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ERRATA

MPC Line
33944 -20
35486 -33

The identification 1995 SG₅₁ = 1997 EF₄₄ is invalid.
For multi-ring basis read multi-ring basins

NEW OBSERVATORY CODES

The following listing is a continuation to that on MPC 35155. 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	$\rho \cos \phi'$	$\rho \sin \phi'$	
165	1.7553	0.74984	+0.65946	Piera Observatory, Barcelona
465	174.7801	0.80166	-0.59578	Takapuna
641	20.0272	0.82468	-0.56374	Overberg
643	243.2794	0.83507	+0.54868	OCA-Anza Observatory
644	243.1411	0.83633	+0.54688	Palomar Mountain/NEAT
843	273.0650	0.8248	+0.5636	Decatur
847	275.9750	0.7078	+0.7041	Lunar Cafe Observatory

CORRECTED OBSERVATIONS

The following observations correct those previously published.

Object	Date	UT	α_{2000}	δ_{2000}	Reference	Mag.	N Obs.
1977 OX	* 1977 07 22.73911	00 04 34.90	-23 42 55.1	MPC22296	17	V	2 413
1977 OX	1977 07 22.79119	00 04 40.66	-23 43 41.2	MPC22296			2 413
1979 QB	1979 09 21.49146	22 04 44.03	-09 40 56.4	MPC 4997			2 413
1979 QB	1979 09 21.54007	22 04 46.33	-09 40 06.3	MPC 4997			2 413
1986 VC	1984 03 29.56957	12 14 48.28	-01 23 25.3	MPC14843	17.5		3 413
1986 VC	1984 03 29.61124	12 14 45.82	-01 23 21.0	MPC14843			3 413
1988 HE	1992 04 09.53937	13 02 52.48	-27 01 07.0	MPC20085			4 413
1988 HE	1992 04 09.58451	13 02 49.47	-27 01 01.1	MPC20085			4 413
1988 QY	1954 09 28.34375	01 31 48.12	+22 31 56.2	MPC24462			1 675
1988 QY	1954 09 28.37847	01 31 47.30	+22 31 47.1	MPC24462			1 675
1988 QY	1954 10 06.33403	01 28 03.32	+21 52 06.1	MPC20711			1 675
1988 QY	1954 10 06.36875	01 28 02.32	+21 51 55.4	MPC20711			1 675
1988 TN ₄	* 1988 10 09.40059	21 42 43.45	-12 42 46.2	MPC14843			5 413
1988 TN ₄	1988 10 09.45962	21 42 43.09	-12 42 41.4	MPC14843	17.5		5 413

1989 UR	* 1989 10 28.20278	01 16 45.61	+28 39 08.3	MPC15501	18	R	675
1989 UR	1989 10 28.25139	01 16 34.37	+28 37 11.2	MPC15501			675
1990 SS	1991 04 10.43621	10 14 14.14	-11 48 38.7	MPC18030	17	V	2 413
1990 SS	1991 04 10.47788	10 14 18.55	-11 50 46.9	MPC18030			2 413
1991 TB ₂	* 1991 10 03.22778	23 08 56.15	+21 59 17.4	MPC19180	17.5		675
1991 TB ₂	1991 10 03.27292	23 08 42.79	+21 59 05.1	MPC19180			675
1992 JE	1979 06 24.36188	13 25 36.79	+00 42 24.9	MPC20996			2 413
1992 JE	1979 06 24.41396	13 25 39.40	+00 42 13.2	MPC20996			2 413
1993 OV ₁	1975 03 12.65216	13 40 21.06	-30 23 41.5	MPC24286			2 413
1993 OV ₁	1975 04 08.58052	13 26 07.96	-36 53 50.6	MPC22538			2 413
1993 OV ₁	1975 04 08.66385	13 26 02.57	-36 54 45.0	MPC22538			2 413
1995 SA	1991 03 07.41200	06 35 08.49	-00 44 10.6	MPC27771			2 413
1995 SA	1991 03 07.45367	06 35 05.15	-00 42 24.8	MPC27771			2 413
1996 PC ₁	* 1996 08 11.63078	22 38 48.76	-33 31 31.7	MPC27617			2 413
1998 OH	1991 10 10.31944	01 52 05.08	+24 52 08.6	MPS 3812			675
1998 OH	1991 10 10.37152	01 52 00.54	+24 51 17.2	MPS 3812			2 675
1024 T-1	1954 11 23.20903	01 45 38.35	+20 36 26.4	MPC25494			1 675
1024 T-1	1954 11 23.24028	01 45 37.54	+20 36 21.0	MPC25494			1 675
(361)	1956 03 16.40069	12 50 17.11	-01 37 44.5	MPC24468			1 675
(361)	1956 03 16.43194	12 50 15.94	-01 37 40.8	MPC24468			1 675
(1620)	1983 02 11.37917	11 33 34.13	+14 59 16.5	MPC 7748	14.5		2 675
(1620)	1983 02 11.40139	11 33 32.46	+14 58 46.2	MPC 7748			2 675
(3922)	1949 12 22.18125	03 59 54.26	+23 35 11.7	MPC22460			1 675
(3922)	1949 12 22.21250	03 59 53.17	+23 35 06.9	MPC22460			1 675
(4546)	1949 11 30.49653	09 24 15.94	+07 03 47.6	MPC21216			1 675
(4546)	1949 11 30.52778	09 24 16.91	+07 03 37.3	MPC21216			1 675
(4561)	1955 03 22.23194	09 52 33.55	+21 25 06.4	MPC24990			1 675
(4561)	1955 03 22.26666	09 52 32.44	+21 25 01.1	MPC24990			1 675
(4805)	1953 12 31.10591	01 05 14.55	+19 30 35.8	MPC22549			2 675

Note 1: trail-end measures replacing mid-trail measure. 2: time changed.

3: 1986 VC = (4667), times changed. 4: 1988 HE = (5207), times changed.

5: times of observation interchanged.

IDENTIFICATION CHANGES

Continuation to MPC 35156.

Object	Date	UT	α_{2000}	δ_{2000}	Originally	Mag.	Obs.
1980 MM	* 1980 06 17.56892	14 36 03.36	-19 40 07.2	1980 LF ₁			323
1986 TB ₁₉	* 1986 10 06.84611	23 15 28.08	-11 49 23.0	1986 SF ₂	16.0	V	095

1992 WZ ₉	*	1992 11 22.70608	03 54 31.59	+17 36 39.1	1992 WH ₃	894
1997 TY ₂₇	*	1997 10 13.77422	03 34 55.79	+16 59 04.1	1997 XB ₇	327
1997 TY ₂₇		1997 10 13.78846	03 34 55.32	+16 59 01.6	1997 XB ₇	327
1997 TY ₂₇		1997 10 13.80286	03 34 54.93	+16 58 59.6	1997 XB ₇	327
1998 CM ₅	*	1998 02 02.08601	03 16 05.50	+15 39 37.7	1998 BZ ₃₅	20.1 V 691
1998 CM ₅		1998 02 02.10777	03 16 06.19	+15 39 43.4	1998 BZ ₃₅	19.9 V 691
1998 CM ₅		1998 02 02.12983	03 16 06.89	+15 39 48.7	1998 BZ ₃₅	20.2 V 691
1999 KB ₁₈	*	1999 05 18.22363	15 10 11.28	-14 27 06.8	1999 JZ ₁₀₆	19.0 704
1999 KB ₁₈		1999 05 18.23766	15 10 10.60	-14 27 01.3	1999 JZ ₁₀₆	18.6 704
1999 KB ₁₈		1999 05 18.25177	15 10 09.66	-14 26 58.7	1999 JZ ₁₀₆	18.6 704
1999 KB ₁₈		1999 05 18.26579	15 10 08.96	-14 26 54.2	1999 JZ ₁₀₆	18.8 704
1999 KB ₁₈		1999 05 18.27980	15 10 08.17	-14 26 49.6	1999 JZ ₁₀₆	18.8 704
1999 LL ₃₂	*	1999 06 15.17266	15 09 18.56	-21 36 03.2	1999 JT ₁₁₄	19.0 704
1999 LL ₃₂		1999 06 15.18482	15 09 18.13	-21 36 01.7	1999 JT ₁₁₄	19.8 704
1999 LL ₃₂		1999 06 15.19695	15 09 17.67	-21 36 01.5	1999 JT ₁₁₄	19.5 704
1999 LL ₃₂		1999 06 15.20917	15 09 17.29	-21 35 59.9	1999 JT ₁₁₄	19.4 704

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.
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, L. Tesi, D. Guidetti, G. Forti and E. Masotti. Measured by M. Tombelli, A. Boattini, L. Tesi, S. Bartolini and G. Forti.
113	Drebach.	0.50-m $f/4$ reflector + CCD.	Observers G. Lehmann and J. Kandler.
118	Modra.	0.6-m $f/5.5$ reflector + CCD.	Observers Š. Gajdoš, A. Galád, D. Kalmančok, P. Kolény, L. Kornoš and J. Tóth.
138	Village-Neuf.	0.20-m $f/6.3$ reflector + CCD.	Observer C. Demeautis.
143	Gnosca.	0.20-m $f/6.3$ reflector + CCD.	Observer S. Sposetti.
159	Monte Agliale.	0.51-m reflector + CCD.	Observers S. Donati and E. Mazzoni.
249	SOHO.	SOHO-LASCO coronagraph C3.	Observer K. Schenk. Measured by D. Lewis. Reduction by G. V. Williams.
322	Perth Observatory,	Bickley-MCT.	0.25-m $f/4.5$ reflector + CCD. Observers J. D. Biggs and C. Livingston. Measurer J. D. Biggs.
349	Ageo.	0.18-m $f/5.5$ reflector + CCD.	Observer K. Kadota. Measurers S. Yoshida and K. Kadota.
351	Sakamoto.	0.15-m $f/7.0$ lens + CCD.	Observer Y. Kitamura.
355	Hadano.	0.28-m $f/5.0$ reflector + CCD.	Observer A. Asami.
360	Kuma Kogen.	0.60-m $f/5.8$ Ritchey-Chrétien + CCD.	Observer A. Nakamura.
402	Dynic Astronomical Observatory.	0.60-m $f/3.7$ reflector + CCD.	Observer A. Sugie.
413	Siding Spring.	1.0-m $f/8$ reflector + CCD.	Observer R. H. McNaught.
422	Loomberah.	0.25-m $f/4.1$ reflector + CCD.	Observer G. J. Garradd.
428	Reedy Creek.	0.25-m $f/6.3$ Schmidt-Cassegrain + CCD.	Observer J. Broughton.
466	Mount Molehill.	0.30-m Cassegrain reflector + CCD.	Observer M. Bos.
467	Auckland.	0.50-m Cassegrain $f/6.4$ reflector + CCD.	Observers I. P. Griffin, O. Pinto and P. Walsh.

470	Ceccano.	0.15-m $f/5$ reflector + CCD.	Observer G. Masi.
557	Ondřejov.	0.65-m $f/3.6$ reflector + CCD.	Observers P. Pravec, L. Šarounová and P. Kušnirák.
561	Piszkéstető.	0.60-m Schmidt + CCD.	Observers J. Kelemen and N. Tibor.
621	Bergisch Gladbach.	0.60-m reflector + CCD.	Observer W. Bickel.
628	Mülheim-Ruhr.	0.2-m Schmidt-Cassegrain + CCD.	Observers A. Martin and A. Boeker.
658	Dominion Astrophysical Observatory.	1.82-m Plaskett telescope + CCD.	Observer D. D. Balam.
704	LINEAR.	1.0-m $f/2.15$ reflector + CCD.	Observers M. Blythe, F. Shelly, M. Bezpalko and M. Elowitz. Measured by J. Stuart, H. Viggh and R. Sayer.
735	Needville.	0.46-m reflector + CCD.	Observers S. Brennen, W. G. Dillon, M. Eastman, C. Gustava, R. Pepper and K. Rivich. Measured by W. G. Dillon and K. Rivich.
762	Lake Leelanau.	0.3-m $f/3.3$ reflector + CCD.	Observer R. Elliott.
809	European Southern Observatory.	Observer C.-I. Lagerkvist.	1.0-m Schmidt.
834	Buenos Aires-AAAA.	0.25-m $f/6.3$ reflector + CCD.	Observers R. Caprio, H. Ruggio and R. Mackintosh. Measured by R. Mackintosh and M. S. Fernandez.
844	Los Molinos.	0.35-m $f/6.4$ reflector + CCD.	Observers R. Salvo, J. C. Tulic, A. Sosa, E. Acosta, H. Cucurullo and E. Maragatos.
859	Wykrota.	0.30-m $f/3.3$ reflector + CCD.	Observers C. Jacques, J. Amancio and L. Duczmal.
900	Moriyama.	0.25-m $f/6.3$ reflector + CCD.	Observer Y. Ikari.
952	Marxuquera.	0.25-m $f/6.3$ Schmidt-Cassegrain + CCD.	Observer J. J. Gomez D.
967	Greens Norton.	0.21-m $f/4.4$ reflector + CCD.	Observer R. J. Neville.

Object	Date	UT	α_{2000}	δ_{2000}	Mag.	N Obs.
C/1995 O1 (Hale-Bopp)						
C/1995 O1	1999 08 01.34403		06 35 59.41	-65 08 03.7		844
C/1995 O1	1999 08 01.34755		06 35 59.72	-65 08 03.0		844
C/1995 O1	1999 08 01.36932		06 36 00.84	-65 08 10.4		844
C/1995 O1	1999 08 08.32998		06 41 44.08	-65 41 38.5		844
C/1995 O1	1999 08 08.36872		06 41 45.94	-65 41 50.3		844
C/1995 O1	1999 08 08.37440		06 41 46.25	-65 41 52.1		844
C/1995 O1	1999 08 16.35510		06 47 56.04	-66 24 05.5		844
C/1995 O1	1999 08 16.37140		06 47 56.85	-66 24 10.9		844
C/1995 O1	1999 08 16.38668		06 47 57.56	-66 24 16.7		844
C/1995 O1	1999 08 23.35672		06 52 55.50	-67 04 10.1		844
C/1995 O1	1999 08 23.38051		06 52 56.44	-67 04 18.5		844
C/1995 O1	1999 08 23.39149		06 52 56.90	-67 04 22.6		844
P/1996 R2 (Lagerkvist)						
P/1996 R2	1996 11 13.03160		22 31 07.96	-11 37 06.9		809
C/1997 J2 (Meunier-Dupouy)						
C/1997 J2	1999 07 06.27144		23 28 40.82	-34 42 56.7		844
C/1997 J2	1999 07 06.31678		23 28 40.17	-34 43 29.6		844
C/1997 J2	1999 08 05.18542		23 16 24.32	-40 55 09.7		844
C/1997 J2	1999 08 05.20073		23 16 23.95	-40 55 25.3		844
C/1997 J2	1999 08 05.20966		23 16 23.61	-40 55 28.9		844
C/1997 J2	1999 08 16.24383		23 08 46.37	-42 59 46.6		844

C/1997 J2	1999 08 16.25487	23 08 45.85	-42 59 53.2	844
C/1997 J2	1999 08 16.27361	23 08 44.92	-43 00 05.7	844

C/1998 M1 (LINEAR)

C/1998 M1	1999 08 08.00120	22 07 29.79	+15 58 34.0	046
C/1998 M1	1999 08 08.00277	22 07 29.78	+15 58 33.3	046
C/1998 M1	1999 08 08.00524	22 07 29.72	+15 58 33.7	046
C/1998 M1	1999 08 08.00647	22 07 29.67	+15 58 33.3	046
C/1998 M1	1999 08 13.86910	22 04 42.56	+15 57 47.9	143
C/1998 M1	1999 08 13.87734	22 04 42.37	+15 57 48.4	143
C/1998 M1	1999 08 20.58471	22 01 25.94	+15 50 29.3	18.1 T 402
C/1998 M1	1999 08 20.58596	22 01 25.85	+15 50 29.0	402
C/1998 M1	1999 08 20.58722	22 01 25.75	+15 50 28.4	402

C/1998 M2 (LINEAR)

C/1998 M2	1999 07 31.64801	01 27 44.49	+66 41 28.5	18.3 T 402
C/1998 M2	1999 07 31.65031	01 27 44.52	+66 41 29.5	402
C/1998 M2	1999 07 31.65262	01 27 44.67	+66 41 30.3	402
C/1998 M2	1999 07 31.65491	01 27 44.79	+66 41 31.9	402
C/1998 M2	1999 08 12.78127	01 30 23.52	+68 05 53.1	18.4 T 402
C/1998 M2	1999 08 12.78359	01 30 23.61	+68 05 54.0	402
C/1998 M2	1999 08 12.78588	01 30 23.72	+68 05 54.8	402

C/1998 T1 (LINEAR)

C/1998 T1	1999 07 24.48514	14 24 52.60	-30 08 45.2	349
C/1998 T1	1999 07 24.48661	14 24 52.32	-30 08 41.7	349
C/1998 T1	1999 07 27.32755	14 15 57.13	-28 20 52.5	13.8 T 466
C/1998 T1	1999 07 27.32869	14 15 56.96	-28 20 49.6	13.8 T 466
C/1998 T1	1999 07 27.32990	14 15 56.70	-28 20 47.1	13.9 T 466
C/1998 T1	1999 07 29.36903	14 10 49.28	-27 14 23.5	13.5 N 467
C/1998 T1	1999 07 29.37319	14 10 48.78	-27 14 15.9	13.3 N 467
C/1998 T1	1999 07 29.37736	14 10 48.17	-27 14 08.8	13.5 N 467
C/1998 T1	1999 07 30.32131	14 08 43.74	-26 46 08.7	13.2 N 467
C/1998 T1	1999 07 30.32757	14 08 42.96	-26 45 57.3	13.2 N 467
C/1998 T1	1999 07 30.33471	14 08 42.03	-26 45 45.2	13.2 N 467
C/1998 T1	1999 07 30.47375	14 08 24.41	-26 41 52.5	349
C/1998 T1	1999 07 30.47740	14 08 23.93	-26 41 46.9	349
C/1998 T1	1999 07 31.32296	14 06 42.12	-26 18 05.3	13.9 N 467
C/1998 T1	1999 07 31.32575	14 06 41.80	-26 18 00.5	13.9 N 467
C/1998 T1	1999 07 31.32921	14 06 41.40	-26 17 54.6	13.9 N 467
C/1998 T1	1999 08 02.49797	14 02 51.06	-25 22 46.4	14.4 T 351
C/1998 T1	1999 08 02.50552	14 02 50.55	-25 22 36.3	351
C/1998 T1	1999 08 04.97684	13 59 14.86	-24 27 30.0	844
C/1998 T1	1999 08 04.99397	13 59 13.48	-24 27 08.2	844
C/1998 T1	1999 08 05.00793	13 59 12.34	-24 26 50.3	844
C/1998 T1	1999 08 09.28638	13 54 30.76	-23 08 18.0	14.2 T 467
C/1998 T1	1999 08 09.29193	13 54 30.44	-23 08 12.6	14.2 T 467
C/1998 T1	1999 08 09.30184	13 54 29.89	-23 08 02.7	14.2 T 467

C/1999 F2 (Dalcanton)

C/1999 F2	1999 08 06.86093	15 04 17.10	+12 49 38.7	046
C/1999 F2	1999 08 06.86263	15 04 17.03	+12 49 36.7	046
C/1999 F2	1999 08 06.86397	15 04 17.15	+12 49 38.1	046
C/1999 F2	1999 08 06.86709	15 04 17.17	+12 49 36.7	046

C/1999 H1 (Lee)

C/1999 H1	1999 07 27.77921	07 35 07.10	+35 22 53.5	349
C/1999 H1	1999 07 27.78025	07 35 07.04	+35 22 54.3	349
C/1999 H1	1999 07 27.78074	07 35 07.00	+35 22 54.8	349
C/1999 H1	1999 07 29.77200	07 32 20.92	+36 06 30.0	349
C/1999 H1	1999 07 29.77479	07 32 20.76	+36 06 33.9	349
C/1999 H1	1999 07 29.78010	07 32 20.28	+36 06 40.9	349
C/1999 H1	1999 07 30.77850	07 30 55.80	+36 28 29.1	402
C/1999 H1	1999 07 30.78125	07 30 55.65	+36 28 33.3	402
C/1999 H1	1999 07 30.78435	07 30 55.43	+36 28 37.2	402
C/1999 H1	1999 07 31.75703	07 29 32.25	+36 49 51.3	349
C/1999 H1	1999 07 31.77331	07 29 30.81	+36 50 13.7	349
C/1999 H1	1999 07 31.77911	07 29 30.35	+36 50 20.7	349
C/1999 H1	1999 08 06.08185	07 21 38.60	+38 47 05.2	046
C/1999 H1	1999 08 06.08250	07 21 38.53	+38 47 06.3	046
C/1999 H1	1999 08 06.08317	07 21 38.48	+38 47 06.9	046
C/1999 H1	1999 08 06.08412	07 21 38.42	+38 47 07.9	046
C/1999 H1	1999 08 11.04482	07 13 35.71	+40 40 03.2	118
C/1999 H1	1999 08 11.04836	07 13 35.30	+40 40 08.6	9.0 T 118
C/1999 H1	1999 08 11.74918	07 12 22.66	+40 56 35.4	8.1 T 355
C/1999 H1	1999 08 11.75163	07 12 22.47	+40 56 38.6	355
C/1999 H1	1999 08 11.75317	07 12 22.28	+40 56 41.0	355
C/1999 H1	1999 08 12.80087	07 10 30.92	+41 21 30.3	402
C/1999 H1	1999 08 12.80178	07 10 30.82	+41 21 31.6	402
C/1999 H1	1999 08 12.80270	07 10 30.72	+41 21 33.0	402
C/1999 H1	1999 08 14.06997	07 08 11.51	+41 52 00.6	118
C/1999 H1	1999 08 14.07206	07 08 11.30	+41 52 04.3	9.3 T 118
C/1999 H1	1999 08 18.77695	06 58 40.66	+43 50 34.0	349
C/1999 H1	1999 08 18.79045	06 58 38.83	+43 50 55.7	349
C/1999 H1	1999 08 18.79284	06 58 38.54	+43 50 59.5	349
C/1999 H1	1999 08 21.09008	06 53 20.94	+44 52 22.2	046
C/1999 H1	1999 08 21.09178	06 53 20.69	+44 52 25.1	046
C/1999 H1	1999 08 21.09788	06 53 19.80	+44 52 35.1	046
C/1999 H1	1999 08 21.09928	06 53 19.60	+44 52 37.6	046
C/1999 H1	1999 08 22.77440	06 49 07.19	+45 39 05.5	402
C/1999 H1	1999 08 22.77566	06 49 07.00	+45 39 07.8	402
C/1999 H1	1999 08 22.77692	06 49 06.80	+45 39 10.0	402
C/1999 H1	1999 08 23.01932	06 48 28.62	+45 45 58.8	118
C/1999 H1	1999 08 23.04220	06 48 24.95	+45 46 38.0	9.4 T 118
C/1999 H1	1999 08 23.13381	06 48 10.43	+45 49 15.5	470
C/1999 H1	1999 08 23.13721	06 48 09.86	+45 49 21.4	470
C/1999 H1	1999 08 23.14181	06 48 09.15	+45 49 29.5	470
C/1999 H1	1999 08 25.02375	06 42 55.74	+46 43 50.0	118
C/1999 H1	1999 08 25.02579	06 42 55.39	+46 43 53.4	118
C/1999 H1	1999 08 29.03311	06 29 57.28	+48 46 23.1	11.3 T 628
C/1999 H1	1999 08 29.04284	06 29 55.38	+48 46 42.5	11.5 T 628
C/1999 H1	1999 08 29.05881	06 29 51.92	+48 47 12.5	11.6 T 628
C/1999 H1	1999 08 29.06923	06 29 49.69	+48 47 32.1	11.3 T 628

C/1999 H3 (LINEAR)

C/1999 H3	1999 06 21.63708	16 26 44.17	+57 54 34.1	349
C/1999 H3	1999 06 21.63880	16 26 43.73	+57 54 34.5	14.6 T 349
C/1999 H3	1999 07 01.49987	15 52 12.13	+56 47 08.7	14.3 T 355

C/1999 H3	1999 07 01.50471	15 52 11.14	+56 47 06.1		355
C/1999 H3	1999 07 01.51005	15 52 10.07	+56 47 02.7		355
C/1999 H3	1999 07 08.62154	15 30 48.28	+55 27 03.2		349
C/1999 H3	1999 07 08.62267	15 30 48.25	+55 27 04.7	14.4 T	349
C/1999 H3	1999 07 17.93296	15 07 57.16	+53 15 33.3	14.7 T	138
C/1999 H3	1999 07 17.94604	15 07 55.30	+53 15 22.4	14.7 T	138
C/1999 H3	1999 07 17.95983	15 07 53.34	+53 15 19.8	14.7 T	138
C/1999 H3	1999 07 20.14631	15 03 21.53	+52 41 21.2		762
C/1999 H3	1999 07 20.15764	15 03 19.92	+52 41 11.8	17.6 T	762
C/1999 H3	1999 07 20.16384	15 03 19.17	+52 41 05.9	17.7 T	762
C/1999 H3	1999 07 20.17377	15 03 17.98	+52 40 56.5	18.4 T	762
C/1999 H3	1999 07 24.59002	14 55 02.16	+51 30 24.5		900
C/1999 H3	1999 07 24.59935	14 55 01.22	+51 30 15.0	14.7 T	900
C/1999 H3	1999 07 27.87968	14 49 36.89	+50 36 33.6	14.8 T	118
C/1999 H3	1999 07 27.88563	14 49 36.40	+50 36 26.9		118
C/1999 H3	1999 07 30.48281	14 45 44.33	+49 53 27.3		349
C/1999 H3	1999 07 30.48638	14 45 44.09	+49 53 24.6		349
C/1999 H3	1999 07 31.49068	14 44 19.84	+49 36 44.1		349
C/1999 H3	1999 07 31.49547	14 44 19.55	+49 36 37.7		349
C/1999 H3	1999 07 31.50896	14 44 18.35	+49 36 24.9		349
C/1999 H3	1999 08 01.15257	14 43 26.00	+49 25 42.1	16.0 T	762
C/1999 H3	1999 08 01.16468	14 43 25.02	+49 25 31.0	15.9 T	762
C/1999 H3	1999 08 01.17208	14 43 24.48	+49 25 23.9	14.7 T	762
C/1999 H3	1999 08 01.18065	14 43 23.87	+49 25 14.9	15.5 T	762
C/1999 H3	1999 08 02.15840	14 42 06.65	+49 08 56.8	15.8 T	762
C/1999 H3	1999 08 02.16418	14 42 06.26	+49 08 50.9	16.2 T	762
C/1999 H3	1999 08 03.15636	14 40 50.77	+48 52 20.2	17.6 T	762
C/1999 H3	1999 08 03.16367	14 40 50.25	+48 52 12.4	17.1 T	762
C/1999 H3	1999 08 03.17412	14 40 49.49	+48 52 02.2	17.1 T	762
C/1999 H3	1999 08 03.18184	14 40 48.88	+48 51 55.0	17.1 T	762
C/1999 H3	1999 08 04.85890	14 38 47.80	+48 23 57.6	14.0 T	118
C/1999 H3	1999 08 04.86007	14 38 47.75	+48 23 56.7		118
C/1999 H3	1999 08 04.86211	14 38 47.57	+48 23 54.8		118
C/1999 H3	1999 08 06.84973	14 36 33.93	+47 50 53.1		046
C/1999 H3	1999 08 06.85240	14 36 33.73	+47 50 50.5		046
C/1999 H3	1999 08 06.85362	14 36 33.71	+47 50 49.8		046
C/1999 H3	1999 08 06.85475	14 36 33.54	+47 50 47.4		046
C/1999 H3	1999 08 08.49347	14 34 50.86	+47 23 38.1		355
C/1999 H3	1999 08 08.49710	14 34 50.63	+47 23 34.7	14.0 T	355
C/1999 H3	1999 08 08.50791	14 34 49.99	+47 23 23.7		355
C/1999 H3	1999 08 08.84598	14 34 29.69	+47 17 48.1		118
C/1999 H3	1999 08 08.84837	14 34 29.51	+47 17 45.7		118
C/1999 H3	1999 08 08.84956	14 34 29.46	+47 17 44.5	13.7 T	118
C/1999 H3	1999 08 09.14349	14 34 12.12	+47 12 54.8	15.9 T	762
C/1999 H3	1999 08 09.15681	14 34 11.38	+47 12 39.3	16.9 T	762
C/1999 H3	1999 08 09.17337	14 34 10.24	+47 12 23.3	16.6 T	762
C/1999 H3	1999 08 10.84679	14 32 35.02	+46 44 50.1		557
C/1999 H3	1999 08 10.84975	14 32 34.86	+46 44 47.3		557
C/1999 H3	1999 08 13.50069	14 30 17.11	+46 01 28.5	15.1 T	360
C/1999 H3	1999 08 13.50347	14 30 17.00	+46 01 25.9		360
C/1999 H3	1999 08 18.85831	14 26 23.93	+44 35 31.5		107
C/1999 H3	1999 08 18.86469	14 26 23.66	+44 35 25.2		107
C/1999 H3	1999 08 21.82402	14 24 38.38	+43 49 07.5		118

C/1999 H3	1999 08 21.83189	14 24 38.12	+43 48 59.9	14.5 T	118
C/1999 H3	1999 08 30.10893	14 20 59.36	+41 44 37.7	16.1 T	762
C/1999 H3	1999 08 30.12058	14 20 59.23	+41 44 29.2	16.4 T	762
C/1999 H3	1999 08 30.13600	14 20 58.91	+41 44 14.5	16.5 T	762

C/1999 J2 (Skiff)

C/1999 J2	1999 07 01.51953	15 55 37.85	+59 55 29.2	16.0 T	355
C/1999 J2	1999 07 01.52556	15 55 37.50	+59 55 26.4		355
C/1999 J2	1999 07 01.53020	15 55 37.20	+59 55 23.7		355
C/1999 J2	1999 07 08.62478	15 49 22.18	+58 50 58.6	15.1 T	349
C/1999 J2	1999 07 08.62788	15 49 21.83	+58 50 56.3		349
C/1999 J2	1999 07 17.20723	15 43 09.92	+57 25 56.2		735
C/1999 J2	1999 07 17.22361	15 43 09.28	+57 25 46.5		735
C/1999 J2	1999 07 17.93743	15 42 42.41	+57 18 22.0	16.0 T	138
C/1999 J2	1999 07 17.95083	15 42 41.85	+57 18 14.3	16.0 T	138
C/1999 J2	1999 07 17.96427	15 42 41.36	+57 18 05.4	16.0 T	138
C/1999 J2	1999 07 24.61571	15 38 59.88	+56 07 32.3	15.1 T	900
C/1999 J2	1999 07 24.62820	15 38 59.58	+56 07 24.6		900
C/1999 J2	1999 07 27.90678	15 37 29.40	+55 31 37.4		118
C/1999 J2	1999 07 27.91318	15 37 29.18	+55 31 33.1	15.9 T	118
C/1999 J2	1999 07 29.84274	15 36 41.82	+55 10 14.2	15.7 T	118
C/1999 J2	1999 07 29.84574	15 36 41.73	+55 10 11.6		118
C/1999 J2	1999 07 29.85294	15 36 41.52	+55 10 07.3		118
C/1999 J2	1999 07 30.50625	15 36 26.32	+55 02 52.0	16.2 T	402
C/1999 J2	1999 07 30.50877	15 36 26.24	+55 02 50.5		402
C/1999 J2	1999 07 30.51130	15 36 26.21	+55 02 48.5		402
C/1999 J2	1999 07 31.51301	15 36 03.88	+54 51 38.8		349
C/1999 J2	1999 07 31.51581	15 36 03.84	+54 51 37.0	15.5 T	349
C/1999 J2	1999 08 06.87010	15 34 07.13	+53 39 54.7		046
C/1999 J2	1999 08 06.87525	15 34 07.07	+53 39 50.5		046
C/1999 J2	1999 08 06.87765	15 34 07.00	+53 39 49.1		046
C/1999 J2	1999 08 08.56138	15 33 43.10	+53 20 38.0	16.0 T	355
C/1999 J2	1999 08 08.56499	15 33 43.03	+53 20 35.2		355
C/1999 J2	1999 08 08.56851	15 33 42.99	+53 20 33.3		355
C/1999 J2	1999 08 09.17971	15 33 34.92	+53 13 32.6	17.6 T	762
C/1999 J2	1999 08 09.18691	15 33 34.75	+53 13 29.9	18.1 T	762
C/1999 J2	1999 08 09.19588	15 33 34.59	+53 13 22.5	17.5 T	762
C/1999 J2	1999 08 09.19799	15 33 34.61	+53 13 21.0	17.0 T	762
C/1999 J2	1999 08 10.88104	15 33 14.60	+52 54 04.9		557
C/1999 J2	1999 08 10.88338	15 33 14.58	+52 54 03.3		557
C/1999 J2	1999 08 10.88571	15 33 14.54	+52 54 01.8		557
C/1999 J2	1999 08 13.50747	15 32 48.75	+52 23 56.1	16.1 T	360
C/1999 J2	1999 08 13.50990	15 32 48.74	+52 23 54.4		360
C/1999 J2	1999 08 23.87735	15 32 07.31	+50 24 43.0		046
C/1999 J2	1999 08 23.87943	15 32 07.33	+50 24 41.6		046
C/1999 J2	1999 08 23.88149	15 32 07.31	+50 24 40.3		046

C/1999 J3 (LINEAR)

C/1999 J3	1999 07 29.76478	09 11 20.05	+62 17 19.1		349
C/1999 J3	1999 07 31.47029	09 09 47.84	+61 46 10.8		349
C/1999 J3	1999 07 31.47301	09 09 47.60	+61 46 08.9		349
C/1999 J3	1999 08 03.45880	09 07 13.05	+60 51 26.8	13.5 T	402
C/1999 J3	1999 08 03.45971	09 07 13.09	+60 51 26.1		402
C/1999 J3	1999 08 03.46154	09 07 12.96	+60 51 23.7		402

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C/1999 J3	1999 08 04.84262	09 06 03.32	+60 25 56.7		118
C/1999 J3	1999 08 04.84370	09 06 03.27	+60 25 54.9	12.8 T	118
C/1999 J3	1999 08 04.84656	09 06 03.17	+60 25 51.4		118
C/1999 J3	1999 08 08.83134	09 02 46.04	+59 11 38.8		118
C/1999 J3	1999 08 08.83281	09 02 46.04	+59 11 36.9		118
C/1999 J3	1999 08 08.83507	09 02 45.88	+59 11 34.2	13.2 T	118
C/1999 J3	1999 08 18.77007	08 54 37.17	+55 56 00.5		349

P/1999 J5 (LINEAR)

P/1999 J5	1999 07 31.57935	16 08 54.45	-11 29 38.7	18.7 T	402
P/1999 J5	1999 07 31.58166	16 08 54.52	-11 29 43.0		402
P/1999 J5	1999 07 31.58626	16 08 54.55	-11 29 43.0		402

C/1999 K2 (Ferris)

C/1999 K2	1999 05 14.39176	20 49 27.78	-08 37 29.9	17.8 T	1 704
C/1999 K2	1999 05 14.40770	20 49 27.59	-08 37 21.5	18.8 T	1 704
C/1999 K2	1999 05 14.43789	20 49 27.08	-08 37 05.3	18.5 T	1 704
C/1999 K2	1999 05 14.45141	20 49 27.01	-08 36 57.7	18.9 T	1 704
C/1999 K2	1999 08 02.85948	19 54 39.32	+00 44 41.8	16.6 T	159
C/1999 K2	1999 08 02.86352	19 54 39.08	+00 44 42.5	16.7 T	159
C/1999 K2	1999 08 02.86610	19 54 38.96	+00 44 43.1	16.5 T	159
C/1999 K2	1999 08 02.87180	19 54 38.62	+00 44 45.3	16.5 T	159
C/1999 K2	1999 08 02.87442	19 54 38.51	+00 44 46.3	16.4 T	159
C/1999 K2	1999 08 05.83503	19 52 04.44	+00 57 51.5	16.6 T	159
C/1999 K2	1999 08 05.83752	19 52 04.29	+00 57 52.3	17.5 T	159
C/1999 K2	1999 08 05.83941	19 52 04.16	+00 57 53.6	17.7 T	159
C/1999 K2	1999 08 05.84136	19 52 03.93	+00 57 53.7	18.6 T	159
C/1999 K2	1999 08 07.88030	19 50 19.73	+01 06 30.5	17.4 T	159
C/1999 K2	1999 08 07.88792	19 50 19.40	+01 06 32.6	17.5 T	159
C/1999 K2	1999 08 07.90293	19 50 18.59	+01 06 37.0	17.6 T	159
C/1999 K2	1999 08 07.90556	19 50 18.49	+01 06 37.1	17.7 T	159
C/1999 K2	1999 08 07.91624	19 50 17.89	+01 06 39.1	17.4 T	159
C/1999 K2	1999 08 10.97176	19 47 44.92	+01 18 55.7		557
C/1999 K2	1999 08 10.97488	19 47 44.77	+01 18 56.6		557
C/1999 K2	1999 08 10.97759	19 47 44.64	+01 18 57.3		557
C/1999 K2	1999 08 22.86704	19 38 38.56	+02 00 08.3	16.3 T	113
C/1999 K2	1999 08 22.89315	19 38 37.39	+02 00 11.9	17.2 T	113
C/1999 K2	1999 08 22.91393	19 38 36.48	+02 00 16.3	16.5 T	113

C/1999 K5 (LINEAR)

C/1999 K5	1999 07 22.22062	18 53 48.31	-18 31 08.8		834
C/1999 K5	1999 07 22.25027	18 53 46.49	-18 31 28.2		834
C/1999 K5	1999 07 30.63330	18 45 10.31	-20 02 17.8		322
C/1999 K5	1999 07 30.63869	18 45 10.00	-20 02 20.2		322
C/1999 K5	1999 07 30.64407	18 45 09.67	-20 02 23.4		322
C/1999 K5	1999 07 31.58058	18 44 13.60	-20 12 29.2		349
C/1999 K5	1999 07 31.58721	18 44 13.13	-20 12 34.5	15.6 T	349
C/1999 K5	1999 07 31.61067	18 44 11.76	-20 12 49.2	15.5 T	402
C/1999 K5	1999 07 31.61297	18 44 11.61	-20 12 50.5		402
C/1999 K5	1999 07 31.61527	18 44 11.47	-20 12 51.7		402
C/1999 K5	1999 07 31.97498	18 43 50.14	-20 16 42.2		844
C/1999 K5	1999 07 31.98612	18 43 49.44	-20 16 49.3		844
C/1999 K5	1999 07 31.99330	18 43 49.01	-20 16 53.6		844
C/1999 K5	1999 08 01.89163	18 42 55.69	-20 26 31.5		952

C/1999 K5	1999 08 01.89521	18 42 55.44	-20 26 33.7		952
C/1999 K5	1999 08 01.93072	18 42 53.39	-20 26 57.2		952
C/1999 K5	1999 08 05.13179	18 39 46.80	-21 00 57.0		844
C/1999 K5	1999 08 05.13624	18 39 46.57	-21 00 59.9		844
C/1999 K5	1999 08 05.14174	18 39 46.20	-21 01 03.2		844
C/1999 K5	1999 08 06.83348	18 38 10.15	-21 18 54.2		118
C/1999 K5	1999 08 06.83513	18 38 10.05	-21 18 55.3		118
C/1999 K5	1999 08 06.83666	18 38 09.98	-21 18 56.7	15.5 T	118
C/1999 K5	1999 08 16.17850	18 29 56.11	-22 54 42.1		844
C/1999 K5	1999 08 16.19542	18 29 55.17	-22 54 51.0		844
C/1999 K5	1999 08 16.21395	18 29 54.36	-22 55 03.4		844

C/1999 K6 (LINEAR)

C/1999 K6	1999 06 14.60851	18 54 29.40	+22 53 22.3	15.1 T	349
C/1999 K6	1999 07 29.30338	18 22 13.86	+36 46 45.1	18.4 T	704
C/1999 K6	1999 07 29.32875	18 22 12.97	+36 46 55.6	18.6 T	704
C/1999 K6	1999 07 29.34147	18 22 12.51	+36 47 01.0	18.9 T	704
C/1999 K6	1999 07 30.53910	18 21 38.45	+36 55 00.6	16.0 T	402
C/1999 K6	1999 07 30.54036	18 21 38.42	+36 55 01.6		402
C/1999 K6	1999 07 30.54162	18 21 38.40	+36 55 01.9		402
C/1999 K6	1999 07 30.59221	18 21 36.91	+36 55 22.0		349
C/1999 K6	1999 07 30.59744	18 21 36.66	+36 55 23.0		349
C/1999 K6	1999 08 01.90412	18 20 37.39	+37 08 51.6		952
C/1999 K6	1999 08 01.90694	18 20 37.34	+37 08 52.5		952
C/1999 K6	1999 08 01.93747	18 20 36.41	+37 09 02.5		952
C/1999 K6	1999 08 02.50297	18 20 23.36	+37 12 00.2		355
C/1999 K6	1999 08 02.52500	18 20 22.81	+37 12 06.2	15.8 T	355
C/1999 K6	1999 08 02.52771	18 20 22.74	+37 12 08.1		355
C/1999 K6	1999 08 03.25647	18 20 06.43	+37 15 41.9		658
C/1999 K6	1999 08 03.35616	18 20 04.12	+37 16 09.6		658
C/1999 K6	1999 08 03.86204	18 19 53.64	+37 18 29.2		118
C/1999 K6	1999 08 03.86782	18 19 53.47	+37 18 31.3	16.3 T	118
C/1999 K6	1999 08 04.86733	18 19 33.81	+37 22 49.0	16.5 T	118
C/1999 K6	1999 08 04.87119	18 19 33.72	+37 22 49.9		118
C/1999 K6	1999 08 04.87251	18 19 33.67	+37 22 50.6		118
C/1999 K6	1999 08 12.91803	18 18 01.55	+37 43 24.9		557
C/1999 K6	1999 08 12.97750	18 18 01.23	+37 43 28.5		557
C/1999 K6	1999 08 20.51558	18 18 30.85	+37 43 06.5	16.5 T	402
C/1999 K6	1999 08 20.51684	18 18 30.79	+37 43 06.1		402
C/1999 K6	1999 08 20.51810	18 18 30.80	+37 43 06.3		402
C/1999 K6	1999 08 23.85880	18 19 20.39	+37 37 57.6		046
C/1999 K6	1999 08 23.86097	18 19 20.46	+37 37 57.1		046
C/1999 K6	1999 08 23.86260	18 19 20.48	+37 37 57.0		046

C/1999 K8 (LINEAR)

C/1999 K8	1999 06 30.69110	21 41 34.65	+37 33 17.0		355
C/1999 K8	1999 06 30.69750	21 41 34.60	+37 33 18.2		355
C/1999 K8	1999 06 30.70337	21 41 34.60	+37 33 19.3	15.3 T	355
C/1999 K8	1999 07 30.53469	21 34 37.48	+38 06 40.3		349
C/1999 K8	1999 07 30.54759	21 34 37.24	+38 06 40.2	14.6 T	349
C/1999 K8	1999 07 30.58329	21 34 36.40	+38 06 35.6		349
C/1999 K8	1999 07 31.62389	21 34 13.20	+38 04 46.9		349
C/1999 K8	1999 07 31.63168	21 34 12.96	+38 04 46.7		349
C/1999 K8	1999 07 31.64155	21 34 12.79	+38 04 46.1		349

C/1999 K8	1999 08 02.86447	21 33 22.05	+38 00 07.4		143
C/1999 K8	1999 08 02.87270	21 33 21.82	+38 00 06.2		143
C/1999 K8	1999 08 03.94367	21 32 56.68	+37 57 31.1	16 T	118
C/1999 K8	1999 08 03.95309	21 32 56.45	+37 57 29.9		118
C/1999 K8	1999 08 09.22734	21 30 48.79	+37 41 08.8	17.8 T	762
C/1999 K8	1999 08 09.23074	21 30 48.70	+37 41 07.7	18.4 T	762
C/1999 K8	1999 08 09.23996	21 30 48.42	+37 41 06.7	18.0 T	762
C/1999 K8	1999 08 10.33598	21 30 21.36	+37 36 56.9		658
C/1999 K8	1999 08 10.33993	21 30 21.25	+37 36 56.0		658
C/1999 K8	1999 08 10.34534	21 30 21.11	+37 36 54.8		658
C/1999 K8	1999 08 12.72108	21 29 21.62	+37 27 00.2	15.5 T	402
C/1999 K8	1999 08 12.72234	21 29 21.60	+37 27 00.2		402
C/1999 K8	1999 08 12.72361	21 29 21.59	+37 26 59.4		402
C/1999 K8	1999 08 12.92725	21 29 16.58	+37 26 04.9		557
C/1999 K8	1999 08 12.92984	21 29 16.52	+37 26 04.3		557
C/1999 K8	1999 08 12.93231	21 29 16.47	+37 26 03.8		557
C/1999 K8	1999 08 18.87824	21 26 47.36	+36 55 37.8		108
C/1999 K8	1999 08 18.88738	21 26 47.16	+36 55 32.0	15.0 T	108
C/1999 K8	1999 08 18.89862	21 26 46.83	+36 55 29.5	16.2 T	107
C/1999 K8	1999 08 18.90927	21 26 46.50	+36 55 26.5	16.2 T	107
C/1999 K8	1999 08 21.82731	21 25 34.07	+36 37 40.1		108
C/1999 K8	1999 08 21.84514	21 25 34.06	+36 37 34.6	15.0 T	108
C/1999 K8	1999 08 22.59400	21 25 15.51	+36 32 43.7	15.1 T	402
C/1999 K8	1999 08 22.59525	21 25 15.50	+36 32 43.2		402
C/1999 K8	1999 08 22.59652	21 25 15.48	+36 32 42.5		402
C/1999 K8	1999 08 22.87268	21 25 08.84	+36 30 52.5	15.5 T	113
C/1999 K8	1999 08 22.89859	21 25 08.16	+36 30 42.2	15.6 T	113
C/1999 K8	1999 08 22.91834	21 25 07.72	+36 30 35.0	15.5 T	113
C/1999 K8	1999 08 23.89727	21 24 44.00	+36 24 01.5		046
C/1999 K8	1999 08 23.90190	21 24 43.86	+36 23 58.7		046
C/1999 K8	1999 08 23.90753	21 24 43.71	+36 23 56.5		046
C/1999 K8	1999 08 23.91075	21 24 43.65	+36 23 55.2		046
C/1999 K8	1999 08 24.54753	21 24 28.45	+36 19 29.4	15.6 T	351
C/1999 K8	1999 08 24.55441	21 24 28.49	+36 19 27.7		351
C/1999 K8	1999 08 24.56036	21 24 28.05	+36 19 27.5		351
C/1999 K8	1999 08 30.17333	21 22 18.68	+35 37 12.4	17.3 T	762
C/1999 K8	1999 08 30.18446	21 22 18.28	+35 37 05.4	17.7 T	762
C/1999 K8	1999 08 30.19511	21 22 18.12	+35 37 00.3	16.8 T	762

C/1999 N2 (Lynn)

C/1999 N2	1999 07 21.92260	11 05 13.00	+00 47 32.0		834
C/1999 N2	1999 07 21.94559	11 05 23.26	+00 49 53.9		834
C/1999 N2	1999 07 22.92282	11 12 22.69	+02 27 56.8		834
C/1999 N2	1999 07 22.95317	11 12 34.64	+02 30 59.4		834
C/1999 N2	1999 07 23.92714	11 19 04.20	+04 03 10.4		834
C/1999 N2	1999 07 26.92780	11 36 25.30	+08 16 22.7		834
C/1999 N2	1999 07 26.95149	11 36 32.58	+08 18 12.2		834
C/1999 N2	1999 07 27.26979	11 38 10.61	+08 42 28.5	9.7 N	467
C/1999 N2	1999 07 27.27440	11 38 11.97	+08 42 49.5	10.8 N	467
C/1999 N2	1999 07 27.27951	11 38 13.55	+08 43 13.2	11.3 N	467
C/1999 N2	1999 07 27.28464	11 38 15.09	+08 43 35.0	10.8 N	467
C/1999 N2	1999 07 27.29182	11 38 17.28	+08 44 09.4	10.2 N	467
C/1999 N2	1999 07 28.27414	11 43 05.31	+09 56 03.1	10.2 N	467

C/1999 N2	1999 07 28.28389	11 43 07.98	+09 56 45.7	10.1 N	467
C/1999 N2	1999 07 28.29414	11 43 10.88	+09 57 29.5	9.7 N	467
C/1999 N2	1999 07 28.30492	11 43 13.79	+09 58 15.4	10.0 N	467
C/1999 N2	1999 07 28.92233	11 46 04.92	+10 41 12.3		834
C/1999 N2	1999 07 29.38872	11 48 09.16	+11 12 38.3	13.4 N	422
C/1999 N2	1999 07 29.38941	11 48 09.35	+11 12 40.9	13.6 N	422
C/1999 N2	1999 07 30.26439	11 51 52.36	+12 09 26.7	10.8 N	467
C/1999 N2	1999 07 30.27412	11 51 54.81	+12 10 03.5	10.8 N	467
C/1999 N2	1999 07 30.28642	11 51 57.83	+12 10 49.8	11.4 N	467
C/1999 N2	1999 07 30.45444	11 52 38.91	+12 21 10.4		349
C/1999 N2	1999 07 30.45876	11 52 39.95	+12 21 26.7		349
C/1999 N2	1999 07 30.46347	11 52 41.12	+12 21 44.6		349
C/1999 N2	1999 07 31.28340	11 55 55.80	+13 11 56.0	9.9 N	467
C/1999 N2	1999 07 31.28424	11 55 55.95	+13 11 58.3	10.9 N	467
C/1999 N2	1999 07 31.45119	11 56 34.28	+13 21 40.8		349
C/1999 N2	1999 07 31.45669	11 56 35.55	+13 22 00.3		349
C/1999 N2	1999 07 31.45961	11 56 36.22	+13 22 11.0		349
C/1999 N2	1999 07 31.95154	11 58 26.69	+13 50 54.7	10.9 N	859
C/1999 N2	1999 07 31.95249	11 58 26.93	+13 50 57.9	10.9 N	859
C/1999 N2	1999 07 31.95650	11 58 27.88	+13 51 11.6	10.5 N	859
C/1999 N2	1999 08 01.27494	11 59 37.58	+14 09 22.2	10.9 N	467
C/1999 N2	1999 08 01.27836	11 59 38.36	+14 09 34.0	11.2 N	467
C/1999 N2	1999 08 01.35821	11 59 55.43	+14 13 59.3		413
C/1999 N2	1999 08 01.35998	11 59 55.80	+14 14 05.1		413
C/1999 N2	1999 08 02.10582	12 02 32.47	+14 54 47.8	15.5 N	762
C/1999 N2	1999 08 02.12841	12 02 37.08	+14 56 01.1	13.3 N	762
C/1999 N2	1999 08 02.34611	12 03 21.44	+15 07 48.3	13.3 N	428
C/1999 N2	1999 08 02.34723	12 03 21.65	+15 07 51.6	13.7 N	428
C/1999 N2	1999 08 02.34804	12 03 21.80	+15 07 54.2	13.6 N	428
C/1999 N2	1999 08 02.34883	12 03 21.99	+15 07 56.4	13.8 N	428
C/1999 N2	1999 08 02.46145	12 03 44.71	+15 13 46.1	10.7 T	351
C/1999 N2	1999 08 02.46578	12 03 45.40	+15 13 57.6		351
C/1999 N2	1999 08 02.47376	12 03 47.06	+15 14 22.1		351
C/1999 N2	1999 08 02.93157	12 05 17.57	+15 38 19.8		834
C/1999 N2	1999 08 03.10921	12 05 51.92	+15 47 13.3	13.6 N	762
C/1999 N2	1999 08 03.11342	12 05 52.75	+15 47 26.4	13.2 N	762
C/1999 N2	1999 08 03.27516	12 06 23.85	+15 55 48.9	11.9 T	467
C/1999 N2	1999 08 03.27875	12 06 24.47	+15 55 59.0	11.4 T	467
C/1999 N2	1999 08 03.28113	12 06 24.93	+15 56 06.2	11.1 T	467
C/1999 N2	1999 08 03.45031	12 06 56.84	+16 04 24.8		402
C/1999 N2	1999 08 03.45123	12 06 57.01	+16 04 27.4		402
C/1999 N2	1999 08 03.45214	12 06 57.19	+16 04 30.4		402
C/1999 N2	1999 08 04.35443	12 09 42.66	+16 48 34.7		413
C/1999 N2	1999 08 04.35700	12 09 43.14	+16 48 41.7		413
C/1999 N2	1999 08 08.45774	12 20 33.11	+19 44 02.4	9.7 T	355
C/1999 N2	1999 08 08.45847	12 20 33.20	+19 44 03.7		355
C/1999 N2	1999 08 08.45924	12 20 33.33	+19 44 05.5		355
C/1999 N2	1999 08 09.10584	12 22 02.99	+20 08 36.9	11.9 N	762
C/1999 N2	1999 08 09.11502	12 22 04.14	+20 08 58.3	12.7 N	762
C/1999 N2	1999 08 09.12035	12 22 04.89	+20 09 08.9	12.5 N	762
C/1999 N2	1999 08 11.47075	12 27 06.01	+21 32 17.7		355
C/1999 N2	1999 08 11.47406	12 27 06.39	+21 32 24.2		355
C/1999 N2	1999 08 11.47684	12 27 06.72	+21 32 29.7		355

C/1999 N2	1999 08 13.45712	12 30 55.14	+22 35 56.7		360
C/1999 N2	1999 08 13.45851	12 30 55.27	+22 35 59.2		360
C/1999 N2	1999 08 13.45990	12 30 55.43	+22 36 01.9		360
C/1999 N2	1999 08 17.79862	12 38 12.05	+24 38 01.0		470
C/1999 N2	1999 08 17.80052	12 38 12.21	+24 38 03.8		470
C/1999 N2	1999 08 17.80147	12 38 12.29	+24 38 05.1		470
C/1999 N2	1999 08 18.81684	12 39 44.34	+25 03 44.7		107
C/1999 N2	1999 08 18.82779	12 39 45.34	+25 04 01.4		107
C/1999 N2	1999 08 20.07511	12 41 33.89	+25 34 15.4	14.2 N	762
C/1999 N2	1999 08 20.08359	12 41 34.62	+25 34 28.5	14.4 N	762
C/1999 N2	1999 08 20.08713	12 41 34.91	+25 34 32.6	14.4 N	762
C/1999 N2	1999 08 20.09263	12 41 35.38	+25 34 40.3	14.6 N	762
C/1999 N2	1999 08 21.81216	12 43 58.34	+26 14 14.1	11.1 T	118
C/1999 N2	1999 08 21.81368	12 43 58.44	+26 14 15.5		118
C/1999 N2	1999 08 22.81269	12 45 18.01	+26 36 12.9	10.6 T	118
C/1999 N2	1999 08 22.81508	12 45 18.23	+26 36 16.0		118
C/1999 N2	1999 08 24.44594	12 47 23.75	+27 10 38.1	11.0 T	351
C/1999 N2	1999 08 24.44955	12 47 23.95	+27 10 41.8		351
C/1999 N2	1999 08 24.45726	12 47 24.59	+27 10 50.9		351
C/1999 N2	1999 08 27.07796	12 50 36.25	+28 02 34.4	14.0 N	762
C/1999 N2	1999 08 27.08550	12 50 36.86	+28 02 41.7	14.8 N	762
C/1999 N2	1999 08 27.09089	12 50 37.27	+28 02 47.7	14.5 N	762
C/1999 N2	1999 08 30.07528	12 54 03.72	+28 57 15.9	14.2 N	762
C/1999 N2	1999 08 30.08871	12 54 04.69	+28 57 30.6	14.6 N	762
C/1999 N2	1999 08 30.09664	12 54 05.17	+28 57 38.7	14.7 N	762

C/1999 N4 (LINEAR)

C/1999 N4	1999 07 30.57138	18 52 04.87	+00 39 21.1	17.5 T	402
C/1999 N4	1999 07 30.57390	18 52 04.70	+00 39 21.0		402
C/1999 N4	1999 07 30.57516	18 52 04.64	+00 39 20.6		402
C/1999 N4	1999 08 02.93212	18 48 17.85	+00 31 42.4		621
C/1999 N4	1999 08 02.93580	18 48 17.64	+00 31 42.0	18.4 N	621
C/1999 N4	1999 08 02.93949	18 48 17.30	+00 31 39.9	18.3 N	621
C/1999 N4	1999 08 03.84875	18 47 16.93	+00 29 30.8		118
C/1999 N4	1999 08 03.85391	18 47 16.60	+00 29 28.8		118
C/1999 N4	1999 08 04.89693	18 46 07.77	+00 26 54.0		2 118
C/1999 N4	1999 08 04.90027	18 46 07.56	+00 26 53.0	17.3 T	2 118
C/1999 N4	1999 08 04.93382	18 46 05.42	+00 26 50.7		621
C/1999 N4	1999 08 04.93750	18 46 05.17	+00 26 48.8		621
C/1999 N4	1999 08 04.94119	18 46 04.90	+00 26 48.9	18.5 N	621
C/1999 N4	1999 08 06.84561	18 44 01.11	+00 21 59.6	17.8 T	118
C/1999 N4	1999 08 06.84990	18 44 00.76	+00 21 58.6		118

P/1999 P1 (Machholz 2)

P/1999 P1	1999 08 03.55335	16 49 18.57	-11 11 12.3	20.8 T	413
P/1999 P1	1999 08 03.55958	16 49 18.26	-11 11 11.7	20.3 T	413
P/1999 P1	1999 08 03.57818	16 49 17.25	-11 11 07.9	20.4 T	413
P/1999 P1	1999 08 04.42617	16 48 36.00	-11 08 49.8		413
P/1999 P1	1999 08 04.42864	16 48 35.88	-11 08 49.4		413
P/1999 P1	1999 08 04.43115	16 48 35.76	-11 08 49.1		413
P/1999 P1	1999 08 04.43396	16 48 35.61	-11 08 48.6		413

C/1999 P2 (SOHO)

C/1999 P2	1999 08 05.36256	08 41 13.8	+15 38 52		249
Geocentric position (AU)	-0.00467951	+0.00644111	+0.00354005		
C/1999 P2	1999 08 05.38756	08 41 43.8	+15 42 03		249
Geocentric position (AU)	-0.00468543	+0.00643678	+0.00353848		
C/1999 P2	1999 08 05.40423	08 41 56.9	+15 43 07		249
Geocentric position (AU)	-0.00468937	+0.00643390	+0.00353743		
C/1999 P2	1999 08 05.42927	08 42 26.4	+15 46 02		249
Geocentric position (AU)	-0.00469530	+0.00642956	+0.00353585		
C/1999 P2	1999 08 05.44590	08 42 45.2	+15 47 24		249
Geocentric position (AU)	-0.00469923	+0.00642667	+0.00353480		
C/1999 P2	1999 08 05.47090	08 43 10.9	+15 49 21		249
Geocentric position (AU)	-0.00470515	+0.00642233	+0.00353322		
C/1999 P2	1999 08 05.48757	08 43 29.8	+15 51 14		249
Geocentric position (AU)	-0.00470909	+0.00641944	+0.00353216		
C/1999 P2	1999 08 05.51257	08 43 57.9	+15 53 09		249
Geocentric position (AU)	-0.00471500	+0.00641509	+0.00353057		
C/1999 P2	1999 08 05.52923	08 44 16.5	+15 54 53		249
Geocentric position (AU)	-0.00471894	+0.00641219	+0.00352951		
C/1999 P2	1999 08 05.57091	08 45 05.1	+15 58 46		249
Geocentric position (AU)	-0.00472880	+0.00640493	+0.00352686		
C/1999 P2	1999 08 05.59590	08 45 34.6	+16 00 58		249
Geocentric position (AU)	-0.00473470	+0.00640057	+0.00352527		
C/1999 P2	1999 08 05.61258	08 45 55.5	+16 02 44		249
Geocentric position (AU)	-0.00473864	+0.00639765	+0.00352420		
C/1999 P2	1999 08 05.63757	08 46 26.1	+16 05 14		249
Geocentric position (AU)	-0.00474455	+0.00639329	+0.00352260		
C/1999 P2	1999 08 05.65423	08 46 46.3	+16 06 38		249
Geocentric position (AU)	-0.00474849	+0.00639037	+0.00352154		
C/1999 P2	1999 08 05.67923	08 47 17.3	+16 09 09		249
Geocentric position (AU)	-0.00475439	+0.00638600	+0.00351993		
C/1999 P2	1999 08 05.69590	08 47 39.8	+16 10 36		249
Geocentric position (AU)	-0.00475833	+0.00638307	+0.00351886		
C/1999 P2	1999 08 05.72090	08 48 13.8	+16 13 36		249
Geocentric position (AU)	-0.00476423	+0.00637869	+0.00351725		
C/1999 P2	1999 08 05.73757	08 48 36.2	+16 14 50		249
Geocentric position (AU)	-0.00476817	+0.00637577	+0.00351618		
C/1999 P2	1999 08 05.76257	08 49 09.9	+16 17 42		249
Geocentric position (AU)	-0.00477407	+0.00637137	+0.00351457		

9P/Tempel 1

9P	1998 12 19.01146	09 12 21.42	+27 20 08.9	19.4 T	561
9P	1998 12 19.02813	09 12 21.16	+27 20 14.6	19.4 T	561

10P/Tempel 2

10P	1999 06 11.21094	17 20 12.11	-05 06 57.8		834
10P	1999 06 11.26111	17 20 09.90	-05 07 17.1		834
10P	1999 06 13.19686	17 18 44.81	-05 20 07.2		834
10P	1999 06 13.27558	17 18 40.96	-05 20 40.3		834
10P	1999 06 14.21299	17 17 59.15	-05 27 32.9		834
10P	1999 06 14.24976	17 17 57.37	-05 27 47.7		834
10P	1999 06 30.63025	17 06 03.05	-08 28 17.1		349
10P	1999 06 30.63159	17 06 03.01	-08 28 18.7		349
10P	1999 06 30.63362	17 06 02.84	-08 28 21.7	14.4 T	349

10P	1999 07 01.91542	17 05 16.39	-08 47 04.0	15.9 T	138
10P	1999 07 01.92041	17 05 16.31	-08 47 06.9	15.9 T	138
10P	1999 07 04.98692	17 03 34.72	-09 34 08.6	14.7 T	967
10P	1999 07 05.02733	17 03 34.01	-09 34 30.1		834
10P	1999 07 05.07716	17 03 32.31	-09 35 18.2		834
10P	1999 07 05.10832	17 03 31.13	-09 35 47.5		834
10P	1999 07 06.01250	17 03 04.32	-09 50 33.0	14.3 T	967
10P	1999 07 06.02135	17 03 04.10	-09 50 40.9	14.3 T	967
10P	1999 07 07.08780	17 02 34.99	-10 07 52.7		834
10P	1999 07 07.15336	17 02 32.90	-10 08 57.2		834
10P	1999 07 08.07211	17 02 09.88	-10 24 16.6		834
10P	1999 07 13.01099	17 00 35.22	-11 50 51.3	14.4 T	967
10P	1999 07 15.00544	17 00 14.09	-12 27 25.8	14.0 T	967
10P	1999 07 15.01319	17 00 14.04	-12 27 34.1	14.2 T	967
10P	1999 07 18.04180	17 00 02.88	-13 24 19.2		834
10P	1999 07 22.01490	17 00 27.25	-14 41 19.6		834
10P	1999 07 31.54928	17 04 41.38	-17 51 42.1		349
10P	1999 07 31.55418	17 04 41.60	-17 51 47.4	13.6 T	349
10P	1999 07 31.55556	17 04 41.62	-17 51 47.8		349
10P	1999 07 31.57839	17 04 42.58	-17 52 16.7	14.4 T	351
10P	1999 07 31.58778	17 04 42.92	-17 52 26.6		351
10P	1999 07 31.59211	17 04 43.07	-17 52 31.7		351
10P	1999 08 01.09730	17 05 04.71	-18 02 26.1		844
10P	1999 08 01.10370	17 05 04.95	-18 02 33.6		844
10P	1999 08 01.13272	17 05 06.13	-18 03 08.3		844
10P	1999 08 01.56819	17 05 25.64	-18 11 51.7		322
10P	1999 08 01.57571	17 05 25.91	-18 12 00.7		322
10P	1999 08 01.57731	17 05 25.97	-18 12 02.4		322
10P	1999 08 02.52096	17 06 09.91	-18 31 10.3	13.8 T	351
10P	1999 08 02.52645	17 06 10.17	-18 31 17.8		351
10P	1999 08 03.82384	17 07 15.21	-18 57 14.2		118
10P	1999 08 03.82763	17 07 15.40	-18 57 19.1		118
10P	1999 08 05.06711	17 08 22.33	-19 21 43.9		844
10P	1999 08 05.07321	17 08 22.65	-19 21 51.5		844
10P	1999 08 05.08013	17 08 23.02	-19 21 59.5		844
10P	1999 08 06.81919	17 10 05.78	-19 56 40.3		118
10P	1999 08 06.82348	17 10 06.01	-19 56 44.9		118
10P	1999 08 07.97677	17 11 19.52	-20 19 11.6		844
10P	1999 08 07.99288	17 11 20.50	-20 19 30.6		844
10P	1999 08 08.01671	17 11 21.91	-20 19 58.3		844
10P	1999 08 16.06392	17 21 53.30	-22 53 33.1		844
10P	1999 08 16.07851	17 21 54.50	-22 53 48.0		844
10P	1999 08 16.08881	17 21 55.45	-22 53 59.4		844
10P	1999 08 24.85589	17 37 12.04	-25 27 39.4		118
10P	1999 08 24.85801	17 37 12.30	-25 27 41.9		118

29P/Schwassmann-Wachmann 1

29P	1999 07 06.97314	14 43 26.01	-26 30 37.8		834
29P	1999 07 07.02865	14 43 25.75	-26 30 31.8		834
29P	1999 07 07.99851	14 43 22.48	-26 28 29.4		834
29P	1999 07 08.54826	14 43 20.82	-26 27 37.0	3	322
29P	1999 07 08.55382	14 43 20.75	-26 27 35.6	3	322
29P	1999 08 01.46503	14 45 29.37	-25 55 13.9		322

29P	1999 08 01.47725	14 45 29.49	-25 55 12.8		322
29P	1999 08 01.48396	14 45 29.57	-25 55 12.8		322
29P	1999 08 15.95245	14 49 44.70	-25 48 56.7		844
29P	1999 08 15.95571	14 49 44.72	-25 48 55.7		844
29P	1999 08 15.99473	14 49 45.56	-25 48 55.4		844

37P/Forbes

37P	1999 06 21.72124	00 03 10.45	-02 34 16.3		349
37P	1999 06 21.72387	00 03 10.78	-02 34 12.3	13.1 T	349
37P	1999 06 30.72029	00 17 30.04	-00 08 00.9		355
37P	1999 06 30.72507	00 17 30.46	-00 07 57.0		355
37P	1999 06 30.72669	00 17 30.56	-00 07 55.7		355
37P	1999 07 08.69966	00 28 08.40	+01 50 49.5		349
37P	1999 07 08.70117	00 28 08.59	+01 50 51.3	14.0 T	349
37P	1999 07 24.72245	00 42 53.78	+05 13 48.8		900
37P	1999 07 24.73158	00 42 54.12	+05 13 54.7	13.2 T	900
37P	1999 07 29.73652	00 45 32.37	+06 06 32.5		349
37P	1999 07 29.74325	00 45 32.52	+06 06 37.7	14.3 T	349
37P	1999 07 29.74642	00 45 32.63	+06 06 40.2		349
37P	1999 07 30.04409	00 45 40.23	+06 09 35.4	14.3 T	118
37P	1999 07 30.05769	00 45 40.56	+06 09 43.8		118
37P	1999 07 30.60958	00 45 54.22	+06 15 10.3	14.2 T	349
37P	1999 08 08.26345	00 47 46.28	+07 31 20.1		844
37P	1999 08 08.29200	00 47 46.32	+07 31 33.8		844
37P	1999 08 08.30506	00 47 46.27	+07 31 40.1		844
37P	1999 08 11.65398	00 47 39.41	+07 55 57.5		355
37P	1999 08 11.65802	00 47 39.39	+07 55 58.5	14.7 T	355
37P	1999 08 11.66058	00 47 39.35	+07 55 59.9		355
37P	1999 08 18.72200	00 45 53.31	+08 38 19.1		349
37P	1999 08 18.72980	00 45 53.05	+08 38 20.7		349
37P	1999 08 18.73311	00 45 53.01	+08 38 21.9		349
37P	1999 08 22.69424	00 44 01.94	+08 56 23.7	14.8 T	402
37P	1999 08 22.69549	00 44 01.89	+08 56 23.7		402
37P	1999 08 22.69675	00 44 01.86	+08 56 24.1		402
37P	1999 08 22.92927	00 43 54.24	+08 57 17.9	15.4 T	113
37P	1999 08 22.95248	00 43 53.50	+08 57 23.6	15.8 T	113
37P	1999 08 23.23675	00 43 44.02	+08 58 43.4		844
37P	1999 08 23.24311	00 43 43.79	+08 58 44.7		844
37P	1999 08 23.26186	00 43 43.02	+08 58 48.0		844
37P	1999 08 24.57078	00 42 57.41	+09 03 32.5	15.7 T	351
37P	1999 08 24.57470	00 42 57.21	+09 03 26.9		351
37P	1999 08 24.57847	00 42 57.22	+09 03 30.2		351
37P	1999 08 24.58285	00 42 56.94	+09 03 33.5		351

50P/Arend

50P	1999 08 03.00376	04 27 14.75	+34 17 08.6		118
50P	1999 08 03.00495	04 27 14.94	+34 17 09.1		118
50P	1999 08 03.00602	04 27 15.11	+34 17 10.1	16.0 T	118
50P	1999 08 05.04462	04 32 38.83	+34 44 02.5		118
50P	1999 08 05.04602	04 32 39.13	+34 44 04.2		118
50P	1999 08 05.04919	04 32 39.59	+34 44 06.8	16.8 T	118

M.P.C. 35531

60P	1998 12 18.86875	06 41 08.55	+26 45 06.1	17.7	T	561
60P	1998 12 18.88785	06 41 07.79	+26 45 01.3	17.6	T	561

RADAR OBSERVATIONS

Object	Date	UTC	Doppler/Hz		Delay/ μ s		MHz	B	Tx/Rc
C/1996 B2	1996 03 24	061000	+	1052374	$\pm$ 10		8560	C	253/253
C/1996 B2	1996 03 24	083000	+	956063	$\pm$ 5		8560	C	253/253
C/1996 B2	1996 03 25	073000	+	13870.5	$\pm$ 20.0		8560	C	253/253
1991 AQ	1991 01 28	193700	+	120671	$\pm$ 2		2380	S	251/251
1991 AQ	1991 01 29	175700	-	183886	$\pm$ 2		2380	S	251/251
1991 AQ	1991 01 29	181600				62423750	$\pm$ 6	2380	S 251/251
1991 AQ	1991 01 29	182600				62470523	$\pm$ 7	2380	S 251/251
1991 AQ	1991 01 29	183600				62517485	$\pm$ 2	2380	S 251/251
1991 AQ	1991 01 29	192500				62750119	$\pm$ 2	2380	S 251/251
1991 AQ	1991 01 30	190600				70481150.8	$\pm$ 1.0	2380	S 251/251
1991 AQ	1991 01 31	181000	-	274252	$\pm$ 1			2380	S 251/251
1992 QN	1996 01 13	090000	+	172455	$\pm$ 2			8510	C 253/253
1996 JG	1996 05 26	011000	+	725469	$\pm$ 20			8510	C 253/253
1996 JG	1996 05 27	181000	-	965114.65	$\pm$ 3.00			8510	C 253/253
1996 JG	1996 05 27	191000				40990117.5	$\pm$ 20.0	8510	C 253/253
1996 JG	1996 05 27	211000				41820467.0	$\pm$ 1.5	8510	C 253/253
1996 JG	1996 05 28	210000	-	1041337	$\pm$ 3			8510	C 253/253
1996 JG	1996 05 28	211100				52139166.0	$\pm$ 1.5	8510	C 253/253
1997 BR	1997 07 01	204000	+	375473.1	$\pm$ 0.5			8510	C 253/253
1997 BR	1997 07 18	192000	-	253032.0	$\pm$ 0.5			8510	C 253/253
1998 BY ₇	1998 02 21	053000	+	25905	$\pm$ 10			8510	C 253/253
1998 BY ₇	1998 02 21	073000	+	43915	$\pm$ 10			8510	C 253/253
1998 KY ₂₆	1998 06 06	034000	+	201145.6	$\pm$ 3.0			8510	C 253/253
1998 KY ₂₆	1998 06 07	140000	+	61305.67	$\pm$ 3.00	5617378.2	$\pm$ 0.2	8510	C 253/253
1998 KY ₂₆	1998 06 08	123000	+	37379.44	$\pm$ 3.00	5386764.1	$\pm$ 10.0	8510	C 253/253
1999 FN ₁₉	1999 04 15	123000	+	96477	$\pm$ 5			8510	C 253/253
1999 FN ₁₉	1999 04 15	134000				21659397	$\pm$ 10	8510	C 253/253
1999 FN ₁₉	1999 04 17	055400	+	2471.35	$\pm$ 0.10			2380	S 251/251
1999 FN ₁₉	1999 04 17	061000				20683088	$\pm$ 3	2380	S 251/251
1999 FN ₁₉	1999 04 17	130000	-	29982.20	$\pm$ 0.13			8560	C 253/253
(1566)	1996 06 08	140000	+	560070	$\pm$ 10			8510	C 253/253
(1566)	1996 06 10	140000	+	153114	$\pm$ 10			8510	C 253/253
(1620)	1994 08 28	071000	-	364880.59	$\pm$ 0.90	38936537.10	$\pm$ 1.76	8510	C 253/253
(1620)	1994 08 29	044000	-	427851.03	$\pm$ 0.20	42596456.40	$\pm$ 1.13	8510	C 253/253
(1620)	1994 09 02	072000	-	615553.2	$\pm$ 0.5			8510	C 253/253
(2062)	1995 01 16	064000	-	135556	$\pm$ 2			8510	S 253/253
(2063)	1996 03 22	180000	+	384093.22	$\pm$ 2.00			8510	C 253/253
(2063)	1996 03 22	202000							

(4179)	1992	12	04	075000	-	515942.55	±	0.09	45891287.50	±	0.48	8510	C	253/253
(4179)	1992	12	15	075000	-	537151.85	±	0.11	51433656.70	±	0.59	8510	C	253/253
(4179)	1992	12	16	071000	-	550720.99	±	0.16	56997841.7	±	0.8	8510	C	253/253
(4179)	1992	12	17	065000	-	561924.36	±	0.16	62767761.20	±	0.84	8510	C	253/253
(4179)	1992	12	17	080000					63030108.90	±	1.13	2380	C	251/251
(4179)	1992	12	17	080000					63030108.90	±	1.13	8510	C	253/253
(4179)	1992	12	18	071000	-	572657.34	±	0.09	68800974.10	±	0.47	8510	C	253/253
(4179)	1992	12	18	080000					68989080.80	±	1.13	2380	C	251/251
(4179)	1992	12	19	074000	-	167522.91	±	0.06	74948572.00	±	1.13	2380	C	251/251
(4179)	1996	11	25	195000	+	335217.75	±	0.07	43021145.00	±	0.25	8510	C	253/252
(4179)	1996	11	26	180000	+	283557.37	±	0.07	40128415.10	±	0.25	8510	C	253/252
(4179)	1996	11	27	175000	+	206061.47	±	0.07	37686307.90	±	0.25	8510	C	253/252
(4179)	1996	11	28	173000	+	117850.31	±	0.07	36072841.50	±	0.25	8510	C	253/252
(4179)	1996	11	29	154000	+	36193.59	±	0.07	35385422.20	±	0.25	8510	C	253/252
(4179)	1996	11	30	144000	+	54016.24	±	0.07	35551769.80	±	0.25	8510	C	253/252
(4179)	1996	12	01	132000	-	135658.74	±	0.07	36572924.20	±	0.25	8510	C	253/252
(4179)	1996	12	02	131000	-	216056.68	±	0.07	38471794.20	±	0.25	8510	C	253/252
(4179)	1996	12	03	121000	-	276563.59	±	0.07	40997833.10	±	0.25	8510	C	253/252
(4197)	1996	10	23	071000	+	488339	±	5				8510	C	253/253
(4197)	1996	10	23	111000					89601609	±	13	8510	C	253/253
(4197)	1996	10	24	065000					86425022	±	13	8510	C	253/253
(4197)	1996	10	24	083000	+	275982	±	2				8510	C	253/253
(4197)	1996	10	24	102000					86017157	±	13	8510	C	253/253
(4197)	1996	10	28	170000					94450116	±	13	8510	C	253/253
(4769)	1989	08	21	065900	+	196833	±	2				2380	C	251/251
(4769)	1989	08	22	064500	+	173116.5	±	0.1	37453066.0	±	0.3	2380	C	251/251
(4769)	1989	08	22	070600					37361686	±	2	2380	C	251/251
(4769)	1989	08	30	193500	-	785297	±	8				8495	C	253/253
(4953)	1994	05	27	170000	+	217197.3	±	2.0				8510	S	253/253
(4953)	1994	05	28	140000	+	158792.8	±	2.0				8510	S	253/253
(6037)	1998	02	26	015000	+	537934.8	±	3.0				8510	C	253/253
(6037)	1998	02	26	231000	+	426740	±	3				8510	C	253/253
(6														

(6489)	1995 06 14 082500	—	312603.51	± 0.50			8510 S 253/255
(6489)	1995 06 14 083000	—	312814.01	± 0.40			8510 S 253/255
(6489)	1995 06 14 085000	—	313657.81	± 0.40			8510 S 253/255
(6489)	1995 06 14 085500	—	313869.29	± 0.50			8510 S 253/255
(6489)	1995 06 14 124000				43951930.9	± 0.2	8510 C 253/253
(6489)	1995 06 15 070000	—	340848.03	± 0.35			8510 S 253/255
(6489)	1995 06 15 073000	—	341954.70	± 0.35			8510 S 253/255
(6489)	1995 06 15 080000	—	343076.37	± 0.35			8510 S 253/255
(6489)	1995 06 15 083000	—	344204.22	± 0.35			8510 S 253/255
(6489)	1995 06 15 090000	—	345329.40	± 0.35			8510 S 253/255
(6489)	1995 06 15 093000	—	346442.72	± 0.35			8510 S 253/255
(6489)	1995 06 15 113000				47174607.7	± 0.2	8510 C 253/253
(7025)	1996 02 08 120000		71224168	± 15			8510 C 253/253
(7025)	1996 02 09 115000		71966302	± 15			8510 C 253/253
(7025)	1996 02 10 111000		72979024	± 15			8510 C 253/253
(7341)	1997 01 10 182000	+	3731	± 5			8510 C 253/253
(7341)	1997 01 11 191000				75008124	± 5	8510 C 253/253
(7341)	1997 01 20 051000				65524897	± 4	8510 C 253/253
(7341)	1997 01 23 045000				69284605.5	± 10.0	8510 C 253/253
(7822)	1996 08 26 141000	+	491117.6	± 0.5			8510 C 253/253
(7822)	1996 08 27 133000	+	299050.4	± 0.4			8510 C 253/253
(7822)	1996 08 28 123000	+	77608.1	± 0.8			8510 C 253/253
(7822)	1996 08 29 124000	—	171558.3	± 0.7			8510 C 253/253
(9856)	1991 09 04 214300	+	108192.3	± 1.0			2380 S 251/251
(9856)	1991 09 04 223600				59429989.3	± 2.0	2380 S 251/251
(9856)	1991 09 04 225000				59392933.7	± 0.4	2380 S 251/251
(9856)	1991 09 05 220800				56320461	± 4	2380 S 251/251
(10115)	1999 03 22 190000	+	256120.93	± 2.00			8560 C 253/253
(10115)	1999 03 22 202000				60196743	± 15	8560 C 253/253
(10115)	1999 03 23 172000	+	200657.15	± 2.00			8560 C 253/253
(10115)	1999 03 23 180000				58222201	± 13	8560 C 253/253
(10115)	1999 03 24 192000				56606774	± 10	8560 C 253/253
(10115)	1999 03 24 195000				56581684	± 6	8560 C 253/253
(10115)	1999 03 24 204000				56541351.5	± 3.0	8560 C 253/253
(10115)	1999 03 25 200000				55839294.5	± 3.0	8560 C 253/253
(10115)	1999 03 26 030000				55794584	± 3	8560 C 253/253
(10115)	1999 03 26 190000				55883749.2	± 3.0	8560 C 253/253

OBSERVATIONS OF MINOR PLANETS

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

010 Caussols

E. W. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium [elst@atmos.oma.be] (1)

M. Scardia, Osservatorio Astronomico di Brera, Succursale di S. Rocco, via E. Bianchi 46, I-22055 Merate, Italy [scardia@merate.mi.astro.it] (3)

Observers C. Pollas, D. Albanese, M. Scardia

Measurers E. W. Elst, M. Scardia

0.9-m Schmidt telescope

(1) 1977 DC₄, 6, 2, 30; 1991 FL₂, 3, 1, 0; 1992 DE₃, 3, 1, 0; 1993 DJ₁, 3, 1, 0; 1993 QQ₅, 3, 1, 0; 1993 XW₂, 3, 1, 0; 1994 AR₂, 2, 1, 0; 1994 CJ₁₆, 2, 1, 0; 1994 CO₁₆, 2, 1, 0; 1994 CV₁₇, 5, 2, 23; 1994 CC₁₈, 2, 1, 0; 1994 PG₂₄, 3, 1, 0; 1996 GU₈, 3, 1, 0; 1996 GK₁₇, 3, 1, 0; 1996 HU₃, 3, 1, 0; 1996 SV₇, 3, 1, 0; 1997 AW₁₈, 3, 1, 0; 1997 VU₆, 2, 1, 0; 1997 WA₈, 2, 1, 0; 1998 FS₇₅, 3, 1, 0; 1998 FL₁₀₃, 6, 2, 25; 1998 FQ₁₂₁, 2, 1, 0; 1998 GL₉, 3, 1, 0; 1998 QN₁₈, 6, 1, 0; 1998 QK₄₂, 3, 1, 0; 1998 QU₄₅, 3, 1, 0; 1998 RN₃₅, 6, 2, 1; 1998 RF₅₀, 3, 1, 0; 1998 RN₆₈, 3, 1, 0; 1998 RS₇₂, 3, 1, 0; 1998 SD₁₃₉, 3, 1, 0; 1998 UK₆, 2, 1, 0; 1998 UN₂₃, 5, 2, 11; 1999 AQ₂₁, 3, 1, 0; 1999 CG₈₁, 3, 1, 0; 1999 JP₁₃₀, 3, 1, 0; 2007 P-L, 2, 1, 0; 3024 T-1, 2, 1, 0; [120, 38, 0*, 1992/07/27–1996/02/17]

(3) 1991 FC₄, 3, 1, 0; 1997 UV₂, 3, 1, 0; 1998 VB₅, 3, 1, 0; [9, 3, 0*, 1994/01/17]

033 Tautenburg

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

1.3-m Schmidt telescope

PPM

1988 MH, 2, 1, 0; 1989 DC, 2, 1, 0; 1989 TP₁₄, 2, 1, 0; 1990 QQ₄, 2, 1, 0; 1991 GF₈, 2, 1, 0; 1992 HA, 2, 1, 0; 1993 FU₃₄, 2, 1, 0; 1993 FU₄₁, 2, 1, 0; 1993 TY₃₈, 2, 1, 0; 1994 CC₁₈, 2, 1, 0; 1994 WH₁, 2, 1, 0; 1995 BH, 2, 1, 0; 1995 BP, 2, 1, 0; 1995 BZ, 2, 1, 0; 1995 BO₃, 2, 1, 0; 1995 UA₄₅, 2, 1, 0; 1997 CR₁₉, 2, 1, 0; 1997 TC, 2, 1, 0; 1997 UU₁₀, 2, 1, 0; 1998 DA₂, 2, 1, 0; 1998 FR₅₈, 2, 1, 0; 1998 OP, 2, 1, 0; 1998 QK₆₃, 2, 1, 0; 1998 QR₇₇, 2, 1, 0; 1998 RX₃₂, 2, 1, 0; 1998 RP₅₈, 2, 1, 0; 1998 SP₁₁₅, 2, 1, 0; 1998 TX₂, 2, 1, 0; 1998 VG, 2, 1, 0; 1998 VQ₁₅, 2, 1, 0; 1998 WQ₆, 1, 1, 0; 1998 WC₈, 2, 1, 0; 1998 WU₁₀, 2, 1, 0; 1998 XP₁₁, 2, 1, 0; 1999 AR₃, 2, 1, 0; 1999 BW, 2, 1, 0; 1999 BH₁₄, 2, 1, 0; 1999 CV₅, 2, 1, 0; 1999 MF, 2, 1, 0; 2154 P-L, 2, 1, 0; 3072 T-2, 2, 1, 0; [81, 41, 0*, 1991/12/13–1995/10/26]

046 Kleť

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

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

Measurers M. Tichý, Z. Moravec

0.57-m $f/5.2$ reflector + CCD

USNO-SA2.0

1982 VL, 6, 2, 1; 1984 SY₁, 11, 3, 20; 1986 TH₃, 2, 1, 0; 1986 VW, 6, 2, 12; 1988 VN₅, 14, 5, 17; 1988 VM₉, 3, 1, 0; 1989 UX₄, 6, 2, 1; 1990 QD₇, 7, 2, 1; 1993 FF₇₆, 4, 1, 0; 1994 VU, 6, 1, 0; 1996 AH₁, 7, 2, 1; 1996 TL₉, 9, 3, 17; 1996 VJ₂, 9, 3, 20; 1996 VM₅, 6, 2, 1; 1996 XE₉, 10, 3, 3; 1997 AN₁₇, 6, 2, 6; 1997 EL₆, 6, 2, 2; 1997 US₉, 3, 1, 0; 1998 CY, 6, 2, 1; 1998 KC₅, 9, 3, 19; 1998 QG₄₉, 4, 1, 0; 1998 QR₅₂, 8, 2, 17; 1998 QO₁₀₅, 6, 1, 0; 1998 RO₄₉, 3, 1, 0; 1998 SE₂₂, 3, 1, 0; 1999 DK₃, 4, 1, 0; 1999 GK₄, 3, 1, 0; 1999 HF₁, 8, 2, 2; 1999 HX₂, 4, 1, 0; 1999 LY₅, 5, 1, 0; 1999 LF₆, 7, 2, 20; 1999 LO₂₈, 2, 1, 0; 1999 ML, 7, 2, 12; 1999 NA, 4, 2, 6; 1999 NC, 3, 1, 0; 1999 NZ₄, 4, 1, 0; 1999 NB₅, 6, 1, 0; 1999 NX₄₂, 5, 1, 0; 1999 ND₄₃, 8, 2, 4; 1999 OX, 8, 2, 7; 1999 OW₁, 4, 1, 0; 1999 OP₃, 7, 2, 4; 1999 OR₃, 24, 6, 20; 1999 OW₃, 4, 1, 0; 1999 PH *, 10, 3, 17; 1999 PJ *, 25, 7, 17; 1999 PV *, 23, 6, 14; 1999 PW *, 27, 7, 16; 1999 PX *, 22, 6, 14; 1999 PY *, 24, 6, 19; 1999 PJ₁, 21, 5, 16; 1999 PS₃, 11, 2, 10; 1999 PT₃, 6, 1, 0; 1999 PY₃, 4, 1, 0; 1999 PJ₄, 4, 1, 0; 1999 PL₄ *, 22, 6, 10; 1999 PA₅ *, 9, 2, 12; 1999 QQ *, 12, 2, 1; 1999 QR *, 22, 5, 4; 1999 QV₁, 10, 2, 1; 1999 QD₂, 8, 2, 1; (1131), 4, 1, 0; (3208), 3, 1, 0; (3337), 4, 1, 0; (4463), 3, 1, 0; (5290), 3, 1, 0; (6699), 4, 1, 0; (10235), 5, 1, 0; (11105), 3, 1, 0; (11144), 3, 1, 0; [569, 70, 10*, 1995/11/12–1999/08/26]

095 Crimean Astrophysical Observatory

G. R. Kastel', Institute for Theoretical Astronomy, Naberezhnaya Kutuzova 10, St. Petersburg 191187, Russia [kastel@ita.spb.su]

N. S. Chernykh, Crimean Astrophysical Observatory, Nauchnyj, UA-334413, Ukraine [nik@crao.crimea.ua]

Observer L. V. Zhuravleva

0.4-m $f/4$ double astrograph

PPM

1971 QO₁, 2, 1, 0; 1972 AU, 2, 1, 0; 1982 UW₁, 2, 1, 0; 1984 SO₄, 2, 1, 0; 1986 TS, 1, 1, 0; 1992 PC₃, 2, 1, 0; 1992 SO, 1, 1, 0; 1993 FS₆, 2, 1, 0; 1995 YH₁, 2, 1, 0; 1998 EB₁₂, 1, 1, 0; 1998 FT₅₃, 1, 1, 0; 1998 FC₅₉, 2, 1, 0; 1998 HV₇₈, 3, 2, 22; 1998 KE₅, 1, 1, 0; 1998 RK₇₂, 2, 1, 0; 1998 VG₁₅, 2, 1, 0; 1998 VZ₂₉, 1, 1, 0; 1998 XK, 2, 1, 0; 1998 XR₉₂, 2, 1, 0; 1999 AC₁₀, 2, 1, 0; 1999 CD₆₃, 2, 1, 0; [37, 21, 0*, 1991/08/17–1993/10/14]

097 Wise Observatory, Mitzpeh Ramon

A. Gal-Yam, Wise Observatory, Tel-Aviv University, IL-69978 Tel-Aviv, Israel [Avishay@wise1.tau.ac.il]

Observer A. Gal-Yam

Measurer I. Manulis

1.0-m $f/7$ reflector + CCD

USNO-A2.0

1999 NG₆₄, 3, 1, 0; [3, 1, 0*, 1999/07/08–1999/07/09]

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, F. Castellani, M. Tombelli, P. Antolini

Measurers F. Castellani, M. Tombelli, G. Forti

0.67-m $f/3.2$ Schmidt

1981 ES₂₈, 2, 1, 0; 1986 VW, 2, 1, 0; 1990 QA₆, 2, 1, 0; 1992 JH₃, 2, 1, 0; 1993 OP₃, 2, 1, 0; 1994 PE₃₃, 2, 1, 0; 1994 WJ, 2, 1, 0; 1994 WT, 2, 1, 0; 1994 WU, 2, 1, 0; 1996 BC₁, 2, 1, 0; 1996 TD₁₃, 2, 1, 0; 1997 YA₄, 2, 1, 0; 1998 FO₆₆, 2, 1, 0; 1998 OP, 2, 1, 0; 1998 QP₄₀, 2, 1, 0; 1998 QH₉₃, 2, 1, 0; 1998 TX₂₈, 2, 1, 0; 1998 UP₆, 2, 1, 0; 1998 VH₅, 2, 1, 0; 1998 VJ₅, 2, 1, 0; 1998 VO₆, 2, 1, 0; 1998 VU₂₉, 2, 1, 0; 1998 VY₂₉, 2, 1, 0; 1998 WQ₃, 2, 1, 0; 1999 CL₄₆, 2, 1, 0; [50, 25, 0*, 1994/01/18–1998/10/26]

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, M. Tombelli

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

0.40-m $f/5$ reflector + CCD

GSC

1995 EZ₇, 2, 1, 0; 1995 UP₆, 10, 3, 15; 1997 BG₉, 3, 1, 0; 1997 SL₁₇, 1, 1, 0; 1998 BP₂₄, 11, 3, 14; 1998 FO₅, 3, 1, 0; 1998 OM₁₃, 4, 1, 0; 1999 NF₆₄, 11, 3, 9; 1999 PJ₁, 4, 1, 0; 1999 QF *, 13, 3, 4; 1999 QJ, 4, 1, 0; (1064), 3, 1, 0; (7481), 4, 1, 0; (8596), 9, 2, 2; [82, 14, 1*, 1995/10/26–1999/08/21]

106 Črni vrh

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

Observers H. Mikuž, J. Skvarč

0.19-m $f/4$ Baker-Schmidt + CCD, 0.36-m $f/6.7$ Schmidt-Cassegrain + CCD

USNO-SA2.0

1973 QR₁, 3, 1, 0; 1978 QF₁, 3, 1, 0; 1978 TO₈, 3, 1, 0; 1978 VE₇, 3, 1, 0; 1981 EV₁₃, 3, 1, 0; 1982 SC, 3, 1, 0; 1983 RL, 3, 1, 0; 1986 QY₂, 3, 1, 0; 1986 RW₅, 3, 1, 0; 1987 BA₂, 3, 1, 0; 1988 EA₂, 3, 1, 0; 1988 RP₄, 2, 1, 0; 1988 RL₆, 3, 1, 0; 1988 VR₃, 3, 1, 0; 1990 XU, 2, 1, 0; 1991 GU₃, 3, 1, 0; 1991 NS₂, 3, 1, 0; 1991 RA₁, 3, 1, 0; 1991 RV₂, 3, 1, 0; 1991 RT₂₆, 3, 1, 0; 1991 RN₂₇, 3, 1, 0; 1992 WG₂, 3, 1, 0; 1993 DJ, 3, 1, 0; 1993 FQ₂₄, 3, 1, 0; 1993 KB₂, 3, 1, 0; 1993 OX₁₁, 3, 1, 0; 1994 AX₆, 3, 1, 0; 1995 GV, 3, 1, 0; 1995 QQ₃, 3, 1, 0; 1995 SL₂, 3, 1, 0; 1995 UG, 3, 1, 0; 1995 VT, 3, 1, 0; 1995 YH, 3, 1, 0; 1996 AG₂, 3, 1, 0; 1996 VZ₈, 3, 1, 0; 1996 XJ₁₉, 2, 1, 0; 1997 AE, 3, 1, 0; 1997 AG₂₁, 3, 1, 0; 1997 EO₇, 3, 1, 0; 1997 YA₈, 3, 1, 0; 1998 BJ₁₉, 3, 1, 0; 1998 BP₂₄, 3, 1, 0; 1998 DD₁₄, 3, 1, 0; 1998 FY₁₁, 3, 1, 0; 1998 FB₁₄, 3, 1, 0; 1998 FR₄₇, 3, 1, 0; 1998 FM₅₄, 3, 1, 0; 1998 FQ₆₉, 3, 1, 0; 1998 FH₇₁, 3, 1, 0; 1998 FZ₉₇, 3, 1, 0; 1998 FC₁₁₁, 6, 2, 3; 1998 FH₁₁₅, 3, 1, 0; 1998 FT₁₁₅, 3, 1, 0; 1998 FY₁₁₆, 3, 1, 0; 1998 FE₁₁₈, 3, 1, 0; 1998 FK₁₂₆, 3, 1, 0; 1998 GK₁, 3, 1, 0; 1998 HQ₅₁, 3, 1, 0; 1998 HE₁₀₀, 3, 1, 0; 1998 JC₄, 3, 1, 0; 1998 KW₇, 3, 1, 0; 1999 KG₄, 3, 1, 0; 1999 LH₆, 4, 2, 2; 1999 LO₇, 2, 1, 0; 1999 NF₅, 9, 3, 4; 1999 NS₈, 9, 3, 3; 1999 NV₈, 11, 4, 7; 1999 OC, 3, 1, 0; 1999 OO, 8, 3, 21; 1999 PN₃ *, 12, 4, 11; 1999 QB₂ *, 6, 2, 1; 2053 P-L, 3, 1, 0; 4071 P-L, 3, 1, 0; 9547 P-L, 3, 1, 0; 1005 T-2, 3, 1, 0; 3105 T-3, 3, 1, 0; (112), 3, 1, 0; (122), 6, 2, 1; (125), 3, 1, 0; (169), 3, 1, 0; (468), 3, 1, 0; (470), 3, 1, 0; (485), 3, 1, 0; (491), 3, 1, 0; (604), 3, 1, 0; (743), 3, 1, 0; (1370), 3, 1, 0; (1382), 3, 1, 0; (1469), 3, 1, 0; (1689), 3, 1, 0; (1725), 3, 1, 0; (2241), 3, 1, 0; (2262), 3, 1, 0; (2463), 3, 1, 0; (2622), 6, 2, 1; (2709), 5, 2, 1; (3868), 3, 1, 0; (4231), 3, 1, 0; (6773), 3, 1, 0; (7295), 3, 1, 0; (8577), 3, 1, 0; (11014), 3, 1, 0; (11023), 3, 1, 0; (11055), 3, 1, 0; (11160), 9, 3, 4; (11171), 3, 1, 0; (11184), 3, 1, 0; [372, 107, 2*, 1999/07/31–1999/08/23]

107 Cavezzo

M. Nicolini, via C. Battisti 48, I-41032 Carpi (MO), Italy [mnico@iol.it]

Observers M. Nicolini, P. Negrelli

Measurer M. Nicolini

0.40-m $f/5.5$ reflector + CCD

GSC

1999 NF₂₃, 3, 1, 0; (8632), 2, 1, 0; [5, 2, 0*, 1996/10/04–1999/08/18]

108 Montelupo

M. Tombelli, Via Bozzeto 26, I-50056 Montelupo (Fi), Italy
[iau@arcetri.astro.it]

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

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

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

GSC

1995 UP₆, 3, 1, 0; 1997 BG₉, 3, 1, 0; 1998 YP₁₁, 2, 1, 0; 1999 HX₂, 4, 1, 0; 1999 ML, 3, 1, 0; 1999 ND₄₃, 7, 2, 5; 1999 PJ₁, 5, 2, 5; 1999 PT₃, 3, 1, 0; (699), 3, 1, 0; (2934), 2, 1, 0; (3208), 3, 1, 0; (3868), 3, 1, 0; (4800), 2, 1, 0; (7196), 3, 1, 0; (7481), 3, 1, 0; [49, 15, 0*, 1999/08/13–1999/08/23]

112 Osservatorio Pleiade

P. Antolini, Via Bertoldi 84, I-37026 Settimo di Pescantina (Verona), Italy
[flacaste@tin.it]

Observers P. Antolini, F. Castellani

0.60-m $f/3.0$ reflector + CCD

GSC

1978 VD₉, 3, 1, 0; 1999 NZ₁₀, 3, 1, 0; [6, 2, 0*, 1995/12/09–1997/01/11]

113 Volkssternwarte Drebach, Schönbrunn

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

[g.lehmann@abo.freiepresse.de]

Observers G. Lehmann, J. Kandler

Measurer G. Lehmann

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

USNO-A2.0

1973 UK₅, 3, 1, 0; 1988 RJ₃, 4, 2, 3; 1988 RM₃, 4, 2, 3; 1988 RW₃, 2, 1, 0; 1990 TZ₁, 2, 1, 0; 1990 TF₁₃, 2, 1, 0; 1992 SQ₂₃, 2, 1, 0; 1992 UP₈, 4, 1, 0; 1993 SK₃, 2, 1, 0; 1994 GE₁₀, 2, 1, 0; 1994 UZ₁₂, 4, 2, 3; [31, 11, 0*, 1999/08/19–1999/08/22]

118 Modra

A. Galád, AGO MFF UK, P.O. Box 4, SK-90001 Modra, Slovakia
[ago@fmph.uniba.sk]

Observers A. Galád, D. Kalmančok, P. Kolény, J. Tóth, Š. Gajdoš

0.57-m $f/5.2$ reflector + CCD

USNO-A2.0

1996 AD₂, 5, 2, 3; 1996 YM, 3, 1, 0; 1997 EN₇, 3, 1, 0; 1997 US₉, 5, 2, 16; 1998 HF₃, 9, 4, 15; 1998 KK₁₇, 2, 1, 0; 1998 QL₃₀, 3, 1, 0; 1998 QR₅₂, 6, 3, 20; 1998 QS₅₂, 2, 1, 0; 1998 TU₃, 2, 1, 0; 1998 YP₁₁, 3, 2, 7; 1999 DK₃, 2, 1, 0; 1999 GK₄, 2, 1, 0; 1999 HF₁, 4, 2, 4; 1999 HW₂, 7, 3, 13; 1999 HX₂, 8, 4, 27; 1999 JD₈, 2, 1, 0; 1999 LO₂₈, 8, 4, 15; 1999 ML, 2, 1, 0; 1999 NZ₄, 7, 3, 24; 1999 NX₄₂, 2, 1, 0; 1999 ND₄₃, 6, 2, 17; 1999 OW, 14, 6, 27; 1999 OP₃, 9, 3, 19; 1999 OR₃, 21, 8, 16; 1999 PJ₁, 9, 3, 11; 1999 PS₃, 3, 1, 0; 1999 PT₃, 3, 1, 0; 1999 QJ, 3, 1, 0; 1999 QV₁, 3, 1, 0; 1999 QD₂, 7, 2, 1; (1342), 2, 1, 0; (1362), 4, 2, 9; (1846), 4, 2, 2; (2895), 2, 1, 0; (3200), 5, 2, 2; (3208), 2, 1, 0; (3363), 2, 1, 0; (3581), 8, 4, 28; (3966), 2, 1, 0; (4006), 6, 2, 2; (4546), 2, 1, 0; (4667), 2, 1, 0; (4867), 2, 1, 0; (4884), 2, 1, 0; (5290), 2, 1, 0; (7304), 2, 1, 0; (7562), 5, 2, 2; (7628), 2, 1, 0; (7766), 2, 1, 0; (7803), 2, 1, 0; (8289), 2, 1, 0; (8315), 2, 1, 0; (11118), 3, 1, 0; [232, 54, 0*, 1996/01/21–1999/08/25]

120 Višnjan

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

Observers K. Korlević, A. Ritoso, B. Lukic, M. Jurić, T. Pilizota, E. Pettarin,
W. Boschin, A. Toso, M. Spolaor, G. Lombardi

Measurer K. Korlević

0.41-m $f/4.3$ reflector + CCD

USNO-SA1.0

1978 VD₈, 2, 1, 0; 1994 PU₃₂, 2, 1, 0; 1994 VE₁, 2, 1, 0; 1994 VL₇, 3, 1, 0; 1996 ED₂, 2, 1, 0; 1997 PD₅, 2, 1, 0; 1997 TU₁₈, 3, 1, 0; 1998 QW₂₃, 3, 1, 0; 1998 RF₁, 6, 1, 0; 1998 RO₃₈, 3, 1, 0;

1998 SY₂₅, 2, 1, 0; 1998 SA₅₆, 3, 1, 0; 1998 SN₁₀₈, 2, 1, 0; 1998 SO₁₂₄, 3, 1, 0; 1998 UV₂₄, 2, 1, 0; 1998 UZ₂₈, 2, 1, 0; 1998 WJ₉, 2, 1, 0; 1998 WH₁₂, 2, 1, 0; 1998 WJ₁₂, 2, 1, 0; 1998 XX₈, 2, 1, 0; 1998 XS₉, 2, 1, 0; 1998 XE₁₃, 2, 1, 0; [54, 22, 0*, 1998/08/26–1999/02/19]

121 Kharkov University, Chuguevskaya Station

Yu. N. Krugly, Astronomical Observatory, Kharkov State University, Sumska

Street 35, Kharkov 310022, Ukraine [krugly@astron.kharkov.ua] (1)

V. G. Shevchenko, Astronomical Observatory, Kharkov State University, Sumska

Street 35, Kharkov 310022, Ukraine [krugly@astron.kharkov.ua] (2)

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

0.70-m $f/4$ reflector + CCD

GSC

(1) 1999 CV₃, 9, 3, 9; 1999 JM₈, 6, 2, 9; (125), 3, 1, 0; (516), 3, 1, 0; [21, 4, 0*, 1999/08/15–1999/08/29]

(2) (954), 14, 3, 2; (1279), 3, 1, 0; [17, 2, 0*, 1999/08/20–1999/08/23]

122 Pises Observatory

J. Blanc, 6 Bd du General de Gaulle, 91210 Draveil, France [jhbblanc@fr.ibm.com]

Observers J. Blanc, A. Irlande, A. Jacquey, R. Poncy

Measurer J. Blanc

0.40-m $f/4.7$ reflector + CCD

USNO-SA1.0, GSC

1998 FL₇₁, 4, 1, 0; 1999 OM₃, 2, 1, 0; [6, 2, 0*, 1998/04/28–1999/07/23]

126 Monte Viseggi

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

[mc7316@mcmlink.it]

Observers P. Pietrapiana, G. Bonatti, L. Martini

Measurer P. Pietrapiana

0.40-m $f/5$ reflector + CCD

GSC

1999 OC₁, 4, 2, 7; [4, 1, 0*, 1999/08/06–1999/08/13]

127 Bornheim

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

0.19-m $f/4$ FFC + CCD

GSC

1988 TW₂, 4, 2, 1; 1993 KB₂, 4, 2, 3; 1995 MB, 5, 2, 1; 1999 KF₄, 6, 3, 5; 1999 KQ₄, 5, 2, 4; 1999 KK₆, 4, 2, 4; 1999 NT₁, 5, 2, 1; (875), 5, 2, 3; (11055), 4, 2, 2; (11171), 6, 3, 5; [48, 10, 0*, 1999/07/24–1999/08/02]

130 Lumezzane

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

Observers G. Pizzetti, W. Marinello, L. Cocca

Measurer G. Pizzetti

0.40-m $f/4$ reflector + CCD

USNO-A1.0

(3873), 4, 1, 0; (5585), 3, 1, 0; [7, 2, 0*, 1999/07/24–1999/08/05]

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

(1438), 3, 1, 0; (2981), 3, 1, 0; [6, 2, 0*, 1999/07/15]

138 Village-Neuf

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

[Sky.walker@wanadoo.fr]

0.30-m $f/4$ reflector + CCD

GSC

1999 MB₂, 5, 1, 0; 1999 NH₃, 3, 1, 0; (1554), 2, 1, 0; (8828), 3, 1, 0; [13, 4, 0*, 1999/08/18–1999/08/21]

143 Gnosca

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

0.20-m $f/7.1$ reflector + CCD

GSC

1997 GJ₈, 3, 1, 0; 1999 NX₄, 6, 2, 1; 1999 OB₁, 5, 2, 3; 1999 OT₃, 3, 1, 0; 1999 QN *, 5, 2, 3; 1999 QQ₁ *, 5, 2, 1; 1999 QT₁ *, 6, 2, 1; 1999 QU₁ *, 6, 2, 1; (1367), 4, 1, 0; [43, 9, 4*, 1999/07/23–1999/08/22]

151 Eschenberg Observatory, Winterthur

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

[griesser@spectraweb.ch]

0.25-m $f/8.0$ reflector + CCD

GSC

1988 RJ₃, 5, 1, 0; 1988 RM₃, 7, 2, 1; 1994 UZ₁₂, 7, 2, 1; 1998 YP₁₁, 10, 3, 14; 1999 CV₃, 7, 2, 26; 1999 HF₁, 33, 8, 34; 1999 HX₂, 21, 6, 31; 1999 JM₈, 6, 2, 19; 1999 LO₂₈, 7, 2, 4; 1999 PJ₁, 19, 5, 16; (186), 7, 2, 18; (193), 3, 1, 0; (375), 3, 2, 4; (699), 18, 5, 28; (1282), 3, 1, 0; (1342), 11, 3, 28; (1362), 4, 1, 0; (1685), 2, 1, 0; (1863), 3, 1, 0; (2060), 2, 1, 0; (2917), 3, 1, 0; (3581), 17, 5, 32; (7628), 10, 3, 32; (8289), 5, 2, 27; [213, 24, 0*, 1998/10/02–1999/08/29]

159 Monte Agliale

S. Donati, Monte Agliale Astronomical Observatory, Borgo a Mozzano, Lucca,

Italy [ilra@comune.lucca.it]

Observers M. M. M. Santangelo, S. Donati, G. Cavalletti

Measurers M. M. M. Santangelo, S. Donati

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

USNO-A1.0

1991 RT₂₆, 4, 1, 0; 1999 PL *, 34, 5, 12; 1999 QE *, 25, 4, 4; (5584), 5, 1, 0; (6930), 5, 1, 0; [73, 5, 2*, 1999/08/05–1999/08/21]

165 Piera Observatory, Barcelona

J. Guarro, Balmes 2, 08784 Piera, Barcelona, Spain

[jguarro@astro.gea.cesca.es]

0.40-m $f/2$ Schmidt + CCD

GSC

1984 SY₁, 3, 1, 0; (999), 7, 2, 1; (2490), 2, 1, 0; (3503), 5, 1, 0; (5438), 3, 1, 0; (6169), 4, 1, 0; [24, 6, 0*, 1999/08/13–1999/08/15]

292 Burlington

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

0.30-m Schmidt-Cassegrain + focal reducer + CCD

GSC

1998 QL₂₄, 2, 1, 0; 1998 YE₁, 2, 1, 0; 1999 EQ₄, 2, 1, 0; [6, 3, 0*, 1995/11/26–1996/09/21]

303 Mérida

O. Naranjo, Dept. de Física, Universidad de los Andes, Mérida 5101, Venezuela

[naranjo@ciens.ula.ve]

1.0-m Schmidt

1977 XZ₂, 3, 1, 0; 1998 FO₅₄, 1, 1, 0; [4, 2, 0*, 1994/02/08–1994/02/10]

322 Perth Observatory, Bickley-MCT

J. Biggs, Perth Observatory, Bickley, WA 6076, Australia
[jamieb@calm.wa.gov.au]

0.25-m $f/4.5$ reflector + CCD

GSC

1976 UP₂, 5, 2, 2; 1998 EB₁₂, 3, 1, 0; 1999 HX₂, 2, 1, 0; 1999 JO₈, 15, 4, 26; 1999 LN₂₈, 3, 1, 0; 1999 OS₃ *, 22, 6, 26; (1195), 3, 1, 0; (5357), 3, 1, 0; (8737), 3, 1, 0; [59, 9, 1*, 1999/07/24–1999/08/19]

327 Peking Observatory, Xinglong Station

J. Zhu, Peking Astronomical Observatory, Chinese Academy of Sciences,
Zhongguancun, Peking 100101, Peoples Republic of China

[zj@bac.pku.edu.cn]

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

0.60-m Schmidt + CCD

1977 CP, 3, 1, 0; 1989 TN₁₁, 3, 1, 0; 1990 RH₃, 3, 1, 0; 1990 RJ₅, 4, 1, 0; 1990 SC₁₁, 3, 1, 0; 1991 PM₄, 3, 1, 0; 1992 EU₂₈, 7, 2, 62; 1993 FA₃₇, 4, 1, 0; 1993 FC₃₇, 3, 1, 0; 1995 SQ₃, 3, 1, 0; 1996 BM₁₇, 3, 1, 0; 1997 AS₅, 6, 2, 22; 1997 BY₇, 3, 1, 0; 1998 DW₁₁, 7, 2, 29; 1998 DK₃₄, 3, 1, 0; 1998 FC, 6, 1, 0; 1998 FP₆₀, 3, 1, 0; 1998 FZ₈₃, 3, 1, 0; 1998 FH₁₀₆, 3, 1, 0; 1998 FL₁₁₇, 3, 1, 0; 1998 HP₅₂, 3, 1, 0; 1998 HH₁₄₆, 4, 1, 0; 1998 QH₁₁, 3, 1, 0; 1998 QY₃₀, 3, 1, 0; 1998 RH₆₃, 2, 1, 0; 1998 SG₁₁₆, 3, 1, 0; 1998 SV₁₄₁, 3, 1, 0; 1998 SN₁₅₆, 9, 2, 11; 1998 UZ₆, 3, 1, 0; 1998 UV₃₅, 3, 1, 0; 1998 VX₁₈, 3, 1, 0; 1998 YS, 9, 1, 0; 1999 AX, 3, 1, 0; 1999 AZ₃, 6, 2, 56; 1999 BP₅, 3, 1, 0; 1999 CJ₅, 3, 1, 0; 1999 CJ₅₁, 6, 2, 45; 1999 CA₅₂, 6, 2, 49; 1999 CU₁₂₆, 3, 1, 0; 1999 DP₇, 3, 1, 0; 1999 FO₂₉, 6, 2, 68; 1999 GH₁₈, 4, 1, 0; 1999 GG₂₃, 7, 2, 24; 1999 HO, 3, 1, 0; 1999 JK, 3, 1, 0; 1999 JZ₅, 3, 1, 0; 1999 JF₁₁, 7, 2, 4; 1999 JF₁₉, 3, 1, 0; 1999 JU₂₃, 6, 2, 33; 1999 JX₃₁, 3, 1, 0; 1999 JA₄₀, 3, 1, 0; 1999 JO₅₈, 7, 2, 44; 1999 JJ₆₀, 4, 1, 0; 1999 JQ₆₃, 3, 1, 0; 1999 JU₇₉, 5, 2, 17; 1999 JX₈₁, 3, 1, 0; 1999 JU₈₄, 4, 1, 0; 1999 JA₉₉, 3, 1, 0; 1999 JP₁₁₃, 3, 1, 0; 1999 JV₁₂₀, 6, 2, 23; 1999 KP₂, 3, 1, 0; 1999 LG₂₇, 3, 1, 0; 1999 NQ₉, 3, 1, 0; 1999 NZ₁₀, 6, 2, 21; 1999 NO₂₃, 3, 1, 0; 1999 PG, 3, 1, 0; 2089 P-L, 3, 1, 0; 2097 P-L, 3, 1, 0; 4158 P-L, 3, 1, 0; 4271 P-L, 3, 1, 0; 4626 P-L, 3, 1, 0; 1074 T-2, 4, 1, 0; 3086 T-2, 2, 1, 0; 4153 T-2, 3, 1, 0; [288, 74, 0*, 1995/09/23–1998/12/09]

358 Nanyou

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

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

GSC

1999 JQ₁₅, 3, 1, 0; 1999 OU₃ *, 11, 5, 23; 1999 PT₄ *, 10, 5, 14; [24, 3, 2*, 1999/05/21–1999/08/22]

360 Kuma Kogen Astronomical Observatory

A. Nakamura, Shimo-Hatanokawa, Kuma, Kamiukena-Gun, Ehime-Ken, 791-1212
Japan [a-nakamu@mx2.nisiq.net]

0.60-m $f/5.8$ Ritchey-Chrétien + CCD

GSC-ACT, USNO-A2.0

1995 GN, 3, 1, 0; 1995 SO₂, 5, 2, 1; 1995 YZ₁, 3, 1, 0; 1998 CA₁, 2, 1, 0; 1998 DB₁₃, 3, 1, 0; 1998 QR₅₂, 3, 1, 0; 1998 YN₁, 3, 1, 0; 1998 YP₁₁, 3, 1, 0; 1999 LM₁, 4, 1, 0; 1999 LO₂₈, 3, 1, 0; 1999 NZ₄, 3, 1, 0; 1999 NC₅, 2, 1, 0; 1999 OR₃, 3, 1, 0; 1999 PM₄ *, 7, 2, 2; [47, 14, 1*, 1999/05/13–1999/08/15]

367 Yatsuka

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

[abehiro@daikonshima.or.jp]

0.26-m $f/6.0$ reflector + CCD

GSC

1995 XJ₁, 3, 1, 0; 1995 YH, 3, 1, 0; 1996 YM, 3, 1, 0; 1997 AE, 3, 1, 0; 1998 BN₁₆, 2, 1, 0; 1998 BN₂₅, 3, 1, 0; (11131), 3, 1, 0; [20, 7, 0*, 1999/05/11–1999/07/15]

372 Geisei

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

0.60-m $f/3.5$ reflector

GSC

(1863), 5, 3, 2; [5, 1, 0*, 1999/08/12–1999/08/14]

376 Uenohara

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

0.30-m reflector + CCD

GSC

1991 GW, 2, 1, 0; 1992 UN₂, 4, 2, 3; 1999 NY₄₁, 5, 2, 3; 1999 PQ₄ *, 9, 4, 11; [20, 4, 1*, 1999/08/08–1999/08/19]

381 Kiso

D. J. Asher, Communications Research Laboratory, Hirai 893-1, Kashima, Ibaraki-Ken, 314 Japan [david@crl.go.jp]

Observers S. Isobe, Y. Asakura, M. Saito, K. Sasahara, H. Maehara, K. Nakajima, N. Ohshiba

Measurer D. J. Asher

1.05-m Kiso Schmidt + CCD

GSC

1997 MD₈, 2, 1, 0; [2, 1, 0*, 1994/10/15]

385 Nihondaira Observatory

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

[urata@sannet.ne.jp]

0.31-m $f/4.0$ reflector + CCD

GSC-1.1, USNO-A2.0

1989 SD₃, 2, 1, 0; 1991 FY, 3, 1, 0; 1997 EQ₂₅, 3, 1, 0; 1998 DK₁, 6, 2, 3; 1998 EK₈, 3, 1, 0; 1998 GZ, 5, 2, 1; 1999 JF₆, 2, 1, 0; 1999 LA₂, 3, 1, 0; 1999 NT, 2, 1, 0; 1999 NR₇, 5, 2, 3; 1999 OV₃ *, 2, 1, 0; 1999 PQ₁, 4, 2, 3; 1999 QW₁ *, 4, 3, 43; 1999 QX₁ *, 5, 2, 1; 1999 QY₁ *, 4, 2, 1; [53, 15, 4*, 1999/07/09–1999/08/22]

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

1995 SL₂, 2, 1, 0; 1998 RE, 2, 1, 0; [4, 2, 0*, 1993/02/25–1995/05/05]

402 Dynic Astronomical Observatory

A. Sugie, Dynic Astronomical Observatory, Taga 283-1, Taga, Inukami-Gun, Shiga-Ken, 522-0341 Japan [hhf00201@niftyserve.or.jp]

Observers A. Sugie, Y. Ikari

0.60-m $f/5.0$ reflector + CCD

GSC

1989 UR, 3, 1, 0; 1992 JG, 3, 1, 0; 1998 QR₅₂, 4, 1, 0; 1998 QS₅₂, 2, 1, 0; 1998 RO₁, 3, 1, 0; 1999 CV₃, 3, 1, 0; 1999 GE₂, 4, 1, 0; 1999 HX₂, 3, 1, 0; 1999 JD₈, 3, 1, 0; 1999 JM₈, 3, 1, 0; 1999 LF₆, 6, 2, 22; 1999 LO₂₈, 3, 1, 0; 1999 ML, 9, 3, 23; 1999 NW₂, 3, 1, 0; 1999 NZ₄, 6, 2, 21; 1999 NC₅, 3, 1, 0; 1999 ND₄₃, 3, 1, 0; 1999 OP₃, 18, 5, 30; 1999 OQ₃, 11, 3, 29; 1999 OR₃, 4, 1, 0; 1999 OT₃, 10, 2, 7; 1999 OW₃, 3, 1, 0; 1999 PJ₁, 8, 3, 10; 1999 PS₃, 3, 1, 0; 1999 QJ, 3, 1, 0; [124, 25, 0*, 1999/04/08–1999/08/22]

413 Siding Spring

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

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

A. Boattini, Istituto di Astrofisica Spaziale, Via Fosso del Cavaliere, I-00133 Rome, Italy [boattini@ias.rm.cnr.it] (6)

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

Observers R. H. McNaught, K. S. Russell

Measurers R. H. McNaught, G. J. Garradd, O. Hernius, A. Gnädig, A. Boattini

1.2-m U.K. Schmidt, 1.0-m $f/8$ reflector + CCD

USNO-SA2.0, USNO-A2.0, GSC-ACT, PPM

(1) 1979 MP₃, 4, 2, 1; 1985 RG₃, 1, 1, 0; 1990 QP₆, 1, 1, 0; 1992 JG₇, 2, 1; 1992 NA₅, 5, 2, 1; 1993 DC₆, 3, 18; 1993 UQ₅, 3, 1, 0; 1993 XN₂, 2, 1, 0; 1994 EO₂, 2, 1, 0; 1994 PP₃₉, 3, 1, 0; 1995 QQ₂, 2, 1, 0; 1995 QX₉, 5, 3, 18; 1995 UX₁, 5, 2, 1; 1995 UB₄, 5, 2, 1; 1995 YV₃, 2, 1, 0; 1998 AK₈, 4, 2, 1; 1998 KC₂, 3, 1, 0; 1998 KE₃, 6, 2, 3; 1998 PF₅, 5, 2, 1; 1998 QV₁₂, 1, 1, 0; 1998 QR₅₂, 2, 1, 0; 1998 QS₅₂, 3, 2, 1; 1998 RO₁, 3, 1, 0; 1998 WM₄, 4, 2, 1; 1998 WQ₅, 5, 2, 1; 1998 WZ₆, 2, 1, 0; 1998 XS₁₆, 3, 1, 0; 1999 AR₇, 3, 1, 0; 1999 BJ₈, 11, 5, 49; 1999 BY₉, 2, 1, 0; 1999 CU₃, 2, 1, 0; 1999 CW₈, 5, 2, 33; 1999 CR₁₂₈, 6, 2, 1; 1999 DJ₄, 5, 2, 30; 1999 DB₇, 3, 2, 1; 1999 ED₅, 4, 2, 1; 1999 FP₁₉, 2, 1, 0; 1999 FQ₃₂, 2, 1, 0; 1999 FN₅₃, 4, 2, 30; 1999 GJ₂, 6, 2, 1; 1999 GS₃, 5, 2, 1; 1999 GY₃, 2, 1, 0; 1999 GJ₄, 3, 1, 0; 1999 GK₄, 6, 3, 21; 1999 GT₆, 2, 1, 0; 1999 HE₁, 6, 2, 1; 1999 HX₁, 4, 2, 1; 1999 JD₆, 2, 1, 0; 1999 JO₆, 2, 1, 0; 1999 JW₆, 5, 2, 1; 1999 JD₈, 2, 1, 0; 1999 JO₈, 2, 1, 0; 1999 JG₂₉, 4, 2, 1; 1999 KK₁, 2, 1, 0; 1999 KU₄, 2, 1, 0; 1999 KQ₆, 2, 1, 0; 1999 LT₁, 6, 4, 34; 1999 LE₆, 3, 1, 0; 1999 LV₇, 2, 1, 0; 1999 LO₈, 3, 1, 0; 1999 LQ₂₈, 4, 2, 1; 1999 LD₃₀, 4, 2, 36; 1999 LD₃₁, 5, 2, 33; 1999 LE₃₁, 2, 1, 0; 1999 ML₄, 4, 2, 32; 1999 NA₅, 2, 1, 0; 1999 NB₅, 4, 2, 1; 1999 NC₅, 2, 1, 0; 1999 NC₄₃, 4, 2, 1; 1999 ND₄₃, 2, 1, 0; 1999 OP₃, 6, 3, 20; 1999 OQ₃, 4, 2, 1; 1999 OR₃, 6, 3, 20; 1999 OW₃, 2, 1, 0; 1999 PK₂, 2, 1, 0; 1999 PJ₁, 2, 1, 0; 1999 PL₁ *, 4, 2, 2; 1999 PM₁ *, 13, 5, 32; 1999 PN₁ *, 4, 2, 2; 1999 PO₁ *, 4, 2, 2; 1999 QJ *, 12, 4, 4; (186), 4, 2, 1; (2047), 2, 1, 0; (2201), 2, 1, 0; (2229), 4, 2, 3; (2925), 2, 1, 0; (3156), 1, 1, 0; (3753), 2, 1, 0; (3922), 4, 2, 1; (4667), 4, 2, 1; (4813), 2, 1, 0; (4828), 4, 2, 3; (4953), 3, 2, 30; (5786), 3, 1, 0; (6491), 2, 1, 0; (7456), 6, 3, 20; (7554), 4, 2, 3; (8259), 3, 2, 1; (8287), 2, 1, 0; (8315), 2, 1, 0; (8579), 4, 2, 3; (8947), 4, 2, 3; (9461), 4, 2, 3; (10860), 4, 2, 1; (11184), 2, 1, 0; [379, 105, 5*, 1983/07/16–1999/08/22]

(5) 1973 SN₁, 2, 1, 0; 1982 SZ₂, 2, 1, 0; 1988 RM₁₁, 2, 1, 0; 1988 RH₁₃, 6, 3, 63; 1988 SK₂, 5, 3, 87; 1988 SL₃, 4, 2, 4784; 1989 TX₁₁, 2, 1, 0; 1991 FB₁, 1, 1, 0; 1992 JG₂, 2, 1, 0; 1993 OV₁, 2, 1, 0; 1994 XZ₄, 2, 1, 0; 1995 SC₂, 2, 1, 0; 1996 TW₁, 1, 1, 0; 1997 GO₂₄, 4, 2, 30; 1997 SE₅, 2, 1, 0; 1997 TS₂₅, 4, 2, 24; 1997 VV₁, 2, 1, 0; 1997 WW₇, 2, 1, 0; 1998 AK₈, 2, 1, 0; 1998 FC₂, 2, 1, 0; 1998 TL₁₅, 2, 1, 0; 1998 TG₁₆, 4, 2, 3105; 1998 UV₃₅, 2, 1, 0; 1998 VO₃₂, 4, 2, 3337; 1998 XT₃, 4, 2, 4726; 1998 XZ₈, 2, 1, 0; 1998 XR₉, 2, 1, 0; 1998 XE₁₃, 2, 1, 0; 1998 XZ₇₇, 6, 3, 3105; 1998 XX₉₃, 7, 4, 4732; 1998 YS₂, 4, 2, 1, 0; 1998 YK₁, 4, 2, 443; 1998 YT₅, 2, 1, 0; 1998 YP₁₁, 2, 1, 0; 1999 CV₃, 4, 2, 1508; 1999 CJ₅, 4, 2, 1; 1999 FG₃₂, 2, 1, 0; 1999 GW₂, 2, 1, 0; 1999 GG₆, 4, 2, 1411; 1999 HO₄, 2, 919; 1999 JU₈₄, 2, 1, 0; 1999 KP₂, 2, 1, 0; 1999 NC₅, 2, 1, 0; 2097 P-L, 2, 1, 0; 4139 P-L, 4, 2, 2749; 4158 P-L, 4, 2, 88; 4271 P-L, 4, 3, 51; 4655 P-L, 4, 2, 1648; 2273 T-2, 4, 2, 1744; 3162 T-2, 2, 1, 0; 4101 T-3, 1, 1, 0; (193), 4, 2, 2807; (361), 4, 2, 1; (617), 2, 1, 0; (687), 2, 1, 0; (1282), 3, 2, 5346; (1367), 2, 1, 0; (1709), 2, 1, 0; (1935), 2, 1, 0; (2039), 2, 1, 0; (2277), 2, 1, 0; (2382), 2, 1, 0; (2428), 2, 1, 0; (2469), 2, 1, 0; (2670), 1, 1, 0; (2825), 2, 1, 0; (2917), 1, 1, 0; (3041), 2, 1, 0; (3109), 4, 2, 2485; (3150), 1, 1, 0; (3156), 2, 1, 0; (3363), 3, 2, 3274; (3632), 4, 2, 1414; (3922), 4, 3, 101; (3939), 2, 1, 0; (3951), 4, 3, 2507; (4546), 4, 2, 2003; (4561), 2, 1, 0; (4667), 3, 2, 3251; (4805), 2, 2, 1592; (4813), 2, 1, 0; (5152), 2, 1, 0; (5196), 2, 1, 0; (7103), 4, 2, 1746; (7495), 6, 3, 1366; (7536), 1, 1, 0; (7547), 4, 2, 3744; (7661), 2, 1, 0; (7681), 2, 1, 0; (7682), 4, 2, 2354; (7766), 1, 1, 0; (7790), 3, 2, 3607; (7803), 2, 1, 0; (7845), 4, 2, 439; (8136), 2, 1, 0; (8277), 4, 2, 2; (8311), 4, 2, 964; [268, 97, 0*, 1976/05/27–1996/04/15]

(6) 1996 BZ₃, 2, 1, 0; 1996 PG₁, 2, 1, 0; 1998 PA₁, 2, 1, 0; [6, 3, 0*, 1982/11/13–1991/03/25]

(8) 1982 VS₂, 1, 1, 0; 1984 WJ₁, 1, 1, 0; 1987 QT₁, 1, 1, 0; 1987 UX₁, 1, 1, 0; 1990 QQ₄, 1, 1, 0; 1993 FQ₁₆, 1, 1, 0; 1993 FQ₂₁, 1, 1, 0; 1993 FX₂₁, 1, 1, 0; 1993 FN₂₂, 1, 1, 0; 1993 FF₃₃, 1, 1, 0; 1993 FF₃₆, 1, 1, 0; 1993 FE₃₈, 1, 1, 0; 1993 FQ₃₈, 1, 1, 0; 1993 FE₄₂, 1, 1, 0; 1993 FL₈₃, 1, 1, 0; 1994 PU₁, 1, 1, 0; 1994 PY₁₉, 1, 1, 0; 1994 RT₁₁, 1, 1, 0; 1995 YL₃, 1, 1, 0; 1996 BR₁, 1, 1, 0; 1996 BT₁, 1, 1, 0; 1996 CX₂, 1, 1, 0; 1996 ES₂, 1, 1, 0; 1997 GU₆, 1, 1, 0; 1997 KJ₂, 1, 1, 0; 1998 BA₄₆, 1, 1, 0; 1998 FB₆₃, 1, 1, 0; 1998 HX₃₈, 1, 1, 0; 1998 HE₁₀₀, 1, 1, 0; 1998 HM₁₄₆, 1, 1, 0; 1998 QE₁₃, 1, 1, 0; 1998 QA₂₃, 1, 1, 0; 1998 QR₅₈, 1, 1, 0; 1998 QO₇₃, 1, 1, 0; 1998 QS₉₁, 1, 1, 0; 1998 QY₉₁, 1, 1, 0; 1998 QC₉₂, 1, 1, 0; 1998 SZ₂₁, 1, 1, 0; 1998 TU₁, 1, 1, 0; 1998 TN₃₀, 1, 1, 0; 1998 UB₂₃, 1, 1, 0; 1998 VZ₂₉, 1, 1, 0; 1998 VA₃₅, 1, 1, 0; 1998 XC₁, 1, 1, 0; 1998 YW₁, 1, 1, 0; 1999 AM₄, 1, 1, 0; 1999 BD₁, 1, 1, 0; 1999 CV₅₀, 1, 1, 0; 3086 T-2, 1, 1, 0; (9812), 1, 1, 0; (10236), 1, 1, 0; (10639), 1, 1, 0; [52, 52, 0*, 1993/04/16–1993/04/21]

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

GSC-ACT, ACT

1992 JG₂, 2, 1, 0; 1995 UB₄, 2, 1, 0; 1998 YP₁₁, 3, 1, 0; 1999 CV₃, 3, 1, 0; 1999 JM₈, 3, 1, 0; 1999 JO₈, 3, 1, 0; 1999 LN₂₈, 3, 1, 0; 1999 LE₃₁, 3, 2, 1; 1999 ND₄₃, 3, 1, 0; 1999 PJ₁, 4, 1, 0; 1999 QJ₇, 2, 1; 1999 QV₁, 3, 1, 0; 1999 QD₂, 2, 1, 0; (1031), 4, 1, 0; (5535), 9, 3, 3; [54, 15, 0*, 1999/07/29–1999/08/25]

423 North Ryde

S. G. McAndrew, 2/32 Twin Rd, North Ryde, NSW 2113, Australia

[sgmcandrew@ozemail.com.au]

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

GSC

1972 AU₁₃, 5, 14; 1988 KB₆, 6, 3, 10; 1991 TB₆, 4, 2, 5; 1995 QC₂, 8, 4, 7; [31, 4, 0*, 1999/08/01–1999/08/20]

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-SA2.0

1981 EB₃₃, 5, 2, 12; 1983 RT₃, 8, 3, 13; 1988 VM₉, 6, 2, 1; 1997 XY₈, 5, 2, 1; 1998 DA₂, 10, 3, 13; 1998 GF₁, 5, 2, 1; 1998 GJ₁, 5, 2, 1; 1998 GL₁, 6, 2, 1; 1998 HO₂₃, 5, 2, 1; 1998 HK₅₂, 6, 2, 1; 1998 JF₄, 5, 2, 1; 1999 LL₃, 1, 0; 1999 LO₄, 5, 2, 1; 1999 LY₅, 4, 2, 1; 1999 MH₅, 2, 5; 1999 MX₃, 3, 1, 0; 1999 MY₆, 6, 2, 1; 1999 MZ₅, 5, 2, 2; 1999 MA₁, 5, 2, 2; 1999 MD₁, 6, 2, 6; 1999 ME₁, 5, 2, 1; 1999 NE₄, 4, 2, 1; 1999 NW₅, 5, 2, 1; 1999 NX₅, 5, 2, 5; 1999 NY₉, 9, 3, 20; 1999 OA₆, 6, 3, 22; 1999 PD *, 6, 2, 1; 1999 PJ₁, 3, 1, 0; 1999 PS₃, 2, 1, 0; 1999 PT₃, 6, 2, 1; 1999 PY₃, 3, 1, 0; 1999 PJ₄, 6, 2, 1; 1241 T-2, 6, 2, 13; [174, 33, 1*, 1999/07/16–1999/08/15]

428 Reedy Creek

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[reedycrk@one.net.au]

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

GSC

1988 RE₆, 2, 1, 0; 1988 VM₉, 2, 1, 0; 1993 CR₁, 5, 2, 1; 1998 AM₁₀, 2, 1, 0; 1998 AN₁₀, 3, 2, 2; 1998 EX₆, 2, 1, 0; 1998 FW₁₅, 3, 2, 6; 1998 FK₁₂₆, 2, 1, 0; 1998 FM₁₂₆, 9, 4, 35; 1998 GK₁₀, 6, 4, 35; 1998 HM₁₀₀, 2, 1, 0; 1998 HW₁₀₁, 2, 1, 0; 1998 OM₁₂, 4, 2, 18; 1998 PO₁, 2, 1, 0; 1998 YN₁, 4, 1, 0; 1999 FN₂₁, 3, 2, 14; 1999 HX₄, 4, 2, 14; 1999 HX₂, 4, 1, 0; 1999 HF₃, 2, 1, 0; 1999 JK₂, 1, 0; 1999 JV₇, 2, 1, 0; 1999 JM₈, 4, 1, 0; 1999 KU₄, 6, 2, 15; 1999 KX₄, 3, 1, 0; 1999 LN₂₈, 4, 1, 0; 1999 MB₂, 2, 2, 6; 1999 MC₁, 1, 1, 0; 1999 MF₁, 1, 1, 0; 1999 MG₁, 1, 1, 0; 1999 MO₂, 2, 1, 0; 1999 MP₁, 1, 1, 0; 1999 MQ₂, 2, 1, 0; 1999 MR₄, 4, 2, 14; 1999 NJ₃, 3, 18; 1999 NK₄, 4, 2, 10; 1999 NN₂, 2, 1, 0; 1999 NO₄, 2, 14; 1999 NP₅, 3, 12; 1999 NJ₄, 5, 3, 14; 1999 NK₄, 4, 2, 13; 1999 NL₄, 4, 3, 15; 1999 NM₄, 4, 2, 10; 1999 NN₄, 3, 2, 11; 1999 NO₄, 4, 2, 13; 1999 NP₄, 4, 2, 17; 1999 NQ₄, 3, 2, 15; 1999 NE₂₆, 3, 2, 1; 1999 NX₄₂, 3, 1, 0; 1999 OM₄, 4, 2, 14; 1999 ON₄, 2, 13; 1999 OD₁, 3, 2, 14; 1999 OE₁, 2, 1, 0; 1999 OO₁, 4, 2, 13; 1999 PE *, 8, 4, 14; 1999 PF *, 9, 4, 14; 1999 PG *, 10, 5, 10; 1999 PJ₁, 3, 1, 0; 1999 PR₁ *, 8, 4, 9; 1999 PU₁ *, 7, 4, 10; 1999 PV₁ *, 5, 3, 2; 1999 PW₁ *, 7, 3, 2; 1999 PY₁ *, 6, 3, 2; 1999 PZ₁ *, 8, 4, 9; 1999 PA₂ *, 8, 4, 9; 1999 PB₂ *, 6, 3, 3; 1999 PC₂ *, 7, 4, 10; 1999 PJ₃ *, 5, 3, 3; 1999 PT₃, 6, 2, 1; 1999 PY₃, 2, 1, 0; 1999 PA₄ *, 6, 3, 5; 1999 PB₄ *, 5, 3, 6; 1999 PC₄ *, 3, 2, 1; 1999 PD₄ *, 5, 3, 6; 1999 PE₄ *, 5, 3, 7; 1999 PH₄ *, 5, 4, 6; 1999 PJ₄, 5, 2, 1; 1999 PN₄ *, 3, 2, 1; 1999 PO₄ *, 7, 4, 4; 1999 PP₄ *, 7, 4, 4; 1999 PU₄ *, 5, 3, 5; 1999 QJ₃, 1, 0; 1999 QK *, 4, 2, 1; (3816), 2, 1, 0; (8958), 2, 1, 0; [342, 84, 24*, 1999/07/07–1999/08/20]

429 Hawker

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

[jpbchild@dynamite.com.au]

0.32-m $f/4.8$ reflector + CCD

GSC-1.2

1996 PA₇, 3, 1, 0; [3, 1, 0*, 1999/08/15]

432 Boambee

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[vgardi@chc.net.au]

0.20-m Schmidt-Cassegrain + CCD

GSC

(27), 2, 2, 1; (84), 2, 2, 1; (524), 1, 1, 0; (544), 2, 2, 1; (626), 2, 2, 1; (654), 2, 2, 1; (772), 2, 2, 1; (796), 1, 1, 0; (945), 2, 2, 1; (1132), 2, 2, 1; (1227), 2, 2, 1; (1567), 2, 2, 1; (2050), 1, 1, 0; (3036), 2, 2, 1; (4547), 2, 2, 1; [27, 15, 0*, 1999/08/05–1999/08/12]

465 Takapuna

J. L. Schiff, Dept. of Mathematics, University of Auckland, Auckland, New Zealand
Observers J. L. Schiff, C. Schiff

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

GSC 1.1

(324), 4, 2, 1; (654), 4, 2, 1; (1189), 3, 2, 2; [11, 3, 0*, 1999/07/30–1999/08/10]

466 Mount Molehill Observatory, Auckland

M. Bos, Mount Molehill Observatory, 83a Hutton Street, Otahuhu, Auckland, New Zealand [molehill@ihug.co.nz]

0.3-m $f/5.5$ reflector + CCD

USNO-A2.0

1999 MN₁, 15, 2, 1; [15, 1, 0*, 1999/08/17–1999/08/18]

467 Auckland Observatory

I. P. Griffin, Auckland Observatory, P.O. Box 24-180, Royal Oak, Auckland, New Zealand [iang@stardome.org.nz]

Observers I. P. Griffin, R. Feasey, D. A. Wyers, R. Greatrex, P. Walsh

0.50-m $f/6.4$ Cassegrain reflector + CCD

USNO-A2.0

1990 XU, 2, 1, 0; 1998 DT₁₀, 8, 3, 17; 1998 FA, 9, 3, 7; 1998 YN₁, 5, 1, 0; 1999 MN₁, 18, 5, 6; 1999 PJ₁, 13, 3, 2; 1999 QG *, 19, 5, 11; (105), 6, 2, 1; (617), 3, 1, 0; (752), 6, 2, 1; (1659), 3, 1, 0; (3036), 3, 1, 0; (4315), 3, 1, 0; [98, 13, 1*, 1999/07/28–1999/08/29]

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

1981 EZ₄₂, 2, 1, 0; 1991 CE₁, 2, 1, 0; 1998 FL₁₀₅, 3, 1, 0; 1998 FY₁₁₆, 2, 1, 0; 1998 QR₅₂, 4, 2, 1; 1998 QO₈₄, 1, 1, 0; 1998 YP₁₁, 4, 2, 12; 1999 HX₂, 2, 1, 0; 1999 LO₂₈, 2, 1, 0; 1999 PK *, 6, 3, 2; 1999 PM, 2, 1, 0; 1999 PG₁, 2, 1, 0; 1999 QV₁ *, 8, 4, 3; 1101 T-2, 2, 1, 0; (8289), 2, 1, 0; [44, 15, 2*, 1998/09/19–1999/08/25]

474 Mount John

A. C. Gilmore, P.O. Box 57, Lake Tekapo, New Zealand
[phys162@csc.canterbury.ac.nz]

Observer A. C. Gilmore

Measurer P. M. Kilmartin

0.6-m $f/14$ Cassegrain reflector

PPM, CPC, CPC2, field plates from Carter Observatory

1993 FA₄₀, 2, 1, 0; [2, 1, 0*, 1993/04/23]

493 Calar Alto

F. Lahulla, OAN Alfonso XII 3, E-28014 Madrid, Spain [Lahulla@nexo.es]

Observer F. Lahulla

Measurer A. Erikson

1.23-m reflector + CCD

GSC

1988 RJ₈, 2, 1, 0; [2, 1, 0*, 1992/08/14]

511 Haute Provence

P. Descamps, Institut de Mecanique Celeste et de Calcul des ephemerides,
Observatoire de Paris, 77 av. Denfert-Rochereau, F-75014 Paris, France
[Pascal.Descamps@bd1.fr]

Observers J.-E. Arlot, P. Descamps, W. Thuillot, J. Berthier, N. Emelianov,
L. Fournial

1991 RE₁, 2, 1, 0; 1994 PH₁₄, 2, 1, 0; [4, 2, 0*, 1992/01/02–1993/02/25]

540 Linz

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

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

USNO-A2.0

1998 SD₁₃₁, 4, 1, 0; 1999 HF₁, 4, 1, 0; [8, 2, 0*, 1998/10/24–1999/07/31]

552 San Vittore

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

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

0.45-m $f/3.3$ reflector + CCD

GSC

1998 DL₁₄, 3, 1, 0; [3, 1, 0*, 1999/08/06]

557 Ondřejov

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

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

0.65-m $f/3.6$ reflector + CCD

USNO-SA1.0, USNO-SA2.0

1988 VM₉, 2, 1, 0; 1990 RH₇, 2, 1, 0; 1992 WZ, 2, 1, 0; 1993 HA, 3, 1, 0; 1993 RK₅, 4, 2, 1; 1995 OJ, 5, 2, 1; 1995 PG, 5, 2, 1; 1995 SG, 4, 2, 6; 1995 SL, 5, 2, 1; 1995 SJ₁, 9, 3, 2; 1995 UZ, 1, 1, 0; 1996 BB₁, 3, 1, 0; 1996 VR₅, 2, 1, 0; 1997 EL₁₁, 5, 2, 4; 1997 JD, 6, 2, 1; 1997 US₉, 3, 1, 0; 1998 DG₂₀, 7, 3, 2; 1998 FD₂, 4, 2, 4; 1998 FE₂, 7, 2, 1; 1998 FB₃, 5, 2, 1; 1998 FC₃, 4, 1, 0; 1998 FF₃, 5, 2, 1; 1998 FD₇₃, 3, 2, 2; 1998 HF₂₀, 4, 1, 0; 1998 QS₁, 6, 2, 1; 1998 QO₄, 4, 2, 1; 1998 QR₅₂, 20, 7, 12; 1998 RM, 8, 3, 2; 1998 SD₁₅, 6, 2, 1; 1998 VS₃₅, 2, 1, 0; 1998 YP₁₁, 22, 7, 20; 1999 GD₃₃, 2, 1, 0; 1999 JM₈, 4, 1, 0; 1999 LY₅, 8, 3, 3; 1999 ME₁, 3, 1, 0; 1999 NT₃, 9, 3, 2; 1999 NO₃₄, 4, 1, 0; 1999 NX₄₂, 3, 1, 0; 1999 NL₄₉, 8, 2, 1; 1999 NU₅₂, 2, 1, 0; 1999 NT₅₄, 6, 2, 1; 1999 OQ, 6, 2, 2; 1999 PA₁ *, 14, 5, 14; 1999 PB₁ *, 10, 4, 13; 1999 PC₁ *, 11, 4, 10; 1999 PD₁ *, 5, 2, 1; 1999 PJ₁, 23, 5, 13; 1999 PP₁ *, 10, 4, 11; 1999 PX₁ *, 8, 3, 5; 1999 PH₃ *, 11, 4, 7; 1999 PP₃ *, 10, 4, 7; 1999 PS₃, 3, 1, 0; 1999 PT₃, 3, 2, 1; 1999 PY₃, 2, 1, 0; 1999 PJ₄, 2, 1, 0; 1999 PV₄ *, 8, 4, 8; 1999 PW₄ *, 13, 4, 6; 1999 PB₅ *, 10, 4, 11; 1999 QO *, 9, 3, 3; 1999 QR₁ *, 10, 4, 4; 1999 QV₁, 7, 2, 1; 1999 QZ₁ *, 8, 3, 4; 1999 QA₂ *, 9, 4, 3; 1999 QD₂, 4, 1, 0; 1999 QG₂ *, 8, 2, 1; 2053 P-L, 3, 1, 0; (1863), 3, 1, 0; (4034), 4, 1, 0; (4227), 3, 1, 0; (5296), 8, 3, 4; (7481), 6, 2, 2; (8646), 3, 1, 0; [451, 72, 16*, 1997/09/25–1999/08/26]

560 Madonna di Dossobuono

L. Lai, Via Mantovana 130e, I-37062 Dossobuono (Verona), Italy
[astrofil@astbo1.bo.cnr.it]

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

0.40-m $f/3.5$ reflector + CCD

GSC

1998 SF₁₃₈, 3, 1, 0; [3, 1, 0*, 1995/02/04]

561 Piskéstető

J. Kelemen, Konkoly Observatory, P.O. Box 67, H-1525 Budapest, Hungary
[kelemen@ogyalla.konkoly.hu]

Observers J. Kelemen, N. Tibor
0.60-m Schmidt telescope + CCD
USNO-A2.0

1990 KD₁, 2, 1, 0; 1992 QW, 3, 1, 0; 1999 CX, 2, 1, 0; (1862), 2, 1, 0; (1948), 2, 1, 0; (2938), 2, 1, 0; (3269), 2, 1, 0; (4503), 2, 1, 0; (4775), 2, 1, 0; [19, 9, 0*, 1998/02/28–1998/12/19]

565 Bassano Bresciano

U. Quadri, Osservatorio di Bassano Bresciano, Via S. Michele 4, I-25020 Bassano
Bresciano (BS), Italy [astrofil@astbo1.bo.cnr.it]

Observers U. Quadri, L. Strabla
0.40-m $f/2.5$ Schmidt + CCD
GSC

1995 BY, 2, 1, 0; [2, 1, 0*, 1993/10/15]

566 Haleakala-NEAT/GEODSS

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

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

1-m $f/2.2$ Ritchey-Chrétien + CCD

1981 EY₁₁, 6, 2, 529; 1981 EB₃₅, 3, 1, 0; 1985 FF₂, 3, 1, 0; 1987 KH₅, 3, 1, 0; 1988 XU₂, 3, 1, 0; 1990 RV₅, 3, 1, 0; 1990 VR₆, 3, 1, 0; 1991 EC, 3, 1, 0; 1991 ER, 3, 1, 0; 1992 RZ₆, 3, 1, 0; 1992 UW₁, 3, 1, 0; 1993 RJ₃, 3, 1, 0; 1993 ST₅, 3, 1, 0; 1994 DW, 3, 1, 0; 1994 GW₉, 3, 1, 0; 1995 BR₁₀, 3, 1, 0; 1995 DH₄, 3, 1, 0; 1995 SY₁₂, 3, 1, 0; 1996 XZ₃₀, 3, 1, 0; 1997 EG₄₁, 3, 1, 0; 1997 XW₇, 3, 1, 0; 1997 YZ₁₇, 3, 1, 0; 1998 BT₂, 3, 1, 0; 1998 BG₄, 3, 1, 0; 1998 BQ₁₁, 3, 1, 0; 1998 BK₁₆, 3, 1, 0; 1998 BA₂₁, 3, 1, 0; 1998 BZ₄₈ *, 6, 2, 31; 1998 CO, 3, 1, 0; 1998 CR₄, 3, 1, 0; 1998 DA₂, 3, 1, 0; 1998 DV₄, 3, 1, 0; 1998 DT₃₆ *, 6, 2, 28; 1998 EJ₁₅, 3, 1, 0; 1998 EU₁₅, 3, 1, 0; 1998 FS₂₃, 3, 1, 0; 1998 FC₂₈, 3, 1, 0; 1998 FK₃₀, 3, 1, 0; 1998 FV₃₀, 3, 1, 0; 1998 FR₃₅, 6, 2, 28; 1998 FV₃₆, 6, 2, 28; 1998 FJ₄₉, 3, 1, 0; 1998 FH₈₆, 3, 1, 0; 1998 FR₈₈, 6, 2, 28; 1998 FM₉₅, 6, 2, 28; 1998 FP₉₅, 6, 1, 0; 1998 FZ₉₈, 3, 1, 0; 1998 FS₁₀₃, 3, 1, 0; 1998 FG₁₁₂, 3, 1, 0; 1998 FO₁₁₆, 3, 1, 0; 1998 HD₁₂₀, 3, 1, 0; 1998 HF₁₂₀, 3, 1, 0; 1998 HL₁₃₄, 3, 1, 0; 1998 KN₁, 3, 1, 0; 1998 KJ₄₂, 3, 1, 0; 1998 KL₄₂, 3, 1, 0; 1998 MA₁₁, 3, 1, 0; 1998 ON₁, 3, 1, 0; 1998 PL, 3, 1, 0; 1998 QP₆, 1, 1, 0; 1998 QV₇, 3, 1, 0; 1998 QS₁₁, 3, 1, 0; 1998 QM₂₀, 3, 1, 0; 1998 QJ₂₅, 3, 1, 0; 1998 QB₂₆, 3, 1, 0; 1998 QO₂₆, 6, 1, 0; 1998 QF₂₇, 3, 1, 0; 1998 QW₄₇, 3, 1, 0; 1998 RH₆₃, 3, 1, 0; 1998 RK₇₂, 6, 2, 31; 1998 SF₁₂₃, 3, 1, 0; 1998 UQ₂, 3, 1, 0; 1998 UF₂₁, 3, 1, 0; 1998 XP₂₇, 3, 1, 0; 1998 YG, 3, 1, 0; 1999 AZ₃, 3, 1, 0; 1999 BW₂, 3, 1, 0; 1999 CS₁, 6, 2, 526; 1999 CZ₂₇, 6, 2, 30; 1999 CQ₄₈, 3, 1, 0; 1999 CA₈₁, 3, 1, 0; 1999 CF₁₀₄, 3, 1, 0; 1999 DN₆, 6, 2, 29; 1999 EV₂, 3, 1, 0; 1999 EX₅, 3, 1, 0; 1999 FE₂₁, 3, 1, 0; 1999 FG₃₂, 3, 1, 0; 1999 JK, 3, 1, 0; 1999 JE₁₉, 3, 1, 0; 1999 JR₂₀, 3, 1, 0; 1999 JU₂₃, 3, 1, 0; 1999 JU₂₆, 3, 1, 0; 1999 JF₃₃, 3, 1, 0; 1999 JO₃₄, 3, 1, 0; 1999 JE₃₇, 3, 1, 0; 1999 JA₄₀, 6, 2, 471; 1999 JY₄₄, 3, 1, 0; 1999 JB₅₀, 3, 1, 0; 1999 JM₅₂, 3, 1, 0; 1999 JQ₆₃, 3, 1, 0; 1999 JN₇₅, 3, 1, 0; 1999 JS₇₅, 3, 1, 0; 1999 JO₇₉, 3, 1, 0; 1999 JU₇₉, 3, 1, 0; 1999 JU₈₄, 3, 1, 0; 1999 JO₁₀₃, 3, 1, 0; 1999 JM₁₀₅, 3, 1, 0; 1999 LW₂, 3, 1, 0; 1999 LT₁₀, 3, 1, 0; 1999 NC, 3, 1, 0; 1999 ND, 3, 1, 0; 1999 NP₃, 3, 1, 0; 1999 NG₄, 6, 2, 33; 1999 NL₄, 3, 1, 0; 1999 NL₇, 6, 2, 28; 1999 NZ₃₅, 3, 1, 0; 1999 NK₄₂, 3, 1, 0; 1999 OO, 6, 2, 30; 1999 PA, 3, 1, 0; 4158 P-L, 3, 1, 0; 1248 T-1, 3, 1, 0; 2091 T-1, 3, 1, 0; 3224 T-1, 3, 1, 0; 2174 T-2, 6, 2, 27; [427, 125, 2*, 1995/12/21–1998/11/16]

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)

M. Holman, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street,
Cambridge, MA 02138, U.S.A. [mholman@cfa.harvard.edu] (6)

Observers M. VanDalsen (6), D. Hanes (6), B. Gladman (6), J. J. Kavelaars (6),
J.-M. Petit (6), M. Holman (6), C. Veillet (3), J. Anderson (3),
D. J. Tholen (2), J. Bauer (2), K. J. Meech (2)

Measurers B. Gladman (6), M. Holman (6), J. J. Kavelaars (6), C. Veillet (3),
D. J. Tholen (2), R. J. Whiteley (2)

3.6-m Canada-France-Hawaii Telescope + CCD, 2.24-m reflector + CCD
USNO-A2.0

(2) 1999 OW₃ *, 14, 7, 30; [14, 1, 1*, 1999/07/18–1999/08/17]

(3) 1991 RO₂₄, 2, 1, 0; [2, 1, 0*, 1997/04/05]

(6) 1999 OX₃ *, 3, 1, 0; 1999 OY₃ *, 3, 1, 0; 1999 OZ₃ *, 3, 1, 0; 1999 OA₄ *, 3, 1, 0; [12, 4, 4*, 1999/07/18–1999/07/21]

587 Sormano

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

Observers A. Testa, F. Manca, M. Cavagna, P. Sicoli, V. Giuliani
0.5-m reflector + CCD

GSC

1993 YN₂, 3, 1, 0; [3, 1, 0*, 1995/05/28]

595 Farra d'Isonzo

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

Observers E. Pettarin, M. Spolaor, A. Toso, D. W. E. Green, V. S. Casulli,
L. Bittesini, L. Drigo, G. Lombardi

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

0.4-m $f/4.5$ reflector + CCD

GSC

1994 BN₄, 2, 1, 0; 1996 TX₇, 5, 2, 1; 1998 BJ₁₉, 5, 2, 1; 1998 DK₁₄, 5, 3, 12; 1999 HF₁, 3, 1, 0; 1999 LF₆, 3, 1, 0; 1999 NQ₉, 3, 1, 0; 1999 OS, 3, 2, 4; 1999 OK₃, 5, 3, 15; 1999 PJ₁, 4, 1, 0; 1999 PS₃, 4, 1, 0; 1999 QC *, 4, 2, 1; [46, 12, 1*, 1999/07/12–1999/08/23]

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

1994 EB, 3, 1, 0; 1995 UL, 3, 1, 0; (3886), 3, 1, 0; [9, 3, 0*, 1999/08/02]

599 Campo Imperatore-CINEOS

A. Carusi, Istituto di Astrofisica Spaziale, Via Fosso del Cavaliere, I-00133 Rome,
Italy [carusi@saturn.ias.fra.cnr.it]

Observers A. Boattini, A. Di Clemente

Measurers A. Boattini, G. Forti

0.60-m $f/3$ Schmidt + CCD

GSC

1978 QA₂, 2, 1, 0; 1985 CF₂, 2, 1, 0; 1988 AH₅, 3, 1, 0; 1989 SA₁₀, 2, 1, 0; 1998 FL₆₆, 2, 1, 0; 1998 KD₂₂, 3, 1, 0; 1998 KT₃₂, 2, 1, 0; 1998 KT₃₆, 2, 1, 0; 1998 KK₅₄, 3, 1, 0; 1998 VN₂₈, 2, 1, 0; 1999 AF₂₅, 3, 1, 0; [26, 11, 0*, 1996/05/23–1997/07/10]

608 Haleakala-AMOS

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

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

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

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

1.2-m reflector + CCD

1976 UN₂, 2, 1, 0; 1995 SJ₁, 1, 1, 0; 1996 EK₂, 2, 1, 0; 1996 FP₁, 2, 1, 0; 1999 CF₂₁, 1, 1, 0; [8, 5, 0*, 1996/02/15–1997/10/30]

610 Pianoro

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

[astrofil@astbo1.bo.cnr.it]

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

GSC

(289), 5, 1, 0; (622), 5, 1, 0; (696), 5, 1, 0; (893), 3, 1, 0; (1173), 5, 1, 0; (2751), 5, 1, 0; (3279), 5, 1, 0; (3715), 5, 1, 0; (4528), 5, 1, 0; (5468), 5, 1, 0; (5781), 3, 1, 0; (8794), 5, 1, 0; (11055), 5, 1, 0; [61, 13, 0*, 1999/07/17–1999/07/23]

611 Starkenburg Sternwarte, Heppenheim

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

Observers M. Busch, R. Stoss, S. Kluegl, P. Geffert, A. Seib

Measurer R. Stoss

0.30-m $f/6.3$ reflector + CCD, 0.45-m $f/4.4$ reflector + CCD

USNO-A2.0

1999 OP₃, 4, 1, 0; 1999 OR₃, 3, 1, 0; 1999 PJ₁, 3, 1, 0; 1999 PS₃, 1, 1, 0; [11, 4, 0*, 1999/07/25–1999/08/13]

620 Observatorio Astronómico de Mallorca

À. López, Observatori Astronòmic de Mallorca, Camí de l'observatori s/n, E-07144

Costitx, Balears, Spain [astroam@dinky.bitel.es]

Observers À. López, R. Pacheco

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

GSC

1998 DD₁₁, 3, 1, 0; 1999 NE₅, 7, 2, 15; 1999 PZ *, 16, 4, 15; (11169), 4, 1, 0; [30, 4, 1*, 1999/08/05–1999/08/20]

621 Bergisch Gladbach

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

0.60-m $f/5$ reflector + CCD

USNO-A2.0

1987 QS₅, 3, 1, 0; 1993 XL₁, 7, 2, 2; 1999 OT, 10, 4, 15; 1999 OU, 6, 2, 5; 1999 PF₂ *, 6, 2, 10; 1999 QL *, 6, 2, 2; (76), 13, 2, 5; (4034), 8, 2, 6; (7661), 7, 2, 5; [66, 9, 2*, 1998/08/20–1999/08/19]

627 Blauvac

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

0.26-m $f/4.7$ reflector + CCD

GSC, USNO-SA1.0

(1239), 6, 2, 5; (2893), 3, 1, 0; (3401), 3, 1, 0; (4156), 6, 2, 5; [18, 4, 0*, 1999/08/15–1999/08/20]

628 Mülheim-Ruhr

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

Observers A. Boeker, A. Martin, K. Kleemann-Boeker

0.2-m Schmidt-Cassegrain + CCD

USNO-A2.0

1988 TW₂, 13, 3, 21; 1995 MB, 7, 2, 14; 1999 HX₂, 5, 1, 0; 1999 KF₄, 3, 1, 0; 1999 KQ₄, 19, 5, 33; 1999 KK₆, 12, 3, 21; 1999 KL₆, 7, 2, 32; (4732), 5, 1, 0; (6112), 4, 1, 0; (11171), 4, 1, 0; [79, 10, 0*, 1999/07/26–1999/08/29]

638 Detmold

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

[100265.2520@compuserve.com]

0.25-m Schmidt-Cassegrain + CCD

GSC

(699), 3, 1, 0; (1367), 3, 1, 0; (4203), 3, 1, 0; (5585), 3, 1, 0; [12, 4, 0*, 1999/06/18–1999/08/28]

641 Overberg

A. van Staden, 7 Sonop Street, Bredasdorp 7280, South Africa

[andrev@otb.co.za]

0.20-m $f/7.9$ reflector + CCD

GSC

(1096), 4, 2, 4; (1492), 6, 3, 6; (1605), 6, 3, 6; (2114), 4, 2, 4; (2492), 3, 2, 4; (3561), 4, 3, 6; (3824), 4, 2, 4; (5579), 3, 2, 4; [34, 8, 0*, 1999/07/02–1999/07/18]

643 OCA-Anza Observatory

M. White, 28089 Calle Valdes, Mission Viejo, CA 92692

[minorwhite@email.msn.com]

Observers M. White, M. Collins

0.57-m Cassegrain reflector + CCD

GSC

1993 FH₂₇, 5, 2, 7; 1999 NR₁₀, 3, 2, 3; 1999 PX₄ *, 5, 2, 10; (1302), 1, 1, 0; (2246), 2, 1, 0; (2751), 1, 1, 0; (2784), 2, 1, 0; [19, 7, 1*, 1999/08/06–1999/08/16]

644 Palomar Mountain/NEAT

S. Pravdo, Jet Propulsion Laboratory, MS 306-438, 4800 Oak Grove Drive,

Pasadena, CA 91109, U.S.A. [spravdo@mail1.jpl.nasa.gov]

Observers S. Pravdo, D. L. Rabinowitz

1.2-m Oschin Schmidt + CCD

1990 QX₄, 3, 1, 0; 1996 HY₁₂, 3, 1, 0; 1996 VK₁₇, 3, 1, 0; 1999 BH₁₄, 3, 1, 0; 1999 FX, 3, 1, 0; 1999 FC₇, 3, 1, 0; 1999 GQ₁₉, 3, 1, 0; 1999 GZ₂₁, 3, 1, 0; 1999 JS₁₃, 3, 1, 0; 1999 JA₅₇, 3, 1, 0; 1999 JQ₇₅, 3, 1, 0; 1999 JJ₁₃₁, 3, 1, 0; 1999 LU₂₈, 3, 1, 0; 1999 LR₂₉, 3, 1, 0; 1999 LW₃₁, 3, 1, 0; 4843 T-1, 3, 1, 0; 3088 T-2, 3, 1, 0; (82), 3, 1, 0; (570), 3, 1, 0; (2393), 3, 1, 0; (3197), 3, 1, 0; (3403), 3, 1, 0; (4267), 3, 1, 0; (4665), 3, 1, 0; (8329), 3, 1, 0; (10352), 3, 1, 0; (10489), 3, 1, 0; (10898), 3, 1, 0; [84, 28, 0*, 1999/06/10]

646 Rancho Cucamonga

R. D. Stephens, 11355 Mount Johnson Court, Rancho Cucamonga, CA 91730,

U.S.A. [robert.stephens@eee.org]

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

GSC

(56), 8, 2, 1; (275), 2, 2, 1; [10, 2, 0*, 1999/06/09–1999/07/23]

647 Stone Finder Observatory, Calgary

K. Yeung, 139 Sandringham Place NW, Calgary, Alberta T3K 3V8, Canada

[cyber_bill@sprynet.com]

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

1999 LF₆, 6, 2, 4; 1999 ND₄₃, 3, 1, 0; [9, 2, 0*, 1999/08/24–1999/08/28]

649 Powell Observatory, Louisburg

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

[lrobinson@ix.netcom.com]

Observers L. Robinson, R. Fredricks

Measurer L. Robinson

0.31-m Schmidt-Cassegrain + CCD

GSC-1.1

1978 VE₇, 2, 1, 0; 1989 TY₁₀, 2, 1, 0; 1994 TX₁₂, 2, 1, 0; 1998 DU, 4, 1, 0; 1999 LL₇, 5, 1, 0; 1999 NZ₁₄, 6, 1, 0; 1999 OF₁, 3, 1, 0; 1999 QE₂ *, 2, 1, 0; (3), 3, 1, 0; (23), 3, 1, 0; (27), 3, 1, 0; (30), 3, 1, 0; (41), 3, 1, 0; (56), 3, 1, 0; (1367), 3, 1, 0; (4829), 2, 1, 0; (5119), 1, 1, 0; (6547), 2, 1, 0; (7815), 2, 1, 0; (8462), 1, 1, 0; (8526), 1, 1, 0; (8702), 3, 2, 10; (8828), 2, 1, 0; (8954), 1, 1, 0; [62, 24, 1*, 1999/07/29–1999/08/22]

650 Temecula

J. R. Vail, 32170 Caminito Osuna, Temecula, CA 92592-1208, U.S.A.
[jimvail@pe.net]

0.25-m Schmidt-Cassegrain + CCD
USNO-SA2.0, GSC-1.1

1999 JN₁₇, 2, 1, 0; (16), 4, 2, 3; (28), 4, 2, 3; [10, 3, 0*, 1999/08/10–1999/08/13]

657 Victoria, Climenhaga Observatory

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

Observers J. Stumpf, J. B. Tatum
Measurer D. D. Balam
0.25-m Schmidt-Cassegrain + CCD
GSC

1999 OP₃, 2, 1, 0; [2, 1, 0*, 1999/08/22]

658 Dominion Astrophysical Observatory, Victoria

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

Observers D. D. Balam, L. C. Parker
Measurer D. D. Balam
1.82-m Plaskett telescope + CCD
USNO-A2.0

(1) 1997 US₉, 3, 1, 0; 1998 FB₆, 2, 1, 0; 1998 VD₅, 3, 1, 0; 1999 AN₁₀, 3, 1, 0; 1999 CF₉, 2, 1, 0; 1999 HW₂, 6, 2, 8; 1999 JU₆, 3, 1, 0; 1999 KQ₆, 3, 1, 0; 1999 LF₆, 9, 3, 10; 1999 LU₇, 3, 1, 0; 1999 NW₂, 9, 3, 10; 1999 NZ₄, 8, 3, 8; 1999 NA₅, 6, 2, 2; 1999 NB₅, 9, 3, 8; 1999 NC₅, 3, 1, 0; 1999 OP₃, 6, 2, 1; 1999 OQ₃, 6, 2, 2; 1999 OR₃, 3, 1, 0; 1999 OT₃, 3, 1, 0; 1999 OW₃, 3, 1, 0; 1999 PJ₁, 3, 1, 0; [96, 21, 0*, 1997/08/09–1999/08/10]

(2) 1999 CK₁₀₀, 4, 1, 0; [4, 1, 0*, 1995/04/21]

670 Camarillo

J. E. Rogers, 441 Rowland Avenue, Camarillo, CA 93010, U.S.A.
[johnrogers@csi.com]

0.30-m *f*/6.7 Helin Telescope + CCD
GSC-1.1

1998 QR₅₂, 8, 2, 1; 1998 YP₁₁, 5, 2, 2; 1999 HX₂, 6, 2, 1; 1999 LO₂₈, 5, 1, 0; 1999 OR₃, 11, 4, 17; 1999 PJ₁, 7, 2, 11; 1999 QJ, 3, 1, 0; [45, 7, 0*, 1999/08/03–1999/08/20]

673 Table Mountain Observatory

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Pasadena, CA 91109-8099, U.S.A. [wmo@wansor.jpl.nasa.gov] (1)

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Observers E. W. Hayne (1), A. U. Tonomous (1), G. W. Null (1),
A. Doressoundiram (3), P. R. Weissman (3)

Measurers E. W. Hayne (1), W. M. Owen, Jr. (1), L. M. Walkowicz (3),
C. O. Lee (3)

0.61-m *f*/16 reflector + CCD
ACT, USNO

(1) (16), 4, 1, 0; (28), 7, 3, 5; (41), 1, 1, 0; (47), 4, 1, 0; (48), 5, 2, 30; (56), 2, 1, 0; (105), 15, 5, 35; (112), 3, 2, 1; (120), 2, 1, 0; (141), 3, 1, 0; (162), 5, 2, 1; (194), 9, 3, 31; (198), 11, 5, 34; (216), 6, 3, 2; (230), 2, 1, 0; (257), 3, 2, 2; (261), 2, 1, 0; (337), 3, 1, 0; (346), 4, 2, 3; (386), 2, 1, 0; (405), 4, 1, 0; (451), 2, 1, 0; (481), 5, 2, 1; (526), 4, 1, 0; (539), 12, 5, 5; (568), 12, 3, 3; (690), 4, 1, 0; (747), 2, 1, 0; (804), 2, 1, 0; [140, 29, 0*, 1999/07/19–1999/08/23]

(3) (140), 113, 5, 60; (10302), 24, 3, 31; [137, 2, 0*, 1999/03/22–1999/05/21]

675 Palomar

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B. Gladman, Observatoire de Nice, Department Cassini, BP 229, F-06304 Nice
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9 = 6 + 3

Observers B. Behymer (3, S), J. Brewer (5, L), T. Gehrels (4, L), D. J. Griffith
(3, L), H. E. Holt (3, S), J. D. Mendenhall (3, L), J. Mueller (5), P. Nicholson
(8, H), R. Rudy (3, S), S. Salyards (3, S), C. S. Shoemaker (3, S),
E. M. Shoemaker (3, S), B. Gladman (8, H), J. Burns (8, H)

Measurers A. Boattini (1), G. Forti (1), R. Gal (1), B. Gladman (8),
A. Gnädig (5), A. Milani (1), B. A. Skiff (6), L. Tesi (1), M. Tombelli (1),
C. J. van Houten (4), I. van Houten-Groeneveld (4), A. Wisse (4)

1.2-m Oschin Schmidt (L), 0.46-m Schmidt (S), 5-m Hale reflector + CCD (H)

(1) 1989 VB, 2, 1, 0; 1991 TB₂, 2, 1, 0; 1991 VE, 2, 1, 0; 1994 BA₁, 2, 1, 0; 1995 UP₆, 4, 2, 8; 1996 TE₁₁, 2, 1, 0; 1997 BG₉, 3, 2, 45; 1997 GH₃, 2, 1, 0; 1997 XF₁₁, 2, 1, 0; 1998 PA₁, 2, 1, 0; 1998 XB₉, 2, 1, 0; 1999 GW₃, 2, 1, 0; 1999 GJ₄, 2, 1, 0; 1999 HZ₁, 2, 1, 0; [31, 14, 0*, 1954/09/28–1995/03/29]

(2) 1978 SO₇, 2, 1, 0; 1990 SZ₃, 2, 1, 0; 1992 DL₇, 2, 1, 0; 1992 FM₁, 2, 1, 0; 1993 SB₁₅, 4, 1, 0; 1996 HW₂₃, 2, 1, 0; 1997 UW₁₈, 2, 1, 0; 1998 QB₆₉, 2, 1, 0; 1998 QN₇₅, 2, 1, 0; 1998 QO₉₃, 2, 1, 0; 1998 SD₂, 2, 1, 0; 1998 TO₁₅, 2, 1, 0; 1999 OP₃, 4, 2, 2; [30, 13, 0*, 1986/02/07–1994/10/31]

(3) 1990 QU₃, 1, 1, 0; 1991 CA₁, 2, 1, 0; 1994 AD₁₁, 2, 1, 0; 1999 CT₁₀₁, 2, 1, 0; [7, 4, 0*, 1992/08/24–1994/06/07]

(4) 1998 FV₆₃, 2, 2, 1; 2089 P-L *, 8, 8, 32; 2097 P-L *, 9, 7, 32; 4067 P-L *, 7, 7, 32; 4085 P-L *, 9, 7, 32; 4158 P-L *, 8, 6, 32; 4202 P-L *, 4, 4, 4; 4271 P-L *, 6, 6, 28; 4626 P-L *, 7, 7, 32; 9003 P-L *, 3, 3, 9; 1030 T-1 *, 5, 4, 3; 1248 T-1 *, 9, 7, 51; 3317 T-1 *, 10, 7, 51; 1074 T-2 *, 13, 7, 16; 1327 T-2 *, 16, 7, 16; 1416 T-2 *, 13, 7, 16; 2273 T-2 *, 14, 8, 16; 3086 T-2 *, 15, 8, 16; 3162 T-2 *, 13, 7, 15; 4153 T-2 *, 15, 8, 16; 2294 T-3 *, 13, 7, 15; 2330 T-3 *, 20, 7, 15; [219, 22, 21*, 1960/09/24–1977/10/22]

(5) A908 SA, 4, 2, 1968; 1973 SA₂, 2, 1, 0; 1973 SB₂, 2, 1, 0; 1988 RG₁₀, 2, 1, 0; 1988 RY₁₀, 4, 2, 797; 1988 SL₃, 1, 1, 0; 1989 DA, 2, 1, 0; 1989 NA, 1, 1, 0; 1990 BA, 2, 1, 0; 1990 OL, 2, 1, 0; 1991 EJ, 2, 1, 0; 1991 JW, 1, 1, 0; 1991 XB, 1, 1, 0; 1992 JE, 2, 1, 0; 1992 SL, 1, 1, 0; 1993 ME₁, 2, 1, 0; 1995 BC₂, 2, 1, 0; 1995 SC, 2, 1, 0; 1997 SE₅, 2, 1, 0; 1997 TT₉, 2, 1, 0; 1997 VV₁, 2, 1, 0; 1997 WW₇, 2, 1, 0; 1998 DK₃₄, 2, 1, 0; 1998 FC, 2, 1, 0; 1998 TG₁₆, 2, 1, 0; 1998 UE₄, 2, 1, 0; 1998 UZ₆, 4, 2, 398; 1998 UM₁₈, 4, 2, 13507; 1998 UF₂₁, 2, 1, 0; 1998 VO₃₂, 2, 1, 0; 1998 VS₃₅, 2, 1, 0; 1998 XT₃, 2, 1, 0; 1998 XR₉, 2, 1, 0; 1998 XE₁₃, 3, 2, 502; 1998 XK₁₇, 2, 1, 0; 1998 XP₂₇, 2, 1, 0; 1998 XS₃₁, 2, 1, 0; 1998 XZ₇₇, 5, 3, 15977; 1998 YP₁₁, 2, 1, 0; 1999 DP₇, 2, 1, 0; 1999 FG₃₂, 6, 3, 12732; 1999 GG₆, 2, 1, 0; 1999 JK, 4, 2, 14293; 1999 JZ₅, 4, 2, 1029; 1999 JJ₆₀, 6, 3, 13201; 1999 JA₉₉, 2, 1, 0; 1999 JP₁₁₃, 4, 2, 12724; 1999 LJ, 2, 1, 0; 1999 LG₂₇, 2, 1, 0; 1999 NN₅, 2, 1, 0; 2089 P-L, 3, 2, 14939; 4158 P-L, 2, 1, 0; 4626 P-L, 6, 4, 15617; 4655 P-L, 1, 1, 0; 1024 T-1, 4, 2, 1235; 1074 T-2, 4, 2, 16116; 4153 T-2, 2, 1, 0; 4179 T-3, 3, 2, 13998; (617), 4, 2, 15114; (687), 1, 1, 0; (1282), 6, 3, 552; (1342), 4, 2, 4; (1367), 2, 1, 0; (2039), 2, 1, 0; (2139), 2, 1, 0; (2277), 2, 1, 0; (2428), 2, 1, 0; (2825), 2, 1, 0; (3041), 2, 1, 0; (3109), 7, 4, 2903; (3208), 1, 1, 0; (3363), 4, 2, 1834; (3872), 1, 1, 0; (3934), 2, 1, 0; (3939), 6, 3, 415; (3951), 2, 1, 0; (3966), 5, 3, 13682; (4203), 2, 1, 0; (4531), 2, 1, 0; (4805), 2, 1, 0; (4813), 2, 1, 0; (5207), 2, 1, 0; (7673), 4, 2, 562; (7681), 2, 1, 0; (7682), 2, 1, 0; (7766), 2, 1, 0; (7790), 2, 1, 0; (7803), 1, 1, 0; (7845), 4, 3, 14233; (7914), 2, 1, 0; (8136), 2, 1, 0; (8277), 2, 1, 0; (11054), 2, 1, 0; [238, 93, 0*, 1949/11/21–1996/10/17]

1999 AUG. 31

(6) 1998 GL₉, 2, 1, 0; 1998 QX₄₀, 2, 1, 0; 1999 BQ₁₄, 2, 1, 0; 1999 JZ₅, 1, 1, 0; (106), 2, 1, 0; (5425), 1, 1, 0; (8177), 2, 1, 0; [12, 7, 0*, 1949/11/19–1984/01/26]

(8) 1999 OX₃, 10, 2, 1; 1999 OY₃, 2, 1, 0; 1999 OZ₃, 5, 1, 0; 1999 OA₄, 5, 1, 0; [22, 4, 0*, 1999/08/08–1999/08/09]

(9) 1971 FD, 2, 1, 0; 1974 RX₁, 2, 1, 0; 1977 DL₂, 2, 1, 0; 1977 EL₅, 2, 1, 0; 1981 EG₁₆, 2, 1, 0; 1990 EL₈, 2, 1, 0; 1990 HJ, 2, 1, 0; 1991 BD₁, 4, 2, 4; 1991 XL, 2, 1, 0; 1992 DX₈, 1, 1, 0; 1992 GC₈, 2, 1, 0; 1992 QR, 2, 1, 0; 1993 EK, 1, 1, 0; 1993 FX₂, 1, 1, 0; 1993 FY₈, 1, 1, 0; 1993 LW₁, 2, 1, 0; 1993 QU₄, 2, 1, 0; 1993 SB₁₅, 1, 1, 0; 1993 TQ₃₆, 1, 1, 0; 1996 GO₂₀, 2, 1, 0; 1996 LK₁, 2, 1, 0; 1996 NS₃, 2, 1, 0; 1997 GQ₄₁, 2, 1, 0; 1997 QG, 2, 1, 0; 1998 CJ₄, 2, 1, 0; 1998 QJ₈, 2, 1, 0; 1998 QR₃₀, 1, 1, 0; 1998 QG₄₃, 2, 1, 0; 1998 QG₇₃, 2, 1, 0; 1998 SX₇, 2, 1, 0; 1998 SO₁₂, 1, 1, 0; 1998 SP₁₄₇, 2, 1, 0; 1998 TP₁₇, 2, 1, 0; 1998 UP₁₅, 1, 1, 0; 1998 UN₂₀, 2, 1, 0; 1998 VG₁₅, 2, 1, 0; 1998 VM₁₅, 2, 1, 0; 1998 WQ₁₁, 2, 1, 0; 1998 XP₂, 2, 1, 0; 1998 XP₉₂, 2, 1, 0; 1999 CE₃₁, 1, 1, 0; 1999 CO₃₂, 1, 1, 0; 1999 CW₈₅, 2, 1, 0; 1999 CT₁₂₃, 1, 1, 0; 1999 GW₃, 1, 1, 0; 1999 GJ₄, 5, 3, 1117; 1999 NK₃₇, 2, 1, 0; (77), 2, 1, 0; (512), 2, 1, 0; (573), 2, 1, 0; (934), 2, 1, 0; (959), 2, 1, 0; (1123), 1, 1, 0; (1252), 2, 1, 0; (1562), 2, 1, 0; (1953), 2, 1, 0; (2461), 1, 1, 0; (2681), 2, 1, 0; (2884), 2, 1, 0; (3170), 1, 1, 0; (3247), 2, 1, 0; (3465), 1, 1, 0; (4325), 1, 1, 0; (5080), 2, 1, 0; (5524), 2, 1, 0; (6136), 2, 1, 0; (6327), 2, 1, 0; (7729), 2, 1, 0; (8077), 2, 1, 0; (8934), 1, 1, 0; (9945), 4, 2, 4; [130, 71, 0*, 1983/02/11–1994/11/07]

676 San Clemente

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

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

GSC

1999 PT₃, 1, 1, 0; (8289), 2, 2, 4; [3, 2, 0*, 1999/08/13–1999/08/17]

681 Calgary

G. W. Billings, 2320 Cherokee Dr NW, Calgary, Alberta T2L 0X7, Canada

[gbillings@talisman-energy.com]

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

GSC

1999 KF₄, 13, 4, 12; 1999 LB₆, 4, 2, 1; (5585), 4, 2, 2; [21, 3, 0*, 1999/07/27–1999/08/10]

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

1994 TV₃, 4, 2, 2; 1994 WH₃, 3, 1, 0; 1997 AF₄, 3, 1, 0; 1997 EQ₁₇, 3, 1, 0; 1998 DY₄, 2, 1, 0; 1998 FY₆₆, 2, 1, 0; 1998 HW₁₇, 2, 1, 0; 1998 KF₄₇, 3, 1, 0; 1998 VF₃₆, 2, 1, 0; (8879), 3, 1, 0; [27, 10, 0*, 1998/11/13–1999/08/18]

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

1988 VM₉, 2, 1, 0; 1992 PV₃, 2, 1, 0; 1996 NA, 4, 2, 1; 1996 TU₁₁, 4, 2, 1; 1996 WX, 4, 2, 1; 1996 XE₂, 4, 2, 1; 1996 XD₂₀, 2, 1, 0; 1997 AL₆, 2, 1, 0; 1997 CK₂₂, 5, 2, 2; 1997 EO₇, 4, 2, 1; 1997 GL₂₈, 4, 2, 2; 1998 ED₃, 4, 2, 1; 1998 FZ₄, 6, 3, 2; 1998 FA₅, 2, 1, 0; 1998 HE₂₀, 4, 2, 3; 1998 KX, 4, 2, 1; 1998 MY₁, 4, 2, 1; 1999 CJ₅₄, 3, 1, 0; 1999 LX, 4, 2, 1; 1999 LH₆, 8, 3, 4; 1999 MA, 6, 3, 8; 1999 NR₂, 4, 1, 0; 1999 ON₁, 4, 2, 1; 1999 PC_{*}, 6, 3, 4; 1999 PK, 2, 1, 0; 1999 PE₁ *, 5, 2, 1; 1999 PF₁ *, 5, 2, 1; 1999 PG₁ *, 9, 4, 4; 1999 PH₁ *, 9, 4, 4; 1999 PD₂ *, 8, 3, 4; 1999 PE₂ *, 8, 3, 4; 1999 PD₃ *, 5, 2, 1; 1999 PE₃ *, 5, 2, 1; 1999 PF₃ *, 4, 2, 1; 1999 PG₃ *, 4, 2, 1; 1999 PM₃ *, 6, 3, 3; 1999 PR₃ *, 6, 3, 2; 1999 PY₃, 3, 1, 0; 1999 PJ₄, 3, 1, 0; [178, 39, 13*, 1997/01/16–1999/08/15]

688 Lowell Observatory, Anderson Mesa Station

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

1.07-m reflector + CCD, 0.75-m $f/15.7$ reflector + CCD

USNO-A2.0

(1) 1992 RZ₆, 2, 1, 0; 1995 UG, 4, 1, 0; 1995 WH₁₇, 1, 1, 0; 1998 AO₉, 2, 1, 0; [9, 4, 0*, 1997/03/12–1998/01/07]

(4) 1998 WN₁, 2, 1, 0; [2, 1, 0*, 1997/08/01]

691 Kitt Peak, Steward Observatory

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

Observers T. Gehrels, J. Larsen, J. Montani, J. V. Scotti, A. Tubiolo, A. Gleason,

N. Danzl, T. Bressi, R. E. Smith, R. Kowalski, C. Bayus

0.91-m Spacewatch telescope + CCD

GSC

1969 TY₁, 3, 1, 0; 1971 UK₁, 3, 1, 0; 1972 TR₈, 3, 1, 0; 1973 SQ, 7, 2, 30; 1973 SP₄, 3, 1, 0; 1975 SO₁, 3, 1, 0; 1975 SU₁, 3, 1, 0; 1977 CP, 3, 1, 0; 1977 DG₃, 2, 1, 0; 1977 RG₁₉, 3, 1, 0; 1977 XZ₂, 3, 1, 0; 1978 RO₈, 6, 2, 430; 1978 RA₁₀, 3, 1, 0; 1978 SC₅, 3, 1, 0; 1978 VC₄, 3, 1, 0; 1978 VS₈, 5, 2, 6; 1978 VU₈, 3, 1, 0; 1978 VD₉, 3, 1, 0; 1978 XK, 9, 3, 2223; 1979 HN₅, 3, 1, 0; 1979 OH₁, 3, 1, 0; 1979 QD₂, 6, 2, 34; 1979 QF₂, 3, 1, 0; 1979 QM₃, 3, 1, 0; 1980 FY₂, 6, 2, 6; 1980 UR₁, 2, 1, 0; 1981 ED₃, 3, 1, 0; 1981 EP₉, 6, 2, 964; 1981 EG₁₀, 3, 1, 0; 1981 EE₁₃, 3, 1, 0; 1981 EQ₁₇, 6, 2, 2516; 1981 ED₁₈, 3, 1, 0; 1981 ES₂₃, 3, 1, 0; 1981 EV₂₅, 3, 1, 0; 1981 EH₂₈, 3, 1, 0; 1981 EL₂₈, 3, 1, 0; 1981 EZ₂₉, 3, 1, 0; 1981 EB₃₄, 2, 1, 0; 1981 EU₃₄, 9, 3, 2429; 1981 EA₃₆, 3, 1, 0; 1981 EJ₃₆, 3, 1, 0; 1981 EW₃₆, 3, 1, 0; 1981 EL₃₈, 6, 2, 2362; 1981 EM₄₀, 3, 1, 0; 1981 EY₄₁, 3, 1, 0; 1981 ED₄₅, 3, 1, 0; 1981 EP₄₅, 3, 1, 0; 1981 EK₄₇, 3, 1, 0; 1981 QJ₂, 3, 1, 0; 1981 QJ₃, 3, 1, 0; 1981 UA₂₃, 3, 1, 0; 1981 WJ₉, 3, 1, 0; 1982 KH₁, 3, 1, 0; 1982 VS₂, 3, 1, 0; 1983 RP₃, 3, 1, 0; 1984 SL, 3, 1, 0; 1985 CL₂, 2, 1, 0; 1985 RF₃, 3, 1, 0; 1985 UA₅, 3, 1, 0; 1986 EP₂, 3, 1, 0; 1986 EA₅, 2, 1, 0; 1986 PY, 3, 1, 0; 1986 PE₁, 3, 1, 0; 1986 QF₃, 2, 1, 0; 1986 TH₃, 3, 1, 0; 1987 QG₁₀, 3, 1, 0; 1987 RF₁, 6, 2, 568; 1987 RO₅, 3, 1, 0; 1987 SL₅, 3, 1, 0; 1987 SP₅, 3, 1, 0; 1987 UY₁, 3, 1, 0; 1988 AH₅, 6, 2, 4; 1988 BN₅, 3, 1, 0; 1988 DB₅, 6, 2, 19; 1988 RE₁, 6, 2, 1444; 1988 RY₁, 3, 1, 0; 1988 RJ₆, 3, 1, 0; 1988 RN₁₁, 3, 1, 0; 1988 RD₁₂, 3, 1, 0; 1988 SL₁, 6, 2, 1077; 1988 SL₂, 3, 1, 0; 1988 SX₂, 6, 2, 7; 1988 TE, 3, 1, 0; 1988 TN₁, 3, 1, 0; 1989 CF₃, 3, 1, 0; 1989 GQ₆, 3, 1, 0; 1989 LH, 3, 1, 0; 1989 SX₅, 3, 1, 0; 1989 ST₉, 3, 1, 0; 1989 SP₁₁, 3, 1, 0; 1989 TC₄, 3, 1, 0; 1989 TB₅, 6, 2, 18; 1989 TP₁₄, 3, 1, 0; 1989 TK₁₆, 3, 1, 0; 1989 UY₂, 6, 2, 966; 1989 US₄, 6, 2, 1971; 1989 WH, 3, 1, 0; 1990 EN₃, 3, 1, 0; 1990 OK, 3, 1, 0; 1990 OM₂, 3, 1, 0; 1990 QQ₁, 3, 1, 0; 1990 QT₁, 3, 1, 0; 1990 QU₃, 6, 2, 1381; 1990 QB₅, 3, 1, 0; 1990 QE₅, 3, 1, 0; 1990 QA₆, 3, 1, 0; 1990 QN₇, 3, 1, 0; 1990 QT₇, 3, 1, 0; 1990 RS, 3, 1, 0; 1990 RF₁, 3, 1, 0; 1990 RY₂, 3, 1, 0; 1990 RH₇, 3, 1, 0; 1990 RO₈, 8, 3, 2048; 1990 SX, 3, 1, 0; 1990 SL₇, 2, 1, 0; 1990 SQ₈, 3, 1, 0; 1990 SC₁₁, 3, 1, 0; 1990 SX₁₃, 3, 1, 0; 1990 SY₁₅, 3, 1, 0; 1990 TE₂, 3, 1, 0; 1990 UQ₄, 6, 2, 21; 1990 VM₃, 6, 2, 1463; 1990 WO₃, 3, 1, 0; 1991 CJ₁, 6, 2, 1509; 1991 GZ₅, 3, 1, 0; 1991 GO₈, 3, 1, 0; 1991 LL₂, 3, 1, 0; 1991 PV, 3, 1, 0; 1991 PK₁, 3, 1, 0; 1991 PA₂, 3, 1, 0; 1991 PQ₃, 3, 1, 0; 1991 PV₅, 3, 1, 0; 1991 PY₇, 3, 1, 0; 1991 PL₈, 3, 1, 0; 1991 PP₈, 3, 1, 0; 1991 PQ₈, 6, 2, 2163; 1991 RA₁, 3, 1, 0; 1991 RU₂, 3, 1, 0; 1991 RV₄, 3, 1, 0; 1991 RL₈, 3, 1, 0; 1991 RR₁₀, 3, 1, 0; 1991 RZ₁₀, 3, 1, 0; 1991 RE₂₅, 2, 1, 0; 1991 RK₂₆, 3, 1, 0; 1991 RL₂₆, 3, 1, 0; 1991 RC₂₈, 3, 1, 0; 1991 TD₆, 2, 1, 0; 1991 UV₁, 3, 1, 0; 1991 UQ₂, 3, 1, 0; 1991 VF₁, 3, 1, 0; 1991 VE₅, 3, 1, 0; 1991 VO₇, 6, 2, 5; 1991 VM₁₂, 3, 1, 0; 1991 YU, 3, 1, 0; 1992 AJ₁, 3, 1, 0; 1992 BX, 3, 1, 0; 1992 CK, 3, 1, 0; 1992 CL, 3, 1, 0; 1992 DA₄, 3, 1, 0; 1992 DL₆, 3, 1, 0; 1992 DF₈, 3, 1, 0; 1992 DA₁₀, 3, 1, 0; 1992 DP₁₃, 3, 1, 0; 1992 EO₄, 3, 1, 0; 1992 EJ₅, 3, 1, 0; 1992 EE₆, 3, 1, 0; 1992 ED₈, 6, 2, 4; 1992 EQ₁₀, 10, 4, 1804; 1992 ER₁₃, 3, 1, 0; 1992 EY₁₄, 3, 1, 0; 1992 EW₁₅, 3, 1, 0; 1992 EU₃₀, 1, 1, 0; 1992 EG₃₁, 5, 2, 23; 1992 GV₃, 3, 1, 0; 1992 HD₄, 3, 1, 0; 1992 JL₁, 3, 1, 0; 1992 KA, 3, 1, 0; 1992 OK₂, 3, 1, 0; 1992 OL₃, 3, 1, 0; 1992 PB₁, 6, 2, 8; 1992 PC₂, 3, 1, 0; 1992 PV₃, 3, 1, 0; 1992 RV₂, 6, 2, 16; 1992 RL₃, 3, 1, 0; 1992 RS₄, 3, 1, 0; 1992 RG₅, 13, 5, 1405; 1992 RE₆, 3, 1, 0; 1992 RV₆, 6, 2, 1378; 1992 SF₁₇, 2, 1, 0; 1992 SA₂₂, 6, 3, 34; 1992 VQ, 3, 1, 0; 1992 WD₃, 3, 1, 0; 1992 WH₃, 3, 1, 0; 1992 WK₉, 2, 1, 0; 1993 BN, 3, 1, 0; 1993 BT₁₄, 3, 1, 0; 1993 CB, 6, 2, 1486; 1993 CA₁, 3, 1, 0; 1993 DV, 3, 1, 0; 1993 FS₆, 3, 1, 0; 1993 FT₇, 2, 1, 0; 1993 FN₉, 3, 1, 0; 1993 FO₁₂, 2, 1, 0; 1993 FV₁₆, 3, 1, 0; 1993 FF₁₈, 3, 1, 0; 1993 FZ₂₀, 3, 1, 0; 1993 FQ₂₁, 3, 1, 0; 1993 FD₂₈, 3, 1, 0; 1993 FG₂₈, 3, 1, 0; 1993 FK₃₃, 1, 1, 0; 1993 FU₃₄, 3, 1, 0; 1993 FT₃₉, 3, 1, 0; 1993 FA₄₀, 3, 1, 0; 1993 FE₄₃, 3, 1, 0; 1993 FV₄₅, 3, 1, 0; 1993 FS₄₆, 3, 1, 0; 1993 FC₄₈, 6, 2, 1463; 1993 FD₅₁, 3, 1, 0; 1993 FL₅₄, 3, 1, 0; 1993 FN₇₀, 3, 1, 0; 1993 FV₈₂, 3, 1, 0; 1993 GN, 5, 2, 29; 1993 HW, 2, 1, 0; 1993 LX, 2, 1, 0; 1993 LK₁, 3, 1, 0; 1993 LR₁, 3, 1, 0; 1993 LS₁, 3, 1, 0; 1993 OO₄, 3, 1, 0; 1993 OV₄, 6, 2, 39; 1993 ON₈, 9, 3, 2487; 1993 OS₁₂, 6, 2, 377; 1993 PU₅, 3, 1, 0; 1993 QY, 3, 1, 0; 1993 QQ₅, 3, 1, 0; 1993 RZ₃, 3, 1, 0; 1993 RC₄, 3, 1, 0; 1993 RM₇, 3, 1, 0; 1993 RY₁₁, 3, 1, 0; 1993 RM₁₄, 3, 1, 0; 1993 ST₅, 2,

1, 0; 1993 SO₇, 3, 1, 0; 1993 TF₁, 3, 1, 0; 1993 TW₁₆, 3, 1, 0; 1993 TD₁₇, 3, 1, 0; 1993 TG₁₉, 3, 1, 0; 1993 TO₂₀, 2, 1, 0; 1993 TM₂₄, 3, 1, 0; 1993 TC₂₅, 3, 1, 0; 1993 TK₂₅, 3, 1, 0; 1993 TS₃₁, 3, 1, 0; 1993 TQ₃₆, 3, 1, 0; 1993 UK, 3, 1, 0; 1993 UQ₂, 3, 1, 0; 1993 UT₇, 3, 1, 0; 1993 UC₈, 6, 2, 27; 1993 VH₃, 3, 1, 0; 1993 XH, 3, 1, 0; 1994 AZ₄, 5, 2, 24; 1994 AB₈, 3, 1, 0; 1994 CA₅, 3, 1, 0; 1994 CX₁₀, 5, 2, 11; 1994 CZ₁₇, 3, 1, 0; 1994 ED₆, 3, 1, 0; 1994 GG₄, 3, 1, 0; 1994 GD₁₀, 3, 1, 0; 1994 GF₁₀, 3, 1, 0; 1994 GX₁₀, 3, 1, 0; 1994 NS₁, 6, 2, 75; 1994 PB₁, 3, 1, 0; 1994 PC₂, 3, 1, 0; 1994 PJ₄, 3, 1, 0; 1994 PU₄, 3, 1, 0; 1994 PQ₆, 3, 1, 0; 1994 PX₉, 3, 1, 0; 1994 PC₁₃, 3, 1, 0; 1994 PN₁₃, 2, 1, 0; 1994 PM₁₄, 3, 1, 0; 1994 PX₁₅, 3, 1, 0; 1994 PO₁₆, 3, 1, 0; 1994 PE₁₈, 6, 2, 15; 1994 PO₁₈, 6, 2, 4; 1994 PV₁₉, 3, 1, 0; 1994 PL₂₀, 6, 2, 19; 1994 PL₂₂, 6, 2, 4; 1994 PL₂₆, 6, 2, 2544; 1994 PG₂₇, 3, 1, 0; 1994 PZ₂₈, 6, 2, 2740; 1994 PS₃₁, 3, 1, 0; 1994 PP₃₇, 3, 1, 0; 1994 PV₃₇, 3, 1, 0; 1994 PY₃₇, 3, 1, 0; 1994 PO₃₉, 2, 1, 0; 1994 RT₂, 6, 2, 16; 1994 RP₅, 3, 1, 0; 1994 RK₁₁, 2, 1, 0; 1994 SZ₁, 3, 1, 0; 1994 SC₆, 9, 3, 31; 1994 TE, 3, 1, 0; 1994 TT, 6, 2, 7; 1994 TF₁, 2, 1, 0; 1994 TG₁, 3, 1, 0; 1994 TJ₁, 9, 3, 1950; 1994 TQ₁, 2, 1, 0; 1994 TR₃, 6, 2, 483; 1994 TK₁₁, 6, 2, 38; 1994 TT₁₆, 3, 1, 0; 1994 UP₁, 2, 1, 0; 1994 UX₁, 5, 2, 1641; 1994 US₂, 3, 1, 0; 1994 UQ₇, 2, 1, 0; 1994 VF, 3, 1, 0; 1994 VL, 3, 1, 0; 1994 VU₂, 3, 1, 0; 1994 VW₆, 2, 1, 0; 1994 WA, 3, 1, 0; 1994 WJ, 3, 1, 0; 1994 WW₂, 3, 1, 0; 1994 WL₃, 2, 1, 0; 1994 XQ₄, 3, 1, 0; 1995 BE, 3, 1, 0; 1995 BQ, 3, 1, 0; 1995 BM₁, 9, 3, 993; 1995 BO₃, 3, 1, 0; 1995 BJ₅, 6, 2, 21; 1995 DE₁, 3, 1, 0; 1995 DZ₅, 3, 1, 0; 1995 EA₈, 3, 1, 0; 1995 FM₃, 3, 1, 0; 1995 FA₇, 3, 1, 0; 1995 FA₈, 3, 1, 0; 1995 FB₁₄, 6, 2, 1915; 1995 FQ₁₄, 3, 1, 0; 1995 FH₁₅, 3, 1, 0; 1995 FV₁₈, 3, 1, 0; 1995 GW₂, 3, 1, 0; 1995 HY₂, 3, 1, 0; 1995 KJ₃, 3, 1, 0; 1995 NE₁, 1, 1, 0; 1995 OS₁, 3, 1, 0; 1995 SH₁, 9, 3, 542; 1995 SQ₂, 3, 1, 0; 1995 SP₈, 3, 1, 0; 1995 SQ₂₉, 3, 1, 0; 1995 SY₃₀, 3, 1, 0; 1995 SB₃₄, 3, 1, 0; 1995 SC₅₁, 3, 1, 0; 1995 TB₈, 2, 1, 0; 1995 US₄, 3, 1, 0; 1995 UC₅₀, 3, 1, 0; 1995 VP, 3, 1, 0; 1995 WS₃, 6, 2, 7; 1995 WT₈, 3, 1, 0; 1995 YL₂₃, 3, 1, 0; 1996 AR, 3, 1, 0; 1996 AV₁, 3, 1, 0; 1996 AB₄, 3, 1, 0; 1996 AH₉, 3, 1, 0; 1996 AL₁₉, 3, 1, 0; 1996 BR₁, 3, 1, 0; 1996 BM₃, 3, 1, 0; 1996 BM₅, 3, 1, 0; 1996 BM₆, 5, 2, 7; 1996 BS₉, 3, 1, 0; 1996 CB₃, 3, 1, 0; 1996 CG₇, 6, 2, 617; 1996 CP₇, 3, 1, 0; 1996 DG, 3, 1, 0; 1996 DL₁, 3, 1, 0; 1996 DU₁, 3, 1, 0; 1996 DT₃, 3, 1, 0; 1996 EB, 2, 1, 0; 1996 ED, 3, 1, 0; 1996 EL₁, 6, 2, 32; 1996 EK₁, 3, 1, 0; 1996 ES₁, 3, 1, 0; 1996 EQ₂, 3, 1, 0; 1996 ES₂, 7, 3, 26; 1996 EY₅, 3, 1, 0; 1996 EE₈, 3, 1, 0; 1996 EM₁₁, 3, 1, 0; 1996 FK₂, 9, 3, 569; 1996 FO₂, 5, 2, 1447; 1996 FT₆, 3, 1, 0; 1996 FT₁₁, 5, 2, 29; 1996 GP₂, 3, 1, 0; 1996 GB₇, 3, 1, 0; 1996 GG₁₇, 3, 1, 0; 1996 GN₁₇, 3, 1, 0; 1996 HR₁₀, 3, 1, 0; 1996 HC₁₂, 6, 2, 44; 1996 HU₁₈, 3, 1, 0; 1996 HD₂₂, 3, 1, 0; 1996 HS₂₂, 3, 1, 0; 1996 HW₂₃, 3, 1, 0; 1996 HJ₂₄, 3, 1, 0; 1996 JF₁, 3, 1, 0; 1996 JC₅, 3, 1, 0; 1996 JC₆, 6, 2, 510; 1996 KN, 2, 1, 0; 1996 KT₈, 6, 2, 1618; 1996 LS₂, 3, 1, 0; 1996 NP₄, 3, 1, 0; 1996 NG₅, 3, 1, 0; 1996 PH, 3, 1, 0; 1996 PS₈, 3, 1, 0; 1996 QG₁, 3, 1, 0; 1996 RO₆, 2, 1, 0; 1996 RN₃₁, 3, 1, 0; 1996 SQ, 3, 1, 0; 1996 SJ₃, 3, 1, 0; 1996 SC₆, 6, 1, 0; 1996 TJ₇, 3, 1, 0; 1996 TM₉, 3, 1, 0; 1996 TG₁₃, 3, 1, 0; 1996 TO₂₄, 3, 1, 0; 1996 TP₃₅, 9, 3, 557; 1996 TT₃₈, 6, 2, 2595; 1996 TH₅₂, 6, 2, 7; 1996 UO₂, 3, 1, 0; 1996 VM, 3, 1, 0; 1996 VS, 3, 1, 0; 1996 VZ₈, 6, 2, 2030; 1996 XT₅, 3, 1, 0; 1996 XP₁₉, 6, 2, 5; 1996 XB₂₅, 3, 1, 0; 1996 XZ₃₀, 2, 1, 0; 1996 XX₃₁, 3, 1, 0; 1997 AR₁, 3, 1, 0; 1997 AC₆, 3, 1, 0; 1997 AT₆, 3, 1, 0; 1997 AY₈, 3, 1, 0; 1997 CZ₆, 3, 1, 0; 1997 CT₁₆, 3, 1, 0; 1997 CC₂₉, 3, 1, 0; 1997 EL, 3, 1, 0; 1997 EF₄₁, 3, 1, 0; 1997 EQ₄₁, 3, 1, 0; 1997 EX₄₁, 9, 3, 594; 1997 EO₄₂, 3, 1, 0; 1997 GY, 3, 1, 0; 1997 GF₆, 3, 1, 0; 1997 GU₆, 3, 1, 0; 1997 GE₇, 5, 2, 950; 1997 GC₈, 3, 1, 0; 1997 GH₈, 6, 2, 90; 1997 GT₁₁, 3, 1, 0; 1997 GT₁₄, 3, 1, 0; 1997 GU₁₅, 6, 2, 25; 1997 GX₁₅, 3, 1, 0; 1997 GZ₁₆, 3, 1, 0; 1997 GA₁₇, 6, 2, 13; 1997 GC₁₉, 3, 1, 0; 1997 GQ₂₃, 3, 1, 0; 1997 GX₂₃, 2, 1, 0; 1997 GZ₃₂, 3, 1, 0; 1997 GV₃₅, 3, 1, 0; 1997 GC₃₈, 3, 1, 0; 1997 HR₇, 8, 3, 446; 1997 HW₇, 2, 1, 0; 1997 HJ₈, 3, 1, 0; 1997 HG₁₀, 3, 1, 0; 1997 HM₁₁, 3, 1, 0; 1997 JZ, 3, 1, 0; 1997 JT₃, 3, 1, 0; 1997 JH₆, 3, 1, 0; 1997 JV₇, 3, 1, 0; 1997 JB₁₀, 3, 1, 0; 1997 JB₁₅, 6, 2, 39; 1997 JD₁₅, 3, 1, 0; 1997 JN₁₅, 3, 1, 0; 1997 JF₁₆, 3, 1, 0; 1997 JH₁₆, 3, 1, 0; 1997 KS, 3, 1, 0; 1997 LC, 6, 2, 1837; 1997 LO₁₇, 3, 1, 0; 1997 MR, 3, 1, 0; 1997 MV, 3, 1, 0; 1997 MZ₂, 3, 1, 0; 1997 MA₄, 3, 1, 0; 1997 MY₄, 3, 1, 0; 1997 MC₈, 6, 2, 7; 1997 MY₈, 3, 1, 0; 1997 NR₁₀, 2, 1, 0; 1997 OM, 3, 1, 0; 1997 PF, 6, 2, 20; 1997 PS, 6, 2, 26; 1997 PY, 2, 1, 0; 1997 PY₁, 3, 1, 0; 1997 PU₂, 6, 2, 8; 1997 PV₃, 3, 1, 0; 1997 PW₃, 3, 1, 0; 1997 PN₅, 3, 1, 0; 1997 PD₆, 6, 2, 54; 1997 QL, 3, 1, 0; 1997 QM, 3, 1, 0; 1997 QF₄, 2, 1, 0; 1997 QG₄, 3, 1, 0; 1997 QN₄, 3, 1, 0; 1997 QP₄, 3, 1, 0; 1997 QQ₄, 3, 1, 0; 1997 QE₅, 3, 1, 0; 1997 RZ, 3, 1, 0; 1997 RQ₅, 3, 1, 0; 1997 RR₈, 3, 1, 0; 1997 SF, 3, 1, 0; 1997 SN, 3, 1, 0; 1997 SP₁, 6, 2, 1553; 1997 SL₂, 3, 1, 0; 1997 SZ₂, 2, 1, 0; 1997 SE₃, 3, 1, 0; 1997 SB₄, 3, 1, 0; 1997 SC₄, 3, 1, 0; 1997 SE₅, 6, 2, 17; 1997 SW₆, 3, 1, 0; 1997 SN₁₀, 3, 1, 0; 1997 SF₁₁, 3, 1, 0; 1997 SO₁₁, 3, 1, 0; 1997 SE₁₅, 3, 1, 0; 1997 SD₂₅, 1, 1, 0; 1997 SK₂₅, 2, 1, 0; 1997 SA₃₄, 3, 1, 0; 1997 TC, 3, 1, 0; 1997 TV, 3, 1, 0; 1997 TC₁, 3, 1, 0; 1997 TW₉, 3, 1, 0; 1997 TJ₁₀, 3, 1, 0; 1997 TO₁₂, 3, 1, 0; 1997 TV₁₂, 3, 1, 0; 1997 TU₁₇, 3, 1, 0; 1997 TA₁₈, 5, 2, 116; 1997 TN₁₈, 3, 1, 0; 1997 TR₁₈, 3, 1, 0; 1997 TX₁₈, 5, 2, 34; 1997 TF₁₉, 3, 1, 0; 1997 TX₂₃, 3, 1, 0; 1997 TJ₂₄, 3, 1, 0; 1997 TR₂₄, 3, 1, 0; 1997 UK, 3, 1, 0; 1997 UV, 3, 1, 0; 1997 UB₁, 3, 1, 0; 1997 UG₂, 2, 1, 0; 1997 UU₂, 3, 1, 0; 1997 UJ₃, 3, 1, 0; 1997 UR₃, 3, 1, 0; 1997 UT₃, 3, 1, 0; 1997 UO₇, 3, 1, 0; 1997 UW₇, 3, 1, 0; 1997 UY₈, 3, 1, 0; 1997 UN₉, 3, 1, 0; 1997 UR₉, 3, 1, 0; 1997 UE₁₅, 3, 1, 0; 1997 UE₂₅, 3, 1, 0; 1997 VE, 3, 1, 0; 1997 VW, 3, 1, 0; 1997 VG₁, 6, 2, 15; 1997 VV₁, 3, 1, 0; 1997 VZ₁, 3, 1, 0; 1997 VS₃, 3, 1, 0; 1997 VM₅, 6, 2, 1299; 1997 WX, 3, 1, 0; 1997 WF₇, 3, 1, 0; 1997 WU₈, 6, 2, 943; 1997 WF₂₂, 6, 2, 9; 1997 WP₂₂, 6, 2, 864; 1997 WO₂₃, 6, 2, 904; 1997 WN₂₄, 3, 1, 0; 1997 WD₃₀, 6, 2, 5; 1997 WC₃₁, 6, 2, 476; 1997 WQ₃₁, 3, 1, 0; 1997 WT₃₃, 3, 1, 0; 1997 WJ₃₆, 3, 1, 0; 1997 WZ₃₆, 3, 1, 0; 1997 WN₃₈, 3, 1, 0; 1997 WR₃₈, 3, 1, 0; 1997 WZ₄₂, 3, 1, 0; 1997 WT₅₀, 3, 1, 0; 1997 WJ₅₇ *, 9, 3, 12; 1997 XA,

2, 1, 0; 1997 XB₂, 3, 1, 0; 1997 XX₅, 3, 1, 0; 1997 XY₆, 3, 1, 0; 1997 XY₉, 3, 1, 0; 1997 XA₁₀, 3, 1, 0; 1997 XY₁₀, 3, 1, 0; 1997 YA, 3, 1, 0; 1997 YT, 3, 1, 0; 1997 YL₁, 3, 1, 0; 1997 YX₂, 3, 1, 0; 1997 YF₃, 3, 1, 0; 1997 YJ₅, 3, 1, 0; 1997 YE₈, 3, 1, 0; 1997 YR₁₁, 3, 1, 0; 1997 YS₁₁, 3, 1, 0; 1997 YO₁₆, 3, 1, 0; 1997 YA₁₈, 3, 1, 0; 1998 AU₃, 6, 2, 410; 1998 AP₇, 3, 1, 0; 1998 AO₉, 3, 1, 0; 1998 AA₁₀, 3, 1, 0; 1998 BG₄, 6, 2, 1498; 1998 BM₇, 3, 1, 0; 1998 BK₈, 3, 1, 0; 1998 BN₁₀, 3, 1, 0; 1998 BY₁₂, 3, 1, 0; 1998 BA₂₀, 3, 1, 0; 1998 BR₃₃, 3, 1, 0; 1998 BC₃₅, 3, 1, 0; 1998 CO, 3, 1, 0; 1998 CM₂, 3, 1, 0; 1998 CQ₂, 6, 2, 461; 1998 CG₃, 3, 1, 0; 1998 CU₃, 12, 4, 470; 1998 CE₄, 2, 1, 0; 1998 DT₁, 3, 1, 0; 1998 DY₄, 6, 2, 476; 1998 DC₆, 3, 1, 0; 1998 DF₈, 3, 1, 0; 1998 DG₁₀, 2, 1, 0; 1998 DT₁₂, 3, 1, 0; 1998 DD₁₃, 3, 1, 0; 1998 DL₁₄, 3, 1, 0; 1998 DM₂₃, 3, 1, 0; 1998 DZ₃₃, 3, 1, 0; 1998 DD₃₆, 3, 1, 0; 1998 EE₆, 3, 1, 0; 1998 EP₆, 3, 1, 0; 1998 ER₈, 3, 1, 0; 1998 EU₈, 3, 1, 0; 1998 EG₉, 3, 1, 0; 1998 FV₈, 3, 1, 0; 1998 FK₁₂, 9, 3, 9; 1998 FS₁₅, 3, 1, 0; 1998 FW₁₉, 6, 2, 1072; 1998 FY₃₅, 6, 2, 39; 1998 FG₄₀, 3, 1, 0; 1998 FJ₄₉, 3, 1, 0; 1998 FQ₄₉, 3, 1, 0; 1998 FV₅₃, 3, 1, 0; 1998 FR₅₄, 3, 1, 0; 1998 FU₅₈, 2, 1, 0; 1998 FT₅₉, 2, 1, 0; 1998 FP₆₀, 3, 1, 0; 1998 FP₆₃, 3, 1, 0; 1998 FV₆₃, 2, 1, 0; 1998 FF₆₆, 3, 1, 0; 1998 FV₆₇, 3, 1, 0; 1998 FV₇₂, 6, 2, 4; 1998 FK₇₄, 3, 1, 0; 1998 FX₉₈, 6, 2, 1026; 1998 FZ₁₀₂, 3, 1, 0; 1998 FD₁₁₄, 3, 1, 0; 1998 FO₁₁₉, 3, 1, 0; 1998 GF₁, 3, 1, 0; 1998 GL₉, 3, 1, 0; 1998 HU₁, 3, 1, 0; 1998 HM₂₂, 3, 1, 0; 1998 HK₂₄, 3, 1, 0; 1998 HH₂₇, 2, 1, 0; 1998 HX₃₈, 3, 1, 0; 1998 HT₅₀, 2, 1, 0; 1998 HP₅₂, 3, 1, 0; 1998 HB₈₈, 3, 1, 0; 1998 HX₈₈, 6, 2, 1762; 1998 HL₉₂, 3, 1, 0; 1998 HD₉₅, 3, 1, 0; 1998 HH₁₄₆, 3, 1, 0; 1998 JM₁, 3, 1, 0; 1998 KS₆, 3, 1, 0; 1998 KJ₄₈, 3, 1, 0; 1998 KL₅₅, 3, 1, 0; 1998 KN₅₆, 6, 2, 6; 1998 MY₁, 3, 1, 0; 1998 MN₄, 3, 1, 0; 1998 MM₅, 3, 1, 0; 1998 MW₇, 3, 1, 0; 1998 MJ₈, 3, 1, 0; 1998 MV₃₄, 3, 1, 0; 1998 ON₁, 3, 1, 0; 1998 OA₄, 3, 1, 0; 1998 OB₄, 3, 1, 0; 1998 OH₆, 3, 1, 0; 1998 OW₁₂, 6, 2, 932; 1998 OB₁₃, 3, 1, 0; 1998 PH, 3, 1, 0; 1998 PD₁, 3, 1, 0; 1998 QO₄, 3, 1, 0; 1998 QM₅, 3, 1, 0; 1998 QT₅, 3, 1, 0; 1998 QL₆, 5, 2, 12; 1998 QN₆, 6, 2, 9; 1998 QP₆, 4, 2, 11; 1998 QR₆, 6, 1, 0; 1998 QV₇, 3, 1, 0; 1998 QQ₈, 3, 1, 0; 1998 QX₉, 3, 1, 0; 1998 QR₁₀, 3, 1, 0; 1998 QT₁₀, 3, 1, 0; 1998 QU₁₃, 3, 1, 0; 1998 QL₁₈, 6, 2, 485; 1998 QA₁₉, 3, 1, 0; 1998 QT₁₉, 3, 1, 0; 1998 QZ₁₉, 3, 1, 0; 1998 QW₂₂, 3, 1, 0; 1998 QW₂₃, 3, 1, 0; 1998 QL₂₄, 2, 1, 0; 1998 QM₂₄, 3, 1, 0; 1998 QM₂₅, 3, 1, 0; 1998 QA₂₆, 6, 2, 806; 1998 QB₂₆, 6, 2, 1440; 1998 QF₂₆, 3, 1, 0; 1998 QR₂₆, 2, 1, 0; 1998 QV₃₂, 6, 2, 32; 1998 QW₃₂, 3, 1, 0; 1998 QE₃₃, 6, 2, 32; 1998 QV₃₃, 3, 1, 0; 1998 QS₃₄, 6, 2, 13; 1998 QV₃₄, 3, 1, 0; 1998 QD₃₅, 9, 3, 996; 1998 QE₃₅, 6, 2, 1476; 1998 QP₃₅, 3, 1, 0; 1998 QZ₃₅, 6, 2, 941; 1998 QH₃₇, 3, 1, 0; 1998 QL₃₇, 3, 1, 0; 1998 QS₃₇, 3, 1, 0; 1998 QO₃₈, 3, 1, 0; 1998 QV₃₈, 3, 1, 0; 1998 QK₃₉, 3, 1, 0; 1998 QO₃₉, 3, 1, 0; 1998 QT₃₉, 3, 1, 0; 1998 QZ₃₉, 3, 1, 0; 1998 QJ₄₀, 3, 1, 0; 1998 QG₄₀, 3, 1, 0; 1998 QP₄₁, 6, 2, 959; 1998 QT₄₁, 3, 1, 0; 1998 QK₄₂, 3, 1, 0; 1998 QM₄₂, 3, 1, 0; 1998 QD₄₄, 6, 2, 6; 1998 QM₄₄, 6, 2, 452; 1998 QU₄₅, 3, 1, 0; 1998 QD₄₆, 3, 1, 0; 1998 QE₄₉, 3, 1, 0; 1998 QG₄₉, 6, 2, 576; 1998 QQ₄₉, 3, 1, 0; 1998 QZ₅₀, 8, 3, 1402; 1998 QE₅₁, 2, 1, 0; 1998 QX₅₁, 6, 2, 11; 1998 QE₅₃, 3, 1, 0; 1998 QO₅₄, 2, 1, 0; 1998 QQ₅₄, 3, 1, 0; 1998 QX₅₄, 3, 1, 0; 1998 QY₅₄, 3, 1, 0; 1998 QA₅₅, 3, 1, 0; 1998 QP₅₅, 4, 1, 0; 1998 QT₅₅, 3, 1, 0; 1998 QT₅₅, 6, 2, 8; 1998 QA₅₆, 6, 2, 1033; 1998 QE₅₇, 5, 2, 1; 1998 QG₅₇, 3, 1, 0; 1998 QL₅₇, 3, 1, 0; 1998 QR₅₈, 3, 1, 0; 1998 QU₆₀, 3, 1, 0; 1998 QK₆₃, 6, 2, 6; 1998 QV₆₇, 3, 1, 0; 1998 QJ₆₉, 3, 1, 0; 1998 QH₇₁, 3, 1, 0; 1998 QB₇₃, 6, 2, 5; 1998 QH₇₄, 3, 1, 0; 1998 QM₇₄, 3, 1, 0; 1998 QA₈₄, 3, 1, 0; 1998 QP₈₈, 6, 2, 7; 1998 QS₉₀, 3, 1, 0; 1998 QF₉₁, 3, 1, 0; 1998 QY₉₁, 3, 1, 0; 1998 QC₉₂, 9, 3, 1028; 1998 QL₉₂, 3, 1, 0; 1998 QO₉₃, 3, 1, 0; 1998 QR₉₃, 3, 1, 0; 1998 QO₉₅, 3, 1, 0; 1998 QL₉₆, 3, 1, 0; 1998 QM₉₉, 3, 1, 0; 1998 QL₁₀₃, 3, 1, 0; 1998 QQ₁₀₃, 6, 2, 9; 1998 QW₁₀₅, 3, 1, 0; 1998 RE, 3, 1, 0; 1

0; 1998 SG₄₉, 3, 1, 0; 1998 SO₅₀, 3, 1, 0; 1998 SB₅₁, 6, 2, 1952; 1998 SU₅₂, 3, 1, 0; 1998 SV₅₃, 3, 1, 0; 1998 SH₅₄, 3, 1, 0; 1998 SP₅₄, 8, 3, 2362; 1998 SA₅₆, 12, 4, 1331; 1998 SO₅₆, 3, 1, 0; 1998 SP₅₆, 3, 1, 0; 1998 SS₅₆, 3, 1, 0; 1998 SU₅₆, 9, 3, 14; 1998 SR₅₇, 6, 2, 490; 1998 SE₅₈, 3, 1, 0; 1998 SH₅₈, 3, 1, 0; 1998 SM₅₈, 3, 1, 0; 1998 ST₅₈, 3, 1, 0; 1998 SY₅₈, 3, 1, 0; 1998 SB₅₉, 3, 1, 0; 1998 SF₅₉, 3, 1, 0; 1998 SH₅₉, 6, 2, 1624; 1998 SP₅₉, 3, 1, 0; 1998 SQ₅₉, 6, 2, 832; 1998 SY₅₉, 3, 1, 0; 1998 SV₆₀, 12, 4, 1955; 1998 SL₆₁, 3, 1, 0; 1998 SZ₆₂, 6, 2, 978; 1998 SZ₆₄, 3, 1, 0; 1998 SB₆₆, 6, 2, 481; 1998 ST₇₂, 3, 1, 0; 1998 SZ₇₂, 6, 2, 7; 1998 SG₇₃, 3, 1, 0; 1998 SJ₇₃, 3, 1, 0; 1998 SW₇₄, 3, 1, 0; 1998 SY₇₄, 6, 2, 58; 1998 SK₇₅, 3, 1, 0; 1998 SA₈₀, 3, 1, 0; 1998 SX₁₀₁, 6, 2, 25; 1998 SE₁₀₂, 3, 1, 0; 1998 SV₁₀₅, 3, 1, 0; 1998 SZ₁₀₆, 3, 1, 0; 1998 SG₁₀₇, 3, 1, 0; 1998 SK₁₀₇, 3, 1, 0; 1998 SE₁₁₁, 6, 2, 5; 1998 SN₁₁₄, 3, 1, 0; 1998 SZ₁₁₄, 6, 2, 1367; 1998 SP₁₁₅, 3, 1, 0; 1998 SY₁₁₅, 3, 1, 0; 1998 SZ₁₁₅, 9, 3, 464; 1998 SY₁₁₇, 3, 1, 0; 1998 SR₁₁₈, 6, 2, 8; 1998 SK₁₁₉, 3, 1, 0; 1998 SR₁₁₉, 3, 1, 0; 1998 SF₁₂₃, 9, 3, 859; 1998 SK₁₂₃, 3, 1, 0; 1998 SN₁₂₃, 3, 1, 0; 1998 ST₁₂₃, 6, 2, 944; 1998 SX₁₂₃, 6, 2, 8; 1998 SH₁₂₄, 6, 2, 8; 1998 SJ₁₂₄, 9, 3, 2022; 1998 SR₁₂₄, 6, 2, 2442; 1998 SW₁₂₇, 3, 1, 0; 1998 SL₁₂₉, 3, 1, 0; 1998 SM₁₂₉, 3, 1, 0; 1998 SO₁₂₉, 3, 1, 0; 1998 SK₁₃₀, 2, 1, 0; 1998 SD₁₃₁, 3, 1, 0; 1998 SA₁₃₃, 3, 1, 0; 1998 SP₁₃₃, 6, 2, 11; 1998 SR₁₃₃, 3, 1, 0; 1998 SZ₁₃₃, 6, 2, 18; 1998 SF₁₃₄, 3, 1, 0; 1998 SB₁₃₆, 3, 1, 0; 1998 SF₁₃₆, 3, 1, 0; 1998 SC₁₃₈, 3, 1, 0; 1998 SF₁₃₈, 3, 1, 0; 1998 SM₁₃₈, 2, 1, 0; 1998 SA₁₃₉, 3, 1, 0; 1998 SJ₁₃₉, 2, 1, 0; 1998 SL₁₄₀, 5, 2, 4; 1998 SQ₁₄₀, 5, 2, 12; 1998 ST₁₄₀, 3, 1, 0; 1998 SF₁₄₁, 3, 1, 0; 1998 SV₁₄₁, 2, 1, 0; 1998 ST₁₄₂, 3, 1, 0; 1998 SW₁₄₃, 12, 4, 565; 1998 SY₁₄₃, 6, 2, 12; 1998 SB₁₄₄, 3, 1, 0; 1998 SM₁₄₄, 6, 2, 1475; 1998 SA₁₄₅, 3, 1, 0; 1998 SH₁₄₅, 3, 1, 0; 1998 SR₁₄₆, 3, 1, 0; 1998 SA₁₄₈, 3, 1, 0; 1998 SE₁₅₇, 3, 1, 0; 1998 SL₁₆₁, 9, 3, 825; 1998 ST₁₆₃, 3, 1, 0; 1998 SZ₁₆₃, 3, 1, 0; 1998 TU₃, 1, 0; 1998 TV₁, 3, 1, 0; 1998 TZ₁, 3, 1, 0; 1998 TX₂, 3, 1, 0; 1998 TD₅, 3, 1, 0; 1998 TH₅, 3, 1, 0; 1998 TR₅, 2, 1, 0; 1998 TU₆, 3, 1, 0; 1998 TH₉, 3, 1, 0; 1998 TS₁₃, 3, 1, 0; 1998 TH₁₅, 3, 1, 0; 1998 TL₁₅, 6, 2, 30; 1998 TP₁₇, 3, 1, 0; 1998 TR₁₇, 3, 1, 0; 1998 TY₁₇, 3, 1, 0; 1998 TA₁₈, 3, 1, 0; 1998 TY₂₀, 3, 1, 0; 1998 TD₂₇, 3, 1, 0; 1998 TH₂₉, 6, 2, 1381; 1998 TG₃₀, 6, 2, 5; 1998 TL₃₀, 3, 1, 0; 1998 TQ₃₀, 6, 2, 978; 1998 TR₃₀, 6, 2, 8; 1998 TG₃₂, 3, 1, 0; 1998 TD₃₃, 6, 2, 530; 1998 TQ₃₃, 3, 1, 0; 1998 TR₃₃, 6, 2, 32; 1998 TA₃₄, 3, 1, 0; 1998 TD₃₄, 3, 1, 0; 1998 TK₃₄, 3, 1, 0; 1998 UZ₃, 3, 1, 0; 1998 UB₁, 3, 1, 0; 1998 UK₁, 3, 1, 0; 1998 UQ₂, 3, 1, 0; 1998 UA₄, 3, 1, 0; 1998 UK₆, 6, 2, 473; 1998 UV₆, 6, 2, 18; 1998 UD₇, 9, 3, 2460; 1998 UE₇, 3, 1, 0; 1998 UK₇, 2, 1, 0; 1998 UY₇, 3, 1, 0; 1998 UL₈, 3, 1, 0; 1998 UM₈, 3, 1, 0; 1998 UW₁₂, 3, 1, 0; 1998 UF₁₄, 3, 1, 0; 1998 UO₁₅, 6, 2, 2004; 1998 UW₁₅, 3, 1, 0; 1998 UY₁₅, 3, 1, 0; 1998 UR₁₆, 5, 2, 1345; 1998 UP₁₈, 3, 1, 0; 1998 UW₁₈, 3, 1, 0; 1998 UA₂₀, 3, 1, 0; 1998 UY₂₀, 3, 1, 0; 1998 UA₂₁, 6, 2, 927; 1998 UE₂₁, 5, 2, 91; 1998 UF₂₁, 3, 1, 0; 1998 UA₂₃, 6, 2, 1511; 1998 UL₂₃, 3, 1, 0; 1998 UE₂₄, 3, 1, 0; 1998 UR₂₄, 6, 2, 12; 1998 UV₂₄, 3, 1, 0; 1998 UY₂₆, 3, 1, 0; 1998 UZ₂₈, 3, 1, 0; 1998 UM₃₂, 3, 1, 0; 1998 UG₃₄, 3, 1, 0; 1998 UA₃₇, 12, 4, 2406; 1998 UD₃₈, 3, 1, 0; 1998 UP₃₉, 3, 1, 0; 1998 UO₄₀, 3, 1, 0; 1998 VW₃, 3, 1, 0; 1998 VG₂, 3, 1, 0; 1998 VV₂, 2, 1, 0; 1998 VA₄, 3, 1, 0; 1998 VD₄, 9, 3, 1478; 1998 VA₅, 6, 2, 24; 1998 VD₅, 6, 2, 479; 1998 VH₅, 3, 1, 0; 1998 VT₅, 3, 1, 0; 1998 VV₅, 6, 2, 26; 1998 VB₆, 3, 1, 0; 1998 VV₆, 3, 1, 0; 1998 VN₈, 6, 2, 1020; 1998 VL₁₄, 3, 1, 0; 1998 VP₁₅, 3, 1, 0; 1998 VP₂₀, 2, 1, 0; 1998 VQ₂₅, 2, 1, 0; 1998 VB₂₆, 3, 1, 0; 1998 VJ₂₆, 6, 2, 978; 1998 VO₂₆, 3, 1, 0; 1998 VV₂₈, 3, 1, 0; 1998 VC₂₉, 3, 1, 0; 1998 VN₂₉, 3, 1, 0; 1998 VK₃₀, 3, 1, 0; 1998 VT₃₀, 3, 1, 0; 1998 VV₃₀, 3, 1, 0; 1998 VW₃₂, 3, 1, 0; 1998 VH₃₃, 3, 1, 0; 1998 VU₃₃, 6, 2, 8; 1998 VC₃₄, 6, 2, 406; 1998 VF₃₅, 3, 1, 0; 1998 VX₃₇, 3, 1, 0; 1998 VZ₃₇, 3, 1, 0; 1998 VN₄₀, 3, 1, 0; 1998 VU₄₁, 14, 5, 2567; 1998 VA₄₄, 6, 2, 8; 1998 WJ₃, 3, 1, 0; 1998 WN₁, 3, 1, 0; 1998 WO₁, 3, 1, 0; 1998 WQ₁, 8, 3, 1304; 1998 WR₁, 3, 1, 0; 1998 WC₃, 6, 2, 25; 1998 WK₃, 3, 1, 0; 1998 WH₄, 3, 1, 0; 1998 WN₆, 3, 1, 0; 1998 WQ₆, 3, 1, 0; 1998 WG₇, 6, 2, 416; 1998 WM₉, 9, 3, 12; 1998 WO₉, 3, 1, 0; 1998 WR₉, 9, 3, 18; 1998 WX₉, 2, 1, 0; 1998 WU₁₀, 6, 2, 7; 1998 WW₁₀, 2, 1, 0; 1998 WX₁₀, 5, 2, 85; 1998 WQ₁₁, 3, 1, 0; 1998 WG₁₂, 3, 1, 0; 1998 WH₁₂, 8, 3, 11; 1998 WJ₁₂, 6, 2, 7; 1998 WK₁₄, 3, 1, 0; 1998 WM₁₆, 3, 1, 0; 1998 WN₁₆, 3, 1, 0; 1998 WT₁₆, 3, 1, 0; 1998 WA₁₇, 3, 1, 0; 1998 WJ₁₇, 6, 2, 13; 1998 WA₁₈, 2, 1, 0; 1998 WR₁₈, 5, 2, 17; 1998 WV₁₈, 3, 1, 0; 1998 WM₁₉, 3, 1, 0; 1998 WE₂₀, 3, 1, 0; 1998 WZ₂₀, 3, 1, 0; 1998 WZ₂₁, 6, 2, 7; 1998 WA₂₂, 5, 2, 6; 1998 WO₂₂, 6, 2, 5; 1998 WW₂₂, 6, 2, 8; 1998 WX₂₂, 5, 2, 2451; 1998 WL₂₃, 3, 1, 0; 1998 WA₂₃, 3, 1, 0; 1998 XC₃, 3, 1, 0; 1998 XK₅, 2, 483; 1998 XE₁, 8, 3, 2483; 1998 XP₂, 3, 1, 0; 1998 XN₃, 3, 1, 0; 1998 XR₃, 5, 2, 459; 1998 XM₆, 5, 2, 419; 1998 XP₆, 4, 2, 12; 1998 XA₇, 6, 2, 8; 1998 XZ₈, 3, 1, 0; 1998 XJ₉, 3, 1, 0; 1998 XR₉, 3, 1, 0; 1998 XS₉, 3, 1, 0; 1998 XP₁₀, 6, 2, 68; 1998 XS₁₀, 3, 1, 0; 1998 XV₁₀, 3, 1, 0; 1998 XC₁₁, 3, 1, 0; 1998 XN₁₁, 3, 1, 0; 1998 XE₁₃, 6, 2, 7; 1998 XN₁₃, 9, 3, 23; 1998 XS₁₅, 3, 1, 0; 1998 XY₁₆, 3, 1, 0; 1998 XK₁₇, 3, 1, 0; 1998 XM₁₈, 3, 1, 0; 1998 XJ₁₉, 6, 2, 26; 1998 XN₂₁, 9, 3, 23; 1998 XY₂₁, 9, 3, 63; 1998 XD₂₄, 6, 2, 1380; 1998 XG₂₅, 3, 1, 0; 1998 XD₂₆, 6, 2, 23; 1998 XS₃₁, 3, 1, 0; 1998 XZ₄₀, 3, 1, 0; 1998 XY₄₁, 3, 1, 0; 1998 XB₄₈, 2, 1, 0; 1998 XU₅₁, 3, 1, 0; 1998 XJ₅₃, 3, 1, 0; 1998 XG₆₁, 3, 1, 0; 1998 XL₇₇, 3, 1, 0; 1998 XE₈₀, 3, 1, 0; 1998 XQ₈₇, 3, 1, 0; 1998 XA₉₀, 3, 1, 0; 1998 XM₉₄, 3, 1, 0; 1998 XC₉₆, 3, 1, 0; 1998 XD₉₆, 3, 1, 0; 1998 XG₉₆, 3, 1, 0; 1998 YC₃, 3, 1, 0; 1998 YG₃, 3, 1, 0; 1998 YE₁, 3, 1, 0; 1998 YU₁, 3, 1, 0; 1998 YE₂, 3, 1, 0; 1998 YY₂, 6, 2, 2623; 1998 YG₃, 3, 1, 0; 1998 YP₃, 3, 1, 0; 1998 YL₄, 3, 1, 0; 1998 YO₅, 3, 1, 0; 1998 YW₆, 6, 2, 47; 1998 YF₇, 6, 2, 1781; 1998 YO₇, 3, 1, 0; 1998 YH₈, 3, 1, 0; 1998 YF₈, 3, 1, 0; 1998 YS₈, 3, 1, 0; 1998 YV₉, 3, 1, 0; 1998 YW₉, 6, 2, 992; 1998 YX₉, 8, 3, 2510; 1998 YW₁₀, 9, 3, 61; 1998 YC₁₂, 3, 1, 0; 1998 YP₁₂, 3, 1, 0; 1998 YQ₁₅, 3, 1, 0; 1998 YY₁₅, 3, 1, 0; 1998 YU₁₆, 2, 1, 0; 1998 YV₁₆, 12, 4, 94; 1998 YG₁₇, 6, 2, 14; 1998 YT₂₀, 6, 2, 1795; 1998 YX₂₁, 3, 1, 0; 1998 YK₂₂, 3, 1, 0; 1998 YO₂₂, 3, 1, 0; 1998 YU₂₉, 3, 1, 0; 1999 AD, 3, 1, 0;

1999 AX, 3, 1, 0; 1999 AH₁, 3, 1, 0; 1999 AC₂, 3, 1, 0; 1999 AQ₃, 3, 1, 0; 1999 AZ₃, 12, 4, 1779; 1999 AC₄, 10, 4, 2240; 1999 AJ₄, 3, 1, 0; 1999 AR₄, 3, 1, 0; 1999 AN₅, 3, 1, 0; 1999 AU₅, 3, 1, 0; 1999 AE₆, 3, 1, 0; 1999 AS₆, 2, 1, 0; 1999 AV₆, 2, 1, 0; 1999 AX₆, 6, 2, 11; 1999 AU₇, 3, 1, 0; 1999 AU₉, 3, 1, 0; 1999 AC₁₀, 3, 1, 0; 1999 AH₁₀, 3, 1, 0; 1999 AB₁₆, 3, 1, 0; 1999 AC₁₆, 3, 1, 0; 1999 AX₁₈, 3, 1, 0; 1999 AC₂₀, 3, 1, 0; 1999 AJ₂₀, 6, 2, 869; 1999 AL₂₁, 3, 1, 0; 1999 AQ₂₁, 3, 1, 0; 1999 AT₂₁, 15, 5, 2663; 1999 AU₂₁, 3, 1, 0; 1999 AY₂₁, 3, 1, 0; 1999 AG₂₄, 3, 1, 0; 1999 AJ₂₄, 6, 2, 26; 1999 AM₂₄, 2, 1, 0; 1999 AN₂₄, 3, 1, 0; 1999 AA₂₅, 6, 2, 513; 1999 AF₂₅, 3, 1, 0; 1999 AR₂₅, 3, 1, 0; 1999 AN₃₀, 3, 1, 0; 1999 BD₄, 2, 502; 1999 BS₃, 3, 1, 0; 1999 BW₃, 3, 1, 0; 1999 BE₁, 3, 1, 0; 1999 BM₁, 3, 1, 0; 1999 BW₂, 3, 1, 0; 1999 BX₄, 3, 1, 0; 1999 BR₅, 3, 1, 0; 1999 BF₆, 3, 1, 0; 1999 BJ₉, 3, 1, 0; 1999 BG₁₁, 2, 1, 0; 1999 BQ₁₄, 6, 2, 979; 1999 BV₁₄, 6, 2, 1440; 1999 BW₁₄, 3, 1, 0; 1999 BM₁₅, 2, 1, 0; 1999 BW₂₄, 3, 1, 0; 1999 BU₂₅, 3, 1, 0; 1999 BN₃₀, 3, 1, 0; 1999 CV₃, 3, 1, 0; 1999 CU₁, 3, 1, 0; 1999 CE₃, 3, 1, 0; 1999 CQ₄, 3, 1, 0; 1999 CJ₅, 3, 1, 0; 1999 CH₉, 3, 1, 0; 1999 CS₁₄, 3, 1, 0; 1999 CX₁₄, 3, 1, 0; 1999 CY₁₄, 5, 2, 33; 1999 CB₁₇, 3, 1, 0; 1999 CB₂₁, 3, 1, 0; 1999 CJ₃₄, 3, 1, 0; 1999 CN₃₈, 3, 1, 0; 1999 CL₄₄, 2, 1, 0; 1999 CO₄₅, 3, 1, 0; 1999 CN₄₇, 3, 1, 0; 1999 CH₅₀, 3, 1, 0; 1999 CL₅₀, 2, 1, 0; 1999 CU₅₀, 9, 3, 1933; 1999 CV₅₀, 3, 1, 0; 1999 CF₅₄, 5, 2, 4; 1999 CB₅₅, 3, 1, 0; 1999 CD₅₇, 3, 1, 0; 1999 CX₅₉, 3, 1, 0; 1999 CF₆₂, 1, 1, 0; 1999 CF₆₅, 6, 2, 444; 1999 CH₆₆, 3, 1, 0; 1999 CW₇₃, 3, 1, 0; 1999 CA₇₆, 3, 1, 0; 1999 CA₈₁, 3, 1, 0; 1999 CG₈₁, 6, 2, 1543; 1999 CJ₈₁, 3, 1, 0; 1999 CG₈₂, 2, 1, 0; 1999 CF₈₅, 6, 2, 67; 1999 CG₈₉, 3, 1, 0; 1999 CG₈₉, 6, 2, 471; 1999 CV₉₃, 3, 1, 0; 1999 CU₉₅, 3, 1, 0; 1999 CX₉₆, 3, 1, 0; 1999 CA₉₈, 4, 2, 2241; 1999 CQ₉₈, 3, 1, 0; 1999 CN₁₀₂, 6, 2, 13; 1999 CF₁₀₄, 3, 1, 0; 1999 CK₁₀₉, 6, 2, 916; 1999 CR₁₀₉, 3, 1, 0; 1999 CU₁₁₁, 3, 1, 0; 1999 CX₁₁₄, 3, 1, 0; 1999 CD₁₁₆, 3, 1, 0; 1999 CV₁₃₆, 3, 1, 0; 1999 CZ₁₃₇, 2, 1, 0; 1999 CB₁₄₇, 3, 1, 0; 1999 CD₁₅₀, 3, 1, 0; 1999 CG₁₅₂, 3, 1, 0; 1999 DC₃, 3, 1, 0; 1999 DP₂, 3, 1, 0; 1999 DU₂, 3, 1, 0; 1999 DU₃, 3, 1, 0; 1999 DD₇, 3, 1, 0; 1999 DE₇, 3, 1, 0; 1999 EG₃, 3, 1, 0; 1999 EM₁₁, 3, 1, 0; 1999 EN₁₂, 3, 1, 0; 1999 FV₈, 6, 2, 22; 1999 FF₁₉, 3, 1, 0; 1999 FL₁₉, 3, 1, 0; 1999 FO₃₄, 3, 1, 0; 1999 GZ₃, 3, 1, 0; 1999 GH₁₈, 3, 1, 0; 1999 HF₃, 3, 1, 0; 1999 JH₁₈, 3, 1, 0; 1999 JM₁₉, 3, 1, 0; 1999 JW₂₃, 3, 1, 0; 1999 JA₂₆, 3, 1, 0; 1999 JU₂₆, 2, 1, 0; 1999 JS₂₇, 3, 1, 0; 1999 JC₂₈, 3, 1, 0; 1999 JK₂₈, 3, 1, 0; 1999 JM₂₈, 3, 1, 0; 1999 JT₃₁, 6, 2, 35; 1999 JA₄₀, 3, 1, 0; 1999 JC₄₀, 3, 1, 0; 1999 JD₄₂, 3, 1, 0; 1999 JA₄₃, 3, 1, 0; 1999 JO₄₃, 3, 1, 0; 1999 JY₄₄, 3, 1, 0; 1999 JU₄₆, 3, 1, 0; 1999 JW₄₆, 3, 1, 0; 1999 JM₅₁, 3, 1, 0; 1999 JR₅₁, 3, 1, 0; 1999 JL₆₁, 3, 1, 0; 1999 JX₈₁, 6, 2, 48; 1999 JD₁₀₂, 2, 1, 0; 1999 JN₁₀₅, 3, 1, 0; 1999 JS₁₁₄, 3, 1, 0; 1999 JQ₁₁₇, 3, 1, 0; 1999 JV₁₁₇, 5, 2, 3; 1999 JP₁₃₀, 6, 2, 16; 1999 JP₁₃₂, 3, 1, 0; 1999 JT₁₃₂, 3, 1, 0; 1999 JV₁₃₂, 3, 1, 0; 1999 JV₁₃₃ *, 5, 2, 4; 1999 JX₁₃₃ *, 6, 2, 4; 1999 JA₁₃₄, 3, 1, 0; 1999 JB₁₃₄, 3, 1, 0; 1999 JC₁₃₄, 3, 1, 0; 1999 JD₁₃₄, 3, 1, 0; 1999 JE₁₃₄ *, 3, 1, 0; 1999 JM₁₃₄ *, 5, 2, 3; 1999 JN₁₃₄ *, 3, 1, 0; 1999 JO₁₃₄ *, 5, 2, 5; 1999 JP₁₃₄ *, 6, 2, 5; 1999 JM₁₃₅, 3, 1, 0; 1999 JP₁₃₅, 3, 1, 0; 1999 KU₁₆, 3, 1, 0; 1999 KW₁₆ *, 3, 1, 0; 1999 KX₁₆ *, 3, 1, 0; 1999 KA₁₇, 3, 1, 0; 1999 KB₁₇, 2, 1, 0; 1999 KC₁₇, 3, 1, 0; 1999 KD₁₇, 3, 1, 0; 1999 KE₁₇, 3, 1, 0; 1999 KF₁₇, 3, 1, 0; 1999 KM₁₇, 3, 1, 0; 1999 KQ₁₇, 3, 1, 0; 1999 KR₁₇, 3, 1, 0; 1999 KS₁₇, 3, 1, 0; 1999 KT₁₇, 3, 1, 0; 1999 KU₁₇, 3, 1, 0; 1999 KV₁₇, 3, 1, 0; 1999 KW₁₇, 3, 1, 0; 1999 KZ₁₇, 3, 1, 0; 1999 KC₁₈ *, 6, 2, 4; 1999 KD₁₈ *, 6, 2, 3; 1999 KN₁₈ *, 3, 1, 0; 1999 KO₁₈, 3, 1, 0; 1999 LE₄, 3, 1, 0; 1999 LL₈, 2, 1, 0; 1999 LT₁₀, 3, 1, 0; 1999 LA₂₁, 3, 1, 0; 1999 MC₃, 3, 1, 0; 1999 ND₄, 3, 1, 0; 1999 NF₄, 3, 1, 0; 1999 NG₄, 6, 2, 368; 1999 NL₄, 6, 2, 1915; 1999 NQ₄, 3, 1, 0; 1999 NV₄, 6, 2, 6; 1999 NU

0; 4090 P-L, 6, 2, 13; 4626 P-L, 3, 1, 0; 9560 P-L, 3, 1, 0; 1074 T-2, 3, 1, 0; 4062 T-2, 3, 1, 0; 4087 T-2, 3, 1, 0; 1021 T-3, 3, 1, 0; 1071 T-3, 2, 1, 0; 2140 T-3, 3, 1, 0; 3460 T-3, 3, 1, 0; 5002 T-3, 3, 1, 0; 5034 T-3, 3, 1, 0; (251), 1, 1, 0; (632), 6, 2, 4; (2412), 6, 2, 5; (2415), 3, 1, 0; (2674), 3, 1, 0; (2981), 3, 1, 0; (3311), 3, 1, 0; (3822), 3, 1, 0; (4174), 3, 1, 0; (4393), 3, 1, 0; (4415), 3, 1, 0; (4447), 3, 1, 0; (4696), 3, 1, 0; (4884), 3, 1, 0; (4907), 3, 1, 0; (4989), 3, 1, 0; (5000), 3, 1, 0; (5144), 3, 1, 0; (5149), 3, 1, 0; (5859), 3, 1, 0; (5892), 3, 1, 0; (6441), 3, 1, 0; (6686), 3, 1, 0; (6816), 3, 1, 0; (6930), 3, 1, 0; (7352), 3, 1, 0; (7356), 3, 1, 0; (7374), 3, 1, 0; (7621), 3, 1, 0; (8287), 3, 1, 0; (8327), 3, 1, 0; (8554), 3, 1, 0; (8620), 3, 1, 0; (8650), 3, 1, 0; (8699), 6, 2, 8; (8736), 3, 1, 0; (8832), 3, 1, 0; (8872), 3, 1, 0; (8942), 3, 1, 0; (8946), 3, 1, 0; (9108), 3, 1, 0; (9315), 3, 1, 0; (10339), 3, 1, 0; (10997), 3, 1, 0; [6107, 1610, 98*, 1991/09/04–1999/08/21]

695 Kitt Peak

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P. R. Weissman, Jet Propulsion Laboratory 183-601, 4800 Oak Grove Drive, Pasadena, CA 91109-8099, U.S.A. [pweissman@lively.jpl.nasa.gov] (6)

Observers C. Bender (3), T. Lauer (4), B. E. A. Mueller (4), B. Jannuzi (4), A. Dey (4), S. M. Larson (5), C. W. Hergenrother (5) P. R. Weissman (6), A. Chamberlin (6), A. Doressoundiram (6)

0.9-m $f/7.5$ reflector + CCD, 2.3-m $f/9$ reflector + CCD
GSC, USNO-A2.0

(3) 1999 MD₂ *, 8, 2, 1; [8, 1, 1*, 1999/06/30–1999/07/01]

(4) 1998 YG₃, 8, 1, 0; [8, 1, 0*, 1997/09/22]

(5) 1995 GW₂, 3, 1, 0; 1998 DV₄, 3, 1, 0; [6, 2, 0*, 1995/01/29–1996/12/15]

(6) (140), 66, 3, 2; (10302), 46, 4, 78; [112, 2, 0*, 1999/02/18–1999/05/07]

696 F. L. Whipple Observatory, Mount Hopkins

M. Holman, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A. [mholman@cfa.harvard.edu]

Observers C. Ernst, M. Holman

Measurer C. Ernst

1.2-m $f/8$ reflector + CCD

USNO-A1.0

1998 SE₁₄₆, 2, 1, 0; 1999 LD₃₁, 7, 1, 0; 1999 LE₃₁, 5, 1, 0; [14, 3, 0*, 1998/09/13–1999/07/12]

697 Kitt Peak, McGraw-Hill Observatory

J. Tonry, Institute for Astronomy, University of Hawaii, 2680 Woodlawn Drive, Honolulu, HI 96822, U.S.A. [jt@avidya.ifa.hawaii.edu]

Observers A. Fletcher, H. Marshall

Measurer J. Tonry

2.4-m reflector + CCD, 1.3-m reflector + CCD

1998 KO₄₆, 4, 1, 0; [4, 1, 0*, 1995/10/19]

699 Lowell Observatory–LONEOS

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

Observers B. W. Koehn, B. A. Skiff, M. E. Van Ness

Measurer B. W. Koehn

0.59-m LONEOS Schmidt + CCD

USNO-A2.0

1931 UB, 6, 1, 0; 1974 XW, 3, 1, 0; 1976 QK₁, 3, 1, 0; 1977 CP, 3, 1, 0; 1977 QN₂, 3, 1, 0; 1978 QF₁, 3, 1, 0; 1978 RQ₉, 3, 1, 0; 1978 TP₂, 3, 1, 0; 1978 VP₁, 3, 1, 0; 1978 VD₉, 3, 1, 0;

1979 QR₁, 3, 1, 0; 1981 EV₆, 3, 1, 0; 1981 EP₁₈, 3, 1, 0; 1981 EK₂₇, 3, 1, 0; 1981 EQ₃₄, 3, 1, 0; 1981 EM₄₁, 3, 1, 0; 1981 EH₄₈, 3, 1, 0; 1981 QR₂, 3, 1, 0; 1981 SE₉, 3, 1, 0; 1981 UE₂₈, 3, 1, 0; 1982 SM₂, 3, 1, 0; 1982 UA₆, 3, 1, 0; 1983 RL, 3, 1, 0; 1985 CD, 3, 1, 0; 1986 EP₅, 3, 1, 0; 1986 PY, 3, 1, 0; 1988 BC₄, 3, 1, 0; 1988 RE₆, 3, 1, 0; 1988 RL₆, 3, 1, 0; 1988 SN, 3, 1, 0; 1988 TM₁, 3, 1, 0; 1988 TQ₁, 3, 1, 0; 1988 VM₉, 3, 1, 0; 1989 GS₄, 3, 1, 0; 1989 SD₃, 3, 1, 0; 1989 UM₁, 2, 1, 0; 1990 AE, 3, 1, 0; 1990 BC₂, 3, 1, 0; 1990 QS₆, 3, 1, 0; 1990 RH₃, 6, 2, 56; 1990 SU₁₅, 3, 1, 0; 1991 GU₃, 3, 1, 0; 1991 GL₇, 3, 1, 0; 1991 GE₈, 3, 1, 0; 1991 PK₁, 6, 2, 23; 1991 RP₁, 3, 1, 0; 1991 TF₁₄, 3, 1, 0; 1991 XR, 3, 1, 0; 1992 BJ₁, 3, 1, 0; 1992 CP₂, 3, 1, 0; 1992 DK₆, 3, 1, 0; 1992 DL₇, 3, 1, 0; 1992 EG₆, 3, 1, 0; 1992 EQ₂₇, 3, 1, 0; 1992 GM₂, 3, 1, 0; 1992 OB, 6, 2, 28; 1992 PV₃, 3, 1, 0; 1992 UA₆, 3, 1, 0; 1992 WD₁, 3, 1, 0; 1993 BD₄, 3, 1, 0; 1993 BZ₁₂, 3, 1, 0; 1993 FY₈, 3, 1, 0; 1993 FU₂₄, 3, 1, 0; 1993 FU₃₃, 3, 1, 0; 1993 LE, 3, 1, 0; 1993 RA₈, 3, 1, 0; 1994 AK₁, 3, 1, 0; 1994 AR₂, 3, 1, 0; 1994 AX₆, 3, 1, 0; 1994 CL, 3, 1, 0; 1994 CN₁₃, 3, 1, 0; 1994 PK₉, 3, 1, 0; 1994 PO₁₈, 3, 1, 0; 1994 RN₂₈, 3, 1, 0; 1994 UH₂, 3, 1, 0; 1995 GN, 3, 1, 0; 1995 HP, 3, 1, 0; 1995 QQ, 3, 1, 0; 1995 SW₂₅, 3, 1, 0; 1995 WJ₂, 3, 1, 0; 1995 WP₁₇, 3, 1, 0; 1995 YQ, 3, 1, 0; 1995 YZ₁, 3, 1, 0; 1995 YB₃, 3, 1, 0; 1996 AG₂, 3, 1, 0; 1996 LK₁, 3, 1, 0; 1996 TM₉, 3, 1, 0; 1996 TC₁₀, 2, 1, 0; 1996 UF, 3, 1, 0; 1996 VW, 3, 1, 0; 1996 VJ₂, 3, 1, 0; 1996 VW₂, 3, 1, 0; 1996 VR₇, 2, 1, 0; 1996 XJ₁, 3, 1, 0; 1996 XG₅, 3, 1, 0; 1996 XH₃₁, 3, 1, 0; 1997 AA₂, 3, 1, 0; 1997 AO₄, 3, 1, 0; 1997 AP₁₂, 1, 1, 0; 1997 AP₁₄, 2, 1, 0; 1997 AM₂₁, 3, 1, 0; 1997 BX₃, 3, 1, 0; 1997 BR₁, 3, 1, 0; 1997 BY₁, 3, 1, 0; 1997 BT₃, 2, 1, 0; 1997 CS, 3, 1, 0; 1997 CG₁, 3, 1, 0; 1997 CH₉, 3, 1, 0; 1997 CK₁₃, 3, 1, 0; 1997 CR₁₉, 3, 1, 0; 1997 CF₂₂, 3, 1, 0; 1997 CK₂₂, 2, 1, 0; 1997 EL₆, 3, 1, 0; 1997 EX₄₁, 3, 1, 0; 1997 FK₄, 3, 1, 0; 1997 GL₂₃, 3, 1, 0; 1997 GP₃₆, 3, 1, 0; 1997 TJ₂₄, 3, 1, 0; 1997 WO₄₃, 3, 1, 0; 1997 YZ₁₂, 3, 1, 0; 1997 YC₁₄, 3, 1, 0; 1998 BB₇, 3, 1, 0; 1998 BM₁₇, 3, 1, 0; 1998 BH₂₆, 3, 1, 0; 1998 CY, 3, 1, 0; 1998 DL₉, 3, 1, 0; 1998 DL₁₄, 3, 1, 0; 1998 DD₃₆, 3, 1, 0; 1998 ED₃, 3, 1, 0; 1998 EK₈, 2, 1, 0; 1998 EP₉, 3, 1, 0; 1998 FB₁₀, 3, 1, 0; 1998 FN₄₃, 3, 1, 0; 1998 FR₄₇, 3, 1, 0; 1998 FJ₄₉, 6, 2, 47; 1998 FQ₄₉, 3, 1, 0; 1998 FM₅₄, 3, 1, 0; 1998 FC₆₈, 3, 1, 0; 1998 FX₆₈, 3, 1, 0; 1998 FJ₇₂, 3, 1, 0; 1998 FQ₇₂, 3, 1, 0; 1998 FA₇₄, 3, 1, 0; 1998 FD₇₄, 3, 1, 0; 1998 FH₈₆, 3, 1, 0; 1998 FD₁₁₄, 6, 2, 23; 1998 GK₁, 3, 1, 0; 1998 HV₄, 3, 1, 0; 1998 HJ₁₄, 3, 1, 0; 1998 HS₁₉, 6, 2, 24; 1998 HV₁₉, 3, 1, 0; 1998 HX₄₅, 3, 1, 0; 1998 HB₅₁, 3, 1, 0; 1998 HH₅₁, 3, 1, 0; 1998 HJ₅₇, 3, 1, 0; 1998 HY₇₉, 3, 1, 0; 1998 HW₉₀, 3, 1, 0; 1998 HL₉₂, 3, 1, 0; 1998 HZ₉₉, 3, 1, 0; 1998 HY₁₀₅, 3, 1, 0; 1998 HN₁₁₅, 3, 1, 0; 1998 HW₁₁₈, 3, 1, 0; 1998 HD₁₂₀, 3, 1, 0; 1998 HV₁₂₁, 3, 1, 0; 1998 HF₁₂₂, 3, 1, 0; 1998 HC₁₄₆, 3, 1, 0; 1998 HH₁₄₆, 3, 1, 0; 1998 JK, 3, 1, 0; 1998 KO₁₆, 3, 1, 0; 1998 KL₂₁, 3, 1, 0; 1998 KU₂₁, 3, 1, 0; 1998 KT₂₆, 3, 1, 0; 1998 KJ₄₂, 3, 1, 0; 1998 KU₅₁, 3, 1, 0; 1998 QR₅₂, 6, 2, 5; 1998 SN₁₅₆, 3, 1, 0; 1998 UZ₂₈, 3, 1, 0; 1998 WL₂, 3, 1, 0; 1998 WN₄, 3, 1, 0; 1998 XY₂, 3, 1, 0; 1999 GN₃₃, 3, 1, 0; 1999 GO₃₈, 6, 2, 42; 1999 GP₃₉, 3, 1, 0; 1999 GV₄₀, 3, 1, 0; 1999 GW₄₃, 3, 1, 0; 1999 JY₁, 3, 1, 0; 1999 JZ₅, 3, 1, 0; 1999 JZ₁₈, 3, 1, 0; 1999 JL₅₂, 2, 1, 0; 1999 JM₅₂, 3, 1, 0; 1999 JL₆₀, 2, 1, 0; 1999 JT₆₃, 3, 1, 0; 1999 JC₁₀₆, 3, 1, 0; 1999 JL₁₃₂ *, 3, 1, 0; 1999 JO₁₃₂, 3, 1, 0; 1999 JQ₁₃₂, 3, 1, 0; 1999 JC₁₃₃ *, 3, 1, 0; 1999 JN₁₃₃, 3, 1, 0; 1999 JQ₁₃₄ *, 3, 1, 0; 1999 JR₁₃₄ *, 3, 1, 0; 1999 JU₁₃₄ *, 3, 1, 0; 1999 JH₁₃₅, 3, 1, 0; 1999 JQ₁₃₅ *, 3, 1, 0; 1999 JR₁₃₅ *, 6, 2, 10; 1999 JS₁₃₅ *, 6, 2, 8; 1999 JT₁₃₅ *, 6, 2, 4; 1999 JU₁₃₅ *, 6, 2, 4; 1999 JV₁₃₅ *, 6, 2, 9; 1999 JW₁₃₅ *, 6, 2, 5; 1999 JX₁₃₅ *, 6, 2, 2; 1999 JY₁₃₅ *, 6, 2, 2; 1999 JZ₁₃₅ *, 6, 2, 2; 1999 JA₁₃₆ *, 6, 2, 1; 1999 JB₁₃₆ *, 6, 2, 2; 1999 JC₁₃₆ *, 6, 2, 1; 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1999 AUG. 31

M.P.C. 35545

1, 0; (2620), 3, 1, 0; (2737), 3, 1, 0; (2749), 3, 1, 0; (2773), 3, 1, 0; (2778), 3, 1, 0; (2872), 3, 1, 0; (2917), 3, 1, 0; (2941), 3, 1, 0; (2987), 3, 1, 0; (2993), 3, 1, 0; (3065), 3, 1, 0; (3079), 3, 1, 0; (3164), 3, 1, 0; (3169), 3, 1, 0; (3196), 3, 1, 0; (3256), 3, 1, 0; (3301), 3, 1, 0; (3306), 3, 1, 0; (3307), 3, 1, 0; (3323), 3, 1, 0; (3363), 6, 1, 0; (3408), 3, 1, 0; (3440), 3, 1, 0; (3495), 3, 1, 0; (3497), 3, 1, 0; (3533), 3, 1, 0; (3534), 3, 1, 0; (3633), 3, 1, 0; (3665), 3, 1, 0; (3858), 3, 1, 0; (3868), 3, 1, 0; (3895), 3, 1, 0; (3925), 3, 1, 0; (3966), 3, 1, 0; (4003), 3, 1, 0; (4026), 2, 1, 0; (4174), 3, 1, 0; (4185), 3, 1, 0; (4218), 3, 1, 0; (4233), 3, 1, 0; (4249), 3, 1, 0; (4298), 3, 1, 0; (4299), 3, 1, 0; (4391), 3, 1, 0; (4397), 3, 1, 0; (4435), 3, 1, 0; (4465), 3, 1, 0; (4502), 3, 1, 0; (4533), 3, 1, 0; (4538), 3, 1, 0; (4553), 3, 1, 0; (4568), 3, 1, 0; (4580), 3, 1, 0; (4733), 3, 1, 0; (4735), 3, 1, 0; (4759), 3, 1, 0; (4820), 3, 1, 0; (4827), 3, 1, 0; (4832), 3, 1, 0; (4973), 3, 1, 0; (5039), 3, 1, 0; (5134), 3, 1, 0; (5139), 3, 1, 0; (5149), 3, 1, 0; (5225), 3, 1, 0; (5246), 3, 1, 0; (5318), 3, 1, 0; (5503), 3, 1, 0; (5515), 3, 1, 0; (5545), 3, 1, 0; (5549), 3, 1, 0; (5556), 3, 1, 0; (5591), 3, 1, 0; (5607), 3, 1, 0; (5638), 3, 1, 0; (5745), 3, 1, 0; (5878), 3, 1, 0; (5892), 3, 1, 0; (5910), 3, 1, 0; (5954), 3, 1, 0; (5961), 3, 1, 0; (5969), 3, 1, 0; (6048), 3, 1, 0; (6056), 3, 1, 0; (6206), 3, 1, 0; (6252), 3, 1, 0; (6308), 3, 1, 0; (6436), 3, 1, 0; (6438), 3, 1, 0; (6470), 3, 1, 0; (6586), 2, 1, 0; (6596), 3, 1, 0; (6603), 3, 1, 0; (6621), 3, 1, 0; (6650), 3, 1, 0; (6653), 2, 1, 0; (6674), 3, 1, 0; (6696), 3, 1, 0; (6727), 3, 1, 0; (6732), 3, 1, 0; (6733), 3, 1, 0; (6813), 3, 1, 0; (6869), 3, 1, 0; (6930), 3, 1, 0; (6937), 3, 1, 0; (6971), 3, 1, 0; (7042), 3, 1, 0; (7235), 3, 1, 0; (7283), 3, 1, 0; (7295), 3, 1, 0; (7298), 3, 1, 0; (7311), 3, 1, 0; (7389), 3, 1, 0; (7464), 3, 1, 0; (7465), 3, 1, 0; (7483), 3, 1, 0; (7517), 3, 1, 0; (7523), 3, 1, 0; (7564), 3, 1, 0; (7566), 3, 1, 0; (7610), 3, 1, 0; (7612), 3, 1, 0; (7628), 3, 1, 0; (7682), 3, 1, 0; (7793), 3, 1, 0; (8249), 2, 1, 0; (8398), 3, 1, 0; (8404), 2, 1, 0; (8416), 3, 1, 0; (8454), 3, 1, 0; (8479), 3, 1, 0; (8481), 3, 1, 0; (8485), 3, 1, 0; (8488), 3, 1, 0; (8494), 3, 1, 0; (8528), 3, 1, 0; (8555), 3, 1, 0; (8592), 3, 1, 0; (8603), 3, 1, 0; (8617), 3, 1, 0; (8664), 3, 1, 0; (8693), 3, 1, 0; (8707), 3, 1, 0; (8763), 3, 1, 0; (8768), 3, 1, 0; (8769), 3, 1, 0; (8779), 3, 1, 0; (8789), 3, 1, 0; (8848), 3, 1, 0; (8867), 3, 1, 0; (8939), 3, 1, 0; (8945), 3, 1, 0; (8947), 3, 1, 0; (8948), 3, 1, 0; (8950), 3, 1, 0; (8955), 3, 1, 0; (9026), 3, 1, 0; (9112), 2, 1, 0; (9360), 3, 1, 0; (9461), 3, 1, 0; (10511), 3, 1, 0; (10828), 3, 1, 0; (10835), 3, 1, 0; (10857), 3, 1, 0; (11021), 3, 1, 0; (11118), 3, 1, 0; (11173), 3, 1, 0; [1635, 520, 30*, 1998/01/07-1999/08/22]

703 Catalina Sky Survey

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Observer T. B. Spahr

0.41-m $f/3$ Schmidt + CCD
USNO-SA2.0

1931 TC₂, 4, 1, 0; 1971 SB, 4, 1, 0; 1976 UN₁₄, 4, 1, 0; 1978 TP₂, 8, 1, 0; 1981 EZ₁₅, 4, 1, 0; 1981 EL₂₈, 4, 1, 0; 1981 EA₃₆, 4, 1, 0; 1984 HH₁, 8, 1, 0; 1985 CD, 4, 1, 0; 1985 UJ₃, 4, 1, 0; 1988 RM₃, 4, 1, 0; 1988 VY₂, 4, 1, 0; 1991 GB₃, 4, 1, 0; 1991 GU₃, 4, 1, 0; 1991 GJ₈, 4, 1, 0; 1991 PK₁, 4, 1, 0; 1991 RP₁, 4, 1, 0; 1992 BT₂, 4, 1, 0; 1992 ER₄, 4, 1, 0; 1992 ES₆, 4, 1, 0; 1992 EM₈, 4, 1, 0; 1992 WC₉, 4, 1, 0; 1993 BX₂, 4, 1, 0; 1993 FS₂₃, 4, 1, 0; 1993 FU₂₄, 4, 1, 0; 1993 FA₃₇, 4, 1, 0; 1993 FU₅₁, 4, 1, 0; 1993 OR₈, 4, 1, 0; 1994 AR₂, 8, 1, 0; 1994 PC₂₉, 4, 1, 0; 1994 UJ₂, 4, 1, 0; 1995 SU₁₅, 4, 1, 0; 1995 YH, 4, 1, 0; 1996 CL₂, 4, 1, 0; 1996 DQ₁, 4, 1, 0; 1996 XT₁₆, 4, 1, 0; 1996 YR, 4, 1, 0; 1996 YH₁, 4, 1, 0; 1997 AD₈, 8, 1, 0; 1997 AZ₂₁, 4, 1, 0; 1997 BZ₁, 4, 1, 0; 1997 BA₃, 4, 1, 0; 1997 CR₁₉, 4, 1, 0; 1997 CF₂₂, 8, 1, 0; 1997 EL, 4, 1, 0; 1997 FK₄, 4, 1, 0; 1997 GX₂₄, 4, 1, 0; 1997 YG₁₆, 4, 1, 0; 1998 BF₁₁, 4, 1, 0; 1998 DT₁₀, 8, 1, 0; 1998 DE₁₆, 4, 1, 0; 1998 FY₁₁, 8, 1, 0; 1998 FV₁₅, 8, 1, 0; 1998 FJ₂₂, 8, 1, 0; 1998 FM₅₄, 4, 1, 0; 1998 FV₆₀, 8, 1, 0; 1998 FV₆₇, 4, 1, 0; 1998 FE₆₉, 4, 1, 0; 1998 FN₇₀, 4, 1, 0; 1998 FD₇₄, 4, 1, 0; 1998 FH₇₅, 8, 1, 0; 1998 FT₁₁₅, 4, 1, 0; 1998 HT, 4, 1, 0; 1998 HT₁₉, 4, 1, 0; 1998 HX₉₉, 4, 1, 0; 1998 HJ₁₁₅, 4, 1, 0; 1998 HR₁₄₉, 4, 1, 0; 1998 JR, 4, 1, 0; 1998 JE₂, 4, 1, 0; 1998 JQ₂, 4, 1, 0; 1998 KW₃, 4, 1, 0; 1998 KW₇, 4, 1, 0; 1998 KO₃₁, 4, 1, 0; 1998 KG₃₈, 4, 1, 0; 1999 GD₃₃, 4, 1, 0; 1999 GF₃₃, 4, 1, 0; 1999 GR₃₃, 4, 1, 0; 1999 GU₃₃, 4, 1, 0; 1999 GP₃₉, 4, 1, 0; 1999 GD₄₀, 4, 1, 0; 1999 GV₄₀, 4, 1, 0; 1999 GO₄₅, 4, 1, 0; 1999 GZ₄₅, 4, 1, 0; 1999 GQ₄₆, 4, 1, 0; 1999 JK₂₈, 4, 1, 0; 1999 JW₄₆, 4, 1, 0; 1999 JM₁₃₂, 4, 1, 0; 1999 JN₁₃₂, 4, 1, 0; 1999 JR₁₃₂, 3, 1, 0; 1999 JS₁₃₂, 4, 1, 0; 1999 JU₁₃₂, 4, 1, 0; 1999 JW₁₃₂, 4, 1, 0; 1999 JX₁₃₂, 4, 1, 0; 1999 JY₁₃₂, 4, 1, 0; 1999 JZ₁₃₂, 4, 1, 0; 1999 JA₁₃₃, 4, 1, 0; 1999 JB₁₃₃, 4, 1, 0; 1999 JD₁₃₃, 4, 1, 0; 1999 JE₁₃₃, 4, 1, 0; 1999 JF₁₃₃, 4, 1, 0; 1999 JG₁₃₃, 4, 1, 0; 1999 JH₁₃₃, 4, 1, 0; 1999 JI₁₃₃, 4, 1, 0; 1999 JJ₁₃₃, 4, 1, 0; 1999 JK₁₃₃, 4, 1, 0; 1999 JL₁₃₃, 4, 1, 0; 1999 JM₁₃₃, 4, 1, 0; 1999 JO₁₃₃ *, 4, 1, 0; 1999 JP₁₃₃ *, 4, 1, 0; 1999 JQ₁₃₃ *, 4, 1, 0; 1999 JR₁₃₃ *, 4, 1, 0; 1999 JS₁₃₃ *, 4, 1, 0; 1999 JT₁₃₃ *, 4, 1, 0; 1999 JU₁₃₃ *, 4, 1, 0; 1999 JW₁₃₃ *, 4, 1, 0; 1999 JX₁₃₃ *, 4, 1, 0; 1999 JY₁₃₃ *, 4, 1, 0; 1999 JZ₁₃₃ *, 4, 1, 0; 1999 JA₁₃₄ *, 4, 1, 0; 1999 JB₁₃₄ *, 4, 1, 0; 1999 JC₁₃₄ *, 4, 1, 0; 1999 JD₁₃₄ *, 4, 1, 0; 1999 JE₁₃₄ *, 4, 1, 0; 1999 JF₁₃₄ *, 4, 1, 0; 1999 JG₁₃₄ *, 4, 1, 0; 1999 JH₁₃₄ *, 4, 1, 0; 1999 JI₁₃₄ *, 4, 1, 0; 1999 JJ₁₃₄ *, 4, 1, 0; 1999 JK₁₃₄ *, 3, 1, 0; 1999 JL₁₃₄ *, 4, 1, 0; 1999 JS₁₃₄, 4, 1, 0; 1999 JT₁₃₄, 4, 1, 0; 1999 JV₁₃₄, 4, 1, 0; 1999 JW₁₃₄, 4, 1, 0; 1999 JX₁₃₄, 4, 1, 0; 1999 JY₁₃₄, 4, 1, 0; 1999 JZ₁₃₄, 4, 1, 0; 1999 JA₁₃₅, 4, 1, 0; 1999 JB₁₃₅, 4, 1, 0; 1999 JC₁₃₅, 4, 1, 0; 1999 JD₁₃₅, 4, 1, 0; 1999 JE₁₃₅, 4, 1, 0; 1999 JF₁₃₅, 4, 1, 0; 1999 JG₁₃₅, 4, 1, 0; 1999 JH₁₃₅, 4, 1, 0; 1999 JI₁₃₅, 4, 1, 0; 1999 JK₁₃₅, 4, 1, 0; 1999 JL₁₃₅, 4, 1, 0; 1999 JN₁₃₅, 4, 1, 0; 1999 JO₁₃₅, 4, 1, 0; 1999 KS₇, 4, 1, 0; 1999 KW₁₆, 4, 1, 0; 1999 KX₁₆, 4, 1, 0; 1999 KY₁₆, 4, 1,

0; 1999 KZ₁₆, 4, 1, 0; 1999 KG₁₇, 4, 1, 0; 1999 KN₁₇, 4, 1, 0; 1999 KP₁₇ *, 4, 1, 0; 1999 KQ₁₇ *, 4, 1, 0; 1999 KR₁₇ *, 4, 1, 0; 1999 KS₁₇ *, 4, 1, 0; 1999 KT₁₇ *, 4, 1, 0; 1999 KU₁₇ *, 4, 1, 0; 1999 KV₁₇ *, 4, 1, 0; 1999 KW₁₇ *, 4, 1, 0; 1999 KX₁₇ *, 4, 1, 0; 1999 KY₁₇, 4, 1, 0; 1999 KE₁₈, 4, 1, 0; 1999 KF₁₈, 4, 1, 0; 1999 KG₁₈, 4, 1, 0; 1999 KH₁₈, 4, 1, 0; 1999 KJ₁₈, 4, 1, 0; 1999 KK₁₈ *, 4, 1, 0; 1999 KL₁₈ *, 4, 1, 0; 1999 KM₁₈ *, 4, 1, 0; 1999 KN₁₈, 4, 1, 0; 1999 LG₂, 4, 1, 0; 1999 LE₁₅, 4, 1, 0; 1999 NO₄, 4, 1, 0; 1999 NM₁₉, 4, 1, 0; 1999 NK₃₁, 4, 1, 0; 1999 NQ₃₂, 4, 1, 0; 1999 ND₃₃, 4, 1, 0; 1999 NZ₃₅, 4, 1, 0; 1999 NE₄₀, 4, 1, 0; 1999 NC₄₃, 4, 1, 0; 1999 NS₅₄, 4, 1, 0; 1999 NF₅₇, 4, 1, 0; 1999 OK₃, 4, 1, 0; 1999 PG₁, 4, 1, 0; 1999 PH₁, 4, 1, 0; 1999 PY₄, 4, 1, 0; 1999 QA₈, 1, 0; 1999 QP₄, 1, 0; 1999 QC₂, 4, 1, 0; 2527 P-L, 4, 1, 0; 4090 P-L, 4, 1, 0; 5016 P-L, 4, 1, 0; 6303 P-L, 4, 1, 0; 6539 P-L, 4, 1, 0; 3243 T-1, 4, 1, 0; 1175 T-2, 4, 1, 0; 3305 T-2, 4, 1, 0; 4210 T-2, 4, 1, 0; (81), 4, 1, 0; (122), 4, 1, 0; (125), 8, 1, 0; (131), 4, 1, 0; (139), 4, 1, 0; (597), 4, 1, 0; (629), 4, 1, 0; (637), 4, 1, 0; (788), 4, 1, 0; (811), 4, 1, 0; (829), 4, 1, 0; (870), 4, 1, 0; (890), 4, 1, 0; (999), 4, 1, 0; (1144), 4, 1, 0; (1154), 4, 1, 0; (1223), 4, 1, 0; (1309), 4, 1, 0; (1382), 4, 1, 0; (1383), 4, 1, 0; (1442), 8, 1, 0; (1533), 4, 1, 0; (1621), 8, 1, 0; (1633), 8, 1, 0; (1811), 4, 1, 0; (1835), 4, 1, 0; (2182), 4, 1, 0; (2224), 4, 1, 0; (2270), 4, 1, 0; (2326), 4, 1, 0; (2357), 4, 1, 0; (2542), 4, 1, 0; (2674), 4, 1, 0; (2711), 4, 1, 0; (2959), 4, 1, 0; (3196), 4, 1, 0; (3226), 4, 1, 0; (3311), 4, 1, 0; (3495), 4, 1, 0; (3670), 4, 1, 0; (3694), 4, 1, 0; (3822), 4, 1, 0; (3912), 4, 1, 0; (3923), 4, 1, 0; (3929), 4, 1, 0; (3983), 4, 1, 0; (4287), 4, 1, 0; (4296), 4, 1, 0; (4329), 4, 1, 0; (4361), 4, 1, 0; (4415), 4, 1, 0; (4502), 4, 1, 0; (4553), 4, 1, 0; (4568), 4, 1, 0; (4580), 8, 1, 0; (4696), 4, 1, 0; (4701), 4, 1, 0; (4733), 4, 1, 0; (4784), 4, 1, 0; (5000), 4, 1, 0; (5008), 4, 1, 0; (5048), 4, 1, 0; (5076), 4, 1, 0; (5167), 4, 1, 0; (5225), 4, 1, 0; (5290), 4, 1, 0; (5334), 4, 1, 0; (5704), 4, 1, 0; (5802), 4, 1, 0; (6252), 4, 1, 0; (6308), 4, 1, 0; (6583), 8, 1, 0; (6674), 4, 1, 0; (6798), 4, 1, 0; (6816), 4, 1, 0; (6931), 4, 1, 0; (7473), 4, 1, 0; (7483), 4, 1, 0; (7557), 4, 1, 0; (7562), 8, 1, 0; (7612), 4, 1, 0; (7639), 4, 1, 0; (7717), 4, 1, 0; (7745), 4, 1, 0; (7892), 4, 1, 0; (8554), 4, 1, 0; (8592), 8, 1, 0; (8644), 4, 1, 0; (8651), 4, 1, 0; (8688), 8, 1, 0; (8838), 4, 1, 0; (8844), 4, 1, 0; (8852), 4, 1, 0; (8862), 8, 1, 0; (8872), 4, 1, 0; (8885), 4, 1, 0; (8904), 4, 1, 0; (8942), 4, 1, 0; (8944), 4, 1, 0; (8977), 4, 1, 0; (9108), 4, 1, 0; (9109), 4, 1, 0; (9129), 4, 1, 0; (9336), 4, 1, 0; (9430), 4, 1, 0; (9444), 4, 1, 0; (11014), 4, 1, 0; (11025), 4, 1, 0; [1314, 306, 32*, 1999/03/23-1999/08/22]

704 Lincoln Laboratory Experimental Test System, New Mexico

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

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

1.0-m $f/2.15$ reflector + CCD

USNO-SA1.0

1969 TY₁, 9, 2, 415; 1971 FD, 9, 2, 2; 1971 QO₁, 13, 3, 77; 1973 SL, 15, 3, 5; 1973 SQ, 4, 1, 0; 1973 SX, 3, 1, 0; 1973 SZ, 4, 1, 0; 1973 SF₁, 5, 1, 0; 1973 SB₂, 5, 1, 0; 1973 SX₂, 10, 2, 74; 1973 SY₅, 5, 1, 0; 1975 SX₁, 4, 1, 0; 1975 VZ₈, 5, 1, 0; 1976 SD₅, 3, 1, 0; 1977 AC₂, 5, 1, 0; 1977 DC₄, 4, 1, 0; 1977 DH₄, 5, 1, 0; 1977 QW, 5, 1, 0; 1977 RG₁₉, 4, 1, 0; 1977 TU₃, 5, 1, 0; 1978 PV₂, 5, 1, 0; 1978 SS₆, 5, 1, 0; 1978 UD₇, 10, 2, 21; 1978 UV₇, 10, 2, 1; 1978 VC₄, 9, 2, 4; 1978 VY₅, 9, 2, 32; 1978 VS₈, 5, 1, 0; 1978 VU₈, 5, 1, 0; 1978 XK, 13, 3, 420; 1979 HN₅, 4, 1, 0; 1979 MX₁, 8, 2, 6; 1979 QZ₉, 5, 1, 0; 1979 UC₄, 4, 1, 0; 1980 KE, 4, 1, 0; 1980 PT₁, 4, 1, 0; 1980 PY₂, 5, 1, 0; 1980 PE₃, 4, 1, 0; 1980 UR₁, 5, 1, 0; 1981 DF, 3, 1, 0; 1981 EL₂, 5, 1, 0; 1981 EU₄, 9, 2, 3; 1981 EY₄, 5, 1, 0; 1981 ER₈, 5, 1, 0; 1981 EB₁₂, 8, 2, 1; 1981 EO₁₆, 5, 1, 0; 1981 EH₁₇, 4, 1, 0; 1981 ED₁₈, 3, 1, 0; 1981 ES₂₄, 3, 1, 0; 1981 EN₃₀, 5, 1, 0; 1981 EU₃₄, 5, 1, 0; 1981 EV₃₅, 3, 1, 0; 1981 EE₃₈, 5, 1, 0; 1981 ES₄₀, 8, 2, 56; 1981 EP₄₅, 7, 2, 30; 1981 UX₂₂, 4, 1, 0; 1981 UA₂₃, 4, 1, 0; 1981 UP₂₅, 9, 2, 418; 1981 UT₂₉, 10, 2, 12; 1981 WJ₉, 9, 2, 7; 1982 FL₁, 5, 1, 0; 1982 JD₃, 4, 1, 0; 1982 RK₁, 9, 2, 8; 1982 UW₁, 5, 2, 412; 1982 VL₄, 5, 1, 0; 1983 RQ₃, 5, 1, 0; 1984 BZ₆, 5, 1, 0; 1984 SA₂, 4, 1, 0; 1984 ST₂, 4, 1, 0; 1984 SM₅, 5, 1, 0; 1985 CD, 10, 2, 15; 1985 QF₁, 17, 4, 55; 1985 QW₁, 5, 1, 0; 1985 QG₅, 5, 1, 0; 1985 RF₃, 7, 2, 162; 1985 RL₄, 13, 3, 105; 1985 UR, 4, 1, 0; 1986 EA₅, 4, 1, 0; 1986 EL₅, 16, 4, 477; 1986 PE₁, 10, 2, 74; 1986 TR, 5, 1, 0; 1986 TH₃, 7, 2, 29; 1987 BU₁, 5, 1, 0; 1987 RW, 4, 1, 0; 1987 UX, 8, 2, 60; 1987 UY₁, 4, 1, 0; 1987 WP, 5, 1, 0; 1988 BT₃, 4, 1, 0; 1988 CF, 4, 1, 0; 1988 CY, 4, 1, 0; 1988 CO₄, 4, 1, 0; 1988 DF₃, 5, 1, 0; 1988 KV, 4, 1, 0; 1988 PR, 14, 3, 52; 1988 QY, 4, 1, 0; 1988 RY₁, 3, 1, 0; 1988 RJ₃, 3, 1, 0; 1988 TQ₁, 8, 2, 448; 1988 TW₂, 5, 1, 0; 1988 UF, 4, 1, 0; 1988 VJ₁, 14, 3, 59; 1988 VC₂, 6, 3, 5; 1988 VG₄, 4, 1, 0; 1988 XW₄, 5, 1, 0; 1989 CR₁, 4, 1, 0; 1989 DC, 5, 1, 0; 1989 DK, 5, 1, 0; 1989 EN₅, 8, 2, 71; 1989 GB, 5, 1, 0; 1989 GV₁, 3, 1, 0; 1989 GY₁, 5, 1, 0; 1989 GM₂, 10, 2, 9; 1989 GE₃, 5, 1, 0; 1989 OJ, 4, 1, 0; 1989 RX, 5, 1, 0; 1989 SO₁, 4, 1, 0; 1989 SO₃, 3, 1, 0; 1989 SZ₉, 5, 1, 0; 1989 SP₁₁, 5, 1, 0; 1989 UP₃, 10, 2, 61; 1989 VP₁, 5, 1, 0; 1989 WZ₂, 5, 1, 0; 1990 BO, 11, 2, 13; 1990 CD, 5, 1, 0; 1990 DA₂, 10, 2, 445; 1990 EN₁, 9, 2, 7; 1990 ER₂, 5, 1, 0; 1990 ES₆, 4, 1, 0; 1990 FD₃, 4, 1, 0; 1990 OB₄, 5, 1, 0

1990 WH₁, 5, 1, 0; 1990 WT₆, 9, 2, 5; 1991 AL₂, 5, 1, 0; 1991 BP₂, 4, 1, 0; 1991 EM, 4, 1, 0; 1991 ER, 14, 3, 534; 1991 FY₃, 5, 1, 0; 1991 FC₄, 3, 1, 0; 1991 GO₄, 5, 1, 0; 1991 GR₇, 5, 1, 0; 1991 GF₈, 10, 2, 2; 1991 HN, 4, 1, 0; 1991 PK₁, 11, 3, 448; 1991 PF₅, 4, 1, 0; 1991 PC₇, 4, 1, 0; 1991 PP₈, 5, 1, 0; 1991 PQ₈, 24, 5, 8; 1991 PO₁₂, 9, 2, 55; 1991 PA₁₅, 2, 1, 0; 1991 PB₂₀, 9, 2, 55; 1991 RE, 4, 1, 0; 1991 RL₁, 5, 1, 0; 1991 RH₂, 4, 1, 0; 1991 RO₃, 8, 2, 6; 1991 RB₈, 13, 3, 74; 1991 RC₁₀, 4, 1, 0; 1991 RL₁₃, 4, 1, 0; 1991 RS₁₃, 10, 2, 8; 1991 RY₁₅, 5, 1, 0; 1991 RK₂₆, 4, 1, 0; 1991 RC₂₈, 5, 1, 0; 1991 SM, 4, 1, 0; 1991 TD₆, 8, 2, 7; 1991 TL₆, 5, 1, 0; 1991 TM₁₄, 5, 1, 0; 1991 UQ₁, 10, 2, 71; 1991 UV₁, 4, 1, 0; 1991 VV, 15, 3, 106; 1991 VO₁, 4, 1, 0; 1991 VR₂, 5, 1, 0; 1991 VZ₂, 2, 1, 0; 1991 VA₃, 5, 1, 0; 1991 VP₃, 5, 1, 0; 1991 VT₃, 5, 1, 0; 1991 VB₅, 4, 1, 0; 1991 VE₅, 3, 1, 0; 1991 VM₁₂, 4, 1, 0; 1991 XL, 4, 1, 0; 1991 XR, 5, 1, 0; 1991 YT, 5, 1, 0; 1992 BJ, 7, 2, 14; 1992 BX, 15, 3, 79; 1992 BW₃, 3, 1, 0; 1992 DF₆, 5, 1, 0; 1992 DQ₇, 2, 1, 0; 1992 DW₇, 5, 1, 0; 1992 DX₇, 4, 1, 0; 1992 DA₁₀, 5, 1, 0; 1992 DY₁₃, 8, 2, 33; 1992 EX, 9, 2, 6; 1992 EJ₅, 9, 2, 1; 1992 EA₆, 5, 1, 0; 1992 EC₆, 5, 1, 0; 1992 EC₉, 4, 1, 0; 1992 ET₉, 10, 2, 8; 1992 EQ₁₀, 4, 1, 0; 1992 EU₁₀, 4, 1, 0; 1992 EG₁₁, 8, 2, 3; 1992 ED₁₄, 9, 2, 74; 1992 EY₁₄, 8, 1, 0; 1992 EB₁₆, 4, 1, 0; 1992 EW₁₆, 7, 2, 8; 1992 ER₁₈, 4, 1, 0; 1992 EG₃₁, 14, 3, 65; 1992 FT₁, 8, 1, 0; 1992 GC₈, 5, 1, 0; 1992 HD₁, 4, 1, 0; 1992 JH, 4, 1, 0; 1992 JL₁, 6, 2, 7; 1992 JU₂, 14, 3, 12; 1992 JH₃, 5, 1, 0; 1992 KA, 19, 4, 447; 1992 MD, 3, 1, 0; 1992 OO, 5, 1, 0; 1992 OV₁, 10, 2, 408; 1992 OL₃, 8, 2, 6; 1992 OT₉, 8, 2, 60; 1992 PY, 4, 1, 0; 1992 PN₁, 5, 1, 0; 1992 PV₂, 10, 2, 2; 1992 PC₃, 15, 2, 2; 1992 PV₃, 5, 1, 0; 1992 PP₆, 4, 1, 0; 1992 PR₆, 10, 2, 77; 1992 QW, 4, 1, 0; 1992 RE₂, 4, 1, 0; 1992 RV₂, 8, 1, 0; 1992 RL₃, 4, 1, 0; 1992 RF₅, 5, 1, 0; 1992 RE₆, 4, 1, 0; 1992 RV₆, 4, 1, 0; 1992 ST₂, 5, 1, 0; 1992 SO₁₇, 5, 1, 0; 1992 ST₁₇, 10, 2, 48; 1992 SA₂₂, 10, 2, 1; 1992 TV, 5, 1, 0; 1992 VL, 5, 1, 0; 1992 WZ₁, 18, 4, 446; 1992 WD₃, 7, 2, 5; 1992 WL₃, 10, 2, 2; 1992 WR₅, 5, 1, 0; 1992 WD₈, 4, 1, 0; 1992 WK₉, 5, 1, 0; 1992 XM, 5, 1, 0; 1992 YD, 3, 1, 0; 1992 YW₁, 4, 1, 0; 1993 BG₆, 5, 1, 0; 1993 DN, 12, 3, 72; 1993 FQ₁, 4, 1, 0; 1993 FM₆, 10, 1, 0; 1993 FS₆, 5, 1, 0; 1993 FB₉, 4, 1, 0; 1993 FH₁₁, 5, 1, 0; 1993 FS₁₁, 4, 1, 0; 1993 FR₁₂, 5, 1, 0; 1993 FK₁₃, 9, 2, 8; 1993 FA₁₅, 4, 1, 0; 1993 FT₁₉, 4, 1, 0; 1993 FX₂₁, 4, 1, 0; 1993 FU₂₃, 3, 1, 0; 1993 FU₂₅, 4, 1, 0; 1993 FB₂₆, 4, 1, 0; 1993 FH₂₇, 3, 1, 0; 1993 FO₂₇, 4, 1, 0; 1993 FU₃₅, 4, 1, 0; 1993 FJ₄₀, 3, 1, 0; 1993 FF₄₁, 4, 1, 0; 1993 GB, 4, 1, 0; 1993 JX, 4, 1, 0; 1993 KR, 4, 1, 0; 1993 LK₁, 4, 1, 0; 1993 LW₁, 9, 2, 3; 1993 NG₁, 4, 1, 0; 1993 OP₃, 4, 1, 0; 1993 ON₈, 4, 1, 0; 1993 OE₁₃, 5, 1, 0; 1993 PC₇, 2, 1, 0; 1993 QA₁, 3, 1, 0; 1993 QV₁, 5, 1, 0; 1993 QP₂, 24, 5, 8; 1993 QS₄, 4, 1, 0; 1993 QZ₈, 5, 1, 0; 1993 RY₁₁, 4, 1, 0; 1993 TB, 5, 1, 0; 1993 TW₈, 5, 1, 0; 1993 TV₁₂, 5, 1, 0; 1993 TL₁₈, 5, 1, 0; 1993 TG₁₉, 12, 3, 8; 1993 TA₂₄, 5, 1, 0; 1993 TH₂₄, 5, 1, 0; 1993 TD₂₅, 4, 1, 0; 1993 TK₂₅, 4, 1, 0; 1993 TP₂₇, 4, 1, 0; 1993 TO₃₆, 4, 1, 0; 1993 TQ₃₆, 14, 3, 82; 1993 TS₃₆, 4, 1, 0; 1993 TJ₃₇, 7, 2, 7; 1993 TJ₃₈, 4, 1, 0; 1993 UJ₁, 5, 1, 0; 1993 UQ₂, 10, 1, 0; 1993 UE₆, 5, 1, 0; 1993 UZ₆, 4, 1, 0; 1993 VH₅, 4, 1, 0; 1993 WH, 4, 1, 0; 1993 XG, 5, 1, 0; 1994 AK₁, 14, 3, 51; 1994 AT₂, 5, 1, 0; 1994 AN₉, 5, 1, 0; 1994 AG₁₀, 8, 2, 22; 1994 AD₁₁, 5, 1, 0; 1994 BH₁, 10, 2, 26; 1994 BH₄, 5, 1, 0; 1994 CN, 9, 2, 4; 1994 CR, 5, 1, 0; 1994 CG₁, 4, 1, 0; 1994 CQ₁, 3, 1, 0; 1994 CN₈, 3, 1, 0; 1994 CU₁₀, 3, 1, 0; 1994 CQ₁₃, 4, 1, 0; 1994 CE₁₄, 4, 1, 0; 1994 CJ₁₆, 9, 2, 21; 1994 CO₁₆, 10, 3, 65; 1994 EC₆, 5, 1, 0; 1994 EV₇, 4, 1, 0; 1994 GT₈, 5, 1, 0; 1994 GD₁₀, 9, 2, 447; 1994 GF₁₀, 7, 1, 0; 1994 NR₁, 4, 1, 0; 1994 PH, 4, 1, 0; 1994 PU, 5, 1, 0; 1994 PF₂, 2, 1, 0; 1994 PL₄, 5, 1, 0; 1994 PF₅, 4, 1, 0; 1994 PD₈, 8, 2, 4; 1994 PU₈, 9, 2, 55; 1994 PR₉, 4, 1, 0; 1994 PK₁₁, 4, 1, 0; 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1995 DN₁, 5, 1, 0; 1995 DS₁, 3, 1, 0; 1995 DZ₃, 14, 3, 79; 1995 EZ₇, 10, 2, 462; 1995 EK₈, 4, 1, 0; 1995 FH₁, 4, 1, 0; 1995 FA₈, 4, 1, 0; 1995 GC₇, 15, 3, 77; 1995 HB₄, 3, 1, 0; 1995 KA₁, 5, 1, 0; 1995 KL₁, 4, 1, 0; 1995 KJ₃, 5, 1, 0; 1995 MB, 5, 1, 0; 1995 QB₂, 5, 1, 0; 1995 RS, 5, 1, 0; 1995 SW₁₉, 10, 2, 4; 1995 SQ₂₉, 13, 3, 32; 1995 SB₃₄, 5, 1, 0; 1995 SX₅₂, 4, 1, 0; 1995 UM₅, 4, 1, 0; 1995 UB₈, 5, 1, 0; 1995 UZ₄₅, 4, 1, 0; 1995 UB₄₇, 20, 3, 31; 1995 VT, 10, 2, 55; 1995 VS₈, 13, 3, 32; 1995 WX₂, 9, 2, 6; 1995 WV₃, 4, 1, 0; 1995 WT₄, 14, 3, 58; 1995 WH₅, 9, 2, 6; 1995 WU₆, 5, 1, 0; 1995 WQ₇, 5, 1, 0; 1995 WT₁₅, 4, 1, 0; 1995 XH₁, 9, 2, 55; 1995 XX₄, 5, 1, 0; 1996 AA₁₄, 10, 2, 2; 1996 BC₁, 5, 1, 0; 1996 BT₁, 4, 1, 0; 1996 BH₂, 9, 2, 55; 1996 BM₅, 5, 1, 0; 1996 BM₆, 4, 1, 0; 1996 BM₁₇, 5, 1, 0; 1996 CE₁, 5, 1, 0; 1996 CQ₁, 4, 1, 0; 1996 CO₂, 5, 1, 0; 1996 CA₃, 5, 1, 0; 1996 CB₃, 4, 1, 0; 1996 CG₇, 5, 1, 0; 1996 CL₇, 15, 3, 77; 1996 CT₇, 5, 1, 0; 1996 DX, 5, 1, 0; 1996 EL₁, 4, 1, 0; 1996 EB₂, 5, 1, 0; 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1, 0; 1996 JC₆, 5, 1, 0; 1996 JT₇, 5, 1, 0; 1996 KN, 15, 3, 79; 1996 KO, 5, 1, 0; 1996 KT₈, 25, 5, 8; 1996 LV₁, 4, 1, 0; 1996 PS₈, 4, 1, 0; 1996 QG₁, 5, 1, 0; 1996 RJ₂, 3, 1, 0; 1996 RL₅, 3, 1, 0; 1996 RC₂₄, 3, 1, 0; 1996 SB₂, 4, 1, 0; 1996 SV₇, 4, 1, 0; 1996 TH₅, 5, 1, 0; 1996 TL₅, 10, 2, 31; 1996 TS₅, 4, 1, 0; 1996 TA₈, 4, 1, 0; 1996 TC₈, 3, 1, 0; 1996 TD₁₅, 5, 1, 0; 1996 TN₃₅, 3, 1, 0; 1996 TS₄₉, 5, 1, 0; 1996 TX₆₂, 3, 1, 0; 1996 VN₅, 5, 1, 0; 1996 VL₁₈, 4, 1, 0; 1996 WG, 4, 1, 0; 1996 XV, 3, 1, 0; 1996 XJ₁, 5, 1, 0; 1996 XB₂, 5, 1, 0; 1996 XK₂, 5, 1, 0; 1996 XX₂, 5, 1, 0; 1996 XU₂₆, 5, 1, 0; 1996 XJ₃₂, 5, 1, 0; 1996 XL₃₂, 9, 2, 1; 1996 YN₂, 1, 1, 0; 1996 YT₂, 8, 1, 0; 1997 AG₁, 5, 1, 0; 1997 AS₅, 2, 1, 0; 1997 AC₆, 4, 1, 0; 1997 AL₆, 5, 1, 0; 1997 AN₁₄, 8, 2, 21; 1997 AP₁₅, 5, 1, 0; 1997 AQ₁₅, 5, 1, 0; 1997 AN₁₆, 5, 1, 0; 1997 AU₁₇, 4, 1, 0; 1997 AA₁₈, 5, 1, 0; 1997 AK₂₂, 9, 2, 8; 1997 BH₈, 5, 1, 0; 1997 BR₈, 5, 1, 0; 1997 CZ₆, 9, 2, 23; 1997 CP₂₈, 5, 1, 0; 1997 DT, 4, 1, 0; 1997 ER₂, 5, 1, 0; 1997 EJ₁₁, 4, 1, 0; 1997 EQ₃₂, 5, 1, 0; 1997 EY₃₄, 4, 1, 0; 1997 EQ₄₁, 5, 1, 0; 1997 FC₁, 5, 1, 0; 1997 FF₁, 4, 1, 0; 1997 FM₁, 5, 1, 0; 1997 FP₄, 4, 1, 0; 1997 GL, 5, 1, 0; 1997 GF₆, 3, 1, 0; 1997 GG₇, 14, 3, 79; 1997 GC₈, 8, 2, 62; 1997 GT₁₁, 5, 1, 0; 1997 GP₁₃, 4, 1, 0; 1997 GK₁₆, 4, 1, 0; 1997 GY₁₇, 4, 1, 0; 1997 GO₁₈, 5, 1, 0; 1997 GP₂₃, 5, 1, 0; 1997 GX₂₃, 4, 1, 0; 1997 GR₂₅, 5, 1, 0; 1997 GW₂₉, 4, 1, 0; 1997 GV₃₅, 5, 1, 0; 1997 GD₄₂, 9, 2, 6; 1997 HF₈, 7, 2, 502; 1997 HX₉, 4, 1, 0; 1997 HA₁₀, 4, 1, 0; 1997 HG₁₀, 8, 2, 584; 1997 JD, 4, 1, 0; 1997 JZ, 5, 1, 0; 1997 JH₆, 5, 1, 0; 1997 JJ₁₅, 9, 2, 79; 1997 KA₅, 1, 0; 1997 KS, 4, 1, 0; 1997 KJ₂, 8, 1, 0; 1997 KU₂, 4, 1, 0; 1997 LH₄, 5, 1, 0; 1997 MC₃, 4, 1, 0; 1997 NP, 9, 2, 85; 1997 NQ, 4, 1, 0; 1997 NK₁, 5, 1, 0; 1997 NZ₃, 5, 1, 0; 1997 OM, 5, 1, 0; 1997 OL₂, 3, 1, 0; 1997 PF, 4, 1, 0; 1997 PV₃, 5, 1, 0; 1997 PW₃, 4, 1, 0; 1997 PL₅, 10, 2, 2; 1997 QF, 5, 1, 0; 1997 QG, 5, 1, 0; 1997 QL, 5, 1, 0; 1997 QR₂, 4, 1, 0; 1997 QN₃, 5, 1, 0; 1997 QP₃, 5, 1, 0; 1997 RS₃, 5, 1, 0; 1997 RV₈, 4, 1, 0; 1997 SX, 5, 1, 0; 1997 SZ₂, 9, 2, 446; 1997 SE₃, 4, 1, 0; 1997 SM₃, 4, 1, 0; 1997 SF₄, 4, 1, 0; 1997 SV₄, 5, 1, 0; 1997 SZ₄, 4, 1, 0; 1997 ST₁₀, 5, 1, 0; 1997 SN₁₂, 4, 1, 0; 1997 SG₂₁, 8, 2, 28; 1997 SD₂₅, 4, 1, 0; 1997 SS₃₁, 4, 1, 0; 1997 SB₃₄, 5, 1, 0; 1997 TR, 5, 1, 0; 1997 TT₃, 5, 1, 0; 1997 TV₉, 5, 1, 0; 1997 TA₁₈, 4, 1, 0; 1997 TS₁₈, 4, 1, 0; 1997 TJ₂₄, 4, 1, 0; 1997 TR₂₄, 5, 1, 0; 1997 TR₂₅, 5, 1, 0; 1997 TN₂₆, 4, 1, 0; 1997 UY₂, 5, 1, 0; 1997 UB₇, 5, 1, 0; 1997 UL₇, 9, 2, 26; 1997 UT₇, 5, 1, 0; 1997 UG₈, 4, 1, 0; 1997 UY₈, 5, 1, 0; 1997 UE₁₅, 13, 3, 8; 1997 UW₁₈, 5, 1, 0; 1997 UC₂₂, 5, 1, 0; 1997 UE₂₅, 9, 2, 442; 1997 VW, 19, 4, 167; 1997 VG₁, 5, 1, 0; 1997 VO₁, 5, 1, 0; 1997 VZ₁, 4, 1, 0; 1997 VA₃, 4, 1, 0; 1997 VE₃, 5, 1, 0; 1997 VR₃, 5, 1, 0; 1997 VE₄, 4, 1, 0; 1997 VZ₄, 5, 1, 0; 1997 VY₆, 5, 1, 0; 1997 VA₇, 9, 2, 25; 1997 VR₇, 5, 1, 0; 1997 VZ₇, 4, 1, 0; 1997 VE₈, 5, 1, 0; 1997 WK, 9, 2, 383; 1997 WL, 5, 1, 0; 1997 WM₁, 10, 2, 354; 1997 WK₂, 5, 1, 0; 1997 WL₁₃, 5, 1, 0; 1997 WD₂₁, 5, 1, 0; 1997 WP₂₂, 2, 1, 0; 1997 WM₂₄, 5, 1, 0; 1997 WD₃₀, 4, 1, 0; 1997 WC₃₁, 5, 1, 0; 1997 WC₃₄, 5, 1, 0; 1997 WT₃₇, 5, 1, 0; 1997 WN₃₈, 5, 1, 0; 1997 WP₃₈, 4, 1, 0; 1997 WD₄₁, 5, 1, 0; 1997 WZ₄₂, 5, 1, 0; 1997 WC₄₅, 5, 1, 0; 1997 WJ₅₇, 18, 4, 8; 1997 XH₃, 3, 1, 0; 1997 XY₉, 5, 1, 0; 1997 XC₁₀, 5, 1, 0; 1997 XY₁₀, 5, 1, 0; 1997 XK₁₁, 10, 2, 33; 1997 XL₁₁, 5, 1, 0; 1997 XR₁₁, 4, 1, 0; 1997 YQ₁, 5, 1, 0; 1997 YW₃, 5, 1, 0; 1997 YG₁₆, 14, 3, 529; 1997 YO₁₈, 4, 1, 0; 1998 AS₄, 5, 1, 0; 1998 BG₄, 4, 1, 0; 1998 BM₇, 5, 1, 0; 1998 BL₁₁, 4, 1, 0; 1998 BW₁₁, 5, 1, 0; 1998 BL₁₃, 5, 1, 0; 1998 BQ₁₈, 5, 1, 0; 1998 BV₁₈, 10, 2, 26; 1998 BK₁₉, 5, 1, 0; 1998 BO₂₆, 5, 1, 0; 1998 BT₂₆, 5, 1, 0; 1998 BA₃₁, 5, 1, 0; 1998 BE₄₄, 5, 1, 0; 1998 CL₂, 14, 3, 8; 1998 CW₃, 4, 1, 0; 1998 DU₃, 1, 0; 1998 DK₁, 3, 1, 0; 1998 DN₂, 5, 1, 0; 1998 DU₂, 5, 1, 0; 1998 DS₈, 10, 2, 410; 1998 DE₉, 5, 1, 0; 1998 DL₉, 5, 1, 0; 1998 DW₁₁, 15, 3, 28; 1998 DK₂₃, 5, 1, 0; 1998 DO₂₃, 5, 1, 0; 1998 DP₂₃, 9, 2, 25; 1998 DZ₃₃, 5, 1, 0; 1998 DK₃₄, 5, 1, 0; 1998 ES₁, 10, 2, 24; 1998 EQ₂, 9, 2, 7; 1998 ED₃, 5, 1, 0; 1998 EB₉, 4, 1, 0; 1998 EG₉, 10, 2, 387; 1998 EP₉, 5, 1, 0; 1998 EQ₁₁, 4, 1, 0; 1998 EG₁₂, 3, 1, 0; 1998 FF₃, 5, 1, 0; 1

0; 1998 QA₂₃, 4, 1, 0; 1998 QM₂₅, 5, 1, 0; 1998 QO₂₆, 4, 1, 0; 1998 QF₂₇, 4, 1, 0; 1998 QJ₂₈, 5, 1, 0; 1998 QE₂₉, 5, 1, 0; 1998 QE₃₃, 8, 2, 26; 1998 QS₃₄, 2, 1, 0; 1998 QW₃₄, 5, 1, 0; 1998 QV₃₆, 4, 1, 0; 1998 QR₃₉, 8, 2, 27; 1998 QC₄₀, 2, 1, 0; 1998 QX₄₀, 5, 1, 0; 1998 QH₄₂, 10, 2, 163; 1998 QU₄₆, 5, 1, 0; 1998 QD₄₈, 4, 1, 0; 1998 QC₄₉, 4, 1, 0; 1998 QN₅₀, 4, 1, 0; 1998 QT₅₀, 4, 1, 0; 1998 QX₅₀, 5, 1, 0; 1998 QE₅₁, 2, 1, 0; 1998 QF₅₁, 4, 1, 0; 1998 QH₅₁, 4, 1, 0; 1998 QT₅₁, 5, 1, 0; 1998 QX₅₁, 2, 1, 0; 1998 QB₅₂, 4, 1, 0; 1998 QJ₅₃, 5, 1, 0; 1998 QN₅₃, 5, 1, 0; 1998 QR₅₃, 10, 2, 6; 1998 QW₅₃, 5, 1, 0; 1998 QS₅₄, 5, 1, 0; 1998 QF₅₄, 4, 1, 0; 1998 QA₅₆, 5, 1, 0; 1998 QE₅₇, 5, 1, 0; 1998 QL₅₇, 10, 1, 0; 1998 QP₅₇, 4, 1, 0; 1998 QW₅₇, 5, 1, 0; 1998 QX₅₇, 4, 1, 0; 1998 QN₆₀, 4, 1, 0; 1998 QZ₆₉, 5, 1, 0; 1998 QC₇₀, 5, 1, 0; 1998 QF₇₀, 5, 1, 0; 1998 QP₇₀, 7, 2, 498; 1998 QU₇₀, 4, 1, 0; 1998 QC₇₁, 9, 2, 51; 1998 QD₇₂, 5, 1, 0; 1998 QT₇₂, 5, 1, 0; 1998 QX₇₂, 5, 1, 0; 1998 QB₇₃, 5, 1, 0; 1998 QE₇₃, 5, 1, 0; 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1998 QV₁₀₂, 5, 1, 0; 1998 QZ₁₀₂, 5, 1, 0; 1998 QH₁₀₃, 2, 1, 0; 1998 QQ₁₀₃, 10, 2, 32; 1998 QF₁₀₄, 5, 1, 0; 1998 QV₁₀₄, 4, 1, 0; 1998 RM₅, 5, 1, 0; 1998 RX₄, 4, 1, 0; 1998 RF₁, 5, 1, 0; 1998 RC₁₀, 10, 2, 6; 1998 RD₃, 10, 2, 100; 1998 RM₃, 5, 1, 0; 1998 RJ₄, 5, 1, 0; 1998 RT₄, 4, 1, 0; 1998 RU₄, 9, 2, 51; 1998 RV₄, 5, 1, 0; 1998 RW₅, 10, 2, 6; 1998 RY₅, 5, 1, 0; 1998 RB₆, 5, 1, 0; 1998 RK₆, 5, 1, 0; 1998 RZ₈, 4, 1, 0; 1998 RN₁₃, 5, 1, 0; 1998 RG₁₆, 10, 2, 102; 1998 RN₁₆, 10, 2, 49; 1998 RJ₁₇, 5, 1, 0; 1998 RK₁₇, 4, 1, 0; 1998 RC₁₈, 2, 1, 0; 1998 RS₁₈, 5, 1, 0; 1998 RP₁₉, 4, 1, 0; 1998 RO₂₀, 5, 1, 0; 1998 RO₂₂, 5, 1, 0; 1998 RC₂₄, 5, 1, 0; 1998 RD₂₄, 5, 1, 0; 1998 RP₂₈, 8, 2, 6; 1998 RR₂₉, 4, 1, 0; 1998 RO₃₁, 5, 1, 0; 1998 RX₃₂, 9, 2, 6; 1998 RK₃₃, 5, 1, 0; 1998 RM₃₄, 4, 1, 0; 1998 RN₃₅, 5, 1, 0; 1998 RQ₄₂, 5, 1, 0; 1998 RW₄₂, 5, 1, 0; 1998 RO₄₅, 5, 1, 0; 1998 RQ₄₆, 4, 1, 0; 1998 RT₄₆, 19, 3, 163; 1998 RW₄₆, 5, 1, 0; 1998 RE₄₇, 4, 1, 0; 1998 RK₄₇, 9, 2, 55; 1998 RP₄₇, 5, 1, 0; 1998 RR₄₇, 4, 1, 0; 1998 RC₄₈, 9, 2, 55; 1998 RS₄₈, 4, 1, 0; 1998 RZ₄₈, 5, 1, 0; 1998 RG₄₉, 5, 1, 0; 1998 RK₄₉, 9, 2, 55; 1998 RD₅₁, 5, 1, 0; 1998 RY₅₅, 5, 1, 0; 1998 RK₅₇, 4, 1, 0; 1998 RN₅₈, 5, 1, 0; 1998 RA₅₉, 5, 1, 0; 1998 RA₆₀, 4, 1, 0; 1998 RY₆₀, 15, 3, 103; 1998 RG₆₁, 5, 1, 0; 1998 RL₆₁, 5, 1, 0; 1998 RN₆₁, 5, 1, 0; 1998 RU₆₁, 4, 1, 0; 1998 RZ₆₂, 4, 1, 0; 1998 RH₆₃, 4, 1, 0; 1998 RP₆₄, 5, 1, 0; 1998 RB₆₅, 4, 1, 0; 1998 RJ₆₆, 6, 2, 444; 1998 RV₆₆, 8, 2, 63; 1998 RA₆₈, 4, 1, 0; 1998 RX₆₈, 5, 1, 0; 1998 RH₇₁, 5, 1, 0; 1998 RP₇₁, 5, 1, 0; 1998 RX₇₁, 5, 1, 0; 1998 RK₇₂, 5, 1, 0; 1998 RC₇₆, 5, 1, 0; 1998 RH₇₆, 5, 1, 0; 1998 RU₇₆, 15, 3, 63; 1998 RA₇₇, 4, 1, 0; 1998 RF₇₇, 5, 1, 0; 1998 RD₇₉, 4, 1, 0; 1998 RC₈₀, 4, 1, 0; 1998 SC₄, 4, 1, 0; 1998 SA₁, 5, 1, 0; 1998 SG₁, 4, 1, 0; 1998 SR₁, 4, 1, 0; 1998 SE₂, 2, 1, 0; 1998 SL₂, 10, 2, 55; 1998 SN₂, 5, 1, 0; 1998 SR₂, 4, 1, 0; 1998 SW₂, 5, 1, 0; 1998 SC₅, 3, 1, 0; 1998 SG₅, 10, 2, 54; 1998 SY₅, 5, 1, 0; 1998 SA₁₀, 4, 1, 0; 1998 SU₁₀, 10, 2, 6; 1998 SW₁₀, 4, 1, 0; 1998 SB₁₂, 5, 1, 0; 1998 SP₁₂, 5, 1, 0; 1998 SS₁₂, 4, 1, 0; 1998 SK₁₄, 5, 1, 0; 1998 SP₂₁, 4, 1, 0; 1998 SU₂₁, 5, 1, 0; 1998 ST₂₂, 9, 2, 79; 1998 SH₂₃, 4, 1, 0; 1998 SB₂₆, 5, 1, 0; 1998 SS₂₆, 14, 3, 77; 1998 SH₂₇, 3, 1, 0; 1998 SM₂₇, 9, 2, 30; 1998 SN₂₇, 5, 1, 0; 1998 SR₂₇, 5, 1, 0; 1998 SR₃₃, 5, 1, 0; 1998 SH₃₄, 3, 1, 0; 1998 SN₃₄, 4, 1, 0; 1998 SK₃₅, 5, 1, 0; 1998 SR₃₅, 4, 1, 0; 1998 SU₃₅, 5, 1, 0; 1998 SK₃₆, 7, 2, 7; 1998 SP₃₆, 5, 1, 0; 1998 SV₃₆, 2, 1, 0; 1998 SS₃₇, 4, 1, 0; 1998 SP₄₂, 5, 1, 0; 1998 SW₄₃, 4, 1, 0; 1998 SO₄₉, 5, 1, 0; 1998 SU₅₂, 5, 1, 0; 1998 ST₅₃, 5, 1, 0; 1998 SW₅₃, 5, 1, 0; 1998 SW₅₃, 14, 3, 481; 1998 SL₅₄, 5, 1, 0; 1998 ST₅₄, 9, 2, 60; 1998 SN₅₇, 4, 1, 0; 1998 SE₅₈, 9, 2, 3; 1998 SF₅₈, 10, 2, 3; 1998 SH₅₈, 5, 1, 0; 1998 SN₅₈, 4, 1, 0; 1998 SX₆₀, 4, 1, 0; 1998 SL₆₂, 3, 1, 0; 1998 SR₆₂, 8, 2, 72; 1998 SD₆₃, 4, 1, 0; 1998 SJ₆₃, 5, 1, 0; 1998 SQ₆₃, 2, 1, 0; 1998 SH₆₄, 5, 1, 0; 1998 SO₆₄, 5, 1, 0; 1998 SR₆₅, 5, 1, 0; 1998 SP₆₆, 4, 1, 0; 1998 SX₆₆, 8, 2, 497; 1998 SD₆₇, 5, 1, 0; 1998 SR₇₀, 4, 1, 0; 1998 SG₇₁, 4, 1, 0; 1998 ST₇₂, 4, 1, 0; 1998 SX₇₂, 5, 1, 0; 1998 SW₇₃, 2, 1, 0; 1998 SK₇₅, 4, 1, 0; 1998 SL₇₅, 9, 2, 559; 1998 SH₇₉, 9, 2, 162; 1998 SQ₉₇, 5, 1, 0; 1998 SD₁₁₂, 6, 2, 24; 1998 SH₁₁₇, 4, 1, 0; 1998 SC₁₂₂, 4, 1, 0; 1998 SW₁₂₂, 4, 1, 0; 1998 SE₁₂₃, 4, 1, 0; 1998 SM₁₂₃, 2, 1, 0; 1998 SN₁₂₃, 2, 1, 0; 1998 SS₁₂₃, 4, 1, 0; 1998 ST₁₂₃, 4, 1, 0; 1998 SO₁₂₄, 4, 1, 0; 1998 SK₁₂₇, 8, 2, 135; 1998 SA₁₂₉, 4, 1, 0; 1998 SQ₁₂₉, 4, 1, 0; 1998 SA₁₃₀, 4, 1, 0; 1998 SC₁₃₀, 4, 1, 0; 1998 SG₁₃₀, 10, 2, 3; 1998 SN₁₃₀, 4, 1, 0; 1998 SO₁₃₂, 4, 1, 0; 1998 SA₁₃₃, 5, 1, 0; 1998 SP₁₃₃, 4, 1, 0; 1998 SQ₁₃₃, 4, 1, 0; 1998 SF₁₃₄, 4, 1, 0; 1998 SO₁₃₄, 5, 1, 0; 1998 SE₁₃₅, 5, 1, 0; 1998 SN₁₃₅, 4, 1, 0; 1998 SQ₁₃₅, 4, 1, 0; 1998 SA₁₃₇, 2, 1, 0; 1998 SL₁₃₇, 8, 2, 28; 1998 SC₁₃₈, 5, 1, 0; 1998 SH₁₃₈, 4, 1, 0; 1998 SM₁₃₈, 5, 1, 0; 1998 SZ₁₃₈, 4, 1, 0; 1998 SC₁₃₉, 5, 1, 0; 1998 SJ₁₃₉, 9, 2, 71; 1998 SY₁₃₉, 5, 1, 0; 1998 SE₁₄₀, 5, 1, 0; 1998 SL₁₄₀, 4, 1, 0; 1998 SW₁₄₀, 4, 1, 0; 1998 SG₁₄₁, 4, 1, 0; 1998 SY₁₄₁, 9, 2, 26; 1998 SB₁₄₄, 4, 1, 0; 1998 SD₁₄₄, 10, 2, 1; 1998 SM₁₄₄, 4, 1, 0; 1998 SH₁₄₅, 4, 1, 0; 1998 SH₁₄₆, 5, 1, 0; 1998 ST₁₄₆, 5, 1, 0; 1998 SE₁₄₇, 4, 1, 0; 1998 SQ₁₆₁, 4, 1, 0; 1998 SJ₁₆₂, 5, 1, 0; 1998 SN₁₆₂, 4, 1, 0; 1998 ST₁₆₃, 4, 1, 0; 1998 SR₁₆₄, 9, 2, 105; 1998 TA₄, 1, 0; 1998 TE₄, 1, 0; 1998 TU₆, 5, 1, 0; 1998 TW₁, 5, 1, 0; 1998 TG₃, 5, 1, 0; 1998 TQ₃, 5, 1, 0; 1998 TR₅, 4, 1, 0; 1998 TU₆, 5, 1, 0; 1998 TY₆, 5, 1, 0; 1998 TZ₆, 5, 1, 0; 1998 TJ₁₃, 5, 1, 0; 1998 TO₁₆, 4, 1, 0; 1998 TP₁₇, 5,

1, 0; 1998 TA₁₈, 6, 1, 0; 1998 TZ₁₈, 2, 1, 0; 1998 TY₂₀, 4, 1, 0; 1998 TG₃₀, 4, 1, 0; 1998 TK₃₀, 5, 1, 0; 1998 TX₃₀, 4, 1, 0; 1998 TT₃₁, 5, 1, 0; 1998 TD₃₃, 5, 1, 0; 1998 TQ₃₃, 5, 1, 0; 1998 UF₅, 1, 0; 1998 UJ₆, 2, 59; 1998 UL₄, 1, 0; 1998 UV₂₃, 5, 53; 1998 UW₇, 2, 28; 1998 UA₁, 4, 1, 0; 1998 UK₁, 4, 1, 0; 1998 UW₁, 5, 1, 0; 1998 UE₄, 5, 1, 0; 1998 UG₄, 4, 1, 0; 1998 UK₆, 9, 2, 441; 1998 UO₆, 5, 1, 0; 1998 UW₆, 4, 1, 0; 1998 UA₇, 4, 1, 0; 1998 UE₇, 5, 1, 0; 1998 UL₈, 4, 1, 0; 1998 UR₇, 5, 1, 0; 1998 UW₇, 5, 1, 0; 1998 UY₇, 4, 1, 0; 1998 UD₈, 5, 1, 0; 1998 UK₈, 13, 3, 88; 1998 UM₈, 5, 1, 0; 1998 UW₁₂, 5, 1, 0; 1998 UC₁₅, 4, 1, 0; 1998 UE₁₅, 5, 1, 0; 1998 UF₁₅, 9, 2, 2; 1998 UO₁₅, 8, 2, 7; 1998 UP₁₅, 7, 2, 7; 1998 UR₁₅, 5, 1, 0; 1998 UB₁₆, 5, 1, 0; 1998 UL₁₆, 12, 3, 79; 1998 UN₁₆, 5, 1, 0; 1998 UR₁₆, 5, 1, 0; 1998 US₁₆, 10, 2, 74; 1998 UW₁₆, 5, 1, 0; 1998 UA₁₇, 4, 1, 0; 1998 UP₁₈, 13, 3, 85; 1998 UQ₁₈, 9, 2, 85; 1998 UW₁₈, 3, 1, 0; 1998 UR₁₉, 2, 1, 0; 1998 UW₁₉, 5, 1, 0; 1998 UK₂₀, 4, 1, 0; 1998 UL₂₀, 9, 2, 8; 1998 UN₂₀, 8, 2, 7; 1998 UR₂₀, 5, 1, 0; 1998 UV₂₀, 4, 1, 0; 1998 UY₂₀, 5, 1, 0; 1998 UZ₂₀, 5, 1, 0; 1998 UA₂₁, 7, 2, 7; 1998 UE₂₁, 9, 2, 82; 1998 UF₂₁, 5, 1, 0; 1998 UT₂₂, 3, 1, 0; 1998 UU₂₂, 10, 2, 7; 1998 UX₂₂, 8, 2, 7; 1998 UY₂₂, 5, 1, 0; 1998 UC₂₃, 4, 1, 0; 1998 UL₂₃, 5, 1, 0; 1998 UM₂₃, 14, 3, 79; 1998 UN₂₃, 4, 1, 0; 1998 UV₂₄, 8, 2, 7; 1998 UR₂₄, 4, 1, 0; 1998 US₂₄, 9, 2, 7; 1998 UV₂₄, 4, 1, 0; 1998 UZ₂₄, 4, 1, 0; 1998 UL₂₅, 5, 1, 0; 1998 UZ₂₈, 7, 2, 75; 1998 UM₂₉, 3, 1, 0; 1998 UC₃₀, 5, 1, 0; 1998 UC₃₁, 19, 3, 77; 1998 UO₃₁, 9, 2, 3; 1998 UR₃₁, 5, 1, 0; 1998 US₃₁, 5, 1, 0; 1998 UJ₃₂, 5, 1, 0; 1998 UA₃₇, 9, 2, 61; 1998 UF₃₇, 4, 1, 0; 1998 UJ₄₁, 4, 1, 0; 1998 UV₄₁, 5, 1, 0; 1998 VC₅, 5, 1, 0; 1998 VE₅, 5, 1, 0; 1998 VF₅, 5, 1, 0; 1998 VG₁, 4, 1, 0; 1998 VD₂, 3, 1, 0; 1998 VG₂, 2, 1, 0; 1998 VV₂, 4, 1, 0; 1998 VD₄, 4, 1, 0; 1998 VU₄, 25, 5, 392; 1998 VA₅, 13, 3, 14; 1998 VB₅, 9, 2, 7; 1998 VD₅, 5, 1, 0; 1998 VJ₅, 5, 1, 0; 1998 VM₅, 5, 1, 0; 1998 VN₅, 4, 1, 0; 1998 VQ₅, 3, 1, 0; 1998 VR₅, 7, 2, 1; 1998 VS₅, 5, 1, 0; 1998 VU₅, 5, 1, 0; 1998 VX₅, 9, 2, 8; 1998 VB₆, 10, 2, 56; 1998 VC₆, 14, 3, 6; 1998 VG₆, 15, 3, 77; 1998 VN₆, 5, 1, 0; 1998 VQ₆, 8, 2, 75; 1998 VU₆, 13, 3, 8; 1998 VW₆, 5, 1, 0; 1998 VN₈, 5, 1, 0; 1998 VU₉, 4, 1, 0; 1998 VT₁₀, 2, 1, 0; 1998 VZ₁₃, 5, 1, 0; 1998 VH₁₈, 5, 1, 0; 1998 VK₂₈, 5, 1, 0; 1998 VN₂₈, 5, 1, 0; 1998 VS₂₈, 4, 1, 0; 1998 VV₂₈, 4, 1, 0; 1998 VD₂₉, 8, 2, 26; 1998 VO₂₉, 4, 1, 0; 1998 UV₂₉, 10, 2, 79; 1998 VV₂₉, 5, 1, 0; 1998 VY₂₉, 10, 2, 26; 1998 VZ₂₉, 14, 3, 105; 1998 VD₃₀, 5, 1, 0; 1998 VF₃₀, 5, 1, 0; 1998 VJ₃₀, 5, 1, 0; 1998 VM₃₀, 4, 1, 0; 1998 VT₃₀, 15, 3, 105; 1998 VV₃₀, 7, 2, 79; 1998 VH₃₁, 5, 1, 0; 1998 VQ₃₁, 15, 3, 157; 1998 VR₃₁, 2, 1, 0; 1998 VK₃₂, 4, 1, 0; 1998 VM₃₂, 4, 1, 0; 1998 VO₃₂, 5, 1, 0; 1998 VY₃₂, 4, 1, 0; 1998 VH₃₃, 3, 1, 0; 1998 VS₃₃, 5, 1, 0; 1998 VY₃₃, 5, 1, 0; 1998 VC₃₄, 2, 1, 0; 1998 VH₃₄, 5, 1, 0; 1998 VR₃₄, 3, 1, 0; 1998 VS₃₄, 5, 1, 0; 1998 VV₃₄, 15, 3, 77; 1998 VX₃₄, 4, 1, 0; 1998 VF₃₅, 4, 1, 0; 1998 VX₃₇, 4, 1, 0; 1998 VC₄₄, 8, 2, 42; 1998 VD₄₄, 5, 1, 0; 1998 WJ₁, 5, 1, 0; 1998 WK₁, 5, 1, 0; 1998 WD₂, 5, 1, 0; 1998 WK₂, 4, 1, 0; 1998 WM₂, 4, 1, 0; 1998 WN₂, 5, 1, 0; 1998 WQ₂, 4, 1, 0; 1998 WB₃, 18, 3, 7; 1998 WC₃, 12, 3, 8; 1998 WE₃, 4, 1, 0; 1998 WR₃, 10, 2, 79; 1998 WT₃, 15, 4, 79; 1998 WU₃, 24, 5, 105; 1998 WX₃, 9, 2, 1; 1998 WH₄, 9, 2, 85; 1998 WO₄, 5, 1, 0; 1998 WT₄, 5, 1, 0; 1998 WU₄, 4, 1, 0; 1998 WW₄, 4, 1, 0; 1998 WB₅, 2, 1, 0; 1998 WC₅, 3, 1, 0; 1998 WE₅, 9, 2, 36; 1998 WH₅, 4, 1, 0; 1998 WN₅, 4, 1, 0; 1998 WO₅, 9, 2, 2; 1998 WV₅, 5, 1, 0; 1998 WW₅, 4, 1, 0; 1998 WX₅, 5, 1, 0; 1998 WZ₅, 4, 1, 0; 1998 WC₆, 5, 2, 72; 1998 WK₆, 14, 3, 79; 1998 WN₆, 14, 3, 8; 1998 WQ₆, 4, 1, 0; 1998 WY₆, 5, 1, 0; 1998 WB₇, 9, 2, 26; 1998 WE₇, 4, 1, 0; 1998 WL₇, 9, 2, 54; 1998 WN₇, 9, 2, 7; 1998 WR₇, 4, 1, 0; 1998 WS₇, 12, 3, 77; 1998 WB₈, 9, 2, 34; 1998 WC₈, 5, 1, 0; 1998 WD₉, 5, 1, 0; 1998 WJ₉, 5, 1, 0; 1998 WM₉, 5, 1, 0; 1998 WQ₉, 4, 1, 0; 199

1998 YL₅, 4, 1, 0; 1998 YS₅, 4, 1, 0; 1998 YT₅, 10, 2, 28; 1998 YN₆, 9, 2, 29; 1998 YT₆, 5, 1, 0; 1998 YB₇, 15, 3, 79; 1998 YP₇, 10, 2, 32; 1998 YC₈, 10, 2, 2; 1998 YF₈, 4, 1, 0; 1998 YH₈, 4, 1, 0; 1998 YK₈, 5, 1, 0; 1998 YV₈, 5, 1, 0; 1998 YS₉, 12, 3, 8; 1998 YD₁₀, 8, 2, 30; 1998 YE₁₀, 4, 1, 0; 1998 YJ₁₀, 3, 1, 0; 1998 YW₁₀, 5, 1, 0; 1998 YC₁₂, 5, 1, 0; 1998 YJ₁₂, 5, 1, 0; 1998 YP₁₂, 4, 1, 0; 1998 YL₁₃, 5, 1, 0; 1998 YQ₁₅, 4, 1, 0; 1998 YY₁₅, 3, 1, 0; 1998 YM₁₆, 9, 2, 6; 1998 YO₁₆, 4, 1, 0; 1998 YV₁₆, 5, 1, 0; 1998 YU₁₉, 4, 1, 0; 1998 YT₂₀, 8, 2, 29; 1998 YJ₂₂, 5, 1, 0; 1998 YH₂₇, 5, 1, 0; 1998 YU₂₉, 10, 2, 26; 1999 AA₂, 4, 1, 0; 1999 AX₄, 1, 0; 1999 AO₂, 4, 1, 0; 1999 AU₂, 5, 1, 0; 1999 AO₃, 4, 1, 0; 1999 AQ₃, 4, 1, 0; 1999 AR₃, 9, 2, 4; 1999 AZ₃, 5, 1, 0; 1999 AA₄, 3, 1, 0; 1999 AR₄, 10, 2, 55; 1999 AK₅, 5, 1, 0; 1999 AM₅, 10, 2, 55; 1999 AR₅, 4, 1, 0; 1999 AZ₅, 8, 2, 6; 1999 AC₆, 3, 1, 0; 1999 AE₆, 10, 2, 25; 1999 AS₆, 5, 1, 0; 1999 AV₆, 3, 1, 0; 1999 AZ₆, 5, 1, 0; 1999 AC₇, 3, 1, 0; 1999 AU₇, 5, 1, 0; 1999 AL₈, 22, 5, 157; 1999 AD₁₀, 4, 1, 0; 1999 AJ₁₀, 4, 1, 0; 1999 AC₁₆, 3, 1, 0; 1999 AA₂₁, 4, 1, 0; 1999 AL₂₁, 5, 1, 0; 1999 AQ₂₁, 8, 2, 445; 1999 AU₂₁, 5, 1, 0; 1999 AC₂₄, 5, 1, 0; 1999 AF₂₄, 8, 2, 56; 1999 AN₂₄, 5, 1, 0; 1999 AF₂₅, 4, 1, 0; 1999 AZ₂₆, 4, 1, 0; 1999 AE₂₈, 4, 1, 0; 1999 AU₃₀, 5, 1, 0; 1999 AD₃₃, 4, 1, 0; 1999 BG₄, 1, 0; 1999 BS₄, 1, 0; 1999 BW₄, 4, 1, 0; 1999 BB₁, 10, 2, 59; 1999 BE₁, 8, 2, 29; 1999 BO₁, 9, 2, 8; 1999 BW₁, 5, 1, 0; 1999 BD₂, 4, 1, 0; 1999 BF₂, 4, 1, 0; 1999 BY₂, 3, 1, 0; 1999 BB₃, 5, 1, 0; 1999 BW₃, 7, 2, 20; 1999 BA₄, 4, 1, 0; 1999 BN₅, 5, 1, 0; 1999 BP₅, 5, 1, 0; 1999 BQ₆, 3, 1, 0; 1999 BX₆, 5, 1, 0; 1999 BK₈, 9, 2, 55; 1999 BY₈, 3, 1, 0; 1999 BA₉, 5, 1, 0; 1999 BK₁₀, 4, 1, 0; 1999 BG₁₁, 23, 4, 8; 1999 BS₁₁, 3, 1, 0; 1999 BL₁₂, 5, 1, 0; 1999 BN₁₂, 15, 3, 81; 1999 BT₁₂, 1, 1, 0; 1999 BH₁₄, 5, 1, 0; 1999 BK₁₄, 5, 1, 0; 1999 BN₁₄, 5, 1, 0; 1999 BO₁₄, 5, 1, 0; 1999 BQ₁₄, 8, 2, 2; 1999 BR₁₄, 4, 1, 0; 1999 BZ₁₄, 8, 2, 7; 1999 BF₁₅, 4, 1, 0; 1999 BJ₁₅, 8, 2, 8; 1999 BL₂₅, 8, 2, 415; 1999 BV₂₅, 3, 1, 0; 1999 BZ₂₅, 4, 1, 0; 1999 BN₃₀, 4, 1, 0; 1999 CA₁₀, 2, 446; 1999 CM₈, 8, 2, 29; 1999 CV₁₂, 3, 8; 1999 CX₁₈, 18, 4, 12; 1999 CD₁, 24, 5, 132; 1999 CS₁, 10, 2, 1; 1999 CH₃, 5, 1, 0; 1999 CN₃, 4, 1, 0; 1999 CA₄, 4, 1, 0; 1999 CF₄, 5, 1, 0; 1999 CE₅, 4, 1, 0; 1999 CO₅, 10, 2, 50; 1999 CP₅, 4, 1, 0; 1999 CH₉, 9, 2, 26; 1999 CH₁₀, 5, 1, 0; 1999 CM₁₀, 8, 2, 446; 1999 CF₁₄, 5, 1, 0; 1999 CV₁₄, 4, 1, 0; 1999 CX₁₄, 5, 1, 0; 1999 CY₁₄, 5, 1, 0; 1999 CH₁₆, 4, 1, 0; 1999 CK₁₆, 4, 1, 0; 1999 CM₁₆, 5, 1, 0; 1999 CB₁₇, 5, 1, 0; 1999 CD₁₈, 5, 1, 0; 1999 CG₁₉, 4, 1, 0; 1999 CK₁₉, 5, 1, 0; 1999 CS₁₉, 4, 1, 0; 1999 CF₂₀, 8, 2, 50; 1999 CR₂₀, 5, 1, 0; 1999 CV₂₀, 3, 1, 0; 1999 CB₂₁, 18, 4, 447; 1999 CF₂₁, 5, 1, 0; 1999 CU₂₅, 10, 2, 442; 1999 CJ₂₇, 4, 1, 0; 1999 CM₂₇, 4, 1, 0; 1999 CN₂₇, 5, 1, 0; 1999 CD₂₈, 5, 1, 0; 1999 CM₃₂, 5, 1, 0; 1999 CO₃₂, 27, 5, 8; 1999 CJ₃₄, 5, 1, 0; 1999 CV₃₆, 5, 1, 0; 1999 CM₃₇, 18, 4, 8; 1999 CJ₄₀, 8, 1, 0; 1999 CT₄₂, 4, 1, 0; 1999 CO₄₃, 4, 1, 0; 1999 CO₄₅, 8, 2, 397; 1999 CU₄₆, 5, 1, 0; 1999 CB₄₇, 5, 1, 0; 1999 CO₄₈, 3, 1, 0; 1999 CL₅₀, 7, 2, 26; 1999 CV₅₀, 3, 1, 0; 1999 CD₅₁, 13, 3, 417; 1999 CJ₅₁, 5, 1, 0; 1999 CM₅₁, 3, 1, 0; 1999 CA₅₂, 2, 1, 0; 1999 CV₅₄, 3, 1, 0; 1999 CB₅₅, 4, 1, 0; 1999 CD₅₇, 9, 2, 4; 1999 CN₅₇, 23, 5, 405; 1999 CX₅₉, 8, 2, 2; 1999 CG₆₀, 7, 2, 8; 1999 CU₆₀, 8, 2, 2; 1999 CW₆₅, 23, 5, 8; 1999 CH₆₆, 4, 1, 0; 1999 CA₇₆, 10, 2, 23; 1999 CZ₇₆, 3, 1, 0; 1999 CW₇₇, 10, 2, 2; 1999 CW₈₁, 8, 2, 28; 1999 CA₈₂, 4, 1, 0; 1999 CY₈₂, 5, 1, 0; 1999 CN₈₄, 9, 2, 77; 1999 CQ₈₅, 10, 2, 29; 1999 CW₈₅, 9, 2, 29; 1999 CL₈₇, 5, 1, 0; 1999 CC₈₉, 4, 1, 0; 1999 CG₈₉, 4, 1, 0; 1999 CK₉₁, 5, 1, 0; 1999 CV₉₃, 5, 1, 0; 1999 CX₉₆, 5, 1, 0; 1999 CA₉₇, 4, 1, 0; 1999 CA₉₈, 5, 1, 0; 1999 CP₉₉, 3, 1, 0; 1999 CU₉₉, 5, 1, 0; 1999 CT₁₀₁, 8, 2, 26; 1999 CA₁₀₄, 10, 2, 4; 1999 CF₁₀₄, 5, 1, 0; 1999 CK₁₀₉, 3, 1, 0; 1999 CU₁₁₁, 5, 1, 0; 1999 CM₁₁₈, 5, 1, 0; 1999 CT₁₂₃, 5, 1, 0; 1999 CV₁₂₃, 12, 3, 414; 1999 CJ₁₃₈, 5, 1, 0; 1999 CG₁₅₂, 5, 1, 0; 1999 DC₅, 1, 0; 1999 DB₁, 9, 2, 4; 1999 DV₁, 5, 1, 0; 1999 DU₂, 9, 2, 8; 1999 DX₂, 9, 2, 29; 1999 DC₃, 26, 5, 8; 1999 DB₅, 4, 1, 0; 1999 DN₇, 4, 1, 0; 1999 EG₅, 1, 0; 1999 EV₂, 5, 1, 0; 1999 EC₃, 4, 1, 0; 1999 FA₇, 4, 1, 0; 1999 FD₉, 9, 2, 53; 1999 FL₉, 5, 1, 0; 1999 FK₁₆, 4, 1, 0; 1999 FP₁₇, 4, 1, 0; 1999 FF₁₈, 5, 1, 0; 1999 FB₁₉, 10, 2, 12; 1999 FF₁₉, 9, 2, 6; 1999 FL₁₉, 10, 2, 53; 1999 FE₂₁, 5, 1, 0; 1999 FP₂₈, 5, 1, 0; 1999 FO₂₉, 4, 1, 0; 1999 FY₂₉, 5, 1, 0; 1999 FB₃₀, 5, 1, 0; 1999 FG₃₀, 5, 1, 0; 1999 FB₃₁, 5, 1, 0; 1999 FO₃₄, 5, 1, 0; 1999 FU₃₄, 5, 1, 0; 1999 FJ₃₅, 5, 1, 0; 1999 GW₄, 1, 0; 1999 GM₁, 5, 1, 0; 1999 GW₃, 5, 1, 0; 1999 GO₄, 5, 1, 0; 1999 GO₈, 4, 1, 0; 1999 GW₈, 4, 1, 0; 1999 GX₈, 5, 1, 0; 1999 GP₂₀, 5, 1, 0; 1999 GT₂₃, 5, 1, 0; 1999 GF₃₃, 9, 2, 27; 1999 GN₃₃, 8, 2, 27; 1999 GR₃₃, 5, 1, 0; 1999 GU₃₃, 9, 2, 24; 1999 GD₄₀, 8, 2, 32; 1999 GK₄₄, 5, 1, 0; 1999 GO₄₅, 5, 1, 0; 1999 GZ₄₅, 3, 1, 0; 1999 GQ₄₆, 5, 1, 0; 1999 HL₄, 4, 1, 0; 1999 HO₅, 1, 0; 1999 HU₁, 5, 1, 0; 1999 HW₂, 4, 1, 0; 1999 HR₃, 10, 2, 20; 1999 HP₄, 5, 1, 0; 1999 JE₄, 1, 0; 1999 JO₁, 8, 2, 12; 1999 JT₁, 5, 1, 0; 1999 JY₁, 5, 1, 0; 1999 JB₆, 5, 1, 0; 1999 JE₆, 4, 1, 0; 1999 JQ₆, 19, 4, 161; 1999 JK₈, 5, 1, 0; 1999 JE₁₂, 10, 2, 15; 1999 JN₁₆, 9, 2, 8; 1999 JN₁₇, 5, 1, 0; 1999 JZ₁₈, 10, 2, 33; 1999 JH₂₂, 5, 1, 0; 1999 JW₂₃, 4, 1, 0; 1999 JU₂₆, 4, 1, 0; 1999 JC₂₈, 14, 3, 8; 1999 JK₂₈, 4, 1, 0; 1999 JT₃₁, 4, 1, 0; 1999 JD₄₂, 4, 1, 0; 1999 JA₄₃, 12, 2, 4; 1999 JU₄₆, 7, 2, 27; 1999 JW₄₆, 9, 2, 28; 1999 JM₅₁, 4, 1, 0; 1999 JR₅₁, 5, 1, 0; 1999 JQ₆₃, 5, 1, 0; 1999 JQ₆₇, 5, 1, 0; 1999 JP₆₉, 5, 1, 0; 1999 JP₇₀, 4, 1, 0; 1999 JN₇₅, 5, 1, 0; 1999 JO₇₅, 5, 1, 0; 1999 JQ₇₅, 5, 1, 0; 1999 JG₈₁, 5, 1, 0; 1999 JJ₉₂, 5, 1, 0; 1999 JN₁₀₅, 3, 1, 0; 1999 JC₁₀₆, 13, 3, 37; 1999 JB₁₀₈, 2, 1, 0; 1999 JX₁₀₉, 5, 1, 0; 1999 JQ₁₁₇, 15, 3, 421; 1999 JV₁₁₇, 4, 1, 0; 1999 JI₁₂₆, 5, 1, 0; 1999 JP₁₃₀, 10, 2, 53; 1999 JL₁₃₂, 5, 1, 0; 1999 JM₁₃₂, 5, 1, 0; 1999 JN₁₃₂, 5, 1, 0; 1999 JO₁₃₂, 4, 1, 0; 1999 JP₁₃₂, 3, 1, 0; 1999 JQ₁₃₂, 3, 1, 0; 1999 JR₁₃₂, 5, 1, 0; 1999 JS₁₃₂, 3, 4, 1, 0; 1999 JT₁₃₂, 3, 4, 1, 0; 1999 JU₁₃₂, 3, 1, 0; 1999 JV₁₃₂, 3, 4, 1, 0; 1999 JW₁₃₂, 3, 5, 1, 0; 1999 JX₁₃₂, 3, 4, 1, 0; 1999 JY₁₃₂, 3, 9, 2, 31; 1999 JZ₁₃₂, 3, 4, 1, 0; 1999 JA₁₃₃, 3, 4, 1, 0; 1999 JB₁₃₃, 3, 4, 1, 0; 1999 JC₁₃₃, 5, 1, 0; 1999 JD₁₃₃, 3, 5, 1, 0; 1999 JE₁₃₃, 3, 5, 1, 0; 1999 JF₁₃₃, 3, 4, 1, 0; 1999 JG₁₃₃, 3, 5, 1, 0; 1999 JH₁₃₃, 3, 7, 2, 5; 1999 JJ₁₃₃, 3, 5, 1, 0; 1999 JK₁₃₃, 3, 4, 1, 0; 1999 JL₁₃₃, 3, 5, 1, 0; 1999 JM₁₃₃, 3, 4, 1, 0; 1999 JN₁₃₃, 3, 5, 1, 0; 1999 JO₁₃₃, 3, 4, 1, 0; 1999 JP₁₃₃, 3, 4, 1, 0; 1999 JQ₁₃₃, 3, 1, 0; 1999 JR₁₃₃, 3, 4, 1, 0; 1999 JS₁₃₃,

5, 1, 0; 1999 JT₁₃₃, 5, 1, 0; 1999 JU₁₃₃, 5, 1, 0; 1999 JW₁₃₃, 4, 1, 0; 1999 JY₁₃₃, 4, 1, 0; 1999 JZ₁₃₃, 8, 1, 0; 1999 JE₁₃₄, 13, 3, 36; 1999 JF₁₃₄, 3, 1, 0; 1999 JG₁₃₄, 4, 1, 0; 1999 JH₁₃₄, 3, 1, 0; 1999 JJ₁₃₄, 4, 1, 0; 1999 JK₁₃₄, 4, 1, 0; 1999 JL₁₃₄, 4, 1, 0; 1999 JN₁₃₄, 4, 1, 0; 1999 JQ₁₃₄, 4, 1, 0; 1999 JR₁₃₄, 4, 1, 0; 1999 JS₁₃₄, 3, 1, 0; 1999 JT₁₃₄, 3, 5, 1, 0; 1999 JU₁₃₄, 4, 1, 0; 1999 JV₁₃₄, 3, 1, 0; 1999 JW₁₃₄, 3, 1, 0; 1999 JX₁₃₄, 3, 4, 1, 0; 1999 JY₁₃₄, 3, 5, 1, 0; 1999 JZ₁₃₄, 3, 5, 1, 0; 1999 JA₁₃₅, 3, 5, 1, 0; 1999 JB₁₃₅, 3, 4, 1, 0; 1999 JC₁₃₅, 3, 1, 0; 1999 JD₁₃₅, 3, 5, 1, 0; 1999 JE₁₃₅, 3, 5, 1, 0; 1999 JF₁₃₅, 3, 4, 1, 0; 1999 JG₁₃₅, 3, 4, 1, 0; 1999 JH₁₃₅, 3, 5, 1, 0; 1999 JJ₁₃₅, 3, 4, 1, 0; 1999 JK₁₃₅, 3, 4, 1, 0; 1999 JL₁₃₅, 3, 4, 1, 0; 1999 JM₁₃₅, 3, 5, 1, 0; 1999 JN₁₃₅, 3, 4, 1, 0; 1999 JO₁₃₅, 3, 4, 1, 0; 1999 JP₁₃₅, 3, 4, 1, 0; 1999 JQ₁₃₅, 4, 1, 0; 1999 KF₄, 5, 1, 0; 1999 KQ₄, 9, 2, 36; 1999 KK₆, 4, 1, 0; 1999 KL₆, 5, 1, 0; 1999 KU₁₆, 3, 4, 1, 0; 1999 KV₁₆, 3, 5, 1, 0; 1999 KY₁₆, 3, 5, 1, 0; 1999 KZ₁₆, 3, 4, 1, 0; 1999 KA₁₇, 3, 4, 1, 0; 1999 KB₁₇, 3, 4, 1, 0; 1999 KC₁₇, 3, 5, 1, 0; 1999 KD₁₇, 3, 5, 1, 0; 1999 KE₁₇, 3, 4, 1, 0; 1999 KF₁₇, 3, 4, 1, 0; 1999 KH₁₇, 4, 1, 0; 1999 KJ₁₇, 5, 1, 0; 1999 KM₁₇, 3, 4, 1, 0; 1999 KN₁₇, 5, 1, 0; 1999 KO₁₇, 5, 1, 0; 1999 KP₁₇, 5, 1, 0; 1999 KV₁₇, 10, 1, 0; 1999 KY₁₇, 3, 4, 1, 0; 1999 KZ₁₇, 3, 5, 1, 0; 1999 KA₁₈, 3, 5, 1, 0; 1999 KE₁₈, 3, 4, 1, 0; 1999 KF₁₈, 3, 5, 1, 0; 1999 KG₁₈, 3, 4, 1, 0; 1999 KH₁₈, 3, 3, 1, 0; 1999 KJ₁₈, 3, 4, 1, 0; 1999 KK₁₈, 5, 1, 0; 1999 KL₁₈, 4, 1, 0; 1999 KM₁₈, 3, 1, 0; 1999 KN₁₈, 10, 2, 8; 1999 KO₁₈, 3, 4, 1, 0; 1999 LP₁₅, 3, 53; 1999 LT₅, 1, 0; 1999 LG₂, 5, 1, 0; 1999 LW₂, 13, 3, 468; 1999 LJ₄, 9, 2, 36; 1999 LN₄, 9, 2, 1; 1999 LX₄, 5, 1, 0; 1999 LN₅, 5, 1, 0; 1999 LY₅, 5, 1, 0; 1999 LZ₅, 9, 2, 79; 1999 LB₆, 4, 1, 0; 1999 LC₆, 4, 1, 0; 1999 LG₆, 5, 1, 0; 1999 LH₆, 5, 1, 0; 1999 LY₆, 3, 1, 0; 1999 LH₇, 4, 1, 0; 1999 LL₇, 4, 1, 0; 1999 LX₇, 5, 1, 0; 1999 LL₈, 4, 1, 0; 1999 LY₈, 5, 1, 0; 1999 LN₉, 3, 1, 0; 1999 LT₁₀, 30, 3, 26; 1999 LF₁₁, 5, 1, 0; 1999 LH₁₄, 5, 1, 0; 1999 LE₁₅, 3, 1, 0; 1999 LD₂₇, 5, 1, 0; 1999 LF₃₁, 5, 1, 0; 1999 MA₅, 5, 1, 0; 1999 MC₉, 9, 2, 4; 1999 MH₃, 3, 1, 0; 1999 MO₄, 1, 0; 1999 MQ₄, 1, 0; 1999 MA₂, 3, 1, 0; 1999 MC₂, 3, 1, 0; 1999 ND₁₀, 2, 471; 1999 NR₄, 1, 0; 1999 NS₄, 1, 0; 1999 NT₅, 1, 0; 1999 NT₁, 8, 2, 82; 1999 NU₁, 4, 1, 0; 1999 NV₁, 4, 1, 0; 1999 NN₂, 5, 1, 0; 1999 NR₂, 4, 1, 0; 1999 NH₃, 5, 1, 0; 1999 NP₃, 5, 1, 0; 1999 ND₄, 4, 1, 0; 1999 NL₄, 10, 2, 22; 1999 NQ₄, 4, 1, 0; 1999 NE₅, 5, 1, 0; 1999 NH₅, 4, 1, 0; 1999 NF₆, 14, 3, 23; 1999 NZ₇, 4, 1, 0; 1999 NX₁₄, 10, 2, 58; 1999 NZ₁₄, 10, 2, 58; 1999 NA₁₅, 5, 1, 0; 1999 NC₁₅, 5, 1, 0; 1999 NJ₁₅, 4, 1, 0; 1999 NO₁₅, 15, 2, 58; 1999 NF₁₆, 9, 2, 58; 1999 NH₁₆, 5, 1, 0; 1999 NM₁₆, 5, 1, 0; 1999 NO₁₆, 4, 1, 0; 1999 NZ₁₆, 5, 1, 0; 1999 NQ₁₈, 8, 2, 58; 1999 NS₁₈, 4, 1, 0; 1999 NV₁₈, 9, 2, 58; 1999 NY₁₈, 5, 1, 0; 1999 ND₁₉, 3, 1, 0; 1999 NO₁₉, 5, 1, 0; 1999 NQ₁₉, 10, 2, 58; 1999 NT₁₉, 4, 1, 0; 1999 NU₁₉, 5, 1, 0; 1999 NV₁₉, 4, 1, 0; 1999 NJ₂₀, 5, 1, 0; 1999 NO₂₃, 10, 2, 18; 1999 NX₂₈, 3, 1, 0; 1999 NE₃₀, 5, 1, 0; 1999 NM₃₃, 9, 2, 58; 1999 NE₄₀, 5, 1, 0; 1999 ND₄₁, 4, 1, 0; 1999 NL₄₃, 10, 2, 31; 1999 NG₄₄, 5, 1, 0; 1999 NB₄₇, 4, 1, 0; 1999 NF₄₇, 9, 2, 59; 1999 NL₄₇, 4, 1, 0; 1999 NW₅₀, 8, 2, 58; 1999 NC₅₆, 4, 1, 0; 1999 NT₅₆, 4, 1, 0; 1999 NF₅₇, 8, 2, 2; 1999 OB₄, 4, 1, 0; 1999 OC₅, 1, 0; 1999 OQ₄, 4, 1, 0; 1999 OS₄, 1, 0; 1999 OX₅, 1, 0; 1999 OC₁, 4, 1, 0; 1999 OJ₁, 5, 1, 0; 1999 ON₁, 5, 1, 0; 1999 OK₃, 3, 1, 0; 1999 OM₃, 5, 1, 0; 1999 ON₃, 3, 8, 2, 5; 1999 OO₃, 3, 13, 3, 20; 1999 OP₃, 3, 15, 3, 20; 1999 OQ₃, 3, 10, 2, 5; 1999 OR₃, 3, 18, 3, 15; 1999 OS₃, 5, 1, 0; 1999 OT₃, 3, 5, 1, 0; 1999 OU₃, 3, 1, 0; 1999 PA₄, 1, 0; 1999 PC₅, 5, 1, 0; 1999 PG₅, 5, 1, 0; 1999 PV₅, 5, 1, 0; 1999 PZ₈, 2, 63; 1999 PT₁, 4, 1, 0; 1999 PX₁, 6, 2, 862; 1999 PN₃, 14, 3, 63; 1999 PS₃, 3, 8, 2, 1; 1999 PT₃, 3, 5, 1, 0; 1999 PY₃

(9244), 4, 1, 0; (9247), 3, 1, 0; (9341), 3, 1, 0; (10902), 5, 1, 0; (11017), 5, 1, 0; (11028), 5, 1, 0; (11033), 4, 1, 0; (11043), 3, 1, 0; (11049), 4, 1, 0; (11056), 5, 1, 0; (11069), 3, 1, 0; (11085), 4, 1, 0; (11094), 5, 1, 0; (11102), 4, 1, 0; (11122), 5, 1, 0; (11125), 3, 1, 0; (11136), 5, 1, 0; (11139), 5, 1, 0; (11166), 5, 1, 0; (11181), 5, 1, 0; (11185), 3, 1, 0; (11205), 5, 1, 0; (11213), 5, 1, 0; (11216), 3, 1, 0; (11243), 3, 1, 0; (11245), 5, 1, 0; [12770, 2189, 76*, 1995/12/22–1999/08/12]

705 Apache Point

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Cambridge, MA 02138, U.S.A. [mholman@cfa.harvard.edu]

Observers M. Holman, C. Ernst, M. Marley

Measurers C. Ernst, M. Holman

3.5-m reflector + CCD

1999 OX₃, 3, 1, 0; 1999 OY₃, 2, 1, 0; [5, 2, 0*, 1999/08/07]

711 McDonald Observatory

P. J. Shelus, McDonald Observatory, University of Texas, Austin, TX 78712-1013,
U.S.A. [pjs@astro.as.utexas.edu]

Observers P. J. Shelus, J. L. Africano

0.76-m $f/3.0$ reflector + CCD

GSC

1985 UF₅, 4, 2, 3; 1988 SL₃, 2, 1, 0; 1989 UR, 1, 1, 0; 1993 FT₇, 3, 1, 0; 1994 CM₇, 2, 1, 0; 1995 YV₃, 4, 2, 2; 1997 CZ₅, 2, 1, 0; 1998 DU₁₃, 4, 2, 3; 1998 KK₁₇, 4, 2, 1; 1998 QR₅₂, 2, 1, 0; 1998 RO₁, 4, 2, 1; 1998 YP₁₁, 4, 2, 2; 1999 BJ₈, 4, 2, 2; 1999 DK₃, 3, 1, 0; 1999 GK₄, 2, 1, 0; 1999 HX₁, 4, 2, 2; 1999 JD₈, 2, 1, 0; 1999 JA₄₁, 2, 1, 0; 1999 JL₄₄, 2, 1, 0; 1999 LN₂₈, 2, 1, 0; 1999 LO₂₈, 2, 1, 0; 1999 NZ₄, 4, 2, 2; 1999 NC₄₃, 2, 1, 0; 1999 PJ₁, 3, 1, 0; (2204), 4, 2, 2; (4183), 2, 1, 0; (4435), 2, 1, 0; (5626), 2, 1, 0; (5751), 4, 2, 3; (6611), 4, 2, 3; (7088), 4, 2, 3; (7304), 2, 1, 0; (8872), 2, 1, 0; (8944), 2, 1, 0; (10860), 2, 1, 0; [98, 35, 0*, 1998/12/14–1999/08/08]

715 Las Cruces

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

[ddixon@lascruces.com]

0.2-m $f/3.9$ Schmidt-Cassegrain + CCD

GSC, USNO-A2.0

1989 UU₃, 6, 2, 1; 1991 VU₅, 6, 2, 1; [12, 2, 0*, 1999/08/21–1999/08/22]

718 University of Utah Hansen Planetarium, Tooele

P. Wiggins, University of Utah Hansen Planetarium, 15 South State Street, Salt
Lake City, UT 84111-1590, U.S.A. [p.wiggins@m.cc.utah.edu]

Observers P. Wiggins, H. Phaneuf

0.35-m $f/4.1$ Schmidt-Cassegrain + CCD

1990 VL₆, 1, 1, 0; 1999 NU₅₂, 10, 2, 1; (276), 1, 1, 0; [12, 3, 0*, 1999/07/23–1999/08/14]

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-A2.0

(76), 4, 1, 0; (112), 19, 2, 1; (186), 6, 2, 1; (346), 3, 1, 0; (361), 3, 1, 0; (454), 2, 1, 0; (908), 3, 1, 0; (1282), 3, 1, 0; (2428), 9, 3, 5; (2670), 6, 2, 5; (3284), 6, 2, 5; (5119), 3, 1, 0; (8315), 6, 2, 4; (8737), 4, 2, 5; [77, 14, 0*, 1999/08/10–1999/08/15]

721 Lime Creek

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

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

GSC

1999 PK, 4, 2, 2; 1999 PG₁, 12, 6, 11; 1999 PH₁, 8, 4, 7; 1999 QD *, 4, 2, 2; 1999 QV₁, 7, 1, 0; [35, 5, 1*, 1999/08/08–1999/08/23]

725 Fair Oaks Ranch

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

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

USNO-SA2.0

1997 PV₃, 3, 1, 0; 1998 VE₃₇, 3, 1, 0; [6, 2, 0*, 1998/12/09–1999/01/13]

726 Brainerd

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

[jimw@brainerd.net]

0.280-m Schmidt-Cassegrain + CCD

GSC-1.1

1999 HX₂, 6, 1, 0; 1999 LO₂₈, 6, 1, 0; [12, 2, 0*, 1999/08/02–1999/08/04]

727 Zeno Observatory, Edmond

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

[tstaffor@aignetplex.com]

0.15-m $f/6$ refractor + CCD

GSC, USNO-SA2.0

1978 PE, 3, 1, 0; 1986 QY₂, 3, 1, 0; 1999 NR₄, 11, 4, 16; 1999 QB *, 6, 2, 1; 3105 T-3, 6, 2, 1; (3798), 3, 1, 0; (5539), 3, 1, 0; (6798), 3, 1, 0; (8477), 3, 1, 0; [41, 9, 1*, 1999/08/02–1999/08/18]

731 Rose-Hulman Observatory, Terre Haute

R. Ditteon, Rose-Hulman Institute of Technology, Box 171, 5500 Wabash Avenue,
Terre Haute, IN 47803, U.S.A. [ditteon@rose-hulman.edu]

Observer C. Wolfe

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

(4867), 3, 1, 0; (9108), 3, 1, 0; (9129), 3, 1, 0; [9, 3, 0*, 1999/08/18]

734 Farpoint Observatory, Eskridge

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

Observers G. Hug, G. Bell

0.30-m Schmidt-Cassegrain + CCD

GSC-1.1, USNO-A2.0

1999 JR₂, 3, 1, 0; 1999 LL₇, 14, 3, 15; 1999 NH, 6, 2, 4; 1999 NZ₁₄, 6, 1, 0; 1999 OF₁, 12, 3, 15; 1999 OR₃, 3, 1, 0; 1999 PJ₁, 5, 1, 0; 1999 PK₃ *, 16, 4, 8; 1999 PL₃ *, 19, 4, 8; 1999 PZ₃ *, 18, 5, 9; 1999 PK₄ *, 17, 3, 6; 1999 PR₄ *, 21, 4, 5; 1999 PS₄ *, 18, 4, 7; 1999 QA *, 22, 5, 9; 1999 QJ, 4, 1, 0; 1999 QP *, 14, 4, 4; 1999 QS₁ *, 8, 2, 1; 1999 QD₂, 4, 1, 0; 1999 QH₂ *, 13, 2, 3; 1999 QJ₂ *, 10, 2, 1; [233, 20, 11*, 1999/07/28–1999/08/25]

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, S. Brenneman, M. Eastman, C. Gustava, R. Pepper,
K. Rivich,

Measurer W. G. Dillon, K. Rivich

0.46-m reflector + CCD

USNO-A2.0

(1044), 3, 1, 0; (3354), 4, 2, 1; [7, 2, 0*, 1999/07/11–1999/08/13]

739 Sunflower Observatory, Olathe

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

[lrobinson@ix.netcom.com]

0.30-m Schmidt-Cassegrain + CCD

GSC-1.1

1994 PK₅, 2, 1, 0; 1995 OA, 4, 1, 0; 1998 FZ₁₅, 5, 2, 12; 1998 FN₁₁₈, 7, 2, 2; 1998 HO₃₃, 2, 1, 0; 1998 KZ₄₆, 3, 1, 0; 1999 HX₂, 3, 1, 0; 1999 LL₇, 4, 1, 0; 1999 MN₁, 2, 1, 0; 1999 NZ₁₄, 5, 1,

0; 1999 PC₃, 3, 1, 0; 1999 PJ₁, 5, 2, 11; 1999 PS₁, 2, 1, 0; 1999 PN₃, 3, 1, 0; 1999 PP₃, 2, 1, 0; 1999 QE₂, 4, 1, 0; (16), 2, 1, 0; (166), 3, 1, 0; (179), 3, 1, 0; (184), 2, 1, 0; (219), 3, 1, 0; (242), 3, 1, 0; (244), 2, 1, 0; (334), 3, 1, 0; (360), 3, 1, 0; (367), 3, 1, 0; (370), 1, 1, 0; (405), 3, 1, 0; (483), 3, 1, 0; (496), 3, 1, 0; (598), 2, 1, 0; (646), 2, 1, 0; (685), 2, 1, 0; (696), 2, 1, 0; (699), 3, 1, 0; (737), 3, 1, 0; (758), 2, 1, 0; (872), 2, 1, 0; (1031), 3, 1, 0; (1146), 2, 1, 0; (1172), 3, 1, 0; (1243), 2, 1, 0; (1367), 3, 1, 0; (1660), 3, 1, 0; (2120), 3, 1, 0; (2363), 3, 1, 0; (2675), 2, 1, 0; (3313), 3, 1, 0; (3451), 3, 1, 0; (3623), 1, 1, 0; (3806), 3, 1, 0; (3940), 3, 1, 0; (4177), 2, 1, 0; (4708), 3, 1, 0; (4709), 2, 1, 0; (4792), 3, 1, 0; (4867), 3, 1, 0; (5119), 3, 1, 0; (5622), 2, 1, 0; (6241), 3, 1, 0; (8526), 3, 1, 0; (8843), 2, 1, 0; *[174, 62, 0*, 1999/07/29–1999/08/25]*

740 SFA Observatory, Nacogdoches

W. D. Bruton, Department of Physics and Astronomy, SFASU Box 13044,
Nacogdoches, TX 75962, U.S.A. [f-brutonwd@titan.sfasu.edu]

Observers W. D. Bruton, C. F. Stewart
0.25-m $f/6.3$ Schmidt-Cassegrain + CCD
GSC-1.1

1993 TY₂₄, 9, 2, 1; 1999 PQ₃ *, 17, 5, 4; (863), 8, 2, 3; *[34, 3, 1*, 1999/07/17–1999/08/17]*

744 Doyan Rose Observatory, Indianapolis

J. Ruthroff, 5221 Graceland Ave., Indianapolis, IN 46254, U.S.A.
[jruthroff@sprintmail.com]

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

1979 OA, 6, 2, 1; (895), 6, 2, 3; *[12, 2, 0*, 1999/08/18–1999/08/22]*

747 Baton Rouge Observatory

W. R. Cooney, 10330 Dunn Dr., Baton Rouge, LA 70810, U.S.A.
[walt@sprintmail.com]

Observers W. R. Cooney, M. Hess, M. Collier, J. Clawson, G. Stacy, T. Martin,
P. Motl, S. Lazar, P. Lazar

Measurers F. J. Barnett, W. R. Cooney
0.51-m $f/8.4$ reflector + CCD
USNO-A2.0

1987 OO, 3, 1, 0; 1988 RK, 6, 2, 5; 1996 OL, 3, 1, 0; 1997 YR₅, 10, 2, 15; 1998 EF, 7, 2, 1; 1998 FG₅₃, 2, 1, 0; 1998 FJ₇₈, 3, 1, 0; 1998 FY₉₉, 2, 1, 0; 1998 GE₉, 2, 1, 0; 1998 HS₆₀, 2, 1, 0; 1998 SG₂₇, 9, 2, 1; 1999 JS₅, 7, 2, 3; 1999 NP₁₉, 4, 2, 1; 1999 NU₅₂, 4, 1, 0; 1999 PO₃ *, 11, 3, 5; 1999 PG₆ *, 7, 2, 4; 3474 T-3, 7, 2, 1; (10805), 3, 1, 0; (10931), 4, 1, 0; *[96, 19, 2*, 1999/06/05–1999/08/18]*

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-SA2.0

1988 AH₅, 1, 1, 0; *[1, 1, 0*, 1998/12/10]*

762 Four Winds Observatory, Lake Leelanau

R. Elliott, 1422 South Manitou Trail, Lake Leelanau, MI 49653, U.S.A.
[elliottb@uwec.edu]

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

1988 TW₂, 3, 1, 0; 1991 VA₃, 6, 2, 10; 1992 UD₃, 4, 2, 10; 1993 DJ, 3, 1, 0; (699), 6, 2, 1; (3581), 6, 2, 7; (4483), 3, 1, 0; *[31, 7, 0*, 1999/07/20–1999/08/30]*

801 Oak Ridge

R. E. McCrosky, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street,
Cambridge, MA 02138, U.S.A.

1.5-m reflector + CCD
GSC

1997 XL₅, 2, 1, 0; *[2, 1, 0*, 1994/02/15]*

807 Cerro Tololo

G. Bernstein, Dept. of Astronomy, University of Michigan, Ann Arbor, MI 48013,
U.S.A. [garyb@astro.lsa.umich.edu]

Observers R. L. Allen, M. Jarvis, G. Bernstein, P. Guhathakurta
Measurer G. Bernstein

4-m Blanco reflector + CCD
USNO-A2.0

1999 JH₁₃₂ *, 4, 4, 9; 1999 JJ₁₃₂ *, 4, 4, 9; 1999 JK₁₃₂ *, 4, 4, 9; 1999 KT₁₆ *, 4, 2, 1; 1999 KK₁₇ *, 5, 4, 9; 1999 KL₁₇ *, 6, 4, 9; *[27, 6, 6*, 1999/05/10–1999/05/19]*

808 Carlos U. Cesco Observatory, El Leoncito

C. E. Lopez, Felix Aguilar Observatory, Benavidez 8175 (Oeste), AR-5407
Marquesado-San Juan, Argentina [clopez@iinfo.unsj.edu.ar]

Observers M. R. Cesco, H. S. Lepez, J. E. Torres, J. A. Vicentela
Measurers R. A. Gil Hutton, C. E. Lopez

0.5-m $f/7.5$ double astrograph + CCD
GSC

1977 DR₂, 2, 1, 0; 1989 SJ₅, 2, 1, 0; 1989 TC, 2, 1, 0; 1994 PZ, 2, 1, 0; 1998 HJ₉₄, 2, 1, 0; 1998 HD₉₅, 2, 1, 0; 1998 KZ₃, 2, 1, 0; 1998 MT₃₂, 2, 1, 0; 1998 QS₁, 2, 1, 0; 1998 YG₃, 2, 1, 0; 1999 KU₄, 2, 1, 0; (117), 2, 1, 0; (127), 2, 1, 0; (327), 2, 1, 0; (445), 2, 1, 0; (587), 2, 1, 0; (654), 2, 1, 0; (772), 2, 1, 0; (945), 2, 1, 0; (1235), 2, 1, 0; (1282), 2, 1, 0; (1360), 6, 3, 23; (1366), 2, 1, 0; (1659), 2, 1, 0; (1987), 4, 2, 13; (2000), 2, 1, 0; (2050), 2, 1, 0; (2078), 2, 1, 0; (2157), 2, 1, 0; (2234), 2, 1, 0; (3036), 2, 1, 0; (3089), 2, 1, 0; (3142), 2, 1, 0; (3167), 2, 1, 0; (3258), 2, 1, 0; (3392), 3, 2, 13; (3614), 2, 1, 0; (3712), 4, 2, 13; (3970), 2, 1, 0; (4315), 2, 1, 0; (4448), 2, 1, 0; (4547), 2, 1, 0; (4674), 2, 1, 0; (4705), 2, 1, 0; (5567), 2, 1, 0; (6271), 2, 1, 0; (6489), 2, 1, 0; (7605), 2, 1, 0; (7829), 4, 2, 13; (8668), 4, 2, 2; (9047), 4, 2, 2; (9456), 2, 1, 0; (10798), 2, 1, 0; (11006), 2, 1, 0; (11076), 2, 1, 0; *[125, 55, 0*, 1992/07/30–1999/07/12]*

809 European Southern Observatory

H. Debehogne, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180
Brussels, Belgium [henri@astro.oma.be] (3)

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

O. R. Hainaut, European Southern Observatory, Casilla 19001, Santiago, Chile
[ohainaut@eso.org] (5)

$7 = 3 + 4$

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

Observers A. Delsanti, O. R. Hainaut, H. Debehogne, C.-I. Lagerkvist,
M. Lindgren, G. Pizarro, O. Pizarro

Measurers O. R. Hainaut, E. W. Elst, O. Hernius, C.-I. Lagerkvist
1.0-m Schmidt

(4) 1973 SZ, 3, 1, 0; 1978 VD₃, 3, 1, 0; 1978 VO₆, 3, 1, 0; 1979 QJ₁, 3, 1, 0; 1981 EJ₂₀, 3, 1, 0; 1981 WJ₉, 3, 1, 0; 1982 UW₁, 3, 1, 0; 1986 QX₁, 3, 1, 0; 1988 SS₂, 3, 1, 0; 1989 GL, 3, 1, 0; 1989 GZ₁, 6, 2, 7; 1989 VP₁, 3, 1, 0; 1991 EA₄, 3, 1, 0; 1992 DF₁₀, 3, 1, 0; 1992 EW₂, 3, 1, 0; 1992 HH₅, 3, 1, 0; 1992 PF₆, 6, 2, 2044; 1992 RG₅, 2, 1, 0; 1992 TJ₁, 3, 1, 0; 1993 FA₄₀, 3, 1, 0; 1993 OL₅, 3, 1, 0; 1993 QN₃, 3, 1, 0; 1993 QO₄, 3, 1, 0; 1993 QS₄, 3, 1, 0; 1993 RM₇, 3, 1, 0; 1993 RT₇, 3, 1, 0; 1993 RA₈, 3, 1, 0; 1993 SU₄, 3, 1, 0; 1993 TX₂₃, 3, 1, 0; 1993 TM₂₄, 3, 1, 0; 1993 TL₃₇, 3, 1, 0; 1993 UQ₂, 3, 1, 0; 1994 AZ₄, 3, 1, 0; 1994 CX₁₀, 3, 1, 0; 1994 ED₆, 3, 1, 0; 1994 EU₆, 3, 1, 0; 1994 PG, 3, 1, 0; 1994 PF₂, 3, 1, 0; 1994 PC₁₆, 3, 1, 0; 1994 RN, 6, 2, 1; 1994 UA₃, 2, 1, 0; 1994 VD, 3, 1, 0; 1994 VT₆, 3, 1, 0; 1994 WL₃, 3, 1, 0; 1995 XH₁, 2, 1, 0; 1995 YT₂₀, 3, 1, 0; 1996 CT₇, 3, 1, 0; 1996 EQ₂, 3, 1, 0; 1996 GN₁₇, 3, 1, 0; 1996 GO₂₀, 3, 1, 0; 1996 HO, 3, 1, 0; 1996 HM₁₈, 3, 1, 0; 1996 HM₂₂, 3, 1, 0; 1996 HJ₂₄, 3, 1, 0; 1996 JT₇, 3, 1, 0; 1996 PT₁, 3, 1, 0; 1996 PX₃, 3, 1, 0; 1996 XS₁, 2, 1, 0; 1997 DT, 3, 1, 0; 1997 GV₇, 3, 1, 0; 1997 GK₂₅, 3, 1, 0; 1997 GR₂₅, 3, 1, 0; 1997 GZ₂₅, 3, 1, 0; 1997 GZ₃₂, 3, 1, 0; 1997 PY, 3, 1, 0; 1997 PR₃, 3, 1, 0; 1997 QS, 3, 1, 0; 1997 RP₉, 3, 1, 0; 1997 SJ₁₁, 3, 1, 0; 1997 VG₄, 3, 1, 0; 1997 WU₈, 1, 1, 0; 1997 WV₁₂, 1, 1, 0; 1997 YH₄, 3, 1, 0; 1997 YZ₁₇, 3, 1, 0; 1998 BJ₂, 3, 1, 0; 1998 EG₁₀, 3, 1, 0; 1998 FS₇₅, 6, 2, 3; 1998 FZ₁₀₂, 6, 2, 21; 1998 KN₃₂, 3, 1, 0; 1998 KV₃₂, 3, 1,

0; 1998 LB₃, 3, 1, 0; 1998 MZ₃₇, 3, 1, 0; 1998 QB, 3, 1, 0; 1998 QS₁, 6, 2, 1; 1998 QT₅, 3, 1, 0; 1998 QV₉, 3, 1, 0; 1998 QY₁₃, 3, 1, 0; 1998 QT₁₆, 3, 1, 0; 1998 QG₂₁, 3, 1, 0; 1998 QP₂₃, 3, 1, 0; 1998 QD₄₄, 3, 1, 0; 1998 QP₄₇, 3, 1, 0; 1998 QE₅₄, 3, 1, 0; 1998 QB₇₃, 6, 2, 1; 1998 QP₈₈, 3, 1, 0; 1998 QO₉₃, 3, 1, 0; 1998 QD₉₉, 3, 1, 0; 1998 RQ₂, 3, 1, 0; 1998 RY₅, 3, 1, 0; 1998 RC₁₈, 3, 1, 0; 1998 RP₂₈, 3, 1, 0; 1998 RD₄₄, 3, 1, 0; 1998 RA₄₇, 3, 1, 0; 1998 RE₄₇, 3, 1, 0; 1998 RJ₅₂, 3, 1, 0; 1998 RY₅₄, 6, 1, 0; 1998 RB₅₇, 3, 1, 0; 1998 RZ₆₇, 6, 2, 3; 1998 RP₇₀, 3, 1, 0; 1998 RL₇₁, 3, 1, 0; 1998 RL₈₀, 3, 1, 0; 1998 SA₁, 6, 2, 24; 1998 SF₁, 3, 1, 0; 1998 SX₄, 3, 1, 0; 1998 SL₁₂, 3, 1, 0; 1998 SU₂₁, 3, 1, 0; 1998 SX₂₂, 3, 1, 0; 1998 SJ₂₄, 3, 1, 0; 1998 SP₂₄, 3, 1, 0; 1998 SC₂₈, 3, 1, 0; 1998 SR₄₃, 3, 1, 0; 1998 SG₄₉, 6, 2, 3; 1998 SB₅₁, 3, 1, 0; 1998 SV₅₃, 3, 1, 0; 1998 SH₅₄, 3, 1, 0; 1998 SD₅₈, 3, 1, 0; 1998 SF₅₉, 3, 1, 0; 1998 SP₅₉, 3, 1, 0; 1998 SR₆₃, 3, 1, 0; 1998 SN₆₇, 3, 1, 0; 1998 SW₇₅, 3, 1, 0; 1998 SG₁₀₇, 3, 1, 0; 1998 SN₁₀₈, 3, 1, 0; 1998 SH₁₂₂, 6, 2, 22; 1998 SD₁₂₈, 3, 1, 0; 1998 SW₁₃₂, 6, 2, 3; 1998 SP₁₃₃, 3, 1, 0; 1998 SQ₁₄₂, 3, 1, 0; 1998 SA₁₄₄, 3, 1, 0; 1998 SO₁₄₅, 3, 1, 0; 1998 ST₁₄₅, 3, 1, 0; 1998 SX₁₄₇, 3, 1, 0; 1998 TT₂₆, 3, 1, 0; 1998 UO₁₈, 3, 1, 0; 1998 UR₂₄, 6, 2, 1; 1998 UA₃₇, 3, 1, 0; 1998 UF₃₇, 3, 1, 0; 1998 VX₅, 3, 1, 0; 1998 VK₃₂, 3, 1, 0; 1998 VK₃₃, 3, 1, 0; 1998 WG₁₂, 3, 1, 0; 1998 XG₁₆, 3, 1, 0; 1998 XY₄₁, 6, 2, 34; 1998 XA₉₀, 6, 2, 1; 1998 XR₉₂, 3, 1, 0; 1998 YL₁₆, 3, 1, 0; 1999 BX₄, 3, 1, 0; 1999 BD₁₁, 3, 1, 0; 1999 CF₂₁, 3, 1, 0; 1999 CV₅₄, 3, 1, 0; 1999 CN₅₆, 6, 2, 2; 1999 CH₆₀, 6, 2, 1270; 1999 CZ₉₇, 3, 1, 0; 1999 EY₆, 3, 1, 0; 1999 NF₂₃, 3, 1, 0; 1999 NK₄₂, 3, 1, 0; 2140 T-3, 3, 1, 0; 4326 T-3, 3, 1, 0; 5034 T-3, 6, 1, 0; [556, 169, 0*, 1992/05/02–1998/09/21]

(5) 1999 GS₄₆ *, 12, 3, 35; 1999 HU₁₁, 6, 2, 1; 1999 KR₁₆ *, 8, 2, 1; 1999 KS₁₆ *, 6, 2, 1; [32, 4, 3*, 1999/04/12–1999/05/17]

(7) 1978 RO₈, 3, 1, 0; 1978 UE₅, 3, 1, 0; 1980 FY₂, 5, 2, 10; 1991 FP, 3, 1, 0; 1993 SN₃, 5, 2, 10; 1993 TM, 3, 1, 0; 1993 TV₁₅, 2, 1, 0; 1993 TZ₁₅, 3, 1, 0; 1993 TO₁₇, 2, 1, 0; 1993 TO₁₈, 3, 1, 0; 1993 TH₁₉, 2, 1, 0; 1993 TK₂₂, 3, 1, 0; 1995 BQ, 3, 1, 0; 1997 QM, 3, 1, 0; 1997 SE₃, 3, 1, 0; 1997 TX₁₀, 3, 1, 0; 1997 TW₁₅, 6, 2, 10; 1997 WT₃₇, 3, 1, 0; 1998 PN₁, 3, 1, 0; 1998 QM₂₀, 3, 1, 0; 1998 QW₄₂, 6, 2, 12; 1998 QJ₆₉, 3, 1, 0; 1998 QE₈₃, 6, 2, 10; 1998 RW₅₂, 3, 1, 0; 1998 RZ₆₇, 6, 2, 10; 1998 RJ₇₅, 3, 1, 0; 1998 SR₄₃, 6, 2, 10; 1998 SL₆₁, 3, 1, 0; 1998 YV₈, 2, 1, 0; 1998 YW₂₉, 3, 1, 0; 1999 BJ₉, 5, 2, 10; 1999 CU₆₀, 3, 1, 0; 1999 JM₁₉, 3, 1, 0; 1999 NH₁₂, 3, 1, 0; [119, 34, 0*, 1993/09/14–1994/07/11]

(8) 1973 SL, 2, 2, 2; 1973 SZ, 2, 2, 2; 1981 EL₂₆, 1, 1, 0; 1984 SP₄, 1, 1, 0; 1985 RJ₄, 1, 1, 0; 1985 RN₄, 1, 1, 0; 1990 QA₆, 1, 1, 0; 1991 GX₁, 1, 1, 0; 1991 RT₁₄, 2, 2, 2; 1992 DD₃, 1, 1, 0; 1992 ET₁₂, 1, 1, 0; 1992 EL₂₇, 1, 1, 0; 1993 BM₅, 5, 5, 25; 1994 PM₂₁, 1, 1, 0; 1994 PC₃₇, 1, 1, 0; 1995 QC₁₁ *, 11, 9, 31; 1995 SP₈, 14, 10, 31; 1995 SY₁₂, 11, 9, 31; 1995 SB₃₄, 10, 8, 29; 1995 UC₄₇, 1, 1, 0; 1995 VG₁₃, 1, 1, 0; 1996 RC₁, 1, 1, 0; 1996 RV₂₈, 1, 1, 0; 1996 RF₂₉, 2, 2, 1; 1996 RN₃₁, 3, 2, 1; 1996 RR₃₁, 2, 2, 1; 1996 RU₃₁, 2, 2, 3; 1996 RA₃₃, 1, 1, 0; 1996 RF₃₃, 1, 1, 0; 1996 ST₁, 3, 2, 4; 1996 TN₃₉, 1, 1, 0; 1996 TR₄₀, 1, 1, 0; 1996 TV₄₁, 1, 1, 0; 1996 TG₄₇, 1, 1, 0; 1996 TN₄₉, 4, 3, 4; 1996 TS₄₉, 3, 2, 4; 1996 TC₅₁, 2, 2, 6; 1996 TD₅₇, 1, 1, 0; 1996 TA₅₈, 1, 1, 0; 1996 TC₆₀, 4, 2, 3; 1996 TO₆₃, 2, 2, 1; 1996 TF₆₈ *, 3, 2, 5; 1996 TG₆₈ *, 3, 2, 5; 1996 TH₆₈ *, 4, 3, 8; 1996 TJ₆₈ *, 2, 2, 1; 1996 TK₆₈ *, 2, 2, 1; 1996 TL₆₈ *, 2, 2, 1; 1996 TM₆₈ *, 2, 2, 1; 1996 TN₆₈ *, 2, 2, 1; 1996 TO₆₈ *, 2, 2, 1; 1996 TP₆₈ *, 2, 2, 1; 1996 TQ₆₈ *, 2, 2, 1; 1996 TR₆₈ *, 2, 2, 1; 1996 TS₆₈ *, 2, 2, 2; 1996 TT₆₈ *, 3, 3, 3; 1996 TU₆₈ *, 3, 3, 3; 1996 TV₆₈ *, 2, 2, 3; 1996 TW₆₈ *, 3, 3, 27; 1996 TX₆₈ *, 2, 2, 1; 1996 TY₆₈ *, 3, 2, 4; 1996 TZ₆₈ *, 5, 3, 7; 1996 UK₅ *, 2, 2, 2; 1996 UL₅ *, 2, 2, 2; 1996 UM₅ *, 2, 2, 2; 1996 UN₅ *, 2, 2, 2; 1996 UO₅ *, 2, 2, 2; 1996 UP₅ *, 2, 2, 2; 1997 FO₃, 1, 1, 0; 1997 GD₁₅, 1, 1, 0; 1997 MC₃, 1, 1, 0; 1997 SY₃₂, 2, 2, 1; 1997 TT₉, 2, 1, 0; 1997 VR, 2, 2, 5; 1997 YU, 1, 1, 0; 1998 FB₆₃, 2, 2, 5; 1998 FF₆₆, 2, 2, 1; 1998 HR₁₁₅, 2, 2, 34; 1998 HL₁₃₄, 1, 1, 0; 1998 QM₂₅, 1, 1, 0; 1998 QK₃₉, 1, 1, 0; 1998 QL₅₉, 1, 1, 0; 1998 QC₉₂, 2, 2, 1; 1998 XZ₇₇, 1, 1, 0; 1998 XO₇₉, 3, 2, 8; 1998 YW₁, 2, 1, 0; 1998 YL₄, 1, 1, 0; 1999 AT₂₁, 3, 3, 5; 1999 BW₂, 1, 1, 0; 1999 CV₅₀, 1, 1, 0; 1999 CL₁₀₂, 1, 1, 0; 1999 DO₃, 1, 1, 0; 1999 EG₃, 5, 5, 32; 1999 GH₁₈, 6, 6, 34; 1999 JU₂₃, 4, 4, 7; 1999 JA₂₇, 1, 1, 0; 1999 NC₃, 3, 3, 3; 1999 NZ₂₉, 2, 2, 2; 1999 NJ₃₂, 1, 1, 0; 1999 NJ₄₀, 2, 2, 1; 4275 P-L, 2, 1, 0; 4572 P-L, 3, 2, 1; 3086 T-2, 2, 2, 4; 5159 T-2, 3, 2, 8; 2031 T-3, 2, 2, 36; (1404), 1, 1, 0; (1647), 1, 1, 0; (3391), 1, 1, 0; (3540), 2, 1, 0; (3548), 2, 2, 8; (3793), 1, 1, 0; (3794), 2, 1, 0; (4138), 2, 2, 6; (4255), 1, 1, 0; (4501), 6, 3, 7; (5012), 2, 2, 9; (5041), 4, 3, 8; (5244), 1, 1, 0; (7221), 1, 1, 0; (8241), 2, 2, 3; (8299), 2, 1, 0; (9790), 1, 1, 0; (9817), 1, 1, 0; (9818), 1, 1, 0; (9907), 2, 2, 1; (10664), 2, 1, 0; (11121), 1, 1, 0; (11199), 1, 1, 0; [282, 127, 27*, 1992/03/01–1998/03/02]

810 Wallace Observatory, Westford

S. M. Slivan, Dept. of Physics and Astronomy, Lathrop 200, Colgate University, 13 Oak Drive, Hamilton, NY 13346-1398, U.S.A. [slivan@mit.edu]

0.61-m $f/2.7$ reflector + CCD

GSC

(243), 4, 2, 4; (10939), 4, 2, 4; [8, 2, 0*, 1993/03/15–1993/03/19]

824 Lake Clear

K. A. Williams, RD #1 Box 277, Forest Home Road, Lake Clear, NY 12945, U.S.A. [kenwill@NorthNet.org]

0.41-m $f/5.0$ reflector + CCD

GSC

1993 TY₂₂, 3, 1, 0; [3, 1, 0*, 1998/09/19]

827 Saint-Félicien

C. Boivin, 1265 Des Cormiers, Saint-Félicien, Quebec G8K 2H5, Canada [cboivin@destination.ca]

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

GSC

1996 GE₁₉, 3, 1, 0; [3, 1, 0*, 1999/08/04]

838 Dayton

J. Chumack, 3118 Mesmer Avenue, Dayton, OH 45410, U.S.A.

[galactic@infinet.com]

0.25-m Schmidt-Cassegrain + CCD

GSC

(48), 4, 2, 2; (53), 4, 2, 2; (168), 4, 2, 2; (550), 4, 2, 2; (667), 4, 2, 2; (701), 4, 2, 2; (863), 4, 2, 2; (897), 4, 2, 2; (903), 2, 1, 0; (1064), 4, 2, 2; (1167), 4, 2, 2; (1203), 3, 2, 2; (1617), 3, 2, 2; (3674), 4, 2, 2; [52, 14, 0*, 1999/08/16–1999/08/18]

840 Flint

C. Bayus, 2002 Cartier St., Flint, MI 48504, U.S.A. [cbayus@usol.com]

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

GSC

(3156), 4, 2, 1; (3966), 4, 2, 1; (8289), 4, 2, 1; [12, 3, 0*, 1999/08/21–1999/08/22]

843 Decatur

L. C. Ball, 4311 Emerald Lane, Decatur, AL 35603, U.S.A. [dustoff72@aol.com]

0.30-m $f/6.5$ Schmidt-Cassegrain + CCD

GSC

(186), 4, 2, 1; (699), 2, 2, 1; (875), 2, 2, 1; (920), 2, 2, 1; (1342), 6, 2, 1; (2039), 2, 2, 1; (2490), 2, 2, 1; (3208), 2, 2, 2; (3363), 2, 2, 2; (4667), 2, 2, 1; (7628), 2, 2, 2; (7630), 1, 1, 0; (8289), 2, 2, 2; [31, 13, 0*, 1999/08/05–1999/08/29]

844 Los Molinos

T. Gallardo, Departamento de Astronomia, Facultad de Ciencias, Montevideo, Uruguay [gallardo@fisica.edu.uy]

Observers R. Salvo, E. Maragatos, H. Cucurullo

0.35-m $f/6.4$ reflector + CCD

USNO-A2.0

1998 WM, 3, 1, 0; 1998 YN₁, 3, 1, 0; 1999 KU₄, 3, 1, 0; 1999 LO₂₈, 3, 1, 0; 1999 PJ₁, 4, 1, 0; (1282), 3, 1, 0; (1362), 3, 1, 0; (1372), 3, 1, 0; (2670), 3, 1, 0; (4805), 6, 2, 26; (7628), 3, 1, 0; [37, 11, 0*, 1999/07/06–1999/08/08]

846 Principia Astronomical Observatory, Elsayh

D. A. Cornell, Physics Department, Principia College, Elsayh, IL 62028, U.S.A. [dcorn@prin.edu]

Observer C. Hooper

0.41-m $f/10$ reflector + CCD

USNO-A2.0

1999 HF₁, 4, 1, 0; 1999 LF₆, 8, 3, 5; [12, 2, 0*, 1999/08/09–1999/08/16]

847 Lunar Cafe Observatory

C. Bayus, 2002 Cartier St., Flint, MI 48504, U.S.A. [cbayus@usol.com]

0.25-m $f/4.5$ reflector + CCD

GSC

(361), 4, 2, 1; (469), 4, 2, 1; [8, 2, 0*, 1999/08/14–1999/08/15]

859 Serra da Piedade

C. Jacques, P.O. Box 1084, Belo Horizonte, Minas Gerais, BR-30000 Brazil

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Observers C. Jacques, J. Amancio, L. Duczmal

Measurer C. Jacques

0.30-m $f/3.3$ reflector + CCD

GSC

1978 TO₈, 6, 2, 9; 1979 QP, 3, 1, 0; 1988 VM₉, 4, 1, 0; 1989 SC₄, 3, 1, 0; 1989 TO, 6, 2, 2; 1990 BF, 3, 1, 0; 1993 BT₂, 3, 1, 0; 1995 GA, 3, 1, 0; 1995 YV₃, 4, 1, 0; 1998 GA, 3, 1, 0; 1998 YP₁₁, 3, 1, 0; 1999 CV₃, 4, 1, 0; 1999 LN₂₈, 3, 1, 0; 1999 OP₃, 3, 1, 0; 1999 PK, 3, 1, 0; 1999 PM *, 18, 5, 15; 1999 PF₄ *, 6, 2, 3; 1999 PG₄ *, 9, 3, 6; 1999 PJ₄, 3, 1, 0; 1999 QV₁, 3, 1, 0; 1999 QD₂, 3, 1, 0; 3274 T-1, 6, 2, 3; [102, 22, 3*, 1999/07/25–1999/08/25]

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

1999 PQ₁ *, 5, 2, 1; [5, 1, 1*, 1999/08/08–1999/08/09]

886 Susono

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

0.25-m $f/6.3$ reflector + CCD

GSC

1988 XL, 4, 2, 7; 1995 SL₂, 2, 1, 0; 1995 WZ₆, 2, 1, 0; 1996 AY₃, 2, 1, 0; 1997 AN₂₁, 2, 1, 0; 1998 EK₈, 5, 2, 5; 1999 PA, 1, 1, 0; 1999 PB, 2, 1, 0; 1999 QH, 2, 1, 0; 1999 QF₂ *, 4, 2, 1; 2508 P-L, 3, 1, 0; (8648), 3, 1, 0; [32, 12, 1*, 1999/08/01–1999/08/22]

888 Gekko Observatory

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

0.50-m $f/4.0$ reflector + CCD

GSC-1.1

1988 RL₆, 2, 1, 0; 1988 TQ₁, 4, 2, 25; 1989 CS₁, 2, 1, 0; 1991 JF, 2, 1, 0; 1995 OU, 5, 2, 16; 1995 SL₂, 2, 1, 0; 1996 XY₁₈, 2, 1, 0; 1996 XU₃₀, 2, 1, 0; 1998 BG₄, 5, 2, 1; 1998 DB₂₄, 5, 2, 1; 1998 EK₈, 2, 1, 0; 1998 EP₉, 4, 2, 1; 1999 JE₆, 2, 1, 0; 1999 OV₃, 2, 1, 0; 1999 PA *, 6, 3, 6; 1999 PB *, 11, 4, 16; 1999 PK₁ *, 3, 2, 6; 1999 PY₄ *, 8, 3, 11; 1999 PZ₄ *, 6, 3, 11; 1999 QH *, 8, 3, 4; 1999 QM *, 4, 2, 1; 1999 QC₂ *, 4, 2, 4; [91, 22, 8*, 1999/06/09–1999/08/22]

900 Moriyama

Y. Ikari, Katube-Cho 626, Moriyama, Shiga-Ken 524, Japan

[ikari@gold.ocn.ne.jp]

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

GSC

1996 VB₅, 2, 1, 0; [2, 1, 0*, 1999/07/24]

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

1999 JH₃, 2, 1, 0; [2, 1, 0*, 1999/05/20]

910 Caussols-ODAS

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

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

Measurers A. Maury, G. Hahn

0.90-m Schmidt + CCD

GSC

1992 RS₄, 3, 1, 0; 1998 CQ₄, 3, 1, 0; 1998 CR₄, 3, 1, 0; 1998 FR₃₅, 3, 1, 0; 1998 HJ₅₇, 3, 1, 0; 1998 KZ₃, 3, 1, 0; 1998 QE₅₁, 3, 1, 0; 1998 XK₁₇, 3, 1, 0; 1998 YT₅, 3, 1, 0; 1999 CQ₄₈, 3, 1, 0; 1999 JA₄₀, 3, 1, 0; 1999 JO₄₃, 3, 1, 0; 1999 JX₈₁, 3, 1, 0; 1999 NG₄, 6, 2, 60; 1999 NQ₄, 3, 1, 0; [48, 15, 0*, 1997/01/13–1999/01/20]

946 Ametlla de Mar

J. Nomen, Rio de Oro 25, bjos2, E-08034 Barcelona, Spain

[jnomen@astro.gea.cesca.es]

0.30-m $f/5.0$ reflector + CCD

USNO-SA1.0

1998 FO₁₁, 2, 1, 0; 1999 OP₃, 2, 1, 0; 1999 PJ₁, 5, 2, 2; 1999 PS₁ *, 12, 4, 10; 1999 PT₁ *, 12, 4, 10; [33, 5, 2*, 1999/07/25–1999/08/20]

947 Saint-Sulpice

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0.60-m $f/5.6$ relector + CCD

GSC, USNO-SA1.0

1998 DY₉, 2, 1, 0; (766), 2, 1, 0; (1612), 2, 1, 0; (3682), 2, 1, 0; (4766), 2, 1, 0; (5092), 1, 1, 0; (5224), 1, 1, 0; (6033), 1, 1, 0; [13, 8, 0*, 1999/05/01–1999/08/12]

951 Highworth

J. W. Rock, 2 Spa Close, Highworth, Swindon, Wiltshire SN6 7PJ, England

[0C34@dia1.pipex.com]

0.30-m Newtonian reflector + CCD

GSC

1993 KB₂, 4, 2, 1; 1998 FQ₆₉, 4, 2, 1; (11055), 7, 3, 9; [15, 3, 0*, 1999/07/14–1999/07/24]

952 Marxuquera

J. J. Gómez D., Cardenal Cisneros 55-4-8, E-46700 Gandia, Spain

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

GSC, USNO-SA2.0

1997 CZ₅, 2, 1, 0; 1999 HX₂, 17, 2, 6; 1999 PT₃, 5, 1, 0; [24, 3, 0*, 1999/07/29–1999/08/13]

ORBITAL ELEMENTS

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P/1994 P1-A = 1999 P1 (Machholz 2)

Epoch 1999 Dec. 8.0 TT = JDT 2451520.5

<i>T</i> 1999 Dec. 9.2798 TT		Marsden	
<i>q</i>	(2000.0)	P	Q
<i>n</i>	0.1888362	ω 149.3039	+0.8031170 −0.5602528
<i>a</i>	3.008934	Ω 246.1346	+0.4916735 +0.8154065
<i>e</i>	0.751095	<i>i</i> 12.8112	+0.3365418 +0.1457018
<i>P</i>	5.22		

From 67 observations 1994–1999, mean residual 0^{''}.9.

C/1998 M1 (LINEAR)

Epoch 1998 Nov. 3.0 TT = JDT 2451120.5

<i>T</i> 1998 Oct. 28.1227 TT		Nakano	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	+0.002323	ω 19.4059	+0.0751882 +0.9381104
	±0.000012	Ω 256.0675	−0.9547383 −0.0301220
<i>e</i>	0.992757	<i>i</i> 20.3848	−0.2877872 +0.3450239

From 162 observations 1998 May 22–1999 Aug. 20, mean residual 0^{''}.7.

C/1998 M2 (LINEAR)

Epoch 1998 Aug. 15.0 TT = JDT 2451040.5

<i>T</i> 1998 Aug. 13.1712 TT		Nakano	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	+0.000824	ω 37.2426	+0.1709444 +0.4867621
	±0.000002	Ω 260.8802	−0.9737784 +0.2159298
<i>e</i>	0.997754	<i>i</i> 60.1824	+0.1501117 +0.8464260

From 354 observations 1998 May 28–1999 Aug. 12, mean residual 0^{''}.6.

C/1999 F2 (Dalcanton)

Epoch 1998 Aug. 15.0 TT = JDT 2451040.5

<i>T</i> 1998 Aug. 23.9934 TT		Marsden	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	+0.000295	ω 352.3941	−0.8927632 +0.1622749
	±0.000005	Ω 210.2961	−0.3569133 −0.8240307
<i>e</i>	0.998606	<i>i</i> 56.4213	−0.2749306 +0.5428078

From 68 observations 1998 June 18–1999 Aug. 6, mean residual 0^{''}.7.

C/1999 H1 (Lee)

Epoch 1999 July 1.0 TT = JDT 2451360.5

<i>T</i> 1999 July 11.1724 TT		Nakano	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	+0.000367	ω 40.7004	−0.5563191 +0.8169450
	±0.000004	Ω 162.6488	+0.5665202 +0.2390384
<i>e</i>	0.999740	<i>i</i> 149.3533	+0.6079177 +0.5248442

From 368 observations 1999 Apr. 16–Aug. 29, mean residual 0^{''}.7.

C/1999 H3 (LINEAR)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>T</i> 1999 Aug. 18.2481 TT		Nakano	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	−0.000772	ω 101.9141	−0.3789350 −0.8284238
	±0.000013	Ω 332.7237	−0.6112654 +0.5586924
<i>e</i>	1.002702	<i>i</i> 115.8403	+0.6948114 +0.0397095

From 299 observations 1999 Apr. 22–Aug. 30, mean residual 0^{''}.7.

C/1999 J2 (Skiff)

T 2000 Apr. 6.1873 TT

<i>q</i> 7.109829		Marsden	
	(2000.0)	P	Q
	ω 127.1502	−0.4260507	−0.4828355
	Ω 50.0483	−0.7117710	−0.3431205
<i>e</i> 1.0	<i>i</i> 86.4102	+0.5584468	−0.8056911

From 308 observations 1999 May 13–Aug. 23.

C/1999 J3 (LINEAR)

T 1999 Sept. 20.1699 TT

<i>q</i> 0.977475		Marsden	
	(2000.0)	P	Q
	ω 161.9509	+0.5764812	+0.3483760
	Ω 229.0006	+0.5753803	+0.4691970
<i>e</i> 1.0	<i>i</i> 101.6670	+0.5801783	−0.8114729

From 64 observations 1999 May 12–Aug. 8.

P/1999 J5 (LINEAR)

Epoch 1999 May 22.0 TT = JDT 2451320.5

<i>T</i> 1999 May 12.8467 TT		Nakano	
<i>q</i>	(2000.0)	P	Q
<i>n</i>	0.1042486	ω 132.2885	−0.4140229 +0.8833225
<i>a</i>	4.471185	Ω 112.0163	−0.8892757 −0.3409385
<i>e</i>	0.169641	<i>i</i> 13.7169	−0.1943548 −0.3217176
<i>P</i>	9.45		

From 57 observations 1999 May 12–July 31, mean residual 0^{''}.7.

C/1999 K2 (Ferris)

Epoch 1999 Apr. 12.0 TT = JDT 2451280.5

<i>T</i> 1999 Apr. 10.4754 TT		Marsden	
<i>q</i>	(2000.0)	P	Q
<i>z</i>	+0.006450	ω 4.5636	+0.5125337 +0.0767625
	±0.000000	Ω 300.3182	−0.8158406 −0.2670887
<i>e</i>	0.965878	<i>i</i> 82.1903	−0.2677936 +0.9606098

From 89 observations 1999 May 14–Aug. 22, mean residual 0^{''}.7.

C/1999 K5 (LINEAR)

<i>T</i>	2000 July 4.5754 TT		Marsden	
<i>q</i>	3.254135	(2000.0)	P	Q
	<i>ω</i>	241.5250	+0.1429388	−0.2433087
	<i>Ω</i>	106.3811	−0.0677524	+0.9646329
<i>e</i>	1.0	<i>i</i>	89.4241	−0.9874098
				−0.1014113

From 135 observations 1999 May 20–Aug. 16.

C/1999 K6 (LINEAR)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>T</i>	1999 July 24.6589 TT		Nakano	
<i>q</i>	2.247070	(2000.0)	P	Q
<i>z</i>	+0.002828	<i>ω</i>	56.7562	+0.2963891
	±0.000017	<i>Ω</i>	245.3740	+0.6925067
			−0.9186391	+0.3950926
<i>e</i>	0.993645	<i>i</i>	46.3459	+0.2612580
				+0.6036028

From 138 observations 1999 May 20–Aug. 23, mean residual 0^{''}.6.**C/1999 K8 (LINEAR)***T* 2000 Apr. 24.2002 TT

<i>q</i>	4.201345	(2000.0)	Marsden	
	<i>ω</i>	164.5947	P	Q
	<i>Ω</i>	195.3943	+0.9721796	+0.1011568
			+0.0084301	+0.8862478
<i>e</i>	1.0	<i>i</i>	52.7360	+0.2340849
				−0.4520311

From 107 observations 1999 May 26–Aug. 30.

C/1999 N2 (Lynn)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>T</i>	1999 July 23.0504 TT		Nakano	
<i>q</i>	0.761284	(2000.0)	P	Q
<i>z</i>	+0.003318	<i>ω</i>	357.8338	−0.2506429
	±0.000038	<i>Ω</i>	254.6756	−0.3656532
			−0.8736369	−0.3134616
<i>e</i>	0.997474	<i>i</i>	111.6564	−0.4170571
				+0.8763787

From 142 observations 1999 July 14–Aug. 30, mean residual 0^{''}.7.**C/1999 N4 (LINEAR)***T* 2000 May 26.6963 TT

<i>q</i>	5.494836	(2000.0)	Nakano	
	<i>ω</i>	90.7338	P	Q
	<i>Ω</i>	345.8767	−0.2368804	−0.9668183
			−0.9715201	+0.2363362
<i>e</i>	1.0	<i>i</i>	156.9201	+0.0060320
				+0.0969923

From 93 observations 1999 July 12–Aug. 6.

C/1999 P2 (SOHO)*T* 1999 Aug. 6.17 TT

<i>q</i>	0.0049	(2000.0)	Williams	
	<i>ω</i>	102.11	P	Q
	<i>Ω</i>	21.20	+0.07501	−0.96964
			−0.96004	−0.13333
<i>e</i>	1.0	<i>i</i>	139.94	+0.26961
				−0.20498

From 19 observations 1999 Aug. 5.

(11249)* 1971 FD = 1982 UN₈ = 1998 XA₉

Discovered 1971 Mar. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. G. V. Williams (*MPC* 33671)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	111.40771	(2000.0)	Williams	
<i>n</i>	0.12494411	<i>ω</i>	298.68372	+0.54015256
<i>a</i>	3.9627091	<i>Ω</i>	4.14659	+0.84137428
<i>e</i>	0.1938167	<i>i</i>	14.42646	−0.65868890
<i>P</i>	7.89	<i>H</i>	11.6	−0.52379781
			<i>G</i>	0.15
			<i>U</i>	1

Residuals in seconds of arc

1971 03 24	675	0.4−	0.1−	1998 11 14	704	0.0	1.0−	1998 12 13	725	0.0	0.3+
1971 03 25	675	0.3−	0.5−	1998 11 14	704	0.7+	0.8−	1998 12 14	725	0.0	0.1+
1971 03 25	675	0.1−	0.9−	1998 11 14	704	0.2−	0.7+	1998 12 14	725	0.2−	0.0
1971 03 26	675	0.7−	0.5−	1998 11 14	704	1.5−	1.4+	1999 01 06	725	0.2−	0.2+
1971 03 27	675	0.3+	1.1−	1998 11 16	704	1.4+	0.9−	1999 01 06	725	0.0	0.2+
1971 04 02	675	0.0	1.0+	1998 11 16	704	(2.1+	1.4−)	1999 01 08	699	0.5−	0.2+
1971 04 16	675	0.1+	0.5−	1998 11 16	704	0.7+	1.5−	1999 01 08	699	0.7+	0.6−
1971 04 16	675	2.0−	1.7−	1998 11 16	704	1.0+	1.8−	1999 01 08	699	0.8+	0.9+
1982 10 21	095	0.2−	0.1+	1998 11 16	704	(0.2+	2.3−)	1999 01 10	725	0.1−	0.1−
1989 09 04	675	0.9+	1.5−	1998 12 13	725	0.3−	0.0	1999 01 10	725	0.3−	0.1+
1989 09 04	675	0.7+	1.1−	1998 12 13	725	0.2−	0.1+				

(11250)* 1972 AU = 1970 QE₁ = 1987 SV₁₄ = 1991 RE₁₃ = 1991 UT₄

Discovered 1972 Jan. 14 by L. Kohoutek at Hamburg.

Id. S. Nakano (*MPC* 13602), G. V. Williams (*MPC* 31705)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	323.32145	(2000.0)	Asher	
<i>n</i>	0.23571454	<i>ω</i>	10.37624	+0.99031573
<i>a</i>	2.5954448	<i>Ω</i>	342.20439	+0.12196647
<i>e</i>	0.1712146	<i>i</i>	12.53373	−0.13777273
<i>P</i>	4.18	<i>H</i>	13.4	−0.01712963
			<i>G</i>	0.15
			<i>U</i>	2

Residuals in seconds of arc

1970 08 30	095	(4.9−	2.8+)	1998 04 01	704	0.6−	1.0+	1999 07 17	423	0.3+	0.9+
1970 09 09	095	(12.6+	6.5−)	1998 04 01	704	0.3−	0.6+	1999 07 17	423	0.3−	0.6+
1972 01 14	029	0.2−	0.1−	1998 04 17	426	0.2+	0.7−	1999 07 18	423	0.0	0.3+
1972 01 15	029	0.3+	0.1+	1998 04 17	426	0.2+	1.0−	1999 07 18	423	0.0	0.1+
1972 01 16	029	0.2+	1.2+	1998 04 17	426	0.2+	0.5−	1999 07 18	423	0.1−	0.1−
1972 01 17	029	(7.6−	0.1−)	1998 04 18	704	0.6−	0.2−	1999 07 20	423	0.0	0.9+
1987 09 23	095	0.6−	2.1+	1998 04 18	704	0.1−	0.5−	1999 07 20	423	0.3+	0.6+
1987 09 25	095	0.7+	0.3−	1998 04 18	704	0.3+	0.2+	1999 07 20	423	0.2+	0.6+
1991 09 11	095	(2.6−	2.0+)	1998 04 18	704	0.5+	1.7−	1999 07 24	423	0.1−	1.4+
1991 09 11	095	0.5−	0.5−	1998 04 18	704	(2.6−	0.4−)	1999 07 24	423	0.3−	0.2+
1991 09 13	675	1.0+	0.9−	1998 04 19	704	0.3+	0.3−	1999 07 24	423	0.1−	1.7+
1991 09 13	675	0.8+	0.7−	1998 04 19	704	0.5+	0.3−	1999 08 01	423	0.8−	1.0−
1991 09 15	675	0.7+	0.3−	1998 04 19	704	0.1+	0.3+	1999 08 01	423	0.9−	1.4−
1991 09 15	675	0.7+	0.8−	1998 04 19	704	0.3+	0.0	1999 08 01	423	0.8−	0.5−
1991 10 18	399	0.7−	0.6+	1998 04 19	704	0.0	0.1+	1999 08 02	423	0.5−	1.2−
1991 10 18	399	0.1−	1.0−	1998 04 20	704	0.4+	0.8−	1999 08 02	423	0.5−	0.6−
1998 02 27	566	1.1−	0.5−	1998 04 20	704	0.4−	0.2−	1999 08 09	423	0.1+	0.0
1998 02 27	566	0.8−	0.1−	1998 04 20	704	0.7−	0.2+	1999 08 09	423	0.7+	0.8+
1998 02 27	566	0.5−	0.2−	1998 04 20	704	0.1+	0.1−	1999 08 09	423	0.2+	0.2−
1998 03 31	704	0.2+	0.2+	1998 04 20	704	0.5+	0.7+	1999 08 10	423	0.3+	0.1+
1998 03 31	704	0.2+	0.1+	1998 04 22	426	0.3−	0.4−	1999 08 15	423	0.4+	0.0
1998 03 31	704	0.2+	0.6+	1998 04 22	426	0.4−	0.4−	1999 08 15	423	0.4+	0.4−
1998 03 31	704	0.3−	0.9+	1998 04 22	426	0.3−	0.4−	1999 08 15	423	0.3+	0.4−
1998 04 01	704	0.4+	0.7+	1998 04 28	566	0.0	0.8−	1999 08 15	423	0.2+	0.3−
1998 04 01	704	0.2−	0.4+	1998 04 28	566	0.5−	0.6−				
1998 04 01	704	0.3+	0.7+	1998 04 28	566	(0.2−	3.5−)				

(11251)* 1973 SN₁ = 1992 JA₅ = 1996 RC₃₃

Discovered 1973 Sept. 20 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

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

1999 AUG. 31

M.P.C. 35555

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	281.42641		(2000.0)	P	Q
<i>n</i>	0.08424310	ω	58.26005	-0.93899079	-0.33638180
<i>a</i>	5.1536293	Ω	101.99908	+0.28552811	-0.87863426
<i>e</i>	0.0018875	<i>i</i>	4.20475	+0.19175506	-0.33889398
<i>P</i>	11.70	<i>H</i>	11.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1973 09 19	675	0.2-	2.0-	1973 10 05	675	0.5-	0.2+	1998 10 29	704	(1.3-	2.7-)
1973 09 20	675	0.7+	1.1+	1992 05 02	691	0.3+	0.3+	1998 11 24	561	0.3-	0.6+
1973 09 24	675	0.4-	1.4-	1992 05 02	691	0.3+	0.2-	1998 11 24	561	0.3-	0.2+
1973 09 24	675	0.4-	0.3-	1992 05 02	691	0.4+	0.4-	1998 11 24	561	0.3-	0.2+
1973 09 25	675	0.1-	1.2-	1992 05 30	413	1.1-	0.5-	1998 12 08	691	0.2+	0.1-
1973 09 25	675	0.1+	2.4+	1992 05 30	413	0.2+	1.0+	1998 12 08	691	0.4+	0.0
1973 09 29	675	0.2+	0.5-	1996 09 15	809	1.4+	0.7-	1998 12 08	691	0.3+	0.3+
1973 09 29	675	0.7-	0.9+	1996 09 16	809	0.5-	0.3-	1998 12 20	691	0.3-	0.2+
1973 09 30	675	0.9-	0.2+	1996 09 16	809	0.5-	0.2-	1998 12 20	691	0.3-	0.2-
1973 09 30	675	0.1+	1.6+	1998 10 29	704	0.7+	0.4-	1998 12 20	691	0.2-	0.0
1973 10 04	675	0.6+	0.1+	1998 10 29	704	0.3+	0.5-	1998 12 28	691	0.7+	0.3+
1973 10 04	675	(4.0+	7.5+)	1998 10 29	704	1.7-	1.5-	1998 12 28	691	0.5+	0.2+
1973 10 05	675	0.8+	0.7+	1998 10 29	704	0.5-	0.2+	1998 12 28	691	0.8+	0.3+

(11252)* 1973 SA₂ = 1977 AY₂

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

Id. E. Bowell (*MPC* 12320)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	19.48723		(2000.0)	P	Q
<i>n</i>	0.08334121	ω	331.97897	+0.63495860	-0.76606759
<i>a</i>	5.1907429	Ω	78.42617	+0.72647949	+0.54812941
<i>e</i>	0.0314569	<i>i</i>	5.84929	+0.26278341	+0.33570015
<i>P</i>	11.83	<i>H</i>	10.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1951 11 08	675	1.0-	0.7+	1973 09 29	675	0.3+	1.6-	1998 10 29	704	1.0-	1.3-
1951 11 08	675	0.0	0.0	1973 09 29	675	0.7-	1.1+	1998 10 29	704	0.4+	0.0
1951 12 27	675	0.2-	0.8+	1973 09 30	675	0.4+	0.8+	1998 10 29	704	0.5-	1.0-
1951 12 27	675	1.1+	0.4-	1973 09 30	675	0.4-	0.6+	1998 10 29	704	0.1+	1.0-
1973 09 19	675	1.3+	0.0	1973 10 04	675	0.2-	0.1+	1998 11 11	704	0.3+	0.3+
1973 09 19	675	(4.3+	4.0-)	1973 10 04	675	0.0	0.3+	1998 11 11	704	0.2-	0.5+
1973 09 20	675	0.4-	0.2-	1973 10 05	675	1.8+	0.2-	1998 11 11	704	0.7-	0.1+
1973 09 24	675	1.2-	1.8-	1973 10 05	675	0.1+	0.7+	1998 11 23	561	0.3+	0.7+
1973 09 24	675	0.7-	0.3+	1977 01 12	675	0.6+	0.2-	1998 11 23	561	0.4+	0.6+
1973 09 25	675	1.1-	0.7+	1977 01 13	675	0.6-	0.3+	1998 11 23	561	0.2+	1.0+
1973 09 25	675	0.2+	0.4+	1998 10 29	704	1.3+	1.5-				

(11253)* 1976 UP₂ = 1976 WX = 1986 VK₆

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

Id. T. Kobayashi (*MPC* 15699)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	317.86866		(2000.0)	P	Q
<i>n</i>	0.29645359	ω	349.18912	+0.96260758	-0.26806222
<i>a</i>	2.2275711	Ω	26.46034	+0.25463447	+0.84606646
<i>e</i>	0.2022697	<i>i</i>	5.03505	+0.09245506	+0.46077564
<i>P</i>	3.32	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1976 10 24	381	0.8+	0.2+	1996 11 08	684	0.2-	0.2-	1998 04 19	704	0.2+	1.3-
1976 10 24	381	0.3-	0.0	1996 11 08	684	0.1-	0.2-	1998 04 19	704	(2.7-	0.9-)
1976 10 26	095	1.1+	1.4-	1998 03 20	704	(3.0-	0.9-)	1998 04 19	704	0.3+	1.2-
1976 11 18	381	1.3-	0.2+	1998 03 20	704	0.4+	0.4+	1998 04 19	704	1.0-	0.0
1976 11 18	381	(1.2-	14.5+)	1998 03 20	704	0.3+	0.3+	1998 04 20	704	0.3-	1.4-
1986 10 04	095	(3.7-	7.6+)	1998 03 20	704	(3.0-	0.7+)	1998 04 20	704	1.1-	0.5-

1986 10 07	095	0.3-	2.1+	1998 03 22	704	(2.2-	1.2+)	1998 04 20	704	0.7+	1.7-
1986 10 12	095	(5.7-	4.2+)	1998 03 22	704	1.4-	0.1+	1998 04 20	704	(0.9-	3.4-)
1986 11 06	688	1.4+	1.8-	1998 03 22	704	1.1-	0.2+	1998 04 20	704	(0.3-	2.5-)
1986 11 06	688	0.6-	1.3-	1998 03 22	704	0.3-	0.5+	1999 07 14	704	0.4+	0.4-
1986 11 07	046	(8.9-	2.9-)	1998 03 22	704	(5.5-	1.0-)	1999 07 14	704	0.6+	0.0
1986 11 07	046	(1.6-	3.5-)	1998 03 28	704	0.2-	1.0+	1999 07 14	704	0.5+	0.3-
1996 10 09	684	0.1+	0.2-	1998 03 28	704	0.6+	0.3-	1999 07 14	704	0.2+	0.6-
1996 10 09	684	0.1+	0.3-	1998 03 28	704	0.3-	0.4-	1999 07 14	704	0.2+	0.6-
1996 10 09	684	0.3+	0.1-	1998 03 28	704	0.4-	1.2+	1999 07 30	322	0.4-	0.4-
1996 10 10	684	0.1+	0.1+	1998 03 28	704	(4.2-	0.5+)	1999 07 30	322	0.4-	0.1-
1996 10 10	684	0.2+	0.0	1998 03 29	704	0.0	0.3+	1999 08 01	322	0.1-	0.0
1996 11 07	684	0.0	0.0	1998 03 29	704	0.8+	0.2-	1999 08 01	322	0.2-	0.3+
1996 11 07	684	0.0	0.0	1998 03 29	704	0.0	0.6-	1999 08 01	322	0.1-	0.1+
1996 11 07	684	0.1+	0.0	1998 03 29	704	0.5+	0.8-				
1996 11 08	684	0.1-	0.2-	1998 03 29	704	(3.1-	1.6+)				

(11254)* 1977 DL₂ = 1997 LR₁₇

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

Id. G. V. Williams (*MPC* 30445)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	340.14901		(2000.0)	P	Q
<i>n</i>	0.25585692	ω	314.05555	-0.08828586	-0.99419125
<i>a</i>	2.4573741	Ω	140.88502	+0.93952563	-0.10364257
<i>e</i>	0.1827723	<i>i</i>	5.59954	+0.33090361	+0.02901696
<i>P</i>	3.85	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1977 02 18	381	0.8+	1.3+	1997 06 08	809	0.8+	0.7-	1998 08 23	699	0.6-	0.9+
1977 02 18	381	0.3+	0.4+	1997 06 08	809	1.1+	1.1-	1998 08 23	704	0.5+	0.4+
1977 02 19	381	0.8+	0.5+	1997 06 09	809	1.0-	0.1-	1998 08 23	699	0.4+	0.8+
1977 02 19	381	0.3-	0.8+	1997 06 09	809	1.5-	0.3+	1998 08 23	704	1.7-	1.0+
1977 03 12	381	0.2-	0.1+	1997 06 09	809	0.9-	0.0	1998 08 23	704	1.0-	1.1-
1977 03 12	381	0.7-	0.1-	1998 08 17	704	0.3+	0.5+	1998 08 23	699	1.1+	0.5+
1977 03 15	381	0.1-	1.4-	1998 08 17	704	0.6+	0.4+	1998 09 14	704	0.3-	0.7-
1977 03 15	381	0.5-	1.0-	1998 08 17	704	0.8+	0.1+	1998 09 14	704	0.1-	0.6-
1991 12 02	675	0.3+	0.7-	1998 08 17	704	1.3+	1.7-	1998 09 14	704	0.8-	1.4+
1991 12 02	675	0.0	1.5-	1998 08 17	704	0.7-	0.0	1998 09 14	704	0.4-	1.2-
1997 06 08	809	0.8+	0.8-	1998 08 23	704	0.1+	0.3-	1998 09 14	704	0.7+	0.7+

(11255)* 1977 DC₄ = 1988 DA₁ = 1999 CR₄₆

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

Id. A. Doppler (*MPC* 34172), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	51.07586		(2000.0)	P	Q
<i>n</i>	0.17995606	ω	31.36346	-0.58693459	-0.80841817
<i>a</i>	3.1071227	Ω	94.61271	+0.73330720	-0.55402732
<i>e</i>	0.1430709	<i>i</i>	2.55076	+0.34317390	-0.19878075
<i>P</i>	5.48	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1977 02 18	381	0.9+	0.9+	1998 11 25	704	0.3+	1.4+	1999 02 13	704	0.2-	0.2+
1977 02 18	381	0.6+	1.3+	1998 11 25	704	0.5+	0.5-	1999 02 23	699	0.1-	0.3-
1977 02 19	381	0.5+	0.5+	1998 11 25	704	1.2-	1.0-	1999 02 23	699	0.4+	0.4+
1977 02 19	381	0.2+	0.0	1998 11 25	704	1.0+	1.4-	1999 02 23	699	0.1+	0.5+
1977 03 12	381	1.0-	0.1+	1999 02 10	704	0.2+	0.3-	1999 03 19	704	1.2-	0.5-
1977 03 12	381	0.9-	1.0-	1999 02 10	704	0.4+	0.5-	1999 03 19	704	0.3-	0.6-
1977 03 15	381	0.2-	0.4-	1999 02 10	704	0.1+	0.2-	1999 03 19	704	1.4-	0.9-
1977 03 15	381	0.5+	0.6-	1999 02 10	704	0.3+	0.1+	1999 03 19	704	(2.2-	1.5+)
1988 02 17	809	0.0	1.3+	1999 02 10	704	0.2-	0.2-	1999 03 19	704	0.0	1.1-
1988 02 17	809	0.1+	0.6+	1999 02 12	699	0.3-	1.0+	1999 03 20	704	(1.1+	2.0-)
1992 12 18	010	1.7+	0.1-	1999 02 12	699	0.5+	0.2+	1999 03 20	704	0.4-	0.8-
1992 12 19	010	0.8+	0.0	1999 02 12	699	0.1-	1.0+	1999 03 20	704	0.9-	0.4+
1992 12 19	010	0.8+	0.3-	1999 02 13	704	0.2+	1.2-	1999 03 20	699	0.1+	0.1-

1993 01 17	010	1.2−	0.3−	1999 02 13	704	1.1+	0.1−	1999 03 20	699	0.5+	0.6+
1993 01 17	010	1.4−	0.4+	1999 02 13	704	0.6−	0.9+	1999 03 20	699	0.4+	0.6−
1993 01 17	010	0.9−	0.6−	1999 02 13	704	0.1+	0.3+				

(11256)* 1978 RO₈ = 1996 KL = 1997 UU₁ = 1999 AU₁₁

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

Id. A. Doppler (*MPC* 34172)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26559384	ω	345.97023	−0.25318681	+0.96718231		
<i>a</i>	2.3969412	Ω	269.36034	−0.88551878	−0.24057327		
<i>e</i>	0.1804866	<i>i</i>	1.22208	−0.38955478	−0.08174886		
<i>P</i>	3.71	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 09 02	809	1.5−	1.3−	1996 05 16	566	0.2+	1.1+	1997 10 24	691	0.0	0.2+
1978 09 02	809	0.3+	0.2−	1996 05 22	566	0.0	0.5−	1997 10 24	691	0.1+	0.1+
1978 09 02	809	0.5+	0.4−	1996 05 22	566	0.2+	0.3−	1998 12 13	691	0.1+	0.0
1978 09 02	809	0.3+	0.2+	1996 05 22	566	0.0	0.5−	1998 12 13	691	0.0	0.1−
1978 09 02	809	0.5−	0.7+	1997 10 09	691	0.3−	0.4+	1998 12 13	691	0.1−	0.1+
1978 09 06	809	1.0+	0.4+	1997 10 09	691	0.3−	0.3+	1999 01 07	691	0.4−	0.1−
1993 09 23	809	(2.8+	0.2+)	1997 10 09	691	0.2−	0.5+	1999 01 07	691	0.8−	0.0
1993 09 23	809	(1.7+	2.8−)	1997 10 23	691	0.2−	0.1+	1999 01 07	691	0.3−	0.1+
1993 09 23	809	(1.6+	3.1−)	1997 10 23	691	0.0	0.2+	1999 01 14	691	0.6+	0.3−
1996 05 16	566	0.2−	0.9+	1997 10 23	691	0.1+	0.1+	1999 01 14	691	0.4+	0.0
1996 05 16	566	0.2+	0.8+	1997 10 24	691	0.1+	0.3+	1999 01 14	691	0.4+	0.3+

(11257)* 1978 TP₂ = 1978 VF₁₂ = 1971 UT₂

Discovered 1978 Oct. 3 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. K. Ichikawa (*MPC* 13600), H. Oishi (d, *JAM* 2075; *ibid.*), L. D. Schmadel (*ibid.*), S. Nakano (d, *MPC* 11982)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28003192	ω	246.71724	+0.68362101	−0.72938958		
<i>a</i>	2.3138277	Ω	160.08623	+0.69403606	+0.63885549		
<i>e</i>	0.1534591	<i>i</i>	4.30316	+0.22577922	+0.24465180		
<i>P</i>	3.52	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1953 08 15	675	0.2−	0.8−	1998 05 01	704	0.1+	0.6+	1998 05 24	704	0.3+	1.1+
1953 08 15	675	0.3+	0.5+	1998 05 22	704	0.2−	1.2+	1998 05 24	704	1.3−	1.6−
1971 10 21	805	1.7−	1.6+	1998 05 22	704	0.2+	1.6+	1998 05 24	704	(2.3−	0.4−)
1971 10 21	805	0.7−	0.8−	1998 05 22	704	0.5−	1.6−	1998 05 24	704	1.0−	1.8+
1971 10 21	095	0.3+	0.0	1998 05 22	704	(2.1−	2.4+)	1999 07 16	704	0.3+	0.0
1978 10 03	095	0.6+	0.1−	1998 05 22	704	0.4+	0.8−	1999 07 16	704	0.2−	0.3−
1978 10 07	095	0.6+	0.2−	1998 05 23	704	0.6−	0.1−	1999 07 16	704	0.4+	0.0
1978 11 02	095	1.2+	0.8+	1998 05 23	704	1.3+	0.3+	1999 07 16	704	0.8+	0.1+
1998 04 20	688	0.3−	0.1+	1998 05 23	704	0.3−	0.8+	1999 07 16	704	1.1−	0.9−
1998 04 20	688	0.4−	0.2+	1998 05 23	704	1.4+	1.3+	1999 08 12	699	0.1+	0.0
1998 04 20	688	0.3−	0.1+	1998 05 23	704	1.2+	1.2−	1999 08 12	699	1.2−	0.3−
1998 04 22	704	0.4−	0.1+	1998 05 24	704	0.8+	0.9−	1999 08 12	699	0.3+	0.2+
1998 04 22	704	0.3+	0.7−	1998 05 24	704	0.8+	0.1+	1999 08 22	703	0.1−	0.5−
1998 04 22	704	(0.8+	2.5+)	1998 05 24	704	1.5+	0.9−	1999 08 22	703	0.8−	0.8−
1998 04 22	704	1.8−	0.1+	1998 05 24	704	0.1−	0.6−	1999 08 22	703	0.3+	0.0
1998 04 22	704	1.4−	1.3+	1998 05 24	704	1.1−	0.6−	1999 08 22	703	0.2−	0.4−
1998 04 28	691	0.7−	0.6+	1998 05 24	704	0.3−	0.5+	1999 08 22	703	0.1+	0.3+
1998 04 28	691	0.8−	0.7+	1998 05 24	704	1.4+	0.1−	1999 08 22	703	0.3+	0.4+
1998 04 28	691	0.9−	0.7+	1998 05 24	704	1.6+	1.2−	1999 08 22	703	0.0	1.1+
1998 05 01	704	0.2−	0.1−	1998 05 24	704	0.7+	0.5+	1999 08 22	703	0.1+	0.8+
1998 05 01	704	0.1+	1.0−	1998 05 24	704	0.7+	1.8−				
1998 05 01	704	0.5+	0.9+	1998 05 24	704	0.3−	0.2+				

(11258)* 1978 VP₁ = 1989 UD₄

Discovered 1978 Nov. 1 by K. Tomita at Caussols.

Id. G. V. Williams (*MPC* 19856)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17986191	ω	171.88281	+0.55457292	−0.82741392		
<i>a</i>	3.1082068	Ω	244.39354	+0.75785015	+0.54613246		
<i>e</i>	0.1367356	<i>i</i>	5.63302	+0.34367431	+0.13086457		
<i>P</i>	5.48	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 10 30	010	1.1+	1.7−	1998 06 01	809	0.1+	1.5−	1999 07 13	704	0.1+	0.1+
1978 11 01	010	0.2−	1.6−	1998 06 01	809	0.8+	1.2−	1999 07 13	704	0.7+	0.5+
1978 11 30	675	0.0	0.5−	1998 06 01	809	0.1+	1.4−	1999 07 23	704	0.4−	0.4+
1978 12 01	675	0.4−	0.7−	1998 06 02	809	0.0	0.6−	1999 07 23	704	0.0	0.4−
1989 10 23	033	0.4+	0.1−	1998 06 02	809	0.1−	1.7−	1999 07 23	704	0.4−	0.5−
1989 10 23	033	0.0	0.3+	1998 06 02	809	1.0−	1.0−	1999 07 23	704	0.0	0.4+
1989 10 26	033	0.2−	0.3−	1999 07 13	704	0.1−	0.1−	1999 08 12	699	0.4+	0.7+
1989 11 04	675	0.6+	2.0−	1999 07 13	704	0.7−	0.6−	1999 08 12	699	0.0	0.4+
1989 11 04	675	0.4−	0.5+	1999 07 13	704	0.0	0.3+	1999 08 12	699	0.4−	0.8+

(11259)* 1978 VD₃ = 1994 RP₁₆

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

Id. S. Nakano (*MPC* 32208)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23417218	ω	202.65293	−0.86554322	−0.50046399		
<i>a</i>	2.6068288	Ω	307.30213	+0.46313518	−0.78516675		
<i>e</i>	0.0096035	<i>i</i>	1.38701	+0.19063246	−0.36475878		
<i>P</i>	4.21	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 11 05	675	0.6−	0.6−	1994 09 03	809	1.3+	1.3+	1998 08 17	704	1.7−	0.9+
1978 11 06	675	0.3−	0.2−	1994 09 03	809	1.3+	1.6+	1998 08 27	691	0.7−	0.2+
1978 11 07	675	2.0+	0.5+	1994 09 04	809	0.1+	0.3−	1998 08 27	691	0.6−	0.1−
1978 11 08	675	0.9−	0.1−	1994 09 04	809	0.1+	1.1−	1998 08 27	691	0.5−	0.1−
1978 11 29	675	0.6−	0.3−	1994 09 04	809	0.3−	1.0−	1998 08 30	691	0.3+	0.1−
1978 11 29	675	(3.3+	0.2+)	1997 04 01	809	1.4−	0.4+	1998 08 30	691	0.3+	0.1−
1978 11 30	675	0.1−	0.2−	1997 04 01	809	1.0+	0.2−	1998 08 30	691	0.1+	0.1−
1991 12 31	691	0.3+	0.6+	1997 04 01	809	1.0+	0.7−	1998 09 14	691	0.3−	0.7−
1991 12 31	691	0.1+	0.7+	1998 08 17	704	(2.5+	0.2+)	1998 09 14	691	0.2−	0.6−
1991 12 31	691	0.1+	0.7+	1998 08 17	704	0.5+	0.4+	1998 09 14	691	0.4−	0.6−
1994 09 03	809	0.8+	0.4+	1998 08 17	704	0.9−	1.3+				

(11260)* 1978 VD₉ = 1978 WE₁₂ = 1996 XF₅

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

Id. H. Oishi (d, *JAM* 2047), K. Ichikawa (*MPC* 29092)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27516325	ω	341.56010	+0.96113692	−0.27577923		
<i>a</i>	2.3410414	Ω	34.45644	+0.25603451	+0.87320681		
<i>e</i>	0.0808444	<i>i</i>	1.28757	+0.10325765	+0.40181548		
<i>P</i>	3.58	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 11 05	675	0.4−	0.8+	1997 01 11	112	0.5+	0.5+	1998 05 16	704	1.5−	0.7−
1978 11 06	675	1.8−	0.0	1997 01 11	112	0.8+	0.2+	1998 05 16	704	0.7−	0.5−
1978 11 07	675	0.8−	1.0+	1998 03 29	910	0.9+	1.0−	1998 05 16	704	1.0+	0.5+
1978 11 08	675	0.2+	0.2+	1998 03 29	910	0.8+	0.9−	1998 05 16	704	0.9−	0.1−
1978 11 29	675	0.2+	1.1+	1998 03 29	910	0.7+	0.8−	1999 07 16	704	1.1−	0.4+
1978 11 30	675	1.9+	1.2+	1998 04 21	704	0.2+	1.3+	1999 07 16	704	0.0	1.0+
1996 12 02	112	0.2−	0.1+	1998 04 21	704	0.2+	0.4+	1999 07 16	704	0.4−	0.1−
1996 12 02	112	0.4−	1.4+	1998 04 21	704	0.4+	0.6+	1999 07 16	704	0.8+	0.8+

1996 12 03	112	0.2-	1.0-	1998 04 21	704	0.4-	0.3+	1999 08 07	691	0.2-	0.2+
1996 12 03	112	0.9-	0.2-	1998 04 21	704	0.5+	0.7+	1999 08 07	691	0.4-	0.3-
1996 12 03	112	0.1+	0.6+	1998 04 22	704	0.3-	0.1+	1999 08 07	691	0.2-	0.2+
1996 12 29	112	0.1-	0.7-	1998 04 22	704	0.1-	1.0+	1999 08 12	699	0.5-	0.3+
1996 12 29	112	0.2+	0.3-	1998 04 22	704	0.2-	1.5+	1999 08 12	699	0.1+	0.7+
1996 12 30	112	0.6+	0.1-	1998 04 22	704	0.7+	1.8+	1999 08 12	699	0.2+	0.8+
1997 01 11	112	0.2-	0.7+	1998 04 22	704	1.1+	1.6+				

(11261)* 1978 XK = 1990 DW₄ = 1991 KO₁ = 1998 YR₉

Discovered 1978 Dec. 6 by E. Bowell and A. Warnock at Palomar.

Id. A. Doppler (*MPC* 33921)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	138.31534	(2000.0)		P	Q		
<i>n</i>	0.20360160	ω	228.25756	+0.99045945	-0.13489870		
<i>a</i>	2.8616417	Ω	139.47172	+0.13576324	+0.92018295		
<i>e</i>	0.1164444	<i>i</i>	2.48280	+0.02363093	+0.36751283		
<i>P</i>	4.84	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 12 03	675	0.5+	0.0	1997 10 28	704	1.8+	2.1-	1998 12 25	120	0.6-	0.2+
1978 12 03	675	1.1+	0.4+	1997 10 28	704	0.2-	2.6-	1998 12 26	120	0.4-	0.4-
1978 12 05	675	1.1-	0.1+	1997 10 30	704	0.6-	1.2+	1998 12 27	120	0.5-	0.2-
1978 12 06	675	0.1-	1.1+	1997 10 30	704	0.7-	2.3+	1999 01 05	120	0.4-	0.1+
1978 12 06	675	0.6-	2.0-	1997 10 30	704	1.8-	2.3+	1999 01 05	120	0.2-	0.2+
1990 02 28	809	0.9+	0.4+	1997 10 30	704	0.2+	1.4+	1999 01 05	120	0.7-	0.2-
1990 02 28	809	0.6+	0.8+	1997 10 30	704	1.5-	1.6+	1999 01 06	120	0.9-	0.1-
1990 02 28	809	0.8+	0.7+	1998 10 20	691	0.2+	0.4-	1999 01 06	120	0.8-	0.6-
1990 03 01	809	0.4-	1.0+	1998 10 20	691	0.2+	0.1+	1999 01 06	120	0.3-	0.3-
1990 03 01	809	0.2+	1.0+	1998 10 20	691	0.0	0.1+	1999 01 15	120	1.0+	0.3-
1990 03 01	809	0.3+	0.9+	1998 10 28	691	0.7-	0.2-	1999 01 16	120	0.3-	0.5-
1990 03 02	809	0.1+	0.6-	1998 10 28	691	0.6-	0.2-	1999 01 16	120	0.1-	0.3-
1990 03 02	809	0.6+	0.6-	1998 10 28	691	0.6-	0.1-	1999 01 17	120	0.1-	0.1-
1990 03 02	809	0.9+	0.7-	1998 12 16	699	0.7+	0.2-	1999 01 17	120	0.7-	0.2-
1991 05 17	809	0.6-	0.8-	1998 12 16	699	0.4+	0.6-	1999 01 18	704	0.8-	0.0
1991 05 17	809	0.7-	0.5-	1998 12 16	699	0.8+	0.1+	1999 01 18	704	1.6+	0.4+
1991 05 17	809	0.7-	0.8-	1998 12 22	704	0.8-	0.0	1999 01 18	704	0.1+	0.9-
1992 09 26	691	0.5-	0.5+	1998 12 22	704	3.0+	1.2+	1999 01 18	704	1.3-	1.2-
1992 09 26	691	0.5-	0.8+	1998 12 22	704	1.5+	2.8+	1999 01 20	704	0.7-	0.6+
1992 09 26	691	0.2-	1.2+	1998 12 22	704	0.4-	0.2+	1999 01 20	704	0.0	0.0
1997 10 28	704	(3.2+ 2.8-)		1998 12 25	120	0.6+	0.7-	1999 01 20	704	0.5-	0.7-
1997 10 28	704	1.3+	1.6-	1998 12 25	120	0.2-	0.0	1999 01 20	704	(2.4- 0.2-)	

(11262)* 1979 MP₃ = 1978 FC

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

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	211.63625	(2000.0)		P	Q		
<i>n</i>	0.28697471	ω	182.70611	+0.70292786	-0.71039758		
<i>a</i>	2.2763566	Ω	222.63496	+0.65353701	+0.66453601		
<i>e</i>	0.1486313	<i>i</i>	2.96527	+0.28068095	+0.23179121		
<i>P</i>	3.43	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1978 03 30	675	(18.6- 9.6+)		1990 11 14	675	0.5-	0.0	1999 05 18	704	1.5-	0.1+
1979 06 23	413	(7.9- 0.4-)		1990 11 16	675	0.3+	0.8-	1999 05 18	704	1.1+	0.4-
1979 06 24	413	1.2-	0.0	1990 11 16	675	1.1+	0.4-	1999 05 18	704	0.3+	1.2+
1979 06 25	413	0.7-	0.7+	1992 05 08	691	1.1+	0.2-	1999 05 19	704	0.7-	0.8-
1979 06 29	413	0.1-	0.3-	1992 05 08	691	0.4+	0.2+	1999 05 19	704	2.0-	1.6-
1979 07 24	675	1.7+	0.6+	1992 05 08	691	0.1+	0.2+	1999 05 19	704	0.7-	1.3-
1979 07 24	413	0.7+	0.4-	1993 08 17	010	0.2+	0.2+	1999 05 19	704	0.4-	1.0-
1979 07 25	675	1.3-	0.7+	1993 08 17	010	0.2+	0.6+	1999 08 02	413	0.1-	0.3-
1979 07 27	675	1.5+	0.2-	1993 08 17	010	0.2-	0.6+	1999 08 02	413	0.8+	0.4-
1979 08 23	675	1.6-	0.6-	1993 09 16	691	0.4+	0.5-	1999 08 03	413	0.2+	0.1-
1990 11 12	675	0.8-	0.4-	1993 09 16	691	0.0	0.9-	1999 08 03	413	0.1+	0.0
1990 11 12	675	0.1+	0.0	1993 09 16	691	0.2+	0.8-				
1990 11 14	675	0.5-	0.9-	1999 05 18	704	0.9+	0.3+				

(11263)* 1979 OA = 1969 OY

Discovered 1979 July 23 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. L. D. Schmadel, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	29.33932	(2000.0)		P	Q		
<i>n</i>	0.19820658	ω	340.58354	+0.18050661	+0.91086854		
<i>a</i>	2.9133366	Ω	298.23198	-0.83751663	-0.05550987		
<i>e</i>	0.3749594	<i>i</i>	24.91281	-0.51573565	+0.40894639		
<i>P</i>	4.97	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1969 07 17	095	(10.6+ 7.7-)		1989 09 03	675	0.2-	0.0	1999 07 22	704	0.1-	0.2+
1979 07 23	688	0.8+	0.2-	1994 09 08	675	0.0	0.2+	1999 07 22	704	0.6-	0.2+
1979 07 24	688	0.4-	1.4-	1994 09 08	675	1.0+	0.0	1999 07 22	704	0.3-	0.2+
1979 07 26	801	0.7-	0.5+	1994 09 11	675	0.9+	2.0-	1999 07 22	704	0.3-	0.3+
1979 07 26	688	(0.5+ 3.3-)		1994 09 11	675	0.5+	0.8-	1999 07 22	704	0.4-	0.4+
1979 07 26	675	(2.6- 2.1+)		1998 02 06	688	0.3-	0.6-	1999 08 21	744	0.1-	1.0+
1979 08 16	801	0.5+	0.2+	1998 02 06	688	0.3-	0.8-	1999 08 21	744	0.1-	0.4+
1979 08 27	801	0.9+	0.5-	1998 02 06	688	0.4-	0.5-	1999 08 21	744	0.7-	0.5+
1979 09 13	801	0.2+	1.4+	1998 03 01	561	0.6+	1.2+	1999 08 22	744	0.5-	0.6+
1979 11 16	801	1.1-	1.4-	1998 03 01	561	0.8+	1.2+	1999 08 22	744	0.4-	0.6+
1989 09 03	675	0.1-	0.5+	1998 03 01	561	1.0+	0.9+	1999 08 22	744	0.3-	0.5+

(11264)* 1979 UC₄ = 1989 EC₁₀ = 1991 PD₁₄Discovered 1979 Oct. 16 by N. S. Chernykh at the Crimean Astrophysical Observatory. J79U04C J91P14D Bowell *MPC* 18804 J79U04C J89E10C Williams *MPC* 29910

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	251.75101	(2000.0)		P	Q		
<i>n</i>	0.23801612	ω	57.02485	+0.36553818	-0.93071426		
<i>a</i>	2.5786860	Ω	11.55416	+0.83207207	+0.32078653		
<i>e</i>	0.2326519	<i>i</i>	3.53835	+0.41717851	+0.17568999		
<i>P</i>	4.14	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1950 08 14	675	0.1+	0.1+	1997 05 02	658	0.1+	1.3-	1999 07 14	704	1.1+	0.4+
1950 08 14	675	0.0	0.7+	1998 03 22	327	0.3-	0.0	1999 07 14	704	0.0	1.4+
1979 10 16	095	(0.8- 5.6+)		1998 03 22	327	0.2-	0.1+	1999 07 14	704	0.2+	0.5+
1979 11 11	095	0.2-	0.1-	1998 03 22	327	0.0	0.3-	1999 07 14	704	0.7+	0.9+
1979 11 16	095	0.9-	1.4+	1998 04 22	704	0.9-	0.3+	1999 07 16	704	0.5+	1.4+
1989 03 05	033	0.7+	1.2+	1998 04 22	704	0.0	0.8+	1999 07 16	704	0.1-	1.0+
1989 03 05	033	0.1-	0.4-	1998 04 22	704	0.6-	1.7+	1999 07 16	704	0.3-	0.4-
1991 08 06	675	0.7-	1.4-	1998 04 22	704	(5.6- 0.8+)		1999 08 12	704	0.5+	1.3-
1991 08 06	675	0.2-	1.5-	1998 05 24	704	1.0+	1.2+	1999 08 12	704	1.0+	0.0
1991 08 10	675	0.4+	0.4-	1998 05 24	704	(0.4+ 2.6-)		1999 08 12	704	0.6-	0.2-
1991 08 10	675	0.0	1.0-	1998 05 24	704	0.1+	0.8-	1999 08 12	704	0.6-	0.2-
1997 05 02	658	0.1-	0.7-	1998 05 24	704	0.4-	1.2-				
1997 05 02	658	0.0	0.7-	1998 05 24	704	0.0	0.6-				

(11265)* 1981 EU₃₄ = 1999 CE₂₁

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

Id. G. V. Williams (*MPC* 33924)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	35.85871	(2000.0)		P	Q		
<i>n</i>	0.27070497	ω	34.65319	-0.88177345	-0.47125270		
<i>a</i>	2.3666747	Ω	117.21925	+0.42752955	-0.81636785		
<i>e</i>	0.1296800	<i>i</i>	1.28303	+0.19923371	-0.33386288		
<i>P</i>	3.64	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1981 02 02	413	2.4+	1.1-	1997 10 21	691	0.6-	0.1-	1999 02 10	704	0.9-	1.3+
1981 02 13	413	0.7+	0.3-	1998 11 23	691	0.0	0.3-	1999 02 10	704	0.3+	0.3+
1981 03 02	413	1.1-	0.8-	1998 11 23	691	0.1+	0.4-	1999 02 10	704	0.7-	0.0
1981 03 03	413	2.0-	0.5-	1998 11 23	691	0.1+	0.6-	1999 02 10	704	0.2-	1.1+
1981 03 03	413	0.1-	1.3-	1999 01 14	699	0.1-	0.7-	1999 02 13	704	0.4+	0.1+
1981 03 07	413	0.7-	0.1-	1999 01 14	699	0.2+	0.1+	1999 02 13	704	(2.4+	0.6+)
1981 05 02	413	0.2-	0.2+	1999 01 14	699	0.3+	1.4+	1999 02 13	704	1.8-	1.1-
1981 05 03	413	0.3+	1.2+	1999 01 19	704	1.1-	1.2+	1999 02 13	704	0.1-	0.5-
1992 03 30	691	0.1+	0.5+	1999 01 19	704	0.3+	0.7+	1999 02 13	704	0.7+	1.1-
1992 03 30	691	0.1+	0.4+	1999 01 19	704	0.8+	0.7+	1999 03 23	691	0.9+	0.1-
1992 03 30	691	0.4+	0.3+	1999 01 19	704	0.2+	0.7-	1999 03 23	691	0.9+	0.0
1997 10 21	691	0.4+	0.0	1999 01 19	704	0.9+	0.4-	1999 03 23	691	0.6+	0.4+
1997 10 21	691	0.4+	0.1-	1999 02 10	704	0.6-	0.1+				

(11266)* 1981 ES₄₁ = 1975 EQ₁ = 1999 JD₃₁

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

Id. A. Doppler (*MPC* 35277)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	84.81930		(2000.0)	P	Q	
<i>n</i>	0.16852318	ω	122.46379	-0.61874263	-0.78558696	
<i>a</i>	3.2461079	Ω	5.76385	+0.70940104	-0.56051554	
<i>e</i>	0.2390364	<i>i</i>	1.86566	+0.33750219	-0.26206002	
<i>P</i>	5.85	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1975 03 06	095	1.5-	0.4-	1996 10 13	566	0.4-	0.2-	1999 05 14	704	1.5+	0.7-
1981 02 09	413	0.5+	0.3-	1997 12 25	566	0.4+	1.2+	1999 05 14	704	0.8+	1.3+
1981 02 12	413	0.5+	0.0	1997 12 25	566	0.5+	1.1+	1999 05 14	704	0.2+	1.2-
1981 02 13	413	0.0	0.3-	1997 12 25	566	0.3+	1.2+	1999 05 14	704	0.7-	1.0+
1981 03 02	413	1.7-	0.5-	1998 04 14	704	0.8-	0.2-	1999 05 14	704	1.5-	1.0+
1981 03 06	413	0.7-	0.9-	1998 04 14	704	0.6+	1.4+	1999 05 18	704	0.4-	1.6-
1981 03 06	413	1.6+	0.4-	1998 04 14	704	(0.5+	2.9+)	1999 05 18	704	(0.7-	2.1-)
1981 03 11	413	1.7-	0.7-	1998 04 14	704	0.8-	0.7-	1999 05 18	704	0.8-	0.3-
1981 03 11	413	1.2+	1.0-	1999 05 10	704	0.6-	1.0-	1999 05 18	699	0.1-	0.5+
1981 03 15	413	1.2-	0.1-	1999 05 10	704	1.0-	0.5+	1999 05 18	699	0.3+	0.5+
1981 03 15	413	1.0+	0.6-	1999 05 10	704	0.1+	0.8+	1999 05 18	699	0.1+	0.9+
1993 04 27	809	(0.2-	3.5+)	1999 05 10	704	(2.6-	0.7+)	1999 06 07	703	0.1+	0.5+
1993 04 27	809	(0.7+	2.7+)	1999 05 13	704	1.5+	1.2+	1999 06 07	703	0.3+	0.2-
1993 04 27	809	2.0+	1.9+	1999 05 13	704	0.1-	0.1-	1999 06 07	703	0.2+	1.2-
1996 10 13	566	0.0	0.0	1999 05 13	704	0.9+	1.4+	1999 06 07	703	1.0-	0.3+
1996 10 13	566	0.4+	0.0	1999 05 13	704	(1.0-	3.1+)				

(11267)* 1981 UE₂₈ = 1990 RH₁ = 1998 HP₆₈

Discovered 1981 Oct. 24 by S. J. Bus at Palomar.

Id. S. Nakano (*MPC* 32216)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	343.29562		(2000.0)	P	Q	
<i>n</i>	0.21229279	ω	354.68312	+0.92065917	+0.38981399	
<i>a</i>	2.7829958	Ω	342.32984	-0.35558459	+0.81547376	
<i>e</i>	0.0757591	<i>i</i>	3.92518	-0.16107849	+0.42784061	
<i>P</i>	4.64	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1981 10 24	675	0.7+	0.6+	1998 04 21	704	0.2-	0.8+	1998 05 23	691	1.0-	0.4+
1981 10 25	675	0.0	0.5-	1998 04 21	704	0.0	0.4-	1998 05 23	691	1.1-	1.1+
1981 10 26	675	0.1-	0.3-	1998 04 21	704	0.6-	0.9-	1998 05 24	691	0.5+	0.0
1990 09 14	675	(1.0-	3.2-)	1998 04 21	704	0.1+	0.1-	1998 05 24	691	0.4+	1.6-
1990 09 14	675	(1.1-	3.1-)	1998 04 21	704	0.4+	0.2+	1999 07 14	704	0.5+	0.3-
1990 09 20	675	0.1-	1.3-	1998 04 22	704	1.0-	0.6-	1999 07 14	704	0.3+	0.4-
1990 09 20	675	0.9+	1.8-	1998 04 22	704	0.9-	0.1-	1999 07 14	704	0.1+	0.2+
1995 11 28	327	0.1-	0.9-	1998 04 22	704	0.0	0.2+	1999 07 14	704	0.3+	0.1+
1995 11 28	327	0.5+	0.6-	1998 04 22	704	0.2-	0.4+	1999 07 14	704	0.2-	0.0
1995 11 28	327	0.5+	0.7-	1998 04 22	704	0.1-	0.5+	1999 07 20	699	0.1+	0.0

1995 11 28	327	0.5+	0.3-	1998 04 25	699	1.0+	0.2+	1999 07 20	699	0.3-	0.1+
1998 04 01	704	0.6+	0.3-	1998 04 25	699	0.4-	0.4+	1999 07 20	699	0.5-	1.0+
1998 04 01	704	0.5+	0.3+	1998 04 25	699	0.3+	0.1+	1999 08 13	699	0.1-	0.5+
1998 04 01	704	0.6+	0.9-	1998 04 29	566	0.5-	0.9-	1999 08 13	699	0.4-	0.0
1998 04 01	704	0.4-	0.8-	1998 04 29	566	0.1+	0.7-	1999 08 13	699	0.1-	0.5+
1998 04 01	704	1.3+	0.5-	1998 04 29	566	1.2-	1.7-				

(11268)* 1985 UF₅ = 1981 UB₁₁ = 1989 YU

Discovered 1985 Oct. 22 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. S. Nakano (*MPC* 15885)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	223.84899		(2000.0)	P	Q	
<i>n</i>	0.26243400	ω	224.69880	+0.34343411	-0.93867691	
<i>a</i>	2.4161431	Ω	205.26221	+0.88051773	+0.33316075	
<i>e</i>	0.1991835	<i>i</i>	4.11686	+0.32671323	+0.08882321	
<i>P</i>	3.76	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1981 10 22	095	0.6+	0.5+	1998 03 04	704	1.7-	1.0+	1998 04 01	704	0.3+	1.2+
1985 10 22	095	2.2+	0.5-	1998 03 04	704	1.4-	1.3+	1998 04 01	704	0.5+	0.4+
1985 11 09	095	2.3-	0.4-	1998 03 04	704	1.8-	1.5+	1998 04 01	704	0.6+	0.7+
1985 11 11	095	2.2-	0.5+	1998 03 04	704	2.0-	1.0+	1998 04 01	704	0.5+	0.1+
1985 11 20	095	0.1+	2.1+	1998 03 04	704	1.5-	0.7+	1998 04 18	704	0.4+	0.2+
1989 12 27	896	0.4+	0.1+	1998 03 20	704	(0.1-	3.1-)	1998 04 18	704	0.3+	2.1-
1989 12 29	511	0.3+	1.4-	1998 03 20	704	1.4-	0.1+	1998 04 18	704	1.0-	1.2-
1989 12 29	511	0.4-	1.2-	1998 03 20	704	0.6+	0.1-	1998 04 18	704	0.6-	1.0-
1989 12 30	896	0.0	1.3+	1998 03 20	704	0.7+	0.7-	1998 04 18	704	0.0	0.1+
1989 12 31	511	0.4+	0.8+	1998 03 20	704	0.5+	0.4-	1998 04 19	704	0.3+	0.4-
1989 12 31	511	0.8+	0.6+	1998 03 22	704	0.0	0.2-	1998 04 19	704	0.0	0.6-
1990 01 02	511	0.2-	1.3-	1998 03 22	704	0.4+	0.0	1998 04 19	704	0.1-	0.4-
1990 01 02	511	0.5+	1.0-	1998 03 22	704	0.4+	0.4+	1998 04 19	704	0.7+	0.7-
1990 01 04	511	0.6+	2.0-	1998 03 22	704	0.2+	0.8+	1998 04 19	704	0.4-	0.3+
1990 01 04	511	0.2+	0.9-	1998 03 22	704	0.0	1.0+	1998 04 24	699	0.1+	0.4-
1990 01 24	033	0.5-	1.6+	1998 03 28	704	1.4+	0.5+	1998 04 24	699	0.5+	0.3+
1990 01 24	033	0.5-	1.2+	1998 03 28	704	0.1-	0.7+	1998 04 24	699	0.4+	0.2-
1994 02 15	675	0.0	0.3+	1998 03 28	704	0.5+	0.2+	1999 06 15	704	0.4+	1.3-
1994 02 15	675	0.3+	0.5-	1998 03 28	704	0.1-	0.2+	1999 06 15	704	0.4-	0.6+
1994 03 12	675	0.2+	0.4-	1998 03 28	704	0.5+	0.6+	1999 06 15	704	0.0	0.7-
1994 03 12	675	0.0	1.0-	1998 03 29	704	0.1+	0.4+	1999 06 15	704	1.1+	1.2-
1994 03 14	675	0.2-	0.1-	1998 03 29	704	0.1+	0.4+	1999 06 15	704	0.3+	0.0
1994 03 14	675	0.1-	0.1-	1998 03 29	704	0.4-	0.5+	1999 08 05	711	0.2-	0.8+
1998 02 24	566	0.3+	0.9-	1998 03 29	704	0.5+	0.0	1999 08 05	711	1.0-	0.3+
1998 02 24	566	0.2-	0.6-	1998 03 29	704	0.3-	0.1+	1999 08 08	711	1.0-	0.5+
1998 02 24	566	0.5+	0.9-	1998 04 01	704	0.5+	0.1+	1999 08 08	711	1.8+	0.8+

(11269)* 1987 QG₁₀ = 1986 EO₄ = 1998 BD₃

Discovered 1987 Aug. 26 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. G. V. Williams (*MPC* 31226)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	246.31872		(2000.0)	P	Q	
<i>n</i>	0.30436343	ω	221.27663	+0.94915162	+0.30811229	
<i>a</i>	2.1888083	Ω	120.66775	-0.26551777	+0.89377208	
<i>e</i>	0.1896524	<i>i</i>	4.30971	-0.16914938	+0.32594215	
<i>P</i>	3.24	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i> 2

Residuals in seconds of arc

1986 03 12	809	0.9-	0.1-	1998 01 22	691	0.7-	0.3-	1999 03 23	704	0.6+	0.5-
1987 08 26	095	0.4-	1.0-	1998 01 22	691	0.5-	0.4-	1999 03 23	704	0.5-	0.8-
1987 09 01	095	0.5+	1.6+	1998 01 22	691	0.4-	0.3-	1999 04 06	704	0.8-	1.9+
1987 09 22	095	0.8+	0.7-	1998 02 02	691	0.5-	0.1+	1999 04 06	704	1.1-	0.5-
1987 09 25	095	0.5+	1.3-	1998 02 02	691	0.5-	0.0	1999 04 06	704	1.6-	0.3+

1999 AUG. 31

1993 05 23	691	0.4−	0.9+	1999 02 20	699	0.0	0.7+	1999 04 12	704	0.4−	0.8+
1997 11 30	566	0.1+	0.9+	1999 03 20	704	1.1+	1.1−	1999 04 12	704	0.4−	1.2+
1997 11 30	566	0.2+	1.2+	1999 03 20	704	0.3+	1.6−	1999 04 12	704	0.5−	1.6+
1997 11 30	566	0.2+	0.8+	1999 03 20	704	0.8+	1.2−	1999 04 15	704	0.4−	0.5−
1998 01 18	691	0.5−	0.5−	1999 03 20	704	1.2+	1.5−	1999 04 15	704	0.2+	0.1+
1998 01 18	691	0.3−	0.4−	1999 03 23	704	0.1−	0.6−	1999 04 15	704	0.9+	0.6+
1998 01 18	691	0.2−	0.6−	1999 03 23	704	0.2+	0.4−	1999 04 15	704	1.3+	0.6−

(11270)* 1988 EA₂ = 1991 AL₁

Discovered 1988 Mar. 13 by P. Jensen at Brorfelde.

Id. T. Urata (*MPC* 17822)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		131.13891		(2000.0)		P		Q	
<i>n</i>		0.29048150	ω	24.27191		−0.99954333		+0.01611003	
<i>a</i>		2.2579989	Ω	156.60812		−0.02390240		−0.93913104	
<i>e</i>		0.0634292	<i>i</i>	3.69208		+0.01848822		−0.34318124	
<i>P</i>		3.39	<i>H</i>	14.5		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 03 24	675	(3.7−	0.5−)	1998 02 06	809	(4.0+	0.3−)	1998 03 04	704	(2.4−	0.3−)
1971 03 25	675	0.1−	0.7+	1998 02 06	809	(3.3+	0.1−)	1998 03 04	704	(2.8−	0.6−)
1971 03 25	675	1.3−	1.3+	1998 02 06	809	(3.2+	0.6−)	1998 03 04	704	(3.0−	0.1+)
1971 03 26	675	0.5−	1.6−	1998 02 07	809	(2.5+	0.8−)	1998 03 04	704	(3.3−	0.1−)
1971 03 27	675	0.3−	0.2−	1998 02 07	809	1.7+	0.1−	1998 03 16	610	0.3−	0.5+
1971 04 02	675	1.7+	0.5−	1998 02 07	809	1.4+	0.4−	1998 03 16	610	0.5−	0.7+
1971 05 13	675	0.3−	1.1−	1998 02 26	610	0.4+	0.8+	1998 03 16	610	0.9−	0.8+
1971 05 14	675	0.3+	1.8−	1998 02 26	610	0.5−	0.3+	1998 03 16	610	1.1−	1.0+
1988 03 13	054	1.0−	0.9+	1998 02 26	610	1.6−	0.3−	1998 03 18	470	0.7+	0.5+
1988 03 14	054	0.1+	0.8+	1998 02 27	566	0.1−	0.0	1998 03 18	470	1.4+	0.2−
1988 04 09	054	0.2+	0.1−	1998 02 27	566	0.3−	0.0	1998 03 18	470	0.0	0.0
1988 04 13	054	0.3+	0.1−	1998 02 27	566	0.1−	0.0	1998 03 25	610	0.0	0.0
1988 04 14	054	0.3+	0.1−	1998 03 02	470	0.4−	0.9+	1998 03 25	610	0.0	0.2+
1991 01 15	889	0.0	0.7−	1998 03 02	470	0.0	0.5+	1998 03 25	610	0.0	0.3+
1991 01 15	889	0.0	1.0−	1998 03 02	470	0.4−	0.5+	1998 03 25	610	0.0	0.4+
1991 01 17	675	0.4−	0.8+	1998 03 03	809	(3.2+	1.4+)	1998 03 25	610	0.1−	0.5+
1991 01 17	675	0.4−	0.5+	1998 03 03	809	(2.9+	1.6+)	1999 07 13	704	0.2+	0.2+
1991 01 18	889	0.5+	0.6+	1998 03 03	809	(3.3+	1.5+)	1999 07 13	704	0.6+	0.2−
1995 05 05	010	(1.8+	2.9+)	1998 03 03	704	0.1−	0.0	1999 07 13	704	0.1+	0.5+
1995 05 05	010	(1.0+	3.8+)	1998 03 03	704	0.0	0.4+	1999 07 13	704	0.2−	0.1+
1995 05 05	010	(0.9−	4.4+)	1998 03 03	704	1.2+	0.1+	1999 07 13	704	0.0	0.1−
1995 05 08	010	(1.2+	4.4+)	1998 03 03	704	1.0+	0.6−	1999 07 16	704	0.3−	0.4+
1995 05 08	010	(1.4+	4.0+)	1998 03 03	704	0.3+	1.0−	1999 07 16	704	0.3−	0.1+
1995 05 08	010	(1.3+	4.3+)	1998 03 04	809	0.5+	0.7−	1999 07 16	704	0.6−	0.1−
1998 01 26	566	0.7−	0.3+	1998 03 04	809	0.7+	1.7−	1999 08 07	106	0.4−	0.8+
1998 01 26	566	0.6−	0.1+	1998 03 04	809	0.5+	1.2−	1999 08 08	106	0.4−	0.7+
1998 01 26	566	0.8−	0.4+	1998 03 04	704	(2.6−	0.3−)	1999 08 08	106	0.7+	0.4+

(11271)* 1988 KB = 1995 KA

Discovered 1988 May 19 by E. F. Helin at Palomar.

Id. G. V. Williams (*MPC* 25328)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		46.20784		(2000.0)		P		Q	
<i>n</i>		0.27211916	ω	144.74941		−0.53378256		+0.72695705	
<i>a</i>		2.3584679	Ω	89.06375		−0.84053258		−0.40015474	
<i>e</i>		0.2387058	<i>i</i>	25.59716		−0.09263460		−0.55804089	
<i>P</i>		3.62	<i>H</i>	13.6		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1988 05 14	675	0.1+	1.1−	1995 05 22	693	0.2−	1.6+	1999 07 22	423	0.2−	0.5−
1988 05 14	675	0.6+	0.6−	1999 07 07	423	0.6−	1.0+	1999 07 22	423	0.2+	0.6−
1988 05 19	675	0.6−	0.4+	1999 07 07	423	0.5−	0.0	1999 07 23	423	0.6+	0.2+
1988 05 20	675	0.3+	0.1+	1999 07 07	423	0.5−	0.3−	1999 07 23	423	0.3+	0.9+
1988 06 17	675	1.1−	1.5−	1999 07 16	423	0.4+	1.3+	1999 07 23	423	0.1−	0.2+
1988 06 20	675	0.2+	1.8+	1999 07 16	423	0.4+	0.5+	1999 08 01	423	0.6+	0.6+
1988 07 14	675	0.6+	0.5−	1999 07 16	423	0.2+	0.1+	1999 08 03	423	0.0	0.4+

M.P.C. 35559

1988 07 15	675	2.5−	2.4−	1999 07 16	423	0.3+	1.2+	1999 08 03	423	0.3−	0.2−
1991 01 11	675	0.5−	0.5+	1999 07 16	423	0.3+	0.7+	1999 08 03	423	0.8+	0.4+
1991 01 11	675	0.9+	0.2−	1999 07 22	423	0.7+	0.6−	1999 08 11	423	1.5−	0.2−
1995 05 21	693	0.3+	1.3+	1999 07 22	423	0.1−	0.6−	1999 08 11	423	0.6−	0.1+
1995 05 21	693	0.6+	1.5−	1999 07 22	423	0.3−	0.0				
1995 05 22	693	0.1−	0.9+	1999 07 22	423	0.5+	0.3−				

(11272)* 1988 RK = 1954 SL

Discovered 1988 Sept. 8 by E. F. Helin at Palomar.

Id. S. Nakano (*MPC* 15559)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		306.55080		(2000.0)		P		Q	
<i>n</i>		0.26082899	ω	193.39610		+0.98488877		−0.17265788	
<i>a</i>		2.4260448	Ω	176.46121		+0.17211790		+0.96712754	
<i>e</i>		0.1862427	<i>i</i>	12.67289		+0.01922345		+0.18669112	
<i>P</i>		3.78	<i>H</i>	14.1		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1954 09 23	760	1.3+	0.9+	1998 03 25	691	0.1+	0.4−	1998 04 20	704	0.6+	0.0
1954 09 23	760	(2.8+	3.1+)	1998 03 25	691	0.3−	1.6−	1998 04 20	704	0.6+	0.5+
1954 09 27	760	1.9−	0.7+	1998 03 25	699	0.2−	0.7−	1998 04 20	704	1.3+	1.4+
1954 09 27	760	0.5+	0.3−	1998 03 25	699	0.7−	1.7−	1999 06 14	704	0.3−	0.6+
1988 09 08	675	0.4−	0.7−	1998 03 25	699	0.8+	0.9−	1999 06 14	704	0.2−	0.7+
1988 09 09	675	0.8+	1.7−	1998 03 28	704	0.1+	0.5−	1999 06 14	704	0.2−	0.1−
1988 09 11	675	0.2−	1.8−	1998 03 28	704	0.2−	0.1−	1999 06 14	704	0.1−	0.2+
1988 09 11	675	0.3−	1.7−	1998 03 28	704	0.4−	1.2−	1999 06 14	704	0.7−	0.1+
1988 09 11	071	1.0−	0.1+	1998 03 28	704	0.9−	0.6−	1999 07 13	704	0.2−	0.5+
1988 09 11	071	1.3−	0.5−	1998 03 28	704	0.5+	1.7−	1999 07 13	704	0.4−	0.2−
1988 09 16	675	0.2+	0.7−	1998 03 29	704	0.6−	0.3−	1999 07 13	704	0.4−	0.6−
1988 09 16	675	0.2+	1.2−	1998 03 29	704	0.4−	0.4−	1999 07 13	704	0.4+	0.3−
1988 09 17	095	0.9+	1.4+	1998 03 29	704	0.7−	0.5−	1999 07 13	704	0.2+	0.6−
1988 10 04	807	1.7+	0.1+	1998 03 29	704	0.9−	0.5−	1999 08 08	747	0.1+	0.1+
1988 10 07	675	0.7−	1.1−	1998 03 29	704	0.4−	0.3−	1999 08 08	747	0.7+	0.8+
1988 10 07	675	0.1+	0.8−	1998 04 19	704	0.0	0.1+	1999 08 08	747	0.2−	0.3+
1988 10 09	675	0.5+	0.0	1998 04 19	704	0.2+	0.3+	1999 08 13	747	0.4+	0.4+
1988 10 09	675	0.9+	0.7−	1998 04 19	704	0.9+	0.2+	1999 08 13	747	0.7+	0.2+
1991 05 18	413	0.7−	0.3+	1998 04 19	704	0.1+	0.7+	1999 08 13	747	0.9+	0.3+
1991 05 18	413	0.1−	0.5−	1998 04 20	704	0.7−	0.1+				
1998 03 25	691	0.2−	0.5−	1998 04 20	704	0.5+	0.4−				

(11273)* 1988 RN₁₁

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

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		69.73046		(2000.0)		P		Q	
<i>n</i>		0.08159463	ω	56.23150		−0.67212162		+0.74043185	
<i>a</i>		5.2645548	Ω	171.53459		−0.68724247		−0.62199771	
<i>e</i>		0.0947843	<i>i</i>	1.41444		−0.27559084		−0.25471459	
<i>P</i>		12.08	<i>H</i>	11.6		<i>G</i>	0.15	<i>U</i>	0

Residuals in seconds of arc

1982 01 30	675	0.5+	0.6−	1989 11 01	807	0.4+	0.5−	1997 06 07	809	(0.9−	2.2−)
1982 01 31	675	0.1+	0.7−	1991 11 13	688	0.6−	0.3+	1997 06 07	809	0.9−	1.7−
1988 09 14	807	0.2−	1.1−	1991 11 13	688	0.4−	0.3+	1997 06 08	809	1.4−	0.8−
1988 09 15	807	0.5+	0.7−	1994 01 16	691	0.1+	0.1−	1997 06 08	809	1.3−	0.5−
1988 10 06	807	0.3+	0.9−	1994 01 16	691	0.8−	0.4−	1997 06 08	809	2.0−	0.8−
1988 10 07	807	0.1−	1.7−	1994 01 16	691	0.8−	0.1−	1999 07 14	704	0.1+	0.9+
1988 11 04	807	0.2+	0.4−	1996 03 19	566	0.2+	0.4−	1999 07 14	704	0.3−	1.0+
1988 11 06	807	1.0+	0.7−	1996 03 19	566	0.5+	0.6−	1999 07 14	704	0.2+	0.5+
1989 10 02	807	0.2+	1.7−	1996 03 19	566	0.2−	0.4−	1999 07 14	704	0.6+	0.3+
1989 10 04	807	0.2+	1.6−	1996 04 22	566	0.1−	0.5−	1999 07 14	704	0.1−	0.7+
1989 10 28	807	0.1+	0.6−	1996 04 22	566	1.3+	0.4−	1999 08 08	691	0.2+	1.5+
1989 10 29	807	0.7+	0.6−	1996 04 22	566	1.3+	1.4−	1999 08 08	691	0.3+	0.9+
1989 10 31	807	0.5+	0.5−	1997 06 07	809	0.8−	1.0−	1999 08 08	691	0.1+	0.7+

(11274)* 1988 SX₂ = 1997 WH₅₀

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

Id. G. V. Williams (*MPC* 31227)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.12310889	ω	54.30375	+0.41058185	−0.91178877		
<i>a</i>	4.0019940	Ω	11.46305	+0.82306322	+0.36683032		
<i>e</i>	0.1979604	<i>i</i>	2.30325	+0.39241493	+0.18459892		
<i>P</i>	8.01	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1988 09 16	807	0.0	0.1−	1996 09 22	691	0.3−	0.1+	1999 02 10	704	1.1−	0.0
1988 09 18	807	0.3−	0.6−	1996 09 22	691	0.5−	0.1−	1999 02 10	704	(2.4−	0.0)
1988 10 04	807	0.6+	0.2+	1997 11 28	566	0.2+	0.6+	1999 02 10	704	(2.9−	0.4+)
1988 10 05	807	0.9+	0.1−	1997 11 28	566	1.4+	0.8+	1999 02 12	691	0.2+	0.5−
1988 10 08	807	1.1+	1.5−	1997 11 28	566	0.9+	1.1+	1999 02 12	691	0.2+	0.3−
1988 11 04	807	1.0−	0.1+	1997 11 29	704	1.4−	0.0	1999 02 12	691	0.2+	0.2−
1988 11 06	807	0.0	0.8−	1997 11 29	704	1.1−	0.8−	1999 03 24	691	0.0	0.0
1996 09 15	691	0.5+	0.8+	1997 11 29	704	0.2−	0.6−	1999 03 24	691	0.3+	0.1−
1996 09 15	691	0.1+	0.5+	1997 11 29	704	(1.0−	2.2−)	1999 03 24	691	0.2+	0.2−
1996 09 15	691	0.2+	0.3−	1997 11 29	704	(3.7−	1.0−)				
1996 09 22	691	0.3−	0.2−	1999 02 10	704	0.9−	0.8−				

(11275)* 1988 SL₃

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

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.08339497	ω	216.47938	+0.88654217	+0.29289042		
<i>a</i>	5.1885117	Ω	122.59584	−0.25501301	+0.95524033		
<i>e</i>	0.0906814	<i>i</i>	25.15612	−0.38601987	+0.04160665		
<i>P</i>	11.82	<i>H</i>	10.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 12 07	413	1.8−	0.1−	1990 12 10	675	0.8+	0.3−	1997 06 11	824	0.4−	0.2−
1977 12 07	413	1.0−	0.6−	1991 01 12	413	0.7+	1.0−	1997 06 11	824	0.1+	0.4−
1988 09 16	807	0.4+	0.7+	1991 01 12	413	0.5−	0.2−	1997 06 11	824	0.8−	0.5−
1988 09 18	807	0.2+	1.1+	1993 01 23	950	0.0	0.2−	1999 07 14	704	1.0−	0.5+
1988 09 19	807	1.1+	0.3+	1993 01 23	950	0.0	0.2−	1999 07 14	704	1.7−	0.2+
1988 10 04	807	1.3+	0.0	1993 01 23	950	0.2−	0.3−	1999 07 14	704	0.8−	0.1+
1988 10 05	807	1.5+	0.3−	1993 01 23	950	0.1−	0.2−	1999 07 14	704	0.5−	0.3−
1988 10 07	807	0.4+	0.0	1993 02 18	950	0.6+	1.0+	1999 07 14	704	1.0−	0.4−
1988 11 04	807	0.4+	0.7−	1993 02 18	950	0.1−	0.6+	1999 08 06	711	1.0+	0.3−
1988 11 07	807	0.1−	0.6−	1997 06 09	824	0.0	0.1−	1999 08 06	711	1.6+	1.0+
1989 10 02	807	0.5−	0.6−	1997 06 09	824	0.2−	0.6−				
1989 10 28	807	0.4−	0.6−	1997 06 09	824	0.0	0.3−				

(11276)* 1988 TM₁ = 1973 UU₁ = 1982 BQ₁₂

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

Id. S. J. Bus (*MPC* 20016), G. V. Williams (*MPC* 34488), A. Doppler (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26180847	ω	193.53444	+0.68280130	−0.73039989		
<i>a</i>	2.4199901	Ω	213.40760	+0.67320290	+0.63816614		
<i>e</i>	0.1881319	<i>i</i>	1.79784	+0.28386659	+0.24343373		
<i>P</i>	3.76	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1973 10 26	095	(0.9−	3.9−)	1988 11 02	399	0.2−	1.4+	1998 04 22	704	0.3−	0.1+
1982 01 30	675	0.8+	0.3+	1988 11 02	399	0.1−	1.1+	1998 05 01	704	1.5−	0.1−
1982 01 31	675	1.7+	0.6+	1988 11 03	033	0.0	0.5+	1998 05 01	704	0.1+	0.7−
1988 10 07	675	1.1−	1.5−	1988 11 03	033	0.4−	0.8+	1998 05 01	704	0.7−	1.3−
1988 10 07	675	0.3−	2.3−	1988 11 04	033	0.1−	0.3+	1998 05 01	704	0.3+	0.6−
1988 10 13	675	0.8−	0.2−	1996 12 04	691	0.2−	0.0	1998 05 01	704	(1.2−	2.1−)
1988 10 13	675	0.5−	0.4−	1996 12 04	691	0.3−	0.3−	1999 06 20	703	1.1−	1.4+

1988 10 13	399	1.1+	1.3−	1996 12 04	691	0.5−	0.3−	1999 06 20	703	1.3+	0.0
1988 10 13	399	0.8+	0.3+	1996 12 15	691	0.4−	0.3−	1999 06 20	703	1.7−	0.0
1988 10 13	399	1.4+	0.4−	1996 12 15	691	0.4−	0.2+	1999 06 20	703	(2.2+	1.5+)
1988 10 14	046	(4.2−	3.7−)	1996 12 15	691	0.5−	0.2−	1999 07 16	704	0.7+	0.2−
1988 10 14	046	(2.8−	3.4−)	1997 02 15	327	0.7+	0.3−	1999 07 16	704	0.1−	1.0−
1988 10 16	399	1.4−	0.4+	1997 02 15	327	0.5+	0.9+	1999 07 16	704	0.4−	0.3−
1988 10 16	399	0.2−	1.1−	1997 02 15	327	0.3+	0.0	1999 08 12	699	0.8+	1.0+
1988 10 16	046	(3.0−	4.1−)	1998 04 22	704	0.5−	0.2−	1999 08 12	699	1.0+	1.7+
1988 10 16	046	(3.0−	1.2−)	1998 04 22	704	1.0+	0.8+	1999 08 12	699	0.8+	1.1+
1988 11 02	399	0.3+	0.4−	1998 04 22	704	1.5−	0.2+				

(11277)* 1988 TW₂ = 1995 MG

Discovered 1988 Oct. 8 by C. S. Shoemaker at Palomar.

Id. T. Urata (*MPC* 25528), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26435056	ω	43.83673	+0.42688079	+0.82377110		
<i>a</i>	2.4044508	Ω	254.77368	−0.89899373	+0.34192011		
<i>e</i>	0.2369351	<i>i</i>	22.74513	−0.09789311	+0.45220771		
<i>P</i>	3.73	<i>H</i>	12.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1988 09 12	675	0.9−	0.2−	1995 07 24	905	0.1+	0.0	1999 08 01	628	0.4+	0.2+
1988 09 12	675	1.3−	0.4+	1995 07 24	905	0.4+	0.3−	1999 08 01	628	0.1−	0.7+
1988 10 08	675	2.3+	0.9−	1995 08 24	801	0.1−	0.1−	1999 08 01	127	1.0−	1.5−
1988 10 13	675	0.4+	2.4−	1995 08 24	801	0.1+	0.2−	1999 08 01	127	1.1−	1.5−
1992 11 26	675	0.2−	0.2+	1995 08 25	801	0.1−	0.2−	1999 08 02	127	0.3+	0.3−
1995 06 24	905	0.8+	1.7−	1995 08 25	801	0.3−	0.3−	1999 08 02	127	0.6+	0.1−
1995 06 24	905	1.2−	1.4+	1995 05 20	704	0.2−	0.3+	1999 08 03	762	0.1−	0.4−
1995 06 24	905	0.2+	0.3+	1995 05 20	704	0.5−	0.2+	1999 08 03	762	0.1+	0.5+
1995 06 29	402	0.5+	0.7+	1995 05 20	704	1.5+	0.2+	1999 08 03	762	0.2−	0.7+
1995 06 29	402	0.4+	0.5+	1995 05 20	704	1.0+	0.1−	1999 08 07	628	0.4−	0.2+
1995 06 29	402	0.4+	0.6+	1995 05 20	704	0.2−	0.7+	1999 08 08	628	0.3−	0.4+
1995 07 06	905	0.3+	0.6−	1995 07 27	704	0.1+	0.3+	1999 08 08	628	0.2−	0.4+
1995 07 06	905	0.9+	0.4+	1995 07 27	704	0.1−	0.4+	1999 08 08	628	0.3−	0.3+
1995 07 09	367	0.7−	1.8−	1995 07 27	704	0.2−	0.0	1999 08 22	628	0.1−	0.7+
1995 07 09	367	0.5−	0.2−	1995 07 27	704	0.1+	0.2+	1999 08 22	628	0.3−	0.6+
1995 07 09	367	0.4−	0.7−	1995 07 27	704	0.1+	0.2+	1999 08 22	628	0.3+	0.1+
1995 07 10	896	0.4−	0.4−	1999 08 01	628	0.1+	0.2+	1999 08 22	628	0.2+	0.6+
1995 07 10	896	0.2−	0.4−	1999 08 01	628	0.1+	0.1+				
1995 07 24	905	0.5+	0.3+	1999 08 01	628	0.1−	0.4+				

(11278)* 1989 SD₃ = 1994 BE₁

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

Observatory.

Id. S. Nakano (*MPC* 23237)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.29142537	ω	340.84563	+0.92105121	−0.38513038		
<i>a</i>	2.2531208	Ω	41.95303	+0.36763851	+0.81090880		
<i>e</i>	0.1560759	<i>i</i>	4.95878	+0.12847803	+0.44056952		
<i>P</i>	3.38	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1989 09 26	809	(0.8−	4.9−)	1994 01 19	411	0.1−	0.5+	1998 04 20	704	1.0−	1.4−
1989 09 26	809	(0.7−	4.2−)	1994 01 21	411	0.1−	0.4−	1998 04 20	704	0.1−	1.6−
1989 09 26	809	(1.0−	4.5−)	1994 01 21	411	0.6+	1.9+	1998 04 21	704	1.3−	1.9−
1989 09 26	809	0.4+	1.0+	1994 01 21	411	1.1+	0.2+	1998 04 21	704	0.6−	1.3−
1989 09 26	809	0.8+	0.0	1994 01 23	411	0.2−	0.2+	1998 04 21	704	1.1−	0.6−
1989 09 26	809	0.2−	0.2+	1994 01 23	411	0.5+	0.8−	1998 04 21	704	0.8−	0.3−
1989 09 28	809	0.7−	1.1+	1994 01 23	411	0.7+	0.1−	1998 04 21	704	0.9+	0.4−
1989 09 28	809	0.2−	0.1+	1994 02 02	411	0.8−	0.1+	1998 04 22	704	1.5+	0.5+
1989 09 28	809	0.3+	0.5+	1994 02 02	411	0.0	0.9+	1998 04 22	704	0.2−	0.6−
1989 09 29	675	1.1+	0.7−	1994 02 02	411	0.6−	0.2−	1998 04 22	704	0.8+	1.3+
1989 09 29	675	1.5+	1.4−	1998 03 25	704	0.9−	1.2+	1998 04 22	704	0.6+	0.2−

1989 10 03	809	0.1+	0.8+	1998 03 25	704	1.1+	1.5+	1998 04 22	704	0.1+	1.6+
1989 10 03	809	0.3+	0.4+	1998 03 25	704	(0.2+	2.7+)	1999 07 16	704	0.6-	0.1-
1989 10 03	809	0.4-	0.7+	1998 03 25	704	(1.5+	2.2+)	1999 07 16	704	0.5-	0.1+
1989 10 07	809	0.2+	0.6-	1998 03 29	704	1.5-	1.7+	1999 07 16	704	0.1+	1.0+
1989 10 07	809	0.3+	0.4-	1998 03 29	704	1.0+	2.0+	1999 08 12	699	0.6-	0.5+
1989 10 07	809	0.5-	0.4-	1998 03 29	704	(0.3-	2.2+)	1999 08 12	699	0.2-	0.5+
1989 10 08	809	0.8-	0.4-	1998 03 29	704	(0.0	2.3+)	1999 08 12	699	0.2+	0.7+
1989 10 08	809	0.9-	0.8-	1998 03 29	704	0.2-	0.9+	1999 08 21	385	0.3-	0.3+
1989 10 08	809	1.0-	0.8-	1998 04 20	704	1.6+	1.6-	1999 08 21	385	0.2+	0.1+
1994 01 19	411	(1.2+	2.9+)	1998 04 20	704	(3.6+	0.0)				

(11279)* 1989 TC = 1996 FE₅

Discovered 1989 Oct. 1 by J. Alu and E. F. Helin at Palomar.

Id. G. V. Williams (*MPC* 27103)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	287.82011		(2000.0)	P	Q
<i>n</i>	0.38149650	ω	11.89542	+0.97011032	-0.24211364
<i>a</i>	1.8828209	Ω	2.31542	+0.17593167	+0.65535985
<i>e</i>	0.0449851	<i>i</i>	23.85480	+0.16713474	+0.71546100
<i>P</i>	2.58	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1989 10 01	675	0.6+	0.6-	1989 10 28	675	0.5-	1.5-	1997 12 19	327	0.0	0.6-
1989 10 04	675	0.8-	1.4-	1996 03 19	413	0.7+	0.6-	1997 12 19	327	1.7-	0.3-
1989 10 05	327	0.9-	1.5+	1996 03 19	413	(3.0+	1.5+)	1999 06 07	426	0.1-	0.6+
1989 10 05	327	1.6+	0.4+	1996 03 26	413	0.0	0.9+	1999 06 07	426	0.1-	0.6+
1989 10 06	327	0.4+	0.4+	1996 03 26	413	0.1+	0.9+	1999 06 10	426	0.2-	0.2-
1989 10 07	327	0.1-	0.3+	1997 10 26	688	0.5+	0.2+	1999 06 10	426	0.0	0.0
1989 10 07	327	1.3+	0.3-	1997 10 26	688	0.3+	0.2+	1999 06 10	426	0.0	0.3+
1989 10 10	413	1.5+	0.7+	1997 10 27	688	0.3+	0.9+	1999 07 12	808	0.6+	0.6+
1989 10 26	675	1.6-	1.0+	1997 10 27	688	0.4+	0.6+	1999 07 12	808	0.8-	0.1-
1989 10 26	675	2.2-	0.5-	1997 10 27	688	0.5+	0.8+				
1989 10 28	675	(1.8-	3.1-)	1997 12 19	327	0.1-	0.4-				

(11280)* 1989 TY₁₀ = 1989 UJ₈ = 1965 UH₁

Discovered 1989 Oct. 9 by M. Yanai and K. Watanabe at Kitami.

Id. S. Nakano (d, *ibid.*), H. Kaneda (*MPC* 17444)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Asher

<i>M</i>	314.93092		(2000.0)	P	Q
<i>n</i>	0.28794735	ω	180.28443	+0.95016465	-0.31063611
<i>a</i>	2.2712276	Ω	197.88124	+0.28619263	+0.90262930
<i>e</i>	0.2229485	<i>i</i>	4.91604	+0.12361602	+0.29793549
<i>P</i>	3.42	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1955 11 24	675	0.4-	0.6+	1998 03 20	704	1.2+	1.0-	1998 04 20	704	0.6-	1.3+
1955 11 24	675	0.6-	0.3+	1998 03 20	704	1.0-	0.1-	1998 04 20	704	1.2-	0.2+
1965 10 18	330	1.5+	1.3+	1998 03 20	704	(3.5-	1.2+)	1998 04 20	704	0.3-	0.9-
1965 10 21	330	1.9-	0.9+	1998 03 28	704	0.9-	1.5+	1998 04 20	704	0.2+	0.0
1989 10 09	400	0.3-	1.4-	1998 03 28	704	1.3+	0.5-	1998 04 22	704	1.6+	1.3-
1989 10 09	400	1.0-	0.7+	1998 03 28	704	(1.2-	2.6-)	1998 04 22	704	0.5-	0.4+
1989 10 09	400	(0.5-	3.2+)	1998 03 28	704	1.1-	1.7+	1998 04 22	704	(1.4+	2.2-)
1989 10 11	809	0.7+	1.4+	1998 03 28	704	(2.0-	2.4-)	1998 04 22	704	(0.2+	2.2-)
1989 10 11	809	0.3+	0.7+	1998 03 29	704	0.7-	0.6-	1999 07 13	704	0.1-	0.3-
1989 10 11	809	0.3-	0.1-	1998 03 29	704	1.4-	0.2-	1999 07 13	704	0.4-	0.2-
1989 10 11	809	0.7-	0.6-	1998 03 29	704	0.2+	0.1+	1999 07 13	704	0.2-	0.4-
1989 10 21	095	1.3+	0.5-	1998 03 29	704	0.4+	0.4+	1999 07 13	704	0.2-	0.9-
1989 10 25	095	0.7+	0.1+	1998 03 29	704	0.8+	0.8-	1999 07 13	704	0.4-	0.8-
1995 05 29	691	1.3+	0.6-	1998 04 01	704	1.2+	1.6-	1999 07 19	704	0.2-	0.1+
1995 05 29	691	1.9+	0.2+	1998 04 01	704	1.3-	0.6+	1999 07 19	704	0.6-	0.1+
1995 05 29	691	1.0+	1.4+	1998 04 01	704	0.5+	1.4+	1999 07 19	704	0.5-	0.0
1996 09 30	689	0.7+	1.4-	1998 04 01	704	1.3-	0.0	1999 08 16	649	(3.4+	2.3+)
1998 03 20	704	1.2+	1.1+	1998 04 01	704	(3.7-	1.3+)	1999 08 16	649	0.3+	1.2+

(11281)* 1989 UM₁

Discovered 1989 Oct. 28 by Y. Mizuno and T. Furuta at Kani.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	338.64178		(2000.0)	P	Q
<i>n</i>	0.28914330	ω	306.94108	+0.99802686	-0.04468561
<i>a</i>	2.2649605	Ω	55.66071	+0.05922221	+0.90332173
<i>e</i>	0.1935102	<i>i</i>	3.06215	-0.02085945	+0.42662988
<i>P</i>	3.41	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1989 10 26	399	0.2-	0.6+	1998 03 22	704	0.6-	0.8+	1998 04 19	704	0.9+	0.7-
1989 10 26	399	1.5-	0.3+	1998 03 22	704	0.8-	1.0+	1998 04 19	704	0.3-	0.2+
1989 10 26	399	0.5-	1.3-	1998 03 22	704	(2.3-	1.0+)	1998 04 19	704	0.3+	1.8+
1989 10 28	403	(0.0	2.7-)	1998 03 22	704	(2.6-	1.8+)	1998 04 20	704	0.5+	0.5-
1989 10 28	403	0.2+	0.4+	1998 03 22	704	(6.4-	1.5+)	1998 04 20	704	1.0-	0.6+
1989 10 29	403	0.1-	0.1-	Y 1998 03 25	704	1.0-	0.2-	1998 04 20	704	0.9+	0.3+
1989 10 29	403	0.1-	0.7+	1998 03 25	704	1.2-	0.8+	1998 04 20	704	0.2-	0.2-
1989 10 29	399	0.4-	1.4-	1998 03 25	704	0.6-	0.2-	1998 04 22	704	1.1+	1.0-
1989 10 29	399	0.0	0.6-	1998 03 25	704	0.1+	0.4+	1998 04 22	704	1.8+	0.9-
1989 10 29	399	1.5+	0.5-	1998 03 25	704	0.0	1.1-	1998 04 22	704	1.1+	0.7-
1989 11 19	399	1.2+	1.8+	1998 03 28	704	0.5+	1.3+	1998 04 22	704	(4.2-	1.5-)
1989 11 19	399	(3.3+	0.5-)	1998 03 28	704	0.2+	0.1+	1998 05 16	691	0.5+	0.3-
1989 11 19	399	(2.8+	0.1-)	1998 03 28	704	0.7+	0.4+	1998 05 16	691	0.4+	0.8-
1996 11 30	411	0.1-	0.1-	1998 03 28	704	0.5+	0.9+	1998 05 16	691	0.1+	0.8-
1996 11 30	411	0.1+	0.3+	1998 03 28	704	0.1-	0.2-	1999 07 16	704	0.1-	0.7-
1996 12 01	411	0.4-	0.1+	1998 03 29	704	0.1+	0.6+	1999 07 16	704	0.6-	0.8-
1996 12 01	411	0.2+	0.5+	1998 03 29	704	0.3+	0.3-	1999 07 16	704	0.0	0.1-
1998 03 20	704	0.9-	0.9-	1998 03 29	704	0.1+	1.2+	1999 07 16	704	0.3-	1.3+
1998 03 20	704	0.6-	0.1+	1998 03 29	704	(0.2+	3.6-)	1999 08 12	699	0.1+	0.5+
1998 03 20	704	1.3-	0.5-	1998 03 29	704	0.4+	0.0	1999 08 12	699	0.3+	0.6+
1998 03 20	704	1.9-	0.8-	1998 04 19	704	0.5+	0.1+				

(11282)* 1989 UY₂ = 1985 RT₆ = 1999 FR₂₆

Discovered 1989 Oct. 30 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 34177)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	256.70258		(2000.0)	P	Q
<i>n</i>	0.26230808	ω	281.28599	+0.95939757	+0.27656487
<i>a</i>	2.4169163	Ω	62.67888	-0.22830941	+0.87677136
<i>e</i>	0.2131231	<i>i</i>	3.57447	-0.16562341	+0.39342579
<i>P</i>	3.76	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1985 09 12	688	1.4+	0.6-	1989 11 30	046	0.1-	1.7-	1999 03 23	703	0.6-	0.1-
1985 09 12	688	1.3-	0.3-	1995 02 06	691	0.1+	0.1+	1999 04 10	699	0.7+	0.3+
1989 10 23	033	0.6+	0.0	1995 02 06	691	0.5+	0.2+	1999 04 10	699	1.1+	0.6+
1989 10 23	033	0.1-	1.1+	1995 02 06	691	0.3-	0.2+	1999 04 10	699	1.1+	0.1-
1989 10 25	033	0.2+	0.2-	1997 09 29	691	0.2-	0.3+	1999 04 12	704	0.2+	1.3-
1989 10 25	033	0.5+	0.1+	1997 09 29	691	0.1+	0.3+	1999 04 12	704	1.6-	2.0-
1989 10 27	033	0.7-	0.1+	1997 09 29	691	0.2+	0.5+	1999 04 12	704	0.3-	0.4-
1989 10 30	400	(4.2-	2.4+)	1998 01 07	327	0.2-	0.7+	1999 04 12	704	1.0-	0.5-
1989 10 30	400	(1.0+	3.3+)	1998 01 07	327	0.3-	0.3+	1999 04 12	704	0.0	0.0
1989 11 02	400	(4.1+	3.5+)	1998 01 07	327	0.1-	0.6+	1999 04 16	704	0.5-	2.0-
1989 11 02	400	(4.4+	3.9+)	1999 03 19	704	0.4-	0.1+	1999 04 16	704	1.6+	0.3-
1989 11 04	385	0.4+	1.1-	1999 03 19	704	1.8-	1.8-	1999 04 16	704	(2.4+	1.2+)
1989 11 04	385	1.1+	1.6-	1999 03 19	704	(2.6-	0.5-)	1999 04 16	704	0.5-	1.8-
1989 11 17	883	0.9-	1.5+	1999 03 19	704	0.1+	0.8+	1999 04 19	704	1.1+	0.9-
1989 11 17	883	(4.6-	1.5+)	1999 03 20	704	0.0	0.1-	1999 04 19	704	1.1+	0.4-
1989 11 23	046	0.6+	0.7-	1999 03 20	704	0.4-	1.2-	1999 04 19	704	1.9+	1.6+
1989 11 23	046	0.6-	0.9+	1999 03 20	704	0.6-	1.1+	1999 04 19	704	0.3+	0.7+
1989 11 29	046	0.7-	1.1-	1999 03 23	703	0.6-	1.0+	1999 04 19	704	0.4-	0.2+
1989 11 29	046	(2.8-	0.1-)	1999 03 23	703	1.7-	0.8+				
1989 11 30	046	1.8+	1.3-	1999 03 23	703	0.5-	0.6+				

(11283)* 1989 UX₄ = 1977 DS₅ = 1982 SD₈ = 1998 FB₃₆ = 1999 NL₆

Discovered 1989 Oct. 25 by A. Mrkos at Kleť.

Id. S. Nakano (*MPC* 35280)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Asher

<i>M</i>	329.52600	(2000.0)	P		Q	
<i>n</i>	0.28623023	ω 210.52740	+0.99607425	+0.08217208		
<i>a</i>	2.2803021	Ω 144.71268	−0.06523683	+0.93279630		
<i>e</i>	0.1867513	<i>i</i> 3.26704	−0.05983513	+0.35091140		
<i>P</i>	3.44	<i>H</i> 14.5	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1977 02 19	381	0.7−	1.1+	1998 03 20	704	0.2+	0.7+	1998 04 19	704	0.6+	0.0
1977 02 19	381	1.1+	0.9−	1998 03 20	704	1.8+	1.0+	1998 04 19	704	0.2−	0.5+
1982 09 19	095	1.2−	2.2+	1998 03 20	704	1.7+	0.1+	1999 07 13	704	0.1+	0.4+
1989 10 25	046	0.1−	1.1+	1998 03 20	704	1.2+	0.1−	1999 07 13	704	0.1+	0.3+
1989 10 25	046	1.4+	1.1+	1998 03 20	704	1.5+	0.5+	1999 07 13	704	0.0	0.3+
1989 10 25	046	0.5+	1.1+	1998 03 22	704	1.4−	1.6+	1999 07 13	704	0.0	0.2+
1989 10 25	046	1.7+	0.6+	1998 03 22	704	1.0−	1.5+	1999 07 13	704	0.1+	0.1−
1989 10 26	046	2.0−	2.0+	1998 03 22	704	1.0−	0.1−	1999 07 16	704	0.0	0.1+
1989 10 26	046	0.5+	0.9+	1998 03 22	704	0.4−	0.3+	1999 07 16	704	0.2−	0.1+
1989 10 27	675	1.9−	1.0−	1998 03 22	704	0.9+	1.1+	1999 07 16	704	0.1+	0.1−
1989 10 27	675	1.1−	1.8−	1998 03 25	566	0.2+	0.8+	1999 08 03	046	0.2−	0.2+
1989 11 02	046	(4.8−	0.6+)	1998 03 25	566	0.2−	1.2+	1999 08 03	046	0.2−	0.3+
1989 11 02	046	(3.4−	0.0)	1998 03 25	566	0.4−	0.6+	1999 08 03	046	0.2−	0.1+
1998 01 08	910	0.5−	1.1−	1998 04 19	704	(1.2+	2.6+)	1999 08 04	046	0.2−	0.2+
1998 01 08	910	0.6−	1.0−	1998 04 19	704	0.6+	2.1+	1999 08 04	046	0.1−	0.4+
1998 01 08	910	0.4−	0.7−	1998 04 19	704	0.3+	0.3−	1999 08 04	046	0.2+	0.2+

(11284)* 1990 BA

Discovered 1990 Jan. 21 by A. Maury at Caussols.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	54.76295	(2000.0)	P		Q	
<i>n</i>	0.42930156	ω 170.76996	−0.54050481	−0.84094279		
<i>a</i>	1.7403145	Ω 311.94314	+0.76967828	−0.48180979		
<i>e</i>	0.3373697	<i>i</i> 1.99393	+0.33977917	−0.24632203		
<i>P</i>	2.30	<i>H</i> 17.8	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1950 12 09	675	0.5−	1.5−	1990 02 27	801	0.4−	0.2−	1997 04 03	046	0.7+	0.9+
1950 12 09	675	(5.8−	2.1+)	1990 02 27	801	0.4−	0.5−	1997 04 14	684	0.3−	0.3−
1990 01 21	010	1.2+	0.6−	1990 03 23	801	1.5−	0.7−	1997 04 14	684	0.8−	0.2+
1990 01 21	010	1.0−	0.7+	1990 03 23	801	0.1+	1.0−	1997 04 14	684	0.3−	0.2+
1990 01 21	010	(2.3+	1.1−)	1990 03 27	801	0.7+	0.3+	1997 04 14	684	0.3−	0.0
1990 01 21	010	0.0	0.8+	1990 03 27	801	0.7+	0.8−	1997 05 05	360	0.2+	0.0
1990 01 22	675	0.3−	1.8+	1990 04 22	688	0.4+	0.4−	1997 05 05	360	0.5+	0.2−
1990 01 22	010	1.6+	0.9−	1990 04 22	688	1.2+	0.3−	1997 05 05	360	0.5+	0.1−
1990 01 22	010	0.3−	0.2+	1997 01 17	684	1.2−	0.4+	1998 08 23	711	0.5+	0.7+
1990 01 22	010	1.4+	0.6−	1997 01 17	684	1.2+	0.9+	1998 08 23	711	0.0	0.6+
1990 01 22	010	0.5−	1.4+	1997 01 18	684	0.1−	0.2+	1998 08 25	711	0.9−	0.5+
1990 01 24	675	0.4−	0.5+	1997 01 18	684	0.3+	1.2+	1998 08 25	711	0.1+	0.8+
1990 01 24	675	1.1−	0.9−	1997 03 31	360	0.1−	0.1−	1998 11 15	711	0.1+	0.2+
1990 01 25	675	0.6−	0.9−	1997 03 31	360	0.4−	0.2+	1998 11 15	711	0.0	0.1+
1990 01 26	657	0.7−	0.7+	1997 03 31	360	0.7−	0.1+	1998 11 16	711	0.1+	0.0
1990 02 21	801	0.3+	0.1−	1997 04 03	046	0.2+	0.8+	1998 11 16	711	0.0	0.1+
1990 02 21	801	0.6+	0.4−	1997 04 03	046	0.1+	1.1+				

(11285)* 1990 QU₃ = 1990 QL₁₈ = 1999 BD₁

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

Id. S. Nakano (d, *MPC* 20912), G. V. Williams (*MPC* 33677)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	255.95358	(2000.0)	P		Q	
<i>n</i>	0.28616922	ω 197.20700	+0.27255947	+0.96134614		
<i>a</i>	2.2806262	Ω 88.62307	−0.87808508	+0.26513396		
<i>e</i>	0.1234120	<i>i</i> 2.23864	−0.39329115	+0.07428039		
<i>P</i>	3.44	<i>H</i> 14.3	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1990 08 22	675	0.6−	1.0+	1997 09 29	566	0.3−	0.3−	1999 01 19	757	(0.8+	2.2+)
1990 08 22	675	0.4−	1.1+	1997 09 29	566	0.4−	0.2−	1999 01 19	704	0.8+	0.3+
1990 08 27	675	(1.3+	2.3−)	1997 09 29	566	0.9+	0.7−	1999 01 19	691	0.2−	0.1+
1990 08 27	675	(1.1+	2.2−)	1998 12 16	699	0.7−	0.3−	1999 01 19	704	1.2+	0.8+
1990 08 28	095	(0.8+	2.6−)	1998 12 16	699	0.1+	0.4−	1999 01 19	691	0.3−	0.1+
1990 08 28	095	(2.8−	2.2−)	1998 12 16	699	0.3−	1.3−	1999 01 19	691	0.2−	0.0
1990 08 29	675	0.6−	0.4+	1998 12 21	704	0.7−	1.8−	1999 01 19	704	(2.6+	1.7+)
1990 08 29	675	1.4−	0.9+	1998 12 21	704	0.2−	0.6+	1999 01 19	704	0.6+	1.0+
1990 09 16	675	1.3+	0.6−	1998 12 21	704	0.4+	1.3−	1999 01 21	757	0.2−	0.3+
1990 09 16	675	1.0+	1.0−	1998 12 21	704	(1.1+	3.4−)	1999 01 21	757	0.3−	1.4+
1993 06 16	675	0.2+	1.5−	1998 12 21	704	1.1+	0.9−	1999 02 10	704	0.5+	1.0−
1995 03 31	691	0.2+	0.2−	1999 01 10	691	0.7−	0.6+	1999 02 10	704	0.5+	0.4−
1995 03 31	691	0.3−	1.9+	1999 01 10	691	0.5−	0.3+	1999 02 10	704	0.1+	0.4−
1995 03 31	691	0.6−	0.2−	1999 01 10	691	0.6−	0.3+	1999 02 10	704	0.4+	0.3+
1996 03 22	566	0.2−	0.6+	1999 01 16	757	1.6−	0.0	1999 02 10	704	1.1−	0.0
1996 03 22	566	0.3+	0.6+	1999 01 16	757	1.1+	0.2−				
1996 03 22	566	0.6−	0.7+	1999 01 19	757	1.5+	0.2+				

(11286)* 1990 RO₈ = 1998 XQ₅₅

Discovered 1990 Sept. 15 by H. Debehogne at the European Southern Observatory.

Id. A. Gnädig (*MPC* 33677)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	31.34551	(2000.0)	P		Q	
<i>n</i>	0.26912408	ω 324.24637	−0.55551897	−0.83127488		
<i>a</i>	2.3759339	Ω 159.47822	+0.77524284	−0.52627418		
<i>e</i>	0.1338415	<i>i</i> 3.19077	+0.30066129	−0.17893451		
<i>P</i>	3.66	<i>H</i> 14.8	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1990 08 16	809	0.1+	1.3+	1996 03 26	566	0.3+	0.6+	1998 12 16	704	0.1+	0.1−
1990 08 16	809	1.4−	0.5+	1996 03 26	566	0.4+	0.3+	1998 12 16	704	0.1−	0.7−
1990 08 16	809	(2.4−	0.3−)	1997 07 01	691	0.3−	0.4−	1998 12 16	704	0.8+	0.2+
1990 09 15	809	0.4−	0.0	1997 07 01	691	0.1+	1.0−	1998 12 16	704	0.3−	0.3−
1990 09 15	809	0.0	0.0	1997 07 01	691	0.2−	0.3−	1998 12 22	704	0.4+	0.1+
1990 09 15	809	0.5+	0.0	1997 10 07	691	0.1−	0.9+	1998 12 22	704	0.3−	0.1−
1990 09 16	809	0.0	0.4+	1997 10 07	691	0.5−	0.5+	1998 12 22	704	1.1−	0.1−
1990 09 16	809	0.3+	0.2+	1998 12 15	704	0.8−	0.5+	1998 12 22	704	0.2+	0.4+
1990 09 16	809	0.6+	0.3+	1998 12 15	704	0.3+	0.4−	1998 12 22	704	0.2+	0.5+
1992 02 28	691	0.1−	0.3+	1998 12 15	704	0.5+	0.1−	1999 03 10	704	0.6−	1.0−
1992 02 28	691	0.1−	0.3+	1998 12 15	704	0.1−	0.3+	1999 03 10	704	1.2−	0.9+
1992 02 28	691	0.2−	0.3+	1998 12 15	704	0.8+	0.3+	1999 03 10	704	0.6+	1.2−
1996 03 26	566	0.6+	0.6+	1998 12 16	704	0.4+	0.1+	1999 03 10	704	0.0	1.0+

(11287)* 1990 SX = 1995 OS

Discovered 1990 Sept. 16 by H. E. Holt at Palomar.

Id. T. Urata (*MPC* 25529)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	227.20037	(2000.0)	P		Q	
<i>n</i>	0.17746100	ω 14.52868	+0.98579419	+0.14891781		
<i>a</i>	3.1361785	Ω 336.47879	−0.16686506	+0.81568867		
<i>e</i>	0.1768539	<i>i</i> 11.22308	−0.01912786	+0.55899506		
<i>P</i>	5.55	<i>H</i> 12.5	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1990 09 16	675	1.1+	1.5-	1995 08 01	905	0.0	0.2+	1999 03 23	704	1.4-	0.3-
1990 09 16	675	(0.0	2.4-)	1995 08 01	905	0.5+	0.0	1999 03 23	704	1.4-	0.4-
1990 09 17	675	(0.3+	2.2-)	1998 01 06	688	0.8-	0.3+	1999 04 11	699	0.5-	0.8-
1990 09 17	675	(0.3-	2.8-)	1998 01 06	688	0.1+	0.9+	1999 04 11	699	0.7+	0.8-
1990 09 18	675	0.0	1.5-	1998 01 07	688	0.3-	0.4+	1999 04 11	699	0.6+	0.8-
1990 09 18	675	0.5+	1.8-	1998 01 07	688	0.6+	0.9-	1999 04 15	704	1.5-	1.4-
1990 09 20	675	(0.9+	2.6-)	1998 01 08	688	0.5-	1.0-	1999 04 15	704	1.1-	0.3-
1990 09 20	675	0.4-	0.1-	1998 01 08	688	0.1-	0.4-	1999 04 15	704	0.2+	0.4+
1991 12 14	691	1.5+	0.9+	1998 01 08	688	0.5-	0.0	1999 04 15	704	0.6-	1.9+
1991 12 14	691	0.6+	0.8-	1999 03 20	704	0.5+	0.1-	1999 04 15	704	1.6-	1.5-
1991 12 14	691	0.4+	0.8-	1999 03 20	704	1.0+	0.5-	1999 04 17	704	0.1+	0.3+
1995 07 24	905	0.7+	0.4-	1999 03 20	704	0.6+	0.1+	1999 04 17	704	1.3+	1.0+
1995 07 24	905	0.6-	1.3-	1999 03 20	704	1.1+	0.5-	1999 04 17	704	0.0	0.6+
1995 07 26	905	0.3+	1.1+	1999 03 23	704	0.4-	0.6-	1999 04 17	704	1.2-	0.5-
1995 07 26	905	0.5+	0.3+	1999 03 23	704	(0.0	2.5-)	1999 04 17	704	0.3-	0.7+

(11288)* 1990 XU

Discovered 1990 Dec. 10 by T. Seki at Geisei.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M		299.02815		(2000.0)		P		Q	
<i>n</i>		0.19028835	ω	263.74742		+0.79528486		-0.59029511	
<i>a</i>		2.9936056	Ω	132.32999		+0.60334087		+0.74843802	
<i>e</i>		0.1178267	<i>i</i>	10.76690		+0.05917580		+0.30231146	
<i>P</i>		5.18	<i>H</i>	12.9		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1990 12 10	372	0.6+	0.2-	1998 05 22	688	0.4+	0.4+	1998 06 19	704	0.4+	0.2+
1990 12 10	372	0.1+	0.1+	1998 05 22	688	0.2+	0.3+	1998 06 21	566	(2.5-	0.8-)
1990 12 19	372	0.1-	0.8-	1998 05 23	704	0.6+	1.5-	1998 06 21	566	0.8-	0.2-
1990 12 19	372	0.8+	1.2+	1998 05 23	704	0.3-	0.0	1998 06 21	566	0.1-	0.2+
1990 12 21	372	1.2-	0.4-	1998 05 23	704	0.5-	0.2+	1999 07 13	704	0.2-	0.6+
1990 12 21	372	0.8-	1.0+	1998 05 23	704	0.7-	0.9+	1999 07 13	704	0.5-	0.1+
1991 01 09	372	(1.2-	2.3-)	1998 05 23	704	0.0	0.7+	1999 07 13	704	0.2+	0.4-
1991 01 09	372	0.1-	0.1+	1998 05 25	699	0.2+	0.2-	1999 07 13	704	0.5-	0.2-
1991 02 07	675	0.0	1.6+	1998 05 25	699	0.1+	0.4+	1999 07 13	704	0.5-	0.2-
1991 02 07	675	0.6+	0.4+	1998 05 25	699	0.4+	1.0+	1999 07 16	704	0.2+	0.0
1994 09 11	675	0.6-	1.3+	1998 05 26	704	1.3+	0.3+	1999 07 16	704	0.4-	0.2-
1994 09 11	675	0.1+	0.4+	1998 05 26	704	2.1+	0.0	1999 07 16	704	0.6-	0.6-
1998 04 18	688	0.1+	0.1+	1998 05 26	704	1.4-	0.5+	1999 07 21	699	0.1+	0.3+
1998 04 18	688	0.1+	0.1+	1998 05 26	704	1.1+	0.7-	1999 07 21	699	0.0	0.7+
1998 04 18	688	0.2+	0.1+	1998 05 26	704	(3.4-	0.6-)	1999 07 21	699	0.3-	0.8+
1998 05 06	566	1.3-	0.1-	1998 06 19	704	0.2-	0.4-	1999 08 05	106	1.6+	0.7-
1998 05 06	566	1.4-	0.4-	1998 06 19	704	0.3+	0.7-	1999 08 05	106	0.8+	0.7-
1998 05 06	566	0.8-	0.1+	1998 06 19	704	0.1+	0.1+	1999 08 12	467	0.1-	0.3+
1998 05 22	688	0.4+	0.5+	1998 06 19	704	0.1-	0.1+	1999 08 12	467	0.0	0.6+

(11289)* 1991 PA₂ = 1976 YP₅ = 1988 AL₃ = 1989 CS₆ = 1989 EP₇ = 1998 YN₁₀

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

Id. B. G. Marsden (*MPC* 33679), A. Doppler (*MPC* 34493)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M		47.22102		(2000.0)		P		Q	
<i>n</i>		0.18041762	ω	347.01726		+0.09943162		-0.99383756	
<i>a</i>		3.1018211	Ω	97.26064		+0.91729216		+0.07247071	
<i>e</i>		0.1457763	<i>i</i>	2.83090		+0.38560140		+0.08387434	
<i>P</i>		5.46	<i>H</i>	13.6		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 12 18	095	0.2+	0.9-	1998 12 15	704	0.1+	0.9-	1999 01 07	046	0.1+	0.6+
1988 01 12	033	0.3+	0.5-	1998 12 15	704	0.5-	0.0	1999 01 07	046	0.0	0.5+
1988 01 12	033	0.2-	1.1-	1998 12 15	704	1.0-	0.2-	1999 01 12	046	0.3-	0.6+
1989 02 04	033	0.5+	1.5+	1998 12 28	046	0.5+	0.7-	1999 01 12	046	0.6-	0.6+
1989 02 04	033	0.2-	0.9+	1998 12 28	046	0.1-	0.5+	1999 01 12	046	0.7-	0.2+
1989 03 06	033	0.1-	1.2-	1998 12 28	046	0.2+	0.1-	1999 01 14	046	0.0	0.2+

1989 03 06	033	0.2-	1.0-	1998 12 28	046	0.1+	0.5+	1999 01 14	046	0.2-	0.3+
1991 08 02	809	(2.4+	0.1+)	1998 12 28	046	1.6+	0.7+	1999 01 14	046	0.1+	0.0
1991 08 02	809	0.3-	0.7+	1998 12 28	046	0.4-	0.4-	1999 01 16	704	0.6+	0.8-
1991 08 02	809	0.9+	0.0	1998 12 28	046	0.1+	0.0	1999 01 16	704	0.5-	0.3-
1991 08 07	809	0.5+	1.5+	1998 12 28	046	0.3+	0.1+	1999 01 16	704	0.3+	0.3+
1991 08 07	809	1.5-	1.0+	1998 12 28	046	0.1+	0.0	1999 01 16	704	(3.1+	1.2+)
1991 08 07	809	(4.8-	1.8-)	1998 12 28	046	0.4+	0.2+	1999 01 16	704	(0.4+	2.1+)
1991 08 14	809	0.7+	0.5-	1998 12 28	046	0.3+	0.2+	1999 01 17	046	0.2-	0.7+
1991 08 14	809	0.0	0.8-	1998 12 29	046	0.4-	0.3+	1999 01 17	046	0.1-	0.3+
1991 08 14	809	0.6-	0.6-	1998 12 29	046	0.1+	0.2+	1999 01 21	046	0.1+	0.1+
1995 05 29	691	(3.0+	0.7+)	1998 12 29	046	0.0	0.0	1999 01 21	046	0.2-	0.2+
1995 05 29	691	(4.9+	0.8+)	1998 12 30	046	0.2+	0.1+	1999 01 21	046	0.2-	0.1+
1995 05 29	691	(3.2+	0.3+)	1998 12 30	046	0.1+	0.0	1999 01 23	046	0.1-	0.3+
1998 12 15	704	0.1+	0.5-	1998 12 30	046	0.0	0.1-	1999 01 23	046	0.1+	0.5+
1998 12 15	704	0.2+	1.1-	1999 01 07	046	0.2-	0.0	1999 01 23	046	0.3-	0.3+

(11290)* 1991 RA₁ = 1975 WB = 1987 QL₃

Discovered 1991 Sept. 10 by A. Sugie at the Dync Astronomical Observatory.

Id. S. Nakano (*MPC* 19034)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M		327.92052		(2000.0)		P		Q	
<i>n</i>		0.24221253	ω	49.48880		+0.96476564		-0.23324651	
<i>a</i>		2.54888150	Ω	323.51774		+0.13267920		+0.83087766	
<i>e</i>		0.2059668	<i>i</i>	11.81605		+0.22720801		+0.50521122	
<i>P</i>		4.07	<i>H</i>	13.9		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1975 11 27	095	0.3-	2.3+	1995 10 25	801	0.3+	0.2-	1998 05 02	566	0.5-	0.3+
1987 08 30	010	0.2-	0.5+	1995 10 25	801	0.4+	0.1-	1998 05 02	566	0.0	0.2+
1987 08 30	010	0.8-	0.4-	1995 10 25	801	0.1+	0.1-	1998 05 02	566	0.1-	0.1+
1987 08 30	010	1.1-	0.4-	1995 10 26	801	0.2+	0.0	1999 07 16	704	0.5+	0.2-
1991 09 07	399	1.2-	2.1+	1997 03 05	704	1.1+	1.0+	1999 07 16	704	0.9+	0.3+
1991 09 07	399	0.7-	1.2+	1997 03 05	704	0.6+	0.5-	1999 07 16	704	0.3-	1.4+
1991 09 10	402	1.3+	1.3+	1997 03 06	704	0.5+	1.5+	1999 07 21	699	0.7-	0.7+
1991 09 10	402	0.8+	0.4+	1997 03 06	704	0.6+	0.5+	1999 07 21	699	0.2-	1.1+
1991 09 11	402	1.9-	1.0-	1997 03 28	327	0.1+	0.7+	1999 07 21	699	0.8-	0.5+
1991 09 11	402	1.7+	0.6+	1997 03 28	327	0.2+	0.7+	1999 08 07	106	0.1-	0.4-
1991 10 02	402	0.1+	1.6-	1997 03 28	327	0.0	0.1+	1999 08 08	106	0.5-	0.7+
1991 10 02	402	1.2+	0.5+	1997 03 28	327	0.4-	0.2+	1999 08 08	106	1.1-	0.7+
1995 08 23	595	0.5-	1.0-	1997 03 28	327	0.1+	0.5+	1999 08 08	691	0.0	0.2+
1995 08 23	595	0.2-	1.1-	1997 03 28	327	0.4-	0.5+	1999 08 08	691	0.1-	0.1+
1995 08 23	595	0.1-	0.9-	1998 05 01	566	0.4+	0.7+	1999 08 08	691	0.0	0.3+
1995 09 29	801	0.1+	0.2-	1998 05 01	566	1.0+	0.4+				
1995 09 29	801	0.1+	0.2-	1998 05 01	566	0.2+	0.5+				

(11291)* 1991 RZ₁₀ = 1997 WJ₅₄

Discovered 1991 Sept. 10 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 31230)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M		170.66403		(2000.0)		P		Q	
<i>n</i>		0.17378314	ω	242.06643		+0.81096928		+0.58350317	
<i>a</i>		3.1802722	Ω	82.20533		-0.52038348		+0.75295883	
<i>e</i>		0.2568425	<i>i</i>	2.49008		-0.26745066		+0.30426476	
<i>P</i>		5.67	<i>H</i>	14.0		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1991 09 10	675	(2.5-	1.3
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1991 10 08	675	0.9+	0.1+	1997 12 04	704	0.0	1.5+	1998 12 28	691	0.1+	0.1-
1995 04 25	691	0.3-	0.1-	1998 01 17	910	0.9-	0.5+	1998 12 28	691	0.3+	0.1-
1995 04 25	691	0.2-	0.0	1998 01 17	910	0.8-	0.5+	1998 12 28	691	0.3+	0.2-
1995 04 25	691	0.6+	0.6+	1998 01 17	910	0.9-	0.6+	1999 01 07	691	0.2-	0.3-
1997 10 30	566	0.0	0.2-	1998 01 27	910	0.7-	0.1+	1999 01 07	691	0.4-	0.2-
1997 10 30	566	0.2+	0.0	1998 01 27	910	1.3-	0.5+				

(11292)* 1991 RC₂₈ = 1985 OX = 1999 BN₂₅

Discovered 1991 Sept. 8 by Spacewatch at Kitt Peak.

Id. A. Doppler (*MPC* 33932)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19052827	ω	54.99852	-0.85250732	+0.51463632		
<i>a</i>	2.9910920	Ω	155.58201	-0.52193388	-0.82850371		
<i>e</i>	0.0847163	<i>i</i>	12.79436	-0.02857094	-0.22075113		
<i>P</i>	5.17	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1985 07 20	413	1.1-	0.8-	1994 02 10	691	1.0+	0.4-	1999 01 18	704	0.1-	1.2-
1991 09 08	691	0.7-	0.2-	1994 02 10	691	1.0+	0.3-	1999 01 18	704	(2.6+	1.9-)
1991 09 08	691	0.4-	0.3-	1994 02 10	691	1.1+	0.0	1999 01 20	704	0.3+	0.1+
1991 09 08	691	0.1+	0.2-	1996 08 15	566	0.5+	0.4-	1999 01 20	704	0.3-	0.9+
1991 09 08	691	0.0	0.2-	1996 08 15	566	0.4+	0.2-	1999 01 20	704	0.2+	0.5+
1991 09 08	691	0.2+	0.1+	1996 08 15	566	0.5+	0.4-	1999 01 20	704	1.3-	1.2-
1991 09 08	691	0.1+	0.0	1996 09 13	566	0.4-	0.5+	1999 02 11	699	1.1+	0.5+
1991 09 10	691	0.1-	0.1-	1996 09 13	566	0.1-	0.3-	1999 02 11	699	0.6+	0.1+
1991 09 10	691	0.3-	0.0	1996 09 13	566	0.4-	0.6+	1999 02 11	699	0.4+	0.6-
1991 09 10	691	0.4-	0.2-	1996 10 07	327	0.5+	0.0	1999 02 12	704	0.1-	0.2-
1991 09 12	691	0.0	0.2-	1996 10 07	327	0.7+	0.1+	1999 02 12	704	0.6-	0.4-
1991 09 12	691	0.2+	0.0	1996 10 07	327	0.5+	0.3-	1999 02 12	704	0.2+	0.4+
1991 09 12	691	0.2+	0.2+	1998 12 23	704	0.4+	1.1-	1999 02 12	704	1.2-	0.4+
1991 09 15	691	0.2-	0.1+	1998 12 23	704	1.4+	0.2+	1999 02 12	704	0.4-	0.5+
1991 09 15	691	0.0	0.3+	1998 12 23	704	0.6+	0.6+	1999 02 16	704	1.1+	1.3-
1991 09 15	691	0.1+	0.1-	1998 12 23	704	0.8-	1.9+	1999 02 16	704	0.9-	0.7-
1991 09 17	691	0.0	0.1-	1998 12 23	704	1.9-	1.0-	1999 02 16	704	0.7-	0.2-
1991 09 17	691	0.0	0.3-	1999 01 18	704	1.0-	0.9+	1999 02 16	704	0.4-	0.4-
1991 09 17	691	0.3+	0.3+	1999 01 18	704	0.2+	0.1+	1999 02 16	704	(2.1-	0.9-)

(11293)* 1991 XL = 1997 JD₁₇ = 1997 LW₁₁

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

Id. S. Nakano (*MPC* 32661)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Asher			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28003034	ω	224.35397	+0.53559597	+0.83989133		
<i>a</i>	2.3138364	Ω	78.21796	-0.74769021	+0.52000193		
<i>e</i>	0.1397674	<i>i</i>	5.14932	-0.39255102	+0.15550095		
<i>P</i>	3.52	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 12 04	399	0.8+	0.9-	1997 06 07	809	0.7+	1.2+	1998 11 24	704	0.1-	0.4-
1991 12 04	399	0.0	0.7-	1997 06 08	809	1.4+	0.2-	1998 11 24	704	0.2+	0.1-
1991 12 05	399	(3.3-	0.2+)	1997 06 08	809	0.6+	0.3+	1998 11 24	704	0.4-	0.7+
1991 12 05	399	0.7-	0.8+	1997 06 08	809	0.6+	0.3+	1998 11 24	704	0.2-	0.5+
1991 12 07	691	1.2+	0.6+	1998 08 31	704	0.2+	0.2-	1998 11 24	704	0.2-	1.2+
1991 12 07	691	1.6-	1.8-	1998 08 31	704	0.1+	0.0	1998 11 25	699	0.0	0.4+
1991 12 14	399	0.6-	1.7+	1998 08 31	704	1.2+	1.4+	1998 11 25	699	0.5+	0.2+
1991 12 14	399	0.6+	1.5+	1998 08 31	704	0.9-	1.7-	1998 11 25	699	0.4+	0.6+
1994 09 12	675	0.4-	0.0	1998 11 18	704	0.2-	0.2-	1998 12 10	691	0.1+	0.5+
1994 09 12	675	0.0	0.4+	1998 11 18	704	0.1-	0.4-	1998 12 10	691	0.3+	0.2+
1997 05 03	809	0.5+	0.1-	1998 11 18	704	1.0-	0.6+	1998 12 10	691	0.2+	0.3+
1997 05 03	809	0.3+	0.3-	1998 11 18	704	0.4-	0.5+	1998 12 15	691	0.1-	0.0
1997 05 03	809	0.2-	0.7-	1998 11 18	704	0.8+	1.2+	1998 12 15	691	0.1+	0.4+
1997 05 04	809	0.2-	0.9+	1998 11 20	699	0.1+	1.3+	1998 12 15	691	0.2+	0.1+
1997 05 04	809	0.1+	0.7+	1998 11 20	699	1.0+	0.4+	1998 12 23	691	0.4+	0.2+
1997 05 04	809	0.2+	0.2+	1998 11 20	699	0.4-	0.3+	1998 12 23	691	0.1+	0.3+

1997 05 04	809	1.0-	1.3+	1998 11 21	704	0.7-	0.1-	1998 12 23	691	0.2+	0.4+
1997 05 04	809	1.0-	0.0	1998 11 21	704	1.1-	1.0-	1999 01 23	691	1.2-	0.0
1997 05 04	809	0.5-	0.5-	1998 11 21	704	0.2-	1.1-	1999 01 23	691	1.5-	0.4-
1997 06 07	809	0.2+	1.6+	1998 11 21	704	0.7+	1.3-				
1997 06 07	809	0.3+	0.8+	1998 11 21	704	(0.1-	2.3-)				

(11294)* 1992 CK = 1994 UX₁₁

Discovered 1992 Feb. 4 by T. Seki at Geisei.

Id. A. Gnädig (*MPC* 32662)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28345668	ω	303.13839	+0.13454185	-0.98826959		
<i>a</i>	2.2951527	Ω	138.93641	+0.94184391	+0.10487707		
<i>e</i>	0.1515184	<i>i</i>	6.31556	+0.30794243	+0.11101358		
<i>P</i>	3.48	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1992 02 04	372	1.8+	0.4+	1998 12 23	704	(0.8+	2.4+)	1999 02 13	704	0.7+	0.0
1992 02 04	372	1.4-	0.6+	1998 12 23	704	0.5-	0.4+	1999 02 13	704	0.3+	0.4-
1992 02 13	372	1.9+	1.0+	1999 01 14	699	0.9+	0.1+	1999 02 13	704	0.1-	0.4-
1992 02 13	372	1.3-	1.3+	1999 01 14	699	0.0	0.1+	1999 02 13	704	0.3+	0.2-
1992 02 29	033	0.2-	0.1+	1999 01 14	699	1.0+	0.7+	1999 02 13	704	(2.2-	1.5-)
1992 02 29	033	0.1+	0.2-	1999 01 18	120	1.3-	0.3+	1999 02 18	566	1.4-	1.1-
1992 03 01	033	0.1-	0.8+	1999 01 18	120	1.0-	1.2+	1999 02 18	566	1.4-	1.4-
1994 10 29	675	0.7+	0.0	1999 01 18	120	0.2+	1.1+	1999 02 18	566	1.4-	1.2-
1994 10 30	675	(3.5-	2.5-)	1999 01 20	910	0.4-	0.6+	1999 02 21	691	0.3-	0.7-
1994 10 30	675	0.2-	1.0-	1999 01 20	910	0.4+	0.1-	1999 02 21	691	0.3-	0.6-
1997 08 05	691	0.2+	0.1+	1999 01 20	910	0.5+	0.1-	1999 02 21	691	0.5-	0.5-
1997 08 05	691	0.1-	0.0	1999 01 26	910	0.3+	0.6-	1999 02 23	699	0.6+	0.8+
1997 08 05	691	0.3-	0.2-	1999 01 26	910	0.2+	0.6-	1999 02 23	699	1.1+	0.0
1998 12 16	699	0.8-	0.6+	1999 01 26	910	0.1+	0.6-	1999 02 23	699	0.7+	0.5+
1998 12 16	699	1.6-	1.5+	1999 02 10	704	0.3-	0.9-	1999 03 19	704	0.5+	0.6-
1998 12 16	699	0.4+	0.3+	1999 02 10	704	0.3-	0.4-	1999 03 19	704	0.9-	0.5-
1998 12 23	704	1.9-	0.5-	1999 02 10	704	0.6+	0.3+	1999 03 19	704	0.7+	1.4+
1998 12 23	704	0.8+	0.4-	1999 02 10	704	0.9+	0.2-	1999 03 19	704	0.7+	0.1+
1998 12 23	704	0.1+	0.5+	1999 02 10	704	0.4+	1.6-				

(11295)* 1992 EU₂₈ = 1998 FK₃₆

Discovered 1992 Mar. 8 at the European Southern Observatory in the course of the Uppsala-ESO Survey of Asteroids and Comets.

Id. G. V. Williams (*MPC* 31534)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17185386	ω	250.48552	+0.49135581	+0.87067026		
<i>a</i>	3.2040297	Ω	48.96488	-0.78753058	+0.45513716		
<i>e</i>	0.1803060	<i>i</i>	1.70341	-0.37197452	+0.18650327		
<i>P</i>	5.74	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1992 02 29	809	1.0-	1.1+	1998 03 20	704	0.2-	0.5+	1998 03 29	704	0.3+	0.3-
1992 03 06	691	0.0	0.0	1998 03 22	704	0.1-	0.2+	1998 03 29	704	0.1+	0.5+
1992 03 06	691	0.5+	0.8-	1998 03 22	704	0.4-	0.6+	1998 03 29	704	0.2+	0.5+
1992 03 06	691	0.7+	0.5-	1998 03 22	704	0.3+	0.3-	1999 06 09	704	0.3+	0.6+
1992 03 08	809	0.1-	0.6+	1998 03 22	704	0.7+	0.6-	1999 06 09	704	0.7+	0.7+
1992 03 09	809	1.3+	0.1+	1998 03 22	704	0.2+	1.0-	1999 06 09	704	1.1+	0.0
1992 04 06	809	1.2-	0.6+	1998 03 22	704	(1.4-	2.4+)	1999 06 09	704	0.1+	1.0+
1995 10 30	327	0.6+	0.3+	1998 03 22	704	0.2-	0.1+	1999 06 15	704	0.1-	0.2-
1995 10 30	327	0.0	0.4-	1998 03 22	704	(2.5-	2.3-)	1999 06 15	704	0.5-	0.6-
1995 10 30	327	0.4-	0.6-	1998 03 22	704	0.4-	0.1+	1999 06 15	704	0.2+	0.2-
1995 10 30	327	0.0	0.3-	1998 03 22	704	1.3-	1.0+	1999 06 15	704	0.7-	0.4+
1995 12 31	327	0.0	1.4+	1998 03 26	566	0.1-	1.7-	1999 06 15	704	0.5+	0.2+
1995 12 31	327	0.9-	1.3+	1998 03 26	566	0.1+	1.8-	1999 07 14	704	0.2-	0.2-
1995 12 31	327	0.0	1.3+	1998 03 26	566	0.3+	1.7-	1999 07 14	704	0.1+	0.1+
1998 02 25	566	0.4+	0.6-	1998 03 28	704	0.1+	0.0	1999 07 14	704	0.0	0.1-
1998 02 25	566	0.1+	0.8-	1998 03 28	704	0.0	1.1+	1999 07 14	704	0.3-	0.3+

1998 02 25	566	0.0	1.0−	1998 03 28	704	0.0	0.1+	1999 07 16	704	0.3−	0.6−
1998 03 20	704	(0.1−	2.2+)	1998 03 28	704	0.6+	1.2+	1999 07 16	704	0.2−	0.1−
1998 03 20	704	0.4−	0.6+	1998 03 28	704	0.2+	0.5+	1999 07 16	704	0.3−	0.4+
1998 03 20	704	0.5−	0.7+	1998 03 29	704	0.4−	0.3+	1999 07 16	704	0.1−	0.6+
1998 03 20	704	0.3−	0.6+	1998 03 29	704	0.3+	0.3+	1999 07 16	704	0.2−	0.4+

(11296)* 1992 KA = 1999 CP₆₅

Discovered 1992 May 24 by T. Seki at Geisei.

Id. A. Doppler (*MPC* 34185)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 154.81759 (2000.0)				Williams			
<i>P</i>		<i>Q</i>		<i>P</i>		<i>Q</i>	
<i>n</i>	0.25110744	<i>ω</i>	176.15089	+0.92251656	−0.38390111		
<i>a</i>	2.4882633	<i>Ω</i>	206.53460	+0.35168835	+0.87859491		
<i>e</i>	0.0862193	<i>i</i>	5.10980	+0.15899212	+0.28406147		
<i>P</i>	3.93	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1992 05 24	372	0.1−	1.0+	1997 10 28	704	(1.2+	3.8−)	1998 11 25	704	0.1+	1.1−
1992 05 24	372	(1.0−	2.0−)	1997 10 28	704	(0.7+	4.9−)	1999 01 18	704	0.2+	0.9+
1992 05 25	372	1.1−	0.5+	1997 10 30	704	0.8+	0.3+	1999 01 18	704	0.8+	1.5+
1992 05 25	372	0.6−	1.8+	1997 10 30	704	(2.7+	0.2+)	1999 01 18	704	0.2−	0.1+
1992 05 28	372	0.5+	1.2−	1997 10 30	704	1.0+	0.7−	1999 01 18	704	0.3+	0.4+
1992 05 28	372	0.5−	1.3−	1997 10 30	704	(2.7+	3.4−)	1999 01 18	704	0.1+	0.5−
1992 06 03	372	(3.7+	2.2−)	1997 10 30	704	0.9−	0.1+	1999 02 12	704	0.9−	0.4−
1992 06 03	372	1.0+	0.6−	1997 11 29	566	0.2+	0.6−	1999 02 12	704	0.5−	0.1−
1993 05 29	691	0.1−	0.2−	1997 11 29	566	0.4−	0.5−	1999 02 12	704	0.5−	0.4+
1993 05 29	691	0.9+	0.0	1997 11 29	566	0.2−	0.3−	1999 02 12	704	0.0	0.0
1993 05 29	691	0.7+	0.2−	1997 12 11	327	0.3+	0.0	1999 02 12	704	0.6−	0.2+
1996 05 22	566	0.5+	0.5−	1997 12 11	327	0.3+	0.3−	1999 02 16	704	0.3−	0.3+
1996 05 22	566	0.2+	0.4−	1997 12 11	327	0.4+	0.3−	1999 02 16	704	0.2+	0.0
1996 05 22	566	0.3−	0.4−	1997 12 11	327	0.3+	0.1−	1999 02 16	704	0.5+	0.2−
1997 10 23	327	0.1−	0.1+	1997 12 25	566	0.6−	0.7+	1999 02 16	704	0.3+	1.0−
1997 10 23	327	0.5−	0.0	1997 12 25	566	0.3−	0.3−	1999 02 16	704	(0.0	4.0−)
1997 10 23	327	0.4−	0.1−	1997 12 25	566	0.4−	0.3+	1999 02 18	566	0.5−	0.3−
1997 10 28	704	(2.5+	4.0−)	1998 11 25	704	(0.9+	2.4−)	1999 02 18	566	0.3−	0.5−
1997 10 28	704	(1.7+	3.6−)	1998 11 25	704	1.3+	1.2−	1999 02 18	566	0.7−	0.6−
1997 10 28	704	(1.1+	3.2−)	1998 11 25	704	1.7+	0.0				

(11297)* 1992 PP₆ = 1985 PY = 1995 KO₅ = 1998 FL₈₇

Discovered 1992 Aug. 5 by H. Debehogne and À. López G. at the European Southern Observatory.

Id. A. Doppler (*MPC* 33232)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 323.34621 (2000.0)				Williams			
<i>P</i>		<i>Q</i>		<i>P</i>		<i>Q</i>	
<i>n</i>	0.27792578	<i>ω</i>	218.52601	+0.97833331	+0.17049662		
<i>a</i>	2.3255026	<i>Ω</i>	131.23721	−0.12897725	+0.94567502		
<i>e</i>	0.0649600	<i>i</i>	8.98571	−0.16195311	+0.27682062		
<i>P</i>	3.55	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1985 08 14	688	0.2+	0.4+	1998 03 01	809	(2.6+	4.1+)	1999 06 22	699	0.1−	0.8+
1985 08 14	688	(5.2+	2.8+)	1998 03 01	809	(2.0+	4.4+)	1999 07 13	704	0.0	0.3+
1992 07 26	809	0.8+	1.6−	1998 03 01	809	(1.7+	4.4+)	1999 07 13	704	1.8+	0.2−
1992 07 26	809	0.7+	0.9−	1998 03 24	704	0.3−	0.1−	1999 07 13	704	0.4−	0.5−
1992 07 26	809	0.2+	0.3−	1998 03 24	704	0.4−	0.2−	1999 07 13	704	0.2−	0.1+
1992 08 05	809	1.3−	0.2+	1998 03 24	704	0.7−	0.3+	1999 07 13	704	0.2−	0.1−
1992 08 05	809	1.0−	0.1+	1998 03 24	704	0.1+	0.7+	1999 07 16	704	0.6+	0.2−
1992 08 05	809	0.7−	0.1+	1998 03 25	704	0.0	0.4−	1999 07 16	704	0.3−	0.3+
1992 08 06	809	0.8+	0.2+	1998 03 25	704	0.1+	0.0	1999 07 16	704	0.1−	0.7+
1992 08 06	809	1.0+	0.2+	1998 03 25	704	0.3+	0.5−	1999 07 16	704	0.2−	0.4+
1992 08 06	809	1.2+	0.0	1998 03 25	704	0.2+	0.7−	1999 07 16	704	0.2−	0.6+
1992 08 07	809	1.6−	1.0−	1998 03 25	704	0.4−	0.6−	1999 07 16	704	0.0	0.3+
1992 08 07	809	1.6−	1.2−	1998 03 25	566	0.1−	0.1+	1999 07 16	704	0.2+	0.0
1992 08 07	809	1.0−	1.2−	1998 03 25	566	0.0	0.1+	1999 07 16	704	0.2+	0.1+

1992 08 08	809	0.8+	0.0	1998 03 25	566	0.2−	0.1−	1999 07 16	704	0.1+	0.3+
1992 08 08	809	1.0+	0.1+	1998 04 19	704	0.4+	0.3−	1999 07 16	704	0.8−	0.4+
1992 08 08	809	1.2+	0.1+	1998 04 19	704	0.4+	0.7+	1999 07 20	699	0.1−	0.5+
1995 05 24	693	0.2+	1.0−	1998 04 19	704	0.1+	0.1−	1999 07 20	699	0.4−	0.4+
1995 05 24	693	0.0	0.1+	1998 04 19	704	0.3+	0.7+	1999 07 20	699	0.2−	0.3+
1995 05 25	693	0.1+	0.4−	1999 06 22	699	0.0	0.4+				
1995 05 25	693	0.5−	0.2+	1999 06 22	699	0.1+	0.1+				

(11298)* 1992 RE₆ = 1978 WY₈ = 1998 YT

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

Id. S. Nakano (*MPC* 33482), A. Milani (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 71.58511 (2000.0)				Asher			
<i>P</i>		<i>Q</i>		<i>P</i>		<i>Q</i>	
<i>n</i>	0.20080859	<i>ω</i>	358.75345	+0.26254983	−0.96336986		
<i>a</i>	2.8881153	<i>Ω</i>	76.02314	+0.88578194	+0.21816945		
<i>e</i>	0.0449389	<i>i</i>	3.22817	+0.38269824	+0.15595064		
<i>P</i>	4.91	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 11 29	675	0.2−	0.1+	1995 04 06	691	0.3−	0.9−	1998 12 17	704	0.0	1.1+
1978 11 30	675	0.1+	0.3+	1995 04 06	691	0.6−	1.0−	1998 12 17	704	0.4+	0.5−
1992 09 02	809	0.9+	0.9−	1997 10 30	704	1.5+	1.0+	1998 12 17	704	0.1+	0.4−
1992 09 02	809	0.8+	1.3−	1997 10 30	704	(0.8−	2.2+)	1998 12 17	704	0.8+	0.2+
1992 09 02	809	0.1−	1.6−	1997 10 30	704	0.7−	1.1−	1998 12 17	411	0.4−	1.3−
1992 09 03	809	0.3−	0.6−	1997 10 30	704	0.8−	0.2+	1998 12 17	411	0.1−	0.6−
1992 09 22	809	1.9−	0.5+	1998 12 14	704	0.9+	1.0−	1999 01 19	704	0.7+	0.3+
1992 09 22	809	(2.8−	0.7+)	1998 12 14	704	0.3−	0.1+	1999 01 19	704	0.9−	1.4−
1992 09 22	809	(4.2−	0.4−)	1998 12 14	704	1.2−	0.2−	1999 01 19	704	1.4+	0.5+
1992 09 23	809	1.6+	0.5+	1998 12 14	704	(1.2−	2.2−)	1999 01 19	704	0.5+	0.8+
1992 09 23	809	0.4−	0.1−	1998 12 16	411	0.5−	0.1+	1999 01 19	704	0.0	0.3−
1992 09 23	809	0.8+	0.3+	1998 12 16	411	0.5−	0.2−				
1995 04 06	691	0.3−	0.7−	1998 12 17	704	1.1−	1.3+				

(11299)* 1992 SA₂₂ = 1978 NC₇

Discovered 1992 Sept. 22 by E. W. Elst at the European Southern Observatory.

Id. K. Ichikawa (*MPC* 22816)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 265.66313 (2000.0)				Williams			
<i>P</i>		<i>Q</i>		<i>P</i>		<i>Q</i>	
<i>n</i>	0.21775453	<i>ω</i>	240.42685	+0.00048136	+0.99927508		
<i>a</i>	2.7362635	<i>Ω</i>	29.67377	−0.88882615	+0.01787148		
<i>e</i>	0.0482898	<i>i</i>	4.41002	−0.45824430	−0.03361445		
<i>P</i>	4.53	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1978 07 10	675	0.9+	0.1−	Y	1997 10 29	566	0.6+	0.1+	1997 11 23	691	0.5+	0.0
1978 07 11	675	0.4−	1.6−	Y	1997 10 29	566	0.3+	0.5+	1997 11 23	691	0.6−	0.1−
1978 07 13	675	(11.8+	0.0	)Y	1997 10 30	704	(3.0+	2.7−)	1997 12 05	691	0.3−	0.4+
1992 09 22	809	0.2+	0.4−		1997 10 30	704	(2.6+	2.8−)	1999 01 22	699	1.9+	0.7−
1992 09 22	809	0.4−	0.9−		1997 10 30	704	(2.9+	2.9−)	1999 01 22	699	0.7+	0.1−
1992 09 22	809	0.7−	1.4−		1997 10 30	704	(2.1+	1.9−)	1999 01 22	699	0.1+	0.2+
1992 09 23	809	0.1+	0.0		1997 10 30	704	(3.1+	3.2−)	1999 02 10	704	0.2−	0.3+
1992 09 23	809	0.0	0.0		1997 11 01	691	0.2−	0.3+	1999 02 10	704	0.4+	0.3−
1992 09 23	809	0.1−	0.2+		1997 11 01	691	0.2−	0.1+	1999 02 10	704	0.7−	0.0
1992 09 29	691	0.3−	1.2+		1997 11 01	691	0.1−	0.0	1999 02 10	704	1.3−	0.7+
1992 09 29	691	0.2+	0.7+		1997 11 03	704	1.6+	0.8+	1999 02 10	704	1.1−	0.2+
1992 09 29	691	1.1+	0.8+		1997 11 03	704	1.9+	0.0	1999 02 13	704	0.0	0.7+
1997 10 29	704	0.6−	1.2−		1997 11 03	704	1.1+	0.6+	1999 02 13	704	0.2+	0.9−
1997 10 29	704	0.7−	1.5−		1997 11 03	704	1.0+	0.3−	1999 02 13	704	(1.8+	2.8−)
1997 10 29	704	(0.3+	2.2+)		1997 11 06	704	1.2−	0.7−	1999 02 13	704	0.7−	1.6−
1997 10 29	704	0.8−	0.1−		1997 11 06	704	1.1−	1.1+	1999 02 13	704	0.3+	0.2−
1997 10 29	704	0.0	0.5−		1997 11 06	704	0.8−	0.8−				
1997 10 29	566	0.1+	0.6+		1997 11 06	704	0.6−	0.1+				

(11300)* 1992 WG₂ = 1982 DE₆ = 1999 NL₉

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

Id. G. V. Williams (*MPC* 35290)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25565298	ω	172.41149	+0.06366208	−0.99780534		
<i>a</i>	2.4586808	Ω	273.93721	+0.91465940	+0.06563694		
<i>e</i>	0.1533164	<i>i</i>	1.04596	+0.39918082	+0.00873519		
<i>P</i>	3.86	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 02 27	010	1.6+	0.6+	1996 12 30	327	0.4+	0.1+	1998 05 22	699	1.0+	0.1+
1992 11 18	399	1.9−	0.1+	1998 04 22	704	0.7−	0.2−	1998 05 22	699	(2.4+	0.0)
1992 11 18	399	1.0−	0.5+	1998 04 22	704	0.0	0.4+	1999 07 13	704	0.7−	0.2−
1992 11 21	399	0.9−	0.4+	1998 04 22	704	0.3+	0.6−	1999 07 13	704	0.4+	0.1+
1992 11 21	399	1.4−	0.3+	1998 04 22	704	0.7+	0.4−	1999 07 13	704	0.2−	0.1+
1992 11 25	675	0.8+	0.7−	1998 05 01	704	0.2+	0.2−	1999 07 13	704	0.1+	0.2−
1992 11 25	675	0.4+	0.7−	1998 05 01	704	0.3−	0.0	1999 07 13	704	0.3−	0.2+
1992 11 27	399	0.7−	0.9+	1998 05 01	704	0.1+	0.3−	1999 07 16	704	0.1−	0.1+
1992 11 27	399	0.3−	0.4−	1998 05 01	704	0.2−	0.2−	1999 07 16	704	0.2−	0.2+
1992 11 28	675	0.9+	0.5−	1998 05 01	704	0.5−	0.3+	1999 07 16	704	0.0	0.3−
1992 11 28	675	0.9+	0.4−	1998 05 22	704	1.5+	1.6+	1999 07 20	699	0.5+	0.4+
1996 11 20	327	0.1+	1.0+	1998 05 22	704	1.8−	0.8−	1999 07 20	699	0.2+	1.6+
1996 11 20	327	0.0	0.5+	1998 05 22	704	0.7+	1.1+	1999 07 20	699	1.0+	1.3+
1996 11 20	327	0.4+	0.4+	1998 05 22	704	1.5−	0.9+	1999 08 07	106	(1.0−	3.2+)
1996 12 30	327	0.8+	0.3+	1998 05 22	704	1.8−	1.2+	1999 08 08	106	(0.1−	2.3+)
1996 12 30	327	0.6+	0.4+	1998 05 22	699	0.6+	0.1−	1999 08 08	106	0.8+	0.0

(11301)* 1992 XM = 1986 RD₁₂ = 1991 PE₂₁ = 1999 CN₆₇

Discovered 1992 Dec. 14 by S. Otomo at Kiyosato.

Id. A. Doppler (*MPC* 34187)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18955645	ω	134.84444	+0.88045340	−0.45012448		
<i>a</i>	3.0013065	Ω	252.43828	+0.37890138	+0.85684715		
<i>e</i>	0.1108469	<i>i</i>	8.98898	+0.28501851	+0.25139791		
<i>P</i>	5.20	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1986 09 09	095	1.3+	1.1+	1997 11 29	704	0.6+	1.1+	1999 02 12	704	0.5−	0.3−
1991 08 09	675	0.3−	1.9−	1997 11 29	704	0.4−	2.1+	1999 02 12	704	0.9−	0.9+
1991 08 09	675	0.2−	1.6−	1998 01 24	566	0.1+	0.9−	1999 02 12	704	0.4+	1.1+
1992 11 22	894	1.5+	1.4−	1998 01 24	566	0.3+	0.4−	1999 02 16	704	0.5+	0.2−
1992 11 22	894	0.4+	0.5−	1998 01 24	566	0.0	0.6−	1999 02 16	704	0.3+	0.1−
1992 12 14	894	(0.3+	3.1−)	1998 02 24	566	0.1+	0.5−	1999 02 16	704	0.5+	0.2−
1992 12 15	894	1.4−	0.7−	1998 02 24	566	0.3−	0.5−	1999 02 16	704	0.3−	0.6−
1992 12 15	894	0.5−	0.7+	1998 02 24	566	0.0	0.5−	1999 02 16	704	0.3+	0.4+
1992 12 16	894	1.2−	0.5−	1999 01 17	699	0.4+	0.5−	1999 02 19	566	0.4+	0.5+
1992 12 16	894	0.5−	0.9−	1999 01 17	699	0.2−	1.5−	1999 02 19	566	0.3+	0.5+
1997 11 29	704	0.4−	0.9−	1999 01 17	699	1.0−	0.8−	1999 02 19	566	0.0	0.2+
1997 11 29	704	0.8+	0.9+	1999 02 12	704	0.0	0.3−				
1997 11 29	704	0.1−	2.0+	1999 02 12	704	0.1−	0.3−				

(11302)* 1993 BM₅ = 1998 FG₂₃

Discovered 1993 Jan. 27 by E. W. Elst at Caussols.

Id. B. G. Marsden (*MPC* 31722)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21031621	ω	186.67711	+0.22535307	+0.97375516		
<i>a</i>	2.8004052	Ω	96.35003	−0.89239128	+0.21943639		
<i>e</i>	0.0633320	<i>i</i>	1.83868	−0.39096521	+0.06040330		
<i>P</i>	4.69	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1993 01 27	010	0.7+	1.0+	1998 02 25	809	(2.5−	1.1+)	1998 03 29	704	0.3−	0.6−
1993 01 27	010	0.1−	1.4+	1998 02 25	809	(3.2−	0.6+)	1998 03 29	704	0.0	0.5−
1993 01 27	010	0.2−	1.4+	1998 02 26	809	(0.5−	3.5+)	1998 03 29	704	0.1−	0.4−
1993 01 28	010	0.2+	0.1+	1998 02 26	809	(1.3−	3.3+)	1998 04 18	704	(3.0+	0.1+)
1993 01 28	010	0.0	0.1+	1998 02 26	809	(1.3−	3.1+)	1998 04 18	704	1.8−	0.2−
1993 01 28	010	0.0	0.5+	1998 03 20	704	0.4−	0.4−	1998 04 18	704	1.5+	1.0−
1993 01 29	691	0.1−	0.0	1998 03 20	704	0.6−	0.6−	1998 04 18	704	(2.0−	0.3+)
1993 01 29	691	0.0	0.2+	1998 03 20	704	0.0	0.7−	1999 06 09	704	0.3−	0.5−
1993 01 29	691	0.7−	0.3+	1998 03 20	704	0.2−	0.0	1999 06 09	704	0.1+	0.7−
1993 02 20	010	1.0+	0.3+	1998 03 20	704	0.2+	0.2−	1999 06 09	704	0.2−	0.2−
1993 02 20	010	0.6+	0.2+	1998 03 22	704	0.2+	0.2+	1999 06 09	704	0.4−	0.1−
1993 02 20	010	0.5+	0.6+	1998 03 22	704	0.0	0.0	1999 06 15	704	0.4−	0.1+
1993 02 22	010	(1.3−	2.2+)	1998 03 22	704	0.2−	0.3−	1999 06 15	704	0.2+	0.7+
1993 02 23	010	(1.4−	2.3+)	1998 03 22	704	0.5+	0.9+	1999 06 15	704	0.4−	0.8+
1995 08 26	809	0.3+	0.0	1998 03 22	704	0.4+	0.2+	1999 06 15	704	0.5+	0.0
1995 08 27	809	0.2−	0.6−	1998 03 26	704	0.0	0.5−	1999 06 15	704	0.4+	0.4+
1995 08 29	809	0.1+	0.2−	1998 03 26	704	0.1−	0.3−	1999 07 14	704	0.0	1.0+
1995 08 30	809	0.2+	0.2−	1998 03 26	704	0.5−	0.7−	1999 07 14	704	0.1−	0.4+
1995 09 20	809	(1.6+	2.6+)	1998 03 29	704	0.1+	0.1+	1999 07 14	704	0.1−	0.7+
1998 02 25	809	0.7−	0.3−	1998 03 29	704	0.0	0.1−	1999 07 14	704	0.0	0.8+

(11303)* 1993 CA₁ = 1950 EH = 1980 BK₅

Discovered 1993 Feb. 14 by T. Hioki and S. Hayakawa at Okutama.

Id. T. B. Spahr (*MPC* 30658)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22887521	ω	186.64969	−0.84908868	−0.50748286		
<i>a</i>	2.6468960	Ω	321.68470	+0.49490434	−0.66713630		
<i>e</i>	0.1072699	<i>i</i>	13.68330	+0.18471087	−0.54533503		
<i>P</i>	4.31	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1950 03 15	024	1.0−	1.2−	1993 02 19	511	0.5−	1.2−	1993 02 25	511	1.8+	1.8+
1950 03 22	024	0.0	0.4−	1993 02 19	877	1.3+	0.8−	1998 06 22	701	0.2+	0.7+
1980 01 22	095	0.4+	0.8+	1993 02 19	877	(2.6−	1.4+)	1998 06 22	701	0.0	0.2−
1993 01 21	877	0.1−	0.1−	1993 02 19	511	0.8−	0.5−	1999 07 16	704	0.3+	0.8−
1993 01 21	877	0.8−	0.9−	1993 02 19	511	(3.7−	3.3−)	1999 07 16	704	1.0+	0.1+
1993 01 31	046	(1.0−	2.2−)	1993 02 19	511	1.5+	0.8+	1999 07 16	704	0.8+	0.3−
1993 01 31	046	1.2+	1.1−	1993 02 20	511	1.2+	1.2+	1999 07 21	699	1.0−	0.2+
1993 02 14	877	0.4−	0.6−	1993 02 20	010	0.8−	1.8+	1999 07 21	699	0.4−	0.6+
1993 02 14	877	0.8−	0.9+	1993 02 20	010	0.8−	2.0+	1999 07 21	699	0.5−	0.5+
1993 02 17	877	0.3+	1.0−	1993 02 20	010	(1.0−	2.2+)	1999 08 08	691	0.1−	0.1+
1993 02 17	877	0.6−	0.1−	1993 02 22	010	(0.7−	2.9+)	1999 08 08	691	0.2−	0.0
1993 02 18	511	1.5−	0.7−	1993 02 23	010	(1.8−	2.8+)	1999 08 08	691	0.2−	0.4+
1993 02 18	511	0.4−	0.1+	1993 02 25	511	1.3+	0.0				

(11304)* 1993 DJ = 1996 KR

Discovered 1993 Feb. 19 by T. Seki at Geisei.

Id. T. B. Spahr (*MPC* 27310)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.36790224	ω	74.50939	−0.75778473	+0.60342973		
<i>a</i>	1.9289210	Ω	141.61898	−0.63640088	−0.76750414		
<i>e</i>	0.0467420	<i>i</i>	23.56896	+0.14407022	−0.21635608		
<i>P</i>	2.68	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1993 02 19	372	0.4−	1.2+	1997 10 28	608	0.3+	0.9+	1999 07 12	704	0.8−	0.9+
1993 02 22	372	0.9+	0.2−	1997 10 28	608	0.0	1.0+	1999 07 12	704	0.0	0.1−
1993 02 22	372	(1.2+	2.7+)	1997 10 29	608	0.3+	1.2+	1999 07 12	704	0.4−	0.3−
1993 02 25	372	1.3+	0.9+	1997 10 29	608	0.2+	1.0+	1999 07 12	143	0.5+	1.0+
1993 02 25	372	0.0	0.3+	1997 11 11	608	0.2+	0.1+	1999 07 12	143	0.4−	1.2+
1993 02 25	372	0.4−	1.2+	1997 11 13	608	0.2−	0.4−	1999 07 12	143	0.7−	0.5+
1993 02 28	372	1.6−	1.1−	1997 11 13	608	0.1−	0.4−	1999 07 12	143	0.3−	0.6+

1993 02 28	372	1.3–	0.8+	1997 11 26	608	0.3–	0.4–	1999 07 13	704	0.4–	0.1–
1993 03 02	372	0.4+	0.1+	1997 11 26	608	0.3–	0.3–	1999 07 13	704	0.3–	0.2+
1993 03 02	372	0.6+	0.5+	1999 05 20	704	0.0	0.1–	1999 07 13	704	0.4–	0.4+
1993 03 04	372	0.0	1.6+	1999 05 20	704	(1.2–	2.1+)	1999 07 13	704	0.3–	0.0
1993 03 16	372	1.1–	0.5+	1999 05 20	704	0.4–	1.9+	1999 07 13	704	0.4–	0.1+
1993 03 16	372	1.4+	0.0	1999 05 20	704	0.6–	0.3–	1999 07 16	127	1.7+	0.9–
1993 03 18	372	1.7–	0.7–	1999 07 02	127	0.0	0.1+	1999 07 16	127	1.9+	0.6–
1996 05 18	693	0.1+	1.9–	1999 07 02	127	0.4–	0.2+	1999 07 18	127	0.3+	0.8–
1996 05 18	693	(2.0–	3.6–)	1999 07 07	143	0.1+	0.9+	1999 07 18	127	0.3+	0.7–
1996 05 21	693	0.4–	0.6–	1999 07 07	143	0.5+	0.0	1999 07 20	762	0.1–	0.2+
1996 05 30	657	0.8–	0.2+	1999 07 07	143	0.4–	0.4+	1999 07 20	762	0.4–	0.0
1996 05 30	657	0.5+	0.6+	1999 07 07	143	0.7–	0.3–	1999 07 20	762	1.5+	1.0+
1996 05 30	657	1.2+	0.2–	1999 07 07	143	0.4–	0.0	1999 07 22	704	0.3+	0.2–
1996 06 13	801	0.6+	0.4–	1999 07 11	145	0.3–	0.2–	1999 07 22	704	0.5+	0.3–
1996 06 19	689	0.8+	0.2+	1999 07 11	145	0.3–	0.2+	1999 07 22	704	0.6+	0.4–
1996 07 18	801	0.3–	0.7+	1999 07 11	145	0.3–	0.2+	1999 07 22	704	0.0	0.3–
1996 07 18	801	0.3+	0.6+	1999 07 11	145	0.2–	0.1+	1999 08 11	106	0.1–	0.7+
1997 10 15	608	0.1–	0.5+	1999 07 12	704	0.2–	0.1+	1999 08 11	106	0.1+	0.4+
1997 10 15	608	0.3–	0.6+	1999 07 12	704	0.0	0.2+	1999 08 11	106	0.1+	0.4+

(11305)* 1993 FS₆ = 1998 TE₆

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

Id. G. V. Williams (*MPC* 33484)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	111.11648		(2000.0)	P		Q	
<i>n</i>	0.27991790	ω	301.36467	+0.99743158		−0.04964785	
<i>a</i>	2.3144560	Ω	61.52642	+0.06686838		+0.90376184	
<i>e</i>	0.0858917	<i>i</i>	3.36698	−0.02566822		+0.42514660	
<i>P</i>	3.52	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1991 10 15	095	0.4–	0.2+	1998 10 16	120	0.4–	0.2–	1998 11 11	120	0.1–	0.3+
1991 10 15	095	0.8+	1.2–	1998 10 16	120	0.1+	0.1+	1998 11 14	691	0.5–	0.0
1993 03 17	809	0.4+	0.0	1998 10 16	120	0.5–	0.4–	1998 11 14	691	0.5–	0.3–
1993 03 18	809	0.7–	0.1–	1998 10 17	691	0.6–	0.1+	1998 11 14	691	0.6–	0.3–
1993 03 23	809	0.9+	0.9–	1998 10 17	691	0.7–	0.2–	1998 11 14	699	0.2+	0.4+
1993 04 14	691	0.4+	0.2–	1998 10 17	691	0.5–	0.0	1998 11 14	699	0.1+	0.4+
1993 04 14	691	0.5+	0.2+	1998 10 18	699	1.8–	1.1+	1998 11 14	699	0.7+	0.4+
1993 04 14	691	0.4+	0.2+	1998 10 18	699	0.6–	0.7+	1998 12 08	699	0.1–	0.4+
1993 04 16	413	1.9–	0.4+	1998 10 18	699	0.3+	0.3+	1998 12 08	699	0.3–	0.5+
1996 01 11	411	1.1–	0.2+	1998 10 20	120	0.4–	0.2+	1998 12 08	699	0.1–	0.2+
1996 01 11	411	1.4–	1.1–	1998 10 20	120	0.5–	0.1+	1999 01 06	699	1.4–	0.0
1996 01 12	411	1.5+	1.3+	1998 11 10	704	0.5+	0.2+	1999 01 06	699	0.1–	1.2+
1996 01 12	411	0.2+	0.5+	1998 11 10	704	0.2+	0.0	1999 01 06	699	0.8–	0.3+
1998 08 31	704	1.9–	0.3–	1998 11 10	704	0.5+	0.8–	1999 01 08	704	1.4+	0.0
1998 08 31	704	0.2+	0.6–	1998 11 10	704	0.6+	0.6–	1999 01 08	704	0.2+	0.7+
1998 08 31	704	0.8+	0.8+	1998 11 10	704	1.7+	0.9–	1999 01 08	704	0.9+	1.1–
1998 08 31	704	0.1–	1.0–	1998 11 11	704	0.0	0.1+	1999 01 11	704	1.9+	0.8+
1998 08 31	704	1.0–	1.6+	1998 11 11	704	0.1+	0.1–	1999 01 11	704	0.4+	0.1–
1998 10 10	699	0.0	0.2+	1998 11 11	704	0.5+	0.3–	1999 01 11	704	0.8+	1.2–
1998 10 10	699	0.6+	0.4–	1998 11 11	704	0.2–	0.1–	1999 01 11	704	1.1+	0.1+
1998 10 10	699	1.0+	1.1–	1998 11 11	704	0.1–	0.4+				
1998 10 15	120	0.0	0.6–	1998 11 11	120	0.0	0.2+				

(11306)* 1993 FF₁₈

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

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	4.98515		(2000.0)	P		Q	
<i>n</i>	0.18358486	ω	153.45555	−0.03582368		+0.99504506	
<i>a</i>	3.0660423	Ω	114.37017	−0.93404197		−0.00033671	
<i>e</i>	0.1398337	<i>i</i>	5.84394	−0.35536215		−0.09942442	
<i>P</i>	5.37	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1993 03 17	809	0.6+	0.9+	1998 03 24	704	1.2+	0.4–	1999 06 09	704	0.5+	0.0
1993 03 18	809	0.0	0.7+	1998 03 24	704	0.4+	0.1–	1999 06 09	704	0.1+	1.3–
1993 03 23	809	0.5+	0.5+	1998 03 25	704	0.2–	0.5+	1999 06 09	704	0.4+	0.9–
1993 04 16	413	0.6–	0.7–	1998 03 25	704	0.4–	0.7+	1999 06 15	704	1.1+	0.5+
1995 10 20	691	0.0	0.0	1998 03 25	704	1.8+	0.3+	1999 06 15	704	0.3–	0.3+
1995 10 20	691	0.1–	0.2+	1998 03 25	704	0.6–	0.4–	1999 06 15	704	0.5–	0.0
1995 10 20	691	0.0	0.3+	1998 03 25	704	0.9+	0.0	1999 06 15	704	0.4+	0.2+
1998 03 04	704	0.5–	0.8–	1998 03 26	566	0.3+	0.0	1999 07 08	716	0.5+	0.5+
1998 03 04	704	(3.3–	0.6+)	1998 03 26	566	0.1–	0.2–	1999 07 08	716	0.7–	0.2+
1998 03 04	704	1.5–	1.0–	1998 03 26	566	0.0	0.6+	1999 07 14	704	0.1–	0.8–
1998 03 04	704	1.6–	0.7–	1998 03 29	633	0.2+	1.1+	1999 07 14	704	1.4–	0.1–
1998 03 04	704	1.9–	1.1–	1998 03 29	633	0.3+	0.9+	1999 07 14	704	(0.3+	2.4–)
1998 03 24	704	1.0+	0.0	1998 03 29	633	1.3–	0.4+	1999 07 14	704	1.5–	0.0
1998 03 24	704	0.4+	0.3–	1999 06 09	704	0.9+	0.3+				
1998 03 24	704	1.2+	0.7–	1999 06 09	704	0.5+	0.6+				

(11307)* 1993 FA₄₀ = 1987 SR₁₅ = 1998 QA₇

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

Id. A. Doppler (*MPC* 33684)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	4.19164		(2000.0)	P		Q	
<i>n</i>	0.25507243	ω	29.31896	+0.65938746		−0.75130844	
<i>a</i>	2.4624100	Ω	19.46956	+0.67284781		+0.57356587	
<i>e</i>	0.1040210	<i>i</i>	4.69349	+0.33538635		+0.32643195	
<i>P</i>	3.86	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1987 09 25	095	0.5–	0.2+	1997 02 10	910	0.3–	0.6+	1998 08 17	704	1.0+	0.6–
1992 01 31	691	0.7+	0.2+	1997 02 10	910	0.3–	0.5+	1998 08 17	704	0.2–	0.3–
1992 01 31	691	0.3–	0.2+	1997 04 01	809	(1.8+	2.4+)	1998 08 17	704	0.3+	0.3+
1992 01 31	691	0.2–	0.2+	1997 04 01	809	(2.3+	2.8+)	1998 08 23	704	0.4+	0.9–
1993 03 19	809	0.4+	0.3–	1997 04 01	809	(2.5+	2.1+)	1998 08 23	704	0.6–	1.9+
1993 03 20	809	0.6+	0.4–	1998 07 24	566	0.4–	0.6–	1998 08 23	704	0.8+	0.6–
1993 03 24	809	0.9+	0.4–	1998 07 24	566	0.3–	0.7–	1998 08 23	704	0.5+	1.3+
1993 04 23	474	0.0	0.2–	1998 07 24	566	0.8–	0.6–	1998 08 23	704	1.3–	1.6+
1993 04 23	474	0.2–	0.7+	1998 08 17	704	0.5+	0.1–				
1997 02 10	910	0.2–	0.7+	1998 08 17	704	0.3+	0.1+				

(11308)* 1993 FF₇₆ = 1995 US₄₂

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

Id. K. Ichikawa (*MPC* 27916)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	296.19148		(2000.0)	P		Q	
<i>n</i>	0.20509712	ω	138.72201	+0.97010972		−0.24205276	
<i>a</i>	2.8477138	Ω	235.29375	+0.21677302		+0.89635445	
<i>e</i>	0.0063752	<i>i</i>	1.20242	+0.10907154		+0.37142853	
<i>P</i>	4.81	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1993 03 21	809	0.2+	0.1+	1995 11 14	691	0.2–	0.1+	1999 07 14	704	0.2+	0.1–
1993 03 22	809	0.5+	1.0+	1997 02 03	566	0.5–	0.2–	1999 07 14	704	0.8–	0.5–
1993 03 27	809	0.3–	0.5+	1997 02 03	566	0.2–	0.2–	1999 07 14	704	0.3–	0.1–
1993 04 16	413	(1.2+	5.4+)	1997 02 03	566	0.2+	0.3+	1999 07 16	704	0.2+	0.3+
1995 10 24	691	0.1+	0.1+	1998 04 22	704	0.9+	0.3–	1999 07 16	704	0.1–	0.2+
1995 10 24	691	0.0	0.3+	1998 04 22	704	0.6+	0.4+	1999 07 16	704	0.6–	1.5–
1995 10 24	691	0.1+	0.5+	1998 04 22	704	0.7+	0.5–	1999 08 04	046	0.4–	0.9+
1995 10 28	691	0.6–	0.1+	1998 04 22	704	0.9+	0.8–	1999 08 04	046	0.7+	0.5+
1995 10 28	691	0.1–	0.0	1998 04 22	704	0.1+	1.2–	1999 08 04	046	0.8+	0.3+
1995 10 28	691	0.1–	0.2+	1998 06 02	691	0.9–	1.0+	1999 08 04	046	0.2–	0.1–
1995 11 14	691	0.6+	0.2–	1998 06 02	691	1.0–	0.4+				
1995 11 14	691	0.4+	0.0	1998 06 02	691	1.1–	0.4+				

(11309)* 1993 PC₇ = 1988 RV₁₃ = 1998 QQ₁₉

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

Id. G. V. Williams (*MPC* 32664)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.19343911	ω	240.71553	+0.78149058	−0.62220928		
<i>a</i>	2.9610099	Ω	157.66160	+0.60624220	+0.73979909		
<i>e</i>	0.1130347	<i>i</i>	6.97139	+0.14745463	+0.25603304		
<i>P</i>	5.10	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1988 09 15	095	(1.7+ 4.0−)	1996 04 19	566	0.6−	1.5−	1998 09 14	704	0.1−	0.0
1988 09 15	095	(5.2+ 8.0+)	1997 04 16	704	0.2+	0.6+	1998 09 14	704	0.0	0.5+
1993 08 13	675	1.4+ 0.5+	1997 04 16	704	0.2+	1.5+	1998 09 14	704	0.8−	0.5+
1993 08 13	675	1.4+ 1.0+	1998 07 26	699	0.6+	0.7+	1998 09 14	704	0.9−	0.2+
1993 08 15	010	(0.6+ 3.0−)	1998 07 26	699	1.8+	0.5+	1998 09 14	704	0.4−	0.1+
1993 08 15	010	0.4+ 1.6−	1998 07 26	699	0.4+	0.2+	1998 09 18	704	0.0	0.6−
1993 08 15	010	(0.1− 2.7−)	1998 08 17	704	0.2−	0.2−	1998 09 18	704	1.1−	0.6−
1993 08 17	010	(0.5+ 3.1−)	1998 08 17	704	0.4−	0.7−	1998 09 18	704	0.2+	1.1−
1993 09 18	010	0.0 0.1−	1998 08 17	704	0.3−	1.1−	1998 09 18	704	0.0	0.7−
1993 09 18	010	1.3− 0.8−	1998 08 17	704	0.0	0.1−	1998 09 18	704	1.3−	1.1−
1993 09 18	010	1.4− 0.2−	1998 08 17	704	0.0	0.4−	1998 09 21	699	0.1+	0.1−
1996 02 12	327	0.3+ 1.2−	1998 08 23	699	0.2+	0.8+	1998 09 21	699	0.4+	0.7−
1996 02 12	327	0.0 0.3−	1998 08 23	704	0.4−	0.3−	1998 09 21	699	0.4+	0.6+
1996 02 12	327	0.0 0.8−	1998 08 23	704	0.4+	0.3−	1998 10 20	910	0.1+	0.2−
1996 03 17	566	0.4− 0.2−	1998 08 23	699	0.0	0.7+	1998 10 20	910	0.0	0.1−
1996 03 17	566	0.4− 0.2+	1998 08 23	704	0.6+	0.4+	1998 10 20	910	0.1+	0.2−
1996 03 17	566	0.2+ 0.0	1998 08 23	704	0.1+	0.1+	1998 10 21	910	0.3+	0.1−
1996 04 19	566	(1.7− 2.4−)	1998 08 23	699	0.4+	0.9+	1998 10 21	910	0.5+	0.0
1996 04 19	566	1.7− 1.4−	1998 08 23	704	0.3−	0.6−	1998 10 21	910	0.5+	0.0

(11310)* 1993 SB₁₅ = 1989 YF₆

Discovered 1993 Sept. 19 by H. E. Holt at Palomar.

Id. G. V. Williams (*MPC* 30452)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.22394236	ω	295.92709	+0.43861269	−0.87940969		
<i>a</i>	2.6856240	Ω	126.80724	+0.88485094	+0.38661922		
<i>e</i>	0.1618801	<i>i</i>	13.36598	+0.15702779	+0.27778440		
<i>P</i>	4.40	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1986 02 07	675	0.9+ 0.1−	1993 09 20	675	1.4−	0.1+	1999 01 14	716	0.2−	0.0
1986 02 07	675	0.4+ 0.1+	1993 09 20	675	0.6−	0.3+	1999 01 14	127	0.3−	0.3−
1986 02 07	675	0.9− 1.2+	1993 09 21	675	1.2+	0.1−	1999 01 14	127	0.1−	0.4−
1986 02 07	675	0.8+ 0.1−	1993 09 21	675	0.6−	0.9+	1999 01 18	127	0.3−	0.4+
1986 03 04	675	1.3− 0.9+	1993 10 10	675	1.0+	0.2+	1999 01 18	127	0.3−	0.2+
1989 12 28	511	1.8− 0.8−	1993 10 10	675	0.8−	0.6+	1999 01 20	704	(2.2+ 0.8+)	
1989 12 28	511	0.1+ 0.8−	1998 12 16	747	0.1−	0.3+	1999 01 20	704	0.9−	0.3−
1989 12 28	511	1.1+ 1.1−	1998 12 16	747	0.1+	0.2+	1999 01 20	704	0.0	0.2+
1989 12 29	511	1.2− 0.0	1998 12 17	747	0.0	0.1+	1999 01 20	704	0.4+	0.4−
1989 12 29	511	0.0 1.4+	1998 12 17	747	0.1+	0.1+	1999 01 20	704	0.2+	0.6−
1989 12 30	511	0.3− 0.9+	1998 12 17	747	0.1−	0.3+	1999 04 06	704	0.2−	0.5+
1989 12 30	511	(0.0 3.1−)	1998 12 22	704	(0.6− 2.2+)		1999 04 06	704	1.3−	0.6−
1989 12 30	511	2.2+ 0.8−	1998 12 22	704	0.3+	1.0−	1999 04 06	704	(2.0− 2.4+)	
1989 12 30	511	0.3+ 0.1+	1998 12 22	704	1.1+	0.1+	1999 04 06	704	0.6+	0.8+
1989 12 31	511	(3.9+ 0.6−)	1998 12 22	704	0.8+	0.6−	1999 04 06	704	0.3−	1.0+
1993 09 19	675	0.2− 0.1+	1998 12 22	704	0.6+	0.2+				
1993 09 19	675	0.7+ 0.2−	1999 01 14	716	0.3−	0.0				

(11311)* 1993 XN₂

Discovered 1993 Dec. 10 by C. S. Shoemaker at Palomar.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.31978957	ω	312.92834	+0.91466678	−0.16208819		
<i>a</i>	2.1178402	Ω	59.71629	+0.35845584	+0.74861883		
<i>e</i>	0.5355371	<i>i</i>	25.39150	−0.18679961	+0.64288200		
<i>P</i>	3.08	<i>H</i>	16.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1993 12 10	675	0.2− 0.3+	1996 06 19	709	0.3+	0.4−	1996 12 28	360	0.3−	0.2+
1993 12 10	675	0.5+ 0.5+	1996 06 19	709	0.4−	1.0−	1996 12 28	360	0.3−	0.3+
1993 12 11	675	0.2− 0.5−	1996 06 19	709	0.4+	0.3+	1996 12 28	104	0.2+	0.7+
1993 12 11	675	0.2− 0.6−	1996 06 19	709	0.2−	0.6+	1996 12 28	104	0.9+	0.8+
1994 01 03	675	0.4− 0.4−	1996 06 19	709	0.4+	1.0+	1996 12 28	104	0.9+	0.8+
1994 01 03	675	(2.0+ 3.9−)	1996 06 19	709	0.3−	0.1−	1996 12 28	104	0.0	0.1−
1994 01 03	675	1.5+ 1.3−	1996 06 19	709	0.2−	0.6−	1996 12 29	540	0.1+	0.2+
1994 01 04	675	0.6+ 0.7−	1996 06 19	709	1.2+	1.9+	1996 12 29	540	0.2−	0.7−
1994 01 04	675	1.0+ 1.7−	1996 06 19	709	(2.2+ 0.2−)		1996 12 29	540	0.6−	0.1−
1994 01 06	675	1.2+ 0.8−	1996 06 19	709	0.7+	0.3−	1996 12 29	540	0.2−	0.0
1994 01 06	675	1.0+ 1.2−	1996 06 19	709	0.0	0.7+	1996 12 30	118	0.3−	0.1+
1994 01 07	675	0.2+ 0.7−	1996 06 19	709	0.8−	0.4+	1996 12 30	118	0.3−	0.2+
1994 01 07	675	0.8− 0.7−	1996 06 19	709	0.1−	0.4+	1996 12 30	118	0.1−	0.4+
1994 01 08	675	(0.4− 3.2−)	1996 06 21	413	0.5+	0.0	1997 01 10	566	0.2−	0.1−
1994 01 08	675	0.3− 1.7−	1996 06 21	413	0.6+	0.1+	1997 01 10	566	0.2−	0.1−
1994 01 08	385	0.2+ 0.0	1996 07 18	413	0.7−	0.8−	1997 01 10	566	0.0	0.0
1994 01 08	385	0.5+ 0.6+	1996 07 18	413	0.7−	0.7−	1997 01 14	658	0.6−	0.3−
1994 01 08	385	0.1+ 0.1+	1996 11 01	413	0.8+	0.3−	1997 01 14	658	0.3−	0.1−
1994 01 14	658	0.3− 0.8+	1996 11 01	413	0.7+	0.2−	1997 01 14	658	0.3−	0.3−
1994 01 14	658	0.3− 0.8+	1996 11 02	413	0.4+	0.4−	1997 01 14	118	0.8−	0.7+
1994 01 14	658	0.3− 0.8+	1996 11 02	413	0.4+	0.2−	1997 01 14	118	0.5−	0.6+
1994 02 08	658	0.3− 0.6+	1996 12 04	711	0.4−	0.2−	1997 01 30	704	(2.1+ 0.7−)	
1994 02 08	658	0.6− 0.3−	1996 12 04	711	0.6−	0.2−	1997 01 30	704	1.1+	0.2+
1994 02 08	658	0.1− 0.0	1996 12 06	381	0.5−	0.7−	1997 03 02	046	0.0	0.0
1994 03 05	658	1.1− 0.6+	1996 12 06	381	0.3−	0.7−	1997 03 02	046	0.1+	0.1−
1994 03 05	658	0.9− 0.3+	1996 12 14	658	0.2−	0.6+	1997 03 02	046	0.4−	0.6+
1994 03 05	658	0.7− 0.5+	1996 12 14	658	0.1−	0.6+	1997 04 01	696	0.2−	0.1−
1994 03 05	658	0.9− 0.5+	1996 12 14	658	0.2−	0.1−	1997 04 01	696	0.4−	0.3+
1995 03 22	413	0.2− 0.2+	1996 12 21	046	0.5−	0.1+	1999 06 05	426	0.3−	0.2−
1995 03 22	413	0.5+ 0.0	1996 12 21	046	0.9−	0.2−	1999 06 05	426	0.1+	0.3−
1995 04 01	693	0.2+ 0.3−	1996 12 21	046	0.2−	0.3−	1999 06 05	426	0.0	0.1−
1995 04 01	693	0.6− 0.0	1996 12 21	046	0.6−	0.1−	1999 06 05	426	0.1+	0.2−
1995 04 01	693	0.4+ 0.3−	1996 12 27	046	0.3+	0.1+	1999 06 15	426	0.2−	0.2+
1996 06 09	413	0.6− 0.4−	1996 12 27	046	0.3+	0.6+	1999 06 15	426	0.0	0.4−
1996 06 09	413	0.5− 0.4−	1996 12 27	046	0.2−	0.6−	1999 06 15	426	0.1−	0.1+
1996 06 09	413	0.4− 0.0	1996 12 27	046	0.1−	0.7+	1999 08 03	413	0.1+	0.2−
1996 06 19	709	0.3+ 0.7+	1996 12 28	360	0.3−	0.1+	1999 08 03	413	0.1+	0.3−

(11312)* 1994 AR₂ = 1980 GY₁ = 1997 CQ₁₄

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

Id. K. Ichikawa (*MPC* 23242), T. Kobayashi (*MPC* 31237)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27056231	ω	199.57573	−0.22577418	+0.97407957		
<i>a</i>	2.3675065	Ω	57.37815	−0.89156810	−0.20083012		
<i>e</i>	0.1737301	<i>i</i>	0.95002	−0.39259693	−0.10409732		
<i>P</i>	3.64	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 04 08	675	0.4−	0.5−	1998 03 03	704	0.2−	0.8+	1998 04 18	704	(2.3−	0.5−)
1980 04 09	675	0.1+	0.7−	1998 03 03	704	0.3−	0.7+	1998 04 18	704	(4.2−	0.2−)
1992 10 23	010	1.1−	1.2−	1998 03 03	704	0.0	0.3+	1999 07 16	704	0.1+	0.1+
1992 10 23	010	1.7−	0.7+	1998 03 03	704	0.2−	0.8+	1999 07 16	704	0.4+	0.1−
1994 01 14	411	0.2+	0.9−	1998 03 20	704	0.2+	0.3−	1999 07 16	704	0.1−	0.3−
1994 01 14	411	0.5+	0.8+	1998 03 20	704	0.0	0.5−	1999 07 16	704	0.2−	0.2+
1994 01 14	411	1.2+	0.7+	1998 03 20	704	0.1−	0.9−	1999 07 16	704	1.3+	0.1+
1994 01 15	411	0.8+	1.0−	1998 03 20	704	0.3+	0.5+	1999 08 12	699	0.7−	0.6+
1994 01 15	411	0.8−	0.6+	1998 03 20	704	(3.1−	1.8+)	1999 08 12	699	1.4−	1.1+

1994 01 15	411	0.1+	0.2-	1998 03 22	704	0.3+	0.7+	1999 08 12	699	1.2-	0.5+
1994 01 19	411	0.7+	0.9-	1998 03 22	704	0.1+	0.9+	1999 08 22	703	0.4+	0.5+
1994 01 19	411	0.3-	0.1-	1998 03 22	704	0.8-	0.5+	1999 08 22	703	0.0	0.2+
1994 01 19	411	0.1-	0.1-	1998 03 22	704	0.5+	0.0	1999 08 22	703	0.4-	0.2+
1997 02 04	691	0.5+	0.3-	1998 03 22	704	0.5-	0.1+	1999 08 22	703	0.2+	0.1-
1997 02 04	691	0.7+	0.4-	1998 03 26	704	0.2+	0.4+	1999 08 22	703	0.3+	0.8+
1997 02 04	691	0.5+	0.0	1998 03 26	704	0.3+	0.9+	1999 08 22	703	0.5+	0.2+
1997 02 10	691	0.5-	0.3-	1998 03 26	704	1.0+	1.0+	1999 08 22	703	0.6+	0.6+
1997 02 10	691	0.6-	0.1+	1998 04 18	704	(3.1+ 1.1+)		1999 08 22	703	0.3+	0.3+
1998 03 03	704	0.2-	0.5+	1998 04 18	704	(3.1+ 0.5+)					

(11313)* 1994 GE₁₀ = 1979 GG = 1997 AJ₁₄ = 1998 HA₄₆

Discovered 1994 Apr. 3 by F. Börngen at Tautenburg.

Id. S. Nakano (*MPC* 32234)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	252.75442		(2000.0)	P	Q
<i>n</i>	0.26121703	ω	334.04598	+0.26572076	-0.96384518
<i>a</i>	2.4236416	Ω	100.53901	+0.88798042	+0.23667569
<i>e</i>	0.0425201	<i>i</i>	1.15827	+0.37534418	+0.12242175
<i>P</i>	3.77	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1976 05 27	413	0.5+	0.2-	1998 03 25	704	0.4+	0.4+	1998 04 21	704	0.4-	0.3-
1979 04 01	809	0.1+	0.4-	1998 03 25	704	0.9-	1.4+	1998 04 21	704	0.2+	0.2-
1979 04 02	809	0.8-	0.4-	1998 03 25	704	(2.1- 0.2+)		1998 04 21	704	0.0	0.2+
1994 04 03	033	0.5+	0.9+	1998 03 25	704	(0.5- 2.1+)		1998 04 22	704	0.6+	0.4-
1994 04 03	033	0.2-	0.0	1998 03 29	704	0.4+	0.9+	1998 04 22	704	(1.0+ 2.2-)	
1994 04 03	033	0.7-	0.0	1998 03 29	704	0.4-	1.1+	1998 04 22	704	0.2+	0.8-
1994 04 04	033	0.4-	0.2+	1998 03 29	704	0.1-	0.7+	1998 04 22	704	0.8+	1.3-
1997 01 09	327	0.0	0.0	1998 03 29	704	0.2-	0.4+	1998 04 22	704	0.1-	1.6-
1997 01 09	327	0.2-	0.1-	1998 03 29	704	0.3+	0.9+	1998 05 16	704	0.6-	0.6-
1997 01 09	327	0.3+	0.3+	1998 04 20	704	0.5-	0.6-	1998 05 16	704	0.8+	0.5-
1997 01 11	327	0.0	0.2-	1998 04 20	704	1.7+	0.3-	1998 05 16	704	(2.3- 1.3-)	
1997 01 11	327	0.4+	0.4-	1998 04 20	704	0.0	0.5+	1999 07 18	113	0.0	0.2-
1997 01 11	327	0.2+	0.1-	1998 04 20	704	0.2-	0.6-	1999 07 19	113	0.4+	0.6+
1998 03 25	699	0.6+	0.9+	1998 04 20	704	0.4-	0.8+	1999 08 19	113	0.8-	0.4-
1998 03 25	699	0.9-	0.1-	1998 04 21	704	0.0	0.4-	1999 08 19	113	0.3-	0.3+
1998 03 25	699	0.1+	0.7+	1998 04 21	704	0.1-	1.0-				

(11314)* 1994 NR₁ = 1981 AH = 1997 BQ₃

Discovered 1994 July 8 by E. W. Elst at Caussols.

Id. G. V. Williams (*MPC* 29105, *MPC* 34506), A. Doppler (*ibid.*), A. Milani (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	232.46211		(2000.0)	P	Q
<i>n</i>	0.19045167	ω	302.69014	+0.23435186	-0.96125404
<i>a</i>	2.9918939	Ω	133.03325	+0.94513196	+0.19032615
<i>e</i>	0.1909274	<i>i</i>	11.45402	+0.22760663	+0.19941573
<i>P</i>	5.18	<i>H</i>	12.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1981 01 01	688	1.6-	0.8-	1997 02 12	411	0.6+	0.8+	1998 05 23	704	1.2+	0.1-
1981 01 01	688	1.1+	0.6-	1997 02 16	124	0.8+	0.4-	1998 05 23	704	0.4+	0.0
1994 07 04	010	(0.3+ 2.0-)		1997 02 16	124	0.5-	0.3-	1998 05 28	691	0.8-	0.4-
1994 07 04	010	(0.1- 2.7-)		1997 02 16	124	0.0	0.1-	1998 05 28	691	0.6-	0.2-
1994 07 04	010	(1.5+ 3.4-)		1997 02 16	124	1.1-	0.1-	1998 05 28	691	0.8-	0.4-
1994 07 05	010	(2.7+ 0.6-)		1997 02 16	124	0.9+	0.1+	1999 06 13	120	0.8+	0.1-
1994 07 05	010	(2.0+ 2.3-)		1997 02 16	124	0.1-	0.1+	1999 06 13	120	0.0	0.5-
1994 07 05	010	(4.0+ 0.8-)		1997 02 16	124	0.4+	0.0	1999 06 13	120	0.1-	0.1-
1994 07 08	010	2.0+	0.9+	1997 02 18	910	0.6+	0.3+	1999 06 14	704	0.5-	0.3+
1994 07 08	010	1.8+	0.1+	1997 02 18	910	0.7+	0.2+	1999 06 14	704	0.1+	0.3+
1994 07 08	010	1.5+	0.6+	1997 02 18	910	0.7+	0.2+	1999 06 14	704	0.6+	0.4+
1994 07 14	010	1.0-	1.4+	1998 04 19	688	0.1-	0.3-	1999 06 14	704	0.8+	0.1-
1994 07 14	010	0.6-	0.6+	1998 04 19	688	0.0	0.2-	1999 06 14	704	0.8-	1.6+
1994 07 14	010	0.6-	0.4+	1998 04 19	688	0.1-	0.3-	1999 07 13	704	0.8-	0.3-

1997 01 31	411	0.7-	0.3+	1998 05 22	688	0.3+	0.4-	1999 07 13	704	0.9-	0.2-
1997 01 31	411	0.2+	0.5+	1998 05 22	688	0.1+	0.3-	1999 07 13	704	0.2+	0.2-
1997 02 01	411	0.5+	0.6+	1998 05 22	688	0.2+	0.3-	1999 07 13	704	0.7-	0.3-
1997 02 01	411	0.1+	0.4+	1998 05 22	691	0.2-	0.5-	1999 07 13	704	0.7-	0.5-
1997 02 10	124	0.7+	0.6+	1998 05 22	691	0.2-	0.4-	1999 08 12	704	0.3-	0.9+
1997 02 10	124	0.8-	0.4+	1998 05 22	691	0.2-	0.3-	1999 08 12	704	0.7-	0.2-
1997 02 10	124	0.7-	0.6+	1998 05 23	704	0.5+	0.1-	1999 08 12	704	0.4-	0.0
1997 02 10	124	0.2+	0.5+	1998 05 23	704	0.8-	0.9+	1999 08 12	704	0.4-	0.5-
1997 02 12	411	0.8-	0.2+	1998 05 23	704	0.1+	0.6-				

(11315)* 1994 NS₁ = 1987 RN = 1998 QC₅₅

Discovered 1994 July 8 by E. W. Elst at Caussols.

Id. G. V. Williams (*MPC* 32937)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	96.30744		(2000.0)	P	Q
<i>n</i>	0.27276663	ω	115.48450	+0.99690339	+0.07457593
<i>a</i>	2.3547342	Ω	240.24750	-0.07842646	+0.91977370
<i>e</i>	0.0987569	<i>i</i>	1.64622	-0.00573687	+0.38529830
<i>P</i>	3.61	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1987 09 02	809	0.5-	0.8+	1998 09 14	704	0.1+	0.2-	1998 12 09	704	(2.0+ 1.6-)	
1987 09 02	809	0.4+	1.6+	1998 09 14	704	0.4+	0.5-	1998 12 13	704	0.5-	0.4+
1987 09 02	809	1.5-	0.7+	1998 09 14	704	0.6-	0.5-	1998 12 13	704	0.5-	0.3-
1991 11 12	691	0.2-	0.1-	1998 09 15	699	1.0+	0.5+	1998 12 13	704	1.0-	0.8-
1991 11 12	691	0.0	0.2-	1998 09 15	699	0.6+	0.2-	1998 12 13	704	1.7+	0.5+
1991 11 12	691	0.0	0.4-	1998 09 15	699	0.3+	0.5+	1998 12 13	704	0.3+	1.3-
1992 01 26	691	1.1+	0.1+	1998 09 18	704	0.4+	0.3-	1998 12 13	704	1.2+	1.3+
1992 01 26	691	0.0	0.0	1998 09 18	704	0.7+	0.3+	1998 12 13	704	0.9+	0.5-
1992 01 26	691	0.3+	0.3-	1998 09 18	704	0.2+	0.5+	1998 12 13	704	0.4+	1.0+
1994 07 04	010	(2.1- 0.4-)		1998 09 18	704	0.2-	1.1+	1998 12 14	704	(2.5- 2.4-)	
1994 07 04	010	1.3-	1.3-	1998 09 18	704	0.2-	0.9+	1998 12 14	704	0.3+	0.7+
1994 07 04	010	1.3-	1.6-	1998 09 26	704	0.3-	0.3-	1998 12 14	704	(2.1- 1.2-)	
1994 07 05	010	0.7-	0.4-	1998 09 26	704	0.0	0.8-	1998 12 14	704	0.8-	0.5+
1994 07 05	010	0.4+	0.7-	1998 09 26	704	0.1+	0.1+	1998 12 14	704	1.5+	0.2+
1994 07 05	010	0.8-	1.6-	1998 09 26	704	0.0	0.3-	1998 12 14	704	0.5-	1.2-
1994 07 08	010	1.2+	0.7-	1998 09 26	704	0.3+	0.5-	1998 12 14	704	1.2+	1.4+
1994 07 08	010	1.1+	0.9-	1998 09 27	704	0.0	0.2+	1998 12 14	704	1.5-	1.4-
1994 07 08	010	1.6+	0.3-	1998 09 27	704	0.3+	0.3-	1998 12 14	704	0.8+	1.6-
1994 07 14	010	1.6+	0.5-	1998 09 27	704	0.3+	0.5+	1998 12 14	704	1.0-	1.6+
1994 07 14	010	0.0	1.2+	1998 09 27	704	0.9-	1.3-	1998 12 14	704	1.1+	0.6-
1994 07 14	010	(2.8+ 1.1+)		1998 09 27	704	0.1-	0.4-	1998 12 14	704	1.8-	1.1+
1995 12 15	411	1.1-	0.3-	1998 10 19	699	0.5-	0.2-	1998 12 14	704	0.2+	1.0+
1995 12 15	411	0.4+	0.9-	1998 10 19	699	0.7-	0.3-	1998 12 14	704	1.7-	0.4+
1995 12 16	411	0.5-	1.4-	1998 10 19	699	0.9-	0.9-	1998 12 14	704	0.4+	1.4-
1995 12 16	411	0.2+	1.3-	1998 12 08	699	1.1-	0.2-	1998 12 14	704	1.8+	0.7-
1998 08 27	699	0.2+	0.6+	1998 12 08	699	0.8-	0.2-	1998 12 14	704	0.6-	0.9-
1998 08 27	699	0.2-	0.7+	1998 12 08	699	0.4-	0.6-	1998 12 14	704	(1.7+ 2.3-)	
1998 08 27	699	0.0	0.2-	1998 12 09	704	1.3+	1.1-	1998 12 14	704	0.3-	0.1+
1998 08 28	699	0.1-	0.7+	1998 12 09	704	0.1+	1.0+	1998 12 14	704	(0.6+ 2.5-)	
1998 08 28	699	0.3+	0.5+	1998 12 09	704	(2.2+ 1.4-)					
1998 08 28	699	0.3-	0.4+	1998 12 09	704	1.0-	0.8+				

(11316)* 1994 TR₃ = 1992 CP = 1998 YH₉

Discovered 1994 Oct. 5 by K. Endate and K. Watanabe at Kitami.

Id. G. V. Williams (*MPC* 33488)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5</

Residuals in seconds of arc

1992 02 08	372	1.2+	0.8+	1994 10 27	400	1.7-	0.8-	1998 12 25	104	0.1-	0.6+
1992 02 08	372	(1.9+	4.4+)	1994 10 27	400	0.9+	0.1-	1998 12 26	104	0.5-	0.0
1992 02 25	691	0.1-	0.3+	1998 12 14	704	0.5+	0.6+	1998 12 26	104	0.4-	0.0
1992 02 25	691	0.3-	0.2+	1998 12 14	704	0.8-	0.1-	1999 01 16	704	(3.1+	1.5-)
1992 02 25	691	0.2-	0.0	1998 12 14	704	0.1-	0.1+	1999 01 16	704	(1.8-	3.4-)
1993 06 22	691	0.1-	0.3-	1998 12 14	704	0.3+	0.2+	1999 01 16	704	0.7+	0.2+
1993 06 22	691	0.1+	0.0	1998 12 24	104	0.0	0.4-	1999 01 16	704	(2.5-	1.4+)
1993 06 22	691	0.1-	0.2+	1998 12 24	104	0.1+	0.2+	1999 01 19	704	0.6+	0.5-
1994 10 05	400	0.2+	0.5+	1998 12 24	104	0.1+	0.3+	1999 01 19	704	0.2-	1.1-
1994 10 05	400	1.1+	0.3+	1998 12 25	104	0.3-	0.1-	1999 01 19	704	0.4+	0.1+
1994 10 06	400	0.5-	0.5+	1998 12 25	104	1.1+	0.1+	1999 01 19	704	0.2+	1.0-
1994 10 06	400	(2.3-	0.3+)	1998 12 25	104	0.9-	0.1+	1999 01 19	704	0.4-	0.5-

(11317)* 1994 TX₁₂ = 1977 UY₂

Discovered 1994 Oct. 10 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 24902)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>
<i>n</i>	0.17435333	<i>ω</i>	321.29631	+0.70456126	+0.70964143
<i>a</i>	3.1733347	<i>Ω</i>	353.49725	-0.64758658	+0.64204230
<i>e</i>	0.1690495	<i>i</i>	0.79468	-0.29021554	+0.29015637
<i>P</i>	5.65	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1977 10 18	675	0.5-	0.0	1997 02 07	691	0.4-	0.1-	1999 07 14	704	0.3+	0.2-
1977 10 19	675	0.4+	0.1+	1997 02 13	691	0.1+	0.5-	1999 07 14	704	0.4-	0.2-
1994 10 10	691	0.3-	0.2+	1997 02 13	691	0.5+	0.3+	1999 07 14	704	0.7-	0.3-
1994 10 10	691	0.4-	0.1+	1997 02 13	691	0.4+	0.2+	1999 07 14	704	0.6-	0.4-
1994 10 10	691	0.4-	0.1+	1998 04 21	704	0.2-	0.0	1999 07 14	106	0.1-	0.6+
1994 10 12	691	0.1+	0.4-	1998 04 21	704	0.5+	0.4-	1999 07 14	106	0.0	0.3-
1994 10 12	691	0.2+	0.1-	1998 04 21	704	0.4+	0.0	1999 07 14	106	0.0	0.7+
1994 10 12	691	0.2+	0.0	1998 04 21	704	0.0	0.0	1999 07 16	704	0.1-	0.1+
1994 10 28	033	0.7+	0.1-	1998 04 21	704	0.8-	0.2+	1999 07 16	704	0.1+	0.1+
1994 10 28	033	0.5+	0.2+	1998 04 22	704	0.4-	0.2-	1999 07 16	704	0.4-	0.5-
1994 11 01	033	0.3-	0.1+	1998 04 22	704	0.1+	0.3+	1999 07 18	106	1.1+	0.1+
1994 11 01	033	0.4-	0.3+	1998 04 22	704	1.5+	0.3-	1999 07 18	106	0.3+	0.1+
1997 02 03	691	0.1-	0.0	1998 04 22	704	0.9+	0.1-	1999 07 20	699	0.9-	0.4+
1997 02 03	691	0.0	0.2-	1998 04 30	699	0.8-	0.1-	1999 07 20	699	0.1-	0.5+
1997 02 03	691	0.0	0.1-	1998 04 30	699	0.2+	1.3+	1999 07 20	699	0.1-	0.0
1997 02 07	691	0.3-	0.1-	1998 04 30	699	1.0-	0.1-	1999 08 16	649	0.1+	0.1-
1997 02 07	691	0.6-	0.4-	1999 07 14	704	0.4-	0.2+	1999 08 16	649	2.1+	1.8-

(11318)* 1994 XZ₄

Discovered 1994 Dec. 4 by T. Kobayashi at Oizumi.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>
<i>n</i>	0.23451357	<i>ω</i>	342.38743	+0.66127333	-0.73385514
<i>a</i>	2.6042983	<i>Ω</i>	65.90653	+0.70711794	+0.54062026
<i>e</i>	0.4248356	<i>i</i>	9.80635	+0.25040328	+0.41132271
<i>P</i>	4.20	<i>H</i>	16.8	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1977 08 17	413	0.6-	1.7-	1994 12 22	360	0.1+	1.2+	1995 01 07	104	0.1-	1.0+
1977 08 17	413	1.4+	0.0	1994 12 23	897	0.1-	0.6+	1995 01 08	587	0.4-	1.9+
1994 12 03	098	1.5+	1.4-	1994 12 23	897	0.1-	0.2+	1995 01 08	587	1.7+	0.4-
1994 12 04	411	0.2+	0.4+	1994 12 23	587	0.0	0.5+	1995 01 09	104	1.4+	0.3+
1994 12 04	411	0.2-	0.1+	1994 12 23	587	0.0	0.2-	1995 01 09	104	0.5+	0.3-
1994 12 10	411	0.3+	1.0+	1994 12 24	411	0.3+	0.2-	1995 01 09	104	0.7+	0.5-
1994 12 10	411	0.2-	0.5+	1994 12 24	411	0.0	0.4-	1995 01 23	411	1.1+	0.6-
1994 12 14	411	0.7-	0.4+	1994 12 27	817	0.1-	0.4+	1995 01 23	411	0.4+	0.6+
1994 12 14	411	0.6-	0.2-	1994 12 27	817	0.3-	0.2+	1995 01 23	411	1.5+	0.2+
1994 12 14	411	0.1-	0.9+	1994 12 27	817	0.0	0.6+	1995 01 24	411	0.7-	0.6-
1994 12 14	411	0.5+	0.6+	1994 12 27	817	0.3-	0.6+	1995 01 24	411	0.8-	1.5-
1994 12 17	046	0.9+	1.0-	1994 12 27	817	0.6-	0.6+	1995 01 25	608	0.7+	0.4+

1994 12 17	046	0.7-	0.5-	1994 12 27	817	0.3-	0.5+	1995 01 25	411	0.8-	0.5-
1994 12 17	046	0.0	0.1-	1994 12 27	817	0.5-	0.6+	1995 01 25	411	0.7-	0.0
1994 12 17	046	1.0+	1.2-	1994 12 27	817	0.0	0.6+	1995 01 25	411	0.5-	1.3-
1994 12 18	411	0.8-	0.7-	1994 12 27	360	0.1-	0.8+	1995 02 01	897	0.8-	1.7-
1994 12 18	411	0.5-	0.5-	1994 12 27	360	0.2-	0.7+	1995 02 01	897	1.8+	0.5-
1994 12 18	411	1.4-	1.5-	1994 12 27	360	0.8-	0.8+	1995 02 01	104	0.9-	0.7-
1994 12 18	897	0.1+	1.0+	1995 01 02	411	0.5+	0.7+	1995 02 02	104	0.7+	0.6+
1994 12 18	897	1.4-	1.6-	1995 01 02	411	0.4-	0.6+	1995 02 02	104	0.1+	0.4-
1994 12 18	540	0.5-	0.4-	1995 01 02	411	0.3-	0.8-	1995 04 03	711	(7.1-	0.2+)
1994 12 18	540	0.5-	1.0-	1995 01 02	887	0.7-	0.7+	1995 04 03	711	(2.8-	0.8-)
1994 12 18	540	0.5-	0.4-	1995 01 02	887	0.4-	0.0	1998 08 14	426	0.6-	0.1+
1994 12 18	046	0.4-	1.0-	1995 01 02	887	0.6-	0.2+	1998 08 14	426	0.6+	0.3+
1994 12 18	046	0.6-	0.8-	1995 01 05	411	0.1+	0.2+	1998 08 14	426	0.4-	0.2-
1994 12 18	046	0.3-	1.1-	1995 01 05	411	0.4+	0.0	1998 08 15	426	0.4-	0.3-
1994 12 18	046	0.1-	1.0-	1995 01 05	411	0.4+	0.4-	1998 08 15	426	0.6-	0.3-
1994 12 20	817	0.4+	0.9+	1995 01 05	897	0.1+	0.1-	1998 08 15	426	0.7-	0.7-
1994 12 20	817	0.4+	0.7+	1995 01 05	897	1.3+	0.6+	1998 08 15	360	0.4-	0.4-
1994 12 20	817	0.3+	0.8+	1995 01 05	540	0.7+	0.3+	1998 08 15	360	0.4-	0.1-
1994 12 20	413	0.4+	0.0	1995 01 05	540	0.2-	0.8-	1998 08 15	360	0.6-	0.2-
1994 12 20	413	0.3+	0.1-	1995 01 05	540	0.8+	0.1-	1998 08 25	360	1.4+	0.3+
1994 12 21	411	0.3-	0.6-	1995 01 07	887	0.8-	1.1-	1998 08 25	360	1.4+	0.6+
1994 12 21	411	0.1-	0.3-	1995 01 07	887	0.0	0.2-	1998 08 25	360	1.2+	0.5+
1994 12 21	587	0.5-	0.3+	1995 01 07	887	0.5+	0.2+	1999 01 05	402	1.6-	0.3+
1994 12 21	587	0.1+	0.8+	1995 01 07	104	2.0+	1.2-	1999 01 05	402	0.1+	0.6+
1994 12 22	360	0.0	1.3+	1995 01 07	104	0.9+	0.0	1999 01 05	402	0.1+	0.9+

(11319)* 1995 AZ = 1988 JR

Discovered 1995 Jan. 6 by T. Kobayashi at Oizumi.

Id. T. Kobayashi (*MPC* 32238)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		<i>P</i>	<i>Q</i>
<i>n</i>	0.25851400	<i>ω</i>	327.84020	-0.63736243	+0.77046357
<i>a</i>	2.4405067	<i>Ω</i>	262.56128	-0.70429371	-0.58902704
<i>e</i>	0.1233465	<i>i</i>	0.71943	-0.31263317	-0.24378890
<i>P</i>	3.81	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1988 05 12	033	0.0	1.6-	1997 10 30	704	0.4+	0.7-	1999 01 24	120	0.3+	0.2-
1988 05 12	033	0.6-	1.6-	1997 10 30	704	0.7-	0.0	1999 01 25	120	0.5+	0.0
1988 05 13	033	0.8+	1.3-	1997 11 06	704	0.3+	1.1+	1999 01 25	120	0.3+	0.1-
1995 01 06	411	0.8-	0.6-	1997 11 06	704	0.6-	1.1-	1999 02 12	699	0.2+	0.5+
1995 01 06	411	0.7-	0.7+	1997 11 06	704	0.9+	0.9-	1999 02 12	699	0.2+	0.0
1995 01 07	411	0.2-	0.3+	1997 11 06	704	0.1+	1.1-	1999 02 12	699	0.1-	0.2-
1995 01 07	411	0.9-	0.2+	1997 11 06	704	1.1+	0.3-	1999 03 19	704	1.8+	1.0-
1995 01 10	411	0.2-	0.8+	1999 01 20	120	0.5-	0.2+	1999 03 19	704	0.3+	0.6-
1995 01 10	411	0.4-	0.4+	1999 01 21	120	0.8+	0.3-	1999 03 19	704	0.1+	0.1-
1995 01 25	411	0.5-	0.6-	1999 01 22	120	0.7+	0.4-	1999 03 19	704	0.7-	0.1+
1995 01 25	411	1.1-	0.1+	1999 01 22	120	1.0+	0.6-	1999 03 20	704	0.7+	1.3+
1996 07 15	566	0.7-	0.2-	1999 01 22	120	0.6+	0.8-	1999 03 20	704	0.4-	0.1-
1996 07 15	566	0.4-	0.2-	1999 01 23	120	0.5-	0.4-	1999 03 20	704	1.0-	0.3+
1996 07 15	566	0.8-	0.2-	1999 01 23	120	0.7-	0.4-	1999 03 20	704	0.2+	0.7+
1997 10 30	704	1.5+	0.1+	1999 01 23	120	0.1-	0.3-	1999 03 20	704	0.4-	0.9+
1997 10 30	704	1.0+	1.3-	1999 01 24	120	0.7+	0.0				

Residuals in seconds of arc

1993 10 15	565	0.1+	1.0-	1998 09 14	699	1.2-	0.6+	1998 10 26	758	0.4-	0.4+
1993 10 15	565	0.8+	1.0-	1998 09 20	809	0.4+	0.9+	1998 10 26	758	0.8-	0.3+
1995 01 25	411	0.1-	1.1+	1998 09 20	809	1.4-	0.9+	1998 10 26	758	0.1-	0.3+
1995 01 25	411	0.2+	0.1-	1998 09 20	809	0.6-	1.0+	1998 10 26	758	0.9-	0.4+
1995 01 26	411	0.4-	0.0	1998 09 21	809	0.5+	0.8+	1998 10 27	758	0.3-	0.5+
1995 01 26	411	0.1-	0.2+	1998 09 21	809	0.5-	0.6+	1998 10 27	758	0.3-	0.5+
1995 01 26	411	0.7-	1.6-	1998 09 21	809	0.4-	1.4+	1998 10 27	758	0.4-	0.3+
1995 01 29	411	1.7+	0.3-	1998 10 10	699	0.0	0.3+	1998 10 28	704	0.1+	0.1-
1995 01 29	411	0.4+	0.3-	1998 10 10	699	0.5+	0.0	1998 10 28	704	0.3+	0.4-
1995 02 07	411	1.5+	1.6+	1998 10 10	699	0.0	0.6+	1998 10 28	704	0.4+	0.1+
1995 02 07	411	0.3-	0.0	1998 10 14	704	0.6+	0.6-	1998 10 28	704	0.8+	0.1+
1995 02 10	411	0.6-	1.3+	1998 10 14	704	1.2-	1.7+	1998 10 29	704	0.1-	0.5-
1995 02 10	411	0.5-	0.1+	1998 10 14	704	0.8+	0.3+	1998 10 29	704	0.1+	0.4-
1995 02 17	411	0.5-	0.6-	1998 10 14	704	0.5+	0.1+	1998 10 29	704	0.4+	0.2-
1995 02 17	411	0.2-	0.1-	1998 10 14	327	0.2+	0.2-	1998 10 29	704	0.5+	0.3-
1996 03 22	809	(0.2+ 2.5+)		1998 10 14	327	0.0	0.4-	1998 10 29	704	0.2+	0.0
1996 03 22	809	(0.7+ 3.4+)		1998 10 14	327	0.2+	0.2-	1998 11 10	704	0.2+	0.6-
1996 03 22	809	(0.4+ 2.5+)		1998 10 15	704	0.0	0.3+	1998 11 10	704	0.2+	0.6-
1996 03 24	809	0.5+	1.4+	1998 10 15	704	0.1-	0.6+	1998 11 10	704	0.0	1.2-
1996 03 24	809	0.9+	1.5+	1998 10 15	704	0.8-	0.6+	1998 11 10	704	0.5+	1.5-
1996 03 24	809	0.4-	0.7+	1998 10 15	704	0.4-	0.3+	1998 11 11	704	0.8+	0.2-
1996 03 26	809	(1.7+ 4.5+)		1998 10 15	704	2.0-	0.1+	1998 11 11	704	1.8+	0.7+
1996 03 26	809	(1.3+ 4.6+)		1998 10 17	327	0.4+	0.5-	1998 11 11	704	1.0+	0.7-
1996 03 26	809	(0.3+ 4.7+)		1998 10 17	327	0.1+	0.4-	1998 11 11	704	0.6+	0.9-
1996 03 26	809	0.5+	1.1+	1998 10 17	327	0.1-	0.6-	1998 11 11	704	0.2+	1.7-
1996 03 26	809	0.2-	1.1+	1998 10 18	327	0.1+	0.4-	1998 11 14	699	0.1+	1.4+
1996 03 26	809	0.3+	0.5-	1998 10 18	327	0.0	0.5-	1998 11 14	699	0.6+	0.5+
1996 04 23	566	0.3+	0.3-	1998 10 18	327	0.1-	0.5-	1998 11 14	699	0.5+	0.9+
1996 04 23	566	0.0	1.2-	1998 10 25	758	0.6-	0.0	1998 11 23	699	0.1-	1.0-
1996 04 23	566	0.9-	0.9-	1998 10 25	758	0.5-	0.7+	1998 11 23	699	0.2-	0.3-
1998 09 14	699	0.5-	0.8+	1998 10 25	758	0.5-	0.2+	1998 11 23	699	0.5-	0.1+
1998 09 14	699	0.1-	0.4+	1998 10 26	758	0.4-	0.5+				

(11321)* 1995 DE₁ = 1976 SD₂ = 1991 NY₁ = 1992 UU₁₀

Discovered 1995 Feb. 21 by T. Seki at Geisei.

Id. S. Nakano (*MPC* 34195)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	191.91279		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.18832171	ω	304.18400	+0.41768695	+0.90816721
a	3.0144109	Ω	350.38364	-0.76937071	+0.33727582
e	0.0910093	i	9.56134	-0.48332837	+0.24794626
P	5.23	H	12.5	G 0.15	U 1

Residuals in seconds of arc

1976 09 24	095	0.8-	2.0+	1994 12 09	691	1.0-	0.5-	1998 11 16	704	1.0+	0.0
1991 07 14	675	0.7+	0.0	1995 02 21	372	1.4-	1.0+	1998 11 16	704	0.4+	0.4+
1991 07 14	675	1.3+	0.8-	1995 02 21	372	1.8+	1.8+	1998 12 14	704	1.8+	0.3-
1991 07 17	675	0.3-	2.0-	1995 02 22	372	1.6-	0.1+	1998 12 14	704	0.3+	1.4-
1991 07 17	675	0.0	0.8-	1995 02 22	372	0.8-	0.8-	1998 12 14	704	(3.4+ 1.6+)	
1992 10 19	399	0.2+	0.3-	1995 02 22	372	0.6+	1.1-	1998 12 14	704	0.3+	0.8-
1992 10 19	399	(1.9- 2.7-)		1995 02 24	033	0.3+	0.8-	1999 01 16	704	0.3-	0.5+
1992 10 22	399	0.6+	0.5-	1995 03 05	033	0.1+	0.6-	1999 01 16	704	0.2-	1.5+
1992 10 22	399	0.7-	0.4-	1995 03 05	033	0.8+	0.2-	1999 01 16	704	(3.1- 2.9-)	
1992 11 02	399	0.3+	0.5-	1995 03 07	033	0.1-	0.1+	1999 01 16	704	0.3-	0.3-
1992 11 02	399	0.8-	2.1-	1998 11 16	704	0.3-	0.2+	1999 01 16	704	0.8-	0.3-
1994 12 09	691	0.8-	0.6-	1998 11 16	704	0.6-	1.2-				
1994 12 09	691	0.9-	0.0	1998 11 16	704	0.6+	0.4-				

(11322)* 1995 QT = 1968 OK₁ = 1998 FR₃₉ = 1999 LF₁₀

Discovered 1995 Aug. 23 by H. Abe at Yatsuka.

Id. A. Doppler (*MPC* 35295), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	293.51779		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.21919243	ω	190.73427	+0.99193130	+0.11531515
a	2.7242838	Ω	162.38210	-0.09955479	+0.96577387
e	0.1873071	i	10.02266	-0.07849295	+0.23234295
P	4.50	H	14.2	G 0.15	U 1

Residuals in seconds of arc

1968 07 28	805	0.5-	0.0	1995 08 29	367	0.0	0.7+	1999 05 17	704	1.4-	1.9-
1968 07 30	805	0.5+	0.4+	1995 08 29	367	1.5+	0.4+	1999 05 17	704	0.9-	0.3-
1993 02 26	691	0.3-	0.3+	1998 03 20	704	0.3-	0.3+	1999 05 17	704	0.9+	0.8-
1993 02 26	691	0.5-	0.2+	1998 03 20	704	0.3+	0.4-	1999 05 17	704	0.0	1.6-
1993 02 26	691	0.3-	0.1+	1998 03 20	704	1.4+	0.4-	1999 06 08	704	0.4+	0.4+
1995 07 22	691	0.2-	0.6+	1998 03 20	704	(2.9- 1.7+)		1999 06 08	704	1.2-	1.0+
1995 07 22	691	0.5-	0.2-	1998 03 22	704	(0.4+ 2.3-)		1999 06 08	704	0.4-	1.1+
1995 07 22	691	0.3-	0.2-	1998 03 22	704	1.0+	0.9+	1999 06 08	704	0.0	0.7+
1995 08 23	367	0.1-	1.2-	1998 03 22	704	0.8-	1.7+	1999 06 08	704	0.2-	0.0
1995 08 23	367	0.2+	0.3-	1998 03 22	704	(4.5- 1.3-)		1999 06 14	704	0.9+	0.3+
1995 08 23	367	0.5+	0.4-	1998 03 29	704	1.2+	0.2+	1999 06 14	704	0.5+	0.0
1995 08 24	367	0.2-	0.4+	1998 03 29	704	(0.6+ 2.5-)		1999 06 14	704	0.6+	0.9+
1995 08 24	367	0.2-	0.7+	1998 03 29	704	0.8-	1.6-	1999 06 14	704	0.6+	0.2-
1995 08 24	367	0.9-	0.5+	1998 03 29	704	(7.6- 0.1-)					
1995 08 29	367	0.4+	0.3-	1999 05 17	704	0.8-	0.3-				

(11323)* 1995 QC₂ = 1977 DC₉ = 1991 SL₅

Discovered 1995 Aug. 21 by K. Endate and K. Watanabe at Kitami.

Id. T. B. Spahr (*MPC* 30455)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	0.83237		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.23568676	ω	328.58151	+0.61572851	+0.78198628
a	2.5956488	Ω	338.92169	-0.65554994	+0.44019757
e	0.1706483	i	15.61881	-0.43718724	+0.44127491
P	4.18	H	13.9	G 0.15	U 2

Residuals in seconds of arc

1977 02 19	381	1.7+	0.3-	1998 03 04	704	(2.7- 0.2-)		1998 04 28	566	0.6+	0.0
1977 02 19	381	1.8-	0.1+	1998 03 04	704	(3.4- 0.8-)		1998 04 28	566	0.1+	0.2-
1991 09 17	675	1.2-	0.7+	1998 03 04	704	(3.3- 0.0)		1998 04 28	566	0.3+	0.1-
1991 09 17	675	0.8-	0.8-	1998 03 20	704	0.4-	0.1-	1999 07 16	423	0.1-	0.6-
1995 08 21	400	1.7+	0.7-	1998 03 20	704	(0.5- 4.7-)		1999 07 16	423	1.5+	0.6-
1995 08 21	400	1.6+	1.1+	1998 03 20	704	0.5-	1.8-	1999 07 17	423	1.7+	1.0-
1995 08 23	400	1.2+	0.7-	1998 03 20	704	0.0	0.3-	1999 07 17	423	0.8+	0.3-
1995 08 23	400	0.2+	1.3-	1998 03 20	704	1.3-	0.6-	1999 07 22	423	0.3-	1.1+
1995 09 01	397	0.3-	1.1-	1998 03 22	704	0.1+	0.5+	1999 07 22	423	0.1+	0.1-
1995 09 01	397	0.4+	1.2-	1998 03 22	704	0.2+	0.1-	1999 08 13	423	0.6-	0.1-
1995 09 20	400	1.7+	0.2-	1998 03 22	704	0.1+	0.5+	1999 08 13	423	0.7-	0.9+
1995 09 20	400	1.0+	0.8-	1998 03 22	704	0.8-	1.1-	1999 08 16	423	1.6-	0.4-
1998 03 03	704	0.5+	0.7-	1998 03 22	704	0.2-	0.2+	1999 08 16	423	1.5-	0.7+
1998 03 03	704	0.1+	0.3-	1998 03 29	704	0.1-	0.1+	1999 08 18	423	0.8-	1.6+
1998 03 03	704	0.1-	0.9-	1998 03 29	704	1.6-	0.7+	1999 08 18	423	0.7-	1.4+
1998 03 03	704	(2.2+ 0.8+)		1998 03 29	704	1.3+	0.3+	1999 08 20	423	0.9-	0.7+
1998 03 04	704	(2.4- 0.1-)		1998 03 29	704	(0.2- 2.3+)		1999 08 20	423	(2.1- 2.2+)	
1998 03 04	704	(2.7- 0.2-)		1998 03 29	704	0.4-	0.3+				

(11324)* 1995 QQ₃ = 1987 RM = 1989 CQ₅ = 1991 RM₂₃

Discovered 1995 Aug. 30 by K. Endate and K. Watanabe at Kitami.

Id. S. Nakano (*MPC* 25733)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	325.77356		(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.24138758	ω	231.96122	+0.99103594	-0.11367169
<i>a</i>	2.5546188	Ω	134.44291	+0.13068500	+0.93393611
<i>e</i>	0.1522480	<i>i</i>	5.64193	-0.02773436	+0.33888359
<i>P</i>	4.08	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1987 09 01	809	1.9+	1.5-	1995 09 21	400	0.0	0.5-	1998 04 24	704	0.2+	0.0
1987 09 01	809	1.9+	0.7-	1995 09 21	400	1.4-	0.3-	1998 04 24	704	0.2+	0.2-
1987 09 01	809	2.0+	0.2-	1996 11 12	691	0.1-	0.6+	1998 04 24	704	0.2+	0.7+
1987 09 01	809	(2.6+	1.1+)	1996 11 12	691	0.2+	0.4+	1998 04 24	704	1.7-	0.2+
1987 09 02	809	(2.5-	0.8-)	1996 11 12	691	0.2+	0.5+	1998 04 24	704	0.6-	0.3-
1987 09 02	809	(2.5-	1.1-)	1996 12 17	691	0.1-	0.6+	1999 07 13	106	0.5-	0.2+
1987 09 02	809	1.9-	0.1+	1996 12 17	691	0.1-	0.5+	1999 07 13	106	0.2-	0.3+
1989 02 02	033	0.2-	0.7-	1996 12 17	691	0.1+	0.5+	1999 07 13	704	0.4+	1.4+
1989 02 04	033	0.5+	0.4-	1997 02 14	691	0.1-	0.2-	1999 07 13	704	0.7+	1.0+
1991 09 15	675	0.5-	0.8-	1997 02 14	691	0.0	0.3-	1999 07 13	704	0.5+	0.4-
1991 09 15	675	0.5-	0.0	1997 02 14	691	0.0	0.3-	1999 07 13	704	0.0	0.1-
1991 09 17	691	0.2+	0.1+	1998 04 21	704	0.0	0.1-	1999 07 13	704	0.6-	1.7-
1991 09 17	691	0.0	0.0	1998 04 21	704	0.6-	0.2+	1999 07 16	704	0.7+	0.1+
1991 09 17	691	0.4-	0.1-	1998 04 21	704	0.2-	0.4-	1999 07 16	704	0.2+	0.7-
1991 09 17	675	0.1-	0.9-	1998 04 21	704	0.7-	0.5-	1999 07 16	704	0.1+	0.8-
1991 09 17	675	0.4-	0.4-	1998 04 21	704	0.4-	0.1+	1999 07 19	470	2.1+	1.7+
1991 10 06	675	0.2+	0.2+	1998 04 23	704	0.0	0.6-	1999 07 19	470	2.0+	1.4+
1995 08 30	400	0.9-	0.4+	1998 04 23	704	0.3+	0.8-	1999 08 09	106	1.8-	0.3+
1995 08 30	400	1.6-	0.2+	1998 04 23	704	1.3+	0.3+	1999 08 09	106	0.1-	0.4+
1995 09 03	400	0.8-	0.3+	1998 04 23	704	0.1-	0.5+	1999 08 10	106	0.7+	0.3+
1995 09 03	400	0.1-	0.3+	1998 04 23	704	0.9+	0.5-				

(11325)* 1995 SG

Discovered 1995 Sept. 17 by L. Šarounová at Ondřejov.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	313.77682		(2000.0)	P	Q
n	0.24327683	ω	166.29499	+0.73523261	-0.67753342
a	2.5413757	Ω	236.37354	+0.61965151	+0.68354143
e	0.1355525	i	1.34407	+0.27470896	+0.27151348
P	4.05	H	15.6	G 0.15	U 1

Residuals in seconds of arc

1991 10 08	691	0.3-	0.5-	1995 10 21	557	0.0	0.3-	1997 03 11	704	1.4+	0.5+
1991 10 08	691	0.0	0.2+	1995 10 21	557	0.3+	0.1-	1997 03 11	704	1.1+	0.9+
1995 08 31	411	0.9-	0.2+	1995 10 24	557	0.3-	0.3-	1997 03 11	557	0.3-	0.2+
1995 08 31	411	0.1-	0.3-	1995 10 24	557	0.1-	0.5+	1997 03 11	557	0.1-	0.4+
1995 09 06	557	0.9+	0.1-	1995 10 24	557	0.1+	0.1+	1997 03 12	704	1.1+	0.4+
1995 09 07	557	0.6+	0.5+	1997 02 01	557	0.7-	0.7-	1997 03 12	704	0.0	0.7+
1995 09 07	557	0.2+	0.3+	1997 02 01	557	0.2-	0.0	1998 05 27	557	0.3-	0.2-
1995 09 07	557	0.1+	0.0	1997 02 02	557	1.3-	0.9-	1998 05 27	557	0.3-	0.8-
1995 09 17	557	0.0	0.1+	1997 02 02	557	0.7-	0.2+	1998 05 28	557	0.6+	0.1-
1995 09 17	557	0.2+	0.1-	1997 02 02	557	0.4-	0.2+	1998 05 28	557	0.1+	0.0
1995 09 17	557	0.4-	0.1+	1997 02 08	557	0.5-	0.5-	1998 05 28	557	0.1-	0.8+
1995 09 17	557	0.0	0.0	1997 02 08	557	0.1-	0.7-	1999 07 20	557	0.8-	0.1+
1995 09 17	557	0.2-	0.1+	1997 02 08	557	0.1-	1.0-	1999 07 20	557	0.0	0.7+
1995 09 17	557	0.3-	0.0	1997 03 09	557	0.4-	0.1+	1999 08 07	557	0.4-	0.6+
1995 09 22	557	0.3+	0.0	1997 03 09	557	0.2-	0.4+	1999 08 08	557	0.2-	0.7+
1995 09 22	557	0.1+	0.3+	1997 03 09	557	0.1+	0.3+	1999 08 14	557	0.3+	0.1+
1995 09 28	557	0.1+	0.2-	1997 03 10	704	0.9+	1.6+	1999 08 14	557	0.5-	0.1+
1995 09 28	557	0.1-	0.0	1997 03 10	704	1.4+	0.7+				

(11326)* 1995 SL

Discovered 1995 Sept. 17 by L. Šarounová at Ondřejov.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	332.69091		(2000.0)	P	Q
n	0.25617824	ω	87.21667	+0.75254733	-0.65458334
a	2.4553188	Ω	313.65816	+0.55768681	+0.69166892
e	0.1271963	i	5.71660	+0.35022554	+0.30514710
P	3.85	H	14.4	G 0.15	U 2

Residuals in seconds of arc

1993 01 28	010	0.4-	0.5-	1995 10 26	557	0.3+	0.1+	1997 05 29	696	0.2-	0.7+
1993 01 28	010	0.6-	0.4+	1995 11 18	557	0.8+	0.4+	1997 05 29	696	0.2-	0.9+
1993 01 28	010	0.9-	0.4-	1995 11 18	557	0.1+	1.2+	1997 05 30	696	0.2-	0.0

1995 09 17	557	1.3-	1.1-	1995 11 18	557	0.7+	0.3+	1997 05 30	696	0.2-	0.1-
1995 09 17	557	0.7-	1.1-	1996 01 22	557	0.5+	0.1+	1997 05 30	696	0.2-	0.1-
1995 09 17	557	0.3-	0.3+	1996 01 22	557	0.9+	0.8+	1999 07 18	557	0.3-	0.0
1995 09 17	557	0.4-	0.6+	1996 01 22	557	0.2+	0.4+	1999 07 18	557	0.1-	0.1+
1995 09 17	557	0.1+	0.0	1996 11 21	557	0.9+	0.1+	1999 07 18	557	0.3-	0.3+
1995 09 17	557	0.2+	0.1+	1996 11 21	557	0.4-	0.6+	1999 07 19	557	0.4-	0.1-
1995 09 18	557	0.1+	0.2-	1996 11 21	557	1.2-	0.8+	1999 07 19	557	0.6-	0.0
1995 09 18	557	0.2+	0.0	1997 01 14	557	0.5+	0.1-	1999 07 19	557	0.6-	0.2-
1995 09 18	557	0.2+	0.0	1997 01 14	557	0.5+	0.2-	1999 08 05	557	0.0	0.5+
1995 09 25	557	0.2+	0.1-	1997 01 14	557	0.5+	0.0	1999 08 05	557	0.1-	0.2-
1995 09 25	557	0.3+	0.2-	1997 02 01	557	0.5+	0.3-	1999 08 05	557	0.0	0.5-
1995 09 25	557	0.1+	0.1-	1997 02 01	557	0.8+	0.5-	1999 08 06	557	0.3+	0.1-
1995 10 21	557	0.1+	0.0	1997 02 01	557	0.8+	0.7-	1999 08 06	557	0.2-	0.3+
1995 10 21	557	0.2+	0.1-	1997 05 29	696	0.2-	0.7+				

(11327)* 1995 SL₂

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

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

M	283.64951		(2000.0)	P	Q
n	0.22927913	ω	240.17954	+0.73415475	-0.67527896
a	2.6437864	Ω	161.97973	+0.67470967	+0.71387391
e	0.1818043	i	13.23357	+0.07605034	+0.18542482
P	4.30	H	13.5	G 0.15	U 1

Residuals in seconds of arc

1993 02 25	399	0.3-	1.3+	1997 03 31	704	1.4+	0.2+	1999 07 13	704	0.5+	0.2+
1993 02 25	399	0.6-	1.9-	1998 04 25	566	0.2-	0.5-	1999 07 13	704	0.2+	0.1-
1995 09 17	905	0.1-	0.2-	1998 04 25	566	0.0	0.5-	1999 07 13	704	0.3-	0.1+
1995 09 17	905	0.0	0.2+	1998 04 25	566	0.3-	0.3-	1999 07 13	704	0.3+	0.1+
1995 09 17	905	0.4-	0.4-	1998 05 22	888	1.4-	0.5+	1999 07 13	704	0.2+	0.7-
1995 09 24	905	0.7+	0.1-	1998 05 22	888	0.9-	0.2+	1999 07 14	649	0.3-	0.1+
1995 09 24	905	0.7+	0.2-	1998 05 22	888	0.1+	0.5+	1999 07 14	649	0.4-	0.2+
1995 10 02	905	0.8+	2.0-	1998 05 23	704	0.0	0.9-	1999 07 18	649	0.0	0.4-
1995 10 02	905	0.3+	0.6-	1998 05 23	704	0.0	0.3-	1999 07 18	649	1.8-	0.7-
1995 10 17	905	0.5+	0.5-	1998 05 23	704	0.7+	0.5-	1999 07 18	649	1.1+	0.7-
1995 10 17	905	0.1+	0.6-	1998 05 23	704	0.3+	1.4+	1999 07 22	704	0.3+	0.0
1995 11 17	385	0.5-	0.3+	1998 05 23	704	0.4+	1.7-	1999 07 22	704	0.0	1.0-
1995 11 17	385	0.5+	0.8+	1998 05 25	704	0.2+	0.5-	1999 07 22	704	0.2+	0.2-
1995 11 17	385	0.6-	0.1+	1998 05 25	704	0.6+	1.0+	1999 07 22	704	0.3+	0.2-
1995 12 17	385	1.1-	0.2-	1998 05 25	704	0.5-	0.8-	1999 07 22	704	0.1-	0.2-
1995 12 17	385	0.8-	0.5+	1998 05 25	704	0.7-	0.5-	1999 08 02	888	0.3+	0.3-
1997 02 09	905	0.7+	0.4-	1998 06 02	699	0.4+	0.5+	1999 08 02	888	0.4+	0.2+
1997 02 09	905	0.4-	0.3-	1998 06 02	699	1.0+	0.2+	1999 08 08	886	0.5-	0.2+
1997 02 11	385	0.4-	0.6-	1998 06 02	699	0.6+	1.0+	1999 08 08	886	0.9-	0.5+
1997 02 11	385	0.8-	0.8-	1999 07 07	888	0.1+	0.2+	1999 08 11	106	0.2-	1.0+
1997 02 11	385	2.0-	1.8-	1999 07 07	888	0.2+	0.6+	1999 08 11	106	0.2+	0.0
1997 03 03	385	1.1+	0.8+	1999 07 08	649	0.0	0.1-	1999 08 11	106	0.1-	0.7+
1997 03 03	385	0.1+	0.4+	1999 07 08	649	0.2-	0.5+				
1997 03 31	704	1.2+	0.3+	1999 07 08	649	0.0	0.0				

(11328)* 1995 UL = 1986 VL₇

Discovered 1995 Oct. 19 by V. S. Casulli at Colleverde di Guidonia.

Id. G. V. Williams, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	349.45364		(2000.0)	P	Q
n	0.21569957	ω	330.12623	+0.84192266	+0.53958375
a	2.7536149	Ω	357.20899	-0.47760344	+0.74176583
e	0.0689594	i	4.65446	-0.25111988	+0.39828737
P	4.57	H	13.3	G 0.15	U 1

1995 10 19	596	1.0+	0.3+	1998 03 25	704	0.4+	0.4-	1998 04 25	699	0.2-	0.2-
1995 10 20	596	0.6-	0.6+	1998 03 25	704	0.2+	0.4-	1998 04 25	699	0.8-	0.5+
1995 10 20	596	0.5-	0.8+	1998 03 25	704	1.2+	0.1+	1998 04 30	699	0.1+	0.4+
1995 10 20	596	0.4-	1.0+	1998 03 25	704	0.2-	0.4-	1998 04 30	699	0.5-	0.2+
1995 10 21	596	0.3+	0.3+	1998 03 29	704	1.1+	0.3-	1998 04 30	699	0.3+	0.2+
1995 10 21	596	0.6+	0.3+	1998 03 29	704	1.6+	0.9-	1998 05 16	704	0.5-	0.7+
1995 10 21	596	0.3+	0.2+	1998 03 29	704	0.8+	0.6-	1998 05 16	704	(1.6-	2.0-)
1995 10 23	596	0.6-	0.2+	1998 03 29	704	0.2+	1.3-	1998 05 16	704	1.7-	0.6-
1995 10 23	596	0.3-	0.0	1998 03 29	704	0.0	1.5-	1998 05 16	704	0.4+	0.8+
1995 10 23	596	0.3-	0.1+	1998 04 01	704	0.8+	0.5-	1999 07 09	596	0.0	0.3-
1995 10 26	596	0.6+	0.2+	1998 04 01	704	0.9+	0.4-	1999 07 09	596	0.1+	0.1-
1995 10 26	596	0.3+	0.1+	1998 04 01	704	(0.8+	2.5-)	1999 07 10	596	0.1-	0.2-
1995 10 26	596	0.5+	0.1-	1998 04 01	704	0.9-	0.6-	1999 07 10	596	0.3-	0.3+
1995 11 15	596	0.1-	0.3+	1998 04 01	704	0.0	0.1-	1999 07 11	596	0.2-	0.2+
1995 11 15	596	1.1-	0.4-	1998 04 20	704	0.1-	1.1+	1999 07 14	704	0.0	0.2+
1995 11 15	596	0.7-	0.7-	1998 04 20	704	0.2+	1.4+	1999 07 14	704	0.0	0.1-
1995 12 11	108	1.4-	1.2-	1998 04 20	704	0.9-	0.6+	1999 07 14	704	0.1-	0.4-
1995 12 11	108	(3.0+	1.4+)	1998 04 20	704	1.0-	0.0	1999 07 14	704	0.0	0.3-
1995 12 11	108	(2.8+	1.3-)	1998 04 21	704	(0.7+	2.4-)	1999 07 14	704	0.1-	0.2-
1997 01 03	411	0.8+	0.6+	1998 04 21	704	0.4-	0.3+	1999 07 16	704	0.3-	0.4+
1997 01 03	411	0.3-	0.5+	1998 04 21	704	0.2+	0.0	1999 07 16	704	0.1+	0.3+
1997 01 04	411	0.0	0.6+	1998 04 21	704	0.6+	0.7-	1999 07 16	704	0.1+	0.1+
1997 01 04	411	0.0	1.3-	1998 04 21	704	1.0-	0.4+	1999 07 20	699	0.5-	0.1-
1997 01 11	566	0.1+	0.0	1998 04 21	596	0.2+	0.5+	1999 07 20	699	0.0	0.3-
1997 01 11	566	0.1+	0.0	1998 04 21	596	0.9+	0.2+	1999 07 20	699	0.2-	0.2+
1997 01 11	566	0.2+	0.1-	1998 04 21	596	0.5+	0.5+	1999 08 02	596	0.1+	0.8+
1997 01 12	566	0.4-	0.0	1998 04 22	704	0.3-	0.3+	1999 08 02	596	0.2+	0.4+
1997 01 12	566	0.2+	0.1+	1998 04 22	704	0.2-	1.0+	1999 08 02	596	0.7+	0.0
1997 01 12	566	0.1+	0.2+	1998 04 22	704	0.3-	0.7+				

(11329)* 1995 WJ₂ = 1990 UB₁₃ = 1999 NR₄₀

Discovered 1995 Nov. 18 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 35296), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	302.02501		(2000.0)	P		Q	
<i>n</i>	0.20576395	ω	319.98869	+0.80912559		-0.58469858	
<i>a</i>	2.8415580	Ω	75.88919	+0.55343673		+0.72465850	
<i>e</i>	0.1980744	<i>i</i>	3.46885	+0.19754385		+0.36468841	
<i>P</i>	4.79	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1990 10 23	095	0.3+	1.1-	1995 11 26	411	0.0	0.1-	1999 07 14	704	0.5+	0.4-
1992 03 02	809	0.0	0.0	1995 12 09	411	0.3+	0.5-	1999 07 14	704	0.2+	1.0-
1992 04 04	809	0.5+	0.2-	1995 12 09	411	0.5-	0.0	1999 07 14	704	0.7-	0.0
1995 11 17	327	0.3+	0.1+	1995 12 21	411	0.8-	0.4-	1999 07 16	704	0.9+	0.1+
1995 11 17	327	0.8+	0.2+	1995 12 21	411	0.7-	0.2-	1999 07 16	704	0.1+	0.1+
1995 11 17	327	0.8+	0.1+	1998 05 24	704	0.4+	0.7+	1999 07 16	704	0.2-	0.1-
1995 11 18	411	0.1+	0.1-	1998 05 24	704	1.3-	1.7-	1999 08 13	699	0.1-	0.8+
1995 11 18	411	0.0	1.1+	1998 05 24	704	0.6+	0.4+	1999 08 13	699	0.3-	0.3+
1995 11 20	411	0.1-	0.1-	1998 05 24	704	0.5-	0.1+	1999 08 13	699	0.2+	0.8+
1995 11 20	411	0.3-	0.1+	1999 07 14	704	0.4-	0.0				
1995 11 26	411	0.1-	0.0	1999 07 14	704	0.1+	0.3-				

(11330)* 1995 WZ₆

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

Observatory.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	280.39275		(2000.0)	P		Q	
<i>n</i>	0.18966231	ω	338.83673	+0.68070573		-0.71030768	
<i>a</i>	3.0001895	Ω	67.76813	+0.69683988		+0.55241018	
<i>e</i>	0.0935799	<i>i</i>	11.16071	+0.22595108		+0.43624074	
<i>P</i>	5.20	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1995 11 18	905	0.8-	0.2-	1997 02 18	385	0.8+	0.3+	1998 05 24	704	0.7+	0.0
1995 11 18	905	0.4-	0.7+	1997 02 18	385	0.2-	0.0	1998 05 24	704	0.5-	0.0
1995 11 25	905	0.8+	0.5+	1997 03 05	385	0.0	0.0	1998 05 24	704	0.1+	0.5+
1995 11 25	905	0.2+	0.4-	1997 03 05	385	0.4+	0.1+	1998 05 24	704	0.2-	0.5+
1995 11 28	905	0.3-	0.7+	1997 03 09	385	0.0	0.0	1998 06 20	691	0.6-	0.3+
1995 11 28	905	0.1-	0.9+	1997 03 09	385	0.2-	0.0	1998 06 20	691	0.5-	0.0
1995 11 30	905	0.3+	0.8+	1997 03 11	385	0.8-	0.1+	1998 06 20	691	0.6-	0.0
1995 11 30	905	0.1+	1.0+	1997 03 11	385	0.7-	0.1+	1998 07 01	691	0.2+	0.3-
1995 12 15	905	0.3-	0.9-	1998 05 20	888	0.4+	1.0+	1998 07 01	691	0.2+	0.1+
1995 12 15	905	0.1+	1.3-	1998 05 20	888	0.2+	0.5-	1998 07 01	691	0.3+	0.1-
1995 12 29	385	0.3+	0.2-	1998 05 20	888	0.9+	0.3+	1999 07 14	704	0.3+	0.3-
1995 12 29	385	0.0	0.3+	1998 05 22	704	0.8-	0.1-	1999 07 14	704	0.7+	0.1-
1995 12 29	385	0.6-	0.4-	1998 05 22	704	0.7+	0.3+	1999 07 14	704	1.0+	0.5-
1996 02 20	887	0.1+	0.4-	1998 05 22	704	0.1+	0.3+	1999 07 14	704	0.3+	0.1-
1996 02 20	887	0.6+	0.1+	1998 05 22	704	(2.6+	1.8-)	1999 08 08	886	1.0-	0.4+
1997 02 14	385	0.0	0.4-	1998 05 22	704	(1.3+	2.6+)	1999 08 08	886	1.1-	0.4+
1997 02 14	385	0.6+	0.5-	1998 05 24	704	0.0	0.7-				

(11331)* 1996 FO₂ = 1974 HV₂ = 1992 AY₁ = 1994 SA₁₀

Discovered 1996 Mar. 17 at Haleakala by the JPL Near-Earth Asteroid

Tracking program.

Id. A. Doppler (*MPC* 33694)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	353.42575		(2000.0)	P		Q	
<i>n</i>	0.26624914	ω	342.61302	-0.75187717		-0.65921293	
<i>a</i>	2.3930066	Ω	156.13641	+0.60805938		-0.69973977	
<i>e</i>	0.1098650	<i>i</i>	1.54541	+0.25484215		-0.27532266	
<i>P</i>	3.70	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1974 04 25	805	0.5-	0.6+	1994 10 11	691	0.0	0.1+	1996 03 26	566	0.2+	0.4+
1992 01 02	691	0.2+	0.8-	1994 10 26	691	0.3+	0.4+	1996 03 26	566	0.2-	0.6+
1992 01 02	691	0.4+	0.8-	1994 10 26	691	0.3+	0.1+	1998 09 29	910	0.4-	1.1+
1992 01 02	691	0.5-	0.5-	1994 10 26	691	0.1-	0.3+	1998 09 29	910	0.1+	0.7+
1992 01 09	691	0.6+	0.0	1996 03 17	566	0.8-	0.3-	1998 09 29	910	0.4-	0.8+
1992 01 09	691	0.3+	0.0	1996 03 17	566	0.7-	0.1-	1998 10 12	691	0.3-	0.8-
1994 09 28	691	0.3+	0.1-	1996 03 17	566	0.3-	0.0	1998 10 12	691	0.0	0.1+
1994 09 28	691	0.3+	0.3-	1996 03 23	566	0.5+	0.4+	1998 11 11	704	0.3+	0.2+
1994 09 28	691	0.3+	0.3-	1996 03 23	566	0.6+	0.6+	1998 11 11	704	1.1-	0.4-
1994 10 11	691	0.2+	0.2+	1996 03 23	566	1.1+	0.6+	1998 11 11	704	0.8-	0.1+
1994 10 11	691	0.2+	0.2+	1996 03 26	566	0.4+	0.3-	1998 11 11	704	0.6-	0.5+

(11332)* 1996 GO₂₀ = 1981 WC₃ = 1998 UU₁₅

Discovered 1996 Apr. 15 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (*MPC* 33253)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	15.90428		(2000.0)	P		Q	
<i>n</i>	0.23199045	ω	267.88321	-0.27184673		-0.96221785	
<i>a</i>	2.6231471	Ω	197.91383	+0.90160117		-0.24907291	
<i>e</i>	0.1180240	<i>i</i>	2.86378	+0.33647391		-0.10999771	
<i>P</i>	4.25	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1981 11 24	033	0.8+	0.4+	1996 04 17	809	0.7+	1.3-	1998 11 10	704	0.5+	0.9-
1981 11 24	033	0.5-	1.6+	1996 04 17	809	0.4+	1.1-	1998 11 11	704	0.5-	0.2+
1991 01 18	675	0.3-	0.9-	1996 05 13	566	1.7-	1.3+	1998 11 11	704	0.4-	0.2-
1991 01 18	675	0.9-	0.5-	1996 05 13	566	1.2-	1.2+	1998 11 11	704	0.3-	0.0
1992 05 03	809	1.4-	0.1-	1996 05 13	566	(2.1-	1.7+)	1998 11 11	704	0.6-	0.1-
1992 05 03	809	0.9-	1.3-	1998 10 18	699	0.2-	0.3-	1998 11 11	699	0.1-	0.4-
1992 05 03	809	0.2-	1.0-	1998 10 18	699	0.0	0.3-	1998 11 11	704	1.4-	0.3-
1996 03 24	809	0.6+	0.2+	1998 10 18	699	0.4+	0.2-	1998 11 11	699	0.1-	0.0
1996 03 24	809	0.5+	0.7-	1998 10 24	120	0.8+	0.7-	1998 11 11	699	0.3-	0.6-

1996 03 24	809	0.2+	0.7−	1998 10 24	120	0.4+	0.3−	1998 11 16	566	0.5−	0.2+
1996 03 27	809	1.9+	0.4+	1998 10 26	120	0.0	0.4−	1998 11 16	566	0.5−	0.4+
1996 03 27	809	1.4+	0.5+	1998 10 26	120	0.1+	0.1+	1998 11 16	566	0.6−	0.2+
1996 03 27	809	0.8+	1.0+	1998 10 27	120	0.5+	0.8+	1998 12 22	120	1.5+	1.5+
1996 04 15	809	0.8+	2.0+	1998 10 27	120	0.6−	0.3+	1998 12 22	120	0.4+	0.1+
1996 04 15	809	0.4−	0.9+	1998 10 28	120	0.4+	0.2+	1999 01 07	699	0.4+	0.2+
1996 04 15	809	0.4−	0.5+	1998 11 10	704	0.6+	0.1+	1999 01 07	699	0.1+	0.5+
1996 04 17	809	0.2−	1.8−	1998 11 10	704	0.5+	0.8−	1999 01 07	699	0.2+	0.0

(11333)* 1996 HU

Discovered 1996 Apr. 20 by P. Pravec and L. Šarounová at Ondřejov.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
<i>M</i>	183.68986	<i>P</i>	<i>Q</i>	<i>M</i>	35.55910	<i>P</i>	<i>Q</i>
<i>n</i>	0.25985486	ω	192.61501	+0.99085384	−0.13473772		
<i>a</i>	2.4321041	Ω	175.11040	+0.13010200	+0.93939954		
<i>e</i>	0.2021389	<i>i</i>	4.96439	+0.03580681	+0.31523681		
<i>P</i>	3.79	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1993 08 19	010	0.1−	0.6+	1996 06 05	557	0.0	0.2−	1997 10 30	704	0.6−	1.7−
1993 08 19	010	0.4−	0.9+	1996 06 07	557	0.8+	0.2−	1997 10 30	704	0.7−	1.4−
1993 08 20	010	0.1−	0.2+	1996 06 07	557	0.3−	0.1−	1997 10 30	566	0.0	0.5+
1996 04 13	691	1.3−	0.4+	1996 06 07	557	0.1+	0.3−	1997 10 30	566	0.1−	0.7+
1996 04 13	691	1.4−	0.1+	1997 08 04	910	0.6−	0.4−	1997 10 30	566	0.2−	0.7+
1996 04 13	691	1.0−	0.3−	1997 08 05	910	0.5−	0.3+	1999 02 16	704	0.3−	0.4+
1996 04 20	557	0.2+	0.2−	1997 08 05	910	1.6−	0.1+	1999 02 16	704	0.6−	0.5+
1996 04 21	557	0.9+	0.2−	1997 09 27	557	0.8+	0.0	1999 02 16	704	1.5+	0.8−
1996 04 21	557	0.0	0.3−	1997 09 27	557	0.8+	0.0	1999 02 16	704	0.3−	0.2−
1996 04 21	557	0.5+	0.5−	1997 09 27	557	1.0+	0.1+	1999 02 16	704	1.7+	1.0+
1996 04 21	557	1.4+	0.3+	1997 09 28	557	0.8+	0.1+	1999 03 20	704	0.4+	0.6+
1996 04 24	557	0.8+	0.6−	1997 09 28	557	0.9+	0.1−	1999 03 20	704	0.9−	1.3−
1996 04 24	557	0.0	0.1−	1997 10 05	557	0.4+	0.1+	1999 03 20	704	0.9−	0.9+
1996 05 16	557	0.3+	0.8−	1997 10 05	557	0.4+	0.0	1999 03 20	704	0.1+	1.0−
1996 05 18	557	0.5−	0.2−	1997 10 05	557	0.4+	0.2+	1999 03 20	704	0.5+	0.2−
1996 05 18	557	0.2−	0.8−	1997 10 05	557	0.4+	0.2+	1999 03 24	557	0.2−	0.8+
1996 05 22	557	0.0	0.9−	1997 10 05	557	0.5+	0.1+	1999 03 24	557	0.5−	0.2+
1996 05 22	557	0.8−	0.6+	1997 10 30	704	0.5−	0.8−	1999 04 14	557	1.2−	0.4+
1996 06 05	557	0.0	0.1+	1997 10 30	704	0.4−	1.6−				
1996 06 05	557	0.2+	0.4−	1997 10 30	704	0.7−	0.8−				

(11334)* 1996 HM₁₈ = 1979 FC₄ = 1980 PU₂ = 1997 UG₁₁ = 1999 CF₁₂₁

Discovered 1996 Apr. 18 by E. W. Elst at the European Southern

Observatory.

Id. A. Milani (*MPC* 34197), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
<i>M</i>	203.07546	<i>P</i>	<i>Q</i>	<i>M</i>	203.07546	<i>P</i>	<i>Q</i>
<i>n</i>	0.23785703	ω	277.86809	+0.77128867	+0.60761775		
<i>a</i>	2.5798357	Ω	44.96963	−0.42501889	+0.71331109		
<i>e</i>	0.1606382	<i>i</i>	15.55429	−0.47378553	+0.34926774		
<i>P</i>	4.14	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 03 22	033	(4.0+	0.8−)	1996 05 16	566	0.7−	0.3+	1999 01 14	704	0.3−	0.3+
1979 03 22	033	0.8+	0.7−	1996 05 22	809	(1.5−	4.1+)	1999 01 14	704	0.3+	0.0
1980 08 04	413	(4.7+	3.3+)	1996 05 22	809	(1.6−	3.3+)	1999 02 11	704	0.1−	1.0−
1980 08 06	413	1.1−	1.6+	1996 05 22	809	(1.7−	3.9+)	1999 02 11	704	0.3−	0.4−
1980 08 08	413	(2.2−	2.9+)	1997 10 29	566	0.2−	0.3+	1999 02 11	704	0.0	1.2+
1980 08 09	413	(2.7−	3.2+)	1997 10 29	566	0.1+	0.1+	1999 02 11	704	0.4−	0.6+
1980 08 10	413	(0.5−	4.9+)	1997 10 29	566	0.2−	0.2+	1999 02 11	704	0.0	0.6−
1980 08 11	413	(0.8+	4.7+)	1997 11 01	670	0.3+	0.2−	1999 02 18	704	1.6+	0.2+
1996 04 18	809	1.2−	0.5−	1997 11 01	670	0.1+	0.1+	1999 02 18	704	0.6+	1.4+
1996 04 18	809	0.9+	1.0−	1997 11 01	670	0.0	0.1+	1999 02 18	704	1.1−	0.3+
1996 04 18	809	0.7+	0.2−	1997 12 28	566	0.9+	0.6−	1999 02 18	704	0.8+	0.4+
1996 04 20	809	1.1+	0.2+	1997 12 28	566	0.0	0.3−	1999 02 18	704	0.4−	0.5+

1996 04 20	809	0.5+	0.5+	1997 12 28	566	0.6+	0.0	1999 02 19	566	0.8−	0.3+
1996 04 20	809	0.2−	0.1−	1999 01 14	704	0.3−	0.4+	1999 02 19	566	0.8−	0.1+
1996 05 16	566	0.6−	0.5+	1999 01 14	704	0.7+	0.4−	1999 02 19	566	0.3−	0.1+
1996 05 16	566	0.9−	0.2+	1999 01 14	704	0.1−	0.4−				

(11335)* 1996 HW₂₃ = 1998 XE₅₀

Discovered 1996 Apr. 20 by E. W. Elst at the European Southern

Observatory.

Id. G. V. Williams (*MPC* 33495)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams				Williams			
(2000.0)				(2000.0)			
<i>M</i>	35.55910	<i>P</i>	<i>Q</i>	<i>M</i>	35.55910	<i>P</i>	<i>Q</i>
<i>n</i>	0.27102705	ω	65.27675	−0.70023002	−0.70644233		
<i>a</i>	2.3647993	Ω	69.58438	+0.60884082	−0.66628596		
<i>e</i>	0.1586574	<i>i</i>	6.31218	+0.37281467	−0.23875145		
<i>P</i>	3.64	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1992 02 25	691	0.5−	1.5−	1996 05 19	809	1.6+	0.2−	1998 12 17	704	0.4−	0.2−
1992 02 25	691	0.5−	1.6−	1996 05 22	809	0.1−	0.4+	1998 12 17	704	0.0	0.9+
1992 02 25	691	0.3+	1.6−	1996 05 22	809	0.1+	0.3−	1998 12 17	704	0.8+	0.6+
1992 04 04	809	1.6−	0.0	1996 05 22	809	0.1−	0.3+	1999 01 16	704	0.2−	1.0−
1994 10 31	675	0.4−	1.2+	1996 05 23	809	1.3−	0.2−	1999 01 16	704	0.3+	0.3−
1994 10 31	675	0.6−	0.3+	1996 05 23	809	0.9−	0.4−	1999 01 16	704	0.6+	0.0
1996 04 20	809	0.7+	2.0+	1996 05 23	809	1.1−	0.3+	1999 01 19	704	0.0	0.7−
1996 04 20	809	0.1+	1.2+	1998 12 14	704	0.0	0.2−	1999 01 19	704	0.2−	0.6+
1996 04 20	809	0.3+	0.8+	1998 12 14	704	0.5−	0.4+	1999 01 19	704	0.2+	1.7+
1996 04 21	809	(3.5−	0.4+)	1998 12 14	704	0.7+	0.7+	1999 01 19	704	0.7+	1.9+
1996 04 21	809	0.3−	1.7+	1998 12 14	704	0.2−	0.3−	1999 01 19	704	0.7+	1.7+
1996 04 21	809	(0.4−	2.2+)	1998 12 14	704	0.5+	0.3−	1999 04 06	704	(3.2−	3.2+)
1996 05 19	809	1.8+	0.7+	1998 12 17	704	0.3+	0.5−	1999 04 06	704	1.9−	1.2+
1996 05 19	809	1.8+	0.4−	1998 12 17	704	0.9−	0.4−	1999 04 06	704	(2.1−	1.4+)

(11336)* 1996 NS₃ = 1997 VM

Discovered 1996 July 14 by E. W. Elst at the European Southern

Observatory.

Id. B. G. Marsden (*MPC* 30877)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden				Marsden			
(2000.0)				(2000.0)			
<i>M</i>	281.87439	<i>P</i>	<i>Q</i>	<i>M</i>	281.87439	<i>P</i>	<i>Q</i>
<i>n</i>	0.24368576	ω	166.11617	+0.54170081	+0.84002184		
<i>a</i>	2.5385318	Ω	136.67232	−0.77537482	+0.51331923		
<i>e</i>	0.0895464	<i>i</i>	2.53840	−0.32458299	+0.17568915		
<i>P</i>	4.04	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1992 08 02	675	0.2+	0.4−	1996 08 20	566	0.1−	0.2+	1999 03 23	704	0.4−	0.3+
1992 08 02	675	0.0	0.3−	1997 11 02	684	0.3−	0.4−	1999 03 23	704	0.8+	0.3−
1996 07 14	809	0.0	0.9−	1997 11 02	684	0.4+	0.5−	1999 03 23	704	1.7+	0.1−
1996 07 14	809	0.7+	1.2−	1997 11 03	684	0.3+	0.6−	1999 03 23	704	1.2−	0.4−
1996 07 14	809	1.3−	1.6−	1997 11 03	684	0.3+	0.6−	1999 04 12	704	1.1−	0.5+
1996 07 16	809	0.4+	0.4−	1997 11 03	684	0.5+	0.6−	1999 04 12	704	0.9+	0.4+
1996 07 16	809	0.3+	0.4−	1997 11 12	658	0.7−	0.1−	1999 04 12	704	0.0	0.4+
1996 07 16	809	0.9+	0.2−	1997 11 12	658	0.5−	0.4−	1999 04 12	704	0.5+	0.4+
1996 08 08	809	(0.6−	3.2+)	1997 11 12	658	0.1+	0.5−	1999 04 12	704	0.4−	0.5+
1996 08 08	809	(0.4−	2.7+)	1999 02 24	691	0.3−	1.1−	1999 04 16	704	1.6−	0.6−
1996 08 08	809	(0.1−	3.1+)	1999 02 24	691	0.6−	1.4−	1999 04 16	704	0.0	1.6+
1996 08 09	809	(1.8+	4.3+)	1999 02 24	691	0.3−	1.0−	1999 04 16	704	1.2−	1.2+
1996 08 09	809	(1.2+	3.7+)	1999 03 20	704	0.8−	1.4−	1999 04 17	703	0.1+	0.8−
1996 08 09	809	(2.3+	3.7+)	1999 03 20	704	0.5−	0.6−	1999 04 17	703	1.5+	0.0
1996 08 20	566	0.4+	0.2+	1999 03 20	704	0.5−	0.7−	1999 04 17	703	1.0+	0.1+
1996 08 20	566	0.0	0.3+	1999 03 23	704	0.1+	1.4−	1999 04 17	703	0.5+	0.3+

1999 AUG. 31

M.P.C. 35575

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	332.30593	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28554993	ω 297.02296	+0.40227056	+0.91551461
<i>a</i>	2.2839224	Ω 356.69173	-0.81787787	+0.357770744
<i>e</i>	0.1500369	<i>i</i> 3.35439	-0.41140514	+0.18406083
<i>P</i>	3.45	<i>H</i> 15.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1989 08 30	413	0.5-	1.2+	1996 08 23	108	0.3+	1.2+	1999 05 09	699	0.8-	0.4+
1989 08 30	413	0.2-	1.9+	1996 09 05	596	0.4-	0.3-	1999 05 09	699	0.0	0.5+
1996 08 10	108	1.2+	1.7-	1996 09 05	596	1.4-	0.8-	1999 05 09	699	0.2+	0.2-
1996 08 10	108	(0.4-	2.5-)	1996 09 05	596	0.4-	1.4+	1999 05 13	704	0.3+	0.8-
1996 08 10	108	0.2+	0.7-	1996 09 06	108	0.8-	1.7+	1999 05 13	704	0.1-	0.3+
1996 08 10	108	1.3-	0.3-	1996 09 06	108	(2.6+	1.8+)	1999 05 13	704	0.1-	0.7-
1996 08 12	108	1.8-	1.1-	1996 09 07	108	0.6+	0.2+	1999 05 13	704	1.9+	1.7-
1996 08 12	108	1.1+	0.8-	1996 09 07	108	0.9+	0.3-	1999 05 13	704	1.1+	1.0-
1996 08 12	108	(1.8+	3.5-)	1996 09 08	809	0.7+	0.6+	1999 05 14	704	0.1+	0.2-
1996 08 13	108	1.6+	0.1-	1996 09 08	809	0.3-	1.0-	1999 05 14	704	0.5+	0.2+
1996 08 13	108	1.1-	0.4-	1996 09 08	809	0.2+	0.1-	1999 05 14	704	1.9+	0.7-
1996 08 13	108	1.6+	0.3-	1996 09 10	108	0.5+	0.1-	1999 05 14	704	1.1+	1.0+
1996 08 13	108	0.4+	0.3+	1996 09 10	108	0.4-	1.4-	1999 05 18	704	0.1+	0.8-
1996 08 13	108	0.3+	0.9-	1996 09 14	108	(3.2+	2.1+)	1999 05 18	704	1.3-	0.9+
1996 08 14	108	1.0+	1.5-	1996 09 14	108	(2.3+	0.3+)	1999 05 18	704	0.3+	0.2-
1996 08 15	108	0.9+	1.0-	1996 10 18	104	1.8-	1.6+	1999 05 18	704	1.2-	0.7-
1996 08 15	108	(0.4-	3.2-)	1996 10 18	104	1.4-	1.6+	1999 05 18	704	1.1-	0.1-
1996 08 16	108	1.6+	0.3+	1996 10 18	104	1.3-	1.4+	1999 05 19	704	1.5-	0.1-
1996 08 17	108	0.4+	1.3+	1996 10 18	104	1.6-	1.3+	1999 05 19	704	0.1+	0.3+
1996 08 17	108	0.5-	0.9+	1997 12 07	108	1.9+	0.9+	1999 05 19	704	0.8-	0.6-
1996 08 17	108	1.3-	0.2-	1997 12 07	108	0.7+	0.5+	1999 05 19	704	0.3-	0.2+
1996 08 17	108	0.5-	0.3-	1997 12 08	108	1.5-	0.0	1999 05 19	704	0.6+	1.1+
1996 08 19	108	1.5+	0.4-	1997 12 27	104	0.4-	1.0-	1999 05 19	699	1.1+	0.0
1996 08 19	108	0.4-	1.5+	1997 12 27	104	0.4-	0.9-	1999 05 19	699	0.6+	1.2+
1996 08 19	108	0.2+	0.7+	1997 12 27	104	0.2-	0.4-	1999 05 19	699	0.5-	0.2-
1996 08 19	108	1.5+	1.5-	1999 04 15	704	1.3-	0.8+	1999 06 08	699	0.2-	0.6+
1996 08 23	108	1.9-	1.1-	1999 04 15	704	1.4-	0.9+	1999 06 08	699	(0.2+	2.1+)
1996 08 23	108	1.5+	0.3-	1999 04 15	704	0.8+	1.3+				

(11338)* 1996 TL₉ = 1992 PS₃

Discovered 1996 Oct. 13 at Klet.

Id. B. G. Marsden (*MPC* 28307)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

<i>M</i>	7.42234	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.28020918	ω 215.58810	+0.57018608	+0.81710836
<i>a</i>	2.3128518	Ω 89.32207	-0.73268517	+0.55259068
<i>e</i>	0.1853117	<i>i</i> 4.87527	-0.37156464	+0.16424818
<i>P</i>	3.52	<i>H</i> 14.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1992 08 05	675	0.1-	0.1+	1996 11 05	046	0.4+	0.3+	1998 02 10	046	0.2+	0.4+
1992 08 05	675	0.0	0.0	1996 11 13	046	0.2+	0.0	1998 02 10	046	0.2+	0.1-
1992 08 06	675	0.7+	0.7-	1996 11 13	046	0.2+	0.4-	1998 02 19	046	0.7+	0.1+
1992 08 06	675	0.1-	1.1-	1996 11 17	046	0.6-	0.2-	1998 02 19	046	0.2+	0.1-
1996 10 13	046	0.3-	0.1-	1996 11 17	046	0.5-	0.0	1998 02 19	046	0.0	0.1+
1996 10 13	046	0.4-	0.2-	1996 11 17	046	0.5-	0.2-	1998 03 04	704	1.7+	0.0
1996 10 13	046	0.2-	0.2-	1996 11 19	046	0.3-	0.3+	1998 03 04	704	0.4+	1.4-
1996 10 13	046	0.5-	0.2-	1996 11 19	046	0.2-	0.1+	1998 03 04	704	0.5-	1.2-
1996 10 13	046	0.2-	0.1-	1996 11 19	046	0.4-	0.3+	1998 03 04	704	1.2-	0.7-
1996 10 13	046	0.2-	0.3-	1996 11 30	046	0.6+	0.5+	1998 03 04	704	0.5-	1.5-
1996 10 13	046	0.5-	0.3-	1996 11 30	046	0.8+	0.1+	1999 06 22	703	0.2-	0.2+
1996 10 14	046	0.4-	0.2-	1996 11 30	046	0.7+	0.0	1999 06 22	703	0.2+	0.0
1996 10 14	046	0.6-	0.1-	1996 12 04	046	0.8+	0.5-	1999 06 22	703	0.3+	0.1+
1996 10 14	046	0.4-	0.1-	1996 12 04	046	0.1+	0.4-	1999 06 22	703	1.2+	0.4-
1996 10 14	046	0.6-	0.1-	1996 12 04	046	0.8+	0.4-	1999 07 14	704	0.5-	0.1+
1996 10 14	046	0.0	0.1+	1996 12 11	046	0.7+	0.3+	1999 07 14	704	0.0	0.2-
1996 10 14	046	0.3-	0.1+	1996 12 11	046	0.7+	0.3+	1999 07 14	704	0.8+	0.5-
1996 10 15	046	0.4-	0.1-	1996 12 11	046	0.7+	0.3+	1999 07 14	704	0.0	0.1-

1996 10 15	046	0.4-	0.2-	1998 01 28	046	0.1-	0.1+	1999 08 03	046	0.3+	0.0
1996 10 15	046	0.2-	0.0	1998 01 28	046	0.4-	0.4+	1999 08 03	046	0.2-	0.3+
1996 10 19	046	0.1+	0.6-	1998 01 28	046	0.2-	0.1-	1999 08 03	046	0.3-	0.2+
1996 10 19	046	0.4+	0.2-	1998 01 29	046	0.4-	0.4+	1999 08 05	046	0.0	0.1+
1996 10 19	046	0.1-	0.3-	1998 01 29	046	0.5-	0.3+	1999 08 05	046	0.1+	0.2+
1996 11 04	046	0.4+	0.3+	1998 01 29	046	0.0	0.3+	1999 08 05	046	0.0	0.1+
1996 11 04	046	0.2+	0.4+	1998 02 01	046	0.2-	0.4+	1999 08 20	046	0.3-	0.1+
1996 11 04	046	0.2+	0.3+	1998 02 01	046	0.2-	0.5+	1999 08 20	046	0.6-	0.2+
1996 11 05	046	0.2+	0.4+	1998 02 01	046	0.4-	0.3+	1999 08 20	046	0.4-	0.1+
1996 11 05	046	0.2+	0.4+	1998 02 10	046	0.6+	0.3+				

(11339)* 1996 VM₅ = 1992 UQ₁₀

Discovered 1996 Nov. 13 at Klet.

Id. E. Bowell (*MPC* 29632), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	157.33496	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.25820923	ω 73.05245	-0.94618886	-0.31146694
<i>a</i>	2.4424267	Ω 88.73193	+0.25329450	-0.88171407
<i>e</i>	0.0701898	<i>i</i> 5.04031	+0.20141634	-0.35435666
<i>P</i>	3.82	<i>H</i> 14.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1992 10 25	675	0.2+	1.1+	1997 01 28	046	0.3+	0.3+	1998 04 20	046	0.4+	0.8+
1992 10 25	675	0.7+	0.2-	1997 02 02	046	0.4+	0.1+	1998 04 20	046	0.4+	0.9+
1992 10 31	033	0.2+	0.8-	1997 02 02	046	0.4+	0.5+	1998 04 22	704	0.1-	0.2+
1992 10 31	033	0.7-	0.5-	1997 02 02	046	0.3+	0.2+	1998 04 22	704	0.1+	0.2+
1996 11 13	046	0.2-	0.7-	1998 01 13	046	(2.2-	1.0-)	1998 04 22	704	0.1+	0.3+
1996 11 13	046	0.5-	0.2+	1998 01 13	046	(2.2-	0.8-)	1998 04 22	704	0.6+	0.0
1996 11 15	046	0.1+	0.1-	1998 01 13	046	1.9-	0.2-	1998 04 22	704	0.8-	0.5-
1996 11 15	046	0.6-	0.2+	1998 01 14	046	0.8-	0.0	1998 05 01	566	0.2+	1.0-
1996 11 15	046	0.4+	0.2+	1998 01 14	046	1.1-	0.8-	1998 05 01	566	0.4-	1.5-
1996 11 15	046	0.0	0.2+	1998 01 14	046	0.8+	0.2-	1998 05 01	566	0.1-	1.3-
1996 11 17	046	0.6-	0.3-	1998 03 24	046	0.3-	0.1-	1998 05 02	566	0.4-	1.4-
1996 11 17	046	0.6-	0.0	1998 03 24	046	0.3-	0.1-	1998 05 02	566	0.1+	0.6-
1996 11 17	046	0.4-	0.3-	1998 03 24	046	0.3-	0.0	1998 05 02	566	0.3-	0.5-
1996 11 19	046	0.5-	0.2-	1998 03 24	704	0.1-	0.2+	1998 05 12	046	0.7+	0.3+
1996 11 19	046	0.3-	0.1-	1998 03 24	704	0.2-	0.5-	1998 05 12	046	0.4+	0.0
1996 11 19	046	0.6-	0.2-	1998 03 24	704	0.1+	0.7-	1998 05 12	046	0.3+	0.2+
1996 11 30	046	0.1+	0.1-	1998 03 24	704	0.1-	0.2-	1998 05 14	046	0.8-	0.8+
1996 11 30	046	0.2+	0.1-	1998 03 24	704	0.2+	0.9-	1998 05 14	046	1.1-	0.7+
1996 11 30	046	0.1+	0.6-	1998 03 25	704	0.2+	0.0	1998 05 14	046	0.8-	1.4+
1996 12 04	046	0.6+	0.5-	1998 03 25	704	0.1+	0.5-	1998 05 23	699	0.3+	0.2+
1996 12 04	046	0.5+	0.6-	1998 03 25	704	0.4+	0.5-	1998 05 23	699	0.2-	0.5-
1996 12 04	046	0.3+	0.2-	1998 03 25	704	0.9+	0.5-	1998 05 23	699	0.0	0.1-
1996 12 11	046	0.2+	0.0	1998 03 25	704	0.1-	1.4-	1998 05 24	699	0.3+	0.1-
1996 12 11	046	0.5+	0.1+	1998 03 26	046	0.6+	0.6-	1998 05 24	699	1.1-	0.4+
1996 12 11	046	0.2+	0.2+	1998 03 26	046	0.7+	0.5-	1998 05 24	699	0.4+	0.0
1996 12 12	046	1.0+	0.2+	1998 03 26	046	1.0+	0.6-	1999 07 14	704	0.7-	0.5+
1996 12 12	046	0.6+	0.2+	1998 03 26	566	0.6-	0.2-	1999 07 14	704	0.3+	0.1-
1996 12 12	046	0.8+	0.3+	1998 03 26	566	0.4-	0.1+	1999 07 14	704	0.3-	0.2+
1996 12 12	046	0.8+	0.1+	1998 03 26	566	0.4-	0.3-	1999 07 14	704	0.2-	0.3-
1997 01 08	046	0.0	1.1-	1998 03 30	365	0.3-	0.4-	1999 07 14	704	0.3+	1.1-
1997 01 08	046	0.3-	2.0-	1998 03 30	365	0.4+	0.0	1999 08 05	046	0.3+	0.9-
1997 01 08	046	0.2+	0.6-	1998 04 03	365	0.5-	0.3+	1999 08 05	046	0.5+	0.7-
1997 01 12	046	0.4-	1.1-	1998 04 03	365	0.2-	0.2-	1999 08 06	046	0.4+	0.4-
1997 01 12	046	0.8-	0.5-	1998 04 09	046	0.2+	0.8+	1999 08 07	046	0.1+	1.1-
1997 01 12	046	0.6-	0.4-	1998 04 09	046	0.4-	0.9+	1999 08 07	046	0.5+	0.9-
1997 01 28	046	0.5+	0.9+	1998 04 09	046	0.2-	0.6+	1999 08 07	046	0.7+	0.8-
1997 01 28	046	0.0	0.0	1998 04 20	046	0.4+	0.9+				

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	215.64107		(2000.0)	P	Q
<i>n</i>	0.17148399	ω	216.05702	+0.92965041	+0.36535982
<i>a</i>	3.2086351	Ω	122.44649	-0.32347062	+0.87115422
<i>e</i>	0.1858981	<i>i</i>	3.23105	-0.17639977	+0.32802823
<i>P</i>	5.75	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1984 08 26	808	(1.4+ 14.6+)	1996 11 30	385	0.2+	0.6+	1998 01 20	385	0.4-	0.2+
1984 08 26	808	(1.2+ 12.0+)	1996 11 30	385	0.5+	0.2+	1998 01 24	385	0.1+	0.6-
1990 09 15	809	0.4- 0.0	1996 12 08	385	0.1+	0.3-	1998 01 24	385	0.0	0.9-
1990 09 15	809	0.2+ 0.3+	1996 12 08	385	0.1+	0.3-	1999 03 20	704	0.1+	0.3-
1990 09 15	809	0.0 0.2+	1996 12 08	385	0.2+	0.0	1999 03 20	704	1.1-	0.1-
1996 11 14	385	0.1- 0.6-	1997 01 09	385	0.5+	0.8+	1999 03 20	704	0.9-	0.0
1996 11 14	385	0.3- 0.0	1997 01 09	385	0.6-	0.1-	1999 03 20	704	0.8+	0.1+
1996 11 14	385	0.1- 0.2+	1998 01 02	704	0.2-	0.1-	1999 03 23	704	0.4+	1.3+
1996 11 15	385	0.1+ 0.4+	1998 01 02	704	0.6-	0.7+	1999 03 23	704	0.8-	0.8-
1996 11 15	385	0.1- 0.4+	1998 01 02	704	1.0+	0.8+	1999 03 23	704	(5.2- 0.2-)	
1996 11 15	385	0.3+ 0.1-	1998 01 02	704	0.8-	0.3+	1999 04 08	012	0.1-	0.3+
1996 11 16	385	0.2- 0.1-	1998 01 02	704	1.8-	1.0+	1999 04 08	012	0.9+	0.6+
1996 11 16	385	0.4- 0.3-	1998 01 19	385	1.9+	0.7+	1999 04 08	012	0.6-	0.8-
1996 11 16	385	0.1- 0.6-	1998 01 19	385	1.2+	1.4-	1999 04 08	012	1.4+	0.0
1996 11 30	385	0.4+ 0.1-	1998 01 20	385	0.3-	0.6-				

(11341)* 1996 XE₂ = 1979 BL₁ = 1985 VA₂ = 1985 XK

Discovered 1996 Dec. 3 by P. G. Comba at Prescott.

Id. B. G. Marsden (*MPC* 28606), G. V. Williams (unpublished)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	203.23143		(2000.0)	P	Q
<i>n</i>	0.26827696	ω	50.65542	-0.58057663	-0.80474848
<i>a</i>	2.3809327	Ω	75.26941	+0.70212545	-0.57178839
<i>e</i>	0.0586335	<i>i</i>	7.35065	+0.41225068	-0.15949270
<i>P</i>	3.67	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1979 01 24	095	0.6+ 0.3-	1998 03 02	684	0.3+	0.1+	1998 04 24	704	0.1+	0.0
1985 11 07	675	0.5- 2.6+	1998 03 03	684	0.3+	0.0	1998 04 24	704	0.3-	0.9-
1985 11 07	675	0.6+ 2.2+	1998 03 03	684	0.4+	0.1+	1998 04 24	704	0.6-	0.2+
1985 12 09	046	1.8- 1.0-	1998 03 24	704	0.9+	0.9+	1998 05 16	704	0.4+	1.0-
1985 12 09	046	1.2- 1.2+	1998 03 24	704	0.2+	0.0	1998 05 16	704	0.9-	0.7-
1996 12 03	684	0.1+ 1.0-	1998 03 24	704	0.1+	0.2-	1998 05 16	704	0.1-	0.3-
1996 12 03	684	0.2+ 1.0-	1998 03 24	704	0.4+	1.1+	1998 05 16	704	0.5-	1.1-
1996 12 03	684	0.2+ 0.9-	1998 03 24	704	0.4-	1.8+	1998 05 16	704	0.1-	0.1-
1996 12 04	684	0.4+ 0.5-	1998 03 25	684	0.2+	0.3-	1998 05 23	699	0.2+	0.5-
1996 12 04	684	0.3+ 0.5-	1998 03 25	684	0.0	0.1+	1998 05 23	699	0.3-	0.9-
1996 12 05	684	0.6+ 0.4-	1998 04 04	699	0.6+	0.6-	1998 05 23	699	0.5+	0.2-
1996 12 05	684	0.6+ 0.5-	1998 04 04	699	0.6+	0.9+	1998 05 24	699	0.1+	0.6-
1996 12 05	684	0.6+ 0.5-	1998 04 04	699	1.3+	0.0	1998 05 24	699	0.5+	0.6-
1996 12 12	684	0.0 0.1-	1998 04 17	684	0.4-	0.0	1998 05 24	699	0.6+	0.6-
1996 12 12	684	0.1+ 0.2-	1998 04 17	684	0.4-	0.1+	1998 06 17	704	0.2-	1.6+
1996 12 12	684	0.0 0.3-	1998 04 18	684	1.3-	0.1-	1998 06 17	704	1.7+	1.2+
1996 12 17	684	0.0 0.3+	1998 04 18	684	1.2-	0.0	1998 06 17	704	0.4-	0.5+
1996 12 17	684	0.1- 0.2+	1998 04 21	704	0.3-	0.0	1998 06 17	704	0.9+	0.8+
1996 12 17	684	0.1+ 0.3+	1998 04 21	704	0.9-	0.6-	1998 06 17	704	1.7+	0.5+
1996 12 17	684	0.2- 0.1+	1998 04 21	704	0.4+	0.1-	1999 07 21	684	0.3+	0.3+
1996 12 29	684	0.0 0.2+	1998 04 21	704	0.9-	0.3+	1999 07 21	684	0.4+	0.2+
1996 12 29	684	0.1- 0.4+	1998 04 21	704	0.1+	0.7+	1999 07 21	684	0.4+	0.1-
1996 12 29	684	0.2- 0.2+	1998 04 23	704	0.4+	0.2+	1999 07 22	684	0.0	0.1+
1996 12 29	684	0.0 0.4+	1998 04 23	704	1.2-	0.6-	1999 07 22	684	0.2+	0.1-
1997 02 06	691	0.2- 0.1+	1998 04 23	704	0.9-	0.8+	1999 08 08	684	0.2-	0.2+
1997 02 06	691	0.6- 0.0	1998 04 23	704	0.5-	0.4+	1999 08 08	684	0.2-	0.1+
1998 03 02	684	0.4+ 0.1+	1998 04 23	704	0.4+	0.4+	1999 08 09	684	0.5-	0.1+
1998 03 02	684	0.2+ 0.0	1998 04 24	704	0.2+	0.1-	1999 08 09	684	0.6-	0.1+
1998 03 02	684	0.2+ 0.1+	1998 04 24	704	0.2-	0.6-				

(11342)* 1996 XJ₁₉ = 1991 UG₅

Discovered 1996 Dec. 8 by T. Kobayashi at Oizumi.

Id. B. A. Skiff (*MPC* 30280), G. V. Williams (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	138.62621		(2000.0)	P	Q
<i>n</i>	0.22160379	ω	323.99092	-0.99711512	-0.07076072
<i>a</i>	2.7044851	Ω	211.98451	+0.07590349	-0.93105735
<i>e</i>	0.0415017	<i>i</i>	2.97225	-0.00031826	-0.35794572
<i>P</i>	4.45	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 10 17	675	(1.0+ 2.0+)	1998 04 19	367	0.2-	0.7-	1998 05 16	704	0.6+	0.7+
1991 11 05	691	0.3- 0.1+	1998 04 21	704	0.4+	0.6+	1998 05 22	691	0.5-	0.6+
1991 11 05	691	0.0 0.5+	1998 04 21	704	1.9+	0.7-	1998 05 22	691	0.4-	0.7+
1991 11 05	691	0.1+ 0.3+	1998 04 21	704	0.7+	1.5+	1998 05 22	691	0.5-	0.5+
1996 12 08	411	0.2+ 0.2-	1998 04 21	704	0.4+	0.8-	1999 07 13	704	0.2+	0.2+
1996 12 08	411	0.5+ 0.3+	1998 04 21	704	0.2+	0.5-	1999 07 13	704	0.1+	0.1-
1996 12 11	411	0.5+ 0.5+	1998 04 22	704	0.1+	0.6-	1999 07 13	704	0.4+	0.6+
1996 12 11	411	0.7+ 0.6+	1998 04 22	704	0.1-	0.7+	1999 07 13	704	0.3-	0.5-
1996 12 18	411	0.6- 0.1+	1998 04 22	704	0.1-	1.0-	1999 07 13	704	0.1-	0.3-
1996 12 18	411	0.0 0.3-	1998 04 22	704	0.1+	0.4+	1999 07 21	699	0.2+	1.1+
1996 12 28	411	0.2- 0.5-	1998 04 22	704	0.0	1.4-	1999 07 21	699	0.1-	0.2+
1996 12 28	411	0.1- 0.2+	1998 04 30	699	0.7+	0.2-	1999 07 21	699	0.9-	0.1-
1997 01 13	411	0.8- 0.1-	1998 04 30	699	0.0	0.1-	1999 07 23	704	0.2+	0.0
1997 01 13	411	0.1+ 0.9+	1998 04 30	699	0.0	0.1+	1999 07 23	704	0.1-	0.0
1998 04 01	704	0.7- 0.6-	1998 05 01	699	0.0	0.1-	1999 07 23	704	0.4+	0.1-
1998 04 01	704	0.5- 0.4+	1998 05 01	699	0.6+	0.1-	1999 07 23	704	0.4-	0.4+
1998 04 01	704	0.2- 0.5+	1998 05 01	699	0.1-	0.4+	1999 08 08	106	0.3+	0.0
1998 04 01	704	0.5- 0.8+	1998 05 16	704	0.2-	0.7+	1999 08 08	106	0.3-	0.2-
1998 04 01	704	1.6- 0.2+	1998 05 16	704	0.6+	0.5+				
1998 04 19	367	0.4+ 1.0-	1998 05 16	704	0.6-	0.5+				

(11343)* 1996 XP₁₉ = 1981 VC₂ = 1999 NV₃

Discovered 1996 Dec. 8 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 35301)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	291.46899		(2000.0)	P	Q
<i>n</i>	0.26797502	ω	244.71212	+0.72773520	-0.68567289
<i>a</i>	2.3827209	Ω	158.56473	+0.64391089	+0.67503777
<i>e</i>	0.2327451	<i>i</i>	2.50026	+0.23617840	+0.27235400
<i>P</i>	3.68	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1981 11 03	033	0.3-	0.5+	1996 12 28	411	0.5-	0.9+	1999 07 14	704	0.9-	1.4+
1981 11 03	033	0.2-	0.6+	1997 01 13	411	0.4-	0.8+	1999 07 14	704	0.0	0.1-
1996 12 08	411	1.5+	0.0	1997 01 13	411	0.0	0.5+	1999 07 14	704	0.5-	0.7-
1996 12 08	411	0.4+	1.8-	1998 04 22	704	1.0-	0.1-	1999 07 16	704	0.4+	0.2-
1996 12 11	411	0.6+	0.3-	1998 04 22	704	1.1-	0.3+	1999 07 16	704	0.1+	0.1-
1996 12 11	411	0.5-	0.2-	1998 04 22	704	0.2-	1.5+	1999 07 16	704	0.0	1.0+
1996 12 13	358	0.4+	1.4-	1998 04 22	704	(2.4+	0.0)	1999 07 16	704	0.5+	0.2+
1996 12 13	358	0.8-	0.7-	1998 04 22	704	0.2-	1.6-	1999 07 16	704	0.4-	0.6+
1996 12 14	358	(3.6+	0.6+)	1998 05 01	704	1.8+	1.5+	1999 07 16	704	0.4+	0.2-
1996 12 14	358	1.6-	0.5+	1998 05 01	704	0.5+	0.5+	1999 07 16	704	0.3+	0.2-
1996 12 15	358	1.0-	0.6+	1998 05 01	704	1.3+	1.0+	1999 07 16	704	0.4+	0.4+
1996 12 15	358	0.2+	1.2+	1998 05 01	704	(3.4-	3.4+)	1999 07 16	704	0.6+	0.4-
1996 12 16	358	1.0+	0.2-	1999 07 13	704	0.4+	0.1-	1999 08 03	691	0.6-	0.4+
1996 12 16	358	1.6+	1.6+	1999 07 13	704	0.1+	0.0	1999 08 03	691	0.4-	0.1-
1996 12 16	358	0.5-	1.9+	1999 07 13	704	0.4+	0.5-	1999 08 03	691	0.5-	0.3+
1996 12 19	411	0.1-	0.0	1999 07 13	704	0.5+	0.5-	1999 08 08	691	0.8-	0.4+
1996 12 19	411	0.2+	0.2-	1999 07 13	704	0.1-	0.1-	1999 08 08	691	0.5-	0.2+
1996 12 28	411	0.2-	0.0	1999 07 14	704	0.9+	0.8+	1999 08 08	691	0.9-	0.6+

Id. S. Nakano (*MPC* 28875)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	285.82603		(2000.0)	P		Q	
<i>n</i>	0.26488039	ω	147.27224	+0.51252192		-0.85821419	
<i>a</i>	2.4012434	Ω	271.88154	+0.78164801		+0.47984429	
<i>e</i>	0.1816020	<i>i</i>	1.61117	+0.35545419		+0.18225766	
<i>P</i>	3.72	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1992 10 25	675	0.5+	0.5+	1996 12 29	411	0.3-	0.9+	1999 07 16	704	0.4+	1.7-
1992 10 25	675	0.7-	0.4-	1997 01 09	905	1.1-	0.4-	1999 07 16	704	0.2-	1.2-
1992 11 17	402	0.5-	0.4+	1997 01 09	905	1.3+	0.7-	1999 07 16	704	0.3+	0.7-
1992 11 17	402	0.7+	0.0	1997 01 10	905	0.4+	0.3-	1999 07 21	699	1.1+	0.1+
1992 11 18	402	0.3+	1.2-	1997 01 10	905	0.4+	0.0	1999 07 21	699	0.8-	1.3+
1992 11 18	402	0.2-	0.5+	1997 01 13	411	0.1+	0.7+	1999 07 21	699	1.1-	0.8+
1996 12 14	411	0.4-	0.2-	1997 01 13	411	0.6-	0.7+	1999 08 12	699	0.1+	0.4+
1996 12 14	411	0.4-	0.7-	1998 05 22	704	(2.8+	1.0-)	1999 08 12	699	0.3+	0.6+
1996 12 16	411	0.2+	0.2-	1998 05 22	704	0.0	0.1-	1999 08 12	699	0.3-	0.3+
1996 12 16	411	0.2+	0.4-	1998 05 22	704	(0.0	3.0-)				
1996 12 29	411	0.1+	0.8+	1998 05 22	704	(2.8-	1.4-)				

(11345)* 1996 YM = 1991 LA₇ = 1992 WS₉

Discovered 1996 Dec. 20 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 28876)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	307.37973		(2000.0)	P		Q	
<i>n</i>	0.26353486	ω	299.90047	+0.88232667		-0.46659303	
<i>a</i>	2.4094098	Ω	87.97422	+0.45025604		+0.79878210	
<i>e</i>	0.2089253	<i>i</i>	3.53202	+0.13700052		+0.37978692	
<i>P</i>	3.74	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1988 09 10	675	0.0	0.4-	1997 01 07	411	0.1-	0.3+	1999 07 14	704	0.2+	0.3-
1988 09 10	675	0.2-	0.1-	1997 01 26	411	1.5+	1.1-	1999 07 14	704	0.3+	0.5-
1991 06 08	809	(2.6-	1.6-)	1997 01 26	411	0.6+	0.2-	1999 07 14	704	0.1+	0.0
1991 06 08	809	(3.5-	0.5-)	1998 04 21	704	0.8+	0.3-	1999 07 14	704	0.4+	0.1+
1991 06 08	809	(4.4-	0.5-)	1998 04 21	704	1.3-	1.1-	1999 07 15	367	0.6-	0.6-
1992 11 21	399	0.7+	1.7-	1998 04 21	704	1.0+	1.2-	1999 07 15	367	0.5-	0.1-
1992 11 21	399	0.7+	0.7-	1998 04 21	704	0.2+	1.6+	1999 07 15	367	0.5-	0.4+
1996 12 20	411	0.4-	1.2+	1998 04 21	704	0.7-	0.5+	1999 07 16	704	0.9+	0.0
1996 12 20	411	0.8-	0.6+	1998 04 22	704	0.7+	0.3-	1999 07 16	704	0.2-	0.4-
1996 12 21	411	0.0	0.6+	1998 04 22	704	0.4+	0.8-	1999 07 16	704	0.2+	0.1-
1996 12 21	411	0.0	0.1+	1998 04 22	704	1.6-	1.0+	1999 08 04	118	0.2-	0.5+
1996 12 29	411	0.1-	0.2-	1998 04 22	704	0.1-	1.6-	1999 08 04	118	0.0	0.6+
1996 12 29	411	0.7-	0.5+	1998 04 22	704	(1.8-	2.3+)	1999 08 04	118	0.5-	0.8+
1997 01 07	411	0.5-	0.2+	1999 07 14	704	0.3+	0.0				

(11346)* 1997 AP₁₄ = 1995 SP₉

Discovered 1997 Jan. 10 by T. Kobayashi at Oizumi.

Id. S. Nakano (*MPC* 29124)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	288.46533		(2000.0)	P		Q	
<i>n</i>	0.22424083	ω	248.28005	+0.81414104		-0.58059286	
<i>a</i>	2.6832405	Ω	147.21013	+0.53888977		+0.74951076	
<i>e</i>	0.1642584	<i>i</i>	0.98285	+0.21626877		+0.31803389	
<i>P</i>	4.40	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1995 08 24	809	0.2+	0.6+	1997 01 10	411	0.8-	0.2+	1997 02 13	369	0.2-	0.1+
1995 08 25	809	0.4-	0.3+	1997 01 10	411	0.1+	0.1+	1997 02 13	369	0.3+	0.2-
1995 08 25	809	0.9-	1.3-	1997 01 11	411	0.3+	0.4+	1997 02 13	369	0.3-	0.8+
1995 08 26	809	0.4+	0.8+	1997 01 11	411	0.7+	0.4+	1997 03 05	704	0.1+	0.4+
1995 09 01	809	1.3+	0.7+	1997 01 11	411	0.3+	1.7+	1997 03 05	704	1.9+	0.3+
1995 09 17	691	1.0-	0.4+	1997 01 16	411	0.8+	0.6-	1998 05 01	704	1.0-	0.3-

1995 09 17	691	1.4-	0.3+	1997 01 16	411	0.3+	0.1+	1998 05 01	704	1.6+	0.9+
1995 09 17	691	0.9-	0.2+	1997 01 28	411	0.1-	0.6-	1998 05 01	704	0.7+	0.6+
1995 09 18	809	1.0+	0.2-	1997 01 28	411	0.2+	0.7+	1998 05 01	704	0.7-	0.4+
1995 09 19	809	1.4+	0.1+	1997 02 01	411	0.3-	0.6+	1999 07 14	704	0.2-	0.4+
1995 09 19	809	0.0	0.4-	1997 02 01	411	0.3+	0.3+	1999 07 14	704	0.1+	0.3+
1995 09 20	809	0.2-	0.0	1997 02 01	369	1.0-	0.5+	1999 07 14	704	0.6+	0.9+
1995 09 22	809	0.2+	0.9-	1997 02 01	369	1.1-	0.1+	1999 07 14	704	0.1-	0.5-
1995 09 22	691	0.7-	0.4+	1997 02 01	369	0.5-	0.1+	1999 07 16	704	0.3-	0.2+
1995 09 22	691	0.8-	0.3+	1997 02 03	566	0.4-	0.1-	1999 07 16	704	0.5+	0.5+
1995 09 22	691	0.8-	0.1+	1997 02 03	566	0.9-	0.9+	1999 07 16	704	0.4-	0.3+
1995 09 23	809	0.9+	0.8+	1997 02 03	566	0.3-	0.1+	1999 07 16	704	0.1-	0.3+
1995 09 23	809	(6.4+	1.7-)	1997 02 09	369	0.5+	0.7-	1999 08 13	699	0.0	0.4-
1995 09 24	809	0.6+	0.6+	1997 02 09	369	1.8+	1.7-	1999 08 13	699	0.4-	1.8-
1997 01 10	411	0.6-	1.0-	1997 02 13	369	0.0	0.2-				

(11347)* 1997 AG₂₁ = 1972 TP₁ = 1978 EY₂ = 1984 XE = 1998 HN₁₀₂

Discovered 1997 Jan. 9 by S. Ueda and H. Kaneda at Kushiro.

Id. G. V. Williams (*MPC* 31984)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	269.67465		(2000.0)	P		Q	
<i>n</i>	0.25179836	ω	210.68457	+0.32118847		-0.94692926	
<i>a</i>	2.4837094	Ω	220.58449	+0.87280399		+0.30122293	
<i>e</i>	0.1559364	<i>i</i>	1.12431	+0.36749308		+0.11220397	
<i>P</i>	3.91	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1972 10 06	095	(2.0-	4.6+)	1998 05 01	704	1.0-	1.2-	1998 06 16	691	0.2-	0.2+
1972 10 07	095	1.2+	0.4+	1998 05 01	704	1.3-	1.0+	1998 06 16	691	0.2-	0.1+
1978 03 06	095	0.7-	0.6+	1998 05 01	704	0.6-	1.0-	1998 06 30	699	0.8-	0.3-
1984 12 01	046	0.4+	2.5-	1998 05 05	699	1.3+	0.6+	1998 06 30	699	0.8-	0.5-
1984 12 01	046	1.4-	2.5-	1998 05 05	699	0.4-	1.2+	1998 06 30	699	1.5-	0.0
1997 01 09	399	0.4+	0.9-	1998 05 05	699	0.3+	0.7+	1999 07 13	704	0.7+	1.3-
1997 01 09	399	0.6+	1.0-	1998 05 22	704	0.1+	0.6-	1999 07 13	704	0.2+	0.3-
1997 01 12	399	1.0-	0.3-	1998 05 22	704	1.1+	0.2-	1999 07 13	704	0.1+	1.5-
1997 01 12	399	1.5-	0.2+	1998 05 22	704	0.7+	1.7-	1999 07 13	704	0.2-	1.0-
1997 01 16	399	0.2+	0.5+	1998 05 22	704	0.2-	0.6-	1999 07 13	704	0.6-	0.4+
1997 01 16	399	0.7+	0.2+	1998 05 22	704	(2.7-	2.4-)	1999 07 16	704	0.5+	0.1+
1997 02 02	399	1.3+	0.9-	1998 05 22	699	0.9+	1.4-	1999 07 16	704	0.0	0.0
1997 02 02	399	(2.8+	0.8-)	1998 05 22	699	0.5+	0.2+	1999 07 16	704	0.3-	0.7-
1998 04 25	809	(3.7+	2.0+)	1998 05 22	699	0.6+	0.4+	1999 07 21	699	0.1-	0.7+
1998 04 25	809	(3.4+	1.2+)	1998 05 24	704	0.8-	1.0-	1999 07 21	699	0.1-	0.1+
1998 04 25	809	(4.0+	1.9+)	1998 05 24	704	0.6+	0.1-	1999 07 21	699	0.4-	0.3-
1998 04 28	809	(2.3+	0.6+)	1998 05 24	704	1.2-	0.8-	1999 08 08	106	0.2+	0.3+
1998 04 28	809	1.2+	0.1+	1998 05 24	704	0.9-	0.6-	1999 08 08	106	0.6+	0.9+
1998 04 28	809	0.5+	0.2+	1998 05 24	704	0.0	0.4-	1999 08 08	106	0.0	1.0-
1998 05 01	704	0.7+	0.6-	1998 06 16	691	0.3-	0.3-				

(11348)* 1997 BG₉ = 1976 YC₅ = 1993 JP₁

Discovered 1997 Jan. 30 by U. Munari and M. Tombelli at Cima Ekar.

Id. G. V. Williams (*MPC* 29638)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	250.55527		(2000.0)	P		Q	
<i>n</i>	0.20425420	ω	105.29141	+0.32405675		-0.94598179	
<i>a</i>	2.8555431	Ω	325.79466	+0.86080504		+0.29935132	
<i>e</i>	0.0614760	<i>i</i>	1.04783	+0.39243076		+0.12452811	
<i>P</i>	4.83	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 12 18	095	0.3-	0.8-	1998 04 22	704	0.7-	0.7-	1998 05 23	704	0.0	0.9+
1990 08 28	675	0.2-	0.0	1998 04 22	704	0.6-	0.2-	1998 05 23	704	(0.3-	2.1-)
1990 10 12	675	0.4+	0.0	1998 04 22	704	1.3-	1.5+	1998 05 24	704	0.6-	0.3-
1990 10 12	675	0.2+	0.6-	1998 04 22	704	1.8+	1.2+	1998 05 24	704	0.8-	0.6-
1993 05 13	691	0.9+	0.3-	1998 05 01	704	0.9+	1.1-	1998 05 24	704	1.1-	0.9+
1993 05 13	691	0.8+	0.3-	1998 05 01	704	0.6+	1.3-	1998 05 24	704	0.5-	1.7+
1993 05 13	691	0.6+	0.3-	1998 05 01	704	0.2-	0.1+	1998 05 24	704	(0.8-	2.7+)

1997 01 30	098	0.1−	0.2−	1998 05 01	704	1.1−	1.9−	1999 07 13	704	0.9−	0.0
1997 02 07	098	1.3−	0.8−	1998 05 07	104	1.2+	1.1−	1999 07 13	704	0.2−	0.2+
1997 02 07	098	1.1−	0.3−	1998 05 07	104	0.8+	1.4−	1999 07 13	704	0.6−	0.6+
1997 02 07	098	0.7−	0.2+	1998 05 07	104	0.9−	1.8−	1999 07 13	704	0.6−	0.8+
1997 02 07	098	0.7+	0.1−	1998 05 07	104	(1.5+	2.2−)	1999 07 13	704	0.7−	0.4+
1997 03 05	704	1.3+	0.4+	1998 05 21	104	(1.6+	2.4−)	1999 07 16	704	0.7−	0.1−
1997 03 05	704	0.6+	0.2−	1998 05 21	104	(5.6+	4.7−)	1999 07 16	704	0.2−	1.0+
1997 03 06	704	1.4+	0.1+	1998 05 21	104	0.5+	0.5+	1999 07 16	704	0.0	0.1−
1997 03 06	704	0.5+	0.1−	1998 05 21	104	1.7+	0.0	1999 07 18	108	1.6−	0.5−
1997 03 07	098	0.0	0.1+	1998 05 21	104	0.7+	0.1−	1999 07 18	108	0.6−	1.3−
1997 03 07	098	1.1+	0.7+	1998 05 22	704	0.2+	0.7+	1999 07 18	108	1.2+	1.4−
1997 03 10	098	0.8−	0.0	1998 05 22	704	1.2−	1.3+	1999 08 13	108	1.0+	0.9+
1997 03 10	098	0.2−	0.3−	1998 05 22	704	(1.5+	2.3−)	1999 08 13	108	1.1+	0.1−
1997 03 12	098	0.3−	0.0	1998 05 22	704	0.1+	0.5−	1999 08 13	108	1.5+	0.4−
1997 03 12	098	1.5−	0.9−	1998 05 23	704	0.3−	0.1−	1999 08 17	104	0.4+	0.7−
1997 04 08	104	0.9+	0.7+	1998 05 23	704	0.7−	1.0+	1999 08 17	104	0.5+	0.1+
1997 04 08	104	0.3−	0.1+	1998 05 23	704	1.4−	0.5+	1999 08 17	104	0.9+	0.2−

(11349)* 1997 JH₁₆ = 1983 RK = 1993 FE₆₇

Discovered 1997 May 3 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 30283), M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	168.82311	(2000.0)		P	Q		
<i>n</i>	0.26826845	ω	93.69507	+0.44403319		+0.89525445	
<i>a</i>	2.3809831	Ω	202.77832	−0.85518148		+0.41118670	
<i>e</i>	0.1288370	<i>i</i>	5.45366	−0.26739327		+0.17159534	
<i>P</i>	3.67	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1983 09 15	675 (25.3+ 56.8+)	Y	1997 05 04	809 (4.1+ 2.1+)	1998 10 29	704 0.3−	1.3−	
1983 09 16	675 1.1−	1.0−	1997 05 04	809 0.8−	1.5+	1998 10 29	704 1.1−	0.8−
1983 09 17	675 0.7+ 0.2−		1997 05 04	809 1.2−	1.3+	1998 10 29	704 1.5+	1.5−
1983 09 18	675 1.1+ 0.7+		1997 05 04	809 0.1+ 0.7+		1998 11 10	704 0.3−	0.3+
1993 03 21	809 (2.9− 1.8+)		1997 06 07	809 0.5−	1.6−	1998 11 10	704 1.2−	0.5+
1993 03 22	809 0.0 1.1−		1997 06 07	809 0.5−	1.0−	1998 11 10	704 0.6+	0.7−
1993 04 15	691 0.5− 0.2−		1997 06 07	809 0.6−	1.2−	1998 11 10	704 1.6+	0.3+
1993 04 15	691 0.2− 0.5−		1997 06 08	809 1.1−	0.9−	1998 11 11	704 0.5−	1.0−
1993 04 15	691 0.4− 0.3−		1997 06 08	809 0.4−	1.6−	1998 11 11	704 0.2+	1.4−
1993 04 17	413 0.8− 0.0		1997 06 08	809 0.3−	1.2−	1998 11 11	704 0.5−	0.1−
1994 09 29	691 0.6− 0.0		1998 09 29	910 0.3−	0.7+	1998 11 11	704 0.9+	0.1−
1994 09 29	691 0.8− 0.6+		1998 09 29	910 0.0	0.5+	1998 11 11	704 0.8−	0.5−
1994 09 29	691 0.1− 0.0		1998 09 29	910 0.0	0.4+	1998 11 11	699 0.6−	0.9+
1997 05 03	809 3.1+ 0.1+		1998 10 18	699 0.5+	0.8+	1998 11 11	699 0.3−	0.0
1997 05 03	809 2.5+ 1.2+		1998 10 18	699 0.1+ 0.6−		1998 11 11	699 0.0	0.2+
1997 05 03	809 (3.1+ 0.4−)		1998 10 18	699 0.0	0.3−	1998 11 24	699 0.3+	1.3+
1997 05 04	809 (4.2+ 1.6+)		1998 10 29	704 1.9+	0.1−	1998 11 24	699 0.7+	0.6+
1997 05 04	809 (4.1+ 1.0+)		1998 10 29	704 0.2−	1.1−	1998 11 24	699 0.6−	1.3−

(11350)* 1997 QN₄ = 1977 RL₁₂ = 1987 SZ₁₈

Discovered 1997 Aug. 29 by À. López and R. Pacheco at Observatorio Astronómico de Mallorca.

Id. G. V. Williams (*MPC* 30769)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	97.52079	(2000.0)		P	Q		
<i>n</i>	0.19646203	ω	235.75975	+0.76230880		−0.64711036	
<i>a</i>	2.9305578	Ω	164.55374	+0.60715883		+0.70883505	
<i>e</i>	0.1023301	<i>i</i>	2.48615	+0.22415050		+0.28071526	
<i>P</i>	5.02	<i>H</i>	13.2	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1977 09 09	675 1.3−	0.8−	1997 09 22	620 0.1+	0.2+	1998 12 15	704 1.0−	0.5−
1977 09 10	675 1.4+	0.4+	1997 10 10	620 1.9+	0.3−	1998 12 22	704 0.5+	0.1+
1987 09 16	095 0.6−	1.7+	1997 10 11	620 1.3+	0.7−	1998 12 22	704 0.6+	0.5+
1995 04 07	691 0.2+	0.4+	1997 10 11	620 0.7+	1.1−	1998 12 22	704 0.5+	0.1+

1995 04 07	691 0.0	0.0	1998 12 09	620 0.5+	0.1−	1998 12 22	704 0.1−	0.8+
1995 04 07	691 (2.5−	2.5−)	1998 12 10	620 0.1−	0.1+	1999 01 18	704 1.8−	1.2−
1997 08 29	620 0.3+	0.2+	1998 12 10	620 0.7−	0.2+	1999 01 18	704 0.1−	0.5−
1997 08 30	620 0.4−	0.2−	1998 12 11	620 0.1+	0.0	1999 01 18	704 0.2−	0.8−
1997 08 30	620 1.4−	1.0−	1998 12 11	620 0.1−	0.1+	1999 01 20	704 0.6+	0.5+
1997 09 03	620 0.1−	0.4+	1998 12 12	620 0.2−	0.3+	1999 01 20	704 0.4+	0.5−
1997 09 04	620 1.0−	0.3+	1998 12 15	704 0.4+	0.3−	1999 01 20	704 (3.1+	0.7+)
1997 09 04	620 0.4−	0.5+	1998 12 15	704 0.2+	0.4+	1999 01 20	704 0.1−	0.5+
1997 09 22	620 0.5−	0.1+	1998 12 15	704 0.4+	0.9+			
1997 09 22	620 0.1−	0.4+	1998 12 15	704 0.2+	0.2−			

(11351)* 1997 TS₂₅ = 1996 VP₃₉

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

Id. G. V. Williams (*MPC* 31115)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	63.05217	(2000.0)		P	Q		
<i>n</i>	0.08252601	ω	159.47034	+0.62833276		−0.75436428	
<i>a</i>	5.2248701	Ω	251.10238	+0.68278966		+0.65186065	
<i>e</i>	0.0663977	<i>i</i>	11.59047	+0.37282196		+0.07753854	
<i>P</i>	11.94	<i>H</i>	10.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1982 07 25	413 0.5−	0.0	1997 10 22	327 0.3+	0.3+	1998 11 28	120 1.2−	0.3+
1982 07 25	413 0.5−	0.1−	1997 10 22	327 0.1−	0.4+	1998 12 15	704 0.5+	0.2+
1982 08 18	413 (3.7−	0.1−)	1997 10 22	327 0.3−	0.2+	1998 12 15	704 1.0+	1.1−
1982 08 18	413 1.2+	0.4−	1997 11 26	704 0.5−	0.5−	1998 12 15	704 (0.6+	2.1+)
1996 11 09	691 0.1+	0.4+	1997 11 26	704 0.2−	0.6−	1998 12 15	704 1.2−	0.9+
1996 11 09	691 0.0	0.3+	1997 11 26	704 0.8−	0.6−	1998 12 15	704 0.3−	0.8+
1996 11 09	691 0.1−	0.3+	1997 11 29	704 0.8+	0.9+	1998 12 22	704 0.8+	0.2+
1996 11 17	691 0.2−	0.3+	1997 11 29	704 0.8+	0.3+	1998 12 22	704 0.3+	0.1−
1996 11 17	691 0.1−	0.4+	1997 11 29	704 0.5−	0.2−	1998 12 22	704 0.5+	0.6−
1996 11 17	691 0.3−	0.5+	1997 11 29	704 0.2+	0.8−	1998 12 22	704 0.7−	1.0−
1997 10 12	327 0.1−	0.4+	1997 11 29	704 0.6+	0.5−	1998 12 27	900 0.3−	0.7+
1997 10 12	327 0.0	0.3−	1997 12 04	704 0.1−	0.8−	1998 12 27	900 0.3+	0.9+
1997 10 12	327 0.3−	0.1+	1997 12 04	704 0.9+	0.2−	1999 01 20	704 (2.2+	0.6−)
1997 10 15	327 0.3+	1.2+	1997 12 04	704 0.1−	1.3−	1999 01 20	704 0.4+	0.3−
1997 10 15	327 0.6−	0.6+	1997 12 04	704 1.0−	1.9−	1999 01 20	704 (3.7+	0.1−)
1997 10 15	327 0.6+	0.4−	1998 11 28	120 0.8+	0.7+	1999 01 20	704 0.4−	0.5+

(11352)* 1997 WP₂₂ = 1984 SM₂

Discovered 1997 Nov. 28 by the OCA-DLR Asteroid Survey at Caussols.

Id. G. V. Williams (*MPC* 31251)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Williams			
<i>M</i>	235.87904	(2000.0)		P	Q		
<i>n</i>	0.17432809	ω	228.72430	+0.95806599		+0.28414549	
<i>a</i>	3.1736410	Ω	114.73816	−0.24920812		+0.89001590	
<i>e</i>	0.1693026	<i>i</i>	2.33641	−0.14143856		+0.35655719	
<i>P</i>	5.65	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1984 09 25	688	0.7+	2.1−	1998 01 22	691	0.1+	0.5−	1999 03 23	704	0.5+	0.7−
1984 09 25	688	(0.2− 2.7−)		1998 01 22	691	0.2+	0.5−	1999 03 23	704	0.7+	0.8−
1984 09 28	688	0.4+	1.5−	1998 01 24	691	0.1+	0.4−	1999 03 23	704	1.0+	0.1+
1984 09 28	688	1.3+	1.5−	1998 01 24	691	0.0	0.4−	1999 03 23	704	0.4+	0.9−
1992 01 01	691	0.2+	0.2+	1998 01 24	691	0.0	0.4−	1999 04 12	704	0.2−	1.7−
1992 01 01	691	0.1+	0.2−	1998 01 24	566	0.0	0.1−	1999 04 12	704	0.4+	1.5−
1992 01 01	691	0.0	0.3−	1998 01 24	566	0.2+	0.0	1999 04 12	704	0.9+	0.9+
1994 05 14	691	0.4−	0.5+	1998 01 24	566	0.2+	0.1+	1999 04 12	704	0.9−	0.7−
1994 05 14	691	0.9−	0.0	1998 01 30	691	0.0	0.2−	1999 04 12	704	0.6+	0.3+
1994 05 14	691	0.2−	0.5+	1998 01 30	691	0.1−	0.4−	1999 04 16	704	1.3−	0.4+
1997 11 28	910	0.3−	0.1+	1998 12 16	910	0.2−	0.5+	1999 04 16	704	(0.3+ 2.7−)	
1997 11 28	910	0.2−	0.2+	1998 12 16	910	0.9−	0.1−	1999 04 16	704	(1.0− 2.4−)	
1997 11 28	910	0.2−	0.3+	1998 12 16	910	0.4−	0.6+	1999 04 16	704	1.1−	0.9−
1997 12 03	910	0.3−	0.6+	1998 12 17	910	1.0−	0.2+	1999 04 19	704	1.6−	1.9−

1999 AUG. 31

M.P.C. 35581

(11361)* 1998 DD₃₆ = 1983 HA₁ = 1987 HU₂ = 1992 UB₈

Discovered 1998 Feb. 28 by T. Seki at Geisei.

Id. A. Doppler (*MPC* 33266)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25814909	ω	188.60842	−0.66918900	+0.74000570		
<i>a</i>	2.4428061	Ω	39.42877	−0.67527415	−0.56758807		
<i>e</i>	0.1877589	<i>i</i>	6.11525	−0.31014658	−0.36088136		
<i>P</i>	3.82	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1983 04 09	095	(2.1+ 3.9+)	1998 02 26	566	0.4+ 1.1−	1998 03 04	704	0.9+ 0.2+
1983 04 18	688	(0.3− 3.1−)	1998 02 26	566	0.0 0.8−	1998 03 05	372	0.0 1.2−
1983 04 18	688	1.9+ 1.5−	1998 02 26	566	0.5+ 1.1−	1999 07 17	046	0.2− 0.8−
1987 04 21	675	1.3− 0.7+	1998 02 28	372	(0.3− 2.3+)	1999 07 17	046	0.1+ 0.2−
1987 04 21	675	0.8− 1.1+	1998 02 28	372	1.2− 1.2+	1999 07 17	046	0.1+ 0.5−
1992 10 20	691	0.1+ 0.2+	1998 03 02	372	0.4+ 0.4−	1999 07 17	620	1.2− 0.7+
1992 10 20	691	0.2− 0.0	1998 03 03	704	0.3+ 0.5+	1999 07 17	620	0.2− 1.2+
1992 10 20	691	0.2− 0.1+	1998 03 03	704	0.2+ 0.0	1999 07 17	620	0.7− 0.4+
1992 10 23	010	0.9− 1.0−	1998 03 03	704	0.4+ 0.1−	1999 07 19	620	1.1+ 0.4+
1992 10 23	010	(2.7− 0.8−)	1998 03 03	704	0.1+ 0.0	1999 07 19	620	0.8+ 0.4+
1996 11 05	691	0.3+ 0.2+	1998 03 03	704	0.3− 0.2+	1999 07 20	620	0.2+ 0.0
1996 11 05	691	0.3+ 0.2+	1998 03 03	372	0.3− 1.9+	1999 08 13	699	0.1+ 0.8+
1996 11 05	691	1.0− 0.3+	1998 03 04	704	0.2− 0.3−	1999 08 13	699	1.2+ 0.1+
1998 01 25	566	0.5− 0.8+	1998 03 04	704	0.2+ 0.7+	1999 08 13	699	0.7− 1.1+
1998 01 25	566	0.2− 0.5+	1998 03 04	704	0.3− 0.4+			
1998 01 25	566	0.5− 0.7+	1998 03 04	704	0.7+ 1.0+			

(11362)* 1998 EN₉ = 1987 SZ₂₈ = 1999 LV₂₄

Discovered 1998 Mar. 6 by T. Kagawa at the Gekko Observatory.

Id. G. V. Williams (*MPC* 34907, *MPC* 35319)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23124786	ω	244.88872	+0.67677117	+0.73482884		
<i>a</i>	2.6287598	Ω	67.77962	−0.65681453	+0.63016912		
<i>e</i>	0.0681114	<i>i</i>	2.77407	−0.33252887	+0.25082556		
<i>P</i>	4.26	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1987 09 24	095	1.0+ 1.3+	1998 03 07	888	0.7+ 0.9+	1999 06 15	704	0.4− 0.1−
1987 09 27	095	0.8− 1.7−	1998 03 07	888	0.2− 0.7+	1999 06 15	704	0.5+ 0.0
1994 03 12	691	0.0 0.5−	1998 03 15	888	0.6+ 0.3+	1999 06 15	704	1.2− 0.3−
1994 03 12	691	0.4− 0.4−	1998 03 16	888	0.0 0.4−	1999 06 15	704	0.1− 0.1−
1994 03 12	691	0.1− 0.2−	1998 03 16	888	0.2+ 0.2+	1999 07 06	888	0.5− 1.6−
1998 02 27	566	0.4+ 0.3−	1998 03 23	888	0.1+ 0.5−	1999 07 06	888	0.6+ 1.3−
1998 02 27	566	0.2+ 1.0−	1998 03 23	888	0.5+ 0.1+	1999 07 14	704	0.0 0.4−
1998 02 27	566	0.1− 0.0	1998 04 04	888	0.1− 0.3−	1999 07 14	704	0.1− 0.3−
1998 03 04	704	(2.6− 0.4−)	1998 04 04	888	0.2− 0.1−	1999 07 14	704	0.1− 0.1+
1998 03 04	704	(2.7− 0.4−)	1998 04 04	888	0.2+ 0.4+	1999 07 14	704	0.5+ 0.3−
1998 03 04	704	2.0− 0.0	1999 06 09	704	0.1− 0.4+	1999 07 16	704	0.4+ 0.4+
1998 03 04	704	(3.6− 1.2−)	1999 06 09	704	0.0 0.1+	1999 07 16	704	0.7+ 1.0−
1998 03 06	888	0.1− 0.2+	1999 06 09	704	0.1+ 1.1+	1999 07 16	704	0.4+ 0.2+
1998 03 06	888	0.4− 0.2−	1999 06 09	704	0.1+ 0.7+	1999 07 16	704	0.3+ 0.2+
1998 03 06	888	0.1+ 0.3−	1999 06 09	704	1.0+ 1.1+	1999 07 16	704	1.6− 0.7+
1998 03 07	888	0.3+ 0.8+	1999 06 15	704	0.5− 0.4+			

(11363)* 1998 EB₁₂ = 1977 TU₄ = 1977 VG₁

Discovered 1998 Mar. 1 by E. W. Elst at the European Southern Observatory.

Id. A. Gnädig (*MPC* 31991)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30950443	ω	320.26903	+0.99513016	−0.07449532		
<i>a</i>	2.1645027	Ω	44.13568	+0.09584298	+0.88423610		
<i>e</i>	0.1558564	<i>i</i>	5.31856	−0.02302361	+0.46106069		
<i>P</i>	3.18	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1977 10 07	095	1.9− 0.6−	1998 03 25	704	0.7− 0.0	1998 04 18	704	0.3− 0.8+
1977 11 09	049	1.0+ 0.4−	1998 03 25	704	0.4− 0.4−	1998 04 18	704	1.3− 0.4+
1977 11 09	049	1.5+ 0.1−	1998 03 25	704	0.4+ 0.6−	1998 04 18	704	0.5+ 1.5+
1993 10 12	095	0.4− 1.3+	1998 03 25	704	0.0 0.4−	1999 05 22	699	(2.5− 0.9+)
1998 03 01	809	(3.6+ 0.4+)	1998 03 26	566	0.1+ 0.1+	1999 05 22	699	0.4+ 0.1+
1998 03 01	809	(3.7+ 0.5+)	1998 03 26	566	0.1− 0.0	1999 05 22	699	0.8+ 0.6−
1998 03 01	809	(3.5+ 0.1+)	1998 03 26	566	0.3+ 0.1+	1999 07 14	704	0.3− 0.3−
1998 03 02	809	(3.6+ 0.8−)	1998 04 02	809	(1.3+ 3.8+)	1999 07 14	704	0.6+ 0.4+
1998 03 02	809	(3.5+ 1.4−)	1998 04 02	809	(1.3+ 3.4+)	1999 07 14	704	0.2+ 0.3+
1998 03 02	809	(2.9+ 2.1−)	1998 04 02	809	(1.0+ 3.2+)	1999 07 14	704	0.0 0.2−
1998 03 24	704	0.5+ 0.2+	1998 04 03	809	0.3+ 0.9+	1999 07 14	704	0.4− 0.0
1998 03 24	704	0.0 0.5−	1998 04 03	809	0.2+ 0.9+	1999 08 19	322	0.7− 0.1−
1998 03 24	704	0.2+ 1.4−	1998 04 03	809	0.3− 1.0+	1999 08 19	322	0.1+ 0.1−
1998 03 24	704	0.6− 1.5−	1998 04 18	704	1.3+ 0.2+	1999 08 19	322	0.2− 0.2+
1998 03 25	704	0.0 0.8−	1998 04 18	704	0.1− 0.3+			

(11364)* 1998 FB₃ = 1995 UW₃₆

Discovered 1998 Mar. 23 by P. Pravec at Ondřejov.

Id. G. V. Williams (*MPC* 31567)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.23476576	ω	191.99157	+0.45984185	+0.88532761		
<i>a</i>	2.6024329	Ω	105.41834	−0.80870840	+0.44954657		
<i>e</i>	0.1499355	<i>i</i>	4.09565	−0.36679176	+0.11875567		
<i>P</i>	4.20	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1995 10 21	691	0.0 0.1+	1998 04 06	557	0.3− 0.5+	1998 05 01	704	0.1− 1.0−
1995 10 21	691	0.1− 0.1+	1998 04 07	557	0.1+ 0.3+	1998 05 01	704	0.4+ 0.1+
1995 10 21	691	0.2− 0.0	1998 04 07	557	0.1+ 0.2−	1998 05 01	704	0.1− 0.8−
1995 10 26	691	0.2− 0.2−	1998 04 07	557	0.1+ 0.2−	1998 05 01	704	0.7− 0.2+
1995 10 26	691	0.6+ 0.1−	1998 04 07	557	0.7− 0.1−	1998 05 01	704	0.9− 0.7−
1995 10 26	691	0.1+ 0.3−	1998 04 19	557	0.1− 0.5−	1998 05 16	704	0.5+ 0.4+
1997 01 03	691	0.6+ 0.1−	1998 04 19	557	0.0 0.9−	1998 05 16	704	1.1− 1.1−
1997 01 03	691	0.3− 0.3+	1998 04 19	557	0.3+ 0.4−	1998 05 16	704	1.4− 1.8+
1997 01 03	691	0.4− 0.0	1998 04 21	704	1.1− 0.1+	1998 05 16	704	1.0+ 0.6−
1998 03 23	557	0.9+ 0.4+	1998 04 21	704	0.6− 0.1+	1998 05 16	704	0.4− 0.0
1998 03 23	557	1.1+ 1.0+	1998 04 21	704	0.9− 0.0	1999 07 18	557	0.1− 0.3+
1998 03 23	557	0.7+ 0.2+	1998 04 21	704	0.4− 0.0	1999 07 18	557	0.3− 0.2+
1998 03 24	557	1.1+ 0.1+	1998 04 21	704	0.2+ 0.2+	1999 07 18	557	0.4+ 0.3+
1998 03 24	557	1.2+ 0.7+	1998 04 22	704	0.3− 0.2+	1999 07 19	557	0.0 0.5+
1998 03 26	557	0.6+ 0.0	1998 04 22	704	0.3− 0.2+	1999 07 19	557	0.6− 0.0
1998 03 26	557	1.0+ 0.5+	1998 04 22	704	0.3+ 0.4+	1999 08 05	557	0.4− 0.3−
1998 03 26	557	0.1+ 0.6+	1998 04 22	704	0.3− 0.5+	1999 08 05	557	0.1− 0.2−
1998 03 26	557	0.7+ 0.5+	1998 04 22	704	0.2+ 0.1+	1999 08 05	557	0.3+ 0.6+
1998 03 30	557	0.5+ 0.1−	1998 04 30	557	0.4− 0.2−	1999 08 06	557	0.0 0.4+
1998 03 30	557	0.4+ 0.4+	1998 04 30	557	0.9− 1.0−	1999 08 06	557	0.1+ 0.2−
1998 04 06	557	0.1+ 0.7−	1998 04 30	557	0.4+ 0.0			

(11365)* 1998 FK₁₂₆ = 1951 XY = 1951 YG = 1988 DG₅ = 1988 JS₁

Discovered 1998 Mar. 23 by J. Broughton at Reedy Creek.

Id. G. V. Williams (*MPC* 32006), M. E. Sansaturio (d, *MPC* 35331)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	296.29882	(2000.0)	P	Q
<i>n</i>	0.30549148	ω 177.70422	+0.65026088	-0.75870245
<i>a</i>	2.1834168	Ω 231.73156	+0.69622458	+0.61574345
<i>e</i>	0.1421738	<i>i</i> 2.85700	+0.30402651	+0.21267486
<i>P</i>	3.23	<i>H</i> 14.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1951 12 05	711 (3.2+ 7.7+)	Y 1998 03 29	704 0.2+ 0.1-	1998 05 16	704 1.4+ 1.6+
1951 12 22	711(14.1+ 8.0+)	Y 1998 03 29	704 0.0 0.8-	1998 05 16	704 0.4+ 1.9-
1951 12 23	711(12.2+ 0.2-)	Y 1998 03 30	428 0.7+ 0.2-	1998 05 16	704 (3.1- 0.0)
1988 02 18	413 0.0 0.7+	1998 03 30	428 0.8+ 0.4-	1998 05 16	428 0.5- 0.8-
1988 02 18	413 0.7+ 0.8+	1998 04 01	704 1.0+ 0.2+	1998 05 18	428 0.7- 0.1-
1988 05 11	413 1.3+ 0.4-	1998 04 01	704 0.5+ 0.9+	1998 05 18	428 0.1+ 0.5-
1988 05 11	413 1.6- 0.4+	1998 04 01	704 1.8+ 1.7+	1998 05 25	428 0.4+ 0.4+
1991 02 08	675 0.4- 1.4-	1998 04 01	704 (0.3- 2.8+)	1998 05 25	428 0.1- 1.0+
1991 02 08	675 0.0 0.5-	1998 04 04	699 0.3- 1.2-	1998 05 28	699 0.7- 0.5+
1996 10 08	691 0.1- 0.2-	1998 04 04	699 0.8- 0.3+	1998 05 28	699 0.5- 0.6+
1996 10 08	691 0.2- 0.1-	1998 04 04	699 1.0+ 0.5-	1998 05 28	699 0.6- 0.4-
1996 10 08	691 0.0 0.1-	1998 04 20	704 0.1+ 0.4+	1998 06 18	428 0.6- 1.0+
1996 10 29	327 0.3+ 0.5+	1998 04 20	704 0.8- 0.1+	1998 06 18	428 1.0- 0.8+
1996 10 29	327 0.0 0.0	1998 04 20	704 0.3- 0.5-	1998 07 15	428 0.5+ 1.2-
1998 03 23	428 0.8+ 0.2+	1998 04 20	704 0.2+ 0.5-	1998 07 15	428 0.7- 0.5-
1998 03 23	428 0.3+ 0.1+	1998 04 20	704 0.6- 0.4-	1999 05 14	428 1.6+ 0.4-
1998 03 24	428 0.2- 0.2-	1998 04 20	428 0.8- 0.1-	1999 05 15	428 0.2+ 0.2-
1998 03 25	704 0.5+ 0.1-	1998 04 20	428 0.8- 0.1+	1999 05 15	428 0.6+ 0.1-
1998 03 25	704 0.5+ 0.9-	1998 04 21	704 0.5- 0.4+	1999 06 16	428 0.0 0.0
1998 03 25	704 0.4+ 0.5-	1998 04 21	704 0.7- 0.4+	1999 06 16	428 0.2+ 0.3+
1998 03 25	699 0.6+ 0.1-	1998 04 21	704 0.2+ 0.1+	1999 06 16	428 0.1- 0.1-
1998 03 25	704 1.5+ 0.3-	1998 04 21	704 0.2- 0.1+	1999 06 17	428 0.2- 0.3+
1998 03 25	699 0.1+ 0.2-	1998 04 21	704 0.2- 0.0	1999 06 20	428 0.4- 0.3+
1998 03 25	699 1.0- 0.2+	1998 04 22	704 0.8- 0.3-	1999 06 20	428 0.5- 0.3-
1998 03 25	704 0.4+ 1.4-	1998 04 22	704 1.0- 0.2+	1999 08 19	428 0.7- 0.1+
1998 03 25	428 0.2- 0.6+	1998 04 22	704 0.7- 0.1+	1999 08 19	428 0.0 0.1-
1998 03 25	428 0.3+ 0.4+	1998 04 22	704 0.9- 0.8+	1999 08 22	106 0.5- 0.1-
1998 03 25	428 0.2+ 0.2+	1998 04 28	428 1.2- 0.0	1999 08 22	106 0.7+ 0.3-
1998 03 29	704 0.6+ 0.5-	1998 04 28	428 0.2+ 0.2+	1999 08 22	106 0.3+ 0.0
1998 03 29	704 0.4+ 0.2-	1998 05 16	704 0.1+ 0.3+		
1998 03 29	704 0.7+ 0.4+	1998 05 16	704 0.2+ 0.3+		

(11366)* 1998 GL₉ = 1993 CP

Discovered 1998 Apr. 2 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32263)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	142.67373	(2000.0)	P	Q
<i>n</i>	0.21726041	ω 27.18945	-0.90545378	-0.36197757
<i>a</i>	2.7404107	Ω 129.79194	+0.31773855	-0.92429135
<i>e</i>	0.1381695	<i>i</i> 16.76564	+0.28141725	-0.12106919
<i>P</i>	4.54	<i>H</i> 13.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1951 12 27	675 0.0 0.1-	1998 04 23	566 0.3- 0.2+	1998 06 22	699 0.1- 0.3+
1951 12 27	675 0.0 0.7+	1998 04 23	566 0.4- 0.3+	1998 06 22	699 0.6- 0.1-
1993 01 27	010 0.7- 0.5-	1998 04 28	704 0.1- 0.3-	1998 06 22	699 0.4+ 0.4-
1993 01 27	010 1.0- 1.3-	1998 04 28	704 0.0 0.8+	1999 07 13	704 0.4+ 0.4-
1993 01 27	010 0.7- 1.4-	1998 04 28	704 0.1- 0.4+	1999 07 13	704 0.3+ 0.0
1993 02 10	399 1.0+ 0.5+	1998 04 28	704 0.7- 0.7+	1999 07 13	704 0.4+ 0.4-
1993 02 10	399 0.1+ 0.1-	1998 04 28	704 0.3- 0.7+	1999 07 13	704 0.3+ 0.4-
1993 02 13	399 1.8+ 0.2+	1998 05 28	704 0.5- 0.1-	1999 07 13	704 0.1- 1.2-
1993 02 13	399 (3.0+ 0.3-)	1998 05 28	704 0.2+ 0.4-	1999 07 16	704 0.4- 0.2+
1993 02 21	399 0.4- 1.8+	1998 05 28	704 1.0- 0.3+	1999 07 16	704 0.5+ 0.8-
1993 02 21	399 (0.1- 3.3+)	1998 05 28	704 1.4- 1.3-	1999 07 16	704 0.2- 0.0
1998 04 02	704 0.2+ 0.6-	1998 05 28	704 1.1- 0.7+	1999 07 16	704 0.1- 0.3-
1998 04 02	704 0.1- 0.2-	1998 06 17	704 1.1+ 0.1-	1999 07 16	704 0.2+ 0.3-

1998 04 02	704 0.3+ 0.7+	1998 06 17	704 1.6+ 0.3+	1999 07 20	699 0.1+ 0.3-
1998 04 03	704 0.5+ 0.4-	1998 06 17	704 0.4- 0.6-	1999 07 20	699 0.4- 1.2+
1998 04 03	704 0.9+ 0.3+	1998 06 17	704 0.9+ 0.5+	1999 07 20	699 0.0 1.4+
1998 04 03	704 0.5+ 0.4-	1998 06 17	704 0.5+ 1.0-	1999 08 07	691 0.4- 0.3-
1998 04 03	704 0.8+ 0.9-	1998 06 21	699 0.6- 0.9+	1999 08 07	691 0.2- 0.7+
1998 04 03	704 0.4+ 0.2-	1998 06 21	699 0.2+ 0.2-	1999 08 07	691 0.4- 0.8+
1998 04 23	566 0.4- 0.3+	1998 06 21	699 0.3- 0.4-		

(11367)* 1998 HJ₁₁₅ = 1989 AE₈

Discovered 1998 Apr. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Gnädig (*MPC* 34918), M. E. Sansaturio (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	334.78683	(2000.0)	P	Q
<i>n</i>	0.23610611	ω 197.75640	+0.99668021	+0.00895588
<i>a</i>	2.5925744	Ω 161.16795	+0.00473122	+0.98588061
<i>e</i>	0.1186987	<i>i</i> 14.51841	-0.08127836	+0.16721008
<i>P</i>	4.17	<i>H</i> 13.6	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1956 03 10	675 0.3+ 0.8+	1998 03 24	704 0.4- 0.1-	1998 05 23	704 1.3+ 0.8+
1956 03 10	675 (3.7+ 2.9-)	1998 04 23	704 0.3+ 0.2-	1998 05 23	704 1.9- 0.3+
1987 11 15	413 0.3+ 1.1+	1998 04 23	704 0.2- 0.0	1998 05 28	704 (0.9+ 2.4-)
1987 11 15	413 0.0 0.6-	1998 04 23	704 0.0 0.3+	1998 05 28	704 0.3+ 1.0-
1989 01 11	033 0.2+ 0.6+	1998 04 23	704 0.4- 1.4+	1998 05 28	704 (0.1- 2.8-)
1989 01 11	033 0.4- 1.1+	1998 04 23	704 (2.9+ 2.3-)	1998 05 28	704 1.1- 1.0-
1993 03 19	691 0.3- 0.0	1998 04 24	704 0.8+ 0.3-	1999 07 23	704 0.1- 0.4+
1993 03 19	691 0.2- 0.1-	1998 04 24	704 0.4+ 0.6-	1999 07 23	704 0.2+ 0.7+
1994 06 02	675 1.1- 0.1-	1998 04 24	704 0.2+ 0.1+	1999 07 23	704 0.1+ 0.2+
1994 06 02	675 0.1- 0.2+	1998 04 24	704 0.8+ 0.7+	1999 08 22	703 0.9- 0.4-
1998 03 24	704 0.2- 0.8-	1998 04 24	704 0.5+ 1.1-	1999 08 22	703 0.2+ 0.6+
1998 03 24	704 1.4+ 0.7+	1998 05 23	704 0.7+ 0.5+	1999 08 22	703 0.0 0.1+
1998 03 24	704 0.6- 0.9+	1998 05 23	704 0.0 0.2+	1999 08 22	703 0.2+ 0.4+
1998 03 24	704 0.4- 0.6-	1998 05 23	704 0.1+ 0.5-		

(11368)* 1998 HN₁₁₅ = 1985 SQ = 1986 XW₄ = 1989 LL₁ = 1996 XP₂₃

Discovered 1998 Apr. 23 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 32271, *MPC* 34532), A. Doppler (*ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	46.05550	(2000.0)	P	Q
<i>n</i>	0.21125765	ω 151.40568	+0.18248396	+0.97359217
<i>a</i>	2.7920794	Ω 128.76975	-0.93225785	+0.21566607
<i>e</i>	0.1272795	<i>i</i> 10.13362	-0.31240182	-0.07487610
<i>P</i>	4.67	<i>H</i> 13.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1985 09 17	801 0.2+ 1.1+	1997 02 14	691 0.3+ 0.2+	1998 05 23	704 1.3- 0.7+
1986 12 05	010 (6.3+ 0.2-)	1998 03 24	704 0.5+ 0.5-	1998 05 27	699 0.9+ 0.1-
1986 12 05	010 (3.1+ 0.4-)	1998 03 24	704 0.3+ 0.2-	1998 05 27	699 0.6+ 0.6+
1986 12 05	010 0.6- 0.2+	1998 03 24	704 0.1- 0.8-	1998 05 27	699 0.6+ 0.2+
1989 06 02	400 (7.4- 9.8-)	1998 03 24	704 0.6- 1.1-	1998 05 28	704 0.7+ 0.1-
1989 06 02	400 (7.6- 8.1-)	1998 03 24	704 1.0- 0.5+	1998 05 28	704 0.5+ 0.2+
1989 06 02	400(11.2- 6.7-)	1998 04 23	704 0.5- 0.3+	1998 05 28	704 0.7+ 0.2+
1991 12 03	691 0.2- 0.8+	1998 04 23	704 0.3+ 0.2+	1998 05 28	704 0.7+ 1.0-
1991 12 03	691 0.6- 0.8+	1998 04 23	704 0.2+ 0.0	1998 05 28	704 0.7- 0.4+
1996 12 12	691 0.3+ 0.3+	1998 04 23	704 0.4- 0.7-	1998 06 17	704 (0.0 2.9+)
1996 12 12	691 0.4+ 0.4+	1998 04 23	704 0.8- 1.0-	1998 06 17	704 1.7- 1.6+
1996 12 12	691 0.3+ 0.3+	1998 04 24	704 0.0 0.5+	1998 06 17	704 0.4- 0.1+
1996 12 13	691 0.3+ 0.4+	1998 04 24	704 0.3- 0.0	1998 06 17	704 (2.6- 0.5-)
1996 12 13	691 0.4+ 0.4+	1998 04 24	704 0.2- 0.1-	1999 07 16	704 0.5- 0.2+
1996 12 13	691 0.2+ 0.4+	1998 04 24	704 0.3- 0.1-	1999 07 16	704 0.0 0.2+
1997 02 04	691 0.6- 0.5-	1998 04 24	704 0.4+ 0.2+	1999 07 16	704 0.3+ 0.3+
1997 02 04	691 0.5- 0.4-	1998 05 23	704 0.6+ 0.4+	1999 07 16	704 0.5+ 0.8-
1997 02 04	691 0.5- 0.3-	1998 05 23	704 0.6+ 1.1+	1999 08 12	699 0.3- 0.3+

1997 02 14 691 0.5+ 0.2- 1998 05 23 704 0.0 0.2+ 1999 08 12 699 0.5- 0.0
 1997 02 14 691 0.7+ 0.2- 1998 05 23 704 0.9+ 0.8+ 1999 08 12 699 0.2+ 0.2+

(11369)* 1998 QE₃₃ = 1993 DW

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid
 Research Team at Socorro.

Id. G. V. Williams (*MPC* 32699)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	343.32460	(2000.0)	P	Q	
<i>n</i>	0.27930141	ω	233.53184	-0.18765404	-0.98127147
<i>a</i>	2.3178605	Ω	227.34448	+0.91904669	-0.15978176
<i>e</i>	0.1134855	<i>i</i>	3.39094	+0.34661093	-0.10759228
<i>P</i>	3.53	<i>H</i>	14.8	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1993 02 15	399	(4.3- 0.1+)	1997 05 07	704	0.3+ 0.3+	1998 09 14	704	0.7+ 1.2-
1993 02 15	399	(7.1- 0.3-)	1997 05 07	704	0.1- 1.0+	1998 09 14	704	0.9- 0.4+
1993 02 21	399	0.6- 0.2-	1997 05 07	704	0.2- 0.3+	1998 09 14	704	(2.2+ 0.4-)
1993 02 21	399	0.4- 0.8+	1997 05 07	704	0.7- 0.0	1998 09 14	704	0.7- 1.1-
1993 02 25	399	0.8+ 1.1+	1998 08 17	704	0.2- 0.0	1998 09 14	704	0.7- 0.9+
1993 02 25	399	0.9+ 1.3+	1998 08 17	704	0.1+ 0.9+	1998 09 15	699	0.7+ 1.8+
1995 11 14	691	0.2+ 0.4-	1998 08 17	704	0.3+ 1.2-	1998 09 15	699	0.6- 1.3+
1995 11 14	691	0.3+ 0.2-	1998 08 17	704	(2.7- 0.8-)	1998 09 15	699	0.5+ 0.6+
1995 11 14	691	0.1+ 0.2-	1998 08 17	704	(1.3- 2.4-)	1998 09 18	704	0.6+ 0.1-
1995 12 16	691	0.2- 0.1-	1998 08 23	704	0.0 0.6+	1998 09 18	704	0.8- 0.1-
1995 12 16	691	0.1+ 0.2+	1998 08 23	704	(3.6+ 1.9-)	1998 09 18	704	0.0 0.0
1995 12 16	691	0.0 0.2+	1998 08 23	704	1.7+ 0.4-	1998 09 18	704	0.4- 0.1-
1997 04 11	704	0.4- 0.4-	1998 08 23	704	0.9- 0.2-	1998 12 08	910	(2.6- 0.6-)
1997 04 11	704	0.4+ 0.7-	1998 08 26	699	0.8+ 1.0+	1998 12 08	910	1.7- 0.2-
1997 04 11	704	0.6+ 0.4-	1998 08 26	699	0.4+ 0.1-	1998 12 08	910	1.9- 0.9-
1997 04 11	704	0.4+ 0.7-	1998 08 26	699	0.1- 0.5+			

(11370)* 1998 QD₃₅ = 1997 HB₈ = 3198 T-1

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid
 Research Team at Socorro.

Id. G. V. Williams (*MPC* 32700), A. Milani (*MPC* 34219)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	64.84611	(2000.0)	P	Q	
<i>n</i>	0.23074518	ω	291.86630	+0.99715269	+0.07509033
<i>a</i>	2.6325763	Ω	63.82786	-0.06602519	+0.91374481
<i>e</i>	0.1063146	<i>i</i>	0.44211	-0.03643061	+0.39928919
<i>P</i>	4.27	<i>H</i>	15.2	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1971 03 25	675	0.9- 0.3-	1997 04 30	704	(2.1- 0.5+)	1998 09 14	704	0.1- 1.1-
1971 03 26	675	0.0 0.4+	1997 05 01	704	0.5+ 0.0	1998 09 14	704	1.6- 0.2+
1971 03 26	675	0.1+ 0.9-	1997 05 01	704	(0.7+ 2.6+)	1998 09 14	704	1.0- 0.9+
1971 03 27	675	0.1- 0.4-	1997 05 01	704	0.2+ 0.2-	1998 09 14	699	0.4- 0.4+
1992 02 09	691	0.7- 0.1-	1997 05 01	704	0.1- 0.1+	1998 09 14	699	0.5+ 0.8+
1992 02 09	691	0.7- 0.1+	1997 05 01	704	0.3+ 0.1-	1998 09 14	699	0.3- 1.3+
1992 02 09	691	0.7+ 1.2-	1998 08 17	704	1.4+ 0.4+	1998 09 18	704	0.6+ 0.3-
1992 02 24	691	0.1- 0.2+	1998 08 17	704	1.2+ 1.0-	1998 09 18	704	1.4- 0.2+
1992 02 24	691	1.2- 0.1+	1998 08 17	704	1.6+ 1.4+	1998 09 18	704	1.5+ 0.6-
1992 02 24	691	0.4+ 0.3+	1998 08 17	704	0.0 1.6-	1998 09 18	704	0.5- 1.0-
1994 11 01	691	0.1+ 0.4+	1998 08 23	704	0.6- 0.1+	1998 10 20	910	0.2- 0.7-
1994 11 01	691	0.7+ 0.6+	1998 08 23	704	0.9- 0.5-	1998 10 20	910	0.3- 0.9-
1994 11 01	691	0.6+ 0.4+	1998 08 23	704	0.4- 0.2-	1998 10 20	910	0.3- 0.9-
1997 04 30	704	0.7+ 0.1+	1998 08 23	704	0.9- 0.6+	1998 10 21	910	0.4- 0.6-
1997 04 30	704	0.1- 0.5+	1998 09 14	704	1.3+ 0.6+	1998 10 21	910	0.3- 0.4-
1997 04 30	704	0.2+ 0.0	1998 09 14	704	0.6+ 0.1-	1998 10 21	910	0.1- 0.5-

(11371)* 1998 QO₃₈ = 1980 FS₇ = 1991 PY₈ = 1995 UV₂₃ = 1997 ER₄₂

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid
 Research Team at Socorro.

Id. G. V. Williams (*MPC* 32703)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	171.20768	(2000.0)	P	Q	
<i>n</i>	0.28712546	ω	333.92097	-0.28197379	+0.95876066
<i>a</i>	2.2755598	Ω	279.68408	-0.87381311	-0.27196632
<i>e</i>	0.1232646	<i>i</i>	2.07083	-0.39615834	-0.08253681
<i>P</i>	3.43	<i>H</i>	15.2	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1980 03 23	809	0.8+ 0.2-	1997 03 11	704	0.1+ 1.1+	1998 09 14	704	0.2+ 0.2+
1991 08 05	675	0.0 0.7-	1997 03 11	704	0.4- 1.0+	1998 09 14	704	0.4+ 0.5+
1991 08 05	675	0.3- 0.8-	1997 03 12	704	0.2- 0.5+	1998 09 14	704	0.6- 0.6+
1991 08 08	675	0.6- 1.0-	1997 03 12	704	0.6- 0.2-	1998 09 14	699	0.1- 1.4+
1991 08 08	675	0.3- 1.0+	1998 08 17	704	0.1- 0.1-	1998 09 14	699	0.4- 0.5+
1995 10 19	691	0.6+ 0.3-	1998 08 17	704	0.0 0.1+	1998 09 14	699	0.0 1.1+
1995 10 19	691	0.2+ 0.1-	1998 08 17	704	0.3- 0.1-	1998 09 18	704	0.4+ 0.3-
1995 10 19	691	0.0 0.0	1998 08 17	704	0.5- 0.7+	1998 09 18	704	0.8+ 0.9-
1995 10 24	691	0.2- 0.2-	1998 08 17	704	0.0 0.6-	1998 09 18	699	0.5+ 1.6+
1995 10 24	691	0.2- 0.2-	1998 08 23	704	0.4+ 0.9-	1998 09 18	704	1.7+ 1.4-
1995 10 24	691	0.1+ 0.2-	1998 08 23	704	0.6- 0.3+	1998 09 18	699	0.2+ 0.6+
1995 11 28	691	0.1- 0.5-	1998 08 23	704	1.0- 1.4-	1998 09 18	704	0.6+ 1.4+
1995 11 28	691	0.1- 0.1-	1998 08 23	704	1.3- 1.0+	1998 09 18	704	0.4- 0.8+
1995 11 28	691	0.6- 0.1-	1998 08 23	704	(2.3- 0.3+)	1998 09 18	699	0.7+ 0.8+
1997 03 10	704	1.1+ 1.0+	1998 09 14	704	0.2+ 0.3+			
1997 03 10	704	1.0+ 0.9+	1998 09 14	704	0.8- 0.2+			

(11372)* 1998 QP₄₁ = 1979 SP₈ = 1992 HT₆

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid
 Research Team at Socorro.

Id. A. Gnädig (*MPC* 32976)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	76.77501	(2000.0)	P	Q	
<i>n</i>	0.20560746	ω	322.19074	+0.90060132	+0.43458702
<i>a</i>	2.8429996	Ω	12.05642	-0.38994441	+0.81515257
<i>e</i>	0.0754600	<i>i</i>	1.96660	-0.19199119	+0.38296268
<i>P</i>	4.79	<i>H</i>	14.0	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1951 11 08	675	1.6- 0.5-	1997 05 31	566	0.5+ 0.9-	1998 09 14	704	0.1+ 0.2-
1951 12 27	675	1.8+ 1.0-	1998 08 17	704	0.0 0.0	1998 09 14	704	0.7+ 0.7+
1979 09 24	095	(1.0+ 2.8-)	1998 08 17	704	0.5- 0.2+	1998 09 14	704	0.4- 0.7+
1992 04 25	809	1.0- 0.3+	1998 08 17	704	0.2+ 0.3+	1998 09 14	704	0.1- 0.1+
1992 04 25	809	0.9- 0.0	1998 08 17	704	0.3- 0.8+	1998 09 14	704	0.6+ 0.4+
1992 04 25	809	1.2- 0.2+	1998 08 23	704	0.8+ 0.1+	1998 09 18	704	0.3+ 0.3-
1992 05 30	413	(0.9+ 2.2-)	1998 08 23	704	0.0 0.6+	1998 09 18	704	(0.8+ 2.2-)
1992 05 30	413	0.4+ 0.1+	1998 08 23	704	0.2- 0.5-	1998 09 18	704	0.5+ 1.5-
1996 02 14	691	0.0 0.1-	1998 08 23	704	1.1- 0.8-	1998 09 18	704	0.5+ 1.9-
1996 02 14	691	0.1- 0.1-	1998 08 23	704	1.7- 0.0	1998 09 18	704	0.4- 1.4-
1996 02 14	691	0.3+ 0.3-	1998 08 30	699	0.5+ 0.9+	1998 09 30	691	0.1- 0.6-
1997 05 31	566	0.8+ 0.6-	1998 08 30	699	0.8- 1.3+	1998 09 30	691	0.0 0.3-
1997 05 31	566	0.7+ 1.1-	1998 08 30	699	1.3+ 0.4+	1998 09 30	691	0.1+ 0.1-

(11373)* 1998 QG₄₉ = 3262 T-1

Discovered 1998 Aug. 17 by the Lincoln Laboratory Near-Earth Asteroid
 Research Team at Socorro.

Id. G. V. Williams (*MPC* 32713)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	113.38612	(2000.0)	P	Q	
<i>n</i>	0.30172720	ω	297.42457	+0.86385097	+0.50338247
<i>a</i>	2.2015391	Ω	32.36188	-0.44861104	+0.78605609
<i>e</i>	0.1283194	<i>i</i>	2.05272	-0.22914982	+0.35877836
<i>P</i>	3.27	<i>H</i>	15.4	<i>G</i>	0.15 <i>U</i> 2

(11382)* 1998 SW₁₂₇ = 1991 LO₅ = 2200 T-1

Discovered 1998 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. A. Doppler (*MPC* 33289)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	118.67609	ω	193.43181	+0.95002216	+0.31026444		
<i>a</i>	2.1901501	Ω	148.42610	−0.27997890	+0.89574574		
<i>e</i>	0.1565039	<i>i</i>	3.78371	−0.13809311	+0.31839527		
<i>P</i>	3.24	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1971 03 24	675	(3.0− 3.9−)	1998 09 26	704	0.7− 0.3−	1998 10 19	699	0.1+ 0.1−
1971 03 25	675	0.9+ 0.6−	1998 09 26	704	0.3+ 0.5+	1998 10 28	704	0.0 0.4−
1971 03 25	675	0.3+ 2.2−	1998 09 26	704	0.2− 1.0+	1998 10 28	704	0.4− 0.2+
1971 03 26	675	1.6− 0.8−	1998 09 26	704	0.6+ 0.3+	1998 10 28	704	0.1+ 0.1+
1971 03 27	675	0.8− 0.1+	1998 09 27	704	1.1+ 0.2−	1998 10 28	704	0.3− 0.1−
1991 06 06	809	1.8+ 0.3−	1998 09 27	704	1.3+ 0.4−	1998 10 28	704	1.1− 0.4+
1991 06 06	809	0.8+ 0.8−	1998 09 27	704	0.5+ 0.4−	1998 10 29	704	0.3+ 0.3−
1991 06 06	809	(2.7+ 1.4−)	1998 09 27	704	0.4+ 1.6−	1998 10 29	704	0.4− 0.3+
1991 06 08	809	1.1− 0.4+	1998 09 27	704	1.0+ 0.9−	1998 10 29	704	0.7− 0.4−
1991 06 08	809	(2.2− 0.3−)	1998 10 10	699	0.9+ 0.2+	1998 10 29	704	0.9+ 0.8−
1991 06 08	809	1.8− 0.8−	1998 10 10	699	0.3+ 0.5+	1998 10 29	704	0.4− 0.7−
1996 01 14	691	0.1+ 0.5−	1998 10 10	699	0.2+ 0.5+	1998 11 11	699	1.1− 0.1−
1996 01 14	691	0.1+ 0.1−	1998 10 17	699	0.1− 0.2−	1998 11 11	699	0.9− 0.2−
1996 01 14	691	0.1+ 0.7−	1998 10 17	699	0.1+ 0.1−	1998 11 11	699	0.6− 0.1+
1998 09 24	699	0.6− 0.1+	1998 10 17	699	0.1+ 0.1−	1998 11 25	699	0.2+ 0.7+
1998 09 24	699	0.2− 0.0	1998 10 19	699	0.3+ 0.0	1998 11 25	699	0.5− 0.6−
1998 09 24	699	0.2− 0.1−	1998 10 19	699	0.7+ 0.0	1998 11 25	699	0.6− 0.1−

(11383)* 1998 SD₁₂₈ = 1980 WE₄ = 1989 SM₁₂ = 1991 EL₆ = 1997 NM₆

Discovered 1998 Sept. 26 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 33043)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	1.49695	ω	341.15989	−0.07982528	−0.99563762		
<i>a</i>	2.7625086	Ω	113.39502	+0.92118244	−0.09219866		
<i>e</i>	0.1084026	<i>i</i>	3.01716	+0.38085541	+0.01432232		
<i>P</i>	4.59	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1980 11 29	675	0.4+ 0.6+	1998 09 26	704	0.9+ 0.3+	1998 10 28	704	0.1− 0.2+
1980 12 01	675	0.0 0.0	1998 09 26	704	0.4+ 0.4−	1998 10 28	704	0.4− 0.3+
1989 09 28	675	0.4+ 1.8−	1998 09 26	704	0.4+ 0.0	1998 10 29	704	1.4+ 1.2−
1989 09 28	675	(0.9+ 2.7−)	1998 09 26	704	0.3− 0.2+	1998 10 29	704	(3.0− 0.4+)
1991 03 05	071	1.2− 0.7+	1998 09 27	704	0.0 0.3−	1998 10 29	704	0.7− 0.2+
1991 03 05	071	(1.0− 2.7+)	1998 09 27	704	0.2+ 0.5+	1998 10 29	704	0.1− 0.0
1996 03 26	809	(2.5+ 1.0+)	1998 09 27	704	0.6− 0.9+	1998 10 29	704	0.3− 0.2−
1996 03 26	809	0.9+ 0.8+	1998 09 27	704	0.4+ 1.2−	1998 11 10	704	0.2− 0.2+
1996 03 26	809	1.5+ 0.6+	1998 09 27	704	1.4− 1.0−	1998 11 10	704	0.4+ 1.4+
1997 07 01	327	0.4+ 0.4+	1998 10 10	699	0.2+ 0.5+	1998 11 10	704	0.3− 0.7−
1997 07 01	327	0.2− 0.1+	1998 10 10	699	0.4+ 0.1−	1998 11 10	704	0.9− 0.1+
1997 07 09	327	0.1− 0.4+	1998 10 10	699	0.2+ 0.2+	1998 12 08	699	0.7+ 0.0
1997 07 09	327	0.6− 0.1−	1998 10 19	699	0.0 0.2+	1998 12 08	699	1.4− 0.2+
1997 07 09	327	0.4− 0.4−	1998 10 19	699	0.3− 0.1−	1998 12 08	699	0.1+ 0.1−
1998 09 18	699	0.3− 0.7+	1998 10 19	699	0.2− 0.2+	1999 01 11	704	0.6− 0.3+
1998 09 18	699	0.1− 0.7+	1998 10 28	704	0.3− 0.2−	1999 01 11	704	0.3− 0.7+
1998 09 18	699	0.3+ 0.2+	1998 10 28	704	0.1− 0.7+	1999 01 11	704	0.2+ 0.3−
1998 09 26	704	0.3+ 0.1+	1998 10 28	704	0.3+ 0.3+	1999 01 11	704	0.3+ 0.5+

(11384)* 1998 SW₁₄₃ = 1979 OK₂ = 1997 HK₈

Discovered 1998 Sept. 18 by E. W. Elst at the European Southern Observatory.

Id. G. V. Williams (*MPC* 33296)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	97.54677	ω	183.53431	+0.99936407	+0.03536922		
<i>a</i>	2.3998019	Ω	174.43272	−0.03146470	+0.93443351		
<i>e</i>	0.1841565	<i>i</i>	2.67385	−0.01677610	+0.35437696		
<i>P</i>	3.72	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 07 24	675	(5.3+ 0.4+)	1997 05 01	704	1.4+ 0.7+	1998 10 10	699	0.1+ 1.7−
1979 07 24	413	0.2+ 0.2−	1997 05 01	704	0.8+ 0.1−	1998 10 10	699	0.9+ 0.1−
1979 07 25	675	0.4+ 0.2+	1997 05 01	704	0.0 0.6+	1998 10 10	699	0.6− 0.0
1979 07 27	675	0.2− 0.3+	1997 05 01	704	0.7− 0.4+	1998 10 28	704	0.7− 0.3+
1993 03 24	809	1.1− 1.3+	1997 05 05	704	1.4− 0.1−	1998 10 28	704	0.5− 0.2+
1994 06 09	691	1.0− 0.4+	1997 05 05	704	0.6+ 0.6−	1998 10 28	704	0.7+ 0.4+
1994 06 09	691	0.6− 0.2−	1997 05 05	704	0.6− 0.3+	1998 10 28	704	0.2+ 0.5−
1994 06 09	691	0.7− 0.3+	1997 05 05	704	0.6+ 0.2−	1998 10 29	704	0.6− 0.4+
1995 11 20	691	0.1− 0.2+	1998 09 18	809	(2.7+ 0.6+)	1998 10 29	704	0.2− 0.4+
1995 11 20	691	0.3− 0.7−	1998 09 18	809	1.4+ 0.8−	1998 10 29	704	0.1− 0.5+
1995 11 20	691	0.0 0.1+	1998 09 18	809	0.5+ 0.8−	1998 10 29	704	1.0− 0.8−
1995 12 20	691	(0.3+ 4.2+)	1998 09 20	809	(2.3+ 0.3+)	1998 10 29	704	1.1− 0.5−
1995 12 20	691	0.1− 0.1+	1998 09 20	809	1.4+ 0.7−	1998 11 10	704	1.5+ 1.4+
1995 12 20	691	0.0 0.2+	1998 09 20	809	1.6+ 0.3−	1998 11 10	704	0.5+ 0.3+
1995 12 26	691	0.2+ 0.0	1998 09 26	704	(0.5− 2.4+)	1998 11 10	704	1.5− 0.1−
1995 12 26	691	0.1− 0.1−	1998 09 26	704	1.3+ 0.6−	1998 11 10	704	0.2− 0.7+
1995 12 26	691	0.1+ 0.0	1998 09 26	704	0.0 0.0	1998 11 11	704	0.7+ 0.0
1997 04 30	704	0.5+ 0.2+	1998 09 26	704	0.5− 0.7+	1998 11 11	704	0.3− 0.0
1997 04 30	704	0.7+ 0.5−	1998 09 27	704	(0.6− 2.1+)	1998 11 11	704	0.5+ 0.7+
1997 04 30	704	0.0 0.2+	1998 09 27	704	(0.3+ 3.6+)	1998 11 11	704	0.0 0.4+
1997 04 30	704	0.3+ 0.9−	1998 09 27	704	1.2− 1.9+	1998 11 11	704	1.4− 0.1+
1997 05 01	704	0.0 0.0	1998 09 27	704	0.8− 0.1−			

(11385)* 1998 SP₁₄₇ = 1979 BO₂ = 1990 DA₄

Discovered 1998 Sept. 20 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (*MPC* 33298)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	173.22195	ω	152.72747	−0.07536918	+0.99616248		
<i>a</i>	3.0262972	Ω	112.92178	−0.92345244	−0.05289251		
<i>e</i>	0.0758744	<i>i</i>	2.76902	−0.37623806	−0.06973307		
<i>P</i>	5.26	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1979 01 27	675	0.6+ 0.8−	1992 08 03	675	0.0 1.4−	1998 09 21	809	0.1− 0.1+
1979 01 29	675	1.0− 0.4+	1996 03 26	566	0.4− 0.4+	1998 10 14	699	0.6− 0.5+
1990 02 27	809	0.0 1.3−	1996 03 26	566	0.4− 0.4+	1998 10 14	699	0.6− 0.0
1990 02 27	809	0.0 1.4−	1996 03 26	566	0.4− 0.5+	1998 10 14	699	0.5− 0.0
1990 02 27	809	0.3+ 1.5−	1997 08 03	566	0.4+ 0.4−	1998 10 20	699	0.4− 0.2−
1990 02 28	809	0.4+ 0.0	1997 08 03	566	0.5+ 0.3−	1998 10 20	699	0.2− 0.3+
1990 02 28	809	0.3+ 0.0	1997 08 03	566	0.7+ 0.2−	1998 10 20	699	0.1− 0.0
1990 02 28	809	0.0 0.0	1998 09 18	699	1.1− 1.5+	1998 11 10	704	0.7− 0.8+
1990 02 28	809	0.5− 0.4+	1998 09 18	699	0.6− 0.7−	1998 11 10	704	0.1+ 0.0
1990 02 28	809	0.3− 0.5+	1998 09 18	699	0.3− 0.4+	1998 11 10	704	1.0+ 0.7−
1990 02 28	809	0.3− 0.5+	1998 09 20	809	1.6+ 0.1+	1998 11 10	704	0.4− 1.4−
1990 03 01	809	0.1+ 0.0	1998 09 20	809	0.2+ 0.7−	1998 11 11	704	(2.4− 1.4−)
1990 03 01	809	0.5+ 0.0	1998 09 20	809	0.4+ 1.2+	1998 11 11	704	0.0 0.5+
1990 03 01	809	0.6+ 0.1−	1998 09 21	809	0.8+ 0.4−	1998 11 11	704	0.1+ 1.1−
1992 08 03	675	0.2− 0.3−	1998 09 21	809	0.2+ 0.3+	1998 11 11	704	0.1+ 0.1−

(11386)* 1998 TA₁₈ = 1973 YY₂ = 1984 YQ₅ = 1984 YT₆ = 1987 QU₉ = 1991 XJ₂

Discovered 1998 Oct. 12 by S. Ueda and H. Kaneda at Kushiro. Id. S. Nakano (*MPC* 33049)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Nakano						
M	94.29126			(2000.0)			P			Q		
n	0.27357440			ω	96.78068		+0.99260853			+0.02666279		
a	2.3500967			Ω	261.73958		-0.07000830			+0.92268306		
e	0.2759593			i	6.87111		+0.09913199			+0.38463629		
P	3.60			H	13.6		G	0.15		U	2	
Residuals in seconds of arc												
1973 12 25	095	0.8-	0.8-	1998 06 30	704	0.5+	0.0	1998 11 17	699	0.6+	1.2+	
1984 12 20	010	0.5+	0.5+	1998 06 30	704	(0.6+	2.5+)	1998 11 17	699	0.7+	1.0+	
1984 12 28	095	1.6-	0.7+	1998 06 30	704	1.0+	0.1+	1998 12 09	704	0.9-	0.3-	
1984 12 28	010	1.1+	0.7-	1998 09 20	699	0.6+	0.4+	1998 12 09	704	0.2+	0.1+	
1987 08 26	095	0.4+	0.5-	1998 09 20	699	0.6+	0.4+	1998 12 09	704	0.6+	0.2-	
1991 12 01	675	(0.6+	2.3-)	1998 09 20	699	0.7+	0.6+	1998 12 09	704	0.4+	1.2-	
1991 12 01	675	0.8+	0.3-	1998 10 12	399	1.7-	0.6-	1998 12 09	704	1.5+	0.4-	
1991 12 03	675	0.6+	1.1-	1998 10 12	399	1.3-	0.8-	1999 01 08	704	0.2-	0.5+	
1991 12 03	675	1.0+	0.1+	1998 10 20	399	0.0	0.3-	1999 01 08	704	0.5-	0.2+	
1991 12 30	691	0.0	0.4+	1998 10 20	399	0.2+	0.2+	1999 01 08	704	0.3+	0.6-	
1991 12 30	691	0.1+	0.5+	1998 10 25	399	0.1-	0.2-	1999 01 08	704	0.3+	0.2+	
1991 12 30	691	0.3-	0.6+	1998 10 25	399	0.9-	1.2-	1999 01 08	704	0.8+	1.0+	
1998 06 30	704	1.7-	0.3+	1998 10 28	399	0.1+	0.0	1999 02 17	910	2.0-	0.8+	
1998 06 30	704	(0.9-	2.4+)	1998 10 28	399	0.2+	0.5-	1999 02 17	910	2.0-	0.1-	
1998 06 30	704	1.3-	1.1+	1998 11 17	699	0.8+	1.0+	1999 02 17	910	2.1-	0.0	

(11387)* 1998 UA₃₇ = 1972 TH₃ = 1981 UH₇ = 1985 TY₂ = 1989 RO₄

Discovered 1998 Oct. 28 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 34224)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
M	130.68401		(2000.0)		P		Q				
n	0.22862093	ω	291.92607		+0.48126990		+0.87656032				
a	2.6488583	Ω	6.84772		-0.78928633		+0.43563026				
e	0.2280527	i	2.21760		-0.38132187		+0.20461741				
P	4.31	H	13.8	G	0.15	U	1				
Residuals in seconds of arc											
1972 10 05	095	2.0+	0.5-	1995 12 27	691	0.1-	0.4-	1998 10 29	704	0.5+	0.1+
1981 10 30	381	1.6-	0.3-	1998 09 14	699	0.1+	0.2-	1998 10 29	704	0.2-	0.3+
1981 10 30	381	0.4+	0.6-	1998 09 14	699	0.3+	0.1-	1998 10 29	704	0.8+	0.8+
1981 10 30	381	0.8-	0.8+	1998 09 14	699	0.1+	0.1-	1998 11 11	704	0.6-	0.8+
1981 10 30	381	0.8-	0.3-	1998 09 20	809	(1.3-	3.3-)	1998 11 11	704	0.7-	1.3+
1985 10 11	010	1.5-	1.4+	1998 09 20	809	(1.0-	2.7-)	1998 11 11	704	0.9+	0.9+
1985 10 11	010	1.4+	1.1-	1998 09 20	809	(1.0-	2.2-)	1998 11 11	704	0.5+	0.3-
1989 09 02	071	0.3+	0.6-	1998 09 30	691	1.0-	0.3-	1998 11 11	704	1.0-	0.3-
1989 09 02	071	1.6-	0.2-	1998 09 30	691	0.8-	0.2-	1998 11 14	699	0.6+	0.3+
1989 09 03	071	0.7+	0.4-	1998 09 30	691	0.9-	0.7-	1998 11 14	699	0.1+	1.1+
1989 09 03	071	0.3-	0.4+	1998 10 10	699	0.9+	0.3+	1998 11 14	699	0.1-	0.2+
1992 02 28	691	0.1+	0.2-	1998 10 10	699	0.4+	0.3+	1998 11 23	699	0.4+	0.1-
1992 02 28	691	0.2+	0.2-	1998 10 10	699	0.4+	0.0	1998 11 23	699	0.1+	0.2-
1992 02 28	691	0.3+	0.6-	1998 10 28	704	0.1+	0.3-	1998 11 23	699	0.0	0.4+
1995 12 20	691	0.0	0.1-	1998 10 28	704	0.4+	0.7-	1999 01 11	704	1.9+	1.1-
1995 12 20	691	0.1-	0.1+	1998 10 28	704	0.3-	0.1-	1999 01 11	704	0.6-	0.1+
1995 12 20	691	0.1+	0.1-	1998 10 28	704	0.4-	0.3+	1999 01 11	704	1.1-	0.1-
1995 12 27	691	0.3-	0.1+	1998 10 29	704	0.1+	0.5+	1999 01 11	704	(4.0-	1.3-
1995 12 27	691	0.2-	0.1+	1998 10 29	704	0.6+	1.7-				

**(11388)* 1998 VU₄ = 1974 VA₂ = 1982 VS₃ = 1982 XG₂ = 1982 XM₂
= 1985 FL₁ = 1990 XR = 1992 BM₅**

Discovered 1998 Nov. 11 by L. Šarounová at Ondřejov.

Id. G. V. Williams (*MPC* 33316), H. Oishi (d, NPC 12360)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
<i>M</i>	326.42884		(2000.0)		P	Q					
<i>n</i>	0.12556280		ω	282.18890	-0.75824980		-0.64617019				
<i>a</i>	3.9496814		Ω	217.65563	+0.63965605		-0.71159851				
<i>e</i>	0.1102395		<i>i</i>	8.16129	+0.12608479		-0.27584713				
<i>P</i>	7.85 <th><i>H</i></th> <td>11.3<th><i>G</i></th><td colspan="2">0.15<th><i>U</i></th><td colspan="2">1</td><td></td></td></td>		<i>H</i>	11.3 <th><i>G</i></th> <td colspan="2">0.15<th><i>U</i></th><td colspan="2">1</td><td></td></td>	<i>G</i>	0.15 <th><i>U</i></th> <td colspan="2">1</td> <td></td>		<i>U</i>	1		
Residuals in seconds of arc											
1974 11 15	095	(1.6-	4.5+)	1997 10 30	704	0.8-	1.1+	1998 11 24	704	1.4+	0.7+
1982 11 14	381	(0.2+	63.4+)	1997 10 30	704	0.0	0.2+	1998 11 24	704	0.6+	1.2+
1982 11 14	381	0.5-	0.5-	1997 10 30	704	1.1-	0.5+	1998 11 24	704	0.2+	1.4+
1982 12 13	381	0.2-	0.5+	1998 11 10	704	0.3+	1.1-	1998 11 24	704	(0.8+	2.5+)
1982 12 13	381	0.4-	0.0	1998 11 10	704	(2.3-	1.5-)	1998 12 08	699	0.3+	0.2-
1982 12 13	381	0.0	0.2-	1998 11 10	704	0.3-	0.0	1998 12 08	699	0.5+	0.4-
1982 12 14	381	0.9-	0.4-	1998 11 10	704	(2.5-	1.5+)	1998 12 08	699	0.3+	0.4-
1982 12 14	381	0.1+	0.9-	1998 11 10	704	(3.9-	1.4-)	1998 12 08	557	0.3-	0.5-
1982 12 14	381	0.8+	0.8+	1998 11 11	699	0.1+	0.1+	1998 12 08	557	0.3-	0.6-
1982 12 14	381	0.2+	1.1+	1998 11 11	699	0.4-	0.1+	1998 12 08	557	0.0	0.5-
1985 03 22	688	0.4-	1.1+	1998 11 11	699	0.2+	0.2+	1998 12 12	691	0.9-	0.3-
1985 03 22	688	0.3+	0.2+	1998 11 11	557	0.2-	0.1+	1998 12 12	691	0.9-	0.6-
1990 12 10	372	(3.0-	0.6+)	1998 11 11	557	0.2-	0.1+	1998 12 12	691	1.1-	0.2-
1990 12 10	372	(3.0-	2.2+)	1998 11 11	557	0.2-	0.0	1998 12 15	704	0.8-	0.6+
1990 12 12	372	0.6+	0.9-	1998 11 12	557	0.2+	0.0	1998 12 15	704	0.8+	0.6+
1990 12 12	372	0.8+	0.1+	1998 11 12	557	0.0	0.0	1998 12 15	704	0.8-	0.8+
1992 01 30	809	0.8+	1.4-	1998 11 13	557	0.0	0.2-	1998 12 15	704	(2.9-	0.4+)
1992 01 30	809	0.1+	1.1-	1998 11 13	557	0.1-	0.0	1998 12 17	557	0.1+	0.7+
1992 01 30	809	0.2-	0.8-	1998 11 18	704	1.0-	0.3-	1998 12 17	557	0.1+	0.5+
1997 10 01	566	0.2+	0.8-	1998 11 18	704	0.5-	0.6-	1998 12 18	557	0.0	0.7+
1997 10 01	566	0.1-	0.0	1998 11 18	704	0.1-	0.7-	1998 12 18	557	0.0	0.5+
1997 10 01	566	0.6+	1.1-	1998 11 18	704	0.0	1.6-	1998 12 26	691	1.1-	0.0
1997 10 28	704	(2.8+	2.0-)	1998 11 18	704	0.5-	1.9-	1998 12 26	691	1.2-	0.1+
1997 10 28	704	(4.3+	1.8-)	1998 11 20	557	0.1-	0.4+	1998 12 26	691	1.1-	0.3+
1997 10 28	704	1.9+	1.6-	1998 11 20	557	0.1-	0.4+	1999 01 07	699	1.6+	0.1-
1997 10 28	704	(3.2+	1.8-)	1998 11 23	699	0.4+	1.1+	1999 01 07	699	0.9+	0.3-
1997 10 28	704	(1.0+	5.6-)	1998 11 23	699	0.3+	0.9+	1999 01 07	699	0.6+	1.0+
1997 10 30	704	0.7+	0.5+	1998 11 23	699	0.1+	1.1+				
1997 10 30	704	0.1-	0.1+	1998 11 24	704	1.3+	0.6+				

(11389)* 1998 VV₅ = 1975 VT₂ = 1992 UU₁

Discovered 1998 Nov. 11 by T. Kobayashi at Oizumi.

Id. G. V. Williams (*MPC* 33317)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5						Williams					
M	51.77006		(2000.0)			P	Q				
n	0.17548482		ω	352.93552		+0.43648296		-0.89311058			
a	3.1596794		Ω	71.13564		+0.83099259		+0.35383620			
e	0.1110169		i	6.60186		+0.34486801		+0.27776507			
P	5.62		H	13.0		G	0.15		U	1	
Residuals in seconds of arc											
1975 10 29	033	0.7+	1.3-	1998 11 03	327	0.1+	0.1+	1998 12 14	704	0.1+	0.2+
1975 10 30	033	0.3+	0.5-	1998 11 03	327	0.1-	0.2-	1998 12 14	704	0.4-	0.7+
1975 10 31	033	0.7-	0.5-	1998 11 03	327	0.2+	0.2-	1998 12 14	704	1.0+	0.8+
1975 11 02	095	0.3+	0.1+	1998 11 04	327	0.3+	0.3+	1998 12 14	704	1.9-	0.7-
1992 10 21	402	1.1+	0.9+	1998 11 04	327	0.3-	0.7+	1998 12 17	704	0.1+	0.3+
1992 10 21	402	0.3+	0.2-	1998 11 04	327	0.1-	0.3+	1998 12 17	704	0.5-	0.6-
1992 10 24	402	0.5-	0.7+	1998 11 09	327	0.4+	0.3+	1998 12 17	704	0.5-	0.4-
1992 10 24	402	(0.4+	2.1+)	1998 11 09	327	0.5+	0.1+	1998 12 17	704	0.3-	1.2-
1995 05 06	691	0.8-	0.0	1998 11 09	327	0.3+	0.2+	1998 12 17	704	0.0	1.1-
1995 05 06	691	0.6-	0.2-	1998 11 11	411	0.4+	0.3-	1998 12 21	411	0.2-	0.3+
1995 05 06	691	0.2+	0.1+	1998 11 11	411	0.8+	0.3+	1998 12 21	411	0.5-	0.1-
1995 06 01	691	(2.2+	2.8+)	1998 11 12	411	0.1+	1.2+	1999 01 22	732	0.3-	0.0
1995 06 01	691	(3.5+	0.6+)	1998 11 12	411	0.2+	0.4+	1999 01 22	732	0.4-	0.0
1995 06 01	691	1.9+	0.9+	1998 11 20	411	0.5+	0.5-	1999 01 23	732	0.3-	0.1-
1997 08 30	566	0.4-	0.7+	1998 11 20	411	0.6+	0.5-	1999 01 23	732	0.3-	0.0
1997 08 30	566	0.4-	0.1-	1998 12 12	411	0.6-	0.6+				
1997 08 30	566	0.1-	0.7+	1998 12 12	411	0.1-	0.2+				

(11390)* 1998 VG₁₅ = 1976 ST₃ = 1997 MB₅

Discovered 1998 Nov. 10 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 33318)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	101.49348	ω	1.76693	+0.87945646	+0.47596077		
<i>a</i>	3.0850204	Ω	329.81000	−0.43680501	+0.80353352		
<i>e</i>	0.1721744	<i>i</i>	0.47914	−0.18909712	+0.35748459		
<i>P</i>	5.42	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 09 24	095	0.7−	0.5+	1997 06 29	704	0.5+	0.0	1998 11 10	704	0.9−	1.0+
1976 09 29	095	1.9+	1.5−	1997 06 29	704	0.4+	0.0	1998 11 10	704	(3.4−	0.4−)
1992 08 06	675	0.3+	1.3−	1997 06 29	704	1.7−	1.0−	1998 11 11	704	1.3−	0.0
1992 08 06	675	0.6+	2.9−	1997 07 02	704	0.2+	0.2+	1998 11 11	704	1.7−	0.5+
1992 09 04	095	1.0−	1.6+	1997 07 02	704	0.4+	0.1+	1998 11 11	704	(2.5−	2.3+)
1992 09 04	095	(2.4−	3.5+)	1997 07 02	704	0.9−	1.5−	1998 11 11	704	0.5−	1.2+
1993 11 13	033	0.5−	0.2+	1997 07 02	704	0.3−	0.4+	1998 11 16	691	0.4+	0.5−
1993 11 13	033	0.5−	0.4−	1998 10 15	691	0.3+	0.2−	1998 11 16	691	0.4+	0.3−
1996 04 08	327	0.1−	0.1+	1998 10 15	691	0.5+	0.0	1998 11 16	691	0.2+	0.2−
1996 04 08	327	0.5+	0.5+	1998 10 15	691	0.3+	0.3−	1998 11 16	691	0.4+	0.5−
1996 04 08	327	0.0	0.6+	1998 10 19	699	1.3+	0.4+	1998 11 21	691	0.4−	0.4−
1997 06 28	704	0.5+	0.3−	1998 10 19	699	1.2+	0.2+	1998 11 21	691	0.3−	0.2−
1997 06 28	704	1.1+	0.1+	1998 10 19	699	1.0+	0.5+	1998 11 21	691	0.3−	0.4−
1997 06 28	704	0.9+	0.6+	1998 11 10	704	0.4−	0.1+	1998 11 25	691	0.4+	0.1−
1997 06 29	704	0.2−	0.8+	1998 11 10	704	0.1−	0.2+	1998 11 25	691	0.6+	0.0
1997 06 29	704	0.1+	0.4+	1998 11 10	704	0.4−	0.4+	1998 11 25	691	0.4+	0.2−

(11391)* 1998 VA₃₅ = 1980 VF₄ = 1987 ST₆ = 1993 FF₇₄ = 1994 PX₂₃

Discovered 1998 Nov. 12 by S. Ueda and H. Kaneda at Kushiro.

Id. S. Nakano (*MPC* 33321)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	121.61468	ω	354.00957	+0.99444861	+0.10522339		
<i>a</i>	2.3411632	Ω	359.95035	−0.09462563	+0.89413263		
<i>e</i>	0.1577561	<i>i</i>	2.51732	−0.04602123	+0.43526415		
<i>P</i>	3.58	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 11 01	675	0.3−	0.2+	1998 11 12	399	1.1−	1.3+	1998 11 21	704	0.6+	0.5+
1980 11 02	675	0.3−	0.3+	1998 11 12	399	0.5−	1.6+	1998 11 21	704	1.9−	1.4−
1987 09 21	046	1.2+	0.5−	1998 11 18	704	0.1+	0.1+	1998 11 22	399	1.1−	0.3+
1987 09 22	046	(3.7+	1.1−)	1998 11 18	704	0.8+	1.1−	1998 12 11	699	0.6+	0.8+
1993 03 21	809	0.8−	0.1−	1998 11 18	704	1.5+	2.1−	1998 12 11	699	0.9+	0.7+
1993 03 22	809	0.7+	0.4−	1998 11 18	704	(0.1−	2.9−)	1998 12 11	699	1.1+	0.4+
1993 04 21	413	0.6−	1.2−	1998 11 18	399	1.4−	1.9+	1998 12 14	704	0.4+	0.6−
1994 08 12	809	0.4−	0.0	1998 11 18	399	0.1−	0.0	1998 12 14	704	1.4+	0.5−
1994 08 12	809	0.5−	0.1−	1998 11 19	399	1.8−	0.3−	1998 12 14	704	0.7+	0.8−
1994 08 12	809	0.7−	0.1−	1998 11 19	399	1.9−	0.1−	1998 12 14	704	0.8−	0.3−
1994 08 13	809	0.9+	0.1+	1998 11 21	704	0.1+	0.5−	1998 12 14	704	1.7+	0.0
1994 08 13	809	0.5+	0.5−	1998 11 21	704	0.7+	0.4+				
1994 08 13	809	0.1+	0.3−	1998 11 21	704	0.7+	1.3−				

(11392)* 1998 WC₃ = 1991 LK₄

Discovered 1998 Nov. 19 by the OCA-DLR Asteroid Survey at Caussols.

Id. G. V. Williams (*MPC* 33971)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	89.39657	ω	341.28740	−0.10819677	−0.98919438		
<i>a</i>	2.7231340	Ω	114.82399	+0.92544230	−0.13657076		
<i>e</i>	0.0191847	<i>i</i>	6.25802	+0.36311158	+0.05331894		
<i>P</i>	4.49	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 06 06	809	0.8+	0.4+	1997 10 29	704	(3.5+	0.8+)	1998 11 20	910	1.0−	0.2+
1991 06 06	809	0.8+	0.4+	1997 10 29	704	1.5+	0.4−	1998 11 20	910	0.9−	0.4−
1991 06 06	809	0.3−	0.5+	1997 10 29	566	0.3−	0.1−	1999 01 22	699	0.9+	0.3−
1991 06 08	809	0.0	0.2−	1997 10 29	566	0.3−	0.0	1999 01 22	699	0.5+	0.6+
1991 06 08	809	0.3−	0.1+	1997 10 29	566	0.3+	0.1+	1999 01 22	699	0.8+	0.4−
1991 06 08	809	0.0	0.2+	1997 10 30	704	1.8+	0.6−	1999 02 10	704	0.4+	0.5−
1995 03 08	691	1.1−	0.0	1997 10 30	704	0.4+	0.5+	1999 02 10	704	0.5+	0.0
1995 03 08	691	0.7−	0.1+	1997 10 30	704	1.4+	0.0	1999 02 10	704	0.2−	0.4+
1995 03 08	691	0.8−	0.4+	1997 10 30	704	0.7+	0.1−	1999 02 10	704	0.2−	0.4+
1995 04 02	691	0.0	0.4−	1997 11 06	704	1.4−	0.5+	1999 02 10	704	(2.2−	0.8+)
1995 04 02	691	0.2+	0.5−	1997 11 06	704	1.3−	0.2−	1999 02 13	704	0.1+	0.1+
1995 04 02	691	0.5+	0.5−	1997 11 06	704	1.8−	0.4+	1999 02 13	704	0.0	0.1+
1996 07 15	566	0.2+	0.5−	1997 11 06	704	0.8−	0.0	1999 02 13	704	0.7+	0.5−
1996 07 15	566	0.2−	0.3−	1998 11 19	910	(2.0−	0.0)	1999 02 13	704	0.8+	0.4−
1996 07 15	566	0.2−	0.8−	1998 11 19	910	1.9−	0.4−	1999 02 13	704	0.6−	0.3+
1997 10 29	704	(3.1+	0.3−)	1998 11 19	910	(2.2−	0.5+)				
1997 10 29	704	(2.5+	0.9−)	1998 11 20	910	1.2−	0.1+				

(11393)* 1998 XJ₅₃ = 1981 UR₆ = 1986 UG₂ = 1991 RR₁₄ = 1995 KV₄

Discovered 1998 Dec. 14 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 33718)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	259.40632	ω	182.09016	−0.26765495	+0.96239383		
<i>a</i>	3.0721054	Ω	72.38753	−0.88329882	−0.22582230		
<i>e</i>	0.0990520	<i>i</i>	2.79425	−0.38489481	−0.15100462		
<i>P</i>	5.38	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1981 10 30	381	0.2−	0.2+	1995 05 27	691	1.0−	0.1−	1998 11 25	699	0.2−	0.2−
1981 10 30	381	0.3+	0.2+	1995 05 30	691	1.2+	0.1+	1998 11 25	699	1.0−	0.5+
1986 10 27	010	(19.7−	8.4−)	1995 05 30	691	0.6+	0.3+	1998 12 14	704	0.1+	1.0−
1986 10 27	010	(6.6−	5.5−)	1995 05 30	691	1.5+	0.1+	1998 12 14	704	0.0	0.3+
1991 09 11	675	0.7+	0.4−	1997 10 30	566	0.5+	0.3+	1998 12 14	704	1.5+	1.9+
1991 09 11	675	0.3−	1.2−	1997 10 30	566	0.5+	0.6+	1998 12 14	704	0.7−	0.9−
1991 09 14	675	1.1+	0.4−	1997 10 30	566	0.7+	0.5+	1998 12 17	704	0.2+	1.0−
1991 09 14	675	0.3+	1.0−	1997 10 31	704	0.5−	0.2+	1998 12 17	704	0.5−	0.1−
1991 09 15	675	0.3−	0.4−	1997 10 31	704	0.4+	0.1+	1998 12 17	704	(0.8+	2.8−)
1991 09 15	675	1.0+	0.3+	1997 10 31	704	0.9+	0.6+	1998 12 17	704	1.0−	1.4−
1991 09 16	675	0.4+	1.4−	1997 10 31	704	0.0	1.0+	1999 01 16	704	0.2−	0.6−
1991 09 16	675	0.0	1.3−	1997 10 31	704	0.1−	0.6+	1999 01 16	704	0.8+	0.8−
1992 11 25	691	0.5−	0.6−	1997 11 06	704	1.4−	1.0+	1999 01 16	704	0.3−	0.6−
1992 11 25	691	0.2−	0.1+	1997 11 06	704	1.8−	1.3+	1999 01 16	704	0.5+	0.0
1992 11 25	691	0.1−	0.0	1997 11 06	704	1.8−	0.7+	1999 01 19	704	0.5+	0.6−
1995 05 27	691	1.2−	0.1−	1997 11 06	704	(3.3−	0.6+)	1999 01 19	704	0.0	0.2+
1995 05 27	691	0.9−	0.4+	1998 11 25	699	0.8+	0.2−	1999 01 19	704	0.5−	0.6−

(11394)* 1998 XL₇₇ = 1980 NA = 1994 BF₅ = 1996 MY

Discovered 1998 Dec. 15 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 34227)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	80.26646	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.17816296	ω 275.05251	+0.92835030	-0.30899522
<i>a</i>	3.1279354	Ω 103.06381	+0.36462878	+0.86498527
<i>e</i>	0.1558775	<i>i</i> 12.24541	-0.07219126	+0.39537633
<i>P</i>	5.53	<i>H</i> 12.5	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1980 07 11	805	0.3+	0.1-	1997 08 30	566	0.2+	0.5-	1998 12 22	704	0.4+	0.1+
1980 07 12	805	0.8-	0.2-	1997 08 30	566	0.2-	0.2-	1998 12 22	704	1.0+	0.1+
1980 07 12	805	0.3+	0.1-	1998 11 13	704	0.8+	1.4+	1998 12 22	704	0.3+	0.5-
1980 07 13	805	0.6+	0.1+	1998 11 13	704	0.3-	0.8+	1998 12 22	704	0.5+	0.2-
1980 07 13	805	0.3-	0.1+	1998 11 13	704	0.7-	0.7+	1998 12 22	704	0.4-	1.0-
1994 01 18	033	0.4+	0.7-	1998 11 13	704	0.3+	0.4+	1999 01 10	699	0.1+	0.4-
1994 01 18	033	0.8-	0.3-	1998 11 13	704	1.7-	0.3+	1999 01 10	699	0.1-	0.7+
1994 01 19	033(51.7-	16.8-)		1998 11 16	699	0.4+	1.4-	1999 01 10	699	0.2-	0.2+
1996 06 08	691	0.1+	0.4+	1998 11 16	699	(1.8+	2.1-)	1999 01 23	699	0.7-	0.3+
1996 06 08	691	0.4-	0.0	1998 11 16	699	0.2+	0.5+	1999 01 23	699	0.3-	0.3+
1996 06 08	691	0.0	0.1+	1998 12 15	704	1.5-	1.1-	1999 01 23	699	0.8-	0.9-
1996 06 16	691	0.4+	0.0	1998 12 15	704	0.2-	0.5+	1999 02 04	699	0.8+	0.3+
1996 06 16	691	0.5+	0.1-	1998 12 15	704	0.0	0.7-	1999 02 04	699	0.2-	0.1+
1996 06 16	691	0.1+	0.1-	1998 12 15	704	1.1+	0.6-	1999 02 04	699	0.3+	0.1+
1996 06 22	691	0.0	0.3-	1998 12 15	704	0.6+	0.2-	1999 02 15	699	0.5-	0.4+
1996 06 22	691	0.0	0.3-	1998 12 16	699	0.2+	0.3-	1999 02 15	699	0.1-	0.7+
1996 06 22	691	0.5-	0.2-	1998 12 16	699	0.4+	0.2-	1999 02 15	699	0.1-	0.4+
1997 08 30	566	0.4-	0.1-	1998 12 16	699	0.5+	0.2-				

(11395)* 1998 XN₇₇ = 1992 GF₃

Discovered 1998 Dec. 15 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. A. Gnädig (*MPC* 34538)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	112.25349	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.08289571	ω 117.92656	+0.83361985	+0.50483222
<i>a</i>	5.2093238	Ω 213.23174	-0.52701958	+0.84842945
<i>e</i>	0.0663213	<i>i</i> 24.13751	+0.16531273	+0.15909711
<i>P</i>	11.89	<i>H</i> 9.5	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1991 02 10	413	0.0	0.1+	1992 05 30	413	0.8-	0.2+	1998 11 13	704	1.8-	1.1-
1991 05 07	413	0.6+	0.4-	1997 10 30	566	0.1-	0.3+	1998 11 16	699	0.3-	0.2+
1991 05 07	413	0.6-	0.3-	1997 10 30	566	0.3-	0.2+	1998 11 16	699	0.5+	0.1+
1992 04 04	809	0.1+	0.3-	1997 10 30	566	0.2-	0.4+	1998 11 16	699	0.4+	0.1+
1992 04 04	809	1.4-	0.2-	1997 11 03	704	1.1+	0.0	1998 12 15	704	(0.2-	2.3+)
1992 04 04	809	0.2+	0.2-	1997 11 03	704	0.7+	0.2+	1998 12 15	704	1.3+	0.3-
1992 04 06	809	(2.8-	0.0)	1997 11 03	704	0.2+	0.1-	1998 12 15	704	0.1-	0.5-
1992 04 06	809	(2.5-	0.2-)	1997 11 03	704	0.3+	1.1-	1998 12 15	704	0.4-	0.3+
1992 04 06	809	(2.6-	1.7-)	1997 11 03	704	1.8-	1.0-	1998 12 22	704	0.4-	0.2-
1992 04 25	809	1.0+	0.2-	1998 11 13	704	0.7+	0.4+	1998 12 22	704	(0.2-	2.2-)
1992 04 25	809	0.4+	1.2+	1998 11 13	704	1.5+	1.1-	1998 12 22	704	1.1-	0.4+
1992 04 25	809	0.8+	0.3+	1998 11 13	704	0.4+	1.1+	1998 12 22	704	0.6-	0.5+
1992 05 30	413	0.2-	1.3-	1998 11 13	704	1.2+	0.8-	1998 12 22	704	1.3-	1.4+

(11396)* 1998 XZ₇₇ = 1992 HU₂

Discovered 1998 Dec. 15 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 34227)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	72.22043	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.08304501	ω 177.05696	+0.97505971	-0.21398317
<i>a</i>	5.2030783	Ω 195.67980	+0.19891813	+0.96028052
<i>e</i>	0.0642363	<i>i</i> 12.58895	+0.09843855	+0.17908801
<i>P</i>	11.87	<i>H</i> 10.5	<i>G</i> 0.15	<i>U</i> 0

Residuals in seconds of arc

1951 11 05	675	0.5+	0.2+	1992 05 03	691	0.4+	0.1+	1998 12 15	704	0.0	0.8+
1955 04 20	675	0.1+	0.3+	1992 05 03	691	0.5+	0.2+	1998 12 15	704	0.1+	1.1+
1955 04 20	675	0.4+	0.6-	1995 08 03	675	0.8-	0.6+	1998 12 15	704	1.9-	1.4+
1982 08 13	413	0.6-	0.4-	1995 08 03	675	1.3+	0.0	1998 12 22	704	1.1-	1.2-
1982 08 13	413	1.4-	0.2+	1996 10 06	809	1.6+	0.5+	1998 12 22	704	0.8+	0.2-
1983 06 14	413	0.2-	0.7+	1997 10 29	566	0.2-	0.2-	1998 12 22	704	0.3-	0.8-
1983 06 14	413	0.1-	0.2-	1997 10 29	566	0.1-	0.3-	1998 12 22	704	0.1+	0.7-
1991 02 12	413	0.4-	0.4+	1997 10 29	566	0.0	0.1-	1998 12 22	704	0.3-	0.0
1991 02 12	413	0.4+	0.2+	1998 11 16	699	0.1-	0.5+	1999 01 14	699	0.2+	1.0-
1992 04 28	691	0.2+	0.3+	1998 11 16	699	0.2-	1.0+	1999 01 14	699	0.3+	0.0
1992 04 28	691	0.2-	0.1+	1998 11 16	699	0.3-	0.3-	1999 01 14	699	0.1+	0.2-
1992 04 28	691	0.1-	0.0	1998 12 15	704	1.8+	1.3+				
1992 05 03	691	0.4+	0.0	1998 12 15	704	0.2-	0.0				

(11397)* 1998 XX₉₃ = 1997 XB₁₂

Discovered 1998 Dec. 15 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 33720)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	65.04632	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.08351950	ω 150.50161	+0.58640608	-0.72800727
<i>a</i>	5.1833532	Ω 261.26180	+0.65485194	+0.68413912
<i>e</i>	0.0638434	<i>i</i> 21.05864	+0.47675659	-0.04426145
<i>P</i>	11.80	<i>H</i> 10.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1978 04 29	413	0.0	1.5-	1997 12 06	704	0.0	0.5+	1998 12 22	704	0.3-	0.3-
1978 04 29	413	0.3+	0.4-	1997 12 06	704	0.3+	0.6-	1998 12 22	704	0.3+	0.2+
1982 08 16	413	1.0-	0.0	1997 12 06	704	0.6+	0.7-	1998 12 22	704	1.7+	0.6+
1982 08 16	413	1.5-	0.4-	1997 12 06	704	0.3+	0.5-	1999 01 18	704	0.5+	1.0-
1991 03 16	413	1.2+	0.2-	1998 02 13	327	0.5-	0.2+	1999 01 18	704	0.1+	0.2+
1991 03 16	413	0.1-	0.4+	1998 02 13	327	0.0	0.3+	1999 01 18	704	0.0	1.5+
1991 04 13	413	0.7+	0.1-	1998 02 13	327	0.5-	0.2-	1999 01 18	704	0.7-	0.4+
1997 12 05	704	0.8+	0.0	1998 12 15	704	0.6-	0.4-	1999 01 20	704	0.4-	0.4+
1997 12 05	704	0.2+	0.3+	1998 12 15	704	0.6+	0.0	1999 01 20	704	1.1-	1.6+
1997 12 05	704	1.2+	1.7-	1998 12 15	704	0.7-	0.1+	1999 01 20	704	0.5+	0.1+
1997 12 05	704	0.2+	0.4-	1998 12 15	704	0.7-	0.7+	1999 01 20	704	0.2-	0.2+
1997 12 05	704	0.8+	1.3-	1998 12 15	704	1.4-	0.1+	1999 01 20	704	0.9-	0.7+
1997 12 06	704	0.8+	0.4+	1998 12 22	704	0.0	0.3+				

(11398)* 1998 YP₁₁

Discovered 1998 Dec. 23 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	49.88623	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.43677900	ω 74.24515	-0.75493301	+0.63874919
<i>a</i>	1.7203952	Ω 145.05814	-0.65568932	-0.73097837
<i>e</i>	0.3890164	<i>i</i> 15.03536	-0.01215153	-0.24014599
<i>P</i>	2.26	<i>H</i> 16.3	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1983 01 05	413	2.6+	0.1-	1999 03 18	860	1.2+	0.1-	1999 07 16	610	0.4-	1.0-
1983 01 05	413	2.3-	0.6+	1999 03 18	860	0.5+	0.5-	1999 07 16	610	0.6-	1.1-
1990 07 22	675	0.7-	0.9-	1999 03 18	151	(0.1-	2.2+)	1999 07 16	557	0.1-	0.5-
1990 07 22	675	1.1+	1.3-	1999 03 18	151	0.7-	0.6+	1999 07 16	127	0.2+	1.4-
1990 07 23	675	(2.0-	2.2-)	1999 03 18	151	1.6-	0.3+	1999 07 17	636	0.3-	0.0
1990 07 23	675	0.3-	1.3-	1999 03 20	958	0.3+	0.4+	1999 07 17	636	0.3-	0.0
1990 07 26	675	1.6-	1.4+	1999 03 20	958	0.7+	1.1-	1999 07 17	636	0.4-	0.2-
1990 07 26	675	0.9+	0.9+	1999 03 20	958	0.1+	0.3+	1999 07 17	127	0.1+	1.1-
1998 12 23	704	1.6-	1.3-	1999 03 25	557	0.4-	0.1+	1999 07 17	557	0.3-	0.4-
1998 12 23	704	1.4-	0.2-	1999 03 25	557	0.4-	0.0	1999 07 17	557	0.1-	0.3-
1998 12 23	704	1.1-	0.8+	1999 03 25	557	0.3-	0.0	1999 07 17	151	0.1-	0.8-
1998 12 23	704	1.3+	0.5-	1999 03 25	118	0.4-	0.1-	1999 07 17	151	0.2-	0.7-
1998 12 23	704	0.7-	0.5-	1999 03 25	118	0.4-	0.2-	1999 07 17	151	0.3+	0.5-

1998 12 24	046	0.1-	0.5-	1999 03 25	557	0.5-	0.1-	1999 07 17	108	0.2-	0.5+
1998 12 24	557	0.8-	0.7-	1999 03 26	860	0.3-	0.1+	1999 07 17	108	0.5+	0.4-
1998 12 24	046	0.1-	0.5-	1999 03 26	860	0.4-	0.2-	1999 07 17	557	0.1-	0.3-
1998 12 24	046	0.3-	0.0	1999 03 26	860	0.5+	0.1+	1999 07 17	108	0.2+	0.4-
1998 12 24	557	0.3+	0.9-	1999 03 27	557	0.5-	0.3-	1999 07 18	557	0.1-	0.3-
1998 12 24	046	0.0	0.6-	1999 03 27	557	0.5-	0.3-	1999 07 18	628	0.6-	0.9+
1998 12 24	046	0.2+	0.1-	1999 03 27	557	0.5-	0.3-	1999 07 18	628	0.1+	0.1+
1998 12 24	557	0.1+	0.4-	1999 04 02	118	0.2-	0.2+	1999 07 18	628	0.4-	0.6-
1998 12 24	046	0.1-	0.2-	1999 04 02	118	0.1-	0.1+	1999 07 18	557	0.1+	0.2-
1998 12 25	422	0.9-	0.3-	1999 04 02	118	0.3-	0.2+	1999 07 18	557	0.1+	0.3-
1998 12 25	422	0.7-	0.6-	1999 04 06	118	0.9-	0.4+	1999 07 18	127	0.2+	0.4-
1998 12 25	422	0.8-	0.1+	1999 04 06	118	0.6-	0.2+	1999 07 18	127	0.3+	0.2-
1998 12 25	422	0.6-	0.3-	1999 04 08	355	0.3-	0.6-	1999 07 19	118	0.1-	0.1+
1998 12 27	402	0.1+	0.6-	1999 04 08	355	0.1-	0.7-	1999 07 19	118	0.1+	0.2+
1998 12 27	402	0.3+	0.7-	1999 04 08	355	0.3-	0.5-	1999 07 19	557	0.1+	0.1-
1998 12 27	402	0.1-	0.6-	1999 04 09	151	0.5+	0.4+	1999 07 19	610	0.9+	1.2+
1998 12 27	402	0.0	0.8-	1999 04 09	151	0.4-	0.4-	1999 07 19	610	0.7+	1.0+
1998 12 28	402	0.4-	0.4-	1999 04 09	151	0.5+	0.8-	1999 07 19	610	0.4+	0.6+
1998 12 28	402	0.6-	0.2-	1999 04 09	151	0.5-	0.7+	1999 07 19	610	0.2+	0.2+
1998 12 28	402	0.7-	0.8-	1999 04 09	151	0.2-	0.1-	1999 07 19	610	0.0	0.1-
1998 12 28	402	0.3-	0.6-	1999 04 10	118	0.5-	0.0	1999 07 19	557	0.3+	0.1+
1998 12 29	557	0.1+	0.4-	1999 04 10	118	0.6-	0.1-	1999 07 19	557	0.2+	0.1+
1998 12 29	557	0.3-	0.1-	1999 04 26	360	0.2-	0.3-	1999 07 19	557	0.2+	0.1+
1998 12 29	557	0.2-	0.8-	1999 04 26	360	0.3-	0.5-	1999 07 20	557	0.2+	0.0
1999 01 12	422	0.0	0.9-	1999 04 26	360	0.0	0.5-	1999 07 20	470	(2.7-	0.9+)
1999 01 12	422	0.0	1.7-	1999 04 29	118	0.3+	0.5+	1999 07 20	470	(2.2-	0.7+)
1999 01 12	422	0.1+	1.3-	1999 04 29	118	0.0	0.4-	1999 07 20	557	0.2+	0.3+
1999 01 16	426	0.4+	0.2+	1999 04 29	118	0.1-	0.3+	1999 07 21	557	0.0	0.2-
1999 01 16	426	0.4+	0.4+	1999 05 01	151	1.3-	0.2-	1999 07 21	557	0.1+	0.2-
1999 01 16	426	0.5+	0.3+	1999 05 01	151	0.2+	0.3+	1999 07 21	557	0.2+	0.2-
1999 01 17	402	0.1-	0.8-	1999 05 01	151	0.8+	0.4-	1999 07 21	557	0.1+	0.2-
1999 01 17	402	0.3+	0.6-	1999 05 01	151	0.4-	0.0	1999 07 22	557	0.1+	0.2-
1999 01 17	402	0.1-	0.9-	1999 05 01	151	0.5+	0.4-	1999 07 22	557	0.1+	0.2-
1999 01 19	104	0.2+	1.2-	1999 05 13	360	0.0	0.4+	1999 07 22	704	0.5+	0.2+
1999 01 19	104	0.4+	1.3-	1999 05 13	360	0.1-	0.2+	1999 07 22	704	0.5+	0.1-
1999 01 19	104	0.0	1.3-	1999 05 13	360	0.2-	0.3+	1999 07 22	704	0.4+	0.2-
1999 01 19	428	0.9+	0.5-	1999 05 25	704	0.6+	0.2+	1999 07 22	704	0.6+	0.8-
1999 01 19	428	0.6+	0.5-	1999 05 25	704	1.2+	0.7+	1999 07 22	704	0.4+	0.1-
1999 01 21	360	0.4+	0.6+	1999 05 25	704	0.1+	0.1+	1999 07 22	402	0.1+	0.4-
1999 01 21	360	0.3+	0.5+	1999 05 25	704	0.0	0.5+	1999 07 22	402	0.2+	0.3-
1999 01 21	360	0.2+	0.6+	1999 05 25	704	0.7-	1.7+	1999 07 22	402	0.1+	0.3-
1999 01 25	711	0.9+	1.3-	1999 05 26	711	0.1+	0.4+	1999 07 23	610	0.3-	0.3-
1999 01 25	711	0.7+	1.2-	1999 05 26	711	0.2+	0.5+	1999 07 23	610	0.3-	0.3-
1999 01 26	428	0.4+	1.5-	1999 05 29	628	0.7-	0.5+	1999 07 23	610	0.4-	0.2-
1999 01 26	428	0.3+	1.4-	1999 05 29	628	0.3-	0.8+	1999 07 23	610	0.4-	0.0
1999 02 08	402	0.2+	0.5-	1999 05 31	402	0.0	0.4-	1999 07 23	610	0.4-	0.1+
1999 02 08	402	0.4+	0.6-	1999 05 31	402	0.0	0.4-	1999 07 24	118	0.3-	0.0
1999 02 08	402	0.4+	0.4-	1999 05 31	402	0.2+	0.5-	1999 07 24	118	0.5-	0.1-
1999 02 09	118	0.4-	0.4-	1999 06 18	610	0.2-	0.5-	1999 07 24	118	0.2-	0.1-
1999 02 09	118	0.3-	0.4-	1999 06 18	610	0.2-	0.2-	1999 07 24	151	0.2-	0.0
1999 02 10	426	0.1-	0.4+	1999 06 18	610	0.3-	0.1+	1999 07 24	151	0.6-	0.3-
1999 02 10	426	0.1+	0.5+	1999 06 18	610	0.3-	0.4+	1999 07 24	151	0.6-	0.1-
1999 02 10	426	0.3+	0.4+	1999 06 18	610	0.3-	0.7+	1999 07 27	859	0.6-	0.5-
1999 02 12	428	0.6-	0.2-	1999 06 19	628	0.1-	0.1+	1999 07 27	859	0.8-	0.1+
1999 02 12	428	0.6-	0.2-	1999 06 19	628	0.2+	0.0	1999 07 27	859	0.3+	0.8+
1999 02 12	428	0.9-	0.4-	1999 06 19	628	0.2-	0.5+	1999 07 30	151	0.6-	0.4-
1999 02 16	118	0.4+	0.1+	1999 06 21	704	0.7+	0.6-	1999 07 30	151	1.2-	0.3+
1999 02 16	118	0.4+	0.1+	1999 06 21	704	0.7+	0.5-	1999 07 30	151	0.6-	0.4-
1999 02 16	118	0.4+	0.1+	1999 06 21	704	1.0+	0.7+	1999 07 31	557	0.4-	0.2-
1999 02 17	071	1.9+	1.4+	1999 06 21	704	0.2+	1.8-	1999 07 31	557	0.1-	0.2-
1999 02 17	071	1.6+	1.0+	1999 06 21	704	0.4+	0.5-	1999 07 31	557	0.2-	0.3-
1999 02 17	071	1.4+	1.0+	1999 07 01	726	0.4-	0.5+	1999 08 01	557	0.3-	0.4-
1999 02 20	704	0.1-	1.3-	1999 07 01	726	0.3-	0.4-	1999 08 02	557	0.0	0.1+
1999 02 20	704	0.1-	0.6-	1999 07 01	726	0.0	0.6-	1999 08 02	557	0.2+	0.2+
1999 02 20	704	0.1+	0.5-	1999 07 01	726	0.1-	0.4-	1999 08 02	151	0.1-	0.2+
1999 02 20	704	1.2+	0.7-	1999 07 01	143	0.2+	0.0	1999 08 02	151	2.7-	1.9-
1999 02 20	704	0.6+	0.4-	1999 07 01	143	0.3+	0.1+	1999 08 02	151	0.2-	0.6+
1999 02 21	711	0.3-	0.2+	1999 07 01	143	0.5+	0.6+	1999 08 02	151	0.4-	0.5+

1999 02 21	711	0.3-	0.2+	1999 07 02	610	0.6-	0.2-	1999 08 03	670	0.3-	0.6+
1999 02 23	118	0.3+	0.6+	1999 07 02	610	0.5-	0.2-	1999 08 03	670	0.1+	0.1-
1999 02 23	118	0.2+	0.7+	1999 07 02	610	0.4-	0.2-	1999 08 03	670	0.4-	0.4+
1999 02 24	704	0.0	0.9+	1999 07 02	610	0.3-	0.2-	1999 08 03	557	0.0	0.3+
1999 02 24	704	0.3-	0.7+	1999 07 02	610	0.3-	0.1-	1999 08 03	557	0.0	0.3+
1999 02 24	704	0.0	1.1+	1999 07 02	127	0.3+	0.4-	1999 08 03	557	0.0	0.5+
1999 02 24	704	0.7-	1.5+	1999 07 02	127	0.5+	0.0	1999 08 04	711	0.4-	0.3+
1999 02 24	704	0.4+	0.1+	1999 07 02	127	0.5+	0.4-	1999 08 04	711	0.1-	0.7+
1999 02 25	118	0.4-	0.4+	1999 07 03	151	0.4-	0.0	1999 08 04	557	0.2-	0.5+
1999 02 25	118	0.5-	0.5+	1999 07 03	151	0.2-	0.4+	1999 08 04	557	0.0	0.4+
1999 02 27	046	0.1-	0.3+	1999 07 03	151	0.9+	0.6+	1999 08 04	557	0.1-	0.4+
1999 02 27	046	0.1+	0.3+	1999 07 03	151	0.1+	0.5+	1999 08 05	670	0.5+	0.5+
1999 02 27	046	0.2-	0.3+	1999 07 11	628	0.3-	0.3+	1999 08 05	670	0.4+	0.7+
1999 02 27	046	0.1+	0.5+	1999 07 11	628	0.9-	0.2+	1999 08 06	711	1.8+	1.8+
1999 02 27	118	0.2+	0.2+	1999 07 11	628	0.9-	0.2+	1999 08 06	711	2.2+	1.8+
1999 02 27	118	0.1-	0.1+	1999 07 11	628	0.6-	0.1-	1999 08 06	470	0.2-	0.3-
1999 02 28	151	0.1+	0.1+	1999 07 12	704	0.2+	0.5-	1999 08 06	470	0.4-	0.2+
1999 02 28	151	0.1-	0.1+	1999 07 12	704	0.2+	1.2-	1999 08 08	557	0.2+	0.2+
1999 02 28	151	1.2-	0.5-	1999 07 12	704	0.2+	0.5-	1999 08 08	557	0.3+	0.4+
1999 02 28	151	0.4-	0.0	1999 07 12	704	0.2+	0.1-	1999 08 08	557	0.2+	0.3+
1999 02 28	151	0.3-	0.5-	1999 07 12	704	0.3+	0.1+	1999 08 09	557	0.4+	0.2+
1999 03 13	046	0.2+	0.1-	1999 07 12	610	0.1+	0.2-	1999 08 09	557	0.5+	0.1+
1999 03 13	046	0.0	0.2-	1999 07 12	610	0.0	0.6-	1999 08 09	557	0.4+	0.1+
1999 03 13	046	0.2-	0.2+	1999 07 12	610	0.2-	0.9-	1999 08 13	151	0.3+	0.4-
1999 03 13	046	0.1+	0.1-	1999 07 12	610	0.3-	1.2-	1999 08 13	151	0.8+	1.2+
1999 03 13	118	0.8-	0.0	1999 07 12	610	0.6-	1.6-	1999 08 13	151	1.5+	0.5-
1999 03 13	118	0.7-	0.1-	1999 07 13	704	0.1-	0.0	1999 08 15	118	0.4+	0.8+
1999 03 14	860	0.7+	0.6+	1999 07 13	704	0.2-	0.1-	1999 08 15	360	0.4+	0.2-
1999 03 14	860	0.6+	0.5+	1999 07 13	704	0.2-	0.1-	1999 08 15	360	0.4+	0.0
1999 03 14	860	1.6+	0.8+	1999 07 13	704	0.1-	0.1-	1999 08 15	360	0.3+	0.1-
1999 03 14	719	0.0	0.1+	1999 07 13	704	0.2-	0.2-	1999 08 15	422	0.0	0.0
1999 03 14	719	0.2-	0.5+	1999 07 13	557	0.1-	0.3-	1999 08 15	422	0.1+	0.0
1999 03 16	360	0.4-	0.1+	1999 07 13	557	0.0	0.2-	1999 08 15	422	0.1+	0.0
1999 03 16	360	0.5-	0.1+	1999 07 14	557	0.1-	0.1-	1999 08 18	470	1.9+	1.0+
1999 03 16	360	0.5-	0.1+	1999 07 14	557	0.1-	0.1-	1999 08 18	470	2.1+	1.6+
1999 03 17	402	0.4-	0.3+	1999 07 14	557	0.1-	0.2-	1999 08 20	108	0.1-	0.6-
1999 03 17	402	0.4-	0.1+	1999 07 16	610	0.2-	0.6-	1999 08 20	108	2.3+	0.8+
1999 03 17	402	0.3-	0.2+	1999 07 16	610	0.2-	0.7-	1999 08 21	118	0.6+	0.5+
1999 03 18	860	0.9+	0.6+	1999 07 16	610	0.4-	0.9-	1999 08 21	118	0.1+	0.3+

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1999 04 06	704	0.0	0.3−	1999 04 17	704	0.7+	0.1+	1999 05 15	704	0.1−	0.2−
1999 04 06	704	0.2+	0.2−	1999 04 17	704	0.9+	0.4+	1999 05 15	704	0.4−	0.8−
1999 04 06	704	0.3−	0.4−	1999 04 17	704	0.3+	1.1+	1999 05 15	704	1.0+	1.9−
1999 04 06	704	0.2−	0.6−	1999 04 17	704	0.5+	1.0+	1999 05 15	704	0.8+	1.4+

(11412)* 1999 JE₁₉ = 1985 SE₆ = 1985 UR₆ = 1985 VA₆ = 1990 SB₂₀
= 1993 FG = 1996 XA₅

Discovered 1999 May 10 by the Lincoln Laboratory Near-Earth Asteroid
Research Team at Socorro.

Id. G. V. Williams (*MPC* 35359)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	205.55025	(2000.0)	P	Q	
<i>n</i>	0.18389508	ω	1.31622	+0.88499740	−0.45888102
<i>a</i>	3.0625931	Ω	26.45243	+0.42554356	+0.72853532
<i>e</i>	0.0916175	<i>i</i>	10.18778	+0.18892400	+0.50859070
<i>P</i>	5.36	<i>H</i>	12.5	<i>G</i>	0.15 <i>U</i> 1

Residuals in seconds of arc

1985 09 21	095	(4.2− 2.2−)	1998 01 28	566	0.0	1.1−	1999 05 12	699	0.1−	0.1−
1985 10 18	095	0.9+ 1.1+	1998 01 28	566	0.2−	1.0−	1999 05 12	699	0.8+	0.3+
1985 11 12	095	(3.0+ 0.7+)	1998 01 28	566	0.2+	1.6−	1999 05 13	704	1.4+	0.9−
1990 09 19	675	0.2+ 1.9−	1999 04 12	691	0.7−	0.4+	1999 05 13	704	1.0+	0.0
1990 09 19	675	(1.7− 3.6−)	1999 04 12	691	0.4−	0.4+	1999 05 13	704	1.8−	0.6+
1993 03 16	372	1.4− 0.7+	1999 04 12	691	0.3−	0.2+	1999 05 13	704	0.8−	0.9−
1993 03 16	372	(3.0− 0.4−)	1999 04 15	704	0.2−	0.5−	1999 05 13	704	(1.3+ 2.3−)	
1993 03 17	372	0.6− 1.6+	1999 04 15	704	0.4+	0.1−	1999 05 18	704	0.5+	0.8+
1996 12 06	691	0.7− 0.5+	1999 04 15	704	0.4−	0.0	1999 05 18	704	0.9−	0.5+
1996 12 06	691	0.4− 0.3+	1999 04 15	704	0.5+	0.4+	1999 05 18	704	1.7−	1.4−
1996 12 06	691	0.5− 0.5+	1999 04 15	704	0.1−	0.9+	1999 05 18	704	0.9+	0.2−
1996 12 07	691	0.3− 0.3+	1999 05 10	704	0.0	0.4−	1999 05 18	704	0.4−	0.8+
1996 12 07	691	0.7− 0.3+	1999 05 10	704	1.2+	1.6−	1999 05 18	699	0.9+	0.6−
1996 12 07	691	0.7− 0.2+	1999 05 10	704	0.5−	0.6+	1999 05 18	699	0.5+	0.6+
1996 12 13	691	0.1+ 0.2+	1999 05 10	704	1.6+	0.7+	1999 05 18	699	0.7+	0.3+
1996 12 13	691	0.3+ 0.2+	1999 05 10	704	0.0	0.6−				
1996 12 13	691	0.7+ 0.1−	1999 05 12	699	0.2+	1.0+				

(11413)* 1999 JG₂₁ = 1979 SZ₇ = 1979 TH₁ = 1986 TB₁₅

Discovered 1999 May 10 by the Lincoln Laboratory Near-Earth Asteroid
Research Team at Socorro.

Id. A. Doppler (*MPC* 35360)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	213.39607	(2000.0)	P	Q	
<i>n</i>	0.27976437	ω	1.59428	+0.83294183	−0.55227547
<i>a</i>	2.3153027	Ω	32.00685	+0.50697243	+0.73653308
<i>e</i>	0.1456494	<i>i</i>	3.74696	+0.22178113	+0.39052636
<i>P</i>	3.52	<i>H</i>	14.3	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1979 09 23	095	0.1− 0.2−	1999 04 15	704	0.3+	0.9−	1999 05 13	704	0.9−	0.4+
1979 10 14	095	0.1+ 0.2+	1999 04 15	704	1.9+	0.4+	1999 05 13	704	0.1+	0.9−
1986 10 06	095	0.1+ 0.2−	1999 04 15	704	0.7+	0.4−	1999 05 13	704	0.7+	0.2+
1986 10 10	095	(3.9+ 2.0−)	1999 04 19	691	0.7−	0.2−	1999 05 13	704	0.9−	0.6−
1995 02 03	691	0.1− 0.0	1999 04 19	691	0.7−	0.4−	1999 05 13	704	0.1−	1.2−
1995 02 03	691	0.1+ 0.3+	1999 04 19	691	0.8−	0.2−	1999 05 18	704	1.0−	0.2−
1995 02 03	691	0.1− 0.1+	1999 05 10	704	0.2−	0.6−	1999 05 18	704	0.1+	0.4−
1995 03 23	691	0.4− 0.1+	1999 05 10	704	1.2+	1.4+	1999 05 18	704	0.1−	0.6−
1995 03 23	691	0.1+ 0.2−	1999 05 10	704	0.9+	0.9+	1999 05 18	704	1.1+	0.2+
1995 03 23	691	0.1+ 0.7−	1999 05 10	704	0.2+	0.4−	1999 05 18	704	1.1−	0.8+
1999 04 14	699	0.6+ 1.0+	1999 05 10	704	0.3+	0.9+	1999 05 19	704	1.1+	1.7−
1999 04 14	699	0.9+ 0.3+	1999 05 12	699	0.1−	0.3+	1999 05 19	704	2.0−	0.5+
1999 04 14	699	(0.5+ 2.1+)	1999 05 12	699	0.6+	0.3−	1999 05 19	704	0.8−	0.1−
1999 04 15	704	(0.1+ 2.3−)	1999 05 12	699	0.0	1.8+	1999 05 19	704	1.5−	0.3+

(11414)* 1999 JU₂₆ = 1978 RU₁₅ = 1981 JE₆ = 1995 DK₆ = 3777 T-3

Discovered 1999 May 10 by the Lincoln Laboratory Near-Earth Asteroid
Research Team at Socorro.

Id. G. V. Williams (*MPC* 35363)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	331.18064	(2000.0)	P	Q	
<i>n</i>	0.27305492	ω	236.74811	+0.34081933	+0.94004190
<i>a</i>	2.3530765	Ω	53.18389	−0.85715264	+0.31629510
<i>e</i>	0.1188276	<i>i</i>	0.91493	−0.38617552	+0.12758776
<i>P</i>	3.61	<i>H</i>	15.3	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1978 09 06	809	0.7+ 0.7−	1999 04 15	704	(6.0− 0.2+)	1999 05 18	704	0.4+	1.7−
1981 05 08	675	0.1+ 0.5+	1999 05 07	699	0.4+ 1.0+	1999 05 18	704	0.4−	0.6−
1981 05 09	675	0.1− 0.7+	1999 05 07	699	0.3+ 0.9+	1999 05 18	691	(3.9+ 0.2+)	
1995 02 24	691	0.2+ 0.0	1999 05 07	699	0.8+ 0.6+	1999 05 18	691	0.7−	0.2+
1995 02 24	691	0.5+ 0.3+	1999 05 10	704	1.2+ 0.8+	1999 05 18	691	0.4−	0.1+
1995 02 24	691	0.1+ 0.0	1999 05 10	704	0.6+ 0.5−	1999 05 19	704	1.1+	0.7−
1995 03 07	691	0.4− 1.2−	1999 05 10	704	0.6− 0.4−	1999 05 19	704	1.1−	0.3−
1995 03 07	691	0.4− 0.3−	1999 05 10	704	0.6+ 1.2+	1999 05 19	704	0.5+	1.4+
1995 03 07	691	0.6− 0.4−	1999 05 10	704	0.9+ 0.7+	1999 05 19	704	0.3+	1.3−
1995 03 31	691	0.1− 0.4−	1999 05 13	704	0.3+ 0.7−	1999 05 19	704	0.6−	0.7+
1995 03 31	691	0.1+ 0.3+	1999 05 13	704	0.1− 0.2−	1999 07 09	426	0.7+	0.4+
1996 08 19	566	0.1+ 0.6−	1999 05 13	704	0.2− 0.7−	1999 07 09	426	0.0	1.1+
1996 08 19	566	0.0− 0.6−	1999 05 13	704	0.2+ 1.3−	1999 07 09	426	0.3+	0.6+
1996 08 19	566	0.3+ 0.9−	1999 05 13	704	0.3− 0.7−	1999 07 10	426	1.0+	0.9+
1999 04 15	704	1.0+ 0.4−	1999 05 18	704	0.5− 0.4−	1999 07 10	426	1.0+	0.6+
1999 04 15	704	0.5− 0.6+	1999 05 18	704	0.4+ 0.6−	1999 07 10	426	0.7+	0.9+
1999 04 15	704	0.5− 1.5−	1999 05 18	704	0.1− 1.3−				

(11415)* 1999 JG₈₁ = 1972 NV = 1972 RT₂ = 1989 RZ₄

Discovered 1999 May 14 by the Lincoln Laboratory Near-Earth Asteroid
Research Team at Socorro.

Id. G. V. Williams (*MPC* 35377)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

		Williams			
<i>M</i>	350.23273	(2000.0)	P	Q	
<i>n</i>	0.29042168	ω	163.72648	+0.74982362	+0.65988108
<i>a</i>	2.2583090	Ω	154.78234	−0.61894959	+0.72531711
<i>e</i>	0.2004462	<i>i</i>	6.49335	−0.23380749	+0.19614293
<i>P</i>	3.39	<i>H</i>	14.6	<i>G</i>	0.15 <i>U</i> 2

Residuals in seconds of arc

1972 07 13	805	0.1− 0.1+	1999 05 14	704	(0.2+ 2.6+)	1999 07 13	704	0.3+	0.1+
1972 07 13	805	0.0− 0.4−	1999 05 14	704	0.2− 0.9+	1999 07 13	704	0.4+	0.3+
1972 07 13	805	0.5+ 0.3−	1999 05 14	704	0.4− 0.8+	1999 07 19	704	0.3+	0.4+
1972 09 04	095	0.2− 1.0+	1999 05 14	704	1.2− 0.7+	1999 07 19	704	1.0+	0.1−
1989 09 09	095	1.3− 0.8+	1999 05 21	704	0.6− 1.0−	1999 07 19	704	0.8+	0.0
1989 09 09	095	0.3+ 0.1+	1999 05 21	704	0.1+ 0.4+	1999 07 19	704	0.6+	0.1−
1998 01 28	566	0.1− 0.7+	1999 05 21	704	(0.5− 2.1−)	1999 08 12	704	0.0	1.0−
1998 01 28	566	0.2− 0.6+	1999 05 21	704	1.0− 0.1−	1999 08 12	704	0.4+	0.4−
1998 01 28	566	0.6− 0.9+	1999 05 21	704	1.8− 1.2+	1999 08 12	704	0.2−	1.5−
1998 02 24	566	0.5+ 1.5−	1999 07 13	704	0.3+ 0.2+	1999 08 12	704	0.3−	1.4−
1998 02 24	566	0.2+ 0.6−	1999 07 13	704	0.4+ 0.3+	1999 08 12	704	0.5−	0.4−
1998 02 24	566	0.2+ 1.1−	1999 07 13	704	0.0 0.1+				

(11416)* 1999 JK₉₆ = 1978 RF₈ = 1998 FA₃₇ = 1998 FK₁₂₈

Discovered 1999 May 12 by the Lincoln Laboratory Near-Earth Asteroid
Research Team at Socorro.

Id. G. V. Williams (*MPC* 35032)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	255.17841		(2000.0)	P	Q
<i>n</i>	0.17712492	ω	192.05330	+0.99872950	+0.01054214
<i>a</i>	3.1401443	Ω	167.03565	−0.00090260	+0.98145808
<i>e</i>	0.0428436	<i>i</i>	12.68848	−0.05038430	+0.19138679
<i>P</i>	5.56	<i>H</i>	13.2	<i>G</i>	0.15

Residuals in seconds of arc

1978 09 02	809	0.3−	1.1−	1998 03 20	704	1.1−	0.6+	1999 05 17	704	0.5−	0.7−
1978 09 02	809	0.3+	0.4−	1998 03 22	704	0.0	0.8−	1999 06 08	703	0.9+	0.3−
1978 09 02	809	0.2−	0.2−	1998 03 22	704	0.1−	0.5−	1999 06 08	703	1.1−	1.6+
1978 09 02	809	0.2+	0.8−	1998 03 22	704	0.4−	0.5−	1999 06 08	703	1.8+	1.9+
1978 09 06	809	0.5+	0.4−	1998 03 22	704	0.0	0.1−	1999 06 08	699	0.5+	1.3+
1978 09 10	809	1.0−	1.9+	1998 03 22	704	(0.1+	2.5−)	1999 06 08	703	0.8+	0.5+
1978 09 10	809	0.2+	0.9−	1998 03 26	704	0.3−	0.5−	1999 06 08	699	1.0+	0.8+
1978 09 10	809	0.3−	0.2−	1998 03 26	704	0.1−	1.1−	1999 06 08	699	1.2+	0.8+
1978 09 10	809	1.0+	0.5−	1998 03 26	704	0.0	0.3+	1999 06 08	704	0.7−	0.5−
1993 04 28	691	0.2+	0.4+	1999 05 12	704	0.2−	0.5+	1999 06 08	704	0.4−	0.3−
1993 04 28	691	0.1+	0.3+	1999 05 12	704	0.5−	0.8+	1999 06 08	704	0.0	0.1−
1993 04 28	691	0.2−	0.2+	1999 05 12	704	0.5−	0.9−	1999 06 08	704	0.4−	0.8−
1998 02 27	566	0.0	0.4−	1999 05 12	704	1.2+	0.5−	1999 06 14	704	0.0	0.1−
1998 02 27	566	0.0	0.2−	1999 05 12	704	1.5−	0.9+	1999 06 14	704	0.3+	0.5−
1998 02 27	566	0.1+	0.0	1999 05 17	704	1.4−	1.7−	1999 06 14	704	0.0	0.1+
1998 03 20	704	0.7+	1.2+	1999 05 17	704	0.4−	1.1−	1999 06 14	704	0.3−	0.3+
1998 03 20	704	0.7+	0.1−	1999 05 17	704	0.1+	1.2−	1999 06 14	704	0.3−	0.1+
1998 03 20	704	0.2+	0.7−	1999 05 17	704	0.2+	1.3−				

(11417)* 1999 JW₁₁₇

Discovered 1999 May 13 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	313.71729		(2000.0)	P	Q
<i>n</i>	0.21509912	ω	241.08325	+0.61462042	+0.78460355
<i>a</i>	2.7587370	Ω	67.07106	−0.68943112	+0.58449759
<i>e</i>	0.1015479	<i>i</i>	5.07560	−0.38330988	+0.20678450
<i>P</i>	4.58	<i>H</i>	15.3	<i>G</i>	0.15

Residuals in seconds of arc

1991 09 11	675	0.2+	1.9−	1996 12 17	691	0.3−	0.5−	1999 05 13	704	(2.7+	1.7−)
1991 09 11	675	1.0+	0.4−	1996 12 17	691	0.1+	0.0	1999 05 13	704	0.1+	0.6+
1991 10 01	413	0.4−	0.1+	1997 02 04	691	0.5−	0.3−	1999 05 18	704	(0.2+	2.7−)
1991 10 01	413	0.7+	0.9−	1997 02 04	691	0.3−	0.0	1999 05 18	704	1.7−	1.6−
1996 12 05	691	0.4+	0.8−	1997 02 04	691	0.3−	0.0	1999 05 18	704	0.8+	0.5−
1996 12 05	691	0.4+	0.0	1998 01 31	910	0.1−	0.6−	1999 05 18	704	1.2−	1.6−
1996 12 05	691	0.4+	0.3−	1998 01 31	910	0.4−	0.8−	1999 06 04	703	0.5−	0.7+
1996 12 14	691	0.1+	0.2−	1998 01 31	910	0.2−	0.5−	1999 06 04	703	0.3+	0.1+
1996 12 14	691	0.3+	0.1−	1999 05 13	704	1.1+	0.2+	1999 06 04	703	(0.1−	3.2−)
1996 12 14	691	0.1+	0.4−	1999 05 13	704	0.1+	1.1−	1999 06 04	703	0.6−	1.3−

(11418)* 1999 JN₁₁₈ = 1991 PV₂₁

Discovered 1999 May 13 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. A. Gnädig (*MPC* 35381)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	191.38555		(2000.0)	P	Q
<i>n</i>	0.22149882	ω	226.80476	+0.39915107	−0.91640712
<i>a</i>	2.7053395	Ω	199.72936	+0.86460916	+0.38694383
<i>e</i>	0.0432755	<i>i</i>	5.03108	+0.30517114	+0.10233505
<i>P</i>	4.45	<i>H</i>	14.0	<i>G</i>	0.15

Residuals in seconds of arc

1953 01 09	675	0.8−	0.3+	1998 02 26	566	0.4−	0.5−	1999 05 20	699	0.7+	0.7+
1953 01 09	675	1.3+	0.5+	1998 02 26	566	0.2−	0.5−	1999 05 20	699	0.1+	0.3+
1982 07 16	413	0.1−	0.9−	1999 05 13	704	0.0	0.9+	1999 05 20	699	0.8+	0.6−

1982 07 16	413	0.9+	0.9+	1999 05 13	704	0.3−	1.0−	1999 06 05	699	0.4+	0.4+
1982 08 12	413	1.1−	0.4−	1999 05 13	704	0.7+	0.1+	1999 06 05	699	1.1+	0.3+
1982 08 12	413	0.3−	0.6−	1999 05 13	704	0.3+	0.2+	1999 06 05	699	1.0+	1.0+
1982 09 12	413	0.2−	0.2−	1999 05 13	704	1.2+	1.6−	1999 06 09	704	0.1−	0.2−
1982 09 12	413	1.1−	0.0	1999 05 18	704	0.0	0.4−	1999 06 09	704	0.5−	0.5−
1989 03 07	675	0.4−	0.2−	1999 05 18	704	0.5−	0.1−	1999 06 09	704	0.5−	0.1−
1989 03 07	675	0.5+	0.1+	1999 05 18	704	0.0	0.7+	1999 06 09	704	0.3−	0.5+
1991 08 10	675	0.5+	0.4+	1999 05 18	704	0.6−	1.0+	1999 06 09	704	0.2+	0.8+
1991 08 10	675	1.5+	1.1−	1999 05 18	704	0.8−	0.1+	1999 06 14	704	0.4−	0.6−
1998 01 25	566	0.1−	0.3−	1999 05 19	704	0.3+	0.6−	1999 06 14	704	0.2−	0.9−
1998 01 25	566	0.1−	0.1+	1999 05 19	704	0.0	0.4+	1999 06 14	704	0.7−	0.4−
1998 01 25	566	0.2−	0.0	1999 05 19	704	0.5+	0.4−	1999 06 14	704	0.3−	0.0
1998 02 26	566	0.3−	0.7−	1999 05 19	704	0.7−	0.5+	1999 06 14	704	0.6−	0.0

(11419)* 1999 KS₂ = 1975 WN = 1994 LQ₅

Discovered 1999 May 16 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 35041, *MPC* 35382)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	165.46792		(2000.0)	P	Q
<i>n</i>	0.18764261	ω	16.03799	+0.18744405	−0.96641854
<i>a</i>	3.0216795	Ω	63.43931	+0.87824493	+0.08473578
<i>e</i>	0.0814555	<i>i</i>	11.33381	+0.43994384	+0.24260060
<i>P</i>	5.25	<i>H</i>	13.0	<i>G</i>	0.15

Residuals in seconds of arc

1975 11 28	095	0.1+	0.5−	1999 05 13	704	0.2−	0.2−	1999 05 19	704	0.4−	1.7−
1994 06 03	809	1.1−	1.9+	1999 05 13	704	0.1−	0.4−	1999 05 19	691	0.3−	0.2+
1994 06 03	809	(1.3+	2.9+)	1999 05 13	704	0.7−	0.3−	1999 06 05	703	0.9+	0.1−
1994 06 03	809	(2.5+	2.2+)	1999 05 13	704	0.3+	0.3−	1999 06 05	703	1.1+	0.5+
1994 06 04	809	1.3+	1.1+	1999 05 13	704	1.0−	0.2+	1999 06 05	703	0.5+	0.4+
1994 06 04	809	0.9+	1.2+	1999 05 16	691	0.1−	0.1+	1999 06 05	703	1.2+	0.0
1994 06 04	809	1.6+	1.0+	1999 05 16	691	0.2−	0.0	1999 06 09	704	0.0	0.5−
1997 02 10	691	0.2−	0.8+	1999 05 16	691	0.4−	0.2−	1999 06 09	704	0.9−	0.3+
1997 02 10	691	0.0	0.0	1999 05 18	704	0.2+	0.3−	1999 06 09	704	0.5+	0.5+
1997 02 10	691	0.1−	0.1+	1999 05 18	704	0.4−	0.8−	1999 06 09	704	0.6−	0.3−
1998 01 26	566	0.4+	0.8+	1999 05 18	704	0.7−	0.8−	1999 06 09	704	(0.3−	2.4−)
1998 01 26	566	0.5+	0.6+	1999 05 18	704	(2.7−	2.2−)	1999 06 15	704	0.0	0.1−
1998 01 26	566	0.6+	0.8+	1999 05 19	704	0.4−	0.4−	1999 06 15	704	0.1+	0.1−
1998 02 27	566	0.1−	0.4−	1999 05 19	704	0.9−	1.3−	1999 06 15	704	0.1−	0.5+
1998 02 27	566	0.2−	0.2−	1999 05 19	704	(1.5+	2.9−)	1999 06 15	704	0.0	0.4+
1998 02 27	566	0.2−	0.2−	1999 05 19	691	0.1−	0.2+	1999 06 15	704	0.2−	0.1+

(11420)* 1999 KR₁₄ = 1974 VT₁ = 1977 RH₁ = 1977 TP₁ = 1990 TA₃

Discovered 1999 May 18 by the Lincoln Laboratory Near-Earth Asteroid

Research Team at Socorro.

Id. G. V. Williams (*MPC* 35384)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	264.70911		(2000.0)	P	Q
<i>n</i>	0.30634296	ω	305.99760	+0.90424118	−0.41499210
<i>a</i>	2.1793690	Ω	78.71303	+0.41733560	+0.80891717
<i>e</i>	0.1574552	<i>i</i>	5.89065	+0.09043721	+0.41645477
<i>P</i>	3.22	<i>H</i>	14.3	<i>G</i>	0.15

Residuals in seconds of arc

1974 11 15	095	0.5−	0.4+	1999 05 18	704	0.1+	1.5−	1999 06 15	704	0.5−	0.5+
1977 09 07	095	0.2−	1.0−	1999 05 18	704	0.6−	0.3−	1999 06 15	704	0.4−	1.2+
1977 10 06	095	2.1+	2.3−	1999 05 18	704	0.3−	0.9+	1999 06 15	704	0.3−	1.1+
1990 10 14	675	0.1+	1.0+	1999 05 18	704	1.8+	0.3−	1999 06 22	703	1.0+	0.7−
1990 10 14	675	0.6−	0.5+	1999 05 18	704	1.2−	1.3−	1999 06 22	703	0.3−	0.2+
1990 10 16	675	0.6−	0.3+	1999 05 19	704	0.3+	1.2−	1999 06 22	703	0.4+	0.4−
1990 10 16	675	0.2−	0.8+	1999 05 19	704	0.7−	0.1−	1999 06 22	703	1.0+	0.7−
1998 01 08	699	0.1−	0.6−	1999 05 19	704	(2.4−	1.3−)	1999 06 23	703	0.7+	0.1+
1998 01 08	699	0.1−	0.8−	1999 05 19	704	0.5−	1.6−	1999 06 23	703	0.8+	0.4+
1998 01 08	699	0.3+	0.6−	1999 05 19	704	0.5+	1.7−	1999 06 23	703	0.2+	0.0
1998 01 28	566	0.0	0.1+	1999 06 09	704	0.5+	0.4−	1999 06 23	703	0.3−	0.1+

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1998 01 28	566	0.0	0.1+	1999 06 09	704	0.9+	0.2+	1999 07 14	704	1.4-	1.8+
1998 01 28	566	0.1+	0.0	1999 06 09	704	0.4+	0.1+	1999 07 14	704	0.4-	1.5+
1998 04 29	566	0.0	0.8+	1999 06 09	704	0.8-	1.6+	1999 07 14	704	0.6-	0.2+
1998 04 29	566	0.0	0.9+	1999 06 15	704	0.2+	0.7+	1999 07 14	704	(2.1-	1.9+)
1998 04 29	566	0.1-	0.5+	1999 06 15	704	0.1-	1.0+				

(11421)* 1999 LW₂ = 1975 GK = 1978 TY₄ = 1997 BJ₇ = 1998 KJ₂₇

Discovered 1999 June 10 by P. G. Comba at Prescott.

Id. A. Doppler (*MPC* 35385)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>			P			Q		
167.75131			(2000.0)					
<i>n</i>	0.17535788	ω	359.81338	-0.57769106	-0.81499992			
<i>a</i>	3.1612040	Ω	125.47464	+0.74897176	-0.55130001			
<i>e</i>	0.1601179	<i>i</i>	3.18572	+0.32452172	-0.17844729			
<i>P</i>	5.62	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1975 04 15	805	0.4+	0.3+	1998 05 22	704	0.2-	0.0	1999 06 17	684	0.3-	0.0
1975 04 18	805	0.2-	1.3-	1998 05 22	704	0.2+	0.8+	1999 06 17	684	0.3-	0.2-
1978 10 07	095	0.6-	0.9-	1998 05 22	704	1.0-	1.4+	1999 07 04	684	0.2-	0.2-
1997 01 28	327	0.6+	0.2+	1998 05 24	704	0.0	0.3+	1999 07 04	684	0.4-	0.0
1997 01 28	327	0.6+	0.1+	1998 05 24	704	1.3-	0.9+	1999 07 04	684	0.2+	0.2-
1997 01 28	327	0.3+	0.1+	1998 05 24	704	0.9+	0.6+	1999 07 05	684	0.5-	0.3-
1997 01 30	327	0.5-	0.1+	1998 05 24	704	0.9+	0.3-	1999 07 05	684	0.3-	0.3-
1997 01 30	327	0.3-	0.2+	1998 05 24	704	1.4+	0.5-	1999 07 14	704	0.5+	1.1+
1997 01 30	327	0.0	0.1+	1998 05 24	699	0.1-	0.0	1999 07 14	704	0.4+	0.6+
1998 04 30	566	0.2-	0.6-	1998 05 24	699	0.1-	0.2+	1999 07 14	704	0.6+	1.4-
1998 04 30	566	0.0	0.9-	1998 05 24	699	0.0	0.9+	1999 07 14	704	0.3+	1.7-
1998 04 30	566	0.2+	0.8-	1999 06 10	684	0.4-	0.4+	1999 07 16	704	0.4+	0.2+
1998 05 01	704	0.0	0.5-	1999 06 10	684	0.7-	0.4+	1999 07 16	704	1.1+	0.1+
1998 05 01	704	0.2+	0.2+	1999 06 11	684	1.0-	0.1+	1999 07 16	704	1.2+	0.1+
1998 05 01	704	1.2-	0.0	1999 06 11	684	1.0-	0.1+	1999 07 16	704	0.6-	0.4-
1998 05 01	704	1.6-	0.3+	1999 06 14	684	0.8-	0.2+	1999 07 16	704	1.1+	0.3-
1998 05 05	699	0.3+	0.3-	1999 06 14	684	0.2-	0.1+	1999 08 12	704	0.5+	0.6+
1998 05 05	699	0.0	0.6-	1999 06 15	704	0.7+	0.3+	1999 08 12	704	0.4+	0.3+
1998 05 05	699	0.5-	0.8-	1999 06 15	704	0.7-	0.9+	1999 08 12	704	0.1+	0.0
1998 05 22	704	0.1-	0.2+	1999 06 15	704	0.8-	0.8+	1999 08 12	704	2.2+	0.1+
1998 05 22	704	0.2+	0.2-	1999 06 15	704	0.0	0.2+	1999 08 12	704	0.0	0.8-

(11422)* 1999 LD₇ = 1999 JA₁₁₉ = 1979 OQ = 1996 TK₄₇

Discovered 1999 June 10 by Spacewatch at Kitt Peak.

Id. G. V. Williams (*MPC* 35386), A. Doppler (d, *ibid.*)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>			P			Q		
333.83302			(2000.0)					
<i>n</i>	0.24230543	ω	60.90176	+0.45846453	+0.88750200			
<i>a</i>	2.5481634	Ω	236.45906	-0.83349505	+0.41128725			
<i>e</i>	0.1192656	<i>i</i>	3.18942	-0.30837682	+0.20780518			
<i>P</i>	4.07	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1979 07 24	675	0.0	1.2-	1998 01 26	566	0.2-	0.1-	1999 06 09	704	0.1+	0.0
1979 07 25	675	0.4+	0.5-	1999 05 13	704	0.1+	0.7-	1999 06 09	704	0.1+	0.2+
1996 10 05	327	0.1+	0.3+	1999 05 13	704	0.6-	0.4-	1999 06 09	704	0.9-	0.1+
1996 10 05	327	0.6+	0.5+	1999 05 13	704	0.0	0.6+	1999 06 09	704	0.7-	0.6+
1996 10 05	327	0.2+	0.3+	1999 05 13	704	0.8+	1.4+	1999 06 10	691	0.2-	0.7+
1996 10 11	691	0.5+	0.2+	1999 05 13	704	0.1-	0.5+	1999 06 10	691	0.2-	0.3+
1996 10 11	691	0.4+	0.2+	1999 05 18	704	0.5+	0.8-	1999 06 10	691	0.2-	0.3+
1996 10 11	691	0.5+	0.0	1999 05 18	704	0.1-	1.0-	1999 06 12	691	0.5-	0.8+
1996 10 16	691	0.6-	0.1+	1999 05 18	704	1.3+	0.7-	1999 06 12	691	0.4-	0.5+
1996 10 16	691	0.5-	0.1-	1999 05 18	704	1.3+	0.7-	1999 06 12	691	0.7-	0.0
1996 10 16	691	1.6-	0.5+	1999 05 18	704	0.0	1.9-	1999 06 15	704	0.3+	0.3+
1998 01 07	691	0.3+	0.3+	1999 05 19	704	0.2+	0.2-	1999 06 15	704	0.2+	0.7+
1998 01 07	691	0.3+	0.3+	1999 05 19	704	0.1+	0.4-	1999 06 15	704	0.2-	0.8+
1998 01 07	691	0.4+	0.2+	1999 05 19	704	0.1+	0.0	1999 06 15	704	0.0	0.8+

1998 01 26	566	0.4-	0.2-	1999 05 19	704	1.3+	1.2+	1999 06 15	704	0.0	0.6+
1998 01 26	566	0.5-	0.4-	1999 05 19	704	0.9-	0.2-				

(11423)* 1999 LT₂₄ = 1976 UL₅ = 1980 UA₂ = 1989 AR₇ = 1992 UO₈

Discovered 1999 June 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 35390)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>			P			Q		
270.69270			(2000.0)					
<i>n</i>	0.24636655	ω	125.14308	+0.95529663	-0.28575362			
<i>a</i>	2.5200833	Ω	251.56537	+0.23853112	+0.89651807			
<i>e</i>	0.1186585	<i>i</i>	4.58585	+0.17467469	+0.33852654			
<i>P</i>	4.00	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2	

Residuals in seconds of arc

1976 10 30	095	0.7+	1.4+	1998 03 26	704	0.0	1.0+	1999 06 15	704	0.3-	0.7+
1980 10 17	095	0.9-	1.0-	1998 03 26	704	0.0	1.9+	1999 06 15	704	0.4-	0.4+
1989 01 09	033	0.2+	0.6-	1998 03 26	704	1.7-	0.8-	1999 07 14	704	0.1-	1.6-
1989 01 09	033	0.6-	1.3-	1999 06 09	704	1.0+	0.4+	1999 07 14	704	0.8-	1.0-
1992 10 27	372	(2.8+	1.1+)	1999 06 09	704	0.8+	0.8+	1999 07 14	704	0.9+	0.2-
1992 10 27	372	0.6-	0.0	1999 06 09	704	0.2+	0.6+	1999 07 14	704	1.0-	0.1+
1992 10 28	399	(0.5+	3.1-)	1999 06 09	704	0.3+	0.3+	1999 07 16	704	0.2-	0.2-
1992 10 28	399	1.6+	0.7-	1999 06 09	704	0.2+	0.9+	1999 07 16	704	0.6+	0.7-
1998 02 24	566	0.5+	1.4-	1999 06 15	704	0.1-	0.1-	1999 07 16	704	0.3+	1.5-
1998 02 24	566	0.3+	1.6-	1999 06 15	704	0.2-	0.1+	1999 07 16	704	0.7-	1.6-
1998 02 24	566	0.1+	0.7-	1999 06 15	704	0.0	0.4+	1999 07 16	704	0.9-	0.4-

(11424)* 1999 LZ₂₄ = 1955 XJ = 1970 YA = 1981 RM₁ = 1991 JH₆
= 1998 GM₂

Discovered 1999 June 9 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro.

Id. G. V. Williams (*MPC* 35390)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>			P			Q		
249.92140			(2000.0)					
<i>n</i>	0.26286951	ω	333.81510	+0.74552623	-0.63390481			
<i>a</i>	2.4134737	Ω	67.08945	+0.64397023	+0.60557734			
<i>e</i>	0.1609302	<i>i</i>	12.91055	+0.17173521	+0.48108292			
<i>P</i>	3.75	<i>H</i>	12.1	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1955 12 06	760	1.1+	0.8-	1998 04 02	704	1.2+	0.3+	1999 06 15	704	0.2+	0.6+
1955 12 06	760	0.0	0.1+	1998 04 02	704	0.6-	0.0	1999 06 15	704	0.4+	0.1-
1955 12 13	760	0.7-	0.9+	1998 04 02	704	1.3+	0.4+	1999 06 15	704	0.6+	0.4+
1955 12 13	760	1.1-	1.0+	1998 04 03	704	0.3-	0.0	1999 07 14	704	0.1-	0.2+
1970 12 26	095(13.4-	9.9-)	Y	1998 04 03	704	0.1+	1.3+	1999 07 14	704	0.4+	0.6+
1981 09 04	809	0.0	1.0+	1998 04 03	704	0.1-	1.2+	1999 07 14	704	0.3-	0.7+
1981 09 04	809	1.3-	0.7+	1998 04 03	704	0.7+	0.7+	1999 07 14	704	0.5-	0.4-
1981 09 04	809	0.4-	0.6+	1998 04 03	704	0.0	0.9+	1999 07 16	704	0.0	0.0
1981 09 04	809	0.4-	0.5+	1999 06 09	704	0.8+	0.5+	1999 07 16	704	0.3-	0.5+
1991 05 05	402	0.7-	1.5-	1999 06 09	704	0.2-	0.3-	1999 07 16	704	0.4-	0.5+
1991 05 05	402	0.8-	1.0-	1999 06 09	704	0.3+	0.1+	1999 07 16	704	0.5-	0.1+
1992 08 24	808	0.9+	0.4-	1999 06 09	704	0.1-	0.3+	1999 07 16	704	0.8-	0.2+
1992 08 24	808	0.0	0.5-	1999 06 15	704	0.4+	0.4+				
1998 04 02	704	0.3+	0.1-	1999 06 15	704	0.4+	0.4+				

(11425)* 1999 MF = 1981 RZ₅

Discovered 1999 June 18 by J. Broughton at Reedy Creek.

Id. G. V. Williams (*MPC* 35393)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	304.07450		(2000.0)	P	Q
<i>n</i>	0.27020445	ω	345.89326	+0.95866010	-0.28308861
<i>a</i>	2.3695964	Ω	30.59874	+0.26625798	+0.85664993
<i>e</i>	0.2280032	<i>i</i>	3.24779	+0.10038675	+0.43129079
<i>P</i>	3.65	<i>H</i>	15.3	<i>G</i>	0.15

Residuals in seconds of arc

1981 09 01	675	0.8+	0.0	1994 02 08	809	1.0-	1.8-	1999 06 18	428	0.2+	0.7-
1981 09 02	675	0.4-	0.9-	1994 02 10	809	1.1+	1.9-	1999 06 19	428	0.8+	0.4-
1992 09 06	033	0.7+	0.4-	1994 02 10	809	(2.3+	2.5-)	1999 06 19	428	0.6-	0.3-
1992 09 07	033	0.7+	1.0-	1999 06 15	704	0.4-	0.7+	1999 06 20	428	0.1-	0.6+
1992 09 27	691	0.1-	0.0	1999 06 15	704	0.9+	0.4+	1999 07 05	428	0.3+	0.0
1992 09 27	691	0.0	0.3-	1999 06 15	704	0.4-	0.1-	1999 07 16	704	0.3+	0.1-
1992 09 27	691	0.5-	0.3-	1999 06 15	704	0.7-	0.0	1999 07 16	704	0.6+	0.9+
1994 02 08	809	0.5-	0.1+	1999 06 15	704	0.0	0.6-	1999 07 16	704	0.2-	0.3+
1994 02 08	809	1.6-	0.6-	1999 06 18	428	0.7-	0.9-	1999 08 15	428	0.0	0.4-

(11426)* 2527 P-L = 1977 SY = 1977 TD₇

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

Id. T. Kobayashi (*MPC* 12689)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	309.48158		(2000.0)	P	Q
<i>n</i>	0.17625159	ω	213.88518	+0.77087524	-0.63642645
<i>a</i>	3.1505088	Ω	185.86008	+0.62690134	+0.76543243
<i>e</i>	0.2845500	<i>i</i>	15.15807	+0.11289856	+0.09526053
<i>P</i>	5.59	<i>H</i>	13.3	<i>G</i>	0.15

Residuals in seconds of arc

1960 09 24	675	0.4+	0.9-	1988 09 12	675	0.3+	1.0-	1996 03 27	691	0.4-	0.8-
1960 09 26	675	0.5-	1.0-	1988 09 12	675	0.1-	0.8-	1996 03 27	691	0.3-	1.1-
1960 09 28	675	0.7-	0.4-	1988 09 14	801	1.0+	1.0+	1996 03 27	691	0.4-	0.8-
1960 09 29	675	0.2-	0.9+	1988 09 16	675	0.0	2.1-	1999 07 22	704	0.7-	0.2-
1960 10 17	675	0.3-	0.1+	1988 09 16	675	0.5+	1.2-	1999 07 22	704	0.4-	0.1-
1960 10 22	675	0.7+	0.1+	1988 10 12	801	0.5-	0.1+	1999 07 22	704	0.2-	0.4+
1960 10 25	675	0.3+	0.3+	1994 10 07	801	0.2+	0.6+	1999 07 22	704	0.4-	0.1+
1960 10 26	675	0.2+	0.8-	1994 10 07	801	0.6+	0.1+	1999 07 22	704	0.2-	0.2-
1977 09 18	095	0.6+	0.9+	1994 10 08	801	0.9-	0.1+	1999 08 22	703	0.2+	0.3+
1977 10 09	095	0.2-	0.8+	1994 10 08	801	0.1-	0.1+	1999 08 22	703	0.4+	0.5+
1988 09 10	675	(0.5+	3.2-)	1996 03 19	691	1.1+	0.6-	1999 08 22	703	0.2-	0.4+
1988 09 10	675	(0.4+	2.8-)	1996 03 19	691	0.3-	1.1+	1999 08 22	703	0.4+	0.6+

(11427)* 2611 P-L = 1998 KR₃

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* 32035)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	13.56963		(2000.0)	P	Q
<i>n</i>	0.17483947	ω	126.04011	+0.58410293	+0.81167944
<i>a</i>	3.1674497	Ω	179.69816	-0.77200741	+0.55574497
<i>e</i>	0.0793773	<i>i</i>	5.47248	-0.25065578	+0.17978881
<i>P</i>	5.64	<i>H</i>	13.0	<i>G</i>	0.15

Residuals in seconds of arc

1960 09 24	675	0.5-	0.3+	1998 05 05	699	0.9-	1.3+	1998 05 24	699	0.2+	0.7+
1960 09 26	675	0.8+	0.9+	1998 05 05	699	0.1-	0.3+	1998 05 25	699	0.5-	0.6-
1960 09 26	675	0.5-	0.2-	1998 05 05	699	0.1+	0.2+	1998 05 25	699	0.4+	0.5-
1960 09 27	675	0.1+	1.0+	1998 05 22	704	1.0+	0.6-	1998 05 25	699	0.3-	0.0
1960 09 28	675	0.5-	0.1+	1998 05 22	704	0.2+	0.3+	1998 06 16	704	(3.3+	1.8-)
1960 10 17	675	0.2+	0.6+	1998 05 22	704	0.1-	0.5-	1998 06 16	704	0.1-	0.1+
1960 10 22	675	0.5-	0.3+	1998 05 22	704	0.5-	0.9-	1998 06 16	704	(2.5+	0.2+)
1960 10 25	675	0.8+	0.6-	1998 05 22	699	1.0+	0.5-	1998 06 16	704	0.6-	0.7-
1960 10 26	675	0.7-	0.0	1998 05 22	704	0.4-	0.3-	1999 07 13	704	0.9+	0.0

1997 03 15	691	0.0	0.0	1998 05 22	699	0.1-	0.5-	1999 07 13	704	0.2-	1.1+
1997 03 15	691	0.0	0.1-	1998 05 22	699	0.4+	0.2-	1999 07 13	704	0.1+	0.3-
1997 03 15	691	0.0	0.2+	1998 05 23	699	0.1-	1.5+	1999 07 13	704	0.0	0.1-
1998 04 22	704	0.0	0.0	1998 05 23	699	0.4+	0.6+	1999 07 13	704	0.5-	0.6-
1998 04 22	704	0.5+	0.6+	1998 05 23	699	0.3-	0.4+	1999 07 23	704	0.2+	0.5-
1998 04 22	704	0.5+	0.4+	1998 05 24	704	0.4+	0.2-	1999 07 23	704	0.3+	0.8-
1998 04 22	704	0.9+	1.6+	1998 05 24	704	0.5+	0.9-	1999 07 23	704	0.2+	1.3-
1998 04 22	704	1.2-	1.4+	1998 05 24	704	0.1+	0.7-	1999 08 12	699	0.5-	0.1+
1998 05 01	704	0.2-	0.5-	1998 05 24	704	1.1-	0.7-	1999 08 12	699	0.2+	0.5+
1998 05 01	704	0.2-	0.5-	1998 05 24	704	0.6+	0.9-	1999 08 12	699	0.2+	0.6+
1998 05 01	704	0.7-	0.1-	1998 05 24	699	0.3+	0.7+				
1998 05 01	704	0.2+	0.9+	1998 05 24	699	0.2+	0.7+				

(11428)* 4139 P-L = 1979 HD₁ = 1994 PG₁

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* 23985)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	43.53376		(2000.0)	P	Q
<i>n</i>	0.08112128	ω	56.85749	+0.49962581	-0.86607006
<i>a</i>	5.2850144	Ω	3.31264	+0.66177373	+0.36878797
<i>e</i>	0.0148330	<i>i</i>	17.34271	+0.55895400	+0.33751752
<i>P</i>	12.15	<i>H</i>	11.0	<i>G</i>	0.15

Residuals in seconds of arc

1960 09 24	675	0.2-	0.4-	1983 10 01	413	1.6-	0.3-	1994 08 28	413	0.1-	0.1-
1960 09 25	675	0.7-	0.3-	1983 10 01	413	0.7-	0.1+	1994 08 28	413	0.1-	0.0
1960 09 26	675	0.5-	0.9-	1991 04 11	413	1.5-	0.4-	1998 11 16	704	0.1+	0.1+
1960 09 28	675	0.7-	0.5-	1991 04 11	413	0.4-	0.5+	1998 11 16	704	1.1-	0.8-
1960 10 17	675	0.1+	0.4+	1994 07 04	413	0.5+	0.5-	1998 11 16	704	0.6+	0.1+
1960 10 22	675	0.7+	1.1+	1994 07 04	413	1.1+	0.1-	1998 11 16	704	0.6+	0.0
1960 10 25	675	1.3+	0.0	1994 08 11	413	1.4+	0.2+	1998 11 16	704	1.0+	1.2+
1960 10 26	675	1.0+	0.0	1994 08 11	413	0.2-	0.3+	1998 12 12	704	1.0-	0.3-
1979 04 26	805	0.3-	1.1-	1994 08 26	413	0.2-	0.2-	1998 12 12	704	1.3+	1.9-
1979 04 26	805	1.0+	0.1-	1994 08 26	413	0.0	0.3-	1998 12 12	704	0.9-	0.2-

(11429)* 4655 P-L = 1996 RZ₃₂

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* 29649)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	338.17338		(2000.0)	P	Q
<i>n</i>	0.08039577	ω	91.89710	-0.14101459	-0.98945226
<i>a</i>	5.3167625	Ω	6.49681	+0.75118086	-0.12874919
<i>e</i>	0.0325244	<i>i</i>	17.03788	+0.64485828	-0.06639176
<i>P</i>	12.26	<i>H</i>	10.1	<i>G</i>	0.15

Residuals in seconds of arc

1960 09 24	675	0.4-	0.5-	1991 02 12	413	0.2+	0.1+	1998 11 14	704	0.7+	0.9-
1960 09 24	675	0.1+	1.0-	1995 08 18	413	0.2-	0.4-	1998 11 14	704	0.3+	0.7-
1960 09 26	675	0.1+	1.2-	1995 08 18	413	0.7+	0.5+	1998 11 14	704	0.9-	0.7-
1960 09 27	675	0.1+	0.7+	1996 09 15	809	0.7-	0.3+	1998 11 14	704	0.1-	0.2-
1960 09 28	675	0.1+	0.4-	1996 09 16	809	0.6-	0.4+	1998 11 14	704	0.0	0.1+
1960 10 17	675	0.4+	0.4+	1998 10 02	704	1.2+	0.0	1998 11 16	704	1.1+	0.8-
1960 10 22	675	0.0	0.3+	1998 10 02	704	0.6+	0.8+	1998 11 16	704	1.6-	0.5-
1960 10 25	675	0.2+	0.7+	1998 10 02	704	0.4-	0.8+	1998 11 16	704	0.6-	0.7-
1960 10 26	675	0.6+	0.2-	1998 10 16	699	0.1-	1.1+	1998 11 16	704	0.5-	1.0+
1989 02 26	675	0.2-	0.5-	1998 10 16	699	0.5-	0.9+	1998 11 16	704	(2.3-	1.8+)
1991 02 12	413	0.2+	0.6+	1998 10 16	699	0.7+	0.9+				

(11430)* 9560 P-L = 1995 CP₁

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (*MPC* 25076)

1999 AUG. 31

M.P.C. 35599

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	45.47911		(2000.0)	P	Q
<i>n</i>	0.30113127	ω	153.60683	-0.24228790	+0.96787598
<i>a</i>	2.2044427	Ω	102.31085	-0.90186121	-0.19915325
<i>e</i>	0.1150594	<i>i</i>	3.94262	-0.35769112	-0.15347334
<i>P</i>	3.27	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1960 10 17	675	0.3-	0.7+	1998 01 22	704	0.5+	1.0-	1999 07 14	704	0.8+	0.2+
1960 10 22	675	1.0-	0.4-	1998 01 22	704	0.3+	0.1+	1999 07 14	704	0.7+	0.0
1960 10 26	675	1.7+	1.2-	1998 01 22	704	0.2+	0.3-	1999 07 14	704	0.5+	0.1-
1992 04 27	691	0.0	0.4-	1998 01 23	704	0.2-	0.1-	1999 07 16	704	0.5+	1.0+
1992 04 27	691	0.1-	0.4-	1998 01 23	704	0.7-	0.1-	1999 07 16	704	0.2+	0.4+
1992 04 27	691	0.0	0.6-	1998 01 23	704	0.2+	0.5+	1999 07 16	704	0.1-	0.7+
1995 02 09	411	0.0	0.7-	1998 01 23	704	0.2-	0.2+	1999 07 20	699	0.7-	0.1+
1995 02 09	411	0.6+	0.2+	1998 01 23	704	0.4+	0.4+	1999 07 20	699	0.6-	0.1-
1995 02 10	411	0.2-	1.6+	1998 01 24	704	0.7+	0.3+	1999 07 20	699	0.6-	0.3-
1995 02 10	411	1.7-	1.6+	1998 01 24	704	0.4-	0.2-	1999 08 12	699	0.5-	0.3-
1995 02 20	411	1.1+	0.7-	1998 01 24	704	0.5-	0.4+	1999 08 12	699	0.6-	0.5-
1995 02 20	411	0.3-	0.5-	1998 01 24	704	0.4-	0.5-	1999 08 12	699	0.4-	0.2-
1995 03 21	411	(4.0+	3.9-)	1999 07 14	704	0.3-	0.6+				
1998 01 22	704	0.7+	0.3+	1999 07 14	704	0.7+	0.4-				

(11431)* 4843 T-1 = 3199 T-2

Discovered 1971 May 13 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. T. Kobayashi (*MPC* 21124)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	18.90289		(2000.0)	P	Q
<i>n</i>	0.17659232	ω	170.22627	-0.89642778	+0.43908936
<i>a</i>	3.1464548	Ω	36.01354	-0.41321412	-0.77899941
<i>e</i>	0.1282510	<i>i</i>	5.87143	-0.16022276	-0.44761641
<i>P</i>	5.58	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1971 04 16	675	0.1-	1.2-	1973 10 04	675	(3.2+	3.2-)	1999 04 12	704	0.5-	1.2-
1971 04 16	675	1.4-	1.7-	1973 10 05	675	0.6-	0.9+	1999 04 12	704	1.1+	0.6-
1971 05 13	675	0.3-	0.7+	1973 10 05	675	2.2+	0.7+	1999 04 12	704	1.1-	0.4+
1971 05 14	675	0.5-	0.9-	1996 10 17	691	0.6-	0.7-	1999 04 12	704	0.7+	0.2+
1971 05 16	675	0.1+	0.5-	1996 10 17	691	0.2+	0.9-	1999 04 16	704	(2.4+	1.2-)
1973 09 20	675	1.5-	0.1-	1996 10 17	691	0.8+	0.4-	1999 04 16	704	0.7-	1.3+
1973 09 25	675	0.3+	2.4-	1999 04 07	704	0.1+	0.1-	1999 04 16	704	0.8-	0.8-
1973 09 25	675	0.4+	0.3-	1999 04 07	704	0.4+	0.2-	1999 04 16	704	0.3-	1.6-
1973 09 29	675	1.6+	0.2-	1999 04 07	704	0.3+	0.3-	1999 04 16	704	1.0-	1.8-
1973 09 30	675	0.7-	1.1-	1999 04 07	704	0.5+	0.0	1999 06 10	644	0.1-	1.2+
1973 09 30	675	0.1-	1.1-	1999 04 07	704	(2.5+	0.3+)	1999 06 10	644	0.0	1.5+
1973 10 04	675	1.3+	1.1-	1999 04 12	704	0.4+	0.6-	1999 06 10	644	0.0	1.3+

(11432)* 1052 T-2 = 1995 SG₁₇

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* 25970)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	310.95551		(2000.0)	P	Q
<i>n</i>	0.17825293	ω	279.05813	+0.20253024	+0.97927584
<i>a</i>	3.1268827	Ω	2.62704	-0.89346676	+0.18502390
<i>e</i>	0.1501971	<i>i</i>	0.71903	-0.40087236	+0.08237104
<i>P</i>	5.53	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1973 09 19	675	1.8+	2.4-	1993 02 17	691	0.1-	0.5-	1999 04 07	691	0.1-	0.2+
1973 09 19	675	2.3+	1.9-	1993 02 17	691	0.5-	0.3+	1999 04 07	691	0.1+	0.3+
1973 09 20	675	0.5+	1.1-	1993 03 25	691	0.1+	0.8-	1999 04 15	704	0.2+	1.1-
1973 09 24	675	0.2+	2.5-	1993 03 25	691	0.1-	0.4-	1999 04 15	704	1.7-	0.9-

1973 09 24	675	0.7-	1.1-	1993 03 25	691	0.1-	0.4-	1999 04 15	704	0.4+	0.8-
1973 09 25	675	0.1-	0.2-	1995 09 01	809	1.9-	0.8-	1999 04 15	704	1.0-	0.6-
1973 09 25	675	0.4-	0.5-	1995 09 18	691	0.8-	0.3+	1999 04 15	704	0.3+	0.2-
1973 09 29	675	0.3-	0.2-	1995 09 18	691	0.9-	0.5+	1999 04 16	691	0.4-	0.8-
1973 09 29	675	0.3+	0.2+	1995 09 18	691	0.5-	0.5+	1999 04 16	691	0.1+	0.2+
1973 09 30	675	0.0	1.3+	1995 09 19	809	1.3+	0.6+	1999 04 16	691	0.3+	1.6-
1973 09 30	675	0.3+	0.1+	1995 09 20	809	1.2+	0.9+	1999 06 06	691	0.3+	0.3+
1973 10 04	675	0.1-	1.9-	1995 09 29	691	0.1+	0.7+	1999 06 06	691	0.4+	0.1+
1973 10 04	675	0.5-	1.7-	1995 09 29	691	0.0	0.6+	1999 06 06	691	0.1-	0.3+
1973 10 05	675	0.1-	0.5+	1995 09 29	691	0.4-	0.6+				
1973 10 05	675	1.2+	1.7+	1999 04 07	691	0.6-	0.4+				

(11433)* 3474 T-3 = 1953 FB₁

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. H. Kaneda (*MPC* 16039)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	105.91891		(2000.0)	P	Q
<i>n</i>	0.26205574	ω	140.59817	-0.93685391	+0.34634907
<i>a</i>	2.4184675	Ω	59.73019	-0.33335868	-0.84253434
<i>e</i>	0.1614500	<i>i</i>	3.21566	-0.10572009	-0.41252661
<i>P</i>	3.76	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1953 03 16	024	(0.9+	3.3-)	1996 10 11	566	0.1-	0.6+	1998 03 04	704	1.0-	0.6+
1953 03 20	024	1.1-	0.2-	1996 10 11	566	0.7-	0.6+	1999 07 16	704	0.3-	0.5-
1954 07 29	675	1.0+	0.4+	1996 10 11	566	0.8-	0.1+	1999 07 16	704	0.5-	0.5-
1954 07 29	675	0.9+	0.7+	1998 02 22	566	0.6+	0.9-	1999 07 16	704	0.2-	0.3+
1977 10 07	675	1.8+	0.8+	1998 02 22	566	0.3+	0.8-	1999 08 13	747	0.5+	0.9-
1977 10 11	675	1.1-	0.1+	1998 02 22	566	0.2+	1.2-	1999 08 13	747	0.7-	0.4-
1977 10 11	675	0.3-	0.1+	1998 02 27	566	1.1+	0.9-	1999 08 13	747	0.3-	0.3-
1977 10 12	675	2.2+	1.0-	1998 02 27	566	1.1+	0.9-	1999 08 13	747	0.1+	0.1-
1977 10 12	675	1.7+	2.1-	1998 02 27	566	1.2+	0.9-	1999 08 13	747	0.4+	0.4-
1977 10 16	675	0.4-	0.8-	1998 03 04	704	1.1-	0.1-	1999 08 14	747	0.4+	0.7-
1977 10 16	675	0.9-	0.7-	1998 03 04	704	0.7-	0.0	1999 08 14	747	1.1+	1.6-
1981 10 25	675	(3.3-	1.0-)	1998 03 04	704	1.3-	0.5-				
1981 10 26	675	1.5-	0.3-	1998 03 04	704	1.3-	0.2+				

1975 SO₁ = 1999 JC₁₀₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	99.58281		(2000.0)	P	Q
<i>n</i>	0.18910213	ω	344.03324	-0.63404367	-0.77293611
<i>a</i>	3.0061116	Ω	145.30585	+0.71395162	-0.59685141
<i>e</i>	0.0441363	<i>i</i>	2.37935	+0.29708872	-0.21526302
<i>P</i>	5.21	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1975 09 30	675	0.4+	0.3+	1999 04 12	704	0.3-	0.4+	1999 05 13	704	0.3+	1.4-
1975 10 01	675	0.2+	0.0	1999 04 12	704	0.1-	0.6+	1999 05 18	704	0.9+	0.6-
1975 10 02	675	0.8+	1.6+	1999 04 12	704	1.9-	0.5+	1999 05 18	704	0.8-	0.5+
1975 10 15	675	2.1-	1.1-	1999 04 12	704	0.9-	1.0-	1999 05 18	704	0.5+	1.4-
1975 10 16	675	0.5+	0.1-	1999 04 16	704	(2.3+	2.0-)	1999 05 18	704	0.2+	0.7+
1994 05 01	691	0.1+	0.1+	1999 04 16	704	1.1+	0.7+	1999 05 18	704	1.7-	0.7-
1994 05 01	691	0.2-	0.4-	1999 04 16	704	0.8+	1.1+	1999 05 19	704	0.3-	0.9-
1994 05 01	691	0.1-	0.2-	1999 04 16	704	1.8-	0.6+	1999 05 19	704	0.9+	1.5+
1999 04 11	699	0.8+	0.4-	1999 04 16	704	(5.0-	3.1+)	1999 05 19	704	0.2+	0.5-
1999 04 11	699	0.8+	0.0	1999 05 13	704	1.5+	0.3+	1999 05 19	704	0.4+	0.0
1999 04 11	699	0.5+	0.2-	1999 05 13	704	0.8-	1.3+				

1977 QW = 1988 SW₄ = 1997 BY₇ = 1998 JD₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	36.89982	(2000.0)	P		Q	
<i>n</i>	0.18032588	ω	315.44323	+0.47527452	+0.87904893	
<i>a</i>	3.1028730	Ω	342.82630	-0.76793846	+0.39379734	
<i>e</i>	0.2643245	<i>i</i>	7.24634	-0.42940034	+0.26869433	
<i>P</i>	5.47	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1977 08 19	095	1.2+	1.2-	1997 01 31	691	0.5-	0.1-	1998 05 01	566	1.1+	0.6+
1977 08 20	095	1.1-	1.5+	1997 02 06	691	0.2-	0.1-	1998 05 02	566	0.1-	1.1-
1977 08 22	095	0.1+	0.2+	1997 02 06	691	0.1-	0.0	1998 05 02	566	0.5-	0.9+
1977 08 24	095	0.3-	1.7+	1997 02 06	691	0.1-	0.1-	1998 05 02	566	0.0	0.4+
1977 09 09	095	(0.1-	2.5-)	1997 03 11	327	0.8-	0.0	1999 07 23	704	0.1+	0.4+
1977 09 10	675	0.8+	1.6-	1997 03 11	327	1.3+	0.1-	1999 07 23	704	0.6+	0.0
1988 09 17	095	2.0-	1.2-	1997 03 11	327	0.3-	0.2-	1999 07 23	704	0.6+	0.1-
1997 01 31	691	0.6-	0.1+	1998 05 01	566	0.3-	0.2-	1999 07 23	704	0.4+	0.1+
1997 01 31	691	0.4+	0.1+	1998 05 01	566	0.4-	0.7-	1999 07 23	704	0.4+	0.2-

1978 VC₄ = 1999 CW₂₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	104.95986	(2000.0)	P		Q	
<i>n</i>	0.20337177	ω	57.08673	+0.48718637	-0.87329642	
<i>a</i>	2.8637972	Ω	3.75863	+0.79246388	+0.44128498	
<i>e</i>	0.0628167	<i>i</i>	1.46370	+0.36694745	+0.20644836	
<i>P</i>	4.85	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1978 11 05	675	0.6+	0.3+	1997 10 30	704	0.5-	0.9+	1999 02 10	704	(2.8+	1.0-)
1978 11 06	675	0.6+	0.4-	1997 10 30	704	0.9-	0.0	1999 02 10	704	1.8+	0.6-
1978 11 07	675	0.2+	0.8+	1997 10 30	704	0.6+	1.1-	1999 02 10	704	0.3+	0.1-
1978 11 08	675	1.1+	0.1+	1997 10 30	704	(0.1-	2.2-)	1999 02 10	704	0.6-	0.2+
1978 11 29	675	0.1+	0.1-	1997 10 30	704	(4.8-	1.3-)	1999 02 13	704	1.0-	0.1+
1978 11 30	675	2.2-	1.4-	1997 11 03	704	0.1+	0.6+	1999 02 13	704	0.5+	0.1-
1994 01 19	691	0.1-	0.3+	1997 11 03	704	0.7+	0.5+	1999 02 13	704	(2.3-	2.0+)
1994 01 19	691	0.2-	0.3+	1997 11 03	704	0.6-	0.2-	1999 02 13	704	1.3-	0.3-
1994 01 19	691	0.4+	0.5+	1997 11 03	704	0.5+	0.4-				

1987 KH₅ = 1999 FV₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	284.91291	(2000.0)	P		Q	
<i>n</i>	0.23006294	ω	125.60989	-0.10064053	+0.98146022	
<i>a</i>	2.6377782	Ω	137.67421	-0.97310206	-0.06295278	
<i>e</i>	0.1725974	<i>i</i>	14.01934	-0.20722903	-0.18103256	
<i>P</i>	4.28	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1987 05 29	675	0.0	0.1+	1996 09 12	566	0.3+	0.1+	1999 03 19	910	0.2-	0.3+
1987 05 30	675	0.5+	0.2-	1999 03 16	910	0.1+	0.1-	1999 03 19	910	0.0	0.1-
1987 06 01	675	0.5-	0.2+	1999 03 16	910	0.5+	0.1+	1999 03 20	910	0.4-	0.0
1996 09 12	566	0.0	0.1+	1999 03 16	910	0.6+	0.1+	1999 03 20	910	0.4-	0.1-
1996 09 12	566	0.3-	0.1-	1999 03 19	910	0.1-	0.0	1999 03 20	910	0.2-	0.1+

1987 QU₇ = 1991 NO₉ = 1998 FH₂₆ = 1999 LF₁₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	314.92513	(2000.0)	P		Q	
<i>n</i>	0.23878404	ω	182.80854	+0.94152793	+0.33295829	
<i>a</i>	2.5731544	Ω	157.53041	-0.30644004	+0.90988848	
<i>e</i>	0.2249826	<i>i</i>	7.76123	-0.14007019	+0.24747067	
<i>P</i>	4.13	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1987 08 29	809	(1.0+	3.1+)	1998 03 20	704	1.4-	0.1+	1999 06 08	704	0.4+	0.1-
1987 08 29	809	0.4+	0.1-	1998 03 20	704	1.3-	1.1+	1999 06 14	704	0.1+	0.7-
1987 08 29	809	0.3-	0.6-	1998 03 22	704	0.1+	0.8-	1999 06 14	704	0.1+	0.1-
1987 08 31	809	0.6-	0.6-	1998 03 22	704	0.9+	0.5+	1999 06 14	704	0.4+	0.2-
1987 08 31	809	0.1+	0.5+	1998 03 22	704	1.7+	1.9+	1999 06 14	704	0.5+	0.9-
1987 08 31	809	0.3+	0.6+	1998 03 22	704	1.5-	0.0	1999 06 14	704	0.1+	0.6-
1991 07 10	675	1.0+	0.7+	1998 03 29	704	0.5+	0.7-	1999 07 13	704	(0.4-	2.4+)
1991 07 10	675	1.7-	0.1-	1998 03 29	704	0.5-	0.9-	1999 07 13	704	0.1-	0.9+
1991 07 11	675	1.2+	0.2+	1998 03 29	704	(1.8+	2.2-)	1999 07 13	704	0.8-	0.1+
1991 07 11	675	0.2-	0.6-	1998 03 29	704	1.2+	0.2-	1999 07 13	704	0.4-	0.3+
1991 07 11	675	0.1-	0.6+	1999 06 08	704	0.3+	0.3+	1999 07 13	704	0.5-	0.1-
1998 03 20	704	0.5-	0.8+	1999 06 08	704	0.1-	0.1+	1999 07 21	699	0.1+	0.0
1998 03 20	704	(0.4+	2.0+)	1999 06 08	704	0.5+	0.4+	1999 07 21	699	1.0-	0.3+
1998 03 20	704	0.9+	1.3-	1999 06 08	704	0.1-	0.1-	1999 07 21	699	(1.6-	2.5+)

1987 UY₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	149.74501	(2000.0)	P		Q	
<i>n</i>	0.28381128	ω	168.61662	+0.90432972	-0.35081623	
<i>a</i>	2.2932406	Ω	215.18473	+0.35095826	+0.93534619	
<i>e</i>	0.2203760	<i>i</i>	24.95815	+0.24293218	-0.04533745	
<i>P</i>	3.47	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1987 10 18	675	0.9-	0.8+	1993 06 14	691	0.1-	0.7+	1999 02 17	704	0.7-	0.7-
1987 10 19	675	0.2-	0.4+	1993 06 14	691	0.1+	0.7+	1999 02 17	704	0.9+	0.5-
1987 11 23	675	1.0+	0.2+	1993 06 14	691	0.1-	0.2+	1999 02 17	704	0.4+	0.3+
1987 11 24	675	0.3+	0.1-	1999 02 17	704	0.5-	1.6+				

1988 KV = 1999 GD₄₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	349.05694	(2000.0)	P		Q	
<i>n</i>	0.26431968	ω	165.68531	-0.34168873	+0.93484440	
<i>a</i>	2.4046380	Ω	84.26416	-0.87152069	-0.27675275	
<i>e</i>	0.1529677	<i>i</i>	5.56636	-0.35171081	-0.22242719	
<i>P</i>	3.73	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1988 05 16	809	0.3-	0.1-	1997 12 31	704	0.3-	0.7+	1999 04 16	704	0.6-	1.2-
1988 05 16	809	1.0+	0.8+	1997 12 31	704	0.3-	1.4-	1999 04 16	704	1.3-	0.2-
1988 05 16	809	1.0-	0.5+	1997 12 31	704	(2.7-	0.1-)	1999 04 16	704	0.8-	1.5-
1988 05 23	809	1.0-	0.7+	1999 03 23	703	0.4-	0.1+	1999 04 16	704	0.1-	1.3-
1988 05 23	809	0.2+	0.0	1999 03 23	703	0.1+	0.2-	1999 05 07	704	(2.3+	0.6-)
1988 05 24	809	0.0	1.5-	1999 03 23	703	0.0	0.7+	1999 05 07	704	(3.2+	1.2+)
1988 05 24	809	0.1-	0.4-	1999 03 23	703	0.2+	0.5+	1999 05 07	704	0.3+	0.3-
1988 05 24	809	1.4-	0.8-	1999 04 12	704	0.7+	0.7+	1999 05 07	704	(4.8-	0.4+)
1988 05 25	809	0.8+	0.0	1999 04 12	704	1.1+	0.8+	1999 06 08	704	0.0	0.9+
1988 05 25	809	0.8+	0.2-	1999 04 12	704	0.1-	0.0	1999 06 08	704	0.0	0.2-
1988 05 25	809	0.5+	0.1+	1999 04 12	704	0.1+	0.0	1999 06 08	704	1.1+	1.2+
1997 12 31	704	0.6+	0.6+	1999 04 12	704	0.1+	0.6+	1999 06 08	704	0.3+	0.4+

1989 SF₅ = 1999 GC₂₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	227.73814	(2000.0)	P		Q	
<i>n</i>	0.26015204	ω	284.12203	+0.99572389	-0.07621075	
<i>a</i>	2.4302515	Ω	80.26816	+0.09087717	+0.90959584	
<i>e</i>	0.1354992	<i>i</i>	3.03649	-0.01659131	+0.40844502	
<i>P</i>	3.79	<i>H</i>	15.2	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1989 09 26	809	(2.6+	1.5-)	1989 10 03	809	0.9+	0.6+	1999 04 12	704	0.9+	0.9-
1989 09 26	809	0.8+	0.1+	1989 10 03	809	0.7-	0.6-	1999 04 12	704	0.3-	0.4+
1989 09 26	809	0.3-	0.9-	1989 10 03	809	0.1-	0.1+	1999 04 12	704	0.5+	0.8-

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1989 09 28	809	0.5+	0.6+	1999 04 07	704	0.4-	0.2+	1999 04 12	704	0.6-	0.3+
1989 09 28	809	0.4+	0.8+	1999 04 07	704	0.8-	0.7-	1999 04 12	704	0.4+	1.3+
1989 09 28	809	0.5-	0.2+	1999 04 07	704	0.3+	0.1-				
1989 09 29	675	0.9-	0.9-	1999 04 07	704	0.0	0.3+				

1990 SC₁₁ = 1999 CH₈₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	304.45805		(2000.0)		P		Q
<i>n</i>	0.29577673	ω	62.85968	+0.12377407			+0.98973098
<i>a</i>	2.2309682	Ω	214.48327	-0.94927372			+0.09710774
<i>e</i>	0.1588257	<i>i</i>	7.25537	-0.28906639			+0.10489359
<i>P</i>	3.33	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1990 09 16	675	1.1+	0.5+	1997 10 29	704	1.3+	0.4-	1999 02 12	704	1.2+	0.4+
1990 09 16	675	0.4+	1.3-	1997 11 02	691	1.2+	0.4-	1999 02 12	704	0.2-	0.5-
1990 09 18	675	0.3-	0.9+	1997 11 02	691	1.0+	0.5-	1999 02 14	699	0.7+	0.1-
1990 09 18	675	0.1-	0.2+	1997 11 02	691	1.3+	0.5-	1999 02 14	699	0.1+	1.6+
1990 09 19	675	1.0-	0.2-	1997 11 06	704	0.4-	1.3+	1999 02 14	699	0.0	0.1+
1990 09 19	675	0.0	0.4-	1997 11 06	704	(2.8-	0.0)	1999 02 16	704	0.7-	0.0
1997 10 13	327	0.7+	0.8+	1997 11 06	704	1.7-	0.0	1999 02 16	704	0.4-	0.1+
1997 10 13	327	0.8+	0.7+	1997 11 06	704	1.5-	0.4-	1999 02 16	704	0.1-	0.3+
1997 10 13	327	0.9+	0.7+	1997 11 06	704	(2.9-	0.1-)	1999 02 16	704	0.4-	0.5+
1997 10 29	704	1.4-	0.3+	1999 02 12	704	0.2-	1.9-	1999 02 16	704	0.0	0.4+
1997 10 29	704	1.1-	0.9-	1999 02 12	704	0.2-	0.6+				
1997 10 29	704	0.9-	0.5-	1999 02 12	704	0.1+	1.5-				

1990 VR₆ = 1999 GW₄₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	145.79055		(2000.0)		P		Q
<i>n</i>	0.27596138	ω	302.65147	+0.18911682			-0.97849997
<i>a</i>	2.3365254	Ω	136.20594	+0.93605632			+0.15431968
<i>e</i>	0.0748408	<i>i</i>	6.82938	+0.29670422			+0.13683288
<i>P</i>	3.57	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1990 11 15	809	0.5+	0.0	1997 10 29	566	(2.4-	0.3-)	1999 04 10	699	0.5+	0.0
1990 11 15	809	1.1-	0.6+	1997 10 30	704	(2.9+	0.6-)	1999 04 12	704	0.2-	0.7-
1990 11 15	809	1.1+	0.0	1997 10 30	704	(2.2+	0.7-)	1999 04 12	704	0.2+	0.4-
1990 11 17	809	0.1+	0.7-	1997 10 30	704	1.9+	1.6-	1999 04 12	704	(2.2-	1.8+)
1990 11 17	809	0.3+	1.2-	1997 10 30	704	(2.3+	1.3-)	1999 04 12	704	0.4+	0.0
1990 11 17	809	0.1-	0.7-	1997 11 06	704	1.1-	0.9+	1999 04 12	704	0.0	0.8-
1990 11 23	809	0.6-	0.8+	1997 11 06	704	0.2-	1.1+	1999 04 16	704	0.4-	0.6-
1990 11 23	809	0.5+	0.2+	1997 11 06	704	0.6-	0.2-	1999 04 16	704	0.2-	0.1-
1990 11 23	809	0.6-	0.6+	1997 11 06	704	0.1-	0.0	1999 04 16	704	0.9+	0.2+
1997 10 29	566	(2.5-	0.6-)	1999 04 10	699	0.8-	0.3+	1999 04 16	704	0.4-	0.5+
1997 10 29	566	(2.6-	0.5-)	1999 04 10	699	0.2+	0.6+	1999 04 16	704	0.1-	1.0+

1991 PK₁

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	317.15771		(2000.0)		P		Q
<i>n</i>	0.24285576	ω	252.02305	+0.86451671			-0.46963518
<i>a</i>	2.5443124	Ω	135.52266	+0.50030557			+0.83814185
<i>e</i>	0.1953527	<i>i</i>	14.80534	-0.04801254			+0.27741852
<i>P</i>	4.06	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1991 08 15	675	1.6+	0.6-	1998 04 24	704	0.8+	0.7-	1999 07 16	704	0.3-	0.4-
1991 08 15	675	0.4+	0.6-	1998 04 24	704	(3.9-	0.0)	1999 07 16	704	0.1-	0.6-
1991 08 16	675	(1.2-	3.0-)	1998 05 23	704	1.1-	0.1-	1999 07 16	704	0.2-	0.6-
1991 09 05	675	1.2-	0.8-	1998 05 23	704	0.1+	0.1+	1999 07 21	699	0.4+	0.6+

1991 09 05	675	0.1+	1.2-	1998 05 23	704	1.3+	1.7-	1999 07 21	699	0.1+	1.1+
1991 09 08	675	(0.5-	2.6-)	1998 05 23	704	1.8-	0.1+	1999 07 21	699	0.2-	0.9+
1991 09 08	675	(1.6-	4.4-)	1998 05 23	704	0.7-	0.6+	1999 08 13	699	0.6-	0.7+
1997 01 09	691	0.0	0.1+	1999 06 20	703	0.5-	0.0	1999 08 13	699	0.2-	0.3+
1997 01 09	691	0.0	0.1-	1999 06 20	703	0.1-	0.1-	1999 08 13	699	0.6-	0.8+
1997 01 09	691	0.0	0.2-	1999 06 20	703	0.8+	0.4+				
1998 04 24	704	0.9+	0.3+	1999 06 20	703	1.7+	0.3-				

1991 RE₆ = 1999 CB₄₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	242.93268		(2000.0)		P		Q
<i>n</i>	0.18949287	ω	268.74164	+0.50695440			+0.85658435
<i>a</i>	3.0019777	Ω	32.30185	-0.70178720			+0.47498639
<i>e</i>	0.0889140	<i>i</i>	10.37446	-0.50049172			+0.20162139
<i>P</i>	5.20	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 09 13	675	0.3-	0.9+	1999 02 10	704	0.4+	0.1+	1999 02 13	699	1.0+	0.4+
1991 09 13	675	0.2+	0.2+	1999 02 10	704	0.0	0.1+	1999 02 13	704	0.1-	0.4-
1991 09 16	675	0.1-	0.2-	1999 02 10	704	0.4-	0.8+	1999 02 13	704	0.5+	1.6-
1991 09 16	675	0.3+	0.9-	1999 02 10	704	0.4+	1.1+	1999 02 13	704	0.3-	1.8-
1991 10 02	691	0.0	0.1+	1999 02 10	704	0.9-	0.7+	1999 02 13	704	0.4+	0.1+
1991 10 02	691	0.0	0.1+	1999 02 13	699	0.1+	0.1+	1999 02 13	704	0.8-	0.1+
1991 10 02	691	0.2-	0.2-	1999 02 13	699	0.3-	0.2+				

1991 RM₂₉ = 1999 NG₅₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	281.46633		(2000.0)		P		Q
<i>n</i>	0.23497774	ω	166.56327	+0.28438452			-0.93508553
<i>a</i>	2.6008675	Ω	266.59963	+0.85885303			+0.34652724
<i>e</i>	0.2402215	<i>i</i>	12.23328	+0.42602456			-0.07439035
<i>P</i>	4.19	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1991 09 13	675	0.3-	0.2+	1999 07 12	704	0.7-	0.3-	1999 07 22	704	0.1-	0.5-
1991 09 13	675	0.2+	0.2+	1999 07 12	704	1.0-	0.3-	1999 07 22	704	0.5-	0.4+
1991 09 14	675	0.2+	0.0	1999 07 12	704	0.4+	0.6+	1999 07 22	704	0.1+	0.2-
1991 09 15	675	0.1+	0.5+	1999 07 12	704	0.3+	0.5+	1999 07 22	704	0.3+	0.1-
1991 09 16	675	0.2-	0.8-	1999 07 22	704	1.0+	0.2-				

1991 VV

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	67.98912		(2000.0)		P		Q
<i>n</i>	0.27648531	ω	142.13548	+0.87209886			-0.34040721
<i>a</i>	2.3335727	Ω	241.34397	+0.29035338			+0.93822658
<i>e</i>	0.2086223	<i>i</i>	23.61484	+0.39387625			+0.06207909
<i>P</i>	3.56	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1991 11 02	675	0.4+	0.5-	1991 12 07	675	0.4-	0.8-	1998 09 28	704	0.8-	0.7-
1991 11 02	675	0.4+	0.2-	1998 08 25	704	0.1-	0.8+	1998 09 28	704	0.2+	1.2+
1991 11 05	675	0.6+	0.4-	1998 08 25	704	1.2+	0.0	1998 09 28	704	(4.5-	1.3-)
1991 11 05	675	0.2-	0.8+	1998 08 25	704	0.5-	0.1+	1998 12 09	704	0.2+	0.6-
1991 11 05	675	0.7-	0.1+	1998 08 25	704	0.3-	0.8-	1998 12 09	704	0.2+	0.3+
1991 11 06	675	0.1-	0.7+	1998 08 25	704	0.9-	0.6-	1998 12 09	704	1.1+	0.4+
1991 11 06	675	0.0	0.2+	1998 09 28	704	1.6+	0.3-	1998 12 09	704	(0.2+	2.2+)
1991 12 07	675	0.1-	0.9-	1998 09 28	704	0.4-	0.5-	1998 12 09	704	1.2-	1.6+

1991 XR

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	27.57420		(2000.0)	P		Q		
n	0.26619584	ω	155.01916	+0.22346742	-0.88642096			
a	2.3933260	Ω	279.89175	+0.81082948	+0.39986067			
e	0.2346238	i	24.29792	+0.54094164	-0.23317231			
P	3.70	H	14.9	G	0.15	U	3	
Residuals in seconds of arc								
1991 12 03	675	0.7+	1.1+	1991 12 31	675	0.1-	0.6-	1998 09 28 704 (2.3- 3.0-)
1991 12 03	675	0.2+	0.2-	1998 09 28	704	0.1-	0.5+	1998 11 21 699 0.4- 0.2+
1991 12 06	675	0.1-	1.0-	1998 09 28	704	0.0	1.5-	1998 11 21 699 0.6+ 0.8+
1991 12 06	675	0.1-	0.2+	1998 09 28	704	0.2-	0.9+	1998 11 21 699 0.3- 0.1+
1991 12 31	675	0.7-	0.3+	1998 09 28	704	0.5+	0.8-	

1992 JG

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	12.62484		(2000.0)		P		Q				
<i>n</i>	0.28903859	ω	239.34470		+0.47062475		+0.87841020				
<i>a</i>	2.2655075	Ω	58.95613		-0.77270140		+0.45579150				
<i>e</i>	0.4248640	<i>i</i>	5.56689		-0.42596349		+0.14369975				
<i>P</i>	3.41	<i>H</i>	17.5		<i>G</i>	0.15	<i>U</i>	3			
Residuals in seconds of arc											
1992 05 02	691	0.4+	0.0	1992 05 09	691	(2.1-	2.2-)	1999 08 03	413	0.1+	0.2+
1992 05 02	691	0.2+	0.2+	1992 05 09	691	1.7-	0.6-	1999 08 03	413	0.2+	0.3+
1992 05 02	691	0.2+	0.4+	1992 05 30	413	0.7+	0.8+	1999 08 03	413	0.1+	0.2+
1992 05 03	691	0.1+	0.1-	1992 05 30	413	0.3-	1.2+	1999 08 04	413	0.4+	0.2+
1992 05 03	691	0.3+	0.1+	1992 06 01	691	(5.0-	2.0+)	1999 08 04	413	0.3+	0.3+
1992 05 03	691	0.2+	0.2+	1992 06 01	691	(3.8-	0.9+)	1999 08 04	413	0.5+	0.3+
1992 05 03	691	0.0	0.6-	1992 06 01	691	(3.2-	0.8+)	1999 08 04	413	0.6+	0.3+
1992 05 03	691	0.5+	0.1-	1992 06 01	691	1.7-	0.7+	1999 08 16	422	0.3-	0.1+
1992 05 04	691	0.3+	0.4-	1992 07 05	413	0.4-	0.1+	1999 08 16	422	0.9-	0.3-
1992 05 04	691	0.7+	0.6-	1992 07 05	413	0.3-	0.0	1999 08 22	402	0.1-	0.7-
1992 05 04	691	0.4+	0.4-	1992 08 21	413	0.1+	0.2+	1999 08 22	402	0.1-	0.5-
1992 05 09	691	0.1-	0.3-	1992 08 21	413	0.0	0.1+	1999 08 22	402	0.3-	0.6-
1992 05 09	691	0.1-	0.6-	1992 08 22	413	0.3+	0.3-				
1992 05 09	691	(3.0-	0.1-)	1992 08 22	413	0.1+	0.2+				

1992 OB

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	122.57976		(2000.0)			P		Q			
<i>n</i>	0.18103357	ω	232.60907			+0.18023072		+0.95612470			
<i>a</i>	3.0947813	Ω	49.44285			-0.77875616		+0.28214141			
<i>e</i>	0.2045017	<i>i</i>	17.69749			-0.60087913		-0.07887828			
<i>P</i>	5.44	<i>H</i>	13.7		<i>G</i>	0.15		<i>U</i>	3		
Residuals in seconds of arc											
1992 07 26	413	0.9+	0.7-	1992 09 05	413	0.2-	0.1+	1998 10 18	699	0.2-	0.1+
1992 07 27	413	1.0+	0.0	1992 09 05	413	0.3-	0.3+	1998 10 18	699	0.5-	0.3-
1992 07 28	413	0.6-	0.1+	1992 10 06	413	0.1-	0.1-	1998 11 15	699	0.9+	1.4-
1992 08 20	413	0.2-	0.1+	1992 10 06	413	0.2-	0.2-	1998 11 15	699	1.0-	0.9+
1992 08 20	413	0.3-	0.1+	1992 12 11	413	0.5+	0.6-	1998 11 15	699	0.7+	1.0+
1992 08 21	413	0.2-	0.5+	1992 12 11	413	0.8+	0.7-				
1992 08 21	413	0.3-	0.4+	1998 10 18	699	0.2-	0.1+				

1992 RS₄ = 1996 PX₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	286.02235		(2000.0)		P		Q		
<i>n</i>	0.23777996	ω	316.43651		+0.22476483		+0.97428590		
<i>a</i>	2.5803932	Ω	326.54344		-0.88599763		+0.19762029		
<i>e</i>	0.1823097	<i>i</i>	1.63604		-0.40557240		+0.10822754		
<i>P</i>	4.15	<i>H</i>	15.7		<i>G</i>	0.15	<i>U</i>	4	
Residuals in seconds of arc									
1992 09 02	809	(3.1+ 1.1+)	1992 09 23	809	(2.7- 0.5+)	1996 09 08	809	0.6- 0.2+	
1992 09 02	809	(2.7+ 0.5+)	1996 08 09	566	0.1+ 0.2-	1999 01 19	910	1.0+ 0.5-	
1992 09 02	809	1.8+ 0.3-	1996 08 09	566	0.0 0.1-	1999 01 20	910	0.3+ 0.1+	
1992 09 03	809	1.2+ 0.8-	1996 08 09	566	0.3+ 0.1-	1999 01 20	910	0.2+ 0.8-	
1992 09 22	809	(2.3- 1.2-)	1996 08 17	566	0.1+ 0.1-	1999 03 20	691	0.7- 0.3-	
1992 09 22	809	1.2- 0.5-	1996 08 17	566	0.2- 0.1-	1999 03 20	691	0.7- 0.5+	
1992 09 22	809	0.4- 0.5-	1996 08 17	566	0.4+ 0.4-	1999 03 20	691	0.6- 0.3-	
1992 09 23	809	0.1- 0.3+	1996 09 08	809	0.7+ 0.6+				
1992 09 23	809	0.9- 0.6+	1996 09 08	809	1.0- 0.6+				

1992 RZ₆ = 1999 GK₁₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	272.59150		(2000.0)		P		Q				
<i>n</i>	0.24148736	<i>ω</i>	300.13404		+0.76684827		+0.64142188				
<i>a</i>	2.5539150	<i>Ω</i>	19.99666		−0.56349848		+0.68987094				
<i>e</i>	0.1654907	<i>i</i>	3.82976		−0.30726729		+0.33564274				
<i>P</i>	4.08	<i>H</i>	16.4		<i>G</i>	0.15	<i>U</i>	2			
Residuals in seconds of arc											
1992 09 02	809	1.2+	1.0−	1992 09 23	809	0.5+	1.3+	1998 01 06	688	0.2−	0.6−
1992 09 02	809	1.4+	0.7−	1992 09 23	809	0.8−	0.6+	1999 04 11	691	0.4−	0.7+
1992 09 02	809	0.6−	1.4−	1992 09 23	809	1.3−	0.8+	1999 04 11	691	0.1−	0.6+
1992 09 03	809	0.5−	0.4−	1996 08 14	566	0.5+	1.0−	1999 04 11	691	0.6−	0.2+
1992 09 22	809	(0.6+	3.4+)	1996 08 14	566	0.1−	1.0−	1999 04 17	691	0.4+	0.0
1992 09 22	809	0.5−	1.9+	1996 08 14	566	0.7+	0.1−	1999 04 17	691	1.0+	0.1+
1992 09 22	809	0.8−	1.8+	1998 01 06	688	0.1−	0.8−	1999 04 17	691	0.5+	0.2−

1992 RE₇ = 1998 FS₂₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	209.44344		(2000.0)		P		Q				
n	0.24335797	ω	46.35850		+0.53289719		-0.84577780				
a	2.5408108	Ω	11.52386		+0.73391047		+0.44662893				
e	0.2261386	i	7.50302		+0.42118405		+0.29186044				
P	4.05	H	15.2	G	0.15	U	5				
Residuals in seconds of arc											
1992 09 02	809	1.2+	0.2+	1992 09 23	809	0.2-	0.5-	1998 03 20	704	(0.8+	2.3-)
1992 09 02	809	0.1+	0.4-	1992 09 23	809	0.2-	1.5-	1998 03 22	704	(2.3+	1.4-)
1992 09 02	809	0.6-	0.8-	1998 02 26	566	0.0	0.1+	1998 03 22	704	0.1+	0.5+
1992 09 03	809	0.4+	1.1+	1998 02 26	566	0.6-	0.4-	1998 03 22	704	1.1-	0.7-
1992 09 22	809	0.3-	1.1+	1998 02 26	566	0.0	0.5+	1998 03 22	704	0.9-	0.4-
1992 09 22	809	0.2-	0.3+	1998 03 20	704	0.0	0.3-	1998 03 22	704	0.0	0.9-
1992 09 22	809	0.4-	0.4+	1998 03 20	704	0.9+	0.8+				
1992 09 23	809	0.5+	0.4-	1998 03 20	704	1.3+	0.3+				

1992 UW₁ = 1969 OM = 1999 NO₂₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	1.29883	(2000.0)	P		Q		Williams	
<i>n</i>	0.26313755	ω	221.65197	+0.54562070	+0.83499468			
<i>a</i>	2.4118345	Ω	81.53208	-0.74856890	+0.52384971			
<i>e</i>	0.1849802	<i>i</i>	4.13309	-0.37675277	+0.16842020			
<i>P</i>	3.75	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	2	

1999 AUG. 31

M.P.C. 35603

Residuals in seconds of arc

1969 07 17	095	0.0	0.2+	1992 10 28	399	0.4+	1.4-	1999 07 14	704	0.1-	0.5+
1992 10 21	403	0.7-	0.2-	Y 1998 02 26	566	0.1+	0.1-	1999 07 16	704	0.0	0.3+
1992 10 21	403	1.3+	1.8+	Y 1998 02 26	566	0.3+	0.1+	1999 07 16	704	0.3+	0.3+
1992 10 25	675	0.8-	0.5-	1998 02 26	566	0.3-	0.1+	1999 07 16	704	0.1+	0.1+
1992 10 25	675	0.2+	0.3-	1999 07 14	704	0.5-	0.1+	1999 07 16	704	0.2+	0.1-
1992 10 26	403	1.3+	0.4-	Y 1999 07 14	704	1.3+	1.5-	1999 07 16	704	0.3-	0.1+
1992 10 26	403	(3.4+	2.5+)	Y 1999 07 14	704	0.5-	0.1+				
1992 10 28	399	1.7-	1.0+	1999 07 14	704	0.4-	0.1-				

1993 DC

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	282.18271	(2000.0)	<i>P</i>	Williams	<i>Q</i>
<i>n</i>	0.26650797	ω	4.84052	+0.26226928	-0.95082539
<i>a</i>	2.3914570	Ω	70.02763	+0.87937718	+0.16518206
<i>e</i>	0.4278489	<i>i</i>	10.09631	+0.39737966	+0.26200375
<i>P</i>	3.70	<i>H</i>	16.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1993 02 18	691	0.5+	0.0	1993 02 22	691	0.1+	0.2+	1993 04 15	691	0.1+	0.1-
1993 02 18	691	0.1+	0.7-	1993 02 26	691	0.8-	0.1-	1999 08 02	413	0.0	0.1-
1993 02 18	691	0.2-	0.0	1993 02 26	691	0.6-	0.0	1999 08 02	413	0.1-	0.1-
1993 02 21	691	0.0	0.1-	1993 02 26	691	0.5-	0.1-	1999 08 03	413	0.1-	0.1-
1993 02 21	691	0.6-	0.4+	1993 03 28	691	0.6-	0.1-	1999 08 03	413	0.2-	0.0
1993 02 21	691	0.1-	0.5-	1993 03 28	691	0.3+	0.2-	1999 08 20	413	0.2+	0.1+
1993 02 22	691	1.5+	0.3+	1993 03 28	691	0.2+	0.0	1999 08 20	413	0.2+	0.1-
1993 02 22	691	0.1-	0.2+	1993 04 15	691	0.5-	0.1+				
1993 02 22	691	0.5+	0.3+	1993 04 15	691	0.8+	0.2-				

1993 FZ₁₄ = 1999 JY₁₃₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	358.85119	(2000.0)	<i>P</i>	Williams	<i>Q</i>
<i>n</i>	0.17277640	ω	103.00095	-0.45361706	+0.88877194
<i>a</i>	3.1926141	Ω	139.81282	-0.85203516	-0.41089165
<i>e</i>	0.1228262	<i>i</i>	5.84338	-0.26128078	-0.20310708
<i>P</i>	5.70	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 03 17	809	0.6-	0.2-	1999 04 12	704	0.1+	0.4+	1999 05 13	704	0.4+	0.3+
1993 03 18	809	0.3+	0.6+	1999 04 12	704	(3.4+	0.4-)	1999 05 18	703	1.2+	1.2-
1993 03 23	809	0.7+	0.2-	1999 05 13	704	0.3-	1.2+	1999 05 18	703	0.1-	0.1+
1993 04 16	413	0.5-	0.5-	1999 05 13	704	0.4+	1.2-	1999 05 18	703	0.7+	0.6-
1999 04 12	704	0.2-	0.3+	1999 05 13	704	0.6-	0.8+	1999 05 18	703	1.0-	0.6-
1999 04 12	704	(2.1-	0.2+)	1999 05 13	704	0.3-	0.6+				

1993 PE₈ = 1999 DB₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	256.11895	(2000.0)	<i>P</i>	Spahr	<i>Q</i>
<i>n</i>	0.27490578	ω	44.64021	+0.63361585	+0.65783474
<i>a</i>	2.3425029	Ω	269.34735	-0.77329339	+0.52258928
<i>e</i>	0.2699080	<i>i</i>	24.02861	-0.02341563	+0.54235956
<i>P</i>	3.59	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 08 13	675	0.1-	0.4-	1999 01 23	704	0.8-	0.0	1999 02 19	704	1.0+	1.3-
1993 08 13	675	0.0	0.4-	1999 02 17	704	0.5-	0.8+	1999 02 19	704	1.5+	1.1-
1993 08 17	675	0.3+	0.2+	1999 02 17	704	0.2-	0.9-	1999 02 19	704	0.7-	0.4+
1993 08 17	675	1.4-	1.8+	1999 02 17	704	0.4+	1.8+	1999 02 19	704	0.6+	0.5+
1993 08 18	675	1.2+	1.2-	1999 02 17	704	0.8-	0.1+	1999 02 19	704	2.2-	0.2-
1999 01 23	704	0.1+	0.7+	1999 02 17	704	0.5-	1.6+	1999 02 19	704	1.9-	2.0-
1999 01 23	704	1.4+	1.7-	1999 02 19	704	0.5+	0.1+	1999 02 19	704	(3.5-	0.7+)
1999 01 23	704	0.4+	0.2+	1999 02 19	704	1.7+	0.9+				

1993 ST₅ = 1971 QW₂ = 1990 UT₁₃ = 1999 NZ₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	20.13947	(2000.0)	<i>P</i>	Williams	<i>Q</i>
<i>n</i>	0.31669145	ω	94.54770	+0.31765801	+0.94818114
<i>a</i>	2.1316300	Ω	193.97938	-0.88070679	+0.29238948
<i>e</i>	0.1489135	<i>i</i>	1.60755	-0.35135301	+0.12434198
<i>P</i>	3.11	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1971 08 19	808	0.0	0.1+	1993 09 22	809	1.2-	1.1-	1999 05 21	704	1.2+	1.1-
1990 10 19	372	0.3-	0.3+	1993 09 22	675	1.2+	0.6+	1999 05 21	704	(3.1-	1.6+)
1990 10 19	372	1.1-	0.0	1993 09 22	675	1.0+	0.1-	1999 06 13	699	0.5-	0.9+
1993 09 17	809	(0.3-	2.6+)	1993 09 24	809	0.2+	0.6-	1999 06 13	699	0.4-	0.5+
1993 09 17	809	(1.2-	2.9+)	1993 09 24	809	0.4-	1.5-	1999 06 13	699	0.1+	1.1+
1993 09 17	809	(1.1-	3.1+)	1993 09 24	809	0.4-	0.9-	1999 07 13	704	0.4+	0.5-
1993 09 18	809	(0.7-	2.6+)	1995 02 08	691	0.0	0.4-	1999 07 13	704	0.2+	0.3-
1993 09 18	809	(0.3+	2.6+)	1995 02 08	691	0.1+	0.2-	1999 07 13	704	0.1+	0.5-
1993 09 18	809	0.1-	1.7+	1996 09 16	566	0.6+	0.6+	1999 07 13	704	0.0	0.7-
1993 09 18	675	0.5+	1.7+	1996 09 16	566	0.6+	0.5+	1999 07 13	704	0.5-	0.5-
1993 09 18	675	0.5-	1.4+	1996 09 16	566	0.5+	0.5+	1999 07 16	704	0.6+	0.2+
1993 09 22	809	0.1+	0.9-	1999 05 21	704	(3.6-	1.7-)	1999 07 16	704	1.3-	1.0-
1993 09 22	809	0.1+	1.3-	1999 05 21	704	0.6-	1.1+	1999 07 16	704	0.3-	0.1-

1994 AK₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	356.79924	(2000.0)	<i>P</i>	Spahr	<i>Q</i>
<i>n</i>	0.37529272	ω	230.79218	-0.88448479	-0.19165992
<i>a</i>	1.9035135	Ω	294.24282	+0.41442709	-0.74155325
<i>e</i>	0.1175103	<i>i</i>	27.80911	-0.21432882	-0.64293487
<i>P</i>	2.63	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1994 01 08	675	0.5+	1.6-	1994 01 16	675	0.4+	0.3+	1998 11 19	704	0.3-	0.6+
1994 01 08	675	(0.1-	2.3-)	1994 01 16	675	(2.7+	1.8-)	1998 11 19	704	1.2+	1.1+
1994 01 09	675	0.6+	1.5-	1994 01 18	413	0.7+	1.3+	1998 11 19	704	0.1-	0.9+
1994 01 09	675	0.7+	0.8-	1994 01 30	360	0.2+	0.3-	1998 11 19	704	(3.1-	1.4+)
1994 01 11	385	0.3+	0.6+	1994 01 30	360	0.6+	0.4-	1998 12 11	704	0.5+	0.2-
1994 01 11	385	0.2+	0.7+	1994 02 01	657	0.5+	0.2-	1998 12 11	704	0.7-	0.0
1994 01 11	385	0.4+	0.7+	1994 02 01	657	0.1+	0.0	1998 12 11	704	0.3-	0.5-
1994 01 12	675	0.5-	0.8-	1994 02 01	657	0.3+	0.2-	1998 12 11	704	0.2-	0.4-
1994 01 12	675	0.8+	1.3+	1994 02 02	657	1.0-	0.5+	1998 12 11	704	0.4-	0.5-
1994 01 13	400	1.0-	0.8-	1994 02 02	657	1.3-	0.1+	1999 01 09	704	1.0+	0.6+
1994 01 14	658	0.3-	0.4+	1994 02 02	657	1.4-	1.0+	1999 01 09	704	0.9+	1.7-
1994 01 14	658	0.5-	0.3+	1994 02 08	658	0.2+	0.3-	1999 01 09	704	0.5-	0.4+
1994 01 14	658	0.4-	0.4+	1994 02 08	658	0.5+	0.2+	1999 01 09	704	0.4-	1.7-
1994 01 14	385	0.9-	0.2-	1994 02 08	658	0.5+	0.3+	1999 01 09	704	0.3+	0.5-
1994 01 14	385	0.8-	0.1+	1994 02 14	801	0.2+	0.1-	1999 01 23	699	0.4-	0.8+
1994 01 15	887	0.0	0.1-	1994 02 14	801	0.6+	1.4+	1999 01 23	699	0.4-	0.4+
1994 01 15	887	0.0	0.1-	1994 03 04	360	0.0	0.9-	1999 01 23	699	0.6-	0.3+
1994 01 15	887	0.1-	0.2-	1994 03 04	360	0.1+	0.9-				

1994 DW = 1999 LY₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	357.15887	(2000.0)	<i>P</i>	Williams	<i>Q</i>
<i>n</i>	0.19329399	ω	147.27207	-0.09147464	+0.98009723
<i>a</i>	2.9624918	Ω	116.93229	-0.95086130	-0.03341280
<i>e</i>	0.0799037	<i>i</i>	11.39783	-0.29579586	-0.19568598
<i>P</i>	5.10	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1994 02 22	950	0.7-	1.4+	1998 02 24	566	0.3-	0.7-	1999 06 08	704	0.2+	0.2-
1994 02 22	950	0.4-	1.4+	1998 02 24	566	0.1-	0.3-	1999 06 08	704	0.0	1.2-
1994 02 22	950	0.8-	1.1+	1999 05 17	704	0.4+	0.7-	1999 06 14	704	1.1-	0.1-
1994 02 22	950	0.2-	1.1+	1999 05 17	704	1.8+	1.8-	1999 06 14	704	0.1+	0.5-
1994 02 25	950	0.9+	0.6+	1999 05 17	704	0.8-	1.2+	1999 06 14	704	0.5-	0.4-

1994 02 25	950	0.6+	0.7+	1999 05 17	704	0.3+	1.1+	1999 06 14	704	0.3-	0.6-
1994 02 28	950	1.3+	0.2+	1999 05 17	704	1.2-	0.6+	1999 06 14	704	0.0	0.3-
1994 02 28	950	1.1+	0.3+	1999 06 08	704	0.0	0.9-				
1998 02 24	566	0.1+	0.3-	1999 06 08	704	0.4-	0.3-				

1994 ES = 1999 NF₆₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	340.18276		(2000.0)	P	Q
<i>n</i>	0.28537418	ω	210.32357	+0.97238994	+0.00428824
<i>a</i>	2.2848600	Ω	146.84459	+0.00328834	+0.99948009
<i>e</i>	0.2233897	<i>i</i>	25.25313	-0.23333877	+0.03195556
<i>P</i>	3.45	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1994 02 15	675	0.6+	1.8-	1994 03 08	104	0.2-	1.5+	1999 07 23	704	0.6-	0.1+
1994 02 15	675	(0.8+	2.8-)	1994 03 08	104	0.3+	1.6-	1999 07 23	704	0.4-	0.3+
1994 02 16	691	0.7+	0.1-	1994 03 08	104	0.1-	0.0	1999 07 23	704	0.8-	0.1+
1994 02 16	691	0.6+	0.6+	1994 03 10	104	0.3+	0.1+	1999 08 08	104	0.2+	0.8-
1994 02 16	691	0.8+	0.1+	1994 03 10	104	0.3+	0.5-	1999 08 08	104	0.0	0.2+
1994 03 06	104	0.8-	0.3+	1994 03 10	104	0.4+	0.8-	1999 08 08	104	0.3+	0.4-
1994 03 06	104	0.5-	0.1+	1994 03 10	104	0.6+	0.6-	1999 08 08	104	0.0	0.4-
1994 03 06	104	1.6-	0.7+	1994 03 11	104	1.0-	0.4-	1999 08 11	104	0.4+	0.6-
1994 03 06	104	0.2+	0.1+	1994 03 11	104	0.7-	0.6-	1999 08 11	104	0.2+	0.1+
1994 03 06	104	(2.5+	4.4-)	1994 03 11	104	0.7-	0.8+	1999 08 11	104	0.1+	0.1-
1994 03 07	104	1.1+	0.2-	1994 03 11	104	0.8-	1.0+	1999 08 11	104	0.4+	0.6+
1994 03 07	104	0.4-	0.4-	1999 07 12	704	0.6+	0.3-	1999 08 17	104	0.4-	0.4-
1994 03 07	104	0.4+	1.0+	1999 07 12	704	0.6+	0.3+	1999 08 17	104	0.0	0.3-
1994 03 07	104	0.4+	0.6-	1999 07 12	704	0.2-	0.2+	1999 08 17	104	0.1+	0.8+
1994 03 08	104	0.1+	0.2-	1999 07 12	704	0.5-	0.7-				

1994 EV₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	130.79643		(2000.0)	P	Q
<i>n</i>	0.37823687	ω	63.70319	+0.66857992	-0.73409676
<i>a</i>	1.8936228	Ω	342.61547	+0.45710913	+0.53165798
<i>e</i>	0.0632354	<i>i</i>	23.41970	+0.58655958	+0.42242365
<i>P</i>	2.61	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1994 02 14	675	0.0	0.4-	1994 03 11	675	0.9-	0.9+	1998 12 11	704	1.0+	1.1-
1994 02 14	675	0.0	0.8-	1994 04 12	675	(2.9+	0.0)	1998 12 11	704	0.7-	0.4+
1994 02 15	675	0.0	0.2-	1994 04 12	675	0.3-	0.3+	1998 12 11	704	0.4-	1.6+
1994 02 15	675	0.2-	0.1+	1994 04 14	675	0.6+	1.4-				
1994 03 11	675	0.7+	1.2+	1998 12 11	704	0.2+	0.8-				

1994 GW₉ = 1999 GV₄₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	276.97382		(2000.0)	P	Q
<i>n</i>	0.18351314	ω	272.70961	+0.58928560	+0.80186673
<i>a</i>	3.0668411	Ω	34.02146	-0.65326221	+0.54482573
<i>e</i>	0.0829770	<i>i</i>	10.16607	-0.47538508	+0.24530526
<i>P</i>	5.37	<i>H</i>	13.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1994 04 14	474	0.8+	0.1+	1999 03 23	703	0.3+	1.8-	1999 04 12	704	0.5-	0.4+
1994 04 14	474	1.2-	1.8+	1999 03 23	703	0.1+	1.6-	1999 04 12	704	0.4+	0.2-
1994 04 15	474	0.9+	0.0	1999 03 23	703	0.4+	0.7-	1999 04 12	704	0.1+	1.0+
1994 04 15	474	0.0	0.3-	1999 03 23	703	0.3-	0.7-	1999 04 16	704	0.9+	1.0-
1994 05 05	474	0.3+	0.5-	1999 04 10	699	0.1+	1.8+	1999 04 16	704	1.7-	0.5+
1994 05 05	474	0.5-	0.5-	1999 04 10	699	0.3+	1.4+	1999 04 16	704	0.1+	0.9-
1998 01 29	566	0.3+	0.2+	1999 04 10	699	0.0	0.9+	1999 04 16	704	(2.4-	1.2+)
1998 01 29	566	0.0	0.1+	1999 04 12	704	0.1-	0.4-				
1998 01 29	566	0.2-	0.1+	1999 04 12	704	0.6-	0.7+				

1994 GY₁₀ = 1998 DL₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	83.29198		(2000.0)	P	Q
<i>n</i>	0.23241751	ω	171.22307	-0.74879438	+0.65246576
<i>a</i>	2.6199328	Ω	50.17331	-0.61695288	-0.62183426
<i>e</i>	0.1504486	<i>i</i>	8.73270	-0.24223154	-0.43314038
<i>P</i>	4.24	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1994 04 14	675	0.3+	0.5+	1998 02 22	566	0.3+	0.2+	1998 04 19	704	0.0	0.2+
1994 04 14	675	0.3-	0.0	1998 02 22	566	0.3+	0.1+	1998 04 19	704	0.4+	0.1-
1994 04 15	675	0.8-	0.1-	1998 02 23	566	0.1+	0.2+	1998 04 19	704	0.1-	0.5-
1994 04 15	675	1.0-	1.4-	1998 02 23	566	0.5+	0.3+	1998 04 28	699	0.5-	0.1-
1994 05 05	675	1.0+	0.6+	1998 02 23	566	0.2+	0.2+	1998 04 28	699	1.1-	0.2-
1994 05 05	675	1.3+	1.1+	1998 04 19	704	0.1+	0.3-	1998 04 28	699	0.8-	0.6-
1998 02 22	566	0.2+	0.2+	1998 04 19	704	0.1-	0.3-				

1994 PU₅ = 1999 PX₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	341.33504		(2000.0)	P	Q
<i>n</i>	0.19294049	ω	191.96253	+0.95077103	+0.29804510
<i>a</i>	2.9661092	Ω	150.26713	-0.26834433	+0.92880312
<i>e</i>	0.0681119	<i>i</i>	9.85360	-0.15500245	+0.22021325
<i>P</i>	5.11	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1994 08 10	809	0.8+	1.6+	1994 09 03	809	0.4+	2.2-	1994 09 06	809	0.2+	2.4+
1994 08 10	809	0.1+	1.2+	1994 09 04	809	0.7+	2.2-	1994 09 06	809	0.4+	2.4+
1994 08 10	809	0.3-	1.6+	1994 09 04	809	0.3+	2.5-	1999 08 06	643	0.8-	0.8-
1994 08 11	809	0.4-	1.5-	1994 09 04	809	0.6+	2.6-	1999 08 06	643	0.7-	0.7-
1994 08 11	809	0.3-	0.9-	1994 09 05	809	0.3+	1.1+	1999 08 16	643	0.0	0.3+
1994 08 11	809	0.5-	0.8-	1994 09 05	809	0.3+	0.7+	1999 08 16	643	0.7+	0.8+
1994 09 03	809	0.5+	1.1-	1994 09 05	809	0.4+	1.6+	1999 08 16	643	0.7+	0.5+
1994 09 03	809	0.5-	2.2-	1994 09 06	809	3.1-	3.4+				

1994 PX₁₁ = 1979 QR₅ = 1999 PH₂

Id. T. B. Spahr, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	345.84824		(2000.0)	P	Q
<i>n</i>	0.19874423	ω	49.45051	+0.99007772	+0.13962822
<i>a</i>	2.9080801	Ω	302.51758	-0.13392904	+0.90357588
<i>e</i>	0.0687967	<i>i</i>	1.07457	-0.04253378	+0.40503652
<i>P</i>	4.96	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1979 08 30	809	0.6+	1.2-	1994 08 11	809	0.2-	0.3+	1999 08 07	691	0.1-	1.2-
1979 08 30	809	0.4+	1.5-	1994 09 03	809	0.9+	0.0	1999 08 07	691	0.1-	1.1-
1994 08 10	809	1.1-	1.6+	1994 09 03	809	0.5+	0.7+	1999 08 07	691	0.1-	1.4-
1994 08 10	809	0.6-	1.2+	1994 09 03	809	0.4+	0.3+	1999 08 12	691	0.9+	0.2-
1994 08 10	809	1.5-	2.1+	1994 09 04	809	0.1-	0.7-	1999 08 12	691	0.6+	0.7-
1994 08 11	809	0.7+	1.1+	1994 09 04	809	0.5-	0.3+	1999 08 12	691	0.9+	0.5-
1994 08 11	809	0.0	1.4+	1994 09 04	809	1.7-	0.6-				

1995 BR₁₀ = 1999 GK₄₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	336.49663		(2000.0)	P	Q
<i>n</i>	0.27856411	ω	148.40039	-0.03600279	+0.99329538
<i>a</i>	2.3219486	Ω	119.32759	-0.94114681	+0.00326699
<i>e</i>	0.1004660	<i>i</i>	7.23876	-0.33607511	-0.11555788
<i>P</i>	3.54	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1995 01 29	691	0.1+	0.2-	1996 07 23	566	0.1+	0.5-	1999 04 16	704	0.0	0.3-
1995 01 29	691	0.1+	0.4-	1996 07 23	566	0.1+	0.4-	1999 04 16	704	(1.6-	3.4+)
1995 01 29	691	0.4+	0.2-	1996 07 23	566	0.1-	0.7-	1999 06 08	704	1.0+	0.0
1995 02 04	691	0.2-	0.1-	1999 04 12	704	0.4-	0.0	1999 06 08	704	0.4-	0.7+
1995 02 04	691	0.1-	0.1-	1999 04 12	704	0.0	0.4+	1999 06 08	704	0.1-	0.3+
1995 02 04	691	0.1-	0.2-	1999 04 12	704	0.0	0.1+	1999 06 08	704	0.2+	0.3-
1995 02 05	691	0.4-	0.2-	1999 04 12	704	0.3+	0.1-	1999 06 08	704	0.5-	1.0-
1995 02 05	691	0.4-	0.3-	1999 04 12	704	0.5+	0.9-				
1995 02 05	691	0.1+	0.4-	1999 04 16	704	0.4-	1.5+				

1995 QX₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	341.82573	(2000.0)	P	Q
<i>n</i>	0.23850970	ω	229.61653	+0.91215242
<i>a</i>	2.5751272	Ω	107.27975	+0.87930560
<i>e</i>	0.4374631	<i>i</i>	8.31378	+0.27911731
<i>P</i>	4.13	<i>H</i>	17.3	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1995 08 18	413	0.4+	1.1-	1995 10 20	413	0.1+	0.6-	1996 01 09	413	0.4+	0.7-
1995 08 18	413	0.7+	0.0	1995 10 20	413	1.1+	1.0-	1996 01 10	413	0.8+	0.8-
1995 09 22	413	0.0	0.5+	1995 10 29	413	1.1-	0.7+	1996 01 10	413	0.5+	1.2-
1995 09 22	413	1.7-	0.9+	1995 10 29	413	1.1-	0.9+	1996 01 10	413	1.6+	0.7-
1995 10 12	413	(2.8-	2.5-)	1995 10 30	413	0.9-	0.9+	1996 01 10	413	0.7-	0.9-
1995 10 12	413	(3.5-	3.5-)	1995 10 30	413	0.9-	0.7+	1999 08 03	413	0.7-	0.6-
1995 10 16	104	1.0+	0.1+	1995 12 08	413	1.0-	1.3+	1999 08 20	413	0.3+	0.1+
1995 10 16	104	0.8+	0.0	1995 12 08	413	0.1-	1.9+	1999 08 20	413	0.2+	0.0
1995 10 16	104	0.4+	0.4-	1996 01 09	413	0.7+	1.0-	1999 08 20	413	0.3+	0.1-
1995 10 19	413	0.1-	0.3-	1996 01 09	413	0.2+	0.7-	1999 08 21	413	0.4-	0.4-
1995 10 19	413	0.0	0.1-	1996 01 09	413	1.3+	1.0-				

1995 SO₂

Id. A. Nakamura (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	6.90510	(2000.0)	P	Q
<i>n</i>	0.23888617	ω	83.01766	+0.71724165
<i>a</i>	2.5724210	Ω	232.97772	+0.65663385
<i>e</i>	0.2934283	<i>i</i>	4.11409	+0.29419130
<i>P</i>	4.13	<i>H</i>	16.0	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1995 09 18	360	0.4+	0.2+	1995 10 03	360	0.3-	0.8+	1995 11 12	360	0.6+	0.7-
1995 09 18	360	0.1+	0.0	1995 10 12	360	0.5-	0.3-	1995 11 12	360	0.1+	0.2-
1995 09 18	360	0.1+	0.2+	1995 10 12	360	0.4-	0.1-	1995 11 21	360	0.2-	0.3-
1995 09 19	360	0.5-	0.1+	1995 10 12	360	0.2+	0.7-	1995 11 21	360	0.1+	0.0
1995 09 19	360	0.4-	0.5+	1995 10 17	360	0.1+	0.3-	1995 11 21	360	0.6-	0.2+
1995 09 19	360	0.3-	0.1-	1995 10 17	360	0.2+	0.4-	1999 08 13	360	0.1+	0.1-
1995 09 20	360	0.3+	0.0	1995 10 20	360	0.3+	0.1-	1999 08 13	360	0.4+	0.1-
1995 09 20	360	0.2+	0.2+	1995 10 20	360	0.2+	0.3-	1999 08 14	360	0.3-	0.1-
1995 10 03	360	0.0	0.6+	1995 10 20	360	0.3+	0.1-	1999 08 14	360	0.1+	0.1-
1995 10 03	360	0.1+	0.4+	1995 11 12	360	0.2-	0.7+	1999 08 14	360	0.1-	0.1-

1995 SS₄ = 1971 BC = 1974 VQ = 1999 PM₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Nakano

<i>M</i>	279.77861	(2000.0)	P	Q
<i>n</i>	0.23219499	ω	36.60763	+0.12186813
<i>a</i>	2.6216064	Ω	46.47916	+0.88974719
<i>e</i>	0.3019920	<i>i</i>	4.77734	+0.43988419
<i>P</i>	4.24	<i>H</i>	13.7	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1971 01 20	095	0.5-	2.5-	1995 09 21	400	0.5+	0.1-	1999 08 15	360	0.4+	0.4-
1974 11 12	095	0.2+	0.6+	1995 09 30	400	0.0	0.4+	1999 08 15	360	0.3+	0.3-
1974 11 17	095	1.0-	1.5+	1995 09 30	400	0.6+	0.0	1999 08 15	360	0.2-	0.5-

1995 09 20	400	1.6+	0.8-	1999 08 13	360	0.5-	0.3+	1999 08 15	360	0.8+	0.4-
1995 09 20	400	0.1+	1.4-	1999 08 13	360	0.0	0.2+				
1995 09 21	400	2.0-	0.3-	1999 08 13	360	0.1-	0.2+				

1995 SP₈ = 1998 HW₉₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	80.54282	(2000.0)	P	Q
<i>n</i>	0.25494917	ω	90.68811	-0.11126564
<i>a</i>	2.4632036	Ω	172.87847	-0.95058722
<i>e</i>	0.1040694	<i>i</i>	6.44286	-0.28983425
<i>P</i>	3.87	<i>H</i>	14.9	<i>G</i> 0.15 <i>U</i> 3

Residuals in seconds of arc

1994 04 03	691	0.1-	0.0	1995 09 20	809	0.6+	0.8-	1998 04 22	704	0.1-	0.1+
1994 04 03	691	0.0	0.2-	1995 09 20	809	(4.3-	2.8-)	1998 04 22	704	0.1+	0.5-
1994 04 03	691	0.1-	0.3-	1995 09 22	809	(2.2-	1.4-)	1998 04 22	704	0.2+	0.8-
1995 08 24	809	0.8-	1.0-	1995 09 22	809	1.3+	0.4-	1998 04 22	704	0.1+	0.8-
1995 08 25	809	1.3-	0.0	1995 09 22	691	0.6-	0.1+	1998 04 22	704	0.4+	1.5-
1995 08 25	809	1.1-	1.2-	1995 09 22	691	0.5-	0.1+	1998 05 01	704	0.3-	1.5-
1995 08 26	809	(2.8+	4.5+)	1995 09 22	691	0.4-	0.1+	1998 05 01	704	0.3-	1.1+
1995 09 01	809	0.1+	0.8+	1995 09 23	809	1.1+	0.9+	1998 05 01	704	0.7-	0.4+
1995 09 17	691	0.8-	0.2+	1995 09 24	809	1.1+	0.4+	1998 05 01	704	0.3+	0.5+
1995 09 17	691	0.6-	0.3+	1998 04 21	704	0.0	0.0	1998 05 01	704	(5.5+	3.3+)
1995 09 17	691	0.7-	0.1+	1998 04 21	704	1.8-	0.0	1998 05 25	699	0.8+	0.5+
1995 09 18	809	1.1+	0.3+	1998 04 21	704	0.1-	0.0	1998 05 25	699	0.2+	1.1+
1995 09 19	809	0.7+	0.3-	1998 04 21	704	0.2+	0.6+	1998 05 25	699	0.2+	0.1-
1995 09 19	809	0.8+	0.2-	1998 04 21	704	0.9+	1.1+				

1995 SB₃₄ = 1998 FW₅₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	69.54101	(2000.0)	P	Q
<i>n</i>	0.21139436	ω	55.71712	-0.71563283
<i>a</i>	2.7908754	Ω	168.54537	-0.66408154
<i>e</i>	0.0111953	<i>i</i>	4.54925	-0.21648410
<i>P</i>	4.66	<i>H</i>	14.6	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1993 03 25	691	0.1+	0.2-	1995 09 23	809	0.7+	0.3-	1998 03 22	704	0.1-	0.2+
1993 03 25	691	0.1-	0.1-	1995 09 23	809	(5.7+	1.4-)	1998 03 22	704	0.3+	1.2-
1993 03 25	691	0.2+	0.2+	1995 09 24	809	0.7-	0.5-	1998 03 22	704	0.7+	0.0
1995 08 26	809	0.4-	0.2+	1995 09 27	691	0.2-	0.1+	1998 04 19	704	0.2+	1.7-
1995 09 01	809	0.0	0.2+	1995 09 27	691	0.3+	0.0	1998 04 19	704	0.7-	0.5+
1995 09 18	809	1.0+	0.4-	1995 09 27	691	0.3-	0.0	1998 04 19	704	1.7-	0.8-
1995 09 19	809	1.9+	0.1+	1998 03 20	704	0.4+	0.3-	1998 04 19	704	1.7-	1.0+
1995 09 19	809	0.8+	0.3+	1998 03 20	704	0.9-	0.2+	1999 06 15	704	0.2+	0.0
1995 09 20	809	0.4+	0.2-	1998 03 20	704	1.2+	0.1+	1999 06 15	704	0.3+	0.5-
1995 09 22	809	0.3+	2.0-	1998 03 20	704	0.3+	0.9-	1999 06 15	704	0.1-	0.1+
1995 09 22	691	1.3-	0.1+	1998 03 20	704	0.3-	0.9-	1999 06 15	704	0.1+	0.4+
1995 09 22	691	1.0-	0.0	1998 03 22	704	0.4+	0.0	1999 06 15	704	0.4-	0.8+
1995 09 22	691	0.7-	0.5-	1998 03 22	704	0.6+	1.1+				

1995 UG

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	327.69945	(2000.0)	P	Q
<i>n</i>	0.23494117	ω	141.80613	+0.91148888
<i>a</i>	2.6011374	Ω	242.32119	+0.35965321
<i>e</i>	0.3203916	<i>i</i>	3.71484	+0.19959359
<i>P</i>	4.20	<i>H</i>	15.5	<i>G</i> 0.15 <i>U</i> 3

Residuals in seconds of arc

1995 10 16	905	0.7-	0.5+	1995 10 25	905	0.4-	0.7+	1997 05 13	688	0.1+	0.5+
1995 10 16	905	0.2+	0.2-	1995 10 25	905	1.0-	0.7+	1997 05 13	688	0.6+	0.0
1995 10 17	905	0.4+	0.5+	1995 11 12	905	0.6-	0.2-	1997 05 13	688	0.2-	0.5+

1995 10 17	905	0.3+	0.1+	1995 11 12	905	0.8+	0.2-	1997 05 13	688	0.1+	0.4+
1995 10 20	905	0.8+	1.0-	1995 12 15	385	0.0	0.9+	1999 08 10	106	0.1+	0.8+
1995 10 20	905	0.2+	1.1-	1995 12 15	385	0.5-	0.1+	1999 08 10	106	0.1+	0.7+
1995 10 20	905	0.3+	0.6-	1995 12 15	385	0.0	0.4+	1999 08 10	106	0.6-	0.4-

1995 UX₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	314.39149		(2000.0)	P	Q
<i>n</i>	0.22816732	ω	15.12895	+0.87236642	-0.48443894
<i>a</i>	2.6523679	Ω	14.40400	+0.41670052	+0.66679172
<i>e</i>	0.4470300	<i>i</i>	15.27649	+0.25561203	+0.56631061
<i>P</i>	4.32	<i>H</i>	17.4	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1995 10 22	118	0.4+	0.8+	1995 10 26	587	0.1-	1.7-	1995 11 14	587	0.1-	0.1+
1995 10 22	118	(0.4-	3.5+)	1995 10 26	587	1.0-	0.6-	1995 11 14	587	0.2-	0.0
1995 10 23	118	(0.5-	3.6+)	1995 10 27	118	0.3+	0.1-	1995 11 18	118	0.4-	0.5-
1995 10 23	118	0.6+	0.6-	1995 10 27	118	0.1+	0.0	1995 11 18	118	1.0-	0.2-
1995 10 23	118	0.9+	0.6-	1995 10 27	658	0.5-	0.2-	1995 11 18	118	1.4-	0.2+
1995 10 23	118	0.3+	0.1-	1995 10 27	658	1.0-	0.9+	1995 11 19	608	0.2+	1.0+
1995 10 23	118	0.4+	0.0	1995 10 27	897	0.1+	0.4-	1995 11 19	608	0.1+	0.8+
1995 10 23	118	0.5+	0.2-	1995 10 27	897	0.6+	0.7-	1995 11 21	360	0.3+	0.3+
1995 10 23	118	0.2+	0.1-	1995 10 27	118	0.5+	0.1+	1995 11 21	360	0.3+	0.4+
1995 10 23	118	0.3+	0.1-	1995 10 27	118	0.4+	0.1+	1995 11 21	595	0.7+	0.6+
1995 10 24	817	0.0	0.3+	1995 10 27	587	0.2+	0.3-	1995 11 21	118	0.4+	0.6+
1995 10 24	817	0.1-	0.0	1995 10 27	587	0.2+	0.1+	1995 11 21	595	0.8+	0.1+
1995 10 24	817	0.1+	0.0	1995 10 27	587	0.2+	0.1-	1995 11 22	595	0.1+	0.8+
1995 10 24	817	0.2+	0.1-	1995 10 27	587	0.1+	0.2-	1995 11 22	595	0.4+	0.4+
1995 10 24	118	0.2-	0.2-	1995 10 27	587	0.2-	0.1+	1995 11 22	118	0.2+	0.4+
1995 10 24	118	0.0	0.2-	1995 10 28	658	0.6-	0.3-	1995 11 24	587	1.1-	0.7+
1995 10 25	817	0.3-	0.3+	1995 10 28	658	0.5-	0.4-	1995 11 24	587	0.9-	0.4-
1995 10 25	817	0.2-	0.4+	1995 10 28	658	0.5-	0.3-	1995 11 24	587	0.3+	1.3+
1995 10 25	817	0.2+	0.0	1995 10 28	587	0.1+	0.0	1995 11 30	711	0.0	0.5+
1995 10 25	897	0.6+	0.7-	1995 10 28	587	0.0	0.4+	1995 11 30	711	0.1-	0.4+
1995 10 25	897	0.9+	0.4+	1995 10 29	658	0.6-	0.3-	1995 12 10	360	0.4+	0.9-
1995 10 25	897	0.8+	0.5+	1995 10 29	658	0.7-	0.3-	1995 12 10	360	0.3+	1.1-
1995 10 25	360	0.1+	0.1-	1995 10 29	658	0.6-	0.2-	1995 12 10	360	0.8+	0.8-
1995 10 25	360	0.0	0.2+	1995 10 29	413	0.1+	0.1-	1995 12 10	587	0.0	0.7-
1995 10 25	360	0.0	0.1+	1995 10 29	413	0.1+	0.0	1995 12 10	587	0.3-	1.3-
1995 10 25	327	0.1+	0.3+	1995 10 30	658	1.0-	0.4+	1995 12 17	360	0.1+	0.3+
1995 10 25	327	0.2-	0.1-	1995 10 30	658	0.4+	0.0	1995 12 17	360	0.4+	0.2-
1995 10 25	327	0.3+	0.4+	1995 10 30	413	0.1+	0.0	1995 12 17	360	0.2+	0.3-
1995 10 26	360	0.2+	0.0	1995 10 30	413	0.1+	0.1+	1996 01 12	658	0.7-	0.1-
1995 10 26	360	0.3+	0.1+	1995 10 31	658	1.1-	0.3+	1996 01 12	658	0.7-	0.0
1995 10 26	360	0.2+	0.0	1995 10 31	658	0.9-	0.3+	1996 01 12	658	0.5-	0.2-
1995 10 26	327	0.2+	0.0	1995 10 31	658	1.0-	0.4+	1996 01 12	658	0.5-	0.2-
1995 10 26	327	0.3+	0.1-	1995 10 31	413	0.3-	0.3+	1996 01 12	658	0.3+	0.0
1995 10 26	327	0.4-	0.5-	1995 10 31	413	0.1-	0.3+	1996 03 10	711	0.8+	0.8-
1995 10 26	104	0.2-	0.4-	1995 10 31	118	0.0	0.0	1996 03 10	711	0.2-	0.0
1995 10 26	104	0.1-	0.2-	1995 10 31	118	0.4+	0.0	1999 08 01	413	0.2-	0.3+
1995 10 26	104	0.0	0.1-	1995 10 31	118	0.1+	0.3+	1999 08 01	413	1.1+	0.4-
1995 10 26	104	0.2-	0.0	1995 11 12	360	0.1+	0.1-	1999 08 02	413	0.9-	0.4+
1995 10 26	118	0.1+	0.1-	1995 11 12	360	0.3+	0.1+	1999 08 02	413	0.1+	0.1-
1995 10 26	118	0.0	0.1-	1995 11 12	360	0.3-	0.5+	1999 08 02	413	0.1+	0.3+

1995 UB₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	318.25130		(2000.0)	P	Q
<i>n</i>	0.23380263	ω	17.16784	+0.64559496	-0.75875629
<i>a</i>	2.6095751	Ω	32.77600	+0.68054483	+0.52016517
<i>e</i>	0.4104746	<i>i</i>	9.20290	+0.34650524	+0.39206771
<i>P</i>	4.22	<i>H</i>	16.6	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1995 10 20	411	0.1-	0.8+	1995 11 12	360	0.1+	0.5-	1995 12 11	108	1.5-	1.3+
1995 10 20	411	1.3+	0.8-	1995 11 12	360	0.1-	0.6-	1995 12 11	108	0.6-	0.5+

1995 10 25	411	0.2-	0.0	1995 11 14	587	0.2-	0.0	1995 12 11	108	0.3+	0.2+
1995 10 25	411	0.3+	0.3+	1995 11 14	587	0.0	0.5+	1995 12 17	360	0.2+	0.1+
1995 10 27	411	0.2-	0.6+	1995 11 14	587	0.5-	1.0+	1995 12 17	360	0.0	0.0
1995 10 27	411	0.6-	0.2+	1995 11 16	360	0.3+	0.8+	1995 12 17	360	0.2-	0.1-
1995 10 27	411	0.3+	1.2+	1995 11 16	360	0.4+	1.0+	1995 12 18	801	0.3+	0.7-
1995 10 29	658	1.0-	0.1+	1995 11 18	801	0.2+	0.0	1995 12 19	108	(2.2-	0.6+)
1995 10 29	658	0.8-	0.1+	1995 11 18	801	0.1-	0.1+	1995 12 19	108	(2.3-	0.0)
1995 10 29	658	0.9-	0.1+	1995 11 18	411	0.3-	0.1-	1995 12 20	587	(1.0-	2.2-)
1995 10 29	413	0.2+	0.0	1995 11 18	411	0.0	0.8+	1995 12 20	587	0.2-	1.2-
1995 10 29	413	0.1+	0.1+	1995 11 18	411	0.5+	0.4-	1995 12 23	801	1.1+	0.8-
1995 10 30	658	0.7-	0.1-	1995 11 18	900	0.2-	1.2+	1995 12 24	658	0.3+	0.5-
1995 10 30	658	0.7-	0.0	1995 11 20	104	0.0	0.7+	1995 12 24	658	0.1-	0.3-
1995 10 30	658	0.8-	0.1-	1995 11 20	104	0.4-	0.0	1995 12 24	658	0.2-	0.4-
1995 10 30	355	0.9+	1.4-	1995 11 20	104	0.4-	0.4-	1995 12 24	658	0.1-	0.3-
1995 10 30	900	0.3+	0.2+	1995 11 20	104	0.5-	0.3-	1996 01 10	413	0.7-	0.1-
1995 10 30	355	1.2+	0.5-	1995 11 21	108	1.9+	0.1+	1996 01 10	413	0.0	0.1+
1995 10 30	413	0.1+	0.1+	1995 11 21	108	1.6+	0.4+	1996 01 12	658	0.6-	0.4+
1995 10 30	413	0.1-	0.1-	1995 11 21	118	0.2+	0.2-	1996 01 12	658	0.4-	0.2+
1995 10 31	658	0.7-	0.3-	1995 11 23	801	0.1+	0.3-	1996 01 12	658	0.7-	0.3+
1995 10 31	658	0.7-	0.2-	1995 11 23	801	0.1+	0.4-	1996 01 15	118	0.7+	0.0
1995 10 31	658	0.6-	0.3-	1995 11 23	104	0.1-	0.4-	1996 01 15	118	0.6+	0.1+
1995 11 01	411	1.0-	0.8+	1995 11 23	104	0.5+	0.5+	1996 01 16	046	1.2-	0.4+
1995 11 01	411	0.2-	0.2-	1995 11 23	104	0.4+	0.4+	1996 01 16	046	0.3-	0.3+
1995 11 01	411	0.2+	0.1+	1995 11 23	104	0.4+	0.2+	1996 01 16	046	0.4+	0.3+
1995 11 01	897	0.3-	0.0	1995 11 23	595	0.2+	0.2+	1996 01 17	118	0.6+	0.0
1995 11 01	897	0.2-	0.2-	1995 11 23	595	0.2+	0.1+	1996 01 17	118	0.1-	0.4+
1995 11 02	608	0.2+	0.0	1995 11 24	595	0.1-	0.7+	1996 01 17	046	0.0	0.7+
1995 11 02	608	0.2+	0.4-	1995 11 24	595	0.5-	0.5+	1996 01 17	046	0.0	0.5+
1995 11 02	900	0.3-	0.0	1995 11 24	587	0.5+	0.8-	1996 01 17	046	0.0	0.3+
1995 11 02	900	0.1-	0.0	1995 11 24	587	0.7-	0.4-	1996 02 11	711	0.4+	0.6-
1995 11 06	608	0.3+	0.7+	1995 11 25	587	1.4+	0.4+	1996 02 11	711	0.1+	0.4-
1995 11 06	608	0.0	1.9-	1995 11 29	711	0.1+	0.0	1996 02 16	658	0.4-	0.0
1995 11 09	411	0.4-	0.2+	1995 11 29	711	0.2+	0.0	1996 02 16	658	0.4-	0.4+
1995 11 09	411	0.0	0.8-	1995 11 29	897	0.7+	0.0	1996 02 16	658	0.3-	0.3+
1995 11 09	411	0.3+	0.1+	1995 11 29	897	0.1+	1.0-	1999 08 01	413	0.2-	0.2-
1995 11 11	608	0.4+	0.0	1995 11 29	897	0.3+	0.9-	1999 08 01	413	0.1-	0.1+
1995 11 11	608	0.3+	0.2-	1995 12 10	360	0.2+	0.0	1999 08 01	413	0.6-	0.1+
1995 11 11	540	0.0	0.1-	1995 12 10	360	0.4+	0.0	1999 08 02	413	0.2-	0.0
1995 11 11	540	0.0	0.3-	1995 12 10	360	0.1+	0.2+	1999 08 02	413	0.2-	0.1-
1995 11 11	540	0.1-	0.0	1995 12 10	108	(2.2-	0.2+)	1999 08 15	422	0.3+	0.4+
1995 11 12	360	0.1+	0.6-	1995 12 10	108	0.7-	0.4-	1999 08 15	422	0.8+	0.2+

1995 UC₄₇ = 1999 QX₁

Id. T. Urata, E. Bowell

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	331.30649		(2000.0)	P	Q
n	0.23653644	ω	355.98541	+0.89626805	-0.44072655
a	2.5894290	Ω	30.32069	+0.40960408	+0.77962576
e	0.3056708	i	5.64242	+0.17008259	+0.44490874
P	4.17	H	14.7	G 0.15	U 3

1999 AUG. 31

M.P.C. 35607

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

<i>M</i>	347.03364		(2000.0)	P	Q
<i>n</i>	0.23829687	ω	68.68902	+0.99444225	-0.09498736
<i>a</i>	2.5766602	Ω	296.73741	+0.06742422	+0.90582577
<i>e</i>	0.2550648	<i>i</i>	2.91452	+0.08086154	+0.41286446
<i>P</i>	4.14	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1995 11 21	046	0.4+	0.6-	1995 11 27	046	0.2-	0.3+	1997 03 10	691	0.2-	0.2-
1995 11 21	046	0.1-	0.6-	1995 11 27	046	0.1-	0.4+	1997 03 10	691	0.2-	0.2-
1995 11 21	046	0.1-	0.9-	1995 12 08	046	0.3-	0.9+	1997 03 10	691	0.2-	0.2-
1995 11 22	046	0.2+	0.7-	1995 12 08	046	0.3-	0.4-	1999 07 16	704	0.5-	0.8-
1995 11 22	046	0.5+	0.7-	1995 12 08	046	1.1-	0.6+	1999 07 16	704	0.3+	0.1+
1995 11 22	046	0.0	0.6-	1995 12 09	046	0.5-	0.5+	1999 07 16	704	1.2+	0.0
1995 11 22	046	0.4+	0.5-	1995 12 09	046	0.9-	1.0+	1999 07 23	704	0.1+	0.4+
1995 11 22	046	0.5+	0.6-	1995 12 09	046	0.7-	0.8+	1999 07 23	704	0.1-	0.0
1995 11 22	046	0.4+	0.2-	1995 12 17	046	0.3-	0.9+	1999 07 23	704	0.3+	0.4-
1995 11 22	046	0.2-	0.1-	1995 12 17	046	0.7+	0.9+	1999 07 23	704	0.1+	0.3-
1995 11 24	046	0.0	0.2-	1995 12 17	046	0.1-	0.7+	1999 07 23	704	0.1-	0.6-
1995 11 24	046	0.4+	0.4-	1995 12 27	046	0.1+	0.1+	1999 08 25	046	0.1-	0.5+
1995 11 24	046	0.3+	0.4-	1995 12 27	046	0.8+	0.1-	1999 08 25	046	0.3-	0.2+
1995 11 25	046	0.2-	0.0	1995 12 27	046	0.8+	0.1-	1999 08 25	046	0.2+	0.0
1995 11 25	046	0.1-	0.3-	1997 03 03	691	0.0	0.1-	1999 08 25	046	0.6-	0.5+
1995 11 25	046	0.0	0.1+	1997 03 03	691	0.0	0.1-				
1995 11 27	046	0.1+	0.3+	1997 03 03	691	0.0	0.2-				

1995 WH₁₇ = 1999 OV₃

Id. T. Urata, M. W. Buie (1997 observation)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	321.03768		(2000.0)	P	Q
<i>n</i>	0.21940182	ω	304.97133	+0.94721746	-0.26462563
<i>a</i>	2.7225502	Ω	70.96966	+0.31891834	+0.83538225
<i>e</i>	0.2786929	<i>i</i>	11.03678	-0.03271364	+0.48177773
<i>P</i>	4.49	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1995 10 21	372	1.9-	0.3-	1995 12 10	905	0.5+	0.2-	1995 12 23	691	0.0	0.3+
1995 10 21	372	0.2+	1.1+	1995 12 18	691	0.1-	0.2+	1995 12 23	691	0.1+	0.0
1995 11 16	905	1.2+	1.0+	1995 12 18	691	0.1+	0.1+	1995 12 23	691	0.1+	0.3+
1995 11 16	905	0.2-	1.1-	1995 12 18	691	0.1+	0.2+	1997 03 12	688	0.3+	1.2+
1995 11 28	905	0.1+	1.7-	1995 12 21	905	0.1+	0.5+	1999 07 08	888	0.7+	1.4+
1995 11 28	905	0.9-	0.1-	1995 12 21	905	1.1-	1.7+	1999 07 08	888	0.6-	1.0+
1995 11 30	905	1.3-	1.4-	1995 12 22	385	0.3+	0.0	1999 07 24	385	0.3+	0.5+
1995 11 30	905	0.8+	0.1-	1995 12 22	385	0.3+	0.1+	1999 07 24	385	0.6-	1.6-
1995 12 10	905	0.6+	0.5+	1995 12 22	385	0.7+	0.3+				

1996 AH₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

<i>M</i>	286.12010		(2000.0)	P	Q
<i>n</i>	0.17382401	ω	115.33379	+0.53049153	-0.82749672
<i>a</i>	3.1797736	Ω	301.39426	+0.67947260	+0.54482042
<i>e</i>	0.1723447	<i>i</i>	12.44295	+0.50684881	+0.13571987
<i>P</i>	5.67	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1996 01 13	046	0.1-	0.4+	1996 01 17	046	0.4+	0.3+	1996 03 19	046	0.2+	0.3+
1996 01 13	046	0.0	0.4-	1996 02 09	046	0.4+	0.2+	1996 03 20	046	0.6+	0.4-
1996 01 13	046	0.3-	0.4-	1996 02 09	046	0.2-	0.5+	1996 03 20	046	1.7+	0.2+
1996 01 13	046	0.2-	0.3+	1996 02 09	046	0.5-	0.7+	1999 08 05	046	0.3-	0.8+
1996 01 13	046	0.3-	0.3-	1996 02 22	046	0.8-	0.3-	1999 08 05	046	0.4+	0.0
1996 01 13	046	0.3-	0.0	1996 02 22	046	1.3-	0.8-	1999 08 05	046	0.0	0.4+
1996 01 14	046	0.6+	0.2+	1996 02 22	046	0.2-	0.8-	1999 08 05	046	0.4-	0.3+
1996 01 14	046	0.6+	0.1+	1996 02 25	046	0.1-	0.2-	1999 08 06	046	0.4-	0.3-
1996 01 14	046	0.3-	0.4+	1996 02 25	046	0.6-	0.2+	1999 08 06	046	0.1+	0.1-
1996 01 14	046	0.1-	0.8+	1996 02 25	046	0.5-	0.1-	1999 08 06	046	0.2-	0.3+

1996 01 17	046	0.1-	0.2-	1996 03 19	046	0.6+	0.7+
1996 01 17	046	0.8+	0.1+	1996 03 19	046	1.0+	0.2+

1996 BM₃ = 1999 QW₁

Id. T. Urata

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	238.96199		(2000.0)	P	Q
<i>n</i>	0.17287921	ω	311.12726	-0.19931234	-0.97990206
<i>a</i>	3.1913483	Ω	150.36653	+0.90394464	-0.18706399
<i>e</i>	0.1552430	<i>i</i>	0.94531	+0.37836315	-0.06927492
<i>P</i>	5.70	<i>H</i>	12.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1994 11 01	691	0.1+	0.1-	1996 01 29	887	0.2+	0.0	1996 02 10	385	0.0	0.1+
1994 11 01	691	0.1+	0.3-	1996 01 29	887	0.1-	0.2+	1996 02 10	385	0.4+	0.5-
1994 11 01	691	0.1+	0.5-	1996 01 30	887	0.4-	0.7+	1999 07 09	385	1.2+	1.4-
1995 12 27	566	0.4+	0.3+	1996 01 30	887	0.1-	0.4+	1999 08 03	691	0.1-	0.1-
1995 12 27	566	0.2+	0.3+	1996 01 30	887	0.6-	0.4+	1999 08 03	691	1.7-	1.6+
1995 12 27	566	0.1-	0.1+	1996 01 30	887	0.0	0.4+	1999 08 08	385	0.2-	0.6+
1996 01 27	385	0.1+	0.2-	1996 02 10	887	0.1-	0.1-	1999 08 21	385	0.0	0.2+
1996 01 27	385	0.1-	0.1-	1996 02 10	887	0.2+	0.2-	1999 08 21	385	0.4+	0.5+
1996 01 27	385	0.0	0.3-	1996 02 10	887	0.3+	0.0				
1996 01 29	887	0.2-	0.1+	1996 02 10	385	0.0	0.3-				

1996 BZ₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	305.66976		(2000.0)	P	Q
<i>n</i>	0.22898589	ω	278.03548	-0.11408409	-0.99346993
<i>a</i>	2.6460430	Ω	178.51276	+0.93307699	-0.10767590
<i>e</i>	0.5220842	<i>i</i>	3.36960	+0.34110430	-0.03772808
<i>P</i>	4.30	<i>H</i>	18.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1982 11 13	413	0.8+	0.5-	1996 02 13	587	0.2-	0.8-	1996 02 26	658	0.9-	0.3-
1982 11 13	413	0.7-	0.1+	1996 02 14	120	0.8+	0.2-	1996 02 26	658	0.5-	0.4-
1996 01 29	691	0.3-	0.3-	1996 02 14	587	0.7+	0.4-	1996 02 26	413	0.1-	0.2+
1996 01 29	691	0.3-	0.0	1996 02 14	120	1.2-	0.1-	1996 02 26	413	0.1-	0.1+
1996 01 29	691	0.2-	0.3-	1996 02 14	120	0.7+	0.5-	1996 02 27	413	0.0	0.0
1996 01 30	657	0.3-	0.1+	1996 02 14	587	0.1+	0.1-	1996 02 27	413	0.1-	0.1+
1996 01 30	657	0.2+	0.8+	1996 02 15	566	0.1-	0.2+	1996 02 27	413	0.1-	0.1+
1996 01 30	657	0.5+	0.1-	1996 02 15	566	0.1+	0.4+	1996 02 29	118	0.3-	0.5-
1996 01 30	657	0.9+	0.7-	1996 02 15	566	0.1-	0.4+	1996 02 29	118	0.3+	0.7-
1996 01 30	657	0.6+	1.9+	1996 02 15	608	0.3+	0.4-	1996 02 29	413	0.1+	0.2-
1996 02 01	658	0.0	0.3-	1996 02 15	608	0.5+	1.3-	1996 02 29	413	0.1+	0.0
1996 02 01	658	0.1+	0.2-	1996 02 15	360	0.2+	0.1-	1996 02 29	413	0.3-	0.1-
1996 02 01	658	0.1+	0.2-	1996 02 15	360	0.1+	0.3-	1996 03 09	711	0.3+	0.0
1996 02 01	658	0.3-	0.7-	1996 02 15	360	0.3-	0.3-	1996 03 09	711	0.0	0.0
1996 02 02	658	0.1+	0.3+	1996 02 16	658	0.9-	0.8+	1996 03 10	711	0.1-	0.1-
1996 02 02	658	0.1+	0.5+	1996 02 16	658	1.0-	0.9+	1996 03 10	711	0.0	0.1-
1996 02 02	658	0.0	0.5+	1996 02 16	608	0.1-	1.1+	1996 03 13	608	0.2-	0.6-
1996 02 03	658	0.1-	0.3+	1996 02 16	608	0.5+	1.4+	1996 03 13	608	0.5-	0.6-
1996 02 03	658	0.1-	0.1+	1996 02 20	566	0.2+	0.3+	1996 03 14	658	0.4+	0.3-
1996 02 03	658	0.1-	0.2+	1996 02 20	566	0.0	0.6+	1996 03 14	658	0.7+	0.0
1996 02 09	711	0.3-	0.1+	1996 02 20	566	0.2-	0.2+	1996 03 14	608	1.2+	0.6+
1996 02 09	711	0.2-	0.1+	1996 02 21	897	0.8+	1.2+	1996 03 14	608	0.7-	1.7+
1996 02 10	711	0.1-	0.0	1996 02 21	897	0.5-	0.1+	1996 03 25	658	0.2-	0.6-
1996 02 10	711	0.2-	0.0	1996 02 21	897	2.0+	0.6-	1996 03 25	658	0.6-	0.4-
1996 02 10	711	0.2-	0.0	1996 02 22	360	0.1+	0.6+	1996 03 25	658	0.3-	0.5-
1996 02 10	897	0.1+	0.7+	1996 02 22	360	0.2+	0.7+	1996 03 26	413	0.2+	0.3-
1996 02 10	897	0.3-	0.6+	1996 02 22	360	0.4+	0.1+	1996 03 26	413	0.3+	0.3-
1996 02 10	897	0.6-	1.2-	1996 02 24	658	0.2+	0.2-	1996 03 28	413	0.3+	0.5-
1996 02 12	711	0.1-	0.6-	1996 02 24	658	0.4+	0.0	1996 03 28	413	0.2+	0.4-
1996 02 12	711	0.2-	0.6-	1996 02 24	658	0.1-	0.3-	1996 05 16	695	0.9+	1.0+
1996 02 13	587	0.2-	0.9-	1996 02 24	658	0.5-	0.2-	1996 05 16	695	0.4-	0.4+
1996 02 13	587	0.3+	0.8-	1996 02 26	658	1.0-	0.5-	1996 05 16	695	0.2-	0.5+

1996 BK₁₃ = 1999 PY₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	300.33036		(2000.0)	P		Q	
<i>n</i>	0.21324450	ω	312.29242	+0.84210870	−0.50772548		
<i>a</i>	2.7747093	Ω	78.98345	+0.53307568	+0.73252068		
<i>e</i>	0.2485959	<i>i</i>	10.67626	+0.08175115	+0.45346255		
<i>P</i>	4.62	<i>H</i>	15.4	<i>G</i> 0.15	<i>U</i> 5		

Residuals in seconds of arc

1996 01 20	327	0.0	0.2−	1996 01 21	327	0.7+	0.3−	1999 08 10	428	0.2−	0.6−
1996 01 20	327	0.1+	0.0	1996 01 21	327	0.7−	0.0	1999 08 11	428	1.1−	0.9+
1996 01 20	327	0.3−	0.0	1996 01 21	327	0.1−	0.0	1999 08 11	428	0.4−	0.2+
1996 01 21	327	0.7+	0.2+	1996 01 22	327	0.2+	0.0	1999 08 12	428	0.4+	0.2−
1996 01 21	327	0.0	0.1−	1996 01 22	327	0.0	0.3+	1999 08 12	428	0.6+	0.0
1996 01 21	327	0.3−	0.1+	1996 01 22	327	0.2−	0.1−	1999 08 12	428	0.7+	0.3−

1996 NG₅ = 1999 JH₄₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	353.74223		(2000.0)	P		Q	
<i>n</i>	0.29117139	ω	292.17498	+0.10236025	+0.99471163		
<i>a</i>	2.2544308	Ω	343.69336	−0.90123968	+0.08914560		
<i>e</i>	0.1651835	<i>i</i>	1.72155	−0.42105749	+0.05100819		
<i>P</i>	3.38	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 4		

Residuals in seconds of arc

1995 02 07	691	(1.6+ 4.2−)	1996 07 21	809	(0.5− 3.2−)	1999 05 13	704	0.1+	0.6+
1995 02 07	691	0.2− 0.6−	1996 08 12	566	0.1+ 0.5−	1999 05 13	704	0.8−	1.3+
1995 02 07	691	0.2− 0.6−	1996 08 12	566	0.2+ 0.1−	1999 05 13	704	0.4+	0.1−
1996 07 14	809	0.8− 0.6−	1996 08 12	566	0.4− 0.3−	1999 05 18	704	0.1−	0.1+
1996 07 14	809	0.3− 0.6−	1999 05 10	704	0.1− 0.2−	1999 05 18	704	0.3−	0.1−
1996 07 14	809	1.1− 0.6−	1999 05 10	704	0.4+ 1.1−	1999 05 18	704	0.1−	0.4−
1996 07 15	809	1.8+ 1.3+	1999 05 10	704	0.2+ 0.2−	1999 05 18	704	0.4−	0.8+
1996 07 15	809	0.7+ 0.8+	1999 05 10	704	0.8− 0.4−	1999 05 18	704	0.7−	0.2+
1996 07 15	809	0.3+ 0.5−	1999 05 10	704	0.0 0.3−	1999 05 18	699	0.8+	0.1+
1996 07 21	809	(1.6+ 2.4−)	1999 05 13	704	0.3+ 0.3−	1999 05 18	699	1.1+	0.1+
1996 07 21	809	(0.6+ 2.2−)	1999 05 13	704	0.2− 0.1+	1999 05 18	699	0.1+	0.4−

1996 QG₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	284.44538		(2000.0)	P		Q	
<i>n</i>	0.25428143	ω	170.39428	+0.75411169	+0.65667930		
<i>a</i>	2.4675139	Ω	148.55231	−0.60373906	+0.69879265		
<i>e</i>	0.2108104	<i>i</i>	1.02941	−0.25848540	+0.28365672		
<i>P</i>	3.88	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 3		

Residuals in seconds of arc

1996 06 22	566	0.5− 0.3−	1996 09 12	385	0.3+ 0.1−	1998 01 01	691	0.0	0.5−
1996 06 22	566	0.6− 0.1−	1996 09 12	385	0.5+ 0.3+	1998 01 01	691	0.1+	0.3+
1996 06 22	566	0.5− 0.0	1996 09 12	385	0.4+ 0.0	1998 01 01	691	0.1−	0.0
1996 08 18	905	0.9− 0.5−	1996 10 15	385	0.3− 0.5−	1999 04 12	704	0.1−	0.5+
1996 08 18	905	1.0+ 0.2−	1996 10 15	385	1.9− 1.0−	1999 04 12	704	0.3+	0.0
1996 08 22	905	0.3− 0.1+	1996 10 15	385	0.5− 1.0+	1999 04 12	704	(4.0− 1.2−)	
1996 08 22	905	0.3− 0.1+	1996 10 16	385	0.2+ 0.1−	1999 04 12	704	0.2−	0.5−
1996 09 03	905	1.1+ 0.5+	1996 10 16	385	0.2+ 0.4+	1999 04 12	704	(3.8− 0.3+)	
1996 09 03	905	1.5+ 0.1+	1996 10 16	385	0.5− 0.1−				

1996 SV₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	281.59530		(2000.0)	P		Q	
<i>n</i>	0.26670799	ω	77.34002	+0.98696157	−0.13564649		
<i>a</i>	2.3902612	Ω	290.40512	+0.08643202	+0.90075290		
<i>e</i>	0.1484271	<i>i</i>	5.30417	+0.13578061	+0.41260664		
<i>P</i>	3.70	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 2		

Residuals in seconds of arc

1992 07 27	010	0.5− 0.7−	1996 10 29	327	0.8− 0.2+	1996 11 02	327	0.2+	0.2+
1992 07 27	010	0.3− 0.4+	1996 10 29	327	0.7− 0.2−	1997 01 29	327	0.3+	0.1−
1992 07 27	010	0.6+ 0.8+	1996 10 29	327	0.1+ 0.2−	1997 01 29	327	0.4−	0.1−
1996 09 18	327	0.2+ 0.8−	1996 10 29	327	0.4+ 0.3+	1997 01 29	327	0.1+	0.3−
1996 09 18	327	0.4+ 0.4−	1996 11 01	327	0.1− 0.3+	1999 06 15	704	0.4−	0.4+
1996 09 18	327	0.4− 0.3−	1996 11 01	327	0.3+ 0.4+	1999 06 15	704	0.2+	0.1−
1996 09 21	327	0.2− 0.4−	1996 11 01	327	0.2+ 0.5+	1999 06 15	704	0.3+	0.2−
1996 09 21	327	0.7+ 0.2−	1996 11 02	327	0.0 0.3+	1999 06 15	704	0.1−	0.2−
1996 09 21	327	0.2− 0.1−	1996 11 02	327	0.1− 0.4+				

1996 TE₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	230.92523		(2000.0)	P		Q	
<i>n</i>	0.23938537	ω	261.88695	+0.19642199	−0.98017124		
<i>a</i>	2.5688435	Ω	176.45045	+0.98004506	+0.19708609		
<i>e</i>	0.4716397	<i>i</i>	24.96371	−0.03049714	+0.02052859		
<i>P</i>	4.12	<i>H</i>	15.9	<i>G</i> 0.15	<i>U</i> 1		

Residuals in seconds of arc

1989 04 07	675	1.2− 1.5+	1996 10 17	900	0.2− 0.4+	1996 12 20	424	0.1−	0.8−
1989 04 07	675	1.2+ 2.0+	1996 10 17	900	0.6− 0.5+	1996 12 20	424	0.4+	0.8−
1996 09 15	413	0.7+ 1.0−	1996 10 18	566	0.5+ 0.0	1997 01 04	424	0.0	0.2−
1996 09 15	413	0.1− 0.2+	1996 10 18	566	0.5+ 0.0	1997 01 04	424	0.2−	0.0
1996 10 14	413	1.1+ 0.9−	1996 10 18	566	0.5+ 0.0	1997 01 04	424	0.2−	0.7−
1996 10 14	413	(0.3− 2.1+)	1996 10 18	424	0.7+ 0.2+	1997 01 10	566	0.1+	0.0
1996 10 15	413	0.0 0.5+	1996 10 18	424	0.3− 0.2+	1997 01 10	566	0.2+	0.2−
1996 10 15	413	0.1+ 0.0	1996 10 19	046	0.4+ 0.5+	1997 01 10	566	0.1−	0.0
1996 10 15	413	0.1+ 0.1+	1996 10 19	046	0.6+ 0.5−	1997 01 11	422	0.2+	0.5+
1996 10 15	413	0.0 0.3+	1996 10 19	046	0.2− 0.0	1997 01 11	422	0.5+	0.7+
1996 10 15	413	0.0 0.7+	1996 10 19	046	0.1+ 0.3−	1997 01 11	422	0.2+	0.5+
1996 10 16	046	0.2+ 0.1−	1996 10 19	046	0.3+ 0.1−	1997 01 12	360	0.4+	0.3+
1996 10 16	046	0.1− 0.1−	1996 10 20	900	0.5− 0.1−	1997 01 12	360	0.3+	0.3+
1996 10 16	046	0.6− 0.5+	1996 10 20	900	0.4− 0.3−	1997 01 12	360	0.1+	0.3+
1996 10 16	367	0.5− 0.2−	1996 10 20	422	0.1− 0.4−	1997 02 07	566	0.2−	0.4−
1996 10 16	367	0.3− 0.2−	1996 10 20	422	0.1+ 0.3−	1997 02 07	566	0.1+	0.5−
1996 10 16	367	0.4− 0.1−	1996 10 20	422	0.2− 0.5−	1997 02 07	566	0.6+	0.3−
1996 10 16	897	1.2− 1.2+	1996 10 21	355	0.4+ 0.4−	1997 02 09	360	0.3−	0.7−
1996 10 16	897	(1.1− 2.5+)	1996 10 21	355	0.2+ 0.0	1997 02 09	360	0.4−	0.5−
1996 10 16	897	1.3− 1.2+	1996 11 01	413	0.9+ 0.2+	1997 02 09	360	0.0	0.9−
1996 10 16	413	0.4− 0.3+	1996 11 01	413	0.9+ 0.1+	1997 02 22	046	1.0−	0.5+
1996 10 16	413	0.3− 0.1+	1996 11 02	413	0.7+ 0.2−	1997 02 22	046	0.9−	0.4−
1996 10 16	900	0.7− 0.9+	1996 11 02	413	0.6+ 0.4−	1997 02 22	046	0.7−	0.8+
1996 10 16	900	0.2− 0.6+	1996 11 03	900	1.0− 0.7+	1997 02 22	046	0.6−	0.2−
1996 10 17	400	(3.6− 0.4+)	1996 11 03	900	0.8− 1.1+	1997 03 09	046	0.3+	0.4−
1996 10 17	400	0.3+ 0.0	1996 11 08	424	0.4+ 0.8−	1997 03 09	046	0.0	0.2+
1996 10 17	400	0.3− 0.6+	1996 11 08	424	0.5− 1.1−	1997 03 09	046	0.2+	0.1+
1996 10 17	355	0.8− 0.0	1996 11 12	689	(0.4− 2.2−)	1997 04 22	658	0.7+	0.3−
1996 10 17	355	0.2+ 0.2+	1996 11 13	897	1.5+ 1.6−	1997 04 22	658	0.2−	0.5+
1996 10 17	355	0.4− 0.4+	1996 11 13	897	(0.8+ 2.6−)	1997 04 22	658	0.1−	0.5+
1996 10 17	871	0.7− 0.1−	1996 11 13	897	1.0+ 1.0−	1997 04 24	658	0.9−	0.4+
1996 10 17	871	1.3− 0.0	1996 12 10	413	0.3+ 0.1+	1997 04 24	658	0.1−	0.3+
1996 10 17	871	0.2− 0.8+	1996 12 11	413	1.5+ 0.1+	1997 04 24	658	1.4−	0.4+

1996 TS₄₉ = 1992 GQ₇ = 1997 WJ₅₇

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M.P.C. 35609

1996 12 09	046	1.1+	0.2+	1996 12 28	046	0.1+	0.2+	1999 08 07	046	0.1+	0.1+
1996 12 09	046	0.2−	0.6+	1996 12 28	046	0.4−	0.0	1999 08 07	046	0.2−	0.0
1996 12 11	046	0.0	0.3+	1997 01 12	046	0.2+	0.4−	1999 08 08	046	0.2−	0.3+
1996 12 11	046	0.0	0.3+	1997 01 12	046	0.1−	0.4−	1999 08 08	046	0.4+	0.3−
1996 12 11	046	0.1+	0.2+	1997 01 12	046	0.1+	0.2−	1999 08 08	046	0.4+	0.1−
1996 12 12	046	0.0	0.0	1997 02 08	046	0.4−	0.1+				
1996 12 12	046	0.1−	0.0	1997 02 08	046	0.1−	0.2−				

Epoch 1999 Aug. 10.0	TT = JDT 2451400.5	Williams	
M	73.75587	(2000.0)	
n	0.21261115	ω	$\mathbf{P}$
a	2.7802170	Ω	$\mathbf{Q}$
e	0.1926700	i	
P	4.64	H	
		13.4	
		G	
		0.15	
		U	
		5	

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5	Williams			
M 304.07473	(2000.0)	P	Q	
n 0.25847370	ω 122.21331	+0.84237834	-0.53038155	
a 2.4407603	Ω 269.98227	+0.45675142	+0.79662529	
e 0.1437158	i 5.47223	+0.28596658	+0.28997165	
P 3.81	H 14.3	G 0.15	U	4

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5	Spahr			
M 303.00592	(2000.0)	P	Q	
n 0.24069666	ω 252.81710	+0.87751123	-0.47319364	
a 2.5595051	Ω 135.34162	+0.47123250	+0.82072259	
e 0.2122459	i 6.35970	+0.08896054	+0.32015966	
P 4.09	H 16.8	G 0.15	U	3

1996 XE ₉												
Epoch 1999 Aug. 10.0 TT = JD _T 2451400.5												
				Spahr								
<i>M</i>	278.70456			(2000.0)		P		Q				
<i>n</i>	0.27239027			<i>ω</i>	162.02478		+0.42032329		−0.90242071			
<i>a</i>	2.3569027			<i>Ω</i>	263.03199		+0.82035189		+0.42252953			
<i>e</i>	0.1783535			<i>i</i>	5.47373		+0.38775136		+0.08429511			
<i>P</i>	3.62			<i>H</i>	15.4		<i>G</i>	0.15		<i>U</i>	3	
Residuals in seconds of arc												
1996 12 06	046	0.2+	0.1+	1996 12 12	046	0.2−	0.0	1997 02 08	046	0.4−	0.0	
1996 12 06	046	0.1+	0.1+	1996 12 16	046	0.6−	0.8−	1997 02 09	046	0.2+	0.3−	
1996 12 06	046	0.1+	0.1−	1996 12 16	046	0.5−	0.6−	1997 02 09	046	0.1+	0.2−	
1996 12 06	046	0.0	0.1−	1996 12 16	046	0.3−	0.2−	1999 08 05	046	0.4−	0.1−	
1996 12 06	046	0.4+	0.1+	1996 12 21	046	0.7−	0.1+	1999 08 05	046	0.2−	0.1+	
1996 12 06	046	0.0	0.1+	1996 12 22	046	0.6−	0.2+	1999 08 05	046	0.0	0.2+	
1996 12 09	046	1.7+	0.3+	1996 12 22	046	0.3−	0.1+	1999 08 06	046	0.0	0.5−	
1996 12 09	046	0.4+	0.2+	1996 12 28	046	0.2+	0.1−	1999 08 06	046	0.5+	0.2−	

1997 AC₁₃ = 1999 QY₁

Id. T. Urata

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Nakano					
<i>M</i>	290.73658	(2000.0)	P			Q		
<i>n</i>	0.28476347	ω	147.66710	+0.14498405	−0.98824853			
<i>a</i>	2.2881256	Ω	293.95679	+0.89614336	+0.15190049			
<i>e</i>	0.1228316	<i>i</i>	3.03719	+0.41941233	+0.01706115			
<i>P</i>	3.46	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	5	

Residuals in seconds of arc

1997 01 09	905	0.5−	0.2−	1997 02 03	905	0.5+	0.5−	1997 03 04	385	0.4−	0.5−
1997 01 09	905	0.8+	0.2+	1997 02 03	905	1.8−	0.5−	1999 08 21	385	0.2+	0.5−
1997 01 10	905	0.1−	1.0+	1997 02 06	385	0.4−	0.9+	1999 08 21	385	0.4−	0.1+
1997 01 10	905	1.4+	0.0	1997 02 06	385	0.2−	0.3+	1999 08 22	385	0.2−	0.4+
1997 02 03	905	0.2−	1.1−	1997 03 04	385	0.6+	0.3+	1999 08 22	385	0.5+	0.3−

1997 BR₆ = 1985 XP = 1988 TN₄ = 1999 QC₂

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Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams					
<i>M</i>	306.14977	(2000.0)	P			Q		
<i>n</i>	0.27799640	ω	98.69696	+0.25732851	−0.96571789			
<i>a</i>	2.3251088	Ω	336.30587	+0.84973166	+0.24300134			
<i>e</i>	0.1477019	<i>i</i>	4.88492	+0.46015013	+0.09131979			
<i>P</i>	3.55	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1985 12 09	046	1.1−	1.5−	1997 02 09	385	0.6−	0.5+	1997 03 31	385	0.6−	0.1−
1985 12 09	046	1.2+	0.2+	1997 02 09	385	0.7−	0.2+	1997 03 31	385	0.1+	0.0
1988 10 09	413	0.2+	0.5+	1997 02 13	385	0.3−	0.0	1999 06 13	703	0.7−	0.5+
1988 10 09	413	0.0	0.3−	1997 02 13	385	0.1−	0.1+	1999 06 13	703	0.3−	0.5+
1997 01 29	905	0.0	0.3+	1997 03 05	704	0.5+	0.0	1999 06 13	703	1.2−	0.7+
1997 01 29	905	0.2−	0.4+	1997 03 05	704	(2.9+	0.3+)	1999 06 13	703	0.7−	0.2+
1997 02 01	905	0.1−	0.2+	1997 03 06	704	0.7+	0.8−	1999 08 18	888	0.4+	0.3−
1997 02 01	905	1.0+	0.7−	1997 03 06	704	0.9+	0.3+	1999 08 18	888	0.3+	1.0+
1997 02 03	566	0.5+	0.4+	1997 03 08	385	0.6−	0.1+	1999 08 22	888	0.2+	0.3+
1997 02 03	566	0.3+	0.2+	1997 03 08	385	0.4−	0.2+	1999 08 22	888	0.5−	0.5+
1997 02 03	566	0.9+	0.4+	1997 03 31	385	0.6−	0.8+				

1997 EG₄₁ = 1999 NQ₃₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams					
<i>M</i>	264.33855	(2000.0)	P			Q		
<i>n</i>	0.21083715	ω	109.03981	+0.48934230	−0.86562713			
<i>a</i>	2.7957905	Ω	311.19584	+0.73778327	+0.47571294			
<i>e</i>	0.1587007	<i>i</i>	8.09743	+0.46499458	+0.15616295			
<i>P</i>	4.67	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	4	

Residuals in seconds of arc

1997 02 06	566	0.4+	0.7−	1997 03 12	704	0.1+	0.9+	1999 07 16	704	0.8−	0.1+
1997 02 06	566	0.7−	0.7−	1999 06 23	703	0.6+	0.3−	1999 07 16	704	0.5+	0.6−
1997 02 06	566	0.6−	0.5−	1999 06 23	703	0.8+	0.2−	1999 07 16	704	0.5+	0.1+
1997 03 10	704	0.4+	0.6−	1999 06 23	703	0.4−	1.0+	1999 07 16	704	0.4+	0.4−
1997 03 10	704	0.3+	0.0	1999 06 23	703	0.6+	1.2+	1999 07 20	699	0.0	0.6−
1997 03 11	704	0.0	0.3−	1999 07 14	704	0.5−	0.3−	1999 07 20	699	0.6+	1.6−
1997 03 11	704	0.3−	0.6+	1999 07 14	704	0.6−	0.6+	1999 07 20	699	0.7−	0.6−
1997 03 12	704	0.1+	0.8+	1999 07 14	704	0.5−	1.0+				

1997 GH₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

			Williams					
<i>M</i>	219.29798	(2000.0)	P			Q		
<i>n</i>	0.25039157	ω	333.53848	−0.94298993	−0.33275992			
<i>a</i>	2.4930036	Ω	187.03421	+0.31385997	−0.88271486			
<i>e</i>	0.5697982	<i>i</i>	2.99093	+0.11073352	−0.33179107			
<i>P</i>	3.94	<i>H</i>	17.1	<i>G</i>	0.15	<i>U</i>	1	

Residuals in seconds of arc

1992 11 02	675	0.5−	0.5+	1997 04 13	046	0.2+	0.4−	1997 05 01	557	0.1+	0.1−
1992 11 02	675	0.3+	0.6+	1997 04 13	046	0.1−	0.1−	1997 05 01	557	0.4+	0.2−
1997 04 06	566	0.4−	0.1+	1997 04 13	046	0.2+	0.4−	1997 05 01	557	0.0	0.2−
1997 04 06	566	0.3−	0.1−	1997 04 13	557	0.5−	0.3−	1997 05 02	658	0.4−	0.2+
1997 04 06	566	0.3−	0.0	1997 04 13	557	0.3−	0.4−	1997 05 02	658	0.1+	0.4+
1997 04 07	566	0.4−	0.1−	1997 04 13	557	0.1+	0.4−	1997 05 02	658	0.7−	0.1−
1997 04 07	566	0.4−	0.1−	1997 04 13	557	0.1−	0.3−	1997 05 02	587	0.5+	0.5+
1997 04 07	566	0.0	0.2−	1997 04 13	557	0.0	0.4−	1997 05 02	587	0.2+	0.2+
1997 04 07	046	0.2+	0.2−	1997 04 13	557	0.2−	0.6−	1997 05 03	046	0.0	0.2+
1997 04 07	046	0.2+	0.5−	1997 04 13	118	0.2−	0.3−	1997 05 03	046	0.1−	0.3+
1997 04 07	046	0.2+	0.0	1997 04 13	118	0.1+	0.3−	1997 05 03	046	0.1+	0.2+
1997 04 07	046	0.1−	0.3−	1997 04 13	118	0.1−	0.3−	1997 05 03	557	0.0	0.4+
1997 04 07	046	0.5+	0.2−	1997 04 15	816	0.5−	0.2+	1997 05 03	557	0.2−	0.3+
1997 04 08	046	0.1−	0.1+	1997 04 15	816	0.8−	0.6+	1997 05 03	557	0.0	0.6+
1997 04 08	046	0.4+	0.2−	1997 04 15	816	0.0	0.1+	1997 05 03	557	0.3+	0.6+
1997 04 08	046	0.1−	0.0	1997 04 15	816	0.4−	0.1+	1997 05 03	557	0.2−	0.2+
1997 04 08	046	0.2−	0.0	1997 04 15	816	0.9−	0.4−	1997 05 04	360	0.2−	0.7+
1997 04 08	104	1.2+	0.5+	1997 04 18	046	0.6−	0.3+	1997 05 04	360	0.0	0.6+
1997 04 08	046	0.1+	0.0	1997 04 18	046	0.3−	0.2+	1997 05 04	360	0.2−	0.6+
1997 04 08	104	0.2+	0.3+	1997 04 18	046	0.2+	0.2+	1997 05 06	402	0.2+	0.5+
1997 04 08	104	0.2+	1.0+	1997 04 18	046	0.4−	0.3+	1997 05 06	402	0.1−	0.4+
1997 04 08	557	0.1−	0.1+	1997 04 19	658	0.6−	0.1+	1997 05 06	402	0.0	0.4+
1997 04 08	557	0.1−	0.0	1997 04 19	658	0.8−	0.0	1997 05 10	046	0.3−	0.0
1997 04 08	557	0.3+	0.0	1997 04 19	658	1.4−	0.2−	1997 05 10	046	0.5−	0.1−
1997 04 08	108	0.0	0.6−	1997 04 19	658	1.0−	0.1+	1997 05 10	046	0.3−	0.0
1997 04 08	108	(3.4+	2.0−)	1997 04 19	658	1.2−	0.0	1997 05 14	711	0.9+	0.5+
1997 04 08	108	0.3−	0.1−	1997 04 21	658	0.1−	0.0	1997 05 14	711	0.3+	0.2+
1997 04 09	670	0.2+	0.4−	1997 04 21	658	0.5+	0.0	1997 05 19	658	0.1−	0.2+
1997 04 09	658	0.3−	0.2+	1997 04 21	658	0.0	0.2+	1997 05 19	658	0.3+	0.3+
1997 04 09	670	0.1+	0.3+	1997 04 21	611	1.8−	1.4+	1997 05 19	658	1.2−	0.1+
1997 04 09	658	0.4−	0.3+	1997 04 21	611	0.7+	0.1−	1997 05 19	658	0.7−	0.0
1997 04 09	658	0.6−	0.3+	1997 04 21	611	0.3−	0.8+	1997 05 20	608	1.2+	1.1+
1997 04 09	658	0.2−	0.5+	1997 04 23	557	0.0	0.1−	1997 05 20	608	0.4−	1.5+
1997 04 09	658	0.6−	0.3+	1997 04 23	557	0.1−	0.1+	1997 05 21	608	0.2+	0.5+
1997 04 09	670	0.1+	0.1+	1997 04 23	557	0.2−	0.0	1997 05 21	608	0.3+	0.4+
1997 04 09	670	(0.9+	2.2+)	1997 04 23	557	0.3−	0.3+	1997 05 25	360	1.3+	0.9+
1997 04 09	046	0.1−	0.0	1997 04 24	046	0.3−	0.2+	1997 05 25	360	0.9+	1.0+
1997 04 09	046	0.2−	0.0	1997 04 24	046	0.2−	0.0	1997 05 25	360	1.0+	1.1+
1997 04 09	046	0.3−	0.0	1997 04 24	046	0.4−	0.0	1997 05 25	046	0.2+	0.9+
1997 04 09	046	0.1−	0.0	1997 04 24	046	0.5−	0.0	1997 05 27	608	(2.5−	0.1−)
1997 04 09	046	0.1−	0.1−	1997 04 25	402	0.9+	0.4+	1997 05 27	608	(2.8−	1.1−)
1997 04 09	046	0.2−	0.1−	1997 04 25	402	1.1+	0.3+	1997 05 27	118	0.0	0.3−
1997 04 10	670	0.5−	0.1−	1997 04 25	402	0.8+	0.4+	1997 05 27	118	0.7−	0.6−
1997 04 10	670	0.8+	0.5−	1997 04 26	360	0.3+	0.6+	1997 05 27	118	0.0	0.6−
1997 04 10	670	0.6+	0.3−	1997 04 26	360	0.2+	0.6+	1997 05 30	587	0.5+	0.8−
1997 04 10	670	0.0	0.1−	1997 04 26	360	0.2+	0.6+	1997 05 30	587	0.4+	0.5−
1997 04 10	658	1.1−	0.8−	1997 04 27	816	0.1+	0.7+	1997 05 31	861	0.1−	1.3−
1997 04 10	658	0.1+	0.9−	1997 04 27	816	0.0	0.6+	1997 05 31	861	0.6+	0.0
1997 04 10	422	0.1−	0.4−	1997 04 27	816	0.1−	0.7+	1997 06 01	861	(2.5+	0.8−)
1997 04 10	422	0.6−	0.4−	1997 04 29	118	0.7+	0.0	1997 06 01	566	0.0	1.1−
1997 04 10	422	0.1−	0.3−	1997 04 29	118	0.6+	0.3+	1997 06 01	566	0.7+	0.7−
1997 04 10	897	0.5−	0.5+	1997 04 29	118	0.6+	0.1+	1997 06 01	566	0.6+	0.8−
1997 04 10	897	0.8+	0.9−	1997 04 29	118	0.6+	0.0	1997 06 01	046	0.4−	0.6−
1997 04 10	897	1.2−	0.5−	1997 04 29	118	0.4+	0.3+	1997 06 01	046	0.5−	0.7−
1997 04 11	670	1.5+	0.1−	1997 04 30	816	0.3+	0.0	1997 06 01	046	0.6−	0.2−
1997 04 11	670	1.6+	0.4+	1997 04 30	816	0.5+	0.1−	1997 06 04	360	0.1−	0.2−
1997 04 11	658	0.2−	0.0	1997 04 30	784	0.4+	0.2−	1997 06 04	360	0.3−	0.6−
1997 04 11	658	0.2−	0.0	1997 04 30	816	0.8+	0.3−	1997 06 04	360	0.0	0.5−

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1997 04 11	658	0.2−	1.1−	1997 04 30	816	0.8+	0.2−	1997 06 06	784	0.2−	0.6−
1997 04 11	670	1.4+	0.3+	1997 04 30	816	0.6+	0.1−	1997 06 06	784	0.4−	0.6−
1997 04 11	046	0.1+	0.5+	1997 04 30	784	0.4+	0.2−	1997 06 07	046	0.7−	0.2−
1997 04 11	046	1.2+	1.2−	1997 04 30	118	0.2+	0.1+	1997 06 07	046	0.6−	0.6−
1997 04 11	046	0.3+	0.6−	1997 04 30	118	0.3+	0.0	1997 06 07	046	0.9−	0.2−
1997 04 11	046	0.4+	1.0−	1997 04 30	118	0.5+	0.0	1997 06 09	118	0.6−	0.5+
1997 04 11	557	0.8+	0.1+	1997 04 30	118	0.1+	0.2+	1997 06 09	118	0.6−	0.2+
1997 04 11	557	0.7+	0.4−	1997 04 30	587	0.1−	0.1+	1997 06 10	557	0.4−	1.0−
1997 04 11	557	0.8+	0.5−	1997 04 30	587	0.1+	0.2−	1997 06 10	557	1.1−	0.2−
1997 04 12	658	0.3−	0.2−	1997 04 30	587	0.4+	0.6−	1997 06 12	402	1.6−	0.1−
1997 04 12	658	1.6−	0.3−	1997 05 01	402	0.2+	0.0	1997 06 12	360	0.7−	0.1+
1997 04 12	658	0.1−	0.3−	1997 05 01	402	0.2+	0.0	1997 06 12	402	1.4−	1.0−
1997 04 12	367	1.1+	0.1−	1997 05 01	402	0.2−	0.1+	1997 06 12	402	0.6−	0.6−
1997 04 12	367	0.7+	0.1+	1997 05 01	104	0.2−	0.3+	1997 06 12	360	0.6−	0.2−
1997 04 12	367	0.4−	0.4+	1997 05 01	104	0.3−	0.4+	1997 06 12	360	1.1−	0.0
1997 04 12	108	0.9+	1.3−	1997 05 01	104	0.2+	0.3+	1997 06 18	608	1.0+	0.0
1997 04 12	108	0.3−	1.0+	1997 05 01	104	0.2+	0.0	1997 06 18	608	0.3+	1.4−
1997 04 12	108	(0.4−	2.0+)	1997 05 01	046	0.1+	0.0	1997 06 29	360	0.9+	0.5−
1997 04 13	670	0.5+	0.4−	1997 05 01	046	0.0	0.0	1997 06 29	360	0.5+	0.1−
1997 04 13	670	0.4−	0.3−	1997 05 01	046	0.1−	0.0	1997 06 29	360	0.9+	0.6−
1997 04 13	670	0.1+	0.2+	1997 05 01	046	0.1−	0.1+				
1997 04 13	670	0.3−	0.4+	1997 05 01	557	0.2+	0.1−				

1997 JD

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	225.90751		(2000.0)	P	Q
<i>n</i>	0.18343920	ω	241.92355	−0.32035890	−0.94076141
<i>a</i>	3.0676651	Ω	227.21289	+0.91356839	−0.27581122
<i>e</i>	0.0804139	<i>i</i>	8.70549	+0.25052540	−0.19722105
<i>P</i>	5.37	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 04 11	691	0.6+	0.7+	1997 05 02	557	0.4+	0.3+	1998 06 24	704	0.0	1.0−
1997 04 11	691	0.7+	0.8+	1997 05 03	557	0.5+	0.5−	1998 06 24	704	1.3+	0.6−
1997 04 11	691	0.6+	0.8+	1997 05 03	557	0.5−	0.3−	1998 06 24	704	(0.3+	2.6−)
1997 05 01	557	0.6−	0.3+	1997 05 03	557	0.3−	0.2−	1999 08 02	557	0.1+	0.1+
1997 05 01	557	0.2−	0.1+	1997 06 01	557	0.5−	0.1−	1999 08 02	557	0.5−	0.3+
1997 05 01	557	0.4−	0.3−	1997 06 01	557	(2.3+	0.8−)	1999 08 02	557	0.2−	0.1+
1997 05 01	557	0.6−	0.2+	1997 06 01	557	0.7+	0.4−	1999 08 03	557	0.4−	0.0
1997 05 02	557	0.5−	0.5−	1997 06 01	557	(0.4−	2.1−)	1999 08 03	557	0.2−	0.5+
1997 05 02	557	0.1+	0.1−	1998 06 24	704	1.2−	1.1+	1999 08 03	557	0.8+	0.0

1997 KS

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	187.47955		(2000.0)	P	Q
<i>n</i>	0.25597020	ω	73.65514	+0.47929829	+0.87479111
<i>a</i>	2.4566490	Ω	225.20652	−0.83850933	+0.43260389
<i>e</i>	0.1359416	<i>i</i>	5.72636	−0.25918188	+0.21816140
<i>P</i>	3.85	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1995 02 03	691	0.1+	0.5−	1997 05 22	327	0.3−	0.3−	1997 07 13	327	0.1+	0.0
1995 02 03	691	0.1−	0.2−	1997 05 31	327	0.0	0.1+	1997 07 13	327	0.2+	0.9−
1995 02 03	691	0.0	0.3−	1997 05 31	327	0.1−	0.3+	1997 07 24	327	0.5−	0.0
1997 05 20	327	0.6−	1.1+	1997 05 31	327	0.1−	0.4+	1997 07 24	327	0.1+	0.3+
1997 05 20	327	0.4+	0.4+	1997 06 01	327	0.1+	0.3+	1997 07 24	327	0.2−	0.3+
1997 05 20	327	0.3−	0.5−	1997 06 01	327	0.1−	0.5+	1998 12 15	704	0.3+	0.5+
1997 05 22	327	0.9+	0.3−	1997 06 01	327	0.1−	0.1−	1998 12 15	704	0.1−	0.9−
1997 05 22	327	0.3−	0.1+	1997 06 01	327	0.5+	0.0	1998 12 15	704	0.9+	1.6+
1997 05 22	327	0.3−	0.8−	1997 07 13	327	0.4+	0.3−	1998 12 15	704	1.1−	0.0

1997 PD₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	238.96356		(2000.0)	P	Q
<i>n</i>	0.30340080	ω	0.79033	+0.62942269	+0.77378673
<i>a</i>	2.1934357	Ω	308.22050	−0.71343836	+0.53909626
<i>e</i>	0.1951927	<i>i</i>	5.20572	−0.30794931	+0.33260986
<i>P</i>	3.25	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 08 05	428	0.5−	0.5+	1997 08 25	428	0.5+	0.0	1998 11 24	691	0.6+	0.7−
1997 08 05	428	0.2−	0.7+	1997 08 26	428	0.2+	0.0	1998 11 24	691	0.4+	0.4−
1997 08 07	428	0.0	0.5−	1997 08 28	428	0.6+	0.2+	1998 11 24	691	1.0+	0.3−
1997 08 07	428	0.0	0.5−	1997 09 03	428	0.2+	0.4−	1999 01 17	691	0.7−	0.3−
1997 08 10	428	0.4+	0.1+	1997 10 24	428	0.2−	0.2−	1999 01 17	691	0.8−	0.3−
1997 08 13	428	0.3+	1.1−	1997 10 30	428	1.7−	0.5+	1999 01 17	691	0.5−	0.1+
1997 08 25	428	0.5+	0.2−	1997 10 30	428	1.5−	0.9+				
1997 08 25	428	0.4+	0.3−	1997 12 01	428	1.0+	0.2−				

1997 SP₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	169.42004		(2000.0)	P	Q
<i>n</i>	0.28503721	ω	267.32174	+0.71155633	−0.70260946
<i>a</i>	2.2866604	Ω	137.31492	+0.64768579	+0.65300169
<i>e</i>	0.1834971	<i>i</i>	0.44345	+0.27237971	+0.28271671
<i>P</i>	3.46	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1995 02 02	691	0.1+	0.5+	1997 10 17	557	0.3+	0.1−	1997 11 21	595	0.9−	0.3−
1995 02 02	691	0.0	0.0	1997 10 25	595	0.7−	0.0	1997 11 21	595	0.5+	1.1+
1995 02 02	691	0.0	0.3+	1997 10 25	595	0.1−	0.3+	1997 12 05	595	0.6+	0.8−
1997 09 22	595	0.2+	0.7+	1997 11 03	557	0.0	0.0	1997 12 05	595	0.9+	0.5−
1997 09 22	595	0.4−	0.1+	1997 11 03	557	0.3−	0.0	1997 12 06	595	0.6+	1.9−
1997 09 23	595	0.3−	0.7+	1997 11 04	557	0.3−	0.3−	1997 12 06	595	(3.3+	0.3−)
1997 09 23	595	0.6−	0.1−	1997 11 04	557	0.0	0.1+	1999 05 05	691	0.5−	0.3−
1997 09 29	595	0.5+	0.2+	1997 11 05	557	0.0	0.1−	1999 05 05	691	0.0	0.4−
1997 09 29	595	1.4+	0.5−	1997 11 05	557	0.2−	0.0	1999 05 05	691	0.0	0.5−
1997 10 17	557	0.4+	0.7−	1997 11 05	557	0.2−	0.3+				
1997 10 17	557	0.3−	0.2−	1997 11 05	557	0.5−	0.4+				

1997 SE₅ = 1990 WA₁₆

Id. DANEOPS, S. Nakano, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	93.90303		(2000.0)	P	Q
<i>n</i>	0.13709619	ω	56.45928	+0.96282109	+0.26664218
<i>a</i>	3.7249387	Ω	288.04372	−0.26049518	+0.87394752
<i>e</i>	0.6672643	<i>i</i>	2.61195	−0.07153890	+0.40634674
<i>P</i>	7.19	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 0

Residuals in seconds of arc

1982 04 20	413	1.5+	0.3+	1997 10 10	700	0.2−	0.2+	1997 10 30	557	0.2+	0.1+
1982 04 20	413	0.7−	0.2−	1997 10 10	700	0.3+	0.1−	1997 10 30	557	0.1+	0.2+
1990 10 16	675	1.9−	0.9+	1997 10 10	700	0.2−	0.1−	1997 10 30	557	0.2+	0.0
1990 10 16	675	0.2−	0.1+	1997 10 10	700	0.5−	0.1−	1997 10 30	557	0.3+	0.1+
1990 11 20	095	0.1−	0.5+	1997 10 10	712	0.0	1.1+	1997 10 30	557	0.3+	0.3+
1990 11 20	095	1.7+	0.6+	1997 10 10	712	0.5+	0.7+	1997 10 31	557	0.5+	0.1−
1997 06 28	704	1.1+	0.6+	1997 10 10	712	(2.2−	0.2+)	1997 10 31	557	0.7+	0.1−
1997 06 28	704	0.8+	0.6+	1997 10 10	712	0.4+	0.4+	1997 10 31	138	0.5+	0.2+
1997 06 28	704	0.9−	0.6+	1997 10 12	670	0.3−	1.2−	1997 10 31	618	0.4−	0.5+
1997 06 28	704	0.1−	0.1+	1997 10 12	670	0.8−	0.6−	1997 10 31	557	0.5+	0.0
1997 06 28	704	0.9−	0.2+	1997 10 12	670	0.1−	0.6−	1997 10 31	618	0.5−	0.2+
1997 06 28	704	0.5−	0.1−	1997 10 13	118	0.5−	0.9−	1997 10 31	138	1.0+	0.2+
1997 06 29	704	(1.8−	3.3−)	1997 10 13	118	0.4−	0.9−	1997 10 31	618	0.5+	1.2+
1997 06 29	704	0.8−	0.0	1997 10 15	712	1.4+	0.2−	1997 10 31	138	1.2+	0.7+
1997 06 29	704	(1.5−	2.4+)	1997 10 15	712	1.9+	0.4−	1997 10 31	618	1.0−	0.3−
1997 06 29	704	0.3−	0.4+	1997 10 15	712	0.2+	0.8−	1997 10 31	138	0.6−	0.4−

1997 06 29	704	1.3-	1.4+	1997 10 15	712	1.4+	0.2-	1997 10 31	618	0.8+	0.6-	1997 10 01	670	0.8+	0.1+	1997 10 24	966	0.1+	0.3+	1997 11 23	670	0.0	0.0
1997 07 02	704	1.1-	0.1-	1997 10 15	712	0.1-	0.5-	1997 10 31	557	0.6+	0.1-	1997 10 01	670	0.5+	0.1-	1997 10 24	957	0.4+	1.3+	1997 11 29	566	0.7-	0.6+
1997 07 02	704	1.1-	0.2+	1997 10 15	712	1.6+	0.4-	1997 10 31	557	0.5+	0.1-	1997 10 01	402	0.1-	0.2-	1997 10 24	957	1.5+	0.2+	1997 11 29	566	0.5-	0.3+
1997 07 02	704	0.6-	0.1+	1997 10 15	712	0.3+	1.4-	1997 11 01	046	1.0+	0.4+	1997 10 01	402	1.0+	0.1+	1997 10 24	957	0.8+	1.9+	1997 11 29	566	1.0-	0.4+
1997 07 02	704	0.6-	0.3-	1997 10 16	670	0.8-	0.3-	1997 11 01	046	1.0+	0.3+	1997 10 01	402	0.8+	0.0	1997 10 25	700	0.2-	0.3+	1997 11 30	360	0.1+	0.4+
1997 07 02	704	1.2-	0.4+	1997 10 16	658	1.4-	0.8-	1997 11 01	046	1.0+	0.5+	1997 10 01	897	1.1+	0.1-	1997 10 25	700	0.2-	0.5+	1997 11 30	360	0.0	0.5+
1997 09 28	566	0.0	0.5+	1997 10 16	658	1.5-	1.3-	1997 11 01	557	0.8+	0.2+	1997 10 01	897	1.6+	0.2+	1997 10 25	700	0.2-	0.8+	1997 11 30	360	0.1+	0.4+
1997 09 28	566	0.1-	0.6+	1997 10 16	658	(0.3-	2.2-)	1997 11 01	138	0.6-	1.3+	1997 10 01	897	1.3+	0.1-	1997 10 25	670	0.1+	0.4+	1997 12 01	587	0.2+	0.1-
1997 09 28	566	0.5-	0.6+	1997 10 16	670	0.3-	0.1-	1997 11 01	957	0.2-	0.4+	1997 10 01	476	(2.1+	0.7+)	1997 10 25	670	0.2+	0.4+	1997 12 01	587	0.1-	0.0
1997 09 28	046	0.1+	0.4+	1997 10 16	670	0.7-	0.1-	1997 11 01	557	1.0+	0.2+	1997 10 01	476	0.0	0.3-	1997 10 25	670	0.0	0.5+	1997 12 02	355	0.4+	0.0
1997 09 28	046	0.1+	0.4+	1997 10 17	046	0.4-	0.5-	1997 11 01	957	(0.6+	3.0+)	1997 10 01	619	1.7+	0.3+	1997 10 25	422	0.2+	0.3+	1997 12 02	355	0.5+	0.3+
1997 09 28	046	0.1+	0.4+	1997 10 17	046	0.5-	0.7-	1997 11 01	138	(0.5+	2.3+)	1997 10 01	619	1.6+	0.2+	1997 10 25	422	0.0	0.3+	1997 12 02	355	0.2+	0.2+
1997 09 28	046	0.2+	0.4+	1997 10 17	046	0.6-	0.7-	1997 11 01	957	0.2-	0.8+	1997 10 01	619	1.7+	0.3+	1997 10 25	422	0.1+	0.3+	1997 12 06	046	0.1-	0.2+
1997 09 28	046	0.0	0.4+	1997 10 17	046	0.5-	0.5-	1997 11 01	957	1.2+	0.2+	1997 10 03	402	0.4+	0.1-	1997 10 25	124	0.1-	0.5+	1997 12 06	046	0.2-	0.2+
1997 09 28	046	0.1+	0.5+	1997 10 18	861	0.6-	0.9-	1997 11 01	557	1.0+	0.2+	1997 10 03	402	0.3+	0.0	1997 10 25	957	0.1+	0.7+	1997 12 06	046	0.2-	0.0
1997 09 29	670	0.4+	0.2-	1997 10 18	861	0.1+	0.7-	1997 11 01	138	0.9+	0.8+	1997 10 03	402	0.3+	0.0	1997 10 25	957	0.1+	0.7+	1997 12 06	046	0.2-	0.0
1997 09 29	670	0.3+	0.3-	1997 10 18	861	0.8-	0.8-	1997 11 01	957	1.5+	0.5+	1997 10 03	402	0.3+	0.0	1997 10 25	124	0.3+	0.6+	1997 12 18	046	0.8+	0.3+
1997 09 29	670	0.3+	0.1-	1997 10 18	658	1.2-	0.1-	1997 11 01	557	1.0+	0.2+	1997 10 03	108	0.7+	0.2-	1997 10 25	124	(2.4-	1.1+)	1997 12 18	046	1.3+	0.3+
1997 09 29	670	0.5+	0.2-	1997 10 18	658	0.6-	1.1-	1997 11 02	670	0.6+	0.3+	1997 10 03	108	0.9+	0.7+	1997 10 25	957	0.3+	0.0	1997 12 18	046	0.9+	0.2+
1997 09 29	670	0.3+	0.1-	1997 10 18	658	1.5-	0.5-	1997 11 02	670	0.7+	0.1+	1997 10 03	108	0.9+	0.2-	1997 10 25	124	0.2+	0.3+	1997 12 21	360	0.4+	0.8+
1997 09 29	670	0.4+	0.2-	1997 10 18	108	0.4+	0.4-	1997 11 02	670	0.8+	0.2-	1997 10 03	108	(2.0+	1.0+)	1997 10 25	124	0.2-	0.3+	1997 12 21	360	0.7+	0.8+
1997 09 29	566	0.0	0.4-	1997 10 18	108	0.2-	0.8-	1997 11 02	587	0.5+	0.6+	1997 10 03	046	0.0	0.1+	1997 10 25	957	0.3-	0.1+	1997 12 21	360	1.1+	0.8+
1997 09 29	566	0.2+	0.3-	1997 10 19	712	1.5+	0.0	1997 11 02	587	0.6+	0.7+	1997 10 03	046	0.1-	0.2+	1997 10 25	618	0.5-	0.8-	1997 12 28	566	0.8-	0.3-
1997 09 29	566	0.3-	0.3-	1997 10 19	712	1.6+	0.0	1997 11 03	557	0.3+	0.2+	1997 10 03	046	0.1+	0.2+	1997 10 25	618	0.8+	0.2-	1997 12 28	566	0.2-	0.5-
1997 09 29	900	0.1-	0.5+	1997 10 19	712	1.4+	0.1+	1997 11 03	557	0.1+	0.1+	1997 10 03	046	0.0	0.1+	1997 10 25	618	0.2-	0.7+	1997 12 28	566	0.5-	0.4-
1997 09 29	900	0.1-	0.2+	1997 10 19	712	1.3+	0.0	1997 11 03	557	0.2+	0.1+	1997 10 03	046	0.0	0.1+	1997 10 25	618	0.2-	0.7+	1997 12 28	566	0.5-	0.4-
1997 09 29	360	0.3-	0.5+	1997 10 20	355	0.5-	0.2-	1997 11 03	557	0.2+	0.2+	1997 10 03	861	0.5-	0.2-	1997 10 25	618	0.3+	0.3+	1997 12 30	046	0.1-	0.2+
1997 09 29	360	0.4-	0.4+	1997 10 20	355	0.1-	0.1-	1997 11 04	402	0.1-	0.3+	1997 10 04	861	0.4-	0.1-	1997 10 26	700	0.0	0.1-	1997 12 30	046	0.6+	0.0
1997 09 29	360	0.3-	0.3+	1997 10 20	355	0.1-	0.3-	1997 11 04	402	0.1-	0.4+	1997 10 04	861	0.8-	0.0	1997 10 26	700	0.1+	0.0	1997 12 30	046	0.4+	0.1+
1997 09 29	046	0.2+	0.3+	1997 10 20	118	0.0	0.3-	1997 11 04	402	0.2-	0.3+	1997 10 04	046	0.4-	0.1+	1997 10 26	700	0.4-	0.1+	1998 01 02	711	0.8-	0.0
1997 09 29	046	0.2+	0.1+	1997 10 20	118	0.1-	0.1-	1997 11 05	381	0.5-	0.1+	1997 10 04	046	0.0	0.2+	1997 10 26	566	0.0	0.0	1998 01 02	711	0.4+	0.0
1997 09 29	046	0.4+	0.1+	1997 10 20	118	0.2-	0.3-	1997 11 05	381	0.5-	0.2+	1997 10 04	046	0.2-	0.2+	1997 10 26	566	0.8-	0.0	1998 01 03	711	0.1+	0.3+
1997 09 29	557	0.5+	0.1+	1997 10 21	658	1.1-	0.2-	1997 11 05	360	0.6-	0.2+	1997 10 04	861	0.5-	0.5-	1997 10 26	566	0.9-	0.1-	1998 01 03	711	0.5-	0.2+
1997 09 29	557	0.5+	0.1+	1997 10 21	658	0.9-	0.3-	1997 11 05	360	0.5-	0.3+	1997 10 04	861	0.2-	0.7-	1997 10 26	104	0.2-	0.6+	1998 01 09	658	0.5-	0.5+
1997 09 29	557	0.3+	0.2+	1997 10 21	658	1.3-	0.2-	1997 11 05	360	0.5-	0.4+	1997 10 04	861	0.2-	0.7-	1997 10 26	104	0.2-	0.6+	1998 01 09	658	0.4-	0.4+
1997 09 29	557	0.3+	0.1+	1997 10 21	360	0.5-	0.3-	1997 11 06	422	0.6-	0.3-	1997 10 05	670	0.4+	0.0	1997 10 26	104	0.1-	0.5+	1998 01 09	658	0.4-	0.4+
1997 09 29	587	0.5+	0.2+	1997 10 21	360	0.5-	0.3-	1997 11 06	422	0.9-	0.3-	1997 10 05	710	1.0+	0.1+	1997 10 26	104	0.1+	0.2-	1998 01 09	658	0.7-	0.4+
1997 09 29	587	0.4+	0.3+	1997 10 21	360	0.5-	0.2-	1997 11 06	422	0.8-	0.4-	1997 10 05	670	0.2-	0.0	1997 10 26	104	0.1+	0.3-	1998 01 10	046	0.1-	0.4+
1997 09 29	587	0.6+	0.1+	1997 10 21	557	0.4-	0.3-	1997 11 09	658	1.6+	1.4-	1997 10 05	670	0.1+	0.2+	1997 10 26	124	0.6-	0.5+	1998 01 10	046	0.4-	0.1+
1997 09 29	958	0.2+	0.1+	1997 10 21	557	0.4-	0.2-	1997 11 09	658	1.0-	0.2-	1997 10 05	700	0.3+	0.3+	1997 10 26	124	0.1-	0.1+	1998 01 10	046	0.0	0.2+
1997 09 29	958	0.3+	0.3+	1997 10 21	557	0.5-	0.3-	1997 11 09	658	0.5-	1.5-	1997 10 05	700	0.4+	0.3+	1997 10 26	124	0.8-	0.6-	1998 01 24	566	0.2-	0.6+
1997 09 29	958	0.1+	0.1+	1997 10 21	557	0.5-	0.2-	1997 11 11	426	0.1+	0.5-	1997 10 05	700	0.2+	0.4+	1997 10 26	124	0.2+	0.6-	1998 01 24	566	0.1-	0.2+
1997 09 29	958	0.2+	0.3+	1997 10 21	557	0.4-	0.3-	1997 11 11	426	0.1-	0.7-	1997 10 05	710	0.1+	0.2+	1997 10 26	618	0.2-	0.1+	1998 01 24	566	0.1-	0.6+
1997 09 29	958	0.2+	0.5+	1997 10 22	422	0.7-	0.4-	1997 11 11	426	0.3+	0.5-	1997 10 05	700	0.4+	0.3+	1997 10 26	618	0.5-	0.1+	1998 01 29	046	1.0+	0.9+
1997 09 29	619	0.1+	0.5-	1997 10 22	422	0.6-	0.3-	1997 11 11	426	0.5-	0.7-	1997 10 05	046	0.1+	0.1+	1997 10 26	618	0.2+	0.0	1998 01 29	046	0.4+	1.4+
1997 09 29	958	0.1+	0.4+	1997 10 22	422	0.7-	0.4-	1997 11 12	658	0.7-	0.1-	1997 10 05	046	0.2+	0.1+	1997 10 26	618	0.2+	0.0	1998 01 29	046	0.9+	0.9+
1997 09 29	958	0.1+	0.3+	1997 10 22	557	0.5-	0.2-	1997 11 12	658	0.3-	0.0	1997 10 05	046	0.1-	0.1+	1997 10 26	618	0.3-	0.7+	1998 02 08	046	0.4-	0.2-
1997 09 29	619	0.5-	0.5-	1997 10 22	046	0.5-	0.0	1997 11 12	658	0.7-	0.1+	1997 10 05	540	0.0	0.2+	1997 10 27	046	0.6-	0.1-	1998 02 08	046	0.3-	0.3+
1997 09 29	476	1.9+	1.2-	1997 10 22	046	0.5-	0.2-	1997 11 14	104	0.3-	0.2-	1997 10 05	540	0.1-	0.1+	1997 10 27	046	0.2-	0.0	1998 02 08	046	0.0	0.3+
1997 09 29	619	0.7-	0.3-	1997 10 22	046	0.6-	0.1-	1997 11 14	104	0.3-	0.2+	1997 10 05	540	0.1+	0.3+	1997 10 27	046	0.5-	0.1-	1998 02 23	557	0.0	0.5+
1997 09 29	476	0.7+	0.5-	1997 10 22	118	0.7-	0.1-	1997 11 14	104	0.2-	0.3+	1997 10 06	710	0.0	0.3+	1997 10 28	861	0.2-	0.1+	1998 02 23	557	1.1+	0.1+
1997 09 29	958	0.5+	0.8+	1997 10 22	557	0.6-	0.2-																

1999 AUG. 31

M.P.C. 35613

1997 SJ₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	186.32411		(2000.0)	P	Q
<i>n</i>	0.26226363	ω	337.12299	+0.99179744	-0.12555475
<i>a</i>	2.4171893	Ω	30.12024	+0.12341141	+0.89183196
<i>e</i>	0.2197814	<i>i</i>	2.73614	+0.03327854	+0.43459379
<i>P</i>	3.76	<i>H</i>	15.7	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1996 04 20	809	2.0+	3.8+	1997 10 05	684	0.1-	0.1+	1997 11 19	684	0.0	0.5+
1996 04 20	809	1.9+	5.8+	1997 10 23	684	0.4-	0.4+	1997 11 30	684	0.5-	0.6+
1996 04 20	809	0.9+	4.1+	1997 10 23	684	0.4-	0.1+	1997 11 30	684	0.7-	0.6+
1997 09 30	684	0.1+	0.1-	1997 10 23	684	0.5-	0.3+	1997 12 01	684	0.7-	0.1+
1997 09 30	684	0.1+	0.0	1997 10 24	684	0.1-	0.2+	1997 12 01	684	0.8-	0.0
1997 10 01	684	0.1+	0.3+	1997 10 27	684	0.7-	1.4+	1999 02 20	684	0.1+	0.2+
1997 10 01	684	0.2+	0.1-	1997 10 27	684	0.5-	0.9+	1999 02 20	684	0.9+	0.4-
1997 10 01	684	0.0	0.0	1997 10 27	684	0.5-	1.9+	1999 02 21	684	0.3+	0.4-
1997 10 02	684	0.1-	0.3+	1997 11 18	684	0.6+	1.1+	1999 02 21	684	1.3-	1.0+
1997 10 02	684	0.1-	0.3+	1997 11 18	684	0.3+	0.7+	1999 03 06	684	0.3+	0.3+
1997 10 02	684	0.2-	0.3+	1997 11 18	684	0.2+	0.6+	1999 03 06	684	0.5+	0.1+
1997 10 05	684	0.0	0.0	1997 11 19	684	0.3-	0.5+	1999 03 07	684	0.4+	0.3+
1997 10 05	684	0.2-	0.1-	1997 11 19	684	0.2-	0.3+	1999 03 07	684	0.4-	0.6+

1997 TA₁₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	173.27167		(2000.0)	P	Q
<i>n</i>	0.22988245	ω	226.04577	+0.59407154	-0.80397894
<i>a</i>	2.6391587	Ω	187.64332	+0.78313309	+0.58554330
<i>e</i>	0.1792158	<i>i</i>	11.44782	+0.18379764	+0.10371556
<i>P</i>	4.29	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1992 09 30	691	0.1+	0.4-	1997 11 06	402	0.1-	0.3+	1998 01 16	402	0.4+	0.2+
1992 09 30	691	0.0	0.3-	1997 11 06	402	0.0	0.3+	1998 01 16	402	0.4+	0.3+
1992 09 30	691	0.1-	0.2-	1997 11 06	402	0.1-	0.1-	1998 01 16	402	0.5+	0.3+
1993 01 24	691	0.3+	0.8+	1997 12 04	402	0.1+	0.1-	1998 01 30	402	0.2-	0.4+
1993 01 24	691	(2.6+	3.3+)	1997 12 04	402	0.5-	0.2+	1998 01 30	402	0.2-	0.4+
1997 10 08	402	0.3+	0.2+	1997 12 04	402	0.2-	0.0	1998 01 30	402	0.4-	0.4+
1997 10 08	402	0.4+	0.5+	1997 12 05	402	0.1+	0.2-	1998 02 11	402	0.1+	0.2-
1997 10 08	402	0.0	0.3-	1997 12 05	402	0.2+	0.2-	1998 02 11	402	0.9+	0.6-
1997 10 10	402	0.4+	0.5-	1997 12 05	402	0.0	0.4-	1998 02 11	402	0.2-	0.8+
1997 10 10	402	0.3+	0.3-	1997 12 09	402	0.0	0.2-	1998 03 02	402	0.1-	0.4+
1997 10 10	402	0.1+	0.1+	1997 12 09	402	0.1-	0.3-	1998 03 02	402	0.4+	0.2+
1997 10 12	402	0.3-	0.6+	1997 12 09	402	0.1-	0.5-	1998 03 02	402	0.0	0.1+
1997 10 12	402	0.1+	0.6+	1997 12 25	402	0.4-	1.1-	1999 05 13	704	0.6-	0.9+
1997 10 12	402	0.1-	0.6+	1997 12 25	402	0.3-	1.2-	1999 05 13	704	1.4+	1.1+
1997 11 01	402	0.6+	0.0	1997 12 25	402	0.1-	1.2-	1999 05 13	704	1.2-	0.9-
1997 11 01	402	0.5+	0.2-	1998 01 02	900	1.6-	0.4+	1999 05 13	704	0.6+	1.8-
1997 11 01	402	0.6+	0.1+	1998 01 02	900	0.4-	0.5+				

1997 TX₁₈ = 1995 FM₆Id. A. Doppler (*MPC* 32969); 1997 TX₁₈ = 1987 QP₁₁ (*ibid.*) is invalid.

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	224.76255		(2000.0)	P	Q
<i>n</i>	0.20469435	ω	157.07133	+0.18789447	+0.98123715
<i>a</i>	2.8514482	Ω	123.73305	-0.90900600	+0.19039934
<i>e</i>	0.0475664	<i>i</i>	2.98009	-0.37202657	+0.03036044
<i>P</i>	4.82	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1995 03 01	691	(1.0-	5.1-)	1995 03 29	691	0.1-	0.3+	1997 10 09	327	0.0	0.1-
1995 03 01	691	0.0	0.1-	1995 03 29	691	0.0	0.5+	1997 10 09	327	0.3-	0.1-
1995 03 01	691	0.2+	0.2+	1995 04 04	691	0.6+	0.5-	1997 10 09	327	0.0	0.2-
1995 03 23	691	0.2-	0.0	1995 04 04	691	0.3+	0.2-	1997 10 11	327	1.1+	0.5+
1995 03 23	691	0.1+	0.3-	1997 10 08	327	0.7-	0.3+	1997 10 11	327	0.2-	0.0

1995 03 23	691	0.3-	0.0	1997 10 08	327	0.0	0.5+	1997 10 11	327	0.2-	1.1-
1995 03 29	691	0.5-	0.0	1997 10 08	327	0.3+	0.1+				

1997 TJ₂₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	53.26238		(2000.0)	P	Q
<i>n</i>	0.18493070	ω	233.75587	-0.19755794	-0.97335879
<i>a</i>	3.0511487	Ω	228.07038	+0.94210363	-0.15570694
<i>e</i>	0.0716529	<i>i</i>	8.99959	+0.27094576	-0.16830926
<i>P</i>	5.33	<i>H</i>	12.7	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1996 06 11	691	0.1-	0.4+	1997 10 11	327	0.2-	0.1+	1997 10 27	959	0.3+	0.6+
1996 06 11	691	0.1-	0.1+	1997 10 11	327	0.4-	0.1-	1997 10 27	959	0.3-	0.4+
1996 06 11	691	0.0	0.0	1997 10 20	327	0.1+	0.1-	1997 10 27	959	0.9+	0.7-
1997 10 05	327	0.1+	0.6+	1997 10 20	327	0.3+	0.2+	1997 12 28	566	0.2-	0.5-
1997 10 05	327	0.6-	0.2+	1997 10 20	327	0.4+	0.1-	1997 12 28	566	0.2+	0.1-
1997 10 05	327	0.3+	0.8+	1997 10 21	327	0.3+	0.1+	1997 12 28	566	0.4-	0.1-
1997 10 08	132	0.5-	0.1+	1997 10 21	327	0.2+	0.2+	1998 12 18	699	0.1-	0.5+
1997 10 08	132	0.7+	1.7-	1997 10 21	327	0.1+	0.3+	1998 12 18	699	0.1+	0.6+
1997 10 08	132	0.0	0.5+	1997 10 24	132	0.4+	1.0+	1998 12 18	699	0.3+	0.4+
1997 10 10	132	0.2-	0.1-	1997 10 25	132	0.3+	0.2-	1999 04 07	704	0.2+	1.0-
1997 10 10	132	0.7-	1.0-	1997 10 25	132	0.5-	0.2+	1999 04 07	704	1.5-	0.9+
1997 10 10	132	0.2+	0.6-	1997 10 26	124	0.0	0.2-	1999 04 07	704	1.1+	0.1-
1997 10 11	327	0.4-	0.2-	1997 10 26	124	0.4-	0.2-	1999 04 07	704	0.1-	1.1-
1997 10 11	327	0.2-	0.2-	1997 10 26	124	0.3+	0.1-				

1997 VW

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	23.94257		(2000.0)	P	Q
<i>n</i>	0.22472418	ω	289.21705	-0.97956879	+0.08212614
<i>a</i>	2.6793915	Ω	255.82568	-0.01336416	-0.93738316
<i>e</i>	0.1104347	<i>i</i>	10.91432	-0.20066484	-0.33847912
<i>P</i>	4.39	<i>H</i>	12.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1996 09 08	691	0.0	0.4-	1997 11 29	704	0.5+	0.8-	1998 12 23	704	1.3-	0.3+
1996 09 08	691	0.2+	0.5-	1997 12 02	411	0.6+	0.1-	1998 12 23	704	0.4-	1.7-
1996 09 08	691	0.1+	0.4-	1997 12 02	411	0.6+	0.0	1998 12 23	704	0.0	0.9-
1997 10 29	566	0.2-	0.2-	1997 12 04	704	1.4+	2.0+	1998 12 23	704	0.1+	0.5-
1997 10 29	566	0.5-	0.0	1997 12 04	704	(1.4+	2.5+)	1999 04 12	704	0.3+	0.0
1997 10 29	566	0.2-	0.1-	1997 12 04	704	(1.5+	3.6+)	1999 04 12	704	1.1+	0.2+
1997 11 01	411	0.3+	0.0	1997 12 04	704	(0.5+	3.2+)	1999 04 12	704	0.9+	0.1-
1997 11 01	411	1.8+	0.8-	1997 12 04	704	(0.6+	2.1+)	1999 04 12	704	(3.0-	4.7+)
1997 11 03	411	0.7+	0.6-	1997 12 25	566	0.5+	0.7+	1999 05 14	704	0.1+	0.4-
1997 11 03	411	0.3+	0.8-	1997 12 25	566	0.5+	0.1+	1999 05 14	704	0.0	0.1-
1997 11 08	411	0.1-	0.4-	1997 12 25	566	0.5+	0.2+	1999 05 14	704	(1.7-	3.0+)
1997 11 08	411	0.3-	0.4-	1998 02 19	910	1.3-	0.5+	1999 05 14	704	0.0	0.5+
1997 11 19	411	0.3-	0.3+	1998 02 19	910	1.1-	0.6+	1999 05 14	704	0.2+	1.5+
1997 11 19	411	0.5-	0.0	1998 02 19	910	1.6-	0.3+	1999 06 08	704	1.7-	0.8-
1997 11 29	704	0.3-	0.7+	1998 02 20	910	1.4-	0.8+	1999 06 08	704	1.2-	0.5-
1997 11 29	704	0.3+	0.3-	1998 02 20	910	1.2-	0.6+	1999 06 08	704	0.7-	0.1-
1997 11 29	704	0.0	0.7-	1998 02 20	910	1.4-	0.7+	1999 06 08	704	0.6-	0.0
1997 11 29	704	0.5-	0.9-	1998 12 23	704	1.6+	1.3-	1999 06 08	704	(0.0	2.1+)

1997 VZ₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	180.79643		(2000.0)	P	Q
<i>n</i>	0.25351079	ω	141.18993	+0.86991815	-0.48297747
<i>a</i>	2.4725120	Ω	247.96562	+0.42137566	+0.83307262
<i>e</i>	0.1382791	<i>i</i>	6.18538	+0.25629078	+0.26967159
<i>P</i>	3.89	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1993 10 13	691	0.2−	0.4+	1997 11 26	566	0.4+	0.5−	1997 12 04	905	0.1−	0.1+
1993 10 13	691	0.1−	0.5+	1997 11 26	566	(2.3+	0.2−)	1997 12 04	905	0.3+	0.5−
1993 10 13	691	0.1−	0.8+	1997 11 29	704	0.5+	0.6+	1997 12 18	905	0.2−	1.7−
1997 11 01	411	0.3−	1.1+	1997 11 29	704	0.3+	0.3−	1997 12 18	905	1.2−	0.5+
1997 11 01	411	0.4−	0.6+	1997 11 29	704	0.0	0.3+	1998 01 17	910	0.9−	0.2−
1997 11 05	411	0.1−	0.5+	1997 11 29	704	0.1+	0.0	1998 01 17	910	0.9−	0.3−
1997 11 05	411	0.8−	1.0+	1997 11 29	704	1.3+	0.3+	1998 01 17	910	0.8−	0.3−
1997 11 08	411	0.6+	0.6+	1997 12 04	704	0.6+	0.5−	1998 01 17	910	0.7+	1.7+
1997 11 08	411	0.7+	0.9+	1997 12 04	704	(1.2+	2.6−)	1999 04 15	704	0.6+	0.3+
1997 11 19	411	0.0	0.2+	1997 12 04	704	0.3−	1.0−	1999 04 15	704	0.3−	0.5+
1997 11 19	411	0.1−	0.1+	1997 12 04	704	0.3+	1.1−	1999 04 15	704	(5.2−	1.1−)
1997 11 26	566	0.3+	0.8−	1997 12 04	704	(2.5+	0.8−)				

1997 WY₁₉ = 1992 LK₂ = 1999 NO₆₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	71.41674		(2000.0)	P	Q
<i>n</i>	0.29339977	ω	138.63356	−0.73435026	+0.66185479
<i>a</i>	2.2430013	Ω	83.46979	−0.65578709	−0.63455878
<i>e</i>	0.1178530	<i>i</i>	8.71823	−0.17513709	−0.39910324
<i>P</i>	3.36	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1992 06 03	809	0.2+	0.2−	1997 11 30	691	0.3−	0.3+	1999 07 14	704	0.3+	0.4+
1992 06 03	809	1.1+	0.3+	1997 11 30	691	0.4−	0.0	1999 07 22	704	0.3−	0.2+
1992 06 03	809	1.1−	0.7+	1997 11 30	691	0.3−	0.1+	1999 07 22	704	0.7+	0.4−
1997 11 24	691	0.2+	0.5+	1999 07 14	704	0.7+	0.7−	1999 07 22	704	0.5−	0.9+
1997 11 24	691	0.5+	0.8+	1999 07 14	704	0.2+	0.1+	1999 07 22	704	0.2−	0.4+
1997 11 24	691	0.5+	0.7+	1999 07 14	704	0.1+	0.0	1999 07 22	704	1.1−	0.3+

1997 WF₂₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	143.35443		(2000.0)	P	Q
<i>n</i>	0.26285957	ω	38.00269	+0.10379815	−0.99393275
<i>a</i>	2.4135345	Ω	46.07199	+0.89970813	+0.07823958
<i>e</i>	0.1830779	<i>i</i>	2.89555	+0.42397077	+0.07730626
<i>P</i>	3.75	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 09 07	910	0.1+	0.0	1997 11 06	704	0.0	0.1+	1997 12 01	327	0.2+	0.1+
1997 09 07	910	0.3−	0.2+	1997 11 21	327	0.6−	0.3+	1997 12 01	327	0.1+	0.3−
1997 09 07	910	0.2−	0.4+	1997 11 21	327	0.6−	0.1+	1997 12 08	327	0.3−	0.2+
1997 10 13	327	0.0	0.2+	1997 11 21	327	0.7−	0.1+	1997 12 08	327	0.0	0.4+
1997 10 13	327	0.4−	0.5+	1997 11 28	327	0.0	0.3+	1997 12 08	327	0.3+	0.2−
1997 10 13	327	0.0	0.3+	1997 11 28	327	0.2+	0.3+	1999 04 09	691	0.2−	0.2+
1997 11 02	327	0.2−	0.2−	1997 11 28	327	0.4+	0.0	1999 04 09	691	0.1−	0.3+
1997 11 02	327	0.1−	0.0	1997 11 29	704	0.0	0.2−	1999 04 09	691	0.0	0.4+
1997 11 02	327	0.3−	0.3−	1997 11 29	704	1.0−	0.7−	1999 04 18	691	0.3+	0.1−
1997 11 06	704	1.0+	0.6−	1997 11 29	704	0.1−	1.0+	1999 04 18	691	(0.9+	2.9+)
1997 11 06	704	0.6+	0.2−	1997 11 29	704	0.4+	1.0−	1999 04 18	691	0.3+	0.1+
1997 11 06	704	0.8+	0.1−	1997 11 29	704	0.1+	0.2+				
1997 11 06	704	0.1+	0.1−	1997 12 01	327	0.2+	0.1+				

1997 WO₂₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	100.45285		(2000.0)	P	Q
<i>n</i>	0.21597194	ω	51.15451	−0.95030371	−0.28572411
<i>a</i>	2.7512993	Ω	111.93276	+0.22800022	−0.90913440
<i>e</i>	0.1277710	<i>i</i>	7.65901	+0.21198765	−0.30304518
<i>P</i>	4.56	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1991 10 16	691	0.1+	0.1−	1998 02 01	327	0.3+	0.1+	1998 03 01	327	0.1−	0.1+
1991 10 16	691	0.0	0.1−	1998 02 01	327	0.0	0.7+	1998 03 01	327	0.2−	0.1−
1991 10 16	691	0.1+	0.1−	1998 02 01	327	0.3+	0.3+	1998 03 01	327	0.1+	0.1+

1994 04 07	691	0.2+	0.1−	1998 02 01	327	0.1−	0.6+	1998 03 01	327	0.2−	0.1−
1994 04 07	691	0.3+	0.1−	1998 02 13	327	0.2−	0.0	1998 03 01	327	0.4+	0.6+
1994 04 07	691	0.4−	0.3+	1998 02 13	327	0.2−	0.2+	1998 03 03	704	0.7−	0.1+
1997 11 28	910	0.3−	0.1−	1998 02 13	327	0.1+	0.1+	1998 03 03	704	0.5−	0.0
1997 11 28	910	0.0	0.1−	1998 02 17	327	0.1+	0.1−	1998 03 03	704	0.2+	0.4−
1997 11 28	910	0.0	0.1−	1998 02 17	327	0.5+	0.3+	1998 03 03	704	(2.2+	1.1+)
1997 12 04	910	0.0	0.0	1998 02 17	327	0.4+	0.3−	1998 03 03	704	1.5+	0.8+
1997 12 04	910	0.3−	0.1−	1998 02 21	327	0.2−	0.4+	1998 03 04	704	0.4+	0.5−
1997 12 04	910	0.4−	0.2+	1998 02 21	327	0.2−	0.2+	1998 03 04	704	1.1+	0.2+
1998 01 24	566	0.1−	0.0	1998 02 21	327	0.2+	0.1+	1998 03 04	704	1.0−	0.6−
1998 01 24	566	0.0	0.1−	1998 02 25	566	0.2−	1.3−	1998 03 04	704	0.2+	0.6+
1998 01 24	566	0.1−	0.3+	1998 02 25	566	0.5−	1.3−	1998 03 04	704	(1.0+	2.4+)
1998 02 01	327	0.1+	0.3+	1998 02 25	566	0.1+	1.7−				
1998 02 01	327	0.2−	0.3+	1998 03 01	327	0.5−	0.1−				

1997 XY₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	212.30326		(2000.0)	P	Q
<i>n</i>	0.25839444	ω	19.89713	−0.04709303	−0.99866039
<i>a</i>	2.4412595	Ω	72.80680	+0.91339910	−0.05174069
<i>e</i>	0.0918506	<i>i</i>	1.28599	+0.40433195	+0.00056874
<i>P</i>	3.81	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 12 07	910	0.1+	0.9−	1998 03 20	704	1.3+	0.2−	1998 03 29	704	(3.6+	0.9−)
1997 12 07	910	0.2−	0.5−	1998 03 20	704	0.0	1.0−	1998 03 29	704	0.9−	0.4+
1997 12 07	910	0.4−	0.3−	1998 03 20	704	0.5−	0.3−	1998 03 29	704	0.3+	0.0
1997 12 08	910	0.1+	0.5−	1998 03 22	704	0.6+	0.4+	1998 03 29	704	0.3+	0.7+
1997 12 08	910	0.1+	0.4−	1998 03 22	704	0.6+	0.2+	1998 04 19	704	0.1−	0.2+
1997 12 08	910	0.5−	0.2−	1998 03 22	704	0.1+	0.6−	1998 04 19	704	0.6−	0.5−
1998 01 30	910	0.6−	0.8+	1998 03 22	704	0.3+	0.2−	1998 04 19	704	0.4−	0.5−
1998 01 30	910	0.4−	0.6+	1998 03 22	704	0.3−	1.3−	1998 04 19	704	0.5−	0.7−
1998 01 30	910	0.2+	0.8+	1998 03 25	566	0.4+	0.3−	1998 04 20	704	(2.6−	0.3+)
1998 02 27	910	0.3+	0.6+	1998 03 25	566	0.1−	0.0	1998 04 20	704	0.0	1.0+
1998 02 27	910	0.3+	0.6+	1998 03 25	566	0.1+	0.5−	1998 04 20	704	1.1−	0.2+
1998 02 27	910	0.3+	0.6+	1998 03 28	704	0.0	1.1−	1998 04 20	704	1.0+	0.7+
1998 02 27	910	0.2−	0.4+	1998 03 28	704	0.7−	0.4+	1999 08 14	426	0.1+	0.2+
1998 02 27	910	0.0	0.4+	1998 03 28	704	0.5+	1.5−	1999 08 14	426	0.0	0.5−
1998 02 28	910	0.2+	0.5+	1998 03 28	704	0.8−	0.3−	1999 08 14	426	0.3−	0.2−
1998 03 20	704	0.3+	0.1+	1998 03 28	704	0.5−	1.5+	1999 08 15	426	0.4−	0.2+
1998 03 20	704	0.6+	0.7−	1998 03 29	704	0.1−	1.0+	1999 08 15	426	0.6+	0.1+

1997 XK₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	215.76982		(2000.0)	P	Q
<i>n</i>	0.25674040	ω	304.45404	+0.77703733	−0.61668686
<i>a</i>	2.4517334	Ω	93.95097	+0.61100758	+0.69080852
<i>e</i>	0.1242597	<i>i</i>	7.26372	+0.15127033	+0.37746642
<i>P</i>	3.84	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 12 01	327	0.2+	0.7−	1997 12 29	566	0.2−	0.1+	1998 02 03	327	0.4−	0.3−
1997 12 01	327	0.4+	1.0−	1998 01 04	327	0.2+	0.3+	1998 02 03	327	0.6−	0.4−
1997 12 01	327	0.6+	1.0−	1998 01 04	327	0.5+	0.1+	1998 02 03	327	0.4−	0.1−
1997 12 15	327	0.8+	0.2+	1998 01 04	327	0.2+	0.3+	1999 05 12	704	1.7−	0.6−
1997 12 15	327	0.1−	0.3+	1998 01 04	327	0.2+	0.1+	1999 05 12	704	(1.6−	2.3+)
1997 12 15	327	0.6+	1.2+	1998 01 07	327	0.0	0.2+	1999 05 12	704	1.0−	0.8+
1997 12 22	327	0.2−	0.1−	1998 01 07	327	0.2+	0.2−	1999 05 12	704	0.2−	0.8+
1997 12 22	327	0.2−	0.1−	1998 01 07	327	0.2−	0.0	1999 05 12	704	(5.2−	0

1997 YB₇ = 1990 WU₇ = 1999 GP₃₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	225.20417		(2000.0)	P	Q
<i>n</i>	0.28150655	ω	242.19421	+0.98753979	-0.05172868
<i>a</i>	2.3057403	Ω	120.42562	+0.09643092	+0.94526156
<i>e</i>	0.1448779	<i>i</i>	9.92512	-0.12436337	+0.32218741
<i>P</i>	3.50	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1990 11 20	413	1.6-	0.2-	1997 12 29	566	0.4-	0.6+	1999 04 12	704	1.0-	0.6-
1990 11 20	413	1.6+	0.2+	1997 12 29	566	1.0-	0.5+	1999 04 16	704	(1.1+	3.5+)
1997 12 25	566	0.3-	0.6-	1999 04 10	699	0.7-	0.4-	1999 04 16	704	1.5+	1.6-
1997 12 25	566	0.3-	0.0	1999 04 10	699	1.0+	0.1+	1999 04 16	704	0.2+	0.9+
1997 12 25	566	0.1+	0.2-	1999 04 10	699	0.0	0.9+	1999 04 16	704	(2.7-	0.3-)
1997 12 28	566	(2.5+	0.2-)	1999 04 12	704	0.1-	0.0	1999 04 19	703	0.5+	0.1+
1997 12 28	566	1.7+	0.1-	1999 04 12	704	0.8-	0.3-	1999 04 19	703	0.1-	1.2+
1997 12 28	566	1.6+	0.5-	1999 04 12	704	0.5+	0.0	1999 04 19	703	1.0-	0.8+
1997 12 29	566	1.5-	0.3+	1999 04 12	704	0.7+	0.3-	1999 04 19	703	0.6-	0.6-

1997 YC₈ = 1999 FS₅₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	258.66496		(2000.0)	P	Q
<i>n</i>	0.25478350	ω	125.86838	+0.76360750	+0.64508370
<i>a</i>	2.4642713	Ω	194.02969	-0.62316208	+0.72503943
<i>e</i>	0.0988866	<i>i</i>	6.57527	-0.16903434	+0.24121533
<i>P</i>	3.87	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1997 12 25	735	0.1+	0.1-	1998 01 01	735	1.2-	0.1-	1999 03 20	704	0.1+	0.8+
1997 12 25	735	0.1-	0.3-	1998 01 01	735	0.8-	0.7+	1999 03 20	704	1.5-	1.3+
1997 12 25	735	0.5-	0.2-	1998 01 01	735	(0.7-	2.5+)	1999 03 23	704	0.1+	0.8-
1997 12 28	735	1.1+	0.4-	1999 03 20	704	0.4+	0.5-	1999 03 23	704	(1.6+	2.4-)
1997 12 28	735	0.6+	0.4+	1999 03 20	704	0.7-	0.0	1999 03 23	704	0.0	1.3-
1997 12 28	735	0.8+	0.0	1999 03 20	704	1.6+	0.4+				

1997 YA₁₈ = 1999 NV₁₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	24.28527		(2000.0)	P	Q
<i>n</i>	0.27465125	ω	306.88754	-0.07389941	+0.99534222
<i>a</i>	2.3439499	Ω	318.74063	-0.88250951	-0.09418133
<i>e</i>	0.1979861	<i>i</i>	5.38670	-0.46445220	+0.02058492
<i>P</i>	3.59	<i>H</i>	16.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 11 11	691	0.1+	0.0	1998 01 06	691	0.1-	0.0	1999 07 14	704	1.6-	1.4+
1996 11 11	691	0.1-	0.1+	1998 01 08	691	0.1+	0.5+	1999 07 14	704	0.2+	1.0-
1996 11 11	691	0.0	0.0	1998 01 08	691	0.4+	0.2+	1999 07 14	704	1.0+	0.3-
1997 12 31	691	0.5-	0.3-	1998 01 08	691	1.2+	0.1-	1999 07 16	704	2.0-	0.2+
1997 12 31	691	0.6-	0.1+	1998 01 23	691	0.1-	0.0	1999 07 16	704	0.4+	0.4-
1997 12 31	691	0.8-	0.1+	1998 01 23	691	0.5-	0.2-	1999 07 16	704	0.2+	0.4+
1998 01 06	691	0.9+	0.0	1998 01 23	691	0.6-	0.1-	1999 07 16	704	0.9+	0.1-
1998 01 06	691	0.4+	0.4-	1999 07 14	704	0.9+	0.2-				

1998 AG = 1970 UC = 1999 GO₃₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	223.14259		(2000.0)	P	Q
<i>n</i>	0.18894421	ω	208.15954	+0.97512206	+0.18481145
<i>a</i>	3.0077864	Ω	140.57764	-0.14928229	+0.95569105
<i>e</i>	0.0742004	<i>i</i>	11.11307	-0.16386511	+0.22912735
<i>P</i>	5.22	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1970 10 28	805	0.3-	0.9+	1998 01 05	327	0.5-	0.2+	1999 04 12	704	1.3-	0.9-
1997 12 27	566	0.8+	1.2-	1999 02 23	699	0.2+	0.3+	1999 04 12	704	0.6-	0.1-
1997 12 27	566	0.7+	1.4-	1999 02 23	699	0.4-	0.9+	1999 04 12	704	0.3+	0.3-
1997 12 27	566	0.8+	1.3-	1999 02 23	699	0.2+	0.6+	1999 04 16	704	1.8+	0.3-
1998 01 04	327	0.6-	0.8+	1999 04 06	699	0.0	0.8+	1999 04 16	704	1.7-	0.6-
1998 01 04	327	0.2+	1.1+	1999 04 06	699	0.9+	0.8+	1999 04 16	704	0.5-	0.0
1998 01 04	327	0.1-	0.6+	1999 04 06	699	0.1+	0.1+	1999 04 16	704	0.8+	0.1-
1998 01 05	327	0.6-	0.1+	1999 04 12	704	0.0	0.3-				
1998 01 05	327	0.6-	0.3+	1999 04 12	704	0.3+	0.1+				

1998 AM₆ = 1926 GK = 1999 NM₁₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	72.57034		(2000.0)	P	Q
<i>n</i>	0.28551096	ω	134.34251	-0.82559667	+0.56187621
<i>a</i>	2.2841302	Ω	79.90923	-0.53151908	-0.74357635
<i>e</i>	0.0986425	<i>i</i>	3.01709	-0.18941387	-0.36247668
<i>P</i>	3.45	<i>H</i>	15.5	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1926 04 07	024	0.0	0.1-	1998 01 07	327	0.0	1.7+	1999 07 14	704	0.1+	1.0+
1998 01 04	327	0.0	1.8-	1998 01 07	327	0.3+	1.9+	1999 07 16	704	0.3+	1.3-
1998 01 04	327	0.1-	1.7-	1998 01 07	327	0.0	2.0+	1999 07 16	704	0.7+	0.3-
1998 01 04	327	0.6-	1.9-	1999 07 14	704	0.1+	1.3+	1999 07 16	704	0.4+	1.6-
1998 01 05	327	0.4+	0.4+	1999 07 14	704	0.4+	1.0+	1999 07 16	704	0.3-	1.7-
1998 01 05	327	0.2+	0.5-	1999 07 14	704	1.2-	0.6+	1999 07 16	704	0.3-	0.2-
1998 01 05	327	0.3-	0.2-	1999 07 14	704	0.2-	1.0+				

1998 AH₇ = 1999 KN₁₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	223.63654		(2000.0)	P	Q
<i>n</i>	0.29113078	ω	318.87762	+0.77225733	-0.63105615
<i>a</i>	2.2546405	Ω	80.40282	+0.60062533	+0.68755841
<i>e</i>	0.1505936	<i>i</i>	4.26884	+0.20704549	+0.35920965
<i>P</i>	3.39	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1997 12 24	327	0.6+	0.4+	1998 01 07	327	0.0	0.7-	1999 05 17	703	0.6+	0.5+
1997 12 24	327	0.3-	0.2-	1998 01 07	327	0.2-	0.7-	1999 05 17	703	0.5+	0.7+
1997 12 24	327	0.0	0.0	1998 01 07	327	0.1-	0.8-	1999 05 17	691	0.1-	0.1+
1997 12 24	327	0.2+	0.2-	1999 05 10	704	1.2-	1.5-	1999 05 17	691	0.1+	0.2+
1998 01 03	327	0.4+	0.4-	1999 05 10	704	0.4+	0.5-	1999 05 17	691	0.1+	0.5+
1998 01 03	327	0.1-	0.5+	1999 05 10	704	0.2-	0.5-	1999 05 18	704	0.7-	1.0-
1998 01 03	327	0.4-	1.9+	1999 05 10	704	(1.9+	2.3-)	1999 05 18	704	0.6+	1.5+
1998 01 05	327	0.5+	0.9+	1999 05 10	704	0.3-	0.2+	1999 05 18	704	0.5-	0.4-
1998 01 05	327	0.3-	0.2-	1999 05 17	703	0.1-	0.3-	1999 05 18	704	(0.9+	2.3+)
1998 01 05	327	0.4-	0.4-	1999 05 17	703	0.4+	0.3+	1999 05 18	704	0.3+	0.3+

1998 AK₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	228.32863		(2000.0)	P	Q
<i>n</i>	0.40882687	ω	11.57395	-0.69453579	-0.40189063
<i>a</i>	1.7979451	Ω	126.85423	+0.58613861	-0.79705811
<i>e</i>	0.1817578	<i>i</i>	48.22593	+0.41720685	+0.45075747
<i>P</i>	2.41	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1977 07 17	413	0.7-	1.6-	1998 01 11	611	0.2-	0.5-	1998 01 18	113	0.5-	0.5-
1977 07 17	413	(1.0+	3.7+)	1998 01 11	611	0.4+	0.5+	1998 01 18	113	0.4-	0.6-
1998 01 09	910	0.1+	0.1-	1998 01 11	611	0.3-	0.6-	1998 01 18	113	0.9-	0.3-
1998 01 09	910	0.3+	0.1+	1998 01 11	611	0.0	0.4-	1998 01 18	113	0.0	0.5-
1998 01 09	910	0.0	0.2-	1998 01 11	611	0.7+	0.4+	1998 01 20	104	0.1-	0.6+
1998 01 09	910	0.2-	0.1-	1998 01 11	611	0.3+	0.3+	1998 01 20	104	0.0	0.4+
1998 01 09	910	0.1-	0.3+	1998 01 11	611	0.1-	0.1-	1998 01 20	104	0.1+	0.2+
1998 01 09	910	0.3-	0.0	1998 01 11	611	0.1+	0.4+	1998 01 20	104	0.3+	0.4+

1998 01 09	910	0.1−	0.0	1998 01 11	611	0.1−	0.4−	1998 01 23	670	0.4−	0.4+
1998 01 09	910	0.2+	0.2+	1998 01 11	611	0.1−	0.4−	1998 01 23	670	0.8−	0.1+
1998 01 09	910	0.2+	0.2+	1998 01 11	611	0.1−	0.1−	1998 01 23	670	0.4−	0.4−
1998 01 10	910	0.1+	0.4+	1998 01 11	611	0.1−	0.4−	1998 01 25	670	0.4−	0.4−
1998 01 10	910	0.2+	0.1−	1998 01 11	611	0.1+	0.0	1998 01 25	670	0.3−	0.3+
1998 01 10	910	0.0	0.2+	1998 01 11	046	0.1−	0.2−	1998 01 25	670	0.5−	0.3−
1998 01 10	910	0.0	0.1+	1998 01 11	046	0.2+	0.2−	1998 01 28	422	0.1+	0.1+
1998 01 10	910	0.2−	0.2+	1998 01 11	046	0.1+	0.0	1998 01 28	422	0.2−	0.4−
1998 01 10	910	0.1+	0.1−	1998 01 11	784	0.7+	0.2−	1998 01 28	422	0.4+	0.1+
1998 01 10	910	0.1+	0.1+	1998 01 11	784	0.5+	0.8+	1998 02 01	046	0.4−	0.4+
1998 01 10	910	0.2+	0.0	1998 01 11	784	0.1−	0.0	1998 02 01	046	0.5−	0.2+
1998 01 10	910	0.2+	0.0	1998 01 11	784	0.3−	0.3+	1998 02 01	046	0.3−	0.2+
1998 01 10	910	0.0	0.1+	1998 01 11	784	0.5+	0.9−	1998 02 01	540	0.1+	0.5+
1998 01 10	910	0.1−	0.0	1998 01 11	784	0.0	0.2−	1998 02 01	540	0.0	0.4+
1998 01 10	910	0.0	0.2−	1998 01 11	557	0.0	0.3−	1998 02 01	540	0.6+	0.6+
1998 01 10	910	0.1+	0.2+	1998 01 11	784	0.2+	0.2+	1998 02 05	046	0.0	0.1+
1998 01 10	910	0.1+	0.1−	1998 01 11	784	0.2+	0.6−	1998 02 05	046	0.4−	0.5+
1998 01 10	910	0.1+	0.1−	1998 01 11	784	0.4+	0.0	1998 02 05	046	0.5−	0.2+
1998 01 10	910	0.0	0.0	1998 01 11	557	0.0	0.2−	1998 02 19	046	0.5−	0.4+
1998 01 10	910	0.1+	0.0	1998 01 11	557	0.1+	0.2−	1998 02 19	046	0.5−	0.1−
1998 01 10	611	0.3+	0.7+	1998 01 11	557	0.2+	0.5−	1998 02 19	046	0.5−	0.3+
1998 01 10	611	0.0	0.0	1998 01 11	817	0.1+	0.4−	1998 02 21	046	0.3−	0.4−
1998 01 10	611	0.1−	0.1−	1998 01 11	817	0.5+	0.1−	1998 02 21	046	0.6−	0.3−
1998 01 10	658	1.1−	0.2−	1998 01 11	817	0.1+	0.3+	1998 02 21	046	0.6−	0.2−
1998 01 10	658	0.8−	0.1+	1998 01 11	817	0.5−	0.7−	1998 02 21	046	0.4−	0.4−
1998 01 10	658	0.2−	0.5−	1998 01 11	658	0.0	0.5−	1998 03 02	910	1.0+	0.5+
1998 01 10	046	0.1−	0.1−	1998 01 11	658	0.8−	0.0	1998 03 02	910	1.4+	0.6+
1998 01 10	046	0.2+	0.2+	1998 01 11	658	0.0	0.2−	1998 03 02	910	1.0+	0.6+
1998 01 10	046	0.1−	0.1−	1998 01 11	046	0.4+	0.2+	1998 03 04	711	0.6+	0.1−
1998 01 10	046	0.2+	0.2−	1998 01 11	046	0.5+	0.4+	1998 03 04	711	0.6+	0.1−
1998 01 10	046	0.1+	0.5+	1998 01 11	046	0.6+	0.5+	1998 03 05	711	0.4+	0.2−
1998 01 10	587	0.3+	0.1+	1998 01 11	046	0.4+	0.5+	1998 03 05	711	0.5+	0.4−
1998 01 10	587	0.6+	0.6−	1998 01 11	046	0.3+	0.2+	1998 03 17	658	1.0−	0.1+
1998 01 10	627	0.7−	0.2+	1998 01 13	046	0.5+	0.2−	1998 03 17	658	1.0−	0.0
1998 01 10	557	0.0	0.6−	1998 01 13	046	0.6+	0.1+	1998 03 17	658	1.5−	0.1−
1998 01 10	557	0.2+	0.2−	1998 01 13	046	0.6+	0.1−	1998 05 16	611	0.7+	1.1−
1998 01 10	627	0.5+	1.5+	1998 01 14	046	0.1+	0.4−	1998 05 16	611	0.2−	1.2−
1998 01 10	557	0.2+	0.1−	1998 01 14	046	0.2+	0.3−	1998 05 16	611	1.9+	1.5−
1998 01 10	627	0.8+	0.6−	1998 01 14	046	0.3+	0.1−	1999 08 01	413	0.4+	0.3−
1998 01 11	611	0.2+	0.0	1998 01 17	540	1.1−	0.2−	1999 08 02	413	0.2+	0.3−
1998 01 11	611	0.8+	1.4+	1998 01 17	540	0.1−	0.2+	1999 08 02	413	0.2+	0.2−
1998 01 11	611	0.3+	0.1−	1998 01 18	113	0.7−	0.7−	1999 08 02	413	0.2+	0.4−
1998 01 11	611	0.2+	0.8+	1998 01 18	113	0.5−	0.8−				
1998 01 11	611	0.3+	0.1−	1998 01 18	113	0.5−	0.6−				

1998 BG₄ = 1976 GZ

Id. T. Kagawa (1999 observations), S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	89.23392		(2000.0)	P	Q
<i>n</i>	0.26649056	ω	184.54252	−0.85861490	+0.51254645
<i>a</i>	2.3915612	Ω	26.29683	−0.46969620	−0.77976431
<i>e</i>	0.1479031	<i>i</i>	1.13192	−0.20534347	−0.35953269
<i>P</i>	3.70	<i>H</i>	15.0	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1976 04 01	095	0.2+	0.1−	1998 01 24	385	0.8+	0.0	1998 03 01	699	0.2−	0.5−
1992 09 30	691	0.9−	0.4−	1998 01 26	886	0.5−	0.1+	1998 03 03	699	0.1−	0.9−
1992 09 30	691	0.6−	0.3−	1998 01 26	886	0.3+	0.7+	1998 03 03	699	0.5+	0.5−
1992 09 30	691	0.7−	0.2−	1998 01 28	566	0.8+	0.3−	1998 03 03	699	0.0	0.7−
1996 10 08	566	0.6+	0.3+	1998 01 28	566	0.9+	0.1−	1998 03 15	385	0.2+	0.5+
1996 10 08	566	1.0+	0.7+	1998 01 28	566	1.2+	0.2−	1998 03 15	385	1.8−	1.5+
1996 10 08	566	0.4+	0.2+	1998 01 30	385	0.7+	1.0−	1999 07 13	704	1.5−	1.6−
1996 11 06	691	0.1+	0.1−	1998 01 30	385	0.0	0.1−	1999 07 13	704	0.1+	0.4−
1996 11 06	691	0.5+	0.3−	1998 02 02	886	1.2−	0.7+	1999 07 13	704	0.3−	0.2+
1996 11 06	691	0.3+	0.2−	1998 02 02	886	0.2+	0.4+	1999 07 13	704	0.3−	0.6+
1997 11 08	910	1.8−	0.5+	1998 02 05	886	0.4−	0.5+	1999 08 02	888	0.5+	0.6+
1997 11 08	910	2.0−	1.2+	1998 02 05	886	0.9−	0.3−	1999 08 02	888	0.6+	0.2−

1997 11 08	910	1.7−	0.6+	1998 02 06	886	1.0+	0.1+	1999 08 02	888	0.1−	0.1−
1998 01 21	905	(0.3+ 2.1+)		1998 02 06	886	1.5−	0.4−	1999 08 03	888	0.9+	0.6+
1998 01 21	905	0.4+	0.1+	1998 03 01	699	0.1−	0.7−	1999 08 03	888	0.3+	0.4−
1998 01 24	385	0.7+	0.1+	1998 03 01	699	1.0+	0.5−				

1998 BM₇ = 1987 BV₃ = 1999 GT₁₉Id. G. V. Williams (*MPC* 31264), M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	341.64420		(2000.0)	P	Q
<i>n</i>	0.17922966	ω	120.56230	−0.35720315	+0.91716337
<i>a</i>	3.1155122	Ω	127.45363	−0.91495270	−0.30555772
<i>e</i>	0.0716071	<i>i</i>	12.85987	−0.18779636	−0.25582382
<i>P</i>	5.50	<i>H</i>	13.2	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1987 01 30	809	0.1−	0.6−	1998 01 24	566	0.3−	0.7+	1999 04 15	704	0.7−	1.2+
1987 01 30	809	1.0+	0.4−	1998 01 24	566	0.0	0.5+	1999 04 15	704	0.1−	1.0+
1987 01 31	809	1.0−	0.3+	1998 01 24	566	0.4−	0.5+	1999 04 15	704	0.0	0.2+
1987 01 31	809	0.1+	0.0	1998 01 25	566	0.7−	0.4−	1999 04 16	704	0.3+	0.7−
1996 10 15	691	0.3−	0.6+	1998 01 25	566	0.9−	0.4−	1999 04 16	704	1.0+	1.1−
1996 10 15	691	0.1−	0.4+	1998 01 25	566	0.8−	0.4−	1999 04 16	704	0.4−	1.0+
1996 10 15	691	0.1−	0.4+	1999 04 12	704	0.2−	0.1+	1999 04 16	704	(2.2+ 0.6+)	
1997 12 28	566	1.9+	1.3−	1999 04 12	704	0.7+	0.6+	1999 04 16	704	0.1+	1.7+
1997 12 28	566	2.0+	1.2−	1999 04 12	704	0.9−	0.4+	1999 05 14	704	0.9+	0.5−
1997 12 28	566	(2.3+ 1.5−)		1999 04 12	704	0.9+	0.3+	1999 05 14	704	0.1+	0.5+
1998 01 19	327	0.3−	0.7+	1999 04 12	704	(2.6− 0.4+)		1999 05 14	704	0.7+	1.3−
1998 01 19	327	0.1+	0.3+	1999 04 15	704	0.2−	0.0	1999 05 14	704	0.1+	0.7−
1998 01 19	327	0.3−	0.4+	1999 04 15	704	0.1+	0.5−	1999 05 14	704	2.0−	1.3−

1998 BQ₁₁ = 1999 NK₃₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	49.12484		(2000.0)	P	Q
<i>n</i>	0.30418416	ω	287.50281	−0.32678952	+0.94398913
<i>a</i>	2.1896682	Ω	323.32168	−0.83545929	−0.31117201
<i>e</i>	0.0870892	<i>i</i>	4.39278	−0.44183298	−0.10980213
<i>P</i>	3.24	<i>H</i>	15.4	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1996 09 17	566	0.1+	0.2+	1998 01 25	704	0.8+	0.7−	1999 07 14	704	0.2−	1.5+
1996 09 17	566	0.0	0.2+	1998 01 25	704	0.3+	0.7+	1999 07 14	704	0.2+	0.6+
1996 09 17	566	0.1+	0.7−	1998 01 25	704	0.3+	0.4+	1999 07 14	704	0.2+	0.5+
1998 01 20	696	0.0	0.4−	1998 01 25	704	1.4−	0.6+	1999 07 16	704	0.0	0.1+
1998 01 20	696	0.6−	0.3+	1999 06 23	703	0.5−	0.2−	1999 07 16	704	0.2+	0.3−
1998 01 23	704	1.2+	0.0	1999 06 23	703	0.3−	0.3−	1999 07 16	704	0.3+	1.4+
1998 01 23	704	0.5−	0.7+	1999 06 23	703	0.3−	1.4−	1999 07 16	704	0.1−	0.3+
1998 01 23	704	0.4−	0.3+	1999 06 23	703	0.0	1.0−				
1998 01 23	704	0.9+	0.5+	1999 07 14	704	0.3−	0.5+				

1998 BY₁₂ = 19

1998 01 22	704	0.3−	0.0	1998 01 25	704	0.0	0.4+	1999 07 16	704	0.2+	0.3−
1998 01 22	704	0.3−	0.1+	1998 01 25	704	0.5−	0.5+	1999 07 16	704	0.2−	0.3−
1998 01 22	704	0.1+	0.1+	1998 01 25	704	0.1+	0.3+	1999 07 16	704	0.6+	0.3+
1998 01 23	704	0.1+	0.9+	1998 01 25	704	0.2+	0.1+	1999 07 19	704	0.7−	1.7+
1998 01 23	704	0.2+	0.4+	1998 01 25	704	1.6+	0.7−	1999 07 19	704	0.9−	0.3+
1998 01 23	704	0.1+	0.4+	1999 06 15	704	0.3+	0.2+	1999 07 19	704	0.5−	0.7+
1998 01 23	704	0.2+	0.4+	1999 06 15	704	0.3+	0.3+	1999 07 19	704	0.2−	0.1−

1998 BQ₁₅ = 1999 KE₁₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.22033580	<i>ω</i>	277.86974			+0.72910760			−0.66001927		
<i>a</i>	2.7148510	<i>Ω</i>	123.63999			+0.68169620			+0.67687180		
<i>e</i>	0.1426621	<i>i</i>	12.55991			+0.06076514			+0.32591276		
<i>P</i>	4.47	<i>H</i>	14.3			<i>G</i>	0.15		<i>U</i>	4	

Residuals in seconds of arc

1997 12 24	910	0.0	0.1−	1998 01 28	566	0.5−	0.1+	1999 05 17	704	0.8−	0.2−
1997 12 24	910	0.2+	0.1+	1998 01 29	372	0.3+	0.7−	1999 05 17	704	1.6−	0.5−
1997 12 24	910	0.0	0.1+	1998 01 29	372	0.7+	0.2+	1999 05 18	703	0.2−	0.2−
1998 01 24	566	0.1−	0.0	1998 02 02	372	0.5−	0.7+	1999 05 18	703	0.8+	0.8−
1998 01 24	566	0.1−	0.0	1998 02 02	372	1.3+	0.6−	1999 05 18	703	0.7+	0.0
1998 01 24	566	0.1−	0.2+	1998 02 05	372	0.1+	0.6+	1999 05 18	703	0.2−	1.0+
1998 01 28	566	0.5−	0.3−	1999 05 17	704	1.0+	0.6+				
1998 01 28	566	0.6−	0.3−	1999 05 17	704	0.2+	0.1+				

1998 CK₁ = 1999 PA₅

Id. M. Tichý

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.27308551	<i>ω</i>	142.59085			−0.54444629			+0.83157805		
<i>a</i>	2.3529008	<i>Ω</i>	94.17038			−0.79373359			−0.46843608		
<i>e</i>	0.2320418	<i>i</i>	6.32063			−0.27122908			−0.29840508		
<i>P</i>	3.61	<i>H</i>	14.9			<i>G</i>	0.15		<i>U</i>	4	

Residuals in seconds of arc

1998 01 26	566	0.0	0.2−	1998 02 16	046	0.0	0.2−	1998 03 19	046	0.1−	0.1+
1998 01 26	566	0.4+	0.3−	1998 02 16	046	0.1+	0.0	1998 03 19	046	0.2−	0.0
1998 01 26	566	0.2+	0.1−	1998 02 18	046	0.3+	0.0	1998 03 23	046	0.6−	0.1−
1998 02 06	046	0.0	0.1−	1998 02 18	046	0.2+	0.1+	1998 03 23	046	0.3−	0.0
1998 02 06	046	0.1+	0.1−	1998 02 18	046	0.1+	0.1+	1998 03 23	046	0.1+	0.0
1998 02 06	046	0.4−	0.2−	1998 02 20	046	0.3−	0.4+	1999 08 08	046	0.0	0.2+
1998 02 06	046	0.2−	0.0	1998 02 20	046	0.2+	0.3+	1999 08 08	046	0.1+	0.3+
1998 02 06	046	0.1−	0.1+	1998 02 20	046	0.2+	0.0	1999 08 08	046	0.2−	0.0
1998 02 06	046	0.2−	0.3−	1998 02 20	046	0.2−	0.0	1999 08 08	046	0.3−	0.3+
1998 02 08	046	0.7+	0.1+	1998 02 20	046	0.1−	0.3+	1999 08 08	046	0.4−	0.4+
1998 02 08	046	0.4+	0.0	1998 02 20	046	0.3+	0.1+	1999 08 08	046	0.4+	0.6+
1998 02 08	046	0.0	1.5+	1998 02 20	046	0.0	0.1+	1999 08 20	046	0.8−	0.4−
1998 02 08	046	0.1−	0.7−	1998 03 05	046	0.1−	1.0−	1999 08 20	046	0.7+	0.7−
1998 02 08	046	0.5−	0.0	1998 03 05	046	0.2−	0.5+	1999 08 20	046	0.3+	0.3−
1998 02 08	046	0.3−	0.5−	1998 03 05	046	0.0	0.5+				
1998 02 16	046	0.4+	0.4−	1998 03 19	046	0.1−	0.2+				

1998 CQ₂ = 1976 JA₁ = 1999 PK₁

Id. T. Urata, S. Nakano, E. Bowell

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.26543811	<i>ω</i>	256.99598			−0.88017468			+0.47399232		
<i>a</i>	2.3978787	<i>Ω</i>	311.29170			−0.42158419			−0.80486505		
<i>e</i>	0.1151642	<i>i</i>	1.90494			−0.21808094			−0.35710438		
<i>P</i>	3.71	<i>H</i>	14.9			<i>G</i>	0.15		<i>U</i>	1	

Residuals in seconds of arc

1976 05 02	095	0.3+	0.9+	1998 03 03	704	0.1+	0.3+	1998 03 20	704	(2.7−	0.2−)
1992 10 03	691	0.1−	0.1+	1998 03 03	704	0.3+	0.2−	1998 03 20	704	1.1−	0.5+

1992 10 03	691	0.1+	0.0	1998 03 03	704	0.3+	0.1+	1998 03 22	704	0.5+	0.2+
1992 10 03	691	0.2+	0.2+	1998 03 03	704	1.1−	0.2+	1998 03 22	704	0.8+	0.0
1994 01 07	691	0.2−	0.2+	1998 03 04	704	(3.6−	1.0+)	1998 03 22	704	0.3+	0.1−
1994 01 07	691	0.6+	0.3+	1998 03 04	704	(2.5−	0.4−)	1998 03 22	704	0.2−	0.1−
1994 01 07	691	0.5−	0.0	1998 03 04	704	(2.4−	0.2−)	1998 03 22	704	0.4+	0.4−
1998 02 06	888	0.0	0.1−	1998 03 04	704	(2.0−	0.2+)	1998 04 03	888	0.9−	1.2−
1998 02 06	888	0.1+	0.1−	1998 03 06	886	0.1−	0.9+	1998 04 03	888	0.1−	0.3−
1998 02 06	888	0.0	0.4+	1998 03 06	886	0.6−	0.0	1999 07 21	699	(3.0+	0.1−)
1998 02 10	888	1.1+	0.1+	1998 03 17	888	0.0	0.1−	1999 07 21	699	0.2−	1.9+
1998 02 10	888	0.3+	0.4−	1998 03 17	888	0.2−	0.5−	1999 07 21	699	0.6+	1.4−
1998 03 02	888	0.3+	0.3+	1998 03 17	888	0.5−	0.3−	1999 08 02	888	0.5−	0.0
1998 03 02	888	0.1−	0.0	1998 03 20	704	0.5−	0.1−	1999 08 08	888	0.2+	0.3−
1998 03 02	888	0.3+	0.1+	1998 03 20	704	0.7−	0.3−	1999 08 08	888	0.3−	0.2−
1998 03 03	704	0.4+	0.1+	1998 03 20	704	0.7+	0.0				

1998 CG₃ = 1999 NH₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.29638462	<i>ω</i>	205.37132			+0.99883378			+0.02646248		
<i>a</i>	2.2279167	<i>Ω</i>	153.01905			−0.01199137			+0.94617894		
<i>e</i>	0.1543750	<i>i</i>	5.10666			−0.04676844			+0.32256030		
<i>P</i>	3.33	<i>H</i>	14.6			<i>G</i>	0.15		<i>U</i>	5	

Residuals in seconds of arc

1996 09 21	691	0.1−	0.5+	1998 03 03	809	0.1+	0.7−	1999 07 13	106	0.5+	0.5+
1996 09 21	691	0.1+	0.6+	1998 03 03	809	0.3−	0.4−	1999 07 13	106	0.3+	0.6+
1996 09 21	691	0.5−	0.6+	1998 03 04	809	0.6+	0.8−	1999 07 14	106	0.4+	1.4−
1998 02 06	809	(2.4+	0.1+)	1998 03 04	809	0.6−	0.8+	1999 07 14	106	0.7+	1.0−
1998 02 06	809	1.5+	0.3+	1998 03 04	809	0.4−	0.7+	1999 07 19	704	1.1−	0.4+
1998 02 06	809	1.6+	0.9−	1999 06 15	704	0.2+	0.2+	1999 07 19	704	0.2−	0.3−
1998 02 07	809	0.2−	1.6+	1999 06 15	704	0.7+	0.7−	1999 07 19	704	0.4+	0.2+
1998 02 07	809	0.8−	1.6+	1999 06 15	704	0.3−	0.2+	1999 07 19	704	1.3−	0.3−
1998 02 07	809	0.2−	0.3+	1999 06 15	704	0.6−	1.2+				
1998 03 03	809	0.4−	0.2+	1999 07 13	106	0.3+	1.1+				

1998 CW₃ = 1999 NM₁₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>			(2000.0)			P			Q		
<i>n</i>	0.23740632	<i>ω</i>	27.94948			−0.94222150			−0.32692980		
<i>a</i>	2.5830999	<i>Ω</i>	132.77275			+0.28580247			−0.89827184		
<i>e</i>	0.1645643	<i>i</i>	5.71089			+0.17474437			−0.29364025		
<i>P</i>	4.15	<i>H</i>	14.1			<i>G</i>	0.15		<i>U</i>	4	

Residuals in seconds of arc

1998 02 06	809	0.3+	0.3−	1998 03 04	704	1.5−	0.9−	1999 06 11	703	0.7−	0.4−
1998 02 06	809	0.7+	0.3−	1998 03 04	704	1.1−	0.4−	1999 07 14	704	0.6+	0.1+
1998 02 06	809	0.6+	0.7−	1998 03 04	704	1.3−	0.7−	1999 07 14	704	0.3+	0.2−
1998 02 07	809	(0.0	4.1−)	1998 03 04	704	1.8−	0.7−	1999 07 14	704	0.4+	0.2+
1998 02 07	809	(0.1+	3.5−)	1998 03 04	704	1.9−	0.5−	1999 07 14	704	0.5+	0.7−
1998 02 07	809	(0.6+	4.0−)	1998 04 18	704	0.3−	1.2+	1999 07 14	704	0.3+	0.9−
1998 02 22	710	1.2+	0.1−	1998 04 18	704	(0.9+	3.9−)	1999 07 16	704	0.8+	0.4−
1998 02 22	710	1.8+	0.2−	1998 04 18	704	1.6+	0.4+	1999 07 16	704	0.4+	0.4−
1998 02 23	710	(2.6+	1.4−)	1998 04 18	704	0.7+	1.7+	1999 07 16	704	0.0	0.5−
1998 02 23	710	1.2+	1.4+	1999 06 11	703	0.9−	1.3−	1999 07 16	704	0.8+	0.1−
1998 02 23	710	(2.0+	1.5−)	1999 06 11	703	1.1−	1.0+	1999 07 16	704	0.3−	1.6+
1998 02 23	710	(3.4+	0.8+)	1999 06 11	703	1.2−	0.5+				

1998 CE₄ = 1999 JE₁₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.27816992	ω	300.17042	+0.99676310	+0.04253497		
<i>a</i>	2.3241417	Ω	57.47144	−0.00852596	+0.89971631		
<i>e</i>	0.1799660	<i>i</i>	4.64113	−0.07994136	+0.43439768		
<i>P</i>	3.54	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1995 03 26	691	0.2+	1.7−	1998 02 23	327	0.1−	0.5+	1999 05 18	704	0.3+	1.0+
1995 03 26	691	1.5−	1.0−	1998 02 23	327	0.2+	0.5+	1999 05 18	704	0.4−	0.2−
1998 02 13	327	0.2+	0.4+	1999 05 10	704	(0.5+	2.6+)	1999 05 18	704	0.5−	0.4+
1998 02 13	327	0.3+	0.2+	1999 05 10	704	0.5+	0.5+	1999 05 18	704	0.3+	0.8+
1998 02 13	327	0.3−	0.3+	1999 05 10	704	0.6+	0.6−	1999 06 15	704	0.1−	0.5−
1998 02 21	327	0.2−	0.1−	1999 05 10	704	(3.9−	0.7+)	1999 06 15	704	0.7−	0.4−
1998 02 21	327	0.1+	0.0	1999 05 15	691	1.1+	1.2+	1999 06 15	704	0.6−	1.0−
1998 02 21	327	0.0	0.2−	1999 05 15	691	0.2+	1.0+	1999 06 15	704	0.5−	0.3−
1998 02 23	327	0.3+	0.0	1999 05 15	691	0.0	0.3+	1999 06 15	704	0.1+	0.4−

1998 CR₄ = 1968 UD₂ = 1999 NL₄₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28153598	ω	199.47825	+0.97995241	+0.18762720		
<i>a</i>	2.3055795	Ω	149.46330	−0.16079270	+0.94339316		
<i>e</i>	0.1717123	<i>i</i>	7.57772	−0.11763921	+0.27350572		
<i>P</i>	3.50	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1968 10 23	095	0.3+	0.9−	1998 03 04	809	(3.9+	2.9+)	1999 06 14	704	0.1+	0.5−
1997 01 13	910	0.2−	0.4−	1998 03 04	809	(4.0+	2.4+)	1999 06 14	704	0.2−	0.6−
1997 01 13	910	0.3+	0.3−	1998 03 04	809	(4.4+	2.6+)	1999 06 14	704	0.6−	0.5−
1997 01 13	910	0.1+	0.4−	1998 03 26	566	1.0−	0.8−	1999 07 13	704	0.5+	0.1+
1998 02 06	809	(0.6+	4.7+)	1998 03 26	566	0.7−	0.7−	1999 07 13	704	0.7+	0.5−
1998 02 06	809	(0.2+	4.1+)	1998 03 26	566	1.0−	0.2−	1999 07 13	704	0.2+	0.0
1998 02 06	809	(0.2+	4.9+)	1999 05 14	704	0.3−	0.6−	1999 07 13	704	0.4+	0.0
1998 02 07	809	(0.6+	5.5+)	1999 05 14	704	0.4+	0.0	1999 07 13	704	0.1+	0.3−
1998 02 07	809	(0.6+	5.4+)	1999 05 14	704	1.7−	0.2−	1999 07 19	704	0.8+	0.1+
1998 02 07	809	(1.2+	5.0+)	1999 05 14	704	1.6+	1.1+	1999 07 19	704	0.5+	0.1−
1998 03 03	809	0.7+	0.3+	1999 05 14	704	1.7−	0.9+	1999 07 19	704	0.5+	0.1−
1998 03 03	809	0.7+	0.2−	1999 06 14	704	0.2+	0.1−	1999 07 19	704	0.3−	0.2−
1998 03 03	809	0.7+	0.1−	1999 06 14	704	0.2−	0.0	1999 07 19	704	1.2−	0.1+

1998 DU = 1980 RE

Id. J. Roe (1999 observations), T. B. Spahr

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.36131502	ω	110.56923	+0.46023562	−0.85509910		
<i>a</i>	1.9522947	Ω	309.70884	+0.65412257	+0.50841340		
<i>e</i>	0.0923607	<i>i</i>	18.07801	+0.60025565	+0.10159403		
<i>P</i>	2.73	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1980 09 03	033	0.4+	0.5−	1998 02 21	732	0.4+	0.2−	1998 03 19	732	1.7−	0.7+
1998 01 26	566	1.6+	0.4−	1998 02 21	732	0.8−	1.1−	1998 03 20	732	(3.4−	1.0+)
1998 01 26	566	1.7+	0.1+	1998 02 22	732	0.1+	0.7+	1998 03 20	732	1.3+	0.9+
1998 01 26	566	1.4+	0.3−	1998 02 22	732	0.1−	1.5+	1999 07 23	704	(4.8+	1.2−)
1998 02 19	732	0.4+	0.2+	1998 02 22	732	1.0−	1.0−	1999 07 23	704	(3.8+	1.6−)
1998 02 19	732	1.0+	0.2+	1998 02 25	732	1.6−	1.3−	1999 07 23	704	(3.4+	1.4−)
1998 02 19	732	0.6+	0.1+	1998 02 25	732	1.3−	0.6−	1999 08 07	649	0.3+	0.5−
1998 02 20	732	0.1+	1.3+	1998 02 26	732	0.2−	0.6+	1999 08 07	649	0.4+	0.4+
1998 02 20	732	0.5+	0.1+	1998 02 26	732	(4.0−	1.5+)	1999 08 07	649	0.6−	0.6+
1998 02 20	732	0.1−	1.2−	1998 03 19	732	0.3+	0.2−	1999 08 07	649	0.8−	0.6+
1998 02 21	732	1.0−	0.5+	1998 03 19	732	0.8−	0.1−				

1998 DW = 1999 PH

Id. M. Tichý

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.35802591	ω	193.80625	−0.77934707	−0.57823573		
<i>a</i>	1.9642334	Ω	308.23152	+0.60010578	−0.57798392		
<i>e</i>	0.0670509	<i>i</i>	17.89545	+0.18025314	−0.57582813		
<i>P</i>	2.75	<i>H</i>	15.9	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 02 18	046	0.1−	0.1+	1998 02 21	046	0.8+	0.5+	1999 08 05	046	0.2+	0.3+
1998 02 18	046	0.4−	0.0	1998 02 21	046	0.3+	0.3+	1999 08 05	046	0.1+	0.8+
1998 02 18	046	0.0	0.0	1998 02 26	046	0.4+	0.2+	1999 08 05	046	0.0	0.0
1998 02 18	046	0.3−	0.2+	1998 02 26	046	0.1+	0.3−	1999 08 05	046	0.4−	0.6−
1998 02 18	046	0.3−	0.3+	1998 03 19	046	0.3−	0.2−	1999 08 06	046	0.3+	0.3−
1998 02 20	046	0.2+	0.6+	1998 03 19	046	0.2+	0.1+	1999 08 06	046	0.1−	0.2+
1998 02 20	046	0.0	0.2+	1998 03 19	046	0.3+	0.3+	1999 08 06	046	0.3−	0.3+
1998 02 20	046	0.8−	1.1−	1998 03 23	046	0.6+	0.4+	1999 08 06	046	0.5+	0.7+
1998 02 20	046	0.3−	0.6−	1998 03 23	046	0.1+	0.1−	1999 08 22	046	0.2−	0.7−
1998 02 21	046	0.5+	0.3−	1998 03 23	046	0.3−	0.1−	1999 08 22	046	0.5−	0.2−

1998 DA₂

Id. F. B. Zoltowski (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.28712951	ω	247.85628	+0.01249692	+0.99906636		
<i>a</i>	2.2755383	Ω	22.97635	−0.87394866	+0.03100894		
<i>e</i>	0.1812789	<i>i</i>	6.08150	−0.48585756	−0.03008077		
<i>P</i>	3.43	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1995 03 23	033	0.4+	0.3+	1998 02 18	426	0.4+	0.4−	1999 07 23	426	0.1−	0.3−
1995 03 23	033	0.1−	0.2−	1998 02 20	426	1.2−	0.1−	1999 07 23	426	0.0	0.5−
1996 10 10	566	0.1−	0.2−	1998 02 20	426	1.2−	0.3−	1999 07 23	426	0.1+	0.6−
1996 10 10	566	0.0	0.3−	1998 02 20	426	0.6−	1.1−	1999 08 04	426	0.1+	0.3−
1996 10 10	566	0.1+	0.3−	1998 02 21	725	0.6−	0.0	1999 08 04	426	0.2+	0.3−
1998 01 26	566	0.0	0.1+	1998 02 21	725	0.2−	0.1−	1999 08 04	426	0.2+	0.4−
1998 01 26	566	0.5+	0.0	1998 02 25	426	0.6+	1.2−	1999 08 05	426	0.2+	0.7−
1998 01 26	566	0.3+	0.2+	1998 02 25	426	0.8+	0.7−	1999 08 05	426	0.1+	0.4−
1998 02 18	426	0.1+	0.3−	1998 02 28	426	0.3+	0.9−	1999 08 05	426	0.1+	0.5−
1998 02 18	426	0.5+	0.8−	1998 02 28	426	0.1+	0.7−				
1998 02 18	426	0.9−	0.3−	1999 07 23	426	0.3−	0.4−				

1998 DG₂₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25214289	ω	157.73747	−0.27978194	+0.94864837		
<i>a</i>	2.4814464	Ω	95.76624	−0.90168782	−0.20685116		
<i>e</i>	0.0968629	<i>i</i>	8.53186	−0.32966824	−0.23933002		
<i>P</i>	3.91	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1998 02 27	557	0.0	0.1+	1998 03 24	704	0.5−	1.0+	1998 04 30	557	0.6+	0.6−
1998 02 27	557	0.4−	0.2+	1998 03 24	704	0.3−	1.3+	1998 04 30	557	0.5+	0.7−
1998 02 27	557	0.5+	0.1+	1998 03 27	557	0.3+	0.4+	1998 04 30	557	0.7+	0.6−
1998 02 27	557	0.2+	0.6+	1998 03 27	557	0.1−	0.4+	1998 05 16	704	0.2+	0.4+
1998 02 27	557	0.1+	0.1+	1998 03 27	557	0.3+	0.5+	1998 05 16	704	0.1+	0.6+
1998 03 01	557	0.4−	0.2−	1998 04 13	557	0.1−	0.1+	1998 05 16	704	1.5−	0.6+
1998 03 01	557	0.1−	0.0	1998 04 13	557	0.1−	0.2−	1998 05 16	704	0.2−	0.9+
1998 03 01	557	0.1−	0.0	1998 04 13	557	0.4−	0.1−	1998 05 16	704	1.3−	0.2+
1998 03 04	557	1.2+	0.8−	1998 04 13	557	0.3+	0.4−	1998 05 29	704	0.1−	0.1−
1998 03 04	557	0.3+	0.1+	1998 04 17	557	0.1+	0.1−	1998 05 29	704	1.0+	0.4+
1998 03 04	557	0.0	0.1+	1998 04 17	557	0.0	0.4−	1998 05 29	704	0.4+	0.1+
1998 03 04	557	0.1−	0.0	1998 04 17	557	0.2−	0.3−	1998 05 29	704	0.6−	0.4+
1998 03 06	557	0.3+	0.0	1998 04 24	704	0.7+	0.8−	1998 05 29	704	1.3−	1.0−

1998 03 06	557	0.3+	0.1-	1998 04 24	704	0.3-	0.0	1999 08 22	557	0.2+	0.3+
1998 03 06	557	0.0	0.0	1998 04 24	704	0.4-	0.4-	1999 08 22	557	0.0	0.2+
1998 03 19	557	0.1+	0.1+	1998 04 24	704	0.2-	0.6-	1999 08 23	557	0.3-	0.0
1998 03 19	557	0.2+	0.1+	1998 04 24	704	0.5+	0.3+	1999 08 23	557	0.1-	0.1-
1998 03 24	704	0.3-	0.1+	1998 04 27	557	0.4+	0.5-	1999 08 24	557	0.2-	0.4+
1998 03 24	704	0.7-	0.7+	1998 04 28	557	0.4+	0.7-	1999 08 24	557	0.0	0.3+
1998 03 24	704	0.3-	0.2+	1998 04 28	557	0.4+	0.3-	1999 08 24	557	0.0	0.2-

1998 DJ₂₀ = 1999 PC₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	47.20274	(2000.0)	P	Q
<i>n</i>	0.29470644	ω	282.17268	+0.16047555
<i>a</i>	2.2363665	Ω	357.04647	+0.13739445
<i>e</i>	0.1216520	<i>i</i>	5.87298	+0.08308408
<i>P</i>	3.34	<i>H</i>	15.0	<i>U</i> 5

Residuals in seconds of arc

1998 02 26	627	0.9+	0.6+	1998 03 03	809	0.4+	1.3-	1998 03 04	704	1.5-	0.6-
1998 02 26	627	0.7+	0.8+	1998 03 03	704	0.1-	1.0-	1998 03 20	704	1.4+	1.2+
1998 02 26	627	0.2+	0.4+	1998 03 03	809	1.2-	1.4-	1998 03 20	704	0.4+	1.3-
1998 02 27	627	0.5+	1.6+	1998 03 03	809	0.1-	1.1-	1998 03 20	704	0.8+	0.6-
1998 02 27	627	0.2-	1.1+	1998 03 03	704	0.5+	0.8+	1998 03 20	704	0.7-	0.3-
1998 02 27	627	1.7+	1.6+	1998 03 03	704	1.6+	0.0	1998 03 22	627	0.7+	0.0
1998 03 01	691	0.6+	0.3-	1998 03 03	704	0.1-	0.4+	1998 03 22	627	0.0	0.9+
1998 03 01	691	0.5+	0.3-	1998 03 04	809	0.7+	1.5-	1998 03 22	627	0.3-	0.9+
1998 03 01	691	0.6+	0.1-	1998 03 04	809	0.9-	0.7-	1998 03 22	627	0.8-	0.0
1998 03 02	627	1.6-	0.2+	1998 03 04	809	0.5-	0.1-	1999 08 14	428	0.1-	0.2-
1998 03 02	627	0.3-	0.4-	1998 03 04	704	1.8-	0.5-	1999 08 14	428	0.9+	0.2+
1998 03 02	627	0.5+	0.3-	1998 03 04	704	1.8-	0.9+				
1998 03 03	704	0.5+	0.4-	1998 03 04	704	1.9-	0.7+				

1998 DP₂₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	339.95539	(2000.0)	P	Q
<i>n</i>	0.18798333	ω	306.11383	-0.10326158
<i>a</i>	3.0180273	Ω	317.54511	-0.85267122
<i>e</i>	0.0831354	<i>i</i>	9.31123	-0.51214143
<i>P</i>	5.24	<i>H</i>	13.9	<i>U</i> 4

Residuals in seconds of arc

1998 01 08	691	0.2+	0.0	1998 03 01	910	0.5+	0.2+	1999 04 15	704	0.0	1.3+
1998 01 08	691	0.2+	0.1+	1998 03 01	910	0.8+	0.1+	1999 04 15	704	1.0+	1.0-
1998 01 08	691	0.1-	0.2-	1998 03 01	910	0.5+	0.1+	1999 04 15	704	0.6-	0.5+
1998 01 29	566	0.1-	0.2+	1998 03 02	910	0.0	0.2-	1999 04 15	704	0.5-	1.0-
1998 01 29	566	0.6-	0.3+	1998 03 02	910	0.3+	0.2-	1999 05 10	704	0.6+	2.8+
1998 01 29	566	0.2+	0.5+	1998 03 02	910	0.2+	0.5-	1999 05 10	704	0.5-	0.3-
1998 02 27	910	0.3-	0.3-	1998 03 31	910	0.3-	0.1+	1999 05 10	704	1.5-	0.7+
1998 02 27	910	0.6-	0.2+	1998 03 31	910	0.5-	0.1-	1999 05 10	704	1.8+	0.2-
1998 02 27	910	0.0	0.0	1998 03 31	910	0.3-	0.3-	1999 05 10	704	0.3+	0.1+

1998 DB₂₄

Id. T. Kagawa (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	100.57859	(2000.0)	P	Q
<i>n</i>	0.35847663	ω	298.92960	-0.26265829
<i>a</i>	1.9625866	Ω	314.16528	-0.74972707
<i>e</i>	0.0554157	<i>i</i>	17.21611	-0.60738779
<i>P</i>	2.75	<i>H</i>	14.6	<i>U</i> 4

Residuals in seconds of arc

1998 02 17	905	0.0	0.1+	1998 03 06	886	0.6+	0.2-	1998 04 03	385	0.3-	1.1+
1998 02 17	905	0.5+	0.7+	1998 03 06	886	0.9-	0.6+	1998 04 20	385	0.2-	0.2-
1998 03 01	888	0.3+	0.2-	1998 03 15	886	0.3+	0.2+	1998 04 20	385	0.2-	0.5-
1998 03 01	888	0.2+	0.6-	1998 03 15	886	0.5-	0.1-	1999 08 18	888	0.2-	0.0
1998 03 01	888	0.8+	0.2-	1998 03 25	699	0.0	0.1+	1999 08 18	888	0.1+	0.1-

1998 03 02	888	0.1+	0.3-	1998 03 25	699	0.1+	0.2+	1999 08 18	888	0.2-	0.4+
1998 03 02	888	0.0	0.6-	1998 03 25	699	0.4-	0.8+	1999 08 19	888	0.3+	0.3-
1998 03 02	888	0.7-	0.7-	1998 04 03	385	0.1-	0.2-	1999 08 19	888	0.1+	0.2-

1998 DZ₃₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	116.43463	(2000.0)	P	Q
<i>n</i>	0.23839698	ω	14.09862	-0.99864004
<i>a</i>	2.5759388	Ω	165.70492	-0.01242297
<i>e</i>	0.1461365	<i>i</i>	12.18070	+0.05063333
<i>P</i>	4.13	<i>H</i>	14.5	<i>U</i> 3

Residuals in seconds of arc

1995 08 22	691	0.2+	0.6-	1998 03 20	704	0.1-	0.6+	1998 04 18	704	(0.7-	2.8+)
1995 08 22	691	0.0	0.2-	1998 03 20	704	0.1-	1.3+	1998 04 19	704	0.1+	0.3-
1995 08 22	691	0.1-	0.2-	1998 03 20	704	0.7-	1.7+	1998 04 19	704	(2.2+	1.3+)
1998 02 26	566	0.4-	0.1-	1998 03 22	704	0.2-	0.3+	1998 04 19	704	0.4+	0.1+
1998 02 26	566	0.0	0.1-	1998 03 22	704	0.3-	0.6-	1998 04 19	704	(0.2-	3.3+)
1998 02 26	566	0.3-	0.1-	1998 03 22	704	0.1+	0.1-	1998 04 19	704	(0.8-	2.5+)
1998 02 27	809	0.1+	1.9+	1998 03 22	704	0.1+	0.5-	1998 04 29	566	0.8+	0.3-
1998 02 27	809	0.6-	1.5+	1998 03 22	704	0.3-	0.2-	1998 04 29	566	0.2-	0.2+
1998 02 27	809	0.0	0.9+	1998 03 26	704	0.6-	0.3-	1998 04 29	566	0.6+	0.2+
1998 02 28	809	(2.2+	5.5+)	1998 03 26	704	1.2-	0.1-	1998 05 14	704	1.0+	0.7+
1998 02 28	809	(2.1+	5.7+)	1998 03 26	704	0.7-	0.4-	1998 05 14	704	0.8+	0.9-
1998 02 28	809	(1.6+	5.5+)	1998 03 29	704	0.6-	1.0-	1998 05 14	704	0.1+	0.1-
1998 03 03	704	0.5+	0.1-	1998 03 29	704	0.3-	0.5-	1998 05 14	704	0.8+	0.5-
1998 03 03	704	1.0+	0.0	1998 03 29	704	0.3-	1.3-	1999 07 13	704	0.0	0.3+
1998 03 03	704	1.3+	0.6-	1998 03 29	704	0.7-	0.5-	1999 07 13	704	0.1-	0.2+
1998 03 03	704	1.1+	0.4-	1998 03 29	704	1.0-	1.2-	1999 07 13	704	0.0	0.2+
1998 03 03	704	0.8+	0.3+	1998 04 18	704	0.4-	0.2-	1999 07 13	704	0.5+	0.6+
1998 03 20	704	0.4+	0.8+	1998 04 18	704	(0.7+	2.3+)	1999 07 13	704	0.5-	0.7+
1998 03 20	704	0.2+	0.2+	1998 04 18	704	0.2-	0.2-				

1998 DK₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	108.56398	(2000.0)	P	Q
<i>n</i>	0.17387086	ω	23.80827	-0.83233849
<i>a</i>	3.1792024	Ω	122.53599	+0.50591329
<i>e</i>	0.1386054	<i>i</i>	0.92151	+0.22641637
<i>P</i>	5.67	<i>H</i>	14.0	<i>U</i> 5

Residuals in seconds of arc

1990 11 10	675	0.2-	0.9+	1998 02 28	809	(0.2+	2.6+)	1998 03 22	704	0.2+	0.4-
1996 12 18	327	0.3+	0.1+	1998 03 03	704	0.3-	0.0	1998 03 22	704	0.1-	0.5+
1996 12 18	327	0.2+	0.5-	1998 03 03	704	0.6-	1.5-	1998 03 22	704	0.5-	1.0+
1996 12 18	327	0.2+	0.5-	1998 03 03	704	1.9+	0.9+	1998 03 22	704	0.4-	0.2+
1996 12 18	327	0.4-	0.2-	1998 03 03	704	0.2+	0.6-	1998 03 22	704	0.6-	0.3-
1998 02 27	809	(2.6+	0.2+)	1998 03 03	704	0.6+	0.4-	1998 03 29	704	0.1-	0.9+
1998 02 27	809	0.7+	1.1+	1998 03 20	704	0.2-	0.8+	1998 03 29	704	0.8-	0.9+
1998 02 27	809	0.2+	0.2+	1998 03 20	704	0.3+	0.3+	1998 03 29	704	(1.7-	3.2-)
1998 02 28	809	(1.4+	2.5+)	1998 03 20	704	0.7+	1.5-	1998 03 29	704	0.1+	1.0-
1998 02 28	809	(0.2-	3.1+)	1998 03 20	704	0.1+	0.0	1998 03 29	704	1.2-	0.9-

1998 EP₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	106.25819	(2000.0)	P	Q
<i>n</i>	0.25925655	ω	83.92468	-0.96007715
<i>a</i>	2.4358445	Ω	112.00401	-0.27398309
<i>e</i>	0.1416927	<i>i</i>	3.29790	-0.05643697
<i>P</i>	3.80	<i>H</i>	15.0	<i>U</i> 4

Residuals in seconds of arc

1998 01 10	910	0.2+	0.4-	1998 03 07	888	0.1+	0.2+	1999 07 13	704	0.0	0.2-
1998 01 10	910	0.3+	0.4-	1998 03 07	888	0.2-	0.1+	1999 07 13	704	0.8-	0.0
1998 01 10	910	0.3+	0.3-	1998 03 07	888	0.2-	0.7+	1999 07 13	704	0.3+	1.0-

1998 02 27	566	0.2+	0.1−	1998 03 15	888	1.1−	0.8−	1999 07 13	704	0.1+	0.7−
1998 02 27	566	0.8+	0.0	1998 03 15	888	0.1+	0.2−	1999 07 13	704	0.6−	0.4−
1998 02 27	566	0.1−	0.1+	1998 03 15	888	1.1+	0.1+	1999 08 02	888	0.1−	0.3+
1998 03 04	704	1.1−	0.4−	1998 03 16	888	0.1−	1.0−	1999 08 02	888	0.2+	0.9+
1998 03 04	704	2.0−	0.3−	1998 03 16	888	0.9+	0.0	1999 08 02	888	0.0	0.8+
1998 03 04	704	2.0−	0.3−	1998 03 16	888	1.2+	0.4−	1999 08 03	888	0.9+	0.4−
1998 03 04	704	(3.6−	1.0−)	1998 03 23	888	0.4+	0.1+	1999 08 13	699	0.3+	0.5+
1998 03 04	704	(2.7−	1.1−)	1998 03 23	888	0.3+	0.4+	1999 08 13	699	1.0+	0.3−
1998 03 06	888	0.6+	0.6+	1998 04 20	888	0.2+	0.2+	1999 08 13	699	1.0−	0.9−
1998 03 06	888	0.6−	0.2−	1998 04 20	888	0.5+	0.5+				
1998 03 06	888	0.1+	0.2+	1998 04 20	888	0.2+	0.7+				

1998 EU₁₀ = 1999 NM₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	107.70047		(2000.0)	P		Q
<i>n</i>	0.23679167	ω	42.03574	−0.98527774	+0.11589419	
<i>a</i>	2.5875680	Ω	144.03684	−0.14254046	−0.96278305	
<i>e</i>	0.0667833	<i>i</i>	12.35773	+0.09439279	−0.24416661	
<i>P</i>	4.16	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1998 02 25	566	(1.1−	4.0−)	1998 03 24	704	1.1+	1.6−	1998 03 25	566	0.2+	0.5+
1998 02 25	566	(1.0−	4.5−)	1998 03 24	704	0.9−	0.5−	1999 07 13	704	0.2−	0.5−
1998 02 25	566	(1.3−	4.1−)	1998 03 24	704	0.6−	0.6−	1999 07 13	704	0.1−	0.6−
1998 03 01	809	1.1+	0.6−	1998 03 25	704	0.1−	0.4+	1999 07 13	704	0.3−	0.2−
1998 03 01	809	0.5+	0.9−	1998 03 25	704	0.1−	0.2−	1999 07 13	704	0.4+	0.3−
1998 03 01	809	0.4+	0.2+	1998 03 25	704	0.4+	0.2+	1999 07 13	704	0.0	0.5−
1998 03 02	809	0.3−	0.9+	1998 03 25	704	0.2+	0.2+	1999 07 19	704	0.5−	0.6+
1998 03 02	809	0.9−	0.7+	1998 03 25	704	0.1+	0.3+	1999 07 19	704	0.5+	0.1+
1998 03 02	809	0.6−	0.1+	1998 03 25	566	0.1+	0.5+	1999 07 19	704	0.2+	1.3+
1998 03 24	704	0.8−	0.4−	1998 03 25	566	0.1+	0.8+				

1998 FA

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	157.40705		(2000.0)	P		Q
<i>n</i>	0.23008321	ω	21.77021	−0.40197480	−0.89803446	
<i>a</i>	2.6376233	Ω	92.30608	+0.81149298	−0.43982012	
<i>e</i>	0.1268208	<i>i</i>	10.30520	+0.42414079	−0.00961069	
<i>P</i>	4.28	<i>H</i>	13.1	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1998 01 24	566	0.8−	1.3−	1998 03 27	758	0.3+	1.0−	1998 04 05	758	1.4−	0.8+
1998 01 24	566	0.6−	1.1−	1998 03 27	758	0.5+	0.1−	1998 04 05	758	0.1+	0.8+
1998 01 24	566	0.7−	1.3−	1998 03 27	758	0.5+	0.7+	1998 04 13	758	1.0+	0.4+
1998 03 16	758	0.4+	0.3−	1998 03 27	758	1.5−	0.5−	1998 04 13	758	0.3+	0.5−
1998 03 16	758	0.2+	0.2+	1998 03 28	758	3.2−	0.3−	1998 04 14	758	1.1+	1.0+
1998 03 17	758	1.2−	0.6−	1998 03 28	758	0.9+	0.6−	1998 04 24	758	0.1+	1.0+
1998 03 17	758	0.1+	0.6−	1998 03 28	758	0.7+	0.2+	1998 04 24	758	0.4+	0.6+
1998 03 21	758	0.2−	0.2−	1998 03 28	758	0.1+	0.4−	1998 05 03	758	0.7−	1.0−
1998 03 21	758	0.5−	0.0	1998 03 30	758	0.2+	0.2+	1998 05 03	758	0.7+	0.5−
1998 03 21	758	2.8+	0.2−	1998 03 30	758	1.1−	0.3+	1999 07 31	467	0.1+	1.1−
1998 03 21	758	1.7+	0.8+	1998 03 31	758	0.0	1.0+	1999 07 31	467	0.2−	0.7−
1998 03 25	758	1.1+	0.4−	1998 03 31	758	0.2−	0.2+	1999 07 31	467	0.3−	0.0
1998 03 25	758	0.2+	0.5−	1998 03 31	758	2.2−	0.1+	1999 07 31	467	0.8−	0.9+
1998 03 25	758	0.2+	0.1+	1998 04 01	758	1.6−	0.0	1999 08 03	467	1.4+	0.8−
1998 03 25	758	0.6+	0.1+	1998 04 01	758	0.3+	0.3+	1999 08 03	467	0.3−	0.5+
1998 03 26	758	0.3−	0.1+	1998 04 01	758	1.1−	0.0	1999 08 07	467	0.2−	0.7−
1998 03 26	758	1.0−	0.4−	1998 04 04	758	0.1−	1.6+	1999 08 07	467	0.2−	0.2−
1998 03 26	758	0.9+	0.1+	1998 04 04	758	1.6+	0.4+	1999 08 07	467	0.1−	0.3+
1998 03 26	758	1.2+	0.1+	1998 04 04	758	0.3−	0.0				

1998 FC

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	53.87992		(2000.0)	P		Q
<i>n</i>	0.21746603	ω	203.92679	−0.68711606	+0.72365135	
<i>a</i>	2.7386830	Ω	22.84494	−0.63676361	−0.55684988	
<i>e</i>	0.1147211	<i>i</i>	9.60947	−0.34986229	−0.40773391	
<i>P</i>	4.53	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1991 09 09	675	0.8+	0.8+	1996 11 28	327	1.1−	0.2+	1998 03 16	411	0.4+	0.4+
1991 09 09	675	1.8−	1.4+	1996 11 28	327	0.4−	0.6−	1998 03 18	411	0.4+	0.4+
1994 03 10	413	0.5+	0.4−	1996 11 28	327	0.7+	0.7+	1998 03 18	411	0.6+	0.4−
1994 03 10	413	0.4−	1.0+	1998 02 26	566	0.0	0.0	1998 03 22	411	0.3+	0.2+
1996 11 28	327	0.3+	0.4−	1998 02 26	566	0.0	0.2−	1998 03 22	411	0.0	0.8+
1996 11 28	327	0.2+	0.6−	1998 02 26	566	0.4−	0.0	1998 03 22	411	0.6−	0.1+
1996 11 28	327	0.4+	0.3−	1998 03 16	411	0.1+	0.2−				

1998 FZ₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	130.62582		(2000.0)	P		Q
<i>n</i>	0.27445922	ω	98.50056	−0.89938795	+0.42763840	
<i>a</i>	2.3450431	Ω	106.85759	−0.42903507	−0.82368559	
<i>e</i>	0.1195094	<i>i</i>	5.43830	−0.08384647	−0.37238079	
<i>P</i>	3.59	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1998 03 22	684	0.2−	0.2+	1998 04 19	684	0.1+	0.2−	1998 04 24	704	0.0	0.4−
1998 03 22	684	0.3−	0.0	1998 04 20	704	1.0−	0.6+	1998 05 16	704	1.3+	0.1+
1998 03 23	684	0.3−	0.0	1998 04 20	704	0.4+	1.5−	1998 05 16	704	1.4−	0.5+
1998 03 23	684	0.4−	0.1+	1998 04 20	704	0.7+	1.4+	1998 05 16	704	0.3+	0.7−
1998 03 24	704	1.6+	0.1+	1998 04 20	704	0.3+	0.6+	1998 05 16	704	0.9−	1.1−
1998 03 24	704	0.3+	0.6−	1998 04 20	704	0.4−	1.2+	1998 05 16	704	1.0−	0.3+
1998 03 24	704	1.0−	0.9−	1998 04 21	704	0.2+	0.3+	1998 05 23	684	0.9+	0.3+
1998 03 24	704	0.2−	0.3+	1998 04 21	704	0.5−	0.2−	1998 05 23	684	0.5+	0.2+
1998 03 25	684	0.3+	0.2−	1998 04 21	704	0.0	0.4−	1999 08 13	684	0.4+	0.1−
1998 03 25	684	0.0	0.2+	1998 04 21	704	0.4+	0.1+	1999 08 13	684	0.3+	0.1−
1998 04 04	684	0.2+	0.3−	1998 04 21	704	0.2−	0.0	1999 08 14	684	0.2+	0.1+
1998 04 04	684	0.0	0.3−	1998 04 24	704	0.9+	1.2−	1999 08 14	684	0.3+	0.1−
1998 04 18	684	0.0	0.2+	1998 04 24	704	0.6−	0.0	1999 08 15	684	0.3−	0.0
1998 04 18	684	0.1−	0.1+	1998 04 24	704	0.2−	0.5+	1999 08 15	684	0.7−	0.1−
1998 04 19	684	0.0	0.2−	1998 04 24	704	0.4+	0.9+				

1998 FW₁₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	124.79377		(2000.0)	P		Q
<i>n</i>	0.26747660	ω	141.32266	−0.92456405	+0.34734383	
<i>a</i>	2.3856800	Ω	59.68727	−0.37885022	−0.79414334	
<i>e</i>	0.1664452	<i>i</i>	10.45350	−0.04066728	−0.49868690	
<i>P</i>	3.68	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1998 03 28	611	1.2−	0.2−	1998 04 22	611	0.5+	0.3−	1998 05 16	704	0.4+	0.3−
1998 03 28	611	0.4+	0.5+	1998 04 22	611	0.1−	0.4−	1998 05 16	704	0.5−	0.5+
1998 03 29	611	0.0	0.2+	1998 04 22	611	0.0	0.4−	1998 05 16	704	1.6+	1.9−
1998 03 29	611	0.2+	0.1+	1998 04 24	704	0.5−	0.5+	1998 05 30	611	0.2−	0.1−
1998 03 30	611	(4.0+	2.2−)	1998 04 24	704	0.1+	0.7+	1998 05 30	611	0.5+	0.5+
1998 03 30	611	(4.0+	1.2+)	1998 04 24	704	1.0−	0.1+	1998 06 19	611	1.3−	0.3+
1998 03 30	611	(3.9+	1.1+)	1998 04 24	704	0.5−	0.4+	1998 06 19	611	0.0	0.3+
1998 03 31	611	0.7+	0.1−	1998 04 24	704	0.8−	0.6+	1999 08 05	428	0.2+	0.5−
1998 03 31	611	0.3+	0.0	1998 05 09	611	1.4+	0.4−	1999 08 05	428	0.4−	0.7+
1998 04 14	611	0.2−	0.4−	1998 05 09	611	0.3+	0.4+	1999 08 11	428	0.2+	0.1−
1998 04 14	611	0.1−	0.7−	1998 05 16	704	0.1+	0.1+				
1998 04 14	611	0.5−	0.6+	1998 05 16	704	0.5+	0.7−				

1999 AUG. 31

M.P.C. 35621

1998 FO₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	115.35758	(2000.0)	P		Q	
<i>n</i>	0.24424242	ω	243.79494	-0.97360535	+0.22383868	
<i>a</i>	2.5346733	Ω	309.10637	-0.18347884	-0.88380380	
<i>e</i>	0.0879305	<i>i</i>	3.29470	-0.13575027	-0.41083705	
<i>P</i>	4.04	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1998 02 23	566	0.8-	1.1-	1998 03 22	704	0.0	0.0	1998 04 18	704	0.5+	0.1-
1998 02 23	566	0.3+	1.0-	1998 03 22	704	0.1+	0.0	1998 04 18	704	0.3+	0.8-
1998 02 23	566	0.9-	1.6-	1998 03 25	910	1.4+	0.1-	1998 04 18	704	0.8-	0.5-
1998 02 23	566	0.2+	1.3-	1998 03 25	910	1.4+	0.1-	1998 04 18	704	(1.9- 3.6+)	
1998 02 23	566	0.3-	0.5-	1998 03 26	910	1.5+	0.1-	1998 04 19	704	(3.2+ 0.5+)	
1998 02 23	566	0.1+	1.2-	1998 03 28	704	0.0	1.2+	1998 04 19	704	0.5-	0.1-
1998 03 04	704	1.5-	0.4+	1998 03 28	704	0.3-	0.3+	1998 04 19	704	0.7+	0.5+
1998 03 04	704	0.9-	1.0-	1998 03 28	704	0.5-	0.0	1998 04 19	704	0.9-	0.2-
1998 03 04	704	(3.1- 1.6-)		1998 03 28	704	0.7-	0.2+	1998 04 30	566	0.3+	1.3-
1998 03 04	704	(2.9- 0.5-)		1998 03 28	704	0.6-	0.6-	1998 04 30	566	0.1+	1.5-
1998 03 08	699	1.2+	0.5+	1998 03 29	704	0.1+	0.1+	1998 04 30	566	0.7+	1.3-
1998 03 08	699	0.8+	0.7-	1998 03 29	704	0.4-	1.4+	1999 07 13	704	0.0	0.7+
1998 03 08	699	0.3+	0.3+	1998 03 29	704	0.7-	1.2+	1999 07 13	704	0.1+	0.5+
1998 03 20	704	0.4+	0.6+	1998 03 29	704	0.2-	0.5+	1999 07 13	704	1.5+	1.5-
1998 03 20	704	0.3+	0.4+	1998 03 29	704	0.8-	0.0	1999 07 13	704	(1.7+ 2.7-)	
1998 03 20	704	0.6+	1.0+	1998 04 01	704	0.1+	0.6+	1999 07 13	704	0.5-	0.2-
1998 03 20	704	0.3-	0.0	1998 04 01	704	0.6+	0.5+	1999 07 16	704	0.4-	0.2+
1998 03 20	704	0.0	0.8+	1998 04 01	704	0.1-	0.9+	1999 07 16	704	0.4-	0.1+
1998 03 22	704	0.3+	0.5+	1998 04 01	704	0.3-	0.8+	1999 07 16	704	0.1-	0.2-
1998 03 22	704	0.3-	0.0	1998 04 01	704	0.7-	0.7+				
1998 03 22	704	0.2+	0.2-	1998 04 18	704	0.1-	0.2+				

1998 FJ₄₉ = 1999 NS₅₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	96.08980	(2000.0)	P		Q	
<i>n</i>	0.23665665	ω	26.53928	-0.85116490	+0.52452131	
<i>a</i>	2.5885521	Ω	185.22913	-0.51199249	-0.83799273	
<i>e</i>	0.0984660	<i>i</i>	12.60725	-0.11568063	-0.15048450	
<i>P</i>	4.16	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1991 09 14	691	0.0	0.5-	1998 03 22	704	0.4+	0.9+	1999 07 12	704	0.1+	0.1-
1991 09 14	691	0.1+	0.6-	1998 03 24	399	(3.4- 2.0-)		1999 07 12	704	0.4-	0.1+
1991 09 14	691	0.2+	0.7-	1998 03 24	399	0.2+	1.6-	1999 07 12	704	0.2+	0.4-
1998 02 23	566	0.4+	0.2+	1998 03 24	566	0.1-	1.3-	1999 07 12	704	0.6-	0.1-
1998 02 23	566	0.2+	0.1+	1998 03 24	566	0.3-	1.2-	1999 07 22	704	0.0	0.1+
1998 02 23	566	0.6+	0.1+	1998 03 24	566	0.1+	1.1-	1999 07 22	704	0.6+	0.1-
1998 03 08	699	0.0	0.6+	1998 03 28	704	0.2+	0.0	1999 07 22	704	0.0	0.0
1998 03 08	699	0.1+	0.8+	1998 03 28	704	0.3-	1.1-	1999 07 22	704	0.3+	0.2+
1998 03 08	699	0.8+	0.3+	1998 03 28	704	0.3-	0.9-	1999 07 22	704	0.4+	0.1+
1998 03 20	704	0.4+	0.2+	1998 03 28	704	0.1+	0.2+	1999 07 22	704	0.2+	0.0
1998 03 20	704	0.0	0.1-	1998 03 28	704	0.3-	0.8-	1999 07 22	704	0.0	0.1-
1998 03 20	704	0.0	0.2+	1998 03 29	704	0.1+	0.5-	1999 07 22	704	0.1-	0.2+
1998 03 20	704	0.1+	0.1-	1998 03 29	704	0.1+	0.5+	1999 07 22	704	0.3+	0.2-
1998 03 20	704	0.0	0.5-	1998 03 29	704	0.7-	0.8+	1999 07 22	704	0.6-	0.1-
1998 03 21	399	0.0	0.4+	1998 03 29	704	1.3-	0.4+	1999 08 22	703	0.5-	0.4+
1998 03 21	399	0.2+	1.7-	1998 03 29	704	1.0-	0.8-	1999 08 22	703	0.2-	0.8+
1998 03 22	704	0.1-	1.0+	1998 04 24	699	0.1-	0.6+	1999 08 22	703	0.3-	0.2-
1998 03 22	704	0.9-	0.2+	1998 04 24	699	0.4+	0.9+	1999 08 22	703	0.1+	1.3-
1998 03 22	704	0.5+	0.3+	1998 04 24	699	0.3+	1.1+				
1998 03 22	704	0.4+	0.9+	1999 07 12	704	0.6+	0.6+				

1998 FP₆₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	154.22633	(2000.0)	P		Q	
<i>n</i>	0.25846744	ω	134.68442	-0.89579186	-0.44379242	
<i>a</i>	2.4407997	Ω	19.01130	+0.38345123	-0.79961298	
<i>e</i>	0.1772466	<i>i</i>	4.33122	+0.22477123	-0.40455825	
<i>P</i>	3.81	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1996 09 22	327	0.7+	0.3-	1998 03 22	704	0.6+	0.1-	1998 04 19	704	0.9-	0.5-
1996 09 22	327	0.1-	0.5-	1998 03 22	704	1.1+	0.0	1998 04 19	704	1.3-	1.5-
1996 09 22	327	0.2+	0.2-	1998 03 22	704	0.2+	0.3+	1998 04 20	704	0.6+	0.8+
1996 11 07	691	0.1+	0.4-	1998 03 28	704	0.1+	0.2-	1998 04 20	704	1.6+	0.4-
1996 11 07	691	0.2+	0.3-	1998 03 28	704	1.1-	0.1-	1998 04 20	704	0.7+	0.0
1996 11 07	691	0.1+	0.5-	1998 03 28	704	1.0-	0.3+	1998 04 20	704	0.9+	0.1-
1998 01 31	910	0.3+	0.2+	1998 03 28	704	1.2-	0.1+	1998 04 20	704	1.0-	0.4+
1998 01 31	910	0.2+	0.5-	1998 03 28	704	0.7-	0.4-	1998 04 22	704	0.3+	0.8-
1998 01 31	910	0.1+	0.2-	1998 03 29	704	0.7-	0.4-	1998 04 22	704	0.4+	1.0+
1998 03 20	704	0.0	0.2+	1998 03 29	704	0.8-	0.4-	1998 04 22	704	0.6+	0.8+
1998 03 20	704	0.3+	0.7+	1998 03 29	704	0.7+	0.1+	1998 04 22	704	1.1-	0.4-
1998 03 20	704	0.1+	0.5+	1998 03 29	704	0.4-	0.3+	1998 04 22	704	0.1+	0.3-
1998 03 20	704	0.7+	0.9-	1998 03 29	704	1.3-	0.3+	1998 04 28	566	0.3+	0.3-
1998 03 20	704	0.6+	0.2+	1998 04 19	704	0.6+	0.3-	1998 04 28	566	0.1-	0.2-
1998 03 22	704	0.1+	0.3+	1998 04 19	704	0.3+	0.2-	1998 04 28	566	0.5-	1.1-
1998 03 22	704	0.9+	0.8+	1998 04 19	704	0.6-	0.1-				

1998 FF₆₆ = 1999 QK

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	70.40898	(2000.0)	P		Q	
<i>n</i>	0.23948621	ω	243.66603	-0.29090451	+0.95669077	
<i>a</i>	2.5681224	Ω	9.44107	-0.85258031	-0.25407660	
<i>e</i>	0.1125668	<i>i</i>	3.78632	-0.43414442	-0.14208395	
<i>P</i>	4.12	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1995 09 19	809	0.9+	0.5+	1998 03 25	704	0.5-	0.5+	1998 04 19	704	0.8+	0.5-
1995 09 20	809	0.5+	0.3-	1998 03 25	704	0.2-	0.1+	1998 04 20	704	0.7+	0.9-
1995 09 27	691	1.2-	0.5+	1998 03 25	704	1.5-	0.5+	1998 04 20	704	0.8+	0.4-
1995 09 27	691	0.5-	0.4+	1998 03 25	704	0.6-	0.9+	1998 04 20	704	0.6+	0.5-
1995 09 27	691	0.5-	0.4+	1998 03 25	704	0.7-	0.4+	1998 04 20	704	0.3+	0.6+
1998 03 20	704	0.5+	0.0	1998 03 25	566	0.1-	0.3-	1998 04 20	704	0.2+	0.6+
1998 03 20	704	0.5-	1.4-	1998 03 25	566	0.0	0.0	1998 04 22	704	0.6+	0.2-
1998 03 20	704	0.1+	1.0-	1998 03 25	566	0.6-	0.0	1998 04 22	704	0.6-	0.8-
1998 03 20	704	0.7+	1.2-	1998 04 01	704	0.3+	0.1-	1998 04 22	704	0.0	0.0
1998 03 20	704	0.5+	1.0-	1998 04 01	704	0.8+	0.1+	1998 04 22	704	0.3-	1.3+
1998 03 22	704	0.7-	0.5-	1998 04 01	704	0.3-	0.2+	1998 04 22	704	0.4-	0.7-
1998 03 22	704	0.1+	0.2-	1998 04 01	704	1.3+	0.9+	1998 04 24	699	0.3+	0.7+
1998 03 22	704	0.2-	0.8+	1998 04 01	704	0.1+	0.3+	1998 04 24	699	0.0	0.3+
1998 03 22	704	0.4-	0.2+	1998 04 18	704	0.3+	0.2-	1998 04 24	699	0.4+	0.6+
1998 03 22	704	0.7-	0.7+	1998 04 18	704	0.2-	0.3-	1998 05 01	699	0.7+	1.3+
1998 03 22	699	0.3-	0.0	1998 04 18	704	0.1+	0.0	1998 05 01	699	0.1-	0.8-
1998 03 22	699	1.5-	0.7+	1998 04 18	704	0.2-	0.1-	1998 05 01	699	0.1-	1.1-
1998 03 22	699	0.4-	0.5+	1998 04 18	704	0.4-	0.4-	1999 08 18	428	1.7+	0.1+
1998 03 24	699	0.1+	0.5-	1998 04 19	704	0.4+	0.2+	1999 08 18	428	0.6+	0.9-
1998 03 24	699	0.0	0.0	1998 04 19	704	0.8+	0.7+	1999 08 19	428	0.4-	0.4-
1998 03 24	699	0.8-	0.0	1998 04 19	704	0.8+	0.4+	1999 08 19	428	1.1-	0.2-

1998 FX₆₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	333.12884	(2000.0)	P		Q
n	0.12508037	ω	96.24378	+0.54551043	+0.83161533
a	3.9598306	Ω	207.62375	-0.82995358	+0.51874479
e	0.1514404	i	12.97291	-0.11659937	+0.19829216
P	7.88	H	11.9	G 0.15	U 3

Residuals in seconds of arc

1998 03 03	704	0.9+	1.9+	1998 03 25	704	0.4+	1.0+	1998 04 22	704	0.4+	0.2-
1998 03 03	704	0.7+	0.2+	1998 03 29	704	0.0	0.2-	1998 04 22	704	0.5+	0.5+
1998 03 03	704	1.5-	0.2-	1998 03 29	704	0.6-	1.4-	1998 04 22	704	0.1-	0.4+
1998 03 03	704	0.6-	1.7-	1998 03 29	704	1.0-	0.2+	1998 04 22	704	0.5-	0.3-
1998 03 03	704	0.1+	0.7-	1998 03 29	704	0.7-	0.6-	1998 05 16	704	0.5-	0.7+
1998 03 20	704	0.6+	0.9+	1998 03 29	704	1.0-	0.1+	1998 05 16	704	0.4-	0.4+
1998 03 20	704	0.1+	0.5-	1998 04 01	704	0.4+	0.6-	1998 05 16	704	0.2+	0.1-
1998 03 20	704	0.2-	0.3+	1998 04 01	704	0.9+	0.8-	1998 05 16	704	0.7+	0.4-
1998 03 20	704	0.1+	0.8+	1998 04 01	704	1.1+	0.8-	1998 05 16	704	(3.3-	0.7-)
1998 03 20	704	0.0	0.4+	1998 04 01	704	0.7+	0.4+	1999 06 14	704	0.1-	0.2-
1998 03 22	704	0.1-	0.2+	1998 04 01	704	1.1-	0.1-	1999 06 14	704	0.1+	0.3-
1998 03 22	704	1.2+	0.8+	1998 04 18	704	0.3+	0.1+	1999 06 14	704	0.3+	0.7+
1998 03 22	704	0.2+	0.8+	1998 04 18	704	1.5+	0.1+	1999 06 14	704	0.2-	0.4-
1998 03 22	704	0.5-	0.1-	1998 04 18	704	0.3+	1.6-	1999 06 14	704	0.1-	0.2-
1998 03 22	704	0.2+	0.5+	1998 04 18	704	0.5-	1.4-	1999 07 13	704	1.0+	0.2-
1998 03 24	699	0.4+	1.0-	1998 04 18	704	1.9-	0.1+	1999 07 13	704	0.3-	0.1+
1998 03 24	699	0.2-	0.2-	1998 04 20	704	0.1-	0.4+	1999 07 13	704	0.3-	0.1-
1998 03 24	699	0.6+	0.5-	1998 04 20	704	0.7+	0.2-	1999 07 13	704	0.4-	0.6-
1998 03 25	704	0.4-	0.1-	1998 04 20	704	0.1-	1.1+	1999 07 13	704	0.4-	0.2+
1998 03 25	704	0.8-	0.2+	1998 04 20	704	0.2+	0.1+	1999 07 21	699	0.6+	0.5+
1998 03 25	704	0.3-	0.8+	1998 04 20	704	0.2-	0.4-	1999 07 21	699	0.4-	0.5+
1998 03 25	704	0.2-	0.4-	1998 04 22	704	0.2-	1.2+	1999 07 21	699	(0.2-	2.2+)

1998 FD₇₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	80.97851		(2000.0)	P	Q
<i>n</i>	0.18757751	ω	132.41472	-0.68476345	+0.72534497
<i>a</i>	3.0223787	Ω	94.22318	-0.68767861	-0.61109042
<i>e</i>	0.2614150	<i>i</i>	4.05514	-0.24124086	-0.31692772
<i>P</i>	5.25	<i>H</i>	15.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1998 03 30	557	0.5+	0.4+	1998 04 17	557	0.1+	0.0	1998 05 01	704	0.0	0.5-
1998 03 30	557	0.1-	0.3+	1998 04 21	704	0.5-	0.1+	1998 05 01	704	0.5+	0.3-
1998 03 30	557	0.5+	0.2+	1998 04 21	704	0.7-	0.5+	1998 05 01	704	0.3+	0.5-
1998 03 31	557	0.0	0.1-	1998 04 21	704	0.1-	0.5-	1998 05 01	704	0.0	0.5-
1998 04 06	557	0.1+	0.3+	1998 04 21	704	0.1-	0.2-	1998 05 01	704	0.1-	0.3+
1998 04 06	557	1.0+	0.9+	1998 04 21	704	0.8-	0.1-	1998 05 13	557	0.3+	0.3+
1998 04 06	557	0.2+	0.1-	1998 04 22	704	0.0	0.3+	1998 05 13	557	1.3+	0.9-
1998 04 07	557	0.3-	0.6-	1998 04 22	704	0.1-	0.1-	1998 05 31	557	0.2-	0.4+
1998 04 07	557	0.3-	0.1+	1998 04 22	704	0.4-	0.2+	1998 05 31	557	0.1-	0.4+
1998 04 07	557	0.1-	0.1+	1998 04 22	704	0.3-	0.5-	1999 08 09	557	0.2+	0.2+
1998 04 07	557	0.2+	0.1+	1998 04 22	704	0.1-	0.3-	1999 08 11	557	0.4-	0.7+
1998 04 17	557	0.7-	0.1+	1998 04 30	557	0.3-	0.3+	1999 08 11	557	0.2+	0.7-
1998 04 17	557	0.9+	0.1-	1998 04 30	557	0.4-	0.1+				

1998 FZ₈₃ = 1954 RX = 1986 TF₃ = 1990 JH₁

Id. A. Doppler, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	10.78378		(2000.0)	P	Q
<i>n</i>	0.21651420	ω	265.02872	+0.22183166	+0.97373484
<i>a</i>	2.7467036	Ω	18.03847	-0.81607261	+0.21419130
<i>e</i>	0.1530753	<i>i</i>	9.53509	-0.53368175	+0.07721748
<i>P</i>	4.55	<i>H</i>	13.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1954 09 04	675	0.7-	0.9-	1998 02 28	327	0.2-	0.0	1998 03 26	704	0.8+	0.6+
1954 09 04	675	1.9+	0.9-	1998 03 24	704	0.4+	0.0	1998 03 26	704	0.0	0.6+
1986 10 04	046	0.3-	1.1+	1998 03 24	704	0.3-	0.1+	1998 03 26	704	0.7+	0.5+
1986 10 04	046	0.4-	1.9+	1998 03 24	704	0.1+	0.2-	1998 04 05	699	1.5-	0.3+
1986 10 05	046	2.1-	1.2+	1998 03 24	704	0.2+	0.2+	1998 04 05	699	0.0	1.0-
1986 10 05	046	0.5-	1.0+	1998 03 25	704	0.1+	0.4-	1998 04 05	699	0.3-	0.4-
1990 05 03	413	1.1-	1.3+	1998 03 25	704	0.4+	0.4+	1998 04 18	704	(2.4+	0.2+)
1990 05 04	413	0.0	1.9+	1998 03 25	704	1.3+	0.2+	1998 04 18	704	0.1+	0.6+

1998 02 28	327	0.2-	0.0	1998 03 25	704	0.8+	0.6+	1998 04 18	704	0.9+	1.2+
1998 02 28	327	0.2-	0.1-	1998 03 25	704	0.2+	0.2-	1998 04 18	704	1.4-	1.2+

1998 FH₁₀₆ = 1980 PX₁ = 1999 NR₂₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	298.43936		(2000.0)	P	Q
<i>n</i>	0.25508262	ω	88.79257	+0.95461889	-0.28971892
<i>a</i>	2.4623445	Ω	288.04540	+0.23613904	+0.87752318
<i>e</i>	0.1067850	<i>i</i>	4.16366	+0.18149692	+0.38212042
<i>P</i>	3.86	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1980 08 06	809	0.1-	0.4-	1998 04 01	704	0.6-	0.3-	1999 07 04	691	0.1+	0.2+
1980 08 07	809	0.4+	0.2-	1998 04 01	704	(6.1-	1.7-)	1999 07 14	704	0.7-	0.5+
1996 12 29	327	0.3-	0.8+	1998 04 19	704	1.1-	0.6-	1999 07 14	704	0.3+	0.5+
1996 12 29	327	0.0	0.6+	1998 04 19	704	0.4-	1.2+	1999 07 14	704	0.2-	0.2+
1996 12 29	327	0.0	1.5+	1998 04 19	704	0.1+	0.5-	1999 07 14	704	0.4-	0.2+
1998 03 31	704	(2.5+	1.1-)	1998 04 19	704	0.6+	1.0-	1999 07 14	704	0.3+	0.6+
1998 03 31	704	1.2+	0.7-	1998 04 20	704	0.1-	1.3-	1999 07 16	704	0.3-	0.3-
1998 03 31	704	0.6+	1.5+	1998 04 20	704	0.0	0.8-	1999 07 16	704	0.1-	0.1+
1998 03 31	704	0.4-	0.1-	1998 04 20	704	1.3-	1.6+	1999 07 16	704	0.0	0.8+
1998 04 01	704	1.7+	0.8+	1998 04 20	704	(2.7-	0.4-)	1999 07 16	704	0.1-	0.2-
1998 04 01	704	0.0	0.3-	1999 07 04	691	0.3+	0.2+	1999 07 16	704	0.2-	0.2+
1998 04 01	704	0.2+	1.7+	1999 07 04	691	0.0	0.2+				

1998 FG₁₁₂ = 1999 NS₁₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	86.36919		(2000.0)	P	Q
<i>n</i>	0.21255818	ω	269.50850	-0.76640316	+0.63255958
<i>a</i>	2.7806788	Ω	309.72554	-0.51626351	-0.71010376
<i>e</i>	0.1329983	<i>i</i>	8.35667	-0.38222792	-0.30922650
<i>P</i>	4.64	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 03 25	566	0.0	0.2-	1998 04 01	704	0.1-	0.4+	1999 07 13	704	0.2-	0.1+
1998 03 25	566	0.0	0.5-	1998 04 01	704	0.8-	1.4+	1999 07 13	704	0.5-	0.8+
1998 03 25	566	0.1+	0.4-	1998 04 01	704	0.1-	0.3-	1999 07 13	704	0.2-	0.1+
1998 03 31	704	0.7+	0.2-	1998 04 01	704	1.1-	0.6+	1999 07 16	704	0.1+	0.1-
1998 03 31	704	0.3+	0.2-	1998 04 30	566	0.0	0.0	1999 07 16	704	0.2+	0.9-
1998 03 31	704	0.7+	1.0-	1998 04 30	566	0.0	0.0	1999 07 16	704	1.2+	0.6+
1998 03 31	704	0.8+	0.4+	1998 04 30	566	0.6+	0.4+				
1998 04 01	704	1.2-	0.4-	1999 07 13	704	0.6-	0.8-				

1998 FD₁₁₄

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	272.82535		(2000.0)	P	Q
<i>n</i>	0.28406608	ω	140.41852	+0.55322819	-0.82662164
<i>a</i>	2.2918690	Ω	275.75754	+0.73561360	+0.54286839
<i>e</i>	0.1062936	<i>i</i>	5.94940	+0.39091074	+0.14829221
<i>P</i>	3.47	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1993 12 16	691	0.0	0.2+	1998 04 18	704	1.2+	1.0-	1998 05 16	704	0.9+	0.4+
1993 12 16	691	0.1-	0.1-	1998 04 19	704	0.2+	0.1-	1999 07 13	704	0.2-	0.4+
1993 12 16	691	0.1+	0.0	1998 04 19	704	0.7+	0.2-	1999 07 13	704	0.2+	0.2-
1998 03 22	699	0.3-	0.2+	1998 04 19	704	0.6+	0.1+	1999 07 13	704	0.0	0.2+
1998 03 22	699	1.0-	1.3+	1998 04 19	704	0.1+	1.2-	1999 07 13	704	0.2+	0.5+
1998 03 22	699	0.9-	1.3+	1998 04 20	704	0.3-	0.5-	1999 07 13	704	0.2-	0.2-
1998 03 31	704	0.1-	0.3-	1998 04 20	704	0.1+	0.1-	1999 07 21	699	0.1+	0.2+
1998 03 31	704	0.7+	1.0+	1998 04 20	704	0.9-	0.7-	1999 07 21	699	0.3+	0.2-
1998 03 31	704	0.2+	1.0+	1998 04 20	704	0.5-	1.0-	1999 07 21	699	0.0	0.5+

1999 AUG. 31

M.P.C. 35623

1998 03 31	704	0.9−	1.4+	1998 04 20	704	0.1+	0.2−	1999 07 23	704	0.2−	0.3−
1998 04 01	704	0.0	0.3+	1998 04 20	704	0.0	0.1−	1999 07 23	704	0.1+	0.2−
1998 04 01	704	0.8+	0.2−	1998 04 20	704	0.9−	0.3−	1999 07 23	704	0.4−	0.2−
1998 04 01	704	0.1+	0.8+	1998 04 20	704	0.8−	0.9−	1999 07 23	704	0.0	0.1+
1998 04 01	704	0.5+	1.0+	1998 04 20	704	1.2−	0.5−	1999 07 23	704	0.7−	0.1−
1998 04 01	704	0.2+	1.1+	1998 04 20	704	0.1−	0.7+	1999 08 13	699	0.0	0.2+
1998 04 18	704	0.7+	0.0	1998 05 16	704	1.2+	1.9−	1999 08 13	699	0.1+	0.1+
1998 04 18	704	0.8+	0.1+	1998 05 16	704	1.2−	0.4−	1999 08 13	699	0.3+	0.0
1998 04 18	704	0.2−	0.9−	1998 05 16	704	0.1+	0.1−				

1998 FL₁₁₇ = 1999 ON₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	126.72508		(2000.0)	P	Q
<i>n</i>	0.24263776	ω	333.02099	−0.97477347	+0.17338889
<i>a</i>	2.5458362	Ω	217.81156	−0.13981892	−0.96519603
<i>e</i>	0.0920414	<i>i</i>	13.25290	−0.17397515	−0.19578791
<i>P</i>	4.06	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1995 10 23	327	0.3−	0.4+	1998 04 01	704	(0.8+	2.9+)	1998 04 25	699	0.1−	0.1−
1995 10 23	327	0.5−	0.5+	1998 04 01	704	0.8−	0.4+	1998 04 30	699	0.9+	0.2−
1995 10 23	327	0.5+	0.2−	1998 04 20	704	0.3−	0.2−	1998 04 30	699	0.9+	0.3−
1998 03 25	699	0.1+	0.3+	1998 04 20	704	0.8+	0.4−	1998 04 30	699	0.9+	0.5−
1998 03 25	704	0.6−	0.3+	1998 04 20	704	0.1+	0.0	1998 05 16	704	0.3+	0.0
1998 03 25	699	0.5+	0.4+	1998 04 20	704	0.9+	0.5+	1998 05 16	704	0.0	0.3−
1998 03 25	699	0.3+	0.1+	1998 04 20	704	0.6+	0.2+	1998 05 16	704	0.1−	0.1+
1998 03 25	704	0.6−	0.1+	1998 04 21	704	0.2−	0.4−	1998 05 16	704	0.9+	0.1−
1998 03 25	704	0.8−	0.2+	1998 04 21	704	0.1+	0.3+	1998 05 16	704	0.6+	0.1−
1998 03 25	704	0.2−	0.0	1998 04 21	704	0.7+	0.1−	1999 07 22	704	0.3+	0.2−
1998 03 25	704	0.5−	0.4+	1998 04 21	704	0.5−	0.5+	1999 07 22	704	0.2−	0.0
1998 03 31	704	0.3+	0.7+	1998 04 21	704	(3.5+	2.2−)	1999 07 22	704	0.4−	0.0
1998 03 31	704	0.7−	0.2−	1998 04 22	704	0.2+	0.5−	1999 07 22	704	0.2−	0.0
1998 03 31	704	1.0−	0.6+	1998 04 22	704	0.3+	0.6−	1999 07 27	704	0.1+	0.0
1998 03 31	704	0.3+	0.2−	1998 04 22	704	0.1−	0.4−	1999 07 27	704	0.2−	0.5−
1998 03 31	704	1.4−	1.0+	1998 04 22	704	(5.5−	1.5+)	1999 07 27	704	0.8+	0.1+
1998 04 01	704	0.8−	0.5+	1998 04 22	704	0.2−	0.2−	1999 07 27	704	0.3−	0.6+
1998 04 01	704	0.8−	0.5+	1998 04 25	699	0.3−	0.6−				
1998 04 01	704	0.5+	1.0−	1998 04 25	699	0.2−	0.1−				

1998 FN₁₁₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	341.95903		(2000.0)	P	Q
<i>n</i>	0.26152813	ω	140.53151	+0.95265305	+0.25508616
<i>a</i>	2.4217192	Ω	206.15952	−0.26783887	+0.96161877
<i>e</i>	0.0413309	<i>i</i>	22.04560	+0.14392535	+0.10109600
<i>P</i>	3.77	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 03 25	704	0.6−	0.5+	1998 04 18	704	0.2+	0.1−	1998 05 01	699	0.4+	0.7−
1998 03 25	704	0.7+	0.1−	1998 04 18	704	0.6−	0.2+	1998 05 16	704	0.4+	0.2−
1998 03 25	704	1.8+	0.8−	1998 04 18	704	0.9−	0.9+	1998 05 16	704	(0.8+	2.5−)
1998 03 25	704	0.0	1.0+	1998 04 20	704	0.2+	0.3−	1998 05 16	704	0.1−	0.7−
1998 03 31	704	0.5+	0.4−	1998 04 20	704	0.0	0.4+	1998 05 16	704	0.2+	1.0+
1998 03 31	704	0.7−	0.8+	1998 04 20	704	0.7+	1.4+	1998 05 16	704	2.0−	0.7+
1998 03 31	704	1.0−	0.2−	1998 04 20	704	1.4−	0.9−	1999 08 09	739	0.0	0.8−
1998 03 31	704	0.2+	0.1+	1998 04 20	704	(1.3−	2.1−)	1999 08 09	739	1.3+	0.1+
1998 03 31	704	0.0	0.9−	1998 04 22	704	0.5+	0.1−	1999 08 09	739	0.1−	0.5+
1998 04 01	704	0.1−	0.4−	1998 04 22	704	0.8+	0.7+	1999 08 09	739	0.6+	0.7−
1998 04 01	704	1.1−	0.7−	1998 04 22	704	0.9+	0.7−	1999 08 11	739	1.0+	0.3−
1998 04 01	704	0.3−	0.4+	1998 04 22	704	1.3+	0.6−	1999 08 11	739	1.6−	0.6+
1998 04 01	704	0.9−	0.4+	1998 04 22	704	0.2+	0.3+	1999 08 11	739	1.2−	0.6+
1998 04 01	704	0.5+	0.1+	1998 05 01	699	0.3−	0.2+				
1998 04 18	704	0.2−	0.5−	1998 05 01	699	0.7+	0.6−				

1998 GJ₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	325.37649		(2000.0)	P	Q
<i>n</i>	0.27168692	ω	230.15960	+0.99731663	−0.03593126
<i>a</i>	2.3609687	Ω	131.79914	+0.05577019	+0.93731344
<i>e</i>	0.0771066	<i>i</i>	4.90830	−0.04742607	+0.34663015
<i>P</i>	3.63	<i>H</i>	14.7	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1997 12 04	910	0.1−	0.7−	1998 03 28	704	0.0	0.6−	1998 04 22	704	0.1+	0.2+
1997 12 04	910	0.7−	1.4−	1998 03 28	704	0.4−	0.0	1998 04 22	704	0.3−	0.6+
1997 12 04	910	0.0	0.8−	1998 03 28	704	1.1−	1.0−	1998 04 22	704	0.2−	0.4−
1998 03 22	704	0.2+	0.1−	1998 03 28	704	0.1+	0.6−	1998 04 22	704	1.7+	0.3−
1998 03 22	704	0.3−	0.4+	1998 04 04	426	0.3−	0.9+	1998 04 25	426	0.4+	0.1−
1998 03 22	704	0.1−	0.1+	1998 04 04	426	0.1+	0.7+	1998 04 25	426	0.4−	0.2+
1998 03 22	704	0.5−	0.9−	1998 04 04	426	0.2+	0.9+	1998 04 25	426	0.1−	0.6+
1998 03 22	704	1.1−	0.2−	1998 04 05	426	0.3+	0.7+	1998 04 27	426	0.4+	0.3+
1998 03 24	704	0.5−	0.5−	1998 04 05	426	0.4+	0.1+	1998 04 27	426	0.4+	0.3+
1998 03 24	704	0.0	0.6−	1998 04 05	426	0.2+	0.5+	1998 04 27	426	0.0	0.3+
1998 03 24	704	1.1−	0.2−	1998 04 19	704	0.0	0.3+	1998 04 28	566	0.2−	0.4+
1998 03 24	704	(0.6−	2.3−)	1998 04 19	704	0.2−	0.5+	1998 04 28	566	0.1+	0.2+
1998 03 24	704	0.8−	1.1−	1998 04 19	704	0.2+	0.2+	1998 04 28	566	0.8−	0.6+
1998 03 24	566	0.4−	0.6−	1998 04 19	704	0.1−	1.2+	1999 08 14	426	0.0	0.4−
1998 03 24	566	0.0	0.3−	1998 04 20	704	0.3+	0.0	1999 08 14	426	0.1+	0.4−
1998 03 24	566	0.4−	0.8−	1998 04 20	704	0.4+	0.3+	1999 08 14	426	0.0	0.5−
1998 03 25	699	1.6+	0.5−	1998 04 20	704	0.3+	0.1−	1999 08 15	426	0.2+	0.3−
1998 03 25	699	0.2−	0.7−	1998 04 20	704	0.3−	0.5+	1999 08 15	426	0.2+	0.4−
1998 03 25	699	0.3+	0.8−	1998 04 20	704	1.2+	0.7+				
1998 03 28	704	0.5−	0.9−	1998 04 22	704	0.9+	0.0				

1998 GL₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	193.71829		(2000.0)	P	Q
<i>n</i>	0.24139991	ω	101.79883	−0.60367055	−0.78757509
<i>a</i>	2.5545318	Ω	26.57224	+0.58028421	−0.54048736
<i>e</i>	0.0569960	<i>i</i>	16.05639	+0.54667367	−0.29597111
<i>P</i>	4.08	<i>H</i>	14.1	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1998 04 05	426	0.5−	0.1+	1998 04 22	704	0.9+	0.1−	1998 06 16	426	0.4−	0.8−
1998 04 05	426	0.3−	0.3+	1998 04 22	704	1.1+	0.5+	1998 06 16	426	0.4−	0.5−
1998 04 05	426	0.6−	0.1+	1998 04 22	704	0.2+	0.0	1998 06 16	426	0.4−	0.8−
1998 04 06	426	1.5−	0.0	1998 04 22	704	0.7+	0.3+	1998 06 17	426	0.3−	0.4−
1998 04 06	426	1.2−	0.5−	1998 04 22	704	1.6+	0.4+	1998 06 17	426	1.1−	0.3−
1998 04 06	426	0.6−	0.3+	1998 05 05	426	0.1−	0.5−	1998 06 17	426	0.8−	0.2−
1998 04 06	426	1.1−	0.1−	1998 05 05	426	0.4−	0.1−	1998 07 11	426	0.1+	0.3+
1998 04 15	426	0.4+	0.1−	1998 05 15	426	0.6−	0.1+	1998 07 11	426	0.2−	0.5+
1998 04 15	426	0.1−	0.2−	1998 05 15	426	0.1+	0.0	1998 07 11	426	0.0	0.3+
1998 04 15	426	0.1−	0.1−	1998 05 15	426	0.2−	0.3+	1998 07 22	426	0.2+	0.2−
1998 04 16	426	0.1−	0.1−	1998 05 16	704	0.2+	0.7+	1998 07 22	426	0.8+	0.1−
1998 04 16	426	0.5+	0.1−	1998 05 16	704	0.2−	1.0+	1998 07 22	426	0.4−	0.2+
1998 04 16	426	0.3+	0.2−	1998 05 16	704	0.2+	0.3+	1999 08 14	426	0.1−	0.1+
1998 04 21	704	1.4+	0.3+	1998 05 16	704	0.7+	0.5−	1999 08 14	426	0.1−	0.0
1998 04 21	704	0.4+	0.1−	1998 05 16	704	(2.8−	0.4+)	1999 08 14	426	0.1+	0.2+
1998 04 21	704	1.3+	0.9−	1998 05 21	426	0.5−	0.1+	1999 08 15	426	0.1−	0.0
1998 04 21	704	0.7+	0.0	1998 05 21	426	0.3−	0.6+	1999 08 15	426	0.1−	0.1−
1998 04 21	704	0.4+	0.3+	1998 05 21	426	0.5−	0.0	1999 08 15	426	0.1+	0.0

1998 GE₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	59.56130		(2000.0)	P	Q
<i>n</i>	0.23119879	ω	118.49729	+0.00522011	+0.99186664
<i>a</i>	2.6291317	Ω	150.94835	-0.98439003	+0.02747051
<i>e</i>	0.1157758	<i>i</i>	15.18238	-0.17592332	-0.12428169
<i>P</i>	4.26	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1998 03 08	699	0.2+	0.0	1998 04 23	704	0.5-	0.7-	1998 05 28	704	0.7-	0.2-
1998 03 08	699	0.1-	0.8+	1998 04 24	704	0.2-	0.0	1998 06 17	704	0.5+	0.9+
1998 03 08	699	1.0+	0.1+	1998 04 24	704	0.4-	0.4+	1998 06 17	704	1.4-	0.8+
1998 04 02	704	0.2+	0.4-	1998 04 24	704	0.5+	0.5+	1998 06 17	704	(0.5+ 2.5-)	
1998 04 02	704	0.3+	0.0	1998 04 24	704	0.0	0.6+	1998 06 17	704	0.2+	0.8-
1998 04 02	704	(0.7+ 2.9-)		1998 04 24	704	0.2+	1.3+	1998 06 17	704	(0.4- 2.7-)	
1998 04 03	704	0.1+	0.1-	1998 05 16	704	0.3+	0.0	1998 06 21	699	1.2+	1.8+
1998 04 03	704	0.3+	0.4-	1998 05 16	704	0.5+	0.8-	1998 06 21	699	0.0	0.0
1998 04 03	704	0.0	0.4-	1998 05 16	704	0.0	0.8-	1998 06 21	699	0.7+	0.0
1998 04 03	704	0.4+	0.2-	1998 05 16	704	0.9-	0.3-	1999 07 16	704	0.2-	0.0
1998 04 03	704	1.0-	0.3-	1998 05 16	704	1.4-	1.7-	1999 07 16	704	1.1-	0.7-
1998 04 23	704	0.1-	0.0	1998 05 28	704	0.8+	0.2+	1999 07 16	704	0.7+	0.5+
1998 04 23	704	0.4-	0.6+	1998 05 28	704	0.5-	0.9-	1999 07 16	704	0.8+	0.8-
1998 04 23	704	0.4-	0.7+	1998 05 28	704	(3.3- 0.6+)		1999 08 13	747	0.0	0.6+
1998 04 23	704	0.2+	0.1+	1998 05 28	704	0.7+	0.3-	1999 08 13	747	0.2-	0.3+

1998 HF₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

<i>M</i>	22.81180		(2000.0)	P	Q
<i>n</i>	0.18513244	ω	112.36223	+0.58836518	+0.80674406
<i>a</i>	3.0489317	Ω	194.08767	-0.79960888	+0.57043950
<i>e</i>	0.1579711	<i>i</i>	12.98318	-0.12021669	+0.15415188
<i>P</i>	5.32	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1998 04 21	118	0.2-	0.2-	1998 04 26	118	0.1+	0.3+	1998 05 28	118	0.4-	0.2-
1998 04 21	118	0.2-	0.2-	1998 05 03	118	0.8-	0.3+	1998 05 28	118	0.1+	0.2-
1998 04 21	118	0.1-	0.8+	1998 05 03	118	0.5-	0.3+	1998 06 02	699	0.1-	0.2-
1998 04 21	118	0.5+	0.4-	1998 05 03	118	0.5-	0.6+	1998 06 02	699	0.1-	0.7-
1998 04 21	118	0.8+	0.3-	1998 05 05	699	0.3-	0.1+	1998 06 02	699	1.4+	0.1+
1998 04 21	118	0.8+	0.4+	1998 05 05	699	0.7-	0.2+	1999 08 10	118	0.1-	0.4+
1998 04 23	118	0.3+	0.2-	1998 05 05	699	0.4+	0.1-	1999 08 10	118	0.3+	0.2+
1998 04 23	118	0.2+	0.3-	1998 05 07	118	0.6-	0.1+	1999 08 10	118	0.0	0.0
1998 04 23	704	1.9-	1.1-	1998 05 07	118	0.3-	0.4+	1999 08 13	118	0.3-	0.8-
1998 04 23	704	0.9+	0.6-	1998 05 15	118	0.1+	0.1+	1999 08 13	118	0.4-	0.5+
1998 04 23	704	0.2+	0.0	1998 05 15	118	0.2+	0.0	1999 08 14	118	0.1+	0.3-
1998 04 23	704	1.1+	0.3+	1998 05 15	118	0.1+	0.0	1999 08 14	118	0.1+	0.5-
1998 04 24	118	0.4-	0.1-	1998 05 16	118	0.2-	0.4+	1999 08 25	118	0.2+	0.1+
1998 04 24	118	0.2+	0.1+	1998 05 16	118	0.3-	0.4+	1999 08 25	118	0.1+	0.4+
1998 04 26	118	0.1-	0.2+	1998 05 28	118	0.2+	0.4-				

1998 HY₆ = 1999 QM

Id. T. Kagawa

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Urata

<i>M</i>	137.00544		(2000.0)	P	Q
<i>n</i>	0.26860330	ω	132.96546	-0.99184664	+0.09842203
<i>a</i>	2.3790039	Ω	52.84462	-0.12454056	-0.88327868
<i>e</i>	0.1188369	<i>i</i>	5.82969	+0.02701663	-0.45840143
<i>P</i>	3.67	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 04 19	704	0.7-	0.4+	1998 04 22	704	0.1+	1.8+	1998 04 29	888	0.6+	0.4+
1998 04 19	704	0.5+	0.4+	1998 04 22	704	0.5-	0.5+	1998 05 20	888	0.1-	0.0
1998 04 19	704	0.4+	1.6+	1998 04 22	704	1.1+	1.0-	1998 05 20	888	0.3+	0.8-
1998 04 19	704	0.7-	1.0+	1998 04 22	704	0.1+	0.0	1998 05 20	888	0.7+	0.3-
1998 04 20	704	0.5+	0.1+	1998 04 22	888	0.2-	0.4-	1998 06 15	888	0.2-	0.4-

1998 04 20	704	0.9+	0.0	1998 04 22	888	0.3-	0.2-	1998 06 15	888	0.5-	0.7+
1998 04 20	704	0.4+	0.4-	1998 04 22	888	0.2-	0.1+	1999 08 18	888	0.4+	0.1+
1998 04 20	704	0.8+	0.6-	1998 04 28	566	0.8-	0.5-	1999 08 18	888	0.2+	0.2+
1998 04 20	704	0.1+	0.8-	1998 04 28	566	0.2-	0.3-	1999 08 19	888	0.1+	0.7-
1998 04 20	888	0.2-	1.2-	1998 04 28	566	0.6-	0.5-	1999 08 19	888	0.8-	0.7+
1998 04 20	888	0.4-	0.5-	1998 04 29	888	0.3-	0.2+				
1998 04 20	888	0.9-	0.1+	1998 04 29	888	0.3+	0.7+				

1998 HH₉ = 1999 NN₃₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	255.34367		(2000.0)	P	Q
<i>n</i>	0.21284739	ω	292.50823	+0.48164518	-0.86518572
<i>a</i>	2.7781594	Ω	127.94453	+0.85496240	+0.42891138
<i>e</i>	0.1851417	<i>i</i>	10.19191	+0.19250250	+0.25978585
<i>P</i>	4.63	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 04 18	691	0.2+	0.1+	1998 04 24	704	0.5-	1.3+	1999 07 14	704	0.9+	0.3+
1998 04 18	691	0.0	0.0	1998 04 25	691	0.2+	0.7-	1999 07 14	704	0.0	0.4-
1998 04 18	691	0.4+	0.2+	1998 04 25	691	0.1+	0.1+	1999 07 14	704	0.4+	0.2+
1998 04 23	704	0.3-	0.4-	1998 04 25	691	0.2+	0.1+	1999 07 14	704	0.3+	0.1+
1998 04 23	704	0.0	0.9-	1998 05 23	704	0.0	0.5+	1999 07 16	704	0.7+	0.6-
1998 04 23	704	(1.2- 2.5-)		1998 05 23	704	0.2-	0.7-	1999 07 16	704	0.1-	0.1+
1998 04 23	704	1.2-	1.6+	1998 05 23	704	1.8+	1.8-	1999 07 16	704	1.7-	0.2-
1998 04 24	704	0.0	1.0-	1998 05 23	704	0.5-	0.8+	1999 07 16	704	0.5-	0.6+
1998 04 24	704	0.8+	0.4+	1998 05 23	704	1.1-	0.5+				

1998 HS₁₉

Id. E. Bowell (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	242.74220		(2000.0)	P	Q
<i>n</i>	0.25826260	ω	328.07478	+0.05083979	-0.99406415
<i>a</i>	2.4420902	Ω	118.85034	+0.93784501	+0.01441235
<i>e</i>	0.1227782	<i>i</i>	6.30472	+0.34331043	+0.10783670
<i>P</i>	3.82	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 04 21	704	0.4-	0.5-	1998 04 30	566	0.2+	0.4-	1998 05 27	699	0.5-	0.1+
1998 04 21	704	0.3-	0.1-	1998 04 30	566	0.3+	0.4+	1998 05 27	699	0.1-	0.2+
1998 04 21	704	1.3-	0.4-	1998 04 30	566	0.8+	0.3+	1999 07 13	704	0.2-	0.2-
1998 04 21	704	1.1+	0.2+	1998 05 22	704	0.2-	0.3+	1999 07 13	704	0.1-	0.2-
1998 04 23	704	0.0	0.3+	1998 05 22	704	0.5-	0.8-	1999 07 13	704	0.2+	0.1-
1998 04 23	704	0.0	0.4+	1998 05 22	704	1.7+	0.9+	1999 07 13	704	0.1-	0.5+
1998 04 23	704	0.4+	0.0	1998 05 22	704	0.3+	0.8-	1999 07 13	704	0.1-	0.3+
1998 04 23	704	0.2-	0.5-	1998 05 22	704	0.5+	0.1-	1999 07 20	699	0.4+	0.7+
1998 04 25	699	0.6-	0.8+	1998 05 24	704	0.2+	1.2-	1999 07 20	699	0.7+	0.2-
1998 04 25	699	0.1+	0.7+	1998 05 24	704	0.4-	0.9-	1999 07 20	699	0.0	0.0
1998 04 25	699	0.1+	0.2+	1998 05 24	704	0.1+	1.2+	1999 08 13	699	0.4-	0.4-
1998 04 29	566	0.0	0.0	1998 05 24	704	1.2-	0.4-	1999 08 13	699	0.6-	0.2+
1998 04 29	566	0.2-	0.3-	1998 05 24	704	0.2-	0.1+	1999 08 13	699	0.2+	0.4-
1998 04 29	566	0.5-	0.1+	1998 05 27	699	0.7+	0.1+				

1998 HO₂₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	105.30146		(2000.0)	P	Q
<i>n</i>	0.19560430	ω	35.68274	-0.97710276	+0.20420086
<i>a</i>	2.9391186	Ω	155.89105	-0.21276651	-0.93878174
<i>e</i>	0.1998991	<i>i</i>	8.41375	+0.00077881	-0.27747225
<i>P</i>	5.04	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 03 24	704	0.3+	0.2+	1998 04 23	704	0.4+	0.0	1998 04 28	566	0.0	0.0
1998 03 24	704	0.1+	0.1+	1998 04 23	704	0.0	0.4+	1998 05 16	704	0.2+	0.7-
1998 03 24	704	0.1+	0.4+	1998 04 23	704	0.3-	0.7+	1998 05 16	704	0.5-	0.2+

1999 AUG. 31

M.P.C. 35625

1998 03 24	704	0.5−	0.1+	1998 04 23	704	1.5−	0.4−	1998 05 16	704	0.5−	0.1−
1998 03 24	704	0.4−	0.1+	1998 04 24	704	0.4+	0.4+	1998 05 16	704	1.8+	1.1+
1998 04 04	699	0.5−	1.1−	1998 04 24	704	0.9+	0.4+	1998 05 16	704	1.0−	0.5+
1998 04 04	699	0.2−	0.6−	1998 04 24	704	1.0+	0.5+	1998 05 23	699	0.5−	0.3−
1998 04 04	699	0.4+	0.0	1998 04 24	704	0.1−	1.1+	1998 05 23	699	0.2−	0.7−
1998 04 21	704	0.1+	0.4−	1998 04 24	704	0.7−	0.9+	1998 05 23	699	0.1+	0.6−
1998 04 21	704	0.3+	0.3−	1998 04 25	566	0.1+	0.8−	1999 08 14	426	0.5+	0.0
1998 04 21	704	0.2+	1.1−	1998 04 25	566	0.2−	0.4−	1999 08 14	426	0.0	0.0
1998 04 21	704	1.4+	1.1+	1998 04 25	566	0.1+	0.3−	1999 08 14	426	0.2−	0.3+
1998 04 21	704	0.3−	0.2−	1998 04 28	566	0.1−	0.1+	1999 08 15	426	0.1−	0.2−
1998 04 23	704	0.5−	0.6−	1998 04 28	566	0.0	0.0	1999 08 15	426	0.3−	0.0

1998 HB₃₉ = 1999 NY₁₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	345.30018		(2000.0)	P	Q
<i>n</i>	0.17975565	ω	306.76386	+0.74131233	+0.67114827
<i>a</i>	3.1094317	Ω	11.08232	−0.60894919	+0.67509523
<i>e</i>	0.1209000	<i>i</i>	1.19358	−0.28220014	+0.30627834
<i>P</i>	5.48	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1998 03 29	704	1.7+	0.0	1998 04 20	704	1.6−	1.1−	1999 06 15	704	0.4−	0.1+
1998 03 29	704	0.8+	0.4+	1998 04 21	704	0.1−	0.1+	1999 06 15	704	0.7−	0.6−
1998 03 29	704	0.2+	0.8+	1998 04 21	704	0.5+	0.5−	1999 06 15	704	0.3+	0.4−
1998 03 29	704	0.1+	1.1+	1998 04 21	704	0.9+	0.9−	1999 06 15	704	0.2−	0.2+
1998 03 29	704	(1.8−	2.9−)	1998 04 21	704	0.3−	1.1−	1999 07 14	704	0.3+	0.2+
1998 04 01	704	0.5+	0.9+	1998 04 21	704	0.8−	0.4−	1999 07 14	704	0.5+	0.6+
1998 04 01	704	0.1+	1.1+	1998 04 22	704	0.5+	0.0	1999 07 14	704	0.2−	0.5+
1998 04 01	704	0.6−	1.2+	1998 04 22	704	0.2−	0.0	1999 07 16	704	0.3+	0.7+
1998 04 01	704	(5.5−	1.5+)	1998 04 22	704	0.9−	0.1+	1999 07 16	704	0.4+	0.5+
1998 04 20	704	1.0+	0.4−	1998 04 22	704	0.0	0.1+	1999 07 16	704	0.6+	0.1+
1998 04 20	704	(2.1+	1.2+)	1998 04 22	704	(3.0−	0.2+)	1999 07 16	704	0.5−	1.1−
1998 04 20	704	1.8−	1.3−	1999 06 15	704	0.2+	0.7+	1999 07 16	704	0.8−	1.1−

1998 HQ₃₉ = 1999 ND₃₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	13.66541		(2000.0)	P	Q
<i>n</i>	0.17165762	ω	246.50379	+0.35074445	+0.93610951
<i>a</i>	3.2064710	Ω	44.05641	−0.84496503	+0.32833135
<i>e</i>	0.1567709	<i>i</i>	2.14491	−0.40374797	+0.12608533
<i>P</i>	5.74	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 03 25	704	0.5+	0.2+	1998 04 20	704	0.3+	0.3−	1999 06 23	703	0.5−	0.8−
1998 03 25	704	(2.7+	0.9−)	1998 04 20	704	0.8−	0.4−	1999 06 23	703	0.3−	0.1+
1998 03 25	704	0.7+	0.0	1998 04 21	704	0.3+	0.7−	1999 06 23	703	0.2+	0.5−
1998 03 25	704	0.6+	0.9+	1998 04 21	704	1.6−	0.5+	1999 07 14	704	0.2−	0.1+
1998 03 25	704	0.2−	1.7+	1998 04 21	704	0.1+	0.6−	1999 07 14	704	0.1−	0.9+
1998 03 29	704	0.3+	1.5+	1998 04 21	704	0.7−	0.5−	1999 07 14	704	0.3+	0.4−
1998 03 29	704	(1.4+	2.1+)	1998 04 21	704	0.4−	0.9−	1999 07 14	704	0.4+	0.3+
1998 03 29	704	1.2+	1.7+	1998 04 22	704	0.2+	1.1+	1999 07 14	704	0.4+	0.7+
1998 03 29	704	0.8+	1.4+	1998 04 22	704	0.3−	0.8−	1999 07 16	704	0.2+	0.3+
1998 03 29	704	0.0	1.0+	1998 04 22	704	0.9−	1.0−	1999 07 16	704	0.2−	0.6+
1998 04 20	704	0.2−	0.6−	1998 04 22	704	0.1−	0.9−	1999 07 16	704	0.3+	0.0
1998 04 20	704	0.3−	1.4−	1998 04 22	704	(2.2−	0.4−)				
1998 04 20	704	0.4+	1.4−	1999 06 23	703	0.7−	0.8−				

1998 HF₅₁ = 1999 PN₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	289.20660		(2000.0)	P	Q
<i>n</i>	0.27234532	ω	6.10812	+0.53831718	−0.84112328
<i>a</i>	2.3571621	Ω	51.33537	+0.77034309	+0.46600156
<i>e</i>	0.0410334	<i>i</i>	3.83424	+0.34173987	+0.27450714
<i>P</i>	3.62	<i>H</i>	14.6	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 04 21	704	0.2−	0.3+	1998 04 25	699	1.2−	0.9+	1998 05 22	704	0.8−	0.9+
1998 04 21	704	0.3−	0.0	1998 05 01	704	0.6+	0.7−	1998 05 22	704	0.8−	1.1+
1998 04 21	704	1.0−	0.3−	1998 05 01	704	1.3+	1.9−	1998 05 22	699	1.0−	0.2−
1998 04 21	704	1.2−	0.1+	1998 05 01	704	0.4+	0.7−	1998 05 22	699	0.3+	0.0
1998 04 21	704	0.0	0.1−	1998 05 01	704	0.7+	0.1+	1998 05 22	699	1.9+	3.3−
1998 04 22	704	0.4−	0.6+	1998 05 01	704	0.4+	0.8−	1998 05 24	704	0.6+	0.5+
1998 04 22	704	0.4+	1.1+	1998 05 05	699	0.5+	1.8−	1998 05 24	704	0.6+	1.0+
1998 04 22	704	1.3+	2.2+	1998 05 05	699	0.6+	1.3−	1998 05 24	704	0.5−	0.1+
1998 04 22	704	0.0	0.0	1998 05 05	699	0.8+	0.7−	1998 05 24	704	0.6−	1.4+
1998 04 22	704	0.9−	0.1+	1998 05 22	704	0.1−	1.5−	1999 08 15	428	1.2−	0.2−
1998 04 25	699	0.7+	0.1+	1998 05 22	704	1.5−	0.4+	1999 08 16	428	0.9+	0.5+
1998 04 25	699	0.1−	1.2+	1998 05 22	704	0.7−	1.2+	1999 08 16	428	0.2+	0.2−

1998 HK₅₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	106.32432		(2000.0)	P	Q
<i>n</i>	0.17720682	ω	132.17237	−0.94454087	+0.28196341
<i>a</i>	3.1391767	Ω	64.83927	−0.32829873	−0.82309953
<i>e</i>	0.1709666	<i>i</i>	10.71882	+0.00790452	−0.49295416
<i>P</i>	5.56	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1998 04 25	426	0.2−	0.2+	1998 05 16	426	0.0	0.1−	1998 06 16	704	0.1−	0.5−
1998 04 25	426	0.3−	0.1+	1998 05 22	704	1.8+	0.1+	1998 06 16	704	0.7+	1.8+
1998 04 25	426	1.1−	0.2+	1998 05 22	704	0.4−	0.2−	1998 06 16	704	0.1+	0.1+
1998 05 01	704	0.0	0.3−	1998 05 22	704	0.1−	1.4−	1998 06 16	704	0.1−	1.2−
1998 05 01	704	0.3+	0.8+	1998 05 22	704	0.3+	1.1−	1998 06 16	704	(5.4−	0.8−)
1998 05 01	704	0.3+	0.5+	1998 05 22	704	(0.5+	2.2−)	1998 06 17	426	0.4−	0.5+
1998 05 01	704	1.1+	0.3+	1998 05 23	699	0.1−	0.1+	1998 06 17	426	0.5−	0.4+
1998 05 01	566	0.4+	0.5+	1998 05 23	699	0.1+	1.0−	1998 06 17	426	0.3−	0.1−
1998 05 01	566	0.4−	0.1+	1998 05 23	699	0.3−	0.9+	1998 07 11	426	0.4−	0.3+
1998 05 01	566	0.5−	0.2+	1998 05 24	704	0.6+	0.1+	1998 07 11	426	0.4−	0.3−
1998 05 05	699	0.4−	0.0	1998 05 24	704	1.0−	0.3+	1998 07 11	426	0.1−	0.4−
1998 05 05	699	0.2−	0.0	1998 05 24	699	0.1+	1.1+	1998 07 22	426	0.4−	0.0
1998 05 05	699	0.3+	0.6+	1998 05 24	704	1.3+	0.1+	1998 07 22	426	0.2+	0.0
1998 05 05	426	0.2−	0.4−	1998 05 24	699	0.3−	0.1+	1998 07 22	426	0.1−	0.1+
1998 05 05	426	0.3−	0.2−	1998 05 24	704	0.9+	0.5−	1999 08 14	426	0.1−	0.0
1998 05 15	426	0.1+	0.3−	1998 05 24	699	0.2−	0.0	1999 08 14	426	0.0	0.3+
1998 05 15	426	0.3+	0.2−	1998 05 24	704	0.2−	0.3+	1999 08 14	426	0.1+	0.2+
1998 05 15	426	0.1+	0.2−	1998 06 14	426	0.3−	1.1−	1999 08 15	426	0.1+	0.1−
1998 05 16	426	0.1+	0.4−	1998 06 14	426	0.0	0.1+	1999 08 15	426	0.1−	0.1−
1998 05 16	426	0.0	0.2−	1998 06 14	426	0.1−	0.1−	1999 08 15	426	0.1−	0.0

1998 HP₅₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	111.35355		(2000.0)	P	Q
<i>n</i>	0.28538273	ω	131.60592	−0.26377159	+0.96401656
<i>a</i>	2.2848144	Ω	123.07104	−0.89632785	−0.23227693
<i>e</i>	0.2035733	<i>i</i>	2.26476	−0.35639997	−0.12930389
<i>P</i>	3.45	<i>H</i>	15.6	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1993 11 20	691	0.1+	0.6−	1998 04 30	358	1.2−	0.0	1998 05 22	704	1.5+	0.3+
1993 11 20	691	0.0	0.5+	1998 04 30	358	0.7+	1.1−	1998 05 22	704	0.3−	1.4+
1993 11 20	691	0.2−	0.3−	1998 04 30	358	(0.5−	2.7+)	1998 05 22	704	1.2+	0.4−
1996 12 19	327	0.1+	0.4+	1998 05 01	704	0.1+	0.6+	1998 05 22	704	0.0	0.2−

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1996 12 19	327	0.7−	0.2+	1998 05 01	704	0.1+	0.2+	1998 05 24	704	1.0+	0.1+
1996 12 19	327	0.5+	0.3+	1998 05 01	704	0.5+	0.6−	1998 05 24	704	(5.2+	2.0−)
1998 04 22	704	0.2−	0.0	1998 05 01	704	0.2−	0.1+	1998 05 24	704	1.1−	0.3−
1998 04 22	704	0.3−	0.5+	1998 05 01	704	0.4+	0.7−	1998 05 24	704	0.3−	0.2+
1998 04 22	704	0.6−	0.0	1998 05 01	358	(2.1−	0.9+)	1998 06 27	699	0.6+	0.7+
1998 04 22	704	0.2+	0.2+	1998 05 01	358	1.0+	0.4−	1998 06 27	699	0.2−	0.3−
1998 04 22	704	1.5−	0.1+	1998 05 04	358	0.4−	0.4+	1998 06 27	699	0.2+	0.7−
1998 04 30	566	0.0	0.4−	1998 05 04	358	0.7+	0.6+	1998 07 16	699	0.5−	0.3+
1998 04 30	566	0.4−	0.3−	1998 05 04	358	(2.2−	0.2−)	1998 07 16	699	0.1+	0.1−
1998 04 30	566	0.4−	0.3−	1998 05 22	704	0.2−	0.3+	1998 07 16	699	0.6−	0.0

1998 HW₁₁₉ = 1999 PW₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	185.19485		(2000.0)	P	Q
n	0.26526295	ω	19.13395	−0.86384866	−0.49446352
a	2.3989341	Ω	130.84773	+0.44399870	−0.83763992
e	0.0685705	i	7.31295	+0.23797195	−0.23208876
P	3.72	H	14.8	G 0.15	U 4

Residuals in seconds of arc

1998 04 21	704	0.2+	0.0	1998 04 25	566	0.4+	0.9−	1998 05 25	704	0.4−	0.3+
1998 04 21	704	0.2+	0.9−	1998 04 25	566	0.0	0.8−	1998 06 02	699	0.8+	0.4−
1998 04 21	704	0.3+	0.8−	1998 04 25	566	0.0	1.1−	1998 06 02	699	0.2+	0.3+
1998 04 21	704	0.4+	0.3+	1998 05 01	699	0.2−	0.4+	1998 06 02	699	1.0−	0.4−
1998 04 21	704	0.3−	1.8+	1998 05 01	699	0.1−	0.4−	1998 08 09	428	0.8−	0.4+
1998 04 23	704	0.5+	0.1−	1998 05 01	699	0.2+	0.3−	1998 08 09	428	0.8+	0.1+
1998 04 23	704	0.3−	0.7+	1998 05 23	704	0.7+	0.3−	1998 08 10	428	0.5+	0.4+
1998 04 23	704	0.5−	0.0	1998 05 23	704	0.3−	0.9+	1998 08 10	428	0.4−	0.9−
1998 04 23	704	0.6+	1.2+	1998 05 23	704	0.3+	0.1−	1998 08 10	428	0.4−	0.5+
1998 04 23	704	0.1−	0.6+	1998 05 23	704	0.7+	0.2−	1998 08 11	428	0.5−	0.2+
1998 04 24	704	0.2−	0.5−	1998 05 23	704	1.2−	0.4+	1998 08 11	428	0.3+	0.2−
1998 04 24	704	0.5−	0.0	1998 05 25	704	0.4+	0.3+	1998 08 12	699	1.0−	0.2+
1998 04 24	704	0.5−	0.2+	1998 05 25	704	(1.1+	2.6+)	1998 08 12	699	1.0+	0.6−
1998 04 24	704	0.1+	0.2+	1998 05 25	704	0.0	0.5−	1998 08 12	699	0.5+	0.1−

1998 HS₁₃₃ = 1990 TP₄ = 1999 NG₄₄

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	266.59815		(2000.0)	P	Q
n	0.19114286	ω	219.56154	+0.94081594	−0.33282748
a	2.9846769	Ω	159.60190	+0.33836765	+0.91165878
e	0.0963062	i	10.57461	+0.01930553	+0.24104798
P	5.16	H	13.3	G 0.15	U 4

Residuals in seconds of arc

1990 10 09	413	1.7−	0.6−	1998 04 20	704	0.2+	0.6+	1999 06 14	704	0.2−	0.9−
1990 10 09	413	0.2+	0.4+	1998 04 20	704	0.4+	1.5+	1999 06 14	704	0.1+	0.8−
1990 10 20	413	0.1−	1.5−	1998 04 20	704	0.4−	0.1−	1999 06 14	704	0.0	0.2+
1990 10 20	413	2.0+	0.3+	1998 04 20	704	(5.3−	0.9+)	1999 06 14	704	0.4−	0.2−
1998 03 25	704	0.6+	0.8−	1998 04 24	704	0.7+	0.3+	1999 06 14	704	0.8+	0.3+
1998 03 25	704	0.9+	0.2−	1998 04 24	704	1.2−	0.4+	1999 07 13	704	0.4+	0.0
1998 03 25	704	0.7−	1.7−	1998 04 24	704	0.2+	0.4+	1999 07 13	704	0.2−	0.3−
1998 03 25	704	0.1−	0.5−	1998 04 24	704	(0.6+	2.2+)	1999 07 13	704	0.2−	0.3−
1998 03 25	704	0.1−	1.6−	1998 04 24	704	0.1+	1.3+	1999 07 13	704	0.3−	0.2−
1998 04 19	704	1.0−	0.1+	1998 05 16	704	0.2+	1.3−	1999 07 13	704	0.2−	0.7−
1998 04 19	704	0.4−	0.3−	1998 05 16	704	1.4+	0.7−	1999 07 19	704	0.6+	0.1+
1998 04 19	704	0.7−	0.4+	1998 05 16	704	0.3−	1.2+	1999 07 19	704	0.1−	0.7+
1998 04 19	704	0.6−	0.1−	1998 05 16	704	0.7−	0.4+	1999 07 19	704	0.1−	0.6+
1998 04 20	704	1.0+	0.3−	1998 05 16	704	(3.4−	0.6−)	1999 07 19	704	0.3−	0.6+

1998 HL₁₃₄ = 1999 LH₁₄

Id. A. Doppler

1999 AUG. 31

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	139.54854		(2000.0)	P	Q
n	0.17784843	ω	348.16306	−0.73164423	−0.67635709
a	3.1316222	Ω	148.74044	+0.63805106	−0.72339051
e	0.0373451	i	9.43613	+0.23997409	−0.13873449
P	5.54	H	13.0	G 0.15	U 4

Residuals in seconds of arc

1992 04 04	809	0.0	0.1−	1998 04 20	704	0.1−	0.6+	1999 06 09	704	0.9−	0.1−
1998 03 25	704	0.4−	0.4+	1998 04 20	704	1.1−	0.6+	1999 06 09	704	0.6−	0.4−
1998 03 25	704	0.1−	0.8+	1998 04 24	704	0.7+	0.1+	1999 06 14	704	0.2−	0.3+
1998 03 25	704	0.1−	0.4+	1998 04 24	704	1.2+	0.9−	1999 06 14	704	0.1−	0.0
1998 03 25	704	0.4−	0.6+	1998 04 24	704	0.5−	0.1−	1999 06 14	704	0.0	0.3+
1998 03 25	704	0.1−	0.2−	1998 04 24	704	0.4+	0.6−	1999 06 14	704	0.1+	0.1−
1998 04 19	704	0.2−	0.4+	1998 04 24	704	0.6+	1.0−	1999 06 14	704	0.8−	1.1+
1998 04 19	704	0.0	0.2+	1998 04 29	566	0.3+	1.6−	1999 07 13	704	0.7+	0.4−
1998 04 19	704	0.6−	0.4+	1998 04 29	566	0.3−	1.3−	1999 07 13	704	0.0	0.0
1998 04 19	704	0.3+	0.7+	1998 04 29	566	0.2+	1.8−	1999 07 13	704	0.4+	0.4+
1998 04 20	704	0.3+	0.3+	1999 06 09	704	0.1+	0.3+	1999 07 13	704	0.1−	0.1+
1998 04 20	704	0.1+	0.9+	1999 06 09	704	0.2+	0.4−	1999 07 13	704	1.0+	0.7−
1998 04 20	704	0.1−	0.9+	1999 06 09	704	0.3+	0.2−				

1998 JF₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	184.43242		(2000.0)	P	Q
n	0.23265205	ω	24.39433	−0.71189128	−0.69873532
a	2.6181717	Ω	111.08480	+0.63127529	−0.68069768
e	0.1535055	i	4.33748	+0.30773743	−0.22004460
P	4.24	H	14.9	G 0.15	U 4

Residuals in seconds of arc

1998 04 22	704	1.0−	0.3+	1998 05 19	426	0.5−	0.3−	1998 06 16	426	0.1−	0.1+
1998 04 22	704	1.2+	0.4−	1998 05 23	426	0.2+	0.2−	1998 06 16	426	0.2−	0.2+
1998 04 22	704	0.4−	1.5+	1998 05 23	426	0.5−	0.1−	1998 06 16	426	0.3−	0.1−
1998 04 22	704	(4.6−	2.3+)	1998 05 23	426	0.4−	0.2+	1998 06 16	426	0.4+	0.2−
1998 05 05	426	0.0	0.1−	1998 05 24	704	0.1−	0.3−	1998 06 21	426	0.6+	0.2+
1998 05 05	426	1.1+	0.5−	1998 05 24	704	0.5+	0.2+	1998 06 21	426	0.2−	0.1−
1998 05 05	426	0.1+	0.2−	1998 05 24	704	0.5−	0.2−	1998 06 21	426	0.2−	0.4+
1998 05 16	426	0.2−	0.6−	1998 05 24	704	1.1+	0.6+	1999 08 14	426	0.2−	0.1−
1998 05 16	426	0.3−	0.4−	1998 05 24	704	0.1+	0.1−	1999 08 14	426	0.3+	0.3+
1998 05 16	426	1.0−	0.3−	1998 05 24	699	0.2−	0.3+	1999 08 14	426	0.5+	0.1+
1998 05 19	426	0.0	0.2−	1998 05 24	699	1.0+	0.3+	1999 08 15	426	0.4−	0.2−
1998 05 19	426	0.1−	0.5+	1998 05 24	699	0.1−	0.6−	1999 08 15	426	0.2−	0.0

1998 KX

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	178.50638		(2000.0)	P	Q
n	0.24262587	ω	51.35445	−0.96600987	−0.22960099
a	2.5459194	Ω	115.08422	+0.17701668	−0.92238275
e	0.1143201	i	7.53591	+0.18838798	−0.31063393
P	4.06	H	15.0	G 0.15	U 4

Residuals in seconds of arc

1998 05 23	684	0.4+	0.5+	1998 06 20	684	0.1+	0.4−	1998 07 16	684	0.6+	0.7+
1998 05 23	684	0.4+	0.6+	1998 06 20	684	0.1−	0.3−	1998 07 17	684	0.0	0.2−
1998 05 24	684	0.3−	0.5−	1998 06 21	684	0.1+	0.5−	1998 07 17	684	0.3−	0.1−
1998 05 24	684	0.2+	0.4+	1998 06 21	684	0.0	0.3−	1998 08 12	684	0.1−	0.1−
1998 06 02	684	0.3−	0.0	1998 06 24	704	1.7+	1.7+	1998 08 12	684	0.2−	0.0
1998 06 02	684	0.1−	0.1−	1998 06 24	704	1.5−	0.2+	1998 08 13	684	0.1+	0.2+
1998 06 03	684	0.1−	0.1−	1998 06 24	704	1.1+	1.4−	1998 08 13	684	0.2+	0.0
1998 06 03	684	0.7−	0.1+	1998 07 16	684	0.1−	0.0				
1998 06 03	684	0.3−	0.0	1998 07 16	684	0.8−	0.2−				

1998 KE₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	169.85312	(2000.0)	P		Q	
<i>n</i>	0.33593647	ω	130.37896	−0.74915537	+0.04155581	
<i>a</i>	2.0494215	Ω	63.02017	−0.54184569	−0.61251539	
<i>e</i>	0.2534448	<i>i</i>	47.88712	+0.38101112	−0.78936557	
<i>P</i>	2.93	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1998 04 23	699	0.3−	0.3+	1998 05 25	422	0.1−	0.2+	1998 05 30	422	0.2−	0.1−
1998 04 23	699	0.4+	0.4+	1998 05 25	422	0.2−	0.1+	1998 05 30	422	0.3−	0.2−
1998 04 23	699	0.5+	0.1+	1998 05 25	046	0.1−	0.1−	1998 05 31	426	0.6−	0.7−
1998 05 23	704	0.0	0.7+	1998 05 25	046	0.1+	0.6+	1998 05 31	426	0.5−	0.1−
1998 05 23	704	0.0	0.8+	1998 05 25	046	0.4−	0.2−	1998 05 31	426	0.3−	0.2+
1998 05 23	704	0.1−	0.2−	1998 05 25	046	0.6−	0.3+	1998 05 31	540	(3.0−	3.2−)
1998 05 23	704	0.1+	1.0+	1998 05 25	046	0.2−	0.4+	1998 05 31	540	(0.4−	5.0+)
1998 05 23	704	1.0−	1.1+	1998 05 25	104	0.2−	0.3−	1998 06 02	046	0.2−	0.3−
1998 05 24	704	0.6−	0.4+	1998 05 25	104	0.1+	0.3+	1998 06 02	046	0.3−	0.1−
1998 05 24	704	0.7−	0.8+	1998 05 25	104	0.6−	0.2+	1998 06 02	046	0.4−	0.3−
1998 05 24	704	1.2−	0.4−	1998 05 26	557	0.1−	0.4+	1998 06 02	118	0.5−	0.5+
1998 05 24	704	0.3+	0.4+	1998 05 26	557	0.2−	0.2+	1998 06 02	118	0.3−	0.3+
1998 05 24	704	0.1−	0.4+	1998 05 26	557	0.0	0.4+	1998 06 03	046	0.5−	0.2+
1998 05 24	704	0.5−	0.2+	1998 05 26	704	0.7+	0.1+	1998 06 03	046	0.5−	0.1−
1998 05 24	704	0.4−	0.2+	1998 05 26	704	0.9+	1.1+	1998 06 03	046	0.5−	0.3−
1998 05 24	704	0.0	1.0+	1998 05 26	704	0.5+	0.6+	1998 06 04	046	0.3−	0.7−
1998 05 24	670	0.6−	0.1+	1998 05 26	704	0.5+	0.8+	1998 06 04	046	0.1−	0.6−
1998 05 24	670	0.2−	0.2−	1998 05 26	704	1.0−	0.2+	1998 06 04	046	0.1+	0.6−
1998 05 24	704	0.7−	0.1+	1998 05 26	704	1.0−	0.6+	1998 06 08	860	(0.4+	2.4−)
1998 05 24	704	0.5+	0.3+	1998 05 26	704	0.2−	0.8+	1998 06 08	860	(0.5−	2.0−)
1998 05 24	670	0.1+	1.1+	1998 05 26	704	0.3−	0.6+	1998 06 09	046	0.4−	0.3+
1998 05 24	670	0.6−	0.1+	1998 05 26	422	0.4+	1.4−	1998 06 09	046	0.5−	0.0
1998 05 24	422	0.1−	0.2+	1998 05 26	422	0.7+	1.3−	1998 06 09	046	0.4−	0.3+
1998 05 24	422	0.1−	0.1−	1998 05 26	422	0.4+	1.5−	1998 06 09	046	0.5−	0.6+
1998 05 24	422	0.1+	0.3+	1998 05 26	422	0.4+	1.5−	1998 06 16	704	0.4−	0.7+
1998 05 24	426	0.4−	0.0	1998 05 26	426	0.3+	0.3−	1998 06 16	704	0.8−	0.9+
1998 05 24	426	0.1−	0.1+	1998 05 26	426	0.0	0.0	1998 06 16	704	0.1−	1.6+
1998 05 24	426	0.2−	0.2−	1998 05 26	426	0.5−	0.5−	1998 06 16	704	0.3−	0.3+
1998 05 24	426	0.2−	0.0	1998 05 26	402	0.2+	0.3+	1998 06 16	704	0.2+	1.7+
1998 05 24	104	1.5+	0.2+	1998 05 26	402	0.0	0.5+	1998 06 16	104	0.3−	0.4+
1998 05 24	104	0.8+	0.1+	1998 05 26	402	0.1−	0.4+	1998 06 16	104	0.3−	0.8+
1998 05 24	104	0.5+	0.6+	1998 05 26	360	0.3+	0.3+	1998 06 16	104	0.4−	0.9+
1998 05 24	104	0.2+	0.1+	1998 05 26	360	0.1+	0.3+	1998 06 16	104	0.2−	0.6+
1998 05 25	816	0.1+	0.1−	1998 05 26	360	0.1+	0.2+	1998 06 17	426	0.1+	0.1+
1998 05 25	816	0.0	0.0	1998 05 26	900	0.7+	1.0−	1998 06 17	426	0.1−	0.2+
1998 05 25	816	0.1+	0.1+	1998 05 26	900	1.6+	1.4−	1998 06 17	426	0.1−	0.0
1998 05 25	816	0.1+	0.1+	1998 05 26	104	1.4+	1.8−	1998 06 18	704	0.8−	0.2−
1998 05 25	824	1.1−	1.3−	1998 05 26	104	(2.8+	1.6−)	1998 06 18	704	1.7+	1.1−
1998 05 25	824	0.1+	1.4−	1998 05 26	104	1.2+	1.0−	1998 06 18	704	0.5−	0.2−
1998 05 25	824	0.3−	0.8−	1998 05 26	104	1.4+	1.4−	1998 06 18	704	1.0+	1.5−
1998 05 25	704	0.5+	0.5+	1998 05 26	046	1.1+	1.5−	1998 06 18	704	0.4−	1.0+
1998 05 25	704	0.8+	0.0	1998 05 26	046	1.2+	1.5−	1998 06 19	587	0.7+	0.5−
1998 05 25	704	0.3+	1.0+	1998 05 26	046	1.3+	1.7−	1998 06 19	587	0.3−	0.4−
1998 05 25	704	0.3−	0.2−	1998 05 26	120	1.2+	1.8−	1998 06 25	426	0.5−	1.0+
1998 05 25	704	0.1+	0.8+	1998 05 26	120	1.3+	1.6−	1998 06 25	426	1.0−	0.8+
1998 05 25	704	0.4+	0.7−	1998 05 26	120	1.4+	1.6−	1998 06 25	426	0.6−	0.8+
1998 05 25	704	0.7+	0.3+	1998 05 26	120	(0.7+	2.0−)	1998 07 10	426	0.4+	0.6−
1998 05 25	670	0.4−	0.2+	1998 05 27	700	1.9+	0.8−	1998 07 10	426	0.3+	0.3−
1998 05 25	704	(2.3−	2.9−)	1998 05 27	700	(2.4+	0.8−)	1998 07 10	426	0.0	0.5−
1998 05 25	670	0.8+	0.3+	1998 05 27	422	0.6−	0.6+	1999 08 01	413	0.3−	0.1+
1998 05 25	670	0.0	0.5+	1998 05 27	422	0.9−	0.6+	1999 08 01	413	0.3−	0.1−
1998 05 25	670	0.4−	0.0	1998 05 28	422	0.3−	0.1−	1999 08 01	413	0.1−	0.3+
1998 05 25	426	0.5−	0.2−	1998 05 28	422	0.3−	0.2−	1999 08 04	413	0.5−	0.3+
1998 05 25	426	0.2−	0.0	1998 05 28	422	0.0	0.2+	1999 08 04	413	0.4−	0.2+
1998 05 25	426	0.2−	0.0	1998 05 29	860	0.1+	1.2+	1999 08 04	413	0.4−	0.1+
1998 05 25	426	0.4−	0.1+	1998 05 29	860	(0.5−	4.0+)				
1998 05 25	422	0.2−	0.6+	1998 05 30	422	0.7−	0.3−				

1998 KZ₃ = 1984 CL₁ = 1999 NF₄₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	192.29807	(2000.0)	P		Q	
<i>n</i>	0.22305024	ω	8.17228	−0.51141511	−0.85489943	
<i>a</i>	2.6927803	Ω	112.62497	+0.78298618	−0.50538127	
<i>e</i>	0.1953996	<i>i</i>	5.42000	+0.35410058	−0.11720382	
<i>P</i>	4.42	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1984 01 26	688	0.3+	0.2+	1998 05 22	699	0.4+	0.1−	1998 05 24	704	0.7+	0.7+
1984 01 26	688	(0.3+	3.1+)	1998 05 22	704	0.6−	0.4+	1998 05 24	704	0.9−	0.8−
1984 02 04	688	0.7+	1.9−	1998 05 22	699	0.8+	0.1−	1998 05 24	704	0.3+	0.8−
1984 02 04	688	1.4−	0.0	1998 05 22	699	0.3+	0.2−	1999 07 14	704	0.6+	1.0−
1993 03 17	808	0.0	0.5−	1998 05 23	699	0.0	0.7+	1999 07 14	704	0.1+	0.0
1993 03 17	808	0.5−	0.8−	1998 05 23	699	0.4+	0.7−	1999 07 14	704	0.4−	0.6−
1998 03 28	910	1.1−	0.7+	1998 05 23	699	0.6+	0.8−	1999 07 14	704	0.5+	0.1+
1998 03 28	910	1.2−	0.7+	1998 05 24	699	0.6−	1.5+	1999 07 16	704	0.0	0.4−
1998 03 28	910	1.1−	0.8+	1998 05 24	704	0.8+	0.1−	1999 07 16	704	0.1+	0.9−
1998 05 22	704	0.4−	0.3−	1998 05 24	699	0.5+	0.5+	1999 07 16	704	0.4−	1.0−
1998 05 22	704	0.1−	0.5+	1998 05 24	704	0.6+	0.1−				
1998 05 22	704	0.5+	0.6−	1998 05 24	699	0.1+	0.3−				

1998 KA₅₄ = 1999 QD

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	174.73466	(2000.0)	P		Q	
<i>n</i>	0.24062461	ω	323.05685	−0.98531173	−0.11832420	
<i>a</i>	2.5600160	Ω	210.83931	+0.14111877	−0.97020922	
<i>e</i>	0.0560410	<i>i</i>	13.89747	−0.09615757	−0.21140825	
<i>P</i>	4.10	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1998 05 23	704	0.2−	0.5−	1998 05 26	704	0.2−	0.2+	1998 06 25	704	0.4+	1.2+
1998 05 23	704	0.9+	0.0	1998 06 19	704	0.2−	0.1+	1998 06 25	704	1.3−	0.3+
1998 05 23	704	1.3+	0.7+	1998 06 19	704	0.7+	0.8−	1999 08 17	721	0.2−	0.5−
1998 05 23	704	0.2+	0.1+	1998 06 19	704	0.4+	0.1+	1999 08 17	721	0.2+	0.1−
1998 05 26	704	0.4+	0.8−	1998 06 19	704	1.2−	0.4+	1999 08 19	721	0.4−	0.6+
1998 05 26	704	2.1−	0.9+	1998 06 19	704	0.0	0.1+	1999 08 19	721	0.4+	0.1+
1998 05 26	704	0.5−	0.2−	1998 06 25	704	1.7+	1.5−				
1998 05 26	704	0.0	0.3−	1998 06 25	704	0.2−	0.0				

1998 KL₅₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	45.84420	(2000.0)	P		Q	
<i>n</i>	0.18419859	ω	91.26311	+0.38261655	+0.92207595	
<i>a</i>	3.0592280	Ω	201.52054	−0.89813919	+0.35644909	
<i>e</i>	0.0686960	<i>i</i>	9.11967	−0.21668080	+0.15073152	
<i>P</i>	5.35	<i>H</i>	13.5	<i>G</i>	0.15	<i>U</i>

Residuals in seconds of arc

1992 04 09	691	0.4−	0.6−	1998 05 23	704	1.1+	0.7+	1998 06 19	704	0.5+	0.1+
1992 04 09	691	0.2−	0.6−	1998 05 23	704	(2.4−	0.6−)	1998 06 19	704	0.6−	0.1+
1992 04 09	691	0.2+	0.5−	1998 05 26	704	0.6−	0.0	1998 06 25	704	0.8+	0.2+
1997 04 29	704	0.8+	0.2−	1998 05 26	704	0.8−	0.7+	1998 06 25	704	1.2+	0.9−
1997 04 29	704	0.7+	1.1+	1998 05 26	704	1.3−	0.5+	1998 06 25	704	0.6+	1.0−
1997 04 29	704	1.2−	0.5+	1998 05 26	704	0.6−	0.3−	1998 07 26	910	0.2−	0.5+
1997 04 29	704	0.4+	0.1+	1998 05 26	704	1.2−	0.6−	1998 07 26	910	0.4+	0.5+
1997 04 29	704	0.2−	0.3+	1998 06 19	704	0.1+	0.2+	1998 07 26	910	0.3+	0.5+
1998 05 23	704	0.5−	0.2+	1998 06 19	704	0.6+	0.4−				
1998 05 23	704	0.2−	0.4+	1998 06 19	704	0.5+	0.6−				

1998 ON₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	45.72548		(2000.0)	P		Q	
<i>n</i>	0.21454548	ω	164.08089	+0.99847745		−0.03587408	
<i>a</i>	2.7634809	Ω	198.13124	+0.02290146		+0.96066938	
<i>e</i>	0.2335902	<i>i</i>	7.73845	+0.05018280		+0.27536776	
<i>P</i>	4.59	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1994 12 10	691	0.1−	0.4+	1998 07 26	621	0.3+	0.2−	1998 09 21	621	0.3+	0.4+
1994 12 10	691	0.1+	0.1+	1998 07 26	621	0.1−	0.0	1998 09 21	621	0.5+	0.3+
1994 12 10	691	0.1−	0.1+	1998 07 30	621	0.1−	0.1+	1998 09 21	621	0.1+	0.4+
1997 05 07	566	0.6+	0.6+	1998 07 30	621	0.1−	0.1−	1998 09 21	621	0.8+	0.5+
1997 05 07	566	0.0	0.0	1998 07 30	621	0.0	0.1−	1998 09 21	621	0.3+	0.5+
1997 05 07	566	0.1−	0.6+	1998 08 17	621	0.4−	0.2−	1998 09 22	621	0.2+	0.3+
1998 06 27	699	0.4+	0.7−	1998 08 17	621	0.5−	0.3−	1998 09 22	621	0.5+	0.1+
1998 06 27	699	0.1−	0.3+	1998 08 17	621	0.4−	0.3−	1998 09 22	621	0.0	0.4+
1998 06 27	699	0.1+	0.0	1998 08 19	621	0.6−	0.4−	1998 11 19	621	0.1+	0.3+
1998 07 18	621	0.1+	0.1+	1998 08 19	621	0.6−	0.5−	1998 11 19	621	0.4−	0.0
1998 07 18	621	0.0	0.1+	1998 08 19	621	0.3−	0.2−	1998 11 19	621	0.0	0.1+
1998 07 19	621	0.2+	0.1+	1998 08 24	704	0.4+	1.7−	1998 11 20	621	0.4−	0.2−
1998 07 19	621	0.4−	0.2+	1998 08 24	704	0.8−	0.1+	1998 11 20	621	0.1+	0.4−
1998 07 19	621	0.0	0.3+	1998 08 24	704	0.1−	0.5−	1998 11 20	621	0.2+	0.2−
1998 07 19	621	0.1+	0.3+	1998 08 24	704	0.0	0.6+	1998 11 20	621	0.1−	0.4+
1998 07 19	621	0.0	0.1+	1998 09 20	621	0.2+	0.0	1998 11 20	621	0.1+	0.1+
1998 07 21	621	0.4−	0.1−	1998 09 20	621	0.4+	0.4+	1998 11 20	621	0.4+	0.1−
1998 07 22	621	0.3−	0.1+	1998 09 20	621	0.3+	0.4+				
1998 07 22	621	0.0	0.1−	1998 09 21	621	0.6+	0.2+				

1998 PF

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	210.12555		(2000.0)	P		Q	
<i>n</i>	0.34626150	ω	53.53762	−0.80336327		+0.50912564	
<i>a</i>	2.0084757	Ω	152.48594	−0.44865149		−0.85853815	
<i>e</i>	0.2874862	<i>i</i>	41.95843	+0.39156009		+0.06085506	
<i>P</i>	2.85	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 08 02	699	1.1+	0.9+	1998 08 05	611	1.7+	1.2+	1998 08 23	699	0.7+	1.2+
1998 08 02	699	1.0+	0.8+	1998 08 06	758	1.0−	0.9+	1998 08 23	699	0.2−	0.8+
1998 08 02	699	1.8+	0.9+	1998 08 06	758	0.4+	0.6+	1998 08 24	143	0.4−	0.3+
1998 08 03	611	0.6+	0.7−	1998 08 06	046	0.3+	0.5+	1998 08 24	143	0.9+	1.0+
1998 08 03	611	0.7+	0.5+	1998 08 06	046	0.1−	0.4−	1998 08 26	118	0.3−	0.4−
1998 08 03	611	0.6+	0.1−	1998 08 06	046	0.5+	0.2−	1998 08 26	118	0.1+	0.4−
1998 08 04	954	0.1−	0.7−	1998 08 06	046	0.4+	0.3−	1998 08 28	658	0.1−	0.0
1998 08 04	954	0.1−	0.7−	1998 08 10	046	0.2−	0.1+	1998 08 28	658	0.7−	0.2−
1998 08 04	954	0.1−	0.7−	1998 08 10	046	0.1−	0.2+	1998 08 28	658	0.8−	0.2−
1998 08 04	954	0.1−	0.8−	1998 08 10	046	0.2−	0.3+	1998 08 29	422	0.5−	0.0
1998 08 04	954	0.2−	0.8−	1998 08 11	422	0.1+	0.3+	1998 08 29	422	0.6+	0.4+
1998 08 04	954	0.6−	1.6−	1998 08 11	422	0.2−	0.2−	1998 08 29	422	0.4+	0.4−
1998 08 04	658	0.1−	0.2−	1998 08 11	422	0.5−	0.3−	1998 08 29	426	0.2−	0.0
1998 08 04	658	0.1−	0.1−	1998 08 11	402	0.0	0.1+	1998 08 29	426	0.0	0.1+
1998 08 04	658	0.1−	0.0	1998 08 11	402	0.1−	0.1+	1998 08 29	426	0.1−	0.1+
1998 08 04	360	0.3−	0.0	1998 08 11	402	0.0	0.1−	1998 08 30	699	0.1+	0.5+
1998 08 04	360	0.0	0.1−	1998 08 11	402	0.0	0.0	1998 08 30	699	0.2+	0.3+
1998 08 04	360	0.2−	0.1+	1998 08 11	540	0.2−	0.8−	1998 08 30	699	0.3−	0.8+
1998 08 04	954	0.9−	1.3−	1998 08 11	540	1.0+	0.3−	1998 08 30	422	0.6−	0.6−
1998 08 04	954	0.6−	1.3−	1998 08 11	108	(0.9−	3.3+)	1998 08 30	422	0.1+	0.3−
1998 08 05	954	0.4−	0.5−	1998 08 11	108	(0.6−	2.5+)	1998 08 30	422	0.3−	0.4+
1998 08 05	360	0.0	0.4+	1998 08 13	659	0.6+	1.1+	1998 08 30	422	0.6−	0.2−
1998 08 05	360	0.0	0.2+	1998 08 14	659	0.1−	1.4−	1998 09 08	402	0.1−	0.9−
1998 08 05	360	0.3−	0.0	1998 08 14	659	0.4−	0.1−	1998 09 08	402	0.0	0.5−
1998 08 05	046	0.1−	0.5−	1998 08 14	659	0.8+	1.3+	1998 09 08	402	0.1+	0.9−
1998 08 05	046	0.8−	0.2+	1998 08 14	659	0.0	0.5−	1998 09 27	422	1.0+	0.2−
1998 08 05	046	0.2−	1.2+	1998 08 14	659	0.0	0.8+	1998 10 15	422	1.0+	0.6+
1998 08 05	046	0.1−	0.0	1998 08 22	658	0.6−	0.1−	1998 10 15	422	0.8+	1.1+

1998 08 05	046	0.2−	0.2−	1998 08 22	658	0.7−	0.2−	1999 08 01	413	0.0	0.0
1998 08 05	046	0.9−	0.6+	1998 08 22	658	0.4−	0.2−	1999 08 01	413	0.4+	0.2−
1998 08 05	557	0.1+	0.6+	1998 08 23	628	1.7−	1.6−	1999 08 01	413	0.3−	0.3−
1998 08 05	557	0.0	0.3−	1998 08 23	628	0.1+	0.4+	1999 08 02	413	0.1+	0.1+
1998 08 05	611	0.8+	0.4+	1998 08 23	699	0.6+	0.5+	1999 08 02	413	0.1−	0.1+

1998 PL

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	75.55489		(2000.0)	P		Q	
<i>n</i>	0.28736627	ω	213.91172	+0.93109992		+0.35108165	
<i>a</i>	2.2742883	Ω	125.22891	−0.30198020		+0.89410788	
<i>e</i>	0.1697229	<i>i</i>	6.95890	−0.20459937		+0.27805176	
<i>P</i>	3.43	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 02 04	566	0.0	1.0+	1998 08 08	426	0.3+	0.2−	1998 08 28	426	0.8−	0.2−
1997 02 04	566	0.1+	0.9+	1998 08 08	426	0.6−	0.3+	1998 09 14	426	0.8−	0.1+
1997 02 04	566	0.6+	0.4+	1998 08 09	426	0.4−	0.2+	1998 09 14	426	0.5+	0.6+
1998 06 26	704	0.0	1.0−	1998 08 09	426	0.5−	0.6+	1998 09 14	426	0.2+	0.6+
1998 06 26	704	1.1+	0.1−	1998 08 09	426	0.1−	0.2+	1998 09 14	426	0.0	0.8+
1998 06 26	704	(3.0−	1.1+)	1998 08 15	426	0.1−	0.1+	1998 09 16	426	0.3−	0.1+
1998 06 26	704	1.0−	0.5+	1998 08 15	426	0.2+	0.3−	1998 09 16	426	0.1−	0.5+
1998 07 21	704	0.1−	0.6−	1998 08 15	426	0.1+	0.3−	1998 09 16	426	0.3−	0.4+
1998 07 21	704	1.7+	0.7−	1998 08 22	426	0.1−	0.9+	1998 10 09	426	0.7+	0.3−
1998 07 21	704	0.5−	0.3+	1998 08 22	426	0.5−	0.2+	1998 10 09	426	0.8+	0.2+
1998 07 21	704	0.0	0.4+	1998 08 22	426	0.4+	0.4+	1998 10 13	426	0.5+	0.6+
1998 07 21	704	0.1+	1.3−	1998 08 28	426	0.3−	0.2−	1998 10 13	426	0.2+	0.1−
1998 08 08	426	0.1+	0.1+	1998 08 28	426	0.1−	0.2+				

1998 PA₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	330.69563		(2000.0)	P		Q	
<i>n</i>	0.18524307	ω	196.16960	+0.26224195		−0.96134828	
<i>a</i>	3.0477176	Ω	238.69552	+0.89589368		+0.27484804	
<i>e</i>	0.1293873	<i>i</i>	5.63504	+0.35861355		+0.01637202	
<i>P</i>	5.32	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1991 03 25	413	0.3+	0.0	1998 08 15	104	0.4−	0.3−	1998 08 23	104	0.3+	0.2−
1991 03 25	413	0.3−	0.1−	1998 08 15	104	0.3−	0.1−	1998 08 23	104	0.3+	0.5−
1993 08 22	675	0.7−	0.9+	1998 08 15	104	0.4+	0.0	1998 09 19	104	0.1−	0.3−
1993 08 22	675	0.5+	0.2−	1998 08 17	704	0.9+	0.8+	1998 09 19	104	0.0	0.1−
1998 07 31	699	1.8−	0.7−	1998 08 17	704	1.1+	0.8−	1998 09 19	104	0.5+	0.9−
1998 07 31	699	0.1−	0.0	1998 08 17	704	0.8+	0.4−	1998 09 23	104	0.0	0.5−
1998 07 31	699	0.1−	0.5+	1998 08 17	704	0.3−	0.9−	1998 09 23	104	0.1−	0.4−
1998 08 13	104	1.0−	0.6+	1998 08 17	704	0.3+	0.2−	1998 09 23	104	0.1−	0.3−
1998 08 13	104	0.6−	0.9+	1998 08 20	104	0.6−	0.1−	1998 10 12	104	0.3+	0.3+
1998 08 13	104	0.5−	1.0+	1998 08 20	104	0.0	0.2+	1998 10 12	104	0.2+	0.2+
1998 08 13	104	0.4−	0.5+	1998 08 20	104	0.3+	0.2+	1998 10 12	104	0.3+	0.1−
1998 08 13	104	0.3+	0.6+	1998 08 23	104	0.3+	0.2+	1998 10 12	104	0.5+	0.1−

1998 08 19	704	1.5+	0.9+	1998 08 25	557	0.0	0.2-	1998 09 23	704	1.5-	1.2+
1998 08 19	704	(2.0+	1.2+)	1998 08 25	557	0.2-	0.4-	1998 10 13	557	0.3-	0.2+
1998 08 19	704	0.1-	1.1+	1998 08 27	704	1.1+	0.9-	1998 10 23	557	0.3-	0.6+
1998 08 20	557	0.2+	0.0	1998 08 27	704	0.1+	0.9-	1998 10 23	557	0.3-	0.3+
1998 08 20	557	0.0	0.0	1998 08 27	704	0.9+	0.2-	1998 11 12	557	0.5+	0.4-
1998 08 20	557	0.1-	0.4-	1998 08 27	704	1.3+	0.3+	1998 11 12	557	0.2+	0.5-
1998 08 23	557	0.8+	0.3+	1998 09 13	557	0.3-	0.1-	1998 11 24	557	0.4-	0.3+
1998 08 23	557	0.5-	0.3+	1998 09 13	557	0.3-	0.5-	1998 11 24	557	0.1-	0.4+
1998 08 23	557	0.3-	0.8-	1998 09 19	704	(2.0-	1.3-)	1999 08 08	557	0.2+	0.7-
1998 08 23	557	0.7+	0.9-	1998 09 19	704	0.9-	1.0+	1999 08 08	557	0.8+	0.1+
1998 08 24	704	0.2-	0.7-	1998 09 19	704	0.4+	0.1+	1999 08 09	557	0.4-	0.1+
1998 08 24	704	0.8+	0.3-	1998 09 19	704	0.4+	0.7-	1999 08 09	557	0.6-	0.3-
1998 08 24	704	0.4-	0.5+	1998 09 19	704	1.2-	1.5-				
1998 08 24	704	0.1-	1.5+	1998 09 22	557	0.0	0.5-				

1998 QT₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	326.55725		(2000.0)	P	Q
n	0.19396503	ω	110.76558	-0.03010948	-0.99791608
a	2.9556551	Ω	340.69385	+0.84082915	+0.00558474
e	0.0926508	i	9.93992	+0.54046254	-0.06428299
P	5.08	H	13.8	G 0.15	U 4

Residuals in seconds of arc

1993 08 15	809	1.2+	0.7-	1998 08 23	684	0.5-	0.1-	1998 09 14	699	0.7+	0.0
1993 08 15	809	0.6+	1.3-	1998 08 23	704	0.7-	0.2-	1998 09 14	699	0.6+	0.3+
1993 08 15	809	0.8+	1.6-	1998 08 23	704	0.7-	1.5-	1998 09 18	699	0.0	0.6+
1993 09 14	691	1.2-	1.0+	1998 08 23	704	0.2+	0.0	1998 09 18	699	0.6+	0.2+
1993 09 14	691	0.5-	1.2+	1998 08 23	704	0.2-	1.5+	1998 09 18	699	0.1-	0.4+
1993 09 14	691	0.7-	0.9+	1998 08 24	684	0.1-	0.1-	1998 09 18	684	0.1-	0.3-
1998 08 17	704	0.0	0.7+	1998 08 24	684	0.0	0.2+	1998 09 18	684	0.0	0.3-
1998 08 17	704	(2.3+	0.4-)	1998 08 26	684	0.1+	0.2-	1998 09 19	684	0.1+	0.1-
1998 08 17	704	0.2-	0.4+	1998 08 26	684	0.0	0.1-	1998 09 19	684	0.3+	0.1-
1998 08 17	704	1.2-	0.8+	1998 08 27	684	0.2+	0.3-	1998 10 21	684	0.2+	0.5-
1998 08 17	704	0.0	0.4+	1998 08 27	684	0.3+	0.3-	1998 10 21	684	0.0	0.1-
1998 08 23	684	0.3-	0.0	1998 09 14	699	0.3+	0.4-	1998 10 22	684	0.2+	0.8-

1998 QP₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	65.61231		(2000.0)	P	Q
n	0.24181908	ω	12.34640	+0.72536765	-0.68774091
a	2.5515789	Ω	31.16886	+0.62665933	+0.64218307
e	0.1011861	i	3.23722	+0.28485057	+0.33854593
P	4.08	H	14.8	G 0.15	U 3

Residuals in seconds of arc

1996 03 17	566	0.2+	0.5+	1998 10 23	327	0.2-	0.1-	1998 11 11	704	0.5+	0.2-
1998 08 24	910	0.2-	0.1+	1998 10 23	327	0.2-	0.1-	1998 11 11	704	0.0	0.1-
1998 08 24	910	0.2-	0.3+	1998 10 23	327	0.5-	0.1-	1998 11 11	704	0.2+	1.0+
1998 08 24	910	0.0	0.2+	1998 10 23	327	0.2-	0.1-	1998 11 11	704	0.1+	0.7+
1998 08 25	910	0.4-	0.0	1998 10 23	327	0.2-	0.1+	1998 11 11	704	1.0+	0.2-
1998 08 25	910	0.0	0.1-	1998 10 23	327	0.5-	0.1-	1998 11 11	704	0.4+	0.1+
1998 08 25	910	0.0	0.1-	1998 10 29	691	0.1-	0.1-	1998 11 11	704	0.1-	0.1+
1998 09 29	910	0.1+	0.3+	1998 10 29	691	0.1-	0.5-	1998 11 11	704	0.0	0.0
1998 09 29	910	0.1-	0.5+	1998 10 29	691	0.1-	0.3-	1998 11 11	704	0.2-	0.0
1998 09 29	910	0.1-	0.4+	1998 11 10	704	0.5-	0.4+	1998 11 11	704	0.3-	1.2-
1998 10 18	691	0.1-	0.2-	1998 11 10	704	0.6-	1.5+	1999 01 08	704	0.7+	0.2+
1998 10 19	699	0.4+	0.1-	1998 11 10	704	0.0	0.6+	1999 01 08	704	(3.0+	0.4+)
1998 10 19	699	0.1+	0.3-	1998 11 10	704	0.2-	0.3+	1999 01 08	704	0.5+	0.6-
1998 10 19	699	0.6+	0.3-	1998 11 10	704	1.3+	1.6-	1999 01 08	704	1.3-	0.1-

1998 QV₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	107.88753		(2000.0)	P	Q
n	0.25387664	ω	146.21694	+0.36518417	+0.93041951
a	2.4701361	Ω	145.17319	-0.86566815	+0.35163614
e	0.1669645	i	3.11011	-0.34243127	+0.10330325
P	3.88	H	14.8	G 0.15	U 2

Residuals in seconds of arc

1991 12 03	691	0.2+	0.6-	1998 08 17	704	0.0	0.2+	1998 08 23	704	0.6-	0.2-
1991 12 03	691	(17.3-	2.1-)	1998 08 17	704	0.2-	0.0	1998 08 27	699	0.2+	0.5+
1991 12 03	691	0.2+	0.7-	1998 08 17	704	0.2+	1.1-	1998 08 27	699	0.5+	0.0
1997 02 08	566	1.1-	1.1-	1998 08 17	704	0.3+	0.0	1998 08 27	699	0.0	0.2-
1997 02 08	566	0.1-	0.9-	1998 08 17	704	0.3-	0.6+	1998 10 19	699	1.2-	0.2+
1997 02 08	566	0.1+	1.2-	1998 08 19	566	0.2-	1.0-	1998 10 19	699	0.9-	0.4+
1998 06 02	699	0.3-	0.6+	1998 08 19	566	0.1+	1.1-	1998 10 19	699	0.5+	0.1-
1998 06 02	699	1.1-	0.5+	1998 08 19	566	0.4+	1.4-	1998 11 06	699	0.8+	0.0
1998 06 02	699	1.0-	0.0	1998 08 23	704	0.2+	0.6-	1998 11 06	699	0.8+	1.7+
1998 07 03	699	0.4+	0.1-	1998 08 23	704	1.7+	1.2+	1998 11 06	699	1.7-	0.2-
1998 07 03	699	0.7+	0.1+	1998 08 23	704	0.8-	0.2+				
1998 07 03	699	0.7+	0.5-	1998 08 23	704	0.5+	1.3-				

1998 QL₁₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	359.42876		(2000.0)	P	Q
n	0.17570480	ω	68.24763	+0.65506242	-0.75515538
a	3.1570416	Ω	340.76014	+0.66194224	+0.58963002
e	0.1660730	i	4.38089	+0.36431539	+0.28649047
P	5.61	H	14.2	G 0.15	U 3

Residuals in seconds of arc

1993 10 10	691	0.5-	0.0	1998 08 17	704	0.1+	0.4+	1998 08 23	704	0.5+	0.1+
1993 10 10	691	0.9+	0.0	1998 08 17	704	0.4-	0.8-	1998 09 13	699	0.2-	1.0-
1993 10 10	691	0.2-	0.3-	1998 08 17	704	0.3+	0.3-	1998 09 13	699	0.5-	0.1+
1995 02 07	691	0.2-	0.5+	1998 08 17	704	0.2-	1.6-	1998 09 13	699	0.8-	0.4-
1995 02 07	691	0.1+	0.4-	1998 08 19	566	0.3+	0.3+	1998 09 21	699	0.3+	1.0+
1995 02 07	691	0.0	0.2-	1998 08 19	566	0.4-	0.3-	1998 09 21	699	0.7-	1.0+
1998 07 31	699	0.8+	0.1+	1998 08 19	566	0.6-	0.5+	1998 09 21	699	0.0	1.3+
1998 07 31	699	0.1-	0.2-	1998 08 23	704	0.7+	1.0+	1998 10 14	910	0.9-	0.2-
1998 07 31	699	0.1+	1.0-	1998 08 23	704	0.7+	0.2-	1998 10 14	910	0.4-	0.6-
1998 08 17	704	0.7+	0.3-	1998 08 23	704	0.8+	1.2+	1998 10 14	910	0.4-	0.2-

1998 QM₂₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	265.55023		(2000.0)	P	Q		
n	0.18676063	ω	324.10650	-0.69409439	-0.71897183		
a	3.0311854	Ω	169.67619	+0.69861208	-0.68487439		
e	0.0359978	i	11.66294	+0.17370706	-0.11843384		
P	5.28	H	12.8	G	0.15	U	3

Residuals in seconds of arc

1993 09 14	809	0.4+	3.0+	1998 08 23	704	0.3+	0.6-	1998 09 18	704	0.2+	0.5+
1993 09 14	809	0.4-	2.5+	1998 08 23	704	0.1-	0.4+	1998 09 18	704	1.5-	1.3+
1993 09 14	809	1.4-	2.1+	1998 08 23	704	0.4+	0.1+	1998 09 18	704	1.7-	1.7-
1996 03 19	566	0.1+	0.8+	1998 08 23	704	0.0	0.4+	1998 09 22	910	0.6+	0.1+
1996 03 19	566	0.3+	1.0+	1998 08 23	704	0.1+	0.2-	1998 09 22	910	0.7+	0.0
1996 03 19	566	0.1+	1.2+	1998 08 26	699	0.1-	0.7+	1998 09 22	910	0.7+	0.0
1998 07 28	327	0.4+	0.4+	1998 08 26	699	0.3-	0.2+	1998 11 09	910	0.5-	0.6-
1998 07 28	327	0.1+	0.5+	1998 08 26	699	0.4-	0.5+	1998 11 09	910	0.4-	0.5-
1998 07 28	327	0.3+	0.5+	1998 09 14	704	0.1+	0.6-	1998 11 09	910	0.7-	0.8-
1998 07 28	327	0.3+	0.4+	1998 09 14	704	0.0	0.0	1998 11 10	910	0.1+	0.9-
1998 07 29	327	0.3+	0.2+	1998 09 14	704	0.3-	0.4-	1998 11 10	910	0.6-	0.5-
1998 07 29	327	0.2+	0.5+	1998 09 14	704	0.5-	0.1+	1998 11 10	910	0.6-	0.6-
1998 07 29	327	1.1+	0.4+	1998 09 14	704	0.1-	0.1-	1998 11 11	910	1.1-	0.5-
1998 08 17	704	0.8+	0.1-	1998 09 15	699	0.2-	0.4+	1998 11 11	910	1.0-	0.5-

1998 08 17	704	0.5+	0.2−	1998 09 15	699	0.5−	0.1+	1998 11 11	910	1.1−	0.4−
1998 08 17	704	0.5+	0.7−	1998 09 15	699	0.2+	1.4+	1998 12 09	699	0.1+	1.2−
1998 08 17	704	0.1−	0.4−	1998 09 18	704	0.7+	0.9−	1998 12 09	699	0.3+	1.0−
1998 08 17	704	0.7+	0.3−	1998 09 18	704	0.5+	1.0−	1998 12 09	699	1.3+	1.4−

1998 QL₂₄ = 1982 JP

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Spahr							
<i>M</i>				(2000.0)				P			
<i>n</i>				<i>ω</i>				Q			
<i>a</i>				<i>Ω</i>							
<i>e</i>				<i>i</i>							
<i>P</i>				<i>H</i>				<i>G</i>			
								<i>U</i>			

Residuals in seconds of arc

1982 05 15	675	0.2+	0.5−	1998 08 23	704	0.0	0.4+	1998 09 18	704	3.0−	0.6−
1982 05 16	675	2.2−	0.7−	1998 08 23	704	0.3+	0.6−	1998 09 18	704	0.1−	0.6−
1982 05 17	675	1.8+	0.0	1998 08 23	704	0.1+	1.6+	1998 09 18	704	0.9+	0.6−
1993 03 19	809	1.2+	0.3+	1998 08 23	704	1.6+	1.5+	1998 09 18	704	2.8−	0.5−
1993 04 18	691	0.2−	0.4−	1998 09 14	704	0.6−	0.4−	1998 09 26	327	0.6+	0.6−
1993 04 18	691	1.1−	0.5−	1998 09 14	704	0.1−	0.8−	1998 09 26	327	0.8+	1.0−
1995 11 26	292	0.8+	0.0	1998 09 14	704	0.1+	0.6−	1998 09 26	327	0.5+	0.3−
1995 11 26	292	1.0−	0.4−	1998 09 14	704	0.2+	1.9−	1998 12 09	704	0.8+	0.1+
1998 08 17	704	0.2+	0.3+	1998 09 14	704	0.0	1.0−	1998 12 09	704	1.8+	0.9+
1998 08 17	704	0.1+	1.4+	1998 09 15	699	1.5−	0.1+	1998 12 09	704	0.4−	1.8−
1998 08 17	704	0.5+	0.8+	1998 09 15	699	0.5−	0.4−				
1998 08 17	704	2.0+	2.6+	1998 09 15	699	0.2−	0.6+				

1998 QA₂₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Spahr							
<i>M</i>				(2000.0)				P			
<i>n</i>				<i>ω</i>				Q			
<i>a</i>				<i>Ω</i>							
<i>e</i>				<i>i</i>							
<i>P</i>				<i>H</i>				<i>G</i>			
								<i>U</i>			

Residuals in seconds of arc

1994 01 07	691	0.1+	0.1−	1998 08 26	699	0.5+	0.5+	1998 09 14	704	1.5−	0.8−
1994 01 07	691	0.1−	0.1+	1998 08 26	699	0.2−	1.2+	1998 09 18	704	0.1+	0.2−
1994 01 07	691	0.1+	0.1−	1998 08 27	120	0.0	0.1+	1998 09 18	704	0.6−	0.1+
1996 03 23	691	1.1−	0.5−	1998 08 27	120	1.7+	1.5+	1998 09 18	704	0.1+	0.1−
1996 03 23	691	0.5+	1.7−	1998 08 27	120	1.6+	0.0	1998 09 18	704	0.7+	0.2+
1996 03 23	691	0.5+	1.8+	1998 08 30	120	0.3+	0.1−	1998 09 18	704	0.5−	0.7+
1998 08 17	704	(1.3+	2.4−)	1998 08 30	120	0.5+	0.3+	1998 10 10	699	1.2−	0.7−
1998 08 17	704	(0.9+	2.6−)	1998 09 10	120	0.0	0.1+	1998 10 10	699	0.8−	0.1−
1998 08 17	704	(0.4+	2.6−)	1998 09 10	120	1.9−	0.3−	1998 10 10	699	0.4+	0.1−
1998 08 17	704	0.3+	0.5−	1998 09 10	120	0.4−	0.0	1998 10 12	699	0.3+	0.0
1998 08 17	704	(2.8−	1.5+)	1998 09 10	120	0.2−	0.4+	1998 10 12	699	0.8−	0.3−
1998 08 25	120	0.1−	0.9−	1998 09 10	120	0.2−	0.0	1998 10 12	699	0.6−	0.6−
1998 08 25	120	1.5+	0.9−	1998 09 14	704	0.4−	0.2−	1998 10 16	120	1.3+	0.1−
1998 08 25	120	0.1+	1.0−	1998 09 14	704	0.1+	0.8+	1998 10 16	120	(3.7+	2.2−)
1998 08 26	699	0.3+	0.2+	1998 09 14	704	0.1−	0.8+				

1998 QB₂₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Spahr							
<i>M</i>				(2000.0)				P			
<i>n</i>				<i>ω</i>				Q			
<i>a</i>				<i>Ω</i>							
<i>e</i>				<i>i</i>							
<i>P</i>				<i>H</i>				<i>G</i>			
								<i>U</i>			

Residuals in seconds of arc

1993 03 25	691	0.1−	0.1−	1998 08 23	704	1.0−	0.6+	1998 09 10	120	0.6+	0.6−
1993 03 25	691	0.2−	0.1−	1998 08 23	704	0.8−	0.1+	1998 09 10	120	0.8+	0.2−
1993 03 25	691	0.3+	0.3+	1998 08 23	704	0.9−	0.0	1998 09 10	120	0.2−	1.0−
1997 03 04	691	0.0	0.1+	1998 08 25	120	0.1+	0.6+	1998 09 10	120	0.5−	0.5−

1997 03 04	691	0.3−	0.4+	1998 08 25	120	0.1−	0.2−	1998 09 10	120	1.6−	1.1−
1997 03 04	691	0.1+	0.1−	1998 08 26	120	0.2+	0.0	1998 09 14	704	1.6+	0.1+
1997 04 04	566	0.9+	0.2−	1998 08 27	120	0.7+	0.6+	1998 09 14	704	0.4+	0.1−
1997 04 04	566	0.0	0.3−	1998 08 27	120	0.6+	0.4+	1998 09 14	704	0.2+	0.7+
1997 04 04	566	0.9−	0.1−	1998 08 30	120	0.4+	0.6+	1998 09 14	704	1.6+	0.4+
1998 06 29	704	0.8−	0.6+	1998 08 30	120	0.5+	0.4+	1998 09 18	704	0.5+	0.3−
1998 06 29	704	0.8−	1.7+	1998 08 30	120	0.6+	0.4+	1998 09 18	704	1.4−	0.8−
1998 06 29	704	1.2+	0.4+	1998 08 31	727	0.4−	0.5−	1998 09 18	704	0.6−	0.8−
1998 06 29	704	1.3−	0.0	1998 08 31	727	0.2−	0.2−	1998 09 18	704	0.3+	0.5+
1998 06 29	704	1.1+	1.8−	1998 08 31	727	0.0	0.4−	1998 11 25	699	0.0	0.1+
1998 08 17	704	0.1+	0.2+	1998 09 01	727	0.3+	0.4+	1998 11 25	699	0.3+	0.5−
1998 08 17	704	0.8−	0.3−	1998 09 01	727	0.2+	0.0	1998 11 25	699	0.1−	0.4+
1998 08 17	704	1.0−	0.2−	1998 09 01	727	0.3+	0.1−	1998 12 09	704	0.4−	1.4+
1998 08 17	704	0.8−	0.6−	1998 09 09	120	0.4+	0.1−	1998 12 09	704	(2.8−	0.8+)
1998 08 17	704	(2.1−	0.1−)	1998 09 09	120	1.2+	0.2−	1998 12 09	704	1.2−	0.2+
1998 08 23	704	0.6−	0.2−	1998 09 09	120	0.5−	0.5+				
1998 08 23	704	0.4+	0.1−	1998 09 09	120	0.1+	0.3+				

1998 QR₃₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

				Spahr							
<i>M</i>				(2000.0)				P			
<i>n</i>				<i>ω</i>				Q			
<i>a</i>				<i>Ω</i>							
<i>e</i>				<i>i</i>							
<i>P</i>				<i>H</i>				<i>G</i>			
								<i>U</i>			

Residuals in seconds of arc

1997 04 02	704	(1.5+	2.5+)	1998 08 17	704	0.3−	1.2+	1998 09 14	704	1.1−	0.8+
1997 04 02	704	1.0+	0.4+	1998 08 17	704	1.5−	0.0	1998 09 18	704	0.0	0.4−
1997 04 02	704	(0.8+	2.4+)	1998 08 23	704	0.9−	0.8−	1998 09 18	704	(2.4+	0.3+)
1997 04 02	704	0.2+	0.9+	1998 08 23	704	0.1+	0.7−	1998 09 18	704	0.8−	1.3−
1997 04 29	704	0.7+	0.6−	1998 08 23	704	(1.6−	2.5−)	1998 09 18	704	0.2+	0.1−
1997 04 29	704	0.2+	0.5−	1998 08 23	704	0.5−	0.1+	1998 09 18	704	0.9+	0.2+
1997 04 29	704	0.9−	1.4−	1998 08 23	704	1.3−	1.3−	1998 10 21	910	0.3+	0.5−

1999 AUG. 31

M.P.C. 35631

1998 QZ₅₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	61.40939		(2000.0)	P	Q
<i>n</i>	0.21376783	ω	216.80624	+0.99667736	-0.05998856
<i>a</i>	2.7701789	Ω	146.50620	+0.07451570	+0.94468605
<i>e</i>	0.1743693	<i>i</i>	5.72997	-0.03288859	+0.32244323
<i>P</i>	4.61	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1992 03 25	691	(1.6- 5.4-)	1998 08 23	704	(0.7+ 2.2-)	1998 09 18	704	0.6+ 0.6+
1992 03 25	691	0.2+ 0.9+	1998 08 23	704	(2.3- 1.2-)	1998 09 18	704	1.4- 0.8-
1992 04 26	691	0.2+ 0.3+	1998 08 23	704	1.3- 0.6-	1998 10 10	699	0.6- 0.5+
1992 04 26	691	0.2+ 0.1+	1998 08 26	120	0.0 0.0	1998 10 10	699	0.2+ 1.1+
1992 04 26	691	0.0 0.5+	1998 08 26	120	0.3+ 0.8+	1998 10 10	699	0.8+ 0.6+
1996 01 26	691	0.1- 0.2+	1998 08 26	120	0.3+ 0.3+	1998 10 12	699	0.0 0.4+
1996 01 26	691	0.2+ 0.2+	1998 08 30	120	0.4+ 0.2-	1998 10 12	699	0.3+ 0.4-
1996 01 26	691	0.2+ 0.2+	1998 08 30	120	0.3- 0.5+	1998 10 12	699	0.4+ 0.5+
1998 08 17	704	1.2- 0.8-	1998 09 14	704	0.7+ 0.3-	1998 11 07	910	0.4- 0.3+
1998 08 17	704	0.7+ 1.6-	1998 09 14	704	0.2+ 0.2+	1998 11 07	910	0.4- 0.2+
1998 08 17	704	1.2- 1.6-	1998 09 14	704	0.3+ 0.6-	1998 11 07	910	0.6- 0.4+
1998 08 17	704	0.5+ 0.2-	1998 09 14	704	0.2+ 0.7-	1998 11 08	910	0.5+ 0.2+
1998 08 17	704	1.2- 0.3+	1998 09 18	704	0.0 0.6-	1998 11 08	910	0.2+ 0.1+
1998 08 23	704	1.0+ 0.5+	1998 09 18	704	1.2+ 0.3+	1998 11 08	910	0.1+ 0.2-
1998 08 23	704	0.4- 1.2+	1998 09 18	704	0.6- 1.4+			

1998 QE₅₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	131.28718		(2000.0)	P	Q
<i>n</i>	0.30539648	ω	329.47441	+0.51237992	+0.85854948
<i>a</i>	2.1838696	Ω	331.33537	-0.77969304	+0.45583641
<i>e</i>	0.2524026	<i>i</i>	2.26571	-0.35992442	+0.23474660
<i>P</i>	3.23	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1994 03 09	691	0.2- 0.0	1998 08 17	704	0.4- 1.8-	1998 09 10	120	0.3- 0.1+
1994 03 09	691	0.1+ 0.2-	1998 08 17	704	0.5- 0.3-	1998 09 14	704	0.7+ 0.2-
1997 02 08	910	0.3- 0.3-	1998 08 23	704	0.6- 0.8+	1998 09 14	704	0.4+ 0.0
1997 02 08	910	0.0 0.1-	1998 08 23	704	0.9- 1.8+	1998 09 14	704	0.3+ 0.7+
1997 02 08	910	0.0 0.1-	1998 08 23	704	0.2- 1.6-	1998 09 14	704	0.6+ 1.1+
1997 03 05	704	(6.2+ 1.3-)	1998 08 23	704	0.8- 0.5-	1998 09 17	120	1.4+ 0.4+
1997 03 05	704	(3.8+ 3.0+)	1998 08 23	704	0.2+ 0.6+	1998 09 17	120	1.2+ 0.1-
1998 06 29	704	0.6+ 0.7+	1998 08 26	699	0.4- 0.4+	1998 09 17	120	1.1+ 0.2-
1998 06 29	704	0.8+ 0.4+	1998 08 26	699	0.5- 0.2-	1998 09 18	704	(3.0+ 1.4-)
1998 06 29	704	(2.4+ 1.2+)	1998 08 26	699	0.8+ 0.4+	1998 09 18	704	0.1+ 0.5+
1998 06 29	704	(1.2- 2.7+)	1998 08 30	120	0.5+ 0.3-	1998 09 18	704	0.9+ 0.7+
1998 06 29	704	(1.5- 2.3+)	1998 08 30	120	0.0 0.4-	1998 09 18	704	0.5+ 0.6+
1998 07 26	699	1.1- 0.2+	1998 08 30	120	0.4- 0.1+	1998 09 18	704	0.1- 0.2-
1998 07 26	699	0.7- 0.1+	1998 09 09	120	0.2+ 0.9+	1998 12 09	327	0.7- 0.3-
1998 07 26	699	0.6- 0.4-	1998 09 09	120	0.8- 0.3-	1998 12 09	327	0.3+ 0.3+
1998 08 17	704	0.6- 1.2-	1998 09 09	120	1.3+ 0.1+	1998 12 09	327	0.7- 0.4-
1998 08 17	704	0.4- 1.7-	1998 09 10	120	1.0- 0.1+			
1998 08 17	704	0.4- 1.8-	1998 09 10	120	0.1- 0.3+			

1998 QK₆₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	75.61621		(2000.0)	P	Q
<i>n</i>	0.31675235	ω	184.20128	+0.81711416	-0.57461591
<i>a</i>	2.1313568	Ω	211.01693	+0.53148863	+0.78200249
<i>e</i>	0.1310515	<i>i</i>	5.15187	+0.22325837	+0.24143046
<i>P</i>	3.11	<i>H</i>	16.0	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1995 10 25	033	0.4+ 0.9-	1998 09 18	704	1.3+ 1.8+	1998 11 11	621	0.1+ 0.0
1995 10 25	033	0.2- 0.1+	1998 09 26	704	0.3- 0.8+	1998 11 15	691	0.0 0.2-
1998 08 27	699	0.4- 1.5-	1998 09 26	704	1.2- 0.5-	1998 11 15	691	0.9+ 0.1-

1998 08 27	699	0.2+ 0.9-	1998 09 26	704	0.7- 0.3-	1998 11 15	691	0.1+ 0.1+
1998 08 27	699	0.2- 0.9-	1998 09 26	704	0.7- 0.2+	1998 11 19	621	0.1- 0.1+
1998 08 30	621	0.4+ 0.1+	1998 09 26	704	0.9- 0.3+	1998 11 19	621	0.3- 0.1-
1998 08 31	621	0.0 0.2+	1998 09 27	704	0.9+ 0.0	1998 11 19	621	0.2- 0.0
1998 08 31	621	0.0 0.3+	1998 09 27	704	0.2+ 0.7+	1998 11 20	621	0.2+ 0.0
1998 09 01	621	0.0 0.1+	1998 09 27	704	0.3+ 1.0+	1998 11 20	621	0.4+ 0.2+
1998 09 01	621	0.1+ 0.4+	1998 09 27	704	0.1- 0.3+	1998 11 20	621	0.2+ 0.1-
1998 09 14	704	0.5+ 0.0	1998 09 27	704	0.4+ 0.9-	1998 11 21	691	0.4- 0.4-
1998 09 14	704	0.3- 0.0	1998 10 14	699	0.7+ 0.3-	1998 11 21	691	0.2+ 0.0
1998 09 14	704	0.2- 0.4-	1998 10 14	699	0.1- 0.5-	1998 11 21	691	0.3+ 0.1-
1998 09 14	704	0.3- 1.1-	1998 10 14	699	0.6- 0.1+	1998 12 16	621	1.0+ 0.4+
1998 09 14	704	0.7+ 0.3+	1998 10 22	327	0.8- 0.3-	1998 12 16	621	1.4- 1.1-
1998 09 16	699	0.0 0.0	1998 10 22	327	0.3- 0.6-	1998 12 17	621	0.7+ 0.7-
1998 09 16	699	0.4+ 1.1+	1998 10 22	327	0.2- 0.3-	1998 12 17	621	1.7- 0.2-
1998 09 16	699	0.1+ 0.2+	1998 10 27	327	0.1- 0.6-	1998 12 17	621	0.1+ 0.6+
1998 09 18	704	0.6- 1.2+	1998 10 27	327	0.6+ 0.9-	1998 12 17	621	1.1+ 0.7+
1998 09 18	704	0.2- 0.7-	1998 10 27	327	(2.7+ 1.0+)	1998 12 17	621	0.1+ 1.2+
1998 09 18	704	0.3+ 1.2+	1998 11 11	621	0.1+ 0.1-	1998 12 17	621	0.1+ 0.7+
1998 09 18	704	0.3+ 0.4-	1998 11 11	621	0.4- 0.2+	1998 12 17	621	1.0- 0.8+

1998 QJ₆₉ = 1999 PD₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	160.61656		(2000.0)	P	Q
<i>n</i>	0.17600627	ω	22.13376	-0.61257026	+0.77871863
<i>a</i>	3.1534355	Ω	210.59055	-0.75922863	-0.62736510
<i>e</i>	0.0359138	<i>i</i>	15.43961	-0.21983984	-0.00321292
<i>P</i>	5.60	<i>H</i>	13.3	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1993 10 13	691	1.0- 0.4-	1998 08 27	704	0.2+ 0.3-	1998 09 19	704	0.9+ 0.3-
1993 10 13	691	1.1- 0.5-	1998 08 27	704	0.3- 0.0	1998 09 23	704	0.4+ 1.3+
1993 10 13	691	1.0- 0.4-	1998 08 27	704	1.0+ 0.9-	1998 09 23	704	0.4+ 0.0
1993 10 22	809	1.6+ 0.7+	1998 08 27	704	0.4- 0.4-	1998 09 23	704	0.0 0.3+
1993 10 22	809	1.6+ 0.4-	1998 09 18	699	0.6+ 0.1+	1998 09 23	704	0.2- 0.4+
1993 10 22	809	(2.6+ 1.0-)	1998 09 18	699	0.7+ 0.4+	1998 09 23	704	0.3- 1.5-
1998 08 24	704	1.9- 0.1-	1998 09 18	699	0.2- 0.6-	1999 08 08	557	0.5+ 0.3+
1998 08 24	704	1.1- 0.5+	1998 09 19	704	0.9+ 0.6-	1999 08 08	557	0.8- 0.0
1998 08 24	704	0.0 0.2-	1998 09 19	704	1.3+ 0.1+	1999 08 09	557	0.0 0.1-
1998 08 24	704	1.7- 0.5+	1998 09 19	704	0.6+ 1.2+	1999 08 09	557	0.7+ 0.6+
1998 08 24	704	1.5- 0.4+	1998 09 19	704	0.9+ 0.0	1999 08 09	557	0.5- 0.5+

1998 QC₉₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	73.08041		(2000.0)	P	Q
<i>n</i>	0.28184421	ω	223.42210	+0.68897746	-0.72477975
<i>a</i>	2.3038983	Ω	183.03092	+0.67531639	+0.64299929
<i>e</i>	0.1611024	<i>i</i>	2.26559	+0.26316882	+0.24747975
<i>P</i>	3.50	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1993 03 26	809	(2.9+ 3.7-)	1998 08 31	704	0.7- 0.1-	1998 11 10	704	0.1+ 0.4+
1993 03 27	809	0.6+ 0.8-	1998 08 31	704	0.4+ 1.2-	1998 11 10	704	0.7+ 0.2-
1993 04 18	691	0.4- 0.0	1998 08 31	704	0.8+ 1.6-	1998 11 10	704	0.4+ 0.4-
1993 04 18	691	0.3- 0.2-	1998 08 31	704	0.1- 1.0+	1998 11 10	704	0.2- 0.0
1993 04 18	691	0.3- 0.2-	1998 09 16	910	0.6- 0.5-	1998 11 11	704	0.1- 0.5+
1993 04 18	413	(1.5- 6.6-)	1998 09 16	910	0.3- 0.3-	1998 11 11	704	0.6- 0.7-
1995 11 21	691	0.0 0.4-	1998 09 16	910	0.7- 0.3-	1998 11 11	704	0.1+ 0.3-
1995 11 21	691	0.2+ 0.1-	1998 09 17	910	0.7- 0.3-	1998 11 11	704	0.3+ 0.2-
1995 11 21	691	0.2+ 0.7-	1998 09 17	910	0.7- 0.4-	1998 11 11	704	0.8- 0.4+
1996 02 10	691	0.4- 0.3-	1998 09 17	910	0.8- 0.1-	1998 11 14	699	0.2+ 0.3+
1996 02 10	691	0.2- 0.1-	1998 10 14	699	0.5+ 0.7+	1998 11 14	699	0.2+ 0.2+
1996 02 10	691	0.2- 0.4-	1998 10 14	699	0.5+ 0.6+	1998 11 14	699	0.1- 0.5+
1998 08 28	704	1.3+ 0.3-	1998 10 14	699	0.3+ 0.6+	1999 01 11	704	0.8+ 0.4-
1998 08 28	704	0.3- 0.3-	1998 10 20	699	0.6+ 0.4+	1999 01 11	704	0.3- 0.0
1998 08 28	704	1.0- 1.0-	1998 10 20	699	0.1- 0.4+	1999 01 11	704	0.2+ 0.1-

1998 08 28	704	0.0	0.6−	1998 10 20	699	1.2+	0.2+	1999 01 11	704	0.5−	0.4+
1998 08 31	704	0.7+	0.5−	1998 11 10	704	0.3+	0.2−	1999 01 11	704	1.5−	1.0+

1998 RO₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	233.97195		(2000.0)	P	Q
<i>n</i>	0.99956110	ω	151.04442	−0.80382923	−0.59240532
<i>a</i>	0.9906718	Ω	351.95106	+0.44395685	−0.53703457
<i>e</i>	0.7200479	<i>i</i>	22.67869	+0.39593040	−0.60054126
<i>P</i>	0.99	<i>H</i>	18.3	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1998 09 14	704	0.3+	0.7−	1998 09 17	426	0.9−	0.2−	1998 09 23	046	0.3−	1.1−
1998 09 14	704	0.3+	1.0+	1998 09 17	422	0.3−	0.0	1998 09 24	699	(2.4+	0.4−)
1998 09 14	704	0.0	0.8+	1998 09 17	422	0.3−	0.3−	1998 09 24	699	1.2+	0.1+
1998 09 14	704	(0.7−	2.2+)	1998 09 17	422	0.1−	0.3+	1998 09 24	699	1.2+	0.9−
1998 09 15	426	0.8+	0.3−	1998 09 17	587	0.1+	0.8−	1998 09 27	422	0.2+	0.3−
1998 09 15	426	0.4−	0.4+	1998 09 17	587	0.0	0.5−	1998 09 27	422	1.5+	0.0
1998 09 15	426	0.6−	0.0	1998 09 17	587	1.2−	0.9−	1998 09 27	557	0.2−	0.2−
1998 09 15	426	1.4−	0.2+	1998 09 18	704	0.4−	0.5−	1998 09 27	557	0.3+	0.2+
1998 09 15	587	0.1+	0.0	1998 09 18	704	1.0+	0.1+	1998 10 14	422	0.7−	1.0+
1998 09 15	587	0.8+	1.2+	1998 09 18	704	1.6+	0.8+	1998 10 15	422	0.7+	0.3−
1998 09 15	587	0.8+	0.3+	1998 09 18	704	1.3−	1.8+	1998 10 15	422	0.2−	0.6−
1998 09 16	422	0.2−	0.3+	1998 09 18	422	0.1−	0.2+	1998 10 15	422	0.7−	0.8+
1998 09 16	422	0.1−	0.0	1998 09 18	422	0.1+	0.5+	1999 08 04	413	0.9+	0.1+
1998 09 16	422	0.2+	0.0	1998 09 18	422	0.4+	0.7+	1999 08 04	413	1.1+	0.0
1998 09 16	422	0.1−	0.0	1998 09 18	557	0.2+	0.2−	1999 08 04	413	1.0+	0.1+
1998 09 16	426	0.2−	0.3−	1998 09 18	557	0.2−	0.0	1999 08 07	711	0.2−	0.1+
1998 09 16	426	0.3−	0.3−	1998 09 18	557	0.3−	0.2−	1999 08 07	711	0.8−	0.1+
1998 09 16	426	0.2−	0.1−	1998 09 20	587	0.8−	0.9−	1999 08 08	711	1.4−	0.4−
1998 09 16	557	0.1+	0.4−	1998 09 20	587	(0.4−	2.4−)	1999 08 08	711	0.6−	0.3−
1998 09 16	557	0.7−	0.2+	1998 09 23	046	0.4+	0.0	1999 08 22	402	0.6+	0.3+
1998 09 17	426	0.1−	0.2+	1998 09 23	046	0.2+	0.0	1999 08 22	402	0.5−	0.1+
1998 09 17	426	0.0	0.2+	1998 09 23	046	1.0−	0.7−	1999 08 22	402	0.5+	0.4−

1998 RC₁₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	73.11633		(2000.0)	P	Q
<i>n</i>	0.18365126	ω	311.67913	+0.68355103	+0.72988216
<i>a</i>	3.0653032	Ω	1.47717	−0.59049527	+0.55739342
<i>e</i>	0.3088736	<i>i</i>	12.27178	−0.42903768	+0.39570773
<i>P</i>	5.37	<i>H</i>	14.2	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 03 11	809	0.3−	1.4+	1998 09 14	704	0.8−	0.6+	1998 11 09	910	0.7−	0.4−
1997 03 11	809	0.5−	0.3+	1998 09 18	704	0.4+	0.3−	1998 11 09	910	0.4−	0.2−
1997 03 11	809	0.0	0.6+	1998 09 18	704	1.4+	0.2−	1998 11 09	910	0.5−	0.4−
1997 03 31	704	1.4+	0.6−	1998 09 18	704	0.2−	0.1+	1998 11 10	910	0.6−	0.1−
1997 03 31	704	0.6+	0.4+	1998 09 18	704	0.6+	0.5+	1998 11 10	910	0.6−	0.2−
1998 08 20	699	0.1+	1.0−	1998 09 18	704	0.7+	0.3+	1998 11 10	910	0.8−	0.2+
1998 08 20	699	0.3+	1.0−	1998 09 24	699	0.6+	0.6+	1998 11 11	910	0.2−	0.5−
1998 08 20	699	0.0	1.0−	1998 09 24	699	0.2+	1.0+	1998 11 11	910	0.1+	0.4−
1998 09 14	704	0.3−	0.2+	1998 09 24	699	0.7+	1.1+	1998 11 11	910	0.2−	0.4−
1998 09 14	704	0.6−	0.3+	1998 10 17	699	0.2−	0.2−	1998 12 08	910	0.2−	0.9+
1998 09 14	704	0.9−	0.4+	1998 10 17	699	0.4+	0.8+	1998 12 08	910	0.3−	0.5+
1998 09 14	704	1.5−	0.7−	1998 10 17	699	1.4+	1.0+	1998 12 08	910	0.1−	0.6+

1998 RH₆₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	102.46563		(2000.0)	P	Q
<i>n</i>	0.30047111	ω	241.97710	+0.98369746	+0.17208783
<i>a</i>	2.2076704	Ω	108.07447	−0.13960303	+0.91374694
<i>e</i>	0.1875365	<i>i</i>	3.14781	−0.11335914	+0.36803846
<i>P</i>	3.28	<i>H</i>	15.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1995 11 26	327	0.1+	0.3+	1998 08 04	699	0.1−	0.4−	1998 09 26	704	0.1+	0.1+
1995 11 26	327	0.2−	0.2+	1998 09 14	704	0.7+	0.2−	1998 09 26	704	0.6+	0.1−
1997 04 07	566	0.4+	0.4−	1998 09 14	704	0.8+	0.7−	1998 09 26	704	0.5+	0.5−
1997 04 07	566	0.5−	0.3+	1998 09 14	704	0.5+	0.5−	1998 09 27	704	1.6−	0.4−
1997 04 07	566	0.2+	0.1+	1998 09 17	699	0.9+	0.1+	1998 09 27	704	0.3−	0.1−
1998 06 23	691	0.3−	0.2+	1998 09 17	699	0.9+	0.0	1998 09 27	704	0.2−	0.1+
1998 06 23	691	0.3−	0.1+	1998 09 17	699	0.7+	0.1+	1998 11 15	699	1.0−	0.2−
1998 06 23	691	0.4−	0.1+	1998 09 18	704	0.2−	0.7+	1998 11 15	699	0.8−	0.7−
1998 06 29	704	0.6−	0.5−	1998 09 18	704	0.4+	1.0+	1998 11 15	699	0.7−	1.0+
1998 06 29	704	(0.2−	2.7+)	1998 09 18	704	0.2−	1.3+	1998 12 08	704	1.3−	1.4−
1998 06 29	704	0.3−	0.9−	1998 09 18	704	1.4+	0.6+	1998 12 08	704	(0.9+	2.7−)
1998 06 29	704	1.5−	0.2+	1998 09 18	704	0.0	0.1−	1998 12 08	704	0.2+	0.7−
1998 08 04	699	0.4−	0.4+	1998 09 26	704	0.2−	0.1−	1998 12 08	704	0.5−	0.1−
1998 08 04	699	0.3+	0.0	1998 09 26	704	0.5−	0.4+				

1998 RK₇₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	117.84405		(2000.0)	P	Q
<i>n</i>	0.17361819	ω	171.94429	+0.30729045	+0.95098621
<i>a</i>	3.1822862	Ω	115.94611	−0.87522185	+0.29671217
<i>e</i>	0.1566335	<i>i</i>	2.20579	−0.37357635	+0.08710403
<i>P</i>	5.68	<i>H</i>	12.7	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1992 09 03	095	1.0−	0.1+	1998 09 17	699	0.0	0.0	1998 10 19	699	0.4+	0.4+
1992 09 03	095	0.7+	0.7+	1998 09 17	699	0.1+	0.2−	1998 10 19	699	0.4+	0.4+
1996 03 21	566	0.2+	0.5+	1998 09 17	699	0.2+	0.1−	1998 10 28	704	0.4+	0.1+
1996 03 21	566	0.6+	0.0	1998 09 18	704	0.1+	0.3+	1998 10 28	704	0.0	0.4−
1996 03 21	566	0.1+	0.4+	1998 09 18	704	0.1−	0.0	1998 10 28	704	0.9−	1.3−
1996 04 21	566	0.0	0.2+	1998 09 18	704	0.4−	0.2−	1998 10 28	704	1.1−	0.5−
1996 04 21	566	0.1+	0.3+	1998 09 18	704	1.0−	0.1−	1998 10 29	704	0.9+	0.1−
1996 04 21	566	0.4−	0.5+	1998 09 18	704	1.0−	0.5+	1998 10 29	704	0.3+	0.7+
1998 08 02	699	0.4−	0.3−	1998 09 26	704	0.4+	0.4−	1998 10 29	704	0.4−	0.0
1998 08 02	699	0.7−	0.0	1998 09 26	704	0.6+	0.1+	1998 10 29	704	0.6−	0.3+
1998 08 02	699	0.7+	0.0	1998 09 26	704	0.1+	0.4+	1998 10 29	704	0.8−	1.0+
1998 08 28	704	(2.1+	2.5−)	1998 09 26	704	0.3−	0.2+	1998 11 06	699	0.5−	0.1+
1998 08 28	704	(2.8+	0.8−)	1998 09 26	704	0.3+	0.3+	1998 11 06	699	0.1−	0.1−
1998 08 28	704	0.9−	0.8+	1998 09 27	704	0.6+	0.2+	1998 11 06	699	0.1−	0.9−
1998 08 28	704	1.1+	1.0−	1998 09 27	704	0.1−	0.8+	1998 11 25	699	0.1−	0.2+
1998 08 28	704	(4.4−	0.0)	1998 09 27	704	1.1+	0.6+	1998 11 25	699	0.9+	0.5−
1998 09 14	704	0.2−	0.3+	1998 09 27	704	0.4+	0.7+	1998 11 25	699	0.8+	0.3+
1998 09 14	704	0.2−	0.8−	1998 09 27	704	0.0	0.2+				
1998 09 14	704	0.3−	1.4−	1998 10 19	699	0.1+	0.6+				

1998 RL₈₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	328.31357		(2000.0)	P	Q
<i>n</i>	0.30958226	ω	86.13958	−0.78740910	−0.61354285
<i>a</i>	2.1641399	Ω	56.00382	+0.53319289	−0.72641177
<i>e</i>	0.0196916	<i>i</i>	4.12235	+0.30934164	−0.30966291
<i>P</i>	3.18	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1995 12 26	691	0.4+	0.9−	1998 09 26	704	0.4−	0.1+	1998 10 28	704	1.5−	0.7+
1995 12 26	691	0.3+	0.9−	1998 09 26	704	0.7+	0.9−	1998 10 28	704	0.7+	0.8+
1995 12 26	691	0.3+	0.5−	1998 09 26	704	1.0+	0.8−	1998 10 29	704	0.0	1.2+
1997 04 11	809	0.4−	0.1+	1998 09 26	704	1.2+	0.6−	1998 10 29	704	0.6+	0.2−
1997 04 11	809	0.6+	0.2−	1998 09 26	704	1.0+	1.5−	1998 10 29	704	1.6+	0.2+
1997 04 11	809	0.2−	0.2+	1998 09 27	704	0.7−	0.1+	1998 10 29	704	0.8+	0.4−
1998 09 14	704	0.6−	0.7−	1998 09 27	704	0.1+	0.2+	1998 10 29	704	1.5−	1.0−
1998 09 14	704	1.1+	0.9+	1998 09 27	704	0.2−	0.7+	1998 11 06	699	0.8−	1.4+
1998 09 14	704	1.7−	0.8+	1998 09 27	704	0.0	0.5−	1998 11 06	699	0.4−	0.3−
1998 09 17	699	0.2−	0.4+	1998 09 27	704	0.5−	0.7−	1998 11 06	699	0.6−	1.2+
1998 09 17	699	0.3+	0.1−	1998 10 17	699	0.4−	0.6−	1999 01 13	910	0.0	0.1−
1998 09 17	699	0.1−	0.1−	1998 10 17	699	0.1+	0.7+	1999 01 13	910	0.3−	0.5+

1999 AUG. 31

M.P.C. 35633

1998 09 18	704	0.0	0.2−	1998 10 17	699	0.9+	0.4+	1999 01 13	910	0.0	0.4+
1998 09 18	704	1.0+	1.1−	1998 10 28	704	0.8−	1.0+	1999 01 14	910	0.1−	0.2−
1998 09 18	704	0.2−	0.5−	1998 10 28	704	1.1−	0.0	1999 01 14	910	0.4−	0.2+
1998 09 18	704	0.1+	0.3−	1998 10 28	704	0.1+	0.9+	1999 01 14	910	0.1−	0.1+

1998 SA₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

M	60.18743		(2000.0)	P	Q
n	0.17379762	ω	210.46050	+0.96577271	−0.25931178
a	3.1800956	Ω	164.56484	+0.24254616	+0.89409321
e	0.1990103	i	1.36980	+0.09194802	+0.36517768
P	5.67	H	13.5	G 0.15	U 3

Residuals in seconds of arc

1996 03 24	809	0.7+	0.6+	1998 09 20	910	0.0	0.1−	1998 10 29	704	0.1−	0.1+
1996 03 24	809	0.2−	0.6+	1998 09 20	809	(1.0+	3.2+)	1998 10 29	704	0.0	0.3−
1996 03 24	809	0.7+	0.2−	1998 09 20	809	(0.8−	3.1+)	1998 11 11	704	0.8+	0.4+
1996 04 17	809	0.7−	0.5−	1998 09 20	809	(0.5−	3.7+)	1998 11 11	704	0.0	0.3+
1996 04 17	809	0.6−	0.8−	1998 09 21	809	(0.5+	2.6+)	1998 11 11	704	0.0	0.4+
1996 04 17	809	0.2−	1.1−	1998 09 21	809	(0.2−	2.5+)	1998 11 11	704	0.5+	0.0
1998 09 14	699	0.2−	0.8+	1998 09 21	809	(1.3−	2.6+)	1998 11 11	704	0.6−	0.2+
1998 09 14	699	0.7−	0.2+	1998 10 10	699	0.5+	0.4−	1998 11 11	627	0.2−	0.5−
1998 09 14	699	0.2+	0.2+	1998 10 10	699	0.3+	0.5−	1998 11 11	627	0.9+	0.4−
1998 09 16	910	0.0	0.1+	1998 10 10	699	0.5−	0.8−	1998 11 11	627	0.2+	0.1−
1998 09 16	910	0.0	0.5+	1998 10 28	704	0.1+	0.1−	1998 11 23	699	0.2+	0.2+
1998 09 16	910	0.1+	0.2+	1998 10 28	704	0.4−	0.9−	1998 11 23	699	0.4+	0.7+
1998 09 18	910	0.2−	0.3+	1998 10 28	704	0.1+	0.4−	1998 11 23	699	0.4−	0.3+
1998 09 18	910	0.2−	0.2+	1998 10 28	704	0.2+	0.8−	1998 12 17	327	0.1−	0.3+
1998 09 18	910	0.2−	0.2+	1998 10 29	704	0.2−	0.1+	1998 12 17	327	0.5−	0.2+
1998 09 20	910	0.1+	0.2+	1998 10 29	704	0.0	0.3−	1998 12 17	327	0.4−	0.3−
1998 09 20	910	0.1−	0.1−	1998 10 29	704	0.1+	0.6−				

1998 SK₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

M	66.79075		(2000.0)	P	Q
n	0.17590672	ω	317.46335	+0.97877585	+0.20454826
a	3.1546252	Ω	30.74026	−0.18079423	+0.89072559
e	0.2242693	i	1.40838	−0.09649493	+0.40591617
P	5.60	H	13.8	G 0.15	U 3

Residuals in seconds of arc

1995 01 27	691	1.4−	0.3−	1998 09 21	727	0.3+	0.1−	1998 10 09	727	0.0	0.0
1995 01 27	691	(4.7−	0.4+)	1998 09 21	727	0.2−	0.4−	1998 10 14	699	0.2+	0.2+
1995 01 27	691	(5.1−	0.0)	1998 09 24	727	0.1−	0.7−	1998 10 14	699	0.4−	0.1+
1995 02 02	691	0.6+	0.7−	1998 09 24	727	0.5+	0.6−	1998 10 14	699	0.3+	0.5+
1995 02 02	691	0.3+	0.3+	1998 09 24	727	0.3+	0.4−	1998 10 19	699	0.1−	0.8+
1995 02 02	691	0.2+	0.2−	1998 09 25	699	0.0	0.0	1998 10 19	699	0.4+	0.8+
1998 09 14	704	0.6+	0.5−	1998 09 25	699	0.1+	0.1+	1998 10 19	699	0.3+	0.2−
1998 09 14	704	0.7+	0.7−	1998 09 25	699	0.2+	0.1+	1998 10 20	727	0.7−	0.4+
1998 09 14	704	1.0+	1.1−	1998 09 26	704	0.3−	0.2+	1998 10 20	727	0.4−	0.8+
1998 09 17	699	0.5+	0.2+	1998 09 26	704	0.2−	0.1−	1998 10 20	727	0.5−	0.3+
1998 09 17	699	0.2+	0.4+	1998 09 26	704	0.3−	0.0	1998 10 27	727	0.4−	0.8+
1998 09 17	699	0.5+	0.3+	1998 09 26	704	0.7+	0.3−	1998 10 27	727	0.6−	0.7+
1998 09 18	727	0.1+	0.4+	1998 09 26	704	0.0	0.9−	1998 10 27	727	0.2+	0.8+
1998 09 18	727	0.0	0.1+	1998 09 27	704	0.2+	0.6+	1998 10 28	691	0.1−	0.3−
1998 09 18	727	0.0	0.1−	1998 09 27	704	0.5−	0.1+	1998 10 28	691	0.1−	0.1−
1998 09 18	704	0.8+	0.3+	1998 09 27	704	0.5+	0.8+	1998 10 28	691	0.0	0.1−
1998 09 18	704	0.8−	0.3+	1998 09 27	704	0.2+	0.3−	1998 10 30	727	0.3−	0.3−
1998 09 18	704	0.3+	0.2−	1998 09 27	704	0.4−	0.9−	1998 10 30	727	0.4+	0.2−
1998 09 18	704	0.3+	0.1−	1998 09 29	727	0.8−	0.1−	1998 10 30	727	0.5−	0.4−
1998 09 18	704	0.4−	0.4+	1998 09 29	727	0.2−	0.1+	1998 12 08	699	0.1−	0.8−
1998 09 19	727	0.3−	0.1−	1998 09 29	727	0.6−	0.1+	1998 12 08	699	0.1−	0.1−
1998 09 19	727	0.4−	0.3−	1998 10 09	727	0.0	0.4−	1998 12 08	699	0.4+	0.4+
1998 09 19	727	0.3−	0.2−	1998 10 09	727	0.0	0.1−				

1998 SD₁₅

Id. L. Šarounová (1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	97.76932		(2000.0)	P	Q
n	1.09452268	ω	35.77908	−0.77279171	+0.63387603
a	0.9325087	Ω	184.01044	−0.63454286	−0.77074198
e	0.3449418	i	26.79670	+0.01217898	+0.06448237
P	0.90	H	18.9	G 0.15	U 5

Residuals in seconds of arc

1998 09 23	704	0.0	1.7+	1998 09 24	682	1.1+	0.7-	1998 09 25	046	0.2+	0.4+
1998 09 23	704	(0.4+	2.7+)	1998 09 24	682	0.7+	0.0	1998 09 27	860	(1.1+	2.7-)
1998 09 23	704	0.2-	1.4+	1998 09 24	704	1.0-	1.3+	1998 09 27	860	(0.5+	2.3-)
1998 09 23	704	(0.3-	2.3+)	1998 09 24	704	(0.4-	2.5+)	1998 09 27	860	0.0	0.6+
1998 09 23	704	1.1-	1.6+	1998 09 24	658	0.1-	0.4+	1998 09 27	557	0.1-	0.0
1998 09 23	046	0.7+	0.9-	1998 09 24	704	1.4-	1.4+	1998 09 27	557	0.1-	0.1+
1998 09 23	046	1.0+	0.6-	1998 09 24	658	0.3+	0.5+	1998 09 27	557	0.1-	0.2+
1998 09 23	046	0.4+	0.0	1998 09 24	658	0.3+	0.6+	1998 09 28	750	1.0-	0.1+
1998 09 23	046	0.9+	1.2-	1998 09 24	426	0.3+	0.4-	1998 09 28	750	1.7-	1.6-
1998 09 23	587	0.1-	0.1+	1998 09 24	426	0.3+	0.1-	1998 09 28	750	0.5-	0.6-
1998 09 23	587	0.1-	0.1+	1998 09 24	426	0.4+	0.1-	1998 09 28	670	0.6-	0.3-
1998 09 23	587	0.2+	0.0	1998 09 24	426	0.4+	0.7-	1998 09 28	670	0.7-	0.1+
1998 09 23	587	0.2+	0.3-	1998 09 24	540	0.8+	0.0	1998 09 28	670	0.8-	0.1+
1998 09 23	587	0.3+	0.0	1998 09 24	540	0.7+	0.2-	1998 09 28	670	0.5-	0.2+
1998 09 23	611	0.5+	0.2-	1998 09 24	540	0.9+	0.1-	1998 09 28	670	0.7-	0.2+
1998 09 23	611	0.4+	0.3-	1998 09 24	540	0.3+	0.2-	1998 09 29	670	1.2-	0.5+
1998 09 23	611	0.4+	0.1-	1998 09 24	557	0.5+	0.3-	1998 09 29	670	0.7-	0.7+
1998 09 23	611	0.4+	0.0	1998 09 24	557	0.5+	0.4-	1998 09 29	670	1.0-	0.8+
1998 09 23	557	0.2-	1.2-	1998 09 24	557	0.5+	0.5-	1998 09 29	670	0.4-	0.7+
1998 09 23	557	0.2-	1.1-	1998 09 24	557	0.5+	0.5-	1998 09 29	046	0.3-	0.9-
1998 09 23	557	0.4-	1.0-	1998 09 24	118	0.7+	0.2-	1998 09 29	046	0.5-	0.7-
1998 09 24	966	0.2-	0.6+	1998 09 24	118	0.6+	0.2-	1998 09 29	046	0.5-	1.1-
1998 09 24	966	0.8-	1.3-	1998 09 24	118	0.6+	0.0	1998 09 29	046	0.6-	1.3-
1998 09 24	835	(1.0-	3.2-)	1998 09 24	046	0.5+	0.1-	1998 10 01	402	0.5-	0.2-
1998 09 24	816	0.2-	0.9-	1998 09 24	046	0.4+	0.2-	1998 10 01	402	0.5-	0.1+
1998 09 24	835	0.9-	0.4-	1998 09 24	046	0.6+	0.4-	1998 10 01	402	0.4-	0.1+
1998 09 24	816	0.1+	0.3-	1998 09 24	046	0.6+	0.4-	1998 10 09	046	0.1-	1.4+
1998 09 24	816	0.2-	0.6-	1998 09 24	620	0.6+	1.2-	1998 10 09	046	0.0	0.7+
1998 09 24	816	0.0	0.7-	1998 09 24	620	0.6+	0.4-	1998 10 09	046	0.0	0.5+
1998 09 24	835	0.8+	1.2-	1998 09 24	620	0.7+	0.5-	1998 10 09	046	0.1-	0.7+
1998 09 24	704	0.5-	1.8+	1998 09 24	620	0.8+	1.0-	1998 10 13	422	0.1-	0.0
1998 09 24	704	0.2-	1.6+	1998 09 24	620	0.6+	0.8-	1998 10 13	422	0.0	0.1-
1998 09 24	670	0.3-	0.3-	1998 09 25	713	0.0	0.1+	1998 10 21	422	1.7-	0.3-
1998 09 24	704	1.9-	1.7+	1998 09 25	713	0.1-	0.2-	1998 10 21	422	1.0-	0.2-
1998 09 24	670	0.3-	0.2-	1998 09 25	713	0.1-	0.2+	1998 10 21	422	0.9-	0.3-
1998 09 24	670	0.2+	1.0+	1998 09 25	713	0.3-	0.2+	1998 10 21	360	0.3-	0.0
1998 09 24	704	0.0	0.7+	1998 09 25	713	0.1-	0.2+	1998 10 21	360	0.0	0.2-
1998 09 24	670	0.2+	0.5+	1998 09 25	422	0.2+	0.7-	1998 10 21	360	0.6+	0.2+
1998 09 24	670	0.4+	0.5+	1998 09 25	422	0.3-	0.8-	1998 08 25	557	1.5+	0.9+
1998 09 24	704	1.3-	1.4+	1998 09 25	422	0.2-	0.7-	1998 08 25	557	0.2+	2.2+
1998 09 24	682	1.3+	0.9+	1998 09 25	422	0.4-	0.8-	1998 08 25	557	1.7+	1.4+
1998 09 24	704	0.1-	1.8+	1998 09 25	046	0.3+	0.3+	1998 08 26	557	1.7+	2.0-
1998 09 24	682	1.3+	0.2+	1998 09 25	046	0.3+	0.4+	1998 08 26	557	0.5-	0.1+
1998 09 24	704	0.3-	1.3+	1998 09 25	046	0.3+	0.8+	1998 08 26	557	0.5+	1.9+

1992 02 25	691	0.7−	0.5−	1998 10 20	699	0.0	0.4+	1998 11 10	704	0.3−	0.8−
1993 06 20	691	0.1+	0.0	1998 10 20	699	0.6+	0.4+	1998 11 11	704	0.5−	0.1−
1993 06 20	691	0.3−	0.0	1998 10 20	699	0.1+	0.1−	1998 11 11	704	0.8−	0.4−
1993 06 20	691	0.3+	0.1+	1998 10 28	704	0.1−	0.1−	1998 11 11	704	0.1−	0.8−
1998 09 18	699	1.2−	0.0	1998 10 28	704	0.7−	0.3+	1998 11 11	704	0.1+	0.9−
1998 09 18	699	0.5−	0.8−	1998 10 28	704	1.0+	0.4−	1998 11 11	704	0.1−	0.5−
1998 09 18	699	0.9−	0.1+	1998 10 28	704	0.9+	0.1+	1998 11 14	699	1.3+	0.6+
1998 09 20	809	1.3+	1.9−	1998 10 29	704	0.3+	0.3+	1998 11 14	699	0.4+	1.9+
1998 09 20	809	0.5+	1.3−	1998 10 29	704	0.1+	0.5+	1998 11 14	699	0.2+	0.7+
1998 09 20	809	0.2−	0.9−	1998 10 29	704	0.2+	0.7+	1998 12 11	699	0.2−	0.3+
1998 09 21	809	0.9+	0.2+	1998 10 29	704	0.4+	0.3+	1998 12 11	699	0.6+	0.5−
1998 09 21	809	0.6+	0.3+	1998 10 29	704	0.5+	0.4+	1998 12 11	699	1.1−	0.2−
1998 09 21	809	0.1−	0.3+	1998 11 10	704	0.4+	0.1+				
1998 10 11	699	0.4+	0.2−	1998 11 10	704	1.9−	0.2+				

1998 ST₇₂ = 1998 UV₃₇ = 1996 LN₄

Id. A. Doppler (d, *MPC* 33785), S. Nakano (*MPC* 33969); 1998 ST₇₂ = 1990 DR₆ (*ibid.*) is invalid

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Williams			
<i>M</i>	39.39119	(2000.0)		P	Q		
<i>n</i>	0.19463542	ω	312.72717	+0.66405845	−0.74565046		
<i>a</i>	2.9488644	Ω	95.57684	+0.70113520	+0.59545020		
<i>e</i>	0.0874320	<i>i</i>	3.17141	+0.25968405	+0.29907265		
<i>P</i>	5.06	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 05 11	691	1.4+	0.1+	1998 09 21	809	0.0	0.2+	1998 10 29	704	0.8−	0.2−
1996 05 11	691	1.4+	0.8+	1998 09 23	809	(8.8+	0.9+)	1998 10 29	704	0.2−	0.4+
1996 05 11	691	1.4+	1.2+	1998 09 23	809	(7.7+	1.1+)	1998 10 29	704	1.0+	0.2−
1996 06 08	809	0.8−	2.1−	1998 09 23	809	(7.7+	1.1+)	1998 10 29	704	2.4−	0.1−
1996 06 08	809	2.5−	0.4−	1998 10 11	699	1.4−	0.5+	1998 10 29	704	0.6−	0.1−
1996 06 08	809	2.4−	0.4−	1998 10 11	699	0.8−	0.2+	1998 11 10	704	1.4+	0.6+
1996 06 10	809	2.7+	0.5+	1998 10 11	699	0.3−	0.0	1998 11 10	704	0.9+	0.7−
1996 06 10	809	0.7−	0.4+	1998 10 28	704	1.2+	0.1−	1998 11 10	704	1.6+	0.3−
1996 06 10	809	0.9−	0.2−	1998 10 28	704	0.0	0.9−	1998 11 10	704	1.3−	0.3+
1998 09 21	809	0.6+	0.0	1998 10 28	704	0.7+	1.7−				
1998 09 21	809	0.3+	0.5+	1998 10 28	704	0.1+	1.8+				

1998 SZ₇₉ = 1995 YL₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5				Doppler			
<i>M</i>	7.76633	(2000.0)		P	Q		
<i>n</i>	0.26872518	ω	137.87427	−0.04929224	−0.99844295		
<i>a</i>	2.3782845	Ω	314.93257	+0.90624349	−0.03371856		
<i>e</i>	0.1270126	<i>i</i>	2.11398	+0.41987262	−0.04443791		
<i>P</i>	3.67	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 12 24	566	(3.1+	1.4+)	1995 12 29	608	0.1+	1.3+	1998 09 19	703	0.4−	1.1−
1995 12 24	566	(2.7+	1.5+)	1996 01 07	608	0.3−	1.3−	1998 09 26	704	0.5−	0.7−
1995 12 24	566	(3.3+	1.6+)	1996 01 07	608	0.9+	0.5−	1998 09 26	704	0.3+	0.7+
1995 12 25	566	0.2−	0.4−	1996 01 08	608	0.7−	0.7+	1998 09 26	704	(2.2+	0.2+)
1995 12 25	566	0.3+	0.1−	1996 01 08	608	0.3+	0.4+	1998 09 26	704	1.6−	1.1−
1995 12 25	566	0.1+	0.4−	1998 09 18	703	0.7+	0.9+	1998 09 27	704	0.8−	0.2−
1995 12 25	566	0.3+	0.1−	1998 09 18	703	0.6−	0.0	1998 09 27	704	0.8+	0.7+
1995 12 25	566	0.4−	0.3−	1998 09 18	703	0.7+	0.4+	1998 09 27	704	0.4+	0.5+
1995 12 25	566	0.1−	0.1+	1998 09 18	703	0.3−	0.2+	1998 09 27	704	0.3−	0.2+
1995 12 28	608	0.4−	0.2+	1998 09 19	703	1.3+	0.2−	1998 09 27	704	1.3+	0.2+
1995 12 28	608	0.1−	0.0	1998 09 19	703	0.1+	0.3−				
1995 12 29	608	0.3+	0.2+	1998 09 19	703	1.1−	0.3−				

1998 SA₈₀ = 1993 FN₇₀ = 1997 LW₁₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 329.01016 (2000.0)				P				Q			
<i>n</i>	0.27112420	ω	281.46222	−0.55153876	−0.83378606						
<i>a</i>	2.3642344	Ω	202.06477	+0.78858868	−0.51156885						
<i>e</i>	0.0584626	<i>i</i>	3.75673	+0.27190605	−0.20760087						
<i>P</i>	3.64	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i>	1				

Residuals in seconds of arc

1991 11 03	691	0.0	1.1+	1997 06 09	809	0.3−	0.9−	1998 09 26	704	0.5+	1.6+
1991 11 03	691	0.4−	0.8+	1997 06 09	809	0.7−	0.5−	1998 09 26	704	0.3+	0.2+
1991 11 03	691	0.4−	0.7+	1997 06 09	809	1.1+	1.6−	1998 09 26	704	0.0	1.1−
1993 03 21	809	1.1+	0.5−	1998 09 18	703	0.9+	0.4+	1998 09 26	704	0.1+	0.8−
1993 03 22	809	0.2+	0.0	1998 09 18	703	0.6−	0.4−	1998 09 26	704	0.0	0.7+
1993 04 15	691	0.6−	0.2−	1998 09 18	703	0.1−	0.8−	1998 09 27	704	1.1+	0.3−
1993 04 15	691	0.3−	0.2+	1998 09 18	703	0.8+	0.6−	1998 09 27	704	1.3−	0.6+
1993 04 15	691	0.4−	0.0	1998 09 19	703	1.0+	0.1+	1998 09 27	704	0.7−	0.7−
1997 06 08	809	0.3+	1.5+	1998 09 19	703	0.3+	0.0	1998 09 27	704	0.2−	0.1+
1997 06 08	809	0.0	1.7+	1998 09 19	703	1.4−	0.9−				
1997 06 08	809	0.1−	1.8+	1998 09 19	703	(2.3−	1.7−)				

1998 SG₁₀₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 49.38187 (2000.0)				P				Q			
<i>n</i>	0.25900766	ω	117.12354	+0.51766874	−0.85544207						
<i>a</i>	2.4374047	Ω	301.69212	+0.77842264	+0.47838972						
<i>e</i>	0.2004924	<i>i</i>	1.03875	+0.35507361	+0.19839895						
<i>P</i>	3.81	<i>H</i>	15.8	<i>G</i>	0.15	<i>U</i>	2				

Residuals in seconds of arc

1994 08 10	809	0.7+	1.0−	1998 09 26	704	0.7+	0.2−	1998 10 28	704	0.8−	0.9−
1994 08 10	809	0.5+	0.1−	1998 09 26	704	0.7−	0.0	1998 10 28	704	0.6−	0.5−
1994 08 10	809	0.2+	1.9−	1998 09 27	704	0.8+	0.1+	1998 10 29	704	(2.2−	0.3−)
1995 12 27	691	0.1+	0.3−	1998 09 27	704	1.4+	1.1+	1998 10 29	704	0.1−	0.3+
1995 12 27	691	0.1−	0.2−	1998 09 27	704	0.6−	1.1+	1998 10 29	704	(2.3−	0.6+)
1995 12 27	691	0.4−	0.4−	1998 09 27	704	0.6+	0.5+	1998 10 29	704	0.1−	1.5−
1998 09 15	699	0.1+	1.6+	1998 09 27	704	0.4+	0.1+	1999 01 19	691	0.4+	0.7−
1998 09 15	699	0.6−	0.4+	1998 10 14	699	0.1−	1.0+	1999 01 19	691	0.3+	0.8−
1998 09 15	699	0.2+	0.1+	1998 10 14	699	0.6−	0.3+	1999 01 19	691	0.2+	0.3−
1998 09 26	704	0.3+	0.3−	1998 10 14	699	0.6−	0.8+	1999 01 22	691	0.0	0.3−
1998 09 26	704	1.2−	1.1−	1998 10 28	704	(1.2−	2.1−)	1999 01 22	691	0.2+	0.3−
1998 09 26	704	1.1+	0.3+	1998 10 28	704	1.0−	0.5−	1999 01 22	691	0.6+	0.2−

1998 SD₁₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i> 84.54463 (2000.0)				P				Q			
<i>n</i>	0.26548267	ω	239.89005	+0.98602695	−0.16191989						
<i>a</i>	2.3976103	Ω	129.39940	+0.16488884	+0.91518471						
<i>e</i>	0.1857448	<i>i</i>	2.90414	+0.02371755	+0.36907845						
<i>P</i>	3.71	<i>H</i>	15.3	<i>G</i>	0.15	<i>U</i>	3				

Residuals in seconds of arc

1997 04 06	704	1.4+	0.1+	1998 09 27	704	0.9+	0.8+	1998 10 28	704	0.8+	0.4-
1997 04 06	704	0.7-	0.3+	1998 09 27	704	0.4-	0.3+	1998 10 29	704	(1.9+	3.4-)
1997 04 30	704	0.9+	0.1-	1998 09 27	704	0.2-	0.1-	1998 10 29	704	0.3+	0.3-
1997 04 30	704	0.1+	0.7+	1998 09 27	704	0.0	0.1-	1998 10 29	704	(0.1-	3.4-)
1997 04 30	704	0.5+	0.8+	1998 10 17	699	0.1-	0.9+	1998 10 29	704	(0.7+	2.9-)
1997 04 30	704	1.3-	0.6+	1998 10 17	699	0.7-	0.2+	1998 10 29	704	(0.6+	2.5-)
1998 09 17	699	0.3-	0.3+	1998 10 17	699	1.0-	0.2-	1998 12 08	704	0.6-	0.2-
1998 09 17	699	0.2-	0.0	1998 10 19	699	0.2-	0.9+	1998 12 08	704	0.8+	0.1+
1998 09 17	699	0.9-	0.6+	1998 10 19	699	0.4-	0.5+	1998 12 08	704	0.3+	0.5+
1998 09 26	704	0.6-	0.7+	1998 10 19	699	0.5-	0.4+	1998 12 08	704	0.4+	0.7+
1998 09 26	704	1.1+	0.4+	1998 10 28	704	1.2+	1.6-	1999 01 14	910	0.7-	0.9+
1998 09 26	704	0.3+	0.4-	1998 10 28	704	0.1+	0.2-	1999 01 14	910	0.9-	1.2+
1998 09 26	704	0.3+	1.4-	1998 10 28	704	0.2+	0.5-	1999 01 14	910	0.2-	1.0+
1998 09 27	704	0.1-	0.0	1998 10 28	704	0.1-	1.3-				

1999 AUG. 31

M.P.C. 35635

1998 SP₁₁₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	72.64855	(2000.0)	P	Q
<i>n</i>	0.18465069	ω 68.19865	+0.98874557	+0.14749714
<i>a</i>	3.0542325	Ω 283.31251	-0.14500242	+0.90360405
<i>e</i>	0.2301514	<i>i</i> 1.47422	-0.03683070	+0.40217449
<i>P</i>	5.34	<i>H</i> 13.6	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1993 11 12	033	0.1+	0.1-	1998 09 27	704	1.3+	0.4-	1998 10 28	704	0.1+	0.3-
1993 11 12	033	0.1-	0.1+	1998 09 27	704	(0.9-	2.6+)	1998 10 28	704	0.8+	0.2+
1995 01 31	691	0.1+	0.3-	1998 10 03	327	0.1-	1.2+	1998 10 28	704	0.0	0.1+
1995 01 31	691	0.0	0.0	1998 10 03	327	0.3+	1.6+	1998 10 29	704	0.3-	0.1-
1995 01 31	691	0.2-	0.0	1998 10 03	327	0.0	0.3+	1998 10 29	704	0.7-	1.5+
1998 09 17	699	0.3-	0.0	1998 10 11	699	0.4+	0.2+	1998 10 29	704	0.9-	0.8+
1998 09 17	699	0.0	0.1-	1998 10 11	699	0.1+	0.1+	1998 10 29	704	0.1+	0.1-
1998 09 17	699	0.1+	0.4-	1998 10 11	699	0.2+	0.3+	1998 10 29	704	0.2-	0.5+
1998 09 20	327	0.8-	0.1+	1998 10 17	327	0.3+	0.9-	1998 11 10	699	0.3+	0.1-
1998 09 20	327	0.8-	0.0	1998 10 17	327	0.4+	1.0-	1998 11 10	699	1.4+	0.5-
1998 09 20	327	1.0-	0.1+	1998 10 17	327	0.4+	0.8-	1998 11 10	699	0.2-	0.1-
1998 09 26	704	0.0	0.8-	1998 10 19	327	0.1-	0.3-	1999 01 11	704	0.1-	0.3+
1998 09 26	704	0.6-	0.9-	1998 10 19	327	0.1-	0.2-	1999 01 11	704	0.2+	0.3+
1998 09 26	704	0.3-	0.4+	1998 10 19	327	0.2-	0.3-	1999 01 11	704	(3.1-	1.0-)
1998 09 26	704	0.2+	0.7+	1998 10 20	327	0.1-	0.4-	1999 01 19	691	0.1-	0.1-
1998 09 26	704	0.9-	0.5-	1998 10 20	327	0.4-	0.1-	1999 01 19	691	0.1+	0.0
1998 09 27	704	0.7+	0.7-	1998 10 20	327	1.3-	0.9+	1999 01 19	691	0.3-	0.3-
1998 09 27	704	1.1+	0.4-	1998 10 28	704	0.2+	0.5+				
1998 09 27	704	0.7+	0.3-	1998 10 28	704	0.4+	0.0				

1998 SH₁₂₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	61.66383	(2000.0)	P	Q
<i>n</i>	0.17260759	ω 148.09752	+0.98835970	-0.14125833
<i>a</i>	3.1946954	Ω 220.14500	+0.11453980	+0.93530322
<i>e</i>	0.1570553	<i>i</i> 5.02669	+0.10012863	+0.32442868
<i>P</i>	5.71	<i>H</i> 13.8	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 03 26	809	(3.0+	2.5+)	1998 09 26	704	0.2+	0.2+	1998 10 29	704	0.5+	1.6-
1996 03 26	809	(0.4+	3.0+)	1998 09 27	704	0.4-	0.0	1998 10 29	704	(1.4+	3.0-)
1996 03 26	809	0.5+	1.9+	1998 09 27	704	0.9+	0.1+	1998 10 29	704	(1.5+	2.3-)
1996 04 17	809	(5.9+	4.9+)	1998 09 27	704	0.7+	0.7+	1998 11 10	699	0.7-	0.8+
1996 04 17	809	(5.4+	5.7+)	1998 09 27	704	0.6+	0.6+	1998 11 10	699	0.2+	0.2-
1996 04 17	809	(5.3+	4.8+)	1998 09 27	704	0.4+	0.2+	1998 11 10	699	0.6+	0.3-
1998 09 14	699	0.2-	1.1+	1998 10 28	704	0.8-	0.3-	1998 11 23	699	0.4+	1.5+
1998 09 14	699	0.5+	0.0	1998 10 28	704	1.5-	0.1+	1998 11 23	699	0.1+	0.9+
1998 09 14	699	0.8-	0.6-	1998 10 28	704	0.3-	0.5+	1998 11 23	699	0.3+	1.0-
1998 09 26	704	0.3+	0.0	1998 10 28	704	0.3-	0.3-	1998 12 09	699	0.5-	0.6+
1998 09 26	704	(0.9+	2.5-)	1998 10 28	704	1.1-	0.6+	1998 12 09	699	1.1-	0.3+
1998 09 26	704	0.1-	0.2-	1998 10 29	704	1.2+	0.8-	1998 12 09	699	0.8+	0.3+
1998 09 26	704	0.3-	0.4-	1998 10 29	704	0.0	0.9-				

1998 SF₁₂₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	107.88893	(2000.0)	P	Q
<i>n</i>	0.19328864	ω 307.62639	+0.78503932	+0.61782446
<i>a</i>	2.9625464	Ω 14.39690	-0.49629651	+0.67059181
<i>e</i>	0.1030105	<i>i</i> 10.37818	-0.37067916	+0.41060878
<i>P</i>	5.10	<i>H</i> 13.6	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1993 10 10	691	0.0	0.2-	1998 09 26	704	0.4+	0.4+	1998 10 29	704	0.5-	0.7-
1993 10 10	691	0.2-	0.0	1998 09 26	704	1.1+	0.2-	1998 10 29	704	1.0-	0.4-
1993 10 10	691	0.2-	0.0	1998 09 26	704	1.0+	0.0	1998 10 29	704	1.1-	0.0
1993 11 06	691	0.3+	0.1-	1998 09 26	704	1.6+	0.5+	1998 10 29	704	0.0	0.7+

1993 11 06	691	0.4+	0.1-	1998 09 26	704	1.0+	0.5+	1998 10 29	704	0.2-	0.2+
1993 11 06	691	0.1+	0.0	1998 09 27	704	0.8+	0.2-	1998 11 10	699	0.8-	0.1-
1996 02 16	691	0.2+	0.0	1998 09 27	704	1.0+	1.2+	1998 11 10	699	0.9+	0.3+
1996 02 16	691	0.1+	0.1-	1998 09 27	704	0.2-	1.3+	1998 11 10	699	0.1-	0.1-
1996 02 16	691	0.1+	0.1-	1998 09 27	704	0.4+	0.4-	1998 11 23	699	0.9-	0.4-
1996 04 19	566	0.4-	0.3-	1998 09 27	704	0.3+	0.3-	1998 11 23	699	0.3-	0.1-
1996 04 19	566	0.6-	0.5-	1998 10 28	704	0.7-	0.5-	1998 11 23	699	1.1-	0.4-
1996 04 19	566	(5.1-	8.4-)	1998 10 28	704	1.9-	0.1+	1999 01 05	699	0.0	0.5-
1998 09 18	699	0.2-	0.1-	1998 10 28	704	0.7-	1.7-	1999 01 05	699	0.1-	0.2+
1998 09 18	699	0.9+	0.2-	1998 10 28	704	0.8-	0.0	1999 01 05	699	0.2+	0.1+
1998 09 18	699	1.0+	0.2-	1998 10 28	704	(2.4-	0.2-)				

1998 SV₁₄₁ = 1985 SY

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	208.51266	(2000.0)	P	Q
<i>n</i>	0.30821111	ω 160.94796	-0.18587666	+0.97926161
<i>a</i>	2.1705537	Ω 98.27720	-0.91173893	-0.14131394
<i>e</i>	0.0791088	<i>i</i> 4.67190	-0.36630859	-0.14517941
<i>P</i>	3.20	<i>H</i> 15.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1985 09 17	801	0.1+	0.2-	1998 09 27	704	0.8-	0.6+	1998 10 15	704	0.8+	1.0+
1995 10 23	691	0.4+	0.2+	1998 09 27	704	1.1-	0.1-	1998 10 15	704	1.4+	1.2+
1995 10 23	691	0.2+	0.1+	1998 09 27	704	1.5-	0.7-	1998 10 15	704	(6.5-	1.1-)
1996 01 22	327	0.2+	0.0	1998 09 27	704	1.4-	1.3-	1998 10 20	699	0.9+	0.9+
1996 01 22	327	0.3-	0.7-	1998 10 01	910	0.4+	0.9+	1998 10 20	699	1.0+	0.5+
1996 01 22	327	0.3-	0.5-	1998 10 01	910	0.9+	0.5+	1998 10 20	699	0.2+	0.6+
1998 09 26	704	0.2-	0.1-	1998 10 01	910	0.7+	0.7+	1998 11 10	704	(2.1+	0.6+)
1998 09 26	704	0.1+	1.3-	1998 10 11	699	0.2-	0.8-	1998 11 10	704	0.6-	0.9+
1998 09 26	704	0.1-	1.0-	1998 10 11	699	0.3+	0.5-	1998 11 10	704	1.3-	0.9-
1998 09 26	704	1.3-	0.4-	1998 10 11	699	0.1-	0.5-	1998 11 10	704	0.0	0.0
1998 09 26	704	0.8+	0.5-	1998 10 15	704	0.3-	0.5+				
1998 09 27	704	0.5+	0.7-	1998 10 15	704	0.2+	1.0+				

1998 SN₁₅₆ = 1993 SU₁₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	108.92098	(2000.0)	P	Q
<i>n</i>	0.20228133	ω 314.77970	+0.71124889	+0.70294019
<i>a</i>	2.8740799	Ω 0.55725	-0.63472966	+0.64243851
<i>e</i>	0.1618459	<i>i</i> 1.99079	-0.30206503	+0.30520134
<i>P</i>	4.87	<i>H</i> 14.7	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 09 16	809	0.8-	0.5-	1998 09 26	704	0.7-	0.5-	1998 10 15	327	0.6-	0.1+
1993 09 16	809	1.6-	0.7-	1998 09 27	704	0.1+	0.9-	1998 10 15	327	0.5-	0.1+
1993 09 16	809	0.5+	0.1+	1998 09 27	704	0.2+	1.1+	1998 10 15	327	0.1+	0.4-
1993 09 23	809	1.8+	1.5+	1998 09 27	704	0.4+	0.1-	1998 10 26	327	0.3+	0.0
1993 09 23	809	0.6+	0.1-	1998 10 01	327	0.4-	0.2+	1998 10 26	327	0.7+	0.3-
1993 09 23	809	0.2-	0.8-	1998 10 01	327	0.3-	0.2-	1998 10 26	327	0.0	0.4+
1998 09 26	704	0.1+	1.0+	1998 10 01	327	0.7-	0.5+	1998 10 26	327	0.0	0.3-
1998 09 26	704	1.0+	1.2+	1998 10 11	699	0.2-	0.7-	1998 10 26	327	0.2+	0.0
1998 09 26	704	1.2-	0.8-	1998 10 11	699	0.1+	0.4-	1998 10 26	327	0.0	0.1+
1998 09 26	704	1.2+	0.8+	1998 10 11	699	0.2+	0.1-				

1998 TG₁₆ = 1992 HY₁Id. B. G. Marsden (*MPC* 33049); 1998 TG₁₆ = 1971 QE₁ (*ibid.*) is invalid

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	358.72927	(2000.0)	P	Q
<i>n</i>	0.08141973	ω 227.35644	+0.31738398	-0.94449407
<i>a</i>	5.2720914	Ω 204.52776	+0.91884272	+0.32841806
<i>e</i>	0.0937917	<i>i</i> 11.79294	+0.23451110	-0.00851669
<i>P</i>	12.11	<i>H</i> 11.2	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1951 11 28	675	0.9−	0.1+	1998 10 13	120	0.6+	0.2−	1998 10 27	120	0.4−	0.3+
1951 11 28	675	1.2+	0.1+	1998 10 13	120	0.6+	0.2−	1998 11 08	118	0.8+	0.1+
1971 08 19	095(59.3−	97.2−)		1998 10 14	699	1.1−	0.3+	1998 11 08	118	0.2+	0.2+
1982 08 13	413	1.2−	0.3+	1998 10 14	699	0.8−	0.2+	1998 11 10	704	1.6+	0.6+
1982 08 13	413	0.4+	0.1+	1998 10 14	699	0.6−	0.9+	1998 11 10	704	0.4−	0.5−
1991 02 12	413	1.1−	0.3+	1998 10 20	699	1.1−	1.2+	1998 11 10	704	0.9+	1.3−
1991 02 12	413	0.9−	0.3+	1998 10 20	699	0.3+	1.3+	1998 11 10	704	1.8+	0.1+
1992 04 27	691	1.1+	0.9+	1998 10 20	699	0.3+	1.7+	1998 11 10	704	(5.3−	0.6+)
1992 04 27	691	0.3+	0.6+	1998 10 20	120	0.8+	0.4+	1998 11 11	704	0.5−	0.5+
1992 04 27	691	0.0	1.5+	1998 10 20	120	0.8−	0.5+	1998 11 11	704	0.6+	0.7−
1992 05 06	691	0.7+	0.4+	1998 10 20	120	0.3−	0.1+	1998 11 11	704	0.2−	0.4+
1992 05 06	691	0.5+	0.7+	1998 10 20	120	1.2−	0.3+	1998 11 11	704	1.4−	0.9−
1992 05 06	691	0.3+	0.2+	1998 10 27	120	0.1−	0.5−				

1998 UQ₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	88.39024		(2000.0)	P	Q
<i>n</i>	0.25702553	ω	11.62218	+0.97677395	−0.21427172
<i>a</i>	2.4499198	Ω	0.75125	+0.19317799	+0.87953124
<i>e</i>	0.2070844	<i>i</i>	2.33758	+0.09270879	+0.42486753
<i>P</i>	3.83	<i>H</i>	15.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1994 10 12	691	0.1−	0.6+	1998 10 19	699	0.0	0.4−	1998 11 11	704	0.2+	0.1−
1994 10 12	691	0.5−	0.6+	1998 10 20	910	0.2+	0.7−	1998 11 11	132	0.4+	0.8+
1994 10 12	691	0.2−	0.3+	1998 10 20	910	0.0	0.7−	1998 11 11	132	0.2−	0.5+
1996 02 16	566	(3.9−	0.8+)	1998 10 20	910	0.0	0.6−	1998 11 11	132	1.3−	0.1−
1996 02 16	566	0.6+	1.0+	1998 10 20	691	0.3+	0.4+	1998 11 11	132	0.6−	0.3−
1996 02 16	566	0.0	0.3+	1998 10 20	691	0.7+	0.0	1998 11 15	566	0.2−	0.1−
1998 09 14	699	0.3−	0.9−	1998 10 20	691	1.1+	0.5−	1998 11 15	566	0.4+	0.2+
1998 09 14	699	0.0	1.1+	1998 10 21	910	0.1+	0.1+	1998 11 15	566	0.3−	0.4−
1998 09 14	699	0.1+	0.6+	1998 10 21	910	0.2+	0.2+	1998 11 16	627	0.6+	1.1−
1998 10 15	691	0.6−	0.0	1998 10 21	910	0.0	0.3+	1998 11 16	627	1.2+	0.4−
1998 10 15	691	0.6−	0.1−	1998 11 11	704	0.1+	0.1−	1998 11 17	627	0.0	0.4−
1998 10 15	691	0.6−	0.0	1998 11 11	704	0.7−	0.7+	1998 11 20	699	0.1+	0.3+
1998 10 19	699	0.3+	0.3+	1998 11 11	704	0.0	0.2−	1998 11 20	699	1.1+	0.4+
1998 10 19	699	0.3+	0.2−	1998 11 11	704	1.4−	0.6+	1998 11 20	699	0.1−	0.1+

1998 UE₄ = 1987 SN₈

Id. A. Gnädig, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	111.93668		(2000.0)	P	Q
<i>n</i>	0.27528343	ω	234.35103	+0.99007851	−0.03306730
<i>a</i>	2.3403600	Ω	127.15015	+0.07276111	+0.95211412
<i>e</i>	0.2343644	<i>i</i>	9.86585	−0.12020964	+0.30394944
<i>P</i>	3.58	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1955 12 11	675	0.5+	1.1−	1998 11 12	120	0.2+	0.0	1998 12 15	704	1.4−	0.3+
1955 12 11	675	0.0	0.5−	1998 11 12	120	0.2−	0.3+	1998 12 15	704	0.5+	0.3−
1987 09 19	010	0.4−	0.1−	1998 11 13	704	0.3−	0.1+	1998 12 15	704	0.9+	0.9−
1987 09 19	010	0.4+	0.0	1998 11 13	704	0.5+	0.9+	1998 12 15	704	0.1+	1.1+
1998 10 21	120	0.4−	0.8−	1998 11 13	704	0.7+	1.2+	1998 12 22	704	1.4+	0.5−
1998 10 21	120	0.5−	0.5−	1998 11 13	704	0.2+	0.3+	1998 12 22	704	1.2+	0.8−
1998 10 23	120	0.4+	0.1+	1998 11 13	704	0.0	0.3+	1998 12 22	704	0.3+	0.2−
1998 10 23	120	0.1−	0.0	1998 12 07	120	0.2−	0.4+	1998 12 22	704	0.2−	0.1−
1998 10 23	120	0.1+	0.4−	1998 12 07	120	0.7−	0.5+	1999 01 10	699	0.3+	0.6+
1998 10 30	120	0.2−	0.3−	1998 12 07	120	1.9−	0.9+	1999 01 10	699	0.3−	1.2−
1998 10 30	120	0.3−	0.3−	1998 12 15	704	0.3−	0.9+	1999 01 10	699	0.1−	0.3−

1998 UZ₆ = 1991 FM₆

Id. A. Gnädig, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	326.43226		(2000.0)	P	Q
<i>n</i>	0.22373984	ω	18.86056	−0.97300208	−0.20021722
<i>a</i>	2.6872444	Ω	148.87441	+0.17268662	−0.96157969
<i>e</i>	0.0998392	<i>i</i>	12.83209	+0.15312177	−0.18782324
<i>P</i>	4.41	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1989 12 21	675	1.5−	1.2+	1998 10 24	120	(3.6−	2.5−)	1998 12 15	120	0.4+	0.1−
1989 12 21	675	1.1+	0.6+	1998 10 30	120	0.0	0.1−	1998 12 15	120	0.1+	0.0
1991 01 23	675	0.2+	0.4+	1998 10 30	120	0.9+	1.1−	1998 12 16	120	0.6+	0.4−
1991 01 23	675	0.3+	1.2−	1998 10 30	120	1.0+	0.5−	1998 12 16	120	0.5+	0.7+
1991 03 17	372	0.5−	0.3+	1998 11 12	120	0.9+	0.2−	1998 12 17	120	0.4−	0.3+
1991 03 17	372	(2.8−	0.7−)	1998 11 12	120	0.9+	0.2+	1998 12 17	120	0.4−	0.4−
1997 07 13	327	0.3+	0.9+	1998 11 13	704	0.1−	0.8−	1998 12 17	120	0.1+	0.1+
1997 07 13	327	0.2+	0.0	1998 11 13	704	0.0	0.1−	1998 12 22	704	0.1+	0.7−
1997 07 13	327	0.5−	0.6−	1998 11 13	704	0.8+	0.8−	1998 12 22	704	0.7+	0.5+
1998 10 21	120	0.6−	0.1−	1998 11 13	704	0.1+	1.0−	1998 12 22	704	0.9−	0.1+
1998 10 21	120	0.6−	0.0	1998 11 13	704	(2.5−	0.3−)	1998 12 22	704	1.3−	0.2+
1998 10 21	120	1.0−	0.5−	1998 11 16	566	0.8−	0.6+	1999 01 13	699	0.6−	0.8+
1998 10 23	120	0.3−	0.7−	1998 11 16	566	0.1−	1.4+	1999 01 13	699	0.7−	0.5+
1998 10 23	120	0.4−	0.0	1998 11 16	566	0.6−	0.7+	1999 01 13	699	0.4+	0.8+
1998 10 23	120	0.4+	1.0−	1998 12 07	120	0.7+	0.1+				
1998 10 24	120	0.9+	0.4−	1998 12 07	120	0.3−	0.2−				

1998 UF₂₁ = 1982 VB₂

Id. A. Gnädig, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	189.68793		(2000.0)	P	Q
<i>n</i>	0.18974019	ω	223.49461	−0.00873646	+0.98960500
<i>a</i>	2.9993685	Ω	46.56988	−0.85479847	+0.06709924
<i>e</i>	0.0656944	<i>i</i>	11.40042	−0.51888655	−0.12719923
<i>P</i>	5.19	<i>H</i>	12.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1982 11 14	381	0.3+	0.2+	1998 11 10	704	(2.2−	1.9−)	1998 11 21	704	0.7+	0.8+
1982 11 14	381	0.2−	0.5+	1998 11 10	704	1.4−	0.8−	1998 11 21	704	1.0+	0.2+
1992 12 16	691	0.7−	0.8+	1998 11 10	704	1.3−	0.6−	1998 11 21	704	1.0+	0.1+
1992 12 16	691	1.0−	0.9+	1998 11 10	704	0.6−	0.6+	1998 11 21	704	1.7+	0.6+
1992 12 16	691	0.8−	1.1+	1998 11 10	704	0.9−	1.7+	1998 11 21	704	1.3+	0.5+
1993 12 11	675	0.2−	0.2+	1998 11 11	704	1.0+	1.2−	1998 12 16	699	1.2−	0.7+
1993 12 11	675	0.2−	0.6−	1998 11 11	704	1.6−	0.0	1998 12 16	699	0.1+	0.6+
1997 08 30	566	0.2+	0.2−	1998 11 11	704	1.3−	0.2−	1998 12 16	699	0.2+	0.2+
1997 08 30	566	0.3+	0.0	1998 11 11	704	1.6−	0.1−	1999 02 08	704	0.0	1.1+
1997 08 30	566	0.0	0.2−	1998 11 12	399	1.2−	1.9−	1999 02 08	704	1.3−	1.1+
1998 10 19	699	1.1+	0.6−	1998 11 12	399	0.0	0.5−	1999 02 08	704	(2.6−	2.3+)
1998 10 19	699	0.0	0.5−	1998 11 18	704	0.0	0.8+	1999 02 08	704	0.3+	0.1−
1998 10 19	699	0.6+	0.2−	1998 11 18	704	0.2−	0.0	1999 02 08	704	(2.7−	2.1+)
1998 10 29	120	0.0	0.4−	1998 11 18	704	0.5+	0.4−	1999 02 09	704	0.3+	1.0−
1998 10 30	120	0.3+	0.9−	1998 11 18	704	0.9+	0.7−	1999 02 09	704	0.5−	0.4+
1998 10 30	120	0.6+	0.7−	1998 11 18	704	1.1+	0.0	1999 02 09	704	0.5−	1.5+
1998 10 30	120	1.0−	0.8−	1998 11 18	399	1.7+	0.7−	1999 02 09	704	1.0−	1.9+
1998 10 30	120	0.3+	1.2−	1998 11 18	399	1.3+	0.1−	1999 02 09	704	0.8−	0.7+

1998 UA₂₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	3.63993		(2000.0)	P	Q
<i>n</i>	0.26651613	ω	82.06025	−0.75279940	−0.65685609
<i>a</i>	2.3914082	Ω	56.86772	+0.58200028	−0.69457505
<i>e</i>	0.1542549	<i>i</i>	2.93070	+0.30752030	−0.29343754
<i>P</i>	3.70	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 2

1992 01 29	691	0.1−	0.2+	1998 11 10	704	0.7−	1.5+	1998 11 21	704	(0.4−	2.1+)
1996 03 19	691	0.3−	0.4−	1998 11 11	704	0.4−	0.1−	1998 11 28	120	0.4+	0.3−
1996 03 19	691	0.1−	0.2−	1998 11 11	704	0.3−	1.1−	1998 11 28	120	0.5+	0.2+
1996 03 19	691	0.0	0.2−	1998 11 11	704	0.9−	0.1−	1998 12 16	699	1.3−	1.5+
1998 10 30	120	0.2−	0.3+	1998 11 18	704	0.5+	0.1+	1998 12 16	699	0.2+	0.6+
1998 10 30	120	1.0+	0.2+	1998 11 18	704	0.7+	0.8−	1998 12 16	699	0.9+	0.6+
1998 10 31	120	(1.0+	4.9+)	1998 11 18	704	0.1−	0.9−	1999 02 11	691	0.3+	1.1−
1998 10 31	120	0.7+	0.4−	1998 11 18	704	0.3−	1.3−	1999 02 11	691	0.1+	0.2−
1998 10 31	120	1.8−	0.8+	1998 11 18	704	0.5−	1.6−	1999 02 11	691	0.0	0.7−
1998 11 10	704	0.1+	0.5+	1998 11 21	704	0.4+	0.8+				

1998 UZ₂₈ = 1999 AB₂₁ = 1997 JM₅Id. G. V. Williams (d, *MPC* 34061), A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		129.38309		(2000.0)		P		Q	
<i>n</i>		0.28038176	ω	252.45942		+0.91958392		+0.36901401	
<i>a</i>		2.3119027	Ω	85.71538		−0.28919420		+0.86812478	
<i>e</i>		0.1514227	<i>i</i>	7.77386		−0.26595514		+0.33194583	
<i>P</i>		3.52	<i>H</i>	13.9		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1991 11 02	691	0.3−	0.2+	1998 10 18	809	0.3+	0.6+	1998 12 11	699	0.0	0.3−
1991 11 02	691	0.0	0.0	1998 10 18	809	1.0−	0.5−	1999 01 07	699	0.4+	0.2+
1991 11 02	691	0.0	0.3+	1998 10 18	809	1.4−	0.1−	1999 01 07	699	0.1−	0.7+
1997 05 01	691	0.6+	0.6+	1998 10 19	809	0.9−	0.1+	1999 01 07	699	0.1+	0.8+
1997 05 01	691	0.0	0.7+	1998 10 19	809	1.1−	0.9+	1999 01 11	704	0.7+	0.8−
1997 05 01	691	0.3−	0.8+	1998 10 19	809	0.9−	0.5+	1999 01 11	704	1.4+	1.5+
1997 05 09	691	0.5+	0.3+	1998 11 11	704	0.7+	0.4+	1999 01 11	704	0.8+	1.3−
1997 05 09	691	0.2+	0.3+	1998 11 11	704	0.5+	0.2−	1999 01 11	704	(0.1−	2.7+)
1997 05 09	691	0.3+	0.3+	1998 11 11	704	0.6+	0.3+	1999 01 14	704	0.1−	0.7+
1998 08 28	704	0.9+	0.8+	1998 11 15	120	0.4+	0.5+	1999 01 14	704	0.5−	1.3−
1998 08 28	704	(2.3+	0.2−)	1998 11 15	120	0.3+	0.4+	1999 01 14	704	1.0−	0.3−
1998 08 28	704	0.9−	1.2−	1998 12 11	699	0.1+	0.5−	1999 01 14	704	0.3+	1.5+
1998 08 28	704	(4.0−	0.1+)	1998 12 11	699	0.1+	0.6−				

1998 UV₃₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		196.84509		(2000.0)		P		Q	
<i>n</i>		0.29779647	ω	224.69746		−0.00301038		+0.99828072	
<i>a</i>		2.2208694	Ω	45.22748		−0.89286370		+0.02367703	
<i>e</i>		0.0715491	<i>i</i>	4.72979		−0.45031695		−0.05361904	
<i>P</i>		3.31	<i>H</i>	15.5		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1988 11 03	413	0.4−	0.9−	1998 10 28	704	1.3−	0.2−	1999 01 07	691	0.7+	1.2−
1988 11 03	413	1.0+	0.5−	1998 10 28	704	1.5−	1.6−	1999 01 07	691	0.7+	0.3−
1995 11 17	327	0.3−	0.3−	1998 10 29	704	(2.7+	0.8+)	1999 01 07	691	0.5+	0.9−
1995 11 17	327	0.7+	0.8+	1998 10 29	704	0.2−	1.7+	1999 01 09	691	0.4−	0.6−
1995 11 17	327	0.6−	1.1+	1998 10 29	704	0.3−	1.1+	1999 01 09	691	0.8+	0.7−
1998 10 28	704	(2.2+	1.8−)	1998 10 29	704	0.5+	0.5+	1999 01 09	691	0.0	0.5−
1998 10 28	704	0.1+	1.3+	1998 10 29	704	1.2+	0.1−				

1998 VU₆ = 1996 TW₆₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		51.53407		(2000.0)		P		Q	
<i>n</i>		0.08296254	ω	303.89747		+0.75289169		−0.64589157	
<i>a</i>		5.2065258	Ω	96.67398		+0.63802665		+0.66916530	
<i>e</i>		0.0487391	<i>i</i>	7.31171		+0.16148096		+0.36748045	
<i>P</i>		11.88	<i>H</i>	10.6		<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1996 09 15	809	0.7+	0.2−	1997 11 06	704	0.8−	0.9+	1998 12 12	411	0.1+	1.8+
1996 10 09	809	0.5+	0.1−	1997 11 06	704	0.3+	0.2−	1998 12 15	704	(2.3+	1.1−)
1996 10 12	809	0.2−	1.7−	1997 11 06	704	(2.2−	0.5−)	1998 12 15	704	0.8+	1.0−
1997 10 29	704	1.4+	0.2+	1997 11 06	704	1.8−	0.3+	1998 12 15	704	0.6+	0.5−

1997 10 29	704	0.2+	0.9+	1998 11 12	411	0.1+	1.5+	1998 12 15	704	0.0	0.8−
1997 10 29	704	0.5+	1.3+	1998 11 12	411	0.4+	0.2+	1998 12 21	411	1.6−	0.2−
1997 10 29	704	0.4−	0.4+	1998 11 14	411	0.9−	1.8+	1998 12 21	411	0.1−	0.9−
1997 10 29	704	1.0−	0.4+	1998 11 14	411	1.7−	0.7+	1998 12 22	704	0.0	0.3−
1997 10 30	704	(1.2+	2.2−)	1998 11 20	411	0.7+	1.1+	1998 12 22	704	0.1−	1.2−
1997 10 30	704	0.0	0.6−	1998 11 20	411	0.1−	0.5+	1998 12 22	704	1.4+	1.9−
1997 10 30	704	0.4+	1.1−	1998 11 20	411	0.1+	0.4−	1998 12 22	704	0.9+	1.8−
1997 10 30	704	(0.8+	2.4−)	1998 12 12	411	0.1−	0.2−				

1998 VP₁₅ = 1980 PR₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		244.25291		(2000.0)		P		Q	
<i>n</i>		0.28163149	ω	18.15449		−0.64584996		+0.76240720	
<i>a</i>		2.3050583	Ω	211.65206		−0.70960897		−0.61886788	
<i>e</i>		0.1620577	<i>i</i>	4.38952		−0.28166103		−0.18904447	
<i>P</i>		3.50	<i>H</i>	14.8		<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1980 08 06	809	0.3+	0.0	1998 11 10	704	0.1+	1.2−	1999 01 13	691	0.9+	0.3−
1980 08 07	809	0.3−	0.0	1998 11 10	704	0.4+	1.6+	1999 01 13	691	0.6+	0.7+
1998 10 27	691	0.9−	0.4+	1998 11 10	704	0.5−	1.4+	1999 01 13	691	0.6+	0.2−
1998 10 27	691	0.9−	0.3+	1998 11 11	704	1.4+	1.6−	1999 01 14	691	1.3−	0.0
1998 10 27	691	0.7−	0.4+	1998 11 11	704	1.2+	0.8−	1999 01 14	691	1.0−	0.2+
1998 11 10	704	1.8+	0.6+	1998 11 11	704	1.7−	1.4−				

1998 VJ₂₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		105.16174		(2000.0)		P		Q	
<i>n</i>		0.25823682	ω	56.91988		+0.99917082		+0.03327326	
<i>a</i>		2.4422527	Ω	301.16329		−0.03997779		+0.91091781	
<i>e</i>		0.1833433	<i>i</i>	1.57131		+0.00771029		+0.41124401	
<i>P</i>		3.82	<i>H</i>	15.3		<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1992 02 05	691	0.3+	0.0	1998 10 19	699	0.1+	0.8+	1998 11 11	704	0.1+	0.8−
1992 02 05	691	0.1−	0.0	1998 10 19	699	0.3+	0.2+	1998 11 16	566	(0.3−	2.1−)
1992 02 05	691	0.3−	0.4−	1998 11 10	704	0.3−	0.4+	1998 11 16	566	0.0	1.0−
1994 10 10	691	0.4−	0.2+	1998 11 10	704	0.6−	0.0	1998 11 16	566	0.3+	1.7−
1994 10 10	691	0.0	0.4+	1998 11 10	704	0.4−	0.2+	1998 11 20	699	0.2+	1.2+
1994 10 10	691	0.1−	0.3+	1998 11 10	704	0.4+	0.1−	1998 11 20	699	0.1−	1.4+
1998 08 28	704	0.0	0.2−	1998 11 10	704	1.0+	1.2−	1998 11 20	699	0.4−	1.1+
1998 08 28	704	0.1−	0.0	1998 11 10	699	0.3−	0.5+	1999 01 08	699	0.8−	0.8+
1998 08 28	704	1.1+	1.5−	1998 11 10	699	0.4+	0.0	1999 01 08	699	0.7−	0.6+
1998 08 31	704	0.5−	0.5−	1998 11 10	699	0.5−	0.8+	1999 01 08	699	0.4+	0.0
1998 08 31	704	1.4+	0.9−	1998 11 11	704	0.7−	0.6+	1999 02 14	691	0.2+	0.4−
1998 08 31	704	(1.2−	2.9+)	1998 11 11	704	0.2−	0.5−	1999 02 14	691	0.8+	0.3−
1998 08 31	704	0.4+	0.2+	1998 11 11	704	0.4−	0.6−	1999 02 14	691	0.4+	0.6−
1998 10 19	699	0.1+	0.0	1998 11 11	704	0.2−	0.6−				

1998 VK₃₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		107.66620		(2000.0)		P		Q	
<i>n</i>		0.23425388	ω	123.20837		+0.95954052		+0.20892206	
<i>a</i>		2.6062227	Ω	225.54666		−0.24778621		+0.94495241	
<i>e</i>		0.3284645	<i>i</i>	15.33416		+0.13373102		+0.25182637	
<i>P</i>		4.21	<i>H</i>	14.3		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 05 04	809	1.1−	1.4−	1998 1
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M.P.C. 35638

1997 05 07	704	0.3+	0.2+	1998 12 15	704	1.2+	0.7−	1999 01 07	428	0.3+	0.2+
1998 11 14	428	1.0−	0.4+	1998 12 15	704	0.4+	0.3+	1999 02 13	428	0.5−	0.7+
1998 11 14	428	0.1+	0.9+	1998 12 15	704	0.3+	0.4−	1999 02 13	428	0.3−	0.1+
1998 11 15	428	0.1−	0.0	1998 12 15	704	0.8+	1.5+				
1998 11 15	428	0.2+	0.0	1998 12 15	704	0.1−	0.8−				

1998 VO₃₂ = 1970 EC₂

Id. A. Gnädig, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		157.58956		(2000.0)		P		Q	
<i>n</i>		0.22920184	ω	3.50420		+0.61949402		+0.77308513	
<i>a</i>		2.6443808	Ω	304.82582		−0.72420019		+0.49585506	
<i>e</i>		0.1470888	<i>i</i>	9.55470		−0.30292119		+0.39555927	
<i>P</i>		4.30	<i>H</i>	12.8		<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1970 03 04	805	0.7−	0.2+	1998 11 16	758	0.1−	0.0	1998 11 25	758	0.2+	0.3+
1970 03 04	805	0.1−	0.3−	1998 11 16	704	0.5−	0.3−	1998 11 25	758	0.1+	0.2+
1970 03 04	805	0.8+	0.0	1998 11 16	704	0.5−	0.4−	1998 11 28	758	0.5−	0.5+
1983 03 07	413	0.5+	0.6−	1998 11 16	704	0.2−	0.2+	1998 11 28	758	0.1−	0.1−
1983 03 07	413	1.0−	0.1+	1998 11 17	758	0.1+	0.4−	1998 11 28	758	0.7+	0.2+
1991 03 08	675	0.1−	0.2+	1998 11 17	758	0.2−	0.1+	1998 12 10	758	0.2−	0.6+
1991 03 08	675	0.8+	0.8+	1998 11 17	758	0.4−	0.2−	1998 12 10	758	0.1−	1.0+
1992 04 25	413	0.2+	0.4−	1998 11 18	758	0.1+	0.1−	1998 12 10	758	0.2−	0.5+
1992 04 25	413	0.4−	0.1−	1998 11 18	758	0.1+	0.4−	1998 12 16	758	0.4+	0.1+
1998 11 15	758	0.5+	0.3−	1998 11 18	758	0.7−	0.6−	1998 12 16	758	0.1+	0.4+
1998 11 15	758	0.1−	0.1+	1998 11 19	758	0.8−	0.9−	1998 12 16	758	0.1−	0.3+
1998 11 15	758	0.0	0.0	1998 11 19	758	0.4+	0.3−	1999 01 06	758	0.4+	0.2+
1998 11 16	704	1.1+	0.8−	1998 11 20	758	0.0	0.2−	1999 01 06	758	0.1+	0.2−
1998 11 16	758	0.3−	0.6+	1998 11 20	758	0.1−	0.3−	1999 01 06	758	0.0	0.3+
1998 11 16	758	0.5+	0.0	1998 11 20	758	0.2+	0.3−				
1998 11 16	704	0.2−	0.6−	1998 11 25	758	0.1+	0.1+				

1998 VS₃₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		302.34242		(2000.0)		P		Q	
<i>n</i>		0.26363723	ω	267.44457		−0.88034316		+0.47368202	
<i>a</i>		2.4087860	Ω	300.82796		−0.42284750		−0.80750707	
<i>e</i>		0.1372541	<i>i</i>	1.66332		−0.21493237		−0.35150773	
<i>P</i>		3.74	<i>H</i>	14.7		<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1990 09 16	675	1.6−	0.6+	1998 11 09	327	0.9−	0.4−	1998 12 14	704	(2.4−	0.2−)
1990 09 16	675	1.4+	0.4−	1998 11 14	327	0.3−	0.2+	1998 12 17	704	0.9+	0.3+
1997 09 25	557	0.2+	0.0	1998 11 14	327	0.2−	0.3+	1998 12 17	704	0.7−	1.6+
1997 09 25	557	0.2−	0.1−	1998 11 14	327	0.2−	0.0	1998 12 17	704	1.6+	1.2−
1998 11 09	327	0.3−	0.1+	1998 12 14	704	(0.4−	2.8−)	1998 12 17	704	1.4+	0.2+
1998 11 09	327	0.1+	0.7−	1998 12 14	704	1.5−	0.3−				

1998 WB₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		45.46413		(2000.0)		P		Q	
<i>n</i>		0.17100463	ω	23.32791		−0.60645091		−0.79366476	
<i>a</i>		3.2146286	Ω	104.03946		+0.72147703		−0.57469966	
<i>e</i>		0.1583906	<i>i</i>	2.84191		+0.33419783		−0.19954083	
<i>P</i>		5.76	<i>H</i>	13.7		<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 10 30	704	0.1+	1.0−	1997 11 06	704	(6.2−	0.9+)	1999 02 12	699	0.6+	1.1+
1997 10 30	704	0.8+	1.4−	1998 11 19	910	0.5−	0.4+	1999 02 12	699	0.3+	0.4+
1997 10 30	704	0.3−	0.9−	1998 11 19	910	0.5−	0.3+	1999 02 13	704	0.5−	0.0
1997 10 30	704	0.2−	0.4−	1998 11 19	910	0.6−	0.3+	1999 02 13	704	0.1−	0.2−
1997 10 31	704	0.1−	0.1−	1998 11 20	910	0.1+	0.2−	1999 02 13	704	0.7−	0.2−
1997 10 31	704	0.1+	1.1+	1998 11 20	910	0.6+	0.4−	1999 02 13	704	0.4−	0.3−
1997 10 31	704	0.4+	1.6+	1998 11 20	910	0.3+	0.3−	1999 02 13	704	0.7−	0.1+

1999 AUG. 31

1997 10 31	704	0.3+	0.4+	1999 02 10	704	0.9+	0.2−	1999 06 06	703	0.1−	0.9−
1997 10 31	704	1.3−	1.2+	1999 02 10	704	0.3+	0.9−	1999 06 06	703	0.1+	1.7+
1997 11 06	704	(6.4−	1.6+)	1999 02 10	704	0.2+	0.1−	1999 06 06	703	0.5−	0.3+
1997 11 06	704	(5.7−	1.9+)	1999 02 10	704	0.2+	0.8−	1999 06 06	703	0.5+	0.6+
1997 11 06	704	(5.4−	1.3+)	1999 02 10	704	(1.0+	2.8−)				
1997 11 06	704	(6.1−	0.9+)	1999 02 12	699	0.2+	0.1+				

1998 WN₆ = 1985 OZ = 1991 RW₃₃

Id. A. Doppler, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		276.74531		(2000.0)		P		Q	
<i>n</i>		0.18789223	ω	67.21498		−0.39500652		+0.91867710	
<i>a</i>		3.0190027	Ω	179.51106		−0.89395000		−0.38399888	
<i>e</i>		0.0647087	<i>i</i>	10.07893		−0.21171503		−0.09261338	
<i>P</i>		5.25	<i>H</i>	12.9		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1985 07 20	413	0.0	1.4−	1997 10 30	704	0.2−	1.1−	1998 11 24	138	(2.5+	0.3+)
1991 09 11	675	(2.1−	2.7−)	1997 10 30	704	0.7−	0.8−	1998 11 24	138	0.5−	1.6−
1991 09 11	675	(2.2−	2.6−)	1997 10 30	704	0.7−	1.5−	1998 11 24	138	0.2−	0.2−
1995 04 26	691	(1.3−	3.5−)	1997 11 06	704	(6.1−	0.2+)	1999 01 18	704	0.2+	0.5−
1995 04 26	691	0.2−	0.8−	1997 11 06	704	(5.0−	0.5+)	1999 01 18	704	0.8+	0.5−
1995 04 26	691	0.0	0.8−	1997 11 06	704	(6.1−	0.1+)	1999 01 18	704	0.5+	0.3−
1997 10 29	704	(2.3+	0.2+)	1997 11 06	704	(5.6−	0.7+)	1999 01 18	704	1.4+	0.6−
1997 10 29	704	1.6+	0.8+	1997 11 06	704	(5.6−	0.1+)	1999 01 20	704	0.5+	0.0
1997 10 29	704	0.2+	0.2−	1998 11 22	138	0.8−	0.1−	1999 01 20	704	0.0	0.4+
1997 10 29	704	0.2+	0.5+	1998 11 22	138	0.3−	0.3+	1999 01 20	704	1.2−	0.9+
1997 10 29	704	0.2−	1.6+	1998 11 22	138	1.6−	1.0+	1999 01 20	704	(3.4−	0.8+)
1997 10 30	704	0.4+	1.1−	1998 11 22	138	0.2+	0.3−				

1998 XT₃ = 1981 UV₈

Id. A. Gnädig, S. Nakano, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		46.92652		(2000.0)		P		Q	
<i>n</i>		0.23510007	ω	189.04487		−0.04826852		−0.99109235	
<i>a</i>		2.5999652	Ω	263.79194		+0.92404324		+0.00287215	
<i>e</i>		0.0491399	<i>i</i>	7.17230		+0.37922848		−0.13314545	
<i>P</i>		4.19	<i>H</i>	15.0		<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1951 09 09	675	0.4+	0.6+	1998 12 14	704	0.2+	0.7+	1998 12 17	704	(0.7−	2.4−)
1951 09 09	675	0.7−	0.2−	1998 12 14	704	0.7+	0.4−	1998 12 17	704	0.3−	1.5−
1981 10 30	381	(4.9−	0.3−)	1998 12 14	704	0.5+	0.1−	1998 12 17	411	0.7−	0.1+
1981 10 30	381	(5.6−	1.1−)	1998 12 14	704	0.1−	0.1+	1998 12 17	411	0.5−	0.6+
1983 05 08	413	0.5−	1.3−	1998 12 14	704	(1.2+	2.7−)	1998 12 22	704	0.4+	0.2−
1983 05 08	413	0.3−	0.3−	1998 12 16	704	0.4+	0.2+	1998 12 22	704	0.1+	0.8+
1996 04 15	413	0.9−	1.1+	1998 12 16	704	0.3+	1.7+	1998 12 22	704	0.0	0.9−
1996 04 15	413	1.4+	1.6+	1998 12 16	704	(0.4−	1.9+)	1998 12 22	704	0.2+	0.7+
1998 12 09	411	0.2+	0.4+	1998 12 16	704	(0.5−	4.2+)	1998 12 24	411	0.5−	0.5+
1998 12 09	411	0.0	0.3+	1998 12 16	704	(0.5−	3.5+)	1998 12 24	411	0.3+	0.6+
1998 12 11	411	0.7−	0.4−	1998 12 17	704	(1.0+	3.7−)	1999 01 03	411	0.3+	0.2+
1998 12 11	411	0.5−	0.6−	1998 12 17	704	1.3−	1.3−	1999 01 03	411	1.3+	0.4+

1998 XZ₈ = 1981 RZ

Id. A. Gnädig, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	76.73159		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.18029467	ω	78.36829	+0.84055623	−0.49470399
a	3.1032311	Ω	310.84521	+0.30851364	+0.77211501
e	0.3208558	i	16.96696	+0.44529154	+0.39888139
P	5.47	H	12.6	G 0.15	U 2

Residuals in seconds of arc

1979 06 14	413	0.6–	0.4+	1998 12 19	504	0.8+	0.6–	1999 01 14	504	0.8–	0.4–
1979 06 14	413	1.3–	1.6–	1998 12 19	504	0.2+	0.6–	1999 01 16	704	0.7+	0.0
1981 09 02	033	0.7+	0.1–	1998 12 19	504	0.2+	0.0	1999 01 16	704	(0.8–	2.9+)
1981 09 02	033	0.2+	0.8–	1998 12 22	504	0.3+	0.3–	1999 01 16	704	0.8–	1.3+
1994 02 10	691	0.6+	0.1–	1998 12 22	504	0.0	0.6–	1999 01 16	704	(2.0–	4.1+)
1994 02 10	691	0.1+	0.5–	1998 12 22	504	0.5+	0.6–	1999 01 16	704	1.2–	0.5+
1994 02 10	691	0.1–	0.2–	1998 12 22	504	0.0	0.2+	1999 01 19	615	0.1+	0.6+
1998 12 14	704	0.0	0.4+	1998 12 22	504	0.1–	0.2–	1999 01 20	615	0.3–	0.1–
1998 12 14	704	0.7–	0.1+	1998 12 27	504	0.3–	0.2–	1999 01 20	615	0.7–	0.2+
1998 12 14	704	0.9–	1.0–	1998 12 27	504	0.6–	0.1–	1999 01 20	504	1.1+	0.3–
1998 12 14	704	(3.4–	0.1+)	1998 12 27	504	0.4–	0.2+	1999 01 20	504	0.8+	0.3–
1998 12 14	704	0.5+	0.6+	1998 12 27	504	0.9–	0.2+	1999 01 20	504	0.9+	0.2+
1998 12 14	504	0.6–	0.5+	1998 12 27	504	0.2–	0.1–	1999 01 20	504	1.1+	0.2–
1998 12 14	504	0.0	0.5+	1998 12 27	504	0.6–	0.1+	1999 01 20	615	0.4+	0.2+
1998 12 14	504	0.5–	0.0	1998 12 27	504	0.4–	0.3–	1999 01 20	615	0.4+	0.2+
1998 12 14	504	0.1–	0.1–	1998 12 29	504	0.4–	0.2–	1999 01 20	615	0.0	0.5+
1998 12 16	504	0.7–	0.8–	1998 12 29	504	1.0–	0.3–	1999 01 21	615	0.0	0.5+
1998 12 16	504	0.6–	0.8–	1998 12 29	504	0.5–	0.1–	1999 01 21	615	0.1+	0.1–
1998 12 16	504	0.2–	0.7–	1998 12 29	504	1.4–	0.1+	1999 01 23	504	(2.5+	3.0+)
1998 12 16	504	1.1–	0.7+	1998 12 30	127	1.3–	0.6–	1999 01 23	504	(3.1+	2.5+)
1998 12 16	504	0.3–	0.7+	1998 12 30	127	1.2–	0.7–	1999 01 23	504	(2.5+	3.3+)
1998 12 16	504	0.1+	0.5+	1999 01 05	504	1.9+	0.5+	1999 01 30	504	0.1+	0.3+
1998 12 16	504	0.5–	0.1+	1999 01 05	504	1.6+	0.1–	1999 01 30	504	0.3–	0.5–
1998 12 17	704	0.2–	0.0	1999 01 05	504	2.0+	0.7+	1999 02 07	716	0.4–	0.8+
1998 12 17	704	0.0	0.1–	1999 01 05	504	(2.5+	0.5+)	1999 02 08	716	0.2+	0.1+
1998 12 17	704	0.8+	0.1–	1999 01 05	504	1.7+	0.6+	1999 02 08	716	(1.7–	2.0–)
1998 12 17	704	1.1+	0.6–	1999 01 09	504	0.6+	0.1+	1999 02 13	504	0.4–	0.0
1998 12 18	504	0.5–	0.5–	1999 01 09	504	0.5+	0.3–	1999 02 13	504	0.4–	0.5–
1998 12 18	504	0.7–	0.3+	1999 01 09	504	0.5+	0.3–	1999 03 20	504	0.5+	1.5–
1998 12 18	504	1.1–	0.4+	1999 01 14	504	0.9+	0.2+	1999 03 20	504	0.1+	0.5–
1998 12 18	504	0.6+	0.3+	1999 01 14	504	0.2+	0.8+				
1998 12 19	504	0.1+	0.2–	1999 01 14	504	0.8+	0.8+				

1998 XB₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	59.79629		(2000.0)	P	Q
n	0.22090650	ω	106.12794	+0.37901331	−0.91353477
a	2.7101733	Ω	320.56070	+0.73512316	+0.39414734
e	0.4758269	i	13.44067	+0.56208794	+0.10050919
P	4.46	H	16.4	G 0.15	U 3

Residuals in seconds of arc

1989 09 30	675	0.8–	0.6+	1998 12 16	402	1.0+	0.2–	1999 01 19	704	0.7–	0.5+
1989 09 30	675	1.1+	0.9–	1998 12 16	402	0.8+	0.3–	1999 01 19	704	0.3–	0.4–
1998 12 12	704	0.2+	0.5+	1998 12 16	402	0.8+	0.3–	1999 01 19	704	0.3–	0.7+
1998 12 12	704	0.2–	0.3+	1998 12 16	402	0.8+	0.4–	1999 01 19	704	0.5–	0.5+
1998 12 12	704	0.2+	0.7–	1998 12 18	151	0.4–	0.4–	1999 01 19	704	0.9–	0.6+
1998 12 12	704	0.9+	1.1–	1998 12 18	151	0.2–	0.0	1999 01 19	151	0.9–	0.0
1998 12 12	704	0.4+	0.8–	1998 12 19	151	0.1–	0.0	1999 01 19	151	0.8–	0.3–
1998 12 14	151	0.6+	0.2+	1998 12 19	151	0.1+	1.0–	1999 01 21	108	0.9+	1.0–
1998 12 14	151	0.1+	0.5+	1998 12 27	402	0.5–	0.5–	1999 01 21	108	0.6+	0.2+
1998 12 14	151	0.6+	0.3–	1998 12 27	402	0.6–	0.4–	1999 01 21	108	0.1+	0.1+
1998 12 14	151	0.6+	0.4+	1998 12 27	402	0.5–	0.4–	1999 01 23	071	0.9+	0.6–
1998 12 15	704	0.1–	0.4+	1999 01 04	587	0.6–	0.6+	1999 01 23	071	1.3+	0.2–
1998 12 15	704	0.6–	0.2–	1999 01 04	587	0.3–	0.7+	1999 01 24	071	0.8+	0.2+
1998 12 15	704	0.3–	0.3+	1999 01 05	151	0.3+	0.4+	1999 01 24	071	0.9+	0.1–
1998 12 15	704	0.1–	0.1–	1999 01 05	151	0.7–	0.8+	1999 01 26	402	0.3+	0.0
1998 12 15	704	0.8–	0.4+	1999 01 08	699	0.1+	0.1+	1999 01 26	402	0.1+	0.0
1998 12 15	540	(2.3+	2.3+)	1999 01 08	699	0.2+	0.3+	1999 01 26	402	0.3+	0.0
1998 12 15	540	1.0+	0.1+	1999 01 08	699	0.2+	0.4+	1999 02 04	402	0.4+	0.4+
1998 12 15	557	0.4–	0.0	1999 01 15	151	(2.4–	0.0)	1999 02 04	402	0.4+	0.3+
1998 12 15	540	(2.9–	1.6–)	1999 01 15	151	0.5–	0.8+	1999 02 04	402	0.1+	0.5+
1998 12 15	557	0.5–	0.1–	1999 01 16	704	1.0–	0.7–	1999 02 07	587	0.1+	0.1+
1998 12 15	587	0.8+	0.4+	1999 01 16	704	0.2–	0.8–	1999 02 07	587	0.3+	0.1+
1998 12 15	587	1.0+	0.6+	1999 01 16	704	0.8–	0.0	1999 02 08	402	0.0	0.2+
1998 12 15	046	0.3–	0.3+	1999 01 16	704	0.4–	0.6–	1999 02 08	402	0.3–	0.0

1998 12 15	046	0.2–	0.3+	1999 01 16	118	0.6–	0.4–	1999 02 08	402	0.2–	0.2+
1998 12 15	046	0.3–	0.4+	1999 01 16	118	0.5–	0.0	1999 02 10	726	0.2–	1.5–
1998 12 16	670	0.6–	0.8+	1999 01 18	402	0.2+	0.0	1999 02 10	726	0.2+	0.9–
1998 12 16	670	1.1–	0.5+	1999 01 18	402	0.2+	0.0				
1998 12 16	670	0.2+	0.5–	1999 01 18	402	0.2+	0.1+				

1998 XR₉ = 1987 YM₂

Id. A. Gnädig, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	267.94148		(2000.0)	P	Q
n	0.25916632	ω	357.57441	-0.64856753	+0.75712215
a	2.4364098	Ω	231.97948	-0.69666475	-0.63189216
e	0.1004314	i	5.70197	-0.30662416	-0.16576596
P	3.80	H	13.5	G 0.15	U 2

Residuals in seconds of arc

1982 11 04	413	0.1+	0.1+	1998 12 08	699	0.3+	0.2–	1998 12 23	120	1.2–	0.7–
1982 11 04	413	0.2+	0.3–	1998 12 08	699	0.8+	0.1+	1998 12 23	120	0.5–	0.2–
1987 12 20	010	0.7+	0.8–	1998 12 14	120	0.3–	0.2+	1998 12 25	120	0.9–	0.1+
1987 12 20	010	0.7–	0.4+	1998 12 14	120	0.4+	0.8+	1998 12 25	120	0.8–	0.1+
1990 09 20	675	0.1–	0.2+	1998 12 15	120	0.4–	0.1+	1999 01 05	120	0.2–	0.6+
1990 09 20	675	0.3–	0.5–	1998 12 15	120	0.8+	0.3+	1999 01 05	120	1.1+	0.5+
1996 03 27	691	0.0	0.1+	1998 12 16	120	0.4+	0.1+	1999 01 05	120	0.2–	0.0
1996 03 27	691	0.1–	0.1–	1998 12 16	120	0.0	0.2–	1999 01 06	120	0.0	0.1–
1996 03 27	691	0.0	0.1–	1998 12 17	120	(0.2+	2.2–)	1999 01 06	120	0.2–	0.1+
1998 12 08	699	0.3+	0.5+	1998 12 23	120	0.8+	1.4–	1999 01 06	120	0.1+	0.3–

1998 XE₁₃ = 1991 HA₂

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Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	126.03436		(2000.0)	P	Q
n	0.20305522	ω	266.54266	+0.89366067	+0.44611697
a	2.8667728	Ω	66.95758	−0.38795940	+0.82238178
e	0.0739391	i	3.01989	−0.22551743	+0.35308335
P	4.85	H	13.9	G 0.15	U 3

Residuals in seconds of arc

1989 12 01	675	0.2–	0.2–	1998 11 11	704	1.3+	1.5–	1998 11 23	691	0.1+	0.1–
1989 12 01	675	0.1+	0.4–	1998 11 16	691	1.0–	0.3–	1998 11 24	699	0.7+	0.4–
1991 04 17	675	0.8+	1.1–	1998 11 16	691	1.0–	0.2–	1998 11 24	699	0.2+	0.1+
1991 04 19	809	0.4+	0.3–	1998 11 16	691	0.8–	0.1–	1998 11 24	699	0.3+	0.1–
1991 04 19	809	0.1–	0.9+	1998 11 18	704	0.2–	0.5+	1998 12 15	910	0.7+	0.4+
1991 04 19	809	1.3–	0.6+	1998 11 18	704	0.1–	0.2–	1998 12 15	910	0.6+	0.6+
1991 05 05	413	0.6+	0.6–	1998 11 18	704	0.8+	0.8–	1998 12 15	910	0.7+	0.7+
1991 05 05	413	0.7–	0.2–	1998 11 18	704	0.9+	1.4–	1998 12 16	910	0.4+	0.9+
1998 10 18	699	0.3+	0.6–	1998 11 19	699	0.5+	0.2–	1998 12 16	910	0.4+	0.9+
1998 10 18	699	0.6–	0.3–	1998 11 19	699	0.1–	0.7+	1998 12 16	910	0.5+	1.0+
1998 10 18	699	1.2–	0.3–	1998 11 19	699	0.8–	0.3+	1999 01 14	910	0.7–	0.6+
1998 10 31	120	0.1–	0.1+	1998 11 23	691	0.2–	0.2–	1999 01 14	910	0.9–	0.5+
1998 10 31	120	(0.6+	2.2+)	1998 11 23	691	0.2–	0.4–	1999 01 14	910	0.8–	0.5+

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1997 10 31	910	0.0	0.1−	1998 12 17	704	0.5+	0.1+	1999 01 19	704	0.2−	0.3+
1997 10 31	910	0.2+	0.0	1998 12 17	132	0.3+	0.7−	1999 01 19	704	1.1−	1.3+
1997 10 31	910	0.2+	0.2−	1998 12 18	132	0.8+	0.2−				
1998 12 15	132	(0.6−	2.2+)	1999 01 16	704	0.3+	0.8−				

1998 XD₂₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	51.26668		(2000.0)	P	Q
<i>n</i>	0.21187506	ω	98.16866	−0.71396079	−0.69417861
<i>a</i>	2.7866525	Ω	37.94695	+0.56942658	−0.65170929
<i>e</i>	0.1077268	<i>i</i>	8.55918	+0.40744737	−0.30559951
<i>P</i>	4.65	<i>H</i>	13.8	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1997 11 02	691	0.1+	0.2+	1999 01 09	327	0.0	0.3−	1999 02 13	699	0.8+	1.7+
1997 11 02	691	0.0	0.0	1999 01 09	327	0.1−	0.0	1999 02 13	699	1.3+	1.2+
1997 11 02	691	0.2+	0.2+	1999 01 13	327	0.2+	0.1−	1999 02 13	704	0.0	0.3−
1997 11 25	691	0.1+	1.1−	1999 01 13	327	0.2+	0.5−	1999 02 13	699	0.9+	0.1+
1997 11 25	691	0.0	0.0	1999 01 13	327	0.2+	0.1−	1999 02 13	704	0.1+	0.1−
1997 11 25	691	0.2−	0.2+	1999 01 15	327	0.1+	0.1−	1999 02 13	704	0.5−	0.2+
1998 12 15	327	0.0	0.5+	1999 01 15	327	0.2+	0.1−	1999 02 13	704	0.9−	0.2+
1998 12 15	327	0.0	0.2+	1999 01 15	327	0.1+	0.1+	1999 02 13	704	0.2−	0.1−
1998 12 15	327	0.0	0.3+	1999 02 12	704	0.1−	1.2−	1999 03 15	704	0.2+	0.9−
1998 12 17	327	0.1+	1.1+	1999 02 12	704	(1.2+	2.5−)	1999 03 15	704	0.2+	0.7+
1998 12 17	327	0.2+	0.9+	1999 02 12	704	0.5−	1.7−	1999 03 15	704	0.9−	0.7+
1998 12 17	327	0.2+	0.3+	1999 02 12	704	0.0	0.9−				
1999 01 09	327	0.0	0.0	1999 02 12	704	1.6−	1.2−				

1998 XP₂₇ = 1999 BA₇ = 1983 VY₆Id. A. Doppler (d, *MPC* 34061), A. Gnädig, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	172.53718		(2000.0)	P	Q
<i>n</i>	0.26593062	ω	261.92882	+0.58893173	+0.80369339
<i>a</i>	2.3949171	Ω	44.51684	−0.68547198	+0.55249429
<i>e</i>	0.1353154	<i>i</i>	6.96887	−0.42812099	+0.22096832
<i>P</i>	3.71	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1983 11 09	033	0.7+	0.7−	1998 11 24	704	0.7+	1.0+	1999 01 19	595	0.2+	0.1−
1983 11 10	033	0.1−	0.8−	1998 11 24	704	1.5+	1.1+	1999 01 19	595	0.5+	0.1+
1989 04 04	675	0.8−	0.1−	1998 11 24	704	(0.9+	2.6+)	1999 01 21	595	0.3+	0.2−
1989 04 04	675	0.7+	0.1−	1998 12 14	704	0.0	1.1+	1999 01 21	595	0.5+	0.6−
1998 11 10	704	1.5−	0.5−	1998 12 14	704	0.8+	1.3−	1999 01 21	595	0.4−	0.4+
1998 11 10	704	0.4+	1.5−	1998 12 14	704	0.0	0.1+	1999 02 02	595	0.0	0.0
1998 11 10	704	1.9−	1.4+	1998 12 14	704	0.4+	0.7−	1999 02 02	595	0.4−	0.4−
1998 11 10	704	1.2+	0.9+	1998 12 17	704	0.3−	0.8+	1999 02 02	595	0.3−	0.3−
1998 11 16	566	0.2+	0.5+	1998 12 17	704	1.0−	1.2−	1999 02 08	595	0.6+	0.1−
1998 11 16	566	0.0	0.4−	1998 12 17	704	0.3−	0.3+	1999 02 08	595	0.0	0.1−
1998 11 16	566	0.3−	0.1−	1998 12 17	704	1.3−	0.4−				
1998 11 24	704	0.2+	0.6+	1998 12 17	704	0.1+	0.4+				

1998 YS

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	22.09900		(2000.0)	P	Q
<i>n</i>	0.18788322	ω	46.37800	−0.62293959	−0.77975238
<i>a</i>	3.0190992	Ω	82.25851	+0.69826319	−0.59039349
<i>e</i>	0.1083404	<i>i</i>	3.62847	+0.35266810	−0.20837887
<i>P</i>	5.25	<i>H</i>	13.8	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1984 03 11	413	0.0	0.6+	1998 12 14	704	0.4+	0.5−	1999 01 05	411	0.0	0.9−
1984 03 11	413	0.0	0.7−	1998 12 14	704	0.5−	0.5+	1999 01 05	411	0.6+	0.5+
1997 10 10	327	0.9+	0.1−	1998 12 16	411	0.4−	0.1+	1999 01 07	411	0.1+	0.4+
1997 10 10	327	0.0	0.3−	1998 12 16	411	0.5+	0.6−	1999 01 07	411	0.5−	0.5+
1997 10 10	327	0.1+	0.2−	1998 12 17	704	0.1+	0.0	1999 01 15	411	1.8−	0.4+

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1997 10 10	327	0.2−	0.2−	1998 12 17	704	0.3+	0.5+	1999 01 15	411	0.6−	1.1−
1997 10 10	327	0.1+	0.5+	1998 12 17	704	0.7+	0.1−	1999 01 16	704	0.0	0.6−
1997 10 10	327	0.2−	0.1−	1998 12 17	704	0.3+	0.1−	1999 01 16	704	0.0	0.4−
1997 10 10	327	0.1+	0.4+	1998 12 17	704	0.6+	0.1+	1999 01 16	704	1.0−	1.2+
1997 10 10	327	0.1−	0.2+	1998 12 17	411	0.3+	0.9+	1999 01 16	704	0.8+	0.6−
1997 10 10	327	0.5−	0.3−	1998 12 17	411	1.1−	0.0	1999 01 19	704	1.0−	0.6−
1998 12 14	704	0.8+	0.6+	1998 12 24	411	0.2+	0.3+	1999 01 19	704	1.0+	0.4−
1998 12 14	704	1.1−	1.5−	1998 12 24	411	0.3+	0.2−	1999 01 19	704	1.3+	1.5+

1998 YK₁ = 1991 LG₆

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Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	114.73502		(2000.0)	P	Q
<i>n</i>	0.20229998	ω	259.33941	+0.90180573	−0.42914464
<i>a</i>	2.8739034	Ω	126.05513	+0.41697886	+0.83325838
<i>e</i>	0.0658814	<i>i</i>	3.60308	+0.11346829	+0.34859052
<i>P</i>	4.87	<i>H</i>	13.6	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1981 05 03	413	0.1−	0.1−	1998 12 17	704	0.0	0.6+	1998 12 22	704	(2.3−	1.2+)
1981 05 03	413	0.2−	0.4−	1998 12 17	704	1.0+	0.5−	1998 12 24	046	0.0	0.5+
1982 07 20	413	0.4+	0.8−	1998 12 17	704	0.3+	0.3−	1998 12 24	046	0.2−	0.1+
1982 07 20	413	0.2+	0.9−	1998 12 17	704	0.7+	0.9−	1998 12 24	046	0.3+	0.0
1991 06 06	809	(0.5+	2.8−)	1998 12 17	704	0.3−	0.8−	1998 12 29	046	0.0	0.5−
1991 06 06	809	(0.6+	2.6−)	1998 12 17	704	(0.5−	3.4−)	1998 12 29	046	0.0	0.7−
1991 06 06	809	0.4−	2.0−	1998 12 17	046	0.4+	0.0	1998 12 29	046	0.1−	0.4−
1998 12 17	046	0.5+	0.2−	1998 12 17	046	0.2+	0.2−	1999 01 14	046	0.9−	0.3+
1998 12 17	046	0.3−	0.6−	1998 12 17	046	0.1+	0.2−	1999 01 14	046	0.7−	0.4+
1998 12 17	046	0.1−	0.7−	1998 12 17	046	0.2+	0.2−	1999 01 14	046	0.0	0.8+
1998 12 17	046	0.2−	0.3−	1998 12 22	046	0.6−	0.1−	1999 01 17	046	0.3−	0.8+
1998 12 17	046	0.1−	0.2−	1998 12 22	046	0.1−	0.4−	1999 01 17	046	0.2+	0.4+
1998 12 17	704	0.1+	0.2+	1998 12 22	046	0.8+	0.4−	1999 01 17	046	0.6−	0.7+
1998 12 17	704	(2.3+	1.2−)	1998 12 22	704	1.0+	1.9−	1999 01 20	046	0.1−	0.6+
1998 12 17	704	0.1+	0.4+	1998 12 22	704	0.0	1.5−	1999 01 20	046	0.0	0.7+
1998 12 17	704	0.6−	0.1−	1998 12 22	704	0.9−	0.0	1999 01 20	046	0.1−	0.9+

1998 YG₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	165.32683		(2000.0)	P	Q
<i>n</i>	0.18969106	ω	240.99351	+0.89530537	+0.40515458
<i>a</i>	2.9998864	Ω	94.57750	−0.31593882	+0.87055197
<i>e</i>	0.0936977	<i>i</i>	10.70403	−0.31402381	+0.27926518
<i>P</i>	5.20	<i>H</i>	12.7	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1992 10 23	691	0.3−	0.5+	1998 11 25	699	0.3−	0.0	1998 12 26	411	0.5+	0.2+
1992 10 23	691	0.2−	0.1+	1998 11 25	699	0.4+	1.1−	1998 12 26	411	0.4−	0.6+
1992 10 23	691	0.1−	0.1+	1998 11 25	699	0.4+	0.2+	1999 01 05	411	0.4+	1.0+
1992 11 30	808	0.3+	0.1+	1998 12 14	704	0.8−	0.5−	1999 01 05	411	0.4+	0.5+
1992 11 30	808	0.3+	0.7−	1998 12 14	704	0.5−	0.8−	1999 01 16	704	0.2+	0.8−
1997 09 22	695	(2.6+	0.4+)	1998 12 14	704	0.6−	0.2−	1999 01 16	704	0.4+	0.9−
1997 09 22	695	0.2+	0.3+	1998 12 14	704	0.1−	0.0	1999 01 16	704	0.8+	1.4−
1997 09 22	695	0.1+	0.8+	1998 12 17	704	0.3+	0.0	1999 01 16	704	0.1−	0.8−
1997 09 22	695	0.3+	0.9+	1998 12 17	704	0.4+	1.3+	1999 01 16	411	0.8−	0.8−
1997 09 22	695	0.4+	0.5−	1998 12 17	704	2.0−	1.0+	1999 01 16	411	1.1−	0.6−
1997 09 22	695	0.2−	0.8−	1998 12 17	704	0.1−	0.2−	1999 01 19	704	0.5+	0.2−
1997 09 22	695	0.4−	0.5−	1998 12 17	704	0.3+	0.4−	1999 01 19	704	0.1+	0.0
1997 09 22	695	0.2−	0.5−	1998 12 17	411	0.0	0.3+	1999 01 19	704	0.5+	1.3+
1998 11 15	699	0.2−	0.2+	1998 12 17	411	0.4−	0.1−	1999 01 19	704	1.2+	1.0+
1998 11 15	699	0.0	0.6+	1998 12 18	411	0.2+	0.3+	1999 01 19	704	0.7+	0.4+
1998 11 15	699	0.2−	0.1+	1998 12 18	411	0.1−	0.1−				

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M.P.C. 35641

1998 YL₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	344.63965		(2000.0)	P	Q
<i>n</i>	0.27849319	ω	268.44175	-0.74901340	+0.65723909
<i>a</i>	2.3223428	Ω	312.63801	-0.55357218	-0.69025242
<i>e</i>	0.0663108	<i>i</i>	6.53779	-0.36405599	-0.30263571
<i>P</i>	3.54	<i>H</i>	14.5	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1992 03 09	809	0.6-	1.1-	1999 01 15	734	0.3+	0.6+	1999 02 18	566	0.9+	0.3-
1993 08 14	691	0.3-	0.7+	1999 01 15	699	0.1+	0.4-	1999 02 18	566	0.8+	0.3-
1993 08 14	691	0.1+	0.2-	1999 01 15	699	0.6-	0.8-	1999 02 18	566	1.3+	0.6-
1993 08 14	691	0.1-	0.4+	1999 01 15	699	0.5+	0.1+	1999 03 06	734	0.1-	0.4+
1998 12 18	734	0.2+	1.3-	1999 01 21	734	0.6+	0.4+	1999 03 06	734	0.1+	0.7+
1998 12 18	734	0.1-	0.2-	1999 01 21	734	0.8+	0.5+	1999 03 22	699	0.8+	0.2+
1998 12 18	734	0.5+	0.6+	1999 01 21	734	1.1+	0.3+	1999 03 22	734	0.8+	0.2-
1998 12 18	734	0.0	0.9+	1999 02 08	734	1.4-	0.2-	1999 03 22	699	0.8+	0.5+
1998 12 18	734	0.1+	0.4+	1999 02 08	734	0.9-	1.2-	1999 03 22	734	0.5+	0.0
1998 12 20	703	0.5-	0.0	1999 02 12	704	0.5-	1.4-	1999 03 22	734	0.4+	0.1-
1998 12 20	703	0.7+	0.5+	1999 02 12	704	1.2-	0.1+	1999 03 22	734	0.5+	0.2-
1998 12 20	703	1.2-	0.2-	1999 02 12	704	0.7-	1.0-	1999 03 22	699	1.0+	0.4+
1998 12 22	734	0.3+	0.1-	1999 02 12	704	0.9-	0.4-	1999 04 04	734	0.1+	0.5+
1998 12 22	734	1.6-	0.8+	1999 02 12	704	0.7-	0.4-	1999 04 04	734	0.3+	0.5+
1998 12 22	734	0.7+	0.1-	1999 02 13	734	0.1-	0.4+	1999 04 04	734	0.9+	1.2+
1998 12 28	734	0.2+	0.4+	1999 02 13	734	0.0	0.2-	1999 04 18	734	0.3+	0.4+
1998 12 28	734	0.0	1.3+	1999 02 13	734	0.2-	0.2+	1999 04 18	734	0.8-	0.1-
1998 12 28	734	0.1+	0.6+	1999 02 16	704	0.4-	0.3+	1999 04 18	734	0.4+	0.1-
1998 12 28	734	0.1+	0.6+	1999 02 16	704	0.6-	0.3-	1999 05 07	704	0.6-	0.4-
1999 01 09	734	(1.3+ 2.2+)		1999 02 16	704	0.2+	0.2+	1999 05 07	704	(0.4+ 2.3-)	
1999 01 09	734	(2.1+ 1.6+)		1999 02 16	704	0.8-	0.5-	1999 05 07	704	1.0-	0.1-
1999 01 15	734	0.1+	0.2+	1999 02 16	704	0.6-	0.4-	1999 05 07	704	0.1+	0.9+

1998 YT₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	34.25010		(2000.0)	P	Q
<i>n</i>	0.17697456	ω	66.96191	-0.39112207	-0.91997329
<i>a</i>	3.1419227	Ω	46.08918	+0.83066874	-0.36500743
<i>e</i>	0.2206048	<i>i</i>	2.06316	+0.39624862	-0.14289412
<i>P</i>	5.57	<i>H</i>	14.7	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1983 05 08	413	1.5+	0.4-	1998 12 17	704	0.6-	0.4-	1999 01 15	684	0.2-	0.1-
1983 05 08	413	1.7-	0.2-	1998 12 19	704	0.7+	2.0+	1999 01 15	684	0.2-	0.0
1997 09 04	910	0.2+	0.3-	1998 12 19	704	0.1-	1.4-	1999 01 16	704	0.3-	0.1+
1997 09 05	910	0.2+	0.3-	1998 12 19	684	0.0	0.0	1999 01 16	704	0.3-	0.7+
1997 09 05	910	0.1+	0.3-	1998 12 19	684	0.4-	0.1-	1999 01 16	704	0.7+	0.0
1998 12 14	704	0.8+	0.2-	1998 12 19	704	0.8-	0.3-	1999 01 16	684	0.0	0.0
1998 12 14	704	0.3+	0.5+	1998 12 19	684	0.3-	0.1+	1999 01 16	704	1.9-	0.4+
1998 12 14	704	0.1-	0.7+	1998 12 19	704	0.5+	0.9+	1999 01 16	684	0.4-	0.2+
1998 12 14	704	(1.1+ 2.2-)		1998 12 19	704	(0.2+ 2.1+)		1999 01 16	704	(6.3- 0.8+)	
1998 12 17	704	0.8+	0.3-	1998 12 23	684	0.0	0.2+	1999 02 09	684	0.6+	0.5-
1998 12 17	704	0.5-	0.6-	1998 12 23	684	0.1+	0.1+	1999 02 09	684	0.5+	0.6-
1998 12 17	704	0.2+	0.6+	1998 12 26	684	0.0	0.0	1999 02 11	684	0.5+	0.5-
1998 12 17	704	0.2+	1.3-	1998 12 26	684	0.1-	0.0	1999 02 11	684	0.7+	0.5-

1998 YT₆ = 1991 CC₄ = 1994 XA₅ = 1999 JA₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	48.44639		(2000.0)	P	Q
<i>n</i>	0.24417790	ω	258.56697	-0.56969137	-0.79017915
<i>a</i>	2.5351198	Ω	228.57997	+0.82115237	-0.53586358
<i>e</i>	0.1989848	<i>i</i>	17.53930	+0.03406667	-0.29743424
<i>P</i>	4.04	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1991 02 10	413	0.4-	0.9-	1998 12 20	703	1.2-	0.3-	1999 05 07	704	1.7-	1.8-
1991 02 10	413	0.2+	1.0+	1998 12 20	703	0.2-	0.0	1999 05 07	704	0.4+	0.8+
1994 12 12	010	0.1+	1.4-	1998 12 23	703	0.5+	1.3+	1999 05 07	704	1.3-	0.6-
1994 12 12	010	0.7-	2.6+	1998 12 23	703	0.4-	0.1-	1999 05 07	704	0.5+	0.0
1994 12 13	010	0.6+	1.8-	1999 01 23	704	0.4-	1.9-	1999 05 07	704	0.5+	0.6+
1994 12 13	010	0.7+	1.9+	1999 01 23	704	0.7+	0.8-	1999 05 08	704	1.0-	0.9-
1994 12 14	010	(2.0- 4.6+)		1999 01 23	704	0.3+	0.1+	1999 05 08	704	0.0	1.2+
1994 12 14	010	(1.7- 10.1+)		1999 01 23	704	2.9+	0.0	1999 05 08	704	1.8+	1.5+
1998 12 20	703	1.2-	0.0	1999 01 23	704	1.3-	0.3+				

1999 AQ₃ = 1972 TY₈ = 1997 XB₇

Id. A. Doppler, S. Nakano, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	187.96618		(2000.0)	P	Q
<i>n</i>	0.19951954	ω	273.07509	+0.94870899	+0.31090935
<i>a</i>	2.9005415	Ω	68.81657	-0.26011898	+0.87069403
<i>e</i>	0.0648440	<i>i</i>	3.52498	-0.17969245	+0.38108698
<i>P</i>	4.94	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1972 10 09	033	0.3-	0.2+	1997 12 05	910	0.2+	0.4+	1999 01 19	704	0.8+	1.7+
1972 10 09	033	0.6+	0.2-	1997 12 05	910	0.2+	0.1+	1999 01 28	411	1.0-	1.9-
1972 10 09	033	0.3+	0.2+	1997 12 05	910	0.2+	0.3+	1999 01 28	411	0.0	1.7-
1972 10 09	033	0.4-	0.0	1997 12 07	910	0.7+	0.3-	1999 02 07	411	0.8-	0.9+
1992 11 18	691	0.6-	0.0	1997 12 07	910	0.7+	0.2-	1999 02 07	411	0.3-	0.2-
1992 11 18	691	0.9-	0.4+	1997 12 07	910	0.6+	0.3-	1999 02 10	704	0.4+	0.0
1992 11 18	691	0.7-	0.1-	1999 01 10	411	0.6+	0.8-	1999 02 10	704	0.1-	1.5+
1997 11 28	327	0.3-	0.1+	1999 01 10	411	0.6-	0.4+	1999 02 10	704	0.4-	1.1+
1997 11 28	327	0.3-	0.0	1999 01 11	411	1.0-	0.7+	1999 02 10	704	1.3-	1.4+
1997 11 28	327	0.2-	0.0	1999 01 11	411	0.3+	0.9-	1999 02 13	704	0.2-	0.1+
1997 11 29	704	0.6+	0.2+	1999 01 17	411	(2.5+ 1.7-)		1999 02 13	704	1.0+	0.5+
1997 11 29	704	0.9+	0.4+	1999 01 17	411	1.6+	0.2-	1999 02 13	704	1.7+	0.4+
1997 11 29	704	0.3+	0.5-	1999 01 19	704	0.2-	1.3-	1999 02 13	704	0.8-	1.3-
1997 11 29	704	0.5-	0.0	1999 01 19	704	0.2-	0.5+	1999 02 13	704	0.1+	0.1+
1997 11 29	704	1.4-	0.8-	1999 01 19	704	0.8+	0.8-				

1999 AZ₃ = 1982 UE₅

Id. A. Doppler, S. Nakano

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	268.78631		(2000.0)	P	Q
<i>n</i>	0.20088828	ω	212.74248	-0.05378423	+0.99767764
<i>a</i>	2.8873514	Ω	54.20786	-0.90471251	-0.03097388
<i>e</i>	0.0151901	<i>i</i>	2.95333	-0.42261392	-0.06066263
<i>P</i>	4.91	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1982 10 20	033	0.3+	0.7-	1998 11 25	691	0.8+	0.4-	1999 02 10	704	0.0	0.2+
1994 01 11	691	0.3+	0.5-	1998 11 25	691	0.8+	0.6-	1999 02 10	704	0.2+	0.0
1994 01 11	691	0.0	0.3-	1998 11 25	691	0.7+	0.6-	1999 02 10	704	0.3+	0.3-
1994 01 11	691	0.8-	0.3-	1999 01 10	411	0.5-	0.3+	1999 02 10	704	0.8+	0.3-
1995 05 26	691	0.2-	0.4-	1999 01 10	411	0.5+	0.5-	1999 02 12	699	1.3+	0.7+
1995 05 26	691	1.5-	2.1+	1999 01 11	411	1.2-	0.6-	1999 02 12	699	1.0+	1.1+
1995 05 26	691	1.4+	0.6+	1999 01 11	411	2.5-	2.4-	1999 02 12	699	1.5+	0.6+
1995 05 27	691	0.2+	0.5-	1999 01 18	411	0.2+	0.5-	1999 02 13	704	0.2-	0.2-
1995 05 27	691	0.3+	0.5-	1999 01 18	411	1.0-	0.0	1999 02 13	704	0.8-	0.5+
1995 05 27	691	0.1+	0.6-	1999 01 19	704	0.2-	0.9-	1999 02 13	704	0.6-	1.2+
1997 10 13	327	0.7-	0.6-	1999 01 19	704	1.1+	1.8+	1999 02 13	704	0.2+	0.4+
1997 10 13	327	0.6-	0.4-	1999 01 19	704	2.0+	0.1-	1999 02 13	704	0.9-	0.4+
1997 10 13	327	0.3-	0.6-	1999 01 19	704	1.1-	0.8+	1999 02 19	566	0.3-	0.1-
1997 11 26	566	0.9+	1.2+	1999 01 19	704	0.9-	0.4+	1999 02 19	566	0.6-	0.3-
1997 11 26	566	0.6+	1.1+	1999 01 28	411	0.7-	0.2-	1999 02 19	566	0.7-	0.1-
1997 11 26	566	0.3+	1.6+	1999 01 28	411	0.4-	0.5-	1999 02 24	699	0.2+	0.4+
1997 12 08	327	0.7-	0.4-	1999 02 07	411	0.7-	0.6-	1999 02 24	699	0.3+	0.3+
1997 12 08	327	0.5-	0.1+	1999 02 07	411	0.6-	0.1+	1999 02 24	699	2.3+	0.2+
1997 12 08	327	0.2-	0.2+	1999 02 10	704	0.3+	0.4-				

1999 BB₁ = 1996 EV₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	163.00638		(2000.0)	P		Q	
<i>n</i>	0.36188060	ω	340.88358	+0.57309759	-0.72258010		
<i>a</i>	1.9502600	Ω	72.25041	+0.79478240	+0.37513933		
<i>e</i>	0.0944237	<i>i</i>	23.94706	+0.19969999	+0.58064489		
<i>P</i>	2.72	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1996 03 11	327	0.4-	1.0+	1996 03 14	327	0.2-	0.2-	1999 02 09	704	0.6-	0.6-
1996 03 11	327	0.1-	0.2+	1999 01 17	703	0.7-	0.3-	1999 02 09	704	0.2-	0.3+
1996 03 11	327	0.3+	1.3+	1999 01 17	703	0.2+	0.6-	1999 02 09	704	2.1-	1.2+
1996 03 13	327	0.5+	0.1-	1999 01 17	703	0.4-	0.5+	1999 04 09	704	0.5+	0.4-
1996 03 13	327	0.4-	0.7-	1999 01 18	703	0.5-	0.2-	1999 04 09	704	0.0	0.0
1996 03 13	327	0.6-	0.3-	1999 01 18	703	1.3+	0.2+	1999 04 09	704	0.4-	0.5-
1996 03 14	327	0.3+	0.1+	1999 02 09	704	0.1+	0.9-	1999 04 09	704	1.3+	0.7+
1996 03 14	327	0.0	0.5+	1999 02 09	704	0.3-	1.4-	1999 04 09	704	0.3+	1.3+

1999 BW₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	22.46746		(2000.0)	P		Q	
<i>n</i>	0.28002269	ω	180.91027	-0.99710005	-0.07385384		
<i>a</i>	2.3138786	Ω	354.74750	+0.07102831	-0.81651772		
<i>e</i>	0.0694924	<i>i</i>	11.56985	+0.02732173	-0.57257701		
<i>P</i>	3.52	<i>H</i>	14.6	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1992 02 24	691	0.1+	0.2-	1999 01 28	411	0.2+	0.9-	1999 02 21	411	0.3-	0.3-
1992 02 24	691	0.0	0.4-	1999 02 09	411	1.3+	0.1-	1999 04 06	704	0.0	0.4+
1992 02 24	691	0.3+	0.3-	1999 02 09	411	0.5+	0.7+	1999 04 06	704	0.0	1.1+
1992 04 04	809	1.3-	0.1-	1999 02 13	699	0.2+	0.3+	1999 04 06	704	0.5-	0.4+
1997 10 29	566	0.2-	0.4+	1999 02 13	699	0.5+	0.4+	1999 04 06	704	0.4+	0.4-
1997 10 29	566	0.3-	0.4+	1999 02 13	704	0.3+	0.1+	1999 04 06	704	0.5-	0.7-
1997 10 29	566	0.3-	0.4+	1999 02 13	699	0.1+	0.8+	1999 06 06	703	0.7+	0.1-
1999 01 18	411	0.8-	0.3+	1999 02 13	704	0.3+	0.2+	1999 06 06	703	0.5+	0.1+
1999 01 18	411	0.3-	0.3+	1999 02 13	704	0.1-	0.2+	1999 06 06	703	1.0+	0.7+
1999 01 19	411	0.3-	0.0	1999 02 13	704	0.3+	0.0	1999 06 06	703	0.4+	1.3+
1999 01 19	411	0.7-	0.7-	1999 02 13	704	0.1-	0.1-				
1999 01 28	411	0.5+	0.5-	1999 02 21	411	1.8-	0.6-				

1999 BP₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	74.71481		(2000.0)	P		Q	
<i>n</i>	0.27569217	ω	309.96394	-0.66965421	-0.74266702		
<i>a</i>	2.3380463	Ω	182.08372	+0.70399565	-0.63349251		
<i>e</i>	0.1394107	<i>i</i>	4.71547	+0.23654463	-0.21710121		
<i>P</i>	3.58	<i>H</i>	14.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 09 26	327	0.2+	0.3+	1999 01 22	120	0.2-	0.2-	1999 03 23	699	0.2+	0.4-
1997 09 26	327	0.2+	0.8+	1999 01 22	120	0.5+	0.0	1999 03 23	699	0.7+	0.2+
1997 09 26	327	0.1-	0.9+	1999 01 23	120	0.0	0.1+	1999 03 23	699	0.7+	0.4-
1997 10 30	704	(2.5-	1.8-)	1999 01 23	120	0.2+	0.2+	1999 04 06	704	0.6-	1.8-
1997 10 30	704	0.1-	0.3-	1999 01 23	120	0.8+	0.1+	1999 04 06	704	0.2-	0.1+
1997 10 30	704	(1.7-	2.7+)	1999 02 13	120	0.8+	0.1+	1999 04 06	704	0.6-	0.1+
1997 10 30	704	0.7+	0.4-	1999 02 13	120	0.7-	0.3-	1999 04 06	704	0.0	1.1+
1997 10 30	704	1.0-	1.3-	1999 03 10	691	1.3-	0.6-	1999 04 06	704	0.4-	0.4+
1999 01 21	120	0.5+	0.8+	1999 03 10	691	1.1-	0.7-	1999 04 12	704	0.8+	0.3+
1999 01 21	120	0.1+	0.5+	1999 03 10	691	1.3-	0.5-	1999 04 12	704	0.3+	1.0+
1999 01 21	120	0.5+	0.1+	1999 03 22	699	0.5-	0.5+	1999 04 12	704	1.1+	1.1+
1999 01 21	120	0.7-	0.0	1999 03 22	699	0.0	0.7-	1999 04 12	704	1.2+	0.2-
1999 01 22	120	0.6-	0.6+	1999 03 22	699	0.1+	0.4-				

1999 CS₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	338.27722		(2000.0)	P		Q	
<i>n</i>	0.28677792	ω	147.81867	-0.53091856	+0.83954482		
<i>a</i>	2.2773979	Ω	89.87338	-0.79987510	-0.45154316		
<i>e</i>	0.1325650	<i>i</i>	6.61992	-0.27986658	-0.30211467		
<i>P</i>	3.44	<i>H</i>	14.3	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1996 05 22	566	0.0	0.1+	1998 11 25	704	0.5+	0.6-	1999 02 13	704	0.1+	0.6+
1996 05 22	566	0.1+	0.1+	1998 12 21	704	0.1+	0.1-	1999 02 14	411	0.0	0.7-
1996 05 22	566	0.0	0.2+	1998 12 21	704	0.3+	0.8-	1999 02 14	411	0.3-	0.6-
1997 10 29	704	1.5+	1.2-	1998 12 21	704	0.9-	1.3-	1999 02 21	411	0.2+	0.1-
1997 10 29	704	1.3+	0.2-	1998 12 21	704	0.0	1.9-	1999 02 21	411	0.4-	0.7-
1997 10 29	704	0.1+	0.0	1999 02 07	411	0.2+	0.3+	1999 03 16	411	1.0-	0.7+
1997 10 29	704	0.0	0.1+	1999 02 07	411	0.4-	0.8+	1999 03 16	411	0.0	0.4+
1997 10 29	704	0.8-	0.3-	1999 02 08	411	0.3+	0.2+	1999 05 08	704	0.3+	0.7-
1997 10 30	704	(5.6+	1.1-)	1999 02 08	411	1.2+	1.0+	1999 05 08	704	1.6+	1.7-
1997 10 30	704	(5.3+	0.9-)	1999 02 10	704	0.1-	0.5-	1999 05 08	704	0.3-	1.3-
1997 10 30	704	(5.4+	1.5-)	1999 02 10	704	0.0	0.1-	1999 05 08	704	1.6+	1.0-
1997 10 30	704	(5.0+	1.7-)	1999 02 10	704	0.8-	0.1+	1999 05 08	704	0.9-	1.0-
1997 10 30	704	(5.5+	0.6-)	1999 02 10	704	1.2-	0.2+	1999 06 07	703	1.6+	0.3-
1997 10 30	566	0.6-	0.8+	1999 02 10	704	0.4+	0.3+	1999 06 07	703	0.8-	0.6+
1997 10 30	566	1.1-	1.0+	1999 02 13	704	0.1-	0.1+	1999 06 07	703	0.4+	1.8+
1997 10 30	566	0.7-	0.5+	1999 02 13	704	0.5-	0.7+	1999 06 07	703	0.1-	1.6+
1998 11 25	704	1.7+	1.3+	1999 02 13	704	0.5-	0.4+				
1998 11 25	704	0.4+	0.8+	1999 02 13	704	0.3-	1.3+				

1999 CJ₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	118.16046		(2000.0)	P		Q	
<i>n</i>	0.19224807	ω	45.65923	+0.42734128	-0.90201803		
<i>a</i>	2.9732269	Ω	19.30042	+0.76788752	-0.32641137		
<i>e</i>	0.1077204	<i>i</i>	10.66693	+0.47720875	+0.28252273		
<i>P</i>	5.13	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1991 09 30	413	0.7-	0.1-	1999 02 13	411	0.6-	0.8+	1999 03 20	704	0.8-	0.0
1991 09 30	413	1.7+	0.8-	1999 02 13	411	0.1+	0.6-	1999 03 20	704	0.6+	0.3+
1991 10 01	413	0.1-	0.3-	1999 02 18	699	0.2-	0.4+	1999 03 20	704	0.0	0.4+
1991 10 01	413	0.1-	0.3-	1999 02 18	699	0.1+	0.5+	1999 03 22	411	0.2+	1.2+
1994 04 03	691	0.2-	0.4-	1999 02 18	699	0.6+	0.3+	1999 03 22	411	0.9+	0.7+
1994 04 03	691	0.4-	0.6-	1999 02 20	411	0.3+	0.5-	1999 03 23	704	(1.1-	2.1+)
1994 04 03	691	0.4-	0.5-	1999 02 20	411	0.8-	0.0	1999 03 23	704	0.4+	0.2+
1997 12 15	327	0.0	0.2-	1999 02 20	411	1.0-	0.2+	1999 03 23	704	0.1-	0.2+
1997 12 15	327	0.1+	0.1-	1999 02 22	411	1.0-	1.4-	1999 03 23	704	0.6+	0.3+
1997 12 15	327	0.0	0.0	1999 02 22	411	0.5-	0.5-	1999 04 08	411	0.2+	0.6-
1999 02 12	411	0.8+	0.6-	1999 03 20	704	0.6-	0.0	1999 04 08	411	1.1+	0.3-
1999 02 12	411	0.7+	0.7-	1999 03 20	704	0.8-	0.3-				

1999 CZ₂₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	21.77354		(2000.0)	P		Q	
<i>n</i>	0.20664584	ω	70.58148	-0.87756792	-0.41424918		
<i>a</i>	2.8334677	Ω	84.32283	+0.29556990	-0.86385512		
<i>e</i>	0.0686111	<i>i</i>	14.03923	+0.37750891	-0.28662161		
<i>P</i>	4.77	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1997 10 30	566	0.4-	0.1+	1999 02 10	704	0.3-	0.0	1999 06 04	704	0.1-	0.1-
1997 10 30	566	0.8-	0.4-	1999 02 10	704	0.5+	0.4-	1999 06 04	704	1.3+	0.6-
1997 10 30	566	0.2-	0.1-	1999 02 10	704	0.5-	0.3-	1999 06 04	704	0.1-	0.5+
1997 11 29	566	1.4+	0.5-	1999 02 10	704	0.5-	0.5+	1999 06 04	704	0.7+	1.2-
1997 11 29	566	0.2+	0.1-	1999 02 13	704	0.7+	1.1-	1999 06 07	704	(1.2+	2.1-)
1997 11 29	566	1.0+	0.6-	1999 02 13	704	1.9+	0.0	1999 06 07	704	0.1+	0.3-

1998 11 18	699	0.2−	0.0	1999 02 13	704	0.3+	0.7+	1999 06 07	704	0.7−	0.5+
1998 11 18	699	0.7−	0.2+	1999 02 13	704	0.7+	1.1+	1999 06 07	704	1.0−	0.7−
1998 11 18	699	0.4−	0.3−	1999 02 13	704	0.0	0.3+	1999 06 07	704	0.9+	1.3−
1998 11 25	704	0.4−	0.8+	1999 02 19	566	1.0−	0.0	1999 06 08	704	0.7+	1.1−
1998 11 25	704	1.5+	1.3−	1999 02 19	566	1.0−	0.3+	1999 06 08	704	0.7−	0.6−
1998 11 25	704	0.1+	0.8+	1999 02 19	566	1.1−	0.3+	1999 06 08	704	0.8+	0.2+
1998 11 25	704	(2.5+	1.2−)	1999 05 08	704	(3.5−	0.4−)	1999 06 10	704	0.6+	0.3+
1998 11 25	704	0.3+	0.0	1999 05 08	704	0.1+	0.5−	1999 06 10	704	1.0−	0.8+
1998 12 27	699	0.9−	1.5+	1999 05 08	704	1.1−	0.3−	1999 06 10	704	1.8−	0.2−
1998 12 27	699	1.2+	0.2+	1999 05 08	704	0.3−	1.1−	1999 06 10	704	0.3−	0.2−
1998 12 27	699	(3.8+	0.7−)	1999 05 08	704	0.8+	0.1+				
1999 02 10	704	0.1+	0.1−	1999 06 04	704	0.3+	0.4+				

1999 CQ₄₈

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	342.43559		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.31200311	ω	231.77705	−0.54862237	+0.83604100
a	2.1529309	Ω	4.96564	−0.73960894	−0.48140665
e	0.1071062	i	4.63560	−0.38986166	−0.26321678
P	3.16	H	15.6	G 0.15	U 3

Residuals in seconds of arc

1996 03 17	566	0.1−	0.3−	1999 02 13	704	(2.3+	0.6+)	1999 03 20	704	0.7−	1.0+
1996 03 17	566	0.2−	0.5−	1999 02 13	704	1.4+	0.2+	1999 03 20	704	0.1−	1.5+
1996 03 17	566	0.2−	0.3−	1999 02 13	704	0.6+	1.5−	1999 03 20	704	0.9−	0.8+
1997 08 02	910	0.7+	1.1−	1999 02 13	704	1.0−	1.1−	1999 03 20	704	0.3−	0.6+
1997 08 02	910	0.2+	0.6−	1999 02 18	699	0.1−	1.1+	1999 04 17	691	0.8−	0.5−
1997 08 02	910	0.3+	0.7−	1999 02 18	699	0.7+	0.3+	1999 04 17	691	0.6−	0.6−
1999 02 10	704	0.2−	1.0−	1999 02 18	699	0.1−	0.6+	1999 04 17	691	0.6−	0.7−
1999 02 10	704	1.3−	0.7−	1999 03 19	704	0.7−	1.5+	1999 04 20	691	1.1+	0.8−
1999 02 10	704	0.5+	1.0−	1999 03 19	704	0.8−	0.2−	1999 04 20	691	0.4+	0.2−
1999 02 10	704	1.3+	0.0	1999 03 19	704	0.7−	0.1−	1999 04 20	691	0.5+	0.5−
1999 02 10	704	(3.5−	2.3+)	1999 03 19	704	0.5−	0.1−				
1999 02 13	704	1.7+	0.3−	1999 03 20	704	0.7+	0.6+				

1999 CU₅₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	113.42831		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.25967743	ω	275.55700	+0.39925445	−0.91654082
a	2.4332118	Ω	150.87633	+0.85909178	+0.36505984
e	0.1743684	i	2.75893	+0.32024553	+0.16335310
P	3.80	H	14.8	G 0.15	U 3

Residuals in seconds of arc

1992 04 27	691	(3.1+	3.0−)	1999 02 10	704	0.6+	0.2−	1999 02 13	704	0.4+	0.2−
1992 04 27	691	0.2−	0.2−	1999 02 10	704	1.1+	0.5−	1999 03 20	704	0.8−	0.8−
1992 04 27	691	0.2−	0.2+	1999 02 10	704	0.5−	0.5−	1999 03 20	704	0.2+	0.9−
1992 04 30	691	0.4+	0.1−	1999 02 10	704	0.1−	1.0−	1999 03 20	704	0.2−	1.1+
1992 04 30	691	0.3+	0.2+	1999 02 10	704	0.4−	0.8−	1999 03 20	704	1.2−	0.6+
1992 04 30	691	0.3−	0.3+	1999 02 12	699	0.6+	0.1−	1999 03 20	704	0.3+	0.2−
1997 08 12	691	0.0	0.1+	1999 02 12	699	0.2−	0.2+	1999 03 23	704	0.7+	0.7+
1997 08 12	691	0.3−	0.1+	1999 02 12	699	0.5−	0.3+	1999 03 23	704	0.8−	0.8−
1997 08 12	691	0.3+	0.2−	1999 02 13	704	0.5+	0.4−	1999 03 23	704	0.2−	0.7+
1999 01 15	699	0.4+	1.7+	1999 02 13	704	0.2−	0.1+	1999 03 23	704	0.2+	0.4−
1999 01 15	699	0.9−	0.5−	1999 02 13	704	0.1−	0.4+				
1999 01 15	699	0.0	1.1+	1999 02 13	704	0.7+	0.7+				

1999 CJ₅₁

Id. A. Doppler (1997 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	342.84905		(2000.0)	P	Q		
n	0.26119509	ω	215.57812	−0.61354042	+0.78950293		
a	2.4237773	Ω	16.59467	−0.71099483	−0.54353652		
e	0.1313752	i	3.19438	−0.34359060	−0.28504943		
P	3.77	H	14.5	G	0.15	U	4

Residuals in seconds of arc

1997 11 06	704	1.0+	1.3+	1997 12 22	327	0.0	0.4+	1999 02 13	704	1.1+	0.5−
1997 11 06	704	0.8+	0.4+	1999 02 10	704	0.0	0.8−	1999 03 19	704	0.2+	1.4+
1997 11 06	704	(2.5+	0.3−)	1999 02 10	704	0.0	0.1−	1999 03 19	704	0.8+	0.4−
1997 11 06	704	0.2+	1.2−	1999 02 10	704	0.0	0.3−	1999 03 19	704	0.6+	0.6−
1997 11 06	704	1.3−	0.1−	1999 02 10	704	0.6−	0.5−	1999 03 19	704	0.2−	0.1+
1997 11 07	327	0.6−	0.1+	1999 02 10	704	0.7+	0.6−	1999 03 20	704	0.9+	0.4−
1997 11 07	327	0.3+	0.0	1999 02 13	704	0.7−	0.4−	1999 03 20	704	0.3+	1.8+
1997 11 07	327	0.6+	0.4−	1999 02 13	704	0.1+	1.2+	1999 03 20	704	0.2−	0.6−
1997 12 22	327	0.9−	0.5−	1999 02 13	704	1.0−	1.3+	1999 03 20	704	0.4−	0.5+
1997 12 22	327	0.4−	0.2+	1999 02 13	704	0.9−	0.4−	1999 03 20	704	1.0−	0.8−

1999 CA₅₂

Id. A. Doppler (1997 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	0.79218		(2000.0)	P	Q
n	0.23338629	ω	153.95342	-0.90503165	$+0.41785034$
a	2.6126776	Ω	50.97677	-0.40593407	-0.79270239
e	0.1513708	i	5.87274	-0.12702456	-0.44387386
P	4.22	H	14.4	G 0.15	U 5

Residuals in seconds of arc

1997 10 13	327	0.4+	0.3+	1999 02 10	704	0.1−	0.2−	1999 02 14	327	0.1+	0.4+
1997 10 13	327	0.1−	0.1−	1999 02 10	704	0.3−	0.9−	1999 03 15	704	0.2−	0.1−
1997 10 13	327	0.3−	0.4+	1999 02 10	704	1.5+	0.3−	1999 03 15	704	0.5−	0.3−
1997 11 06	704	1.4−	0.0	1999 02 10	704	1.5+	0.6+	1999 03 15	704	1.2−	0.7−
1997 11 06	704	(1.5−	2.5+)	1999 02 10	704	0.4+	0.7+	1999 03 15	704	0.3+	0.0
1997 12 01	327	0.1−	0.3+	1999 02 13	704	0.9−	1.1−	1999 03 20	704	0.1+	0.8+
1997 12 01	327	1.0+	0.6−	1999 02 13	704	0.4−	0.2−	1999 03 20	704	1.1+	1.0+
1997 12 01	327	0.2+	0.3+	1999 02 13	704	1.7−	0.9−	1999 03 20	704	0.6+	0.8+
1999 02 09	327	0.1−	0.2−	1999 02 13	704	1.0−	0.3−	1999 03 20	704	0.4+	0.8+
1999 02 09	327	0.2+	0.3−	1999 02 14	327	0.1+	0.2+	1999 03 20	704	0.2+	0.6+
1999 02 09	327	0.2+	0.3−	1999 02 14	327	0.2−	0.3+				

1999 CB₅₅ = 1997 WK₂₅ = 1998 CM₅Id. G. V. Williams (*MPC* 34247), A. Doppler (d, ibid); 1998 CM₅ is a redesignation of the second night of 1998 BZ₃₅, the object originally included in this identification

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	337.28093		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.25615978	ω	145.88275	-0.50548476	$+0.85741799$
a	2.4554368	Ω	93.57926	-0.81165021	-0.43455020
e	0.1431603	i	5.55070	-0.29276118	-0.27568192
P	3.85	H	14.5	G 0.15	U 4

Residuals in seconds of arc

1997 11 28	691	0.0	0.2+	1998 02 02	691	0.2+	0.1−	1999 02 18	699	0.2+	0.4+
1997 11 28	691	0.3−	0.3+	1998 02 16	327	0.7−	0.5+	1999 02 18	699	0.4−	0.2+
1997 11 28	691	0.2−	0.4+	1998 02 16	327	0.7−	0.6+	1999 02 18	699	0.0	0.2+
1997 12 04	691	0.3−	0.2+	1998 02 16	327	0.5−	0.3+	1999 02 18	566	0.3−	0.2−
1997 12 04	691	0.9−	0.1+	1998 02 16	327	0.4−	0.9+	1999 02 18	566	0.3−	0.4+
1997 12 04	691	1.0+	0.2+	1999 02 10	704	0.3−	1.4−	1999 02 18	566	0.5−	0.3+
1997 12 05	704	0.4+	1.1−	1999 02 10	704	0.1−	0.2−	1999 03 15	704	0.0	0.2−
1997 12 05	704	0.2+	0.9−	1999 02 10	704	0.0	0.1+	1999 03 15	704	0.4+	0.9−
1997 12 05	704	0.5+	0.0	1999 02 10	704	0.4+	0.8−	1999 03 15	704	1.5−	1.7−
1997 12 05	704	0.2+	0.7−	1999 02 10	704	1.2−	0.6+	1999 03 15	704	0.6−	0.4−
1998 01 26	691	0.4+	0.0	1999 02 13	704	0.6+	0.6+	1999 03 15	704	0.2−	0.2−

1998 01 26	691	0.2+	0.3-	1999 02 13	704	0.0	0.0	1999 03 20	704	1.4-	0.1+
1998 01 26	691	0.1+	0.3-	1999 02 13	704	1.3+	0.5+	1999 03 20	704	2.2+	0.5+
1998 02 02	691	0.1+	0.1-	1999 02 13	704	0.2+	0.8+	1999 03 20	704	0.1+	1.3+
1998 02 02	691	0.2+	0.2+	1999 02 13	704	1.2+	0.1+	1999 03 20	704	0.1+	0.5-

1999 CD₅₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	58.04693		(2000.0)	P	Q
<i>n</i>	0.18026570	ω	113.11686	-0.43340095	-0.90119974
<i>a</i>	3.1035636	Ω	2.56846	+0.81297740	-0.39175169
<i>e</i>	0.2329756	<i>i</i>	2.08189	+0.38888477	-0.18539052
<i>P</i>	5.47	<i>H</i>	13.7	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 09 28	691	0.1+	0.4+	1998 12 16	699	1.7-	1.3-	1999 02 18	699	0.8+	0.0
1997 09 28	691	0.1-	0.2+	1998 12 16	699	0.1-	0.2-	1999 02 18	699	0.3+	0.2+
1997 09 28	691	0.2-	0.1+	1998 12 21	704	1.0-	0.8+	1999 03 19	699	0.4+	0.9+
1997 10 30	704	0.2+	0.1+	1998 12 21	704	(2.8-	0.0)	1999 03 19	699	0.8+	0.5-
1997 10 30	704	0.2+	0.1+	1998 12 21	704	0.2-	1.8-	1999 03 19	699	0.6+	0.3+
1997 10 30	704	0.2-	0.2-	1998 12 21	704	0.2+	0.9+	1999 03 20	704	1.3-	0.4+
1997 10 30	704	1.0+	0.1-	1998 12 21	704	0.3+	0.9-	1999 03 20	704	1.8-	0.1-
1997 10 30	704	0.6-	0.9+	1999 02 10	704	0.1+	0.1-	1999 03 20	704	0.1-	0.9-
1997 11 03	704	0.4+	0.5+	1999 02 10	704	0.1-	0.0	1999 03 20	704	0.1-	0.4-
1997 11 03	704	1.3-	0.1-	1999 02 10	704	0.3+	0.6+	1999 03 20	704	0.4-	0.3-
1997 11 03	704	0.8-	0.1+	1999 02 10	704	0.2+	0.3-	1999 03 23	704	0.7+	1.3-
1997 11 03	704	0.7+	0.6-	1999 02 10	704	0.3-	0.0	1999 03 23	704	0.3+	1.2+
1998 11 25	704	(0.4+	2.4-)	1999 02 13	704	0.0	0.0	1999 03 23	704	1.2-	0.3-
1998 11 25	704	(4.6+	0.6-)	1999 02 13	704	0.8+	0.5+	1999 03 23	704	0.9-	0.8+
1998 11 25	704	(0.4+	2.9-)	1999 02 13	704	1.0-	0.6-	1999 03 23	704	0.0	0.6+
1998 11 25	704	0.9+	0.9-	1999 02 13	704	1.0+	0.6+	1999 04 06	699	0.5+	0.9+
1998 11 25	704	(4.7-	0.3-)	1999 02 13	704	0.3-	1.6+	1999 04 06	699	0.9+	0.1-
1998 12 16	699	0.7-	0.1-	1999 02 18	699	0.7+	0.4-	1999 04 06	699	1.3+	0.1-

1999 CX₅₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	68.41600		(2000.0)	P	Q
<i>n</i>	0.18019288	ω	257.93831	+0.17831844	-0.98393441
<i>a</i>	3.1043997	Ω	181.85752	+0.97445388	+0.17781276
<i>e</i>	0.2038631	<i>i</i>	15.56125	+0.13653632	+0.01599073
<i>P</i>	5.47	<i>H</i>	13.2	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1994 03 16	691	0.1+	0.8-	1998 12 23	704	0.5+	0.8-	1999 02 16	704	0.2-	0.8+
1994 03 16	691	(1.3+	3.4-)	1998 12 23	704	(1.4-	2.5+)	1999 02 16	704	1.2-	0.5+
1994 03 16	691	0.2-	0.3-	1999 01 17	699	0.7-	0.6+	1999 02 16	704	1.2-	0.5+
1997 10 28	704	(2.3+	4.2-)	1999 01 17	699	0.1-	0.6+	1999 02 21	699	1.3+	0.2-
1997 10 28	704	(3.2+	1.7-)	1999 01 17	699	0.6+	0.3+	1999 02 21	699	1.1+	0.0
1997 10 28	704	(2.6+	4.1-)	1999 02 12	704	0.2-	0.9-	1999 02 21	699	1.1+	0.0
1997 10 28	704	(2.2+	4.2-)	1999 02 12	704	0.2-	0.6+	1999 04 07	704	0.9+	0.6-
1997 10 30	704	0.4+	0.8-	1999 02 12	704	0.7-	0.7-	1999 04 07	704	0.0	0.3+
1997 10 30	704	0.0	0.2+	1999 02 12	704	0.1+	0.8-	1999 04 07	704	0.0	0.3+
1997 10 30	704	0.4-	0.0	1999 02 12	704	0.1-	0.9-	1999 04 07	704	1.1-	1.2+
1997 10 30	704	(5.3-	0.4-)	1999 02 16	704	0.1+	0.3-				
1998 12 23	704	(2.5+	1.3+)	1999 02 16	704	0.0	0.1+				

1999 CW₇₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	51.07545		(2000.0)	P	Q
<i>n</i>	0.27466503	ω	300.88452	-0.85355234	-0.51698518
<i>a</i>	2.3438715	Ω	208.13791	+0.51245350	-0.81067895
<i>e</i>	0.0755212	<i>i</i>	7.87472	+0.09402032	-0.27481988
<i>P</i>	3.59	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 10 28	704	(1.6+	2.5-)	1998 11 25	704	0.3-	0.9-	1999 02 16	704	0.1-	0.1-
1997 10 28	704	(2.3+	2.6-)	1998 12 23	704	0.2-	0.9+	1999 02 16	704	0.4-	0.4+
1997 10 28	704	(1.2+	2.5-)	1998 12 23	704	1.6-	0.5-	1999 02 16	704	0.1-	0.9+
1997 10 28	704	(0.7+	3.1-)	1998 12 23	704	1.8-	0.7-	1999 02 16	704	0.2-	0.2+
1997 10 28	704	(1.5+	3.8-)	1998 12 23	704	0.6-	0.2-	1999 02 16	704	0.4+	0.6+
1997 10 30	704	0.2+	0.6+	1998 12 23	704	1.8+	1.3+	1999 05 07	704	0.7-	0.4+
1997 10 30	704	1.1-	0.7-	1999 02 12	704	1.0+	0.6-	1999 05 07	704	0.6+	0.2+
1997 10 30	704	0.3+	0.6+	1999 02 12	704	0.1-	0.2+	1999 05 07	704	0.3+	0.4-
1997 10 30	704	0.2-	0.4-	1999 02 12	704	0.0	0.7-	1999 05 07	704	1.0-	0.2+
1997 10 30	704	0.7+	0.1+	1999 02 12	704	0.1+	0.4-	1999 05 07	704	0.3+	0.1+
1998 11 25	704	0.7+	0.1+	1999 02 12	704	0.7-	0.8-	1999 05 15	704	0.1-	0.2-
1998 11 25	704	0.4+	1.4+	1999 02 14	699	1.3+	0.1+	1999 05 15	704	1.1+	0.6+
1998 11 25	704	1.0-	1.7-	1999 02 14	699	1.2+	0.4+	1999 05 15	704	1.4-	0.7-
1998 11 25	704	1.0-	0.3-	1999 02 14	699	1.3+	0.4+	1999 05 15	704	1.4-	0.6-

1999 CA₈₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	50.03244		(2000.0)	P	Q
<i>n</i>	0.23527781	ω	332.58813	-0.79897298	-0.59961322
<i>a</i>	2.5986557	Ω	170.16927	+0.58915938	-0.79577001
<i>e</i>	0.1118065	<i>i</i>	15.59240	+0.12055458	-0.08493575
<i>P</i>	4.19	<i>H</i>	14.3	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1995 03 31	691	0.4+	0.1+	1999 02 12	704	(3.2-	3.5+)	1999 03 19	699	0.3+	0.4+
1995 03 31	691	0.1-	0.2+	1999 02 12	704	(2.3-	2.2+)	1999 03 19	704	1.0-	1.0-
1995 03 31	691	0.2-	0.3+	1999 02 16	704	1.3+	0.4+	1999 03 19	699	0.7+	0.4+
1997 10 29	566	0.2-	0.3+	1999 02 16	704	0.8-	0.2-	1999 03 19	704	1.7-	1.1-
1997 10 29	566	0.1+	0.4+	1999 02 16	704	0.1-	0.1+	1999 03 19	699	0.1-	0.1+
1997 10 29	566	0.0	0.4+	1999 02 16	704	0.0	0.0	1999 03 20	704	0.2-	1.2-
1998 12 23	704	0.3-	0.9+	1999 02 16	704	0.3-	1.1-	1999 03 20	704	0.7-	0.1+
1998 12 23	704	0.4+	0.6-	1999 02 21	699	0.9+	0.8+	1999 03 20	704	0.9-	0.0
1998 12 23	704	1.5+	0.9+	1999 02 21	699	1.3+	0.4+	1999 03 20	704	0.1-	0.3-
1998 12 23	704	0.5+	2.0-	1999 02 21	699	1.0+	0.7+	1999 04 14	699	1.0+	0.7+
1999 02 12	704	0.7-	0.5-	1999 03 19	704	0.7-	0.2-	1999 04 14	699	0.6+	1.9+
1999 02 12	704	0.4-	0.6+	1999 03 19	704	1.1-	1.1-	1999 04 14	699	0.2+	1.0+

1999 CG₈₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	48.82387		(2000.0)	P	Q
<i>n</i>	0.27618314	ω	217.20166	-0.90695100	-0.41167585
<i>a</i>	2.3352745	Ω	298.26104	+0.40673437	-0.80074600
<i>e</i>	0.0602390	<i>i</i>	5.81469	+0.10957660	-0.43511934
<i>P</i>	3.57	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1993 08 13	691	0.0	0.2+	1999 02 12	704	0.3+	0.3+	1999 03 19	704	0.7+	0.6-
1993 08 13	691	0.1-	0.1+	1999 02 12	704	0.6-	0.9+	1999 03 19	704	0.2+	0.8-
1993 08 13	691	0.3-	0.1+	1999 02 14	699	0.3+	0.4+	1999 03 19	704	1.3-	1.2-
1993 08 18	010	(2.6+	0.9-)	1999 02 14	699	1.0+	1.0+	1999 03 20	704	0.7-	0.6+
1993 08 18	010	(1.5+	2.3-)	1999 02 14	699	0.2-	0.7+	1999 03 20	704	0.2-	0.4+
1993 08 18	010	0.8+	1.4-	1999 02 16	704	0.4-	0.1+	1999 03 20	704	0.4-	0.4+
1997 11 03	691	0.0	0.0	1999 02 16	704	0.2-	0.2+	1999 03 20	704	(2.5-	2.9+)
1997 11 03	691	0.0	0.1-	1999 02 16	704	0.4+	0.1-	1999 05 07	704	0.2-	0.2-
1997 11 03	691	0.0	0.0	1999 02 16	704	0.3-	0.4-	1999 05 07	704	1.4-	0.2+
1998 12 23	704	1.3+	0.2+	1999 02 18	566	0.2+	1.5-	1999 05 07	704	1.8+	0.8+
1998 12 23	704	1.1-	0.9-	1999 02 18	566	0.0	1.3-	1999 05 07	704	0.5+	1.0+
1999 02 12	704	0.4-	0.5+	1999 02 18	566	0.0	1.4-				
1999 02 12	704	0.5+	0.8+	1999 03 19	704	0.1+	0.6-				

1999 AUG. 31

M.P.C. 35645

1999 CF₁₀₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	68.18189		(2000.0)	P	Q
<i>n</i>	0.19735885	ω	183.43133	-0.23763170	-0.97114944
<i>a</i>	2.9216733	Ω	280.31620	+0.89168434	-0.20992886
<i>e</i>	0.1410981	<i>i</i>	1.16475	+0.38526642	-0.11313111
<i>P</i>	4.99	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 10 30	704	1.2-	0.1-	1999 01 22	699	0.6-	0.0	1999 02 12	699	0.7+	0.4-
1997 10 30	704	0.1-	0.7+	1999 01 22	699	0.4+	0.9-	1999 02 16	704	0.5-	0.2+
1997 10 30	704	0.4+	1.4+	1999 02 09	691	0.7-	0.1-	1999 02 16	704	1.0+	0.0
1997 10 30	704	0.8-	0.3+	1999 02 09	691	0.4-	0.3-	1999 02 16	704	0.1-	0.3+
1997 10 30	704	0.1-	0.4-	1999 02 09	691	0.3-	0.7-	1999 02 16	704	0.6+	0.4-
1997 10 30	566	0.4+	0.1-	1999 02 12	704	0.7-	0.3+	1999 02 16	704	0.4+	0.2-
1997 10 30	566	0.5+	0.3-	1999 02 12	704	0.6-	0.2+	1999 02 23	699	0.3+	0.6+
1997 10 30	566	0.4+	0.1-	1999 02 12	704	0.6-	0.3+	1999 02 23	699	0.1+	0.7+
1998 01 08	691	0.3+	0.3-	1999 02 12	704	0.5+	0.2+	1999 02 23	699	0.1+	1.3+
1998 01 08	691	0.0	0.5-	1999 02 12	699	1.1+	0.3+	1999 04 15	691	0.0	0.0
1998 01 08	691	0.0	0.5-	1999 02 12	704	0.5-	0.1+	1999 04 15	691	0.2+	0.2+
1999 01 22	699	0.1+	1.2-	1999 02 12	699	0.1-	0.0	1999 04 15	691	0.1-	0.4-

1999 CU₁₁₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	30.79788		(2000.0)	P	Q
<i>n</i>	0.18529953	ω	303.81523	-0.85460754	-0.51540283
<i>a</i>	3.0470986	Ω	205.33535	+0.51177360	-0.81534124
<i>e</i>	0.1150599	<i>i</i>	8.50568	+0.08794162	-0.26377752
<i>P</i>	5.32	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 10 23	691	0.8-	1.0-	1998 12 26	699	1.1+	0.1+	1999 02 16	704	0.3-	0.8-
1997 10 23	691	0.9-	1.0-	1999 01 17	699	0.5-	1.2+	1999 02 16	704	0.5-	0.7-
1997 10 23	691	0.7-	1.1-	1999 01 17	699	0.2-	0.8-	1999 02 21	699	0.5+	0.4+
1997 11 06	704	1.1+	0.4+	1999 01 17	699	0.2-	0.7+	1999 02 21	699	0.4+	0.9+
1997 11 06	704	0.4+	1.8+	1999 02 12	704	0.8-	0.9-	1999 02 21	699	0.5+	0.5+
1997 11 06	704	0.6-	0.4+	1999 02 12	704	1.5-	0.7-	1999 03 22	699	0.4-	0.9+
1997 11 06	704	1.4+	0.2+	1999 02 12	704	0.8+	1.6-	1999 03 22	699	0.0	0.0
1997 11 06	704	(4.1-	3.4+)	1999 02 16	704	0.5-	0.1+	1999 03 22	699	0.4+	0.2+
1998 12 26	699	1.0+	0.5+	1999 02 16	704	0.8-	0.7-				
1998 12 26	699	0.2+	1.2+	1999 02 16	704	1.1+	0.4-				

1999 DC₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	18.21293		(2000.0)	P	Q
<i>n</i>	0.28886792	ω	150.33081	-0.83352853	+0.53952406
<i>a</i>	2.2663997	Ω	62.79399	-0.52956554	-0.71888346
<i>e</i>	0.1397151	<i>i</i>	7.68475	-0.15745009	-0.43831537
<i>P</i>	3.41	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 10 29	704	(2.5+	1.8+)	1997 11 06	704	(3.1-	0.2+)	1999 04 15	704	1.1-	0.1-
1997 10 29	704	0.2-	0.5+	1997 11 06	704	(4.2-	0.5+)	1999 04 15	704	1.1-	0.3+
1997 10 29	704	(0.2+	2.2+)	1997 11 06	704	(4.1-	0.1+)	1999 04 15	704	0.2+	1.1+
1997 10 29	704	0.8+	0.2-	1999 02 21	411	1.1+	0.2-	1999 04 15	704	0.8-	0.8-
1997 10 30	704	0.9+	1.2-	1999 02 21	411	0.8+	0.4-	1999 04 15	704	0.6-	0.1-
1997 10 30	704	(3.3+	0.4+)	1999 02 22	411	0.3+	0.1-	1999 04 16	704	0.2-	0.0
1997 10 30	704	1.6+	0.5+	1999 02 22	411	0.4-	0.2-	1999 04 16	704	1.1+	1.0+
1997 10 30	704	0.7+	0.2+	1999 02 23	411	0.0	0.0	1999 04 16	704	1.3+	0.0
1997 10 31	704	0.1+	0.2+	1999 02 23	411	0.6+	0.3+	1999 04 16	704	0.4+	0.4+
1997 10 31	704	(0.5+	2.4+)	1999 02 27	411	0.7-	0.6-	1999 04 16	704	0.6-	1.2+
1997 10 31	704	1.5-	0.4+	1999 02 27	411	0.3+	0.8-	1999 04 19	127	0.6+	0.5-
1997 10 31	704	0.1+	1.6+	1999 03 16	411	0.6-	0.0	1999 04 19	127	0.4+	0.6-
1997 10 31	704	(2.2-	1.2+)	1999 03 16	411	0.4-	0.2+	1999 06 08	704	0.4+	1.0+
1997 11 03	704	1.2-	1.7+	1999 04 07	411	1.1-	0.4+	1999 06 08	704	0.3+	0.2-

1997 11 03	704	0.1-	0.1-	1999 04 07	411	0.6-	0.6+	1999 06 08	704	0.3+	0.3+
1997 11 03	704	0.2-	0.4-	1999 04 12	704	0.1+	0.1+	1999 06 08	704	1.4+	0.4+
1997 11 03	704	1.8-	1.2-	1999 04 12	704	0.4+	0.0	1999 06 08	704	0.3-	0.3+
1997 11 06	704	(4.0-	0.7+)	1999 04 12	704	1.4+	0.6-				
1997 11 06	704	(3.5-	0.7-)	1999 04 12	704	1.2-	0.6-				

1999 DN₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	57.44291		(2000.0)	P	Q
<i>n</i>	0.23559281	ω	26.24794	-0.98283473	-0.15518515
<i>a</i>	2.5963388	Ω	144.37648	+0.12420473	-0.95644924
<i>e</i>	0.1977509	<i>i</i>	9.86263	+0.13641510	-0.24722950
<i>P</i>	4.18	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1997 11 26	566	0.9-	0.0	1999 04 12	704	0.0	1.2-	1999 05 17	704	0.2+	0.4+
1997 11 26	566	0.7-	0.2+	1999 04 12	704	0.2+	1.2-	1999 05 17	704	0.5-	0.2-
1997 11 26	566	0.2-	0.1+	1999 04 12	704	0.1-	1.7-	1999 05 17	704	1.2-	0.2-
1997 12 25	566	0.9+	0.6-	1999 04 15	704	1.3+	1.1-	1999 05 17	704	0.9-	0.4+
1997 12 25	566	1.2+	0.6-	1999 04 15	704	(1.4+	2.7-)	1999 05 17	704	(2.2-	0.2+)
1997 12 25	566	0.2+	0.6-	1999 04 15	704	0.2+	0.4+	1999 05 18	703	0.1-	0.4-
1999 02 20	704	1.5+	1.5+	1999 04 15	704	0.1+	0.7-	1999 05 18	703	0.0	0.2-
1999 02 20	704	0.1+	0.6-	1999 04 15	704	0.7+	1.0-	1999 05 18	703	0.5+	0.5-
1999 02 20	704	0.5-	1.8+	1999 05 08	703	0.1-	0.5-	1999 05 18	703	1.1+	0.2-
1999 02 20	704	1.1-	0.2-	1999 05 08	703	0.5+	0.0	1999 05 23	699	0.6+	0.1+
1999 02 20	704	0.6-	0.8+	1999 05 08	703	0.8-	0.1+	1999 05 23	699	0.3+	1.1+
1999 02 23	704	0.7+	0.1+	1999 05 08	703	0.4+	0.2+	1999 05 23	699	0.6+	0.7+
1999 02 23	704	1.7-	0.9+	1999 05 12	704	1.6-	1.1-	1999 06 08	704	0.8+	0.8+
1999 02 23	704	0.4+	0.6+	1999 05 12	704	0.6-	0.7+	1999 06 08	704	0.2-	0.3+
1999 02 23	704	1.2-	0.1+	1999 05 12	704	0.7-	0.6-	1999 06 08	704	0.4+	1.3-
1999 02 23	704	1.3+	1.2+	1999 05 12	704	0.0	0.2+	1999 06 08	704	(0.7-	2.3-)
1999 03 24	704	0.5+	0.2+	1999 05 12	704	1.3-	1.2+	1999 06 10	699	0.4+	0.2+
1999 03 24	704	0.6-	0.2-	1999 05 15	704	1.3+	0.4+	1999 06 10	699	0.2+	0.2+
1999 03 24	704	0.3-	0.1+	1999 05 15	704	0.0	0.3+	1999 06 10	699	0.3+	0.3+
1999 03 24	704	(1.6-	3.4+)	1999 05 15	704	0.2-	0.2-	1999 07 01	699	0.4+	0.2-
1999 04 12	704	0.8+	1.2-	1999 05 15	704	1.7-	1.2+	1999 07 01	699	0.3-	0.2-
1999 04 12	704	0.9+	1.5-	1999 05 15	704	1.1-	1.2+	1999 07 01	699	0.5+	0.6-

1999 DP₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	51.79258		(2000.0)	P	Q
<i>n</i>	0.26203512	ω	79.49974	-0.87206229	-0.48573906
<i>a</i>	2.4185944	Ω	71.41687	+0.42076376	-0.80647176
<i>e</i>	0.1464653	<i>i</i>	3.61153	+0.24993044	-0.33713629
<i>P</i>	3.76	<i>H</i>	14.6	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1991 02 09	675	0.3+	0.8-	1999 02 18	699	0.4+	0.3+	1999 03 20	704	0.4-	0.5-
1991 02 09	675	0.1-	0.1+	1999 02 22	699	0.3-	1.6-	1999 03 23	704	0.8-	0.6+
1997 10 23	327	0.3+	0.9+	1999 02 22	699	0.4+	0.2+	1999 03 23	704	0.5+	0.6+
1997 10 23	327	0.5-	0.6-	1999 02 22	699	1.0+	0.1+	1999 03 23	704	0.3-	0.3+
1997 10 23	327	0.1-	0.4+	1999 03 20	704	0.1+	0.1+	1999 03 23	704	0.5+	0.0
1999 02 18	699	0.0	1.1+	1999 03 20	704	1.0-	0.8-	1999 03 23	704	0.5+	0.4-
1999 02 18	699	0.2+	0.6+	1999 03 20	704	0.3-	0.1+				

1999 EV₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	40.76307		(2000.0)	P	Q
<i>n</i>	0.28772746	ω	122.92663	-0.98924744	-0.11265454
<i>a</i>	2.2723846	Ω	50.78157	+0.05681398	-0.88363369
<i>e</i>	0.0471607	<i>i</i>	6.91420	+0.13476526	-0.45442322
<i>P</i>	3.43	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 06 21	566	0.2+	0.1-	1999 02 18	699	0.2-	0.7+	1999 04 06	699	0.1-	0.5-
1996 06 21	566	0.3-	0.3-	1999 02 18	699	0.3-	0.3-	1999 04 09	143	0.4+	0.2+
1996 06 21	566	0.3-	0.5-	1999 03 07	143	0.1-	0.2-	1999 04 09	143	(2.6-	0.3-)
1997 10 30	704	0.3-	0.2+	1999 03 07	143	0.9-	0.7-	1999 04 09	143	1.5-	0.5-
1997 10 30	704	0.2-	1.4+	1999 03 07	143	1.0-	0.6-	1999 04 18	703	0.2+	0.6-
1997 10 30	704	1.1+	1.3-	1999 03 11	143	0.0	0.6+	1999 04 18	703	0.4-	1.1+
1997 10 30	704	(2.7+	0.4+)	1999 03 11	143	0.3+	0.3+	1999 04 18	703	0.3+	0.9+
1997 10 30	704	0.2-	1.2-	1999 03 15	143	0.5+	0.0	1999 04 18	703	0.9+	1.8+
1999 01 23	699	0.5-	0.7+	1999 03 16	143	1.2+	0.5-	1999 04 18	143	0.3-	0.4-
1999 01 23	699	0.0	0.6-	1999 03 16	143	0.6+	0.4-	1999 04 18	143	0.1-	0.7-
1999 01 23	699	0.3-	0.8-	1999 04 06	699	0.1+	0.1-	1999 04 18	143	0.3+	0.5-
1999 02 18	699	0.5-	0.7+	1999 04 06	699	1.0+	0.0				

1999 EX₅ = 1982 SZ₂

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	279.68762		(2000.0)	P	Q
<i>n</i>	0.21302641	ω	288.16708	+0.50418687	+0.86297092
<i>a</i>	2.7766028	Ω	12.27109	-0.72246430	+0.44230397
<i>e</i>	0.1473139	<i>i</i>	8.88166	-0.47311831	+0.24423019
<i>P</i>	4.63	<i>H</i>	14.4	<i>G</i>	0.15
				<i>U</i>	3

Residuals in seconds of arc

1982 09 24	033	0.2-	0.7-	1999 03 14	683	0.0	0.4-	1999 03 22	704	0.2+	1.8-
1982 09 24	033	1.0+	0.7+	1999 03 14	683	0.6-	0.3-	1999 03 23	704	0.2+	1.5+
1982 11 06	413	0.6+	1.1-	1999 03 22	704	0.4+	1.2+	1999 03 23	704	(2.6+	0.9-)
1982 11 06	413	1.5-	0.9+	1999 03 22	704	1.0+	0.3-	1999 03 23	704	1.4+	0.3-
1996 10 10	566	0.1+	0.2+	1999 03 22	704	0.5+	0.1-	1999 03 23	704	1.1-	0.9+
1996 10 10	566	0.1+	0.3-	1999 03 22	704	0.8-	1.4+	1999 04 12	704	0.4-	0.9-
1996 10 10	566	0.3-	0.2+	1999 03 22	704	0.4+	0.6-	1999 04 12	704	0.6+	0.6+
1999 03 13	683	0.6-	0.7-	1999 03 22	704	0.9+	1.2-	1999 04 12	704	(1.7-	2.2+)
1999 03 13	683	0.7-	0.6-	1999 03 22	704	0.5+	0.5-	1999 04 12	704	1.9-	1.5+
1999 03 13	683	0.1-	0.1+	1999 03 22	704	0.5-	0.6+				
1999 03 14	683	0.3+	0.3+	1999 03 22	704	0.1+	0.5-				

1999 FF₁₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	15.11469		(2000.0)	P	Q
<i>n</i>	0.29577940	ω	350.33746	-0.76369034	+0.64440465
<i>a</i>	2.2309548	Ω	229.85710	-0.58885376	-0.72006398
<i>e</i>	0.1764792	<i>i</i>	2.92313	-0.26462863	-0.25739175
<i>P</i>	3.33	<i>H</i>	15.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1997 10 31	704	0.3+	1.2+	1999 03 22	699	0.2+	0.2+	1999 04 12	704	0.7+	0.7+
1997 10 31	704	(2.4-	0.8-)	1999 03 24	699	(1.9-	2.2+)	1999 04 14	704	0.7+	1.2-
1997 10 31	704	0.4+	1.2-	1999 03 24	699	0.6+	0.3+	1999 04 14	704	0.6-	0.4-
1997 10 31	704	0.0	1.6+	1999 03 24	699	0.1-	0.5+	1999 04 14	704	1.2-	0.2-
1997 11 06	704	1.6-	1.1+	1999 04 06	704	0.8+	0.0	1999 04 14	704	0.5-	1.0+
1997 11 06	704	1.0-	0.5+	1999 04 06	704	0.3+	0.1+	1999 04 14	704	0.1-	1.0+
1997 11 06	704	0.5-	0.4+	1999 04 06	704	0.1-	0.1+	1999 04 15	704	0.1-	1.7-
1997 11 06	704	0.1+	0.1-	1999 04 06	704	0.2+	0.3+	1999 04 15	704	0.7-	0.5-
1997 11 06	704	0.1+	1.9-	1999 04 06	704	1.5+	0.2-	1999 04 15	704	0.5-	0.5+
1997 11 28	691	0.9+	0.6-	1999 04 09	699	0.8-	0.1+	1999 04 15	704	0.8-	0.2-
1997 11 28	691	1.1+	1.4-	1999 04 09	699	0.2+	0.5+	1999 04 15	704	0.1-	0.2+
1997 11 28	691	0.9+	1.3-	1999 04 09	699	0.1+	0.5+	1999 06 08	704	0.0	1.4-
1999 02 21	699	0.7+	1.5-	1999 04 11	699	1.0+	0.1+	1999 06 08	704	0.4+	0.8-
1999 02 21	699	0.2-	0.4+	1999 04 11	699	0.7+	0.6+	1999 06 08	704	0.3-	0.4-
1999 02 21	699	0.1-	0.9-	1999 04 11	699	0.2-	0.8+	1999 06 08	704	0.2-	1.6-
1999 03 22	699	0.2-	0.1+	1999 04 12	704	0.2-	0.2-				
1999 03 22	699	0.1+	0.2+	1999 04 12	704	1.3-	0.1+				

1999 FE₂₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	78.94722		(2000.0)	P	Q
<i>n</i>	0.26374589	ω	125.05791	-0.85036751	-0.51686038
<i>a</i>	2.4081244	Ω	24.28068	+0.36978376	-0.72037707
<i>e</i>	0.1560157	<i>i</i>	13.87985	+0.37434619	-0.46250646
<i>P</i>	3.74	<i>H</i>	14.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1997 10 29	704	0.6-	0.3-	1999 04 05	859	0.2-	0.0	1999 05 02	859	0.3+	0.3+
1997 10 29	704	0.3+	0.2+	1999 04 05	859	0.2-	0.1-	1999 05 02	859	0.3+	0.4+
1997 10 29	704	0.0	0.3-	1999 04 05	859	0.3-	0.2-	1999 05 10	704	0.0	0.1-
1997 10 29	704	0.7+	0.5-	1999 04 11	859	0.2+	0.1-	1999 05 10	704	0.3-	0.3+
1997 10 29	704	0.2+	0.4-	1999 04 11	859	0.4+	0.4-	1999 05 10	704	0.1+	0.7-
1997 11 26	566	0.5-	0.7+	1999 04 11	859	0.3+	0.2-	1999 05 10	704	0.3-	0.2+
1997 11 26	566	0.5-	0.6+	1999 04 12	859	0.1+	0.5-	1999 05 10	704	0.6+	0.5-
1997 11 26	566	0.3-	0.8+	1999 04 12	859	0.1+	0.3-	1999 05 13	704	0.6+	0.3-
1999 03 22	859	0.3-	0.3+	1999 04 12	859	0.1+	0.2-	1999 05 13	704	0.1+	0.0
1999 03 22	859	0.1-	0.2+	1999 04 12	859	0.3+	0.1-	1999 05 13	704	0.2-	0.1-
1999 03 22	859	0.3-	0.3+	1999 04 12	859	0.1+	0.3-	1999 05 13	704	0.7+	0.9-
1999 03 22	859	0.2-	0.4+	1999 04 14	699	0.1-	0.7+	1999 05 13	704	0.3+	1.7-
1999 03 25	704	1.3-	1.0+	1999 04 14	699	0.0	0.6+	1999 05 14	704	0.9-	0.6+
1999 03 25	704	1.9-	0.1+	1999 04 14	699	0.4+	0.4-	1999 05 14	704	0.2+	0.0
1999 03 25	704	1.0-	0.1+	1999 04 15	704	0.3-	0.6-	1999 05 14	704	1.1-	0.1+
1999 03 25	704	0.9-	1.1+	1999 04 15	704	0.5+	0.1-	1999 05 14	704	1.4-	0.1+
1999 03 25	704	1.6-	0.2-	1999 04 15	704	0.6-	0.2-	1999 05 14	704	0.4-	0.9-
1999 03 26	860	0.3+	0.2+	1999 04 15	704	0.5+	0.4-	1999 05 18	704	0.0	0.6+
1999 03 26	860	0.3-	0.3-	1999 04 15	704	0.4+	0.6-	1999 05 18	704	1.2+	0.7+
1999 03 27	859	0.6+	0.2-	1999 04 17	704	0.4+	0.8-	1999 05 18	704	0.1+	0.4+
1999 03 27	859	1.2+	0.9-	1999 04 17	704	0.4+	0.1+	1999 05 18	704	0.8+	0.1-
1999 03 27	859	0.0	0.3+	1999 04 17	704	0.1-	0.1+	1999 05 18	704	0.0	0.7+
1999 03 28	859	0.1+	0.2+	1999 04 17	704	0.7+	0.3-	1999 05 19	704	0.2+	0.3-
1999 03 28	859	0.4+	0.1+	1999 04 17	704	0.6+	0.1+	1999 05 19	704	0.2-	0.3+
1999 03 28	859	0.4+	0.3+	1999 04 26	321	1.9+	0.5-	1999 05 19	704	0.5-	0.9+
1999 04 02	859	0.9-	0.4+	1999 04 26	321	1.7+	0.7-	1999 05 19	704	0.5-	0.9+
1999 04 02	859	0.3-	0.7+	1999 04 26	321	1.7+	0.4-	1999 05 19	704	0.6-	1.4+
1999 04 02	859	1.3-	0.7+	1999 04 26	321	0.6-	0.9+	1999 06 08	699	0.1-	0.4-
1999 04 03	859	0.2+	0.4-	1999 04 26	321	(5.8+	2.7+)	1999 06 08	699	0.1+	0.6-
1999 04 03	859	0.5-	0.3-	1999 05 02	859	0.6+	0.8+	1999 06 08	699	0.0	0.7-
1999 04 03	859	1.5-	0.5-	1999 05 02	859	0.7+	0.6+				

1999 FO₂₉

Id. A. Doppler (1996 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	237.80016		(2000.0)	P	Q
<i>n</i>	0.18341625	ω	303.49728	+0.94916736	+0.29013476
<i>a</i>	3.0679210	Ω	40.02269	-0.18664979	+0.83106595
<i>e</i>	0.0433550	<i>i</i>	10.94291	-0.25346238	+0.47450102
<i>P</i>	5.37	<i>H</i>	13.5	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1996 09 21	327	0.4-	0.0	1999 03 20	704	0.5-	1.0+	1999 04 16	704	0.5-	0.2+
1996 09 21	327	0.2-	0.2+	1999 03 23	703	1.0-	0.2+	1999 04 16	704	0.8-	0.3+
1996 09 21	327	0.2-	0.0	1999 03 23	703	0.1-	0.5-	1999 04 16	704	(2.1-	1.2+)
1996 11 28	327	0.2-	0.2+	1999 03 23	703	0.3+	1.2-	1999 05 18	704	0.1+	1.3+
1996 11 28	327	0.5-	0.0	1999 03 23	703	(0.0	2.9-)	1999 05 18	704	0.9-	0.1-
1996 11 28	327	1.1+	0.2+	1999 04 07	704	0.4-	0.2+	1999 05 18	704	(0.2+	2.2+)
1999 03 19	704	0.7+	1.4-	1999 04 07	704	0.2+	1.7+	1999 05 18	704	1.1-	1.4+
1999 03 19	704	0.4+	1.0-	1999 04 07	704	1.8-	1.0+	1999 05 18	704	1.8+	0.1-
1999 03 19	704	1.3+	0.3-	1999 04 07	704	0.8-	0.5+	1999 05 18	704	(0.5-	2.2+)
1999 03 19	704	1.1+	1.9-	1999 04 07	704	1.5-	0.2-	1999 05 18	704	1.6+	0.8-
1999 03 19	704	0.8-	1.4-	1999 04 10	699	1.4+	0.9+	1999 05 18	704	0.9-	1.0-
1999 03 20	704	0.5+	0.0	1999 04 10	699	(1.4+	2.6+)	1999 05 19	704	1.1+	0.6-
1999 03 20	704	0.8-	0.3-	1999 04 10	699	1.7+	1.5+	1999 05 19	704	(2.0+	2.3-)
1999 03 20	704	1.4+	1.5+	1999 04 16	704	0.2-	0.4+	1999 05 19	704	0.8-	0.7-

1999 AUG. 31

M.P.C. 35647

1999 FG₃₂ = 1981 UH₃

Id. A. Gnädig, G. V. Williams

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.25339868	ω	305.65137	+0.98145181	+0.13497210		
<i>a</i>	2.4732412	Ω	47.02210	−0.04797663	+0.86048100		
<i>e</i>	0.1697542	<i>i</i>	10.72439	−0.18560869	+0.49127893		
<i>P</i>	3.89	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1954 12 30	675	0.2−	0.3−	1999 03 19	704	1.4−	1.8−
1954 12 30	675	0.7+	0.4−	1999 03 19	704	(2.5−	0.4+)
1956 03 11	675	0.2−	0.0	1999 03 20	704	1.0−	0.8−
1956 03 11	675	1.0−	1.1−	1999 03 20	704	0.2+	0.5−
1976 06 28	413	0.1−	0.8+	1999 03 20	699	1.5+	1.1+
1976 06 28	413	0.7+	0.1+	1999 03 20	704	0.1−	1.2+
1981 10 30	381	0.4−	0.2+	1999 03 20	699	1.0+	0.2+
1981 10 30	381	0.5−	0.9+	1999 03 20	704	0.6−	0.2+
1989 11 08	675	0.6+	0.5−	1999 03 20	699	0.5+	1.4+
1989 11 08	675	0.2−	0.1+	1999 03 20	704	(3.1−	1.4−)
1997 12 26	566	0.1−	0.5+	1999 04 10	699	0.6+	0.5+
1997 12 26	566	0.1−	0.4+	1999 04 10	699	0.6+	0.1+
1997 12 26	566	0.0	0.6+	1999 04 10	699	0.4+	0.1+
1999 03 19	704	0.2−	0.4+	1999 04 12	704	0.8+	1.0−

1999 GW = 1989 EE₇

Id. A. Gnädig, M. E. Sansaturio

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30092557	ω	70.70584	−0.89074525	+0.45244321		
<i>a</i>	2.2054472	Ω	136.16605	−0.43691136	−0.82618779		
<i>e</i>	0.0958968	<i>i</i>	3.57796	−0.12522525	−0.33572143		
<i>P</i>	3.28	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1989 03 06	033	0.2−	0.3−	1999 04 14	120	0.2+	0.3−
1989 03 06	033	0.1−	0.5−	1999 04 14	120	0.4+	0.3−
1993 09 07	413	0.3−	0.6−	1999 04 19	120	0.2−	0.0
1993 09 07	413	0.6+	0.7−	1999 04 19	120	0.5−	0.2−
1997 11 29	704	1.4−	0.2+	1999 04 19	120	1.4−	0.5+
1997 11 29	704	0.5+	1.2+	1999 04 25	120	0.3+	0.1+
1997 11 29	704	0.1−	0.5−	1999 04 25	120	0.2−	1.2−
1997 11 29	704	1.2+	1.5−	1999 04 26	120	(2.4−	0.2−)
1999 04 05	120	1.5−	0.6+	1999 05 12	704	0.2+	0.6−
1999 04 05	120	1.7−	0.6+	1999 05 12	704	0.3+	0.3−
1999 04 05	120	0.6−	0.1−	1999 05 12	704	0.9+	0.7−
1999 04 05	120	0.4+	0.7+	1999 05 12	699	1.2+	0.6−
1999 04 06	120	0.7+	0.5+	1999 05 12	704	0.4+	0.2−
1999 04 06	120	0.0	0.9−	1999 05 12	704	0.1+	0.0
1999 04 10	120	0.6−	0.8+	1999 05 12	699	0.3+	0.1+
1999 04 10	120	0.3−	0.1+	1999 05 12	699	0.5+	0.6−
1999 04 10	120	0.9+	0.8−	1999 05 13	704	0.2+	0.3−
1999 04 10	120	0.1−	0.0	1999 05 13	704	0.1+	0.1+
1999 04 12	704	0.7+	0.4−	1999 05 13	704	0.1−	0.1+
1999 04 12	704	0.6+	1.0+	1999 05 13	704	0.6+	0.6+
1999 04 12	704	1.2+	0.3+	1999 05 13	704	0.9−	1.5−
1999 04 12	704	0.5−	0.4−	1999 05 14	704	0.2−	1.8−
1999 04 12	704	0.5−	0.6−	1999 05 14	704	0.3−	0.4−
1999 04 14	120	0.4−	0.6−	1999 05 14	704	0.5−	0.6+

1999 GJ₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.63628734	ω	211.79024	+0.95118766	−0.08159242		
<i>a</i>	1.3387532	Ω	148.37264	+0.04883309	+0.99205989		
<i>e</i>	0.8080016	<i>i</i>	34.58126	−0.30472507	−0.09570710		
<i>P</i>	1.55	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1955 03 25	675	0.4+	2.2−	1999 04 13	587	0.7+	0.6+
1955 03 25	675	0.1−	1.0−	1999 04 13	587	0.9−	0.7−
1983 02 11	675	0.8−	1.0+	1999 04 13	587	0.8+	0.8+
1983 02 11	675	1.8+	0.1+	1999 04 13	557	0.0	0.2−
1983 02 15	675	0.6−	1.4−	1999 04 13	557	0.1−	0.3−
1986 03 04	675	0.2+	0.9+	1999 04 13	557	0.0	0.2−
1986 03 04	675	0.3−	1.5+	1999 04 14	046	0.0	0.5+
1999 04 10	704	1.6−	1.0+	1999 04 14	046	0.2+	0.1+
1999 04 10	704	0.3+	0.3−	1999 04 14	046	0.8−	1.0+
1999 04 10	704	(2.5−	0.8−)	1999 04 14	046	1.6−	0.8+
1999 04 10	704	1.4−	0.6+	1999 04 14	118	0.1+	0.2+
1999 04 12	732	0.1+	1.4−	1999 04 14	118	0.1+	0.1−
1999 04 12	732	1.0+	1.2−	1999 04 15	118	0.1+	0.4−
1999 04 12	732	0.3+	1.5−	1999 04 17	046	0.5−	0.6−
1999 04 13	557	0.0	0.5−	1999 04 17	046	0.6−	1.1+
1999 04 13	557	0.3+	0.1−	1999 04 17	046	0.1+	0.3+
1999 04 13	557	0.3−	0.2−	1999 04 17	046	0.8−	0.6+
1999 04 13	422	0.6+	1.1−	1999 04 17	046	0.6−	0.7+
1999 04 13	422	0.4−	0.3−	1999 04 29	658	1.0−	0.0
1999 04 13	422	0.8−	0.2−	1999 04 29	658	0.4−	0.0

1999 GG₆ = 1980 FS

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21101691	ω	353.44486	−0.96609842	−0.25711117		
<i>a</i>	2.7942025	Ω	171.54597	+0.24351121	−0.93759197		
<i>e</i>	0.0849780	<i>i</i>	9.15969	+0.08576795	−0.23412634		
<i>P</i>	4.67	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i>	2
Residuals in seconds of arc							
1980 03 16	809	0.2−	1.1+	1999 04 12	704	1.7−	1.5−
1980 03 16	809	0.1−	0.4+	1999 04 12	704	0.4+	1.6−
1980 03 16	809	0.3+	0.5+	1999 04 13	120	1.2−	0.1+
1980 03 16	809	0.1+	0.7+	1999 04 13	120	0.8+	0.4−
1982 10 15	413	0.6−	2.1−	1999 04 14	120	1.4+	0.2+
1982 10 15	413	0.7−	0.2−	1999 04 18	120	0.2+	0.6−
1986 08 26	413	0.2+	0.5+	1999 04 18	120	0.2−	0.1+
1986 08 26	413	1.7+	1.6+	1999 04 18	120	1.9+	0.1+
1989 03 07	675	0.9+	1.8−	1999 04 19	120	0.7−	0.0
1989 03 07	675	0.6+	1.0+	1999 04 19	120	0.2+	0.3−
1999 04 12	704	0.4−	0.1−	1999 04 19	120	1.0−	0.3+
1999 04 12	704	0.6+	1.0−	1999 04 23	120	0.2+	0.7+
1999 04 12	704	1.4+	0.1+	1999 04 23	120	0.7−	0.8−

1999 GH₁₈

Id. A. Doppler (1995, 1999 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17219275	ω	178.21505	−0.68004595	+0.73278673		
<i>a</i>	3.1998244	Ω	48.93681	−0.67305851	−0.61115243		
<i>e</i>	0.1344063	<i>i</i>	1.80034	−0.29073999	−0.29919278		
<i>P</i>	5.72	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	4
Residuals in seconds of arc							
1995 08 19	809	1.8+	1.1+	1999 03 24	699	0.0	0.9+
1995 08 27	809	0.8−	0.8−	1999 03 24	699	0.0	0.5+
						1999 04 12	704
						704	1.2−
						704	0.6+

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1995 08 29	809	0.0	0.6−	1999 03 24	699	0.1−	0.1+	1999 04 15	704	0.6−	0.2+
1995 08 30	809	0.9+	0.3−	1999 04 06	704	0.4+	0.3−	1999 04 15	704	0.4+	0.5+
1995 09 20	809	0.6−	0.2−	1999 04 06	704	0.9+	0.1−	1999 04 15	704	1.1−	1.1+
1995 09 22	809	0.7−	0.2−	1999 04 06	704	0.6−	0.2−	1999 04 16	704	0.8+	1.7−
1996 11 05	691	0.6−	0.3−	1999 04 06	704	0.2−	1.2−	1999 04 16	704	0.3−	0.4−
1996 11 05	691	0.6−	0.5−	1999 04 07	699	0.3+	0.1−	1999 04 16	704	(0.7+	3.2−)
1996 11 05	691	0.8−	0.5−	1999 04 07	699	0.1−	0.7+	1999 04 16	704	1.5−	1.3−
1996 11 28	327	0.4+	0.1+	1999 04 07	699	0.7+	0.4+	1999 06 04	699	0.4−	0.2−
1996 11 28	327	0.4+	0.2+	1999 04 12	704	0.6+	1.2−	1999 06 04	699	0.7+	0.6+
1996 11 28	327	0.4+	0.1+	1999 04 12	704	0.3+	0.8−	1999 06 04	699	0.3−	0.6+
1996 11 28	327	1.1+	0.2+	1999 04 12	704	0.2+	0.4−				

1999 GG₂₃

Id. A. Doppler (1997 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	2.17566		(2000.0)		P		Q
<i>n</i>	0.24445683	ω	203.56269	−0.77098898			+0.63637687
<i>a</i>	2.5331910	Ω	16.03368	−0.56928290			−0.67143385
<i>e</i>	0.1008530	<i>i</i>	5.08992	−0.28546972			−0.37973815
<i>P</i>	4.03	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 28	327	0.0	0.5+	1999 04 06	704	0.3−	0.5+	1999 04 12	704	0.3−	0.5+
1997 11 28	327	0.4−	0.2+	1999 04 06	704	0.4−	0.1+	1999 04 17	703	1.4+	0.1+
1997 11 28	327	0.0	0.5+	1999 04 06	704	0.4−	0.9−	1999 04 17	703	0.0	0.4+
1997 12 22	327	0.4+	0.5−	1999 04 06	704	0.8−	0.1+	1999 04 17	703	0.4+	0.2−
1997 12 22	327	0.0	0.2+	1999 04 07	699	0.0	0.2−	1999 04 17	703	0.0	0.1+
1997 12 22	327	0.2+	0.3−	1999 04 07	699	0.3−	0.2+	1999 04 17	703	0.1−	0.3−
1997 12 22	327	0.1−	0.5−	1999 04 07	699	0.5−	0.5+	1999 04 17	703	0.9+	0.1+
1999 03 22	699	1.1+	0.4−	1999 04 12	704	1.3−	0.5+	1999 04 17	703	0.5+	0.2+
1999 03 22	699	0.8+	0.2−	1999 04 12	704	0.2+	0.8−	1999 04 17	703	0.7+	0.4−
1999 03 22	699	0.3−	0.0	1999 04 12	704	1.2−	0.1−				

1999 GO₂₉ = 1995 SR₄₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	319.97891		(2000.0)		P		Q
<i>n</i>	0.17439013	ω	210.98199	+0.10821654			+0.99351391
<i>a</i>	3.1728883	Ω	65.25046	−0.90404003			+0.11295993
<i>e</i>	0.1482397	<i>i</i>	2.20358	−0.41352244			+0.01304485
<i>P</i>	5.65	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1995 09 25	691	0.1+	0.1+	1999 03 23	703	1.0+	0.7−	1999 04 07	704	0.4−	1.6−
1995 09 25	691	0.1−	0.3−	1999 03 23	703	0.0	0.6+	1999 04 12	704	0.1+	0.0
1995 09 25	691	0.2−	0.3−	1999 03 23	703	0.1+	0.8−	1999 04 12	704	1.4+	0.4+
1995 09 30	691	0.1+	0.4+	1999 04 07	704	0.0	0.7+	1999 04 12	704	1.7−	0.6+
1995 09 30	691	0.0	0.1+	1999 04 07	704	0.1−	1.3−	1999 04 12	704	0.1−	1.0+
1999 03 23	703	1.1−	1.4+	1999 04 07	704	0.8+	0.3−	1999 04 12	704	(7.1−	0.5+)

1999 HO

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	71.02686		(2000.0)		P		Q
<i>n</i>	0.26101576	ω	109.34615	−0.92240600			−0.37499746
<i>a</i>	2.4248873	Ω	48.74643	+0.29184339			−0.83350660
<i>e</i>	0.0853431	<i>i</i>	7.06243	+0.25297156			−0.40576305
<i>P</i>	3.78	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1989 11 22	413	0.5+	0.1+	1999 04 12	704	0.2−	1.5−	1999 05 08	703	0.1−	1.1+
1989 11 22	413	0.2−	0.4+	1999 04 15	704	0.1−	1.0−	1999 05 08	684	0.3−	0.1+
1992 05 29	413	0.8−	0.6−	1999 04 15	704	(3.6−	1.0−)	1999 05 08	684	0.3+	0.0
1992 05 29	413	0.4+	0.4−	1999 04 15	704	1.2+	0.3−	1999 05 09	684	0.1+	0.6−
1997 11 29	704	2.0+	0.8+	1999 04 15	704	0.1+	0.2−	1999 05 09	684	0.2−	0.2−
1997 11 29	704	1.2−	0.1−	1999 04 16	704	0.4+	0.7−	1999 05 12	704	1.8−	1.3+
1997 11 29	704	0.8−	1.1+	1999 04 16	704	0.5−	1.8−	1999 05 12	704	1.1+	0.8+

1999 AUG. 31

1997 11 29	704	0.1+	1.7−	1999 04 16	704	1.2−	0.3−	1999 05 12	704	0.4+	0.8+
1997 11 29	704	0.5+	0.7−	1999 04 16	704	0.0	0.2+	1999 05 12	704	0.8−	0.7+
1997 12 08	327	0.1−	0.7+	1999 04 16	704	0.4−	0.9−	1999 05 12	704	1.7−	0.7+
1997 12 08	327	0.5−	0.3+	1999 04 17	684	0.8+	0.5−	1999 05 13	704	1.3+	1.4+
1997 12 08	327	0.6−	0.2+	1999 04 17	684	0.8+	0.4−	1999 05 13	704	0.7+	0.5+
1999 01 23	910	1.1−	0.5+	1999 04 18	684	0.4+	0.1−	1999 05 13	704	0.6+	1.0+
1999 01 23	910	0.9−	0.2+	1999 04 18	684	0.5+	0.1−	1999 05 13	704	0.2−	1.0+
1999 01 23	910	1.2−	0.2+	1999 04 20	684	0.8+	0.4−	1999 05 13	704	0.1−	0.2+
1999 04 12	704	0.5+	0.4−	1999 04 20	684	0.5+	0.5−	1999 05 16	703	0.3−	0.5+
1999 04 12	704	0.9−	0.4+	1999 05 08	703	0.5+	0.0	1999 05 16	703	0.5−	0.4+
1999 04 12	704	1.5+	0.1−	1999 05 08	703	0.5+	1.1+	1999 05 16	703	0.3−	0.1+
1999 04 12	704	0.4−	0.1+	1999 05 08	703	0.3+	0.1+	1999 05 16	703	0.6−	1.4−

1999 HZ₁

Id. A. Boattini (1992 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	104.44536		(2000.0)		P		Q
<i>n</i>	0.48412391	ω	200.27124	−0.04121282			−0.98871893
<i>a</i>	1.6063186	Ω	252.30824	+0.93627341			+0.01210370
<i>e</i>	0.5761824	<i>i</i>	8.69357	+0.34884610			−0.14929295
<i>P</i>	2.04	<i>H</i>	18.2	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1992 08 27	675	1.1−	1.2−	1999 04 22	426	0.2−	0.3−	1999 04 23	046	0.0	0.8−
1992 08 27	675	1.1+	1.2+	1999 04 22	426	0.0	0.2+	1999 04 23	046	1.1−	1.1+
1999 04 20	704	0.2+	0.6+	1999 04 22	428	0.3−	0.9+	1999 04 23	046	0.5−	0.6−
1999 04 20	704	1.1+	0.7+	1999 04 23	426	0.0	0.1+	1999 04 24	860	0.3−	1.8−
1999 04 20	704	0.6−	0.2−	1999 04 23	426	0.3−	0.5+	1999 04 24	860	0.5−	0.4−
1999 04 20	704	1.7−	1.7−	1999 04 23	426	0.0	0.2+	1999 04 24	860	0.4−	0.7+
1999 04 22	859	0.3+	0.8−	1999 04 23	428	1.8+	0.1−	1999 05 12	426	0.4+	0.4−
1999 04 22	859	0.1+	0.1+	1999 04 23	428	1.4+	0.3+	1999 05 12	426	0.3−	0.0
1999 04 22	859	0.1−	0.2+	1999 04 23	046	0.2+	0.4+	1999 05 12	426	0.2−	0.3+
1999 04 22	859	0.1−	0.0	1999 04 23	046	0.3+	0.2−				
1999 04 22	426	0.5+	0.0	1999 04 23	046	0.2+	0.9+				

1999 HP₉ = 1987 UV₈ = 1987 WV₅ = 1991 RG₃₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	156.83825		(2000.0)		P		Q
<i>n</i>	0.20582905	ω	209.23783	+0.45858561			−0.88472779
<i>a</i>	2.8409588	Ω	213.66483	+0.84175981			+0.46255445
<i>e</i>	0.1205077	<i>i</i>	8.65332	+0.28485025			+0.05744662
<i>P</i>	4.79	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1987 10 23	095	1.1+	2.2−	1999 04 07	704	0.9+	0.3+	1999 04 15	704	1.6−	0.1−
1987 11 18	327	2.0−	0.2+	1999 04 09	699	1.2+	0.3−	1999 04 17	704	0.6+	0.6−
1987 11 18	327	1.2+	1.2+	1999 04 09	699	1.3+	0.7+	1999 04 17	704	0.4+	0.5−
1991 09 12	675	0.1+	0.5+	1999 04 09	699	1.5+	0.2−	1999 04 17	704	0.5+	0.8+
1991 09 12	675	0.0	0.7−	1999 04 14	704	0.4−	0.6−	1999 04 17	704	1.0+	0.3+
1999 03 25	704	1.0+	0.7−	1999 04 14	704	0.0	0.5−	1999 04 17	704	0.3−	0.9+
1999 03 25	704	(2.8+	0.4−)	1999 04 14	704	0.2−	0.7+	1999 04 18	704	(2.3+	1.0+)
1999 03 25	704	0.8−	1.2−	1999 04 14	704	1.5−	0.3+	1999 04 18	704	0.0	1.2+
1999 03 25	704	1.1−	0.6+	1999 04 15	704	0.9−	0.4−	1999 04 18	704	0.1−	1.8−
1999 04 07	704	1.2−	1.2+	1999 04 15	704	0.3−	1.1−	1999 04 18	704	(3.0−	0.2+)
1999 04 07	704	0.2−	0.1+	1999 04 15	704	0.2−	0.0				
1999 04 07	704	0.3−	0.1−	1999 04 15	704	0.2+	0.2+				

1999 JE = 1978 UF₃ = 1991 JZ₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	35.05635		(2000.0)		P		Q
n	0.35535815	ω	315.47588		−0.96050666		+0.11352858
a	1.9740517	Ω	232.75741		−0.06273411		−0.97782874
e	0.0790999	i	18.60961		−0.27109295		−0.17596081
P	2.77	H	14.7	G	0.15	U	3

Residuals in seconds of arc

1978 10 26	675	0.3+	1.7-	1999 02 19	704	0.1+	0.9-	1999 05 07	704	1.7+	0.5-
1978 10 27	675	0.2-	0.9-	1999 02 19	704	1.6-	0.9-	1999 05 07	704	0.4-	1.3+
1991 05 12	809	0.1+	1.8-	1999 05 06	704	0.6+	0.5+	1999 05 07	704	0.7-	0.7+
1991 05 12	809	0.0	1.0-	1999 05 06	704	0.3-	0.4+	1999 05 07	704	0.7+	0.7+
1991 05 12	809	(1.3+	3.7-)	1999 05 06	704	(1.4-	2.2+)	1999 05 07	704	0.8+	1.8-
1999 02 19	704	(0.9-	2.4-)	1999 05 06	704	0.3+	0.9-				
1999 02 19	704	0.3+	0.0	1999 05 06	704	0.8-	0.8+				

1999 JK

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	52.72379		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.18448152	ω	312.54731	-0.98600280	+0.03272642		
<i>a</i>	3.0560994	Ω	230.01226	+0.01155362	-0.96477831		
<i>e</i>	0.1204725	<i>i</i>	12.32030	-0.16632794	-0.26102067		
<i>P</i>	5.34	<i>H</i>	13.7	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1952 08 24	675	0.2-	0.4-	1999 05 10	704	0.6-	0.1+	1999 05 19	704	0.4+	0.1+
1952 08 24	675	0.1+	0.6+	1999 05 10	704	0.9-	0.2+	1999 06 01	428	0.9-	0.2+
1991 10 12	675	0.4+	0.3-	1999 05 10	704	0.2-	0.6+	1999 06 01	428	0.7+	0.2+
1991 10 12	675	0.5+	0.7-	1999 05 10	704	0.7-	0.4+	1999 06 04	699	0.1+	1.2+
1996 11 28	327	0.0	0.2-	1999 05 11	428	0.3-	0.5-	1999 06 04	699	0.8+	1.5+
1996 11 28	327	0.7-	0.1-	1999 05 11	428	0.4-	0.5-	1999 06 04	699	(2.0-	0.3-)
1996 11 28	327	0.2-	0.1+	1999 05 13	704	0.3-	0.3+	1999 06 09	704	0.8+	0.7-
1997 12 26	566	0.1+	0.1+	1999 05 13	704	0.3-	0.5-	1999 06 09	704	0.0	0.2-
1997 12 26	566	0.2+	0.3+	1999 05 13	704	0.3-	0.5+	1999 06 09	704	1.3+	0.5-
1997 12 26	566	0.0	0.2+	1999 05 13	704	0.5-	0.9+	1999 06 09	704	0.4-	1.0-
1999 04 15	704	0.7+	0.9-	1999 05 13	704	0.4+	0.5+	1999 06 09	704	0.2+	0.1-
1999 04 15	704	0.7+	0.4-	1999 05 14	704	0.7-	0.1-	1999 06 14	699	0.6+	0.2+
1999 04 15	704	(0.2+	2.3+)	1999 05 14	704	0.6-	0.6+	1999 06 14	699	0.2+	0.3+
1999 04 15	704	1.7+	0.5+	1999 05 14	704	0.4-	0.0	1999 06 14	699	0.5+	1.0+
1999 04 15	704	1.2+	0.9-	1999 05 14	704	0.3-	1.1+	1999 06 14	428	1.1+	0.5-
1999 05 05	428	0.2-	0.1+	1999 05 14	704	0.4-	0.3+	1999 06 14	428	1.0+	0.1-
1999 05 05	428	1.8-	0.1+	1999 05 18	704	0.0	1.7-	1999 07 04	428	1.1+	0.1-
1999 05 07	428	0.3-	0.2-	1999 05 18	704	1.2+	0.4+	1999 07 04	428	1.1+	0.5+
1999 05 07	428	0.5-	0.4-	1999 05 18	704	0.1+	0.8-	1999 07 15	428	0.3-	0.3+
1999 05 07	428	0.2-	0.3-	1999 05 18	704	0.7-	1.1-	1999 07 15	428	0.5+	0.8-
1999 05 07	428	0.5-	0.2-	1999 05 18	704	0.3-	0.5-	1999 08 04	428	0.4+	0.3+
1999 05 08	428	0.8-	0.4-	1999 05 19	704	0.0	0.1-	1999 08 04	428	1.6+	0.5-
1999 05 08	428	0.5-	0.2-	1999 05 19	704	0.9-	0.3+				
1999 05 10	704	0.1-	0.2+	1999 05 19	704	0.9-	0.5+				

1999 JO₁ = 1996 TO₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	317.70977		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.26608964	ω	231.72542	+0.63058122	+0.77531909		
<i>a</i>	2.3939628	Ω	77.40467	-0.70029965	+0.58800650		
<i>e</i>	0.2667353	<i>i</i>	2.07416	-0.33458591	+0.23049658		
<i>P</i>	3.70	<i>H</i>	16.3	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 10 08	566	0.3-	0.4+	1999 04 07	704	0.6-	0.4+	1999 05 08	703	1.9-	1.2+
1996 10 08	566	0.3-	0.2+	1999 04 07	704	0.2+	0.6+	1999 05 08	703	1.4-	1.0+
1996 10 08	566	1.7+	0.1+	1999 04 19	704	(2.5+	1.0-)	1999 05 09	703	0.6+	0.5-
1996 10 12	566	0.0	0.2-	1999 04 19	704	0.2+	1.7-	1999 05 09	703	0.4+	0.4+
1996 10 12	566	0.6-	0.3-	1999 04 19	704	0.0	0.1+	1999 05 09	703	1.1+	0.3-
1996 10 12	566	0.4-	0.3-	1999 04 19	704	0.3-	0.1+	1999 05 09	703	1.4+	1.3-
1999 04 07	704	0.8-	0.3-	1999 05 08	703	0.1+	1.0-				
1999 04 07	704	1.2+	0.0	1999 05 08	703	0.1-	1.2+				

1999 JZ₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	15.96275		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.21106581	ω	127.01976	-0.62192257	+0.77735479		
<i>a</i>	2.7937709	Ω	104.25324	-0.74586989	-0.55128092		
<i>e</i>	0.0152929	<i>i</i>	5.59581	-0.23851715	-0.30299979		
<i>P</i>	4.67	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1952 01 30	675	0.8-	0.6-	1999 05 12	385	0.3+	0.1+	1999 05 18	704	0.6+	0.1-
1952 01 30	675	1.0+	1.1+	1999 05 12	385	0.3+	0.6-	1999 05 19	704	(0.6-	2.2+)
1954 11 24	675	0.4+	0.5-	1999 05 12	385	0.0	0.0	1999 05 19	704	1.1-	0.9+
1954 11 24	675	0.0	0.6-	1999 05 13	704	0.1-	0.4-	1999 05 19	704	0.3-	0.4-
1984 01 26	675	0.2-	1.9-	1999 05 13	704	0.5+	0.1+	1999 05 19	704	0.8-	0.2+
1998 01 07	699	0.1+	0.3+	1999 05 13	704	0.5-	0.1-	1999 05 20	385	0.2-	0.2+
1998 01 07	699	0.3+	0.3-	1999 05 13	704	0.3+	0.2+	1999 05 20	385	0.4-	0.1+
1998 01 07	699	0.7-	0.8+	1999 05 13	704	0.2+	0.2+	1999 05 20	385	0.9-	0.2+
1998 03 01	327	0.3+	0.2+	1999 05 14	704	0.9+	0.1-	1999 05 20	888	0.2+	0.1-
1998 03 01	327	0.5+	0.0	1999 05 14	704	0.6-	0.2-	1999 05 20	888	0.0	0.1-
1998 03 01	327	0.2+	0.0	1999 05 14	704	0.2+	1.1+	1999 06 04	703	0.2-	1.1+
1999 05 07	905	0.4+	0.3-	1999 05 14	704	1.3-	0.4-	1999 06 04	703	0.1-	0.3-
1999 05 07	905	0.4+	0.3+	1999 05 17	704	0.8+	0.4-	1999 06 04	703	0.2+	0.2+
1999 05 10	704	(2.0-	0.7+)	1999 05 17	704	0.9+	0.5+	1999 06 04	703	1.1-	0.0
1999 05 10	704	1.6-	1.3+	1999 05 17	704	0.5-	0.3-	1999 06 14	704	0.7+	0.4-
1999 05 10	704	0.9-	0.3-	1999 05 17	704	0.2-	0.1+	1999 06 14	704	0.4+	1.6-
1999 05 10	704	0.1-	1.2-	1999 05 17	704	0.5+	0.2+	1999 06 14	704	0.4+	1.1-
1999 05 10	704	0.5-	0.6+	1999 05 18	704	0.2+	0.7+	1999 06 14	704	0.4+	1.6-
1999 05 10	699	0.6+	0.3-	1999 05 18	704	0.0	0.3-	1999 06 14	704	0.0	1.5-
1999 05 10	699	0.5+	0.4+	1999 05 18	704	0.2+	0.1+				
1999 05 10	699	0.6+	0.9+	1999 05 18	704	0.4+	0.6+				

1999 JF₁₁

Id. A. Doppler (1996 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	328.90889		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.26569367	ω	158.34118	+0.65375683	+0.75658393		
<i>a</i>	2.3963408	Ω	152.47874	-0.69848760	+0.61023569		
<i>e</i>	0.1800128	<i>i</i>	1.67656	-0.29106199	+0.23493225		
<i>P</i>	3.71	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	6

Residuals in seconds of arc

1996 10 29	327	0.8-	0.4+	1999 05 13	704	0.6+	0.9-	1999 05 19	704	0.3+	0.2+
1996 10 29	327	0.4-	0.3-	1999 05 13	704	0.4-	0.4+	1999 05 19	704	0.1-	1.1+
1996 10 29	327	1.5+	0.8-	1999 05 13	704	1.3-	0.2+	1999 05 19	120	(3.3+	0.6+)
1996 10 29	327	1.1+	1.4-	1999 05 13	704	1.6+	0.2-	1999 05 19	120	0.5-	0.6-
1996 11 02	327	0.6-	0.9+	1999 05 16	120	(2.1+	1.9-)	1999 05 19	120	1.1-	0.9+
1996 11 02	327	0.2-	0.7+	1999 05 16	120	0.1+	0.7+	1999 05 20	699	0.2+	0.6+
1996 11 02	327	0.8-	1.0+	1999 05 16	120	0.7-	0.2-	1999 05 20	699	0.7+	0.4-
1999 05 09	120	1.0+	0.0	1999 05 18	704	0.5-	0.6+	1999 05 20	699	0.5-	0.3+
1999 05 09	120	(0.8+	3.4+)	1999 05 18	704	0.9-	0.4-	1999 06 05	120	0.2+	1.1-
1999 05 09	120	0.5-	0.1+	1999 05 18	704	0.2-	1.0-	1999 06 05	120	0.7-	0.5-
1999 05 10	704	0.3+	1.9+	1999 05 18	704	0.1+	0.5-	1999 06 06	703	0.0	0.9+
1999 05 10	704	0.2-	0.8+	1999 05 18	704	0.7-	1.6-	1999 06 06	703	0.7+	0.0
1999 05 10	704	1.7+	0.3-	1999 05 19	704	0.5+	1.1+	1999 06 06	703	1.0+	0.4-
1999 05 10	704	1.6+	0.3-	1999 05 19	704	1.0-	0.4-	1999 06 06	703	1.0-	0.3-

1999 JC₁₉ = 3317 T-1 = 1993 FL₈₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	277.67930		(2000.0)	<i>P</i>	<i>Q</i>		
<i>n</i>	0.17756060	ω	317.04999	+0.85355516	+0.52068719		
<i>a</i>	3.1350056	Ω	11.61180	-0.45028216	+0.75474615		
<i>e</i>	0.1363258	<i>i</i>	5.16578	-0.26208692	+0.39905275		
<i>P</i>	5.55	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1971 03 24	675	2.4+	1.6-	1993 03 25	691	0.4-	0.7+	1999 05 10	704	0.8+	2.0-
1971 03 25	675	2.1+	1.4-	1993 03 25	691	0.4-	0.4+	1999 05 10	704	1.1+	1.1-
1971 03 26	675	1.0-	1.0+	1993 03 25	691	0.1+	0.1+	1999 05 10	704	0.3-	0.2-
1971 03 26	675	0.5+	1.0-	1993 04 17	413	0.6+	1.3+	1999 05 13	704	0.5-	1.1+
1971 03 27	675	1.2+	1.5-	1999 04 11	699	1.1-	0.7+	1999 05 13	704	1.4-	0.9-
1971 04 02	675	2.0-	1.2+	1999 04 11	699	1.1-	1.1+	1999 05 13	704	2.0+	0.1-
1971 04 16	675	2.2-	0.7+	1999 04 11	699	1.3-	0.2-	1999 05 13	704	0.1-	0.3+
1971 04 16	675	(4.2-	1.7+)	1999 04 15	704	(0.2+	4.7-)	1999 05 13	704	0.0	0.6+
1971 05 14	675	1.6-	0.4+	1999 04 15	704	1.3-	1.2+	1999 05 18	699	0.3+	0.2-
1971 05 14	675	0.4-	0.9+	1999 04 15	704	0.2+	0.6+	1999 05 18	699	1.8+	0.7-
1993 03 19	809	0.5+	0.1-	1999 04 15	704	(3.5-	2.2+)	1999 05 18	699	1.2+	0.7+
1993 03 20	809	0.4+	1.1-	1999 05 10	704	0.7+	0.7+				
1993 03 23	809	(3.3+	3.6+)	1999 05 10	704	0.8-	1.4-				

1999 JF₁₉ = 1976 UK₇ = 1982 BX₆ = 1997 WV₄₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	71.92275		(2000.0)	P	Q
<i>n</i>	0.23945682	ω	138.54425	-0.92778954	-0.37236561
<i>a</i>	2.5683325	Ω	19.63210	+0.32128918	-0.82932999
<i>e</i>	0.1008169	<i>i</i>	4.00417	+0.18968350	-0.41660008
<i>P</i>	4.12	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1976 10 22	381	0.9-	0.1-	1997 12 04	704	1.1+	0.9-	1999 05 12	699	0.5+	0.6+
1976 10 22	381	0.2-	0.0	1997 12 04	704	0.4+	0.8-	1999 05 12	699	0.7+	0.5+
1976 10 24	381	(3.3-	1.0-)	1997 12 04	704	0.5+	1.5-	1999 05 12	699	0.0	0.6-
1982 01 26	381	0.8+	0.6+	1997 12 04	704	(1.0+	4.0-)	1999 05 13	704	0.3-	0.7-
1982 01 26	381	0.3+	0.1+	1999 04 15	704	1.4-	0.6+	1999 05 13	704	1.6+	0.8+
1996 10 07	327	0.2+	0.2+	1999 04 15	704	1.3-	1.1-	1999 05 13	704	0.0	0.2-
1996 10 07	327	0.8+	0.1+	1999 04 15	704	0.2-	0.3+	1999 05 13	704	0.7+	0.2+
1996 10 07	327	0.3+	0.1-	1999 04 15	704	0.4-	0.3-	1999 05 13	704	1.0-	0.8-
1997 11 29	704	0.8-	0.9-	1999 04 15	704	1.7-	0.8+	1999 05 18	704	0.8+	0.5+
1997 11 29	704	0.1+	0.6+	1999 05 10	704	0.1-	0.3-	1999 05 18	704	0.9+	0.1-
1997 11 29	704	(2.1-	2.1+)	1999 05 10	704	(0.4-	2.2+)	1999 05 18	704	(0.3-	2.5-)
1997 11 29	704	0.1-	0.8+	1999 05 10	704	0.9-	0.4+	1999 05 18	704	(2.1+	0.1+)
1997 11 29	704	1.0-	0.9+	1999 05 10	704	(1.1+	2.3+)	1999 05 18	704	1.1+	1.6-
1997 12 04	704	(2.1+	1.8-)	1999 05 10	704	(2.3-	1.0+)				

1999 JP₁₉ = 1980 TL₉ = 1982 BW₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	190.39994		(2000.0)	P	Q
<i>n</i>	0.18739686	ω	26.44555	+0.72976764	-0.68168347
<i>a</i>	3.0243207	Ω	16.86538	+0.59091862	+0.59032638
<i>e</i>	0.1223949	<i>i</i>	10.40750	+0.34388134	+0.43222958
<i>P</i>	5.26	<i>H</i>	13.5	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1980 10 13	095	0.4+	0.7-	1999 05 10	704	(1.1-	2.5+)	1999 05 18	704	0.1+	0.6+
1982 01 26	381	0.4-	0.2+	1999 05 12	699	1.0+	0.4+	1999 05 18	704	1.8-	0.4-
1982 01 26	381	0.3-	0.3+	1999 05 12	699	0.7+	0.5+	1999 05 19	704	0.9-	0.5-
1982 01 28	381	0.5+	0.7-	1999 05 12	699	1.3+	0.5+	1999 05 19	704	(0.4-	2.2-)
1999 04 15	704	1.9+	1.5-	1999 05 13	704	0.2-	0.9-	1999 05 19	704	1.0+	0.4+
1999 04 15	704	(3.1+	0.8-)	1999 05 13	704	1.1+	1.6+	1999 05 19	704	0.1+	1.4-
1999 04 15	704	(2.2+	1.2-)	1999 05 13	704	1.1-	0.4-	1999 05 19	704	1.0-	1.2+
1999 04 15	704	(1.2+	3.6-)	1999 05 13	704	(0.5-	2.4-)	1999 05 19	699	0.1-	0.2+
1999 04 15	704	(3.6-	2.3-)	1999 05 18	704	0.6-	1.5-	1999 05 19	699	0.8+	0.6+
1999 05 10	704	0.2+	0.6+	1999 05 18	704	1.2-	0.3-	1999 05 19	699	0.1-	1.3+
1999 05 10	704	0.6-	0.4-	1999 05 18	704	1.1-	1.1-				

1999 JV₂₂ = 1994 LF₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Doppler

<i>M</i>	69.48142		(2000.0)	P	Q
<i>n</i>	0.18439337	ω	285.95579	-0.89849180	-0.43678089
<i>a</i>	3.0570732	Ω	228.16829	+0.42196309	-0.83165851
<i>e</i>	0.1346796	<i>i</i>	3.38447	+0.12107697	-0.34287983
<i>P</i>	5.35	<i>H</i>	14.7	<i>G</i>	0.15
				<i>U</i>	8

Residuals in seconds of arc

1994 06 03	809	0.5+	0.7-	1999 05 10	704	0.8+	1.1-	1999 05 13	704	1.0-	0.1+
1994 06 03	809	1.3+	0.1+	1999 05 10	704	0.8-	0.2-	1999 05 13	704	2.0+	0.6+
1994 06 03	809	(2.8+	0.7-)	1999 05 10	704	0.5+	0.8+	1999 05 15	703	1.0+	0.3+
1994 06 04	809	0.2-	0.3+	1999 05 10	704	0.6-	1.8+	1999 05 15	703	0.0	0.8-
1994 06 04	809	1.5-	0.1-	1999 05 13	704	0.8-	1.2-	1999 05 15	703	0.0	0.4+
1994 06 04	809	0.1-	0.4+	1999 05 13	704	1.1-	0.6-	1999 05 15	703	0.1-	0.3-

1999 JC₂₈ = 1992 ET₁₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	92.38641		(2000.0)	P	Q
<i>n</i>	0.29483397	ω	303.16035	-0.87639583	-0.48132549
<i>a</i>	2.2357215	Ω	208.07737	+0.45240176	-0.81142864
<i>e</i>	0.0745945	<i>i</i>	1.94858	+0.16511509	-0.33152577
<i>P</i>	3.34	<i>H</i>	15.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1992 03 01	809	0.3+	0.3+	1997 10 31	704	0.5-	0.8+	1999 05 13	704	0.4-	0.2+
1992 03 03	809	0.4-	0.5-	1997 10 31	704	0.5+	1.1+	1999 05 13	704	1.0-	0.1-
1992 03 06	809	1.1+	0.2+	1997 10 31	704	0.2+	1.1+	1999 05 13	704	0.4-	0.6-
1992 04 07	809	1.2-	0.1+	1997 11 06	704	1.7-	1.3+	1999 05 13	704	0.6+	0.0
1993 06 12	691	0.1-	0.3+	1997 11 06	704	1.3-	0.3+	1999 05 13	704	0.1+	0.3-
1993 06 12	691	0.2+	0.0	1997 11 06	704	(2.1-	1.4+)	1999 05 18	699	0.8+	1.7+
1993 06 12	691	0.1-	0.3-	1997 11 06	704	0.9-	0.3+	1999 05 18	699	0.4+	1.5+
1997 10 29	704	(5.5+	1.0+)	1997 11 06	704	(2.5-	1.3+)	1999 05 18	699	1.0-	0.2+
1997 10 29	704	(6.1+	1.4-)	1999 05 10	704	0.5+	0.1-	1999 05 22	691	0.2+	0.4-
1997 10 29	704	(4.5+	0.5+)	1999 05 10	704	1.8+	0.1-	1999 05 22	691	0.2+	0.4+
1997 10 29	704	(0.4+	2.6-)	1999 05 10	704	0.1+	0.5+	1999 05 22	691	0.2-	0.3+
1997 10 31	704	1.9+	0.4+	1999 05 10	704	0.9+	1.0+				
1997 10 31	704	0.6+	0.3-	1999 05 10	704	1.3-	0.6+				

1999 JA₄₀

Id. A. Doppler (1996, 1998 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	142.77678		(2000.0)	P	Q
<i>n</i>	0.20538495	ω	216.31470	-0.24591715	-0.96913713
<i>a</i>	2.8450526	Ω	247.92697	+0.89363747	-0.21978969
<i>e</i>	0.0151342	<i>i</i>	1.06734	+0.37541555	-0.11164999
<i>P</i>	4.80	<i>H</i>	14.3	<i>G</i>	0.15
				<i>U</i>	1

Residuals in seconds of arc

1991 10 10	691	0.1-	0.4-	1998 03 31	910	0.1-	0.1-	1999 05 13	704	1.1-	0.6+
1991 10 10	691	0.2+	0.5-	1998 03 31	910	0.0	0.2-	1999 05 13	704	0.4-	1.6+
1991 10 10	691	0.4+	0.5-	1999 05 08	699	0.1-	0.7+	1999 05 18	704	0.1-	1.0-
1996 10 12	566	0.8+	0.4-	1999 05 08	699	0.5+	0.4+	1999 05 18	704	0.0	0.4+
1996 10 12	566	1.3+	0.1+	1999 05 08	699	0.2+	0.5+	1999 05 18	704	0.8+	0.4-
1996 10 12	566	0.5-	0.0	1999 05 10	704	0.3-	0.1-	1999 05 18	704	0.3-	1.4-
1996 11 01	327	0.7-	0.5-	1999 05 10	704	1.1+	1.0-	1999 05 18	704	0.1-	0.0
1996 11 01	327	0.0	0.5-	1999 05 10	704	0.6-	0.7-	1999 06 15	704	0.2+	0.4-
1996 11 01	327	0.4-	0.3-	1999 05 10	704	0.5-	1.7-	1999 06 15	704	0.4+	0.1-
1998 01 26	566	0.4-	0.3-	1999 05 10	704	0.8-	0.4-	1999 06 15	704	0.4-	0.6-
1998 01 26	566	0.0	0.4-	1999 05 13	704	2.0+	0.9+	1999 06 15	704	0.0	0.2+
1998 01 26	566	0.1-	0.2-	1999 05 13	704	0.6-	1.3-	1999 06 15	704	0.5-	1.2+
1998 03 31	910	0.3+	0.0	1999 05 13	704	0.4-	0.0				

1999 AUG. 31

M.P.C. 35651

1999 JV₄₄ = 1992 EW₂₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	62.14664		(2000.0)		P		Q
<i>n</i>	0.30149167	ω	275.23617	−0.95974963			+0.28062935
<i>a</i>	2.2026856	Ω	281.06195	−0.25290299			−0.88103182
<i>e</i>	0.0086439	<i>i</i>	0.66006	−0.12215045			−0.38082817
<i>P</i>	3.27	<i>H</i>	16.1	<i>G</i>	0.15	<i>U</i>	7

Residuals in seconds of arc

1992 03 02	809	0.1−	0.5−	1999 05 13	704	0.6−	1.2+	1999 05 18	704	0.8−	0.3−
1992 03 04	809	0.1+	0.5+	1999 05 13	704	0.7−	1.9+	1999 05 18	699	0.7−	0.0
1999 05 10	704	1.6+	1.2+	1999 05 17	703	0.9+	0.2+	1999 05 18	699	0.9+	0.4+
1999 05 10	704	0.3+	1.2−	1999 05 17	703	0.4−	0.5+	1999 05 18	699	1.4+	0.7−
1999 05 10	704	1.3−	0.1+	1999 05 17	703	0.8−	0.8+	1999 05 19	704	0.6−	0.3−
1999 05 10	704	1.1−	1.1−	1999 05 17	703	0.4−	0.7+	1999 05 19	704	0.6+	0.7+
1999 05 13	704	0.9+	1.2−	1999 05 18	704	0.3+	0.1−	1999 05 19	704	0.1+	1.8−
1999 05 13	704	0.7+	0.5−	1999 05 18	704	0.2+	0.9+	1999 05 19	704	0.8−	0.7−
1999 05 13	704	0.8+	0.4+	1999 05 18	704	0.4−	1.0−				

1999 JW₄₆ = 1997 WO₄₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	159.42830		(2000.0)		P		Q
<i>n</i>	0.27605136	ω	25.41850	+0.04498405			−0.99194461
<i>a</i>	2.3360176	Ω	62.19922	+0.89217982			−0.01343685
<i>e</i>	0.1293949	<i>i</i>	7.69315	+0.44943475			+0.12595771
<i>P</i>	3.57	<i>H</i>	15.0	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1997 11 29	704	0.5+	0.7+	1999 05 10	704	1.9+	0.2−	1999 05 18	704	0.0	1.0−
1997 11 29	704	0.9−	0.6+	1999 05 10	704	0.4+	0.9+	1999 05 18	704	0.2−	0.3+
1997 11 29	704	0.7+	0.6−	1999 05 10	704	1.1−	1.1+	1999 05 19	691	0.3−	0.5+
1997 11 29	704	1.2−	0.9+	1999 05 10	704	0.8−	0.4+	1999 05 19	691	0.3−	0.1+
1997 11 29	704	1.6−	1.2+	1999 05 10	704	0.3+	0.2−	1999 05 19	691	(1.2−	2.8+)
1997 12 04	704	1.1+	0.9−	1999 05 13	704	0.2+	0.3+	1999 06 05	703	0.1−	1.1+
1997 12 04	704	(3.5+	0.2−)	1999 05 13	704	0.9+	0.0	1999 06 05	703	0.1+	0.6+
1997 12 04	704	1.6−	0.9+	1999 05 13	704	0.2+	0.2−	1999 06 05	703	0.6−	0.4+
1997 12 04	704	1.4+	0.8−	1999 05 13	704	0.4−	1.0−	1999 06 05	703	0.1−	0.2+
1997 12 04	704	0.3+	2.0−	1999 05 13	704	0.8−	0.5+	1999 06 15	704	0.1+	0.5−
1998 01 08	699	0.3+	0.2−	1999 05 18	704	0.3+	0.0	1999 06 15	704	0.0	1.1−
1998 01 08	699	1.2+	0.4+	1999 05 18	704	0.4+	0.1−	1999 06 15	704	1.0−	1.5−
1998 01 08	699	0.0	0.1−	1999 05 18	704	0.2+	0.8−	1999 06 15	704	0.4+	0.0

1999 JM₅₇ = 1976 EO = 1985 VV₁ = 1996 VU₃₀ = 1998 FZ₉₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	156.29086		(2000.0)		P		Q
<i>n</i>	0.18070619	ω	221.03925	+0.10000846			−0.98043293
<i>a</i>	3.0985181	Ω	224.01475	+0.96470075			+0.13727088
<i>e</i>	0.2614185	<i>i</i>	14.12403	+0.24362012			−0.14109560
<i>P</i>	5.45	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1976 03 07	808	0.2+	1.2+	1998 04 01	704	0.3+	0.2−	1999 05 13	704	(2.6−	0.6−)
1976 03 07	808	0.2+	2.1+	1998 04 01	704	(3.1+	0.7+)	1999 05 13	704	0.4−	1.0−
1985 11 07	688	(2.7+	1.4+)	1998 04 01	704	0.3−	0.8−	1999 05 13	704	1.7−	0.4+
1985 11 07	688	0.5+	0.5−	1998 04 28	566	1.0−	0.4−	1999 05 18	704	0.2−	0.8−
1996 11 12	399	0.1+	0.8+	1998 04 28	566	0.3−	0.6−	1999 05 18	704	0.5−	0.7−
1996 11 12	399	0.7−	0.1+	1998 04 28	566	0.1+	0.8−	1999 05 18	704	1.0+	1.3+
1996 11 15	399	0.0	0.5+	1999 05 10	704	0.4+	0.5−	1999 05 18	704	(0.3−	2.4−)
1996 11 15	399	0.0	0.2−	1999 05 10	704	0.7−	1.7+	1999 05 18	704	0.1−	0.1−
1998 03 31	704	0.7+	0.0	1999 05 10	704	(1.7−	2.7+)	1999 06 14	704	0.5+	0.2−
1998 03 31	704	0.0	0.5−	1999 05 10	704	1.2+	0.6−	1999 06 14	704	0.0	0.1−
1998 03 31	704	0.4−	0.7−	1999 05 12	699	0.7+	0.5+	1999 06 14	704	0.4−	0.5−
1998 03 31	704	0.0	0.5−	1999 05 12	699	0.6+	0.9+	1999 06 14	704	0.3+	0.7−

1998 03 31	704	0.7+	0.6−	1999 05 12	699	0.4−	1.3+	1999 06 14	704	0.2−	0.5+
1998 04 01	704	0.1−	0.6+	1999 05 13	704	0.7−	0.6−				
1998 04 01	704	0.1−	0.7+	1999 05 13	704	0.3+	1.0+				

1999 JO₅₈

Id. A. Doppler (1996 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	98.13241		(2000.0)		P		Q
<i>n</i>	0.23106366	ω	269.39417	−0.81488868			−0.54920842
<i>a</i>	2.6301566	Ω	237.27813	+0.57950865			−0.76579716
<i>e</i>	0.1317783	<i>i</i>	12.72211	+0.01123188			−0.33455167
<i>P</i>	4.27	<i>H</i>	14.1	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 10 03	327	0.7−	0.1−	1999 05 13	704	0.1−	0.7−	1999 06 09	704	0.1−	0.1−
1996 10 03	327	0.3+	0.5+	1999 05 18	704	0.4−	0.7−	1999 06 09	704	0.1−	0.1+
1996 10 03	327	0.5+	0.3−	1999 05 18	704	0.3−	0.1+	1999 06 09	704	0.2+	0.8+
1996 10 03	327	0.2+	0.2+	1999 05 18	704	0.8−	0.6−	1999 06 09	704	0.3+	0.4+
1996 11 16	327	0.2+	0.2−	1999 05 18	704	0.8+	0.2−	1999 06 11	703	0.4+	0.7−
1996 11 16	327	0.3−	0.0	1999 05 18	704	0.6+	0.4−	1999 06 11	703	0.1−	0.2+
1996 11 16	327	0.2−	0.4−	1999 05 19	704	0.6+	0.1−	1999 06 11	703	0.2+	0.5+
1999 05 10	704	0.4−	0.7−	1999 05 19	704	0.4+	0.2+	1999 06 11	703	0.4−	1.3+
1999 05 10	704	0.0	1.0−	1999 05 19	704	0.2−	1.0+	1999 06 15	704	0.1+	0.4−
1999 05 10	704	0.6+	0.1+	1999 05 19	704	0.2+	1.2+	1999 06 15	704	0.9−	0.9−
1999 05 10	704	0.8+	0.9+	1999 05 19	704	1.5−	1.9+	1999 06 15	704	0.5−	0.6−
1999 05 13	704	0.0	1.0−	1999 06 05	699	0.4+	0.8−	1999 06 15	704	0.8+	0.1+
1999 05 13	704	0.6−	0.7+	1999 06 05	699	0.0	0.4−	1999 06 15	704	0.6−	0.4−
1999 05 13	704	1.0+	0.3−	1999 06 05	699	0.2+	0.4+				
1999 05 13	704	0.5−	0.1−	1999 06 09	704	0.3−	0.1−				

1999 JJ₆₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	322.41540		(2000.0)		P		Q
<i>n</i>	0.27706534	ω	277.36240	+0.82924690			+0.53889914
<i>a</i>	2.3303147	Ω	50.15449	−0.40568069			+0.76269349
<i>e</i>	0.2167444	<i>i</i>	11.12273	−0.38441222			+0.35761202
<i>P</i>	3.56	<i>H</i>	14.2	<i>G</i>	0.15	<i>U</i>	2

Residuals in seconds of arc

1955 02 13	675	1.2−	0.1−	1999 05 10	704	0.7−	1.5+	1999 05 19	704	0.3+	0.2−
1955 02 13	675	1.2+	0.6+	1999 05 13	704	0.7+	0.2−	1999 05 19	704	0.9−	0.5+
1989 11 04	675	1.0−	0.9+	1999 05 13	704	1.4+	0.1+	1999 06 09	704	0.1−	0.6+
1989 11 04	675	0.6+	0.0	1999 05 13	704	0.7+	0.0	1999 06 09	704	0.5−	1.5+
1991 04 06	675	0.4+	0.7+	1999 05 13	704	0.4+	0.0	1999 06 09	704	0.4−	0.8+
1991 04 06	675	0.1−	0.8+	1999 05 13	704	0.0	0.1−	1999 06 09	704	0.2+	0.6+
1996 11 29	327	0.3−	0.1−	1999 05 18	704	0.2+	0.5+	1999 06 09	704	0.8+	0.6+
1996 11 29	327	1.1−	0.9+	1999 05 18	704	1.7−	0.0	1999 06 15	704	0.1+	0.5+
1996 11 29	327	0.1+	0.9+	1999 05 18	704	0.4+	0.6−	1999 06 15	704	0.0	0.0
1996 11 29	327	0.3+	0.1+	1999 05 18	704	0.1+	0.7−	1999 06 15	704	0.2+	1.1−
1999 05 10	704	1.6+	0.1−	1999 05 18	704	0.2+	0.8−	1999 06 15	704	0.5−	0.1−
1999 05 10	704	0.9−	0.5−	1999 05 19	704	0.5+	0.1+	1999 06 15	704	0.3−	0.8+
1999 05 10	704	0.8−	1.1−	1999 05 19	704	0.4−	0.5−				
1999 05 10	704	0.2−	0.3+	1999 05 19	704	0.8+	0.1+				

1999 JQ₆₃ = 1999 LX₁₈ = 1980 WE₃ = 1990 UZ₁₀Id. A. Doppler (d, *MPC* 35481; unpublished)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	318.86516		(2000.0)		P		Q
<i>n</i>	0.19065233	ω	227.95506	+0.66687432			+0.71653888
<i>a</i>	2.9897943	Ω	85.09515	−0.60856134			+0.68212658
<i>e</i>	0.0906933	<i>i</i>	11.84860	−0.43003690			+0.14586076
<i>P</i>	5.17	<i>H</i>	13.6	<i>G</i>	0.15	<i>U</i>	2

M.P.C. 35652

1999 AUG. 31

Residuals in seconds of arc

1980 11 29	675	0.0	0.2−	1999 05 10	704	0.2−	0.3+	1999 05 19	704	0.9−	0.3−
1980 12 01	675	0.3+	0.6−	1999 05 10	704	(1.6+	2.6+)	1999 05 19	704	0.1−	0.7−
1990 10 26	385	0.2+	1.1−	1999 05 10	704	1.0−	0.2+	1999 05 19	704	0.1−	0.4+
1990 10 26	385	0.4+	0.2−	1999 05 10	704	0.5+	0.4+	1999 05 19	704	0.3−	1.7+
1998 02 01	327	0.3−	0.1−	1999 05 13	704	1.0+	0.4+	1999 06 09	704	0.4+	0.1−
1998 02 01	327	0.0	0.2+	1999 05 13	704	1.0+	0.8+	1999 06 09	704	0.8+	0.6−
1998 02 01	327	0.2−	0.1−	1999 05 13	704	0.7+	0.9−	1999 06 09	704	0.0	0.7−
1998 02 24	566	0.4−	0.3+	1999 05 13	704	1.7−	0.5+	1999 06 09	704	0.1−	0.2+
1998 02 24	566	1.1−	0.2−	1999 05 13	704	1.0−	0.1+	1999 06 09	704	1.3−	0.1−
1998 02 24	566	1.3−	0.2−	1999 05 18	704	0.7+	0.2−	1999 06 15	704	0.3+	0.3+
1998 04 02	704	0.6−	0.6−	1999 05 18	704	0.6−	0.5−	1999 06 15	704	0.4+	0.1+
1998 04 02	704	1.6+	1.9−	1999 05 18	704	0.9+	0.9−	1999 06 15	704	0.1+	0.0
1998 04 02	704	0.3+	1.3+	1999 05 18	704	0.8−	0.5+	1999 06 15	704	0.9+	0.8−
1998 04 02	704	1.4+	0.2+	1999 05 18	704	0.4−	0.2−	1999 06 15	704	0.3−	1.5−
1998 04 02	704	(3.5−	1.0+)	1999 05 19	704	0.3+	0.1+				

1999 JL₇₀ = 1998 BJ₃₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	43.73129	(2000.0)	P	Q
<i>n</i>	0.18758406	ω	30.14061	−0.97539694
<i>a</i>	3.0223083	Ω	162.50860	−0.21318757
<i>e</i>	0.0530871	<i>i</i>	3.80167	−0.05614149
<i>P</i>	5.25	<i>H</i>	14.8	<i>G</i> 0.15
				<i>U</i> 6

Residuals in seconds of arc

1998 01 27	910	0.6−	0.1−	1999 05 12	704	0.2−	0.1−	1999 05 13	704	0.1+	1.7+
1998 01 27	910	0.7−	0.2−	1999 05 12	704	0.8+	0.5−	1999 05 13	704	0.7+	0.4+
1998 01 28	910	0.5−	0.0	1999 05 12	704	0.6−	1.1−	1999 05 15	703	1.6−	0.3+
1998 01 30	910	0.4+	0.2+	1999 05 13	704	0.6+	0.6−	1999 05 15	703	0.4−	0.4+
1998 01 30	910	0.6+	0.1−	1999 05 13	704	(2.4+	0.0)	1999 05 15	703	0.1−	0.3−
1998 01 30	910	0.7+	0.1+	1999 05 13	704	0.5+	0.2−	1999 05 15	703	0.2+	0.1−

1999 JM₇₀ = 1996 TM₁₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	335.68609	(2000.0)	P	Q
<i>n</i>	0.24452447	ω	100.98943	+0.24093196
<i>a</i>	2.5327238	Ω	182.96196	−0.91908787
<i>e</i>	0.1495560	<i>i</i>	4.64557	−0.31181609
<i>P</i>	4.03	<i>H</i>	15.9	<i>G</i> 0.15
				<i>U</i> 6

Residuals in seconds of arc

1996 10 05	327	0.3−	0.4−	1999 05 12	699	(0.7−	2.4+)	1999 05 17	704	(3.9−	1.0−)
1996 10 05	327	0.3+	0.1+	1999 05 12	699	0.6−	1.5+	1999 05 18	704	1.2+	0.1+
1996 10 05	327	0.1−	0.2+	1999 05 12	699	0.6−	0.0	1999 05 18	704	0.4+	0.3−
1999 05 09	699	0.9−	0.0	1999 05 13	704	0.2−	0.6−	1999 05 18	704	0.2−	0.3+
1999 05 09	699	0.2+	0.8+	1999 05 13	704	0.2−	1.5−	1999 05 18	704	1.3+	0.9+
1999 05 09	699	0.3+	0.7−	1999 05 13	704	(0.3+	2.4+)	1999 05 18	704	0.6−	0.2−
1999 05 12	704	0.2−	1.3+	1999 05 13	704	1.4+	0.6+	1999 05 19	704	0.6−	1.4−
1999 05 12	704	0.2−	1.2+	1999 05 13	704	0.7+	0.8−	1999 05 19	704	0.0	0.7+
1999 05 12	704	0.3+	0.7−	1999 05 17	704	1.5−	1.0+	1999 05 19	704	0.2−	0.1+
1999 05 12	704	0.2+	1.6−	1999 05 17	704	0.9−	1.4−	1999 05 19	704	0.3+	0.8+
1999 05 12	704	0.2+	0.3−	1999 05 17	704	0.5+	0.2+				

1999 JW₇₀ = 1993 TL₃₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	283.91046	(2000.0)	P	Q
<i>n</i>	0.28600467	ω	170.50122	+0.93583960
<i>a</i>	2.2815008	Ω	168.83060	−0.33022388
<i>e</i>	0.1389760	<i>i</i>	6.40266	−0.12311146
<i>P</i>	3.45	<i>H</i>	15.1	<i>G</i> 0.15
				<i>U</i> 5

Residuals in seconds of arc

1993 10 09	809	1.1+	0.8+	1999 05 09	699	1.2−	0.5+	1999 05 13	704	1.2−	1.1+
1993 10 09	809	0.8+	1.6+	1999 05 09	699	1.5+	0.7+	1999 05 18	704	0.4−	1.4−
1993 10 09	809	0.9+	0.1−	1999 05 12	704	0.9−	0.6−	1999 05 18	704	1.5+	1.5−
1993 10 11	809	0.6+	0.1+	1999 05 12	704	0.7+	1.2+	1999 05 18	704	(0.8−	3.3−)
1993 10 11	809	0.2−	0.5+	1999 05 12	704	1.6−	1.7+	1999 05 18	703	1.7+	0.2−
1993 10 11	809	0.0	0.3+	1999 05 12	704	1.0+	1.2+	1999 05 18	703	0.6−	0.5−
1993 10 21	809	0.9−	1.6−	1999 05 13	704	0.3−	0.1+	1999 05 18	703	1.0+	1.3−
1993 10 21	809	0.5−	0.8−	1999 05 13	704	0.0	0.2−	1999 05 18	703	0.7+	0.0
1993 10 21	809	1.7−	1.1−	1999 05 13	704	1.2−	0.4−				
1999 05 09	699	(1.9+	2.1+)	1999 05 13	704	0.4−	0.7−				

1999 JO₇₉ = 1999 KY₉ = 1992 SJ₉Id. G. V. Williams (d, *MPC* 35481), A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	349.46344	(2000.0)	P	Q
<i>n</i>	0.26041584	ω	230.44729	+0.16630119
<i>a</i>	2.4286100	Ω	49.14489	−0.89402892
<i>e</i>	0.1733591	<i>i</i>	1.93603	−0.41600026
<i>P</i>	3.78	<i>H</i>	15.9	<i>G</i> 0.15
				<i>U</i> 4

Residuals in seconds of arc

1992 09 27	691	0.1−	0.2−	1999 05 13	704	0.7−	0.2−	1999 05 18	704	0.4+	0.1+
1992 09 27	691	0.0	0.0	1999 05 13	704	0.9−	1.5−	1999 05 18	704	0.2+	0.2−
1992 09 27	691	0.4+	0.0	1999 05 13	704	0.8+	0.6+	1999 05 18	699	1.0+	0.2−
1992 09 28	691	0.2+	0.1+	1999 05 13	704	0.3−	1.3+	1999 05 18	699	0.1−	1.1+
1992 09 28	691	0.1−	0.4−	1999 05 14	704	1.8−	0.8+	1999 05 18	699	0.1+	1.4+
1992 09 28	691	0.2−	0.0	1999 05 14	704	(2.5−	1.3+)	1999 05 19	704	0.7+	1.7−
1996 10 13	566	0.1+	0.3+	1999 05 14	704	0.1+	1.0−	1999 05 19	704	1.0+	1.0+
1996 10 13	566	0.3−	0.2+	1999 05 14	704	1.1+	0.2−	1999 05 19	704	0.3−	0.5−
1996 10 13	566	0.2−	0.4+	1999 05 15	691	0.6+	1.1−	1999 05 19	704	1.0−	0.8+
1999 05 08	699	0.2+	0.2+	1999 05 15	691	0.8−	0.7−	1999 06 15	704	0.1−	0.0
1999 05 08	699	0.6+	0.0	1999 05 15	691	0.1−	0.9+	1999 06 15	704	0.4+	0.1−
1999 05 08	699	1.2+	0.7−	1999 05 18	704	1.2−	0.4+	1999 06 15	704	0.6+	0.6−
1999 05 13	704	0.6−	0.6−	1999 05 18	704	0.0	0.2+	1999 06 15	704	0.8−	0.3+

1999 JU₇₉

Id. A. Doppler (1998 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	37.32373	(2000.0)	P	Q
<i>n</i>	0.17600102	ω	80.75298	−0.84397179
<i>a</i>	3.1534982	Ω	120.39178	−0.45771429
<i>e</i>	0.2170970	<i>i</i>	26.38662	+0.27965918
<i>P</i>	5.60	<i>H</i>	13.1	<i>G</i> 0.15
				<i>U</i> 3

Residuals in seconds of arc

1997 12 29	566	0.4−	0.2−	1999 05 14	704	0.0	0.7+	1999 05 14	704	0.4−	0.6−
1997 12 29	566	0.0	0.4+	1999 05 14	704	0.3−	0.4−	1999 05 14	704	0.1−	0.1+
1997 12 29	566	0.1+	0.0	1999 05 14	704	0.8+	0.6−	1999 05 14	704	0.2+	0.7−
1998 03 02	327	0.3−	0.5−	1999 05 14	704	0.6−	0.8−	1999 05 14	704	0.9+	0.4−
1998 03 02	327	0.2−	0.2+	1999 05 14	704	0.6−	0.9−	1999 05 14	704	1.2−	0.0
1998 03 19	327	0.3+	0.2+	1999 05 14	704	0.5−	0.3−	1999 05 17	704	0.7−	1.6+
1998 03 19	327	0.5−	0.5+	1999 05 14	704	0.1+	0.3+	1999 05 17	704	1.0+	0.7+
1998 03 19	327	1.2+	0.5−	1999 05 14	704	0.2+	0.6+	1999 05 17	704	0.3−	2.0+
1999 02 24	704	(2.0+	2.6+)	1999 05 14	704	0.3−	0.1+	1999 05 17	704	0.4+	0.4−
1999 02 24	704	1.3+	1.1−	1999 05 14	704	0.4−	0.5−	1999 05 17	704	0.5−	0.0
1999 02 24	704	0.4+	0.3−	1999 05 14	704	0.6−	0.5−	1999 06 07	704	0.1−	0.0
1999 02 24	704	1.5−	0.6+	1999 05 14	704	0.5+	0.0	1999 06 07	704	0.2−	0.1+
1999 05 13	704	0.7+	0.5−	1999 05 14	704	0.9+	0.0	1999 06 07	704	1.6+	0.6+
1999 05 13	704	0.8−	1.1+	1999 05 14	704	0.2−	0.3+	1999 06 07	704	0.7+	0.6−
1999 05 13	704	0.1+	0.1+	1999 05 14	704	0.2+	0.2−	1999 06 12	704	0.2−	0.1+
1999 05 13	704	0.1+	0.5−	1999 05 14	704	0.0	0.1−	1999 06 12	704	0.2−	0.1−
1999 05 13	704	(2.1−	0.5−)	1999 05 14	704	0.3+	0.3+	1999 06 12	704	0.3−	0.3−
1999 05 14	704	0.4+	0.3+	1999 05 14	704	0.1+	0.2−	1999 06 12	704	0.1+	0.3−
1999 05 14	704	0.4+	0.5+	1999 05 14	704	0.5−	0.2−	1999 06 12	704	0.1+	0.6−

1999 AUG. 31

M.P.C. 35653

1999 05 14 704 0.2+ 0.3+ 1999 05 14 704 0.1- 0.7+
1999 05 14 704 1.5+ 0.7+ 1999 05 14 704 0.5- 0.9-

1999 JX₈₁

Id. A. Doppler (1996, 1998 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	330.47571		(2000.0)		P		Q
<i>n</i>	0.17798078	ω	192.08035	+0.31051516		+0.94140008	
<i>a</i>	3.1300695	Ω	96.12048	-0.86073148		+0.33725432	
<i>e</i>	0.2470013	<i>i</i>	7.61178	-0.40338773		+0.00504127	
<i>P</i>	5.54	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i> 2	

Residuals in seconds of arc

1991 12 13	691	0.2-	0.7+	1999 04 12	704	0.1-	0.8-	1999 05 12	704	0.3+	0.2-
1991 12 13	691	0.7-	0.2+	1999 04 12	704	0.3-	0.7-	1999 05 12	704	0.5+	1.5-
1991 12 13	691	0.5-	0.1-	1999 04 12	704	0.5-	0.4+	1999 05 15	704	(2.5-	0.9+)
1992 01 30	691	0.2-	0.2-	1999 04 12	704	0.7-	0.0	1999 05 15	704	0.8+	0.3+
1992 01 30	691	0.1-	1.3-	1999 04 12	704	0.5+	0.7-	1999 05 15	704	(0.0	2.4-)
1992 01 30	691	1.4+	1.3-	1999 04 16	704	(0.5-	3.1-)	1999 05 17	704	0.2-	1.2-
1996 12 08	327	0.1-	0.6+	1999 04 16	704	0.1+	1.6+	1999 05 17	704	0.8+	0.3+
1996 12 08	327	0.5-	0.7+	1999 04 16	704	0.8+	0.7-	1999 05 17	704	0.5-	0.7+
1996 12 08	327	0.4+	0.2+	1999 04 16	704	1.2+	1.7+	1999 05 17	704	1.8-	0.1+
1998 01 31	910	0.1+	0.3+	1999 05 12	704	0.3-	0.2-	1999 05 17	704	(5.7-	0.6+)
1998 01 31	910	0.1+	0.2+	1999 05 12	704	0.6-	0.5+				
1998 01 31	910	0.1+	0.2+	1999 05 12	704	0.1+	0.7+				

1999 JU₈₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	297.57798		(2000.0)		P		Q
<i>n</i>	0.23895302	ω	250.08202	+0.54115043		+0.81835372	
<i>a</i>	2.5719412	Ω	54.19386	-0.65432542		+0.55432599	
<i>e</i>	0.1601516	<i>i</i>	13.80567	-0.52821818		+0.15172305	
<i>P</i>	4.12	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i> 3	

Residuals in seconds of arc

1991 03 19	413	0.0	1.2-	1999 04 12	704	0.4-	0.5+	1999 05 13	704	0.2+	0.7+
1991 03 19	413	1.2-	0.8-	1999 04 12	704	1.1+	0.3-	1999 05 13	704	1.2+	0.7-
1997 12 26	566	0.3-	0.0	1999 04 16	704	0.1-	0.6-	1999 05 13	704	(2.2-	1.2-)
1997 12 26	566	0.5-	0.3+	1999 04 16	704	0.8-	0.0	1999 05 15	704	0.4+	0.2+
1997 12 26	566	0.2-	0.1+	1999 04 16	704	0.4+	0.1-	1999 05 15	704	(1.3-	2.5+)
1998 02 01	327	0.6+	0.0	1999 04 16	704	2.0+	0.1+	1999 05 15	704	(2.3-	1.5+)
1998 02 01	327	0.0	0.4-	1999 04 16	704	0.5-	0.5+	1999 05 15	704	1.7-	0.4+
1998 02 01	327	0.1+	0.4-	1999 05 10	699	0.0	0.6+	1999 06 08	704	0.3-	0.3+
1998 02 01	327	0.4+	0.2-	1999 05 10	699	(0.7-	2.9+)	1999 06 08	704	0.6+	0.8+
1999 04 12	704	0.4+	0.2-	1999 05 10	699	0.4-	1.6+	1999 06 08	704	0.8-	0.2-
1999 04 12	704	0.1-	0.3-	1999 05 13	704	0.1-	0.7-	1999 06 08	704	0.5-	0.6-
1999 04 12	704	1.1+	0.3+	1999 05 13	704	1.1-	0.6+	1999 06 08	704	0.2+	1.1-

1999 JD₉₁ = 1989 RX₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	224.82750		(2000.0)		P		Q
<i>n</i>	0.26577570	ω	229.57320	+0.82293519		-0.56572645	
<i>a</i>	2.3958477	Ω	164.64519	+0.56246008		+0.79829101	
<i>e</i>	0.2593101	<i>i</i>	11.38294	+0.08010207		+0.20660362	
<i>P</i>	3.71	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i> 5	

Residuals in seconds of arc

1989 09 05	675	0.6+	0.0	1999 05 07	703	0.1-	0.5+	1999 05 12	704	0.6-	1.2-
1989 09 05	675	0.6-	0.3-	1999 05 07	703	1.0+	1.0+	1999 05 17	704	0.9-	0.3-
1989 09 07	675	0.4+	0.3-	1999 05 12	704	1.2+	0.1-	1999 05 17	704	0.1+	0.8-
1989 09 07	675	0.4-	0.6+	1999 05 12	704	0.2-	0.6-	1999 05 17	704	0.4+	0.2+
1999 05 07	703	0.5-	0.2-	1999 05 12	704	0.5+	1.4-	1999 05 17	704	0.8-	1.9+
1999 05 07	703	0.4-	0.9+	1999 05 12	704	0.3+	0.2+	1999 05 17	704	(3.4-	1.2+)

1999 JJ₉₂ = 1998 EJ₁₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	176.05248		(2000.0)		P		Q
<i>n</i>	0.20518868	ω	272.73600	+0.43084058		-0.89885260	
<i>a</i>	2.8468666	Ω	151.31385	+0.88008909		+0.39884635	
<i>e</i>	0.1243513	<i>i</i>	9.62435	+0.19954845		+0.18161936	
<i>P</i>	4.80	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i> 4	

Residuals in seconds of arc

1998 01 25	566	0.0	0.2+	1998 03 04	704	0.7+	0.0	1999 05 17	704	0.1-	1.1+
1998 01 25	566	0.1-	0.2-	1998 03 04	704	0.8+	1.0+	1999 05 18	703	0.9+	0.1-
1998 01 25	566	0.8-	0.1+	1998 03 04	704	0.1+	1.4-	1999 05 18	703	0.2-	0.3+
1998 03 03	704	0.3-	0.4+	1999 05 12	704	1.2+	1.0+	1999 05 18	703	0.7-	1.9+
1998 03 03	704	(2.5-	1.3+)	1999 05 12	704	0.9-	1.2-	1999 05 18	703	0.1-	1.5+
1998 03 03	704	0.2-	0.1-	1999 05 12	704	0.3+	0.7-	1999 06 14	704	0.3-	0.5+
1998 03 03	704	0.5-	0.8-	1999 05 12	704	1.6-	0.7+	1999 06 14	704	0.4+	0.1+
1998 03 03	704	0.5-	0.9+	1999 05 17	704	1.5+	0.2+	1999 06 14	704	0.0	0.8-
1998 03 04	704	1.1+	0.7-	1999 05 17	704	1.2+	1.9-	1999 06 14	704	0.8-	0.3+
1998 03 04	704	0.4-	0.6+	1999 05 17	704	0.4+	1.3-	1999 06 14	704	1.4-	1.7-

1999 JA₉₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	29.55022		(2000.0)		P		Q
<i>n</i>	0.17808583	ω	110.98275	-0.71969438		+0.58123640	
<i>a</i>	3.1288384	Ω	106.55768	-0.68620366		-0.67872395	
<i>e</i>	0.1406967	<i>i</i>	23.33898	+0.10566238		-0.44888534	
<i>P</i>	5.53	<i>H</i>	13.3	<i>G</i>	0.15	<i>U</i> 3	

Residuals in seconds of arc

1993 04 16	675	1.5-	0.9+	1999 05 17	704	0.2-	0.4+	1999 06 08	704	0.4-	0.1-
1993 04 16	675	1.4+	1.3-	1999 05 17	704	0.7-	0.5-	1999 06 08	704	0.5-	0.9+
1997 12 29	327	0.0	0.1+	1999 05 17	704	1.4-	0.3+	1999 06 08	704	0.4-	0.0
1997 12 29	327	0.3-	0.2+	1999 05 17	704	0.9-	0.5-	1999 06 12	704	0.6+	0.0
1997 12 29	327	0.2+	0.3+	1999 05 17	704	1.2-	0.5-	1999 06 12	704	0.5+	0.2-
1999 05 12	704	0.5-	0.5-	1999 05 23	699	1.2+	0.4+	1999 06 12	704	0.3+	0.5-
1999 05 12	704	0.8+	1.0-	1999 05 23	699	0.5+	1.4+	1999 06 12	704	0.6+	0.0
1999 05 12	704	0.5+	0.4+	1999 05 23	699	0.2+	0.5+	1999 06 12	704	0.2+	0.5-
1999 05 12	704	1.4+	0.2-	1999 06 08	704	0.1+	0.4+				
1999 05 12	704	1.2+	0.5-	1999 06 08	704	0.6-	0.3+				

1999 JD₁₀₂ = 1998 DW₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	319.05569		(2000.0)		P		Q
<i>n</i>	0.18860668	ω	94.11906	+0.21732215		+0.97593009	
<i>a</i>	3.0113738	Ω	188.49867	-0.93731033		+0.20344320	
<i>e</i>	0.0373952	<i>i</i>	7.07713	-0.27243425		+0.07855774	
<i>P</i>	5.23	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i> 4	

Residuals in seconds of arc

1994 06 06	691	0.0	0.0	1998 02 23	691	0.3-	0.1+	1999 05 15	703	0.6+	0.9+
1994 06 06	691	0.1+	0.0	1998 02 23	691	0.2-	0.1+	1999 05 15	703	0.8-	0.5+
1998 02 17	691	0.3+	0.1-	1999 05 13	704	0.0	0.0	1999 05 15	703	1.3-	1.0+
1998 02 17	691	0.2+	0.1+	1999 05 13	704	1.3+	0.4+	1999 05 17	704	0.7-	0.6-
1998 02 17	691	0.2+	0.1-	1999 05 13	704	1.7+	0.2-	1999 05 17	704	(0.2+	2.3-)
1998 02 23	691	0.2-	0.0	1999 05 15	703	0.0	0.5-	1999 05 17	704	0.9-	1.6-

1999 JM₁₀₃ = 1977 RH₁₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Gnädig

<i>M</i>	119.79700		(2000.0)	P	Q
<i>n</i>	0.30196151	ω	333.98398	-0.68435139	-0.72832071
<i>a</i>	2.2004001	Ω	159.14186	+0.68488625	-0.65845531
<i>e</i>	0.0158079	<i>i</i>	5.61143	+0.25018794	-0.18969859
<i>P</i>	3.26	<i>H</i>	16.4	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 09 09	675	0.3-	0.5-	1999 05 13	704	0.6-	0.5+	1999 05 18	704	0.1+	1.0-
1977 09 10	675	0.2+	0.4+	1999 05 13	704	0.6-	0.8+	1999 05 18	704	0.9-	0.4+
1999 05 08	703	(2.8+	0.7-)	1999 05 17	704	0.3-	0.2+	1999 05 18	704	0.5+	1.3+
1999 05 08	703	0.2+	0.4-	1999 05 17	704	1.3+	1.3+	1999 05 19	703	0.6-	0.1+
1999 05 08	703	0.1+	0.2-	1999 05 17	704	0.9+	1.1-	1999 05 19	703	0.1+	0.8-
1999 05 08	703	0.0	0.1-	1999 05 17	704	1.5+	1.1-	1999 05 19	703	1.0-	0.8-
1999 05 13	704	0.4+	0.4-	1999 05 18	704	1.0-	1.1+	1999 05 19	703	0.4+	0.0
1999 05 13	704	0.7-	0.2+	1999 05 18	704	(2.4-	2.2-)				

1999 JO₁₀₃ = 1977 QB₃ = 1982 VO₉ = 1991 RE₃₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	218.61495		(2000.0)	P	Q
<i>n</i>	0.21028802	ω	252.54427	+0.87952639	-0.46410220
<i>a</i>	2.8006555	Ω	134.95574	+0.47313796	+0.82937913
<i>e</i>	0.2366048	<i>i</i>	8.53975	+0.05073274	+0.31102958
<i>P</i>	4.69	<i>H</i>	13.8	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1977 08 22	095	(23.0+	1.0+)	1999 05 13	704	1.2+	0.7+	1999 05 14	704	0.5+	0.6-
1982 11 10	095	(20.8+	2.3+)	1999 05 13	704	0.7-	0.5+	1999 05 14	704	1.6-	0.2-
1991 09 14	675	0.2+	0.1-	1999 05 13	704	0.6+	1.1-	1999 05 17	704	0.4+	0.8-
1991 09 14	675	0.1-	0.1-	1999 05 13	704	0.4-	0.3+	1999 05 17	704	0.7-	1.0+
1998 03 25	566	0.1-	0.1-	1999 05 13	704	(3.8-	1.3+)	1999 05 17	704	1.4+	1.1-
1998 03 25	566	0.1-	0.2+	1999 05 14	704	1.5-	1.4-	1999 05 17	704	0.2-	1.1+
1998 03 25	566	0.1+	0.3-	1999 05 14	704	0.3-	0.6+	1999 05 17	704	0.5+	1.7+
1999 04 12	704	0.5+	0.1+	1999 05 14	704	1.1+	1.0-	1999 05 18	703	0.3+	0.3-
1999 04 12	704	0.9-	0.8-	1999 05 14	704	0.2+	0.5+	1999 05 18	703	0.7+	1.1+
1999 04 12	704	0.8-	0.7-	1999 05 14	704	(3.3-	0.4-)	1999 05 18	703	1.1+	0.5+
1999 04 12	704	(4.4-	0.7+)	1999 05 14	704	0.7-	0.6+	1999 05 18	703	0.4+	0.7+
1999 05 13	704	0.3-	1.2-	1999 05 14	704	0.3+	1.2-				
1999 05 13	704	(2.7+	1.1-)	1999 05 14	704	1.2-	0.9+				

1999 JB₁₀₈ = 1993 FF₃₃

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	298.32823		(2000.0)	P	Q
<i>n</i>	0.17685997	ω	277.91437	+0.72896984	+0.68123726
<i>a</i>	3.1432797	Ω	39.18386	-0.57865314	+0.66569249
<i>e</i>	0.1183307	<i>i</i>	6.10757	-0.36573696	+0.30458054
<i>P</i>	5.57	<i>H</i>	13.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1993 03 19	809	1.0+	0.4-	1999 05 07	699	0.2+	0.3-	1999 05 13	704	0.3-	1.4+
1993 03 20	809	0.0	0.0	1999 05 07	699	0.3+	0.9-	1999 05 18	704	1.3-	1.3+
1993 03 24	809	1.2-	0.1-	1999 05 07	699	1.1+	0.8+	1999 05 18	704	0.6-	0.1-
1993 04 18	413	(6.9-	0.8+)	1999 05 13	704	0.6+	0.5-	1999 05 18	704	0.2+	1.4-
1998 03 25	704	0.1+	0.4+	1999 05 13	704	1.1-	1.5-	1999 05 18	704	1.0+	1.3+
1998 03 25	704	(2.8-	3.3+)	1999 05 13	704	(4.2-	0.6+)				

1999 JR₁₀₈ = 1972 XX₁ = 1997 WA₅₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Gnädig

<i>M</i>	136.54869		(2000.0)	P	Q
<i>n</i>	0.23723476	ω	346.48242	+0.05201784	-0.99141173
<i>a</i>	2.5843451	Ω	100.43729	+0.92721012	+0.00332158
<i>e</i>	0.2587054	<i>i</i>	7.00788	+0.37091178	+0.13073538
<i>P</i>	4.15	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1972 12 01	095	0.1-	0.5+	1997 12 05	704	0.1+	0.2+	1999 05 13	704	1.4+	1.2+
1997 11 29	704	0.2+	0.4-	1997 12 05	704	0.1+	0.6+	1999 05 13	704	0.0	0.3-
1997 11 29	704	0.2+	0.3-	1997 12 05	704	(3.0+	1.0+)	1999 05 13	704	0.6-	1.7+
1997 11 29	704	0.2-	0.5-	1999 05 08	703	0.6-	0.1+	1999 05 13	704	0.8-	0.4+
1997 11 29	704	0.2-	0.5+	1999 05 08	703	0.1+	1.7-	1999 05 18	704	1.0+	1.3+
1997 12 05	704	0.3-	0.7-	1999 05 08	703	1.2-	0.5+	1999 05 18	704	0.8+	1.5-
1997 12 05	704	0.1+	0.2+	1999 05 08	703	0.6-	0.9-	1999 05 18	704	0.7+	0.7-

1999 JX₁₀₉ = 1998 BN₄₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	165.84788		(2000.0)	P	Q
<i>n</i>	0.20616050	ω	322.99067	+0.14646586	-0.98820284
<i>a</i>	2.8379130	Ω	118.54738	+0.91935041	+0.11928141
<i>e</i>	0.0193260	<i>i</i>	2.92037	+0.36516103	+0.09605780
<i>P</i>	4.78	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1998 01 26	566	0.5+	0.5-	1999 05 13	704	0.5+	0.3-	1999 05 19	703	0.1+	0.2+
1998 01 26	566	0.2-	0.0	1999 05 13	704	1.1-	0.2-	1999 05 19	703	0.7+	0.1-
1998 01 26	566	0.3+	0.3-	1999 05 13	704	0.4+	0.4+	1999 05 19	703	0.1-	1.2+
1998 01 28	910	0.5+	0.0	1999 05 13	704	0.2-	0.8-	1999 05 19	703	0.4-	0.0
1998 01 28	910	0.7+	0.1-	1999 05 13	704	0.3-	1.0+	1999 06 14	704	0.2-	0.2-
1998 01 28	910	0.6+	0.0	1999 05 18	704	(2.6+	0.9-)	1999 06 14	704	0.6+	0.5+
1998 01 29	691	0.8-	0.0	1999 05 18	704	(2.7-	1.8-)	1999 06 14	704	0.2+	0.2-
1998 01 29	691	0.7-	0.5+	1999 05 18	704	0.2-	0.6-	1999 06 14	704	0.3-	0.9-
1998 01 29	691	0.9-	0.4+	1999 05 18	704	0.6+	0.3-	1999 06 14	704	0.3-	0.4+

1999 JP₁₁₃

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	71.39353		(2000.0)	P	Q
<i>n</i>	0.27642002	ω	113.69867	-0.99646267	-0.04578453
<i>a</i>	2.3339402	Ω	63.74108	+0.01121378	-0.90349888
<i>e</i>	0.1051744	<i>i</i>	4.50685	+0.08328508	-0.42613795
<i>P</i>	3.57	<i>H</i>	16.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1956 04 09	675	1.6-	0.1-	1999 05 13	704	0.8-	0.8-	1999 05 18	704	0.1-	0.8+
1956 04 09	675	1.0+	1.2-	1999 05 13	704	0.1-	1.0+	1999 05 18	704	0.1+	0.0
1991 02 09	675	0.3-	0.5+	1999 05 13	704	0.3+	0.6-	1999 05 18	691	0.8-	0.3+
1991 02 09	675	0.0	0.7+	1999 05 17	703	0.2-	1.3+	1999 05 18	691	0.1-	0.0
1997 12 01	327	0.1+	0.3+	1999 05 17	703	1.1-	0.3+	1999 05 18	691	0.3+	0.0
1997 12 01	327	0.1-	0.0	1999 05 17	703	0.4+	0.6+	1999 06 15	704	0.3-	0.5-
1997 12 01	327	0.0	0.4-	1999 05 17	703	0.5+	0.4+	1999 06 15	704	0.6-	0.0
1999 05 13	704	1.2+	0.4+	1999 05 18	704	0.0	0.3-	1999 06 15	704	0.2+	0.2+
1999 05 13	704	0.8+	0.3-	1999 05 18	704	(2.1+	0.9-)	1999 06 15	704	0.8+	1.2-

1999 JS₁₁₄ = 1999 LL₃₂ = 1991 RL₂₆ = 1998 FM₁₆

Id. A. Doppler, G. V. Williams (d)

1999 AUG. 31

M.P.C. 35655

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	261.69524		(2000.0)	P	Q
<i>n</i>	0.21296281	ω	341.50649	+0.99746161	-0.06582905
<i>a</i>	2.7771556	Ω	22.32086	+0.07094885	+0.88641459
<i>e</i>	0.1164902	<i>i</i>	4.09867	+0.00604961	+0.45818741
<i>P</i>	4.63	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1991 09 11	675	1.5+	0.5-	1998 03 20	704	0.1+	0.2-	1999 05 13	704	0.0	0.1+
1991 09 11	675	0.3+	0.8-	1998 03 22	704	0.3-	0.2+	1999 05 13	704	1.4+	0.1-
1991 09 12	691	0.1-	0.3+	1998 03 22	704	0.5-	0.9-	1999 05 13	704	1.4+	0.2-
1991 09 12	691	0.1-	0.3+	1998 03 22	704	0.4+	0.6-	1999 05 13	704	(2.6-	2.6-)
1991 09 12	691	1.8-	0.0	1998 03 22	704	0.6-	1.3-	1999 05 18	704	0.6-	1.1-
1991 09 13	675	1.2+	0.7-	1999 05 09	699	0.3-	0.5-	1999 05 18	704	1.6+	1.6+
1991 09 13	675	0.0	0.5-	1999 05 09	699	0.8+	0.0	1999 05 18	704	0.5-	0.2+
1994 03 15	691	0.0	0.0	1999 05 09	699	0.2+	0.8+	1999 05 18	704	0.6-	0.9-
1994 03 15	691	0.3+	0.0	1999 05 10	704	0.5-	0.5-	1999 05 18	704	1.0-	0.7+
1994 03 15	691	0.4-	0.4-	1999 05 10	704	0.2-	1.8-	1999 06 15	704	1.0-	0.4+
1998 03 20	704	1.3+	0.7-	1999 05 10	704	0.3+	1.7+	1999 06 15	704	0.8-	0.4+
1998 03 20	704	0.5-	0.4+	1999 05 10	704	(3.6-	0.1-)	1999 06 15	704	1.0-	1.0-
1998 03 20	704	0.7-	1.7+	1999 05 13	704	0.4+	0.3+	1999 06 15	704	0.1-	0.9-

1999 JQ₁₁₇ = 1981 ER₄₈ = 1992 CL

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	192.60546		(2000.0)	P	Q
<i>n</i>	0.18034475	ω	305.50240	+0.45307510	-0.88511329
<i>a</i>	3.1026566	Ω	117.22239	+0.85172939	+0.39458579
<i>e</i>	0.1668416	<i>i</i>	6.86490	+0.26321094	+0.24673169
<i>P</i>	5.47	<i>H</i>	12.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1981 03 08	095	0.1+	0.9+	1998 04 19	704	0.1+	0.9-	1999 05 18	704	(3.0-	2.7+)
1992 01 27	691	0.1+	0.0	1998 04 20	704	0.3+	0.3+	1999 05 18	704	(2.7-	1.5+)
1992 01 27	691	0.8+	0.4-	1998 04 20	704	0.7+	0.2-	1999 05 19	704	0.0	1.1-
1992 01 27	691	0.4-	0.0	1998 04 20	704	0.4+	1.2+	1999 05 19	704	0.6-	1.9+
1992 02 05	372	0.6+	0.3+	1998 04 20	704	0.3-	0.8-	1999 05 19	704	0.1-	0.6-
1992 02 05	372	0.2+	0.6+	1998 04 20	704	0.5-	0.8+	1999 05 19	704	1.3-	0.2+
1992 02 08	372	0.2+	0.2+	1999 05 12	699	0.9+	0.9-	1999 05 20	699	0.2+	0.4+
1992 02 08	372	1.2-	0.1+	1999 05 12	699	0.1+	0.1-	1999 05 20	699	1.9+	1.0-
1993 04 17	691	0.2+	0.4-	1999 05 12	699	0.4+	0.1-	1999 06 14	704	0.4+	0.3-
1993 04 17	691	0.1-	0.0	1999 05 13	704	0.9-	0.7-	1999 06 14	704	0.1+	1.0+
1993 04 17	691	0.4-	0.3-	1999 05 13	704	0.2-	1.0+	1999 06 14	704	0.5+	0.2+
1998 04 19	704	1.5-	0.4+	1999 05 13	704	0.7+	1.0-	1999 06 14	704	0.7+	1.5+
1998 04 19	704	0.8-	1.1-	1999 05 13	704	1.7-	0.3+	1999 06 14	704	1.0+	0.7+
1998 04 19	704	0.9+	0.0	1999 05 18	704	0.7-	0.8-				
1998 04 19	704	0.1+	1.1-	1999 05 18	704	0.7-	1.1+				

1999 JV₁₂₀

Id. A. Doppler (1997 observations)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	249.75360		(2000.0)	P	Q
<i>n</i>	0.28713142	ω	303.88544	+0.88846717	-0.43971142
<i>a</i>	2.2755283	Ω	82.51177	+0.45256238	+0.79182714
<i>e</i>	0.1147462	<i>i</i>	7.61893	+0.07624550	+0.42386749
<i>P</i>	3.43	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1997 12 01	327	0.3+	0.3+	1999 05 13	704	(2.9-	1.1-)	1999 06 09	704	0.4+	0.2+
1997 12 01	327	0.5-	0.0	1999 05 18	704	0.0	0.1-	1999 06 09	704	0.5-	0.5-
1997 12 01	327	0.3+	0.0	1999 05 18	704	0.6-	0.2-	1999 06 09	704	0.3-	0.1-
1997 12 24	327	0.1-	0.0	1999 05 18	704	1.1-	0.1+	1999 06 09	704	0.4-	0.8+
1997 12 24	327	0.0	0.1-	1999 05 18	704	0.4+	0.3+	1999 06 15	704	0.0	0.4+
1997 12 24	327	0.1-	0.1-	1999 05 18	704	0.4+	0.7+	1999 06 15	704	0.2-	0.3-
1999 05 13	704	0.3+	1.0-	1999 05 19	704	1.0+	0.2+	1999 06 15	704	0.3-	0.3+

1999 05 13	704	0.4-	0.3-	1999 05 19	704	1.0+	0.6+	1999 06 15	704	0.9+	0.1-
1999 05 13	704	1.2-	1.6-	1999 05 19	704	0.7+	1.5-	1999 06 15	704	0.1-	0.3-
1999 05 13	704	0.3+	0.9+	1999 05 19	704	0.3-	1.5+				

1999 JJ₁₂₆ = 1986 VO₈ = 1995 FV₁₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	212.29529		(2000.0)	P	Q
<i>n</i>	0.27648282	ω	293.93496	+0.78543969	-0.61655384
<i>a</i>	2.3335867	Ω	104.17485	+0.58627376	+0.71301075
<i>e</i>	0.0832277	<i>i</i>	3.20911	+0.19841262	+0.33388176
<i>P</i>	3.56	<i>H</i>	15.0	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1986 11 04	675	1.5-	0.4-	1995 04 04	691	0.1-	0.2-	1999 05 13	704	(2.5+	1.4+)
1986 11 04	675	1.2+	1.2+	1995 04 04	691	0.2-	0.8-	1999 05 14	703	0.8-	0.4-
1995 02 06	691	0.9+	1.9+	1998 01 02	704	0.7-	0.1-	1999 05 14	703	0.8+	1.0+
1995 02 06	691	0.3-	0.0	1998 01 02	704	0.3-	0.1+	1999 05 14	703	1.1-	1.5+
1995 02 06	691	0.4-	0.1+	1998 01 02	704	0.1+	0.5+	1999 05 14	703	0.8+	0.4+
1995 03 29	691	0.1-	0.7-	1998 01 02	704	0.6+	0.2+	1999 05 19	704	1.5+	0.3+
1995 03 29	691	0.0	0.4-	1998 01 02	704	0.3+	0.1+	1999 05 19	704	(3.1+	1.8-)
1995 03 29	691	0.1-	0.6-	1999 05 13	704	1.1+	0.5-	1999 05 19	704	0.9-	1.0-
1995 04 04	691	0.1-	0.3-	1999 05 13	704	0.5-	1.1+				

1999 JT₁₂₆ = 1996 VT₆

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Gnädig

<i>M</i>	284.02376		(2000.0)	P	Q
<i>n</i>	0.19990974	ω	90.54522	+0.93328289	+0.35833399
<i>a</i>	2.8967660	Ω	248.45705	-0.33894642	+0.85665321
<i>e</i>	0.0657191	<i>i</i>	1.48342	-0.11873660	+0.37113613
<i>P</i>	4.93	<i>H</i>	14.4	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 11 12	599	0.6+	0.7+	1999 05 13	704	0.3-	1.5+	1999 05 19	704	1.2-	0.4-
1996 11 13	599	0.1-	0.5+	1999 05 13	704	1.7+	1.1-	1999 06 05	699	0.1-	0.5-
1996 11 13	599	0.3-	0.6-	1999 05 13	704	0.8-	0.8+	1999 06 05	699	0.8+	0.0
1996 11 13	599	0.1-	0.6-	1999 05 19	704	0.1+	1.1-	1999 06 05	699	0.4-	0.7+
1999 05 13	704	0.1+	0.6-	1999 05 19	704	0.0	0.7+				

1999 JP₁₃₀ = 1975 VX = 1986 XV

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	171.74270		(2000.0)	P	Q
<i>n</i>	0.27041985	ω	322.26912	+0.31307331	-0.94831173
<i>a</i>	2.3683380	Ω	109.43364	+0.88419973	+0.27110349
<i>e</i>	0.1881651	<i>i</i>	3.15276	+0.34666402	+0.16494778
<i>P</i>	3.64	<i>H</i>	14.8	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1975 11 01	095	0.9-	0.6-	1997 12 04	704	1.4+	0.1-	1999 05 13	704	0.2+	0.5-
1986 12 02	688	0.7+	0.0	1997 12 04	704	(2.2-	1.2+)	1999 05 18	704	1.0-	0.6-
1986 12 02	688	0.9+	0.6+	1997 12 04	704	1.9-	0.1+	1999 05 18	704	1.3-	1.5+
1993 10 15	010	0.0	1.2+	1998 01 26	704	0.4+	0.2-	1999 05 18	704	0.4+	0.8+
1993 10 15	010	0.8-	0.9+	1998 01 26	704	0.0	0.5+	1999 06 04	703	0.2+	1.1+
1993 10 15	010	0.6+	0.1-	1998 01 26	704	(2.2+	0.0)	1999 06 04	703	0.0	1.3-
1995 04 06	691	0.1-	0.3-	1998 01 26	704	0.3-	0.7+	1999 06 04	703	0.0	0.8+
1995 04 06	691	0.1-	0.3+	1998 01 26	704	0.7+	1.2+	1999 06 04	703	1.8-	0.7-
1995 04 06	691	0.3-	0.1-	1999 05 08	699	0.2+	0.4-	1999 06 14	704	0.2+	0.6-
1995 04 22	691	0.2+	0.3-	1999 05 08	699	0.7+	1.4+	1999 06 14	704	0.7+	0.4+
1995 04 22	691	0.4+	0.4-	1999 05 08	699	0.5-	1.1+	1999 06 14	704	0.7+	0.3+
1995 04 22	691	0.5+	0.3-	1999 05 13	704	0.5+	0.6+	1999 06 14	704	1.0+	1.5+
1997 12 04	704	1.6-	0.6-	1999 05 13	704	0.1-	1.1-	1999 06 14	704	0.1+	0.5-
1997 12 04	704	0.0	0.5+	1999 05 13	704	0.0	0.5+				

1999 KP₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	252.75466	(2000.0)	P		Q	
<i>n</i>	0.21675991	ω	149.68504	+0.99727064	-0.05420562	
<i>a</i>	2.7446275	Ω	213.53514	+0.03491130	+0.94446925	
<i>e</i>	0.0495158	<i>i</i>	5.20628	+0.06505752	+0.32409811	
<i>P</i>	4.55	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1991 09 04	413	0.1-	0.4+	1999 05 10	704	1.0+	0.9-	1999 05 20	691	0.5-	0.3+
1991 09 04	413	0.1+	0.2-	1999 05 16	691	0.2-	0.2+	1999 05 20	691	0.1-	0.1-
1996 11 09	327	0.1+	0.2-	1999 05 16	691	0.4-	0.2-	1999 06 14	704	0.4+	0.2+
1996 11 09	327	0.5+	0.3-	1999 05 16	691	1.0-	0.2-	1999 06 14	704	0.4+	0.6+
1996 11 09	327	0.2-	0.9-	1999 05 17	703	0.4+	0.1+	1999 06 14	704	0.5+	0.3-
1999 05 10	704	0.3-	1.9-	1999 05 17	703	0.7-	0.4+	1999 06 14	704	0.6+	0.7+
1999 05 10	704	0.1+	0.9-	1999 05 17	703	0.9+	0.9+	1999 06 14	704	0.4+	1.1-
1999 05 10	704	0.7-	0.1+	1999 05 17	703	0.5+	0.7+				
1999 05 10	704	0.8-	0.1+	1999 05 20	691	0.4-	0.1-				

1999 KV₁₇ = 1999 KB₁₈ = 1996 TU₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	353.53680	(2000.0)	P		Q	
<i>n</i>	0.26376279	ω	90.85285	+0.04542929	+0.99896693	
<i>a</i>	2.4080215	Ω	181.75212	-0.93045345	+0.04190650	
<i>e</i>	0.1673649	<i>i</i>	2.09385	-0.36358293	+0.01757595	
<i>P</i>	3.74	<i>H</i>	16.3	<i>G</i>	0.15	<i>U</i> 6

Residuals in seconds of arc

1996 10 03	327	0.1+	0.6-	1999 05 13	704	(5.6-	1.4+)	1999 05 18	704	0.7-	1.1-
1996 10 03	327	0.7-	0.4+	1999 05 13	704	0.6-	0.4-	1999 05 18	704	1.0+	0.6+
1996 10 03	327	0.2+	0.3+	1999 05 13	704	0.6+	0.1-	1999 05 18	704	0.9-	0.5-
1996 10 05	327	0.0	0.0	1999 05 13	704	0.1-	0.3+	1999 05 18	704	0.5+	0.2+
1996 10 05	327	0.5+	0.2+	1999 05 13	704	1.3+	0.6+	1999 05 18	704	0.7+	1.0+
1996 10 05	327	0.2-	0.3-	1999 05 13	704	1.7-	3.5-	1999 05 23	691	0.0	0.3-
1999 05 13	704	0.4+	0.3-	1999 05 17	703	0.2+	0.6+	1999 05 23	691	0.1+	0.2-
1999 05 13	704	1.2-	0.2+	1999 05 17	703	0.8-	0.5+	1999 05 23	691	0.4-	0.3-
1999 05 13	704	0.2+	0.6+	1999 05 17	703	1.0+	0.9+				
1999 05 13	704	0.6+	1.0+	1999 05 17	703	0.1-	0.0				

1999 LJ = 1987 LE

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	29.43648	(2000.0)	P		Q	
<i>n</i>	0.25027256	ω	59.67524	-0.16817671	+0.98500116	
<i>a</i>	2.4937939	Ω	200.74868	-0.93769263	-0.17192945	
<i>e</i>	0.1281840	<i>i</i>	6.25379	-0.30405448	-0.01459371	
<i>P</i>	3.94	<i>H</i>	13.8	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1955 04 20	675	1.3+	1.4-	1999 06 11	120	0.2-	0.4+	1999 06 22	120	0.2-	1.1+
1955 04 20	675	1.3-	1.4+	1999 06 11	120	0.3-	0.4+	1999 06 22	120	0.2+	0.3+
1987 06 02	413	0.9-	0.2-	1999 06 12	120	0.6+	0.3-	1999 07 04	120	0.0	0.0
1987 06 02	413	0.9+	0.6-	1999 06 12	120	0.6-	0.2-	1999 07 04	120	0.4+	0.9-
1999 06 05	120	0.0	0.9-	1999 06 12	120	0.5+	0.6-	1999 07 04	120	0.1-	0.6-
1999 06 05	120	0.3+	0.4+	1999 06 14	704	0.3+	0.4+	1999 07 13	704	0.3+	0.1-
1999 06 06	120	0.5-	0.7+	1999 06 14	704	0.4+	0.3+	1999 07 13	704	0.1+	0.4-
1999 06 06	120	0.6+	0.7+	1999 06 14	704	0.0	0.0	1999 07 13	704	0.1-	0.2-
1999 06 06	120	1.0-	0.1-	1999 06 14	704	0.3+	0.0	1999 07 13	704	0.2+	0.0
1999 06 06	120	0.6-	0.4+	1999 06 14	704	0.1+	0.1-	1999 07 13	704	0.0	0.2-
1999 06 07	120	0.1+	0.2-	1999 06 22	120	0.6-	0.5+				

1999 LE₄ = 1977 DM₆ = 1989 TB₁₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	0.53585	(2000.0)	P		Q	
<i>n</i>	0.27802531	ω	144.17486	+0.19435135	+0.97760437	
<i>a</i>	2.3249475	Ω	136.86850	-0.92524305	+0.21003093	
<i>e</i>	0.1277091	<i>i</i>	6.78140	-0.32581107	-0.01329277	
<i>P</i>	3.55	<i>H</i>	15.1	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1977 02 19	381	0.6+	0.9+	1999 06 09	704	0.0	0.2-	1999 06 14	704	0.3+	0.4-
1977 02 19	381	0.3-	0.9+	1999 06 09	704	0.6+	0.0	1999 06 14	704	0.1-	0.7-
1989 10 07	809	0.2-	1.5+	1999 06 09	704	0.3-	0.7+	1999 06 14	704	0.0	0.5-
1989 10 07	809	0.2-	2.0+	1999 06 11	704	0.2+	0.1+	1999 07 13	704	0.0	0.1-
1989 10 07	809	1.2-	1.3+	1999 06 11	704	0.4+	1.0+	1999 07 13	704	0.1-	0.1+
1995 02 25	691	0.5+	1.0+	1999 06 11	704	0.4-	0.2+	1999 07 13	704	0.0	0.1+
1995 02 25	691	0.5+	0.9+	1999 06 11	704	0.2+	0.1+	1999 07 13	704	0.4-	0.3-
1995 02 25	691	0.4+	0.8+	1999 06 11	704	1.0-	0.6+	1999 07 13	704	0.3-	0.1+
1999 06 09	704	0.4+	0.8+	1999 06 14	704	0.5+	0.3+				
1999 06 09	704	0.1-	0.2+	1999 06 14	704	0.2+	0.3+				

1999 LH₆ = 1980 FL₁ = 1998 BZ₄₈Id. G. V. Williams; 1980 DY₄ = 1980 FL₁ (*MPC* 9203) is invalid

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	43.50933	(2000.0)	P		Q	
<i>n</i>	0.26504095	ω	342.24651	-0.30706611	+0.94760829	
<i>a</i>	2.4002735	Ω	269.79970	-0.86213239	-0.31615004	
<i>e</i>	0.0725043	<i>i</i>	5.05020	-0.40303615	-0.04569120	
<i>P</i>	3.72	<i>H</i>	13.0	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1980 06 09	323	0.0	0.1+	1999 07 04	684	0.1-	0.5+	1999 07 31	684	0.1-	0.2-
1998 01 26	566	0.4-	0.6-	1999 07 05	684	0.1-	0.4+	1999 07 31	684	0.3-	0.1-
1998 01 26	566	0.5-	0.5-	1999 07 05	684	0.1-	0.4+	1999 07 31	684	0.1-	0.0
1998 01 26	566	0.6-	0.8-	1999 07 05	684	0.1-	0.5+	1999 08 01	684	0.1-	0.0
1998 02 26	566	0.6-	0.0	1999 07 14	704	1.0+	0.4+	1999 08 01	684	0.2-	0.0
1998 02 26	566	0.7+	0.3-	1999 07 14	704	1.0+	0.6+	1999 08 04	684	0.2+	0.5-
1998 02 26	566	0.1+	0.5-	1999 07 14	704	0.7+	0.0	1999 08 04	684	0.0	0.5-
1999 06 13	684	1.1-	0.1-	1999 07 14	704	0.6+	0.0	1999 08 09	106	0.0	0.3-
1999 06 13	684	1.0-	0.1-	1999 07 14	704	0.7+	0.2-	1999 08 09	106	0.3+	0.7-
1999 06 14	684	0.9-	0.2+	1999 07 22	704	0.8+	0.2-	1999 08 09	106	0.7-	0.1+
1999 06 14	684	0.9-	0.1+	1999 07 22	704	1.3+	0.9-	1999 08 11	106	0.3-	0.2+
1999 06 17	684	0.9-	0.0	1999 07 22	704	0.7+	0.4-	1999 08 12	704	0.1-	0.1+
1999 06 17	684	1.0-	0.0	1999 07 22	704	1.0+	0.3-	1999 08 12	704	0.0	0.3-
1999 06 17	684	1.0-	0.2-	1999 07 22	704	0.6+	0.6-	1999 08 12	704	0.2+	0.6-
1999 06 21	684	1.0-	0.3+	1999 07 23	704	1.2+	0.8-	1999 08 12	704	0.2+	0.6-
1999 06 21	684	1.0-	0.2+	1999 07 23	704	0.7+	0.5+	1999 08 12	704	0.1-	0.8-
1999 06 21	684	1.0-	0.2+	1999 07 23	704	0.7+	0.3+				
1999 07 04	684	0.1-	0.4+	1999 07 31	684	0.2-	0.0				

1999 LE₁₀ = 1998 FR₉₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Gnädig

<i>M</i>	205.43160	(2000.0)	P		Q	
<i>n</i>	0.22195629	ω	227.41519	+0.45100698	-0.89042432	
<i>a</i>	2.7016209	Ω	196.09853	+0.86978328	+0.45384724	
<i>e</i>	0.1483320	<i>i</i>	12.73638	+0.20017429	+0.03416443	
<i>P</i>	4.44	<i>H</i>	14.4	<i>G</i>	0.15	<i>U</i> 5

Residuals in seconds of arc

1998 03 31	704	0.2+	0.4-	1998 04 01	704	0.0	0.9+	1999 06 14	704	0.0	0.5+
1998 03 31	704	1.2-	0.2-	1999 06 08	704	0.5+	0.8-	1999 06 14	704	0.5+	0.4+
1998 03 31	704	0.2+	0.1+	1999 06 08	704	0.7-	0.2+	1999 06 14	704	1.2+	0.2+
1998 03 31	704	1.4-	1.1-	1999 06 08	704	0.5+	0.5+	1999 06 14	704	0.4+	0.1-
1998 03 31	704	0.6+	0.2+	1999 06 08	704	0.3+	0.1+	1999 06 22	552	0.5-	1.0+
1998 04 01	704	0.0	0.3+	1999 06 08	704	0.1+	0.1-	1999 06 22	552	0.2-	0.4-
1998 04 01	704	1.0+	0.4-	1999 06 11	552	0.5-	0.7-	1999 06 22	552	0.7+	0.3-

1999 AUG. 31

M.P.C. 35657

1998 04 01 704 0.7+ 0.5- 1999 06 11 552 1.5- 0.1+
1998 04 01 704 0.1- 1.0+ 1999 06 11 552 0.7- 0.6-

1999 LT₁₉ = 1990 QY₁₀ = 1994 LC₄ = 1995 SY₁₂ = 1998 FE₃₉
= 1998 FN₁₄₀

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	287.10143		(2000.0)	P	Q
<i>n</i>	0.19909204	ω	4.78294	+0.97957309	+0.20098253
<i>a</i>	2.9046922	Ω	343.61824	-0.18525400	+0.88933961
<i>e</i>	0.0759921	<i>i</i>	1.32588	-0.07821457	+0.41070803
<i>P</i>	4.95	<i>H</i>	14.0	<i>G</i> 0.15	<i>U</i> 1

Residuals in seconds of arc

1990 08 16	809	1.0+	0.5+	1995 09 19	809	(17.1- 30.0-)	1998 03 29	704	0.7+	0.1-	
1990 08 16	809	0.1+	0.2-	1995 09 20	809	0.1+	0.1-	1998 03 29	704	0.7+	1.1-
1990 08 16	809	1.0-	0.8-	1995 09 23	809	0.8+	0.9-	1998 04 01	704	0.9+	0.8+
1990 08 20	809	0.0	0.3-	1995 09 24	809	0.4+	0.5-	1998 04 01	704	0.6+	1.2-
1990 08 20	809	0.1+	0.8-	1995 09 27	691	0.3-	0.1+	1998 04 01	704	0.3-	0.7+
1990 08 20	809	0.5+	0.0	1995 09 27	691	0.3-	0.4+	1998 04 01	704	0.0	0.2+
1994 06 03	809	(1.9+ 4.4+)		1995 09 27	691	0.5-	0.0	1998 04 01	704	(2.3+ 0.6+)	
1994 06 03	809	(1.1+ 4.9+)		1998 02 27	566	0.7-	0.1-	1999 06 09	704	(0.7- 2.3+)	
1994 06 03	809	(2.6+ 3.7+)		1998 02 27	566	0.2-	0.2+	1999 06 09	704	0.8+	0.2+
1994 06 04	809	(0.9+ 4.4+)		1998 02 27	566	0.3-	0.3+	1999 06 09	704	0.2+	1.2-
1994 06 04	809	(1.8+ 3.7+)		1998 03 20	704	1.2+	1.4+	1999 06 09	704	0.6-	0.4-
1994 06 04	809	(2.1+ 3.0+)		1998 03 20	704	0.1-	0.5+	1999 06 09	704	0.2-	1.2-
1995 08 24	809	0.6+	0.2+	1998 03 20	704	1.6-	0.3-	1999 06 15	704	0.5-	0.2+
1995 08 25	809	0.0	0.6+	1998 03 20	704	0.3-	0.1+	1999 06 15	704	0.1-	1.1+
1995 08 25	809	0.2-	0.0	1998 03 22	704	0.2-	0.3+	1999 06 15	704	0.1-	0.7+
1995 08 26	809	0.6+	0.3+	1998 03 22	704	1.4-	0.8-	1999 06 15	704	0.4-	1.4+
1995 09 01	809	0.1+	0.4+	1998 03 22	704	(3.0- 0.6-)		1999 06 15	704	0.1-	0.7+
1995 09 18	691	1.2-	0.2+	1998 03 22	704	(0.5+ 3.2-)		1999 06 22	703	1.0+	0.1+
1995 09 18	691	1.3-	0.4+	1998 03 22	704	0.2-	0.4+	1999 06 22	703	0.4-	0.2+
1995 09 18	809	0.7+	0.3+	1998 03 29	704	1.6+	0.2-	1999 06 22	703	0.3-	1.2-
1995 09 18	691	1.1-	0.2+	1998 03 29	704	0.2-	0.4-	1999 06 22	703	0.8+	0.3-
1995 09 19	809	0.9+	0.1+	1998 03 29	704	0.2-	0.8-				

1999 LK₂₀ = 1996 TL₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Gnädig

<i>M</i>	12.06710		(2000.0)	P	Q
<i>n</i>	0.27565342	ω	206.32550	-0.11982625	+0.99183668
<i>a</i>	2.3382654	Ω	56.82152	-0.90143378	-0.09028892
<i>e</i>	0.1925010	<i>i</i>	2.98660	-0.41600337	-0.09004395
<i>P</i>	3.58	<i>H</i>	16.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 10 03	327	0.4+	0.2+	1999 06 09	704	0.6-	0.7+	1999 06 15	704	0.1-	0.7-
1996 10 03	327	0.0	0.4-	1999 06 09	704	0.6-	1.0-	1999 06 15	704	0.3-	0.1+
1996 10 03	327	0.1-	0.1-	1999 06 09	704	0.7+	0.4-	1999 06 22	703	1.0+	0.0
1996 10 05	327	0.5-	0.1+	1999 06 09	704	1.3+	0.6+	1999 06 22	703	1.5-	0.4-
1996 10 05	327	0.1+	0.2+	1999 06 15	704	0.2-	0.5-	1999 06 22	703	0.9+	0.4+
1996 10 05	327	0.0	0.1-	1999 06 15	704	0.6-	0.2-	1999 06 22	703	0.0	0.7+
1999 06 09	704	0.4-	0.6+	1999 06 15	704	0.3+	0.1+				

1999 LZ₂₁ = 9003 P-L = 1996 TX₄₇

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	318.64515		(2000.0)	P	Q
<i>n</i>	0.27501337	ω	125.99286	+0.93054640	+0.36197391
<i>a</i>	2.3418919	Ω	212.88763	-0.36011875	+0.87730952
<i>e</i>	0.2239958	<i>i</i>	5.84549	-0.06631655	+0.31512362
<i>P</i>	3.58	<i>H</i>	15.4	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1960 10 17	675	(5.4+ 6.7+)	1996 11 15	399	1.9+	3.0+	1999 06 11	703	0.3+	0.4-	
1960 10 22	675	0.9-	0.3-	1996 11 15	399	1.0+	2.4+	1999 06 11	703	0.6+	0.3+
1960 10 26	675	1.4+	1.1-	1999 06 09	704	0.1-	0.2-	1999 06 11	703	0.3-	0.2-
1996 10 12	691	0.5-	0.3+	1999 06 09	704	0.4-	0.7-	1999 06 11	703	0.6+	0.7+
1996 10 12	691	0.6-	0.4+	1999 06 09	704	0.5-	0.2+	1999 06 15	704	0.2-	0.1+
1996 10 12	691	0.6-	0.4+	1999 06 09	704	1.0-	0.1-	1999 06 15	704	0.0	0.4+
1996 10 14	691	0.5+	0.3+	1999 06 09	704	0.3-	0.6+	1999 06 15	704	0.2+	0.1+
1996 10 14	691	0.7+	0.6+	1999 06 11	703	0.5+	1.9+	1999 06 15	704	0.2-	0.2+
1996 10 14	691	0.5+	0.1+	1999 06 11	703	0.4+	0.5+	1999 06 15	704	0.5+	1.9-
1996 11 12	399	1.6-	3.3-	1999 06 11	703	0.1-	0.5-				
1996 11 12	399	1.6-	2.4-	1999 06 11	703	0.1-	0.2-				

1999 LG₂₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	356.12132		(2000.0)	P	Q
<i>n</i>	0.23441822	ω	34.90477	+0.35741065	+0.90984412
<i>a</i>	2.6050045	Ω	256.84938	-0.89858464	+0.27347863
<i>e</i>	0.1321301	<i>i</i>	12.50286	-0.25456488	+0.31207871
<i>P</i>	4.20	<i>H</i>	14.1	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1996 10 17	675	0.9-	0.1+	1999 06 09	704	1.0-	0.1+	1999 06 15	704	0.4+	0.9-
1996 10 17	675	0.8-	0.4+	1999 06 09	704	0.6-	0.9-	1999 07 13	704	0.6+	0.0
1997 01 15	327	0.9+	0.5-	1999 06 09	704	1.7-	0.9-	1999 07 13	704	0.4+	0.0
1997 01 15	327	0.7+	0.5-	1999 06 15	704	0.2+	0.0	1999 07 13	704	0.3+	0.5+
1997 01 15	327	0.2+	0.4-	1999 06 15	704	1.0+	0.3+	1999 07 13	704	0.8+	0.3+
1999 06 09	704	0.7-	0.0	1999 06 15	704	0.4+	0.1+	1999 07 13	704	0.3+	0.2+
1999 06 09	704	0.7-	0.2+	1999 06 15	704	0.3+	0.0				

1999 NA = 1998 HT₁₀₆

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Marsden

<i>M</i>	277.86140		(2000.0)	P	Q
<i>n</i>	0.23112095	ω	304.11075	+0.81707599	-0.53315809
<i>a</i>	2.6297220	Ω	89.03850	+0.57427221	+0.71900547
<i>e</i>	0.1794138	<i>i</i>	12.67466	+0.05097300	+0.44584031
<i>P</i>	4.26	<i>H</i>	13.4	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 04 23	704	0.5+	0.3-	1998 05 28	704	(3.1+ 1.4-)	1999 07 04	046	0.3-	0.4-	
1998 04 23	704	0.3+	0.3+	1998 05 28	704	0.7+	1.7+	1999 07 04	046	0.1+	0.1-
1998 04 23	704	0.3-	0.2+	1998 05 28	704	1.6-	0.0	1999 07 04	046	0.0	0.0
1998 04 23	704	1.0-	0.1-	1998 05 28	704	(0.1+ 2.4+)	1999 07 04	046	0.5+	0.2+	
1998 04 23	704	0.3+	0.0	1999 06 15	704	0.4+	0.3-	1999 07 04	046	0.4-	0.1+
1998 04 24	704	0.2+	0.4-	1999 06 15	704	0.6+	0.5+	1999 07 04	046	0.7-	0.2-
1998 04 24	704	(2.6+ 1.0-)		1999 06 15	704	0.5+	0.6+	1999 07 05	046	0.4-	0.2+
1998 04 24	704	0.3-	0.7+	1999 06 15	704	0.1+	0.1+	1999 07 05	046	0.5-	0.0
1998 04 24	704	0.6+	0.0	1999 06 15	704	0.5+	0.3+	1999 07 05	046	0.1-	0.8+
1998 04 24	704	0.3-	0.3+	1999 07 03	046	0.4-	0.5-	1999 07 11	046	1.2-	0.2-
1998 05 16	704	0.2+	0.3-	1999 07 03	046	0.2+	0.8-	1999 07 17	046	1.4+	0.0
1998 05 16	704	1.2-	0.7-	1999 07 03	046	0.1+	0.6-	1999 07 17	046	1.2+	0.2+
1998 05 16	704	1.2+	0.1+	1999 07 03	046	0.5-	0.1+	1999 07 17	046	1.0+	0.0
1998 05 16	704	0.2-	0.7-	1999 07 04	046	1.2-	0.2+				
1998 05 28	704	0.9+	1.0-	1999 07 04	046	0.8-	0.3-				

1999 NR = 1994 RL₁₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	57.11611		(2000.0)	P	Q
<i>n</i>	0.37071360	ω	65.76214	-0.69474139	+0.70321149
<i>a</i>	1.9191564	Ω	157.88528	-0.71367451	-0.70009308
<i>e</i>	0.0306941	<i>i</i>	23.66197	+0.08946002	-0.12394868
<i>P</i>	2.66	<i>H</i>	16.6	<i>G</i> 0.15	<i>U</i> 4

M.P.C. 35658

1999 AUG. 31

Residuals in seconds of arc

1994 09 03	809	0.0	0.1+	1999 06 11	704	0.5−	0.3+	1999 07 08	703	0.1−	0.1−
1994 09 03	809	0.1+	0.1+	1999 06 11	704	0.0	0.4−	1999 07 08	703	0.7+	0.1−
1994 09 03	809	0.6−	0.6−	1999 06 11	704	0.2+	0.1+	1999 07 10	658	0.0	0.4−
1994 09 04	809	0.8−	2.0−	1999 06 11	704	0.3+	0.1−	1999 07 10	658	0.2+	0.2+
1994 09 04	809	0.7+	1.0+	1999 07 08	703	0.7−	0.6+	1999 07 10	658	0.3+	0.1−
1994 09 04	809	0.7+	1.4+	1999 07 08	703	0.5−	0.0				

1999 NC₃ = 1998 DW₁₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	348.80970		(2000.0)	P	Q
<i>n</i>	0.22599502	ω	143.78970	+0.67579057	+0.73685800
<i>a</i>	2.6693374	Ω	168.68514	−0.69663030	+0.64675104
<i>e</i>	0.1460593	<i>i</i>	5.45112	−0.24085956	+0.19685879
<i>P</i>	4.36	<i>H</i>	14.0	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1995 08 19	809	0.1−	0.4+	1998 03 24	327	0.6+	0.6+	1999 06 14	704	0.2+	0.2+
1995 08 20	809	0.3−	0.3+	1998 03 24	327	0.0	1.3+	1999 06 14	704	0.5−	0.1−
1995 08 22	809	0.0	0.2+	1998 03 24	327	1.3+	1.1+	1999 07 13	704	0.2+	0.2+
1998 02 23	327	0.2−	0.1−	1998 03 24	327	0.3+	0.7+	1999 07 13	704	0.3−	0.3+
1998 02 23	327	0.0	0.0	1998 03 29	704	0.3−	0.9+	1999 07 13	704	0.0	0.1+
1998 02 23	327	0.3+	0.1+	1998 03 29	704	0.0	0.5+	1999 07 13	704	0.0	0.8−
1998 02 24	566	0.4−	0.5−	1998 03 29	704	0.4+	0.1−	1999 07 13	704	0.5−	0.0
1998 02 24	566	0.4−	0.1+	1998 03 29	704	0.9+	1.0−	1999 07 14	704	0.7+	0.1+
1998 02 24	566	0.3−	0.4+	1998 03 29	704	0.8+	1.2−	1999 07 14	704	0.7+	0.1−
1998 02 25	566	0.8−	0.1+	1998 04 19	704	0.4−	0.6−	1999 07 14	704	0.6−	0.1−
1998 02 25	566	0.4−	0.1+	1998 04 19	704	0.2−	0.1−	1999 07 14	704	0.0	0.3−
1998 02 25	566	0.9−	0.0	1998 04 19	704	0.8+	0.3+	1999 07 14	704	0.3+	0.6−
1998 03 22	704	0.2+	0.3+	1998 04 19	704	0.4+	0.5−	1999 07 19	704	0.2+	0.1+
1998 03 22	704	0.0	0.7−	1998 04 19	704	1.7−	0.2−	1999 07 19	704	0.2−	0.1−
1998 03 22	704	0.5+	0.7+	1999 06 14	704	0.1+	0.1−	1999 07 19	704	0.5−	0.2+
1998 03 22	704	0.6−	0.4−	1999 06 14	704	0.2+	0.5+				
1998 03 22	704	0.4+	0.7−	1999 06 14	704	0.1+	0.2+				

1999 NH₃ = 1977 RR₁ = 1986 QZ₄ = 1986 RR₁₂ = 1986 SF₂

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	333.99335		(2000.0)	P	Q
<i>n</i>	0.22182369	ω	178.40147	+0.92706660	+0.36497407
<i>a</i>	2.7026975	Ω	159.53520	−0.34662313	+0.92153611
<i>e</i>	0.1771161	<i>i</i>	14.18563	−0.14282834	+0.13253348
<i>P</i>	4.44	<i>H</i>	12.8	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1977 09 08	095	0.1−	0.7+	1998 04 24	704	0.3+	0.4+	1999 07 14	704	0.6−	0.2−
1986 08 18	095	0.5−	1.6+	1998 04 24	704	1.0−	0.6+	1999 07 14	704	0.0	0.3−
1986 09 09	095	0.6−	1.0−	1999 07 13	704	0.0	0.2+	1999 07 22	704	0.1−	0.1−
1986 09 29	095	1.0+	0.4+	1999 07 13	704	1.0+	0.4−	1999 07 22	704	0.2−	0.1+
1998 04 04	699	0.0	0.2+	1999 07 13	704	0.0	0.1+	1999 07 22	704	0.5+	1.0+
1998 04 04	699	0.8+	0.4+	1999 07 13	704	0.1+	0.1−	1999 07 22	704	0.8−	0.9−
1998 04 04	699	0.9+	0.0	1999 07 13	704	0.3+	0.4−	1999 07 22	704	0.2−	0.1−
1998 04 24	704	0.0	0.1+	1999 07 14	704	0.1+	0.3+	1999 08 21	138	0.0	0.0
1998 04 24	704	0.7−	0.2+	1999 07 14	704	0.1−	0.2−	1999 08 21	138	0.4−	0.2−
1998 04 24	704	0.1−	0.5−	1999 07 14	704	0.8+	0.3+	1999 08 21	138	0.3−	0.1+

1999 NO₃ = 1998 FN₃₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	121.52440		(2000.0)	P	Q
<i>n</i>	0.24444578	ω	12.86622	−0.99837993	−0.03682147
<i>a</i>	2.5332673	Ω	164.82132	+0.02506966	−0.96905222
<i>e</i>	0.0419672	<i>i</i>	9.53642	+0.05107868	−0.24409417
<i>P</i>	4.03	<i>H</i>	14.2	<i>G</i>	0.15
				<i>U</i>	4

Residuals in seconds of arc

1998 03 20	704	1.6−	0.2+	1998 03 29	704	0.8+	0.1−	1999 07 14	704	0.0	0.2−
1998 03 20	704	0.6+	0.4+	1998 03 29	704	0.0	0.5−	1999 07 14	704	0.2−	0.7−
1998 03 20	704	0.6−	0.1+	1998 03 29	704	0.6−	1.3−	1999 07 14	704	0.1−	0.1+
1998 03 20	704	0.4+	0.7+	1998 03 29	704	1.0−	0.7−	1999 07 14	704	0.2+	0.5+
1998 03 20	704	0.3−	1.5+	1998 04 19	704	0.2+	0.6+	1999 07 14	704	0.4+	0.1−
1998 03 22	704	0.6+	0.1−	1998 04 19	704	(3.6+	0.2+)	1999 07 14	704	0.3+	0.0
1998 03 22	704	1.5+	1.6−	1998 04 19	704	1.1+	0.1−	1999 07 14	704	1.0+	0.4−
1998 03 22	704	0.1+	0.1+	1998 04 19	704	0.2−	0.3−	1999 07 16	704	0.2+	0.0
1998 03 22	704	0.2+	0.3+	1998 04 19	704	0.5−	0.3+	1999 07 16	704	0.1+	0.4+
1998 03 22	704	0.2+	0.1−	1999 07 13	704	0.2−	0.0	1999 07 16	704	0.3+	0.2+
1998 03 26	704	0.1−	0.3+	1999 07 13	704	0.5−	0.4−	1999 07 16	704	0.0	0.2−
1998 03 26	704	0.8−	0.2+	1999 07 13	704	0.7+	0.3+	1999 07 19	704	0.1+	0.6+
1998 03 26	704	0.3−	0.1+	1999 07 13	704	0.1+	0.1+	1999 07 19	704	1.3−	0.5−
1998 03 29	704	0.3+	0.2−	1999 07 14	704	0.0	0.1+	1999 07 19	704	1.1−	0.4+

1999 ND₄ = 1977 XO₃

Id. T. B. Spahr

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	317.52938		(2000.0)	P	Q
<i>n</i>	0.26238778	ω	322.38735	+0.96353748	−0.26755401
<i>a</i>	2.4164268	Ω	53.13173	+0.24646104	+0.88275959
<i>e</i>	0.1982301	<i>i</i>	0.23072	+0.10417525	+0.38619988
<i>P</i>	3.76	<i>H</i>	15.5	<i>G</i>	0.15
				<i>U</i>	5

Residuals in seconds of arc

1977 12 07	675	0.4+	1.2+	1999 07 13	704	0.3−	0.3+	1999 07 20	699	0.3+	0.7+
1977 12 08	675	0.6−	0.7+	1999 07 13	704	1.1−	0.2+	1999 07 20	699	1.2+	0.1−
1998 03 29	704	0.1−	0.1+	1999 07 13	704	0.2−	0.1−	1999 07 20	699	0.8−	0.5−
1998 03 29	704	1.9+	1.8+	1999 07 14	704	0.4+	0.2−	1999 07 20	691	0.0	0.1−
1998 03 29	704	(3.9+	0.8+)	1999 07 14	704	0.0	0.0	1999 07 20	691	0.0	0.2−
1998 03 29	704	1.1−	0.2−	1999 07 14	704	0.4−	0.3+	1999 07 20	691	0.1−	0.4−
1999 07 13	704	0.1+	0.4+	1999 07 14	704	0.2+	0.4+				
1999 07 13	704	0.2+	0.2+	1999 07 14	704	0.1−	0.6+				

1999 NG₄ = 1989 NV

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	28.49734		(2000.0)	P	Q
<i>n</i>	0.29995420	ω	29.20683	+0.13879271	+0.98975908
<i>a</i>	2.2102060	Ω	248.78803	−0.91540868	+0.11536475
<i>e</i>	0.1842231	<i>i</i>	2.05134	−0.37784061	+0.08407103
<i>P</i>	3.29	<i>H</i>	15.2	<i>G</i>	0.15
				<i>U</i>	2

Residuals in seconds of arc

1989 07 01	675	0.6−	2.3−	1997 10 09	691	1.2+	0.3+	1999 07 13	704	0.5+	0.7−
1989 07 01	675	0.5+	0.4−	1997 10 09	691	0.1−	0.0	1999 07 13	704	1.1−	0.4−
1989 07 04	675	0.5+	0.4+	1998 01 30	910	1.0+	0.2+	1999 07 14	704	0.1+	0.0
1989 07 04	675	0.2−	0.5−	1998 01 30	910	1.0+	0.3+	1999 07 14	704	0.5−	0.3+
1996 09 15	566	0.3+	0.5−	1998 01 30	910	1.1+	0.2+	1999 07 14	704	0.9−	0.1−
1996 09 15	566	0.5+	0.9−	1998 03 31	910	1.1−	0.7+	1999 07 14	704	0.2+	0.9+
1996 09 15	566	0.3+	0.5−	1998 03 31	910	1.3−	0.5+	1999 07 14	704	0.7−	0.2−
1996 10 06	691	0.2−	0.1−	1998 03 31	910	1.0−	0.5+	1999 07 23	704	0.2+	0.3+
1996 10 06	691	0.1−	0.2−	1999 06 25	699	0.1+	0.5+	1999 07 23	704	0.0	0.4+
1996 10 06	691	0.5−	0.0	1999 06 25	699	0.1+	0.2+	1999 07 23	704	0.1−	0.4+
1996 10 18	566	0.2+	0.1+	1999 06 25	699	0.2−	0.7+	1999 07 23	704	0.5−	0.7+
1996 10 18	566	0.1−	0.1+	1999 07 13	704	0.5+	0.1+	1999 08 12	699	0.2+	0.5+
1996 10 18	566	0.1+	0.0	1999 07 13	704	0.4+	0.2−	1999 08 12	699	0.0	0.7+
1997 10 09	691	1.2−	0.6−	1999 07 13	704	0.0	0.4+	1999 08 12	699	0.0	0.6+

1999 NP₄ = 1996 VH₃₁

Id. A. Doppler

1999 AUG. 31

M.P.C. 35659

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	40.53405		(2000.0)	P	Q
<i>n</i>	0.25354732	ω	149.82458	-0.17558868	+0.97594376
<i>a</i>	2.4722745	Ω	109.80150	-0.92846762	-0.12052471
<i>e</i>	0.0899368	<i>i</i>	7.89508	-0.32728656	-0.18167988
<i>P</i>	3.89	<i>H</i>	15.6	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1996 11 03	691	0.6-	0.1-	1999 07 14	704	0.0	0.7-	1999 07 16	704	0.7+	0.6-
1996 11 03	691	0.7-	0.2+	1999 07 14	704	0.1-	0.5+	1999 07 16	704	0.0	0.2-
1996 11 03	691	0.2-	0.1+	1999 07 14	704	1.2-	0.8-	1999 07 20	428	0.4-	0.5-
1996 11 06	691	0.4+	0.0	1999 07 14	704	0.5-	0.0	1999 08 02	428	0.0	0.4-
1996 11 06	691	0.4+	0.2-	1999 07 14	428	0.7+	1.2+	1999 08 02	428	0.3+	0.3+
1996 11 06	691	0.5+	0.0	1999 07 15	428	0.5-	0.4+	1999 08 19	428	0.5-	0.3+
1999 07 13	428	0.1+	0.6+	1999 07 15	428	0.0	0.8+	1999 08 19	428	0.0	0.1-
1999 07 13	428	0.4-	0.8+	1999 07 16	704	1.7+	1.3-				

1999 NS₄ = 1998 FV₃₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	26.54730		(2000.0)	P	Q
<i>n</i>	0.25789072	ω	148.56492	+0.45494191	+0.89013660
<i>a</i>	2.4444373	Ω	148.47430	-0.82706786	+0.43323600
<i>e</i>	0.1801225	<i>i</i>	2.86847	-0.33013122	+0.14129191
<i>P</i>	3.82	<i>H</i>	14.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1998 02 27	566	0.1-	0.1-	1998 03 22	704	0.6-	0.6-	1999 07 16	120	1.1-	0.4-
1998 02 27	566	0.6-	0.2-	1998 03 29	704	0.8-	1.2+	1999 07 16	120	(2.2-	0.2-)
1998 02 27	566	0.5-	0.0	1998 03 29	704	(2.5-	0.0)	1999 07 18	120	1.1+	0.6-
1998 03 20	704	0.7-	1.0+	1998 03 29	704	0.5-	0.9+	1999 07 18	120	0.0	0.3+
1998 03 20	704	1.2+	0.6-	1998 03 29	704	0.5+	0.5-	1999 07 19	120	0.5-	0.4-
1998 03 20	704	1.3+	0.6-	1998 03 29	704	0.8-	0.5+	1999 07 19	120	0.6+	0.3-
1998 03 20	704	0.8-	0.5-	1999 07 11	120	1.1-	0.4-	1999 07 19	120	0.1+	0.1+
1998 03 22	704	0.0	1.7+	1999 07 12	120	0.6+	0.1-	1999 08 12	699	0.2-	0.6+
1998 03 22	704	0.3-	1.7-	1999 07 12	120	0.9+	0.1+	1999 08 12	699	0.0	0.7+
1998 03 22	704	1.8+	0.5-	1999 07 12	120	(4.2+	1.0-)	1999 08 12	699	0.3-	0.6+
1998 03 22	704	1.0+	0.4+	1999 07 16	120	0.2-	0.0				

1999 NW₄ = 1998 KJ₄₂

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Spahr

<i>M</i>	67.77456		(2000.0)	P	Q
<i>n</i>	0.17299555	ω	111.48772	-0.49075022	+0.81211059
<i>a</i>	3.1899173	Ω	125.16290	-0.87118961	-0.46312905
<i>e</i>	0.0295924	<i>i</i>	22.71321	+0.01388872	-0.35494771
<i>P</i>	5.70	<i>H</i>	13.1	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1998 04 23	566	0.0	1.5-	1998 05 30	327	0.6-	0.6+	1999 07 14	704	0.6+	0.2+
1998 04 23	566	0.4-	1.8-	1998 05 31	327	0.4-	0.2+	1999 07 15	120	1.1-	0.1-
1998 04 23	566	0.1-	1.8-	1998 05 31	327	0.1-	0.2-	1999 07 15	120	0.1+	0.0
1998 04 28	704	0.1+	0.1+	1998 05 31	327	0.2-	0.2+	1999 07 15	120	0.5+	0.7+
1998 04 28	704	0.6-	0.7+	1998 05 31	327	0.6-	0.1-	1999 07 16	704	0.5+	0.2+
1998 04 28	704	(1.2+	2.5-)	1998 06 25	699	1.1+	0.5-	1999 07 16	704	0.2+	0.0
1998 04 28	704	(0.5-	6.8-)	1998 06 25	699	0.3-	0.9-	1999 07 16	704	0.2+	0.3+
1998 05 27	704	0.5+	0.1+	1998 06 25	699	0.4+	0.6-	1999 07 16	120	0.7+	0.6-
1998 05 27	704	1.7+	0.8+	1999 07 12	120	0.2-	0.0	1999 07 16	120	0.3+	0.3-
1998 05 27	704	0.8+	1.5+	1999 07 12	120	(2.4+	0.7+)	1999 07 20	691	0.3-	0.6+
1998 05 27	704	0.7+	0.9+	1999 07 13	120	0.4-	0.7-	1999 07 20	691	0.2-	0.5+
1998 05 27	704	0.3+	0.3+	1999 07 14	704	0.4-	0.0	1999 07 20	691	0.4-	0.6+
1998 05 30	327	0.8-	0.8+	1999 07 14	704	0.2+	0.7-	1999 08 12	699	0.3-	0.4-
1998 05 30	327	0.8-	0.8+	1999 07 14	704	0.1-	0.5-	1999 08 12	699	0.3-	0.1+
1998 05 30	327	0.8-	0.4+	1999 07 14	704	0.3+	0.1-	1999 08 12	699	0.2+	0.1+

1999 NC₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	283.20040		(2000.0)	P	Q
<i>n</i>	0.34092748	ω	295.18241	+0.22355932	-0.79984474
<i>a</i>	2.0293707	Ω	128.95434	+0.92568279	+0.35316342
<i>e</i>	0.3939197	<i>i</i>	45.74876	-0.30517634	+0.48530813
<i>P</i>	2.89	<i>H</i>	16.5	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1983 01 16	413	0.0	0.7+	1999 07 17	557	0.1-	0.4-	1999 07 23	402	0.5+	0.6-
1983 01 16	413	0.0	0.8-	1999 07 17	557	0.1+	0.5-	1999 07 23	402	0.0	0.3-
1999 07 13	704	0.4+	0.4+	1999 07 17	557	0.0	0.3+	1999 07 30	402	0.7-	0.6+
1999 07 13	704	0.8-	1.0+	1999 07 18	046	0.9+	0.1+	1999 07 30	402	0.9-	1.0+
1999 07 13	704	0.6+	0.9-	1999 07 18	046	0.2+	0.9+	1999 07 30	402	0.1-	1.1+
1999 07 13	704	1.5-	0.1+	1999 07 18	046	0.1+	0.5+	1999 08 02	658	0.6+	0.0
1999 07 14	426	0.1+	0.4+	1999 07 18	046	0.0	0.7-	1999 08 02	658	0.6-	1.2-
1999 07 14	426	0.2+	0.1-	1999 07 18	046	0.7+	0.3+	1999 08 02	658	0.7+	0.1+
1999 07 14	426	0.5+	0.6+	1999 07 18	859	0.3-	0.1-	1999 08 13	360	0.2-	0.4+
1999 07 14	557	0.3-	0.1-	1999 07 18	859	0.8+	0.4+	1999 08 13	360	0.2-	0.0
1999 07 14	557	1.0-	0.1+	1999 07 18	859	0.1+	0.6-	1999 08 21	413	0.1-	0.3-
1999 07 17	426	0.5-	0.0	1999 07 23	402	0.4-	1.5-	1999 08 21	413	0.5+	0.1-
1999 07 17	426	0.2+	0.5-	1999 07 23	402	0.6+	0.5-				

1999 NN₅ = 1988 PF₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Gnädig

<i>M</i>	332.76977		(2000.0)	P	Q
<i>n</i>	0.17382777	ω	70.69202	+0.82985016	+0.43734112
<i>a</i>	3.1797279	Ω	262.04725	-0.54402241	+0.77221262
<i>e</i>	0.0136026	<i>i</i>	20.48076	+0.12404968	+0.46089089
<i>P</i>	5.67	<i>H</i>	12.5	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1954 07 08	675	0.5+	0.2-	1999 07 13	704	0.4+	0.0	1999 07 22	704	0.1-	0.4-
1954 07 08	675	0.6-	0.1+	1999 07 13	704	0.3-	0.0	1999 07 22	704	0.6-	0.3-
1988 08 15	033	0.3+	0.2-	1999 07 16	704	0.2-	0.7+	1999 07 22	704	0.1+	0.1+
1988 08 15	033	0.3-	0.2+	1999 07 16	704	0.2+	0.3-	1999 07 22	704	0.3-	0.2+
1999 07 13	704	0.2+	0.1-	1999 07 16	704	0.3+	0.4+	1999 07 23	704	0.3-	0.0
1999 07 13	704	0.2+	0.0	1999 07 16	704	0.1+	0.2-	1999 07 23	704	0.1-	0.7-
1999 07 13	704	0.1+	0.2-	1999 07 16	704	0.4+	0.4+	1999 07 23	704	0.1+	0.3+

1999 NJ₇ = 1989 EO₆ = 1998 HT₁₁₀

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	264.75750		(2000.0)	P	Q
<i>n</i>	0.23845400	ω	286.16175	+0.55605658	-0.82795911
<i>a</i>	2.5755282	Ω	129.82610	+0.79414887	+0.50346451
<i>e</i>	0.0658122	<i>i</i>	5.43164	+0.24521145	+0.24699638
<i>P</i>	4.13	<i>H</i>	13.9	<i>G</i> 0.15	<i>U</i> 4

Residuals in seconds of arc

1989 03 05	033	0.3+	0.3+	1998 04 23	704	0.1+	0.2-	1999 07 13	704	0.3+	0.4-
1989 03 05	033	0.1-	0.7+	1998 04 23	704	0.7-	0.2+	1999 07 13	704	0.2-	0.1+
1998 03 24	704	0.4-	0.1-	1998 04 23	704	0.6-	0.1+	1999 07 13	704	0.6-	0.1+
1998 03 24	704	0.6-	0.1-	1998 04 23	704	0.3+	0.3+	1999 07 13	704	0.4-	0.1-
1998 03 24	704	0.2-	0.1+	1998 04 24	704	1.4+	1.8+	1999 07 13	704	0.6-	0.1-
1998 03 24	704	0.5+	0.3+	1998 04 24	704	0.2+	0.0	1999 07 16	704	0.7+	0.3+
1998 03 24	704	1.1-	0.3+	1998 04 24	704	0.9-	1.0+	1999 07 16	704	0.0	0.5-
1998 04 21	704	0.3+	0.7-	1998 04 24	704	1.7+	1.5+	1999 07 16	704	0.0	0.4+
1998 04 21	704	0.3-	0.2-	1998 05 16	704	0.2-	0.5+	1999 07 20	699	0.1+	0.9+
1998 04 21	704	0.1+	0.9-	1998 05 16	704	0.7-	0.9-	1999 07 20	699	0.0	0.1+
1998 04 21	704	0.9+	0.4-	1998 05 16	704	(3.0-	0.6-)	1999 07 20	699	0.4+	0.2+
1998 04 21	704	0.2+	0.2-	1998 05 16	704	0.8-	1.0-				
1998 04 23	704	0.5+	1.6-	1998 05 16	704	(5.5-	1.6+)				

1999 NL₇ = 1977 RT₁₄

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26423891	ω	91.00843	−0.68893805	+0.72365435		
<i>a</i>	2.4051280	Ω	135.35035	−0.68609898	−0.63280172		
<i>e</i>	0.1305386	<i>i</i>	3.35228	−0.23373607	−0.27547481		
<i>P</i>	3.73	<i>H</i>	15.4	<i>G</i>	0.15	<i>U</i>	3

Residuals in seconds of arc

1977 09 09	675	0.8−	1.0+	1999 07 13	704	0.3+	0.5+	1999 07 21	122	0.2+	0.2−
1977 09 10	675	0.6+	0.7−	1999 07 13	704	0.6+	0.2+	1999 07 21	122	0.2+	0.5−
1998 01 28	566	0.2−	0.5+	1999 07 13	704	0.1−	0.4+	1999 07 22	122	0.4−	0.1+
1998 01 28	566	0.1+	0.2+	1999 07 13	704	0.0	0.5+	1999 07 22	122	0.2−	0.2−
1998 01 28	566	0.1+	0.5+	1999 07 13	704	0.1+	0.4+	1999 07 23	122	0.4−	0.1−
1998 02 25	566	0.1+	0.3−	1999 07 16	704	0.0	0.7+	1999 07 23	122	0.5−	0.3+
1998 02 25	566	0.4+	0.0	1999 07 16	704	0.1+	0.6−	1999 07 23	122	0.1+	0.3−
1998 02 25	566	0.2−	0.2+	1999 07 16	704	0.3+	0.5+	1999 07 23	122	0.6−	0.7−

1999 NV₇ = 1988 OD

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.18109548	ω	179.72200	+0.66736238	+0.69753518		
<i>a</i>	3.0940760	Ω	132.12412	−0.68395642	+0.71267524		
<i>e</i>	0.3231288	<i>i</i>	20.59568	−0.29467112	−0.07442220		
<i>P</i>	5.44	<i>H</i>	14.9	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1988 07 17	675	1.0+	0.1+	1999 07 13	704	0.5+	0.0	1999 07 20	699	0.1−	0.3+
1988 07 18	675	1.1−	0.5−	1999 07 16	704	0.4+	0.1−	1999 08 13	699	0.3−	0.0
1999 07 13	704	0.2−	0.5+	1999 07 16	704	0.3+	0.4−	1999 08 13	699	0.1−	0.2−
1999 07 13	704	0.9−	0.2−	1999 07 16	704	0.1+	0.1−	1999 08 13	699	0.1−	0.0
1999 07 13	704	0.1+	0.2+	1999 07 20	699	0.3−	0.4−				
1999 07 13	704	0.5+	0.8+	1999 07 20	699	0.1+	0.1+				

1999 NL₈ = 1998 MJ₈

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.17712972	ω	280.68083	+0.51853054	−0.81849305		
<i>a</i>	3.1400876	Ω	135.08940	+0.85504684	+0.49789838		
<i>e</i>	0.1608928	<i>i</i>	20.51121	−0.00457984	+0.28664671		
<i>P</i>	5.56	<i>H</i>	12.8	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1998 05 26	704	(1.8−	2.5−)	1998 06 25	704	0.3−	0.2+	1999 07 16	704	0.3+	0.6−
1998 05 26	704	0.9+	1.0+	1998 06 25	704	0.1+	1.4−	1999 07 16	704	0.2+	0.4−
1998 05 26	704	1.0−	0.2+	1998 07 16	691	0.0	0.2+	1999 07 16	704	0.2+	0.0
1998 05 26	704	0.4+	0.4+	1998 07 16	691	0.0	0.5+	1999 07 20	699	0.5−	1.5+
1998 06 19	704	0.1−	0.5−	1998 07 16	691	0.2+	0.2+	1999 07 20	699	1.0−	1.4+
1998 06 19	704	1.2+	0.7−	1999 07 13	704	0.5+	0.3+	1999 07 20	699	0.2−	1.9+
1998 06 19	704	(0.3+	2.7−)	1999 07 13	704	0.2−	0.6−	1999 08 08	691	0.8+	0.4+
1998 06 19	704	1.2−	0.3+	1999 07 13	704	0.1+	0.6−	1999 08 08	691	0.9−	1.9−
1998 06 25	704	0.5−	0.1+	1999 07 13	704	0.4+	0.2−	1999 08 08	691	0.8+	0.2+
1998 06 25	704	0.4+	0.4−	1999 07 13	704	0.5−	1.4−				

1999 NT₈ = 1996 RM₂₅ = 1998 EU₁₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Id. A. Doppler

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.30367507	ω	40.07619	−0.76381035	+0.64544074		
<i>a</i>	2.1921148	Ω	180.12256	−0.59742491	−0.70701505		
<i>e</i>	0.0305566	<i>i</i>	1.20251	−0.24428923	−0.28902590		
<i>P</i>	3.25	<i>H</i>	15.5	<i>G</i>	0.15	<i>U</i>	4

Residuals in seconds of arc

1996 09 12	691	0.4+	0.2+	1998 03 03	704	0.3−	0.3−	1999 07 13	704	0.4−	0.4−
1996 09 12	691	0.7+	0.6−	1998 03 03	704	0.0	1.1−	1999 07 13	704	0.3−	0.4−
1996 09 12	691	0.4+	0.6−	1998 03 03	704	1.3−	1.5−	1999 07 13	704	0.4−	0.3−
1996 09 18	566	0.5−	0.3+	1998 03 03	704	0.7−	0.3+	1999 07 13	704	0.3−	0.7−
1996 09 18	566	0.3+	0.7−	1998 03 04	704	1.5−	0.7−	1999 07 16	704	0.2+	0.8−
1996 09 18	566	0.5−	0.5−	1998 03 04	704	0.1−	0.9+	1999 07 16	704	0.3+	1.0−
1998 02 27	566	1.3+	0.0	1998 03 04	704	0.7−	0.2−	1999 07 16	704	0.0	1.4−
1998 02 27	566	1.1+	0.5+	1998 03 04	704	0.3−	0.3−	1999 07 20	699	0.8+	1.2+
1998 02 27	566	1.5+	0.2+	1998 03 04	704	0.5+	0.6−	1999 07 20	699	0.1+	1.3+
1998 03 03	704	0.6−	0.6−	1999 07 13	704	0.4−	0.6−	1999 07 20	699	0.8+	1.2+

1999 NH₉ = 1998 HS₁₃₉

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.26354551	ω	249.97917	+0.94717364	−0.30694116		
<i>a</i>	2.4093449	Ω	127.78268	+0.32019767	+0.88843622		
<i>e</i>	0.1572135	<i>i</i>	6.75778	+0.01831770	+0.34127439		
<i>P</i>	3.74	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i>	5

Residuals in seconds of arc

1998 03 25	704	0.8+	0.3+	1998 04 21	704	0.7+	0.9+	1999 07 13	704	0.3−	0.1−
1998 03 25	704	1.7+	0.9−	1998 04 21	704	0.6+	0.6−	1999 07 13	704	0.0	0.1+
1998 03 25	704	1.2−	0.4−	1998 04 21	704	(2.3−	1.8−)	1999 07 16	704	0.5+	0.3−
1998 03 25	704	1.4−	0.9+	1998 04 24	704	0.0	0.3−	1999 07 16	704	0.0	0.3+
1998 04 20	704	(0.8+	3.4+)	1998 04 24	704	0.3−	1.0−	1999 07 16	704	0.5+	0.7−
1998 04 20	704	1.5+	0.5−	1998 04 24	704	0.8−	1.0+	1999 07 20	699	0.3−	0.3+
1998 04 20	704	0.1+	0.2+	1998 04 24	704	0.5+	1.3+	1999 07 20	699	0.0	0.9+
1998 04 20	704	1.1−	1.0+	1999 07 13	704	0.2−	0.0	1999 07 20	699	0.0	0.4−
1998 04 20	704	(5.8−	0.2+)	1999 07 13	704	0.1−	0.1−				
1998 04 21	704	1.2−	1.9−	1999 07 13	704	0.2−	0.0				

1999 NQ₉ = 1986 WK₉ = 1993 FE₄₂ = 1998 KN₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>		(2000.0)		P		Q	
<i>n</i>	0.21153038	ω	331.29420	−0.83574054	−0.54911157		
<i>a</i>	2.7896789	Ω	175.39439	+0.51236248	−0.78224349		
<i>e</i>	0.0311494	<i>i</i>	2.69283	+0.19754097	−0.29423053		
<i>P</i>	4.66	<i>H</i>	14.0	<i>G</i>	0.15	<i>U</i>	1

Residuals in seconds of arc

1986 11 30	381	(2.7+	1.1+)	1998 04 22	704	0.4−	0.2−	1998 05 22	699	0.7+	0.3+
1986 11 30	381	(3.3−	0.7+)	1998 04 22	704	0.5−	0.4−	1998 05 22	699	0.2+	0.1−
1986 12 01	381	0.4−	0.7−	1998 05 01	704	0.4−	0.1−	1998 05 22	699	0.6+	0.5+
1986 12 01	381	0.2+	0.5+	1998 05 01	704	0.0	0.0	1999 07 12	595	0.6−	0.5−
1993 03 19	809	0.4−	0.2+	1998 05 01	704	0.3−	0.4−	1999 07 13	595	0.5−	0.2−
1993 03 20	809	0.5+	0.9−	1998 05 01	704	0.1+	0.1+	1999 07 13	595	1.2−	0.6+
1993 03 24	809	1.1+	0.5−	1998 05 01	704	0.4+	0.2+	1999 07 13	704	0.8−	1.0+
1993 04 21	413	1.3−	0.9+	1998 05 02	566	0.2−	0.6−	1999 07 13	704	1.1+	1.0−
1995 09 22	691	0.3+	0.1+	1998 05 02	566	0.3−	0.6−	1999 07 13	704	0.2−	0.3−
1995 09 22	691	0.1+	0.1+	1998 05 02	566	0.5−	0.3−	1999 07 13	704	0.7−	0.3−
1995 09 22	691	0.1+	0.1+	1998 05 18	699	0.8+	0.5+	1999 07 13	704	0.6+	0.4−
1997 02 15	327	0.8+	0.0	1998 05 18	699	0.8+	0.8+	1999 07 16	704	0.3+	0.2−
1997 02 15	327	0.6−	1.3−	1998 05 18	699	1.0+	0.2+	1999 07 16	704	0.2+	0.3−
1997 02 15	327	0.4−	1.0+	1998 05 22	704	0.0	0.3−	1999 07 16	704	1.1+	0.6−
1998 04 22	704	0.3−	0.7−	1998 05 22	704	0.3−	0.2+	1999 07 21	699	0.1+	0.9+

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1998 04 22 704 0.2- 0.3+ 1998 05 22 704 0.0 0.4+ 1999 07 21 699 0.0 0.2-
 1998 04 22 704 0.1- 0.6- 1998 05 22 704 0.9- 1.3+ 1999 07 21 699 0.5+ 0.2+

1999 NB₁₀ = 1984 BA₄

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	326.88504	(2000.0)		P		Q
<i>n</i>	0.23287783	ω	62.37284	+0.95165793	-0.22378832	
<i>a</i>	2.6164792	Ω	309.75990	+0.07652799	+0.83611501	
<i>e</i>	0.2479951	<i>i</i>	15.88402	+0.29747378	+0.50082978	
<i>P</i>	4.23	<i>H</i>	14.5	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1984 01 25	675	0.8-	0.2-	1999 07 13	704	0.1-	0.5+	1999 07 20	699	0.8+	1.5+
1984 01 26	675	0.8+	0.1+	1999 07 13	704	0.2-	0.2-	1999 07 20	699	0.7+	0.9+
1999 06 20	699	0.1-	1.1+	1999 07 13	704	0.3-	0.3+	1999 08 12	699	0.3-	0.4-
1999 06 20	699	0.0	0.8-	1999 07 16	704	0.2+	0.9-	1999 08 12	699	0.0	0.2-
1999 06 20	699	0.1+	0.4-	1999 07 16	704	0.3+	0.9-	1999 08 12	699	0.2-	0.1+
1999 07 13	704	0.4-	0.0	1999 07 16	704	0.0	0.7-				
1999 07 13	704	0.5-	0.1-	1999 07 20	699	0.2-	0.1+				

1999 NG₁₀ = 1998 FM₉₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	95.27205	(2000.0)		P		Q
<i>n</i>	0.24134499	ω	255.44650	-0.84868129	+0.50989859	
<i>a</i>	2.5549193	Ω	314.97495	-0.37559315	-0.76806643	
<i>e</i>	0.1177382	<i>i</i>	11.45665	-0.37238401	-0.38739823	
<i>P</i>	4.08	<i>H</i>	14.7	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1998 01 25	566	0.4+	0.3+	1998 03 31	704	0.0	0.5-	1999 07 13	704	0.2-	0.8-
1998 01 25	566	0.1-	0.4+	1998 03 31	704	0.1+	0.1-	1999 07 13	704	0.1-	0.6-
1998 01 25	566	0.1+	0.3-	1998 04 01	704	0.2+	0.4-	1999 07 13	704	0.7+	0.5-
1998 02 22	566	0.1-	0.0	1998 04 01	704	0.6+	0.4-	1999 07 16	704	0.7-	0.5-
1998 02 22	566	0.3-	0.2-	1998 04 01	704	0.1+	0.2-	1999 07 16	704	0.3-	0.2+
1998 02 22	566	0.1-	0.1+	1998 04 01	704	0.9-	0.8+	1999 07 16	704	0.3-	0.1-
1998 03 31	704	0.3+	0.4-	1998 04 01	704	0.3-	0.5+	1999 07 20	699	1.7+	0.5-
1998 03 31	704	0.2-	0.1+	1999 07 13	704	0.4+	0.4+	1999 07 20	699	0.5-	0.5+
1998 03 31	704	0.5+	0.5+	1999 07 13	704	0.7-	0.0	1999 07 20	699	0.0	2.0+

1999 NZ₁₀ = 1974 RW = 1982 DJ₁ = 1992 EL₂₇ = 1998 KU₂₁

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	330.89936	(2000.0)		P		Q
<i>n</i>	0.19533197	ω	56.67733	+0.99548228	+0.09407561	
<i>a</i>	2.9418498	Ω	297.92161	-0.09122665	+0.91020888	
<i>e</i>	0.0694292	<i>i</i>	0.83247	-0.02631957	+0.40332316	
<i>P</i>	5.05	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i> 1

Residuals in seconds of arc

1974 09 11	095	1.1-	1.8+	1998 04 22	704	0.6+	0.4-	1998 05 24	704	1.2-	0.3+
1982 02 23	801	1.7+	0.3+	1998 04 22	704	0.7-	0.3-	1998 05 24	704	0.3+	1.3+
1992 03 04	809	0.8-	1.3+	1998 04 22	704	0.1+	1.6-	1998 05 24	704	1.6-	1.0+
1992 03 07	809	0.4-	0.4+	1998 04 22	704	1.0-	1.5-	1999 07 13	704	0.3+	0.0
1992 04 06	809	0.1+	0.6+	1998 05 22	704	0.8+	0.8+	1999 07 13	704	0.2-	0.5+
1995 12 09	112	0.4+	0.3-	1998 05 22	704	1.0+	0.8-	1999 07 13	704	0.3-	0.4+
1995 12 09	112	1.2-	1.5-	1998 05 22	704	0.6+	0.2+	1999 07 13	704	0.3-	0.1-
1995 12 09	112	0.4+	0.3-	1998 05 22	704	0.8+	1.2-	1999 07 13	704	1.1-	0.5-
1997 02 18	327	0.4-	0.0	1998 05 22	704	0.2+	0.6+	1999 07 16	704	0.5+	0.2+
1997 02 18	327	1.2+	0.1+	1998 05 22	699	0.1+	0.5+	1999 07 16	704	0.5+	0.4-
1997 02 18	327	0.9+	0.1+	1998 05 22	699	1.0-	0.4-	1999 07 16	704	0.1-	0.8+
1997 03 11	327	0.4+	0.5+	1998 05 22	699	0.1+	0.2+	1999 07 20	699	0.2-	0.0
1997 03 11	327	0.1+	0.6+	1998 05 24	704	0.1-	0.8-	1999 07 20	699	0.1+	0.7+
1997 03 11	327	0.2+	0.6+	1998 05 24	704	0.7-	0.1-	1999 07 20	699	1.1+	0.5+

1999 NG₁₁ = 1995 YF₂₄ = 1998 KO₁₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	347.82940	(2000.0)		P		Q
<i>n</i>	0.19779987	ω	276.13001	+0.90941794	+0.41353675	
<i>a</i>	2.9173288	Ω	59.45038	-0.35843185	+0.83316478	
<i>e</i>	0.0600907	<i>i</i>	2.93647	-0.21091614	+0.36718360	
<i>P</i>	4.98	<i>H</i>	13.4	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1995 12 21	566	1.2+	1.2-	1998 05 01	704	0.1+	0.1+	1999 07 13	704	0.2-	0.5-
1995 12 21	566	1.2+	1.2-	1998 05 01	704	0.4-	0.2+	1999 07 13	704	0.3+	0.9-
1995 12 21	566	1.4+	1.3-	1998 05 22	704	0.9+	1.3-	1999 07 13	704	0.5-	0.1-
1995 12 25	566	0.6-	0.2-	1998 05 22	704	0.2-	0.4+	1999 07 13	704	0.4-	1.2-
1995 12 25	566	1.4-	0.4-	1998 05 22	704	0.4-	0.7+	1999 07 16	704	0.0	0.5-
1995 12 25	566	0.6-	0.2-	1998 05 22	704	0.2+	0.4+	1999 07 16	704	0.0	0.0
1998 04 25	699	0.1-	0.8-	1998 05 24	704	0.8-	1.7-	1999 07 16	704	0.1-	0.6-
1998 04 25	699	(1.2-	2.3-)	1998 05 24	704	1.1-	0.5-	1999 07 20	699	0.6+	1.3+
1998 04 25	699	(0.2+	4.1-)	1998 05 24	704	0.3-	1.5+	1999 07 20	699	0.1+	0.9+
1998 05 01	704	0.2-	1.0-	1998 05 24	704	1.0+	1.1-	1999 07 20	699	0.3+	0.2+
1998 05 01	704	0.8+	1.5-	1998 05 24	704	1.4-	0.7+				
1998 05 01	704	0.5+	0.2+	1999 07 13	704	0.5+	0.3-				

1999 NH₁₂ = 1997 YF₂₁

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	106.74281	(2000.0)		P		Q
<i>n</i>	0.30082194	ω	11.39995	-0.96316106	+0.26890322	
<i>a</i>	2.2059536	Ω	184.20378	-0.25027746	-0.90098148	
<i>e</i>	0.1445774	<i>i</i>	2.69021	-0.09839700	-0.34047530	
<i>P</i>	3.28	<i>H</i>	15.6	<i>G</i>	0.15	<i>U</i> 3

Residuals in seconds of arc

1993 09 19	691	0.9-	1.2+	1997 12 29	566	1.0-	0.1-	1999 07 16	704	0.3+	0.4-
1993 09 19	691	0.6-	1.3+	1997 12 29	566	0.7-	0.1+	1999 07 21	699	0.0	0.3-
1993 09 19	691	0.4-	0.8+	1997 12 29	566	0.9-	0.2+	1999 07 21	699	0.0	0.4-
1993 10 12	809	1.0+	1.5-	1999 07 13	704	1.0-	1.1+	1999 07 21	699	0.7-	0.4+
1993 10 12	809	0.5+	0.9-	1999 07 13	704	0.2+	0.7+	1999 07 23	704	0.8+	1.0-
1993 10 12	809	0.1+	0.2-	1999 07 13	704	0.1-	0.6+	1999 07 23	704	0.0	1.0-
1997 12 23	910	0.8+	0.2-	1999 07 13	704	1.2-	0.2+	1999 07 23	704	0.5+	0.9-
1997 12 24	910	1.0+	0.2-	1999 07 16	704	0.4-	0.3+	1999 07 23	704	0.6+	0.4-
1997 12 24	910	0.8+	0.3-	1999 07 16	704	1.1+	0.2+				

1999 NS₁₃ = 1998 FH₈₆

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

<i>M</i>	77.22320	(2000.0)		P		Q
<i>n</i>	0.21771320	ω	78.30667	-0.85632179	+0.50047832	
<i>a</i>	2.7366098	Ω	131.57847	-0.51478143	-0.80740928	
<i>e</i>	0.0913510	<i>i</i>	9.80697	-0.04138926	-0.31242873	
<i>P</i>	4.53	<i>H</i>	13.9	<i>G</i>	0.15	<i>U</i> 4

Residuals in seconds of arc

1998 02 24	566	0.2-	0.2-	1998 03 25	704	0.5-	0.2+	1999 07 16	704	0.5+	0.6+
1998 02 24	566	0.2-	0.3-	1998 03 25	704	0.1+	0.6+	1999 07 16	704	0.4+	0.8-
1998 02 24	566	0.0	0.1-	1998 04 05	699	0.8-	0.7+	1999 07 16	704	0.8-	0.5+
1998 03 24	704	0.2+	0.0	1998 04 05	699	0.2-	0.1+	1999 07 16	704	0.1+	0.6-
1998 03 24	704	0.4+	0.6-	1998 04 05	699	0.0	0.2-	1999 07 16	704	0.2+	0.8-
1998 03 24	704	0.3-	0.7-	1999 07 14	704	0.1-	0.5+	1999 07 22	704	0.5-	0.5-
1998 03 24	704	0.5+	0.1+	1999 07 14	704	0.1+	0.0	1999 07 22	704	0.4+	0.2-
1998 03 25	704	0.3+	0.2-	1999 07 14	704	0.3+	0.3+	1999 07 22	704	0.5+	0.3+
1998 03 25	704	0.4+	0.2+	1999 07 14	704	(0.3+	2.2+)				
1998 03 25	704	0.2+	0.3+	1999 07 14	704	1.2-	0.6+				

M.P.C. 35670

1998 04 22	704	0.8+	0.3−	1998 05 22	704	0.1+	0.4+	1999 08 09	046	0.7−	0.3+
1998 04 22	704	0.5+	0.4−	1998 06 02	691	0.5+	0.5+	1999 08 14	046	0.1+	1.1−
1998 04 22	704	0.2+	0.3−	1998 06 02	691	0.3+	0.8+	1999 08 14	046	0.2−	0.3−
1998 04 22	704	0.4+	0.9−	1998 06 02	691	0.0	0.6+	1999 08 14	046	0.6+	0.3−
1998 04 22	704	0.5−	1.2−	1999 08 07	046	0.6+	0.1+	1999 08 14	046	0.4+	0.7−
1998 05 01	704	0.5−	0.9−	1999 08 07	046	0.4+	0.1+	1999 08 21	046	0.3−	0.9−
1998 05 01	699	0.2+	1.3+	1999 08 07	046	0.1−	0.1+	1999 08 21	046	0.1−	0.3−
1998 05 01	699	0.3−	0.7+	1999 08 07	046	0.5+	0.2+	1999 08 21	046	0.1−	0.1−
1998 05 01	704	0.1−	1.4−	1999 08 07	046	0.8+	0.4+	1999 08 21	046	0.5+	0.1−
1998 05 01	699	0.6−	1.2+	1999 08 08	046	0.8−	0.1−	1999 08 26	046	0.1−	0.0
1998 05 01	704	1.2−	0.6+	1999 08 08	046	0.7−	0.3+	1999 08 26	046	0.4−	0.3+
1998 05 01	704	0.3−	1.3+	1999 08 08	046	0.6+	0.1−	1999 08 26	046	0.1−	0.1−

1999 PX₁ = 1990 SV₁₆ = 1998 HZ₁₄₀
Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	0.70314		(2000.0)	P	Q
n	0.22084857	ω	204.78025	+0.90409558	+0.40949897
a	2.7106472	Ω	130.48216	−0.36039694	+0.88426966
e	0.2242210	i	9.24180	−0.22961973	+0.22444991
P	4.46	H	14.5	G 0.15	U 2

Residuals in seconds of arc

1990 09 14	675	0.2+	0.9−	1998 04 21	704	(1.6+	2.4−)	1999 08 09	557	0.1−	0.6+
1990 09 14	675	0.6+	0.5−	1998 04 23	704	0.1−	1.4+	1999 08 09	557	0.2−	0.8+
1990 09 17	675	0.8−	0.5+	1998 04 23	704	0.1−	0.6+	1999 08 09	557	0.4−	0.7+
1990 09 17	675	0.3−	0.9+	1998 04 23	704	0.7+	0.4−	1999 08 11	557	0.0	0.2+
1990 09 20	675	(1.1+	4.6−)	1998 04 23	704	0.8−	1.0+	1999 08 11	557	0.0	0.5+
1990 09 20	675	0.3+	0.6+	1998 04 23	704	0.5+	0.6+	1999 08 12	699	0.4−	0.2−
1997 03 06	704	0.6−	0.5+	1999 07 16	704	0.6+	0.4−	1999 08 12	699	0.1−	0.2+
1997 03 06	704	1.2+	1.5+	1999 07 16	704	0.2−	1.3−	1999 08 12	699	0.2+	0.0
1998 04 21	704	0.1+	1.4−	1999 07 16	704	0.8+	0.5−	1999 08 14	557	0.3−	0.5+
1998 04 21	704	(2.2−	0.5+)	1999 07 16	704	0.2−	1.2−	1999 08 14	557	0.0	0.5+
1998 04 21	704	0.2−	0.4−	1999 08 09	557	0.0	0.6+				

1999 PL₄ = 1998 FL₁₁₀

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	38.88049		(2000.0)	P	Q
n	0.23420750	ω	339.89434	+0.12959911	+0.98188824
a	2.6065668	Ω	297.33729	−0.88714730	+0.05256259
e	0.0656876	i	8.95021	−0.44291504	+0.18202381
P	4.21	H	14.8	G 0.15	U 4

Residuals in seconds of arc

1998 03 31	704	(3.9+	0.5−)	1999 08 14	046	0.2−	0.2−	1999 08 19	046	0.2−	0.2+
1998 03 31	704	0.8+	1.1−	1999 08 14	046	0.7+	0.2+	1999 08 20	046	0.1−	0.1−
1998 03 31	704	0.7+	1.3+	1999 08 14	046	0.1−	0.2+	1999 08 20	046	0.7+	0.0
1998 03 31	704	0.6−	0.6−	1999 08 15	046	0.9−	0.4−	1999 08 20	046	0.1−	0.3+
1998 04 01	704	(1.2+	2.3+)	1999 08 15	046	0.5−	0.2−	1999 08 22	046	0.2−	0.5+
1998 04 01	704	1.2+	1.1−	1999 08 15	046	0.3−	0.2−	1999 08 22	046	0.4+	0.6+
1998 04 01	704	1.3−	0.8+	1999 08 15	046	0.4−	0.1−	1999 08 22	046	0.3−	0.3−
1998 04 01	704	0.8−	0.8+	1999 08 19	046	0.5−	0.3+	1999 08 23	046	0.1−	0.2−
1999 08 14	046	0.3+	0.4+	1999 08 19	046	0.3+	0.1−	1999 08 23	046	0.2+	0.2−
1999 08 14	046	0.7+	0.1+	1999 08 19	046	0.1+	0.3−	1999 08 23	046	0.4+	0.4−

1999 PZ₄ = 1994 HK

Id. T. Urata

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

M	2.13873		(2000.0)	$\mathbf{P}$	$\mathbf{Q}$
n	0.22966566	ω	93.88235	+0.74455876	+0.66722158
a	2.6408192	Ω	224.26634	−0.62387206	+0.68420880
e	0.2934475	i	1.73696	−0.23752034	+0.29440394
P	4.29	H	15.7	G 0.15	U 5

1999 AUG. 31

Residuals in seconds of arc

1994 04 16	691	0.4+	0.2+	1994 04 19	691	0.1+	0.4+	1999 08 12	699	0.1+	0.6+
1994 04 16	691	0.3+	0.1−	1999 08 08	888	0.8+	0.5−	1999 08 18	888	0.0	0.0
1994 04 16	691	0.1−	0.1−	1999 08 08	888	0.2+	0.7−	1999 08 18	888	0.0	0.5−
1994 04 19	691	0.5−	0.2−	1999 08 12	699	1.1−	0.4+	1999 08 19	888	0.5+	0.3+
1994 04 19	691	0.2−	0.2−	1999 08 12	699	0.4−	0.3+	1999 08 19	888	0.2−	0.1+

1999 QG = 1982 XK₁

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	248.26668		(2000.0)	P	Q
n	0.22294934	ω	29.64979	-0.08246443	-0.97156348
a	2.6935927	Ω	65.86030	$+0.85980694$	-0.18197145
e	0.1436236	i	14.07695	$+0.50391631$	$+0.15149517$
P	4.42	H	13.2	G 0.15	U 6

Residuals in seconds of arc

1982 12 13	381	0.3+	0.2+	1999 08 19	467	0.5+	0.1+	1999 08 22	467	0.1−	0.3−
1982 12 13	381	0.9−	0.1−	1999 08 19	467	0.9+	0.8+	1999 08 22	467	0.4−	1.0−
1982 12 14	381	0.9+	0.0	1999 08 19	467	0.6+	0.5+	1999 08 29	467	0.2−	1.1−
1982 12 14	381	0.2−	0.1−	1999 08 19	467	0.3+	0.7−	1999 08 29	467	0.7−	0.3+
1999 08 18	467	0.6−	1.1−	1999 08 21	467	0.8−	1.3+	1999 08 29	467	0.2+	0.8+
1999 08 18	467	0.7−	0.2+	1999 08 21	467	0.7−	0.3−	1999 08 29	467	0.2−	0.4+
1999 08 18	467	0.8+	0.4−	1999 08 21	467	1.0+	0.3−	1999 08 29	467	0.1−	0.4−
1999 08 19	467	0.3+	0.2−	1999 08 22	467	0.1−	1.4+				

1999 QO = 1998 KL₃₉

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	265.49025		(2000.0)	P	Q
n	0.19137298	ω	186.47706	+0.43664314	−0.89250745
a	2.9822838	Ω	237.68757	+0.83128325	+0.44830377
e	0.0777832	i	7.68500	+0.34396355	+0.04953966
P	5.15	H	13.7	G 0.15	U 5

Residuals in seconds of arc

1998 05 22	704	0.9−	0.1−	1998 05 24	704	1.6+	1.3−	1999 08 19	557	0.1+	0.0
1998 05 22	704	0.2+	1.2+	1998 05 24	704	0.2−	1.4−	1999 08 19	557	0.2+	0.1−
1998 05 22	704	0.5+	2.0+	1999 07 13	704	1.0+	0.4+	1999 08 19	557	0.2+	0.1−
1998 05 22	704	1.4+	0.1+	1999 07 13	704	0.2+	0.1−	1999 08 19	557	0.0	0.2−
1998 05 22	704	4.0−	1.9+	1999 07 13	704	0.5−	0.7+	1999 08 20	557	0.1+	0.1−
1998 05 24	704	0.4−	0.9−	1999 07 13	704	0.4−	0.4−	1999 08 20	557	0.2−	0.1+
1998 05 24	704	0.9+	1.0−	1999 07 13	704	0.2−	0.0	1999 08 22	557	0.1−	0.2−
1998 05 24	704	0.8+	0.6−	1999 08 19	557	0.0	0.2+	1999 08 22	557	0.5−	0.0

2089 P-L

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

M	115.04331		(2000.0)	P	Q
n	0.26562947	ω	218.63339	+0.06786256	−0.99723625
a	2.3967269	Ω	227.49763	+0.92525225	+0.07424539
e	0.1709485	i	2.35087	+0.37323309	−0.00273476
P	3.71	H	15.4	G 0.15	U 3

Residuals in seconds of arc

1949 11 21	675	1.3−	0.5+	1960 09 29	675	1.0+	0.1−	1990 10 16	675	0.0	0.1−
1949 11 21	675	1.2+	0.4−	1960 10 17	675	0.0	0.1+	1997 11 02	327	0.0	0.1−
1960 09 24	675	0.4−	0.2+	1960 10 22	675	0.0	0.6+	1997 11 02	327	0.0	0.4+
1960 09 26	675	0.1−	0.1−	1960 10 25	675	0.3+	0.5+	1997 11 02	327	0.1+	0.4−
1960 09 28	675	0.7−	0.2−	1960 10 26	675	0.0	1.1−				

1999 AUG. 31

M.P.C. 35671

2097 P-L

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	161.83007	(2000.0)	P	Q
<i>n</i>	0.18630432	ω	131.74441	+0.83193162
<i>a</i>	3.0361329	Ω	194.73032	+0.79501083
<i>e</i>	0.0545609	<i>i</i>	7.70019	+0.24744438
<i>P</i>	5.29	<i>H</i>	13.6	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1960 09 24	675	0.3+	0.2+	1992 10 23	010	(2.2-	1.0-)	1997 10 28	704	(0.3+	3.2-)
1960 09 26	675	0.2+	1.5-	1992 10 23	010	0.6-	0.1+	1997 10 30	704	0.9-	0.5-
1960 09 26	675	(0.5+	2.7+)	1995 03 28	691	0.3+	1.4-	1997 10 30	704	0.7-	0.2-
1960 09 28	675	0.9+	0.2+	1995 03 28	691	0.4-	0.3-	1997 10 30	704	0.1-	0.5-
1960 10 17	675	0.1-	0.8+	1995 03 28	691	0.2-	0.6-	1997 10 30	704	0.4-	0.4+
1960 10 17	675	0.6-	0.4-	1997 09 04	327	0.4+	0.0	1997 10 30	704	(3.1-	1.2-)
1960 10 22	675	0.8-	0.5+	1997 09 04	327	0.4+	0.7+	1998 12 15	704	0.2-	1.0+
1960 10 25	675	1.2+	0.2-	1997 09 04	327	0.2+	0.6+	1998 12 15	704	1.1-	1.0-
1960 10 26	675	0.2-	0.2+	1997 10 28	704	1.8+	1.0-	1998 12 15	704	0.2-	1.0-
1981 10 01	413	1.3-	0.7-	1997 10 28	704	(2.3+	0.6-)	1998 12 15	704	0.1+	0.1+
1981 10 01	413	0.3-	0.5-	1997 10 28	704	1.4+	0.3-	1998 12 15	704	0.9+	1.1+

4067 P-L = 1999 NF₁₅

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Gnädig

<i>M</i>	347.25863	(2000.0)	P	Q
<i>n</i>	0.17397990	ω	346.48373	+0.71658329
<i>a</i>	3.1778740	Ω	329.28546	+0.63729144
<i>e</i>	0.1613656	<i>i</i>	1.61801	+0.31007736
<i>P</i>	5.67	<i>H</i>	15.1	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.5-	0.0	1960 10 22	675	0.2+	0.4+	1999 07 14	704	0.5-	0.2-
1960 09 25	675	0.3+	0.4-	1960 10 26	675	0.4-	0.2-	1999 07 16	704	0.4+	0.1-
1960 09 26	675	0.3+	0.1+	1999 07 14	704	1.1+	0.4+	1999 07 16	704	0.2+	0.0
1960 09 28	675	0.2+	0.2-	1999 07 14	704	0.5-	0.0	1999 07 16	704	1.4-	0.4-
1960 10 17	675	0.3-	0.2+	1999 07 14	704	0.6+	0.4+				

4085 P-L = 1999 NX₅₇

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Gnädig

<i>M</i>	1.84604	(2000.0)	P	Q
<i>n</i>	0.22457883	ω	89.02589	+0.37621787
<i>a</i>	2.6805475	Ω	203.61903	+0.91119691
<i>e</i>	0.1890586	<i>i</i>	12.03246	+0.16786992
<i>P</i>	4.39	<i>H</i>	15.8	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1960 09 24	675	0.8+	0.0	1960 10 22	675	0.3-	0.2+	1999 07 22	704	0.1-	0.1+
1960 09 25	675	1.3-	0.2-	1960 10 26	675	0.1-	0.8-	1999 07 22	704	0.9+	0.2+
1960 09 26	675	0.2+	0.2-	1999 07 13	704	0.5-	0.2-	1999 07 22	704	0.1-	0.2-
1960 09 28	675	0.2+	0.1+	1999 07 13	704	0.9-	0.4+	1999 07 22	704	0.3-	0.7-
1960 10 17	675	0.6-	0.0	1999 07 13	704	0.3+	0.1+	1999 07 22	704	0.2-	0.6+
1960 10 17	675	0.7+	0.3+	1999 07 13	704	0.3+	0.3-				
1960 10 22	675	0.7+	0.5+	1999 07 13	704	0.6+	0.1+				

4158 P-L

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	127.95992	(2000.0)	P	Q
<i>n</i>	0.27182719	ω	164.97330	-0.75704250
<i>a</i>	2.3601564	Ω	334.20355	+0.59153330
<i>e</i>	0.0577330	<i>i</i>	4.25823	+0.27744368
<i>P</i>	3.63	<i>H</i>	15.9	<i>G</i> 0.15 <i>U</i> 2

Residuals in seconds of arc

1960 09 24	675	0.4-	0.0	1960 10 26	675	1.5+	0.4-	1996 08 13	327	0.2-	0.3+
1960 09 24	675	0.2+	0.6-	1984 03 05	413	0.7-	0.5+	1996 08 13	327	0.3-	0.9+

1960 09 25	675	0.8+	0.2+	1984 03 05	413	0.1-	0.9-	1996 08 13	327	0.0	0.0
1960 09 25	675	1.4+	0.5-	1984 06 01	413	0.2-	0.9-	1997 12 25	566	0.3+	0.6+
1960 09 26	675	0.3-	0.2+	1984 06 01	413	0.4-	0.1-	1997 12 25	566	0.7-	0.3+
1960 09 28	675	1.4-	0.8-	1991 03 09	675	(2.5-	0.2-)	1997 12 25	566	0.0	0.2-
1960 10 17	675	0.7-	0.3-	1991 03 09	675	0.9+	0.4-				

4202 P-L = 1997 AS₅

Id. A. Doppler

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	275.57377	(2000.0)	P	Q
<i>n</i>	0.22557621	ω	78.66872	+0.53721678
<i>a</i>	2.6726403	Ω	338.55560	+0.70269138
<i>e</i>	0.0638637	<i>i</i>	8.71059	+0.46650076
<i>P</i>	4.37	<i>H</i>	13.6	<i>G</i> 0.15 <i>U</i> 5

Residuals in seconds of arc

1960 09 24	675	0.1-	0.8+	1996 12 24	327	0.8+	0.5+	1997 01 09	691	0.0	0.0
1960 09 25	675	0.6-	0.1+	1996 12 24	327	0.8-	0.2-	1997 01 09	691	0.1-	0.3-
1960 09 26	675	0.5-	0.1-	1996 12 24	327	0.4-	0.1+	1997 01 09	691	0.0	0.3-
1960 09 28	675	1.0+	0.6-	1997 01 07	411	0.0	0.7-	1997 03 31	704	1.2+	0.3-
1996 12 02	327	0.3+	0.1-	1997 01 07	411	0.1+	0.9+	1997 03 31	704	0.6-	0.6+
1996 12 02	327	0.6-	0.2-	1997 01 08	411	0.5-	0.2+				
1996 12 02	327	0.1+	0.3-	1997 01 08	411	0.5+	0.1+				

4271 P-L

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	228.25964	(2000.0)	P	Q
<i>n</i>	0.21964485	ω	186.80534	+0.92856521
<i>a</i>	2.7205416	Ω	195.00823	+0.34526822
<i>e</i>	0.1610771	<i>i</i>	5.98641	+0.13622229
<i>P</i>	4.49	<i>H</i>	15.5	<i>G</i> 0.15 <i>U</i> 4

Residuals in seconds of arc

1960 09 24	675	0.8-	0.2-	1960 10 22	675	0.6-	0.4-	1996 09 21	327	0.2+	0.1+
1960 09 25	675	0.1+	0.3+	1982 07 27	413	0.3-	0.2-	1996 09 21	327	0.1-	0.2-
1960 09 26	675	0.5+	0.5-	1982 07 27	413	0.1+	0.2-	1996 09 21	327	0.2-	0.5+
1960 09 28	675	0.9+	0.1-	1982 08 14	413	0.2+	0.4-				
1960 10 17	675	0.0	0.3+	1982 09 16	413	0.0	1.3+				

4626 P-L

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	290.29556	(2000.0)	P	Q
<i>n</i>	0.20261884	ω	53.47300	+0.14006167
<i>a</i>	2.8708875	Ω	28.48902	+0.89695108
<i>e</i>	0.0560281	<i>i</i>	1.99449	+0.41935842
<i>P</i>	4.86	<i>H</i>	13.7	<i>G</i> 0.15 <i>U</i> 1

Residuals in seconds of arc

1951 11 08	675	1.5-	0.8+	1960 09 28	675	0.0	0.1+	1994 09 30	691	0.3-	0.5+
1951 11 08	675	1.5+	0.3-	1960 10 17	675	0.5-	0.3-	1994 09 30	691	0.3-	0.5+
1951 12 27	675	1.0-	0.8-	1960 10 25	675	0.1-	0.6-	1997 02 07	327	0.3-	0.5+
1951 12 27	675	1.0+	0.6+	1960 10 26	675	1.1+	0.2-	1997 02 07	327	0.7+	0.1+
1960 09 24	675	0.1-	0.4-	1990 10 30	675	(3.4-	0.4-)	1997 02 07	327	0.1-	0.0
1960 09 26	675	0.2+	1.0-	1994 08 11	675	0.2-	0.4+				
1960 09 27	675	0.3+	0.7+	1994 09 30	691	0.2-	0.7+				

1030 T-1 = 1988 CP₃ = 1988 DW = 1996 TU₆₀ = 1999 NY₂₇

Id. A. Doppler, G. V. Williams (d)

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	24.49422	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.22985382	ω 285.33769	+0.97556458	+0.21000229
<i>a</i>	2.6393778	Ω 62.57631	-0.16310429	+0.88919211
<i>e</i>	0.0777225	<i>i</i> 4.17340	-0.14720985	+0.40649285
<i>P</i>	4.29	<i>H</i> 13.9	<i>G</i> 0.15	<i>U</i> 2

Residuals in seconds of arc

1973 09 19	675	0.6-	1.4-	1973 09 29	675	0.3+	0.7+	1982 11 14	381	0.2+	0.8-
1973 09 19	675	0.6-	1.4-	1973 09 30	675	0.3+	0.2+	1993 03 20	809	1.1-	0.6-
1973 09 20	675	1.1+	1.2-	1973 09 30	675	0.2-	0.2-	1993 03 24	809	0.7+	0.1-
1973 09 24	675	0.2-	1.0-	1973 10 04	675	0.9-	1.4+	1993 04 18	413	(3.2-	0.8+)
1973 09 24	675	1.0-	0.5-	1973 10 04	675	1.4+	1.6+	1995 10 30	327	0.1+	0.3+
1973 09 25	675	(3.5+	2.3-)	1973 10 05	675	0.5-	0.1+	1995 10 30	327	0.1-	0.1-
1973 09 25	675	(3.1+	2.8-)	1973 10 05	675	0.8+	0.6+				
1973 09 29	675	0.4+	0.9+	1982 11 14	381	0.1-	0.2+				

3162 T-2

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	85.79525	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.23938339	ω 215.25404	+0.90795049	-0.41662148
<i>a</i>	2.5688576	Ω 169.08471	+0.41795235	+0.89229008
<i>e</i>	0.1827682	<i>i</i> 13.84234	+0.03068785	+0.17391078
<i>P</i>	4.12	<i>H</i> 12.9	<i>G</i> 0.15	<i>U</i> 3

Residuals in seconds of arc

1973 09 19	675	0.4+	0.7-	1973 09 29	675	1.2-	0.8+	1998 10 12	699	0.2-	0.0
1973 09 19	675	0.7+	0.0	1973 09 30	675	0.4+	0.1-	1998 10 12	699	0.3-	0.0
1973 09 20	675	0.5+	0.0	1973 09 30	675	0.3+	0.0	1999 02 04	704	(0.6-	3.0+)
1973 09 24	675	0.3+	1.2-	1973 10 04	675	0.7-	2.2+	1999 02 04	704	(2.6+	0.3-)
1973 09 24	675	0.3-	1.3-	1973 10 04	675	0.0	1.5+	1999 02 04	704	0.5-	1.4+
1973 09 25	675	0.2+	1.4-	1981 07 26	413	0.0	0.5+	1999 02 04	704	1.0+	0.2-
1973 09 25	675	0.7+	1.1-	1981 07 26	413	0.1-	0.9+				
1973 09 29	675	1.2-	0.4+	1998 10 12	699	0.0	0.3-				

4153 T-2

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	158.95057	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.20326315	ω 267.16963	+0.77346744	+0.63261362
<i>a</i>	2.8648174	Ω 53.58364	-0.56037938	+0.71151702
<i>e</i>	0.0638854	<i>i</i> 2.80254	-0.29618079	+0.30584888
<i>P</i>	4.85	<i>H</i> 14.6	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1949 11 21	675	1.5-	0.5-	1973 09 25	675	1.1-	0.7-	1973 10 04	675	0.7-	1.7+
1949 11 21	675	1.3+	0.9+	1973 09 25	675	0.1-	0.9+	1973 10 05	675	1.2+	0.2-
1973 09 19	675	0.5+	0.8-	1973 09 29	675	(0.8+	3.1-)	1973 10 05	675	0.8-	0.6-

1973 09 19	675	0.8-	1.1-	1973 09 29	675	(0.3-	3.9-)	1998 11 01	327	0.5-	0.5+
1973 09 20	675	0.3-	0.7+	1973 09 30	675	1.2+	0.8-	1998 11 01	327	0.4+	0.4-
1973 09 24	675	0.3+	0.7+	1973 09 30	675	1.4+	0.3-	1998 11 01	327	0.0	0.4-
1973 09 24	675	0.2+	0.2+	1973 10 04	675	0.8-	0.1-				

2294 T-3 = 1998 SG₁₁₆

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	102.78292	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.23484259	ω 103.94534	+0.91778917	+0.39495471
<i>a</i>	2.6018653	Ω 232.80731	-0.38124805	+0.84773815
<i>e</i>	0.1546630	<i>i</i> 2.94390	-0.11096380	+0.35404915
<i>P</i>	4.20	<i>H</i> 16.0	<i>G</i> 0.15	<i>U</i> 6

Residuals in seconds of arc

1977 10 07	675	0.1+	0.1+	1977 10 21	675	1.4+	1.2-	1998 09 27	704	1.3+	0.8-
1977 10 11	675	0.1-	0.2-	1977 10 21	675	0.2+	0.9-	1998 09 27	704	0.1+	0.5-
1977 10 11	675	0.7-	0.9+	1977 10 22	675	0.3+	1.2-	1998 09 27	704	1.8-	0.6+
1977 10 12	675	0.2-	0.1+	1977 10 22	675	1.1+	0.2-	1998 09 27	704	0.6+	1.5+
1977 10 12	675	0.5+	0.2+	1998 09 26	704	1.2+	0.5+	1998 10 22	327	0.5-	1.0+
1977 10 16	675	0.2+	0.9-	1998 09 26	704	1.4-	1.0+	1998 10 22	327	0.4-	1.2+
1977 10 16	675	1.1+	0.9-	1998 09 26	704	1.1-	0.1+	1998 10 22	327	0.6-	0.6+
1977 10 17	675	1.7-	0.8+	1998 09 26	704	0.8+	0.9-				
1977 10 17	675	1.2-	0.6+	1998 09 26	704	0.8+	1.8-				

2330 T-3 = 1999 NM₁₆

Id. A. Gnädig

Epoch 1999 Aug. 10.0 TT = JDT 2451400.5

Williams

<i>M</i>	0.70878	(2000.0)	<i>P</i>	<i>Q</i>
<i>n</i>	0.26423225	ω 53.14179	+0.53102290	+0.84702937
<i>a</i>	2.4051685	Ω 248.94892	-0.78525489	+0.48145768
<i>e</i>	0.2113091	<i>i</i> 1.44769	-0.31841707	+0.22525487
<i>P</i>	3.73	<i>H</i> 15.5	<i>G</i> 0.15	<i>U</i> 5

Residuals in seconds of arc

1977 10 07	675	0.2+	0.5-	1977 10 17	675	0.6-	0.2+	1999 07 14	704	0.2-	0.4+
1977 10 11	675	0.3+	0.7+	1977 10 21	675	1.8-	1.3+	1999 07 16	704	0.3-	0.1+
1977 10 11	675	0.1+	0.7+	1977 10 21	675	1.7+	0.9-	1999 07 16	704	0.3-	0.3+
1977 10 12	675	1.1+	0.4+	1977 10 21	675	(2.9-	1.9+)	1999 07 16	704	0.4+	0.4-
1977 10 12	675	0.4-	0.9+	1977 10 21	675	0.0	0.1+	1999 07 16	704	0.2+	0.4-
1977 10 16	675	(0.4+	2.6-)	1977 10 22	675	0.3+	0.1-	1999 07 16	704	0.5+	0.5-
1977 10 16	675	0.9-	0.5-	1977 10 22	675	0.0	0.5-	1999 08 12	704	0.1+	0.5+
1977 10 16	675	0.9+	1.6-	1977 10 22	675	0.4+	1.7-	1999 08 12	704	0.3-	0.4+
1977 10 16	675	0.1-	0.5+	1999 07 14	704	0.3-	0.3+	1999 08 12	704	0.4-	0.5+
1977 10 17	675	0.2-	0.4+	1999 07 14	704	(0.4+	2.3-)	1999 08 12	704	0.4+	0.3+
1977 10 17	675	0.3-	0.0	1999 07 14	704	0.4+	0.5+	1999 08 12	704	0.1+	1.3-
1977 10 17	675	0.8-	0.5+	1999 07 14	704	0.4-	0.8-				

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
(186)	8.91	0.15	19990810	31.95470	315.38604	14.91494	13.17875	0.1509507	2.3624316	105	24 1883-1999	0.84 M-v 1	Williams	35055	(186)
(375)	7.47	0.27	19990810	87.14193	345.84853	336.72360	15.93180	0.1072893	3.1245774	116	33 1893-1998	0.97 M-v 1	Williams	28813	(375)
(711)	11.9	0.15	19990810	39.30976	299.88896	357.34004	6.09226	0.1949018	2.2376705	60	14 1912-1999	0.73 M-v 1	Bowell	16392	(711)
(975)	10.41	0.15	19990810	163.63888	57.30480	38.98854	2.56221	0.0347372	2.8333611	146	26 1929-1999	0.89 M-v 1	Bowell	15530	(975)
(1342)	11.35	0.15	19990810	203.78686	229.23424	313.14573	20.92239	0.2015564	2.2906455	58	13 1935-1999	0.81 M-v 1	Williams	35406	(1342)
(1709)	12.75	0.15	19990810	49.87733	41.67856	300.37452	7.57985	0.2145553	2.3779807	62	11 1925-1994	0.75 M-v 2	Williams	20126	(1709)
(1890)	10.8	0.15	19990810	220.36419	19.92974	70.50921	9.89938	0.1395577	3.2080886	48	12 1949-1998	0.82 M-v 1	Williams	29579	(1890)
(1894)	11.9	0.15	19990810	255.49759	118.20773	258.42414	0.90966	0.0715705	2.8865125	114	16 1951-1999	0.78 M-v 1	Bowell	14768	(1894)
(1935)	13.0	0.15	19990810	359.44294	197.86502	200.33836	9.57384	0.2295421	2.6265165	46	9 1969-1998	0.97 M-v 1	Williams	11983	(1935)
(2039)	12.8	0.15	19990810	184.59523	43.92142	96.06243	2.52505	0.1445544	3.1643701	81	13 1974-1999	0.89 M-v 1	Williams	35408	(2039)
(2047)	13.9	0.15	19990810	354.44534	309.87080	36.70846	25.28223	0.0032207	1.8719468	20	6 1971-1999	0.87 M-v 2	Williams	15536	(2047)

(2217)	10.8	0.15	19990810	28.00347	171.25721	128.13595	2.22859	0.1492309	3.1694826	94	20	1955-1998	0.96	M-v	1	Williams	18601	(2217)
(2262)	12.6	0.15	19990810	1.14740	351.59945	0.77050	13.42242	0.2801821	2.5872492	48	7	1955-1998	0.88	M-v	1	Williams	23655	(2262)
(2277)	12.2	0.15	19990810	267.17362	69.60955	105.37855	11.54636	0.1253223	2.6000747	36	11	1950-1998	0.92	M-v	1	Williams	21239	(2277)
(2335)	13.8	0.15	19990810	329.75182	79.37814	20.12232	36.33701	0.3595182	2.1236942	51	7	1974-1997	0.79	M-v	2	Williams	25936	(2335)
(2570)	12.2	0.15	19990810	332.12535	95.59171	324.70113	16.22958	0.1070064	2.7680242	46	8	1941-1998	0.97	M-v	1	Williams	23959	(2570)
(2598)	12.6	0.15	19990810	337.40952	215.73647	198.17239	7.79512	0.2182132	2.7828189	40	9	1948-1998	0.93	M-v	2	Williams	14000	(2598)
(2825)	13.4	0.15	19990810	355.23179	81.23805	329.68273	3.52162	0.1742858	2.2460452	71	9	1938-1997	0.88	M-v	1	Williams	30890	(2825)
(2885)	14.1	0.15	19990810	305.46366	44.03723	349.38597	2.87486	0.1944020	2.2371960	87	12	1939-1999	0.80	M-v	1	Williams	22798	(2885)
(2920)	8.8	0.15	19990810	357.14556	200.86967	230.99655	21.10160	0.0295541	5.1343303	56	9	1981-1999	0.92	M-v	1	Williams	28056	(2920)
(3041)	12.5	0.15	19990810	356.15704	350.89304	82.61962	14.61366	0.1455878	2.5863948	32	6	1980-1998	0.96	M-v	2	Williams	17603	(3041)
(3077)	12.7	0.15	19990810	319.99394	117.12366	297.73875	1.47455	0.0558731	2.2413652	80	11	1942-1998	1.03	M-v	1	Williams	22474	(3077)
(3092)	11.0	0.15	19990810	292.73019	359.88484	9.33760	10.87916	0.1104775	3.5390430	39	6	1960-1998	0.88	M-v	1	Williams	25516	(3092)
(3109)	11.6	0.15	19990810	110.62531	257.73013	22.88740	7.18301	0.0879004	2.4527037	63	15	1924-1995	0.72	M-v	1	Williams	16403	(3109)
(3150)	11.0	0.15	19990810	224.59275	275.11490	350.47741	22.08883	0.1195278	3.1972148	77	8	1979-1998	0.89	M-v	1	Williams	27431	(3150)
(3156)	11.3	0.15	19990810	260.09488	118.58435	7.34914	15.82767	0.1946240	2.8609726	26	8	1953-1999	1.00	M-v	1	Williams	25517	(3156)
(3241)	12.3	0.15	19990810	313.18792	310.72351	127.34339	1.64281	0.1616816	3.0477902	101	9	1978-1998	0.96	M-v	1	Williams	27290	(3241)
(3363)	12.0	0.15	19990810	218.62460	312.08239	183.52471	3.32882	0.1007262	2.7769105	63	17	1953-1999	0.94	M-v	1	Williams	24720	(3363)
(3415)	10.8	0.15	19990810	341.14041	137.36425	254.49007	1.35437	0.2481881	3.9764899	53	9	1967-1998	0.93	M-v	1	Williams	20314	(3415)
(3513)	12.8	0.15	19990810	33.36338	356.53100	324.09818	2.64573	0.0102129	2.6302782	45	10	1965-1998	0.93	M-v	1	Williams	11342	(3513)
(3700)	12.5	0.15	19990810	306.92793	153.03656	289.41648	12.13108	0.2262769	2.4148600	40	8	1973-1999	0.85	M-v	2	Williams	25937	(3700)
(3729)	12.1	0.15	19990810	315.89009	311.68039	5.17451	13.43041	0.1898599	2.6258718	76	7	1953-1999	0.96	M-v	2	Williams	23326	(3729)
(3753)	15.1	0.15	19990810	210.03281	43.68695	126.35014	19.80805	0.5148205	0.9977909	171	16	1973-1999	0.74	M-v	4	Williams	28056	(3753)
(3872)	12.8	0.15	19990810	264.73442	65.96544	94.95122	13.02626	0.2057262	2.6612444	23	8	1931-1993	0.68	M-v	1	Williams	13460	(3872)
(3922)	12.5	0.15	19990810	7.53770	13.13472	351.16325	2.01872	0.2048172	3.1364422	40	10	1949-1999	0.94	M-v	1	Williams	22475	(3922)
(3934)	13.1	0.15	19990810	278.93972	94.84786	157.73548	13.13209	0.1423541	2.5949524	53	6	1980-1999	0.59	M-v	1	Williams	28816	(3934)
(3939)	11.4	0.15	19990810	77.60501	254.70739	32.70257	24.77131	0.0922674	3.1213113	27	9	1953-1997	1.02	M-v	1	Williams	14004	(3939)
(3942)	13.2	0.15	19990810	14.28008	288.33090	18.42784	4.62792	0.1960488	2.3918346	75	10	1951-1998	0.73	M-v	1	Williams	22475	(3942)
(3966)	11.9	0.15	19990810	260.40666	53.62546	32.72941	3.55885	0.0258190	3.2309150	52	9	1953-1999	0.88	M-v	1	Williams	22576	(3966)
(3968)	12.9	0.15	19990810	84.29839	312.59011	312.33021	6.20890	0.0907393	2.3222828	72	8	1953-1999	0.78	M-v	1	Williams	14169	(3968)
(3970)	12.4	0.15	19990810	329.60889	303.84031	22.05125	15.16811	0.1313173	2.5564283	68	8	1955-1999	0.72	M-v	1	Williams	16404	(3970)
(4034)	18.1	0.15	19990810	227.37322	296.51179	158.09468	11.16749	0.4439909	1.0597653	95	6	1986-1999	0.68	M-v	3	Williams	30250	(4034)
(4164)	12.2	0.15	19990810	320.46049	219.84373	218.28728	12.82630	0.1497979	2.6376176	30	8	1969-1998	0.89	M-v	2	Williams	15055	(4164)
(4298)	12.2	0.15	19990810	317.06280	312.29247	88.22211	3.29994	0.2979987	3.0395360	33	9	1941-1999	0.89	M-v	1	Bowell	15677	(4298)
(4315)	12.4	0.15	19990810	6.71489	264.62197	29.44161	16.74946	0.2874465	2.9818890	48	8	1978-1999	0.74	M-v	1	Williams	22202	(4315)
(4348)	9.2	0.15	19990810	304.65479	158.64925	220.18697	7.95628	0.0984696	5.2479003	80	12	1953-1999	0.97	M-v	0	Williams	15694	(4348)
(4361)	12.4	0.15	19990810	297.15765	358.02550	75.03207	2.73206	0.1737689	3.1363464	66	11	1954-1999	0.88	M-v	1	Williams	24089	(4361)
(4397)	13.7	0.15	19990810	122.18755	207.30443	323.61485	5.47916	0.1204981	2.3102656	51	7	1977-1999	0.75	M-v	1	Bowell	16012	(4397)
(4405)	11.3	0.15	19990810	14.26194	202.45176	140.41946	9.43535	0.1526264	3.2111537	40	7	1982-1998	0.94	M-v	1	Williams	29583	(4405)
(4415)	15.2	0.15	19990810	182.92385	173.97351	329.31804	2.01996	0.0662509	2.3371691	88	8	1950-1999	0.65	M-v	1	Williams	24552	(4415)
(4435)	13.2	0.15	19990810	274.13887	110.15923	331.05805	21.91752	0.3362728	2.3156048	77	7	1978-1999	0.84	M-v	1	Bowell	16217	(4435)
(4448)	12.0	0.15	19990810	146.80794	47.03590	83.40611	16.81312	0.0828462	2.5470478	38	8	1964-1999	0.69	M-v	2	Williams	16221	(4448)
(4457)	12.2	0.15	19990810	287.23991	340.06254	187.30501	13.83617	0.1292185	2.6607224	102	7	1954-1999	0.80	M-v	2	Williams	24552	(4457)
(4465)	13.4	0.15	19990810	219.90724	63.31328	51.31843	3.29070	0.1327187	2.4369473	57	7	1971-1999	0.85	M-v	1	Bowell	16405	(4465)
(4469)	13.8	0.15	19990810	4.82346	20.74618	325.49953	11.85310	0.1888441	2.5751849	39	7	1974-1999	0.88	M-v	2	Williams	25937	(4469)
(4531)	14.9	0.15	19990810	256.88646	143.04321	15.19637	23.97987	0.0403492	1.8622644	36	6	1975-1993	0.90	M-v	2	Williams	16567	(4531)
(4533)	12.8	0.15	19990810	269.38173	292.00876	178.70733	22.65183	0.2458942	2.3694087	41	7	1957-1999	0.73	M-v	1	Bowell	16568	(4533)
(4546)	13.6	0.15	19990810	280.04092	266.57532	194.94529	6.09972	0.0631939	2.3566740	45	9	1949-1999	0.89	M-v	1	Williams	21908	(4546)
(4553)	12.8	0.15	19990810	50.79212	113.51006	169.15130	12.91052	0.1377288	2.6180496	63	6	1981-1999	0.60	M-v	1	Bowell	16690	(4553)
(4568)	11.9	0.15	19990810	108.71471	225.86955	7.56988	10.69603	0.0542153	3.0363021	24	9	1973-1997	1.01	M-v	2	Williams	29583	(4568)
(4667)	12.8	0.15	19990810	340.75898	24.33073	6.30922	11.24861	0.0913389	2.6671931	44	8	1971-1999	0.86	M-v	2	Williams	21908	(4667)
(4696)	12.3	0.15	19990810	13.25229	132.89884	178.95077	1.88857	0.0545176	2.8550384	64	9	1951-1999	0.82	M-v	1	Williams	22576	(4696)
(4813)	12.0	0.15	19990810	29.57836	299.52118	21.30154	11.87967	0.0931210	3.1297621	38	6	1977-1999	0.77	M-v	1	Williams	18266	(4813)
(4867)	9.4	0.15	19990810	65.36498	279.83135	335.21874	27.15596	0.0170353	5.1622249	45	6	1988-1999	0.78	M-v	1	Williams	23657	(4867)

(4879)	11.7	0.15	19990810	117.48212	20.16060	49.49848	10.27363	0.0872474	3.1691383	45	6	1974-1999	0.65	M-v	1	Williams	18606	(4879)
(4892)	12.6	0.15	19990810	184.00994	306.35999	211.96107	8.56071	0.0999091	2.3345438	63	8	1964-1998	0.78	M-v	2	Williams	18611	(4892)
(5029)	11.8	0.15	19990810	212.21039	331.99130	29.00712	19.34742	0.0887864	2.9375450	61	7	1971-1999	0.72	M-v	2	Williams	19490	(5029)
(5123)	9.9	0.15	19990810	334.53721	30.34805	78.24363	8.52696	0.1041916	5.2388054	82	7	1986-1999	0.73	M-v	0	Williams	29891	(5123)
(5207)	13.7	0.15	19990810	208.79768	346.00036	319.35923	12.79632	0.1911677	2.5494443	37	5	1984-1998	0.83	M-v	1	Williams	20135	(5207)
(5266)	13.9	0.15	19990810	167.84289	117.42140	11.89711	15.71190	0.1309574	2.7161209	74	6	1971-1998	0.78	M-v	2	Williams	25938	(5266)
(5457)	12.4	0.15	19990810	250.61648	30.39196	270.30998	3.94688	0.0283845	3.0732239	112	10	1948-1999	0.77	M-v	1	Williams	21766	(5457)
(5786)	17.0	0.15	19990810	135.20399	8.29693	161.35894	23.24313	0.8268419	1.0815336	85	8	1991-1999	0.69	M-v	4	Williams	30684	(5786)
(5843)	14.2	0.15	19990810	319.90156	266.41032	131.34935	2.38719	0.1474401	2.2106517	71	9	1976-1999	0.72	M-v	1	Williams	23117	(5843)
(5865)	13.6	0.15	19990810	338.73327	181.10504	197.17324	7.60726	0.1311711	2.4077692	84	10	1984-1999	0.67	M-v	1	Williams	25518	(5865)
(6203)	13.1	0.15	19990810	3.56155	45.25858	236.52254	0.94484	0.0465499	3.1488913	89	9	1950-1999	0.75	M-v	1	Williams	24553	(6203)
(6236)	12.7	0.15	19990810	356.91149	309.67827	90.01946	1.86831	0.1900046	3.1390352	62	6	1954-1998	0.73	M-v	1	Williams	24727	(6236)
(6316)	14.2	0.15	19990810	277.55188	50.26476	306.68908	3.70319	0.1753622	2.1694076	75	6	1990-1999	0.76	M-v	1	Williams	25051	(6316)
(6478)	14.1	0.15	19990810	62.40712	83.19007	183.74232	22.81064	0.1922870	2.3062603	31	6	1988-1999	0.75	M-v	2	Williams	25415	(6478)
(6494)	13.9	0.15	19990810	332.95415	253.54450	118.00911	3.82598	0.1067871	2.2395165	79	9	1949-1999	0.65	M-v	1	Williams	25420	(6494)
(6621)	13.5	0.15	19990810	333.48729	253.54052	124.87412	7.11325	0.2465914	2.5409602	56	9	1950-1999	0.78	M-v	1	Williams	29892	(6621)
(6696)	12.8	0.15	19990810	22.72139	295.46388	5.29565	1.74223	0.1896714	2.6780301	75	9	1982-1999	0.60	M-v	1	Bowell	26151	(6696)
(6971)	12.5	0.15	19990810	311.54761	326.32732	68.14595	3.06229	0.0738980	2.8333939	57	7	1976-1999	0.87	M-v	1	Bowell	27095	(6971)
(6997)	10.5	0.15	19990810	63.57239	57.08464	195.35657	19.10196	0.1009095	5.1924422	58	8	1953-1999	0.83	M-v	1	Williams	27101	(6997)
(7103)	13.1	0.15	19990810	240.07494	93.88603	183.73367	10.15054	0.0839291	3.0122740	33	7	1953-1997	0.68	M-v	1	Williams	27697	(7103)
(7230)	14.1	0.15	19990810	270.59340	359.57737	22.16949	3.15282	0.2405164	2.3731968	79	7	1952-1999	0.79	M-v	1	Williams	28061	(7230)
(7465)	15.5	0.15	19990810	337.75185	193.50676	190.87592	2.47447	0.1660362	2.2484147	47	6	1989-1999	0.82	M-v	1	Bowell	29080	(7465)
(7566)	14.2	0.15	19990810	304.37675	333.76978	79.54800	1.71082	0.2139872	2.3769046	57	7	1981-1999	0.78	M-v	1	Bowell	29593	(7566)
(7583)	12.4	0.15	19990810	78.83922	147.10476	140.16918	10.81120	0.0566198	3.0050882	54	5	1988-1998	0.55	M-v	1	Williams	29597	(7583)
(7628)	12.4	0.15	19990810	347.70872	25.85551	342.28397	12.78823	0.1805981	2.6808284	57	5	1977-1999	0.66	M-v	1	Williams	29893	(7628)
(7661)	14.3	0.15	19990810	96.25203	84.25145	154.48708	2.46307	0.0116791	2.8782769	80	5	1979-1999	0.51	M-v	1	Williams	29902	(7661)
(7682)	14.1	0.15	19990810	242.05961	98.51832	5.80899	6.03011	0.2075526	2.6630393	39	8	1976-1999	0.89	M-v	1	Williams	29907	(7682)
(7717)	13.5	0.15	19990810	238.12618	157.62431	335.19078	6.02856	0.2821966	2.4351097	36	6	1940-1999	0.59	M-v	1	Williams	30073	(7717)
(7766)	12.1	0.15	19990810	244.64436	116.79906	341.28873	11.01176	0.0855030	3.0563164	28	7	1976-1999	0.84	M-v	1	Williams	30262	(7766)
(7803)	13.1	0.15	19990810	239.04655	7.96573	110.88600	4.98972	0.0491545	2.7867389	28	8	1953-1999	0.68	M-v	1	Williams	30271	(7803)
(7968)	14.0	0.15	19990810	212.76547	133.25025	160.24144	1.38547	0.1658824	3.1554813	181	5	1979-1998	0.63	M-v	1	Williams	30751	(7968)
(8161)	13.3	0.15	19990810	211.55645	246.71556	97.73385	2.54458	0.1739219	3.1641734	63	7	1950-1999	0.70	M-v	1	Williams	31078	(8161)
(8241)	11.3	0.15	19990810	161.88659	264.03058	22.64100	4.35226	0.0417228	5.1145040	39	5	1973-1998	1.08	M-v	1	Williams	31206	(8241)
(8289)	14.1	0.15	19990810	60.43324	345.54511	267.92363	2.52330	0.1548374	2.1917132	51	6	1979-1999	0.77	M-v	1	Williams	31216	(8289)
(8315)	13.8	0.15	19990810	42.31619	182.30723	85.69814	7.88152	0.1703825	2.2139988	63	5	1979-1999	0.53	M-v	2	Williams	31221	(8315)
(8416)	14.0	0.15	19990810	32.66359	130.25936	170.19737	3.31262	0.1947414	2.1534115	40	7	1980-1999	0.76	M-v	1	Bowell	31369	(8416)
(8543)	13.8	0.15	19990810	356.03522	116.10196	212.63149	4.27971	0.1652026	2.2553348	51	5	1993-1999	0.71	M-v	1	Williams	31506	(8543)
(8570)	12.7	0.15	19990810	160.41173	68.20987	359.55947	9.59638	0.0933333	2.9886755	58	8	1980-1999	0.71	M-v	1	Williams	31513	(8570)
(8575)	14.4	0.15	19990810	351.89250	37.01429	295.81637	4.00840	0.2164455	2.2210862	43	6	1982-1999	0.81	M-v	1	Williams	35413	(8575)
(8600)	14.3	0.15	19990810	158.36377	65.01987	71.87021	2.96010	0.1576920	2.4402145	82	8	1973-1999	0.88	M-v	2	Williams	31519	(8600)
(8606)	11.7	0.15	19990810	283.25444	170.98590	216.98355	11.87182	0.0480360	2.8494448	60	5	1971-1999	0.71	M-v	1	Williams	31665	(8606)
(8644)	13.7	0.15	19990810	20.90241	296.55818	13.34043	5.31374	0.1718223	2.3758019	57	5	1980-1999	0.83	M-v	1	Williams	31674	(8644)
(8651)	14.5	0.15	19990810	329.09222	105.50745	271.99390	2.03450	0.2781512	2.2937080	49	7	1975-1999	0.82	M-v	1	Williams	31675	(8651)
(8706)	13.1	0.15	19990810	111.14384	46.16368	33.17010	8.60461	0.0855925	2.8488452	54	5	1989-1999	0.74	M-v	1	Williams	31688	(8706)
(8789)	13.8	0.15	19990810	6.49167	305.26757	23.64092	1.06284	0.2098781	3.0882589	44	7	1978-1999	0.76	M-v	1	Bowell	31896	(8789)
(8826)	12.9	0.15	19990810	337.78770	318.59231	24.30853	0.48977	0.1736436	3.1738019	69	6	1979-1999	0.78	M-v	1	Williams	31905	(8826)
(8843)	14.0	0.15	19990810	10.04109	132.89891	217.16928	13.26885	0.3033908	2.6581008	40	5	1990-1999	0.72	M-v	1	Williams	31909	(8843)
(8864)	13.2	0.15	19990810	319.72007	141.46483	244.08690	6.97499	0.1557331	2.6115779	59	7	1986-1999	0.75	M-v	1	Williams	31914	(8864)
(8901)	12.1	0.15	19990810	132.45982	135.81218	49.24903	11.44487	0.0537853	3.0010024	57	6	1984-1999	0.67	M-v	1	Williams	31923	(8901)
(9047)	14.2	0.15	19990810	328.46695	316.65517	42.24868	16.91860	0.3163957	2.5255544	31	5	1991-1999	0.68	M-v	2	Williams	32184	(9047)
(9127)	13.6	0.15	19990810	16.84167	202.24010	88.42303	2.91913	0.1076467	3.1771197	49	5	1960-1999	0.58	M-v	1	Williams	32203	(9127)
(9194)	14.6	0.15	19990810	262.92208	289.88709	128.76665	8.58678	0.0878720	2.3156179	34	6	1987-1999	0.54	M-v	1	Williams	32422	(9194)
(9201)	13.1	0.15	19990810	356.90920	179.58814	71.15874	0.78549	0.1166631	3.1601514	64	8	1976-1999	0.73	M-v	1	Williams	32424	(9201)

(9573)	13.1	0.15	19990810	94.29872	312.92652	39.28944	2.54091	0.0935310	2.9137531	91	8	1953-1999	0.77	M-v	2	Williams	32882	(9573)
(10511)	12.9	0.15	19990810	37.94019	287.83164	358.89295	8.82958	0.1339489	2.7815331	28	6	1976-1999	0.71	M-v	1	Bowell	34439	(10511)
A908 SA	13.9	0.15	19990810	248.32245	134.46414	176.21052	6.38712	0.4517375	2.5981914	24	5	1908-1999	0.95	M-v	3	Williams	34001	A908 SA
1931 TC ₂	13.2	0.15	19990810	6.73234	340.70346	349.11277	8.70623	0.2803821	2.7416023	33	4	1931-1999	0.73	M-v	2	Williams	35414	1931 TC ₂
1931 UB	14.2	0.15	19990810	357.55534	116.67590	234.93572	1.36205	0.2176991	2.4258897	44	5	1931-1999	0.83	M-v	2	Spahr	35056	1931 UB
1969 TY ₁	12.6	0.15	19990810	176.62220	153.64688	200.65712	5.78267	0.0956463	3.1233974	33	5	1969-1999	0.77	M-v	1	Spahr	34280	1969 TY ₁
1971 QO ₁	12.4	0.15	19990810	113.71627	32.55207	321.75154	9.45370	0.1091290	3.0172825	36	5	1971-1999	0.74	M-v	1	Spahr	34280	1971 QO ₁
1971 SB	14.8	0.15	19990810	281.08772	76.35415	355.72810	22.89413	0.0984756	1.8627377	52	5	1971-1999	0.62	M-v	2	Williams	32041	1971 SB
1971 UK ₁	15.3	0.15	19990810	38.63986	235.11479	206.33745	7.74052	0.2229749	2.4656338	52	4	1971-1998	0.73	M-v	2	Williams	33331	1971 UK ₁
1972 TR ₈	13.7	0.15	19990810	221.49893	6.87137	318.36307	12.57737	0.1709277	2.5651822	26	2	1972-1999	0.58	M-v	4	Spahr	34280	1972 TR ₈
1973 QR ₁	13.9	0.15	19990810	19.83260	104.88928	203.09854	2.83370	0.1925524	2.1926348	48	5	1973-1999	0.75	M-v	1	Williams	35414	1973 QR ₁
1973 SL	10.8	0.15	19990810	20.14977	324.86238	111.88701	1.77875	0.0586039	5.1119528	47	4	1973-1998	0.91	M-v	1	Williams	33920	1973 SL
1973 SQ	12.3	0.15	19990810	351.57570	37.44727	43.81098	6.58085	0.1331127	5.2052361	27	2	1973-1998	0.77	M-v	4	Williams	33671	1973 SQ
1973 SX	11.5	0.15	19990810	323.46950	121.03383	353.52939	7.93834	0.0766876	5.1889646	40	4	1973-1998	0.78	M-v	2	Spahr	33331	1973 SX
1973 SZ	12.2	0.15	19990810	39.66249	276.91604	143.60102	5.77742	0.0884881	5.1168193	30	4	1973-1998	0.99	M-v	2	Williams	34280	1973 SZ
1973 SF ₁	11.4	0.15	19990810	55.75454	338.24945	40.58405	8.44348	0.1509554	5.1613755	44	3	1973-1998	0.77	M-v	3	Williams	33538	1973 SF ₁
1973 SB ₂	11.2	0.15	19990810	61.76211	3.98668	15.19380	7.61134	0.0516468	5.1783276	35	5	1973-1998	0.83	M-v	1	Spahr	34001	1973 SB ₂
1973 SX ₂	12.5	0.15	19990810	92.28183	186.58000	201.65746	14.67395	0.1146150	2.5670230	54	3	1973-1999	0.68	M-v	3	Spahr	34280	1973 SX ₂
1973 SP ₄	13.6	0.15	19990810	238.87881	347.06119	353.99785	8.80224	0.1789997	2.4904553	47	3	1973-1999	0.75	M-v	4	Williams	34572	1973 SP ₄
1973 SY ₅	13.4	0.15	19990810	45.99383	216.26079	186.43650	15.14085	0.1399323	2.5868612	50	3	1973-1998	0.79	M-v	4	Spahr	33538	1973 SY ₅
1973 UK ₅	14.6	0.15	19990810	257.51676	44.40764	46.89124	3.101684	0.1573554	2.4187487	21	5	1973-1999	0.83	M-v	2	Williams	35056	1973 UK ₅
1974 RX ₁	14.4	0.15	19990810	306.53260	138.59229	235.78224	2.11228	0.2430567	2.3549560	43	4	1974-1999	0.92	M-v	2	Williams	35414	1974 RX ₁
1974 XW	13.3	0.15	19990810	252.89712	26.70241	79.68985	4.80741	0.1833079	2.6452109	23	6	1974-1999	0.73	M-v	1	Spahr	30089	1974 XW
1975 SU ₁	13.1	0.15	19990810	231.69822	8.95589	173.30663	1.46289	0.1159567	3.2422965	37	3	1975-1998	0.97	M-v	5	Spahr	33064	1975 SU ₁
1975 SX ₁	13.5	0.15	19990810	119.54472	272.90144	199.96609	8.99802	0.0206753	3.0010778	34	5	1975-1999	0.90	M-v	3	Williams	34820	1975 SX ₁
1975 VZ ₈	13.1	0.15	19990810	95.62876	71.18727	302.81253	11.66487	0.1745332	2.7554541	26	2	1975-1999	0.79	M-v	4	Williams	34001	1975 VZ ₈
1976 QK ₁	14.3	0.15	19990810	18.78617	123.63707	200.18398	2.44506	0.2017909	2.4432248	50	4	1976-1999	0.74	M-v	2	Spahr	32297	1976 QK ₁
1976 SD ₅	13.3	0.15	19990810	119.38114	179.61506	213.48663	9.62279	0.1095164	3.0228853	33	3	1976-1999	0.80	M-v	4	Spahr	34280	1976 SD ₅
1976 UN ₂	15.2	0.15	19990810	142.98576	96.62201	257.95413	1.90088	0.1359611	2.1327510	33	5	1976-1998	0.73	M-v	2	Spahr	33539	1976 UN ₂
1976 UN ₁₄	14.6	0.15	19990810	321.37250	334.74579	53.39221	5.37344	0.0369693	2.2192347	38	4	1976-1999	0.50	M-v	2	Williams	32297	1976 UN ₁₄
1977 AC ₂	13.1	0.15	19990810	111.72379	103.19072	318.00466	11.88128	0.1722222	2.6581800	45	3	1977-1999	0.64	M-v	2	Spahr	34280	1977 AC ₂
1977 CP	14.5	0.15	19990810	135.55462	127.79510	27.03243	1.08149	0.1484498	2.3086218	24	5	1977-1999	0.68	M-v	4	Williams	35276	1977 CP
1977 DR ₂	14.5	0.15	19990810	48.03659	251.78160	344.72222	6.73451	0.0844865	2.3226071	28	6	1970-1997	0.79	M-v	2	Spahr	31134	1977 DR ₂
1977 DG ₃	14.5	0.15	19990810	273.42234	44.85148	145.39299	6.20248	0.0877873	2.4504410	39	3	1977-1998	0.71	M-v	4	Williams	33218	1977 DG ₃
1977 DH ₄	14.0	0.15	19990810	221.18811	79.80760	349.29336	11.46043	0.1640195	2.5742472	36	2	1977-1998	0.61	M-v	5	Spahr	31706	1977 DH ₄
1977 EL ₅	12.8	0.15	19990810	264.59280	106.89293	178.51389	21.20343	0.1137181	3.1530854	28	4	1977-1999	0.88	M-v	2	Williams	34280	1977 EL ₅
1977 OX	15.2	0.15	19990810	232.46430	226.38231	101.15924	16.20752	0.4966849	3.3398583	32	3	1977-1996	0.73	M-v	2	Williams	26578	1977 OX
1977 QN ₂	14.7	0.15	19990810	15.68554	6.91064	314.53343	2.43505	0.2540219	2.3714131	29	5	1977-1999	0.71	M-v	2	Spahr	31779	1977 QN ₂
1977 RG ₁₉	15.8	0.15	19990810	251.61390	137.39427	312.10415	1.95934	0.0823940	2.1528837	27	3	1977-1998	0.82	M-v	4	Spahr	34172	1977 RG ₁₉
1977 TU ₃	12.8	0.15	19990810	40.57356	174.78364	215.23292	14.75681	0.1973026	3.0442932	48	2	1977-1999	0.72	M-v	3	Spahr	34280	1977 TU ₃
1977 XZ ₂	13.3	0.15	19990810	235.42999	310.75627	344.16293	1.26019	0.0894318	2.9448537	51	6	1977-1999	0.77	M-v	2	Spahr	34280	1977 XZ ₂
1978 PE	14.9	0.15	19990810	346.35289	214.08623	133.41143	5.23416	0.2306770	2.2988368	44	5	1978-1999	0.77	M-v	2	Spahr	35414	1978 PE
1978 PV ₂	14.1	0.15	19990810	147.65862	4.74871	319.35623	5.37454	0.2685953	2.2062862	17	2	1978-1998	0.84	M-v	4	Spahr	33472	1978 PV ₂
1978 QF ₁	14.7	0.15	19990810	317.48854	199.87132	187.18910	4.97466	0.2144069	3.102171	24	4	1978-1999	0.69	M-v	2	Spahr	35414	1978 QF ₁
1978 QA ₂	14.7	0.15	19990810	1.72458	154.87484	188.18007	3.67350	0.2214473	2.2998516	66	8	1978-1999	0.83	M-v	2	Williams	35414	1978 QA ₂
1978 RQ ₉	14.6	0.15	19990810	96.41463	231.94454	350.02457	6.74722	0.0588255	2.3108739	64	5	1978-1999	0.64	M-v	2	Spahr	35414	1978 RQ ₉
1978 RA ₁₀	15.5	0.15	19990810	288.24738	75.11653	358.61520	1.55451	0.2126772	2.3016603	20	3	1978-1999	0.78	M-v	5	Williams	22073	1978 RA ₁₀
1978 SC ₅	15.0	0.15	19990810	181.55656	308.45638	63.45044	2.22483	0.1984566	2.4333852	24	4	1978-1999	0.75	M-v	3	Spahr	34280	1978 SC ₅
1978 SS ₆	13.8	0.15	19990810	177.65810	37.88145	331.61073	2.67037	0.1906100	2.4350405	48	3	1978-1999	0.70	M-v	3	Williams	34280	1978 SS ₆
1978 SO ₇	14.1	0.15	19990810	163.23450	32.87863	334.20672	2.69842	0.1960658	2.4492941	29	3	1978-1999	0.62	M-v	3	Williams	34280	1978 SO ₇
1978 TO ₈	12.9	0.15	19990810	329.21013	163.99666	214.48735	0.87717	0.1987926	3.0595800	55	9	1978-1999	0.84	M-v	1	Spahr	32041	1978 TO ₈
1978 UE ₅	15.7	0.15	19990810	188.88397	97.17772	293.23750	1.86380	0.1730331	2.4163793	19	3	1978-1997	0.68	M-v	3	Williams	34172	1978 UE ₅
1978 UD ₇	14.9	0.15	19990810	143.94944	280.73058	8.95407	8.49372	0.2121379	2.2389568	43	2	1978-1998	0.63	M-v	4	Williams	33332	1978 UD ₇

1978 UV ₇	14.0	0.15	19990810	195.32953	129.49307	199.98459	4.75854	0.1031264	2.8080957	40	5	1978–1999	0.80	M-v	1	Spahr	34480	1978 UV ₇
1978 VY ₅	14.8	0.15	19990810	25.34930	10.56638	75.33088	2.16318	0.1588411	2.2565434	74	2	1978–1998	0.68	M-v	4	Williams	34280	1978 VY ₅
1978 VO ₆	14.5	0.15	19990810	138.32219	54.90715	272.67981	3.64822	0.1031905	2.2487941	29	3	1978–1998	0.62	M-v	4	Williams	33218	1978 VO ₆
1978 VE ₇	14.8	0.15	19990810	339.05478	172.10496	176.47790	0.75574	0.2202791	2.3384600	44	5	1978–1999	0.68	M-v	2	Spahr	35414	1978 VE ₇
1978 VD ₈	16.0	0.15	19990810	149.53367	252.92164	58.22431	3.26812	0.0546324	2.2567763	24	3	1978–1998	0.77	M-v	4	Williams	33218	1978 VD ₈
1978 VS ₈	14.8	0.15	19990810	24.20590	276.43661	184.94405	1.87929	0.0500063	2.5283000	37	2	1978–1998	0.70	M-v	5	Spahr	34572	1978 VS ₈
1978 VU ₈	15.7	0.15	19990810	50.83991	352.63503	82.40713	2.45294	0.2027948	2.5287747	23	2	1978–1998	0.57	M-v	4	Williams	34002	1978 VU ₈
1979 HN ₅	12.0	0.15	19990810	221.37994	203.60910	101.42712	7.57053	0.2422389	3.0779908	25	4	1979–1999	0.71	M-v	3	Williams	34280	1979 HN ₅
1979 MX ₁	14.0	0.15	19990810	199.66570	298.68149	269.24421	3.50654	0.0447747	2.7834509	27	3	1979–1998	0.73	M-v	4	Spahr	32738	1979 MX ₁
1979 OH ₁	12.7	0.15	19990810	229.26493	114.88267	137.40897	12.29354	0.0662254	3.1834511	27	3	1979–1999	0.79	M-v	3	Spahr	33922	1979 OH ₁
1979 QB	17.4	0.15	19990810	208.31622	12.15719	342.56405	3.35486	0.4422700	2.3316009	12	1	67 days	1.17	M-v	5	Williams	10390	1979 QB
1979 QP	13.5	0.15	19990810	84.39201	302.97325	303.99422	1.12631	0.0305014	2.9091410	44	8	1954–1999	0.76	M-v	1	Williams	32042	1979 QP
1979 QJ ₁	14.6	0.15	19990810	123.15150	31.62038	148.44666	7.71241	0.1028148	2.2407726	36	5	1979–1999	0.79	M-v	2	Williams	35415	1979 QJ ₁
1979 QR ₁	13.9	0.15	19990810	92.65910	258.78289	347.58156	1.56326	0.0680329	2.8959922	39	6	1979–1999	0.76	M-v	1	Spahr	29132	1979 QR ₁
1979 QD ₂	15.0	0.15	19990810	246.40031	299.45541	29.99022	1.22102	0.2185785	3.0902539	23	4	1979–1999	0.48	M-v	2	Spahr	34281	1979 QD ₂
1979 QF ₂	13.0	0.15	19990810	21.17205	213.21370	158.88128	2.46463	0.0822213	2.8448229	17	2	1979–1996	0.34	M-v	6	Spahr	33922	1979 QF ₂
1979 QM ₃	15.8	0.15	19990810	315.08698	240.46123	148.68425	5.26836	0.1236338	2.2263505	17	3	1979–1996	0.37	M-v	4	Williams	34173	1979 QM ₃
1979 QZ ₉	13.7	0.15	19990810	331.84280	30.20406	310.49046	3.24894	0.1784728	2.2530059	43	5	1979–1999	0.59	M-v	3	Spahr	35276	1979 QZ ₉
1980 FY ₂	13.8	0.15	19990810	335.98502	91.26558	2.54169	0.76196	0.0509681	3.0051523	39	5	1980–1998	0.69	M-v	1	Williams	34481	1980 FY ₂
1980 KE	13.8	0.15	19990810	20.07357	53.75621	257.14284	8.02758	0.2179682	2.3872432	55	4	1980–1999	0.77	M-v	2	Williams	35415	1980 KE
1980 PT ₁	12.9	0.15	19990810	256.05563	327.95160	303.06097	8.53305	0.0865142	3.0689986	19	2	1980–1999	0.69	M-v	5	Williams	33922	1980 PT ₁
1980 PY ₂	13.5	0.15	19990810	192.57792	340.65894	37.74579	15.68386	0.1309743	2.5459645	34	3	1980–1999	0.85	M-v	4	Spahr	34573	1980 PY ₂
1980 PE ₃	13.6	0.15	19990810	264.67644	208.88148	65.20318	15.67601	0.1608750	2.5571190	32	3	1980–1999	0.80	M-v	2	Williams	34573	1980 PE ₃
1980 UR ₁	15.1	0.15	19990810	55.47051	201.00229	233.92156	7.71565	0.2134587	2.3462012	41	2	1980–1999	0.70	M-v	3	Spahr	34002	1980 UR ₁
1981 DF	12.9	0.15	19990810	128.58050	151.66694	331.61204	12.86557	0.1043980	3.1602701	52	3	1981–1998	0.56	M-v	3	Spahr	31780	1981 DF
1981 EL ₂	14.2	0.15	19990810	345.35755	97.40998	228.10027	10.78616	0.1623978	2.6181251	29	3	1981–1999	0.91	M-v	4	Williams	35415	1981 EL ₂
1981 ED ₃	15.5	0.15	19990810	133.75697	252.66529	211.11545	12.14099	0.1818093	3.1947242	17	3	1981–1995	0.75	M-v	2	Williams	30754	1981 ED ₃
1981 EU ₄	13.0	0.15	19990810	99.30353	31.33350	261.37027	9.00250	0.0737663	2.9879181	43	2	1981–1998	0.68	M-v	4	Spahr	34573	1981 EU ₄
1981 EY ₄	14.3	0.15	19990810	324.46341	31.41388	311.95225	9.17792	0.1097607	2.6169240	23	2	1981–1999	0.89	M-v	4	Spahr	35277	1981 EY ₄
1981 EV ₆	13.5	0.15	19990810	319.38576	86.52861	282.08857	7.59156	0.1031794	3.0785601	34	3	1981–1999	0.52	M-v	3	Spahr	35415	1981 EV ₆
1981 ER ₈	15.1	0.15	19990810	179.86052	155.44920	319.42571	4.51307	0.1165344	2.6103153	29	3	1979–1998	1.03	M-v	3	Spahr	31708	1981 ER ₈
1981 EP ₉	15.2	0.15	19990810	89.18770	153.19402	235.79753	5.13825	0.1222038	2.4298674	55	3	1981–1999	0.81	M-v	4	Spahr	33739	1981 EP ₉
1981 EG ₁₀	13.9	0.15	19990810	153.97313	115.25448	281.07799	3.99486	0.0591270	2.7457772	45	4	1981–1999	0.80	M-v	2	Spahr	34281	1981 EG ₁₀
1981 EY ₁₁	15.5	0.15	19990810	183.52563	122.72620	328.37606	6.28190	0.1265866	2.2904578	32	3	1981–1998	0.97	M-v	4	Williams	31223	1981 EY ₁₁
1981 EB ₁₂	13.9	0.15	19990810	51.88852	322.14583	260.93263	5.67767	0.0969939	3.1832100	26	2	1981–1998	0.74	M-v	5	Williams	31709	1981 EB ₁₂
1981 EE ₁₃	15.1	0.15	19990810	57.70125	322.57008	325.84362	7.44826	0.1957626	2.5979330	21	3	1981–1998	0.66	M-v	4	Spahr	31709	1981 EE ₁₃
1981 EV ₁₃	13.3	0.15	19990810	15.33269	70.00380	207.36105	9.97215	0.1675174	3.1771383	78	3	1981–1999	0.65	M-v	3	Spahr	35415	1981 EV ₁₃
1981 EZ ₁₅	16.3	0.15	19990810	271.01979	127.11478	303.39377	5.09753	0.1132298	2.2430096	19	4	1979–1999	0.75	M-v	2	Williams	25078	1981 EZ ₁₅
1981 EG ₁₆	14.3	0.15	19990810	170.29757	240.06705	343.33831	12.72583	0.1544875	2.5367120	29	4	1981–1998	0.72	M-v	3	Spahr	32509	1981 EG ₁₆
1981 EO ₁₆	15.9	0.15	19990810	327.80870	140.80740	217.90442	7.96963	0.1959317	2.2630721	27	3	1981–1999	0.71	M-v	2	Williams	35415	1981 EO ₁₆
1981 EH ₁₇	13.7	0.15	19990810	54.81568	92.85878	189.30869	8.87183	0.1025072	3.0789998	28	3	1981–1998	0.90	M-v	4	Spahr	32210	1981 EH ₁₇
1981 EQ ₁₇	15.4	0.15	19990810	45.67963	297.53610	225.08157	1.62059	0.1007448	2.3566018	26	3	1981–1999	0.84	M-v	5	Williams	34482	1981 EQ ₁₇
1981 ED ₁₈	13.8	0.15	19990810	270.16180	10.45465	193.88724	2.62957	0.0343324	2.8461120	37	2	1981–1998	0.90	M-v	5	Spahr	33540	1981 ED ₁₈
1981 EP ₁₈	14.4	0.15	19990810	79.60020	34.34826	185.80370	8.52496	0.1283945	3.1342554	49	4	1981–1999	0.87	M-v	2	Spahr	35415	1981 EP ₁₈
1981 EJ ₂₀	15.2	0.15	19990810	144.10056	102.83360	359.36162	8.94622	0.0963078	2.6661963	23	3	1981–1998	0.76	M-v	3	Williams	32739	1981 EJ ₂₀
1981 ES ₂₃	15.2	0.15	19990810	298.97803	242.74793	155.56297	1.49174	0.1008886	2.5690900	32	5	1981–1999	0.89	M-v	2	Williams	32043	1981 ES ₂₃
1981 ES ₂₄	15.8	0.15	19990810	171.56498	165.52733	337.64893	6.61220	0.0390292	2.2681451	28	3	1979–1998	0.82	M-v	4	Spahr	31781	1981 ES ₂₄
1981 EV ₂₅	13.6	0.15	19990810	177.55905	197.82454	174.00012	8.60717	0.1632655	2.7490091	26	3	1981–1999	0.77	M-v	5	Williams	34573	1981 EV ₂₅
1981 EL ₂₆	16.0	0.15	19990810	19.13263	254.47230	354.98103	8.59037	0.1704582	2.3223480	31	2	1981–1996	0.77	M-v	5	Williams	28611	1981 EL ₂₆
1981 EK ₂₇	14.8	0.15	19990810	296.66348	73.78979	354.26160	5.39861	0.0842924	2.2267814	33	3	1981–1999	1.08	M-v	4	Spahr	32211	1981 EK ₂₇
1981 EH ₂₈	15.0	0.15	19990810	353.11586	81.43331	26.22640	2.31786	0.0695178	2.4491241	34	2	1981–1998	0.91	M-v	5	Spahr	33332	1981 EH ₂₈
1981 EL ₂₈	14.8	0.15	19990810	275.29788	287.30564	158.12163	1.33088	0.2698938	2.9734975	34	4	1981–1999	0.86	M-v	2	Williams	26418	1981 EL ₂₈
1981 ES ₂₈	14.7	0.15	19990810	359.09044	133.60028	4.41736	5.80071	0.1349413	2.4131872	39	3	1981–1999	0.83	M-v	3	Spahr	34573	1981 ES ₂₈

1981 EZ ₂₉	15.8	0.15	19990810	173.88082	279.73176	351.58602	4.29039	0.1639112	2.1832161	33	3	1981-1998	0.90	M-v	3	Spahr	32918	1981 EZ ₂₉
1981 EN ₃₀	12.9	0.15	19990810	331.80698	279.82778	59.12646	1.94536	0.1713018	3.1095685	41	3	1981-1999	0.61	M-v	4	Spahr	35415	1981 EN ₃₀
1981 EB ₃₃	14.4	0.15	19990810	352.36512	340.22103	328.87426	12.13389	0.1847550	2.6365071	31	5	1981-1999	0.81	M-v	2	Williams	31580	1981 EB ₃₃
1981 EB ₃₄	16.5	0.15	19990810	217.98717	49.95507	197.44299	4.12633	0.0310535	2.1605488	22	4	1981-1998	0.87	M-v	2	Williams	33065	1981 EB ₃₄
1981 EQ ₃₄	15.0	0.15	19990810	18.59123	123.44506	168.78975	6.05538	0.2034611	2.6277749	17	4	1981-1999	0.89	M-v	2	Spahr	32212	1981 EQ ₃₄
1981 EB ₃₅	15.2	0.15	19990810	217.15224	267.92296	183.71737	5.61444	0.0504703	2.2678033	41	4	1981-1999	0.85	M-v	2	Williams	35415	1981 EB ₃₅
1981 EV ₃₅	14.4	0.15	19990810	97.73790	316.12279	356.22288	17.01936	0.2039883	2.9649915	20	2	1981-1998	0.77	M-v	4	Williams	32918	1981 EV ₃₅
1981 EA ₃₆	15.5	0.15	19990810	303.35053	76.65324	321.12103	3.39377	0.1215882	2.5626794	34	5	1981-1999	0.78	M-v	1	Williams	31415	1981 EA ₃₆
1981 EJ ₃₆	15.7	0.15	19990810	103.01841	18.21076	3.68904	2.07386	0.1976509	2.4173650	27	4	1981-1998	0.79	M-v	2	Spahr	33540	1981 EJ ₃₆
1981 EW ₃₆	15.3	0.15	19990810	174.75310	58.39497	286.31976	5.40100	0.0608146	2.7936675	17	3	1978-1998	0.55	M-v	3	Spahr	33540	1981 EW ₃₆
1981 EE ₃₈	15.0	0.15	19990810	62.96829	109.55678	314.72651	2.13640	0.1208781	2.8164174	29	4	1978-1998	0.76	M-v	1	Spahr	33540	1981 EE ₃₈
1981 EL ₃₈	15.3	0.15	19990810	101.95388	279.76146	191.40193	12.14102	0.1490152	2.7053000	29	3	1981-1999	0.80	M-v	3	Williams	34573	1981 EL ₃₈
1981 EM ₄₀	15.0	0.15	19990810	224.54061	241.14216	128.60622	3.09028	0.1032981	2.6922299	14	4	1981-1998	1.02	M-v	2	Williams	28611	1981 EM ₄₀
1981 ES ₄₀	14.7	0.15	19990810	71.56401	249.32145	187.68534	8.59372	0.2697978	2.7674224	26	2	1981-1999	0.79	M-v	4	Williams	34282	1981 ES ₄₀
1981 EM ₄₁	13.7	0.15	19990810	308.59001	37.68185	340.82902	5.94381	0.1756932	3.0629709	19	3	1981-1999	0.76	M-v	4	Spahr	35416	1981 EM ₄₁
1981 EY ₄₁	16.3	0.15	19990810	44.82526	313.71918	191.88456	1.63559	0.1476109	2.3658993	22	3	1981-1999	0.82	M-v	4	Williams	34003	1981 EY ₄₁
1981 EZ ₄₂	15.6	0.15	19990810	36.54078	86.35010	188.36426	0.95725	0.2303814	2.2965198	24	5	1981-1999	0.66	M-v	2	Williams	32043	1981 EZ ₄₂
1981 ED ₄₅	16.7	0.15	19990810	48.00379	182.74199	320.32432	5.95821	0.0657951	2.3690597	18	2	1981-1999	0.58	M-v	4	Spahr	34003	1981 ED ₄₅
1981 EP ₄₅	14.4	0.15	19990810	29.56587	269.33185	345.92445	13.60603	0.1597779	3.1868808	38	3	1981-1998	0.87	M-v	3	Williams	31711	1981 EP ₄₅
1981 EK ₄₇	13.9	0.15	19990810	122.98183	292.72557	237.12657	1.94334	0.1253314	3.9756467	19	3	1981-1999	0.66	M-v	4	Williams	32215	1981 EK ₄₇
1981 EH ₄₈	14.3	0.15	19990810	227.96303	235.47373	227.42838	6.28659	0.1394177	2.5739654	27	4	1979-1999	0.81	M-v	2	Spahr	35416	1981 EH ₄₈
1981 QJ ₂	14.3	0.15	19990810	71.19465	210.67668	152.46236	5.76522	0.1888949	2.2730139	29	2	1981-1998	0.85	M-v	4	Williams	33540	1981 QJ ₂
1981 QR ₂	15.0	0.15	19990810	23.75988	323.25044	346.48769	3.69884	0.2377209	2.3362615	75	4	1981-1999	0.71	M-v	2	Spahr	32739	1981 QR ₂
1981 QJ ₃	13.5	0.15	19990810	97.05302	200.25789	140.03252	2.62789	0.1883529	3.1127158	86	4	1981-1999	0.58	M-v	1	Spahr	34003	1981 QJ ₃
1981 SE ₉	14.6	0.15	19990810	356.75406	214.41274	114.28578	3.26393	0.2418251	2.3572392	30	4	1981-1999	0.83	M-v	2	Spahr	35416	1981 SE ₉
1981 UX ₂₂	14.0	0.15	19990810	190.33096	325.83208	65.84285	9.83829	0.1130167	2.9543110	21	3	1981-1999	0.88	M-v	4	Williams	35416	1981 UX ₂₂
1981 UA ₂₃	15.0	0.15	19990810	62.07629	338.49862	93.05460	3.08524	0.1607065	2.2607043	50	4	1981-1999	0.64	M-v	2	Spahr	34483	1981 UA ₂₃
1981 UP ₂₅	13.4	0.15	19990810	341.63390	1.45398	201.52336	7.72236	0.1946099	2.5425197	23	3	1981-1999	0.69	M-v	3	Williams	34573	1981 UP ₂₅
1981 UT ₂₉	12.7	0.15	19990810	234.54684	50.04330	224.06807	9.20683	0.0941664	3.0393797	36	5	1981-1999	0.82	M-v	2	Spahr	33739	1981 UT ₂₉
1981 WJ ₉	14.6	0.15	19990810	41.73526	254.33710	192.01336	5.26415	0.1822081	2.6161807	43	3	1981-1999	0.63	M-v	3	Spahr	34003	1981 WJ ₉
1982 FL ₁	12.9	0.15	19990810	78.04255	91.23062	25.39103	1.40681	0.1424885	3.1562877	65	5	1982-1999	0.70	M-v	1	Williams	35416	1982 FL ₁
1982 JD ₃	14.1	0.15	19990810	163.23011	308.14745	80.95616	7.58336	0.1104027	2.3238379	24	4	1982-1999	0.92	M-v	3	Spahr	34174	1982 JD ₃
1982 KH ₁	13.0	0.15	19990810	237.13949	190.02545	76.67974	10.29313	0.1328748	2.7724878	31	4	1982-1999	0.81	M-v	2	Spahr	34573	1982 KH ₁
1982 RK ₁	14.0	0.15	19990810	177.49929	357.49136	297.75857	4.23188	0.1064867	2.4709319	29	3	1982-1998	0.59	M-v	4	Spahr	34282	1982 RK ₁
1982 SC	13.5	0.15	19990810	352.30984	353.46862	348.60852	9.89028	0.2431838	2.6310725	41	4	1982-1999	0.88	M-v	2	Spahr	32299	1982 SC
1982 SM ₂	14.6	0.15	19990810	342.01468	355.23071	348.76053	5.41163	0.1957482	2.2757554	51	4	1982-1999	0.83	M-v	2	Spahr	35416	1982 SM ₂
1982 UW ₁	12.5	0.15	19990810	20.55382	143.55697	197.83827	9.94061	0.1710219	3.1835226	28	5	1982-1998	0.87	M-v	2	Williams	33924	1982 UW ₁
1982 UA ₆	14.7	0.15	19990810	344.33376	35.53589	341.10823	3.91715	0.2932681	2.6316516	15	4	1982-1999	0.81	M-v	2	Spahr	26395	1982 UA ₆
1982 VL	13.8	0.15	19990810	269.84214	65.53394	49.46847	9.02829	0.1047445	2.2707888	37	5	1977-1999	0.61	M-v	2	Spahr	29654	1982 VL
1982 VS ₂	13.9	0.15	19990810	63.16410	214.96471	106.71390	1.98184	0.0851389	2.6193247	19	3	1982-1998	0.72	M-v	5	Spahr	32739	1982 VS ₂
1982 VL ₄	13.5	0.15	19990810	122.89117	317.08295	62.80499	13.98372	0.1488716	2.9710617	19	2	1982-1999	0.70	M-v	4	Williams	33924	1982 VL ₄
1983 RL	14.8	0.15	19990810	335.26599	29.01924	339.93531	19.07146	0.1177820	1.9192634	51	4	1983-1999	0.71	M-v	3	Williams	35416	1983 RL
1983 RP ₃	14.2	0.15	19990810	98.67312	196.20925	130.75726	3.09983	0.0630749	2.4124527	63	3	1983-1998	0.59	M-v	3	Williams	33540	1983 RP ₃
1983 RQ ₃	14.1	0.15	19990810	143.03309	7.71978	329.60543	4.65189	0.2425790	2.3590849	46	4	1954-1998	0.53	M-v	2	Spahr	33474	1983 RQ ₃
1983 RT ₃	13.8	0.15	19990810	286.31782	60.37022	330.03803	11.69098	0.1862750	2.5574630	64	4	1983-1999	0.83	M-v	3	Williams	22076	1983 RT ₃
1984 BZ ₆	14.7	0.15	19990810	25.77869	260.99940	135.28144	1.50557	0.2330237	3.0705412	28	3	1984-1998	0.68	M-v	5	Williams	34003	1984 BZ ₆
1984 HH ₁	14.7	0.15	19990810	71.85520	83.22134	166.72984	2.44434	0.1945259	2.3443491	41	4	1984-1999	0.79	M-v	2	Williams	35416	1984 HH ₁
1984 SL	12.7	0.15	19990810	93.11261	228.13746	157.37451	9.73350	0.3039053	2.7335237	50	4	1984-1999	0.83	M-v	2	Spahr	34574	1984 SL
1984 SY ₁	12.3	0.15	19990810	286.59617	186.25825	228.40884	9.26473	0.0967695	2.9875650	41	5	1979-1999	0.71	M-v	1	Marsden	32740	1984 SY ₁
1984 SA ₂	14.1	0.15	19990810	47.16436	162.04380	302.41727	4.52650	0.1053949	2.2750488	31	2	1984-1999	0.69	M-v	4	Spahr	34282	1984 SA ₂
1984 ST ₂	14.1	0.15	19990810	179.62888	18.63292	338.64142	6.53806	0.2064305	2.2222672	25	2	1984-1999	0.66	M-v	4	Spahr	33924	1984 ST ₂
1984 SO ₄	13.6	0.15	19990810	141.43552	54.54444	286.57616	4.97735	0.1175039	2.2762264	61	4	1984-1998	0.71	M-v	4	Spahr	33541	1984 SO ₄
1984 SP ₄	14.9	0.15	19990810	241.13620	81.11540	303.14064	5.08300	0.2522251	2.5306877	27	2	1984-1996	0.64	M-v	5	Williams	28582	1984 SP ₄

1984 SM ₅	13.5	0.15	19990810	187.26144	144.41073	156.36009	6.78664	0.1375934	2.2438077	59	2	1984–1999	0.61	M-v	4	Spahr	34282	1984 SM ₅
1984 WJ ₁	13.5	0.15	19990810	90.51917	351.36220	34.58767	10.75760	0.2046934	2.3197039	52	3	1984–1999	0.78	M-v	2	Williams	34003	1984 WJ ₁
1985 CD	13.4	0.15	19990810	136.20896	53.72434	152.05124	14.73352	0.1304539	2.5794520	88	4	1978–1999	0.69	M-v	2	Williams	34574	1985 CD
1985 CF ₂	14.4	0.15	19990810	321.10828	359.68464	175.79229	9.32189	0.1646276	2.3850737	42	3	1985–1998	0.72	M-v	3	Williams	34282	1985 CF ₂
1985 CL ₂	14.5	0.15	19990810	281.97947	18.63379	163.32258	1.61483	0.1240350	2.4165307	59	3	1985–1999	0.73	M-v	3	Williams	33740	1985 CL ₂
1985 FF ₂	13.8	0.15	19990810	80.58587	186.41266	308.35557	6.76564	0.1470264	2.7485038	26	3	1985–1999	0.77	M-v	2	Williams	35278	1985 FF ₂
1985 QF ₁	13.2	0.15	19990810	42.51607	156.85158	289.48413	12.43772	0.1310210	2.5632589	29	2	1985–1999	0.70	M-v	3	Williams	34574	1985 QF ₁
1985 QW ₁	14.7	0.15	19990810	267.23320	176.89846	225.26508	7.22761	0.1075975	2.3322744	18	2	1985–1998	0.86	M-v	6	Williams	31712	1985 QW ₁
1985 QG ₅	12.7	0.15	19990810	174.60788	281.79274	66.69993	1.66504	0.1602337	3.1603161	32	3	1985–1999	0.88	M-v	4	Spahr	34003	1985 QG ₅
1985 RF ₃	14.2	0.15	19990810	86.72667	213.65004	122.72880	6.03254	0.2496327	2.6461091	45	4	1985–1998	0.71	M-v	2	Williams	34282	1985 RF ₃
1985 RG ₃	14.7	0.15	19990810	170.22210	282.14736	99.78390	5.23233	0.1762087	2.4877948	22	3	1985–1999	0.46	M-v	3	Williams	34282	1985 RG ₃
1985 RJ ₄	13.3	0.15	19990810	200.90453	309.29838	34.09656	2.25804	0.2064874	3.1208847	43	5	1974–1996	0.70	M-v	2	Williams	23536	1985 RJ ₄
1985 RL ₄	15.0	0.15	19990810	146.33088	299.18630	35.15034	3.39450	0.1570511	2.1666984	61	3	1982–1998	0.71	M-v	3	Williams	34004	1985 RL ₄
1985 RN ₄	16.3	0.15	19990810	290.74101	288.79116	53.32260	2.39848	0.3121416	2.3801721	33	4	1985–1999	0.58	M-v	2	Williams	35058	1985 RN ₄
1985 UR	14.0	0.15	19990810	211.38718	210.03871	193.00088	12.84643	0.2008025	2.4421222	18	2	1985–1999	0.95	M-v	4	Williams	35278	1985 UR
1985 UJ ₃	14.5	0.15	19990810	4.30523	222.22508	107.86504	1.26900	0.2413428	2.3174504	65	5	1978–1999	0.76	M-v	3	Williams	35416	1985 UJ ₃
1985 UA ₅	13.1	0.15	19990810	63.78238	336.77007	59.10596	15.43275	0.2047098	2.6679966	40	3	1985–1999	0.62	M-v	2	Williams	34004	1985 UA ₅
1986 EP ₂	15.3	0.15	19990810	45.97172	160.48252	337.53496	3.03931	0.1611010	2.6689508	39	3	1986–1999	0.49	M-v	3	Spahr	34485	1986 EP ₂
1986 EA ₅	14.9	0.15	19990810	7.66326	199.27614	358.17944	0.40278	0.1823197	2.6758255	37	4	1986–1999	0.73	M-v	3	Spahr	34574	1986 EA ₅
1986 EL ₅	13.4	0.15	19990810	212.87658	69.74667	2.53311	5.22285	0.0780881	2.5385232	44	4	1976–1999	0.83	M-v	2	Williams	35416	1986 EL ₅
1986 EP ₅	12.8	0.15	19990810	51.60634	115.51309	165.11784	2.13954	0.1484274	3.1945875	49	5	1986–1999	0.71	M-v	1	Spahr	32299	1986 EP ₅
1986 PY	14.8	0.15	19990810	353.52716	195.44643	146.20024	7.97713	0.2470723	2.1886925	62	3	1986–1999	0.68	M-v	3	Spahr	35416	1986 PY
1986 PE ₁	13.5	0.15	19990810	100.09341	244.79092	138.70196	8.39752	0.0964869	2.4352985	73	3	1986–1999	0.57	M-v	3	Williams	34283	1986 PE ₁
1986 QX ₁	14.4	0.15	19990810	59.27653	266.06857	18.51906	3.17764	0.0984861	2.1735914	100	3	1986–1998	0.62	M-v	3	Spahr	31782	1986 QX ₁
1986 QY ₂	13.1	0.15	19990810	352.93151	190.91767	147.92161	15.42812	0.2258150	2.6577557	73	3	1986–1999	0.60	M-v	2	Spahr	35416	1986 QY ₂
1986 QF ₃	14.3	0.15	19990810	34.21613	259.85451	118.47546	4.96030	0.2509814	2.5574863	41	4	1978–1998	0.85	M-v	3	Spahr	34485	1986 QF ₃
1986 RW ₅	14.3	0.15	19990810	336.57336	138.91226	218.02531	3.50909	0.1713034	2.2095560	46	5	1986–1999	0.79	M-v	2	Spahr	32300	1986 RW ₅
1986 TR	13.8	0.15	19990810	357.63991	89.67902	251.54505	9.76456	0.3055652	2.6712550	39	3	1986–1999	0.64	M-v	3	Williams	35416	1986 TR
1986 TS	13.4	0.15	19990810	182.47524	70.77945	334.93191	13.16575	0.2660857	2.9380641	33	5	1961–1999	0.73	M-v	2	Spahr	34574	1986 TS
1986 TH ₃	13.4	0.15	19990810	280.59807	219.16425	193.14807	15.55780	0.3188215	2.7356903	43	3	1986–1999	0.72	M-v	3	Marsden	35278	1986 TH ₃
1986 VW	14.6	0.15	19990810	9.72271	323.45795	13.82175	6.20840	0.2022112	2.2051136	28	4	1986–1999	0.76	M-v	2	Marsden	32740	1986 VW
1987 BU ₁	14.7	0.15	19990810	143.46461	211.96199	241.39257	3.42121	0.1738308	2.4215426	39	4	1987–1999	0.86	M-v	2	Williams	31136	1987 BU ₁
1987 BA ₂	12.4	0.15	19990810	144.07632	265.48217	258.86690	12.11677	0.0921071	2.9596697	50	5	1980–1999	0.72	M-v	2	Spahr	35417	1987 BA ₂
1987 OO	14.4	0.15	19990810	345.81698	80.88604	243.38079	10.67861	0.2296391	2.5402311	27	2	1987–1999	0.65	M-v	4	Williams	35278	1987 OO
1987 QT	15.3	0.15	19990810	67.96791	45.76130	334.40411	8.34340	0.2199787	2.3806088	48	3	1987–1998	0.87	M-v	3	Spahr	33541	1987 QT
1987 QS ₅	13.6	0.15	19990810	58.60690	29.10341	333.54328	10.52993	0.1367986	3.0800499	83	3	1987–1998	0.69	M-v	3	Williams	33541	1987 QS ₅
1987 RW	14.6	0.15	19990810	137.62264	53.17663	340.73247	5.82111	0.1726371	2.2709498	40	3	1987–1999	0.63	M-v	4	Spahr	34283	1987 RW
1987 RF ₁	14.5	0.15	19990810	108.57647	248.00726	167.97941	5.42726	0.1649978	2.2844315	54	4	1987–1999	0.69	M-v	2	Williams	34283	1987 RF ₁
1987 RO ₅	11.8	0.15	19990810	176.66043	216.97894	158.54375	6.81465	0.2912309	3.9491131	53	5	1987–1999	0.72	M-v	1	Spahr	34574	1987 RO ₅
1987 SL ₅	14.5	0.15	19990810	40.48340	210.76502	225.56410	4.47846	0.2024279	2.3776440	51	4	1987–1998	0.57	M-v	2	Williams	35279	1987 SL ₅
1987 SP ₅	16.1	0.15	19990810	144.77218	52.67763	4.12560	6.20215	0.2265985	2.2643106	15	3	1987–1999	0.49	M-v	3	Spahr	34486	1987 SP ₅
1987 UX	14.6	0.15	19990810	90.89846	159.87531	205.34974	24.44647	0.2442927	2.3845250	67	2	1987–1998	0.67	M-v	3	Williams	34283	1987 UX
1987 WP	13.3	0.15	19990810	336.95303	293.67231	234.19419	21.08672	0.2788140	2.4026306	33	2	1987–1999	0.59	M-v	4	Spahr	34283	1987 WP
1988 AH ₅	13.9	0.15	19990810	349.81620	271.14916	270.05947	6.96750	0.0863238	2.4166483	41	4	1988–1999	0.81	M-v	1	Williams	34574	1988 AH ₅
1988 BT ₃	14.7	0.15	19990810	155.36663	282.21612	152.63120	5.54962	0.1186888	2.3028893	46	4	1988–1999	0.77	M-v	2	Williams	35417	1988 BT ₃
1988 BC ₄	14.0	0.15	19990810	308.17599	254.09735	172.96447	2.51101	0.1491733	2.6260734	42	4	1988–1999	0.73	M-v	2	Spahr	30686	1988 BC ₄
1988 BN ₅	14.2	0.15	19990810	18.74334	226.56081	282.27048	12.75603	0.2367671	3.1648293	28	2	1988–1999	0.68	M-v	3	Spahr	34004	1988 BN ₅
1988 CF	14.0	0.15	19990810	279.14787	149.62229	356.74450	5.38301	0.2272038	2.5775015	32	3	1988–1998	1.02	M-v	4	Williams	32741	1988 CF
1988 CY	12.8	0.15	19990810	306.27953	82.60915	144.12809	15.25635	0.1106066	3.1855032	21	2	1988–1999	0.58	M-v	5	Williams	34175	1988 CY
1988 CO ₄	14.5	0.15	19990810	29.26970	260.88597	267.03085	7.51102	0.0564993	2.3823793	25	2	1988–1999	0.75	M-v	4	Spahr	33926	1988 CO ₄
1988 DF ₃	14.5	0.15	19990810	265.02698	120.65089	266.14568	6.58225	0.1277852	2.2429843	39	3	1988–1999	0.63	M-v	3	Williams	35417	1988 DF ₃
1988 DB ₅	14.3	0.15	19990810	229.15451	12.34801	200.52895	12.85285	0.1059033	2.5747172	24	4	1988–1998	0.57	M-v	4	Spahr	34487	1988 DB ₅
1988 MH	12.5	0.15	19990810	183.20720	36.29513	292.77769	13.02790	0.1936015	2.5944776	65	4	1988–1999	0.73	M-v	3	Williams	34575	1988 MH

1988 PR	14.5	0.15	19990810	55.88070	110.89315	170.69178	6.83484	0.0403017	2.3568087	34	2	1988–1998	0.68	M-v	5	Williams	33221	1988 PR
1988 QY	10.6	0.15	19990810	355.06976	93.91538	222.66977	29.77927	0.0676383	5.1118556	38	9	1954–1999	0.76	M-v	1	Williams	32300	1988 QY
1988 RE ₁	13.4	0.15	19990810	176.03388	212.06322	195.64105	14.61604	0.1047110	2.5916249	69	5	1980–1999	0.74	M-v	2	Williams	35417	1988 RE ₁
1988 RY ₁	16.2	0.15	19990810	119.70471	215.95277	140.64710	3.43660	0.1924160	2.1996355	26	3	1988–1998	0.82	M-v	4	Williams	33221	1988 RY ₁
1988 RJ ₃	15.0	0.15	19990810	27.91919	292.71046	357.21671	2.33204	0.1559948	2.3994597	49	3	1988–1999	0.74	M-v	4	Williams	31783	1988 RJ ₃
1988 RM ₃	14.3	0.15	19990810	352.03722	354.39134	356.18491	8.58709	0.1454102	2.3833125	59	4	1988–1999	0.71	M-v	2	Williams	35417	1988 RM ₃
1988 RW ₃	13.6	0.15	19990810	5.26340	293.69312	22.14849	1.69648	0.1442450	3.1743068	33	5	1981–1999	0.70	M-v	2	Williams	35417	1988 RW ₃
1988 RP ₄	13.3	0.15	19990810	285.41588	96.16506	333.91573	5.20552	0.1213675	2.3661734	27	3	1988–1999	0.83	M-v	4	Williams	32218	1988 RP ₄
1988 RE ₆	14.7	0.15	19990810	297.45375	340.47011	79.88465	1.88652	0.2059247	2.3749279	51	6	1981–1999	0.73	M-v	1	Williams	32300	1988 RE ₆
1988 RJ ₆	15.6	0.15	19990810	318.10069	70.14676	326.49507	4.20287	0.2385919	2.3809530	39	3	1988–1999	0.62	M-v	3	Williams	31136	1988 RJ ₆
1988 RL ₆	14.2	0.15	19990810	347.04476	180.40347	160.01441	7.33166	0.1485704	2.3925106	56	3	1988–1999	0.56	M-v	3	Williams	32045	1988 RL ₆
1988 RJ ₈	14.1	0.15	19990810	19.61636	186.46721	181.68648	5.98870	0.1167082	2.3170577	42	3	1981–1998	0.76	M-v	4	Spahr	32218	1988 RJ ₈
1988 RG ₁₀	11.0	0.15	19990810	324.60801	7.00990	342.44886	3.52330	0.0487718	5.1586039	26	6	1988–1999	0.53	M-v	1	Williams	35417	1988 RG ₁₀
1988 RY ₁₀	11.4	0.15	19990810	326.00793	235.77977	111.99213	2.22151	0.0834057	5.1887039	31	7	1988–1999	0.54	M-v	0	Williams	35417	1988 RY ₁₀
1988 RM ₁₁	11.6	0.15	19990810	308.75536	233.98822	140.78171	3.35350	0.0380340	5.1317808	21	6	1988–1999	0.51	M-v	1	Williams	35417	1988 RM ₁₁
1988 RD ₁₂	12.1	0.15	19990810	351.06961	343.88626	340.09335	3.96313	0.0693982	5.2574646	17	4	1988–1999	0.41	M-v	1	Williams	23246	1988 RD ₁₂
1988 RH ₁₃	10.3	0.15	19990810	316.16355	329.38577	45.79519	16.00517	0.0679727	5.1319507	27	5	1984–1996	0.73	M-v	1	Williams	27324	1988 RH ₁₃
1988 SN	13.6	0.15	19990810	335.83038	20.96147	1.14926	6.82577	0.1335263	2.3836228	41	4	1988–1999	0.83	M-v	2	Spahr	32045	1988 SN
1988 SL ₁	16.3	0.15	19990810	110.75875	126.31927	216.08063	0.22661	0.1826354	2.2184888	38	5	1988–1998	0.70	M-v	2	Williams	34575	1988 SL ₁
1988 SK ₂	12.0	0.15	19990810	74.94270	82.53449	158.69860	1.61824	0.0938742	5.2451499	38	8	1977–1996	0.82	M-v	1	Williams	28613	1988 SK ₂
1988 SL ₂	13.7	0.15	19990810	48.92573	307.14869	162.75662	3.16624	0.1832119	3.9483858	40	3	1988–1999	0.80	M-v	3	Spahr	34284	1988 SL ₂
1988 SS ₂	15.6	0.15	19990810	99.20309	207.14170	151.88104	2.06988	0.1394042	2.2265849	54	3	1988–1998	0.74	M-v	3	Williams	33067	1988 SS ₂
1988 TE	14.2	0.15	19990810	337.45634	97.71640	261.67854	1.17468	0.2244939	2.4028012	64	5	1976–1999	0.91	M-v	2	Spahr	35059	1988 TE
1988 TN ₁	13.4	0.15	19990810	174.73154	342.34602	21.07286	13.51096	0.1695841	2.6969864	25	5	1979–1999	0.82	M-v	3	Spahr	34175	1988 TN ₁
1988 TQ ₁	13.9	0.15	19990810	254.48975	82.82796	346.20863	5.86769	0.1435006	2.4655564	32	3	1988–1999	0.87	M-v	3	Spahr	31714	1988 TQ ₁
1988 UF	12.2	0.15	19990810	49.28712	325.62061	24.70475	11.02352	0.1196130	3.0313118	21	3	1988–1998	1.24	M-v	4	Spahr	34488	1988 UF
1988 VJ ₁	14.2	0.15	19990810	94.91966	118.65529	235.30501	5.10001	0.2185720	2.2609973	44	2	1988–1999	0.81	M-v	3	Williams	34284	1988 VJ ₁
1988 VC ₂	13.3	0.15	19990810	343.65702	341.60311	46.56574	6.05786	0.1810888	3.1546882	32	2	1988–1997	0.59	M-v	5	Spahr	33927	1988 VC ₂
1988 VY ₂	11.3	0.15	19990810	24.28047	280.40199	64.21383	12.42017	0.1036776	3.1664013	25	6	1988–1999	0.99	M-v	1	Williams	32301	1988 VY ₂
1988 VR ₃	14.0	0.15	19990810	337.13394	194.26336	183.34583	2.25000	0.2045989	2.4138232	55	5	1988–1999	0.77	M-v	2	Williams	35417	1988 VR ₃
1988 VG ₄	12.0	0.15	19990810	326.77052	144.03367	273.72291	6.21145	0.1641606	3.1654046	17	3	1988–1998	0.32	M-v	3	Spahr	24760	1988 VG ₄
1988 VN ₅	14.4	0.15	19990810	268.33550	281.72673	160.82949	2.54813	0.1662795	2.4360153	59	5	1988–1999	0.66	M-v	1	Marsden	32301	1988 VN ₅
1988 VM ₉	14.3	0.15	19990810	256.26901	60.34075	27.77879	7.10157	0.1734507	2.4412714	79	7	1969–1999	0.68	M-v	1	Spahr	32301	1988 VM ₉
1988 XL	13.9	0.15	19990810	334.18265	120.22797	220.68592	3.05734	0.1317348	2.4870654	82	4	1988–1999	0.72	M-v	2	Spahr	35417	1988 XL
1988 XU ₂	13.2	0.15	19990810	165.85404	356.80013	73.84163	9.04816	0.1430627	2.6755206	45	3	1988–1999	0.66	M-v	4	Williams	35279	1988 XU ₂
1988 XW ₄	13.5	0.15	19990810	75.71970	212.91167	201.45750	1.56190	0.0522826	2.8766363	19	3	1988–1998	0.88	M-v	5	Williams	34176	1988 XW ₄
1989 CR ₁	14.6	0.15	19990810	284.03938	311.36909	262.36947	8.53120	0.1643327	2.3308287	33	2	1989–1998	0.79	M-v	5	Spahr	34575	1989 CR ₁
1989 CS ₁	13.3	0.15	19990810	150.62178	170.90010	341.66738	12.87671	0.1117206	2.6729570	25	4	1980–1999	0.62	M-v	3	Williams	35418	1989 CS ₁
1989 CF ₃	15.3	0.15	19990810	285.14887	312.36227	243.15896	6.50043	0.0549694	2.3370920	26	2	1989–1998	0.66	M-v	4	Spahr	33542	1989 CF ₃
1989 DA	18.6	0.15	19990810	109.72687	139.41056	349.39336	6.48456	0.5451853	2.1593862	18	1	89 days	0.85	M-v	4	Williams	14795	1989 DA
1989 DC	13.5	0.15	19990810	308.96770	157.52696	27.41254	7.23840	0.0743649	2.3364652	25	5	1975–1999	0.89	M-v	3	Williams	33741	1989 DC
1989 DK	13.1	0.15	19990810	206.82526	175.13555	298.60295	11.89334	0.1024629	2.6042929	36	3	1989–1999	0.51	M-v	3	Williams	35418	1989 DK
1989 EN ₅	14.1	0.15	19990810	350.34835	231.23808	290.19201	3.98842	0.0928569	2.3100042	22	2	1989–1999	0.62	M-v	4	Spahr	33741	1989 EN ₅
1989 GB	13.6	0.15	19990810	274.75644	172.05568	40.90141	13.63268	0.0658953	2.3906328	25	2	1989–1998	1.04	M-v	5	Williams	33222	1989 GB
1989 GL	14.4	0.15	19990810	12.77393	156.59030	17.25700	21.43478	0.1922518	2.2776000	29	2	1989–1999	0.80	M-v	3	Spahr	33741	1989 GL
1989 GV ₁	14.5	0.15	19990810	300.81793	307.63871	343.97860	4.94356	0.1554255	2.2668109	51	4	1976–1999	0.87	M-v	3	Spahr	34575	1989 GV ₁
1989 GY ₁	14.2	0.15	19990810	259.50130	20.96937	1.69796	9.21681	0.1678962	2.7982939	40	2	1989–1998	0.90	M-v	4	Spahr	33543	1989 GY ₁
1989 GZ ₁	15.2	0.15	19990810	264.65689	46.87903	253.97495	2.04751	0.0576646	2.2886547	36	4	1989–1999	0.81	M-v	1	Spahr	34284	1989 GZ ₁
1989 GM ₂	14.3	0.15	19990810	155.38015	297.30767	217.00423	6.08247	0.1664287	2.6994840	39	3	1989–1999	0.66	M-v	4	Williams	35418	1989 GM ₂
1989 GE ₃	13.9	0.15	19990810	58.53129	113.06518	343.98427	3.63895	0.1934304	3.0707705	31	3	1981–1999	0.79	M-v	4	Spahr	33927	1989 GE ₃
1989 GS ₄	14.2	0.15	19990810	38.59172	95.45958	176.32291	2.34538	0.1499172	2.7564179	66	4	1989–1999	0.63	M-v	1	Spahr	32045	1989 GS ₄
1989 GQ ₆	13.2	0.15	19990810	144.47624	207.20002	118.72570	13.12477	0.2164278	2.4833302	25	4	1989–1999	0.59	M-v	2	Spahr	34284	1989 GQ ₆
1989 LH	14.3	0.15	19990810	278.20124	13.11338	225.46758	10.03912	0.2186411	2.3970035	22	3	1989–1999	0.81	M-v	3	Williams	34005	1989 LH

1989 NA	15.4	0.15	19990810	120.31647	202.25019	97.06119	14.14253	0.4512309	2.6454016	60	6	1950–1998	0.78	M-v	1	Williams	33334	1989 NA
1989 OJ	14.4	0.15	19990810	144.65731	287.25776	34.72862	16.35189	0.2116260	2.5743355	33	2	1989–1998	0.94	M-v	5	Spahr	33477	1989 OJ
1989 RX	12.8	0.15	19990810	68.64927	131.52484	237.14746	7.16985	0.2003487	2.6889587	50	2	1989–1999	0.70	M-v	2	Williams	34284	1989 RX
1989 SO ₁	14.1	0.15	19990810	3.93805	52.97964	81.11506	5.09452	0.1234649	2.6334518	28	2	1989–1999	0.89	M-v	5	Williams	33676	1989 SO ₁
1989 SO ₃	15.2	0.15	19990810	216.97693	230.90247	172.00367	6.20034	0.1837243	2.3984207	46	3	1989–1999	0.83	M-v	4	Spahr	31527	1989 SO ₃
1989 SC ₄	13.0	0.15	19990810	143.02227	322.59359	191.96295	21.57403	0.0615238	3.1578583	53	4	1989–1999	0.75	M-v	1	Spahr	35418	1989 SC ₄
1989 SJ ₅	13.6	0.15	19990810	55.17516	182.87147	47.96838	7.13938	0.0715787	2.3409429	36	6	1984–1999	0.70	M-v	1	Williams	31582	1989 SJ ₅
1989 SX ₅	14.2	0.15	19990810	61.06904	11.39818	94.62299	2.88823	0.1089458	2.5764752	49	3	1989–1999	0.64	M-v	3	Spahr	34575	1989 SX ₅
1989 ST ₉	15.8	0.15	19990810	279.66163	315.58905	19.51419	2.27936	0.2355373	2.3509331	21	3	1989–1999	0.55	M-v	4	Spahr	34176	1989 ST ₉
1989 SZ ₉	13.6	0.15	19990810	14.22334	214.40484	2.59430	12.29807	0.1621480	2.3807944	63	3	1978–1999	0.70	M-v	3	Spahr	34575	1989 SZ ₉
1989 SA ₁₀	15.1	0.15	19990810	227.29576	75.75905	4.65320	7.65812	0.0808209	2.2962316	46	3	1989–1998	0.67	M-v	2	Williams	32301	1989 SA ₁₀
1989 SP ₁₁	13.6	0.15	19990810	340.73675	57.51116	306.13562	0.85594	0.1233434	2.9378584	16	4	1979–1998	0.61	M-v	4	Williams	34177	1989 SP ₁₁
1989 TO	13.5	0.15	19990810	238.00683	98.69165	340.70368	21.80391	0.2995228	2.3323962	54	4	1989–1999	0.73	M-v	1	Spahr	28613	1989 TO
1989 TC ₄	15.3	0.15	19990810	96.23986	237.03385	138.22318	2.33272	0.1772348	2.6668516	28	3	1989–1998	0.71	M-v	5	Spahr	33223	1989 TC ₄
1989 TB ₅	14.2	0.15	19990810	188.13978	112.23846	164.93155	6.51114	0.0409243	2.6747079	35	4	1989–1998	0.88	M-v	1	Williams	33335	1989 TB ₅
1989 TN ₁₁	14.4	0.15	19990810	279.22943	347.35526	10.41246	6.57868	0.1755831	2.3399443	43	3	1989–1999	0.72	M-v	3	Williams	35418	1989 TN ₁₁
1989 TX ₁₁	11.2	0.15	19891001	336.31343	292.81244	110.40177	12.87096	0.0615999	5.2143081	7	1	38 days	0.83			Williams		1989 TX ₁₁
1989 TP ₁₄	13.4	0.15	19990810	234.83172	64.60686	12.75072	14.13510	0.2871823	3.1362331	23	4	1978–1997	0.64	M-v	1	Williams	33224	1989 TP ₁₄
1989 TK ₁₆	14.7	0.15	19990810	293.06285	121.08436	175.30016	2.12709	0.1872509	2.3916743	36	4	1989–1999	0.59	M-v	2	Williams	34575	1989 TK ₁₆
1989 UR	18.5	0.15	19990810	164.32560	289.25824	234.58749	10.30862	0.3558968	1.0802407	161	4	1989–1999	0.62	M-v	3	Williams	34284	1989 UR
1989 UP ₃	14.0	0.15	19990810	98.95494	220.51292	199.58766	12.58403	0.1450091	2.6174027	33	2	1989–1999	0.97	M-v	4	Williams	34284	1989 UP ₃
1989 UU ₃	14.6	0.15	19990810	311.61116	209.83471	190.04478	3.35789	0.1749588	2.2675380	41	6	1989–1999	0.93	M-v	2	Williams	32045	1989 UU ₃
1989 US ₄	13.3	0.15	19990810	47.54685	184.36112	223.22709	1.23206	0.0989330	2.7361457	67	3	1989–1999	0.68	M-v	3	Williams	34284	1989 US ₄
1989 VB	19.9	0.15	19990810	309.86318	329.73419	38.90592	2.13617	0.4612132	1.8652719	16	1	46 days	1.85	M-v	6	Williams		1989 VB
1989 VP ₁	14.1	0.15	19990810	80.45709	280.01220	192.10558	13.32466	0.1269857	2.5659206	43	4	1989–1999	0.74	M-v	1	Williams	34576	1989 VP ₁
1989 WH	14.2	0.15	19990810	44.94602	196.83207	223.83119	8.62592	0.1442209	2.7588754	52	2	1989–1998	0.79	M-v	4	Spahr	34285	1989 WH
1989 WZ ₂	12.7	0.15	19990810	286.76254	354.41372	24.37989	13.68690	0.1201007	3.1452856	34	3	1989–1999	0.56	M-v	3	Williams	35418	1989 WZ ₂
1990 AE	14.7	0.15	19990810	266.64398	351.11576	82.43991	4.78297	0.2496046	2.3388095	34	3	1990–1999	0.72	M-v	4	Spahr	35281	1990 AE
1990 BF	13.7	0.15	19990810	240.67358	155.83297	324.35924	4.46762	0.1031038	2.3373147	35	7	1958–1999	0.66	M-v	1	Williams	32046	1990 BF
1990 BO	11.4	0.15	19990810	329.49238	89.56479	305.17752	15.69723	0.1055430	3.1853627	48	3	1990–1999	0.73	M-v	4	Williams	35418	1990 BO
1990 BC ₂	14.0	0.15	19990810	159.87924	313.70519	203.80613	5.98115	0.0693160	2.4280036	66	4	1990–1999	0.66	M-v	2	Spahr	35418	1990 BC ₂
1990 CD	13.7	0.15	19990810	170.99419	320.11969	287.28721	5.56582	0.1076797	2.2825037	25	3	1990–1998	0.67	M-v	4	Williams	34285	1990 CD
1990 DA ₂	13.5	0.15	19990810	126.09184	233.84495	165.13591	6.13705	0.0545129	2.7576921	34	4	1988–1999	0.63	M-v	2	Williams	34576	1990 DA ₂
1990 EN ₁	13.5	0.15	19990810	324.32081	348.32840	231.08956	7.40540	0.1508523	2.8074725	39	4	1990–1999	0.84	M-v	2	Williams	34005	1990 EN ₁
1990 ER ₂	15.2	0.15	19990810	80.74014	4.49713	234.89892	4.52634	0.0807692	2.4946151	35	2	1990–1998	0.67	M-v	5	Williams	31715	1990 ER ₂
1990 EN ₃	14.8	0.15	19990810	210.78218	38.78966	210.16650	5.16115	0.0882519	2.2577886	41	4	1990–1998	0.85	M-v	2	Williams	33543	1990 EN ₃
1990 ES ₆	12.9	0.15	19990810	84.21015	194.42337	204.19345	1.42770	0.0508193	2.9014569	23	2	1990–1998	0.61	M-v	7	Williams	33928	1990 ES ₆
1990 EL ₈	13.3	0.15	19990810	96.42764	291.69929	352.45376	4.21516	0.0371573	2.3835288	27	6	1986–1998	0.72	M-v	1	Williams	32301	1990 EL ₈
1990 FD ₃	12.2	0.15	19990810	155.23660	99.18138	158.50266	15.67678	0.0357667	3.1467784	25	2	1990–1998	0.75	M-v	4	Williams	33068	1990 FD ₃
1990 HJ	13.9	0.15	19990810	215.87985	110.85092	50.35140	3.90296	0.1450210	2.3949194	30	6	1968–1998	0.64	M-v	1	Williams	32301	1990 HJ
1990 KD ₁	14.1	0.15	19990810	151.41704	346.30382	186.23901	12.40730	0.0946312	2.5460848	41	2	1990–1998	0.66	M-v	4	Williams	32301	1990 KD ₁
1990 OK	14.2	0.15	19990810	164.25395	95.46917	249.89141	6.77484	0.1978964	2.3369771	34	3	1990–1999	0.76	M-v	3	Williams	34576	1990 OK
1990 OL	15.9	0.15	19990810	18.92032	155.30080	151.03695	14.78454	0.4519564	2.6902030	35	1	65 days	0.67	M-v	5	Williams	22082	1990 OL
1990 OM ₂	14.8	0.15	19990810	248.57583	336.71418	350.23714	6.60330	0.2064997	2.2281482	34	4	1990–1999	0.83	M-v	2	Williams	34576	1990 OM ₂
1990 OB ₄	13.7	0.15	19990810	11.91829	84.96047	271.65979	11.47729	0.2474737	2.6478368	23	4	1990–1999	0.72	M-v	1	Williams	35419	1990 OB ₄
1990 OS ₄	13.4	0.15	19990810	236.28904	235.05217	269.45404	14.03693	0.0540268	2.5605485	22	4	1989–1999	0.78	M-v	2	Williams	35419	1990 OS ₄
1990 OB ₅	13.5	0.15	19990810	0.39795	66.96797	259.69003	11.75735	0.1884812	2.6872377	30	3	1990–1999	0.66	M-v	3	Williams	35419	1990 OB ₅
1990 QT	14.5	0.15	19990810	203.60457	353.14674	351.81728	6.18467	0.1662196	2.2854144	30	4	1952–1999	0.70	M-v	2	Williams	34285	1990 QT
1990 QG ₁	14.2	0.15	19990810	173.10628	350.95464	344.39929	6.59562	0.1362299	2.3600785	53	3	1990–1999	0.75	M-v	4	Williams	34576	1990 QG ₁
1990 QT ₁	15.1	0.15	19990810	147.00613	197.79006	132.99965	2.93727	0.2205669	2.4111524	41	4	1990–1998	0.83	M-v	2	Williams	33544	1990 QT ₁
1990 QF ₄	13.7	0.15	19990810	46.97849	319.16451	150.84332	7.25379	0.0648231	2.3539248	41	2	1990–1999	0.79	M-v	4	Williams	34285	1990 QF ₄
1990 QQ ₄	13.3	0.15	19990810	356.38760	319.51686	25.77392	7.64040	0.0659863	2.7092063	25	4	1990–1998	0.89	M-v	2	Williams	32512	1990 QQ ₄
1990 QU ₄	14.0	0.15	19990810	227.77716	251.20242	63.98620	6.59094	0.1925946	2.2863430	26	3	1990–1999	0.77	M-v	4	Williams	34178	1990 QU ₄

1990 QX ₄	14.9	0.15	19990810	281.05907	288.96126	47.06953	5.20205	0.1819810	2.1832065	33	3	1990–1999	0.61	M-v	3	Williams	35419	1990 QX ₄
1990 QB ₅	14.0	0.15	19990810	69.18451	337.14572	67.03637	5.92323	0.1816546	2.4622126	64	4	1990–1999	0.60	M-v	2	Williams	34006	1990 QB ₅
1990 QE ₅	14.5	0.15	19990810	188.60986	311.20463	0.26196	6.70304	0.1281881	2.3633795	33	3	1990–1998	0.60	M-v	3	Williams	33478	1990 QE ₅
1990 QA ₆	14.8	0.15	19990810	193.56055	18.58882	350.61488	4.22268	0.1793420	2.2804060	45	4	1990–1999	0.91	M-v	3	Williams	34490	1990 QA ₆
1990 QP ₆	15.0	0.15	19990810	316.12447	236.54923	351.44076	5.57244	0.1163481	2.2819854	16	2	1990–1996	0.63	M-v	5	Williams	33677	1990 QP ₆
1990 QS ₆	14.9	0.15	19990810	205.07516	34.30961	13.37677	3.09869	0.1379826	2.2145754	29	4	1990–1999	0.91	M-v	2	Williams	35281	1990 QS ₆
1990 QD ₇	15.4	0.15	19990810	3.15531	171.85380	154.59262	5.21016	0.1589888	2.7366957	29	3	1990–1999	0.70	M-v	5	Marsden	32301	1990 QD ₇
1990 QN ₇	14.2	0.15	19990810	216.28426	226.04230	37.84083	2.72428	0.1913882	2.3779455	40	4	1990–1998	0.71	M-v	3	Williams	33544	1990 QN ₇
1990 QT ₇	13.4	0.15	19990810	114.02546	183.93689	241.50620	0.71363	0.1174153	3.2524061	42	2	1990–1999	0.80	M-v	5	Williams	34576	1990 QT ₇
1990 QH ₈	15.3	0.15	19990810	172.64721	312.94848	107.63741	1.60210	0.2472463	2.2593619	32	3	1988–1998	0.81	M-v	3	Williams	32922	1990 QH ₈
1990 QP ₁₀	12.5	0.15	19990810	209.41963	312.03150	6.34148	6.60823	0.1153640	3.2377588	33	6	1973–1999	0.88	M-v	2	Williams	34006	1990 QP ₁₀
1990 RS	14.8	0.15	19990810	178.14639	24.40274	349.88142	8.64162	0.1545889	2.3000152	25	5	1988–1999	0.82	M-v	2	Williams	34285	1990 RS
1990 RF ₁	13.1	0.15	19990810	260.12704	56.49444	225.56059	0.85951	0.2055322	3.1637113	20	2	1990–1996	0.64	M-v	5	Williams	32922	1990 RF ₁
1990 RY ₂	13.1	0.15	19990810	60.01282	69.66106	278.30538	2.35611	0.2698798	3.9249713	69	4	1990–1998	0.57	M-v	1	Williams	34285	1990 RY ₂
1990 RH ₃	12.7	0.15	19990810	279.59244	152.50681	176.89500	10.26860	0.1013927	2.9948901	54	3	1990–1999	0.77	M-v	3	Williams	35281	1990 RH ₃
1990 RJ ₅	14.3	0.15	19990810	359.99469	184.11719	267.41502	2.80549	0.1477297	2.5278180	47	4	1990–1998	0.71	M-v	4	Williams	32742	1990 RJ ₅
1990 RV ₅	14.0	0.15	19990810	245.54971	291.55672	345.12782	4.72013	0.1507610	2.3029942	22	3	1990–1998	0.72	M-v	4	Williams	35282	1990 RV ₅
1990 RH ₇	14.4	0.15	19990810	189.95124	309.69374	78.36071	2.28804	0.1921533	3.1262421	24	4	1990–1999	0.54	M-v	2	Williams	35060	1990 RH ₇
1990 SS	18.9	0.15	19990810	299.73181	115.86280	0.04220	19.40951	0.4747933	1.7031674	36	1	205 days	0.79	M-v	4	Williams	21974	1990 SS
1990 SE ₁	14.2	0.15	19990810	124.67141	304.64943	346.58031	13.02738	0.1733872	2.5470446	24	2	1990–1998	0.53	M-v	4	Williams	34006	1990 SE ₁
1990 SZ ₃	13.0	0.15	19990810	356.69705	94.48852	301.74534	11.64885	0.1752946	2.6660149	19	4	1990–1998	0.77	M-v	2	Williams	32302	1990 SZ ₃
1990 SX ₆	14.8	0.15	19990810	119.13974	214.32753	94.86483	4.53197	0.1362506	2.5248728	38	2	1990–1998	0.79	M-v	5	Williams	32923	1990 SX ₆
1990 SL ₇	15.1	0.15	19990810	111.88799	341.86661	61.96552	3.20178	0.1961879	2.3960138	35	4	1990–1999	0.66	M-v	3	Williams	34006	1990 SL ₇
1990 SA ₈	14.5	0.15	19990810	48.74763	353.46062	100.26453	3.27386	0.1678686	2.4321315	33	2	1990–1999	0.84	M-v	4	Williams	34006	1990 SA ₈
1990 SQ ₈	15.3	0.15	19990810	6.58917	305.96100	116.94674	5.43128	0.2913426	2.6000388	18	3	1990–1998	0.57	M-v	4	Williams	32923	1990 SQ ₈
1990 SX ₁₃	15.0	0.15	19990810	299.11231	149.66820	120.36678	1.81319	0.1338756	2.2418140	23	3	1990–1999	0.76	M-v	4	Williams	33929	1990 SX ₁₃
1990 SM ₁₄	13.5	0.15	19990810	172.76256	186.29594	142.86548	4.23333	0.2222849	2.3886295	23	2	1990–1999	0.66	M-v	5	Williams	34179	1990 SM ₁₄
1990 SU ₁₅	13.8	0.15	19990810	13.29077	142.56647	179.14557	12.52224	0.2194915	2.7031133	46	3	1990–1999	0.73	M-v	3	Spahr	35419	1990 SU ₁₅
1990 SY ₁₅	14.3	0.15	19990810	200.03212	161.66073	194.55141	5.96425	0.1326318	2.2837485	28	4	1990–1999	0.68	M-v	2	Williams	34576	1990 SY ₁₅
1990 TZ ₁	13.7	0.15	19990810	350.87375	95.65226	279.28772	2.27812	0.0884189	2.7219753	26	3	1990–1999	0.53	M-v	3	Williams	35419	1990 TZ ₁
1990 TE ₂	15.6	0.15	19990810	30.72406	271.76298	241.66079	3.96677	0.1390916	2.3672389	20	3	1990–1999	0.72	M-v	3	Williams	34576	1990 TE ₂
1990 TX ₁₁	14.8	0.15	19990810	76.68189	126.96263	283.14294	1.80222	0.1867774	2.4664189	20	2	1990–1998	0.70	M-v	5	Williams	34180	1990 TX ₁₁
1990 TF ₁₃	13.0	0.15	19990810	207.61208	59.68979	85.28655	10.09710	0.1026684	2.7832725	19	4	1990–1999	0.67	M-v	2	Williams	30895	1990 TF ₁₃
1990 UQ ₄	15.9	0.15	19990810	243.63515	260.93409	126.16030	3.59106	0.1719238	2.2188806	23	3	1990–1998	0.57	M-v	4	Williams	31229	1990 UQ ₄
1990 US ₄	13.7	0.15	19990810	249.10129	218.04881	76.57082	7.07423	0.1953436	2.3307672	32	3	1990–1999	0.57	M-v	4	Williams	33930	1990 US ₄
1990 UE ₅	15.5	0.15	19990810	154.61773	130.64107	201.38359	21.24109	0.0882760	1.9323424	51	2	1990–1998	0.67	M-v	4	Williams	33336	1990 UE ₅
1990 VM ₃	14.0	0.15	19990810	56.43437	291.43130	78.23100	18.01893	0.2984772	2.5997698	29	4	1990–1998	0.52	M-v	2	Williams	33544	1990 VM ₃
1990 VC ₆	13.6	0.15	19990810	196.27104	51.52333	204.41448	12.47016	0.1695033	2.5882262	35	3	1972–1998	0.69	M-v	3	Williams	34577	1990 VC ₆
1990 VL ₆	10.1	0.15	19990810	334.67056	127.54010	214.79060	18.50238	0.1431647	5.1899260	46	5	1989–1999	0.65	M-v	1	Williams	35419	1990 VL ₆
1990 WD	14.4	0.15	19990810	241.41623	227.79268	92.42050	7.18219	0.2176369	2.2792036	19	4	1990–1999	0.76	M-v	1	Williams	34286	1990 WD
1990 WH ₁	15.0	0.15	19990810	295.46834	186.29265	130.40132	5.69084	0.1390693	2.2471204	30	2	1990–1999	0.64	M-v	4	Williams	34834	1990 WH ₁
1990 WO ₃	14.2	0.15	19990810	224.46244	208.60429	166.01009	4.91071	0.1606550	2.2749891	45	4	1990–1999	0.74	M-v	3	Williams	35420	1990 WO ₃
1990 WT ₆	15.1	0.15	19990810	195.26856	241.51243	173.78769	4.73118	0.1523672	2.2860200	25	4	1971–1999	0.88	M-v	2	Williams	35420	1990 WT ₆
1991 AL ₂	13.5	0.15	19990810	14.77428	296.25924	194.68121	12.45085	0.1716358	2.5263207	28	3	1985–1999	0.77	M-v	3	Williams	34007	1991 AL ₂
1991 BD ₁	13.2	0.15	19990810	336.74256	52.26868	115.45191	6.57429	0.0935446	2.5879505	28	5	1983–1998	0.85	M-v	3	Williams	33545	1991 BD ₁
1991 BP ₂	12.6	0.15	19990810	123.80430	214.34764	304.05725	22.25735	0.2037665	2.3266016	34	2	1991–1999	0.64	M-v	4	Spahr	35283	1991 BP ₂
1991 CA ₁	14.5	0.15	19990810	197.60229	305.11680	124.07034	25.55126	0.1069452	1.8503613	48	3	1991–1999	0.61	M-v	3	Spahr	34834	1991 CA ₁
1991 CE ₁	12.5	0.15	19990810	154.99315	333.35288	217.22929	5.48868	0.0699983	3.1699640	30	7	1969–1999	0.68	M-v	1	Williams	32302	1991 CE ₁
1991 CJ ₁	14.2	0.15	19990810	112.93710	279.53720	126.60118	10.90886	0.0711796	2.5578049	40	4	1991–1999	0.63	M-v	3	Williams	35420	1991 CJ ₁
1991 EC	13.2	0.15	19990810	282.03021	128.91694	2.44050	7.48410	0.2446664	2.8916995	21	5	1970–1998	0.89	M-v	3	Williams	32660	1991 EC
1991 EJ	10.5	0.15	19990810	52.18868	95.33724	280.61696	22.85023	0.1232980	5.2146250	32	4	1953–1999	0.58	M-v	1	Williams	33743	1991 EJ
1991 EM	13.5	0.15	19990810	53.40525	28.11654	280.79078	20.14977	0.1332009	3.2045217	17	3	1991–1999	0.90	M-v	3	Williams	35420	1991 EM
1991 ER	14.3	0.15	19990810	71.64140	330.34812	165.41406	8.02375	0.0797689	2.5152949	45	4	1991–1999	0.80	M-v	3	Williams	35420	1991 ER

1991 EA ₄	13.4	0.15	19990810	231.12864	119.96784	343.01729	0.60120	0.1546924	3.1060072	30	4	1991–1999	0.70	M-v	1	Williams	35420	1991 EA ₄
1991 FB	18.8	0.15	19990810	95.36391	218.46082	19.06381	9.18741	0.5625323	2.3704310	18	1	40 days	1.17	M-v	5	Williams	23516	1991 FB
1991 FP	12.8	0.15	19990810	155.56344	26.53480	188.30573	14.79547	0.1830794	3.2118415	27	3	1991–1998	0.81	M-v	3	Williams	32446	1991 FP
1991 FY	13.9	0.15	19990810	175.79373	341.76072	137.91260	8.36414	0.0572409	2.3352690	53	4	1987–1999	0.50	M-v	2	Williams	35420	1991 FY
1991 FL ₂	13.0	0.15	19990810	48.37157	46.83196	347.70305	11.07465	0.0920675	2.8124733	70	4	1984–1999	0.60	M-v	2	Williams	34577	1991 FL ₂
1991 FY ₃	12.3	0.15	19990810	80.70502	301.76076	15.22776	17.23192	0.2310257	3.1536870	43	5	1953–1999	0.78	M-v	2	Williams	34286	1991 FY ₃
1991 FC ₄	15.1	0.15	19990810	148.58322	267.57664	252.52808	2.31268	0.1418735	2.3405208	48	4	1991–1999	0.62	M-v	2	Williams	35420	1991 FC ₄
1991 GW	14.9	0.15	19990810	97.03754	171.33475	38.45080	7.95891	0.1887090	2.3567716	41	4	1991–1999	0.63	M-v	2	Williams	31785	1991 GW
1991 GX ₁	10.3	0.15	19990810	356.47066	160.93134	298.89869	9.52587	0.0373426	5.1910714	31	4	1990–1998	0.90	M-v	1	Williams	33545	1991 GX ₁
1991 GB ₃	13.4	0.15	19990810	173.91090	160.49340	19.96735	0.79990	0.1164594	3.2216393	70	5	1991–1999	0.81	M-v	2	Williams	32513	1991 GB ₃
1991 GU ₃	14.2	0.15	19990810	358.58785	122.22532	196.62960	6.88474	0.0933258	2.3582666	54	5	1981–1999	0.72	M-v	2	Williams	35420	1991 GU ₃
1991 GO ₄	13.7	0.15	19990810	232.22419	293.88245	27.39538	11.36849	0.1919145	2.6575795	27	5	1979–1999	0.95	M-v	2	Williams	34181	1991 GO ₄
1991 GZ ₅	14.3	0.15	19990810	124.34501	143.93487	277.08711	1.47804	0.1414631	2.6066724	36	3	1991–1999	0.81	M-v	5	Williams	34577	1991 GZ ₅
1991 GL ₇	14.8	0.15	19990810	268.54557	169.25809	251.82870	3.94494	0.0445797	2.3204917	50	3	1991–1999	0.77	M-v	3	Spahr	35420	1991 GL ₇
1991 GR ₇	14.9	0.15	19990810	209.13331	282.89550	230.98945	5.00876	0.0689475	2.2578089	27	2	1991–1998	0.57	M-v	5	Williams	33336	1991 GR ₇
1991 GE ₈	14.6	0.15	19990810	230.86270	95.88262	15.71799	5.58549	0.0969200	2.2849935	47	4	1989–1999	0.66	M-v	1	Spahr	32047	1991 GE ₈
1991 GF ₈	14.2	0.15	19990810	7.37867	106.66635	8.02554	9.09882	0.1174099	2.7728761	30	3	1991–1999	0.74	M-v	4	Williams	34286	1991 GF ₈
1991 GJ ₈	15.5	0.15	19990810	177.55979	154.61150	17.97789	7.90498	0.0354794	2.2879516	40	5	1991–1999	0.84	M-v	2	Williams	32047	1991 GJ ₈
1991 GO ₈	15.1	0.15	19990810	340.14950	271.12984	324.48061	2.70389	0.0891423	2.5786250	23	2	1991–1999	0.80	M-v	6	Williams	34493	1991 GO ₈
1991 HN	10.9	0.15	19990810	85.07432	285.88991	91.02659	8.24792	0.0119963	5.1055861	20	2	1991–1998	1.02	M-v	4	Williams	33479	1991 HN
1991 JF	14.1	0.15	19990810	60.59931	23.39426	239.37717	6.21213	0.1017242	2.3772483	39	4	1991–1999	0.69	M-v	1	Williams	32743	1991 JF
1991 JW	19.3	0.15	19990810	167.01191	301.82017	54.05765	8.72152	0.1183865	1.0382995	27	4	1955–1997	0.77	M-v	3	Williams	30091	1991 JW
1991 LL ₂	13.7	0.15	19990810	121.46581	88.92909	212.15012	1.85614	0.1370953	3.1733169	35	4	1990–1999	0.84	M-v	1	Williams	34493	1991 LL ₂
1991 NS ₂	13.6	0.15	19990810	15.48332	97.28200	185.59466	7.67089	0.1706066	2.5515173	36	7	1979–1999	0.68	M-v	2	Spahr	35420	1991 NS ₂
1991 PV	15.4	0.15	19990810	136.81478	94.69053	221.48180	1.84919	0.2036772	2.2457952	50	3	1991–1999	0.61	M-v	4	Williams	33743	1991 PV
1991 PQ ₃	14.4	0.15	19990810	297.52176	273.21214	355.50976	3.35343	0.0584579	2.7947396	24	4	1991–1999	0.65	M-v	1	Williams	34493	1991 PQ ₃
1991 PM ₄	14.9	0.15	19990810	128.09612	331.59201	315.82220	4.77168	0.1523831	2.2963763	35	3	1991–1998	0.64	M-v	3	Williams	32743	1991 PM ₄
1991 PF ₅	14.8	0.15	19990810	197.97212	295.90185	312.43614	4.62207	0.1214511	2.2336684	51	2	1991–1998	0.81	M-v	4	Williams	32924	1991 PF ₅
1991 PV ₅	16.6	0.15	19990810	120.19066	196.77812	133.24094	4.12211	0.2229615	2.2618034	35	3	1991–1998	0.69	M-v	3	Williams	34578	1991 PV ₅
1991 PC ₇	13.1	0.15	19990810	226.84708	227.55089	100.39204	3.22288	0.0703147	2.8747564	38	4	1972–1999	0.70	M-v	1	Williams	34287	1991 PC ₇
1991 PY ₇	15.1	0.15	19990810	84.90908	341.82789	84.66954	1.93363	0.0954146	2.1755972	37	4	1977–1998	0.80	M-v	2	Williams	33743	1991 PY ₇
1991 PL ₈	14.2	0.15	19990810	190.11844	257.93177	31.07601	1.40697	0.1636191	3.0894254	22	4	1991–1997	0.56	M-v	1	Williams	31006	1991 PL ₈
1991 PP ₈	14.0	0.15	19990810	152.29986	252.15366	78.84348	2.42815	0.1660703	3.1253894	27	4	1989–1997	0.55	M-v	1	Williams	34578	1991 PP ₈
1991 PQ ₈	14.2	0.15	19990810	188.19057	206.04987	118.50996	1.94316	0.1006070	3.0050039	49	6	1976–1999	0.73	M-v	1	Williams	34287	1991 PQ ₈
1991 PO ₁₂	14.1	0.15	19990810	45.22135	273.41934	145.84267	5.11779	0.1711435	2.2685060	73	2	1991–1999	0.69	M-v	3	Williams	33743	1991 PO ₁₂
1991 PA ₁₅	15.1	0.15	19990810	73.26694	151.77809	192.04966	5.14924	0.1680265	2.3387871	20	4	1991–1998	0.70	M-v	2	Williams	32743	1991 PA ₁₅
1991 PB ₂₀	14.2	0.15	19990810	348.06283	344.65328	118.16352	5.90333	0.0859470	2.2720225	39	3	1991–1998	0.83	M-v	4	Williams	34578	1991 PB ₂₀
1991 RE	14.6	0.15	19990810	316.92831	67.68370	296.33600	2.91683	0.2263102	2.5793152	37	4	1991–1999	0.63	M-v	2	Spahr	35286	1991 RE
1991 RE ₁	13.7	0.15	19990810	348.85863	173.82600	312.87615	4.36232	0.0953571	2.2410850	42	4	1991–1999	0.79	M-v	2	Williams	34578	1991 RE ₁
1991 RL ₁	14.4	0.15	19990810	144.21373	101.55079	193.17362	11.66026	0.1698871	2.2761664	76	3	1991–1998	0.59	M-v	2	Williams	34287	1991 RL ₁
1991 RP ₁	13.6	0.15	19990810	12.67378	337.68556	349.28205	15.19588	0.1286579	2.5397401	43	5	1987–1999	0.68	M-v	3	Williams	35420	1991 RP ₁
1991 RH ₂	13.3	0.15	19990810	153.75173	22.67766	354.99488	10.71607	0.0838818	3.0376523	25	3	1991–1999	0.83	M-v	4	Williams	34182	1991 RH ₂
1991 RU ₂	14.6	0.15	19990810	305.96682	271.99153	254.91626	4.47470	0.0920981	2.2773633	49	3	1991–1998	0.72	M-v	3	Williams	33545	1991 RU ₂
1991 RV ₂	14.7	0.15	19990810	16.24333	10.18049	276.57450	3.87325	0.2542743	2.5762245	40	3	1991–1999	0.59	M-v	3	Spahr	35286	1991 RV ₂
1991 RO ₃	15.3	0.15	19990810	168.15799	290.82242	329.05562	6.29417	0.0759009	2.3380222	29	2	1991–1998	0.89	M-v	5	Williams	33069	1991 RO ₃
1991 RV ₄	14.9	0.15	19990810	306.10476	140.49410	233.29362	2.60534	0.1140944	2.6176178	24	3	1991–1996	0.40	M-v	4	Williams	28846	1991 RV ₄
1991 RB ₈	14.0	0.15	19990810	52.84542	58.80526	37.54344	5.30861	0.1213779	2.2387160	29	3	1969–1998	0.73	M-v	3	Williams	33679	1991 RB ₈
1991 RL ₈	15.2	0.15	19990810	101.16158	337.66521	21.64381	7.37638	0.1907206	2.2959653	59	3	1991–1998	0.68	M-v	3	Williams	34287	1991 RL ₈
1991 RC ₁₀	13.3	0.15	19990810	156.85405	32.16073	350.26680	10.22328	0.0902498	3.0549508	38	4	1991–1999	0.80	M-v	1	Williams	34287	1991 RC ₁₀
1991 RR ₁₀	15.0	0.15	19990810	74.88854	20.96553	5.06677	6.80197	0.1224562	2.3114669	62	2	1991–1998	0.68	M-v	4	Williams	33546	1991 RR ₁₀
1991 RL ₁₃	15.5	0.15	19990810	165.85594	31.70582	294.11125	2.39667	0.1749477	2.2127855	17	2	1991–1998	0.65	M-v	6	Williams	33479	1991 RL ₁₃
1991 RS ₁₃	14.4	0.15	19990810	183.29551	3.87640	288.07506	4.36141	0.1431367	2.2352181	28	3	1991–1998	0.68	M-v	4	Williams	34007	1991 RS ₁₃
1991 RT ₁₄	13.1	0.15	19990810	194.19678	260.60763	170.00008	15.26278	0.1050774	2.7694997	84	3	1991–1999	0.68	M-v	3	Williams	35421	1991 RT ₁₄

1991 RY ₁₅	12.8	0.15	19990810	240.17770	203.21135	130.17110	2.98688	0.0638990	2.8862332	30	3	1991–1999	0.74	M-v	3	Williams	35421	1991 RY ₁₅
1991 RO ₂₄	16.8	0.15	19990810	96.19296	179.03757	150.58795	9.56804	0.3082339	2.3170499	40	3	1991–1998	0.72	M-v	3	Williams	33069	1991 RO ₂₄
1991 RE ₂₅	14.6	0.15	19990810	323.38083	251.04839	136.94007	7.15725	0.2304662	2.5586806	33	5	1991–1999	0.77	M-v	2	Williams	35421	1991 RE ₂₅
1991 RK ₂₆	15.0	0.15	19990810	146.35493	296.82548	20.95043	7.25138	0.1950463	2.2710470	32	4	1991–1998	0.59	M-v	2	Williams	34007	1991 RK ₂₆
1991 RT ₂₆	13.1	0.15	19990810	323.98938	161.67239	194.70369	13.20345	0.1670452	2.6176428	72	4	1991–1999	0.66	M-v	3	Spahr	35421	1991 RT ₂₆
1991 RN ₂₇	12.7	0.15	19990810	190.16711	176.41460	339.02410	14.28763	0.0336856	2.5812008	20	5	1985–1999	0.69	M-v	2	Williams	35421	1991 RN ₂₇
1991 SM	12.7	0.15	19990810	188.02734	218.70757	122.73462	11.22831	0.1158660	3.0103741	29	3	1991–1999	0.61	M-v	3	Williams	34182	1991 SM
1991 TB ₂	17.0	0.15	19910921	330.37432	199.43226	291.77221	7.90189	0.7870171	2.0275702	8	1	21 days	0.66			Williams		1991 TB ₂
1991 TB ₆	13.3	0.15	19990810	345.77553	303.28031	37.75067	16.02863	0.1562562	2.5858552	49	4	1987–1999	0.58	M-v	3	Williams	31955	1991 TB ₆
1991 TD ₆	14.7	0.15	19990810	5.40525	263.22786	266.77982	2.67956	0.0382259	2.1631427	45	5	1987–1999	0.72	M-v	2	Williams	34578	1991 TD ₆
1991 TL ₆	13.4	0.15	19990810	262.45729	32.24566	277.43008	2.98429	0.1434691	2.8784832	21	3	1991–1999	0.61	M-v	4	Williams	34495	1991 TL ₆
1991 TF ₁₄	14.0	0.15	19990810	279.53236	47.13560	25.70441	5.52001	0.1175799	2.5494906	21	4	1977–1999	0.53	M-v	1	Spahr	25639	1991 TF ₁₄
1991 TM ₁₄	14.0	0.15	19990810	174.50361	88.32184	119.97044	3.71099	0.1192849	2.4486068	31	4	1972–1998	0.84	M-v	2	Williams	33229	1991 TM ₁₄
1991 UQ ₁	14.0	0.15	19990810	74.14992	22.70707	38.83764	8.52791	0.1810438	2.2900367	50	3	1984–1999	0.70	M-v	3	Williams	34007	1991 UQ ₁
1991 UV ₁	15.1	0.15	19990810	57.21639	41.29350	32.22708	6.92360	0.1722564	2.2991103	31	3	1984–1999	0.68	M-v	4	Williams	33744	1991 UV ₁
1991 UQ ₂	14.9	0.15	19990810	342.33818	319.93226	38.06664	13.20585	0.3091362	2.5679302	20	3	1991–1998	0.58	M-v	3	Williams	31533	1991 UQ ₂
1991 VE	18.3	0.15	19990810	168.75202	193.43444	62.08046	7.22312	0.6645225	0.8907855	130	4	1954–1999	0.73	M-v	3	Williams	34007	1991 VE
1991 VF ₁	14.7	0.15	19990810	142.35780	352.22088	6.35536	3.63088	0.1203324	2.2519330	35	2	1991–1999	0.75	M-v	5	Williams	34007	1991 VF ₁
1991 VO ₁	14.9	0.15	19990810	82.81368	313.16588	112.85092	5.47374	0.1223322	2.2591311	17	2	1991–1998	0.64	M-v	5	Williams	33480	1991 VO ₁
1991 VR ₂	14.9	0.15	19990810	134.23310	274.82361	45.51828	23.32090	0.2652391	2.2982034	26	2	1991–1998	0.64	M-v	4	Williams	33337	1991 VR ₂
1991 VZ ₂	15.6	0.15	19990810	94.07498	336.80411	23.40930	3.98520	0.3530698	2.3226389	80	5	1959–1999	0.74	M-v	2	Williams	33744	1991 VZ ₂
1991 VA ₃	13.1	0.15	19990810	337.52547	115.01086	254.41592	11.44986	0.2168026	2.6006751	40	3	1991–1999	0.65	M-v	3	Williams	35421	1991 VA ₃
1991 VP ₃	13.9	0.15	19990810	327.86888	80.97951	49.73029	7.87789	0.0898509	2.3666450	30	3	1978–1998	0.70	M-v	4	Williams	35287	1991 VP ₃
1991 VT ₃	13.3	0.15	19990810	0.57256	114.65224	238.09772	12.68720	0.1851068	2.5767357	51	5	1983–1999	0.73	M-v	3	Williams	35421	1991 VT ₃
1991 VB ₅	13.5	0.15	19990810	351.51711	186.92139	194.93366	14.81600	0.1223954	2.5481252	29	3	1991–1998	0.73	M-v	3	Williams	32744	1991 VB ₅
1991 VE ₅	14.3	0.15	19990810	182.42301	221.88005	110.28991	3.75199	0.2007765	2.2052871	27	5	1990–1999	0.68	M-v	3	Williams	33744	1991 VE ₅
1991 VU ₅	14.4	0.15	19990810	335.95116	165.63490	197.06060	11.13225	0.1921295	2.6084575	33	3	1991–1999	0.79	M-v	3	Williams	35421	1991 VU ₅
1991 VO ₇	15.9	0.15	19990810	223.86283	351.82972	131.59348	2.06279	0.1049278	2.6335312	30	5	1991–1999	0.47	M-v	1	Spahr	29943	1991 VO ₇
1991 VM ₁₂	13.0	0.15	19990810	187.92066	272.34359	66.66761	1.60883	0.1955504	3.1681285	24	4	1991–1999	0.61	M-v	3	Williams	34287	1991 VM ₁₂
1991 XB	18.1	0.15	19990810	185.22180	172.37733	250.39845	16.29736	0.5892252	2.9431793	28	1	121 days	0.50	M-v	4	Williams	21797	1991 XB
1991 YT	13.7	0.15	19990810	298.24760	140.21808	266.16531	11.68900	0.1785275	2.6990582	24	5	1988–1999	0.67	M-v	2	Williams	35421	1991 YT
1991 YU	13.3	0.15	19990810	225.92533	323.30092	138.41771	6.61613	0.1432682	2.7986303	25	4	1990–1999	0.69	M-v	1	Spahr	35421	1991 YU
1992 AJ ₁	13.2	0.15	19990810	236.20251	306.30654	272.81719	5.06680	0.1069889	2.5215603	45	3	1992–1998	0.69	M-v	4	Williams	33337	1992 AJ ₁
1992 BJ	14.8	0.15	19990810	44.62301	333.40917	124.63491	2.91296	0.1334741	2.3647653	33	2	1992–1999	0.66	M-v	4	Williams	34288	1992 BJ
1992 BX	13.6	0.15	19990810	32.99273	175.76367	285.65550	9.92041	0.1939891	2.3973847	50	6	1977–1999	0.74	M-v	2	Williams	34578	1992 BX
1992 BJ ₁	13.9	0.15	19990810	289.17108	1.23707	78.27242	3.95089	0.2469114	2.6824861	29	5	1982–1999	0.77	M-v	1	Spahr	31006	1992 BJ ₁
1992 BT ₂	12.7	0.15	19990810	293.56554	305.45717	146.73421	13.87635	0.1374219	2.6494181	46	3	1992–1999	0.67	M-v	3	Williams	32744	1992 BT ₂
1992 BW ₃	15.8	0.15	19990810	138.48014	295.33704	53.55074	6.45027	0.1918430	2.2759918	19	2	1991–1998	0.72	M-v	6	Williams	33481	1992 BW ₃
1992 CP ₂	13.7	0.15	19990810	73.10469	74.88649	197.87041	5.87003	0.0099866	2.7862062	44	5	1992–1999	0.76	M-v	2	Spahr	32304	1992 CP ₂
1992 DD ₃	14.4	0.15	19990810	323.24224	107.44978	322.00566	0.72084	0.0311444	2.7209925	30	4	1992–1998	0.59	M-v	3	Williams	32744	1992 DD ₃
1992 DE ₃	14.6	0.15	19990810	195.46382	8.75176	338.54226	6.47515	0.1758660	2.3417214	20	5	1972–1999	0.64	M-v	2	Williams	34008	1992 DE ₃
1992 DA ₄	16.0	0.15	19990810	355.95264	182.76274	339.63666	2.18062	0.1463125	2.4050324	29	4	1992–1998	0.64	M-v	1	Williams	33547	1992 DA ₄
1992 DF ₆	14.6	0.15	19990810	50.32211	349.98689	111.83286	3.49506	0.1500630	2.3921975	17	2	1992–1998	0.76	M-v	6	Williams	33481	1992 DF ₆
1992 DK ₆	13.8	0.15	19990810	299.46794	329.80408	55.94594	2.90331	0.1200389	2.9371860	25	4	1992–1999	0.70	M-v	2	Spahr	35421	1992 DK ₆
1992 DL ₆	14.6	0.15	19990810	77.45611	110.36635	119.76481	2.51941	0.0945755	3.0845678	20	3	1992–1998	0.66	M-v	5	Williams	33229	1992 DL ₆
1992 DL ₇	13.4	0.15	19990810	7.48266	230.92018	108.56440	2.38985	0.0655905	2.9030849	31	5	1982–1999	0.75	M-v	1	Spahr	35421	1992 DL ₇
1992 DQ ₇	13.6	0.15	19990810	313.69454	279.20934	64.73556	2.88404	0.1298326	3.0904360	15	3	1992–1998	0.70	M-v	4	Williams	32304	1992 DQ ₇
1992 DW ₇	14.9	0.15	19990810	28.39823	37.37742	71.93166	2.64232	0.1015700	2.4387387	31	2	1992–1998	0.56	M-v	4	Williams	35287	1992 DW ₇
1992 DX ₇	14.3	0.15	19990810	135.67406	108.60095	22.33942	4.62832	0.1368253	3.1897313	15	2	1992–1998	0.74	M-v	5	Williams	33547	1992 DX ₇
1992 DF ₈	14.6	0.15	19990810	72.92107	172.61645	200.79575	7.49135	0.0355230	2.5673222	41	3	1992–1998	0.66	M-v	4	Williams	33338	1992 DF ₈
1992 DX ₈	14.7	0.15	19990810	46.82689	11.62609	73.43476	3.30964	0.0903915	2.4504226	38	3	1990–1999	0.54	M-v	2	Williams	34288	1992 DX ₈
1992 DA ₁₀	13.6	0.15	19990810	260.94770	125.27202	234.05650	4.20391	0.1686488	3.1811094	31	6	1992–1999	0.75	M-v	1	Williams	35421	1992 DA ₁₀
1992 DF ₁₀	14.4	0.15	19990810	170.37065	178.59943	214.54520	4.96181	0.1585474	2.2731849	33	4	1987–1999	0.82	M-v	4	Williams	34578	1992 DF ₁₀

1992 PC ₂	13.8	0.15	19990810	287.98125	80.70859	217.89112	7.27795	0.0951040	2.5182618	36	3	1992–1999	0.59	M-v	4	Williams	34579	1992 PC ₂
1992 PV ₂	12.9	0.15	19990810	118.97571	57.55453	272.56667	8.97923	0.1237065	3.0044880	41	3	1987–1998	0.72	M-v	4	Williams	33231	1992 PV ₂
1992 PC ₃	12.2	0.15	19990810	108.40866	61.51289	273.48545	11.60784	0.1613081	3.0482246	38	2	1992–1999	0.67	M-v	4	Williams	34009	1992 PC ₃
1992 PV ₃	14.6	0.15	19990810	18.86059	194.28320	106.23667	4.17300	0.1602269	2.2990278	29	6	1977–1999	0.66	M-v	1	Spahr	34579	1992 PV ₃
1992 PR ₆	13.3	0.15	19990810	92.25519	25.76383	330.62743	9.64847	0.2991019	3.0554173	35	4	1987–1998	0.76	M-v	1	Williams	33482	1992 PR ₆
1992 QR	14.6	0.15	19990810	183.44249	239.85554	150.49737	22.99424	0.1044720	1.9237031	25	5	1983–1999	0.70	M-v	2	Williams	34288	1992 QR
1992 QW	15.1	0.15	19990810	13.18200	339.60475	5.65704	5.94070	0.2045062	2.2471613	19	3	1982–1998	0.90	M-v	4	Williams	31786	1992 QW
1992 RE ₂	13.9	0.15	19990810	49.41421	90.27408	348.26775	1.23822	0.0773787	2.9312864	24	2	1992–1998	0.87	M-v	6	Williams	33482	1992 RE ₂
1992 RV ₂	14.1	0.15	19990810	152.15986	207.17522	169.69241	6.96975	0.1250274	2.7795483	34	4	1992–1999	0.87	M-v	3	Williams	34186	1992 RV ₂
1992 RL ₃	16.5	0.15	19990810	50.64679	140.38687	169.48568	5.07329	0.2005651	2.2313945	32	2	1992–1998	0.66	M-v	4	Williams	34186	1992 RL ₃
1992 RF ₅	13.5	0.15	19990810	184.69598	149.98500	173.34558	2.05920	0.0469591	2.8258782	48	3	1992–1999	0.72	M-v	4	Williams	34009	1992 RF ₅
1992 RG ₅	14.6	0.15	19990810	159.07139	195.73036	98.82095	2.18646	0.1190023	3.0321585	30	5	1992–1998	0.54	M-v	1	Williams	33482	1992 RG ₅
1992 RV ₆	14.3	0.15	19990810	110.51222	247.65469	81.04281	2.20561	0.1988278	3.1031913	27	3	1992–1998	0.55	M-v	4	Williams	34009	1992 RV ₆
1992 SL	17.7	0.15	19990810	105.54154	344.51884	1.09590	8.59988	0.3341215	1.6413140	89	4	1950–1996	0.73	M-v	2	Williams	27567	1992 SL
1992 SO	14.4	0.15	19990810	18.81005	79.20367	244.52682	5.75463	0.1645857	2.3198063	41	3	1992–1999	0.58	M-v	3	Williams	35422	1992 SO
1992 ST ₂	14.2	0.15	19990810	299.11529	196.34739	195.08335	24.24613	0.1335664	2.3622670	44	3	1992–1999	0.80	M-v	3	Williams	35423	1992 ST ₂
1992 SF ₁₇	15.5	0.15	19990810	202.38599	196.67282	204.10050	2.81429	0.1939874	2.6044372	18	3	1988–1999	0.54	M-v	5	Williams	34579	1992 SF ₁₇
1992 SO ₁₇	14.3	0.15	19990810	69.98203	301.73581	183.83904	7.58152	0.1750102	2.7735663	51	6	1985–1999	0.69	M-v	1	Williams	35423	1992 SO ₁₇
1992 ST ₁₇	14.3	0.15	19990810	209.09485	300.37638	178.63379	6.23590	0.0660665	2.3679075	31	2	1992–1998	0.56	M-v	5	Williams	33232	1992 ST ₁₇
1992 SQ ₂₃	14.7	0.15	19990810	21.02577	101.50848	219.98889	7.82367	0.3102954	2.3073161	12	4	1981–1999	0.56	M-v	2	Williams	35064	1992 SQ ₂₃
1992 TV	13.3	0.15	19990810	147.22394	170.67635	197.83052	1.78603	0.0761086	2.8759983	64	4	1982–1999	0.66	M-v	3	Williams	34289	1992 TV
1992 TJ ₁	13.5	0.15	19990810	244.64456	179.19251	150.06630	14.45096	0.1818000	2.6515933	37	3	1992–1999	0.62	M-v	3	Williams	34579	1992 TJ ₁
1992 UN ₂	14.8	0.15	19990810	296.04473	358.92012	50.30918	3.03860	0.1988271	2.3863808	33	5	1988–1999	0.85	M-v	2	Williams	32049	1992 UN ₂
1992 UD ₃	13.6	0.15	19990810	298.20113	180.50129	230.35629	8.15716	0.1572615	2.3740184	45	5	1955–1999	0.82	M-v	1	Williams	35423	1992 UD ₃
1992 UA ₆	14.2	0.15	19990810	327.84458	102.62123	282.74529	2.76998	0.1103711	2.3672838	38	3	1992–1999	0.75	M-v	4	Spahr	35423	1992 UA ₆
1992 UP ₈	14.8	0.15	19990810	312.20270	113.98723	298.31004	2.03159	0.2210355	2.3424133	34	4	1990–1999	0.64	M-v	1	Williams	35423	1992 UP ₈
1992 VL	13.2	0.15	19990810	122.22914	261.95736	111.05333	9.15772	0.3030700	3.0139357	25	3	1992–1999	0.76	M-v	3	Williams	34289	1992 VL
1992 VQ	13.1	0.15	19990810	83.68646	285.78647	123.87058	1.65281	0.1795383	3.1001934	51	4	1981–1999	0.71	M-v	1	Williams	34289	1992 VQ
1992 WZ	14.2	0.15	19990810	353.06796	352.04603	58.44395	5.84695	0.1318777	2.2726115	26	4	1985–1999	0.78	M-v	3	Williams	29317	1992 WZ
1992 WD ₁	14.9	0.15	19990810	309.17715	304.02680	100.36261	3.15044	0.1915287	2.3741277	11	4	1981–1999	0.92	M-v	4	Spahr	28887	1992 WD ₁
1992 WZ ₁	13.1	0.15	19990810	132.73852	335.53760	36.76961	10.60969	0.1008840	3.0362379	48	3	1992–1999	0.82	M-v	3	Williams	34289	1992 WZ ₁
1992 WD ₃	13.7	0.15	19990810	349.28861	278.26140	148.86270	5.43373	0.1391391	2.2655705	34	6	1990–1998	0.88	M-v	2	Williams	34580	1992 WD ₃
1992 WL ₃	12.6	0.15	19990810	74.00493	200.85766	204.53833	10.91523	0.0443408	3.2193010	29	6	1975–1998	0.71	M-v	1	Williams	34580	1992 WL ₃
1992 WR ₅	12.8	0.15	19990810	133.47638	107.61619	262.10209	9.52364	0.1412779	3.0594182	32	4	1976–1999	0.63	M-v	2	Williams	34289	1992 WR ₅
1992 WD ₈	13.1	0.15	19990810	224.46889	197.33770	295.98326	24.45230	0.2321023	2.4540037	39	4	1951–1999	0.61	M-v	2	Williams	35423	1992 WD ₈
1992 WC ₉	14.2	0.15	19990810	290.21259	32.12927	56.45103	7.25106	0.0900210	2.3386974	18	3	1992–1999	0.51	M-v	2	Williams	32745	1992 WC ₉
1992 WK ₉	13.5	0.15	19990810	86.46958	322.92476	53.93767	0.86409	0.2249458	3.1448307	25	4	1986–1998	0.67	M-v	2	Williams	33483	1992 WK ₉
1992 YD	13.1	0.15	19990810	179.75739	17.33072	95.90641	16.42552	0.0766434	2.6269718	46	3	1992–1999	0.61	M-v	3	Spahr	35423	1992 YD
1992 YW ₁	14.3	0.15	19990810	244.17727	260.89634	302.41477	3.78537	0.1119609	2.2612946	62	3	1990–1998	0.77	M-v	4	Williams	33548	1992 YW ₁
1993 BN	13.1	0.15	19990810	160.15734	200.53051	319.51197	9.51338	0.1365021	2.6655946	47	5	1986–1999	0.65	M-v	2	Williams	35423	1993 BN
1993 BT ₂	13.2	0.15	19990810	166.55908	195.53925	329.11194	5.42859	0.2083405	2.6341931	21	5	1955–1999	0.52	M-v	1	Williams	32305	1993 BT ₂
1993 BX ₂	12.8	0.15	19990810	194.59526	175.99000	321.42887	12.47745	0.1788920	2.6100977	22	5	1982–1999	0.57	M-v	2	Williams	35290	1993 BX ₂
1993 BD ₄	10.4	0.15	19990810	20.58685	178.29933	138.89787	14.71573	0.1533757	5.1661180	42	4	1993–1999	0.93	M-v	1	Spahr	32515	1993 BD ₄
1993 BG ₆	15.5	0.15	19990810	49.39642	144.64769	312.06711	2.02760	0.0345461	2.1747199	23	2	1993–1998	0.70	M-v	6	Williams	34580	1993 BG ₆
1993 BZ ₁₂	10.4	0.15	19990810	84.06150	124.05834	128.31260	13.73722	0.0622491	5.2057861	33	4	1993–1999	0.81	M-v	1	Spahr	32745	1993 BZ ₁₂
1993 BT ₁₄	15.1	0.15	19990810	271.04357	314.05929	230.09574	2.55397	0.1233796	2.3105792	18	3	1991–1998	0.70	M-v	5	Williams	32929	1993 BT ₁₄
1993 CB	14.0	0.15	19990810	251.64402	69.64616	135.01367	5.43027	0.1313200	2.3391861	44	3	1993–1998	0.70	M-v	3	Williams	33338	1993 CB
1993 CR ₁	13.4	0.15	19990810	158.46638	24.66525	149.44015	13.65716	0.1045689	2.6700165	45	4	1993–1999	0.62	M-v	1	Spahr	32305	1993 CR ₁
1993 DN	14.6	0.15	19990810	354.21388	213.62751	293.29175	4.81377	0.0781858	2.2114565	27	2	1993–1999	0.69	M-v	4	Williams	33745	1993 DN
1993 DV	14.0	0.15	19990810	229.95689	199.15479	262.72948	2.51793	0.1854175	2.6069814	28	5	1991–1999	0.86	M-v	2	Williams	35423	1993 DV
1993 DJ ₁	13.4	0.15	19990810	78.42804	127.50336	141.00700	14.38705	0.0453171	2.5824681	28	3	1989–1998	0.86	M-v	4	Williams	32515	1993 DJ ₁
1993 EK	15.0	0.15	19990810	2.18484	125.33446	339.24775	6.92131	0.1768959	2.2838716	45	4	1988–1998	0.82	M-v	2	Williams	32745	1993 EK
1993 FQ ₁	13.5	0.15	19990810	191.71966	123.11126	138.58788	6.84943	0.1011863	2.3935091	21	2	1993–1998	0.67	M-v	5	Williams	33232	1993 FQ ₁

1994 PP ₁₆	15.3	0.15	19990810	217.97532	136.07623	131.97637	1.07500	0.1252657	2.2682759	23	3	1960–1998	0.79	M-v	6	Williams	33550	1994 PP ₁₆
1994 PV ₁₇	15.1	0.15	19990810	295.76768	70.35555	156.46979	3.98744	0.0736049	2.1834603	25	2	1994–1998	0.79	M-v	5	Williams	33487	1994 PV ₁₇
1994 PZ ₁₇	13.3	0.15	19990810	320.31729	351.60139	329.07427	10.10892	0.0546324	3.2587197	35	2	1994–1998	0.86	M-v	4	Williams	31727	1994 PZ ₁₇
1994 PE ₁₈	14.8	0.15	19990810	184.78716	338.53983	316.75682	0.64572	0.1523857	2.2939979	32	3	1991–1998	0.76	M-v	5	Williams	33551	1994 PE ₁₈
1994 PO ₁₈	14.3	0.15	19990810	291.31829	258.15624	156.16486	2.33142	0.0583189	2.9075109	22	3	1994–1999	0.63	M-v	5	Williams	31239	1994 PO ₁₈
1994 PV ₁₉	14.8	0.15	19990810	23.38482	162.26825	290.18051	1.19874	0.1711929	2.4104874	61	3	1991–1998	0.67	M-v	3	Williams	34582	1994 PV ₁₉
1994 PY ₁₉	14.3	0.15	19990810	231.86590	258.37764	309.50301	2.10231	0.1231664	2.4303019	50	4	1974–1998	0.73	M-v	2	Williams	33073	1994 PY ₁₉
1994 PL ₂₀	15.5	0.15	19990810	329.06218	328.58052	166.38471	2.50309	0.1124609	2.4066206	25	3	1994–1998	0.67	M-v	4	Williams	33243	1994 PL ₂₀
1994 PM ₂₁	14.8	0.15	19990810	52.29901	219.12741	154.90565	7.45552	0.2491329	2.5706453	28	4	1990–1998	0.73	M-v	3	Williams	32747	1994 PM ₂₁
1994 PL ₂₂	14.0	0.15	19990810	284.03006	263.00025	162.65024	2.39714	0.0946260	2.9231268	24	3	1994–1999	0.63	M-v	4	Williams	30453	1994 PL ₂₂
1994 PG ₂₄	14.9	0.15	19990810	23.36199	304.85020	139.57560	1.77263	0.1505056	2.4015212	45	3	1994–1998	0.82	M-v	3	Williams	33551	1994 PG ₂₄
1994 PL ₂₆	14.7	0.15	19990810	205.89071	162.23022	107.12691	1.91158	0.0516583	2.3102284	45	4	1991–1998	0.74	M-v	2	Williams	34582	1994 PL ₂₆
1994 PZ ₂₆	12.9	0.15	19990810	230.99952	296.57802	141.49572	11.59424	0.1565136	3.1542207	34	3	1994–1999	0.76	M-v	3	Spahr	35426	1994 PZ ₂₆
1994 PG ₂₇	13.1	0.15	19990810	149.69547	26.96231	131.82612	1.39665	0.1464284	3.0418354	23	3	1994–1999	0.76	M-v	5	Spahr	34506	1994 PG ₂₇
1994 PZ ₂₇	13.6	0.15	19990810	200.77952	353.75884	126.71688	2.98956	0.1387802	3.0324805	33	4	1994–1999	0.72	M-v	1	Williams	35426	1994 PZ ₂₇
1994 PZ ₂₈	14.3	0.15	19990810	13.58185	181.72512	115.64659	4.79072	0.1370756	2.9841051	33	4	1992–1999	0.75	M-v	2	Williams	35426	1994 PZ ₂₈
1994 PC ₂₉	14.4	0.15	19990810	66.21637	160.64106	134.82580	8.00624	0.0955468	2.7383455	26	4	1993–1999	0.70	M-v	1	Williams	32747	1994 PC ₂₉
1994 PH ₃₀	13.4	0.15	19990810	224.11346	318.12931	185.74603	9.07242	0.1000642	2.7712214	20	3	1981–1997	0.82	M-v	4	Williams	30662	1994 PH ₃₀
1994 PG ₃₁	16.3	0.15	19990810	92.69951	40.33144	260.33312	3.93354	0.2352613	2.5817384	23	2	1994–1998	0.69	M-v	3	Williams	33487	1994 PG ₃₁
1994 PS ₃₁	15.9	0.15	19990810	128.72046	115.16428	191.43458	5.15480	0.1996039	2.4386198	32	3	1994–1998	0.74	M-v	4	Williams	34582	1994 PS ₃₁
1994 PU ₃₂	14.6	0.15	19990810	199.99223	80.09030	209.72771	4.43897	0.0338032	2.2927581	32	3	1993–1998	0.81	M-v	4	Williams	33551	1994 PU ₃₂
1994 PE ₃₃	13.9	0.15	19990810	316.35475	253.68928	293.43112	3.94846	0.0862065	2.2480800	48	3	1994–1999	0.82	M-v	4	Williams	34011	1994 PE ₃₃
1994 PL ₃₃	13.7	0.15	19990810	227.55631	273.28482	166.78388	5.60832	0.1703754	3.1438357	24	4	1994–1999	0.68	M-v	1	Williams	35426	1994 PL ₃₃
1994 PC ₃₇	13.7	0.15	19990810	300.58277	126.78374	297.63059	2.48882	0.0822098	2.7824134	21	5	1990–1999	0.53	M-v	1	Williams	35426	1994 PC ₃₇
1994 PP ₃₇	15.2	0.15	19990810	165.45390	331.34115	287.20544	1.19307	0.1422061	2.4393161	30	2	1994–1998	0.87	M-v	6	Williams	33073	1994 PP ₃₇
1994 PV ₃₇	14.7	0.15	19990810	145.96326	118.96822	172.15458	2.35861	0.1832672	2.4053861	64	4	1979–1999	0.73	M-v	2	Williams	33748	1994 PV ₃₇
1994 PY ₃₇	16.5	0.15	19990810	171.86132	333.44898	301.85403	1.63730	0.1891053	2.3577214	23	2	1994–1998	0.73	M-v	5	Williams	33244	1994 PY ₃₇
1994 PD ₃₈	13.4	0.15	19990810	55.37478	71.67697	153.09521	7.57928	0.1609549	3.0952245	47	4	1992–1999	0.75	M-v	2	Spahr	35426	1994 PD ₃₈
1994 PO ₃₉	16.1	0.15	19990810	74.01970	63.03007	315.69336	2.02308	0.1626685	2.4389744	25	3	1992–1998	0.71	M-v	4	Williams	32940	1994 PO ₃₉
1994 PP ₃₉	13.4	0.15	19990810	250.53033	100.78807	326.27371	9.11763	0.0833494	3.0406374	35	4	1993–1999	0.59	M-v	1	Williams	35426	1994 PP ₃₉
1994 RN	14.0	0.15	19990810	47.02622	71.96451	168.84922	9.54861	0.0462473	3.1706684	35	2	1994–1998	0.86	M-v	4	Williams	31727	1994 RN
1994 RL ₂	13.3	0.15	19990810	333.74556	338.45536	334.42543	10.17287	0.1807381	3.1414313	38	2	1994–1998	0.85	M-v	4	Williams	31727	1994 RL ₂
1994 RT ₂	16.1	0.15	19990810	110.64278	158.87818	168.00629	4.77091	0.1899273	2.4387870	35	2	1994–1998	0.72	M-v	5	Williams	33073	1994 RT ₂
1994 RP ₅	17.1	0.15	19990810	155.58625	67.12848	225.07164	2.05001	0.1788269	2.4235344	18	2	1994–1998	0.37	M-v	5	Williams	33244	1994 RP ₅
1994 RK ₁₁	14.5	0.15	19990810	109.65978	68.47818	297.34819	1.24693	0.2307634	2.3860091	30	4	1972–1998	0.70	M-v	2	Williams	33488	1994 RK ₁₁
1994 RT ₁₁	15.0	0.15	19990810	156.79171	104.64832	246.54070	5.57045	0.1393677	2.2750747	23	3	1993–1998	0.64	M-v	4	Williams	33488	1994 RT ₁₁
1994 RW ₁₁	14.6	0.15	19990810	159.65653	94.86014	211.36787	4.59493	0.2117328	2.3639821	27	3	1994–1998	0.71	M-v	4	Williams	34011	1994 RW ₁₁
1994 RN ₂₈	14.7	0.15	19990810	14.34838	295.12471	3.68927	1.55816	0.0892141	2.9818628	29	4	1994–1999	0.93	M-v	2	Spahr	35426	1994 RN ₂₈
1994 SZ ₁	17.3	0.15	19990810	129.68562	279.71875	44.05447	3.05474	0.1870840	2.4442651	23	3	1994–1998	0.46	M-v	3	Williams	33340	1994 SZ ₁
1994 SC ₅	15.1	0.15	19990810	203.64790	89.79830	42.44365	1.37498	0.1097426	3.1207029	22	2	1994–1997	0.53	M-v	4	Williams	32238	1994 SC ₅
1994 SC ₆	16.3	0.15	19990810	40.21643	246.08912	168.38086	3.13514	0.2099287	2.5474889	25	2	1994–1998	0.61	M-v	5	Williams	32940	1994 SC ₆
1994 TE	15.1	0.15	19990810	64.54599	258.35483	165.42237	3.25816	0.0696145	2.3621913	55	3	1993–1998	0.70	M-v	3	Williams	33488	1994 TE
1994 TJ	14.8	0.15	19990810	108.23316	0.79355	345.64748	5.60608	0.0935173	2.4794797	41	2	1994–1998	0.68	M-v	4	Williams	34011	1994 TJ
1994 TT	14.5	0.15	19990810	61.47483	33.02834	358.36865	5.94636	0.2335282	2.5450202	61	4	1990–1998	0.68	M-v	2	Williams	34011	1994 TT
1994 TX	14.9	0.15	19990810	51.65689	343.55063	41.91306	3.26104	0.2356713	2.5932291	31	2	1994–1998	0.73	M-v	4	Williams	32668	1994 TX
1994 TF ₁	13.3	0.15	19990810	342.20491	298.91963	56.29050	8.29451	0.1305675	3.0768860	20	5	1989–1998	0.72	M-v	2	Williams	34582	1994 TF ₁
1994 TG ₁	14.1	0.15	19990810	113.18208	11.74639	47.67083	5.52374	0.1263765	2.2866429	42	4	1993–1999	0.77	M-v	3	Williams	34582	1994 TG ₁
1994 TJ ₁	14.8	0.15	19990810	66.87401	194.22261	182.12990	6.34428	0.2462219	2.5636512	69	6	1986–1998	0.66	M-v	2	Williams	34291	1994 TJ ₁
1994 TQ ₁	13.7	0.15	19990810	200.86188	233.49545	55.55345	7.10083	0.1471168	2.3473682	34	4	1976–1998	0.61	M-v	2	Williams	33551	1994 TQ ₁
1994 TB ₃	14.0	0.15	19990810	53.32139	12.36737	14.62301	14.60093	0.1503012	2.6000565	43	2	1994–1998	0.72	M-v	3	Williams	34011	1994 TB ₃
1994 TV ₃	14.5	0.15	19990810	345.58165	104.64459	193.77590	22.05057	0.0795083	1.9660399	51	3	1994–1999	0.66	M-v	2	Spahr	35426	1994 TV ₃
1994 TK ₁₁	14.3	0.15	19990810	123.58924	95.06774	235.80729	2.15282	0.0712098	2.4707330	91	4	1977–1999	0.60	M-v	3	Williams	34291	1994 TK ₁₁
1994 TT ₁₆	16.2	0.15	19990810	140.80092	323.62594	33.13966	2.82438	0.2147058	2.3477768	12	2	1994–1996	0.42	M-v	4	Williams	33245	1994 TT ₁₆

1994 UP ₁	13.9	0.15	19990810	26.58288	50.30160	34.21457	13.78770	0.1359356	2.5524435	55	5	1976–1999	0.77	M-v	2	Williams	34291	1994 UP ₁
1994 UX ₁	14.3	0.15	19990810	133.14341	325.88848	67.71570	3.46187	0.2192469	2.3110882	64	4	1991–1999	0.69	M-v	2	Williams	34291	1994 UX ₁
1994 UH ₂	12.9	0.15	19990810	327.19307	310.28054	64.54167	3.12863	0.2022084	3.1541118	29	5	1988–1999	0.76	M-v	1	Spahr	32052	1994 UH ₂
1994 UJ ₂	12.7	0.15	19990810	351.47284	327.20264	55.87683	14.02863	0.1579795	2.9766254	20	6	1968–1999	0.83	M-v	2	Williams	29138	1994 UJ ₂
1994 US ₂	13.8	0.15	19990810	61.56594	18.60635	56.03406	3.11005	0.1517741	2.4690816	38	4	1992–1999	0.76	M-v	2	Williams	34291	1994 US ₂
1994 UA ₃	14.2	0.15	19990810	3.97538	200.02057	241.82287	1.18267	0.1761187	2.6703948	52	4	1981–1998	0.76	M-v	2	Williams	32748	1994 UA ₃
1994 UQ ₇	16.1	0.15	19990810	238.77812	213.65801	5.54588	5.77804	0.0394231	2.5372716	17	2	1994–1998	0.37	M-v	4	Williams	32942	1994 UQ ₇
1994 UZ ₁₂	13.8	0.15	19990810	335.84769	244.72209	129.18051	5.97209	0.1593046	3.1880757	28	6	1988–1999	0.72	M-v	1	Williams	35067	1994 UZ ₁₂
1994 VA	13.2	0.15	19990810	115.79977	90.13393	232.35798	11.97740	0.2530842	2.5398835	48	3	1981–1999	0.81	M-v	2	Williams	34582	1994 VA
1994 VD	14.9	0.15	19990810	54.24883	149.92595	227.14198	11.30755	0.1950698	2.6531565	56	2	1994–1998	0.74	M-v	4	Williams	32748	1994 VD
1994 VF	15.1	0.15	19990810	97.95321	68.87272	292.71114	1.79193	0.1796402	2.5206970	43	3	1982–1999	0.70	M-v	5	Williams	33748	1994 VF
1994 VJ	15.0	0.15	19990810	106.60624	76.86587	302.20376	1.32113	0.1832058	2.4369031	34	2	1994–1998	0.71	M-v	4	Williams	33489	1994 VJ
1994 VL	15.2	0.15	19990810	43.60532	50.13451	23.15989	5.56876	0.2194299	2.5441759	76	3	1994–1998	0.62	M-v	3	Williams	34291	1994 VL
1994 VU	14.4	0.15	19990810	74.35452	352.07843	56.98256	13.31036	0.1141071	2.5259469	33	2	1994–1999	0.60	M-v	3	Williams	33748	1994 VU
1994 VE ₁	13.6	0.15	19990810	95.92863	192.02004	170.47417	2.44580	0.1614748	2.5513065	56	2	1994–1999	0.55	M-v	4	Williams	33748	1994 VE ₁
1994 VU ₂	14.6	0.15	19990810	191.52724	313.31044	27.29850	6.77260	0.1939502	2.2629481	21	6	1977–1999	0.99	M-v	2	Williams	34193	1994 VU ₂
1994 VE ₄	15.5	0.15	19990810	43.21243	189.63197	234.85895	7.27768	0.1439999	2.5355943	27	2	1994–1999	0.58	M-v	4	Williams	34011	1994 VE ₄
1994 VT ₆	13.6	0.15	19990810	342.15377	328.04562	74.40192	3.06098	0.1222731	2.9302742	34	3	1994–1998	0.78	M-v	4	Williams	32517	1994 VT ₆
1994 VW ₆	13.8	0.15	19990810	216.45635	245.97359	68.69677	7.13220	0.1916337	2.2535709	34	4	1993–1999	0.73	M-v	2	Williams	34194	1994 VW ₆
1994 VL ₇	14.1	0.15	19990810	144.89086	117.48725	229.33721	1.19518	0.2372288	2.3743029	29	2	1994–1998	0.69	M-v	4	Williams	33690	1994 VL ₇
1994 WA	14.5	0.15	19990810	153.99996	287.00560	87.39539	4.22887	0.2038456	2.3199367	43	3	1994–1999	0.82	M-v	4	Williams	33941	1994 WA
1994 WJ	14.9	0.15	19990810	88.41669	316.90753	53.56063	5.62803	0.2856926	2.5485355	67	3	1994–1999	0.72	M-v	2	Williams	34011	1994 WJ
1994 WQ	14.7	0.15	19990810	19.45083	229.15513	261.15516	9.43022	0.0927998	2.4804016	25	3	1994–1998	0.54	M-v	4	Williams	33552	1994 WQ
1994 WT	14.4	0.15	19990810	106.95669	305.34658	57.32432	5.56504	0.2200704	2.5215855	23	3	1986–1998	0.85	M-v	4	Williams	33489	1994 WT
1994 WU	12.7	0.15	19990810	201.86424	299.13546	254.14802	13.04004	0.1533008	3.1050090	45	3	1983–1998	0.78	M-v	3	Williams	32748	1994 WU
1994 WF ₁	14.0	0.15	19990810	38.87819	97.27519	268.16661	0.96403	0.0930666	2.9006783	25	2	1994–1998	0.54	M-v	4	Williams	32943	1994 WF ₁
1994 WH ₁	13.0	0.15	19990810	284.82905	319.22830	253.07190	12.46728	0.1115895	2.5412568	48	2	1994–1999	0.55	M-v	4	Williams	33748	1994 WH ₁
1994 WF ₂	12.5	0.15	19990810	80.15027	290.49026	87.44615	13.99568	0.1975652	2.5881891	32	3	1994–1999	0.78	M-v	3	Williams	34292	1994 WF ₂
1994 WW ₂	13.7	0.15	19990810	132.33772	305.41848	14.55842	3.16140	0.0610982	2.6957935	48	3	1994–1998	0.56	M-v	3	Williams	34582	1994 WW ₂
1994 WH ₃	12.7	0.15	19990810	338.63191	262.91294	111.46979	1.96710	0.1752664	3.1567232	24	6	1982–1999	0.83	M-v	1	Spahr	35067	1994 WH ₃
1994 WL ₃	14.8	0.15	19990810	53.16560	299.54073	139.54402	4.30301	0.1498758	2.5165051	27	4	1992–1999	0.56	M-v	3	Williams	34292	1994 WL ₃
1994 WO ₃	13.7	0.15	19990810	143.28972	295.41416	79.68235	22.91697	0.3027253	2.3356716	34	2	1994–1999	0.64	M-v	4	Williams	34194	1994 WO ₃
1994 WJ ₁₂	13.4	0.15	19990810	84.69409	121.57922	271.55763	9.03806	0.2276468	2.5356438	52	3	1983–1999	0.79	M-v	4	Williams	34509	1994 WJ ₁₂
1994 WP ₁₃	13.5	0.15	19990810	62.18117	248.48683	139.82020	12.71402	0.2109599	2.6002323	27	3	1994–1999	0.86	M-v	2	Williams	34582	1994 WP ₁₃
1994 XQ ₄	14.0	0.15	19990810	62.48670	311.86427	77.77241	4.13278	0.1191094	2.7458892	63	3	1994–1999	0.64	M-v	3	Williams	33749	1994 XQ ₄
1994 YS	14.6	0.15	19990810	5.37649	27.22091	112.39011	5.55732	0.0991301	2.6048965	17	2	1994–1998	0.67	M-v	5	Williams	33490	1994 YS
1994 YU	14.1	0.15	19990810	69.22469	59.46416	286.95106	9.79970	0.1221616	2.9788920	24	2	1994–1998	0.74	M-v	5	Williams	32669	1994 YU
1994 YF ₁	13.7	0.15	19990810	326.07594	162.54310	291.03191	8.93851	0.0272573	2.9929547	32	2	1994–1998	0.78	M-v	4	Williams	33552	1994 YF ₁
1995 BE	15.6	0.15	19990810	20.78756	5.64045	129.94997	5.55328	0.2009300	2.5905644	22	2	1994–1998	0.73	M-v	4	Spahr	33691	1995 BE
1995 BH	14.7	0.15	19990810	354.74712	189.14437	303.36261	1.91203	0.2774278	2.7495660	28	2	1995–1998	0.72	M-v	4	Williams	33490	1995 BH
1995 BP	13.3	0.15	19990810	274.96739	310.01975	315.89014	13.20810	0.2594910	2.6274416	23	2	1995–1999	0.59	M-v	5	Williams	33943	1995 BP
1995 BQ	13.6	0.15	19990810	324.71214	310.25728	128.55044	1.25351	0.2417844	3.1677860	34	5	1982–1998	0.75	M-v	1	Spahr	34509	1995 BQ
1995 BS	14.3	0.15	19990810	47.14420	40.70450	132.51540	7.40926	0.0595521	2.3838640	27	3	1995–1999	0.61	M-v	3	Williams	35294	1995 BS
1995 BZ	13.7	0.15	19990810	294.92146	99.83785	115.41439	10.30293	0.1655343	2.7378516	30	2	1994–1998	0.53	M-v	4	Williams	33552	1995 BZ
1995 BM ₁	14.4	0.15	19990810	131.59373	252.98396	121.53729	5.09182	0.2380230	2.5548519	38	3	1995–1999	0.72	M-v	4	Spahr	33943	1995 BM ₁
1995 BC ₂	17.3	0.15	19990810	289.26883	81.23240	328.66885	5.03236	0.4300518	1.9180165	103	3	1986–1998	0.64	M-v	3	Williams	31542	1995 BC ₂
1995 BO ₃	15.0	0.15	19990810	48.83484	290.86367	159.17955	3.91803	0.1822205	2.6708731	30	3	1995–1998	0.61	M-v	4	Spahr	33490	1995 BO ₃
1995 BJ ₅	15.3	0.15	19990810	158.54701	240.95753	116.30138	2.98439	0.1021816	2.5218542	27	2	1995–1998	0.45	M-v	5	Spahr	33491	1995 BJ ₅
1995 BE ₇	14.4	0.15	19990810	10.88577	95.38682	113.57778	3.34566	0.1449652	2.4506486	41	4	1989–1999	0.53	M-v	2	Williams	35294	1995 BE ₇
1995 BS ₁₁	14.0	0.15	19990810	42.56575	53.83254	13.32513	1.79700	0.0400901	2.9105620	35	3	1990–1998	0.75	M-v	5	Spahr	33491	1995 BS ₁₁
1995 CE ₁	14.0	0.15	19990810	301.34593	124.28110	346.89830	5.70316	0.1169406	3.1571752	41	3	1993–1998	0.64	M-v	3	Spahr	32749	1995 CE ₁
1995 DY	13.5	0.15	19990810	294.64896	82.30990	194.21526	2.29602	0.1406109	2.5538175	37	3	1995–1999	0.89	M-v	4	Spahr	34292	1995 DY
1995 DN ₁	13.3	0.15	19990810	166.01496	262.48239	24.51103	7.10200	0.1061759	3.1412380	22	3	1995–1998	0.64	M-v	3	Spahr	34292	1995 DN ₁

1995 DS ₁	14.1	0.15	19990810	6.02119	19.93454	162.18016	5.83865	0.1198252	2.6579601	33	3	1995–1999	0.68	M-v	4	Spahr	34292	1995 DS ₁
1995 DZ ₃	12.5	0.15	19990810	94.35978	13.87401	321.31534	16.92443	0.2681353	3.0993559	42	3	1992–1999	0.57	M-v	3	Spahr	34012	1995 DZ ₃
1995 DH ₄	14.5	0.15	19990810	317.81061	318.48536	313.63360	6.25378	0.1384806	2.3980024	36	4	1995–1999	0.64	M-v	1	Williams	35426	1995 DH ₄
1995 DZ ₅	15.5	0.15	19990810	199.61321	325.89981	14.12204	1.54380	0.1403034	2.6427005	18	2	1995–1999	0.45	M-v	6	Spahr	33944	1995 DZ ₅
1995 EZ ₇	13.1	0.15	19990810	330.33957	332.69366	209.35320	9.54317	0.0717550	2.8461081	29	4	1987–1999	0.73	M-v	2	Spahr	33944	1995 EZ ₇
1995 EA ₈	14.4	0.15	19990810	7.43340	283.99450	163.18417	0.65063	0.2030976	2.9946806	58	3	1995–1998	0.60	M-v	4	Spahr	34583	1995 EA ₈
1995 EK ₈	15.1	0.15	19990810	19.06881	136.97954	81.05445	2.93238	0.0755732	2.4194920	32	3	1995–1999	0.63	M-v	4	Williams	35426	1995 EK ₈
1995 FH ₁	13.4	0.15	19990810	354.32335	211.92307	6.07301	12.94503	0.0976124	2.5995044	27	5	1974–1999	0.84	M-v	2	Spahr	34510	1995 FH ₁
1995 FM ₃	14.0	0.15	19990810	243.79683	155.10156	47.47689	4.04245	0.0307673	3.2141875	29	3	1992–1998	0.52	M-v	4	Spahr	33074	1995 FM ₃
1995 FA ₇	15.6	0.15	19990810	35.34639	130.12078	140.02099	3.96691	0.1396702	2.2273303	33	5	1989–1999	0.60	M-v	1	Williams	35426	1995 FA ₇
1995 FA ₈	13.8	0.15	19990810	33.62565	288.03193	136.41906	7.58609	0.0763316	3.1625169	19	3	1992–1998	0.33	M-v	3	Spahr	34012	1995 FA ₈
1995 FB ₁₄	15.8	0.15	19990810	231.77121	141.91549	207.65240	0.67923	0.2018703	2.5586588	20	4	1976–1999	0.43	M-v	2	Spahr	34583	1995 FB ₁₄
1995 FQ ₁₄	16.4	0.15	19990810	194.12693	193.71056	173.91619	12.11381	0.1881622	2.6323853	21	2	1995–1999	0.33	M-v	5	Spahr	34195	1995 FQ ₁₄
1995 FH ₁₅	14.0	0.15	19990810	95.09097	299.31501	127.28967	4.61393	0.0816832	2.7926524	25	2	1995–1999	0.60	M-v	5	Spahr	33944	1995 FH ₁₅
1995 GA	15.8	0.15	19990810	62.61920	109.22153	137.04550	8.13441	0.1153999	2.2303870	39	3	1994–1999	0.54	M-v	2	Williams	35426	1995 GA
1995 GN	15.6	0.15	19990810	22.20255	204.58906	79.43518	3.53432	0.1256316	2.1863752	31	3	1992–1999	0.57	M-v	3	Spahr	35295	1995 GN
1995 GV	14.2	0.15	19990810	70.64636	52.61267	192.78145	3.21892	0.1105009	2.2743624	30	4	1971–1999	0.70	M-v	2	Spahr	32239	1995 GV
1995 GW ₂	15.5	0.15	19990810	303.66149	138.90609	29.19159	14.20116	0.2186299	3.0907751	21	2	1995–1998	0.25	M-v	3	Spahr	33249	1995 GW ₂
1995 GC ₇	13.0	0.15	19990810	42.42021	73.64203	3.33140	9.95214	0.0927438	3.0221520	29	4	1987–1998	0.60	M-v	1	Spahr	34583	1995 GC ₇
1995 HP	14.9	0.15	19990810	4.92300	214.60060	100.25967	3.59143	0.2393035	2.3268789	32	4	1995–1999	0.47	M-v	1	Spahr	35426	1995 HP
1995 HY ₂	13.6	0.15	19990810	5.51645	328.69323	128.89381	3.24711	0.1725265	3.2126537	31	3	1995–1998	0.53	M-v	4	Spahr	34293	1995 HY ₂
1995 HB ₄	14.7	0.15	19990810	91.96268	310.05540	134.94036	3.88641	0.2250718	2.7437314	25	3	1995–1999	0.68	M-v	3	Spahr	34511	1995 HB ₄
1995 KA ₁	14.6	0.15	19990810	20.21110	112.08322	185.92741	19.84915	0.2312193	2.3741768	56	4	1988–1999	0.63	M-v	1	Williams	29138	1995 KA ₁
1995 KL ₁	13.4	0.15	19990810	95.63491	284.57714	306.56820	22.05847	0.2076061	2.3115039	42	4	1974–1999	0.42	M-v	1	Williams	35427	1995 KL ₁
1995 KJ ₃	16.1	0.15	19990810	102.76525	171.31856	78.14171	1.05499	0.1285948	2.1632169	33	4	1994–1998	0.74	M-v	2	Spahr	34583	1995 KJ ₃
1995 MB	12.6	0.15	19990810	29.91841	11.00096	280.07125	26.26834	0.2207108	2.4128175	45	2	1995–1999	0.69	M-v	2	Williams	35295	1995 MB
1995 NE	16.2	0.15	19990810	63.86064	57.75342	182.46097	5.41836	0.2396215	2.3365652	16	2	1995–1998	0.37	M-v	3	Spahr	33249	1995 NE
1995 OA	13.9	0.15	19990810	315.68714	150.08644	274.99623	6.15506	0.0864687	2.3275681	61	4	1995–1999	0.62	M-v	1	Williams	32308	1995 OA
1995 OJ	15.2	0.15	19990810	132.97224	72.50395	125.52859	3.08364	0.1734741	2.3446212	94	4	1980–1999	0.61	M-v	2	Williams	32052	1995 OJ
1995 OU	14.3	0.15	19990810	5.98402	288.95309	0.86562	5.59640	0.2205395	2.5492865	22	4	1991–1999	0.62	M-v	3	Williams	35427	1995 OU
1995 OS ₁	14.7	0.15	19990810	283.69848	67.37347	338.93461	2.83035	0.0737981	2.4743001	49	4	1994–1999	0.55	M-v	2	Williams	35427	1995 OS ₁
1995 PG	15.3	0.15	19990810	246.94060	124.08136	332.53927	14.56191	0.1389830	2.5491183	43	4	1991–1999	0.44	M-v	2	Spahr	29318	1995 PG
1995 QQ	14.2	0.15	19990810	15.28662	331.15962	314.48031	13.71963	0.1108246	2.6495388	26	4	1994–1999	0.59	M-v	2	Spahr	35427	1995 QQ
1995 QB ₂	15.4	0.15	19990810	34.79792	77.50155	302.74382	3.55562	0.1841090	2.2377384	19	3	1955–1995	0.82	M-v	3	Spahr	25732	1995 QB ₂
1995 SA	17.5	0.15	19990810	59.21267	50.94516	171.97295	20.38348	0.6470489	2.4429688	19	2	1991–1995	0.58	M-v	5	Williams	27919	1995 SA
1995 SC	15.7	0.15	19990810	294.77657	75.81947	317.55765	28.32565	0.4007063	2.7580141	42	5	1954–1999	0.57	M-v	2	Williams	34859	1995 SC
1995 SR	14.4	0.15	19990810	10.82444	70.70120	217.39158	26.52426	0.3098413	2.5886084	38	2	1995–1999	0.50	M-v	3	Williams	35427	1995 SR
1995 SH ₁	16.3	0.15	19990810	52.09026	33.93841	303.11860	5.77744	0.1379966	2.2910976	23	2	1995–1997	0.41	M-v	3	Spahr	33249	1995 SH ₁
1995 SJ ₁	15.5	0.15	19990810	322.01480	62.54460	351.86731	4.07362	0.2009158	2.4807205	52	3	1995–1999	0.49	M-v	2	Spahr	29623	1995 SJ ₁
1995 SQ ₂	15.1	0.15	19990810	31.28628	26.71123	258.40569	10.60009	0.1509741	2.6450678	52	5	1991–1999	0.60	M-v	1	Williams	35427	1995 SQ ₂
1995 SQ ₃	13.7	0.15	19990810	304.08343	184.81952	276.24305	5.71394	0.0789519	2.3263712	26	4	1917–1998	0.59	M-v	1	Spahr	32749	1995 SQ ₃
1995 SU ₁₅	15.5	0.15	19990810	80.51957	39.67026	213.57286	0.73927	0.1011254	2.5119039	30	4	1994–1999	0.65	M-v	3	Williams	32749	1995 SU ₁₅
1995 SW ₁₉	13.8	0.15	19990810	122.12923	109.82245	42.17142	1.04562	0.1491450	3.2014134	33	2	1995–1998	0.48	M-v	4	Spahr	34512	1995 SW ₁₉
1995 SW ₂₅	15.8	0.15	19990810	336.44292	12.05854	358.09355	2.69254	0.2185952	2.5851722	18	2	1995–1999	0.61	M-v	5	Spahr	26178	1995 SW ₂₅
1995 SQ ₂₉	14.8	0.15	19990810	38.21822	291.95256	40.36009	3.85601	0.1918600	2.4304676	31	4	1971–1998	0.71	M-v	1	Spahr	34583	1995 SQ ₂₉
1995 SY ₃₀	15.6	0.15	19990810	277.53117	308.14939	160.08919	7.09391	0.0652208	2.3330679	34	2	1995–1997	0.53	M-v	4	Spahr	29624	1995 SY ₃₀
1995 SG ₅₁	16.8	0.15	19950920	262.59147	277.45237	207.20812	2.92682	0.1042992	2.6719988	12	1	19 days	0.27			Williams	33944	1995 SG ₅₁
1995 SX ₅₂	13.4	0.15	19990810	324.95990	92.05921	237.57689	3.34399	0.1768341	2.8122688	31	3	1995–1999	0.67	M-v	4	Williams	35427	1995 SX ₅₂
1995 TB ₈	14.3	0.15	19990810	166.82956	303.16258	257.81722	1.55696	0.0607694	2.5888586	39	3	1989–1995	0.55	M-v	5	Spahr	27560	1995 TB ₈
1995 UZ	15.0	0.15	19990810	323.06857	317.57330	39.85795	3.57030	0.0848327	2.7378260	27	3	1995–1999	0.58	M-v	4	Williams	35427	1995 UZ
1995 US ₄	14.7	0.15	19990810	111.56423	259.05749	57.25690	6.27393	0.2029996	2.2601947	27	4	1978–1998	0.60	M-v	2	Spahr	34013	1995 US ₄
1995 UM ₅	15.9	0.15	19990810	236.33362	266.05570	316.01761	4.12208	0.0438981	2.1704843	17	2	1995–1998	0.65	M-v	6	Spahr	32945	1995 UM ₅
1995 UP ₆	14.2	0.15	19990810	13.34348	92.30195	229.96460	13.42448	0.1629829	2.5641703	75	5	1954–1999	0.64	M-v	1	Williams	32053	1995 UP ₆

1995 UB ₈	14.1	0.15	19990810	336.71298	27.35593	65.54048	4.14733	0.1226845	2.3336163	28	2	1995–1998	0.60	M-v	4	Spahr	33074	1995 UB ₈
1995 UA ₄₅	14.9	0.15	19990810	35.62674	355.41334	70.37087	5.91484	0.1343317	2.1971740	31	3	1992–1998	0.54	M-v	3	Williams	32749	1995 UA ₄₅
1995 UZ ₄₅	14.1	0.15	19990810	173.09515	315.89129	204.33715	9.33890	0.1602462	2.7522874	24	2	1995–1998	0.57	M-v	4	Spahr	33074	1995 UZ ₄₅
1995 UB ₄₇	13.2	0.15	19990810	242.46879	207.99145	212.13370	9.85372	0.0934839	2.9850231	35	3	1990–1998	0.81	M-v	4	Spahr	34583	1995 UB ₄₇
1995 UC ₅₀	17.6	0.15	19990810	23.99814	168.06109	222.30076	1.06402	0.1888890	2.3003958	17	3	1992–1997	0.42	M-v	4	Spahr	32946	1995 UC ₅₀
1995 VP	12.8	0.15	19990810	154.97243	307.62935	254.56434	6.07067	0.0559990	2.7974049	23	5	1985–1999	0.75	M-v	2	Williams	35427	1995 VP
1995 VT	12.3	0.15	19990810	153.98641	283.22307	231.82659	8.76397	0.0446222	3.0534671	38	3	1995–1999	0.63	M-v	3	Spahr	35427	1995 VT
1995 VS ₈	14.4	0.15	19990810	46.79257	219.78260	58.36165	3.00046	0.0228899	2.9054063	24	3	1995–1998	0.64	M-v	4	Spahr	32946	1995 VS ₈
1995 VG ₁₃	14.6	0.15	19990810	354.30607	209.40678	113.65852	3.51381	0.0328514	2.8318586	29	4	1993–1999	0.68	M-v	1	Williams	35427	1995 VG ₁₃
1995 WX ₂	15.4	0.15	19990810	284.82340	287.53069	228.23113	4.32213	0.0792824	2.2891939	21	2	1995–1998	0.66	M-v	5	Spahr	32671	1995 WX ₂
1995 WV ₃	12.3	0.15	19990810	190.18822	233.89543	286.98780	18.17318	0.2166232	2.9954562	36	3	1995–1999	0.68	M-v	2	Williams	32241	1995 WV ₃
1995 WT ₄	14.7	0.15	19990810	306.07620	119.89130	258.74686	6.54238	0.2347076	2.7563261	42	2	1995–1999	0.63	M-v	3	Spahr	35296	1995 WT ₄
1995 WH ₅	15.4	0.15	19990810	39.45805	150.02820	258.28826	3.99156	0.1065402	2.3133876	41	2	1995–1998	0.74	M-v	5	Spahr	32671	1995 WH ₅
1995 WU ₆	14.4	0.15	19990810	211.58232	280.14462	56.84091	22.32470	0.0986932	1.9309259	25	2	1995–1999	0.76	M-v	4	Spahr	34196	1995 WU ₆
1995 WQ ₇	14.0	0.15	19990810	17.18771	44.51407	1.78411	0.88691	0.1836472	2.3949859	19	4	1980–1998	0.43	M-v	1	Spahr	26411	1995 WQ ₇
1995 WT ₈	15.4	0.15	19990810	165.72629	31.12360	248.28302	4.70746	0.1630755	2.2336743	29	3	1978–1998	0.60	M-v	4	Spahr	34013	1995 WT ₈
1995 WT ₁₅	13.6	0.15	19990810	287.94618	351.29315	27.26269	2.20464	0.0852723	2.8842794	39	4	1995–1999	0.66	M-v	2	Spahr	35428	1995 WT ₁₅
1995 WP ₁₇	15.1	0.15	19990810	5.18029	317.43253	18.06698	3.97750	0.2979627	2.5719820	18	3	1995–1999	0.37	M-v	3	Spahr	33250	1995 WP ₁₇
1995 XH ₁	14.9	0.15	19990810	87.07744	92.11704	275.55519	4.12981	0.1606255	2.2551870	62	4	1988–1998	0.63	M-v	2	Spahr	34583	1995 XH ₁
1995 XJ ₁	11.8	0.15	19990810	284.98775	133.39787	270.45784	8.74530	0.0698659	3.0262496	41	5	1989–1999	0.65	M-v	1	Williams	35428	1995 XJ ₁
1995 XX ₄	15.5	0.15	19990810	160.67673	77.03576	184.08339	4.63874	0.1426479	2.3868176	22	2	1995–1998	0.68	M-v	5	Spahr	32672	1995 XX ₄
1995 YH	12.6	0.15	19990810	338.74675	94.63919	252.58935	8.82764	0.1268598	2.9851552	62	3	1995–1999	0.53	M-v	3	Williams	35428	1995 YH
1995 YQ	12.8	0.15	19990810	18.17288	179.28038	117.81193	11.79686	0.0757575	2.9899095	62	5	1993–1999	0.46	M-v	0	Spahr	35428	1995 YQ
1995 YH ₁	14.3	0.15	19990810	90.05142	100.70386	277.12439	3.49417	0.1312257	2.2833109	78	3	1991–1999	0.69	M-v	3	Spahr	34293	1995 YH ₁
1995 YZ ₁	14.0	0.15	19990810	278.89136	58.48852	11.81461	7.19887	0.1783628	2.8975876	44	4	1992–1999	0.60	M-v	1	Spahr	30784	1995 YZ ₁
1995 YB ₃	13.2	0.15	19990810	256.97877	344.14706	96.87005	2.64232	0.1839863	3.0835383	24	4	1989–1999	0.58	M-v	3	Spahr	35428	1995 YB ₃
1995 YL ₃	15.0	0.15	19990810	39.92221	296.40832	126.00302	5.02993	0.1387954	2.3334160	51	4	1993–1998	0.70	M-v	2	Spahr	34293	1995 YL ₃
1995 YV ₃	14.2	0.15	19990810	328.94143	276.33985	119.25143	29.80038	0.4414009	2.7892731	88	3	1995–1999	0.51	M-v	2	Williams	35428	1995 YV ₃
1995 YT ₂₀	15.4	0.15	19990810	302.36071	252.60259	148.49611	3.39483	0.2434322	2.9875446	18	2	1994–1996	0.50	M-v	4	Spahr	31545	1995 YT ₂₀
1995 YL ₂₃	13.9	0.15	19990810	142.08660	207.03684	61.89086	6.06037	0.1540294	2.4094225	24	4	1971–1998	0.47	M-v	2	Spahr	33075	1995 YL ₂₃
1996 AR	16.1	0.15	19990810	349.49544	21.55874	86.95772	3.93681	0.1836867	2.4191111	61	3	1991–1998	0.41	M-v	2	Spahr	33075	1996 AR
1996 AV ₁	15.2	0.15	19990810	268.23223	78.17189	123.31501	2.08575	0.1317104	2.4278324	31	3	1994–1998	0.61	M-v	3	Spahr	32947	1996 AV ₁
1996 AD ₂	13.5	0.15	19990810	336.16301	277.98193	94.28520	12.00959	0.1331254	2.9852568	81	4	1996–1999	0.60	M-v	2	Spahr	32310	1996 AD ₂
1996 AG ₂	12.3	0.15	19990810	280.09076	104.52862	311.78763	12.89214	0.0919072	3.1598349	30	3	1985–1999	0.71	M-v	3	Spahr	35428	1996 AG ₂
1996 AY ₃	11.8	0.15	19990810	292.98947	258.45168	138.27084	17.66866	0.2693361	3.1760672	71	4	1996–1999	0.57	M-v	2	Spahr	35428	1996 AY ₃
1996 AB ₄	14.9	0.15	19990810	22.09860	250.09406	218.71876	4.24583	0.1037841	2.2977907	47	3	1991–1999	0.61	M-v	3	Spahr	34293	1996 AB ₄
1996 AH ₉	14.9	0.15	19990810	225.69654	317.73794	229.04999	1.67006	0.1047129	2.7644899	22	4	1992–1998	0.41	M-v	1	Spahr	32750	1996 AH ₉
1996 AA ₁₄	15.7	0.15	19990810	98.85573	8.34221	5.62344	6.53859	0.1558307	2.3841129	28	2	1996–1998	0.53	M-v	5	Spahr	33251	1996 AA ₁₄
1996 AL ₁₉	15.6	0.15	19990810	10.10069	259.05902	199.04579	5.89064	0.0781006	2.4102085	23	2	1996–1998	0.69	M-v	5	Spahr	32948	1996 AL ₁₉
1996 BB ₁	14.6	0.15	19990810	10.47928	164.38644	236.48479	3.81017	0.1847934	2.5598401	33	3	1996–1999	0.62	M-v	3	Williams	32519	1996 BB ₁
1996 BC ₁	14.5	0.15	19990810	121.75187	37.22469	317.48924	3.13663	0.1717671	2.2908467	47	2	1996–1998	0.71	M-v	5	Spahr	34583	1996 BC ₁
1996 BR ₁	14.0	0.15	19990810	304.91300	126.25246	104.15569	5.62899	0.1099725	2.2111321	41	5	1991–1999	0.78	M-v	2	Spahr	34293	1996 BR ₁
1996 BT ₁	15.4	0.15	19990810	54.37729	84.11174	9.62120	4.19421	0.1383737	2.2272445	27	3	1993–1998	0.73	M-v	4	Spahr	34293	1996 BT ₁
1996 BH ₂	13.1	0.15	19990810	14.72143	105.80689	320.84058	8.36186	0.0370026	2.5971450	50	2	1996–1998	0.59	M-v	3	Spahr	33554	1996 BH ₂
1996 BM ₅	14.6	0.15	19990810	201.17643	276.83752	357.33224	3.41002	0.0615888	2.3772687	22	3	1994–1998	0.33	M-v	4	Spahr	34513	1996 BM ₅
1996 BM ₆	16.9	0.15	19990810	111.04507	317.54177	28.75813	3.02087	0.2525547	2.3520099	24	2	1996–1998	0.52	M-v	4	Spahr	33554	1996 BM ₆
1996 BS ₉	16.1	0.15	19990810	107.95154	140.39636	177.23800	2.79789	0.2090034	2.5985177	21	2	1996–1998	0.56	M-v	6	Spahr	33252	1996 BS ₉
1996 BM ₁₇	14.6	0.15	19990810	345.34485	50.06920	43.76694	4.92834	0.1307628	2.5207474	41	2	1996–1998	0.65	M-v	4	Spahr	32673	1996 BM ₁₇
1996 CE ₁	14.7	0.15	19990810	45.91475	93.02682	352.51586	5.70134	0.1506866	2.3166439	48	2	1996–1999	0.75	M-v	4	Spahr	33750	1996 CE ₁
1996 CQ ₁	14.8	0.15	19990810	110.16312	40.41035	319.36228	6.21026	0.1318570	2.3649050	37	3	1994–1998	0.78	M-v	4	Spahr	33554	1996 CQ ₁
1996 CL ₂	12.0	0.15	19990810	275.42758	79.19108	10.14856	13.05713	0.1151009	3.0818111	24	4	1991–1999	0.77	M-v	1	Williams	29139	1996 CL ₂
1996 CO ₂	12.9	0.15	19990810	97.43786	164.92670	128.11915	10.84367	0.0661818	2.9981267	34	2	1996–1998	0.65	M-v	4	Spahr	33075	1996 CO ₂
1996 CX ₂	14.9	0.15	19990810	271.28430	11.44206	245.53102	5.80144	0.0984185	2.2244999	35	3	1996–1999	0.50	M-v	3	Spahr	33750	1996 CX ₂

1996 CA ₃	12.7	0.15	19990810	183.86981	136.06769	81.09617	2.19078	0.1189389	3.1580854	29	4	1985–1998	0.83	M-v	1	Spahr	33075	1996 CA ₃
1996 CB ₃	15.2	0.15	19990810	344.60945	272.71969	239.41119	5.72432	0.1345957	2.3096792	23	3	1989–1998	0.64	M-v	4	Spahr	33492	1996 CB ₃
1996 CG ₇	14.9	0.15	19990810	38.99011	261.22517	237.91385	0.35102	0.0844685	2.1525816	39	4	1994–1999	0.87	M-v	2	Spahr	34584	1996 CG ₇
1996 CL ₇	14.7	0.15	19990810	48.73815	117.55980	338.89004	9.35537	0.1490812	2.2628595	51	2	1996–1999	0.70	M-v	3	Spahr	34013	1996 CL ₇
1996 CP ₇	15.2	0.15	19990810	290.60602	106.07997	127.08746	4.39915	0.0925331	2.2828399	16	3	1991–1998	0.62	M-v	5	Spahr	33693	1996 CP ₇
1996 CT ₇	14.5	0.15	19990810	50.01001	192.27916	210.89238	6.13557	0.1315084	2.4251447	87	3	1996–1998	0.82	M-v	3	Spahr	33554	1996 CT ₇
1996 DG	15.5	0.15	19990810	336.59287	115.96945	78.23160	3.27689	0.0639296	2.2674012	28	3	1991–1999	0.65	M-v	5	Spahr	33750	1996 DG
1996 DX	14.3	0.15	19990810	14.02596	8.46887	101.39142	3.06393	0.1676215	2.3807828	50	3	1996–1998	0.64	M-v	4	Spahr	33343	1996 DX
1996 DL ₁	15.4	0.15	19990810	323.84050	168.27009	317.37089	4.63042	0.1547873	2.5316990	68	3	1994–1998	0.60	M-v	3	Spahr	32674	1996 DL ₁
1996 DQ ₁	13.6	0.15	19990810	252.25554	116.06455	359.41727	6.26928	0.1787699	3.0805423	20	3	1991–1999	0.48	M-v	3	Williams	27113	1996 DQ ₁
1996 DU ₁	17.3	0.15	19990810	8.56608	298.10282	189.93966	3.86773	0.1639378	2.3596311	22	3	1994–1998	0.61	M-v	4	Spahr	32949	1996 DU ₁
1996 DT ₃	14.9	0.15	19990810	23.35981	117.62735	316.36916	2.67127	0.0741971	2.4718888	32	3	1994–1998	0.83	M-v	3	Spahr	32949	1996 DT ₃
1996 EB	13.7	0.15	19990810	6.84786	345.89912	73.47787	14.73371	0.1463476	2.6025648	22	3	1996–1998	0.81	M-v	4	Spahr	33554	1996 EB
1996 ED	14.2	0.15	19990810	78.53220	52.98837	19.95069	5.82471	0.1609933	2.2675424	46	4	1976–1999	0.78	M-v	3	Spahr	34584	1996 ED
1996 EB ₁	14.0	0.15	19990810	32.35991	40.11968	2.51702	3.77295	0.1009013	2.7623291	72	2	1996–1998	0.79	M-v	4	Spahr	34013	1996 EB ₁
1996 EK ₁	14.2	0.15	19990810	325.25008	8.14509	207.35242	2.58630	0.1254236	2.2722855	35	4	1982–1999	0.53	M-v	2	Spahr	34013	1996 EK ₁
1996 EL ₁	13.6	0.15	19990810	353.18273	119.96877	340.89992	13.23102	0.1493697	2.5822550	58	2	1996–1998	0.72	M-v	4	Spahr	33554	1996 EL ₁
1996 ES ₁	13.5	0.15	19990810	153.42042	82.34992	175.53738	3.13171	0.1874493	3.1940190	51	3	1992–1998	0.62	M-v	4	Spahr	33075	1996 ES ₁
1996 EB ₂	14.2	0.15	19990810	356.35213	71.66360	354.10926	8.19576	0.1436641	2.8002129	37	3	1977–1998	0.74	M-v	3	Spahr	32950	1996 EB ₂
1996 ED ₂	14.8	0.15	19990810	54.19963	275.54914	175.14239	9.98302	0.1766348	2.3193358	45	2	1996–1999	0.67	M-v	3	Spahr	34293	1996 ED ₂
1996 EK ₂	15.0	0.15	19990810	262.89083	119.74366	193.14319	2.91432	0.1893992	2.1708297	54	4	1980–1999	0.76	M-v	2	Spahr	34293	1996 EK ₂
1996 EQ ₂	12.6	0.15	19990810	320.46502	206.47298	196.24395	17.51193	0.2129342	3.1085231	23	3	1996–1998	0.68	M-v	4	Spahr	32950	1996 EQ ₂
1996 ES ₂	13.8	0.15	19990810	157.20617	11.90144	343.56955	5.69190	0.1951305	2.2709798	31	4	1905–1999	0.60	M-v	2	Spahr	34513	1996 ES ₂
1996 EY ₅	15.3	0.15	19990810	30.75407	40.10893	20.52960	2.22912	0.1570892	2.5786475	38	4	1986–1998	0.83	M-v	3	Spahr	33075	1996 EY ₅
1996 EK ₆	13.9	0.15	19990810	160.80163	122.07310	173.63466	7.41803	0.1069952	2.7033690	29	3	1993–1998	0.80	M-v	4	Spahr	34584	1996 EK ₆
1996 EE ₈	15.2	0.15	19990810	84.48081	333.37599	357.78480	11.18077	0.1048578	2.9793656	16	2	1996–1998	0.50	M-v	5	Spahr	32950	1996 EE ₈
1996 EM ₁₁	17.4	0.15	19990810	347.29752	16.45050	151.39158	5.64778	0.0965076	2.3086326	18	2	1996–1997	0.28	M-v	4	Spahr	32951	1996 EM ₁₁
1996 FP ₁	13.0	0.15	19990810	130.13614	184.75017	1.90220	3.48257	0.1238253	3.9705271	25	3	1993–1997	0.60	M-v	4	Spahr	32751	1996 FP ₁
1996 FK ₂	15.1	0.15	19990810	93.43647	251.62025	196.01600	4.20800	0.1143552	2.2075455	36	4	1991–1999	0.54	M-v	2	Spahr	34197	1996 FK ₂
1996 FY ₂	14.5	0.15	19990810	270.04165	301.45014	302.21750	3.50250	0.1550529	2.4546055	17	3	1982–1998	0.82	M-v	5	Spahr	34197	1996 FY ₂
1996 FT ₆	14.7	0.15	19990810	212.74045	156.98138	171.89332	5.26594	0.2247555	2.2715816	33	5	1990–1999	0.57	M-v	2	Spahr	34293	1996 FT ₆
1996 FT ₁₁	15.7	0.15	19990810	232.69775	240.13874	71.83705	1.89398	0.0606618	2.2852650	26	4	1992–1999	0.66	M-v	2	Spahr	34584	1996 FT ₁₁
1996 FM ₁₆	13.4	0.15	19990810	138.20297	85.11187	211.23916	3.83598	0.0183671	3.0605155	44	3	1996–1998	0.73	M-v	3	Williams	34293	1996 FM ₁₆
1996 GP ₁	13.6	0.15	19990810	2.53229	73.73205	3.19742	22.14241	0.0432112	2.6545931	65	2	1996–1998	0.49	M-v	3	Spahr	33554	1996 GP ₁
1996 GP ₂	14.1	0.15	19990810	352.50100	75.75869	114.55823	4.99884	0.0616597	2.3665703	41	3	1992–1999	0.84	M-v	2	Spahr	34293	1996 GP ₂
1996 GV ₂	13.6	0.15	19990810	186.89677	211.66031	93.86678	14.27012	0.1574718	2.6900462	33	2	1996–1998	0.55	M-v	5	Spahr	33494	1996 GV ₂
1996 GK ₅	15.6	0.15	19990810	65.37167	353.36569	85.84121	3.45903	0.1445051	2.3957724	26	4	1992–1998	0.68	M-v	2	Spahr	33494	1996 GK ₅
1996 GM ₅	15.6	0.15	19990810	22.85150	11.98248	132.62293	3.24383	0.1450319	2.3056273	20	2	1996–1998	0.53	M-v	5	Spahr	33494	1996 GM ₅
1996 GB ₇	15.3	0.15	19990810	84.01790	84.07033	35.10860	4.30841	0.0807870	2.1908952	40	3	1994–1999	0.64	M-v	3	Spahr	34293	1996 GB ₇
1996 GU ₈	13.7	0.15	19990810	160.68941	228.12050	77.62761	3.85271	0.0594997	2.7378480	71	5	1982–1999	0.66	M-v	1	Spahr	34013	1996 GU ₈
1996 GG ₁₇	13.2	0.15	19990810	228.58865	157.25844	124.47983	6.94074	0.1337587	2.5295115	25	3	1992–1999	0.82	M-v	4	Spahr	33694	1996 GG ₁₇
1996 GK ₁₇	13.3	0.15	19990810	84.37135	214.74779	187.03284	4.37763	0.0588639	2.6533525	32	4	1976–1999	0.65	M-v	1	Spahr	33694	1996 GK ₁₇
1996 GN ₁₇	14.9	0.15	19990810	346.11906	333.28528	191.21450	1.80760	0.1515615	2.4482765	29	3	1992–1998	0.91	M-v	3	Spahr	33494	1996 GN ₁₇
1996 GG ₁₈	14.1	0.15	19990810	310.49091	307.21147	213.77137	4.59966	0.0124249	2.7604698	32	2	1996–1998	0.71	M-v	4	Spahr	34293	1996 GG ₁₈
1996 GE ₁₉	10.1	0.15	19990810	43.75685	64.49940	213.22200	30.80375	0.0715264	5.2652706	62	4	1996–1999	0.71	M-v	2	Williams	35428	1996 GE ₁₉
1996 HO	15.1	0.15	19990810	114.31837	298.34970	123.47687	7.88826	0.0941717	2.3764748	89	3	1996–1999	0.69	M-v	2	Spahr	34584	1996 HO
1996 HY	14.2	0.15	19990810	308.11253	122.78953	63.03718	12.44972	0.1296596	2.6398701	49	2	1996–1998	0.73	M-v	4	Spahr	33554	1996 HY
1996 HN ₁	14.3	0.15	19990810	292.12839	98.15824	189.58133	6.16744	0.1298760	2.2778498	30	3	1996–1999	0.61	M-v	3	Spahr	34584	1996 HN ₁
1996 HY ₁	14.1	0.15	19990810	150.59493	356.22470	1.00218	12.18775	0.1745177	2.6118475	34	2	1996–1999	0.65	M-v	4	Spahr	34584	1996 HY ₁
1996 HM ₂	14.0	0.15	19990810	314.29036	100.00206	48.90695	2.68482	0.1415466	2.6788230	27	2	1996–1998	0.64	M-v	4	Spahr	34014	1996 HM ₂
1996 HH ₁₀	15.7	0.15	19990810	301.57153	100.93311	198.82615	3.27056	0.1129917	2.1676990	36	3	1996–1999	0.73	M-v	3	Spahr	34584	1996 HH ₁₀
1996 HR ₁₀	13.5	0.15	19990810	57.46043	343.35919	38.84412	0.44948	0.2173080	3.1468215	49	4	1976–1999	0.70	M-v	2	Spahr	34294	1996 HR ₁₀
1996 HC ₁₂	14.7	0.15	19990810	322.80350	274.43326	220.69118	1.09788	0.0131007	2.8935346	34	3	1971–1998	1.02	M-v	4	Spahr	33343	1996 HC ₁₂

1996 HY ₁₂	15.3	0.15	19990810	317.86292	100.92047	197.30389	1.63136	0.1254348	2.1200216	58	3	1996–1999	0.78	M-v	3	Williams	34584	1996 HY ₁₂
1996 HC ₁₆	14.9	0.15	19990810	60.63420	74.59160	43.96609	6.12360	0.1091528	2.3370787	30	3	1992–1999	0.80	M-v	4	Spahr	34197	1996 HC ₁₆
1996 HU ₁₈	13.8	0.15	19990810	215.20628	53.91476	168.40754	1.22912	0.1203220	3.1086213	39	5	1976–1998	0.79	M-v	2	Spahr	33076	1996 HU ₁₈
1996 HN ₁₉	14.1	0.15	19990810	197.69675	153.17938	209.29689	6.39623	0.1377942	2.3590086	44	4	1986–1999	0.83	M-v	2	Spahr	34514	1996 HN ₁₉
1996 HV ₂₁	15.2	0.15	19990810	353.47115	187.97526	37.99263	4.48030	0.0990530	2.1905843	44	4	1981–1999	0.83	M-v	2	Spahr	34294	1996 HV ₂₁
1996 HD ₂₂	14.2	0.15	19990810	316.70823	107.65003	40.96584	13.43108	0.1095517	2.6180376	49	3	1992–1999	0.77	M-v	3	Spahr	33751	1996 HD ₂₂
1996 HM ₂₂	15.3	0.15	19990810	302.27930	228.79025	41.41720	2.75559	0.1657855	2.2775453	45	3	1996–1999	0.76	M-v	4	Spahr	34294	1996 HM ₂₂
1996 HS ₂₂	16.3	0.15	19990810	37.48093	85.67954	70.16570	1.46554	0.1138052	2.2876882	41	3	1994–1999	0.68	M-v	4	Williams	35297	1996 HS ₂₂
1996 HO ₂₃	14.6	0.15	19990810	55.79202	295.37076	202.12838	5.01470	0.0595261	2.3132283	48	2	1996–1999	0.67	M-v	4	Spahr	33946	1996 HO ₂₃
1996 HJ ₂₄	14.7	0.15	19990810	282.43169	78.01910	194.75400	4.01934	0.0501928	2.3581771	42	3	1996–1999	0.80	M-v	4	Spahr	34197	1996 HJ ₂₄
1996 HM ₂₅	14.9	0.15	19990810	271.31499	224.56935	62.05723	9.37867	0.1157908	2.3803197	31	3	1996–1999	0.96	M-v	3	Spahr	33946	1996 HM ₂₅
1996 HG ₂₆	15.0	0.15	19990810	76.35186	276.18235	203.18472	6.99475	0.0922572	2.2965896	30	2	1996–1999	0.85	M-v	4	Spahr	33946	1996 HG ₂₆
1996 JE	14.7	0.15	19990810	292.62312	125.13021	61.53261	15.63180	0.0632354	2.6731914	29	2	1996–1998	0.62	M-v	4	Spahr	34014	1996 JE
1996 JZ	14.5	0.15	19990810	301.84086	97.87114	164.51502	11.36111	0.1322047	2.4023994	42	4	1977–1999	0.69	M-v	2	Spahr	34584	1996 JZ
1996 JF ₁	14.5	0.15	19990810	343.24792	297.09095	212.95518	3.55296	0.1499920	2.5384481	38	2	1996–1999	0.73	M-v	4	Spahr	34294	1996 JF ₁
1996 JC ₅	14.7	0.15	19990810	34.71396	27.54453	115.63213	7.37592	0.0823143	2.3931741	44	2	1996–1999	0.49	M-v	4	Spahr	34584	1996 JC ₅
1996 JC ₆	14.8	0.15	19990810	336.90035	31.28351	149.29960	2.99477	0.1301683	2.4565849	32	4	1993–1998	0.49	M-v	2	Spahr	33496	1996 JC ₆
1996 JT ₇	14.3	0.15	19990810	75.84918	305.86595	76.83954	7.87440	0.1534766	3.0505366	37	3	1982–1999	0.78	M-v	3	Spahr	33751	1996 JT ₇
1996 KN	13.5	0.15	19990810	57.73137	4.86720	38.72082	1.89606	0.1693209	3.1464247	54	3	1995–1998	0.72	M-v	3	Spahr	34584	1996 KN
1996 KO	14.5	0.15	19990810	234.06212	276.88173	21.40519	0.97164	0.0650647	2.5680176	56	3	1996–1999	0.70	M-v	3	Spahr	34584	1996 KO
1996 KT ₈	14.9	0.15	19990810	315.58774	34.84899	222.50273	5.70092	0.1457889	2.2894894	57	5	1979–1999	0.69	M-v	1	Spahr	34198	1996 KT ₈
1996 LK ₁	14.8	0.15	19990810	284.33271	244.59814	75.80176	8.14534	0.1429786	2.2792026	39	3	1993–1999	0.63	M-v	4	Williams	35428	1996 LK ₁
1996 LV ₁	13.9	0.15	19990810	317.31828	311.09226	250.77010	12.59851	0.1096961	2.5566677	30	2	1996–1999	0.54	M-v	3	Spahr	34294	1996 LV ₁
1996 LS ₂	12.9	0.15	19990810	163.36177	203.50011	104.00082	9.85235	0.1955431	3.0759779	19	2	1996–1998	0.54	M-v	5	Spahr	33496	1996 LS ₂
1996 NA	15.2	0.15	19990810	60.35060	158.47952	103.90357	24.25731	0.0641770	1.9304969	36	3	1996–1999	0.36	M-v	2	Spahr	31278	1996 NA
1996 NP ₄	15.2	0.15	19990810	300.34919	302.05616	315.68775	7.97148	0.1872543	2.6197048	24	2	1996–1999	0.79	M-v	4	Spahr	34294	1996 NP ₄
1996 OL	15.1	0.15	19990810	321.15001	230.28018	96.89526	4.53333	0.1644880	2.2541307	65	3	1996–1999	0.58	M-v	3	Williams	35428	1996 OL
1996 PH	16.0	0.15	19990810	309.25351	302.07145	308.41533	2.62291	0.1895806	2.5663589	36	3	1995–1999	0.34	M-v	3	Spahr	33696	1996 PH
1996 PC ₁	21.0	0.15	19990810	52.29845	45.61160	326.44200	25.13890	0.4517423	1.8401019	136	1	61 days	0.62	M-v	4	Williams	28618	1996 PC ₁
1996 PT ₁	14.7	0.15	19990810	213.62123	172.39417	125.01284	5.92946	0.1524282	3.1652275	24	2	1996–1998	0.44	M-v	4	Spahr	33496	1996 PT ₁
1996 PA ₇	13.8	0.15	19990810	279.52904	303.50257	85.94912	25.40321	0.3522552	2.3240617	71	3	1996–1999	0.68	M-v	2	Spahr	35428	1996 PA ₇
1996 PS ₈	14.6	0.15	19990810	38.44521	211.90901	325.87371	3.25414	0.1062592	2.5759747	49	3	1996–1999	0.75	M-v	4	Spahr	34584	1996 PS ₈
1996 RC ₁	15.8	0.15	19990810	346.01500	173.59615	138.13305	2.46075	0.1264910	2.2248136	45	4	1995–1999	0.45	M-v	1	Williams	35428	1996 RC ₁
1996 RJ ₂	15.2	0.15	19990810	217.40794	264.29680	182.60787	6.20910	0.0751905	2.2987002	35	3	1996–1999	0.68	M-v	3	Williams	35428	1996 RJ ₂
1996 RL ₅	15.1	0.15	19990810	278.81049	42.04621	342.56419	7.13054	0.1795243	2.2584233	34	3	1971–1998	0.80	M-v	4	Spahr	34585	1996 RL ₅
1996 RO ₆	15.1	0.15	19990810	203.82990	22.50786	332.37439	1.12240	0.0745516	2.9708522	20	2	1996–1999	0.27	M-v	5	Spahr	34199	1996 RO ₆
1996 RC ₂₄	12.7	0.15	19990810	302.69418	66.13252	164.68209	7.57763	0.1097042	3.1360499	35	2	1996–1999	0.80	M-v	4	Spahr	33948	1996 RC ₂₄
1996 RV ₂₈			19960914	332.55489	148.19669	241.92394	4.78358	0.1139802	5.3411530	10	1	25 days	1.60			Williams		1996 RV ₂₈
1996 RF ₂₉	12.2	0.15	19960914	97.16705	75.89247	174.07124	11.00798	0.0933140	5.3462882	9	1	31 days	0.68			Williams		1996 RF ₂₉
1996 RN ₃₁	12.7	0.15	19960914	321.24052	228.68896	173.60661	7.85452	0.0998830	5.3982686	8	1	27 days	0.83			Williams		1996 RN ₃₁
1996 RR ₃₁			19960914	319.27804	253.40490	155.30300	2.20413	0.1283447	5.3633648	4	1	26 days	0.12			Williams		1996 RR ₃₁
1996 RU ₃₁			19960914	357.80849	203.45444	164.24413	6.10594	0.1471557	5.3280593	5	1	28 days	0.16			Williams		1996 RU ₃₁
1996 RA ₃₃	11.1	0.15	19990810	265.61368	143.72714	29.55435	9.35053	0.0126129	5.2044701	19	3	1996–1998	0.83	M-v	4	Williams	34516	1996 RA ₃₃
1996 RF ₃₃			19960914	172.32691	66.91124	113.14248	6.73276	0.0200587	5.0699051	5	1	22 days	0.28			Williams		1996 RF ₃₃
1996 SQ	14.2	0.15	19990810	192.18744	13.56107	350.72923	10.12606	0.0331018	3.0007825	30	2	1996–1999	0.58	M-v	5	Spahr	34516	1996 SQ
1996 ST ₁	12.7	0.15	19960914	33.89009	125.72125	204.16131	6.44151	0.0267039	5.1871894	10	1	32 days	0.48			Williams		1996 ST ₁
1996 SB ₂	14.5	0.15	19990810	205.11814	203.35085	191.03036	10.96732	0.0213058	2.7072883	32	2	1996–1999	0.71	M-v	4	Spahr	34864	1996 SB ₂
1996 SJ ₃	14.1	0.15	19990810	259.79259	359.75249	266.40543	0.98554	0.1907690	3.0881863	18	2	1996–1998	0.37	M-v	5	Spahr	33949	1996 SJ ₃
1996 SC ₆	13.6	0.15	19990810	288.08223	114.27147	185.41735	5.86045	0.0366030	2.7959254	64	3	1994–1999	0.60	M-v	3	Williams	35429	1996 SC ₆
1996 TW	10.9	0.15	19990810	128.60871	314.36182	8.02588	17.97984	0.0894548	5.1888757	42	4	1992–1999	0.54	M-v	1	Williams	33752	1996 TW
1996 TH ₅	16.2	0.15	19990810	226.74981	52.49288	16.97780	2.64075	0.1823811	2.4037218	40	2	1996–1998	0.59	M-v	4	Spahr	31588	1996 TH ₅
1996 TL ₅	15.7	0.15	19990810	177.91515	24.02582	124.56234	5.81458	0.1316376	2.3096544	34	2	1996–1998	0.65	M-v	4	Spahr	33343	1996 TL ₅
1996 TS ₅	13.6	0.15	19990810	182.67635	216.38624	297.63003	23.62121	0.1891703	2.2744372	28	3	1991–1999	0.52	M-v	2	Williams	35429	1996 TS ₅

1996 TJ ₇	15.4	0.15	19990810	213.15637	208.72796	197.72104	4.47397	0.1613998	2.7424277	29	3	1994–1998	0.40	M-v	3	Spahr	31389	1996 TJ ₇
1996 TX ₇	15.4	0.15	19990810	32.29299	128.41029	147.84293	4.15744	0.1401684	2.2452429	32	3	1996–1999	0.70	M-v	4	Spahr	35429	1996 TX ₇
1996 TA ₈	15.9	0.15	19990810	283.52786	163.12915	232.29610	0.22371	0.1336785	2.2762404	21	2	1996–1998	0.76	M-v	5	Spahr	33496	1996 TA ₈
1996 TC ₈	15.2	0.15	19990810	65.43994	32.96340	205.12112	2.08444	0.1414368	2.2794155	28	3	1993–1999	0.36	M-v	4	Williams	35429	1996 TC ₈
1996 TM ₉	15.8	0.15	19990810	340.60014	355.66690	0.48768	0.88212	0.0274025	2.1909684	72	3	1996–1999	0.53	M-v	3	Williams	32054	1996 TM ₉
1996 TC ₁₀	14.6	0.15	19990810	211.61865	109.72705	22.27077	7.10292	0.0978135	2.2207975	41	4	1988–1999	0.69	M-v	2	Spahr	32310	1996 TC ₁₀
1996 TU ₁₁	15.1	0.15	19990810	276.75746	342.38280	70.98166	7.97464	0.0972550	2.2718962	50	3	1996–1999	0.56	M-v	3	Spahr	35429	1996 TU ₁₁
1996 TD ₁₃	15.0	0.15	19990810	214.06168	74.14070	15.55862	2.64225	0.2483407	2.4788504	20	2	1996–1998	0.63	M-v	5	Spahr	32954	1996 TD ₁₃
1996 TG ₁₃	15.0	0.15	19990810	200.67773	121.64503	342.27163	2.15159	0.1556517	2.4620208	44	4	1994–1999	0.80	M-v	1	Williams	35429	1996 TG ₁₃
1996 TD ₁₅	13.3	0.15	19990810	252.23522	258.86482	200.81872	21.87469	0.2069687	2.3025246	29	4	1989–1999	0.61	M-v	2	Williams	32310	1996 TD ₁₅
1996 TO ₂₄	16.2	0.15	19990810	352.51396	46.34482	212.75262	13.59917	0.1305755	2.6169376	20	2	1996–1999	0.31	M-v	4	Spahr	34517	1996 TO ₂₄
1996 TN ₃₅	15.8	0.15	19990810	154.90000	55.29208	98.48392	4.20694	0.0569284	2.3514048	35	2	1996–1998	0.69	M-v	4	Spahr	31731	1996 TN ₃₅
1996 TP ₃₅	16.0	0.15	19990810	102.22674	72.75602	153.36365	5.61539	0.0718850	2.2081916	25	2	1996–1998	0.51	M-v	4	Spahr	32954	1996 TP ₃₅
1996 TT ₃₈	13.4	0.15	19990810	302.41158	127.14835	98.22754	2.35818	0.1501308	3.2004314	37	5	1982–1999	0.88	M-v	1	Spahr	34015	1996 TT ₃₈
1996 TN ₃₉	11.4	0.15	19961004	82.84040	183.13870	80.11009	4.63974	0.1205754	5.1661914	10	1	3 days	0.79			E Williams		1996 TN ₃₉
1996 TR ₄₀	15.9	0.15	19961004	9.71072	210.32809	139.15553	3.87663	0.2376776	2.3803306	10	1	5 days	0.47			Williams		1996 TR ₄₀
1996 TV ₄₁	10.9	0.15	19961004	45.49084	125.01935	174.53154	23.36381	0.1913866	5.2145509	10	1	5 days	0.39			E Williams		1996 TV ₄₁
1996 TN ₄₉	12.0	0.15	19990810	14.28055	242.81908	206.85811	10.74563	0.0985351	5.1581853	56	3	1996–1998	0.75	M-v	3	Williams	33555	1996 TN ₄₉
1996 TC ₅₁	11.3	0.15	19960914	349.17921	179.60084	184.02331	7.05842	0.0977139	5.2438321	25	1	39 days	0.61			Williams		1996 TC ₅₁
1996 TH ₅₂	11.6	0.15	19990810	28.51279	52.91894	4.35705	9.12021	0.0558874	5.1713117	37	4	1973–1998	0.72	M-v	2	Spahr	33555	1996 TH ₅₂
1996 TD ₅₇	10.5	0.15	19960914	274.95942	160.63484	285.01594	8.66344	0.0407162	5.2760099	8	1	20 days	0.60			Williams		1996 TD ₅₇
1996 TA ₅₈	11.4	0.15	19960914	359.93224	29.72871	326.36690	10.30324	0.1304137	5.3198990	8	1	20 days	0.58			Williams		1996 TA ₅₈
1996 TC ₆₀	15.7	0.15	19961004	13.20149	35.52562	306.33249	3.59849	0.2605490	2.6511016	10	1	15 days	0.79			Williams		1996 TC ₆₀
1996 TX ₆₂	16.1	0.15	19990810	197.83294	88.46865	21.65977	4.89923	0.0612726	2.2706183	19	2	1996–1998	0.86	M-v	5	Spahr	34200	1996 TX ₆₂
1996 TO ₆₃	16.1	0.15	19961004	29.99285	222.95721	92.67808	1.40031	0.2400977	2.2885365	8	1	3 days	0.48			Williams		1996 TO ₆₃
1996 UF	14.6	0.15	19990810	348.76696	201.58703	149.72750	1.59345	0.1555639	2.1748260	49	4	1988–1999	0.62	M-v	2	Spahr	35429	1996 UF
1996 UO ₂	16.2	0.15	19990810	155.39676	217.91780	222.27012	4.70827	0.0431983	3.0114558	15	2	1996–1998	0.40	M-v	4	Spahr	33255	1996 UO ₂
1996 VM	13.7	0.15	19990810	48.83898	168.08109	72.21881	14.83220	0.1135490	2.5581535	26	3	1992–1998	0.81	M-v	4	Spahr	31421	1996 VM
1996 VS	13.8	0.15	19990810	297.98351	58.59340	193.90755	9.53224	0.0759246	3.2102479	51	4	1994–1999	0.73	M-v	1	Spahr	34295	1996 VS
1996 VW	14.9	0.15	19990810	277.73958	199.86326	220.70745	3.48077	0.1216787	2.2458253	36	3	1996–1999	0.59	M-v	3	Spahr	32311	1996 VW
1996 VJ ₂	15.1	0.15	19990810	23.87065	83.96861	202.38414	4.88966	0.1508286	2.2448146	80	3	1996–1999	0.49	M-v	2	Marsden	35429	1996 VJ ₂
1996 VW ₂	14.5	0.15	19990810	268.01686	56.85134	19.86271	4.77395	0.0980199	2.2680509	41	5	1981–1999	0.58	M-v	2	Spahr	32055	1996 VW ₂
1996 VB ₅	13.7	0.15	19990810	353.79109	287.64899	51.35804	6.42412	0.0464594	2.2285103	85	4	1986–1999	0.55	M-v	2	Williams	35430	1996 VB ₅
1996 VR ₅	14.6	0.15	19990810	239.08173	282.83718	176.40446	2.02732	0.1813063	2.4050507	20	3	1996–1999	0.67	M-v	4	Spahr	35300	1996 VR ₅
1996 VR ₇	14.5	0.15	19990810	263.49181	345.89654	71.21904	5.09185	0.1084697	2.4327178	36	4	1992–1999	0.71	M-v	2	Spahr	31792	1996 VR ₇
1996 VZ ₈	15.1	0.15	19990810	320.69474	223.65232	144.17495	1.97975	0.1612471	2.2661053	51	4	1994–1999	0.79	M-v	2	Spahr	35430	1996 VZ ₈
1996 VK ₁₇	15.7	0.15	19990810	51.70265	125.78660	66.35666	2.41660	0.1261343	3.0359647	23	2	1996–1999	0.46	M-v	5	Williams	35430	1996 VK ₁₇
1996 VL ₁₈	14.3	0.15	19990810	337.79748	83.38638	172.31789	9.69079	0.0935346	3.0870366	33	2	1996–1999	0.62	M-v	4	Spahr	34869	1996 VL ₁₈
1996 WG	15.1	0.15	19990810	207.39985	239.79073	231.97653	5.38154	0.0309934	2.4170186	30	2	1996–1998	0.66	M-v	4	Spahr	31733	1996 WG
1996 WX	16.1	0.15	19990810	259.93274	46.90447	46.39517	6.88633	0.1113054	2.2421244	31	3	1996–1999	0.40	M-v	3	Spahr	32056	1996 WX
1996 XV	14.6	0.15	19990810	118.25469	86.89254	49.18803	1.41634	0.0955122	3.0950697	30	3	1971–1998	0.78	M-v	5	Spahr	34586	1996 XV
1996 XJ ₁	14.2	0.15	19990810	358.17977	249.94254	79.10697	3.61713	0.1898090	2.4497332	29	3	1996–1999	0.63	M-v	4	Spahr	31793	1996 XJ ₁
1996 XS ₁	13.6	0.15	19990810	306.07292	62.40250	289.65748	4.35782	0.1316066	2.7006050	42	5	1989–1999	0.70	M-v	1	Williams	35430	1996 XS ₁
1996 XB ₂	13.5	0.15	19990810	285.26481	158.29149	264.15813	24.36116	0.2385758	2.3492200	42	3	1985–1999	0.56	M-v	2	Williams	35430	1996 XB ₂
1996 XX ₂	14.0	0.15	19990810	262.56273	27.72887	23.03918	2.34561	0.1423442	2.5283513	57	3	1996–1999	0.67	M-v	4	Spahr	35430	1996 XX ₂
1996 XG ₅	15.0	0.15	19990810	262.07787	24.30787	61.52924	3.19210	0.1066467	2.3578352	29	3	1996–1999	0.75	M-v	4	Spahr	31978	1996 XG ₅
1996 XT ₅	13.2	0.15	19990810	175.40097	179.49359	290.12149	8.77396	0.0644482	2.9738363	28	5	1992–1998	0.53	M-v	1	Spahr	31590	1996 XT ₅
1996 XT ₁₆	16.0	0.15	19990810	228.84660	220.63201	251.40538	1.53184	0.1590581	2.3748306	19	4	1989–1999	0.44	M-v	2	Williams	32056	1996 XT ₁₆
1996 XY ₁₈	14.3	0.15	19990810	246.18277	210.11900	231.37219	2.89422	0.1670330	2.4451707	44	3	1996–1999	0.67	M-v	3	Williams	35430	1996 XY ₁₈
1996 XD ₂₀	15.2	0.15	19990810	282.08227	300.28960	101.21327	6.56166	0.1128144	2.4259756	50	3	1996–1999	0.55	M-v	3	Marsden	35430	1996 XD ₂₀
1996 XX ₂₂	15.7	0.15	19990810	95.41310	70.40969	157.38030	6.82336	0.0714513	2.4158953	25	2	1996–1998	0.63	M-v	4	Spahr	32955	1996 XX ₂₂
1996 XB ₂₅	14.9	0.15	19990810	282.02380	314.40049	80.18884	5.30685	0.2117326	2.5710868	18	2	1996–1998	0.31	M-v	5	Spahr	31735	1996 XB ₂₅
1996 XU ₂₆	14.7	0.15	19990810	277.57934	75.71055	334.03383	7.23051	0.0880297	2.2301197	47	3	1996–1999	0.60	M-v	3	Williams	35430	1996 XU ₂₆

1996 XU ₃₀	14.5	0.15	19990810	273.00974	188.82486	242.92707	9.27414	0.0977401	2.3405145	30	4	1978–1999	0.67	M-v	2	Williams	32056	1996 XU ₃₀
1996 XX ₃₁	13.1	0.15	19990810	68.67762	296.41727	349.67685	12.33570	0.1439769	2.3783665	21	3	1995–1998	0.49	M-v	5	Spahr	31736	1996 XX ₃₁
1996 XJ ₃₂	13.8	0.15	19990810	176.86708	347.27608	77.34369	1.44942	0.1526221	3.1715558	19	2	1996–1998	0.79	M-v	7	Spahr	34586	1996 XJ ₃₂
1996 XL ₃₂	13.7	0.15	19990810	359.25076	160.14941	118.34569	6.21556	0.1449507	3.1110148	39	3	1996–1999	0.73	M-v	3	Williams	35430	1996 XL ₃₂
1996 YR	15.7	0.15	19990810	333.18977	298.07596	100.29176	7.05136	0.1678153	2.2382450	22	4	1989–1999	0.59	M-v	2	Williams	29141	1996 YR
1996 YH ₁	14.9	0.15	19990810	58.94685	151.01844	127.68985	7.27357	0.1135430	2.5291476	63	4	1991–1999	0.48	M-v	1	Williams	32312	1996 YH ₁
1996 YN ₂	15.4	0.15	19990810	310.70192	152.47012	250.43924	2.50960	0.1745873	2.3030675	14	3	1989–1998	0.41	M-v	4	Williams	29119	1996 YN ₂
1996 YT ₂	15.2	0.15	19990810	273.97776	202.78626	183.04619	2.48833	0.2016234	2.5223257	26	2	1996–1998	0.54	M-v	4	Spahr	31794	1996 YT ₂
1997 AE	13.4	0.15	19990810	7.00886	356.60254	311.79991	7.46062	0.1233019	2.7186416	53	3	1997–1999	0.51	M-v	3	Spahr	35431	1997 AE
1997 AG ₁	12.9	0.15	19990810	24.40463	319.59479	312.41235	8.01581	0.0167702	3.0532130	41	3	1997–1999	0.56	M-v	3	Spahr	35301	1997 AG ₁
1997 AR ₁	14.4	0.15	19990810	130.15045	175.59501	78.60747	3.35893	0.1699661	2.4091317	29	3	1991–1998	0.60	M-v	3	Spahr	32751	1997 AR ₁
1997 AA ₂	13.4	0.15	19990810	177.38639	133.13238	28.77689	2.82873	0.1426667	2.6820946	19	4	1984–1999	0.69	M-v	2	Spahr	29141	1997 AA ₂
1997 AF ₄	13.7	0.15	19990810	188.79469	12.14481	131.16804	8.86286	0.1588278	2.7727265	34	4	1991–1999	0.55	M-v	1	Williams	32519	1997 AF ₄
1997 AO ₄	13.6	0.15	19990810	20.79666	186.61495	125.14926	5.89174	0.1036001	2.7424720	54	5	1991–1999	0.60	M-v	1	Spahr	35431	1997 AO ₄
1997 AC ₆	14.2	0.15	19990810	292.34318	289.04795	68.45921	3.12857	0.0761277	2.8593830	22	2	1997–1998	0.68	M-v	5	Spahr	32955	1997 AC ₆
1997 AL ₆	14.8	0.15	19990810	254.38044	138.84614	286.75024	21.32754	0.0447624	2.6227602	29	2	1997–1999	0.44	M-v	3	Marsden	35302	1997 AL ₆
1997 AT ₆	15.9	0.15	19990810	318.03227	125.82886	225.99059	6.32438	0.3500615	2.1823203	60	3	1997–1999	0.54	M-v	3	Williams	35302	1997 AT ₆
1997 AD ₈	15.4	0.15	19990810	331.20119	103.49109	258.47087	2.09263	0.1091813	2.6382472	32	3	1996–1999	0.64	M-v	4	Williams	31984	1997 AD ₈
1997 AP ₁₂	14.1	0.15	19990810	174.02200	211.68723	292.23167	11.64837	0.0718859	2.7689151	25	4	1994–1999	0.63	M-v	1	Spahr	35431	1997 AP ₁₂
1997 AN ₁₄	13.5	0.15	19990810	213.79968	195.84706	256.28464	6.78098	0.0420068	2.9975732	32	3	1997–1999	0.64	M-v	4	Williams	35431	1997 AN ₁₄
1997 AP ₁₅	15.1	0.15	19990810	158.40963	271.54193	318.42928	7.24422	0.1746638	2.3838059	25	4	1979–1998	0.48	M-v	1	Spahr	34015	1997 AP ₁₅
1997 AQ ₁₅	15.7	0.15	19990810	18.11696	287.01621	67.27741	3.99143	0.2108370	2.2363185	29	2	1997–1998	0.64	M-v	5	Spahr	32955	1997 AQ ₁₅
1997 AN ₁₆	14.2	0.15	19990810	25.66104	262.94370	4.38982	11.10598	0.2001782	3.1577353	32	2	1997–1998	0.63	M-v	4	Spahr	34201	1997 AN ₁₆
1997 AN ₁₇	13.4	0.15	19990810	319.81602	88.05091	285.74729	22.25192	0.2883116	2.3378406	96	3	1985–1999	0.36	M-v	1	Spahr	35431	1997 AN ₁₇
1997 AU ₁₇	15.6	0.15	19990810	39.38261	211.27428	109.72504	5.00383	0.1407990	2.3525811	23	3	1995–1998	0.75	M-v	5	Spahr	33497	1997 AU ₁₇
1997 AA ₁₈	12.5	0.15	19990810	244.38512	305.59609	109.60442	11.11714	0.0855531	3.0368406	42	3	1997–1999	0.66	M-v	4	Spahr	35431	1997 AA ₁₈
1997 AW ₁₈	14.7	0.15	19990810	230.42659	198.55989	325.03428	5.69585	0.0878748	2.2853498	34	3	1995–1998	0.70	M-v	3	Spahr	32250	1997 AW ₁₈
1997 AM ₂₁	13.6	0.15	19990810	221.03137	344.91220	114.30308	10.18406	0.1105507	2.7665892	44	3	1997–1999	0.46	M-v	3	Spahr	35431	1997 AM ₂₁
1997 AN ₂₁	14.1	0.15	19990810	267.19596	117.93411	311.84017	13.16517	0.1319244	2.5681424	45	4	1993–1999	0.62	M-v	1	Spahr	35431	1997 AN ₂₁
1997 AZ ₂₁	13.6	0.15	19990810	52.66374	242.80671	19.07106	1.04427	0.1293921	3.1143234	66	3	1997–1999	0.64	M-v	3	Williams	35431	1997 AZ ₂₁
1997 AK ₂₂	14.8	0.15	19990810	110.61743	109.87690	119.66230	13.59637	0.1752657	2.7434223	30	2	1997–1998	0.58	M-v	4	Spahr	32676	1997 AK ₂₂
1997 BX	14.6	0.15	19990810	295.12134	303.73088	115.53537	3.47609	0.1549521	2.3931415	24	3	1992–1999	0.63	M-v	3	Spahr	29127	1997 BX
1997 BR ₁	12.8	0.15	19990810	140.94542	56.05812	127.39583	10.86165	0.2618447	3.0916549	28	6	1970–1999	0.60	M-v	1	Spahr	32313	1997 BR ₁
1997 BY ₁	13.4	0.15	19990810	335.35342	238.06508	131.73539	12.97883	0.1869787	2.5509716	37	4	1993–1999	0.77	M-v	2	Spahr	35431	1997 BY ₁
1997 BZ ₁	14.7	0.15	19990810	349.70675	291.76154	65.87339	1.63455	0.0734678	2.5762847	41	5	1989–1999	0.70	M-v	1	Williams	32057	1997 BZ ₁
1997 BA ₃	15.1	0.15	19990810	285.55032	104.36550	336.30647	1.62912	0.1837640	2.4032026	30	3	1973–1999	0.82	M-v	3	Williams	29637	1997 BA ₃
1997 BT ₃	13.2	0.15	19990810	215.73130	15.50304	110.50802	3.10535	0.0256320	2.8501634	38	6	1985–1999	0.63	M-v	1	Spahr	32751	1997 BT ₃
1997 BH ₈	13.3	0.15	19990810	327.20556	31.25817	317.19499	10.53877	0.1987309	2.6539999	38	4	1965–1999	0.62	M-v	1	Spahr	35431	1997 BH ₈
1997 BR ₈	14.2	0.15	19990810	22.80237	178.03937	123.62016	15.07686	0.1487770	2.5854572	20	3	1997–1999	0.68	M-v	4	Williams	35431	1997 BR ₈
1997 CS	12.4	0.15	19990810	109.07800	235.96381	349.04377	10.06551	0.0898111	3.0033426	16	3	1992–1999	0.44	M-v	3	Spahr	29639	1997 CS
1997 CG ₁	14.1	0.15	19990810	303.53004	311.61985	95.83674	6.16811	0.1432238	2.5872200	21	3	1997–1999	0.60	M-v	4	Spahr	32313	1997 CG ₁
1997 CZ ₅	13.6	0.15	19990810	264.93940	169.00066	288.15375	24.94015	0.3989635	2.2916885	262	2	1997–1999	0.45	M-v	2	Spahr	35303	1997 CZ ₅
1997 CZ ₆	15.2	0.15	19990810	18.14716	164.58613	180.18382	2.40277	0.2121362	2.4370534	39	5	1976–1998	0.77	M-v	1	Spahr	32956	1997 CZ ₆
1997 CH ₉	14.2	0.15	19990810	297.14478	48.67262	339.44162	5.34927	0.1729080	2.7847777	32	4	1981–1999	0.50	M-v	2	Spahr	35431	1997 CH ₉
1997 CK ₁₃	12.6	0.15	19990810	118.08639	121.17463	101.14646	2.89199	0.1184928	3.1059378	50	4	1986–1999	0.59	M-v	1	Spahr	32313	1997 CK ₁₃
1997 CT ₁₆	15.4	0.15	19990810	183.75275	135.31748	128.85372	4.59762	0.1678700	2.1859258	35	4	1991–1998	0.80	M-v	2	Spahr	33076	1997 CT ₁₆
1997 CR ₁₉	13.3	0.15	19990810	213.47817	120.76056	19.88549	7.14271	0.0665802	2.7254381	20	4	1970–1999	0.69	M-v	2	Williams	30461	1997 CR ₁₉
1997 CF ₂₂	13.9	0.15	19990810	15.61819	173.66381	158.95265	5.70179	0.0304885	2.7912103	68	3	1997–1999	0.56	M-v	3	Williams	32313	1997 CF ₂₂
1997 CK ₂₂	14.2	0.15	19990810	221.68557	335.44506	148.44540	13.68088	0.1141672	2.6941027	51	3	1997–1999	0.44	M-v	3	Spahr	32313	1997 CK ₂₂
1997 CP ₂₈	12.7	0.15	19990810	230.62675	113.56085	320.81463	10.10776	0.1001475	2.9838499	24	3	1992–1999	0.73	M-v	4	Williams	35431	1997 CP ₂₈
1997 CC ₂₉	13.8	0.15	19990810	159.94506	87.26687	63.92472	0.10064	0.1018496	3.1572370	43	5	1992–1999	0.68	M-v	1	Spahr	35431	1997 CC ₂₉
1997 DT	15.1	0.15	19990810	206.00472	86.22153	130.38792	3.68264	0.0720642	2.2842578	26	3	1991–1998	0.76	M-v	4	Spahr	32752	1997 DT
1997 EL	12.4	0.15	19990810	330.34771	215.54006	148.49644	10.95877	0.1209728	3.0019576	65	3	1997–1999	0.57	M-v	3	Williams	35431	1997 EL

1997 ER ₂	13.3	0.15	19990810	350.60589	5.35677	55.96800	4.54987	0.0563731	2.3346808	21	3	1988–1998	0.68	M-v	3	Spahr	29643	1997 ER ₂
1997 EL ₆	13.1	0.15	19990810	281.93027	26.70004	10.33691	4.00565	0.0612259	3.2185288	51	3	1997–1999	0.58	M-v	4	Spahr	35431	1997 EL ₆
1997 EN ₇	14.6	0.15	19990810	16.24175	159.55629	182.62842	2.54387	0.1920968	2.2892950	57	4	1985–1999	0.69	M-v	2	Marsden	35431	1997 EN ₇
1997 EO ₇	12.9	0.15	19990810	28.92097	321.22540	330.21479	9.20806	0.1709635	3.1608470	50	3	1997–1999	0.45	M-v	3	Williams	35432	1997 EO ₇
1997 EJ ₁₁	16.6	0.15	19990810	202.16296	82.38227	164.35312	5.20111	0.0846471	2.1869143	27	2	1995–1997	0.38	M-v	4	Spahr	32957	1997 EJ ₁₁
1997 EL ₁₁	13.3	0.15	19990810	65.67451	270.81901	55.29667	15.43896	0.1496490	2.6116595	28	3	1986–1999	0.40	M-v	3	Williams	30094	1997 EL ₁₁
1997 EQ ₁₇	12.7	0.15	19990810	138.88576	23.47436	165.30550	24.26938	0.1409865	3.1669559	30	4	1992–1999	0.66	M-v	1	Williams	32520	1997 EQ ₁₇
1997 EQ ₂₅	13.7	0.15	19990810	34.76760	108.45045	176.59501	12.24076	0.1032265	3.3508037	40	4	1993–1999	0.72	M-v	1	Williams	32313	1997 EQ ₂₅
1997 EQ ₃₂	15.7	0.15	19990810	142.84252	311.40086	4.98521	7.07284	0.2194190	2.2480890	29	3	1991–1998	0.57	M-v	4	Williams	33256	1997 EQ ₃₂
1997 EY ₃₄	14.3	0.15	19990810	276.07938	285.64181	110.25179	3.14251	0.0882853	2.8978325	28	3	1997–1999	0.61	M-v	4	Williams	35303	1997 EY ₃₄
1997 EF ₄₁	15.4	0.15	19990810	101.22056	129.53562	196.21330	4.78287	0.1051762	2.2002212	37	4	1982–1998	0.64	M-v	2	Spahr	34586	1997 EF ₄₁
1997 EQ ₄₁	13.6	0.15	19990810	145.35587	9.27526	171.26950	10.32866	0.0271494	2.9994967	29	3	1992–1998	0.48	M-v	4	Spahr	33344	1997 EQ ₄₁
1997 EX ₄₁	13.6	0.15	19990810	100.20502	12.15838	233.55712	2.98407	0.0159547	2.7712885	31	5	1994–1999	0.55	M-v	1	Spahr	32957	1997 EX ₄₁
1997 EO ₄₂	15.6	0.15	19990810	118.05113	57.19694	238.94475	1.65881	0.2146624	2.3628018	22	3	1991–1998	0.59	M-v	3	Spahr	33555	1997 EO ₄₂
1997 FC ₁	14.7	0.15	19990810	249.29945	51.11137	127.18481	7.14441	0.0919959	2.3454661	34	2	1997–1998	0.58	M-v	4	Spahr	32677	1997 FC ₁
1997 FF ₁	15.2	0.15	19990810	197.16961	201.71575	36.52842	3.81198	0.1273474	2.3430530	20	2	1997–1998	0.68	M-v	5	Spahr	32958	1997 FF ₁
1997 FM ₁	15.4	0.15	19990810	338.62361	325.57355	187.53614	22.35004	0.0905157	1.9545273	63	2	1997–1998	0.61	M-v	3	Spahr	33076	1997 FM ₁
1997 FO ₃	14.9	0.15	19990810	119.25940	102.55163	166.68475	3.50099	0.1110899	2.7703337	29	4	1992–1998	0.86	M-v	2	Spahr	32752	1997 FO ₃
1997 FK ₄	13.6	0.15	19990810	299.03832	61.21419	3.98852	8.74371	0.1435631	2.7870449	34	4	1985–1999	0.79	M-v	2	Williams	35432	1997 FK ₄
1997 FP ₄	15.2	0.15	19990810	175.35641	291.33119	307.93814	2.15130	0.1368904	2.5381216	23	2	1997–1998	0.79	M-v	5	Spahr	32677	1997 FP ₄
1997 GL	16.0	0.15	19990810	104.83274	136.21974	171.81925	0.59079	0.1060870	2.5746856	26	2	1997–1998	0.70	M-v	5	Spahr	33344	1997 GL
1997 GY	16.4	0.15	19990810	288.55594	339.58769	201.75105	2.66561	0.0957000	2.1405083	34	2	1997–1998	0.47	M-v	4	Spahr	32678	1997 GY
1997 GF ₆	14.8	0.15	19990810	101.06814	80.95574	207.18603	25.50087	0.2182387	3.1308571	18	2	1997–1998	0.77	M-v	4	Spahr	33257	1997 GF ₆
1997 GU ₆	14.7	0.15	19990810	154.12437	269.22908	23.72099	8.08221	0.1101129	2.4396404	59	3	1993–1998	0.72	M-v	3	Spahr	34296	1997 GU ₆
1997 GE ₇	14.9	0.15	19990810	75.36635	138.34764	206.71284	12.20987	0.1420427	2.6813670	45	4	1992–1998	0.74	M-v	3	Spahr	32752	1997 GE ₇
1997 GG ₇	15.5	0.15	19990810	119.70881	169.23407	181.50185	4.36926	0.2003202	2.3164572	47	2	1997–1999	0.74	M-v	4	Spahr	34296	1997 GG ₇
1997 GV ₇	15.3	0.15	19990810	100.29869	316.35304	48.19808	8.33808	0.1423870	2.2974188	39	2	1997–1998	0.63	M-v	4	Spahr	34015	1997 GV ₇
1997 GC ₈	15.2	0.15	19990810	106.32621	331.47140	35.04147	8.60905	0.1402040	2.2476385	47	2	1997–1998	0.57	M-v	3	Spahr	33258	1997 GC ₈
1997 GH ₈	15.4	0.15	19990810	201.29487	26.93493	223.79123	4.02069	0.0619484	2.3451056	36	3	1994–1998	0.52	M-v	3	Spahr	32959	1997 GH ₈
1997 GJ ₈	13.3	0.15	19990810	263.66437	237.54315	222.82523	10.13073	0.0958762	3.0774486	34	4	1980–1999	0.69	M-v	1	Williams	32253	1997 GJ ₈
1997 GT ₁₁	15.9	0.15	19990810	122.63868	108.01595	235.79312	2.05783	0.1256906	2.1783257	41	3	1994–1999	0.81	M-v	3	Spahr	33752	1997 GT ₁₁
1997 GP ₁₃	15.1	0.15	19990810	215.36505	11.10698	205.22808	3.54229	0.0502263	2.3517565	27	2	1997–1998	0.70	M-v	4	Spahr	32960	1997 GP ₁₃
1997 GT ₁₄	15.6	0.15	19990810	176.95472	56.33690	215.28461	7.27933	0.1011720	2.3061610	26	3	1991–1998	0.63	M-v	3	Spahr	34015	1997 GT ₁₄
1997 GD ₁₅	14.6	0.15	19990810	41.97297	79.76371	267.16230	1.54685	0.0843322	2.7298572	25	3	1992–1998	0.76	M-v	5	Spahr	32752	1997 GD ₁₅
1997 GU ₁₅	16.4	0.15	19990810	173.46186	101.18068	184.04127	6.30714	0.0329259	2.1961260	21	2	1997–1998	0.67	M-v	4	Spahr	32960	1997 GU ₁₅
1997 GX ₁₅	15.6	0.15	19990810	94.68378	152.58660	171.68253	3.84849	0.0526203	2.4607429	22	2	1997–1998	0.62	M-v	4	Spahr	33258	1997 GX ₁₅
1997 GK ₁₆	14.3	0.15	19990810	35.67629	225.41325	120.74159	1.50394	0.2071742	2.8883057	17	3	1989–1998	0.51	M-v	4	Spahr	34201	1997 GK ₁₆
1997 GZ ₁₆	15.0	0.15	19990810	120.46626	144.93227	205.68169	7.36187	0.1722742	2.1683275	54	2	1997–1998	0.81	M-v	4	Spahr	34296	1997 GZ ₁₆
1997 GA ₁₇	16.0	0.15	19990810	97.93067	6.27477	348.02420	2.00585	0.1020550	2.2468018	44	2	1997–1998	0.76	M-v	4	Spahr	33344	1997 GA ₁₇
1997 GY ₁₇	15.6	0.15	19990810	272.48798	149.41268	22.42513	6.63849	0.0602962	2.2447045	23	2	1997–1998	0.61	M-v	5	Spahr	32961	1997 GY ₁₇
1997 GO ₁₈	15.4	0.15	19990810	132.12296	95.35234	187.62646	11.66063	0.1362231	2.5831051	21	3	1994–1998	0.87	M-v	3	Spahr	32752	1997 GO ₁₈
1997 GC ₁₉	15.0	0.15	19990810	120.44593	317.68566	356.30026	6.98513	0.1206421	2.4217339	54	2	1997–1998	0.65	M-v	4	Spahr	33344	1997 GC ₁₉
1997 GL ₂₃	13.4	0.15	19990810	265.18780	39.94523	53.17737	5.08231	0.1466904	3.0965343	34	4	1978–1999	0.52	M-v	2	Spahr	30293	1997 GL ₂₃
1997 GP ₂₃	14.5	0.15	19990810	119.12597	278.56548	17.44777	5.24709	0.1462263	2.7666964	58	2	1997–1998	0.67	M-v	3	Spahr	32962	1997 GP ₂₃
1997 GQ ₂₃	13.8	0.15	19990810	106.29085	330.64684	329.69901	2.02114	0.0632334	2.7598849	52	3	1995–1998	0.58	M-v	2	Spahr	33556	1997 GQ ₂₃
1997 GX ₂₃	14.3	0.15	19990810	139.22808	259.84374	60.45475	9.55204	0.2186185	2.4536365	83	3	1993–1998	0.59	M-v	1	Spahr	34015	1997 GX ₂₃
1997 GO ₂₄	11.1	0.15	19990810	353.38360	88.05052	226.09831	14.45749	0.1269793	5.1688490	58	6	1984–1999	0.63	M-v	1	Williams	35432	1997 GO ₂₄
1997 GX ₂₄	12.9	0.15	19990810	165.72774	67.22584	118.30984	2.73001	0.0915205	3.1706782	37	4	1991–1999	0.77	M-v	1	Williams	32752	1997 GX ₂₄
1997 GK ₂₅	15.0	0.15	19990810	188.16729	51.42301	193.62987	2.12750	0.1749685	2.3760626	46	3	1993–1998	0.65	M-v	3	Williams	32962	1997 GK ₂₅
1997 GR ₂₅	14.2	0.15	19990810	159.32311	216.53899	70.14814	3.62640	0.1763549	2.4224812	25	2	1997–1998	0.86	M-v	4	Spahr	34296	1997 GR ₂₅
1997 GZ ₂₅	15.0	0.15	19990810	250.42307	57.75127	150.15828	4.91188	0.0792064	2.2886344	50	3	1993–1998	0.74	M-v	3	Spahr	33077	1997 GZ ₂₅
1997 GL ₂₈	14.1	0.15	19990810	178.12514	310.07133	215.64749	15.88384	0.1625854	3.2568997	30	4	1994–1999	0.49	M-v	1	Spahr	32752	1997 GL ₂₈
1997 GW ₂₉	12.5	0.15	19990810	317.03420	255.87379	142.53081	11.30664	0.1250073	2.9775163	21	3	1996–1998	0.64	M-v	4	Spahr	32679	1997 GW ₂₉

1997 PW ₃	15.2	0.15	19990810	53.42546	139.84540	354.36348	6.59138	0.0412749	2.3088988	39	3	1992–1999	0.55	M-v	3	Spahr	33951	1997 PW ₃
1997 PD ₅	15.3	0.15	19990810	268.21372	339.42968	306.59925	3.02764	0.0325714	2.1828781	29	2	1997–1999	0.47	M-v	4	Spahr	34296	1997 PD ₅
1997 PL ₅	12.6	0.15	19990810	40.65956	94.98120	323.56041	6.54601	0.0121568	3.1597739	42	4	1975–1999	0.74	M-v	3	Spahr	33753	1997 PL ₅
1997 PN ₅	13.7	0.15	19990810	116.94302	93.12451	293.48133	12.15167	0.1924507	2.6213091	56	2	1997–1999	0.71	M-v	4	Spahr	34296	1997 PN ₅
1997 QF	13.5	0.15	19990810	200.24030	137.77447	139.23057	14.08559	0.0676572	2.8711148	72	2	1997–1999	0.48	M-v	3	Spahr	33753	1997 QF
1997 QG	14.5	0.15	19990810	59.28755	296.46836	150.42129	5.43928	0.0962679	2.5661456	64	4	1987–1999	0.55	M-v	3	Spahr	34016	1997 QG
1997 QL	14.9	0.15	19990810	29.17960	164.38894	292.40732	8.54585	0.0497124	2.7372398	43	2	1997–1998	0.46	M-v	4	Spahr	33501	1997 QL
1997 QM	14.2	0.15	19990810	290.52075	58.79484	169.48155	15.05306	0.0119288	2.5362528	65	3	1993–1999	0.60	M-v	2	Spahr	33753	1997 QM
1997 QS	14.6	0.15	19990810	155.14562	279.11153	30.47783	2.49713	0.0815353	2.9335145	50	5	1978–1998	0.72	M-v	1	Spahr	33345	1997 QS
1997 QR ₂	14.8	0.15	19990810	91.53055	279.57830	156.08330	13.38235	0.1493691	2.6404741	27	2	1997–1999	0.65	M-v	4	Spahr	34202	1997 QR ₂
1997 QN ₃	13.9	0.15	19990810	154.34943	356.21317	23.53274	7.28106	0.1291149	2.7357046	30	4	1983–1999	0.67	M-v	2	Spahr	34016	1997 QN ₃
1997 QP ₃	15.1	0.15	19990810	224.91056	129.55227	188.15948	3.49077	0.1931312	2.4498714	34	4	1993–1999	0.79	M-v	2	Spahr	34202	1997 QP ₃
1997 QF ₄	15.0	0.15	19990810	53.16591	257.55213	229.92638	3.86212	0.0681970	2.1996642	21	3	1994–1999	0.62	M-v	4	Spahr	33699	1997 QF ₄
1997 QG ₄	12.8	0.15	19990810	198.74670	118.34027	147.93474	12.21376	0.1440622	2.9877721	24	4	1991–1998	0.76	M-v	2	Spahr	33557	1997 QG ₄
1997 QP ₄	16.0	0.15	19990810	147.88860	87.73496	311.33529	6.43913	0.0346334	2.2314379	49	2	1997–1999	0.64	M-v	4	Spahr	34296	1997 QP ₄
1997 QQ ₄	14.5	0.15	19990810	175.27382	337.42295	23.97571	2.77273	0.0826002	2.6730966	25	3	1994–1999	0.54	M-v	4	Spahr	33952	1997 QQ ₄
1997 QE ₅	15.8	0.15	19990810	126.45616	238.76228	137.54550	8.12242	0.2873723	2.7999068	14	3	1996–1999	0.39	M-v	4	Spahr	34016	1997 QE ₅
1997 RZ	13.9	0.15	19990810	44.71535	150.88376	302.89910	4.48682	0.0667764	2.7718992	40	3	1995–1999	0.73	M-v	4	Spahr	34016	1997 RZ
1997 RS ₃	13.6	0.15	19990810	67.76980	73.80461	22.59188	5.09440	0.1002872	3.0512040	45	2	1997–1999	0.48	M-v	3	Spahr	33952	1997 RS ₃
1997 RR ₅	13.7	0.15	19990810	264.96542	39.43868	190.34281	0.57593	0.0952569	3.1258550	55	3	1991–1999	0.50	M-v	3	Spahr	33753	1997 RR ₅
1997 RQ ₈	13.0	0.15	19990810	223.09680	70.38467	193.50787	10.05226	0.0692417	2.9800983	31	3	1992–1998	0.53	M-v	4	Spahr	33699	1997 RQ ₈
1997 RV ₈	13.9	0.15	19990810	198.40448	296.16358	36.72483	5.40371	0.1873940	2.4819679	33	2	1997–1999	0.62	M-v	4	Spahr	33952	1997 RV ₈
1997 RP ₉	14.8	0.15	19990810	161.67799	216.91208	163.54952	2.60655	0.2093387	2.4337761	51	5	1986–1999	0.62	M-v	2	Spahr	34296	1997 RP ₉
1997 SF	14.1	0.15	19990810	78.48344	315.82026	87.24908	6.25142	0.1505867	3.1133101	62	3	1995–1999	0.48	M-v	2	Spahr	33753	1997 SF
1997 SN	15.1	0.15	19990810	329.69403	359.42278	219.49310	6.93608	0.0489719	2.2741950	41	3	1994–1999	0.32	M-v	2	Spahr	34016	1997 SN
1997 SX	12.8	0.15	19990810	166.10437	313.05495	46.61764	10.56151	0.1018345	3.0622423	39	2	1997–1999	0.67	M-v	3	Spahr	34297	1997 SX
1997 SL ₂	14.6	0.15	19990810	93.70182	304.63726	125.07670	6.80491	0.0215589	2.6791285	47	2	1997–1999	0.51	M-v	3	Spahr	34017	1997 SL ₂
1997 SZ ₂	13.8	0.15	19990810	52.42025	131.32016	323.85018	1.25294	0.1407593	3.1348516	33	2	1997–1999	0.76	M-v	3	Williams	34586	1997 SZ ₂
1997 SE ₃	14.5	0.15	19990810	91.04752	252.21826	175.56974	13.80373	0.1707787	2.6123050	53	3	1993–1999	0.65	M-v	2	Spahr	34297	1997 SE ₃
1997 SM ₃	13.1	0.15	19990810	266.71701	265.62394	325.65233	14.70302	0.0918347	2.6346228	28	2	1997–1998	0.77	M-v	5	Spahr	33504	1997 SM ₃
1997 SB ₄	16.6	0.15	19990810	178.17400	167.89115	164.87565	1.34506	0.3119222	2.6874935	18	4	1988–1999	0.41	M-v	2	Spahr	33754	1997 SB ₄
1997 SC ₄	14.8	0.15	19990810	111.81880	203.40868	212.68389	1.40894	0.0740113	2.9383829	50	3	1994–1999	0.76	M-v	4	Spahr	34297	1997 SC ₄
1997 SF ₄	14.3	0.15	19990810	129.47912	141.30872	208.50929	9.66567	0.2113973	3.1692625	34	2	1997–1998	0.49	M-v	3	Spahr	33505	1997 SF ₄
1997 SV ₄	15.1	0.15	19990810	10.69920	196.47885	345.26698	6.49373	0.1066669	2.3149238	44	2	1997–1999	0.65	M-v	4	Spahr	33953	1997 SV ₄
1997 SZ ₄	14.0	0.15	19990810	153.96085	322.18323	8.46773	21.38488	0.0844868	3.1592251	20	2	1997–1999	0.66	M-v	4	Spahr	33754	1997 SZ ₄
1997 SW ₉	13.7	0.15	19990810	12.20602	252.44622	238.11400	10.42462	0.0981667	3.0704754	42	3	1996–1999	0.67	M-v	3	Spahr	34017	1997 SW ₉
1997 SN ₁₀	13.0	0.15	19990810	183.57026	91.22323	194.01469	4.66007	0.1575849	3.1261805	19	3	1991–1997	0.48	M-v	4	Spahr	30773	1997 SN ₁₀
1997 ST ₁₀	14.2	0.15	19990810	200.85802	353.61401	32.71016	6.65653	0.1512102	2.3123681	46	2	1997–1999	0.72	M-v	3	Spahr	34586	1997 ST ₁₀
1997 SF ₁₁	14.0	0.15	19990810	27.16328	264.68797	215.69474	12.67841	0.0565360	3.1004198	47	3	1995–1998	0.48	M-v	3	Spahr	33557	1997 SF ₁₁
1997 SO ₁₁	16.7	0.15	19990810	79.75621	73.66926	4.36973	1.48160	0.0846743	2.6617106	23	3	1995–1999	0.39	M-v	3	Williams	34017	1997 SO ₁₁
1997 SN ₁₂	14.5	0.15	19990810	56.11051	107.62660	354.79654	8.02976	0.1232247	3.0544171	20	2	1997–1999	0.72	M-v	4	Spahr	34204	1997 SN ₁₂
1997 SE ₁₅	14.5	0.15	19990810	75.33956	188.23309	248.21024	3.88138	0.1258806	3.1489805	23	2	1997–1999	0.57	M-v	4	Spahr	33954	1997 SE ₁₅
1997 SL ₁₇	15.0	0.15	19990810	127.03414	79.26672	351.17218	10.17380	0.2330480	2.4221742	46	2	1997–1999	0.62	M-v	4	Spahr	34586	1997 SL ₁₇
1997 SG ₂₁	13.2	0.15	19990810	123.02938	176.71468	210.66083	9.49643	0.0917432	3.0566676	34	3	1986–1999	0.75	M-v	4	Spahr	34297	1997 SG ₂₁
1997 SD ₂₅	13.1	0.15	19990810	68.46207	253.01918	195.28886	10.39475	0.0693218	3.0385165	35	2	1997–1999	0.56	M-v	3	Spahr	34297	1997 SD ₂₅
1997 SK ₂₅	13.5	0.15	19990810	118.48825	210.91986	172.42892	9.96904	0.0921750	2.9827058	29	3	1994–1999	0.48	M-v	3	Spahr	34586	1997 SK ₂₅
1997 SS ₃₁	13.2	0.15	19990810	43.41390	192.29810	238.50525	4.32024	0.1654395	3.1835757	43	2	1997–1998	0.57	M-v	3	Spahr	33557	1997 SS ₃₁
1997 SY ₃₂	12.4	0.15	19990810	56.35827	7.48612	21.88678	6.80334	0.0913447	5.2510125	20	3	1977–1997	0.47	M-v	3	Williams	30881	1997 SY ₃₂
1997 SA ₃₄	13.9	0.15	19990810	104.73717	51.22480	37.35011	9.75712	0.2113680	2.9157444	55	4	1964–1999	0.63	M-v	3	Spahr	34587	1997 SA ₃₄
1997 SB ₃₄	13.8	0.15	19990810	229.60752	339.96010	32.07710	5.51925	0.1647334	2.1698529	72	5	1981–1999	0.65	M-v	2	Spahr	34587	1997 SB ₃₄
1997 TC	13.9	0.15	19990810	195.19166	263.23690	21.43217	2.13214	0.0758955	2.9368277	51	4	1993–1998	0.69	M-v	2	Spahr	33557	1997 TC
1997 TR	13.5	0.15	19990810	142.19247	327.64485	5.69126	8.86545	0.1163315	3.0690660	55	2	1997–1999	0.56	M-v	3	Spahr	33754	1997 TR
1997 TV	13.8	0.15	19990810	221.42185	266.74017	359.24266	9.05778	0.0609862	3.1603764	31	4	1986–1998	0.72	M-v	2	Spahr	33506	1997 TV

1997 YQ ₁	15.0	0.15	19990810	112.60234	84.15260	20.40436	4.34328	0.1570913	2.4330822	55	2	1997–1999	0.66	M-v	4	Spahr	34589	1997 YQ ₁
1997 YF ₃	14.0	0.15	19990810	108.47004	295.73252	227.48317	1.52514	0.1443866	2.4377414	17	3	1977–1998	0.47	M-v	3	Spahr	31796	1997 YF ₃
1997 YW ₃	13.2	0.15	19990810	146.81933	73.86973	340.95836	7.90570	0.2348021	2.7603862	36	3	1992–1999	0.57	M-v	3	Spahr	34589	1997 YW ₃
1997 YA ₄	14.9	0.15	19990810	281.58996	38.92287	314.08417	5.38744	0.1876899	2.2043938	33	3	1993–1999	0.64	M-v	3	Williams	35433	1997 YA ₄
1997 YH ₄	13.8	0.15	19990810	185.87099	336.48004	59.52966	2.93044	0.0757170	2.8453593	51	3	1996–1999	0.59	M-v	3	Spahr	34589	1997 YH ₄
1997 YJ ₅	11.9	0.15	19990810	195.36348	54.86069	304.34239	13.81964	0.0858873	3.3407011	29	4	1977–1999	0.71	M-v	2	Spahr	34019	1997 YJ ₅
1997 YR ₅	14.7	0.15	19990810	308.47860	220.12568	110.02616	3.69059	0.0635845	2.2460894	87	4	1993–1999	0.62	M-v	2	Williams	35433	1997 YR ₅
1997 YA ₈	13.4	0.15	19990810	75.51833	317.11467	251.51822	11.92106	0.2141550	2.4502316	79	3	1991–1999	0.46	M-v	1	Spahr	35433	1997 YA ₈
1997 YE ₈	14.9	0.15	19990810	229.23750	191.01899	181.17404	7.30661	0.1625776	2.4353400	31	3	1995–1999	0.39	M-v	3	Spahr	34589	1997 YE ₈
1997 YR ₁₁	14.7	0.15	19990810	290.37910	11.37869	12.46999	6.48563	0.0235086	2.1974940	29	5	1980–1999	0.59	M-v	2	Williams	35433	1997 YR ₁₁
1997 YS ₁₁	14.7	0.15	19990810	44.45152	171.69158	108.79150	6.27867	0.1597535	2.2842856	36	5	1950–1998	0.50	M-v	1	Spahr	31591	1997 YS ₁₁
1997 YZ ₁₂	15.8	0.15	19990810	48.09939	134.99275	109.06620	6.26131	0.1566600	2.2844176	23	2	1997–1999	0.53	M-v	4	Spahr	35309	1997 YZ ₁₂
1997 YC ₁₄	14.1	0.15	19990810	18.25194	329.54769	312.27544	6.23075	0.1713115	2.2663141	48	4	1971–1999	0.49	M-v	3	Spahr	35433	1997 YC ₁₄
1997 YG ₁₆	15.2	0.15	19990810	146.33018	329.38667	132.06956	3.66742	0.1421045	2.3583082	26	2	1997–1999	0.60	M-v	4	Spahr	31286	1997 YG ₁₆
1997 YO ₁₆	15.6	0.15	19990810	142.17129	185.17618	283.56298	3.23394	0.2154476	2.5324321	26	3	1989–1998	0.82	M-v	4	Williams	31258	1997 YO ₁₆
1997 YZ ₁₇	15.5	0.15	19990810	45.20757	292.32886	321.73717	3.94086	0.0408136	2.1569897	41	4	1995–1999	0.61	M-v	2	Williams	35433	1997 YZ ₁₇
1997 YO ₁₈	14.6	0.15	19990810	47.51094	255.72695	342.61204	6.97351	0.1468369	2.4842293	33	3	1971–1999	0.53	M-v	3	Spahr	35433	1997 YO ₁₈
1998 AU ₃	13.0	0.15	19990810	161.35670	288.64589	100.37586	2.88240	0.1878146	3.1815138	39	6	1979–1999	0.58	M-v	1	Spahr	34300	1998 AU ₃
1998 AS ₄	13.0	0.15	19990810	101.08925	235.79372	304.14443	11.08791	0.1422347	2.4253803	39	3	1992–1999	0.41	M-v	3	Spahr	35310	1998 AS ₄
1998 AP ₇	14.5	0.15	19990810	251.77266	242.59847	98.89821	4.30170	0.0930001	2.6880727	44	3	1996–1999	0.59	M-v	4	Spahr	34589	1998 AP ₇
1998 AO ₉	14.7	0.15	19990810	216.69739	330.10284	43.13080	2.64690	0.0811952	2.9227727	24	4	1976–1998	0.45	M-v	1	Spahr	31261	1998 AO ₉
1998 AA ₁₀	13.8	0.15	19990810	13.40026	302.71386	292.09398	14.07715	0.0814046	2.5933496	32	2	1994–1998	0.47	M-v	4	Spahr	31397	1998 AA ₁₀
1998 AM ₁₀	14.1	0.15	19990810	308.42176	174.42679	145.93977	7.88912	0.0897492	2.4531923	79	2	1997–1999	0.61	M-v	3	Williams	35434	1998 AM ₁₀
1998 AN ₁₀	15.5	0.15	19990810	197.43266	216.87634	232.72349	2.97209	0.0819158	2.2384497	17	2	1998–1999	0.57	M-v	4	Williams	35311	1998 AN ₁₀
1998 BJ ₂	14.8	0.15	19990810	106.67218	3.53146	169.29402	2.22171	0.1594241	2.4285125	25	4	1977–1999	0.67	M-v	2	Williams	35434	1998 BJ ₂
1998 BT ₂	15.7	0.15	19990810	183.19313	353.26797	91.77037	5.00226	0.1368050	2.3647277	31	2	1993–1998	0.53	M-v	5	Spahr	31263	1998 BT ₂
1998 BB ₇	14.9	0.15	19990810	83.98591	229.45654	345.48760	6.16399	0.0759477	2.3962406	43	4	1994–1999	0.46	M-v	1	Spahr	35434	1998 BB ₇
1998 BK ₈	15.1	0.15	19990810	121.97948	97.83170	84.55991	3.56180	0.0978302	2.2803473	41	3	1995–1999	0.69	M-v	3	Williams	35434	1998 BK ₈
1998 BN ₁₀	13.7	0.15	19990810	229.37147	237.39110	104.35313	10.65488	0.1319786	2.9286086	39	2	1997–1999	0.47	M-v	4	Spahr	34216	1998 BN ₁₀
1998 BF ₁₁	13.3	0.15	19990810	143.05139	315.88049	107.82805	11.79503	0.0954816	3.0593559	34	3	1975–1999	0.66	M-v	3	Williams	35434	1998 BF ₁₁
1998 BL ₁₁	14.7	0.15	19990810	71.72147	110.30508	98.44563	3.23572	0.1504127	2.4069473	44	3	1991–1999	0.57	M-v	3	Spahr	35312	1998 BL ₁₁
1998 BW ₁₁	13.9	0.15	19990810	277.15279	261.23535	78.20161	3.43353	0.2339052	2.3702951	45	4	1989–1999	0.59	M-v	3	Williams	35434	1998 BW ₁₁
1998 BL ₁₃	14.2	0.15	19990810	296.77102	218.05767	108.96850	5.39624	0.1929069	2.2564152	66	2	1998–1999	0.61	M-v	4	Williams	35434	1998 BL ₁₃
1998 BN ₁₆	11.8	0.15	19990810	98.20486	57.73353	88.18918	14.62984	0.0451637	3.4012352	66	3	1985–1999	0.55	M-v	3	Williams	35434	1998 BN ₁₆
1998 BM ₁₇	15.2	0.15	19990810	23.58616	174.52876	109.30465	2.26382	0.1775966	2.4080860	23	2	1998–1999	0.32	M-v	4	Spahr	35312	1998 BM ₁₇
1998 BQ ₁₈	15.5	0.15	19990810	76.19858	110.12266	146.31475	7.22878	0.2177929	2.4209826	20	1	86 days	0.86	M-v	5	Spahr	31798	1998 BQ ₁₈
1998 BV ₁₈	15.1	0.15	19990810	82.79000	127.87411	72.34607	3.53744	0.2498067	3.0413711	28	1	96 days	0.37	M-v	4	Spahr	31798	1998 BV ₁₈
1998 BJ ₁₉	14.9	0.15	19990810	88.16063	63.82410	157.62776	2.32852	0.0875257	2.2241675	41	4	1995–1999	0.40	M-v	1	Spahr	35312	1998 BJ ₁₉
1998 BK ₁₉	15.2	0.15	19990810	99.10542	59.22832	135.83152	6.67178	0.0383438	2.2859332	42	2	1998–1999	0.50	M-v	4	Williams	35312	1998 BK ₁₉
1998 BA ₂₀	14.5	0.15	19990810	233.03081	151.23036	206.32251	0.23201	0.0696695	2.7969244	29	4	1994–1999	0.70	M-v	1	Spahr	34590	1998 BA ₂₀
1998 BA ₂₁	15.3	0.15	19990810	242.31613	226.68921	116.18377	3.16610	0.0804927	2.8697894	16	2	1996–1998	0.33	M-v	5	Spahr	31266	1998 BA ₂₁
1998 BN ₂₅	14.4	0.15	19990810	4.45114	348.20757	321.77788	1.00413	0.0371460	2.1529881	68	5	1992–1999	0.57	M-v	2	Williams	35435	1998 BN ₂₅
1998 BH ₂₆	14.2	0.15	19990810	57.43558	277.12817	356.41718	15.71317	0.1889677	2.5300343	79	3	1991–1999	0.71	M-v	2	Spahr	32059	1998 BH ₂₆
1998 BO ₂₆	17.3	0.15	19990810	142.50432	197.92990	327.08993	4.43257	0.3944266	2.3767639	47	1	81 days	0.68	M-v	5	Spahr	31798	1998 BO ₂₆
1998 BT ₂₆	13.4	0.15	19990810	50.82150	138.75340	335.39045	15.54555	0.0726187	3.1766107	71	2	1998–1999	0.55	M-v	3	Spahr	34590	1998 BT ₂₆
1998 BA ₃₁	15.2	0.15	19990810	187.37486	259.97555	174.85008	5.07918	0.1630565	2.3301078	27	4	1977–1999	0.82	M-v	1	Spahr	31401	1998 BA ₃₁
1998 BR ₃₃	14.8	0.15	19990810	134.16971	143.72168	10.77074	9.35555	0.0515351	2.4522318	36	4	1983–1998	0.58	M-v	3	Spahr	31798	1998 BR ₃₃
1998 BC ₃₅	14.0	0.15	19990810	11.36057	62.22933	108.84178	3.19092	0.0436684	2.9515660	44	3	1991–1999	0.63	M-v	3	Spahr	34301	1998 BC ₃₅
1998 BE ₄₄	13.3	0.15	19990810	198.83322	284.31466	105.95983	13.87922	0.2010872	2.6868628	42	2	1998–1999	0.86	M-v	4	Spahr	34899	1998 BE ₄₄
1998 BA ₄₆	14.4	0.15	19990810	121.38995	174.63024	284.68966	0.40475	0.1562463	3.1632961	13	2	1993–1998	0.35	M-v	5	Spahr	31557	1998 BA ₄₆
1998 CO	15.7	0.15	19990810	125.81498	33.82392	147.39514	7.34631	0.0962046	2.2480115	40	2	1998–1999	0.27	M-v	3	Williams	35314	1998 CO
1998 CY	14.8	0.15	19990810	78.16634	338.05566	244.38218	4.20003	0.1431988	2.4363018	47	2	1998–1999	0.37	M-v	4	Spahr	35314	1998 CY
1998 CA ₁	14.2	0.15	19990810	302.42039	28.46201	327.56844	7.48575	0.2283442	2.2011900	42	3	1983–1999	0.51	M-v	3	Spahr	35435	1998 CA ₁

1998 CL ₂	15.2	0.15	19990810	132.54832	326.85278	106.79468	5.67869	0.2142595	2.5938456	44	2	1997–1999	0.62	M-v	4	Spahr	34590	1998 CL ₂
1998 CM ₂	14.0	0.15	19990810	152.57855	287.35112	137.37435	3.15277	0.1506298	2.4314192	58	4	1991–1999	0.72	M-v	2	Spahr	34590	1998 CM ₂
1998 CU ₃	15.4	0.15	19990810	149.84518	119.08184	27.64545	1.65968	0.1300280	2.3855055	35	2	1998–1999	0.66	M-v	4	Spahr	31799	1998 CU ₃
1998 CJ ₄	13.3	0.15	19990810	171.36445	119.11584	325.72753	11.27670	0.1990829	2.6181013	23	3	1992–1998	0.77	M-v	3	Spahr	31799	1998 CJ ₄
1998 DK ₁	15.4	0.15	19990810	189.73922	135.21517	0.26608	2.35896	0.0526309	2.1555356	53	4	1993–1999	0.68	M-v	4	Spahr	31800	1998 DK ₁
1998 DT ₁	14.0	0.15	19990810	263.40115	184.78695	141.27958	3.09858	0.0360199	3.3584394	26	3	1994–1999	0.65	M-v	4	Spahr	34590	1998 DT ₁
1998 DN ₂	13.9	0.15	19990810	331.13430	312.67883	9.10836	28.50391	0.1151888	2.6442741	30	2	1991–1998	0.69	M-v	4	Spahr	31740	1998 DN ₂
1998 DU ₂	14.9	0.15	19990810	180.29489	340.43321	100.50421	10.15587	0.2716601	2.5352337	21	2	1995–1998	0.52	M-v	5	Spahr	32683	1998 DU ₂
1998 DV ₄	15.8	0.15	19990810	219.73328	283.97082	142.17116	0.57969	0.1278764	2.2878433	22	2	1996–1998	0.58	M-v	5	Spahr	32683	1998 DV ₄
1998 DY ₄	14.8	0.15	19990810	40.80052	136.85917	141.47627	7.22364	0.1296353	2.2173947	37	7	1979–1999	0.56	M-v	1	Spahr	31740	1998 DY ₄
1998 DC ₆	13.1	0.15	19990810	172.97433	299.68308	108.33691	0.08196	0.2237557	3.1962442	45	6	1984–1999	0.55	M-v	1	Spahr	34590	1998 DC ₆
1998 DF ₈	15.5	0.15	19990810	118.74802	135.73986	57.67182	4.00833	0.0484964	2.1786201	22	3	1992–1998	0.44	M-v	4	Spahr	31558	1998 DF ₈
1998 DS ₈	13.0	0.15	19990810	323.28781	100.38961	120.44794	3.01844	0.0650132	2.9376847	49	2	1997–1999	0.64	M-v	3	Spahr	34301	1998 DS ₈
1998 DE ₉	13.5	0.15	19990810	89.28427	158.95581	12.94417	14.62900	0.0116741	3.2148549	24	2	1960–1998	0.80	M-v	4	Spahr	33266	1998 DE ₉
1998 DY ₉	14.3	0.15	19990810	156.04923	210.86143	303.62296	3.08531	0.0651590	2.1399725	65	4	1993–1999	0.55	M-v	3	Williams	35435	1998 DY ₉
1998 DG ₁₀	14.5	0.15	19990810	275.40391	199.29476	187.94413	4.62626	0.1265538	2.2801263	45	4	1972–1999	0.53	M-v	1	Williams	35435	1998 DG ₁₀
1998 DT ₁₀	14.0	0.15	19990810	102.45674	307.25405	258.90335	2.19181	0.1787760	2.4608921	136	4	1971–1999	0.71	M-v	2	Williams	35436	1998 DT ₁₀
1998 DD ₁₁	14.9	0.15	19990810	66.47674	81.14561	144.96145	9.54110	0.1805388	2.7097505	53	2	1998–1999	0.81	M-v	4	Spahr	35316	1998 DD ₁₁
1998 DT ₁₂	16.0	0.15	19990810	311.29451	1.47193	334.27291	3.41887	0.1694763	2.3265059	18	3	1978–1998	0.85	M-v	5	Spahr	31560	1998 DT ₁₂
1998 DB ₁₃	14.4	0.15	19990810	189.49465	196.46198	206.62302	3.98902	0.1649058	3.0764455	36	3	1996–1999	0.41	M-v	3	Williams	34903	1998 DB ₁₃
1998 DD ₁₃	13.8	0.15	19990810	72.47775	170.58168	25.15451	12.56032	0.1580663	3.0636145	35	2	1995–1998	0.38	M-v	3	Spahr	31801	1998 DD ₁₃
1998 DU ₁₃	16.3	0.15	19990810	182.53488	132.96029	3.84885	7.00248	0.0493248	2.3367563	47	3	1960–1999	0.87	M-v	4	Spahr	32315	1998 DU ₁₃
1998 DD ₁₄	13.3	0.15	19990810	341.71286	136.33644	196.95386	11.52268	0.2138157	3.1646230	42	3	1997–1999	0.67	M-v	3	Spahr	35317	1998 DD ₁₄
1998 DK ₁₄	15.3	0.15	19990810	75.69802	236.05402	357.05852	3.80195	0.1685144	2.3801913	28	3	1991–1999	0.60	M-v	3	Williams	31741	1998 DK ₁₄
1998 DE ₁₆	16.0	0.15	19990810	76.49590	110.46879	142.45708	3.82690	0.1183774	2.2715879	34	3	1995–1999	0.76	M-v	3	Williams	32315	1998 DE ₁₆
1998 DK ₂₃	13.2	0.15	19990810	53.20926	263.09622	320.36048	9.03106	0.2091784	2.7482298	57	2	1998–1999	0.45	M-v	3	Spahr	35436	1998 DK ₂₃
1998 DM ₂₃	15.6	0.15	19990810	63.34114	284.83345	298.03928	5.41880	0.1014587	2.4584193	33	4	1994–1999	0.63	M-v	1	Williams	35436	1998 DM ₂₃
1998 DO ₂₃	16.0	0.15	19990810	314.62638	53.00921	10.37296	19.84325	0.0862382	1.9133749	31	2	1991–1998	0.51	M-v	4	Spahr	31562	1998 DO ₂₃
1998 EF	14.7	0.15	19990810	110.64438	81.34077	125.62402	10.09905	0.0504624	2.3782515	38	3	1991–1999	0.52	M-v	3	Spahr	31598	1998 EF
1998 ES ₁	14.0	0.15	19990810	246.15957	220.43396	190.11730	5.10259	0.2342123	2.6025708	31	5	1972–1998	0.88	M-v	2	Spahr	32684	1998 ES ₁
1998 EQ ₂	16.0	0.15	19990810	135.40799	196.99122	10.54599	6.31897	0.0932355	2.2926937	29	2	1996–1998	0.75	M-v	4	Spahr	31743	1998 EQ ₂
1998 ED ₃	14.5	0.15	19990810	179.13918	29.63447	103.53121	7.04580	0.0843139	2.4793320	56	2	1998–1999	0.41	M-v	4	Spahr	35319	1998 ED ₃
1998 EE ₆	13.9	0.15	19990810	162.11091	208.33745	239.78523	5.47060	0.1941793	2.7250033	26	2	1996–1998	0.48	M-v	5	Spahr	31803	1998 EE ₆
1998 EP ₆	14.6	0.15	19990810	148.92395	215.14609	325.04944	2.01967	0.1031497	2.1886130	50	7	1943–1999	0.60	M-v	2	Williams	32316	1998 EP ₆
1998 EX ₆	14.1	0.15	19990810	79.43920	166.78991	76.75970	3.05357	0.1689044	2.4270445	72	6	1953–1999	0.61	M-v	2	Spahr	32316	1998 EX ₆
1998 EK ₈	14.2	0.15	19990810	91.51593	300.98866	276.66292	5.80709	0.0675588	2.3591505	55	2	1998–1999	0.59	M-v	4	Spahr	35319	1998 EK ₈
1998 ER ₈	14.6	0.15	19990810	38.18294	349.45999	253.18120	2.51698	0.0207307	2.6920168	29	3	1995–1998	0.53	M-v	4	Spahr	31566	1998 ER ₈
1998 EU ₈	16.5	0.15	19990810	154.30087	176.31607	335.94845	1.00844	0.1127295	2.3861106	19	3	1994–1998	0.65	M-v	4	Spahr	33266	1998 EU ₈
1998 EB ₉	14.8	0.15	19990810	1.62254	196.58228	100.40733	7.52762	0.1050990	2.4515184	35	4	1976–1999	0.61	M-v	2	Spahr	35436	1998 EB ₉
1998 EG ₉	13.1	0.15	19990810	232.97413	214.12251	120.14448	4.87540	0.0965578	2.4693071	45	2	1997–1999	0.54	M-v	4	Spahr	34301	1998 EG ₉
1998 EG ₁₀	13.7	0.15	19990810	239.86653	103.58442	308.58623	7.15977	0.1032649	2.3565592	35	5	1969–1999	0.66	M-v	1	Williams	35436	1998 EG ₁₀
1998 EQ ₁₁	13.7	0.15	19990810	111.70731	114.20755	41.39947	5.15324	0.0341713	3.0037896	23	2	1993–1998	1.03	M-v	5	Spahr	31744	1998 EQ ₁₁
1998 EG ₁₂	14.7	0.15	19990810	305.47363	266.10324	102.81126	6.70432	0.1280835	2.2649928	39	2	1998–1999	0.60	M-v	4	Spahr	35319	1998 EG ₁₂
1998 FD ₂	15.2	0.15	19990810	119.34656	39.99895	141.47753	3.71144	0.0454965	2.5377609	63	3	1992–1999	0.68	M-v	3	Spahr	35320	1998 FD ₂
1998 FE ₂	14.5	0.15	19990810	63.76314	172.97750	91.40381	3.98923	0.1302123	2.5107485	70	3	1995–1999	0.51	M-v	3	Spahr	31805	1998 FE ₂
1998 FC ₃	15.7	0.15	19990810	150.42490	117.80895	62.84342	4.84708	0.1953597	2.3575570	36	3	1994–1999	0.64	M-v	3	Williams	32316	1998 FC ₃
1998 FF ₃	14.4	0.15	19990810	115.41244	234.16630	321.05601	7.46166	0.0845459	2.4819071	75	4	1994–1999	0.66	M-v	2	Williams	35436	1998 FF ₃
1998 FA ₅	15.5	0.15	19990810	137.95652	157.76697	6.22529	11.40469	0.1243604	2.5347534	45	2	1998–1999	0.60	M-v	3	Marsden	35320	1998 FA ₅
1998 FO ₅	14.6	0.15	19990810	104.87413	69.15997	134.08146	4.78698	0.0571984	2.6149711	93	3	1991–1999	0.59	M-v	3	Williams	35321	1998 FO ₅
1998 FS ₅	15.4	0.15	19990810	46.32602	249.22583	53.53356	3.46242	0.2760300	2.5669830	33	2	1995–1998	0.49	M-v	4	Spahr	31746	1998 FS ₅
1998 FB ₆	16.0	0.15	19990810	80.11634	120.77617	153.46319	3.87285	0.1862884	2.2422168	42	3	1992–1999	0.66	M-v	3	Spahr	32063	1998 FB ₆
1998 FV ₈	15.3	0.15	19990810	79.47944	185.10574	81.87368	2.38258	0.1588839	2.4016104	43	4	1991–1998	0.95	M-v	2	Spahr	34531	1998 FV ₈
1998 FB ₁₀	14.4	0.15	19990810	44.84696	73.51075	208.33297	6.28230	0.1934059	2.5733783	58	4	1991–1999	0.63	M-v	1	Spahr	35436	1998 FB ₁₀

1998 KR ₄₄	15.1	0.15	19990810	70.52457	181.89260	131.54368	3.32973	0.2124151	2.4024323	26	3	1991–1998	0.52	M-v	5	Spahr	32280	1998 KR ₄₄
1998 KO ₄₆	14.4	0.15	19990810	95.98017	133.76161	124.00058	5.58443	0.0547153	2.6055299	23	4	1991–1998	0.70	M-v	2	Spahr	32485	1998 KO ₄₆
1998 KW ₄₆	12.6	0.15	19990810	20.03837	74.26568	245.14303	11.53282	0.0833858	3.1004633	29	3	1978–1999	0.61	M-v	3	Williams	35440	1998 KW ₄₆
1998 KZ ₄₆	13.1	0.15	19990810	326.81060	136.80274	258.77190	13.97421	0.1173659	2.6034328	34	3	1991–1999	0.77	M-v	3	Williams	35440	1998 KZ ₄₆
1998 KF ₄₇	12.9	0.15	19990810	69.86716	136.00725	123.08391	2.47280	0.1516105	3.2191967	34	5	1979–1999	0.71	M-v	1	Spahr	32485	1998 KF ₄₇
1998 KJ ₄₈	14.0	0.15	19990810	30.88361	155.19466	161.12867	5.06564	0.1593086	3.0938797	28	2	1992–1998	0.77	M-v	5	Spahr	32688	1998 KJ ₄₈
1998 KU ₅₁	13.6	0.15	19990810	31.71633	168.38345	134.06711	11.71394	0.0980916	3.0188978	31	3	1993–1999	0.64	M-v	2	Spahr	35440	1998 KU ₅₁
1998 KJ ₅₂	12.7	0.15	19990810	168.77948	331.11975	181.11100	10.42749	0.0165665	3.1560547	38	5	1977–1999	0.55	M-v	1	Williams	35440	1998 KJ ₅₂
1998 KK ₅₄	13.4	0.15	19990810	198.96930	19.09074	112.45259	14.54838	0.0752863	2.8474855	33	4	1992–1999	0.79	M-v	1	Williams	35440	1998 KK ₅₄
1998 KN ₅₆	13.7	0.15	19990810	354.05153	335.96842	353.11926	3.61941	0.1267754	3.0096237	32	4	1992–1999	0.77	M-v	1	Williams	35440	1998 KN ₅₆
1998 LB ₃	13.9	0.15	19990810	314.28230	217.48054	197.08734	9.32606	0.1107779	2.6962974	20	4	1977–1999	0.59	M-v	2	Williams	35440	1998 LB ₃
1998 MY ₁	14.3	0.15	19990810	207.74842	261.44433	231.62301	11.34356	0.1157901	2.6452408	36	3	1991–1999	0.48	M-v	2	Spahr	35338	1998 MY ₁
1998 MN ₄	14.2	0.15	19990810	150.38614	51.38275	138.36877	20.72252	0.1598987	2.8445773	27	3	1992–1998	0.83	M-v	3	Spahr	32688	1998 MN ₄
1998 MM ₅	16.0	0.15	19990810	72.07155	22.59379	343.04733	4.64654	0.2528700	2.5745573	45	1	114 days	0.74	M-v	4	Spahr	33078	1998 MM ₅
1998 MW ₇	15.3	0.15	19990810	113.90679	127.12851	153.31920	9.08506	0.2523718	2.5464817	35	3	1993–1998	0.68	M-v	2	Spahr	32756	1998 MW ₇
1998 MA ₁₁	10.3	0.15	19990810	230.01339	226.67749	209.59629	17.30644	0.0483072	5.2273156	33	3	1996–1999	0.56	M-v	4	Williams	35339	1998 MA ₁₁
1998 MS ₂₄	14.3	0.15	19990810	98.81750	137.59750	145.36919	15.25001	0.3349908	2.6102705	61	2	1997–1998	0.46	M-v	3	Spahr	33559	1998 MS ₂₄
1998 MF ₃₂	12.7	0.15	19990810	286.28823	352.70856	98.58054	10.15256	0.0097841	2.7650930	25	2	1995–1998	0.65	M-v	4	Spahr	32973	1998 MF ₃₂
1998 MT ₃₂	14.9	0.15	19990810	155.77628	356.01642	243.78265	4.17020	0.0996723	2.2925836	24	2	1994–1998	0.77	M-v	5	Spahr	32756	1998 MT ₃₂
1998 MW ₃₄	14.6	0.15	19990810	141.91639	52.86080	203.80827	3.58079	0.1108272	2.3069207	23	4	1980–1998	0.53	M-v	2	Spahr	33509	1998 MW ₃₄
1998 MZ ₃₇	15.1	0.15	19990810	90.68239	211.46957	103.92364	6.47983	0.1148905	2.3632511	20	2	1997–1998	0.78	M-v	6	Spahr	32288	1998 MZ ₃₇
1998 OH	16.1	0.15	19990810	259.49234	321.59943	220.83764	24.51388	0.4061854	1.5417021	99	3	1991–1998	0.48	M-v	3	Williams	34020	1998 OH
1998 OP	15.2	0.15	19990810	124.81004	128.87485	161.43638	3.85547	0.1799594	2.1734724	35	4	1950–1998	0.75	M-v	2	Spahr	32756	1998 OP
1998 OA ₁	14.5	0.15	19990810	74.02733	33.31272	281.45497	7.95870	0.1242722	3.0470748	34	1	65 days	0.58	M-v	4	Spahr	32756	1998 OA ₁
1998 OH ₂	15.0	0.15	19990810	155.54544	107.73969	151.43237	1.70146	0.1398808	2.4295983	39	1	67 days	0.60	M-v	5	Spahr	33078	1998 OH ₂
1998 OA ₄	16.4	0.15	19990810	86.65905	94.34900	215.58443	2.62349	0.0420932	2.6897598	18	2	1994–1998	0.33	M-v	5	Spahr	32973	1998 OA ₄
1998 OB ₄	16.5	0.15	19990810	346.95178	242.54905	202.97715	2.50731	0.0899773	2.2184250	27	3	1994–1998	0.57	M-v	4	Spahr	32973	1998 OB ₄
1998 OH ₆	12.5	0.15	19990810	212.98549	353.76617	165.96402	6.27866	0.0991560	3.1640273	48	4	1985–1998	0.78	M-v	2	Spahr	34532	1998 OH ₆
1998 OZ ₈	15.1	0.15	19990810	130.16670	338.21570	309.80498	3.56699	0.1400704	2.2687787	28	2	1996–1998	0.46	M-v	4	Spahr	34590	1998 OZ ₈
1998 OE ₁₂	16.2	0.15	19990810	78.16859	225.43766	105.61944	5.50780	0.1865346	2.5838043	17	1	74 days	0.57	M-v	4	Spahr	33079	1998 OE ₁₂
1998 OM ₁₂	11.9	0.15	19990810	346.22331	324.43539	27.37555	7.48770	0.0379766	5.3296519	36	2	1998–1999	0.53	M-v	3	Williams	35340	1998 OM ₁₂
1998 OV ₁₂	13.7	0.15	19990810	80.02991	177.99884	145.04748	4.99422	0.0667871	2.7884149	39	2	1995–1998	0.65	M-v	3	Spahr	33559	1998 OV ₁₂
1998 OA ₁₃	15.2	0.15	19990810	91.41919	24.56915	319.58002	6.26425	0.1737217	2.2686017	33	1	158 days	0.57	M-v	3	Spahr	33559	1998 OA ₁₃
1998 OB ₁₃	13.0	0.15	19990810	318.64859	292.75920	148.85223	14.72142	0.0839503	3.1892306	30	1	62 days	0.71	M-v	5	Spahr	33346	1998 OB ₁₃
1998 OD ₁₃	15.8	0.15	19990810	71.90057	323.66356	36.79629	1.25220	0.2110982	2.4235312	53	3	1993–1998	0.67	M-v	3	Spahr	33346	1998 OD ₁₃
1998 OM ₁₃	14.5	0.15	19990810	263.29676	207.69764	316.98410	6.44353	0.1101393	2.2701724	39	3	1990–1998	0.85	M-v	4	Spahr	32757	1998 OM ₁₃
1998 OH ₁₄	13.7	0.15	19990810	353.14663	323.80183	131.71148	6.80835	0.2353817	2.3851408	44	5	1936–1998	0.84	M-v	2	Spahr	34591	1998 OH ₁₄
1998 OB ₁₅	14.7	0.15	19990810	54.38373	7.29754	343.13252	1.85189	0.0680083	2.8961045	26	1	109 days	0.46	M-v	4	Spahr	34020	1998 OB ₁₅
1998 PH	13.3	0.15	19990810	302.37778	203.04815	278.42794	13.90219	0.1935897	2.6455273	41	2	1995–1998	0.50	M-v	3	Spahr	32758	1998 PH
1998 PD ₁	13.3	0.15	19990810	110.94193	104.57716	172.67483	11.21989	0.1172372	3.0164334	42	3	1993–1998	0.60	M-v	2	Spahr	33079	1998 PD ₁
1998 PN ₁	14.3	0.15	19990810	49.72735	295.65317	34.45015	5.05706	0.1424381	3.1808573	41	3	1993–1998	0.81	M-v	4	Spahr	33079	1998 PN ₁
1998 PO ₁	13.2	0.15	19990810	307.96067	146.16271	275.46922	13.61069	0.0635503	2.5811309	24	2	1998–1999	0.48	M-v	4	Williams	35441	1998 PO ₁
1998 PP ₁	12.4	0.15	19990810	357.94471	113.73707	290.36548	9.52199	0.0710878	3.2393800	39	1	140 days	0.54	M-v	4	Spahr	34301	1998 PP ₁
1998 QB	14.2	0.15	19990810	213.35660	266.71066	315.77574	6.03114	0.0740317	3.2369120	50	3	1993–1998	0.66	M-v	4	Williams	32758	1998 QB
1998 QE	14.3	0.15	19990810	348.48184	94.25329	341.78063	2.32105	0.0501693	2.6619385	56	1	113 days	0.53	M-v	5	Spahr	33559	1998 QE
1998 QS ₁	13.9	0.15	19990810	249.33566	102.03250	73.77735	3.34751	0.1455414	2.4108292	56	7	1982–1999	0.61	M-v	1	Williams	32690	1998 QS ₁
1998 QV ₁	14.4	0.15	19990810	50.77236	205.34390	139.84386	6.34827	0.1585592	3.1214619	20	2	1993–1998	0.69	M-v	5	Spahr	32691	1998 QV ₁
1998 QM ₅	14.0	0.15	19990810	75.01011	98.59225	195.99920	7.00739	0.1834887	2.3650747	49	3	1976–1998	0.58	M-v	2	Spahr	32974	1998 QM ₅
1998 QZ ₅	16.0	0.15	19990810	85.41047	5.40249	5.21004	5.13037	0.2682824	2.5336253	26	1	85 days	0.73	M-v	5	Spahr	34301	1998 QZ ₅
1998 QL ₆	15.4	0.15	19990810	57.03495	220.04418	193.39290	3.40324	0.1924922	2.6236854	30	1	82 days	0.49	M-v	4	Spahr	34301	1998 QL ₆
1998 QN ₆	14.4	0.15	19990810	143.00934	283.24204	26.08135	6.77354	0.1208307	2.5660387	28	1	88 days	0.58	M-v	5	Spahr	34591	1998 QN ₆
1998 QR ₆	15.6	0.15	19990810	103.08997	282.05758	62.79188	1.10376	0.1936155	2.6538277	38	1	107 days	0.55	M-v	5	Spahr	34591	1998 QR ₆
1998 QJ ₈	13.0	0.15	19990810	338.84463	276.80060	140.48719	14.74967	0.1764250	3.1757055	26	6	1950–1998	0.62	M-v	2	Spahr	32974	1998 QJ ₈

1998 RC ₅₆	14.5	0.15	19990810	36.31379	217.01517	204.97901	6.04154	0.1001236	2.3739866	35	4	1989–1998	0.51	M-v	3	Spahr	33351	1998 RC ₅₆
1998 RU ₅₆	13.6	0.15	19990810	314.84762	272.88691	211.74078	3.26302	0.0663316	2.6982156	51	3	1980–1998	0.77	M-v	4	Spahr	34592	1998 RU ₅₆
1998 RA ₅₇	15.5	0.15	19990810	70.18518	174.00358	216.35944	1.42639	0.1220700	2.2392202	34	3	1978–1998	0.53	M-v	4	Spahr	33351	1998 RA ₅₇
1998 RB ₅₇	15.0	0.15	19990810	326.52921	163.58446	326.45542	2.13608	0.1335110	2.4115320	28	2	1994–1998	0.65	M-v	5	Spahr	33351	1998 RB ₅₇
1998 RK ₅₇	14.4	0.15	19990810	138.81246	128.25905	154.32703	2.60865	0.1967284	2.4266095	47	2	1994–1998	0.84	M-v	5	Spahr	34302	1998 RK ₅₇
1998 RZ ₅₇	14.5	0.15	19990810	352.02036	107.84113	2.38780	6.30941	0.1149295	2.3127086	33	2	1991–1998	0.70	M-v	5	Spahr	33565	1998 RZ ₅₇
1998 RN ₅₈	14.0	0.15	19990810	49.71148	114.37680	275.70983	1.15174	0.1294201	2.6663165	41	1	86 days	0.56	M-v	5	Spahr	34022	1998 RN ₅₈
1998 RP ₅₈	13.9	0.15	19990810	99.36380	126.77013	186.60712	12.01750	0.0925504	3.0561162	34	2	1993–1998	0.73	M-v	5	Spahr	33000	1998 RP ₅₈
1998 RA ₅₉	14.3	0.15	19990810	221.92458	13.20994	210.41754	4.35141	0.0786971	2.3105900	54	3	1990–1998	0.65	M-v	4	Spahr	33351	1998 RA ₅₉
1998 RX ₅₉	15.1	0.15	19990810	180.82818	48.29242	211.33037	5.63623	0.1033512	2.3318547	24	2	1997–1998	0.96	M-v	5	Spahr	34592	1998 RX ₅₉
1998 RA ₆₀	13.4	0.15	19990810	284.77528	159.57918	344.10786	9.22130	0.0185782	2.9558259	35	2	1996–1998	0.57	M-v	4	Spahr	33351	1998 RA ₆₀
1998 RG ₆₀	16.4	0.15	19990810	73.60345	157.11648	212.93376	4.18172	0.2696051	2.5652870	34	3	1993–1998	0.66	M-v	3	Spahr	33351	1998 RG ₆₀
1998 RY ₆₀	14.0	0.15	19990810	108.13762	336.60856	346.88527	13.65581	0.1773330	2.5447023	44	1	129 days	0.69	M-v	4	Spahr	34592	1998 RY ₆₀
1998 RZ ₆₀	16.4	0.15	19990810	57.62942	192.23313	216.17882	4.95612	0.1833153	2.3501626	27	3	1991–1998	0.68	M-v	3	Spahr	33001	1998 RZ ₆₀
1998 RG ₆₁	15.2	0.15	19990810	88.65052	26.34402	344.96095	4.41887	0.1633917	2.2461270	29	1	101 days	0.67	M-v	4	Spahr	34302	1998 RG ₆₁
1998 RL ₆₁	14.8	0.15	19990810	182.62215	284.22180	336.23096	5.25518	0.1360735	2.2325704	38	3	1987–1998	0.58	M-v	2	Spahr	33351	1998 RL ₆₁
1998 RN ₆₁	14.7	0.15	19990810	55.88503	120.53344	272.50414	1.71954	0.1686682	2.5709866	35	1	135 days	0.53	M-v	4	Spahr	34022	1998 RN ₆₁
1998 RU ₆₁	14.7	0.15	19990810	295.40812	184.33263	338.44577	3.45250	0.0813622	2.3048159	28	2	1991–1998	0.83	M-v	6	Spahr	33351	1998 RU ₆₁
1998 RZ ₆₂	15.2	0.15	19990810	86.70029	297.38392	54.62334	3.19929	0.1989233	2.4507328	36	3	1993–1998	0.66	M-v	3	Spahr	33351	1998 RZ ₆₂
1998 RX ₆₃	13.8	0.15	19990810	85.23859	210.41012	109.59063	3.19639	0.2009297	3.1107223	39	5	1982–1998	0.79	M-v	1	Spahr	34302	1998 RX ₆₃
1998 RG ₆₄	15.2	0.15	19990810	168.82038	98.64207	163.38510	5.46744	0.1752181	2.3201951	33	4	1990–1998	0.70	M-v	2	Spahr	33351	1998 RG ₆₄
1998 RP ₆₄	13.5	0.15	19990810	38.95231	204.77002	179.59090	23.20553	0.0923304	3.1299547	37	2	1987–1998	0.51	M-v	4	Spahr	33002	1998 RP ₆₄
1998 RQ ₆₄	14.2	0.15	19990810	62.12582	187.44666	170.29957	1.97390	0.2386339	3.0550299	35	3	1993–1998	0.64	M-v	3	Spahr	33565	1998 RQ ₆₄
1998 RX ₆₄	15.3	0.15	19990810	28.43856	247.03177	189.03653	2.29151	0.1509986	2.3938773	38	3	1983–1998	0.72	M-v	3	Spahr	33351	1998 RX ₆₄
1998 RB ₆₅	13.2	0.15	19990810	168.93953	154.64280	84.20987	0.08555	0.1191036	3.2234466	47	4	1990–1998	0.68	M-v	1	Spahr	34302	1998 RB ₆₅
1998 RM ₆₅	15.6	0.15	19990810	49.04000	225.22650	184.43033	1.90316	0.3077544	2.6497136	40	1	117 days	0.51	M-v	4	Spahr	33756	1998 RM ₆₅
1998 RB ₆₆	15.0	0.15	19990810	318.77184	313.64954	190.90065	7.20333	0.0598284	2.2557918	33	1	62 days	0.52	M-v	5	Spahr	33099	1998 RB ₆₆
1998 RJ ₆₆	15.1	0.15	19990810	90.69955	124.20915	214.74253	2.36734	0.2893150	2.5698480	49	3	1996–1998	0.61	M-v	2	Spahr	34022	1998 RJ ₆₆
1998 RV ₆₆	14.9	0.15	19990810	145.03533	48.01995	253.05641	3.32186	0.1784643	2.1927416	31	2	1988–1998	0.61	M-v	4	Spahr	33004	1998 RV ₆₆
1998 RZ ₆₇	14.1	0.15	19990810	6.61415	218.15644	217.09580	3.46481	0.1197878	2.9726434	36	4	1985–1998	0.87	M-v	2	Spahr	33273	1998 RZ ₆₇
1998 RA ₆₈	12.9	0.15	19990810	91.00558	336.46416	357.38413	10.29749	0.1688244	2.8079084	51	3	1979–1999	0.83	M-v	2	Spahr	34302	1998 RA ₆₈
1998 RK ₆₈	13.9	0.15	19990810	346.05048	271.71643	195.30912	4.69329	0.0852315	2.5835646	58	4	1973–1998	0.77	M-v	4	Spahr	34022	1998 RK ₆₈
1998 RN ₆₈	14.9	0.15	19990810	67.37065	22.42051	348.99532	2.31778	0.1294918	2.7123317	42	3	1994–1998	0.67	M-v	4	Spahr	33352	1998 RN ₆₈
1998 RQ ₆₈	14.6	0.15	19990810	62.07764	30.07632	340.11156	1.43256	0.0938218	2.8750596	27	2	1993–1998	0.87	M-v	5	Spahr	33005	1998 RQ ₆₈
1998 RS ₆₈	14.5	0.15	19990810	75.59831	21.77857	1.63489	9.14792	0.1008731	2.3140797	43	3	1982–1998	0.60	M-v	3	Spahr	33565	1998 RS ₆₈
1998 RU ₆₈	13.9	0.15	19990810	15.11281	50.32897	11.18495	4.86557	0.1439072	3.1429982	35	3	1976–1998	0.59	M-v	4	Spahr	33005	1998 RU ₆₈
1998 RW ₆₈	15.0	0.15	19990810	128.43968	294.70296	15.60004	2.91665	0.1904610	2.3148800	49	1	134 days	0.70	M-v	4	Williams	34022	1998 RW ₆₈
1998 RX ₆₈	13.7	0.15	19990810	82.48705	350.72409	5.96568	9.90610	0.1439424	2.6055235	33	3	1977–1999	0.79	M-v	3	Spahr	33756	1998 RX ₆₈
1998 RD ₆₉	15.4	0.15	19990810	212.42961	165.15222	68.99959	0.94490	0.1282474	2.2458821	31	2	1995–1998	0.60	M-v	5	Spahr	33274	1998 RD ₆₉
1998 RV ₆₉	15.5	0.15	19990810	172.26642	213.54979	42.05097	2.82730	0.1789534	2.3772841	38	2	1997–1998	0.69	M-v	4	Spahr	33352	1998 RV ₆₉
1998 RP ₇₀	13.3	0.15	19990810	226.45915	126.34979	58.87671	7.64434	0.1111563	3.3947555	27	2	1996–1998	0.71	M-v	4	Spahr	34592	1998 RP ₇₀
1998 RW ₇₀	15.1	0.15	19990810	87.35461	243.43041	131.70667	4.48753	0.1470668	2.1977416	43	3	1990–1998	0.74	M-v	3	Spahr	34302	1998 RW ₇₀
1998 RB ₇₁	14.2	0.15	19990810	355.03775	307.90427	152.86145	8.92027	0.2156956	2.7982615	29	3	1975–1998	0.69	M-v	3	Spahr	33006	1998 RB ₇₁
1998 RH ₇₁	13.5	0.15	19990810	66.24333	324.82835	40.15181	4.80688	0.2173272	2.7979815	49	3	1984–1998	0.64	M-v	2	Spahr	34535	1998 RH ₇₁
1998 RL ₇₁	15.0	0.15	19990810	64.54721	281.94296	112.48653	3.11625	0.2031978	2.3953453	39	3	1996–1998	0.75	M-v	3	Spahr	33565	1998 RL ₇₁
1998 RP ₇₁	15.5	0.15	19990810	57.17564	27.88684	25.84552	4.22246	0.1130012	2.1777760	35	3	1971–1998	0.71	M-v	3	Spahr	33352	1998 RP ₇₁
1998 RX ₇₁	14.3	0.15	19990810	333.17593	104.91871	18.71409	6.85112	0.0904407	2.4304878	40	5	1970–1998	0.66	M-v	1	Spahr	33969	1998 RX ₇₁
1998 RM ₇₂	15.2	0.15	19990810	108.32817	180.72306	152.57540	2.22973	0.0622198	2.5111378	29	3	1996–1998	0.68	M-v	4	Spahr	33008	1998 RM ₇₂
1998 RS ₇₂	13.7	0.15	19990810	267.79249	14.06183	155.28089	4.21623	0.0324904	2.7875330	50	4	1992–1998	0.67	M-v	2	Spahr	34592	1998 RS ₇₂
1998 RX ₇₂	13.7	0.15	19990810	43.02822	211.49543	182.95173	8.64251	0.2481809	3.0580897	54	1	158 days	0.47	M-v	3	Spahr	33756	1998 RX ₇₂
1998 RA ₇₃	13.9	0.15	19990810	301.34079	222.75098	271.06449	0.75822	0.0373493	2.9525635	24	2	1993–1998	0.82	M-v	6	Spahr	33969	1998 RA ₇₃
1998 RP ₇₄	14.8	0.15	19990810	187.31706	283.52917	335.32744	4.58842	0.1377177	2.2737953	40	3	1990–1998	0.64	M-v	3	Spahr	33352	1998 RP ₇₄
1998 RB ₇₅	15.0	0.15	19990810	70.99115	32.53492	2.12837	7.26414	0.1117865	2.2625979	37	1	144 days	0.63	M-v	4	Spahr	34022	1998 RB ₇₅

1998 RJ ₇₅	15.2	0.15	19990810	282.47199	120.29540	60.12175	1.86731	0.0829070	2.2472575	38	5	1980–1998	0.69	M-v	2	Spahr	34592	1998 RJ ₇₅
1998 RC ₇₆	14.8	0.15	19990810	144.39291	131.01819	149.27905	4.98874	0.2248069	2.3823479	29	3	1979–1998	0.53	M-v	3	Spahr	33010	1998 RC ₇₆
1998 RH ₇₆	13.5	0.15	19990810	30.78522	335.74086	68.02719	3.23761	0.1044169	2.9446448	37	2	1989–1998	0.75	M-v	5	Spahr	33010	1998 RH ₇₆
1998 RU ₇₆	14.7	0.15	19990810	114.63708	167.91063	149.61642	6.20045	0.2535396	2.3630346	49	4	1976–1998	0.67	M-v	2	Spahr	34302	1998 RU ₇₆
1998 RA ₇₇	16.2	0.15	19990810	124.87372	271.52473	33.40642	4.77600	0.2858247	2.2923778	31	1	62 days	0.60	M-v	5	Spahr	33352	1998 RA ₇₇
1998 RF ₇₇	13.3	0.15	19990810	94.22467	282.87797	33.68792	7.16883	0.1289447	3.1718701	30	1	99 days	0.66	M-v	5	Spahr	33566	1998 RF ₇₇
1998 RV ₇₇	13.4	0.15	19990810	87.07612	313.03124	21.28194	11.24498	0.1102161	2.9865298	45	4	1991–1998	0.66	M-v	2	Williams	35341	1998 RV ₇₇
1998 RA ₇₉	15.6	0.15	19990810	71.04181	222.67145	151.11358	8.03868	0.1896969	2.5858671	28	2	1996–1998	0.67	M-v	4	Spahr	33011	1998 RA ₇₉
1998 RD ₇₉	14.6	0.15	19990810	210.43333	186.58680	52.82800	6.18264	0.1329610	2.2134890	43	4	1977–1998	0.73	M-v	4	Spahr	33353	1998 RD ₇₉
1998 RM ₇₉	15.8	0.15	19990810	112.66054	290.48289	55.69300	3.81406	0.2092318	2.1538715	52	2	1995–1999	0.51	M-v	4	Spahr	33757	1998 RM ₇₉
1998 RW ₇₉	15.2	0.15	19990810	7.72719	282.55700	183.98830	5.42631	0.1915189	2.4390013	29	4	1977–1998	0.78	M-v	3	Spahr	33276	1998 RW ₇₉
1998 RC ₈₀	13.2	0.15	19990810	35.41587	242.77213	155.13045	11.12780	0.1151841	3.0624904	27	3	1982–1998	0.66	M-v	4	Spahr	34535	1998 RC ₈₀
1998 RH ₈₀	13.1	0.15	19990810	79.07323	294.69047	44.98069	5.95269	0.1806391	3.1084121	54	3	1987–1999	0.73	M-v	2	Spahr	33757	1998 RH ₈₀
1998 RP ₈₀	13.0	0.15	19990810	102.21774	121.96429	198.66168	8.88092	0.0888105	3.1612929	56	1	92 days	0.65	M-v	4	Spahr	34022	1998 RP ₈₀
1998 SC	13.5	0.15	19990810	198.13478	174.65529	46.53485	10.01533	0.2147906	2.7403120	36	1	77 days	0.64	M-v	5	Spahr	33353	1998 SC
1998 SV	17.3	0.15	19990810	154.80095	289.79712	23.44479	2.78771	0.0867305	2.1718465	16	2	1997–1998	0.73	M-v	6	Spahr	33013	1998 SV
1998 SF ₁	14.8	0.15	19990810	169.02966	92.96393	191.15476	5.96875	0.0934702	2.4504023	37	3	1994–1998	0.71	M-v	3	Spahr	33276	1998 SF ₁
1998 SG ₁	15.5	0.15	19990810	27.12621	272.05105	177.13358	2.25004	0.1889320	2.5770691	34	3	1973–1998	0.76	M-v	4	Spahr	33969	1998 SG ₁
1998 SR ₁	14.7	0.15	19990810	98.92752	253.97124	95.92920	4.56129	0.1960161	2.3188659	47	3	1991–1998	0.58	M-v	3	Spahr	34222	1998 SR ₁
1998 SA ₂	16.7	0.15	19990810	28.24300	353.31955	88.01233	5.64696	0.2683090	2.5864406	18	2	1996–1998	0.26	M-v	4	Spahr	33013	1998 SA ₂
1998 SD ₂	12.2	0.15	19990810	175.53919	332.82321	188.00383	17.91679	0.1004825	3.2155050	39	6	1982–1998	0.67	M-v	1	Spahr	33013	1998 SD ₂
1998 SE ₂	16.1	0.15	19980904	19.60389	86.99992	231.72984	23.02648	0.2695980	2.3440829	20	1	55 days	0.60			Williams		1998 SE ₂
1998 SL ₂	14.1	0.15	19990810	57.19653	67.34406	328.91103	6.11113	0.2693080	2.5462397	94	2	1990–1999	0.72	M-v	3	Spahr	34303	1998 SL ₂
1998 SN ₂	14.7	0.15	19990810	64.39001	269.60640	119.69712	0.22646	0.1814775	3.0865566	32	2	1997–1999	0.52	M-v	3	Williams	34303	1998 SN ₂
1998 SR ₂	12.4	0.15	19990810	196.07091	267.73031	338.33038	26.96422	0.2012055	3.2064809	18	1	62 days	0.49	M-v	5	Williams		1998 SR ₂
1998 SW ₂	15.8	0.15	19980904	356.06598	64.52160	298.12124	24.32303	0.1696797	2.3053810	18	1	34 days	0.86			Spahr		1998 SW ₂
1998 SH ₄	13.8	0.15	19990810	149.85966	107.62515	137.45017	2.17740	0.1232388	3.1874563	24	3	1991–1998	0.60	M-v	4	Spahr	33105	1998 SH ₄
1998 SX ₄	13.5	0.15	19990810	60.60415	192.81262	174.04108	11.87513	0.1180004	3.1792417	43	2	1992–1998	0.62	M-v	4	Spahr	33354	1998 SX ₄
1998 SC ₅	14.9	0.15	19990810	43.37181	187.81209	249.20597	19.21670	0.0683841	1.9309463	9	1	80 days	0.75	M-v	6	Spahr		1998 SC ₅
1998 SG ₅	13.5	0.15	19990810	68.74077	179.49353	183.27378	12.77897	0.1727909	2.6690971	78	2	1979–1998	0.62	M-v	2	Spahr	34592	1998 SG ₅
1998 SE ₇	16.6	0.15	19990810	156.30270	61.18175	201.97369	0.44690	0.1992197	2.3744990	20	2	1994–1998	0.63	M-v	5	Spahr	34222	1998 SE ₇
1998 SX ₇	12.9	0.15	19990810	211.98359	153.82906	43.28957	0.77101	0.1283897	3.1152537	55	5	1990–1998	0.76	M-v	1	Spahr	34592	1998 SX ₇
1998 SM ₉	14.4	0.15	19990810	44.85034	208.89013	199.07040	8.97439	0.1613560	2.7284758	44	1	60 days	0.62	M-v	5	Spahr	33354	1998 SM ₉
1998 SA ₁₀	13.1	0.15	19990810	68.00951	131.09956	213.99034	34.33736	0.2118789	2.8566633	48	2	1997–1998	0.88	M-v	3	Spahr	34022	1998 SA ₁₀
1998 SH ₁₀	13.4	0.15	19990810	45.65590	351.62789	60.32948	0.95101	0.0637147	2.7898716	48	3	1991–1998	0.55	M-v	4	Spahr	34592	1998 SH ₁₀
1998 SU ₁₀	14.0	0.15	19990810	23.43356	195.05020	201.21122	0.54731	0.1533055	3.1371551	54	1	141 days	0.62	M-v	4	Spahr	33757	1998 SU ₁₀
1998 SV ₁₀	14.6	0.15	19990810	81.92835	165.62452	167.29850	2.17329	0.2544125	2.8479771	72	2	1993–1998	0.84	M-v	4	Spahr	33016	1998 SV ₁₀
1998 SW ₁₀	15.8	0.15	19990810	106.72769	152.10434	183.38920	12.45169	0.3022889	2.5711220	29	1	89 days	0.59	M-v	4	Spahr	33566	1998 SW ₁₀
1998 SB ₁₂	15.5	0.15	19990810	44.91514	211.83894	197.34755	3.29346	0.2381842	3.0560746	23	1	75 days	0.63	M-v	4	Spahr	34303	1998 SB ₁₂
1998 SL ₁₂	13.8	0.15	19990810	131.02418	146.07132	153.74408	2.29876	0.0729098	2.8410859	47	3	1993–1998	0.61	M-v	4	Spahr	34592	1998 SL ₁₂
1998 SO ₁₂	16.4	0.15	19990810	67.62332	63.27711	5.04673	19.77201	0.0965828	1.9441171	30	3	1960–1998	0.73	M-v	3	Spahr	33016	1998 SO ₁₂
1998 SP ₁₂	14.9	0.15	19990810	59.80644	119.92673	289.63959	24.77771	0.1948959	2.3126224	26	2	1994–1998	0.75	M-v	3	Spahr	33969	1998 SP ₁₂
1998 SS ₁₂	16.4	0.15	19980904	274.45625	189.79503	264.03142	19.84544	0.0581576	1.9367385	11	1	50 days	0.92			Spahr		1998 SS ₁₂
1998 SE ₁₃	14.0	0.15	19990810	339.69098	104.58566	25.61585	14.57543	0.0488071	2.5319028	36	1	62 days	0.64	M-v	5	Spahr	33354	1998 SE ₁₃
1998 SK ₁₄	14.8	0.15	19990810	54.58243	5.60887	356.47169	24.99715	0.2823748	2.9154625	26	2	1993–1998	0.69	M-v	4	Spahr	33106	1998 SK ₁₄
1998 SV ₁₄	14.1	0.15	19990810	226.32984	147.05851	93.73826	4.89973	0.0784709	2.2211211	62	3	1980–1998	0.63	M-v	3	Spahr	34303	1998 SV ₁₄
1998 SP ₂₁	15.6	0.15	19990810	103.21086	112.42532	237.56036	1.90340	0.2343051	2.3669939	45	3	1987–1998	0.53	M-v	3	Spahr	34303	1998 SP ₂₁
1998 SU ₂₁	15.0	0.15	19990810	354.80888	277.23190	186.28253	3.08791	0.1142081	2.2746732	36	2	1997–1998	0.81	M-v	4	Spahr	33018	1998 SU ₂₁
1998 SZ ₂₁	15.1	0.15	19990810	37.80038	53.42552	18.53004	2.37434	0.0823883	2.3348649	41	3	1993–1998	0.90	M-v	5	Williams	35441	1998 SZ ₂₁
1998 SE ₂₂	15.0	0.15	19990810	115.39091	111.26484	206.70471	2.85427	0.1931377	2.5712753	46	4	1994–1998	0.68	M-v	2	Williams	33354	1998 SE ₂₂
1998 SN ₂₂	13.5	0.15	19990810	309.13610	309.67876	191.44911	13.05718	0.0992218	2.6852682	55	3	1992–1998	0.62	M-v	3	Spahr	34592	1998 SN ₂₂
1998 ST ₂₂	14.0	0.15	19990810	95.51996	318.00420	45.59730	14.39681	0.1916251	2.6141764	47	1	130 days	0.44	M-v	4	Spahr	33757	1998 ST ₂₂
1998 SV ₂₂	14.8	0.15	19990810	60.24751	206.13554	205.32529	5.90928	0.1049510	2.3870954	71	4	1993–1998	0.64	M-v	2	Spahr	34303	1998 SV ₂₂

1998 SX ₂₂	14.3	0.15	19990810	83.14116	204.93644	145.38699	5.42724	0.1721053	2.7522916	73	3	1992–1998	0.67	M-v	3	Spahr	33107	1998 SX ₂₂
1998 SH ₂₃	13.2	0.15	19990810	88.84185	168.65065	142.74168	5.68971	0.2108151	3.1460331	118	3	1981–1998	0.66	M-v	2	Spahr	34592	1998 SH ₂₃
1998 SX ₂₃	15.4	0.15	19990810	129.08443	196.53172	119.92442	4.90567	0.1433890	2.2413056	54	3	1991–1998	0.71	M-v	4	Spahr	34303	1998 SX ₂₃
1998 SC ₂₄	14.1	0.15	19990810	36.07649	304.04376	85.32054	3.19621	0.1712007	3.0894605	42	3	1960–1998	0.66	M-v	4	Spahr	33020	1998 SC ₂₄
1998 SE ₂₄	15.3	0.15	19990810	77.29555	215.20423	153.36632	4.22005	0.2063137	2.4073516	31	3	1993–1998	0.40	M-v	3	Spahr	33107	1998 SE ₂₄
1998 SJ ₂₄	13.8	0.15	19990810	50.17986	296.71682	76.97762	3.76360	0.0651078	2.8741189	38	2	1978–1998	1.14	M-v	5	Spahr	33107	1998 SJ ₂₄
1998 SP ₂₄	14.1	0.15	19990810	13.37453	278.70359	136.68522	4.30542	0.1161604	3.0256408	50	4	1993–1998	0.78	M-v	2	Spahr	33020	1998 SP ₂₄
1998 SW ₂₅	14.6	0.15	19990810	86.58127	175.26236	155.01855	5.53350	0.2205116	3.0314169	41	3	1996–1998	0.72	M-v	3	Spahr	33355	1998 SW ₂₅
1998 SY ₂₅	13.9	0.15	19990810	69.83632	341.02020	33.33733	6.06331	0.0969534	2.6898464	35	2	1976–1998	0.52	M-v	4	Spahr	33566	1998 SY ₂₅
1998 SB ₂₆	14.0	0.15	19990810	96.04354	305.11232	28.66182	13.20584	0.2021346	2.6938754	29	1	78 days	0.63	M-v	4	Spahr	33566	1998 SB ₂₆
1998 SS ₂₆	13.9	0.15	19990810	47.06849	64.27838	17.10848	13.91838	0.1494632	2.5301620	40	1	136 days	0.57	M-v	4	Spahr	33757	1998 SS ₂₆
1998 SG ₂₇	12.3	0.15	19990810	5.07431	115.82558	269.91469	12.08846	0.2533123	3.9438744	54	4	1976–1999	0.55	M-v	1	Williams	33355	1998 SG ₂₇
1998 SH ₂₇	16.0	0.15	19990810	79.73764	298.92016	97.14623	6.01278	0.2093354	2.4067429	22	1	75 days	0.43	M-v	4	Spahr	33566	1998 SH ₂₇
1998 SM ₂₇	16.2	0.15	19990810	128.06957	120.54932	229.50425	21.31984	0.0999100	1.8898699	21	2	1993–1998	0.65	M-v	3	Spahr	33021	1998 SM ₂₇
1998 SN ₂₇	13.4	0.15	19981014	160.69234	296.79427	281.64190	27.10921	0.0980741	2.6521817	18	1	56 days	0.93			Spahr		1998 SN ₂₇
1998 SR ₂₇	15.0	0.15	19990810	65.55314	136.74271	269.71125	23.08065	0.2687406	2.3663958	26	1	136 days	0.71	M-v	4	Spahr	33757	1998 SR ₂₇
1998 SC ₂₈	14.5	0.15	19990810	100.49389	163.62132	159.65864	0.77219	0.1667925	3.0961409	32	2	1992–1999	0.73	M-v	4	Spahr	33757	1998 SC ₂₈
1998 SY ₃₁	15.6	0.15	19990810	46.59228	239.71003	187.29746	4.65387	0.1676700	2.3006066	44	4	1977–1998	0.78	M-v	4	Spahr	33022	1998 SY ₃₁
1998 SW ₃₂	14.8	0.15	19990810	13.47257	82.58450	5.39862	4.81938	0.2336273	2.5616393	49	3	1986–1998	0.80	M-v	3	Spahr	34303	1998 SW ₃₂
1998 SR ₃₃	15.0	0.15	19990810	49.80599	64.42836	348.49873	12.89079	0.3258351	2.6116070	49	2	1981–1998	0.52	M-v	3	Spahr	33567	1998 SR ₃₃
1998 SH ₃₄	15.4	0.15	19990810	161.52628	274.86487	3.84761	23.84828	0.1201373	2.3339670	38	3	1973–1998	0.88	M-v	2	Spahr	33022	1998 SH ₃₄
1998 SN ₃₄	15.9	0.15	19990810	70.78603	226.42862	196.23277	21.75040	0.0893515	1.9437908	51	2	1960–1998	0.59	M-v	4	Spahr	34303	1998 SN ₃₄
1998 SK ₃₅	14.7	0.15	19990810	101.40099	312.25156	4.56331	6.52509	0.1161491	2.6722485	39	1	88 days	0.70	M-v	4	Spahr	33355	1998 SK ₃₅
1998 SQ ₃₅	13.7	0.15	19990810	258.92131	160.66386	39.52523	15.97715	0.0901678	3.0674765	29	1	63 days	0.55	M-v	5	Spahr	34592	1998 SQ ₃₅
1998 SR ₃₅	16.2	0.15	19990810	27.80711	69.91741	40.17125	3.47267	0.1191701	2.2333646	23	1	120 days	0.41	M-v	4	Spahr	33757	1998 SR ₃₅
1998 SU ₃₅	15.2	0.15	19990810	74.86414	343.59831	21.96680	11.95544	0.1980358	2.5792482	37	1	79 days	0.62	M-v	4	Spahr	33355	1998 SU ₃₅
1998 SK ₃₆	16.1	0.15	19990810	72.14811	308.36727	87.15871	6.17132	0.2930594	2.5719121	29	1	72 days	0.48	M-v	4	Spahr	34303	1998 SK ₃₆
1998 SP ₃₆	11.9	0.15	19990810	203.31938	205.47509	13.61924	12.54209	0.0911521	3.1632141	65	5	1973–1998	0.68	M-v	2	Spahr	34023	1998 SP ₃₆
1998 SV ₃₆	15.6	0.15	19990810	220.91235	35.52533	187.53020	3.95213	0.1703639	2.3949455	23	3	1994–1998	0.64	M-v	4	Spahr	34535	1998 SV ₃₆
1998 SS ₃₇	15.7	0.15	19990810	151.56536	92.46576	217.58809	2.50728	0.1363032	2.2125681	36	2	1991–1999	0.81	M-v	4	Spahr	34303	1998 SS ₃₇
1998 SU ₃₇	14.2	0.15	19990810	327.82798	296.24882	211.42193	6.91111	0.0535566	2.3478361	33	2	1975–1998	0.53	M-v	5	Spahr	34303	1998 SU ₃₇
1998 SP ₄₂	14.8	0.15	19990810	39.53072	71.57903	351.33807	2.09328	0.1209667	2.3151620	64	4	1989–1998	0.63	M-v	2	Spahr	33567	1998 SP ₄₂
1998 SC ₄₃	14.7	0.15	19990810	108.18282	293.39693	33.36960	4.25765	0.1344843	2.6305322	47	2	1992–1998	0.63	M-v	4	Spahr	33356	1998 SC ₄₃
1998 SG ₄₃	14.1	0.15	19990810	85.66774	288.50813	84.01748	3.60993	0.0293444	2.3244391	50	3	1991–1998	0.61	M-v	4	Spahr	33356	1998 SG ₄₃
1998 SR ₄₃	13.6	0.15	19990810	7.40575	68.88183	4.17686	1.76602	0.0544270	2.9410132	76	5	1976–1998	0.78	M-v	1	Spahr	34023	1998 SR ₄₃
1998 SS ₄₃	14.5	0.15	19990810	79.42949	175.56954	183.77238	9.74741	0.1517354	2.7340062	63	4	1989–1998	0.80	M-v	2	Spahr	33356	1998 SS ₄₃
1998 SW ₄₃	12.7	0.15	19990810	28.07200	137.67532	240.75805	5.25793	0.1760113	3.9522606	56	2	1990–1998	0.63	M-v	4	Spahr	33567	1998 SW ₄₃
1998 SO ₄₅	15.8	0.15	19990810	293.76330	63.17360	104.62906	1.24683	0.1227711	2.3440139	27	3	1991–1998	0.68	M-v	4	Spahr	33278	1998 SO ₄₅
1998 SU ₄₅	16.2	0.15	19990810	148.73847	123.95020	169.83763	4.07879	0.1217205	2.3564358	23	2	1997–1998	0.78	M-v	5	Spahr	33279	1998 SU ₄₅
1998 SE ₄₇	13.4	0.15	19990810	7.24145	53.79739	33.60181	5.76511	0.0672305	3.0008199	34	2	1993–1998	0.68	M-v	5	Spahr	34303	1998 SE ₄₇
1998 SN ₄₈	14.6	0.15	19990810	27.58360	82.22299	6.35682	1.63847	0.1885292	2.6220251	43	2	1994–1998	0.51	M-v	4	Spahr	34303	1998 SN ₄₈
1998 SD ₄₉	15.9	0.15	19990810	79.45948	193.94448	172.11989	2.94127	0.2058973	2.4159543	55	2	1995–1998	0.71	M-v	4	Spahr	33026	1998 SD ₄₉
1998 SF ₄₉	12.5	0.15	19990810	317.38026	109.46674	19.64431	2.39010	0.0705280	3.3358256	58	1	64 days	0.63	M-v	5	Spahr	34303	1998 SF ₄₉
1998 SG ₄₉	12.8	0.15	19990810	16.12813	234.33732	213.52470	8.14447	0.1222707	2.7898639	60	3	1989–1999	0.69	M-v	3	Spahr	34592	1998 SG ₄₉
1998 SO ₄₉	13.6	0.15	19990810	147.33633	114.15410	180.33484	1.61469	0.0411194	2.8325026	78	5	1988–1998	0.68	M-v	1	Spahr	34592	1998 SO ₄₉
1998 SO ₅₀	15.0	0.15	19990810	330.63362	142.50009	11.03050	4.86409	0.1701966	2.3792915	24	2	1989–1998	0.68	M-v	5	Spahr	33279	1998 SO ₅₀
1998 SB ₅₁	15.1	0.15	19990810	121.06485	104.32978	221.84848	1.26492	0.2334531	2.3563550	44	4	1992–1998	0.60	M-v	1	Spahr	34303	1998 SB ₅₁
1998 SU ₅₂	11.4	0.15	19990810	349.98589	148.16429	285.08969	2.28264	0.1121562	5.1342074	62	1	85 days	0.63	M-v	4	Spahr	34303	1998 SU ₅₂
1998 ST ₅₃	15.2	0.15	19990810	43.14060	78.97266	334.96485	6.98645	0.2383911	2.5352574	42	3	1986–1998	0.71	M-v	4	Spahr	33027	1998 ST ₅₃
1998 SV ₅₃	13.4	0.15	19990810	313.36412	262.17506	205.32752	6.24516	0.0961804	3.1853559	38	3	1996–1998	0.72	M-v	4	Spahr	33027	1998 SV ₅₃
1998 SW ₅₃	15.7	0.15	19990810	164.92802	14.10542	270.89645	2.60436	0.0691239	2.1405294	39	3	1991–1998	0.87	M-v	4	Spahr	33027	1998 SW ₅₃
1998 SH ₅₄	13.5	0.15	19990810	314.47919	274.76196	200.40905	5.04063	0.1049034	3.2030821	46	5	1978–1998	0.71	M-v	1	Williams	34592	1998 SH ₅₄
1998 SL ₅₄	14.5	0.15	19990810	112.73423	90.63911	228.02946	1.77814	0.1784423	2.4247195	56	2	1997–1998	0.78	M-v	4	Williams	35441	1998 SL ₅₄

1998 SP ₅₄	15.1	0.15	19990810	13.13718	261.69031	188.81246	4.21475	0.2235903	2.5435052	42	4	1992–1998	0.76	M-v	2	Spahr	33356	1998 SP ₅₄
1998 ST ₅₄	14.5	0.15	19990810	120.65696	305.46787	11.28365	6.48800	0.1399557	2.3592262	57	4	1980–1998	0.85	M-v	2	Spahr	33567	1998 ST ₅₄
1998 SA ₅₆	15.0	0.15	19990810	41.42698	222.89304	160.75124	1.41526	0.1989170	3.0951065	50	3	1995–1998	0.65	M-v	4	Spahr	33030	1998 SA ₅₆
1998 SO ₅₆	15.7	0.15	19990810	112.51899	311.26916	10.67980	2.69418	0.2111026	2.3810901	54	2	1997–1998	0.50	M-v	3	Spahr	33356	1998 SO ₅₆
1998 SP ₅₆	13.9	0.15	19990810	95.16213	309.92772	15.51878	3.66920	0.0748428	2.8078901	37	2	1992–1998	0.59	M-v	4	Spahr	33567	1998 SP ₅₆
1998 SS ₅₆	15.3	0.15	19990810	119.94066	130.72498	164.20715	4.58193	0.1949813	2.6036476	32	2	1997–1998	0.74	M-v	4	Spahr	33030	1998 SS ₅₆
1998 SU ₅₆	15.4	0.15	19990810	125.19061	294.16373	7.80378	6.03557	0.2033260	2.3725418	51	2	1997–1998	0.59	M-v	4	Spahr	33030	1998 SU ₅₆
1998 SN ₅₇	13.8	0.15	19990810	50.86235	328.03179	56.33291	2.18679	0.1609740	2.7775063	50	2	1975–1998	0.63	M-v	4	Spahr	33567	1998 SN ₅₇
1998 SR ₅₇	17.0	0.15	19990810	136.83285	257.52915	47.35645	3.02210	0.2094485	2.1625354	37	4	1991–1998	0.62	M-v	2	Spahr	33280	1998 SR ₅₇
1998 SD ₅₈	12.9	0.15	19990810	331.86638	278.50787	178.79581	9.68838	0.0443127	3.0181512	59	2	1993–1999	0.67	M-v	4	Spahr	33758	1998 SD ₅₈
1998 SE ₅₈	13.7	0.15	19990810	201.09502	227.26172	358.14960	2.19959	0.1271716	2.6586467	40	2	1990–1998	0.62	M-v	5	Spahr	33031	1998 SE ₅₈
1998 SF ₅₈	14.9	0.15	19990810	113.71718	314.14046	4.85401	7.11300	0.1904268	2.4311334	54	3	1979–1998	0.65	M-v	3	Spahr	33031	1998 SF ₅₈
1998 SH ₅₈	13.9	0.15	19990810	87.14417	170.03234	178.40175	8.30742	0.1758583	2.5731149	60	2	1997–1998	0.74	M-v	3	Spahr	34303	1998 SH ₅₈
1998 SM ₅₈	14.1	0.15	19990810	31.92577	239.10708	164.74006	2.25080	0.0595142	2.8391874	57	3	1993–1998	0.63	M-v	4	Williams	34592	1998 SM ₅₈
1998 SN ₅₈	15.3	0.15	19990810	101.81719	173.27640	167.49448	2.26516	0.2353721	2.3526009	53	3	1991–1998	0.65	M-v	3	Spahr	33758	1998 SN ₅₈
1998 SR ₅₈	15.0	0.15	19990810	5.74296	274.15499	182.18678	6.44954	0.0525948	2.3052141	35	2	1997–1998	0.64	M-v	4	Spahr	33357	1998 SR ₅₈
1998 ST ₅₈	15.1	0.15	19990810	144.87328	128.91894	172.61681	3.53464	0.1830484	2.1673740	41	1	88 days	0.57	M-v	5	Spahr	33357	1998 ST ₅₈
1998 SY ₅₈	15.3	0.15	19990810	106.74827	313.94498	27.39098	3.05453	0.1645100	2.3244394	31	2	1997–1998	0.54	M-v	4	Spahr	33567	1998 SY ₅₈
1998 SB ₅₉	14.8	0.15	19990810	61.78444	198.45406	168.10560	4.21286	0.1424527	3.0055637	33	2	1977–1998	0.62	M-v	5	Spahr	33357	1998 SB ₅₉
1998 SF ₅₉	13.6	0.15	19990810	171.85594	77.78215	177.31566	10.64175	0.0420325	2.9754299	37	2	1993–1998	0.75	M-v	5	Spahr	33357	1998 SF ₅₉
1998 SP ₅₉	14.5	0.15	19990810	334.07806	1.01131	115.98648	3.01340	0.0537642	2.6026908	37	3	1971–1998	0.81	M-v	4	Spahr	33357	1998 SP ₅₉
1998 SQ ₅₉	12.9	0.15	19990810	137.63408	177.86272	96.93863	2.43241	0.1546214	3.0979888	53	4	1976–1998	0.76	M-v	1	Spahr	34592	1998 SQ ₅₉
1998 SY ₅₉	13.7	0.15	19990810	19.44112	284.57003	134.19995	6.09163	0.1490391	3.1565576	30	3	1989–1998	0.57	M-v	3	Spahr	33033	1998 SY ₅₉
1998 SX ₆₀	14.2	0.15	19990810	43.90462	11.18779	14.58756	10.73586	0.1172743	2.9695770	42	2	1993–1998	0.76	M-v	4	Spahr	33357	1998 SX ₆₀
1998 SL ₆₁	14.6	0.15	19990810	150.59996	25.70358	266.42900	4.70076	0.1833933	2.2884435	34	5	1977–1998	0.80	M-v	2	Spahr	33280	1998 SL ₆₁
1998 SL ₆₂	15.7	0.15	19990810	39.00009	253.93441	201.05399	20.87378	0.0976048	1.9329955	28	1	123 days	0.57	M-v	4	Spahr	34303	1998 SL ₆₂
1998 SR ₆₂	15.0	0.15	19990810	120.97859	309.64111	41.32754	2.26117	0.2729753	2.3168392	28	2	1997–1998	0.82	M-v	5	Spahr	33511	1998 SR ₆₂
1998 SZ ₆₂	15.6	0.15	19990810	78.28268	5.24663	4.53515	3.16039	0.2197135	2.5326644	48	3	1990–1998	0.67	M-v	3	Spahr	33357	1998 SZ ₆₂
1998 SD ₆₃	15.1	0.15	19990810	58.09813	213.13499	225.71344	6.56669	0.0930444	2.3388009	34	1	77 days	0.54	M-v	4	Spahr	33568	1998 SD ₆₃
1998 SJ ₆₃	14.8	0.15	19990810	70.83710	96.94367	297.34536	3.51970	0.3220766	2.4691000	57	1	130 days	0.68	M-v	4	Spahr	34303	1998 SJ ₆₃
1998 SQ ₆₃	14.9	0.15	19990810	104.63315	296.53338	56.49316	2.79651	0.0736350	2.3361858	40	2	1997–1998	0.56	M-v	4	Spahr	33281	1998 SQ ₆₃
1998 SR ₆₃	14.3	0.15	19990810	85.00768	224.47981	105.78823	1.97532	0.2535398	3.0382494	48	2	1976–1999	0.61	M-v	4	Spahr	33758	1998 SR ₆₃
1998 SH ₆₄	14.9	0.15	19990810	58.56404	333.83322	67.91677	6.06211	0.1915475	2.6175565	31	1	80 days	0.84	M-v	4	Spahr	34303	1998 SH ₆₄
1998 SO ₆₄	14.9	0.15	19990810	123.39698	125.14148	189.00776	12.56625	0.1940119	2.5787164	45	3	1973–1998	0.90	M-v	2	Spahr	33281	1998 SO ₆₄
1998 SZ ₆₄	14.3	0.15	19990810	222.86487	114.57563	128.40488	4.27403	0.0936425	2.2577181	40	4	1991–1998	1.53	M-v	2	Spahr	33281	1998 SZ ₆₄
1998 SR ₆₅	14.5	0.15	19990810	96.53064	256.75477	98.93245	2.79700	0.1903988	2.4757153	30	1	84 days	0.67	M-v	4	Williams	34304	1998 SR ₆₅
1998 SP ₆₆	14.6	0.15	19990810	190.75431	199.93927	67.96165	6.39005	0.1725816	2.1880349	36	2	1995–1998	0.84	M-v	4	Spahr	33282	1998 SP ₆₆
1998 SX ₆₆	13.8	0.15	19990810	71.40475	263.61567	110.03113	3.20963	0.1014992	2.9183783	32	4	1989–1998	0.75	M-v	3	Spahr	33568	1998 SX ₆₆
1998 SD ₆₇	14.4	0.15	19990810	115.46952	298.66956	48.58846	5.93848	0.1925023	2.2281642	59	2	1988–1999	0.73	M-v	4	Spahr	34304	1998 SD ₆₇
1998 SN ₆₇	14.2	0.15	19990810	3.75220	70.37256	40.65055	15.63735	0.1669445	2.6491441	34	2	1996–1998	0.89	M-v	4	Spahr	34592	1998 SN ₆₇
1998 SR ₇₀	13.9	0.15	19990810	67.29387	337.86894	30.16544	9.39816	0.0942290	3.0862690	40	3	1987–1998	0.72	M-v	4	Spahr	34023	1998 SR ₇₀
1998 SG ₇₁	14.8	0.15	19990810	83.17535	311.57872	48.07454	5.17459	0.1160036	2.7616439	19	1	115 days	0.56	M-v	5	Spahr	33758	1998 SG ₇₁
1998 SX ₇₁	14.9	0.15	19990810	268.18662	156.67934	41.74248	4.26689	0.0762609	2.3571046	28	1	116 days	0.91	M-v	4	Spahr	33758	1998 SX ₇₁
1998 SX ₇₂	14.7	0.15	19990810	192.81117	222.43902	41.09861	6.08137	0.1570042	2.2460570	34	1	65 days	0.71	M-v	5	Spahr	33358	1998 SX ₇₂
1998 SZ ₇₂	13.3	0.15	19990810	104.64059	213.39668	107.48211	2.67770	0.1466673	3.1159915	36	4	1981–1998	0.68	M-v	1	Spahr	34304	1998 SZ ₇₂
1998 SG ₇₃	15.0	0.15	19990810	14.92023	300.55223	160.64161	4.52335	0.2151736	2.6067890	38	4	1960–1998	0.86	M-v	2	Spahr	33283	1998 SG ₇₃
1998 SJ ₇₃	14.8	0.15	19990810	77.43497	248.34322	132.76804	3.41614	0.1869475	2.4621863	47	3	1996–1998	0.61	M-v	3	Spahr	34592	1998 SJ ₇₃
1998 SW ₇₃	14.5	0.15	19990810	134.23623	283.90084	35.29132	8.06610	0.1385567	2.3061948	51	4	1977–1998	0.71	M-v	3	Spahr	33568	1998 SW ₇₃
1998 SW ₇₄	14.2	0.15	19990810	29.63827	34.84046	50.90982	7.35961	0.1060189	2.3581421	59	3	1971–1999	0.67	M-v	2	Spahr	34304	1998 SW ₇₄
1998 SK ₇₅	14.2	0.15	19990810	274.40840	57.39162	131.97831	4.96484	0.0740307	2.4571364	35	2	1996–1998	0.76	M-v	5	Spahr	33284	1998 SK ₇₅
1998 SL ₇₅	14.7	0.15	19990810	111.78979	222.79445	98.49750	3.61586	0.2070767	2.6604567	32	2	1997–1998	0.65	M-v	4	Spahr	33284	1998 SL ₇₅
1998 SW ₇₅	14.7	0.15	19990810	228.40567	101.26141	134.47563	3.09524	0.1296406	2.2059745	33	4	1978–1998	0.71	M-v	2	Spahr	34593	1998 SW ₇₅
1998 SH ₇₉	14.4	0.15	19990810	110.48711	254.78626	76.60909	4.73196	0.1517471	2.2884250	33	2	1991–1998	0.62	M-v	4	Spahr	33511	1998 SH ₇₉

1998 SQ ₉₇	13.5	0.15	19990810	48.25542	194.86458	182.10639	17.38593	0.1154428	3.1306220	34	2	1987–1998	0.73	M-v	4	Spahr	33359	1998 SQ ₉₇
1998 SX ₁₀₁	15.3	0.15	19990810	117.03563	307.84548	11.55799	4.15454	0.2571771	2.3376446	42	1	103 days	0.69	M-v	5	Spahr	34023	1998 SX ₁₀₁
1998 SE ₁₀₂	14.8	0.15	19990810	39.86106	52.77402	18.52155	4.68333	0.0995758	2.2573462	38	1	103 days	0.75	M-v	5	Spahr	34023	1998 SE ₁₀₂
1998 SV ₁₀₅	14.5	0.15	19990810	351.29708	12.35080	104.14424	2.24593	0.1352149	2.4146568	25	2	1994–1998	0.64	M-v	5	Spahr	34023	1998 SV ₁₀₅
1998 SZ ₁₀₆	14.2	0.15	19990810	9.45371	239.46494	199.42365	2.75177	0.0601449	2.7078738	35	3	1993–1998	0.67	M-v	3	Spahr	33359	1998 SZ ₁₀₆
1998 SK ₁₀₇	16.0	0.15	19990810	75.50017	202.18823	192.84644	5.55637	0.2521205	2.2846972	38	3	1960–1998	0.52	M-v	3	Spahr	34593	1998 SK ₁₀₇
1998 SN ₁₀₈	13.5	0.15	19990810	39.65023	180.99415	211.45085	7.79257	0.0948017	3.2056654	33	2	1996–1999	0.67	M-v	3	Spahr	33758	1998 SN ₁₀₈
1998 SE ₁₁₁	15.3	0.15	19990810	53.51002	198.41704	219.21604	1.79310	0.1943242	2.3769535	44	2	1987–1998	0.56	M-v	5	Spahr	34023	1998 SE ₁₁₁
1998 SN ₁₁₄	13.9	0.15	19990810	58.96808	260.35272	117.47864	3.66620	0.1764705	2.8779553	38	3	1978–1998	0.49	M-v	3	Spahr	34593	1998 SN ₁₁₄
1998 SZ ₁₁₄	13.8	0.15	19990810	99.92054	250.36365	88.50065	1.43355	0.0626922	2.7326870	41	4	1992–1999	0.81	M-v	2	Spahr	34023	1998 SZ ₁₁₄
1998 SY ₁₁₅	14.1	0.15	19990810	186.28865	242.36764	10.39631	13.44454	0.1465212	2.5283779	26	3	1990–1998	0.70	M-v	5	Spahr	33285	1998 SY ₁₁₅
1998 SH ₁₁₇	15.2	0.15	19990810	56.58953	178.36912	228.62651	5.74462	0.2666143	2.5940778	39	1	103 days	0.53	M-v	4	Spahr	34023	1998 SH ₁₁₇
1998 SY ₁₁₇	15.2	0.15	19990810	29.30732	139.23281	314.27134	1.87905	0.2002101	2.3742511	40	4	1991–1998	0.70	M-v	1	Spahr	34593	1998 SY ₁₁₇
1998 SR ₁₁₈	14.8	0.15	19990810	64.97123	199.28080	189.73689	2.36467	0.0565845	2.5432778	34	3	1980–1998	0.69	M-v	4	Spahr	34304	1998 SR ₁₁₈
1998 SK ₁₁₉	13.0	0.15	19990810	353.83642	78.71348	22.42992	9.34887	0.1179824	2.7747600	48	4	1989–1999	0.79	M-v	2	Spahr	34304	1998 SK ₁₁₉
1998 SR ₁₁₉	15.0	0.15	19990810	44.03278	235.42351	174.50314	8.16830	0.2284617	2.7892549	40	3	1993–1998	0.66	M-v	3	Spahr	33361	1998 SR ₁₁₉
1998 SC ₁₂₂	14.6	0.15	19990810	48.25225	65.64034	351.01447	4.34391	0.1542830	2.5316499	40	5	1954–1999	0.64	M-v	3	Spahr	34304	1998 SC ₁₂₂
1998 SW ₁₂₂	15.6	0.15	19990810	72.01348	114.67380	277.48177	0.70754	0.2160436	2.4176376	43	2	1987–1998	0.66	M-v	4	Spahr	33569	1998 SW ₁₂₂
1998 SE ₁₂₃	14.4	0.15	19990810	103.65058	134.09794	201.89196	6.65947	0.0920383	2.7320757	44	1	122 days	0.50	M-v	4	Spahr	34024	1998 SE ₁₂₃
1998 SK ₁₂₃	13.8	0.15	19990810	52.55058	4.94183	15.37208	1.97867	0.2032952	3.2023390	51	5	1981–1999	0.64	M-v	1	Spahr	33759	1998 SK ₁₂₃
1998 SM ₁₂₃	14.0	0.15	19990810	149.08128	254.27055	21.80348	5.57358	0.2387044	2.5583885	37	3	1993–1998	0.66	M-v	3	Spahr	33569	1998 SM ₁₂₃
1998 SN ₁₂₃	14.3	0.15	19990810	99.84123	327.36049	14.77318	2.84686	0.1737805	2.5554727	54	4	1986–1999	0.63	M-v	3	Spahr	33759	1998 SN ₁₂₃
1998 SS ₁₂₃	13.3	0.15	19990810	68.98318	175.32248	190.96506	8.44067	0.0911855	2.9941875	38	1	73 days	0.62	M-v	4	Spahr	33569	1998 SS ₁₂₃
1998 ST ₁₂₃	13.8	0.15	19990810	12.94364	248.52934	191.89326	9.53876	0.0783451	2.7396242	51	3	1993–1998	0.62	M-v	3	Spahr	34024	1998 ST ₁₂₃
1998 SX ₁₂₃	15.4	0.15	19990810	51.25838	25.14319	39.02102	6.64838	0.1807879	2.3527754	53	3	1971–1999	0.63	M-v	3	Spahr	34024	1998 SX ₁₂₃
1998 SH ₁₂₄	14.9	0.15	19990810	57.37608	25.26396	28.35676	6.17710	0.1611170	2.3601308	38	1	82 days	0.51	M-v	4	Spahr	34024	1998 SH ₁₂₄
1998 SJ ₁₂₄	15.0	0.15	19990810	121.80955	291.25658	29.29022	7.00802	0.1572075	2.4564188	26	2	1993–1998	0.64	M-v	5	Spahr	33288	1998 SJ ₁₂₄
1998 SO ₁₂₄	14.9	0.15	19990810	68.22506	167.53897	188.28907	10.22066	0.2969297	3.0501821	35	2	1997–1998	0.49	M-v	3	Spahr	34024	1998 SO ₁₂₄
1998 SR ₁₂₄	15.0	0.15	19990810	326.63252	336.08275	153.28007	1.83961	0.0057348	2.4792917	40	3	1992–1999	0.76	M-v	3	Spahr	34024	1998 SR ₁₂₄
1998 SK ₁₂₇	15.1	0.15	19990810	108.94983	186.51745	149.78631	5.27626	0.2691993	2.3132712	30	1	168 days	0.65	M-v	4	Spahr	34024	1998 SK ₁₂₇
1998 SA ₁₂₉	15.1	0.15	19990810	34.40036	250.72717	184.69674	15.28844	0.3032541	2.7779564	32	1	72 days	0.46	M-v	4	Spahr	34024	1998 SA ₁₂₉
1998 SL ₁₂₉	15.8	0.15	19990810	90.66783	195.45362	173.77790	2.54149	0.1765300	2.3429209	33	3	1993–1998	0.68	M-v	4	Spahr	34304	1998 SL ₁₂₉
1998 SM ₁₂₉	14.7	0.15	19990810	118.26013	150.12550	173.10036	2.48310	0.0766970	2.6828101	27	1	102 days	0.65	M-v	6	Spahr	34024	1998 SM ₁₂₉
1998 SO ₁₂₉	13.5	0.15	19990810	58.83314	336.40664	45.27187	2.60932	0.0555815	2.9376406	48	2	1996–1998	0.64	M-v	4	Spahr	33569	1998 SO ₁₂₉
1998 SQ ₁₂₉	14.9	0.15	19990810	138.12324	281.63698	28.24953	6.17702	0.1601032	2.3217409	41	2	1997–1998	0.72	M-v	4	Spahr	34024	1998 SQ ₁₂₉
1998 SA ₁₃₀	14.5	0.15	19990810	289.87354	9.52896	167.75236	2.52160	0.1187436	2.4123860	30	4	1974–1999	0.82	M-v	2	Spahr	34024	1998 SA ₁₃₀
1998 SC ₁₃₀	15.4	0.15	19990810	96.38968	353.01303	12.31238	4.08912	0.1968733	2.2841837	47	2	1991–1998	0.68	M-v	4	Spahr	33569	1998 SC ₁₃₀
1998 SG ₁₃₀	14.2	0.15	19990810	95.64813	354.66206	13.32897	8.72202	0.2159243	2.2642696	55	3	1981–1999	0.72	M-v	2	Spahr	34304	1998 SG ₁₃₀
1998 SK ₁₃₀	15.2	0.15	19990810	151.52398	282.99758	11.16287	6.89160	0.1967394	2.2700117	40	3	1991–1998	0.70	M-v	4	Spahr	33362	1998 SK ₁₃₀
1998 SN ₁₃₀	13.7	0.15	19990810	97.47460	86.63802	234.67263	0.79484	0.1922154	3.1211156	46	2	1992–1999	0.70	M-v	4	Spahr	34024	1998 SN ₁₃₀
1998 SD ₁₃₁	13.4	0.15	19990810	301.61518	147.88187	356.51384	4.86019	0.0845085	3.1451604	82	2	1995–1998	0.60	M-v	4	Williams	33362	1998 SD ₁₃₁
1998 SO ₁₃₂	14.6	0.15	19990810	35.31040	192.44309	230.92161	6.99415	0.1558619	2.7986568	34	1	114 days	0.75	M-v	4	Spahr	34024	1998 SO ₁₃₂
1998 SW ₁₃₂	13.1	0.15	19990810	41.41764	184.61709	217.72934	9.51536	0.1077462	3.0696888	60	3	1991–1999	0.83	M-v	3	Spahr	34593	1998 SW ₁₃₂
1998 SA ₁₃₃	14.5	0.15	19990810	168.91240	279.01617	6.44540	8.88066	0.1460009	2.6215868	52	4	1981–1998	0.55	M-v	1	Spahr	34304	1998 SA ₁₃₃
1998 SP ₁₃₃	14.7	0.15	19990810	168.57851	44.08295	229.52983	1.37111	0.1841686	2.3851947	40	3	1994–1999	0.78	M-v	2	Spahr	33759	1998 SP ₁₃₃
1998 SQ ₁₃₃	15.2	0.15	19990810	30.00327	80.88631	8.91350	2.42814	0.1766827	2.4014435	40	2	1994–1998	0.72	M-v	5	Spahr	33292	1998 SQ ₁₃₃
1998 SR ₁₃₃	15.3	0.15	19990810	133.94254	95.29959	209.47951	1.45919	0.2222084	2.3888769	50	4	1983–1999	0.69	M-v	2	Spahr	33759	1998 SR ₁₃₃
1998 SZ ₁₃₃	14.6	0.15	19990810	35.83283	232.72359	200.34916	5.67364	0.0971109	2.4482710	45	3	1977–1998	0.63	M-v	3	Spahr	33569	1998 SZ ₁₃₃
1998 SF ₁₃₄	15.3	0.15	19990810	96.58625	336.56599	23.96536	3.01515	0.1744088	2.3691564	35	3	1993–1998	0.70	M-v	4	Spahr	34024	1998 SF ₁₃₄
1998 SO ₁₃₄	15.4	0.15	19990810	34.99071	260.79784	183.55589	5.23071	0.1195962	2.2854889	25	2	1993–1998	1.02	M-v	5	Spahr	33293	1998 SO ₁₃₄
1998 SE ₁₃₅	13.5	0.15	19990810	103.46686	128.57297	182.92124	9.24557	0.2048638	3.1396882	41	2	1992–1998	0.66	M-v	4	Spahr	34304	1998 SE ₁₃₅
1998 SN ₁₃₅	14.2	0.15	19990810	67.09298	356.20058	40.49555	7.74049	0.0539104	2.3737986	39	3	1987–1999	0.57	M-v	2	Spahr	33759	1998 SN ₁₃₅
1998 SQ ₁₃₅	15.4	0.15	19990810	91.04171	331.58625	49.77110	5.43207	0.1215737	2.1846517	36	1	110 days	0.62	M-v	3	Spahr	34024	1998 SQ ₁₃₅

1998 SB ₁₃₆	15.0	0.15	19990810	103.04950	208.89682	137.40736	3.60783	0.1827761	2.4000143	39	3	1993–1998	0.66	M-v	4	Spahr	33363	1998 SB ₁₃₆
1998 SF ₁₃₆	14.9	0.15	19990810	160.97766	184.81568	90.53921	3.62300	0.2321499	2.3298197	44	5	1973–1998	0.76	M-v	2	Spahr	34024	1998 SF ₁₃₆
1998 SA ₁₃₇	13.5	0.15	19990810	177.65233	210.77035	38.32245	14.36128	0.2106521	2.6072247	34	3	1977–1998	0.67	M-v	4	Spahr	34024	1998 SA ₁₃₇
1998 SL ₁₃₇	15.6	0.15	19990810	43.42526	18.00542	51.59118	7.77527	0.2716887	2.5692789	33	1	74 days	0.57	M-v	4	Spahr	33569	1998 SL ₁₃₇
1998 SC ₁₃₈	14.5	0.15	19990810	43.05305	225.51815	178.06521	1.96266	0.0656975	2.8996561	36	4	1971–1998	0.97	M-v	3	Spahr	34024	1998 SC ₁₃₈
1998 SF ₁₃₈	12.6	0.15	19990810	156.65448	233.48528	32.90905	1.23616	0.1385199	3.1573810	50	3	1995–1999	0.68	M-v	3	Williams	34593	1998 SF ₁₃₈
1998 SH ₁₃₈	15.1	0.15	19990810	81.64072	167.06897	173.59922	0.67052	0.2430998	3.0758444	36	1	119 days	0.77	M-v	5	Spahr	34025	1998 SH ₁₃₈
1998 SM ₁₃₈	14.2	0.15	19990810	40.03126	125.09649	283.38712	0.96650	0.0634858	2.8684878	46	3	1993–1999	0.78	M-v	2	Spahr	33759	1998 SM ₁₃₈
1998 SZ ₁₃₈	15.7	0.15	19990810	162.65432	53.41385	228.55839	5.00000	0.3032419	2.1173871	80	1	111 days	0.64	M-v	5	Spahr	33759	1998 SZ ₁₃₈
1998 SA ₁₃₉	14.6	0.15	19990810	149.76600	324.45017	336.93696	3.73576	0.1729278	2.2820474	53	5	1990–1998	0.68	M-v	2	Spahr	34304	1998 SA ₁₃₉
1998 SC ₁₃₉	15.1	0.15	19990810	170.12945	48.64472	236.09300	4.16276	0.1217882	2.3214869	43	1	114 days	0.71	M-v	5	Spahr	34025	1998 SC ₁₃₉
1998 SD ₁₃₉	13.9	0.15	19990810	149.35455	327.69491	329.55311	4.68991	0.0395282	2.7456508	39	4	1993–1998	0.67	M-v	1	Spahr	34593	1998 SD ₁₃₉
1998 SJ ₁₃₉	15.4	0.15	19990810	71.68326	70.77444	312.29696	3.40556	0.2752421	2.6061466	35	3	1960–1998	0.66	M-v	3	Spahr	33295	1998 SJ ₁₃₉
1998 SY ₁₃₉	12.5	0.15	19990810	161.32998	42.21267	237.00787	10.16441	0.0223317	3.0971265	43	1	104 days	0.66	M-v	5	Spahr	34304	1998 SY ₁₃₉
1998 SE ₁₄₀	14.3	0.15	19990810	108.46877	344.73369	359.29772	9.31471	0.1096893	2.5454456	34	3	1992–1998	0.72	M-v	4	Spahr	34304	1998 SE ₁₄₀
1998 SL ₁₄₀	15.5	0.15	19990810	102.22320	60.62810	277.22526	2.20605	0.2512706	2.5353908	40	3	1994–1998	0.58	M-v	4	Spahr	33295	1998 SL ₁₄₀
1998 SQ ₁₄₀	15.8	0.15	19990810	140.11042	309.85105	358.22750	3.87311	0.2209061	2.2652385	61	2	1991–1998	0.68	M-v	4	Spahr	33364	1998 SQ ₁₄₀
1998 ST ₁₄₀	16.0	0.15	19990810	69.16916	82.93258	318.85523	1.79935	0.1849787	2.3901656	32	2	1991–1998	0.64	M-v	4	Spahr	33364	1998 ST ₁₄₀
1998 SW ₁₄₀	14.0	0.15	19990810	109.33665	68.31713	263.72976	0.94174	0.0443259	2.9413877	35	1	122 days	0.64	M-v	5	Spahr	34025	1998 SW ₁₄₀
1998 SF ₁₄₁	14.1	0.15	19990810	162.53049	260.64657	27.28046	1.65081	0.0624143	2.5690779	46	3	1992–1999	0.64	M-v	2	Spahr	33760	1998 SF ₁₄₁
1998 SG ₁₄₁	16.2	0.15	19990810	88.07757	355.80710	14.73587	5.26694	0.2541286	2.3942233	24	1	64 days	0.56	M-v	4	Spahr	34593	1998 SG ₁₄₁
1998 SQ ₁₄₂	15.2	0.15	19990810	6.54511	3.03898	118.61992	3.93916	0.1412452	2.2413824	20	1	84 days	0.71	M-v	5	Spahr	33569	1998 SQ ₁₄₂
1998 ST ₁₄₂	15.1	0.15	19990810	146.83204	318.22223	356.64869	1.34883	0.1321463	2.2083501	50	3	1991–1998	0.62	M-v	3	Spahr	33296	1998 ST ₁₄₂
1998 SY ₁₄₃	15.3	0.15	19990810	139.90697	330.66469	349.02950	2.30621	0.1466189	2.2209404	41	2	1997–1998	0.48	M-v	4	Spahr	33569	1998 SY ₁₄₃
1998 SA ₁₄₄	13.1	0.15	19990810	270.18583	26.80574	151.43683	2.24834	0.0602945	2.9192740	20	2	1996–1998	0.79	M-v	4	Spahr	33297	1998 SA ₁₄₄
1998 SB ₁₄₄	14.9	0.15	19990810	93.85012	225.54343	129.24698	1.49613	0.1728636	2.5480116	32	3	1996–1999	0.71	M-v	3	Spahr	34025	1998 SB ₁₄₄
1998 SD ₁₄₄	14.0	0.15	19990810	349.40908	279.23153	199.38574	21.75840	0.0792370	2.5437329	31	2	1990–1998	0.74	M-v	5	Spahr	33365	1998 SD ₁₄₄
1998 SM ₁₄₄	15.3	0.15	19990810	30.07004	243.49331	210.03629	2.23537	0.1793142	2.4052085	47	4	1992–1999	0.62	M-v	1	Spahr	34593	1998 SM ₁₄₄
1998 SA ₁₄₅	13.5	0.15	19990810	80.40919	322.90722	21.48232	15.18994	0.2239270	3.1642833	41	1	122 days	0.73	M-v	4	Spahr	34305	1998 SA ₁₄₅
1998 SH ₁₄₅	15.9	0.15	19990810	77.86410	358.06468	30.34416	2.77482	0.2010873	2.4073501	36	3	1983–1998	0.73	M-v	3	Spahr	34593	1998 SH ₁₄₅
1998 SO ₁₄₅	14.5	0.15	19990810	133.79647	250.58652	68.12677	1.84657	0.1365700	2.3916579	45	4	1990–1999	0.67	M-v	2	Spahr	33760	1998 SO ₁₄₅
1998 ST ₁₄₅	13.1	0.15	19990810	58.71875	237.80204	146.17850	2.99269	0.0953679	3.0459193	46	3	1992–1998	0.75	M-v	4	Spahr	34025	1998 ST ₁₄₅
1998 SE ₁₄₆	13.5	0.15	19990810	20.44115	246.20399	203.78390	7.28101	0.2036623	2.8067734	30	1	120 days	0.62	M-v	4	Spahr	34305	1998 SE ₁₄₆
1998 SH ₁₄₆	15.1	0.15	19990810	139.47736	115.15122	199.17485	6.70780	0.1892436	2.2694099	27	1	61 days	0.93	M-v	5	Spahr	34305	1998 SH ₁₄₆
1998 SR ₁₄₆	15.6	0.15	19990810	84.05322	17.31136	16.84735	5.52367	0.1754197	2.2312652	56	1	62 days	0.53	M-v	4	Spahr	33365	1998 SR ₁₄₆
1998 ST ₁₄₆	14.4	0.15	19990810	118.64051	286.02114	61.86577	2.31273	0.1646920	2.1998942	39	2	1997–1999	0.74	M-v	4	Spahr	34305	1998 ST ₁₄₆
1998 SE ₁₄₇	13.9	0.15	19990810	13.07566	9.28246	73.51728	1.40950	0.1294850	3.0850549	25	2	1989–1999	0.89	M-v	5	Spahr	33760	1998 SE ₁₄₇
1998 SX ₁₄₇	15.0	0.15	19990810	161.10750	172.27304	113.83271	2.23276	0.1882770	2.3869187	24	3	1994–1998	0.61	M-v	3	Spahr	34025	1998 SX ₁₄₇
1998 SA ₁₄₈	15.2	0.15	19990810	41.75319	255.60487	173.21450	4.07415	0.1492374	2.5824601	32	4	1971–1998	0.75	M-v	2	Spahr	33299	1998 SA ₁₄₈
1998 SE ₁₅₇	15.8	0.15	19990810	112.00521	303.56105	32.82888	1.62056	0.1213965	2.4132749	26	4	1993–1998	0.75	M-v	2	Spahr	33046	1998 SE ₁₅₇
1998 SL ₁₆₁	13.5	0.15	19990810	229.13779	358.02383	219.81291	1.39505	0.1619452	2.6379632	46	6	1988–1998	0.71	M-v	2	Spahr	33366	1998 SL ₁₆₁
1998 SQ ₁₆₁	15.7	0.15	19990810	72.49718	350.55592	33.38061	4.47536	0.1596154	2.5283360	26	2	1994–1998	0.67	M-v	4	Spahr	34025	1998 SQ ₁₆₁
1998 SJ ₁₆₂	16.3	0.15	19990810	74.45810	190.40025	207.26752	4.87565	0.3207908	2.3715761	65	1	110 days	0.56	M-v	4	Spahr	33570	1998 SJ ₁₆₂
1998 SN ₁₆₂	14.8	0.15	19990810	8.58176	229.21969	236.43904	6.58571	0.2331852	2.8059488	21	1	114 days	0.74	M-v	5	Spahr	33760	1998 SN ₁₆₂
1998 ST ₁₆₃	16.3	0.15	19990810	73.33225	350.53701	37.17880	8.30261	0.3130482	2.5629950	25	1	81 days	0.50	M-v	4	Spahr	34593	1998 ST ₁₆₃
1998 SZ ₁₆₃	13.5	0.15	19990810	317.40176	101.56972	55.37511	13.82839	0.1107690	2.5854165	36	3	1977–1999	0.78	M-v	3	Williams	34593	1998 SZ ₁₆₃
1998 SR ₁₆₄	14.3	0.15	19990810	40.24122	65.61865	40.46290	11.93919	0.1944127	2.3736954	30	1	136 days	0.65	M-v	4	Spahr	34025	1998 SR ₁₆₄
1998 TA	13.8	0.15	19990810	200.59899	258.19250	0.31717	7.34556	0.0895125	2.3147176	69	1	116 days	0.58	M-v	4	Spahr	33760	1998 TA
1998 TE	14.9	0.15	19990810	59.41058	189.18131	233.33087	5.64053	0.1017873	2.2635393	62	1	99 days	0.54	M-v	4	Spahr	33760	1998 TE
1998 TU	15.4	0.15	19990810	37.78392	56.34762	31.77939	5.99108	0.1081877	2.2666696	34	2	1993–1998	0.56	M-v	5	Spahr	33301	1998 TU
1998 TV ₁	13.3	0.15	19990810	78.04111	341.19883	54.46812	13.63958	0.2490313	2.3936305	79	4	1961–1999	0.61	M-v	2	Spahr	34025	1998 TV ₁
1998 TW ₁	14.1	0.15	19990810	72.87062	332.58244	54.32732	10.14283	0.1455286	2.7369080	51	1	137 days	0.52	M-v	3	Spahr	34025	1998 TW ₁
1998 TZ ₁	14.0	0.15	19990810	88.04402	206.44506	171.68105	12.74087	0.0134883	2.5673201	48	4	1973–1998	0.88	M-v	3	Spahr	33570	1998 TZ ₁

1998 TX ₂	14.2	0.15	19990810	309.72987	147.20103	6.76372	4.20731	0.1453583	3.0636226	21	3	1960–1998	0.53	M-v	5	Spahr	33302	1998 TX ₂
1998 TG ₃	13.9	0.15	19990810	113.86885	109.16290	203.68481	21.43647	0.2990423	2.4121355	45	2	1983–1998	0.60	M-v	3	Spahr	34025	1998 TG ₃
1998 TQ ₃	14.3	0.15	19990810	74.35806	2.27928	34.87261	13.80583	0.2043133	2.3884540	42	1	136 days	0.70	M-v	4	Spahr	34025	1998 TQ ₃
1998 TU ₃	15.0	0.15	19990810	208.68276	84.50824	102.39591	5.40916	0.4838492	0.7872680	178	4	1982–1999	0.56	M-v	4	Marsden	35078	1998 TU ₃
1998 TD ₅	14.9	0.15	19990810	60.10586	333.77111	80.88443	4.33577	0.1271465	2.4623420	32	3	1992–1998	0.55	M-v	4	Spahr	34305	1998 TD ₅
1998 TH ₅	14.2	0.15	19990810	66.14452	241.75238	135.09670	2.85150	0.1912956	3.1193615	40	3	1995–1998	0.52	M-v	3	Spahr	34305	1998 TH ₅
1998 TR ₅	14.1	0.15	19990810	81.80075	3.37532	32.18439	6.11751	0.0610132	2.3460264	54	1	130 days	0.46	M-v	3	Spahr	33760	1998 TR ₅
1998 TU ₆	14.2	0.15	19990810	111.17558	247.29566	84.16889	2.74935	0.1288455	2.9312810	51	2	1997–1998	0.65	M-v	4	Spahr	34305	1998 TU ₆
1998 TY ₆	14.6	0.15	19990810	115.42343	223.64540	104.08264	8.74402	0.2348025	2.6879404	33	1	96 days	0.75	M-v	5	Spahr	34305	1998 TY ₆
1998 TZ ₆	14.8	0.15	19990810	121.50918	143.80816	183.98295	13.29273	0.1953598	2.6876792	29	2	1997–1998	0.76	M-v	4	Spahr	33571	1998 TZ ₆
1998 TH ₉	15.6	0.15	19990810	89.18379	168.45956	209.11270	1.61530	0.1536809	2.3653742	33	2	1995–1998	0.61	M-v	4	Spahr	33367	1998 TH ₉
1998 TJ ₁₃	15.3	0.15	19990810	99.07738	341.68159	41.17506	3.30001	0.1223755	2.2098081	42	1	141 days	0.57	M-v	4	Spahr	34026	1998 TJ ₁₃
1998 TS ₁₃	16.0	0.15	19990810	354.38861	91.95769	48.80435	2.75721	0.1485809	2.3935452	17	1	77 days	0.23	M-v	4	Spahr	33760	1998 TS ₁₃
1998 TH ₁₅	17.3	0.15	19990810	10.22457	261.84134	216.71231	0.59517	0.1374597	2.4543039	19	2	1992–1998	0.32	M-v	5	Spahr	33571	1998 TH ₁₅
1998 TL ₁₅	11.7	0.15	19990810	340.46435	221.68972	219.69876	26.27042	0.0241965	5.2696082	31	3	1986–1999	0.63	M-v	2	Spahr	33760	1998 TL ₁₅
1998 TO ₁₅	13.0	0.15	19990810	5.23617	243.75640	222.33229	11.72755	0.1374086	2.6834968	57	6	1954–1999	0.69	M-v	1	Spahr	34306	1998 TO ₁₅
1998 TO ₁₆	16.4	0.15	19990810	70.77326	173.30450	230.10833	5.37869	0.1354553	2.2844173	27	1	105 days	0.82	M-v	4	Spahr	33760	1998 TO ₁₆
1998 TP ₁₇	11.5	0.15	19990810	133.68418	186.38905	117.75118	10.92309	0.0797789	3.0420993	37	5	1987–1998	0.61	M-v	1	Spahr	33303	1998 TP ₁₇
1998 TR ₁₇	15.2	0.15	19990810	105.40074	169.43072	182.05280	1.32464	0.1136632	2.6221915	26	3	1993–1998	0.64	M-v	5	Williams	33303	1998 TR ₁₇
1998 TY ₁₇	13.8	0.15	19990810	283.54212	31.02162	162.92957	3.96445	0.1218993	2.5814534	22	3	1994–1998	0.47	M-v	4	Spahr	33304	1998 TY ₁₇
1998 TZ ₁₈	14.9	0.15	19990810	134.93530	99.59510	203.59476	3.84095	0.1797137	2.5899544	33	2	1997–1998	0.76	M-v	4	Spahr	34593	1998 TZ ₁₈
1998 TY ₂₀	14.2	0.15	19990810	16.92831	144.68448	295.27144	0.79455	0.0704639	2.8777174	28	2	1996–1998	0.58	M-v	5	Spahr	33304	1998 TY ₂₀
1998 TT ₂₆	14.0	0.15	19990810	219.85402	13.09922	222.62576	9.15207	0.0414226	2.9689112	23	2	1996–1998	0.67	M-v	4	Spahr	33304	1998 TT ₂₆
1998 TD ₂₇	13.9	0.15	19990810	210.94737	211.51800	39.71744	6.24415	0.0456820	2.7615604	32	2	1995–1998	0.53	M-v	5	Spahr	33571	1998 TD ₂₇
1998 TX ₂₈	14.0	0.15	19990810	3.82097	60.40861	32.43561	7.34584	0.1038142	3.1991538	32	5	1955–1998	0.72	M-v	1	Williams	35342	1998 TX ₂₈
1998 TH ₂₉	13.7	0.15	19990810	9.53306	92.81716	355.11539	1.51801	0.0501611	2.9368464	31	3	1990–1998	0.58	M-v	4	Williams	34593	1998 TH ₂₉
1998 TG ₃₀	15.8	0.15	19990810	90.16259	352.33476	31.04390	1.60707	0.2066415	2.3049263	58	2	1993–1999	0.60	M-v	4	Spahr	33761	1998 TG ₃₀
1998 TK ₃₀	14.3	0.15	19990810	103.83361	149.20982	208.78334	11.31614	0.1518549	2.4101135	33	1	139 days	0.61	M-v	4	Spahr	34306	1998 TK ₃₀
1998 TL ₃₀	15.2	0.15	19990810	64.68759	178.92988	215.00561	2.01458	0.1859272	2.7239883	24	2	1993–1998	0.64	M-v	4	Spahr	33305	1998 TL ₃₀
1998 TN ₃₀	15.5	0.15	19990810	112.17703	105.53178	236.84421	0.41903	0.2004656	2.4246183	30	3	1979–1999	0.67	M-v	3	Spahr	34306	1998 TN ₃₀
1998 TQ ₃₀	14.7	0.15	19990810	127.73178	88.59662	234.17235	1.80026	0.1447194	2.5384709	26	3	1978–1998	0.63	M-v	5	Spahr	34306	1998 TQ ₃₀
1998 TR ₃₀	13.9	0.15	19990810	207.55067	28.47619	213.79123	5.35297	0.0268435	2.9911282	35	2	1996–1999	0.54	M-v	3	Spahr	34306	1998 TR ₃₀
1998 TX ₃₀	14.4	0.15	19990810	43.16940	77.83169	10.15469	5.99169	0.1006012	2.2203061	29	1	93 days	0.73	M-v	5	Spahr	33761	1998 TX ₃₀
1998 TT ₃₁	13.8	0.15	19990810	49.96628	327.41520	67.22221	10.63423	0.1307815	3.0369345	25	2	1996–1998	0.54	M-v	5	Spahr	33305	1998 TT ₃₁
1998 TG ₃₂	14.7	0.15	19990810	77.97197	80.63359	323.99311	2.10342	0.0698723	2.2041865	24	3	1985–1998	0.52	M-v	4	Williams	34593	1998 TG ₃₂
1998 TD ₃₃	15.7	0.15	19990810	119.16785	153.81598	196.97645	2.66623	0.1950505	2.1634001	29	2	1997–1998	0.72	M-v	4	Spahr	33306	1998 TD ₃₃
1998 TQ ₃₃	13.2	0.15	19990810	292.80055	136.92685	42.23264	14.65691	0.1452724	2.7615722	41	1	73 days	0.63	M-v	5	Spahr	34306	1998 TQ ₃₃
1998 TR ₃₃	14.1	0.15	19990810	124.29558	213.07454	102.47257	2.71389	0.1494466	2.8693166	28	3	1993–1998	0.51	M-v	4	Spahr	34306	1998 TR ₃₃
1998 TA ₃₄	12.7	0.15	19990810	324.03522	314.90250	197.35100	12.75749	0.1143108	2.6625338	48	3	1989–1999	0.73	M-v	3	Spahr	34026	1998 TA ₃₄
1998 TD ₃₄	13.4	0.15	19990810	63.22618	190.37439	195.78104	10.05906	0.1051169	2.9985535	25	2	1996–1998	0.66	M-v	4	Spahr	33571	1998 TD ₃₄
1998 TK ₃₄	15.7	0.15	19990810	161.63517	113.24722	182.23730	5.77648	0.2110285	2.2340629	24	3	1991–1998	0.71	M-v	2	Spahr	33307	1998 TK ₃₄
1998 UF	15.9	0.15	19990810	169.95477	353.41000	319.99066	22.06531	0.0696460	1.8619087	22	2	1997–1998	0.62	M-v	4	Spahr	33049	1998 UF
1998 UJ	15.1	0.15	19990810	41.44623	127.88966	335.93360	24.42596	0.2282815	2.3385288	12	1	114 days	0.73	M-v	5	Williams		1998 UJ
1998 UL	13.6	0.15	19990810	162.38165	329.62003	284.16193	9.32407	0.0682094	2.9661753	25	1	112 days	0.62	M-v	5	Spahr	33571	1998 UL
1998 UV	15.9	0.15	19990810	78.61014	120.95767	318.74644	17.48184	0.0964537	1.9561413	25	1	82 days	0.71	M-v	4	Williams		1998 UV
1998 UW	15.9	0.15	19980904	305.86035	120.55632	322.88866	24.14396	0.2642411	2.3309854	13	1	54 days	0.85			Spahr		1998 UW
1998 UZ	13.5	0.15	19990810	3.04339	266.79184	215.05650	12.07648	0.1989081	2.6212602	72	5	1953–1999	0.51	M-v	1	Spahr	34593	1998 UZ
1998 UA ₁	15.1	0.15	19990810	60.96125	14.37481	49.75567	4.87097	0.1727509	2.3093403	61	1	136 days	0.50	M-v	4	Spahr	34306	1998 UA ₁
1998 UB ₁	15.8	0.15	19990810	89.75204	150.12897	202.75572	0.49347	0.2205426	2.8451325	31	2	1993–1998	0.59	M-v	4	Williams	33512	1998 UB ₁
1998 UK ₁	14.2	0.15	19990810	342.39056	282.84305	191.59822	1.33367	0.1397511	3.1573834	44	4	1992–1999	0.65	M-v	1	Spahr	34026	1998 UK ₁
1998 UW ₁	12.6	0.15	19990810	112.06349	243.04955	102.85102	14.03264	0.1953514	2.6682638	35	1	111 days	0.68	M-v	4	Spahr	34593	1998 UW ₁
1998 UA ₄	13.0	0.15	19990810	152.99161	244.78961	111.25770	12.14850	0.1639943	2.8871812	43	3	1987–1999	0.63	M-v	3	Spahr	34026	1998 UA ₄
1998 UG ₄	14.1	0.15	19990810	41.20601	323.43377	43.33608	12.33789	0.1549814	3.1975375	20	1	85 days	0.74	M-v	5	Spahr	33572	1998 UG ₄

1998 UK ₆	13.8	0.15	19990810	86.65088	229.80524	206.76825	1.41419	0.0157010	2.9072740	39	4	1994–1999	0.64	M-v	1	Spahr	33970	1998 UK ₆
1998 UO ₆	14.8	0.15	19990810	88.38199	225.88991	137.58001	2.74187	0.0877781	2.8441235	32	1	60 days	0.52	M-v	5	Spahr	33370	1998 UO ₆
1998 UP ₆	13.2	0.15	19990810	125.76323	299.87405	23.74432	17.56210	0.2554647	2.6024849	58	3	1981–1999	0.72	M-v	3	Spahr	34026	1998 UP ₆
1998 UV ₆	14.0	0.15	19990810	43.41785	136.35612	270.06853	1.08661	0.0874290	2.9414822	54	3	1983–1998	0.49	M-v	4	Spahr	33308	1998 UV ₆
1998 UA ₇	12.7	0.15	19990810	99.68227	269.16248	93.23324	22.71829	0.0726037	3.1520781	31	1	86 days	0.65	M-v	4	Spahr	34306	1998 UA ₇
1998 UD ₇	14.1	0.15	19990810	133.26089	271.38372	34.11596	3.06611	0.2871409	2.5914030	52	5	1980–1999	0.61	M-v	2	Spahr	34594	1998 UD ₇
1998 UE ₇	15.1	0.15	19990810	93.58423	142.26039	207.76069	13.57258	0.3205607	2.6214379	38	4	1981–1998	0.56	M-v	2	Spahr	34306	1998 UE ₇
1998 UK ₇	14.0	0.15	19990810	56.44072	10.57255	46.00585	15.84400	0.0869300	2.5703493	35	1	130 days	0.47	M-v	3	Spahr	34026	1998 UK ₇
1998 UR ₇	15.3	0.15	19990810	63.93754	177.91147	207.80648	10.12676	0.2287220	3.0083456	17	1	77 days	0.50	M-v	4	Spahr	33572	1998 UR ₇
1998 UW ₇	14.3	0.15	19990810	18.50009	294.85211	170.28221	7.79834	0.1156177	2.5449615	32	2	1990–1998	0.78	M-v	5	Spahr	34306	1998 UW ₇
1998 UY ₇	13.4	0.15	19990810	84.08882	188.32867	194.98540	9.70627	0.1091299	2.5825410	38	4	1969–1999	0.64	M-v	1	Spahr	34306	1998 UY ₇
1998 UD ₈	12.9	0.15	19990810	169.40029	212.35747	77.50683	3.10309	0.0428621	2.8898545	44	4	1981–1998	0.77	M-v	1	Spahr	34594	1998 UD ₈
1998 UF ₈	13.7	0.15	19990810	301.93002	141.57162	50.67407	7.29689	0.0877623	2.2590272	32	1	94 days	0.49	M-v	4	Spahr	34026	1998 UF ₈
1998 UL ₈	13.1	0.15	19990810	25.59956	2.66791	87.49637	2.55583	0.1454313	3.0995224	64	3	1987–1999	0.69	M-v	2	Spahr	34594	1998 UL ₈
1998 UM ₈	14.2	0.15	19990810	215.61238	174.31413	95.32977	4.67793	0.1748802	2.2471894	46	4	1950–1999	0.62	M-v	3	Spahr	34594	1998 UM ₈
1998 UW ₁₂	16.1	0.15	19990810	130.79766	123.60551	194.71984	1.83337	0.2230667	2.3665526	28	2	1997–1998	0.60	M-v	4	Spahr	33310	1998 UW ₁₂
1998 UF ₁₄	13.5	0.15	19990810	93.90922	284.02735	69.44135	3.05700	0.0939549	2.9353550	31	1	81 days	0.47	M-v	5	Spahr	34307	1998 UF ₁₄
1998 UC ₁₅	15.3	0.15	19990810	14.40170	336.14393	139.44226	6.81242	0.1042104	2.4774500	21	1	62 days	0.48	M-v	5	Spahr	34307	1998 UC ₁₅
1998 UE ₁₅	15.2	0.15	19990810	144.14710	208.19514	120.83693	8.86541	0.2358283	2.1678713	24	2	1988–1998	0.67	M-v	5	Spahr	34307	1998 UE ₁₅
1998 UF ₁₅	14.3	0.15	19990810	71.21184	117.25946	290.23936	5.53883	0.1260717	2.4376520	78	1	74 days	0.64	M-v	4	Spahr	33761	1998 UF ₁₅
1998 UO ₁₅	15.1	0.15	19990810	124.56424	51.30888	284.05786	0.34343	0.1775653	2.4772629	61	4	1986–1999	0.65	M-v	2	Spahr	34594	1998 UO ₁₅
1998 UP ₁₅	14.4	0.15	19990810	331.50569	74.66764	84.63669	3.13102	0.0980700	2.4423457	43	4	1977–1998	0.78	M-v	3	Spahr	33573	1998 UP ₁₅
1998 UR ₁₅	13.5	0.15	19990810	28.31050	64.78567	10.57022	0.67342	0.1534374	3.1698307	51	1	171 days	0.57	M-v	3	Spahr	34307	1998 UR ₁₅
1998 UW ₁₅	14.8	0.15	19990810	125.04516	297.76366	44.24996	7.78093	0.1352716	2.3909751	36	1	130 days	0.58	M-v	4	Spahr	34594	1998 UW ₁₅
1998 UY ₁₅	15.4	0.15	19990810	102.57832	328.16850	22.49149	6.66916	0.2459437	2.3763730	41	2	1976–1998	0.72	M-v	4	Spahr	34536	1998 UY ₁₅
1998 UB ₁₆	14.4	0.15	19990810	255.23883	154.30823	51.87009	12.70516	0.1354483	2.6607361	18	1	83 days	0.58	M-v	5	Spahr	34026	1998 UB ₁₆
1998 UL ₁₆	15.1	0.15	19990810	110.41700	266.15232	69.49312	5.04351	0.2773909	2.5665245	44	2	1996–1999	0.70	M-v	4	Spahr	34026	1998 UL ₁₆
1998 UN ₁₆	13.3	0.15	19990810	3.94358	57.98258	53.42015	14.57970	0.1799708	3.0780203	39	1	65 days	0.60	M-v	5	Spahr	34026	1998 UN ₁₆
1998 UR ₁₆	13.0	0.15	19990810	155.08549	204.67397	81.81226	2.68672	0.1425360	3.1174504	41	3	1995–1998	0.60	M-v	3	Spahr	34594	1998 UR ₁₆
1998 US ₁₆	15.2	0.15	19990810	150.14456	190.32103	124.68863	6.46108	0.1871546	2.2788685	38	1	113 days	0.70	M-v	5	Spahr	34307	1998 US ₁₆
1998 UW ₁₆	14.5	0.15	19990810	73.58575	205.35529	188.65139	31.36259	0.2163655	2.5917477	15	1	79 days	0.63	M-v	4	Spahr		1998 UW ₁₆
1998 UA ₁₇	15.1	0.15	19981123	212.54555	33.64127	179.58814	22.12353	0.0436954	1.9379362	11	1	53 days	0.98			Spahr		1998 UA ₁₇
1998 UM ₁₈	11.7	0.15	19990810	60.81765	232.19812	150.16721	28.61672	0.1343432	5.1650666	27	4	1954–1999	0.68	M-v	2	Williams	33761	1998 UM ₁₈
1998 UO ₁₈	15.6	0.15	19990810	102.17874	13.10852	2.31836	2.24106	0.2201208	2.3693348	35	2	1994–1998	0.79	M-v	4	Spahr	33573	1998 UO ₁₈
1998 UP ₁₈	14.2	0.15	19990810	77.61231	157.46507	261.43889	5.49970	0.0846887	2.3143890	51	3	1980–1999	0.79	M-v	3	Spahr	34026	1998 UP ₁₈
1998 UQ ₁₈	12.3	0.15	19990810	235.17535	186.28038	55.15282	11.13323	0.0562769	2.9983816	29	1	128 days	0.60	M-v	4	Spahr	33761	1998 UQ ₁₈
1998 UW ₁₈	13.6	0.15	19990810	49.22647	8.19586	41.06452	5.77590	0.1502397	3.1719618	22	3	1994–1998	0.64	M-v	4	Spahr	33573	1998 UW ₁₈
1998 UR ₁₉	14.9	0.15	19990810	89.68576	329.63464	40.99783	14.60356	0.2133857	2.3448284	46	2	1997–1998	0.70	M-v	3	Spahr	34026	1998 UR ₁₉
1998 UW ₁₉	13.9	0.15	19990810	73.20838	1.26776	20.53358	1.82453	0.0590923	3.1094234	44	2	1995–1999	0.78	M-v	4	Spahr	34594	1998 UW ₁₉
1998 UA ₂₀	16.7	0.15	19990810	80.76851	336.50408	55.23902	1.56898	0.1837936	2.3996100	24	1	86 days	0.60	M-v	4	Spahr	33573	1998 UA ₂₀
1998 UK ₂₀	12.2	0.15	19990810	207.35675	230.30163	21.24413	15.13465	0.1135313	2.7325375	22	4	1975–1998	0.91	M-v	2	Spahr	33312	1998 UK ₂₀
1998 UL ₂₀	12.5	0.15	19990810	133.36901	79.19261	244.12551	8.90030	0.1107105	3.0205506	54	3	1982–1998	0.76	M-v	4	Spahr	33573	1998 UL ₂₀
1998 UN ₂₀	14.2	0.15	19990810	188.36757	171.29098	106.41185	2.45583	0.1978024	2.3281655	44	5	1987–1998	0.77	M-v	2	Spahr	34026	1998 UN ₂₀
1998 UR ₂₀	14.2	0.15	19990810	145.99560	24.51894	292.82148	0.99008	0.0093805	2.8528733	53	3	1978–1999	0.66	M-v	3	Spahr	34594	1998 UR ₂₀
1998 UV ₂₀	13.3	0.15	19990810	317.37332	299.29274	223.27689	12.52649	0.0730871	2.6295869	28	3	1953–1999	0.67	M-v	3	Spahr	34027	1998 UV ₂₀
1998 UY ₂₀	15.6	0.15	19990810	47.63570	45.17147	34.51656	1.74859	0.1464792	2.4305369	38	1	82 days	0.69	M-v	5	Spahr	34594	1998 UY ₂₀
1998 UZ ₂₀	15.8	0.15	19990810	114.63016	315.27309	43.15731	6.27255	0.1331454	2.3312972	40	2	1993–1998	0.69	M-v	5	Spahr	34594	1998 UZ ₂₀
1998 UA ₂₁	15.4	0.15	19990810	28.40486	37.08176	66.93282	7.35986	0.1853412	2.5209419	39	3	1982–1999	0.70	M-v	2	Spahr	34027	1998 UA ₂₁
1998 UE ₂₁	15.1	0.15	19990810	116.73853	129.63465	230.08503	0.25109	0.1382084	2.3015510	52	1	166 days	0.69	M-v	5	Spahr	34027	1998 UE ₂₁
1998 UT ₂₂	15.4	0.15	19990810	82.36470	314.56761	71.30062	14.06878	0.1590423	2.5440291	34	1	83 days	0.74	M-v	4	Spahr	34307	1998 UT ₂₂
1998 UU ₂₂	13.9	0.15	19990810	70.89366	152.86363	234.31621	9.63987	0.0931321	2.9751192	53	1	82 days	0.54	M-v	4	Spahr	34594	1998 UU ₂₂
1998 UX ₂₂	15.2	0.15	19990810	61.65879	354.00130	61.90289	3.21817	0.1225412	2.5830926	45	2	1994–1998	0.76	M-v	4	Spahr	33573	1998 UX ₂₂
1998 UY ₂₂	16.0	0.15	19990810	104.97201	333.02353	39.10197	3.68704	0.2074172	2.2618685	29	2	1991–1998	0.77	M-v	5	Spahr	33573	1998 UY ₂₂

1998 UB ₂₃	15.0	0.15	19990810	95.94659	343.18177	42.04967	4.93353	0.1669307	2.3099295	38	3	1993–1998	0.67	M-v	4	Spahr	34594	1998 UB ₂₃
1998 UC ₂₃	13.8	0.15	19990810	101.44729	88.26994	283.72883	5.52268	0.1391562	2.3685599	27	2	1994–1999	0.71	M-v	4	Spahr	33762	1998 UC ₂₃
1998 UL ₂₃	14.9	0.15	19990810	57.41519	13.51661	59.94336	3.77223	0.1478035	2.4434543	59	3	1994–1998	0.76	M-v	3	Spahr	34594	1998 UL ₂₃
1998 UM ₂₃	14.3	0.15	19990810	62.92379	200.07635	227.57216	6.06784	0.0865388	2.3944076	44	1	117 days	0.76	M-v	4	Spahr	34594	1998 UM ₂₃
1998 UN ₂₃	13.1	0.15	19990810	37.17398	330.40475	99.93716	2.12533	0.1371363	3.1975857	52	4	1975–1999	0.63	M-v	1	Spahr	34027	1998 UN ₂₃
1998 UE ₂₄	14.8	0.15	19990810	77.07316	312.96580	79.60167	7.67424	0.0939603	2.3345515	25	3	1993–1998	0.72	M-v	4	Spahr	34307	1998 UE ₂₄
1998 UO ₂₄	14.3	0.15	19990810	45.20140	227.84732	203.06473	6.47285	0.1243124	2.7001057	31	3	1989–1998	0.71	M-v	3	Spahr	33573	1998 UO ₂₄
1998 UR ₂₄	14.7	0.15	19990810	62.32458	295.68409	93.08376	2.40405	0.2333669	3.1596052	49	2	1992–1999	0.80	M-v	4	Spahr	34027	1998 UR ₂₄
1998 US ₂₄	11.3	0.15	19990810	353.11975	354.01761	96.30773	6.63664	0.1059727	5.2280584	35	2	1996–1998	0.62	M-v	4	Spahr	33574	1998 US ₂₄
1998 UV ₂₄	13.8	0.15	19990810	67.51692	331.45586	54.43245	2.79787	0.0804499	2.9476572	48	3	1978–1999	0.52	M-v	3	Spahr	34307	1998 UV ₂₄
1998 UZ ₂₄	13.8	0.15	19990810	88.36483	318.77674	63.41951	6.23675	0.1690291	2.7522266	46	4	1975–1999	0.65	M-v	1	Spahr	33762	1998 UZ ₂₄
1998 UL ₂₅	14.9	0.15	19990810	109.05515	154.65423	178.26233	5.95191	0.2756341	2.5367583	30	2	1990–1998	0.69	M-v	4	Williams	34027	1998 UL ₂₅
1998 UY ₂₆	13.4	0.15	19990810	198.99998	64.86198	185.65504	8.58397	0.2317917	2.7214717	31	6	1952–1998	0.82	M-v	2	Spahr	33513	1998 UY ₂₆
1998 UM ₂₉	14.1	0.15	19990810	40.39960	10.50669	67.08624	12.91809	0.1627249	2.6510048	20	1	69 days	0.49	M-v	4	Spahr	34307	1998 UM ₂₉
1998 UC ₃₀	14.5	0.15	19990810	16.50362	318.12804	158.58957	7.56114	0.2330930	2.6636392	20	2	1995–1998	0.91	M-v	5	Spahr	34594	1998 UC ₃₀
1998 UC ₃₁	13.7	0.15	19990810	44.32530	61.21749	6.32670	9.13391	0.1977648	2.7669166	36	1	130 days	0.80	M-v	4	Spahr	33762	1998 UC ₃₁
1998 UO ₃₁	15.8	0.15	19990810	171.57865	237.23164	64.80507	3.49463	0.2303888	2.2244624	21	1	64 days	0.65	M-v	5	Spahr	33574	1998 UO ₃₁
1998 UR ₃₁	14.0	0.15	19990810	260.44227	176.99739	62.92322	8.18169	0.1703706	2.2215064	37	1	76 days	0.70	M-v	5	Spahr	34594	1998 UR ₃₁
1998 US ₃₁	13.6	0.15	19990810	140.33627	264.17071	68.35023	3.92508	0.0846111	2.6427106	35	1	62 days	0.47	M-v	5	Spahr	34594	1998 US ₃₁
1998 UJ ₃₂	14.1	0.15	19990810	106.54756	170.96790	226.10883	5.93389	0.1128004	2.1966052	27	1	133 days	0.56	M-v	5	Spahr	34594	1998 UJ ₃₂
1998 UM ₃₂	13.7	0.15	19990810	116.50319	288.81784	63.42330	10.89993	0.1148269	2.9725845	41	2	1996–1999	0.71	M-v	3	Spahr	34027	1998 UM ₃₂
1998 UG ₃₄	14.6	0.15	19990810	144.92301	327.62398	329.32018	2.23871	0.1687997	2.4432959	30	3	1990–1998	0.70	M-v	4	Williams	34027	1998 UG ₃₄
1998 UF ₃₇	13.4	0.15	19990810	139.63550	250.98096	33.32485	1.34600	0.1475847	3.1229839	42	3	1984–1999	0.70	M-v	2	Spahr	34307	1998 UF ₃₇
1998 UD ₃₈	14.4	0.15	19990810	81.78020	304.01476	54.45290	9.94029	0.1928534	2.7698097	33	1	111 days	0.59	M-v	4	Spahr	34307	1998 UD ₃₈
1998 UP ₃₉	14.1	0.15	19990810	31.17873	232.33856	216.39771	11.85210	0.2642971	2.6427962	56	3	1981–1999	0.67	M-v	2	Spahr	34594	1998 UP ₃₉
1998 UU ₄₀	14.3	0.15	19990810	84.72104	89.28118	267.50869	1.04945	0.1723293	2.8304222	29	3	1993–1998	0.82	M-v	5	Williams	33316	1998 UU ₄₀
1998 UJ ₄₁	15.2	0.15	19990810	76.06326	319.63906	50.01961	13.08004	0.1379078	2.7635436	19	1	86 days	0.86	M-v	5	Spahr	34027	1998 UJ ₄₁
1998 UV ₄₁	14.6	0.15	19990810	84.43119	276.65558	100.34954	2.74081	0.2078603	2.4243907	28	1	102 days	0.52	M-v	4	Williams	34027	1998 UV ₄₁
1998 VC	14.1	0.15	19990810	271.57011	303.07296	272.55286	1.38521	0.1549226	2.3787567	63	3	1978–1999	0.53	M-v	4	Spahr	34594	1998 VC
1998 VE	15.7	0.15	19990810	93.75046	99.26069	271.38987	1.12213	0.2258901	2.4622388	58	2	1990–1999	0.59	M-v	4	Spahr	34595	1998 VE
1998 VF	14.6	0.15	19990810	137.27991	245.59368	51.40074	5.68395	0.1943013	2.1914461	48	4	1985–1998	0.72	M-v	2	Spahr	34595	1998 VF
1998 VG	13.5	0.15	19990810	40.98683	354.37132	56.28150	3.82615	0.1918825	3.1546008	63	4	1981–1999	0.55	M-v	2	Williams	34307	1998 VG
1998 VW	14.4	0.15	19990810	44.71197	16.70800	56.87749	13.68975	0.2810290	2.6473368	40	2	1996–1999	0.75	M-v	3	Spahr	34027	1998 VW
1998 VG ₁	15.9	0.15	19990810	117.59934	273.48631	62.07494	8.43083	0.2988769	2.3036952	52	1	141 days	0.49	M-v	4	Spahr	34027	1998 VG ₁
1998 VD ₂	14.7	0.15	19990810	26.65397	204.78842	238.11052	1.30513	0.1285211	3.0150188	22	1	82 days	0.59	M-v	5	Spahr	33762	1998 VD ₂
1998 VG ₂	16.0	0.15	19990810	76.95470	342.56542	18.93648	3.10399	0.2742351	2.3467081	44	2	1997–1998	0.75	M-v	3	Spahr	33709	1998 VG ₂
1998 VV ₂	11.9	0.15	19990810	156.15157	46.35042	233.57936	8.78260	0.1142690	3.9714136	38	1	80 days	0.63	M-v	5	Spahr	33762	1998 VV ₂
1998 VA ₄	14.5	0.15	19990810	339.33138	101.70124	71.04052	12.89637	0.1552354	2.3873255	19	3	1992–1998	0.47	M-v	4	Spahr	33574	1998 VA ₄
1998 VD ₄	15.6	0.15	19990810	56.05542	261.98349	179.31720	1.98083	0.1779520	2.4432718	41	5	1984–1998	0.53	M-v	2	Spahr	34027	1998 VD ₄
1998 VA ₅	14.4	0.15	19990810	332.44199	295.89228	232.00831	1.98660	0.1397373	2.4400632	44	3	1996–1998	0.65	M-v	4	Spahr	34027	1998 VA ₅
1998 VB ₅	13.1	0.15	19990810	199.95355	225.39673	37.50225	1.30604	0.0588531	3.0584328	67	5	1981–1999	0.76	M-v	1	Spahr	34308	1998 VB ₅
1998 VD ₅	13.3	0.15	19990810	28.48458	3.56148	78.10827	2.62875	0.1531540	3.1539188	55	4	1981–1999	0.65	M-v	2	Spahr	34027	1998 VD ₅
1998 VH ₅	14.0	0.15	19990810	268.82633	298.21847	281.02099	5.99987	0.0832821	2.2974837	54	5	1979–1999	0.75	M-v	2	Spahr	34595	1998 VH ₅
1998 VJ ₅	13.4	0.15	19990810	128.41663	287.28122	22.09950	11.48938	0.2409202	2.8617830	40	2	1993–1998	0.60	M-v	4	Spahr	34028	1998 VJ ₅
1998 VM ₅	14.5	0.15	19990810	95.09223	342.71962	22.18978	7.71643	0.2050581	2.5760527	30	1	132 days	0.63	M-v	4	Spahr	33763	1998 VM ₅
1998 VN ₅	13.0	0.15	19990810	50.41843	25.70727	22.22003	10.67242	0.1417525	3.1629338	35	1	88 days	0.48	M-v	4	Spahr	34028	1998 VN ₅
1998 VQ ₅	14.9	0.15	19990810	58.18800	49.54901	15.62985	6.03547	0.2040054	2.5367944	25	1	70 days	0.52	M-v	4	Spahr	34028	1998 VQ ₅
1998 VR ₅	14.7	0.15	19990810	101.08978	350.24792	358.00271	4.87577	0.2857949	2.6223534	20	1	65 days	0.63	M-v	6	Spahr	33763	1998 VR ₅
1998 VS ₅	13.7	0.15	19990810	347.40187	94.17329	27.05351	22.40853	0.0183140	2.6488648	20	1	72 days	0.41	M-v	5	Spahr	33763	1998 VS ₅
1998 VT ₅	12.8	0.15	19990810	47.03298	186.23234	239.47733	27.22903	0.1487375	3.1170911	60	1	179 days	0.63	M-v	3	Spahr	34028	1998 VT ₅
1998 VU ₅	14.3	0.15	19990810	349.04849	177.30731	318.45080	3.48525	0.0729445	2.5271054	32	1	71 days	0.54	M-v	5	Spahr	34028	1998 VU ₅
1998 VX ₅	13.6	0.15	19990810	100.40063	318.33377	32.23851	2.81399	0.1676624	3.0098562	41	2	1996–1999	0.70	M-v	4	Spahr	33763	1998 VX ₅
1998 VB ₆	14.0	0.15	19990810	98.28307	66.45628	256.91291	6.37365	0.2181909	2.2730874	40	5	1974–1998	0.87	M-v	2	Spahr	34308	1998 VB ₆

1998 VC ₆	16.2	0.15	19990810	79.11120	141.38705	262.67055	1.32241	0.2062242	2.3865582	51	2	1994–1999	0.71	M-v	4	Spahr	33763	1998 VC ₆
1998 VG ₆	15.2	0.15	19990810	81.86058	24.34247	8.77828	6.71186	0.2316485	2.3889701	39	1	159 days	0.63	M-v	4	Spahr	34028	1998 VG ₆
1998 VN ₆	15.6	0.15	19990810	42.51354	55.46437	29.64974	11.45938	0.2588311	2.6238503	32	1	83 days	0.67	M-v	4	Spahr	34595	1998 VN ₆
1998 VO ₆	13.5	0.15	19990810	30.83723	153.06407	289.89883	6.10397	0.0889316	2.7573430	36	1	102 days	0.56	M-v	4	Spahr	34028	1998 VO ₆
1998 VQ ₆	15.5	0.15	19990810	79.96246	82.87259	323.03545	4.31483	0.2005793	2.3242118	37	1	143 days	0.63	M-v	4	Spahr	33763	1998 VQ ₆
1998 VV ₆	15.0	0.15	19990810	114.98506	210.67943	159.75369	1.03011	0.1826762	2.3047819	25	4	1977–1999	0.67	M-v	3	Spahr	34028	1998 VV ₆
1998 VW ₆	13.7	0.15	19990810	99.10779	137.96185	242.65248	11.89604	0.1132710	2.6704447	18	1	64 days	0.71	M-v	5	Spahr	33575	1998 VW ₆
1998 VN ₈	14.7	0.15	19990810	108.90170	2.73471	341.24994	2.77279	0.1657607	2.4406562	51	5	1975–1998	0.55	M-v	1	Spahr	34595	1998 VN ₈
1998 VU ₉	14.4	0.15	19990810	40.57121	127.77352	297.88088	2.58545	0.0851769	2.5174309	20	2	1992–1998	0.76	M-v	6	Spahr	34308	1998 VU ₉
1998 VT ₁₀	13.7	0.15	19990810	208.75233	208.00069	53.18801	4.04101	0.1330351	2.1932142	31	6	1971–1998	0.44	M-v	2	Spahr	34537	1998 VT ₁₀
1998 VZ ₁₃	14.0	0.15	19990810	62.67447	166.37664	256.74307	5.32017	0.1010899	2.2506316	41	4	1954–1999	0.70	M-v	3	Spahr	34308	1998 VZ ₁₃
1998 VL ₁₄	14.1	0.15	19990810	104.40959	104.29780	240.49120	10.14494	0.2209576	2.5489746	35	1	86 days	0.72	M-v	5	Spahr	34308	1998 VL ₁₄
1998 VM ₁₅	11.3	0.15	19990810	100.70957	88.57893	221.14478	6.33149	0.2029316	3.9918241	36	7	1957–1998	0.63	M-v	1	Spahr	33575	1998 VM ₁₅
1998 VH ₁₈	15.1	0.15	19990810	117.75160	91.02934	270.27782	5.17353	0.1652857	2.1411344	33	1	167 days	0.94	M-v	4	Spahr	34309	1998 VH ₁₈
1998 VX ₁₈	14.9	0.15	19990810	155.03178	70.94085	255.78191	4.13485	0.0612982	2.1749246	27	3	1981–1998	0.79	M-v	4	Williams	34537	1998 VX ₁₈
1998 VP ₂₀	13.6	0.15	19990810	216.10652	86.02192	146.28903	2.16093	0.1370581	3.1730690	24	3	1991–1998	0.63	M-v	4	Spahr	33319	1998 VP ₂₀
1998 VQ ₂₅	14.5	0.15	19990810	250.60777	173.52750	58.76027	4.38340	0.0818969	2.2990372	39	1	94 days	0.54	M-v	4	Spahr	34028	1998 VQ ₂₅
1998 VB ₂₆	13.8	0.15	19990810	87.11119	338.72642	13.64050	1.33698	0.1761684	3.1798946	34	3	1992–1998	0.65	M-v	4	Spahr	34537	1998 VB ₂₆
1998 VO ₂₆	16.5	0.15	19990810	65.34425	66.55504	352.74636	2.35697	0.1819438	2.3765635	25	4	1992–1998	0.70	M-v	1	Spahr	34596	1998 VO ₂₆
1998 VK ₂₈	15.6	0.15	19990810	63.55646	349.30864	73.25247	4.91359	0.2133881	2.3958276	35	1	65 days	0.69	M-v	4	Williams	34028	1998 VK ₂₈
1998 VN ₂₈	14.6	0.15	19990810	26.57909	39.65931	69.69799	5.44986	0.1255425	2.3601002	47	3	1980–1999	0.60	M-v	3	Williams	34028	1998 VN ₂₈
1998 VS ₂₈	14.8	0.15	19990810	81.69679	69.17354	345.23555	1.82615	0.0873023	2.1626587	33	3	1982–1998	0.71	M-v	3	Williams	33516	1998 VS ₂₈
1998 VV ₂₈	14.5	0.15	19990810	74.07808	125.28516	286.93178	5.50786	0.1187821	2.3718809	19	4	1954–1998	0.69	M-v	2	Williams	33319	1998 VV ₂₈
1998 VC ₂₉	12.7	0.15	19990810	96.80004	212.46892	138.08679	4.98855	0.1125152	3.1887393	36	4	1975–1998	0.45	M-v	2	Williams	34309	1998 VC ₂₉
1998 VD ₂₉	12.6	0.15	19990810	40.74399	348.07488	69.61450	17.19007	0.1381765	3.1829321	23	1	88 days	0.79	M-v	4	Williams	34028	1998 VD ₂₉
1998 VN ₂₉	14.8	0.15	19990810	69.26886	167.59617	242.95018	10.75979	0.0551100	2.5258756	28	3	1978–1998	0.52	M-v	3	Williams	34028	1998 VN ₂₉
1998 VO ₂₉	14.8	0.15	19990810	60.10713	84.35621	313.94421	2.05951	0.2769608	2.9890973	28	2	1984–1998	0.56	M-v	4	Williams	33516	1998 VO ₂₉
1998 VU ₂₉	13.3	0.15	19990810	46.43777	169.27601	260.35808	9.10526	0.1445991	2.8060252	57	1	169 days	0.71	M-v	4	Williams	34596	1998 VU ₂₉
1998 VV ₂₉	14.8	0.15	19990810	27.44878	198.37663	270.92172	6.14956	0.0786709	2.3525205	29	1	66 days	0.71	M-v	5	Williams	34028	1998 VV ₂₉
1998 VY ₂₉	10.6	0.15	19990810	20.38596	163.40502	258.43761	12.03414	0.2041163	5.1710011	40	2	1986–1998	0.74	M-v	4	Williams	34596	1998 VY ₂₉
1998 VZ ₂₉	14.9	0.15	19990810	89.04370	4.95897	32.75544	4.26067	0.1933872	2.2726733	56	3	1991–1998	0.78	M-v	3	Williams	34596	1998 VZ ₂₉
1998 VD ₃₀	10.6	0.15	19990810	346.12336	233.19986	225.43138	24.92251	0.1005014	5.2229297	31	2	1986–1998	0.73	M-v	5	Williams	33576	1998 VD ₃₀
1998 VF ₃₀	10.8	0.15	19990810	8.48191	3.05860	67.00095	25.63454	0.1304176	5.2211421	29	1	102 days	0.78	M-v	4	Williams	34309	1998 VF ₃₀
1998 VJ ₃₀	13.9	0.15	19990810	53.70433	328.98948	76.17102	12.22086	0.1575047	3.1579253	35	1	95 days	0.64	M-v	4	Williams	34309	1998 VJ ₃₀
1998 VK ₃₀	13.7	0.15	19990810	85.20845	271.25962	108.63648	3.08692	0.0869055	2.8556426	40	3	1989–1998	0.66	M-v	4	Williams	33320	1998 VK ₃₀
1998 VM ₃₀	15.2	0.15	19990810	81.23228	23.10329	25.62192	2.80243	0.1072357	2.3052175	44	2	1992–1998	0.67	M-v	4	Williams	33576	1998 VM ₃₀
1998 VT ₃₀	15.0	0.15	19990810	116.20314	92.67157	277.87578	4.45822	0.1699168	2.1850175	40	4	1982–1998	0.77	M-v	2	Williams	33517	1998 VT ₃₀
1998 VV ₃₀	14.9	0.15	19990810	60.54015	77.63995	353.70664	1.96650	0.1853770	2.4137779	43	4	1983–1998	0.77	M-v	2	Williams	33576	1998 VV ₃₀
1998 VH ₃₁	14.6	0.15	19990810	100.66338	324.29657	62.18054	1.91263	0.2095213	2.3405088	29	3	1969–1998	0.77	M-v	3	Williams	34596	1998 VH ₃₁
1998 VQ ₃₁	13.3	0.15	19990810	79.88071	153.96077	243.46642	12.72731	0.1640159	2.6583834	36	1	168 days	0.60	M-v	4	Williams	34596	1998 VQ ₃₁
1998 VR ₃₁	14.7	0.15	19990810	43.53287	226.49911	241.18453	3.89706	0.0947720	2.2386548	23	2	1981–1999	0.55	M-v	4	Williams	33764	1998 VR ₃₁
1998 VM ₃₂	13.4	0.15	19990810	232.66002	333.50018	285.64105	8.28827	0.2140442	2.2872341	47	3	1980–1998	0.70	M-v	4	Williams	34029	1998 VM ₃₂
1998 VW ₃₂	15.2	0.15	19990810	180.42232	238.33688	54.15167	0.77287	0.1197067	2.4573280	32	1	95 days	0.59	M-v	5	Williams	34310	1998 VW ₃₂
1998 VY ₃₂	14.8	0.15	19990810	5.07890	79.66881	55.73610	3.10110	0.1452354	2.4648671	42	2	1996–1998	0.70	M-v	4	Williams	33764	1998 VY ₃₂
1998 VH ₃₃	15.7	0.15	19990810	152.64755	240.82607	75.05573	3.54452	0.1906131	2.2607409	25	1	80 days	0.63	M-v	5	Williams	34029	1998 VH ₃₃
1998 VK ₃₃	14.2	0.15	19990810	187.37570	241.12994	32.17281	4.85744	0.0918988	2.9053596	37	5	1976–1998	0.63	M-v	1	Williams	34310	1998 VK ₃₃
1998 VS ₃₃	15.9	0.15	19990810	33.47198	229.83493	263.27416	17.86839	0.0682998	1.9164120	39	1	91 days	0.65	M-v	4	Williams	34029	1998 VS ₃₃
1998 VU ₃₃	15.4	0.15	19990810	154.61837	247.71794	58.91612	2.47670	0.0760336	2.7959956	27	2	1993–1998	0.80	M-v	6	Williams	34225	1998 VU ₃₃
1998 VY ₃₃	13.9	0.15	19990810	68.09407	137.39284	270.00534	1.53703	0.2178350	2.6649873	60	5	1976–1999	0.69	M-v	1	Williams	34596	1998 VY ₃₃
1998 VC ₃₄	14.9	0.15	19990810	45.53386	121.03415	300.83635	1.05040	0.0466278	2.8802990	30	4	1971–1999	0.64	M-v	1	Williams	33764	1998 VC ₃₄
1998 VH ₃₄	13.1	0.15	19990810	84.57007	50.23815	303.18950	6.97488	0.1536693	3.1690980	26	1	65 days	0.66	M-v	5	Williams	33764	1998 VH ₃₄
1998 VR ₃₄	14.7	0.15	19990810	178.48982	331.96024	315.05982	1.13190	0.0367657	2.8728036	24	3	1996–1999	0.59	M-v	3	Williams	34310	1998 VR ₃₄
1998 VS ₃₄	14.7	0.15	19990810	74.79343	247.78186	175.42164	14.79104	0.1154300	2.5627592	26	1	95 days	0.54	M-v	4	Williams	34029	1998 VS ₃₄

1998 VV ₃₄	13.7	0.15	19990810	123.72711	358.48907	352.35718	7.03202	0.1437898	2.2195607	43	3	1978–1999	0.73	M-v	3	Williams	34029	1998 VV ₃₄
1998 VX ₃₄	14.8	0.15	19990810	46.87201	208.76624	221.81669	8.37290	0.2742997	2.7890620	31	1	81 days	0.63	M-v	4	Williams	33764	1998 VX ₃₄
1998 VF ₃₅	11.9	0.15	19990810	340.57991	301.18792	188.20102	10.12618	0.0518965	3.0118880	42	4	1985–1999	0.71	M-v	2	Williams	34310	1998 VF ₃₅
1998 VF ₃₆	16.2	0.15	19990810	89.75366	112.19486	272.97256	1.67515	0.2313075	2.3651852	24	1	97 days	0.72	M-v	5	Williams	34029	1998 VF ₃₆
1998 VE ₃₇	13.8	0.15	19990810	23.41830	83.71476	9.08028	9.07008	0.1813163	2.7709748	36	3	1981–1998	0.72	M-v	3	Williams	34310	1998 VE ₃₇
1998 VX ₃₇	15.9	0.15	19990810	71.58905	350.51581	65.47979	4.28407	0.1870455	2.2670833	37	3	1981–1998	0.55	M-v	3	Williams	34029	1998 VX ₃₇
1998 VZ ₃₇	14.6	0.15	19990810	320.08403	107.06357	54.83515	13.56756	0.1271250	2.6094212	23	2	1996–1998	0.73	M-v	4	Williams	34029	1998 VZ ₃₇
1998 VN ₄₀	15.2	0.15	19990810	75.09484	294.76004	89.80954	3.18446	0.1214930	2.9502690	24	2	1993–1999	0.44	M-v	5	Williams	34310	1998 VN ₄₀
1998 VU ₄₁	14.6	0.15	19990810	245.26385	161.08604	129.21780	2.95988	0.0848210	2.2287288	54	6	1987–1999	0.73	M-v	2	Williams	34596	1998 VU ₄₁
1998 VA ₄₄	15.4	0.15	19990810	262.25963	161.37372	110.69225	2.68517	0.1383403	2.6001679	18	1	61 days	0.33	M-v	6	Williams	33764	1998 VA ₄₄
1998 VC ₄₄	14.2	0.15	19990810	89.39001	217.97547	176.05999	4.28998	0.1399086	2.4866732	29	1	86 days	0.55	M-v	4	Williams	34225	1998 VC ₄₄
1998 VD ₄₄	14.5	0.15	19990810	79.75551	340.32360	71.30766	7.49187	0.1124518	2.4147875	45	4	1983–1999	0.54	M-v	2	Williams	34029	1998 VD ₄₄
1998 WJ	16.1	0.15	19990810	97.43852	179.54117	223.95396	3.89067	0.0820030	2.2469536	18	3	1993–1998	0.33	M-v	3	Williams	33577	1998 WJ
1998 WM	16.6	0.15	19990810	59.89016	172.42394	45.71450	22.51780	0.3154525	1.2246196	120	1	265 days	0.54	M-v	3	Williams	35442	1998 WM
1998 WJ ₁	15.1	0.15	19981123	47.11344	156.38463	210.97979	25.48140	0.2321397	2.3127782	12	1	31 days	0.30			Spahr		1998 WJ ₁
1998 WK ₁	14.6	0.15	19990810	125.90914	350.15001	336.18553	15.14134	0.1442490	2.5183994	53	1	112 days	0.66	M-v	4	Williams	34029	1998 WK ₁
1998 WN ₁	14.6	0.15	19990810	167.82789	106.19961	218.55805	4.51412	0.1577363	2.2898829	29	5	1980–1998	0.71	M-v	2	Williams	33520	1998 WN ₁
1998 WO ₁	13.2	0.15	19990810	119.19854	190.87425	152.22687	2.62645	0.1920430	3.1594674	25	4	1975–1998	0.62	M-v	1	Williams	33710	1998 WO ₁
1998 WQ ₁	13.8	0.15	19990810	38.48735	251.49209	196.19721	1.14877	0.1374575	3.1484877	35	3	1994–1998	0.62	M-v	4	Williams	33520	1998 WQ ₁
1998 WR ₁	14.5	0.15	19990810	278.96192	350.48702	249.46695	4.48923	0.1179117	2.2133495	29	3	1978–1998	0.59	M-v	4	Williams	33520	1998 WR ₁
1998 WD ₂	14.1	0.15	19990810	19.55737	195.55399	298.42755	11.23395	0.2836290	2.9090303	39	1	117 days	0.57	M-v	4	Williams	34310	1998 WD ₂
1998 WK ₂	15.0	0.15	19990810	79.70158	184.43351	215.09217	2.16247	0.1780361	2.5372793	27	2	1994–1998	0.59	M-v	5	Williams	34596	1998 WK ₂
1998 WL ₂	13.9	0.15	19990810	97.02670	190.24586	166.71909	23.79732	0.1342528	3.1793235	11	1	61 days	0.40	M-v	6	Spahr		1998 WL ₂
1998 WM ₂	15.5	0.15	19981123	297.79161	323.27157	187.06076	24.18344	0.1254014	2.3661981	12	1	32 days	0.26			Spahr		1998 WM ₂
1998 WN ₂	14.7	0.15	19990810	92.40292	131.63297	312.68355	12.15228	0.1605941	2.5539701	29	1	123 days	0.71	M-v	4	Williams	34310	1998 WN ₂
1998 WQ ₂	14.4	0.15	19990810	28.45572	246.83290	211.31521	10.16352	0.2516493	2.7697375	36	1	85 days	0.66	M-v	5	Williams	34029	1998 WQ ₂
1998 WE ₃	14.3	0.15	19990810	54.14312	76.44360	339.41724	4.49861	0.0286768	2.7400412	19	2	1993–1998	0.64	M-v	6	Williams	33578	1998 WE ₃
1998 WK ₃	14.1	0.15	19990810	114.46571	97.79377	271.53621	0.78462	0.2159174	2.6370240	18	5	1976–1998	0.81	M-v	2	Williams	33521	1998 WK ₃
1998 WQ ₃	13.0	0.15	19990810	242.40838	3.28254	267.40135	12.42121	0.1244477	2.5636982	33	3	1992–1999	0.64	M-v	4	Williams	34029	1998 WQ ₃
1998 WR ₃	13.7	0.15	19990810	201.60829	223.72313	58.45368	7.90037	0.1534012	2.2548271	47	3	1981–1998	0.67	M-v	3	Williams	34596	1998 WR ₃
1998 WT ₃	14.2	0.15	19990810	99.51823	319.68367	57.69825	10.26622	0.1981325	2.3850381	43	1	128 days	0.68	M-v	4	Williams	34029	1998 WT ₃
1998 WU ₃	14.1	0.15	19990810	110.36577	308.12866	53.28860	7.06311	0.1824145	2.4463081	38	2	1990–1998	0.79	M-v	5	Williams	34596	1998 WU ₃
1998 WX ₃	14.1	0.15	19990810	92.22980	285.68435	72.96640	13.54950	0.3107163	2.6524425	48	1	95 days	0.63	M-v	4	Williams	34029	1998 WX ₃
1998 WH ₄	13.3	0.15	19990810	49.17790	359.80607	72.64039	4.30856	0.0619175	2.6840728	47	2	1996–1998	0.63	M-v	3	Williams	34029	1998 WH ₄
1998 WN ₄	16.0	0.15	19981213	352.07763	338.23104	98.72540	23.93427	0.0894164	1.9298195	11	1	57 days	0.51			Spahr		1998 WN ₄
1998 WO ₄	16.1	0.15	19981123	246.55136	354.07168	190.34274	22.93541	0.0143710	1.9227740	20	1	35 days	0.71			Spahr		1998 WO ₄
1998 WT ₄	15.3	0.15	19981123	13.39543	292.40664	110.45132	24.86168	0.3252998	2.7732173	12	1	31 days	0.34			Spahr		1998 WT ₄
1998 WU ₄	14.3	0.15	19981123	285.55199	337.47218	193.96597	22.24416	0.0975190	2.4181479	12	1	34 days	0.98			Spahr		1998 WU ₄
1998 WW ₄	15.0	0.15	19990810	48.77265	352.19092	97.69286	24.23806	0.2143317	2.2802464	12	1	77 days	0.56	M-v	6	Spahr		1998 WW ₄
1998 WB ₅	17.0	0.15	19981103	1.80819	195.91172	211.07304	24.99825	0.2153190	2.3982309	8	1	9 days	0.52			Spahr		1998 WB ₅
1998 WC ₅	16.0	0.15	19981103	343.60851	300.40508	130.58025	13.88649	0.1398223	2.5734438	9	1	9 days	0.53			Spahr		1998 WC ₅
1998 WE ₅	13.7	0.15	19990810	68.00205	242.77393	152.51951	14.23585	0.1460155	3.1588888	24	2	1987–1998	0.80	M-v	5	Williams	33971	1998 WE ₅
1998 WH ₅	14.1	0.15	19981123	315.58517	321.02504	175.21968	24.26153	0.1413414	3.1682038	12	1	31 days	0.74			Spahr		1998 WH ₅
1998 WN ₅	14.3	0.15	19990810	115.51207	344.68865	356.25802	0.90568	0.1096695	2.9707594	33	2	1992–1998	0.77	M-v	6	Williams	33522	1998 WN ₅
1998 WO ₅	14.4	0.15	19990810	22.62340	125.08347	329.72328	5.82552	0.0899615	2.4630321	34	3	1990–1999	0.60	M-v	3	Williams	34029	1998 WO ₅
1998 WQ ₅	15.3	0.15	19990810	15.41203	269.68190	285.89662	27.65697	0.3547087	1.7209583	72	3	1989–1999	0.66	M-v	3	Williams	35342	1998 WQ ₅
1998 WV ₅	12.7	0.15	19990810	209.90563	352.36754	250.86345	13.51044	0.1073899	3.0315605	35	4	1951–1999	0.77	M-v	2	Williams	35342	1998 WV ₅
1998 WW ₅	14.8	0.15	19990810	166.93229	305.05720	358.35906	5.57429	0.1410683	2.3392768	21	1	68 days	0.52	M-v	6	Williams	33765	1998 WW ₅
1998 WX ₅	14.3	0.15	19990810	297.97171	134.81179	78.32386	3.08245	0.1046115	2.1527435	39	1	83 days	0.50	M-v	4	Williams	34596	1998 WX ₅
1998 WZ ₅	10.7	0.15	19990810	14.77370	272.16674	160.22297	12.80558	0.0943327	5.2320596	23	3	1986–1998	0.82	M-v	4	Williams	34310	1998 WZ ₅
1998 WC ₆	14.7	0.15	19990810	148.80963	225.28697	96.53503	4.34346	0.1891594	2.2192932	29	3	1988–1999	0.74	M-v	3	Williams	33765	1998 WC ₆
1998 WK ₆	14.3	0.15	19990810	59.84990	225.30165	191.39478	2.11247	0.1990506	2.6932166	46	3	1980–1998	0.71	M-v	3	Williams	33522	1998 WK ₆
1998 WQ ₆	14.9	0.15	19990810	81.36640	70.26351	347.98819	1.94139	0.1934590	2.3873739	37	4	1979–1999	0.63	M-v	2	Williams	34030	1998 WQ ₆

1998 WY ₆	14.5	0.15	19990810	292.61045	220.25130	342.58921	5.99686	0.0360374	2.4036856	21	1	61 days	0.47	M-v	5	Williams	34030	1998 WY ₆
1998 WZ ₆	17.3	0.15	19990810	84.77588	110.57520	68.85930	24.74825	0.4082928	1.4521499	233	1	254 days	0.50	M-v	3	Williams	35442	1998 WZ ₆
1998 WB ₇	13.5	0.15	19990810	130.87138	357.01211	326.59381	0.93278	0.1116028	2.9468362	39	1	88 days	0.63	M-v	6	Williams	34310	1998 WB ₇
1998 WE ₇	13.9	0.15	19990810	255.75700	167.28488	66.92035	15.42559	0.1337975	2.5345419	38	1	78 days	0.55	M-v	4	Williams	34596	1998 WE ₇
1998 WG ₇	14.0	0.15	19990810	162.35271	216.09894	97.17144	6.10134	0.2309387	2.3786294	25	5	1986–1999	0.74	M-v	2	Williams	34030	1998 WG ₇
1998 WL ₇	14.5	0.15	19990810	98.37912	148.68650	269.84353	24.69137	0.2563094	2.3039568	26	1	85 days	0.63	M-v	4	Williams	34596	1998 WL ₇
1998 WN ₇	14.5	0.15	19990810	23.77965	29.94784	72.55863	10.55272	0.1561765	2.7329176	51	1	74 days	0.65	M-v	5	Williams	33765	1998 WN ₇
1998 WR ₇	15.7	0.15	19990810	81.27752	124.28248	252.91447	11.83015	0.2266339	2.5742795	18	1	62 days	0.55	M-v	4	Williams	33765	1998 WR ₇
1998 WS ₇	13.9	0.15	19990810	62.78691	26.73685	19.19135	13.01288	0.1571335	2.6021502	35	2	1960–1999	0.57	M-v	3	Williams	33765	1998 WS ₇
1998 WB ₈	14.0	0.15	19990810	342.81549	141.76369	25.46013	1.12537	0.1439620	2.3244342	36	2	1996–1998	0.51	M-v	3	Williams	34596	1998 WB ₈
1998 WC ₈	13.3	0.15	19990810	66.37665	290.12684	108.26895	8.82156	0.2628761	2.7308999	36	3	1989–1999	0.78	M-v	3	Williams	34310	1998 WC ₈
1998 WD ₉	15.1	0.15	19990810	73.07584	202.09205	207.63154	8.27546	0.1432213	2.3310831	29	2	1989–1998	0.62	M-v	3	Williams	34030	1998 WD ₉
1998 WJ ₉	14.2	0.15	19990810	21.92576	18.83035	95.72468	14.36940	0.1977843	2.6408680	31	3	1991–1999	0.79	M-v	4	Williams	34030	1998 WJ ₉
1998 WM ₉	14.7	0.15	19990810	58.12545	7.67922	51.32580	9.28733	0.1559465	2.5524558	35	1	82 days	0.42	M-v	4	Williams	34030	1998 WM ₉
1998 WO ₉	15.2	0.15	19990810	144.31396	270.78419	67.44985	5.12902	0.0700534	2.2991423	43	2	1997–1998	0.64	M-v	4	Williams	33579	1998 WO ₉
1998 WQ ₉	15.8	0.15	19990810	70.18882	189.55378	214.39579	5.35655	0.2384322	2.5589450	29	1	84 days	0.74	M-v	4	Williams	34030	1998 WQ ₉
1998 WR ₉	14.8	0.15	19990810	134.60095	108.99882	217.53557	1.36037	0.1073226	2.7426410	32	2	1993–1998	0.70	M-v	6	Williams	34310	1998 WR ₉
1998 WS ₉	13.9	0.15	19990810	188.17127	221.69847	69.41917	6.79521	0.1002174	2.3571631	55	1	164 days	0.61	M-v	4	Williams	34310	1998 WS ₉
1998 WX ₉	11.4	0.15	19990810	14.97447	336.15181	89.54235	4.91837	0.0666265	5.1411858	48	4	1992–1998	0.70	M-v	2	Williams	35442	1998 WX ₉
1998 WU ₁₀	14.0	0.15	19990810	190.81255	42.79337	235.20690	1.92961	0.2272421	2.3552899	44	4	1986–1998	0.72	M-v	2	Williams	34030	1998 WU ₁₀
1998 WW ₁₀	14.6	0.15	19990810	105.82591	284.19937	77.76084	4.38241	0.1245936	2.5668841	58	2	1973–1999	0.65	M-v	4	Williams	34030	1998 WW ₁₀
1998 WX ₁₀	15.5	0.15	19990810	85.94806	254.23814	138.94705	1.71153	0.1798671	2.4001923	34	2	1979–1999	0.69	M-v	5	Williams	34225	1998 WX ₁₀
1998 WF ₁₁	14.1	0.15	19990810	73.40344	267.07871	124.93867	3.18140	0.0727729	2.8955125	23	2	1996–1998	0.61	M-v	4	Williams	33579	1998 WF ₁₁
1998 WN ₁₁	11.5	0.15	19990810	12.79778	318.68229	110.38608	4.50927	0.1695160	5.1863423	24	1	66 days	0.84	M-v	5	Williams	34310	1998 WN ₁₁
1998 WP ₁₁	13.7	0.15	19990810	150.10653	237.92033	70.62644	14.63315	0.1601404	2.6296293	25	1	88 days	0.59	M-v	5	Williams	34310	1998 WP ₁₁
1998 WQ ₁₁	14.3	0.15	19990810	229.42084	85.37880	173.05252	3.23590	0.1553392	2.2157465	37	4	1988–1998	0.72	M-v	2	Williams	34597	1998 WQ ₁₁
1998 WA ₁₂	15.1	0.15	19990810	28.50348	291.30869	178.22652	2.89107	0.1505931	2.4443600	40	2	1996–1998	0.71	M-v	4	Williams	34310	1998 WA ₁₂
1998 WG ₁₂	14.9	0.15	19990810	149.51203	98.53106	225.50369	5.94607	0.1434332	2.3216981	41	3	1980–1998	0.71	M-v	3	Williams	33524	1998 WG ₁₂
1998 WH ₁₂	15.3	0.15	19990810	124.18097	132.70043	207.41661	2.09283	0.1966006	2.4269914	47	1	70 days	0.56	M-v	4	Williams	33580	1998 WH ₁₂
1998 WJ ₁₂	14.3	0.15	19990810	82.03787	140.33431	237.08802	8.08540	0.1149033	2.9904802	46	2	1977–1998	0.89	M-v	5	Williams	33525	1998 WJ ₁₂
1998 WQ ₁₂	15.3	0.15	19990810	92.71259	12.02979	16.13233	3.37232	0.2196112	2.3458573	35	3	1987–1998	0.80	M-v	4	Williams	34597	1998 WQ ₁₂
1998 WZ ₁₃	14.9	0.15	19990810	106.25909	122.03273	252.95318	5.89058	0.1089858	2.3890646	37	1	89 days	0.61	M-v	5	Williams	34030	1998 WZ ₁₃
1998 WA ₁₄	15.4	0.15	19990810	34.51092	94.39626	18.08101	0.43767	0.1954785	2.3449326	42	1	74 days	0.74	M-v	5	Williams	34030	1998 WA ₁₄
1998 WJ ₁₄	14.9	0.15	19990810	34.29815	246.56355	189.61237	0.63151	0.1412492	3.0964904	33	1	87 days	0.69	M-v	5	Williams	34030	1998 WJ ₁₄
1998 WK ₁₄	15.1	0.15	19990810	90.99410	308.59789	68.42100	6.08823	0.0919221	2.7547825	21	1	64 days	0.52	M-v	5	Williams	33766	1998 WK ₁₄
1998 WZ ₁₄	15.0	0.15	19990810	27.27140	14.36348	96.20638	3.52052	0.1141236	2.4073280	23	1	83 days	0.41	M-v	5	Williams	34310	1998 WZ ₁₄
1998 WA ₁₅	11.3	0.15	19990810	13.92392	209.55752	218.88596	11.21395	0.1180505	5.2031158	34	3	1990–1998	0.70	M-v	3	Williams	34030	1998 WA ₁₅
1998 WD ₁₅	14.5	0.15	19990810	41.04494	300.02961	130.68745	3.07963	0.0669267	2.9234277	30	3	1995–1998	0.58	M-v	4	Williams	34030	1998 WD ₁₅
1998 WL ₁₅	15.4	0.15	19990810	50.53998	358.41199	86.14590	7.31237	0.0934630	2.3227054	22	1	91 days	0.69	M-v	5	Williams	34311	1998 WL ₁₅
1998 WM ₁₅	14.7	0.15	19990810	59.12980	338.33181	87.63564	7.42290	0.0863865	2.4807610	35	1	97 days	0.44	M-v	4	Williams	34311	1998 WM ₁₅
1998 WO ₁₅	15.0	0.15	19990810	116.73381	262.69188	77.17737	13.24490	0.1842438	2.6709786	24	1	97 days	0.72	M-v	5	Williams	34311	1998 WO ₁₅
1998 WP ₁₅	13.1	0.15	19990810	26.72703	3.56451	74.18952	17.18858	0.0556835	3.1971632	32	1	94 days	0.66	M-v	4	Williams	34311	1998 WP ₁₅
1998 WR ₁₅	13.2	0.15	19990810	112.93887	195.68046	131.34063	5.54794	0.2038432	3.1802298	26	2	1986–1998	0.98	M-v	5	Williams	34030	1998 WR ₁₅
1998 WC ₁₆	13.1	0.15	19990810	150.12480	233.59918	74.92662	11.43789	0.0983638	2.9778170	42	1	95 days	0.60	M-v	5	Williams	34311	1998 WC ₁₆
1998 WE ₁₆	14.1	0.15	19990810	23.42522	4.96767	80.35832	6.63704	0.0913323	3.2170644	22	1	83 days	0.68	M-v	5	Williams	34311	1998 WE ₁₆
1998 WM ₁₆	15.6	0.15	19990810	77.08022	219.47326	199.02806	2.11524	0.1011094	2.2630625	32	3	1993–1998	0.63	M-v	4	Williams	34597	1998 WM ₁₆
1998 WN ₁₆	14.1	0.15	19990810	60.68055	243.82511	190.52437	1.82701	0.1827058	2.3761202	48	1	172 days	0.61	M-v	4	Williams	34311	1998 WN ₁₆
1998 WT ₁₆	14.5	0.15	19990810	120.01177	111.05322	237.10424	13.37978	0.1529896	2.5337462	32	2	1994–1998	0.58	M-v	5	Williams	34538	1998 WT ₁₆
1998 WA ₁₇	14.0	0.15	19990810	343.60745	292.38493	200.86930	1.62947	0.0917225	3.1487620	29	1	85 days	0.55	M-v	6	Williams	34597	1998 WA ₁₇
1998 WJ ₁₇	12.3	0.15	19990810	112.07301	83.13041	234.18443	4.20939	0.2151125	3.9850157	35	4	1986–1999	0.63	M-v	1	Williams	35343	1998 WJ ₁₇
1998 WA ₁₈	13.2	0.15	19990810	46.55459	129.36852	293.72446	4.90328	0.0681982	3.1075238	24	3	1992–1999	0.84	M-v	3	Williams	34225	1998 WA ₁₈
1998 WR ₁₈	13.8	0.15	19990810	200.32115	18.78819	255.43731	6.71084	0.0962755	2.6958166	26	1	87 days	0.64	M-v	5	Williams	34311	1998 WR ₁₈
1998 WV ₁₈	11.8	0.15	19990810	273.54394	309.86316	243.79470	11.25095	0.1402465	3.9376707	35	1	86 days	0.68	M-v	5	Williams	34597	1998 WV ₁₈

1998 WY ₁₈	14.9	0.15	19990810	43.46362	175.58443	259.54702	2.03889	0.0550413	2.6907694	30	1	91 days	0.63	M-v	5	Williams	34311	1998 WY ₁₈
1998 WB ₁₉	15.8	0.15	19990810	92.65135	284.09211	77.92839	6.89189	0.2869357	2.6139719	38	1	73 days	0.57	M-v	5	Williams	34031	1998 WB ₁₉
1998 WJ ₁₉	14.7	0.15	19990810	218.11809	55.06656	206.41909	2.17937	0.1668984	2.4576422	21	2	1994–1998	0.51	M-v	6	Williams	34031	1998 WJ ₁₉
1998 WM ₁₉	14.4	0.15	19990810	77.38858	230.06195	209.35418	3.74803	0.2411235	2.5818173	42	3	1993–1999	0.71	M-v	2	Williams	34597	1998 WM ₁₉
1998 WN ₁₉	13.8	0.15	19990810	102.09954	124.62667	280.06695	11.85027	0.2596932	2.5721076	32	1	92 days	0.66	M-v	4	Williams	34311	1998 WN ₁₉
1998 WO ₁₉	14.2	0.15	19990810	66.00730	214.92006	246.78200	11.12825	0.2030139	2.5568656	23	1	135 days	0.80	M-v	4	Williams	34597	1998 WO ₁₉
1998 WS ₁₉	14.2	0.15	19990810	79.34995	75.26648	14.38340	11.75686	0.2502687	2.6276627	29	1	110 days	0.90	M-v	5	Williams	34311	1998 WS ₁₉
1998 WW ₁₉	13.4	0.15	19990810	95.57702	266.65164	96.50925	7.86075	0.0635659	3.1802003	46	5	1975–1998	0.54	M-v	1	Williams	34311	1998 WW ₁₉
1998 WA ₂₀	12.9	0.15	19990810	308.02870	80.79109	105.45878	10.88461	0.0304459	3.0204211	46	1	141 days	0.63	M-v	4	Williams	34597	1998 WA ₂₀
1998 WC ₂₀	14.0	0.15	19990810	55.44197	174.38083	256.94668	7.94666	0.1755295	2.7686314	25	2	1989–1998	0.57	M-v	3	Williams	33526	1998 WC ₂₀
1998 WE ₂₀	15.9	0.15	19990810	47.33793	69.92658	21.67635	3.52642	0.1463299	2.2929505	25	4	1977–1998	0.67	M-v	2	Williams	33526	1998 WE ₂₀
1998 WT ₂₀	14.3	0.15	19990810	256.54040	30.04140	206.71289	4.23474	0.1356064	2.1984365	31	2	1991–1998	0.49	M-v	5	Williams	34031	1998 WT ₂₀
1998 WU ₂₀	14.0	0.15	19990810	268.73029	8.65141	217.12848	7.54173	0.0508624	2.2215546	45	4	1987–1999	0.80	M-v	2	Williams	34031	1998 WU ₂₀
1998 WZ ₂₀	15.6	0.15	19990810	92.39283	103.21725	291.02090	2.24342	0.1702362	2.2474733	37	3	1991–1999	0.74	M-v	4	Williams	34311	1998 WZ ₂₀
1998 WR ₂₁	10.2	0.15	19990810	56.15529	135.43749	241.65736	14.99374	0.0693101	5.2315045	51	2	1986–1999	0.74	M-v	4	Williams	34311	1998 WR ₂₁
1998 WZ ₂₁	14.4	0.15	19990810	86.54454	225.55495	162.60317	0.99479	0.0194696	2.6546156	31	2	1993–1998	0.59	M-v	5	Williams	34031	1998 WZ ₂₁
1998 WA ₂₂	15.1	0.15	19990810	155.94929	227.93073	78.41767	3.46313	0.2163506	2.3835904	41	3	1971–1999	0.62	M-v	2	Williams	34311	1998 WA ₂₂
1998 WO ₂₂	14.0	0.15	19990810	132.65346	245.44669	67.71547	5.80418	0.2990954	2.5850623	44	1	171 days	0.67	M-v	4	Williams	34031	1998 WO ₂₂
1998 WW ₂₂	15.1	0.15	19990810	48.54905	328.30322	88.57257	2.88438	0.1773506	3.1287014	22	1	66 days	0.67	M-v	5	Williams	34597	1998 WW ₂₂
1998 WX ₂₂	14.6	0.15	19990810	146.82707	95.67384	212.70700	2.10923	0.2151865	2.6788052	31	3	1992–1998	0.67	M-v	4	Williams	34597	1998 WX ₂₂
1998 WD ₂₃	14.9	0.15	19990810	331.48877	295.14653	239.10365	4.27168	0.0408433	2.1679703	25	2	1982–1998	0.57	M-v	5	Williams	33527	1998 WD ₂₃
1998 WF ₂₃	15.7	0.15	19990810	71.48453	147.36452	272.19773	2.87469	0.1611948	2.3047144	24	1	115 days	0.65	M-v	4	Williams	34597	1998 WF ₂₃
1998 WL ₂₃	14.2	0.15	19990810	23.38580	200.55439	246.14139	0.82761	0.0271022	2.8994857	19	1	95 days	0.70	M-v	5	Williams	34311	1998 WL ₂₃
1998 WY ₂₃	13.0	0.15	19990810	11.86275	102.04259	85.81562	14.07893	0.1227097	2.6871188	43	1	195 days	0.68	M-v	4	Williams	35079	1998 WY ₂₃
1998 WB ₂₄	13.3	0.15	19990810	97.55898	317.93503	120.32355	10.12665	0.1359244	2.7773023	30	1	110 days	0.64	M-v	4	Williams	34311	1998 WB ₂₄
1998 WD ₂₄	12.8	0.15	19990810	348.84702	236.77770	347.80922	8.05446	0.2086520	2.8704918	58	1	195 days	0.71	M-v	4	Williams	35079	1998 WD ₂₄
1998 WF ₂₄	15.4	0.15	19990810	153.21399	65.34327	258.27196	2.46874	0.1126661	2.3206800	38	3	1987–1999	0.58	M-v	2	Williams	34311	1998 WF ₂₄
1998 WA ₃₂	13.4	0.15	19990810	159.52612	84.77836	226.93426	1.26199	0.0426696	2.9103552	29	3	1992–1999	0.68	M-v	5	Williams	34598	1998 WA ₃₂
1998 XC	13.6	0.15	19990810	157.20567	94.60547	260.97235	3.50897	0.1468596	2.2572402	54	6	1977–1999	0.68	M-v	3	Williams	34311	1998 XC
1998 XD	14.6	0.15	19990810	57.97005	344.21054	107.62942	8.77761	0.2609030	2.9784199	30	1	107 days	0.59	M-v	4	Williams	34311	1998 XD
1998 XE	13.0	0.15	19990810	111.09817	336.22076	84.51532	13.10654	0.1762509	2.6660131	30	3	1958–1999	0.71	M-v	3	Williams	34226	1998 XE
1998 XK	12.7	0.15	19990810	86.32684	40.33296	332.59150	5.98778	0.1563907	3.1471443	40	5	1981–1998	0.55	M-v	1	Williams	33528	1998 XK
1998 XE ₁	15.2	0.15	19990810	88.09910	298.20860	84.54166	3.23736	0.0974346	2.6261452	41	4	1992–1999	0.59	M-v	1	Williams	34031	1998 XE ₁
1998 XP ₂	13.0	0.15	19990810	347.50399	50.63103	93.36133	1.78353	0.0903246	3.1644098	38	2	1994–1999	0.70	M-v	5	Williams	33767	1998 XP ₂
1998 XA ₃	14.5	0.15	19990810	109.54685	247.97337	123.25477	4.21850	0.1986216	2.5329225	32	1	74 days	0.86	M-v	5	Williams	34311	1998 XA ₃
1998 XK ₃	14.4	0.15	19990810	99.61315	134.17694	271.99004	18.24416	0.2498091	2.6128378	26	1	78 days	0.66	M-v	4	Williams	34031	1998 XK ₃
1998 XM ₃	15.0	0.15	19990810	96.57441	337.39242	33.32254	8.62292	0.3940298	2.5509659	41	1	74 days	0.59	M-v	5	Williams	34031	1998 XM ₃
1998 XN ₃	13.2	0.15	19990810	127.48342	299.28533	34.74821	1.76554	0.1945517	3.1943971	42	6	1969–1999	0.70	M-v	1	Williams	34598	1998 XN ₃
1998 XR ₃	14.1	0.15	19990810	74.43583	122.30137	294.81285	2.71469	0.0699572	2.7288564	38	4	1979–1999	0.47	M-v	2	Williams	34031	1998 XR ₃
1998 XV ₄	13.9	0.15	19990810	301.09991	241.12142	337.85423	2.30327	0.1033110	2.6212252	32	3	1993–1999	0.64	M-v	4	Williams	33767	1998 XV ₄
1998 XM ₆	13.9	0.15	19990810	166.42439	182.36393	113.92245	3.06629	0.0863998	2.9316926	32	5	1978–1998	0.67	M-v	1	Williams	34032	1998 XM ₆
1998 XP ₆	15.3	0.15	19990810	285.99138	121.07310	74.67490	4.90086	0.0499396	2.6183608	19	1	84 days	0.73	M-v	5	Williams	34032	1998 XP ₆
1998 XA ₇	12.7	0.15	19990810	23.84503	266.96771	147.69693	1.80635	0.0365443	5.2780473	23	2	1996–1998	0.38	M-v	5	Williams	33712	1998 XA ₇
1998 XX ₈	14.6	0.15	19990810	20.46187	15.95385	110.75645	3.29395	0.1264400	2.3912096	34	2	1996–1999	0.56	M-v	4	Williams	33768	1998 XX ₈
1998 XJ ₉	15.3	0.15	19990810	61.33194	346.65554	84.47718	7.36626	0.0950574	2.3748016	27	1	79 days	0.42	M-v	4	Williams	34032	1998 XJ ₉
1998 XS ₉	13.9	0.15	19990810	170.63385	122.68290	190.70742	2.49918	0.1566870	2.2641147	46	2	1991–1999	0.61	M-v	5	Williams	33768	1998 XS ₉
1998 XW ₉	13.6	0.15	19990810	75.94763	264.56398	175.02208	2.24935	0.0523648	2.8459472	57	1	154 days	0.57	M-v	4	Williams	34598	1998 XW ₉
1998 XX ₉	14.2	0.15	19990810	24.47293	80.01018	56.22870	12.80604	0.1397437	2.6031022	31	1	63 days	0.69	M-v	5	Williams	34032	1998 XX ₉
1998 XN ₁₀	15.2	0.15	19990810	31.45207	33.42301	128.55257	2.99895	0.1600762	2.3590489	41	1	71 days	0.54	M-v	4	Williams	34598	1998 XN ₁₀
1998 XP ₁₀	15.6	0.15	19990810	80.33770	200.25338	252.47013	0.54239	0.1426908	2.4360350	31	1	90 days	0.46	M-v	4	Williams	34032	1998 XP ₁₀
1998 XQ ₁₀	14.4	0.15	19990810	90.13084	155.72998	294.14364	4.78120	0.0521532	2.3932918	26	1	83 days	0.67	M-v	5	Williams	34032	1998 XQ ₁₀
1998 XS ₁₀	15.8	0.15	19990810	89.43753	305.91337	121.61452	5.08899	0.2238234	2.5949903	22	1	71 days	0.66	M-v	5	Williams	34032	1998 XS ₁₀
1998 XT ₁₀	15.5	0.15	19990810	3.39036	68.94821	121.77425	7.27350	0.0742874	2.3200114	21	1	60 days	0.68	M-v	5	Williams	34032	1998 XT ₁₀

1998 XV ₁₀	14.8	0.15	19990810	357.75292	83.95711	118.66414	4.70479	0.1143788	2.2968493	33	3	1979–1999	0.60	M-v	4	Williams	33973	1998 XV ₁₀
1998 XC ₁₁	16.3	0.15	19990810	62.67294	154.95691	308.53194	4.46823	0.3033610	2.6070074	31	1	82 days	0.43	M-v	4	Williams	34032	1998 XC ₁₁
1998 XN ₁₁	14.9	0.15	19990810	337.23775	122.55820	78.19672	6.66126	0.0768883	2.1886858	40	3	1996–1999	0.66	M-v	3	Williams	33768	1998 XN ₁₁
1998 XP ₁₁	13.8	0.15	19990810	305.28627	262.63981	302.74612	8.77627	0.0492960	2.9766793	36	6	1989–1999	0.80	M-v	1	Williams	34312	1998 XP ₁₁
1998 XN ₁₂	13.1	0.15	19990810	40.10238	85.40867	73.57791	14.79481	0.1013811	2.6217525	49	1	195 days	0.63	M-v	3	Williams	35079	1998 XN ₁₂
1998 XO ₁₂	15.7	0.15	19990810	70.86795	356.40366	77.16077	3.41384	0.1954982	2.3916133	38	1	63 days	0.62	M-v	4	Williams	34032	1998 XO ₁₂
1998 XN ₁₃	14.9	0.15	19990810	342.54750	84.56782	73.55380	5.17159	0.2165071	2.6683420	29	1	90 days	0.40	M-v	5	Williams	34312	1998 XN ₁₃
1998 XB ₁₄	14.5	0.15	19990810	110.75799	157.64016	191.92797	3.13509	0.1992839	2.7234473	22	3	1980–1998	0.53	M-v	4	Williams	34226	1998 XB ₁₄
1998 XS ₁₅	13.4	0.15	19990810	15.07038	32.71369	92.17024	4.58789	0.0827777	3.0256802	56	3	1991–1999	0.53	M-v	3	Williams	33768	1998 XS ₁₅
1998 XG ₁₆	14.9	0.15	19990810	101.78726	4.92882	66.57483	24.63294	0.0572236	1.9287111	31	2	1997–1999	0.64	M-v	4	Williams	33768	1998 XG ₁₆
1998 XS ₁₆	16.5	0.15	19990810	5.28648	358.16950	273.06887	26.54903	0.4965346	1.2123552	100	2	1998–1999	0.59	M-v	4	Williams	34598	1998 XS ₁₆
1998 XV ₁₆	14.2	0.15	19990810	180.25516	257.42041	94.83225	7.57183	0.0998939	2.3710636	29	1	76 days	0.69	M-v	5	Williams	34032	1998 XV ₁₆
1998 XY ₁₆	13.4	0.15	19990810	145.70590	193.88710	166.86466	5.49549	0.0586139	3.1014623	32	4	1991–1999	0.59	M-v	1	Williams	34032	1998 XY ₁₆
1998 XT ₁₇	13.7	0.15	19990810	94.10692	183.11802	207.98378	5.00568	0.1301339	3.1860861	32	1	66 days	0.63	M-v	5	Williams	34032	1998 XT ₁₇
1998 XM ₁₈	15.8	0.15	19990810	20.44315	333.81434	118.90719	0.66364	0.1317695	3.1768176	15	1	68 days	0.34	M-v	5	Williams	34312	1998 XM ₁₈
1998 XJ ₁₉	16.0	0.15	19990810	84.70449	332.70144	81.10347	2.26903	0.0851707	2.1757374	40	2	1995–1999	0.45	M-v	3	Williams	34598	1998 XJ ₁₉
1998 XH ₂₀	14.3	0.15	19990810	67.95498	341.12738	109.36665	15.01079	0.0693714	2.6261838	27	1	93 days	0.68	M-v	4	Williams	34312	1998 XH ₂₀
1998 XS ₂₀	12.8	0.15	19990810	269.36535	338.85031	290.31019	15.83912	0.2494171	2.7472138	39	1	84 days	0.50	M-v	5	Williams	34598	1998 XS ₂₀
1998 XN ₂₁	13.5	0.15	19990810	85.57996	288.47767	116.95126	2.70844	0.2108019	3.2125069	49	2	1991–1999	0.52	M-v	4	Williams	34032	1998 XN ₂₁
1998 XY ₂₁	15.1	0.15	19990810	218.13832	185.61548	115.20925	1.57573	0.0506622	2.7778395	36	4	1992–1998	0.53	M-v	2	Williams	33714	1998 XY ₂₁
1998 XF ₂₃	14.8	0.15	19990810	270.70061	295.78184	287.58568	1.22668	0.1818615	2.4111859	20	1	88 days	0.51	M-v	5	Williams	34312	1998 XF ₂₃
1998 XD ₂₄	13.9	0.15	19990810	263.44689	169.58700	107.94067	5.42371	0.1765333	2.2685957	36	5	1935–1999	0.72	M-v	2	Williams	34033	1998 XD ₂₄
1998 XG ₂₅	16.2	0.15	19990810	72.42558	224.12899	173.38725	2.26935	0.0697702	2.8921157	21	3	1996–1998	0.25	M-v	3	Williams	33714	1998 XG ₂₅
1998 XC ₂₆	13.8	0.15	19990810	69.56093	137.73132	341.23298	11.96538	0.1173694	2.4751620	32	1	113 days	0.46	M-v	4	Williams	34312	1998 XC ₂₆
1998 XS ₃₀	14.3	0.15	19990810	332.24139	276.11573	252.38232	12.21529	0.1349210	2.6191415	29	3	1981–1999	0.68	M-v	3	Williams	34598	1998 XS ₃₀
1998 XS ₃₁	11.2	0.15	19990810	34.71024	160.61020	252.20746	6.40936	0.0659214	5.1175773	26	4	1951–1999	0.71	M-v	2	Williams	34226	1998 XS ₃₁
1998 XA ₃₃	13.1	0.15	19990810	95.62080	18.48451	359.73399	9.76705	0.1133793	2.9828463	23	4	1982–1999	0.71	M-v	2	Williams	34598	1998 XA ₃₃
1998 XZ ₄₀	13.2	0.15	19990810	86.42586	7.00193	16.37830	8.15383	0.2115147	3.1303624	27	4	1992–1999	0.68	M-v	1	Williams	34598	1998 XZ ₄₀
1998 XY ₄₁	14.2	0.15	19990810	87.76918	21.45660	31.49481	2.67675	0.1996701	2.3782384	33	4	1992–1999	0.72	M-v	2	Williams	34598	1998 XY ₄₁
1998 XA ₄₂	13.8	0.15	19990810	111.42002	307.06879	91.10244	5.50646	0.0041714	2.4857402	34	4	1974–1999	0.69	M-v	4	Williams	34033	1998 XA ₄₂
1998 XB ₄₈	15.0	0.15	19990810	101.39095	14.32040	40.16895	8.95618	0.1085747	2.2095761	22	3	1991–1999	0.85	M-v	4	Williams	33716	1998 XB ₄₈
1998 XV ₄₉	12.8	0.15	19990810	277.90911	197.11766	33.50590	12.45671	0.1094298	3.1577718	29	3	1990–1999	0.87	M-v	4	Williams	33716	1998 XV ₄₉
1998 XU ₅₁	12.1	0.15	19990810	231.77639	216.50313	57.06464	17.04886	0.1695580	3.1465501	48	6	1950–1999	0.78	M-v	1	Williams	35343	1998 XU ₅₁
1998 XH ₅₉	13.6	0.15	19990810	198.50517	185.69721	114.31266	7.28358	0.2190186	2.2647807	24	4	1987–1999	0.92	M-v	2	Williams	34033	1998 XH ₅₉
1998 XG ₆₁	13.1	0.15	19990810	147.27267	76.00760	294.26582	15.23463	0.0943273	2.7335603	37	1	137 days	0.78	M-v	4	Williams	34312	1998 XG ₆₁
1998 XF ₆₃	15.1	0.15	19990810	86.12951	343.51484	62.98673	7.81193	0.1889092	2.2531686	30	3	1981–1999	0.66	M-v	3	Williams	34598	1998 XF ₆₃
1998 XK ₆₃	15.0	0.15	19990810	134.15166	50.80066	293.30449	7.29256	0.2051754	2.2241911	24	2	1991–1998	0.80	M-v	4	Williams	34227	1998 XK ₆₃
1998 XO ₇₇	14.1	0.15	19990810	80.92932	295.49269	98.66554	13.48857	0.1637518	2.6315863	34	2	1997–1999	0.61	M-v	3	Williams	34227	1998 XO ₇₇
1998 XY ₇₇	13.1	0.15	19990810	60.76837	273.67417	160.76111	6.56804	0.0758123	2.4537235	38	4	1990–1999	0.53	M-v	3	Williams	34227	1998 XY ₇₇
1998 XO ₇₉	9.8	0.15	19990810	125.25560	166.68404	157.13750	13.97629	0.0445845	5.2119836	20	3	1996–1999	0.79	M-v	3	Williams	34598	1998 XO ₇₉
1998 XE ₈₀	15.0	0.15	19990810	48.92545	246.06488	198.42125	11.02070	0.1686802	2.6972018	23	3	1996–1998	0.46	M-v	3	Williams	34228	1998 XE ₈₀
1998 XQ ₈₃	13.0	0.15	19990810	12.77692	298.54193	193.32169	11.99241	0.1288121	2.6774532	26	2	1993–1999	0.74	M-v	5	Williams	34228	1998 XQ ₈₃
1998 XQ ₈₇	14.8	0.15	19990810	125.31481	166.52895	208.84836	1.74038	0.1632347	2.2413510	30	3	1981–1999	0.90	M-v	5	Williams	33974	1998 XQ ₈₇
1998 XA ₉₀	13.5	0.15	19990810	62.62129	222.91811	220.30796	12.20416	0.1453507	2.5441278	35	3	1996–1999	0.64	M-v	3	Williams	33974	1998 XA ₉₀
1998 XY ₉₁	13.7	0.15	19990810	46.07551	191.25634	257.09556	16.41652	0.1672759	3.1409064	24	2	1976–1999	0.95	M-v	4	Williams	33720	1998 XY ₉₁
1998 XP ₉₂	12.4	0.15	19990810	103.96239	144.51341	238.55844	9.65550	0.1178571	3.0232902	29	3	1982–1999	0.76	M-v	3	Williams	34312	1998 XP ₉₂
1998 XR ₉₂	13.2	0.15	19990810	211.21311	57.99113	235.54317	12.15089	0.1586063	2.6346949	29	6	1975–1999	0.69	M-v	2	Williams	34598	1998 XR ₉₂
1998 XM ₉₄	14.5	0.15	19990810	21.26962	316.65052	186.54346	8.98078	0.0522652	2.4001590	29	2	1996–1999	0.57	M-v	4	Williams	33721	1998 XM ₉₄
1998 XC ₉₆	12.8	0.15	19990810	242.17892	336.05784	315.79115	3.92540	0.1337921	3.1966691	25	3	1990–1999	0.75	M-v	4	Williams	33974	1998 XC ₉₆
1998 XD ₉₆	14.2	0.15	19990810	123.01334	282.89928	117.57190	3.13836	0.0766386	2.9104827	40	4	1984–1999	0.61	M-v	3	Williams	34598	1998 XD ₉₆
1998 XG ₉₆	14.9	0.15	19990810	346.17756	77.05747	122.36131	3.67863	0.1019747	2.6375222	18	1	90 days	0.61	M-v	5	Williams	34034	1998 XG ₉₆
1998 XH ₉₆	13.5	0.15	19990810	284.77209	136.18330	120.50505	9.95593	0.1017753	2.7669185	34	2	1996–1999	0.59	M-v	4	Williams	34312	1998 XH ₉₆
1998 YC	14.7	0.15	19990810	122.85621	119.95758	282.00830	3.05587	0.0951987	2.2351556	48	1	66 days	0.61	M-v	5	Williams	34598	1998 YC

1998 YG	14.3	0.15	19990810	41.34069	285.36533	227.28987	1.40345	0.1459545	2.6724850	41	5	1982–1999	0.66	M-v	1	Williams	35343	1998 YG
1998 YW	15.3	0.15	19990810	110.74354	147.47319	251.93880	0.75564	0.1920900	2.2382763	28	3	1991–1999	0.72	M-v	5	Williams	34034	1998 YW
1998 YC ₁	13.0	0.15	19990810	340.94222	320.54171	194.53273	4.29758	0.0394642	3.1778902	40	1	114 days	0.47	M-v	5	Williams	34598	1998 YC ₁
1998 YE ₁	14.5	0.15	19990810	144.62454	21.39441	351.93314	7.02503	0.1280525	2.2863196	39	3	1987–1999	0.40	M-v	4	Williams	34035	1998 YE ₁
1998 YN ₁	17.8	0.15	19990810	51.28926	147.36151	61.90317	6.29724	0.4648068	1.5561634	125	2	1998–1999	0.57	M-v	4	Spahr	35442	1998 YN ₁
1998 YU ₁	14.1	0.15	19990810	101.77516	268.61432	173.93910	2.76710	0.1443533	2.4527745	49	3	1993–1999	0.57	M-v	2	Williams	34313	1998 YU ₁
1998 YW ₁	11.2	0.15	19990810	312.98961	192.22723	309.32101	7.95643	0.0612976	5.1660895	37	3	1989–1999	0.60	M-v	4	Williams	33722	1998 YW ₁
1998 YE ₂	13.6	0.15	19990810	331.80697	249.91636	309.44932	8.39358	0.0123851	2.9680080	37	2	1996–1999	0.62	M-v	4	Williams	34313	1998 YE ₂
1998 YF ₂	15.2	0.15	19990810	63.09345	8.40374	107.05602	2.30937	0.1422039	2.4252119	42	1	89 days	0.44	M-v	4	Williams	34313	1998 YF ₂
1998 YL ₂	16.2	0.15	19990810	9.31665	93.85836	93.98419	2.20372	0.1290885	2.3821455	38	2	1977–1999	0.64	M-v	5	Williams	34313	1998 YL ₂
1998 YP ₂	15.9	0.15	19990810	56.89282	163.74278	309.51817	8.79792	0.2025458	2.7135918	30	1	61 days	0.69	M-v	5	Williams	34035	1998 YP ₂
1998 YS ₂	13.5	0.15	19990810	165.37464	238.82600	122.36134	15.86031	0.0474296	3.2290152	28	1	85 days	0.69	M-v	5	Williams	34313	1998 YS ₂
1998 YT ₂	13.1	0.15	19990810	235.46517	181.12084	120.47886	11.60287	0.0866557	2.9976395	34	1	69 days	0.60	M-v	5	Williams	34313	1998 YT ₂
1998 YX ₂	15.5	0.15	19990810	35.11611	226.88910	231.17559	8.88711	0.1475978	2.5729939	29	1	77 days	0.60	M-v	5	Williams	34035	1998 YX ₂
1998 YY ₂	15.5	0.15	19990810	287.54099	34.76939	179.52966	3.16527	0.0425885	2.2261419	28	3	1991–1998	0.49	M-v	4	Williams	33532	1998 YY ₂
1998 YA ₃	14.1	0.15	19990810	107.39245	196.68932	183.22767	1.46203	0.0556254	2.7526314	24	2	1995–1998	0.70	M-v	7	Williams	33532	1998 YA ₃
1998 YP ₃	15.4	0.15	19990810	28.40365	220.56880	269.06518	5.31047	0.0913893	2.4636320	46	4	1993–1999	0.60	M-v	2	Williams	34035	1998 YP ₃
1998 YV ₃	14.1	0.15	19990810	92.16077	243.02534	140.33585	2.55985	0.2365040	3.1725303	33	1	86 days	0.63	M-v	5	Williams	34313	1998 YV ₃
1998 YY ₃	14.8	0.15	19990810	58.53025	359.24830	70.61599	8.06538	0.2099171	2.5429484	43	1	88 days	0.37	M-v	3	Williams	34313	1998 YY ₃
1998 YN ₄	13.8	0.15	19990810	90.74844	87.72349	299.59375	13.65002	0.1358431	2.5995456	73	3	1991–1999	0.76	M-v	3	Williams	34035	1998 YN ₄
1998 YP ₄	15.0	0.15	19990102	358.56144	275.81979	170.88622	21.62134	0.1404321	2.7021746	12	1	27 days	0.54			Spahr		1998 YP ₄
1998 YL ₅	15.2	0.15	19990810	8.61660	77.18428	69.81697	6.63431	0.1443253	2.2498791	31	1	61 days	0.63	M-v	5	Williams	34599	1998 YL ₅
1998 YO ₅	13.4	0.15	19990810	255.91447	337.16889	295.03110	14.36500	0.0803906	2.6257202	37	3	1982–1999	0.62	M-v	4	Williams	33975	1998 YO ₅
1998 YS ₅	12.6	0.15	19990810	109.85526	285.41468	110.72727	11.53675	0.1021259	2.9964223	43	1	143 days	0.65	M-v	4	Williams	34599	1998 YS ₅
1998 YN ₆	13.3	0.15	19990810	9.07828	38.33369	125.51387	22.95121	0.0697707	3.2145305	41	3	1995–1999	0.63	M-v	3	Williams	34313	1998 YN ₆
1998 YW ₆	12.3	0.15	19990810	63.65161	19.07137	356.07039	7.24101	0.0955981	5.2317324	23	3	1996–1999	0.43	M-v	3	Williams	33724	1998 YW ₆
1998 YB ₇	13.0	0.15	19990810	67.17177	97.80846	296.06966	12.76551	0.2067778	2.6493634	47	2	1991–1999	0.59	M-v	3	Williams	34035	1998 YB ₇
1998 YF ₇	12.4	0.15	19990810	132.32719	118.34348	228.18077	12.61057	0.1991752	3.1993371	47	4	1968–1999	0.65	M-v	2	Williams	35344	1998 YF ₇
1998 YO ₇	15.0	0.15	19990810	64.44479	328.82383	88.11856	11.21990	0.2537539	2.7000704	27	3	1989–1999	0.56	M-v	3	Williams	34036	1998 YO ₇
1998 YP ₇	14.1	0.15	19990810	73.74657	293.75762	103.54296	11.39879	0.1212269	2.9707552	29	1	93 days	0.73	M-v	4	Williams	34036	1998 YP ₇
1998 YC ₈	13.4	0.15	19990810	99.05861	87.30035	281.16691	11.68778	0.2260267	2.5798153	57	2	1985–1999	0.62	M-v	4	Williams	34036	1998 YC ₈
1998 YF ₈	13.5	0.15	19990810	50.47473	228.42704	232.61369	4.66209	0.1714192	3.1806012	40	1	141 days	0.64	M-v	4	Williams	34599	1998 YF ₈
1998 YH ₈	13.9	0.15	19990810	29.71256	243.39118	262.16111	3.90530	0.1299304	2.6062516	45	1	161 days	0.68	M-v	4	Williams	35079	1998 YH ₈
1998 YK ₈	15.1	0.15	19990810	345.86860	78.85685	129.84928	5.40173	0.1368713	2.3037751	29	1	68 days	0.63	M-v	5	Williams	34313	1998 YK ₈
1998 YP ₈	14.8	0.15	19990810	54.13838	329.47417	138.82743	1.98519	0.1268482	2.6335173	41	2	1993–1999	0.59	M-v	5	Williams	34036	1998 YP ₈
1998 YS ₈	14.8	0.15	19990810	70.73178	246.14247	158.62224	14.40948	0.0841122	2.6418689	23	2	1993–1998	0.43	M-v	4	Williams	33534	1998 YS ₈
1998 YV ₈	14.4	0.15	19990810	94.15668	153.27996	215.03378	3.07573	0.1658886	2.8100308	27	2	1993–1998	0.53	M-v	5	Williams	34539	1998 YV ₈
1998 YS ₉	13.6	0.15	19990810	3.14618	21.14065	137.51709	3.01024	0.1276785	3.2173068	30	3	1996–1999	0.67	M-v	4	Williams	34599	1998 YS ₉
1998 YV ₉	14.8	0.15	19990810	90.40842	184.09629	230.74515	1.48129	0.2052048	2.6552212	42	3	1993–1999	0.58	M-v	2	Williams	34036	1998 YV ₉
1998 YW ₉	14.6	0.15	19990810	98.02420	263.90189	151.20361	1.42285	0.1941945	2.4187463	35	6	1975–1999	0.52	M-v	1	Williams	34036	1998 YW ₉
1998 YX ₉	15.7	0.15	19990810	53.24197	246.91651	237.87696	1.29082	0.1662181	2.2994574	38	3	1992–1999	0.53	M-v	3	Williams	34036	1998 YX ₉
1998 YD ₁₀	13.6	0.15	19990810	85.44576	319.62204	92.62941	3.28675	0.0844357	2.9075801	34	2	1994–1999	0.60	M-v	5	Williams	34313	1998 YD ₁₀
1998 YE ₁₀	13.1	0.15	19990810	185.21621	214.78336	95.19807	17.74125	0.2109680	2.7267401	24	1	89 days	0.71	M-v	5	Williams	34313	1998 YE ₁₀
1998 YJ ₁₀	14.8	0.15	19990810	115.30832	94.42103	290.40792	11.81711	0.1968698	2.6747996	21	1	67 days	0.46	M-v	5	Williams	34036	1998 YJ ₁₀
1998 YW ₁₀	15.0	0.15	19990810	337.21895	279.75159	303.16989	3.21212	0.0759432	2.1624803	31	1	85 days	0.80	M-v	5	Williams	34036	1998 YW ₁₀
1998 YC ₁₂	14.4	0.15	19990810	312.75076	290.07394	314.45050	7.26783	0.1705183	2.2997909	36	1	145 days	0.56	M-v	4	Williams	35080	1998 YC ₁₂
1998 YJ ₁₂	14.5	0.15	19990810	339.85098	130.40179	46.17803	9.32538	0.2090932	2.5436442	20	1	92 days	0.49	M-v	5	Williams	34313	1998 YJ ₁₂
1998 YP ₁₂	12.7	0.15	19990810	154.46650	57.45787	300.49560	1.84118	0.0870472	3.0024815	56	4	1986–1999	0.64	M-v	4	Williams	35344	1998 YP ₁₂
1998 YL ₁₃	14.0	0.15	19990810	114.83438	286.38734	106.32540	12.41449	0.1704474	2.5197500	27	1	90 days	0.65	M-v	5	Williams	34599	1998 YL ₁₃
1998 YQ ₁₅	15.0	0.15	19990810	42.48724	16.06951	124.95210	5.49086	0.0973602	2.2444764	38	1	111 days	0.57	M-v	4	Williams	34599	1998 YQ ₁₅
1998 YY ₁₅	14.1	0.15	19990810	59.06658	298.67591	152.71720	2.10003	0.1376490	3.1922454	49	3	1971–1999	0.63	M-v	3	Williams	34599	1998 YY ₁₅
1998 YL ₁₆	13.5	0.15	19990810	98.49633	279.01793	124.71741	5.82431	0.1700617	3.0873715	34	3	1992–1999	0.68	M-v	4	Williams	34036	1998 YL ₁₆
1998 YM ₁₆	14.5	0.15	19990810	357.55761	7.38809	164.86405	1.13068	0.1131608	3.1243870	33	2	1997–1999	0.67	M-v	4	Williams	34539	1998 YM ₁₆

1998 YO ₁₆	15.6	0.15	19990810	80.34876	157.89091	287.32678	5.18883	0.1929736	2.3794624	25	1	60 days	0.68	M-v	5	Williams	34036	1998 YO ₁₆
1998 YU ₁₆	14.9	0.15	19990810	40.51558	243.54165	254.67605	1.37883	0.1218942	2.3969983	34	2	1977–1999	0.74	M-v	4	Williams	34313	1998 YU ₁₆
1998 YV ₁₆	13.4	0.15	19990810	86.84726	259.04998	158.17108	1.45901	0.1379290	3.1543321	40	1	126 days	0.63	M-v	4	Williams	34313	1998 YV ₁₆
1998 YG ₁₇	15.1	0.15	19990810	302.37119	315.07414	268.28520	0.76606	0.0170556	2.9150342	27	1	108 days	0.56	M-v	5	Williams	34599	1998 YG ₁₇
1998 YU ₁₉	15.6	0.15	19990810	58.25290	50.71005	65.23609	1.72481	0.1553867	2.3260901	26	2	1996–1999	0.68	M-v	4	Williams	33976	1998 YU ₁₉
1998 YT ₂₀	13.0	0.15	19990810	224.14839	345.77085	308.39220	9.48401	0.1165933	3.0616164	41	5	1953–1999	0.59	M-v	1	Williams	34314	1998 YT ₂₀
1998 YX ₂₁	14.0	0.15	19990810	147.74624	52.01887	301.76249	14.26216	0.2007692	3.1029942	17	2	1980–1999	0.24	M-v	4	Williams	33727	1998 YX ₂₁
1998 YJ ₂₂	13.8	0.15	19990810	57.45459	301.51630	161.64568	5.77544	0.0158515	2.7343571	46	4	1992–1999	0.68	M-v	2	Williams	34314	1998 YJ ₂₂
1998 YK ₂₂	14.9	0.15	19990810	140.07273	109.05638	262.93077	6.57541	0.1622138	2.4274478	33	3	1988–1999	0.57	M-v	2	Williams	34599	1998 YK ₂₂
1998 YO ₂₂	14.1	0.15	19990810	74.79948	303.85818	125.13222	11.95543	0.2418601	2.7150334	33	3	1993–1999	0.49	M-v	3	Williams	34314	1998 YO ₂₂
1998 YH ₂₇	14.4	0.15	19990810	39.94482	239.03179	235.21965	12.90269	0.1280036	2.5450562	39	2	1973–1999	0.75	M-v	3	Williams	34037	1998 YH ₂₇
1998 YU ₂₉	14.3	0.15	19990810	106.18379	342.43001	66.94034	11.77890	0.2589365	2.4296749	30	3	1990–1999	0.75	M-v	3	Williams	34228	1998 YU ₂₉
1998 YW ₂₉	14.6	0.15	19990810	79.61932	72.17309	25.70878	9.90710	0.0685314	2.5601310	23	2	1993–1999	0.69	M-v	5	Williams	33976	1998 YW ₂₉
1999 AD	14.0	0.15	19990810	72.54930	237.18014	190.95146	3.67368	0.1043364	2.2647525	25	3	1972–1999	0.76	M-v	3	Williams	33977	1999 AD
1999 AN	15.7	0.15	19990810	3.07860	159.61457	17.32487	2.33425	0.1506294	2.3742947	28	1	60 days	0.54	M-v	5	Williams	34037	1999 AN
1999 AX	13.6	0.15	19990810	329.80459	106.25305	101.25599	13.58136	0.1174862	2.6880406	42	1	203 days	0.65	M-v	4	Williams	35080	1999 AX
1999 AH ₁	16.6	0.15	19990810	168.09429	222.99851	131.96652	3.72448	0.1292449	2.5220425	20	2	1996–1999	0.45	M-v	5	Williams	34228	1999 AH ₁
1999 AC ₂	13.8	0.15	19990810	299.91061	37.06524	204.62034	2.00792	0.1836960	2.3647082	46	4	1949–1999	0.80	M-v	1	Williams	34314	1999 AC ₂
1999 AO ₂	12.8	0.15	19990810	125.36768	34.44035	341.38831	9.16198	0.1558123	3.0581723	30	1	62 days	0.70	M-v	5	Williams	34037	1999 AO ₂
1999 AU ₂	14.2	0.15	19990810	122.60377	16.87843	34.68481	6.73040	0.1292755	2.6030219	42	3	1982–1999	0.59	M-v	3	Williams	34599	1999 AU ₂
1999 AO ₃	14.1	0.15	19990810	47.26414	210.69217	250.77574	14.46350	0.1972680	2.7991892	48	1	135 days	0.73	M-v	3	Williams	34599	1999 AO ₃
1999 AA ₄	14.3	0.15	19990810	290.76941	283.65158	345.15310	5.67959	0.1767475	2.4803377	17	2	1988–1999	0.81	M-v	5	Williams	33977	1999 AA ₄
1999 AC ₄	13.8	0.15	19990810	351.75464	148.76592	25.33364	1.91857	0.1699302	3.1607936	32	4	1991–1999	0.52	M-v	2	Williams	34038	1999 AC ₄
1999 AJ ₄	15.1	0.15	19990810	120.38118	161.16786	217.39721	1.52184	0.2241959	2.3807611	36	3	1983–1999	0.76	M-v	4	Williams	33730	1999 AJ ₄
1999 AM ₄	14.9	0.15	19990810	36.30013	70.71554	87.25506	4.26186	0.0520185	2.1518492	38	3	1993–1999	0.64	M-v	4	Williams	34599	1999 AM ₄
1999 AR ₄	14.4	0.15	19990810	78.59931	330.56347	109.77917	9.30941	0.1973614	2.7139042	38	2	1989–1999	0.66	M-v	4	Williams	33978	1999 AR ₄
1999 AK ₅	13.1	0.15	19990810	86.04338	51.75322	17.76839	11.03165	0.1071285	2.9936736	37	1	119 days	0.76	M-v	4	Williams	35080	1999 AK ₅
1999 AM ₅	14.8	0.15	19990810	70.63525	108.28592	1.29729	9.53728	0.1299629	2.2688154	29	1	140 days	0.66	M-v	4	Williams	34599	1999 AM ₅
1999 AN ₅	14.1	0.15	19990810	160.43478	355.20765	14.52409	5.27177	0.1984070	2.2726880	41	4	1987–1999	0.58	M-v	3	Williams	34038	1999 AN ₅
1999 AR ₅	13.1	0.15	19990810	124.19317	311.84410	89.68390	10.45421	0.0664906	2.9721895	34	1	86 days	0.60	M-v	5	Williams	35080	1999 AR ₅
1999 AU ₅	14.2	0.15	19990810	319.45276	131.82193	85.97930	9.82758	0.0338240	2.9824024	21	2	1998–1999	0.52	M-v	4	Williams	34038	1999 AU ₅
1999 AZ ₅	14.3	0.15	19990810	42.81914	359.64582	130.94788	1.52511	0.0866243	3.0709599	36	3	1988–1999	0.79	M-v	4	Williams	34314	1999 AZ ₅
1999 AC ₆	13.5	0.15	19990810	87.72116	271.14977	97.97166	17.20592	0.3178034	2.6209275	22	2	1995–1999	0.70	M-v	5	Williams	34228	1999 AC ₆
1999 AE ₆	12.6	0.15	19990810	38.66601	178.17526	246.14197	14.14462	0.0683574	2.5913444	33	5	1981–1999	0.71	M-v	2	Williams	34599	1999 AE ₆
1999 AS ₆	14.0	0.15	19990810	78.70881	312.52517	121.93942	16.80944	0.1870840	2.6897839	44	1	140 days	0.62	M-v	4	Williams	34599	1999 AS ₆
1999 AV ₆	14.4	0.15	19990810	21.13877	34.63908	124.83995	7.35037	0.0719158	2.4092086	34	2	1996–1999	0.59	M-v	4	Williams	34599	1999 AV ₆
1999 AX ₆	15.5	0.15	19990810	123.38689	116.57194	291.28401	4.02138	0.1242816	2.2125926	46	3	1994–1999	0.60	M-v	3	Williams	34039	1999 AX ₆
1999 AZ ₆	13.0	0.15	19990810	314.24772	283.91292	291.16032	8.40019	0.0411495	2.9907163	30	1	85 days	0.61	M-v	5	Williams	34314	1999 AZ ₆
1999 AC ₇	15.0	0.15	19990810	40.50128	359.11200	140.58784	7.54648	0.0765977	2.4087685	24	2	1996–1999	0.47	M-v	4	Williams	34315	1999 AC ₇
1999 AR ₇	16.5	0.15	19990810	55.71182	58.22094	85.51201	40.62877	0.2141327	1.6445956	77	1	205 days	0.55	M-v	4	Williams	35080	1999 AR ₇
1999 AU ₇	15.3	0.15	19990810	318.31173	203.93969	43.82283	4.98264	0.0696226	2.1904922	43	4	1978–1999	0.51	M-v	2	Williams	34599	1999 AU ₇
1999 AL ₈	14.9	0.15	19990810	60.81069	313.33404	129.24954	5.32626	0.2274217	2.3083949	39	1	157 days	0.67	M-v	4	Williams	34315	1999 AL ₈
1999 AU ₉	14.7	0.15	19990810	166.42262	308.39911	76.28476	5.39297	0.1281029	2.1936810	35	3	1978–1999	0.62	M-v	4	Williams	34315	1999 AU ₉
1999 AC ₁₀	12.6	0.15	19990810	211.53584	34.65694	278.93103	8.98079	0.0906710	2.9811115	32	4	1991–1999	0.67	M-v	2	Williams	34039	1999 AC ₁₀
1999 AD ₁₀	14.3	0.15	19990810	31.45458	252.86068	224.16492	4.38274	0.2106678	3.9747119	17	2	1997–1999	0.90	M-v	5	Williams	33979	1999 AD ₁₀
1999 AH ₁₀	13.8	0.15	19990810	83.16733	334.34198	138.92243	2.77352	0.0297038	2.9359807	40	4	1991–1999	0.52	M-v	1	Williams	34315	1999 AH ₁₀
1999 AJ ₁₀	14.2	0.15	19990122	348.13340	100.53345	46.90924	26.52219	0.2608929	3.1746404	14	1	27 days	0.62			Williams		1999 AJ ₁₀
1999 AN ₁₀	18.0	0.15	19990810	70.04961	268.25237	314.55302	39.93190	0.5621422	1.4587478	128	3	1955–1999	0.50	M-v	2	Spahr	35344	1999 AN ₁₀
1999 AB ₁₆	17.8	0.15	19990810	16.65921	222.43121	302.71370	2.29164	0.1793426	2.5666059	17	2	1995–1999	0.51	M-v	6	Williams	33979	1999 AB ₁₆
1999 AC ₁₆	14.4	0.15	19990810	87.51052	311.53119	115.02159	8.78066	0.1095001	2.7666984	27	1	64 days	0.62	M-v	5	Williams	34315	1999 AC ₁₆
1999 AX ₁₈	16.1	0.15	19990102	41.28714	302.26553	131.30350	4.70171	0.0290420	2.7833888	12	1	31 days	0.32			Williams	33979	1999 AX ₁₈
1999 AC ₂₀	15.5	0.15	19990810	206.26724	210.50855	123.87762	2.86924	0.1173734	2.6642223	17	2	1995–1999	0.34	M-v	6	Williams	33979	1999 AC ₂₀
1999 AJ ₂₀	13.6	0.15	19990810	64.24100	94.59686	347.16703	1.74513	0.2189378	3.9874481	29	3	1996–1999	0.74	M-v	4	Williams	34315	1999 AJ ₂₀

1999 AA ₂₁	13.2	0.15	19990810	149.74138	35.02517	333.30155	23.67723	0.2055780	2.4380568	36	1	83 days	0.48	M-v	4	Williams	34600	1999 AA ₂₁
1999 AL ₂₁	14.6	0.15	19990810	168.23762	197.77823	147.85996	3.13982	0.1982973	2.4344216	21	3	1982–1999	0.85	M-v	5	Williams	34229	1999 AL ₂₁
1999 AQ ₂₁	14.6	0.15	19990810	1.68569	348.23840	201.84546	0.84249	0.1293530	2.3929216	39	4	1977–1999	0.64	M-v	2	Williams	34600	1999 AQ ₂₁
1999 AU ₂₁	13.5	0.15	19990810	134.63450	234.78382	157.17514	2.00553	0.0824592	3.0030031	45	3	1976–1999	0.68	M-v	4	Williams	34315	1999 AU ₂₁
1999 AY ₂₁	14.1	0.15	19990810	352.63959	356.58001	193.63226	4.82431	0.0967790	3.1185642	33	3	1991–1999	0.57	M-v	4	Williams	34315	1999 AY ₂₁
1999 AC ₂₄	14.6	0.15	19990810	159.39432	355.24478	39.46272	21.04925	0.1121759	1.9346393	20	2	1994–1999	0.41	M-v	5	Williams	34229	1999 AC ₂₄
1999 AF ₂₄	12.9	0.15	19990810	321.41548	80.74158	115.43495	11.51410	0.1167164	2.6429208	43	2	1992–1999	0.82	M-v	4	Williams	34315	1999 AF ₂₄
1999 AG ₂₄	12.6	0.15	19990810	225.62778	337.59931	318.12710	1.78957	0.1636087	3.1214110	32	5	1991–1999	0.87	M-v	2	Williams	34315	1999 AG ₂₄
1999 AJ ₂₄	13.7	0.15	19990810	175.23115	30.37237	302.97772	13.39101	0.1540307	3.1120945	21	2	1996–1999	0.32	M-v	4	Williams	34230	1999 AJ ₂₄
1999 AM ₂₄	14.4	0.15	19990810	248.84212	163.63884	149.57055	7.99031	0.2009131	2.4822321	36	5	1954–1999	0.50	M-v	3	Williams	34539	1999 AM ₂₄
1999 AN ₂₄	13.8	0.15	19990810	90.13172	299.78972	148.89496	2.41248	0.0695345	2.9507539	52	4	1992–1999	0.45	M-v	1	Williams	34600	1999 AN ₂₄
1999 AA ₂₅	15.1	0.15	19990810	59.06464	6.78182	151.88201	5.74304	0.0727356	2.2029801	61	4	1989–1999	0.84	M-v	2	Williams	34600	1999 AA ₂₅
1999 AR ₂₅	15.1	0.15	19990810	320.06924	287.67684	335.77721	1.57278	0.2148615	2.3451870	43	4	1992–1999	0.62	M-v	2	Williams	34600	1999 AR ₂₅
1999 AZ ₂₆	14.3	0.15	19990810	72.54380	144.94075	306.60850	5.09918	0.0705548	2.7939718	26	2	1992–1999	0.54	M-v	5	Williams	34316	1999 AZ ₂₆
1999 AE ₂₈	14.5	0.15	19990810	287.81116	138.18020	130.22455	7.09607	0.1366912	2.3773576	32	4	1986–1999	0.93	M-v	2	Williams	34600	1999 AE ₂₈
1999 AN ₃₀	14.9	0.15	19990810	148.43796	90.81039	274.85743	1.44935	0.1803072	2.4586788	18	3	1986–1999	0.75	M-v	4	Williams	34230	1999 AN ₃₀
1999 AU ₃₀	16.0	0.15	19990810	93.46494	289.53220	131.44357	5.40333	0.2649991	2.3384028	23	2	1992–1999	0.53	M-v	4	Williams	34230	1999 AU ₃₀
1999 AD ₃₃	12.8	0.15	19990810	359.13163	39.85581	121.36472	11.06553	0.0240751	2.9817137	36	1	69 days	0.66	M-v	5	Williams	34316	1999 AD ₃₃
1999 BG	15.1	0.15	19990810	22.44188	196.26055	325.24981	6.57307	0.0571340	2.4158765	32	2	1995–1999	0.71	M-v	4	Williams	34316	1999 BG
1999 BS	15.2	0.15	19990810	112.09579	223.56344	180.15974	2.41170	0.1607390	2.3873359	22	4	1979–1999	0.75	M-v	3	Williams	34316	1999 BS
1999 BE ₁	15.6	0.15	19990810	25.28696	208.33042	312.39160	4.04023	0.0917290	2.2389763	35	2	1989–1999	0.75	M-v	5	Williams	33983	1999 BE ₁
1999 BM ₁	15.2	0.15	19990810	173.09831	0.91050	339.11711	2.01227	0.2209659	2.4436531	24	2	1978–1999	0.41	M-v	6	Williams	33984	1999 BM ₁
1999 BO ₁	13.1	0.15	19990810	256.24847	173.72680	108.23962	9.11597	0.1853889	2.5683007	54	4	1992–1999	0.64	M-v	1	Williams	34316	1999 BO ₁
1999 BW ₁	13.3	0.15	19990810	355.48683	32.62209	162.20568	7.25789	0.0116263	2.7205772	48	2	1990–1999	0.59	M-v	4	Williams	34600	1999 BW ₁
1999 BD ₂	15.4	0.15	19990211	7.47476	298.80379	165.22557	21.77536	0.2574655	2.3454033	11	1	51 days	0.55			Spahr		1999 BD ₂
1999 BF ₂	15.6	0.15	19990102	353.38988	238.92496	230.25752	26.60634	0.2261321	2.3265111	11	1	35 days	0.54			Spahr		1999 BF ₂
1999 BY ₂	14.6	0.15	19990810	67.26856	334.73811	135.39700	16.93830	0.1635231	2.7229941	34	1	110 days	0.57	M-v	4	Williams	34316	1999 BY ₂
1999 BB ₃	14.8	0.15	19990810	81.19317	344.61204	108.88740	7.21702	0.1884357	2.5650963	30	1	90 days	0.58	M-v	5	Williams	34042	1999 BB ₃
1999 BW ₃	15.6	0.15	19990810	83.41123	330.57802	98.55351	26.19695	0.2822255	2.3247684	39	1	122 days	0.71	M-v	4	Williams	34316	1999 BW ₃
1999 BA ₄	14.2	0.15	19990810	326.11299	133.80914	77.65833	5.54999	0.0877354	2.4460638	28	1	98 days	0.54	M-v	4	Williams	34316	1999 BA ₄
1999 BN ₅	14.3	0.15	19990810	88.52337	210.17976	141.19829	5.97953	0.3417767	2.6642624	42	1	176 days	0.57	M-v	4	Williams	34317	1999 BN ₅
1999 BR ₅	13.7	0.15	19990810	348.13688	26.89539	164.81486	1.43901	0.1328120	3.2062378	37	5	1973–1999	0.70	M-v	2	Williams	34317	1999 BR ₅
1999 BF ₆	14.7	0.15	19990810	86.37695	322.28086	156.62400	2.82770	0.0051547	2.8658498	18	1	82 days	0.44	M-v	5	Williams	34600	1999 BF ₆
1999 BQ ₆	14.5	0.15	19990810	165.62709	257.35319	143.96904	4.75026	0.1560848	2.2518445	30	4	1987–1999	0.63	M-v	2	Williams	34937	1999 BQ ₆
1999 BX ₆	13.8	0.15	19990810	0.96471	60.11641	165.04948	15.36785	0.0496537	3.2086820	29	3	1993–1999	0.81	M-v	3	Williams	34938	1999 BX ₆
1999 BJ ₈	18.0	0.15	19990810	50.27385	221.29126	339.99706	9.03434	0.5499526	1.8992425	271	2	1999–1999	0.42	M-v	4	Williams	35443	1999 BJ ₈
1999 BK ₈	13.9	0.15	19990810	146.00255	322.17867	58.18327	5.56085	0.1789938	2.2482052	46	1	128 days	0.71	M-v	4	Williams	34317	1999 BK ₈
1999 BY ₈	13.5	0.15	19990810	101.76443	305.70030	112.28999	2.73318	0.1059756	3.0920198	27	1	63 days	0.49	M-v	6	Williams	34043	1999 BY ₈
1999 BA ₉	14.2	0.15	19990810	296.90253	300.76310	319.82998	12.70234	0.1426605	2.5329686	44	2	1995–1999	0.66	M-v	5	Williams	34317	1999 BA ₉
1999 BJ ₉	15.3	0.15	19990810	305.01626	71.45092	190.50639	2.06406	0.1882367	2.3950626	83	4	1992–1999	0.73	M-v	4	Williams	34317	1999 BJ ₉
1999 BY ₉	17.5	0.15	19990810	42.18544	286.89755	254.83883	0.94217	0.3024767	1.8301031	53	1	192 days	0.60	M-v	4	Williams	35443	1999 BY ₉
1999 BK ₁₀	15.3	0.15	19990810	104.16329	114.30684	324.95877	6.27719	0.0712708	2.3083484	25	1	61 days	0.60	M-v	6	Williams	34317	1999 BK ₁₀
1999 BD ₁₁	16.5	0.15	19990810	326.39084	266.84704	348.95550	1.38409	0.1933533	2.3158667	20	3	1992–1999	0.52	M-v	3	Williams	34231	1999 BD ₁₁
1999 BG ₁₁	14.4	0.15	19990810	133.77484	38.81008	3.15414	1.45899	0.1108007	2.8541042	53	5	1980–1999	0.80	M-v	1	Williams	34601	1999 BG ₁₁
1999 BS ₁₁	15.5	0.15	19990810	178.62934	47.67077	319.49967	3.27111	0.1962284	2.2231149	26	2	1994–1999	0.69	M-v	5	Williams	34317	1999 BS ₁₁
1999 BL ₁₂	14.0	0.15	19990810	166.76662	268.21536	76.61675	6.80760	0.1738195	2.2593809	36	1	86 days	0.54	M-v	4	Williams	35081	1999 BL ₁₂
1999 BN ₁₂	13.1	0.15	19990810	74.74815	49.46299	35.72852	6.26823	0.1803481	2.5288636	60	1	236 days	0.64	M-v	3	Williams	35081	1999 BN ₁₂
1999 BT ₁₂	13.4	0.15	19990810	125.77868	153.03763	238.29125	4.35999	0.1606079	3.1272892	44	5	1975–1999	0.74	M-v	2	Williams	34601	1999 BT ₁₂
1999 BH ₁₄	14.9	0.15	19990810	78.32288	99.31989	50.97931	4.75350	0.1037725	2.2339919	60	3	1994–1999	0.64	M-v	2	Spahr	35443	1999 BH ₁₄
1999 BK ₁₄	13.7	0.15	19990810	325.21881	207.08176	64.15312	5.61403	0.1364930	3.1334067	29	1	114 days	0.45	M-v	5	Williams	35081	1999 BK ₁₄
1999 BN ₁₄	13.5	0.15	19990810	359.09200	109.55400	52.16903	1.99574	0.1184467	3.1056690	21	1	122 days	0.58	M-v	4	Williams	34318	1999 BN ₁₄
1999 BO ₁₄	15.2	0.15	19990810	83.68469	84.33942	1.95919	8.39945	0.1737965	2.3475647	32	2	1992–1999	0.54	M-v	4	Williams	34318	1999 BO ₁₄
1999 BQ ₁₄	14.8	0.15	19990810	125.41522	240.36235	147.87563	6.56615	0.2211404	2.3274845	48	5	1955–1999	0.57	M-v	2	Williams	34601	1999 BQ ₁₄

1999 BR ₁₄	14.5	0.15	19990810	1.69038	151.78751	59.04372	6.80768	0.0644554	2.2933617	32	1	113 days	0.48	M-v	4	Williams	34601	1999 BR ₁₄
1999 BV ₁₄	15.2	0.15	19990810	10.75356	133.11885	31.74710	0.99283	0.0605263	2.5549897	21	3	1993–1999	0.53	M-v	6	Williams	33989	1999 BV ₁₄
1999 BW ₁₄	15.8	0.15	19990810	338.28255	233.36429	339.83609	1.59601	0.1439398	2.4258943	17	2	1997–1999	0.44	M-v	5	Williams	33989	1999 BW ₁₄
1999 BZ ₁₄	15.0	0.15	19990810	20.98886	302.46400	228.11652	8.09686	0.1094196	2.7280089	36	2	1997–1999	0.75	M-v	4	Williams	34318	1999 BZ ₁₄
1999 BF ₁₅	14.3	0.15	19990810	128.77446	182.59680	207.17517	1.86534	0.2039641	2.3970938	35	3	1994–1999	0.68	M-v	2	Williams	34318	1999 BF ₁₅
1999 BJ ₁₅	14.4	0.15	19990810	317.92567	332.11596	265.43364	4.18381	0.0952632	2.6183470	23	4	1979–1999	0.75	M-v	2	Williams	33989	1999 BJ ₁₅
1999 BM ₁₅	14.7	0.15	19990810	88.75577	306.23254	159.82805	13.95865	0.1422599	2.5488975	33	3	1995–1999	0.72	M-v	2	Williams	34601	1999 BM ₁₅
1999 BW ₂₄	14.9	0.15	19990810	126.25186	186.90360	213.87654	6.84716	0.0977379	2.2889996	30	6	1987–1999	0.66	M-v	1	Williams	34232	1999 BW ₂₄
1999 BL ₂₅	14.6	0.15	19990810	243.02726	122.95214	169.11935	6.63337	0.1354610	2.4823429	32	5	1980–1999	0.64	M-v	3	Williams	34601	1999 BL ₂₅
1999 BU ₂₅	15.4	0.15	19990810	39.16554	337.65756	160.13245	5.78066	0.2051046	2.5525406	32	3	1991–1999	0.61	M-v	4	Williams	33990	1999 BU ₂₅
1999 BV ₂₅	15.2	0.15	19990810	107.17791	196.58298	235.70295	4.88866	0.0532482	2.2009110	26	1	60 days	0.67	M-v	5	Williams	34045	1999 BV ₂₅
1999 BZ ₂₅	14.5	0.15	19990810	94.38708	85.74613	341.81450	5.43592	0.0708920	2.7615436	17	2	1997–1999	0.54	M-v	4	Williams	34318	1999 BZ ₂₅
1999 BN ₃₀	15.1	0.15	19990810	35.19770	23.97584	113.38103	7.44761	0.1419719	2.5917268	30	1	64 days	0.62	M-v	5	Williams	34318	1999 BN ₃₀
1999 CA	13.1	0.15	19990810	22.46384	82.21978	52.39646	2.78717	0.0444763	2.9447507	48	4	1992–1999	0.76	M-v	2	Williams	34601	1999 CA
1999 CM	14.3	0.15	19990810	356.78623	109.79928	94.05019	16.56738	0.2877704	2.7994758	43	1	108 days	0.60	M-v	4	Williams	34601	1999 CM
1999 CV	15.1	0.15	19990810	269.92738	197.17866	99.99026	6.50306	0.1790699	2.2484200	34	4	1990–1999	0.88	M-v	2	Williams	34318	1999 CV
1999 CX	14.8	0.15	19990810	296.93298	198.48949	77.48035	3.52955	0.1614880	2.2257278	43	4	1990–1999	0.79	M-v	2	Williams	34318	1999 CX
1999 CD ₁	14.0	0.15	19990810	51.36299	136.60780	298.76194	11.21035	0.1563814	2.3663083	46	1	174 days	0.58	M-v	4	Williams	34601	1999 CD ₁
1999 CU ₁	14.4	0.15	19990810	84.00639	53.66941	36.51891	5.42441	0.1891574	2.6297830	47	2	1993–1999	0.62	M-v	4	Williams	34601	1999 CU ₁
1999 CE ₃	16.0	0.15	19990810	28.68624	203.45605	312.81439	7.82426	0.2147289	2.7797259	32	1	144 days	0.55	M-v	4	Williams	34601	1999 CE ₃
1999 CH ₃	15.2	0.15	19990810	62.87368	31.88084	66.21533	8.50904	0.3553495	2.6953128	41	1	114 days	0.63	M-v	4	Williams	34601	1999 CH ₃
1999 CN ₃	15.4	0.15	19990810	84.84414	286.98899	156.33311	6.64064	0.0967906	2.4059378	19	1	60 days	0.58	M-v	5	Williams	34319	1999 CN ₃
1999 CU ₃	16.7	0.15	19990810	356.40676	305.46343	339.28219	11.39966	0.5240887	1.5765767	68	1	174 days	0.56	M-v	4	Williams	35443	1999 CU ₃
1999 CA ₄	12.4	0.15	19990810	257.60680	278.78657	17.19570	10.13592	0.1028920	3.0169424	35	3	1991–1999	0.63	M-v	3	Williams	34235	1999 CA ₄
1999 CF ₄	14.6	0.15	19990810	67.24864	275.64937	156.01223	12.86782	0.0678363	2.5927204	23	2	1993–1999	0.57	M-v	3	Williams	34235	1999 CF ₄
1999 CQ ₄	13.9	0.15	19990810	339.32076	13.06929	195.03135	4.04201	0.1923788	3.0745490	32	4	1978–1999	0.54	M-v	3	Williams	34235	1999 CQ ₄
1999 CW ₄	14.8	0.15	19990810	39.52629	330.25243	202.74900	0.67195	0.1576645	2.4208467	44	4	1993–1999	0.74	M-v	2	Williams	34602	1999 CW ₄
1999 CE ₅	15.1	0.15	19990810	135.32642	15.63674	19.91323	3.13540	0.0836581	2.7072734	17	2	1997–1999	0.62	M-v	4	Williams	33992	1999 CE ₅
1999 CO ₅	14.3	0.15	19990810	45.36607	103.69704	23.14925	11.61019	0.2098309	2.6477079	50	1	164 days	0.64	M-v	3	Williams	35082	1999 CO ₅
1999 CP ₅	13.8	0.15	19990810	211.85594	339.20427	11.60975	9.43324	0.1299119	2.5922745	56	3	1984–1999	0.60	M-v	3	Williams	34602	1999 CP ₅
1999 CV ₅	12.7	0.15	19990810	170.82260	20.26923	3.65820	15.23014	0.1176384	2.5612152	59	3	1991–1999	0.89	M-v	4	Williams	34602	1999 CV ₅
1999 CW ₈	18.5	0.15	19990810	31.65597	261.90136	317.37021	33.66691	0.5988958	2.2359231	75	1	174 days	0.64	M-v	3	Williams	35443	1999 CW ₈
1999 CF ₉	17.9	0.15	19990810	39.89379	89.49437	157.65324	5.54547	0.5986254	1.7732095	220	1	179 days	0.50	M-v	4	Spahr	35443	1999 CF ₉
1999 CH ₉	14.6	0.15	19990810	110.59941	213.89011	191.49009	9.35358	0.1914149	2.4027105	31	3	1990–1999	0.58	M-v	4	Williams	34236	1999 CH ₉
1999 CH ₁₀	13.9	0.15	19990810	125.60168	340.94664	87.95484	4.16576	0.1672948	2.4498978	36	3	1964–1999	0.66	M-v	3	Williams	34602	1999 CH ₁₀
1999 CM ₁₀	14.7	0.15	19990810	14.22998	167.20609	355.32508	2.11605	0.1152147	2.7503653	60	3	1990–1999	0.56	M-v	4	Williams	34320	1999 CM ₁₀
1999 CF ₁₄	14.6	0.15	19990810	7.37943	50.76858	175.78898	18.94052	0.2041314	2.5824826	43	1	114 days	0.71	M-v	4	Williams	35082	1999 CF ₁₄
1999 CS ₁₄	13.6	0.15	19990810	190.84070	154.16332	218.52138	1.62025	0.0697452	2.8756428	20	3	1982–1999	0.63	M-v	5	Williams	34540	1999 CS ₁₄
1999 CV ₁₄	13.2	0.15	19990810	71.89885	304.03455	170.75427	15.88010	0.1677369	3.1539156	34	2	1971–1999	0.98	M-v	4	Williams	34603	1999 CV ₁₄
1999 CX ₁₄	13.6	0.15	19990810	235.84598	356.79896	348.86367	4.94409	0.1531116	2.2800925	27	4	1990–1999	0.64	M-v	3	Williams	34238	1999 CX ₁₄
1999 CH ₁₆	15.7	0.15	19990810	58.85168	152.02914	321.21192	3.50952	0.2194907	2.5368656	41	2	1995–1999	0.58	M-v	4	Williams	33994	1999 CH ₁₆
1999 CK ₁₆	14.4	0.15	19990810	96.25370	236.32512	209.99794	1.36361	0.0352517	2.8708402	33	3	1977–1999	0.82	M-v	3	Williams	34238	1999 CK ₁₆
1999 CM ₁₆	13.8	0.15	19990810	318.49449	74.78601	166.45865	5.62702	0.0604950	2.5522293	32	1	124 days	0.68	M-v	4	Williams	34603	1999 CM ₁₆
1999 CB ₁₇	13.2	0.15	19990810	176.70498	221.29658	112.64771	14.38761	0.1900122	2.6733635	28	1	88 days	0.76	M-v	5	Williams	34603	1999 CB ₁₇
1999 CD ₁₈	12.9	0.15	19990810	26.70503	98.63206	32.32337	11.01153	0.1190670	3.2221193	34	1	227 days	0.78	M-v	3	Williams	35082	1999 CD ₁₈
1999 CG ₁₉	14.6	0.15	19990810	323.27102	277.61803	315.54370	2.30273	0.1702696	2.4186818	41	4	1988–1999	0.74	M-v	2	Williams	34603	1999 CG ₁₉
1999 CK ₁₉	13.6	0.15	19990810	222.73167	343.28963	331.39778	4.11091	0.1356406	2.3828967	26	5	1949–1999	0.88	M-v	2	Williams	34239	1999 CK ₁₉
1999 CS ₁₉	13.4	0.15	19990810	204.90623	6.29216	314.34550	9.75926	0.0679376	2.9992757	37	6	1986–1999	0.69	M-v	1	Williams	34541	1999 CS ₁₉
1999 CF ₂₀	13.9	0.15	19990810	62.85389	100.37586	2.85367	12.68749	0.1274039	2.6096709	28	1	132 days	0.56	M-v	4	Williams	35083	1999 CF ₂₀
1999 CR ₂₀	14.0	0.15	19990810	74.37071	18.78639	70.78362	4.88472	0.0953681	2.7537435	30	5	1979–1999	0.63	M-v	1	Williams	34239	1999 CR ₂₀
1999 CV ₂₀	14.3	0.15	19990810	284.97155	285.10851	340.85756	5.36769	0.0998110	2.3660527	22	2	1992–1999	0.67	M-v	5	Williams	34239	1999 CV ₂₀
1999 CB ₂₁	13.7	0.15	19990810	26.20448	48.46977	93.07855	2.65146	0.1021769	3.1321382	41	3	1991–1999	0.65	M-v	4	Williams	34603	1999 CB ₂₁
1999 CF ₂₁	14.1	0.15	19990810	0.43963	232.70821	312.62510	12.18778	0.1141663	2.6221421	37	4	1982–1999	0.63	M-v	2	Williams	34239	1999 CF ₂₁

1999 CU ₂₅	13.5	0.15	19990810	127.41619	313.68149	85.01916	3.11442	0.0725883	2.8818730	40	3	1987–1999	0.51	M-v	3	Williams	34603	1999 CU ₂₅
1999 CJ ₂₇	14.4	0.15	19990810	99.05939	353.78457	56.17265	6.13762	0.2631098	2.6215690	28	2	1982–1999	0.62	M-v	4	Williams	34541	1999 CJ ₂₇
1999 CM ₂₇	16.3	0.15	19990810	80.59448	47.22156	57.17567	5.35869	0.1100173	2.2188447	22	2	1991–1999	0.62	M-v	5	Williams	34240	1999 CM ₂₇
1999 CN ₂₇	14.6	0.15	19990810	161.08491	350.71138	21.96879	6.99698	0.1274377	2.3082354	25	2	1994–1999	0.66	M-v	5	Williams	34603	1999 CN ₂₇
1999 CD ₂₈	12.7	0.15	19990810	268.45723	213.38236	60.50064	8.10473	0.1562564	3.1241895	27	2	1990–1999	0.73	M-v	4	Williams	34240	1999 CD ₂₈
1999 CE ₃₁	15.6	0.15	19990810	86.76680	351.48668	96.29460	3.29535	0.1802607	2.3869024	28	3	1990–1999	0.49	M-v	3	Williams	34241	1999 CE ₃₁
1999 CM ₃₂	15.3	0.15	19990810	313.47442	240.81889	17.07805	5.60667	0.1744650	2.2648610	32	3	1996–1999	0.65	M-v	3	Williams	34603	1999 CM ₃₂
1999 CO ₃₂	15.0	0.15	19990810	308.49829	210.55465	52.92446	4.90581	0.1765414	2.2576919	45	5	1973–1999	0.91	M-v	2	Williams	34241	1999 CO ₃₂
1999 CJ ₃₄	14.7	0.15	19990810	205.28454	214.24441	124.89824	3.54573	0.1787809	2.5211076	36	5	1949–1999	0.62	M-v	1	Williams	34241	1999 CJ ₃₄
1999 CV ₃₆	15.1	0.15	19990810	301.38357	247.20266	11.40656	6.36168	0.0787618	2.3661316	26	2	1997–1999	0.51	M-v	4	Williams	34242	1999 CV ₃₆
1999 CM ₃₇	14.2	0.15	19990810	67.94554	355.98944	103.44938	3.21257	0.1413732	3.1233620	38	3	1986–1999	0.63	M-v	2	Williams	34242	1999 CM ₃₇
1999 CN ₃₈	16.2	0.15	19990810	92.84378	18.62144	67.26091	0.74676	0.1834420	2.3451105	28	2	1997–1999	0.60	M-v	5	Williams	34242	1999 CN ₃₈
1999 CJ ₄₀	13.9	0.15	19990810	190.05365	274.37475	76.84328	8.56665	0.0236424	2.7384082	25	4	1988–1999	0.65	M-v	1	Williams	34243	1999 CJ ₄₀
1999 CT ₄₂	14.6	0.15	19990810	225.73067	307.97464	12.24247	1.87427	0.0679210	2.8865683	29	4	1984–1999	0.70	M-v	1	Williams	34603	1999 CT ₄₂
1999 CO ₄₃	15.2	0.15	19990810	9.38170	175.36661	22.04451	4.46291	0.0927839	2.2862584	25	2	1997–1999	0.50	M-v	5	Williams	34243	1999 CO ₄₃
1999 CL ₄₄	15.4	0.15	19990810	103.29259	325.07758	110.16705	4.73894	0.1355964	2.3189228	29	5	1980–1999	0.57	M-v	2	Williams	34243	1999 CL ₄₄
1999 CO ₄₅	14.0	0.15	19990810	178.30209	8.18007	3.21475	3.53956	0.0831668	2.4190489	45	4	1977–1999	0.59	M-v	2	Williams	34603	1999 CO ₄₅
1999 CL ₄₆	14.1	0.15	19990810	193.23701	15.48881	338.44927	7.14375	0.0714868	2.7370636	35	5	1988–1999	0.69	M-v	1	Williams	34603	1999 CL ₄₆
1999 CU ₄₆	13.3	0.15	19990810	155.63390	30.17908	352.91771	6.32415	0.0629753	3.0856166	30	3	1991–1999	0.71	M-v	4	Williams	34603	1999 CU ₄₆
1999 CB ₄₇	14.1	0.15	19990810	16.55562	88.56758	84.01715	3.45853	0.0292853	2.8565022	28	3	1994–1999	0.73	M-v	3	Williams	34603	1999 CB ₄₇
1999 CN ₄₇	15.2	0.15	19990810	87.85788	120.85036	343.15027	4.21966	0.1231680	2.2791049	52	4	1989–1999	0.76	M-v	2	Williams	34603	1999 CN ₄₇
1999 CO ₄₈	13.7	0.15	19990810	240.10297	331.62528	344.11650	13.02723	0.1094223	2.7687393	27	3	1990–1999	0.77	M-v	3	Williams	34323	1999 CO ₄₈
1999 CH ₅₀	14.5	0.15	19990810	316.75996	270.72419	1.87831	4.96602	0.2381632	2.2999312	30	2	1992–1999	0.70	M-v	4	Williams	34603	1999 CH ₅₀
1999 CL ₅₀	14.7	0.15	19990810	84.86830	324.58942	136.19395	2.85221	0.1669615	2.3916205	35	5	1977–1999	0.84	M-v	2	Williams	34543	1999 CL ₅₀
1999 CD ₅₁	14.0	0.15	19990810	75.79135	353.77227	120.42147	3.12470	0.0891554	2.5906275	44	4	1991–1999	0.55	M-v	1	Williams	34604	1999 CD ₅₁
1999 CM ₅₁	13.0	0.15	19990810	139.12889	47.88996	347.16127	14.66308	0.2009239	2.6559767	27	3	1980–1999	0.50	M-v	2	Williams	34544	1999 CM ₅₁
1999 CJ ₅₄	13.4	0.15	19990810	125.39291	261.98753	155.57270	8.58342	0.0408756	3.2416632	26	2	1996–1999	0.93	M-v	4	Williams	34544	1999 CJ ₅₄
1999 CP ₅₄	15.0	0.15	19990810	174.95321	316.68836	64.64255	1.20155	0.1560866	2.1722616	28	4	1978–1999	0.65	M-v	2	Williams	34544	1999 CP ₅₄
1999 CV ₅₄	15.0	0.15	19990810	355.68336	155.31793	64.77544	3.45706	0.1391116	2.4075146	32	4	1977–1999	0.83	M-v	3	Williams	34544	1999 CV ₅₄
1999 CN ₅₆	14.1	0.15	19990810	155.11437	350.52570	46.90389	4.58283	0.1261524	2.3415987	24	2	1996–1999	0.95	M-v	5	Williams	34545	1999 CN ₅₆
1999 CN ₅₇	13.8	0.15	19990810	125.56728	317.18768	118.52156	1.39222	0.0120492	2.4973569	62	3	1991–1999	0.68	M-v	3	Williams	34604	1999 CN ₅₇
1999 CG ₆₀	14.7	0.15	19990810	215.68980	164.14321	170.26098	1.82161	0.1224980	2.5369272	29	2	1997–1999	0.52	M-v	4	Williams	34604	1999 CG ₆₀
1999 CH ₆₀	14.4	0.15	19990810	78.75900	274.13756	174.28704	1.36755	0.1269267	3.2234226	31	4	1993–1999	0.65	M-v	1	Williams	34604	1999 CH ₆₀
1999 CU ₆₀	14.9	0.15	19990810	94.08639	183.18073	268.05916	2.21151	0.0449761	2.4799661	27	4	1991–1999	0.58	M-v	2	Williams	34248	1999 CU ₆₀
1999 CP ₆₂	14.2	0.15	19990810	93.36634	278.40523	149.57168	14.96278	0.1731112	2.5973722	23	3	1993–1999	0.49	M-v	2	Williams	34248	1999 CP ₆₂
1999 CD ₆₃	13.1	0.15	19990810	212.49875	143.46711	177.49604	9.24356	0.1549238	2.7969765	27	4	1987–1999	0.61	M-v	3	Williams	35444	1999 CD ₆₃
1999 CW ₆₅	14.7	0.15	19990810	135.46039	151.82696	242.44627	1.01266	0.0751418	2.8769417	36	2	1997–1999	0.69	M-v	4	Williams	34249	1999 CW ₆₅
1999 CH ₆₆	14.3	0.15	19990810	103.12888	244.08285	194.27158	4.22383	0.1236521	2.2513923	29	6	1982–1999	0.56	M-v	1	Williams	34605	1999 CH ₆₆
1999 CW ₇₃	15.8	0.15	19990810	96.30167	254.11109	194.51960	3.35035	0.1552184	2.2335633	23	3	1994–1999	0.64	M-v	4	Williams	34547	1999 CW ₇₃
1999 CA ₇₆	15.0	0.15	19990810	270.23647	124.69278	174.93035	5.09746	0.1631714	2.2984456	36	4	1990–1999	0.79	M-v	2	Williams	34605	1999 CA ₇₆
1999 CZ ₇₆	13.9	0.15	19990810	251.19414	43.01944	268.77553	4.62167	0.1407061	2.4260938	21	2	1997–1999	0.80	M-v	5	Williams	34251	1999 CZ ₇₆
1999 CJ ₈₁	14.1	0.15	19990810	109.66797	194.54444	221.69877	4.57935	0.2897544	2.5895356	35	3	1985–1999	0.81	M-v	2	Williams	34605	1999 CJ ₈₁
1999 CW ₈₁	14.4	0.15	19990810	77.16920	140.92148	312.15101	7.56187	0.2940245	2.6910813	26	2	1990–1999	0.69	M-v	4	Williams	34548	1999 CW ₈₁
1999 CA ₈₂	13.7	0.15	19990810	310.23700	309.19739	334.15888	8.35545	0.2205503	2.3285033	36	4	1979–1999	0.83	M-v	2	Williams	34548	1999 CA ₈₂
1999 CY ₈₂	13.6	0.15	19990810	87.48207	51.54582	357.76413	8.45138	0.1651128	3.1058232	29	2	1994–1999	0.66	M-v	4	Williams	34605	1999 CY ₈₂
1999 CN ₈₄	14.9	0.15	19990810	42.68455	132.50175	6.51312	5.01490	0.1390477	2.3452869	18	1	77 days	0.75	M-v	5	Marsden		1999 CN ₈₄
1999 CF ₈₅	14.4	0.15	19990810	88.68187	316.56469	111.83077	4.75438	0.1510905	2.6445866	25	2	1989–1999	0.57	M-v	4	Williams	34605	1999 CF ₈₅
1999 CQ ₈₅	16.0	0.15	19990810	73.34475	33.76338	71.67431	5.86157	0.1316638	2.2284281	26	2	1996–1999	0.80	M-v	4	Williams	34252	1999 CQ ₈₅
1999 CW ₈₅	13.9	0.15	19990810	221.77479	350.84583	327.15230	5.18880	0.2167811	2.2047979	47	5	1958–1999	0.70	M-v	2	Williams	34605	1999 CW ₈₅
1999 CL ₈₇	14.9	0.15	19990810	31.44294	150.23157	359.07232	3.27831	0.1249116	2.5751172	24	1	83 days	0.68	M-v	5	Williams	34605	1999 CL ₈₇
1999 CC ₈₉	15.5	0.15	19990810	90.55751	318.26652	117.12665	3.09814	0.1984859	2.4305892	31	1	124 days	0.71	M-v	4	Williams	34327	1999 CC ₈₉
1999 CG ₈₉	14.6	0.15	19990810	136.11623	45.63160	341.62098	2.13531	0.1831501	2.4277230	39	5	1952–1999	0.65	M-v	2	Williams	34549	1999 CG ₈₉
1999 CK ₉₁	15.6	0.15	19990810	96.21819	117.53721	327.26231	5.21715	0.1198764	2.3042408	32	2	1997–1999	0.61	M-v	4	Williams	34253	1999 CK ₉₁

1999 CV ₉₃	15.0	0.15	19990810	321.68081	140.37236	97.91327	3.29300	0.1076535	2.5630435	32	3	1993–1999	0.69	M-v	3	Williams	34605	1999 CV ₉₃
1999 CU ₉₅	15.7	0.15	19990810	66.68517	130.81016	341.51872	11.79704	0.1359632	2.6592263	28	1	69 days	0.50	M-v	5	Williams	34605	1999 CU ₉₅
1999 CX ₉₆	15.0	0.15	19990810	225.44971	332.85457	359.30795	3.98113	0.1949941	2.3055466	27	4	1976–1999	0.74	M-v	4	Williams	34254	1999 CX ₉₆
1999 CA ₉₇	13.4	0.15	19990810	237.42506	146.54545	162.98491	2.10378	0.0823453	2.9659869	36	4	1976–1999	0.78	M-v	2	Williams	34254	1999 CA ₉₇
1999 CZ ₉₇	15.7	0.15	19990810	122.80477	26.65439	39.95667	3.21439	0.0951307	2.2919520	27	2	1996–1999	0.73	M-v	5	Williams	34254	1999 CZ ₉₇
1999 CA ₉₈	14.8	0.15	19990810	52.02380	77.20367	44.28560	2.71911	0.1695954	3.1190753	32	5	1991–1999	0.66	M-v	1	Williams	34605	1999 CA ₉₈
1999 CQ ₉₈	14.8	0.15	19990810	114.62096	2.05746	66.93398	3.58601	0.1666372	2.2811722	35	4	1987–1999	0.73	M-v	2	Williams	34605	1999 CQ ₉₈
1999 CP ₉₉	15.1	0.15	19990810	348.49442	231.94054	351.63903	3.99914	0.0980446	2.3801103	24	3	1993–1999	0.96	M-v	5	Williams	34255	1999 CP ₉₉
1999 CU ₉₉	13.7	0.15	19990810	200.76044	282.60374	61.64215	7.45626	0.1108717	2.8396583	25	2	1997–1999	0.62	M-v	5	Williams	34255	1999 CU ₉₉
1999 CK ₁₀₀	15.2	0.15	19990810	75.28312	138.11894	333.55218	3.58227	0.1426313	2.5757052	32	3	1993–1999	0.97	M-v	3	Williams	34549	1999 CK ₁₀₀
1999 CT ₁₀₁	12.7	0.15	19990810	269.88292	294.62492	7.14764	14.61493	0.1302195	2.5734736	42	4	1988–1999	0.72	M-v	2	Williams	34606	1999 CT ₁₀₁
1999 CL ₁₀₂	15.5	0.15	19990810	354.82133	181.08430	41.93189	4.88970	0.0983432	2.3059951	18	2	1992–1999	0.94	M-v	6	Williams	34549	1999 CL ₁₀₂
1999 CN ₁₀₂	14.8	0.15	19990810	92.60326	152.11250	294.91614	4.56075	0.0540583	2.2341190	33	2	1989–1999	0.77	M-v	5	Williams	34606	1999 CN ₁₀₂
1999 CA ₁₀₄	14.6	0.15	19990810	263.51828	58.59692	228.56913	6.78827	0.2074010	2.2893673	29	5	1983–1999	0.77	M-v	1	Williams	34606	1999 CA ₁₀₄
1999 CK ₁₀₉	14.5	0.15	19990810	40.95560	272.79954	227.59756	10.52456	0.1475321	2.6939460	38	4	1991–1999	0.70	M-v	1	Williams	34606	1999 CK ₁₀₉
1999 CR ₁₀₉	12.9	0.15	19990810	52.08447	180.77636	277.83131	7.01679	0.2125262	3.9777951	48	3	1980–1999	0.56	M-v	4	Williams	34550	1999 CR ₁₀₉
1999 CX ₁₁₄	16.3	0.15	19990810	93.75110	259.69516	203.83929	4.82607	0.0813019	2.1852227	21	2	1991–1999	0.46	M-v	6	Williams	34257	1999 CX ₁₁₄
1999 CD ₁₁₆	14.9	0.15	19990810	324.57573	77.01479	171.92431	1.39639	0.1006477	2.2937128	33	4	1993–1999	0.69	M-v	2	Williams	34606	1999 CD ₁₁₆
1999 CM ₁₁₈	14.8	0.15	19990810	151.06968	191.36016	208.38616	3.07932	0.0542763	2.1588709	33	4	1991–1999	0.62	M-v	1	Williams	34606	1999 CM ₁₁₈
1999 CT ₁₂₃	14.7	0.15	19990810	74.55050	65.77105	29.68963	12.27421	0.1575451	2.6808728	29	4	1979–1999	0.58	M-v	2	Williams	34550	1999 CT ₁₂₃
1999 CV ₁₂₃	12.9	0.15	19990810	262.20294	254.42181	39.20105	13.25950	0.1804706	2.6255292	31	4	1988–1999	0.73	M-v	2	Williams	34258	1999 CV ₁₂₃
1999 CU ₁₂₆	14.6	0.15	19990810	221.99802	259.30916	78.44355	23.23259	0.2411550	2.2933368	26	2	1997–1999	0.72	M-v	4	Williams	34551	1999 CU ₁₂₆
1999 CR ₁₂₈	15.5	0.15	19990810	41.03454	111.96295	23.74390	14.10504	0.4462182	3.0139910	102	1	172 days	0.63	M-v	3	Williams	35084	1999 CR ₁₂₈
1999 CV ₁₃₆	15.3	0.15	19990810	161.60201	48.09556	304.73015	3.63413	0.1626906	2.6839175	18	2	1979–1999	0.52	M-v	4	Williams	34258	1999 CV ₁₃₆
1999 CZ ₁₃₇	16.4	0.15	19990810	320.78821	21.42848	210.06092	0.06556	0.0915485	2.9995594	22	3	1991–1999	0.37	M-v	4	Williams	34258	1999 CZ ₁₃₇
1999 CJ ₁₃₈	15.4	0.15	19990810	261.87949	158.48526	164.54132	1.44912	0.1697547	2.1508952	46	3	1996–1999	0.72	M-v	5	Williams	34551	1999 CJ ₁₃₈
1999 CB ₁₄₇	16.6	0.15	19990810	148.00170	73.95042	337.41982	7.54243	0.1156621	2.2173078	27	2	1997–1999	0.31	M-v	4	Williams	34259	1999 CB ₁₄₇
1999 CD ₁₅₀	15.0	0.15	19990810	154.89015	246.85168	153.27644	2.55662	0.2062153	2.3901228	26	5	1975–1999	0.71	M-v	2	Williams	34607	1999 CD ₁₅₀
1999 CG ₁₅₂	14.8	0.15	19990810	37.41858	355.02022	146.18522	0.35818	0.1304536	3.0825355	26	3	1994–1999	0.52	M-v	3	Williams	34607	1999 CG ₁₅₂
1999 DC	11.9	0.15	19990810	71.73478	252.40251	196.41258	5.73589	0.1213176	3.9914474	33	5	1972–1999	0.70	M-v	1	Williams	34551	1999 DC
1999 DB ₁	15.3	0.15	19990810	284.19610	52.30118	228.73587	2.10625	0.1344340	2.2498208	40	3	1996–1999	0.64	M-v	3	Williams	34607	1999 DB ₁
1999 DV ₁	14.3	0.15	19990810	351.46929	89.39207	97.42099	11.17493	0.0426815	2.7406259	26	2	1991–1999	0.74	M-v	5	Williams	34259	1999 DV ₁
1999 DP ₂	14.8	0.15	19990810	161.12936	305.97693	90.99473	4.96898	0.1988940	2.2006213	37	4	1981–1999	0.85	M-v	3	Williams	34607	1999 DP ₂
1999 DU ₂	14.9	0.15	19990810	314.45648	210.20228	32.50241	3.71087	0.0727390	2.5220731	28	2	1997–1999	0.58	M-v	4	Williams	34607	1999 DU ₂
1999 DX ₂	14.1	0.15	19990810	130.70279	260.04732	153.01069	22.08192	0.0302170	2.6720281	36	1	82 days	0.57	M-v	4	Williams	34607	1999 DX ₂
1999 DK ₃	17.3	0.15	19990810	14.91285	102.92937	149.97197	43.10532	0.4437419	2.1154645	93	1	172 days	0.62	M-v	3	Spahr	35444	1999 DK ₃
1999 DO ₃	15.2	0.15	19990810	34.54980	204.87352	352.34354	3.84992	0.1546138	2.2729163	35	3	1992–1999	0.63	M-v	3	Williams	34607	1999 DO ₃
1999 DU ₃	14.5	0.15	19990810	13.69636	82.66698	111.15364	2.49447	0.1579114	3.1691999	35	3	1993–1999	0.67	M-v	3	Williams	34608	1999 DU ₃
1999 DJ ₄	18.2	0.15	19990810	46.43388	197.33777	20.13489	9.17937	0.4839287	1.8507021	109	1	158 days	0.63	M-v	4	Williams	35444	1999 DJ ₄
1999 DB ₇	19.9	0.15	19990810	103.66100	29.73721	157.69798	10.83841	0.1952936	1.2064693	74	1	157 days	0.68	M-v	4	Spahr	35444	1999 DB ₇
1999 DD ₇	13.8	0.15	19990810	120.60047	69.48150	2.61540	11.83124	0.0213839	2.9480883	41	2	1991–1999	0.52	M-v	4	Williams	34608	1999 DD ₇
1999 DE ₇	14.0	0.15	19990810	314.60117	144.26118	80.52666	2.69124	0.1142596	3.1380558	22	3	1991–1999	0.61	M-v	4	Williams	34608	1999 DE ₇
1999 DN ₇	13.7	0.15	19990810	268.81949	221.71022	88.53872	4.24315	0.1851155	2.4595937	22	4	1977–1999	0.67	M-v	3	Williams	34552	1999 DN ₇
1999 EG	15.1	0.15	19990810	96.49752	186.80412	287.78105	1.85184	0.1213932	2.5172048	50	3	1995–1999	0.83	M-v	2	Williams	34608	1999 EG
1999 EQ ₄	12.4	0.15	19990810	114.49724	262.32452	190.96135	9.67451	0.0650331	3.0159782	56	4	1993–1999	0.75	M-v	1	Williams	35444	1999 EQ ₄
1999 ED ₅	19.8	0.15	19990810	21.09472	273.75620	5.80328	18.17977	0.4660870	1.7459540	50	1	144 days	0.52	M-v	4	Williams	34609	1999 ED ₅
1999 EY ₆	14.5	0.15	19990810	214.75181	178.28209	177.80804	2.94304	0.1454380	2.4547367	43	4	1985–1999	0.75	M-v	4	Williams	34553	1999 EY ₆
1999 EM ₁₁	16.5	0.15	19990810	84.59033	110.96527	347.29716	5.57267	0.1530769	2.4116573	21	1	66 days	0.41	M-v	5	Williams	34609	1999 EM ₁₁
1999 EN ₁₂	13.9	0.15	19990810	218.18327	333.35830	25.30409	14.75840	0.1251735	2.5365717	26	2	1995–1999	0.48	M-v	4	Williams	35346	1999 EN ₁₂
1999 FA ₇	14.2	0.15	19990810	25.37383	162.61062	36.93682	1.49514	0.1083148	3.1329120	44	4	1991–1999	0.71	M-v	1	Williams	34945	1999 FA ₇
1999 FC ₇	13.9	0.15	19990810	243.07766	336.11144	23.49605	14.27804	0.1959311	2.6978151	28	1	113 days	0.64	M-v	4	Williams	35086	1999 FC ₇
1999 FV ₈	14.9	0.15	19990810	12.45627	177.85029	25.19563	1.52682	0.1317229	2.3939520	33	3	1993–1999	0.68	M-v	4	Williams	34555	1999 FV ₈
1999 FL ₉	14.0	0.15	19990810	183.72325	233.19983	157.04770	7.89592	0.1172831	2.3941115	33	3	1995–1999	0.67	M-v	4	Williams	35445	1999 FL ₉

1999 FK ₁₆	14.1	0.15	19990810	14.99329	1.48660	197.70936	16.93759	0.3092289	4.1566968	47	1	62 days	0.69	M-v	4	Williams	35086	1999 FK ₁₆
1999 FP ₁₇	13.9	0.15	19990810	279.41052	140.48186	176.17749	1.32265	0.0734399	2.6463642	42	1	66 days	0.70	M-v	6	Williams	35086	1999 FP ₁₇
1999 FF ₁₈	14.2	0.15	19990810	341.97957	97.71891	175.56052	13.46436	0.2101446	2.6859761	37	2	1991–1999	0.77	M-v	4	Williams	34948	1999 FF ₁₈
1999 FB ₁₉	14.7	0.15	19990810	298.73326	39.35193	256.92024	2.84550	0.0539359	2.1413688	35	4	1981–1999	0.60	M-v	1	Williams	35445	1999 FB ₁₉
1999 FL ₁₉	13.6	0.15	19990810	74.59089	28.20282	104.50212	3.13251	0.1354248	3.0665608	53	4	1994–1999	0.80	M-v	1	Williams	35445	1999 FL ₁₉
1999 FP ₁₉	20.2	0.15	19990810	22.85731	273.59438	347.35160	15.08473	0.5187318	1.9431220	49	1	135 days	0.72	M-v	4	Williams	35445	1999 FP ₁₉
1999 FN ₂₁	15.4	0.15	19990810	9.66043	296.36302	306.62271	3.31503	0.1210788	2.1687102	51	1	174 days	0.59	M-v	4	Williams	35445	1999 FN ₂₁
1999 FP ₂₈	14.8	0.15	19990810	324.34528	108.10758	179.16941	4.43456	0.1628823	2.2347158	34	2	1973–1999	0.77	M-v	5	Williams	34950	1999 FP ₂₈
1999 FY ₂₉	14.5	0.15	19990810	124.48362	292.05941	158.84045	6.48078	0.1219059	2.4266917	34	2	1995–1999	0.64	M-v	5	Williams	35446	1999 FY ₂₉
1999 FB ₃₀	15.1	0.15	19990810	123.90729	15.93635	82.72415	3.49877	0.0888353	2.2721550	37	4	1990–1999	0.70	M-v	1	Williams	35446	1999 FB ₃₀
1999 FG ₃₀	14.9	0.15	19990810	76.08050	112.00121	33.04951	3.80149	0.0918872	2.4452368	54	3	1995–1999	0.71	M-v	3	Williams	35446	1999 FG ₃₀
1999 FB ₃₁	14.9	0.15	19990810	338.14092	106.63195	162.61285	4.64046	0.1139021	2.2141928	44	1	93 days	0.65	M-v	5	Williams	35446	1999 FB ₃₁
1999 FQ ₃₂	15.4	0.15	19990810	65.34086	104.21379	53.35416	2.97229	0.1349278	2.4165342	54	2	1997–1999	0.68	M-v	4	Williams	35446	1999 FQ ₃₂
1999 FO ₃₄	13.8	0.15	19990810	38.75884	22.36310	156.03157	4.79434	0.1024501	3.0630569	38	3	1993–1999	0.80	M-v	3	Williams	35446	1999 FO ₃₄
1999 FJ ₃₅	14.2	0.15	19990810	332.77032	231.73161	37.23090	14.82405	0.1365030	2.5899264	39	1	61 days	0.81	M-v	5	Williams	35446	1999 FJ ₃₅
1999 FN ₅₃	18.5	0.15	19990810	34.69607	191.44380	50.70104	20.17169	0.4547855	1.7355162	108	1	123 days	0.54	M-v	4	Williams	35447	1999 FN ₅₃
1999 GM ₁	15.1	0.15	19990810	64.73488	93.69772	85.23562	5.76857	0.0570139	2.2002997	70	2	1997–1999	0.81	M-v	4	Williams	35447	1999 GM ₁
1999 GE ₂	15.7	0.15	19990412	338.06580	183.64701	45.67731	9.35816	0.1125982	2.5783308	60	1	39 days	0.76			Williams		1999 GE ₂
1999 GJ ₂	16.8	0.15	19990810	299.62060	142.30370	196.34578	11.27557	0.1979296	1.5353931	130	1	138 days	0.63	M-v	4	Williams	35090	1999 GJ ₂
1999 GS ₃	16.2	0.15	19990810	39.82609	106.71605	45.21554	28.05803	0.4236399	2.6167514	85	1	115 days	0.60	M-v	4	Williams	35090	1999 GS ₃
1999 GW ₃	14.7	0.15	19990810	281.12467	216.95850	110.79009	3.30353	0.1121672	2.2144533	45	5	1956–1999	0.74	M-v	2	Williams	35447	1999 GW ₃
1999 GY ₃	15.1	0.15	19990810	359.01954	255.59776	8.86695	28.52281	0.3477910	2.6238667	32	1	130 days	0.74	M-v	4	Williams	35090	1999 GY ₃
1999 GZ ₃	15.9	0.15	19990810	125.96725	231.80311	246.54096	4.87671	0.0879035	2.2570414	31	3	1993–1999	0.49	M-v	2	Williams	35447	1999 GZ ₃
1999 GK ₄	16.1	0.15	19990810	352.03940	146.61035	168.46864	5.28147	0.4920428	1.9609839	261	3	1955–1999	0.57	M-v	2	Williams	35348	1999 GK ₄
1999 GO ₄	14.7	0.15	19990810	24.30436	51.00398	161.76204	6.78474	0.1213446	2.5899106	51	2	1995–1999	0.68	M-v	4	Williams	35447	1999 GO ₄
1999 GT ₆	17.0	0.15	19990810	358.69020	66.14352	217.72882	4.28386	0.5756741	2.8249677	113	1	110 days	0.74	M-v	4	Williams	35447	1999 GT ₆
1999 GO ₈	14.2	0.15	19990810	206.50307	295.18717	96.01135	3.84649	0.0287090	2.5360253	45	2	1998–1999	0.81	M-v	4	Williams	35447	1999 GO ₈
1999 GW ₈	15.3	0.15	19990810	76.61103	60.92254	102.99035	4.72215	0.0410650	2.2599882	40	2	1997–1999	0.83	M-v	4	Williams	35447	1999 GW ₈
1999 GX ₈	13.3	0.15	19990810	315.88093	95.13832	187.59798	15.24255	0.0615250	3.2230999	45	4	1982–1999	0.74	M-v	2	Williams	35447	1999 GX ₈
1999 GQ ₁₉	14.7	0.15	19990810	328.04168	246.78290	42.67434	6.58977	0.1733013	2.2707903	50	2	1993–1999	0.78	M-v	4	Williams	35448	1999 GQ ₁₉
1999 GP ₂₀	13.5	0.15	19990810	82.76455	100.59800	39.03111	12.68525	0.1270160	2.5987573	45	1	84 days	0.69	M-v	5	Williams	35448	1999 GP ₂₀
1999 GT ₂₃	14.3	0.15	19990810	323.62293	90.34018	177.22147	13.98287	0.1452378	2.5834436	27	2	1996–1999	0.67	M-v	5	Williams	35351	1999 GT ₂₃
1999 GD ₃₃	15.1	0.15	19990412	325.58424	196.34705	44.12553	15.02853	0.0628498	2.5930477	16	1	37 days	1.13			Williams		1999 GD ₃₃
1999 GF ₃₃	15.2	0.15	19990502	291.67957	193.63407	104.74044	7.17204	0.1839061	2.2094645	23	1	57 days	0.92			Williams		1999 GF ₃₃
1999 GN ₃₃	14.3	0.15	19990412	140.11598	26.83119	32.42055	13.55242	0.1464995	2.6055035	21	1	36 days	1.06			Williams		1999 GN ₃₃
1999 GR ₃₃	15.3	0.15	19990412	19.35892	126.03115	54.87272	13.93898	0.1097307	2.5613909	19	1	35 days	1.22			Williams		1999 GR ₃₃
1999 GU ₃₃	16.0	0.15	19990412	277.18162	237.06923	74.44798	7.64681	0.1912940	2.2725777	19	1	35 days	0.79			Williams		1999 GU ₃₃
1999 GO ₄₅	14.3	0.15	19990412	119.53743	15.47617	57.96582	15.89860	0.0915814	2.6472906	18	1	34 days	0.82			Williams		1999 GO ₄₅
1999 GZ ₄₅	16.2	0.15	19990412	309.73857	195.44617	74.74070	6.61073	0.1400528	2.3643616	16	1	35 days	0.89			Williams		1999 GZ ₄₅
1999 GS ₄₆	6.6	0.15	19990412	0.00000	181.09702	24.36249	5.24586	0.0000000	43.9042560	12	1	35 days	0.24		E	Marsden		1999 GS ₄₆
1999 HF	14.1	0.15	19990810	62.13296	2.35144	182.45687	24.17629	0.1941526	2.3225596	99	2	1993–1999	0.50	M-v	3	Spahr	35449	1999 HF
1999 HL	15.8	0.15	19990810	13.61893	210.13111	6.75059	3.66676	0.1381891	2.3344883	36	3	1993–1999	0.73	M-v	4	Williams	35449	1999 HL
1999 HX	14.7	0.15	19990810	339.67149	79.15400	227.52143	29.20560	0.3740253	2.7630937	82	1	123 days	0.56	M-v	3	Williams	35449	1999 HX
1999 HE ₁	17.7	0.15	19990810	2.30958	221.73568	66.08936	8.18367	0.5688016	2.3696620	73	1	108 days	0.51	M-v	4	Williams	35449	1999 HE ₁
1999 HF ₁	14.5	0.15	19990810	256.99447	253.34065	155.96866	25.65885	0.4624960	0.8190954	545	1	132 days	0.49	M-v	4	Williams	35449	1999 HF ₁
1999 HU ₁	14.2	0.15	19990810	182.98024	263.70542	136.44306	4.77023	0.0887154	2.7236915	49	1	73 days	0.57	M-v	5	Williams	35449	1999 HU ₁
1999 HX ₁	19.6	0.15	19990810	11.05629	98.35709	171.29707	8.16726	0.5624299	2.5632292	105	1	111 days	0.57	M-v	3	Spahr	35449	1999 HX ₁
1999 HY ₁	18.3	0.15	19990810	342.20836	89.83977	216.18198	34.22676	0.1306493	1.3863776	55	1	30 days	0.80	M-v	6	Williams		1999 HY ₁
1999 HW ₂	15.8	0.15	19990810	9.75948	85.20352	180.75133	27.16429	0.4063295	2.6102328	117	1	119 days	0.55	M-v	3	Spahr	35449	1999 HW ₂
1999 HX ₂	15.2	0.15	19990810	3.40209	148.90293	141.81798	16.45981	0.5543646	3.1771475	318	1	130 days	0.56	M-v	3	Williams	35449	1999 HX ₂
1999 HF ₃	14.3	0.15	19990810	319.24837	11.68915	307.17834	2.35537	0.1839927	2.6110232	46	1	100 days	0.50	M-v	4	Williams	35449	1999 HF ₃
1999 HR ₃	17.1	0.15	19990323	75.87524	283.29139	177.35725	22.36312	0.0950461	1.9011214	18	1	27 days	0.68			Spahr		1999 HR ₃
1999 HP ₄	14.5	0.15	19990810	329.47656	226.19659	36.21039	10.61182	0.0220527	2.5744672	38	1	72 days	0.62	M-v	5	Williams	35449	1999 HP ₄

1999 HU ₁₁	7.3	0.15	19990412	0.00000	149.11114	55.06033	0.32734	0.0000000	43.8164993	11	1	24 days	0.16	E	Marsden		1999 HU ₁₁
1999 JT ₁	14.2	0.15	19990810	247.05837	207.29800	153.98999	6.41497	0.2142272	2.3155735	51	6	1985–1999	0.72	M-v	Williams	35356	1999 JT ₁
1999 JY ₁	16.4	0.15	19990412	122.08695	230.13022	199.49734	20.87755	0.1560586	1.9002215	16	1	29 days	0.90		Spahr		1999 JY ₁
1999 JR ₂	13.9	0.15	19990810	7.95453	14.21281	237.05899	13.68226	0.0556025	2.5847312	66	1	89 days	0.62	M-v	Williams		1999 JR ₂
1999 JH ₃	14.5	0.15	19990810	2.62210	157.69609	96.08217	6.10404	0.1386736	2.4657077	102	2	1998–1999	0.64	M-v	Williams	35450	1999 JH ₃
1999 JS ₅	15.1	0.15	19990810	102.46205	278.00357	247.75784	20.52141	0.0730934	1.9308064	41	1	72 days	0.61	M-v	Williams	35450	1999 JS ₅
1999 JB ₆	14.4	0.15	19990810	18.11364	146.75688	58.19973	8.98237	0.0968947	2.8149825	26	1	62 days	0.68	M-v	Williams	35450	1999 JB ₆
1999 JD ₆	16.7	0.15	19990810	206.85342	309.11833	130.32446	17.04294	0.6329399	0.8825967	197	1	83 days	0.58	M-v	Williams	35451	1999 JD ₆
1999 JE ₆	14.5	0.15	19990810	35.23399	128.07033	89.62743	7.58966	0.1364568	2.2849479	63	2	1997–1999	0.68	M-v	Williams	35451	1999 JE ₆
1999 JF ₆	14.7	0.15	19990810	342.67469	188.23504	95.77506	7.67355	0.1629785	2.5536870	83	1	82 days	0.69	M-v	Nakano		1999 JF ₆
1999 JO ₆	16.9	0.15	19990810	350.60753	250.83129	64.69788	27.90690	0.4912035	2.5850097	60	1	82 days	0.66	M-v	Williams	35451	1999 JO ₆
1999 JQ ₆	14.7	0.15	19990810	40.29572	95.54105	21.61360	22.22115	0.3189428	2.3646412	42	1	282 days	0.61	M-v	Williams		1999 JQ ₆
1999 JU ₆	19.3	0.15	19990810	10.40669	68.95005	220.26627	22.45820	0.2004594	1.4691144	70	1	80 days	0.72	M-v	Williams		1999 JU ₆
1999 JW ₆	16.8	0.15	19990810	124.30467	68.56370	66.43951	51.31766	0.1431251	1.5076467	102	1	83 days	0.57	M-v	Williams	35451	1999 JW ₆
1999 JV ₇	14.8	0.15	19990810	72.02115	292.60426	246.89980	11.64364	0.1132051	2.6933759	38	1	84 days	0.68	M-v	Williams		1999 JV ₇
1999 JD ₈	15.5	0.15	19990810	0.01473	59.72281	218.29288	25.00308	0.4623112	3.1491535	77	2	1994–1999	0.59	M-v	Spahr	35451	1999 JD ₈
1999 JK ₈	15.2	0.15	19990810	353.09544	84.08485	217.77531	27.58622	0.3472132	2.6403574	24	1	91 days	0.79	M-v	Williams		1999 JK ₈
1999 JM ₈	15.2	0.15	19990810	3.72500	165.97270	134.13039	13.69299	0.6436756	2.7236138	327	3	1990–1999	0.58	M-v	Williams	35356	1999 JM ₈
1999 JO ₈	17.0	0.15	19990810	6.49887	204.74505	80.74263	24.66885	0.5700810	2.6535266	328	1	98 days	0.57	M-v	Williams	35451	1999 JO ₈
1999 JE ₁₂	14.0	0.15	19990810	0.77878	96.92701	190.57879	29.40832	0.2745916	2.5831094	49	3	1987–1999	0.68	M-v	Williams	35358	1999 JE ₁₂
1999 JQ ₁₅	14.4	0.15	19990810	333.75615	154.66283	157.63225	5.03553	0.2062047	2.4028229	65	5	1977–1999	0.73	M-v	Williams	35452	1999 JQ ₁₅
1999 JN ₁₆	14.5	0.15	19990502	165.33719	199.25336	226.11376	3.31872	0.0964558	2.7951056	15	1	10 days	0.81		Williams		1999 JN ₁₆
1999 JN ₁₇	14.1	0.15	19990810	10.78252	79.11710	216.08866	4.27110	0.2080762	2.2360425	27	1	91 days	0.41	M-v	Spahr	35452	1999 JN ₁₇
1999 JH ₁₈	14.6	0.15	19990810	78.84099	272.01218	235.18102	1.73876	0.1466539	2.3941181	35	3	1993–1999	0.81	M-v	Williams	35359	1999 JH ₁₈
1999 JZ ₁₈	14.1	0.15	19990502	311.11883	35.68158	240.86607	10.64117	0.1270944	2.9678259	23	1	34 days	0.94		Williams		1999 JZ ₁₈
1999 JM ₁₉	14.5	0.15	19990810	286.55490	340.99167	346.90804	3.21618	0.0826509	2.2580278	32	4	1990–1999	0.73	M-v	Williams	35360	1999 JM ₁₉
1999 JR ₂₀	14.6	0.15	19990810	144.51359	56.61588	38.47023	3.73163	0.0575685	2.2717262	34	2	1997–1999	0.66	M-v	Williams	35360	1999 JR ₂₀
1999 JH ₂₂	13.8	0.15	19990810	54.40304	255.65797	288.95348	4.15894	0.0850677	2.5604930	42	4	1982–1999	0.55	M-v	Williams	35453	1999 JH ₂₂
1999 JU ₂₃	13.7	0.15	19990810	10.22420	190.64942	39.40856	0.86666	0.1115482	3.0480944	47	4	1994–1999	0.79	M-v	Williams	35362	1999 JU ₂₃
1999 JW ₂₃	16.8	0.15	19990502	301.70901	65.99744	228.60829	7.61214	0.1565336	2.2353524	14	1	9 days	0.82		Williams		1999 JW ₂₃
1999 JA ₂₆	15.2	0.15	19990810	298.24041	119.99953	209.03213	2.14104	0.1883329	2.4012869	31	3	1981–1999	0.77	M-v	Williams	35363	1999 JA ₂₆
1999 JA ₂₇	15.0	0.15	19990810	305.91510	160.53891	169.95718	2.35028	0.2437701	2.3551764	30	3	1978–1999	0.66	M-v	Williams	35364	1999 JA ₂₇
1999 JS ₂₇	15.4	0.15	19990810	347.74688	161.63446	131.14396	1.14617	0.3315394	2.4373322	45	3	1994–1999	0.70	M-v	Williams	35364	1999 JS ₂₇
1999 JK ₂₈	14.5	0.15	19990522	303.05371	192.30405	105.67836	0.11743	0.1454215	3.1982442	20	1	28 days	0.89		Williams		1999 JK ₂₈
1999 JM ₂₈	13.8	0.15	19990810	175.75945	184.81756	239.06274	1.38324	0.1920420	2.4018364	38	4	1971–1999	0.81	M-v	Williams	35364	1999 JM ₂₈
1999 JG ₂₉	15.1	0.15	19990810	28.89394	327.53517	221.59651	19.67212	0.4063576	3.5029472	97	1	109 days	0.57	M-v	Williams	35454	1999 JG ₂₉
1999 JT ₃₁	15.4	0.15	19990502	339.32032	47.74649	204.63080	3.02992	0.1702079	3.0234297	19	1	35 days	0.75		Williams		1999 JT ₃₁
1999 JX ₃₁	14.2	0.15	19990810	354.49031	66.76999	187.36919	1.69738	0.1334915	3.1058566	48	3	1973–1999	0.72	M-v	Williams	35365	1999 JX ₃₁
1999 JF ₃₃	14.1	0.15	19990810	188.19761	205.82057	209.97937	3.05338	0.0624459	2.7367604	37	3	1996–1999	0.73	M-v	Williams	35365	1999 JF ₃₃
1999 JO ₃₄	15.8	0.15	19990810	326.57686	15.23874	290.99472	2.50361	0.1591380	2.2264042	34	3	1995–1999	0.66	M-v	Williams	35366	1999 JO ₃₄
1999 JE ₃₇	13.7	0.15	19990810	223.00286	0.13049	33.43027	4.36067	0.1894412	2.5184119	32	3	1992–1999	0.64	M-v	Williams	35367	1999 JE ₃₇
1999 JC ₄₀	14.7	0.15	19990810	53.74513	332.50335	221.29253	2.64314	0.0200990	2.7271407	35	3	1996–1999	0.68	M-v	Williams	35368	1999 JC ₄₀
1999 JA ₄₁	15.0	0.15	19990810	342.11671	178.79538	105.57967	4.31803	0.1834262	2.5618035	55	3	1995–1999	0.66	M-v	Williams	35457	1999 JA ₄₁
1999 JD ₄₂	15.2	0.15	19990502	95.94979	63.60807	54.14429	13.46460	0.1239974	2.5470598	16	1	8 days	0.75		Williams		1999 JD ₄₂
1999 JA ₄₃	15.8	0.15	19990502	285.54839	265.75315	56.65347	9.27943	0.1834056	2.8084855	24	1	8 days	1.00		Williams		1999 JA ₄₃
1999 JO ₄₃	14.7	0.15	19990810	321.11995	353.23761	311.26151	3.20074	0.1238681	2.6092904	35	3	1991–1999	0.75	M-v	Williams	35368	1999 JO ₄₃
1999 JL ₄₄	12.5	0.15	19990810	63.98496	299.20346	238.47320	14.70933	0.0633758	3.1723157	48	2	1988–1999	0.58	M-v	Williams	35458	1999 JL ₄₄
1999 JY ₄₄	15.3	0.15	19990810	267.80217	313.90213	48.37739	4.29679	0.1269104	2.2293442	43	3	1992–1999	0.68	M-v	Williams	35368	1999 JY ₄₄
1999 JU ₄₆	15.4	0.15	19990522	49.95438	355.30013	179.62206	2.52182	0.1095306	2.5271587	20	1	35 days	1.00		Williams		1999 JU ₄₆
1999 JB ₅₀	13.5	0.15	19990810	106.21032	57.21227	76.93874	10.37305	0.1031572	2.7859674	43	3	1978–1999	0.58	M-v	Williams	35459	1999 JB ₅₀
1999 JM ₅₁	15.4	0.15	19990502	354.29547	176.56579	61.32056	12.99636	0.0352720	2.6460205	16	1	12 days	0.76		Williams		1999 JM ₅₁
1999 JR ₅₁	16.3	0.15	19990502	38.18502	329.05846	208.20748	1.82437	0.1769811	2.3770877	16	1	12 days	0.74		Williams		1999 JR ₅₁
1999 JL ₅₂	14.3	0.15	19990810	342.34605	27.31423	267.31324	3.66842	0.1652281	2.2586362	45	5	1986–1999	0.61	M-v	Spahr	35459	1999 JL ₅₂

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1999 JM ₅₂	13.2	0.15	19990810	281.28330	102.79713	249.14760	7.92853	0.1639568	2.7786554	44	3	1982–1999	0.53	M-v	3	Williams	35370	1999 JM ₅₂
1999 JL ₆₀	13.9	0.15	19990810	36.43401	314.70471	265.54174	11.49458	0.1301031	2.6836324	30	1	95 days	0.66	M-v	4	Williams		1999 JL ₆₀
1999 JL ₆₁	15.6	0.15	19990810	343.76359	98.67028	200.89938	5.23420	0.2291021	2.5262094	38	3	1991–1999	0.77	M-v	4	Williams	35461	1999 JL ₆₁
1999 JT ₆₃	15.0	0.15	19990810	23.72422	109.78193	136.57239	4.67823	0.1001125	2.1804225	35	1	171 days	0.67	M-v	4	Spahr	35111	1999 JT ₆₃
1999 JQ ₆₇	14.6	0.15	19990810	122.79769	46.26310	71.86807	5.22116	0.0419441	2.2795381	60	2	1997–1999	0.78	M-v	4	Williams	35462	1999 JQ ₆₇
1999 JP ₆₉	14.8	0.15	19990810	146.89244	257.63356	186.02038	5.55375	0.1520123	2.3292296	55	3	1990–1999	0.84	M-v	3	Williams	35462	1999 JP ₆₉
1999 JP ₇₀	15.1	0.15	19990810	67.65514	46.38197	129.46547	3.96572	0.0601641	2.3592925	33	3	1993–1999	0.75	M-v	3	Williams	35375	1999 JP ₇₀
1999 JN ₇₅	13.4	0.15	19990810	56.97352	275.08813	251.58996	13.71681	0.0875577	2.6242107	39	3	1995–1999	0.84	M-v	3	Williams	35376	1999 JN ₇₅
1999 JO ₇₅	13.2	0.15	19990810	51.12935	287.17210	242.71629	10.42854	0.1363581	2.6782564	46	3	1962–1999	0.83	M-v	3	Williams	35376	1999 JO ₇₅
1999 JQ ₇₅	14.0	0.15	19990810	308.45889	67.50808	232.30775	3.90609	0.0847531	2.2814811	40	3	1986–1999	0.77	M-v	3	Williams	35376	1999 JQ ₇₅
1999 JS ₇₅	13.7	0.15	19990810	304.13577	304.94258	3.15592	11.88303	0.1400589	2.5359137	33	4	1982–1999	0.71	M-v	1	Williams	35376	1999 JS ₇₅
1999 JM ₁₀₅	13.7	0.15	19990810	311.39585	280.57746	11.80563	3.40585	0.0717547	2.7610772	35	4	1980–1999	0.82	M-v	1	Williams	35380	1999 JM ₁₀₅
1999 JN ₁₀₅	16.0	0.15	19990502	335.51926	242.43572	8.87415	2.66963	0.1708610	2.6999306	13	1	6 days	1.09			E Williams		1999 JN ₁₀₅
1999 JV ₁₁₇	14.9	0.15	19990502	244.52130	125.91418	226.71566	14.63904	0.0823563	2.6990863	16	1	13 days	1.03			Williams		1999 JV ₁₁₇
1999 JH ₁₃₂	9.6	0.15	19990502	0.00000	5.30053	206.99033	0.72523	0.0000000	42.0078160	4	1	9 days	0.12			E Marsden		1999 JH ₁₃₂
1999 JJ ₁₃₂	8.8	0.15	19990502	179.91606	182.10402	210.48808	3.36559	0.1018057	45.7937204	4	1	9 days	0.08			E Marsden		1999 JJ ₁₃₂
1999 JK ₁₃₂	9.2	0.15	19990502	77.14115	84.07787	32.63021	16.01848	0.1655646	39.3398861	4	1	9 days	0.09			E Marsden		1999 JK ₁₃₂
1999 KK ₁	18.2	0.15	19990810	352.85953	229.91766	76.93150	7.10904	0.4598321	2.1168568	32	1	78 days	0.58	M-v	5	Williams		1999 KK ₁
1999 KF ₄	12.6	0.15	19990810	6.12266	54.09320	247.74268	23.45259	0.2866139	3.0917024	55	2	1972–1999	0.56	M-v	2	Williams	35383	1999 KF ₄
1999 KG ₄	14.0	0.15	19990810	10.38635	152.37590	146.26635	7.90579	0.2330248	2.3515763	48	3	1981–1999	0.65	M-v	2	Spahr	35470	1999 KG ₄
1999 KQ ₄	13.4	0.15	19990810	350.54968	82.22599	261.43437	28.23762	0.3838166	2.7822272	58	1	101 days	0.49	M-v	3	Williams	35470	1999 KQ ₄
1999 KU ₄	16.8	0.15	19990810	1.02564	222.92420	76.61668	8.44379	0.4037122	2.1942170	156	1	98 days	0.60	M-v	4	Spahr	35470	1999 KU ₄
1999 KX ₄	16.8	0.15	19990810	97.89826	76.23815	105.05697	16.57030	0.2929195	1.4574327	54	1	73 days	0.55	M-v	4	Williams	35471	1999 KX ₄
1999 KK ₆	13.7	0.15	19990810	326.23490	134.92247	220.00211	23.86565	0.0620062	1.8921546	50	4	1991–1999	0.53	M-v	2	Williams	35383	1999 KK ₆
1999 KL ₆	13.8	0.15	19990810	4.92421	92.32704	201.23657	21.08811	0.2854175	2.3694839	59	2	1992–1999	0.58	M-v	2	Williams	35471	1999 KL ₆
1999 KQ ₆	16.7	0.15	19990810	16.85952	111.38745	132.50200	10.80615	0.4126078	2.6588005	99	1	72 days	0.57	M-v	4	Williams	35471	1999 KQ ₆
1999 KS ₇	13.0	0.15	19990810	52.42190	20.70088	242.46113	11.30105	0.0502326	2.5528482	43	2	1998–1999	0.61	M-v	3	Williams	35383	1999 KS ₇
1999 KO ₁₃	13.3	0.15	19990810	312.81146	55.87310	264.76305	10.89766	0.0730323	2.6629844	25	1	95 days	0.77	M-v	5	Williams		1999 KO ₁₃
1999 KR ₁₆	5.7	0.15	19990502	282.61702	103.30844	205.58924	28.29056	0.2272425	39.3335020	8	1	1 days	0.11			E Marsden		1999 KR ₁₆
1999 KS ₁₆	7.8	0.15	19990502	274.43863	294.13030	25.84733	3.54495	0.2575630	39.2894620	6	1	1 days	0.35			E Marsden		1999 KS ₁₆
1999 KT ₁₆	8.8	0.15	19990502	0.00000	358.33793	213.94207	8.69853	0.0000000	46.4166729	4	1	1 days	0.04			E Marsden		1999 KT ₁₆
1999 KK ₁₇	8.8	0.15	19990502	0.00000	2.10701	210.48252	3.97331	0.0000000	45.5429822	5	1	9 days	0.09			E Marsden		1999 KK ₁₇
1999 KL ₁₇	8.7	0.15	19990502	0.00000	0.31035	307.11285	2.49334	0.0000000	44.7365327	6	1	9 days	0.19			E Marsden		1999 KL ₁₇
1999 LL	16.0	0.15	19990810	344.72541	78.24530	235.42713	15.17663	0.1967152	2.5567431	23	1	61 days	0.35	M-v	4	Williams		1999 LL
1999 LP	14.5	0.15	19990810	16.07425	97.07498	120.05524	23.86073	0.2803486	2.3246251	35	1	116 days	0.55	M-v	4 D	Spahr		1999 LP
1999 LT	16.1	0.15	19990810	343.44042	118.35418	198.21158	24.11781	0.2098714	1.8219177	31	1	90 days	0.51	M-v	4	Williams	35472	1999 LT
1999 LX	16.6	0.15	19990701	285.54907	226.63471	128.59570	4.04219	0.1657938	2.1633656	18	1	55 days	0.57			Marsden		1999 LX
1999 LM ₁	15.3	0.15	19990810	27.96811	346.90664	249.66402	10.87058	0.1328217	2.6486155	43	1	69 days	0.59	M-v	4	Nakano		1999 LM ₁
1999 LT ₁	17.4	0.15	19990810	14.06161	158.49120	67.58370	42.60307	0.6583073	2.9748729	51	1	59 days	0.70	M-v	6	Spahr	35472	1999 LT ₁
1999 LV ₁	14.3	0.15	19990810	336.46337	142.17910	86.26551	25.76452	0.1246959	1.9239808	47	1	203 days	0.89	M-v	5 D	Williams		1999 LV ₁
1999 LA ₂	14.2	0.15	19990701	352.36315	97.49177	179.01620	8.18468	0.1426957	2.7728030	31	1	56 days	0.57			Nakano		1999 LA ₂
1999 LG ₂	15.2	0.15	19990522	300.06386	178.74683	124.68316	6.90687	0.1316950	2.4243336	18	1	25 days	0.59			Williams		1999 LG ₂
1999 LJ ₄	14.9	0.15	19990810	24.78137	92.09145	126.43187	28.79629	0.3247620	2.6208451	22	1	63 days	0.39	M-v	4	Williams		1999 LJ ₄
1999 LN ₄	15.3	0.15	19990810	359.72386	112.73505	170.79125	28.38608	0.2546159	2.5956947	28	1	63 days	0.58	M-v	6	Spahr		1999 LN ₄
1999 LO ₄	15.7	0.15	19990810	16.08742	181.96076	98.32035	6.81492	0.2275402	2.3014135	33	1	67 days	0.47	M-v	4	Williams		1999 LO ₄
1999 LX ₄	14.4	0.15	19990810	297.52905	208.15928	122.99041	13.82514	0.1616515	2.6423028	33	3	1991–1999	0.68	M-v	4	Williams	35385	1999 LX ₄
1999 LN ₅	16.6	0.15	19990522	2.68515	115.63322	110.19872	22.42441	0.2489773	2.3234912	18	1	32 days	0.84			Spahr		1999 LN ₅
1999 LY ₅	14.6	0.15	19990810	52.88538	329.70326	206.43570	29.27188	0.4662645	3.0543187	31	1	64 days	0.56	M-v	5	Spahr		1999 LY ₅
1999 LZ ₅	15.6	0.15	19990810	29.60809	68.31874	180.36550	23.14874	0.2342969	2.1912582	28	1	79 days	0.53	M-v	4	Williams		1999 LZ ₅
1999 LB ₆	14.5	0.15	19990810	261.70524	219.62810	190.59802	23.48174	0.0606910	1.8625064	39	2	1984–1999	0.52	M-v	4	Williams	35386	1999 LB ₆
1999 LC ₆	13.7	0.15	19990522	11.64790	41.47023	223.44857	32.22099	0.2041833	2.6055188	14	1	18 days	0.66			Spahr		1999 LC ₆
1999 LE ₆	20.6	0.15	19990810	18.64839	185.15330	92.39967	27.13172	0.3297238	1.6426463	59	1	55 days	0.47	M-v	6	Williams		1999 LE ₆
1999 LF ₆	17.8	0.15	19990810	340.53172	140.61561	208.64256	18.93132	0.2804212	1.4086928	114	1	79 days	0.56	M-v	4	Williams	35472	1999 LF ₆

1999 LG ₆	15.4	0.15	19990810	40.61943	146.74139	102.99023	6.09555	0.1132004	2.1608548	28	1	61 days	0.77	M-v	5	Williams	1999 LG ₆
1999 LY ₆	16.4	0.15	19990611	19.38891	347.91543	268.96765	4.56145	0.1578615	2.4351205	9	1	36 days	0.21			Williams	1999 LY ₆
1999 LH ₇	13.0	0.15	19990810	88.30337	87.52614	107.29140	27.51904	0.1130995	2.6394108	40	1	60 days	0.63	M-v	5	Williams	1999 LH ₇
1999 LL ₇	15.6	0.15	19990810	330.77936	240.12512	105.81663	2.79108	0.2009955	2.1658670	81	1	67 days	0.56	M-v	4	Williams	1999 LL ₇
1999 LO ₇	14.4	0.15	19990810	335.60072	208.09637	140.99261	4.82766	0.2314839	2.2900927	37	2	1998–1999	0.80	M-v	4	Spahr	35386 1999 LO ₇
1999 LU ₇	18.7	0.15	19990810	349.01040	146.77012	207.36176	10.73992	0.6281336	2.1025560	48	1	53 days	0.62	M-v	6	Williams	35472 1999 LU ₇
1999 LV ₇	19.3	0.15	19990611	1.67889	158.43212	87.60145	30.42684	0.4721286	2.2094092	73	1	27 days	0.55			Williams	1999 LV ₇
1999 LX ₇	14.6	0.15	19990810	329.67034	44.64709	306.36580	8.51214	0.2629205	2.5771746	44	4	1991–1999	0.61	M-v	2	Spahr	35387 1999 LX ₇
1999 LL ₈	16.4	0.15	19990522	354.95231	94.70743	150.50105	5.35130	0.1192992	2.5996199	15	1	32 days	0.71			Williams	1999 LL ₈
1999 LO ₈	14.7	0.15	19990810	64.25265	44.98897	99.98808	9.53370	0.4432790	2.6114215	14	1	54 days	0.46	M-v	6	Williams	1999 LO ₈
1999 LN ₉	15.1	0.15	19990522	309.61418	198.90036	110.67482	10.77001	0.1369599	2.7914332	16	1	28 days	0.35			Williams	1999 LN ₉
1999 LT ₁₀	13.7	0.15	19990810	268.07388	189.23503	169.90457	9.94445	0.0208582	3.1066582	62	4	1990–1999	0.72	M-v	1	Williams	35387 1999 LT ₁₀
1999 LE ₁₅	14.7	0.15	19990522	46.59251	55.48293	119.09330	16.90356	0.1729646	3.1664750	17	1	31 days	0.58			Williams	1999 LE ₁₅
1999 LA ₂₁	15.6	0.15	19990810	339.95746	212.32799	99.81545	1.77702	0.2114336	2.2812454	31	4	1971–1999	0.71	M-v	1	Williams	35389 1999 LA ₂₁
1999 LD ₂₇	14.5	0.15	19990611	352.40795	181.00875	95.34224	13.29930	0.1340815	2.5823723	14	1	37 days	0.43			Williams	1999 LD ₂₇
1999 LN ₂₈	19.4	0.15	19990810	5.39951	186.50353	115.77847	9.18317	0.4658363	2.1424760	175	1	64 days	0.54	M-v	4	Williams	35473 1999 LN ₂₈
1999 LO ₂₈	15.7	0.15	19990810	56.84428	283.56056	280.25383	33.92401	0.4126435	1.8765973	208	2	1954–1999	0.62	M-v	3	Marsden	35392 1999 LO ₂₈
1999 LQ ₂₈	19.1	0.15	19990810	256.84610	320.42661	95.07847	21.77086	0.1201956	1.1985510	71	1	68 days	0.48	M-v	4	Williams	1999 LQ ₂₈
1999 LD ₃₀	20.6	0.15	19990810	6.53109	203.13644	87.94711	8.69850	0.6032974	2.9007831	46	1	50 days	0.61	M-v	6	Williams	1999 LD ₃₀
1999 LD ₃₁	13.7	0.15	19990810	359.18303	102.23175	296.97085	160.19242	0.9020156	24.2564894	216	1	54 days	0.55	M-v	3	Williams	35473 1999 LD ₃₁
1999 LE ₃₁	12.4	0.15	19990810	9.60895	32.65979	292.00740	151.87834	0.4712685	8.1515377	91	1	86 days	0.67	M-v	4	Williams	35473 1999 LE ₃₁
1999 LF ₃₁	14.2	0.15	19990810	306.24529	148.36479	236.49805	27.70208	0.3066160	2.5455360	23	1	60 days	0.50	M-v	5	Williams	1999 LF ₃₁
1999 MA	14.8	0.15	19990701	319.96808	82.43787	264.01109	6.75956	0.1999621	2.4090353	27	1	54 days	0.28			Spahr	1999 MA
1999 MB	16.0	0.15	19990701	294.26386	294.08516	71.72227	7.38057	0.1551453	2.2866603	22	1	53 days	0.50			Spahr	1999 MB
1999 MC	13.7	0.15	19990810	295.78202	322.51757	39.69284	4.67516	0.0648388	3.0882321	40	3	1997–1999	0.79	M-v	4	Spahr	35393 1999 MC
1999 MG	14.4	0.15	19990810	165.67992	35.76520	87.93209	14.12889	0.1172237	2.6855251	34	2	1998–1999	0.60	M-v	4	Williams	35394 1999 MG
1999 MH	15.6	0.15	19990701	202.44966	343.22542	105.74659	9.93595	0.0393125	2.2732160	29	1	54 days	0.30			Spahr	1999 MH
1999 ML	18.0	0.15	19990810	2.68495	110.94848	211.78536	2.50830	0.4541566	2.2667202	90	1	64 days	0.52	M-v	6	Williams	35474 1999 ML
1999 MN	21.6	0.15	19990810	284.79662	9.21055	81.42348	2.04951	0.6640414	0.6742448	46	1	25 days	0.62	M-v	9	Williams	35474 1999 MN
1999 MO	14.9	0.15	19990810	28.87700	242.23105	18.58534	2.31710	0.1768732	2.4022771	52	1	86 days	0.46	M-v	4	Spahr	35474 1999 MO
1999 MP	17.0	0.15	19990701	315.96037	260.51137	98.26063	10.54429	0.2821253	2.3356148	18	1	56 days	0.65			Williams	1999 MP
1999 MQ	16.0	0.15	19990810	322.81217	73.06216	282.00328	5.12803	0.1959507	2.2162680	37	2	1996–1999	0.46	M-v	4	Spahr	35394 1999 MQ
1999 MR	15.7	0.15	19990810	354.81348	227.66887	80.75331	4.60545	0.2010660	2.6366552	27	1	61 days	0.65	M-v	5	Williams	1999 MR
1999 MX	16.3	0.15	19990701	352.43134	115.27430	184.63117	4.04513	0.1448711	2.3131080	24	1	52 days	0.31			Spahr	1999 MX
1999 MY	16.4	0.15	19990701	343.01560	347.27171	326.71389	1.43359	0.1492074	2.7606901	21	1	53 days	0.27			Spahr	1999 MY
1999 MZ	15.3	0.15	19990810	344.81441	223.24057	101.25632	7.68631	0.1479895	2.3768365	28	1	65 days	0.37	M-v	4	Williams	1999 MZ
1999 MA ₁	16.9	0.15	19990810	57.73097	133.45957	94.18579	3.24824	0.1588509	2.4113340	24	1	62 days	0.35	M-v	5	Williams	1999 MA ₁
1999 MD ₁	15.6	0.15	19990701	260.81287	249.05065	160.17388	6.07828	0.1714498	2.3243238	25	1	47 days	0.30			Spahr	1999 MD ₁
1999 ME ₁	16.3	0.15	19990721	12.26264	76.15398	213.97514	6.11877	0.1077594	2.3306576	28	1	52 days	0.33			Spahr	1999 ME ₁
1999 MK ₁	14.9	0.15	19990701	343.49175	21.21103	308.31495	14.28795	0.1263958	2.5630904	17	1	53 days	0.55			Spahr	1999 MK ₁
1999 MN ₁	15.0	0.15	19990810	348.12479	346.82163	353.07047	2.72475	0.2217421	2.4132475	39	1	61 days	0.62	M-v	5	Williams	1999 MN ₁
1999 MA ₂	15.1	0.15	19990701	85.42928	89.24023	127.06107	24.35382	0.0606231	1.9385614	11	1	26 days	0.48			Williams	1999 MA ₂
1999 MB ₂	13.6	0.15	19990810	74.20533	86.78016	130.09006	6.08491	0.1366325	2.2844000	54	3	1991–1999	0.70	M-v	2	Williams	35395 1999 MB ₂
1999 MC ₂	16.8	0.15	19990701	353.78094	199.37396	116.97127	7.78697	0.2888430	2.2708158	11	1	26 days	0.87			Williams	1999 MC ₂
1999 NC	15.6	0.15	19990810	40.70487	115.59469	136.92490	6.03078	0.1312433	2.3019579	39	2	1997–1999	0.31	M-v	3	Marsden	35395 1999 NC
1999 ND	13.3	0.15	19990810	352.14709	198.41631	107.13482	18.11240	0.0796441	2.8379084	40	3	1990–1999	0.60	M-v	3	Spahr	35396 1999 ND
1999 NE	16.4	0.15	19990701	38.57458	199.22818	48.96256	0.98063	0.0459320	2.5936043	18	1	56 days	0.39			Spahr	1999 NE
1999 NH	16.8	0.15	19990721	248.65995	120.73870	292.90100	20.12872	0.0396523	1.9365426	44	1	31 days	0.96			Williams	1999 NH
1999 NJ	18.1	0.15	19990721	356.82742	199.28581	104.46156	6.40061	0.2931040	2.3394110	21	1	44 days	0.48			Williams	1999 NJ
1999 NK	15.6	0.15	19990810	331.06705	41.33746	303.31772	9.47930	0.1843228	2.6415781	20	1	61 days	0.43	M-v	5	Williams	1999 NK
1999 NN	17.7	0.15	19990701	18.73056	313.10359	308.38576	3.83216	0.1852297	2.2467538	14	1	25 days	0.51			Williams	1999 NN
1999 NO	14.5	0.15	19990810	215.03625	37.18530	52.81387	2.68117	0.0388356	2.8890131	34	2	1998–1999	0.64	M-v	4	Williams	35396 1999 NO
1999 NP	17.2	0.15	19990721	23.91720	259.09592	4.28229	2.11297	0.1878747	2.4169880	21	1	37 days	0.36			Spahr	1999 NP

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1999 NS	15.9	0.15	19990611	218.36262	217.99493	190.84213	21.90710	0.0851259	1.9578926	14	1	29 days	0.27		Spahr		1999 NS
1999 NT	13.6	0.15	19990810	344.22130	35.77644	302.82591	8.43837	0.1973690	2.3946881	41	2	1998–1999	0.52	M-v 4	Spahr	35396	1999 NT
1999 NV	14.1	0.15	19990721	314.82877	265.19533	127.78414	16.70112	0.3703777	3.1068680	27	1	35 days	0.68		Spahr		1999 NV
1999 NW	16.0	0.15	19990721	317.47008	165.46557	182.56546	5.22494	0.0994126	2.8068163	11	1	27 days	0.31		Williams		1999 NW
1999 NX	16.7	0.15	19990721	25.70766	120.04173	135.08504	13.28705	0.2387282	3.1509998	10	1	32 days	0.34		Spahr		1999 NX
1999 NY	16.7	0.15	19990721	329.14899	254.45250	85.98839	2.24531	0.1820162	2.4022923	17	1	26 days	0.24		Spahr		1999 NY
1999 NT ₁	14.0	0.15	19990810	334.73154	90.79763	282.39369	21.36297	0.3189602	2.3053584	30	1	82 days	0.44	M-v 4	Williams		1999 NT ₁
1999 NU ₁	15.8	0.15	19990721	9.64046	20.60419	285.95220	20.46869	0.1477870	2.2855029	18	1	30 days	0.45		Williams		1999 NU ₁
1999 NV ₁	15.4	0.15	19990721	9.78351	25.38292	291.48620	22.24933	0.1219021	2.3325560	17	1	30 days	0.41		Williams		1999 NV ₁
1999 NN ₂	14.2	0.15	19990721	320.42313	133.41914	260.97425	15.66907	0.2320764	3.1056674	20	1	30 days	0.48		Williams		1999 NN ₂
1999 NR ₂	15.2	0.15	19990721	34.05811	136.75766	124.43458	26.96255	0.0106622	1.8362162	20	1	30 days	0.39		Spahr		1999 NR ₂
1999 NW ₂	23.1	0.15	19990810	340.67885	52.60062	289.76666	8.67473	0.1094446	1.1172096	138	1	28 days	0.67	M-v 5	Williams	35475	1999 NW ₂
1999 NP ₃	13.0	0.15	19990810	141.31008	261.08328	250.87181	10.06392	0.1575129	2.6636669	45	3	1983–1999	0.59	M-v 3	Williams	35397	1999 NP ₃
1999 NT ₃	16.1	0.15	19990721	29.13389	133.61107	132.36271	7.29870	0.0834522	2.2714204	23	1	23 days	0.41		Williams		1999 NT ₃
1999 NF ₄	16.1	0.15	19990721	12.82250	326.91692	322.31825	3.38620	0.2182046	2.5538113	16	1	39 days	0.31		Williams		1999 NF ₄
1999 NJ ₄	16.8	0.15	19990721	44.08428	137.60825	100.72398	3.80614	0.1963332	2.3445518	23	1	36 days	0.71		Williams		1999 NJ ₄
1999 NK ₄	15.4	0.15	19990721	343.46963	274.58750	53.28339	1.97975	0.2194716	3.2024579	18	1	33 days	0.40		Williams		1999 NK ₄
1999 NL ₄	14.9	0.15	19990810	41.95988	222.25883	38.70609	2.08878	0.0451700	2.5914991	43	4	1991–1999	0.65	M-v 1	Williams	35397	1999 NL ₄
1999 NM ₄	17.3	0.15	19990721	350.34590	208.98388	105.51697	8.44134	0.1670715	2.2389508	18	1	30 days	0.64		Spahr		1999 NM ₄
1999 NN ₄	15.9	0.15	19990721	354.24553	203.75161	106.01004	10.49442	0.1859295	2.7710997	19	1	30 days	0.41		Spahr		1999 NN ₄
1999 NO ₄	17.1	0.15	19990701	13.18885	181.71594	94.49548	5.22037	0.1275966	2.2693766	14	1	53 days	0.48		Williams		1999 NO ₄
1999 NQ ₄	14.9	0.15	19990810	335.35237	267.45717	74.28447	1.98594	0.1644030	2.8365865	36	4	1993–1999	0.74	M-v 2	Spahr	35397	1999 NQ ₄
1999 NR ₄	14.0	0.15	19990721	331.28610	51.49719	286.88839	9.05211	0.1115089	2.9909967	31	1	36 days	0.31		Spahr		1999 NR ₄
1999 NV ₄	15.0	0.15	19990721	339.26969	194.96037	139.62390	3.15225	0.2103273	2.6959992	28	1	31 days	0.63		Spahr		1999 NV ₄
1999 NX ₄	16.2	0.15	19990721	335.76340	205.35312	154.39641	16.19205	0.2842407	2.8677699	27	1	34 days	0.89		Spahr		1999 NX ₄
1999 NZ ₄	17.8	0.15	19990810	0.72010	19.46117	297.76039	19.61118	0.4961826	2.8546445	76	1	44 days	0.39	M-v 5	Marsden		1999 NZ ₄
1999 NA ₅	20.2	0.15	19990810	62.40132	318.55541	262.32303	4.27511	0.2484148	1.4358073	37	1	39 days	0.37	M-v 5	Williams		1999 NA ₅
1999 NB ₅	21.3	0.15	19990721	343.32929	121.44977	236.72879	1.40534	0.5300447	2.0599324	56	1	28 days	0.88		Spahr		1999 NB ₅
1999 NE ₅	16.1	0.15	19990721	351.12854	51.06087	266.39543	4.49138	0.1158671	2.1985309	21	1	42 days	0.49		Williams		1999 NE ₅
1999 NF ₅	14.0	0.15	19990721	279.54555	141.66927	270.31610	1.65381	0.2086590	2.3591137	27	1	30 days	0.76		Spahr		1999 NF ₅
1999 NU ₅	16.7	0.15	19990721	314.62041	217.54972	151.42248	2.78511	0.2167711	2.4428278	14	1	30 days	0.33		Spahr		1999 NU ₅
1999 NF ₆	13.4	0.15	19990810	285.87028	199.98089	189.80976	1.80426	0.0641951	2.9430753	40	3	1979–1999	0.70	M-v 5	Williams	35398	1999 NF ₆
1999 NR ₇	15.6	0.15	19990721	321.84449	146.55547	212.58237	1.63844	0.1650607	2.1815317	13	1	29 days	0.29		Spahr		1999 NR ₇
1999 NA ₈	16.6	0.15	19990721	31.87154	83.40191	177.44844	1.16022	0.1997153	2.3274213	11	1	31 days	0.40		Spahr		1999 NA ₈
1999 NS ₈	13.0	0.15	19990810	302.29047	259.90927	135.20801	13.51660	0.1848694	2.5825408	51	3	1997–1999	0.61	M-v 4	Williams	35399	1999 NS ₈
1999 NM ₉	14.9	0.15	19990810	110.26035	359.90469	201.82614	1.19880	0.0561939	2.1895759	24	2	1996–1999	0.60	M-v 6	Williams	35399	1999 NM ₉
1999 NN ₉	16.6	0.15	19990721	26.55537	342.91400	295.59070	5.58488	0.1129438	2.3073909	14	1	30 days	0.61		Spahr		1999 NN ₉
1999 NX ₉	14.1	0.15	19990721	349.30244	195.42610	132.16115	16.32234	0.1396841	2.8534787	14	1	31 days	0.53		Spahr		1999 NX ₉
1999 NR ₁₀	12.6	0.15	19990721	336.48417	36.26842	308.68865	8.54796	0.0928397	3.0638048	11	1	27 days	0.47		Williams		1999 NR ₁₀
1999 NT ₁₀	14.7	0.15	19990810	19.73029	347.67594	299.81761	8.34747	0.2431962	2.3974613	26	4	1988–1999	0.44	M-v 1	Spahr	35399	1999 NT ₁₀
1999 NX ₁₄	14.3	0.15	19990701	328.04279	256.81375	77.43024	3.07202	0.2118118	2.4328657	20	1	58 days	0.37		Williams		1999 NX ₁₄
1999 NA ₁₅	15.5	0.15	19990701	349.35801	204.62346	97.93096	6.50993	0.2239705	2.3456119	23	1	58 days	0.45		Spahr		1999 NA ₁₅
1999 NC ₁₅	13.7	0.15	19990721	346.62025	211.38219	100.34955	5.60133	0.1655101	3.0849730	14	1	29 days	0.36		Spahr		1999 NC ₁₅
1999 NJ ₁₅	15.3	0.15	19990721	328.58788	227.62783	106.06709	5.60413	0.1365672	2.5693820	13	1	29 days	0.51		Spahr		1999 NJ ₁₅
1999 NO ₁₅	15.9	0.15	19990701	333.14006	200.29394	122.67065	1.96851	0.1649949	2.1880697	25	1	58 days	0.38		Williams		1999 NO ₁₅
1999 NF ₁₆	15.0	0.15	19990701	352.00895	170.61669	126.80779	6.54867	0.1231733	2.3014875	18	1	58 days	0.41		Williams		1999 NF ₁₆
1999 NH ₁₆	14.0	0.15	19990721	283.94839	108.98040	266.60311	4.09824	0.0569834	2.7421009	15	1	29 days	0.49		Spahr		1999 NH ₁₆
1999 NO ₁₆	12.9	0.15	19990721	47.49409	310.13379	286.95319	13.29402	0.0978251	3.1363277	14	1	29 days	0.36		Spahr		1999 NO ₁₆
1999 NZ ₁₆	16.0	0.15	19990701	346.59303	193.82272	113.36780	6.75597	0.2116275	2.2876956	23	1	58 days	0.43		Spahr		1999 NZ ₁₆
1999 NS ₁₈	14.6	0.15	19990810	45.77965	263.61142	340.90863	3.32529	0.1149091	2.3240694	50	2	1997–1999	0.61	M-v 4	Spahr	35399	1999 NS ₁₈
1999 NV ₁₈	15.3	0.15	19990701	337.84090	223.23706	94.11745	8.10110	0.1486918	2.2739833	17	1	58 days	0.38		Williams		1999 NV ₁₈
1999 ND ₁₉	14.8	0.15	19990721	64.62154	121.61665	92.70886	2.35295	0.1438320	2.4080270	11	1	29 days	0.30		Spahr		1999 ND ₁₉
1999 NO ₁₉	15.7	0.15	19990721	352.80398	108.75787	197.74551	1.86625	0.2129522	2.3771197	19	1	29 days	0.31		Spahr		1999 NO ₁₉

1999 NP ₁₉	16.0	0.15	19990810	327.80764	51.91746	287.65655	17.03509	0.0604901	1.9218741	26	1	64 days	0.47	M-v	5	Williams	1999 NP ₁₉
1999 NQ ₁₉	15.3	0.15	19990701	330.96454	194.11827	131.13078	5.95843	0.1221922	2.4369018	20	1	58 days	0.48			Williams	1999 NQ ₁₉
1999 NT ₁₉	15.4	0.15	19990721	335.51318	65.87537	264.95070	2.26919	0.1827874	2.5224368	22	1	29 days	0.40			Spahr	1999 NT ₁₉
1999 NU ₁₉	14.8	0.15	19990721	335.16848	86.15859	246.37034	1.77175	0.1963084	2.4444090	20	1	29 days	0.35			Spahr	1999 NU ₁₉
1999 NV ₁₉	14.2	0.15	19990721	32.85463	115.60293	115.07486	33.57159	0.3469782	2.7225042	21	1	29 days	0.32			Spahr	1999 NV ₁₉
1999 NJ ₂₀	14.0	0.15	19990721	329.23119	229.46484	107.90305	6.15886	0.1607200	2.6111853	14	1	29 days	0.35			Spahr	1999 NJ ₂₀
1999 NF ₂₃	15.0	0.15	19990810	72.57356	350.20711	221.84395	1.89057	0.1636010	2.3840707	28	4	1980–1999	0.61	M-v	2	Williams	35399 1999 NF ₂₃
1999 NQ ₂₆	15.5	0.15	19990701	340.29598	46.74323	278.31326	2.95885	0.2730889	2.5698661	13	1	12 days	0.25			Williams	1999 NQ ₂₆
1999 NV ₂₇	10.1	0.15	19990810	177.18333	175.76599	308.71077	16.78182	0.0153989	5.1677125	26	4	1982–1999	0.54	M-v	1	Spahr	35400 1999 NV ₂₇
1999 NA ₂₈	15.8	0.15	19990721	359.65490	304.34381	354.64197	3.27338	0.2058246	2.3586472	18	1	30 days	0.29			Spahr	1999 NA ₂₈
1999 NX ₂₈	15.3	0.15	19990701	297.55292	266.04339	102.77615	2.86329	0.1236458	2.1357261	12	1	8 days	0.41			Williams	1999 NX ₂₈
1999 NJ ₂₉	15.8	0.15	19990701	349.73433	187.21051	121.94230	14.78629	0.2438536	2.6390640	19	1	52 days	0.62			Spahr	1999 NJ ₂₉
1999 NE ₃₀	13.5	0.15	19990810	215.64753	337.59155	119.40770	10.30664	0.1221803	2.7770850	39	3	1979–1999	0.72	M-v	3	Williams	35400 1999 NE ₃₀
1999 NB ₃₁	14.7	0.15	19990721	358.71543	338.55959	324.57902	10.93457	0.0512227	2.8478147	9	1	29 days	0.59			Spahr	1999 NB ₃₁
1999 NS ₃₁	16.2	0.15	19990721	5.61085	172.81531	120.33506	7.18783	0.1608267	2.2706759	14	1	30 days	0.60			Spahr	1999 NS ₃₁
1999 NY ₃₁	16.3	0.15	19990721	10.21209	354.08660	289.79187	3.06085	0.2468479	2.5639123	18	1	20 days	0.41			Williams	1999 NY ₃₁
1999 NC ₃₂	12.9	0.15	19990721	165.88046	198.46984	297.62819	9.21079	0.0471386	3.0324663	15	1	20 days	0.74			Williams	1999 NC ₃₂
1999 NE ₃₂	16.1	0.15	19990721	14.89821	132.23045	148.36936	2.96958	0.1579079	2.4423339	12	1	20 days	0.25			Williams	1999 NE ₃₂
1999 NB ₃₃	16.9	0.15	19990721	326.51843	20.40097	314.43923	18.92092	0.0296840	1.9176577	15	1	30 days	0.27			Spahr	1999 NB ₃₃
1999 NC ₃₄	14.6	0.15	19990701	116.28278	47.91526	124.52631	5.09565	0.0681340	3.2225026	10	1	12 days	0.39		E	Williams	1999 NC ₃₄
1999 NO ₃₄	16.0	0.15	19990701	307.35312	240.04463	127.71660	7.12775	0.2089981	2.2984901	13	1	3 days	0.46			Spahr	1999 NO ₃₄
1999 NP ₃₄	16.0	0.15	19990721	355.53299	17.14289	289.39079	4.11256	0.1211012	2.3641907	14	1	20 days	0.34			Williams	1999 NP ₃₄
1999 NR ₃₄	14.2	0.15	19990721	121.37211	61.45837	107.54416	9.25073	0.1272056	2.7377328	13	1	29 days	0.36			Spahr	1999 NR ₃₄
1999 NA ₃₅	13.7	0.15	19990721	344.33843	197.49368	125.68332	17.72569	0.1066080	3.1337632	11	1	29 days	0.49			Spahr	1999 NA ₃₅
1999 NB ₃₅	15.9	0.15	19990721	357.27784	4.52004	302.35480	7.49564	0.2372547	2.7404139	12	1	25 days	0.26			Spahr	1999 NB ₃₅
1999 NH ₃₆	15.8	0.15	19990721	334.58407	27.38741	313.78037	7.37926	0.1909701	2.3510067	18	1	38 days	0.49			Williams	1999 NH ₃₆
1999 NF ₃₇	16.5	0.15	19990721	349.32866	212.21211	106.91250	3.60626	0.1695451	2.3015498	14	1	29 days	0.34			Spahr	1999 NF ₃₇
1999 NH ₃₇	13.5	0.15	19990810	283.37946	87.96226	313.52302	9.00544	0.1232620	3.0036772	24	2	1994–1999	0.56	M-v	5	Williams	35400 1999 NH ₃₇
1999 NL ₃₇	15.6	0.15	19990721	8.90285	335.07412	318.48652	0.80497	0.1463253	2.8316483	11	1	38 days	0.44			Williams	1999 NL ₃₇
1999 NO ₃₇	17.2	0.15	19990721	341.80934	213.26148	124.34378	12.72450	0.2871398	2.6193384	14	1	29 days	0.40			Spahr	1999 NO ₃₇
1999 NV ₃₇	15.2	0.15	19990810	2.25781	198.26713	111.56762	8.10697	0.1311114	2.3096465	26	1	60 days	0.54	M-v	4	Williams	1999 NV ₃₇
1999 NW ₃₇	15.5	0.15	19990701	341.85281	245.17043	76.85001	2.92100	0.1182246	2.4018852	18	1	51 days	0.37			Spahr	1999 NW ₃₇
1999 NY ₃₈	14.1	0.15	19990721	254.13508	96.77725	327.17518	9.82514	0.0824850	2.9896987	18	1	29 days	0.43			Spahr	1999 NY ₃₈
1999 ND ₃₉	14.3	0.15	19990810	234.59604	330.98535	116.73022	5.82224	0.1174280	2.2710103	35	2	1998–1999	0.41	M-v	4	Spahr	35401 1999 ND ₃₉
1999 NJ ₄₀	15.5	0.15	19990810	41.26691	137.95871	119.21951	4.71819	0.1851527	2.6163433	23	3	1995–1999	0.54	M-v	3	Williams	35401 1999 NJ ₄₀
1999 NQ ₄₀	15.4	0.15	19990721	3.96486	190.11107	111.58557	8.66071	0.2752653	2.7359899	11	1	30 days	0.37			Spahr	1999 NQ ₄₀
1999 NY ₄₁	13.1	0.15	19990810	325.06011	36.18158	334.35903	17.94038	0.1576023	3.1658606	13	1	28 days	0.31			Nakano	1999 NY ₄₁
1999 NB ₄₂	13.6	0.15	19990721	291.47108	288.26379	114.69727	10.83275	0.1053656	2.9650199	11	1	30 days	0.31			Spahr	1999 NB ₄₂
1999 ND ₄₂	14.6	0.15	19990721	354.88926	151.62282	159.45232	1.57469	0.1658974	3.2146219	14	1	38 days	0.50			Williams	1999 ND ₄₂
1999 NK ₄₂	14.9	0.15	19990810	60.61061	265.03214	333.90360	2.45380	0.1009582	2.4597342	31	4	1994–1999	0.62	M-v	1	Williams	35401 1999 NK ₄₂
1999 NO ₄₂	17.0	0.15	19990721	323.86117	334.29249	15.94401	2.51349	0.1064213	2.2831032	10	1	29 days	0.52			Spahr	1999 NO ₄₂
1999 NU ₄₂	14.1	0.15	19990701	128.25537	218.41558	316.70972	14.76578	0.0745278	3.2438190	9	1	6 days	0.40		E	Williams	1999 NU ₄₂
1999 NC ₄₃	15.9	0.15	19990810	292.68143	120.26636	312.05101	7.10962	0.5792364	1.7586841	56	1	54 days	0.60	M-v	6	Williams	1999 NC ₄₃
1999 ND ₄₃	19.2	0.15	19990810	326.39358	51.70995	332.34066	5.50612	0.3144108	1.5235139	80	1	45 days	0.55	M-v	5	Williams	1999 ND ₄₃
1999 NF ₄₇	13.6	0.15	19990701	3.45397	140.86270	141.29805	11.45695	0.1256676	3.0091198	17	1	59 days	0.40			Williams	1999 NF ₄₇
1999 NL ₄₇	13.2	0.15	19990701	14.90262	3.93859	264.76267	8.77319	0.1136662	2.7800893	22	1	58 days	0.40			Spahr	1999 NL ₄₇
1999 NL ₄₉	14.4	0.15	19990721	264.44454	156.41548	263.01606	10.06057	0.1489990	2.6123095	19	1	31 days	0.36			Spahr	1999 NL ₄₉
1999 NC ₅₆	15.5	0.15	19990721	341.42104	124.21246	221.81030	13.66054	0.1767895	2.4812699	14	1	30 days	0.65			Williams	1999 NC ₅₆
1999 NK ₅₆	12.6	0.15	19990810	48.00317	2.51241	264.70201	12.06216	0.1336526	2.6398780	24	3	1989–1999	0.52	M-v	2	Williams	35401 1999 NK ₅₆
1999 NT ₅₆	15.0	0.15	19990721	357.40976	88.06901	241.54194	12.04146	0.1898016	2.6193844	13	1	30 days	0.44			Williams	1999 NT ₅₆
1999 NG ₆₄	14.7	0.15	19990701	85.07895	44.12984	189.22718	11.71485	0.1384014	2.8214536	6	1	3 days	0.19		E	Williams	1999 NG ₆₄
1999 OA	16.6	0.15	19990721	299.91101	197.22799	181.74071	14.77820	0.1290850	2.5713338	12	1	29 days	0.32			Spahr	1999 OA
1999 OC	14.2	0.15	19990810	340.95379	195.12273	146.09226	11.43652	0.1226763	2.6397651	45	2	1998–1999	0.66	M-v	4	Spahr	35402 1999 OC

1999 ON	15.9	0.15	19990721	287.01310	75.04298	335.44756	4.87421	0.2833821	2.5580042	15	1	32 days	0.65	Williams	1999 ON
1999 OS	14.4	0.15	19990721	323.44342	201.70931	180.17818	2.30075	0.1931466	2.4616255	12	1	22 days	0.48	Spahr	1999 OS
1999 OT	15.6	0.15	19990721	329.47890	208.70883	148.97834	13.29741	0.1493135	3.0982001	19	1	32 days	0.28	Williams	1999 OT
1999 OU	15.3	0.15	19990721	250.85125	267.67204	173.31991	5.05542	0.1378404	2.7648277	15	1	32 days	0.32	Williams	1999 OU
1999 OD ₁	17.2	0.15	19990721	332.52891	236.66720	110.80014	3.40198	0.2258021	2.4378199	13	1	33 days	0.44	Williams	1999 OD ₁
1999 OE ₁	16.4	0.15	19990721	16.13906	173.92703	111.64017	7.49325	0.1581100	2.6640566	16	1	32 days	0.70	Williams	1999 OE ₁
1999 OF ₁	14.9	0.15	19990721	351.35993	186.72385	125.87806	13.81831	0.0242588	2.8438791	25	1	32 days	0.66	Williams	1999 OF ₁
1999 ON ₁	16.4	0.15	19990721	33.71412	121.62353	144.97177	4.01050	0.1423900	2.2646146	13	1	22 days	0.51	Williams	1999 ON ₁
1999 OO ₁	17.2	0.15	19990721	320.53907	7.66949	349.86942	1.51012	0.1474726	2.3033123	14	1	32 days	0.51	Spahr	1999 OO ₁
1999 OR ₁	14.8	0.15	19990701	221.50318	324.55377	115.72252	7.47868	0.0785746	2.3291807	10	1	18 days	0.27	Williams	1999 OR ₁
1999 OM ₃	14.8	0.15	19990701	146.53684	19.79610	131.11751	4.77286	0.1314887	2.3020598	15	1	12 days	0.31	Williams	1999 OM ₃
1999 OO ₃	14.0	0.15	19990721	345.91788	129.22974	232.70284	11.93763	0.2197580	2.5216196	13	1	20 days	0.34	Williams	1999 OO ₃
1999 OQ ₃	20.0	0.15	19990810	4.99606	164.24863	148.08816	9.13813	0.4231952	1.8943627	30	1	31 days	0.58	M-v 7 Nakano	1999 OQ ₃
1999 OR ₃	18.3	0.15	19990810	26.30722	27.16442	200.45903	9.51393	0.5789160	2.0306397	96	1	26 days	0.57	Marsden	1999 OR ₃
1999 OS ₃	15.3	0.15	19990810	17.82483	282.02389	6.26458	5.60198	0.1912111	2.2846195	29	1	89 days	0.53	M-v 5 Marsden	1999 OS ₃
1999 OT ₃	19.0	0.15	19990721	341.42904	93.39402	254.36141	7.39920	0.3347552	2.0806488	21	1	9 days	0.68	Williams	1999 OT ₃
1999 OW ₃	14.8	0.15	19990810	67.67150	34.93085	196.88936	35.53811	0.7791987	2.0886081	26	1	35 days	0.45	M-v 6 Williams	1999 OW ₃
1999 OX ₃	7.5	0.15	19990721	179.92837	217.90672	264.70725	2.92930	0.2429898	23.0132026	16	1	19 days	0.46	E Williams	1999 OX ₃
1999 OY ₃	6.8	0.15	19990721	0.00972	0.92590	301.83807	24.30646	0.0958406	43.0132531	7	1	21 days	0.23	E Williams	1999 OY ₃
1999 OZ ₃	7.4	0.15	19990721	179.92030	358.89377	137.71383	2.68514	0.0224133	43.2812818	8	1	19 days	0.11	E Williams	1999 OZ ₃
1999 OA ₄	8.0	0.15	19990721	180.12750	359.49971	136.96210	3.15656	0.0539008	43.5261272	8	1	19 days	0.30	E Williams	1999 OA ₄
1999 PB	15.8	0.15	19990721	1.63027	339.02143	328.15913	3.68102	0.1819815	2.4738811	16	1	29 days	0.36	Williams	1999 PB
1999 PC	15.3	0.15	19990721	352.39624	185.60507	137.76538	13.99089	0.2665597	2.5882939	14	1	38 days	0.17	Williams	1999 PC
1999 PE	16.2	0.15	19990810	326.49282	233.50563	142.79454	6.96109	0.1262535	2.2948361	11	1	14 days	0.86	Williams	1999 PE
1999 PF	16.8	0.15	19990810	343.34385	220.21244	137.31153	6.78675	0.1978230	2.2457540	9	1	14 days	0.77	Williams	1999 PF
1999 PJ	16.5	0.15	19990810	4.02976	170.01377	152.09290	3.16951	0.2319284	2.4050241	25	1	17 days	0.32	Marsden	1999 PJ
1999 PK	16.5	0.15	19990810	220.09484	325.65735	145.63615	24.15619	0.0668305	1.9226912	17	1	16 days	0.87	Williams	1999 PK
1999 PL	15.5	0.15	19990810	328.23108	134.96533	263.06908	14.81514	0.2943074	2.5966552	34	1	12 days	0.76	Williams	1999 PL
1999 PM	16.4	0.15	19990810	347.26847	202.53235	149.60119	11.46977	0.2701593	2.5239116	20	1	17 days	0.39	Williams	1999 PM
1999 PT	15.4	0.15	19990721	132.39451	30.31117	128.96146	15.92302	0.1624840	3.1980468	8	1	10 days	0.17	Spahr	1999 PT
1999 PW	15.2	0.15	19990810	94.01197	7.08476	208.75991	5.03023	0.1171847	2.2528915	27	1	16 days	0.27	Marsden	1999 PW
1999 PZ	14.1	0.15	19990810	348.17801	176.37286	157.28312	7.23816	0.2381161	2.3075907	25	1	92 days	0.48	M-v 4 Williams	1999 PZ
1999 PA ₁	15.2	0.15	19990810	260.02210	244.76872	223.99529	0.68683	0.0665521	2.2997136	14	1	14 days	0.32	Williams	1999 PA ₁
1999 PB ₁	15.8	0.15	19990810	5.27222	209.86886	139.18321	3.91771	0.2264578	2.5478603	10	1	13 days	0.33	Williams	1999 PB ₁
1999 PC ₁	13.4	0.15	19990810	75.90224	10.52771	293.91158	13.36396	0.1807408	2.6832027	11	1	10 days	0.17	Spahr	1999 PC ₁
1999 PG ₁	15.9	0.15	19990810	1.71849	181.72048	142.87385	2.62575	0.2626634	3.0355937	30	1	14 days	0.70	Williams	1999 PG ₁
1999 PH ₁	14.1	0.15	19990810	273.50223	292.72537	138.53423	1.84565	0.1254387	3.2017782	24	1	14 days	0.79	Williams	1999 PH ₁
1999 PJ ₁	18.1	0.15	19990810	319.59983	80.51272	319.58907	34.45879	0.3590560	1.6735282	143	1	22 days	0.54	Williams	1999 PJ ₁
1999 PM ₁	14.6	0.15	19990721	331.55578	258.93202	95.85690	28.14722	0.2406470	2.6840707	13	1	32 days	0.49	Williams	1999 PM ₁
1999 PP ₁	14.2	0.15	19990810	293.07708	67.35529	8.47459	10.55432	0.2086347	3.0667507	10	1	11 days	0.38	Williams	1999 PP ₁
1999 PQ ₁	14.5	0.15	19990810	242.12214	86.14033	15.32331	2.31650	0.1970027	2.9085167	9	1	3 days	0.71	E Spahr	1999 PQ ₁
1999 PR ₁	15.6	0.15	19990810	310.55553	21.28734	10.20524	2.24043	0.0890887	2.4234118	11	1	9 days	0.37	E Williams	1999 PR ₁
1999 PS ₁	15.6	0.15	19990810	42.89284	325.09642	305.14508	6.29881	0.1688286	2.2935132	14	1	10 days	0.43	Williams	1999 PS ₁
1999 PT ₁	14.7	0.15	19990721	39.89895	312.55150	320.93764	16.84413	0.1455811	2.7400804	16	1	35 days	0.35	Williams	1999 PT ₁
1999 PU ₁	15.0	0.15	19990810	31.66397	309.46598	347.06696	8.67011	0.1103194	3.0790339	10	1	10 days	0.88	Williams	1999 PU ₁
1999 PV ₁	16.1	0.15	19990810	355.26169	359.52470	340.69829	12.63284	0.2094824	2.7962323	8	1	3 days	0.27	Spahr	1999 PV ₁
1999 PZ ₁	16.0	0.15	19990810	209.12431	337.27915	151.92731	7.24132	0.0465541	2.2973394	8	1	9 days	0.43	Williams	1999 PZ ₁
1999 PA ₂	16.5	0.15	19990810	45.28405	261.78272	5.59612	2.35845	0.2035830	2.2032302	8	1	9 days	0.33	Williams	1999 PA ₂
1999 PB ₂	15.5	0.15	19990810	42.58975	259.86704	23.90634	2.17892	0.1106530	2.6815612	6	1	3 days	0.59	E Spahr	1999 PB ₂
1999 PC ₂	16.8	0.15	19990810	59.80356	129.37762	136.24076	4.20683	0.0779905	2.1276050	7	1	10 days	0.47	Williams	1999 PC ₂
1999 PD ₂	14.4	0.15	19990810	291.85648	291.40968	148.78192	13.80163	0.3578937	3.2005861	8	1	4 days	0.10	Spahr	1999 PD ₂
1999 PE ₂	17.3	0.15	19990810	330.61661	224.63740	142.72235	4.41022	0.1722368	2.1835742	8	1	4 days	0.41	Spahr	1999 PE ₂
1999 PH ₃	16.1	0.15	19990810	346.74368	64.88435	286.38627	5.96508	0.2861149	2.7329838	11	1	7 days	0.36	Spahr	1999 PH ₃

1999 PJ ₃	16.2	0.15	19990810	67.61631	246.51292	5.59000	3.01336	0.1220919	2.3503625	5	1	3 days	0.43	E	Spahr	1999 PJ ₃	
1999 PK ₃	17.0	0.15	19990810	48.86502	164.12677	95.83788	5.07201	0.2014431	2.3719256	16	1	8 days	0.79		Williams	1999 PK ₃	
1999 PL ₃	16.0	0.15	19990810	305.77610	299.96446	131.00881	13.36598	0.3936814	2.7648309	19	1	8 days	0.94		Williams	1999 PL ₃	
1999 PM ₃	16.7	0.15	19990810	345.70674	33.74491	314.59896	3.45064	0.1683394	2.2511101	6	1	3 days	0.11	M-v	3	Spahr	1999 PM ₃
1999 PN ₃	14.2	0.15	19990810	9.65600	36.63142	264.61066	9.10189	0.2043615	2.3502699	32	1	117 days	0.48		Williams	1999 PN ₃	
1999 PO ₃	15.6	0.15	19990810	328.86956	30.36342	341.90753	9.02893	0.2447569	2.7403813	11	1	5 days	0.39		Williams	1999 PO ₃	
1999 PP ₃	14.3	0.15	19990810	273.01538	228.13249	204.24910	5.02683	0.1946463	2.5484187	12	1	7 days	0.27	E	Williams	1999 PP ₃	
1999 PQ ₃	14.5	0.15	19990810	118.85984	36.34272	141.29840	14.85530	0.1453583	3.0162960	17	1	4 days	0.57		Spahr	1999 PQ ₃	
1999 PR ₃	14.9	0.15	19990810	26.32352	242.01970	51.39627	4.61057	0.3047837	2.8929869	6	1	2 days	0.08		Spahr	1999 PR ₃	
1999 PS ₃	21.6	0.15	19990810	353.64485	78.06755	257.88657	3.58844	0.4877718	2.0384493	35	1	13 days	0.52	E	Nakano	1999 PS ₃	
1999 PT ₃	16.9	0.15	19990810	7.98517	340.08733	311.17525	8.88028	0.3542513	2.1291438	38	1	2 days	0.65		Williams	1999 PT ₃	
1999 PY ₃	12.1	0.15	19990721	29.95300	126.50431	149.04941	25.23540	0.1247967	5.2329005	22	1	32 days	0.46		Spahr	1999 PY ₃	
1999 PZ ₃	17.1	0.15	19990810	93.73001	246.11223	342.06807	13.32696	0.0381299	1.7175416	18	1	9 days	1.53	E	Williams	1999 PZ ₃	
1999 PA ₄	14.4	0.15	19990810	333.18437	5.15220	6.68089	6.00260	0.0490586	2.9484596	6	1	5 days	0.50		Williams	1999 PA ₄	
1999 PB ₄	15.4	0.15	19990810	342.34272	261.18198	106.76627	3.00421	0.2126536	3.0942255	5	1	6 days	0.26		Williams	1999 PB ₄	
1999 PD ₄	14.8	0.15	19990810	320.11134	263.05965	127.62833	6.26712	0.0999225	2.8623382	5	1	6 days	0.27	E	Williams	1999 PD ₄	
1999 PE ₄	15.7	0.15	19990810	343.69815	231.62207	137.80022	8.19489	0.2744999	3.0284040	5	1	7 days	0.51		Williams	1999 PE ₄	
1999 PG ₄	18.1	0.15	19990810	348.15313	21.46099	330.49940	12.83166	0.3022675	2.5721794	9	1	6 days	1.12		Williams	1999 PG ₄	
1999 PH ₄	15.6	0.15	19990810	350.05559	228.21292	129.00002	5.46167	0.2012937	3.1194727	5	1	6 days	0.20	E	Williams	1999 PH ₄	
1999 PJ ₄	12.7	0.15	19990810	12.48461	322.63515	345.63594	25.39782	0.1904484	5.2473398	26	1	2 days	0.38		Spahr	1999 PJ ₄	
1999 PK ₄	13.8	0.15	19990810	21.72089	172.25723	125.73454	10.71428	0.2051157	3.1481071	17	1	6 days	0.88		Williams	1999 PK ₄	
1999 PO ₄	15.8	0.15	19990810	348.57759	6.57331	349.31712	17.34599	0.2718134	2.4121087	7	1	4 days	1.03	E	Williams	1999 PO ₄	
1999 PP ₄	13.7	0.15	19990810	344.35952	330.59900	32.29958	6.65955	0.0616006	3.1356012	7	1	4 days	0.26		Williams	1999 PP ₄	
1999 PQ ₄	16.4	0.15	19990810	8.10671	249.35686	61.59775	2.76531	0.1608410	2.3756521	9	1	11 days	0.56		Nakano	1999 PQ ₄	
1999 PR ₄	16.2	0.15	19990810	21.01546	101.34496	199.14070	2.55461	0.2809017	2.5777290	21	1	5 days	0.56	E	Williams	1999 PR ₄	
1999 PS ₄	15.7	0.15	19990810	302.28557	153.17090	260.10909	1.43921	0.1372457	2.2993177	18	1	7 days	0.50		Williams	1999 PS ₄	
1999 PT ₄	14.2	0.15	19990810	68.87445	6.19052	264.54204	2.62760	0.0213842	2.4143346	10	1	14 days	0.98		Nakano	1999 PT ₄	
1999 PU ₄	16.3	0.15	19990810	297.87068	293.64853	124.92912	4.99601	0.1486830	2.2639983	5	1	5 days	0.29	M-v	Williams	1999 PU ₄	
1999 PV ₄	14.4	0.15	19990810	320.46264	232.50900	177.92671	21.69034	0.0798548	2.6409640	8	1	8 days	0.40		Williams	1999 PV ₄	
1999 PW ₄	14.5	0.15	19990721	25.16860	121.67679	162.95504	15.28300	0.1038687	2.5973779	21	1	40 days	0.31		Williams	1999 PW ₄	
1999 PY ₄	15.6	0.15	19990810	1.85440	232.13425	80.95283	1.06584	0.3125348	2.6814798	21	1	67 days	0.49	M-v	4	Williams	1999 PY ₄
1999 PB ₅	13.5	0.15	19990810	349.46583	355.75467	24.55360	11.47768	0.0790587	3.2288751	10	1	11 days	0.21		Williams	1999 PB ₅	
1999 QA	14.7	0.15	19990810	36.41500	129.15829	168.77155	7.14686	0.1138674	2.4063553	33	1	13 days	0.60		Williams	1999 QA	
1999 QE	15.8	0.15	19990810	60.93694	130.01590	120.65379	3.21277	0.1179533	2.2450010	24	1	4 days	0.70	E	Williams	1999 QE	
1999 QF	15.6	0.15	19990810	308.63305	46.01046	354.88244	2.91512	0.2076017	2.5729591	13	1	4 days	1.08		Williams	1999 QF	
1999 QH	14.7	0.15	19990830	19.36829	287.42594	22.47718	5.89133	0.1418998	2.2373393	10	1	4 days	0.29		Nakano	1999 QH	
1999 QJ	17.6	0.15	19990830	351.65598	14.97036	344.30450	31.99857	0.4387244	2.4189652	37	1	6 days	0.60	E	Nakano	1999 QJ	
1999 QP	16.4	0.15	19990810	22.09044	354.03717	315.29800	0.62879	0.1772021	2.3762997	18	1	4 days	0.67		Williams	1999 QP	
1999 QR	15.7	0.15	19990810	320.13929	227.38592	156.09082	9.19405	0.1493873	2.4933687	22	1	4 days	0.51		Marsden	1999 QR	
1999 QR ₁	13.3	0.15	19990810	37.64708	292.17998	25.57816	9.78263	0.1465578	3.2194593	10	1	4 days	0.11	E	Williams	1999 QR ₁	
1999 QV ₁	15.7	0.15	19990810	347.32861	202.02167	167.96379	7.01683	0.3838753	2.7338878	44	1	4 days	0.51		Williams	1999 QV ₁	
1999 QZ ₁	14.6	0.15	19990810	292.56251	248.37085	192.64483	4.97559	0.0745297	2.8114814	8	1	4 days	0.30		Williams	1999 QZ ₁	
1999 QA ₂	14.3	0.15	19990810	322.44741	268.03974	126.02373	13.41343	0.1801718	3.0468973	9	1	3 days	0.19	E	Williams	1999 QA ₂	
1999 QD ₂	17.4	0.15	19990810	40.77094	126.20205	154.16466	24.56410	0.0636503	1.7232249	31	1	3 days	0.55		Williams	1999 QD ₂	
2053 P-L	14.2	0.15	19990810	83.97648	359.38575	223.80706	3.14382	0.1544837	2.6802978	68	3	1960–1999	0.75		M-v	3	Spahr
2064 P-L	13.7	0.15	19990810	194.56886	196.19750	299.40729	3.54203	0.1001585	3.1762519	22	4	1960–1999	0.61	M-v	2	Williams	24409 2064 P-L
2154 P-L	14.4	0.15	19990810	39.60989	256.63096	202.79978	13.00709	0.1048387	2.7943820	13	3	1960–1998	0.48	M-v	3	Williams	33995 2154 P-L
2508 P-L	15.3	0.15	19990810	333.60564	351.01699	10.19564	6.37753	0.2501766	2.3312579	24	5	1951–1999	0.73	M-v	2	Spahr	32091 2508 P-L
2560 P-L	14.0	0.15	19990810	10.25054	145.10139	183.85692	1.09609	0.0599427	2.8860831	43	5	1960–1999	0.69	M-v	1	Spahr	32091 2560 P-L
2722 P-L	14.7	0.15	19990810	53.39976	67.99023	181.49553	14.97993	0.1549831	2.6782783	38	3	1960–1999	0.71	M-v	2	Williams	35479 2722 P-L
2799 P-L	14.8	0.15	19990810	343.20763	164.03861	185.91886	29.60711	0.2373593	3.1449104	28	5	1960–1999	0.79	M-v	2	Williams	29948 2799 P-L
4071 P-L	14.9	0.15	19990810	4.81810	109.32826	199.32056	5.42879	0.1006425	2.3369317	33	3	1960–1999	0.57	M-v	3	Spahr	35479 4071 P-L
4090 P-L	14.0	0.15	19990810	285.31859	78.72593	336.42276	4.74558	0.0986302	3.1582132	33	4	1960–1999	0.57	M-v	1	Williams	30774 4090 P-L

4275 P-L	16.6	0.15	19990810	243.61298	186.49270	192.16525	12.54105	0.2333960	2.5243909	18	3	1960–1996	0.57	M-v	3	Williams	32729	4275 P-L
4572 P-L	11.5	0.15	19990810	28.11784	43.42706	16.84850	9.06604	0.0819556	5.3280629	30	4	1960–1998	0.66	M-v	1	Williams	33588	4572 P-L
5016 P-L	15.7	0.15	19990810	115.82455	205.33629	14.50501	4.92782	0.1077389	2.1993670	57	5	1960–1999	0.86	M-v	2	Williams	35479	5016 P-L
6104 P-L	14.0	0.15	19990810	268.72138	207.09006	199.65520	3.64988	0.0830762	3.1717441	17	4	1960–1999	0.45	M-v	2	Williams	35479	6104 P-L
6303 P-L	13.9	0.15	19990810	284.19547	242.98399	182.58302	2.26750	0.0177051	2.8783265	28	4	1960–1999	0.84	M-v	2	Williams	24764	6303 P-L
6539 P-L	14.1	0.15	19990810	35.04188	119.03663	170.47774	7.77826	0.0669477	2.6677351	31	3	1960–1999	0.53	M-v	3	Williams	32343	6539 P-L
7569 P-L	15.6	0.15	19990810	277.76390	32.86359	38.98552	4.17374	0.1093360	2.3292567	14	3	1960–1999	0.42	M-v	5	Spahr	23986	7569 P-L
9547 P-L	14.6	0.15	19990810	330.53638	164.98438	189.91605	7.56077	0.2124473	2.4866941	21	3	1960–1999	0.71	M-v	4	Spahr	35479	9547 P-L
9567 P-L	13.4	0.15	19990810	25.10441	252.91343	30.46346	9.47994	0.0457162	3.1712586	25	3	1960–1999	0.53	M-v	3	Williams	35479	9567 P-L
1024 T-1	11.0	0.15	19990810	233.99091	83.21353	353.82937	10.70517	0.0751640	5.1939285	20	7	1954–1994	0.68	M-v	1	Williams	28892	1024 T-1
1051 T-1	12.6	0.15	19990810	211.19180	141.70728	357.56116	10.52831	0.0552665	2.9939865	20	6	1963–1999	0.88	M-v	2	Spahr	33997	1051 T-1
2091 T-1	14.0	0.15	19990810	285.01061	163.83744	179.93940	13.33531	0.1586591	2.7501460	32	3	1971–1999	0.77	M-v	4	Williams	35403	2091 T-1
3024 T-1	14.8	0.15	19990810	244.19904	266.45690	163.68651	0.55696	0.1038196	2.4509894	47	5	1971–1999	0.78	M-v	2	Williams	35479	3024 T-1
3224 T-1	15.6	0.15	19990810	208.40111	114.15906	1.40922	7.37971	0.0520699	2.2519391	47	4	1971–1999	0.68	M-v	2	Williams	35479	3224 T-1
3243 T-1	15.2	0.15	19990810	355.09770	347.90797	357.79406	3.92077	0.1423098	2.2504422	40	4	1971–1999	0.95	M-v	3	Williams	35479	3243 T-1
3274 T-1	13.6	0.15	19990810	285.40424	189.77877	182.29415	13.22164	0.1773759	2.7247093	68	3	1971–1999	0.70	M-v	4	Spahr	35479	3274 T-1
1005 T-2	13.7	0.15	19990810	309.01941	171.04998	207.63440	2.19345	0.0970588	3.0277131	28	3	1973–1999	0.74	M-v	5	Spahr	35480	1005 T-2
1101 T-2	13.1	0.15	19990810	294.52714	91.16130	334.30365	1.26198	0.0668695	3.0008835	28	5	1973–1999	0.93	M-v	2	Williams	30474	1101 T-2
1162 T-2	14.6	0.15	19990810	288.02890	3.35548	24.66331	2.85662	0.1196941	2.6906958	46	5	1973–1999	0.89	M-v	2	Williams	35403	1162 T-2
1175 T-2	15.5	0.15	19990810	109.20699	337.03593	226.36973	0.80765	0.1353956	2.4192394	52	4	1973–1999	0.79	M-v	2	Williams	32092	1175 T-2
1241 T-2	14.2	0.15	19990810	7.43288	280.78264	5.36936	8.80429	0.0825709	3.0603008	37	3	1973–1999	0.90	M-v	4	Williams	32292	1241 T-2
2115 T-2	15.3	0.15	19990810	200.70325	97.06826	15.26515	2.07012	0.0805470	2.2182262	46	3	1973–1999	0.81	M-v	3	Williams	35480	2115 T-2
2174 T-2	14.0	0.15	19990810	91.34141	160.72597	344.82888	5.26924	0.0204666	2.7639080	32	3	1973–1999	0.85	M-v	3	Williams	35404	2174 T-2
3072 T-2	13.2	0.15	19990810	179.56788	240.14616	83.72706	3.20009	0.0693754	2.8378332	29	4	1973–1999	0.82	M-v	4	Williams	33785	3072 T-2
3088 T-2	15.6	0.15	19990810	267.24946	295.66426	65.15906	3.23293	0.1144029	2.7274754	26	3	1973–1999	0.77	M-v	4	Williams	35480	3088 T-2
3305 T-2	15.4	0.15	19990810	83.08198	201.71559	48.77704	3.21805	0.1417061	2.4008419	59	3	1973–1999	0.74	M-v	3	Williams	32344	3305 T-2
4062 T-2	14.2	0.15	19990810	144.43257	329.16410	181.04320	13.06586	0.1140345	2.7147916	73	4	1973–1999	0.74	M-v	2	Williams	35480	4062 T-2
4087 T-2	15.2	0.15	19990810	9.98085	178.92267	115.10610	1.88625	0.2064503	3.0392004	28	4	1973–1999	0.91	M-v	2	Williams	35480	4087 T-2
4210 T-2	14.4	0.15	19990810	159.08098	40.69920	145.59407	5.01812	0.1133043	2.6668733	32	6	1954–1999	0.98	M-v	2	Williams	32344	4210 T-2
5061 T-2	14.9	0.15	19990810	338.45596	27.61832	303.86566	6.10005	0.2367086	2.2081147	40	4	1973–1999	0.90	M-v	3	Spahr	35125	5061 T-2
5124 T-2	14.1	0.15	19990810	126.35110	323.22465	236.76609	11.90899	0.1188572	2.6797713	49	4	1973–1999	0.79	M-v	3	Williams	35480	5124 T-2
5159 T-2	11.2	0.15	19990810	33.31781	93.06473	323.56956	10.54392	0.0082570	5.1497116	46	4	1973–1998	0.69	M-v	2	Williams	33589	5159 T-2
5415 T-2	15.6	0.15	19990810	260.21825	133.32299	294.69576	5.81071	0.1283240	2.2124050	31	3	1973–1999	0.84	M-v	2	Williams	35480	5415 T-2
1021 T-3	13.8	0.15	19990810	71.19337	264.90561	326.96036	7.51178	0.1267071	2.7370583	40	4	1977–1999	0.68	M-v	1	Williams	35480	1021 T-3
1071 T-3	14.0	0.15	19990810	12.98409	0.16981	324.90214	5.94875	0.1478654	2.3856131	38	4	1977–1999	0.62	M-v	2	Spahr	35480	1071 T-3
1128 T-3	13.6	0.15	19990810	1.22691	335.96305	348.98503	13.71229	0.1352890	3.1551777	28	6	1954–1999	0.84	M-v	1	Spahr	29669	1128 T-3
2031 T-3	14.9	0.15	19990810	130.02867	163.10887	321.00660	4.34846	0.0237056	2.2103226	35	3	1977–1999	0.85	M-v	4	Williams	35480	2031 T-3
2140 T-3	11.8	0.15	19990810	344.61679	112.01374	218.45344	16.59273	0.0962881	5.1763681	30	4	1977–1999	0.90	M-v	2	Williams	35480	2140 T-3
3105 T-3	14.7	0.15	19990810	349.60686	172.52383	170.90040	2.71297	0.1809441	2.3917277	53	5	1977–1999	0.77	M-v	2	Williams	32093	3105 T-3
3140 T-3	14.8	0.15	19990810	305.99434	45.36497	268.59679	0.25036	0.0404440	2.2030455	36	4	1977–1999	0.82	M-v	2	Williams	35480	3140 T-3
3460 T-3	13.4	0.15	19990810	311.04213	75.36456	285.61969	0.44140	0.1708491	3.1806135	40	4	1977–1999	0.77	M-v	2	Williams	35481	3460 T-3
3526 T-3	16.1	0.15	19990810	34.86092	273.01079	8.05494	2.29568	0.2063047	2.3940266	26	4	1977–1999	0.89	M-v	1	Spahr	31437	3526 T-3
4101 T-3	11.1	0.15	19990810	262.27242	19.87094	29.46565	24.10571	0.0134710	5.2478226	29	4	1977–1996	0.92	M-v	3	Williams	34276	4101 T-3
4102 T-3	15.1	0.15	19990810	232.31029	41.32302	66.23221	4.14525	0.0621515	2.1608531	62	4	1977–1999	0.84	M-v	2	Spahr	32344	4102 T-3
4179 T-3	11.6	0.15	19990810	231.70523	21.28922	76.84591	5.13022	0.0122701	5.2016188	33	8	1954–1994	0.94	M-v	1	Williams	23792	4179 T-3
4221 T-3	13.4	0.15	19990810	149.88890	349.27841	177.05081	9.31446	0.1432549	2.7460022	38	3	1977–1999	0.72	M-v	3	Williams	35481	4221 T-3
4295 T-3	14.7	0.15	19990810	206.62093	313.68674	62.46024	5.91135	0.1113166	2.4878346	34	4	1977–1999	0.96	M-v	3	Williams	35404	4295 T-3
4326 T-3	14.8	0.15	19990810	292.84123	309.86709	70.62202	5.71233	0.1570830	2.4149882	34	5	1977–1999	0.86	M-v	2	Williams	35481	4326 T-3
5002 T-3	14.4	0.15	19990810	85.22461	122.66214	93.28749	7.07230	0.0423477	2.7473838	26	4	1977–1999	0.68	M-v	1	Williams	35481	5002 T-3
5034 T-3	13.1	0.15	19990810	105.20838	308.75682	170.74472	15.31460	0.0964256	2.8499101	44	4	1977–1999	0.86	M-v	2	Williams	35481	5034 T-3

1999 LP = 1999 CC₁₆ (T. B. Spahr)1999 LV₁ = 1998 WQ₃₁ (T. B. Spahr)

EPHEMERIDES

P/1999 P1 (Machholz 2)					Elements MPC 35553			
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1999 08 20		16 41.28	-10 43.6	1.253	1.784	103.4	33.5	20.0 20.6
1999 08 30		16 41.99	-10 42.8	1.268	1.677	94.2	36.9	19.3 20.6
1999 09 09		16 46.75	-10 50.9	1.277	1.568	85.8	39.8	18.4 20.6
1999 09 19		16 55.37	-11 04.9	1.276	1.457	78.4	42.5	17.4 20.5
1999 09 29		17 07.65	-11 21.5	1.261	1.345	71.9	45.1	16.4 20.4
1999 10 09		17 23.50	-11 37.2	1.231	1.232	66.1	47.9	15.2 20.2
1999 10 19		17 42.94	-11 49.0	1.182	1.121	61.2	51.2	13.9 20.0
1999 10 29		18 06.01	-11 54.0	1.114	1.013	57.1	55.4	12.4 19.8
1999 11 08		18 32.89	-11 50.4	1.026	0.915	53.9	61.1	10.9 19.5
1999 11 13		18 47.82	-11 45.6	0.975	0.871	52.6	64.6	10.1 19.4
1999 11 18		19 03.78	-11 39.4	0.919	0.832	51.5	68.5	9.4 19.3
1999 11 23		19 20.82	-11 32.7	0.859	0.799	50.7	73.0	8.7 19.2
1999 11 28		19 38.99	-11 27.3	0.796	0.774	50.0	77.9	8.2 19.2
1999 12 03		19 58.47	-11 25.2	0.731	0.757	49.6	83.0	7.7 19.1
1999 12 08		20 19.50	-11 28.9	0.665	0.749	49.5	88.1	7.3 19.1
1999 12 13		20 42.53	-11 41.0	0.599	0.752	49.7	92.9	7.2 19.1
1999 12 18		21 08.26	-12 03.6	0.535	0.764	50.4	96.9	7.1 19.0
1999 12 23		21 37.70	-12 37.6	0.475	0.785	51.9	99.7	7.2 19.0
1999 12 28		22 12.24	-13 21.1	0.421	0.814	54.5	100.6	7.4 18.8
2000 01 02		22 53.37	-14 07.0	0.376	0.850	58.6	99.2	7.8 18.6
2000 01 07		23 42.08	-14 40.4	0.342	0.892	64.6	95.1	8.2 18.3
2000 01 12		00 37.51	-14 40.6	0.323	0.938	72.4	88.5	8.7 18.0
2000 01 17		01 35.95	-13 51.1	0.320	0.987	81.3	80.1	9.4 17.8
2000 01 22		02 31.96	-12 14.5	0.333	1.039	90.0	71.3	10.1 17.7
2000 01 27		03 21.27	-10 10.4	0.362	1.093	97.5	63.3	11.0 17.7
2000 02 01		04 02.46	-08 00.9	0.403	1.148	103.3	56.7	11.8 17.9
2000 02 06		04 36.18	-05 59.4	0.455	1.203	107.5	51.4	12.7 18.1
2000 02 11		05 03.86	-04 11.2	0.513	1.259	110.1	47.4	13.6 18.3
2000 02 16		05 26.94	-02 37.1	0.578	1.316	111.7	44.2	14.4 18.6
2000 02 21		05 46.56	-01 15.9	0.648	1.372	112.3	41.8	15.2 18.9
2000 02 26		06 03.60	-00 06.1	0.722	1.428	112.2	39.9	15.9 19.1
2000 03 02		06 18.70	+00 53.9	0.800	1.484	111.5	38.4	16.7 19.4
2000 03 07		06 32.34	+01 45.3	0.882	1.540	110.4	37.2	17.4 19.7
2000 03 17		06 56.54	+03 06.3	1.054	1.649	107.2	35.2	18.6 20.1
2000 03 27		07 17.95	+04 02.8	1.236	1.757	103.2	33.6	19.8 20.6
2000 04 06		07 37.56	+04 39.3	1.428	1.862	98.6	32.1	20.9 21.0
2000 04 16		07 55.96	+04 58.8	1.626	1.964	93.6	30.7	21.3

P/1997 V1 (Larsen)					Elements MPC 31205			
Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1999 08 20		07 43.45	+12 48.9	5.534	4.708	32.1	6.6	19.4
1999 08 30		07 52.09	+12 10.7	5.472	4.734	39.3	7.8	19.4
1999 09 09		08 00.14	+11 30.7	5.394	4.761	46.8	8.9	19.4
1999 09 19		08 07.47	+10 49.3	5.301	4.787	54.5	9.8	19.4
1999 09 29		08 14.00	+10 07.3	5.195	4.814	62.4	10.6	19.4
1999 10 09		08 19.62	+09 25.4	5.079	4.840	70.6	11.2	19.4
1999 10 19		08 24.20	+08 44.5	4.955	4.866	79.1	11.6	19.3
1999 10 29		08 27.65	+08 05.4	4.826	4.892	87.9	11.7	19.3
1999 11 08		08 29.87	+07 29.3	4.696	4.918	97.1	11.5	19.3

1999 11 18	08 30.75	+06 57.1	4.570	4.943	106.6	11.1	19.2
1999 11 28	08 30.28	+06 30.0	4.451	4.969	116.4	10.2	19.2
1999 12 08	08 28.44	+06 08.9	4.345	4.994	126.5	9.1	19.2
1999 12 18	08 25.31	+05 54.7	4.257	5.020	136.8	7.7	19.2
1999 12 28	08 21.07	+05 47.9	4.191	5.045	147.1	6.1	19.1
2000 01 07	08 15.97	+05 48.6	4.151	5.070	156.8	4.4	19.1
2000 01 17	08 10.36	+05 56.4	4.140	5.095	164.4	3.0	19.2
2000 01 27	08 04.64	+06 10.5	4.160	5.119	165.5	2.8	19.2
2000 02 06	07 59.22	+06 29.5	4.211	5.144	159.0	3.9	19.2
2000 02 16	07 54.47	+06 51.8	4.291	5.168	149.7	5.5	19.3
2000 02 26	07 50.68	+07 15.7	4.398	5.192	139.6	7.1	19.4
2000 03 07	07 48.07	+07 39.8	4.528	5.216	129.5	8.4	19.5
2000 03 17	07 46.76	+08 02.5	4.677	5.240	119.6	9.5	19.5
2000 03 27	07 46.75	+08 22.7	4.839	5.264	109.9	10.3	19.6
2000 04 06	07 48.02	+08 39.6	5.011	5.287	100.6	10.7	19.7
2000 04 16	07 50.47	+08 52.7	5.187	5.310	91.6	10.9	19.8
2000 04 26	07 54.01	+09 01.3	5.365	5.334	82.8	10.8	19.9
2000 05 06	07 58.49	+09 05.3	5.539	5.356	74.4	10.5	20.0
2000 05 16	08 03.81	+09 04.6	5.707	5.379	66.2	9.9	20.1
2000 05 26	08 09.81	+08 59.2	5.866	5.402	58.3	9.2	20.2
2000 06 05	08 16.39	+08 49.0	6.013	5.424	50.5	8.3	20.2
2000 06 15	08 23.44	+08 34.1	6.146	5.446	42.9	7.3	20.3
2000 06 25	08 30.83	+08 14.9	6.263	5.468	35.6	6.2	20.4

114P/Wiseman-Skiff

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1999 09 09		02 15.24	+42 01.3	1.329	1.991	116.2	27.0	16.6 22.3
1999 09 19		02 23.42	+44 04.1	1.206	1.936	122.0	26.1	16.2 22.0
1999 09 29		02 29.19	+45 47.8	1.093	1.883	128.0	24.8	15.8 21.7
1999 10 09		02 32.07	+47 03.0	0.991	1.832	134.1	23.1	15.4 21.4
1999 10 19		02 31.87	+47 37.7	0.902	1.785	140.1	21.0	15.1 21.1
1999 10 29		02 29.18	+47 19.0	0.828	1.741	145.7	18.8	14.7 20.8
1999 11 08		02 25.29	+45 56.0	0.769	1.701	150.0	17.0	14.4 20.5
1999 11 18		02 22.27	+43 25.0	0.727	1.665	151.6	16.4	14.1 20.3
1999 11 28		02 22.16	+39 55.8	0.704	1.634	149.8	17.7	13.9 20.2
1999 12 08		02 26.16	+35 48.6	0.700	1.609	144.9	20.6	13.8 20.3
1999 12 18		02 34.70	+31 30.5	0.715	1.590	138.2	24.4	13.8 20.4
1999 12 28		02 47.39	+27 25.8	0.746	1.577	131.0	28.1	13.8 20.6
2000 01 07		03 03.49	+23 50.3	0.793	1.570	123.9	31.3	13.9 20.8
2000 01 17		03 22.27	+20 50.8	0.853	1.570	117.4	33.8	14.1 21.0
2000 01 27		03 43.00	+18 26.6	0.925	1.577	111.4	35.5	14.3 21.3
2000 02 06		04 05.07	+16 33.0	1.006	1.591	105.9	36.6	14.5 21.5
2000 02 16		04 28.08	+15 03.8	1.097	1.610	101.0	37.0	14.8 21.7
2000 02 26		04 51.64	+13 52.1	1.195	1.636	96.5	37.0	15.1 22.0
2000 03 07		05 15.49	+12 52.1	1.301	1.667	92.2	36.5	15.4 22.2
2000 03 17		05 39.44	+11 58.8	1.413	1.702	88.2	35.7	15.7 22.4

C/1999 E1 (Li)

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1 m_2
1999 09 19		09 34.84	+18 29.2	5.058	4.283	35.8	7.9	16.3
1999 09 29		09 45.20	+18 39.5	4.987	4.313	43.4	9.2	16.3
1999 10 09		09 55.02	+18 53.8	4.902	4.345	51.1	10.3	16.3
1999 10 19		10 04.20	+19 13.6	4.804	4.377	59.1	11.3	16.3
1999 10 29		10 12.64	+19 40.4	4.696	4.409	67.3	12.0	16.3

1999 11 08	10 20.23	+20 15.6	4.581	4.443	75.8	12.5	16.3
1999 11 18	10 26.83	+21 00.5	4.461	4.478	84.6	12.7	16.3
1999 11 28	10 32.31	+21 56.2	4.341	4.513	93.7	12.6	16.2
1999 12 08	10 36.55	+23 03.3	4.225	4.549	103.0	12.2	16.2
1999 12 18	10 39.40	+24 21.8	4.116	4.586	112.7	11.4	16.2
1999 12 28	10 40.77	+25 50.9	4.021	4.624	122.4	10.3	16.2
2000 01 07	10 40.62	+27 28.7	3.944	4.662	132.2	9.0	16.2
2000 01 17	10 38.94	+29 11.9	3.890	4.701	141.7	7.5	16.2
2000 01 27	10 35.88	+30 56.3	3.862	4.740	150.1	5.9	16.2
2000 02 06	10 31.67	+32 37.1	3.863	4.781	156.0	4.8	16.2
2000 02 16	10 26.67	+34 09.6	3.895	4.821	157.3	4.5	16.3
2000 02 26	10 21.35	+35 29.6	3.957	4.863	153.4	5.2	16.4
2000 03 07	10 16.17	+36 34.5	4.048	4.904	146.2	6.5	16.4
2000 03 17	10 11.63	+37 23.0	4.166	4.947	137.7	7.8	16.5
2000 03 27	10 08.09	+37 55.5	4.305	4.989	128.6	9.0	16.7
2000 04 06	10 05.82	+38 13.3	4.462	5.033	119.6	10.0	16.8
2000 04 16	10 04.97	+38 18.1	4.634	5.076	110.7	10.7	16.9
2000 04 26	10 05.57	+38 12.1	4.814	5.120	102.1	11.1	17.0
2000 05 06	10 07.57	+37 57.2	5.000	5.165	93.8	11.2	17.1
2000 05 16	10 10.87	+37 35.3	5.187	5.210	85.7	11.2	17.2
2000 05 26	10 15.34	+37 08.0	5.372	5.255	78.0	10.9	17.4
2000 06 05	10 20.83	+36 36.4	5.552	5.300	70.5	10.4	17.5
2000 06 15	10 27.20	+36 01.8	5.724	5.346	63.4	9.8	17.6
2000 06 25	10 34.31	+35 25.0	5.887	5.392	56.5	9.0	17.7
2000 07 05	10 42.04	+34 47.0	6.037	5.439	49.9	8.2	17.8
2000 07 15	10 50.26	+34 08.4	6.174	5.485	43.8	7.4	17.8
2000 07 25	10 58.89	+33 30.0	6.295	5.532	38.2	6.5	17.9
2000 08 04	11 07.83	+32 52.5	6.401	5.580	33.2	5.7	18.0

21P/Giacobini-Zinner

Elements MPC 25184

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 09 19	09 46.06	−08 21.7	4.139	3.319	31.1	9.0	19.9	21.8	
1999 09 29	09 56.53	−09 29.3	4.141	3.387	36.4	10.1	20.0	21.9	
1999 10 09	10 06.16	−10 38.3	4.127	3.454	42.3	11.2	20.2	22.0	
1999 10 19	10 14.86	−11 47.9	4.096	3.519	48.7	12.3	20.3	22.0	
1999 10 29	10 22.53	−12 57.1	4.050	3.583	55.6	13.2	20.4	22.1	
1999 11 08	10 29.06	−14 04.7	3.990	3.646	62.9	14.0	20.4	22.1	
1999 11 18	10 34.32	−15 09.4	3.918	3.708	70.6	14.6	20.5	22.1	
1999 11 28	10 38.16	−16 09.8	3.837	3.769	78.7	14.9	20.6	22.1	
1999 12 08	10 40.45	−17 04.0	3.749	3.829	87.1	14.9	20.6	22.1	
1999 12 18	10 41.06	−17 49.9	3.660	3.887	96.0	14.6	20.7	22.1	
1999 12 28	10 39.91	−18 25.0	3.572	3.945	105.2	13.9	20.7	22.0	
2000 01 07	10 36.98	−18 46.9	3.490	4.001	114.6	12.9	20.7	22.0	
2000 01 17	10 32.37	−18 52.9	3.421	4.056	124.2	11.6	20.8	21.9	
2000 01 27	10 26.30	−18 41.1	3.369	4.111	133.7	10.0	20.8	21.9	
2000 02 06	10 19.14	−18 10.5	3.338	4.164	142.5	8.3	20.9	21.8	
2000 02 16	10 11.39	−17 21.4	3.334	4.217	149.7	6.8	21.0	21.7	
2000 02 26	10 03.64	−16 16.3	3.359	4.268	153.6	5.9	21.1	21.7	
2000 03 07	09 56.41	−14 59.0	3.413	4.319	152.6	6.1	21.2	21.8	
2000 03 17	09 50.20	−13 34.4	3.498	4.368	147.2	7.1	21.3	21.9	
2000 03 27	09 45.33	−12 07.6	3.610	4.417	139.5	8.4	21.5	22.1	
2000 04 06	09 42.00	−10 43.2	3.747	4.465	130.7	9.8	21.6	22.3	
2000 04 16	09 40.27	−09 24.8	3.904	4.511	121.6	10.9	21.8	22.4	

C/1998 M5 (LINEAR)

Elements MPC 34733

Date	TT	α_{2000}	δ_{2000}	Δ	r	ϵ	ϕ	m_1	m_2
1999 10 09	10 45.15	-02 37.3	4.325	3.528	32.8	8.8	14.7		
1999 10 19	10 49.71	-04 41.3	4.314	3.620	40.9	10.4	14.8		
1999 10 29	10 53.33	-06 43.9	4.285	3.712	49.1	11.7	14.9		
1999 11 08	10 55.86	-08 44.8	4.241	3.803	57.6	12.7	14.9		
1999 11 18	10 57.13	-10 43.8	4.183	3.895	66.4	13.5	15.0		
1999 11 28	10 56.96	-12 39.9	4.117	3.986	75.5	13.9	15.1		
1999 12 08	10 55.19	-14 32.0	4.046	4.077	84.8	13.9	15.1		
1999 12 18	10 51.65	-16 18.2	3.975	4.168	94.4	13.6	15.2		
1999 12 28	10 46.27	-17 56.2	3.910	4.258	104.1	12.9	15.3		
2000 01 07	10 39.05	-19 23.2	3.856	4.348	113.9	11.9	15.3		
2000 01 17	10 30.11	-20 36.0	3.820	4.438	123.4	10.7	15.4		
2000 01 27	10 19.77	-21 31.7	3.806	4.528	132.3	9.3	15.5		
2000 02 06	10 08.50	-22 08.3	3.819	4.617	139.8	7.9	15.6		
2000 02 16	09 56.90	-22 25.1	3.863	4.706	144.9	6.9	15.7		
2000 02 26	09 45.63	-22 23.4	3.938	4.794	146.4	6.6	15.8		
2000 03 07	09 35.26	-22 06.1	4.045	4.882	144.0	6.9	15.9		
2000 03 17	09 26.25	-21 37.3	4.181	4.970	138.5	7.6	16.1		
2000 03 27	09 18.90	-21 01.6	4.343	5.058	131.3	8.5	16.2		
2000 04 06	09 13.31	-20 23.0	4.527	5.145	123.2	9.4	16.4		
2000 04 16	09 09.47	-19 45.4	4.729	5.231	114.9	10.0	16.6		
2000 04 26	09 07.28	-19 11.5	4.943	5.318	106.5	10.5	16.7		
2000 05 06	09 06.57	-18 43.3	5.165	5.404	98.3	10.6	16.9		
2000 05 16	09 07.16	-18 22.0	5.391	5.489	90.3	10.6	17.1		
2000 05 26	09 08.85	-18 08.5	5.616	5.575	82.5	10.4	17.2		
2000 06 05	09 11.48	-18 03.0	5.837	5.659	75.0	10.0	17.4		
2000 06 15	09 14.86	-18 05.6	6.050	5.744	67.8	9.4	17.5		
2000 06 25	09 18.85	-18 16.2	6.253	5.828	61.0	8.8	17.6		
2000 07 05	09 23.30	-18 34.6	6.444	5.912	54.5	8.1	17.8		
2000 07 15	09 28.10	-19 00.5	6.619	5.996	48.6	7.3	17.9		
2000 07 25	09 33.12	-19 33.6	6.779	6.079	43.2	6.6	18.0		

OPPOSITION DATA

Planet	Opposition	α_{2000}	δ_{2000}	V	$\dot{\alpha}$	$\dot{\delta}$	ϕ_{MIN}	MPC
1998 AX ₄	1999 07 31.0	20 39.19	-44 31.3	16.9	-1.38	-16.6	11.5/21.7	32059
1997 AA ₇	1999 07 31.0	20 39.25	-17 42.2	18.6	-0.96	- 4.7	0.3/31.2	35071
1988 TQ ₁	1999 07 31.0	20 39.65	-24 45.2	17.3	-1.06	- 2.1	2.4/29.8	35680
1996 VY ₂₉	1999 07 31.1	20 39.61	-12 56.3	15.8	-0.87	- 4.7	2.8/01.4	35430
1999 OM	1999 07 31.1	20 39.83	-19 45.8	17.6	-1.16	+ 0.2	0.6/30.9	35667
1999 PA	1999 07 31.1	20 39.95	-24 52.5	17.8	-1.12	- 2.9	3.3/29.9	35669
1988 RY ₁₁	1999 07 31.2	20 40.05	-00 22.9	19.9	-0.48	- 3.9	3.3/05.1	15892
1999 KJ ₁₅	1999 07 31.2	20 40.06	-08 23.4	16.3	-0.68	-12.5	3.9/03.5	35385
(8729)	1999 07 31.3	20 40.39	-13 43.4	18.0	-0.96	- 3.6	1.8/01.3	35413
1981 EZ ₁₂	1999 07 31.3	20 40.55	-14 07.4	17.4	-1.07	- 1.9	1.8/01.1	35415
1998 HQ ₃₉	1999 07 31.3	20 40.66	-21 50.7	17.1	-0.80	- 3.0	1.3/30.6	35625
1998 FK ₂₆	1999 07 31.3	20 40.80	-15 56.6	17.9	-0.99	- 5.5	0.9/31.9	32317
(8932)	1999 07 31.4	20 40.84	-16 19.4	17.2	-0.82	- 3.2	0.6/31.9	31930
1997 BN ₃	1999 07 31.4	20 40.90	-22 14.4	17.5	-0.83	- 3.2	1.2/30.6	35431
1998 FM ₁₁₃	1999 07 31.4	20 41.02	-14 05.0	17.9	-1.02	- 1.7	1.6/01.3	35329
(8699)	1999 07 31.5	20 41.25	-18 06.7	17.2	-0.85	- 3.2	0.1/31.6	35413
1981 DW	1999 07 31.5	20 41.26	-16 54.4	18.8	-0.99	- 0.4	0.5/31.8	26914

1999 NK ₄₂	1999 07 31.5	20 41.35 -20 16.2 17.5	-1.00 - 2.5	0.8/31.1	35740	1995 GT	1999 08 01.5	20 45.56 -60 46.7 17.1	-1.98 + 6.4	18.9/29.3	28318
1988 RO ₁₀	1999 07 31.5	20 41.36 -02 37.0 18.7	-0.49 - 4.3	3.0/04.9	35417	1995 US ₁₁	1999 08 01.6	20 45.45 -41 55.4 16.6	-1.07 + 1.7	12.0/27.7	32053
1998 HU ₃₉	1999 07 31.5	20 41.44 -15 33.8 17.6	-0.87 - 3.9	1.0/01.2	35439	1993 FQ ₂₄	1999 08 01.6	20 45.46 -05 10.4 17.2	-0.80 - 4.0	4.9/04.7	35687
1998 DF ₁₄	1999 07 31.5	20 41.47 -19 27.2 19.8	-0.79 - 3.2	0.3/31.3	32315	4134 T-3	1999 08 01.6	20 45.63 -23 07.4 17.9	-0.93 - 4.3	1.8/31.5	12802
1993 UD ₇	1999 07 31.5	20 41.52 -20 22.1 17.8	-1.06 - 6.0	0.9/31.1	35292	(9079)	1999 08 01.6	20 45.77 -10 36.6 17.0	-0.75 - 6.4	2.5/03.7	35414
(11111)	1999 07 31.6	20 41.52 -20 11.2 16.8	-0.83 - 4.4	0.7/31.2	35240	1996 XY ₁₁	1999 08 01.6	20 45.84 -22 07.3 18.8	-0.87 - 3.9	1.4/31.7	31793
(11111)	1999 07 31.6	20 41.52 -20 11.2 16.8	-0.83 - 4.4	0.7/31.2	35240	1998 FR ₇₄	1999 08 01.6	20 45.87 -19 15.2 19.6	-0.99 - 4.3	0.5/01.4	34531
(8793)	1999 07 31.6	20 41.59 -16 58.9 17.1	-0.96 - 2.8	0.5/31.9	31897	(8569)	1999 08 01.7	20 45.96 -19 45.6 16.1	-1.05 - 1.4	0.9/01.4	35413
1145 T-1	1999 07 31.6	20 41.78 -19 08.3 19.0	-1.00 - 2.5	0.3/31.5	32343	1988 CL ₄	1999 08 01.7	20 45.99 -06 56.3 18.4	-0.83 - 2.7	3.4/04.2	35417
(11180)	1999 07 31.6	20 41.90 -22 00.0 17.1	-0.95 - 1.8	1.4/30.9	35258	1999 NM ₃₇	1999 08 01.7	20 46.08 -21 19.6 17.8	-0.88 -10.0	1.3/31.8	35665
(11180)	1999 07 31.6	20 41.90 -22 00.0 17.1	-0.95 - 1.8	1.4/30.9	35258	1998 HC ₁₄₆	1999 08 01.7	20 46.13 -22 08.1 18.0	-0.78 - 4.9	1.3/31.7	35708
1998 HU ₉₄	1999 07 31.6	20 41.93 -19 54.2 16.4	-0.79 - 2.9	0.6/31.3	35439	(8481)	1999 08 01.7	20 46.22 -09 24.0 18.0	-0.81 - 2.9	2.7/03.8	31491
1981 EF ₃₁	1999 07 31.7	20 41.97 -14 01.4 17.9	-0.98 - 5.7	1.8/01.7	35415	1997 AL ₆	1999 08 01.7	20 46.22 -02 25.7 18.5	-1.06 + 3.4	5.8/04.0	35698
(9816)	1999 07 31.7	20 42.14 -50 15.4 18.1	-1.37 + 0.7	10.8/25.2	33215	1989 SL ₂	1999 08 01.8	20 46.23 -21 06.8 17.4	-0.98 - 6.6	1.5/01.0	35280
(8544)	1999 07 31.7	20 42.20 -17 37.0 17.3	-1.01 - 4.3	0.2/31.9	31506	1996 XD ₂₀	1999 08 01.8	20 46.64 -23 19.5 18.1	-0.97 - 6.6	2.2/31.5	35697
1994 CZ ₁₇	1999 07 31.7	20 42.30 -13 12.0 18.2	-0.88 - 8.5	1.9/02.1	35690	1996 XY ₁₈	1999 08 01.9	20 46.59 -13 12.6 17.8	-0.96 - 3.5	1.7/02.9	35697
1998 KZ ₃	1999 07 31.7	20 42.37 -20 22.2 18.3	-0.88 - 4.6	0.7/31.3	35627	1996 VK ₄	1999 08 01.9	20 46.84 -12 41.6 18.8	-0.87 - 3.2	1.6/03.1	32311
1999 NP ₃₇	1999 07 31.8	20 42.51 -16 56.5 17.2	-0.88 - 0.6	0.4/01.1	35400	1998 FB ₉₀	1999 08 01.9	20 46.87 -25 40.8 17.8	-1.08 - 5.9	3.2/31.1	35707
1988 RT ₄	1999 07 31.8	20 42.68 -17 06.9 17.5	-0.81 - 3.7	0.4/01.1	35417	1996 SS ₄	1999 08 01.9	20 46.90 -11 28.8 18.1	-0.96 - 4.5	2.7/03.5	35429
1981 EM ₄₁	1999 07 31.8	20 42.72 -23 31.6 17.4	-0.90 - 1.6	1.9/30.8	35678	1981 EC ₇	1999 08 01.9	20 46.95 -17 38.6 19.3	-0.66 - 1.4	0.1/02.1	26916
2115 T-2	1999 07 31.8	20 42.78 -21 38.4 18.1	-1.09 - 3.7	1.4/31.2	35743	(11323)	1999 08 01.9	20 47.04 -34 18.0 16.4	-1.25 + 5.2	7.6/31.0	35571
1994 AG	1999 07 31.9	20 43.11 -15 49.2 17.9	-1.03 - 4.2	0.9/01.5	32051	1981 EM ₅	1999 08 02.0	20 47.18 -10 14.5 19.0	-0.80 - 1.5	2.3/03.7	35415
1998 DG ₁₂	1999 08 01.0	20 43.06 -12 28.0 17.6	-0.78 - 9.1	2.8/02.6	35316	(8249)	1999 08 02.0	20 47.20 -23 05.2 17.9	-1.02 - 5.9	2.0/31.8	31207
1994 EG ₇	1999 08 01.0	20 43.26 -19 42.5 18.2	-0.96 - 6.4	0.6/31.7	35425	(8555)	1999 08 02.0	20 47.34 -06 51.5 17.4	-0.94 - 4.1	4.6/04.6	31508
1994 PP ₃₉	1999 08 01.0	20 43.28 -22 39.7 17.7	-0.89 - 0.9	1.4/31.2	35691	1999 NK ₃₇	1999 08 02.1	20 47.34 -19 55.0 16.5	-1.01 - 3.0	0.8/01.7	35665
1998 HN ₆₈	1999 08 01.0	20 43.47 -15 03.2 17.7	-0.79 - 2.2	1.1/01.8	35439	1987 BA ₂	1999 08 02.1	20 47.54 -03 05.2 17.0	-0.82 - 1.3	4.5/05.3	35679
1998 FO ₁₀₄	1999 08 01.0	20 43.48 +00 53.8 18.0	-0.92 - 3.5	6.5/05.5	35327	1999 NH ₃₇	1999 08 02.2	20 47.73 -18 55.6 17.4	-0.90 - 0.7	0.3/02.0	35740
1990 TL ₇	1999 08 01.1	20 43.46 -16 21.1 18.6	-0.83 - 3.2	0.6/01.5	35061	(11430)	1999 08 02.2	20 47.75 -21 32.6 16.7	-1.00 - 6.3	1.7/01.3	35598
(11129)	1999 08 01.1	20 43.59 +05 12.1 16.6	-0.89 - 1.6	8.9/06.4	35245	1998 FY ₆₆	1999 08 02.2	20 47.96 -08 57.2 17.2	-0.88 - 6.5	3.6/04.5	35706
(11129)	1999 08 01.1	20 43.59 +05 12.1 16.6	-0.89 - 1.6	8.9/06.4	35245	1998 BJ ₂₆	1999 08 02.3	20 48.11 -20 32.0 19.4	-1.01 - 3.7	1.0/01.7	32314
1998 HJ ₈₀	1999 08 01.2	20 43.85 -26 31.6 18.2	-0.84 - 2.5	2.7/30.3	35439	(9023)	1999 08 02.3	20 48.19 -02 59.7 17.2	-0.49 - 4.5	2.9/06.5	32179
1993 TY ₂₄	1999 08 01.2	20 43.88 -13 38.7 18.9	-1.02 - 5.1	2.1/02.2	35689	1998 KD ₄₆	1999 08 02.3	20 48.26 -22 20.9 17.9	-0.66 - 3.9	1.1/01.2	35337
1996 VX ₃₀	1999 08 01.2	20 43.98 -33 06.8 19.4	-1.04 - 3.7	4.8/28.8	32311	(8826)	1999 08 02.3	20 48.35 -18 37.4 16.2	-0.80 - 3.1	0.3/02.2	35675
1998 FJ ₁	1999 08 01.2	20 44.02 -07 42.7 19.1	-1.00 - 3.0	4.2/03.4	35320	1981 EH ₈	1999 08 02.3	20 48.39 -20 54.5 18.3	-1.13 - 1.2	1.2/01.8	34823
1997 BM ₃	1999 08 01.2	20 44.02 -24 31.6 17.6	-0.94 - 2.0	2.0/30.9	35431	1998 HB ₁₁₅	1999 08 02.3	20 48.48 -13 26.9 16.8	-0.85 - 8.1	1.5/03.6	35440
1996 YQ ₁	1999 08 01.2	20 44.06 -19 27.0 16.9	-0.95 - 6.6	0.5/31.9	29633	1981 EU ₄₂	1999 08 02.4	20 48.58 -16 33.7 17.6	-0.81 - 3.3	0.5/02.7	35416
1991 GP ₆	1999 08 01.2	20 44.28 -14 45.4 18.3	-0.97 - 4.4	1.4/02.0	35420	1994 LJ ₁	1999 08 02.4	20 48.74 -31 07.6 17.1	-0.96 - 5.5	4.3/30.1	35426
1998 FO ₁₁	1999 08 01.2	20 44.29 -01 52.8 17.6	-0.82 - 6.4	5.8/05.6	35706	1998 FH ₁₁₈	1999 08 02.4	20 48.90 -24 03.1 16.9	-1.07 - 1.8	2.6/01.2	35438
1998 HF ₂₂	1999 08 01.2	20 44.31 -19 12.1 18.7	-0.95 - 3.6	0.4/01.1	34916	1998 FP ₁₂₅	1999 08 02.5	20 48.91 +03 31.3 17.6	-0.82 - 4.1	8.3/08.1	35439
1998 FF ₄₉	1999 08 01.3	20 44.42 -19 17.6 19.7	-1.02 - 3.3	0.4/01.1	34019	(9194)	1999 08 02.5	20 48.92 -18 03.9 17.2	-0.96 - 8.2	0.1/02.4	35675
1992 KC	1999 08 01.3	20 44.55 -12 14.0 16.7	-0.97 - 5.7	2.7/02.8	35288	1998 FE ₁₁₈	1999 08 02.5	20 49.09 -03 05.1 17.0	-0.83 - 3.2	5.0/06.0	35707
6680 P-L	1999 08 01.3	20 44.55 -09 06.0 19.0	-0.94 - 5.3	3.6/03.5	32730	1998 KA	1999 08 02.5	20 49.28 -12 38.2 18.8	-0.77 - 2.9	1.5/03.8	35336
1981 EO ₁₄	1999 08 01.3	20 44.69 -32 55.1 17.1	-1.19 + 3.9	6.7/30.4	31780	1998 FQ ₆₉	1999 08 02.5	20 49.28 +01 42.3 16.1	-0.76 - 7.4	9.5/08.2	35706
1998 DQ ₄	1999 08 01.3	20 44.70 -10 42.4 17.9	-0.91 - 7.2	3.1/03.3	35435	1988 RB ₁₁	1999 08 02.5	20 49.34 -16 59.1 18.0	-0.80 - 3.4	0.2/02.8	35417
1989 SM ₄	1999 08 01.4	20 44.72 -19 26.6 17.2	-0.81 - 4.0	0.5/01.1	35418	1998 HY ₁₂₄	1999 08 02.6	20 49.39 -44 47.6 17.6	-0.96 - 6.4	8.3/25.5	32272
1991 AW ₂	1999 08 01.4	20 44.91 -17 28.9 18.1	-0.75 - 6.1	0.2/01.6	35283	1998 FA ₅₆	1999 08 02.6	20 49.43 -01 46.2 17.5	-0.82 - 8.0	5.9/07.2	35437
1998 FO ₆₆	1999 08 01.4	20 45.03 -16 09.8 17.6	-1.02 - 4.6	0.8/01.9	35706	1996 XP ₅	1999 08 02.6	20 49.50 -23 47.4 17.0	-1.01 - 4.4	2.9/01.2	35301
1998 DM ₁₃	1999 08 01.5	20 45.30 +04 39.3 17.0	-0.87 - 1.3	9.3/06.6	35316	1998 FX ₉₈	1999 08 02.6	20 49.50 -10 53.2 17.6	-1.02 - 1.9	2.7/04.0	35707
(8687)	1999 08 01.5	20 45.33 -13 29.3 17.5	-0.97 - 4.2	2.0/02.6	35413	1999 PZ	1999 08 02.6	20 49.63 -09 58.8 15.2	-0.69 - 9.7	4.1/05.0	35741
(8541)	1999 08 01.5	20 45.36 -18 28.2 17.2	-1.03 - 5.7	0.2/01.5	35413	(8955)	1999 08 02.7	20 49.76 -23 12.2 17.7	-0.90 - 4.7	1.9/01.4	35413
1988 RS ₁₂	1999 08 01.5	20 45.42 -13 37.3 20.3	-0.51 - 1.9	0.8/02.7	22431	1979 QJ ₁	1999 08 02.7	20 49.80 -13 26.8 17.4	-0.98 - 7.6	1.7/03.8	35677

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1997 CQ ₁₁	1999 08 02.7	20 49.85 -18 36.7 17.8	-0.86 - 3.0	0.3/02.5	32313
1996 TN ₃₅	1999 08 02.7	20 49.92 -21 32.6 18.8	-1.00 - 5.5	1.5/01.8	35697
1996 XB ₂	1999 08 02.7	20 49.95 +16 39.8 17.0	-1.16 + 5.6	14.0/06.4	35697
1992 SV ₁₁	1999 08 02.7	20 49.99 -28 03.9 17.4	-1.05 - 1.2	4.9/31.7	32227
1999 NC ₇	1999 08 02.7	20 50.13 -11 47.1 17.8	-1.12 + 1.2	2.4/03.8	35398
1998 EU ₈	1999 08 02.8	20 50.14 -18 27.9 19.7	-1.00 - 3.6	0.3/02.7	35705
1992 OJ ₈	1999 08 02.8	20 50.27 -15 21.8 15.7	-1.05 + 1.2	1.2/03.2	35422
1992 ST ₂	1999 08 02.8	20 50.49 +20 18.3 17.5	-0.85 - 6.0	15.3/15.0	35686
1989 CS ₁	1999 08 02.8	20 50.51 -29 05.2 17.4	-1.06 - 0.3	3.8/31.7	35680
(11127)	1999 08 02.9	20 50.45 -25 24.9 16.4	-1.06 - 6.9	3.5/31.9	35244
(11127)	1999 08 02.9	20 50.45 -25 24.9 16.4	-1.06 - 6.9	3.5/31.9	35244
1981 DK ₂	1999 08 02.9	20 50.63 -18 19.0 19.4	-0.97 - 2.0	0.2/02.8	31579
1994 PN ₂₁	1999 08 02.9	20 50.73 -16 48.3 17.8	-0.79 - 3.7	0.3/03.2	35426
2069 P-L	1999 08 02.9	20 50.76 -13 50.3 19.0	-0.91 - 3.2	1.4/03.8	23680
1998 HD ₉₉	1999 08 02.9	20 50.76 -20 04.7 18.1	-0.79 - 3.7	0.7/02.4	35440
1998 HM ₁₀₀	1999 08 02.9	20 50.84 -19 10.4 17.9	-0.84 - 4.3	0.5/02.6	35708
1991 TX ₂	1999 08 02.9	20 50.86 -14 31.5 18.3	-0.90 - 3.2	1.1/03.7	35421
1996 SU ₄	1999 08 02.9	20 50.87 -28 36.1 18.3	-1.08 - 2.9	4.2/31.6	35429
(11169)	1999 08 03.0	20 50.91 -10 53.5 16.2	-0.82 - 4.8	3.3/04.7	35255
(11169)	1999 08 03.0	20 50.91 -10 53.5 16.2	-0.82 - 4.8	3.3/04.7	35255
(8661)	1999 08 03.0	20 50.92 -33 50.1 17.2	-0.92 - 2.9	5.0/30.2	31678
1998 HR ₁₁₅	1999 08 03.0	20 50.95 -12 58.7 16.4	-0.75 - 7.5	1.7/04.3	35708
1997 AR ₈	1999 08 03.0	20 51.11 -13 53.2 17.8	-1.04 + 2.6	1.7/03.6	35302
1991 GY ₇	1999 08 03.0	20 51.17 -18 12.4 17.4	-0.98 - 2.8	0.3/03.0	35284
1979 OV ₄	1999 08 03.0	20 51.28 -17 48.6 17.5	-0.84 - 3.1	0.1/03.1	27553
1998 FO ₇₀	1999 08 03.0	20 51.29 -14 02.9 17.9	-0.97 - 5.3	1.4/04.0	35438
1999 NR ₃₆	1999 08 03.1	20 51.39 -28 11.7 16.5	-0.99 - 8.2	4.6/31.2	35400
1981 EL ₃₅	1999 08 03.1	20 51.42 -02 00.9 19.2	-0.77 - 2.2	5.1/06.8	26921
1981 ET ₂₀	1999 08 03.1	20 51.53 -28 39.1 18.8	-1.04 - 1.4	3.9/32.0	32043
1991 FD	1999 08 03.1	20 51.58 +06 00.9 17.4	-0.89 -10.4	8.1/10.7	35420
1998 FT ₁₀₂	1999 08 03.1	20 51.58 +06 23.1 18.3	-0.83 - 4.2	8.7/09.7	32071
1981 EW ₆	1999 08 03.1	20 51.61 -12 17.1 20.1	-1.05 - 2.2	2.1/04.3	26916
1998 FE ₁₁₄	1999 08 03.2	20 51.61 -15 13.2 17.6	-1.08 - 1.8	1.0/03.7	35329
(10258)	1999 08 03.2	20 51.83 -18 05.6 16.4	-0.75 - 6.6	0.1/03.1	34126
(11018)	1999 08 03.2	20 51.84 -19 20.2 17.9	-1.04 - 2.0	0.6/02.9	35216
(11018)	1999 08 03.2	20 51.84 -19 20.2 17.9	-1.04 - 2.0	0.6/02.9	35216
(8526)	1999 08 03.2	20 51.87 -13 29.0 15.7	-0.84 - 7.9	1.9/04.4	35413
1998 FO ₄₉	1999 08 03.2	20 51.95 -28 56.9 16.9	-1.16 - 1.2	5.0/01.0	35437
1998 FO ₈	1999 08 03.3	20 52.22 -41 51.8 17.0	-1.06 - 0.2	7.9/29.4	32316
1999 NJ ₅₀	1999 08 03.3	20 52.37 -10 44.1 17.3	-1.02 + 3.2	3.0/04.4	35666
1988 RG ₁₀	1999 08 03.4	20 52.38 -20 01.9 17.6	-0.55 - 1.8	0.5/02.8	35680
1992 WT ₃	1999 08 03.4	20 52.61 -24 54.3 18.1	-1.01 - 6.3	2.7/01.6	35423
(9127)	1999 08 03.4	20 52.71 -20 40.8 17.4	-0.79 - 3.9	1.1/02.7	35675
1997 AM ₂₂	1999 08 03.4	20 52.79 -17 26.8 17.6	-0.99 - 5.3	0.0/03.5	35431
1998 FE ₁₁₇	1999 08 03.4	20 52.85 -19 03.6 17.4	-1.07 - 2.3	0.6/03.2	35438
1995 WH ₁₇	1999 08 03.5	20 52.95 -34 51.9 16.9	-0.98 - 7.2	7.2/29.3	35607
(11160)	1999 08 03.5	20 53.00 -15 23.1 16.4	-1.00 - 4.7	1.0/04.0	35252
1989 BZ	1999 08 03.5	20 53.00 -24 52.0 16.5	-1.07 + 0.4	2.7/02.2	35418
(11160)	1999 08 03.5	20 53.00 -15 23.1 16.4	-1.00 - 4.7	1.0/04.0	35252
1993 KB ₂	1999 08 03.5	20 53.03 +02 51.4 16.0	-0.70 - 8.0	7.1/10.0	35688
1998 FU ₆₀	1999 08 03.5	20 53.08 -12 48.7 19.0	-0.86 - 4.4	1.5/04.7	32321

1978 VS ₃	1999 08 03.5	20 53.14 -09 05.6 20.6	-0.98 - 3.4	3.1/05.4	33218
1995 GN	1999 08 03.5	20 53.16 -23 28.8 17.2	-0.98 - 5.5	3.0/02.1	35693
1998 BX ₂₄	1999 08 03.5	20 53.17 -14 38.0 18.5	-0.91 - 5.7	1.0/04.3	32314
1994 CP ₁₈	1999 08 03.6	20 53.34 -25 40.1 17.7	-0.98 - 3.9	3.5/01.7	31725
(11023)	1999 08 03.6	20 53.46 -19 19.4 15.3	-0.89 - 7.6	0.9/03.2	35217
(11023)	1999 08 03.6	20 53.46 -19 19.4 15.3	-0.89 - 7.6	0.9/03.2	35217
(8737)	1999 08 03.6	20 53.55 -29 46.8 16.0	-0.95 0.0	4.3/01.3	31696
1981 EZ ₃₁	1999 08 03.7	20 53.55 -10 36.3 20.9	-0.80 - 1.8	1.9/05.2	26921
1998 FP ₉₈	1999 08 03.7	20 53.58 -08 35.5 19.3	-0.88 - 2.8	2.8/05.8	31814
1995 WM ₇	1999 08 03.7	20 53.85 -30 04.7 18.0	-0.87 - 5.3	4.3/31.4	35427
(8777)	1999 08 03.8	20 53.96 -15 10.5 17.6	-0.83 - 6.6	0.8/04.4	35413
1996 SC ₁	1999 08 03.8	20 54.06 -14 19.5 17.7	-0.97 - 5.1	1.5/05.0	35299
1993 FH ₁₉	1999 08 03.8	20 54.07 -23 13.8 18.5	-0.88 - 5.2	1.9/02.4	32306
1998 DD ₁₁	1999 08 03.8	20 54.10 -13 40.0 18.1	-0.84 - 7.5	1.4/05.0	35705
1999 ND ₃₉	1999 08 03.8	20 54.16 -19 56.5 17.2	-1.01 - 6.7	1.0/03.2	35740
1987 BW ₁	1999 08 03.8	20 54.17 -11 04.3 18.7	-1.00 - 3.5	2.4/05.2	35417
(11178)	1999 08 03.9	20 54.31 +02 42.5 17.2	-0.78 - 4.9	7.8/09.5	35257
(11178)	1999 08 03.9	20 54.31 +02 42.5 17.2	-0.78 - 4.9	7.8/09.5	35257
1999 NV ₃₇	1999 08 03.9	20 54.33 -22 57.5 17.0	-0.88 - 9.5	2.6/02.3	35740
1998 BV ₁₈	1999 08 03.9	20 54.34 -22 03.2 19.4	-0.85 - 3.8	1.4/02.8	35704
1981 EX ₃₅	1999 08 03.9	20 54.40 -05 16.0 19.5	-0.98 - 2.8	5.4/06.6	26921
1981 EC ₄	1999 08 03.9	20 54.53 -00 36.6 18.8	-0.88 - 2.7	6.0/07.8	26915
4071 P-L	1999 08 03.9	20 54.68 -07 25.0 17.1	-0.89 - 5.1	4.6/06.5	35742
1991 RP ₂₃	1999 08 03.9	20 54.74 -41 16.5 16.8	-1.22 + 0.9	9.7/30.4	32303
(8711)	1999 08 04.0	20 54.79 -04 48.9 17.5	-0.81 -11.9	4.1/08.1	31690
(11131)	1999 08 04.0	20 54.91 -10 58.4 15.7	-1.00 - 2.6	3.1/05.0	35245
(11131)	1999 08 04.0	20 54.91 -10 58.4 15.7	-1.00 - 2.6	3.1/05.0	35245
(8749)	1999 08 04.0	20 54.97 -19 58.2 17.5	-1.10 - 3.2	1.0/03.5	35413
1982 UQ ₁₀	1999 08 04.0	20 55.09 -22 22.5 18.3	-0.94 - 3.5	1.6/02.9	31415
(11363)	1999 08 04.0	20 55.10 -28 54.3 16.0	-1.09 - 4.6	5.7/01.3	35581
1993 FE ₂₆	1999 08 04.0	20 55.11 -06 03.0 19.4	-0.83 - 4.0	3.6/06.8	32306
1999 PN ₃	1999 08 04.1	20 55.07 -02 00.5 15.9	-0.93 + 2.0	8.1/06.9	35742
1998 FV ₆₃	1999 08 04.1	20 55.20 -28 07.9 16.5	-1.10 - 4.8	4.9/01.5	35706
1998 FC ₃₄	1999 08 04.1	20 55.43 -10 43.3 18.7	-0.95 - 4.8	2.3/05.8	35437
1998 FO ₃₄	1999 08 04.3	20 55.98 -31 50.8 17.8	-1.22 - 0.1	5.6/01.6	35322
(8945)	1999 08 04.3	20 56.28 -22 01.0 17.8	-0.88 - 0.8	1.4/03.4	35413
(8940)	1999 08 04.4	20 56.24 -19 40.2 16.5	-0.83 - 4.3	0.8/03.8	35413
1994 EB	1999 08 04.4	20 56.32 -10 13.8 17.8	-0.90 - 5.7	2.6/06.2	35690
1993 FF ₂₁	1999 08 04.4	20 56.34 -20 44.7 17.9	-0.89 - 2.9	1.2/03.6	35423
1991 RV ₂	1999 08 04.4	20 56.41 -12 25.0 16.3	-0.85 - 0.9	2.4/05.5	35683
1996 XO ₁₉	1999 08 04.4	20 56.54 -17 24.2 17.7	-0.90 - 5.2	0.0/04.4	32246
1998 DY ₉	1999 08 04.4	20 56.59 -16 27.4 16.7	-1.11 - 2.9	0.4/04.6	35705
1981 EQ ₁₁	1999 08 04.4	20 56.70 -10 20.6 18.0	-1.00 - 1.9	3.3/05.9	26917
1998 FK ₁₁₆	1999 08 04.5	20 56.62 -04 56.0 19.0	-0.84 - 4.0	4.2/07.6	32324
1998 BA ₇	1999 08 04.5	20 56.67 -20 30.1 17.8	-0.98 - 5.1	1.3/03.7	35311
1998 HE ₁	1999 08 04.5	20 56.78 -28 18.0 17.2	-0.87 - 1.8	3.8/02.1	35439
(8799)	1999 08 04.5	20 57.01 -12 07.6 17.8	-0.89 - 5.0	1.9/05.8	31899
1997 YR ₁₁	1999 08 04.6	20 57.37 -28 21.9 17.2	-1.16 - 2.3	5.0/02.3	35704
1981 EP ₁₈	1999 08 04.7	20 57.41 -06 50.3 18.8	-0.74 - 4.7	3.2/07.5	35677
1994 JQ ₆	1999 08 04.7	20 57.48 -14 05.2 18.6	-0.85 - 4.3	1.3/05.5	23679
1998 FO ₆₉	1999 08 04.7	20 57.53 -14 17.5 18.6	-0.94 - 5.0	1.0/05.4	32323

1995 UP ₂	1999 08 04.7	20 57.57	-32 54.3	17.9	-0.93	- 2.3	4.8/01.0	35427
1999 NG ₅	1999 08 04.7	20 57.66	-19 08.3	16.3	-0.76	-10.4	0.8/04.2	35397
1993 TA ₁₅	1999 08 04.7	20 57.68	-26 08.2	18.5	-1.14	- 3.9	3.6/02.7	32307
1981 EV ₁₅	1999 08 04.8	20 58.02	-27 48.9	18.6	-1.06	- 0.5	3.9/02.8	35415
(8829)	1999 08 04.8	20 58.16	-15 57.9	18.0	-0.75	- 3.8	0.3/05.2	31906
1992 DK ₆	1999 08 04.9	20 58.35	-21 44.4	17.5	-0.86	- 3.8	1.6/03.8	35684
1998 ED ₃	1999 08 04.9	20 58.44	-22 38.2	18.0	-0.95	- 6.1	2.0/03.5	35705
1998 BK ₁	1999 08 04.9	20 58.47	-20 35.0	17.6	-1.00	- 5.1	1.3/04.1	31427
1999 NJ ₇	1999 08 05.0	20 58.72	-17 30.4	17.0	-0.89	- 6.0	0.1/04.9	35659
1997 EL ₆	1999 08 05.0	20 58.74	-22 22.8	17.5	-0.81	- 2.7	1.6/03.8	35699
1999 NL ₇	1999 08 05.0	20 58.81	-16 47.7	17.9	-0.95	- 5.8	0.1/05.1	35660
1996 WA ₃	1999 08 05.0	20 58.84	-33 50.4	17.3	-1.13	- 5.6	8.1/31.4	35301
5415 T-2	1999 08 05.1	20 59.17	-13 43.4	18.2	-1.11	- 1.7	1.4/05.8	35743
(11118)	1999 08 05.2	20 59.53	-21 43.3	17.2	-1.05	- 3.2	1.9/04.2	35242
(11118)	1999 08 05.2	20 59.53	-21 43.3	17.2	-1.05	- 3.2	1.9/04.2	35242
1999 NT	1999 08 05.2	20 59.55	-13 52.7	15.1	-1.04	+ 3.0	1.6/05.7	35739
1991 CR ₁	1999 08 05.2	20 59.59	-21 15.7	17.3	-0.77	- 5.1	1.3/04.1	35420
(11345)	1999 08 05.2	20 59.60	-21 48.1	16.5	-0.98	- 5.8	2.1/04.1	35577
1999 OF	1999 08 05.2	20 59.60	-16 04.7	18.2	-1.01	- 3.5	0.4/05.5	35667
1994 AV ₁	1999 08 05.3	20 59.69	-15 14.5	17.9	-1.01	- 2.4	0.6/05.7	35425
1987 BB ₂	1999 08 05.3	20 59.75	-13 45.4	18.3	-1.01	- 4.1	1.2/06.1	31782
1981 EL ₁₇	1999 08 05.3	20 59.82	+03 05.2	18.6	-0.81	- 6.4	7.4/11.2	32298
1998 FU ₁₀₈	1999 08 05.3	20 59.83	-18 15.7	16.4	-1.08	- 0.7	0.6/05.1	35328
1997 AM ₂₁	1999 08 05.3	21 00.13	-21 50.7	17.7	-0.85	- 6.3	1.5/04.1	35698
(8705)	1999 08 05.4	21 00.44	-07 52.7	17.2	-0.93	- 5.6	3.6/07.8	31688
1990 QR ₁	1999 08 05.5	21 00.61	-17 06.5	16.9	-0.85	- 4.1	0.0/05.5	35419
1993 FS ₂₉	1999 08 05.5	21 00.89	-14 29.7	17.7	-0.87	- 2.4	0.9/06.2	35424
1998 FM ₃₄	1999 08 05.5	21 00.89	-07 47.2	17.8	-0.92	- 5.0	3.5/07.9	32064
(8947)	1999 08 05.6	21 00.87	-21 19.3	16.7	-0.86	- 7.6	1.7/04.4	35413
(11168)	1999 08 05.6	21 00.94	-19 57.8	18.2	-1.00	- 3.5	1.1/04.9	35255
(11168)	1999 08 05.6	21 00.94	-19 57.8	18.2	-1.00	- 3.5	1.1/04.9	35255
3176 T-2	1999 08 05.6	21 01.17	-23 52.0	18.5	-1.02	- 3.5	2.6/04.1	35480
(11359)	1999 08 05.6	21 01.25	-14 53.1	16.9	-1.11	+ 1.3	0.9/06.0	35580
1998 BK ₈	1999 08 05.7	21 01.56	-21 40.0	18.0	-1.03	- 5.3	1.9/04.6	35704
9567 P-L	1999 08 05.8	21 01.64	-31 29.4	17.8	-0.88	- 2.4	4.6/02.3	35743
(8814)	1999 08 05.8	21 01.69	-09 22.3	16.3	-0.76	- 3.6	2.6/07.7	31902
1998 DD	1999 08 05.8	21 01.76	-28 15.0	18.4	-1.07	- 4.5	3.9/03.1	31739
1998 HV ₉₃	1999 08 05.8	21 01.80	-18 59.6	17.7	-0.83	- 2.5	0.7/05.4	35439
(8589)	1999 08 05.8	21 01.85	-19 50.8	17.2	-1.09	- 2.8	1.3/05.2	31517
1998 BS ₃₃	1999 08 05.8	21 01.92	-19 50.5	17.8	-0.94	- 6.2	1.1/05.1	35435
1998 FA ₅	1999 08 05.8	21 01.94	-32 25.1	19.4	-1.10	- 1.4	5.4/02.6	35705
1998 FB ₁₁₆	1999 08 05.8	21 01.97	+06 42.2	16.7	-0.88	0.0	10.3/10.9	35329
1998 HW ₆	1999 08 05.9	21 02.35	-36 25.2	17.1	-0.95	- 5.4	6.6/31.5	32326
1996 XW ₂	1999 08 06.0	21 02.77	-33 56.5	18.5	-0.97	- 5.2	5.4/01.5	35430
3135 T-3	1999 08 06.0	21 02.79	-12 29.1	17.8	-0.84	- 4.3	1.5/07.2	32344
1997 GV ₁₈	1999 08 06.0	21 02.83	-11 05.0	18.4	-0.74	- 3.4	1.6/07.5	30788
1981 EV ₂₉	1999 08 06.1	21 03.01	+04 31.4	18.8	-0.82	- 5.1	8.2/12.3	35415
1999 NW ₇	1999 08 06.1	21 03.05	-10 50.0	17.8	-1.00	+ 0.5	2.7/07.3	35398
1978 VM ₈	1999 08 06.1	21 03.05	-06 58.4	19.1	-0.95	- 3.8	3.5/08.5	31944
1990 AE	1999 08 06.1	21 03.12	-23 11.9	17.9	-1.06	- 5.8	2.4/04.6	35681
1996 VZ ₈	1999 08 06.2	21 03.24	-16 02.5	16.7	-0.95	- 5.6	0.4/06.4	35697

1998 FK ₄₉	1999 08 06.2	21 03.48	-13 29.2	18.2	-0.89	- 4.3	1.2/07.1	35437
1998 FG ₄₀	1999 08 06.3	21 03.68	-18 10.3	18.3	-0.98	- 3.9	0.5/06.0	35706
1998 FO ₅	1999 08 06.3	21 03.93	-16 41.0	17.8	-0.88	- 5.7	0.0/06.4	35705
1999 ND ₄	1999 08 06.3	21 04.00	-17 12.9	17.4	-0.96	- 4.1	0.2/06.3	35658
1988 SJ ₃	1999 08 06.4	21 03.93	-34 51.5	19.5	-0.58	- 3.6	3.3/01.1	30469
1998 HN ₉₈	1999 08 06.4	21 04.03	-25 19.0	18.3	-0.95	- 3.5	2.8/04.4	35440
(8287)	1999 08 06.4	21 04.08	-19 06.1	16.1	-1.02	- 5.8	1.1/05.8	35412
1992 RL ₇	1999 08 06.4	21 04.15	-18 31.5	18.0	-1.00	- 5.5	0.7/06.0	35422
(8298)	1999 08 06.4	21 04.23	-22 00.9	17.6	-1.12	- 3.3	2.1/05.3	31218
(8508)	1999 08 06.5	21 04.49	-12 40.2	17.1	-1.03	- 3.3	1.5/07.5	31498
(8838)	1999 08 06.5	21 04.54	-00 49.2	16.7	-0.72	- 4.0	4.8/10.8	31908
1998 BN ₂₅	1999 08 06.5	21 04.62	-17 00.5	16.2	-1.05	- 3.8	0.1/06.5	35704
(11317)	1999 08 06.5	21 04.65	-17 34.8	16.8	-0.79	- 3.1	0.3/06.4	35570
1998 HD ₈₅	1999 08 06.5	21 04.71	-10 37.3	18.5	-0.75	- 4.2	2.0/08.2	32754
1991 FS	1999 08 06.5	21 04.78	-24 38.6	18.3	-1.06	- 4.0	2.8/04.7	35420
1981 EJ ₂₁	1999 08 06.6	21 04.77	-10 01.3	20.0	-0.60	- 3.9	1.5/08.5	26919
1998 HZ ₁₁₇	1999 08 06.6	21 05.13	-13 02.7	18.1	-0.87	- 6.1	1.2/07.7	35335
1981 EL ₃₁	1999 08 06.7	21 05.15	-10 58.1	18.4	-0.96	- 6.7	2.3/08.2	26921
1989 DK	1999 08 06.7	21 05.20	-11 13.0	16.9	-0.98	- 0.5	1.9/07.8	35680
1999 KG ₄	1999 08 06.8	21 05.58	-12 46.9	15.1	-0.67	-11.6	2.0/08.1	35737
1978 VH ₄	1999 08 06.8	21 05.66	-14 00.8	18.5	-0.97	- 4.2	0.9/07.5	32298
1981 EA ₆	1999 08 06.8	21 05.69	-08 25.8	18.6	-0.79	- 2.3	2.7/08.8	32209
1996 TQ ₅₄	1999 08 06.8	21 05.69	-13 14.3	17.9	-0.98	- 4.7	1.5/07.7	32751
1988 RD ₁₂	1999 08 06.9	21 05.86	-18 58.2	18.6	-0.54	- 1.9	0.5/06.3	35680
1998 HG ₅₁	1999 08 06.9	21 06.01	+01 56.6	17.5	-0.87	- 4.1	6.8/11.7	35439
1993 ST ₅	1999 08 06.9	21 06.28	-13 22.2	16.4	-0.93	- 5.0	1.7/07.8	35603
1998 BH ₃₆	1999 08 06.9	21 06.28	-31 08.6	17.6	-1.07	- 6.2	6.4/03.2	35313
1989 GM ₂	1999 08 07.0	21 06.22	-07 18.7	18.7	-0.84	- 4.0	2.9/09.4	35680
1995 YE ₅	1999 08 07.0	21 06.25	-20 12.2	18.5	-0.82	- 4.4	1.3/06.1	31972
1999 KM ₁₅	1999 08 07.0	21 06.29	+01 35.8	16.7	-0.90	- 1.9	7.2/11.4	35385
1981 EW ₃₉	1999 08 07.0	21 06.34	-28 53.1	19.6	-0.92	- 0.9	4.1/04.3	21967
1998 KQ ₅₁	1999 08 07.0	21 06.39	-08 23.1	17.9	-0.75	- 6.0	2.5/09.3	32335
1998 CO	1999 08 07.1	21 06.82	-13 36.6	18.5	-0.97	- 7.8	1.2/08.0	35704
1995 ST ₅₄	1999 08 07.1	21 06.84	-15 16.5	18.0	-0.97	- 0.9	0.4/07.4	35296
1997 CA ₂₀	1999 08 07.1	21 06.85	-13 47.3	17.7	-0.73	- 5.7	0.8/07.9	35431
(8794)	1999 08 07.1	21 06.87	-07 47.2	16.1	-0.98	+ 0.4	4.6/08.8	31898
1981 ET ₁₁	1999 08 07.1	21 06.97	-23 43.1	21.1	-1.06	- 1.4	2.4/05.7	26917
1999 NO ₃₉	1999 08 07.2	21 07.11	-20 01.9	16.3	-1.03	+ 1.2	1.6/06.6	35401
1996 VM ₁	1999 08 07.2	21 07.13	-28 05.5	17.1	-1.02	- 4.4	4.2/04.3	35429
1997 CC ₂₉	1999 08 07.2	21 07.26	-16 40.0	18.5	-0.76	- 3.3	0.0/07.2	35698
1978 VE ₇	1999 08 07.2	21 07.36	-15 22.4	16.0	-0.86	- 4.3	0.6/07.6	35677
1991 VU ₄	1999 08 07.2	21 07.44	-17 06.5	16.4	-0.88	- 6.1	0.3/07.1	35421
1981 EC ₃₅	1999 08 07.3	21 07.49	-11 42.0	18.2	-0.86	- 8.3	2.3/08.7	26921
1999 NU ₇	1999 08 07.3	21 07.49	-11 59.3	17.3	-0.78	- 3.5	1.7/08.5	35398
1992 QS ₁	1999 08 07.3	21 07.62	-29 38.7	16.0	-1.02	- 7.0	5.5/03.6	35422
1998 FE ₄₇	1999 08 07.3	21 07.81	-23 16.3	18.8	-1.08	- 2.2	2.6/05.9	32064
1998 HH ₂₇	1999 08 07.4	21 07.91	-17 47.9	17.8	-0.85	- 5.3	0.5/07.1	35707
1997 AW ₂	1999 08 07.4	21 07.98	-23 11.3	18.4	-0.82	- 3.2	1.9/05.8	32312
2187 T-2	1999 08 07.4	21 08.10	-18 02.7	18.6	-0.98	- 3.6	0.5/07.1	32344
1988 RR ₁₀	1999 08 07.5	21 08.28	-05 41.3	18.8	-0.49	- 4.1	2.1/10.7	35417
1995 UZ	1999 08 07.5	21 08.39	-22 36.2	18.3	-0.90	- 3.7	2.3/06.0	35693

1996 TC ₁₆	1999 08 07.6	21 08.51	-09 05.9	19.4	-1.03	- 3.2	3.0/09.3	28309
1991 GU ₃	1999 08 07.6	21 08.80	-04 35.2	16.6	-0.87	- 6.0	5.3/10.9	35683
(8832)	1999 08 07.6	21 08.86	-05 57.8	17.9	-0.85	- 5.6	3.5/10.5	31907
1999 NJ ₄₀	1999 08 07.7	21 08.89	-18 43.3	18.0	-0.87	- 6.3	1.0/07.1	35740
1988 RN ₁₀	1999 08 07.7	21 09.07	-09 47.3	19.3	-0.49	- 4.0	1.2/09.7	30288
(11348)	1999 08 07.7	21 09.10	-16 42.8	17.4	-0.85	- 3.4	0.1/07.7	35577
1996 XG ₉	1999 08 07.8	21 09.31	-30 54.0	17.0	-0.95	- 4.1	5.2/04.1	35430
1981 EB ₄	1999 08 07.8	21 09.39	-14 23.8	19.8	-0.83	- 1.4	0.6/08.3	30779
(8892)	1999 08 07.8	21 09.39	-18 09.0	16.7	-0.82	- 3.7	0.6/07.4	31921
1222 T-3	1999 08 07.8	21 09.45	-18 45.7	17.6	-0.84	- 1.9	0.8/07.3	35404
1991 FC ₄	1999 08 07.8	21 09.57	-12 51.2	18.4	-0.99	- 4.1	1.3/08.7	35683
1998 FD ₁₁₄	1999 08 07.8	21 09.58	-09 10.3	17.1	-1.04	- 2.0	3.0/09.4	35622
1997 XD ₉	1999 08 07.9	21 09.70	-13 55.4	18.5	-0.82	- 6.4	0.7/08.6	35433
1996 XJ ₃₁	1999 08 07.9	21 09.96	-23 33.9	17.5	-0.86	- 6.4	2.4/05.9	35430
(8648)	1999 08 07.9	21 09.97	-09 48.3	16.6	-1.03	- 4.9	2.8/09.5	31675
(11014)	1999 08 07.9	21 10.01	-04 28.1	16.1	-0.88	- 2.6	4.7/10.8	35215
(11014)	1999 08 07.9	21 10.01	-04 28.1	16.1	-0.88	- 2.6	4.7/10.8	35215
1998 EK ₈	1999 08 08.0	21 10.04	-09 34.0	17.0	-1.00	- 2.3	2.8/09.5	35705
1998 HO ₁₁₆	1999 08 08.0	21 10.10	+00 02.2	18.1	-0.83	- 6.5	5.6/12.7	35335
1999 NN ₈	1999 08 08.0	21 10.29	-11 01.5	17.7	-1.02	- 2.9	2.3/09.3	35398
6079 P-L	1999 08 08.0	21 10.35	-40 15.2	17.9	-1.02	- 0.4	6.3/02.3	30285
1998 HX ₈₈	1999 08 08.0	21 10.39	-18 56.3	17.2	-0.78	- 3.3	0.9/07.4	35708
1999 NE ₄₀	1999 08 08.0	21 10.50	-21 54.9	17.1	-0.92	- 6.7	2.8/06.5	35665
(11360)	1999 08 08.1	21 10.42	-20 38.0	18.4	-1.02	- 3.7	1.7/07.1	35580
1998 BQ ₂₆	1999 08 08.1	21 10.52	-26 54.1	17.5	-0.96	- 7.4	4.9/05.1	35313
1994 AB ₈	1999 08 08.1	21 10.73	-19 10.0	19.5	-0.99	- 4.1	1.1/07.5	35689
1167 T-2	1999 08 08.1	21 10.76	-14 05.6	18.8	-0.88	- 3.8	0.8/08.7	35480
1998 CA ₂	1999 08 08.1	21 10.81	-38 16.4	18.9	-1.05	- 4.6	7.0/02.2	32059
(8870)	1999 08 08.2	21 10.81	-19 37.1	16.1	-0.85	- 3.6	1.2/07.4	31916
1992 US	1999 08 08.2	21 11.06	-32 05.5	16.7	-1.13	- 4.6	6.8/04.0	35423
1998 CY	1999 08 08.2	21 11.19	-09 01.6	17.8	-0.95	- 3.9	2.9/10.1	35704
1996 XK ₂₉	1999 08 08.2	21 11.26	-31 24.5	17.3	-1.08	- 5.7	5.9/04.1	35430
(8579)	1999 08 08.3	21 11.27	-13 06.0	15.4	-0.84	- 4.7	1.5/09.1	35413
1981 EN ₂₄	1999 08 08.3	21 11.27	-13 25.6	18.0	-1.03	- 4.2	1.1/09.0	35415
1981 EW ₁₂	1999 08 08.3	21 11.37	-18 00.2	19.2	-1.09	- 1.1	0.8/08.0	26917
1994 PZ ₂₈	1999 08 08.3	21 11.39	-18 56.5	17.5	-0.79	- 5.4	1.0/07.6	35691
1999 NV ₇	1999 08 08.3	21 11.47	-18 25.9	16.8	-0.57	-18.4	0.9/07.5	35660
(8505)	1999 08 08.3	21 11.50	-13 52.2	17.8	-1.01	- 5.2	0.9/09.0	31497
(11109)	1999 08 08.3	21 11.51	-16 16.6	16.9	-0.85	- 3.3	0.0/08.4	35240
(11109)	1999 08 08.3	21 11.51	-16 16.6	16.9	-0.85	- 3.3	0.0/08.4	35240
1999 NT ₈	1999 08 08.4	21 11.87	-14 33.1	17.7	-1.02	- 5.1	0.7/08.9	35660
1998 DC ₃₅	1999 08 08.4	21 11.87	-13 12.9	17.6	-0.95	- 6.3	1.1/09.3	35317
1996 WG	1999 08 08.5	21 11.97	-06 43.1	18.3	-0.93	- 3.9	3.7/10.8	35697
1992 OP ₅	1999 08 08.5	21 12.08	-11 12.0	16.6	-0.90	- 6.0	2.3/10.0	35422
1994 PG ₂₇	1999 08 08.5	21 12.26	-16 17.6	17.7	-0.78	- 3.8	0.0/08.5	35691
1981 EF ₄₈	1999 08 08.5	21 12.31	-13 45.7	18.3	-0.64	- 2.9	0.6/09.2	35416
1995 FA ₇	1999 08 08.5	21 12.33	-15 30.5	17.1	-0.92	- 7.4	0.3/08.8	35693
(11426)	1999 08 08.5	21 12.34	+02 06.2	17.3	-0.73	- 6.0	6.2/13.8	35598
1998 FA ₆₁	1999 08 08.6	21 12.42	-38 16.3	17.1	-1.20	+ 1.3	9.2/04.0	32259
(8961)	1999 08 08.6	21 12.44	-17 49.7	18.4	-0.77	- 3.4	0.5/08.2	31937
1998 KW ₇	1999 08 08.6	21 12.50	-02 29.4	17.2	-0.75	- 3.6	4.1/12.3	35708

1999 OS ₃	1999 08 08.6	21 12.65	-26 08.7	16.8	-1.03	- 0.2	5.2/06.6	35741
1998 DE ₁₄	1999 08 08.6	21 12.70	-37 21.7	16.9	-0.97	- 1.1	8.2/03.3	32060
1998 FU ₁₀	1999 08 08.6	21 12.70	-26 53.8	17.1	-0.99	- 0.5	4.4/06.4	35436
1999 NX ₄₂	1999 08 08.6	21 12.73	-23 04.2	17.5	-1.09	- 0.4	3.1/07.3	35665
1999 OX	1999 08 08.7	21 12.79	-08 31.6	17.9	-0.87	- 2.0	2.4/10.5	35668
1999 OB	1999 08 08.7	21 12.90	-11 41.5	16.6	-0.89	- 7.0	2.1/10.0	35666
1998 HQ ₉₇	1999 08 08.7	21 13.06	-18 51.0	17.2	-0.85	- 3.3	1.0/08.1	35335
1998 FH ₆₀	1999 08 08.7	21 13.13	-10 54.7	16.8	-0.94	- 6.5	2.6/10.0	35437
1997 AH	1999 08 08.8	21 13.20	-23 39.5	16.9	-0.97	- 6.6	3.0/06.7	35431
2049 P-L	1999 08 08.8	21 13.24	-17 13.1	18.5	-1.03	- 3.0	0.4/08.6	32342
1981 DW ₁	1999 08 08.8	21 13.33	-07 57.3	19.9	-0.92	- 2.8	3.0/10.8	26914
(11253)	1999 08 08.9	21 13.49	-26 29.5	16.9	-1.08	- 3.5	5.2/06.3	35555
1995 UQ ₁₈	1999 08 08.9	21 13.54	+01 28.3	19.1	-0.79	- 5.9	6.3/14.1	32749
(8525)	1999 08 08.9	21 13.56	-20 03.9	17.9	-0.98	- 4.9	1.4/07.9	31502
1988 RL ₁₃	1999 08 08.9	21 13.68	-36 00.2	19.2	-0.61	- 2.6	3.9/03.2	30469
1992 PQ ₁	1999 08 08.9	21 13.71	-14 32.3	17.2	-1.01	- 0.6	0.7/09.3	35288
1997 YQ ₁₁	1999 08 08.9	21 13.72	-27 57.2	17.1	-1.00	- 6.9	5.5/05.7	31425
1995 SE ₄	1999 08 08.9	21 13.81	+02 14.4	16.7	-0.95	+ 0.7	7.2/12.7	35427
1994 PT ₁₃	1999 08 08.9	21 13.83	-08 42.4	17.3	-0.74	- 6.5	2.4/11.1	35426
1995 YT ₂₀	1999 08 08.9	21 13.85	-14 50.3	18.9	-0.82	- 4.9	0.4/09.3	35694
(8568)	1999 08 08.9	21 13.87	-17 56.4	17.1	-1.01	- 4.4	0.9/08.5	31512
1981 ES ₂₄	1999 08 09.0	21 13.99	-20 40.9	18.5	-1.12	- 1.7	1.9/08.0	35677
(11328)	1999 08 09.0	21 14.03	-21 26.2	16.6	-0.92	- 2.4	2.1/07.8	35572
1981 EL ₃₂	1999 08 09.0	21 14.21	-26 31.6	17.7	-1.11	+ 1.2	4.2/07.1	31781
1991 SO	1999 08 09.1	21 14.33	-30 07.4	17.9	-1.09	- 5.7	5.8/05.1	35421
1998 DP ₁₀	1999 08 09.1	21 14.43	-10 58.6	18.8	-1.01	- 5.2	2.1/10.4	31559
1999 OC	1999 08 09.1	21 14.59	-12 30.2	16.9	-0.78	- 9.8	1.4/10.3	35740
1994 RN ₂₈	1999 08 09.1	21 14.64	-17 54.5	18.2	-0.83	- 3.3	0.7/08.7	35691
1998 FL ₁₂₁	1999 08 09.2	21 14.69	-15 35.7	17.5	-0.88	- 4.8	0.2/09.3	35439
(8869)	1999 08 09.2	21 14.78	-17 59.7	17.7	-0.79	- 3.9	0.6/08.7	31915
1998 HQ ₁₁₄	1999 08 09.2	21 14.81	-29 44.1	18.2	-0.83	- 5.8	4.4/05.3	32329
1994 PU ₄	1999 08 09.2	21 14.96	-15 47.9	18.8	-0.80	- 4.4	0.1/09.3	35690
1992 EK ₇	1999 08 09.2	21 15.02	-25 53.3	18.8	-0.83	- 3.3	2.9/06.7	32304
1998 HC ₂₁	1999 08 09.2	21 15.05	-24 13.8	17.5	-1.08	- 5.1	3.5/07.2	35333
1996 XA ₁₈	1999 08 09.3	21 15.06	-25 23.0	19.0	-0.95	- 4.2	3.2/06.9	35430
1996 XK ₆	1999 08 09.3	21 15.11	-13 52.3	18.4	-0.96	- 4.5	0.8/09.8	28606
1993 FF ₈₂	1999 08 09.3	21 15.26	-23 19.7	17.6	-0.90	- 3.3	2.5/07.5	35424
2722 P-L	1999 08 09.4	21 15.45	+01 53.7	18.1	-0.77	- 8.7	6.7/15.3	35742
1998 HO ₂₃	1999 08 09.4	21 15.51	-11 45.6	18.5	-0.78	- 5.7	1.2/10.6	35624
1999 NL ₈	1999 08 09.4	21 15.53	-16 36.0	17.0	-0.74	- 9.1	0.2/09.2	35660
1999 KS ₇	1999 08 09.4	21 15.58	+03 28.1	16.4	-0.89	- 2.6	7.5/14.4	35737
1998 FP ₆₀	1999 08 09.4	21 15.65	-22 14.0	19.4	-1.00	- 3.6	2.2/07.9	35621
1998 BO	1999 08 09.4	21 15.70	-24 27.0	17.7	-1.04	- 6.2	3.5/07.2	35311
1994 PZ ₂₇	1999 08 09.4	21 15.81	-16 38.0	18.3	-0.77	- 4.2	0.2/09.3	35691
1981 ED ₁₀	1999 08 09.5	21 16.03	-16 02.2	19.3	-1.05	- 3.7	0.1/09.5	26916
1997 AP ₁₂	1999 08 09.5	21 16.07	-07 40.8	18.2	-0.91	- 1.0	2.7/11.4	35698
1999 NH ₁₂	1999 08 09.5	21 16.10	-12 13.4	18.3	-1.02	- 5.8	1.5/10.5	35661
1998 FJ ₄₉	1999 08 09.6	21 16.14	-00 27.8	17.7	-0.82	- 7.2	5.5/14.3	35621
1997 AT ₁₆	1999 08 09.6	21 16.25	-20 54.6	17.3	-0.97	- 5.5	2.1/08.3	35303
1998 DV ₁₁	1999 08 09.6	21 16.35	-11 54.6	18.5	-0.86	- 5.5	1.3/10.7	35436
1995 WY	1999 08 09.6	21 16.58	-30 00.3	17.3	-0.85	- 4.4	4.2/05.8	35427

(11342)	1999 08 09.7	21 16.53	-11 07.5	17.3	-0.85	- 4.2	1.6/10.9	35576
(9096)	1999 08 09.7	21 16.55	-25 21.1	16.8	-0.80	- 4.1	2.9/07.1	32196
1989 CQ ₂	1999 08 09.7	21 16.64	-03 36.1	18.1	-0.65	- 4.4	3.3/13.2	35418
1998 FO ₄₈	1999 08 09.7	21 16.67	-15 04.3	17.7	-0.95	- 3.1	8.8/30.0	35621
1998 GF ₁	1999 08 09.7	21 16.93	-11 58.3	18.1	-1.06	- 3.3	1.6/10.7	35707
1998 BD ₄₂	1999 08 09.7	21 16.99	-24 11.1	19.4	-1.04	- 6.0	3.1/07.6	31799
1991 RP ₉	1999 08 09.8	21 16.92	-42 35.9	17.4	-1.15	- 3.9	9.5/02.1	32303
1996 VY ₃₈	1999 08 09.8	21 16.95	-16 39.8	17.8	-0.98	- 5.4	0.4/09.6	35430
(11270)	1999 08 09.8	21 17.15	-13 31.8	17.2	-0.98	- 6.3	0.9/10.5	35559
(11338)	1999 08 09.8	21 17.23	-23 45.5	16.3	-0.85	- 6.6	4.0/07.6	35575
(8637)	1999 08 09.9	21 17.50	-12 57.5	18.6	-0.93	- 5.3	1.0/10.7	31672
1168 T-1	1999 08 09.9	21 17.50	-04 16.4	21.4	-0.72	- 3.9	2.8/13.1	33997
1982 SO ₅	1999 08 09.9	21 17.52	-18 29.1	16.3	-0.82	- 2.7	1.4/09.3	35416
1998 FR ₇₀	1999 08 09.9	21 17.60	-26 20.8	19.3	-1.05	- 3.3	3.7/07.4	32323
1995 YO	1999 08 09.9	21 17.60	-22 53.1	17.7	-0.77	- 5.9	2.2/07.9	35428
1995 YH	1999 08 10.0	21 17.69	-01 57.7	16.2	-0.80	- 2.0	5.0/13.4	35694
1998 AR ₄	1999 08 10.0	21 17.82	-13 28.9	16.2	-1.09	+ 0.8	1.1/10.5	35310
1989 UO ₅	1999 08 10.0	21 17.99	-35 55.0	18.5	-0.61	- 1.7	3.8/04.4	28316
1989 SQ ₄	1999 08 10.1	21 18.10	-18 58.7	18.2	-0.99	- 5.5	1.2/09.3	35418
1998 FH ₇₈	1999 08 10.1	21 18.17	-01 52.3	18.2	-0.79	- 8.0	5.0/14.4	35438
(11258)	1999 08 10.1	21 18.28	-07 15.6	17.6	-0.77	- 3.0	2.6/12.3	35556
1993 DV	1999 08 10.2	21 18.58	-12 23.1	18.0	-0.90	- 3.7	1.1/11.1	35686
1981 EK ₃	1999 08 10.2	21 18.61	-05 50.4	18.4	-0.88	- 3.7	3.6/12.8	35415
1999 PY ₄	1999 08 10.2	21 18.62	-17 44.1	16.7	-0.67	- 3.6	1.1/09.7	35742
1991 YU	1999 08 10.2	21 18.77	-15 27.4	17.4	-0.82	- 5.6	0.1/10.3	35684
1998 BG ₄	1999 08 10.2	21 18.79	-17 34.1	17.8	-1.00	- 4.3	0.8/09.8	35616
1998 HD ₉₅	1999 08 10.2	21 18.81	-23 14.7	16.9	-0.88	- 5.2	3.1/08.2	35708
1997 AE	1999 08 10.2	21 18.83	-14 18.9	16.1	-0.95	- 0.4	0.6/10.6	35698
(11329)	1999 08 10.3	21 19.04	-20 47.5	17.2	-0.88	- 4.7	1.9/09.0	35573
(10997)	1999 08 10.3	21 19.16	-16 31.3	16.3	-0.99	- 1.4	0.4/10.2	35211
(10997)	1999 08 10.3	21 19.16	-16 31.3	16.3	-0.99	- 1.4	0.4/10.2	35211
1998 EP ₉	1999 08 10.4	21 19.35	-18 01.8	18.2	-0.96	- 5.5	0.9/09.8	35619
1998 FN ₁₀	1999 08 10.5	21 19.64	-14 43.2	20.6	-0.98	- 3.9	0.3/10.7	35706
1998 FN ₃₂	1999 08 10.5	21 19.70	-29 51.9	18.2	-1.12	+ 0.4	5.2/07.7	32318
4223 T-2	1999 08 10.5	21 19.83	-05 07.3	19.0	-0.87	- 7.9	3.8/13.7	32093
1995 VG ₁₃	1999 08 10.5	21 19.90	-17 54.4	18.1	-0.83	- 5.0	0.8/09.9	35694
(8902)	1999 08 10.5	21 19.96	-30 42.6	17.4	-0.89	- 3.2	4.6/06.6	31923
1996 VJ ₂	1999 08 10.6	21 19.94	-06 01.3	16.8	-0.87	- 6.2	4.7/13.3	35697
1996 TN ₁₂	1999 08 10.6	21 20.17	-13 10.4	18.4	-0.98	- 4.4	0.9/11.2	35429
1996 VH ₈	1999 08 10.6	21 20.23	-28 35.4	16.7	-1.13	- 3.2	5.8/07.4	35430
1996 UH ₄	1999 08 10.6	21 20.25	-24 56.0	17.7	-0.99	- 4.7	5.0/08.1	32954
1981 ER ₂	1999 08 10.7	21 20.63	+07 50.5	19.5	-0.69	- 5.3	5.8/18.1	26915
(9075)	1999 08 10.7	21 20.71	+12 45.9	19.2	-0.85	- 5.7	8.1/19.5	32191
1999 NB ₁₀	1999 08 10.8	21 20.70	-10 33.7	16.7	-1.17	+ 5.7	2.3/11.5	35661
4620 P-L	1999 08 10.8	21 20.71	-24 22.4	17.4	-1.03	- 2.2	4.5/08.8	35402
1978 UL ₄	1999 08 10.8	21 20.73	+07 10.9	16.9	-0.82	- 3.9	9.2/17.0	35414
1999 NS ₈	1999 08 10.8	21 20.78	-16 32.4	15.7	-0.84	-10.8	0.4/10.5	35739
(11300)	1999 08 10.8	21 20.84	-14 16.3	17.3	-0.96	- 4.2	0.5/11.1	35566
1999 NM ₉	1999 08 10.8	21 20.97	-13 26.1	17.2	-1.02	- 5.1	0.9/11.4	35739
3509 P-L	1999 08 10.8	21 21.03	-55 05.5	17.5	-2.26	+ 8.1	19.3/05.8	29668
1999 NT ₅₄	1999 08 10.8	21 21.10	-01 24.5	17.2	-0.80	- 9.6	5.4/15.4	35666

1058 T-2	1999 08 10.9	21 21.12	-08 03.6	18.1	-0.75	- 4.1	2.2/12.9	26761
1988 VA	1999 08 10.9	21 21.30	+06 13.2	17.0	-0.89	- 3.8	9.1/16.6	35279
1988 SP ₂	1999 08 10.9	21 21.48	-06 37.4	18.1	-0.50	- 4.1	1.9/13.7	35417
1998 HZ ₁₁₈	1999 08 11.0	21 21.57	-37 33.4	17.0	-0.87	- 5.5	7.5/04.2	32272
1992 ER ₁₃	1999 08 11.0	21 21.59	-09 03.1	20.2	-0.75	- 4.3	1.8/12.8	35685
3434 T-3	1999 08 11.0	21 21.64	-10 57.2	20.0	-0.85	- 4.2	1.5/12.2	29669
1005 T-2	1999 08 11.0	21 21.64	-12 06.8	17.5	-0.79	- 4.0	1.1/11.9	35743
1981 EV ₆	1999 08 11.0	21 21.80	-07 54.2	17.4	-0.82	- 1.6	2.6/12.9	35677
1988 SG ₃	1999 08 11.0	21 21.87	-36 10.5	19.1	-0.60	- 3.5	4.1/04.7	15892
1993 OX ₁₁	1999 08 11.1	21 22.23	-13 49.5	17.0	-0.80	- 2.9	0.5/11.6	35688
1021 T-3	1999 08 11.2	21 22.31	-17 26.7	17.2	-0.96	- 1.4	0.8/10.8	35743
1999 NH ₉	1999 08 11.2	21 22.36	-17 42.0	16.7	-0.88	- 8.5	1.0/10.5	35660
1998 FR ₇₆	1999 08 11.2	21 22.50	-16 35.1	17.9	-0.91	- 6.1	0.4/10.9	35438
1998 GA ₁	1999 08 11.2	21 22.52	-19 37.0	19.0	-0.94	- 4.6	1.5/10.2	32325
1998 HS ₄	1999 08 11.3	21 22.62	-05 05.5	19.1	-0.75	- 4.2	3.3/14.2	35707
(11106)	1999 08 11.3	21 22.65	+06 10.6	17.4	-0.81	- 2.1	6.7/16.9	35239
(11106)	1999 08 11.3	21 22.65	+06 10.6	17.4	-0.81	- 2.1	6.7/16.9	35239
1998 FF ₆₂	1999 08 11.3	21 22.82	-27 52.1	17.4	-1.04	- 0.5	4.7/08.6	35437
1993 XH	1999 08 11.4	21 23.13	-15 42.9	17.8	-1.01	- 7.4	0.2/11.3	35689
(11188)	1999 08 11.4	21 23.24	-03 03.7	17.1	-0.67	- 5.5	3.7/15.2	35260
(11188)	1999 08 11.4	21 23.24	-03 03.7	17.1	-0.67	- 5.5	3.7/15.2	35260
1981 EL ₃₀	1999 08 11.4	21 23.32	-11 54.4	19.8	-0.84	- 1.3	1.1/12.3	30779
(11113)	1999 08 11.4	21 23.39	+00 43.9	16.7	-0.98	+ 1.9	6.1/14.5	35241
(11113)	1999 08 11.4	21 23.39	+00 43.9	16.7	-0.98	+ 1.9	6.1/14.5	35241
1998 HZ ₁₃₂	1999 08 11.5	21 23.37	-14 14.0	18.4	-0.83	- 3.2	0.4/11.8	32273
1998 BM ₁₇	1999 08 11.5	21 23.65	-17 34.4	17.0	-0.88	- 5.6	1.1/10.9	35704
2035 T-3	1999 08 11.5	21 23.69	-18 22.6	17.5	-0.58	- 1.7	0.7/10.8	35480
1995 UW ₁₂	1999 08 11.5	21 23.72	-18 11.9	18.8	-0.87	- 3.5	1.0/10.8	32946
1996 XU ₂₆	1999 08 11.5	21 23.75	-19 12.6	17.1	-1.14	- 1.1	1.7/10.8	35697
1999 NT ₁	1999 08 11.5	21 23.82	+19 45.1	15.6	-1.32	+19.2	19.9/09.0	35739
(8958)	1999 08 11.6	21 23.76	-17 15.7	16.6	-0.90	- 3.1	0.8/11.1	31936
1993 FO ₈	1999 08 11.6	21 23.93	-20 55.5	17.7	-0.87	- 4.9	1.9/10.1	35423
(11267)	1999 08 11.6	21 23.96	-18 03.9	16.9	-0.90	- 2.5	1.1/11.0	35558
1994 AX ₆	1999 08 11.6	21 24.04	-15 06.5	16.4	-0.87	- 4.6	0.1/11.7	35689
1981 EH ₄₈	1999 08 11.7	21 24.15	-05 00.3	18.2	-0.87	- 4.1	3.5/14.4	35678
1998 HV ₄	1999 08 11.7	21 24.25	-18 24.1	17.9	-0.84	- 3.6	1.1/10.9	35707
1999 QO	1999 08 11.7	21 24.30	-03 10.9	18.0	-0.78	- 3.3	3.8/14.9	35670
1998 DF ₈	1999 08 11.7	21 24.46	-22 48.2	18.0	-1.08	- 5.0	3.3/09.8	35705
(9465)	1999 08 11.7	21 24.53	-02 27.7	17.7	-0.72	- 6.3	4.3/15.7	35414
1990 BC ₂	1999 08 11.8	21 24.57	-05 59.3	17.4	-0.90	- 5.4	3.4/14.3	35681
(8462)	1999 08 11.8	21 24.68	-12 53.3	18.5	-0.87	- 5.0	0.8/12.5	31487
1995 XJ ₁	1999 08 11.8	21 24.86	-04 26.2	16.0	-0.81	- 2.0	3.5/14.6	35694
2085 P-L	1999 08 11.9	21 25.32	-14 07.7	17.9	-0.82	- 3.7	0.3/12.3	32785
(8978)	1999 08 12.0	21 25.31	-15 26.3	18.6	-0.76	- 3.5	0.1/11.9	31941
1998 HF ₁₄₈	1999 08 12.0	21 25.32	-12 36.3	17.7	-0.75	- 4.1	0.8/12.7	35440
1982 SM ₂	1999 08 12.0	21 25.48	-21 32.4	15.9	-1.02	0.0	3.4/10.7	35678
1999 NG ₁₀	1999 08 12.0	21 25.50	-13 40.5	17.9	-1.04	- 0.3	0.6/12.4	35661
2382 T-3	1999 08 12.0	21 25.70	-14 35.7	18.4	-0.88	- 3.3	0.2/12.2	33061
1992 DL ₆	1999 08 12.1	21 25.86	-16 24.4	18.7	-0.78	- 4.4	0.4/11.8	35684
1981 EQ ₁₃	1999 08 12.2	21 26.17	-21 53.5	19.6	-1.03	- 1.1	2.2/10.7	32298
1998 HS ₁₉	1999 08 12.2	21 26.44	-18 43.5	17.9	-0.93	- 6.8	1.3/11.3	35624

1999 AUG. 31

M.P.C. 35751

1981 EA₁₅ 1999 08 12.3 21 26.38 -19 25.9 18.7 -0.87 - 1.2 1.4/11.3 26917
 1989 AZ₆ 1999 08 12.3 21 26.59 -15 16.5 18.1 -0.87 - 5.7 0.1/12.3 31950
 1998 BC₁₅ 1999 08 12.3 21 26.60 -07 38.2 17.1 -1.04 - 2.4 3.3/14.1 35434
 1981 DT 1999 08 12.3 21 26.76 -19 29.1 17.9 -0.90 - 0.4 1.3/11.4 35415
 1996 TX₇ 1999 08 12.3 21 26.77 -13 44.4 17.0 -0.90 - 7.7 0.6/12.8 35697
 1990 YY 1999 08 12.4 21 26.86 -19 41.2 18.2 -0.50 - 2.4 0.8/11.1 30781
 1998 KC₂ 1999 08 12.4 21 26.88 +15 50.7 20.2 -0.90 - 4.4 9.1/21.9 35708
 (8654) 1999 08 12.4 21 26.92 -25 40.3 17.2 -0.90 - 8.2 3.6/09.2 31676
 1981 ES₁₉ 1999 08 12.4 21 27.00 -20 26.8 19.1 -1.09 - 2.5 2.3/11.2 31781
 4652 P-L 1999 08 12.4 21 27.12 -19 45.5 18.1 -0.64 - 2.2 1.0/11.2 35479
 (9026) 1999 08 12.4 21 27.14 -18 10.4 17.0 -0.77 - 4.0 1.1/11.6 35414
 1999 NG₄ 1999 08 12.4 21 27.17 -10 34.5 16.5 -0.93 - 4.1 2.3/13.6 35658
 1994 PK₉ 1999 08 12.4 21 27.18 -09 20.0 17.6 -0.73 - 7.3 2.0/14.3 35690
 (9107) 1999 08 12.4 21 27.20 -17 11.8 17.9 -0.79 - 5.1 0.6/11.9 32198
 1989 TS₂ 1999 08 12.5 21 27.22 -12 28.7 18.5 -0.49 - 3.7 0.5/13.3 35418
 1996 SW₂ 1999 08 12.5 21 27.24 -17 33.7 18.6 -1.05 - 4.4 1.0/11.9 32244
 1999 NQ₉ 1999 08 12.5 21 27.30 -12 27.5 17.8 -0.82 - 4.7 0.8/13.2 35660
 1996 TC₈ 1999 08 12.5 21 27.33 -11 17.7 17.5 -0.98 - 5.4 1.6/13.5 35697
 (8779) 1999 08 12.5 21 27.46 -18 53.0 16.3 -0.77 - 4.3 1.4/11.5 31894
 1995 ON₄ 1999 08 12.6 21 27.60 -15 16.4 17.2 -0.89 - 5.5 0.1/12.5 35427
 1998 FW₉₉ 1999 08 12.6 21 27.88 -06 57.4 19.1 -0.95 - 4.1 2.8/14.8 31815
 1981 EP₄₇ 1999 08 12.7 21 27.92 -01 47.6 18.5 -0.72 - 6.2 4.4/16.7 31225
 1998 HS₃₄ 1999 08 12.7 21 28.03 -18 15.1 18.1 -0.94 - 5.4 1.2/11.8 35439
 (8867) 1999 08 12.7 21 28.05 -18 40.6 17.7 -0.85 - 3.8 1.2/11.7 35413
 3090 P-L 1999 08 12.7 21 28.09 +06 46.6 17.9 -0.75 - 2.9 6.4/18.6 35479
 1998 HD₁₄₈ 1999 08 12.7 21 28.15 +05 47.4 17.5 -0.87 - 3.0 7.6/18.2 35440
 4101 T-3 1999 08 12.7 21 28.25 -45 33.1 18.4 -0.70 - 1.1 5.4/03.5 35743
 1980 DS₄ 1999 08 12.8 21 28.52 -09 52.5 16.3 -0.92 - 7.1 2.2/14.3 35415
 1998 FF₃ 1999 08 12.8 21 28.55 -15 13.4 17.5 -1.01 - 1.7 0.1/12.8 35705
 1998 BQ₈ 1999 08 12.9 21 29.00 -16 42.3 18.5 -0.93 - 7.1 0.7/12.5 31798
 1995 YB₃ 1999 08 13.0 21 29.10 -17 34.0 17.7 -0.79 - 4.2 0.8/12.3 35694
 1995 YQ 1999 08 13.0 21 29.32 -21 49.7 16.5 -0.77 - 7.6 2.4/10.9 35694
 1998 DW 1999 08 13.0 21 29.33 -06 21.8 18.1 -1.44 + 4.4 4.0/14.3 35618
 1998 JF₄ 1999 08 13.0 21 29.36 -18 05.1 19.0 -0.88 - 5.2 1.0/12.2 35626
 (8703) 1999 08 13.1 21 29.62 -12 59.6 17.2 -0.93 - 6.9 0.7/13.7 31688
 1988 RE₁₂ 1999 08 13.1 21 29.64 -03 37.8 20.4 -0.50 - 4.4 2.4/16.7 15560
 (11330) 1999 08 13.2 21 29.78 -31 22.0 17.4 -0.87 - 4.6 5.3/08.3 35573
 (8822) 1999 08 13.2 21 30.14 -21 17.3 15.9 -0.85 - 4.7 3.2/11.4 31904
 (10988) 1999 08 13.2 21 30.15 -32 41.1 16.4 -0.96 -18.8 7.9/06.3 35209
 (10988) 1999 08 13.2 21 30.15 -32 41.1 16.4 -0.96 -18.8 7.9/06.3 35209
 1999 KP₄ 1999 08 13.2 21 30.22 -22 56.5 15.4 -0.99 -30.0 3.7/09.9 35383
 1998 FF₇₅ 1999 08 13.3 21 30.22 -27 28.2 16.5 -1.09 - 3.1 5.3/10.1 35438
 (8659) 1999 08 13.3 21 30.47 -12 39.2 15.6 -0.94 0.0 0.9/13.8 31677
 1998 HA₃₉ 1999 08 13.3 21 30.54 -06 23.4 18.0 -0.98 - 5.3 3.4/15.6 35439
 1998 KJ₅₂ 1999 08 13.3 21 30.55 -04 38.6 17.3 -0.70 - 5.6 3.0/16.4 35709
 1989 YV₄ 1999 08 13.4 21 30.69 -17 19.0 18.2 -0.98 - 4.5 0.9/12.8 35418
 1993 FY₁₂ 1999 08 13.4 21 30.79 -08 33.4 16.6 -0.77 - 6.9 2.1/15.3 35423
 1998 FK₅₇ 1999 08 13.4 21 30.85 -18 24.4 19.2 -0.94 - 3.4 1.3/12.5 32321
 1988 RM₁₁ 1999 08 13.5 21 30.92 -14 40.6 18.1 -0.51 - 2.9 0.0/13.5 35680
 1997 AV₇ 1999 08 13.5 21 30.97 -10 56.9 20.3 -0.86 - 3.4 1.3/14.5 30786
 1998 JV₁ 1999 08 13.6 21 31.39 -18 09.2 17.2 -0.75 - 5.7 1.1/12.6 35440

1978 SC₇ 1999 08 13.6 21 31.46 -30 36.9 17.3 -1.11 - 1.1 5.8/09.8 35414
 1998 BJ₁₉ 1999 08 13.6 21 31.57 -13 21.0 17.2 -0.99 - 6.2 0.6/14.0 35704
 1998 FQ₁₀₉ 1999 08 13.6 21 31.61 -06 49.2 18.6 -0.87 - 3.5 2.8/15.7 35438
 1998 HH₇₇ 1999 08 13.6 21 31.66 -16 02.3 18.6 -0.97 - 4.3 0.5/13.3 34301
 (8693) 1999 08 13.6 21 31.69 -17 34.5 14.8 -0.85 - 9.0 1.3/12.8 31685
 1999 NT₁₀ 1999 08 13.6 21 31.70 -07 33.3 16.1 -1.00 + 2.4 3.7/15.1 35739
 2799 P-L 1999 08 13.7 21 31.66 +19 21.8 18.5 -0.63 -11.0 12.0/28.0 35742
 1981 EB₃₂ 1999 08 13.7 21 31.72 -02 40.3 19.6 -0.76 - 2.9 3.6/17.0 26921
 1995 XT 1999 08 13.7 21 31.78 -16 05.8 17.4 -0.77 - 4.2 0.4/13.3 35428
 1981 EF₁₂ 1999 08 13.7 21 31.89 -06 39.6 18.4 -1.01 - 3.4 3.4/15.8 35415
 1981 EZ₁₆ 1999 08 13.7 21 32.02 -20 53.5 18.9 -1.02 - 2.0 2.3/12.3 26918
 1998 FE₆₅ 1999 08 13.7 21 32.04 -18 45.5 17.7 -1.05 - 3.3 1.6/12.8 35325
 1999 PL₄ 1999 08 13.8 21 32.03 -07 57.5 17.9 -0.96 - 0.9 2.6/15.3 35670
 1999 PV 1999 08 13.8 21 32.26 -07 52.7 17.5 -0.82 - 8.5 2.2/16.0 35669
 3163 T-3 1999 08 13.8 21 32.40 -42 22.2 18.5 -1.00 - 1.1 7.9/06.5 25437
 1981 ER₄₅ 1999 08 13.9 21 32.61 -05 39.0 19.7 -0.95 - 6.4 3.4/16.5 32299
 1350 T-2 1999 08 13.9 21 32.65 -11 57.5 18.4 -0.78 - 4.0 0.9/14.7 32732
 1996 XZ₃₀ 1999 08 14.0 21 33.24 -06 17.7 17.0 -0.96 - 2.5 3.5/16.1 35609
 (8597) 1999 08 14.1 21 33.17 -31 08.0 16.3 -1.10 + 0.9 6.7/10.6 31519
 1998 DC₃₃ 1999 08 14.1 21 33.21 -28 47.5 18.5 -1.15 - 1.0 5.5/11.0 35436
 (8916) 1999 08 14.1 21 33.24 -46 18.9 17.4 -1.11 - 4.6 11.2/03.3 31927
 (8702) 1999 08 14.1 21 33.34 -05 57.8 16.7 -1.01 - 4.4 3.6/16.3 35413
 1998 FG₁₁₂ 1999 08 14.1 21 33.40 -11 40.5 18.1 -0.92 - 1.7 1.0/15.0 35622
 1998 FG₄₃ 1999 08 14.1 21 33.50 +02 27.3 18.0 -0.76 - 8.5 5.9/19.9 35323
 1989 WU₂ 1999 08 14.1 21 33.59 -18 31.8 16.9 -0.81 - 4.5 1.3/13.1 35418
 1998 FB₁₄ 1999 08 14.3 21 33.99 -04 16.4 16.4 -0.69 -11.0 4.3/18.0 35706
 1996 XM₂₁ 1999 08 14.3 21 34.11 -21 51.1 19.3 -0.98 - 2.8 2.5/12.5 32056
 1996 GE₁₉ 1999 08 14.3 21 34.22 +21 50.6 17.2 -0.49 - 2.9 6.5/27.6 35695
 1998 CC₃ 1999 08 14.4 21 34.32 -16 23.3 16.7 -1.08 - 2.4 0.9/14.0 35435
 1998 HC₁₂₂ 1999 08 14.4 21 34.47 -18 23.5 16.5 -0.76 - 7.6 1.3/13.2 35336
 1998 BH₄ 1999 08 14.4 21 34.49 -15 17.2 18.4 -1.01 - 4.1 0.3/14.2 31797
 2508 P-L 1999 08 14.4 21 34.62 -25 56.0 16.7 -1.02 - 0.8 6.0/11.7 35742
 2204 T-3 1999 08 14.4 21 34.68 -03 27.0 18.6 -0.91 - 4.9 4.3/17.5 29321
 1981 EQ₃₄ 1999 08 14.4 21 34.70 -08 57.3 17.2 -0.76 - 7.8 2.4/16.2 35678
 1995 WX₁ 1999 08 14.5 21 34.67 +07 04.8 18.0 -0.73 - 3.1 5.9/20.9 35427
 1981 EW₇ 1999 08 14.5 21 34.93 +00 55.9 18.5 -0.81 - 7.2 5.5/19.5 32298
 1995 YW₄ 1999 08 14.5 21 34.98 -11 45.1 18.3 -0.80 - 4.4 0.9/15.3 35428
 1991 GY₂ 1999 08 14.5 21 35.03 -06 46.9 18.8 -0.93 - 6.1 2.9/16.7 35420
 1981 EV₂₄ 1999 08 14.6 21 35.04 -17 35.4 19.7 -0.94 - 3.7 1.1/13.8 21967
 3227 T-2 1999 08 14.6 21 35.27 -26 01.3 18.4 -0.93 - 3.9 4.3/11.5 32344
 1995 SA₂ 1999 08 14.6 21 35.45 -06 51.3 19.5 -0.84 - 5.3 2.5/16.8 29664
 1994 PU₅ 1999 08 14.7 21 35.67 -11 56.7 16.6 -0.74 - 7.4 0.8/15.5 35604
 (8575) 1999 08 14.7 21 35.87 -09 50.1 15.2 -0.89 + 0.1 2.5/15.8 35675
 4369 T-3 1999 08 14.8 21 36.19 -09 57.4 19.1 -0.49 - 3.5 0.8/16.2 25341
 (11427) 1999 08 14.9 21 36.20 -08 57.8 17.0 -0.72 - 5.1 1.7/16.5 35598
 1998 FT₅₁ 1999 08 14.9 21 36.31 -15 13.4 18.0 -1.00 - 7.0 0.4/14.7 32320
 1992 GQ 1999 08 14.9 21 36.39 -23 04.2 18.1 -0.76 - 4.9 2.4/12.4 32304
 (11275) 1999 08 14.9 21 36.44 -24 28.2 17.4 -0.53 - 5.6 2.0/11.6 35560
 1996 TT₁₄ 1999 08 15.0 21 36.70 -16 58.8 15.4 -0.86 - 7.7 1.4/14.2 35429
 1998 KX₆₀ 1999 08 15.0 21 36.82 -24 59.4 17.6 -0.80 - 6.2 3.2/11.7 35337
 1991 GZ₄ 1999 08 15.1 21 36.95 -17 23.5 17.1 -0.97 - 4.3 1.4/14.3 35284

1996 AH ₁	1999 08 15.1	21 37.04	-06 46.9	18.3	-0.84	- 0.8	2.3/16.9	35607	1981 ED ₂₆	1999 08 16.7	21 43.16	-07 20.6	18.2	-0.94	- 7.0	2.6/18.6	26919
(9080)	1999 08 15.1	21 37.17	-04 20.0	17.1	-0.73	- 4.7	3.1/18.0	32192	1074 T-2	1999 08 16.7	21 43.19	+00 28.0	19.4	-0.80	- 6.8	5.1/21.1	35672
1998 FW ₁₉	1999 08 15.1	21 37.20	-16 30.0	17.0	-1.03	- 1.7	1.0/14.6	35706	1999 OK	1999 08 16.7	21 43.20	-23 08.4	19.2	-0.75	- 7.8	2.7/13.6	35667
1992 UE ₄	1999 08 15.1	21 37.37	-19 49.8	16.9	-0.99	- 6.5	2.5/13.6	35423	6653 P-L	1999 08 16.8	21 43.32	-14 54.1	18.2	-0.85	- 5.7	0.4/16.5	35050
1998 FO ₇₈	1999 08 15.2	21 37.33	-22 56.4	17.6	-0.90	- 4.6	3.1/12.8	31763	1998 HT ₉₈	1999 08 16.9	21 43.77	-16 40.4	17.9	-0.85	- 4.3	1.0/16.1	35440
4265 T-1	1999 08 15.2	21 37.40	-17 11.3	18.3	-1.01	- 5.8	1.2/14.4	35480	1996 VR ₅	1999 08 16.9	21 44.02	-11 46.4	18.0	-0.94	- 5.4	0.7/17.5	35697
1998 KE ₄₁	1999 08 15.2	21 37.55	+11 28.0	19.0	-0.75	- 2.8	7.2/23.0	32334	1996 SH ₆	1999 08 16.9	21 44.05	-02 33.5	17.1	-0.91	- 7.2	4.3/20.3	35429
(8868)	1999 08 15.2	21 37.66	-17 54.6	16.7	-0.74	- 8.0	1.3/14.1	31915	1998 FZ ₄₀	1999 08 17.0	21 44.03	-13 22.9	17.5	-0.90	- 4.6	0.1/17.1	35437
1998 CR ₁	1999 08 15.2	21 37.69	-11 22.8	16.8	-0.82	- 7.6	1.2/16.1	35314	1991 ED ₂	1999 08 17.0	21 44.05	-11 01.1	17.3	-0.95	- 6.9	1.0/17.8	35420
1981 EO ₅	1999 08 15.3	21 37.85	-02 44.2	19.0	-0.95	- 4.5	4.9/18.5	26915	(8769)	1999 08 17.0	21 44.09	-09 54.0	16.7	-0.83	- 5.3	1.4/18.1	31703
1995 TG ₂	1999 08 15.3	21 37.98	-09 19.7	17.8	-0.79	- 4.4	2.1/16.7	32670	1998 EF ₁₂	1999 08 17.0	21 44.10	-21 49.0	18.3	-1.05	- 4.3	3.0/14.8	35436
1997 AN ₂₁	1999 08 15.4	21 38.33	-09 36.3	17.4	-1.04	+ 0.1	1.7/16.4	35698	1994 AP	1999 08 17.0	21 44.19	-24 13.3	17.1	-1.01	- 6.2	4.0/13.9	35293
1991 YT	1999 08 15.4	21 38.39	+03 33.2	17.2	-0.91	- 1.0	6.7/19.7	35684	1995 OS ₁	1999 08 17.0	21 44.35	-14 58.0	17.5	-0.96	- 3.5	0.5/16.7	35693
1996 VC ₉	1999 08 15.5	21 38.46	-27 07.1	16.5	-1.02	- 7.0	5.9/11.5	35430	1998 KN ₅₆	1999 08 17.0	21 44.46	-16 42.6	17.0	-0.83	- 2.8	1.1/16.3	35709
1991 PT ₁₀	1999 08 15.5	21 38.66	-09 32.9	17.0	-0.82	- 1.7	2.3/16.7	28886	1996 XX ₂₉	1999 08 17.1	21 44.47	-17 23.2	20.0	-0.95	- 5.1	1.3/16.1	30786
1997 CP ₁	1999 08 15.5	21 38.77	-12 49.7	18.9	-0.93	- 6.9	0.5/15.9	31737	1997 CL ₂₈	1999 08 17.1	21 44.48	-12 03.6	17.9	-0.88	- 5.5	0.6/17.6	29928
(8879)	1999 08 15.5	21 38.79	-11 55.1	17.4	-0.87	- 3.9	0.8/16.2	31918	1998 EL ₅	1999 08 17.1	21 44.52	-16 59.3	18.0	-0.92	- 7.7	1.3/16.1	32316
1999 ND ₄₁	1999 08 15.6	21 38.83	-28 54.7	16.2	-0.72	-15.2	6.2/09.7	35665	1992 FZ	1999 08 17.1	21 44.80	-21 02.4	16.8	-0.84	- 2.1	2.1/15.2	35422
1996 XP ₁	1999 08 15.6	21 38.99	-04 08.5	18.5	-0.95	- 4.1	3.6/18.2	32311	1998 GH ₈	1999 08 17.2	21 44.83	-34 11.0	15.9	-0.82	- 7.8	8.3/09.9	35331
1998 DU ₁₃	1999 08 15.6	21 39.03	-22 40.5	19.4	-1.08	- 2.5	3.4/13.6	35705	(11158)	1999 08 17.2	21 44.98	-17 11.2	17.0	-1.06	- 3.9	1.6/16.3	35252
1998 FN ₅₇	1999 08 15.6	21 39.25	-06 22.9	18.8	-0.94	- 6.2	2.8/17.9	32065	(11158)	1999 08 17.2	21 44.98	-17 11.2	17.0	-1.06	- 3.9	1.6/16.3	35252
1999 NZ ₁₀	1999 08 15.7	21 39.25	-13 26.9	16.9	-0.81	- 3.8	0.2/15.9	35661	1995 GA	1999 08 17.2	21 45.05	-15 24.6	17.9	-0.92	- 9.9	0.8/16.7	35693
(9125)	1999 08 15.7	21 39.51	-13 55.2	16.1	-1.04	- 3.9	0.0/15.8	32202	1981 EB ₁₅	1999 08 17.2	21 45.17	-09 37.2	19.3	-0.89	- 4.2	1.3/18.4	32298
1997 AO ₅	1999 08 15.7	21 39.62	-24 12.2	15.8	-0.91	- 6.1	4.5/12.7	35431	(8270)	1999 08 17.3	21 45.33	-19 44.5	14.5	-1.05	- 1.3	3.2/15.9	31212
2114 T-1	1999 08 15.8	21 39.55	-01 29.6	18.8	-0.78	- 7.4	3.9/19.8	32343	1998 FL ₁₂₅	1999 08 17.3	21 45.59	+05 27.3	17.0	-0.81	- 7.1	6.7/23.7	35707
1981 EG ₁₁	1999 08 15.8	21 39.57	-05 35.4	20.6	-0.86	- 4.8	2.6/18.2	23535	1994 FE	1999 08 17.4	21 45.53	-07 34.0	18.3	-0.81	-11.4	2.1/19.5	31725
1996 AB	1999 08 15.8	21 39.83	-12 24.7	17.6	-0.77	- 3.3	0.5/16.3	35428	(11167)	1999 08 17.4	21 45.56	-12 42.8	17.3	-0.94	- 7.6	0.3/17.6	35254
1998 FN ₁₁₆	1999 08 15.8	21 39.95	-03 39.0	16.5	-0.88	- 4.3	4.7/18.7	35329	(11167)	1999 08 17.4	21 45.56	-12 42.8	17.3	-0.94	- 7.6	0.3/17.6	35254
(11324)	1999 08 15.9	21 40.21	-15 27.3	16.6	-0.83	- 7.6	0.6/15.5	35571	1981 EY ₂	1999 08 17.4	21 45.70	+01 23.6	17.9	-0.73	- 4.3	5.0/21.9	31944
(9123)	1999 08 16.0	21 40.33	-17 53.9	17.9	-1.02	- 1.3	1.3/15.1	32202	1994 CA ₁	1999 08 17.4	21 45.72	-06 56.9	17.7	-0.89	- 6.3	2.7/19.4	32051
1998 FQ ₁₁₈	1999 08 16.0	21 40.68	-03 19.9	18.7	-0.93	- 4.8	4.1/19.0	31769	(8751)	1999 08 17.4	21 45.82	-13 06.7	18.1	-0.79	- 5.0	0.1/17.6	31699
1998 FL ₁₁₇	1999 08 16.1	21 40.71	+07 03.8	18.2	-0.84	- 5.4	7.2/22.6	35623	1998 ES ₃	1999 08 17.4	21 45.85	-33 51.7	17.3	-1.10	- 1.0	7.4/12.5	32316
1991 EA ₄	1999 08 16.1	21 40.87	-14 12.2	18.0	-0.76	- 3.7	0.1/16.1	35683	(8349)	1999 08 17.5	21 46.04	-11 57.1	16.7	-0.95	- 8.3	0.6/18.0	31354
1981 DE ₃	1999 08 16.1	21 40.96	-12 58.4	18.7	-0.99	- 1.3	0.3/16.4	26914	1993 FT ₁₁	1999 08 17.5	21 46.20	-34 31.9	15.8	-1.10	- 1.3	8.0/11.9	26564
1981 DU	1999 08 16.2	21 41.06	-00 42.3	16.9	-0.92	- 2.6	6.5/20.0	26914	(8506)	1999 08 17.6	21 46.37	-17 52.9	16.9	-1.05	- 3.7	1.8/16.5	31497
1995 QB ₁₀	1999 08 16.2	21 41.23	-11 21.6	17.9	-1.03	0.0	0.9/16.8	35427	1995 YK	1999 08 17.6	21 46.67	-25 19.0	17.1	-0.81	- 7.0	4.0/13.8	35428
(8712)	1999 08 16.2	21 41.33	-16 21.9	15.7	-0.76	- 4.6	0.9/15.5	31690	(11040)	1999 08 17.7	21 46.76	-15 36.1	16.8	-0.84	- 4.4	1.2/17.1	35222
1998 AU ₉	1999 08 16.2	21 41.34	-15 08.4	16.7	-0.79	- 3.8	0.4/15.9	35434	(11040)	1999 08 17.7	21 46.76	-15 36.1	16.8	-0.84	- 4.4	1.2/17.1	35222
4221 T-3	1999 08 16.2	21 41.36	-05 58.9	17.7	-0.78	- 6.2	2.4/18.7	35743	1991 RM ₂₉	1999 08 17.7	21 46.82	+05 10.8	18.6	-0.95	- 1.4	6.8/22.3	35601
1994 CN ₁₃	1999 08 16.3	21 41.43	-21 26.4	16.1	-0.86	- 4.7	3.6/14.1	35690	1993 OM ₁₀	1999 08 17.7	21 46.91	-12 52.9	17.9	-0.75	- 4.5	0.2/17.9	32306
1978 VW ₂	1999 08 16.4	21 41.88	-14 10.4	18.9	-0.73	- 4.0	0.1/16.3	30684	1999 OQ	1999 08 17.8	21 47.11	-11 18.6	17.9	-0.81	- 4.4	0.7/18.4	35667
1998 DA ₃₃	1999 08 16.4	21 41.90	-19 15.2	18.6	-0.93	- 3.1	1.9/15.0	32315	1989 GS ₄	1999 08 17.8	21 47.15	-11 09.7	17.1	-0.82	- 5.3	0.8/18.5	35680
1998 KN ₂₄	1999 08 16.4	21 42.06	-39 33.7	16.5	-0.93	- 2.4	8.1/08.8	32333	4317 T-3	1999 08 17.8	21 47.18	-07 44.6	18.8	-0.50	- 3.9	1.1/19.6	23351
1997 AK ₁₈	1999 08 16.4	21 42.08	-17 33.4	18.7	-0.98	- 4.4	1.5/15.5	29125	1998 HF ₁₂₂	1999 08 17.8	21 47.18	-11 37.1	17.4	-0.72	- 7.6	0.5/18.4	35708
(8666)	1999 08 16.5	21 42.25	-17 00.4	17.8	-0.99	- 6.5	1.2/15.6	31679	(8792)	1999 08 17.9	21 47.39	-21 01.5	17.3	-0.89	- 5.0	2.9/15.7	31897
(8808)	1999 08 16.5	21 42.28	-17 57.7	17.4	-0.89	- 3.0	1.5/15.4	31901	1999 NG ₁₁	1999 08 18.0	21 47.79	-18 12.6	17.0	-0.82	- 4.2	1.7/16.6	35661
1991 VJ ₁	1999 08 16.5	21 42.41	-16 44.4	16.8	-0.86	- 6.2	1.4/15.7	35421	1998 FN ₁₁₈	1999 08 18.0	21 47.95	+19 58.9	17.8	-0.80	- 7.9	12.6/30.9	35623
1996 XE ₉	1999 08 16.5	21 42.42	-04 48.6	18.3	-0.99	- 3.3	3.7/18.8	35609	1998 GJ ₁	1999 08 18.0	21 48.05	-15 21.9	17.0	-0.89	- 7.6	0.9/17.4	35623
1998 HM ₁₄₆	1999 08 16.5	21 42.51	-13 26.8	17.5	-0.82	- 5.0	0.1/16.7	35708	1998 CQ ₂	1999 08 18.0	21 48.06	-12 29.0	17.8	-0.97	- 4.2	0.3/18.3	35617
1996 TU ₁₁	1999 08 16.6	21 42.57	-28 01.0	17.9	-1.05	- 6.1	5.9/12.4	35697	1993 GL	1999 08 18.0	21 48.07	-17 48.0	16.6	-0.84	- 4.1	1.5/16.8	35424
1990 QB ₈	1999 08 16.7	21 43.11	-12 20.5	17.7	-0.80	- 6.2	0.4/17.2	35419	1998 FY ₇₁	1999 08 18.0	21 48.11	-19 55.2	17.8	-1.12	- 2.9	3.0/16.4	35438

1991 EY ₁	1999 08 18.0	21 48.11 -12 15.2 17.7	-1.04 - 3.1	0.4/18.3	35420
1993 FB ₄₇	1999 08 18.0	21 48.11 -16 29.1 18.2	-0.89 - 3.9	1.2/17.2	26402
(11288)	1999 08 18.1	21 48.22 -16 53.1 16.7	-0.75 - 7.6	1.2/16.9	35563
1999 MN ₁	1999 08 18.1	21 48.30 -16 15.3 16.3	-0.88 - 2.1	1.5/17.4	35738
1996 XK ₁₂	1999 08 18.1	21 48.55 -28 10.8 19.3	-0.82 - 6.4	4.7/13.4	32311
1998 HQ ₂₄	1999 08 18.2	21 48.65 -07 00.1 18.3	-0.82 - 4.4	2.0/20.0	35439
(11347)	1999 08 18.3	21 49.07 -11 16.3 16.8	-0.93 - 4.9	0.7/18.9	35577
1997 AQ ₁₁	1999 08 18.3	21 49.16 -08 13.3 19.4	-0.84 - 3.5	1.7/19.7	30786
1998 AF ₆	1999 08 18.4	21 49.40 -10 59.9 18.7	-0.92 - 7.6	0.8/19.1	32314
1992 EH ₁₈	1999 08 18.4	21 49.64 -03 32.8 18.2	-0.76 - 5.7	3.0/21.4	30782
1998 HY ₄₄	1999 08 18.5	21 49.97 -12 21.9 17.4	-0.85 - 4.3	0.3/18.8	34532
4035 T-3	1999 08 18.5	21 50.04 -35 40.6 19.0	-0.62 - 1.5	4.1/11.7	27124
(11313)	1999 08 18.6	21 50.03 -14 34.5 17.0	-0.93 - 5.2	0.6/18.2	35569
1996 AE ₄	1999 08 18.6	21 50.22 -13 03.6 17.5	-0.74 - 4.4	0.0/18.7	35428
1981 EN ₄	1999 08 18.6	21 50.41 +01 54.7 17.7	-0.76 - 3.1	4.5/23.0	35415
(11339)	1999 08 18.7	21 50.43 -20 15.2 18.1	-0.94 - 5.7	2.6/16.6	35575
(8543)	1999 08 18.7	21 50.76 -04 06.3 15.3	-0.82 - 5.9	4.5/21.5	35675
1998 MB ₁₆	1999 08 18.8	21 50.74 -18 17.5 18.2	-0.81 - 4.5	1.6/17.3	32756
1997 AD ₁	1999 08 18.8	21 50.78 -16 13.8 17.3	-0.91 - 6.6	1.3/17.9	32312
1994 JQ	1999 08 18.8	21 50.93 -17 03.1 18.1	-0.92 - 4.4	1.5/17.7	32307
1988 RL ₆	1999 08 18.8	21 51.05 -09 17.7 16.1	-0.77 - 9.7	1.7/20.1	35680
3224 T-1	1999 08 18.8	21 51.14 -21 24.3 18.4	-1.12 - 2.4	3.4/16.8	35743
1999 PZ ₄	1999 08 18.9	21 51.36 -09 03.7 17.0	-0.68 - 4.0	2.0/20.1	35670
1988 RW ₃	1999 08 18.9	21 51.40 -15 24.0 17.1	-0.77 - 3.6	0.8/18.3	35680
(9020)	1999 08 18.9	21 51.43 -08 52.4 17.0	-0.85 - 6.8	1.4/20.0	32178
(8907)	1999 08 18.9	21 51.48 -13 36.6 16.6	-0.80 - 3.7	0.2/18.8	31925
1981 EN ₆	1999 08 18.9	21 51.48 -00 56.7 17.7	-0.94 - 2.3	6.0/22.2	26915
1993 FH ₂₇	1999 08 19.0	21 51.63 -15 40.1 15.6	-0.92 - 1.8	1.1/18.3	35687
1991 GL ₇	1999 08 19.0	21 51.65 -05 48.1 17.5	-0.96 - 4.4	2.9/21.0	35683
(11276)	1999 08 19.0	21 51.74 -09 46.8 16.8	-0.93 - 5.2	1.3/20.0	35560
1981 EQ ₂₃	1999 08 19.0	21 51.86 -08 29.3 18.0	-0.73 - 5.7	1.4/20.5	32043
(8768)	1999 08 19.0	21 51.90 -05 51.2 17.0	-0.90 - 5.3	2.5/21.1	31703
1981 EL ₅	1999 08 19.1	21 51.91 +02 08.3 18.6	-0.76 - 3.3	4.6/23.5	25078
1996 TS ₁₀	1999 08 19.1	21 51.93 -24 18.4 17.0	-1.09 - 4.3	5.2/16.0	35429
1998 HK ₅₂	1999 08 19.1	21 52.09 -28 43.1 18.9	-0.82 - 3.8	4.4/14.5	35625
2053 P-L	1999 08 19.1	21 52.13 -07 44.6 17.8	-0.86 - 4.9	1.8/20.7	35742
1995 SQ ₂	1999 08 19.1	21 52.20 +05 42.5 18.2	-0.87 - 2.5	7.5/24.5	35693
(9360)	1999 08 19.1	21 52.22 -11 23.7 17.0	-0.78 - 4.2	0.5/19.6	32620
1995 UG	1999 08 19.1	21 52.31 -04 55.4 17.3	-0.84 - 3.4	3.9/21.4	35605
1981 EO ₂₉	1999 08 19.2	21 52.25 -07 16.6 20.4	-0.62 - 2.9	1.3/20.9	30755
1996 YV ₁	1999 08 19.2	21 52.30 -13 08.1 18.0	-0.90 - 4.2	0.1/19.2	32056
1998 ER ₆	1999 08 19.2	21 52.30 -14 22.8 18.3	-1.04 - 3.5	0.6/18.8	32316
1994 SE ₇	1999 08 19.2	21 52.39 -15 14.3 19.8	-0.75 - 3.8	0.6/18.6	33244
1998 FX ₁₃₃	1999 08 19.2	21 52.63 -12 48.7 19.3	-0.81 - 4.6	0.0/19.3	32325
1992 ST ₁₇	1999 08 19.2	21 52.64 -07 02.7 17.4	-0.89 - 7.1	2.2/21.1	35686
1993 BN	1999 08 19.2	21 52.68 -11 04.1 17.1	-0.93 - 2.1	0.6/19.8	35686
9073 P-L	1999 08 19.3	21 52.62 -15 40.2 16.5	-0.82 - 2.4	1.0/18.5	35479
1996 VW	1999 08 19.3	21 52.62 -06 23.7 17.4	-0.97 - 5.5	2.8/21.1	35697
1981 EH ₅	1999 08 19.3	21 52.62 +01 40.4 18.2	-0.75 - 3.7	4.7/23.6	31945
(8632)	1999 08 19.3	21 52.67 -01 07.3 16.6	-0.74 -10.1	4.7/23.5	31671
1996 AG ₂	1999 08 19.3	21 52.68 -07 25.7 16.6	-0.85 - 0.8	1.7/20.7	35694

1999 NK ₅₆	1999 08 19.3	21 52.74 +06 49.0 15.9	-0.90 - 2.1	7.6/24.9	35740
1990 OB ₅	1999 08 19.3	21 52.86 +08 46.5 16.2	-0.84 - 0.9	9.4/25.4	35681
1998 HK ₃₉	1999 08 19.3	21 52.86 -20 56.6 17.3	-0.90 - 3.4	2.9/17.1	35334
1991 FM ₂	1999 08 19.4	21 53.02 -00 12.8 20.8	-0.69 - 6.3	2.9/23.5	30781
1981 DT ₃	1999 08 19.4	21 53.05 -02 51.3 17.2	-0.84 - 1.2	3.5/22.0	26914
1998 FL ₇₁	1999 08 19.4	21 53.14 -18 44.7 17.6	-1.03 - 3.2	2.2/17.9	35706
3163 T-1	1999 08 19.4	21 53.26 -16 01.2 18.8	-0.54 - 2.4	0.6/18.5	19879
1998 GT ₆	1999 08 19.4	21 53.31 -27 13.8 17.8	-0.90 - 7.0	4.5/15.0	32325
1991 PG ₇	1999 08 19.5	21 53.67 -17 31.5 17.4	-0.71 - 1.9	1.2/18.2	35285
(11433)	1999 08 19.6	21 53.72 -18 22.2 18.1	-0.98 - 4.9	2.0/18.1	35599
1998 DT ₁₁	1999 08 19.6	21 53.77 -12 30.8 17.8	-0.87 - 6.6	8.6/09.0	35316
(11344)	1999 08 19.6	21 54.07 -10 17.4 17.2	-0.97 - 4.6	1.0/20.0	35576
(8398)	1999 08 19.7	21 54.36 -06 59.0 18.7	-0.94 - 6.8	2.1/21.5	31365
1998 FY ₅₈	1999 08 19.7	21 54.44 -22 27.9 19.9	-0.98 - 3.1	3.3/17.2	32321
1998 EF	1999 08 19.7	21 54.45 -18 54.7 17.7	-0.90 - 9.0	2.4/17.8	35705
1988 RP ₁₂	1999 08 19.7	21 54.46 -11 38.6 18.8	-0.48 - 3.0	0.2/20.1	28085
1998 DU	1999 08 19.7	21 54.49 +00 32.9 16.8	-1.50 + 6.8	6.8/21.5	35618
1070 T-2	1999 08 19.8	21 54.64 -05 33.4 17.6	-0.86 - 7.3	2.9/22.1	32092
1998 BM ₁₀	1999 08 19.8	21 54.74 -26 26.3 21.1	-0.96 - 9.1	4.0/15.4	32314
(8636)	1999 08 19.8	21 54.81 -19 01.1 16.2	-0.95 - 5.2	2.8/18.1	35413
1993 FZ ₂₄	1999 08 19.9	21 54.94 -14 23.8 17.5	-0.88 - 2.9	0.6/19.5	35424
1999 NM ₂	1999 08 19.9	21 55.02 +08 05.5 16.9	-0.74 - 5.5	9.3/27.0	35396
(8804)	1999 08 19.9	21 55.17 -32 49.3 16.8	-0.88 - 2.7	6.1/14.1	31900
1998 CP ₂	1999 08 20.0	21 55.29 -10 32.0 17.0	-0.97 - 6.1	0.8/20.6	35435
1981 ED ₄₂	1999 08 20.0	21 55.37 -10 10.8 19.8	-0.74 - 5.2	0.7/20.8	26922
1996 VB ₁	1999 08 20.0	21 55.37 -01 54.4 17.9	-0.94 - 5.2	4.3/23.1	32311
1998 FG ₁₁₇	1999 08 20.0	21 55.48 +08 54.4 16.4	-0.71 - 6.9	9.2/27.8	35329
(11303)	1999 08 20.1	21 55.61 -10 27.7 17.1	-0.98 - 1.0	0.7/20.6	35566
1997 AT	1999 08 20.2	21 56.01 -23 28.8 15.0	-0.75 -10.2	5.1/16.2	35431
1998 FJ ₇₈	1999 08 20.2	21 56.09 -19 35.7 16.8	-0.99 - 7.1	3.2/18.1	35707
1988 SW ₁	1999 08 20.3	21 56.45 -33 56.5 18.9	-0.62 - 1.6	4.0/13.7	21972
1994 EL ₂	1999 08 20.3	21 56.46 -25 42.3 18.4	-1.08 - 1.2	4.6/17.2	35425
1998 HA ₁₁₈	1999 08 20.3	21 56.65 -18 13.6 19.2	-0.81 - 6.4	1.8/18.6	32271
1998 KX ₅₄	1999 08 20.4	21 56.70 -34 46.9 18.6	-0.80 - 6.9	6.0/12.7	32336
1998 JO ₁	1999 08 20.4	21 56.73 -15 58.1 17.2	-0.76 - 4.0	1.1/19.4	35440
1992 GZ ₄	1999 08 20.4	21 56.91 -16 09.5 17.7	-0.76 - 4.2	1.1/19.4	32048
1990 OG ₄	1999 08 20.4	21 56.91 +09 02.3 15.8	-0.81 + 1.8	10.6/25.8	35419
1986 RW ₅	1999 08 20.4	21 57.01 -04 51.1 15.7	-0.85 - 5.5	3.9/22.7	35679
1994 EO ₂	1999 08 20.5	21 57.10 -41 09.0 17.7	-1.56 + 0.9	10.7/13.3	35690
1992 UN ₂	1999 08 20.5	21 57.39 -18 19.7 17.3	-0.99 - 5.1	2.5/18.9	35686
1978 QF ₁	1999 08 20.7	21 57.79 -05 39.4 16.5	-0.85 - 7.4	3.2/22.8	35676
1995 VO	1999 08 20.7	21 57.83 -29 11.2 17.3	-0.87 - 3.2	5.0/15.8	35427
(8815)	1999 08 20.7	21 57.83 -13 30.3 16.2	-0.95 - 8.3	0.4/20.4	31902
1998 FZ ₁₀₂	1999 08 20.7	21 57.93 -12 58.6 17.9	-1.04 - 2.9	0.2/20.6	35707
1998 KO ₆	1999 08 20.7	21 58.08 -28 36.1 17.0	-0.83 - 4.9	5.1/15.7	35440
(8723)	1999 08 20.7	21 58.26 -21 57.0 17.9	-1.08 - 3.9	3.7/18.2	31693
(8836)	1999 08 20.8	21 58.24 -03 18.2 17.4	-0.71 - 6.1	2.7/23.8	31908
3502 T-3	1999 08 20.8	21 58.30 -15 30.3 18.4	-1.04 - 5.3	1.3/20.0	31826
1999 OB ₁	1999 08 20.8	21 58.30 +00 00.1 17.6	-0.90 - 5.5	5.6/24.6	35668
1989 SV ₂	1999 08 20.8	21 58.49 -28 25.7 18.2	-0.86 - 3.1	4.8/16.2	35418
(8876)	1999 08 21.0	21 59.16 -12 45.5 15.8	-0.97 - 4.1	0.2/20.9	35413

1981 EH ₂₂	1999 08 21.0	21 59.27 -09 14.8 18.1	-0.86 - 5.2	1.1/22.0	32509
1998 ML ₄	1999 08 21.0	21 59.27 -15 01.5 16.8	-0.68 -11.9	0.8/20.1	35338
(8650)	1999 08 21.0	21 59.33 -11 41.6 16.7	-1.06 - 3.0	0.3/21.2	31675
1993 FZ ₂₀	1999 08 21.0	21 59.35 -10 33.0 19.3	-0.84 - 5.1	0.6/21.6	35687
1994 PT ₃₂	1999 08 21.1	21 59.33 -02 35.9 18.4	-0.72 - 7.1	3.2/24.3	31386
1988 SK ₂	1999 08 21.1	21 59.38 -11 52.8 18.7	-0.49 - 2.8	0.1/21.3	35680
1997 JD	1999 08 21.1	21 59.70 +00 48.3 18.2	-0.73 - 4.3	3.8/25.2	35611
1994 GY ₁₀	1999 08 21.2	21 59.66 -27 10.8 17.9	-0.97 - 3.6	5.3/17.0	35604
1991 PZ ₁₄	1999 08 21.2	22 00.08 -03 11.6 16.3	-0.82 - 7.3	3.7/24.2	35420
(8460)	1999 08 21.3	22 00.10 -10 19.9 16.8	-0.92 - 7.0	0.8/21.9	31487
1988 TE	1999 08 21.3	22 00.46 -09 45.2 15.6	-0.84 - 4.0	1.2/22.1	35680
1998 DK ₁	1999 08 21.4	22 00.66 -14 37.8 17.8	-1.07 - 4.5	1.0/20.8	35705
1997 EQ ₂₅	1999 08 21.4	22 00.66 -03 23.8 18.0	-0.65 - 7.0	2.6/24.4	35699
1998 HV ₁₂₉	1999 08 21.5	22 01.12 -15 01.7 19.9	-1.00 - 4.7	1.0/20.8	32330
1997 JM ₁₁	1999 08 21.6	22 01.28 -15 00.2 18.9	-0.61 - 3.5	0.6/20.7	30672
1996 TQ ₇	1999 08 21.6	22 01.28 -19 32.0 19.0	-0.97 - 6.7	2.9/19.4	32054
1998 FP ₁₀₆	1999 08 21.6	22 01.43 -04 45.5 19.3	-0.88 - 4.7	2.5/23.8	32754
1998 HY ₁₁₄	1999 08 21.7	22 01.57 -12 20.6 17.8	-0.74 - 7.5	0.1/21.6	32329
1981 ES ₁₂	1999 08 21.7	22 01.65 +04 40.0 18.3	-0.71 - 5.6	4.8/27.2	32298
1993 FD ₅₁	1999 08 21.7	22 01.69 -11 11.7 16.4	-0.84 - 4.3	0.4/22.0	35687
1998 BT ₂₄	1999 08 21.7	22 01.82 -17 38.0 16.8	-1.08 - 2.3	2.5/20.4	35312
(8901)	1999 08 21.7	22 01.92 -29 56.8 16.7	-0.87 - 3.2	5.4/16.5	35675
1993 FF ₁₉	1999 08 21.8	22 02.08 -12 09.4 17.5	-0.80 - 7.6	0.0/21.8	33683
1993 FZ ₅₇	1999 08 21.8	22 02.14 -08 24.6 17.6	-0.83 - 4.9	1.4/22.9	32050
1990 DT ₂	1999 08 21.9	22 02.27 -09 22.6 18.7	-0.92 - 4.9	0.9/22.7	34178
1996 BM ₃	1999 08 21.9	22 02.34 -11 58.3 17.3	-0.73 - 4.2	0.0/21.9	35607
(9458)	1999 08 21.9	22 02.35 -05 01.8 17.4	-0.90 - 4.6	2.5/24.0	32643
1998 BO ₂₆	1999 08 21.9	22 02.66 -11 49.2 21.6	-0.96 - 4.3	0.1/22.0	35704
1998 KD ₂₂	1999 08 22.0	22 02.71 -16 07.3 16.9	-0.77 - 4.3	1.3/20.8	35708
1991 TG ₂	1999 08 22.0	22 02.77 -23 29.7 16.6	-1.01 - 4.9	4.9/18.6	23518
1993 FT ₁₀	1999 08 22.0	22 02.94 -09 58.7 19.9	-0.80 - 5.5	0.6/22.7	26564
(9430)	1999 08 22.0	22 02.99 -11 55.0 17.1	-0.50 - 2.6	0.0/22.1	32637
1998 FE ₁₁₅	1999 08 22.1	22 03.02 +05 48.1 18.1	-0.82 - 5.4	5.8/27.9	32324
1996 FP ₁	1999 08 22.1	22 03.17 -14 39.4 18.9	-0.62 - 2.9	0.6/21.3	35695
2064 P-L	1999 08 22.1	22 03.22 -09 17.2 18.5	-0.74 - 3.4	0.7/22.9	35742
1992 HY ₆	1999 08 22.1	22 03.28 -20 40.1 17.1	-0.99 - 6.5	4.0/19.6	35422
1994 EQ	1999 08 22.2	22 03.35 -32 01.6 17.5	-1.11 - 0.2	8.0/17.3	35425
(11290)	1999 08 22.2	22 03.55 -09 31.0 15.9	-1.09 + 2.6	1.1/22.7	35563
1994 CO ₁₆	1999 08 22.2	22 03.61 -15 49.6 17.6	-0.91 - 7.9	1.5/21.0	35690
1997 EQ ₄₁	1999 08 22.2	22 03.70 -05 55.4 17.8	-0.72 - 6.8	1.8/24.3	35699
1991 GE ₂	1999 08 22.3	22 04.10 -32 32.4 15.6	-0.84 - 9.4	9.2/14.8	35420
(8651)	1999 08 22.3	22 04.13 -07 38.2 15.5	-0.86 - 3.0	2.3/23.6	35675
1981 EN ₄₃	1999 08 22.4	22 04.17 -22 51.0 19.5	-0.91 - 1.5	3.7/19.5	26923
1152 T-2	1999 08 22.4	22 04.26 -19 22.2 16.4	-0.97 - 1.7	3.6/20.5	31825
1175 T-2	1999 08 22.4	22 04.28 -10 27.8 18.6	-0.94 - 5.2	0.5/22.8	35743
1998 KN ₅₅	1999 08 22.4	22 04.28 -05 12.0 18.6	-0.77 - 6.6	2.1/24.6	32755
1993 BX ₂	1999 08 22.5	22 04.51 -08 55.9 16.9	-0.95 - 1.8	0.9/23.3	35686
1998 FS ₇₂	1999 08 22.5	22 04.52 -23 54.2 19.1	-0.96 - 5.0	4.3/18.9	32069
4202 P-L	1999 08 22.5	22 04.59 -14 28.4 17.0	-0.96 - 1.7	1.0/21.9	35671
1998 HL ₃₀	1999 08 22.5	22 04.63 -21 28.5 18.2	-1.03 - 5.4	3.7/19.7	32327
1991 VU ₅	1999 08 22.5	22 04.67 +03 59.4 16.9	-0.71 - 8.4	6.7/28.1	35684

1996 VH ₄	1999 08 22.5	22 04.84 -32 01.4 17.9	-0.93 - 5.0	6.3/16.2	35429
1994 WG	1999 08 22.6	22 04.81 +08 50.2 17.0	-0.71 - 2.8	5.9/29.0	35426
1997 AD ₈	1999 08 22.6	22 04.97 -08 06.6 18.2	-0.85 - 4.3	1.5/23.7	35698
(8942)	1999 08 22.6	22 05.10 -11 18.4 17.1	-0.80 - 6.3	0.2/22.8	31933
1998 KW ₃	1999 08 22.7	22 05.53 -07 22.4 17.8	-0.72 - 5.5	1.3/24.2	35708
1990 KD ₁	1999 08 22.7	22 05.57 +00 08.2 17.9	-0.81 - 8.0	4.0/26.8	35681
(8719)	1999 08 22.7	22 05.58 +10 59.3 16.3	-0.72 - 5.4	9.8/30.8	31691
1999 OK ₃	1999 08 22.8	22 05.64 -07 37.3 17.0	-0.97 - 1.1	1.6/23.8	35668
1990 UH ₄	1999 08 22.8	22 05.75 -41 45.8 17.9	-1.05 - 3.6	10.3/12.3	26397
1981 EW ₅	1999 08 22.8	22 05.80 +09 45.0 17.5	-0.83 - 5.2	8.2/29.6	35415
2029 T-3	1999 08 22.8	22 05.85 -18 34.8 18.9	-0.91 - 2.6	2.1/21.0	31609
1993 BR ₃	1999 08 22.8	22 05.90 -21 26.9 17.7	-0.84 - 8.0	3.2/19.6	35423
1999 NQ ₂	1999 08 22.8	22 05.92 -07 50.2 15.9	-0.89 - 0.4	2.1/23.8	35397
1981 EH ₂	1999 08 22.8	22 05.93 +02 36.2 19.9	-0.72 - 4.6	3.9/27.4	30779
1981 DR ₃	1999 08 22.9	22 05.95 -00 46.5 17.7	-0.95 - 1.3	4.6/25.7	26914
1995 XC	1999 08 22.9	22 06.00 +05 28.7 18.1	-0.71 - 3.4	4.4/28.3	35296
1998 DT ₁₀	1999 08 22.9	22 06.11 -08 05.6 17.4	-0.93 - 5.0	1.3/24.0	35705
(9331)	1999 08 22.9	22 06.11 -17 13.8 17.9	-0.89 - 3.3	2.0/21.4	32613
1997 AQ ₅	1999 08 22.9	22 06.16 -22 26.9 17.3	-0.85 - 4.4	3.5/19.7	35431
2293 T-3	1999 08 22.9	22 06.33 -23 12.4 18.6	-0.88 - 1.5	3.6/19.8	31411
(8645)	1999 08 23.0	22 06.45 -18 36.6 15.9	-1.00 - 3.2	2.8/21.1	31674
(9104)	1999 08 23.0	22 06.56 -21 45.0 18.5	-0.83 - 5.4	2.9/19.9	32197
1998 FX ₂₇	1999 08 23.0	22 06.59 -10 09.9 18.1	-1.03 - 4.7	0.6/23.5	32318
1981 EG ₄₄	1999 08 23.0	22 06.60 -22 26.0 17.6	-0.85 - 2.4	3.2/20.0	35416
1981 ET ₆	1999 08 23.0	22 06.64 -09 22.0 19.3	-0.65 - 2.1	0.5/23.8	26916
1993 FS ₂₇	1999 08 23.1	22 06.76 -02 23.6 17.3	-0.79 - 5.6	3.4/26.0	32050
5578 P-L	1999 08 23.1	22 06.78 -01 47.3 18.4	-0.78 - 8.1	3.9/26.5	32729
1981 EM ₆	1999 08 23.1	22 06.95 +10 11.4 17.3	-0.75 - 6.7	8.8/30.8	35415
1998 KE ₁	1999 08 23.1	22 07.04 -31 16.0 17.1	-0.87 - 3.3	6.5/17.1	32332
1997 EL	1999 08 23.2	22 07.08 -11 56.9 15.7	-0.71 - 8.5	0.1/23.1	35698
1989 SR	1999 08 23.2	22 07.16 +03 20.7 16.4	-0.76 - 4.0	5.1/27.8	32301
1978 RQ ₉	1999 08 23.2	22 07.21 -16 11.5 17.3	-1.07 - 2.3	1.9/22.1	35676
3169 T-2	1999 08 23.2	22 07.28 -24 58.5 18.3	-1.18 - 1.8	6.1/19.8	32293
1984 SY ₁	1999 08 23.3	22 07.43 +03 01.6 16.5	-0.75 - 4.5	4.7/27.9	35678
1981 EW ₂₆	1999 08 23.3	22 07.60 -02 56.8 18.5	-0.69 - 7.8	2.7/26.3	34824
1981 ER ₁₈	1999 08 23.3	22 07.66 -13 49.3 18.8	-0.93 - 3.5	0.8/22.7	22429
(8911)	1999 08 23.3	22 07.70 -23 02.0 17.1	-0.81 - 4.5	3.6/19.8	31925
1998 HT ₁₉	1999 08 23.4	22 07.87 -06 31.4 17.2	-0.96 - 6.0	2.4/24.9	35707
1998 ER ₃	1999 08 23.4	22 07.93 -14 44.9 19.0	-0.95 - 4.7	1.1/22.5	32316
1981 VF	1999 08 23.4	22 07.99 -22 03.0 15.3	-0.88 - 2.2	5.5/20.4	32043
1998 FJ ₂₂	1999 08 23.4	22 08.09 -07 04.6 18.1	-0.96 - 6.3	1.7/24.8	35706
1988 QZ	1999 08 23.4	22 08.21 -15 52.6 15.6	-1.13 +15.2	2.8/23.2	29912
1998 GL ₁	1999 08 23.5	22 08.34 -35 32.6 18.1	-1.13 - 1.1	8.4/17.0	35623
(11025)	1999 08 23.6	22 08.58 -12 47.4 16.5	-0.67 -12.6	0.6/23.1	35218
(11025)	1999 08 23.6	22 08.58 -12 47.4 16.5	-0.67 -12.6	0.6/23.1	35218
1998 BN ₈	1999 08 23.6	22 08.60 -15 55.7 18.3	-1.07 - 3.7	1.8/22.4	32059
1981 ES ₂₃	1999 08 23.6	22 08.70 -11 11.0 18.0	-0.87 - 5.5	0.1/23.7	35677
1997 CO ₁₉	1999 08 23.6	22 08.71 -21 11.4 18.3	-0.78 - 4.0	2.8/20.7	35431
1997 AF ₈	1999 08 23.6	22 08.82 -07 53.9 21.2	-0.74 - 3.9	0.9/24.7	30786
1996 AS ₂	1999 08 23.6	22 08.90 -14 18.2 18.6	-0.77 - 4.0	0.8/22.8	30093
(8921)	1999 08 23.7	22 09.05 -24 56.2 17.4	-0.99 - 4.5	4.6/19.8	31928

1999 AUG. 31

M.P.C. 35755

1994 EO₆ 1999 08 23.7 22 09.08 -20 55.4 17.1 -0.96 - 5.8 4.0/20.8 32307
 1993 FU₃₃ 1999 08 23.7 22 09.10 -18 51.4 17.7 -0.86 - 4.4 2.3/21.5 35687
 1981 SE₉ 1999 08 23.7 22 09.29 -16 00.8 15.6 -0.70 - 6.8 2.4/22.2 35678
 1998 HF₁₀₀ 1999 08 23.8 22 09.28 -14 42.5 18.1 -0.84 - 5.7 1.0/22.8 32020
 1998 HO₁₂₄ 1999 08 23.8 22 09.50 -10 23.1 17.8 -0.89 - 7.3 0.3/24.2 32330
 1996 TS₅ 1999 08 23.8 22 09.52 +14 15.5 17.6 -1.17 + 0.9 9.0/30.0 35696
 (8485) 1999 08 23.8 22 09.61 -15 33.9 17.3 -0.94 - 2.1 1.4/22.8 31492
 1997 EJ₆ 1999 08 23.8 22 09.65 -28 26.7 18.5 -0.82 - 3.2 4.7/18.7 32058
 1993 FA₃₇ 1999 08 23.9 22 09.65 -12 09.8 17.1 -0.85 - 6.2 0.3/23.7 35687
 (9108) 1999 08 23.9 22 09.87 -10 27.9 16.8 -0.85 - 6.6 0.3/24.2 32198
 (8849) 1999 08 23.9 22 09.87 -01 18.3 17.0 -0.72 - 7.3 3.4/27.4 31911
 1981 EF₂₉ 1999 08 24.0 22 09.97 -11 05.8 18.0 -0.80 - 2.8 0.1/24.1 26920
 1998 HE₂₀ 1999 08 24.0 22 10.05 -09 38.4 16.4 -0.78 - 5.2 0.6/24.5 35707
 1994 CF₁₀ 1999 08 24.1 22 10.44 -17 05.2 16.5 -0.97 - 5.8 2.6/22.4 35293
 (11367) 1999 08 24.1 22 10.53 -06 32.4 16.2 -0.72 -12.3 1.8/25.9 35582
 (9129) 1999 08 24.1 22 10.70 -10 25.9 16.4 -0.74 - 4.7 0.3/24.4 32203
 1995 MB 1999 08 24.2 22 10.87 +34 39.2 15.5 -1.27 + 5.7 20.1/09.9 35693
 1995 HP 1999 08 24.2 22 11.00 -17 57.3 16.0 -0.73 - 6.2 3.5/22.0 35693
 1997 AZ₂₁ 1999 08 24.2 22 11.06 -12 30.3 17.4 -0.78 - 4.0 0.4/23.9 35698
 (8791) 1999 08 24.3 22 11.17 -24 28.6 16.6 -0.89 - 5.0 5.6/20.1 31897
 1991 RD₇ 1999 08 24.3 22 11.25 -31 12.9 16.1 -1.25 + 3.5 9.0/20.0 31785
 (8872) 1999 08 24.4 22 11.48 -10 54.2 17.4 -0.73 - 4.5 0.1/24.5 31916
 2317 T-3 1999 08 24.4 22 11.69 -13 49.7 18.4 -0.96 - 4.3 0.9/23.7 32293
 1996 TD₁₅ 1999 08 24.4 22 11.70 +16 13.7 16.9 -0.88 - 8.9 9.8/03.2 35697
 1998 HH₁₂₃ 1999 08 24.4 22 11.73 -00 49.9 16.7 -0.76 - 9.1 3.8/28.1 32330
 (8944) 1999 08 24.4 22 11.86 -10 22.7 18.6 -0.74 - 4.3 0.2/24.7 31933
 1994 CA₁₈ 1999 08 24.5 22 11.88 -16 43.9 18.5 -0.94 - 5.5 2.0/22.9 33240
 1998 HV₁₉ 1999 08 24.5 22 11.89 -15 50.5 18.3 -1.08 - 3.7 2.1/23.3 35707
 1998 FB₁₁₁ 1999 08 24.5 22 12.03 -03 38.6 17.0 -0.82 - 2.6 2.5/26.7 35438
 1996 TL₅ 1999 08 24.5 22 12.16 -15 29.3 19.0 -0.94 - 7.2 1.6/23.2 35696
 1995 VS₈ 1999 08 24.6 22 12.29 -16 03.9 18.2 -0.81 - 4.3 1.6/23.1 35694
 1998 FL₁₂₃ 1999 08 24.6 22 12.43 -09 05.2 19.8 -0.93 - 4.9 0.7/25.2 32754
 1994 UH₂ 1999 08 24.6 22 12.45 -16 29.2 16.3 -0.78 - 4.3 1.9/23.0 35692
 5161 T-2 1999 08 24.6 22 12.55 -14 05.9 17.1 -1.03 - 0.7 1.1/23.9 16038
 1981 EE₂₂ 1999 08 24.7 22 12.68 -16 22.3 19.2 -0.79 - 3.3 1.5/23.2 22271
 (10999) 1999 08 24.7 22 12.74 +12 36.5 15.4 -0.56 - 1.8 12.5/02.4 35211
 (10999) 1999 08 24.7 22 12.74 +12 36.5 15.4 -0.56 - 1.8 12.5/02.4 35211
 1998 FV₆₇ 1999 08 24.7 22 12.79 -11 37.5 17.2 -0.77 - 5.8 8.2/14.0 35706
 1992 RF₂ 1999 08 24.8 22 13.12 -05 22.9 17.4 -0.90 - 6.9 2.4/26.6 32227
 1996 SA₁ 1999 08 24.8 22 13.17 -22 45.9 18.4 -1.16 - 2.4 4.8/21.8 32310
 1995 VJ₁₆ 1999 08 24.9 22 13.66 -03 16.5 18.3 -0.78 - 4.7 3.1/27.4 30784
 1981 EF₂₇ 1999 08 25.0 22 13.69 -07 04.6 18.3 -0.84 - 6.2 1.4/26.2 32043
 1990 ER₂ 1999 08 25.1 22 14.06 -02 53.5 18.4 -0.88 - 5.4 3.0/27.6 35681
 1997 AL₁₀ 1999 08 25.1 22 14.11 -10 17.2 18.7 -0.90 - 5.0 0.2/25.3 32955
 1996 XT₁₆ 1999 08 25.1 22 14.12 -08 18.9 19.3 -0.94 - 5.2 0.9/25.9 35697
 (8359) 1999 08 25.1 22 14.18 -24 40.0 15.6 -1.01 - 4.9 5.2/21.1 31356
 1991 UL₃ 1999 08 25.1 22 14.30 +08 21.5 16.3 -0.71 - 6.8 8.4/32.0 35421
 1999 OU₃ 1999 08 25.2 22 14.50 -16 43.5 16.7 -0.78 -11.7 2.3/23.1 35669
 1998 FP₇₇ 1999 08 25.2 22 14.72 -15 49.3 16.8 -0.92 - 8.1 2.1/23.7 32001
 4573 P-L 1999 08 25.3 22 15.01 -22 22.2 18.8 -0.82 - 2.6 3.3/22.0 30681
 1998 HJ₁₄₈ 1999 08 25.3 22 15.13 -10 39.7 18.1 -0.75 - 4.7 0.1/25.4 32025

4179 T-3 1999 08 25.4 22 15.36 -17 19.9 18.5 -0.50 - 2.9 1.2/23.3 35743
 1998 KV₅₄ 1999 08 25.4 22 15.41 -25 39.4 17.3 -0.74 - 8.5 4.1/20.1 32522
 (11361) 1999 08 25.4 22 15.48 -21 15.0 17.1 -1.01 - 3.7 4.0/22.6 35581
 1998 HU₄₃ 1999 08 25.4 22 15.53 -24 26.5 16.4 -1.12 - 4.0 6.0/21.6 32754
 1993 OR₅ 1999 08 25.5 22 15.56 -10 10.2 17.2 -0.73 - 4.3 0.2/25.7 27916
 (8413) 1999 08 25.5 22 15.88 -22 32.0 16.1 -1.05 - 3.5 5.3/22.4 35413
 1993 FS₂₃ 1999 08 25.6 22 15.88 -10 37.7 17.5 -0.84 - 3.7 0.1/25.7 35687
 1978 VZ₆ 1999 08 25.6 22 16.11 -07 48.3 18.2 -0.75 - 4.3 0.9/26.6 23968
 1998 FC₆₈ 1999 08 25.7 22 16.22 -20 27.4 18.2 -1.17 - 2.9 4.2/23.1 35706
 3487 T-3 1999 08 25.7 22 16.22 -14 51.8 17.7 -0.88 - 3.9 1.4/24.5 26186
 1981 EZ₁₅ 1999 08 25.7 22 16.38 -05 48.6 18.8 -1.04 - 3.2 2.1/27.0 35677
 (8404) 1999 08 25.7 22 16.57 -19 50.0 15.8 -1.55 + 3.8 4.3/24.2 31366
 1998 KX₄₈ 1999 08 25.7 22 16.58 -20 31.0 16.7 -0.75 - 6.8 3.1/22.5 35440
 1981 EH₃₃ 1999 08 25.9 22 17.00 -01 02.6 18.7 -0.70 - 6.5 3.0/29.2 32212
 4090 P-L 1999 08 25.9 22 17.25 -11 12.3 18.1 -0.79 - 3.0 0.2/25.8 35742
 (8454) 1999 08 25.9 22 17.30 -15 36.4 16.9 -0.91 - 3.9 1.8/24.5 31485
 1981 EC₂₄ 1999 08 25.9 22 17.36 -08 21.1 20.2 -0.61 - 3.8 0.5/26.7 31224
 1998 JC₂ 1999 08 26.0 22 17.36 -14 46.6 18.1 -0.80 - 5.1 1.4/24.7 35440
 1978 VF₅ 1999 08 26.0 22 17.45 -23 36.0 18.4 -0.99 - 5.2 4.8/22.1 32298
 1998 EV₁₃ 1999 08 26.0 22 17.55 -15 55.4 18.9 -0.99 - 4.9 1.9/24.5 32316
 1998 HJ₅₄ 1999 08 26.1 22 17.70 +02 29.0 17.3 -0.77 - 6.3 4.9/30.5 32268
 1998 KV₄₈ 1999 08 26.1 22 17.84 -26 19.1 17.6 -0.77 - 5.6 4.6/20.9 32335
 1988 VM₉ 1999 08 26.1 22 17.88 -21 08.2 17.7 -1.02 - 3.9 3.9/23.1 35680
 1128 T-3 1999 08 26.1 22 17.97 -17 58.0 17.3 -0.94 + 0.4 2.6/24.3 35743
 1995 GV 1999 08 26.1 22 18.12 -06 33.6 16.6 -0.93 - 6.9 1.7/27.4 35693
 1997 BD₉ 1999 08 26.2 22 18.33 -12 57.5 18.3 -0.72 - 4.5 0.7/25.5 32313
 6539 P-L 1999 08 26.2 22 18.48 -06 27.3 17.2 -0.77 - 7.9 1.5/27.7 35743
 1998 FA₁₂ 1999 08 26.2 22 18.49 -24 01.1 18.5 -1.08 - 3.0 5.3/22.6 34908
 1981 EA₃₆ 1999 08 26.2 22 18.49 -09 14.7 18.2 -0.92 - 3.5 0.5/26.7 35678
 1991 PK₁ 1999 08 26.3 22 18.62 -18 31.7 16.2 -0.76 -13.4 3.2/23.2 35601
 1998 HK₂₄ 1999 08 26.3 22 18.65 +01 26.9 18.4 -0.72 -11.5 4.8/30.8 35707
 1981 EJ₈ 1999 08 26.4 22 18.83 -06 06.2 19.8 -0.75 - 4.2 1.2/27.8 30649
 1998 FT₁₁₅ 1999 08 26.4 22 19.13 -06 54.5 17.2 -0.85 - 3.7 1.2/27.5 35707
 (11277) 1999 08 26.4 22 19.15 +36 20.1 15.6 -0.94 - 0.1 20.2/19.0 35560
 (8554) 1999 08 26.5 22 19.35 -10 46.3 18.4 -0.98 - 6.5 0.1/26.4 31508
 4134 P-L 1999 08 26.5 22 19.50 -13 48.2 19.2 -1.08 - 3.4 1.4/25.7 32091
 (9033) 1999 08 26.5 22 19.55 -30 06.5 15.8 -0.79 - 7.4 6.3/19.3 32181
 1993 FB₅ 1999 08 26.6 22 19.58 -16 51.5 18.1 -0.87 - 3.5 2.0/24.7 31960
 1998 FJ₆₆ 1999 08 26.6 22 19.72 -21 54.8 17.4 -1.03 - 1.8 4.3/23.6 34912
 1993 FA₄₆ 1999 08 26.7 22 20.26 -06 55.2 17.0 -0.82 - 5.5 1.3/27.9 32230
 (8630) 1999 08 26.8 22 20.54 -14 03.3 16.9 -1.04 - 3.7 1.6/25.8 31670
 1993 BD₆ 1999 08 26.9 22 20.87 -10 22.9 16.9 -0.88 - 3.9 0.0/26.9 32305
 1981 EL₂₈ 1999 08 26.9 22 20.92 -10 07.0 18.8 -0.80 - 5.0 0.1/27.0 35677
 1993 FQ₂ 1999 08 26.9 22 20.97 -23 05.8 17.6 -0.91 - 3.0 3.8/23.3 32306
 1998 KM₅₅ 1999 08 26.9 22 21.03 +08 14.2 17.0 -0.80 - 5.6 5.9/02.1 35440
 1991 YE₁ 1999 08 27.0 22 21.21 -30 58.1 16.4 -0.86 - 8.4 7.9/19.2 35421
 1998 FU₇₉ 1999 08 27.0 22 21.22 -19 02.9 17.9 -1.04 - 5.8 3.8/24.4 32324
 (8965) 1999 08 27.0 22 21.38 -10 04.6 17.2 -0.75 - 4.6 0.1/27.1 31938
 1998 DK₁₄ 1999 08 27.0 22 21.43 -13 09.8 18.0 -1.01 - 3.8 1.2/26.3 35705
 (8844) 1999 08 27.1 22 21.38 -10 31.6 15.8 -0.87 - 3.1 0.1/27.0 31909
 1995 WO₁₅ 1999 08 27.1 22 21.49 -13 30.5 18.7 -0.85 - 4.2 1.1/26.2 32054

1995 PG	1999 08 27.1	22 21.56	-09 47.1	18.7	-1.06	- 0.6	0.2/27.3	35693	1996 XJ ₁	1999 08 28.5	22 26.55	-17 21.2	16.0	-0.83	- 5.2	3.6/26.1	35697
1998 FY ₁₁	1999 08 27.1	22 21.64	-08 43.2	16.7	-0.80	- 8.3	0.5/27.7	35706	1998 BK ₄	1999 08 28.5	22 26.62	-14 18.1	19.9	-0.98	- 6.5	1.6/27.1	31797
(11341)	1999 08 27.1	22 21.66	-22 57.7	17.0	-0.97	- 5.6	4.7/23.2	35576	(8847)	1999 08 28.5	22 26.62	-07 54.1	17.2	-0.80	- 4.9	0.6/29.1	31910
1997 AF ₄	1999 08 27.2	22 21.70	-15 15.0	18.1	-0.79	- 6.5	1.5/25.5	35698	1998 MY ₁	1999 08 28.5	22 26.80	+07 57.8	18.5	-0.81	- 5.2	5.6/03.4	35709
(9505)	1999 08 27.2	22 21.79	-15 04.9	19.0	-0.77	- 4.1	1.3/25.7	32655	1998 KC ₅	1999 08 28.6	22 26.88	-11 06.1	16.4	-0.77	- 5.6	0.5/28.2	35708
1998 JK ₃	1999 08 27.2	22 22.06	-15 34.0	16.9	-0.72	- 6.4	1.9/25.5	32332	1994 PW ₂₉	1999 08 28.6	22 26.92	-01 19.9	17.6	-0.71	- 7.8	2.9/31.6	32747
(8908)	1999 08 27.3	22 22.27	-27 44.2	16.7	-0.85	- 3.6	5.4/21.9	31925	(8952)	1999 08 28.6	22 26.92	-13 35.9	17.4	-0.89	- 4.7	1.4/27.5	31935
1998 KK ₅₄	1999 08 27.3	22 22.32	-24 33.9	17.8	-0.80	- 7.2	4.3/22.4	35709	1996 XY ₂₈	1999 08 28.6	22 27.00	-12 43.9	18.0	-0.92	- 5.2	1.0/27.7	32312
1998 JR	1999 08 27.3	22 22.44	-06 10.4	17.9	-0.84	- 3.5	1.5/28.6	35708	1992 PV ₃	1999 08 28.6	22 27.10	-16 27.3	16.3	-0.86	- 6.9	3.2/26.5	35686
1998 FC ₇₅	1999 08 27.3	22 22.47	+00 12.4	17.4	-0.76	- 7.3	3.7/31.0	32323	1998 EP ₂	1999 08 28.6	22 27.10	-11 31.1	19.1	-0.94	- 4.7	0.6/28.1	32316
1993 FY ₈	1999 08 27.4	22 22.55	-17 43.5	17.4	-0.85	- 4.3	2.8/25.1	35687	1998 MH ₃	1999 08 28.7	22 27.46	+34 23.8	18.7	-0.86	- 3.5	14.4/16.3	32285
(8477)	1999 08 27.4	22 22.56	-10 27.4	15.5	-0.83	- 7.0	0.2/27.3	31490	1994 PO ₂₅	1999 08 28.7	22 27.51	-14 05.6	18.3	-0.81	- 4.3	1.5/27.4	32308
1981 ES ₁₅	1999 08 27.5	22 22.97	-12 06.6	18.5	-1.04	- 1.1	0.8/27.0	26918	1998 DE ₁₁	1999 08 28.7	22 27.61	-04 58.1	18.0	-1.00	- 6.4	1.9/30.2	32060
1998 EZ ₈	1999 08 27.5	22 23.00	-26 54.2	17.8	-0.99	- 2.9	6.4/22.8	32061	(9094)	1999 08 28.8	22 27.58	-14 18.7	17.3	-0.80	- 5.3	1.6/27.3	32195
1998 FK ₁₅	1999 08 27.5	22 23.03	-07 15.9	19.0	-0.89	- 7.2	1.0/28.5	32317	1981 EK ₂₀	1999 08 28.8	22 27.61	-18 50.0	17.5	-1.06	0.0	3.7/26.6	32298
1991 TB ₆	1999 08 27.5	22 23.09	-39 21.6	16.3	-1.13	+ 0.6	12.4/19.0	35684	1994 PP ₃₄	1999 08 28.8	22 27.63	-07 52.9	18.0	-0.80	- 4.3	0.6/29.4	24570
(8784)	1999 08 27.6	22 23.33	-09 29.9	16.9	-0.87	- 7.0	0.2/27.8	31895	(8920)	1999 08 28.8	22 27.65	-14 30.5	18.0	-0.95	- 6.1	1.7/27.3	31928
1978 PE	1999 08 27.6	22 23.34	-14 28.7	15.9	-0.67	- 9.6	2.3/26.0	35676	1993 BF ₃	1999 08 28.8	22 27.83	-09 18.2	17.7	-0.92	- 3.8	0.1/29.0	29136
1998 FO ₁₂₁	1999 08 27.6	22 23.35	-09 58.0	18.1	-0.87	- 6.0	0.0/27.7	32325	1981 EG ₁₈	1999 08 28.9	22 27.98	-11 27.7	17.0	-1.03	- 2.7	0.8/28.4	32042
1989 GU ₆	1999 08 27.6	22 23.43	-31 48.8	20.7	-0.92	- 4.1	5.7/20.9	31950	1996 XU ₃₀	1999 08 28.9	22 28.02	+07 44.1	17.5	-0.92	- 4.9	6.9/03.3	35698
1988 RH ₁₃	1999 08 27.6	22 23.56	-31 10.8	17.1	-0.59	- 2.0	4.0/20.6	35680	1994 PK ₃	1999 08 28.9	22 28.03	-09 04.6	17.9	-0.80	- 4.2	0.2/29.1	32457
1998 HK ₃₄	1999 08 27.6	22 23.58	-14 56.3	19.1	-0.94	- 5.1	1.7/26.2	32327	1998 HW ₁₂₅	1999 08 28.9	22 28.20	-19 11.5	18.1	-0.95	- 7.2	3.3/25.9	32522
1995 YN ₄	1999 08 27.6	22 23.60	-12 40.6	16.3	-0.88	- 1.8	0.9/27.0	29665	(8759)	1999 08 28.9	22 28.29	-31 05.2	16.1	-1.09	+ 1.9	9.5/23.6	31701
(8960)	1999 08 27.7	22 23.75	-15 28.2	17.7	-0.81	- 4.6	1.7/26.1	31937	(8861)	1999 08 28.9	22 28.30	+05 22.2	18.0	-0.81	- 6.0	4.4/03.0	31914
1994 ES	1999 08 27.7	22 23.85	-16 58.5	16.2	-0.55	-30.7	3.0/24.4	35604	1996 XC ₁₈	1999 08 29.0	22 28.35	-23 56.4	17.9	-0.98	- 4.1	5.3/24.7	31793
(8788)	1999 08 27.7	22 23.95	-07 31.6	18.4	-0.94	- 5.1	0.8/28.5	31896	1996 WC ₂	1999 08 29.0	22 28.37	-24 03.7	17.7	-0.98	- 5.1	5.5/24.5	32056
1997 EM ₂₈	1999 08 27.8	22 24.00	-11 21.3	20.9	-0.73	- 4.0	0.4/27.4	29929	1981 EY ₁₃	1999 08 29.0	22 28.43	+01 34.1	18.3	-0.71	- 5.9	3.7/01.8	32042
4035 P-L	1999 08 27.8	22 24.22	-04 57.1	17.1	-0.76	- 3.6	1.7/29.4	32343	1998 FT ₈	1999 08 29.0	22 28.53	-24 14.6	18.2	-1.00	- 1.7	5.2/25.1	32316
1995 SS ₄	1999 08 27.9	22 24.39	-17 53.5	17.2	-0.97	- 5.0	2.8/25.5	35605	(8990)	1999 08 29.0	22 28.68	-14 36.5	17.6	-0.71	- 5.7	1.4/27.4	32172
1981 EL ₆	1999 08 27.9	22 24.41	+05 40.2	19.5	-0.73	- 4.6	4.7/02.1	26915	(8315)	1999 08 29.1	22 28.94	-25 06.1	15.9	-0.98	- 5.9	7.2/24.3	35675
1989 TC ₃	1999 08 27.9	22 24.42	-07 02.4	18.2	-0.72	- 5.9	0.8/28.9	29941	3105 T-3	1999 08 29.1	22 29.02	-07 56.2	16.2	-0.78	- 6.9	0.7/29.7	35743
(8823)	1999 08 27.9	22 24.54	+16 01.4	15.9	-0.86	- 2.7	10.9/04.9	31904	1998 KN ₃₂	1999 08 29.2	22 29.10	-15 03.2	18.2	-0.96	- 5.5	1.9/27.5	35708
1981 EH ₂₅	1999 08 27.9	22 24.69	-07 14.3	19.2	-0.83	- 6.3	0.9/28.9	32043	1998 KS ₃₉	1999 08 29.2	22 29.15	-09 00.7	17.7	-0.79	- 5.4	0.2/29.4	32334
1995 YZ ₁	1999 08 28.0	22 24.68	-17 29.8	17.9	-0.89	- 3.0	2.5/25.8	35694	(11365)	1999 08 29.2	22 29.29	-03 39.2	16.4	-0.96	- 5.9	2.7/31.0	35581
1998 JX ₂	1999 08 28.0	22 24.74	-06 30.1	16.6	-0.70	- 8.1	1.1/29.2	32331	1994 CL ₁₈	1999 08 29.3	22 29.55	-17 16.9	17.1	-0.89	- 8.3	3.2/26.7	32307
1992 UD ₃	1999 08 28.0	22 24.99	+05 22.4	16.3	-0.88	- 5.5	6.4/01.9	35686	1996 VU ₈	1999 08 29.3	22 29.57	-00 01.2	17.4	-0.91	- 7.4	4.0/01.4	32055
1998 HB ₅₁	1999 08 28.1	22 25.18	-15 34.0	17.5	-0.89	- 5.0	2.1/26.4	35708	1997 CD ₂₆	1999 08 29.3	22 29.77	-14 51.9	19.1	-0.73	- 7.4	1.7/27.5	32058
2622 P-L	1999 08 28.1	22 25.23	-09 56.9	18.3	-0.71	- 4.4	0.0/28.1	26414	1989 WR	1999 08 29.4	22 29.73	-22 01.0	15.6	-1.02	- 1.0	6.4/26.0	32045
1994 CB ₁₇	1999 08 28.1	22 25.23	-14 17.5	19.3	-0.92	- 5.7	1.5/26.8	34505	1981 EM ₁₄	1999 08 29.4	22 29.91	+02 01.8	17.9	-0.82	- 6.1	4.1/02.2	32210
(8864)	1999 08 28.1	22 25.37	+03 21.3	16.1	-0.83	- 4.4	5.4/01.3	35675	1993 FF ₂₀	1999 08 29.4	22 29.92	-16 27.0	18.2	-0.83	- 5.7	2.2/27.2	29103
1996 TS ₁₈	1999 08 28.1	22 25.40	-11 39.4	18.6	-0.96	- 5.0	0.7/27.7	32311	5124 T-2	1999 08 29.4	22 30.14	+09 32.4	18.3	-0.81	- 5.2	6.0/04.9	35743
1236 T-2	1999 08 28.2	22 25.44	-10 42.0	17.4	-0.92	- 4.0	0.4/28.0	32731	1991 RB ₁₉	1999 08 29.5	22 30.14	-09 05.6	16.5	-1.04	- 0.1	0.1/29.6	29135
1986 QY ₂	1999 08 28.2	22 25.56	-13 17.8	15.0	-0.60	-15.7	1.5/26.8	35679	1994 EW ₇	1999 08 29.5	22 30.20	-22 45.1	17.8	-0.88	-10.7	4.0/24.7	32234
1988 RJ ₃	1999 08 28.2	22 25.67	-11 43.6	17.0	-0.94	- 3.7	0.8/27.7	35680	1992 WD ₈	1999 08 29.5	22 30.28	+20 38.9	17.5	-1.09	+ 0.6	9.7/06.4	35686
1998 KC ₄	1999 08 28.2	22 25.75	-26 43.5	16.8	-0.82	- 3.9	5.3/22.9	32276	1998 FJ ₁₀₅	1999 08 29.5	22 30.32	+05 04.2	17.5	-0.79	- 6.4	5.3/03.5	35707
1981 ET ₃₁	1999 08 28.3	22 25.84	-03 47.5	17.8	-0.74	- 6.7	1.8/30.0	27304	1993 FT ₁₄	1999 08 29.5	22 30.36	-12 55.3	18.1	-0.85	- 6.4	1.1/28.4	31419
1994 SC ₅	1999 08 28.3	22 25.90	-11 45.8	19.8	-0.74	- 4.1	0.5/27.7	35691	1998 HQ ₁₃₆	1999 08 29.5	22 30.39	-18 03.7	20.0	-1.00	- 4.0	3.1/27.1	32331
1991 SD ₁	1999 08 28.3	22 25.92	-18 11.6	17.7	-0.83	- 9.5	2.9/25.4	35421	1998 GV ₈	1999 08 29.6	22 30.78	-23 35.1	17.4	-0.84	- 7.7	4.7/24.8	32263
1998 HD ₄₀	1999 08 28.4	22 26.12	-23 06.6	18.6	-0.94	- 3.2	4.4/24.6	32328	1992 DM ₇	1999 08 29.7	22 30.94	-11 16.9	17.6	-0.77	- 5.3	0.6/29.1	33230
1996 XP ₂₉	1999 08 28.4	22 26.13	-09 54.5	17.7	-0.82	- 6.2	0.0/28.4	32247	(8663)	1999 08 29.7	22 31.05	-17 55.9	17.2	-0.98	- 6.8	3.2/27.0	31678
1991 GW	1999 08 28.4	22 26.16	-22 50.1	18.3	-1.06	- 3.5	4.9/24.8	35683	1997 GX ₇	1999 08 29.7	22 31.21	-12 25.5	18.1	-0.75	- 4.8	0.9/28.8	30766

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M.P.C. 35757

1995 UZ₄₅ 1999 08 29.7 22 31.22 +01 14.0 18.7 -0.76 - 6.1 3.1/02.3 35694
 (9113) 1999 08 29.7 22 31.26 -02 25.7 17.6 -0.77 - 5.6 2.2/01.0 32199
 1997 EO₇ 1999 08 29.8 22 31.25 -07 35.1 16.4 -0.85 - 1.3 0.6/30.3 35699
 1981 EC₃₀ 1999 08 29.8 22 31.46 -03 07.9 19.3 -0.91 - 0.1 1.9/31.5 26920
 1997 FL₂ 1999 08 29.9 22 31.75 -11 20.4 17.1 -0.89 - 6.9 0.8/29.3 34872
 (8572) 1999 08 30.0 22 32.08 -02 10.9 15.9 -0.72 - 9.1 3.6/01.6 35413
 1981 EM₁₆ 1999 08 30.0 22 32.10 -07 25.7 19.0 -0.84 - 1.8 0.6/30.5 26918
 1998 FM₁₂₆ 1999 08 30.0 22 32.14 -04 55.4 18.5 -0.95 - 7.3 1.6/31.4 35707
 1995 UM₁₆ 1999 08 30.1 22 32.31 -06 18.0 20.0 -0.78 - 6.2 1.0/31.1 29305
 1996 XX₂₂ 1999 08 30.1 22 32.40 -08 57.9 18.5 -0.86 - 8.3 0.1/30.2 35697
 (8686) 1999 08 30.1 22 32.47 -14 05.7 16.3 -0.88 - 9.8 2.1/28.4 31683
 1992 SA₄ 1999 08 30.1 22 32.61 -09 34.5 17.6 -0.89 - 8.3 0.2/30.0 33483
 1998 JW 1999 08 30.2 22 32.71 +08 40.2 17.9 -0.77 - 6.7 6.3/05.5 35440
 1994 AE₃ 1999 08 30.2 22 32.75 -08 51.2 19.0 -0.97 - 4.7 0.1/30.3 32051
 1995 NE 1999 08 30.2 22 32.79 -04 40.8 18.7 -0.92 - 8.5 1.8/31.7 35693
 (8289) 1999 08 30.2 22 32.90 -04 15.2 16.2 -1.00 - 5.6 2.2/31.7 35675
 1995 WQ₃ 1999 08 30.3 22 33.10 -13 51.9 18.0 -0.79 - 4.6 1.4/28.8 32946
 1988 SA₃ 1999 08 30.3 22 33.23 -21 18.9 19.8 -0.57 - 1.3 2.2/26.5 15561
 1992 OJ₁ 1999 08 30.3 22 33.34 +07 44.4 16.0 -1.47 + 6.0 7.8/02.3 35288
 1993 FZ₄₆ 1999 08 30.5 22 34.02 -12 01.3 19.4 -0.87 - 4.1 1.0/29.7 28887
 (8565) 1999 08 30.6 22 34.16 -00 50.7 16.2 -0.72 - 8.3 3.1/02.5 31511
 1979 QR₂ 1999 08 30.6 22 34.35 -08 54.1 17.7 -0.80 - 4.4 0.0/30.7 29653
 1995 SO₂ 1999 08 30.6 22 34.45 +00 23.2 17.4 -0.67 - 5.5 4.7/02.9 35605
 (8881) 1999 08 30.6 22 34.53 -07 19.4 17.0 -0.79 - 6.6 0.6/31.2 31918
 1997 EM₂₅ 1999 08 30.7 22 34.76 -15 49.2 17.3 -0.78 -10.9 2.4/28.2 31988
 1998 FH₁₁₇ 1999 08 30.8 22 34.82 -04 46.7 17.7 -0.90 - 4.0 1.5/01.0 32324
 1997 AG₇ 1999 08 30.8 22 34.84 -05 34.1 19.5 -0.93 - 6.4 1.3/31.9 30690
 1995 KA₁ 1999 08 30.8 22 34.93 +10 48.4 16.5 -0.60 -19.8 8.4/09.1 35693
 1994 AJ₃ 1999 08 30.9 22 35.18 -08 24.9 18.8 -0.58 - 4.1 0.1/31.1 27456
 1978 SH₇ 1999 08 30.9 22 35.19 -11 11.6 15.9 -0.94 - 1.2 1.0/30.3 30778
 1998 FU₉₀ 1999 08 30.9 22 35.22 -19 46.1 17.6 -0.98 - 2.9 3.8/27.9 32324
 1999 PX 1999 08 30.9 22 35.61 -09 45.1 18.1 -0.94 - 9.3 0.4/30.7 35669
 1991 VA₃ 1999 08 31.0 22 35.73 +14 38.2 15.6 -0.81 - 2.2 10.5/07.6 35684
 (8639) 1999 08 31.0 22 35.95 +01 28.8 17.2 -0.97 - 4.6 4.6/03.1 31673
 1998 FA₁₁₄ 1999 08 31.0 22 35.95 +00 22.1 17.6 -0.88 - 4.8 3.2/03.0 32324
 1059 T-2 1999 08 31.1 22 35.93 -03 14.2 17.3 -0.88 - 6.5 2.2/01.9 32092
 (8720) 1999 08 31.1 22 36.26 -16 09.0 17.5 -0.78 - 4.2 2.3/28.9 31692
 1990 QD₇ 1999 08 31.1 22 36.28 -09 15.8 17.8 -0.74 - 7.5 0.2/31.0 35682
 1993 FZ₂₆ 1999 08 31.2 22 36.28 -03 07.6 17.4 -0.79 - 5.4 2.0/02.0 32306
 1996 BQ₂ 1999 08 31.2 22 36.41 -15 32.5 16.9 -0.65 - 7.3 1.8/28.8 35428
 1988 VN₅ 1999 08 31.2 22 36.47 -08 30.7 17.2 -0.90 - 6.6 0.1/31.3 35680
 1981 EL₄₁ 1999 08 31.2 22 36.55 -16 50.7 19.3 -0.85 - 2.0 2.5/28.9 24239
 2174 T-3 1999 08 31.2 22 36.73 -21 28.6 18.1 -0.99 - 2.0 4.2/27.7 26193
 9586 P-L 1999 08 31.3 22 36.82 -12 15.2 18.1 -0.70 - 5.3 0.9/30.2 29649
 1993 FO₄ 1999 08 31.4 22 37.09 -03 56.8 18.0 -0.78 - 8.2 1.5/02.1 32306
 1981 ES₃₉ 1999 08 31.4 22 37.15 -06 50.5 20.2 -0.78 - 4.4 0.6/01.0 22430
 (11263) 1999 08 31.4 22 37.16 +27 06.9 16.5 -1.25 + 3.4 14.6/12.3 35557
 1998 FP₁₁ 1999 08 31.4 22 37.17 -06 50.9 17.7 -0.87 - 7.6 0.7/01.1 32317
 1998 KV₇ 1999 08 31.4 22 37.22 -09 21.2 17.7 -0.76 - 5.5 0.2/31.2 32333
 2203 T-3 1999 08 31.4 22 37.42 +06 01.1 18.5 -0.68 - 5.4 4.0/05.6 22702
 (8950) 1999 08 31.5 22 37.55 -20 09.0 16.3 -0.81 - 3.4 3.3/28.0 31934

1998 FZ₄₇ 1999 08 31.5 22 37.57 -09 22.8 17.8 -1.03 - 3.5 0.3/31.3 32064
 1981 ER₂₃ 1999 08 31.5 22 37.61 -11 22.5 19.4 -0.88 - 5.5 0.9/30.7 22074
 1998 FP₆₅ 1999 08 31.5 22 37.73 +02 19.2 17.2 -0.77 - 7.0 4.0/04.4 32322
 (8627) 1999 08 31.5 22 37.77 -07 42.2 17.0 -0.86 - 4.7 0.4/31.9 31670
 1996 VG₁₁ 1999 08 31.6 22 37.79 -08 58.9 18.2 -1.02 - 3.5 0.1/31.5 32311
 1984 EU₁ 1999 08 31.6 22 37.97 -08 11.8 18.1 -1.00 - 4.5 0.2/31.8 32044
 1996 VC₃₄ 1999 08 31.7 22 38.19 -23 42.1 18.2 -0.95 - 3.4 7.4/27.1 28604
 1998 HD₁₀₃ 1999 08 31.7 22 38.22 -06 22.2 18.8 -0.90 - 5.1 0.7/01.4 32021
 1997 CP₁₉ 1999 08 31.7 22 38.38 -15 42.4 16.7 -0.81 -10.4 2.5/29.2 32251
 1991 JF 1999 08 31.9 22 38.82 +03 06.0 16.9 -0.90 - 6.1 4.7/04.7 35683
 1998 SD₂ 1999 08 31.9 22 38.86 +03 51.0 17.3 -0.65 - 7.2 3.2/05.4 35716
 1996 TD₂₁ 1999 08 31.9 22 39.17 -11 19.9 17.8 -0.98 - 5.1 1.1/31.1 31792
 1996 XS₂₃ 1999 09 01.0 22 39.21 -57 29.3 17.7 -1.79 + 1.8 19.6/15.0 32246
 1991 EX₂ 1999 09 01.0 22 39.23 -10 42.6 17.4 -1.09 - 1.8 0.9/31.4 32047
 1994 JS₁ 1999 09 01.0 22 39.48 -03 22.6 19.0 -0.80 - 9.2 1.4/02.9 32051
 (8307) 1999 09 01.1 22 39.64 -14 45.3 17.4 -1.09 - 2.8 2.9/30.4 31219
 (11101) 1999 09 01.1 22 39.86 +02 24.4 17.9 -0.77 - 8.7 3.5/05.1 35237
 (11101) 1999 09 01.1 22 39.86 +02 24.4 17.9 -0.77 - 8.7 3.5/05.1 35237
 (9003) 1999 09 01.2 22 40.00 -13 20.8 16.2 -0.79 - 6.5 1.7/30.6 32175
 9057 P-L 1999 09 01.2 22 40.25 -05 44.5 17.3 -0.98 - 4.5 1.0/02.1 31824
 1998 FS₁₅ 1999 09 01.2 22 40.33 +06 37.4 18.1 -0.74 -10.4 5.6/07.1 35706
 1996 XU 1999 09 01.3 22 40.32 +00 20.5 18.2 -0.90 - 5.4 3.9/04.1 31977
 1991 GE₉ 1999 09 01.3 22 40.37 -10 29.8 17.8 -0.74 - 4.9 0.6/31.6 30091
 1998 HY₆ 1999 09 01.3 22 40.50 -18 19.4 18.5 -0.98 - 4.7 3.6/29.4 35624
 1978 TO₈ 1999 09 01.4 22 40.73 -07 04.1 16.0 -0.76 - 4.8 0.5/01.8 35676
 1973 UK₅ 1999 09 01.4 22 41.07 -13 24.4 17.7 -0.96 - 5.2 1.9/30.9 35676
 1998 HH₂₀ 1999 09 01.5 22 41.23 +07 29.7 19.1 -0.81 - 9.5 5.4/07.4 32326
 1993 BT₂ 1999 09 01.5 22 41.35 -06 48.7 17.5 -0.87 - 3.9 0.4/02.0 35686
 1996 VT₂ 1999 09 01.6 22 41.55 -05 49.9 18.8 -0.94 - 5.9 0.9/02.4 32055
 1977 RG₁₉ 1999 09 01.6 22 41.56 -06 30.4 18.0 -1.03 - 5.1 0.8/02.2 35676
 1998 FL₁₀₅ 1999 09 01.6 22 41.72 -02 26.8 16.4 -0.96 - 4.0 2.2/03.4 35707
 1982 SC 1999 09 01.7 22 41.75 -12 14.6 15.2 -1.01 + 2.7 1.9/31.8 35678
 1998 DY₄ 1999 09 01.7 22 41.79 -12 38.7 16.7 -0.86 -10.2 2.0/31.2 35705
 9056 P-L 1999 09 01.7 22 41.91 -11 46.0 17.8 -1.06 - 0.5 1.8/31.9 31409
 1998 FT₆₃ 1999 09 01.8 22 42.25 -10 37.2 19.4 -0.93 - 6.5 0.8/01.1 32067
 1981 EK₉ 1999 09 01.8 22 42.38 -04 27.9 17.8 -0.77 - 4.0 1.2/03.0 32298
 1981 EA₁₈ 1999 09 01.8 22 42.39 -04 38.7 18.9 -0.69 - 7.3 1.0/03.1 26918
 1998 FC₉ 1999 09 01.8 22 42.40 -06 47.9 17.2 -0.91 - 8.9 0.6/02.3 32063
 1998 HP₁₄₇ 1999 09 01.9 22 42.47 -17 15.1 17.7 -0.80 - 6.5 3.1/29.8 32025
 1998 BC₈ 1999 09 01.9 22 42.57 -08 33.4 18.9 -1.00 - 4.7 0.1/01.8 34216
 (8275) 1999 09 01.9 22 42.61 -14 59.2 17.2 -1.03 - 6.4 2.7/30.8 31213
 1994 PY₁₇ 1999 09 01.9 22 42.70 -06 09.5 18.0 -0.77 - 5.1 0.7/02.6 32052
 1994 BH₁ 1999 09 01.9 22 42.72 -09 09.5 17.6 -1.04 - 2.6 0.4/01.7 35689
 1996 XL₁₄ 1999 09 01.9 22 42.81 -16 25.7 19.0 -0.87 - 5.7 2.9/30.3 32954
 1979 QP 1999 09 02.0 22 43.04 -07 03.1 17.3 -0.79 - 4.5 0.3/02.4 35677
 1993 FO₂₁ 1999 09 02.0 22 43.06 -12 10.4 17.4 -0.89 - 3.4 1.4/31.9 29317
 1998 FS₄₉ 1999 09 02.0 22 43.08 -09 56.8 18.7 -0.95 - 4.6 0.7/01.5 32521
 1998 FL₄₄ 1999 09 02.0 22 43.25 -19 34.4 17.5 -1.10 + 0.9 4.6/30.4 32319
 1990 OZ 1999 09 02.1 22 43.20 +00 28.5 17.1 -0.73 -10.6 3.1/05.4 32046
 1981 ET₃₃ 1999 09 02.1 22 43.20 -04 26.3 18.5 -0.77 - 3.8 1.3/03.3 30779
 1999 NF₅₇ 1999 09 02.1 22 43.28 +11 30.1 17.8 -0.84 - 6.0 7.0/09.1 35666

1998 DW ₂₅	1999 09 02.1	22 43.38	-11 32.7	20.3	-0.96	- 5.2	1.3/01.1	31409
1998 JU	1999 09 02.1	22 43.43	-09 38.3	19.2	-0.98	- 5.1	0.6/01.7	32331
(8968)	1999 09 02.1	22 43.58	+02 03.4	16.4	-0.69	- 7.4	3.5/05.8	31939
1998 KR ₄₂	1999 09 02.2	22 43.93	+02 05.7	18.2	-0.75	- 8.0	3.1/05.9	32334
1998 HQ ₁₈	1999 09 02.3	22 44.02	-00 09.1	18.0	-0.87	- 6.4	3.0/04.9	32326
1995 HK	1999 09 02.4	22 44.36	-10 12.8	17.1	-0.97	- 7.0	0.9/01.7	32052
1981 ET ₅	1999 09 02.4	22 44.56	+07 17.4	17.7	-0.78	- 7.6	5.7/07.9	32298
1985 CV ₁	1999 09 02.5	22 44.69	-10 35.0	18.0	-0.71	- 4.1	0.7/01.7	30468
1998 HO ₁₄₅	1999 09 02.5	22 44.82	-09 44.8	19.0	-0.85	- 6.5	0.6/02.0	32273
1998 FY ₁₁₆	1999 09 02.6	22 45.15	+00 57.6	16.6	-0.85	- 4.0	3.5/05.4	35707
1997 AC ₇	1999 09 02.6	22 45.30	-15 34.7	17.5	-0.78	- 8.3	2.4/31.0	32312
1993 NZ ₁	1999 09 02.6	22 45.41	+03 45.9	16.9	-0.81	- 2.5	3.8/06.2	26564
1978 VW ₈	1999 09 02.7	22 45.41	-11 59.4	17.0	-0.77	- 4.8	1.3/01.4	28882
1981 EU ₂	1999 09 02.7	22 45.45	+00 16.7	18.3	-0.86	- 1.4	2.8/05.0	26915
1981 EL ₃₃	1999 09 02.7	22 45.62	+04 57.9	16.1	-0.71	+ 2.0	7.8/06.5	35057
1996 XL ₁₉	1999 09 02.7	22 45.77	-07 17.8	18.2	-0.95	- 5.4	0.2/03.0	30786
1997 EQ ₁₇	1999 09 02.8	22 45.82	-04 45.1	17.6	-0.66	- 9.1	0.8/04.0	35699
(8710)	1999 09 02.8	22 46.09	-32 20.3	18.0	-0.96	- 4.4	8.0/25.9	31689
1990 SX ₈	1999 09 02.9	22 46.07	-03 53.9	16.8	-0.73	-10.3	1.2/04.4	32923
1994 AG ₁	1999 09 02.9	22 46.12	-07 53.5	18.4	-0.89	- 7.2	0.0/02.9	32307
(8818)	1999 09 02.9	22 46.16	-10 38.3	16.8	-0.81	- 5.2	1.0/02.0	31903
3535 T-3	1999 09 02.9	22 46.32	-11 09.5	16.9	-0.97	- 4.9	1.4/01.9	32093
1991 RC ₆	1999 09 02.9	22 46.35	-27 49.2	16.5	-1.13	+ 2.0	9.1/28.8	31954
1997 CY	1999 09 02.9	22 46.39	-05 58.7	17.2	-0.78	- 5.7	0.6/03.6	31986
(8981)	1999 09 02.9	22 46.41	-19 33.3	16.8	-0.74	- 6.5	3.5/29.9	35414
1991 UQ ₂	1999 09 02.9	22 46.47	-35 39.4	16.7	-1.01	+ 3.0	14.4/25.3	35684
1999 QG	1999 09 03.0	22 46.44	-31 02.6	17.4	-0.95	- 4.1	7.4/26.1	35670
1994 CN ₈	1999 09 03.0	22 46.46	-10 36.8	15.8	-0.92	- 7.0	1.3/02.1	35690
1998 FZ ₁₅	1999 09 03.0	22 46.78	+20 43.9	17.2	-0.77	- 8.8	10.0/14.5	35706
1981 EZ ₄₂	1999 09 03.0	22 46.87	-06 45.4	17.1	-0.92	- 6.4	11.7/24.0	35678
1998 FY ₉₉	1999 09 03.1	22 46.80	-03 51.1	17.0	-1.04	- 2.7	1.5/04.2	35707
2825 P-L	1999 09 03.1	22 46.80	-06 46.3	19.3	-0.71	- 4.5	0.3/03.4	29948
1341 T-2	1999 09 03.1	22 46.92	-09 28.0	18.4	-0.87	- 4.2	0.6/02.6	26185
1981 EK ₂₈	1999 09 03.2	22 47.29	-13 22.1	20.9	-1.02	- 1.3	1.9/01.7	26920
1994 EC ₅	1999 09 03.3	22 47.77	-08 49.1	16.9	-1.00	- 2.4	0.5/03.0	32307
1988 RJ ₆	1999 09 03.3	22 47.88	-05 20.7	17.2	-0.97	- 2.3	1.1/04.0	35680
1978 VT ₄	1999 09 03.5	22 48.26	-09 34.1	18.5	-0.75	- 4.3	0.6/02.9	29939
1998 EP ₆	1999 09 03.5	22 48.30	-06 34.7	17.3	-1.02	- 5.3	0.4/03.8	35705
1992 UN ₅	1999 09 03.5	22 48.32	-35 57.8	17.7	-0.77	- 2.5	6.7/24.3	30658
1998 ED	1999 09 03.5	22 48.38	-30 25.8	16.7	-1.10	+ 1.6	10.1/28.7	32315
(9030)	1999 09 03.5	22 48.50	-13 15.1	18.3	-0.50	- 3.0	1.0/01.6	32181
4695 P-L	1999 09 03.6	22 48.94	-12 19.7	18.4	-1.03	- 3.2	1.9/02.3	32343
1991 RE ₂₅	1999 09 03.6	22 48.96	-13 16.8	16.7	-0.75	- 9.6	2.5/01.6	35684
1998 FF ₄₇	1999 09 03.7	22 49.17	-13 23.1	19.4	-1.01	- 1.7	2.0/02.2	32319
(8483)	1999 09 03.7	22 49.26	-21 03.9	16.9	-1.00	- 3.5	5.6/30.7	31492
1998 EP ₃	1999 09 03.7	22 49.37	-16 12.3	16.1	-1.00	0.0	3.7/01.6	32061
(8893)	1999 09 03.8	22 49.45	-25 23.4	16.7	-0.70	-20.3	7.4/26.8	31921
(9247)	1999 09 03.8	22 49.63	+22 20.7	17.0	-0.69	- 7.2	8.1/15.8	32434
1995 QG	1999 09 03.9	22 49.77	+00 35.0	18.8	-1.02	- 0.2	3.0/06.0	29107
1991 TH ₃	1999 09 03.9	22 49.79	+04 39.9	18.2	-0.79	- 7.3	5.4/08.1	30091
1994 PX ₁₁	1999 09 04.1	22 50.44	-06 13.3	17.5	-0.79	- 4.5	0.4/04.5	35604

1998 HW ₁₇	1999 09 04.1	22 50.48	-03 00.8	15.9	-0.97	- 2.8	2.2/05.4	35707
1978 SX ₇	1999 09 04.1	22 50.52	-07 31.0	16.9	-0.98	- 3.4	0.1/04.1	29652
1992 PO ₂	1999 09 04.1	22 50.82	+02 20.5	16.3	-0.79	- 8.2	4.5/07.6	32305
1998 HQ ₂₂	1999 09 04.2	22 51.09	-13 44.2	18.4	-0.95	- 5.6	2.7/02.3	32327
1998 FG ₅₃	1999 09 04.2	22 51.13	-07 05.4	17.0	-1.00	- 3.9	0.1/04.3	35706
1981 EN ₃₃	1999 09 04.4	22 51.67	-04 24.4	20.6	-1.02	- 4.7	1.1/05.3	26921
1998 FW ₇₇	1999 09 04.4	22 51.79	-20 31.6	18.0	-0.94	- 3.7	4.8/31.4	32260
1994 TF ₁	1999 09 04.4	22 51.86	-21 13.5	17.0	-0.82	- 3.5	4.8/31.0	35691
1996 UZ	1999 09 04.4	22 51.89	-01 12.0	17.5	-0.93	- 6.6	2.3/06.4	31974
1997 AV ₂	1999 09 04.6	22 52.38	-11 43.6	19.8	-0.81	- 4.9	1.2/03.2	29320
1981 EP ₂₃	1999 09 04.6	22 52.42	-13 57.9	19.6	-0.88	- 1.2	2.0/02.7	26919
1998 OM ₁₂	1999 09 04.6	22 52.56	-14 40.2	18.7	-0.51	- 2.4	1.4/02.1	35709
1981 ER ₁₂	1999 09 04.7	22 52.65	-06 33.4	18.8	-0.83	- 2.1	0.2/04.9	26917
1998 HW ₁₁₉	1999 09 04.7	22 52.86	-13 34.1	18.1	-0.88	- 7.9	2.3/02.6	35626
1998 EQ ₁₀	1999 09 04.8	22 53.03	-17 19.9	16.6	-0.88	- 4.4	5.0/01.6	32316
1997 XH	1999 09 04.8	22 53.27	-02 47.5	17.1	-1.06	- 3.8	1.8/06.1	32058
1998 JN ₁	1999 09 04.8	22 53.28	-29 40.0	18.4	-1.09	- 2.3	7.8/29.1	35708
1996 VH ₁₆	1999 09 04.9	22 53.57	-28 11.4	18.9	-1.07	- 1.5	9.6/29.9	28604
1998 FQ ₇₂	1999 09 04.9	22 53.59	-12 36.2	16.0	-0.87	- 3.2	2.7/03.3	35706
1996 XD ₃₂	1999 09 05.0	22 53.70	-31 20.8	18.4	-0.93	- 4.2	7.5/27.8	32312
1997 AB ₅	1999 09 05.0	22 53.77	-16 10.3	17.7	-1.01	- 4.1	3.4/02.3	32057
1991 VT	1999 09 05.0	22 53.87	-37 47.4	16.4	-0.98	- 2.6	12.8/24.6	31956
3093 T-3	1999 09 05.0	22 53.92	-00 26.6	17.5	-0.78	- 8.6	2.9/07.4	32735
1993 CR ₁	1999 09 05.1	22 54.28	-11 34.9	17.4	-0.77	- 8.8	1.4/03.5	35686
1995 UC	1999 09 05.1	22 54.32	-21 11.7	18.6	-1.05	- 0.3	5.1/01.4	26422
1998 HF ₃	1999 09 05.1	22 54.37	+04 13.7	17.9	-0.66	- 9.0	3.8/09.5	35624
1998 FK ₁	1999 09 05.2	22 54.43	-07 30.7	18.7	-1.05	- 3.9	0.2/05.1	32316
1992 EG ₆	1999 09 05.2	22 54.47	-14 36.2	17.1	-0.73	- 7.0	2.4/02.5	35685
1983 RL ₃	1999 09 05.2	22 54.65	-01 36.8	16.4	-0.95	- 3.7	2.7/06.8	35416
1993 FQ ₄₃	1999 09 05.2	22 54.66	-10 23.7	16.6	-0.93	- 4.2	1.4/04.2	30659
1998 FT ₅₉	1999 09 05.3	22 55.05	-05 32.3	18.1	-0.86	- 8.7	0.5/05.8	35706
1993 FM ₅	1999 09 05.3	22 55.08	-10 16.8	17.0	-0.84	- 5.7	1.3/04.3	33233
1996 VW ₂	1999 09 05.4	22 55.34	-12 41.7	17.1	-1.04	- 4.1	2.4/03.8	35697
3526 T-3	1999 09 05.5	22 55.74	-08 56.8	18.0	-0.95	- 4.1	0.9/04.9	35743
1998 FM ₁₂₁	1999 09 05.5	22 55.76	+02 02.2	16.0	-0.76	- 5.3	4.4/08.6	35439
1994 LF ₁	1999 09 05.5	22 55.78	+45 07.3	18.3	-0.83	- 7.8	17.1/29.0	24395
1998 FQ ₄₉	1999 09 05.5	22 55.81	-06 11.7	15.6	-0.84	- 3.6	0.3/05.8	35706
1998 HF ₁₀₃	1999 09 05.5	22 55.83	-10 42.7	19.2	-0.94	- 5.3	1.3/04.4	32021
2304 T-2	1999 09 05.6	22 55.86	-10 43.2	19.0	-0.78	- 4.3	1.2/04.4	29669
1991 GE ₈	1999 09 05.6	22 56.00	-12 41.1	17.5	-1.04	- 4.0	2.3/03.9	35683
1988 DF ₂	1999 09 05.6	22 56.04	-07 34.0	16.9	-0.87	- 4.2	0.3/05.4	32044
1991 XG ₁	1999 09 05.7	22 56.23	-42 31.8	18.0	-0.62	- 3.0	6.6/22.5	35287
1998 HX ₈₉	1999 09 05.7	22 56.58	-11 16.0	17.6	-1.04	- 4.2	2.0/04.5	32016
1998 FP ₇₉	1999 09 05.8	22 56.68	-20 01.8	16.6	-0.94	- 4.0	5.6/01.7	32324
2117 T-1	1999 09 05.8	22 56.86	-10 41.0	17.6	-1.02	- 4.5	1.6/04.7	34566
1995 WV ₃	1999 09 05.8	22 56.94	+17 29.2	17.7	-0.80	- 2.3	6.1/13.8	35694
1998 JK	1999 09 05.8	22 56.97	-12 21.4	17.9	-0.94	- 5.4	2.0/04.1	35708
1981 EE ₃₉	1999 09 05.9	22 57.05	-05 51.0	19.7	-0.71	- 6.9	0.3/06.2	26922
1998 FJ ₄₂	1999 09 05.9	22 57.17	-02 51.2	18.9	-0.94	- 5.8	1.3/07.2	32064
1998 HW ₁₄₀	1999 09 06.0	22 57.45	-19 56.4	19.0	-0.81	- 4.2	4.0/01.8	32273
1995 SM ₁	1999 09 06.0	22 57.62	-08 43.4	18.8	-0.84	- 5.3	0.8/05.4	30783

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1988 DX₁ 1999 09 06.0 22 57.68 +07 04.7 17.9 -0.83 - 4.4 4.7/10.6 32218
 1979 QM₃ 1999 09 06.1 22 57.72 -09 22.5 17.5 -0.86 - 9.4 1.2/05.2 35677
 1995 SO₅ 1999 09 06.1 22 58.05 -34 55.2 16.1 -1.02 + 0.5 12.7/28.7 31420
 4661 P-L 1999 09 06.2 22 58.06 -10 54.0 17.9 -0.80 - 4.6 1.4/04.8 30474
 1990 VV₈ 1999 09 06.2 22 58.30 +00 01.3 16.9 -0.71 - 8.7 1.9/08.7 35419
 1992 RS₅ 1999 09 06.2 22 58.43 -12 36.2 17.7 -1.01 - 4.3 2.5/04.5 34499
 2581 P-L 1999 09 06.3 22 58.37 -11 35.8 18.5 -0.79 - 5.2 1.7/04.6 32343
 1997 AV₁ 1999 09 06.3 22 58.38 -00 08.0 16.6 -0.99 - 2.0 2.8/08.1 35431
 1995 YN (8820) 1999 09 06.3 22 58.62 -28 29.5 16.5 -0.78 - 6.1 6.6/29.2 26907
 (10339) 1999 09 06.3 22 58.70 -13 48.0 16.2 -0.92 - 6.3 3.0/04.0 31904
 (8853) 1999 09 06.4 22 58.81 -05 04.1 17.3 -0.88 - 5.6 0.5/06.9 34145
 1998 MS₇ 1999 09 06.4 22 59.01 -15 33.2 17.4 -1.02 - 4.8 3.5/03.7 31912
 1981 EP₁₂ 1999 09 06.4 22 59.09 -16 46.1 21.1 -0.68 - 8.3 3.2/02.6 32688
 1989 UU₃ 1999 09 06.4 22 59.12 +03 46.0 16.9 -0.95 - 5.3 4.4/09.7 32298
 1998 FD₇₃ 1999 09 06.4 22 59.12 -03 16.8 16.3 -0.87 - 7.7 1.5/07.6 35681
 1998 FA₇₄ 1999 09 06.5 22 59.36 -12 25.5 19.5 -0.79 - 5.0 1.7/04.6 35622
 1996 WF 1999 09 06.5 22 59.42 -14 55.5 17.9 -1.07 - 3.8 3.3/04.1 35706
 1992 WJ 1999 09 06.5 22 59.46 -09 03.6 17.7 -0.99 - 5.2 1.2/05.8 28604
 1998 DF₉ 1999 09 06.6 22 59.54 -09 32.7 17.3 -0.95 - 5.1 1.1/05.7 32049
 1995 SW₂₅ 1999 09 06.6 22 59.76 -15 59.8 18.8 -1.03 - 5.7 3.8/03.7 32315
 1995 XX 1999 09 06.6 22 59.80 -07 52.8 17.6 -0.86 - 3.2 0.7/06.2 35693
 2065 T-3 1999 09 06.7 23 00.05 -18 22.8 17.8 -0.83 - 2.6 3.7/03.1 32054
 1998 FP₇₂ (10511) 1999 09 06.7 23 00.17 -04 01.7 18.1 -1.06 - 3.6 1.0/07.4 32293
 1998 FF₆₆ 1999 09 06.8 23 00.17 -06 04.4 18.6 -0.99 - 5.1 0.1/06.9 35706
 1997 BR₈ 1999 09 06.8 23 00.26 -10 48.9 16.1 -0.94 - 1.6 1.7/05.6 35676
 1998 JS₂ 1999 09 06.8 23 00.35 -09 23.4 17.7 -0.92 - 4.0 1.1/05.9 35621
 1997 GL₂₈ 1999 09 06.8 23 00.58 -23 53.4 17.1 -0.76 -10.2 6.9/31.1 35698
 1993 OH₅ 1999 09 06.8 23 00.56 -18 17.5 19.6 -0.92 - 5.9 3.8/03.0 32331
 1996 VB₅ (8969) 1999 09 06.9 23 00.83 +10 54.6 19.6 -0.65 - 5.6 4.1/13.3 35699
 4261 T-2 (11281) 1999 09 06.9 23 00.85 -06 49.1 18.0 -0.74 - 4.8 0.2/06.8 32050
 1997 CK₂₂ 1999 09 06.9 23 00.86 -18 41.7 16.1 -1.03 - 3.9 5.4/03.3 35697
 1996 XV₁₈ 1999 09 06.9 23 00.91 -06 36.4 16.8 -0.90 - 6.1 0.1/06.9 31939
 1988 RE₆ 1999 09 07.0 23 00.94 -14 15.7 17.5 -0.88 - 4.4 2.8/04.5 24120
 1996 VT₅ 1999 09 07.0 23 00.99 -13 16.7 15.9 -0.88 - 4.3 3.5/04.8 35561
 1998 HP₂₄ (9072) 1999 09 07.0 23 01.21 -11 54.6 18.2 -0.77 - 8.9 1.8/05.0 35698
 1995 UF₆ 1999 09 07.1 23 01.36 -01 11.3 18.2 -0.84 - 6.2 1.8/08.8 31979
 1994 JR 1999 09 07.1 23 01.39 -10 02.6 16.9 -0.94 - 6.1 1.6/05.9 35680
 4102 T-3 1999 09 07.1 23 01.60 -20 22.8 16.7 -0.95 - 6.7 5.8/02.4 32311
 1998 KF₅₄ 1999 09 07.1 23 01.88 -36 58.1 16.9 -0.88 - 1.8 10.7/27.4 32327
 1992 RD₂ 1999 09 07.2 23 02.38 +14 41.5 16.0 -0.80 - 1.9 6.2/14.1 32190
 1992 WD₁ 1999 09 07.3 23 02.33 -29 23.0 16.3 -0.98 - 0.3 9.9/31.5 32053
 1998 KW₄₆ 1999 09 07.4 23 02.33 -31 59.5 17.2 -0.94 - 4.3 9.3/29.7 32307
 1996 UN (8880) 1999 09 07.4 23 02.71 -14 14.6 17.6 -1.03 - 5.8 3.4/05.0 35743
 1996 VL₃₀ 1999 09 07.5 23 03.05 -23 00.8 17.5 -0.69 - 7.1 5.0/01.3 32336
 1142 T-2 1999 09 07.5 23 03.09 -03 24.6 17.6 -0.97 - 5.6 1.1/08.4 23340
 1999 09 07.6 23 03.23 -11 55.9 17.0 -0.90 - 6.7 2.6/05.7 35686
 1999 09 07.7 23 03.48 +12 30.5 16.8 -0.73 - 5.0 5.9/14.3 35709
 1999 09 07.7 23 03.51 -01 13.5 18.5 -0.94 - 7.6 1.8/09.3 34517
 1999 09 07.7 23 03.56 -13 09.0 17.0 -0.85 - 4.0 2.5/05.5 31918
 1999 09 07.7 23 03.71 +07 07.7 16.6 -0.86 - 5.9 6.5/12.1 31977
 1999 09 07.7 23 03.77 -03 50.7 18.0 -0.91 - 5.6 0.7/08.5 32343

1997 BR₁ 1999 09 07.8 23 03.92 -15 10.9 18.2 -0.70 - 5.6 2.2/04.7 35698
 1998 HV₉₀ 1999 09 07.8 23 04.05 -18 36.4 18.5 -0.95 - 5.1 4.5/03.9 32081
 1998 HZ₃₁ 1999 09 07.8 23 04.11 +04 51.6 17.2 -0.91 - 6.4 4.0/11.5 32327
 1994 PL₂₂ 1999 09 07.9 23 04.20 -06 07.0 17.6 -0.77 - 5.6 0.0/07.9 35691
 1994 VK 1999 09 07.9 23 04.25 -10 26.9 18.0 -0.77 - 3.5 1.3/06.5 28617
 1996 TP₃₅ 1999 09 07.9 23 04.32 -08 03.2 18.4 -0.92 - 8.8 0.8/07.2 35697
 1981 EE₄₇ 1999 09 07.9 23 04.54 -06 31.3 15.6 -0.72 - 9.3 0.3/07.8 35416
 1998 KF₄₉ 1999 09 08.0 23 04.58 -14 32.9 18.5 -0.81 - 6.3 2.8/05.1 32335
 1996 XG₅ 1999 09 08.1 23 04.90 -11 44.8 17.9 -0.96 - 5.5 2.3/06.3 35697
 1996 XL₃₃ 1999 09 08.1 23 04.95 -20 39.2 18.8 -0.91 - 4.9 4.5/03.3 32247
 1992 ED₈ 1999 09 08.1 23 05.01 -05 45.7 17.9 -0.79 - 4.5 0.0/08.2 35685
 1996 TM₉ 1999 09 08.2 23 05.30 -06 20.1 17.8 -0.99 - 5.6 0.2/08.1 35697
 1995 U₃ 1999 09 08.2 23 05.32 -10 56.4 17.4 -0.90 - 4.4 1.8/06.6 30665
 1993 FU₂₃ (9352) 1999 09 08.2 23 05.32 +00 48.4 19.3 -0.77 - 6.5 2.1/10.5 35687
 1996 VX₁₅ 1999 09 08.3 23 05.67 -03 19.5 16.9 -0.81 - 6.1 0.8/09.2 32618
 1994 JG₄ 1999 09 08.3 23 05.94 -03 58.0 17.9 -0.91 - 6.3 0.6/09.0 32055
 1995 VC₁ 1999 09 08.4 23 05.92 -01 39.6 17.9 -0.89 - 6.3 1.4/09.7 32747
 1996 YN₂ (8732) 1999 09 08.4 23 06.20 -25 49.7 16.6 -1.06 - 1.5 8.0/02.3 30666
 (8736) 1999 09 08.4 23 06.27 -00 24.0 17.3 -0.91 - 5.6 2.4/10.2 35698
 1994 PO₁₈ 1999 09 08.5 23 06.57 -10 27.5 16.2 -0.89 - 8.2 2.0/06.9 31694
 1998 HA₈₀ 1999 09 08.6 23 06.67 -05 37.3 14.1 -0.65 - 7.2 0.0/08.6 31695
 1989 SF₄ (8631) 1999 09 08.6 23 06.79 -06 19.5 17.9 -0.77 - 5.6 0.2/08.4 35691
 1998 HB₃₀ 1999 09 08.6 23 06.87 -09 33.3 19.7 -1.00 - 4.6 1.4/07.5 32328
 1994 PF₂₀ 1999 09 08.6 23 06.93 -20 00.1 17.9 -0.87 - 2.3 4.7/04.3 32220
 1999 NS₄ (8859) 1999 09 08.7 23 07.13 -00 28.4 17.2 -0.87 - 9.0 2.2/10.5 31671
 1998 EP₁₁ 1999 09 08.7 23 07.16 -13 44.0 16.5 -0.92 - 5.2 4.0/06.1 32327
 5141 T-2 1999 09 08.7 23 07.35 -05 04.6 18.0 -0.93 - 1.8 8.2/29.0 32052
 1998 FW₁₀₂ 1999 09 08.7 23 07.35 -07 21.7 16.9 -0.83 - 7.1 0.8/08.2 35659
 1997 AA₂ 1999 09 08.7 23 07.44 +00 40.0 16.0 -0.92 - 3.4 2.6/10.7 31913
 1998 FX₁₁₄ 1999 09 08.8 23 07.61 -15 27.0 17.5 -1.09 - 1.1 3.6/06.3 32316
 1986 TR 1999 09 08.8 23 07.72 +06 21.2 16.3 -0.83 - 2.5 4.1/12.6 28620
 3166 T-3 1999 09 08.9 23 07.82 +03 50.6 17.6 -0.95 - 6.1 3.6/12.0 32324
 1998 HZ₉₉ 1999 09 08.9 23 08.11 -08 43.2 17.6 -0.84 - 4.6 1.0/08.0 35698
 3468 T-3 1999 09 09.0 23 08.19 +11 27.2 18.1 -0.83 - 7.2 5.9/15.2 32072
 1997 CV₁₅ 1999 09 09.0 23 08.39 +16 52.0 15.6 -0.64 - 4.3 10.8/17.9 35679
 1991 VO₇ 1999 09 09.0 23 08.51 -04 32.2 18.8 -0.90 - 6.6 0.3/09.4 22702
 1998 HX₃₆ 1999 09 09.2 23 08.83 -07 55.5 17.8 -0.82 - 7.3 0.9/08.4 35708
 1981 EV₁₄ 1999 09 09.2 23 08.84 -08 54.0 17.9 -0.95 - 5.3 1.3/08.1 32344
 1989 SP₁₁ 1999 09 09.2 23 09.07 -03 34.5 18.2 -0.86 - 3.6 0.7/09.8 29927
 1998 FO₅₇ 1999 09 09.2 23 09.10 -07 24.3 19.6 -0.84 - 5.8 0.6/08.6 35684
 1981 EC₃₂ 1999 09 09.3 23 09.41 +02 54.3 16.5 -0.70 - 8.3 3.4/12.5 32327
 1998 HE₁₀₀ 1999 09 09.3 23 09.49 -00 08.5 19.1 -0.76 - 4.0 1.5/11.1 29608
 1998 FZ₆₈ 1999 09 09.3 23 09.52 -04 25.6 16.7 -0.78 - 4.6 0.4/09.7 35681
 1981 EF₁₅ (8775) 1999 09 09.3 23 09.61 -07 10.3 19.3 -1.06 - 3.8 0.6/08.9 32321
 1997 BN₉ 1999 09 09.4 23 09.70 +08 15.8 18.2 -0.75 - 4.4 4.2/14.1 26921
 1998 GT₈ 1999 09 09.5 23 10.11 +01 03.4 16.3 -0.68 - 9.6 2.5/12.0 35708
 1999 09 09.5 23 10.27 +03 42.6 17.5 -0.77 - 9.1 3.4/12.9 32323
 1999 09 09.6 23 10.49 +00 06.8 18.6 -0.82 - 2.4 1.7/11.3 30779
 1999 09 09.6 23 10.52 +08 21.7 17.3 -0.85 - 6.4 5.8/14.4 31705
 1999 09 09.7 23 10.70 +03 33.9 18.0 -0.71 - 7.2 2.8/12.9 32250
 1999 09 09.7 23 10.76 -44 32.2 17.0 -1.15 - 1.0 15.0/26.3 32325

1997 CG ₁	1999 09 09.8	23 10.99	-16 01.2	17.1	-0.86	- 6.3	4.1/06.1	35698
1995 SG ₅₁	1999 09 09.8	23 11.11	-02 12.3	19.3	-0.82	- 5.9	1.0/10.8	33944
1998 HF ₉₄	1999 09 09.8	23 11.18	-12 46.6	20.1	-0.88	- 4.0	2.1/07.5	32017
1993 LR ₁	1999 09 09.8	23 11.18	+10 25.5	18.6	-0.86	- 3.1	4.5/14.8	35688
1996 AG ₇	1999 09 09.8	23 11.23	-13 07.5	17.3	-0.73	- 4.8	3.1/07.2	29139
4730 P-L	1999 09 09.9	23 11.32	-10 57.5	18.0	-0.89	- 3.5	2.2/08.2	32091
(8790)	1999 09 09.9	23 11.35	-11 38.9	17.2	-0.83	- 5.5	2.4/07.8	31897
1997 BY ₁	1999 09 10.0	23 11.68	-19 38.2	15.8	-0.70	-11.7	6.0/04.1	35698
(11260)	1999 09 10.0	23 11.90	-07 05.8	16.7	-0.93	- 5.2	0.8/09.4	35556
1978 RA ₁₀	1999 09 10.0	23 12.00	-05 47.7	17.6	-1.00	- 5.3	0.3/09.9	35676
1994 GW ₁₀	1999 09 10.0	23 12.02	-17 41.2	18.6	-0.94	- 4.8	4.0/06.1	32307
1997 AO ₄	1999 09 10.0	23 12.05	-12 03.8	16.8	-0.78	- 6.8	2.5/07.7	35698
1998 EA ₁₂	1999 09 10.1	23 12.04	-11 16.8	18.7	-0.95	- 5.8	2.2/08.2	34907
4780 P-L	1999 09 10.1	23 12.12	-02 38.6	18.8	-0.69	- 5.5	0.7/11.0	30474
1981 EG ₄₇	1999 09 10.1	23 12.39	-00 39.6	19.0	-0.85	- 5.7	1.5/11.6	31711
1995 UP ₆	1999 09 10.1	23 12.43	+17 34.5	17.0	-0.75	- 8.3	9.1/19.3	35693
1998 GZ	1999 09 10.1	23 12.47	-14 09.7	18.4	-1.04	- 3.7	3.6/07.5	35707
1981 EV ₂₁	1999 09 10.2	23 12.50	-07 56.0	18.5	-0.87	- 2.0	0.9/09.4	26919
1998 FE ₁₂₅	1999 09 10.2	23 12.61	-04 17.7	17.8	-0.77	- 9.6	0.3/10.5	32325
1998 HC ₂₂	1999 09 10.3	23 12.96	+01 06.6	18.7	-0.88	- 7.3	2.2/12.4	32754
1998 HA	1999 09 10.3	23 13.03	-28 39.0	19.0	-1.03	- 1.9	8.0/03.2	32326
(8549)	1999 09 10.4	23 13.13	-02 46.9	16.6	-0.89	- 6.6	0.9/11.1	31507
1995 KL ₁	1999 09 10.4	23 13.14	+24 38.9	17.1	-1.23	- 0.2	10.7/19.5	35693
(9315)	1999 09 10.4	23 13.20	-05 41.4	15.8	-0.90	- 3.6	0.3/10.2	32609
1981 EG ₉	1999 09 10.4	23 13.21	+00 39.8	19.5	-0.72	- 4.6	1.5/12.3	29910
1998 FN ₇₁	1999 09 10.4	23 13.24	-13 16.8	18.7	-1.01	- 3.0	2.8/08.0	32323
1997 BT ₃	1999 09 10.4	23 13.32	-09 16.5	17.1	-0.78	- 5.4	1.4/09.0	35698
(11278)	1999 09 10.5	23 13.54	-14 12.4	16.5	-0.99	- 3.5	4.4/07.7	35560
1994 BN ₄	1999 09 10.5	23 13.55	+07 29.6	15.9	-0.86	- 5.8	5.8/14.8	35689
1989 RL	1999 09 10.5	23 13.87	-03 44.5	15.7	-0.77	- 8.3	0.6/11.0	35418
7569 P-L	1999 09 10.6	23 13.88	-11 25.1	18.2	-0.99	- 4.7	2.6/08.6	35743
(8923)	1999 09 10.7	23 14.20	-03 21.8	17.8	-0.89	- 6.1	0.5/11.2	31928
2560 P-L	1999 09 10.7	23 14.31	-04 22.9	17.4	-0.78	- 5.3	0.2/10.9	35742
1997 BX	1999 09 10.7	23 14.42	-10 13.7	17.1	-0.90	- 7.0	2.2/09.0	35698
3219 T-1	1999 09 10.7	23 14.65	-02 50.1	18.0	-1.02	- 4.6	0.8/11.4	31825
1995 RJ	1999 09 10.8	23 14.89	-22 09.5	17.2	-0.74	- 6.4	7.8/04.6	26422
1998 HR ₁₃₆	1999 09 10.8	23 14.95	-04 08.7	18.6	-0.86	- 7.0	0.2/11.1	32331
1994 EP	1999 09 11.0	23 15.35	-13 14.7	18.0	-0.93	- 5.1	3.0/08.3	32051
1998 KN ₁₀	1999 09 11.0	23 15.36	+05 41.5	19.3	-0.72	-10.6	3.7/15.1	32032
1997 DR	1999 09 11.0	23 15.37	-08 07.2	18.1	-0.83	- 4.4	1.1/10.0	31987
6636 P-L	1999 09 11.0	23 15.40	-09 34.8	17.5	-0.77	- 5.6	1.5/09.4	32343
1998 HH ₁₄₆	1999 09 11.0	23 15.48	-10 35.2	17.4	-0.97	- 6.6	2.3/09.2	35708
(11368)	1999 09 11.0	23 15.54	-15 29.3	16.7	-0.76	- 7.7	3.7/07.2	35582
1998 CZ ₁	1999 09 11.0	23 15.58	-26 09.4	17.9	-0.89	- 5.5	7.3/03.7	32315
2740 P-L	1999 09 11.1	23 15.82	-05 10.3	18.4	-0.78	- 7.6	0.2/11.0	22700
1998 KN ₃₄	1999 09 11.1	23 15.89	-36 12.3	19.1	-0.86	- 2.7	8.7/31.3	32278
2506 P-L	1999 09 11.1	23 16.07	-13 48.0	16.8	-1.06	+ 2.2	4.1/09.0	22086
1990 EZ ₂	1999 09 11.2	23 16.06	-01 17.7	17.4	-0.65	- 5.6	0.9/12.4	27933
1995 UC ₄₇	1999 09 11.2	23 16.12	-13 44.2	16.3	-0.89	- 1.7	4.5/08.5	35606
1990 WU ₁	1999 09 11.2	23 16.18	-00 27.5	16.8	-0.66	- 9.8	1.7/12.9	25649
1998 FU ₁₁₀	1999 09 11.2	23 16.25	+02 25.6	18.3	-1.02	- 4.0	2.8/13.4	32002

4061 P-L	1999 09 11.3	23 16.44	+02 46.7	18.4	-0.73	- 5.3	2.4/14.0	32729
1981 ET ₁₃	1999 09 11.3	23 16.46	+01 47.6	18.1	-1.01	- 5.6	2.4/13.4	31271
(8731)	1999 09 11.3	23 16.51	-19 53.3	16.6	-0.97	- 3.8	6.9/06.5	31694
(8664)	1999 09 11.3	23 16.69	-10 04.4	17.0	-0.87	- 8.5	2.1/09.5	31678
1982 JY ₁	1999 09 11.3	23 16.71	-14 04.0	18.3	-0.76	- 4.9	2.8/08.2	32739
1998 FS ₇₅	1999 09 11.4	23 16.71	-16 56.8	16.1	-0.92	- 3.5	5.6/07.6	35707
1996 TF ₁₈	1999 09 11.4	23 17.08	-11 32.2	19.6	-1.02	- 4.1	2.6/09.4	32311
1998 HH ₅₁	1999 09 11.5	23 17.11	-11 40.9	18.0	-0.98	- 5.7	2.6/09.3	35708
1998 FC ₃	1999 09 11.6	23 17.44	-12 33.9	19.5	-0.95	- 5.3	2.6/09.1	35705
1998 HS ₆₀	1999 09 11.6	23 17.52	-03 15.3	16.6	-1.01	- 5.1	0.5/12.0	35708
1990 RD ₅	1999 09 11.6	23 17.54	+02 23.0	17.0	-0.80	- 5.6	2.4/13.9	32742
1995 UL ₉	1999 09 11.6	23 17.72	-06 24.2	19.2	-0.97	- 2.8	0.8/11.1	27919
(8789)	1999 09 11.6	23 17.80	-05 40.2	16.7	-0.75	- 4.3	0.4/11.3	35675
1996 TC ₁₀	1999 09 11.7	23 18.01	-12 15.8	17.5	-1.08	- 3.7	3.0/09.5	35697
1991 TF ₁₄	1999 09 11.7	23 18.04	-10 47.8	17.1	-0.94	- 3.8	2.4/09.8	35684
1997 EU ₁₆	1999 09 11.7	23 18.13	-05 05.8	18.0	-0.74	- 4.3	0.2/11.6	29644
1981 DS ₃	1999 09 11.7	23 18.22	+08 43.9	18.8	-0.81	- 2.9	4.1/16.0	30779
1996 NA	1999 09 11.8	23 18.16	-48 14.5	17.7	-1.13	- 6.9	19.3/25.0	35696
1998 FH ₁₁₅	1999 09 11.8	23 18.17	+07 50.8	14.9	-0.83	- 3.4	6.4/15.8	35707
1997 HO ₁₁	1999 09 11.9	23 18.58	-08 53.0	19.5	-0.76	- 3.7	1.3/10.5	34873
1986 PY	1999 09 11.9	23 18.78	-12 32.0	15.4	-0.48	-13.5	4.2/08.4	35679
1997 EH ₁₅	1999 09 12.0	23 19.22	-10 28.4	19.4	-0.85	- 1.4	1.7/10.3	30473
1985 CY ₁	1999 09 12.1	23 19.26	-07 01.0	19.8	-0.67	- 6.4	0.6/11.2	26924
1998 FZ ₉₇	1999 09 12.1	23 19.27	+06 24.0	15.6	-0.80	- 7.4	4.5/16.0	35707
1998 FB ₁₁	1999 09 12.1	23 19.37	-05 40.1	18.3	-0.78	- 7.1	0.4/11.7	32317
(8488)	1999 09 12.1	23 19.51	-13 47.1	16.8	-0.96	- 5.5	4.1/09.2	31493
1998 KL	1999 09 12.1	23 19.62	-02 16.0	16.6	-0.87	- 9.1	0.9/12.9	32332
1998 FN ₄₃	1999 09 12.2	23 19.65	-06 42.9	15.8	-1.04	+ 1.3	1.3/11.6	35706
1998 FC ₁₁₈	1999 09 12.2	23 19.83	+08 54.4	16.2	-0.82	- 6.5	6.4/16.9	35438
1993 BZ ₁₂	1999 09 12.3	23 20.07	-15 37.1	17.4	-0.47	- 4.0	2.0/08.1	35686
1997 GB ₃₅	1999 09 12.3	23 20.30	-11 32.0	17.4	-0.85	- 1.7	2.2/10.2	29935
1997 CS	1999 09 12.4	23 20.42	-04 12.3	16.5	-0.84	- 2.5	0.0/12.4	35698
1994 AC ₁₃	1999 09 12.4	23 20.70	-07 55.4	21.1	-0.95	- 5.4	1.3/11.3	32456
1998 HM ₁₂₁	1999 09 12.5	23 20.89	-11 33.4	17.9	-0.79	- 6.5	2.6/10.0	32330
1998 DJ ₂₀	1999 09 12.5	23 20.90	-05 55.5	17.0	-1.07	- 2.6	0.8/12.1	35619
1992 YP ₂	1999 09 12.5	23 21.02	-20 09.4	18.3	-0.93	- 5.8	5.9/07.1	28616
1998 HN ₂₃	1999 09 12.5	23 21.10	-29 35.3	18.2	-1.00	- 2.1	9.2/04.6	32077
1998 FV ₄₀	1999 09 12.6	23 21.07	-07 28.2	18.6	-0.94	- 5.4	1.2/11.6	32754
1974 XW	1999 09 12.6	23 21.27	-12 18.1	17.1	-0.87	- 5.5	2.7/10.0	35676
(8975)	1999 09 12.8	23 21.80	-07 24.1	18.7	-0.94	- 5.0	1.1/11.8	31940
1981 EO ₃₀	1999 09 13.0	23 22.46	-02 12.9	17.8	-0.78	-10.1	0.6/14.0	32299
1988 CW ₂	1999 09 13.0	23 22.52	-06 07.0	17.2	-0.85	- 5.6	0.7/12.3	26924
1998 KL ₅₅	1999 09 13.0	23 22.52	+03 29.3	17.6	-0.70	- 7.1	2.3/15.8	35627
(8602)	1999 09 13.0	23 22.62	-05 13.3	16.4	-1.03	- 2.9	0.4/12.7	31520
(8752)	1999 09 13.0	23 22.86	-05 48.3	17.3	-1.00	- 4.9	0.7/12.5	31699
(8704)	1999 09 13.1	23 22.83	+02 47.1	16.0	-0.95	- 3.5	3.5/15.1	31688
1997 GL ₂₃	1999 09 13.1	23 22.88	-11 22.1	17.8	-0.78	- 4.2	2.2/10.7	35699
1992 BJ ₁	1999 09 13.1	23 22.94	-11 06.7	17.1	-0.89	- 5.7	2.6/10.8	35684
1993 LE	1999 09 13.1	23 22.99	-15 21.5	17.1	-0.72	- 7.3	3.5/09.0	35688
1996 XF ₁₉	1999 09 13.2	23 23.23	+04 31.5	16.4	-0.86	- 6.3	3.9/16.1	32311
1981 DS ₂	1999 09 13.2	23 23.42	+13 07.2	18.2	-0.93	- 2.9	6.5/18.7	26914

1999 AUG. 31

M.P.C. 35761

1994 HA 1999 09 13.2 23 23.48 +08 42.3 16.8 -0.76 -10.8 4.5/18.2 32051
 1994 LH 1999 09 13.2 23 23.55 -14 36.7 18.8 -0.81 - 8.0 3.5/09.5 32051
 1998 HQ₁₂ 1999 09 13.3 23 23.65 -12 22.9 18.6 -0.84 - 9.7 2.9/10.2 32754
 (8553) 1999 09 13.3 23 23.67 -14 24.8 16.1 -1.01 - 3.8 4.7/10.2 31508
 1994 VN 1999 09 13.3 23 23.86 -08 13.1 17.9 -0.77 - 3.9 1.3/12.0 28617
 1998 FO₄₂ 1999 09 13.3 23 23.88 +00 00.5 18.9 -0.96 - 7.3 1.5/14.7 32064
 4304 T-3 1999 09 13.3 23 23.93 -09 48.1 18.2 -0.81 - 6.1 2.0/11.4 32093
 1994 UZ₁₂ 1999 09 13.4 23 23.91 -10 26.5 17.4 -0.70 - 6.3 2.2/11.1 35692
 1182 T-1 1999 09 13.6 23 24.76 +03 25.2 16.0 -0.70 -11.4 2.7/16.5 35124
 1998 FG₁₁ 1999 09 13.6 23 24.87 -25 26.0 16.6 -1.09 + 0.9 8.7/07.9 32317
 1998 HW₁₁₈ 1999 09 13.6 23 24.90 -16 57.3 17.0 -0.67 - 8.7 4.9/08.6 35708
 1975 YD 1999 09 13.7 23 24.99 +13 17.4 15.7 -0.77 - 8.8 7.0/20.0 35414
 1989 TY 1999 09 13.7 23 25.15 +00 44.4 18.2 -0.84 - 2.8 1.4/15.1 31005
 1996 EQ₂ 1999 09 13.7 23 25.16 +08 30.5 16.1 -0.64 -10.8 4.1/18.6 35695
 1993 GR 1999 09 13.7 23 25.32 -09 08.3 17.2 -0.83 - 4.3 1.6/12.1 32050
 1981 EG₃ 1999 09 13.7 23 25.37 +10 33.8 18.2 -0.77 - 4.2 4.4/18.7 26915
 1998 FZ₇₀ 1999 09 13.7 23 25.40 -15 38.7 17.7 -1.05 - 0.7 4.2/10.6 32323
 1998 HZ₉₆ 1999 09 13.8 23 25.35 -26 27.4 18.2 -1.02 - 0.9 8.2/07.1 34917
 1981 DS₁ 1999 09 13.8 23 25.51 +10 24.2 17.1 -0.92 - 2.7 5.7/18.2 35415
 1981 EE₄₆ 1999 09 13.8 23 25.59 +01 26.5 18.5 -0.79 - 3.5 1.8/15.5 22430
 (8995) 1999 09 13.8 23 25.67 -00 00.1 15.7 -1.07 + 0.1 1.5/14.8 32173
 1998 KU₅₁ 1999 09 13.9 23 25.71 -14 50.0 17.5 -0.71 - 7.6 3.6/09.8 35709
 1998 FD₁₁₀ 1999 09 13.9 23 25.80 +07 43.1 18.4 -0.93 - 4.3 4.5/17.6 32686
 1998 HJ₃₃ 1999 09 13.9 23 25.84 -02 31.5 18.8 -0.92 - 5.2 0.4/14.3 32265
 1994 PC₁₄ 1999 09 13.9 23 26.11 -02 24.0 17.3 -0.79 - 4.9 0.4/14.4 25651
 1994 CX₁₂ 1999 09 14.1 23 26.41 -09 14.3 17.7 -0.96 - 4.8 2.1/12.4 32307
 1988 RP₄ 1999 09 14.1 23 26.71 -00 30.2 15.8 -1.00 - 3.4 1.3/15.1 35680
 4631 P-L 1999 09 14.1 23 26.73 -09 06.8 17.5 -1.03 - 3.2 2.1/12.6 32091
 1991 RN₂₇ 1999 09 14.1 23 26.76 +02 17.1 16.2 -1.03 - 1.0 2.1/15.8 35684
 1996 XB₆ 1999 09 14.2 23 26.88 -26 16.3 18.5 -0.93 - 4.9 7.6/06.4 32311
 1996 UF 1999 09 14.2 23 26.91 -04 56.6 15.6 -0.84 - 7.0 0.7/13.8 35697
 1991 FF 1999 09 14.2 23 27.05 +03 35.0 17.8 -0.84 - 1.2 2.0/16.4 28614
 1998 FM₁₂ 1999 09 14.3 23 27.25 -05 07.2 16.4 -0.79 - 7.7 0.7/13.8 35706
 1999 PX₁ 1999 09 14.3 23 27.29 -15 22.9 16.8 -0.67 - 8.9 5.0/09.8 35670
 1998 CK₁ 1999 09 14.3 23 27.34 -14 45.9 18.0 -0.97 - 5.9 4.3/10.8 35617
 (8888) 1999 09 14.3 23 27.53 -19 04.6 17.9 -0.79 - 7.4 4.7/08.7 31920
 1995 WU₄ 1999 09 14.3 23 27.54 +14 21.1 16.6 -0.93 - 0.9 7.5/19.7 35427
 4764 P-L 1999 09 14.4 23 27.63 -04 40.5 17.9 -0.77 - 5.6 0.4/14.0 29668
 4861 P-L 1999 09 14.5 23 27.87 +03 59.4 17.7 -0.85 -22.2 3.1/17.6 34565
 1981 DD₂ 1999 09 14.5 23 27.96 +08 33.6 19.2 -0.75 - 4.4 3.4/18.6 26914
 (8748) 1999 09 14.5 23 28.03 +06 41.1 16.2 -0.89 - 5.7 4.2/17.9 31698
 1998 GE₇ 1999 09 14.6 23 28.23 -29 14.4 17.1 -0.90 - 4.4 9.4/05.7 32325
 1995 UE₈ 1999 09 14.6 23 28.40 -13 31.9 18.1 -0.87 - 3.2 3.2/11.5 32053
 1990 DW₂ 1999 09 14.6 23 28.51 -02 41.2 16.6 -0.70 - 4.0 0.2/14.9 32046
 1981 EC₁₅ 1999 09 14.6 23 28.51 -01 16.6 20.1 -0.89 - 4.2 0.6/15.3 22429
 (8764) 1999 09 14.7 23 28.89 -02 01.7 18.0 -0.95 - 5.0 0.5/15.2 31702
 4074 T-3 1999 09 14.7 23 28.92 -09 01.2 18.3 -0.91 - 6.0 2.0/12.9 32344
 1981 EV₁₂ 1999 09 14.7 23 28.93 +02 21.8 17.0 -0.86 - 1.9 2.0/16.5 28838
 1994 CO₁₇ 1999 09 14.8 23 28.94 -11 08.5 16.6 -0.91 - 5.1 3.2/12.3 35425
 1988 PR 1999 09 14.8 23 28.94 -03 32.3 17.0 -0.84 - 9.2 0.1/14.7 35680
 1993 DE₁ 1999 09 14.8 23 29.13 +10 31.3 17.3 -0.89 - 3.6 4.3/19.3 35423

1983 RL 1999 09 14.8 23 29.38 +09 03.5 15.7 -1.76 +12.8 7.2/16.1 35678
 1993 BD₄ 1999 09 14.9 23 29.30 -13 40.3 16.6 -0.49 - 4.9 2.1/11.0 35686
 1981 EM₃₅ 1999 09 14.9 23 29.34 -05 30.0 18.2 -1.07 - 2.8 0.9/14.3 26921
 6012 P-L 1999 09 14.9 23 29.62 +01 55.6 19.1 -0.72 - 4.9 1.5/16.7 24585
 1998 GE₉ 1999 09 14.9 23 29.64 -12 10.0 16.8 -0.75 -10.8 3.1/11.6 35624
 1981 EJ₉ 1999 09 15.1 23 30.03 +01 05.9 19.8 -0.88 - 4.6 1.4/16.5 28611
 1998 FW₁₅ 1999 09 15.1 23 30.12 -20 24.9 18.7 -1.00 - 3.8 5.9/09.8 35620
 1993 FV₁₁ 1999 09 15.1 23 30.27 -09 30.0 16.1 -0.87 - 6.2 2.3/13.1 29103
 (8816) 1999 09 15.1 23 30.40 -07 02.5 15.6 -0.90 - 3.7 1.8/14.0 31903
 9099 P-L 1999 09 15.2 23 30.54 +01 18.4 17.7 -0.66 - 8.8 1.4/16.9 16036
 1969 QR 1999 09 15.2 23 30.62 +11 03.2 16.6 -0.90 - 8.2 6.3/20.4 35414
 1995 OJ 1999 09 15.3 23 30.71 -06 59.4 18.7 -0.92 - 6.6 1.3/14.0 35693
 1997 CK₁₂ 1999 09 15.3 23 30.96 -02 28.0 19.0 -0.94 - 5.0 0.3/15.6 29128
 1995 YU₃ 1999 09 15.3 23 31.05 -23 00.6 20.9 -1.22 -11.3 9.2/08.3 26907
 1981 EU₁₂ 1999 09 15.4 23 31.16 +00 53.5 20.0 -0.84 - 5.9 1.2/16.8 26917
 1998 HP₈₃ 1999 09 15.4 23 31.27 -14 17.0 18.1 -0.99 - 5.5 4.3/11.9 32016
 1997 GP₃₅ 1999 09 15.4 23 31.27 +00 46.1 18.6 -0.71 - 5.6 1.1/16.8 30085
 1981 EP₃₈ 1999 09 15.4 23 31.43 +02 55.9 18.8 -0.68 - 8.1 1.9/17.7 30287
 1998 HA₇₅ 1999 09 15.5 23 31.48 -03 21.9 16.2 -0.89 - 7.2 0.1/15.4 35439
 (9090) 1999 09 15.6 23 31.81 -26 07.0 16.5 -0.92 - 3.3 7.7/07.8 32194
 1998 KH₅₅ 1999 09 15.6 23 31.97 -19 47.6 17.3 -0.71 - 8.0 5.1/09.3 32336
 1998 KE₃₀ 1999 09 15.7 23 32.25 +07 35.4 17.9 -0.80 - 5.7 3.7/19.4 35440
 1988 RZ₅ 1999 09 15.7 23 32.41 -03 10.7 16.2 -0.83 - 7.8 0.1/15.7 35417
 1981 EP₄₁ 1999 09 15.7 23 32.46 -09 56.9 19.3 -1.05 + 1.2 2.2/14.0 26922
 2053 T-3 1999 09 15.8 23 32.53 +03 59.3 17.5 -0.75 - 4.5 2.4/18.2 22491
 1973 QR₁ 1999 09 15.8 23 32.75 +00 24.6 15.1 -0.84 - 8.2 1.6/17.0 35676
 1994 QQ 1999 09 15.8 23 32.79 +00 19.0 16.9 -0.88 - 2.4 1.0/16.8 29945
 1998 EW₂ 1999 09 15.8 23 32.82 -11 57.2 17.5 -1.01 - 1.4 3.5/13.4 32316
 1990 QQ₄ 1999 09 15.9 23 32.93 -10 52.1 16.6 -0.92 - 2.6 2.9/13.5 35681
 1970 JB 1999 09 15.9 23 33.25 +29 40.1 18.4 -1.10 - 2.9 10.1/27.5 35414
 (9057) 1999 09 15.9 23 33.26 -06 33.7 16.1 -0.73 - 4.7 1.3/14.8 32186
 (8466) 1999 09 15.9 23 33.29 -04 16.9 16.5 -0.74 - 6.7 0.6/15.5 31488
 1998 KP₅₃ 1999 09 16.0 23 33.28 -13 26.7 19.0 -0.71 - 6.4 3.0/12.3 32336
 2041 P-L 1999 09 16.0 23 33.42 -07 01.9 17.8 -1.04 - 0.2 1.5/15.0 22432
 1998 DG₂₀ 1999 09 16.0 23 33.60 -17 44.4 17.4 -0.90 - 5.7 5.5/11.1 35618
 6606 P-L 1999 09 16.1 23 33.64 -10 30.4 18.0 -1.02 - 3.6 3.0/13.8 32343
 1990 TT₁ 1999 09 16.1 23 33.66 +05 06.6 17.7 -0.79 - 5.3 3.2/18.8 34833
 (8878) 1999 09 16.1 23 33.83 -08 38.2 17.0 -0.78 - 6.4 2.0/14.2 31918
 1998 HT₂₃ 1999 09 16.1 23 33.91 -08 24.9 17.2 -1.12 + 2.2 2.5/14.9 32327
 1991 CE₁ 1999 09 16.2 23 34.15 +02 58.7 17.2 -0.69 - 5.5 1.6/18.3 35682
 (8796) 1999 09 16.2 23 34.28 +00 22.5 18.0 -0.95 - 6.9 1.3/17.3 31898
 1998 FX₄₇ 1999 09 16.3 23 34.35 +03 17.8 16.2 -0.77 - 9.2 2.7/19.0 35437
 2727 P-L 1999 09 16.3 23 34.48 -07 03.3 18.8 -0.99 - 4.4 1.6/15.0 32091
 1955 RE₁ 1999 09 16.3 23 34.52 +07 38.7 15.2 -0.93 + 1.0 5.5/19.2 35414
 1992 DU₇ 1999 09 16.3 23 34.54 -05 58.3 17.6 -0.79 - 4.4 1.1/15.3 31957
 1998 KZ₈ 1999 09 16.3 23 34.63 -29 39.9 16.6 -0.90 - 5.7 9.6/06.2 32333
 1998 FD₁₀₄ 1999 09 16.3 23 34.67 +12 00.6 18.0 -0.76 -10.9 5.0/22.3 32071
 1998 EX₆ 1999 09 16.4 23 34.71 -08 17.1 17.2 -0.93 - 5.5 2.1/14.7 35705
 1987 SE₃ 1999 09 16.4 23 34.92 -11 04.6 17.1 -0.88 - 5.9 3.1/13.7 32300
 1997 EK 1999 09 16.4 23 34.95 -09 16.6 16.9 -0.88 - 2.1 2.0/14.5 29948
 (9141) 1999 09 16.4 23 35.06 -23 08.4 17.4 -0.79 - 3.8 5.9/09.6 32206

1994 RB ₁₇	1999 09 16.5	23 35.19	-04 15.8	16.7	-0.76	- 5.9	0.5/16.0	35426
1990 RC ₂	1999 09 16.5	23 35.20	+00 34.9	17.1	-0.78	- 6.8	1.2/17.7	32659
4053 P-L	1999 09 16.6	23 35.47	+04 58.3	17.5	-0.83	- 8.0	2.9/19.3	32343
1995 UH ₆	1999 09 16.6	23 35.62	-10 43.3	16.9	-0.89	- 3.3	2.9/14.2	32053
(8725)	1999 09 16.6	23 35.73	-08 06.5	16.1	-0.96	- 6.2	2.6/14.9	31693
1101 T-1	1999 09 16.6	23 35.77	+03 17.5	17.7	-0.84	- 5.0	2.0/18.6	23533
1285 T-1	1999 09 16.7	23 35.95	-00 00.8	18.4	-0.91	- 5.7	1.0/17.6	29321
(8707)	1999 09 16.7	23 35.97	-03 24.6	16.3	-0.92	- 5.7	0.3/16.5	31689
1996 YL ₂	1999 09 16.7	23 35.97	-14 52.6	17.9	-0.91	- 6.0	4.4/12.7	32312
(8922)	1999 09 16.7	23 36.11	-08 15.0	16.7	-1.01	- 4.5	2.2/15.1	31928
(8909)	1999 09 16.8	23 36.15	-14 28.1	16.0	-0.81	- 4.5	4.5/12.9	31925
(8996)	1999 09 16.8	23 36.42	+03 55.4	18.6	-0.71	- 6.2	1.9/19.2	32173
1994 CA ₁₇	1999 09 16.8	23 36.51	-07 18.4	18.5	-0.93	- 6.2	1.8/15.3	24112
1998 KF ₄₇	1999 09 16.9	23 36.57	-05 32.3	17.2	-0.72	- 5.0	0.9/15.9	35709
1996 XB ₃	1999 09 16.9	23 36.60	-06 26.6	15.5	-0.78	- 7.2	1.8/15.6	35430
1997 ED ₅	1999 09 16.9	23 36.76	-01 29.5	18.4	-0.84	- 7.5	0.4/17.3	32956
(8616)	1999 09 16.9	23 36.78	+00 03.6	15.9	-0.73	- 9.7	1.2/17.9	31667
1983 YK	1999 09 17.0	23 36.91	-05 39.4	17.1	-0.66	- 6.7	0.9/15.9	28612
1998 DV ₂₃	1999 09 17.0	23 37.03	-11 02.6	18.8	-1.02	- 3.1	3.2/14.6	32060
1988 RM ₃	1999 09 17.1	23 37.35	-03 16.5	16.0	-1.06	+ 0.2	0.4/16.9	35680
1998 HL ₁₂₀	1999 09 17.1	23 37.37	-16 37.0	17.4	-0.82	- 8.2	4.6/12.0	32330
1998 KS ₄₇	1999 09 17.1	23 37.55	-05 38.0	18.3	-0.81	- 6.5	1.0/16.1	32522
1991 LZ	1999 09 17.2	23 37.55	+06 44.2	17.1	-0.86	-10.5	3.3/20.6	30654
(9078)	1999 09 17.2	23 37.63	-01 37.3	16.2	-0.80	- 4.6	0.3/17.5	32191
(8479)	1999 09 17.2	23 37.79	-02 39.9	16.4	-0.92	- 6.6	0.1/17.2	35413
1998 JH ₃	1999 09 17.2	23 37.91	-21 29.6	16.3	-0.87	- 5.6	7.7/10.5	32029
1994 WH ₃	1999 09 17.4	23 38.36	-05 23.9	16.0	-0.73	- 5.1	1.1/16.4	35692
1980 KE	1999 09 17.4	23 38.50	+14 58.4	15.9	-0.85	- 6.7	7.8/23.9	35677
1979 QR ₁	1999 09 17.5	23 38.60	-02 00.9	17.7	-0.79	- 4.6	0.1/17.6	35677
1981 EH ₁₇	1999 09 17.5	23 38.63	+01 18.1	17.7	-0.69	- 7.4	1.1/19.0	35677
1998 FE ₂	1999 09 17.5	23 38.69	-09 33.4	17.6	-0.89	- 5.6	2.7/15.2	35705
1992 EQ ₂₇	1999 09 17.5	23 38.75	-02 42.2	17.7	-0.76	- 5.6	0.1/17.4	35685
1998 FE ₆₉	1999 09 17.5	23 38.86	-02 37.1	17.2	-0.93	- 5.2	0.1/17.5	35706
1998 JA	1999 09 17.5	23 38.98	-08 32.7	17.1	-0.71	- 6.7	1.9/15.4	35440
1992 CP ₂	1999 09 17.6	23 39.16	+01 36.0	17.4	-0.76	- 7.0	1.3/19.0	35684
4616 T-2	1999 09 17.7	23 39.32	-02 53.6	17.9	-0.69	- 7.8	0.2/17.5	32787
1262 T-2	1999 09 17.7	23 39.47	-04 34.7	18.5	-1.08	- 4.1	1.0/17.0	15078
1051 T-1	1999 09 17.7	23 39.56	-03 13.9	16.8	-0.85	- 2.4	0.3/17.4	35743
3243 T-1	1999 09 17.7	23 39.64	-02 44.7	16.5	-0.98	- 2.7	0.3/17.6	35743
1995 YV ₂₂	1999 09 17.7	23 39.64	-03 12.5	19.1	-0.72	- 5.0	0.3/17.4	30473
(8810)	1999 09 17.8	23 39.74	-08 09.6	17.0	-0.77	- 4.6	2.0/15.8	31901
1992 UD ₂	1999 09 17.8	23 39.76	-53 05.6	16.5	-1.75	+ 9.1	23.9/30.0	31787
1998 HF ₅₁	1999 09 17.8	23 39.89	-08 27.1	17.3	-0.96	- 4.8	2.5/15.9	35625
1986 GD	1999 09 17.8	23 39.93	-11 57.9	18.1	-0.94	- 4.4	3.1/14.8	22271
1988 CG ₂	1999 09 17.8	23 39.99	-19 22.2	18.6	-0.79	- 7.0	5.0/11.6	32218
(8644)	1999 09 17.8	23 40.00	-05 58.7	15.6	-0.99	- 2.2	1.8/16.8	35675
4138 T-3	1999 09 17.9	23 40.10	-26 03.9	17.2	-0.99	+ 0.2	7.9/10.7	31411
1996 WX	1999 09 17.9	23 40.17	-13 04.2	18.8	-1.05	- 4.1	4.5/14.6	35697
(8977)	1999 09 17.9	23 40.21	-06 09.8	17.9	-0.98	- 7.1	1.6/16.6	31941
1998 KF ₃₄	1999 09 17.9	23 40.39	-01 44.3	19.8	-0.81	- 6.8	0.1/18.1	32334
5167 T-3	1999 09 18.0	23 40.59	-11 48.3	17.9	-0.69	- 6.9	3.0/14.5	34000

1998 JB ₄	1999 09 18.0	23 40.61	+09 38.4	18.0	-0.77	- 8.4	3.7/22.4	32332
1991 RP ₁	1999 09 18.0	23 40.73	+01 12.0	16.0	-1.15	+ 2.0	1.4/19.0	35683
1998 FK ₄₇	1999 09 18.0	23 40.78	-01 27.9	16.4	-1.06	- 1.5	0.3/18.3	32064
1995 SU ₁₅	1999 09 18.0	23 40.79	-01 14.8	18.5	-0.88	- 6.0	0.3/18.4	35693
1998 KR ₅₅	1999 09 18.1	23 40.85	-05 40.9	19.5	-0.71	- 7.5	1.1/16.8	34920
(11325)	1999 09 18.1	23 40.92	+00 13.4	18.1	-0.85	- 5.9	0.9/18.9	35572
1998 HB ₁₄	1999 09 18.1	23 41.03	-22 31.6	17.6	-0.97	- 5.1	7.2/11.3	32326
(8592)	1999 09 18.2	23 41.21	-01 10.3	17.2	-1.06	- 3.8	0.3/18.5	31518
(8494)	1999 09 18.2	23 41.25	-09 20.7	16.9	-0.75	- 9.9	2.7/15.5	31494
1998 KS ₆	1999 09 18.2	23 41.48	-09 16.4	19.0	-0.93	- 6.4	2.6/15.9	35708
1994 CL	1999 09 18.3	23 41.53	-02 39.9	16.3	-1.07	- 1.6	0.3/18.1	35689
1997 EX ₄₁	1999 09 18.3	23 41.65	+02 18.0	17.3	-0.79	- 5.7	1.4/19.8	35699
1984 HH ₁	1999 09 18.3	23 41.65	-02 38.2	17.3	-0.93	- 7.2	0.3/18.1	35678
1996 XW ₁₉	1999 09 18.3	23 41.69	+10 44.4	16.6	-0.94	- 5.9	4.9/22.5	29320
1986 EP ₅	1999 09 18.3	23 41.73	-02 34.1	16.7	-0.72	- 5.3	0.2/18.2	35679
1998 FG ₅₆	1999 09 18.3	23 41.83	-05 42.2	16.8	-0.75	- 9.7	1.5/17.0	32321
1998 FH ₇₅	1999 09 18.4	23 41.98	-02 44.8	16.0	-0.88	- 7.6	0.4/18.2	35707
1998 DE ₁₆	1999 09 18.4	23 42.04	-05 51.1	18.6	-0.92	- 7.6	1.6/17.1	35705
1993 OF ₉	1999 09 18.4	23 42.25	+10 08.4	17.4	-0.80	- 3.5	3.6/22.5	29137
(8830)	1999 09 18.5	23 42.23	-14 42.4	15.0	-0.84	- 1.0	4.9/14.7	31906
1998 KA ₅₄	1999 09 18.5	23 42.40	+11 07.8	17.2	-0.79	- 9.2	4.3/23.4	35627
1994 AN ₂	1999 09 18.5	23 42.54	+07 46.5	18.0	-1.00	- 4.3	3.7/21.6	31963
1071 T-3	1999 09 18.6	23 42.72	+04 45.0	16.1	-0.98	- 2.5	3.0/20.6	35743
1997 YS ₃	1999 09 18.6	23 42.80	+06 28.1	17.7	-0.88	- 6.7	3.1/21.5	35427
3329 T-1	1999 09 18.6	23 42.86	+03 39.5	17.4	-0.69	- 7.8	1.7/20.7	32786
2113 P-L	1999 09 18.7	23 42.96	+02 50.0	18.0	-0.80	- 6.4	1.7/20.3	23539
(8833)	1999 09 18.7	23 43.05	+07 58.5	17.2	-0.74	- 7.5	3.1/22.3	31907
1998 FB ₁₀	1999 09 18.7	23 43.14	+04 25.4	17.2	-0.81	- 8.4	2.4/21.0	35705
1997 YS ₁₁	1999 09 18.7	23 43.15	-13 27.5	17.0	-0.92	- 6.6	5.0/14.9	35704
1998 KX	1999 09 18.8	23 43.70	-12 30.2	18.9	-0.85	- 6.4	3.5/15.2	35626
1998 HX ₉₉	1999 09 18.9	23 43.67	-04 33.8	17.8	-0.93	- 7.9	1.0/18.0	35708
(8873)	1999 09 19.0	23 44.01	-12 11.9	16.3	-0.89	- 4.1	5.0/15.6	31916
1997 AB ₆	1999 09 19.0	23 44.24	+04 20.7	17.2	-0.98	- 5.4	2.4/21.0	31983
1992 UP ₈	1999 09 19.0	23 44.30	+02 06.6	16.5	-0.92	- 4.8	1.8/20.3	35686
1997 GW ₂₉	1999 09 19.0	23 44.40	-11 47.0	16.1	-0.70	- 8.3	3.4/15.3	35699
1992 ER ₄	1999 09 19.1	23 44.50	-06 53.8	17.5	-0.80	- 4.7	1.7/17.4	35685
1998 FR ₁₀₃	1999 09 19.1	23 44.54	+04 30.3	18.2	-0.99	- 5.4	2.5/21.1	31765
1996 VV ₁₈	1999 09 19.1	23 44.78	-04 10.4	18.5	-0.99	- 5.2	1.0/18.4	32311
1992 SJ ₁	1999 09 19.2	23 44.86	-14 08.9	16.4	-0.84	- 5.2	6.1/14.9	35422
6303 P-L	1999 09 19.2	23 44.94	-01 11.6	17.6	-0.77	- 5.8	0.1/19.4	35743
1997 ED ₂₅	1999 09 19.2	23 45.12	-12 59.8	18.3	-0.81	- 5.1	4.0/15.5	34201
1996 AD ₂	1999 09 19.3	23 45.16	-22 06.7	17.2	-0.78	- 4.8	7.1/11.9	35694
1998 HQ ₁₂₄	1999 09 19.4	23 45.55	-10 35.2	17.9	-0.90	- 7.2	3.5/16.4	32023
1997 BA ₃	1999 09 19.5	23 45.82	-00 26.8	17.5	-0.95	- 5.2	0.4/19.9	35698
1992 SG ₁₃	1999 09 19.5	23 45.87	-07 13.5	15.9	-0.92	+ 0.5	3.1/18.0	35423
1998 HO ₃	1999 09 19.5	23 45.94	+04 55.1	17.9	-0.74	-11.6	2.3/22.1	35707
1996 DQ ₁	1999 09 19.6	23 46.50	-02 01.7	18.0	-0.79	- 3.5	0.2/19.5	35695
(8417)	1999 09 19.7	23 46.61	+11 09.0	16.0	-0.96	- 7.1	5.7/24.1	31369
1998 MG ₃₈	1999 09 19.7	23 46.65	+17 15.3	18.9	-0.85	- 6.5	5.6/26.5	32288
3024 T-2	1999 09 19.7	23 46.88	-11 14.2	18.6	-1.15	+ 1.5	3.5/17.4	29142
(8257)	1999 09 19.9	23 47.22	-13 54.1	16.5	-1.06	- 3.9	5.3/16.2	31209

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1998 KO ₃₁	1999 09 19.9	23 47.34 -04 58.9 17.8	-0.88 - 7.3	1.3/18.7	35708
1990 SU ₁₅	1999 09 19.9	23 47.51 -00 17.7 15.9	-0.64 -12.9	0.4/20.4	35682
1998 GK ₁	1999 09 19.9	23 47.58 +05 51.6 16.2	-0.99 - 1.9	3.0/22.1	35707
(8862)	1999 09 20.0	23 47.71 -02 56.6 14.6	-0.70 - 9.2	0.7/19.4	31914
1994 CK ₁₀	1999 09 20.2	23 48.62 -08 21.2 17.6	-0.95 - 6.3	2.9/17.9	32051
1994 PA ₁₄	1999 09 20.3	23 48.68 -00 07.4 17.5	-0.77 - 5.6	0.4/20.7	27448
1988 VT ₂	1999 09 20.3	23 48.74 +02 15.3 16.2	-0.86 - 5.3	1.6/21.5	35417
1998 FZ ₄	1999 09 20.3	23 48.86 -10 11.4 18.8	-0.92 - 6.4	3.2/17.4	35620
1985 UJ ₃	1999 09 20.3	23 48.97 -04 07.0 15.5	-0.78 - 5.3	1.5/19.4	35679
(8470)	1999 09 20.4	23 49.04 -08 29.5 15.2	-0.96 - 1.5	3.7/18.3	31489
1996 TS ₂₅	1999 09 20.4	23 49.23 -09 50.1 19.3	-1.02 - 4.1	3.2/17.8	32311
1992 PQ ₂	1999 09 20.5	23 49.45 +11 25.1 16.6	-0.90 - 5.4	5.8/24.7	35422
1998 FD ₇₄	1999 09 20.5	23 49.47 -07 07.7 18.0	-1.00 - 5.8	2.2/18.6	35706
(9219)	1999 09 20.5	23 49.75 -11 24.6 16.8	-0.67 - 6.3	2.5/16.9	32428
1993 OR ₈	1999 09 20.6	23 50.08 -04 21.7 17.0	-0.74 - 6.0	1.2/19.5	35688
1998 FM ₄₀	1999 09 20.6	23 50.15 +01 07.2 16.6	-0.87 - 5.9	0.9/21.4	35437
1997 FC	1999 09 20.7	23 50.42 -14 24.4 17.0	-0.72 - 6.5	3.9/16.0	32313
1978 VF ₆	1999 09 20.8	23 50.80 +07 55.7 19.3	-0.92 - 6.3	3.2/23.8	16422
3021 P-L	1999 09 20.9	23 50.79 +15 26.3 18.0	-0.77 - 3.1	4.4/26.4	34564
1998 KA ₅₅	1999 09 20.9	23 50.86 -12 37.4 16.8	-0.71 - 7.2	3.8/16.7	35440
1998 KW ₄₈	1999 09 20.9	23 51.12 -21 24.2 18.3	-0.86 - 4.5	6.4/14.1	32335
1998 KG ₃₈	1999 09 20.9	23 51.20 -01 17.8 16.5	-0.77 - 6.4	0.1/20.9	35708
(9336)	1999 09 21.0	23 51.37 -00 14.9 18.1	-0.98 - 6.1	0.3/21.3	32614
(8929)	1999 09 21.0	23 51.40 -12 37.8 16.6	-0.91 - 6.1	5.0/17.1	31930
6531 P-L	1999 09 21.0	23 51.45 -04 15.8 16.5	-1.05 - 3.4	1.5/20.1	35479
1993 FU ₂₄	1999 09 21.0	23 51.45 -00 06.2 17.5	-0.84 - 4.8	0.3/21.3	35687
(11312)	1999 09 21.0	23 51.50 -02 28.7 17.1	-0.95 - 5.8	0.6/20.6	35568
1998 HO ₄₅	1999 09 21.0	23 51.58 +02 57.7 16.8	-0.92 - 4.0	1.5/22.3	35439
1992 YY	1999 09 21.1	23 51.66 +18 48.3 16.5	-0.90 - 5.3	6.7/28.0	35423
1038 T-2	1999 09 21.1	23 51.69 +01 03.6 18.8	-0.89 - 7.0	0.9/21.8	16242
1998 MN ₄	1999 09 21.2	23 51.89 -19 36.4 19.0	-0.74 - 7.8	5.1/14.2	35709
1995 UY ₁	1999 09 21.2	23 51.96 +03 58.2 18.1	-0.88 - 4.2	1.6/22.8	29946
2574 P-L	1999 09 21.2	23 52.16 -12 29.7 18.1	-0.94 - 0.1	3.4/18.0	29141
1991 ED	1999 09 21.2	23 52.18 -10 06.2 16.8	-1.05 - 2.6	3.9/18.7	35420
1991 NB ₁	1999 09 21.3	23 52.60 +13 06.8 16.1	-0.79 - 8.8	6.1/26.8	35420
1981 ED ₁₆	1999 09 21.3	23 52.64 +05 37.2 18.8	-0.97 - 6.3	2.3/23.5	32298
1998 FH ₁₂₃	1999 09 21.4	23 52.78 +02 05.4 20.0	-0.87 - 5.6	0.9/22.4	32262
1998 FH ₄₂	1999 09 21.4	23 52.82 +04 16.8 17.5	-1.05 - 1.7	2.1/22.9	32319
5016 P-L	1999 09 21.4	23 52.87 -03 31.6 18.4	-1.06 - 4.3	1.1/20.7	35743
1931 TC ₂	1999 09 21.5	23 53.12 +02 25.0 15.0	-0.96 + 1.0	1.5/22.4	35676
1997 BZ ₁	1999 09 21.5	23 53.15 -03 36.0 17.5	-0.86 - 5.2	1.1/20.6	35698
(8617)	1999 09 21.5	23 53.18 +06 10.7 15.5	-0.86 - 2.8	3.4/23.7	31667
1998 JA ₃	1999 09 21.5	23 53.21 -15 18.9 17.9	-0.93 - 6.0	5.3/16.7	32331
1998 FF ₄	1999 09 21.6	23 53.45 -11 16.5 18.1	-0.90 - 7.4	3.9/18.0	32316
(11257)	1999 09 21.6	23 53.57 -03 28.2 16.4	-0.84 - 8.7	1.2/20.7	35556
(9035)	1999 09 21.6	23 53.63 +08 26.0 15.3	-0.58 -10.5	4.0/25.4	32182
4210 T-2	1999 09 21.7	23 53.83 -05 00.3 18.4	-0.80 - 6.4	1.3/20.3	35743
4636 P-L	1999 09 21.7	23 54.03 -07 04.8 18.4	-0.83 - 1.9	1.8/19.8	22701
1971 SB	1999 09 21.7	23 54.13 +02 41.3 15.8	-1.95 +11.5	1.9/22.1	35676
1998 HM ₂₂	1999 09 21.8	23 54.02 -01 55.3 19.4	-0.92 - 6.9	0.5/21.4	35707
1998 HZ ₉₁	1999 09 21.8	23 54.14 -03 50.1 18.5	-0.91 - 6.6	1.1/20.8	32017

1997 GJ ₈	1999 09 21.8	23 54.19 +10 13.8 17.7	-0.71 - 6.5	3.2/25.8	35699
1990 TT ₁₀	1999 09 21.8	23 54.24 +00 05.3 17.3	-0.86 - 3.2	0.3/22.1	35061
1993 RA ₈	1999 09 21.9	23 54.43 +02 13.9 17.3	-0.65 - 6.4	0.8/22.9	35688
1992 UA ₆	1999 09 22.0	23 54.83 +05 00.4 16.4	-0.90 - 5.3	2.4/23.8	35686
1158 T-2	1999 09 22.0	23 55.04 +02 00.5 17.8	-0.86 - 6.4	1.1/22.9	32343
1998 HX ₉₃	1999 09 22.0	23 55.07 +09 48.2 18.2	-0.87 - 7.6	3.8/25.7	32017
1991 TV ₁	1999 09 22.0	23 55.08 -17 40.0 15.5	-0.87 + 0.3	8.9/16.8	32048
1996 XJ ₁₈	1999 09 22.0	23 55.08 -15 47.7 20.7	-0.78 - 6.6	4.7/16.7	30786
1989 AG ₇	1999 09 22.1	23 55.23 -15 03.8 17.5	-0.80 - 8.1	5.0/16.9	35417
1997 BU ₈	1999 09 22.1	23 55.23 -01 41.7 18.1	-0.82 - 6.1	0.4/21.7	32313
(9112)	1999 09 22.1	23 55.26 -04 53.8 17.3	-0.74 - 4.9	1.3/20.7	32199
1993 FP ₂₆	1999 09 22.1	23 55.30 +02 59.5 19.1	-0.87 - 5.0	1.1/23.3	29918
1981 EJ ₁₂	1999 09 22.1	23 55.49 +05 40.6 19.8	-0.74 - 4.7	1.7/24.3	26917
1992 DL ₇	1999 09 22.2	23 55.60 -04 20.1 16.9	-0.77 - 5.3	1.3/20.9	35684
1992 YM ₂	1999 09 22.2	23 55.68 -16 11.6 16.7	-0.90 - 4.8	6.5/17.0	32305
1981 EB ₁₆	1999 09 22.2	23 55.78 +06 49.8 18.8	-0.97 - 6.1	2.9/24.6	26918
6703 P-L	1999 09 22.3	23 55.84 -01 42.7 18.4	-0.80 - 6.8	0.4/21.9	29141
(8951)	1999 09 22.4	23 56.31 -12 16.1 16.2	-0.82 - 2.7	3.6/18.7	31935
1220 T-1	1999 09 22.4	23 56.41 +01 58.9 17.5	-0.91 - 5.7	0.8/23.2	28892
1998 HR ₁₄₉	1999 09 22.4	23 56.61 -01 16.1 19.0	-0.88 - 4.6	0.3/22.2	35708
1998 JE ₂	1999 09 22.6	23 57.03 -03 37.9 18.6	-0.89 - 6.6	1.1/21.5	35708
1998 FM ₅₄	1999 09 22.6	23 57.27 +01 22.7 16.0	-0.97 - 2.0	0.8/23.2	35706
1998 FO ₆₁	1999 09 22.7	23 57.35 +02 53.1 18.5	-0.90 - 6.9	1.2/24.0	32066
1998 JL ₁	1999 09 22.7	23 57.49 -01 29.6 19.3	-0.94 - 5.1	0.4/22.4	32755
1981 EO ₁₃	1999 09 22.7	23 57.59 +05 19.5 18.4	-1.02 - 4.6	2.2/24.5	31709
1994 EB ₂	1999 09 22.7	23 57.61 -25 03.6 18.4	-0.88 - 8.7	7.4/13.4	32233
1998 KC ₈	1999 09 22.8	23 57.95 +10 05.9 18.0	-0.94 - 6.2	4.0/26.3	32687
1996 XD ₁₉	1999 09 22.9	23 58.00 +04 38.9 17.6	-0.87 - 6.8	1.6/24.5	32246
1990 BO	1999 09 22.9	23 58.23 +22 31.9 15.7	-0.86 - 1.4	7.2/30.3	35681
2024 T-1	1999 09 22.9	23 58.36 +00 50.4 18.2	-0.70 -11.7	0.4/23.4	33998
1992 EP ₁₁	1999 09 23.0	23 58.33 -02 53.7 18.3	-0.77 - 5.8	0.9/22.1	25215
6791 P-L	1999 09 23.0	23 58.42 -07 45.4 18.6	-0.96 - 2.1	2.4/20.8	26185
1997 FK ₄	1999 09 23.0	23 58.52 -01 27.4 16.7	-0.93 - 2.1	0.5/22.7	35699
1997 CK ₁₃	1999 09 23.0	23 58.55 -04 32.7 17.3	-0.73 - 4.8	1.2/21.6	35698
1997 AR ₁₆	1999 09 23.0	23 58.65 +00 03.0 17.1	-0.88 - 1.6	0.1/23.1	30293
1994 VD ₇	1999 09 23.2	23 59.34 +25 36.2 16.8	-0.71 - 7.6	7.5/03.9	35426
(8852)	1999 09 23.2	23 59.44 -04 35.1 15.3	-0.95 - 2.5	2.2/22.0	31912
1997 CF ₂₂	1999 09 23.3	23 59.67 -03 25.8 17.4	-0.76 - 7.0	1.1/22.2	35698
1995 SL ₃₅	1999 09 23.4	00 00.02 -15 25.2 18.1	-1.18 + 1.8	5.6/19.7	29664
1990 TF ₁₃	1999 09 23.5	00 00.21 -16 22.4 17.4	-0.83 - 4.5	4.9/18.0	35682
1995 SS ₃₀	1999 09 23.5	00 00.29 +03 36.1 19.2	-1.04 - 2.6	1.3/24.5	29624
1998 HE ₈	1999 09 23.5	00 00.35 +06 08.8 17.3	-0.84 - 8.3	2.2/25.7	35439
1998 FH ₂	1999 09 23.5	00 00.37 +10 40.6 18.6	-1.21 - 0.6	3.7/26.3	34907
1997 AQ ₂₂	1999 09 23.6	00 00.57 -11 16.5 18.0	-0.78 - 5.9	3.3/19.7	32312
1997 CT ₁₉	1999 09 23.6	00 00.74 +02 34.0 17.5	-0.92 - 6.3	1.0/24.5	30473
1995 WS ₃	1999 09 23.6	00 00.86 +06 05.7 16.9	-0.77 - 3.7	2.9/25.7	35606
1997 CR ₁₉	1999 09 23.7	00 00.91 -04 09.9 17.1	-0.88 - 3.4	1.4/22.4	35698
1998 KJ ₁	1999 09 23.7	00 01.16 +01 39.0 19.2	-0.85 - 5.8	0.5/24.3	32332
1998 HL ₁₄₉	1999 09 23.7	00 01.21 -05 11.2 18.3	-0.91 - 4.1	1.8/22.1	32331
1977 DL ₄	1999 09 23.9	00 01.63 +00 42.3 18.5	-0.89 - 4.6	7.5/14.0	32297
1995 XJ	1999 09 23.9	00 01.92 -17 56.5 17.7	-0.85 - 4.3	6.3/17.8	29946

1988 NY	1999 09 24.0	00 02.14 -39 57.4 18.7	-0.95 - 4.6	15.9/09.0	25648
1998 HL ₅₂	1999 09 24.0	00 02.14 -23 23.2 17.2	-0.98 - 1.9	8.4/16.7	32521
1988 VR ₃	1999 09 24.0	00 02.27 +00 29.3 15.3	-0.77 - 7.1	0.1/24.2	35680
1994 BW	1999 09 24.1	00 02.28 -12 35.5 18.2	-0.93 - 6.2	4.8/19.9	32051
1996 AE ₁	1999 09 24.1	00 02.41 +23 04.5 17.4	-0.81 - 3.0	6.3/02.0	35428
1993 FO ₃₆	1999 09 24.1	00 02.67 +00 05.2 16.6	-0.73 - 9.2	0.1/24.1	35424
1998 FV ₁₅	1999 09 24.3	00 03.21 -00 31.0 16.4	-1.03 - 2.5	0.4/24.1	35706
1992 GC ₅	1999 09 24.4	00 03.58 -03 08.8 17.3	-0.75 - 4.6	1.0/23.3	27713
1997 AW ₁₃	1999 09 24.5	00 03.88 +10 31.8 17.6	-0.94 - 2.4	3.2/27.6	29634
4340 T-3	1999 09 24.5	00 04.09 -12 20.9 17.0	-0.96 - 2.3	5.8/20.8	34277
1997 CH ₂₂	1999 09 24.6	00 04.24 +03 30.2 19.8	-0.88 - 4.8	1.0/25.6	29667
1996 CL ₂	1999 09 24.6	00 04.46 -03 15.3 16.1	-0.88 - 1.6	1.2/23.6	35694
(8688)	1999 09 24.7	00 04.44 -04 20.0 16.1	-0.80 - 8.5	2.3/23.0	31684
1981 EF ₄₄	1999 09 24.7	00 04.47 +03 53.1 18.7	-0.78 - 4.0	1.0/25.8	26923
1997 GX ₂₄	1999 09 24.7	00 04.86 -03 10.3 17.7	-0.71 - 4.8	1.0/23.5	35699
1998 FV ₆₀	1999 09 24.7	00 04.87 -01 08.0 17.4	-1.04 - 3.5	0.7/24.3	35706
(9106)	1999 09 24.8	00 04.82 -07 55.9 16.5	-0.93 - 4.3	3.2/22.2	32198
1994 AG ₁₀	1999 09 24.8	00 04.87 +00 22.1 19.2	-0.96 - 5.3	0.1/24.8	35689
1990 BF	1999 09 24.8	00 05.16 +05 41.6 16.6	-0.99 - 4.6	2.0/26.5	35681
1992 EB ₁₆	1999 09 24.9	00 05.28 +01 32.9 16.4	-0.77 - 5.5	0.3/25.3	35685
1981 EO ₃	1999 09 24.9	00 05.37 +20 07.1 17.4	-1.12 + 0.1	8.0/30.6	26915
1996 XC	1999 09 25.0	00 05.56 -11 50.1 17.1	-0.93 - 5.3	4.8/21.1	31793
1998 KY ₅₄	1999 09 25.0	00 05.57 -29 25.2 18.5	-0.87 - 4.3	9.0/14.2	32283
1992 EA ₈	1999 09 25.0	00 05.63 +01 09.5 17.2	-0.78 - 5.6	0.2/25.2	25650
1981 EL ₁₂	1999 09 25.0	00 05.64 +07 04.3 19.2	-1.00 - 5.4	2.6/27.1	22270
4218 P-L	1999 09 25.0	00 05.64 +06 43.3 18.0	-0.91 - 4.9	2.1/27.0	34265
1991 GS ₆	1999 09 25.0	00 05.70 -07 29.1 16.4	-1.13 - 1.2	3.5/22.9	32223
1981 EJ ₂₇	1999 09 25.0	00 05.96 +02 00.0 19.3	-0.99 - 6.4	0.5/25.5	26920
1998 EQ ₂	1999 09 25.1	00 05.92 -01 15.1 18.9	-1.03 - 3.8	0.7/24.6	35705
1992 OB ₃	1999 09 25.1	00 06.03 +10 24.2 17.6	-1.03 - 4.8	4.0/28.2	32305
1992 RZ ₃	1999 09 25.2	00 06.27 +01 11.0 18.0	-0.96 - 6.6	0.2/25.4	32049
1998 HO ₄₉	1999 09 25.2	00 06.31 -07 44.7 18.4	-0.87 - 7.4	2.9/22.3	32328
1981 TK	1999 09 25.2	00 06.49 -08 15.3 14.9	-1.75 +13.8	4.8/24.4	29609
1101 T-2	1999 09 25.3	00 06.68 +01 42.2 16.9	-0.77 - 4.6	0.3/25.6	35743
1984 DZ	1999 09 25.3	00 06.88 +04 58.1 17.5	-1.07 - 3.6	1.6/26.6	34484
1998 JM ₁	1999 09 25.3	00 06.97 +03 10.4 16.9	-0.93 - 5.2	1.0/26.2	35708
1981 EJ ₂₉	1999 09 25.3	00 06.98 +04 50.3 18.7	-0.70 - 7.4	1.2/26.9	32211
1998 FG ₆₅	1999 09 25.3	00 07.02 +04 31.8 18.5	-0.81 - 8.8	1.2/26.8	32322
1981 DN ₂	1999 09 25.4	00 07.23 +15 07.3 17.8	-0.73 - 6.4	4.8/30.7	29093
1998 FR ₄₇	1999 09 25.4	00 07.38 +08 32.4 14.5	-1.01 + 1.1	4.3/27.5	35706
1991 GB ₃	1999 09 25.5	00 07.51 +00 26.4 18.3	-0.70 - 4.4	0.1/25.4	35683
1981 EB ₃₁	1999 09 25.5	00 07.57 -01 51.3 19.2	-0.71 - 6.1	0.7/24.6	15704
1998 KZ ₅₄	1999 09 25.6	00 07.81 -00 11.7 17.3	-0.69 - 8.2	0.3/25.3	32283
1998 EF ₆	1999 09 25.6	00 07.87 +27 53.6 18.5	-1.28 - 1.1	9.6/04.0	35436
1998 KZ ₄₆	1999 09 25.6	00 07.90 +25 44.6 16.3	-0.84 - 5.7	9.5/05.0	35709
1998 FN ₅₈	1999 09 25.8	00 08.45 -00 16.1 17.9	-0.96 - 4.2	0.5/25.5	32259
1996 UB ₁	1999 09 25.8	00 08.83 -08 39.2 16.4	-1.04 - 2.7	4.6/23.1	35429
1998 DT ₉	1999 09 25.9	00 08.89 +02 22.8 16.8	-0.99 - 4.7	0.7/26.4	32315
1985 CD	1999 09 25.9	00 08.95 -10 32.2 17.4	-0.79 - 8.8	3.6/21.7	35679
(8797)	1999 09 26.0	00 09.22 +00 38.4 17.7	-0.76 - 4.9	0.1/25.9	31898
1998 HT	1999 09 26.0	00 09.28 -05 13.1 17.4	-0.77 - 7.1	2.6/23.9	35707

(9444)	1999 09 26.0	00 09.39 -02 31.6 17.6	-0.72 - 4.6	1.0/24.9	32640
1988 XR	1999 09 26.0	00 09.51 +02 54.7 16.0	-0.81 - 5.8	0.9/26.7	35417
1994 TD	1999 09 26.1	00 09.51 +00 40.1 17.4	-0.72 - 6.1	0.1/26.0	29945
1993 FU ₅₁	1999 09 26.1	00 09.58 -04 29.5 17.8	-0.90 - 2.8	2.0/24.5	35687
1994 BX	1999 09 26.1	00 09.60 -12 03.9 18.4	-0.97 - 4.7	4.7/22.0	32051
1987 WO ₁	1999 09 26.1	00 09.64 +10 18.2 16.6	-0.82 - 7.2	3.4/29.4	35417
1981 ER ₃₅	1999 09 26.2	00 09.92 +14 33.1 17.8	-0.81 - 3.8	4.6/30.7	30090
3102 T-3	1999 09 26.3	00 10.31 -03 50.0 17.6	-0.82 - 6.0	2.3/24.7	29130
4087 P-L	1999 09 26.3	00 10.63 +01 08.7 18.4	-0.91 - 5.1	0.0/26.4	31436
3305 T-2	1999 09 26.4	00 10.59 -03 09.1 18.4	-0.95 - 4.9	1.6/25.1	35743
1994 XY ₄	1999 09 26.4	00 10.77 -54 52.9 16.7	-1.38 + 2.6	27.1/09.0	31277
1995 GC ₃	1999 09 26.4	00 10.85 -10 39.5 17.8	-0.97 - 1.0	6.2/23.2	33249
1998 BH ₂₆	1999 09 26.5	00 10.94 +05 03.0 17.1	-1.15 + 0.1	1.5/27.5	35704
1998 FX ₁₁₅	1999 09 26.5	00 11.00 +10 02.4 19.0	-1.05 - 5.4	3.4/29.3	32003
(8781)	1999 09 26.5	00 11.07 -00 19.3 18.3	-0.90 - 6.6	0.5/26.0	31895
1981 EF ₂₁	1999 09 26.5	00 11.28 -02 12.2 19.7	-0.80 - 8.3	1.1/25.4	25972
1995 SY ₁₄	1999 09 26.5	00 11.30 +02 46.1 19.4	-0.89 - 5.8	0.6/27.1	32463
1997 BY ₄	1999 09 26.6	00 11.63 -18 58.0 16.2	-0.98 - 1.9	9.3/20.3	32313
1995 UF ₂₄	1999 09 26.7	00 11.90 +05 05.7 18.1	-0.85 - 5.3	1.5/28.0	31970
1996 XH ₁₉	1999 09 26.7	00 11.93 -23 59.5 18.4	-0.88 - 4.4	7.7/18.1	32311
1992 YA ₁	1999 09 26.7	00 12.00 +00 25.0 16.3	-0.86 - 7.3	0.4/26.5	32305
4220 T-3	1999 09 26.8	00 12.43 -18 59.0 18.0	-0.98 + 0.4	6.2/21.1	29131
(8924)	1999 09 26.9	00 12.39 +04 04.2 17.6	-0.94 - 6.1	1.0/27.8	31929
6772 P-L	1999 09 26.9	00 12.56 +00 17.9 19.0	-0.87 - 6.5	0.4/26.6	30095
1988 RD	1999 09 26.9	00 12.62 -01 49.1 13.8	-1.69 +13.3	1.7/26.7	23536
1996 RG ₁	1999 09 26.9	00 12.67 -00 04.1 15.3	-1.05 - 0.8	0.7/26.6	35428
1994 PO ₃₀	1999 09 26.9	00 12.70 +04 20.2 17.0	-0.74 - 7.0	1.1/28.0	31966
1998 HF ₉₉	1999 09 27.0	00 12.71 +02 09.5 17.6	-0.85 - 8.4	0.3/27.3	32329
1998 FA ₃₃	1999 09 27.0	00 12.83 -00 35.8 17.9	-0.91 - 7.1	0.7/26.4	32318
(9081)	1999 09 27.0	00 12.85 +14 42.3 18.7	-0.76 - 5.5	4.0/01.7	32192
1991 FH	1999 09 27.0	00 13.04 +12 06.1 18.2	-0.66 - 7.8	2.6/01.1	30654
1994 PK ₂₀	1999 09 27.1	00 13.08 +00 36.2 17.8	-0.78 - 5.7	0.3/26.8	29945
1991 GM ₉	1999 09 27.1	00 13.34 -01 03.9 18.0	-0.69 - 4.7	0.6/26.3	30091
1997 GW ₃₀	1999 09 27.1	00 13.44 +01 40.3 17.9	-0.72 - 4.8	0.1/27.3	34873
1996 TD ₇	1999 09 27.1	00 13.48 -04 35.8 18.6	-1.03 - 4.0	2.3/25.4	32054
1992 HD ₅	1999 09 27.4	00 14.24 -19 18.7 15.9	-0.96 + 1.2	7.3/21.7	24393
1977 ER ₅	1999 09 27.4	00 14.34 +02 55.2 17.0	-0.78 - 5.1	0.5/27.9	30684
1997 CD ₂₀	1999 09 27.4	00 14.42 -06 37.9 16.8	-0.80 - 7.4	3.5/24.6	35431
1981 EH ₂₇	1999 09 27.4	00 14.58 +04 11.4 18.7	-1.02 - 1.7	0.9/28.2	32211
1997 CS ₂₈	1999 09 27.5	00 14.79 -05 03.7 18.0	-0.86 - 5.0	2.5/25.4	32752
1997 BU ₄	1999 09 27.5	00 14.83 -12 20.5 18.3	-0.75 - 7.5	4.2/22.5	32250
1995 QR	1999 09 27.6	00 15.22 -01 35.0 16.5	-0.92 - 4.1	1.4/26.7	32308
1976 UN ₁₄	1999 09 27.7	00 15.30 -06 52.8 16.9	-1.02 - 4.0	3.7/25.2	35676
1990 EP ₂	1999 09 27.7	00 15.39 +09 31.8 18.6	-0.89 - 6.8	2.7/30.4	32221
1997 AW ₆	1999 09 27.7	00 15.64 +03 00.6 17.2	-0.92 - 3.6	0.5/28.2	31983
1998 HH ₉₃	1999 09 27.8	00 15.64 +02 27.0 15.9	-1.02 - 4.9	0.3/28.0	32755
1991 GJ ₈	1999 09 27.8	00 15.75 -02 04.4 18.3	-1.06 - 2.8	1.5/26.8	35683
1998 HV ₅₀	1999 09 27.8	00 15.89 +07 37.1 16.4	-0.91 - 6.0	2.5/29.8	35439
1997 AB ₂	1999 09 27.9	00 16.08 -24 09.4 17.8	-0.87 - 5.1	8.9/18.7	32057
1981 DL ₂	1999 09 27.9	00 16.35 +13 01.3 18.4	-1.08 - 3.7	4.5/01.4	32209
1988 VH ₂	1999 09 28.0	00 16.31 -19 13.7 15.9	-0.89 - 1.3	10.2/21.3	32300