-	0.5-	1998 08 17	704	0.6-	0.1+	1998 08 23	704	0.3+	0.4+
1997 05 14	691	0.2+	0.1-	1998 08 17	704	0.4-	1.1+	1998 08 23	704	0.7+	0.5-
1997 05 14	691	0.6+	0.6+	1998 08 17	704	0.6+	0.8+	1998 08 23	704	0.9-	0.0
1997 05 14	691	0.2+	0.3-	1998 08 18	620	0.2+	0.1+	1998 08 23	704	0.6+	0.5-
1997 05 29	691	0.7+	0.1-	1998 08 18	620	0.7-	0.0	1998 08 23	704	0.1+	0.1+
1997 05 29	691	0.7+	0.2-	1998 08 19	620	(1.4+	2.1-)	1998 08 28	699	0.2-	0.2+
1997 05 29	691	1.1-	1.4+	1998 08 19	620	0.3-	1.0-	1998 08 28	699	0.1+	0.5+
1997 06 05	691	0.0	0.0	1998 08 19	620	0.6-	0.9-	1998 08 28	699	0.0	0.3+
1997 06 05	691	0.1-	0.0	1998 08 19	620	0.0	0.5-				
1997 06 05	691	0.1-	0.5+	1998 08 20	566	0.6+	0.4-				

1997 JF₁₂ = 1998 OE₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	73.25077	ω	31.50845	-0.60329545	+0.79747981		
<i>a</i>	0.18609177	Ω	201.38838	-0.73607263	-0.56054347		
<i>e</i>	0.0883279	<i>i</i>	1.22267	-0.30697179	-0.22319715		
<i>P</i>	5.30	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1997 04 11	704	0.4+	0.1+	1997 05 04	809	0.4-	0.5+	1998 07 26	809	0.1-	1.3-
1997 04 11	704	0.3-	1.0-	1997 05 04	809	0.1+	0.6+	1998 07 26	809	(0.9-	2.5-)
1997 05 03	809	0.7-	2.0+	1997 05 07	704	1.1+	0.1-	1998 07 26	809	1.5-	2.0-
1997 05 03	809	0.9-	0.1-	1997 05 07	704	0.2+	0.0	1998 07 27	809	(1.9+	2.7+)
1997 05 03	809	(0.5-	2.9-)	1997 05 07	704	1.1+	1.1-	1998 07 27	809	0.8+	1.3+
1997 05 04	809	0.8+	0.5-	1997 05 07	704	1.3-	0.4-	1998 07 27	809	0.8+	2.0+

1997 JC₁₄ = 1998 QL₉₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	11.23700	ω	153.00904	+0.97932511	+0.19652136		
<i>a</i>	2.5513700	Ω	195.87801	-0.20229042	+0.95024918		
<i>e</i>	0.2062975	<i>i</i>	10.09943	-0.00095998	+0.24167304		
<i>P</i>	4.08	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 03 18	910	0.1+	0.2-	1997 05 16	327	0.4-	0.1+	1998 08 28	704	1.2-	0.2+
1997 03 18	910	0.1+	0.1-	1997 06 03	327	0.6+	0.3-	1998 08 28	704	0.2+	1.0+
1997 03 18	910	0.5-	0.1-	1997 06 03	327	0.3+	0.3-	1998 08 28	704	0.3-	1.9+
1997 05 08	327	0.2+	0.1+	1997 06 03	327	0.3+	0.5-	1998 08 31	704	0.7-	0.1+
1997 05 08	327	0.6+	0.1+	1997 06 04	327	0.3-	0.1+	1998 08 31	704	0.9+	0.6+
1997 05 08	327	0.0	0.0	1997 06 04	327	0.4-	0.3+	1998 08 31	704	1.9+	2.0-
1997 05 08	327	0.5+	0.0	1997 06 04	327	0.3+	0.1+	1998 08 31	704	0.7+	1.7-
1997 05 16	327	0.8-	0.1+	1997 06 04	327	0.1+	0.1+	1998 08 31	704	1.2-	0.3-
1997 05 16	327	0.8-	0.3+	1998 08 28	704	0.4-	0.0				

1997 JD₁₄ = 1998 QG₇₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	323.93628	ω	166.23572	+0.96264367	-0.24438672		
<i>a</i>	2.5474358	Ω	208.73498	+0.21977107	+0.95670907		
<i>e</i>	0.0167610	<i>i</i>	14.03438	+0.15817032	+0.15805972		
<i>P</i>	4.07	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 05 09	327	0.3+	1.0-	1997 06 04	327	0.3+	0.0	1998 08 24	704	0.5-	0.5+
1997 05 09	327	0.0	0.3+	1997 06 04	327	0.1+	0.2-	1998 08 24	704	0.8-	1.6-
1997 05 09	327	0.1+	0.0	1997 06 06	327	0.1-	0.1-	1998 08 27	704	0.6+	0.1-
1997 05 18	327	0.3+	0.1-	1997 06 06	327	0.0	0.1-	1998 08 27	704	0.3+	0.3-
1997 05 18	327	0.6-	0.5+	1997 06 06	327	0.1-	0.1+	1998 08 27	704	0.5+	0.8+
1997 05 18	327	0.4-	0.7+	1998 08 24	704	0.4+	0.0	1998 08 27	704	0.5+	0.8+
1997 06 04	327	0.1+	0.2-	1998 08 24	704	0.0	0.0	1998 08 27	704	1.0-	0.0

1997 JM₁₅ = 1998 QC₃₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	75.39839	ω	150.23843	-0.41610368	+0.90785051		
<i>a</i>	2.7969142	Ω	95.13085	-0.84418278	-0.36457468		
<i>e</i>	0.0165769	<i>i</i>	2.97115	-0.33795439	-0.20710567		
<i>P</i>	4.68	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 05 03	809	1.7+	0.9-	1997 06 07	809	0.3-	1.0+	1998 08 17	704	2.2+	0.0
1997 05 03	809	0.7+	0.7+	1997 06 07	809	0.3-	0.2-	1998 08 17	704	1.2-	1.1-
1997 05 03	809	0.9+	1.9-	1997 06 08	809	0.8+	0.1+	1998 08 17	704	2.7-	1.1-

M.P.C. 32480

1997 05 04	809	0.6−	1.3+	1997 06 08	809	0.3+	0.1+	1998 08 23	704	0.1+	0.5−
1997 05 04	809	1.8−	0.3+	1997 06 08	809	0.1−	0.7−	1998 08 23	704	0.6+	1.0−
1997 05 04	809	1.1−	0.0	1998 08 17	704	1.5+	0.1+	1998 08 23	704	0.3+	1.5+
1997 06 07	809	0.2−	0.2+	1998 08 17	704	1.5+	0.4−	1998 08 23	704	2.4−	2.3+

1997 JT₁₅ = 1998 OT₁₂

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	352.61104		(2000.0)	P		Q	
<i>n</i>	0.19785173	ω	210.32244	+0.83307177		+0.55103102	
<i>a</i>	2.9168190	Ω	116.16190	−0.49603934		+0.78299536	
<i>e</i>	0.0333197	<i>i</i>	3.10017	−0.24481911		+0.28858810	
<i>P</i>	4.98	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 05 03	809	0.5+	0.4+	1998 07 26	809	(0.4−	3.7+)	1998 08 19	566	0.9+	1.2−
1997 05 03	809	0.6+	0.9+	1998 07 26	809	(1.1−	3.8+)	1998 08 19	566	0.2−	0.5−
1997 05 03	809	0.2+	1.1+	1998 07 27	809	(1.6+	5.1+)	1998 08 19	566	0.4+	1.0−
1997 05 04	809	0.6−	0.2−	1998 07 27	809	(1.0+	4.8+)	1998 08 23	704	0.9+	0.6+
1997 05 04	809	0.1−	0.5+	1998 07 27	809	(0.5+	4.9+)	1998 08 23	704	0.3+	0.1+
1997 05 04	809	0.5+	0.0	1998 07 31	699	0.6−	0.3+	1998 08 23	704	0.2+	0.9−
1997 06 07	809	0.3+	0.2+	1998 07 31	699	0.6−	0.8+	1998 08 23	704	0.2+	1.3+
1997 06 07	809	0.6+	0.6−	1998 07 31	699	0.4−	1.0+	1998 08 23	704	0.5−	1.0−
1997 06 07	809	0.1−	0.2−	1998 08 17	704	0.1−	0.3−	1998 08 27	699	0.1−	0.5+
1997 06 08	809	1.0−	0.6−	1998 08 17	704	0.8−	0.4+	1998 08 27	699	0.5+	0.3+
1997 06 08	809	0.8−	0.8−	1998 08 17	704	0.3−	0.1−	1998 08 27	699	0.2+	0.0
1997 06 08	809	0.4−	0.9−	1998 08 17	704	0.3−	0.0				
1998 07 26	809	(0.2−	4.2+)	1998 08 17	704	0.2+	0.1+				

1997 JP₁₆ = 1989 VH₂

Id. E. Bowell (1998 observations), G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	79.71525		(2000.0)	P		Q	
<i>n</i>	0.20274558	ω	127.38443	−0.50909308		+0.85879594	
<i>a</i>	2.8696909	Ω	111.91810	−0.80795126		−0.45383663	
<i>e</i>	0.0402003	<i>i</i>	3.54675	−0.29671367		−0.23770119	
<i>P</i>	4.86	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1989 11 02	046	0.2+	0.6+	1997 05 04	809	0.7+	0.5−	1998 08 17	704	0.6−	1.0−
1989 11 02	046	0.2−	0.4−	1997 06 07	809	0.6−	0.1+	1998 08 17	704	0.4−	1.2−
1997 05 03	809	1.2−	0.2−	1997 06 07	809	0.9−	0.2−	1998 08 23	699	0.1+	0.2+
1997 05 03	809	0.4−	0.2−	1997 06 07	809	0.9−	0.7−	1998 08 23	704	0.2+	0.3−
1997 05 03	809	0.8−	0.1−	1997 06 08	809	(1.6+	2.4+)	1998 08 23	704	0.5−	0.6−
1997 05 04	809	1.2+	0.6+	1997 06 08	809	(1.4+	2.5+)	1998 08 23	699	0.0	0.5+
1997 05 04	809	0.8+	0.1+	1997 06 08	809	(1.1+	2.5+)	1998 08 23	704	0.4+	0.9+
1997 05 04	809	0.9+	0.6+	1998 08 17	704	0.7−	0.4+	1998 08 23	699	0.4+	0.6+
1997 05 04	809	0.9+	0.4+	1998 08 17	704	0.5+	0.3−	1998 08 23	704	0.6+	1.2+
1997 05 04	809	0.3+	0.3+	1998 08 17	704	0.1+	0.3−				

1997 KG = 1998 QP₃₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	315.84388		(2000.0)	P		Q	
<i>n</i>	0.20073079	ω	281.83050	+0.95257470		−0.29876958	
<i>a</i>	2.8888615	Ω	95.57387	+0.29688536		+0.87077408	
<i>e</i>	0.0877903	<i>i</i>	3.32797	+0.06678708		+0.39049871	
<i>P</i>	4.91	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 05 30	684	0.4−	0.0	1997 06 10	684	0.0	0.0	1998 08 17	704	0.0	0.0
1997 05 30	684	0.2−	0.1−	1997 06 10	684	0.9+	0.6−	1998 08 17	704	0.2+	0.1+
1997 06 01	684	0.1+	0.4+	1997 06 11	684	0.1−	0.1+	1998 08 17	704	0.0	1.6+
1997 06 01	684	0.6+	0.7+	1997 06 11	684	0.1+	0.3+	1998 08 17	704	0.2−	1.5+
1997 06 01	684	0.0	0.2−	1997 06 11	684	0.1+	0.3+	1998 08 17	704	0.8−	0.3−
1997 06 02	684	0.5+	0.1+	1997 06 12	684	0.3−	0.0	1998 08 23	704	1.1+	0.2−

1998 SEPT. 10

1997 06 02	684	0.1−	0.4−	1997 06 12	684	0.4−	0.4+	1998 08 23	704	1.2−	0.7−
1997 06 02	684	0.1−	0.2−	1997 06 30	684	0.1+	0.3+	1998 08 23	704	0.6+	0.8−
1997 06 05	684	0.2−	0.2−	1997 06 30	684	0.4+	0.2+	1998 08 23	704	0.6+	0.9−
1997 06 05	684	0.3−	0.1−	1997 07 06	684	0.1+	0.5−	1998 08 23	704	0.4−	0.3−
1997 06 05	684	0.3−	0.2−	1997 07 06	684	0.0	0.1−				
1997 06 10	684	0.1−	0.2−	1997 07 06	684	0.1−	0.1−				

1997 LU₁ = 1998 QP₆₆

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	134.64907		(2000.0)	P		Q	
<i>n</i>	0.18976304	ω	341.40919	−0.99719746		+0.00991201	
<i>a</i>	2.9991278	Ω	199.60926	+0.00490279		−0.98039612	
<i>e</i>	0.0533137	<i>i</i>	12.76544	−0.07465379		−0.19678721	
<i>P</i>	5.19	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 06 02	691	0.4−	0.3+	1997 06 14	691	0.7−	0.1+	1998 08 24	704	0.9+	0.3−
1997 06 02	691	0.3−	0.5+	1997 06 15	658	0.9+	0.1−	1998 08 24	704	0.1−	0.3+
1997 06 02	691	0.2+	0.6+	1997 06 15	658	0.9+	0.3−	1998 08 24	704	0.2+	0.8+
1997 06 08	691	0.6−	0.1−	1997 06 15	658	0.8+	0.4−	1998 08 24	704	1.6+	0.5−
1997 06 08	691	0.1−	0.1−	1997 07 07	691	0.2+	0.5−	1998 08 24	704	0.1+	0.0
1997 06 13	691	0.2−	0.3+	1997 07 07	691	0.1−	0.6−	1998 08 27	704	0.3−	0.8+
1997 06 13	691	0.2+	0.1+	1997 07 07	691	0.2−	0.5+	1998 08 27	704	0.2−	0.3+
1997 06 13	691	0.1−	0.1+	1998 08 02	699	0.5+	0.3+	1998 08 27	704	0.4−	0.3+
1997 06 14	691	0.3−	0.6−	1998 08 02	699	0.0	0.7−	1998 08 27	704	0.8−	0.2−
1997 06 14	691	0.2−	0.2+	1998 08 02	699	0.4−	0.0	1998 08 27	704	1.3−	1.1−

1997 MR = 1998 QU₆₆

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	326.26042		(2000.0)	P		Q	
<i>n</i>	0.18582282	ω	145.16748	+0.99279844		+0.10079639	
<i>a</i>	3.0413753	Ω	209.25109	−0.11530632		+0.95059897	
<i>e</i>	0.0450642	<i>i</i>	7.61361	+0.03249160		+0.29360123	
<i>P</i>	5.30	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 05 04	809	0.8+	0.5−	1997 06 09	809	(1.7+	3.2+)	1998 08 23	699	1.0−	0.3+
1997 05 04	809	0.3+	0.2+	1997 06 09	809	(1.0+	3.5+)	1998 08 24	704	0.5−	1.5−
1997 05 04	809	0.4−	0.9−	1997 06 28	691	0.2+	0.3−	1998 08 24	704	0.4+	0.4−
1997 05 29	691	0.9−	0.7+	1997 06 28	691	0.4+	0.7−	1998 08 24	704	(1.2+	2.4−)
1997 05 29	691	1.0−	0.6+	1997 06 28	691	0.2+	0.5−	1998 08 24	704	0.7−	2.0−
1997 05 29	691	0.8−	0.4+	1997 06 29	691	0.4−	0.8−	1998 08 27	704	1.4+	0.2+
1997 06 08	809	0.7+	0.6+	1997 06 29	691	0.9−	0.2−	1998 08 27	704	0.3−	1.6+
1997 06 08	809	0.8+	0.9+	1997 06 29	691	0.6−	0.6−	1998 08 27	704	1.8+	0.6+
1997 06 08	809	1.5+	1.0+	1998 08 23	699	0.1+	0.1+	1998 08 27	704	0.1−	0.6+
1997 06 09	809	(1.9+	3.5+)	1998 08 23	699	1.0−	0.4+				

1997 MG₁ = 1998 QB₆₆

Id. G. V. Williams, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	291.13315		(2000.0)	P		Q	
<i>n</i>	0.18964554	ω	207.57859	+0.79507827		−0.60569039	
<i>a</i>	3.0003664	Ω	189.88571	+0.58473379		+0.77927709	
<i>e</i>	0.1122553	<i>i</i>	10.55854	+0.16104948		+0.16083025	
<i>P</i>	5.20	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 06 12	691	0.2−	0.0	1997 07 08	691	0.2+	0.1+	1998 08 24	704	0.2−	0.8−
1997 06 12	691	0.1−	0.0	1997 07 08	691	0.0	0.0	1998 08 24	704	0.5+	0.6−
1997 06 12	691	0.2−	0.2−	1997 07 08	691	0.1−	0.1−	1998 08 27	704	0.2−	0.3−
1997 06 26	691	0.2+	0.1+	1998 08 23	699	0.3−	0.5+	1998 08 27	704	0.2−	0.4−
1997 06 26	691	0.0	0.0	1998 08 23	699	0.4+	1.1+	1998 08 27	704	0.1+	0.2−

1998 SEPT. 10

1997 06 26	691	0.2+	0.2+	1998 08 23	699	0.3+	0.7+	1998 08 27	704	0.3-	0.3+
1997 07 01	691	0.0	0.1-	1998 08 24	704	0.0	0.5-	1998 08 27	704	0.2-	0.0
1997 07 01	691	0.1+	0.0	1998 08 24	704	0.5-	0.2+				
1997 07 01	691	0.1+	0.0	1998 08 24	704	0.6+	0.0				

1997 ML₂ = 1980 TK₁₁ = 1998 QC₃₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	248.82331	(2000.0)		P	Q		
<i>n</i>	0.26820317	ω	295.76052	-0.04401202	-0.99873156		
<i>a</i>	2.3813694	Ω	156.72286	+0.93733779	-0.04975179		
<i>e</i>	0.1683527	<i>i</i>	3.54843	+0.34563102	+0.00774828		
<i>P</i>	3.67	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1980 10 08	095	0.1-	0.3+	1997 06 29	691	1.3-	0.4+	1998 08 17	704	0.4+	1.1+
1997 06 08	809	0.4-	0.1-	1997 06 30	910	0.8+	0.3+	1998 08 17	704	0.2-	0.2+
1997 06 08	809	0.8-	0.8-	1997 06 30	910	0.6+	0.1+	1998 08 17	704	0.0	0.7-
1997 06 08	809	0.7-	0.1-	1997 06 30	910	0.4+	0.2+	1998 08 23	704	0.1+	0.2+
1997 06 09	809	0.7+	0.3-	1997 07 01	910	0.6+	0.3+	1998 08 23	704	0.7+	2.2-
1997 06 09	809	0.8+	0.2-	1997 07 01	910	0.6+	0.0	1998 08 23	704	0.7-	0.1-
1997 06 09	809	0.7+	0.5-	1997 07 01	910	0.9+	0.2+	1998 08 23	704	0.6-	0.4-
1997 06 29	691	1.3-	0.3+	1998 08 17	704	0.1-	0.3+				
1997 06 29	691	1.4-	0.6+	1998 08 17	704	0.4+	1.1+				

1997 NE₃

Id. P. G. Comba (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Marsden			
<i>M</i>	191.31222	(2000.0)		P	Q		
<i>n</i>	0.26540619	ω	247.63257	-0.99421459	+0.02443296		
<i>a</i>	2.3980709	Ω	293.63682	+0.02389853	-0.89905860		
<i>e</i>	0.1542356	<i>i</i>	6.55604	-0.10471964	-0.43714604		
<i>P</i>	3.71	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 07 08	684	0.4-	0.0	1997 07 29	684	0.4+	0.3+	1997 08 27	684	0.0	0.2+
1997 07 08	684	0.2-	0.5-	1997 07 29	684	0.6+	0.4+	1997 08 30	684	0.2-	0.0
1997 07 09	684	0.2+	0.1-	1997 07 31	684	0.5+	0.2-	1997 08 30	684	0.3-	0.0
1997 07 09	684	0.0	0.1-	1997 07 31	684	0.4+	0.2-	1997 08 30	684	0.6-	0.2-
1997 07 09	684	0.1-	0.0	1997 07 31	684	0.3+	0.2-	1998 08 19	684	0.1-	0.0
1997 07 11	684	0.0	0.2-	1997 08 05	684	1.2-	0.5+	1998 08 19	684	0.1+	0.1-
1997 07 11	684	0.2-	0.2-	1997 08 05	684	1.0-	0.7+	1998 08 20	684	0.1+	0.0
1997 07 11	684	0.2+	0.3-	1997 08 27	684	0.6+	0.2-	1998 08 20	684	0.0	0.0
1997 07 29	684	0.7+	0.3+	1997 08 27	684	0.2+	0.1-				

1997 OJ = 1998 QR₅₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	69.20909	(2000.0)		P	Q		
<i>n</i>	0.17419992	ω	229.86081	+0.31739890	+0.94810399		
<i>a</i>	3.1751975	Ω	58.65453	-0.86317730	+0.29710076		
<i>e</i>	0.1667908	<i>i</i>	1.26727	-0.39266128	+0.11326947		
<i>P</i>	5.66	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 07 26	587	0.2-	0.5+	1997 08 07	108	0.9+	0.1+	1997 09 27	587	0.2-	0.3-
1997 07 26	587	0.9-	0.2-	1997 08 07	108	0.2-	1.4-	1998 08 26	910	0.1+	0.1+
1997 07 26	587	0.0	0.4+	1997 08 08	587	0.8+	0.1-	1998 08 26	910	0.1+	0.0
1997 07 27	587	0.1-	0.5+	1997 08 08	587	0.9+	0.9-	1998 08 26	910	0.1-	0.2+
1997 07 27	587	0.1+	0.3+	1997 08 23	587	0.2+	0.5-	1998 08 31	910	0.0	0.2-
1997 07 29	587	0.4-	0.5+	1997 08 23	587	0.6-	0.3+	1998 08 31	910	0.1+	0.1-
1997 07 29	587	0.7-	0.1-	1997 09 01	587	1.0-	0.2+	1998 08 31	910	0.1-	0.2-
1997 08 01	587	0.6+	0.6-	1997 09 26	587	0.5+	1.9+				
1997 08 01	587	0.4+	0.3-	1997 09 27	587	0.3-	0.1+				

M.P.C. 32481

1997 QP

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	186.61975	(2000.0)		P	Q		
<i>n</i>	0.23757575	ω	261.87398	-0.62868025	+0.76763187		
<i>a</i>	2.5818716	Ω	328.08020	-0.58794945	-0.57397195		
<i>e</i>	0.0669840	<i>i</i>	13.62027	-0.50899567	-0.28512718		
<i>P</i>	4.15	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 08 26	557	0.2-	0.0	1997 08 31	557	0.0	0.1+	1997 10 05	557	0.3-	0.1+
1997 08 26	557	0.1-	0.0	1997 09 02	557	0.1+	0.1-	1997 10 17	557	0.0	0.6-
1997 08 26	557	0.2-	0.1-	1997 09 02	557	0.2+	0.1-	1997 10 17	557	0.1+	0.3-
1997 08 26	557	0.2-	0.0	1997 09 02	557	0.3+	0.1+	1997 10 28	557	0.1-	0.4-
1997 08 26	557	0.3-	0.0	1997 09 02	557	0.2+	0.1+	1997 10 28	557	0.1-	0.5-
1997 08 26	557	0.1+	0.0	1997 09 06	557	0.0	0.4+	1997 12 29	688	0.1+	0.1+
1997 08 27	557	0.0	0.0	1997 09 06	557	0.1-	0.2+	1997 12 29	688	0.2+	0.3+
1997 08 27	557	0.0	0.1+	1997 09 12	557	0.1+	0.0	1998 08 15	557	0.2+	0.4+
1997 08 27	557	0.0	0.0	1997 09 12	557	0.0	0.1+	1998 08 20	557	0.3+	0.1+
1997 08 30	557	0.0	0.2+	1997 09 25	557	0.3+	0.0	1998 08 20	557	0.3-	0.1+
1997 08 30	557	0.1+	0.1+	1997 09 25	557	0.4+	0.0	1998 08 20	557	0.3-	0.4-
1997 08 30	557	0.2-	0.2+	1997 10 05	557	0.1-	0.1+				

1997 SM₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	207.15038	(2000.0)		P	Q		
<i>n</i>	0.22449355	ω	5.53823	-0.90908270	+0.40959623		
<i>a</i>	2.6812263	Ω	199.20125	-0.39057636	-0.90151425		
<i>e</i>	0.1062060	<i>i</i>	13.38855	-0.14497849	-0.13965311		
<i>P</i>	4.39	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 09 21	557	0.1+	0.0	1997 10 04	557	0.0	0.1-	1997 11 04	557	0.0	0.0
1997 09 21	557	0.3-	0.0	1997 10 04	557	0.0	0.1-	1998 01 11	557	0.4-	0.3-
1997 09 21	557	0.1+	0.0	1997 10 05	557	0.1-	0.0	1998 01 11	557	0.4+	0.0
1997 09 22	557	0.2+	0.1-	1997 10 05	557	0.0	0.2+	1998 08 20	557	0.3-	0.0
1997 09 22	557	0.0	0.0	1997 10 10	557	0.1-	0.2+	1998 08 20	557	0.1-	0.1+
1997 09 23	557	0.2+	0.0	1997 10 10	557	0.1-	0.4+	1998 08 21	557	0.0	0.1-
1997 09 23	557	0.0	0.2-	1997 10 27	557	0.2-	0.1-	1998 08 21	557	0.0	0.2+
1997 09 28	557	0.2-	0.1+	1997 10 27	557	0.3+	0.3-	1998 08 21	557	0.4+	0.1-
1997 09 28	557	0.2-	0.0	1997 11 04	557	0.1+	0.1+				

1997 TT₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>	332.30583	(2000.0)		P	Q		
<i>n</i>	0.08547638	ω	38.85654	+0.12232530	-0.98483159		
<i>a</i>	5.1039371	Ω	44.51120	+0.86116363	+0.04368230		
<i>e</i>	0.0653270	<i>i</i>	10.10974	+0.49339004	+0.16792437		
<i>P</i>	11.53	<i>H</i>	11.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 10 05	557	0.1+	0.2+	1997 10 19	658	0.4-	1.0-	1997 12 06	910	0.7-	1.4+
1997 10 05	557	0.1+	0.1-	1997 10 19	658	0.6-	0.1+	1998 01 31	557	0.7+	0.0
1997 10 05	557	0.1+	0.0	1997 10 31	557	0.1-	0.0	1998 01 31	557	0.6-	1.4-
1997 10 05	557	0.6+	0.1-	1997 10 31	557	0.2+	0.1-	1998 08 18	557	0.8+	0.7-
1997 10 05	557	0.1+	0.2-	1997 11 01	557	0.0	0.0	1998 08 20	557	0.2-	0.3+
1997 10 06	557	0.2+	0.0	1997 11 01	557	0.0	0.2-	1998 08 20	557	0.4-	0.5+
1997 10 06	557	0.2+	0.3+	1997 11 19	557	0.1-	0.2+	1998 08 21	557	0.1-	0.2-
1997 10 07	557	0.1+	0.1+	1997 11 19	557	0.5+	0.4+	1998 08 21	557	0.0	0.4-
1997 10 07	557	0.3-	0.4+	1997 11 19	557	0.0	0.4+	1998 08 21	557	0.1-	0.3+
1997 10 07	557	0.2+	0.3+	1997 12 06	910	0.1+	0.6+				
1997 10 19	658	0.8-	1.6-	1997 12 06	910	0.2+	0.3+				

1997 XH₉ = 1958 TG = 1990 TZ₁₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	159.43336		(2000.0)	P		Q	
<i>n</i>	0.18502528	ω	337.31641	+0.84876695	-0.52633878		
<i>a</i>	3.0501089	Ω	54.53994	+0.49416870	+0.75552884		
<i>e</i>	0.1805080	<i>i</i>	3.56290	+0.18812751	+0.39005598		
<i>P</i>	5.33	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1958 10 09	024	0.3-	0.6+	1998 03 20	704	0.7+	0.8+	1998 03 29	704	0.1+	0.2-
1990 10 14	808	0.2+	0.0	1998 03 20	704	0.5-	0.6-	1998 03 29	704	0.2-	0.4+
1990 10 14	808	0.6-	1.0+	1998 03 20	704	4.7-	0.7-	1998 03 29	704	0.5-	1.5+
1997 12 07	910	0.4-	0.6-	1998 03 22	704	0.1+	0.3+	1998 03 29	704	0.0	1.6+
1997 12 07	910	0.5-	0.5-	1998 03 22	704	0.0	0.2+	1998 03 29	704	0.3-	1.4+
1997 12 07	910	0.4-	0.9-	1998 03 22	704	0.2-	1.2+	1998 04 19	704	1.9+	0.3-
1997 12 08	910	0.3+	0.8-	1998 03 22	704	0.4+	0.8+	1998 04 19	704	0.4+	0.4-
1997 12 08	910	0.0	0.6-	1998 03 28	704	0.6+	0.0	1998 04 19	704	2.6+	0.9+
1997 12 08	910	0.2-	0.4-	1998 03 28	704	0.0	0.4-	1998 04 19	704	0.1-	2.0-
1998 03 20	704	0.2-	0.4-	1998 03 28	704	0.5+	0.4+				
1998 03 20	704	0.7+	0.1-	1998 03 28	704	0.7+	0.3-				

1998 BG₂ = 1982 DO₆ = 1983 RS₉ = 1986 PL₅ = 1996 QU₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	240.70588		(2000.0)	P		Q	
<i>n</i>	0.29944846	ω	200.69524	+0.31993821	+0.94720815		
<i>a</i>	2.2126938	Ω	87.96861	-0.86629332	+0.30139216		
<i>e</i>	0.1840821	<i>i</i>	1.19758	-0.38363449	+0.10935947		
<i>P</i>	3.29	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1982 02 27	010	0.9+	1.2-	1998 01 20	704	0.3+	0.1-	1998 01 23	691	1.2-	0.3+
1983 09 10	688	0.2-	0.5+	1998 01 20	704	0.3+	0.5-	1998 01 23	704	0.7+	0.0
1983 09 10	688	0.9+	1.5-	1998 01 20	704	0.5+	0.4-	1998 01 24	704	0.4-	0.5+
1986 08 08	095	1.0-	0.6-	1998 01 20	704	0.4+	0.4-	1998 01 24	704	0.2+	0.2+
1996 08 24	399	1.6+	0.4+	1998 01 20	704	0.5+	1.0-	1998 01 24	704	0.4-	0.4+
1996 08 24	399	0.5+	1.0+	1998 01 22	704	0.2+	1.3-	1998 01 24	704	0.8-	0.2+
1996 08 25	399	0.3-	0.0	1998 01 22	704	0.5+	0.8-	1998 01 24	704	0.0	0.2+
1996 08 25	399	0.1-	0.2-	1998 01 22	704	0.1+	0.1+	1998 01 25	704	0.2-	0.5+
1996 09 07	399	1.1-	0.5+	1998 01 22	704	0.2-	0.1+	1998 01 25	704	0.5-	0.2+
1996 09 07	399	0.0	0.5-	1998 01 22	704	0.8+	0.2-	1998 01 25	566	0.4+	0.2-
1998 01 08	704	0.6+	0.0	1998 01 23	704	0.0	0.3+	1998 01 25	566	0.1-	0.0
1998 01 08	704	0.1+	0.9+	1998 01 23	691	1.4-	0.4+	1998 01 25	704	0.2-	0.8+
1998 01 08	704	0.2+	0.1-	1998 01 23	704	0.5-	0.3+	1998 01 25	566	0.2+	0.0
1998 01 08	704	0.4+	0.3-	1998 01 23	691	1.4-	0.7+	1998 01 25	704	0.1-	0.2+
1998 01 20	704	0.8+	0.1-	1998 01 23	704	(4.0-	3.4+)	1998 01 25	704	0.2-	0.0

1998 BM₁₅ = 1981 AW₁ = 1985 YR₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	221.11992		(2000.0)	P		Q	
<i>n</i>	0.17590858	ω	38.06017	+0.46924133	+0.88187606		
<i>a</i>	3.1546029	Ω	259.96772	-0.82120333	+0.41666263		
<i>e</i>	0.0462137	<i>i</i>	2.67192	-0.32471166	+0.22065101		
<i>P</i>	5.60	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1981 01 08	381	1.8-	1.1+	1998 01 28	566	0.7-	0.4+	1998 02 22	566	0.1+	0.0
1981 01 08	381	2.1+	0.0	1998 01 28	566	0.7-	0.4+	1998 02 22	566	0.0	0.6+
1985 12 17	010	1.0-	0.2-	1998 01 28	566	0.7-	0.7+	1998 02 23	566	0.1+	0.0
1985 12 17	010	1.0+	0.2-	1998 01 29	566	0.1-	0.2-	1998 02 23	566	0.0	0.1+
1998 01 24	566	0.5+	0.8-	1998 01 29	566	0.3-	0.5-	1998 02 23	566	0.1-	0.1+
1998 01 24	566	0.5+	0.5-	1998 01 29	566	0.1-	0.2-				
1998 01 24	566	0.9+	0.7-	1998 02 22	566	0.2+	0.5-				

1998 EN₁₁ = 1994 PY₁₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	332.90585		(2000.0)	P		Q	
<i>n</i>	0.17629643	ω	74.89617	-0.53663514	+0.83014610		
<i>a</i>	3.1499744	Ω	160.27093	-0.83678015	-0.54663963		
<i>e</i>	0.1685534	<i>i</i>	26.62100	+0.10872765	-0.10973861		
<i>P</i>	5.59	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1994 08 10	809	0.5-	1.2+	1994 09 03	809	0.6-	1.6-	1998 03 02	809	1.5-	0.2+
1994 08 10	809	0.8-	0.2+	1994 09 04	809	0.4+	0.2+	1998 03 02	809	1.2-	0.1-
1994 08 10	809	0.5-	0.8+	1994 09 04	809	0.7+	0.3+	1998 04 02	809	1.0+	1.1+
1994 08 11	809	0.7+	0.2+	1994 09 04	809	0.8+	0.7-	1998 04 02	809	1.1+	2.0+
1994 08 11	809	0.2+	0.4-	1998 03 01	809	0.7-	0.1-	1998 04 02	809	1.5+	0.7+
1994 08 11	809	0.7-	0.4+	1998 03 01	809	0.7-	0.6-	1998 04 03	809	1.2+	1.1-
1994 09 03	809	0.0	0.9-	1998 03 01	809	1.0-	0.2+	1998 04 03	809	0.7+	1.1-
1994 09 03	809	0.1+	0.4-	1998 03 02	809	1.2-	0.6-	1998 04 03	809	1.2+	1.4-

1998 FC₁₂ = 1980 FB₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	289.31117		(2000.0)	P		Q	
<i>n</i>	0.32888343	ω	150.76136	+0.62673521	+0.77868308		
<i>a</i>	2.0786182	Ω	158.00722	-0.72925036	+0.59934918		
<i>e</i>	0.2452548	<i>i</i>	4.47990	-0.27458492	+0.18556190		
<i>P</i>	3.00	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1980 03 16	809	0.9+	0.5-	1998 03 20	704	0.6-	0.3-	1998 03 26	566	0.0	0.5+
1980 03 16	809	0.0	0.1-	1998 03 20	704	1.1-	0.7+	1998 03 26	566	0.1+	0.5+
1980 03 16	809	0.6-	0.4+	1998 03 22	704	0.4+	0.2-	1998 04 19	704	0.0	0.1-
1980 03 16	809	0.2+	0.4+	1998 03 22	704	0.1+	0.5-	1998 04 19	704	0.9+	0.4-
1980 03 17	809	0.8+	0.8-	1998 03 22	704	(0.4+	2.5-)	1998 04 19	704	0.2+	0.4-
1980 03 17	809	0.4-	0.1+	1998 03 22	704	0.9-	0.8-	1998 04 19	704	1.5+	0.7+
1980 03 17	809	0.7-	1.2+	1998 03 22	704	1.2+	0.9-	1998 04 19	704	1.1-	0.8+
1980 03 17	809	0.1-	0.3-	1998 03 25	566	0.6+	0.2-	1998 04 19	688	0.5-	0.3-
1998 03 20	704	0.6-	0.3-	1998 03 25	566	0.5+	0.0	1998 04 19	688	0.4-	0.2-
1998 03 20	704	0.2+	0.3+	1998 03 25	566	0.5+	0.2-	1998 04 19	688	0.7-	0.2-
1998 03 20	704	0.5-	0.6+	1998 03 26	566	0.0	0.5+				

1998 FA₂₈ = 1993 BH₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	268.00895		(2000.0)	P		Q	
<i>n</i>	0.21259844	ω	338.89693	+0.35273953	+0.93476142		
<i>a</i>	2.7803277	Ω	311.73149	-0.85016992	+0.30124160		
<i>e</i>	0.0279438	<i>i</i>	3.25537	-0.39087840	+0.18834698		
<i>P</i>	4.64	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 01 27	010	0.6+	1.5-	1998 03 20	704	0.1+	1.3+	1998 03 29	704	0.4-	0.7-
1993 01 27	010	0.0	1.0-	1998 03 20	704	1.2+	0.2-	1998 03 29	704	0.5-	1.8-
1993 01 27	010	0.5-	0.0	1998 03 20	704	0.2+	0.4-	1998 03 29	704	0.6-	2.3-
1993 01 28	010	1.6-	0.8+	1998 03 20	704	0.4+	1.1-	1998 03 29	704	0.6-	0.7-
1993 01 28	010	0.9-	1.6+	1998 03 22	704	0.1+	1.1+	1998 04 01	704	0.7+	0.3+
1993 01 28	010	1.2-	0.3-	1998 03 22	704	0.9-	0.4+	1998 04 01	704	0.2+	0.9-
1993 02 20	010	1.3+	0.0	1998 03 22	704	0.3+	0.2+	1998 04 01	704	0.5+	1.4+
1993 02 20	010	1.2+	0.4+	1998 03 22	704	0.7-	0.5+	1998 04 01	704	0.8+	1.4+
1993 02 20	010	1.2+	0.3+	1998 03 22	704	0.3-	0.6-	1998 04 01	704	0.3+	1.5+
1998 03 20	704	1.1-	0.5+	1998 03 29	704	0.3+	0.2-				

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1998 FW₃₃ = 1980 TV₃ = 1991 LP₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	247.81722		(2000.0)		P		Q				
<i>n</i>	0.25588008	ω	138.73015		+0.85164042		+0.52400928				
<i>a</i>	2.4572258	Ω	189.68675		-0.49650553		+0.79980461				
<i>e</i>	0.1907806	<i>i</i>	3.77714		-0.16790130		+0.29279150				
<i>P</i>	3.85	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	5				
Residuals in seconds of arc											
1980 10 07	675	1.6+	1.4-	1998 03 20	704	0.3+	0.3+	1998 03 29	704	0.2+	0.7-
1980 10 08	675	0.1+	0.9+	1998 03 20	704	0.6-	0.2+	1998 03 29	704	2.1-	0.5+
1980 10 09	675	1.6-	2.0-	1998 03 20	704	0.1+	1.7+	1998 03 29	704	(0.3-	2.7-)
1980 10 10	675	0.8+	0.1+	1998 03 20	704	1.2-	0.3-	1998 04 01	704	0.4+	2.0-
1991 06 06	809	0.4-	0.3+	1998 03 22	704	(2.8+	0.2-)	1998 04 01	704	1.6+	0.6-
1991 06 06	809	1.3-	0.2-	1998 03 22	704	1.2+	0.7+	1998 04 01	704	1.6-	1.0-
1991 06 06	809	1.2-	0.1-	1998 03 22	704	1.8+	1.7+	1998 04 01	704	0.0	2.1-
1991 06 08	809	1.2+	0.1+	1998 03 22	704	1.2+	1.2-	1998 04 19	704	0.4-	0.5+
1991 06 08	809	1.1+	0.7-	1998 03 22	704	1.2-	1.0-	1998 04 19	704	0.8-	0.0
1991 06 08	809	0.6+	0.2+	1998 03 29	704	0.7+	0.9+	1998 04 19	704	0.4-	0.6-
1998 03 20	704	0.4-	0.3+	1998 03 29	704	(2.6+	1.7+)	1998 04 19	704	(1.9-	2.8+)

1998 FU₃₈ = 1985 VE₄ = 1987 DZ₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	70.39992		(2000.0)		P		Q				
<i>n</i>	0.18132175	ω	281.35877		-0.29051499		-0.95682436				
<i>a</i>	3.0915015	Ω	185.55682		+0.91138724		-0.27370275				
<i>e</i>	0.1501958	<i>i</i>	5.56525		+0.29150358		-0.09784655				
<i>P</i>	5.44	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3				
Residuals in seconds of arc											
1985 11 11	095	0.0	0.1-	1998 03 04	704	2.0-	0.1+	1998 03 22	704	0.3+	1.0-
1987 02 27	809	0.1+	0.1+	1998 03 04	704	2.6-	1.1+	1998 03 22	704	0.6+	0.4-
1987 02 27	809	0.0	0.2-	1998 03 04	704	1.7-	0.9+	1998 03 22	704	0.8+	1.6-
1987 02 27	809	0.2-	0.5-	1998 03 04	704	1.9-	2.8+	1998 04 01	704	1.3+	0.1+
1998 03 03	704	0.2-	0.4+	1998 03 20	704	0.4+	0.8-	1998 04 01	704	0.9+	0.6-
1998 03 03	704	0.6+	0.5+	1998 03 20	704	0.0	1.0-	1998 04 01	704	2.0+	0.5-
1998 03 03	704	0.1-	0.0	1998 03 20	704	0.8-	0.2-	1998 04 01	704	1.7+	0.9-
1998 03 03	704	0.2+	1.1+	1998 03 20	704	0.4+	0.5+	1998 04 01	704	1.2+	0.5+
1998 03 03	704	0.9+	1.5+	1998 03 22	704	0.7+	0.6-				
1998 03 04	704	2.6-	0.6-	1998 03 22	704	0.2+	0.8-				

1998 FR₄₁ = 1980 TR₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	202.28659		(2000.0)		P		Q				
<i>n</i>	0.25243042	ω	175.05533		+0.99953462		-0.02132172				
<i>a</i>	2.4795617	Ω	186.29164		+0.01631517		+0.97793438				
<i>e</i>	0.2236045	<i>i</i>	11.48249		+0.02577515		+0.20782139				
<i>P</i>	3.90	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1980 10 07	675	0.3-	0.3-	1998 03 22	704	0.8-	0.6+	1998 04 01	704	1.3+	0.6+
1980 10 08	675	0.5-	0.4-	1998 03 22	704	1.4+	0.2+	1998 04 01	704	0.6-	2.2-
1980 10 09	675	0.7+	1.0+	1998 03 22	704	0.2-	1.3+	1998 04 01	704	2.2-	0.7-
1980 10 10	675	0.3+	0.3-	1998 03 22	704	0.8+	2.3-	1998 04 01	704	1.8-	1.2-
1998 03 20	704	0.3+	0.1-	1998 03 29	704	0.0	0.8+	1998 04 19	704	1.0+	0.8+
1998 03 20	704	0.5+	0.2-	1998 03 29	704	0.6-	1.8-	1998 04 19	704	0.8+	1.3+
1998 03 20	704	0.4+	1.8+	1998 03 29	704	0.1-	1.1+	1998 04 19	704	0.3+	0.4-
1998 03 20	704	0.4+	0.5+	1998 03 29	704	0.7-	0.8-	1998 04 19	704	0.8-	0.5-
1998 03 20	704	(3.9-	0.2+)	1998 04 01	704	0.7+	1.2+	1998 04 19	704	(5.5-	0.3+)

1998 FB₄₂ = 1982 RE₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	259.35056		(2000.0)		P			Q			
<i>n</i>	0.23009488	ω	138.24909		+0.82422597		+0.56511820				
<i>a</i>	2.6375341	Ω	187.59820		-0.56428426		+0.81438969				
<i>e</i>	0.2827028	<i>i</i>	15.78004		-0.04727394		+0.13195019				
<i>P</i>	4.28	<i>H</i>	14.0	<i>G</i>	0.15		<i>U</i>	3			
Residuals in seconds of arc											
1982 08 20	675	0.2-	0.9+	1998 03 22	704	0.5-	1.3-	1998 04 01	704	0.9-	0.6-
1982 08 20	675	0.7+	1.2+	1998 03 22	704	1.1-	0.7+	1998 04 01	704	0.0	0.5-
1982 09 14	675	0.3+	1.2-	1998 03 22	704	1.3-	0.1+	1998 04 01	704	0.9-	0.4-
1982 09 14	675	0.4+	0.9-	1998 03 26	566	0.2-	0.2+	1998 04 01	704	1.2-	0.0
1982 09 14	675	0.6-	1.3-	1998 03 26	566	0.0	0.2-	1998 04 01	704	0.5-	0.1-
1982 09 14	675	0.3-	0.1+	1998 03 26	566	0.1+	0.3+	1998 04 18	704	1.0+	0.6-
1998 02 26	566	0.2+	0.8+	1998 03 28	704	0.5+	0.6-	1998 04 18	704	0.2+	1.2+
1998 02 26	566	0.4+	0.8+	1998 03 28	704	0.4-	0.1+	1998 04 18	704	0.9+	1.5+
1998 02 26	566	0.1+	0.6+	1998 03 28	704	0.4+	1.0-	1998 04 18	704	1.2+	1.0-
1998 03 20	704	0.2+	0.3+	1998 03 28	704	0.8+	0.6+	1998 04 19	704	0.4+	0.1+
1998 03 20	704	0.2+	0.1-	1998 03 28	704	0.3-	1.4-	1998 04 19	704	0.9+	0.4+
1998 03 20	704	0.0	0.1+	1998 03 29	704	0.6+	0.6-	1998 04 19	704	1.1+	1.0+
1998 03 20	704	0.1-	0.3-	1998 03 29	704	0.5-	0.0	1998 04 19	704	0.4+	0.2+
1998 03 20	704	0.5+	0.1-	1998 03 29	704	2.0-	0.9-	1998 04 19	704	0.8+	0.8+
1998 03 22	704	1.0-	0.2-	1998 03 29	704	0.0	0.5-				
1998 03 22	704	0.8-	0.4+	1998 03 29	704	1.0+	1.5-				

1998 FR₅₈ = 1992 DA₁₄

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	51.29775		(2000.0)		P		Q				
n	0.17871360	ω	103.91595		-0.86245967		-0.50562043				
a	3.1215069	Ω	45.71721		+0.45131347		-0.78851091				
e	0.0848124	i	1.81001		+0.22908399		-0.35014073				
P	5.52	H	12.9	G	0.15	U	5				
Residuals in seconds of arc											
1992 02 29	033	0.0	0.2-	1998 03 22	704	0.9-	0.2-	1998 04 20	704	0.8+	0.1-
1992 02 29	033	0.6+	0.1-	1998 03 22	704	0.5-	0.1+	1998 04 20	704	0.6+	0.6-
1992 03 01	033	0.5-	0.4+	1998 03 22	704	0.7-	0.9-	1998 04 22	704	1.0+	0.1-
1998 03 08	699	0.0	0.6-	1998 03 22	704	1.0-	0.1-	1998 04 22	704	0.9+	0.8+
1998 03 08	699	0.7-	0.1-	1998 03 22	905	0.4-	0.1-	1998 04 22	704	0.0	0.2-
1998 03 08	699	0.7+	0.7+	1998 03 22	905	1.7-	0.1-	1998 04 22	704	0.3+	0.2+
1998 03 20	704	0.3-	0.4+	1998 03 25	699	0.6+	0.3+	1998 04 22	704	0.2-	0.7+
1998 03 20	704	0.1+	0.4+	1998 03 25	699	0.2-	0.4+	1998 05 02	699	0.1+	0.2-
1998 03 20	704	0.5+	0.2+	1998 03 25	699	0.5+	0.9+	1998 05 02	699	0.6-	0.0
1998 03 20	704	0.4+	0.8-	1998 04 20	704	0.5+	0.2-	1998 05 02	699	1.3-	0.0
1998 03 20	704	0.3+	0.4-	1998 04 20	704	1.0+	0.3-				
1998 03 22	704	0.5-	0.2+	1998 04 20	704	0.5+	0.5-				

1998 FU₅₈ = 1985 VA₅ = 1992 RR₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	160.46032		(2000.0)		P		Q				
n	0.26782641	ω	231.85950		+0.70319741		-0.71087702				
a	2.3836022	Ω	173.41004		+0.68249271		+0.66979766				
e	0.1162468	i	6.47063		+0.19929150		+0.21453427				
P	3.68	H	16.0	G	0.15	U	4				
Residuals in seconds of arc											
1985 11 11	095	0.1+	0.7-	1992 09 23	809	1.4+	0.2-	1998 03 22	704	1.5-	2.0-
1992 09 02	809	1.4+	0.6+	1998 03 20	704	0.5+	0.7+	1998 04 19	704	0.7-	0.8-
1992 09 02	809	0.6+	0.4-	1998 03 20	704	1.1+	1.3-	1998 04 19	704	0.7-	0.7+
1992 09 02	809	0.9+	0.1+	1998 03 20	704	0.5+	0.8+	1998 04 19	704	0.2-	0.5+
1992 09 03	809	0.8+	0.9+	1998 03 20	704	1.6-	0.5+	1998 04 19	704	1.5-	0.6-
1992 09 22	809	1.0-	0.5-	1998 03 20	704	2.2-	0.2-	1998 04 20	704	1.3+	0.7+
1992 09 22	809	2.6-	1.8-	1998 03 22	704	1.0+	0.7+	1998 04 20	704	0.4-	0.6-

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1992 09 22	809	2.1−	0.8−	1998 03 22	704	1.3+	1.3−	1998 04 20	704	0.5+	1.5+
1992 09 23	809	0.5+	0.1+	1998 03 22	704	0.8+	0.8−	1998 04 20	704	0.3+	1.0−
1992 09 23	809	0.6+	0.2−	1998 03 22	704	0.3+	1.5−	1998 04 20	704	0.2+	1.2+

1998 HA₆ = 1996 UJ₅

Id. M. Hoffmann, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29441464	ω	157.65850	−0.81929245	+0.56320058		
<i>a</i>	2.2378439	Ω	57.06381	−0.54353525	−0.70315244		
<i>e</i>	0.1225921	<i>i</i>	7.36183	−0.18256318	−0.43402968		
<i>P</i>	3.35	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 10 18	910	0.2+	0.2+	1998 04 04	699	0.4+	0.6+	1998 04 22	704	0.3+	0.2+
1996 10 18	910	0.0	0.1−	1998 04 21	704	0.2+	0.2−	1998 04 24	910	1.5+	0.2+
1996 10 18	910	0.0	0.1+	1998 04 21	704	0.1−	0.2−	1998 04 24	910	1.3+	0.3+
1996 11 17	691	0.5−	0.9+	1998 04 21	704	0.3+	0.1−	1998 04 24	910	1.3+	0.2+
1996 11 17	691	0.3−	0.6+	1998 04 21	704	0.3−	0.5−	1998 05 16	704	0.9+	1.0−
1996 11 17	691	0.4−	0.7+	1998 04 21	704	0.6+	0.2−	1998 05 16	704	0.1−	1.7+
1998 03 24	704	0.8−	0.5−	1998 04 21	910	1.1+	0.2+	1998 05 16	704	1.6−	1.0−
1998 03 24	704	0.9−	0.3−	1998 04 21	910	1.1+	0.3+	1998 05 16	704	0.7+	1.1−
1998 03 24	704	1.3−	0.9−	1998 04 21	910	1.1+	0.3+	1998 05 25	699	0.9−	2.5+
1998 03 24	704	0.7−	0.1−	1998 04 22	704	0.2+	0.4−	1998 05 25	699	1.1−	0.1+
1998 03 24	704	2.6−	0.3+	1998 04 22	704	0.7−	0.2−	1998 05 25	699	0.2−	0.9+
1998 04 04	699	0.1−	0.9+	1998 04 22	704	0.1−	0.6+				
1998 04 04	699	0.4−	0.5−	1998 04 22	704	0.4+	0.0				

1998 HE₆ = 1977 RP₁₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.16989456	ω	227.74545	+0.66542735	−0.74646151		
<i>a</i>	3.2286161	Ω	180.54444	+0.71863143	+0.64108450		
<i>e</i>	0.1035708	<i>i</i>	7.81071	+0.20192897	+0.17834203		
<i>P</i>	5.80	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1977 09 09	675	0.5−	0.2−	1998 04 21	704	0.9+	0.2+	1998 04 22	704	0.0	0.6−
1977 09 10	675	0.6+	0.1+	1998 04 21	704	0.4−	0.6+	1998 04 22	704	1.7−	0.9+
1998 03 25	704	0.4+	0.0	1998 04 21	704	0.9−	2.0+	1998 04 22	704	0.2−	0.5−
1998 03 25	704	0.7+	1.5−	1998 04 21	910	1.2+	0.3−	1998 04 24	910	0.8+	0.1−
1998 03 25	704	1.3−	1.4+	1998 04 22	910	1.1+	0.0	1998 04 24	910	0.9+	0.2+
1998 03 25	704	0.8−	0.3−	1998 04 22	910	1.4+	0.1−	1998 04 24	910	1.3+	0.3−
1998 04 21	704	1.1−	0.0	1998 04 22	704	0.1−	0.5+				
1998 04 21	704	1.5−	1.6−	1998 04 22	704	0.6−	0.8−				

1998 HD₈₅ = 1994 TQ₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17532854	ω	74.89000	−0.06273624	+0.99790377		
<i>a</i>	3.1615566	Ω	191.54809	−0.94344061	−0.06448804		
<i>e</i>	0.1069537	<i>i</i>	4.55028	−0.32555180	−0.00541879		
<i>P</i>	5.62	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 10 06	691	0.5−	0.0	1998 03 31	910	0.5+	0.1+	1998 04 22	704	0.2−	0.1+
1994 10 06	691	0.3−	0.3−	1998 03 31	910	0.3+	0.5−	1998 04 22	704	0.3+	0.6+
1994 10 06	691	0.0	0.5−	1998 04 21	704	0.6+	0.8−	1998 04 22	704	1.3+	0.1+
1994 10 11	691	0.3+	0.1+	1998 04 21	704	1.3−	1.5+	1998 04 22	704	1.1−	1.2−
1994 10 11	691	0.4+	0.5+	1998 04 21	704	0.9−	0.1−	1998 04 22	704	0.2+	0.0
1994 10 11	691	0.1+	0.2+	1998 04 21	704	0.8+	0.0				
1998 03 31	910	0.2−	0.1+	1998 04 21	704	0.2−	0.1+				

1998 HV₁₂₂ = 1978 YY = 1989 WY₂

Id. S. Nakano

1998 SEPT. 10

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17944565	ω	262.77137	+0.98418008	+0.00808679		
<i>a</i>	3.1130117	Ω	96.65068	+0.05937326	+0.92613994		
<i>e</i>	0.2076247	<i>i</i>	10.26409	−0.16692632	+0.37709339		
<i>P</i>	5.49	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1978 12 22	095	0.0	0.0	1998 04 23	704	0.6−	0.8+	1998 05 25	704	0.0	0.3−
1989 11 29	400	0.6−	0.3+	1998 04 23	704	0.5+	0.5−	1998 05 25	704	1.0−	0.6−
1989 11 29	400	1.1−	1.5+	1998 04 24	704	0.4−	0.2+	1998 05 25	704	(2.4+	1.0−)
1989 11 29	400	(0.3−	5.2+)	1998 04 24	704	0.2−	0.3+	1998 05 25	704	0.1−	0.0
1989 12 03	400	0.6+	0.1−	1998 04 24	704	0.3−	0.4−	1998 06 02	699	0.1+	0.1−
1989 12 03	400	(2.9+	2.0+)	1998 05 23	704	1.8+	0.5−	1998 06 02	699	0.4−	0.1−
1989 12 03	400	1.1+	1.7−	1998 05 23	704	1.1+	0.0	1998 06 02	699	0.3−	0.1−
1998 04 23	704	0.5+	0.1+	1998 05 23	704	0.4+	0.0				
1998 04 23	704	1.8−	0.5+	1998 05 23	704	0.6+	0.4+				

1998 JK = 1976 KZ₁ = 1979 BE₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26541755	ω	132.35690	−0.93401552	+0.35336674		
<i>a</i>	2.3980025	Ω	68.39750	−0.34208821	−0.84247551		
<i>e</i>	0.1453027	<i>i</i>	3.23152	−0.10291094	−0.40665338		
<i>P</i>	3.71	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1976 05 30	808	0.1−	0.4+	1998 04 19	704	1.2+	1.1+	1998 04 20	704	0.5+	0.8+
1976 05 30	808	0.0	0.0	1998 04 19	704	0.2−	1.4+	1998 05 01	566	0.5−	1.0−
1979 01 24	095	0.0	0.2−	1998 04 19	704	(3.0−	1.2+)	1998 05 01	566	0.3−	1.0−
1998 04 04	699	0.8−	0.6+	1998 04 20	704	0.4+	1.0+	1998 05 01	566	0.3−	0.6−
1998 04 04	699	0.6−	0.2+	1998 04 20	704	0.5+	0.2−	1998 05 02	566	0.0	2.2−
1998 04 04	699	0.4−	0.4+	1998 04 20	704	0.6+	0.1+	1998 05 02	566	0.3−	1.0−
1998 04 19	704	0.1−	0.1−	1998 04 20	704	0.0	0.8+	1998 05 02	566	0.2+	0.8−

1998 KZ₅ = 1997 JN₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.16963990	ω	133.14227	+0.89750478	+0.44072384		
<i>a</i>	3.2318464	Ω	200.72294	−0.41642532	+0.83519557		
<i>e</i>	0.2615003	<i>i</i>	2.54904	−0.14517271	+0.32895418		
<i>P</i>	5.81	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 05 06	691	0.1+	0.0	1998 05 24	691	0.3+	0.0	1998 08 23	704	0.7−	0.5−
1997 05 06	691	0.5+	0.2+	1998 05 26	691	0.2−	0.1+	1998 08 23	704	1.9+	1.3−
1997 05 06	691	0.0	0.8−	1998 05 26	691	0.3−	0.2+	1998 08 23	704	0.2+	1.4+
1997 05 08	691	0.3−	1.2+	1998 05 26	691	0.2−	0.5+	1998 08 23	704	(2.6+	0.1−)
1997 05 08	691	0.3−	0.3−	1998 08 17	704	0.4−	0.3−	1998 08 28	699	0.8−	0.2+
1997 05 08	691	0.1−	0.2−	1998 08 17	704	0.3−	0.1+	1998 08 28	699	1.2−	0.5+
1998 05 24	691	0.1+	0.9−	1998 08 17	704	1.6+	0.5−	1998 08 28	699	1.0+	0.4+
1998 05 24	691	0.4+	0.1+	1998 08 17	704	1.2−	0.1+				

1998 KA₁₀ = 1982 YT₂ = 1985 PP

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28545585	ω	247.59534	+0.87266547	−0.48558965		
<i>a</i>	2.2844242	Ω	141.40249	+0.47289601	+0.81405867		
<i>e</i>	0.1663131	<i>i</i>	4.74015	+0.12175526	+0.31860818		
<i>P</i>	3.45	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1982 12 22	095	0.2+	1.6−	1998 04 25	699	0.1−	0.5+	1998 05 24	704	1.0+	0.3−
1985 08 14	688	1.0+	1.5−	1998 04 25	699	0.6+	0.7+	1998 05 24	704	0.2+	0.9+

1985 08 14	688	0.0	1.7–	1998 05 01	704	0.9+	0.4+	1998 05 24	704	2.4–	0.6+
1985 08 20	688	2.4–	2.3–	1998 05 01	704	0.3+	0.5–	1998 05 25	327	0.1+	0.5–
1985 08 22	688	0.3–	2.2+	1998 05 01	704	0.5+	0.6–	1998 05 25	327	0.3–	0.3–
1985 08 22	688	0.6–	1.5+	1998 05 01	704	1.3+	0.3–	1998 05 25	327	0.7–	0.1+
1985 09 12	688	2.2+	0.8+	1998 05 01	704	0.1+	1.3–	1998 05 25	327	0.3–	0.5–
1985 09 12	688	0.4+	0.2+	1998 05 22	704	0.2–	1.0–	1998 05 26	327	0.1–	0.5–
1998 04 22	704	0.7–	0.1–	1998 05 22	704	0.6+	0.1–	1998 05 26	327	0.5–	0.4–
1998 04 22	704	1.6–	0.5+	1998 05 22	704	0.8+	0.3+	1998 05 26	327	0.5–	0.7–
1998 04 22	704	0.2–	0.2–	1998 05 22	704	0.1–	1.0+	1998 05 26	327	0.6–	0.2+
1998 04 22	704	0.8–	0.1–	1998 05 22	704	0.1–	1.2+	1998 06 02	699	0.2–	1.0–
1998 04 22	704	0.4–	0.5+	1998 05 24	704	0.2+	0.4+	1998 06 02	699	1.0+	0.8+
1998 04 25	699	0.6+	0.4+	1998 05 24	704	0.2+	1.4–	1998 06 02	699	1.0+	0.1–

1998 KV₃₂ = 1995 UK₅₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27291848	ω	31.41719	+0.39452930	+0.91246407		
<i>a</i>	2.3538607	Ω	262.01308	–0.86413316	+0.32830833		
<i>e</i>	0.1852729	<i>i</i>	6.28574	–0.31244282	+0.24417812		
<i>P</i>	3.61	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 10 25	327	0.4–	0.5+	1998 05 24	704	0.1+	0.4+	1998 06 18	704	0.7+	0.8–
1995 10 25	327	0.9–	0.4+	1998 05 24	704	0.6–	0.3+	1998 06 18	704	0.1+	1.0–
1995 10 25	327	1.1–	0.4+	1998 05 24	704	0.5–	0.7+	1998 06 18	704	0.9+	0.3–
1995 11 17	327	0.2+	0.1–	1998 06 03	704	0.0	0.1+	1998 06 27	699	0.2–	0.8–
1995 11 17	327	0.6+	0.2+	1998 06 03	704	0.6+	0.4–	1998 06 27	699	0.0	0.7–
1995 11 17	327	1.5+	0.4–	1998 06 03	704	0.9–	0.4+	1998 06 27	699	0.7–	0.6–
1998 05 22	704	0.2–	0.0	1998 06 03	704	0.9–	0.1+	1998 07 11	699	0.2–	0.4–
1998 05 22	704	0.1+	0.2–	1998 06 03	704	0.3+	0.3+	1998 07 11	699	0.7+	0.0
1998 05 22	704	0.0	0.3+	1998 06 16	704	0.8–	0.6–	1998 07 11	699	0.4+	0.2–
1998 05 22	704	1.1+	0.4+	1998 06 16	704	0.4–	0.2–	1998 07 13	699	0.2+	0.6+
1998 05 22	704	0.7–	0.2+	1998 06 16	704	0.3–	0.5+	1998 07 13	699	0.1+	0.7–
1998 05 24	704	0.1+	0.5+	1998 06 16	704	0.4+	0.9+	1998 07 13	699	1.1+	0.7–
1998 05 24	704	0.1–	0.7+	1998 06 16	704	0.2+	1.4+				

1998 KO₄₆ = 1991 VR₅ = 1993 CC₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23460474	ω	133.01418	–0.22159259	+0.97179505		
<i>a</i>	2.6036236	Ω	124.01404	–0.92059963	–0.18119542		
<i>e</i>	0.0545534	<i>i</i>	5.58645	–0.32154789	–0.15093908		
<i>P</i>	4.20	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 11 02	809	0.6+	0.3+	1998 05 22	704	0.6+	0.9–	1998 06 24	704	0.4–	0.6+
1991 11 02	809	0.4+	0.3–	1998 05 22	704	0.0	0.4+	1998 06 24	704	0.3–	0.2+
1991 11 02	809	0.7–	0.5–	1998 05 22	704	0.0	0.9–	1998 06 24	704	0.1+	0.3–
1991 11 06	809	(4.7+	0.9–)	1998 05 22	704	0.1–	1.4–	1998 06 24	704	(1.3–	2.4+)
1991 11 06	809	(2.9+	0.1–)	1998 05 22	704	2.0–	0.0	1998 06 26	704	1.4+	1.8–
1991 11 06	809	0.1+	1.0–	1998 05 24	704	0.2–	0.3–	1998 06 26	704	0.9+	0.4–
1993 02 13	372	(2.7+	4.7–)	1998 05 24	704	1.8–	2.1+	1998 06 26	704	0.9+	0.1+
1993 02 13	372	(6.8+	3.8–)	1998 05 24	704	0.3+	1.3+	1998 06 26	704	0.3+	0.8–
1993 02 17	372	0.0	0.5–	1998 05 24	704	0.7+	0.5+				
1993 02 17	372	0.2–	0.2–	1998 05 24	704	0.8–	0.1–				

1998 KU₄₆ = 1979 OL₁₁ = 1989 RP

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Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30654362	ω	276.11069	–0.66259355	–0.74724136		
<i>a</i>	2.1784179	Ω	215.55789	+0.71718438	–0.61336797		
<i>e</i>	0.0279425	<i>i</i>	5.03049	+0.21590822	–0.25575394		
<i>P</i>	3.22	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1979 07 24	413	0.5+	2.0+	1998 05 22	704	0.8+	0.2+	1998 06 24	704	0.1+	0.3–
1979 07 26	675	0.8+	0.7+	1998 05 22	704	1.6+	0.5+	1998 06 24	704	0.4–	0.5+
1979 07 28	413	1.8–	0.0	1998 05 22	704	(2.0+	2.5–)	1998 06 24	704	1.1+	1.1–
1989 09 03	511	1.1–	0.3+	1998 05 24	704	0.5+	0.2+	1998 06 26	704	0.3+	0.5+
1989 09 03	511	1.5–	0.2+	1998 05 24	704	0.5–	0.3+	1998 06 26	704	0.3+	0.0
1989 09 04	511	1.7+	1.2–	1998 05 24	704	0.7–	0.5+	1998 06 26	704	0.3+	0.2–
1989 09 04	511	1.6+	1.1–	1998 05 24	704	0.9–	0.8–	1998 06 26	704	1.7–	1.1–
1989 09 05	511	(18.7–	36.8–)	1998 05 24	704	0.5–	1.1–				
1998 05 22	704	0.3–	0.5–	1998 06 24	704	0.1–	0.1+				

1998 KF₄₇ = 1979 BP₂ = 1986 GW₂ = 1991 EU₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17079610	ω	135.72694	–0.19340768	+0.98045216		
<i>a</i>	3.2172446	Ω	123.08953	–0.91171641	–0.16599181		
<i>e</i>	0.1515405	<i>i</i>	2.47314	–0.36244538	–0.10564218		
<i>P</i>	5.77	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1979 01 27	675	0.0	0.4+	1998 05 22	704	0.3+	0.3+	1998 06 24	704	0.0	1.3+
1979 01 29	675	0.1+	0.1+	1998 05 22	704	0.5–	1.4–	1998 06 24	704	0.0	1.3+
1986 04 04	095	0.6–	1.6–	1998 05 22	704	(1.9–	2.4–)	1998 06 24	704	0.4+	0.7+
1991 03 06	809	0.2–	0.1+	1998 05 24	704	0.0	0.4+	1998 06 24	704	0.3+	0.8+
1991 03 06	809	0.0	0.1–	1998 05 24	704	1.1+	1.3–	1998 06 24	704	0.8–	0.1+
1991 03 06	809	0.5+	0.4–	1998 05 24	704	1.8–	1.1–	1998 06 26	704	0.7+	0.0
1991 03 09	809	0.2–	0.5+	1998 05 24	704	1.3+	0.6+	1998 06 26	704	0.2–	0.0
1991 03 09	809	0.3+	0.7+	1998 06 03	704	0.2–	0.6–	1998 06 26	704	0.7+	0.2+
1991 03 09	809	0.1+	0.8+	1998 06 03	704	0.9+	0.2+	1998 06 26	704	0.9+	0.6–
1998 05 22	704	0.4–	0.4+	1998 06 03	704	0.0	0.2+	1998 06 26	704	0.6–	0.1–
1998 05 22	704	0.4–	0.2–	1998 06 03	704	1.3–	0.6+				

1998 KX₄₇ = 1981 UA₂₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27147943	ω	123.02144	–0.95974963	+0.24193708		
<i>a</i>	2.3621715	Ω	71.32727	–0.28039895	–0.85439786		
<i>e</i>	0.0542888	<i>i</i>	8.65989	+0.01603367	–0.45985949		
<i>P</i>	3.63	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1981 10 24	675	0.4+	0.1–	1998 05 24	704	0.5–	0.7–	1998 06 24	704	0.6–	1.1+
1981 10 25	675	0.4+	0.1+	1998 05 24	704	0.1+	0.7+	1998 06 26	704	1.8–	1.3–
1981 10 26	675	0.9–	0.3+	1998 05 24	704	0.4–	0.5–	1998 06 26	704	1.1–	0.8+
1998 05 22	704	1.3+	1.7–	1998 05 24	704	1.5+	0.4+	1998 06 26	704	0.5+	0.0
1998 05 22	704	0.3+	2.0+	1998 06 24	704	0.7+	0.8–	1998 06 26	704	(2.8–	0.2–)
1998 05 22	704	0.1–	0.2+	1998 06 24	704	0.2–	0.5+	1998 06 26	704	0.8–	0.2–
1998 05 22	704	0.9+	0.7–	1998 06 24	704	1.3+	0.2+				
1998 05 22	704	1.3–	0.7+	1998 06 24	704	0.2+	0.4–				

1998 KE₄₈ = 1977 DN₁₀ = 1992 UV₉

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28846426	ω	124.78914	–0.32939920	+0.94328240		
<i>a</i>	2.2685136	Ω	125.92574	–0.88212484	–0.29181295		
<i>e</i>	0.0950069	<i>i</i>	2.93098	–0.33667778	–0.15831462		
<i>P</i>	3.42	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1977 02 19	381	0.0	0.2+	1998 05 24	704	0.3+	0.2+	1998 06 24	704	0.5+	0.5–
1977 02 19	381	0.0	0.2–	1998 05 24	704	0.5+	0.0	1998 06 24	704	0.7+	0.3–
1992 10 31	033	0.4–	0.0	1998 05 24	704	(0.9+	3.7+)	1998 06 24	704	0.4+	0.1+
1992 10 31	033	0.3–	0.0	1998 05 24	704	(1.6+	3.3+)	1998 06 26	704	0.2–	0.6–
1992 11 01	033	0.5+	0.9+	1998 06 03	704	0.4–	1.7+	1998 06 26	704	0.3–	0.1–

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1998 05 22	704	0.6+	0.1+	1998 06 03	704	0.5−	1.5−	1998 06 26	704	0.2+	0.1+
1998 05 22	704	(0.7+	2.3+)	1998 06 03	704	0.2−	1.5−	1998 06 26	704	0.6+	0.0
1998 05 22	704	0.8+	1.2+	1998 06 03	704	(2.1−	0.8−)	1998 06 26	704	1.0−	0.1−
1998 05 22	704	0.4+	1.4+	1998 06 24	704	1.7−	0.2−				
1998 05 22	704	0.6+	0.9+	1998 06 24	704	1.1−	0.0				

1998 KF₆₄ = 3076 T-3

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams							
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.27216267	<i>ω</i>	122.49096	+0.46083000	+0.88744413		
<i>a</i>	2.3582165	<i>Ω</i>	174.92546	−0.84418380	+0.44140482		
<i>e</i>	0.1318126	<i>i</i>	5.75312	−0.27384196	+0.13268268		
<i>P</i>	3.62	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1977 10 16	675	1.4−	0.6+	1977 10 21	675	0.1+	1.3−	1998 05 22	704	0.4−	0.5+
1977 10 16	675	0.2−	0.8+	1977 10 21	675	0.3+	1.7+	1998 05 22	704	1.2−	0.2−
1977 10 16	675	1.1+	1.2−	1977 10 21	675	0.0	1.3−	1998 05 22	704	0.7−	0.6−
1977 10 16	675	0.2+	1.0+	1977 10 22	675	2.2−	0.9−	1998 05 26	704	0.0	0.3−
1977 10 17	675	0.2−	0.6+	1998 05 07	910	0.0	0.2+	1998 05 26	704	1.7+	1.7+
1977 10 17	675	0.8+	0.3−	1998 05 07	910	0.1+	0.2−	1998 05 26	704	0.7−	0.0
1977 10 17	675	0.8+	0.4+	1998 05 07	910	0.1+	0.1−	1998 05 26	704	1.4+	1.2−
1977 10 17	675	0.6+	0.1−	1998 05 22	704	0.7+	1.0+	1998 05 26	704	1.0−	1.0−

1998 KL₆₅ = 1995 WZ₂₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano							
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.26245499	<i>ω</i>	228.62457	+0.05914891	+0.99760274		
<i>a</i>	2.4160143	<i>Ω</i>	44.80585	−0.89998912	+0.06885940		
<i>e</i>	0.1841699	<i>i</i>	2.92164	−0.43188075	−0.00686670		
<i>P</i>	3.76	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1995 11 19	691	0.9−	0.3+	1998 05 22	704	0.2+	1.1+	1998 06 24	704	0.4−	0.7−
1995 11 19	691	0.4−	0.2+	1998 05 22	704	0.4+	1.0+	1998 06 24	704	0.4−	0.2+
1995 11 19	691	0.6+	0.9−	1998 05 22	704	(0.0	2.5−)	1998 06 24	704	0.3+	0.6−
1995 11 25	691	0.1+	0.3+	1998 05 24	704	0.8−	0.6−	1998 06 26	704	1.8+	0.8+
1995 11 25	691	0.2+	0.0	1998 05 24	704	0.3−	2.1−	1998 06 26	704	(2.6−	3.7+)
1995 11 25	691	0.4+	0.1+	1998 05 24	704	0.6−	0.3+	1998 06 26	704	1.4−	0.4+
1998 05 22	704	1.0+	0.2+	1998 06 24	704	0.2−	0.1−	1998 06 26	704	0.5+	0.2+

1998 LB₃ = 1977 UN₅ = 1990 RY₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano							
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.22286656	<i>ω</i>	217.87866	+0.57637503	−0.81579624		
<i>a</i>	2.6942596	<i>Ω</i>	197.09241	+0.78375135	+0.56835411		
<i>e</i>	0.1105259	<i>i</i>	9.32553	+0.23135611	+0.10700509		
<i>P</i>	4.42	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1977 10 18	675	0.5−	0.1−	1998 06 01	809	2.6+	0.6+	1998 06 19	704	0.4−	1.5+
1977 10 19	675	0.4+	0.2+	1998 06 01	809	2.2+	1.3+	1998 06 19	704	0.7−	0.2−
1990 09 15	675	0.0	0.4−	1998 06 02	809	(6.1−	2.9−)	1998 06 19	704	0.6−	0.1−
1990 09 15	675	0.4+	0.1−	1998 06 02	809	(5.4−	3.7−)	1998 06 22	703	0.4+	0.1−
1990 09 20	675	0.0	0.2−	1998 06 02	809	(5.5−	4.6−)	1998 06 22	703	1.4−	0.5−
1990 09 20	675	0.4−	0.7+	1998 06 19	704	0.9−	0.7−	1998 06 22	703	1.1−	0.6−
1998 06 01	809	(3.1+	0.9+)	1998 06 19	704	0.5+	0.4+	1998 06 22	703	0.5−	1.4−

1998 SEPT. 10

1998 MD = 1994 NQ₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams							
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.24663040	<i>ω</i>	70.65221	+0.99558966	+0.01302186		
<i>a</i>	2.5182856	<i>Ω</i>	288.51506	−0.05142918	+0.90400878		
<i>e</i>	0.2858006	<i>i</i>	5.62275	+0.07846194	+0.42731552		
<i>P</i>	4.00	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1994 07 08	809	0.6+	0.3−	1998 06 16	426	0.0	0.5−	1998 06 26	704	(2.9+	2.6−)
1994 07 08	809	1.8+	0.7−	1998 06 16	426	0.5−	0.4−	1998 06 26	704	0.0	0.4−
1994 07 08	809	1.2+	0.4−	1998 06 17	426	0.8+	0.2+	1998 06 26	426	0.8−	0.1+
1994 07 09	809	(3.9+	0.7+)	1998 06 17	426	0.6+	0.2+	1998 06 26	426	0.0	0.1−
1994 07 09	809	(3.6+	0.7+)	1998 06 24	704	1.3+	0.6+	1998 06 26	426	0.6−	0.3+
1994 07 09	809	(3.1+	0.5+)	1998 06 24	704	0.5+	0.6−	1998 07 21	704	1.2+	1.7−
1994 07 11	809	1.4−	1.1+	1998 06 24	704	0.1+	0.4+	1998 07 21	704	1.0+	0.8−
1994 07 11	809	1.8−	0.3−	1998 06 24	704	0.6−	0.4−	1998 07 21	704	0.5−	0.6+
1994 07 11	809	0.2−	0.8−	1998 06 25	426	0.4−	0.0	1998 07 21	704	(0.7−	2.1+)
1994 07 12	809	0.0	1.1+	1998 06 25	426	0.8−	0.2−	1998 08 09	426	0.7−	0.2−
1994 07 12	809	0.1−	0.9+	1998 06 25	426	0.3−	0.1+	1998 08 09	426	0.1−	0.6+
1994 07 12	809	0.4−	0.6+	1998 06 26	704	0.8+	0.0	1998 08 10	426	0.1+	0.2+
1998 06 16	426	0.2−	0.2+	1998 06 26	704	1.1−	0.8+	1998 08 10	426	0.3+	0.0

1998 MF₃ = 1991 FQ₁ = 1994 AF₁₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano							
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.31243137	<i>ω</i>	169.10894	−0.98168053	−0.19053432		
<i>a</i>	2.1509631	<i>Ω</i>	359.90696	+0.17058617	−0.87870128		
<i>e</i>	0.0661635	<i>i</i>	3.03861	+0.08487456	−0.43769937		
<i>P</i>	3.15	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 03 17	809	0.8−	0.5−	1994 01 12	691	0.1−	0.1+	1998 06 17	426	0.4−	0.1−
1991 03 17	809	0.4−	0.4−	1994 01 12	691	0.4+	0.1+	1998 06 17	426	0.2−	1.2−
1991 03 17	809	0.2+	0.3−	1994 01 13	691	0.2+	0.2+	1998 06 22	426	0.9−	0.2−
1991 03 19	809	0.6−	0.3−	1994 01 13	691	0.2−	0.3+	1998 06 22	426	0.3−	0.0
1991 03 19	809	0.2−	0.1+	1994 01 13	691	0.3−	0.1+	1998 06 22	426	0.4−	0.0
1991 03 19	809	0.0	0.2+	1994 01 14	691	0.3−	0.3+	1998 06 22	426	0.4−	0.2+
1991 03 20	809	0.1−	0.2+	1994 01 14	691	0.3+	0.4−	1998 07 03	699	1.2+	0.0
1991 03 20	809	0.5+	0.3+	1994 01 14	691	0.3−	0.3+	1998 07 03	699	0.9+	0.9+
1991 03 20	809	1.3+	0.2+	1998 06 16	426	0.0	0.2+	1998 07 03	699	1.2+	0.0
1994 01 12	691	0.5+	0.0	1998 06 16	426	0.8−	0.7+				

1998 MA₅ = 2491 T-3

Epoch 1998 July 6.0 TT = JDT 2451000.5

Doppler							
<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>		
<i>n</i>	0.22823448	<i>ω</i>	68.31090	+0.99742680	−0.02311748		
<i>a</i>	2.6518475	<i>Ω</i>	292.96071	−0.00778513	+0.90606171		
<i>e</i>	0.0633426	<i>i</i>	4.22664	+0.07126823	+0.42251363		
<i>P</i>	4.32	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1977 10 16	675	2.0−	1.1−	1977 10 17	675	0.4−	2.0+	1998 06 19	691	0.1+	0.1−
1977 10 16	675	1.6+	1.1−	1977 10 21	675	0.5+	0.1+	1998 06 24	691	0.3+	0.3−
1977 10 16	675	0.3+	0.3+	1977 10 21	675	1.1+	0.3−	1998 06 24	691	0.0	0.3−
1977 10 16	675	0.4+	0.9−	1977 10 22	675	0.5+	0.5+	1998 06 24	691	0.2+	0.1−
1977 10 17	675	0.3−	0.8+	1977 10 22	675	0.7+	0.6−	1998 06 30	691	0.1−	0.4+
1977 10 17	675	0.9−	1.1+	1998 06 19	691	0.2−	0.1+	1998 06 30	691	0.3−	0.1+
1977 10 17	675	1.5−	1.0−	1998 06 19	691	0.1+	0.0	1998 06 30	691	0.2−	0.1+

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1998 MW₇ = 1994 PE₁₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	16.87498		(2000.0)		P		Q				
<i>n</i>	0.24248146	ω	127.25517		+0.18857583		+0.97949868				
<i>a</i>	2.5469301	Ω	153.35302		−0.94362756		+0.20071222				
<i>e</i>	0.2512562	<i>i</i>	9.09092		−0.27204076		−0.01723198				
<i>P</i>	4.06	<i>H</i>	15.5		<i>G</i>	0.15	<i>U</i>	4			
Residuals in seconds of arc											
1994 08 10	809	1.0−	1.0−	1998 06 25	699	0.8−	0.2−	1998 08 17	704	0.4+	0.8−
1994 08 10	809	0.9−	0.2−	1998 06 25	699	0.5−	0.9+	1998 08 17	704	0.1+	1.1−
1994 08 10	809	0.7−	0.4+	1998 06 25	699	0.3−	0.3+	1998 08 23	704	0.9−	0.8−
1994 08 11	809	1.5+	0.2−	1998 07 26	699	0.4+	0.5−	1998 08 23	699	0.0	0.3+
1994 08 11	809	1.8+	0.6+	1998 07 26	699	0.2+	0.3+	1998 08 23	704	1.3−	1.4+
1994 08 11	809	0.6−	0.1+	1998 07 26	699	0.3+	0.7−	1998 08 23	699	0.1+	0.3+
1998 06 19	699	0.2+	0.6−	1998 08 17	704	0.5+	0.0	1998 08 23	704	1.3−	1.3+
1998 06 19	699	0.0	0.4−	1998 08 17	704	1.3+	0.7−	1998 08 23	704	0.2+	0.2+
1998 06 19	699	0.5+	0.8+	1998 08 17	704	0.9+	0.3−	1998 08 23	699	0.2−	0.9+

1998 MA₈ = 1977 FQ

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	3.02079		(2000.0)		P		Q				
<i>n</i>	0.19989561	ω	53.98648		+0.57591800		+0.77436430				
<i>a</i>	2.8969025	Ω	253.27727		−0.81007793		+0.49744669				
<i>e</i>	0.0959652	<i>i</i>	15.88088		−0.10996455		+0.39103289				
<i>P</i>	4.93	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	4				
Residuals in seconds of arc											
1977 03 20	809	0.2+	0.1+	1998 06 30	704	0.8+	1.8−	1998 08 24	704	0.9+	0.8−
1977 03 21	809	0.1−	0.1+	1998 06 30	704	0.2−	0.6−	1998 08 27	704	0.9+	0.2−
1998 06 19	699	0.0	0.2−	1998 06 30	704	1.3−	0.6+	1998 08 27	704	1.0+	0.2−
1998 06 19	699	0.8+	1.2−	1998 06 30	704	2.4−	1.6+	1998 08 27	704	0.2+	0.0
1998 06 19	699	0.7+	0.4−	1998 08 24	704	0.1−	0.6+	1998 08 27	704	0.5−	0.2+
1998 06 26	699	0.6+	0.6+	1998 08 24	704	0.5−	0.3−	1998 08 27	704	0.5+	0.4+
1998 06 26	699	0.9+	1.3+	1998 08 24	704	0.6+	0.4+				
1998 06 26	699	0.8+	0.1+	1998 08 24	704	3.5−	0.1−				

1998 MS₂₄ = 1997 CB₃₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	5.33991	(2000.0)		P		Q					
<i>n</i>	0.23368801	ω	137.64434	+0.23942395	+0.95935648						
<i>a</i>	2.6104283	Ω	145.41416	−0.94634147	+0.26497941						
<i>e</i>	0.3342222	<i>i</i>	15.25655	−0.21705759	−0.09706218						
<i>P</i>	4.22 <th><i>H</i></th> <td>14.5<th><i>G</i></th><td>0.15<th><i>U</i></th><td>3<td colspan="2"></td></td></td></td>	<i>H</i>	14.5 <th><i>G</i></th> <td>0.15<th><i>U</i></th><td>3<td colspan="2"></td></td></td>	<i>G</i>	0.15 <th><i>U</i></th> <td>3<td colspan="2"></td></td>	<i>U</i>	3 <td colspan="2"></td>				
Residuals in seconds of arc											
1997 02 07	691	0.4−	0.0	1998 07 05	595	0.2−	0.1−	1998 08 23	595	0.0	0.1−
1997 02 07	691	0.9−	0.1+	1998 07 05	595	0.1+	0.0	1998 08 25	595	0.7−	0.3−
1997 02 07	691	0.5−	0.2−	1998 07 05	595	0.2−	0.2−	1998 08 25	595	0.1+	0.1+
1997 02 13	327	0.8+	0.7+	1998 07 06	595	0.2−	0.1−	1998 08 27	699	(2.3−	0.9−)
1997 02 13	327	0.2+	0.3+	1998 07 13	595	0.7+	0.1+	1998 08 27	699	0.4−	0.1+
1997 02 13	327	0.7+	0.5+	1998 07 13	595	1.0+	0.1−	1998 08 27	699	0.3−	0.7+
1998 06 30	595	0.3−	0.3−	1998 07 29	595	0.3+	0.4+	1998 08 29	422	0.0	0.1+
1998 06 30	595	0.2−	0.3−	1998 07 29	595	0.3+	0.5+	1998 08 29	422	0.4−	0.1+
1998 06 30	595	0.0	0.2−	1998 08 17	704	0.0	0.6+	1998 08 29	422	0.5−	0.1+
1998 07 01	595	0.1−	0.1+	1998 08 17	704	0.8+	0.2+	1998 08 29	422	0.4−	0.0
1998 07 01	595	0.1−	0.2+	1998 08 17	704	0.1+	0.5−	1998 08 30	682	0.2−	0.9−
1998 07 01	595	0.6−	0.6+	1998 08 17	704	0.4+	1.1+	1998 08 30	682	0.5−	0.1−
1998 07 01	595	0.0	0.1+	1998 08 17	704	1.1+	0.2+	1998 08 30	682	0.3−	0.4−
1998 07 04	595	0.1+	0.5−	1998 08 18	566	1.0+	0.4+	1998 08 30	422	0.2−	0.1−
1998 07 04	595	0.5−	0.5−	1998 08 18	566	1.0+	0.1+	1998 08 30	422	0.3−	0.0
1998 07 04	595	0.8−	0.6+	1998 08 18	566	0.3−	1.1−	1998 08 30	422	0.1−	0.2+
1998 07 05	595	0.1−	0.1−	1998 08 23	595	0.0	0.1+				

1998 ML₂₉ = 1978 RU₇ = 1978 RD₁₆Id. G. V. Williams, B. G. Marsden (d, *MPC* 9203)

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	335.15987		(2000.0)			P		Q		
n	0.29344525	ω	340.25873			+0.81255676		+0.58255586		
a	2.2427696	Ω	344.06475			−0.52478872		+0.71660513		
e	0.2019371	i	4.07253			−0.25366969		+0.38354369		
P	3.36	H	16.5	G	0.15	U	4			
Residuals in seconds of arc										
1978 09 02	809	0.5+	1.2−	1998 06 24	704	1.0+	0.2−	1998 07 20	428	0.7− 0.1+
1978 09 02	809	0.4+	0.2−	1998 06 24	704	1.6+	1.1−	1998 07 20	428	0.1− 0.0
1978 09 02	809	0.5−	0.2+	1998 06 24	704	1.7−	0.1−	1998 07 20	428	0.5− 0.4−
1978 09 02	809	0.6+	0.7−	1998 06 26	704	1.2+	0.7−	1998 07 22	428	0.2− 0.2+
1978 09 06	809	0.6−	0.4+	1998 06 26	704	0.7−	1.6+	1998 07 22	428	0.1− 0.1+
1978 09 10	809	0.3−	1.8+	1998 06 26	704	1.6+	0.8−	1998 07 22	428	0.6− 0.2−
1978 09 10	809	0.3−	1.5−	1998 06 26	704	0.3−	1.3+	1998 07 27	428	1.4+ 0.0
1978 09 10	809	0.1+	1.0+	1998 07 19	428	0.3−	0.4−	1998 07 27	428	0.2+ 0.7+
1978 09 10	809	0.3+	0.1−	1998 07 19	428	0.1−	0.4−	1998 07 28	428	0.2+ 1.1+
1998 06 24	704	1.5−	0.4−	1998 07 19	428	0.1−	0.2−			

1998 MC₃₄ = 1996 XH₂₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	24.06213	(2000.0)		P			Q				
n	0.30509357	ω	199.45644	−0.14685088			+0.98759962				
a	2.1853148	Ω	62.13275	−0.89901215			−0.10984928				
e	0.0936319	i	3.60033	−0.41256753			−0.11216112				
P	3.23 <th>H</th> <td>15.5<th>G</th><td>0.15<th>U</th><td colspan="3">6</td></td></td>	H	15.5 <th>G</th> <td>0.15<th>U</th><td colspan="3">6</td></td>	G	0.15 <th>U</th> <td colspan="3">6</td>	U	6				
Residuals in seconds of arc											
1996 12 08	691	0.3+	0.0	1998 06 24	704	0.8+	1.1+	1998 06 26	704	0.8+	1.1+
1996 12 08	691	0.1+	0.0	1998 06 24	704	1.4−	0.5−	1998 06 26	704	0.5−	0.3+
1996 12 08	691	0.3+	0.5+	1998 06 24	704	0.9−	0.7−	1998 07 03	699	0.7−	0.1−
1996 12 13	691	0.2−	0.3+	1998 06 24	704	0.2+	0.3+	1998 07 03	699	0.6+	0.7−
1996 12 13	691	0.2−	0.3−	1998 06 26	704	1.0+	1.2−	1998 07 03	699	0.2+	0.6+
1996 12 13	691	0.3−	0.1−	1998 06 26	704	0.2−	0.2+				

1998 MA₃₆ = 1995 YY₂₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	334.81297		(2000.0)			P		Q			
n	0.28678735	ω	247.92296			+0.87041754		+0.48050972			
a	2.2773479	Ω	83.21584			−0.40249256		+0.81989531			
e	0.2378606	i	6.19529			−0.28350139		+0.31125889			
P	3.44	H	17.0			G	0.15	U	4		
Residuals in seconds of arc											
1995 12 28	691	0.1−	0.3−	1998 06 26	704	0.0	0.8−	1998 07 05	428	0.9+	0.3+
1995 12 28	691	0.0	0.3−	1998 06 26	704	1.4+	0.1+	1998 07 05	428	0.6+	0.4+
1995 12 28	691	0.1−	0.3−	1998 07 02	428	0.5+	0.2+	1998 07 05	428	0.1−	0.3+
1996 01 12	691	0.0	0.1−	1998 07 02	428	0.6−	0.2+	1998 07 14	428	0.1+	0.1+
1996 01 12	691	0.2+	0.4+	1998 07 02	428	0.9−	0.3+	1998 07 14	428	0.8+	0.1−
1996 01 12	691	0.4+	0.0	1998 07 03	699	0.1+	0.1+	1998 07 20	428	0.2+	0.1−
1998 06 24	704	0.7−	0.5−	1998 07 03	699	0.1−	0.3+	1998 07 20	428	0.3+	0.0
1998 06 24	704	1.2+	0.5−	1998 07 03	699	0.3−	0.6+	1998 07 24	566	0.7−	0.2−
1998 06 24	704	0.2−	0.6−	1998 07 04	428	0.2+	0.4+	1998 07 24	566	0.1+	0.2−
1998 06 24	704	2.8−	0.7−	1998 07 04	428	0.1−	0.4+	1998 07 24	566	0.3+	0.1+
1998 06 26	704	1.3+	0.4−	1998 07 04	428	1.0−	0.1+	1998 07 28	428	0.3+	0.8+
1998 06 26	704	0.6+	0.4−	1998 07 04	428	1.4−	0.5−				

1998 ML₃₇ = 1971 UX₃ = 1988 SQ₃ = 1993 BS₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	272.21982		(2000.0)		P		Q		
<i>n</i>	0.28816996	ω	296.15510		+0.65316679		−0.75237433		
<i>a</i>	2.2700578	Ω	112.79386		+0.72362553		+0.58695706		
<i>e</i>	0.1721915	<i>i</i>	5.31987		+0.22302294		+0.29902220		
<i>P</i>	3.42	<i>H</i>	14.5		<i>G</i>	0.15	<i>U</i>	2	
Residuals in seconds of arc									
1971 10 22	805	0.5−	1.9+	1993 01 24	400	(0.6+	3.6−)	1998 08 17	704 0.0 0.9−
1971 10 22	805	0.5−	1.3+	1998 06 24	699	0.3−	0.5−	1998 08 23	704 0.5+ 0.6+
1971 10 22	805	0.2−	0.2−	1998 06 24	699	0.3+	0.4+	1998 08 23	704 1.0− 1.4+
1988 09 16	095	0.6−	1.8−	1998 06 24	699	0.2+	0.1−	1998 08 23	704 0.6+ 0.3−
1988 09 16	095	2.0+	2.2−	1998 07 02	699	1.0+	0.1+	1998 08 23	704 0.6− 1.8−
1993 01 21	691	0.5−	0.7−	1998 07 02	699	0.1−	0.1+	1998 08 23	704 0.1− 0.9−
1993 01 21	691	0.3−	0.6−	1998 07 02	699	0.7+	1.0+	1998 08 29	699 1.2+ 0.7+
1993 01 21	691	0.4−	0.5−	1998 08 17	704	1.2−	0.7+	1998 08 29	699 0.1− 1.5+
1993 01 23	400	(0.4+	2.2+)	1998 08 17	704	1.1−	0.5−	1998 08 29	699 0.9− 0.7+
1993 01 23	400	0.4+	0.9+	1998 08 17	704	0.3−	0.6−		
1993 01 24	400	0.4+	1.4−	1998 08 17	704	1.3+	1.4−		

1998 MR₃₇ = 1991 RL₂₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	351.54635		(2000.0)			P		Q	
<i>n</i>	0.27459733	ω	245.35450			+0.64319168		+0.76281359	
<i>a</i>	2.3442568	Ω	64.84221			−0.67329052		+0.60477831	
<i>e</i>	0.2124701	<i>i</i>	4.21215			−0.36467018		+0.22882006	
<i>P</i>	3.59	<i>H</i>	14.5			<i>G</i>	0.15	<i>U</i>	3
Residuals in seconds of arc									
1991 09 14	675	0.3+ 0.1−	1998 07 02	699	0.1+ 0.2+	1998 08 17	699	0.6+ 0.6−	
1991 09 14	675	0.3− 0.2+	1998 07 02	699	0.9+ 0.4+	1998 08 17	699	1.0+ 0.2−	
1991 09 16	675	0.1− 0.4+	1998 08 17	704	0.0 1.7+	1998 08 23	704	1.6+ 0.4−	
1991 09 16	675	0.1− 0.0	1998 08 17	704	0.3− 0.2−	1998 08 23	704	(2.3− 3.0+)	
1998 06 24	699	0.1− 0.1+	1998 08 17	704	0.9− 0.3+	1998 08 23	704	0.5+ 1.5−	
1998 06 24	699	0.3− 0.1−	1998 08 17	704	1.3− 0.5+	1998 08 23	704	1.2− 0.7+	
1998 06 24	699	0.4− 0.0	1998 08 17	704	0.4− 0.3+	1998 08 23	704	0.7− 1.4−	
1998 07 02	699	0.0 0.2+	1998 08 17	699	0.8+ 0.3−				

1998 MB₃₈ = 1972 VD₂ = 1990 XE₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	48.31031		(2000.0)			$\mathbf{P}$		$\mathbf{Q}$		
n	0.21881095	ω	317.91213			−0.17402207		+0.97181149		
a	2.7274492	Ω	301.48201			−0.84644643		−0.23016061		
e	0.0574726	i	10.74913			−0.50323430		+0.05107359		
P	4.50	H	14.0	G	0.15	U	4			
Residuals in seconds of arc										
1972 11 03	033	2.4−	0.3−	1998 07 31	620	0.1+	0.1−	1998 08 17	704	1.5− 1.3−
1972 11 03	033	2.5+	1.1−	1998 08 03	620	1.1−	1.6+	1998 08 20	566	1.1− 0.1−
1990 12 07	033	0.6+	0.7+	1998 08 03	620	0.4−	0.8+	1998 08 20	566	0.1+ 1.0−
1990 12 07	033	0.7−	0.6+	1998 08 04	620	0.5+	1.7+	1998 08 20	566	0.2+ 0.1+
1998 06 26	699	0.7+	0.3+	1998 08 04	620	0.7−	0.5+	1998 08 23	704	0.3+ 0.1+
1998 06 26	699	0.8+	0.2−	1998 08 11	620	0.8−	0.0	1998 08 23	704	0.4+ 0.3+
1998 06 26	699	0.5+	0.3+	1998 08 11	620	0.2−	0.1+	1998 08 23	704	0.5+ 0.7+
1998 07 03	699	0.9+	0.0	1998 08 11	620	0.2−	0.5−	1998 08 23	704	0.3− 0.7+
1998 07 03	699	0.9+	0.0	1998 08 17	704	0.1−	1.0−	1998 08 23	704	1.0− 1.0+
1998 07 03	699	1.1+	0.2−	1998 08 17	704	0.1−	0.7−	1998 08 30	699	0.2+ 0.2−
1998 07 31	620	0.5−	0.4−	1998 08 17	704	0.3−	0.4−	1998 08 30	699	0.2+ 0.3−
1998 07 31	620	0.3+	0.1−	1998 08 17	704	0.7+	1.3−	1998 08 30	699	0.6+ 0.1+

1998 NA = 1992 EM₃₁

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	333.95450		(2000.0)		P		Q		
n	0.23792951	ω	37.85275		+0.97486125		−0.21162076		
a	2.5793118	Ω	334.10539		+0.14462870		+0.83906277		
e	0.1779612	i	9.18759		+0.16949362		+0.50118891		
P	4.14	H	12.5		G	0.15	U	4	
Residuals in seconds of arc									
1992 03 01	809	0.1+	0.4−	1998 07 05	596	(7.7+ 6.9+)	1998 07 25	596	0.9− 0.3−
1992 03 03	809	0.7−	0.6−	1998 07 06	596	0.3+ 0.3+	1998 07 25	596	1.1− 0.3+
1998 06 29	704	1.4+	1.1−	1998 07 06	596	0.7+ 0.9+	1998 08 02	699	1.3+ 0.7−
1998 06 29	704	0.6−	0.4+	1998 07 06	596	1.3+ 0.6+	1998 08 02	699	0.8+ 0.5−
1998 06 29	704	0.7−	0.3+	1998 07 09	596	0.2+ 0.4−	1998 08 02	699	1.0+ 0.1−
1998 06 29	704	1.2−	1.2−	1998 07 09	596	0.2− 0.6+	1998 08 19	596	0.2− 0.4−
1998 06 29	704	(2.8−	0.8−)	1998 07 09	596	0.4+ 1.4−	1998 08 19	596	0.2+ 0.2−
1998 07 05	596	(6.8+	6.7+)	1998 07 09	596	0.0 0.3+	1998 08 19	596	0.1− 0.1−
1998 07 05	596	(7.4+	7.0+)	1998 07 24	596	0.6− 1.0+			
1998 07 05	596	(7.5+	7.3+)	1998 07 24	596	1.6− 0.6+			

1998 NT = 1982 OG₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	278.93369		(2000.0)			P		Q		
<i>n</i>	0.36684196	ω	243.12799			+0.88244353		−0.30413239		
<i>a</i>	1.9326359	Ω	132.07905			+0.34385274		+0.93764370		
<i>e</i>	0.0293739	<i>i</i>	28.91592			−0.32102759		+0.16830857		
<i>P</i>	2.69	<i>H</i>	16.0			<i>G</i>	0.15	<i>U</i>	6	
Residuals in seconds of arc										
1982 07 27	675	1.6−	0.0	1982 07 28	675	0.7+	0.1+	1998 07 27	292	0.4+ 0.2+
1982 07 27	675	0.3+	0.5+	1998 07 12	292	1.1+	1.5−	1998 07 27	292	0.2+ 0.7−
1982 07 27	675	1.0+	1.6−	1998 07 12	292	1.8+	0.1+	1998 07 27	292	0.6− 1.5−
1982 07 27	675	0.3+	0.7−	1998 07 12	292	0.4+	1.7+	1998 08 01	292	1.3− 0.0
1982 07 28	675	0.8−	2.6+	1998 07 13	292	0.3−	0.9+	1998 08 01	292	0.1+ 1.1+
1982 07 28	675	0.0	0.9−	1998 07 13	292	1.6−	0.5−			
1982 07 28	675	0.2+	0.4+	1998 07 13	292	(1.2+	5.1−)			

1998 OH

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	53.64420		(2000.0)		P		Q			
n	0.51498152	ω	321.51406		−0.96247167		−0.00463252			
a	1.5414932	Ω	220.86370		+0.02571378		−0.99691265			
e	0.4064290	i	24.50237		−0.27016121		−0.07838180			
P	1.91	H	16.0	G	0.15	U	4			
Residuals in seconds of arc										
1993 11 09	675	1.2−	0.1+	1998 07 26	557	0.2−	0.2−	1998 08 10	046	0.1+ 0.3+
1993 11 09	675	1.0+	0.6+	1998 07 26	557	0.1+	0.6−	1998 08 10	046	0.1− 0.1+
1993 11 10	675	0.5+	0.9−	1998 07 26	046	0.1−	0.2−	1998 08 10	046	0.0 0.4+
1993 11 10	675	0.3−	0.1+	1998 07 26	046	0.0	0.1+	1998 08 11	046	0.1+ 0.0
1998 07 19	566	0.4−	0.1+	1998 07 26	046	0.1−	0.3−	1998 08 11	046	0.2+ 0.1−
1998 07 19	566	0.3−	0.3+	1998 07 26	046	0.1+	0.0	1998 08 11	046	0.1+ 0.0
1998 07 19	566	0.7−	0.2+	1998 07 26	118	0.0	1.1−	1998 08 11	046	0.2+ 0.2−
1998 07 20	566	0.6−	0.5+	1998 07 26	118	0.1−	0.7−	1998 08 14	587	0.1− 0.2−
1998 07 20	566	0.2−	0.2+	1998 07 28	587	0.0	0.2−	1998 08 14	587	0.9+ 0.2−
1998 07 20	566	0.3+	0.2+	1998 07 28	587	0.2+	0.6−	1998 08 14	118	0.3+ 0.1+
1998 07 24	566	0.0	0.3+	1998 07 30	620	1.8+	1.4−	1998 08 14	118	0.3+ 0.4+
1998 07 24	566	0.1−	0.3+	1998 07 30	620	0.0	0.5+	1998 08 15	046	0.4+ 0.1+
1998 07 24	566	0.3+	0.6+	1998 07 30	620	1.2−	0.1+	1998 08 15	046	0.4+ 0.2+
1998 07 24	598	0.5−	0.1−	1998 07 31	557	0.3+	0.1−	1998 08 15	046	0.1+ 0.3+
1998 07 24	598	0.4−	0.2−	1998 07 31	557	0.6+	0.6−	1998 08 15	046	0.5+ 0.9−
1998 07 24	598	0.4−	0.1−	1998 07 31	557	0.1−	0.3−	1998 08 15	108	0.1+ 0.2+
1998 07 24	598	0.4−	0.1+	1998 08 06	046	0.5+	0.2−	1998 08 15	108	0.1+ 1.5+
1998 07 24	557	0.2−	0.5−	1998 08 06	557	0.2−	0.1−	1998 08 15	108	(2.0− 2.6+)
1998 07 24	557	0.1+	0.1−	1998 08 06	046	0.3+	0.4−	1998 08 26	658	0.5− 0.0
1998 07 25	673	0.5−	1.1+	1998 08 06	557	0.2+	0.0	1998 08 26	658	1.0− 0.2−

1998 SEPT. 10

1998 07 25	673	0.4−	1.0+	1998 08 06	557	0.2+	0.4−	1998 08 26	658	0.7−	0.1+
1998 07 25	402	0.1−	0.2+	1998 08 06	046	0.6+	0.3−	1998 08 27	557	0.3−	0.3+
1998 07 25	402	0.6−	0.7+	1998 08 07	954	0.2+	0.0	1998 08 27	557	0.1+	0.1+
1998 07 25	402	0.4−	0.3−	1998 08 07	046	0.1−	0.2−	1998 08 28	658	0.1−	0.4+
1998 07 25	587	0.6+	0.9−	1998 08 07	046	0.8+	0.1+	1998 08 28	658	0.2−	0.4+
1998 07 25	587	0.5+	0.3−	1998 08 07	046	0.4+	0.1−	1998 08 28	658	0.7−	0.3+
1998 07 25	611	0.2+	0.2+	1998 08 07	954	0.3+	0.2+	1998 08 29	658	0.1+	0.0
1998 07 25	611	0.3+	0.2+	1998 08 08	954	0.3+	0.0	1998 08 29	658	0.5−	0.2+
1998 07 25	611	0.2−	0.2−	1998 08 08	954	0.3+	0.0	1998 08 29	658	0.3−	0.0

1998 OP = 1950 PN = 1950 PR = 1995 SU₂Id. G. V. Williams, O. Kippes (d, *MPC 777*)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	1.73372	(2000.0)	
<i>n</i>	0.30754521	ω	128.99297
<i>a</i>	2.1736857	Ω	161.44265
<i>e</i>	0.1793309	<i>i</i>	3.85561
<i>P</i>	3.20	<i>H</i>	15.0

Residuals in seconds of arc

1950 08 12	760	(2.9−	1.0+)	1995 09 30	399	0.1+	0.4−	1998 07 21	910	0.0	0.3+
1950 08 12	760	(0.9+	2.6+)	1998 06 26	704	0.6+	0.1−	1998 07 23	910	0.1−	0.2+
1950 08 14	760	(0.7+	3.7−)	1998 06 26	704	0.1+	0.9+	1998 07 24	910	0.4−	0.0
1950 08 14	760	0.6+	2.0−	1998 06 26	704	1.6−	0.5−	1998 07 24	910	0.2−	0.1+
1995 09 19	809	(2.5+	1.4+)	1998 06 26	704	0.1+	1.8−	1998 08 17	611	0.3+	0.0
1995 09 20	809	0.9+	0.5+	1998 06 26	704	(4.2−	0.8−)	1998 08 17	611	0.0	0.2−
1995 09 20	399	0.7−	0.1+	1998 07 20	910	0.6+	0.5+	1998 08 17	611	0.0	0.0
1995 09 20	399	1.3+	0.9+	1998 07 20	910	0.6+	0.4+	1998 08 19	566	0.4−	0.1+
1995 09 21	399	1.1−	0.8−	1998 07 20	910	0.3+	0.7+	1998 08 19	566	0.0	0.2−
1995 09 21	399	1.5−	0.3+	1998 07 20	910	0.1−	0.3+	1998 08 19	566	0.3−	0.3+
1995 09 30	399	0.6+	0.2+	1998 07 21	910	0.0	0.3+				

1998 OQ₄ = 1997 CC₈

Id. B. G. Marsden

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	31.02929	(2000.0)	
<i>n</i>	0.28836828	ω	1.87203
<i>a</i>	2.2690169	Ω	265.03653
<i>e</i>	0.1210840	<i>i</i>	1.97073
<i>P</i>	3.42	<i>H</i>	15.5

Residuals in seconds of arc

1997 02 01	691	0.1−	0.3−	1998 07 30	684	0.2−	0.1+	1998 08 17	704	0.1+	0.8+
1997 02 01	691	0.1+	0.3−	1998 07 30	684	0.2−	0.1+	1998 08 19	684	0.5−	0.2−
1997 02 01	691	0.1+	0.3−	1998 07 30	684	0.1−	0.1−	1998 08 19	684	0.5−	0.4−
1997 02 06	566	0.3+	0.1+	1998 07 31	684	0.3−	0.1−	1998 08 20	684	0.0	0.7−
1997 02 06	566	0.4−	0.1+	1998 07 31	684	0.0	0.1−	1998 08 20	684	0.0	0.9−
1997 02 06	566	0.1+	0.4+	1998 08 01	684	0.2−	0.4−	1998 08 23	704	(2.2−	1.4+)
1997 02 07	691	0.3−	0.0	1998 08 01	684	0.4−	0.5−	1998 08 23	704	0.6−	0.3−
1997 02 07	691	0.2−	0.1+	1998 08 17	704	0.3+	0.2+	1998 08 23	704	(2.6+	1.8+)
1997 02 07	691	0.6+	0.2+	1998 08 17	704	1.4−	0.5+	1998 08 23	704	1.7+	0.7+
1998 07 28	684	1.0+	0.1+	1998 08 17	704	0.7+	0.2−				
1998 07 28	684	0.6+	0.4+	1998 08 17	704	0.1+	0.9+				

1998 OY₄ = 1990 SZ₁₄

Id. S. Nakano

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	271.70546	(2000.0)	
<i>n</i>	0.24134264	ω	196.19735
<i>a</i>	2.5549359	Ω	231.92829
<i>e</i>	0.1782753	<i>i</i>	8.09865
<i>P</i>	4.08	<i>H</i>	14.5

Residuals in seconds of arc

1990 09 17	675	0.4−	0.3+	1998 07 31	557	0.1−	0.1−	1998 08 27	704	0.6−	1.2+
1990 09 17	675	0.2−	0.0	1998 07 31	557	0.3−	0.1−	1998 08 27	704	0.7+	0.1+
1990 09 19	675	0.5+	0.1−	1998 08 07	557	0.1−	0.1−	1998 08 27	704	(1.4−	2.7+)
1990 09 19	675	0.1+	0.2−	1998 08 07	557	0.9+	0.2+	1998 08 27	704	0.5+	0.1+
1998 07 24	557	0.3−	0.6−	1998 08 24	704	0.5−	0.3+	1998 08 27	704	(2.2−	1.2+)
1998 07 25	557	0.1+	0.2+	1998 08 24	704	0.0	1.0+	1998 08 27	704	0.7+	0.4−
1998 07 25	557	0.4+	0.5+	1998 08 24	704	0.3−	0.4−	1998 08 27	704	(1.0−	2.3+)
1998 07 31	557	0.1+	0.1−	1998 08 24	704	0.1−	0.6−	1998 08 27	704	(5.7−	0.4+)
1998 07 31	557	0.2+	0.0	1998 08 24	704	0.3−	0.5−	1998 08 27	557	0.5−	0.2+
1998 07 31	557	0.7−	0.2+	1998 08 27	704	0.9+	1.1−	1998 08 27	557	0.8−	0.0

1998 OX₅ = 1985 QS₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	35.85753	(2000.0)	
<i>n</i>	0.22208796	ω	324.28311
<i>a</i>	2.7005530	Ω	284.32525
<i>e</i>	0.0512073	<i>i</i>	11.63707
<i>P</i>	4.44	<i>H</i>	13.5

Residuals in seconds of arc

1985 08 16	675	0.6−	0.5−	1998 06 24	704	2.4+	0.5−	1998 07 21	704	1.0+	0.9−
1985 08 16	675	1.2+	1.4+	1998 06 24	704	0.0	1.1+	1998 07 21	704	0.6+	1.1+
1985 08 17	675	0.6−	0.9−	1998 06 24	704	2.2−	0.2−	1998 07 26	704	0.8−	0.2−
1985 08 17	675	(5.5+	0.3+)	1998 07 21	704	1.1+	1.1−	1998 07 26	704	1.5−	0.8+
1998 06 24	704	0.0	0.5−	1998 07 21	704	0.1+	1.3+	1998 07 26	704	0.7−	0.8−

1998 OE₆ = 1991 RH₁₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	338.63975	(2000.0)	
<i>n</i>	0.27500139	ω	38.80978
<i>a</i>	2.3419599	Ω	294.72610
<i>e</i>	0.2192192	<i>i</i>	4.63923
<i>P</i>	3.58	<i>H</i>	15.0

Residuals in seconds of arc

1991 09 13	675	0.6+	0.4+	1998 07 31	120	1.5+	0.1−	1998 08 02	120	0.2+	0.7−
1991 09 13	675	0.2+	1.0−	1998 07 31	120	1.1+	0.3+	1998 08 02	120	0.9+	0.1+
1991 09 15	675	0.1+	0.5+	1998 08 01	120	0.5+	0.1+	1998 08 25	120	0.2+	0.0
1991 09 15	675	0.9−	0.2+	1998 08 01	120	0.7+	0.8−	1998 08 25	120	0.4+	0.2−
1998 07 30	120	0.4−	0.2+	1998 08 01	120	0.1−	0.5−	1998 08 25	120	0.1+	0.1−
1998 07 30	120	0.8−	0.1+	1998 08 01	120	0.7−	0.5+	1998 08 25	120	0.3−	0.2+
1998 07 30	120	0.2−	0.1−	1998 08 02	120	0.3+	0.8−	1998 08 26	120	0.1+	0.5+
1998 07 30	120	0.4−	0.5+	1998 08 02	120	0.5−	0.0	1998 08 26	120	0.1+	0.4−
1998 07 31	120	2.7−	1.6+	1998 08 02	120	0.7+	0.5−	1998 08 26	120	0.4−	0.1−
1998 07 31	120	0.0	0.3−	1998 08 02	120	0.2−	0.3+				

1998 OT₆ = 1990 FN₄ = 1997 ED₃₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	27.81826	(2000.0)	
<i>n</i>	0.26835411	ω	276.43830
<i>a</i>	2.3804764	Ω	354.91530
<i>e</i>	0.2031814	<i>i</i>	1.91708
<i>P</i>	3.67	<i>H</i>	15.0

Residuals in seconds of arc

1990 03 27	675	0.3+	0.4+	1998 07 26	809	1.5+	0.5−	1998 08 17	704	0.1+	0.1−
1990 03 27	675	0.0	0.1+	1998 07 26	699	0.6−	0.0	1998 08 17	704	0.5+	0.4−
1997 03 04	704	0.6−	0.7−	1998 07 26	699	2.5−	2.1+	1998 08 17	704	0.7−	0.2+
1997 03 04	704	0.0	0.0	1998 07 26	699	0.4−	0.2+	1998 08 17	704	0.3+	0.5+
1997 03 05	704	0.0	0.9−	1998 07 27	809	1.7+	1.2−	1998 08 17	704	0.4−	1.0+
1997 03 05	704	0.7−	0.6−	1998 07 27	809	1.3+	1.2−	1998 08 23	704	0.7+	0.4+
1997 03 06	704	0.4+	0.1−	1998 07 27	809	1.4+	0.6−	1998 08 23	704	1.3−	0.1−
1997 03 06	704	0.1+	0.1−	1998 07 31	699	1.7−	0.5+	1998 08 23	704	0.0	0.2−

M.P.C. 32489

M.P.C. 32490

1998 SEPT. 10

1998 07 26	809	2.0+	0.8−	1998 07 31	699	1.2−	0.1+	1998 08 23	704	0.5+	0.4+
1998 07 26	809	1.7+	1.0−	1998 07 31	699	1.7−	0.2+	1998 08 23	704	0.3−	1.0−

1998 OW₆ = 1992 ET₁₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	332.11649		(2000.0)	Williams				<i>P</i>	<i>Q</i>
<i>n</i>	0.23528992	ω	212.62343	+0.97915157	+0.05038014				
<i>a</i>	2.5985665	Ω	142.89318	−0.02334589	+0.99024651				
<i>e</i>	0.2861904	<i>i</i>	19.03697	−0.20178495	+0.12989875				
<i>P</i>	4.19	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1992 03 01	809	1.0+	0.1−	1998 08 03	620	0.3−	0.6+	1998 08 17	704	0.3+	0.2+
1992 03 04	809	1.0−	0.0	1998 08 04	620	0.6−	0.1−	1998 08 17	704	0.6−	0.2−
1998 07 31	620	0.3−	0.1+	1998 08 11	620	0.2−	0.2+	1998 08 17	704	0.0	0.3−
1998 07 31	620	0.3+	0.1+	1998 08 11	620	0.1−	0.2−	1998 08 17	704	0.7+	0.4−
1998 07 31	620	0.1−	0.3−	1998 08 11	620	0.0	0.4−	1998 08 26	620	0.4+	0.5+
1998 08 03	620	0.0	0.6+	1998 08 11	620	0.1+	0.6−	1998 08 26	620	0.7−	0.2−
1998 08 03	620	1.0+	0.1+	1998 08 17	704	(2.4−	1.3−)	1998 08 26	620	0.0	0.3+

1998 OZ₆ = 1997 HO₁₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	326.69063		(2000.0)	Williams				<i>P</i>	<i>Q</i>
<i>n</i>	0.23098433	ω	104.89885	+0.98251620	−0.17025148				
<i>a</i>	2.6307588	Ω	264.94625	+0.12802487	+0.91164688				
<i>e</i>	0.2387533	<i>i</i>	4.33774	+0.13517227	+0.37405134				
<i>P</i>	4.27	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1997 04 30	704	0.5+	0.1−	1997 05 01	704	0.3+	0.4+	1998 07 29	327	0.2−	0.2+
1997 04 30	704	0.3−	1.2−	1997 05 01	704	0.2+	0.1−	1998 08 17	704	0.4+	0.3−
1997 04 30	704	0.2−	1.5−	1997 05 01	704	0.1+	0.0	1998 08 17	704	0.4+	1.0+
1997 04 30	704	0.3+	1.1+	1998 07 20	327	0.1−	0.1−	1998 08 17	704	0.7+	0.0
1997 04 30	704	0.3+	0.3−	1998 07 20	327	0.1−	0.0	1998 08 17	704	0.1−	0.8+
1997 04 30	704	0.2−	0.5+	1998 07 20	327	0.0	0.1−	1998 08 17	704	0.0	0.2−
1997 04 30	704	0.8−	0.1−	1998 07 28	327	0.3−	0.0	1998 08 23	704	0.1−	0.3−
1997 04 30	704	0.9+	0.1+	1998 07 28	327	0.0	0.1−	1998 08 23	704	0.4+	0.6−
1997 04 30	704	1.3−	0.5+	1998 07 28	327	0.0	0.2−	1998 08 23	704	0.3−	0.3+
1997 05 01	704	0.3+	0.3+	1998 07 29	327	0.1+	0.2+	1998 08 23	704	0.1−	0.2−
1997 05 01	704	0.1−	0.3+	1998 07 29	327	0.0	0.3+	1998 08 23	704	0.8−	0.6−

1998 OE₇ = 1986 RN₉ = 1994 PP₃₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	303.14886		(2000.0)	Williams				<i>P</i>	<i>Q</i>
<i>n</i>	0.24390089	ω	87.28741	+0.77041410	−0.61760359				
<i>a</i>	2.5370389	Ω	310.79633	+0.46966128	+0.71759900				
<i>e</i>	0.2071869	<i>i</i>	12.06232	+0.43113849	+0.32189668				
<i>P</i>	4.04	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1986 09 08	095	0.9−	0.7+	1998 07 29	327	0.1+	0.0	1998 08 23	704	0.2−	0.1+
1994 08 12	809	0.3−	0.8−	1998 07 29	327	0.2−	0.1−	1998 08 23	704	0.5−	0.5+
1994 08 12	809	0.3+	0.7−	1998 07 29	327	0.6−	0.0	1998 08 23	704	0.1+	0.2+
1994 08 12	809	0.1+	0.8−	1998 08 17	704	0.7+	0.5−	1998 08 23	704	0.2+	0.9+
1994 08 13	809	1.7+	1.2−	1998 08 17	704	0.3+	0.4+	1998 08 23	704	0.3−	0.6+
1994 08 13	809	2.0+	1.2−	1998 08 17	704	0.1+	0.2−	1998 08 26	327	0.6−	0.2−
1994 08 13	809	1.6+	0.9−	1998 08 17	704	0.1+	1.1+	1998 08 26	327	0.4−	0.3−
1998 07 28	327	0.1+	0.5+	1998 08 17	704	0.4+	0.6+	1998 08 26	327	0.6−	0.3−
1998 07 28	327	0.0	0.4+	1998 08 22	327	0.4−	0.1+	1998 08 31	327	0.8−	0.1−
1998 07 28	327	0.1−	0.7+	1998 08 22	327	0.4−	0.0	1998 08 31	327	0.5−	0.2−
1998 07 28	327	0.2+	0.6+	1998 08 22	327	0.3−	0.1+	1998 08 31	327	0.6−	0.1−

1998 OU₇ = 1991 RJ₁₄ = 1993 BL₁₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	347.69062		(2000.0)	Williams				<i>P</i>	<i>Q</i>
<i>n</i>	0.27448184	ω	26.51945	+0.81222961	+0.57750770				
<i>a</i>	2.3449143	Ω	297.96363	−0.55038294	+0.71195404				
<i>e</i>	0.1255274	<i>i</i>	5.34440	−0.19329169	+0.39950758				
<i>P</i>	3.59	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1991 09 13	675	0.6+	0.5−	1998 07 24	566	1.2+	2.0−	1998 08 17	704	0.4+	0.7+
1991 09 13	675	0.0	0.0	1998 07 24	566	(0.2+	2.6−)	1998 08 17	704	0.8+	0.7−
1991 09 15	675	0.0	0.4−	1998 07 26	809	(0.5+	2.2+)	1998 08 23	704	0.2−	0.4+
1991 09 15	675	0.1+	0.6−	1998 07 26	809	0.2+	1.2+	1998 08 23	704	0.8−	0.1−
1993 01 22	809	0.7+	1.3+	1998 07 26	809	0.4+	1.7+	1998 08 23	704	0.4−	0.1−
1993 01 22	809	0.7−	1.9+	1998 07 27	809	0.6−	1.4+	1998 08 23	704	1.6−	0.1−
1993 01 22	809	0.5+	1.0+	1998 07 27	809	0.6−	1.3+	1998 08 23	704	0.7−	1.1−
1993 01 28	809	0.4+	0.4+	1998 07 27	809	0.3−	0.8+	1998 08 30	699	0.2+	0.4+
1993 01 28	809	0.8+	0.3+	1998 08 17	704	0.6+	0.2+	1998 08 30	699	0.0	0.7+
1993 01 28	809	0.8+	1.0+	1998 08 17	704	0.3+	0.9+	1998 08 30	699	0.2−	0.6+
1998 07 24	566	(0.4+	2.6−)	1998 08 17	704	1.1−	0.3−				

1998 OU₉ = 1996 DA₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	208.71218		(2000.0)	Williams				<i>P</i>	<i>Q</i>
<i>n</i>	0.19967088	ω	206.06823	−0.31573049	−0.94872417				
<i>a</i>	2.8990758	Ω	262.33986	+0.87324295	−0.28419153				
<i>e</i>	0.0169665	<i>i</i>	0.88950	+0.37116170	−0.13841108				
<i>P</i>	4.94	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1996 02 16	010	0.0	1.2+	1998 07 27	809	0.5+	0.0	1998 08 21	566	0.1+	0.7−
1996 02 16	010	0.5−	0.8+	1998 07 27	809	0.7+	0.1+	1998 08 21	566	(0.4+	2.3−)
1996 02 16	010	0.3+	1.0+	1998 07 27	809	0.1+	0.3−	1998 08 23	704	0.2+	0.9−
1996 02 17	010	0.2+	1.1−	1998 08 17	704	0.3+	0.1+	1998 08 23	704	0.9−	0.6+
1996 02 17	010	0.2+	0.9−	1998 08 17	704	0.4+	0.3+	1998 08 23	704	0.0	0.9−
1996 02 17	010	0.1−	1.1−	1998 08 17	704	0.5−	1.3+	1998 08 23	704	(2.9−	1.9−)
1998 07 26	809	0.3+	0.2+	1998 08 17	704	0.2−	0.0	1998 08 28	699	0.4−	0.8+
1998 07 26	809	0.6−	0.0	1998 08 17	704	0.4−	0.4+	1998 08 28	699	0.2+	0.6−
1998 07 26	809	0.8−	0.3−	1998 08 21	566	0.4+	0.6−	1998 08 28	699	0.7+	0.2+

1998 OY₉ = 1995 UY₂₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	16.94456		(2000.0)	Williams				<i>P</i>	<i>Q</i>
<i>n</i>	0.30348510	ω	118.66904	+0.20305090	+0.97895013				
<i>a</i>	2.1930295	Ω	163.00883	−0.92124286	+0.19814695				
<i>e</i>	0.1861876	<i>i</i>	4.05479	−0.33178596	+0.04893289				
<i>P</i>	3.25	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1995 10 20	691	0.4−	0.0	1998 07 26	809	0.3+	1.4−	1998 08 17	704	0.7+	0.5+
1995 10 20	691	0.4−	0.3−	1998 07 26	809	0.6−	1.0−	1998 08 17	704	0.6−	0.4−
1995 10 20	691	0.2−	0.2−	1998 07 27	809	0.1+	1.0+	1998 08 17	704	0.3−	0.2−
1995 10 25	691	0.2+	0.2+	1998 07 27	809	0.3+	1.3+	1998 08 23	704	0.5+	1.8−
1995 10 25	691	0.2+	0.2+	1998 07 27	809	0.4+	0.7+	1998 08 23	704	0.5+	0.2−
1995 10 25	691	0.7+	0.2+	1998 08 17	704	0.7−	0.3+	1998 08 23	704	0.9+	1.5+
1998 07 26	809	0.1+	0.7−	1998 08 17	704	1.5−	0.4+				

1998 OZ₉ = 1997 EQ₄₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29567349	ω	12.36705	+0.75984316	+0.64370254		
<i>a</i>	2.2314875	Ω	307.18189	-0.60577156	+0.65023029		
<i>e</i>	0.2415077	<i>i</i>	6.56028	-0.23596436	+0.40354381		
<i>P</i>	3.33	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 03 11	704	(2.6- 0.6+)	1998 07 26	809	1.5+ 0.7+	1998 08 23	704	0.0 0.6+
1997 03 11	704	0.2- 0.8+	1998 07 27	809	0.5- 0.2+	1998 08 23	704	0.3+ 0.2-
1997 03 12	704	0.8+ 0.4+	1998 07 27	809	0.6+ 0.7-	1998 08 23	704	0.2+ 1.0-
1997 03 12	704	(1.8+ 2.2+)	1998 07 27	809	0.3+ 1.3-	1998 08 23	704	0.1- 0.2-
1998 07 04	699	0.3+ 0.3-	1998 08 17	704	1.3- 0.4+	1998 08 30	699	0.7+ 0.6+
1998 07 04	699	0.3- 0.5-	1998 08 17	704	1.0- 0.9+	1998 08 30	699	0.4+ 0.7+
1998 07 04	699	0.6- 0.4+	1998 08 17	704	0.5- 0.5+	1998 08 30	699	0.2+ 0.3-
1998 07 26	809	1.2+ 0.9+	1998 08 17	704	0.5- 1.1-			
1998 07 26	809	0.6+ 1.0+	1998 08 17	704	1.7- 0.4-			

1998 OS₁₀ = 1981 NL₁ = 1982 XO₃ = 1984 BT₄ = 1987 SU₁₂Id. G. V. Williams; 1987 SN₁₁ = 1982 XO₃ (*MPC* 13607) is invalid

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17612448	ω	177.41985	+0.94291841	+0.33286447		
<i>a</i>	3.1520244	Ω	163.12632	-0.30617539	+0.87865348		
<i>e</i>	0.1817222	<i>i</i>	2.03386	-0.13100193	+0.34230003		
<i>P</i>	5.60	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 07 02	805	1.0- 0.8+	1987 09 18	809	0.0 1.0+	1998 08 21	566	0.2+ 0.1-
1981 07 02	805	0.8+ 1.3-	1998 07 26	809	1.6+ 0.4+	1998 08 22	566	1.0- 0.3-
1982 12 13	381	0.2- 0.3-	1998 07 26	809	1.5+ 0.4-	1998 08 22	566	0.3+ 0.2+
1982 12 14	381	1.4+ 0.6-	1998 07 26	809	0.8+ 0.2+	1998 08 22	566	1.9- 0.1+
1982 12 14	381	1.2- 0.4-	1998 07 27	809	1.9+ 1.2-	1998 08 23	699	0.7- 0.4+
1984 01 25	675	0.5+ 1.5-	1998 07 27	809	1.5+ 1.5-	1998 08 23	699	1.1- 0.9+
1984 01 26	675	0.8- 0.3-	1998 07 27	809	1.2+ 1.5-	1998 08 23	699	0.9- 0.4+
1987 09 18	809	0.0 0.2+	1998 08 21	566	1.4- 0.1-			
1987 09 18	809	0.1- 0.6+	1998 08 21	566	0.8- 0.4-			

1998 OT₁₁ = 1995 YU₂₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26735444	ω	181.33857	+0.94458665	-0.32813492		
<i>a</i>	2.3864066	Ω	197.82532	+0.30145145	+0.87812283		
<i>e</i>	0.2379316	<i>i</i>	1.71102	+0.12993496	+0.34817779		
<i>P</i>	3.69	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 12 25	691	0.4- 0.6+	1998 07 26	809	0.4- 0.4+	1998 08 23	699	0.4- 1.1+
1995 12 25	691	0.4- 0.2+	1998 07 26	809	0.5- 0.4-	1998 08 23	699	0.3+ 0.3-
1995 12 25	691	0.1+ 0.2-	1998 07 26	809	0.7- 0.1+	1998 08 23	699	0.4+ 0.0
1995 12 30	691	0.3+ 0.5-	1998 07 27	809	0.4+ 0.6+	1998 08 30	699	0.3+ 0.2-
1995 12 30	691	0.0 0.1+	1998 07 27	809	0.3+ 1.0-	1998 08 30	699	0.2+ 0.5-
1995 12 30	691	0.4+ 0.1-	1998 07 27	809	0.8+ 0.4+	1998 08 30	699	0.8- 0.0

1998 OG₁₂ = 1986 VR₂ = 1994 PF₄₀ = 1994 RT₁₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23123459	ω	260.69883	-0.43292848	+0.90027891		
<i>a</i>	2.6288603	Ω	343.41836	-0.75175026	-0.38844021		
<i>e</i>	0.0889399	<i>i</i>	9.17542	-0.49743792	-0.19649959		
<i>P</i>	4.26	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1986 11 04	010	(3.6- 0.6+)	1994 09 06	809	0.2+ 0.0	1998 08 12	428	0.1+ 0.6-
1986 11 04	010	0.9+ 0.1-	1998 07 29	428	0.3+ 0.7-	1998 08 12	428	0.3- 0.6-
1986 11 04	010	0.3- 0.7-	1998 07 29	428	0.4+ 1.2-	1998 08 17	704	0.1+ 0.0
1994 08 12	809	0.1- 0.8+	1998 07 29	428	0.6+ 0.1-	1998 08 17	704	0.0 0.3-
1994 08 12	809	0.9- 1.3+	1998 07 30	428	0.4+ 0.3-	1998 08 17	704	0.4- 0.6+
1994 08 12	809	1.2- 0.8+	1998 07 30	428	0.6+ 0.3-	1998 08 17	704	0.7- 0.3-
1994 09 04	809	(3.8- 2.3+)	1998 07 31	428	0.2+ 0.2-	1998 08 17	704	0.3- 0.3+
1994 09 04	809	(5.0- 1.8+)	1998 07 31	428	0.7+ 0.2+	1998 08 23	704	0.1+ 1.3-
1994 09 04	809	(4.6- 2.3+)	1998 08 02	428	0.6+ 0.1-	1998 08 23	704	0.5+ 0.8+
1994 09 05	809	0.6+ 0.6-	1998 08 02	428	0.1+ 0.0	1998 08 23	704	0.3- 0.6+
1994 09 05	809	0.1- 0.5-	1998 08 10	428	0.6- 0.1+	1998 08 23	704	0.5+ 0.7+
1994 09 05	809	0.3- 0.7-	1998 08 10	428	0.7- 0.4-	1998 08 23	704	0.7- 0.6+
1994 09 06	809	1.1+ 0.2+	1998 08 11	428	0.0 0.2-	1998 08 28	428	0.1+ 1.3+
1994 09 06	809	0.5- 0.2-	1998 08 11	428	0.0 0.5-	1998 08 28	428	0.2- 1.1+

1998 OJ₁₂ = 1997 EU₁₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23550182	ω	290.11918	+0.59598881	+0.80277879		
<i>a</i>	2.5970075	Ω	16.50454	-0.71021551	+0.53775886		
<i>e</i>	0.1379609	<i>i</i>	3.74083	-0.37468823	+0.25760748		
<i>P</i>	4.19	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1997 03 07	691	0.3+ 1.0-	1998 07 30	428	1.2- 0.3-	1998 08 17	704	0.0 0.1-
1997 03 07	691	0.0 0.1+	1998 07 31	428	0.2+ 0.0	1998 08 17	704	1.3- 0.2+
1997 03 07	691	0.3+ 0.4-	1998 07 31	428	0.6+ 1.7-	1998 08 23	704	0.6+ 0.2-
1997 03 09	691	0.1- 0.5+	1998 08 12	428	0.9+ 0.2-	1998 08 23	704	0.9+ 1.2+
1997 03 09	691	0.3- 0.4+	1998 08 12	428	0.4+ 0.7-	1998 08 23	704	1.0+ 0.4+
1997 03 09	691	0.1- 0.4+	1998 08 17	704	0.7- 1.2+	1998 08 23	704	0.6+ 0.6-
1998 07 29	428	0.6+ 0.9+	1998 08 17	704	1.9- 0.2+	1998 08 25	428	0.6- 0.3-
1998 07 29	428	0.4+ 0.8+	1998 08 17	704	0.4- 0.6-			

1998 OP₁₂ = 1997 HR₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	48.01148	ω	134.78630	-0.55070896	+0.83439568		
<i>a</i>	3.0359526	Ω	101.78550	-0.77214558	-0.49904463		
<i>e</i>	0.3063900	<i>i</i>	1.31343	-0.31703445	-0.23396218		
<i>P</i>	5.29	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 28	704	1.0- 0.0	1998 07 26	809	0.9- 0.8-	1998 08 17	704	0.4+ 1.5-
1997 04 28	704	0.7- 0.4-	1998 07 26	809	0.8- 0.8-	1998 08 17	704	0.6- 0.5-
1997 04 28	704	1.3- 0.8+	1998 07 27	809	0.3+ 1.0+	1998 08 17	704	0.8+ 1.8-
1997 04 28	704	1.3- 0.6-	1998 07 27	809	0.4- 1.8+	1998 08 23	704	0.6+ 0.4+
1997 04 28	704	(3.6- 1.0-)	1998 07 27	809	0.6- 0.5+	1998 08 23	699	0.6+ 0.5-
1997 04 29	704	1.0+ 0.3+	1998 07 31	699	1.3+ 0.3-	1998 08 23	704	0.5+ 0.2+
1997 04 29	704	1.0+ 0.2-	1998 07 31	699	0.6- 0.6-	1998 08 23	699	0.8- 0.1+
1997 04 29	704	1.3+ 0.3+	1998 07 31	699	0.9+ 0.5+	1998 08 23	704	(1.3+ 3.0+)
1997 04 29	704	0.9+ 0.5-	1998 08 17	704	0.0 0.5+	1998 08 23	704	1.5- 1.7+
1998 07 26	809	0.0 0.1-	1998 08 17	704	1.1+ 0.2+	1998 08 23	699	0.2- 0.3-

1998 OD₁₃ = 1993 FY₈₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	327.24918	ω	323.94835	+0.99983585	-0.01253089		
<i>a</i>	2.4238942	Ω	36.77626	+0.01682337	+0.91023704		
<i>e</i>	0.2114242	<i>i</i>	1.25251	-0.00672731	+0.41389795		
<i>P</i>	3.77	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 03 19	809	1.2+ 1.0-	1998 07 27	809	0.1+ 0.9+	1998 08 23	704	0.3+ 0.5-
1993 03 25	691	0.5- 0.7+	1998 07 31	699	0.3+ 0.1+	1998 08 23	699	0.2+ 0.1+

1993 03 25	691	0.5−	0.2+	1998 07 31	699	0.8+	0.6−	1998 08 23	704	0.2+	1.1+
1993 03 25	691	0.3−	0.1+	1998 07 31	699	0.5+	0.9−	1998 08 23	704	0.4+	0.9+
1998 07 26	809	0.0	0.4+	1998 08 17	704	0.5−	0.3−	1998 08 23	699	0.5+	0.3+
1998 07 26	809	1.1−	0.0	1998 08 17	704	0.5−	0.7−	1998 08 23	704	0.9−	0.2+
1998 07 26	809	1.0−	0.6+	1998 08 17	704	0.4−	0.6−	1998 08 23	704	0.6+	1.1−
1998 07 27	809	1.2+	0.3−	1998 08 17	704	0.2−	0.2−	1998 08 23	699	0.2+	0.3+
1998 07 27	809	0.2−	0.1+	1998 08 17	704	0.6−	0.2+				

1998 OM₁₃ = 1990 DC₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28808037	<i>ω</i>	207.28328	−0.96097231	−0.26584928		
<i>a</i>	2.2705284	<i>Ω</i>	317.07135	+0.26986619	−0.83998590		
<i>e</i>	0.1107192	<i>i</i>	6.45138	+0.06086425	−0.47301993		
<i>P</i>	3.42	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 02 24	809	1.3−	0.6+	1990 02 28	809	0.8+	0.5−	1998 07 27	809	0.2−	0.2−
1990 02 24	809	0.7−	0.5+	1990 02 28	809	1.4+	0.6−	1998 08 17	704	0.3−	0.7−
1990 02 24	809	0.1−	0.6+	1990 02 28	809	0.4−	0.9+	1998 08 17	704	0.5−	1.2−
1990 02 25	809	1.0−	0.0	1990 02 28	809	0.2+	0.7+	1998 08 17	704	0.3−	1.2−
1990 02 25	809	0.6−	0.0	1990 02 28	809	0.7+	0.4+	1998 08 17	704	1.0−	1.5+
1990 02 25	809	0.1−	0.1−	1998 07 26	809	0.7+	0.5+	1998 08 17	704	0.5+	0.1+
1990 02 26	809	0.2+	0.6−	1998 07 26	809	0.7+	0.1+	1998 08 23	704	0.1−	1.0+
1990 02 26	809	0.3+	0.4−	1998 07 26	809	0.2+	0.1+	1998 08 23	704	1.3−	0.6+
1990 02 26	809	0.5+	0.4−	1998 07 27	809	0.4−	0.5−	1998 08 23	704	0.7+	1.2+
1990 02 28	809	0.1+	0.9−	1998 07 27	809	0.4−	0.2+	1998 08 23	704	1.6+	1.2−

1998 ON₁₃ = 1981 QP₄ = 1981 RB₄Id. G. V. Williams (d. *MPC* 20606; unpublished)

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28930591	<i>ω</i>	36.33207	+0.99003272	+0.08752014		
<i>a</i>	2.2641117	<i>Ω</i>	318.22051	−0.13172595	+0.85265681		
<i>e</i>	0.0683188	<i>i</i>	9.53286	+0.04983455	+0.51508891		
<i>P</i>	3.41	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1981 08 30	675	0.3+	0.4−	1998 07 26	809	(2.0+	3.0+)	1998 08 17	704	0.4−	1.1−
1981 08 31	675	0.2−	1.3−	1998 07 26	699	0.1+	0.0	1998 08 17	704	0.7−	1.4−
1981 09 05	095	0.1+	1.3+	1998 07 26	699	0.4−	0.6−	1998 08 17	704	0.3−	0.8−
1998 07 18	358	(2.7+	0.3+)	1998 07 26	699	0.2−	0.1−	1998 08 23	699	0.1+	0.3+
1998 07 18	358	1.0−	1.3+	1998 07 27	809	(0.7+	2.2+)	1998 08 23	699	1.0+	0.5+
1998 07 19	358	(1.7+	6.5−)	1998 07 27	809	0.6+	1.6+	1998 08 23	699	0.2+	0.4+
1998 07 19	358	(0.0	4.0−)	1998 07 27	809	(0.8+	2.4+)	1998 08 23	704	0.6−	0.2−
1998 07 20	358	0.9−	0.3+	1998 07 27	358	2.0+	1.3−	1998 08 23	704	0.7−	1.2+
1998 07 20	358	0.8+	0.6−	1998 07 27	358	0.9−	1.2−	1998 08 23	704	0.1+	1.0+
1998 07 20	358	0.4+	0.4+	1998 07 27	358	0.4+	0.7+	1998 08 23	704	0.1−	0.1−
1998 07 26	809	(2.4+	3.3+)	1998 08 17	704	0.1+	0.3−				
1998 07 26	809	(2.1+	3.4+)	1998 08 17	704	0.2+	0.4+				

1998 OR₁₃ = 1987 SB₂₂ = 1993 FR₄₇ = 1993 HQ₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26374732	<i>ω</i>	221.82247	+0.97814575	−0.20748119		
<i>a</i>	2.4081157	<i>Ω</i>	150.14431	+0.19723659	+0.90536803		
<i>e</i>	0.1950899	<i>i</i>	1.55480	+0.06579225	+0.37048655		
<i>P</i>	3.74	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1987 09 18	095	0.1+	0.1+	1998 07 27	809	(0.7+	3.4+)	1998 08 24	126	0.3+	0.3+
1987 09 21	095	0.3−	0.4+	1998 08 17	704	0.2+	0.2−	1998 08 24	126	0.3+	0.2+
1993 03 19	809	0.1+	0.1−	1998 08 17	704	0.6+	0.9−	1998 08 25	126	(2.3+	0.3+)
1993 03 20	809	1.0+	0.2−	1998 08 17	704	0.7+	0.9−	1998 08 25	126	0.0	0.1−
1993 03 24	809	0.0	0.6+	1998 08 17	704	0.8+	0.7−	1998 08 25	126	0.2+	0.1+

1993 04 17	413	0.8−	0.8+	1998 08 17	704	0.5+	0.8−	1998 08 25	126	0.0	0.0
1998 07 26	809	(3.0+	3.6+)	1998 08 23	704	0.2−	0.5+	1998 08 29	126	0.2−	0.3−
1998 07 26	809	(1.5+	3.1+)	1998 08 23	704	0.3−	0.6+	1998 08 29	126	1.4−	0.1−
1998 07 26	809	(1.3+	3.6+)	1998 08 23	704	0.7+	1.1+	1998 08 29	126	1.2−	0.2+
1998 07 26	699	0.5−	0.0	1998 08 23	704	1.0+	1.1+	1998 08 29	126	0.3−	0.2+
1998 07 26	699	0.5−	0.0	1998 08 23	704	0.3+	0.8+	1998 08 29	126	1.2−	0.6−
1998 07 26	699	0.2−	0.3−	1998 08 23	126	0.3+	0.1−	1998 08 29	126	1.1−	0.3+
1998 07 27	809	(1.5+	4.2+)	1998 08 23	126	0.0	0.6+	1998 08 29	126	0.2−	0.8−
1998 07 27	809	(1.2+	3.3+)	1998 08 24	126	0.0	0.3+	1998 08 29	126	1.2+	0.3−

1998 OU₁₃ = 1979 OE₃ = 1980 VK₄ = 1989 TP₁₀ = 1993 OZ₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21130657	<i>ω</i>	108.03907	+0.51603096	−0.85596471		
<i>a</i>	2.7916483	<i>Ω</i>	310.85093	+0.76891205	+0.47945816		
<i>e</i>	0.0852092	<i>i</i>	2.43934	+0.37747358	+0.19350528		
<i>P</i>	4.66	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1979 07 24	675	1.3+	0.6+	1993 07 20	809	(1.3−	2.2−)	1998 08 17	704	0.0	1.3−
1979 07 24	413	1.9−	0.7−	1993 07 24	809	(2.8−	1.9−)	1998 08 17	704	0.2−	1.1−
1979 07 25	675	(3.9+	2.7+)	1998 07 26	809	(2.2+	1.3+)	1998 08 17	704	0.5−	0.1−
1980 11 01	675	0.6+	0.2−	1998 07 26	809	1.3+	1.9+	1998 08 17	704	0.3+	0.1−
1980 11 02	675	0.7−	0.4−	1998 07 26	809	1.2+	1.8+	1998 08 23	699	0.4−	0.2−
1989 10 02	385	0.1+	0.7−	1998 07 26	699	0.5+	0.3−	1998 08 23	704	1.1−	0.2−
1989 10 02	385	1.0+	0.7+	1998 07 26	699	0.7−	0.5−	1998 08 23	704	0.6+	0.3+
1993 07 13	809	1.5+	0.3−	1998 07 26	699	0.2−	0.1−	1998 08 23	699	0.7−	0.3−
1993 07 13	809	0.4+	0.3−	1998 07 27	809	(2.1+	2.8+)	1998 08 23	704	0.4−	0.1+
1993 07 13	809	0.2−	0.7−	1998 07 27	809	(1.7+	3.0+)	1998 08 23	704	0.5−	1.4+
1993 07 20	809	(0.7−	3.3−)	1998 07 27	809	(1.5+	3.1+)	1998 08 23	699	0.5−	0.1−
1993 07 20	809	(0.8−	3.0−)	1998 08 17	704	0.1−	0.4−	1998 08 23	704	0.4−	0.6+

1998 OW₁₃ = 1991 RZ₁₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27822873	<i>ω</i>	20.96182	+0.97433199	+0.21554015		
<i>a</i>	2.3238142	<i>Ω</i>	326.38136	−0.21961378	+0.84667911		
<i>e</i>	0.1879998	<i>i</i>	6.73775	−0.04946668	+0.48649454		
<i>P</i>	3.54	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 09 14	675	0.9−	0.1−	1998 07 27	809	0.4+	0.3+	1998 08 17	704	0.6−	1.1+
1991 09 14	675	0.2−	0.2−	1998 07 27	809	0.2−	0.1+	1998 08 23	704	1.0−	0.2−
1991 09 17	675	0.7+	0.3+	1998 07 27	809	0.4−	0.5+	1998 08 23	704	1.3+	0.3+
1991 09 17	675	0.5+	0.1−	1998 08 17	704	0.2−	0.6−	1998 08 23	704	0.4−	1.6+
1998 07 26	809	0.2+	0.1−	1998 08 17	704	0.0	1.3−	1998 08 23	704	0.1−	1.1+
1998 07 26	809	0.5+	0.2−	1998 08 17	704	1.0+	1.2−	1998 08 23	704	0.3+	0.6−
1998 07 26	809	0.2−	0.1+	1998 08 17	704	0.5−	0.8−				

1998 OY₁₃ = 1976 ES = 1997 EF₄₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28282442	<i>ω</i>	272.85286	−0.60267434	+0.79437860		
<i>a</i>	2.2985720	<i>Ω</i>	319.76471	−0.67757393	−0.55959730		
<i>e</i>	0.1279775	<i>i</i>	6.73959	−0.42151775	−0.23624879		
<i>P</i>	3.48	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3

1998 SEPT. 10

1997 03 06 704 0.0 0.5+ 1998 07 27 809 (1.2+ 3.7+) 1998 08 23 704 0.3+ 0.8+
 1998 07 26 809 (1.8+ 3.6+) 1998 08 17 704 0.5- 0.5-

1998 OD₁₄ = 1976 KH₂ = 3025 T-3 = 1981 JS₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	6.42087		(2000.0)		P		Q
<i>n</i>	0.18411168	ω	131.85544	+0.64548593		+0.76377198	
<i>a</i>	3.0601907	Ω	178.34641	-0.70604189		+0.59695916	
<i>e</i>	0.1614551	<i>i</i>	1.04542	-0.29129498		+0.24554453	
<i>P</i>	5.35	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 05 29	413	0.5-	0.5-	1998 07 26	809	0.4-	0.7-	1998 08 17	704	0.8+	0.6-
1976 05 29	413	0.5+	0.3-	1998 07 27	809	0.7+	1.9+	1998 08 23	699	0.2-	0.3+
1977 10 16	675	0.4+	0.4-	1998 07 27	809	0.3+	0.7+	1998 08 23	704	0.9-	0.1-
1977 10 16	675	0.1+	0.9-	1998 07 27	809	(0.0	2.1+)	1998 08 23	704	0.8-	0.2-
1977 10 17	675	1.0-	0.2+	1998 08 15	120	0.2+	0.5-	1998 08 23	699	0.2+	0.1-
1977 10 17	675	1.3-	0.4-	1998 08 15	120	0.2+	0.6-	1998 08 23	704	0.7-	0.6+
1977 10 21	675	0.5+	1.7+	1998 08 15	120	0.4+	0.4-	1998 08 23	704	0.8-	0.4+
1977 10 21	675	0.6-	0.9+	1998 08 16	120	1.4+	0.7+	1998 08 23	699	0.1+	0.5+
1977 10 22	675	1.0+	2.4-	1998 08 16	120	0.0	0.3+	1998 08 23	704	0.8-	0.2-
1977 10 22	675	1.5+	0.5-	1998 08 16	120	0.1-	0.5-	1998 08 26	120	0.3-	0.7+
1981 05 08	675	0.4+	0.9-	1998 08 17	704	0.0	0.7-	1998 08 26	120	0.2-	0.1+
1981 05 09	675	0.7-	0.0	1998 08 17	704	(0.8+	2.4-)	1998 08 26	120	0.7-	0.4+
1998 07 26	809	0.6+	0.5+	1998 08 17	704	0.1+	0.8-				
1998 07 26	809	0.1-	0.1+	1998 08 17	704	0.5+	0.5-				

1998 OH₁₄ = 1936 YG = 1978 GX₂ = 1980 TO₁₃ = 1991 RS₂₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	246.21595		(2000.0)		P		Q
<i>n</i>	0.26747209	ω	323.79172	-0.09960302		-0.99108408	
<i>a</i>	2.3857068	Ω	131.74547	+0.93852405		-0.12311868	
<i>e</i>	0.2363071	<i>i</i>	6.81189	+0.33053267		+0.05093257	
<i>P</i>	3.68	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1936 12 22	024	0.0	1.6-	1991 09 16	675	0.2-	0.5-	1998 08 17	704	0.0	1.4+
1978 04 11	095	0.0	0.3-	1998 07 26	809	2.1+	1.8-	1998 08 17	704	0.1+	1.0+
1980 10 12	095	0.8+	3.4+	1998 07 26	809	2.0+	1.3-	1998 08 23	704	0.9-	0.6-
1991 09 12	675	0.4+	1.1-	1998 07 26	809	1.1+	1.7-	1998 08 23	704	1.1-	0.3+
1991 09 12	675	0.4-	0.5-	1998 07 27	809	1.4+	1.0-	1998 08 23	704	2.2-	0.8+
1991 09 13	675	0.8-	0.4-	1998 07 27	809	0.8+	1.4-	1998 08 23	704	0.2-	0.0
1991 09 13	675	0.5+	0.3-	1998 07 27	809	0.3+	0.8-	1998 08 23	704	1.9-	1.2+
1991 09 15	675	0.2-	0.1+	1998 08 17	704	0.2+	0.2+	1998 08 27	699	0.5-	0.9+
1991 09 15	675	0.2+	0.5+	1998 08 17	704	0.7+	0.2+	1998 08 27	699	0.2-	0.4+
1991 09 16	675	0.3-	1.1-	1998 08 17	704	0.3-	1.1+	1998 08 27	699	0.4-	0.0

1998 OO₁₄ = 1993 NR = 1997 LU₁₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	251.21345		(2000.0)		P		Q
<i>n</i>	0.21441401	ω	293.13908	+0.28844302		-0.95634921	
<i>a</i>	2.7646104	Ω	140.00197	+0.90300211		+0.25542195	
<i>e</i>	0.0290960	<i>i</i>	4.18173	+0.31841452		+0.14197121	
<i>P</i>	4.60	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 07 12	809	(4.7+	3.8+)	1997 06 08	809	0.8-	1.1-	1998 08 17	704	0.5-	1.0+
1993 07 12	809	(5.6+	4.3+)	1998 07 26	809	1.5+	0.8+	1998 08 23	699	0.0	0.6-
1993 07 12	809	(5.1+	3.7+)	1998 07 26	809	0.9+	0.8+	1998 08 23	704	0.4-	0.9-
1993 07 19	809	0.4-	1.1+	1998 07 26	809	0.6+	0.3-	1998 08 23	704	0.5-	0.9-
1993 07 19	809	0.2+	0.5+	1998 07 27	809	0.7-	0.8+	1998 08 23	699	0.1-	0.3-
1993 07 19	809	0.1+	0.2-	1998 07 27	809	0.1-	0.0	1998 08 23	704	0.9+	0.6+
1997 06 07	809	1.1+	0.7+	1998 07 27	809	0.4+	1.5+	1998 08 23	704	1.1+	0.6+
1997 06 07	809	0.3-	0.2+	1998 08 17	704	0.6+	0.5-	1998 08 23	699	1.3-	0.2+
1997 06 07	809	0.6+	0.2+	1998 08 17	704	1.1+	1.8-	1998 08 23	704	1.5-	0.9-

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1997 06 08 809 0.8+ 0.2- 1998 08 17 704 1.4- 0.6-
 1997 06 08 809 1.6- 0.7- 1998 08 17 704 0.2- 0.4-

1998 OZ₁₄ = 1971 QF₂ = 1981 EW = 1991 XW₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	311.88553		(2000.0)		P		Q
<i>n</i>	0.25653314	ω	238.90328	+0.93139750		-0.33909323	
<i>a</i>	2.4530537	Ω	140.48126	+0.36210656		+0.90020686	
<i>e</i>	0.1527499	<i>i</i>	12.00384	-0.03711520		+0.27320942	
<i>P</i>	3.84	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1971 08 19	808	(27.4+	11.2+)	1998 06 30	699	0.9-	0.9+	1998 08 21	566	0.2-	0.8-
1981 03 03	809	0.5-	1.2-	1998 07 26	809	1.4+	0.6-	1998 08 21	566	0.3+	0.7-
1981 03 03	809	0.1-	0.8-	1998 07 26	809	1.6+	0.9-	1998 08 21	566	0.2-	1.0-
1981 03 03	809	0.3+	0.2-	1998 07 26	809	0.9+	0.9-	1998 08 23	704	0.3-	0.7-
1991 12 07	809	1.9+	0.1+	1998 07 27	809	1.8+	0.2+	1998 08 23	704	0.8+	0.0
1991 12 07	809	0.0	0.1-	1998 07 27	809	1.1+	0.4+	1998 08 23	704	0.4-	0.1-
1991 12 07	809	0.8-	0.0	1998 07 27	809	1.2+	0.3-	1998 08 23	704	0.8-	0.7-
1991 12 09	809	0.1-	0.2-	1998 08 17	704	0.3-	0.2+	1998 08 23	704	0.1+	0.1+
1991 12 09	809	0.6-	0.5+	1998 08 17	704	1.7-	1.5+	1998 08 28	699	0.2+	0.4+
1991 12 09	809	0.4-	0.9-	1998 08 17	704	0.3-	0.4-	1998 08 28	699	0.0	0.5+
1998 06 30	699	1.2-	0.5-	1998 08 17	704	0.3+	0.4+	1998 08 28	699	0.1-	1.1+
1998 06 30	699	1.3-	0.4+	1998 08 17	704	1.7-	0.4-				

1998 OA₁₅ = 1993 FE₆₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	337.47031		(2000.0)		P		Q
<i>n</i>	0.25407078	ω	12.18105	+0.96409505		+0.26175255	
<i>a</i>	2.4688776	Ω	332.51839	-0.25106531		+0.84346369	
<i>e</i>	0.1266894	<i>i</i>	5.57021	-0.08652714		+0.46909979	
<i>P</i>	3.88	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 03 21	809	0.2-	1.0+	1998 07 27	809	1.1+	0.6+	1998 08 23	704	0.8-	0.1-
1993 03 22	809	1.2+	0.8+	1998 08 17	704	0.9-	0.5+	1998 08 23	704	0.1+	0.7-
1998 07 26	809	1.5+	1.8-	1998 08 17	704	0.3-	1.0-	1998 08 23	699	1.0-	0.5+
1998 07 26	809	1.6+	1.6-	1998 08 17	704	0.7+	0.0	1998 08 23	704	1.4-	0.6+
1998 07 26	809	0.2+	1.1-	1998 08 17	704	1.4+	0.6+	1998 08 23	704	2.0-	1.9+
1998 07 27	809	1.4+	0.3+	1998 08 17	704	1.0-	0.2+	1998 08 23	699	0.0	0.7+
1998 07 27	809	1.4+	0.1-	1998 08 23	699	1.0-	0.5+	1998 08 23	704	0.8-	1.1+

1998 PH = 1996 AG₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	210.92751		(2000.0)		P		Q
<i>n</i>	0.22913016	ω	202.83265	-0.51030003		-0.82650699	
<i>a</i>	2.6449322	Ω	278.60348	+0.82147773		-0.38668448	
<i>e</i>	0.1947087	<i>i</i>	13.90779	+0.25449601		-0.40909817	
<i>P</i>	4.30	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 01 15	098	(2.9-	0.2-)	1998 08 06	954	0.2-	0.2+	1998 08 28	954	0.2+	0.6-
1996 01 15	098	(2.2+	2.0-)	1998 08 06	954	0.2+	0.2+	1998 08 28	954	0.2+	0.5-
1996 01 16	098	0.6-	0.7+	1998 08 25	954	0.1+	0.5+	1998 08 28	954	0.2+	0.5-
1996 01 17	098	1.2+	0.9+	1998 08 25	954	0.3-	0.3+	1998 09 03	954	0.4-	0.3-
1996 01 17	098	0.1-	0.4+	1998 08 25	954	0.2+	0.1+	1998 09 03	954	0.2+	0.3-
1996 01 18	098	0.5-	2.0-	1998 08 25	954	0.3-	0.3+	1998 09 03	954	0.0	0.5-
1998 08 04	954	0.2+	0.3-	1998 08 25	954	0.3-	0.6+	1998 09 04	954	0.5+	0.2-
1998 08 04	954	0.2+	0.4-	1998 08 26	954	0.7-	1.0+	1998 09 04	954	0.3+	0.2-
1998 08 04	954	0.2-	0.3-	1998 08 26	954	0.8-	0.7+	1998 09 04	954	0.7+	0.3-
1998 08 04	954	0.1+	0.3-	1998 08 26	954	0.8-	0.7+	1998 09 04	954	0.5+	0.3-
1998 08 04	954	0.2+	0.2-	1998 08 26	954	0.2-	0.7+	1998 09 04	954	0.5+	0.2-
1998 08 04	954	0.3-	0.3-	1998 08 26	954	0.4-	0.9+				
1998 08 06	954	0.4+	0.1+	1998 08 28	954	0.1+	0.5-				

1998 PW = 1995 YB₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26174105	ω	17.40470	+0.99934308	−0.03054597		
<i>a</i>	2.4204056	Ω	344.30722	+0.01814207	+0.88751023		
<i>e</i>	0.2245193	<i>i</i>	4.13489	+0.03137327	+0.45977443		
<i>P</i>	3.77	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 12 27	608	0.4−	0.4−	1998 08 14	426	0.3+	0.3+	1998 08 25	426	0.3+	0.1−
1995 12 27	608	0.2−	0.0	1998 08 14	426	0.5−	0.5+	1998 08 25	426	0.2−	0.2+
1995 12 29	608	0.3+	0.1−	1998 08 15	426	0.3+	0.1+	1998 08 25	426	0.1−	0.1−
1995 12 29	608	0.3+	0.5+	1998 08 15	426	0.5+	0.3+	1998 08 26	426	0.2−	0.2−
1998 08 14	426	0.4−	0.5−	1998 08 15	426	0.1+	0.9−	1998 08 26	426	0.0	0.4+

1998 PX = 1996 BF₁₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29058297	ω	19.48476	+0.99901584	−0.03768047		
<i>a</i>	2.2574733	Ω	342.62505	+0.02248238	+0.88493813		
<i>e</i>	0.1706795	<i>i</i>	4.49418	+0.03823475	+0.46418175		
<i>P</i>	3.39	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 01 17	327	0.4+	0.5+	1998 08 15	426	0.1+	0.2+	1998 08 23	704	0.2−	1.7−
1996 01 17	327	0.5+	0.1+	1998 08 15	426	0.3−	0.2+	1998 08 25	426	0.1−	0.0
1996 01 17	327	0.9−	0.5−	1998 08 17	704	0.6+	0.3−	1998 08 25	426	0.0	0.0
1996 01 20	327	0.0	0.0	1998 08 17	704	0.6−	0.4+	1998 08 25	426	0.2−	0.1−
1996 01 20	327	0.2−	0.1−	1998 08 17	704	0.1+	0.8+	1998 08 26	426	0.0	0.1+
1996 01 20	327	0.2+	0.0	1998 08 17	704	0.0	0.6−	1998 08 26	426	0.1+	0.1+
1998 08 14	426	0.0	0.0	1998 08 17	704	0.1−	0.4−	1998 08 26	426	0.2−	0.2+
1998 08 14	426	0.2+	0.3−	1998 08 23	704	0.1+	0.4−	1998 08 27	699	0.3−	0.9+
1998 08 14	426	0.1+	0.1−	1998 08 23	704	0.3−	0.4+	1998 08 27	699	0.3+	0.0
1998 08 15	426	0.3+	0.1+	1998 08 23	704	0.2−	1.3+	1998 08 27	699	0.5+	0.9−

1998 PN₁ = 1993 TF₂₃ = 1997 HQ₁₇

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17410576	ω	296.13926	+0.86931327	+0.49173973		
<i>a</i>	3.1763423	Ω	34.46953	−0.41617028	+0.78265651		
<i>e</i>	0.1410948	<i>i</i>	5.05460	−0.26663972	+0.38162918		
<i>P</i>	5.66	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 10 09	809	0.5−	1.0−	1997 04 30	704	0.7+	0.2−	1998 08 10	428	0.0	0.9+
1993 10 09	809	1.1−	1.3−	1997 04 30	704	1.2−	0.5−	1998 08 10	428	0.6−	0.6+
1993 10 09	809	1.0−	1.5−	1997 04 30	704	0.5+	0.5−	1998 08 11	428	0.3+	0.7+
1993 10 11	809	(4.8+	4.0+)	1997 04 30	704	1.0−	0.8+	1998 08 12	428	0.2−	0.0
1993 10 11	809	(4.2+	3.4+)	1997 04 30	704	0.7+	0.4+	1998 08 13	428	0.9+	0.5+
1993 10 11	809	(4.1+	4.0+)	1997 04 30	704	0.3+	0.1+	1998 08 13	428	0.1+	0.2+
1993 10 12	809	1.2+	1.2+	1997 05 01	704	0.1+	0.5+	1998 08 19	566	0.6−	1.1−
1993 10 12	809	0.9+	0.5+	1997 05 01	704	0.9−	0.7−	1998 08 19	566	0.8−	1.1−
1993 10 12	809	0.9+	1.3+	1997 05 01	704	1.0−	0.5−	1998 08 19	566	0.3−	0.4−
1997 04 30	704	0.8−	0.5+	1997 05 01	704	1.3+	0.6−	1998 08 19	428	0.9+	0.1−
1997 04 30	704	0.6+	0.0	1997 05 01	704	0.2+	0.4−	1998 08 25	428	0.3+	0.0

1998 QB = 1997 BQ₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27560289	ω	266.35661	−0.73681661	+0.67211507		
<i>a</i>	2.3385511	Ω	315.85493	−0.57104749	−0.67666118		
<i>e</i>	0.0729542	<i>i</i>	6.03542	−0.36194758	−0.30065092		
<i>P</i>	3.58	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 01 17	599	0.4+	0.3+	1998 08 17	704	0.8+	0.4+	1998 08 23	704	0.0	0.0
1997 01 17	599	0.1+	0.3+	1998 08 17	704	0.1−	0.9+	1998 08 23	704	0.1+	1.7−
1997 01 18	599	0.4−	0.5−	1998 08 17	704	1.1−	1.5+	1998 08 23	704	0.4+	2.0−
1997 01 18	599	0.1−	0.0	1998 08 18	120	1.0−	0.2−	1998 08 23	704	0.2+	0.9−
1998 08 17	120	1.0+	1.2+	1998 08 18	120	1.2−	0.6−	1998 08 30	699	0.8−	1.0+
1998 08 17	120	0.4−	0.9+	1998 08 18	120	0.1+	0.2−	1998 08 30	699	0.2+	0.7+
1998 08 17	120	1.2+	0.1+	1998 08 18	120	0.8−	0.0	1998 08 30	699	0.4+	1.1+
1998 08 17	704	0.3+	0.9−	1998 08 18	120	1.2+	0.2−				
1998 08 17	704	0.6−	0.1−	1998 08 23	704	0.1−	0.9−				

1998 QR = 1981 UH₂₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27670188	ω	339.78472	−0.91663428	−0.39970418		
<i>a</i>	2.3323550	Ω	176.64648	+0.37602893	−0.86585896		
<i>e</i>	0.1002796	<i>i</i>	4.17834	+0.13558703	−0.30087343		
<i>P</i>	3.56	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1981 10 24	675	0.1−	0.0	1998 08 17	046	0.0	0.3+	1998 08 20	046	0.4+	0.2−
1981 10 25	675	0.2+	0.0	1998 08 19	046	0.2−	0.1−	1998 08 20	046	0.2+	0.1+
1981 10 26	675	0.1−	0.0	1998 08 19	046	0.8−	0.6−	1998 08 31	046	0.0	0.1−
1998 08 17	046	0.7+	0.0	1998 08 19	046	0.3−	0.0	1998 08 31	046	0.2+	0.0
1998 08 17	046	0.4+	0.1−	1998 08 19	046	0.3+	0.0	1998 08 31	046	0.1−	0.2+
1998 08 17	046	0.2−	0.2+	1998 08 20	046	0.6−	0.1+				

1998 QN₁ = 1993 TM₄₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18286521	ω	105.86510	+0.93010158	+0.36696167		
<i>a</i>	3.0740811	Ω	232.60919	−0.34415234	+0.85562513		
<i>e</i>	0.1246449	<i>i</i>	1.14072	−0.12833633	+0.36502710		
<i>P</i>	5.39	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1993 10 10	809	1.0+	0.8+	1998 08 17	704	0.8+	0.1+	1998 08 23	704	1.5+	0.8+
1993 10 10	809	0.0	0.4+	1998 08 17	120	0.1+	0.4+	1998 08 23	699	0.5−	0.7+
1993 10 10	809	0.8−	0.5−	1998 08 17	120	0.4+	0.6+	1998 08 23	704	0.5+	0.1−
1993 10 22	809	1.1+	0.4−	1998 08 20	120	1.0−	1.8−	1998 08 26	120	0.4−	0.6+
1993 10 22	809	0.2+	0.5−	1998 08 20	120	0.3+	1.2−	1998 08 26	120	0.3−	0.0
1993 10 22	809	1.5−	0.1+	1998 08 20	120	1.9−	1.0−	1998 08 26	120	0.3−	0.1−
1998 08 17	704	0.5+	0.1+	1998 08 23	699	0.2−	0.9+	1998 09 01	691	0.6−	0.5−
1998 08 17	704	1.2+	0.1−	1998 08 23	704	0.7−	0.2+	1998 09 01	691	0.6−	0.1−
1998 08 17	704	1.1+	0.0	1998 08 23	704	0.6+	1.2−	1998 09 01	691	0.4−	0.3+
1998 08 17	704	0.2+	0.4+	1998 08 23	699	0.3−	0.9+				

1998 QA₂ = 1985 RV₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22416995	ω	196.43499	+0.59674752	−0.80177744		
<i>a</i>	2.6838060	Ω	216.94528	+0.74213569	+0.56678390		
<i>e</i>	0.2005363	<i>i</i>	3.08353	+0.30516720	+0.18949656		
<i>P</i>	4.40	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1985 09 15	095	1.1+	0.6+	1998 08 19	566	0.4−	0.4+	1998 08 23	704	1.9+	1.9−
1985 09 20	095	1.1−	0.5−	1998 08 19	566	0.2−	0.4+	1998 08 25	327	0.2−	0.1−
1998 07 26	699	0.2−	0.5+	1998 08 19	566	0.0	0.5+	1998 08 25	327	1.0−	0.2−
1998 07 26	699	0.3−	0.8+	1998 08 21	566	0.0	0.2+	1998 08 25	327	0.7−	0.4+
1998 07 26	699	0.4+	1.5−	1998 08 21	566	0.4−	0.1+	1998 08 31	327	0.5+	0.1+
1998 08 17	704	0.5−	0.1+	1998 08 21	566	0.3−	0.1+	1998 08 31	327	0.3+	0.1+
1998 08 17	704	0.1+	0.7+	1998 08 23	704	0.2−	0.9−	1998 08 31	327	0.4+	0.1+
1998 08 17	704	0.6+	0.8+	1998 08 23	704	1.3+	1.2−				
1998 08 17	704	0.8+	0.8+	1998 08 23	704	1.8−	0.2−				

1998 QJ₂ = 1977 EB₃ = 1991 LX₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.29920370	ω	239.50944	+0.98708770	−0.14694654				
<i>a</i>	2.2139004	Ω	128.86374	+0.16000360	+0.92324711				
<i>e</i>	0.1298333	<i>i</i>	4.69657	−0.00753175	+0.35499506				
<i>P</i>	3.29	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1977 03 12	381	0.7+	0.9+	1998 08 17	704	0.2−	0.5+	1998 08 23	704
1977 03 12	381	0.6−	0.2−	1998 08 17	704	0.6−	0.9+	1998 08 23	704
1991 06 06	809	1.1+	0.1−	1998 08 17	704	0.3−	0.1−	1998 08 23	704
1991 06 06	809	0.4+	0.7−	1998 08 17	704	0.9−	0.4+	1998 08 23	704
1991 06 06	809	0.2−	0.1−	1998 08 17	704	0.3−	0.0	1998 08 24	132
1991 06 08	809	0.3−	0.2+	1998 08 19	132	0.9+	1.0−	1998 08 24	132
1991 06 08	809	0.9−	0.6+	1998 08 19	132	0.5−	0.4+	1998 08 24	132
1991 06 08	809	0.1−	0.3−	1998 08 19	132	0.4−	0.1−	1998 08 29	132
1998 07 15	699	0.2−	0.1−	1998 08 22	132	0.4+	0.3−	1998 08 30	132
1998 07 15	699	1.0−	0.2+	1998 08 22	132	1.5+	0.4−		
1998 07 15	699	0.7−	0.1−	1998 08 22	132	0.1+	0.5−		

1998 QN₂ = 1968 OJ₁ = 1988 PY₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.29630283	ω	41.09886	+0.60008155	+0.79365876				
<i>a</i>	2.2283266	Ω	266.01402	−0.75765524	+0.52377915				
<i>e</i>	0.1981121	<i>i</i>	5.75541	−0.25663335	+0.30945303				
<i>P</i>	3.33	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	4		
Residuals in seconds of arc									
1968 07 25	805	0.4+	1.2−	1998 08 19	566	0.3+	0.1−	1998 08 24	704
1968 07 28	805	0.5+	0.5+	1998 08 19	566	0.1−	0.1−	1998 08 24	704
1968 07 30	805	0.0	0.2+	1998 08 19	566	1.3−	0.2−	1998 08 27	704
1968 08 02	805	1.0−	0.9+	1998 08 23	566	1.9+	1.7−	1998 08 27	704
1988 08 07	046	0.5−	0.5+	1998 08 23	566	0.1+	1.2−	1998 08 27	704
1988 08 08	046	0.3+	0.0	1998 08 23	566	0.7+	1.6−	1998 08 27	704
1998 07 31	699	0.0	0.1−	1998 08 24	704	0.2−	0.9+	1998 08 27	704
1998 07 31	699	0.1+	0.1+	1998 08 24	704	0.1−	0.2−		
1998 07 31	699	0.1+	0.1−	1998 08 24	704	0.1+	1.2+		

1998 QU₂ = 1994 RB₂₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.23984722	ω	202.93521	+0.99082656	−0.10895956				
<i>a</i>	2.5655447	Ω	162.73809	+0.11983496	+0.98184504				
<i>e</i>	0.2110686	<i>i</i>	15.62838	−0.06246844	+0.15526792				
<i>P</i>	4.11	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc									
1994 09 05	809	0.2−	0.6−	1998 07 24	566	0.6−	0.4−	1998 08 23	704
1994 09 05	809	0.0	0.5−	1998 07 24	566	0.4−	0.7−	1998 08 23	704
1994 09 05	809	0.9−	0.4−	1998 08 17	704	0.4−	0.2+	1998 08 23	704
1994 09 06	809	1.1+	0.2+	1998 08 17	704	1.6+	0.1−	1998 08 23	704
1994 09 06	809	0.1−	0.2+	1998 08 17	704	0.4−	0.3+	1998 08 30	699
1994 09 06	809	0.2+	0.3+	1998 08 17	704	1.0+	0.2+	1998 08 30	699
1998 07 24	566	0.7−	0.8−	1998 08 17	704	1.6−	0.8+	1998 08 30	699

1998 QJ₄ = 1991 UA₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.27067400	ω	359.77621	+0.49273323	−0.86857096				
<i>a</i>	2.3668552	Ω	60.70299	+0.79846914	+0.42712435				
<i>e</i>	0.2066018	<i>i</i>	3.47764	+0.34592050	+0.25129520				
<i>P</i>	3.64	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5		
Residuals in seconds of arc									
1991 10 31	399	0.3+	0.0	1998 08 17	704	0.5−	0.6+	1998 08 23	704
1991 10 31	399	1.5+	0.1+	1998 08 17	704	0.3−	0.2−	1998 08 23	704
1991 11 04	399	0.7−	0.1−	1998 08 17	704	0.8−	0.9+	1998 08 23	704
1991 11 04	399	0.3−	1.0−	1998 08 18	428	0.5+	0.6+	1998 08 23	704
1991 11 09	399	0.7−	0.4+	1998 08 19	428	0.5−	0.2+	1998 08 23	704
1991 11 09	399	0.1−	0.7+	1998 08 19	428	0.4−	0.3+	1998 08 30	428
1998 08 17	704	0.3−	0.3+	1998 08 22	428	0.3−	0.4+	1998 08 30	428
1998 08 17	704	0.6+	0.5−	1998 08 22	428	0.4+	0.5+		

1998 QN₄ = 1997 EH₅₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.27603518	ω	195.59790	−0.87592608	+0.48175040				
<i>a</i>	2.3361090	Ω	13.29397	−0.42972264	−0.75468982				
<i>e</i>	0.0835206	<i>i</i>	6.46360	−0.21929879	−0.44537606				
<i>P</i>	3.57	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6		
Residuals in seconds of arc									
1997 03 08	809	0.5−	0.4−	1998 08 17	704	0.7+	1.1+	1998 08 23	426
1997 03 08	809	0.4−	0.2−	1998 08 21	426	0.3−	0.1+	1998 08 23	426
1997 03 08	809	0.5−	0.2+	1998 08 21	426	0.1−	0.2−	1998 09 01	426
1997 03 09	809	0.2+	0.2+	1998 08 21	426	0.5+	0.8+	1998 09 01	426
1997 03 09	809	0.5+	0.2+	1998 08 23	704	1.1+	0.7−	1998 09 01	426
1997 03 09	809	0.4+	0.6−	1998 08 23	704	0.8−	2.1+	1998 09 03	426
1998 08 17	704	0.6−	0.6+	1998 08 23	704	0.3−	0.2+	1998 09 03	426
1998 08 17	704	0.0	0.2−	1998 08 23	704	1.3+	0.3−	1998 09 03	426
1998 08 17	704	1.1−	0.5+	1998 08 23	704	2.3−	0.6−		
1998 08 17	704	0.8+	1.2+	1998 08 23	426	0.1−	0.2−		

1998 QK₅ = 6209 P-L

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.28347512	ω	298.76757	−0.99772253	−0.03854486				
<i>a</i>	2.2950532	Ω	239.07275	+0.05621332	−0.92871029				
<i>e</i>	0.0765896	<i>i</i>	3.69977	−0.03728014	−0.36879736				
<i>P</i>	3.48	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	7		
Residuals in seconds of arc									
1960 09 24	675	0.6−	0.9+	1998 08 22	327	0.0	0.6+	1998 08 27	327
1960 09 24	675	0.9−	0.2+	1998 08 22	327	0.2−	0.0	1998 08 30	327
1960 09 25	675	0.9+	0.8+	1998 08 22	327	0.5+	0.7−	1998 08 30	327
1960 09 25	675	0.1+	0.4−	1998 08 23	327	0.4+	0.0	1998 08 30	327
1960 09 26	675	1.4+	0.3−	1998 08 23	327	0.6+	0.2−	1998 08 31	327
1960 09 26	675	0.6−	0.2+	1998 08 23	327	0.5+	0.1+	1998 08 31	327
1960 09 28	675	0.7−	1.5−	1998 08 27	327	0.0	0.0	1998 08 31	327
1960 09 28	675	0.3+	0.1+	1998 08 27	327	0.0	0.3−		

1998 QN₇ = 1996 FO₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.15719280	ω	349.29052	+0.69416057	+0.69911857				
<i>a</i>	3.4002769	Ω	324.29046	−0.63681653	+0.48545588				
<i>e</i>	0.1066400	<i>i</i>	17.07586	−0.33556788	+0.52494363				
<i>P</i>	6.27	<i>H</i>	12.0	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1996 03 16	608	0.6+	0.5-	1998 08 17	704	0.1+	0.0	1998 08 23	704	1.0+	0.4+
1996 03 16	608	0.8+	0.6-	1998 08 17	704	0.2-	0.2+	1998 08 23	704	0.1-	0.8-
1996 03 17	608	0.0	0.8+	1998 08 17	704	0.6-	0.9+	1998 08 29	699	0.2-	0.8-
1996 03 17	608	1.4-	0.2+	1998 08 23	704	0.9-	0.2+	1998 08 29	699	0.1+	0.9+
1998 08 17	704	0.3+	0.9-	1998 08 23	704	1.0+	0.8+	1998 08 29	699	0.2+	0.1-
1998 08 17	704	0.3+	0.3-	1998 08 23	704	0.9-	0.5-				

1998 QM₉ = 1997 HO₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	334.99473		(2000.0)	P	Q
n	0.18471147	ω	117.83606	+0.94919823	+0.30886408
a	3.0535624	Ω	224.24635	-0.31044911	+0.88786823
e	0.1559490	i	4.95066	-0.05142062	+0.34101757
P	5.34	H	14.5	G 0.15	U 7

Residuals in seconds of arc

1997 04 30	704	0.5+	0.0	1997 05 01	704	0.5+	0.2+	1998 08 23	704	0.5-	0.1-
1997 04 30	704	1.2-	0.1+	1997 05 01	704	0.7-	0.2-	1998 08 23	704	2.3+	0.1-
1997 04 30	704	0.9+	0.2+	1998 08 17	704	0.6+	0.4+	1998 08 23	704	1.5-	0.7+
1997 04 30	704	0.0	0.2+	1998 08 17	704	0.0	0.8+	1998 08 28	699	0.2-	0.4-
1997 04 30	704	1.2-	0.8-	1998 08 17	704	0.7-	0.0	1998 08 28	699	0.4+	0.3-
1997 05 01	704	0.7+	0.0	1998 08 17	704	0.4-	0.0	1998 08 28	699	0.7-	0.4-
1997 05 01	704	0.7+	0.4+	1998 08 17	704	0.3-	0.1-				
1997 05 01	704	0.1-	0.1-	1998 08 23	704	1.1+	0.5-				

1998 QV₉ = 1994 PC₂₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	3.79024		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$		
n	0.23712325	ω	323.44029	+0.44199170	+0.89401708		
a	2.5851552	Ω	332.56751	-0.78067742	+0.34311799		
e	0.1933073	i	9.15829	-0.44179871	+0.28810329		
P	4.16	H	15.0	G	0.15	U	5

Residuals in seconds of arc

1994 08 12	809	0.9+	0.3+	1998 08 17	704	0.4+	0.7+	1998 08 29	699	0.3-	0.3+
1994 08 12	809	0.3+	0.4+	1998 08 17	704	0.1-	0.6+	1998 08 29	699	0.5-	0.1+
1994 08 12	809	0.3+	0.4+	1998 08 17	704	(3.3-	1.9+)	1998 08 29	699	0.2+	0.3-
1994 08 13	809	0.5-	0.6-	1998 08 23	704	0.6+	0.6-	1998 08 30	699	0.2+	1.6-
1994 08 13	809	0.1-	0.4-	1998 08 23	704	0.4+	1.7-	1998 08 30	699	0.3+	1.8+
1994 08 13	809	0.9-	0.2-	1998 08 23	704	(2.3+	0.2-)	1998 08 30	699	0.1-	1.0+
1998 08 17	704	0.2+	0.6-	1998 08 23	704	0.3-	0.9-				
1998 08 17	704	0.4+	0.4+	1998 08 23	704	1.6-	1.0+				

1998 QO₁₀ = 1995 UV

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	345.44617		(2000.0)	P	Q
n	0.28694288	ω	126.71265	+0.82398229	+0.56608358
a	2.2765249	Ω	198.84857	-0.54107579	+0.77324315
e	0.1775912	i	4.35761	-0.16819683	+0.28573486
P	3.43	H	15.0	G 0.15	U 3

Residuals in seconds of arc

1995 10 17	327	0.4+	0.4+	1998 06 26	699	0.2+	0.8+	1998 08 23	704	0.2-	0.3-
1995 10 17	327	0.3+	1.0-	1998 06 26	699	0.1+	0.0	1998 08 23	704	0.7-	0.1+
1995 10 17	327	0.9-	0.0	1998 07 15	699	0.4+	0.4+	1998 08 23	704	1.1-	0.2+
1995 10 18	327	0.4-	0.4+	1998 07 15	699	0.8+	0.4+	1998 08 23	704	0.2-	0.2+
1995 10 18	327	0.5+	0.2-	1998 07 15	699	0.7+	0.4+	1998 08 23	704	0.7-	0.5+
1995 10 18	327	0.2+	0.3+	1998 08 17	704	0.1+	0.1-	1998 08 28	699	0.1+	0.2+
1998 06 04	699	0.1+	0.2+	1998 08 17	704	0.4+	0.7-	1998 08 28	699	0.0	0.0
1998 06 04	699	0.2-	0.2-	1998 08 17	704	1.0+	0.2-	1998 08 28	699	0.2-	0.0
1998 06 04	699	0.6-	1.0-	1998 08 17	704	(0.8-	5.0+)				
1998 06 26	699	0.2-	0.2-	1998 08 17	704	0.1+	0.6-				

1998 QY₁₀ = 1982 ON₁ = 1993 FO₃₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	339.21841		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.24555847	ω	271.28590	+0.87764038	+0.47754575
a	2.5256089	Ω	60.19030	-0.41872246	+0.80568160
e	0.1327597	i	2.72158	-0.23327852	+0.35046713
P	4.01	H	14.5	G 0.15	U 5

Residuals in seconds of arc

1982 07 27	675	0.0	0.4+	1993 03 24	809	0.6+	1.2-	1998 08 23	704	0.3+	0.6+
1982 07 27	675	0.2+	0.5-	1998 07 31	699	0.1-	0.0	1998 08 23	704	(0.9-	2.6+)
1982 07 27	675	1.1+	0.6-	1998 07 31	699	0.9-	0.7+	1998 08 23	704	1.7-	0.0
1982 07 27	675	1.6+	0.2-	1998 07 31	699	0.4-	0.4+	1998 08 23	704	0.2+	0.6-
1982 07 28	675	2.0-	0.8-	1998 08 17	704	0.2+	0.1+	1998 08 29	699	0.1-	0.7-
1982 07 28	675	0.7+	2.4-	1998 08 17	704	0.1-	0.2+	1998 08 29	699	0.0	1.0+
1993 03 19	809	0.3+	0.2+	1998 08 17	704	0.7+	0.9+	1998 08 29	699	0.2+	0.6+
1993 03 20	809	0.9-	0.9+	1998 08 17	704	0.5+	0.8+				

1998 QF₁₁ = 1988 VS₈ = 1993 AK

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	179.52329		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.27334115	ω	13.39080	-0.63366023	-0.74780932
a	2.3514335	Ω	116.31121	+0.68785748	-0.66182834
e	0.0817750	i	12.76953	+0.35401526	-0.05257811
P	3.61	H	13.5	G 0.15	U 4

Residuals in seconds of arc

1988 11 04	033	0.6+	0.6+	1998 07 04	699	0.2+	0.1+	1998 08 17	704	0.3+	0.3+
1988 11 05	033	0.5-	0.9-	1998 07 04	699	0.1+	0.5-	1998 08 17	704	0.2+	0.9-
1993 01 13	400	1.2-	0.6-	1998 07 04	699	0.0	0.0	1998 08 17	704	0.3+	0.7-
1993 01 13	400	3.1-	1.3+	1998 07 31	699	0.3-	0.2-	1998 08 23	704	0.1-	0.4+
1993 01 14	400	2.7+	0.7+	1998 07 31	699	1.2-	0.4+	1998 08 23	704	0.4+	1.2-
1993 01 14	400	1.2-	0.0	1998 07 31	699	1.0-	0.6+	1998 08 23	704	0.3+	0.1+
1993 02 21	400	2.0+	1.9-	1998 08 17	704	0.2+	0.3+	1998 08 23	704	0.4+	1.4+
1993 02 21	400	1.2+	0.4+	1998 08 17	704	0.2+	0.3-				

1998 QH₁₁ = 9585 P-L

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	333.45057	(2000.0)	$\mathbf{P}$	$\mathbf{Q}$			
n	0.23180685	ω	244.90328	+0.93542600	+0.34782713		
a	2.6245320	Ω	94.69024	-0.29719916	+0.87053824		
e	0.0979834	i	3.63581	-0.19144415	+0.34810840		
P	4.25	H	14.5	G	0.15	U	5

Residuals in seconds of arc

1960 10 17	675	0.5-	0.4-	1998 08 17	704	0.0	0.5-	1998 08 23	704	0.2+	1.4+
1960 10 22	675	0.7-	0.1+	1998 08 17	704	0.8+	0.1+	1998 08 23	704	0.3-	0.3+
1960 10 24	675	1.4+	0.1+	1998 08 17	704	1.0+	1.1+	1998 08 29	699	0.1+	0.2+
1960 10 26	675	0.1-	0.0	1998 08 17	704	1.3-	0.6+	1998 08 29	699	0.1-	0.5-
1998 07 31	699	0.4+	0.5-	1998 08 17	704	3.6-	0.2+	1998 08 29	699	0.1+	0.2+
1998 07 31	699	0.5+	0.2-	1998 08 23	704	0.5+	0.1-				
1998 07 31	699	0.1-	1.1-	1998 08 23	704	1.8+	0.8-				

1998 QW₁₁ = 1993 PX₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

M	318.79088		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.19264035	ω	197.22571	+0.99856605	-0.02052077
a	2.9691892	Ω	163.70972	+0.03165890	+0.97116008
e	0.0952147	i	10.15256	-0.04316897	+0.23754366
P	5.12	H	14.5	G 0.15	U 6

Residuals in seconds of arc

1993 08 15	010	0.2-	0.3-	1993 08 20	010	1.2+	1.4+	1998 08 23	704	0.8-	0.7+
1993 08 15	010	0.6-	2.4-	1998 08 17	704	0.9+	0.5+	1998 08 23	704	1.8+	1.8+

1998 SEPT. 10

1993 08 16	010	1.8−	0.1−	1998 08 17	704	0.3+	0.1+	1998 08 23	704	0.5+	1.1−
1993 08 16	010	1.8−	1.1−	1998 08 17	704	0.0	0.0	1998 08 23	704	2.4−	1.1−
1993 08 16	010	1.4−	0.1−	1998 08 17	704	0.7−	0.3+	1998 08 28	699	0.1+	1.4−
1993 08 19	010	3.1+	2.4+	1998 08 17	704	0.2−	0.0	1998 08 28	699	0.6+	0.4+
1993 08 19	010	1.6+	0.0	1998 08 23	704	0.1+	0.3−	1998 08 28	699	0.3−	0.3+

1998 QR₁₂ = 1996 BA₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	314.34491	(2000.0)	
<i>n</i>	0.25956842	<i>ω</i> 78.47019	+0.94489137 −0.30430500
<i>a</i>	2.4338930	<i>Ω</i> 299.14538	+0.21957087 +0.86261084
<i>e</i>	0.2363965	<i>i</i> 7.94638	+0.24283519 +0.40410519
<i>P</i>	3.80	<i>H</i> 16.0	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1996 01 19	691	0.2+	0.0	1998 08 17	704	0.5−	0.6−	1998 08 28	699	0.2+	0.1+
1996 01 19	691	0.3+	0.2−	1998 08 17	704	0.4−	0.5−	1998 08 28	699	0.0	0.1−
1996 01 19	691	0.3+	0.0	1998 08 17	704	0.6+	1.1+	1998 08 28	699	0.8−	0.7−
1996 01 26	691	0.3−	0.1+	1998 08 23	704	0.4+	0.9+	1998 08 30	699	0.1+	0.2−
1996 01 26	691	0.1−	0.2+	1998 08 23	704	1.1−	0.7+	1998 08 30	699	0.4+	0.2−
1996 01 26	691	0.3−	0.0	1998 08 23	704	0.5+	0.4+	1998 08 30	699	0.1−	0.3−
1998 08 17	704	0.5+	0.6−	1998 08 23	704	0.7+	0.1+				
1998 08 17	704	1.2−	0.2+	1998 08 23	704	0.6+	0.1−				

1998 QT₁₂ = 1980 RF₇ = 1990 HV

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	41.73923	(2000.0)	
<i>n</i>	0.26973820	<i>ω</i> 330.43179	−0.15651547 +0.98283545
<i>a</i>	2.3723262	<i>Ω</i> 290.41743	−0.88449129 −0.18347840
<i>e</i>	0.0918907	<i>i</i> 5.98143	−0.43952026 +0.01923938
<i>P</i>	3.65	<i>H</i> 15.0	<i>G</i> 0.15 <i>U</i> 3

Residuals in seconds of arc

1980 09 13	675	0.1−	0.1−	1998 08 17	704	0.6+	0.2+	1998 08 28	699	0.5−	0.4−
1980 09 14	675	0.1+	0.1+	1998 08 17	704	0.6+	0.3+	1998 08 28	699	0.4−	0.1−
1990 04 26	675	0.6−	1.9+	1998 08 17	704	(2.3−	2.3+)	1998 08 28	699	0.0	0.1+
1990 04 28	675	1.2+	1.0−	1998 08 23	704	0.1+	0.7−	1998 08 30	699	0.1−	0.8−
1990 04 28	675	0.6−	0.9−	1998 08 23	704	1.0−	0.9+	1998 08 30	699	0.2+	0.2+
1998 08 17	704	0.3+	0.5−	1998 08 23	704	(1.9−	2.4+)	1998 08 30	699	0.3+	0.6+
1998 08 17	704	0.5+	0.2+	1998 08 23	704	0.7−	0.2+				

1998 QV₁₂ = 1994 NU₁₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	299.02831	(2000.0)	
<i>n</i>	0.26219048	<i>ω</i> 81.98915	+0.93347402 −0.34824050
<i>a</i>	2.4176389	<i>Ω</i> 298.35491	+0.27852903 +0.85456000
<i>e</i>	0.0847021	<i>i</i> 5.59248	+0.22593766 +0.38529958
<i>P</i>	3.76	<i>H</i> 15.0	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1994 07 08	809	0.3+	0.2−	1998 08 17	704	0.7+	0.2+	1998 08 23	704	1.1−	1.0+
1994 07 08	809	1.6−	0.2−	1998 08 17	704	0.5+	0.0	1998 08 28	699	0.2−	0.2+
1994 07 08	809	0.1+	0.1−	1998 08 17	704	0.2+	0.5−	1998 08 28	699	0.0	0.4+
1994 07 09	809	0.4−	0.3−	1998 08 17	704	0.3−	0.6−	1998 08 28	699	0.4−	0.1+
1994 07 09	809	1.2+	1.0+	1998 08 23	704	0.2+	0.9−	1998 08 30	699	0.5−	0.4−
1994 07 09	809	0.4+	0.3−	1998 08 23	704	1.4−	0.9+	1998 08 30	699	1.1+	0.3−
1998 08 17	704	0.5+	0.3+	1998 08 23	704	(2.8−	1.6+)	1998 08 30	699	0.8+	0.4−

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1998 QY₁₃ = 1997 EQ₁₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	22.16422	(2000.0)	
<i>n</i>	0.26258856	<i>ω</i> 97.00495	+0.16863780 +0.98567445
<i>a</i>	2.4151949	<i>Ω</i> 182.70806	−0.92524525 +0.15736121
<i>e</i>	0.1421663	<i>i</i> 3.24922	−0.33982718 +0.06069044
<i>P</i>	3.75	<i>H</i> 16.0	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1997 03 03	691	0.2+	0.0	1998 08 17	704	0.1+	0.3−	1998 08 23	704	0.2−	0.1+
1997 03 03	691	0.3−	1.0−	1998 08 17	704	0.9−	0.4+	1998 08 23	704	0.1+	2.0+
1997 03 03	691	0.3+	0.1+	1998 08 17	704	0.4+	0.3−	1998 08 23	704	0.8+	1.0−
1997 03 11	691	0.1−	0.2+	1998 08 17	704	0.1−	0.8−	1998 08 28	699	0.1+	0.2+
1997 03 11	691	0.1−	0.5+	1998 08 17	704	0.0	0.6−	1998 08 28	699	0.2+	0.3+
1997 03 11	691	0.0	0.2+	1998 08 23	704	0.2−	1.2+	1998 08 28	699	0.4−	1.1−

1998 QA₁₅ = 1980 PA₄ = 1997 BK₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	3.42850	(2000.0)	
<i>n</i>	0.27405343	<i>ω</i> 144.34186	+0.51938538 +0.85308827
<i>a</i>	2.3473574	<i>Ω</i> 156.82563	−0.81043861 +0.51022054
<i>e</i>	0.1205932	<i>i</i> 7.26890	−0.27097617 +0.10915773
<i>P</i>	3.60	<i>H</i> 14.5	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1980 08 04	675	0.1−	0.7−	1998 08 17	704	0.6−	0.0	1998 08 23	704	1.2+	1.8+
1980 08 05	675	0.3+	0.4−	1998 08 17	704	0.4+	0.4−	1998 08 23	704	0.2−	2.1+
1997 01 17	599	0.3+	0.7−	1998 08 17	704	0.1+	0.4−	1998 08 27	699	0.9−	0.1−
1997 01 17	599	0.0	0.3+	1998 08 17	704	0.5+	0.0	1998 08 27	699	0.3−	0.2−
1997 01 18	599	0.3+	1.1+	1998 08 23	704	0.0	0.4+	1998 08 27	699	0.8−	0.6−
1997 01 18	599	0.1−	1.0+	1998 08 23	704	0.2+	0.4−				

1998 QK₁₅ = 1981 UE₁ = 1981 UD₁₄ = 1988 XG₄ = 1997 EG₄₈
= 1997 HB₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	318.20360	(2000.0)	
<i>n</i>	0.28509381	<i>ω</i> 155.45414	+0.99306390 −0.10865175
<i>a</i>	2.2863578	<i>Ω</i> 210.88676	+0.08812204 +0.94079074
<i>e</i>	0.1842285	<i>i</i> 5.02142	+0.07783696 +0.32110370
<i>P</i>	3.46	<i>H</i> 15.0	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1981 10 23	095	1.1+	1.7−	1997 04 27	691	0.1+	0.7−	1998 08 17	704	0.7−	0.1+
1981 10 31	704	(0.2+	37.4−)	1997 04 27	691	0.4+	0.6−	1998 08 17	704	(2.2−	0.9+)
1981 10 31	704	0.6−	0.4−	1997 04 30	691	0.6−	1.2−	1998 08 17	704	0.9+	0.5+
1988 12 07	054	0.1+	0.4+	1997 04 30	691	0.6−	0.3−	1998 08 23	704	0.0	0.2+
1988 12 07	054	0.1−	1.1−	1997 04 30	691	0.7−	0.6−	1998 08 23	704	0.5+	0.2+
1997 03 11	809	(4.2+	3.7+)	1998 06 19	699	0.8−	0.2−	1998 08 23	704	0.2+	0.2+
1997 03 11	809	(3.6+	3.7+)	1998 06 19	699	0.1+	0.1−	1998 08 23	704	0.5−	0.2+
1997 03 11	809	(4.0+	3.2+)	1998 06 19	699	0.0	1.0+	1998 08 30	699	0.3+	0.1−
1997 03 12	809	(2.7+	3.5+)	1998 07 24	566	0.3−	1.2−	1998 08 30	699	0.4+	0.1+
1997 03 12	809	(2.6+	3.7+)	1998 07 24	566	0.1+	1.0−	1998 08 30	699	0.2+	0.3−
1997 03 12	809	(1.7+	3.5+)	1998 07 24	566	0.1+	1.2−				
1997 04 27	691	0.1+	0.7−	1998 08 17	704	0.4−	0.3+				

1998 QJ₁₆ = 1949 CF = 1979 OL₁₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams			
<i>M</i>	237.92589	(2000.0)	
<i>n</i>	0.21125204	<i>ω</i> 173.14286	−0.13111097 −0.98386153
<i>a</i>	2.7921288	<i>Ω</i> 284.33793	+0.90348913 −0.06802746
<i>e</i>	0.1873961	<i>i</i> 7.21993	+0.40806531 −0.16549550
<i>P</i>	4.67	<i>H</i> 13.0	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1949 02 01	012	0.1−	0.2−	1998 08 17	704	0.3−	0.2+	1998 08 23	704	0.5+	1.3+
1949 02 03	012	(8.4+)	1.0−	1998 08 17	704	0.2−	0.3+	1998 08 23	704	0.3−	0.2−
1979 07 26	675	1.5−	1.6+	1998 08 17	704	0.9−	0.2−	1998 08 23	704	0.8+	1.2−
1979 07 27	675	1.4+	1.3−	1998 08 17	704	0.2−	0.5−	1998 08 30	699	0.1+	0.1+
1998 07 26	699	1.0+	0.1−	1998 08 23	699	0.3−	0.4+	1998 08 30	699	0.5−	0.3−
1998 07 26	699	0.8+	0.2−	1998 08 23	699	1.0−	0.3+	1998 08 30	699	0.5+	0.3+
1998 07 26	699	1.0+	1.2−	1998 08 23	699	0.3−	0.6+				
1998 08 17	704	0.1+	0.6−	1998 08 23	704	0.3−	0.4+				

1998 QK₁₆ = 1993 MY

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
				(2000.0)		P	Q
<i>M</i>	346.46491						
<i>n</i>	0.22956815	ω	27.00044			+0.87927377	+0.44096160
<i>a</i>	2.6415670	Ω	305.67876			−0.46718031	+0.72469889
<i>e</i>	0.1780219	<i>i</i>	12.80875			−0.09284502	+0.52949447
<i>P</i>	4.29	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1993 06 13	413	0.2+	0.9+	1998 08 17	704	0.5−	0.1+	1998 08 23	704	0.7+	0.1−
1993 06 13	413	0.0	0.4−	1998 08 17	704	0.0	0.2+	1998 08 23	704	0.2−	0.1+
1993 06 14	413	0.0	0.1−	1998 08 17	704	0.3−	0.2−	1998 08 23	704	0.0	0.3+
1993 06 14	413	0.6−	0.5−	1998 08 17	704	0.1+	0.3−	1998 08 23	704	0.8−	1.2−
1993 06 15	413	0.4+	0.9+	1998 08 23	699	0.1−	0.7+	1998 08 27	704	0.3+	0.1+
1993 06 18	413	0.5+	0.7−	1998 08 23	699	0.5+	0.7+	1998 08 27	704	0.4−	0.3−
1993 06 18	413	0.6−	0.1−	1998 08 23	699	0.1+	0.9+	1998 08 27	704	0.1−	0.2+
1998 08 17	704	0.4+	0.3−	1998 08 23	704	0.1+	0.0	1998 08 27	704	0.2+	0.8−

1998 QF₁₇ = 1991 RM₂₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
				(2000.0)		P	Q
<i>M</i>	35.97618						
<i>n</i>	0.26884772	ω	146.43981			−0.01517723	+0.99555756
<i>a</i>	2.3775618	Ω	122.52786			−0.93990706	+0.01749778
<i>e</i>	0.1011754	<i>i</i>	6.32757			−0.34109290	−0.09251468
<i>P</i>	3.67	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 09 12	675	0.9+	0.3+	1998 08 17	704	0.0	0.7+	1998 08 23	704	0.9+	0.4−
1991 09 12	675	0.2−	0.0	1998 08 17	704	0.6+	1.0+	1998 08 23	704	1.0−	1.3−
1991 09 16	675	0.2−	0.5−	1998 08 17	704	0.8+	0.3−	1998 08 27	699	0.1−	0.4+
1991 09 16	675	0.5−	0.1+	1998 08 17	704	0.2−	0.6−	1998 08 27	699	0.3−	0.5+
1998 07 31	699	0.5−	0.1−	1998 08 17	704	0.5+	1.1−	1998 08 27	699	0.2+	0.6+
1998 07 31	699	0.2+	0.2+	1998 08 23	704	0.6−	0.1−				
1998 07 31	699	0.3−	0.0	1998 08 23	704	0.3−	0.5+				

1998 QT₁₈ = 1981 UD₂₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
				(2000.0)		P	Q
<i>M</i>	7.86977						
<i>n</i>	0.28506643	ω	63.62401			+0.52641225	+0.84917832
<i>a</i>	2.2865042	Ω	238.20286			−0.79672015	+0.47531606
<i>e</i>	0.1483270	<i>i</i>	2.85039			−0.29686217	+0.23015392
<i>P</i>	3.46	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1981 10 24	675	0.7+	0.8+	1998 08 17	704	0.1+	0.1−	1998 08 25	327	0.2+	0.1−
1981 10 25	675	0.9+	0.7−	1998 08 17	704	0.1−	0.6−	1998 08 25	327	0.4−	0.3−
1981 10 26	675	1.6−	0.2−	1998 08 17	704	0.1−	0.5+	1998 08 25	327	0.4−	0.4−
1998 08 04	699	0.4+	0.5−	1998 08 23	704	0.8−	0.1+	1998 08 27	327	0.2+	0.3−
1998 08 04	699	0.1+	0.2−	1998 08 23	704	0.9−	1.1+	1998 08 27	327	0.2+	0.4−
1998 08 04	699	0.5−	0.3−	1998 08 23	704	0.4−	1.2+	1998 08 27	327	0.2+	0.3−
1998 08 17	704	0.5+	1.1+	1998 08 23	704	1.9+	0.6−				
1998 08 17	704	0.5+	0.4−	1998 08 23	704	0.9−	0.4+				

1998 QC₁₉ = 1976 UT₁₇ = 1981 RA₆ = 1991 HF₂ = 1993 TB₂₅**= 1997 GF₄₁**

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
				(2000.0)		P	Q
<i>M</i>	36.07970						
<i>n</i>	0.17333214	ω	168.06126			+0.03284327	+0.99761755
<i>a</i>	3.1857864	Ω	103.79836			−0.92205089	+0.05366667
<i>e</i>	0.1204061	<i>i</i>	3.58161			−0.38567275	−0.04334862
<i>P</i>	5.69	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 10 22	381	0.7+	0.9+	1993 10 11	809	1.3+	0.4+	1998 08 17	704	0.2−	1.4+
1976 10 22	381	0.5−	0.7+	1993 10 11	809	1.3+	0.2+	1998 08 17	704	0.1+	1.0+
1976 10 24	381	0.3−	1.3+	1993 10 20	809	0.7+	0.5−	1998 08 17	704	0.7−	0.1−
1981 09 01	675	0.2+	0.3−	1993 10 20	809	1.1+	0.1+	1998 08 17	704	0.7−	0.0
1981 09 02	675	0.7−	0.3−	1993 10 20	809	0.8+	0.6−	1998 08 23	704	0.0	0.7−
1991 04 19	809	(0.4+)	5.6−	1997 04 07	809	0.5−	0.3−	1998 08 23	704	0.4+	0.4+
1991 04 19	809	(0.0)	5.5−	1997 04 07	809	0.3−	1.2−	1998 08 23	704	0.1+	1.1+
1991 04 19	809	(0.3+)	6.4−	1997 04 07	809	0.8−	1.6−	1998 08 23	704	0.6+	1.0−
1993 10 09	809	1.1−	3.3−	1997 04 08	809	0.2−	0.9−	1998 08 27	699	0.1+	0.4+
1993 10 09	809	1.7−	3.5−	1997 04 08	809	0.1−	1.1−	1998 08 27	699	0.2−	0.4−
1993 10 09	809	1.8−	3.3−	1997 04 08	809	0.2−	0.8−	1998 08 27	699	0.2+	0.1+
1993 10 11	809	1.9+	0.6+	1998 08 17	704	0.3+	0.7+				

1998 QL₁₉ = 1987 UY₆ = 1987 WJ₅ = 1991 XV₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
				(2000.0)		P	Q
<i>M</i>	346.48138						
<i>n</i>	0.26011939	ω	277.42901			+0.86091022	+0.50661067
<i>a</i>	2.4304549	Ω	52.14452			−0.44034491	+0.78795810
<i>e</i>	0.1830028	<i>i</i>	3.38953			−0.25481355	+0.34995380
<i>P</i>	3.79	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1987 10 27	095	0.0	2.0−	1998 07 31	699	0.6−	1.1−	1998 08 23	704	0.1+	0.2+
1987 11 21	095	0.6+	0.6+	1998 07 31	699	(2.2+)	0.8−	1998 08 23	704	0.2+	0.6+
1991 12 10	033	0.8−	0.5+	1998 07 31	699	1.5+	0.4+	1998 08 23	704	0.7+	0.9+
1991 12 10	033	0.8+	1.1+	1998 08 17	704	0.9−	0.4−	1998 08 23	704	0.1+	0.2+
1991 12 11	033	0.4−	0.0	1998 08 17	704	1.4−	0.5+	1998 08 27	699	0.8+	0.2−
1998 07 31	699	(0.2−)	2.4−	1998 08 17	704	0.7−	0.5−	1998 08 27	699	0.6+	0.2−
1998 07 31	699	0.5−	0.2+	1998 08 17	704	0.4−	0.5+	1998 08 27	699	0.8+	0.1+
1998 07 31	699	0.8−	0.2−	1998 08 17	704	0.1+	0.1−				

1998 QZ₁₉ = 1997 KH₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

				Williams			
				(2000.0)		P	Q
<i>M</i>	332.90857						
<i>n</i>	0.21654253	ω	161.53270			+0.98681407	+0.16123599
<i>a</i>	2.7464640	Ω	189.22324			−0.15740423	+0.93556932
<i>e</i>	0.0716167	<i>i</i>	5.07400			−0.03770814	+0.31418625
<i>P</i>	4.55	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 05 27	910	0.1+	0.0	1998 08 17	704	0.7+	0.7+	1998 08 23	704	0.9+	0.5−
1997 05 27	910	0.1+	0.2+	1998 08 17	704	1.3−	0.6−	1998 08 23	704	1.7+	0.3+
1997 05 27	910	0.0	0.0	1998 08 17	704	0.7−	0.4−	1998 08 26	699	0.0	0.6+
1997 05 29	910	0.0	0.3−	1998 08 17	704	0.0	0.4+	1998 08 26	699	0.1−	0.6−
1997 05 29	910	0.0	0.0	1998 08 17	704	1.1+	0.1−	1998 08 26	699	0.5−	0.3+
1997 05 29	910	0.2−	0.1+	1998 08 23	704	1.8−	0.1−				

1998 SEPT. 10

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1998 QG₂₀ = 1980 RD₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	321.96212		(2000.0)		P		Q		
<i>n</i>	0.27240979	ω	116.14224		+0.97313635		-0.21965405		
<i>a</i>	2.3567901	Ω	256.60984		+0.17767971		+0.90704280		
<i>e</i>	0.2344789	<i>i</i>	4.06590		+0.14640888		+0.35920114		
<i>P</i>	3.62	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	6		
Residuals in seconds of arc									
1980 09 13	675	0.0	0.0	1998 08 17	704	0.0	0.1-	1998 08 23 704 0.5-	0.1+
1980 09 14	675	0.1+	0.2-	1998 08 17	704	1.0+	0.2+	1998 08 23 704 0.1-	0.2+
1998 08 17	704	0.6+	0.2-	1998 08 23	704	0.7+	0.9-	1998 08 26 699	0.0 0.1-
1998 08 17	704	0.3-	0.1-	1998 08 23	704	0.0	0.6+	1998 08 26 699	0.4- 0.6+
1998 08 17	704	0.5-	0.7-	1998 08 23	704	0.5-	0.1+	1998 08 26 699	0.1+ 0.4+

1998 QN₂₀ = 1994 NA₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	328.11826		(2000.0)		P		Q			
n	0.26237818	ω	58.93224		+0.99513998		+0.05028648			
a	2.4164857	Ω	298.06482		-0.08245982		+0.89549993			
e	0.1273140	i	5.50563		+0.05382190		+0.44221166			
P	3.76	H	15.5	G	0.15	U	5			
Residuals in seconds of arc										
1994 07 11	809	0.1+	0.4+	1998 08 17	704	0.1-	0.3-	1998 08 26 699	0.3-	0.4+
1994 07 11	809	1.2-	0.7-	1998 08 17	704	0.3-	0.2-	1998 08 27 327	0.5-	0.5-
1994 07 11	809	0.5+	0.5-	1998 08 23	704	0.5-	1.2+	1998 08 27 327	0.4-	0.2-
1994 07 12	809	0.7+	1.2+	1998 08 23	704	0.0	0.7+	1998 08 27 327	0.6-	0.1-
1994 07 12	809	0.7+	0.0	1998 08 23	704	0.9-	2.1+	1998 08 31 327	0.2-	0.3-
1994 07 12	809	0.8-	0.4-	1998 08 23	704	1.1+	0.7-	1998 08 31 327	0.2-	0.3-
1998 08 17	704	0.0	0.1-	1998 08 26	699	2.8+	0.4-	1998 08 31 327	0.0	0.1-
1998 08 17	704	0.0	0.9-	1998 08 26	699	0.2+	0.2-			

1998 QD₂₃ = 1987 SX₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	44.12454		(2000.0)		P		Q	
<i>n</i>	0.26141345	ω	249.77135	-0.04361695		+0.99858927		
<i>a</i>	2.4224274	Ω	17.80966	-0.87568264		-0.02362235		
<i>e</i>	0.0590895	<i>i</i>	5.68214	-0.48091317		-0.04755483		
<i>P</i>	3.77	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5	
Residuals in seconds of arc								
1987 09 20	071	0.8+	0.3+	1998 07 31	699	0.2+	0.7-	1998 08 23 704 0.2- 0.2+
1987 09 20	071	0.8+	1.6-	1998 08 17	704	1.9-	0.3-	1998 08 23 704 0.4+ 0.2+
1987 09 21	071	1.5-	1.3+	1998 08 17	704	0.1+	0.1+	1998 08 23 704 0.4+ 0.6-
1987 09 21	071	(1.4+ 4.3+)		1998 08 17	704	0.6-	0.7+	1998 08 28 699 0.3- 0.6-
1987 09 21	071	(4.7+ 0.3+)		1998 08 17	704	0.5+	0.7+	1998 08 28 699 0.4+ 0.1+
1987 09 21	071	(4.5+ 0.1-)		1998 08 17	704	0.3+	0.6+	1998 08 28 699 0.1- 0.1+
1998 07 31	699	0.2-	0.4-	1998 08 23	704	0.1+	0.3-	
1998 07 31	699	0.5+	0.3+	1998 08 23	704	0.6+	0.0	

1998 QL₂₃ = 1993 VK₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	313.39331		(2000.0)		P		Q			
<i>n</i>	0.17686683	ω	33.39173		+0.89966608		-0.43641776			
<i>a</i>	3.1431984	Ω	352.45531		+0.37818875		+0.79261715			
<i>e</i>	0.2008190	<i>i</i>	5.17923		+0.21811514		+0.42579054			
<i>P</i>	5.57	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5			
Residuals in seconds of arc										
1993 11 09	691	0.2-	0.3-	1998 07 31	699	0.4-	0.3+	1998 08 23 704	1.5-	0.4-
1993 11 09	691	0.2+	0.2-	1998 08 17	704	0.1+	0.1-	1998 08 23 704	1.7+	0.3+
1993 11 09	691	1.0+	0.2-	1998 08 17	704	1.2+	0.0	1998 08 23 704	0.5-	1.2-
1993 11 10	691	0.6-	0.4+	1998 08 17	704	0.6+	0.1+	1998 08 27 699	0.4+	0.4+

1993 11 10	691	0.2-	0.2+	1998 08 17	704	0.4-	0.4+	1998 08 27 699	0.1- 0.4+
1993 11 10	691	0.3-	0.1+	1998 08 17	704	0.3-	0.1+	1998 08 27 699	0.5+ 0.2+
1998 07 31	699	0.8+	0.4-	1998 08 23	704	0.7-	0.7+		
1998 07 31	699	1.1-	0.3+	1998 08 23	704	0.5-	1.0-		

1998 QM₂₅ = 1997 GU₃₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

<i>M</i>	314.67843		(2000.0)		P		Q			
<i>n</i>	0.22527640	ω	333.71906		+0.99414101		-0.10485370			
<i>a</i>	2.6750111	Ω	32.33299		+0.10579173		+0.89402188			
<i>e</i>	0.0073414	<i>i</i>	2.81380		+0.02217555		+0.43558074			
<i>P</i>	4.38	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6			
Residuals in seconds of arc										
1997 04 06	704	0.3-	0.3+	1998 08 17	704	1.1+	0.6+	1998 08 23 704	0.9-	1.2+
1997 04 06	704	0.5+	0.2-	1998 08 17	704	0.9-	2.1+	1998 08 28 699	1.2-	0.3+
1997 04 11	704	0.4-	0.6+	1998 08 17	704	0.9-	0.8-	1998 08 28 699	1.1+	1.7-
1997 04 11	704	0.2+	0.7-	1998 08 23	704	1.0+	1.3-	1998 08 28 699	0.2+	0.7+
1998 08 17	704	0.4+	1.8-	1998 08 23	704	1.9+	0.9+			
1998 08 17	704	0.0	0.3-	1998 08 23	704	1.8-	0.1+			

1998 QN₂₅ = 1990 SC₁₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	0.66073		(2000.0)		P		Q	
n	0.23984027	ω	336.09998		+0.70348810		+0.70550408	
a	2.5655943	Ω	338.27884		-0.60895699		+0.53608477	
e	0.1474632	i	13.41151		-0.36643673		+0.46354839	
P	4.11	H	14.5	G	0.15	U	4	
Residuals in seconds of arc								
1990 09 17	675	0.0	0.1+	1998 07 31	699	0.4+	0.2-	1998 08 23 704 0.5- 0.8-
1990 09 17	675	0.1+	0.3+	1998 08 17	704	0.6+	0.6+	1998 08 23 704 0.4+ 0.8-
1990 09 20	675	0.1+	0.8-	1998 08 17	704	0.2-	0.6+	1998 08 23 704 0.4- 0.1-
1990 09 20	675	0.1-	0.4+	1998 08 17	704	0.4+	0.4+	1998 08 23 704 1.0- 0.3+
1998 07 31	699	0.7-	0.1-	1998 08 17	704	0.1+	0.4+	1998 08 23 704 0.8+ 0.2-
1998 07 31	699	0.0	0.2-	1998 08 17	704	0.2+	0.0	

1998 QR₂₆ = 1997 EC₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	23.82068		(2000.0)		P		Q			
n	0.26615846	ω	39.66560		+0.23478840		+0.97179935			
a	2.3935502	Ω	243.92361		-0.89791660		+0.20819114			
e	0.2048118	i	1.39830		-0.37231732		+0.11073600			
P	3.70	H	15.5	G	0.15	U	5			
Residuals in seconds of arc										
1997 03 04	691	0.4+	0.2+	1998 08 17	704	0.5+	0.3+	1998 08 25 627	0.4-	0.5-
1997 03 04	691	0.2+	0.3+	1998 08 17	704	1.2+	0.9+	1998 08 26 699	0.0	0.4+
1997 03 04	691	0.6+	0.3-	1998 08 17	704	0.6+	0.6+	1998 08 26 699	0.4+	0.3+
1997 03 05	691	0.6-	0.6+	1998 08 17	704	0.4+	0.7+	1998 08 26 699	0.2-	0.4-
1997 03 05	691	1.0-	0.2+	1998 08 23	704	0.9+	0.3-	1998 08 26 627	0.8-	0.9+
1997 03 05	691	0.8-	0.3+	1998 08 23	704	1.1+	1.1-	1998 08 26 627	0.8-	0.5-
1997 03 11	704	0.6+	0.5+	1998 08 23	704	0.8-	1.6-	1998 08 26 627	0.4-	0.9-
1997 03 11	704	1.4+	0.1-	1998 08 23	704	(1.0- 2.3+)		1998 08 29 627	0.6-	0.2+
1997 03 12	704	0.4+	0.1-	1998 08 23	704	0.3-	1.9+	1998 08 29 627	0.7-	1.3+
1997 03 12	704	0.4-	0.2+	1998 08 25	627	0.3+	0.5-	1998 08 29 627	0.5-	1.1-
1998 08 17	704	0.3-	0.2-	1998 08 25	627	0.2-	1.0+			

1998 QM₂₉ = 1997 HR₁₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.25747404	ω	257.23545	−0.13422585	−0.99025108				
<i>a</i>	2.4470739	Ω	200.58987	+0.94530264	−0.11668021				
<i>e</i>	0.0715493	<i>i</i>	6.07731	+0.29729841	−0.07608241				
<i>P</i>	3.83	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1997 04 30	704	1.1+	0.4+	1997 05 01	704	0.1+	0.2+	1998 08 27	327	0.4−	0.1+
1997 04 30	704	0.2+	1.3−	1997 05 01	704	0.7+	0.9+	1998 08 27	327	0.1+	0.4−
1997 04 30	704	0.1−	0.9−	1997 05 01	704	1.1−	0.8+	1998 08 27	327	0.6−	0.5−
1997 04 30	704	0.4+	0.6−	1998 08 23	327	0.1+	0.1+	1998 08 30	327	0.1+	0.0
1997 04 30	704	1.7−	0.5+	1998 08 23	327	0.0	0.6+	1998 08 30	327	0.7+	0.4+
1997 05 01	704	0.4+	0.1−	1998 08 23	327	0.0	0.2+	1998 08 30	327	0.0	0.4−

1998 QL₃₀ = 1986 EE₄ = 1991 RD₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.27587628	ω	233.87346	+0.99544927	−0.06835056				
<i>a</i>	2.3370059	Ω	129.94825	+0.08719196	+0.93444896				
<i>e</i>	0.1374595	<i>i</i>	4.96880	−0.03844879	+0.34947581				
<i>P</i>	3.57	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1986 03 12	809	0.1+	0.2+	1998 08 17	704	0.4+	0.5−	1998 08 23	120	0.0	0.4+
1991 09 12	675	0.1+	0.6+	1998 08 17	704	(4.7−	1.2−)	1998 08 23	120	0.6+	0.3+
1991 09 12	675	0.1+	1.9+	1998 08 17	704	0.1+	0.1+	1998 08 23	120	0.5+	0.4+
1991 09 13	675	0.9−	1.7−	1998 08 17	704	0.1−	0.3+	1998 08 26	120	0.1−	0.0
1991 09 13	675	0.7−	0.3−	1998 08 17	704	1.0−	0.1−	1998 08 26	120	0.2+	0.1+
1991 09 14	675	1.9+	0.8+	1998 08 23	704	0.4+	0.1−	1998 08 26	120	0.0	0.1−
1991 09 14	675	0.8−	1.3+	1998 08 23	704	0.5+	1.2−	1998 08 26	120	0.2−	0.1+
1991 09 15	675	0.1+	0.6+	1998 08 23	704	0.1+	0.2−	1998 08 28	120	0.3+	0.2+
1991 09 15	675	0.6+	1.1−	1998 08 23	704	1.1−	0.4−	1998 08 28	120	0.1−	0.8+
1991 09 16	675	0.4−	1.0−	1998 08 23	704	1.3−	0.9−	1998 08 28	120	0.4+	0.4+
1991 09 16	675	0.0	0.8−	1998 08 23	120	0.5+	0.7+				

1998 QM₃₀ = 1997 GA₁₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.25800030	ω	356.81853	+0.96447580	+0.26347041				
<i>a</i>	2.4437451	Ω	347.85316	−0.24031020	+0.84480075				
<i>e</i>	0.1579884	<i>i</i>	5.24347	−0.10971530	+0.46571990				
<i>P</i>	3.82	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5		

Residuals in seconds of arc

1997 04 03	704	0.0	0.2−	1998 08 17	704	0.5+	0.5+	1998 08 24	120	0.3−	0.2−
1997 04 03	704	0.2+	0.8−	1998 08 17	704	0.4+	0.1−	1998 08 26	120	0.1+	0.3−
1997 04 05	704	0.7−	0.3+	1998 08 17	704	0.8−	0.3+	1998 08 26	120	0.3−	0.6+
1997 04 05	704	0.7+	0.1−	1998 08 23	704	0.3+	0.1+	1998 08 26	120	0.2−	0.4−
1997 04 07	704	0.1+	0.4+	1998 08 23	704	0.6+	0.1−	1998 08 26	120	0.1+	0.1−
1997 04 07	704	0.5+	0.3+	1998 08 23	704	0.1−	0.6−	1998 08 28	120	0.1−	0.2+
1997 04 07	704	0.4−	0.1−	1998 08 23	704	0.4+	0.2−	1998 08 28	120	0.1+	0.2−
1997 04 07	704	0.5−	0.1+	1998 08 23	704	0.6−	0.1+	1998 08 28	120	0.0	0.0
1998 08 17	704	0.4−	0.6−	1998 08 23	120	0.6+	0.4+				
1998 08 17	704	0.6−	0.5+	1998 08 23	120	0.2+	0.0				

1998 QS₃₁ = 1981 RN₃ = 1981 SX₁ = 1981 SG₄ = 1996 EJ₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.17119951	ω	298.39841	+0.28430584	+0.95738191				
<i>a</i>	3.2121886	Ω	347.79246	−0.77368870	+0.19775944				
<i>e</i>	0.1075172	<i>i</i>	13.92671	−0.56619430	+0.21050198				
<i>P</i>	5.76	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	4		

Residuals in seconds of arc

1981 09 02	691	(3.6−	1.1−)	1996 03 17	691	0.2−	0.3−	1998 08 23	704	0.4−	0.1−
1981 09 25	688	0.7+	1.3−	1998 07 31	699	0.0	0.2+	1998 08 23	704	0.2+	0.3−
1981 09 25	688	1.4+	0.9−	1998 07 31	699	0.1+	0.1+	1998 08 23	704	0.2+	0.7+
1981 09 25	695	1.7−	1.8+	1998 07 31	699	1.2+	0.7−	1998 08 23	704	0.4+	0.2−
1996 03 12	691	0.2−	0.0	1998 08 17	704	0.1−	0.5+	1998 08 23	704	0.6−	1.1−
1996 03 12	691	0.4+	0.1+	1998 08 17	704	0.3+	0.6+	1998 08 28	699	0.2+	0.1+
1996 03 12	691	0.3+	0.2−	1998 08 17	704	0.5−	0.3+	1998 08 28	699	0.2−	1.0−
1996 03 17	691	0.5−	0.4−	1998 08 17	704	0.3−	0.4−	1998 08 28	699	0.5+	0.0
1996 03 17	691	0.4−	0.3−	1998 08 17	704	0.8−	0.6+				

1998 QY₃₂ = 1980 GV

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.28718256	ω	343.01822	−0.96824329	+0.24846491				
<i>a</i>	2.2752581	Ω	211.41030	−0.22274903	−0.90773907				
<i>e</i>	0.0921011	<i>i</i>	3.05237	−0.11352449	−0.33804582				
<i>P</i>	3.43	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	6		

Residuals in seconds of arc

1980 04 14	805	0.4+	0.8−	1998 08 17	704	0.3−	0.3−	1998 08 23	704	0.4−	0.8+
1980 04 15	805	1.1−	0.6+	1998 08 17	704	0.1−	0.1+	1998 08 26	699	0.2+	0.2+
1980 04 16	805	0.6+	0.1+	1998 08 23	704	0.7−	0.4−	1998 08 26	699	0.5+	0.4−
1998 08 17	704	0.2−	0.2−	1998 08 23	704	0.8−	0.1−	1998 08 26	699	0.5+	0.8−
1998 08 17	704	0.3−	0.3−	1998 08 23	704	0.0	0.4+				
1998 08 17	704	1.0+	0.2+	1998 08 23	704	0.6+	0.7+				

1998 QQ₃₆ = 1979 SZ₆ = 1979 TW = 1982 JK₂ = 1997 EO₅₁

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Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.25652859	ω	97.33579	+0.52394768	+0.85114397				
<i>a</i>	2.4530827	Ω	204.34537	−0.80899517	+0.48548885				
<i>e</i>	0.1105801	<i>i</i>	4.47117	−0.26646884	+0.19963598				
<i>P</i>	3.84	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1		

Residuals in seconds of arc

1979 09 23	809	0.0	0.5−	1997 03 06	809	0.1+	0.1+	1998 08 17	704	0.4+	0.0
1979 10 14	809	0.1−	0.4+	1997 03 06	809	0.0	1.0+	1998 08 17	704	0.1−	0.6−
1982 05 15	675	1.0+	1.4−	1997 03 08	809	1.2+	0.2−	1998 08 17	704	0.6−	0.4−
1982 05 16	675	0.0	0.5−	1997 03 08	809	1.2+	0.1+	1998 08 23	704	0.4−	0.1−
1982 05 16	675	1.3−	0.6+	1997 03 08	809	1.1+	0.3−	1998 08 23	704	0.2+	0.3−
1982 05 18	675	0.0	0.7−	1998 08 03	699	0.0	0.6+	1998 08 23	704	0.4−	0.0
1997 03 05	809	0.5−	0.9+	1998 08 03	699	0.4+	0.5+	1998 08 23	704	0.1−	0.3−
1997 03 05	809	0.4−	1.2+	1998 08 03	699	0.6+	0.5+	1998 08 26	699	0.6−	1.0+
1997 03 05	809	0.9−	0.7+	1998 08 17	704	0.1+	0.2+	1998 08 26	699	0.2−	0.7+
1997 03 06	809	0.3−	1.2+	1998 08 17	704	0.1−	1.2+	1998 08 26	699	0.1−	0.6+

1998 QK₃₇ = 1995 WW₃₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>		(2000.0)		P		Q		Williams	
<i>n</i>	0.28040095	ω	58.91160	+0.32966757	+0.94323581				
<i>a</i>	2.3117972	Ω	230.39187	−0.88304221	+0.29295866				
<i>e</i>	0.1637331	<i>i</i>	2.99975	−0.33399963	+0.15646544				
<i>P</i>	3.51	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5		

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Residuals in seconds of arc

1995 11 19	691	0.1−	0.2+	1998 08 03	699	0.0	0.4+	1998 08 23	704	0.7−	0.0
1995 11 19	691	0.2−	0.0	1998 08 03	699	0.3−	0.3+	1998 08 23	704	0.3−	0.7−
1995 11 19	691	0.2+	0.1+	1998 08 17	704	0.1+	0.5−	1998 08 23	704	0.0	0.9−
1995 11 27	691	0.1+	0.2+	1998 08 17	704	0.4−	0.2−	1998 08 23	704	1.5+	0.2−
1995 11 27	691	0.1+	0.3−	1998 08 17	704	0.3−	0.4+	1998 08 26	699	0.4+	0.6+
1995 11 27	691	0.2−	0.0	1998 08 17	704	0.3+	0.0	1998 08 26	699	0.2+	0.5+
1998 08 03	699	0.1+	0.5+	1998 08 17	704	0.4−	0.6−	1998 08 26	699	0.3−	0.5+

1998 QG₃₉ = 1996 EC₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	338.77723		(2000.0)								
				P		Q					
<i>n</i>	0.22275319	ω	11.04469	+0.99659458		+0.07147747					
<i>a</i>	2.6951737	Ω	344.67506	−0.08239375		+0.84362119					
<i>e</i>	0.3114563	<i>i</i>	8.94900	−0.00324140		+0.53215999					
<i>P</i>	4.42	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4				

Residuals in seconds of arc

1996 03 12	691	0.2−	0.3−	1998 07 31	699	0.4−	0.0	1998 08 23	704	0.3−	0.2−
1996 03 12	691	0.7−	0.1−	1998 08 17	704	0.6+	0.3+	1998 08 23	704	1.0+	0.3+
1996 03 12	691	0.7−	0.1−	1998 08 17	704	0.7−	0.1+	1998 08 23	704	0.2−	1.3+
1996 03 17	691	0.7+	0.1+	1998 08 17	704	0.0	0.2+	1998 08 30	699	0.3−	0.1+
1996 03 17	691	0.6+	0.0	1998 08 17	704	0.0	0.3−	1998 08 30	699	0.4−	0.2−
1996 03 17	691	0.3+	0.1+	1998 08 17	704	0.4+	1.4−	1998 08 30	699	0.3−	0.0
1998 07 31	699	0.0	0.0	1998 08 23	704	0.1+	0.2−				
1998 07 31	699	0.1+	0.4+	1998 08 23	704	0.5+	0.4−				

1998 QK₄₁ = 4836 P-L = 1992 YY₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	114.22857		(2000.0)								
				P		Q					
<i>n</i>	0.28376606	ω	22.92704	−0.89011494		+0.45573044					
<i>a</i>	2.2934842	Ω	184.18700	−0.42280156		−0.82763888					
<i>e</i>	0.0491898	<i>i</i>	1.78237	−0.17010065		−0.32760288					
<i>P</i>	3.47	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4				

Residuals in seconds of arc

1960 09 24	675	0.0	0.3−	1998 08 17	704	0.3−	0.3+	1998 08 26	699	1.3+	0.6+
1960 09 26	675	0.1+	0.1+	1998 08 17	704	0.8+	0.4+	1998 08 26	699	0.0	1.1−
1960 09 27	675	0.6+	0.4−	1998 08 17	704	0.2−	0.5−	1998 08 26	699	0.9+	0.1+
1960 09 28	675	0.8−	1.0+	1998 08 17	704	1.1−	0.3−	1998 08 30	699	0.2−	0.2+
1992 12 30	033	0.1+	0.8+	1998 08 23	704	0.0	0.1+	1998 08 30	699	0.3+	0.5−
1992 12 30	033	0.0	0.8−	1998 08 23	704	0.1+	0.1−	1998 08 30	699	0.1−	0.3+
1993 01 01	033	0.1−	0.2−	1998 08 23	704	0.9+	0.1−				
1998 08 17	704	1.1−	0.2−	1998 08 23	704	1.3−	0.5+				

1998 QN₄₂ = 1996 DW₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	352.06268		(2000.0)								
				P		Q					
<i>n</i>	0.21881238	ω	10.16984	+0.91633638		+0.39190768					
<i>a</i>	2.7274374	Ω	326.38142	−0.37699400		+0.77536574					
<i>e</i>	0.1848847	<i>i</i>	8.52478	−0.13491912		+0.49519324					
<i>P</i>	4.50	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5				

Residuals in seconds of arc

1996 02 16	010	0.7−	0.9−	1998 08 17	704	0.2−	0.4+	1998 08 23	704	0.2+	1.5+
1996 02 16	010	0.8−	0.7−	1998 08 17	704	0.4+	0.9−	1998 08 23	704	0.5−	0.3−
1996 02 16	010	0.5−	0.5−	1998 08 17	704	0.7−	0.6+	1998 08 23	704	0.4−	0.8+
1996 02 17	010	(2.5+	0.7+)	1998 08 17	704	0.2−	0.8−	1998 08 23	704	0.1−	1.1+
1996 02 17	010	0.8+	0.8+	1998 08 17	704	0.0	1.8−	1998 08 26	699	0.3−	0.1−
1996 02 17	010	0.9+	0.9+	1998 08 18	566	0.2+	1.5−	1998 08 26	699	0.0	0.2+
1998 08 03	699	0.2+	0.3+	1998 08 18	566	0.6+	0.6−	1998 08 26	699	0.3−	0.4+
1998 08 03	699	0.4+	0.5+	1998 08 18	566	0.9+	0.6−				
1998 08 03	699	0.0	0.4+	1998 08 23	704	0.1+	0.4+				

1998 QN₄₃ = 1995 WZ₉ = 1997 ER₅₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	67.00184		(2000.0)								
				P		Q					
<i>n</i>	0.28067079	ω	204.87159	−0.46422951		+0.88404420					
<i>a</i>	2.3103152	Ω	37.53418	−0.79696524		−0.39013918					
<i>e</i>	0.1140130	<i>i</i>	5.12069	−0.38644193		−0.25740489					
<i>P</i>	3.51	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	3				

Residuals in seconds of arc

1995 11 16	691	0.2−	0.1+	1997 03 18	599	0.2+	0.4+	1998 08 17	704	1.0+	0.3+
1995 11 16	691	0.4−	0.0	1997 03 18	599	0.9+	0.6+	1998 08 23	704	0.0	0.8−
1995 11 16	691	0.4−	0.0	1998 07 31	699	1.0−	0.5+	1998 08 23	704	1.3+	0.9+
1995 11 21	691	0.5+	0.3+	1998 07 31	699	1.6−	0.0	1998 08 23	704	(2.2+	2.9−)
1995 11 21	691	0.2+	0.1+	1998 07 31	699	0.5−	0.3−	1998 08 23	704	1.7−	0.5+
1995 11 21	691	0.2+	0.0	1998 08 17	704	0.8+	0.1−	1998 08 28	699	0.0	0.4−
1997 03 12	691	0.0	0.8−	1998 08 17	704	0.2+	0.0	1998 08 28	699	0.3−	0.1+
1997 03 12	691	0.2−	0.3+	1998 08 17	704	1.1+	0.8+	1998 08 28	699	0.6−	1.4−
1997 03 12	691	0.7−	0.1+	1998 08 17	704	1.0+	0.4+				

1998 QZ₄₆ = 1987 DX = 1989 YV₅ = 1992 WU₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	166.67820		(2000.0)								
				P		Q					
<i>n</i>	0.30124654	ω	52.44668	−0.92654039		−0.37153028					
<i>a</i>	2.2038803	Ω	105.67508	+0.32291205		−0.86599054					
<i>e</i>	0.0573030	<i>i</i>	3.51684	+0.19300444		−0.33470230					
<i>P</i>	3.27	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1987 02 25	046	0.7+	1.3−	1992 11 27	399	0.4+	0.1+	1998 08 23	704	0.9−	0.5+
1987 02 25	046	1.1−	0.3−	1998 08 17	704	0.4+	0.2−	1998 08 23	704	0.4+	1.5−
1989 12 29	511	1.1−	0.9−	1998 08 17	704	0.1−	0.3−	1998 08 23	704	0.2−	1.6−
1989 12 29	511	0.3−	0.0	1998 08 17	704	0.2+	0.1+	1998 08 23	704	1.4−	0.1+
1989 12 30	511	0.6−	0.1+	1998 08 17	704	0.1−	0.0	1998 08 30	699	1.2+	0.6+
1989 12 30	511	2.1+	0.4+	1998 08 17	704	0.7+	0.5+	1998 08 30	699	0.4+	1.0+
1992 11 27	399	0.7−	0.4+	1998 08 23	704	0.6−	0.2−	1998 08 30	699	0.8+	0.8−

1998 QP₄₇ = 1974 VB₂ = 1978 OG = 1991 ES₂

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	340.88316		(2000.0)								
				P		Q					
<i>n</i>	0.20042587	ω	203.70142	+0.99297332		+0.11613216					
<i>a</i>	2.8917908	Ω	149.60263	−0.10011306		+0.92686345					
<i>e</i>	0.0834007	<i>i</i>	2.57633	−0.06309809		+0.35698384					
<i>P</i>	4.92	<i>H</i>	12.5	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1974 11 15	095	0.4+	3.0+	1991 03 13	809	0.4+	0.6+	1998 08 23	704	0.2+	1.8+
1974 11 17	095	0.1−	3.9−	1991 03 13	809	1.0+	0.6+	1998 08 23	704	0.4+	0.0
1978 07 30	414	1.0−	0.5−	1998 08 17	704	0.2−	0.5+	1998 08 23	704	0.8−	0.5+
1978 07 30	414	1.2+	0.6−	1998 08 17	704	0.2+	0.4+	1998 08 23	704	0.6−	1.0+
1991 03 11	809	0.4−	0.9+	1998 08 17	704	0.6+	0.1+	1998 08 30	699	0.3−	0.4+
1991 03 11	809	0.0	1.1+	1998 08 17	704	0.5+	0.1−	1998 08 30	699	0.6−	0.1+
1991 03 11	809	0.3+	1.4+	1998 08 17	704	0.2−	0.6+	1998 08 30	699	0.8−	0.2+
1991 03 13	809	0.5+	0.5+	1998 08 23	704	0.5−	0.2+				

1998 QD₄₈ = 1988 VC₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	301.52302		(2000.0)								
				P		Q					
<i>n</i>	0.29032097	ω	178.67984	+0.71323611		−0.69924196					
<i>a</i>	2.2588312	Ω	225.81823	+0.64246333		+0.67986083					
<i>e</i>	0.1799732	<i>i</i>	3.88011	+0.28024119		+0.22102019					
<i>P</i>	3.39	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6				

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Residuals in seconds of arc

1988 11 03	327	0.1+	0.4+	1998 08 17	704	0.9+	0.2+	1998 08 23	704	0.7+	0.6+
1988 11 03	327	0.4-	0.9+	1998 08 17	704	0.7-	0.6-	1998 08 23	704	1.3-	2.9-
1988 11 04	327	1.6-	0.4-	1998 08 17	704	0.8+	0.7-	1998 08 23	704	0.4+	0.9-
1988 11 04	046	1.7+	1.4-	1998 08 17	704	0.4-	1.0+	1998 08 30	699	0.1+	0.1-
1988 11 04	046	0.3-	1.1-	1998 08 17	704	0.4-	1.6+	1998 08 30	699	0.1-	0.0
1988 11 05	046	0.2+	1.6+	1998 08 23	704	0.7+	0.1-	1998 08 30	699	0.6+	0.6+
1988 11 05	046	0.3+	0.0	1998 08 23	704	1.4-	1.3+				

1998 QG₅₀ = 1993 LZ

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams				Williams			
<i>M</i>	352.67279	(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.23169095	ω	339.40687	+0.89262734		+0.45004102	
<i>a</i>	2.6254072	Ω	353.65924	-0.37349965		+0.70595672	
<i>e</i>	0.2034561	<i>i</i>	13.65233	-0.25241719		+0.54688957	
<i>P</i>	4.25	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1993 06 13	413	0.8+	1.3-	1998 08 17	704	0.6-	0.6+	1998 08 23	704	1.2+	0.3+
1993 06 13	413	0.6-	1.2+	1998 08 17	704	0.6-	0.5+	1998 08 23	704	0.0	0.5-
1993 06 14	413	0.1+	0.5+	1998 08 17	704	1.1-	0.3-	1998 08 23	704	0.8+	0.3+
1993 06 15	413	0.4-	0.4+	1998 08 17	704	0.0	0.1-	1998 08 30	699	0.3-	0.0
1993 06 15	413	0.5-	0.1-	1998 08 17	704	0.6-	0.5-	1998 08 30	699	0.1+	0.1+
1993 06 18	413	0.5+	0.7-	1998 08 23	704	1.0+	0.2-	1998 08 30	699	0.0	0.1-

1998 QS₅₁ = 1997 GC₁₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams				Williams			
<i>M</i>	341.87874	(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.28120881	ω	108.97493	+0.98435856		+0.17138601	
<i>a</i>	2.3073675	Ω	241.17463	-0.17402623		+0.90982429	
<i>e</i>	0.1267725	<i>i</i>	2.66959	-0.02744274		+0.37795051	
<i>P</i>	3.50	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1997 04 03	704	0.2-	0.6-	1998 08 17	704	0.2+	1.7-	1998 08 23	704	1.1-	0.1-
1997 04 03	704	0.2-	0.4+	1998 08 17	704	0.9-	0.3-	1998 08 23	704	2.5-	0.3+
1997 04 07	704	0.7+	0.0	1998 08 17	704	0.8+	1.3+	1998 08 30	699	0.2-	0.8+
1997 04 07	704	0.2-	0.5+	1998 08 23	704	0.8+	1.4-	1998 08 30	699	0.6+	0.4+
1998 08 17	704	1.5+	0.5-	1998 08 23	704	1.7-	0.1+	1998 08 30	699	0.3+	0.8+
1998 08 17	704	1.4+	0.1-	1998 08 23	704	0.7+	0.6+				

1998 QV₅₁ = 1987 QO₃ = 1991 XA₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams				Williams			
<i>M</i>	0.92421	(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.26605589	ω	11.32660	+0.84371483		+0.52892926	
<i>a</i>	2.3941653	Ω	316.33590	-0.50227465		+0.71773618	
<i>e</i>	0.1370529	<i>i</i>	7.61874	-0.18938176		+0.45286710	
<i>P</i>	3.70	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1987 08 30	010	1.3-	0.3+	1998 08 17	704	0.4+	0.5-	1998 08 23	704	0.2+	0.7+
1987 08 30	010	0.1+	0.1-	1998 08 17	704	0.8-	0.7-	1998 08 23	704	0.5-	1.5-
1987 08 30	010	0.9+	0.5+	1998 08 17	704	0.2-	0.8+	1998 08 23	704	0.7-	0.2-
1991 12 11	033	0.0	0.1-	1998 08 18	566	0.3-	0.3+	1998 08 30	699	0.3+	0.5-
1991 12 11	033	0.9-	0.9-	1998 08 18	566	0.6-	0.0	1998 08 30	699	0.2+	0.1+
1991 12 12	033	0.9+	0.9+	1998 08 18	566	0.0	0.2+	1998 08 30	699	1.1+	0.1+
1998 08 17	704	0.2-	0.2+	1998 08 23	704	0.4+	0.1+				
1998 08 17	704	0.3+	0.3-	1998 08 23	704	0.7+	0.6+				

2082 P-L = 1997 MX₁₁

Id. A. Gnädig

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams				Williams			
<i>M</i>	78.13339	(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.29021334	ω	65.00787	+0.76361255		+0.64260890	
<i>a</i>	2.2593897	Ω	254.94079	-0.61338158		+0.69157928	
<i>e</i>	0.1621409	<i>i</i>	3.73153	-0.20164054		+0.32980585	
<i>P</i>	3.40	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1960 09 24	675	0.3-	0.5-	1997 06 29	704	0.0	0.2+	1997 07 02	704	0.1+	0.1-
1960 09 26	675	0.7+	0.1+	1997 06 29	704	0.6-	0.8-	1997 07 02	704	0.5-	0.1+
1960 09 28	675	0.3-	0.8+	1997 06 29	704	0.3+	0.2+	1997 07 02	704	0.4+	0.1-
1960 10 17	675	0.1-	1.0+	1997 06 29	704	0.2+	0.3-	1997 07 02	704	0.2+	0.2+
1960 10 22	675	0.1-	1.4-	1997 07 02	704	0.1+	0.0	1997 07 02	704	0.0	0.5-
1960 10 25	675	0.8+	0.5+	1997 07 02	704	0.1-	0.0	1997 07 02	704	0.1-	0.1+
1960 10 26	675	0.6-	0.4-	1997 07 02	704	0.0	0.0				
1997 06 29	704	0.2+	0.8+	1997 07 02	704	0.0	0.2+				

2551 P-L = 1977 DD₆ = 1998 QF₁₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams				Williams			
<i>M</i>	350.22391	(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.20527218	ω	295.89537	+0.78330159		+0.62150242	
<i>a</i>	2.8460945	Ω	25.68509	-0.55892353		+0.71338633	
<i>e</i>	0.1012415	<i>i</i>	1.74079	-0.27210862		+0.32375097	
<i>P</i>	4.80	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1960 09 24	675	0.1-	0.5-	1977 02 19	381	1.4+	0.1+	1998 08 23	704	1.0+	0.3+
1960 09 26	675	0.0	0.1-	1977 02 19	381	1.2-	0.6+	1998 08 23	704	1.2+	1.1-
1960 09 28	675	0.3-	0.1-	1998 08 17	704	0.5-	0.2+	1998 08 23	704	0.4-	1.0-
1960 09 29	675	0.7+	0.7-	1998 08 17	704	0.7-	0.5+	1998 08 23	704	0.9-	2.0-
1960 10 17	675	0.4-	0.5+	1998 08 17	704	1.0-	0.9+	1998 08 27	699	0.4+	0.3+
1960 10 22	675	0.3-	0.2+	1998 08 17	704	1.2-	1.3+	1998 08 27	699	0.7+	0.1-
1960 10 25	675	0.3+	1.0+	1998 08 17	704	0.7-	1.4+	1998 08 27	699	0.4+	0.6+
1960 10 26	675	(4.0-	0.7-)	1998 08 23	704	1.4+	0.8-				

2555 P-L = 1982 SF₁₁ = 1993 TK₄₂ = 1998 QE₉

Id. A. Gnädig, G. V. Williams

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams				Williams			
<i>M</i>	306.40411	(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.18005819	ω	195.53867	+0.91176469		-0.41066195	
<i>a</i>	3.1059476	Ω	188.71613	+0.38122778		+0.85206826	
<i>e</i>	0.2269185	<i>i</i>	2.44846	+0.15280879		+0.32455575	
<i>P</i>	5.47	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1960 09 24	675	0.2+	0.1+	1982 09 27	095	0.5+	0.8-	1998 08 17	704	0.9-	0.5+
1960 09 26	675	0.0	0.3-	1993 10 10	809	(0.6+	3.2+)	1998 08 17	704	0.3-	0.3+
1960 09 28	675	0.1+	0.2+	1993 10 10	809	(0.3-	2.3+)	1998 08 17	704	0.3-	1.1-
1960 09 29	675	0.3-	0.0	1993 10 10	809	1.6-	1.4+	1998 08 17	704	0.2+	0.6+
1960 10 17	675	0.1-	0.1+	1993 10 22	809	1.8+	0.8-	1998 08 23	704	1.8+	0.2+
1960 10 22	675	0.7-	0.3+	1993 10 22	809	0.3+	0.5-	1998 08 23	704	0.1+	0.6+
1960 10 25	675	0.7+	0.4+	1993 10 22	809	0.6-	0.1-	1998 08 23	704	1.5+	0.5-
1960 10 26	675	0.3-	0.1+	1998 08 17	704	1.3-	0.2+	1998 08 23	704	0.9-	0.7-

2599 P-L = 1998 FV₂₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

Gnädig				Gnädig			
<i>M</i>	91.21582	(2000.0)		<i>P</i>		<i>Q</i>	
<i>n</i>	0.24652793	ω	257.40207	-0.01623024		-0.99945209	
<i>a</i>	2.5189833	Ω	193.62703	+0.95831690		-0.00731890	
<i>e</i>	0.1295854	<i>i</i>	7.03272	+0.28524605		-0.03227921	
<i>P</i>	4.00	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5

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Residuals in seconds of arc

1960 09 24	675	0.4−	2.4−	1960 10 25	675	0.5+	0.1−	1998 03 20	704	0.2−	0.3+
1960 09 26	675	0.4−	1.2+	1960 10 26	675	0.1+	0.7−	1998 03 22	704	0.1−	0.1+
1960 09 28	675	0.2+	0.5+	1998 03 20	704	0.3−	0.1−	1998 03 22	704	(0.6+	3.0+)
1960 09 29	675	0.0	0.4+	1998 03 20	704	0.4−	1.2−	1998 03 22	704	0.8+	0.3+
1960 10 17	675	0.6+	1.8+	1998 03 20	704	0.3−	0.8−	1998 03 22	704	0.9+	1.3+
1960 10 22	675	0.5−	0.6−	1998 03 20	704	0.4−	0.1+	1998 03 22	704	(2.0−	0.5+)

2626 P-L = 1954 ON = 1996 PC₉

Id. A. Gnädig, E. Bowell

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	211.60706		(2000.0)	<i>P</i>	<i>Q</i>			Williams			
<i>n</i>	0.18897032	ω	78.29516	−0.61077300	+0.79166893						
<i>a</i>	3.0075094	Ω	154.04188	−0.73893698	−0.56321461						
<i>e</i>	0.0963699	<i>i</i>	1.92704	−0.28447931	−0.23674798						
<i>P</i>	5.22	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	5				

Residuals in seconds of arc

1954 07 29	675	0.2+	0.1−	1960 10 17	675	0.1−	0.0	1996 08 08	809	0.2−	0.3+
1954 07 29	675	0.3−	0.4+	1960 10 22	675	0.3−	1.1−	1996 08 08	809	0.2−	0.5+
1960 09 26	675	0.4+	0.2+	1960 10 25	675	0.4+	0.3−	1996 08 09	809	0.3+	0.4−
1960 09 28	675	0.3−	0.0	1960 10 26	675	0.5−	0.8+	1996 08 09	809	0.2+	1.1−
1960 09 29	675	0.3+	0.6+	1996 08 08	809	0.0	0.9+	1996 08 09	809	0.1+	0.7−

2643 P-L = 1998 FC₁₁₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	137.99268		(2000.0)	<i>P</i>	<i>Q</i>			Gnädig			
<i>n</i>	0.22355124	ω	71.75112	+0.17754950	−0.98251559						
<i>a</i>	2.6887556	Ω	8.62196	+0.70094212	+0.08629307						
<i>e</i>	0.0623633	<i>i</i>	21.94665	+0.69076503	+0.16497463						
<i>P</i>	4.41	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5				

Residuals in seconds of arc

1960 09 24	675	0.1−	0.2−	1960 10 24	675	0.5+	0.9−	1998 04 01	704	0.1+	0.4+
1960 09 26	675	0.7−	0.1−	1960 10 26	675	0.3−	0.0	1998 04 01	704	0.4+	0.3+
1960 09 28	675	1.1+	0.3+	1998 03 31	704	0.5+	0.3+	1998 04 01	704	0.1+	0.0
1960 09 28	675	0.3−	0.5−	1998 03 31	704	0.3−	0.7−	1998 04 01	704	0.1−	0.3+
1960 10 17	675	0.1−	0.9+	1998 03 31	704	0.6+	0.4+	1998 04 01	704	0.6−	0.6+
1960 10 17	675	0.2−	1.1+	1998 03 31	704	0.2−	1.1−				
1960 10 22	675	0.0	0.8−	1998 03 31	704	0.5−	0.5−				

4032 P-L = 1998 QX₂₄

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	241.20756		(2000.0)	<i>P</i>	<i>Q</i>			Williams			
<i>n</i>	0.28345861	ω	125.01728	−0.02994082	−0.99842225						
<i>a</i>	2.2951423	Ω	326.60205	+0.88666171	−0.00458935						
<i>e</i>	0.1283398	<i>i</i>	4.95071	+0.46144833	−0.05596376						
<i>P</i>	3.48	<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+	0.1+	1960 10 26	675	0.3+	0.6−	1998 08 23	704	0.1+	1.2−
1960 09 25	675	0.7−	0.7+	1998 08 17	704	0.5+	0.7+	1998 08 23	704	0.5+	0.7+
1960 09 26	675	0.8+	0.1−	1998 08 17	704	1.0−	0.5+	1998 08 23	704	1.3+	0.1+
1960 09 28	675	0.3−	1.0−	1998 08 17	704	0.3−	0.2−	1998 08 23	704	1.1−	0.8−
1960 10 22	675	0.2+	1.1+	1998 08 17	704	0.3+	0.3+				
1960 10 24	675	0.3−	0.2−	1998 08 17	704	0.4−	0.1−				

4115 P-L = 1998 OJ₉

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	291.51070		(2000.0)	<i>P</i>	<i>Q</i>			Marsden			
<i>n</i>	0.23149951	ω	169.57184	+0.83734962	−0.54651965						
<i>a</i>	2.6268544	Ω	223.56464	+0.50021927	+0.77538356						
<i>e</i>	0.1001271	<i>i</i>	1.05782	+0.22051369	+0.31638047						
<i>P</i>	4.26	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	6				

Residuals in seconds of arc

1960 09 24	675	0.2−	1.0−	1960 09 28	675	0.0	0.6+	1998 07 26	809	0.9−	1.4−
1960 09 24	675	0.3+	0.9+	1960 10 17	675	0.9−	0.6−	1998 07 26	809	0.4−	0.4+
1960 09 25	675	0.0	0.1−	1960 10 22	675	0.0	0.1−	1998 07 27	809	0.8+	0.7+
1960 09 26	675	0.2−	0.8−	1960 10 24	675	0.5−	0.1−	1998 07 27	809	0.5+	0.7+
1960 09 26	675	0.2+	0.3−	1960 10 26	675	0.7+	0.6+	1998 07 27	809	0.2−	0.4−
1960 09 27	675	0.5+	0.9+	1998 07 26	809	0.2+	0.0				

4590 P-L = 1954 MY = 1982 UT₄ = 1998 QX₄₆

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Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	353.17037		(2000.0)	<i>P</i>	<i>Q</i>			Williams			
<i>n</i>	0.18144921	ω	248.90004	+0.93102747	+0.36340063						
<i>a</i>	3.0900534	Ω	89.77829	−0.32113489	+0.85949366						
<i>e</i>	0.1717005	<i>i</i>	1.92456	−0.17337888	+0.35945880						
<i>P</i>	5.43	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1954 06 30	675	0.7+	0.2+	1960 10 25	675	0.3+	0.3+	1998 08 23	704	0.4−	0.1+
1954 06 30	675	0.5−	1.0−	1960 10 26	675	0.1−	0.3−	1998 08 23	704	0.6−	1.0+
1960 09 24	675	0.3+	0.8+	1982 10 20	033	0.2+	0.3−	1998 08 23	704	0.1−	0.9−
1960 09 26	675	0.0	0.2+	1998 08 17	704	0.3−	0.5+	1998 08 23	704	0.3+	0.3−
1960 09 27	675	0.2+	0.9+	1998 08 17	704	0.7+	0.0	1998 08 23	704	1.6−	0.4+
1960 09 28	675	0.1+	0.4−	1998 08 17	704	0.2+	0.6−	1998 08 30	699	0.1−	0.1+
1960 10 17	675	0.4+	1.6−	1998 08 17	704	0.3−	0.0	1998 08 30	699	0.7+	0.1−
1960 10 22	675	1.0−	0.7−	1998 08 17	704	1.1+	1.2+	1998 08 30	699	0.1−	0.0

4602 P-L = 1998 QQ₆

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	339.26485		(2000.0)	<i>P</i>	<i>Q</i>			Williams			
<i>n</i>	0.18248018	ω	249.63556	+0.77007647	−0.63790046						
<i>a</i>	3.0784038	Ω	149.99819	+0.59116779	+0.70878727						
<i>e</i>	0.1833533	<i>i</i>	0.92552	+0.23979758	+0.30117038						
<i>P</i>	5.40	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5				

Residuals in seconds of arc

1960 09 24	675	0.6−	0.1−	1960 10 25	675	0.7+	1.1−	1998 08 25	910	0.1−	0.1+
1960 09 26	675	0.1−	0.3−	1960 10 26	675	0.3−	0.5+	1998 08 25	910	0.0	0.4−
1960 09 27	675	0.9+	0.5+	1998 08 24	910	0.0	0.2+	1998 08 25	910	0.3−	0.3−
1960 09 28	675	0.1−	0.2+	1998 08 24	910	0.2+	0.4+				
1960 10 17	675	0.4−	0.2+	1998 08 24	910	0.1+	0.2+				

4778 P-L = 1998 PC₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	39.35277		(2000.0)	<i>P</i>	<i>Q</i>			Williams			
<i>n</i>	0.30927917	ω	87.54957	−0.18242861	+0.98315698						
<i>a</i>	2.1655536	Ω	171.91386	−0.93043194	−0.16898982						
<i>e</i>	0.1208019	<i>i</i>	4.50653	−0.31783046	−0.06960454						
<i>P</i>	3.19	<i>H</i>	16.0	<i>G</i>	0.15	<i>U</i>	5				

Residuals in seconds of arc

1960 09 24	675	0.5−	0.9−	1998 08 14	540	0.2−	0.1+	1998 08 17	540	0.2−	0.2−
1960 09 26	675	0.9−	0.0	1998 08 14	540	0.3−	0.4−	1998 08 17	540	0.5+	0.1+
1960 09 27	675	1.3+	1.9+	1998 08 14	540	0.2+	0.1−	1998 08 17	540	0.4−	0.4+
1960 09 28	675	0.5+	0.1+	1998 08 14	540	0.9+	0.5+	1998 08 28	699	0.7+	0.2+
1960 10 25	675	0.6−	1.0−	1998 08 16	540	0.1−	0.5+	1998 08 28	699	0.0	0.4−

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1960 10 26 675 0.2+ 0.0 1998 08 16 540 0.2+ 0.2+ 1998 08 28 699 0.2- 0.3-
 1998 08 14 540 1.3- 0.3- 1998 08 16 540 0.1+ 0.5-

6105 P-L = 1998 QA₇₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	339.53054		(2000.0)	P	Q
<i>n</i>	0.20659460	ω	150.99658	+0.98124267	+0.18061263
<i>a</i>	2.8339362	Ω	198.95783	-0.19089536	+0.95907668
<i>e</i>	0.1119337	<i>i</i>	11.97276	+0.02686607	+0.21806190
<i>P</i>	4.77	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1960 09 24	675	0.4-	0.4-	1960 10 26	675	0.1-	0.0	1998 08 27	704	0.9-	0.2+
1960 09 25	675	0.4+	0.8-	1998 08 24	704	0.8-	1.2-	1998 08 27	704	0.0	0.1-
1960 09 26	675	0.5-	0.7+	1998 08 24	704	0.0	0.7-	1998 08 27	704	0.4+	0.8+
1960 09 28	675	0.2+	0.5+	1998 08 24	704	2.2+	2.0+	1998 08 27	704	1.0-	0.0
1960 10 17	675	0.5+	0.1-	1998 08 24	704	0.5+	0.3+				
1960 10 22	675	0.1-	0.1+	1998 08 27	704	0.3-	1.2-				

6108 P-L = 1998 QA₄₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	275.47358		(2000.0)	P	Q
<i>n</i>	0.23247109	ω	219.02024	+0.19440552	-0.98027995
<i>a</i>	2.6195303	Ω	219.80592	+0.91328206	+0.19407479
<i>e</i>	0.1812984	<i>i</i>	3.17563	+0.35794185	+0.03723175
<i>P</i>	4.24	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.2-	0.8+	1960 10 26	675	0.1+	0.8+	1998 08 23	704	0.6-	1.2-
1960 09 25	675	0.0	0.0	1998 08 17	704	0.3-	1.4+	1998 08 23	704	1.5-	0.1+
1960 09 26	675	0.2+	0.1-	1998 08 17	704	0.8+	0.4+	1998 08 26	699	0.5+	0.1+
1960 09 28	675	0.0	0.4-	1998 08 17	704	0.8-	0.1-	1998 08 26	699	0.2+	0.4+
1960 10 17	675	0.1+	0.4-	1998 08 23	704	0.2+	1.2+	1998 08 26	699	0.0	0.5-
1960 10 22	675	0.6-	0.2-	1998 08 23	704	0.0	0.3-				
1960 10 24	675	0.4+	0.2-	1998 08 23	704	1.6+	1.6-				

6111 P-L = 1998 QZ₂₂

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Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	349.20140		(2000.0)	P	Q
<i>n</i>	0.18066559	ω	339.36703	+0.88171232	+0.47125340
<i>a</i>	3.0989822	Ω	352.40061	-0.40557982	+0.73282084
<i>e</i>	0.1266307	<i>i</i>	9.77004	-0.24101533	+0.49080939
<i>P</i>	5.46	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.6+	0.2+	1960 10 26	675	0.1+	0.1+	1998 08 23	704	1.0+	0.6-
1960 09 25	675	0.3+	0.4+	1998 08 17	704	0.4+	0.7-	1998 08 23	704	2.6-	0.3+
1960 09 26	675	0.5+	0.4-	1998 08 17	704	0.1+	0.7+	1998 08 23	704	1.7-	1.0+
1960 09 28	675	0.5-	0.4-	1998 08 17	704	1.5+	0.9-	1998 08 27	699	1.7+	0.0
1960 10 17	675	1.3-	0.9+	1998 08 17	704	0.2-	0.7+	1998 08 27	699	0.9-	0.0
1960 10 22	675	0.3+	0.6-	1998 08 17	704	0.5+	0.9+	1998 08 27	699	0.5-	0.1+
1960 10 24	675	0.0	0.3-	1998 08 23	704	0.6+	1.4-				

3314 T-1 = 1998 QM₆₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	77.47632		(2000.0)	P	Q
<i>n</i>	0.22900962	ω	55.45058	-0.34070456	+0.93846116
<i>a</i>	2.6458602	Ω	194.94564	-0.91844426	-0.34510861
<i>e</i>	0.1448509	<i>i</i>	12.69254	-0.20094912	-0.01380936
<i>P</i>	4.30	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1971 03 24	675	0.7+	0.2+	1971 04 16	675	0.1+	1.1-	1998 08 31	621	0.0	0.3+
1971 03 25	675	1.0+	0.8+	1971 05 13	675	0.0	0.3-	1998 08 31	621	0.0	0.0
1971 03 26	675	1.7-	0.5+	1971 05 14	675	0.1+	0.3+	1998 09 01	621	0.2-	0.1-
1971 03 26	675	1.0-	0.3-	1971 05 16	675	0.0	0.4+	1998 09 01	621	0.1+	0.0
1971 03 27	675	(5.4+	2.3-)	1998 08 31	621	0.0	0.1+	1998 09 01	621	0.0	0.0
1971 04 02	675	0.4+	0.6-	1998 08 31	621	0.2+	0.1-				
1971 04 16	675	0.3+	0.1+	1998 08 31	621	0.1-	0.0				

4229 T-1 = 1998 QV₃₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	53.85736		(2000.0)	P	Q
<i>n</i>	0.26279271	ω	83.70283	-0.38663135	+0.92186993
<i>a</i>	2.4139439	Ω	163.47898	-0.87808308	-0.35938289
<i>e</i>	0.1771095	<i>i</i>	5.23051	-0.28193314	-0.14491301
<i>P</i>	3.75	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1971 03 24	675	0.4+	1.0-	1971 04 16	675	0.4+	1.5-	1998 08 23	704	0.4+	0.1-
1971 03 26	675	0.0	1.8+	1998 08 17	704	0.1-	0.3-	1998 08 23	704	1.0+	1.1+
1971 03 26	675	0.5-	0.3-	1998 08 17	704	1.5-	0.6+	1998 09 01	691	1.0-	0.9-
1971 03 27	675	1.0-	0.7+	1998 08 17	704	0.8+	1.2+	1998 09 01	691	0.8-	0.7-
1971 04 02	675	0.6+	0.5+	1998 08 23	704	1.8+	0.4-	1998 09 01	691	0.7-	0.6-
1971 04 16	675	0.2+	0.2-	1998 08 23	704	(2.6+	1.0+)				

4406 T-1 = 1998 QR₆₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	174.98400		(2000.0)	P	Q
<i>n</i>	0.23175057	ω	145.26952	-0.95520379	-0.28388745
<i>a</i>	2.6249569	Ω	18.78010	+0.17627221	-0.77273302
<i>e</i>	0.0083869	<i>i</i>	15.05613	+0.23772638	-0.56770732
<i>P</i>	4.25	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1971 03 26	675	0.6-	1.1-	1971 05 13	675	0.3-	0.7-	1998 08 31	683	0.1+	0.0
1971 03 26	675	0.1-	0.2-	1971 05 13	675	0.2+	0.2+	1998 09 01	683	0.3+	0.3+
1971 03 27	675	0.1+	0.9-	1971 05 14	675	1.0+	1.2-	1998 09 01	683	0.2+	0.1-
1971 04 02	675	0.8-	1.7+	1971 05 14	675	0.8-	0.6+	1998 09 01	683	0.3+	0.2-
1971 04 16	675	0.8-	0.5-	1998 08 31	683	0.1-	0.1-				
1971 04 16	675	2.1+	1.9+	1998 08 31	683	0.7-	0.1-				

2039 T-2 = 1998 QY₁₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

<i>M</i>	119.38837		(2000.0)	P	Q
<i>n</i>	0.27191152	ω	187.63807	-0.99142107	+0.13070649
<i>a</i>	2.3596684	Ω	359.87150	-0.11303385	-0.85835793
<i>e</i>	0.0510794	<i>i</i>	6.59016	-0.06563232	-0.49612244
<i>P</i>	3.62	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1973 09 19	675	0.3+	0.9+	1973 09 30	675	0.4-	0.2+	1973 10 05	675	0.1+	0.2-
1973 09 19	675	0.3-	0.3-	1973 09 30	675	2.1+	0.9+	1998 08 17	704	0.0	0.1-
1973 09 20	675	0.8-	1.3-	1973 09 30	675	0.8-	0.4+	1998 08 17	704	0.3+	0.1+
1973 09 24	675	0.3-	0.7+	1973 10 04	675	0.5-	0.2-	1998 08 17	704	0.5-	0.2-
1973 09 24	675	0.2-	1.4+	1973 10 04	675	1.4-	0.7-	1998 08 17	704	0.1+	0.2-
1973 09 25	675	0.6+	1.8-	1973 10 04	675	0.1-	0.1+	1998 08 23	704	1.1-	0.5-
1973 09 25	675	1.3+	1.1-	1973 10 04	675	0.9-	0.5+	1998 08 23	704	0.6+	0.9+
1973 09 29	675	0.1+	1.0+	1973 10 05	675	0.1-	1.0-	1998 08 23	704	0.7+	0.0
1973 09 29	675	0.2-	1.1+	1973 10 05	675	0.1-	0.5-				
1973 09 30	675	1.7+	0.4+	1973 10 05	675	0.1-	0.5-				

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3118 T-2 = 1998 QE₂₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	15.43978		(2000.0)	P	Q
n	0.27573739	ω	144.57136	+0.58980499	+0.80675826
a	2.3377906	Ω	161.48926	-0.76439256	+0.57198245
e	0.1775492	i	6.44800	-0.26044978	+0.14824705
P	3.57	H	16.0	G 0.15	U 6

Residuals in seconds of arc

1973 09 19	675	0.3+	1.5+	1973 09 29	675	0.2+	0.5+	1973 10 05	675	0.6-	0.2-
1973 09 19	675	1.3-	0.8+	1973 09 29	675	0.4-	0.1-	1998 08 26	691	0.1+	0.0
1973 09 20	675	1.5+	0.3-	1973 09 30	675	0.6-	1.0+	1998 08 26	691	0.2+	0.1+
1973 09 24	675	0.6-	0.8-	1973 09 30	675	1.3-	0.1-	1998 08 26	691	0.2+	0.1-
1973 09 24	675	0.3-	0.3-	1973 10 04	675	1.1+	0.3+	1998 08 27	691	0.3-	0.0
1973 09 25	675	0.9+	0.3-	1973 10 04	675	1.4+	0.9-	1998 08 27	691	0.2-	0.1-
1973 09 25	675	0.1-	1.1-	1973 10 05	675	0.4-	0.3+	1998 08 27	691	0.1+	0.2-

4131 T-2 = 1996 YN = 1998 KS₄₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Nakano

M	47.23979		(2000.0)	P	Q
n	0.18475604	ω	137.76734	-0.98676086	+0.15579403
a	3.0530713	Ω	51.25149	-0.15991905	-0.88840864
e	0.2375469	i	3.31286	-0.02699808	-0.43180818
P	5.33	H	13.9	G 0.15	U 3

Residuals in seconds of arc

1973 09 19	675	0.3-	2.0+	1996 12 20	411	0.3-	0.2-	1998 05 24	704	0.1+	0.6+
1973 09 19	675	(3.3-	1.0-)	1996 12 20	411	0.4+	0.7-	1998 05 24	704	1.8+	0.9+
1973 09 24	675	0.6-	0.7+	1996 12 21	411	0.4-	0.6-	1998 06 24	704	(2.6-	0.4+)
1973 09 24	675	1.6-	0.6+	1996 12 21	411	0.0	0.0	1998 06 24	704	1.5-	0.2-
1973 09 29	675	1.3+	2.1-	1998 05 22	704	0.0	1.3-	1998 06 24	704	0.2+	0.9-
1973 09 29	675	1.8+	2.3-	1998 05 22	704	0.1+	0.6-	1998 06 24	704	0.6-	1.6-
1973 09 30	675	0.4+	0.8-	1998 05 22	704	1.0+	1.0-	1998 06 24	704	(4.8-	0.1+)
1973 09 30	675	0.1+	0.6-	1998 05 22	704	0.4-	0.7-	1998 06 26	704	0.3+	0.3+
1973 10 04	675	1.1-	1.3+	1998 05 22	704	0.5-	0.6-	1998 06 26	704	1.5+	0.6-
1973 10 04	675	(1.0	2.5+)	1998 05 24	704	0.0	0.1+	1998 06 26	704	0.1+	1.2+
1973 10 05	675	0.2-	0.9+	1998 05 24	704	0.2-	0.4+	1998 06 26	704	1.4-	1.9+
1973 10 05	675	0.6+	0.7-	1998 05 24	704	0.7-	0.5+				

5205 T-2 = 1998 OH₈

Epoch 1998 July 6.0 TT = JDT 2451000.5

Marsden

M	166.49528		(2000.0)	P	Q
n	0.27188257	ω	211.28302	-0.82300040	-0.56050705
a	2.3598359	Ω	294.34905	+0.53983701	-0.72125102
e	0.0407551	i	5.80885	+0.17676638	-0.40697520
P	3.63	H	14.5	G 0.15	U 7

Residuals in seconds of arc

1973 09 25	675	2.0+	0.4-	1973 10 04	675	1.2-	0.9-	1998 07 26	809	0.2-	0.8-
1973 09 25	675	1.2+	0.5+	1973 10 04	675	1.5-	1.0+	1998 07 27	809	0.0	1.1+
1973 09 29	675	0.6-	0.7-	1973 10 05	675	0.8-	0.3-	1998 07 27	809	0.4-	1.3+
1973 09 29	675	0.6+	0.5+	1973 10 05	675	1.2-	0.4+	1998 07 27	809	0.2-	0.8+
1973 09 30	675	0.2+	0.6-	1998 07 26	809	0.5+	0.4-				
1973 09 30	675	1.1+	0.3+	1998 07 26	809	0.2+	1.7-				

1177 T-3 = 1998 QW₆₀

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	146.17096		(2000.0)	P	Q
n	0.17891570	ω	242.93931	-0.97161357	-0.19960657
a	3.1191559	Ω	285.32331	+0.23515815	-0.87351169
e	0.1666474	i	7.56564	-0.02584006	-0.44399835
P	5.51	H	13.5	G 0.15	U 6

Residuals in seconds of arc

1977 10 07	675	1.2-	0.6-	1977 10 16	675	1.5-	0.5+	1998 08 23	699	0.6-	0.2+
1977 10 11	675	0.1+	1.4+	1977 10 17	675	0.4-	1.1-	1998 08 23	699	0.6+	0.1+
1977 10 11	675	0.2+	0.6+	1977 10 17	675	0.5+	1.6-	1998 08 30	699	1.4+	0.5-
1977 10 12	675	1.4+	0.9+	1977 10 22	675	1.3+	0.9+	1998 08 30	699	1.2-	0.5-
1977 10 12	675	0.0	1.5+	1977 10 22	675	1.0+	2.9-	1998 08 30	699	0.3+	0.5+
1977 10 16	675	1.5-	0.4+	1998 08 23	699	0.4-	0.1+				

2676 T-3

Id. E. Bowell (1998 observations)

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	59.45571		(2000.0)	P	Q
n	0.27764382	ω	39.71239	-0.31187647	+0.94940184
a	2.3270768	Ω	212.16486	-0.88843328	-0.30521022
e	0.1143093	i	3.98570	-0.33677794	-0.07404634
P	3.55	H	15.5	G 0.15	U 6

Residuals in seconds of arc

1977 10 07	675	1.1+	0.3-	1977 10 17	675	0.7-	0.1+	1998 08 17	704	0.4-	0.2+
1977 10 07	675	0.9+	2.4-	1977 10 17	675	0.5+	1.5-	1998 08 17	704	0.9-	0.2+
1977 10 11	675	0.2-	0.3+	1977 10 21	675	0.5-	1.1+	1998 08 23	704	1.2+	0.1-
1977 10 11	675	0.6-	0.1-	1977 10 21	675	2.0-	1.8+	1998 08 23	704	0.1-	1.7-
1977 10 11	675	0.1-	0.3+	1977 10 22	675	(4.3-	0.5-)	1998 08 23	704	(1.7+	2.2-)
1977 10 11	675	0.2-	0.4+	1977 10 22	675	0.9+	0.5+	1998 08 23	704	0.1-	0.6+
1977 10 12	675	0.4-	0.7+	1998 08 03	699	0.9-	0.2+	1998 08 23	704	1.1-	1.2+
1977 10 12	675	0.5+	0.6+	1998 08 03	699	0.3+	0.9-	1998 08 26	699	0.4+	0.3+
1977 10 12	675	0.1-	0.3+	1998 08 03	699	1.1+	1.0-	1998 08 26	699	0.3-	0.1+
1977 10 12	675	0.2+	0.4+	1998 08 17	704	0.3+	0.0	1998 08 26	699	0.9+	0.4+
1977 10 16	675	0.4+	1.0-	1998 08 17	704	0.2-	0.1+				
1977 10 16	675	0.4+	1.4-	1998 08 17	704	0.3-	0.6+				

4072 T-3 = 1998 QF₂₁

Epoch 1998 July 6.0 TT = JDT 2451000.5

Williams

M	243.24122		(2000.0)	P	Q
n	0.18194073	ω	294.11230	-0.06438778	-0.99728118
a	3.0844857	Ω	159.48312	+0.94869134	-0.07231297
e	0.1330049	i	5.86916	+0.30957867	+0.01418045
P	5.42	H	14.0	G 0.15	U 5

Residuals in seconds of arc

1977 10 07	675	0.6+	0.1+	1977 10 21	675	1.1-	1.6+	1998 08 23	699	0.7-	0.9-
1977 10 11	675	0.3+	0.9-	1977 10 21	675	2.2-	2.4+	1998 08 23	704	0.3-	0.1+
1977 10 11	675	0.9+	0.5-	1977 10 22	675	0.4-	2.1-	1998 08 23	704	1.2+	0.2-
1977 10 12	675	0.2+	0.6-	1977 10 22	675	0.5+	0.8-	1998 08 23	699	0.8+	0.7+
1977 10 12	675	0.0	1.0-	1998 08 17	704	0.9+	1.3+	1998 08 23	704	0.4+	0.4-
1977 10 16	675	0.3-	0.9+	1998 08 17	704	1.3-	0.5+	1998 08 23	704	0.4-	0.6-
1977 10 16	675	0.0	1.3+	1998 08 17	704	0.2-	1.0-	1998 08 23	699	0.1+	0.1-
1977 10 17	675	0.6+	0.2-	1998 08 17	704	0.5+	1.5+	1998 08 23	704	2.0-	0.3-
1977 10 17	675	1.0+	0.3-	1998 08 17	704	0.9+	0.5-				

4280 T-3 = 1998 FJ₅₅

Epoch 1998 July 6.0 TT = JDT 2451000.5

Gnädig

M	228.86001		(2000.0)	P	Q
n	0.16950570	ω	189.78108	+0.94698707	+0.31861596
a	3.2335519	Ω	151.53325	-0.28860824	+0.90004586
e	0.1527376	i	4.96147	-0.14114099	+0.29732358
P	5.81	H	14.0	G 0.15	U 6

Residuals in seconds of arc

1977 10 07	675	0.6-	1.6-	1977 10 17	675	0.7-	0.2+	1998 03 20	704	1.4-	0.1+
1977 10 11	675	0.6+	0.3-	1977 10 21	675	(2.9+	1.2+)	1998 03 20	704	(4.8-	0.4+)
1977 10 11	675	1.5+	0.2-	1977 10 21	675	0.7+	1.2-	1998 03 22	704	0.8+	0.1+
1977 10 12	675	0.6+	0.2+	1977 10 22	675	0.0	0.7+	1998 03 22	704	0.1-	0.3+
1977 10 12	675	0.5-	0.6-	1977 10 22	675	(2.3+	2.8+)	1998 03 22	704	0.2-	0.8+
1977 10 16	675	0.2-	2.1+	1998 03 20	704	0.1+	0.6-	1998 03 22	704	0.4+	0.5-

1977 10 16 675 0.1+ 1.7+ 1998 03 20 704 0.5+ 0.4- 1998 03 22 704 (2.1- 1.5+)
 1977 10 17 675 1.8- 1.3- 1998 03 20 704 0.1- 0.1-

4309 T-3 = 1998 HN₇₃

Epoch 1998 July 6.0 TT = JDT 2451000.5

Gnädig

<i>M</i>	229.41027		(2000.0)	P	Q		
<i>n</i>	0.21904946	ω	210.55838	+0.99513050	-0.08945693		
<i>a</i>	2.7254690	Ω	154.47531	+0.09797893	+0.94354562		
<i>e</i>	0.1737636	<i>i</i>	5.51139	-0.01074286	+0.31893436		
<i>P</i>	4.50	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1977 10 07	675	1.3-	1.3+	1977 10 17	675	0.1+	0.4-	1998 04 21	704	1.5-	1.2+
1977 10 11	675	1.2+	0.9-	1977 10 17	675	0.4-	0.3-	1998 04 21	704	0.2-	0.2-
1977 10 11	675	1.4+	0.6-	1977 10 21	675	0.2+	0.6+	1998 04 21	704	(3.0-	0.2+)
1977 10 12	675	0.8-	0.7-	1977 10 21	675	0.4+	0.6-	1998 04 22	704	1.1-	0.3+
1977 10 12	675	0.3+	0.1-	1977 10 22	675	0.5-	0.3+	1998 04 22	704	1.2+	1.0-
1977 10 16	675	0.4-	0.9+	1977 10 22	675	(0.7+	2.8+)	1998 04 22	704	0.6+	0.9+
1977 10 16	675	0.5-	0.4+	1998 04 21	704	1.2+	1.5-	1998 04 22	704	0.1-	0.3+

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
(179)	8.15	0.15	19980706	245.76636	106.50032	252.20076	7.81354	0.1115823	2.9720077	183	55 1877-1998	0.56	M-v 0	Goffin	32207	(179)
(252)	9.1	0.15	19980706	53.74539	154.21733	202.32260	10.06671	0.0782207	3.1541401	149	39 1885-1997	0.56	M-v 0	Goffin	26913	(252)
(300)	9.6	0.15	19980706	247.63740	338.01491	42.93780	0.74745	0.0471940	3.2050189	176	48 1890-1997	0.56	M-v 0	Goffin	18105	(300)
(310)	10.3	0.15	19980706	160.09515	324.57225	229.55752	3.16269	0.1141320	2.7657092	153	44 1891-1997	0.57	M-v 0	Goffin	30778	(310)
(327)	10.1	0.15	19980706	246.97509	306.00583	355.16231	7.14079	0.0616602	2.7766182	121	30 1892-1998	0.56	M-v 0	Goffin	28610	(327)
(390)	10.39	0.15	19980706	70.25168	190.54115	305.42199	12.13920	0.1307217	2.6521323	115	31 1894-1997	0.55	M-v 0	Goffin	30779	(390)
(430)	10.3	0.15	19980706	358.24896	179.01320	249.64718	14.56402	0.2517151	2.8473339	49	15 1897-1997	0.56	M-v 0	Goffin	18804	(430)
(449)	9.47	0.15	19980706	337.39595	46.66155	86.06627	3.09069	0.1706870	2.5526702	174	40 1899-1998	0.55	M-v 0	Goffin	31134	(449)
(457)	11.0	0.15	19980706	347.34635	128.33550	249.92463	12.94374	0.1833160	3.0887173	72	11 1900-1998	0.97	M-v 1	Williams	29653	(457)
(458)	9.63	0.15	19980706	289.88492	274.71821	135.07027	12.64104	0.2453886	2.9905879	93	26 1900-1998	0.56	M-v 0	Goffin	31003	(458)
(488)	7.81	0.15	19980706	121.79788	69.33439	85.15071	11.49805	0.1753814	3.1480842	224	54 1901-1998	0.55	M-v 0	Goffin	26914	(488)
(518)	11.0	0.15	19980706	209.04399	116.60618	204.45587	6.73127	0.2236934	2.5352269	95	27 1903-1998	0.55	M-v 0	Goffin	26914	(518)
(544)	9.9	0.15	19980706	248.17635	341.26970	298.54372	8.36119	0.1544089	2.5910016	106	31 1904-1998	0.55	M-v 0	Goffin	30779	(544)
(574)	12.3	0.15	19980706	125.70619	76.55687	337.00653	5.69105	0.2387374	2.2529609	81	18 1905-1998	0.55	M-v 0	Goffin	26915	(574)
(585)	10.40	0.15	19980706	145.79893	327.48519	180.42975	7.55751	0.1309679	2.4297794	164	37 1906-1998	0.55	M-v 0	Goffin	26915	(585)
(591)	10.64	0.15	19980706	0.23558	217.77184	334.53790	12.47562	0.2075578	2.6797913	67	22 1906-1998	0.56	M-v 0	Goffin	26915	(591)
(615)	10.36	0.15	19980706	295.97341	245.00969	13.97751	2.76954	0.1120591	2.6309957	180	37 1902-1998	0.54	M-v 0	Goffin	26915	(615)
(667)	8.9	0.15	19980706	137.61476	307.31952	153.41589	25.39236	0.1923044	3.1812893	114	24 1908-1998	0.55	M-v 0	Goffin	31708	(667)
(695)	9.30	0.15	19980706	17.24128	78.57758	275.99342	13.86696	0.1606736	2.5391097	123	34 1909-1992	0.56	M-v 0	Goffin	32042	(695)
(726)	10.57	0.15	19980706	62.28192	111.66620	242.68036	15.40203	0.2836073	2.5656275	104	21 1919-1997	0.54	M-v 0	Goffin	26917	(726)
(740)	8.97	0.15	19980706	349.50436	50.64287	116.28382	10.84181	0.1152850	3.0499428	113	33 1913-1998	0.55	M-v 0	Goffin	31780	(740)
(806)	10.6	0.15	19980706	206.83574	109.11804	44.65243	14.20696	0.0681153	3.2231401	57	18 1915-1990	0.57	M-v 0	Goffin	31710	(806)
(825)	11.50	0.15	19980706	259.20075	111.09366	101.54148	3.39969	0.0754503	2.2256322	138	37 1916-1998	0.55	M-v 0	Goffin	29093	(825)
(927)	9.54	0.15	19980706	183.24275	157.79079	8.31497	14.51083	0.0771862	3.2469058	90	20 1920-1998	0.96	M-v 1	Williams	31134	(927)
(995)	10.3	0.15	19980706	208.66707	121.88453	222.10398	13.06824	0.1656164	2.6165165	105	19 1923-1998	0.55	M-v 0	Goffin	31135	(995)
(1145)	11.1	0.15	19980706	39.41074	268.05497	346.98722	6.22055	0.1163717	2.4246681	77	23 1930-1998	0.79	M-v 1	Bowell	32213	(1145)
(1172)	8.33	0.15	19980706	1.21110	47.88665	247.48370	16.70428	0.1042283	5.1747353	139	29 1930-1998	0.53	M-v 0	Goffin	30893	(1172)
(1402)	13.0	0.15	19980706	47.84742	11.28956	267.27048	14.25490	0.1524548	2.6872258	38	8 1936-1998	0.80	M-v 2	Williams	32299	(1402)
(1478)	12.63	0.15	19980706	236.93787	159.48443	318.75489	7.84960	0.0903936	2.4681011	41	14 1938-1998	0.74	M-v 1	Bowell	27454	(1478)
(1480)	13.1	0.15	19980706	193.01818	64.53296	63.82570	4.86282	0.1090853	2.2027398	35	12 1938-1998	0.93	M-v 1	Bowell	31581	(1480)
(1538)	14.1	0.15	19980706	326.28546	13.28291	343.40048	9.44158	0.2178495	2.3622344	29	6 1940-1998	0.69	M-v 1	Bowell	32299	(1538)
(1549)	11.7	0.15	19980706	224.47385	5.94222	85.44756	5.54853	0.0842096	2.2308858	61	19 1937-1998	0.72	M-v 0	Bowell	32299	(1549)
(1769)	12.9	0.15	19980706	330.93650	23.87726	319.57538	1.59297	0.1421047	2.1785263	65	13 1937-1998	0.85	M-v 1	Bowell	28315	(1769)
(1828)	10.9	0.15	19980706	291.11081	219.36109	185.00740	14.30796	0.1158541	3.0598401	39	10 1950-1998	0.94	M-v 1	Bowell	25339	(1828)
(1882)	11.1	0.15	19980706	12.04955	127.90405	201.51463	9.47838	0.1000086	3.0084400	56	13 1941-1998	0.72	M-v 1	Bowell	30894	(1882)
(1906)	12.7	0.15	19980706	8.58001	14.11027	355.05104	6.47034	0.1347118	2.3736630	91	10 1972-1998	0.90	M-v 2	Williams	32300	(1906)
(1967)	12.3	0.15	19980706	276.90271	347.38964	57.94832	3.90369	0.1394187	2.2330674	61	13 1965-1998	0.86	M-v 1	Bowell	27727	(1967)
(1996)	12.1	0.15	19980706	15.45654	353.83090	1.20191	15.14058	0.1399511	2.5583762	32	7 1961-1998	0.92	M-v 2	Williams	29656	(1996)
(2056)	12.3	0.15	19980706	315.77499	145.20619	226.01635	3.92957	0.1392557	2.2178811	49	13 1942-1998	0.76	M-v 0	Bowell	23789	(2056)
(2099)	15.18	0.15	19980706	335.04712	159.04363	218.99902	26.95445	0.3622203	2.3032640	46	5 1970-1998	0.92	M-v 2	Williams	31582	(2099)
(2363)	9.11	0.15	19980706	37.40652	52.38179	211.88403	32.22403	0.0371635	5.1451699	73	10 1953-1998	0.54	M-v 0	Goffin	32046	(2363)
(2379)	10.90	0.15	19980706	348.51310	178.65090	151.05639	0.46619	0.2751006	3.1683713	66	14 1941-1998	0.74	M-v 1	Bowell	29657	(2379)

(2427)	12.8	0.15	19980706	309.76373	170.39036	227.86064	4.14635	0.1656819	2.7417827	32	8	1955-1998	0.81	M-v	2	Williams	31378	(2427)
(2463)	11.8	0.15	19980706	180.02446	264.75546	179.18907	13.40481	0.1539638	2.5994777	78	11	1934-1998	0.83	M-v	1	Williams	32046	(2463)
(2814)	12.6	0.15	19980706	354.20980	178.38692	154.24861	2.45459	0.0738269	2.8697772	97	14	1954-1998	0.83	M-v	1	Williams	31137	(2814)
(2844)	13.4	0.15	19980706	27.71541	151.04422	127.87694	2.95202	0.1705717	2.2213973	60	13	1975-1998	0.78	M-v	1	Bowell	30091	(2844)
(2882)	11.9	0.15	19980706	349.10592	8.02254	316.06406	0.29322	0.1896775	3.1594237	75	15	1936-1998	0.83	M-v	1	Bowell	32303	(2882)
(2890)	12.9	0.15	19980706	269.88524	50.67927	356.99011	6.62655	0.1610843	2.2597878	73	9	1944-1998	0.89	M-v	1	Williams	32303	(2890)
(3039)	12.5	0.15	19980706	17.01558	71.19201	190.83073	15.27735	0.1423144	2.5580984	71	9	1978-1998	0.80	M-v	1	Williams	31274	(3039)
(3222)	11.4	0.15	19980706	302.59675	119.20636	151.46533	15.94307	0.0600326	3.0898678	30	6	1975-1998	0.98	M-v	1	Sicoli	32304	(3222)
(3243)	12.4	0.15	19980706	60.25696	292.37706	349.49571	9.35003	0.1045774	3.0418900	34	9	1953-1998	0.76	M-v	1	Bowell	26926	(3243)
(3286)	12.8	0.15	19980706	69.64042	77.39647	107.70367	13.40313	0.1048772	2.6351415	53	8	1978-1998	0.88	M-v	1	Sicoli	31231	(3286)
(3445)	12.2	0.15	19980706	173.40623	199.20805	334.52486	11.30879	0.1243284	2.6921725	31	6	1974-1998	0.79	M-v	2	Williams	20345	(3445)
(3480)	13.1	0.15	19980706	83.86682	20.80137	188.61352	3.76137	0.2833803	3.0424456	58	8	1977-1998	0.73	M-v	1	Bowell	31786	(3480)
(3507)	11.3	0.15	19980706	38.23059	185.10628	88.70162	3.24025	0.1442646	3.1490469	47	11	1965-1998	0.95	M-v	1	Bowell	32305	(3507)
(3549)	12.7	0.15	19980706	186.59816	209.66223	284.83597	7.55196	0.1683568	2.7602144	40	9	1973-1998	0.89	M-v	1	Bowell	29660	(3549)
(3630)	12.5	0.15	19980706	30.22397	322.99162	337.19681	7.40282	0.2047194	2.7707838	43	9	1950-1998	0.91	M-v	2	Williams	32049	(3630)
(3747)	11.1	0.15	19980706	241.93679	101.65565	38.57492	24.37106	0.1137849	3.1947639	32	6	1930-1998	0.78	M-v	2	Williams	23521	(3747)
(3839)	12.9	0.15	19980706	31.25076	37.05993	241.08357	2.67967	0.1829031	2.4508154	39	10	1971-1998	0.89	M-v	1	Bowell	23783	(3839)
(3848)	13.2	0.15	19980706	31.58658	61.24808	185.71821	3.48046	0.0925671	2.4540646	59	10	1949-1998	0.82	M-v	1	Williams	30471	(3848)
(3864)	13.5	0.15	19980706	294.75472	15.29226	25.34749	3.05160	0.1574141	2.6045678	44	8	1948-1998	0.94	M-v	1	Bowell	32306	(3864)
(3907)	11.7	0.15	19980706	6.52628	84.72290	284.04863	10.99511	0.1212970	2.7946401	26	8	1904-1998	1.13	M-v	2	Williams	26580	(3907)
(3980)	12.7	0.15	19980706	236.54401	357.78063	74.30603	2.28308	0.1661958	3.1206653	42	8	1954-1998	0.96	M-v	1	Williams	32050	(3980)
(4010)	13.0	0.15	19980706	81.45788	340.06070	319.13940	5.43480	0.1290879	2.5478283	54	7	1977-1998	0.68	M-v	2	Williams	32050	(4010)
(4071)	12.1	0.15	19980706	310.17498	127.91477	267.87136	11.02213	0.1727177	3.1932857	35	7	1976-1998	0.88	M-v	1	Williams	30758	(4071)
(4085)	12.3	0.15	19980706	63.98513	134.03567	68.87607	14.20606	0.1096658	2.6044642	40	9	1981-1998	0.88	M-v	1	Williams	31276	(4085)
(4125)	13.5	0.15	19980706	43.38887	33.69126	276.17943	20.44183	0.1181463	1.9216047	32	5	1979-1998	0.87	M-v	2	Williams	32307	(4125)
(4129)	13.5	0.15	19980706	39.53936	70.77990	245.72855	7.11137	0.2544801	2.5633578	31	6	1977-1998	0.84	M-v	1	Williams	29662	(4129)
(4199)	13.1	0.15	19980706	291.93143	277.95343	72.26440	6.11059	0.1350475	2.4563217	78	8	1976-1998	0.74	M-v	1	Williams	31276	(4199)
(4244)	12.4	0.15	19980706	342.98044	272.44107	86.10659	1.76940	0.1728639	3.2032693	33	8	1981-1998	0.74	M-v	1	Bowell	31538	(4244)
(4249)	12.0	0.15	19980706	163.37278	160.90489	320.49742	4.70811	0.1064797	2.9662731	36	9	1950-1998	0.85	M-v	1	Williams	27106	(4249)
(4252)	12.7	0.15	19980706	90.05902	57.11101	164.45384	13.52796	0.1378290	2.6549525	44	6	1984-1998	0.79	M-v	1	Bowell	32050	(4252)
(4277)	12.8	0.15	19980706	303.66699	93.82155	300.56489	10.63749	0.1411477	2.7245353	27	6	1962-1998	0.64	M-v	1	Bowell	27557	(4277)
(4300)	13.2	0.15	19980706	17.04446	147.34282	208.82199	3.78956	0.0975750	2.3329275	33	9	1953-1998	0.98	M-v	2	Williams	31788	(4300)
(4301)	12.2	0.15	19980706	103.78137	99.12796	52.35317	2.29756	0.1262436	3.0992697	47	13	1951-1998	0.74	M-v	1	Williams	31007	(4301)
(4305)	12.6	0.15	19980706	179.42831	325.32872	180.25985	1.79536	0.0685006	2.9164331	27	10	1949-1998	0.71	M-v	1	Bowell	31007	(4305)
(4339)	13.6	0.15	19980706	337.09527	72.48943	300.69717	2.16818	0.1780913	2.1948276	52	5	1946-1998	1.02	M-v	2	Williams	27730	(4339)
(4792)	10.0	0.15	19980706	307.92198	282.08866	61.98408	9.34042	0.0910266	5.2692996	43	6	1988-1998	0.82	M-v	1	Williams	29922	(4792)
(4843)	11.0	0.15	19980706	306.89899	222.38947	162.91296	11.00316	0.1297428	3.0857849	51	8	1908-1998	0.84	M-v	1	Williams	27568	(4843)
(5008)	12.9	0.15	19980706	66.83534	41.27498	142.59374	5.26758	0.0610577	2.2144418	57	10	1949-1998	0.83	M-v	1	Sicoli	31277	(5008)
(5021)	12.1	0.15	19980706	275.80591	322.07549	103.51312	2.35236	0.1518018	3.1915420	49	10	1982-1998	0.80	M-v	1	Williams	30689	(5021)
(5051)	13.3	0.15	19980706	20.54990	48.29939	270.16053	5.87439	0.1435073	2.2942584	45	6	1949-1998	0.79	M-v	2	Williams	30983	(5051)
(5068)	12.0	0.15	19980706	92.14858	222.70643	208.90625	11.61412	0.0583709	3.0353159	34	8	1953-1998	0.81	M-v	1	Williams	31542	(5068)
(5093)	13.0	0.15	19980706	209.93515	191.35012	216.25762	12.74350	0.1694818	2.6613202	45	9	1969-1998	0.89	M-v	2	Sicoli	30875	(5093)
(5099)	13.2	0.15	19980706	304.46956	289.90038	81.02507	1.18380	0.0529738	2.4846731	51	9	1954-1998	0.61	M-v	1	Bowell	31277	(5099)
(5104)	11.6	0.15	19980706	76.80509	8.00145	198.43500	14.35255	0.1144459	2.6146704	29	6	1986-1998	0.74	M-v	1	Williams	31789	(5104)
(5110)	12.7	0.15	19980706	307.11626	76.62206	313.67039	3.81901	0.1099479	2.3878099	35	8	1937-1998	0.83	M-v	1	Bowell	27731	(5110)
(5146)	11.9	0.15	19980706	63.58503	273.30027	338.88870	13.89142	0.1527789	2.7460497	40	8	1953-1998	0.79	M-v	1	Bowell	29318	(5146)
(5148)	13.5	0.15	19980706	103.26085	219.49246	348.80311	1.17207	0.1332271	3.1312498	51	6	1960-1998	0.94	M-v	1	Bowell	27110	(5148)
(5186)	11.8	0.15	19980706	285.31146	74.94694	334.05734	14.92759	0.0845168	2.5792002	50	7	1959-1998	0.63	M-v	1	Williams	26422	(5186)
(5208)	11.6	0.15	19980706	96.33937	22.57648	124.83661	15.87819	0.0482652	2.6038652	49	8	1953-1998	0.81	M-v	1	Sicoli	29664	(5208)
(5212)	11.6	0.15	19980706	161.48074	228.12043	230.46371	11.38564	0.0854692	3.0239426	56	5	1979-1998	0.91	M-v	1	Sicoli	31968	(5212)
(5234)	11.4	0.15	19980706	315.35732	175.78992	223.35768	35.82094	0.1636553	2.7618927	47	6	1989-1998	0.77	M-v	1	Williams	29664	(5234)
(5255)	12.1	0.15	19980706	131.26061	121.24724	99.92140	11.59679	0.0166906	2.6736618	26	6	1954-1998	0.82	M-v	2	Williams	29946	(5255)
(5263)	11.6	0.15	19980706	125.34522	288.94653	226.65932	14.76286	0.0299454	3.1915970	40	11	1980-1998	0.96	M-v	1	Sicoli	32309	(5263)

(5393)	13.6	0.15	19980706	194.95599	135.96407	349.05051	5.29655	0.1269938	2.3372012	42	5	1986-1998	0.63	M-v	1	Williams	32309	(5393)
(5462)	13.7	0.15	19980706	278.38980	252.60783	163.29019	6.50460	0.1071241	2.3209089	76	8	1954-1998	0.67	M-v	2	Williams	30473	(5462)
(5499)	14.2	0.15	19980706	295.30342	84.11280	313.22677	2.12481	0.1348454	2.2691557	34	8	1950-1998	0.83	M-v	1	Williams	26582	(5499)
(5598)	12.8	0.15	19980706	298.51909	173.61059	283.68591	5.04165	0.1126531	2.1905158	40	7	1962-1998	0.73	M-v	2	Williams	26749	(5598)
(5600)	13.0	0.15	19980706	346.60318	315.46015	74.44534	7.02939	0.1307491	2.2779781	56	7	1981-1998	0.84	M-v	2	Williams	26928	(5600)
(5771)	12.4	0.15	19980706	329.19417	101.32104	288.77967	8.23723	0.2328689	3.1259990	35	5	1987-1998	0.82	M-v	1	Bowell	30293	(5771)
(6047)	17.0	0.15	19980706	247.27059	103.61758	6.22990	23.47087	0.3519637	1.4538724	38	5	1985-1998	0.74	M-v	2	Williams	31389	(6047)
(6298)	13.3	0.15	19980706	277.47219	58.02659	12.22469	3.85921	0.2835339	3.0901972	46	5	1973-1998	0.94	M-v	1	Williams	32056	(6298)
(6342)	12.2	0.15	19980706	351.71710	356.89815	42.88538	2.66147	0.0197145	2.9149437	41	7	1976-1997	0.92	M-v	1	Williams	31590	(6342)
(6359)	11.5	0.15	19980706	257.89492	26.90283	89.83352	10.77751	0.0991702	3.2194726	22	7	1966-1998	0.72	M-v	1	Williams	32246	(6359)
(6531)	12.5	0.15	19980706	217.14644	32.06362	79.48325	2.43272	0.1661569	3.2040645	38	8	1954-1998	0.83	M-v	1	Williams	32057	(6531)
(6629)	14.5	0.15	19980706	326.69591	161.82874	212.30380	2.12266	0.1388963	2.1787156	55	7	1982-1998	0.83	M-v	1	Bowell	32057	(6629)
(6705)	14.0	0.15	19980706	51.83491	84.89664	178.90479	1.64190	0.1150434	2.2225430	53	6	1985-1998	0.66	M-v	1	Williams	31393	(6705)
(6745)	14.5	0.15	19980706	98.91759	86.44519	127.50087	6.06708	0.1382218	2.2281517	45	7	1977-1998	0.77	M-v	1	Williams	30672	(6745)
(6852)	14.3	0.15	19980706	265.02864	303.42156	154.55352	2.49101	0.1741943	2.3967491	72	6	1952-1998	0.78	M-v	1	Williams	32253	(6852)
(6880)	12.1	0.15	19980706	211.08633	111.62869	349.76604	5.26414	0.0694168	2.8020092	40	6	1978-1998	0.71	M-v	1	Bowell	30463	(6880)
(6881)	13.3	0.15	19980706	355.21885	248.33393	72.22866	2.88863	0.0548635	2.9080454	47	8	1978-1998	0.82	M-v	1	Williams	30293	(6881)
(6893)	13.2	0.15	19980706	300.05578	104.53986	314.70808	5.78873	0.0911166	2.3869506	50	6	1983-1998	0.89	M-v	1	Williams	30788	(6893)
(6899)	13.3	0.15	19980706	289.11386	121.41659	279.25542	0.93521	0.0222776	2.9299018	34	5	1988-1998	0.68	M-v	1	Williams	30464	(6899)
(6904)	14.1	0.15	19980706	296.56120	79.75036	344.18034	5.74174	0.1062809	2.4817143	28	4	1990-1996	0.67	M-v	1	Williams	30474	(6904)
(7077)	12.7	0.15	19980706	262.56252	297.58184	128.88626	1.83522	0.1848152	3.1860733	73	8	1956-1998	0.67	M-v	1	Williams	31145	(7077)
(7208)	13.9	0.15	19980706	76.03488	123.77876	105.15471	2.19356	0.0713854	2.1680498	34	6	1960-1998	0.69	M-v	1	Bowell	31146	(7208)
(7315)	13.6	0.15	19980706	236.26428	346.12758	174.04645	3.10862	0.0698244	2.5489061	40	7	1949-1998	0.83	M-v	2	Williams	31148	(7315)
(7324)	14.5	0.15	19980706	264.25372	108.31088	333.02979	10.14567	0.2320284	2.4200432	20	6	1953-1998	0.73	M-v	1	Bowell	31423	(7324)
(7443)	12.4	0.15	19980706	158.18175	172.78206	351.17613	1.37552	0.0340405	2.9234870	45	7	1988-1998	0.65	M-v	1	Bowell	31251	(7443)
(7450)	13.0	0.15	19980706	96.98216	99.92290	67.96724	27.39387	0.1684049	2.6177621	36	5	1968-1998	0.68	M-v	2	Williams	32058	(7450)
(7490)	16.1	0.15	19980706	155.97069	151.91837	341.73901	1.89110	0.0963588	2.2279601	50	5	1987-1998	0.56	M-v	2	Williams	31424	(7490)
(7498)	12.2	0.15	19980706	241.35664	74.24528	320.34985	20.78320	0.0179087	3.1743904	64	5	1954-1998	0.46	M-v	1	Williams	31123	(7498)
(7654)	14.3	0.15	19980706	303.65624	347.24718	49.61108	3.25053	0.2120465	2.3823760	38	6	1954-1998	0.77	M-v	1	Bowell	31396	(7654)
(7666)	13.8	0.15	19980706	327.89023	345.58692	20.39074	3.69031	0.2165468	2.7148352	62	4	1976-1998	0.53	M-v	1	Williams	31259	(7666)
(7677)	14.1	0.15	19980706	344.21482	221.46961	133.65306	2.40032	0.1049155	2.4338232	40	6	1979-1998	0.71	M-v	1	Williams	31797	(7677)
(7742)	13.8	0.15	19980706	271.89835	293.26863	125.19296	4.14312	0.0811674	2.7215718	61	6	1985-1998	0.81	M-v	1	Williams	31592	(7742)
(7767)	14.2	0.15	19980706	306.58536	23.71663	348.59876	5.96657	0.1333810	2.3714916	42	5	1980-1998	0.87	M-v	1	Bowell	31427	(7767)
1936 UD	13.0	0.15	19980706	189.06072	180.95296	162.62948	2.46941	0.3158753	3.0870862	16	4	1936-1998	0.93	M-v	2	Williams	32207	1936 UD
1953 TD ₁	14.0	0.15	19980706	327.18264	193.53489	196.36427	4.53804	0.1639696	2.2871236	23	6	1953-1998	0.79	M-v	2	Williams	30089	1953 TD ₁
1966 PL	14.5	0.15	19980706	307.71293	168.31945	123.56590	7.31476	0.1227390	2.3594962	35	3	1966-1998	0.80	M-v	4	Williams	32207	1966 PL
1971 UN	13.0	0.15	19980706	22.66931	294.74990	37.48967	7.69895	0.2381997	2.4527854	43	7	1948-1998	0.64	M-v	1	Williams	30286	1971 UN
1971 UR	13.0	0.15	19980706	228.04496	53.52397	47.13962	5.89443	0.1062747	3.1521886	18	4	1971-1998	0.79	M-v	4	Williams	30647	1971 UR
1973 RF	12.5	0.15	19980706	346.81412	0.61516	6.07333	15.83800	0.1415562	2.5846582	57	6	1973-1998	0.84	M-v	2	Williams	28881	1973 RF
1974 QF	15.0	0.15	19980706	308.04776	109.23111	256.12254	2.29522	0.2111613	2.2833219	29	3	1974-1998	0.63	M-v	3	Williams	32297	1974 QF
1975 LF ₁	12.5	0.15	19980706	20.31601	285.22111	25.05754	19.53377	0.0535870	3.1141175	15	5	1954-1998	0.50	M-v	1	Williams	30286	1975 LF ₁
1975 NC	14.0	0.15	19980706	45.87590	357.41370	270.27521	5.75919	0.1547217	2.7495943	22	5	1953-1998	0.84	M-v	3	Williams	27725	1975 NC
1975 RA ₂	13.0	0.15	19980706	24.38794	314.36712	25.65780	23.67718	0.2255218	2.4231277	43	7	1955-1998	0.66	M-v	2	Williams	30286	1975 RA ₂
1976 DA ₁	15.0	0.15	19980706	118.90304	59.14522	134.64835	4.87221	0.1164841	2.2897387	29	4	1976-1998	0.77	M-v	4	Williams	29652	1976 DA ₁
1976 SX ₅	13.5	0.15	19980706	348.87026	286.27849	65.89290	2.12853	0.1892417	3.1412716	22	5	1976-1998	0.72	M-v	1	Williams	27118	1976 SX ₅
1976 YF ₃	12.0	0.15	19980706	267.64712	243.15094	250.95946	13.38719	0.1029712	3.1496900	12	4	1976-1998	0.94	M-v	2	Williams	30648	1976 YF ₃
1977 DL ₂	14.5	0.15	19980706	237.88241	314.08447	140.91477	5.60260	0.1838980	2.4575607	26	3	1977-1998	0.78	M-v	4	Williams	30445	1977 DL ₂
1977 QD ₂	14.0	0.15	19980706	348.12520	0.26140	350.30684	5.61154	0.1919853	2.3006698	39	6	1977-1998	0.77	M-v	3	Williams	31578	1977 QD ₂
1978 CK	12.5	0.15	19980706	256.06917	140.97404	310.17325	20.70353	0.0548209	3.1881311	19	4	1978-1998	0.49	M-v	2	Williams	25536	1978 CK
1978 OQ	13.0	0.15	19980706	352.39137	356.78699	347.48836	6.07431	0.1999289	2.8911544	45	8	1954-1998	0.81	M-v	1	Williams	30287	1978 OQ
1978 PA ₃	15.0	0.15	19980706	8.91169	170.55939	169.10521	2.16199	0.1952868	2.2137057	24	3	1978-1998	0.75	M-v	4	Williams	30446	1978 PA ₃
1978 PX ₃	15.5	0.15	19980706	342.56581	30.92357	309.62237	5.30508	0.2190159	2.2290114	23	5	1955-1998	0.62	M-v	3	Williams	25972	1978 PX ₃
1978 RX ₁	14.5	0.15	19980706	330.63586	220.78253	137.78117	3.96871	0.2070963	2.2372405	28	3	1978-1998	0.83	M-v	4	Williams	32297	1978 RX ₁

1978 RL ₇	13.5	0.15	19980706	320.22725	161.66399	219.45071	1.06990	0.0742168	2.9139037	30	5	1978–1998	0.75	M-v	3	Williams	28882	1978 RL ₇
1978 RC ₉	15.5	0.15	19980706	11.03373	328.59987	338.57347	4.01963	0.1658114	2.2279742	49	5	1978–1998	0.69	M-v	2	Williams	29315	1978 RC ₉
1978 RD ₁₀	14.0	0.15	19980706	299.26604	222.02056	168.62052	2.07954	0.1121300	2.9348357	52	8	1971–1998	0.85	M-v	2	Williams	30090	1978 RD ₁₀
1978 SE ₅	13.5	0.15	19980706	327.82589	144.94543	204.36953	8.97660	0.0604557	2.5558641	33	5	1978–1998	0.58	M-v	3	Williams	32298	1978 SE ₅
1978 SJ ₇	13.0	0.15	19980706	11.27592	329.82998	1.40806	14.56553	0.1407776	2.9305143	18	4	1978–1998	0.90	M-v	4	Williams	23990	1978 SJ ₇
1978 UY ₄	16.0	0.15	19980706	300.67118	167.73756	222.15228	3.14473	0.2030272	2.2472661	22	4	1978–1998	0.71	M-v	1	Williams	30090	1978 UY ₄
1978 UN ₅	15.0	0.15	19980706	358.81586	301.58292	11.01677	5.16892	0.2566483	2.5377989	36	6	1954–1998	0.75	M-v	3	Williams	29939	1978 UN ₅
1978 VD ₃	15.0	0.15	19980706	162.42630	197.42647	307.51807	1.39054	0.0107474	2.6052062	18	3	1978–1998	0.67	M-v	5	Williams	32208	1978 VD ₃
1978 VY ₃	14.5	0.15	19980706	335.35965	102.81335	269.31312	3.25416	0.1439751	2.5517860	28	6	1978–1998	0.88	M-v	3	Williams	26913	1978 VY ₃
1978 VW ₆	14.5	0.15	19980706	282.60916	176.94702	243.23131	13.11166	0.1516226	2.5681271	31	5	1978–1998	0.69	M-v	2	Williams	26913	1978 VW ₆
1978 VO ₈	13.0	0.15	19980706	182.93642	37.55482	110.53349	2.51307	0.1401945	3.0613504	79	7	1962–1998	0.67	M-v	2	Williams	30287	1978 VO ₈
1978 VT ₈	13.5	0.15	19980706	111.59376	5.70546	231.36472	4.76588	0.0141457	3.0076848	32	4	1978–1998	0.64	M-v	1	Williams	30684	1978 VT ₈
1978 XW	13.5	0.15	19980706	217.94977	2.09193	105.97213	1.85732	0.1877370	3.0424260	17	5	1975–1998	0.73	M-v	1	Williams	27118	1978 XW
1978 YM	14.0	0.15	19980706	350.92698	19.65866	0.85211	7.82794	0.1369609	2.2343193	20	4	1974–1998	0.75	M-v	2	Williams	20010	1978 YM
1979 KQ	14.0	0.15	19980706	21.21633	147.87612	176.14443	5.19702	0.1196473	2.6804135	31	6	1976–1998	0.89	M-v	1	Williams	30287	1979 KQ
1979 MK	13.5	0.15	19980706	38.55892	170.17473	163.86187	6.35755	0.1328845	2.3715479	30	4	1979–1998	0.66	M-v	2	Williams	30778	1979 MK
1979 MV ₈	16.5	0.15	19980706	7.89015	140.41904	148.86864	5.77858	0.1732458	2.4310861	18	3	1979–1998	0.73	M-v	4	Williams	32298	1979 MV ₈
1979 QW ₃	15.0	0.15	19980706	83.45580	62.16615	162.34796	0.91318	0.1541761	2.4287289	43	6	1979–1998	0.81	M-v	2	Williams	29939	1979 QW ₃
1980 BA	14.0	0.15	19980706	298.27317	332.77413	109.15067	6.85697	0.1678986	2.4737528	21	3	1980–1998	0.86	M-v	4	Williams	30649	1980 BA
1980 FU	14.0	0.15	19980706	58.26060	241.26955	344.18751	6.83981	0.1135214	2.2917137	28	7	1966–1998	0.86	M-v	2	Williams	29653	1980 FU
1980 FR ₂	14.0	0.15	19980706	264.60937	239.08246	181.59515	5.33021	0.1939068	2.5572887	31	5	1980–1998	0.67	M-v	1	Williams	28610	1980 FR ₂
1980 FF ₃	14.5	0.15	19980706	55.22971	247.85367	351.28183	6.83315	0.1556002	2.6317087	29	6	1950–1998	0.72	M-v	2	Williams	29940	1980 FF ₃
1980 FH ₃	14.0	0.15	19980706	307.25731	221.08428	180.27814	8.59348	0.0843281	3.0173699	26	5	1980–1998	0.76	M-v	1	Williams	23235	1980 FH ₃
1980 FS ₃	13.5	0.15	19980706	342.55354	358.34831	353.32958	9.21171	0.0920137	3.0507012	33	5	1980–1998	0.52	M-v	1	Williams	29653	1980 FS ₃
1980 FH ₄	15.5	0.15	19980706	43.60642	70.59761	179.75180	0.99896	0.1679427	2.2916070	21	3	1980–1998	0.57	M-v	4	Marsden	23969	1980 FH ₄
1980 RB ₈	14.0	0.15	19980706	76.68196	17.45773	241.17725	5.27167	0.0744117	2.3497009	34	7	1951–1998	0.59	M-v	1	Williams	29653	1980 RB ₈
1980 TT ₃	14.0	0.15	19980706	300.81819	37.35268	1.43264	7.10131	0.1203813	2.3601645	38	8	1953–1998	0.66	M-v	1	Williams	28611	1980 TT ₃
1980 TA ₄	13.5	0.15	19980706	193.89251	86.56147	18.11875	6.30859	0.0503136	2.3963802	27	5	1954–1998	0.71	M-v	2	Williams	26418	1980 TA ₄
1981 DU ₁	14.0	0.15	19980706	285.87130	190.30324	235.63509	11.64766	0.1745446	2.8962798	32	4	1949–1998	0.93	M-v	3	Williams	25438	1981 DU ₁
1981 EZ	15.0	0.15	19980706	272.25031	92.93150	20.71481	1.24879	0.1745629	2.4098738	63	4	1951–1998	0.95	M-v	2	Williams	27453	1981 EZ
1981 EJ ₅	14.5	0.15	19980706	18.32238	9.71499	287.25494	4.94389	0.2257221	2.1980551	42	4	1975–1998	0.90	M-v	2	Williams	32298	1981 EJ ₅
1981 ED ₆	16.0	0.15	19980706	12.45473	65.70789	219.43381	11.58098	0.2915100	2.5550940	14	4	1978–1998	1.21	M-v	2	Williams	18417	1981 ED ₆
1981 EA ₁₀	14.0	0.15	19980706	89.84214	143.64571	346.78137	16.43047	0.0489066	3.1282205	27	3	1981–1998	0.83	M-v	3	Williams	32210	1981 EA ₁₀
1981 EF ₁₁	14.5	0.15	19980706	317.11840	61.64933	329.81983	7.47031	0.0993116	2.4599298	39	5	1977–1998	1.00	M-v	2	Williams	26917	1981 EF ₁₁
1981 ED ₁₂	14.5	0.15	19980706	127.61315	338.05933	201.30253	11.40926	0.0802006	2.5091036	48	5	1981–1998	0.96	M-v	2	Williams	30779	1981 ED ₁₂
1981 EY ₁₂	14.0	0.15	19980706	234.35024	259.93350	210.01910	8.28667	0.1897923	2.4532301	31	4	1979–1998	0.80	M-v	2	Williams	26917	1981 EY ₁₂
1981 EP ₁₃	14.0	0.15	19980706	38.42226	18.91521	309.49491	4.98712	0.1184235	2.1485615	36	5	1981–1998	0.93	M-v	2	Williams	23787	1981 EP ₁₃
1981 EQ ₁₄	15.0	0.15	19980706	320.51512	63.59951	319.32274	7.36721	0.1656023	2.4669503	41	5	1981–1998	0.85	M-v	2	Williams	29132	1981 EQ ₁₄
1981 EJ ₁₅	15.0	0.15	19980706	301.81684	136.80539	272.53170	2.20024	0.1713918	2.4503853	24	4	1979–1998	1.05	M-v	2	Williams	24580	1981 EJ ₁₅
1981 EA ₁₆	15.0	0.15	19980706	35.23541	283.39665	333.25883	6.58377	0.1174098	2.2091338	29	4	1981–1998	0.76	M-v	2	Williams	29315	1981 EA ₁₆
1981 EG ₁₆	14.5	0.15	19980706	73.41206	239.46881	343.39129	12.74795	0.1536941	2.5351613	27	3	1981–1998	0.72	M-v	3	Williams	29093	1981 EG ₁₆
1981 EP ₁₆	15.0	0.15	19980706	346.85926	90.24243	255.22155	3.98211	0.1769763	2.1720430	29	5	1981–1998	0.72	M-v	2	Williams	32298	1981 EP ₁₆
1981 EB ₁₇	14.5	0.15	19980706	115.21595	236.52950	339.15055	3.31057	0.0521180	2.4908740	37	6	1977–1998	0.89	M-v	2	Williams	29940	1981 EB ₁₇
1981 EY ₁₇	14.5	0.15	19980706	281.21514	247.05202	169.23910	2.22570	0.1589029	2.4545693	56	9	1950–1998	0.88	M-v	1	Williams	30287	1981 EY ₁₇
1981 EJ ₁₈	14.0	0.15	19980706	98.06900	110.27830	341.86599	4.58854	0.1291560	3.1586655	36	3	1981–1998	0.99	M-v	5	Williams	32210	1981 EJ ₁₈
1981 EC ₂₂	16.5	0.15	19980706	166.75682	350.56680	174.60462	1.62860	0.0299855	2.1653475	23	3	1981–1998	0.85	M-v	4	Williams	30649	1981 EC ₂₂
1981 EH ₂₂	15.0	0.15	19980706	330.06804	44.92019	207.63714	1.99929	0.0878573	2.6113845	46	4	1981–1998	0.93	M-v	2	Williams	32298	1981 EH ₂₂
1981 ED ₂₄	14.5	0.15	19980706	287.03004	234.57153	167.52675	9.42022	0.0280259	2.9432470	52	7	1971–1998	0.83	M-v	1	Williams	30287	1981 ED ₂₄
1981 EB ₂₅	13.5	0.15	19980706	8.74255	136.78197	178.88188	11.57537	0.2382416	2.9873680	41	4	1981–1998	0.90	M-v	3	Williams	32298	1981 EB ₂₅
1981 EY ₂₇	14.0	0.15	19980706	1.79073	301.90232	5.88997	11.78411	0.1832594	2.5270667	38	4	1981–1998	0.83	M-v	3	Williams	29132	1981 EY ₂₇
1981 EV ₂₈	14.5	0.15	19980706	343.63849	117.21082	210.81760	10.17134	0.1025900	2.9815960	19	4	1978–1998	0.72	M-v	3	Williams	29940	1981 EV ₂₈
1981 EW ₃₀	15.0	0.15	19980706	3.26553	174.82944	171.17204	0.92480	0.1737447	2.1581190	26	4	1981–1998	0.86	M-v	2	Williams	30779	1981 EW ₃₀
1981 ED ₃₅	15.0	0.15	19980706	257.51302	85.73405	1.21302	1.59394	0.2139203	2.4425893	41	5	1977–1998	1.00	M-v	2	Williams	26578	1981 ED ₃₅

1981 ET ₃₇	16.0	0.15	19980706	317.70315	60.36960	219.35399	3.59236	0.2439670	2.2619465	20	2	1981–1998	1.08	M-v	5	Williams	32213	1981 ET ₃₇
1981 ER ₄₃	14.0	0.15	19980706	326.98945	97.62436	280.10235	0.92373	0.0979015	2.9193594	39	7	1978–1998	1.00	M-v	2	Williams	27118	1981 ER ₄₃
1981 ES ₄₃	14.5	0.15	19980706	163.47938	171.46049	203.61936	2.48462	0.0320676	3.2169618	25	3	1981–1998	0.80	M-v	4	Williams	32214	1981 ES ₄₃
1981 ET ₄₆	15.0	0.15	19980706	100.30834	34.35542	336.27564	2.08125	0.0860987	2.7347603	15	3	1981–1996	0.66	M-v	4	Williams	32214	1981 ET ₄₆
1981 EV ₄₆	16.0	0.15	19980706	1.74412	354.19852	329.17619	1.24072	0.1974674	2.1802699	16	5	1953–1998	0.81	M-v	2	Williams	22599	1981 EV ₄₆
1981 QK	14.0	0.15	19980706	12.51596	354.09738	359.76506	5.81806	0.1863613	2.2347658	32	6	1961–1998	0.96	M-v	2	Williams	30685	1981 QK
1981 QR ₂	15.0	0.15	19980706	273.39353	323.18852	346.48995	3.69953	0.2376451	2.3363495	60	2	1981–1998	0.66	M-v	4	Williams	32215	1981 QR ₂
1981 QS ₂	15.0	0.15	19980706	144.43007	270.43509	130.39995	2.80570	0.1881246	2.3994505	51	3	1981–1998	0.78	M-v	4	Williams	32215	1981 QS ₂
1981 QK ₃	14.5	0.15	19980706	331.70455	10.28500	344.80940	12.28905	0.1164323	2.6304516	71	4	1981–1998	0.84	M-v	2	Williams	26578	1981 QK ₃
1981 QN ₃	14.0	0.15	19980706	328.02659	203.97156	138.96421	1.98098	0.1913000	3.2077247	29	3	1981–1998	0.79	M-v	3	Williams	32215	1981 QN ₃
1981 QR ₃	13.5	0.15	19980706	30.43249	316.30340	354.58407	13.51976	0.1573980	2.5998039	69	5	1964–1998	0.66	M-v	2	Williams	29940	1981 QR ₃
1981 RF ₂	12.0	0.15	19980706	12.85249	32.31788	255.23059	14.26402	0.1412445	3.2209603	63	4	1981–1998	0.78	M-v	2	Williams	32299	1981 RF ₂
1981 RQ ₂	12.5	0.15	19980706	38.71336	91.44449	230.92684	10.14867	0.1860670	2.5929164	25	6	1976–1998	0.66	M-v	1	Williams	30287	1981 RQ ₂
1981 TT	14.5	0.15	19980706	3.14227	130.49056	205.12488	4.23633	0.1956702	2.2565892	28	4	1981–1998	0.54	M-v	2	Marsden	26578	1981 TT
1981 UO ₁₁	14.0	0.15	19980706	314.08283	298.63500	115.50443	3.99481	0.1428758	2.2603126	24	6	1979–1998	0.76	M-v	2	Williams	26923	1981 UO ₁₁
1981 UE ₂₈	14.0	0.15	19980706	258.63404	354.40853	342.34044	3.92550	0.0756879	2.7836736	27	4	1981–1998	0.66	M-v	2	Williams	32216	1981 UE ₂₈
1981 UU ₂₉	16.0	0.15	19980706	2.03353	109.48758	244.60816	1.29257	0.1931652	2.2532067	19	3	1981–1998	0.68	M-v	4	Williams	29654	1981 UU ₂₉
1982 BJ ₁₃	14.0	0.15	19980706	6.38125	342.59438	300.71533	5.03591	0.0849633	2.3980824	11	3	1982–1998	0.45	M-v	4	Marsden	32216	1982 BJ ₁₃
1982 QO	13.5	0.15	19980706	317.54149	219.99840	160.91370	10.11009	0.1104551	3.0611619	28	5	1982–1998	0.66	M-v	2	Williams	29940	1982 QO
1982 TS ₁	13.0	0.15	19980706	350.92097	155.29880	246.60019	8.76039	0.0835119	3.0231712	19	4	1982–1998	0.56	M-v	2	Williams	31004	1982 TS ₁
1982 UM ₂	14.0	0.15	19980706	322.68041	250.33636	158.88774	2.26428	0.1397239	2.5224454	65	7	1954–1998	0.79	M-v	2	Marsden	30090	1982 UM ₂
1982 UD ₄	15.0	0.15	19980706	317.93268	2.18823	4.93778	1.99470	0.2357904	2.5404543	21	5	1978–1998	0.83	M-v	3	Williams	20812	1982 UD ₄
1982 UC ₁₁	14.5	0.15	19980706	349.01926	133.12694	243.95302	3.41897	0.2090032	2.5204717	21	6	1982–1998	0.89	M-v	3	Williams	30287	1982 UC ₁₁
1982 WA	13.5	0.15	19980706	219.97282	209.55279	254.37766	10.75321	0.1833979	2.6192481	30	3	1982–1998	0.97	M-v	3	Williams	30075	1982 WA
1982 XQ ₁	13.0	0.15	19980706	98.29323	69.17542	149.55855	1.73096	0.1041632	3.2105560	49	8	1979–1998	0.75	M-v	1	Williams	29654	1982 XQ ₁
1983 AC ₁	13.5	0.15	19980706	178.73563	357.61040	129.40731	28.52287	0.2020918	2.2741578	39	4	1983–1998	0.75	M-v	3	Williams	30287	1983 AC ₁
1983 CH	13.5	0.15	19980706	302.49872	343.04293	98.05435	5.96808	0.0941286	2.2059486	46	7	1983–1998	0.70	M-v	1	Williams	31782	1983 CH
1983 EV	13.0	0.15	19980706	158.45246	145.94036	11.82880	3.63036	0.1109158	2.7272133	53	10	1950–1998	0.87	M-v	1	Williams	30287	1983 EV
1983 RT ₁	14.0	0.15	19980706	20.81317	321.57792	0.31668	6.28017	0.1410233	2.3905009	18	7	1950–1998	0.70	M-v	2	Williams	30287	1983 RT ₁
1983 RB ₂	13.5	0.15	19980706	340.82261	180.36209	175.53577	13.39627	0.1211965	2.4114160	45	4	1989–1998	0.74	M-v	2	Williams	32299	1983 RB ₂
1983 TU ₁	13.0	0.15	19980706	8.56116	306.85391	49.24953	8.30273	0.1167215	2.3994087	25	8	1964–1998	0.80	M-v	2	Williams	30468	1983 TU ₁
1984 MP	12.5	0.15	19980706	73.81967	36.54444	225.67463	12.71200	0.1511574	2.6882380	51	6	1970–1998	0.79	M-v	1	Williams	30893	1984 MP
1984 MQ	13.0	0.15	19980706	21.36222	168.34504	146.74502	10.03352	0.2719713	2.7184410	19	4	1971–1998	0.94	M-v	2	Williams	22492	1984 MQ
1984 QU	15.0	0.15	19980706	345.77266	26.55263	352.56824	5.21671	0.2499106	2.2772501	15	3	1984–1998	0.85	M-v	4	Williams	21256	1984 QU
1984 SA	14.0	0.15	19980706	18.05068	77.72725	254.37458	5.87085	0.2224992	2.2850376	17	3	1984–1998	0.75	M-v	5	Williams	19294	1984 SA
1984 SO ₄	13.0	0.15	19980706	26.53505	54.62608	286.58794	4.97736	0.1177692	2.2767904	36	3	1984–1998	0.67	M-v	4	Williams	26558	1984 SO ₄
1984 SZ ₅	14.5	0.15	19980706	27.72734	273.90285	13.34854	8.22392	0.2395152	2.3039935	51	4	1984–1998	0.71	M-v	4	Williams	30090	1984 SZ ₅
1984 YE ₄	14.0	0.15	19980706	290.58533	348.29688	74.52506	6.51782	0.1442173	2.3567851	24	5	1984–1998	0.79	M-v	3	Williams	27119	1984 YE ₄
1985 CU ₁	14.0	0.15	19980706	315.57655	119.83728	324.19344	24.14913	0.2376038	2.3329818	51	3	1985–1998	0.75	M-v	3	Williams	19673	1985 CU ₁
1985 JM	13.5	0.15	19980706	5.82315	120.02442	212.03067	12.08482	0.3033742	2.5688679	32	6	1956–1998	0.93	M-v	2	Williams	30288	1985 JM
1985 JG ₂	13.0	0.15	19980706	89.16968	198.46972	40.25060	4.85923	0.1548170	2.5426143	31	8	1978–1998	0.53	M-v	1	Williams	30090	1985 JG ₂
1985 PS	14.5	0.15	19980706	329.24712	223.24310	149.93331	7.52395	0.3614529	2.6571412	35	5	1955–1998	0.84	M-v	2	Williams	32299	1985 PS
1985 PT	13.5	0.15	19980706	339.33717	201.43615	139.67239	12.89822	0.2012991	2.6643866	36	3	1985–1998	0.75	M-v	3	Williams	32299	1985 PT
1985 PE ₁	14.5	0.15	19980706	30.20495	9.04419	308.66116	3.14377	0.2383045	2.1635988	15	4	1979–1998	0.68	M-v	3	Williams	22076	1985 PE ₁
1985 RJ	14.5	0.15	19980706	18.97520	120.19128	182.80355	12.12350	0.2817125	2.6485430	21	3	1985–1998	0.86	M-v	3	Williams	30650	1985 RJ
1985 RD ₃	15.0	0.15	19980706	306.69582	272.28004	117.20772	2.42743	0.1214889	2.1911207	44	4	1969–1998	0.75	M-v	3	Williams	26578	1985 RD ₃
1985 RB ₄	15.0	0.15	19980706	331.86196	148.80156	159.62793	1.44764	0.2225763	2.2279987	51	4	1971–1998	0.71	M-v	1	Williams	32216	1985 RB ₄
1985 SX ₂	13.0	0.15	19980706	340.72155	77.91690	323.71707	3.67496	0.1405123	2.6217431	9	3	1981–1998	0.85	M-v	4	Williams	22698	1985 SX ₂
1985 SC ₃	15.0	0.15	19980706	353.18590	130.33162	221.12194	6.40471	0.1984635	2.1883307	15	4	1985–1998	0.69	M-v	2	Williams	29655	1985 SC ₃
1985 TB ₃	14.5	0.15	19980706	336.90945	188.25067	176.63203	3.87100	0.1506059	2.1971920	28	5	1972–1998	0.77	M-v	2	Williams	29940	1985 TB ₃
1985 UY	12.5	0.15	19980706	351.90845	219.91756	177.92864	9.95689	0.0891303	3.4300721	26	4	1985–1998	0.60	M-v	1	Williams	30893	1985 UY
1985 UO ₃	13.0	0.15	19980706	24.37118	331.25544	31.81684	22.65359	0.0449428	2.6130259	18	4	1985–1998	0.83	M-v	3	Williams	27119	1985 UO ₃
1985 XA	14.0	0.15	19980706	242.20128	37.42023	81.09075	24.87033	0.0501518	1.9052638	27	4	1985–1998	0.75	M-v	2	Williams	30288	1985 XA

1986 PJ ₁	14.5	0.15	19980706	330.43055	150.99362	129.94695	4.30567	0.2883013	2.5918110	37	4	1982–1998	0.75	M-v	3	Williams	32217	1986 PJ ₁
1986 QC ₁	13.5	0.15	19980706	268.25951	176.71894	103.97522	4.27016	0.0777841	2.7445262	61	3	1954–1998	0.76	M-v	3	Williams	31581	1986 QC ₁
1986 QQ ₁	14.5	0.15	19980706	278.86625	20.36531	27.88976	2.81828	0.2156858	2.5403205	56	4	1974–1998	0.63	M-v	3	Williams	32300	1986 QQ ₁
1986 QB ₃	13.0	0.15	19980706	12.55522	274.65562	86.66872	2.88065	0.1826938	3.1961607	95	10	1975–1998	0.89	M-v	1	Williams	30469	1986 QB ₃
1986 QH ₃	14.0	0.15	19980706	302.66312	270.12004	124.40280	6.10441	0.0999302	2.5164184	49	5	1986–1998	0.42	M-v	1	Williams	29940	1986 QH ₃
1986 RA ₅	14.0	0.15	19980706	340.23657	210.40535	126.20505	6.45968	0.2164182	2.5241309	48	6	1954–1998	0.58	M-v	2	Williams	27727	1986 RA ₅
1986 TG ₁	13.0	0.15	19980706	331.08684	357.80763	359.10231	14.94118	0.1267740	2.5654546	16	4	1986–1998	0.77	M-v	4	Williams	24239	1986 TG ₁
1986 TR ₁	14.5	0.15	19980706	282.33948	218.55997	100.97196	3.70519	0.1749154	2.1642341	36	3	1954–1998	0.69	M-v	3	Williams	31949	1986 TR ₁
1986 TV ₆	13.5	0.15	19980706	9.99298	356.19309	325.88344	7.44545	0.1904701	2.5586248	26	3	1986–1998	0.78	M-v	4	Williams	27554	1986 TV ₆
1986 VW	14.5	0.15	19980706	249.20893	323.51030	13.82713	6.20637	0.2022537	2.2051384	15	3	1976–1998	0.75	M-v	5	Williams	32217	1986 VW
1986 XT	14.5	0.15	19980706	329.51455	17.97595	355.16382	3.30656	0.2961047	2.5607930	64	7	1986–1998	0.76	M-v	2	Williams	30894	1986 XT
1987 BS ₁	13.5	0.15	19980706	301.77406	150.62406	295.09683	12.26365	0.1271346	2.5852469	38	6	1987–1998	0.75	M-v	2	Williams	30469	1987 BS ₁
1987 BA ₂	12.5	0.15	19980706	66.41532	265.70232	258.86603	12.11499	0.0922416	2.9605084	36	4	1980–1998	0.68	M-v	2	Williams	32217	1987 BA ₂
1987 HE	14.0	0.15	19980706	101.56142	13.56478	170.02955	23.43074	0.1999303	2.2927247	29	3	1987–1998	0.90	M-v	4	Williams	32300	1987 HE
1987 QS	14.5	0.15	19980706	18.88982	7.40695	321.88459	6.58079	0.1439613	2.3468781	25	6	1955–1998	0.59	M-v	2	Williams	27727	1987 QS
1987 QS ₅	13.5	0.15	19980706	345.33918	29.53728	333.58588	10.53647	0.1378116	3.0843605	27	3	1987–1998	0.72	M-v	4	Williams	29911	1987 QS ₅
1987 SJ ₁	15.0	0.15	19980706	355.81609	150.15669	202.93284	1.56158	0.2240431	2.3593832	39	6	1951–1998	0.79	M-v	2	Williams	29655	1987 SJ ₁
1987 SG ₃	14.0	0.15	19980706	32.95471	121.03445	187.43518	22.25609	0.3187259	2.3398233	30	5	1951–1998	0.72	M-v	1	Williams	29655	1987 SG ₃
1987 SV ₃	14.0	0.15	19980706	32.32995	331.88624	3.87496	9.22368	0.1608708	2.3218562	35	4	1980–1998	0.68	M-v	3	Williams	24239	1987 SV ₃
1987 SD ₄	14.5	0.15	19980706	0.95692	28.67952	291.61338	7.39872	0.2201988	2.3885105	37	6	1950–1998	0.89	M-v	2	Williams	32300	1987 SD ₄
1987 SH ₇	13.5	0.15	19980706	8.94565	54.03964	289.78557	18.67367	0.0791390	1.9398860	35	5	1987–1998	0.65	M-v	2	Williams	29655	1987 SH ₇
1987 SS ₉	13.5	0.15	19980706	304.03742	289.57071	113.50878	2.62273	0.1926671	3.1740670	38	7	1954–1998	0.69	M-v	1	Williams	29655	1987 SS ₉
1987 SN ₁₁	13.0	0.15	19870922	338.76634	228.20275	162.45310	1.50117	0.1553241	3.0726954	17	1	11 days	0.85			Williams	22698	1987 SN ₁₁
1987 SV ₁₂	13.5	0.15	19980706	339.70822	277.79357	75.09159	2.49739	0.2175244	3.1339495	40	8	1952–1998	0.71	M-v	1	Williams	30090	1987 SV ₁₂
1987 SU ₁₇	13.5	0.15	19980706	31.53263	120.66980	214.69216	6.34177	0.1325609	2.3429293	31	5	1987–1998	0.90	M-v	2	Williams	30288	1987 SU ₁₇
1987 SX ₁₇	13.5	0.15	19980706	13.99984	94.30377	240.90015	3.53611	0.2496424	2.3603625	26	5	1980–1998	0.67	M-v	2	Williams	28613	1987 SX ₁₇
1987 UT	14.5	0.15	19980706	17.55719	49.03154	296.24529	4.12808	0.2410674	2.3323578	19	3	1987–1998	0.73	M-v	2	Williams	24239	1987 UT
1987 UV ₁	14.5	0.15	19980706	336.51137	24.51148	329.52965	1.83855	0.1415634	2.4139138	28	5	1976–1998	0.82	M-v	2	Williams	30469	1987 UV ₁
1987 US ₄	14.5	0.15	19980706	342.36476	33.33837	349.31027	2.69490	0.2105643	2.3723185	16	5	1976–1998	0.96	M-v	2	Williams	28883	1987 US ₄
1988 BY ₂	13.0	0.15	19980706	113.02391	206.55433	329.71485	10.25289	0.0660815	2.6719138	25	5	1988–1998	0.91	M-v	2	Williams	29655	1988 BY ₂
1988 BH ₅	13.5	0.15	19980706	171.29941	267.55368	265.07771	11.60641	0.1154085	2.5831294	23	6	1984–1998	0.87	M-v	3	Williams	22079	1988 BH ₅
1988 CL ₂	14.0	0.15	19980706	1.00335	244.30222	124.97805	5.53908	0.1921722	2.4337671	42	4	1988–1998	0.86	M-v	1	Williams	30469	1988 CL ₂
1988 CH ₃	13.5	0.15	19980706	93.59855	297.96278	291.47823	12.99583	0.1497017	2.6387310	40	4	1988–1998	0.77	M-v	2	Williams	27932	1988 CH ₃
1988 CK ₄	13.5	0.15	19980706	20.13977	345.50700	291.41015	12.03017	0.1541615	2.6872747	45	4	1954–1998	0.74	M-v	2	Williams	32300	1988 CK ₄
1988 CN ₄	14.0	0.15	19980706	223.16264	253.21737	219.39424	5.44964	0.1661725	2.5563122	55	6	1988–1998	0.77	M-v	2	Williams	27324	1988 CN ₄
1988 DJ ₁	14.0	0.15	19980706	316.05472	269.09528	149.96476	5.35066	0.1898207	2.4660412	32	5	1988–1998	0.98	M-v	2	Williams	28613	1988 DJ ₁
1988 PX ₂	13.0	0.15	19980706	277.23135	207.98018	181.73976	10.57155	0.0771556	3.0008698	34	6	1978–1998	0.85	M-v	1	Williams	23133	1988 PX ₂
1988 RD ₁	12.5	0.15	19980706	315.26031	41.50876	318.77488	9.73320	0.1086819	2.9967793	37	5	1980–1998	0.86	M-v	3	Williams	29941	1988 RD ₁
1988 RO ₂	13.5	0.15	19980706	302.91542	55.02149	318.77381	9.97574	0.1200162	3.0153651	26	3	1988–1998	0.76	M-v	4	Williams	32300	1988 RO ₂
1988 RY ₂	14.0	0.15	19980706	309.16560	168.23868	189.26379	9.00110	0.1061209	3.0735533	21	4	1988–1998	0.61	M-v	3	Williams	32300	1988 RY ₂
1988 RO ₄	13.0	0.15	19980706	270.13135	243.08404	162.10734	11.07650	0.1235288	2.9964682	55	5	1988–1998	0.65	M-v	1	Williams	32300	1988 RO ₄
1988 RQ ₄	16.0	0.15	19980706	316.43445	161.34811	192.37771	0.78825	0.2255630	2.2565393	23	3	1988–1998	0.92	M-v	3	Williams	32218	1988 RQ ₄
1988 RS ₆	16.0	0.15	19980706	6.67356	143.91381	187.57636	1.13375	0.2539212	2.2068991	35	4	1988–1998	0.76	M-v	2	Williams	29316	1988 RS ₆
1988 RG ₉	15.5	0.15	19980706	311.96757	260.22397	121.18653	3.06194	0.1242932	2.2235064	45	4	1988–1998	0.70	M-v	1	Williams	29656	1988 RG ₉
1988 RL ₉	14.0	0.15	19980706	302.30083	63.08994	328.13877	5.12082	0.1066323	2.2139346	36	3	1988–1998	0.87	M-v	4	Williams	29133	1988 RL ₉
1988 RV ₁₁	15.5	0.15	19980706	35.00824	97.23121	165.68610	2.93476	0.1534009	2.2469183	38	4	1988–1998	0.47	M-v	1	Williams	29941	1988 RV ₁₁
1988 SB ₂	14.5	0.15	19980706	309.12191	249.06423	111.63391	6.70990	0.1335007	2.2631010	32	2	1988–1998	0.69	M-v	4	Williams	32219	1988 SB ₂
1988 SH ₂	12.5	0.15	19980706	332.83203	225.30447	109.10924	11.35173	0.1163445	2.9954413	35	5	1986–1998	0.79	M-v	3	Williams	32300	1988 SH ₂
1988 TT	13.0	0.15	19980706	343.16490	338.22111	4.29817	10.83092	0.0999029	3.0050409	36	5	1988–1998	0.84	M-v	2	Williams	29656	1988 TT
1988 TO ₁	13.5	0.15	19980706	281.53809	311.26599	103.51013	2.53527	0.2505098	3.0475377	38	5	1983–1998	1.01	M-v	3	Williams	29656	1988 TO ₁
1988 UC	13.5	0.15	19980706	14.68407	313.29803	39.29632	2.53991	0.0942211	2.9165539	39	9	1953–1998	0.89	M-v	1	Williams	30469	1988 UC
1988 UP	13.0	0.15	19980706	306.67902	250.62964	88.63872	2.41482	0.1700569	3.1472208	21	4	1982–1998	0.95	M-v	2	Williams	32219	1988 UP
1988 UV	15.0	0.15	19980706	283.21609	206.60043	212.68634	7.45966	0.0976773	2.2514915	37	4	1978–1998	0.81	M-v	4	Williams	30469	1988 UV

1988 VN ₃	15.0	0.15	19980706	259.63475	214.69258	227.30520	4.86406	0.1285621	2.2868944	39	6	1988–1998	0.66	M-v	1	Williams	29941	1988 VN ₃
1988 XT ₁	12.5	0.15	19980706	305.28223	6.87410	41.79548	18.02376	0.3023704	3.0524182	19	3	1988–1998	0.86	M-v	4	Williams	27306	1988 XT ₁
1988 XB ₅	14.0	0.15	19980706	218.85439	101.67374	63.33581	4.79667	0.1033924	2.2453822	31	8	1981–1998	0.80	M-v	2	Williams	30469	1988 XB ₅
1989 AK	13.0	0.15	19980706	280.46585	353.62856	89.79114	4.34610	0.2697221	3.1041916	52	5	1977–1998	0.98	M-v	1	Williams	23789	1989 AK
1989 AJ ₆	14.0	0.15	19980706	90.01806	285.63776	318.16132	5.71646	0.0998385	2.3986119	29	3	1989–1998	0.95	M-v	4	Williams	29656	1989 AJ ₆
1989 AC ₇	13.5	0.15	19980706	342.82700	245.75648	137.09102	1.98633	0.1774617	3.1593295	32	6	1981–1998	0.63	M-v	1	Williams	31582	1989 AC ₇
1989 BV ₁	14.0	0.15	19980706	167.86577	181.55404	336.92492	1.91551	0.1364078	2.4141892	40	4	1989–1998	0.90	M-v	3	Williams	30090	1989 BV ₁
1989 CX	14.0	0.15	19980706	239.41684	145.82400	328.29095	24.37794	0.2300420	2.3473399	48	3	1989–1998	0.75	M-v	3	Williams	26559	1989 CX
1989 CV ₁	14.5	0.15	19980706	240.32553	358.40463	99.71214	5.50364	0.1707144	2.3738904	30	6	1954–1998	0.86	M-v	1	Williams	31582	1989 CV ₁
1989 CX ₂	13.0	0.15	19980706	11.41157	111.82787	273.31451	8.59823	0.1160756	3.0615660	29	7	1955–1998	0.95	M-v	1	Williams	30686	1989 CX ₂
1989 CB ₃	14.0	0.15	19980706	263.48818	217.57459	264.48142	5.43485	0.1207455	2.3002465	23	4	1989–1998	1.12	M-v	3	Williams	26924	1989 CB ₃
1989 CH ₄	13.5	0.15	19980706	136.82249	231.67918	328.41882	2.05205	0.1519426	2.4185053	51	5	1989–1998	0.72	M-v	2	Williams	32301	1989 CH ₄
1989 EX	13.0	0.15	19980706	94.08947	60.33970	135.76832	11.80870	0.1291945	2.5601311	25	4	1989–1998	0.67	M-v	3	Williams	31416	1989 EX
1989 EJ ₆	14.5	0.15	19980706	231.01224	347.10343	135.16009	0.46935	0.0933758	3.2650402	10	3	1989–1998	0.75	M-v	5	Williams	28842	1989 EJ ₆
1989 GR ₃	14.5	0.15	19980706	35.45666	14.34292	257.09338	3.88485	0.2471843	2.5722414	22	4	1952–1998	0.73	M-v	1	Williams	17443	1989 GR ₃
1989 GG ₄	13.5	0.15	19980706	195.02574	299.87190	211.84357	5.87980	0.0648934	2.4311767	34	7	1970–1998	0.73	M-v	2	Williams	30469	1989 GG ₄
1989 GL ₄	14.5	0.15	19980706	72.76337	27.18452	204.61373	13.48449	0.1223293	2.5412752	24	4	1989–1998	0.74	M-v	3	Williams	30288	1989 GL ₄
1989 GN ₄	14.0	0.15	19980706	45.40723	345.00435	252.28426	2.79804	0.1385024	2.5922475	25	3	1989–1998	0.73	M-v	3	Williams	32301	1989 GN ₄
1989 HA	13.5	0.15	19980706	44.60633	125.12771	143.03287	15.09116	0.1628699	2.5826187	24	3	1989–1998	0.52	M-v	3	Williams	32219	1989 HA
1989 RG ₁	15.5	0.15	19980706	240.91035	263.22428	60.11763	0.91967	0.1957186	2.2437590	22	3	1989–1998	0.39	M-v	3	Williams	32220	1989 RG ₁
1989 SC	14.5	0.15	19980706	288.52055	298.82264	354.89614	6.78712	0.2304359	2.2065637	26	3	1986–1998	0.72	M-v	4	Williams	32220	1989 SC
1989 SP ₂	14.0	0.15	19980706	26.11842	173.07746	129.15388	5.25444	0.0448999	2.7926059	35	4	1989–1998	1.06	M-v	1	Williams	30272	1989 SP ₂
1989 SW ₂	13.0	0.15	19980706	87.02415	129.68490	83.89539	5.72488	0.1486455	2.8742183	44	6	1989–1998	0.69	M-v	1	Williams	30289	1989 SW ₂
1989 TH ₁	13.0	0.15	19980706	339.97832	45.63324	344.10217	8.20900	0.2921929	2.7176236	31	4	1962–1998	0.86	M-v	3	Williams	28613	1989 TH ₁
1989 TB ₁₁	13.5	0.15	19980706	9.25107	33.11231	336.55979	4.02832	0.1342967	2.6666009	33	7	1950–1998	0.73	M-v	1	Williams	30686	1989 TB ₁₁
1989 TR ₁₁	13.0	0.15	19980706	33.11480	324.58629	14.47270	12.79882	0.1979785	2.6471008	18	3	1979–1998	0.73	M-v	3	Williams	22081	1989 TR ₁₁
1989 UL	13.0	0.15	19980706	306.51388	189.32936	218.01166	5.43413	0.1392776	2.7795989	30	4	1980–1998	0.98	M-v	3	Williams	32301	1989 UL
1989 UR	18.5	0.15	19980706	173.05996	289.28019	234.61395	10.31636	0.3558077	1.0798976	23	3	1989–1998	1.06	M-v	5	Williams	30756	1989 UR
1989 YA ₄	14.5	0.15	19980706	146.15581	252.54560	260.43033	0.32945	0.1397396	2.2754834	48	4	1989–1998	0.59	M-v	2	Williams	29941	1989 YA ₄
1989 YA ₅	12.5	0.15	19980706	130.94548	233.84220	300.98593	19.69118	0.1420237	3.1234990	34	4	1989–1998	0.74	M-v	1	Williams	32301	1989 YA ₅
1990 BA	18.0	0.15	19980706	243.10984	170.69995	311.97306	1.99484	0.3374732	1.7406437	43	3	1990–1998	0.69	M-v	2	Williams	29941	1990 BA
1990 CE	15.0	0.15	19980706	160.60096	334.55616	160.28371	5.38165	0.0962656	2.2782910	17	3	1990–1998	0.61	M-v	4	Williams	32221	1990 CE
1990 DD ₂	15.0	0.15	19980706	59.70215	48.80955	180.79195	3.13343	0.1557314	2.3365303	21	5	1976–1998	0.69	M-v	1	Williams	23684	1990 DD ₂
1990 DL ₃	13.5	0.15	19980706	15.02558	291.54980	352.00541	7.11129	0.1939560	2.3450993	33	6	1990–1998	0.91	M-v	2	Williams	29657	1990 DL ₃
1990 EO	14.0	0.15	19980706	59.14150	21.06984	244.05610	5.98118	0.0910040	2.2901944	28	4	1990–1998	0.75	M-v	1	Williams	26579	1990 EO
1990 EF ₇	13.0	0.15	19980706	76.64240	118.51820	133.24475	2.03737	0.1188687	3.2270250	33	6	1979–1998	0.74	M-v	1	Williams	30289	1990 EF ₇
1990 EL ₇	14.0	0.15	19980706	239.56505	177.32251	324.40431	4.55807	0.0451977	2.1660055	31	6	1969–1998	0.68	M-v	2	Williams	22431	1990 EL ₇
1990 FL	14.5	0.15	19980706	72.97982	46.41813	162.00082	24.20296	0.1878696	2.3864210	40	4	1990–1998	0.69	M-v	2	Williams	32301	1990 FL
1990 GE	15.0	0.15	19980706	107.60854	191.93988	356.56658	6.52535	0.1684516	2.3337057	29	5	1977–1998	0.69	M-v	2	Williams	29657	1990 GE
1990 HL ₁	14.5	0.15	19980706	65.29642	1.12905	240.30084	22.11312	0.2740949	2.3958063	26	5	1975–1998	0.85	M-v	2	Williams	26579	1990 HL ₁
1990 OL ₄	13.5	0.15	19980706	7.67843	66.57583	283.54022	6.23148	0.2327464	2.4211433	33	4	1975–1998	0.77	M-v	2	Williams	26757	1990 OL ₄
1990 QE	13.5	0.15	19980706	314.79096	49.08335	308.13739	16.75119	0.2422293	2.5659228	25	4	1990–1998	0.83	M-v	3	Williams	27728	1990 QE
1990 QZ ₁	14.0	0.15	19980706	288.73461	118.96465	346.00910	7.17151	0.0813339	2.4010337	26	5	1990–1998	0.65	M-v	1	Williams	30470	1990 QZ ₁
1990 QS ₃	15.5	0.15	19980706	350.40919	164.27959	156.43505	5.51402	0.2110104	2.5452226	33	5	1990–1998	0.93	M-v	2	Williams	26757	1990 QS ₃
1990 QQ ₄	13.5	0.15	19980706	268.04440	319.39386	25.77358	7.64049	0.0655747	2.7087017	22	3	1990–1998	0.91	M-v	4	Williams	32221	1990 QQ ₄
1990 QE ₇	14.0	0.15	19980706	236.06223	319.22142	142.96198	2.13613	0.1222661	2.5356084	38	4	1990–1998	0.71	M-v	3	Williams	29657	1990 QE ₇
1990 QA ₈	16.0	0.15	19980706	324.26482	216.29951	148.51658	3.20380	0.2538078	2.5332450	29	3	1982–1998	0.88	M-v	4	Williams	21974	1990 QA ₈
1990 QO ₈	14.0	0.15	19980706	254.34871	96.90532	341.73545	12.17887	0.1434452	2.5392927	28	3	1990–1998	0.64	M-v	5	Williams	24912	1990 QO ₈
1990 QP ₈	15.0	0.15	19980706	267.10672	75.51741	335.15120	0.65954	0.0956314	2.5617908	27	3	1978–1998	0.57	M-v	5	Williams	23974	1990 QP ₈
1990 QB ₁₉	15.0	0.15	19980706	349.94770	10.93879	314.13086	2.96554	0.2652834	2.5495870	29	3	1990–1998	0.89	M-v	3	Williams	32301	1990 QB ₁₉
1990 QC ₁₉	15.0	0.15	19980706	283.58844	117.75245	306.18848	22.00348	0.0701273	1.8979944	19	3	1989–1998	0.57	M-v	2	Williams	20148	1990 QC ₁₉
1990 RR ₂	13.0	0.15	19980706	2.85179	173.22616	193.60633	6.65366	0.1381222	2.4581401	33	5	1975–1998	0.82	M-v	2	Williams	22600	1990 RR ₂
1990 RV ₃	15.0	0.15	19980706	335.94465	352.57264	346.80170	3.79715	0.2723458	2.5568270	17	4	1982–1998	0.64	M-v	3	Williams	32301	1990 RV ₃

1990 RJ ₅	14.0	0.15	19980706	262.26335	183.79480	267.53114	2.80415	0.1489217	2.5299116	18	3	1990–1998	0.78	M-v	5	Williams	28297	1990 RJ ₅
1990 RO ₇	15.0	0.15	19980706	326.76135	192.38892	162.09513	3.26155	0.0455148	2.5542586	31	2	1990–1998	0.68	M-v	6	Williams	24761	1990 RO ₇
1990 RR ₇	14.0	0.15	19980706	32.31295	115.32167	164.22131	6.41493	0.1291557	2.5452485	28	4	1990–1998	0.50	M-v	3	Williams	29942	1990 RR ₇
1990 SY	13.5	0.15	19980706	352.28983	337.79848	331.03099	8.41986	0.1854635	2.5933844	31	5	1990–1998	0.81	M-v	2	Williams	30289	1990 SY
1990 SZ	13.5	0.15	19980706	294.18119	72.84666	346.99166	10.58021	0.1758545	2.5419046	29	6	1986–1998	0.76	M-v	2	Williams	26925	1990 SZ
1990 SB ₁	13.0	0.15	19980706	127.75621	209.54604	346.73064	12.71374	0.1078133	2.5822652	39	6	1955–1998	0.67	M-v	2	Williams	29658	1990 SB ₁
1990 SF ₅	15.0	0.15	19980706	325.69951	193.64412	154.05700	4.53458	0.1105400	2.5868202	26	4	1990–1998	0.84	M-v	4	Williams	29658	1990 SF ₅
1990 SR ₆	14.5	0.15	19980706	317.46304	310.17381	69.57273	2.14348	0.1730882	2.5499638	51	7	1978–1998	0.67	M-v	2	Williams	30091	1990 SR ₆
1990 SC ₈	15.5	0.15	19980706	334.87976	199.37654	147.98419	7.70058	0.1722368	2.5540473	27	3	1990–1998	0.79	M-v	4	Williams	24389	1990 SC ₈
1990 SG ₁₂	15.0	0.15	19980706	320.42092	158.33358	212.75715	3.99715	0.2128324	2.5503435	41	5	1986–1998	0.76	M-v	3	Williams	32302	1990 SG ₁₂
1990 SV ₁₃	14.5	0.15	19980706	299.76848	19.69311	7.58703	4.43024	0.0600227	2.5394329	47	6	1978–1998	0.62	M-v	3	Williams	29942	1990 SV ₁₃
1990 ST ₁₅	13.0	0.15	19980706	117.64563	309.28623	312.00629	6.21992	0.0877473	2.3747531	19	4	1989–1998	0.62	M-v	2	Williams	28316	1990 ST ₁₅
1990 TK ₃	12.5	0.15	19980706	311.53001	1.40392	32.54928	17.09332	0.1747842	2.5828021	47	6	1990–1998	0.85	M-v	2	Williams	30895	1990 TK ₃
1990 TB ₄	14.0	0.15	19980706	238.63733	190.66193	281.30086	1.29543	0.1278163	2.5952504	21	4	1986–1998	0.74	M-v	3	Williams	31005	1990 TB ₄
1990 UA ₂	15.5	0.15	19980706	316.87731	279.28792	114.00914	4.33115	0.2658702	2.5621075	20	4	1990–1998	0.79	M-v	3	Williams	30091	1990 UA ₂
1990 UU ₃	13.5	0.15	19980706	21.36633	99.58968	189.27893	11.89803	0.1701576	2.6344250	40	5	1976–1998	0.69	M-v	1	Williams	32302	1990 UU ₃
1990 VM ₂	14.0	0.15	19980706	288.73215	285.39616	103.13120	4.65085	0.1980841	2.6699034	26	2	1990–1998	0.73	M-v	5	Williams	32222	1990 VM ₂
1990 VN ₄	14.5	0.15	19980706	153.81911	350.14027	205.84547	12.61485	0.1159045	2.6427422	34	3	1990–1998	0.52	M-v	2	Williams	30895	1990 VN ₄
1990 VG ₆	13.5	0.15	19980706	245.12106	348.76065	165.23380	8.07427	0.1160556	2.5276707	22	4	1990–1998	0.78	M-v	3	Williams	30976	1990 VG ₆
1990 WQ ₂	13.5	0.15	19980706	260.20122	217.11700	215.51173	6.59892	0.1684146	2.6832719	33	3	1990–1998	0.70	M-v	2	Williams	27934	1990 WQ ₂
1990 WP ₄	12.5	0.15	19980706	94.29837	124.03157	88.66410	10.24624	0.0900273	2.7725434	20	5	1979–1998	0.61	M-v	1	Williams	30289	1990 WP ₄
1990 WA ₅	13.0	0.15	19980706	53.41119	139.56022	119.39119	6.35076	0.0127564	2.7396766	25	6	1985–1998	0.87	M-v	1	Williams	29942	1990 WA ₅
1991 AA ₁	13.0	0.15	19980706	307.56069	301.95884	85.64674	4.81130	0.0946238	2.7617664	37	8	1979–1998	0.61	M-v	1	Williams	30289	1991 AA ₁
1991 EK ₄	15.5	0.15	19980706	64.20152	37.14671	185.89918	2.83294	0.0790733	2.1484189	22	2	1991–1998	0.60	M-v	5	Williams	32223	1991 EK ₄
1991 FO ₁	13.0	0.15	19980706	282.38604	67.44727	356.02581	1.53773	0.0622712	2.8644966	36	6	1979–1998	0.98	M-v	1	Williams	29942	1991 FO ₁
1991 FH ₂	14.0	0.15	19980706	157.67716	237.51252	281.44329	0.74421	0.0620205	2.9943769	30	4	1978–1998	0.48	M-v	1	Williams	30289	1991 FH ₂
1991 FN ₂	13.5	0.15	19980706	182.53573	331.06480	158.07887	3.80453	0.1003540	2.9990794	43	4	1988–1998	0.63	M-v	2	Williams	32047	1991 FN ₂
1991 FZ ₂	13.5	0.15	19980706	159.77530	348.06450	176.34172	6.31224	0.0260365	3.0457277	34	3	1991–1998	0.71	M-v	4	Williams	32302	1991 FZ ₂
1991 FL ₄	12.0	0.15	19980706	36.72281	106.72447	182.21502	13.72435	0.1939492	3.1301053	33	5	1987–1998	0.79	M-v	1	Williams	32302	1991 FL ₄
1991 GB ₃	13.5	0.15	19980706	106.01152	160.18939	19.85541	0.80165	0.1183363	3.2155848	66	4	1991–1998	0.77	M-v	2	Williams	32302	1991 GB ₃
1991 GK ₄	13.5	0.15	19980706	341.48462	170.87852	231.22710	1.12022	0.0763418	2.8345628	41	6	1991–1998	0.90	M-v	2	Williams	30470	1991 GK ₄
1991 GH ₅	14.0	0.15	19980706	21.11433	74.20501	213.35710	4.35083	0.1190718	3.2073455	35	3	1991–1998	0.73	M-v	3	Williams	32302	1991 GH ₅
1991 GT ₅	13.5	0.15	19980706	87.95953	55.88420	163.07686	0.84094	0.1218918	3.1737697	48	6	1991–1998	0.79	M-v	1	Williams	27934	1991 GT ₅
1991 GH ₁₁	14.0	0.15	19980706	157.73715	3.04045	144.21626	2.44402	0.2070213	3.0834556	18	3	1980–1998	0.75	M-v	6	Williams	29135	1991 GH ₁₁
1991 LB	15.0	0.15	19980706	331.64867	121.67224	218.87021	4.82761	0.1948864	2.2257909	33	3	1991–1998	0.46	M-v	2	Williams	32302	1991 LB
1991 LW ₁	13.0	0.15	19980706	77.51047	150.42471	104.31334	2.26532	0.1333842	3.2270532	24	4	1991–1998	0.88	M-v	1	Williams	27120	1991 LW ₁
1991 NQ ₆	15.0	0.15	19980706	313.11432	100.37953	276.11308	4.63258	0.1668045	2.2683451	23	3	1991–1998	0.57	M-v	3	Williams	28298	1991 NQ ₆
1991 NE ₇	13.0	0.15	19980706	17.84230	109.00479	268.49083	5.18836	0.0988524	3.1522192	50	9	1980–1998	0.64	M-v	1	Williams	30687	1991 NE ₇
1991 OO	15.0	0.15	19980706	341.50602	108.96164	231.67706	3.38333	0.2016686	2.2940688	37	3	1991–1998	0.66	M-v	3	Williams	32303	1991 OO
1991 PT ₁	14.5	0.15	19980706	60.2652	38.21481	191.39820	3.33609	0.1448704	2.3103260	37	6	1987–1998	0.83	M-v	2	Williams	29942	1991 PT ₁
1991 PQ ₅	15.0	0.15	19980706	14.09923	163.66005	142.50987	6.62690	0.1320316	2.2725983	24	3	1991–1998	0.60	M-v	3	Williams	25529	1991 PQ ₅
1991 PJ ₇	15.0	0.15	19980706	329.22021	24.21280	338.03737	5.49346	0.1729418	2.2878468	44	6	1953–1998	0.78	M-v	2	Williams	29659	1991 PJ ₇
1991 PT ₉	14.0	0.15	19980706	13.02468	357.60396	287.01351	24.76283	0.2181521	2.2863073	37	2	1991–1998	0.51	M-v	3	Williams	32224	1991 PT ₉
1991 PD ₁₀	14.0	0.15	19980706	212.55449	117.22990	332.21306	7.27621	0.0407657	2.3687326	26	3	1991–1998	0.94	M-v	4	Williams	32224	1991 PD ₁₀
1991 PG ₁₁	15.0	0.15	19980706	3.24001	137.59543	179.36073	6.61333	0.2372940	2.3051657	36	4	1977–1998	0.81	M-v	3	Williams	32303	1991 PG ₁₁
1991 PO ₁₁	14.0	0.15	19980706	12.08545	109.51851	187.10241	6.35720	0.1234231	2.3337853	44	5	1983–1998	0.82	M-v	2	Williams	32303	1991 PO ₁₁
1991 PW ₁₁	14.5	0.15	19980706	321.62116	101.18953	187.72539	7.26673	0.1862553	2.4371912	19	2	1991–1998	0.69	M-v	4	Williams	32224	1991 PW ₁₁
1991 PM ₁₃	14.5	0.15	19980706	25.30720	278.87681	357.66939	4.06840	0.2055837	2.3038039	25	4	1977–1998	0.82	M-v	4	Williams	29614	1991 PM ₁₃
1991 PJ ₁₅	14.5	0.15	19980706	28.71197	167.64458	118.85711	3.04516	0.1432204	2.2954301	22	3	1981–1998	0.71	M-v	4	Williams	32303	1991 PJ ₁₅
1991 PQ ₁₆	14.0	0.15	19980706	272.17660	229.82748	169.89732	7.48211	0.0868589	2.3667812	20	3	1991–1998	0.68	M-v	4	Williams	32224	1991 PQ ₁₆
1991 RS	13.5	0.15	19980706	253.99571	136.11243	174.03031	14.36767	0.1950771	2.5749247	38	4	1954–1998	0.59	M-v	2	Williams	32225	1991 RS
1991 RX ₁	14.0	0.15	19980706	252.18180	80.41699	358.13430	7.33238	0.2503109	2.3712846	33	6	1971–1998	0.82	M-v	2	Williams	26925	1991 RX ₁
1991 RS ₂	14.0	0.15	19980706	255.91608	242.20767	210.31108	6.47957	0.0642791	2.3071274	37	3	1991–1998	0.61	M-v	4	Williams	30896	1991 RS ₂

1991 RT ₃	14.0	0.15	19980706	320.22478	177.05964	224.29371	5.01151	0.1479664	2.2883831	31	5	1977–1998	0.87	M-v	3	Williams	26757	1991 RT ₃
1991 RB ₄	14.5	0.15	19980706	192.68389	154.91475	340.56695	5.03260	0.0874146	2.3656309	38	4	1991–1998	0.72	M-v	2	Williams	26758	1991 RB ₄
1991 RR ₄	14.0	0.15	19980706	342.06757	55.96724	336.53393	3.60254	0.1597218	2.2588485	36	5	1962–1998	0.69	M-v	2	Williams	26901	1991 RR ₄
1991 RU ₇	15.5	0.15	19980706	305.97094	222.79775	178.48283	6.73675	0.2108227	2.3079532	27	4	1977–1998	0.62	M-v	4	Williams	30091	1991 RU ₇
1991 RS ₈	14.5	0.15	19980706	288.51473	55.22463	352.52586	8.28561	0.1070048	2.3379157	33	4	1982–1998	0.63	M-v	3	Williams	31101	1991 RS ₈
1991 RE ₁₁	14.0	0.15	19980706	316.69263	123.23441	294.65323	4.64487	0.1723050	2.2727766	26	5	1953–1998	0.70	M-v	2	Williams	25538	1991 RE ₁₁
1991 RE ₁₅	14.0	0.15	19980706	27.28151	330.43293	343.22759	7.94017	0.2215084	2.2618063	23	5	1950–1998	0.72	M-v	2	Williams	30449	1991 RE ₁₅
1991 RK ₁₅	14.0	0.15	19980706	348.81442	334.74923	3.86709	5.18520	0.1561671	2.3117105	24	6	1963–1998	0.87	M-v	3	Williams	32303	1991 RK ₁₅
1991 RV ₁₆	15.0	0.15	19980706	338.16125	19.13957	21.69698	7.15004	0.1161741	2.2377643	21	5	1954–1998	0.75	M-v	2	Williams	29659	1991 RV ₁₆
1991 RA ₁₇	15.0	0.15	19980706	355.03440	303.70196	35.61942	7.23690	0.1605836	2.3014863	26	3	1991–1998	0.68	M-v	4	Williams	30078	1991 RA ₁₇
1991 RU ₁₇	13.5	0.15	19980706	349.81324	178.42117	191.23421	3.30918	0.0297364	2.2463763	24	6	1985–1998	0.95	M-v	2	Williams	30896	1991 RU ₁₇
1991 RH ₂₅	13.5	0.15	19980706	351.45125	288.86171	68.47387	7.09842	0.1655549	2.3013778	23	6	1953–1998	0.69	M-v	2	Williams	30091	1991 RH ₂₅
1991 SM ₂	14.0	0.15	19980706	299.26320	57.70870	15.88668	6.94909	0.0648802	2.2731283	20	3	1991–1998	0.86	M-v	3	Williams	29135	1991 SM ₂
1991 TH ₂	14.0	0.15	19980706	307.71341	219.29219	159.22918	2.59850	0.2227490	2.3739788	35	5	1969–1998	0.86	M-v	2	Williams	28886	1991 TH ₂
1991 TH ₆	15.5	0.15	19980706	324.96093	101.61110	246.87438	2.81788	0.1424457	2.3574268	46	4	1991–1998	0.76	M-v	2	Williams	32303	1991 TH ₆
1991 UA	12.5	0.15	19980706	308.17287	28.84890	352.48809	2.36065	0.2510102	3.9898446	29	3	1991–1998	0.75	M-v	4	Williams	32303	1991 UA
1991 UF ₁	15.5	0.15	19980706	293.65904	308.36772	93.44205	3.40496	0.2106857	2.3774617	27	4	1991–1998	0.72	M-v	4	Williams	29943	1991 UF ₁
1991 UR ₁	14.5	0.15	19980706	295.67798	9.55749	41.92484	1.93397	0.1536805	2.3631337	19	4	1980–1998	0.80	M-v	2	Williams	30449	1991 UR ₁
1991 UO ₂	14.0	0.15	19980706	318.70531	289.99959	113.14958	4.74124	0.1975702	2.3248014	36	5	1984–1998	0.88	M-v	2	Williams	30290	1991 UO ₂
1991 UP ₂	14.0	0.15	19980706	17.12850	276.02644	79.23124	4.63525	0.1396793	2.2785027	26	4	1991–1998	0.69	M-v	2	Williams	29943	1991 UP ₂
1991 UB ₃	14.5	0.15	19980706	335.33054	334.30009	60.20557	4.93475	0.1969859	2.2938855	34	5	1953–1998	0.75	M-v	2	Williams	28615	1991 UB ₃
1991 UE ₃	13.0	0.15	19980706	80.55515	208.65281	76.61508	7.32904	0.1907517	2.2571686	31	5	1974–1998	0.72	M-v	2	Williams	30290	1991 UE ₃
1991 UN ₃	13.5	0.15	19980706	348.52799	304.66273	84.34398	4.56395	0.0972821	2.2946861	29	3	1991–1998	0.88	M-v	4	Williams	26925	1991 UN ₃
1991 UU ₃	14.0	0.15	19980706	35.04998	336.02043	357.08727	2.23247	0.1611525	2.2820005	25	6	1977–1998	0.77	M-v	2	Williams	27729	1991 UU ₃
1991 VD ₁	13.5	0.15	19980706	241.33492	4.01743	32.45662	16.03575	0.0934767	2.5305099	52	5	1987–1997	0.60	M-v	3	Williams	31584	1991 VD ₁
1991 VQ ₁	13.5	0.15	19980706	356.99121	297.46547	71.86673	7.34517	0.2073008	2.2813157	32	3	1991–1998	0.79	M-v	3	Williams	29615	1991 VQ ₁
1991 VM ₄	14.5	0.15	19980706	292.37273	31.88813	27.39486	2.98297	0.1830407	2.3833414	29	8	1954–1998	0.73	M-v	1	Williams	30091	1991 VM ₄
1991 VF ₇	13.5	0.15	19980706	94.64991	354.88110	244.41166	5.46310	0.0319577	2.4205284	20	4	1991–1998	0.63	M-v	2	Williams	26758	1991 VF ₇
1991 XC	14.0	0.15	19980706	261.57480	92.27549	0.98435	21.37452	0.3034150	2.4404765	37	3	1991–1998	0.56	M-v	2	Williams	27325	1991 XC
1991 XL	13.5	0.15	19911210	109.30026	226.53687	78.39032	5.10333	0.1441435	2.3134946	8	1	10 days	1.03			Williams		1991 XL
1991 XO ₂	15.0	0.15	19980706	292.88515	198.61585	223.73531	4.41073	0.2079493	2.3628989	39	6	1955–1998	0.82	M-v	1	Williams	28316	1991 XO ₂
1991 YV	13.0	0.15	19980706	182.85080	2.04579	109.43537	13.97777	0.1004070	2.6155323	35	5	1989–1998	0.81	M-v	2	Marsden	32304	1991 YV
1992 CH	13.0	0.15	19980706	210.10640	168.13617	311.94021	12.64066	0.1112653	2.6314091	37	3	1992–1998	0.73	M-v	3	Williams	30290	1992 CH
1992 CK	14.5	0.15	19920208	45.89080	301.71740	139.00600	6.38145	0.1543759	2.3009644	7	1	26 days	0.88			Marsden		1992 CK
1992 CD ₃	14.0	0.15	19980706	342.69562	184.24655	154.18103	10.25545	0.1032531	2.5623857	37	3	1992–1998	0.75	M-v	4	Williams	29943	1992 CD ₃
1992 DS ₅	14.0	0.15	19980706	39.94978	80.57161	96.29647	2.01897	0.1251350	3.1392859	18	4	1992–1998	0.75	M-v	1	Williams	32226	1992 DS ₅
1992 DU ₅	14.5	0.15	19980706	313.54440	233.84438	148.34356	10.18272	0.2169110	2.5819813	36	4	1990–1998	0.57	M-v	2	Williams	32304	1992 DU ₅
1992 DK ₆	14.0	0.15	19980706	221.23691	329.70771	55.94423	2.90326	0.1198000	2.9379091	15	3	1992–1998	0.72	M-v	5	Williams	32226	1992 DK ₆
1992 DN ₇	13.0	0.15	19980706	350.89879	217.61396	127.00925	3.30434	0.0910144	2.6460093	31	5	1990–1998	0.47	M-v	1	Williams	29943	1992 DN ₇
1992 DY ₇	14.0	0.15	19980706	57.85671	184.26085	75.48669	3.09730	0.0302520	2.7186702	33	3	1992–1998	0.74	M-v	3	Williams	30471	1992 DY ₇
1992 DM ₈	14.0	0.15	19980706	30.95820	13.60057	171.96029	16.07303	0.1167246	3.1316653	23	3	1992–1998	0.70	M-v	3	Williams	32226	1992 DM ₈
1992 EO ₆	15.0	0.15	19980706	253.20552	2.64035	52.48886	5.42794	0.1963133	2.6506706	15	4	1990–1998	0.49	M-v	2	Williams	29943	1992 EO ₆
1992 EW ₉	12.0	0.15	19980706	333.70916	209.73643	154.86259	15.18914	0.1250487	2.5890088	25	4	1971–1998	0.49	M-v	2	Williams	32304	1992 EW ₉
1992 EX ₉	14.5	0.15	19980706	263.28051	241.05305	181.82843	3.71803	0.1912153	2.5839542	19	4	1992–1998	0.89	M-v	2	Williams	30091	1992 EX ₉
1992 ED ₁₁	13.5	0.15	19980706	279.21766	61.53122	349.95925	8.52019	0.0823363	2.6185464	35	5	1977–1998	0.80	M-v	1	Williams	25650	1992 ED ₁₁
1992 EE ₁₄	14.5	0.15	19980706	109.51089	352.04728	200.32611	3.52426	0.0387768	2.7648699	19	3	1992–1998	0.47	M-v	4	Williams	32304	1992 EE ₁₄
1992 EK ₁₄	13.5	0.15	19980706	0.15066	19.04555	336.31541	3.59994	0.2565522	2.5510503	20	4	1980–1998	0.60	M-v	2	Williams	28886	1992 EK ₁₄
1992 EM ₁₈	14.5	0.15	19980706	10.65763	119.55059	207.37804	6.17603	0.0962023	2.6345262	29	5	1990–1998	0.63	M-v	2	Williams	28086	1992 EM ₁₈
1992 FA ₂	13.0	0.15	19980706	261.76003	346.80919	74.15658	6.31855	0.0490140	2.7383486	18	4	1992–1998	0.71	M-v	3	Williams	30091	1992 FA ₂
1992 GR	13.0	0.15	19980706	219.53041	65.93323	61.80827	13.90342	0.1329824	2.6502926	26	4	1986–1998	0.87	M-v	1	Williams	27121	1992 GR
1992 HH ₁	13.5	0.15	19980706	278.32627	200.77084	214.21561	3.76924	0.0630510	2.7921776	35	4	1991–1998	0.72	M-v	3	Williams	24762	1992 HH ₁
1992 HZ ₃	13.5	0.15	19980706	91.53772	227.92658	13.43750	2.71162	0.0749266	2.7892556	36	4	1989–1998	0.63	M-v	1	Williams	27326	1992 HZ ₃
1992 JB ₂	12.0	0.15	19980706	11.74632	149.31463	218.44783	11.07580	0.0639813	2.6441374	18	3	1992–1998	0.88	M-v	4	Williams	22956	1992 JB ₂

1992 PL ₂	12.0	0.15	19980706	133.02499	263.60528	296.24986	20.44285	0.0555387	3.1945236	28	4	1981–1998	0.61	M-v	2	Williams	32305	1992 PL ₂
1992 QL ₂	12.0	0.15	19980706	53.43757	76.97822	242.31493	9.37742	0.1015029	3.0049189	29	6	1935–1998	0.74	M-v	1	Williams	30782	1992 QL ₂
1992 RQ	13.5	0.15	19980706	13.46430	240.40001	117.25092	2.54048	0.2612819	3.1572968	39	7	1981–1998	0.86	M-v	1	Williams	30688	1992 RQ
1992 RX ₆	13.0	0.15	19980706	2.88268	22.09785	8.39150	9.52777	0.0930406	3.0413260	23	3	1992–1998	0.70	M-v	4	Williams	29660	1992 RX ₆
1992 RT ₇	12.0	0.15	19980706	349.40784	95.93913	310.52837	7.48004	0.2236289	3.1466909	19	6	1987–1998	0.66	M-v	1	Williams	30471	1992 RT ₇
1992 SB ₁	11.5	0.15	19980706	25.79680	346.13444	1.94990	17.05586	0.1674627	3.1687951	30	3	1992–1998	0.68	M-v	3	Marsden	23519	1992 SB ₁
1992 SS ₁₆	15.0	0.15	19980706	315.28315	134.35316	207.59736	0.61355	0.0496886	2.1540698	38	4	1992–1998	0.77	M-v	4	Williams	32305	1992 SS ₁₆
1992 SQ ₂₄	13.0	0.15	19980706	247.61875	309.00255	204.03386	10.11826	0.0514208	2.9890358	30	5	1987–1998	0.75	M-v	2	Williams	30896	1992 SQ ₂₄
1992 UH ₃	14.5	0.15	19980706	254.13117	41.54449	13.01102	5.98739	0.1111571	2.1866280	29	5	1979–1998	0.84	M-v	2	Williams	32305	1992 UH ₃
1992 UM ₉	13.0	0.15	19980706	31.77403	161.65154	186.52083	6.45993	0.1313118	3.1878102	18	4	1992–1998	0.69	M-v	1	Williams	30658	1992 UM ₉
1992 WR ₁	14.0	0.15	19980706	310.09749	227.52942	98.38648	7.73292	0.2052592	2.2588380	48	4	1978–1998	0.62	M-v	2	Williams	32228	1992 WR ₁
1992 WX ₁	15.0	0.15	19980706	290.92867	101.14867	285.98013	3.10816	0.1274790	2.1791539	23	3	1992–1998	0.89	M-v	5	Williams	26172	1992 WX ₁
1992 YG ₂	15.5	0.15	19980706	298.80004	83.77381	302.99133	3.41629	0.1531797	2.2086910	31	3	1992–1998	0.86	M-v	5	Williams	26172	1992 YG ₂
1992 YN ₂	15.0	0.15	19980706	159.95354	83.42768	76.56068	2.31163	0.1395888	2.3012585	34	3	1992–1998	0.67	M-v	4	Williams	29917	1992 YN ₂
1993 BO ₃	14.0	0.15	19980706	259.18290	355.17173	84.73584	4.59345	0.1433981	2.2742830	51	4	1993–1998	0.68	M-v	2	Williams	30091	1993 BO ₃
1993 BS ₃	13.5	0.15	19980706	187.53827	212.26286	295.64845	6.85394	0.1160945	2.3114818	31	4	1993–1998	0.75	M-v	2	Williams	30092	1993 BS ₃
1993 BD ₄	10.5	0.15	19980706	347.23630	177.93636	138.90440	14.72600	0.1518528	5.1565246	36	3	1993–1998	0.85	M-v	3	Williams	32305	1993 BD ₄
1993 BU ₇	15.0	0.15	19980706	282.18538	182.53661	214.31697	2.57964	0.0160896	2.3385124	24	3	1993–1998	0.77	M-v	4	Williams	32305	1993 BU ₇
1993 BZ ₁₂	10.5	0.15	19980706	52.39942	122.35964	128.33059	13.75000	0.0626828	5.1973411	25	3	1993–1998	0.77	M-v	3	Williams	32228	1993 BZ ₁₂
1993 BX ₁₃	14.0	0.15	19980706	321.48269	198.19043	184.56258	4.79163	0.1450234	2.2373567	18	5	1951–1998	0.77	M-v	2	Williams	32305	1993 BX ₁₃
1993 DJ ₁	13.5	0.15	19980706	344.04240	126.81642	141.01195	14.39050	0.0451837	2.5813816	27	3	1989–1998	0.81	M-v	3	Williams	32228	1993 DJ ₁
1993 FA ₅	14.0	0.15	19980706	297.24451	280.86373	165.73867	6.13630	0.1126999	2.2249044	23	6	1951–1998	0.78	M-v	2	Williams	30291	1993 FA ₅
1993 FB ₈	14.0	0.15	19980706	328.34372	210.69864	76.75933	3.81036	0.1837177	2.7760096	27	2	1993–1998	0.66	M-v	4	Williams	32306	1993 FB ₈
1993 FS ₉	14.0	0.15	19980706	13.08994	207.07299	135.45406	6.13576	0.2507247	2.3804119	30	6	1971–1998	0.69	M-v	2	Williams	29137	1993 FS ₉
1993 FX ₉	13.5	0.15	19980706	136.16910	79.06649	81.36805	3.66161	0.0728255	2.5213481	22	5	1977–1998	0.64	M-v	1	Williams	32306	1993 FX ₉
1993 FB ₁₀	14.5	0.15	19980706	311.30342	250.68326	119.06525	3.49140	0.1918543	2.4450904	30	5	1993–1998	0.60	M-v	1	Williams	29662	1993 FB ₁₀
1993 FS ₁₀	14.0	0.15	19980706	3.96260	147.98533	173.26085	6.88151	0.0948366	2.4610095	22	3	1993–1998	0.59	M-v	4	Williams	29918	1993 FS ₁₀
1993 FR ₁₁	14.0	0.15	19980706	6.25165	129.23646	171.99895	13.77321	0.1641521	2.5652291	21	4	1989–1998	0.51	M-v	2	Williams	32306	1993 FR ₁₁
1993 FV ₁₂	15.0	0.15	19980706	23.22748	94.80332	168.50250	12.80958	0.2455599	2.6816096	14	3	1971–1998	0.85	M-v	4	Williams	23523	1993 FV ₁₂
1993 FU ₁₃	13.5	0.15	19980706	294.77319	1.92689	74.60462	4.24585	0.1546560	2.2513841	16	4	1988–1998	0.68	M-v	2	Williams	31419	1993 FU ₁₃
1993 FU ₁₇	14.0	0.15	19980706	320.82363	12.23188	46.95188	7.34846	0.1345065	2.2474499	27	5	1991–1998	0.72	M-v	2	Williams	30291	1993 FU ₁₇
1993 FH ₂₀	15.0	0.15	19980706	290.17126	116.63803	285.13427	1.73167	0.1717712	2.3725000	18	3	1993–1998	0.91	M-v	5	Marsden	27915	1993 FH ₂₀
1993 FC ₂₂	14.5	0.15	19980706	47.37305	114.40223	187.80187	1.47174	0.1379218	2.4309280	31	5	1971–1998	0.54	M-v	1	Williams	30092	1993 FC ₂₂
1993 FR ₂₃	13.5	0.15	19980706	353.71374	23.27583	359.87172	6.37747	0.2058779	2.2933179	29	5	1984–1998	0.66	M-v	2	Williams	27121	1993 FR ₂₃
1993 FO ₂₄	14.0	0.15	19980706	53.94931	105.73960	349.12837	4.61351	0.1594927	3.1687348	13	2	1993–1998	0.57	M-v	5	Williams	32229	1993 FO ₂₄
1993 FH ₂₅	13.0	0.15	19980706	52.09865	78.97622	201.65345	4.93117	0.0529959	2.4481572	20	4	1987–1998	0.87	M-v	2	Williams	32306	1993 FH ₂₅
1993 FV ₃₁	14.0	0.15	19980706	188.29935	32.64567	107.23019	3.31608	0.0406009	2.4344916	57	4	1993–1998	0.76	M-v	1	Williams	30897	1993 FV ₃₁
1993 FB ₃₂	15.5	0.15	19980706	303.75209	227.16960	160.44552	3.58135	0.1843450	2.4223956	23	4	1949–1998	0.80	M-v	3	Williams	24108	1993 FB ₃₂
1993 FJ ₃₂	14.5	0.15	19980706	66.74334	310.72556	286.60649	4.49765	0.1281876	2.5491322	17	3	1993–1998	0.75	M-v	4	Williams	26759	1993 FJ ₃₂
1993 FR ₃₅	15.5	0.15	19980706	204.74586	313.82410	160.87774	3.28127	0.1273459	2.4295350	21	4	1989–1998	0.68	M-v	4	Williams	29919	1993 FR ₃₅
1993 FS ₃₅	13.0	0.15	19980706	5.43150	137.16668	43.78543	3.56772	0.0525295	3.0600659	17	2	1993–1998	0.42	M-v	5	Williams	32229	1993 FS ₃₅
1993 FD ₃₇	14.0	0.15	19980706	187.28531	290.84600	173.55379	2.99642	0.1075669	2.5260486	15	2	1993–1997	0.74	M-v	6	Williams	32229	1993 FD ₃₇
1993 FK ₃₈	13.0	0.15	19980706	274.11187	106.58100	152.63140	4.36573	0.0498700	3.1509564	17	3	1990–1998	0.64	M-v	4	Williams	32229	1993 FK ₃₈
1993 FY ₄₁	15.0	0.15	19980706	235.03969	67.86154	15.54867	1.90527	0.1199563	2.4222326	18	4	1993–1998	0.76	M-v	2	Williams	29944	1993 FY ₄₁
1993 FY ₄₃	14.5	0.15	19980706	3.07653	300.43152	352.64308	2.39294	0.1296920	2.5980251	29	4	1993–1998	0.81	M-v	2	Williams	32306	1993 FY ₄₃
1993 FM ₄₅	14.0	0.15	19930314	196.07779	316.96632	30.65253	2.75215	0.0336502	2.5245726	3	1	5 days	0.00			Williams		1993 FM ₄₅
1993 FJ ₄₆	14.0	0.15	19980706	303.56760	68.74410	341.57810	1.01890	0.1881886	2.3063615	24	6	1984–1998	0.75	M-v	1	Williams	26927	1993 FJ ₄₆
1993 HF	13.0	0.15	19980706	104.85415	321.12756	240.62108	9.86831	0.1345507	2.5326066	31	7	1985–1998	0.75	M-v	1	Williams	29662	1993 HF
1993 HK	13.5	0.15	19980706	172.14908	35.12764	129.99350	3.47339	0.1267329	2.4158143	28	5	1979–1998	0.76	M-v	2	Williams	30291	1993 HK
1993 HA ₆	14.0	0.15	19980706	84.45893	181.09313	43.16228	6.29448	0.1565692	2.5502924	21	4	1989–1998	0.85	M-v	3	Williams	29944	1993 HA ₆
1993 LF ₂	13.0	0.15	19980706	329.05040	237.84981	94.52836	10.30095	0.1569350	2.7743817	35	4	1962–1998	0.78	M-v	2	Williams	32306	1993 LF ₂
1993 NO	14.5	0.15	19980706	333.02090	80.00730	335.21525	0.54176	0.1235317	2.5339936	26	5	1990–1998	0.68	M-v	1	Williams	27455	1993 NO
1993 NV	13.5	0.15	19980706	12.17683	41.85018	245.32672	0.79134	0.0536953	2.8733135	34	5	1993–1998	1.04	M-v	1	Williams	32306	1993 NV

1993 OQ ₅	14.5	0.15	19980706	329.34103	78.04679	294.57948	5.81897	0.2338981	2.8119708	28	4	1981–1998	0.80	M-v	1	Williams	25216	1993 OQ ₅
1993 OU ₇	13.5	0.15	19980706	341.58604	195.44895	164.45368	2.01558	0.0453531	2.7045481	34	6	1987–1998	0.84	M-v	1	Williams	32306	1993 OU ₇
1993 OK ₉	13.5	0.15	19980706	27.37065	142.24169	129.26639	2.97538	0.0173823	2.8861655	25	4	1954–1998	0.64	M-v	3	Williams	32306	1993 OK ₉
1993 OS ₁₀	13.5	0.15	19980706	6.90559	54.25393	274.28776	4.02475	0.0243412	2.7273039	27	3	1989–1998	0.82	M-v	4	Williams	23676	1993 OS ₁₀
1993 PC	18.5	0.15	19980706	163.17668	168.12784	337.56755	4.15843	0.4745086	1.1544218	56	4	1993–1998	0.63	M-v	3	Williams	32307	1993 PC
1993 PJ ₇	13.5	0.15	19980706	358.71711	338.97915	333.37233	2.19388	0.0424292	3.0144742	33	4	1991–1998	0.81	M-v	2	Williams	28616	1993 PJ ₇
1993 QD ₃	13.5	0.15	19980706	217.24554	296.25597	162.64625	9.99420	0.0596487	3.0670227	28	4	1993–1998	0.52	M-v	1	Williams	30291	1993 QD ₃
1993 QF ₃	13.0	0.15	19980706	110.07281	26.95652	153.76237	2.06659	0.1269528	3.1645680	30	3	1993–1998	0.92	M-v	4	Williams	32307	1993 QF ₃
1993 QH ₃	13.5	0.15	19980706	319.89736	118.02086	278.38253	0.91501	0.0860228	2.8456444	22	7	1987–1998	0.79	M-v	1	Williams	29137	1993 QH ₃
1993 QQ ₄	13.5	0.15	19980706	60.16326	61.38511	160.25954	1.88485	0.1169551	3.1949289	32	5	1973–1998	0.94	M-v	2	Marsden	32307	1993 QQ ₄
1993 QZ ₅	13.5	0.15	19980706	242.03862	290.01118	171.00481	2.10136	0.0288007	2.8717920	40	4	1991–1998	0.74	M-v	2	Williams	28616	1993 QZ ₅
1993 RS ₁₄	15.5	0.15	19980706	184.47565	107.65110	177.23938	1.78839	0.2141466	2.3154427	18	3	1992–1996	0.99	M-v	5	Williams	32231	1993 RS ₁₄
1993 SK ₃	13.0	0.15	19980706	249.24090	128.32687	311.14663	2.26829	0.2737774	3.2405096	38	5	1982–1998	0.69	M-v	1	Williams	30899	1993 SK ₃
1993 SM ₃	13.0	0.15	19980706	304.05930	247.30682	138.93708	1.81815	0.1898206	3.1287472	30	4	1987–1998	0.77	M-v	1	Williams	24763	1993 SM ₃
1993 SQ ₃	13.0	0.15	19980706	295.85511	322.05103	62.96775	2.38351	0.1970041	3.2016747	23	3	1976–1998	0.72	M-v	4	Williams	32231	1993 SQ ₃
1993 TB	13.5	0.15	19980706	309.58808	266.61109	101.27775	2.68674	0.1880323	3.1162093	22	3	1993–1998	0.69	M-v	4	Williams	32231	1993 TB
1993 TS ₁	13.0	0.15	19980706	322.83732	172.39959	196.89402	13.96193	0.1033023	3.1319648	24	3	1987–1998	0.68	M-v	3	Williams	32307	1993 TS ₁
1993 TP ₁₅	14.0	0.15	19980706	35.66325	156.45118	126.45622	2.21582	0.1590823	3.0571082	40	4	1977–1998	0.81	M-v	1	Williams	30900	1993 TP ₁₅
1993 TD ₂₅	14.5	0.15	19980706	113.24597	249.34753	62.72886	3.56820	0.1693350	2.5368211	19	2	1993–1997	0.72	M-v	6	Williams	32231	1993 TD ₂₅
1993 TG ₂₆	13.0	0.15	19980706	238.31914	82.57586	36.34987	10.48095	0.0503721	2.9958746	24	3	1993–1998	0.80	M-v	3	Williams	28616	1993 TG ₂₆
1993 TP ₂₆	13.0	0.15	19980706	135.88818	70.12491	122.53534	3.32079	0.0993315	3.1655454	26	6	1977–1998	0.83	M-v	2	Williams	29662	1993 TP ₂₆
1993 TX ₂₆	14.5	0.15	19980706	354.47920	156.34318	184.25145	9.88579	0.1023916	3.0526561	38	4	1980–1998	0.71	M-v	3	Williams	31788	1993 TX ₂₆
1993 TP ₃₈	13.5	0.15	19980706	129.77755	19.66357	191.12007	18.46245	0.0478539	3.1132733	16	3	1991–1996	0.60	M-v	4	Williams	32232	1993 TP ₃₈
1993 VU ₇	14.0	0.15	19980706	315.21858	258.75116	126.45388	21.86225	0.2922759	3.0331362	15	3	1988–1998	0.54	M-v	2	Williams	23342	1993 VU ₇
1993 XD ₁	13.5	0.15	19980706	318.17201	187.90352	201.65716	1.41459	0.2140651	3.1785065	31	6	1953–1998	0.65	M-v	1	Williams	27456	1993 XD ₁
1994 CA	14.0	0.15	19980706	323.04413	55.96579	333.10964	21.66226	0.0893326	1.9392455	52	4	1986–1998	0.56	M-v	2	Williams	29318	1994 CA
1994 CK ₂	14.0	0.15	19980706	282.82988	79.51943	57.89948	2.45306	0.1179207	3.1862168	29	3	1994–1998	0.47	M-v	4	Williams	30982	1994 CK ₂
1994 CS ₂	13.5	0.15	19980706	65.81772	337.86244	132.80695	14.86228	0.0886227	2.5815583	35	3	1954–1998	0.46	M-v	3	Williams	31586	1994 CS ₂
1994 CG ₁₂	14.5	0.15	19980706	317.28873	215.52612	58.84805	3.28213	0.1527779	2.4163414	21	2	1994–1998	0.58	M-v	5	Williams	32233	1994 CG ₁₂
1994 EH ₂	15.5	0.15	19980706	11.70902	196.11215	97.46083	4.74517	0.1922187	2.2476833	38	4	1988–1998	0.66	M-v	2	Williams	29619	1994 EH ₂
1994 ET ₆	14.5	0.15	19980706	4.49014	163.19876	114.83031	4.95637	0.1156642	2.2428724	25	4	1982–1998	0.70	M-v	2	Williams	32233	1994 ET ₆
1994 EZ ₆	15.0	0.15	19980706	298.01834	222.52446	97.20899	5.96027	0.1516168	2.3102265	30	2	1994–1998	0.75	M-v	5	Williams	32234	1994 EZ ₆
1994 FF	14.0	0.15	19980706	79.20137	79.08962	129.17755	6.03327	0.1350372	2.2597270	35	3	1994–1998	0.61	M-v	2	Williams	32307	1994 FF
1994 GF	15.0	0.15	19980706	107.86487	100.87125	107.07353	3.64742	0.0577415	2.1895445	54	4	1992–1998	0.83	M-v	3	Williams	29663	1994 GF
1994 GN	14.5	0.15	19980706	15.99114	203.55161	72.03175	5.54668	0.1395264	2.2688598	24	3	1994–1998	0.62	M-v	3	Williams	28852	1994 GN
1994 GM ₁	14.0	0.15	19980706	339.94033	228.97540	90.84767	4.71509	0.1234303	2.3215503	30	5	1988–1998	0.68	M-v	1	Williams	32307	1994 GM ₁
1994 GL ₉	15.0	0.15	19980706	87.88255	332.65331	224.93862	3.50450	0.1004051	2.2828130	28	5	1989–1998	0.60	M-v	3	Williams	32307	1994 GL ₉
1994 GE ₁₀	14.0	0.15	19980706	148.04225	334.25647	100.53910	1.15825	0.0422488	2.4240078	30	4	1979–1998	0.60	M-v	2	Williams	32234	1994 GE ₁₀
1994 JF	15.0	0.15	19980706	115.70985	17.98204	166.71348	4.20828	0.1025907	2.2775752	30	3	1994–1998	0.59	M-v	4	Williams	29301	1994 JF
1994 JU	15.0	0.15	19980706	40.46111	63.09300	204.19999	6.30125	0.1905136	2.3288254	23	3	1991–1998	0.81	M-v	4	Williams	23791	1994 JU
1994 LC	14.5	0.15	19980706	16.53806	108.10681	128.95750	9.86480	0.1780089	2.5304141	29	2	1994–1998	0.65	M-v	3	Williams	32234	1994 LC
1994 NF ₁	13.5	0.15	19980706	66.80661	199.16539	99.24890	8.19654	0.1399542	2.2174057	16	4	1994–1998	0.74	M-v	2	Williams	29105	1994 NF ₁
1994 NJ ₁	14.5	0.15	19980706	24.46641	83.77629	224.17319	1.50074	0.2183984	2.3662441	25	6	1976–1998	0.71	M-v	2	Williams	30291	1994 NJ ₁
1994 PO	13.0	0.15	19980706	85.94665	240.45152	317.70212	12.36897	0.1045270	2.5715724	28	4	1986–1998	0.42	M-v	3	Williams	29318	1994 PO
1994 PP	12.5	0.15	19980706	284.70739	53.69527	317.94253	33.39541	0.2967789	2.7635323	58	4	1982–1998	0.70	M-v	2	Williams	27937	1994 PP
1994 PJ ₁	14.5	0.15	19980706	19.66529	136.94224	142.17630	13.94777	0.1348909	2.5509174	31	2	1994–1998	0.57	M-v	4	Williams	32235	1994 PJ ₁
1994 PJ ₂	14.5	0.15	19980706	339.86499	240.09630	152.12851	0.86186	0.2320296	2.3904187	32	7	1972–1998	0.94	M-v	2	Williams	27122	1994 PJ ₂
1994 PU ₂	16.0	0.15	19980706	319.70401	55.65196	317.26680	2.28098	0.1987566	2.5217596	27	3	1978–1998	0.76	M-v	4	Williams	32307	1994 PU ₂
1994 PK ₇	14.0	0.15	19980706	328.41699	228.68109	150.28875	6.47362	0.1263492	2.4443245	28	4	1979–1998	0.78	M-v	2	Williams	32308	1994 PK ₇
1994 PK ₉	14.0	0.15	19980706	281.24125	162.13355	159.90860	10.08645	0.0844339	2.9777739	24	4	1992–1998	0.76	M-v	2	Williams	32235	1994 PK ₉
1994 PN ₁₄	15.0	0.15	19980706	24.06778	306.35249	328.38572	6.23052	0.1763266	2.5625297	24	3	1994–1998	0.37	M-v	3	Williams	31239	1994 PN ₁₄
1994 PT ₁₄	13.5	0.15	19980706	93.18547	40.16406	165.65894	4.38301	0.1014395	2.6059072	30	4	1991–1998	0.67	M-v	2	Williams	29945	1994 PT ₁₄
1994 PC ₁₅	14.5	0.15	19980706	62.15626	80.82887	160.06449	13.45222	0.1388638	2.5499162	19	4	1990–1998	0.95	M-v	4	Williams	29663	1994 PC ₁₅

1994 PT ₁₆	15.5	0.15	19980706	68.49929	344.71141	264.23306	2.24656	0.0720859	2.5229231	21	3	1994–1998	0.79	M-v	4	Williams	29921	1994 PT ₁₆
1994 PA ₁₉	15.0	0.15	19980706	338.70536	190.72657	189.80649	1.80167	0.1867375	2.4281072	24	3	1994–1998	0.99	M-v	4	Williams	30472	1994 PA ₁₉
1994 PY ₁₉	14.0	0.15	19980706	128.31100	257.87606	309.68140	2.10490	0.1217779	2.4329587	22	4	1974–1998	0.75	M-v	2	Williams	29945	1994 PY ₁₉
1994 PM ₂₁	14.5	0.15	19980706	316.57731	219.25650	154.91321	7.45626	0.2493445	2.5711724	25	4	1990–1998	0.74	M-v	3	Williams	30783	1994 PM ₂₁
1994 PJ ₂₂	13.5	0.15	19980706	36.63470	158.81328	26.07792	1.95682	0.1374417	3.1722943	33	3	1994–1998	0.73	M-v	3	Williams	32236	1994 PJ ₂₂
1994 PL ₂₃	14.5	0.15	19980706	246.84954	59.34850	36.23290	1.22782	0.1501207	2.5377557	21	4	1988–1998	0.87	M-v	3	Williams	29921	1994 PL ₂₃
1994 PY ₂₅	15.0	0.15	19980706	335.27403	212.96567	118.85225	1.32131	0.1061264	2.5830187	21	3	1994–1998	0.76	M-v	4	Williams	32308	1994 PY ₂₅
1994 PU ₂₆	15.5	0.15	19980706	348.54513	189.17892	121.23090	2.87247	0.1792157	2.5911096	31	3	1993–1998	0.73	M-v	4	Williams	32236	1994 PU ₂₆
1994 PW ₂₇	14.0	0.15	19980706	49.38355	322.23840	357.53340	3.37440	0.0947468	2.3002720	23	5	1966–1998	0.82	M-v	2	Williams	26581	1994 PW ₂₇
1994 PU ₂₉	14.5	0.15	19980706	296.60263	228.07568	166.77594	11.20603	0.1820643	2.5630262	32	4	1988–1998	0.84	M-v	3	Williams	27937	1994 PU ₂₉
1994 PT ₃₁	14.5	0.15	19980706	56.89922	43.36608	211.01218	3.55757	0.0521702	2.5619874	34	3	1994–1998	0.73	M-v	3	Williams	32237	1994 PT ₃₁
1994 PW ₃₁	13.5	0.15	19980706	68.15138	78.36565	175.58749	7.82295	0.1663777	2.4484451	36	4	1990–1998	0.85	M-v	3	Williams	32308	1994 PW ₃₁
1994 PL ₃₂	15.0	0.15	19980706	271.05876	208.03350	218.50208	3.43476	0.1913781	2.5729216	21	4	1978–1998	1.00	M-v	2	Williams	26759	1994 PL ₃₂
1994 PS ₃₂	15.0	0.15	19980706	349.65452	28.21171	303.33101	4.86987	0.1381211	2.5350502	29	3	1990–1998	0.75	M-v	5	Williams	24902	1994 PS ₃₂
1994 PD ₃₄	16.0	0.15	19980706	7.52127	94.26153	208.23409	1.42104	0.1211738	2.5262019	26	4	1978–1998	0.63	M-v	4	Williams	29620	1994 PD ₃₄
1994 PB ₃₆	15.0	0.15	19980706	252.32623	193.98114	241.62361	1.05400	0.0859926	2.5184446	15	3	1981–1998	0.70	M-v	6	Williams	24570	1994 PB ₃₆
1994 PW ₃₈	17.0	0.15	19980706	2.75615	120.53627	188.59790	0.71215	0.1626189	2.5234288	21	3	1994–1998	0.78	M-v	4	Williams	32237	1994 PW ₃₈
1994 PC ₃₉	13.5	0.15	19980706	94.19243	300.62338	259.13268	2.32219	0.1035336	2.6019548	37	5	1993–1998	0.82	M-v	1	Williams	29663	1994 PC ₃₉
1994 RJ	15.5	0.15	19980706	352.21652	106.68214	216.33692	3.15784	0.1499645	2.5198964	44	5	1993–1998	0.64	M-v	2	Williams	29945	1994 RJ
1994 RV	13.5	0.15	19980706	40.63864	349.11756	331.48572	5.31901	0.1345675	2.3793526	20	4	1993–1998	0.65	M-v	2	Williams	26759	1994 RV
1994 RZ	15.5	0.15	19980706	314.41410	44.29940	342.45652	2.45446	0.2636435	2.5532744	56	5	1986–1998	0.69	M-v	3	Williams	26927	1994 RZ
1994 RL ₁	14.0	0.15	19980706	351.04267	153.94727	188.39542	12.94066	0.2089111	2.5451415	29	4	1986–1998	0.76	M-v	3	Williams	32308	1994 RL ₁
1994 RH ₉	14.5	0.15	19980706	16.89317	340.32660	353.49013	9.88463	0.3478844	2.4099080	30	3	1994–1998	0.60	M-v	2	Williams	27327	1994 RH ₉
1994 RJ ₁₁	13.5	0.15	19980706	22.33295	357.87683	345.74791	6.50337	0.1419640	2.3624905	19	4	1987–1998	0.66	M-v	2	Williams	29921	1994 RJ ₁₁
1994 RR ₁₈	14.0	0.15	19940905	65.33316	273.12297	340.47902	21.14967	0.1975415	3.1401130	12	1	3 days	0.88		E	Williams		1994 RR ₁₈
1994 RN ₂₈	14.5	0.15	19980706	297.94564	294.92685	3.69060	1.55813	0.0891645	2.9830688	24	3	1994–1998	0.90	M-v	5	Williams	32238	1994 RN ₂₈
1994 SS ₉	16.0	0.15	19980706	51.99554	156.38045	148.85880	0.98480	0.1843810	2.3923011	30	4	1979–1997	0.57	M-v	1	Williams	32238	1994 SS ₉
1994 ST ₁₂	14.0	0.15	19980706	2.54329	288.35250	28.47252	3.76841	0.1559797	2.5931897	38	4	1993–1998	0.69	M-v	2	Williams	29945	1994 ST ₁₂
1994 TR ₁	14.0	0.15	19980706	359.41716	119.93836	205.97282	12.09658	0.3049030	2.5577175	29	4	1993–1998	0.93	M-v	2	Williams	32308	1994 TR ₁
1994 TW ₁	15.0	0.15	19980706	301.72703	62.14252	3.60534	36.03658	0.5766754	2.5917592	135	4	1991–1998	0.68	M-v	1	Williams	29945	1994 TW ₁
1994 TY ₂	13.5	0.15	19980706	316.28136	64.08778	17.90803	10.83639	0.2714191	2.4468807	19	4	1988–1998	0.83	M-v	2	Williams	29945	1994 TY ₂
1994 TS ₃	12.5	0.15	19980706	341.57967	315.29413	34.24750	14.26262	0.2057549	2.6774854	35	4	1994–1998	0.48	M-v	2	Williams	30093	1994 TS ₃
1994 TO ₁₅	14.5	0.15	19980706	130.97061	204.21021	22.61708	8.31590	0.2444226	2.4432554	20	5	1989–1998	0.79	M-v	2	Williams	26759	1994 TO ₁₅
1994 UO	13.5	0.15	19980706	292.70375	238.75629	146.72947	2.75472	0.0871299	2.8947874	31	4	1989–1998	0.72	M-v	1	Williams	32308	1994 UO
1994 UN ₁	12.5	0.15	19980706	235.30700	155.84068	218.01404	9.96084	0.1062338	3.3570592	58	4	1988–1998	0.83	M-v	2	Williams	32308	1994 UN ₁
1994 UO ₂	14.3	0.15	19941104	19.41343	162.27255	213.16064	1.64384	0.2107540	2.3996205	6	1	23 days	0.38			Nakano		1994 UO ₂
1994 UQ ₁₁	13.5	0.15	19980706	249.83878	66.69876	21.62063	4.98496	0.0921319	2.7478448	31	5	1989–1998	0.69	M-v	1	Williams	27456	1994 UQ ₁₁
1994 UT ₁₁	12.5	0.15	19980706	231.29167	232.19911	231.59682	16.98200	0.0633968	2.7388935	37	3	1994–1998	0.66	M-v	3	Williams	32308	1994 UT ₁₁
1994 VH	14.0	0.15	19980706	349.88434	332.13168	32.30549	7.56626	0.2694303	2.5350425	53	5	1986–1998	0.59	M-v	3	Williams	28617	1994 VH
1994 VD ₂	13.5	0.15	19980706	296.44236	352.09207	59.36737	8.83390	0.2205367	2.7427315	41	3	1994–1998	0.50	M-v	3	Williams	27568	1994 VD ₂
1994 VY ₂	14.5	0.15	19980706	291.50851	173.93654	258.45415	5.63599	0.3561569	2.6774093	30	3	1994–1998	0.73	M-v	2	Williams	27108	1994 VY ₂
1994 VT ₆	13.5	0.15	19980706	262.81878	328.69917	74.44377	3.06095	0.1219098	2.9261684	34	3	1994–1998	0.78	M-v	4	Williams	32308	1994 VT ₆
1994 VU ₆	13.5	0.15	19980706	341.65954	144.41776	209.78545	13.04600	0.2127504	2.6370310	31	2	1994–1998	0.73	M-v	3	Williams	32238	1994 VU ₆
1994 WG ₂	13.5	0.15	19980706	265.14199	296.26931	156.67840	5.88593	0.0696320	2.7271399	25	6	1989–1998	0.75	M-v	2	Williams	30454	1994 WG ₂
1994 WQ ₃	13.0	0.15	19980706	334.23620	170.79189	168.53165	8.40755	0.1527312	2.9091359	47	4	1994–1998	0.68	M-v	2	Williams	32308	1994 WQ ₃
1994 WS ₃	14.0	0.15	19980706	288.46514	234.08062	207.97979	5.20328	0.2536882	2.6646204	56	4	1981–1998	0.68	M-v	2	Williams	28889	1994 WS ₃
1995 BC	13.5	0.15	19980706	321.12525	266.86374	114.97033	3.14967	0.1126607	2.9509912	33	6	1978–1998	0.68	M-v	1	Williams	29664	1995 BC
1995 BJ	13.5	0.15	19980706	289.59558	119.58616	304.56080	9.87003	0.0948771	3.0711595	26	3	1995–1998	0.73	M-v	4	Williams	30663	1995 BJ
1995 BQ	13.5	0.15	19980706	254.30264	310.77678	128.53507	1.25318	0.2426268	3.1621545	27	3	1995–1998	0.76	M-v	4	Williams	28855	1995 BQ
1995 BG ₁	13.0	0.15	19980706	283.95780	6.56582	60.02819	1.74409	0.2153748	3.1199067	30	5	1971–1998	0.76	M-v	1	Williams	27327	1995 BG ₁
1995 BJ ₁	12.5	0.15	19980706	215.98546	24.45124	97.29856	2.29829	0.1344519	3.2264946	76	5	1990–1998	0.65	M-v	1	Williams	30689	1995 BJ ₁
1995 CF	13.0	0.15	19980706	296.62273	299.80313	112.31850	6.36299	0.1549933	3.1927621	28	5	1989–1998	0.71	M-v	1	Williams	24906	1995 CF
1995 CR	21.5	0.15	19980706	273.31342	322.21354	342.97803	4.03302	0.8690238	0.9074353	160	1	20 days	0.95	M-v	7	Marsden	25084	1995 CR

1995 FO ₁₀	13.0	0.15	19980706	103.30807	313.50955	54.02665	6.37100	0.0392866	2.6179370	27	4	1980–1998	0.67	M-v	2	Williams	32239	1995 FO ₁₀
1995 OO	17.0	0.15	19980706	29.94345	211.17154	349.61886	24.02241	0.7792546	2.1516643	44	3	1995–1998	0.52	M-v	2	Williams	31277	1995 OO
1995 OR	15.5	0.15	19980706	287.93418	268.60399	63.63102	4.82459	0.2227760	2.2870607	22	2	1995–1998	0.55	M-v	5	Williams	32239	1995 OR
1995 QD ₂	16.0	0.15	19980706	292.04315	105.18356	289.82915	3.77789	0.1123855	2.1773360	78	3	1995–1998	0.59	M-v	3	Williams	32308	1995 QD ₂
1995 RC	14.5	0.15	19980706	289.94026	58.64413	331.83704	5.52804	0.1674997	2.2093347	83	3	1995–1998	0.57	M-v	2	Williams	32309	1995 RC
1995 ST	14.0	0.15	19980706	46.75869	260.94730	339.54366	7.32956	0.0800810	2.2935844	33	3	1995–1998	0.62	M-v	3	Williams	29946	1995 ST
1995 SY ₂	14.5	0.15	19980706	303.98933	281.35670	89.84755	0.70601	0.1410207	2.1699253	31	6	1979–1998	0.80	M-v	2	Williams	29664	1995 SY ₂
1995 SQ ₃	14.0	0.15	19980706	192.84269	184.92068	276.33120	5.71475	0.0800947	2.3250524	20	3	1917–1998	0.62	M-v	6	Marsden	32240	1995 SQ ₃
1995 SD ₄	16.0	0.15	19980706	319.64872	142.50507	218.95697	3.93007	0.2263536	2.1528127	32	3	1979–1998	0.72	M-v	3	Williams	32309	1995 SD ₄
1995 SK ₅₁	14.0	0.15	19980706	352.96438	208.88486	2.60864	2.16536	0.1109080	3.0342924	45	3	1991–1998	0.59	M-v	4	Williams	32309	1995 SK ₅₁
1995 TX	13.5	0.15	19980706	98.12373	263.64437	304.91575	23.31912	0.1576141	2.3180189	44	3	1995–1998	0.61	M-v	3	Williams	32309	1995 TX
1995 TE ₈	15.0	0.15	19980706	301.07569	171.45933	178.99556	7.52869	0.2184173	2.3120259	21	2	1995–1998	0.70	M-v	5	Williams	32240	1995 TE ₈
1995 UE	15.0	0.15	19980706	119.19884	213.30730	344.28219	5.91420	0.0675017	2.2370528	39	3	1995–1998	0.76	M-v	3	Williams	29946	1995 UE
1995 UT ₄	13.5	0.15	19980706	195.53832	52.65533	52.35205	14.20476	0.1415171	2.5542304	19	4	1991–1998	0.46	M-v	2	Williams	29946	1995 UT ₄
1995 UV ₄	12.5	0.15	19980706	68.91746	182.88277	56.58472	12.17281	0.1353377	2.4239503	36	6	1952–1998	0.75	M-v	2	Williams	29319	1995 UV ₄
1995 UP ₈	14.5	0.15	19980706	25.74304	291.11973	355.23913	3.36838	0.1384945	2.2607211	35	3	1995–1998	0.77	M-v	4	Williams	29665	1995 UP ₈
1995 UB ₉	13.5	0.15	19980706	350.99250	255.98379	58.80182	4.73817	0.1726857	2.2707687	15	4	1978–1998	0.61	M-v	2	Williams	29665	1995 UB ₉
1995 UP ₁₈	15.0	0.15	19980706	115.27198	79.87470	5.01177	9.03843	0.0460295	3.0678467	18	2	1995–1998	0.60	M-v	4	Williams	32240	1995 UP ₁₈
1995 VE	15.0	0.15	19980706	309.55868	35.30070	5.20051	3.08096	0.0705068	2.2010681	36	4	1984–1998	0.65	M-v	2	Williams	29946	1995 VE
1995 VF	15.0	0.15	19980706	314.82816	114.40303	253.33322	6.13960	0.1338768	2.2998710	23	3	1991–1998	0.58	M-v	2	Williams	32241	1995 VF
1995 VP ₁	14.5	0.15	19980706	311.01190	276.10416	89.38157	5.93897	0.2180193	2.2739079	15	3	1988–1998	0.61	M-v	2	Williams	29626	1995 VP ₁
1995 VL ₂	14.0	0.15	19980706	274.70798	132.92129	264.67428	3.59496	0.0718741	2.3619029	37	5	1951–1998	0.77	M-v	1	Williams	29665	1995 VL ₂
1995 VQ ₁₂	15.5	0.15	19980706	282.97371	196.30840	201.98220	7.47997	0.1137995	2.2553902	27	4	1978–1998	0.78	M-v	2	Williams	29946	1995 VQ ₁₂
1995 VG ₁₃	14.5	0.15	19980706	272.28279	208.67662	113.67198	3.51343	0.0328412	2.8325726	22	3	1993–1998	0.69	M-v	3	Williams	32309	1995 VG ₁₃
1995 WE	13.5	0.15	19980706	227.23013	52.08856	69.01304	6.81518	0.1547555	2.2858589	24	4	1988–1998	0.49	M-v	3	Williams	31387	1995 WE
1995 WS	15.0	0.15	19980706	308.37495	102.44808	272.17771	3.86823	0.1688415	2.2951680	35	5	1981–1998	0.61	M-v	1	Williams	32310	1995 WS
1995 WU	14.0	0.15	19980706	215.66940	219.35473	270.09670	5.68637	0.2192528	2.3771780	40	6	1989–1998	0.69	M-v	2	Williams	30292	1995 WU
1995 WZ ₄	14.5	0.15	19980706	206.14214	9.54229	104.96716	3.63655	0.1396705	2.4368389	34	4	1985–1998	0.53	M-v	1	Williams	30093	1995 WZ ₄
1995 WB ₅	14.0	0.15	19980706	279.90431	96.81085	253.80092	12.78474	0.1547859	2.6317234	32	2	1995–1998	0.67	M-v	4	Williams	32241	1995 WB ₅
1995 WJ ₅	13.0	0.15	19980706	19.60409	15.98605	262.94622	8.53136	0.0803881	2.5813871	57	3	1990–1998	0.71	M-v	3	Williams	32310	1995 WJ ₅
1995 WL ₅	15.5	0.15	19980706	307.76209	118.58038	256.93391	6.92737	0.1539541	2.3367952	29	3	1994–1998	0.76	M-v	4	Williams	26582	1995 WL ₅
1995 WH ₇	14.5	0.15	19980706	252.40933	293.09662	140.65923	3.09746	0.1447335	2.4130233	40	5	1989–1998	0.54	M-v	1	Williams	30093	1995 WH ₇
1995 WO ₇	15.5	0.15	19980706	293.78560	160.44837	256.62566	3.80019	0.1000047	2.2323813	16	3	1993–1998	0.69	M-v	5	Williams	26411	1995 WO ₇
1995 WA ₈	15.0	0.15	19980706	311.80180	39.14664	0.68855	5.30007	0.1449283	2.2057413	20	3	1988–1998	0.68	M-v	3	Williams	29665	1995 WA ₈
1995 WP ₈	14.0	0.15	19980706	9.61894	273.87107	59.16397	5.50621	0.1800964	2.1641808	22	3	1994–1998	0.75	M-v	3	Williams	26761	1995 WP ₈
1995 WL ₁₃	14.0	0.15	19980706	249.88183	275.66036	134.94844	4.16074	0.0788827	2.4654270	20	2	1995–1998	0.62	M-v	4	Williams	32241	1995 WL ₁₃
1995 WY ₄₁	14.5	0.15	19980706	278.96167	123.86749	278.31912	3.71532	0.2089030	2.3246665	19	4	1970–1998	0.86	M-v	3	Williams	26582	1995 WY ₄₁
1995 WZ ₄₁	14.0	0.15	19980706	287.18557	149.01188	237.11806	23.42043	0.2821406	2.3398088	25	2	1995–1998	0.91	M-v	4	Williams	32242	1995 WZ ₄₁
1995 XS	14.5	0.15	19980706	300.95035	163.11350	243.53124	4.47628	0.1401104	2.2412741	39	4	1988–1998	0.60	M-v	1	Williams	29924	1995 XS
1995 XW	13.5	0.15	19980706	29.78535	224.23347	54.84831	15.74316	0.0945324	2.6311404	32	3	1995–1998	0.58	M-v	2	Williams	29305	1995 XW
1995 XS ₁	14.5	0.15	19980706	280.66168	173.09467	233.98378	1.42212	0.2103452	2.4046294	23	6	1976–1998	0.70	M-v	1	Williams	30292	1995 XS ₁
1995 XP ₄	14.5	0.15	19980706	176.22559	334.83314	197.72889	4.77331	0.0891366	2.2714958	34	6	1978–1998	0.60	M-v	1	Williams	30292	1995 XP ₄
1995 YF	14.5	0.15	19980706	338.07400	205.72562	127.83173	3.15403	0.2007819	2.3882368	29	3	1987–1998	0.61	M-v	3	Williams	32054	1995 YF
1995 YU	14.5	0.15	19980706	313.19275	270.88783	92.22800	5.67135	0.2175051	2.4202395	36	3	1987–1998	0.84	M-v	3	Williams	32242	1995 YU
1995 YB ₁	13.0	0.15	19980706	82.09897	79.35073	121.09886	5.84369	0.0939165	3.1176782	23	4	1980–1998	0.65	M-v	1	Marsden	32310	1995 YB ₁
1995 YP ₁	13.5	0.15	19980706	29.22514	8.86172	265.53736	5.50482	0.0159720	2.7938595	21	2	1995–1998	0.61	M-v	4	Williams	32242	1995 YP ₁
1995 YC ₅	15.5	0.15	19980706	19.61187	191.84270	90.27372	3.17063	0.2219850	2.3326105	23	3	1995–1998	0.46	M-v	3	Williams	29629	1995 YC ₅
1995 YY ₁₀	14.5	0.15	19980706	285.46864	285.29124	118.26778	15.65920	0.0850625	2.5555866	20	3	1992–1998	0.55	M-v	2	Williams	27719	1995 YY ₁₀
1995 YS ₂₁	13.5	0.15	19980706	315.57291	240.45655	107.55433	4.83196	0.1021372	2.7325501	30	3	1992–1998	0.80	M-v	3	Williams	32243	1995 YS ₂₁
1996 AP	14.0	0.15	19980706	273.46862	288.89961	109.48763	13.48897	0.1733113	2.5920347	29	2	1995–1998	0.79	M-v	4	Marsden	32243	1996 AP
1996 AO ₁	15.0	0.15	19980706	301.46206	326.38053	69.54193	3.91863	0.1932792	2.3923643	87	3	1996–1998	0.68	M-v	4	Williams	32310	1996 AO ₁
1996 AO ₂	14.0	0.15	19980706	272.41802	43.77264	27.31857	1.44536	0.1571780	2.4620577	27	4	1979–1998	0.60	M-v	2	Williams	26761	1996 AO ₂
1996 AT ₇	12.0	0.15	19980706	353.79358	219.53586	106.45616	8.83423	0.1006519	2.6946875	26	7	1974–1998	0.71	M-v	2	Williams	27938	1996 AT ₇

1996 BB	13.0	0.15	19980706	340.66397	214.15603	119.71025	10.20135	0.1599199	2.7824712	36	4	1980–1998	0.63	M-v	2	Williams	32310	1996 BB
1996 BN	14.5	0.15	19980706	292.35776	329.42596	88.03909	2.45110	0.1758251	2.3946153	26	5	1980–1998	0.59	M-v	1	Williams	26928	1996 BN
1996 BX	14.0	0.15	19980706	115.23718	98.06285	91.31899	3.26450	0.0148037	2.8956597	29	3	1996–1998	0.38	M-v	3	Williams	29947	1996 BX
1996 BB ₁	14.5	0.15	19980706	274.01659	164.58964	236.54202	3.80824	0.1850243	2.5589611	30	2	1996–1998	0.60	M-v	4	Williams	32243	1996 BB ₁
1996 BY ₁	13.0	0.15	19980706	304.97089	25.17503	343.61423	8.87469	0.1739749	2.7846316	19	5	1977–1998	0.46	M-v	1	Williams	29113	1996 BY ₁
1996 BE ₂	13.5	0.15	19980706	215.93016	86.84325	84.94412	6.37620	0.0980238	2.2585593	10	5	1981–1998	0.98	M-v	2	Williams	31009	1996 BE ₂
1996 BG ₂	13.0	0.15	19980706	210.04078	127.37678	329.56568	21.47790	0.0591047	2.6718085	32	3	1992–1998	0.82	M-v	4	Williams	29947	1996 BG ₂
1996 CH ₁	14.0	0.15	19980706	293.55327	326.49736	120.72711	4.96652	0.0687058	2.3685104	41	6	1978–1998	0.83	M-v	2	Williams	30689	1996 CH ₁
1996 CM ₇	14.0	0.15	19980706	333.75064	55.11542	339.96945	9.22971	0.2264397	2.3210716	34	4	1991–1998	0.63	M-v	1	Williams	31791	1996 CM ₇
1996 CO ₇	13.5	0.15	19980706	347.08941	274.14212	66.31833	2.95641	0.0702196	2.8668116	31	4	1989–1998	0.76	M-v	2	Williams	30667	1996 CO ₇
1996 CV ₇	13.5	0.15	19980706	18.44982	162.08128	143.11341	10.93779	0.0930893	3.0003983	25	4	1993–1998	0.62	M-v	1	Williams	30901	1996 CV ₇
1996 CT ₈	14.5	0.15	19980706	269.30418	291.72789	137.14272	15.16843	0.1056645	2.6538046	28	3	1996–1998	0.80	M-v	4	Williams	31387	1996 CT ₈
1996 CG ₉	14.0	0.15	19980706	4.16569	167.74742	194.50803	6.87021	0.1374970	2.3054558	16	3	1996–1998	0.81	M-v	4	Williams	30457	1996 CG ₉
1996 DV	13.5	0.15	19980706	101.34623	64.54094	154.22785	11.83602	0.0409725	3.1691507	49	3	1996–1998	0.64	M-v	3	Williams	32310	1996 DV
1996 DO ₁	12.5	0.15	19980706	75.76979	319.99244	292.67902	10.30467	0.1342477	3.0376989	74	3	1996–1998	0.59	M-v	3	Williams	30457	1996 DO ₁
1996 DW ₂	13.0	0.15	19980706	315.01831	234.85079	143.28185	17.59789	0.1846983	2.7083371	43	4	1989–1998	0.64	M-v	2	Williams	32310	1996 DW ₂
1996 EW ₁	13.0	0.15	19980706	338.39467	21.79450	330.50622	1.56340	0.0836774	3.0268877	39	6	1972–1998	0.69	M-v	2	Williams	30901	1996 EW ₁
1996 ED ₉	13.5	0.15	19980706	307.87320	203.34392	156.60797	14.07456	0.0400629	3.1416260	21	3	1996–1998	0.47	M-v	4	Williams	31387	1996 ED ₉
1996 FR ₁	14.0	0.15	19980706	29.29073	101.16166	216.87267	9.41639	0.1146488	3.0177060	33	3	1996–1998	0.60	M-v	3	Williams	30293	1996 FR ₁
1996 FJ ₅	12.5	0.15	19980706	350.76553	15.86330	12.90196	15.51271	0.1244908	2.5746076	21	4	1977–1998	0.80	M-v	4	Williams	27115	1996 FJ ₅
1996 GL ₁	14.0	0.15	19980706	286.44521	58.18801	40.20462	6.69704	0.1326752	2.3233266	27	4	1987–1998	0.79	M-v	2	Williams	31545	1996 GL ₁
1996 GP ₂₁	12.5	0.15	19960407	167.08513	185.96878	193.58986	20.11719	0.2507410	2.3857925	7	1	7 days	0.58			Williams		1996 GP ₂₁
1996 HW	13.0	0.15	19980706	121.24553	243.16490	26.16787	15.03137	0.0393567	2.5676920	29	4	1977–1998	0.87	M-v	1	Williams	30473	1996 HW
1996 HC ₁	13.5	0.15	19980706	250.68868	86.41708	56.62454	13.81181	0.1126941	2.5942261	42	3	1996–1998	0.61	M-v	3	Williams	30668	1996 HC ₁
1996 KA ₃	13.0	0.15	19980706	32.63074	136.49460	133.79161	10.90712	0.1490360	3.1797253	53	3	1995–1998	0.46	M-v	3	Williams	30293	1996 KA ₃
1996 OO	12.5	0.15	19980706	139.06214	18.51204	232.22138	10.26756	0.0798164	3.9864518	36	3	1996–1998	0.41	M-v	3	Williams	30473	1996 OO
1996 PS ₁	10.5	0.15	19980706	5.62111	185.01092	201.61942	21.28558	0.0856849	5.1730518	44	4	1993–1998	0.43	M-v	1	Williams	31009	1996 PS ₁
1996 TO ₆₆	4.5	0.15	19980706	110.78455	243.36984	355.19740	27.32095	0.1143808	43.5992179	89	3	1996–1998	0.59	M-v	5	Williams	31421	1996 TO ₆₆
1996 TP ₆₆	6.5	0.15	19980706	357.53809	75.03558	316.66553	5.68589	0.3378374	39.8278993	50	3	1996–1998	0.61	M-v	4	Williams	31009	1996 TP ₆₆
1996 XA ₁₂	14.5	0.15	19980706	10.04914	192.62488	86.64086	5.40219	0.2079208	2.1640151	27	4	1979–1998	0.69	M-v	2	Williams	32246	1996 XA ₁₂
1996 XW ₁₈	14.5	0.15	19980706	324.16866	192.19232	115.44722	7.77440	0.1309795	2.2955722	79	3	1995–1998	0.48	M-v	3	Marsden	32311	1996 XW ₁₈
1997 AJ ₁	14.5	0.15	19980706	111.63802	188.31676	333.86614	3.19682	0.1060454	2.3245475	18	5	1958–1998	0.50	M-v	2	Williams	32312	1997 AJ ₁
1997 AF ₄	13.5	0.15	19980706	103.24945	12.24563	131.16989	8.86365	0.1591064	2.7724185	31	3	1991–1998	0.60	M-v	3	Williams	32248	1997 AF ₄
1997 AJ ₄	14.5	0.15	19980706	71.26392	306.74390	279.81410	5.94616	0.1198576	2.2184528	32	2	1996–1998	0.64	M-v	4	Williams	32248	1997 AJ ₄
1997 AN ₄	15.5	0.15	19980706	60.37633	310.91149	286.49730	0.97047	0.1366807	2.2684693	39	4	1991–1998	0.69	M-v	1	Williams	29320	1997 AN ₄
1997 AQ ₄	15.0	0.15	19980706	90.35545	86.21208	111.24971	5.03130	0.0840911	2.2948658	22	3	1989–1998	0.66	M-v	3	Williams	32248	1997 AQ ₄
1997 AB ₇	15.5	0.15	19980706	80.86240	94.03177	107.74504	2.77831	0.0967805	2.4069278	21	2	1997–1998	0.71	M-v	4	Marsden	32248	1997 AB ₇
1997 AO ₇	15.0	0.15	19980706	24.37250	121.54370	152.39165	4.90200	0.1279154	2.2123799	38	3	1995–1998	0.46	M-v	2	Williams	32249	1997 AO ₇
1997 AS ₁₂	14.0	0.15	19980706	47.29184	126.75327	107.66812	9.56006	0.1747960	2.4414343	49	3	1987–1998	0.76	M-v	2	Williams	32312	1997 AS ₁₂
1997 AR ₁₇	15.5	0.15	19980706	59.38557	320.46897	262.23625	1.92296	0.1218353	2.2595542	27	2	1997–1998	0.59	M-v	4	Williams	32249	1997 AR ₁₇
1997 AX ₁₇	14.5	0.15	19980706	306.47298	297.05796	54.17900	3.31492	0.0426568	2.1256094	22	4	1977–1998	0.57	M-v	2	Williams	32312	1997 AX ₁₇
1997 BG	15.0	0.15	19980706	356.27293	190.15252	132.07525	32.39900	0.1617362	1.9931612	66	2	1997–1998	0.41	M-v	2	Marsden	32313	1997 BG
1997 BN ₁	14.5	0.15	19980706	88.41763	251.88198	319.26285	5.68587	0.0778082	2.1897188	22	4	1984–1998	0.60	M-v	1	Williams	30293	1997 BN ₁
1997 BJ ₂	15.5	0.15	19980706	48.81179	119.68852	121.40102	6.50846	0.0828726	2.3021494	26	2	1997–1998	0.61	M-v	4	Williams	32250	1997 BJ ₂
1997 BR ₃	15.0	0.15	19980706	39.44135	291.49623	341.72260	21.68163	0.2475922	2.4523976	25	3	1994–1998	0.82	M-v	3	Williams	29638	1997 BR ₃
1997 BU ₅	15.0	0.15	19980706	68.82414	275.04430	324.37313	0.67001	0.1421585	2.2888315	41	3	1978–1998	0.61	M-v	2	Williams	32313	1997 BU ₅
1997 BC ₉	15.0	0.15	19980706	337.82955	186.99623	140.73839	4.23888	0.2340768	2.2309949	52	5	1978–1998	0.80	M-v	3	Williams	32313	1997 BC ₉
1997 CQ	15.0	0.15	19980706	101.20555	39.53230	145.32538	7.16742	0.0330312	2.3561383	53	4	1977–1998	0.82	M-v	3	Williams	32251	1997 CQ
1997 CW	15.0	0.15	19980706	112.56916	144.20254	41.05555	4.21208	0.1115319	2.3327829	28	3	1990–1998	0.60	M-v	3	Williams	32313	1997 CW
1997 CA ₁	14.5	0.15	19980706	41.88504	293.62072	323.28552	7.19103	0.0811361	2.2955534	39	4	1976–1998	0.70	M-v	2	Williams	29667	1997 CA ₁
1997 CV ₁	15.0	0.15	19980706	329.65691	197.77206	110.51686	2.62873	0.1581230	2.1313075	75	3	1992–1998	0.59	M-v	3	Marsden	32313	1997 CV ₁
1997 CF ₃	15.0	0.15	19980706	66.68332	56.80102	162.56083	5.61262	0.0899672	2.3609415	33	4	1990–1998	0.58	M-v	1	Williams	32313	1997 CF ₃
1997 CB ₁₃	15.0	0.15	19980706	323.96176	189.47494	129.14054	4.06194	0.1520026	2.1780905	37	3	1976–1998	0.55	M-v	3	Williams	32313	1997 CB ₁₃

1997 CN ₁₃	14.5	0.15	19980706	341.27033	163.37611	135.46794	7.81622	0.1268615	2.3213662	56	3	1977–1998	0.48	M-v	3	Marsden	32313	1997 CN ₁₃
1997 CY ₁₆	13.5	0.15	19980706	155.68380	262.25778	174.10578	10.41489	0.1314319	3.1715810	38	2	1997–1998	0.59	M-v	4	Williams	32251	1997 CY ₁₆
1997 CM ₁₉	14.5	0.15	19980706	357.08515	218.03167	81.30886	13.52715	0.1655935	2.6816073	26	3	1990–1998	0.34	M-v	2	Marsden	32313	1997 CM ₁₉
1997 CC ₂₀	14.5	0.15	19980706	52.10084	102.25336	128.41576	4.07805	0.1227467	2.7142154	30	4	1972–1998	0.53	M-v	1	Williams	32313	1997 CC ₂₀
1997 CK ₂₀	14.5	0.15	19980706	93.25504	211.28885	15.72527	4.12375	0.0709190	2.1654727	34	5	1976–1998	0.71	M-v	2	Williams	29948	1997 CK ₂₀
1997 CO ₂₆	16.5	0.15	19980706	61.09493	298.74217	313.44065	0.45596	0.1763441	2.3029984	17	3	1994–1998	0.53	M-v	5	Williams	29928	1997 CO ₂₆
1997 DC	14.5	0.15	19980706	72.82645	86.12061	158.58190	2.53708	0.1663584	2.3923552	39	3	1993–1998	0.56	M-v	3	Williams	32313	1997 DC
1997 EB	14.0	0.15	19980706	66.35752	127.65873	113.07482	3.60041	0.1448735	2.4501282	25	5	1979–1998	0.68	M-v	1	Williams	29642	1997 EB
1997 EB ₁	15.5	0.15	19980706	36.22039	347.61372	277.39330	6.00719	0.0837589	2.3558979	27	3	1973–1998	0.54	M-v	3	Williams	32058	1997 EB ₁
1997 EA ₃	14.0	0.15	19980706	224.70789	335.85145	111.57478	5.47701	0.0177498	2.2697897	22	4	1981–1998	0.57	M-v	2	Williams	30293	1997 EA ₃
1997 EQ ₁₇	12.5	0.15	19980706	68.95205	23.38308	165.30271	24.27274	0.1415975	3.1656237	27	3	1992–1998	0.64	M-v	3	Williams	32313	1997 EQ ₁₇
1997 EY ₂₀	14.5	0.15	19980706	72.23598	28.50126	196.68463	2.09133	0.1263966	2.4365962	35	3	1995–1998	0.70	M-v	3	Williams	32313	1997 EY ₂₀
1997 EX ₂₅	15.0	0.15	19980706	164.24690	359.85988	135.10963	2.79641	0.1609018	2.3485937	27	3	1995–1998	0.60	M-v	4	Williams	32313	1997 EX ₂₅
1997 EQ ₃₀	14.0	0.15	19980706	65.41836	110.63862	103.23118	11.52268	0.1447028	2.6862550	44	2	1997–1998	0.72	M-v	3	Williams	32252	1997 EQ ₃₀
1997 EO ₃₂	16.0	0.15	19980706	21.04477	130.15756	161.38284	0.90819	0.1642971	2.6103443	28	3	1994–1998	0.56	M-v	4	Williams	29645	1997 EO ₃₂
1997 EQ ₄₀	15.0	0.15	19980706	50.52465	102.68409	150.59811	11.00803	0.0966710	2.5544995	37	3	1994–1998	0.63	M-v	2	Williams	29948	1997 EQ ₄₀
1997 EB ₄₂	16.0	0.15	19980706	57.20054	326.83211	286.27626	2.21153	0.1165423	2.2752232	22	5	1980–1998	0.74	M-v	1	Williams	30094	1997 EB ₄₂
1997 EW ₄₅	14.0	0.15	19980706	109.44659	101.09383	98.06815	7.06582	0.1844509	2.5409909	42	3	1995–1998	0.35	M-v	3	Williams	30293	1997 EW ₄₅
1997 EW ₄₇	13.5	0.15	19980706	49.56415	66.11883	196.24927	9.11303	0.1536307	2.7845263	26	4	1978–1998	0.81	M-v	2	Williams	30766	1997 EW ₄₇
1997 FG ₁	14.5	0.15	19980706	131.28158	28.30443	133.67305	8.64394	0.1624650	2.4156759	58	3	1991–1998	0.64	M-v	3	Williams	32252	1997 FG ₁
1997 FZ ₁	15.0	0.15	19980706	128.46451	181.52844	8.86735	0.31822	0.1424778	2.3919472	37	6	1982–1998	0.73	M-v	2	Williams	30473	1997 FZ ₁
1997 FB ₂	14.5	0.15	19980706	328.44218	229.27656	120.85388	8.85383	0.2026623	2.5376433	34	4	1978–1998	0.85	M-v	3	Williams	32314	1997 FB ₂
1997 GR ₅	15.0	0.15	19980706	119.15491	82.03141	110.86116	5.36333	0.1379230	2.3470142	37	3	1994–1998	0.74	M-v	3	Williams	30094	1997 GR ₅
1997 GN ₈	13.5	0.15	19980706	357.38534	285.89288	30.46833	5.17041	0.1494869	3.1881357	39	5	1981–1998	0.71	M-v	2	Williams	30474	1997 GN ₈
1997 GM ₁₃	14.5	0.15	19980706	76.85681	26.75874	197.03333	17.65207	0.1064278	2.7351210	36	3	1994–1998	0.44	M-v	3	Williams	30767	1997 GM ₁₃
1997 GA ₁₄	15.0	0.15	19980706	335.87699	63.90416	287.13807	1.60496	0.2005288	2.4286407	28	3	1994–1998	0.53	M-v	3	Williams	32314	1997 GA ₁₄
1997 GR ₂₀	16.0	0.15	19980706	357.84935	294.19827	28.84003	1.16887	0.1447193	2.5186081	25	4	1990–1998	0.83	M-v	4	Williams	30474	1997 GR ₂₀
1997 GR ₂₃	14.5	0.15	19980706	26.20670	267.18101	33.39659	6.67239	0.2126973	3.0136191	30	3	1996–1998	0.42	M-v	3	Williams	29935	1997 GR ₂₃
1997 GQ ₂₇	13.0	0.15	19980706	299.67045	270.21827	113.15795	14.12883	0.1890336	2.5924723	42	4	1990–1998	0.71	M-v	2	Williams	32314	1997 GQ ₂₇
1997 GT ₃₂	13.5	0.15	19980706	284.14327	15.77941	351.57526	1.39121	0.0990099	2.8955860	28	3	1954–1997	0.93	M-v	5	Williams	30788	1997 GT ₃₂
1997 GR ₃₆	14.5	0.15	19980706	228.71623	6.17259	73.76006	5.60965	0.1943469	2.5769669	30	4	1974–1998	0.63	M-v	2	Williams	30474	1997 GR ₃₆
1997 GA ₃₇	15.5	0.15	19980706	265.48162	210.60268	207.36976	5.38122	0.1069343	2.2357799	32	3	1995–1998	0.67	M-v	4	Williams	30788	1997 GA ₃₇
1997 HR ₉	15.0	0.15	19980706	346.46938	301.13627	58.18865	1.76960	0.1519978	2.4289346	32	4	1979–1998	0.50	M-v	1	Williams	30768	1997 HR ₉
1997 JA	13.0	0.15	19980706	135.80602	66.67193	85.29034	2.30310	0.0942094	3.1331477	83	3	1991–1998	0.76	M-v	4	Williams	32253	1997 JA
1997 JU ₃	15.0	0.15	19980706	103.46985	153.47021	56.74624	8.90106	0.1489756	2.8158557	30	2	1997–1998	0.66	M-v	4	Marsden	32253	1997 JU ₃
1997 JA ₈	15.0	0.15	19980706	307.11624	208.49713	194.89956	2.07188	0.1345114	2.3398762	26	4	1991–1998	0.77	M-v	2	Williams	32314	1997 JA ₈
1997 JT ₁₁	13.5	0.15	19980706	50.77268	90.91904	163.48181	1.48270	0.1166597	3.1776811	34	4	1985–1998	0.63	M-v	1	Williams	30474	1997 JT ₁₁
1997 JB ₁₃	14.0	0.15	19980706	93.83277	54.67773	145.79735	0.93723	0.1236951	3.1969990	22	4	1991–1998	0.77	M-v	1	Williams	30788	1997 JB ₁₃
1997 JE ₁₅	13.5	0.15	19980706	359.21603	176.72112	145.02988	2.80220	0.0502418	2.9004364	39	3	1996–1998	0.71	M-v	3	Williams	32314	1997 JE ₁₅
1997 JJ ₁₆	14.0	0.15	19980706	115.06956	52.75369	168.46865	2.30018	0.1201773	2.4792202	20	4	1977–1998	0.74	M-v	2	Williams	30903	1997 JJ ₁₆
1997 JJ ₁₈	13.5	0.15	19980706	16.12735	240.70137	87.47256	9.87214	0.1474508	2.7533213	31	4	1979–1998	0.81	M-v	1	Williams	30293	1997 JJ ₁₈
1997 LN	14.0	0.15	19980706	316.76669	208.48528	164.86474	6.14173	0.0684134	2.7937047	25	4	1979–1998	0.51	M-v	2	Williams	30293	1997 LN
1997 LJ ₃	14.0	0.15	19980706	223.93014	318.18954	145.83711	3.71213	0.0348974	2.7174362	38	5	1992–1998	0.63	M-v	1	Williams	30474	1997 LJ ₃
1997 MW ₁	19.5	0.15	19980706	212.28337	203.64485	260.11068	12.77036	0.3464279	0.9375417	184	2	1997–1998	0.61	M-v	4	Williams	32254	1997 MW ₁
1997 MJ ₂	15.0	0.15	19980706	244.78042	5.42953	94.97938	7.76937	0.0697929	2.3877666	17	3	1980–1998	0.64	M-v	4	Williams	30464	1997 MJ ₂
1997 MB ₉	12.5	0.15	19980706	354.29800	87.64438	302.03046	21.58168	0.1093773	3.1994541	19	4	1986–1998	0.68	M-v	1	Williams	30474	1997 MB ₉
1997 NQ ₂	13.5	0.15	19980706	188.13444	255.23371	281.65285	29.78406	0.1324119	2.7917154	21	3	1991–1998	0.70	M-v	3	Williams	30465	1997 NQ ₂
1997 NG ₃	12.5	0.15	19980706	51.96428	162.42200	158.54651	10.86704	0.0991958	3.0005025	28	4	1987–1998	0.81	M-v	2	Williams	30788	1997 NG ₃
1997 QJ ₄	7.5	0.15	19980706	313.99266	79.24088	346.79985	16.50842	0.2225600	39.6489999	22	2	1997–1998	0.39	M-v	5	Marsden	32255	1997 QJ ₄
1997 RB ₇	12.0	0.15	19980706	138.22359	43.59044	211.59340	8.91455	0.0709626	3.0177815	19	3	1992–1998	0.63	M-v	5	Williams	30770	1997 RB ₇
1997 SH	14.0	0.15	19980706	119.47827	357.37464	274.67386	9.07414	0.0732994	2.9676114	33	3	1977–1998	0.57	M-v	3	Williams	31011	1997 SH
1997 UF ₉	16.5	0.15	19980706	33.88456	157.75534	37.28205	25.87955	0.6042458	1.4423925	157	2	1997–1998	0.55	M-v	3	Williams	32314	1997 UF ₉
1997 US ₉	17.5	0.15	19980706	55.25672	357.18428	212.31138	20.01497	0.2818423	1.0524085	157	2	1997–1998	0.56	M-v	3	Williams	32314	1997 US ₉

1997 VV ₁	11.5	0.15	19980706	5.54177	12.65375	20.30650	4.67390	0.1427406	5.2269327	31	2	1997–1998	0.48	M-v	4	Williams	31281	1997 VV ₁
1997 VU ₂	12.0	0.15	19980706	173.31190	311.47507	293.31753	8.91334	0.0635794	2.9875823	36	4	1989–1998	0.46	M-v	2	Williams	31423	1997 VU ₂
1998 BZ ₇	17.5	0.15	19980706	29.20802	102.79878	112.51660	6.48141	0.5552470	2.0393774	244	1	208 days	0.47	M-v	3	Williams	32314	1998 BZ ₇
1998 CS ₁	17.5	0.15	19980706	53.33433	97.14651	111.20850	7.79862	0.5784063	1.4932393	66	2	1998–1998	0.64	M-v	4	Williams	32315	1998 CS ₁
1998 CV ₃	15.5	0.15	19980216	36.80264	317.04961	157.64209	6.91006	0.0514218	2.3504684	18	1	49 days	0.72			Williams		1998 CV ₃
1998 DD ₁₀	14.5	0.15	19980706	105.59440	184.11315	265.52172	5.63659	0.0457306	2.2323840	18	3	1986–1998	0.74	M-v	3	Williams	32255	1998 DD ₁₀
1998 DQ ₂₃	16.5	0.15	19980308	76.74947	95.93238	10.18482	21.21662	0.0771731	1.9215553	17	1	26 days	0.55			Williams		1998 DQ ₂₃
1998 EC ₃	16.5	0.15	19980706	359.45643	128.36585	128.38137	8.36467	0.5130094	2.1311412	268	1	178 days	0.61	M-v	3	Williams	32316	1998 EC ₃
1998 FH ₂₃	14.5	0.15	19980706	220.03974	223.56660	114.19029	3.08296	0.0600761	2.4343871	32	2	1996–1998	0.61	M-v	4	Williams	32317	1998 FH ₂₃
1998 FS ₄₉	15.5	0.15	19980706	4.39347	210.63361	1.40198	2.66521	0.1236226	2.4268240	37	1	111 days	0.52	M-v	4	Williams		1998 FS ₄₉
1998 FY ₅₇	14.0	0.15	19980328	254.14056	304.95983	357.74344	8.53642	0.0721658	2.9936413	36	1	31 days	1.45			Williams		1998 FY ₅₇
1998 FB ₇₃	16.5	0.15	19980328	15.30533	154.52880	25.51753	6.04061	0.1481901	2.2185402	23	1	27 days	1.17			Williams		1998 FB ₇₃
1998 FH ₇₇	13.5	0.15	19980706	132.05242	298.59402	139.07031	10.84580	0.0392216	3.0549117	37	3	1992–1998	0.78	M-v	3	Marsden	32001	1998 FH ₇₇
1998 FH ₇₈	14.5	0.15	19980706	340.51984	66.78011	176.14841	13.50326	0.0334966	2.6432160	26	2	1995–1998	0.84	M-v	4	Williams	32261	1998 FH ₇₈
1998 FH ₁₁₅	13.5	0.15	19980706	221.06020	104.38438	270.47648	5.13800	0.2200297	2.2815197	29	3	1968–1998	0.55	M-v	4	Williams	32261	1998 FH ₁₁₅
1998 FQ ₁₂₁	14.5	0.15	19980706	298.53352	53.41864	246.56724	0.20206	0.1854159	2.2974802	42	3	1977–1998	0.67	M-v	4	Williams	32262	1998 FQ ₁₂₁
1998 FK ₁₂₆	14.5	0.15	19980706	174.06229	177.72306	231.73107	2.85663	0.1418940	2.1835678	72	4	1988–1998	0.67	M-v	2	Williams	32325	1998 FK ₁₂₆
1998 FN ₁₂₆	15.0	0.15	19980706	309.46894	0.93180	292.79827	2.72699	0.1592117	2.1565854	69	1	117 days	0.60	M-v	4	Williams	32325	1998 FN ₁₂₆
1998 FV ₁₃₀	15.0	0.15	19980308	8.97213	154.46838	15.48602	5.01353	0.1471609	3.1834195	12	1	25 days	0.51			Williams		1998 FV ₁₃₀
1998 FJ ₁₃₆	15.0	0.15	19980328	5.05867	196.70993	344.19007	7.95268	0.0864438	3.0047783	11	1	3 days	1.00		E	Williams		1998 FJ ₁₃₆
1998 FL ₁₃₆	14.0	0.15	19980308	90.62169	237.44805	198.34717	13.17870	0.1173187	3.1260674	11	1	4 days	0.72			Williams		1998 FL ₁₃₆
1998 FR ₁₃₆	15.5	0.15	19980328	327.09717	9.09298	212.72150	5.73233	0.0576102	2.5254268	11	1	2 days	0.75		E	Williams		1998 FR ₁₃₆
1998 FL ₁₃₇	15.0	0.15	19980308	51.10910	292.50810	191.81931	18.90787	0.0706048	2.9005777	12	1	4 days	0.97		E	Williams		1998 FL ₁₃₇
1998 FO ₁₄₁	14.5	0.15	19980328	208.80423	154.44754	193.29703	15.42099	0.2476389	2.5458844	11	1	7 days	0.55		E	Williams		1998 FO ₁₄₁
1998 GM ₁	14.0	0.15	19980706	196.35422	139.35784	198.00826	4.89870	0.0144799	2.4903997	28	4	1992–1998	0.50	M-v	1	Williams	32325	1998 GM ₁
1998 GL ₉	13.0	0.15	19980706	55.62858	27.31974	129.79723	16.76446	0.1382662	2.7413098	31	2	1993–1998	0.64	M-v	4	Williams	32263	1998 GL ₉
1998 HX ₂	15.5	0.15	19980417	109.35872	245.30336	202.09523	21.25698	0.1519839	1.9476944	31	1	54 days	0.50			Williams		1998 HX ₂
1998 HH ₁₅	13.5	0.15	19980507	29.55612	130.63599	67.82809	10.79688	0.0120895	3.0795647	22	1	34 days	0.86			Williams		1998 HH ₁₅
1998 HS ₂₃	15.0	0.15	19980706	178.60146	321.36158	108.72869	0.69546	0.0724603	2.2787227	32	3	1992–1998	0.58	M-v	5	Williams	32327	1998 HS ₂₃
1998 HV ₃₃	14.0	0.15	19980706	232.45204	52.99467	295.62352	1.22057	0.0390545	2.7406099	42	4	1977–1998	0.75	M-v	2	Williams	32265	1998 HV ₃₃
1998 HJ ₄₁	18.0	0.15	19980706	310.93662	120.08817	211.93043	38.87840	0.1248617	1.3633909	91	1	122 days	0.59	M-v	5	Williams	32328	1998 HJ ₄₁
1998 HP ₄₂	13.0	0.15	19980706	156.17042	338.61211	69.74204	14.22312	0.1789051	2.5969491	24	6	1958–1998	0.79	M-v	2	Williams	32266	1998 HP ₄₂
1998 HB ₄₅	15.0	0.15	19980706	330.30871	253.40429	13.60292	4.89457	0.0777817	2.1935642	46	3	1989–1998	0.67	M-v	4	Williams	32267	1998 HB ₄₅
1998 HW ₄₅	15.0	0.15	19980706	350.82828	226.69600	20.42388	3.57392	0.1779705	2.5628055	40	2	1978–1998	0.69	M-v	4	Williams	32267	1998 HW ₄₅
1998 HQ ₅₁	14.0	0.15	19980706	290.08941	133.86288	179.39285	2.99878	0.2514062	2.6749450	39	3	1977–1998	0.75	M-v	3	Williams	32267	1998 HQ ₅₁
1998 HL ₅₂	13.5	0.15	19980706	344.78682	198.30826	62.49692	14.43037	0.0191524	2.5741874	51	1	112 days	0.60	M-v	4	Williams	32328	1998 HL ₅₂
1998 HM ₅₂	14.0	0.15	19980706	310.24721	235.89625	85.55606	6.12591	0.2155362	2.2768356	73	4	1982–1998	0.65	M-v	2	Williams	32328	1998 HM ₅₂
1998 HR ₆₆	14.5	0.15	19980417	284.70798	113.72891	187.44195	11.21380	0.1593160	3.0998069	12	1	3 days	1.07		E	Williams		1998 HR ₆₆
1998 HS ₆₆	16.5	0.15	19980417	13.24686	86.07462	104.80648	3.60330	0.1057003	2.5109953	11	1	3 days	1.14		E	Williams		1998 HS ₆₆
1998 HW ₇₁	14.0	0.15	19980417	220.15895	294.18394	66.31742	8.18265	0.1830015	2.6144076	13	1	3 days	0.97		E	Williams		1998 HW ₇₁
1998 HX ₇₁	17.0	0.15	19980417	321.66842	210.91739	54.76529	8.88603	0.2132194	2.2985859	13	1	3 days	1.14		E	Williams		1998 HX ₇₁
1998 HA ₇₂	15.5	0.15	19980417	94.87639	3.06971	92.98951	4.68500	0.1661676	2.3582570	13	1	3 days	0.72		E	Williams		1998 HA ₇₂
1998 HM ₇₃	15.0	0.15	19980417	76.12761	286.10713	182.12631	9.36730	0.2062341	3.0579467	10	1	3 days	0.69		E	Williams		1998 HM ₇₃
1998 HP ₇₃	17.5	0.15	19980417	17.35689	97.05783	85.11583	4.40460	0.2022948	2.4107233	11	1	3 days	0.97		E	Williams		1998 HP ₇₃
1998 HQ ₇₃	16.0	0.15	19980417	310.26930	177.18930	94.53017	4.15160	0.1332841	2.1580301	12	1	3 days	0.40		E	Williams		1998 HQ ₇₃
1998 HU ₇₆	18.0	0.15	19980328	13.73262	136.06696	45.70600	0.90238	0.1656629	2.1741288	13	1	27 days	1.17			Williams		1998 HU ₇₆
1998 HY ₇₉	14.5	0.15	19980706	289.06185	338.80702	344.98162	2.99251	0.1885724	2.6366055	24	3	1995–1998	0.54	M-v	4	Williams	32268	1998 HY ₇₉
1998 HY ₈₀	14.5	0.15	19980328	318.18453	211.96781	48.34981	2.91532	0.1279578	3.2330583	16	1	30 days	0.83			Williams		1998 HY ₈₀
1998 HE ₈₃	15.5	0.15	19980417	85.48821	13.69239	94.01785	4.70791	0.1422840	2.3571929	12	1	3 days	1.19		E	Williams		1998 HE ₈₃
1998 HL ₈₄	15.5	0.15	19980706	309.51106	119.18249	179.65634	6.15418	0.1314972	2.4340265	26	2	1995–1998	0.67	M-v	4	Williams	32268	1998 HL ₈₄
1998 HJ ₉₄	13.0	0.15	19980706	145.54471	214.70074	222.94898	15.87328	0.0990046	3.1724491	32	2	1995–1998	0.64	M-v	4	Williams	32269	1998 HJ ₉₄
1998 HT ₉₅	14.0	0.15	19980706	321.67373	182.44429	110.04627	3.67839	0.1747850	2.4558735	55	3	1991–1998	0.60	M-v	4	Williams	32329	1998 HT ₉₅
1998 HH ₉₇	14.0	0.15	19980706	166.41409	210.37334	212.74113	8.21623	0.1469685	2.5711463	29	3	1979–1998	0.72	M-v	4	Williams	32269	1998 HH ₉₇

1998 HH ₁₀₀	13.5	0.15	19980706	267.36245	273.56312	78.71459	5.90673	0.2188804	2.4652820	49	3	1991–1998	0.71	M-v	4	Williams	32269	1998 HH ₁₀₀
1998 HS ₁₀₀	13.5	0.15	19980706	121.44101	301.68069	162.71665	2.88715	0.0829653	3.0555511	33	2	1992–1998	0.69	M-v	6	Williams	32270	1998 HS ₁₀₀
1998 HU ₁₀₁	17.0	0.15	19980706	7.91237	4.66505	240.36055	6.42574	0.2078054	2.2980091	40	1	82 days	0.57	M-v	4	Williams	32329	1998 HU ₁₀₁
1998 HV ₁₀₁	15.5	0.15	19980706	324.89982	32.66688	265.83929	5.43130	0.1735045	2.6434155	30	2	1973–1998	0.67	M-v	5	Williams	32270	1998 HV ₁₀₁
1998 HW ₁₀₁	15.0	0.15	19980706	32.10135	180.17433	31.63071	6.49324	0.0546220	2.2142682	51	3	1976–1998	0.63	M-v	3	Williams	32270	1998 HW ₁₀₁
1998 HC ₁₀₂	13.0	0.15	19980507	326.44774	226.93658	42.99364	10.84079	0.0707274	2.9899063	20	1	52 days	1.21			Williams		1998 HC ₁₀₂
1998 HN ₁₁₅	13.0	0.15	19980706	321.67876	151.23940	128.77410	10.13414	0.1273369	2.7919473	38	3	1991–1998	0.57	M-v	4	Williams	32271	1998 HN ₁₁₅
1998 HW ₁₁₉	14.5	0.15	19980507	62.77139	19.53341	130.84443	7.31313	0.0685803	2.3990228	27	1	40 days	0.62			Williams		1998 HW ₁₁₉
1998 HW ₁₂₅	14.5	0.15	19980706	101.97200	17.07416	108.33330	7.86072	0.1621925	2.3364980	28	4	1991–1998	0.66	M-v	1	Williams	32273	1998 HW ₁₂₅
1998 HD ₁₄₈	14.0	0.15	19980706	182.76179	188.44939	234.65159	12.15112	0.1478885	2.5978755	32	2	1991–1998	0.67	M-v	4	Williams	32274	1998 HD ₁₄₈
1998 HT ₁₄₉	14.5	0.15	19980706	316.67044	264.34999	43.75249	9.43903	0.1492061	2.7741485	33	1	93 days	0.60	M-v	5	Williams		1998 HT ₁₄₉
1998 JO ₃	14.5	0.15	19980527	129.65820	23.90127	77.48826	15.38401	0.1135898	2.5797835	25	1	41 days	0.93			Williams		1998 JO ₃
1998 JJ ₄	15.5	0.15	19980706	306.25332	116.15251	223.51930	9.80700	0.3298492	2.4313478	36	1	103 days	0.62	M-v	5	Williams	32332	1998 JJ ₄
1998 KU ₂	17.0	0.15	19980706	343.05570	119.13462	206.67827	4.88819	0.5537497	2.2498345	232	1	138 days	0.55	M-v	3	Williams	32332	1998 KU ₂
1998 KL ₄	13.0	0.15	19980527	60.07520	296.38292	229.15854	23.10317	0.1311422	3.1959046	24	1	25 days	0.63			Williams		1998 KL ₄
1998 KD ₅	13.0	0.15	19980706	345.36410	275.46921	42.43344	10.12102	0.0863630	3.0696727	24	3	1981–1998	0.47	M-v	3	Williams	32032	1998 KD ₅
1998 KA ₆	14.5	0.15	19980706	345.44492	184.23686	145.04273	5.06389	0.1780527	2.9887023	14	1	91 days	0.61	M-v	5	Williams		1998 KA ₆
1998 KC ₆	16.5	0.15	19980706	9.10311	148.46980	145.76409	2.96210	0.1906849	2.4058957	14	1	91 days	0.69	M-v	5	Williams		1998 KC ₆
1998 KO ₆	12.5	0.15	19980706	0.07257	165.89073	78.46834	11.15094	0.0182432	3.0106603	42	3	1976–1998	0.53	M-v	3	Williams	32276	1998 KO ₆
1998 KT ₆	16.0	0.15	19980706	326.32665	207.74304	92.46186	6.24336	0.1475953	2.2881295	30	2	1996–1998	0.62	M-v	4	Williams	32276	1998 KT ₆
1998 KH ₉	18.5	0.15	19980706	2.66892	184.97446	82.81606	17.65474	0.4572948	2.2045782	153	1	75 days	0.54	M-v	4	Williams	32333	1998 KH ₉
1998 KN ₉	13.5	0.15	19980706	29.06102	31.01753	227.56186	16.14420	0.0693025	2.5688127	26	1	78 days	0.58	M-v	4	Marsden		1998 KN ₉
1998 KH ₁₇	16.0	0.15	19980706	357.93858	71.23977	220.38982	22.39236	0.4276685	2.3417899	222	1	97 days	0.48	M-v	3	Williams	32333	1998 KH ₁₇
1998 KH ₃₀	15.0	0.15	19980706	63.32165	258.64661	282.73826	7.18958	0.0832581	2.3074195	32	1	66 days	0.56	M-v	5	Williams		1998 KH ₃₀
1998 KL ₃₁	13.5	0.15	19980706	0.65694	169.14649	81.76616	14.48260	0.1265193	2.6732866	46	3	1989–1998	0.75	M-v	3	Williams	32278	1998 KL ₃₁
1998 KJ ₃₃	16.0	0.15	19980616	295.81203	78.77958	252.10120	4.87779	0.1634618	2.3206317	19	1	54 days	0.65			Williams		1998 KJ ₃₃
1998 KT ₃₄	15.0	0.15	19980527	17.32671	129.90582	82.65193	12.65521	0.2605966	2.6439275	18	1	12 days	0.44			Williams		1998 KT ₃₄
1998 KS ₃₅	14.5	0.15	19980706	36.19140	107.72124	102.20343	0.75718	0.1462734	2.2955501	27	3	1993–1998	0.58	M-v	3	Williams	32279	1998 KS ₃₅
1998 KV ₃₇	15.5	0.15	19980507	312.15372	197.13840	109.90900	6.77240	0.2079123	2.5459231	15	1	17 days	0.59			Williams		1998 KV ₃₇
1998 KV ₃₉	15.5	0.15	19980527	318.97427	176.74058	124.80475	3.24381	0.1737773	2.4231688	18	1	38 days	0.79			Williams		1998 KV ₃₉
1998 KQ ₄₅	15.0	0.15	19980527	9.30925	171.16065	66.44835	3.15023	0.0847800	2.3209884	19	1	12 days	1.29			Williams		1998 KQ ₄₅
1998 KV ₄₅	13.5	0.15	19980527	355.96110	186.17633	69.12649	20.78236	0.0926184	2.8881823	18	1	33 days	0.72			Williams		1998 KV ₄₅
1998 KD ₄₇	15.5	0.15	19980527	337.91819	50.45679	229.39897	3.98240	0.1463064	2.2462447	20	1	33 days	0.78			Williams		1998 KD ₄₇
1998 KS ₄₇	14.5	0.15	19980706	76.72576	27.89448	148.11578	4.52186	0.0765318	2.6539794	19	4	1980–1998	0.84	M-v	2	Williams	32281	1998 KS ₄₇
1998 KW ₄₇	13.5	0.15	19980706	17.94071	33.00237	208.12311	2.75019	0.1385404	2.5224414	32	2	1995–1998	0.68	M-v	4	Williams	32282	1998 KW ₄₇
1998 KD ₄₈	14.0	0.15	19980527	22.79406	140.48308	85.03851	13.51019	0.1098610	2.6229593	21	1	35 days	0.85			Williams		1998 KD ₄₈
1998 KX ₄₈	12.5	0.15	19980706	347.29772	142.47171	116.55326	10.91472	0.0509269	3.0089659	42	3	1992–1998	0.51	M-v	2	Williams	32335	1998 KX ₄₈
1998 KV ₅₄	12.5	0.15	19980706	43.94022	76.68844	124.61226	23.13208	0.1096155	3.1191691	31	1	69 days	0.65	M-v	4	Williams		1998 KV ₅₄
1998 KM ₅₅	13.0	0.15	19980706	136.68735	253.89675	221.86401	12.52181	0.1303982	2.6475073	28	6	1948–1998	0.70	M-v	2	Williams	32284	1998 KM ₅₅
1998 KM ₅₆	16.5	0.15	19980706	10.79532	127.18180	106.37906	25.68804	0.5142967	3.1634495	128	1	81 days	0.46	M-v	4	Williams	32336	1998 KM ₅₆
1998 KC ₅₈	16.0	0.15	19980527	358.69124	109.46656	151.59270	9.73945	0.1689732	2.5945572	14	1	6 days	1.18			Williams		1998 KC ₅₈
1998 KW ₅₉	14.5	0.15	19980527	31.59260	17.36601	178.39355	8.47425	0.1783096	2.7340274	18	1	11 days	0.74			Williams		1998 KW ₅₉
1998 KZ ₅₉	14.5	0.15	19980527	14.79977	58.23248	163.51055	15.01583	0.1018331	2.5334190	16	1	26 days	0.83			Williams		1998 KZ ₅₉
1998 KJ ₆₀	14.0	0.15	19980527	9.89881	92.33706	136.94583	17.84798	0.0985628	2.8032974	18	1	12 days	0.80			Williams		1998 KJ ₆₀
1998 KN ₆₀	14.5	0.15	19980616	18.04388	116.58586	107.88094	14.38174	0.1045414	2.4755555	26	1	53 days	0.56			Williams		1998 KN ₆₀
1998 KU ₆₀	14.0	0.15	19980706	356.15311	95.52252	164.62831	12.01717	0.1440546	2.6306155	23	1	69 days	0.45	M-v	4	Williams		1998 KU ₆₀
1998 KX ₆₀	13.5	0.15	19980527	141.57717	354.22008	104.58969	11.96113	0.0615885	2.9939771	17	1	34 days	0.58			Williams		1998 KX ₆₀
1998 KO ₆₁	14.5	0.15	19980527	352.69481	81.13522	179.86194	13.03767	0.1236986	2.6202599	15	1	38 days	0.56			Williams		1998 KO ₆₁
1998 KP ₆₂	14.5	0.15	19980507	7.94399	2.14427	215.80831	10.28205	0.1401305	3.0706940	12	1	3 days	0.80			E Williams		1998 KP ₆₂
1998 KX ₆₃	14.5	0.15	19980527	316.17275	219.47389	73.76067	5.80513	0.0775682	2.7756173	14	1	12 days	1.14			Williams		1998 KX ₆₃
1998 KG ₆₄	15.0	0.15	19980527	342.40386	127.72554	140.22352	2.26219	0.1482496	2.3313072	17	1	38 days	0.85			Williams		1998 KG ₆₄
1998 KK ₆₄	15.0	0.15	19980527	7.90769	209.04994	26.88321	2.94732	0.1280249	2.3998889	14	1	12 days	0.82			Williams		1998 KK ₆₄
1998 KM ₆₄	15.0	0.15	19980527	356.38114	5.08455	246.03925	2.40321	0.1460291	2.5658985	13	1	12 days	0.68			Williams		1998 KM ₆₄

1998 KP ₆₄	14.0	0.15	19980527	266.14698	145.42534	198.18718	4.19200	0.0382759	2.7255558	14	1	12 days	0.90		Williams	1998 KP ₆₄	
1998 KV ₆₄	15.0	0.15	19980527	90.24374	315.10652	191.32606	2.34119	0.0790695	2.2318144	15	1	12 days	1.01		Williams	1998 KV ₆₄	
1998 KR ₆₅	7.0	0.15	19980616	52.51416	144.63380	100.98720	1.14212	0.0544605	45.5668024	34	1	86 days	0.43	E	Marsden	1998 KR ₆₅	
1998 KS ₆₅	7.5	0.15	19980616	309.59575	257.52181	102.63978	1.18300	0.0693288	44.1106529	45	1	86 days	0.07	E	Marsden	1998 KS ₆₅	
1998 LA	15.0	0.15	19980706	14.38756	126.51851	120.01324	5.01810	0.2110591	2.5748762	55	3	1994–1998	0.58	M-v	3	Williams	32284 1998 LA
1998 LN	14.5	0.15	19980616	65.14083	91.83352	68.41791	5.80442	0.2469698	2.7918219	9	1	31 days	0.73		Williams	1998 LN	
1998 LR	16.0	0.15	19980527	332.00360	221.41547	70.42821	3.17446	0.2227825	2.2266218	11	1	2 days	0.43	E	Williams	1998 LR	
1998 LW	15.5	0.15	19980527	355.29960	25.07826	230.14420	4.45079	0.1417576	2.3457290	10	1	2 days	1.17	E	Williams	1998 LW	
1998 LX	16.5	0.15	19980527	30.69218	141.71289	69.75804	3.18344	0.1150479	2.7032151	9	1	2 days	0.81	E	Williams	1998 LX	
1998 LY	17.5	0.15	19980527	0.72416	178.28186	69.98293	5.00143	0.1346104	2.3275216	9	1	2 days	0.47	E	Williams	1998 LY	
1998 LE ₂	16.0	0.15	19980527	331.93825	195.29634	92.64250	5.29672	0.1570305	2.1888539	10	1	2 days	0.56		Williams	1998 LE ₂	
1998 LK ₂	14.5	0.15	19980706	312.21894	176.79010	163.54352	6.63144	0.2106100	2.3189109	24	4	1959–1998	0.65	M-v	2	Williams	32284 1998 LK ₂
1998 LS ₂	14.5	0.15	19980527	40.77097	71.07423	142.09314	9.41618	0.0743023	2.5817120	10	1	2 days	0.57		Williams	1998 LS ₂	
1998 LZ ₂	14.5	0.15	19980527	47.57892	340.99797	217.20341	13.81001	0.1798860	3.0416567	10	1	2 days	0.98		Williams	1998 LZ ₂	
1998 MQ	16.5	0.15	19980706	315.79518	138.54626	221.27010	24.21000	0.4081788	1.7829731	153	1	104 days	0.48	M-v	4	Williams	32337 1998 MQ
1998 MY ₁	14.0	0.15	19980706	116.08152	261.50141	231.62049	11.34038	0.1153921	2.6450438	19	1	56 days	0.36		Marsden	1998 MY ₁	
1998 MZ ₁	15.5	0.15	19980706	17.88301	168.38312	92.88896	9.14544	0.3004911	2.7583520	22	1	57 days	0.40		Marsden	1998 MZ ₁	
1998 MC ₃	16.0	0.15	19980527	94.06678	311.39743	174.58037	5.00184	0.2052113	2.5673481	11	1	37 days	0.19		Williams	1998 MC ₃	
1998 ME ₃	19.5	0.15	19980706	355.52007	165.20581	129.67264	5.99382	0.4837476	2.1764439	210	1	102 days	0.61	M-v	4	Williams	32337 1998 ME ₃
1998 MJ ₄	16.0	0.15	19980616	42.37155	313.05184	279.75723	6.19578	0.1245786	2.2976941	10	1	9 days	0.44		Marsden	1998 MJ ₄	
1998 MK ₅	13.0	0.15	19980706	295.93924	264.86850	119.01922	13.81817	0.1836291	2.6276465	27	1	88 days	0.60	M-v	5	Williams	1998 MK ₅
1998 MO ₅	14.0	0.15	19980706	319.91092	211.70190	112.76456	24.46583	0.2260355	2.3663514	33	1	81 days	0.49	M-v	4	Williams	1998 MO ₅
1998 MX ₅	18.0	0.15	19980706	352.35938	55.69103	266.63953	9.71013	0.6119822	2.9190398	237	1	75 days	0.55	M-v	4	Williams	32338 1998 MX ₅
1998 MM ₇	15.0	0.15	19980706	326.23336	241.90298	99.07821	12.50744	0.2575181	2.3743090	30	1	72 days	0.42	M-v	4	Williams	1998 MM ₇
1998 MN ₇	15.0	0.15	19980706	306.51666	337.33174	25.98510	0.64906	0.2140770	3.1500582	14	1	56 days	0.43		Williams	1998 MN ₇	
1998 MO ₇	15.0	0.15	19980706	258.87296	89.49565	309.65843	13.97480	0.0781821	2.4131704	13	1	53 days	0.34		Williams	1998 MO ₇	
1998 MU ₇	15.0	0.15	19980706	330.24376	84.29010	262.19024	4.87433	0.2046852	2.2411628	27	1	87 days	0.64	M-v	4	Williams	1998 MU ₇
1998 MY ₇	14.5	0.15	19980706	355.23378	60.90813	255.92267	10.54595	0.2547424	2.6094749	19	1	69 days	0.59	M-v	5	Williams	1998 MY ₇
1998 MZ ₇	12.5	0.15	19980706	344.57865	93.32114	246.98798	14.16076	0.2905159	3.1019259	35	3	1987–1998	0.62	M-v	3	Williams	32285 1998 MZ ₇
1998 MZ ₈	14.5	0.15	19980616	0.02714	83.60130	174.10386	8.77950	0.0800740	3.0587573	20	1	51 days	0.69		Williams	1998 MZ ₈	
1998 MB ₁₀	15.5	0.15	19980527	352.66498	83.36807	182.66289	9.60923	0.1105076	2.2053651	14	1	22 days	0.92		Williams	1998 MB ₁₀	
1998 MA ₁₁	11.0	0.15	19980527	192.81990	227.43562	209.58473	17.30290	0.0453629	5.2369953	15	1	22 days	1.02		Williams	1998 MA ₁₁	
1998 MQ ₁₁	10.5	0.15	19980527	299.46701	197.58496	137.80568	30.69351	0.1057484	5.2790179	13	1	21 days	0.72		Williams	1998 MQ ₁₁	
1998 MV ₁₃	14.0	0.15	19980706	229.40372	132.52684	289.62825	21.26037	0.0904358	2.5906828	24	1	48 days	0.82		Williams	1998 MV ₁₃	
1998 MW ₁₃	15.5	0.15	19980706	294.32711	66.91247	310.29078	5.01484	0.2356908	2.4038217	14	1	46 days	0.37		Williams	1998 MW ₁₃	
1998 ML ₁₄	17.5	0.15	19980706	342.65549	18.95552	339.69583	2.43795	0.6175973	2.4215373	177	1	69 days	0.55	M-v	5	Williams	32338 1998 ML ₁₄
1998 MN ₁₄	18.0	0.15	19980706	20.45368	350.21646	259.10146	19.47838	0.2241783	1.5547191	153	1	63 days	0.53	M-v	4	Williams	32338 1998 MN ₁₄
1998 MW ₁₅	14.5	0.15	19980706	352.05356	194.09186	118.10850	26.51688	0.2621941	3.0076292	26	1	64 days	0.45	M-v	4	Williams	1998 MW ₁₅
1998 MG ₁₆	16.5	0.15	19980706	318.68506	224.79676	150.15350	2.74193	0.2239744	2.4041032	17	1	60 days	0.60	M-v	6	Williams	1998 MG ₁₆
1998 MN ₁₆	14.0	0.15	19980706	292.69044	272.03207	115.34414	14.21556	0.1761759	2.5902922	32	2	1995–1998	0.63	M-v	5	Williams	32285 1998 MN ₁₆
1998 MR ₁₇	16.0	0.15	19980706	6.55858	347.76787	281.91950	15.60919	0.4808218	2.7010747	191	1	69 days	0.51	M-v	4	Williams	32339 1998 MR ₁₇
1998 MZ ₂₃	13.5	0.15	19980706	302.90982	79.94197	293.58879	5.55758	0.1494784	2.4681667	32	2	1994–1998	0.70	M-v	5	Williams	32286 1998 MZ ₂₃
1998 MR ₂₄	19.0	0.15	19980706	357.12304	54.30152	245.39699	6.08037	0.4451692	1.9569908	108	1	63 days	0.47	M-v	6	Williams	32339 1998 MR ₂₄
1998 MT ₂₄	14.5	0.15	19980706	34.39952	253.63942	310.12492	34.04574	0.6505480	2.4175808	178	1	71 days	0.52	M-v	4	Williams	32339 1998 MT ₂₄
1998 MH ₂₇	14.5	0.15	19980706	0.88976	183.43465	100.71793	6.47962	0.1791907	2.3271476	25	1	27 days	0.64		Williams	1998 MH ₂₇	
1998 MV ₂₇	13.5	0.15	19980706	325.60947	47.79271	286.81407	12.68668	0.1849928	2.5784735	20	1	27 days	0.51		Williams	1998 MV ₂₇	
1998 MG ₂₉	15.0	0.15	19980706	335.42296	240.80470	89.23678	5.99783	0.2680151	2.6105383	15	1	27 days	0.71		Williams	1998 MG ₂₉	
1998 MM ₂₉	15.0	0.15	19980706	83.17339	100.07043	92.48057	13.89274	0.1140485	2.6538538	22	1	26 days	0.76		Williams	1998 MM ₂₉	
1998 MK ₃₀	16.0	0.15	19980706	339.44338	154.49204	203.74988	5.41226	0.4347732	2.4676517	182	1	78 days	0.52	M-v	4	Williams	32339 1998 MK ₃₀
1998 MZ ₃₀	13.5	0.15	19980706	283.34389	236.35769	144.62570	9.62117	0.1262964	2.6027883	22	3	1957–1998	0.77	M-v	4	Williams	32286 1998 MZ ₃₀
1998 MB ₃₂	14.0	0.15	19980706	102.50627	87.32499	96.01731	15.71073	0.0461602	2.5668733	17	1	57 days	0.99		Williams	1998 MB ₃₂	
1998 MJ ₃₂	15.5	0.15	19980616	6.66497	343.13304	289.29048	11.11322	0.1808561	2.3625440	17	1	9 days	1.05		Marsden	1998 MJ ₃₂	
1998 MK ₃₂	14.5	0.15	19980616	358.34814	354.93332	291.92856	10.62138	0.1812500	2.6564679	16	1	7 days	0.71		Marsden	1998 MK ₃₂	

1998 MO ₃₂	16.0	0.15	19980616	13.27994	154.37790	108.53787	14.12865	0.2065060	2.5846602	11	1	4 days	0.74		Marsden		1998 MO ₃₂
1998 MP ₃₂	15.0	0.15	19980706	10.33516	159.04559	116.98985	5.00901	0.1477054	2.2189935	34	3	1994–1998	0.76	M-v 4	Marsden	32287	1998 MP ₃₂
1998 MQ ₃₂	14.5	0.15	19980706	330.30458	55.66451	279.34663	12.41668	0.2024060	2.6349871	29	1	40 days	1.23		Williams		1998 MQ ₃₂
1998 MJ ₃₃	14.0	0.15	19980616	173.89200	352.51750	121.32504	5.60016	0.0518008	2.5473031	14	1	7 days	1.00		Marsden		1998 MJ ₃₃
1998 MK ₃₃	14.5	0.15	19980616	317.92394	237.84010	112.85319	12.83508	0.2380901	2.6826680	15	1	7 days	1.03		Marsden		1998 MK ₃₃
1998 ML ₃₃	15.5	0.15	19980616	322.84580	227.20955	112.99122	6.85837	0.2310770	2.2619214	15	1	7 days	0.94		Marsden		1998 ML ₃₃
1998 MM ₃₃	16.5	0.15	19980616	354.26365	187.10212	102.58018	6.47441	0.1999131	2.1613443	18	1	22 days	0.79		Williams		1998 MM ₃₃
1998 MN ₃₃	13.5	0.15	19980616	289.63126	86.57438	291.13249	8.67380	0.1531674	2.9999317	15	1	7 days	1.14		Marsden		1998 MN ₃₃
1998 MO ₃₃	15.5	0.15	19980616	327.07476	233.87339	102.83205	7.00885	0.2562601	2.3481899	17	1	9 days	0.71		Marsden		1998 MO ₃₃
1998 MP ₃₃	14.0	0.15	19980616	131.15156	44.91218	104.24663	7.95677	0.1094962	2.4900864	14	1	7 days	0.93		Marsden		1998 MP ₃₃
1998 MR ₃₃	14.0	0.15	19980706	7.03721	184.96372	96.75517	5.88523	0.1890836	3.1261628	18	1	30 days	1.41		Marsden		1998 MR ₃₃
1998 MU ₃₃	14.0	0.15	19980706	354.93749	352.21081	305.28109	4.29067	0.0543406	2.4212427	22	1	32 days	0.83		Williams		1998 MU ₃₃
1998 MF ₃₄	13.0	0.15	19980616	65.55255	265.27294	301.78507	11.43211	0.1626164	3.2488787	15	1	7 days	0.91		E Marsden		1998 MF ₃₄
1998 MJ ₃₄	15.0	0.15	19980616	15.64704	164.30742	97.02313	6.08873	0.1894856	2.3980422	12	1	4 days	0.57		Marsden		1998 MJ ₃₄
1998 MK ₃₄	14.5	0.15	19980616	342.62151	214.14822	101.94891	8.58419	0.2357661	3.0038176	12	1	7 days	1.25		Marsden		1998 MK ₃₄
1998 ML ₃₄	15.0	0.15	19980616	339.64711	8.41242	308.35965	4.31885	0.1844154	2.7020934	15	1	22 days	0.78		Williams		1998 ML ₃₄
1998 MM ₃₄	14.5	0.15	19980616	245.76329	127.02778	289.53409	10.22040	0.1328436	2.5152656	17	1	8 days	1.31		Marsden		1998 MM ₃₄
1998 MT ₃₄	15.0	0.15	19980706	33.61555	9.41779	239.71362	5.60533	0.1401132	2.2741721	25	4	1984–1998	0.87	M-v 2	Williams	32287	1998 MT ₃₄
1998 ME ₃₅	14.5	0.15	19980616	333.47106	36.48604	284.98039	11.78571	0.1158728	2.6203510	12	1	4 days	0.63		Marsden		1998 ME ₃₅
1998 MF ₃₅	14.0	0.15	19980616	243.67040	306.92656	117.91709	8.20710	0.2083411	2.3093974	15	1	7 days	0.82		Marsden		1998 MF ₃₅
1998 MG ₃₅	14.5	0.15	19980616	43.84238	98.50512	120.50035	3.25622	0.2471076	2.6164543	15	1	7 days	0.73		Marsden		1998 MG ₃₅
1998 MH ₃₅	13.5	0.15	19980616	279.18195	272.58900	116.51839	3.61292	0.1481251	2.8889599	14	1	7 days	0.84		Marsden		1998 MH ₃₅
1998 MJ ₃₅	14.5	0.15	19980706	349.27308	21.15081	287.65769	10.77392	0.1638715	2.5487024	18	1	27 days	0.57		Marsden		1998 MJ ₃₅
1998 ML ₃₅	14.0	0.15	19980616	21.68685	333.67850	293.61755	18.67047	0.0678343	3.1673276	11	1	7 days	1.13		E Marsden		1998 ML ₃₅
1998 MN ₃₅	15.5	0.15	19980706	3.69440	183.98395	105.71951	2.72765	0.0570917	2.3074307	18	1	55 days	0.59		Williams		1998 MN ₃₅
1998 MM ₃₆	15.0	0.15	19980706	332.14386	31.10906	308.21526	6.10266	0.1966050	2.2056172	16	1	58 days	0.48		Williams		1998 MM ₃₆
1998 MF ₃₇	13.5	0.15	19980706	343.51817	187.42822	133.29538	13.51031	0.1823929	2.8804108	27	2	1995–1998	0.63	M-v 4	Williams	32288	1998 MF ₃₇
1998 MJ ₃₇	15.0	0.15	19980706	329.62070	228.04236	112.01027	15.57277	0.2173753	2.7287888	20	1	56 days	0.80		Williams		1998 MJ ₃₇
1998 MK ₃₇	14.0	0.15	19980706	16.81969	358.01357	276.70220	7.15151	0.1710563	2.5762813	27	3	1990–1998	0.78	M-v 3	Williams	32288	1998 MK ₃₇
1998 MM ₃₇	13.5	0.15	19980706	336.89035	210.72824	122.35599	10.23249	0.0839941	3.0204670	17	1	67 days	0.70	M-v 5	Williams		1998 MM ₃₇
1998 MQ ₃₇	16.5	0.15	19980706	334.70106	43.13123	297.98476	5.93057	0.2905180	2.2355675	15	1	60 days	0.60	M-v 5	Williams		1998 MQ ₃₇
1998 MV ₃₇	14.5	0.15	19980706	316.60557	249.26661	103.41683	14.45874	0.1607969	2.4736633	24	2	1994–1998	0.53	M-v 4	Williams	32288	1998 MV ₃₇
1998 MD ₃₈	12.0	0.15	19980706	265.43706	133.78121	284.65920	14.02333	0.1676263	2.6737104	28	1	83 days	0.65	M-v 5	Williams		1998 MD ₃₈
1998 MT ₃₈	14.5	0.15	19980706	45.50324	333.62321	265.50102	5.37511	0.0842388	2.4043163	14	1	32 days	0.56		Williams		1998 MT ₃₈
1998 MW ₃₈	14.5	0.15	19980616	5.12110	127.27783	151.11664	2.48311	0.1621542	2.6605230	9	1	5 days	1.11		E Marsden		1998 MW ₃₈
1998 MZ ₄₀	14.5	0.15	19980706	335.73236	214.49463	103.09095	11.54195	0.0708374	2.9589626	12	1	45 days	0.50		Williams		1998 MZ ₄₀
1998 MZ ₄₁	15.0	0.15	19980706	308.42218	256.69252	83.15162	13.83552	0.1656098	2.5843714	8	1	20 days	0.64		Williams		1998 MZ ₄₁
1998 MA ₄₂	16.0	0.15	19980706	321.64171	60.10311	282.61462	4.41685	0.3155122	2.2843222	16	1	60 days	0.50	M-v 5	Williams		1998 MA ₄₂
1998 MO ₄₄	10.5	0.15	19980527	320.14660	188.41896	113.52566	33.33077	0.0331006	5.1994260	14	1	22 days	0.93		Williams		1998 MO ₄₄
1998 MC ₄₅	13.5	0.15	19980616	237.68815	191.37302	208.94557	13.38430	0.1523974	2.5938708	11	1	7 days	0.65		Williams		1998 MC ₄₅
1998 MD ₄₆	14.0	0.15	19980616	298.61954	225.48682	130.75180	11.86423	0.2402629	2.7566234	13	1	6 days	0.44		Williams		1998 MD ₄₆
1998 MG ₄₆	16.5	0.15	19980616	341.56092	23.45592	288.22910	6.22530	0.2256952	2.2477580	14	1	8 days	0.62		Marsden		1998 MG ₄₆
1998 MH ₄₆	13.5	0.15	19980616	26.52026	261.28725	0.35452	0.34775	0.0536893	2.9172206	11	1	8 days	0.57		E Marsden		1998 MH ₄₆
1998 MA ₄₇	15.5	0.15	19980616	319.25436	238.10768	109.17032	1.79048	0.2299628	2.6043339	11	1	7 days	1.16		E Williams		1998 MA ₄₇
1998 ME ₄₇	14.5	0.15	19980616	37.55142	312.93399	287.82298	7.52829	0.1174144	2.7552626	10	1	7 days	0.76		Williams		1998 ME ₄₇
1998 MK ₄₇	11.5	0.15	19980616	348.01531	190.22351	119.77025	14.21549	0.1343681	5.2677004	10	1	5 days	0.70		E Williams		1998 MK ₄₇
1998 MM ₄₇	15.5	0.15	19980616	13.26698	157.22154	111.78950	15.62243	0.1234770	2.5229750	10	1	5 days	0.61		Williams		1998 MM ₄₇
1998 MQ ₄₇	16.0	0.15	19980616	335.87050	42.50978	285.02312	10.82714	0.2988958	2.5036412	10	1	7 days	0.69		E Williams		1998 MQ ₄₇
1998 MX ₄₇	15.0	0.15	19980616	310.70834	242.88469	123.97726	3.98580	0.2912390	2.4857337	11	1	7 days	1.15		Williams		1998 MX ₄₇
1998 MF ₄₈	16.0	0.15	19980616	350.02318	195.77904	103.84379	3.38394	0.2135719	2.3956016	17	1	22 days	0.68		Williams		1998 MF ₄₈
1998 MG ₄₈	15.5	0.15	19980616	335.46507	218.92077	100.92025	5.98326	0.1915370	2.2572256	11	1	5 days	0.93		Williams		1998 MG ₄₈
1998 NF	15.5	0.15	19980706	27.76956	160.17397	76.25379	3.55245	0.1343566	2.4137480	9	1	26 days	0.51		Williams		1998 NF
1998 NH	14.0	0.15	19980726	257.94004	290.93244	124.85170	12.32407	0.1305945	2.7715770	11	1	30 days	0.21		Marsden		1998 NH

1998 NN	14.5	0.15	19980726	353.78683	170.13698	145.89239	14.88333	0.1621038	2.6573007	10	1	43 days	0.31	Williams	1998 NN
1998 NP	15.5	0.15	19980706	20.73343	327.10763	291.39276	12.66682	0.1333127	2.6280071	12	1	41 days	0.75	Williams	1998 NP
1998 NQ	15.0	0.15	19980726	141.01538	43.56622	103.57112	15.46607	0.0360857	2.6361921	11	1	34 days	0.45	Williams	1998 NQ
1998 NR	16.5	0.15	19980706	356.95684	186.77323	103.79642	11.79583	0.2360710	2.4705901	17	1	45 days	0.76	Williams	1998 NR
1998 NS	15.5	0.15	19980706	9.49622	335.01159	292.74142	10.71594	0.2516771	2.4511413	25	1	64 days	0.66	M-v 4 Williams	1998 NS
1998 NM ₁	17.5	0.15	19980706	265.52244	16.18189	17.24117	3.76980	0.0975558	2.1697446	4	1	6 days	0.21	Williams	1998 NM ₁
1998 OJ	15.0	0.15	19980706	56.19139	357.89970	240.33768	3.94363	0.1319510	2.2302867	33	2	1991-1998	0.64	M-v 5 Williams	32289 1998 OJ
1998 OK	14.5	0.15	19980706	31.54804	87.32209	186.35348	6.60222	0.0944527	2.3933664	41	1	72 days	0.50	M-v 5 Williams	1998 OK
1998 OM	14.0	0.15	19980726	23.55244	37.78526	242.52438	13.37970	0.1548115	2.6127101	14	1	41 days	0.50	Williams	1998 OM
1998 OA ₁	14.0	0.15	19980726	3.60155	33.19584	281.64333	7.95662	0.1234817	3.0464714	27	1	35 days	0.55	Williams	1998 OA ₁
1998 OC ₁	16.0	0.15	19980726	3.30232	143.12361	167.72806	6.73664	0.1419460	2.2297023	20	1	25 days	0.54	Williams	1998 OC ₁
1998 OD ₁	15.0	0.15	19980706	329.30628	84.95544	265.52960	5.41138	0.1434931	2.3860005	50	1	65 days	0.61	M-v 4 Williams	1998 OD ₁
1998 OE ₁	14.5	0.15	19980726	346.62126	41.93572	298.35627	15.41816	0.2248353	3.0007395	33	1	38 days	0.61	Williams	1998 OE ₁
1998 OG ₁	14.5	0.15	19980726	113.81589	231.82801	291.88893	11.78626	0.1106767	2.6655059	10	1	28 days	0.42	Williams	1998 OG ₁
1998 OJ ₁	14.5	0.15	19980726	343.36210	92.52810	243.67927	12.02509	0.1948596	2.5905679	24	1	36 days	0.52	Williams	1998 OJ ₁
1998 ON ₁	14.5	0.15	19980726	324.09570	164.21648	198.14826	7.73500	0.2333588	2.7632429	17	1	58 days	0.37	Williams	1998 ON ₁
1998 OT ₁	15.5	0.15	19980726	342.18723	29.44691	303.32769	6.51817	0.1128058	2.2655341	20	1	55 days	0.31	Williams	1998 OT ₁
1998 OU ₁	15.5	0.15	19980706	309.03355	233.94484	127.05216	25.00884	0.0506210	1.7978987	13	1	30 days	0.69	Williams	1998 OU ₁
1998 OH ₂	15.0	0.15	19980726	56.19397	108.11024	151.40540	1.69704	0.1414479	2.4344200	12	1	26 days	0.22	Marsden	1998 OH ₂
1998 OJ ₂	15.0	0.15	19980726	35.24172	141.03942	151.21246	5.96961	0.0494476	2.4134790	27	1	36 days	0.99	Williams	1998 OJ ₂
1998 OL ₂	16.5	0.15	19980726	5.66269	354.43827	306.31481	8.50934	0.2649535	2.7821401	15	1	25 days	0.31	Marsden	1998 OL ₂
1998 OP ₂	13.5	0.15	19980706	59.13308	301.69390	297.27456	3.73346	0.0569684	2.7353742	42	3	1981-1998	0.69	M-v 3 Williams	32289 1998 OP ₂
1998 OR ₂	16.5	0.15	19980726	40.69321	173.17661	27.42459	5.92575	0.5740978	2.3881122	36	1	23 days	0.50	Marsden	1998 OR ₂
1998 OJ ₃	17.0	0.15	19980706	207.65706	226.37551	227.38799	3.91929	0.0637889	2.7653994	9	1	6 days	0.17	Williams	1998 OJ ₃
1998 OL ₃	18.5	0.15	19980706	313.02267	79.10031	275.10375	6.59802	0.1180565	2.3966725	9	1	9 days	0.23	Williams	1998 OL ₃
1998 OM ₃	17.0	0.15	19980706	166.45451	219.95110	268.74664	6.47620	0.1559892	2.4203680	9	1	6 days	0.18	Williams	1998 OM ₃
1998 ON ₃	18.0	0.15	19980706	32.80538	66.32447	186.68507	3.47068	0.1533190	2.6200352	9	1	6 days	0.13	Williams	1998 ON ₃
1998 OT ₃	16.5	0.15	19980726	334.81692	62.56558	281.65982	5.75928	0.1720554	2.3070938	18	1	30 days	0.72	Williams	1998 OT ₃
1998 OF ₄	16.0	0.15	19980726	317.20823	227.44470	140.03371	5.08510	0.1614539	2.2244333	23	1	28 days	0.73	Williams	1998 OF ₄
1998 OR ₄	16.0	0.15	19980706	5.79589	164.89363	122.45644	16.09490	0.1620118	2.6273270	26	1	30 days	0.52	Williams	1998 OR ₄
1998 OS ₄	18.5	0.15	19980706	350.35405	31.07298	297.49789	10.77510	0.4810174	2.7160092	61	1	40 days	0.52	M-v 5 Williams	1998 OS ₄
1998 OV ₄	14.0	0.15	19980726	328.79980	207.69733	143.80136	7.99178	0.1778916	2.7314646	27	1	55 days	0.53	Williams	1998 OV ₄
1998 OX ₄	21.5	0.15	19980726	306.86758	116.54128	300.29418	4.57248	0.4900671	1.5904666	19	1	9 days	0.69	Williams	1998 OX ₄
1998 OZ ₄	14.5	0.15	19980726	284.92193	210.14464	206.73252	10.16618	0.1377454	3.1360208	18	1	31 days	0.78	Williams	1998 OZ ₄
1998 OK ₅	17.5	0.15	19980726	303.88158	135.41544	238.75005	4.13132	0.1483619	2.7570972	9	1	4 days	0.20	Williams	1998 OK ₅
1998 OL ₅	17.5	0.15	19980726	320.96663	191.02691	162.42225	4.56383	0.1405658	2.1910647	9	1	4 days	0.10	Williams	1998 OL ₅
1998 OR ₅	16.5	0.15	19980726	168.05232	200.94760	294.23160	16.26393	0.1087368	2.5580213	9	1	4 days	0.13	Williams	1998 OR ₅
1998 OW ₅	13.0	0.15	19980726	171.14087	6.99022	142.75902	14.87219	0.0992288	3.1645069	22	1	26 days	0.56	Williams	1998 OW ₅
1998 OZ ₅	14.5	0.15	19980706	13.91980	56.81376	213.37146	3.21593	0.1368208	2.2581568	16	1	30 days	0.42	Williams	1998 OZ ₅
1998 OH ₆	13.0	0.15	19980726	83.57854	48.15445	169.62535	5.57208	0.0900686	3.2325083	14	1	6 days	0.79	E Williams	1998 OH ₆
1998 OR ₆	15.5	0.15	19980726	21.93987	105.70296	183.67878	7.12026	0.1154051	2.4241893	24	1	28 days	0.56	Williams	1998 OR ₆
1998 OX ₆	13.0	0.15	19980726	24.20114	351.44944	307.25833	11.82503	0.0659254	2.8615492	32	1	37 days	0.33	Williams	1998 OX ₆
1998 OY ₆	14.0	0.15	19980726	131.93523	241.87816	305.78664	11.64997	0.0912655	2.6229800	32	1	41 days	0.57	Williams	1998 OY ₆
1998 OA ₇	12.5	0.15	19980726	341.57006	112.92527	220.51119	23.28337	0.2910267	2.3095439	13	1	16 days	0.30	Williams	1998 OA ₇
1998 OB ₇	16.0	0.15	19980815	13.64282	10.13951	293.16583	6.16138	0.2798489	2.4366216	34	1	34 days	0.52	Williams	1998 OB ₇
1998 OC ₇	15.0	0.15	19980726	19.30809	135.32924	162.79631	8.11180	0.1181912	2.4375432	17	1	26 days	0.64	Williams	1998 OC ₇
1998 OD ₇	14.0	0.15	19980815	157.29278	226.09447	304.34370	7.76042	0.0875800	2.8011658	13	1	35 days	0.28	Williams	1998 OD ₇
1998 OF ₇	16.0	0.15	19980726	13.19843	11.66452	288.85430	5.96683	0.1995996	2.2395194	19	1	54 days	0.46	Williams	1998 OF ₇
1998 OG ₇	13.0	0.15	19980726	146.97708	320.03284	217.68168	5.32634	0.0992997	3.1953949	15	1	26 days	0.52	Williams	1998 OG ₇
1998 OH ₇	13.5	0.15	19980706	353.62619	44.94095	283.35066	7.90308	0.1793275	2.7343457	37	1	62 days	0.49	M-v 4 Williams	1998 OH ₇
1998 OJ ₇	15.0	0.15	19980706	345.55398	110.05134	226.17578	5.25519	0.1555305	2.4119333	42	1	63 days	0.52	M-v 4 Williams	1998 OJ ₇
1998 OP ₇	16.0	0.15	19980726	342.43442	118.15669	223.70923	1.57281	0.2114080	2.3951875	24	1	35 days	1.08	Williams	1998 OP ₇
1998 OL ₈	13.5	0.15	19980726	306.87622	238.25156	145.71159	9.66520	0.1144081	3.2251327	15	1	43 days	0.59	Williams	1998 OL ₈

1998 OP ₈	15.0	0.15	19980726	192.19572	200.88109	287.30801	4.41973	0.0921713	2.2640649	21	1	35 days	0.91	Williams	1998 OP ₈
1998 OR ₈	13.5	0.15	19980726	319.68764	185.75273	199.84866	2.33009	0.2580615	3.9733519	15	1	28 days	0.75	Williams	1998 OR ₈
1998 OS ₈	16.0	0.15	19980726	335.68220	44.20584	305.45639	4.13175	0.1847933	2.1936962	22	1	33 days	0.82	Williams	1998 OS ₈
1998 OW ₈	15.5	0.15	19980726	13.20826	356.05244	294.72232	2.14193	0.2868188	2.6900827	18	1	33 days	0.59	Williams	1998 OW ₈
1998 OZ ₈	15.0	0.15	19980706	19.31889	330.50175	309.58774	3.43753	0.1701583	2.2963325	12	1	12 days	0.49	Williams	1998 OZ ₈
1998 OG ₉	14.0	0.15	19980726	296.79700	233.77894	154.18673	2.48197	0.0519807	2.8945915	12	1	33 days	0.45	Williams	1998 OG ₉
1998 OR ₉	14.0	0.15	19980726	2.34349	168.00234	148.35193	18.01449	0.1347756	3.1281143	16	1	28 days	0.74	Williams	1998 OR ₉
1998 OT ₉	16.5	0.15	19980726	341.15722	33.85386	313.90397	3.41447	0.2776258	2.3466454	16	1	28 days	0.47	Williams	1998 OT ₉
1998 OA ₁₀	15.5	0.15	19980726	339.79544	153.54585	191.87765	2.95560	0.1472684	2.6221652	12	1	35 days	0.45	Williams	1998 OA ₁₀
1998 OF ₁₀	15.5	0.15	19980726	35.04158	119.66304	150.49923	5.77676	0.1440636	2.2167230	25	1	59 days	0.78	Williams	1998 OF ₁₀
1998 OG ₁₀	16.0	0.15	19980726	358.69921	4.30639	314.55461	10.24453	0.1893329	2.6168898	15	1	28 days	0.85	Williams	1998 OG ₁₀
1998 OH ₁₀	15.0	0.15	19980726	289.01188	257.64651	153.11168	6.13840	0.1920732	2.2728922	15	1	28 days	0.50	Williams	1998 OH ₁₀
1998 OP ₁₀	14.5	0.15	19980726	57.50052	291.01145	314.47238	10.29755	0.1515705	2.6496912	19	1	33 days	0.71	Williams	1998 OP ₁₀
1998 OQ ₁₀	15.0	0.15	19980726	129.13950	244.70333	301.16643	0.51915	0.0271674	2.1557916	30	1	33 days	0.75	Williams	1998 OQ ₁₀
1998 OT ₁₀	14.5	0.15	19980726	272.32394	108.83773	306.77096	3.38581	0.0665296	2.7884864	11	1	32 days	0.41	Williams	1998 OT ₁₀
1998 OK ₁₁	15.0	0.15	19980726	80.12626	94.90787	135.85826	4.95491	0.0603295	2.2206396	18	1	32 days	0.62	Williams	1998 OK ₁₁
1998 OL ₁₁	15.0	0.15	19980726	320.66522	60.60466	316.64472	12.46287	0.2112325	2.7622852	35	1	35 days	0.55	Williams	1998 OL ₁₁
1998 ON ₁₁	13.5	0.15	19980726	241.82986	204.82448	238.26159	1.08109	0.0341722	2.9100097	18	1	28 days	0.63	Williams	1998 ON ₁₁
1998 OQ ₁₁	16.0	0.15	19980726	340.85164	206.54254	140.04964	2.72785	0.2287982	2.3478058	19	1	28 days	0.80	Williams	1998 OQ ₁₁
1998 OR ₁₁	16.5	0.15	19980726	321.83199	67.12930	315.59438	22.35365	0.2949945	2.3637972	20	1	32 days	0.79	Williams	1998 OR ₁₁
1998 OS ₁₁	15.0	0.15	19980726	349.48171	26.33782	309.03480	9.52506	0.2122225	2.7831281	18	1	35 days	0.55	Williams	1998 OS ₁₁
1998 OW ₁₁	15.0	0.15	19980726	244.94678	327.65238	93.64889	11.65080	0.0947445	2.9750541	7	1	38 days	0.28	Williams	1998 OW ₁₁
1998 OX ₁₁	17.0	0.15	19980726	325.81061	45.39344	315.86731	11.32614	0.3036085	2.6016380	11	1	37 days	0.46	Williams	1998 OX ₁₁
1998 OY ₁₁	16.5	0.15	19980726	347.92554	269.82522	61.96160	2.81616	0.2290718	2.3748732	18	1	34 days	0.28	Williams	1998 OY ₁₁
1998 OZ ₁₁	15.5	0.15	19980726	310.54617	36.61355	338.24267	7.37375	0.1220618	2.2834749	18	1	34 days	0.89	Williams	1998 OZ ₁₁
1998 OA ₁₂	15.0	0.15	19980706	285.10452	80.76820	314.89712	13.85246	0.2382558	2.7593029	18	1	64 days	0.52	M-v 5 Williams	1998 OA ₁₂
1998 OB ₁₂	16.0	0.15	19980726	334.60514	262.31785	92.33811	4.82487	0.2406426	2.5760451	26	1	34 days	0.64	Williams	1998 OB ₁₂
1998 OC ₁₂	17.0	0.15	19980726	351.06438	277.17656	36.05234	3.41739	0.1785406	2.5351777	12	1	37 days	0.40	Williams	1998 OC ₁₂
1998 OD ₁₂	15.0	0.15	19980726	95.09197	218.72671	352.46630	5.93334	0.0751533	2.3936709	27	1	29 days	0.76	Williams	1998 OD ₁₂
1998 OE ₁₂	17.0	0.15	19980726	347.94540	225.47965	105.66327	5.50768	0.1862168	2.5843459	8	1	28 days	0.31	Williams	1998 OE ₁₂
1998 OF ₁₂	17.0	0.15	19980726	18.50861	303.91157	328.23234	7.91961	0.1961334	2.6817573	4	1	4 days	0.39	Williams	1998 OF ₁₂
1998 OH ₁₂	14.0	0.15	19980726	335.62219	239.26759	100.89404	11.70027	0.1137275	3.0043008	15	1	57 days	0.35	Williams	1998 OH ₁₂
1998 OK ₁₂	16.0	0.15	19980726	320.92079	323.77104	44.05329	7.51396	0.1259705	2.3328385	14	1	27 days	0.37	Williams	1998 OK ₁₂
1998 OL ₁₂	17.0	0.15	19980726	12.19668	314.66299	329.83754	7.37270	0.1864815	2.2692705	11	1	29 days	0.25	Williams	1998 OL ₁₂
1998 OM ₁₂	12.0	0.15	19980726	314.88550	325.37599	27.33458	7.48868	0.0374187	5.3247623	21	1	39 days	0.50	Williams	1998 OM ₁₂
1998 ON ₁₂	15.5	0.15	19980726	353.23509	175.04120	153.43331	2.71681	0.2116484	2.3908685	25	1	50 days	0.77	Williams	1998 ON ₁₂
1998 OS ₁₂	15.0	0.15	19980726	322.12951	57.92387	320.23832	12.67230	0.2236636	2.6554332	18	1	48 days	0.77	Williams	1998 OS ₁₂
1998 OS ₁₂	15.0	0.15	19980726	322.11654	57.94988	320.23863	12.67305	0.2237425	2.6554765	22	1	50 days	0.81	Williams	1998 OS ₁₂
1998 OU ₁₂	16.0	0.15	19980726	346.48201	208.34284	129.92381	8.24248	0.2247627	2.2639038	25	1	54 days	0.99	Williams	1998 OU ₁₂
1998 OZ ₁₂	13.5	0.15	19980726	346.99598	8.51076	330.00611	14.10238	0.0965980	3.1231268	25	1	28 days	0.94	Williams	1998 OZ ₁₂
1998 OF ₁₃	16.5	0.15	19980726	3.35590	154.56989	158.68347	2.57228	0.2170404	2.3710571	19	1	28 days	0.54	Williams	1998 OF ₁₃
1998 OK ₁₃	15.5	0.15	19980726	268.46295	293.82445	131.04035	6.25087	0.1065092	2.2269098	19	1	28 days	0.95	Williams	1998 OK ₁₃
1998 OL ₁₃	15.5	0.15	19980726	333.83885	41.06663	318.50392	4.24024	0.1804083	2.7206492	17	1	28 days	0.79	Williams	1998 OL ₁₃
1998 OO ₁₃	16.0	0.15	19980726	348.12916	196.51881	141.17884	7.51523	0.1646594	2.5492620	18	1	28 days	1.45	Williams	1998 OO ₁₃
1998 OV ₁₃	15.5	0.15	19980726	311.66285	241.56577	138.62324	7.11106	0.1145759	2.2890075	25	1	32 days	0.74	Williams	1998 OV ₁₃
1998 OX ₁₃	14.0	0.15	19980726	43.17987	116.87844	154.10182	3.87447	0.1250771	3.0499007	19	1	28 days	0.80	Williams	1998 OX ₁₃
1998 OZ ₁₃	14.5	0.15	19980726	28.12330	141.84101	141.05419	13.25761	0.1668222	2.6062033	25	1	58 days	0.78	Williams	1998 OZ ₁₃
1998 OB ₁₄	14.0	0.15	19980726	111.57771	238.52745	326.16854	18.48427	0.0861029	2.7512355	18	1	28 days	0.53	Williams	1998 OB ₁₄
1998 OC ₁₄	14.5	0.15	19980726	274.65830	283.50580	142.32250	12.45445	0.1392186	2.7029620	25	1	32 days	0.86	Williams	1998 OC ₁₄
1998 OJ ₁₄	17.0	0.15	19980726	0.91371	212.03502	104.11389	2.65957	0.2498365	2.3620005	16	1	28 days	1.07	Williams	1998 OJ ₁₄
1998 OK ₁₄	16.0	0.15	19980726	341.83126	231.47923	124.69174	5.52335	0.3422333	2.5914097	28	1	32 days	0.41	Williams	1998 OK ₁₄
1998 OL ₁₄	16.0	0.15	19980726	57.82538	270.70578	336.72028	5.44143	0.1454196	2.2197000	18	1	28 days	0.61	Williams	1998 OL ₁₄
1998 OM ₁₄	14.5	0.15	19980726	311.56371	249.76995	145.64339	11.51778	0.2300659	2.6553466	22	1	28 days	0.74	Williams	1998 OM ₁₄

1998 ON ₁₄	15.5	0.15	19980726	288.68394	302.11968	113.59093	3.26759	0.1889392	2.4253727	19	1	32 days	0.79	Williams	1998 ON ₁₄
1998 OQ ₁₄	15.5	0.15	19980726	64.63975	278.03186	329.90191	2.81124	0.0824350	2.1679364	15	1	28 days	0.45	Williams	1998 OQ ₁₄
1998 OR ₁₄	14.5	0.15	19980726	237.31854	117.02828	336.23918	5.50721	0.0570786	2.7064508	19	1	28 days	0.73	Williams	1998 OR ₁₄
1998 OS ₁₄	15.5	0.15	19980726	331.17243	26.81590	335.04997	5.64427	0.1822100	2.4053530	16	1	28 days	0.65	Williams	1998 OS ₁₄
1998 OT ₁₄	16.0	0.15	19980726	331.30170	35.42797	326.16185	5.08093	0.1948081	2.2274960	25	1	50 days	1.13	Williams	1998 OT ₁₄
1998 OU ₁₄	15.5	0.15	19980726	78.11178	252.12647	342.15005	0.37951	0.0930892	2.3094640	16	1	28 days	0.74	Williams	1998 OU ₁₄
1998 OV ₁₄	13.5	0.15	19980726	201.72661	152.09539	333.49886	14.69398	0.0661678	2.6463139	19	1	28 days	0.57	Williams	1998 OV ₁₄
1998 OX ₁₄	14.0	0.15	19980726	32.54346	313.92418	326.97574	12.54516	0.1340793	2.5848512	19	1	28 days	1.06	Williams	1998 OX ₁₄
1998 OD ₁₅	16.0	0.15	19980726	345.10913	10.39412	331.08442	3.43020	0.1631444	2.3010877	15	1	28 days	0.82	Williams	1998 OD ₁₅
1998 PB	15.5	0.15	19980726	35.22146	67.73872	202.10657	13.13228	0.2004241	2.4032602	18	1	34 days	0.37	Williams	1998 PB
1998 PC	16.0	0.15	19980815	5.38766	90.91566	230.70226	8.00263	0.1869557	2.3415855	15	1	25 days	1.23	Williams	1998 PC
1998 PE	15.0	0.15	19980815	22.88541	119.90941	174.63255	15.41860	0.1845543	2.6476564	16	1	25 days	0.46	Williams	1998 PE
1998 PF	15.0	0.15	19980815	85.68035	53.38521	152.52266	41.93731	0.2870871	2.0071904	88	1	28 days	0.66	Williams	1998 PF
1998 PG	17.0	0.15	19980706	324.35364	155.73814	222.90986	6.48440	0.3917609	2.0139624	169	1	34 days	0.46	Williams	1998 PG
1998 PJ	15.5	0.15	19980815	352.45924	16.47427	315.68893	1.76916	0.2311230	2.3786614	42	1	26 days	0.37	Williams	1998 PJ
1998 PL	15.0	0.15	19980815	331.99059	214.07308	125.24941	6.96154	0.1697137	2.2751572	15	1	20 days	0.32	Williams	1998 PL
1998 PO	13.5	0.15	19980815	290.92598	143.98243	257.05074	4.38429	0.0722855	2.7483877	24	1	26 days	0.67	Williams	1998 PO
1998 PP	15.5	0.15	19980815	307.49876	74.21756	334.94086	12.00955	0.2037788	2.7244929	8	1	8 days	0.49	Williams	1998 PP
1998 PQ	14.5	0.15	19980815	93.07632	70.61891	160.72884	1.19597	0.1130314	3.0655013	8	1	9 days	0.09	Williams	1998 PQ
1998 PR	14.5	0.15	19980815	299.28836	70.07751	334.53711	4.35986	0.0754279	2.7633775	8	1	7 days	0.12	Williams	1998 PR
1998 PU	15.0	0.15	19980726	334.08314	31.82500	332.30427	6.13191	0.2056319	2.3970070	24	1	25 days	0.36	Williams	1998 PU
1998 PV	14.0	0.15	19980815	272.45613	276.67644	122.50337	8.23474	0.1526603	2.7418245	11	1	16 days	0.32	Williams	1998 PV
1998 PY	17.0	0.15	19980815	328.94613	48.50325	323.73632	19.49718	0.2470458	2.9376421	10	1	12 days	0.33	Williams	1998 PY
1998 PZ	15.0	0.15	19980815	296.13119	358.28850	34.96008	8.33122	0.1616735	2.2021479	15	1	14 days	0.37	Williams	1998 PZ
1998 PA ₁	14.0	0.15	19980726	260.18844	195.97178	238.86876	5.62001	0.1277763	3.0454212	17	1	23 days	0.43	Williams	1998 PA ₁
1998 PB ₁	17.0	0.15	19980815	9.31146	350.08630	299.92023	5.96451	0.4306089	2.0251832	118	1	24 days	0.56	Williams	1998 PB ₁
1998 PD ₁	13.0	0.15	19980815	34.77840	108.38970	174.55679	9.99685	0.1645776	3.0223119	16	1	7 days	0.54	Williams	1998 PD ₁
1998 PG ₁	14.0	0.15	19980815	10.89464	273.53432	22.74910	7.45854	0.2289798	2.2675767	14	1	13 days	0.13	Williams	1998 PG ₁
1998 PJ ₁	16.5	0.15	19980815	61.35085	154.82024	93.46776	3.21775	0.1182683	2.3375433	14	1	16 days	0.47	Williams	1998 PJ ₁
1998 PK ₁	17.0	0.15	19980815	335.96757	232.31384	130.21716	2.43631	0.2568968	2.8463172	10	1	3 days	0.47	E Williams	1998 PK ₁
1998 PL ₁	14.0	0.15	19980815	294.28195	167.95724	244.18815	4.70420	0.1211450	2.4460150	19	1	12 days	0.52	Williams	1998 PL ₁
1998 PM ₁	16.5	0.15	19980815	346.07894	335.92471	1.10408	5.29600	0.2527186	2.3561523	10	1	15 days	0.25	Williams	1998 PM ₁
1998 PO ₁	13.5	0.15	19980815	160.66902	199.69818	275.64111	13.95136	0.1017311	2.4614469	6	1	5 days	0.46	Williams	1998 PO ₁
1998 PP ₁	12.5	0.15	19980726	292.96297	114.29953	290.65168	9.53482	0.0713601	3.2398989	28	1	58 days	0.56	Williams	1998 PP ₁
1998 QC	14.0	0.15	19980815	243.07694	160.47748	306.89381	4.52261	0.0766806	2.1765416	21	1	13 days	0.48	Williams	1998 QC
1998 QD	16.5	0.15	19980815	356.62682	187.06719	151.65583	2.94086	0.2129466	2.4138898	8	1	7 days	0.20	Williams	1998 QD
1998 QE	14.5	0.15	19980815	266.79066	94.32402	341.84785	2.32422	0.0513054	2.6642350	12	1	10 days	0.08	Williams	1998 QE
1998 QF	13.5	0.15	19980815	101.95898	248.21345	338.13844	8.39599	0.0910475	3.2002156	18	1	7 days	0.73	E Williams	1998 QF
1998 QG	16.5	0.15	19980815	30.97832	319.51906	336.14331	4.33142	0.1175344	2.3616699	8	1	10 days	0.36	Williams	1998 QG
1998 QH	15.0	0.15	19980815	55.21239	297.71806	335.92649	7.93537	0.0670071	2.4006132	20	1	9 days	0.54	Williams	1998 QH
1998 QL	14.5	0.15	19980815	323.57600	352.32198	16.51445	3.46726	0.1203436	2.7905421	14	1	6 days	0.69	Williams	1998 QL
1998 QM	17.0	0.15	19980815	8.54747	346.65550	318.64784	14.09007	0.2979246	2.3278028	42	1	11 days	0.41	Williams	1998 QM
1998 QN	16.5	0.15	19980815	342.54636	44.37320	315.20656	12.39084	0.3154352	2.3628902	43	1	6 days	0.46	Williams	1998 QN
1998 QO	16.5	0.15	19980815	359.22287	14.02006	319.30916	13.05875	0.2968002	2.4187430	23	1	10 days	0.57	Williams	1998 QO
1998 QP	21.5	0.15	19980706	320.35492	77.66640	327.02993	9.44012	0.5854522	1.7953931	188	1	7 days	0.67	Williams	1998 QP
1998 QQ	19.0	0.15	19980815	60.78958	220.33046	325.44730	36.73571	0.6800992	1.2333357	43	1	10 days	0.50	Williams	1998 QQ
1998 QS	16.0	0.15	19980815	13.30363	137.23406	175.40838	2.52094	0.1857243	2.4389763	8	1	14 days	0.16	Williams	1998 QS
1998 QT	15.0	0.15	19980815	45.93854	294.10843	327.14789	4.57666	0.1734973	2.2357257	23	1	13 days	0.84	Williams	1998 QT
1998 QU	15.5	0.15	19980815	22.18904	10.85956	287.92143	5.34506	0.1072381	2.3982836	27	1	13 days	0.79	Williams	1998 QU
1998 QW	15.0	0.15	19980815	4.45103	106.38041	213.10721	14.20868	0.1557703	2.5871030	16	1	8 days	0.89	Williams	1998 QW
1998 QX	15.5	0.15	19980815	0.86188	155.60794	165.74697	36.12565	0.1970201	2.7029433	14	1	8 days	0.78	Williams	1998 QX
1998 QY	14.5	0.15	19980815	8.46086	159.58933	148.10394	14.19762	0.1658923	2.5724192	20	1	10 days	0.41	Williams	1998 QY
1998 QZ	13.5	0.15	19980815	46.08048	117.87626	175.72726	1.68085	0.2317233	3.2237773	9	1	8 days	0.12	E Williams	1998 QZ

1998 QA ₁	18.5	0.15	19980815	15.70719	332.87594	299.24532	8.16392	0.5323426	2.1034236	117	1	16 days	0.50		Williams	1998 QA ₁
1998 QB ₁	18.5	0.15	19980706	344.11836	297.31433	30.90687	2.07063	0.4018790	2.2063665	31	1	64 days	0.80	M-v 5	Williams	1998 QB ₁
1998 QC ₁	19.2	0.15	19980904	335.03903	114.90452	308.85655	9.61578	0.5899541	1.9800672	69	1	18 days	0.64		Nakano	1998 QC ₁
1998 QE ₁	18.0	0.15	19980815	344.52969	218.21733	144.99080	13.80795	0.3241385	2.5243033	12	1	4 days	0.96		Williams	1998 QE ₁
1998 QF ₁	18.5	0.15	19980815	1.06450	18.56546	313.13968	6.41728	0.3304282	2.1790843	21	1	10 days	0.73		Williams	1998 QF ₁
1998 QG ₁	18.0	0.15	19980815	33.74868	54.97164	197.09177	6.37939	0.4402651	2.3835314	23	1	10 days	0.55		Williams	1998 QG ₁
1998 QH ₁	20.0	0.15	19980815	347.24364	214.94137	162.36111	12.41972	0.5478326	2.5417335	28	1	16 days	0.44		Nakano	1998 QH ₁
1998 QJ ₁	16.0	0.15	19980815	0.04896	3.90683	312.13433	23.48178	0.8202206	11.7995312	34	1	13 days	0.53		Nakano	1998 QJ ₁
1998 QK ₁	15.0	0.15	19980815	343.33422	41.43327	310.90879	6.53211	0.1398815	2.3058472	23	1	10 days	0.41		Williams	1998 QK ₁
1998 QL ₁	14.0	0.15	19980815	315.80954	180.88790	206.33711	3.88492	0.1256993	2.6974518	21	1	10 days	0.81		Williams	1998 QL ₁
1998 QO ₁	14.5	0.15	19980815	30.09925	145.42209	141.08209	7.19339	0.1850178	2.5684867	23	1	7 days	0.93		Williams	1998 QO ₁
1998 QP ₁	14.0	0.15	19980815	331.63600	28.81734	337.15568	12.33480	0.1214305	2.5520136	19	1	6 days	0.72	E	Williams	1998 QP ₁
1998 QQ ₁	15.0	0.15	19980815	301.21924	253.95940	156.22213	4.44063	0.1912086	2.4256515	22	1	14 days	0.57		Williams	1998 QQ ₁
1998 QR ₁	14.5	0.15	19980815	145.33924	293.01315	261.31501	5.49540	0.0862089	2.4617171	18	1	15 days	0.71		Williams	1998 QR ₁
1998 QS ₁	14.5	0.15	19980815	153.32499	103.07917	73.83084	3.33633	0.1409227	2.4135526	9	1	8 days	0.13		Williams	1998 QS ₁
1998 QU ₁	14.5	0.15	19980815	88.70602	80.95584	144.25432	12.39944	0.1122866	2.8930103	9	1	4 days	0.31	E	Williams	1998 QU ₁
1998 QV ₁	14.5	0.15	19980815	343.30613	210.49828	139.69534	6.13952	0.1729780	3.1206355	9	1	8 days	0.28		Williams	1998 QV ₁
1998 QW ₁	15.5	0.15	19980815	350.11813	9.77993	331.97718	9.52870	0.2197639	2.9186168	15	1	6 days	0.46	E	Williams	1998 QW ₁
1998 QX ₁	15.5	0.15	19980726	326.03853	76.93965	308.30926	6.06334	0.3385366	2.8667853	15	1	35 days	0.47		Williams	1998 QX ₁
1998 QZ ₁	16.5	0.15	19980815	337.53697	174.33630	187.38680	3.23045	0.2300304	2.2323545	11	1	4 days	0.27		Williams	1998 QZ ₁
1998 QB ₂	17.5	0.15	19980815	259.70328	107.75702	329.07856	28.21700	0.1601082	1.7808402	17	1	4 days	0.49		Williams	1998 QB ₂
1998 QC ₂	15.0	0.15	19980815	355.65463	17.21999	306.20497	13.65967	0.1978919	2.7600461	30	1	12 days	0.36		Williams	1998 QC ₂
1998 QD ₂	16.9	0.15	19980904	354.30562	43.36822	314.09037	14.79931	0.4256351	3.0518863	42	1	16 days	0.62		Nakano	1998 QD ₂
1998 QE ₂	16.5	0.15	19980815	35.67492	344.68831	250.99078	12.60148	0.5644230	2.4511006	52	1	8 days	0.67		Williams	1998 QE ₂
1998 QH ₂	15.8	0.15	19980904	149.80212	13.89183	168.97789	61.27537	0.3605603	1.4301307	49	1	15 days	0.67		Nakano	1998 QH ₂
1998 QM ₂	14.0	0.15	19980815	56.58463	65.61489	211.77325	5.17340	0.0873352	2.3522639	25	1	13 days	0.56		Williams	1998 QM ₂
1998 QP ₂	17.0	0.15	19980815	41.90724	308.26668	320.41777	5.63599	0.0691312	2.6542427	9	1	6 days	0.35		Williams	1998 QP ₂
1998 QS ₂	15.5	0.15	19980815	33.69377	305.42966	323.82422	5.62487	0.1900152	2.2700148	16	1	6 days	0.82		Williams	1998 QS ₂
1998 QT ₂	15.0	0.15	19980815	31.16653	305.06788	327.49747	27.26912	0.1858335	2.6285397	16	1	13 days	0.69		Williams	1998 QT ₂
1998 QW ₂	15.0	0.15	19980815	163.99673	198.84390	319.06529	28.47804	0.0449471	2.1977968	13	1	11 days	1.25	E	Williams	1998 QW ₂
1998 QZ ₂	16.5	0.15	19980815	344.92673	209.32796	143.81079	14.76131	0.2841297	2.5923359	13	1	10 days	0.66		Williams	1998 QZ ₂
1998 QB ₃	14.5	0.15	19980815	43.71637	127.56837	147.58919	35.18599	0.1028279	2.8749996	15	1	10 days	0.50		Williams	1998 QB ₃
1998 QE ₃	18.0	0.15	19980815	8.18520	355.35717	318.22236	9.15363	0.2566771	2.1856256	18	1	14 days	0.97		Williams	1998 QE ₃
1998 QF ₃	14.5	0.15	19980815	283.02602	87.95227	331.68116	20.44307	0.2195760	2.2682978	15	1	13 days	0.73		Williams	1998 QF ₃
1998 QG ₃	17.0	0.15	19980815	10.07043	357.75615	314.80098	12.70578	0.2288779	2.3580383	21	1	14 days	0.88		Williams	1998 QG ₃
1998 QJ ₃	16.0	0.15	19980815	4.10181	169.36365	154.37382	15.23639	0.2934577	2.6389907	13	1	13 days	1.08		Williams	1998 QJ ₃
1998 QK ₃	15.5	0.15	19980815	344.25175	36.40759	330.50387	18.36201	0.2946626	2.6086282	29	1	20 days	0.64		Williams	1998 QK ₃
1998 QM ₃	16.5	0.15	19980726	315.87686	42.27172	317.96704	19.73400	0.0779173	1.9158537	16	1	27 days	0.90		Williams	1998 QM ₃
1998 QQ ₃	15.5	0.15	19980815	315.82996	70.45771	331.39297	31.23568	0.2884644	2.8531602	17	1	7 days	0.68	E	Williams	1998 QQ ₃
1998 QV ₃	19.9	0.15	19980815	348.06209	33.33716	333.02323	14.24948	0.5087479	2.3130943	51	1	16 days	0.62		Nakano	1998 QV ₃
1998 QW ₃	16.0	0.15	19980706	352.84512	128.18490	187.30400	6.09504	0.3793169	2.7681259	51	1	60 days	0.41	M-v 6	Williams	1998 QW ₃
1998 QX ₃	13.5	0.15	19980815	320.76812	239.71144	142.59144	10.77110	0.1424665	3.1240933	20	1	7 days	0.74	E	Williams	1998 QX ₃
1998 QA ₄	17.0	0.15	19980815	347.52055	356.36010	348.52465	12.17784	0.2739314	2.6726124	9	1	8 days	0.39		Williams	1998 QA ₄
1998 QB ₄	18.0	0.15	19980815	354.99274	251.10519	80.18766	5.58623	0.2272209	2.3639184	5	1	8 days	0.25		Williams	1998 QB ₄
1998 QC ₄	17.5	0.15	19980815	354.64983	347.35794	350.43719	9.72938	0.1702621	2.2812414	5	1	2 days	0.33	E	Williams	1998 QC ₄
1998 QD ₄	17.0	0.15	19980815	354.33901	293.77587	48.18807	6.04724	0.1294069	2.2709668	7	1	15 days	0.14		Williams	1998 QD ₄
1998 QE ₄	14.5	0.15	19980815	32.29420	180.05091	115.46544	11.15185	0.1628142	3.1578233	5	1	2 days	0.34	E	Williams	1998 QE ₄
1998 QH ₄	17.5	0.15	19980815	353.94926	243.68625	92.30799	3.71787	0.1781533	2.5025884	6	1	4 days	0.37		Williams	1998 QH ₄
1998 QK ₄	16.0	0.15	19980815	325.78860	288.12763	75.46999	8.80917	0.1964944	2.2559572	10	1	12 days	0.32		Williams	1998 QK ₄
1998 QM ₄	14.0	0.15	19980815	12.57806	262.61014	48.66712	15.64447	0.1581856	2.6389478	12	1	13 days	0.23		Williams	1998 QM ₄
1998 QO ₄	13.5	0.15	19980815	8.20834	27.27274	301.38935	13.06059	0.0422950	3.1950824	22	1	6 days	0.56		Williams	1998 QO ₄
1998 QP ₄	15.0	0.15	19980815	355.50685	152.09733	184.60753	8.24545	0.2477554	3.0986269	15	1	8 days	0.28		Williams	1998 QP ₄
1998 QQ ₄	16.5	0.15	19980815	40.41545	299.29699	324.41217	31.13680	0.2736283	2.7143598	9	1	5 days	0.30	E	Williams	1998 QQ ₄

1998 QS ₄	16.0	0.15	19980815	52.45050	312.23555	309.41000	13.02807	0.1660566	3.0976528	9	1	5 days	0.30	Williams	1998 QS ₄
1998 QT ₄	15.5	0.15	19980815	344.43766	178.63673	171.87623	11.41638	0.1650650	2.5218254	28	1	14 days	0.54	Williams	1998 QT ₄
1998 QU ₄	15.0	0.15	19980815	325.76633	79.20278	293.61480	7.63009	0.1096562	3.0070787	12	1	8 days	0.47	Williams	1998 QU ₄
1998 QV ₄	15.5	0.15	19980815	18.65480	353.60652	308.49229	12.50065	0.2073918	2.5493991	25	1	8 days	0.66	Williams	1998 QV ₄
1998 QX ₄	15.0	0.15	19980815	316.97478	145.10054	240.88550	5.60508	0.1379559	2.3762718	25	1	9 days	0.67	Williams	1998 QX ₄
1998 QY ₄	16.5	0.15	19980815	9.44156	355.13114	316.06006	15.61856	0.3097578	2.6373611	28	1	10 days	0.74	Williams	1998 QY ₄
1998 QZ ₄	14.5	0.15	19980815	28.69031	84.37658	197.75900	9.10860	0.2700438	3.0754245	27	1	9 days	0.61	Williams	1998 QZ ₄
1998 QA ₅	14.5	0.15	19980815	266.16755	198.70262	236.83005	6.12386	0.0871160	2.4059073	25	1	9 days	0.56	Williams	1998 QA ₅
1998 QB ₅	16.0	0.15	19980815	320.32149	151.56863	228.69932	5.99504	0.1192220	2.3429327	27	1	9 days	0.89	Williams	1998 QB ₅
1998 QE ₅	12.0	0.15	19980815	142.40253	244.96860	294.48410	10.63597	0.2300540	3.1360491	12	1	10 days	0.30	Williams	1998 QE ₅
1998 QF ₅	16.5	0.15	19980815	3.98534	86.82794	238.48317	5.07631	0.1626520	2.4137918	9	1	5 days	0.37	Williams	1998 QF ₅
1998 QJ ₅	14.5	0.15	19980815	334.70058	113.84866	248.81157	3.66372	0.1152085	2.7161502	25	1	14 days	0.42	Williams	1998 QJ ₅
1998 QL ₅	16.5	0.15	19980815	294.38632	138.71355	272.91339	3.78190	0.1408753	2.2044078	9	1	8 days	0.28	Williams	1998 QL ₅
1998 QN ₅	17.0	0.15	19980815	328.33425	65.99948	308.82228	13.65670	0.2102181	2.3906801	13	1	10 days	0.75	Williams	1998 QN ₅
1998 QO ₅	15.5	0.15	19980815	332.39547	193.69790	171.67707	28.03370	0.1072799	2.5276636	14	1	8 days	0.75	Williams	1998 QO ₅
1998 QP ₅	16.5	0.15	19980815	270.03991	125.42678	313.18812	18.50918	0.1036368	1.8994571	13	1	8 days	1.02	Williams	1998 QP ₅
1998 QQ ₅	16.0	0.15	19980815	60.54640	85.45187	177.61273	20.66413	0.1067169	1.8919027	17	1	11 days	0.48	Williams	1998 QQ ₅
1998 QR ₅	15.5	0.15	19980815	314.44100	99.08622	318.25937	18.14680	0.2955346	2.2827545	14	1	8 days	0.88	E Williams	1998 QR ₅
1998 QS ₅	14.5	0.15	19980815	321.06182	57.17639	338.44049	6.77425	0.2323960	2.7463300	18	1	10 days	0.53	Williams	1998 QS ₅
1998 QT ₅	13.5	0.15	19980815	255.65467	110.57512	340.74864	9.87318	0.0816726	2.9575648	17	1	10 days	0.62	Williams	1998 QT ₅
1998 QV ₅	17.0	0.15	19980815	340.02102	40.32343	326.08777	12.22885	0.2762278	2.5780664	15	1	4 days	0.83	Williams	1998 QV ₅
1998 QW ₅	15.0	0.15	19980815	36.03208	42.42826	243.98327	7.30784	0.1650376	2.9527429	16	1	7 days	1.17	Williams	1998 QW ₅
1998 QZ ₅	16.0	0.15	19980815	355.41862	8.70192	5.27229	5.16465	0.2528883	2.4824530	9	1	7 days	0.56	E Williams	1998 QZ ₅
1998 QG ₆	14.0	0.15	19980815	350.90738	190.36707	201.99122	20.57706	0.1417201	3.2316328	9	1	7 days	0.14	E Williams	1998 QG ₆
1998 QH ₆	14.5	0.15	19980815	94.08883	81.03232	203.02117	15.53525	0.0331310	2.9025390	9	1	7 days	0.25	E Williams	1998 QH ₆
1998 QX ₆	15.5	0.15	19980726	346.72564	11.30497	311.23657	13.23282	0.1526654	2.3433022	32	1	45 days	0.55	Williams	1998 QX ₆
1998 QC ₇	13.5	0.15	19980706	33.76381	119.39005	144.48195	11.03453	0.0702953	2.9851420	20	1	61 days	0.51	M-v 5 Williams	1998 QC ₇
1998 QQ ₇	14.5	0.15	19980726	41.51776	262.84109	349.45701	3.35465	0.1464796	2.1732114	16	1	58 days	0.67	Williams	1998 QQ ₇
1998 QT ₇	15.0	0.15	19980815	338.64074	34.87854	313.74199	4.16634	0.2291318	2.4368325	13	1	10 days	0.45	Williams	1998 QT ₇
1998 QU ₇	13.5	0.15	19980815	322.31616	222.69212	132.93376	12.23052	0.0704043	3.0180426	12	1	10 days	0.93	Williams	1998 QU ₇
1998 QV ₇	15.0	0.15	19980706	6.33032	146.29217	145.19340	3.11028	0.1660925	2.4699789	22	1	86 days	0.58	M-v 5 Williams	1998 QV ₇
1998 QC ₈	14.5	0.15	19980815	352.45899	82.67326	246.06975	5.69391	0.2345057	2.7644967	15	1	10 days	0.62	Williams	1998 QC ₈
1998 QJ ₈	13.0	0.15	19980726	272.70242	276.73882	140.57191	14.70798	0.1765773	3.1715257	16	1	44 days	0.87	Williams	1998 QJ ₈
1998 QK ₈	14.5	0.15	19980706	343.22740	182.56905	143.14120	14.56772	0.1496172	2.6129915	26	1	87 days	0.73	M-v 4 Williams	1998 QK ₈
1998 QN ₈	13.5	0.15	19980815	339.33752	25.16084	315.60740	3.33826	0.1322088	2.6948569	15	1	10 days	0.59	Williams	1998 QN ₈
1998 QO ₈	15.0	0.15	19980815	334.02033	218.41112	131.09178	6.66257	0.1458299	2.3521254	12	1	12 days	1.08	Williams	1998 QO ₈
1998 QQ ₈	13.0	0.15	19980815	328.62980	226.60702	121.50645	6.95881	0.0601820	2.7914374	12	1	12 days	0.55	Williams	1998 QQ ₈
1998 QT ₈	13.5	0.15	19980815	336.18524	279.31977	64.85644	4.83488	0.1071158	2.6795270	13	1	12 days	0.63	Williams	1998 QT ₈
1998 QU ₈	14.5	0.15	19980815	2.36190	342.25008	328.65116	13.02721	0.1673282	2.5923706	12	1	12 days	0.75	Williams	1998 QU ₈
1998 QC ₉	14.5	0.15	19980815	334.87209	54.60790	304.83914	6.31066	0.2640759	2.8178410	12	1	10 days	0.47	Williams	1998 QC ₉
1998 QH ₉	15.0	0.15	19980815	358.69514	162.27669	156.86081	15.54785	0.2422134	2.7288008	12	1	11 days	0.40	Williams	1998 QH ₉
1998 QS ₉	13.5	0.15	19980815	318.94312	46.40535	325.09895	12.09238	0.1602094	2.6467322	12	1	10 days	0.42	Williams	1998 QS ₉
1998 QU ₉	14.5	0.15	19980815	274.92615	71.75200	334.27198	6.35111	0.0426395	2.1937394	12	1	12 days	0.48	Williams	1998 QU ₉
1998 QX ₉	13.5	0.15	19980815	313.40713	260.93426	117.50568	5.88882	0.1585037	3.0220704	12	1	12 days	0.87	Williams	1998 QX ₉
1998 QB ₁₀	14.5	0.15	19980815	345.12788	203.28625	139.13362	2.42153	0.2224729	2.4711257	13	1	10 days	0.58	Williams	1998 QB ₁₀
1998 QH ₁₀	14.5	0.15	19980815	19.82033	1.78024	296.70366	8.35018	0.0197607	2.5336132	12	1	11 days	0.78	Williams	1998 QH ₁₀
1998 QR ₁₀	13.5	0.15	19980815	73.47429	287.62350	304.76960	1.16374	0.1083407	2.9191000	16	1	11 days	0.50	Williams	1998 QR ₁₀
1998 QS ₁₀	15.0	0.15	19980726	27.75853	131.13368	143.18943	12.18735	0.1689783	2.6620669	25	1	55 days	0.52	Williams	1998 QS ₁₀
1998 QT ₁₀	15.0	0.15	19980815	335.12986	214.71358	139.89286	14.29040	0.1876473	2.6514498	13	1	10 days	0.62	Williams	1998 QT ₁₀
1998 QV ₁₀	15.5	0.15	19980815	340.84685	29.12288	324.19383	5.02886	0.2797973	2.6786254	13	1	10 days	0.68	Williams	1998 QV ₁₀
1998 QX ₁₀	12.5	0.15	19980815	201.59319	350.02598	127.88166	11.95596	0.0653578	2.9645575	19	1	13 days	0.39	Williams	1998 QX ₁₀
1998 QA ₁₁	15.5	0.15	19980815	40.86580	279.89988	349.85422	5.69919	0.0946450	1.9801340	18	1	30 days	0.27	Williams	1998 QA ₁₁
1998 QA ₁₁	15.5	0.15	19980815	40.35155	280.51521	349.88632	5.68965	0.0940215	1.9792408	15	1	13 days	0.27	Williams	1998 QA ₁₁

1998 QD ₁₁	13.5	0.15	19980706	39.84982	124.11575	123.85663	18.81833	0.1984573	2.6244201	22	1	98 days	0.52	M-v	4	Williams	1998 QD ₁₁
1998 QE ₁₁	13.0	0.15	19980815	359.85872	346.94028	330.00971	21.99624	0.1038477	3.1643602	13	1	12 days	0.63			Williams	1998 QE ₁₁
1998 QJ ₁₁	15.0	0.15	19980815	12.58712	341.10510	320.03725	12.64114	0.1746014	2.6752213	12	1	10 days	0.89			Williams	1998 QJ ₁₁
1998 QL ₁₁	15.5	0.15	19980815	342.77096	180.33954	165.03302	0.26837	0.1902508	2.3940109	12	1	10 days	0.49			Williams	1998 QL ₁₁
1998 QR ₁₁	15.5	0.15	19980815	4.02796	35.02633	279.51581	3.43095	0.1987029	2.3799191	13	1	11 days	0.56			Williams	1998 QR ₁₁
1998 QT ₁₁	14.0	0.15	19980815	350.25962	173.73081	159.25536	10.63623	0.1341316	3.1506861	12	1	11 days	0.81			Williams	1998 QT ₁₁
1998 QV ₁₁	16.0	0.15	19980815	3.06622	51.30729	265.38097	3.01869	0.1724517	2.3417078	13	1	11 days	0.53			Williams	1998 QV ₁₁
1998 QC ₁₂	14.0	0.15	19980726	14.41615	11.11444	289.21708	8.26034	0.0714550	2.5299461	19	1	35 days	0.90			Williams	1998 QC ₁₂
1998 QD ₁₂	16.5	0.15	19980815	323.39823	194.99373	179.02420	6.42800	0.1833019	2.2806341	14	1	11 days	1.08			Williams	1998 QD ₁₂
1998 QG ₁₂	15.0	0.15	19980815	94.16179	11.97459	207.87812	6.04498	0.0728209	2.3520032	15	1	30 days	0.58			Williams	1998 QG ₁₂
1998 QH ₁₂	16.0	0.15	19980815	18.18172	20.98812	278.57775	6.80697	0.1295587	2.2583479	15	1	10 days	0.71			Williams	1998 QH ₁₂
1998 QK ₁₂	14.0	0.15	19980815	346.77804	52.59149	286.74112	9.21132	0.1045764	3.0197236	13	1	13 days	0.70			Williams	1998 QK ₁₂
1998 QQ ₁₂	16.5	0.15	19980815	17.30751	125.01332	171.10807	6.83342	0.2107116	2.1872992	23	1	30 days	0.42			Williams	1998 QQ ₁₂
1998 QU ₁₂	16.0	0.15	19980726	334.14267	168.43418	183.96476	3.65303	0.2036202	2.2177110	16	1	35 days	0.37			Williams	1998 QU ₁₂
1998 QY ₁₂	16.0	0.15	19980815	323.33082	94.84582	297.29944	4.14052	0.3469358	2.5888626	13	1	11 days	1.02			Williams	1998 QY ₁₂
1998 QE ₁₃	14.0	0.15	19980815	263.92494	308.45073	135.70072	6.41187	0.2616173	2.3015768	15	1	10 days	0.43			Williams	1998 QE ₁₃
1998 QM ₁₃	14.5	0.15	19980815	41.67725	131.14360	130.37963	14.07619	0.1824363	2.7074835	13	1	12 days	0.59			Williams	1998 QM ₁₃
1998 QT ₁₃	15.5	0.15	19980815	307.40436	248.83677	149.39244	2.37440	0.2288816	2.3184882	12	1	10 days	0.76			Williams	1998 QT ₁₃
1998 QU ₁₃	15.0	0.15	19980815	303.65358	74.50251	320.79175	5.43780	0.1620775	2.2611599	13	1	10 days	0.67			Williams	1998 QU ₁₃
1998 QW ₁₃	15.5	0.15	19980815	14.26863	351.06236	306.14324	2.23828	0.2548834	2.5331785	12	1	11 days	0.33	E		Williams	1998 QW ₁₃
1998 QZ ₁₃	14.5	0.15	19980726	357.66503	119.66447	200.89782	3.46479	0.0928626	2.7494711	15	1	30 days	0.40			Williams	1998 QZ ₁₃
1998 QA ₁₄	14.0	0.15	19980726	171.14765	349.12749	157.21913	13.52911	0.1196108	2.6822146	15	1	33 days	1.01			Williams	1998 QA ₁₄
1998 QB ₁₄	15.5	0.15	19980815	318.10523	206.84135	181.67834	5.73480	0.2377639	2.4650026	15	1	11 days	0.57			Williams	1998 QB ₁₄
1998 QE ₁₄	14.5	0.15	19980706	1.01685	150.39621	162.32517	11.90336	0.1325337	3.0516045	24	1	72 days	0.60	M-v	5	Williams	1998 QE ₁₄
1998 QF ₁₄	15.0	0.15	19980726	107.79999	299.83110	261.72008	3.55619	0.0938395	2.2500797	15	1	33 days	0.67			Williams	1998 QF ₁₄
1998 QG ₁₄	13.5	0.15	19980815	271.39875	115.48610	316.83369	16.98145	0.1833420	3.0438917	13	1	11 days	0.78			Williams	1998 QG ₁₄
1998 QK ₁₄	15.0	0.15	19980726	339.69272	31.63484	315.58555	14.36663	0.1800449	2.6080465	21	1	34 days	0.41			Williams	1998 QK ₁₄
1998 QK ₁₄	15.0	0.15	19980726	339.69272	31.63484	315.58555	14.36663	0.1800449	2.6080465	21	1	26 days	0.41			Williams	1998 QK ₁₄
1998 QP ₁₄	13.5	0.15	19980815	141.11173	239.71925	292.86473	13.34781	0.0906006	2.4703490	14	1	10 days	0.91			Williams	1998 QP ₁₄
1998 QB ₁₅	14.0	0.15	19980726	347.01144	181.06703	149.67804	9.96670	0.1647367	2.7708242	15	1	55 days	0.45			Williams	1998 QB ₁₅
1998 QC ₁₅	14.5	0.15	19980726	27.74671	336.04338	303.65811	8.37472	0.1076642	2.7379250	11	1	21 days	1.07			Williams	1998 QC ₁₅
1998 QN ₁₅	15.5	0.15	19980815	335.52816	171.77233	207.85586	7.09941	0.2615283	2.6628968	21	1	13 days	0.90			Williams	1998 QN ₁₅
1998 QO ₁₅	14.0	0.15	19980815	315.03287	109.89688	286.84916	7.77521	0.1069652	3.0560331	18	1	10 days	0.84			Williams	1998 QO ₁₅
1998 QR ₁₅	18.5	0.15	19980815	346.77666	54.06885	322.56416	9.67756	0.5638564	2.7451907	75	1	16 days	0.42			Williams	1998 QR ₁₅
1998 QS ₁₅	17.5	0.15	19980815	25.71889	109.98264	165.19401	27.76981	0.2698164	1.8783581	41	1	3 days	0.63			Williams	1998 QS ₁₅
1998 QT ₁₅	15.5	0.15	19980815	336.11333	78.57790	306.42358	9.74865	0.2082567	2.5595679	10	1	7 days	0.47			Williams	1998 QT ₁₅
1998 QU ₁₅	14.0	0.15	19980815	208.11233	337.20313	164.62468	9.00717	0.1746184	2.5595646	23	1	10 days	0.70			Williams	1998 QU ₁₅
1998 QW ₁₅	13.5	0.15	19980815	299.74618	205.19259	218.98075	1.10853	0.2180924	3.1158009	8	1	7 days	1.23	E		Williams	1998 QW ₁₅
1998 QX ₁₅	15.5	0.15	19980815	321.79158	111.61751	265.99191	9.52650	0.2777286	2.7223400	9	1	2 days	0.10			Williams	1998 QX ₁₅
1998 QZ ₁₅	13.5	0.15	19980706	14.69410	7.77730	287.33439	12.74962	0.1563749	2.5496015	36	1	67 days	0.43	M-v	4	Williams	1998 QZ ₁₅
1998 QB ₁₆	14.0	0.15	19980726	322.98842	202.01249	162.74958	10.52181	0.1066046	2.9698764	22	1	35 days	0.65			Williams	1998 QB ₁₆
1998 QL ₁₆	15.5	0.15	19980815	326.88666	204.53700	168.81619	12.22468	0.1900551	2.6846513	15	1	13 days	0.87			Williams	1998 QL ₁₆
1998 QO ₁₆	15.5	0.15	19980726	11.31851	137.40793	159.81656	12.59674	0.2716737	2.6380520	15	1	35 days	0.56			Williams	1998 QO ₁₆
1998 QR ₁₆	16.0	0.15	19980815	340.16949	52.44951	301.41976	3.77745	0.1820246	2.3689229	16	1	13 days	0.62			Williams	1998 QR ₁₆
1998 QT ₁₆	15.0	0.15	19980726	320.10049	33.54416	341.89168	3.29169	0.2035988	2.5499636	18	1	27 days	0.48			Williams	1998 QT ₁₆
1998 QC ₁₇	14.5	0.15	19980815	115.92300	79.49404	126.81384	6.40587	0.0263994	2.3810674	11	1	10 days	0.44			Williams	1998 QC ₁₇
1998 QD ₁₇	15.0	0.15	19980726	352.75311	196.12639	130.82685	7.51458	0.1353519	2.3550040	15	1	43 days	0.37			Williams	1998 QD ₁₇
1998 QE ₁₇	14.0	0.15	19980726	303.04580	72.19466	338.48226	10.67306	0.3047949	2.6275387	15	1	27 days	0.95			Williams	1998 QE ₁₇
1998 QM ₁₇	14.5	0.15	19980815	28.26676	155.24112	130.23861	4.26515	0.1681994	2.7402284	11	1	10 days	0.64			Williams	1998 QM ₁₇
1998 QR ₁₇	14.0	0.15	19980815	16.61754	3.77516	304.11955	4.09883	0.0419261	2.7504775	15	1	13 days	0.53			Williams	1998 QR ₁₇
1998 QU ₁₇	14.5	0.15	19980815	333.73739	67.47817	296.35324	5.71050	0.1570479	3.1996442	17	1	14 days	0.78			Williams	1998 QU ₁₇
1998 QW ₁₇	15.5	0.15	19980815	7.42652	22.25117	293.20464	3.55868	0.1918777	2.3777889	18	1	14 days	0.42			Williams	1998 QW ₁₇
1998 QZ ₁₇	14.5	0.15	19980726	191.05107	273.85810	218.74592	4.93492	0.0687890	2.3425728	18	1	35 days	0.80			Williams	1998 QZ ₁₇

1998 QL ₁₈	14.5	0.15	19980726	298.26199	59.05285	341.28496	4.19873	0.1451710	3.1385084	15	1	23 days	0.48	Williams	1998 QL ₁₈
1998 QS ₁₈	16.0	0.15	19980815	1.68789	33.66447	290.80476	3.75588	0.2090617	2.1805793	12	1	9 days	0.45	Williams	1998 QS ₁₈
1998 QA ₁₉	15.5	0.15	19980726	15.25903	266.70169	26.67067	3.88290	0.1886959	2.3231294	16	1	27 days	0.77	Williams	1998 QA ₁₉
1998 QB ₁₉	13.5	0.15	19980815	325.26942	241.50485	127.69264	10.61930	0.1289212	2.9901189	13	1	10 days	0.65	Williams	1998 QB ₁₉
1998 QD ₁₉	14.0	0.15	19980815	68.49279	108.95149	140.39624	13.33455	0.0816730	3.1181503	11	1	10 days	0.95	E Williams	1998 QD ₁₉
1998 QE ₁₉	15.0	0.15	19980815	60.88041	116.64342	137.83738	12.69828	0.1027129	2.6114122	12	1	10 days	0.92	Williams	1998 QE ₁₉
1998 QG ₁₉	13.0	0.15	19980815	315.60991	32.98623	344.09008	10.40139	0.0774982	3.4253014	12	1	10 days	0.70	Williams	1998 QG ₁₉
1998 QK ₁₉	14.0	0.15	19980815	19.85746	178.10575	122.72488	7.90101	0.1111954	2.4324613	12	1	10 days	0.78	Williams	1998 QK ₁₉
1998 QM ₁₉	16.0	0.15	19980815	343.97951	10.49316	341.76133	6.52933	0.2440954	2.6218413	12	1	10 days	0.79	Williams	1998 QM ₁₉
1998 QO ₁₉	15.5	0.15	19980815	317.22273	250.30616	134.67314	5.09275	0.1782542	2.3398596	12	1	10 days	0.68	Williams	1998 QO ₁₉
1998 QA ₂₀	14.5	0.15	19980815	323.56605	79.88284	304.94590	11.38662	0.2199873	2.6687977	22	1	15 days	0.46	Williams	1998 QA ₂₀
1998 QB ₂₀	15.0	0.15	19980815	332.85000	98.94678	274.59961	6.37253	0.2334494	3.1588556	15	1	9 days	0.80	Williams	1998 QB ₂₀
1998 QC ₂₀	14.5	0.15	19980815	12.25212	136.90328	168.08954	16.90348	0.2998116	3.0976900	34	1	29 days	0.48	Williams	1998 QC ₂₀
1998 QD ₂₀	14.0	0.15	19980815	292.10933	223.26447	186.09074	11.07152	0.0959717	2.9421015	22	1	14 days	0.67	Williams	1998 QD ₂₀
1998 QE ₂₀	16.0	0.15	19980815	347.78017	116.10056	229.87038	4.13459	0.1570543	2.2145895	13	1	9 days	0.91	Williams	1998 QE ₂₀
1998 QF ₂₀	16.0	0.15	19980815	324.25896	138.09870	244.90675	4.68022	0.2110239	2.3220280	13	1	9 days	0.51	Williams	1998 QF ₂₀
1998 QK ₂₀	15.0	0.15	19980815	333.92121	121.31192	237.38572	3.14768	0.0602213	2.4855314	13	1	9 days	0.70	Williams	1998 QK ₂₀
1998 QL ₂₀	16.0	0.15	19980815	350.93436	102.63716	240.52467	2.53120	0.2358565	2.3749218	12	1	9 days	0.50	Williams	1998 QL ₂₀
1998 QM ₂₀	12.0	0.15	19980815	203.17042	320.56940	169.38636	11.94765	0.0513671	3.0255258	13	1	9 days	0.25	Williams	1998 QM ₂₀
1998 QO ₂₀	16.5	0.15	19980815	356.84592	150.20666	183.21164	3.28580	0.2233842	2.4101749	12	1	9 days	0.69	Williams	1998 QO ₂₀
1998 QO ₂₁	16.0	0.15	19980726	359.17526	331.93038	347.84703	4.86038	0.1715206	2.3169072	16	1	27 days	0.50	Williams	1998 QO ₂₁
1998 QP ₂₁	16.0	0.15	19980815	0.61233	315.16962	10.56392	2.82862	0.0668923	2.1577093	13	1	10 days	1.26	E Williams	1998 QP ₂₁
1998 QQ ₂₁	16.5	0.15	19980726	340.23627	344.64651	4.18592	2.88853	0.2226897	2.3309990	15	1	27 days	0.60	Williams	1998 QQ ₂₁
1998 QW ₂₁	15.5	0.15	19980815	321.02307	215.10064	165.73753	5.39260	0.1449819	2.3669658	16	1	10 days	0.84	Williams	1998 QW ₂₁
1998 QX ₂₁	14.0	0.15	19980815	74.18218	287.19953	318.31647	7.8252	0.0955986	2.3694235	11	1	9 days	0.38	Williams	1998 QX ₂₁
1998 QZ ₂₁	16.0	0.15	19980815	352.90932	57.64435	282.53570	2.51005	0.1944695	2.5172828	13	1	9 days	0.81	Williams	1998 QZ ₂₁
1998 QA ₂₂	13.0	0.15	19980815	23.61926	142.84812	161.29965	15.29170	0.0733933	3.1886286	16	1	22 days	0.42	Williams	1998 QA ₂₂
1998 QB ₂₂	14.0	0.15	19980815	291.88228	185.52737	225.94239	2.56464	0.1027469	3.2030121	11	1	9 days	0.89	Williams	1998 QB ₂₂
1998 QE ₂₂	15.5	0.15	19980815	22.79914	48.80128	244.02807	2.66975	0.2360375	2.5823848	13	1	10 days	0.40	Williams	1998 QE ₂₂
1998 QJ ₂₂	16.0	0.15	19980815	325.24093	130.54462	263.18899	4.19010	0.3140212	2.6107962	15	1	10 days	0.88	Williams	1998 QJ ₂₂
1998 QK ₂₂	15.0	0.15	19980815	355.48900	23.58546	314.37757	13.60999	0.1600285	2.6453103	20	1	10 days	0.63	Williams	1998 QK ₂₂
1998 QO ₂₂	15.0	0.15	19980726	341.99917	311.26051	33.49566	3.73213	0.2063491	2.4029568	16	1	27 days	0.73	Williams	1998 QO ₂₂
1998 QP ₂₂	16.0	0.15	19980815	329.51143	299.85875	69.74255	3.69624	0.1889862	2.4091743	12	1	10 days	0.92	Williams	1998 QP ₂₂
1998 QQ ₂₂	15.0	0.15	19980815	311.42734	323.31503	72.35905	4.17202	0.2089844	2.5894700	12	1	10 days	0.70	Williams	1998 QQ ₂₂
1998 QS ₂₂	14.0	0.15	19980726	4.39651	249.61692	65.38828	4.45082	0.1057194	2.6448109	16	1	27 days	0.49	Williams	1998 QS ₂₂
1998 QW ₂₂	14.5	0.15	19980726	246.14457	70.50198	14.25051	3.87418	0.0910653	2.3010250	16	1	27 days	0.60	Williams	1998 QW ₂₂
1998 QX ₂₂	14.0	0.15	19980815	283.92130	282.38758	136.25125	16.66159	0.1209683	3.0998965	12	1	10 days	0.62	Williams	1998 QX ₂₂
1998 QY ₂₂	14.0	0.15	19980726	329.11816	346.17594	18.82088	5.28873	0.1664847	3.1253914	19	1	27 days	0.64	Williams	1998 QY ₂₂
1998 QB ₂₃	13.5	0.15	19980815	285.54236	33.25456	25.15996	5.89594	0.1419727	3.1534314	11	1	10 days	0.68	Williams	1998 QB ₂₃
1998 QE ₂₃	14.0	0.15	19980815	257.15203	30.45374	58.95786	3.26353	0.1739630	2.4068570	12	1	10 days	0.71	Williams	1998 QE ₂₃
1998 QF ₂₃	14.5	0.15	19980815	321.40645	26.97054	348.69686	10.37070	0.1166005	2.6496606	13	1	10 days	0.58	Williams	1998 QF ₂₃
1998 QJ ₂₃	16.5	0.15	19980815	28.05765	290.78228	351.46824	5.41562	0.2359725	2.3710065	13	1	10 days	0.59	Williams	1998 QJ ₂₃
1998 QY ₂₃	15.5	0.15	19980815	11.77936	127.80371	186.55803	6.19019	0.1356689	2.4043658	21	1	13 days	0.76	Williams	1998 QY ₂₃
1998 QZ ₂₃	15.5	0.15	19980815	323.21140	203.51077	183.30440	7.77296	0.2219282	2.7133619	11	1	9 days	0.87	Williams	1998 QZ ₂₃
1998 QA ₂₄	15.5	0.15	19980815	300.35661	190.10569	212.25592	5.16036	0.1073511	2.2834037	12	1	9 days	0.89	Williams	1998 QA ₂₄
1998 QB ₂₄	14.5	0.15	19980815	302.07859	129.74804	272.99001	5.73203	0.1204513	2.3988046	12	1	9 days	0.49	Williams	1998 QB ₂₄
1998 QC ₂₄	13.5	0.15	19980815	354.75837	36.90033	303.68739	11.06669	0.0654028	2.9499189	13	1	9 days	0.49	Williams	1998 QC ₂₄
1998 QE ₂₄	14.5	0.15	19980815	65.65003	323.68740	293.15707	5.62587	0.0952273	2.4695076	12	1	9 days	0.64	Williams	1998 QE ₂₄
1998 QG ₂₄	16.0	0.15	19980815	333.21976	181.35367	199.20121	4.06981	0.3108151	2.7309331	14	1	11 days	0.59	Williams	1998 QG ₂₄
1998 QJ ₂₄	12.5	0.15	19980815	208.40606	323.25162	167.71093	16.07511	0.1348914	3.2927329	11	1	10 days	0.69	Williams	1998 QJ ₂₄
1998 QQ ₂₄	13.5	0.15	19980815	267.17406	116.33500	311.99205	9.12369	0.0158079	3.2358905	15	1	11 days	0.86	Williams	1998 QQ ₂₄
1998 QT ₂₄	15.0	0.15	19980815	145.93139	234.55902	307.28566	4.93410	0.0670576	2.2470636	11	1	9 days	0.79	Williams	1998 QT ₂₄
1998 QV ₂₄	15.0	0.15	19980815	303.77134	241.98326	168.38194	4.67306	0.2096616	2.4237100	12	1	9 days	0.47	Williams	1998 QV ₂₄

1998 QW ₂₄	14.5	0.15	19980815	344.73185	25.35743	326.26197	8.26629	0.1401743	2.9466447	18	1	10 days	0.97	Williams	1998 QW ₂₄
1998 QZ ₂₅	14.0	0.15	19980815	315.98000	19.26046	16.36513	2.68488	0.1252868	2.4445644	16	1	10 days	0.60	Williams	1998 QZ ₂₅
1998 QB ₂₆	15.0	0.15	19980815	6.99849	348.28089	337.65635	1.92311	0.2338848	2.3980155	21	1	15 days	0.43	Williams	1998 QB ₂₆
1998 QJ ₂₆	16.0	0.15	19980815	20.73432	138.26580	163.65218	11.03146	0.2264344	2.3961913	22	1	27 days	1.08	Williams	1998 QJ ₂₆
1998 QM ₂₆	17.0	0.15	19980815	317.86617	239.24059	144.06168	2.60905	0.1934499	2.3873943	8	1	3 days	0.71	Williams	1998 QM ₂₆
1998 QN ₂₆	16.0	0.15	19980815	315.22982	49.80976	329.11822	9.69165	0.2526792	2.6430121	7	1	5 days	0.22	Williams	1998 QN ₂₆
1998 QO ₂₆	13.0	0.15	19980815	251.17148	258.17061	209.42913	4.56840	0.2571862	3.2233889	10	1	9 days	0.70	Williams	1998 QO ₂₆
1998 QP ₂₆	17.5	0.15	19980815	4.30419	297.57635	26.12578	4.18263	0.1561848	2.6001746	7	1	8 days	0.40	Williams	1998 QP ₂₆
1998 QQ ₂₆	17.5	0.15	19980815	20.58547	204.58215	95.45588	3.82676	0.1748589	2.3508414	8	1	6 days	0.31	Williams	1998 QQ ₂₆
1998 QS ₂₆	15.0	0.15	19980815	344.91253	131.94601	222.66284	3.28526	0.0703913	2.4307729	17	1	10 days	1.23	Williams	1998 QS ₂₆
1998 QF ₂₇	16.5	0.15	19980815	295.92655	226.84159	176.61287	19.29765	0.0554843	1.8398112	13	1	6 days	0.83	E Williams	1998 QF ₂₇
1998 QJ ₂₇	16.0	0.15	19980815	14.26984	357.49705	327.44806	17.81284	0.1164068	1.9248574	23	1	7 days	0.50	Williams	1998 QJ ₂₇
1998 QX ₂₇	14.5	0.15	19980815	329.00112	58.98978	316.38220	8.03108	0.1615059	3.0535180	19	1	10 days	0.84	Williams	1998 QX ₂₇
1998 QZ ₂₇	15.5	0.15	19980815	40.07831	120.61014	171.31143	9.20237	0.1728850	3.0934369	12	1	5 days	0.26	E Williams	1998 QZ ₂₇
1998 QB ₂₈	20.5	0.15	19980815	25.10667	297.86356	341.76435	1.07543	0.3815717	2.0756780	12	1	5 days	0.13	Williams	1998 QB ₂₈
1998 QC ₂₈	17.5	0.15	19980815	339.91797	19.83780	355.00211	5.98531	0.1949823	2.6081664	9	1	4 days	0.13	Williams	1998 QC ₂₈
1998 QD ₂₈	16.0	0.15	19980815	329.60895	216.50503	168.10119	12.21832	0.0749510	2.9441004	9	1	5 days	0.10	Williams	1998 QD ₂₈
1998 QF ₂₈	18.0	0.15	19980815	348.78962	12.31946	352.28876	9.12685	0.3068512	2.7548137	9	1	4 days	0.17	Williams	1998 QF ₂₈
1998 QG ₂₈	16.5	0.15	19980815	118.59587	213.59480	328.25679	1.51353	0.1694078	2.8203917	11	1	11 days	0.38	E Williams	1998 QG ₂₈
1998 QH ₂₈	23.0	0.15	19980815	7.31466	325.61561	328.76615	13.04715	0.5573927	2.6353042	15	1	7 days	0.41	Williams	1998 QH ₂₈
1998 QJ ₂₈	14.0	0.15	19980815	102.84469	336.73001	263.09864	33.01722	0.1891775	2.7517631	16	1	2 days	0.98	Williams	1998 QJ ₂₈
1998 QK ₂₈	19.5	0.15	19980815	346.24005	204.54003	174.77164	7.83753	0.5752269	2.3120844	118	1	14 days	0.63	Williams	1998 QK ₂₈
1998 QR ₂₈	17.5	0.15	19980815	347.07603	96.77775	251.79622	4.06146	0.2020745	2.4762397	15	1	8 days	0.27	Williams	1998 QR ₂₈
1998 QS ₂₈	15.5	0.15	19980815	5.45012	19.75781	301.70668	8.83818	0.2040458	2.7563620	9	1	9 days	0.11	Williams	1998 QS ₂₈
1998 QU ₂₈	16.0	0.15	19980815	309.63686	148.70967	241.10385	4.46781	0.0998970	2.3358330	9	1	8 days	0.45	Williams	1998 QU ₂₈
1998 QV ₂₈	16.5	0.15	19980815	352.76573	109.60831	231.64822	3.94452	0.2836487	2.6389310	12	1	8 days	0.16	Williams	1998 QV ₂₈
1998 QW ₂₈	16.0	0.15	19980815	18.00758	69.00468	236.38611	4.97498	0.1529850	3.0719024	15	1	7 days	0.43	Williams	1998 QW ₂₈
1998 QX ₂₈	14.5	0.15	19980815	319.78345	211.20896	179.34670	14.73482	0.2111302	2.9990201	17	1	4 days	0.85	Williams	1998 QX ₂₈
1998 QZ ₂₈	16.0	0.15	19980815	357.56116	302.45461	28.26147	3.89721	0.1606527	3.1611624	9	1	7 days	0.43	Williams	1998 QZ ₂₈
1998 QA ₂₉	14.5	0.15	19980815	39.01554	162.25216	123.68214	8.77577	0.1094418	3.0846848	15	1	8 days	0.82	Williams	1998 QA ₂₉
1998 QB ₂₉	17.5	0.15	19980815	1.80678	127.08184	201.80915	7.62595	0.2179825	2.3411610	11	1	8 days	0.41	Williams	1998 QB ₂₉
1998 QC ₂₉	16.0	0.15	19980815	347.88278	238.04039	113.06302	4.28745	0.1360709	2.7334600	6	1	6 days	0.21	Williams	1998 QC ₂₉
1998 QE ₂₉	14.0	0.15	19980815	32.81810	74.60665	289.55103	11.86500	0.0621693	2.2430831	9	1	6 days	0.11	Williams	1998 QE ₂₉
1998 QF ₂₉	16.5	0.15	19980815	339.29963	75.11895	285.84454	5.91279	0.2046944	2.7625906	9	1	8 days	0.40	Williams	1998 QF ₂₉
1998 QG ₂₉	15.5	0.15	19980815	94.79038	17.68339	206.67750	5.86838	0.0984070	2.4298288	12	1	8 days	0.34	Williams	1998 QG ₂₉
1998 QH ₂₉	15.5	0.15	19980815	300.29176	224.42601	183.61399	13.11319	0.1554629	2.5764153	9	1	10 days	0.34	Williams	1998 QH ₂₉
1998 QJ ₂₉	17.5	0.15	19980815	320.91429	94.94307	289.87286	4.56869	0.1863239	2.2440351	9	1	9 days	0.29	Williams	1998 QJ ₂₉
1998 QL ₂₉	15.5	0.15	19980815	72.21324	340.41604	257.80059	4.27245	0.1856729	2.3498117	12	1	8 days	0.42	Williams	1998 QL ₂₉
1998 QN ₂₉	15.5	0.15	19980815	301.34901	101.78110	314.32190	15.42171	0.2355822	3.1377224	12	1	8 days	0.24	Williams	1998 QN ₂₉
1998 QO ₂₉	16.0	0.15	19980815	67.13978	61.22904	191.83694	5.95477	0.0980415	2.4696929	12	1	7 days	0.19	Williams	1998 QO ₂₉
1998 QR ₂₉	17.5	0.15	19980815	2.43195	58.42570	267.13361	3.18988	0.2113104	2.4287341	9	1	5 days	1.12	Williams	1998 QR ₂₉
1998 QS ₂₉	16.5	0.15	19980815	16.83128	117.77360	186.56143	7.02566	0.2117496	2.9037858	12	1	8 days	0.35	Williams	1998 QS ₂₉
1998 QV ₂₉	15.5	0.15	19980815	328.15409	78.34759	311.55255	15.97466	0.2987775	3.1074976	9	1	7 days	0.34	Williams	1998 QV ₂₉
1998 QW ₂₉	16.0	0.15	19980815	10.50273	12.90480	303.84496	10.86670	0.1788579	2.6810054	13	1	8 days	0.81	Williams	1998 QW ₂₉
1998 QX ₂₉	15.0	0.15	19980815	345.54015	44.24402	308.46935	14.30934	0.1546763	2.8687543	18	1	7 days	0.97	Williams	1998 QX ₂₉
1998 QZ ₂₉	15.5	0.15	19980815	10.30973	23.59430	293.61372	6.45998	0.1332751	2.3321038	16	1	7 days	0.29	Williams	1998 QZ ₂₉
1998 QA ₃₀	14.5	0.15	19980815	33.26372	111.42506	174.59408	15.51545	0.1668580	3.0919501	10	1	6 days	0.26	Williams	1998 QA ₃₀
1998 QC ₃₀	14.5	0.15	19980815	226.18595	181.32549	290.45029	8.12626	0.0524410	2.9951424	10	1	4 days	0.25	Williams	1998 QC ₃₀
1998 QE ₃₀	16.0	0.15	19980815	39.34402	91.10215	184.60481	10.28395	0.1695464	2.5650999	9	1	5 days	0.15	Williams	1998 QE ₃₀
1998 QF ₃₀	16.0	0.15	19980815	326.29758	172.12786	197.80737	7.97526	0.0835379	2.6789022	9	1	5 days	0.43	Williams	1998 QF ₃₀
1998 QJ ₃₀	16.0	0.15	19980815	87.12383	354.78113	228.15604	5.63385	0.1757808	2.6080976	9	1	4 days	0.29	Williams	1998 QJ ₃₀
1998 QK ₃₀	17.0	0.15	19980815	349.60636	114.47013	232.61824	4.14793	0.2848385	2.6200139	12	1	5 days	0.20	Williams	1998 QK ₃₀
1998 QN ₃₀	15.5	0.15	19980815	6.87570	156.34803	164.62499	1.92332	0.2082418	2.1750986	25	1	12 days	0.37	Williams	1998 QN ₃₀

1998 QS ₃₀	15.5	0.15	19980815	352.80952	171.45272	170.50890	12.50758	0.1602711	2.6766312	11	1	9 days	0.72	Williams	1998 QS ₃₀
1998 QX ₃₀	16.0	0.15	19980815	23.93337	110.83221	182.36690	1.92247	0.2149951	2.3406455	13	1	9 days	0.56	Williams	1998 QX ₃₀
1998 QE ₃₁	14.0	0.15	19980815	341.94309	19.67156	333.93749	9.11818	0.1084300	2.9719585	16	1	14 days	0.73	Williams	1998 QE ₃₁
1998 QK ₃₁	15.5	0.15	19980815	331.37485	243.24664	121.79859	7.27841	0.1264264	2.3017716	12	1	11 days	0.58	Williams	1998 QK ₃₁
1998 QD ₃₂	13.5	0.15	19980726	330.96085	230.99953	143.54159	17.60620	0.2681474	3.0784474	21	1	59 days	0.44	Williams	1998 QD ₃₂
1998 QE ₃₂	15.5	0.15	19980726	319.93668	241.55126	132.17807	7.11180	0.1296023	2.3126195	18	1	35 days	0.57	Williams	1998 QE ₃₂
1998 QR ₃₂	14.0	0.15	19980815	26.93967	331.88777	329.62864	1.94812	0.0785434	2.7592937	12	1	15 days	0.54	Williams	1998 QR ₃₂
1998 QV ₃₂	13.5	0.15	19980815	347.03113	47.98834	303.21368	3.78014	0.1689700	3.1087997	13	1	9 days	0.40	Williams	1998 QV ₃₂
1998 QX ₃₂	13.0	0.15	19980815	265.94624	263.52372	189.20882	2.86357	0.2269392	2.9250198	13	1	9 days	0.84	E Williams	1998 QX ₃₂
1998 QA ₃₃	15.5	0.15	19980815	351.85188	127.83691	214.86606	2.63406	0.1347460	2.5398714	13	1	9 days	0.93	Williams	1998 QA ₃₃
1998 QB ₃₃	17.0	0.15	19980815	25.59070	64.74505	223.11017	1.93813	0.2502578	2.3160579	11	1	7 days	0.80	Williams	1998 QB ₃₃
1998 QC ₃₃	14.5	0.15	19980815	315.50914	67.27377	321.04722	14.47079	0.1237806	2.6413692	12	1	9 days	0.65	Williams	1998 QC ₃₃
1998 QD ₃₃	16.5	0.15	19980815	346.21493	90.63941	263.80257	3.17545	0.2482068	2.6169686	12	1	9 days	0.70	Williams	1998 QD ₃₃
1998 QE ₃₃	15.0	0.15	19980815	245.55669	235.12303	226.40104	3.45167	0.1465562	2.3309739	12	1	9 days	1.10	Williams	1998 QE ₃₃
1998 QF ₃₃	16.5	0.15	19980815	345.02548	79.80552	278.00743	2.98247	0.2802865	2.5581714	12	1	9 days	0.83	Williams	1998 QF ₃₃
1998 QG ₃₃	15.0	0.15	19980815	32.89598	48.94576	227.76512	3.26491	0.2740633	3.0290483	12	1	9 days	0.90	Williams	1998 QG ₃₃
1998 QM ₃₃	17.0	0.15	19980815	349.23303	135.98309	211.71122	2.91534	0.2178038	2.2198633	10	1	9 days	0.84	Williams	1998 QM ₃₃
1998 QN ₃₃	14.5	0.15	19980815	5.03546	93.40962	232.41173	4.38940	0.1498639	2.6434452	13	1	9 days	0.66	Williams	1998 QN ₃₃
1998 QO ₃₃	13.0	0.15	19980815	242.21620	271.32305	188.29167	9.51841	0.0701348	3.0230150	13	1	9 days	0.75	E Williams	1998 QO ₃₃
1998 QS ₃₃	14.0	0.15	19980815	301.91108	154.01005	247.41050	5.27714	0.0762509	3.0593238	12	1	9 days	0.69	Williams	1998 QS ₃₃
1998 QW ₃₃	16.0	0.15	19980815	2.17819	150.93887	176.28143	2.44066	0.2021540	2.3029755	12	1	9 days	0.56	Williams	1998 QW ₃₃
1998 QX ₃₃	14.0	0.15	19980815	328.21505	45.92634	330.64215	20.92267	0.1440723	3.2064642	15	1	9 days	0.53	Williams	1998 QX ₃₃
1998 QA ₃₄	16.5	0.15	19980815	341.47852	42.95787	317.75451	2.06518	0.2178031	2.4311312	13	1	9 days	0.85	Williams	1998 QA ₃₄
1998 QK ₃₄	14.5	0.15	19980726	343.71202	11.25068	334.85206	14.40901	0.1278259	2.5921226	15	1	22 days	0.54	Williams	1998 QK ₃₄
1998 QZ ₃₄	15.5	0.15	19980815	15.35252	132.05633	176.72389	10.68918	0.2319843	2.8593406	12	1	9 days	0.65	E Williams	1998 QZ ₃₄
1998 QE ₃₆	16.0	0.15	19980815	9.93278	3.90272	315.63996	5.96930	0.1347588	2.3887391	14	1	11 days	0.81	Williams	1998 QE ₃₆
1998 QF ₃₆	16.0	0.15	19980815	341.90807	37.47837	319.44653	6.72309	0.1548989	2.3020460	12	1	9 days	0.83	Williams	1998 QF ₃₆
1998 QK ₃₆	13.0	0.15	19980815	23.65167	144.54915	166.17622	15.42240	0.0356823	3.1450094	13	1	9 days	0.85	E Williams	1998 QK ₃₆
1998 QP ₃₆	17.0	0.15	19980815	348.67398	74.72877	283.11023	3.30242	0.3829038	2.6131059	12	1	9 days	0.62	Williams	1998 QP ₃₆
1998 QR ₃₆	15.5	0.15	19980815	24.92661	107.66426	178.73787	8.36472	0.2998560	2.5023689	13	1	9 days	0.78	Williams	1998 QR ₃₆
1998 QV ₃₆	16.5	0.15	19980815	353.66669	28.41230	316.94771	12.01044	0.2987206	2.5682022	14	1	7 days	0.60	Williams	1998 QV ₃₆
1998 QW ₃₆	16.0	0.15	19980815	339.29803	77.20898	284.63411	5.43011	0.1358300	2.3373605	15	1	27 days	0.70	Williams	1998 QW ₃₆
1998 QA ₃₇	16.5	0.15	19980815	343.35724	176.61722	186.27110	9.40843	0.2396175	2.6246052	13	1	13 days	1.28	E Williams	1998 QA ₃₇
1998 QB ₃₇	15.0	0.15	19980815	7.75643	77.74765	248.72608	4.98027	0.1363764	2.5557954	13	1	13 days	0.58	Williams	1998 QB ₃₇
1998 QF ₃₇	16.0	0.15	19980815	332.15181	183.04237	203.95215	4.62275	0.3129192	2.5790928	13	1	9 days	0.49	Williams	1998 QF ₃₇
1998 QJ ₃₇	13.5	0.15	19980815	160.31684	352.47396	184.64201	9.35548	0.0157878	3.1662439	16	1	9 days	0.51	E Williams	1998 QJ ₃₇
1998 QM ₃₇	14.5	0.15	19980815	207.95416	193.24893	300.02295	5.78029	0.0804844	2.3859119	13	1	9 days	0.50	Williams	1998 QM ₃₇
1998 QN ₃₇	15.0	0.15	19980815	55.26033	312.54365	314.15138	6.92637	0.1358099	2.5423862	13	1	9 days	0.74	Williams	1998 QN ₃₇
1998 QO ₃₇	15.0	0.15	19980815	55.36862	75.14446	182.06412	6.44391	0.2133536	2.5420422	16	1	23 days	0.68	Williams	1998 QO ₃₇
1998 QP ₃₇	14.5	0.15	19980815	132.63191	265.91931	289.94862	3.41092	0.1037473	2.2816817	12	1	9 days	0.79	Williams	1998 QP ₃₇
1998 QV ₃₇	13.5	0.15	19980815	269.37948	271.83215	185.95686	1.86272	0.2758979	2.9965511	13	1	9 days	0.97	E Williams	1998 QV ₃₇
1998 QZ ₃₇	14.5	0.15	19980815	46.79650	119.25171	150.68486	13.71185	0.1781973	2.6019820	15	1	29 days	0.40	Williams	1998 QZ ₃₇
1998 QA ₃₈	16.5	0.15	19980815	352.08353	349.53182	355.21022	1.96434	0.2385907	2.3486892	12	1	13 days	0.56	Williams	1998 QA ₃₈
1998 QB ₃₈	15.5	0.15	19980815	341.61403	23.82378	336.96657	14.41308	0.1897350	2.6119070	13	1	9 days	0.70	Williams	1998 QB ₃₈
1998 QC ₃₈	15.0	0.15	19980815	81.41137	259.28972	346.12522	5.95342	0.0592674	2.3180577	12	1	13 days	0.59	E Williams	1998 QC ₃₈
1998 QP ₃₈	15.0	0.15	19980815	350.06317	168.90957	179.15106	5.55891	0.1171652	2.4373355	16	1	9 days	0.96	E Williams	1998 QP ₃₈
1998 QR ₃₈	13.5	0.15	19980726	333.72298	47.68237	318.56090	9.02341	0.0995810	3.1338190	16	1	20 days	0.59	Williams	1998 QR ₃₈
1998 QU ₃₈	14.0	0.15	19980815	303.04668	229.95384	183.30271	12.58528	0.1639431	3.0504977	13	1	9 days	0.92	E Williams	1998 QU ₃₈
1998 QC ₃₉	15.5	0.15	19980815	27.54114	142.76622	149.28914	2.69542	0.2029590	2.4172897	12	1	13 days	0.77	Williams	1998 QC ₃₉
1998 QE ₃₉	15.0	0.15	19980726	344.63326	332.97821	21.05762	0.44839	0.2045821	3.0776014	15	1	22 days	0.58	Williams	1998 QE ₃₉
1998 QJ ₃₉	14.5	0.15	19980815	290.16976	283.39177	143.49651	17.20812	0.1878979	3.1355512	12	1	11 days	1.10	Williams	1998 QJ ₃₉
1998 QK ₃₉	15.5	0.15	19980815	334.11668	249.68858	118.19803	5.92876	0.1524287	2.6017465	13	1	11 days	0.68	Williams	1998 QK ₃₉
1998 QX ₃₉	15.5	0.15	19980815	351.39618	198.79615	147.45440	5.19561	0.1983578	2.2507792	13	1	13 days	0.38	Williams	1998 QX ₃₉

1998 QA ₄₀	16.5	0.15	19980815	0.49669	168.19802	164.26156	5.22451	0.2494183	2.4775282	13	1	13 days	0.57	Williams	1998 QA ₄₀
1998 QE ₄₀	15.0	0.15	19980815	290.98891	236.48824	196.70130	3.35754	0.2356810	2.5493419	13	1	9 days	0.60	Williams	1998 QE ₄₀
1998 QG ₄₀	15.0	0.15	19980815	21.68931	126.79236	176.43569	8.82364	0.1991119	2.5741651	13	1	9 days	0.43	Williams	1998 QG ₄₀
1998 QJ ₄₀	15.0	0.15	19980815	0.65688	144.26640	190.19150	6.28770	0.1470188	2.3333501	13	1	9 days	0.64	Williams	1998 QJ ₄₀
1998 QK ₄₀	16.5	0.15	19980815	341.84702	70.87228	292.03869	5.36251	0.2031525	2.2891772	12	1	13 days	0.68	Williams	1998 QK ₄₀
1998 QM ₄₀	14.0	0.15	19980815	5.96724	15.81517	313.32906	11.23531	0.1904399	2.6627550	13	1	13 days	0.48	Williams	1998 QM ₄₀
1998 QO ₄₀	14.5	0.15	19980815	239.92617	283.56411	193.96375	8.87221	0.2065896	2.2619445	13	1	6 days	0.85	E Nakano	1998 QO ₄₀
1998 QP ₄₀	13.2	0.15	19980815	244.88493	148.13909	320.54176	12.78489	0.1270232	2.6198624	13	1	6 days	0.42	Nakano	1998 QP ₄₀
1998 QQ ₄₀	14.5	0.15	19980815	12.81741	145.45633	176.40293	14.18084	0.1161847	2.5752875	15	1	9 days	0.54	Williams	1998 QQ ₄₀
1998 QR ₄₀	14.5	0.15	19980815	338.82462	121.74407	245.23405	4.06468	0.1364137	2.7047207	13	1	13 days	0.49	Williams	1998 QR ₄₀
1998 QT ₄₀	14.5	0.15	19980815	259.11550	221.42327	224.66198	4.44513	0.0492658	2.8047689	11	1	9 days	0.46	Williams	1998 QT ₄₀
1998 QU ₄₀	14.5	0.15	19980815	314.53780	216.67025	176.40961	9.66806	0.1080354	2.5845025	13	1	9 days	0.57	E Williams	1998 QU ₄₀
1998 QV ₄₀	14.0	0.15	19980815	350.47630	125.84967	224.03699	4.08867	0.0446851	2.7811283	16	1	9 days	0.34	Williams	1998 QV ₄₀
1998 QW ₄₀	16.0	0.15	19980815	46.79113	37.75334	235.23499	2.77007	0.1663583	2.1639946	13	1	9 days	0.82	Williams	1998 QW ₄₀
1998 QY ₄₀	15.5	0.15	19980815	341.85121	182.67748	179.30270	5.46597	0.1982706	2.2795637	13	1	9 days	0.37	Williams	1998 QY ₄₀
1998 QA ₄₁	15.5	0.15	19980815	342.10467	62.26463	299.80571	2.71166	0.2031106	2.3071710	13	1	9 days	0.35	Williams	1998 QA ₄₁
1998 QP ₄₁	14.0	0.15	19980815	21.56952	295.71193	13.84354	1.83380	0.1231456	2.8663943	12	1	13 days	0.58	Williams	1998 QP ₄₁
1998 QV ₄₁	15.5	0.15	19980815	354.55753	0.20971	343.89770	12.12832	0.2709727	2.8029612	13	1	13 days	0.61	Williams	1998 QV ₄₁
1998 QD ₄₂	15.5	0.15	19980726	281.67991	325.49979	88.80293	4.73387	0.0849761	2.1950659	16	1	28 days	0.92	Williams	1998 QD ₄₂
1998 QE ₄₂	15.0	0.15	19980726	340.97496	308.97634	41.03813	4.13145	0.1667577	2.2720894	16	1	28 days	0.35	Williams	1998 QE ₄₂
1998 QG ₄₂	16.5	0.15	19980815	356.35030	5.35048	333.45329	7.98261	0.2455970	2.2272297	12	1	9 days	0.42	Williams	1998 QG ₄₂
1998 QH ₄₂	14.0	0.15	19980815	317.49698	53.42510	338.10433	14.03861	0.1296737	2.6050723	18	1	13 days	0.53	Williams	1998 QH ₄₂
1998 QJ ₄₂	15.5	0.15	19980815	51.61534	86.61668	168.90469	3.27444	0.2713643	2.4499191	12	1	9 days	0.65	Williams	1998 QJ ₄₂
1998 QQ ₄₂	15.0	0.15	19980815	313.80881	179.53023	216.96178	3.83721	0.1206387	2.6900698	12	1	9 days	0.84	Williams	1998 QQ ₄₂
1998 QT ₄₂	15.0	0.15	19980815	0.35528	90.56849	248.06766	4.25081	0.1491458	2.5933944	13	1	13 days	0.73	Williams	1998 QT ₄₂
1998 QU ₄₂	13.5	0.15	19980815	264.11055	109.97457	336.64763	9.72439	0.0866568	3.0054351	16	1	12 days	0.69	Williams	1998 QU ₄₂
1998 QC ₄₃	15.5	0.15	19980815	308.24296	264.75308	142.08727	4.16785	0.1918263	2.2982617	13	1	13 days	0.73	Williams	1998 QC ₄₃
1998 QD ₄₃	14.0	0.15	19980815	330.36591	225.08427	147.38487	10.73537	0.0719326	3.1079418	12	1	13 days	0.51	Williams	1998 QD ₄₃
1998 QE ₄₃	14.5	0.15	19980815	306.43655	281.76033	131.36581	3.16651	0.2076100	2.8664652	16	1	29 days	0.94	Williams	1998 QE ₄₃
1998 QK ₄₃	14.5	0.15	19980815	12.97934	195.21872	120.93118	6.38159	0.1462294	2.4368236	13	1	11 days	0.39	Williams	1998 QK ₄₃
1998 QZ ₄₃	14.0	0.15	19980815	337.46063	260.72631	102.61481	3.43301	0.0772058	2.8642028	13	1	13 days	0.40	Williams	1998 QZ ₄₃
1998 QB ₄₄	13.0	0.15	19980815	295.74073	53.88615	356.67992	12.04991	0.0775284	3.0418940	13	1	13 days	0.29	Williams	1998 QB ₄₄
1998 QL ₄₄	14.0	0.15	19980815	18.57372	191.78053	126.25324	3.10018	0.0595351	2.9019859	13	1	13 days	0.88	Williams	1998 QL ₄₄
1998 QP ₄₄	14.5	0.15	19980815	308.57487	28.43221	20.14096	1.27871	0.1756751	3.1778477	12	1	13 days	1.16	E Williams	1998 QP ₄₄
1998 QU ₄₄	15.0	0.15	19980815	328.01464	83.75172	294.39889	2.50764	0.1147540	2.4364706	13	1	9 days	0.67	Williams	1998 QU ₄₄
1998 QA ₄₅	15.5	0.15	19980815	332.39665	60.62284	322.43726	12.24841	0.2201748	2.7895787	12	1	13 days	1.17	Williams	1998 QA ₄₅
1998 QC ₄₅	14.5	0.15	19980815	330.71204	143.97102	235.51693	5.37743	0.1564682	2.5963449	18	1	13 days	0.58	Williams	1998 QC ₄₅
1998 QG ₄₅	16.0	0.15	19980815	335.75457	133.81849	240.87372	3.69413	0.2077960	2.4076512	12	1	13 days	0.86	Williams	1998 QG ₄₅
1998 QM ₄₅	15.0	0.15	19980815	5.88659	130.82196	201.73841	6.99754	0.1451388	2.6113845	12	1	13 days	0.85	Williams	1998 QM ₄₅
1998 QN ₄₅	14.5	0.15	19980815	104.12069	35.42436	190.47146	10.83932	0.1161207	2.4268130	12	1	13 days	0.95	Williams	1998 QN ₄₅
1998 QR ₄₅	15.0	0.15	19980815	315.83461	220.49284	179.01386	12.85994	0.1739096	2.4006777	13	1	13 days	0.65	Williams	1998 QR ₄₅
1998 QV ₄₅	15.0	0.15	19980815	301.21779	232.67490	189.53182	7.78706	0.2034005	2.5497348	12	1	13 days	0.74	Williams	1998 QV ₄₅
1998 QB ₄₆	14.5	0.15	19980815	89.91870	271.45918	325.23775	3.66030	0.1204979	2.5948725	12	1	15 days	0.69	Williams	1998 QB ₄₆
1998 QE ₄₆	16.5	0.15	19980815	323.35420	230.45841	159.72998	6.16291	0.2088422	2.2561856	11	1	13 days	1.26	Williams	1998 QE ₄₆
1998 QJ ₄₆	15.0	0.15	19980815	355.40042	359.33533	344.26681	7.52398	0.2013225	2.5827184	13	1	13 days	0.63	Williams	1998 QJ ₄₆
1998 QO ₄₆	15.5	0.15	19980815	344.49772	200.63891	157.66825	11.02468	0.1698830	2.2953377	13	1	13 days	0.43	Williams	1998 QO ₄₆
1998 QP ₄₆	14.5	0.15	19980815	357.24394	10.11518	334.79715	8.71101	0.1550911	2.9645294	13	1	9 days	0.50	Williams	1998 QP ₄₆
1998 QV ₄₆	15.0	0.15	19980815	350.68374	32.57134	324.12233	14.50247	0.2761945	2.6340599	39	1	16 days	0.85	Williams	1998 QV ₄₆
1998 QW ₄₆	16.0	0.15	19980815	341.20911	92.01972	277.05595	3.98971	0.2413853	2.3175678	13	1	13 days	0.90	Williams	1998 QW ₄₆
1998 QY ₄₆	16.0	0.15	19980815	356.42662	345.70254	356.22249	4.37377	0.2328223	2.5641703	13	1	13 days	0.54	Williams	1998 QY ₄₆
1998 QK ₄₇	16.0	0.15	19980815	17.16913	143.12624	169.08414	4.18088	0.1956694	2.5928806	10	1	13 days	0.72	Williams	1998 QK ₄₇
1998 QO ₄₇	15.5	0.15	19980815	338.41437	216.40201	166.66889	6.21954	0.3430830	3.1007164	12	1	13 days	0.63	Williams	1998 QO ₄₇
1998 QS ₄₇	15.5	0.15	19980815	344.75580	203.98875	156.14377	3.83196	0.2099833	2.3969419	13	1	9 days	0.72	Williams	1998 QS ₄₇

1998 QT ₄₇	14.0	0.15	19980815	291.40813	266.50345	161.38719	12.83874	0.1652693	2.6374346	16	1	13 days	0.37	Williams	1998 QT ₄₇
1998 QX ₄₇	16.0	0.15	19980815	340.82950	54.61356	314.52936	3.97485	0.2431802	2.3835713	13	1	9 days	0.63	Williams	1998 QX ₄₇
1998 QN ₄₈	16.0	0.15	19980815	335.66815	61.59912	321.71633	5.18996	0.2927959	2.6096560	12	1	9 days	0.87	Williams	1998 QN ₄₈
1998 QR ₄₈	15.0	0.15	19980815	356.84424	60.12379	283.25369	1.07853	0.2821904	2.6152470	13	1	9 days	0.68	Williams	1998 QR ₄₈
1998 QV ₄₈	14.5	0.15	19980815	163.50338	218.14070	317.39575	1.50651	0.1217988	2.3863471	12	1	9 days	1.10	E Williams	1998 QV ₄₈
1998 QW ₄₈	13.5	0.15	19980815	78.82189	82.95109	164.49868	12.27613	0.1472897	2.7074369	13	1	13 days	1.12	Williams	1998 QW ₄₈
1998 QX ₄₈	16.0	0.15	19980815	338.03941	216.07163	154.78719	4.48605	0.2247831	2.2992039	16	1	13 days	0.53	Williams	1998 QX ₄₈
1998 QB ₄₉	14.5	0.15	19980815	63.83666	102.40239	159.28441	16.69037	0.1426979	2.6937203	13	1	13 days	1.09	Williams	1998 QB ₄₉
1998 QF ₄₉	14.0	0.15	19980815	305.39553	270.97933	148.33413	8.76848	0.2326619	2.7729874	15	1	13 days	0.44	Williams	1998 QF ₄₉
1998 QH ₄₉	14.5	0.15	19980815	335.23584	222.91706	151.50876	13.74064	0.1655847	2.9766788	13	1	13 days	0.78	Williams	1998 QH ₄₉
1998 QJ ₄₉	14.5	0.15	19980815	82.60535	88.81758	156.16474	25.03691	0.1187995	2.7672956	13	1	13 days	0.82	Williams	1998 QJ ₄₉
1998 QK ₄₉	17.0	0.15	19980815	8.99163	336.43589	343.23638	10.08084	0.2437727	2.3181604	13	1	13 days	0.84	Williams	1998 QK ₄₉
1998 QX ₄₉	15.5	0.15	19980815	50.96694	226.07828	46.96051	4.81050	0.1182359	2.2869062	12	1	6 days	0.72	Williams	1998 QX ₄₉
1998 QC ₅₀	16.0	0.15	19980815	342.27597	15.92812	352.16379	12.80407	0.3018502	2.6442966	13	1	13 days	0.63	Williams	1998 QC ₅₀
1998 QJ ₅₀	16.0	0.15	19980815	353.65677	337.59234	5.66824	4.73801	0.1166876	2.1607220	13	1	13 days	0.69	E Williams	1998 QJ ₅₀
1998 QO ₅₀	14.0	0.15	19980815	344.56739	212.69909	145.69832	10.18018	0.0743657	2.9756097	13	1	13 days	0.68	Williams	1998 QO ₅₀
1998 QP ₅₀	15.5	0.15	19980815	344.17910	358.85322	357.94521	6.50198	0.1153531	2.2683096	13	1	13 days	0.79	Williams	1998 QP ₅₀
1998 QR ₅₀	14.0	0.15	19980815	312.19703	7.04901	39.56037	2.89031	0.1808319	3.1169271	13	1	13 days	0.75	Williams	1998 QR ₅₀
1998 QS ₅₀	14.5	0.15	19980815	21.59480	165.93610	135.82795	5.35392	0.2479477	2.7036759	13	1	13 days	0.50	Williams	1998 QS ₅₀
1998 QV ₅₀	15.5	0.15	19980726	335.23283	267.95344	98.23922	2.33703	0.2202144	2.2968071	16	1	35 days	0.53	Williams	1998 QV ₅₀
1998 QZ ₅₀	14.5	0.15	19980815	343.75039	217.80366	146.54321	5.73805	0.1749910	2.7727242	15	1	14 days	0.90	Williams	1998 QZ ₅₀
1998 QA ₅₁	16.5	0.15	19980815	20.53581	313.03689	354.62892	4.61443	0.1914562	2.3148155	12	1	9 days	1.05	Williams	1998 QA ₅₁
1998 QB ₅₁	15.5	0.15	19980815	34.72428	137.08949	153.74655	5.14923	0.1738742	2.4436848	16	1	13 days	1.06	Williams	1998 QB ₅₁
1998 QC ₅₁	15.0	0.15	19980815	310.82839	241.85719	159.35088	4.32527	0.1333159	2.2450866	12	1	13 days	0.92	Williams	1998 QC ₅₁
1998 QE ₅₁	16.0	0.15	19980726	15.11493	329.82320	331.38451	2.27051	0.2495623	2.1798837	16	1	31 days	0.64	Williams	1998 QE ₅₁
1998 QF ₅₁	15.0	0.15	19980815	25.32948	359.84307	295.65554	0.37673	0.2728581	2.5223081	12	1	9 days	0.56	Williams	1998 QF ₅₁
1998 QH ₅₁	13.0	0.15	19980815	301.00983	235.98589	187.84443	4.11835	0.1883779	2.7965067	16	1	9 days	0.50	E Williams	1998 QH ₅₁
1998 QO ₅₁	16.5	0.15	19980726	10.60705	343.47349	322.04477	6.85971	0.3614198	2.6711667	15	1	35 days	0.74	Williams	1998 QO ₅₁
1998 QQ ₅₁	15.0	0.15	19980815	303.08515	103.65169	308.78523	5.53846	0.1177885	2.4134424	12	1	13 days	0.82	Williams	1998 QQ ₅₁
1998 QY ₅₁	15.5	0.15	19980815	308.05748	172.90526	238.09400	4.76118	0.1582230	2.3734425	13	1	13 days	1.10	Williams	1998 QY ₅₁
1998 QA ₅₂	16.0	0.15	19980815	320.39967	97.70274	294.43124	5.28980	0.1304827	2.1611812	12	1	13 days	0.66	Williams	1998 QA ₅₂
1998 QO ₅₂	18.5	0.15	19980815	339.20229	222.45856	164.07858	6.16563	0.4077367	2.4455449	23	1	6 days	0.49	Williams	1998 QO ₅₂
1998 QP ₅₂	18.0	0.15	19980815	353.50357	170.58270	168.15272	16.19053	0.4220606	2.6742164	47	1	2 days	0.82	Williams	1998 QP ₅₂
1998 QQ ₅₂	21.0	0.15	19980815	2.95143	105.59986	206.45539	4.79995	0.4551700	2.1002486	35	1	12 days	0.59	Williams	1998 QQ ₅₂
1998 QR ₅₂	18.5	0.15	19980815	172.46056	204.17002	316.31865	17.62489	0.2879812	1.0436691	43	1	12 days	0.58	Williams	1998 QR ₅₂
1998 QS ₅₂	14.5	0.15	19980815	302.79637	242.02915	261.43257	17.70264	0.8589519	2.2003074	87	1	20 days	0.61	Williams	1998 QS ₅₂
1998 QT ₅₂	14.0	0.15	19980815	0.05277	103.52443	246.03857	7.51360	0.1834064	3.0518400	26	1	7 days	0.84	Williams	1998 QT ₅₂
1998 QU ₅₂	13.5	0.15	19980815	310.19822	146.68577	269.89164	7.47858	0.1529852	2.9701500	16	1	7 days	0.71	E Williams	1998 QU ₅₂
1998 QH ₅₃	15.5	0.15	19980815	340.75489	88.59859	295.23489	3.46264	0.2844084	2.4508007	13	1	8 days	1.58	Williams	1998 QH ₅₃
1998 QJ ₅₃	15.0	0.15	19980815	3.32572	23.31580	324.05665	6.76088	0.2087821	2.5516400	9	1	8 days	0.34	Williams	1998 QJ ₅₃
1998 QK ₅₃	13.5	0.15	19980815	120.87090	264.19698	326.16933	6.26023	0.0715931	2.3593495	14	1	11 days	0.90	Williams	1998 QK ₅₃
1998 QL ₅₃	14.0	0.15	19980815	89.68499	55.30532	200.16050	13.38985	0.1312343	2.6990612	9	1	8 days	0.62	Williams	1998 QL ₅₃
1998 QN ₅₃	13.0	0.15	19980815	90.00176	33.42444	216.81338	11.00579	0.2065101	3.1094476	9	1	5 days	0.36	E Williams	1998 QN ₅₃
1998 QO ₅₃	14.5	0.15	19980815	23.58564	113.45242	203.95933	24.16094	0.2322003	2.6093661	13	1	6 days	0.43	Williams	1998 QO ₅₃
1998 QS ₅₃	14.0	0.15	19980815	347.26658	151.36758	204.78468	9.50929	0.1133793	3.0173528	15	1	7 days	0.72	Williams	1998 QS ₅₃
1998 QE ₅₄	14.0	0.15	19980815	175.87001	227.96595	312.43956	5.39316	0.1451254	2.2770599	15	1	11 days	1.00	Williams	1998 QE ₅₄
1998 QE ₅₅	15.0	0.15	19980815	355.79061	7.14366	352.55475	17.61906	0.1588909	2.5373125	16	1	4 days	1.31	E Williams	1998 QE ₅₅
1998 QF ₅₅	13.5	0.15	19980815	175.45192	282.65947	259.04044	1.38574	0.1987478	2.1856610	16	1	4 days	1.28	E Williams	1998 QF ₅₅
1998 QG ₅₅	15.0	0.15	19980815	334.86166	54.04571	348.17951	9.93436	0.3323807	2.7894969	10	1	4 days	0.52	Williams	1998 QG ₅₅
1998 QB ₅₆	14.5	0.15	19980815	10.23626	143.71350	183.07417	2.71472	0.1947242	2.3149035	11	1	6 days	0.41	E Williams	1998 QB ₅₆
1998 QC ₅₆	14.5	0.15	19980815	331.47745	46.97618	2.02167	31.77949	0.3043185	2.6256028	13	1	9 days	0.93	Williams	1998 QC ₅₆
1998 QH ₅₆	17.5	0.15	19980815	260.62263	273.80850	176.33796	31.66751	0.0249242	1.5359068	29	1	4 days	0.70	Williams	1998 QH ₅₆
1998 QJ ₅₆	17.4	0.15	19980904	348.05022	230.18289	156.88268	17.01993	0.4762290	2.6302501	48	1	7 days	0.73	Nakano	1998 QJ ₅₆

1998 QK ₅₆	17.0	0.15	19980815	315.34186	285.66644	173.32188	13.49808	0.5089139	1.8751317	29	1	4 days	0.82	Williams	1998 QK ₅₆
1998 QP ₆₀	15.0	0.15	19980815	326.20258	128.08799	248.36414	5.66653	0.1228750	2.4378846	17	1	8 days	0.38	Williams	1998 QP ₆₀
1998 QQ ₆₀	15.0	0.15	19980815	322.75856	73.70011	315.43489	16.00300	0.1909932	2.9681848	10	1	8 days	0.86	Williams	1998 QQ ₆₀
1998 QT ₆₀	13.0	0.15	19980815	345.29578	123.47677	300.82061	22.11355	0.4267739	2.8425623	46	1	4 days	0.65	Williams	1998 QT ₆₀
1998 QA ₆₂	18.5	0.15	19980815	330.19290	274.50003	181.23359	24.09266	0.7137495	1.8400284	40	1	6 days	0.74	Williams	1998 QA ₆₂
1998 QK ₆₂	17.0	0.15	19980815	344.75407	117.12458	236.59113	4.02689	0.2453542	2.4887077	9	1	5 days	0.14	Williams	1998 QK ₆₂
1998 QR ₆₂	14.5	0.15	19980815	171.93911	316.81506	200.62463	6.01815	0.0981722	2.8837323	9	1	4 days	0.29	Williams	1998 QR ₆₂
1998 QT ₆₂	13.5	0.15	19980815	19.36416	139.65539	181.25376	9.49114	0.2856974	2.7969416	13	1	8 days	0.78	Williams	1998 QT ₆₂
1998 QW ₆₂	14.0	0.15	19980815	234.73743	292.00972	170.50356	20.93984	0.0965509	2.5270241	16	1	7 days	0.76	Williams	1998 QW ₆₂
1998 QF ₆₃	14.0	0.15	19980815	322.59861	169.31825	208.30969	9.33293	0.0980678	3.0411085	16	1	8 days	0.99	Williams	1998 QF ₆₃
1998 QG ₆₃	16.5	0.15	19980815	335.20547	356.70622	11.33457	7.01058	0.0560455	2.1577244	7	1	8 days	0.23	E Williams	1998 QG ₆₃
1998 QO ₆₃	16.0	0.15	19980815	230.21877	68.94314	36.18124	4.31711	0.0517292	2.6083113	8	1	7 days	0.54	Williams	1998 QO ₆₃
1998 QP ₆₃	17.2	0.15	19980904	352.22136	221.89700	158.80285	9.26886	0.4829799	2.5964315	61	1	4 days	0.86	Nakano	1998 QP ₆₃
1998 QQ ₆₃	19.0	0.15	19980815	350.08419	265.29058	103.89982	1.56389	0.4963876	2.1074779	20	1	4 days	0.58	Williams	1998 QQ ₆₃
1998 QR ₆₃	16.5	0.15	19980815	34.26920	142.66054	156.04184	27.81377	0.0762495	1.8419742	9	1	2 days	0.74	E Williams	1998 QR ₆₃
1998 QT ₆₃	16.5	0.15	19980815	1.03573	106.34463	221.90725	5.99782	0.1408326	2.2429379	19	1	8 days	0.69	Williams	1998 QT ₆₃
1998 QS ₉₇	14.5	0.15	19980815	348.77884	29.30192	331.45989	27.61245	0.1446234	3.1176530	11	1	5 days	0.93	Williams	1998 QS ₉₇
1998 RB	14.0	0.15	19980815	204.43626	303.10352	196.99266	15.56077	0.0127192	2.5642877	21	1	11 days	0.55	E Williams	1998 RB
2076 P-L	14.0	0.15	19980706	345.15838	167.55611	213.33926	6.66722	0.2184022	2.2791797	16	3	1960-1998	0.74	M-v 4 Williams	30285 2076 P-L
2085 P-L	14.0	0.15	19980706	129.06903	192.46650	278.91597	1.00006	0.0269169	2.9038353	19	3	1960-1998	0.53	M-v 6 Williams	32289 2085 P-L
2148 P-L	14.5	0.15	19980706	44.73421	279.43942	4.41891	4.70136	0.1384627	3.0999643	20	4	1954-1998	0.59	M-v 1 Williams	27116 2148 P-L
2158 P-L	15.0	0.15	19980706	263.94609	234.05702	206.16604	6.01016	0.1015418	2.4440676	24	3	1960-1998	0.66	M-v 4 Williams	30285 2158 P-L
2175 P-L	15.0	0.15	19980706	50.94598	283.41675	352.79595	4.56108	0.0896999	2.6213396	34	4	1960-1998	0.46	M-v 2 Williams	30914 2175 P-L
2208 P-L	15.5	0.15	19980706	284.98646	212.17731	225.27598	4.49475	0.2522841	2.6219308	29	4	1960-1998	0.78	M-v 2 Williams	28319 2208 P-L
2530 P-L	14.5	0.15	19980706	292.88226	35.38299	22.95596	4.68726	0.1313663	2.2877392	18	3	1960-1998	0.68	M-v 5 Williams	22086 2530 P-L
2553 P-L	13.0	0.15	19980706	277.10026	62.35133	355.26593	0.59782	0.1661070	3.1170912	28	6	1960-1998	0.51	M-v 1 Williams	30474 2553 P-L
2559 P-L	14.0	0.15	19980706	176.18204	93.77000	74.59524	2.74246	0.0932024	2.2886926	24	6	1960-1998	0.67	M-v 2 Williams	31824 2559 P-L
2566 P-L	15.0	0.15	19980706	283.45720	238.73348	190.63490	1.94854	0.1843500	2.4412338	19	3	1960-1998	0.85	M-v 4 Williams	14626 2566 P-L
2590 P-L	14.5	0.15	19980706	47.37758	264.74958	11.09784	4.65897	0.1759788	2.4366090	19	3	1960-1998	0.72	M-v 5 Williams	29141 2590 P-L
2613 P-L	16.0	0.15	19980706	260.68487	220.75627	192.90763	4.51373	0.1477395	3.1268174	17	2	1960-1998	0.41	M-v 4 Williams	32289 2613 P-L
2614 P-L	16.0	0.15	19980706	318.74174	165.92588	184.37881	3.21783	0.1493469	2.6305060	22	4	1960-1998	0.55	M-v 2 Williams	32343 2614 P-L
2666 P-L	16.5	0.15	19980706	310.37027	227.49725	169.06207	5.03872	0.3242890	2.6205494	34	4	1960-1998	0.93	M-v 3 Williams	24241 2666 P-L
2757 P-L	14.5	0.15	19980706	236.70465	307.54915	38.72863	1.41917	0.2148310	3.1852484	29	4	1960-1998	0.90	M-v 3 Williams	32289 2757 P-L
2785 P-L	15.0	0.15	19980706	350.80996	251.28360	93.21935	2.17021	0.1031950	2.6191408	26	4	1960-1998	0.98	M-v 2 Williams	30094 2785 P-L
3024 P-L	13.5	0.15	19980706	156.70739	251.50329	291.02468	11.10607	0.1821998	2.6214435	30	4	1960-1998	0.61	M-v 3 Williams	28319 3024 P-L
3087 P-L	12.0	0.15	19980706	30.69579	87.21699	261.44839	8.31043	0.1058946	3.0629636	30	3	1960-1998	0.51	M-v 4 Williams	30465 3087 P-L
3557 P-L	14.0	0.15	19980706	294.40523	149.91066	312.69183	4.65317	0.1076889	2.2713659	16	6	1953-1998	0.81	M-v 2 Williams	28892 3557 P-L
4026 P-L	13.0	0.15	19980706	60.20692	249.08394	359.76033	13.28524	0.1237933	2.6261840	16	4	1960-1998	0.51	M-v 4 Williams	24241 4026 P-L
4065 P-L	16.0	0.15	19980706	359.71116	14.48401	302.06331	2.80214	0.1860483	2.2896394	26	5	1953-1998	0.65	M-v 2 Williams	25075 4065 P-L
4121 P-L	13.5	0.15	19980706	318.37507	183.41014	199.09522	8.74418	0.1802706	3.0995433	38	5	1960-1998	0.70	M-v 1 Williams	28620 4121 P-L
4161 P-L	14.0	0.15	19980706	183.17971	156.58620	338.11670	7.24654	0.1443846	2.6354611	15	3	1960-1998	0.73	M-v 4 Williams	25336 4161 P-L
4526 P-L	13.5	0.15	19980706	224.88191	136.21265	358.32092	2.34663	0.1421696	2.4373033	24	4	1960-1998	0.69	M-v 3 Williams	26761 4526 P-L
4587 P-L	15.0	0.15	19980706	348.72373	122.48543	193.47029	2.48151	0.1774458	2.4454659	43	2	1960-1998	0.65	M-v 3 Williams	32290 4587 P-L
4845 P-L	14.0	0.15	19980706	290.68304	243.28694	172.01967	10.97848	0.1149350	3.1058538	17	3	1960-1998	0.71	M-v 4 Williams	23245 4845 P-L
6039 P-L	13.5	0.15	19980706	305.83586	264.99285	186.34347	9.21220	0.1725427	2.8075712	43	6	1953-1998	0.51	M-v 1 Williams	30696 6039 P-L
6054 P-L	14.0	0.15	19980706	300.69211	182.26656	205.21752	3.86074	0.2057923	3.1046460	25	4	1955-1998	0.84	M-v 2 Williams	30914 6054 P-L
6063 P-L	15.5	0.15	19980706	348.67932	5.09516	314.57142	2.39357	0.1452029	2.1624962	28	5	1960-1998	0.64	M-v 2 Williams	28892 6063 P-L
6077 P-L	14.0	0.15	19980706	303.22651	60.52238	343.33739	3.22541	0.0808146	3.0992767	23	3	1960-1998	0.56	M-v 4 Williams	22966 6077 P-L
6130 P-L	14.5	0.15	19980706	214.84977	293.57966	193.40650	4.20381	0.1040834	2.4411971	24	5	1949-1998	0.85	M-v 2 Williams	30095 6130 P-L
6217 P-L	13.5	0.15	19980706	113.15321	8.79297	196.70272	16.01540	0.1306117	3.1181372	19	3	1960-1998	0.94	M-v 4 Williams	15905 6217 P-L
6242 P-L	14.5	0.15	19980706	148.73667	292.75007	221.02341	5.53498	0.0756906	2.4555359	25	4	1960-1998	0.63	M-v 2 Williams	26423 6242 P-L
6547 P-L	14.5	0.15	19980706	356.78459	319.57797	38.86603	3.08673	0.2084248	2.4278671	34	7	1960-1998	0.78	M-v 2 Williams	29948 6547 P-L
6585 P-L	14.0	0.15	19980706	318.08591	208.18698	148.19200	2.42740	0.1337310	3.1062146	33	3	1960-1998	0.82	M-v 4 Williams	32343 6585 P-L

6586 P-L	15.0	0.15	19980706	341.66129	154.95157	172.23038	11.84846	0.1899382	2.6240129	14	3	1960-1998	0.73	M-v	3	Williams	17975	6586 P-L
6594 P-L	15.0	0.15	19980706	329.53257	195.58548	177.78008	6.35524	0.0726384	2.4349469	14	3	1960-1998	0.79	M-v	5	Williams	29141	6594 P-L
6608 P-L	16.0	0.15	19980706	305.18971	43.80067	12.94832	6.05291	0.3088947	2.6178705	41	4	1960-1998	0.94	M-v	3	Williams	28620	6608 P-L
6670 P-L	15.0	0.15	19980706	204.18883	119.42363	10.45715	3.95645	0.1314915	2.6239701	14	5	1960-1998	0.73	M-v	2	Williams	26929	6670 P-L
7072 P-L	14.5	0.15	19980706	197.05003	298.43394	196.93014	21.21278	0.0778381	1.9491323	48	4	1960-1998	0.73	M-v	3	Williams	22087	7072 P-L
7633 P-L	14.0	0.15	19980706	5.49456	208.26304	108.99940	3.30734	0.0592951	2.8392629	31	6	1951-1998	0.66	M-v	1	Williams	29668	7633 P-L
9523 P-L	15.0	0.15	19980706	121.63902	187.46395	9.18460	6.33013	0.1164674	2.2913119	38	5	1960-1998	0.63	M-v	2	Williams	29668	9523 P-L
9578 P-L	12.5	0.15	19980706	250.98348	75.74977	3.59067	5.90738	0.1126563	3.1133810	33	4	1960-1998	0.82	M-v	5	Williams	30914	9578 P-L
1104 T-1	13.5	0.15	19980706	302.43928	73.18599	352.86835	11.68057	0.1279988	2.3555268	21	4	1971-1998	0.78	M-v	2	Williams	29142	1104 T-1
1146 T-1	14.5	0.15	19980706	50.86210	79.38351	199.75309	4.73891	0.0954127	2.6375625	42	4	1971-1998	0.76	M-v	2	Williams	30095	1146 T-1
1181 T-1	13.0	0.15	19980706	134.06725	230.90884	325.67763	3.59577	0.0888204	2.9512125	55	8	1971-1998	0.87	M-v	2	Williams	30293	1181 T-1
1205 T-1	15.5	0.15	19980706	45.07694	262.94867	350.63624	5.05611	0.1328703	2.2145860	25	4	1971-1998	0.73	M-v	2	Williams	29321	1205 T-1
2066 T-1	14.5	0.15	19980706	306.09991	252.77989	136.51365	2.90401	0.1356655	2.1844246	30	4	1971-1998	0.51	M-v	1	Williams	28319	2066 T-1
2172 T-1	15.0	0.15	19980706	53.28825	244.81308	56.80961	2.45649	0.1813375	2.1887049	23	4	1971-1998	1.02	M-v	2	Williams	29649	2172 T-1
3024 T-1	14.5	0.15	19980706	141.45772	266.47781	163.67450	0.55714	0.1034540	2.4517132	35	2	1971-1998	0.84	M-v	5	Williams	32290	3024 T-1
3051 T-1	13.5	0.15	19980706	2.26021	111.97529	189.19950	10.95061	0.2050519	2.9950445	31	4	1955-1998	0.95	M-v	3	Williams	32343	3051 T-1
3058 T-1	14.5	0.15	19980706	328.84290	13.29477	352.47910	6.24564	0.1655747	2.1912742	30	5	1971-1998	0.98	M-v	2	Williams	32291	3058 T-1
3100 T-1	13.5	0.15	19980706	280.68012	232.08393	211.08548	7.31971	0.1667418	2.5928101	16	5	1969-1998	0.86	M-v	2	Williams	22087	3100 T-1
3212 T-1	14.0	0.15	19980706	250.20712	64.92220	6.30874	3.77570	0.0848485	2.1935507	37	5	1955-1998	0.83	M-v	2	Williams	30696	3212 T-1
4172 T-1	15.5	0.15	19980706	59.44065	113.59158	130.65532	1.69600	0.1296539	2.4096687	22	3	1971-1998	0.96	M-v	4	Williams	26185	4172 T-1
4177 T-1	15.0	0.15	19980706	287.54800	21.53437	25.76822	4.65013	0.1297869	2.1859734	33	6	1971-1998	0.81	M-v	2	Williams	28892	4177 T-1
4260 T-1	13.5	0.15	19980706	281.89660	322.91024	108.59144	2.94652	0.0527914	2.9202683	24	6	1971-1998	0.93	M-v	2	Williams	30293	4260 T-1
1001 T-2	13.5	0.15	19980706	257.11713	260.08460	179.41068	2.24469	0.1010520	2.9479985	44	5	1950-1998	0.75	M-v	2	Williams	28620	1001 T-2
1041 T-2	14.0	0.15	19980706	342.26210	161.67860	175.96257	2.04907	0.1188601	2.9443826	61	5	1973-1998	0.72	M-v	3	Williams	30095	1041 T-2
1053 T-2	14.0	0.15	19980706	260.73932	223.29943	189.43565	0.92991	0.1990374	2.6252790	61	7	1971-1998	0.82	M-v	1	Marsden	29949	1053 T-2
1105 T-2	14.0	0.15	19980706	190.32345	304.18747	184.23309	2.68410	0.1380423	2.6214817	41	5	1973-1998	0.97	M-v	2	Williams	30293	1105 T-2
1196 T-2	14.5	0.15	19980706	72.85674	241.59121	2.21119	5.10594	0.1492809	2.6001423	25	3	1973-1998	0.83	M-v	4	Williams	29938	1196 T-2
1264 T-2	14.0	0.15	19980706	277.10381	38.65088	355.43064	2.18104	0.1259920	2.6213929	26	3	1973-1998	0.80	M-v	5	Williams	24578	1264 T-2
1266 T-2	14.5	0.15	19980706	347.61433	324.87497	352.63338	6.36254	0.0630046	2.3563504	54	4	1973-1998	0.77	M-v	2	Williams	29949	1266 T-2
1269 T-2	14.0	0.15	19980706	268.69773	128.83555	296.21635	0.95436	0.0059237	2.9443584	64	8	1956-1998	1.02	M-v	2	Williams	27124	1269 T-2
1281 T-2	14.5	0.15	19980706	263.70497	260.65706	194.45498	12.72942	0.1664847	2.5971189	26	5	1971-1998	0.85	M-v	1	Williams	27732	1281 T-2
1607 T-2	15.0	0.15	19980706	284.97173	42.55964	344.89440	7.45237	0.1263682	2.3564941	28	4	1973-1998	0.83	M-v	2	Williams	32343	1607 T-2
2040 T-2	14.0	0.15	19980706	304.16716	205.69442	188.22712	7.28738	0.0179759	2.9410576	46	7	1971-1998	0.99	M-v	2	Williams	26929	2040 T-2
2071 T-2	14.5	0.15	19980706	0.60174	116.47002	213.18633	3.05603	0.2692367	2.5900034	40	4	1973-1998	0.87	M-v	2	Williams	32344	2071 T-2
2075 T-2	15.0	0.15	19980706	58.93155	75.53280	186.12977	4.75699	0.1987052	2.3368068	33	5	1973-1998	0.82	M-v	2	Williams	31609	2075 T-2
2076 T-2	15.5	0.15	19980706	55.09236	60.68988	180.80743	2.96073	0.1023367	2.1541586	43	5	1973-1998	0.90	M-v	2	Williams	31436	2076 T-2
2124 T-2	16.0	0.15	19980706	300.91648	96.03339	286.37915	1.61201	0.1636126	2.3518462	21	3	1973-1998	0.82	M-v	5	Williams	19690	2124 T-2
2168 T-2	14.0	0.15	19980706	319.09646	185.61983	198.24937	1.63439	0.1209150	2.9374028	36	4	1973-1998	0.81	M-v	3	Williams	22432	2168 T-2
2199 T-2	15.0	0.15	19980706	96.30390	54.77789	181.90119	3.05731	0.0353860	2.6007661	24	3	1973-1998	0.86	M-v	5	Williams	32292	2199 T-2
2224 T-2	14.0	0.15	19980706	325.77404	322.06204	41.87714	2.40076	0.0832481	2.9469973	58	8	1971-1998	1.06	M-v	2	Williams	28892	2224 T-2
2258 T-2	15.0	0.15	19980706	318.75296	189.46660	155.18220	2.08987	0.0847645	2.6223949	35	4	1973-1998	0.92	M-v	2	Williams	30696	2258 T-2
3180 T-2	13.5	0.15	19980706	67.75864	136.04529	114.69945	3.31307	0.0323073	2.9526633	30	4	1973-1998	0.95	M-v	3	Williams	30914	3180 T-2
3310 T-2	15.0	0.15	19980706	292.68539	279.31228	107.15187	2.31144	0.1194792	2.3532047	31	3	1973-1998	0.71	M-v	4	Williams	30467	3310 T-2
3336 T-2	15.0	0.15	19980706	301.87436	231.13109	157.29845	4.89563	0.2069893	2.3468695	36	4	1973-1998	0.69	M-v	4	Williams	25540	3336 T-2
3347 T-2	14.0	0.15	19980706	211.65638	77.55313	88.80260	3.05495	0.0626142	2.3128730	10	3	1973-1998	0.95	M-v	5	Williams	16038	3347 T-2
4165 T-2	14.5	0.15	19980706	264.97118	241.28546	171.24859	4.83673	0.0948641	2.6192391	36	5	1973-1998	1.05	M-v	2	Williams	29949	4165 T-2
5200 T-2	13.0	0.15	19980706	103.64695	245.56615	301.90259	7.68466	0.0289582	2.9923821	35	4	1973-1998	0.77	M-v	1	Williams	32344	5200 T-2
5447 T-2	14.5	0.15	19980706	24.94011	334.24604	314.41882	8.42133	0.2317321	2.3406267	34	4	1973-1998	0.67	M-v	2	Williams	32344	5447 T-2
1080 T-3	13.0	0.15	19980706	118.19768	257.39790	332.59328	11.16786	0.1080872	2.6071439	25	4	1977-1998	0.93	M-v	2	Williams	27732	1080 T-3
2268 T-3	14.0	0.15	19980706	302.05756	163.91043	224.90079	10.03270	0.1311503	3.0695229	33	5	1977-1998	1.03	M-v	2	Williams	30914	2268 T-3
3149 T-3	16.0	0.15	19980706	252.88342	284.60335	173.81230	1.91924	0.1584960	2.3205357	24	3	1977-1998	0.67	M-v	3	Williams	23786	3149 T-3
3157 T-3	15.0	0.15	19980706	310.78601	139.66277	59.84761	3.78255	0.1118268	2.1983765	19	2	1977-1992	1.02	M-v	6	Williams	32294	3157 T-3
3378 T-3	15.0	0.15	19980706	199.97061	8.18419	137.99231	0.87842	0.1599112	2.3231469	28	4	1977-1998	0.87	M-v	5	Williams	28320	3378 T-3

3395 T-3	14.5	0.15	19980706	171.31664	344.86544	179.08570	4.68506	0.0494022	2.3206000	51	8	1949–1998	0.83	M-v	1	Williams	30474	3395 T-3
3424 T-3	15.5	0.15	19980706	355.78392	175.76100	152.38371	2.29433	0.0317962	2.6327048	48	5	1971–1998	0.82	M-v	2	Williams	30095	3424 T-3
3453 T-3	15.0	0.15	19980706	58.92381	72.68673	187.66728	6.68236	0.1505152	2.3172958	41	5	1977–1998	1.00	M-v	2	Williams	29949	3453 T-3
4032 T-3	15.0	0.15	19980706	315.99472	325.83241	54.96045	4.68532	0.1767658	2.3160802	20	4	1949–1998	0.90	M-v	5	Williams	22495	4032 T-3
4064 T-3	13.5	0.15	19980706	316.78005	217.61683	171.19227	10.94672	0.1076721	3.0488219	28	3	1977–1998	0.78	M-v	3	Williams	27565	4064 T-3
4118 T-3	14.0	0.15	19980706	326.13454	172.96875	178.55736	11.74958	0.1091348	3.0734960	44	4	1977–1998	0.80	M-v	2	Williams	30294	4118 T-3
4181 T-3	15.5	0.15	19980706	329.09037	236.45609	102.68192	2.76133	0.2340312	2.3255817	41	3	1977–1998	0.70	M-v	4	Marsden	32344	4181 T-3
5022 T-3	14.0	0.15	19980706	119.27755	55.41879	143.41037	10.12205	0.0078734	3.0850139	36	4	1977–1998	0.87	M-v	1	Williams	30474	5022 T-3

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C/1998 P1 (Williams)										Elements MPC 32410									
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2										
1998 09 04		13 44.75	−42 42.0	1.436	1.341	63.7	42.4	9.6											
1998 09 09		13 40.55	−39 56.8	1.534	1.302	57.2	40.6	9.6											
1998 09 14		13 37.54	−37 35.5	1.628	1.267	51.1	38.2	9.6											
1998 09 19		13 35.34	−35 33.1	1.716	1.236	45.2	35.3	9.6											
1998 09 24		13 33.68	−33 45.7	1.797	1.208	39.7	32.0	9.6											
1998 09 29		13 32.39	−32 10.0	1.870	1.186	34.3	28.4	9.6											
1998 10 04		13 31.35	−30 43.4	1.934	1.168	29.3	24.7	9.6											

1998 OH										$a, e, i = 1.54, 0.41, 25$ Elements MPC 32488									
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V											
1998 09 04		18 15.12	+16 11.5	1.122	1.723	107.8	33.9	18.8											
1998 09 14		18 27.51	+13 08.6	1.235	1.770	103.9	33.5	19.1											
1998 09 24		18 41.49	+10 27.3	1.354	1.814	99.6	33.0	19.3											
1998 10 04		18 56.74	+08 09.1	1.479	1.856	95.0	32.5	19.6											
1998 10 14		19 13.00	+06 13.8	1.607	1.895	90.2	31.8	19.8											
1998 10 24		19 30.04	+04 40.8	1.739	1.932	85.3	30.9	20.0											
1998 11 03		19 47.71	+03 29.5	1.873	1.965	80.3	29.8	20.1											
1998 11 13		20 05.81	+02 38.5	2.006	1.997	75.1	28.6	20.3											
1998 11 23		20 24.24	+02 06.5	2.139	2.025	70.0	27.3	20.4											
1998 12 03		20 42.88	+01 51.9	2.268	2.051	64.7	25.8	20.5											

1998 PB ₁										$a, e, i = 2.03, 0.43, 6$ Elements MPC 32527									
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V											
1998 09 04		20 00.20	−07 04.4	0.306	1.252	137.7	32.9	16.3											
1998 09 09		20 14.71	−05 55.0	0.336	1.272	136.6	32.9	16.5											
1998 09 14		20 28.31	−04 56.6	0.368	1.294	135.4	33.1	16.8											
1998 09 19		20 41.16	−04 07.2	0.402	1.317	134.1	33.3	17.0											
1998 09 24		20 53.41	−03 24.6	0.440	1.341	132.5	33.5	17.3											
1998 09 29		21 05.16	−02 46.9	0.481	1.365	130.8	33.7	17.5											
1998 10 04		21 16.51	−02 12.7	0.524	1.391	129.0	34.0	17.7											
1998 10 09		21 27.51	−01 40.9	0.570	1.417	127.1	34.2	18.0											
1998 10 14		21 38.21	−01 10.4	0.618	1.444	125.0	34.4	18.2											
1998 10 19		21 48.68	−00 40.5	0.670	1.472	122.9	34.6	18.4											
1998 10 24		21 58.96	−00 10.6	0.724	1.500	120.7	34.8	18.6											
1998 10 29		22 09.09	+00 19.9	0.781	1.528	118.4	34.9	18.8											
1998 11 03		22 19.08	+00 51.2	0.840	1.556	116.1	34.9	19.0											
1998 11 08		22 28.95	+01 23.6	0.901	1.585	113.7	34.9	19.2											
1998 11 13		22 38.72	+01 57.1	0.965	1.614	111.2	34.9	19.4											
1998 11 18		22 48.40	+02 31.8	1.032	1.642	108.8	34.7	19.6											
1998 11 23		22 58.01	+03 07.9	1.100	1.671	106.2	34.6	19.8											
1998 11 28		23 07.56	+03 45.3	1.170	1.700	103.7	34.3	19.9											

1998 12 03	23 17.05	+04 23.9	1.243	1.729	101.1	34.0	20.1		
1998 12 08	23 26.49	+05 03.6	1.316	1.757	98.5	33.7	20.2		
1998 12 13	23 35.88	+05 44.4	1.392	1.786	95.9	33.3	20.4		
1998 12 18	23 45.24	+06 26.1	1.469	1.814	93.3	32.8	20.5		
1998 12 23	23 54.56	+07 08.6	1.547	1.842	90.6	32.3	20.6		
1998 12 28	00 03.87	+07 51.9	1.625	1.870	88.0	31.7	20.8		
1999 01 02	00 13.14	+08 35.7	1.705	1.898	85.3	31.1	20.9		
1999 01 07	00 22.39	+09 20.0	1.785	1.925	82.7	30.4	21.0		
1999 01 12	00 31.63	+10 04.5	1.866	1.952	80.0	29.7	21.1		
1999 01 17	00 40.85	+10 49.2	1.947	1.979	77.3	29.0	21.2		
1999 01 22	00 50.07	+11 34.0	2.028	2.005	74.6	28.2	21.3		
1999 01 27	00 59.29	+12 18.7	2.109	2.031	71.9	27.4	21.4		
1999 02 01	01 08.50	+13 03.2	2.190	2.057	69.2	26.6	21.5		
1999 02 06	01 17.70	+13 47.3	2.270	2.083	66.5	25.7	21.5		
1999 02 11	01 26.91	+14 30.9	2.349	2.108	63.8	24.8	21.6		
1999 02 16	01 36.12	+15 13.9	2.427	2.132	61.1	23.9	21.7		

1998 QJ ₁		<i>a, e, i</i> = 11.80, 0.82, 23				Elements MPC 32528		
Date	TT	α_{2000}	δ_{2000}	Δ	<i>r</i>	ϵ	ϕ	<i>V</i>
1998 09 04		20 40.58	−08 42.0	1.213	2.134	147.7	14.6	18.9
1998 09 14		20 39.19	−06 29.3	1.292	2.149	138.1	18.2	19.2
1998 09 24		20 40.88	−04 32.0	1.389	2.168	129.3	21.0	19.4
1998 10 04		20 45.45	−02 47.6	1.500	2.193	121.3	23.0	19.7
1998 10 14		20 52.55	−01 12.5	1.623	2.222	113.8	24.3	19.9
1998 10 24		21 01.78	+00 16.6	1.756	2.255	106.8	25.0	20.1
1998 11 03		21 12.78	+01 42.7	1.897	2.293	100.3	25.2	20.4
1998 11 13		21 25.18	+03 08.1	2.044	2.334	94.1	25.0	20.5
1998 11 23		21 38.68	+04 34.4	2.197	2.379	88.1	24.5	20.7
1998 12 03		21 53.05	+06 02.9	2.353	2.428	82.4	23.7	20.9
1998 12 13		22 08.05	+07 34.1	2.512	2.479	76.7	22.7	21.1
1998 12 23		22 23.53	+09 08.2	2.672	2.533	71.2	21.6	21.2
1999 01 02		22 39.36	+10 45.1	2.832	2.589	65.8	20.3	21.3
1999 01 12		22 55.40	+12 24.5	2.991	2.648	60.4	18.8	21.5

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1998 QC ₁		$a, e, i = 1.98, 0.59, 10$				Elements		MPC	32528
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1998 09 04		20 54.60	+04 27.5	0.274	1.251	148.7	24.8	18.0	
1998 09 09		20 33.03	+07 16.9	0.249	1.206	139.1	33.2	18.0	
1998 09 14		20 08.63	+10 27.0	0.228	1.162	128.7	42.5	18.0	
1998 09 19		19 41.38	+13 54.8	0.211	1.119	117.7	52.7	18.0	
1998 09 24		19 11.19	+17 35.0	0.198	1.076	106.4	63.5	18.1	
1998 09 29		18 37.74	+21 19.3	0.189	1.035	94.8	74.8	18.3	
1998 10 04		18 00.50	+24 54.3	0.183	0.995	83.1	86.4	18.5	

1998 10 14		16 34.32	+30 08.2	0.182	0.923	61.0	109.0	19.4	
1998 10 24		15 04.43	+30 17.9	0.201	0.865	45.3	125.2	20.7	
1998 11 03		13 55.42	+25 27.4	0.241	0.826	41.4	127.5	21.2	
1998 11 13		13 16.32	+18 32.5	0.299	0.812	46.2	118.4	20.9	
1998 11 23		12 59.66	+11 40.1	0.364	0.824	53.3	105.9	20.5	
1998 12 03		12 55.95	+05 30.1	0.430	0.860	60.5	93.7	20.4	
1998 12 13		12 58.66	+00 07.1	0.487	0.916	67.4	83.1	20.4	
1998 12 23		13 03.48	-04 32.5	0.533	0.986	74.6	74.0	20.4	
1999 01 02		13 07.58	-08 32.9	0.565	1.067	82.3	66.0	20.4	
1999 01 12		13 09.03	-11 57.5	0.586	1.152	90.9	58.6	20.5	
1999 01 22		13 06.23	-14 46.1	0.597	1.241	100.5	51.3	20.4	
1999 02 01		12 58.03	-16 54.6	0.603	1.330	111.4	43.6	20.4	
1999 02 11		12 44.01	-18 15.4	0.610	1.419	123.6	35.4	20.3	
1999 02 21		12 24.83	-18 39.2	0.626	1.506	136.6	26.8	20.3	
1999 03 03		12 02.86	-18 03.0	0.656	1.592	149.6	18.4	20.2	
1999 03 13		11 41.35	-16 37.0	0.707	1.675	160.0	11.7	20.3	
1999 03 23		11 23.23	-14 43.0	0.781	1.756	162.3	9.9	20.5	
1999 04 02		11 10.18	-12 45.4	0.878	1.835	155.6	13.0	21.0	
1999 04 12		11 02.38	-11 01.4	0.996	1.911	146.0	17.1	21.5	
1999 04 22		10 59.27	-09 39.4	1.132	1.984	136.3	20.5	22.0	

1998 QP ₅₂		$a, e, i = 2.67, 0.42, 16$				Elements		MPC	32535
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1998 09 04		21 17.35	-04 03.2	0.570	1.548	156.5	15.1	18.6	
1998 09 14		21 23.33	-08 41.6	0.594	1.546	148.9	19.7	18.8	
1998 09 24		21 32.77	-12 42.3	0.637	1.549	140.6	24.3	19.1	
1998 10 04		21 45.56	-15 47.6	0.694	1.557	132.7	28.2	19.4	
1998 10 14		22 01.14	-17 52.4	0.765	1.571	125.5	31.1	19.7	
1998 10 24		22 18.82	-18 59.9	0.847	1.589	119.0	33.2	20.0	
1998 11 03		22 37.95	-19 17.4	0.939	1.611	113.1	34.5	20.3	
1998 11 13		22 57.94	-18 53.4	1.040	1.638	107.6	35.2	20.6	
1998 11 23		23 18.36	-17 56.2	1.148	1.669	102.5	35.3	20.9	
1998 12 03		23 38.96	-16 33.3	1.263	1.703	97.7	35.0	21.1	
1998 12 13		23 59.51	-14 51.6	1.384	1.740	93.0	34.4	21.3	
1998 12 23		00 19.94	-12 56.3	1.510	1.779	88.4	33.6	21.5	
1999 01 02		00 40.21	-10 52.2	1.641	1.821	83.9	32.5	21.7	
1999 01 12		01 00.29	-08 43.5	1.775	1.864	79.4	31.2	21.9	

1998 PF		$a, e, i = 2.01, 0.29, 42$				Elements		MPC	32527
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1998 09 04		21 27.99	-10 52.5	1.215	2.187	159.2	9.4	17.7	
1998 09 14		21 20.29	-15 00.5	1.306	2.217	146.8	14.4	18.1	
1998 09 24		21 15.82	-18 21.5	1.422	2.246	134.9	18.4	18.5	
1998 10 04		21 14.76	-20 55.7	1.558	2.274	124.0	21.4	18.8	

1998 10 14	21 16.89	-22 48.2	1.707	2.301	114.0	23.3	19.1	
1998 10 24	21 21.85	-24 05.8	1.864	2.326	104.8	24.4	19.3	
1998 11 03	21 29.21	-24 54.5	2.026	2.351	96.2	24.8	19.5	
1998 11 13	21 38.55	-25 19.8	2.189	2.374	88.2	24.6	19.7	
1998 11 23	21 49.48	-25 25.9	2.350	2.396	80.6	24.0	19.9	
1998 12 03	22 01.71	-25 16.2	2.506	2.417	73.4	23.0	20.0	
1998 12 13	22 14.94	-24 53.5	2.656	2.437	66.5	21.7	20.1	

1998 QQ ₅₂		$a, e, i = 2.10, 0.46, 5$				Elements		MPC	32535
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1998 09 04		21 40.94	+09 34.7	0.192	1.187	155.7	20.5	18.8	
1998 09 14		22 11.27	+06 08.2	0.225	1.219	158.8	17.4	19.1	
1998 09 24		22 36.04	+03 10.2	0.270	1.258	158.1	17.3	19.6	
1998 10 04		22 56.78	+00 59.8	0.328	1.304	154.3	19.4	20.1	
1998 10 14		23 14.85	-00 20.8	0.398	1.354	148.8	22.5	20.7	
1998 10 24		23 31.35	-00 57.4	0.481	1.408	142.6	25.4	21.3	
1998 11 03		23 47.14	-00 57.5	0.577	1.465	136.3	27.9	21.9	

1998 QR ₁₅		$a, e, i = 2.75, 0.56, 10$				Elements		MPC	32530
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V	
1998 09 04		22 04.70	+02 02.5	0.288	1.289	165.1	11.6	17.1	
1998 09 09		22 02.23	+05 36.0	0.275	1.269	160.0	15.8	17.1	
1998 09 14		22 00.40	+09 19.2	0.265	1.251	154.9	20.0	17.1	
1998 09 19		21 59.56	+13 06.2	0.259	1.236	150.0	24.0	17.1	
1998 09 24		22 00.07	+16 51.2	0.256	1.223	145.5	27.7	17.2	
1998 09 29		22 02.24	+20 28.8	0.255	1.212	141.6	30.9	17.3	
1998 10 04		22 06.31	+23 54.6	0.257	1.204	138.3	33.6	17.4	
1998 10 09		22 12.40	+27 04.8	0.261	1.199	135.6	35.6	17.4	
1998 10 14		22 20.57	+29 56.3	0.267	1.197	133.6	37.1	17.5	
1998 10 19		22 30.86	+32 27.1	0.275	1.198	132.1	38.1	17.6	
1998 10 24		22 43.21	+34 35.8	0.285	1.202	131.2	38.5	17.7	
1998 10 29		22 57.47	+36 22.1	0.297	1.209	130.8	38.5	17.8	
1998 11 03		23 13.38	+37 45.7	0.311	1.218	130.7	38.1	17.9	
1998 11 08		23 30.59	+38 47.1	0.327	1.230	130.9	37.5	18.0	
1998 11 13		23 48.71	+39 26.8	0.345	1.245	131.2	36.7	18.2	
1998 11 18		00 07.38	+39 46.7	0.366	1.262	131.6	35.9	18.3	
1998 11 23		00 26.24	+39 49.1	0.390	1.281	131.9	35.0	18.4	
1998 11 28		00 44.98	+39 37.0	0.416	1.302	132.0	34.3	18.6	
1998 12 03		01 03.34	+39 13.6	0.446	1.326	131.9	33.6	18.8	
1998 12 08		01 21.12	+38 41.5	0.479	1.351	131.5	33.1	18.9	
1998 12 13		01 38.22	+38 03.5	0.515	1.377	130.8	32.8	19.1	
1998 12 18		01 54.61	+37 21.9	0.555	1.405	129.8	32.6	19.3	
1998 12 23		02 10.31	+36 38.9	0.598	1.434	128.5	32.5	19.5	
1998 12 28		02 25.37	+35 55.9	0.645	1.465	127.0	32.5	19.7	
1999 01 02		02 39.81	+35 14.2	0.695	1.496	125.2	32.5	20.0	
1999 01 07		02 53.67	+34 34.3	0.749	1.528	123.2	32.6	20.2	
1999 01 12		03 07.04	+33 56.7	0.806	1.561	121.1	32.7	20.4	
1999 01 17		03 19.96	+33 21.5	0.867	1.594	118.8	32.7	20.6	
1999 01 22		03 32.52	+32 48.8	0.930	1.628	116.5	32.8	20.8	
1999 01 27		03 44.74	+32 18.6	0.997	1.663	114.0	32.7	21.0	
1999 02 01		03 56.67	+31 50.5	1.067	1.697	111.5	32.7	21.2	
1999 02 06		04 08.33	+31 24.4	1.139	1.732	109.0	32.6	21.3	
1999 02 11		04 19.76	+30 59.9	1.214	1.767	106.4	32.4	21.5	

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1998 SEPT. 10

1999 02 16	04 31.00	+30 36.8	1.292	1.803	103.7	32.2	21.7
1999 02 21	04 42.05	+30 14.7	1.371	1.838	101.1	31.9	21.9

C/1998 Q1 (LINEAR)

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 09 04	22 13.04	-07 24.8	0.815	1.817	170.6	5.2	16.1		
1998 09 14	22 17.27	-13 21.5	0.908	1.886	160.2	10.4	16.5		
1998 09 24	22 22.48	-17 50.4	1.028	1.960	149.4	15.1	17.0		
1998 10 04	22 28.95	-20 56.9	1.172	2.038	139.4	18.6	17.4		
1998 10 14	22 36.71	-22 55.0	1.334	2.121	130.3	21.0	17.9		
1998 10 24	22 45.64	-23 59.3	1.512	2.207	122.0	22.5	18.3		
1998 11 03	22 55.59	-24 22.7	1.703	2.295	114.2	23.2	18.8		
1998 11 13	23 06.36	-24 15.7	1.903	2.386	106.8	23.4	19.2		
1998 11 23	23 17.77	-23 46.0	2.112	2.478	99.8	23.1	19.6		
1998 12 03	23 29.68	-22 59.7	2.326	2.572	92.9	22.5	19.9		
1998 12 13	23 41.95	-22 01.6	2.543	2.667	86.3	21.6	20.3		
1998 12 23	23 54.49	-20 55.0	2.762	2.762	79.7	20.5	20.6		

1998 QG₁

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04	22 21.76	-01 09.5	0.876	1.878	170.5	5.1	19.5	
1998 09 14	22 14.56	-03 04.5	0.951	1.933	161.9	9.3	19.9	
1998 09 24	22 10.20	-04 41.6	1.047	1.987	151.4	14.0	20.4	
1998 10 04	22 09.03	-05 55.0	1.163	2.042	141.2	17.9	20.8	
1998 10 14	22 10.89	-06 43.7	1.296	2.096	131.7	20.8	21.2	
1998 10 24	22 15.42	-07 09.2	1.442	2.149	122.7	22.9	21.5	
1998 11 03	22 22.20	-07 13.8	1.599	2.202	114.3	24.3	21.9	
1998 11 13	22 30.78	-07 00.7	1.765	2.254	106.3	24.9	22.1	

1998 QD₂

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04	22 25.97	+07 07.2	0.780	1.772	164.3	8.9	18.2	
1998 09 14	22 16.80	+08 44.1	0.786	1.762	158.6	12.0	18.3	
1998 09 24	22 09.95	+09 55.7	0.812	1.755	150.3	16.4	18.6	
1998 10 04	22 06.70	+10 47.3	0.854	1.753	141.7	20.7	18.8	
1998 10 14	22 07.57	+11 26.6	0.911	1.755	133.6	24.3	19.1	
1998 10 24	22 12.52	+12 00.7	0.980	1.760	126.1	27.2	19.3	
1998 11 03	22 21.18	+12 35.9	1.059	1.770	119.3	29.3	19.5	
1998 11 13	22 32.95	+13 16.0	1.147	1.784	113.0	30.7	19.8	
1998 11 23	22 47.30	+14 03.2	1.242	1.801	107.2	31.6	20.0	
1998 12 03	23 03.73	+14 58.4	1.344	1.822	101.8	32.0	20.2	
1998 12 13	23 21.75	+16 01.3	1.452	1.846	96.6	32.0	20.4	
1998 12 23	23 41.04	+17 10.8	1.566	1.874	91.7	31.7	20.6	
1999 01 02	00 01.31	+18 25.7	1.685	1.904	86.8	31.0	20.8	
1999 01 12	00 22.31	+19 44.2	1.809	1.937	82.1	30.2	20.9	
1999 01 22	00 43.88	+21 04.6	1.936	1.971	77.4	29.2	21.1	
1999 02 01	01 05.90	+22 25.0	2.067	2.008	72.7	27.9	21.2	
1999 02 11	01 28.23	+23 43.8	2.199	2.047	68.1	26.6	21.4	
1999 02 21	01 50.81	+24 59.2	2.333	2.088	63.5	25.1	21.5	

1998 QE₂

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04	22 26.90	+16 53.7	1.052	2.012	155.1	12.2	18.9	
1998 09 14	22 16.49	+14 43.4	1.128	2.083	154.7	11.9	19.1	
1998 09 24	22 09.23	+12 28.7	1.228	2.152	149.3	13.8	19.4	

1998 10 04	22 05.44	+10 23.2	1.349	2.220	141.5	16.3	19.8
1998 10 14	22 04.94	+08 35.4	1.489	2.287	132.9	18.6	20.1
1998 10 24	22 07.32	+07 09.1	1.645	2.352	124.2	20.5	20.5
1998 11 03	22 12.13	+06 05.1	1.814	2.416	115.7	21.7	20.8
1998 11 13	22 18.91	+05 22.4	1.993	2.478	107.6	22.4	21.0
1998 11 23	22 27.25	+04 58.8	2.179	2.539	99.7	22.6	21.3
1998 12 03	22 36.84	+04 52.5	2.369	2.598	92.0	22.3	21.5
1998 12 13	22 47.38	+05 00.9	2.561	2.655	84.5	21.7	21.7
1998 12 23	22 58.66	+05 22.0	2.752	2.711	77.3	20.7	21.9
1999 01 02	23 10.51	+05 53.9	2.940	2.765	70.2	19.5	22.0

1998 QA₁

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04	22 36.29	+18 16.3	0.299	1.284	154.1	20.0	17.4	
1998 09 14	22 30.88	+16 05.2	0.373	1.356	156.0	17.6	17.9	
1998 09 24	22 29.56	+13 57.6	0.460	1.429	153.2	18.5	18.5	
1998 10 04	22 31.92	+12 07.3	0.560	1.504	147.6	20.9	19.2	
1998 10 14	22 37.30	+10 40.6	0.673	1.578	140.9	23.5	19.7	
1998 10 24	22 45.09	+09 38.8	0.800	1.652	133.8	25.8	20.3	
1998 11 03	22 54.81	+09 01.2	0.938	1.725	126.7	27.5	20.8	
1998 11 13	23 06.00	+08 45.4	1.087	1.797	119.7	28.6	21.2	
1998 11 23	23 18.31	+08 48.4	1.247	1.867	112.9	29.2	21.6	
1998 12 03	23 31.50	+09 07.5	1.414	1.936	106.2	29.3	22.0	

1998 PG

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04	22 40.49	+17 54.5	0.308	1.294	154.6	19.5	16.0	
1998 09 09	22 42.71	+18 06.3	0.293	1.280	155.6	19.0	15.8	
1998 09 14	22 45.49	+18 01.1	0.279	1.267	156.1	18.8	15.7	
1998 09 19	22 49.08	+17 38.0	0.269	1.255	156.3	18.7	15.6	
1998 09 24	22 53.70	+16 57.6	0.260	1.246	156.2	19.0	15.5	
1998 09 29	22 59.54	+16 01.3	0.254	1.238	155.7	19.4	15.5	
1998 10 04	23 06.72	+14 51.8	0.250	1.232	154.9	20.1	15.5	
1998 10 09	23 15.21	+13 32.4	0.249	1.228	153.8	21.0	15.5	
1998 10 14	23 24.93	+12 06.7	0.251	1.225	152.5	22.1	15.5	
1998 10 19	23 35.76	+10 39.0	0.255	1.225	150.8	23.3	15.6	
1998 10 24	23 47.53	+09 13.9	0.262	1.227	149.0	24.7	15.7	
1998 10 29	00 00.04	+07 55.5	0.272	1.230	147.1	26.0	15.8	
1998 11 03	00 13.05	+06 47.0	0.284	1.236	145.0	27.4	16.0	
1998 11 08	00 26.32	+05 50.4	0.299	1.243	142.9	28.8	16.1	
1998 11 13	00 39.65	+05 06.7	0.318	1.252	140.7	30.1	16.3	
1998 11 18	00 52.92	+04 36.3	0.339	1.263	138.5	31.3	16.5	
1998 11 23	01 06.05	+04 18.8	0.363	1.275	136.3	32.4	16.7	
1998 11 28	01 18.97	+04 13.4	0.390	1.289	134.1	33.3	16.9	
1998 12 03	01 31.65	+04 18.8	0.419	1.304	132.0	34.2	17.1	
1998 12 08	01 44.06	+04 33.4	0.452	1.321	129.8	34.9	17.3	
1998 12 13	01 56.19	+04 55.7	0.487	1.339	127.7	35.6	17.5	
1998 12 18	02 08.10	+05 24.4	0.524	1.358	125.5	36.1	17.7	
1998 12 23	02 19.81	+05 58.3	0.565	1.378	123.4	36.6	17.9	
1998 12 28	02 31.36	+06 36.2	0.608	1.399	121.2	36.9	18.1	
1999 01 02	02 42.76	+07 16.9	0.653	1.420	119.1	37.2	18.3	
1999 01 07	02 54.02	+07 59.5	0.701	1.443	116.9	37.4	18.5	
1999 01 12	03 05.19	+08 43.1	0.751	1.466	114.7	37.5	18.7	
1999 01 17	03 16.28	+09 27.1	0.804	1.490	112.5	37.6	18.9	

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1999 01 22	03 27.32	+10 10.8	0.859	1.514	110.3	37.6	19.1
1999 01 27	03 38.32	+10 53.9	0.916	1.539	108.1	37.5	19.3
1999 02 01	03 49.29	+11 35.6	0.975	1.564	105.8	37.3	19.4
1999 02 06	04 00.24	+12 15.8	1.036	1.589	103.6	37.1	19.6
1999 02 11	04 11.16	+12 54.0	1.099	1.614	101.3	36.8	19.7
1999 02 16	04 22.08	+13 30.0	1.163	1.640	99.0	36.5	19.9
1999 02 21	04 32.99	+14 03.5	1.229	1.666	96.7	36.1	20.0
1999 02 26	04 43.89	+14 34.5	1.297	1.692	94.4	35.7	20.2
1999 03 03	04 54.78	+15 02.7	1.366	1.717	92.1	35.2	20.3
1999 03 08	05 05.66	+15 28.1	1.436	1.743	89.8	34.7	20.4
1999 03 13	05 16.51	+15 50.4	1.507	1.769	87.5	34.1	20.5
1999 03 18	05 27.34	+16 09.8	1.579	1.794	85.2	33.5	20.7
1999 03 23	05 38.15	+16 26.1	1.652	1.820	82.8	32.9	20.8
1999 03 28	05 48.92	+16 39.4	1.726	1.845	80.5	32.2	20.9
1999 04 02	05 59.65	+16 49.5	1.799	1.871	78.2	31.5	21.0
1999 04 07	06 10.33	+16 56.6	1.874	1.896	75.8	30.8	21.1
1999 04 12	06 20.95	+17 00.6	1.948	1.920	73.5	30.0	21.2
1999 04 17	06 31.52	+17 01.7	2.022	1.945	71.1	29.2	21.3
1999 04 22	06 42.02	+16 59.8	2.096	1.969	68.8	28.4	21.3
1999 04 27	06 52.46	+16 55.0	2.170	1.994	66.4	27.6	21.4
1999 05 02	07 02.81	+16 47.5	2.243	2.017	64.1	26.7	21.5

1994 XZ ₁		$a, e, i = 2.60, 0.43, 10$				Elements <i>MPC</i> 32462	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 04	22 54.90	-29 29.9	0.898	1.871	157.8	11.7	17.8
1998 09 14	22 44.83	-30 19.9	0.876	1.824	151.4	15.3	17.9
1998 09 24	22 35.69	-30 26.5	0.873	1.779	142.9	19.9	18.0
1998 10 04	22 29.38	-29 46.6	0.885	1.736	134.0	24.5	18.1
1998 10 14	22 27.08	-28 24.5	0.909	1.695	125.4	28.7	18.2
1998 10 24	22 29.24	-26 26.6	0.942	1.657	117.6	32.2	18.3
1998 11 03	22 35.73	-23 59.5	0.982	1.622	110.4	35.0	18.5
1998 11 13	22 46.01	-21 09.0	1.026	1.590	104.1	37.1	18.6
1998 11 23	22 59.52	-17 59.0	1.074	1.562	98.5	38.7	18.7
1998 12 03	23 15.70	-14 32.9	1.125	1.539	93.4	39.7	18.8
1998 12 13	23 34.04	-10 54.0	1.178	1.521	88.9	40.3	18.9
1998 12 23	23 54.17	-07 05.6	1.233	1.508	84.9	40.5	18.9
1999 01 02	00 15.81	-03 11.3	1.292	1.500	81.2	40.4	19.0
1999 01 12	00 38.74	+00 45.0	1.355	1.498	77.9	39.9	19.1
1999 01 22	01 02.83	+04 39.1	1.422	1.501	74.7	39.2	19.2
1999 02 01	01 27.98	+08 26.8	1.493	1.510	71.8	38.3	19.3
1999 02 11	01 54.11	+12 03.8	1.569	1.524	69.0	37.2	19.4
1999 02 21	02 21.16	+15 26.2	1.650	1.544	66.2	35.9	19.5
1999 03 03	02 49.05	+18 30.5	1.736	1.568	63.4	34.4	19.6
1999 03 13	03 17.67	+21 13.8	1.827	1.596	60.7	32.9	19.7

1998 QS ₅₂		$a, e, i = 2.20, 0.86, 18$				Elements <i>MPC</i> 32535	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 04	22 55.30	+24 13.4	1.603	2.518	148.4	12.1	18.3
1998 09 14	22 37.19	+23 15.6	1.504	2.430	150.6	11.7	18.0
1998 09 24	22 18.32	+21 33.6	1.434	2.339	146.8	13.6	17.9
1998 10 04	22 00.60	+19 14.1	1.394	2.243	138.6	17.2	17.9
1998 10 14	21 45.69	+16 31.2	1.379	2.144	128.2	21.5	17.9
1998 10 24	21 34.66	+13 41.4	1.383	2.039	117.1	25.7	17.9
1998 11 03	21 27.96	+10 59.3	1.401	1.929	106.2	29.6	17.9

1998 11 13	21 25.50	+08 34.5	1.423	1.814	95.8	32.9	17.9
1998 11 23	21 26.98	+06 31.5	1.443	1.692	86.1	35.6	17.9
1998 12 03	21 31.99	+04 51.6	1.454	1.564	77.1	37.9	17.8
1998 12 13	21 40.13	+03 33.2	1.452	1.428	68.7	40.0	17.7
1998 12 23	21 51.12	+02 33.4	1.430	1.284	61.0	42.1	17.5

1998 QR ₅₂		$a, e, i = 1.04, 0.29, 18$				Elements <i>MPC</i> 32535	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 04	23 00.60	+28 49.5	0.388	1.341	143.8	26.4	18.3
1998 09 09	22 40.56	+30 01.0	0.385	1.338	143.9	26.4	18.3
1998 09 14	22 20.44	+30 39.9	0.387	1.333	142.3	27.5	18.3
1998 09 19	22 01.35	+30 47.3	0.393	1.327	139.3	29.6	18.4
1998 09 24	21 44.25	+30 27.7	0.402	1.320	135.4	32.3	18.5
1998 09 29	21 29.76	+29 48.1	0.415	1.312	131.0	35.2	18.6
1998 10 04	21 18.12	+28 55.9	0.431	1.303	126.4	38.1	18.8
1998 10 09	21 09.30	+27 57.1	0.448	1.293	121.9	41.0	18.9
1998 10 14	21 03.11	+26 56.5	0.466	1.281	117.5	43.7	19.1
1998 10 19	20 59.31	+25 57.5	0.484	1.268	113.3	46.1	19.2
1998 10 24	20 57.64	+25 02.4	0.503	1.255	109.4	48.4	19.3
1998 10 29	20 57.82	+24 13.0	0.521	1.240	105.6	50.5	19.4
1998 11 03	20 59.59	+23 30.0	0.538	1.224	102.1	52.4	19.5
1998 11 08	21 02.74	+22 53.5	0.554	1.207	98.8	54.2	19.6
1998 11 13	21 07.09	+22 23.4	0.568	1.188	95.6	56.0	19.7
1998 11 18	21 12.51	+21 59.5	0.580	1.169	92.7	57.6	19.7
1998 11 23	21 18.90	+21 41.5	0.590	1.149	89.8	59.2	19.8
1998 11 28	21 26.13	+21 29.1	0.598	1.128	87.2	60.9	19.8
1998 12 03	21 34.13	+21 21.7	0.603	1.106	84.6	62.5	19.8
1998 12 08	21 42.81	+21 18.2	0.605	1.083	82.2	64.3	19.9
1998 12 13	21 52.14	+21 17.8	0.604	1.060	79.8	66.1	19.9
1998 12 18	22 02.08	+21 19.5	0.600	1.036	77.5	68.1	19.9
1998 12 23	22 12.59	+21 22.2	0.593	1.011	75.2	70.2	19.9
1998 12 28	22 23.63	+21 24.4	0.583	0.986	73.0	72.5	19.8
1999 01 02	22 35.14	+21 23.9	0.569	0.961	70.8	75.1	19.8
1999 01 07	22 47.08	+21 18.2	0.553	0.935	68.6	78.1	19.8
1999 01 12	22 59.39	+21 04.2	0.533	0.910	66.2	81.4	19.8
1999 01 17	23 11.99	+20 38.0	0.509	0.886	63.8	85.2	19.8
1999 01 22	23 24.77	+19 54.7	0.484	0.862	61.1	89.4	19.8

1998 QV ₃		$a, e, i = 2.31, 0.51, 14$				Elements <i>MPC</i> 32528	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 04	23 27.59	+17 00.4	0.172	1.165	154.0	22.3	17.5
1998 09 09	23 28.49	+26 34.5	0.170	1.154	147.6	27.9	17.6
1998 09 14	23 29.17	+35 38.2	0.173	1.146	140.8	33.7	17.8
1998 09 19	23 29.85	+43 36.9	0.182	1.140	134.6	38.9	18.0
1998 09 24	23 30.88	+50 14.7	0.194	1.137	129.6	42.8	18.3
1998 09 29	23 32.70	+55 31.8	0.209	1.137	125.8	45.6	18.5
1998 10 04	23 35.72	+59 37.1	0.225	1.139	123.3	47.2	18.7
1998 10 09	23 40.28	+62 41.1	0.243	1.145	121.7	47.9	18.9
1998 10 14	23 46.58	+64 53.5	0.261	1.154	121.0	47.8	19.1
1998 10 19	23 54.81	+66 22.0	0.279	1.165	121.0	47.1	19.2
1998 10 24	00 05.02	+67 12.9	0.298	1.179	121.6	46.0	19.4
1998 10 29	00 16.99	+67 31.4	0.318	1.195	122.6	44.5	19.5
1998 11 03	00 30.34	+67 21.7	0.337	1.213	124.0	42.7	19.6
1998 11 08	00 44.52	+66 47.4	0.358	1.234	125.6	40.8	19.7

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1998 11 13	00 59.05	+65 51.3	0.379	1.256	127.3	38.8	19.8
1998 11 18	01 13.59	+64 36.3	0.402	1.280	129.0	36.9	20.0
1998 11 23	01 27.90	+63 06.0	0.427	1.306	130.6	35.0	20.1
1998 11 28	01 41.84	+61 24.1	0.453	1.333	132.0	33.4	20.2
1998 12 03	01 55.33	+59 34.1	0.482	1.361	133.0	32.0	20.3
1998 12 08	02 08.31	+57 39.3	0.514	1.391	133.6	30.8	20.5
1998 12 13	02 20.80	+55 42.4	0.549	1.421	133.8	30.0	20.7
1998 12 18	02 32.88	+53 46.1	0.587	1.452	133.5	29.5	20.8
1998 12 23	02 44.62	+51 52.5	0.628	1.483	132.7	29.2	21.0
1998 12 28	02 56.08	+50 03.5	0.673	1.515	131.4	29.1	21.2
1999 01 02	03 07.29	+48 20.3	0.721	1.548	129.8	29.2	21.4
1999 01 07	03 18.27	+46 43.4	0.773	1.580	127.8	29.4	21.6
1999 01 12	03 29.06	+45 13.2	0.829	1.614	125.6	29.7	21.8

1998 QH ₂		$a, e, i = 1.43, 0.36, 61$				Elements <i>MPC</i> 32528		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04		23 40.54	+00 56.7	0.915	1.907	165.1	7.8	17.6
1998 09 14		23 20.96	−07 08.6	0.916	1.920	176.1	2.0	17.3
1998 09 24		23 01.84	−14 41.7	0.961	1.931	158.7	10.9	17.8
1998 10 04		22 45.66	−20 52.3	1.046	1.939	142.6	18.3	18.3
1998 10 14		22 33.93	−25 26.6	1.160	1.944	128.4	23.7	18.7
1998 10 24		22 27.13	−28 35.9	1.292	1.946	116.0	27.3	19.0
1998 11 03		22 25.06	−30 39.5	1.433	1.945	105.2	29.5	19.3
1998 11 13		22 27.08	−31 54.9	1.576	1.941	95.6	30.5	19.5
1998 11 23		22 32.53	−32 35.2	1.716	1.935	87.0	30.6	19.7
1998 12 03		22 40.82	−32 49.7	1.850	1.926	79.2	30.2	19.9
1998 12 13		22 51.39	−32 45.0	1.973	1.914	72.0	29.3	20.0
1998 12 23		23 03.87	−32 25.2	2.083	1.899	65.5	28.1	20.0

1998 QO ₅₂		$a, e, i = 2.45, 0.41, 6$				Elements <i>MPC</i> 32535		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04		23 58.20	−01 20.7	0.557	1.548	162.2	11.5	18.9
1998 09 14		23 59.28	−03 20.6	0.516	1.519	171.9	5.3	18.4
1998 09 24		23 59.10	−05 36.9	0.493	1.495	174.0	4.0	18.2
1998 10 04		23 59.09	−07 46.4	0.487	1.475	164.4	10.5	18.4
1998 10 14		00 00.73	−09 26.4	0.496	1.461	154.5	17.1	18.7
1998 10 24		00 05.12	−10 21.2	0.519	1.452	145.3	23.0	19.0
1998 11 03		00 12.89	−10 25.1	0.554	1.448	137.2	27.7	19.3
1998 11 13		00 23.94	−09 41.2	0.599	1.451	130.2	31.4	19.5
1998 11 23		00 37.85	−08 17.0	0.655	1.459	124.1	34.1	19.8
1998 12 03		00 54.13	−06 21.6	0.719	1.473	118.7	36.0	20.1
1998 12 13		01 12.19	−04 04.4	0.791	1.492	113.8	37.1	20.4
1998 12 23		01 31.61	−01 33.8	0.873	1.515	109.3	37.8	20.6
1999 01 02		01 52.08	+01 03.0	0.962	1.544	105.0	38.0	20.9
1999 01 12		02 13.29	+03 39.9	1.059	1.576	100.9	37.8	21.1
1999 01 22		02 35.10	+06 12.2	1.165	1.612	96.8	37.3	21.4
1999 02 01		02 57.37	+08 36.2	1.278	1.650	92.7	36.6	21.6
1999 02 11		03 19.96	+10 49.0	1.397	1.692	88.7	35.7	21.8
1999 02 21		03 42.82	+12 48.7	1.523	1.735	84.5	34.6	22.0

1998 QH ₁		$a, e, i = 2.54, 0.55, 12$				Elements <i>MPC</i> 32528		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04		00 36.72	−00 50.3	0.223	1.211	152.9	22.3	18.2
1998 09 09		01 01.87	−04 35.8	0.207	1.194	151.9	23.4	18.1

1998 09 14	01 29.05	-08 48.7	0.197	1.180	149.2	25.9	18.0
1998 09 19	01 57.29	-13 10.3	0.192	1.168	145.3	29.4	18.0
1998 09 24	02 25.36	-17 18.8	0.192	1.159	140.7	33.2	18.1
1998 09 29	02 51.98	-20 55.6	0.197	1.153	136.4	36.9	18.3
1998 10 04	03 16.09	-23 50.9	0.206	1.150	132.6	39.9	18.4
1998 10 09	03 37.03	-26 03.3	0.217	1.150	129.6	42.0	18.6
1998 10 14	03 54.49	-27 36.6	0.230	1.153	127.6	43.3	18.8
1998 10 19	04 08.50	-28 35.6	0.245	1.159	126.5	43.7	19.0
1998 10 24	04 19.34	-29 05.0	0.261	1.168	126.2	43.5	19.1
1998 10 29	04 27.39	-29 08.5	0.278	1.180	126.5	42.6	19.2
1998 11 03	04 33.07	-28 49.2	0.295	1.194	127.3	41.3	19.4
1998 11 08	04 36.79	-28 09.6	0.313	1.212	128.7	39.7	19.5
1998 11 13	04 38.90	-27 11.4	0.332	1.231	130.3	37.8	19.6
1998 11 18	04 39.80	-25 55.7	0.353	1.253	132.1	35.9	19.7
1998 11 23	04 39.86	-24 24.0	0.375	1.276	133.9	33.9	19.8
1998 11 28	04 39.45	-22 38.1	0.398	1.302	135.7	32.0	19.9
1998 12 03	04 38.87	-20 40.5	0.424	1.329	137.3	30.2	20.1
1998 12 08	04 38.35	-18 33.9	0.452	1.357	138.5	28.8	20.2
1998 12 13	04 38.08	-16 20.9	0.483	1.387	139.2	27.6	20.4
1998 12 18	04 38.20	-14 04.1	0.517	1.418	139.4	26.8	20.5
1998 12 23	04 38.85	-11 46.0	0.555	1.449	139.1	26.4	20.7
1998 12 28	04 40.11	-09 29.0	0.596	1.482	138.2	26.3	20.9
1999 01 02	04 41.99	-07 15.1	0.641	1.515	136.8	26.4	21.1
1999 01 07	04 44.49	-05 05.9	0.689	1.549	134.9	26.7	21.3
1999 01 12	04 47.59	-03 02.4	0.741	1.583	132.7	27.1	21.6
1999 01 17	04 51.29	-01 05.2	0.797	1.618	130.3	27.6	21.8
1999 01 22	04 55.54	+00 45.0	0.856	1.653	127.6	28.1	22.0

1998 QJ ₅₆		$a, e, i = 2.63, 0.48, 17$				Elements <i>MPC</i> 32535		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04		00 46.06	−07 36.4	0.504	1.471	151.5	19.1	17.7
1998 09 14		00 59.78	−13 28.8	0.464	1.440	155.0	17.2	17.4
1998 09 24		01 12.01	−19 44.8	0.443	1.414	153.7	18.3	17.3
1998 10 04		01 22.67	−25 29.2	0.440	1.395	148.5	22.0	17.4
1998 10 14		01 31.95	−29 54.3	0.453	1.383	141.9	26.4	17.6
1998 10 24		01 40.32	−32 34.8	0.478	1.378	135.7	30.3	17.8
1998 11 03		01 48.61	−33 27.6	0.511	1.380	130.5	33.1	18.0
1998 11 13		01 57.49	−32 44.9	0.552	1.390	126.4	35.0	18.3
1998 11 23		02 07.43	−30 43.5	0.599	1.407	123.0	36.1	18.5
1998 12 03		02 18.74	−27 41.7	0.653	1.430	120.2	36.6	18.7
1998 12 13		02 31.41	−23 58.2	0.714	1.460	117.6	36.7	19.0
1998 12 23		02 45.38	−19 48.9	0.784	1.495	115.1	36.6	19.2
1999 01 02		03 00.58	−15 28.5	0.863	1.535	112.3	36.4	19.5
1999 01 12		03 16.82	−11 09.1	0.952	1.579	109.3	36.0	19.8
1999 01 22		03 33.99	−06 59.6	1.052	1.626	105.9	35.6	20.0
1999 02 01		03 51.97	−03 06.8	1.163	1.676	102.2	35.1	20.3
1999 02 11		04 10.59	+00 25.0	1.284	1.729	98.3	34.4	20.6
1999 02 21		04 29.77	+03 33.9	1.414	1.783	94.1	33.6	20.8
1999 03 03		04 49.39	+06 18.9	1.552	1.838	89.8	32.6	21.1
1999 03 13		05 09.31	+08 40.0	1.697	1.895	85.2	31.5	21.3
1999 03 23		05 29.45	+10 38.3	1.848	1.952	80.6	30.3	21.5
1999 04 02		05 49.69	+12 14.7	2.003	2.009	75.9	28.8	21.7

1998 SEPT. 10

M.P.C. 32543

1999 04 12	06 09.93	+13 30.8	2.161	2.066	71.1	27.3	21.9
1999 04 22	06 30.09	+14 28.1	2.319	2.124	66.2	25.7	22.0

1998 QK₂₈ $a, e, i = 2.31, 0.58, 8$ Elements *MPC* 32532

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04	01 25.52	+32 22.2	0.072	1.053	125.9	50.9	15.8	
1998 09 09	03 29.95	+29 37.1	0.069	1.031	108.4	68.0	16.2	
1998 09 14	05 08.34	+21 32.4	0.081	1.013	93.0	82.4	16.9	
1998 09 19	06 07.60	+14 08.0	0.101	0.999	84.1	90.2	17.7	
1998 09 24	06 43.41	+08 55.4	0.125	0.989	80.0	92.8	18.3	
1998 09 29	07 06.97	+05 20.5	0.151	0.984	78.7	92.6	18.6	
1998 10 04	07 23.85	+02 47.1	0.178	0.982	79.0	90.7	18.9	
1998 10 09	07 36.77	+00 52.5	0.204	0.985	80.3	87.9	19.1	
1998 10 14	07 47.09	+00 36.9	0.230	0.993	82.1	84.6	19.3	
1998 10 19	07 55.47	-01 49.1	0.254	1.004	84.5	80.9	19.4	
1998 10 24	08 02.26	-02 48.5	0.277	1.020	87.2	77.0	19.4	
1998 10 29	08 07.64	-03 37.6	0.298	1.039	90.3	73.0	19.5	
1998 11 03	08 11.68	-04 17.9	0.318	1.061	93.8	68.9	19.6	

1998 11 13	08 15.75	-05 13.8	0.351	1.115	101.7	60.4	19.6	
1998 11 23	08 14.09	-05 33.8	0.379	1.178	111.0	51.5	19.7	
1998 12 03	08 06.67	-05 10.1	0.405	1.248	121.8	42.2	19.7	
1998 12 13	07 54.29	-03 57.5	0.434	1.322	133.6	32.6	19.7	
1998 12 23	07 38.70	-01 56.9	0.472	1.399	145.7	23.3	19.7	
1999 01 02	07 22.66	+00 39.3	0.524	1.478	156.2	15.6	19.8	
1999 01 12	07 08.79	+03 30.2	0.595	1.557	160.9	11.9	20.1	
1999 01 22	06 58.83	+06 16.4	0.685	1.637	157.1	13.6	20.5	
1999 02 01	06 53.48	+08 45.0	0.795	1.716	148.9	17.3	21.1	
1999 02 11	06 52.50	+10 50.7	0.923	1.794	139.8	20.8	21.6	
1999 02 21	06 55.28	+12 32.8	1.066	1.870	131.0	23.5	22.1	

1998 QH₅₆ $a, e, i = 1.54, 0.02, 32$ Elements *MPC* 32535

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04	01 35.90	+07 22.9	0.640	1.536	136.3	27.0	18.7	
1998 09 14	01 37.69	-00 19.9	0.587	1.533	147.2	20.8	18.3	
1998 09 24	01 35.04	-09 17.1	0.560	1.529	155.1	16.0	18.0	
1998 10 04	01 28.58	-18 18.5	0.561	1.526	154.4	16.5	18.0	
1998 10 14	01 19.91	-26 04.2	0.590	1.523	145.9	21.5	18.3	
1998 10 24	01 11.23	-31 45.7	0.641	1.519	135.5	27.3	18.7	
1998 11 03	01 04.79	-35 18.3	0.706	1.516	125.7	32.1	19.0	
1998 11 13	01 02.00	-37 03.1	0.779	1.513	117.1	35.6	19.3	
1998 11 23	01 03.35	-37 25.8	0.856	1.511	109.8	38.0	19.6	
1998 12 03	01 08.74	-36 48.5	0.934	1.508	103.5	39.5	19.8	
1998 12 13	01 17.63	-35 27.4	1.009	1.506	98.1	40.3	20.0	
1998 12 23	01 29.46	-33 33.4	1.082	1.504	93.3	40.8	20.2	
1999 01 02	01 43.76	-31 14.4	1.150	1.502	89.2	40.9	20.3	
1999 01 12	02 00.07	-28 36.3	1.213	1.500	85.5	40.8	20.4	
1999 01 22	02 18.10	-25 43.0	1.273	1.499	82.2	40.6	20.5	
1999 02 01	02 37.62	-22 38.6	1.328	1.498	79.2	40.2	20.6	
1999 02 11	02 58.44	-19 26.3	1.381	1.498	76.5	39.8	20.7	
1999 02 21	03 20.46	-16 09.4	1.432	1.498	73.9	39.4	20.7	
1999 03 03	03 43.57	-12 51.7	1.482	1.498	71.5	38.9	20.8	
1999 03 13	04 07.69	-09 36.5	1.531	1.498	69.1	38.3	20.8	
1999 03 23	04 32.76	-06 27.4	1.582	1.499	66.7	37.6	20.9	

1999 04 02	04 58.67	-03 28.4	1.634	1.500	64.3	36.9	20.9
1999 04 12	05 25.31	-00 42.5	1.688	1.501	61.8	36.0	21.0

1998 QP₆₃ $a, e, i = 2.60, 0.48, 9$ Elements *MPC* 32536

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	V
1998 09 04	01 51.37	+03 07.7	0.480	1.385	133.8	31.7	17.7	
1998 09 09	02 03.02	+02 04.1	0.457	1.373	135.9	30.7	17.5	
1998 09 14	02 14.19	+00 49.9	0.438	1.363	138.0	29.6	17.4	
1998 09 19	02 24.70	-00 33.3	0.422	1.355	140.0	28.4	17.2	
1998 09 24	02 34.38	-02 03.3	0.409	1.349	142.0	27.2	17.1	
1998 09 29	02 43.11	-03 36.9	0.399	1.345	144.0	26.0	17.0	
1998 10 04	02 50.78	-05 10.6	0.392	1.343	145.8	24.8	17.0	
1998 10 09	02 57.31	-06 40.8	0.388	1.343	147.4	23.6	16.9	
1998 10 14	03 02.66	-08 04.0	0.388	1.344	148.9	22.6	16.9	
1998 10 19	03 06.83	-09 16.5	0.390	1.348	150.1	21.6	16.9	
1998 10 24	03 09.93	-10 15.4	0.395	1.354	151.0	20.9	16.9	
1998 10 29	03 12.10	-10 58.2	0.403	1.361	151.5	20.3	16.9	
1998 11 03	03 13.56	-11 23.5	0.414	1.371	151.7	20.1	17.0	
1998 11 08	03 14.50	-11 30.9	0.428	1.382	151.5	20.0	17.1	
1998 11 13	03 15.12	-11 20.7	0.445	1.395	150.8	20.3	17.2	
1998 11 18	03 15.64	-10 53.8	0.465	1.409	149.7	20.7	17.3	
1998 11 23	03 16.28	-10 11.7	0.488	1.425	148.2	21.4	17.5	
1998 11 28	03 17.21	-09 16.5	0.514	1.443	146.4	22.2	17.6	
1998 12 03	03 18.57	-08 10.4	0.543	1.462	144.3	23.2	17.8	
1998 12 08	03 20.42	-06 56.0	0.576	1.482	142.0	24.2	18.0	
1998 12 13	03 22.81	-05 35.3	0.612	1.503	139.5	25.2	18.2	
1998 12 18	03 25.78	-04 10.2	0.651	1.526	136.9	26.2	18.4	
1998 12 23	03 29.35	-02 42.6	0.694	1.549	134.1	27.1	18.6	
1998 12 28	03 33.50	-01 13.9	0.739	1.573	131.4	28.0	18.8	
1999 01 02	03 38.21	+00 14.4	0.788	1.598	128.5	28.8	19.0	

1999 01 12	03 49.15	+03 06.2	0.895	1.650	122.8	30.1	19.3	
1999 01 22	04 01.89	+05 47.2	1.014	1.704	117.1	30.9	19.7	
1999 02 01	04 16.17	+08 14.0	1.143	1.760	111.4	31.4	20.1	
1999 02 11	04 31.66	+10 24.8	1.282	1.817	105.7	31.5	20.4	
1999 02 21	04 48.15	+12 19.0	1.430	1.876	100.1	31.3	20.7	
1999 03 03	05 05.44	+13 56.5	1.584	1.934	94.6	30.7	21.0	
1999 03 13	05 23.29	+15 17.6	1.743	1.993	89.1	29.9	21.2	
1999 03 23	05 41.58	+16 23.0	1.907	2.052	83.7	28.9	21.4	
1999 04 02	06 00.14	+17 13.1	2.073	2.110	78.3	27.6	21.6	
1999 04 12	06 18.84	+17 49.0	2.240	2.169	72.9	26.2	21.8	
1999 04 22	06 37.58	+18 11.4	2.406	2.227	67.6	24.7	22.0	

1997 CX₅ $a, e, i = 1.69, 0.12, 19$ Elements *MPC* 29310

Date	TT	α_{2000}	δ_{2000}	Δ	r	Variation	V
1998 09 04	02 10.46	+43 02.5	1.042	1.703	-3.42	-11.6	21.1
1998 09 14	02 13.26	+46 59.5	0.966	1.688	-4.09	-12.1	20.9
1998 09 24	02 10.83	+50 42.1	0.900	1.671	-4.89	-13.7	20.7
1998 10 04	02 02.01	+53 54.2	0.844	1.655	-5.72	-17.1	20.5
1998 10 14	01 46.52	+56 15.6	0.799	1.639	-6.40	-22.7	20.3
1998 10 24	01 26.10	+57 24.6	0.767	1.623	-6.67	-29.8	20.2
1998 11 03	01 05.28	+57 09.8	0.747	1.608	-6.38	-36.8	20.1
1998 11 13	00 49.17	+55 38.7	0.740	1.593	-5.69	-41.7	20.1
1998 11 23	00 41.04	+53 12.9	0.745	1.578	-4.92	-43.3	20.1

1998 12 03	00 41.63	+50 19.8	0.761	1.564	-4.27	-41.8	20.2
1998 12 13	00 49.83	+47 21.7	0.786	1.550	-3.79	-38.1	20.3
1998 12 23	01 04.18	+44 32.5	0.821	1.538	-3.46	-33.0	20.4
1999 01 02	01 23.27	+42 00.0	0.863	1.526	-3.24	-27.4	20.6
1999 01 12	01 45.84	+39 45.5	0.911	1.516	-3.08	-21.6	20.7
1999 01 22	02 11.02	+37 47.3	0.965	1.507	-2.95	-16.0	20.9
1999 02 01	02 38.06	+36 02.3	1.024	1.499	-2.83	-10.9	21.0
1999 02 11	03 06.35	+34 26.1	1.088	1.493	-2.71	-6.2	21.2
1999 02 21	03 35.45	+32 54.6	1.154	1.488	-2.59	-2.1	21.3
1999 03 03	04 04.98	+31 24.1	1.224	1.485	-2.45	+1.5	21.4
1999 03 13	04 34.62	+29 51.3	1.296	1.483	-2.31	+4.5	21.5
1999 03 23	05 04.15	+28 13.7	1.369	1.483	-2.16	+7.1	21.6
1999 04 02	05 33.37	+26 29.6	1.444	1.484	-2.01	+9.1	21.7
1999 04 12	06 02.12	+24 37.8	1.519	1.487	-1.87	+10.8	21.8
1999 04 22	06 30.35	+22 37.6	1.595	1.492	-1.73	+12.0	21.9
1999 05 02	06 57.97	+20 28.7	1.670	1.498	-1.60	+13.0	22.0

1998 QK ₅₆		$a, e, i = 1.88, 0.51, 13$				Elements <i>MPC</i> 32536	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 04	02 47.61	+09 55.3	0.654	1.441	118.6	37.9	18.4
1998 09 14	03 18.30	+07 40.3	0.541	1.367	121.2	39.0	17.9
1998 09 24	03 55.34	+03 51.0	0.443	1.293	121.8	41.2	17.4
1998 10 04	04 41.45	-02 02.6	0.365	1.220	119.1	45.7	17.0
1998 10 14	05 39.53	-10 05.4	0.312	1.151	111.9	53.6	16.7
1998 10 24	06 49.96	-19 04.1	0.287	1.086	100.7	64.2	16.7
1998 11 03	08 07.39	-26 25.8	0.291	1.027	88.7	74.9	17.0
1998 11 13	09 22.07	-30 34.2	0.316	0.979	78.9	82.6	17.3
1998 11 23	10 27.02	-31 54.5	0.354	0.944	72.6	86.4	17.7
1998 12 03	11 21.40	-31 33.4	0.399	0.924	69.4	86.7	17.9
1998 12 13	12 07.39	-30 22.4	0.445	0.922	68.8	84.5	18.0
1998 12 23	12 47.01	-28 48.6	0.488	0.937	70.1	80.6	18.1
1999 01 02	13 21.49	-27 01.8	0.525	0.968	72.8	76.0	18.2
1999 01 12	13 51.41	-25 04.6	0.555	1.013	76.9	70.9	18.2
1999 01 22	14 16.74	-22 54.4	0.575	1.069	82.0	65.7	18.3
1999 02 01	14 37.23	-20 26.9	0.587	1.133	88.4	60.4	18.3
1999 02 11	14 52.55	-17 38.0	0.591	1.201	95.9	54.8	18.3
1999 02 21	15 02.16	-14 23.9	0.590	1.273	104.7	48.7	18.2
1999 03 03	15 05.63	-10 43.1	0.587	1.347	114.8	41.9	18.1
1999 03 13	15 02.80	-06 39.7	0.587	1.421	126.1	34.4	18.0
1999 03 23	14 54.00	-02 25.5	0.596	1.495	138.3	26.3	17.9
1999 04 02	14 40.61	+01 37.1	0.621	1.568	150.1	18.5	17.9
1999 04 12	14 24.88	+05 02.5	0.664	1.640	159.0	12.7	17.9
1999 04 22	14 09.38	+07 31.4	0.730	1.710	160.3	11.4	18.2
1999 05 02	13 56.35	+08 58.1	0.816	1.778	154.0	14.4	18.6
1999 05 12	13 46.95	+09 29.7	0.922	1.844	145.2	18.2	19.1
1999 05 22	13 41.48	+09 18.0	1.045	1.908	136.1	21.6	19.5
1999 06 01	13 39.69	+08 35.3	1.180	1.969	127.5	24.1	20.0
1999 06 11	13 41.03	+07 31.5	1.327	2.029	119.4	25.8	20.3
1999 06 21	13 44.98	+06 13.8	1.482	2.086	111.8	26.9	20.7
1999 07 01	13 51.05	+04 47.7	1.644	2.141	104.7	27.3	21.0
1999 07 11	13 58.81	+03 16.7	1.809	2.194	97.9	27.3	21.2
1999 07 21	14 07.98	+01 43.6	1.977	2.244	91.3	26.9	21.4
1999 07 31	14 18.29	+00 10.2	2.146	2.292	85.0	26.2	21.6

1999 08 10	14 29.55	-01 21.9	2.313	2.338	78.8	25.2	21.8
1999 08 20	14 41.63	-02 51.7	2.477	2.382	72.8	23.9	22.0
1998 QA ₆₂		$a, e, i = 1.84, 0.71, 24$				Elements <i>MPC</i> 32536	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 04	02 55.81	+37 34.6	0.230	1.100	107.5	61.0	17.7
1998 09 09	04 31.08	+36 06.8	0.180	1.037	94.4	75.7	17.5
1998 09 14	06 33.74	+26 25.8	0.160	0.973	73.5	97.5	18.0
1998 09 19	08 13.93	+11 24.9	0.180	0.908	53.2	117.6	19.2
1998 09 24	09 16.47	+00 00.2	0.232	0.844	41.6	127.9	20.5
1991 DG		$a, e, i = 1.43, 0.36, 11$				Elements <i>MPC</i> 28085	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 04	03 26.59	+13 16.5	1.037	1.661	108.6	35.1	21.6
1998 09 14	03 28.99	+11 40.2	0.977	1.700	117.9	31.5	21.4
1998 09 24	03 26.58	+09 38.0	0.923	1.736	128.5	26.9	21.2
1998 10 04	03 19.13	+07 12.9	0.881	1.769	140.1	21.3	21.0
1998 10 14	03 07.03	+04 33.3	0.856	1.799	152.1	15.0	20.8
1998 10 24	02 51.54	+01 54.2	0.853	1.826	162.6	9.4	20.6
1998 11 03	02 34.84	-00 25.1	0.876	1.851	164.6	8.2	20.6
1998 11 13	02 19.37	-02 08.5	0.924	1.873	156.2	12.3	20.9
1998 11 23	02 07.01	-03 08.8	0.996	1.892	144.9	17.4	21.3
1998 12 03	01 58.82	-03 27.5	1.087	1.908	133.9	21.9	21.6
1998 12 13	01 54.92	-03 11.5	1.192	1.921	123.6	25.3	22.0
1998 QQ ₆₃		$a, e, i = 2.11, 0.50, 2$				Elements <i>MPC</i> 32536	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 04	04 27.52	+16 16.6	0.297	1.069	93.5	70.3	19.0
1998 09 14	05 17.13	+17 50.7	0.317	1.061	91.2	71.4	19.1
1998 09 24	05 57.73	+18 33.4	0.341	1.067	91.3	70.1	19.3
1998 10 04	06 29.89	+18 46.1	0.364	1.085	93.5	67.0	19.3
1998 10 14	06 54.47	+18 45.5	0.384	1.115	97.5	62.5	19.4
1998 10 24	07 11.78	+18 44.0	0.399	1.155	103.4	57.0	19.4
1998 11 03	07 21.79	+18 50.9	0.412	1.203	111.0	50.4	19.3
1998 11 13	07 24.42	+19 12.4	0.422	1.257	120.5	42.7	19.3
1998 11 23	07 19.56	+19 50.6	0.434	1.317	131.8	34.0	19.2
1998 12 03	07 08.05	+20 41.4	0.453	1.380	144.7	24.4	19.1
1998 12 13	06 52.06	+21 35.7	0.484	1.446	158.7	14.4	19.0
1998 12 23	06 34.76	+22 23.4	0.532	1.513	172.9	4.6	18.9
1999 01 02	06 19.59	+22 59.0	0.600	1.581	173.4	4.1	19.3
1999 01 12	06 08.75	+23 23.5	0.688	1.648	160.7	11.4	20.0
1999 01 22	06 03.01	+23 40.0	0.795	1.716	149.2	17.1	20.6
1999 02 01	06 02.19	+23 51.5	0.918	1.782	138.8	21.3	21.1
1999 02 11	06 05.50	+23 59.3	1.056	1.848	129.4	24.4	21.6
1999 02 21	06 12.15	+24 03.7	1.206	1.912	120.9	26.4	22.0
1998 QT ₆₀		$a, e, i = 2.84, 0.43, 22$				Elements <i>MPC</i> 32536	
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 04	04 43.93	+48 44.4	1.435	1.690	85.7	36.5	16.4
1998 09 14	05 17.61	+50 19.0	1.355	1.670	88.7	37.0	16.3
1998 09 24	05 51.02	+51 22.4	1.277	1.653	92.1	37.3	16.1
1998 10 04	06 22.88	+51 54.7	1.203	1.640	95.8	37.4	16.0
1998 10 14	06 51.87	+51 58.8	1.132	1.633	99.9	37.0	15.8
1998 10 24	07 16.63	+51 39.1	1.062	1.629	104.7	36.2	15.7
1998 11 03	07 35.97	+50 59.7	0.995	1.631	110.3	34.8	15.5

1998 11 13	07 48.95	+50 03.6	0.932	1.638	116.8	32.6	15.3
1998 11 23	07 54.73	+48 50.7	0.874	1.649	124.5	29.6	15.1
1998 12 03	07 52.98	+47 15.4	0.825	1.664	133.4	25.5	14.9
1998 12 13	07 44.24	+45 08.3	0.788	1.684	143.4	20.4	14.6
1998 12 23	07 30.26	+42 20.0	0.768	1.707	154.0	14.6	14.4
1999 01 02	07 14.15	+38 49.1	0.770	1.735	163.2	9.4	14.3
1999 01 12	06 59.28	+34 49.4	0.797	1.765	165.1	8.3	14.3
1999 01 22	06 48.10	+30 44.7	0.850	1.799	157.6	12.0	14.6
1999 02 01	06 41.74	+26 57.5	0.927	1.836	147.4	16.8	15.0
1999 02 11	06 40.10	+23 40.6	1.025	1.874	137.4	20.9	15.4
1999 02 21	06 42.59	+20 56.2	1.141	1.915	128.0	24.0	15.8
1999 03 03	06 48.45	+18 40.6	1.270	1.957	119.4	26.2	16.2
1999 03 13	06 56.92	+16 47.6	1.410	2.001	111.6	27.5	16.5
1999 03 23	07 07.41	+15 10.9	1.558	2.047	104.3	28.1	16.8
1999 04 02	07 19.45	+13 45.1	1.712	2.093	97.6	28.3	17.0
1999 04 12	07 32.60	+12 25.6	1.869	2.139	91.2	27.9	17.2
1999 04 22	07 46.59	+11 09.4	2.029	2.187	85.1	27.3	17.5
1999 05 02	08 01.18	+09 53.8	2.189	2.235	79.3	26.3	17.6
1999 05 12	08 16.16	+08 37.3	2.349	2.283	73.7	25.1	17.8
1999 05 22	08 31.41	+07 18.6	2.507	2.331	68.3	23.8	18.0
1999 06 01	08 46.80	+05 57.0	2.661	2.379	63.0	22.3	18.1

1997 DF		$a, e, i = 1.54, 0.15, 19$			Elements <i>MPC</i> 29948		
Date	TT	α_{2000}	δ_{2000}	Δ	r	Variation	V
1998 09 04	06 42.86	+06 09.9	1.452	1.316	-1.84	-5.8	21.1
1998 09 14	07 13.37	+05 04.4	1.418	1.318	-1.84	-6.2	21.0
1998 09 24	07 42.90	+03 49.4	1.382	1.322	-1.84	-6.7	21.0
1998 10 04	08 11.35	+02 28.0	1.345	1.329	-1.86	-7.1	21.0
1998 10 14	08 38.70	+01 03.6	1.305	1.338	-1.88	-7.6	20.9
1998 10 24	09 04.90	-00 20.4	1.262	1.349	-1.91	-8.0	20.9
1998 11 03	09 29.91	-01 40.4	1.214	1.363	-1.96	-8.4	20.8
1998 11 13	09 53.70	-02 52.4	1.162	1.378	-2.03	-8.6	20.7
1998 11 23	10 16.19	-03 52.1	1.105	1.394	-2.13	-8.8	20.7
1998 12 03	10 37.22	-04 34.5	1.045	1.412	-2.25	-8.7	20.5
1998 12 13	10 56.62	-04 53.8	0.981	1.430	-2.40	-8.4	20.4
1998 12 23	11 14.06	-04 43.1	0.914	1.450	-2.59	-7.6	20.2
1999 01 02	11 29.11	-03 53.9	0.847	1.470	-2.83	-6.3	20.1
1999 01 12	11 41.27	-02 17.1	0.782	1.490	-3.14	-4.1	19.8
1999 01 22	11 49.82	+00 17.3	0.721	1.510	-3.51	-1.1	19.6
1999 02 01	11 54.09	+03 55.6	0.669	1.531	-3.93	+2.9	19.3
1999 02 11	11 53.58	+08 35.2	0.631	1.551	-4.39	+7.1	19.0
1999 02 21	11 48.25	+13 56.6	0.612	1.571	-4.81	+10.3	18.7
1999 03 03	11 39.09	+19 20.9	0.615	1.591	-5.08	+11.2	18.6
1999 03 13	11 28.05	+24 03.1	0.642	1.610	-5.11	+9.4	18.8
1999 03 23	11 17.64	+27 31.6	0.689	1.628	-4.89	+6.2	19.2
1999 04 02	11 10.08	+29 38.3	0.755	1.645	-4.48	+3.1	19.6
1999 04 12	11 06.51	+30 33.1	0.833	1.662	-3.99	+0.8	19.9
1999 04 22	11 07.16	+30 30.9	0.921	1.677	-3.50	-0.5	20.3
1999 05 02	11 11.66	+29 46.5	1.015	1.692	-3.05	-1.0	20.6
1999 05 12	11 19.30	+28 31.3	1.113	1.705	-2.67	-1.0	20.8
1999 05 22	11 29.48	+26 53.1	1.213	1.717	-2.35	-0.7	21.0
1999 06 01	11 41.62	+24 58.0	1.314	1.728	-2.09	-0.2	21.2
1999 06 11	11 55.26	+22 50.2	1.414	1.738	-1.88	+0.4	21.4

1999 06 21	12 10.10	+20 32.6	1.513	1.746	-1.70	+0.9	21.6
1999 07 01	12 25.89	+18 07.9	1.610	1.753	-1.55	+1.5	21.7
1999 07 11	12 42.45	+15 38.0	1.705	1.759	-1.43	+2.0	21.8
1999 07 21	12 59.71	+13 04.7	1.797	1.763	-1.34	+2.5	21.9
1999 07 31	13 17.58	+10 29.8	1.885	1.766	-1.26	+2.9	22.0

1990 VB		$a, e, i = 2.44, 0.53, 15$			Elements <i>MPC</i> 29942		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 14	07 30.14	+20 49.9	1.896	1.643	60.0	32.0	19.8
1998 09 24	07 48.79	+18 57.3	1.871	1.712	65.2	32.1	19.9
1998 10 04	08 04.86	+17 01.5	1.836	1.780	70.9	32.1	19.9
1998 10 14	08 18.30	+15 04.7	1.794	1.848	77.2	31.7	20.0
1998 10 24	08 28.99	+13 09.2	1.743	1.916	84.1	31.1	20.0
1998 11 03	08 36.72	+11 17.3	1.688	1.984	91.7	30.0	19.9
1998 11 13	08 41.29	+09 31.2	1.630	2.050	100.1	28.4	19.9
1998 11 23	08 42.42	+07 53.7	1.573	2.116	109.3	26.1	19.8
1998 12 03	08 39.94	+06 27.8	1.521	2.180	119.3	23.2	19.7
1998 12 13	08 33.87	+05 17.0	1.480	2.243	130.0	19.6	19.6
1998 12 23	08 24.49	+04 24.7	1.455	2.305	141.2	15.5	19.5
1999 01 02	08 12.60	+03 53.3	1.452	2.366	152.1	11.2	19.4
1999 01 12	07 59.43	+03 43.5	1.475	2.425	160.8	7.7	19.3
1999 01 22	07 46.42	+03 53.3	1.526	2.483	162.6	6.8	19.4
1999 02 01	07 34.97	+04 18.5	1.607	2.540	156.2	9.0	19.7
1999 02 11	07 26.03	+04 53.6	1.714	2.595	146.5	12.1	20.0
1999 02 21	07 20.09	+05 33.3	1.844	2.648	136.3	15.0	20.3
1999 03 03	07 17.24	+06 13.1	1.993	2.700	126.3	17.2	20.6
1999 03 13	07 17.24	+06 49.8	2.156	2.751	116.9	18.8	20.8
1999 03 23	07 19.76	+07 21.3	2.329	2.801	107.9	19.8	21.1
1999 04 02	07 24.42	+07 46.2	2.509	2.849	99.5	20.2	21.3
1999 04 12	07 30.84	+08 03.7	2.691	2.895	91.5	20.2	21.5
1999 04 22	07 38.70	+08 13.4	2.874	2.941	83.8	19.9	21.6
1999 05 02	07 47.71	+08 15.2	3.054	2.984	76.5	19.2	21.8
1999 05 12	07 57.61	+08 09.1	3.230	3.027	69.5	18.2	21.9
1999 05 22	08 08.21	+07 55.4	3.398	3.068	62.7	17.0	22.0

48P/Johnson		Elements <i>MPC</i> 30064						
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1
1998 09 24	04 45.38	+07 29.6	2.611	3.090	109.2	17.8	19.4	22.5
1998 10 04	04 46.33	+07 03.3	2.523	3.126	118.4	16.3	19.4	22.4
1998 10 14	04 44.99	+06 35.8	2.447	3.161	128.1	14.4	19.4	22.3
1998 10 24	04 41.39	+06 09.5	2.386	3.197	138.1	12.0	19.5	22.1
1998 11 03	04 35.78	+05 47.1	2.346	3.232	148.2	9.3	19.5	22.0
1998 11 13	04 28.63	+05 31.3	2.331	3.268	157.6	6.6	19.6	21.9
1998 11 23	04 20.55	+05 24.5	2.343	3.303	163.8	4.8	19.6	21.9
1998 12 03	04 12.35	+05 28.5	2.385	3.338	162.5	5.1	19.7	21.9
1998 12 13	04 04.79	+05 43.6	2.456	3.373	154.9	7.1	19.9	22.1
1998 12 23	03 58.51	+06 09.6	2.554	3.408	145.2	9.5	20.0	22.3
1999 01 02	03 53.97	+06 45.2	2.676	3.443	135.0	11.6	20.2	22.5

1995 BL ₂		$a, e, i = 1.23, 0.50, 24$			Elements <i>MPC</i> 27937		
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ
1998 09 24	08 32.36	+35 01.7	1.747	1.525	60.4	34.9	20.6
1998 10 04	08 51.65	+33 54.1	1.701	1.579	65.7	35.3	20.6
1998 10 14	09 08.62	+32 48.4	1.642	1.627	71.4	35.5	20.6

M.P.C. 32546

1998 10 24	09 23.15	+31 48.1	1.570	1.671	77.7	35.6	20.6
1998 11 03	09 35.03	+30 56.0	1.487	1.709	84.7	35.3	20.5
1998 11 13	09 43.92	+30 15.2	1.396	1.743	92.3	34.6	20.4
1998 11 23	09 49.26	+29 48.3	1.299	1.773	100.8	33.2	20.2
1998 12 03	09 50.27	+29 37.5	1.201	1.798	110.2	31.0	20.0
1998 12 13	09 45.99	+29 43.0	1.105	1.818	120.8	27.7	19.7
1998 12 23	09 35.27	+30 01.4	1.018	1.834	132.8	23.2	19.5
1999 01 02	09 17.38	+30 22.7	0.947	1.846	146.1	17.3	19.1
1999 01 12	08 52.75	+30 29.5	0.899	1.854	160.0	10.5	18.8
1999 01 22	08 23.78	+30 03.1	0.880	1.857	169.6	5.5	18.5
1999 02 01	07 54.87	+28 54.9	0.894	1.855	161.7	9.6	18.7
1999 02 11	07 30.28	+27 14.2	0.938	1.850	147.8	16.5	19.1
1999 02 21	07 12.43	+25 19.6	1.007	1.840	134.3	22.6	19.4
1999 03 03	07 01.73	+23 26.4	1.094	1.825	122.2	27.4	19.7
1999 03 13	06 57.30	+21 42.3	1.190	1.807	111.3	30.8	20.0
1999 03 23	06 58.01	+20 08.3	1.291	1.784	101.7	33.2	20.2
1999 04 02	07 02.77	+18 42.3	1.392	1.756	93.0	34.6	20.4
1999 04 12	07 10.68	+17 21.0	1.487	1.724	85.3	35.4	20.5
1999 04 22	07 21.11	+16 01.1	1.576	1.687	78.2	35.7	20.6
1999 05 02	07 33.54	+14 39.6	1.654	1.645	71.7	35.6	20.6
1999 05 12	07 47.63	+13 13.8	1.721	1.599	65.8	35.2	20.6
1999 05 22	08 03.14	+11 41.5	1.775	1.547	60.3	34.6	20.6

128P/Shoemaker-Holt 1

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2	Elements <i>MPC</i> 30632
1998 09 24	09 10.74	+12 25.3	4.110	3.467	44.5	11.7	17.0	20.5		
1998 10 04	09 21.86	+11 27.4	4.026	3.491	51.4	12.9	17.0	20.5		
1998 10 14	09 32.11	+10 30.5	3.931	3.516	58.6	14.0	16.9	20.5		
1998 10 24	09 41.40	+09 35.5	3.825	3.540	66.1	14.9	16.9	20.5		
1998 11 03	09 49.58	+08 43.9	3.712	3.566	73.8	15.5	16.9	20.5		
1998 11 13	09 56.54	+07 56.9	3.593	3.591	82.0	15.8	16.8	20.4		
1998 11 23	10 02.11	+07 15.8	3.471	3.617	90.5	15.8	16.8	20.4		
1998 12 03	10 06.16	+06 42.2	3.349	3.642	99.4	15.5	16.7	20.3		
1998 12 13	10 08.56	+06 17.3	3.230	3.669	108.8	14.7	16.7	20.2		
1998 12 23	10 09.19	+06 02.3	3.120	3.695	118.7	13.5	16.6	20.1		
1999 01 02	10 08.03	+05 58.3	3.022	3.722	129.1	11.8	16.6	20.0		
1999 01 12	10 05.15	+06 05.3	2.942	3.748	139.9	9.7	16.6	19.8		
1999 01 22	10 00.75	+06 23.0	2.884	3.775	151.0	7.3	16.6	19.7		
1999 02 01	09 55.19	+06 49.9	2.852	3.802	162.3	4.5	16.6	19.6		
1999 02 11	09 48.97	+07 23.5	2.849	3.829	172.5	1.9	16.6	19.4		
1999 02 21	09 42.65	+08 00.7	2.876	3.857	171.4	2.2	16.7	19.5		
1999 03 03	09 36.83	+08 38.3	2.934	3.884	161.0	4.8	16.7	19.7		
1999 03 13	09 32.01	+09 13.1	3.020	3.912	150.0	7.3	16.8	19.9		
1999 03 23	09 28.56	+09 43.0	3.131	3.939	139.2	9.5	16.9	20.1		
1999 04 02	09 26.68	+10 06.0	3.263	3.967	128.8	11.3	17.1	20.3		
1999 04 12	09 26.46	+10 21.5	3.412	3.994	118.9	12.7	17.2	20.4		
1999 04 22	09 27.84	+10 29.0	3.574	4.022	109.4	13.6	17.3	20.6		
1999 05 02	09 30.72	+10 28.5	3.744	4.049	100.4	14.2	17.4	20.7		
1999 05 12	09 34.93	+10 20.5	3.918	4.077	91.8	14.3	17.6	20.8		
1999 05 22	09 40.32	+10 05.2	4.094	4.104	83.5	14.2	17.7	20.9		
1999 06 01	09 46.71	+09 43.2	4.267	4.132	75.5	13.7	17.8	21.0		
1999 06 11	09 53.94	+09 15.0	4.435	4.159	67.8	13.1	17.9	21.1		
1999 06 21	10 01.86	+08 41.2	4.596	4.187	60.3	12.2	18.0	21.2		

1998 SEPT. 10

1999 07 01	10 10.34	+08 02.3	4.748	4.214	53.0	11.1	18.1	21.2
1999 07 11	10 19.26	+07 18.9	4.888	4.241	45.8	9.9	18.2	21.2
1999 07 21	10 28.53	+06 31.5	5.014	4.269	38.7	8.6	18.3	21.2
1999 07 31	10 38.06	+05 40.7	5.127	4.296	31.7	7.1	18.4	21.2

132P/Helin-Roman-Alu 2

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2	Elements <i>MPC</i> 31205
1998 09 24	09 57.74	+09 16.4	3.990	3.191	32.6	9.7	21.6	22.2		
1998 10 04	10 09.68	+08 12.6	3.956	3.243	39.2	11.2	21.7	22.2		
1998 10 14	10 20.78	+07 10.8	3.908	3.296	46.1	12.6	21.7	22.3		
1998 10 24	10 30.97	+06 12.2	3.845	3.348	53.3	13.8	21.8	22.3		
1998 11 03	10 40.15	+05 17.9	3.771	3.400	60.9	14.8	21.9	22.4		
1998 11 13	10 48.20	+04 29.0	3.685	3.451	68.7	15.5	21.9	22.4		
1998 11 23	10 55.01	+03 46.9	3.591	3.502	76.9	15.9	21.9	22.4		
1998 12 03	11 00.42	+03 12.8	3.490	3.553	85.6	16.1	22.0	22.3		
1998 12 13	11 04.30	+02 48.0	3.387	3.603	94.7	15.8	22.0	22.3		
1998 12 23	11 06.51	+02 33.7	3.284	3.653	104.2	15.1	22.0	22.2		
1999 01 02	11 06.94	+02 31.1	3.188	3.702	114.3	14.0	22.0	22.2		
1999 01 12	11 05.56	+02 40.7	3.101	3.751	124.8	12.4		22.1		
1999 01 22	11 02.41	+03 02.4	3.031	3.800	135.9	10.4		22.0		
1999 02 01	10 57.69	+03 35.4	2.982	3.848	147.3	7.9		21.9		
1999 02 11	10 51.72	+04 17.6	2.958	3.895	159.0	5.2		21.7		
1999 02 21	10 44.98	+05 06.0	2.963	3.942	170.8	2.3		21.6		
1999 03 03	10 38.04	+05 56.8	2.999	3.989	176.0	1.0		21.5		
1999 03 13	10 31.45	+06 46.2	3.067	4.035	164.9	3.7		21.8		
1999 03 23	10 25.74	+07 30.9	3.165	4.080	153.4	6.3		22.0		
1999 04 02	10 21.28	+08 08.3	3.289	4.125	142.3	8.5		22.2		
1999 04 12	10 18.30	+08 37.0	3.437	4.170	131.6	10.4		22.4		

P/1998 G1 (LINEAR)

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2	Elements <i>MPC</i> 32168
1998 09 24	10 10.66	-13 03.7	3.012	2.208	30.6	13.4		17.9		
1998 10 04	10 13.93	-17 00.1	2.887	2.183	37.8	16.3		17.9		
1998 10 14	10 16.27	-21 24.7	2.747	2.163	45.2	19.1		17.8		
1998 10 24	10 17.21	-26 23.1	2.599	2.148	52.7	21.6		17.8		
1998 11 03	10 16.01	-32 00.7	2.449	2.138	60.3	23.8		17.7		
1998 11 13	10 11.50	-38 21.2	2.306	2.134	67.5	25.4		17.6		
1998 11 23	10 01.64	-45 23.9	2.178	2.134	74.3	26.5		17.5		
1998 12 03	09 42.67	-52 56.7	2.075	2.140	80.2	27.0		17.5		
1998 12 13	09 07.59	-60 26.1	2.008	2.152	84.6	27.1		17.4		
1998 12 23	08 04.99	-66 39.7	1.983	2.168	87.1	26.9		17.4		
1999 01 02	06 30.07	-69 40.8	2.004	2.190	87.3	26.6		17.4		
1999 01 12	04 52.87	-68 19.6	2.067	2.216	85.4	26.3		17.5		
1999 01 22	03 46.86	-64 00.2	2.167	2.247	81.7	25.7		17.6		
1999 02 01	03 09.62	-58 42.7	2.293	2.282	77.0	24.9		17.7		
1999 02 11	02 49.48	-53 30.4	2.435	2.321	71.6	23.8		17.9		
1999 02 21	02 39.00	-48 47.2	2.586	2.364	66.1	22.5		18.0		
1999 03 03	02 34.16	-44 39.6	2.735	2.410	60.7	21.0		18.1		
1999 03 13	02 32.75	-41 07.3	2.878	2.459	55.7	19.5		18.2		
1999 03 23	02 33.53	-38 07.5	3.009	2.512	51.5	18.1		18.3		
1999 04 02	02 35.69	-35 37.3	3.123	2.566	48.1	16.9		18.4		
1999 04 12	02 38.71	-33 34.0	3.219	2.624	46.0	15.9		18.5		
1999 04 22	02 42.21	-31 55.1	3.294	2.683	45.2	15.4		18.6		
1999 05 02	02 45.89	-30 39.2	3.348	2.744	45.9	15.3		18.7		

1999 05 12	02 49.49	-29 44.9	3.379	2.806	48.1	15.5	18.7
1999 05 22	02 52.79	-29 11.6	3.388	2.871	51.6	16.0	18.8
1999 06 01	02 55.54	-28 58.8	3.377	2.936	56.2	16.7	18.9
1999 06 11	02 57.49	-29 06.5	3.346	3.003	61.8	17.3	18.9
1999 06 21	02 58.36	-29 34.8	3.300	3.070	68.2	17.9	19.0
1999 07 01	02 57.80	-30 23.5	3.240	3.138	75.2	18.3	19.0
1999 07 11	02 55.45	-31 32.2	3.171	3.207	82.9	18.3	19.0
1999 07 21	02 50.86	-32 59.7	3.098	3.277	91.0	18.1	19.0
1999 07 31	02 43.54	-34 43.0	3.026	3.347	99.5	17.4	18.9
1999 08 10	02 33.00	-36 37.2	2.963	3.418	108.1	16.4	18.9
1999 08 20	02 18.83	-38 34.4	2.916	3.489	116.6	15.0	18.9
1999 08 30	02 00.91	-40 23.5	2.891	3.560	124.3	13.5	18.8
1999 09 09	01 39.61	-41 51.8	2.895	3.631	130.5	12.2	18.8
1999 09 19	01 15.95	-42 47.4	2.933	3.703	134.1	11.2	18.9
1999 09 29	00 51.58	-43 02.5	3.007	3.775	134.2	11.0	19.0
1999 10 09	00 28.31	-42 36.5	3.117	3.847	131.0	11.3	19.1
1999 10 19	00 07.68	-41 34.4	3.261	3.918	125.0	12.0	19.3
1999 10 29	23 50.60	-40 05.5	3.433	3.990	117.5	12.8	19.4
1999 11 08	23 37.30	-38 19.4	3.630	4.062	109.0	13.3	19.6
1999 11 18	23 27.58	-36 24.3	3.844	4.134	100.1	13.6	19.8
1999 11 28	23 21.03	-34 26.2	4.069	4.205	91.1	13.6	20.0
1999 12 08	23 17.11	-32 29.0	4.299	4.277	82.1	13.2	20.1
1999 12 18	23 15.38	-30 35.0	4.529	4.348	73.2	12.5	20.2
1999 12 28	23 15.37	-28 45.6	4.754	4.419	64.4	11.6	20.3
2000 01 07	23 16.74	-27 01.4	4.968	4.490	55.8	10.4	20.4
2000 01 17	23 19.16	-25 22.6	5.169	4.561	47.4	9.1	20.5
2000 01 27	23 22.39	-23 49.2	5.352	4.631	39.2	7.7	20.5
2000 02 06	23 26.20	-22 21.2	5.515	4.701	31.4	6.3	20.6

1991 VB		$a, e, i = 2.24, 0.41, 6$				Elements <i>MPC</i> 21797	
Date	TT	α_{2000}	δ_{2000}	Δ	r	Variation	V
1998 10 04	08 41.14	+16 31.9	1.755	1.565	-1.23	+7.5	20.6
1998 10 14	09 02.32	+14 27.7	1.721	1.612	-1.17	+7.5	20.6
1998 10 24	09 21.24	+12 22.7	1.681	1.661	-1.12	+7.5	20.7
1998 11 03	09 37.81	+10 20.2	1.634	1.711	-1.10	+7.4	20.7
1998 11 13	09 51.94	+08 23.0	1.581	1.763	-1.09	+7.4	20.6
1998 11 23	10 03.42	+06 33.9	1.523	1.814	-1.11	+7.3	20.6
1998 12 03	10 11.99	+04 56.0	1.462	1.866	-1.16	+7.3	20.5
1998 12 13	10 17.38	+03 32.4	1.400	1.918	-1.23	+7.4	20.4
1998 12 23	10 19.23	+02 26.6	1.341	1.970	-1.32	+7.6	20.3
1999 01 02	10 17.34	+01 42.1	1.288	2.021	-1.44	+8.0	20.2
1999 01 12	10 11.70	+01 22.0	1.247	2.071	-1.57	+8.4	20.0
1999 01 22	10 02.70	+01 27.8	1.222	2.121	-1.69	+8.9	19.9
1999 02 01	09 51.31	+01 58.1	1.220	2.170	-1.78	+9.3	19.7
1999 02 11	09 38.96	+02 47.8	1.243	2.219	-1.81	+9.5	19.6
1999 02 21	09 27.23	+03 48.8	1.293	2.266	-1.78	+9.4	19.8
1999 03 03	09 17.54	+04 52.1	1.371	2.312	-1.70	+9.0	20.2
1999 03 13	09 10.75	+05 50.3	1.473	2.357	-1.58	+8.4	20.5
1999 03 23	09 07.17	+06 38.5	1.595	2.401	-1.44	+7.7	20.8
1999 04 02	09 06.74	+07 14.2	1.733	2.444	-1.31	+7.1	21.1
1999 04 12	09 09.09	+07 36.6	1.884	2.485	-1.18	+6.5	21.4
1999 04 22	09 13.82	+07 46.1	2.044	2.526	-1.07	+5.9	21.6

1999 05 02	09 20.52	+07 43.2	2.209	2.565	-0.97	+5.5	21.9
1999 05 12	09 28.77	+07 29.1	2.377	2.603	-0.88	+5.1	22.0
1997 OF ₃		$a, e, i = 3.22, 0.38, 1$				Elements <i>MPC</i> 30788	
Date	TT	α_{2000}	δ_{2000}	Δ	r	Variation	V
1998 10 04	08 41.89	+16 55.9	2.464	2.185	-1.01	+3.8	20.8
1998 10 14	08 58.47	+15 44.7	2.388	2.215	-1.00	+4.1	20.8
1998 10 24	09 13.51	+14 34.2	2.306	2.247	-0.99	+4.3	20.7
1998 11 03	09 26.84	+13 27.0	2.221	2.280	-1.00	+4.6	20.7
1998 11 13	09 38.29	+12 25.3	2.132	2.314	-1.01	+4.8	20.6
1998 11 23	09 47.64	+11 31.7	2.042	2.349	-1.04	+5.1	20.6
1998 12 03	09 54.65	+10 48.8	1.953	2.385	-1.07	+5.3	20.5
1998 12 13	09 59.07	+10 19.0	1.868	2.422	-1.12	+5.6	20.3
1998 12 23	10 00.70	+10 04.3	1.791	2.460	-1.19	+6.0	20.2
1999 01 02	09 59.42	+10 05.9	1.725	2.498	-1.26	+6.3	20.1
1999 01 12	09 55.35	+10 23.7	1.675	2.537	-1.33	+6.6	19.9
1999 01 22	09 48.85	+10 55.8	1.647	2.576	-1.39	+6.8	19.7
1999 02 01	09 40.67	+11 38.0	1.644	2.615	-1.43	+6.8	19.6
1999 02 11	09 31.81	+12 24.7	1.668	2.655	-1.44	+6.7	19.4
1999 02 21	09 23.38	+13 10.2	1.722	2.695	-1.42	+6.4	19.7
1999 03 03	09 16.38	+13 49.4	1.803	2.735	-1.37	+6.0	20.1
1999 03 13	09 11.48	+14 19.4	1.909	2.774	-1.29	+5.6	20.4
1999 03 23	09 09.00	+14 38.5	2.035	2.814	-1.21	+5.2	20.6
1999 04 02	09 09.00	+14 46.5	2.179	2.854	-1.12	+4.8	20.9
1999 04 12	09 11.30	+14 44.0	2.335	2.894	-1.03	+4.5	21.1
1999 04 22	09 15.63	+14 31.5	2.501	2.933	-0.95	+4.2	21.3
1999 05 02	09 21.70	+14 10.0	2.673	2.972	-0.87	+4.0	21.5
1999 05 12	09 29.19	+13 40.2	2.847	3.011	-0.81	+3.8	21.7
1999 05 22	09 37.84	+13 02.9	3.022	3.050	-0.75	+3.6	21.8
1999 06 01	09 47.42	+12 18.9	3.195	3.088	-0.69	+3.5	21.9

P/1983 C1 (Bowell-Skiff)		Elements <i>MPC</i> 27081						
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1998 10 14	07 13.48	+26 33.0	2.478	2.736	94.0	21.3	20.0	
1998 10 24	07 24.69	+26 24.1	2.293	2.675	101.4	21.4	19.7	
1998 11 03	07 34.47	+26 16.4	2.114	2.614	109.2	21.0	19.4	
1998 11 13	07 42.51	+26 11.2	1.944	2.555	117.4	20.1	19.1	
1998 11 23	07 48.44	+26 09.9	1.785	2.498	126.1	18.6	18.7	
1998 12 03	07 51.93	+26 13.4	1.640	2.442	135.4	16.5	18.4	
1998 12 13	07 52.71	+26 21.7	1.511	2.387	145.3	13.6	18.1	
1998 12 23	07 50.67	+26 33.5	1.403	2.335	155.7	10.0	17.8	
1999 01 02	07 46.07	+26 45.9	1.318	2.285	166.4	5.8	17.5	
1999 01 12	07 39.60	+26 54.8	1.257	2.238	174.6	2.4	17.2	
1999 01 22	07 32.43	+26 56.1	1.222	2.194	167.9	5.4	17.1	
1999 02 01	07 26.02	+26 46.9	1.211	2.152	157.0	10.3	16.9	
1999 02 11	07 21.76	+26 26.9	1.222	2.115	146.2	15.0	16.8	
1999 02 21	07 20.63	+25 56.9	1.253	2.081	136.0	19.3	16.8	
1999 03 03	07 23.18	+25 18.4	1.299	2.051	126.7	22.8	16.7	
1999 03 13	07 29.38	+24 32.4	1.357	2.026	118.2	25.6	16.8	
1999 03 23	07 38.99	+23 39.1	1.424	2.005	110.6	27.7	16.8	
1999 04 02	07 51.54	+22 37.8	1.499	1.989	103.8	29.2	16.9	
1999 04 12	08 06.51	+21 27.7	1.579	1.979	97.6	30.1	16.9	
1999 04 22	08 23.40	+20 08.1	1.665	1.973	91.9	30.6	17.0	
1999 05 02	08 41.75	+18 38.6	1.754	1.973	86.7	30.7	17.1	

M.P.C. 32548

1999 05 12	09 01.12	+16 59.2	1.848	1.978	81.9	30.4	17.3
1999 05 22	09 21.20	+15 10.3	1.945	1.988	77.4	29.8	17.4
1999 06 01	09 41.69	+13 12.8	2.046	2.003	73.2	29.0	17.6
1999 06 11	10 02.38	+11 08.0	2.150	2.023	69.1	28.0	17.8
1999 06 21	10 23.12	+08 57.3	2.257	2.048	65.1	26.7	17.9
1999 07 01	10 43.78	+06 42.3	2.368	2.077	61.1	25.4	18.1
1999 07 11	11 04.30	+04 24.5	2.481	2.111	57.2	23.9	18.3
1999 07 21	11 24.62	+02 05.5	2.596	2.148	53.2	22.3	18.6
1999 07 31	11 44.74	−00 13.3	2.712	2.189	49.2	20.6	18.8
1999 08 10	12 04.63	−02 30.5	2.829	2.233	45.1	18.8	19.0
1999 08 20	12 24.33	−04 45.0	2.945	2.279	40.9	16.9	19.2
1999 08 30	12 43.82	−06 55.6	3.060	2.329	36.6	15.0	19.4
1999 09 09	13 03.12	−09 01.5	3.173	2.381	32.2	13.0	19.7

49P/Arend-Rigaux

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 10 14	11 35.30	+09 58.7	2.496	1.716	30.8	17.3	15.9	18.1	
1998 10 24	11 59.40	+08 35.4	2.505	1.780	34.8	18.6	16.0	18.2	
1998 11 03	12 22.14	+07 18.3	2.507	1.847	39.1	19.8	16.2	18.3	
1998 11 13	12 43.57	+06 09.6	2.502	1.914	43.8	21.0	16.4	18.4	
1998 11 23	13 03.69	+05 11.2	2.489	1.984	48.8	22.0	16.6	18.5	
1998 12 03	13 22.46	+04 24.8	2.468	2.054	54.2	22.9	16.7	18.6	
1998 12 13	13 39.84	+03 51.8	2.437	2.124	60.0	23.7	16.8	18.7	
1998 12 23	13 55.71	+03 33.4	2.399	2.195	66.2	24.2	17.0	18.7	
1999 01 02	14 09.94	+03 30.6	2.353	2.266	72.8	24.5	17.1	18.8	
1999 01 12	14 22.37	+03 44.0	2.301	2.336	79.8	24.5	17.2	18.8	
1999 01 22	14 32.79	+04 14.1	2.244	2.407	87.3	24.1	17.3	18.8	
1999 02 01	14 40.97	+05 00.7	2.185	2.477	95.2	23.3	17.3	18.8	
1999 02 11	14 46.69	+06 02.8	2.127	2.546	103.6	22.1	17.4	18.7	
1999 02 21	14 49.73	+07 18.8	2.073	2.615	112.4	20.5	17.5	18.7	
1999 03 03	14 49.96	+08 45.1	2.029	2.683	121.5	18.4	17.6	18.6	
1999 03 13	14 47.37	+10 16.8	1.998	2.751	130.7	15.9	17.6	18.6	
1999 03 23	14 42.14	+11 47.4	1.984	2.817	139.5	13.3	17.7	18.5	
1999 04 02	14 34.75	+13 09.2	1.992	2.883	147.1	10.8	17.9	18.5	
1999 04 12	14 25.90	+14 15.0	2.025	2.948	152.0	9.2	18.0	18.5	
1999 04 22	14 16.46	+14 59.1	2.084	3.012	152.6	8.8	18.2	18.6	
1999 05 02	14 07.37	+15 18.6	2.169	3.075	148.8	9.8	18.3	18.8	
1999 05 12	13 59.37	+15 14.1	2.279	3.138	142.1	11.4	18.6	19.0	
1999 05 22	13 53.02	+14 47.8	2.411	3.199	134.1	13.1	18.8	19.2	
1999 06 01	13 48.63	+14 03.6	2.561	3.260	125.8	14.6	19.0	19.4	
1999 06 11	13 46.23	+13 05.8	2.727	3.320	117.4	15.8	19.2	19.6	
1999 06 21	13 45.77	+11 57.9	2.905	3.378	109.2	16.5	19.4	19.8	
1999 07 01	13 47.08	+10 43.3	3.091	3.436	101.2	16.9	19.6	20.0	
1999 07 11	13 49.96	+09 24.5	3.281	3.493	93.5	16.9	19.9	20.2	
1999 07 21	13 54.21	+08 03.4	3.474	3.549	85.9	16.6	20.1	20.3	
1999 07 31	13 59.63	+06 41.6	3.666	3.605	78.5	16.0	20.2	20.5	
1999 08 10	14 06.05	+05 20.2	3.855	3.659	71.3	15.2	20.4	20.6	
1999 08 20	14 13.32	+04 00.2	4.038	3.712	64.3	14.2	20.6	20.7	
1999 08 30	14 21.30	+02 42.4	4.212	3.765	57.3	13.1	20.8	20.8	
1999 09 09	14 29.89	+01 27.4	4.377	3.817	50.5	11.8		20.8	
1999 09 19	14 38.98	+00 15.8	4.530	3.867	43.8	10.4		20.9	
1999 09 29	14 48.47	−00 51.9	4.669	3.917	37.1	8.9		20.9	
1999 10 09	14 58.28	−01 55.3	4.793	3.967	30.7	7.4		20.9	

1998 SEPT. 10

28P/Neujmin 1

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 10 24	11 54.90	−01 49.8	10.506	9.666	30.9	3.0			22.3
1998 11 03	11 58.23	−02 15.4	10.374	9.635	39.9	3.8			22.4
1998 11 13	12 01.25	−02 39.4	10.222	9.603	49.1	4.5			22.4
1998 11 23	12 03.88	−03 01.3	10.051	9.572	58.4	5.0			22.3
1998 12 03	12 06.06	−03 20.5	9.866	9.540	67.9	5.5			22.3
1998 12 13	12 07.71	−03 36.7	9.670	9.507	77.6	5.8			22.3
1998 12 23	12 08.76	−03 49.4	9.468	9.475	87.4	6.0			22.2
1999 01 02	12 09.17	−03 58.2	9.264	9.442	97.5	5.9			22.2
1999 01 12	12 08.89	−04 02.7	9.064	9.409	107.7	5.7			22.1
1999 01 22	12 07.92	−04 02.8	8.873	9.376	118.1	5.3			22.0
1999 02 01	12 06.26	−03 58.4	8.696	9.343	128.6	4.7			22.0
1999 02 11	12 03.96	−03 49.6	8.539	9.309	139.3	4.0			21.9
1999 02 21	12 01.11	−03 36.8	8.405	9.275	150.1	3.0			21.8
1999 03 03	11 57.81	−03 20.6	8.299	9.241	160.9	2.0			21.7
1999 03 13	11 54.21	−03 01.8	8.223	9.206	171.4	0.9			21.5
1999 03 23	11 50.47	−02 41.2	8.178	9.172	175.4	0.5			21.5
1999 04 02	11 46.76	−02 20.1	8.165	9.137	165.7	1.6			21.6
1999 04 12	11 43.27	−01 59.4	8.183	9.102	155.1	2.7			21.6
1999 04 22	11 40.13	−01 40.3	8.229	9.066	144.5	3.7			21.7
1999 05 02	11 37.48	−01 23.7	8.301	9.031	134.1	4.6			21.8
1999 05 12	11 35.42	−01 10.3	8.393	8.995	123.9	5.3			21.8
1999 05 22	11 34.01	−01 00.7	8.501	8.959	113.9	5.9			21.9
1999 06 01	11 33.30	−00 55.2	8.621	8.923	104.1	6.3			21.9
1999 06 11	11 33.27	−00 54.1	8.748	8.886	94.5	6.5			21.9
1999 06 21	11 33.92	−00 57.3	8.876	8.849	85.2	6.6			22.0
1999 07 01	11 35.22	−01 04.7	9.002	8.812	76.0	6.4			22.0
1999 07 11	11 37.11	−01 16.3	9.122	8.774	67.0	6.1			22.0
1999 07 21	11 39.56	−01 31.6	9.230	8.737	58.1	5.7			22.0
1999 07 31	11 42.48	−01 50.5	9.325	8.699	49.4	5.1			22.0
1999 08 10	11 45.83	−02 12.5	9.403	8.661	40.8	4.4			21.9
1999 08 20	11 49.54	−02 37.3	9.461	8.622	32.2	3.6			21.9

135P/Shoemaker-Levy 8

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1998 12 23		11 39.83	−03 32.3	3.069	3.290	94.2	17.3	19.8	22.4
1999 01 02		11 44.89	−04 14.2	2.902	3.265	102.9	17.1	19.6	22.3
1999 01 12		11 48.36	−04 45.9	2.740	3.239	112.0	16.4	19.4	22.1
1999 01 22		11 50.06	−05 05.6	2.587	3.214	121.6	15.1	19.2	21.9
1999 02 01		11 49.85	−05 11.4	2.447	3.189	131.7	13.3	19.0	21.7
1999 02 11		11 47.71	−05 02.3	2.325	3.164	142.2	11.0	18.8	21.5
1999 02 21		11 43.76	−04 37.8	2.225	3.139	153.2	8.2	18.7	21.3
1999 03 03		11 38.34	−03 59.0	2.150	3.115	164.3	4.9	18.5	21.0
1999 03 13		11 32.01	−03 08.8	2.102	3.091	173.7	2.0	18.4	20.8
1999 03 23		11 25.45	−02 11.5	2.083	3.068	169.5	3.4	18.3	20.9
1999 04 02		11 19.45	−01 12.7	2.092	3.045	158.7	6.8	18.3	21.0
1999 04 12		11 14.67	−00 17.9	2.128	3.023	147.7	10.2	18.2	21.2
1999 04 22		11 11.62	+00 28.2	2.186	3.001	137.1	13.2	18.2	21.4
1999 05 02		11 10.61	+01 02.3	2.263	2.980	127.0	15.7	18.3	21.5
1999 05 12		11 11.70	+01 23.0	2.355	2.959	117.4	17.6	18.3	21.6
1999 05 22		11 14.86	+01 29.5	2.457	2.939	108.5	19.1	18.3	21.8
1999 06 01		11 19.93	+01 22.3	2.565	2.920	100.1	20.0	18.4	21.9

1999 06 11	11 26.72	+01 02.4	2.677	2.901	92.3	20.5	18.4	22.0
1999 06 21	11 35.03	+00 30.7	2.791	2.883	84.8	20.6	18.4	22.0
1999 07 01	11 44.67	-00 11.4	2.903	2.866	77.8	20.3	18.5	22.1
1999 07 11	11 55.45	-01 02.7	3.012	2.849	71.1	19.7	18.5	22.2
1999 07 21	12 07.25	-02 01.8	3.116	2.834	64.6	18.9	18.5	22.2
1999 07 31	12 19.93	-03 07.6	3.215	2.819	58.4	17.9	18.5	22.2
1999 08 10	12 33.37	-04 18.8	3.306	2.805	52.4	16.6	18.6	22.2
1999 08 20	12 47.52	-05 34.3	3.391	2.793	46.5	15.2	18.6	22.2
1999 08 30	13 02.29	-06 52.8	3.466	2.781	40.8	13.7	18.6	22.2
1999 09 09	13 17.64	-08 13.1	3.533	2.770	35.1	12.1	18.6	22.2

OPPOSITION DATA

Planet	Opposition	α_{2000}	δ_{2000}	V	$\dot{\alpha}$	$\dot{\delta}$	ϕ_{MIN}	MPC
1998 QA ₁₅	1998 08 10.0	21 18.70	-10 49.8	16.5	-0.83	- 9.0	2.2/11.5	32497
(9216)	1998 08 10.0	21 18.86	-11 05.7	15.5	-0.95	- 4.5	2.2/11.2	32427
(9148)	1998 08 10.1	21 19.05	-21 07.6	17.6	-1.09	- 3.4	2.1/08.8	32412
1993 SM ₃	1998 08 10.1	21 19.23	-15 33.0	16.6	-0.79	- 4.3	0.0/10.2	32516
1995 WV ₇	1998 08 10.1	21 19.27	-31 57.5	16.4	-0.99	- 5.5	5.6/05.5	26582
(7767)	1998 08 10.5	21 20.61	-21 45.5	16.5	-1.06	- 1.5	2.8/09.1	32508
1996 BJ ₄	1998 08 10.5	21 20.80	-30 10.3	15.5	-0.80	-10.9	6.3/05.4	27450
1980 EF	1998 08 10.5	21 20.94	-28 26.5	17.6	-1.20	- 1.1	5.2/07.9	18804
(9160)	1998 08 10.5	21 21.00	-15 23.2	17.0	-0.93	- 3.9	0.0/10.6	32414
1994 PT ₁₄	1998 08 10.6	21 21.07	-12 06.2	16.9	-0.86	- 5.6	1.2/11.6	32516
1998 KA ₆	1998 08 10.6	21 21.14	-14 22.6	17.4	-0.74	- 6.1	0.4/11.0	32522
1994 QA ₁	1998 08 10.6	21 21.16	-14 05.6	18.5	-0.88	- 5.2	0.5/11.0	30760
1992 DZ ₅	1998 08 10.7	21 21.47	-14 33.0	18.9	-0.88	- 5.1	0.3/11.0	30687
1994 UZ ₁	1998 08 10.7	21 21.50	-36 03.3	17.0	-0.95	- 3.6	6.4/05.0	24750
2095 P-L	1998 08 10.7	21 21.74	-16 20.2	19.1	-0.92	- 3.4	0.3/10.6	24764
1998 OQ ₄	1998 08 10.8	21 21.94	-12 10.6	17.4	-0.98	- 3.9	1.5/11.7	32489
1998 QH ₁₁	1998 08 10.9	21 22.48	-19 53.1	17.3	-0.87	- 5.4	1.8/09.7	32496
1995 UB ₉	1998 08 11.0	21 22.74	-25 53.2	15.0	-0.92	- 4.5	5.4/08.2	32518
1991 RO ₂₄	1998 08 11.0	21 22.74	-09 47.3	17.3	-0.33	-16.5	3.0/13.5	32449
(9258)	1998 08 11.1	21 22.81	-12 08.7	17.0	-0.95	- 4.8	1.6/11.9	32437
1998 QO ₁₀	1998 08 11.1	21 23.24	-06 45.8	16.5	-0.81	- 5.9	4.3/13.7	32496
1996 BB	1998 08 11.2	21 23.31	-21 05.0	15.8	-0.77	- 8.9	2.3/09.4	32519
1997 GK ₂₃	1998 08 11.2	21 23.34	-13 14.2	18.2	-0.80	- 4.4	0.7/11.8	30094
1996 YF ₁	1998 08 11.3	21 23.94	-27 17.3	21.9	-1.06	- 5.3	3.8/08.2	29667
1994 SP ₉	1998 08 11.3	21 23.98	-00 03.7	19.2	-0.77	- 6.8	4.9/16.1	30080
1998 KZ ₅	1998 08 11.4	21 23.99	-11 11.5	17.3	-0.71	- 4.0	1.6/12.5	32484
1989 YA ₅	1998 08 11.4	21 24.00	-04 59.9	17.5	-0.85	- 0.1	2.9/13.7	32512
1997 AO ₇	1998 08 11.4	21 24.03	-12 49.0	16.6	-0.90	- 8.2	1.2/12.1	32519
1993 UE ₁	1998 08 11.4	21 24.20	-39 21.6	17.5	-0.94	- 3.1	8.3/04.3	29944
2076 T-2	1998 08 11.4	21 24.21	-11 13.6	17.5	-0.99	- 6.4	1.8/12.6	32537
1993 PJ ₇	1998 08 11.4	21 24.32	-16 09.2	17.2	-0.82	- 3.1	0.3/11.2	32516
1998 MZ ₇	1998 08 11.4	21 24.33	+10 48.5	15.5	-0.74	+ 0.4	11.1/18.2	32523
1997 AD ₁₃	1998 08 11.4	21 24.37	-29 26.6	16.4	-0.97	- 6.9	5.3/07.4	29141
1998 OJ	1998 08 11.5	21 24.32	-07 32.2	17.3	-1.00	- 4.6	3.4/13.5	32525
1993 FS ₁₂	1998 08 11.5	21 24.66	-17 18.0	18.6	-0.97	- 5.9	0.8/11.0	30080
(7776)	1998 08 11.6	21 24.78	-11 41.1	14.3	-1.12	+ 3.1	1.8/12.2	30264
1993 ST ₁	1998 08 11.6	21 25.06	-05 30.3	16.7	-0.71	- 6.3	3.1/14.6	32455
4263 T-2	1998 08 11.6	21 25.14	-18 39.2	18.3	-1.00	- 6.0	1.4/10.7	23681

(7706)	1998 08 11.7	21 25.15	-19 47.3	17.3	-1.01	- 4.5	1.7/10.5	30070
(9157)	1998 08 11.7	21 25.16	-21 35.6	16.2	-0.90	- 4.4	3.1/10.0	32414
3854 T-3	1998 08 11.7	21 25.28	-15 15.9	18.1	-0.76	- 4.1	0.0/11.7	25085
1998 QF ₁₁	1998 08 11.7	21 25.34	-23 17.0	16.8	-0.95	- 9.1	3.0/09.3	32496
1981 EP ₃₆	1998 08 11.8	21 25.48	-01 07.9	18.7	-0.80	- 2.5	5.0/15.4	26921
(9208)	1998 08 11.8	21 25.75	+00 49.2	16.8	-0.80	- 4.9	5.5/16.4	32426
1998 QW ₁₁	1998 08 11.9	21 26.04	-08 20.7	18.2	-0.73	- 7.1	2.3/14.0	32496
(7396)	1998 08 11.9	21 26.21	-13 14.9	16.6	-0.81	- 4.3	0.6/12.5	28825
1994 JF	1998 08 12.1	21 26.71	-11 36.8	17.9	-0.96	- 6.5	1.3/13.1	32516
(7645)	1998 08 12.1	21 26.74	-14 25.1	17.6	-0.98	- 4.6	0.2/12.3	29898
3336 T-2	1998 08 12.1	21 26.81	-12 00.9	17.0	-0.90	- 7.5	1.4/13.0	32537
(8982)	1998 08 12.1	21 26.84	-05 11.0	15.4	-0.82	- 6.9	4.6/15.0	32170
1995 XD	1998 08 12.1	21 26.89	-27 28.6	17.2	-1.00	- 5.2	4.8/08.7	31588
1981 ED ₁₂	1998 08 12.1	21 26.92	+01 29.7	18.2	-0.84	- 6.1	5.8/17.1	32509
1981 EU ₃	1998 08 12.2	21 27.13	+00 29.3	19.4	-0.88	- 4.4	5.4/16.5	26915
1990 QS ₃	1998 08 12.3	21 27.41	-11 39.4	17.2	-0.73	- 8.0	1.6/13.4	32512
1998 QJ ₂	1998 08 12.3	21 27.46	-16 46.6	16.1	-0.92	- 8.1	0.8/11.8	32495
1997 CW	1998 08 12.3	21 27.69	-22 22.5	18.1	-1.04	- 4.2	2.9/10.5	32519
2551 P-L	1998 08 12.4	21 27.84	-17 44.7	17.1	-0.85	- 3.6	1.0/11.7	32502
1997 BN ₁	1998 08 12.4	21 27.90	-14 53.9	16.7	-1.11	- 2.0	0.0/12.5	32519
1994 PX ₂₂	1998 08 12.7	21 28.94	-15 16.5	19.1	-0.87	- 5.2	0.1/12.6	27448
(9016)	1998 08 12.8	21 29.55	+19 43.2	16.2	-1.42	+14.2	16.0/12.8	32177
1988 PL ₂	1998 08 12.9	21 30.02	-20 47.0	17.0	-1.06	+ 2.7	3.3/11.9	32443
1995 UB ₈	1998 08 12.9	21 30.06	-21 46.6	17.0	-1.02	- 5.2	2.7/11.1	26570
1996 AO	1998 08 13.0	21 30.01	-08 12.1	17.0	-1.09	+ 1.0	2.9/14.3	32468
1997 JE ₁₀	1998 08 13.0	21 30.09	-30 26.6	17.1	-0.85	- 4.7	4.7/08.5	30903
1997 FO ₃	1998 08 13.0	21 30.29	-12 04.7	18.2	-0.82	- 5.4	1.0/13.8	32476
1998 MB ₃₈	1998 08 13.1	21 30.42	-08 25.9	17.5	-0.95	- 0.5	2.3/14.5	32488
6063 P-L	1998 08 13.2	21 30.75	-14 09.6	16.5	-0.98	- 2.3	0.3/13.3	32536
1994 PU ₂₉	1998 08 13.2	21 31.02	-05 54.8	17.4	-0.81	- 9.0	3.5/16.0	32517
1978 UY ₄	1998 08 13.2	21 31.13	-08 05.4	17.8	-0.96	- 4.6	3.2/15.0	32509
1995 WH ₇	1998 08 13.2	21 31.18	-14 39.6	17.4	-0.94	- 5.9	0.0/13.3	32518
1997 HF ₇	1998 08 13.2	21 31.19	-17 23.0	17.7	-1.02	- 5.0	1.1/12.6	32478
1998 QU ₂	1998 08 13.3	21 31.15	-03 29.6	16.3	-0.71	-13.1	4.8/17.4	32495
1997 JA ₁₁	1998 08 13.3	21 31.16	-10 32.1	16.5	-0.71	-10.6	1.6/14.7	32479
1998 QR ₁₂	1998 08 13.3	21 31.41	-08 18.2	17.9	-1.03	+ 1.2	3.1/14.6	32497
1998 MY ₇	1998 08 13.4	21 31.78	+06 29.5	16.6	-0.80	+ 0.3	10.4/18.9	32523
1978 XW	1998 08 13.4	21 31.80	-16 11.5	18.3	-0.77	- 4.1	0.4/13.0	32509
2190 P-L	1998 08 13.4	21 31.82	-08 29.1	20.0	-0.72	- 3.9	1.6/15.2	27116
1981 EC ₅	1998 08 13.4	21 31.94	-05 05.7	18.1	-1.03	- 2.0	4.5/15.7	32440
1990 WQ ₂	1998 08 13.5	21 31.94	-04 09.7	17.3	-0.84	- 4.6	3.6/16.4	32513
1998 QV ₁₂	1998 08 13.5	21 32.03	-10 29.8	17.6	-0.99	- 1.9	1.7/14.5	32497
1998 QT ₁₂	1998 08 13.6	21 32.62	-08 35.8	17.5	-1.00	- 2.0	2.6/15.1	32497
1998 QK ₁₅	1998 08 13.7	21 32.71	-04 20.8	16.8	-0.86	- 5.2	5.0/16.6	32497
1995 YC ₈	1998 08 13.7	21 32.90	-10 11.4	18.5	-0.88	- 4.7	2.2/15.0	30784
1981 DR ₁	1998 08 13.7	21 32.99	+07 58.3	17.6	-0.83	- 5.2	9.0/20.9	26914
1990 QA ₈	1998 08 13.8	21 32.99	-13 38.8	17.6	-0.80	- 6.5	0.4/14.1	32512
2085 T-2	1998 08 13.8	21 33.04	-18 06.3	18.0	-0.92	- 3.2	1.2/12.9	24764
1986 RA ₅	1998 08 13.8	21 33.10	-17 55.9	15.7	-0.74	- 9.0	1.6/12.7	32511
1991 RL ₇	1998 08 13.8	21 33.25	+05 39.2	17.5	-0.85	- 5.7	8.2/20.0	32448
1981 EL ₇	1998 08 13.8	21 33.36	+03 20.4	18.9	-0.87	- 6.2	6.7/19.1	26916

(7658)	1998 08 13.8	21 33.38	-14 35.8	16.8	-0.97	- 4.0	0.0/13.9	29901
1990 UA ₁	1998 08 13.8	21 33.41	+04 58.1	16.7	-0.84	- 3.3	6.4/19.2	32445
1993 FB ₁₉	1998 08 13.9	21 33.80	-13 47.7	17.3	-0.89	- 7.5	0.3/14.2	23523
1993 VU ₇	1998 08 14.0	21 33.81	-23 36.1	17.1	-0.77	-14.2	3.3/10.6	32516
(9166)	1998 08 14.0	21 34.14	-13 43.3	16.0	-0.75	- 4.2	0.3/14.3	32416
1997 GA ₃₇	1998 08 14.1	21 34.25	-05 04.2	18.1	-0.96	- 5.8	4.0/16.7	32520
1996 DD ₁	1998 08 14.1	21 34.27	-29 28.0	19.0	-0.88	-10.6	4.9/09.0	30093
1994 RT ₁	1998 08 14.2	21 34.50	+04 01.2	17.5	-0.62	-16.9	8.2/21.8	32460
1998 OW ₆	1998 08 14.2	21 34.62	-13 17.1	16.8	-0.59	-20.7	0.5/14.7	32490
1998 OJ ₁₂	1998 08 14.2	21 34.87	-20 22.0	18.0	-0.92	- 2.9	2.6/12.8	32491
(9235)	1998 08 14.2	21 34.89	-20 45.2	18.3	-0.91	- 5.9	2.8/12.5	32431
1978 SE ₅	1998 08 14.3	21 35.20	-00 13.8	16.6	-0.82	- 6.0	5.5/18.6	32509
1991 GH ₅	1998 08 14.3	21 35.20	-07 41.2	17.9	-0.73	- 4.2	2.2/16.3	32513
(9159)	1998 08 14.3	21 35.23	-03 11.5	16.9	-0.90	- 5.7	4.8/17.5	32414
1997 EY ₂₀	1998 08 14.6	21 36.01	-11 13.1	17.4	-0.93	- 5.3	1.2/15.5	32520
1994 NB	1998 08 14.6	21 36.03	-24 43.0	16.2	-0.98	-15.9	4.1/10.9	26422
(7696)	1998 08 14.6	21 36.10	-16 55.3	17.2	-0.85	- 5.3	0.9/13.9	30068
1992 DH ₃	1998 08 14.6	21 36.16	-17 41.7	18.8	-0.92	- 2.2	1.2/13.8	30471
1997 GE ₈	1998 08 14.6	21 36.28	-13 39.9	18.9	-0.94	- 4.6	0.2/14.8	30473
(9228)	1998 08 14.7	21 36.53	-22 56.5	16.6	-0.83	- 3.2	2.7/12.4	32430
(7646)	1998 08 14.7	21 36.54	-10 15.9	16.8	-0.80	-10.6	1.5/16.1	29898
1993 FB ₂₂	1998 08 14.7	21 36.61	-15 45.4	18.6	-0.99	- 4.5	0.6/14.4	29137
(9038)	1998 08 14.8	21 36.74	-15 43.4	15.3	-0.75	-12.7	0.6/14.3	32182
1998 OU ₇	1998 08 14.8	21 36.84	-09 34.2	16.9	-0.98	- 1.2	2.2/15.9	32490
1993 FR ₁₁	1998 08 14.8	21 36.92	-01 18.2	16.5	-0.71	-11.7	5.4/19.5	32515
1995 VF	1998 08 14.8	21 36.95	-02 14.6	17.2	-0.94	- 2.7	5.6/17.8	32518
1987 SL ₃	1998 08 14.8	21 37.05	-13 04.4	16.7	-0.84	- 1.3	0.4/15.1	32442
1994 VR	1998 08 14.8	21 37.14	-34 30.2	17.2	-0.97	- 3.3	8.0/08.9	24585
1991 RT ₅	1998 08 14.9	21 37.12	-28 52.6	16.2	-1.04	- 2.6	6.8/11.0	27120
1997 AJ ₄	1998 08 14.9	21 37.15	-06 14.6	17.0	-1.05	- 2.9	3.5/16.9	32519
1998 QY ₁₃	1998 08 14.9	21 37.39	-09 59.6	18.2	-0.87	- 6.2	1.9/16.2	32497
1997 MG ₁	1998 08 15.0	21 37.88	-01 52.3	17.5	-0.73	- 6.0	4.0/18.8	32480
1998 OD ₁	1998 08 15.0	21 37.89	-04 39.7	17.1	-0.92	- 2.2	4.4/17.4	32525
1995 BQ ₂	1998 08 15.0	21 37.92	+21 46.7	19.5	-0.73	- 2.8	9.2/26.6	25431
2268 T-3	1998 08 15.1	21 37.97	+01 56.9	18.1	-0.75	- 3.9	5.3/19.8	32537
1993 FR ₃₅	1998 08 15.1	21 38.10	-12 22.1	18.9	-0.92	- 5.7	0.6/15.6	32515
5205 T-2	1998 08 15.1	21 38.14	-09 05.0	17.5	-1.00	- 2.7	2.0/16.4	32505
(7515)	1998 08 15.2	21 38.36	-13 54.8	16.2	-0.95	- 4.8	0.1/15.3	32297
1992 YG ₂	1998 08 15.2	21 38.41	-11 39.9	17.2	-1.04	- 2.6	1.2/15.8	32515
1989 SD	1998 08 15.2	21 38.49	-18 49.3	15.9	-1.04	- 4.5	2.4/14.0	22081
1981 ED ₆	1998 08 15.2	21 38.61	+10 16.0	18.0	-0.70	- 6.7	11.5/24.5	32509
1981 EH ₄₅	1998 08 15.3	21 38.76	-09 13.5	19.9	-0.96	- 2.8	1.8/16.5	26923
1980 FF ₃	1998 08 15.3	21 38.78	-20 09.6	17.7	-0.99	- 1.8	2.4/13.9	32509
1068 T-3	1998 08 15.3	21 38.80	-37 18.7	17.9	-0.99	- 0.6	5.9/09.3	27928
1994 NA	1998 08 15.3	21 38.90	-20 28.5	17.1	-0.89	- 7.8	2.7/13.4	32457
1994 PN ₁₄	1998 08 15.3	21 38.97	-15 22.9	17.2	-0.99	- 0.9	0.6/15.1	32516
1997 EQ ₁₁	1998 08 15.4	21 39.15	+08 00.0	18.9	-0.69	- 8.4	6.1/23.3	30085
(9192)	1998 08 15.4	21 39.32	-08 20.3	17.7	-0.88	- 3.0	1.7/17.0	32422
1991 TB	1998 08 15.5	21 39.68	-28 33.7	17.5	-1.12	- 3.3	6.5/11.7	30782
4778 P-L	1998 08 15.6	21 40.05	-09 24.1	17.8	-0.93	- 8.0	2.1/17.0	32503
1998 OK	1998 08 15.6	21 40.17	-05 23.0	17.1	-0.86	- 7.4	3.6/18.3	32525

(9236)	1998 08 15.7	21 40.30	-09 24.2	18.4	-0.88	- 7.3	1.7/17.1	32432
1994 QX	1998 08 15.8	21 40.76	-10 25.9	17.5	-1.06	+ 1.3	1.4/16.6	32460
1991 PM ₄	1998 08 15.9	21 41.02	-12 35.4	16.6	-1.01	- 1.2	0.6/16.2	32447
1105 T-2	1998 08 16.1	21 41.79	-11 00.6	18.0	-0.86	- 5.0	0.9/16.9	32537
1980 FH ₄	1998 08 16.1	21 41.84	-12 36.5	17.5	-0.97	- 5.5	0.5/16.5	32509
2553 P-L	1998 08 16.1	21 41.89	-14 18.6	17.1	-0.79	- 3.8	0.2/16.0	32536
1996 KA ₃	1998 08 16.1	21 41.93	-16 33.4	16.7	-0.72	- 7.5	0.9/15.3	32519
1991 RA ₆	1998 08 16.1	21 41.97	-26 04.1	15.7	-0.92	- 3.6	6.1/12.8	26420
1998 QE ₁₄	1998 08 16.1	21 42.02	-07 27.2	18.0	-0.69	- 8.4	2.2/18.3	32530
1997 EA ₃	1998 08 16.2	21 42.17	-19 04.9	16.6	-0.96	- 7.3	2.2/14.7	32520
1996 EJ ₁₄	1998 08 16.2	21 42.31	-26 37.2	17.9	-1.02	+ 0.8	4.5/13.4	29666
1988 TR ₂	1998 08 16.2	21 42.42	-36 30.8	17.6	-1.02	- 2.3	6.9/09.7	29941
1981 EW ₂₅	1998 08 16.3	21 42.50	-26 17.0	21.1	-1.09	- 1.9	4.2/13.2	26919
1981 QL ₂	1998 08 16.3	21 42.80	-21 26.7	16.6	-1.06	- 1.0	3.9/14.6	32440
1996 CK ₁	1998 08 16.4	21 43.04	-21 03.8	18.1	-0.91	- 3.7	2.4/14.5	27123
1990 WA ₅	1998 08 16.4	21 43.09	-17 55.5	16.5	-0.83	- 6.3	1.5/15.2	32513
2666 P-L	1998 08 16.4	21 43.12	-09 25.4	18.6	-0.85	- 7.2	1.9/17.8	32536
4115 P-L	1998 08 16.5	21 43.12	-11 51.3	18.0	-0.87	- 4.5	0.7/17.0	32503
1994 PH ₉	1998 08 16.5	21 43.35	-11 31.4	17.3	-0.85	- 4.8	0.9/17.2	32457
1997 JF ₁₂	1998 08 16.7	21 44.04	-11 59.0	18.5	-0.78	- 4.2	0.5/17.2	32479
1996 DE ₁	1998 08 16.8	21 44.34	-12 05.7	17.1	-0.85	- 5.3	0.5/17.3	32470
1997 JT ₁₆	1998 08 16.8	21 44.36	-26 18.4	16.8	-0.79	- 6.6	4.3/12.7	30087
1997 EQ ₄₀	1998 08 16.8	21 44.55	-11 20.8	17.9	-0.81	- 9.6	0.8/17.6	32520
1995 WZ ₄	1998 08 16.8	21 44.60	-17 21.5	18.0	-0.94	- 5.7	1.3/15.8	32518
1997 CV ₁₉	1998 08 16.8	21 44.61	-17 07.8	16.5	-0.89	- 8.1	1.5/15.8	32473
1993 FR ₁₂	1998 08 16.9	21 44.66	-17 40.8	17.2	-0.93	- 5.5	1.4/15.7	26173
1987 SP ₁₁	1998 08 16.9	21 44.80	-13 20.0	17.5	-0.83	- 6.8	0.1/17.0	32442
1998 OZ ₉	1998 08 16.9	21 44.88	-08 22.8	16.6	-0.93	+ 3.6	3.0/18.0	32491
1997 MR	1998 08 16.9	21 44.98	-02 33.5	18.1	-0.74	- 4.9	3.6/20.3	32480
(9164)	1998 08 17.1	21 45.44	-13 39.4	16.7	-0.80	- 2.8	0.0/17.1	32416
1998 OU ₉	1998 08 17.1	21 45.74	-12 12.5	17.4	-0.81	- 4.0	0.4/17.5	32490
1998 KC ₆	1998 08 17.1	21 45.75	-13 17.6	18.0	-0.82	- 6.7	0.1/17.2	32522
1998 OY ₉	1998 08 17.2	21 45.84	-10 29.5	17.7	-0.84	- 8.4	1.5/18.2	32490
1990 DL ₃	1998 08 17.2	21 45.84	-21 03.4	15.2	-1.07	+ 0.8	3.8/15.6	32512
1994 RL ₇	1998 08 17.2	21 45.93	-13 25.0	18.4	-0.84	- 3.9	0.0/17.3	26744
1994 TR ₆	1998 08 17.2	21 45.97	-09 48.1	17.7	-0.72	- 6.5	1.7/18.4	32460
2039 T-2	1998 08 17.3	21 46.16	-20 38.6	17.0	-1.06	- 2.5	2.8/15.5	32504
1997 LU ₁	1998 08 17.4	21 46.56	+02 18.9	18.1	-0.72	- 5.7	4.7/22.4	32480
(9239)	1998 08 17.4	21 46.64	-12 26.4	17.5	-0.99	- 6.0	0.4/17.7	32432
(9068)	1998 08 17.4	21 46.72	+09 13.4	15.2	-1.72	+14.4	13.0/18.3	32189
1990 GE	1998 08 17.4	21 46.75	-19 42.2	18.3	-1.07	- 2.9	2.4/15.9	32512
1993 FH ₂₀	1998 08 17.5	21 47.20	-11 11.6	17.3	-0.97	- 4.1	0.9/18.1	32515
(9193)	1998 08 17.6	21 47.25	+09 26.6	16.4	-0.87	- 3.0	8.2/24.0	32422
1985 PT	1998 08 17.6	21 47.40	-15 24.2	15.6	-0.69	-12.7	0.9/16.9	32510
1981 EB ₈	1998 08 17.6	21 47.58	-12 08.7	18.0	-1.03	- 1.9	0.5/18.0	32440
1994 HX	1998 08 17.6	21 47.68	-11 46.2	18.1	-0.90	- 5.6	0.8/18.1	32457
1984 UR	1998 08 17.7	21 47.65	-29 03.2	15.4	-0.99	- 3.9	7.6/13.1	28840
1997 JT ₁₁	1998 08 17.7	21 47.86	-12 32.4	17.5	-0.75	- 4.4	0.2/18.0	32520
1994 PL ₃₂	1998 08 17.7	21 47.92	-07 33.5	18.3	-0.89	- 4.9	2.1/19.4	32517
1997 GN ₈	1998 08 17.7	21 47.97	-21 21.7	17.1	-0.81	- 3.0	2.8/15.5	32520
1998 QJ ₁₆	1998 08 17.7	21 47.98	-05 37.3	17.3	-0.86	- 2.8	2.4/19.8	32497

1998 SEPT. 10

M.P.C. 32551

1993 FB₃₂ 1998 08 17.7 21 48.04 -11 22.5 17.6 -0.88 - 6.8 0.8/18.4 32515
 1992 XE 1998 08 17.8 21 47.97 -21 01.2 16.5 -1.00 - 7.0 3.0/15.5 32453
 3254 T-1 1998 08 17.8 21 48.15 -02 51.6 19.0 -0.81 - 6.6 3.4/21.0 26416
 1994 QR 1998 08 17.8 21 48.17 -10 58.9 17.3 -0.80 - 7.4 1.0/18.6 32460
 1988 RV₁₁ 1998 08 18.0 21 48.74 -11 04.3 17.3 -0.93 - 7.0 1.0/18.6 32511
 1998 QN₂ 1998 08 18.0 21 48.75 -01 09.5 17.3 -0.89 - 1.7 6.4/21.2 32495
 4093 T-3 1998 08 18.0 21 49.04 -26 13.3 18.6 -1.05 - 4.2 5.2/14.5 26186
 1977 QN₁ 1998 08 18.1 21 49.27 -22 06.5 15.5 -1.12 + 3.0 4.0/16.5 32438
 (7698) 1998 08 18.2 21 49.84 -15 11.0 18.9 -0.93 - 5.8 0.7/17.7 30069
 1998 PW 1998 08 18.3 21 50.13 -16 10.0 18.0 -0.95 - 1.4 1.5/17.6 32494
 1994 PD₃₄ 1998 08 18.3 21 50.26 -10 38.9 18.4 -0.86 - 5.0 1.0/19.1 32517
 1998 PX 1998 08 18.4 21 50.33 -16 09.6 17.4 -1.03 - 1.4 1.5/17.7 32494
 1998 QK₁₆ 1998 08 18.4 21 50.35 -03 43.4 16.9 -1.03 + 2.9 4.2/20.3 32498
 1998 PH 1998 08 18.4 21 50.50 +04 00.1 18.0 -0.90 - 1.9 5.3/22.9 32493
 1998 OS₁₀ 1998 08 18.5 21 50.57 -11 59.7 17.7 -0.74 - 4.8 0.4/18.8 32491
 4161 P-L 1998 08 18.5 21 50.70 -15 44.2 18.0 -0.93 - 2.7 0.9/17.8 32536
 1996 CF₃ 1998 08 18.5 21 50.98 -19 12.2 16.1 -0.74 - 7.3 1.9/16.6 32469
 1997 AU₉ 1998 08 18.6 21 51.08 -12 25.2 16.7 -0.95 - 7.3 0.3/18.8 32472
 1041 T-2 1998 08 18.6 21 51.13 -11 13.7 17.2 -0.78 - 4.9 0.7/19.2 32537
 1991 UF₁ 1998 08 18.6 21 51.19 -18 16.9 17.8 -0.96 - 6.5 2.3/17.1 32514
 1984 WL 1998 08 18.6 21 51.24 +30 19.5 18.8 -1.10 + 2.1 16.4/28.8 27305
 1981 EU₄ 1998 08 18.7 21 51.37 +00 42.4 16.4 -0.80 - 2.8 4.6/22.6 27303
 1981 EG₆ 1998 08 18.7 21 51.63 -08 02.9 22.2 -0.78 - 3.1 1.3/20.1 30779
 1994 PL₃₅ 1998 08 18.8 21 51.74 -08 33.8 17.9 -0.88 - 5.3 1.7/20.0 32460
 1990 SG₁₂ 1998 08 18.8 21 51.93 -05 31.4 17.2 -0.82 - 5.2 3.3/21.0 32513
 (9248) 1998 08 18.8 21 52.07 -11 35.3 17.2 -0.80 - 5.1 0.5/19.3 32434
 1995 UX₄₈ 1998 08 18.9 21 52.12 -14 00.1 17.4 -1.01 - 4.9 0.4/18.6 32465
 1997 AN₄ 1998 08 18.9 21 52.30 -11 42.4 17.7 -1.00 - 4.9 0.5/19.3 32519
 4274 P-L 1998 08 18.9 21 52.34 -10 08.1 18.4 -0.99 - 4.5 1.1/19.7 29668
 1998 MW₇ 1998 08 19.0 21 52.53 -10 29.9 17.2 -0.72 -11.3 1.1/20.0 32487
 (9233) 1998 08 19.0 21 52.64 -13 38.3 15.7 -0.77 - 9.8 0.3/18.8 32431
 1998 QZ₁₅ 1998 08 19.0 21 52.80 +03 47.5 16.2 -1.00 + 0.9 7.3/23.0 32530
 1996 CK₂ 1998 08 19.0 21 52.84 -27 10.3 16.7 -0.89 - 1.9 4.2/15.2 30292
 1990 QB₁₉ 1998 08 19.0 21 52.84 -11 26.4 16.2 -0.80 - 1.2 0.7/19.5 32512
 1993 FO₂₇ 1998 08 19.0 21 52.87 -08 03.1 18.4 -0.94 - 4.8 1.7/20.4 26759
 (9229) 1998 08 19.1 21 53.10 -11 38.4 17.3 -0.81 - 4.0 0.4/19.5 32430
 1989 GL₄ 1998 08 19.2 21 53.32 +06 29.2 18.0 -0.82 - 7.4 7.0/25.8 32512
 1994 VW₂ 1998 08 19.2 21 53.34 -22 06.5 16.5 -0.89 - 6.2 4.0/16.3 30276
 1997 GB 1998 08 19.2 21 53.56 -23 09.8 18.4 -1.04 - 3.7 3.9/16.5 30787
 1990 RF₁₇ 1998 08 19.3 21 53.70 +03 46.0 16.9 -0.80 - 7.7 6.1/24.7 32445
 1998 OT₁₁ 1998 08 19.4 21 54.23 -09 49.7 18.1 -0.87 - 5.4 1.4/20.0 32491
 1994 RJ 1998 08 19.4 21 54.36 -06 48.0 17.7 -0.83 - 5.2 2.6/21.3 32517
 1994 GR₂ 1998 08 19.5 21 54.43 -17 08.1 17.6 -0.82 - 6.7 2.3/18.2 32456
 3212 T-1 1998 08 19.5 21 54.62 -17 31.0 16.4 -1.08 - 3.9 2.1/18.3 32537
 1995 YF₁ 1998 08 19.6 21 54.89 -00 22.6 17.1 -0.85 - 2.9 4.5/23.1 32467
 1989 PF 1998 08 19.6 21 54.97 -12 00.9 14.8 -0.60 -17.5 11.2/31.0 32444
 (7633) 1998 08 19.6 21 55.03 -00 33.5 15.4 -0.72 - 6.6 5.6/23.7 29895
 1991 FH₂ 1998 08 19.6 21 55.06 -11 50.7 18.3 -0.78 - 4.0 0.2/19.9 32513
 1977 DL₂ 1998 08 19.7 21 55.14 -13 34.4 17.8 -0.91 - 6.9 0.3/19.4 32508
 1991 PO₁₁ 1998 08 19.7 21 55.30 -04 20.6 16.1 -0.83 - 8.2 3.7/22.5 32513
 1994 PT₃₁ 1998 08 19.7 21 55.32 -07 00.0 17.7 -0.86 - 5.4 2.1/21.4 32517

1996 FM₅ 1998 08 19.8 21 55.54 -23 24.5 18.1 -0.79 - 2.3 2.9/16.8 32470
 1994 PX₉ 1998 08 19.8 21 55.61 -14 34.8 17.7 -0.88 - 4.1 0.8/19.3 31239
 1981 EG₁₆ 1998 08 19.8 21 55.80 -19 42.1 17.8 -1.10 - 0.1 2.7/18.3 32509
 1993 HF 1998 08 19.9 21 56.14 +04 03.1 16.8 -0.88 - 4.5 5.7/25.0 32515
 1990 FV₁ 1998 08 19.9 21 56.31 -55 32.0 19.3 -2.09 + 1.8 17.6/09.2 29297
 1995 BT 1998 08 20.0 21 56.26 -05 31.5 17.3 -0.93 + 1.2 2.2/21.6 32463
 1993 FA₃₃ 1998 08 20.0 21 56.39 -12 14.0 17.5 -0.86 - 6.5 0.1/20.2 26903
 (9238) 1998 08 20.1 21 56.61 -10 51.7 17.1 -0.78 - 4.8 0.6/20.6 32432
 1990 SC₈ 1998 08 20.2 21 57.00 -12 14.9 17.4 -0.75 - 9.5 0.1/20.3 32513
 1205 T-1 1998 08 20.3 21 57.45 -16 44.8 17.5 -1.10 - 2.2 2.0/19.3 32537
 (7819) 1998 08 20.3 21 57.69 -17 21.1 16.6 -0.92 - 4.0 2.0/19.0 30436
 (9220) 1998 08 20.4 21 57.64 -04 34.0 16.0 -0.93 - 2.1 3.6/22.5 32428
 5022 T-3 1998 08 20.4 21 57.91 -13 26.1 18.1 -0.72 - 6.8 0.3/20.1 32538
 1998 QC₁₉ 1998 08 20.5 21 58.18 -16 20.2 16.9 -0.75 - 4.8 1.3/19.3 32498
 1177 T-3 1998 08 20.5 21 58.23 -04 36.0 18.6 -0.75 - 3.0 2.1/22.8 32505
 1989 RY₁ 1998 08 20.5 21 58.24 -07 26.2 15.8 -0.56 -15.9 2.1/22.6 32444
 1998 QF₁₇ 1998 08 20.6 21 58.48 -17 22.8 16.4 -0.89 - 8.0 2.1/19.0 32498
 (9185) 1998 08 20.6 21 58.67 -19 58.0 15.3 -1.07 - 1.3 3.4/18.8 32420
 1981 EN₅ 1998 08 20.6 21 58.80 -03 34.0 18.6 -0.90 - 4.5 3.1/23.2 26558
 1998 OY₄ 1998 08 20.6 21 58.81 +01 47.1 17.9 -0.88 - 4.6 5.3/24.8 32489
 1991 FP 1998 08 20.7 21 58.85 +01 30.4 17.9 -0.68 - 6.5 3.8/25.4 32446
 1994 PU₃₇ 1998 08 20.8 21 59.39 -11 16.0 17.6 -0.87 - 6.3 0.4/21.2 32460
 1978 RD₁₀ 1998 08 20.8 21 59.48 -11 02.4 17.5 -0.79 - 5.0 0.4/21.3 32509
 9578 P-L 1998 08 20.9 21 59.89 -17 47.7 17.0 -0.81 - 3.0 1.6/19.4 32537
 1990 CD 1998 08 21.0 22 00.21 -04 57.9 15.3 -1.02 - 3.2 3.1/23.0 26168
 1998 QA₂ 1998 08 21.1 22 00.40 -07 07.1 17.7 -0.86 - 5.0 1.9/22.6 32494
 1981 EN₃ 1998 08 21.2 22 00.64 +04 19.9 20.3 -0.84 - 6.2 5.1/26.5 26165
 1994 PE₁₆ 1998 08 21.2 22 00.99 -09 59.5 18.4 -0.94 - 3.1 0.8/21.9 32458
 1989 SW₂ 1998 08 21.3 22 01.04 -20 18.5 17.1 -0.83 - 4.9 2.6/18.9 32512
 1992 LQ 1998 08 21.3 22 01.22 -29 44.4 16.6 -0.84 - 4.8 5.8/15.8 25441
 1993 QP₃ 1998 08 21.5 22 02.04 -10 20.6 17.8 -0.78 - 5.0 0.6/22.1 32454
 1998 OP₁₂ 1998 08 21.5 22 02.09 -13 38.1 18.1 -0.84 - 4.8 0.5/21.1 32491
 1991 GT₅ 1998 08 21.7 22 02.83 -11 39.1 17.9 -0.75 - 4.3 0.1/21.9 32513
 1997 GX₁₆ 1998 08 21.8 22 03.03 -26 24.7 19.5 -1.02 - 1.6 4.9/18.1 30767
 1994 PL₃ 1998 08 21.8 22 03.22 -11 02.6 17.8 -0.93 - 3.9 0.4/22.1 32457
 (9224) 1998 08 22.0 22 03.57 -01 58.9 17.4 -0.92 - 4.7 4.2/24.8 32429
 1995 WW₄₂ 1998 08 22.0 22 03.69 -22 22.3 17.7 -1.02 - 5.9 4.3/18.9 30082
 1993 SD₂ 1998 08 22.0 22 03.77 -00 46.1 17.0 -0.73 - 4.2 3.0/25.5 32455
 1986 TT₁₁ 1998 08 22.0 22 03.88 -30 13.9 15.9 -1.17 + 3.3 8.5/18.2 30685
 (9050) 1998 08 22.0 22 03.92 +03 38.4 16.3 -0.98 - 1.9 6.4/26.2 32185
 1934 JP 1998 08 22.0 22 03.93 -12 20.1 19.1 -0.96 - 5.7 0.2/22.0 25437
 1992 DU₅ 1998 08 22.1 22 04.24 -12 01.8 16.6 -0.75 -11.0 0.1/22.1 32514
 1995 TX 1998 08 22.1 22 04.34 +08 40.5 17.0 -1.24 + 2.1 7.9/26.7 32518
 1993 FJ₃₂ 1998 08 22.2 22 04.47 -06 18.8 17.7 -0.92 - 3.7 2.1/23.8 32515
 1998 QL₁₉ 1998 08 22.3 22 04.78 -19 07.1 15.8 -0.88 - 4.1 3.5/20.2 32498
 1992 DT₈ 1998 08 22.3 22 04.78 -12 06.5 17.4 -0.99 - 0.2 0.1/22.3 32452
 1993 FR₁₃ 1998 08 22.3 22 04.98 -22 33.1 18.4 -1.01 - 4.7 4.0/19.2 30092
 1994 PW₃₈ 1998 08 22.4 22 05.02 -10 51.7 19.0 -0.84 - 5.0 0.4/22.7 32517
 1994 PW₁₀ 1998 08 22.4 22 05.13 -10 22.4 18.0 -0.80 - 6.9 0.6/22.9 32458
 1997 JT₁₅ 1998 08 22.4 22 05.40 -14 30.5 17.2 -0.79 - 5.2 0.9/21.6 32480
 1998 ON₁₃ 1998 08 22.4 22 05.48 -07 45.7 16.6 -1.12 + 0.4 1.8/23.4 32492

(9165)	1998 08 22.4	22 05.57	-56 41.8	16.2	-2.28	+10.5	22.9/14.2	32416
1988 XJ ₁	1998 08 22.5	22 05.43	-32 03.6	17.1	-0.83	- 4.5	6.1/15.9	30686
1991 NQ ₆	1998 08 22.5	22 05.70	-03 28.5	16.8	-0.96	- 2.6	4.0/24.7	32513
1998 OM ₁₃	1998 08 22.6	22 05.85	-09 08.3	17.5	-1.05	- 3.1	1.0/23.3	32492
1995 WU ₁	1998 08 22.6	22 05.93	-31 47.8	15.8	-1.08	- 3.3	7.4/16.8	29924
1989 BA	1998 08 22.6	22 05.95	-23 04.4	17.2	-1.23	+ 0.1	3.7/20.1	29656
(7790)	1998 08 22.6	22 06.00	-21 52.4	18.2	-0.77	- 4.5	2.8/19.5	30268
1996 DW ₂	1998 08 22.8	22 06.60	-14 57.8	15.6	-0.72	-13.9	1.3/21.5	32519
1995 QD ₂	1998 08 22.8	22 06.70	-06 26.5	17.9	-1.03	- 3.4	2.4/24.2	32518
1997 GJ	1998 08 22.9	22 07.08	-14 58.1	17.8	-0.92	- 4.7	1.2/22.0	30691
(9252)	1998 08 22.9	22 07.14	-06 32.0	16.9	-0.77	- 3.6	1.9/24.5	32435
1998 OY ₁₃	1998 08 23.0	22 07.31	-09 14.2	17.5	-1.07	- 2.3	1.0/23.6	32492
1994 PB ₃₆	1998 08 23.0	22 07.32	-09 42.4	18.1	-0.90	- 4.9	0.7/23.6	32517
1992 FA ₂	1998 08 23.0	22 07.37	-21 47.1	16.7	-0.87	- 5.0	3.5/19.9	32514
1993 BU ₇	1998 08 23.0	22 07.48	-07 10.8	17.7	-0.92	- 5.8	1.8/24.4	32515
(7689)	1998 08 23.0	22 07.49	-09 36.7	17.4	-0.81	- 4.6	0.7/23.6	29909
(9095)	1998 08 23.0	22 07.57	-06 34.1	15.3	-0.89	- 3.1	2.6/24.4	32195
1997 GW ₃₂	1998 08 23.0	22 07.64	-11 56.2	17.5	-0.88	- 3.8	0.2/23.0	32478
1990 WP ₄	1998 08 23.0	22 07.67	-25 51.4	16.6	-0.86	- 5.6	4.7/18.6	32513
1990 UG ₃	1998 08 23.1	22 07.79	-23 39.0	16.4	-1.01	- 5.6	4.8/19.4	29658
1981 EP ₂₁	1998 08 23.1	22 07.94	-23 03.4	18.6	-1.14	+ 1.4	5.1/20.7	26919
1983 EV	1998 08 23.1	22 07.98	-15 28.3	17.1	-0.87	- 3.9	1.2/22.0	32510
1998 QT ₁₈	1998 08 23.1	22 08.05	-05 17.5	16.2	-0.89	- 5.2	3.0/25.1	32498
(9249)	1998 08 23.2	22 08.08	-15 32.1	17.2	-0.98	- 5.0	1.7/22.1	32435
1997 EQ ₁₆	1998 08 23.2	22 08.12	-03 39.6	19.2	-0.79	- 8.1	2.8/25.9	29929
(9215)	1998 08 23.2	22 08.38	-05 54.2	16.1	-0.96	- 4.0	2.7/24.8	32427
1995 WS ₁	1998 08 23.3	22 08.42	-20 14.0	15.4	-0.94	- 4.0	4.5/20.8	32465
1994 PC ₁₅	1998 08 23.3	22 08.51	-07 31.3	17.6	-0.80	-10.7	1.4/25.0	32516
1971 UR	1998 08 23.3	22 08.52	-20 17.9	17.8	-0.78	- 3.7	2.5/20.7	32508
1997 GW ₆	1998 08 23.3	22 08.56	+16 04.5	17.8	-0.73	- 6.2	10.4/02.6	32476
1990 QO ₈	1998 08 23.3	22 08.76	-16 09.7	17.3	-1.07	- 0.9	1.7/22.2	32512
1998 OD ₁₃	1998 08 23.3	22 08.78	-13 58.7	17.0	-0.86	- 4.3	1.2/22.6	32491
1170 T-2	1998 08 23.4	22 09.04	-00 07.8	18.6	-0.80	- 7.8	3.9/27.2	19329
1995 UA ₁	1998 08 23.6	22 09.67	-12 14.0	17.8	-1.05	- 2.7	0.3/23.4	32464
1981 EA ₃₇	1998 08 23.6	22 09.72	-14 27.5	20.0	-0.99	- 2.7	1.1/22.8	26921
1991 TK	1998 08 23.6	22 09.74	-17 19.6	18.2	-0.93	- 6.5	2.2/21.8	32450
1994 WR ₂	1998 08 23.6	22 09.74	-27 35.6	16.1	-0.90	- 5.4	6.4/18.3	30901
1985 PS	1998 08 23.7	22 10.03	-11 27.6	15.4	-0.57	-11.6	0.1/23.7	32510
1997 DT	1998 08 23.7	22 10.04	-13 38.2	17.6	-0.95	- 7.0	0.9/23.0	30094
(9203)	1998 08 23.7	22 10.18	-14 57.1	17.0	-0.75	- 4.4	1.1/22.7	32425
(9083)	1998 08 23.8	22 10.21	+13 13.6	14.9	-0.94	+ 0.1	10.2/30.3	32193
1998 QM ₂₉	1998 08 23.8	22 10.22	-03 14.0	19.3	-0.87	- 6.5	3.0/26.3	32500
1998 OW ₁₃	1998 08 23.8	22 10.45	-10 06.8	17.3	-1.02	+ 0.9	0.6/24.1	32492
1990 TS ₄	1998 08 23.8	22 10.54	-24 00.8	16.0	-0.86	- 7.1	4.6/19.6	32302
1992 EZ ₁₁	1998 08 23.8	22 10.57	-14 13.2	16.1	-0.77	- 7.3	1.2/22.9	32452
1996 AP ₂	1998 08 23.8	22 10.63	-04 01.2	17.4	-0.99	- 1.2	2.7/25.7	32468
5104 T-2	1998 08 23.9	22 10.57	+00 57.8	18.9	-0.78	- 3.8	3.9/27.6	22701
1995 BX	1998 08 23.9	22 10.92	-13 25.5	17.8	-0.80	- 4.2	0.7/23.3	32463
1998 QZ ₁₉	1998 08 23.9	22 10.99	-05 46.6	18.2	-0.78	- 6.2	2.0/25.7	32498
1990 UK	1998 08 24.0	22 11.06	-39 10.2	17.1	-1.08	- 2.7	10.4/15.0	30091
1995 UU ₁₄	1998 08 24.0	22 11.17	-10 15.1	19.3	-0.95	- 4.8	0.3/24.3	30784

1998 MG ₁₆	1998 08 24.0	22 11.18	-11 16.1	17.9	-0.82	- 7.0	0.0/24.0	32523
1969 TM ₁	1998 08 24.1	22 11.73	-24 54.1	16.7	-1.04	- 3.8	5.8/20.2	29939
1994 RZ	1998 08 24.2	22 11.84	-12 11.7	17.3	-0.92	- 3.3	0.5/24.0	32517
1990 RO ₇	1998 08 24.2	22 11.89	-10 00.8	17.8	-0.84	- 6.3	0.4/24.6	32513
2579 P-L	1998 08 24.2	22 11.95	-24 32.9	17.2	-1.12	- 2.0	5.8/20.9	18130
1994 PU ₂	1998 08 24.2	22 12.02	-10 00.6	17.9	-0.90	- 3.3	0.5/24.6	32516
(9191)	1998 08 24.2	22 12.03	+02 59.1	16.9	-0.92	- 2.3	4.7/28.2	32422
1994 SF ₉	1998 08 24.3	22 12.07	-09 12.2	19.6	-0.83	- 5.7	0.7/24.9	26744
(9183)	1998 08 24.3	22 12.10	-01 45.8	17.0	-1.01	- 3.4	4.3/26.9	32420
1998 OU ₁₃	1998 08 24.3	22 12.20	-09 40.6	17.0	-0.85	- 3.9	0.5/24.8	32492
1981 EG ₂₇	1998 08 24.3	22 12.27	-10 04.1	19.0	-0.80	- 3.8	0.3/24.7	32299
(7642)	1998 08 24.3	22 12.36	-16 33.9	16.8	-1.04	- 4.3	2.3/22.8	29897
1994 UT ₁	1998 08 24.4	22 12.41	-37 39.1	16.8	-1.05	- 2.1	10.5/15.9	30093
1998 OE ₇	1998 08 24.4	22 12.42	-02 10.0	16.6	-1.07	+ 1.4	3.9/26.3	32490
6111 P-L	1998 08 24.4	22 12.53	-17 35.4	17.6	-0.89	- 0.9	2.3/22.7	32504
1990 SF ₄	1998 08 24.5	22 12.90	+09 42.3	16.5	-0.80	- 6.3	8.9/32.0	32445
1998 OH ₁₄	1998 08 24.5	22 13.08	-14 51.1	16.8	-0.94	- 7.8	1.4/23.4	32493
1995 BD	1998 08 24.5	22 13.09	-24 02.1	16.6	-0.73	- 5.0	3.8/20.3	30455
1998 QN ₂₀	1998 08 24.6	22 13.34	-04 40.3	17.7	-0.95	- 2.1	2.9/26.3	32499
1981 ER ₁₆	1998 08 24.6	22 13.37	-15 04.9	19.3	-1.06	- 0.9	1.5/23.7	26918
1998 OR ₁₃	1998 08 24.6	22 13.38	-11 04.3	15.6	-0.85	- 6.0	11.1/05.0	32492
(7700)	1998 08 24.7	22 13.66	-15 59.1	17.4	-0.87	- 4.6	1.6/23.2	30069
1988 BF ₅	1998 08 24.7	22 13.72	+06 41.0	18.6	-0.84	- 4.6	5.8/30.4	32443
1998 OT ₆	1998 08 24.7	22 13.74	-12 35.6	16.8	-0.96	- 3.9	0.7/24.3	32489
1997 GB ₈	1998 08 24.7	22 13.78	-10 34.2	20.4	-0.87	- 5.2	7.8/14.0	30094
1996 DY ₂	1998 08 24.9	22 14.29	-15 58.5	17.3	-0.82	- 4.6	1.7/23.4	32470
1979 EL	1998 08 24.9	22 14.56	-32 34.8	15.5	-0.92	- 7.4	7.8/17.2	22073
1993 TD ₃₇	1998 08 24.9	22 14.59	-08 23.0	17.8	-0.69	- 6.3	0.7/25.8	32456
1998 QL ₂₃	1998 08 24.9	22 14.60	-14 09.3	17.5	-0.83	- 2.6	1.1/24.1	32499
1991 YC	1998 08 25.0	22 14.60	-25 52.5	18.0	-0.88	- 7.2	4.5/20.0	30091
1997 CB ₂₇	1998 08 25.0	22 14.70	-20 16.6	20.0	-1.00	- 3.9	3.1/22.4	29642
1997 FD	1998 08 25.0	22 14.89	-09 22.9	18.9	-0.91	- 7.8	0.6/25.5	29948
1981 EY ₂₇	1998 08 25.1	22 14.99	-25 34.9	16.3	-1.11	+ 2.4	6.9/21.9	32509
1992 CH	1998 08 25.1	22 15.33	-03 00.1	16.9	-0.96	- 1.4	2.6/27.2	32514
1978 PG ₄	1998 08 25.1	22 15.36	-03 01.8	15.4	-0.93	+ 1.6	4.4/27.0	32438
1992 CD ₃	1998 08 25.2	22 15.33	-10 03.8	16.4	-0.76	-10.3	0.3/25.5	32514
1998 OD ₁₄	1998 08 25.2	22 15.54	-09 59.4	16.6	-0.76	- 4.7	0.3/25.5	32493
4172 T-1	1998 08 25.2	22 15.63	-11 56.1	18.1	-0.92	- 6.0	0.5/24.9	32537
1994 VY ₂	1998 08 25.3	22 15.93	-00 52.8	17.7	-0.95	- 4.0	3.8/28.1	32517
1993 TS ₁	1998 08 25.4	22 16.23	+04 36.8	17.1	-0.67	- 7.2	4.9/30.9	32516
4072 T-3	1998 08 25.4	22 16.27	-09 35.9	18.4	-0.73	- 5.6	0.3/25.8	32505
1998 QG ₂₀	1998 08 25.4	22 16.30	-01 36.8	17.5	-0.85	- 3.2	4.6/28.1	32499
1995 XA	1998 08 25.4	22 16.30	+01 16.6	17.1	-0.89	- 5.0	5.5/29.2	32466
1976 DC	1998 08 25.4	22 16.35	+00 28.5	19.7	-1.14	- 0.9	3.6/28.2	29092
1998 OA ₁₅	1998 08 25.5	22 16.47	-10 47.9	17.5	-0.97	- 1.6	0.0/25.5	32493
1997 JE ₁₅	1998 08 25.5	22 16.65	-11 16.6	17.0	-0.78	- 5.5	0.2/25.4	32520
1998 OO ₁₄	1998 08 25.6	22 16.82	-12 08.2	18.1	-0.80	- 6.0	0.5/25.1	32493
1102 T-2	1998 08 25.6	22 17.14	-08 44.6	18.2	-0.78	- 4.9	0.6/26.3	30095
1988 CN ₄	1998 08 25.7	22 17.19	-02 25.8	17.9	-0.86	- 5.5	2.7/28.2	32511
1997 GL ₂₂	1998 08 25.7	22 17.33	-15 42.1	16.8	-0.78	- 3.1	2.0/24.2	32477
1991 GU ₄	1998 08 25.7	22 17.58	-20 56.4	18.2	-0.84	- 2.7	3.0/22.8	27934

(9178)	1998 08 25.8	22 17.63	-13 54.3	17.1	-0.83	- 4.2	1.1/24.8	32419
1994 PO ₂₈	1998 08 25.8	22 17.64	-14 03.9	17.6	-0.87	- 4.3	1.5/24.8	32459
1996 BH ₄	1998 08 25.8	22 17.80	-32 43.7	16.3	-0.72	-11.5	9.6/16.5	27450
(7685)	1998 08 25.8	22 17.89	-04 00.0	16.5	-0.93	- 7.1	2.5/27.9	29908
(7838)	1998 08 25.8	22 17.89	+15 07.3	17.8	-0.67	- 7.0	7.7/04.6	30441
1979 MU ₄	1998 08 25.8	22 17.94	-10 43.2	17.8	-0.90	- 6.4	0.1/25.8	32439
1998 OH ₇	1998 08 25.9	22 18.00	+01 27.6	16.2	-0.86	- 1.6	5.1/29.3	32525
(7324)	1998 08 25.9	22 18.09	-10 44.2	17.3	-1.10	- 1.6	0.1/25.9	32508
1981 EY ₁₇	1998 08 25.9	22 18.15	-09 22.4	17.1	-0.90	- 6.2	0.5/26.3	32509
1998 QN ₂₅	1998 08 25.9	22 18.36	-13 30.1	16.8	-1.12	+ 2.6	1.3/25.4	32499
1998 QK ₅	1998 08 26.0	22 18.28	-03 50.2	18.5	-0.95	- 5.6	2.6/28.0	32495
1991 UN ₁	1998 08 26.0	22 18.67	-06 32.6	16.9	-1.01	- 2.3	1.7/27.1	32451
1993 JD	1998 08 26.0	22 18.70	+09 00.1	16.8	-0.82	- 6.1	6.6/01.8	32454
1997 EG ₂₇	1998 08 26.1	22 18.83	-05 50.5	17.8	-0.90	- 8.0	1.8/27.6	32475
2839 P-L	1998 08 26.1	22 18.84	-12 43.0	18.4	-0.90	- 3.9	0.8/25.5	30797
1998 QD ₂₃	1998 08 26.1	22 18.89	-18 15.3	16.8	-1.00	- 3.1	3.1/24.0	32499
1998 QM ₂₅	1998 08 26.1	22 18.92	-14 43.2	18.4	-0.88	- 4.3	1.5/24.9	32499
1997 GK ₁₇	1998 08 26.1	22 19.09	-10 18.2	17.8	-1.05	- 4.7	0.1/26.2	32477
3180 T-2	1998 08 26.2	22 19.17	-13 44.9	17.4	-0.78	- 5.2	1.1/25.2	32537
1990 UU ₃	1998 08 26.3	22 19.39	+02 19.7	16.3	-0.73	-10.1	5.0/31.1	32513
(9195)	1998 08 26.3	22 19.76	-13 34.2	16.9	-0.74	- 4.7	1.0/25.4	32423
(7742)	1998 08 26.5	22 20.23	-13 36.9	17.2	-0.82	- 6.1	1.1/25.5	32508
1998 OJ ₇	1998 08 26.5	22 20.45	+00 12.1	17.1	-0.81	- 5.8	4.8/30.0	32525
1995 XE	1998 08 26.5	22 20.48	+10 12.6	17.3	-0.93	- 1.9	7.2/01.5	32467
1998 OZ ₆	1998 08 26.6	22 20.73	-01 49.2	16.6	-0.82	- 3.1	3.9/29.1	32490
(7443)	1998 08 26.6	22 20.80	-10 59.7	16.4	-0.80	- 4.1	0.2/26.5	32508
1996 BY ₂	1998 08 26.6	22 20.87	-09 41.4	17.1	-0.89	- 6.8	0.2/26.9	32469
1993 FR ₃₀	1998 08 26.7	22 20.82	-04 17.3	17.6	-0.86	- 5.2	2.5/28.6	32454
1978 VW ₆	1998 08 26.7	22 20.88	+13 08.6	18.0	-0.86	- 3.7	8.8/03.0	32509
1991 UZ ₃	1998 08 26.7	22 21.07	-11 34.0	18.0	-0.93	- 6.3	0.5/26.4	32451
1978 RL ₁₀	1998 08 26.8	22 21.38	-12 05.2	17.3	-0.77	- 5.6	0.7/26.3	32438
1992 DY ₇	1998 08 26.8	22 21.53	-15 24.7	17.5	-0.85	- 4.9	1.8/25.3	32514
1996 DV	1998 08 26.8	22 21.56	-09 59.7	17.8	-0.68	- 7.2	0.1/27.0	32519
1991 FZ ₂	1998 08 26.9	22 21.95	-06 27.3	17.8	-0.72	- 5.9	1.1/28.2	32513
1990 SV	1998 08 27.0	22 21.98	-07 37.6	16.4	-0.79	+ 0.9	1.4/27.7	32445
1998 OZ ₁₄	1998 08 27.0	22 22.17	-15 18.6	16.8	-0.77	-12.3	2.1/25.1	32493
1994 PS ₃₂	1998 08 27.0	22 22.18	-05 07.7	17.3	-0.91	- 2.5	2.2/28.5	32517
1991 OO	1998 08 27.1	22 22.37	-02 18.2	16.3	-0.78	- 5.2	4.0/29.6	32513
4032 P-L	1998 08 27.1	22 22.63	-08 57.3	17.7	-1.04	- 3.5	0.5/27.5	32503
1998 QN ₁	1998 08 27.1	22 22.67	-08 12.5	16.9	-0.76	- 4.5	0.7/27.8	32494
1993 UZ ₇	1998 08 27.3	22 23.21	-11 59.0	17.5	-0.71	- 6.5	0.6/26.7	32456
1989 YB ₆	1998 08 27.3	22 23.32	-20 44.2	18.4	-0.71	- 6.0	2.6/23.8	26757
(9197)	1998 08 27.4	22 23.77	-11 06.6	16.1	-0.96	- 4.7	0.5/27.2	32423
6523 P-L	1998 08 27.5	22 24.13	-28 34.8	16.1	-1.11	+ 2.0	8.3/23.1	31023
1978 UN ₅	1998 08 27.6	22 24.13	-17 15.2	16.5	-0.89	- 0.4	3.7/25.7	32509
6103 P-L	1998 08 27.6	22 24.33	-13 52.9	18.4	-0.83	- 3.2	1.3/26.5	22966
(7679)	1998 08 27.6	22 24.54	-04 24.6	17.0	-0.80	- 9.2	1.8/29.6	29906
1997 EY ₂	1998 08 27.9	22 25.30	-13 21.3	18.1	-0.99	- 7.0	1.4/26.8	32474
1998 QY ₃₂	1998 08 27.9	22 25.42	-05 13.0	16.9	-0.95	- 6.4	1.8/29.4	32500
1996 GO ₁₃	1998 08 27.9	22 25.43	-10 56.0	19.8	-0.88	- 7.0	0.4/27.6	27317
1981 ED ₃₅	1998 08 27.9	22 25.50	-11 08.8	18.1	-0.97	- 5.0	0.5/27.6	32509

1996 AO ₁	1998 08 28.1	22 26.26	-17 46.2	17.2	-0.94	- 5.7	3.5/25.7	32518
1994 UT ₁₁	1998 08 28.2	22 26.43	+16 39.5	16.7	-0.79	- 5.0	8.5/06.5	32517
1998 QS ₃₁	1998 08 28.2	22 26.46	-15 31.8	16.5	-0.90	- 0.4	1.9/26.7	32500
1997 AF ₁₃	1998 08 28.2	22 26.66	-26 50.7	16.2	-0.99	- 6.8	7.2/22.8	32473
1997 JM ₁₅	1998 08 28.3	22 26.90	-13 59.6	18.2	-0.82	- 5.2	1.4/27.0	32479
4229 T-1	1998 08 28.3	22 26.94	-08 16.5	18.0	-0.88	- 8.1	0.6/28.8	32504
1997 AH ₅	1998 08 28.4	22 27.21	-09 42.2	17.4	-1.03	- 5.0	0.0/28.4	32472
1997 GA ₁₄	1998 08 28.4	22 27.39	-07 00.5	16.5	-0.84	- 3.9	1.3/29.3	32520
1993 TB ₂₃	1998 08 28.5	22 27.78	-08 57.8	16.7	-0.73	- 5.1	0.2/28.8	31538
1991 SA	1998 08 28.6	22 28.03	+03 53.6	15.6	-0.77	- 2.0	7.3/01.8	32450
1994 EH ₂	1998 08 28.6	22 28.13	-18 41.4	17.0	-0.87	- 6.5	4.5/25.7	32516
(9177)	1998 08 28.6	22 28.15	-00 34.1	15.6	-0.85	- 3.3	4.2/31.3	32419
1992 ED ₁₁	1998 08 28.6	22 28.20	-13 43.1	16.7	-0.98	- 1.9	1.5/27.6	32514
4121 P-L	1998 08 28.7	22 28.43	+00 29.4	17.1	-0.70	- 6.6	3.5/01.2	32536
1996 AT ₇	1998 08 28.7	22 28.51	-21 19.5	15.1	-0.81	- 7.1	4.5/24.8	32518
(9232)	1998 08 28.7	22 28.56	-08 24.2	16.6	-1.06	- 4.0	0.5/29.1	32431
1988 BG ₅	1998 08 28.8	22 28.53	+12 45.7	17.9	-0.82	- 5.2	8.3/05.7	32443
1001 T-2	1998 08 28.8	22 28.56	-08 05.6	17.5	-0.77	- 5.1	0.5/29.3	32537
4321 T-1	1998 08 28.8	22 28.88	-13 39.2	18.1	-0.87	- 4.9	1.3/27.6	25652
1994 WE ₂	1998 08 28.9	22 28.86	-24 20.8	15.1	-0.78	- 7.2	6.1/23.6	28591
1997 JP ₁₆	1998 08 28.9	22 29.07	-13 29.3	16.8	-0.79	- 5.4	1.3/27.7	32480
(7666)	1998 08 29.0	22 29.32	-14 47.2	16.1	-0.86	- 3.2	2.3/27.5	32508
1995 XD ₁	1998 08 29.0	22 29.33	-15 49.4	17.9	-0.95	- 5.4	2.3/27.1	30456
(9186)	1998 08 29.1	22 29.73	+11 02.9	16.8	-0.77	-18.0	8.0/07.1	32421
1995 YY ₁₀	1998 08 29.1	22 29.74	-25 28.6	17.8	-0.83	-10.1	5.8/23.1	32518
1987 SJ ₂	1998 08 29.1	22 29.91	-10 58.7	16.1	-0.81	- 6.9	0.7/28.7	32442
1989 CB ₆	1998 08 29.2	22 30.03	-12 01.8	18.3	-0.93	- 6.0	0.9/28.4	23514
1981 DV ₂	1998 08 29.3	22 30.34	+13 40.7	18.6	-0.84	-11.8	8.8/06.9	32439
1991 RC ₂	1998 08 29.3	22 30.51	-08 41.5	16.8	-1.07	- 1.8	0.3/29.5	32448
6105 P-L	1998 08 29.3	22 30.66	+04 30.3	17.9	-0.71	- 8.1	5.0/03.4	32504
1991 RE ₄	1998 08 29.4	22 30.90	-11 22.2	17.0	-0.93	+ 0.2	1.1/28.9	32448
1990 YP	1998 08 29.4	22 30.96	+03 04.8	18.6	-0.89	- 2.2	3.7/01.9	32446
1995 XW	1998 08 29.5	22 31.09	-37 21.5	17.1	-1.04	- 1.8	10.5/20.8	32518
1990 SV ₁₃	1998 08 29.6	22 31.43	-13 38.8	17.4	-0.94	- 3.5	1.7/28.3	32513
1993 FB ₁	1998 08 29.6	22 31.64	-24 14.8	16.6	-0.95	- 4.4	5.3/25.1	30471
(7643)	1998 08 29.6	22 31.67	-20 13.8	17.3	-1.04	- 4.6	4.4/26.4	29897
1993 TA ₂₄	1998 08 29.7	22 31.80	-12 35.8	16.9	-0.74	- 4.6	1.0/28.6	23125
1981 QK ₃	1998 08 29.8	22 32.34	-13 00.8	17.2	-1.06	+ 0.8	1.6/28.9	32510
1995 US ₄	1998 08 29.8	22 32.47	-24 07.9	15.9	-0.90	- 2.6	7.8/25.4	26423
1981 ED ₂₄	1998 08 29.9	22 32.75	-06 18.8	18.4	-0.72	- 7.4	0.9/30.9	32509
1995 YC ₅	1998 08 30.0	22 32.92	-15 30.9	17.2	-0.89	- 5.6	3.1/28.0	32518
1983 RP ₃	1998 08 30.0	22 32.93	-11 41.8	16.9	-0.87	- 6.7	1.1/29.2	32441
1995 BG ₁	1998 08 30.1	22 33.24	-11 55.5	17.0	-0.78	- 4.5	0.9/29.2	32517
(7672)	1998 08 30.1	22 33.49	-19 14.5	18.1	-1.08	- 3.0	4.4/27.3	29905
1991 RH ₁₄	1998 08 30.2	22 33.96	-06 43.7	17.2	-1.03	- 2.8	0.9/30.9	32449
1991 UF ₃	1998 08 30.3	22 34.40	-30 47.7	17.2	-1.12	- 3.1	7.8/23.7	30470
1992 HH ₁	1998 08 30.4	22 34.40	-03 39.5	17.1	-0.79	- 5.5	1.8/01.1	32514
1994 PG ₁₉	1998 08 30.4	22 34.42	-08 43.8	17.3	-0.94	- 2.8	0.1/30.5	32459
1991 PM ₁₃	1998 08 30.4	22 34.44	-12 13.0	16.2	-1.02	- 2.5	1.5/29.6	32513
1990 RR ₇	1998 08 30.4	22 34.56	-07 29.0	16.6	-0.80	- 8.4	0.6/31.0	32513
1997 CA ₂₂	1998 08 30.4	22 34.60	-08 59.7	16.9	-0.98	- 6.6	0.0/30.5	32474

(7649)	1998 08 30.5	22 34.81 -11 59.9 16.8	-0.83 - 7.5	1.1/29.5	29899	1998 QQ ₃₆	1998 09 01.5	22 42.17 -02 04.8 16.5	-0.83 - 7.1	2.5/03.6	32500
1991 RX ₁₇	1998 08 30.5	22 35.12 -05 38.0 15.7	-0.80 - 8.3	1.5/31.7	32449	(7660)	1998 09 01.5	22 42.26 +01 30.9 15.8	-0.87 -24.3	4.2/05.7	29902
1993 TJ	1998 08 30.6	22 35.05 +02 03.2 17.5	-0.71 - 6.0	3.2/03.4	32456	1994 PT ₁₆	1998 09 01.5	22 42.39 -04 16.4 18.6	-0.88 - 5.1	1.5/02.8	32517
(7654)	1998 08 30.6	22 35.23 -15 28.7 16.3	-0.95 - 4.9	3.0/28.6	32508	1995 UE	1998 09 01.7	22 42.71 -09 13.5 17.6	-1.06 - 3.3	0.4/01.4	32518
1997 GZ ₃₂	1998 08 30.6	22 35.24 -07 15.9 18.2	-0.84 - 4.7	0.5/31.2	30767	1997 EE ₄₆	1998 09 01.7	22 43.00 +02 02.1 18.2	-0.87 - 8.7	4.0/05.3	32475
1994 UW ₁	1998 08 30.6	22 35.26 +23 25.7 19.4	-0.81 -12.2	11.8/12.7	25084	1978 VO ₈	1998 09 01.7	22 43.10 -10 57.4 17.8	-0.73 - 4.7	0.8/31.9	32509
1995 UT ₈	1998 08 30.7	22 35.42 -16 03.7 17.2	-0.96 - 7.1	3.1/28.4	32464	4026 P-L	1998 09 01.8	22 43.17 -17 20.0 16.4	-1.06 - 0.3	3.4/30.5	32536
1979 MX ₁	1998 08 30.7	22 35.49 -03 27.0 18.4	-0.82 - 4.4	1.8/01.4	30753	1997 EW ₄₇	1998 09 01.8	22 43.29 +01 02.3 17.0	-0.76 - 7.8	3.2/05.1	32520
1997 LN	1998 08 30.7	22 35.71 -07 28.9 17.3	-0.76 - 7.1	0.5/31.2	32520	2676 T-3	1998 09 01.8	22 43.32 -02 04.3 18.1	-0.91 - 7.0	2.4/04.0	32505
1996 AN	1998 08 30.7	22 35.81 -14 25.4 17.0	-0.95 - 5.7	2.1/29.1	32467	1997 GL ₁₇	1998 09 01.8	22 43.35 -07 37.6 18.4	-0.93 - 4.9	0.2/02.0	32477
1997 LJ ₃	1998 08 30.8	22 35.88 -10 03.5 17.5	-0.81 - 6.1	0.4/30.4	32520	1987 SS ₉	1998 09 01.8	22 43.44 -11 12.3 17.2	-0.75 - 5.2	1.0/31.9	32511
2224 T-2	1998 08 30.8	22 36.16 -12 33.1 17.5	-0.80 - 4.3	1.3/29.7	32537	1997 GR ₅	1998 09 01.9	22 43.51 -14 59.5 18.4	-0.93 - 6.7	2.5/30.7	32520
6217 P-L	1998 08 30.8	22 36.19 +05 42.1 18.4	-0.68 - 7.0	3.9/05.1	32536	1995 WK ₅	1998 09 02.0	22 43.90 -14 31.4 17.6	-0.97 - 4.5	2.9/31.1	32466
7633 P-L	1998 08 30.9	22 36.16 -13 01.3 17.5	-0.79 - 5.5	1.5/29.5	32537	1998 QK ₃₇	1998 09 02.0	22 43.91 -02 02.3 17.4	-0.89 - 6.4	2.7/04.0	32500
1988 TT	1998 08 30.9	22 36.57 -17 52.1 16.7	-0.91 - 1.1	3.2/28.5	32511	1993 DW	1998 09 02.0	22 43.98 -02 19.7 16.9	-0.93 - 6.2	2.2/03.8	24108
1994 VD	1998 08 31.0	22 36.56 +11 27.0 17.3	-0.75 - 5.9	8.4/07.1	32461	1997 EK ₁₅	1998 09 02.0	22 44.03 -13 44.7 20.8	-0.99 - 2.6	1.9/31.5	29929
1987 SV ₁₂	1998 08 31.0	22 36.67 -13 15.7 16.5	-0.74 - 4.5	1.7/29.6	32511	1996 EW ₁	1998 09 02.1	22 44.20 -07 35.8 16.5	-0.78 - 4.1	0.1/02.3	32519
1978 VH ₅	1998 08 31.0	22 36.92 +05 34.6 17.9	-0.75 - 4.2	4.4/04.8	32438	1997 EB ₄₂	1998 09 02.1	22 44.36 -04 28.6 18.4	-0.98 - 5.2	1.5/03.2	32520
3424 T-3	1998 08 31.0	22 36.93 -09 05.9 18.5	-0.83 - 6.0	0.1/31.0	32538	1991 RB ₄	1998 09 02.2	22 44.87 -08 06.1 17.5	-0.99 - 3.8	0.1/02.2	32514
1990 WO ₄	1998 08 31.1	22 36.96 -03 37.0 19.7	-0.82 - 5.8	1.6/01.8	27934	1291 T-1	1998 09 02.3	22 44.87 +03 46.0 19.5	-0.78 - 7.9	3.7/06.5	31268
1982 XQ ₁	1998 08 31.1	22 37.18 -09 05.0 17.5	-0.72 - 4.7	0.1/31.1	32510	1997 EB	1998 09 02.3	22 45.11 -12 38.7 17.0	-0.90 - 6.4	1.8/31.9	32520
1989 CV ₁	1998 08 31.1	22 37.23 -16 52.5 17.8	-0.95 - 6.8	3.0/28.5	32512	1998 QG ₃₉	1998 09 02.4	22 45.28 -09 50.2 16.7	-0.95 + 3.8	1.0/02.0	32501
1993 QS ₉	1998 08 31.1	22 37.25 -09 35.1 17.8	-0.69 - 9.1	0.3/30.9	32455	1981 ET ₃₂	1998 09 02.4	22 45.34 +07 13.9 18.7	-0.81 - 2.9	5.3/07.2	32440
1981 EJ ₁₃	1998 08 31.1	22 37.28 -04 16.1 18.3	-0.98 - 2.7	1.6/01.4	32440	4065 P-L	1998 09 02.4	22 45.54 -03 50.6 17.4	-0.90 - 3.4	2.0/04.0	32536
1995 VZ ₄	1998 08 31.2	22 37.40 -14 00.5 17.9	-0.92 - 7.2	2.4/29.5	32465	1994 GF	1998 09 02.5	22 45.68 -13 25.4 17.6	-0.98 - 6.9	2.3/31.8	32516
1994 PT ₂₀	1998 08 31.2	22 37.52 -07 12.7 17.5	-0.88 - 4.0	0.7/31.7	32459	1997 GX ₅	1998 09 02.5	22 45.86 -10 51.3 19.5	-0.91 - 5.8	1.0/01.6	29931
1992 YN ₂	1998 08 31.3	22 37.64 -12 39.5 18.3	-0.97 - 5.8	1.4/30.1	32515	1979 QW ₃	1998 09 02.5	22 45.99 -07 45.9 18.0	-0.92 - 6.0	0.0/02.6	32509
1994 WU	1998 08 31.3	22 37.66 +10 52.8 17.7	-0.73 - 3.8	5.1/06.9	32461	1981 EC ₁₇	1998 09 02.6	22 45.97 -05 10.6 19.0	-1.04 - 4.4	1.1/03.4	26918
1996 CZ	1998 08 31.3	22 37.73 -02 04.1 19.3	-0.83 - 5.8	2.0/02.4	30473	1997 GR ₂₀	1998 09 02.6	22 46.18 -09 36.2 18.1	-0.86 - 4.6	0.8/02.1	32520
1988 QR	1998 08 31.4	22 38.03 -01 46.6 17.2	-0.79 - 4.1	2.5/02.6	32443	1981 DU ₁	1998 09 02.6	22 46.25 +10 54.3 17.9	-0.77 - 5.0	6.3/09.0	32509
1981 EB ₃₆	1998 08 31.4	22 38.14 -10 15.2 19.4	-0.93 - 4.8	0.6/31.0	21967	1991 RA ₁₀	1998 09 02.9	22 47.28 +02 48.7 17.0	-0.92 - 4.8	4.5/06.2	32449
(7342)	1998 08 31.4	22 38.20 -07 28.3 16.5	-0.76 - 8.8	0.4/31.9	28573	2657 P-L	1998 09 03.0	22 47.48 -13 04.3 18.7	-0.95 - 4.5	2.0/01.4	30681
1995 VD	1998 08 31.4	22 38.24 -11 07.6 17.9	-0.98 - 4.7	1.0/30.7	32465	1997 KG	1998 09 03.0	22 47.52 -12 50.2 17.5	-0.79 - 5.3	1.8/01.3	32480
1976 DA ₁	1998 08 31.5	22 38.71 -11 57.4 18.0	-0.93 - 7.4	1.3/30.5	32508	1990 QE ₇	1998 09 03.1	22 47.88 -08 44.5 17.3	-0.87 - 6.1	0.4/02.8	32512
1991 RG ₁₇	1998 08 31.5	22 38.72 -12 05.0 16.5	-0.86 - 7.3	1.6/30.4	32449	(7675)	1998 09 03.1	22 47.93 -13 57.2 18.1	-0.96 - 4.4	2.2/01.3	29905
1993 XD ₁	1998 08 31.5	22 38.73 -06 51.1 16.7	-0.74 - 4.9	0.6/01.1	32516	(9152)	1998 09 03.1	22 48.00 +00 48.7 17.0	-0.80 - 3.7	4.3/05.8	32413
(7671)	1998 08 31.6	22 38.74 -10 20.9 16.9	-1.01 - 5.5	0.8/31.1	29904	1981 DM ₂	1998 09 03.1	22 48.10 -01 18.3 18.2	-0.88 - 1.5	2.2/05.0	32439
1992 PL ₂	1998 08 31.6	22 38.81 +15 13.0 17.0	-0.83 - 0.8	6.6/07.9	32515	6670 P-L	1998 09 03.1	22 48.15 -10 58.0 18.9	-0.89 - 4.2	1.1/02.2	32537
(7847)	1998 08 31.6	22 38.98 -13 02.6 17.7	-0.72 - 5.7	1.3/30.2	30443	(9214)	1998 09 03.3	22 48.49 -02 05.3 15.0	-1.06 - 0.9	2.8/04.7	32427
1997 ML ₂	1998 08 31.6	22 39.03 -08 40.7 17.9	-0.91 - 7.1	0.1/31.6	32481	1975 NC	1998 09 03.3	22 48.56 +02 09.0 17.4	-0.84 - 4.5	3.5/06.4	32508
1981 EY ₁₂	1998 08 31.8	22 39.65 +02 21.8 17.7	-0.87 - 6.8	3.7/04.4	32509	1995 SM ₅₃	1998 09 03.3	22 48.59 -00 38.6 17.9	-0.83 - 7.5	3.4/05.7	32463
1997 BV ₃	1998 08 31.8	22 39.71 -14 23.6 17.9	-0.97 - 6.9	2.3/30.0	32473	1996 CO ₇	1998 09 03.3	22 48.74 -12 41.1 17.0	-0.81 - 4.7	1.8/01.7	32519
(9155)	1998 08 31.9	22 39.91 -11 14.5 16.6	-0.77 - 4.0	0.9/31.1	32413	1998 QM ₃₀	1998 09 03.3	22 48.85 -08 59.4 16.8	-0.96 - 1.6	0.7/03.0	32500
1995 BJ ₁	1998 09 01.0	22 40.15 -11 25.5 17.4	-0.71 - 4.5	0.8/31.0	32517	1997 EW ₄₅	1998 09 03.4	22 49.00 -17 45.8 18.0	-0.89 - 5.9	3.3/31.1	32520
1988 CF	1998 09 01.1	22 40.76 -11 08.7 18.0	-0.90 - 4.0	0.8/31.3	19677	1252 T-2	1998 09 03.4	22 49.10 -09 35.6 19.0	-0.87 - 4.2	0.8/02.8	26577
1978 PX ₃	1998 09 01.1	22 40.81 -01 33.1 16.4	-0.91 + 0.3	3.8/02.9	32508	1986 TG ₁	1998 09 03.4	22 49.11 -17 56.7 15.7	-1.15 + 2.2	4.5/01.1	32511
1997 EO ₃₂	1998 09 01.2	22 41.03 -08 14.8 18.3	-0.84 - 5.6	0.0/01.3	32520	1986 EK ₁	1998 09 03.4	22 49.20 -28 56.6 16.9	-1.34 + 0.5	7.5/29.0	26578
1981 EL ₁₁	1998 09 01.3	22 41.33 -00 02.6 20.8	-1.00 - 5.6	3.3/03.8	26917	1978 RX ₁	1998 09 03.5	22 49.20 -11 15.6 15.5	-0.73 - 8.7	1.9/02.1	32508
1991 TK ₈	1998 09 01.4	22 41.63 -09 42.4 17.2	-0.86 - 9.0	0.6/31.9	32451	1997 GE ₇	1998 09 03.5	22 49.41 +08 22.1 17.9	-0.70 - 9.0	6.2/09.6	32476
1997 EJ ₂₆	1998 09 01.4	22 41.66 -11 32.9 19.7	-1.01 - 2.6	1.3/31.5	30786	1994 ST ₁₂	1998 09 03.6	22 49.56 -13 05.8 16.4	-0.89 - 3.4	2.4/01.9	32517
(9173)	1998 09 01.5	22 42.10 -12 16.5 16.5	-0.92 - 2.1	1.4/31.4	32418	1998 QL ₃₀	1998 09 03.6	22 49.63 -12 46.9 16.4	-0.82 - 8.3	2.4/01.8	32500

(7735)	1998 09 03.6	22 49.69 +07 38.0 15.2	-0.76 - 5.7	6.0/08.9	30253
3063 T-2	1998 09 03.6	22 49.97 -21 13.6 18.2	-1.07 - 0.8	4.9/31.0	26416
1998 QR ₂₆	1998 09 03.7	22 50.10 -04 29.8 17.4	-0.89 - 5.8	1.3/04.7	32499
1994 PL ₂₃	1998 09 03.7	22 50.35 -09 09.6 17.8	-0.90 - 5.2	0.6/03.2	32517
1993 OQ ₅	1998 09 03.8	22 50.28 +01 14.3 17.0	-0.83 - 2.1	3.7/06.3	32516
1990 SR ₆	1998 09 03.8	22 50.46 -11 41.2 16.8	-0.86 - 5.2	1.8/02.5	32513
1989 BV ₁	1998 09 03.8	22 50.59 -07 07.3 17.4	-0.93 - 5.0	8.6/15.0	32512
1998 QN ₄₃	1998 09 03.8	22 50.62 -15 41.7 17.7	-1.02 - 4.0	3.4/01.5	32501
6335 P-L	1998 09 03.9	22 50.63 -06 54.5 17.7	-0.74 - 4.8	7.1/24.0	26912
1996 AO ₂	1998 09 04.0	22 51.05 -09 16.3 16.8	-0.93 - 5.2	0.8/03.4	32518
1995 YO ₃	1998 09 04.0	22 51.12 -06 24.6 17.6	-0.93 - 5.8	0.4/04.3	32467
1995 XG ₁	1998 09 04.1	22 51.57 +13 07.4 18.5	-0.92 - 3.4	6.9/10.7	32467
1991 XC	1998 09 04.1	22 51.65 -22 44.9 17.5	-1.32 + 0.3	5.7/31.3	32514
4177 T-1	1998 09 04.1	22 51.74 -14 20.3 17.0	-1.06 - 3.9	3.3/02.1	32537
1996 CT ₈	1998 09 04.2	22 51.79 -17 24.2 18.0	-0.78 -10.3	3.5/31.4	32519
1997 BU ₅	1998 09 04.2	22 51.94 -06 51.0 17.4	-0.98 - 5.6	0.2/04.4	32519
(7841)	1998 09 04.3	22 52.41 +04 30.7 16.5	-0.80 - 5.2	4.3/08.2	30442
1993 TU ₁₅	1998 09 04.4	22 52.86 -05 54.5 17.8	-0.74 - 4.8	0.4/04.9	31537
1994 VD ₂	1998 09 04.5	22 52.98 -23 02.7 16.8	-0.92 - 4.3	6.0/30.3	32517
1993 BO ₃	1998 09 04.5	22 53.08 -15 42.0 16.7	-0.98 - 6.5	3.5/01.8	32515
1991 NC ₁	1998 09 04.5	22 53.16 -13 53.0 17.0	-0.90 - 8.3	3.0/02.3	32447
(9253)	1998 09 04.6	22 53.37 +02 31.7 16.6	-0.71 - 9.6	4.4/08.3	32435
(7796)	1998 09 04.6	22 53.53 -25 32.7 18.0	-0.86 - 5.8	5.6/29.3	30269
1993 RT ₁₉	1998 09 04.7	22 53.52 -07 32.9 17.0	-0.77 - 4.4	0.1/04.5	32455
1991 TK ₁	1998 09 04.9	22 54.24 -02 04.8 17.8	-1.38 + 2.7	2.0/05.9	32450
1996 CV ₇	1998 09 04.9	22 54.36 -12 42.0 17.2	-0.70 - 8.2	1.9/02.9	32519
1989 CX	1998 09 04.9	22 54.56 +06 26.3 17.5	-1.28 + 2.0	5.0/07.8	32512
1995 CE ₁	1998 09 04.9	22 54.61 -07 43.4 18.6	-0.77 - 3.3	0.2/04.7	25084
1988 XT ₁	1998 09 05.0	22 54.96 -35 56.7 16.3	-1.06 - 1.2	10.2/26.1	32512
1982 QO	1998 09 05.0	22 55.01 -07 19.0 17.0	-0.68 - 8.2	0.1/04.9	32510
1997 GD ₂₄	1998 09 05.2	22 55.37 -01 21.3 18.8	-0.85 - 7.5	1.9/07.1	30767
(7788)	1998 09 05.2	22 55.42 -14 42.1 17.3	-0.72 - 6.9	2.7/02.5	30267
1998 QK ₄₁	1998 09 05.2	22 55.53 -05 38.2 18.2	-0.93 - 6.6	0.5/05.6	32501
1995 WU	1998 09 05.2	22 55.54 +02 28.9 17.8	-0.94 - 5.0	3.2/08.1	32518
1994 UQ ₁₁	1998 09 05.3	22 55.83 -12 17.8 17.2	-0.87 - 3.8	1.8/03.6	32517
(7765)	1998 09 05.3	22 55.84 +07 40.5 15.5	-0.83 - 3.8	5.8/10.0	30261
1995 UP ₈	1998 09 05.3	22 55.96 -08 25.4 16.3	-1.00 - 3.5	0.7/04.9	32518
1988 VN ₃	1998 09 05.4	22 56.12 +01 33.4 17.7	-0.92 - 6.6	3.4/08.1	32512
1083 T-2	1998 09 05.4	22 56.28 -08 18.3 18.3	-0.89 - 4.6	0.5/05.0	27457
1988 RL ₉	1998 09 05.4	22 56.29 -03 55.6 15.8	-1.04 - 2.5	1.3/06.2	32511
1991 AA ₁	1998 09 05.4	22 56.33 -15 03.0 16.3	-0.82 - 5.4	3.0/02.7	32513
1995 LC	1998 09 05.5	22 56.54 -55 41.2 19.3	-1.50 - 0.9	21.6/20.0	25963
1996 HF ₁₈	1998 09 05.6	22 56.77 -02 05.6 17.7	-0.72 - 4.8	1.3/07.1	27720
1998 QJ ₄	1998 09 05.6	22 56.93 -13 35.3 17.4	-0.97 - 5.6	2.9/03.5	32495
1993 HA ₆	1998 09 05.7	22 57.54 -16 20.7 17.6	-0.94 - 4.0	3.4/02.9	32515
1987 CH	1998 09 05.8	22 57.49 -09 21.1 17.2	-0.94 - 8.4	1.0/04.9	32441
1981 EW ₁₅	1998 09 05.9	22 57.86 -06 42.2 20.3	-0.82 - 3.0	0.0/05.9	26918
1991 PJ ₇	1998 09 05.9	22 58.13 -05 24.9 16.3	-1.00 - 0.9	0.6/06.3	32513
1991 RS ₈	1998 09 06.1	22 58.57 -09 22.2 16.8	-1.08 - 1.4	1.2/05.4	32514
1994 PK ₁₇	1998 09 06.1	22 58.57 -06 49.7 17.7	-0.75 - 8.1	0.1/06.0	32458
(7771)	1998 09 06.1	22 58.87 -04 50.0 16.7	-0.80 - 6.7	0.6/06.7	30263

1997 ES ₁₇	1998 09 06.1	22 58.97 -00 01.0 15.7	-0.89 - 3.8	3.1/08.2	32475
1996 BM ₁₇	1998 09 06.2	22 59.20 -14 10.1 17.9	-0.93 - 4.6	2.7/03.9	27450
6745 P-L	1998 09 06.2	22 59.21 -07 44.8 18.0	-0.73 - 5.0	0.4/05.8	27328
1996 AW ₆	1998 09 06.3	22 59.45 -10 20.3 18.4	-0.94 - 4.2	1.8/05.2	32468
1989 TN ₁	1998 09 06.3	22 59.62 -05 54.2 17.4	-1.02 + 0.5	0.2/06.5	32444
1993 FV ₃₁	1998 09 06.3	22 59.65 -11 20.8 17.2	-0.89 - 6.2	1.8/04.8	32515
1997 CC ₂₂	1998 09 06.4	22 59.70 -08 30.1 18.2	-1.03 - 4.3	0.8/05.8	29928
1997 FZ ₁	1998 09 06.4	22 59.87 -06 39.1 18.3	-0.92 - 5.6	0.1/06.4	32520
1998 QN ₄₂	1998 09 06.4	22 59.98 -01 02.6 16.9	-0.93 - 0.5	2.3/07.9	32501
1996 AG ₅	1998 09 06.4	23 00.07 -10 37.1 19.7	-0.88 - 4.6	1.5/05.2	26750
1997 GT ₁₈	1998 09 06.5	23 00.09 -05 26.4 16.4	-0.87 - 7.0	0.5/06.8	32477
1979 MA ₇	1998 09 06.5	23 00.20 -00 47.7 18.6	-0.80 - 5.3	1.9/08.4	30779
1979 OZ ₉	1998 09 06.5	23 00.21 -04 48.2 19.1	-0.86 -10.0	0.8/07.1	27553
1991 PA ₅	1998 09 06.5	23 00.45 -02 08.9 17.1	-0.94 - 3.8	2.0/07.9	32447
1995 WL ₄₂	1998 09 06.8	23 01.11 -07 02.5 18.8	-0.77 - 5.0	0.2/06.6	27110
1991 VN ₉	1998 09 06.8	23 01.14 -00 07.8 19.2	-0.85 - 7.6	2.2/09.0	29915
(7722)	1998 09 06.8	23 01.22 -13 29.4 17.6	-1.02 - 3.3	2.7/04.8	30074
1996 DB ₃	1998 09 06.8	23 01.35 +04 05.5 18.3	-0.98 - 1.5	3.5/09.7	32470
1995 VB	1998 09 06.8	23 01.50 +02 38.2 17.9	-0.96 - 5.3	3.5/09.6	32465
1978 CK	1998 09 06.9	23 01.85 +15 06.6 17.3	-0.88 - 0.2	6.2/13.3	32508
1987 QT	1998 09 07.0	23 01.84 -02 44.7 16.4	-1.05 + 1.5	1.7/07.8	32442
1997 FT ₃	1998 09 07.0	23 02.20 -00 15.3 18.6	-0.91 - 7.1	2.2/09.0	30787
1997 GE ₁₇	1998 09 07.0	23 02.26 -08 40.4 18.1	-1.05 - 3.8	1.0/06.4	30788
2796 P-L	1998 09 07.2	23 02.57 -08 41.9 17.9	-0.78 - 7.1	1.1/06.3	15902
1996 AH ₉	1998 09 07.2	23 02.60 -03 42.4 19.1	-0.80 - 5.2	0.7/08.0	26750
1998 QZ ₄₆	1998 09 07.2	23 02.64 -11 47.4 17.2	-0.97 - 6.8	2.2/05.4	32501
1993 SA ₆	1998 09 07.2	23 02.78 -06 43.4 17.4	-0.74 - 5.0	0.2/07.1	29137
1994 JU	1998 09 07.3	23 03.27 +01 48.8 17.3	-0.87 - 9.1	3.3/10.2	32516
1986 XT	1998 09 07.4	23 03.33 -07 31.9 15.6	-0.82 - 1.6	0.8/07.0	32511
1997 JU ₃	1998 09 07.4	23 03.54 -19 57.5 19.4	-0.86 - 3.8	4.2/03.1	32520
1987 UV ₁	1998 09 07.5	23 03.68 -04 59.6 16.3	-0.89 - 4.2	0.5/07.8	32511
1992 EE ₃₂	1998 09 07.5	23 03.93 -02 41.5 18.6	-0.82 - 6.2	1.0/08.7	26758
(9021)	1998 09 07.6	23 04.19 +06 40.8 14.8	-1.06 + 1.6	5.6/10.8	32179
3465 T-3	1998 09 07.8	23 04.88 -18 33.2 18.1	-0.90 - 1.1	4.5/04.2	32294
4845 P-L	1998 09 07.9	23 05.25 -03 49.3 17.9	-0.68 - 8.0	0.6/08.7	32536
1997 NU	1998 09 08.0	23 05.48 -20 13.6 17.1	-0.81 - 7.5	4.5/02.9	32314
1998 QN ₄	1998 09 08.0	23 05.55 -11 39.9 17.5	-1.02 - 3.4	2.2/06.3	32495
(7777)	1998 09 08.0	23 05.67 -00 13.3 17.1	-0.91 - 6.8	2.1/09.9	30264
1269 T-2	1998 09 08.1	23 05.79 -04 36.4 17.9	-0.78 - 4.7	0.4/08.5	32537
1988 RG ₉	1998 09 08.1	23 06.11 -10 22.3 17.2	-0.89 - 7.4	2.1/06.6	32511
2066 T-1	1998 09 08.2	23 06.47 -08 48.9 16.0	-0.89 - 7.8	1.4/07.2	32537
(7640)	1998 09 08.2	23 06.51 -09 11.8 15.7	-0.84 - 9.6	1.6/07.1	29897
1990 TN ₃	1998 09 08.3	23 06.71 -38 42.8 16.0	-1.80 + 8.3	17.1/02.0	21974
9523 P-L	1998 09 08.3	23 06.80 -10 31.3 18.1	-1.04 - 3.7	1.8/07.0	32537
1993 FS ₁₀	1998 09 08.4	23 06.99 -03 56.8 16.4	-0.79 - 9.2	0.7/09.1	32515
1980 FS ₃	1998 09 08.5	23 07.31 -07 54.1 17.1	-0.86 - 1.7	0.8/07.9	32509
1990 VN ₁	1998 09 08.6	23 07.60 -20 07.6 16.1	-0.94 - 3.1	5.6/04.1	27728
1995 WX ₅	1998 09 08.6	23 07.88 -07 46.6 16.9	-0.85 - 5.2	1.1/08.0	32466
4032 T-3	1998 09 08.6	23 07.98 -15 23.8 16.8	-0.93 - 4.2	4.6/05.6	32538
1994 VU ₆	1998 09 08.7	23 08.21 +12 11.9 15.9	-0.63 -10.6	7.5/16.1	32517
1997 ED ₂₃	1998 09 08.8	23 08.40 -06 31.4 18.9	-0.92 - 4.7	0.3/08.5	30473

1981 DR	1998 09 08.8	23 08.68 +07 23.0 18.0	-0.85 - 2.2	4.2/12.8	32439	1979 DF	1998 09 11.4	23 18.04 -23 25.4 17.2	-0.96 - 2.4	5.6/05.7	18105
1995 UO ₃	1998 09 08.8	23 08.68 +01 29.7 17.2	-0.96 - 5.8	2.8/11.1	32464	2158 P-L	1998 09 11.5	23 18.14 +02 05.2 18.0	-0.84 - 7.7	2.5/13.8	32536
1998 QG ₅₀	1998 09 08.8	23 08.68 -09 47.8 17.0	-1.12 + 3.6	2.0/08.0	32502	1980 TT ₃	1998 09 11.5	23 18.43 -07 51.5 16.2	-1.04 - 1.9	1.5/10.7	32509
1993 BS ₃	1998 09 08.8	23 08.71 +04 15.1 16.9	-0.99 - 4.2	3.6/11.8	32515	6608 P-L	1998 09 11.7	23 18.82 -09 45.3 18.2	-0.99 - 2.6	2.3/10.2	32537
1989 AK	1998 09 09.0	23 09.22 -12 16.6 17.2	-0.79 - 5.3	2.1/06.7	32512	1990 UA ₂	1998 09 11.7	23 18.83 -11 58.9 17.4	-0.78 - 7.2	3.4/09.0	32513
1995 UV ₄	1998 09 09.0	23 09.24 -26 56.3 15.9	-1.04 - 2.5	8.2/02.7	32518	1997 GO ₁₈	1998 09 11.8	23 19.33 +02 08.5 18.4	-0.75 -10.7	2.4/14.3	30788
1990 SB ₁	1998 09 09.0	23 09.33 -05 39.2 16.6	-0.99 - 1.8	0.1/09.0	32513	1998 QD ₄₈	1998 09 11.9	23 19.63 +02 43.2 17.3	-0.87 - 7.0	3.3/14.0	32501
1995 CF	1998 09 09.0	23 09.37 -13 40.5 17.1	-0.73 - 5.7	2.6/06.2	32517	1985 RD ₃	1998 09 11.9	23 19.82 -08 29.9 16.7	-0.91 - 7.1	1.9/10.6	32510
1990 WN ₂	1998 09 09.1	23 09.37 -30 14.3 16.9	-0.93 - 4.8	8.4/31.2	27325	1979 MD ₈	1998 09 12.0	23 19.86 +08 14.0 18.2	-0.81 - 5.0	3.9/16.2	32439
1990 BA ₂	1998 09 09.1	23 09.60 +06 34.7 17.4	-0.79 - 3.0	3.3/12.9	32444	2040 T-2	1998 09 12.0	23 20.14 -00 30.0 17.9	-0.72 - 7.0	1.2/13.4	32537
1993 FE ₈	1998 09 09.2	23 09.73 -14 09.7 16.6	-0.84 - 5.3	3.9/06.3	32454	1991 PJ ₁₅	1998 09 12.1	23 20.22 -09 05.4 16.6	-0.90 - 6.8	2.1/10.5	32513
1993 TP ₂₆	1998 09 09.2	23 10.14 -08 49.2 17.8	-0.71 - 5.0	0.9/08.1	32516	1981 EJ ₁₄	1998 09 12.1	23 20.22 +01 22.3 20.0	-0.94 - 3.8	2.0/13.8	26917
(9234)	1998 09 09.2	23 10.16 -09 46.5 16.6	-0.96 - 6.1	2.0/07.9	32431	6634 P-L	1998 09 12.1	23 20.47 -10 01.2 18.0	-0.75 - 4.7	1.7/10.2	23130
1998 QP ₄₇	1998 09 09.3	23 10.13 -06 37.8 15.8	-0.76 - 5.8	0.4/08.9	32501	7072 P-L	1998 09 12.2	23 20.64 +14 24.7 16.9	-0.91 -17.5	7.6/19.9	32537
(7542)	1998 09 09.3	23 10.15 -05 32.4 17.0	-0.91 - 8.4	0.1/09.2	29587	1991 VO ₃	1998 09 12.2	23 20.82 -11 32.2 17.6	-0.96 - 5.4	2.8/09.9	32451
1987 SD ₄	1998 09 09.3	23 10.39 +08 57.1 16.2	-0.91 - 2.0	7.0/14.0	32511	1997 CK ₂₀	1998 09 12.3	23 21.02 -07 55.1 16.9	-1.06 - 4.4	1.6/11.2	32520
(9161)	1998 09 09.3	23 10.41 -15 41.0 16.7	-0.76 -10.5	3.7/05.4	32415	1998 QB	1998 09 12.5	23 21.84 +02 20.6 17.0	-0.99 - 4.0	2.5/14.5	32494
1986 QH ₃	1998 09 09.4	23 10.59 -12 51.3 16.8	-0.83 - 7.6	2.9/06.8	32511	1993 FH ₁₆	1998 09 12.5	23 21.95 -09 09.7 17.9	-0.91 - 6.3	1.8/10.9	30451
1993 TP ₁₅	1998 09 09.4	23 10.63 -07 41.7 17.6	-0.75 - 5.3	0.8/08.6	32516	1981 EH ₆	1998 09 12.6	23 22.09 +02 05.1 20.5	-0.78 - 4.8	1.6/14.7	26915
(7637)	1998 09 09.4	23 10.72 -08 12.7 17.4	-0.82 - 7.1	0.9/08.5	29896	1993 OS ₁₀	1998 09 12.8	23 22.80 +02 50.5 17.0	-0.83 - 4.9	2.4/15.1	32516
1990 WS ₁	1998 09 09.4	23 10.75 +06 53.7 17.8	-0.76 - 7.6	3.7/13.9	32446	1997 JU ₇	1998 09 12.8	23 23.05 +10 48.7 16.4	-0.74 -12.4	6.1/18.8	32479
(9196)	1998 09 09.5	23 11.10 -11 12.6 15.7	-0.96 - 6.7	2.5/07.6	32423	1996 ED ₄	1998 09 13.2	23 24.33 -06 46.6 17.2	-0.87 - 1.7	1.0/12.4	32470
4590 P-L	1998 09 09.6	23 11.20 -08 34.5 16.7	-0.74 - 4.8	1.2/08.5	32503	1978 RC ₉	1998 09 13.2	23 24.52 -01 55.0 16.9	-1.00 - 2.9	0.9/14.0	32509
1996 KA	1998 09 09.6	23 11.28 +10 55.1 19.1	-0.68 - 4.5	3.8/15.3	32471	6130 P-L	1998 09 13.3	23 24.55 -00 59.1 17.8	-0.86 - 7.1	1.0/14.3	32536
1989 SP ₂	1998 09 09.7	23 11.85 -10 34.4 17.5	-0.78 - 6.4	1.8/07.9	32512	1196 T-2	1998 09 13.3	23 24.68 -05 43.3 17.8	-0.92 - 3.8	0.7/12.8	32537
1981 WL ₂	1998 09 09.8	23 12.19 -62 21.8 17.8	-2.46 +10.9	28.9/25.0	30780	2566 P-L	1998 09 13.4	23 24.84 -02 29.8 17.4	-0.89 - 6.7	0.5/13.8	32536
1995 XN ₁	1998 09 09.8	23 12.31 -29 54.4 16.2	-0.96 - 3.3	8.8/01.9	30901	1996 CW ₃	1998 09 13.4	23 24.97 +07 53.7 17.6	-0.95 - 2.0	4.2/16.9	32469
1996 CU ₈	1998 09 10.0	23 12.84 -07 42.8 17.6	-0.88 - 2.8	0.8/09.3	32470	1981 EQ ₁₄	1998 09 13.4	23 25.13 +04 36.2 17.2	-0.97 - 1.3	3.8/15.8	32509
3517 T-3	1998 09 10.1	23 13.14 -07 53.5 16.8	-0.86 - 4.7	1.1/09.2	24410	1994 UA ₃	1998 09 13.5	23 25.53 -01 44.1 17.2	-0.85 - 5.6	0.7/14.0	32461
1994 VJ ₁	1998 09 10.1	23 13.14 -16 39.3 16.8	-0.82 - 5.0	4.2/06.3	30292	1987 RR	1998 09 13.6	23 25.78 -08 54.7 16.2	-0.63 -10.2	1.8/11.6	32442
1991 RY ₂₉	1998 09 10.2	23 13.60 +06 44.5 17.3	-0.97 - 3.9	5.2/13.8	32450	1978 RL ₇	1998 09 13.7	23 26.12 -02 16.5 17.0	-0.77 - 5.2	0.5/14.2	32509
1989 GR ₃	1998 09 10.3	23 13.89 +02 33.1 17.2	-0.89 - 6.0	3.0/12.9	32512	1997 GP ₆	1998 09 13.7	23 26.12 -09 44.6 17.8	-0.95 - 4.4	2.2/11.9	32476
1036 T-3	1998 09 10.4	23 14.19 -01 16.6 17.7	-0.83 - 2.7	1.1/11.5	24910	1991 RK ₁₅	1998 09 13.7	23 26.27 -06 22.8 15.5	-0.99 - 1.7	1.3/13.0	32514
1987 QH	1998 09 10.5	23 14.61 +06 13.8 15.9	-0.95 + 2.9	6.2/14.0	32441	1994 TS ₃	1998 09 13.8	23 26.54 -25 21.4 15.1	-1.07 + 2.3	9.6/08.1	32517
1991 TW ₈	1998 09 10.7	23 15.50 -10 15.9 18.6	-1.01 - 4.0	2.1/09.2	26420	(9218)	1998 09 13.9	23 26.78 +00 40.5 15.8	-0.83 - 7.5	2.0/15.4	32428
1992 EX ₇	1998 09 10.8	23 15.59 -02 53.1 20.8	-0.88 - 4.2	0.6/11.4	25639	(9179)	1998 09 13.9	23 26.83 -05 15.4 16.4	-0.67 - 9.3	0.6/13.3	32419
1988 CH ₃	1998 09 10.8	23 15.87 +14 28.5 17.6	-0.92 - 3.2	6.3/17.1	32511	1994 VZ ₆	1998 09 13.9	23 26.83 +04 11.8 16.8	-0.75 - 5.8	3.6/16.6	32461
(9002)	1998 09 10.9	23 15.84 -13 43.2 15.9	-0.75 - 9.0	3.5/07.6	32174	(9223)	1998 09 13.9	23 26.96 +02 07.1 16.3	-0.92 - 6.9	2.3/15.9	32429
1181 T-1	1998 09 10.9	23 16.27 -02 27.9 17.3	-0.78 - 4.1	0.7/11.7	32537	1998 QS ₅₁	1998 09 14.2	23 27.70 +01 55.3 17.8	-0.86 - 6.3	2.5/16.0	32502
2208 P-L	1998 09 11.0	23 16.38 +02 10.8 18.5	-0.86 - 6.3	2.6/13.3	32536	1988 UV	1998 09 14.2	23 27.95 +06 14.6 17.4	-0.86 - 9.0	4.1/17.7	32511
1993 TX ₂₆	1998 09 11.1	23 16.63 -00 14.7 18.1	-0.68 - 8.2	1.5/12.8	32516	(7594)	1998 09 14.2	23 27.99 -09 10.8 16.1	-0.92 - 6.5	2.1/12.4	29599
1994 RE ₁₁	1998 09 11.1	23 16.73 -01 56.2 16.9	-0.22 -22.4	1.3/12.5	32460	1988 BY ₃	1998 09 14.3	23 28.19 -04 54.1 17.2	-0.82 - 8.3	0.5/13.8	29941
1981 EL ₄₅	1998 09 11.1	23 16.86 +04 34.2 19.2	-0.88 - 5.5	3.1/14.2	26923	1979 MM ₂	1998 09 14.3	23 28.24 +07 45.9 18.6	-0.89 - 5.7	4.6/18.1	30778
4197 T-3	1998 09 11.1	23 16.97 -13 29.4 17.3	-0.86 - 4.7	3.5/08.3	30095	1998 QV ₅₁	1998 09 14.3	23 28.28 +06 11.4 17.2	-1.00 - 1.8	4.3/17.1	32502
6108 P-L	1998 09 11.1	23 16.99 -00 12.2 18.2	-0.84 - 6.2	1.6/12.7	32504	1981 EB ₂₅	1998 09 14.3	23 28.37 -00 44.1 16.2	-0.63 -10.9	1.0/15.4	32509
1989 HA	1998 09 11.2	23 16.96 -15 36.6 16.6	-0.77 -10.9	4.0/07.0	32512	1996 FU ₁₃	1998 09 14.3	23 28.42 -23 10.9 16.0	-0.73 - 1.9	6.0/07.8	30293
1991 RU ₇	1998 09 11.2	23 17.25 -02 03.0 17.0	-0.77 -10.7	1.2/12.2	32514	1231 T-2	1998 09 14.3	23 28.42 -04 23.5 17.7	-0.79 - 4.4	0.3/14.1	24115
2168 T-2	1998 09 11.3	23 17.34 -03 10.3 17.3	-0.76 - 5.5	0.5/11.8	32537	6106 P-L	1998 09 14.4	23 28.49 -01 14.9 17.8	-0.87 - 4.4	0.8/15.1	27123
1995 UA ₄₅	1998 09 11.3	23 17.49 -16 45.1 16.8	-1.02 - 5.7	5.3/07.4	32465	1995 BC	1998 09 14.4	23 28.63 -07 55.2 16.9	-0.76 - 5.6	1.6/12.9	32517
1990 HL ₁	1998 09 11.3	23 17.52 +30 34.1 18.3	-0.96 - 8.0	11.8/26.8	32512	1991 PQ ₅	1998 09 14.5	23 29.15 -09 57.5 16.9	-0.83 - 9.4	2.9/12.2	32513
1993 TX ₂₃	1998 09 11.4	23 18.01 -11 06.1 17.2	-0.76 - 5.0	2.2/09.3	30275	1994 PE ₃₉	1998 09 14.6	23 29.26 -04 51.2 17.3	-0.82 - 8.7	0.6/14.1	32237

1994 GA ₁	1998 09 14.6	23 29.47	-13 43.9	15.9	-0.94	- 5.3	4.8/11.4	32307	1975 LF ₁	1998 09 17.1	23 38.43	-21 37.6	16.9	-0.96	+ 0.3	6.1/11.7	32508
(9170)	1998 09 14.7	23 29.56	+01 28.3	15.9	-0.84	- 7.4	2.3/16.4	32417	1992 FE ₁	1998 09 17.2	23 38.63	-10 33.8	15.4	-0.87	- 3.9	3.2/14.6	32304
4064 T-3	1998 09 14.7	23 29.65	-03 26.3	17.0	-0.68	- 8.7	0.1/14.7	32538	1997 AS ₇	1998 09 17.2	23 38.72	-13 44.0	16.1	-0.90	- 7.1	4.3/13.4	29123
1997 CZ ₂₁	1998 09 14.7	23 29.68	-04 59.4	18.2	-1.06	- 5.2	0.7/14.2	29928	1991 FO ₁	1998 09 17.2	23 38.84	-02 22.4	16.5	-0.81	- 4.6	0.0/17.3	32513
1996 BU	1998 09 14.7	23 29.88	+10 35.2	17.5	-0.92	- 4.1	5.9/19.2	32468	1993 GO	1998 09 17.3	23 38.81	-23 16.4	17.8	-0.97	- 3.0	6.7/10.8	30291
1997 AW	1998 09 14.8	23 29.97	-03 47.9	18.4	-0.95	- 5.6	0.2/14.7	30084	1989 CJ ₈	1998 09 17.3	23 38.82	-09 04.7	16.8	-0.85	- 7.8	2.2/15.0	31582
4012 T-3	1998 09 14.8	23 30.04	-17 30.9	17.5	-0.85	- 2.3	4.7/10.4	29315	(9199)	1998 09 17.4	23 39.23	-16 15.6	14.5	-0.98	- 2.2	6.3/13.2	32424
1997 GZ ₆	1998 09 15.1	23 31.06	-08 07.7	19.2	-0.96	- 5.2	1.8/13.6	29931	1981 EJ ₁₅	1998 09 17.4	23 39.25	+02 11.8	17.2	-0.89	- 5.4	1.9/18.9	32509
1992 EC ₁	1998 09 15.2	23 31.34	+08 43.0	19.5	-0.78	-10.8	3.3/19.7	20342	1991 VF ₇	1998 09 17.4	23 39.29	+07 04.7	16.6	-0.88	- 6.6	3.5/20.6	32514
1980 GB	1998 09 15.3	23 31.93	-16 54.5	17.3	-0.95	- 6.7	5.1/10.7	29940	1996 CA ₃	1998 09 17.4	23 39.40	-05 36.1	17.2	-0.72	- 4.6	0.9/16.3	27123
1993 EK	1998 09 15.4	23 32.01	+00 07.4	17.7	-1.07	- 3.3	1.3/16.3	32454	1981 JR ₂	1998 09 17.4	23 39.43	-06 38.7	17.7	-1.03	- 5.0	1.8/16.1	31272
1991 XO ₂	1998 09 15.4	23 32.08	+04 01.2	17.1	-0.87	- 7.2	3.1/17.8	32514	1995 YJ ₃	1998 09 17.4	23 39.45	-07 52.8	18.7	-0.83	- 6.3	1.7/15.5	32467
3058 T-1	1998 09 15.4	23 32.27	-03 00.9	15.4	-1.05	- 0.1	0.0/15.5	32537	1992 EW ₉	1998 09 17.6	23 40.06	-11 19.8	14.7	-0.69	-12.9	3.5/13.9	32514
1994 TW ₁₅	1998 09 15.4	23 32.36	+02 48.3	16.8	-0.73	- 6.7	2.6/17.5	32461	3395 T-3	1998 09 17.6	23 40.08	-01 29.4	17.3	-0.89	- 8.0	0.2/17.9	32538
4214 T-1	1998 09 15.5	23 32.43	-05 15.8	18.7	-0.82	- 6.7	0.7/14.7	27123	1996 JX ₇	1998 09 17.7	23 40.37	-05 59.0	19.1	-0.71	- 4.8	1.0/16.4	27452
1996 BN	1998 09 15.5	23 32.46	-07 55.1	16.8	-0.91	- 6.1	2.1/13.9	32519	1988 BH ₅	1998 09 17.7	23 40.61	+17 07.0	17.7	-0.87	- 5.0	6.1/24.4	32511
1995 WD ₂	1998 09 15.5	23 32.73	+00 14.9	17.7	-0.93	- 6.6	1.2/16.6	26760	1064 T-1	1998 09 17.9	23 41.04	-01 58.4	19.0	-1.05	- 4.5	0.0/17.9	29314
1992 PU ₁	1998 09 15.6	23 32.91	-03 07.7	17.8	-0.71	- 5.6	0.1/15.6	27445	1995 YM ₂	1998 09 17.9	23 41.25	-09 29.9	18.0	-0.95	- 5.6	2.9/15.6	30292
1996 DO ₁	1998 09 15.6	23 32.96	+12 00.0	17.0	-0.80	- 3.6	4.4/20.7	32519	1994 TK ₁₅	1998 09 17.9	23 41.29	-04 42.1	17.7	-0.91	- 4.2	1.0/17.1	25220
1981 EB ₁₇	1998 09 15.7	23 33.09	-01 29.5	17.7	-0.92	- 4.5	0.5/16.1	32509	1993 QZ ₅	1998 09 18.0	23 41.31	-02 15.5	17.2	-0.77	- 5.7	0.1/17.9	32516
1990 EO	1998 09 15.8	23 33.62	+08 00.8	16.7	-0.92	- 7.1	4.4/19.6	32512	1978 OQ	1998 09 18.0	23 41.34	-00 26.0	15.5	-0.86	- 1.9	0.6/18.5	32508
1994 YC ₁	1998 09 15.8	23 33.67	-03 28.2	18.1	-0.73	- 4.7	0.2/15.6	30472	(7834)	1998 09 18.0	23 41.44	-27 58.6	15.9	-0.95	- 3.1	9.0/09.5	30440
1990 RJ ₅	1998 09 15.9	23 33.90	+02 14.7	17.2	-0.89	- 5.5	1.9/17.6	32513	1981 ER ₄₃	1998 09 18.0	23 41.55	-00 25.8	17.3	-0.78	- 5.0	0.5/18.6	32510
1991 AF ₂	1998 09 15.9	23 34.10	+01 33.6	17.5	-0.75	-10.6	1.6/17.6	32446	(7611)	1998 09 18.0	23 41.60	-14 46.7	15.7	-0.76	- 5.6	4.2/13.7	29603
6077 P-L	1998 09 15.9	23 34.15	-01 52.8	17.8	-0.77	- 3.9	0.3/16.3	32536	1991 LK ₂	1998 09 18.1	23 41.78	-11 21.9	17.9	-0.73	- 4.2	2.5/15.0	28614
1981 EF ₄₇	1998 09 16.0	23 34.20	-04 07.3	19.5	-0.80	- 4.2	0.4/15.6	18421	1996 AU ₁₃	1998 09 18.1	23 41.81	-06 57.5	18.8	-0.89	- 3.2	2.0/16.6	31387
3024 P-L	1998 09 16.1	23 34.62	+13 37.7	18.0	-0.88	- 3.9	4.9/21.5	32536	1996 XH ₁	1998 09 18.1	23 41.97	-48 17.4	18.4	-1.50	- 0.9	18.2/01.0	29308
1991 UR ₁	1998 09 16.2	23 35.22	-05 41.7	16.6	-0.93	- 5.2	1.3/15.3	32514	1990 EF ₇	1998 09 18.1	23 42.08	-04 03.2	17.5	-0.71	- 5.0	0.6/17.5	32512
4255 T-1	1998 09 16.2	23 35.22	-03 36.4	19.9	-0.89	- 7.0	0.3/16.0	29938	1978 VZ ₂	1998 09 18.2	23 42.06	-04 47.3	17.7	-0.87	- 5.4	1.0/17.3	26913
1995 YY ₅	1998 09 16.3	23 35.39	-11 40.1	17.0	-0.87	- 5.6	4.4/13.4	32242	1992 DN ₇	1998 09 18.2	23 42.14	-06 27.4	15.9	-0.81	- 6.3	1.7/16.7	32514
1997 JD ₁₄	1998 09 16.3	23 35.60	+11 03.8	16.8	-0.77	-10.0	4.8/21.6	32479	1997 EW ₂₅	1998 09 18.2	23 42.21	-06 54.2	17.7	-1.07	- 3.2	2.0/16.8	30094
1993 TD ₂₈	1998 09 16.5	23 36.09	-02 34.2	17.3	-0.72	- 6.0	0.0/16.5	24112	1953 TA ₁	1998 09 18.2	23 42.24	+06 03.0	15.6	-0.66	- 8.9	4.0/21.3	32297
3149 T-3	1998 09 16.5	23 36.13	-02 33.6	18.5	-0.93	- 7.0	0.0/16.6	32537	1991 SX	1998 09 18.3	23 42.44	-14 50.9	17.1	-0.77	- 7.4	6.2/13.6	30078
1995 BJ	1998 09 16.5	23 36.19	+10 22.3	17.7	-0.82	- 2.8	4.1/20.7	32517	1993 HK	1998 09 18.3	23 42.54	-06 04.5	17.0	-0.89	- 6.6	1.4/16.9	32515
2199 T-2	1998 09 16.5	23 36.24	-01 48.0	18.2	-0.82	- 6.6	0.3/16.8	32537	1991 TN	1998 09 18.3	23 42.58	-11 38.2	17.3	-0.93	- 6.1	3.5/15.2	31786
(7667)	1998 09 16.6	23 36.33	-11 04.8	15.6	-0.69	- 8.6	2.8/13.4	29904	3039 T-2	1998 09 18.4	23 42.98	-05 53.1	18.9	-0.77	- 7.7	1.6/17.0	27928
1981 ET ₂₇	1998 09 16.6	23 36.44	-02 54.4	18.4	-0.75	- 5.6	0.1/16.5	27908	(7471)	1998 09 18.4	23 43.16	-01 21.1	16.7	-0.97	- 4.0	0.2/18.6	29081
1996 DL ₁	1998 09 16.6	23 36.52	+02 17.3	19.1	-0.91	- 4.4	1.6/18.2	30784	1997 BR ₃	1998 09 18.6	23 43.46	+10 49.4	17.8	-1.37	+ 2.8	5.3/21.5	32519
(9150)	1998 09 16.6	23 36.62	-18 32.3	15.8	-0.83	- 4.5	7.2/11.2	32412	2785 P-L	1998 09 18.6	23 43.49	-05 51.9	17.7	-0.83	- 5.5	1.6/17.3	32536
1995 AV ₄	1998 09 16.6	23 36.65	+09 36.8	17.5	-0.83	- 3.0	4.0/20.5	32462	1991 PZ ₁₇	1998 09 18.9	23 44.73	-12 54.2	16.2	-0.90	- 7.5	4.9/15.0	31583
1990 TB ₄	1998 09 16.7	23 36.79	-00 22.2	17.5	-0.86	- 5.4	0.7/17.4	32513	1995 TQ ₆	1998 09 18.9	23 44.89	-04 16.9	17.1	-1.02	- 4.9	1.1/18.2	29923
1990 SZ	1998 09 16.7	23 36.99	+00 08.4	16.0	-1.06	- 0.5	1.1/17.5	32513	1994 RL ₁	1998 09 19.0	23 45.04	+03 59.0	15.9	-0.61	-14.6	2.4/21.4	32517
1997 CF ₂₉	1998 09 16.7	23 37.01	-02 44.2	17.1	-0.93	- 6.9	0.1/16.7	32474	1993 TP ₃₈	1998 09 19.0	23 45.18	+05 19.2	18.0	-0.66	- 9.1	1.9/21.7	32516
1991 UP ₃	1998 09 16.8	23 37.08	-09 24.1	16.9	-0.90	- 6.1	3.1/14.5	26926	1980 FH ₃	1998 09 19.0	23 45.22	-00 33.7	17.6	-0.70	- 7.7	0.3/19.5	32509
5447 T-2	1998 09 16.8	23 37.43	+09 36.9	16.6	-1.07	- 2.4	5.5/20.5	32537	2110 P-L	1998 09 19.1	23 45.63	+01 34.0	17.5	-0.85	- 4.9	1.3/20.2	24409
1991 VM ₄	1998 09 16.9	23 37.46	-05 52.8	16.7	-0.96	- 4.5	1.5/15.9	32514	1994 YC ₂	1998 09 19.2	23 45.64	+20 29.4	16.9	-0.85	- 3.4	9.0/26.8	32462
2175 P-L	1998 09 17.0	23 37.87	-02 13.3	18.0	-0.91	- 3.8	0.1/17.1	32536	1281 T-2	1998 09 19.3	23 46.10	+05 05.5	17.8	-0.78	-10.1	2.3/21.8	32537
1997 CO ₂₆	1998 09 17.0	23 37.87	-01 49.3	19.0	-0.97	- 6.1	0.2/17.2	32520	1996 BP ₁	1998 09 19.3	23 46.17	-06 48.5	17.6	-0.96	- 4.9	2.0/17.7	26751
1981 EC ₂₂	1998 09 17.0	23 37.91	-02 21.2	18.7	-0.97	- 7.2	0.0/17.1	32509	1994 UJ ₁₁	1998 09 19.4	23 46.44	-09 10.9	16.2	-0.84	- 4.9	2.8/16.9	32308
1996 AR	1998 09 17.0	23 38.04	-09 25.8	19.3	-0.93	- 6.1	2.5/14.8	30784	1976 SX ₅	1998 09 19.5	23 46.78	-05 02.2	16.7	-0.74	- 4.4	1.3/18.3	32508
1995 UD ₄	1998 09 17.1	23 38.41	-10 10.5	15.7	-1.02	- 1.4	4.1/15.0	32309	1997 DC	1998 09 19.6	23 47.15	-02 47.8	17.4	-0.91	- 7.0	0.5/19.2	32520

1990 VW ₈	1998 09 19.7	23 47.67 +14 13.1	17.1 -0.81 - 8.2	5.3/25.4	32446	1994 WS ₃	1998 09 23.0	23 59.64 +04 24.4	16.9 -0.82 - 7.6	1.7/24.6	32517
1991 PG ₁₁	1998 09 19.7	23 47.70 -00 36.2	16.0 -0.69 -11.7	0.3/20.1	32513	1981 UR ₂₇	1998 09 23.0	23 59.67 -05 52.2	15.9 -0.97 - 1.8	1.9/21.4	30893
1994 WQ ₁	1998 09 19.8	23 47.81 -04 53.2	16.6 -0.81 - 4.5	1.2/18.6	28889	1992 GR	1998 09 23.1	23 59.63 -21 26.9	17.2 -0.94 - 3.0	6.8/16.1	32514
1997 CJ ₂₀	1998 09 19.8	23 47.98 -05 59.7	17.3 -0.99 - 5.1	2.0/18.4	30672	1996 BB ₂	1998 09 23.1	23 59.85 +12 50.9	17.9 -1.04 - 2.7	4.7/26.9	26928
1978 GA	1998 09 20.0	23 48.56 -05 50.5	16.9 -0.86 - 9.3	1.7/18.4	26913	(9204)	1998 09 23.2	00 00.07 +11 16.8	16.6 -0.93 - 6.2	4.3/27.0	32425
(8049)	1998 09 20.0	23 48.87 -00 40.0	16.2 -0.79 - 4.7	0.2/20.3	30864	1986 GC	1998 09 23.3	00 00.38 -11 04.5	17.2 -0.99 - 4.0	4.2/19.9	27726
1989 EJ ₆	1998 09 20.1	23 49.24 -01 38.8	19.1 -0.70 - 4.6	0.1/20.0	32512	3137 T-3	1998 09 23.3	00 00.46 -08 28.3	16.6 -0.88 - 1.5	3.0/20.8	28620
1996 DL ₂	1998 09 20.2	23 49.39 -06 46.3	16.9 -0.78 - 5.1	1.8/18.4	29666	1995 UM ₈	1998 09 23.3	00 00.78 -05 10.1	17.8 -1.05 - 4.1	2.2/21.8	29946
1983 RB ₂	1998 09 20.3	23 49.67 -01 51.0	15.4 -0.70 -14.3	0.3/20.0	32510	1987 QS ₅	1998 09 23.4	00 00.72 +09 02.1	17.1 -0.87 - 1.5	3.2/26.1	32511
3378 T-3	1998 09 20.3	23 49.75 -02 05.1	18.2 -0.94 - 6.4	0.3/20.0	32537	1981 EP ₁₆	1998 09 23.4	00 00.82 +09 27.7	16.2 -0.84 - 6.8	4.7/26.7	32509
1995 XS	1998 09 20.4	23 50.20 +07 43.5	16.4 -0.90 - 6.9	4.0/23.4	32518	4406 T-1	1998 09 23.5	00 01.08 -09 28.3	18.0 -1.04 - 0.6	3.4/20.9	32504
1992 HZ ₃	1998 09 20.5	23 50.33 -02 20.0	17.2 -0.83 - 4.5	0.4/20.1	32514	1994 RW ₁₇	1998 09 23.5	00 01.15 +01 36.8	17.8 -0.91 - 5.9	0.6/24.0	31541
2148 P-L	1998 09 20.5	23 50.53 -02 01.0	18.3 -0.80 - 3.5	0.3/20.2	32536	(7703)	1998 09 23.6	00 01.66 -09 44.0	16.6 -0.68 -20.4	4.1/19.3	30070
1146 T-1	1998 09 20.6	23 51.01 +02 08.3	17.7 -0.80 - 7.3	1.1/21.8	32537	1991 VG ₂	1998 09 23.7	00 02.08 -02 36.8	16.7 -0.91 - 7.2	1.1/22.8	26926
1981 EJ ₅	1998 09 20.7	23 51.04 +09 56.0	16.1 -0.99 - 5.6	5.3/24.3	32509	1996 FW ₄	1998 09 23.7	00 02.10 -02 38.1	17.8 -0.71 - 4.4	0.8/22.8	30473
1990 TK ₃	1998 09 20.7	23 51.07 -22 51.5	15.4 -1.17 + 2.3	9.3/15.0	32513	1990 QC ₁₉	1998 09 24.0	00 03.07 +45 02.9	17.3 -1.69 + 7.4	22.2/06.3	32512
1993 FH ₂₅	1998 09 20.7	23 51.18 +02 40.8	15.9 -0.84 - 7.9	1.4/22.0	32515	1993 TT ₁₉	1998 09 24.1	00 03.48 -02 57.7	18.4 -0.77 - 4.4	1.0/23.1	27715
3453 T-3	1998 09 20.7	23 51.18 +01 12.2	17.5 -0.88 - 9.5	0.8/21.5	32538	1992 EM ₁₈	1998 09 24.2	00 03.98 +05 20.4	17.4 -0.78 - 8.0	1.8/26.1	32514
2121 P-L	1998 09 20.7	23 51.42 -05 48.2	18.4 -1.10 + 0.3	1.9/19.5	22432	1981 DP ₃	1998 09 24.2	00 03.98 +11 13.6	17.8 -0.73 - 8.0	3.5/28.4	30779
1989 UL	1998 09 20.9	23 51.77 +05 19.3	16.1 -0.77 - 6.9	2.3/23.1	32512	5041 T-3	1998 09 24.3	00 04.03 -08 11.7	16.7 -0.70 - 7.5	2.6/21.2	30696
1993 FR ₅₂	1998 09 20.9	23 51.78 -03 38.0	20.2 -0.90 - 7.1	0.9/20.0	26402	1994 PB ₃₀	1998 09 24.4	00 04.31 +06 15.1	17.3 -0.86 - 7.7	2.2/26.4	30783
2532 P-L	1998 09 20.9	23 51.97 +02 09.4	16.3 -0.65 - 9.2	1.1/22.1	29668	1997 BG	1998 09 24.4	00 04.42 -50 31.9	17.1 -0.70 -13.1	31.3/19.0	32519
1996 CT ₇	1998 09 20.9	23 51.99 +05 39.6	16.9 -0.81 - 8.6	2.7/23.3	30901	1991 VW ₄	1998 09 24.4	00 04.55 -15 21.6	16.2 -0.86 - 5.1	7.1/19.1	26926
1997 ER ₁₁	1998 09 20.9	23 52.11 -01 07.6	18.5 -0.96 - 5.7	0.1/20.9	32474	1993 JB ₁	1998 09 24.5	00 04.75 +08 34.8	18.2 -0.89 - 6.9	2.7/27.2	32392
(7878)	1998 09 21.0	23 52.28 -14 07.8	17.3 -0.79 - 8.5	4.1/16.1	30638	1993 TK ₃	1998 09 24.5	00 05.05 -06 35.4	15.7 -0.70 - 4.3	3.1/22.2	30472
1995 WE	1998 09 21.1	23 52.50 -12 50.8	16.7 -1.01 - 5.3	4.5/17.3	32518	3314 T-1	1998 09 24.6	00 05.39 +05 18.9	18.1 -0.77 - 9.7	1.5/26.4	32504
1989 GH ₈	1998 09 21.1	23 52.78 -07 43.4	17.6 -0.92 - 6.0	2.6/18.9	29657	1987 SP ₁₂	1998 09 24.9	00 06.47 +01 07.6	15.4 -0.68 - 6.2	0.2/25.1	32442
3118 T-2	1998 09 21.2	23 52.98 -04 32.8	17.8 -0.80 - 9.9	1.7/19.9	32505	1993 FJ ₄₆	1998 09 25.1	00 07.19 +01 34.1	15.5 -0.92 - 5.1	0.4/25.4	32515
(7354)	1998 09 21.2	23 53.18 -05 56.6	18.0 -0.72 - 4.3	1.4/19.5	28576	1981 DN	1998 09 25.2	00 07.44 +10 47.3	19.5 -0.94 - 4.6	3.2/28.4	22696
1993 FT ₇	1998 09 21.3	23 53.48 -05 34.6	16.6 -0.79 - 9.4	2.1/19.6	23522	1991 LW ₁	1998 09 25.3	00 07.59 -02 38.0	17.5 -0.72 - 4.7	1.0/24.1	32513
4391 T-3	1998 09 21.4	23 53.80 -14 14.2	16.8 -0.66 - 3.6	7.5/16.7	25540	1994 PW ₃₁	1998 09 25.3	00 07.90 -00 40.6	16.5 -0.85 - 9.0	0.6/24.8	32517
1987 SN ₁₁	1998 09 21.5	23 54.07 -01 19.8	17.3 -0.73 - 5.4	0.2/21.3	22698	1237 T-2	1998 09 25.4	00 08.21 +01 22.6	17.9 -0.79 - 4.6	0.2/25.6	30914
1981 EL ₂₄	1998 09 21.5	23 54.24 +00 44.1	17.1 -0.79 - 4.8	0.5/22.0	28611	(9167)	1998 09 25.5	00 08.47 +01 25.5	16.0 -0.83 - 2.4	0.2/25.7	32416
1981 EK ₂₂	1998 09 21.5	23 54.25 +00 34.1	18.6 -0.77 - 5.0	0.4/22.0	27930	4303 T-3	1998 09 25.5	00 08.60 -09 46.6	18.1 -0.82 - 3.0	3.2/22.2	27565
1988 XX ₂	1998 09 21.6	23 54.49 -04 57.5	16.8 -0.97 - 6.0	1.8/20.3	26189	(7791)	1998 09 25.6	00 08.83 -08 31.5	17.7 -0.70 - 6.5	2.6/22.2	30268
1984 EL	1998 09 21.6	23 54.54 -08 27.4	17.4 -0.73 - 3.9	2.1/19.1	27454	1997 MJ ₂	1998 09 25.6	00 08.86 -13 23.3	18.1 -0.93 - 5.7	5.4/20.9	32520
1966 CM	1998 09 21.8	23 55.17 -11 01.4	17.0 -0.77 - 8.8	3.3/18.0	32297	1994 PY ₁₉	1998 09 25.8	00 09.64 +03 59.1	17.5 -0.92 - 5.5	1.0/26.8	32517
1981 ED ₃₄	1998 09 21.9	23 55.34 +03 14.9	17.9 -0.88 - 4.5	1.7/23.1	22271	1981 EF ₁₁	1998 09 25.8	00 09.72 +09 27.0	17.1 -0.99 - 2.3	3.5/28.3	32509
5170 T-3	1998 09 21.9	23 55.58 -07 33.0	17.3 -0.78 - 7.6	2.1/19.5	27732	1997 JB ₁₀	1998 09 25.9	00 09.68 -03 52.4	18.1 -0.94 - 6.6	1.8/24.3	32479
1995 BV	1998 09 22.0	23 55.67 -03 32.3	17.8 -0.70 - 4.4	0.8/21.0	27568	(7677)	1998 09 25.9	00 09.86 -02 32.6	16.4 -0.85 - 6.5	1.5/24.7	32508
1994 PP ₂₆	1998 09 22.0	23 55.82 -02 39.7	17.6 -0.95 - 4.9	0.8/21.3	30472	(9156)	1998 09 26.0	00 10.15 +08 57.6	15.8 -1.01 - 3.0	3.9/28.4	32413
1993 OU ₇	1998 09 22.0	23 55.97 -01 19.2	16.6 -0.81 - 6.1	0.3/21.8	32516	1995 YL ₃	1998 09 26.1	00 10.64 -07 16.3	17.3 -0.88 - 7.6	3.6/23.2	30456
1993 QL ₇	1998 09 22.1	23 56.19 -03 45.9	17.8 -0.76 - 5.9	1.1/21.0	23784	1989 GG ₄	1998 09 26.1	00 10.71 +06 04.6	16.7 -0.86 - 7.8	1.7/27.9	32512
1998 NA	1998 09 22.2	23 56.54 +08 11.9	14.8 -1.00 - 0.2	3.8/24.6	32488	1981 EV ₄₆	1998 09 26.2	00 10.91 +02 52.2	17.0 -0.92 - 5.0	0.9/26.8	32510
1996 BH ₂	1998 09 22.3	23 57.00 +09 28.5	15.9 -0.94 - 3.0	3.6/25.3	27111	6594 P-L	1998 09 26.2	00 11.04 +00 07.0	17.4 -0.81 - 9.1	0.4/25.9	32537
1994 TR ₁	1998 09 22.4	23 57.29 +11 42.0	15.5 -0.53 -15.5	5.4/27.9	32517	1993 TW ₁₆	1998 09 26.3	00 11.17 -01 38.1	17.1 -0.76 - 5.7	0.9/25.3	31538
1991 FL ₄	1998 09 22.5	23 57.46 +00 48.5	15.7 -0.67 - 9.5	0.3/22.9	32513	1981 EE ₂₆	1998 09 26.3	00 11.39 +02 08.3	20.0 -0.86 - 7.1	0.3/26.7	26919
1993 GK ₁	1998 09 22.5	23 57.77 +01 39.0	18.1 -0.92 - 5.4	0.6/23.2	26759	1986 TV ₆	1998 09 26.4	00 11.55 +10 49.5	15.9 -0.97 - 2.4	4.1/29.3	32511
9518 P-L	1998 09 22.8	23 58.61 -01 13.0	17.3 -0.95 - 4.9	0.4/22.5	18132	1991 RS ₂	1998 09 26.4	00 11.79 +06 46.4	16.6 -0.88 - 8.9	2.2/28.4	32513
1975 SU ₁	1998 09 22.8	23 58.70 -00 23.0	17.9 -0.69 - 4.8	0.1/22.8	28083	1972 PA	1998 09 26.4	00 11.82 +16 16.1	15.1 -0.77 - 5.3	5.2/01.8	32297
1976 YL ₃	1998 09 23.0	23 59.44 -00 33.6	16.2 -0.71 - 5.8	0.2/22.9	27323	1996 GT ₁₉	1998 09 26.5	00 11.88 +04 32.7	16.6 -0.70 - 7.3	1.0/27.7	30689

1998 SEPT. 10

M.P.C. 32559

1997 NQ₂ 1998 09 26.5 00 12.12 +47 13.2 18.6 -1.07 - 1.7 12.3/15.5 32520
 1989 CH₄ 1998 09 26.7 00 12.83 +03 25.8 17.1 -0.92 - 5.4 0.7/27.4 32512
 (7477) 1998 09 26.8 00 13.26 +15 39.6 16.5 -0.81 - 8.7 4.7/02.2 29083
 1997 GX₁₄ 1998 09 26.8 00 13.36 +00 13.5 16.9 -1.06 + 0.2 0.5/26.6 32477
 1993 BX₁₃ 1998 09 27.0 00 14.02 +01 39.9 15.3 -0.80 - 9.7 0.1/27.1 32515
 1992 PB₂ 1998 09 27.1 00 14.30 +09 53.5 17.7 -0.73 - 5.7 2.8/30.1 32453
 1989 CE₅ 1998 09 27.2 00 14.54 +04 13.8 18.4 -0.92 - 5.6 0.9/28.1 30469
 1997 GR₂₃ 1998 09 27.2 00 14.56 -04 30.1 17.9 -0.85 - 2.6 2.2/25.4 32520
 1997 AB₁₅ 1998 09 27.2 00 14.73 -51 36.7 22.7 -1.30 - 4.3 15.6/09.0 29926
 1989 AJ₆ 1998 09 27.2 00 14.82 +09 16.4 17.2 -0.98 - 4.5 2.8/29.7 32512
 2530 P-L 1998 09 27.3 00 14.91 -01 40.9 16.5 -1.02 - 3.4 1.5/26.4 32536
 (7831) 1998 09 27.5 00 15.55 +09 16.9 17.3 -0.87 - 7.9 2.5/30.2 30439
 1995 VW₁ 1998 09 27.5 00 15.63 +16 50.8 17.0 -0.97 - 5.4 6.0/02.4 27110
 3340 T-3 1998 09 27.5 00 15.81 +00 26.9 18.6 -0.83 - 6.3 0.4/27.2 30915
 3100 T-1 1998 09 27.5 00 15.84 +07 33.6 16.5 -0.81 - 8.3 2.2/29.7 32537
 1981 DF₁ 1998 09 27.6 00 16.05 +16 32.2 18.6 -0.88 - 2.6 4.8/02.4 26914
 1978 VT₈ 1998 09 27.6 00 16.10 +07 16.7 17.7 -0.74 - 5.8 1.7/29.6 32509
 1993 VL₁ 1998 09 27.7 00 16.48 -38 53.2 17.8 -0.92 - 1.1 14.3/10.8 23126
 1997 JA₈ 1998 09 27.8 00 16.59 +02 34.3 16.8 -0.87 - 7.2 0.3/28.1 32520
 1979 MS₄ 1998 09 27.8 00 16.60 -02 12.2 18.9 -0.90 - 7.0 1.5/26.5 19291
 (7317) 1998 09 27.8 00 16.79 +01 36.6 17.0 -0.91 - 7.7 0.1/27.8 28566
 1997 FM 1998 09 28.0 00 17.38 -18 58.5 17.7 -0.81 - 6.2 7.3/20.6 32476
 1984 SZ₅ 1998 09 28.0 00 17.65 -00 53.2 16.4 -1.14 - 1.0 1.3/27.4 32510
 1988 BL₅ 1998 09 28.0 00 17.69 +24 08.4 17.2 -0.95 - 3.7 8.6/05.5 19501
 1980 RB₈ 1998 09 28.1 00 17.83 +09 58.1 16.9 -0.91 - 7.4 3.0/30.9 32509
 1980 FY₂ 1998 09 28.1 00 17.83 +01 58.8 17.4 -0.77 - 4.7 0.0/28.2 25061
 1978 VY₃ 1998 09 28.3 00 18.33 +08 28.3 16.9 -0.84 - 5.6 2.7/30.5 32509
 1991 EY₃ 1998 09 28.3 00 18.33 +03 33.2 18.4 -0.78 - 4.8 0.4/28.8 27934
 1994 YA₁ 1998 09 28.3 00 18.44 -05 37.9 17.3 -0.80 - 6.1 2.7/25.7 27327
 (7514) 1998 09 28.3 00 18.52 -02 15.6 17.1 -0.96 - 5.0 1.4/27.0 29290
 1981 EV₃₅ 1998 09 28.3 00 18.52 +07 32.3 18.2 -1.05 + 1.1 2.1/29.7 26921
 1995 UQ₃ 1998 09 28.3 00 18.54 +05 34.4 16.9 -0.98 - 7.1 1.5/29.5 32464
 1996 AL₂ 1998 09 28.3 00 18.55 -20 51.9 16.6 -0.85 - 4.9 7.4/20.5 30473
 (7704) 1998 09 28.3 00 18.62 -09 44.2 17.4 -0.85 - 4.8 4.1/24.5 30070
 1990 UO₁ 1998 09 28.4 00 18.92 -06 37.2 16.5 -0.79 - 6.8 3.6/25.4 30289
 2071 T-2 1998 09 28.4 00 18.98 +05 10.4 16.1 -0.74 - 7.4 1.4/29.6 32537
 1997 GD₈ 1998 09 28.5 00 19.10 +01 51.5 19.3 -0.94 - 6.0 0.1/28.4 30473
 1993 TL₂₈ 1998 09 28.5 00 19.20 -01 18.6 18.5 -0.75 - 5.2 1.0/27.4 25068
 1993 FN₆ 1998 09 28.5 00 19.20 -01 31.6 18.6 -0.99 - 3.3 1.3/27.5 29616
 1993 EJ 1998 09 28.5 00 19.35 -07 03.4 17.4 -0.97 - 3.8 3.3/25.8 31418
 1994 PO₇ 1998 09 28.5 00 19.39 +01 21.0 17.2 -0.92 - 6.2 0.3/28.3 30472
 1994 PN₂₅ 1998 09 28.5 00 19.44 -01 46.6 18.4 -0.92 - 5.9 1.4/27.3 29138
 1985 JG₂ 1998 09 28.5 00 19.46 -02 50.9 16.6 -0.92 - 4.3 1.7/27.1 32510
 1991 VC₅ 1998 09 28.6 00 19.78 -09 09.5 16.3 -1.01 - 3.3 4.6/25.3 30273
 2077 T-3 1998 09 28.7 00 19.83 +02 43.3 19.4 -1.04 - 3.5 8.8/19.0 30797
 2590 P-L 1998 09 28.7 00 20.05 +01 15.8 17.1 -0.99 - 3.9 10.1/19.0 32536
 (9255) 1998 09 28.8 00 20.36 +03 51.0 16.0 -1.08 - 1.3 0.7/29.3 32436
 2104 T-2 1998 09 28.9 00 20.59 +04 05.3 17.2 -0.78 - 5.2 0.7/29.5 30914
 1986 GF 1998 09 29.0 00 20.89 +15 27.6 17.2 -0.86 -13.0 4.3/04.0 26419
 1991 RL₁ 1998 09 29.0 00 21.10 +05 13.3 16.0 -0.80 -13.7 1.2/30.2 32448
 6583 P-L 1998 09 29.0 00 21.27 +00 35.1 16.8 -0.90 - 8.3 0.7/28.5 30293

1984 YE₄ 1998 09 29.2 00 21.82 -10 09.8 16.5 -0.96 - 4.5 5.4/25.3 32510
 1996 DV₁ 1998 09 29.2 00 22.01 +08 03.8 18.8 -0.85 - 4.4 1.8/01.1 27316
 4260 T-1 1998 09 29.3 00 22.03 -02 25.0 17.3 -0.78 - 5.2 1.5/27.7 32537
 (7676) 1998 09 29.4 00 22.42 -09 34.4 16.6 -0.85 - 9.0 4.2/25.2 29906
 1993 QV₄ 1998 09 29.5 00 22.72 +02 00.4 17.6 -0.81 - 4.6 0.1/29.4 29662
 1989 GA₃ 1998 09 29.6 00 23.15 +04 21.0 17.9 -0.91 - 6.3 0.6/30.2 27933
 1993 TH₁₉ 1998 09 29.6 00 23.21 +01 45.2 17.8 -0.77 - 5.0 0.2/29.4 27106
 1997 JS₁₄ 1998 09 29.6 00 23.31 +01 22.0 17.1 -0.83 - 6.7 0.5/29.3 30474
 3261 T-3 1998 09 29.7 00 23.39 +00 35.8 17.6 -0.76 - 4.7 0.6/29.1 26913
 1995 WO₇ 1998 09 29.8 00 23.85 +10 01.0 17.6 -0.94 - 6.8 3.3/02.3 32518
 1993 TB₂₆ 1998 09 29.9 00 24.14 -03 11.0 16.5 -0.80 - 4.6 2.0/28.0 32232
 1157 T-2 1998 09 30.0 00 24.47 +03 57.3 18.8 -0.92 - 6.9 0.5/30.4 30294
 1994 PE₉ 1998 09 30.0 00 24.81 -06 38.0 18.8 -0.90 - 7.8 3.3/27.0 32235
 1995 YH₃ 1998 09 30.1 00 24.89 -17 37.6 16.4 -0.72 - 6.3 10.2/22.2 30093
 2559 P-L 1998 09 30.1 00 24.95 -01 57.7 17.1 -0.97 - 5.7 1.7/28.7 32536
 1997 JJ₁₆ 1998 09 30.1 00 24.96 +01 28.2 17.4 -0.87 - 6.4 0.4/29.7 32520
 2132 T-2 1998 09 30.2 00 25.42 +03 27.4 18.7 -0.70 - 8.8 0.2/30.5 32292
 1993 FY₅₅ 1998 09 30.2 00 25.51 -04 52.8 17.4 -0.95 - 3.6 3.0/28.0 23675
 1993 PS₅ 1998 09 30.3 00 25.70 -05 24.3 17.9 -0.60 -11.7 3.3/27.0 23981
 1997 GK₂₅ 1998 09 30.3 00 25.71 +03 12.8 18.0 -0.92 - 6.9 0.2/30.5 30462
 1078 T-3 1998 09 30.4 00 26.32 +20 14.4 18.4 -0.82 - 7.9 5.7/06.9 30294
 2075 T-2 1998 09 30.5 00 26.55 +02 42.5 17.6 -0.92 - 8.4 0.1/30.5 32537
 1995 YA₇ 1998 09 30.5 00 26.58 +02 18.3 19.5 -0.93 - 6.9 0.2/30.4 30457
 1977 VL₁ 1998 09 30.7 00 27.38 -05 50.0 15.4 -0.87 - 1.8 4.1/28.2 24116
 1996 CE₃ 1998 09 30.8 00 27.49 +10 42.7 16.4 -1.18 + 1.8 2.8/02.6 32469
 (7702) 1998 09 30.8 00 27.60 +06 43.6 15.9 -1.02 - 2.5 1.8/01.9 30069
 4073 P-L 1998 09 30.9 00 27.90 +08 21.9 17.8 -0.99 - 6.9 2.3/02.7 30696
 1978 SJ₇ 1998 09 30.9 00 28.01 +06 13.8 16.2 -1.00 + 0.2 1.2/01.8 32509
 1997 CG₆ 1998 10 01.0 00 28.48 -08 22.9 16.7 -1.05 - 3.9 4.3/27.7 30786
 4526 P-L 1998 10 01.2 00 29.00 +03 49.9 16.7 -0.94 - 5.1 0.2/01.5 32536
 1997 JO 1998 10 01.2 00 29.01 +06 56.2 17.2 -1.08 - 3.2 1.4/02.3 32478
 1992 EX₈ 1998 10 01.3 00 29.27 -14 43.5 15.6 -0.78 - 9.2 6.1/24.5 32304
 1991 GW₁₀ 1998 10 01.3 00 29.44 +00 50.6 19.7 -0.83 - 2.6 0.7/30.7 27711
 1995 DL₁ 1998 10 01.5 00 30.28 -24 38.8 18.9 -0.78 - 2.6 6.4/21.8 27568
 1995 YR 1998 10 01.7 00 30.82 -11 55.2 17.3 -1.02 - 3.5 5.7/27.2 30082
 1981 EA₁₄ 1998 10 01.8 00 31.19 +06 53.9 18.8 -0.84 - 8.1 1.2/03.1 26917
 1991 RA₁₇ 1998 10 01.8 00 31.34 -04 20.1 16.7 -1.04 - 0.5 3.7/29.9 32514
 6297 P-L 1998 10 01.9 00 31.37 +08 02.2 19.1 -1.09 + 0.2 1.8/03.1 16035
 1979 MD₅ 1998 10 01.9 00 31.42 -12 15.3 18.6 -0.80 - 5.5 5.0/26.6 30778
 (7836) 1998 10 02.0 00 31.71 +05 46.7 16.8 -0.70 - 6.6 0.6/02.8 30440
 1994 TN₁₅ 1998 10 02.0 00 31.73 +03 33.8 17.8 -0.84 - 6.1 0.1/02.1 25220
 1989 GO₄ 1998 10 02.0 00 31.76 +06 04.7 17.4 -0.92 - 5.6 0.9/02.9 20016
 (9206) 1998 10 02.1 00 32.07 +01 29.3 15.2 -0.84 - 3.9 0.9/01.5 32425
 1979 MY₇ 1998 10 02.1 00 32.20 +16 49.8 19.5 -0.86 - 5.1 4.3/06.6 30779
 (7602) 1998 10 02.1 00 32.28 +18 12.6 16.9 -0.81 - 3.8 4.3/07.1 29601
 1990 FH 1998 10 02.2 00 32.69 -28 38.5 18.8 -1.22 + 0.6 10.5/23.6 30289
 1971 UQ 1998 10 02.3 00 32.86 -02 36.5 16.4 -0.92 - 3.2 3.1/30.5 22696
 1993 LU₁ 1998 10 02.3 00 33.13 +17 53.6 16.1 -0.72 -10.4 5.7/08.1 29944
 (9198) 1998 10 02.3 00 33.21 +02 56.2 16.8 -0.96 - 6.8 0.3/02.2 32423
 (9200) 1998 10 02.4 00 33.14 +03 57.8 15.0 -0.79 - 6.9 0.2/02.5 32424
 1995 YM₁ 1998 10 02.4 00 33.21 +16 20.6 17.7 -0.97 - 5.9 5.2/06.5 30784

(7758)	1998 10 02.4	00 33.39 +12 34.1 17.5	-0.83 -15.1	3.1/06.0	30260
1994 PK ₇	1998 10 02.4	00 33.50 -04 22.3 16.3	-0.79 - 8.5	3.4/29.6	32516
4206 T-1	1998 10 02.4	00 33.52 +00 09.6 18.7	-0.91 - 6.4	1.1/01.4	29668
2768 P-L	1998 10 02.5	00 33.60 -00 30.5 18.4	-0.84 - 5.8	1.4/01.2	15902
A913 CF	1998 10 02.5	00 33.70 +04 36.3 17.5	-0.70 - 8.1	0.3/02.9	23120
1996 AQ ₂	1998 10 02.5	00 33.74 +01 31.7 17.2	-0.94 - 6.3	0.9/01.9	26928
1981 EP ₂₅	1998 10 02.5	00 33.90 +05 18.6 18.2	-0.78 - 5.3	0.5/03.1	30893
1981 EZ ₂₉	1998 10 02.7	00 34.33 +06 24.9 18.7	-1.09 - 4.5	1.2/04.0	26920
(7727)	1998 10 02.7	00 34.42 +01 34.4 16.9	-0.96 - 4.9	0.7/02.1	30251
1977 QD ₂	1998 10 02.7	00 34.46 +08 10.0 15.3	-1.00 - 1.2	2.2/04.0	32508
1978 WU	1998 10 02.8	00 34.65 +17 11.8 17.2	-0.75 - 9.0	5.8/08.0	19012
1991 YW	1998 10 03.0	00 35.39 -05 22.0 16.8	-0.84 - 7.2	3.9/29.9	30450
1996 AP ₃	1998 10 03.0	00 35.55 +19 14.2 14.8	-0.89 - 6.4	7.3/08.5	32468
1985 RJ	1998 10 03.0	00 35.66 +01 08.9 16.8	-0.73 -12.5	1.1/02.0	32510
2104 T-1	1998 10 03.1	00 35.73 +02 53.3 18.3	-0.95 - 5.1	0.3/02.8	29668
3338 T-1	1998 10 03.2	00 36.08 +02 10.0 20.0	-0.95 - 5.1	0.6/02.7	29948
1997 GL ₁₁	1998 10 03.2	00 36.30 +05 39.3 18.4	-1.06 - 3.3	0.7/04.0	30766
1995 YS	1998 10 03.3	00 36.59 -39 27.4 18.2	-1.31 + 0.9	15.8/17.7	30784
(7764)	1998 10 03.3	00 36.69 -16 33.4 15.8	-0.74 - 7.8	8.3/25.4	30261
1993 QH ₃	1998 10 03.6	00 37.86 +05 41.1 16.8	-0.80 - 5.1	0.6/04.2	32516
1995 YV	1998 10 03.8	00 38.25 -08 23.3 17.9	-0.94 - 6.0	5.3/29.7	30082
1985 CP ₂	1998 10 03.8	00 38.56 +07 33.7 16.9	-0.94 - 5.6	1.4/04.9	24559
1981 EC ₁₃	1998 10 03.9	00 38.95 +13 44.7 19.2	-0.83 - 4.1	3.0/07.1	30090
1990 VN ₄	1998 10 03.9	00 38.97 +09 16.8 18.5	-0.78 - 8.7	1.5/05.8	32513
1996 BZ	1998 10 03.9	00 38.97 -06 03.3 18.1	-0.89 - 6.4	3.5/30.6	27111
1993 LS ₁	1998 10 04.0	00 39.19 +28 18.8 16.5	-1.02 - 3.0	9.8/12.3	24109
9534 P-L	1998 10 04.1	00 39.36 +02 30.2 17.8	-0.89 - 6.9	0.6/03.5	29937
1984 MP	1998 10 04.1	00 39.46 +15 48.6 16.4	-0.80 - 8.8	3.7/08.4	32510
1997 FQ ₁	1998 10 04.3	00 40.27 +09 36.2 19.1	-0.98 - 5.4	2.0/06.0	30787
(7756)	1998 10 04.4	00 40.42 -21 21.4 17.0	-0.74 - 4.1	7.4/25.3	30259
1979 MT ₃	1998 10 04.4	00 40.78 +12 10.3 18.5	-0.87 - 7.1	4.0/07.2	30778
1995 XP ₄	1998 10 04.5	00 41.03 +05 23.2 17.4	-0.92 - 8.1	0.4/04.9	32518
1985 TB ₃	1998 10 04.5	00 41.17 +02 13.2 15.7	-0.81 - 8.9	1.1/03.8	32510
1978 VK ₃	1998 10 04.6	00 41.20 +11 08.6 17.7	-0.86 - 6.2	2.2/06.8	26737
1981 EW ₃₄	1998 10 04.6	00 41.34 +08 51.9 19.6	-1.01 - 3.2	1.6/05.9	26921
1981 ER ₄₀	1998 10 04.6	00 41.36 +06 29.5 19.9	-0.91 - 5.5	0.7/05.3	22271
1994 WG ₂	1998 10 04.7	00 41.68 -01 06.5 17.0	-0.79 - 6.9	1.9/02.8	32517
1993 FS ₂₆	1998 10 04.7	00 41.82 +09 06.1 17.3	-0.93 - 5.8	1.6/06.2	26759
1995 WA ₈	1998 10 04.7	00 41.93 +06 50.0 16.4	-1.06 - 1.8	1.1/05.4	32518
1995 WB ₂₂	1998 10 04.8	00 42.10 -05 11.9 18.4	-0.99 - 5.9	3.8/01.8	30456
1993 TG ₂₆	1998 10 04.8	00 42.17 -03 13.0 17.2	-0.85 - 2.4	2.4/02.6	32516
4178 T-1	1998 10 04.9	00 42.40 +00 20.8 19.6	-0.94 - 5.1	1.4/03.6	30095
1993 UP ₈	1998 10 04.9	00 42.61 -00 56.9 16.0	-0.70 - 7.7	1.7/03.0	30688
1988 RQ ₅	1998 10 05.1	00 43.15 +04 48.3 16.4	-0.77 - 6.3	0.1/05.2	28613
7061 P-L	1998 10 05.2	00 43.49 +08 43.7 17.2	-0.81 - 8.7	1.7/06.7	30466
1979 MS ₅	1998 10 05.2	00 43.72 -06 08.8 18.9	-0.91 - 6.2	3.9/01.8	30778
1989 GU ₃	1998 10 05.4	00 44.15 +11 39.6 17.1	-0.90 - 6.5	2.6/07.7	29912
1993 MR	1998 10 05.4	00 44.25 +06 35.8 19.1	-0.84 - 8.1	0.7/06.1	31383
1993 FX ₇₉	1998 10 05.6	00 44.87 +05 01.6 15.8	-0.87 - 6.7	0.1/05.7	29944
1980 FS ₁	1998 10 05.8	00 45.78 +05 09.8 17.5	-0.94 - 8.2	0.1/05.9	29940
1981 EE ₁	1998 10 05.9	00 46.07 +01 19.1 18.0	-0.89 - 6.3	1.2/04.8	22074

(7584)	1998 10 05.9	00 46.20 -00 27.7 17.1	-0.79 - 5.1	1.8/04.2	29597
1996 HT ₁₄	1998 10 06.1	00 46.71 +01 35.6 17.9	-0.71 - 4.6	0.9/05.0	29947
1981 EB ₃₄	1998 10 06.1	00 46.93 +05 41.8 18.7	-0.95 - 8.6	0.3/06.4	30075
1993 MB	1998 10 06.3	00 47.34 +09 03.2 17.6	-0.78 -10.0	1.3/07.8	30897
1992 HA ₄	1998 10 06.3	00 47.43 +05 24.4 17.6	-0.83 - 5.2	0.1/06.4	22594
(7826)	1998 10 06.3	00 47.68 +08 01.8 16.3	-0.88 - 8.6	1.1/07.4	30438
(7537)	1998 10 06.4	00 48.01 +02 14.5 16.2	-0.76 - 4.4	1.0/05.5	29295
1080 T-3	1998 10 06.6	00 48.78 +18 16.0 17.0	-0.98 - 3.0	4.3/10.6	32537
1997 HP ₂	1998 10 06.8	00 49.15 +04 37.0 18.2	-0.88 - 6.0	0.2/06.6	32478
1991 RB ₁₀	1998 10 06.8	00 49.46 +14 39.5 16.5	-0.97 - 5.1	4.2/09.8	32449
1992 AP ₃	1998 10 06.9	00 49.77 +10 07.8 16.3	-0.95 - 4.9	2.0/08.4	28886
6053 P-L	1998 10 07.0	00 50.18 +07 13.0 17.3	-0.85 - 7.1	0.7/07.7	30474
1989 CY ₂	1998 10 07.1	00 50.38 +09 58.5 17.2	-0.88 - 8.5	1.9/08.7	21972
4831 P-L	1998 10 07.3	00 51.35 +06 22.1 17.8	-1.04 - 1.2	0.3/07.6	29141
1981 EH ₂₈	1998 10 07.4	00 51.69 +04 37.3 18.3	-0.94 - 4.8	0.3/07.2	26920
1992 CS ₂	1998 10 07.8	00 52.89 +12 51.8 17.9	-0.89 - 6.2	2.5/10.2	27713
1996 FR ₁	1998 10 07.8	00 52.90 +11 24.7 17.8	-0.72 - 7.8	1.8/09.9	32519
(9254)	1998 10 07.8	00 53.16 -02 16.6 15.3	-0.75 - 9.1	3.7/05.0	32436
1989 EE	1998 10 07.9	00 53.24 -15 06.5 18.4	-0.71 -10.1	5.5/29.6	30686
1993 JF ₁	1998 10 07.9	00 53.59 +01 59.0 16.7	-0.97 - 4.7	1.5/06.9	29944
1997 GF ₃₆	1998 10 08.0	00 53.63 +03 24.1 19.4	-0.97 - 5.0	0.8/07.3	30086
1994 WA ₄	1998 10 08.0	00 53.91 +10 31.1 16.5	-0.77 - 9.3	1.6/09.8	30783
1992 EK ₁₂	1998 10 08.1	00 54.02 -07 30.8 18.5	-0.74 -10.5	5.3/03.1	27713
1990 QY ₂	1998 10 08.1	00 54.20 +06 56.5 16.4	-0.93 - 4.4	0.5/08.5	30289
2288 T-3	1998 10 08.1	00 54.23 +10 34.0 16.3	-0.99 - 1.4	2.4/09.5	30095
1993 FV ₂₆	1998 10 08.4	00 55.06 +10 06.1 16.5	-0.91 - 9.4	1.8/09.8	23526
1997 HR ₉	1998 10 08.4	00 55.40 +03 21.7 16.9	-0.90 - 4.5	1.1/07.7	32520
4806 P-L	1998 10 08.4	00 55.43 +03 25.0 18.7	-0.85 - 6.1	0.8/07.7	22701
1997 GZ ₂₅	1998 10 08.5	00 55.36 -00 14.5 17.9	-0.92 - 7.3	2.3/06.5	32478
(9147)	1998 10 08.5	00 55.45 -03 55.8 15.6	-0.88 - 8.2	4.5/05.2	32411
1995 VE	1998 10 08.5	00 55.57 +07 04.8 16.8	-1.03 - 4.1	0.5/08.9	32518
1997 GX ₂₇	1998 10 08.5	00 55.58 -19 25.3 22.1	-1.23 + 0.4	7.8/02.4	30788
1992 BQ ₂	1998 10 08.5	00 55.62 +10 52.4 17.8	-0.88 - 6.8	1.7/10.2	26563
1981 EC ₄₇	1998 10 08.6	00 56.01 -00 34.5 18.8	-0.86 - 7.1	2.3/06.5	26923
(7580)	1998 10 08.7	00 56.13 +02 32.0 15.5	-0.99 - 1.7	1.5/07.8	29596
1994 TZ ₁₄	1998 10 08.7	00 56.30 +03 46.1 16.3	-0.73 - 8.6	1.0/07.9	30292
3146 T-2	1998 10 08.7	00 56.36 -01 19.0 17.0	-0.93 - 5.8	3.1/06.5	26583
1981 EN ₂₁	1998 10 08.7	00 56.37 +05 38.2 17.8	-0.78 - 5.4	0.1/08.6	27930
(7798)	1998 10 08.8	00 56.83 -04 31.8 16.2	-0.90 - 5.2	4.2/05.5	30269
1990 VL ₁	1998 10 08.9	00 57.12 +17 56.3 16.1	-0.75 - 9.6	5.1/13.5	29942
1997 CT ₁₆	1998 10 08.9	00 57.27 -01 58.1 17.6	-1.00 - 6.8	3.3/06.5	29927
1994 PW ₁₅	1998 10 09.0	00 57.52 +02 11.5 18.1	-0.76 - 7.8	1.8/07.7	31239
1994 PO ₃₂	1998 10 09.2	00 58.17 +16 23.3 17.3	-0.99 - 5.0	3.7/12.4	24902
3268 T-3	1998 10 09.2	00 58.26 +08 01.1 19.2	-0.90 - 8.5	0.7/09.9	30294
1981 UU ₂₆	1998 10 09.2	00 58.35 +05 08.1 17.0	-0.90 - 9.0	0.4/08.9	20630
1994 UJ ₁	1998 10 09.3	00 58.55 +09 18.4 15.5	-0.89 - 3.5	1.3/10.3	27456
1997 HV ₂	1998 10 09.4	00 58.90 +07 08.5 18.5	-1.03 - 4.5	0.3/09.7	30691
1996 DG ₂	1998 10 09.6	00 59.57 +05 15.5 17.5	-0.74 - 4.7	0.3/09.3	27731
2023 P-L	1998 10 09.8	01 00.35 +07 17.2 17.0	-0.78 - 4.7	0.3/10.1	29141
1988 RR ₅	1998 10 10.0	01 00.93 +06 37.3 17.2	-1.05 - 5.0	0.1/10.1	29316
1996 BK	1998 10 10.0	01 01.08 +23 14.8 17.9	-1.14 - 2.1	6.8/14.6	27123