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ERRATA.

13845	-25	For B. Burnasheva read B. A. Burnasheva
13941	-24	For B. Burnasheva read B. A. Burnasheva
13984	18 to 30	In the observations of 1988 TA, note 3 should be replaced by note 1.
14024	18, 26	For 2447400.5 read 2447440.5
14028	13	For 2447400.5 read 2447440.5
14028	29	For 2447400.5 read 2447480.5
14028	37	For 2447400.5 read 2447500.5

The orbit given for (3709) in EMP 1989 is incorrect. The correct orbit, originally published on MPC 12438 and here updated to Epoch 1989 Oct. 1.0, is given on MPC 14165.

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N Obs.
1953 TA		1953 10	13.66520	00 57 49.85	-04 06 22.0	MPC 1183		1 377
1953 TA		1953 10	14.62685	00 56 53.83	-04 06 53.5	MPC 1183		1 377
1953 TA		1953 10	15.69285	00 55 51.99	-04 07 15.5	MPC 1183		1 377
1953 TA		1953 10	16.67238	00 54 56.06	-04 07 21.2	MPC 1183		1 377
1953 TA		1953 10	29.56399	00 44 20.95	-03 47 30.1	MPC 1183		1 377
1953 TA		1953 11	07.55546	00 39 42.87	-03 09 30.0	MPC 1183		1 377
1953 TA		1953 11	28.51711	00 40 12.78	-00 33 15.8	MPC 1183		1 377
1953 TA		1953 11	29.51801	00 40 37.68	-00 23 53.5	MPC 1183		1 377
1953 TA		1953 12	04.52148	00 43 11.04	+00 24 56.2	MPC 1183		1 377
1953 TA		1955 03	16.62235	12 39 31.28	+05 04 34.7	MPC 1318		1 377
1955 XA	*	1955 12	09.64444	04 02 51.00	+13 03 33.6	MPC 1333	13.0	2 377
1955 XA		1955 12	13.61120	04 00 06.90	+12 57 36.1	MPC 1333		2 377
1955 XA		1955 12	17.59529	03 57 45.67	+12 54 25.2	MPC 1333		2 377
1955 XA		1955 12	19.60124	03 56 45.05	+12 53 58.1	MPC 1333		2 377
1987 QE3		1987 08	28.18403	22 03 01.48	-07 11 06.1	MPC12778	17.2	809
1987 QE3		1987 08	28.19722	22 03 00.87	-07 11 11.7	MPC12778		809
1987 QE3		1987 08	28.20764	22 03 00.32	-07 11 15.7	MPC12778		809
1987 QE3		1987 08	29.24028	22 02 10.90	-07 18 20.8	MPC12778	18.0	809
1987 QE3		1987 08	29.25139	22 02 10.40	-07 18 25.1	MPC12778		809
1987 QE3		1987 08	29.26181	22 02 09.86	-07 18 30.1	MPC12778		809
1988 VR2	*	1988 11	12.41597	04 27 40.68	+09 52 11.8	MPC13984	16.0	3 675
1988 VR2		1988 11	13.43976	04 26 51.36	+09 55 48.2	MPC13984		3 675
1988 VS2	*	1988 11	12.41597	04 28 17.57	+10 31 51.0	MPC13984	16.5	3 675

1988 VS2	1988 11 13.43976	04 27 25.96	+10 21 43.3	MPC13984			3	675
1988 VW3 *	1988 11 12.41597	04 05 57.63	+11 07 14.7	MPC13984	16.5		4	675
1988 VX3 *	1988 11 12.41597	04 24 49.30	+07 59 49.4	MPC13985	15.5		4	675

Note 1: 1953 TA = (1619). 2: 1955 XA = (1671). 3: originally erroneously given as one day later. 4: originally given as 1988 11 12.45035.

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 13924.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	N	Obs.
1929 DC *	1929 02 16.01299	07 54 46.75	+16 05 54.8	1929 CQ				024
1939 GV *	1939 04 10.89615	11 34 27.09	+07 13 02.0	1939 FZ				062
1939 GV	1939 04 10.90460	11 34 26.55	+07 13 07.2	1939 FZ				062
1961 VD1 *	1961 11 10.04793	02 35 57.01	+22 29 05.5	1961 UG	16		1	760
1961 VD1	1961 11 10.09100	02 35 54.59	+22 28 48.9	1961 UG			1	760
1964 BH *	1964 01 21.28266	07 13 25.56	+24 17 12.1	1963 XA	16.5			760
1967 TP *	1967 10 03.89873	23 43 56.88	+01 52 40.4	1967 RF1	16.0			095
1978 TP9 *	1978 10 05.04958	02 46 49.14	+15 27 07.3	1978 SV5	16.5			095
1984 JT2 *	1984 05 05.93687	14 36 04.67	-11 39 01.5	1984 JB2	17.5			095
1984 YN6 *	1984 12 26.35486	05 43 04.83	+23 20 11.0	1984 YL				293
1987 KL5 *	1987 05 23.36528	16 31 40.02	-20 29 51.1	1987 KD				675
1987 KM5 *	1987 05 23.36528	16 31 50.81	-20 33 44.0	1987 KC				675
1987 RR1 *	1987 09 01.92639	21 58 14.76	-11 47 58.1	1987 QE1				046
1987 RR1	1987 09 01.94062	21 58 13.91	-11 48 02.5	1987 QE1				046

Note 1: the observations were interchanged on MPC 3786.

* * * * *

INDEX TO ORBITAL ELEMENTS.

The following index to orbital elements continues that on MPC 12995-13001 and refers to orbits of both comets and minor planets published since then. Only the latest orbit for each object is indexed, and multiple-designation minor planets are listed only under the principal designation.

Planet	MPC	Planet	MPC	Planet	MPC	Planet	MPC	Planet	MPC
(14)	13145	(19)	13145	(24)	13294	(31)	13294	(34)	13294
(41)	13294	(45)	13294	(59)	13145	(117)	13294	(128)	13145
(138)	13294	(171)	13294	(205)	13295	(235)	13442	(245)	13442
(273)	13442	(345)	13442	(346)	13442	(359)	13442	(397)	13443
(405)	13443	(498)	13443	(521)	13145	(545)	13145	(646)	13146
(654)	13295	(662)	13436	(696)	13443	(724)	13999	(737)	13439
(772)	13146	(806)	13436	(846)	13443	(852)	13443	(911)	13443
(1143)	13443	(1151)	13436	(1316)	13436	(1323)	13439	(1328)	13439
(1331)	13440	(1334)	13440	(1337)	13440	(1342)	13440	(1346)	13440
(1381)	13440	(1393)	13440	(1394)	13440	(1401)	13146	(1410)	13146
(1430)	13146	(1432)	13146	(1434)	13146	(1437)	13443	(1450)	13146
(1455)	13146	(1468)	13436	(1485)	13146	(1486)	13146	(1487)	13146
(1497)	13146	(1506)	13146	(1518)	13146	(1534)	13147	(1552)	13147
(1557)	13147	(1564)	13147	(1575)	13147	(1576)	13147	(1585)	13147
(1590)	13147	(1596)	13147	(1612)	13147	(1613)	13147	(1634)	13147
(1664)	13440	(1667)	13440	(1691)	13440	(1711)	13440	(1738)	13440
(1755)	13440	(1771)	13440	(1773)	13441	(1782)	13441	(1795)	13441
(1810)	13436	(1853)	13441	(1867)	13441	(1882)	13437	(1895)	13437
(1906)	13147	(1909)	13441	(1913)	13441	(1936)	13441	(1939)	13441
(1943)	13441	(1946)	13441	(1953)	13441	(1987)	13441	(2017)	13437
(2020)	13437	(2035)	13444	(2040)	13147	(2044)	13437	(2055)	13147
(2060)	13999	(2067)	13148	(2072)	13148	(2080)	13437	(2083)	13148
(2086)	13148	(2099)	13148	(2100)	13148	(2102)	13148	(2105)	13148
(2130)	13148	(2131)	13148	(2138)	13148	(2211)	13999	(2229)	13999
(2281)	13295	(2351)	13999	(2361)	13437	(2379)	13437	(2384)	13437
(2392)	13437	(2417)	13999	(2422)	13148	(2433)	13999	(2449)	13999
(2459)	13437	(2506)	13999	(2521)	14000	(2528)	13437	(2541)	13437
(2560)	14000	(2579)	13437	(2588)	14000	(2593)	14000	(2597)	13437
(2598)	14000	(2601)	14000	(2609)	13438	(2619)	14000	(2621)	14000
(2624)	14000	(2645)	13438	(2649)	14000	(2652)	13438	(2656)	14000
(2659)	14000	(2663)	13438	(2667)	13438	(2669)	13438	(2673)	14001
(2674)	13438	(2681)	14001	(2683)	14001	(2688)	14001	(2691)	14001
(2698)	13438	(2700)	14001	(2702)	14001	(2710)	14001	(2716)	14001
(2717)	14001	(2737)	13438	(2745)	14001	(2758)	14001	(2759)	14002
(2785)	14002	(2786)	14002	(2787)	13438	(2791)	14002	(2792)	14002
(2797)	13438	(2800)	14002	(2805)	14002	(2806)	14002	(2809)	14002
(2814)	13441	(2819)	14002	(2830)	13441	(2831)	13438	(2837)	13438
(2839)	14002	(2852)	14002	(2857)	14003	(2860)	13471	(2864)	14003
(2882)	13438	(2898)	14003	(2899)	13439	(2901)	14003	(2904)	13439
(2907)	13439	(2910)	13442	(2912)	13439	(2914)	13439	(2923)	13439
(2930)	13439	(2935)	13439	(2956)	13442	(2959)	13439	(2964)	14003
(2994)	13442	(3001)	13439	(3013)	14003	(3018)	14003	(3044)	14003
(3047)	14003	(3060)	14003	(3074)	14003	(3102)	13442	(3128)	13442
(3147)	14003	(3179)	13442	(3199)	14004	(3271)	14004	(3274)	13442
(3288)	14004	(3808)	13035	(3809)	13036	(3810)	13036	(3811)	13036
(3812)	13037	(3813)	13037	(3814)	13037	(3815)	13046	(3816)	13047
(3817)	13047	(3818)	13047	(3819)	13048	(3820)	13048	(3821)	13048
(3822)	13055	(3823)	13055	(3824)	13148	(3825)	13149	(3826)	13149
(3827)	13150	(3828)	13150	(3829)	13150	(3830)	13154	(3831)	13155
(3832)	13163	(3833)	13166	(3834)	13166	(3835)	13168	(3836)	13168
(3837)	13168	(3838)	13168	(3839)	13295	(3840)	13295	(3841)	13295
(3842)	13296	(3843)	13296	(3844)	13297	(3845)	13298	(3846)	13298
(3847)	13298	(3848)	13298	(3849)	13299	(3850)	13299	(3851)	13299
(3852)	13300	(3853)	13304	(3854)	13305	(3855)	13305	(3856)	13308
(3857)	13308	(3858)	13309	(3859)	13309	(3860)	13443	(3861)	13444
(3862)	13444	(3863)	13445	(3864)	13445	(3865)	13445	(3866)	13446
(3867)	13446	(3868)	13446	(3869)	13453	(3870)	13453	(3871)	13460
(3872)	13460	(3873)	13461	(3874)	13461	(3875)	13461	(3876)	13462

(3877) 13462	(3878) 13471	(3879) 13472	(3880) 13472	(3881) 13472
(3882) 13473	(3883) 13473	(3884) 13473	(3885) 13474	(3886) 13476
(3887) 13476	(3888) 13478	(3889) 13478	(3890) 13479	(3891) 13479
(3892) 13586	(3893) 13587	(3894) 13587	(3895) 13587	(3896) 13588
(3897) 13591	(3898) 13592	(3899) 13592	(3900) 13593	(3901) 13600
(3902) 13601	(3903) 13601	(3904) 13601	(3905) 13676	(3906) 13677
(3907) 13678	(3908) 13678	(3909) 13679	(3910) 13679	(3911) 13682
(3912) 13683	(3913) 13688	(3914) 13689	(3915) 13689	(3916) 13693
(3917) 13694	(3918) 13695	(3919) 13695	(3920) 13845	(3921) 13845
(3922) 13845	(3923) 13846	(3924) 13846	(3925) 13846	(3926) 13847
(3927) 13847	(3928) 13848	(3929) 13848	(3930) 13848	(3931) 13849
(3932) 13849	(3933) 13849	(3934) 13850	(3935) 13850	(3936) 13851
(3937) 14004	(3938) 14004	(3939) 14004	(3940) 14005	(3941) 14005
(3942) 14006	(3943) 14006	(3944) 14006	(3945) 14007	(3946) 14007
(3947) 14007	(3948) 14008	(3949) 14008	(3950) 14008	(3951) 14009
(3952) 14009	(3953) 14010	(3954) 14010	(3955) 14010	(3956) 14011

Planet	MPC	Planet	MPC	Planet	MPC	Planet	MPC
1929 VS	13851	1931 TR1	13305	1932 CY	13683	1933 FE1	13477
1936 YD	13155	1937 QC	13049	1938 HE	13155	1941 HC	13049
1942 AC	13690	1948 AG	13169	1949 GH	13588	1949 QQ1	13480
1951 WH	13049	1952 HJ2	13050	1953 RG	13599	1953 TV	13694
1953 VX1	14011	1955 EH	13169	1955 SG1	13050	1957 UK1	13050
1961 CR	13151	1964 ED	13683	1964 TA2	13851	1964 YJ	13480
1966 CF	13055	1966 PK	13583	1967 CC	13852	1967 DA	13043
1967 KB	13852	1968 OA1	13038	1969 TJ1	13164	1969 TX5	13453
1969 UR	13602	1971 QR1	13852	1971 SS1	13588	1971 UN1	14011
1971 US1	13589	1971 UT1	13593	1972 AU	13602	1972 HR	13690
1972 HX	13599	1972 JJ	13480	1972 TC2	13599	1973 EK	13696
1973 SJ1	13164	1973 SG4	13852	1973 SO4	13474	1973 SR6	13600
1974 SP1	13169	1974 XT	13462	1975 ED	13156	1975 LQ	13602
1975 RP	13584	1975 SH	13292	1975 SJ	13434	1975 SK	13292
1975 SL	13292	1975 SN	13292	1975 SO	13292	1975 SQ	13292
1975 SR	13292	1975 SS	13292	1975 ST	13292	1975 SU	13292
1975 SV	13474	1975 SW	13292	1975 SX	13292	1975 SA1	13683
1975 SB1	13292	1975 SC1	13292	1975 SD1	13292	1975 SE1	13292
1975 SF1	13292	1975 SG1	13292	1975 SH1	13292	1975 SJ1	13292
1975 SK1	13292	1975 SL1	13292	1975 SM1	13292	1975 SN1	13292
1975 SO1	13292	1975 SP1	13292	1975 SQ1	13292	1975 SR1	13292
1975 SS1	13292	1975 ST1	13292	1975 SU1	13292	1975 SV1	13292
1975 SW1	13292	1975 SX1	13292	1975 SY1	13292	1975 SZ1	13300
1975 SA2	13292	1975 SB2	13292	1975 SC2	13293	1975 SD2	13293
1975 SE2	13293	1975 TE	14011	1975 TM2	13293	1975 TA4	13293
1975 TR4	14012	1975 TC6	13305	1975 TH6	13463	1975 UE	13151
1975 UY	13293	1975 UA1	13293	1975 VP	13309	1975 VZ	13447
1975 VN2	13852	1975 VS5	13297	1976 DK	13453	1976 GS3	13454
1976 QZ1	13477	1976 SJ	13584	1976 SW3	13584	1976 SZ5	13051
1976 UB2	13480	1976 WC	13038	1976 YY	13597	1976 YD2	13454
1976 YW2	13603	1976 YO4	13684	1976 YF5	13167	1977 CD	13163
1977 DR1	13454	1977 DS2	13463	1977 EH7	13600	1977 FT	13463
1977 FN1	13310	1977 QK1	13684	1977 RL	13853	1977 SN	14012
1977 TS3	14012	1977 UD	13690	1978 GJ	13599	1978 GR3	14012
1978 ON	14013	1978 RH1	13056	1978 RX1	13853	1978 RJ2	13156
1978 RV5	13684	1978 SS2	13463	1978 SH3	13853	1978 SS5	13674
1978 SL6	13853	1978 SD7	13854	1978 TP2	13600	1978 TT2	13051
1978 TW2	14013	1978 VV5	14013	1978 VK8	13603	1978 VP8	13043
1978 WU14	13680	1979 FD2	14013	1979 HX4	13684	1979 HE5	13151
1979 KG	13447	1979 KO	13691	1979 KQ	13151	1979 KR	14014
1979 MP1	13603	1979 MB2	14014	1979 MJ5	13455	1979 ML5	13310

1979 MK7	13164	1979 MM8	13603	1979 OM15	13051	1979 QJ1	13598
1979 QK4	13151	1979 SX2	13464	1979 TY1	13056	1979 TT2	13164
1979 UQ	13165	1979 VA	14014	1979 XQ	13589	1980 BB	14014
1980 BM	14015	1980 DO	13685	1980 DX	13673	1980 DA1	13051
1980 FY	13152	1980 FN1	13854	1980 FH2	13301	1980 JH	13685
1980 KH	13680	1980 LY	13152	1980 PB2	14015	1980 RZ3	14015
1980 SJ	14015	1980 TX3	14016	1980 TE4	13056	1980 TS4	13598
1980 TW5	13464	1980 UC	13056	1980 YM	13165	1981 DE2	13604
1981 ER5	13038	1981 EV8	13165	1981 EW13	13041	1981 EX21	13157
1981 EP26	13310	1981 EB27	13043	1981 EF35	13043	1981 EJ35	13044
1981 ED37	13311	1981 EJ40	13854	1981 EM40	13044	1981 EH41	13680
1981 EX43	13157	1981 EZ46	14016	1981 EZ47	14016	1981 GP	13167
1981 GN1	13604	1981 JS1	13447	1981 OH	13455	1981 QE2	13855
1981 QT3	13589	1981 RP2	13152	1981 SN1	13301	1981 SY1	13855
1981 TJ	13598	1981 UA	14016	1981 UB1	13152	1981 UJ4	13604
1981 UM11	13855	1981 WR	14017	1981 YA1	13691	1982 AF	13855
1982 BW	13056	1982 BQ4	13157	1982 FS	13691	1982 FX3	13856
1982 OF	13580	1982 PC	13604	1982 PR	13856	1982 QD	13580
1982 QG	13580	1982 QM	13580	1982 QB1	13593	1982 QG1	13580
1982 QY1	13580	1982 QK3	13593	1982 QP3	13580	1982 QS3	13675
1982 RD	13580	1982 RE	13580	1982 RF	13580	1982 RR	13580
1982 RW	13594	1982 RG1	13580	1982 RM1	13448	1982 RO1	13580
1982 RW1	13580	1982 SC	13580	1982 SC1	13580	1982 SE1	14017
1982 SG1	13580	1982 SJ1	13583	1982 SL1	13685	1982 SO1	13685
1982 SC2	13157	1982 SM2	13580	1982 SQ2	13311	1982 SX2	13686
1982 SY2	13686	1982 SD3	13581	1982 SN3	13581	1982 SU3	13605
1982 SG4	13581	1982 SO5	13691	1982 SV5	13605	1982 SX5	13692
1982 SY5	13581	1982 SB6	13583	1982 SC6	13605	1982 SL6	13581
1982 SM6	13581	1982 SP6	13581	1982 SR6	13581	1982 ST6	13675
1982 SJ7	13581	1982 SM7	13581	1982 SQ7	13581	1982 ST7	13581
1982 SC8	13581	1982 SK8	13686	1982 SG12	13686	1982 SA13	13585
1982 TG1	13448	1982 TY2	13581	1982 TH3	13594	1982 TK3	13687
1982 UE	13605	1982 UJ3	13594	1982 UQ3	13594	1982 UR3	13595
1982 UW3	13581	1982 UD4	13581	1982 UF4	13595	1982 UP6	13167
1982 UE12	13595	1982 UH12	13581	1982 VF12	13581	1982 VK12	13595
1982 WM	13606	1982 YQ	13581	1983 AN2	13581	1983 AA3	13311
1983 AG4	13996	1983 CS	13312	1983 EU	13996	1983 EM2	13996
1983 EN2	13996	1983 GR	14017	1983 GU	13996	1983 PX	14017
1983 PY	13996	1983 PZ	13996	1983 QH1	13996	1983 RZ1	13996
1983 RC2	14018	1983 RD2	13996	1983 RX3	13677	1983 RY3	13448
1983 RQ4	14018	1983 RR4	14018	1983 RS4	13996	1983 RT4	13996
1983 RU4	13996	1983 RV4	13996	1983 RW4	13996	1983 RX4	13996
1983 RY4	13996	1983 RZ4	13996	1983 RA5	13996	1983 RB5	13996
1983 RC5	13997	1983 RD5	13997	1983 TN1	13170	1983 TD2	13301
1983 VP1	14018	1983 VM7	13158	1983 WR	14019	1983 XF	13677
1983 XG	13675	1984 BL	13158	1984 DN	13464	1984 DQ	13465
1984 DX	13475	1984 ED	13302	1984 EN1	13448	1984 ER1	13606
1984 HL	13455	1984 HG1	13856	1984 HS1	13856	1984 HC2	13297
1984 QF	13465	1984 SC1	14019	1984 SM1	13158	1984 TB	13158
1984 UA	13692	1984 UX	13857	1985 BB	14019	1985 DD	13465
1985 DO2	13466	1985 HG1	13039	1985 JJ	13449	1985 JK1	13153
1985 PL1	13449	1985 PZ1	14019	1985 PB2	13997	1985 PC2	14019
1985 PD2	14020	1985 PE2	14020	1985 PF2	13997	1985 QL4	13997
1985 QM4	14020	1985 RV	13170	1985 RB1	13681	1985 RL1	13159
1985 RZ1	13997	1985 RT2	13159	1985 RU3	14020	1985 RC4	13475
1985 RD4	14021	1985 RS4	13449	1985 SR	14021	1985 UA	13034
1985 UJ3	13475	1985 UT3	14021	1986 AH	13170	1986 CB	13466
1986 CQ1	13857	1986 CS1	14022	1986 ET	14022	1986 EL1	13857
1986 EZ1	14022	1986 GD	13858	1986 GG	14023	1986 PD1	13466

1986 QQ2	13456	1986 RB	13039	1986 RF	13606	1986 RD1	13159
1986 RC2	13039	1986 TU	13306	1986 TX1	13581	1986 VA	13434
1986 VC	13434	1986 VD	13467	1986 VE	13467	1986 VT	13153
1986 VV6	13694	1986 WQ2	13456	1986 WP8	13163	1987 BO1	13434
1987 CJ	13312	1987 DF	13590	1987 DG	13293	1987 DN	13293
1987 DP	13293	1987 DU5	13293	1987 DW5	13306	1987 DX5	13302
1987 DY5	13312	1987 DA6	13306	1987 DB6	13293	1987 DC6	13307
1987 DD6	13293	1987 DE6	13293	1987 DF6	13293	1987 DG6	13293
1987 DH6	13307	1987 DK6	13293	1987 DL6	13293	1987 DM6	13293
1987 DN6	13293	1987 DO6	13293	1987 DP6	13293	1987 DQ6	13293
1987 DS6	13313	1987 DU6	13293	1987 DW6	13313	1987 DA7	13293
1987 EH	13293	1987 EP	13302	1987 EQ	13293	1987 EV	13293
1987 ED1	13293	1987 EE1	13293	1987 GK	13293	1987 HA	13434
1987 HE	13434	1987 HK	13434	1987 HS	13457	1987 KB	13606
1987 KL	13143	1987 KD1	13293	1987 KF1	13143	1987 KG5	13434
1987 KH5	13434	1987 KJ5	13434	1987 OA	14023	1987 PA	13313
1987 QB	14023	1987 QD	13143	1987 QF6	13581	1987 RR	13581
1987 RT	13585	1987 RU	13581	1987 RW	13581	1987 RY	13607
1987 RZ	13581	1987 RA1	13581	1987 RB1	13581	1987 RD1	13581
1987 RE1	13581	1987 RF1	13581	1987 RG1	13581	1987 RH1	13581
1987 RL1	13581	1987 RN1	13581	1987 RO1	13581	1987 RP1	13581
1987 SL	13314	1987 SG1	13687	1987 SJ1	13581	1987 SK1	13581
1987 SL1	13581	1987 SG2	13434	1987 SJ2	13434	1987 SK2	13434
1987 SL2	13434	1987 SM2	13434	1987 SP2	13581	1987 SX2	13434
1987 SS3	13581	1987 SV3	13585	1987 SA4	13581	1987 SC6	13581
1987 SF6	13581	1987 SA7	13457	1987 SO9	13435	1987 SR9	13435
1987 SN11	13607	1987 SP11	13581	1987 ST11	13581	1987 SU11	13581
1987 SV11	13581	1987 SW11	13581	1987 SX11	13581	1987 SK12	13581
1987 SM12	13692	1987 SN12	13582	1987 SO12	13582	1987 SP12	13582
1987 SQ12	13582	1987 SR12	13582	1987 SV12	13586	1987 SA13	13582
1987 SG13	13673	1987 UX	13034	1987 VC	13590	1987 VA1	13143
1987 VB1	13143	1987 WQ1	13052	1987 WV1	13034	1987 WS3	13034
1987 YC1	13034	1987 YD1	13034	1987 YE1	13034	1987 YL1	13143
1987 YR1	13143	1987 YS1	13143	1987 YT1	13467	1987 YU1	13143
1987 YV1	13143	1987 YW1	13143	1988 AK	13293	1988 AL	13450
1988 AK1	13034	1988 AW1	13041	1988 AX1	13041	1988 AX4	13435
1988 AA5	13435	1988 AB5	13435	1988 AD5	13435	1988 AE5	13435
1988 AF5	13457	1988 AH5	13435	1988 AJ5	13450	1988 BJ	13034
1988 BN	13171	1988 BU	13052	1988 BX	13435	1988 BZ	13040
1988 BW1	13034	1988 BX1	13171	1988 BY1	13171	1988 BZ1	13450
1988 BH2	13435	1988 BK2	13143	1988 BM2	13034	1988 BN2	13143
1988 BO2	13040	1988 BK3	13468	1988 BL3	13435	1988 BM3	13435
1988 BO3	13435	1988 BP3	13435	1988 BS3	13435	1988 BT3	13435
1988 BW3	13468	1988 BX3	13468	1988 BY3	13435	1988 BZ3	13435
1988 BA4	13435	1988 BB4	13435	1988 BC4	13435	1988 BD4	13435
1988 BE4	13435	1988 BG4	13435	1988 BJ4	13435	1988 BK4	13451
1988 BM4	13435	1988 BN4	13435	1988 BO4	13435	1988 BQ4	13435
1988 BE5	13673	1988 BF5	13673	1988 BG5	13673	1988 BH5	13673
1988 BJ5	13673	1988 BK5	13673	1988 BL5	13673	1988 BM5	13675
1988 BN5	13673	1988 CA	13435	1988 CC	13034	1988 CH	13052
1988 CK	13160	1988 CR	13143	1988 CO1	13143	1988 CP1	13143
1988 CQ1	13293	1988 CR1	13053	1988 CU1	13293	1988 CW1	13143
1988 CX1	13143	1988 CY1	13143	1988 CA2	13144	1988 CC2	13144
1988 CD2	13034	1988 CE2	13144	1988 CG2	13144	1988 CH2	13477
1988 CK2	13153	1988 CL2	13144	1988 CM2	13160	1988 CN2	13053
1988 CP2	13144	1988 CQ2	13144	1988 CR2	13144	1988 CS2	13478
1988 CT2	13144	1988 CV2	13144	1988 CW2	13476	1988 CY2	13144
1988 CZ2	13034	1988 CB3	13293	1988 CD3	13293	1988 CF3	13293
1988 CH3	13468	1988 CM3	13144	1988 CT3	13144	1988 CU3	13144

1988 CV3	13144	1988 CX3	13144	1988 CY3	13144	1988 CZ3	13144
1988 CB4	13144	1988 CC4	13144	1988 CD4	13435	1988 CE4	13034
1988 CF4	13435	1988 CG4	13144	1988 CJ4	13435	1988 CK4	13435
1988 CL4	13435	1988 CN4	13144	1988 CO4	13144	1988 CP4	13293
1988 CQ4	13144	1988 CR4	13144	1988 CS4	13144	1988 CT4	13144
1988 CU4	13144	1988 CV4	13144	1988 CW4	13435	1988 CX4	13144
1988 CY4	13293	1988 CZ4	13144	1988 CD5	13144	1988 CF5	13144
1988 CH5	13144	1988 CJ5	13160	1988 CK5	13144	1988 CM5	13144
1988 CN5	13144	1988 CP5	13144	1988 CQ5	13435	1988 CR5	13435
1988 CS5	13144	1988 CT5	13582	1988 CF6	13144	1988 CF7	13293
1988 CG7	13144	1988 CH7	13144	1988 CL7	13144	1988 CO7	13293
1988 CQ7	13144	1988 CR7	13293	1988 CS7	13144	1988 DD	13144
1988 DE	13144	1988 DJ	13053	1988 DK	13035	1988 DL	13035
1988 DM	13053	1988 DN	13035	1988 DO	14023	1988 DH1	13035
1988 DQ1	13054	1988 DT1	13293	1988 DU1	13293	1988 DX1	13293
1988 DY1	13293	1988 DA2	13293	1988 DD2	13293	1988 DE2	13293
1988 DF2	13293	1988 DG2	13293	1988 DH2	13293	1988 DJ2	13293
1988 DD3	13681	1988 DE3	13435	1988 DF3	13435	1988 DR4	13457
1988 DS4	13458	1988 DX4	13435	1988 DZ4	13435	1988 DA5	13435
1988 DB5	13435	1988 DD5	13435	1988 EA	13293	1988 EB	13054
1988 EC	13469	1988 ED	13035	1988 EF	13054	1988 EG	13167
1988 EH	13293	1988 EJ	13160	1988 EK	13035	1988 EL	13145
1988 EN	13153	1988 EO	13145	1988 EP	13035	1988 EU	13161
1988 EY	13145	1988 EA1	13145	1988 EB1	13161	1988 ED1	13035
1988 EJ1	13145	1988 EK1	13469	1988 EM1	13293	1988 EN1	13435
1988 EO1	13161	1988 ER1	13161	1988 EW1	13145	1988 EX1	13145
1988 EY1	13294	1988 EZ1	13294	1988 EA2	13294	1988 EB2	13294
1988 FB	13858	1988 FD	13035	1988 FE	13035	1988 FF	13035
1988 FJ	13171	1988 FK	13294	1988 FM	13145	1988 FN	13294
1988 GA	13435	1988 GB	13167	1988 GD	13435	1988 GF	13997
1988 GG	13294	1988 GH	13154	1988 GL	13435	1988 GM	13145
1988 GP	13145	1988 GQ	13145	1988 GS	13598	1988 GT	13145
1988 HA	13145	1988 HB	13162	1988 HC	13145	1988 HD	13145
1988 HE	13435	1988 HF	13451	1988 JD	13843	1988 JE	13673
1988 JF	13162	1988 JJ	13451	1988 JL	13469	1988 JM	13444
1988 JN	13435	1988 JO	13469	1988 JP	13435	1988 JQ	13294
1988 JU	13470	1988 JV	13582	1988 JW	13451	1988 JX	13294
1988 JA1	13435	1988 JB1	13590	1988 JC1	13436	1988 KA	13303
1988 KB	13436	1988 KC	13452	1988 KF	13436	1988 KG	13452
1988 KV	13673	1988 KX	13673	1988 LA	13470	1988 LB	13470
1988 LC	13436	1988 LE	13436	1988 LF	13470	1988 LG	13436
1988 LH	13436	1988 LK	13436	1988 LN	13436	1988 MA	13436
1988 MB	13458	1988 ME	13471	1988 MF	13436	1988 MG	13458
1988 MH	13436	1988 MJ	13436	1988 NA	13582	1988 NC	13582
1988 ND	13673	1988 NE	13436	1988 NF	13858	1988 NH	13591
1988 NN	13471	1988 NR	13436	1988 NT	13436	1988 NV	13582
1988 NW	13582	1988 NX	13582	1988 NY	13582	1988 OB	13436
1988 PA	13591	1988 PE	13673	1988 PF	13673	1988 PK	13673
1988 PL	13843	1988 PO	13673	1988 PP	13673	1988 PQ	13843
1988 PR	13582	1988 PT	13678	1988 PU	13673	1988 PV	13673
1988 PW	13673	1988 PX	13673	1988 PY	13674	1988 PD1	13582
1988 PG1	13674	1988 PH1	13858	1988 PJ1	13674	1988 PM1	13674
1988 PQ1	13674	1988 PR1	13681	1988 PU1	13674	1988 PZ1	13674
1988 PC2	13674	1988 PF2	13674	1988 PK2	13843	1988 PM2	13843
1988 PO2	13843	1988 PV2	13843	1988 PW2	13843	1988 QA	13674
1988 QB	13674	1988 QC	14023	1988 QD	13582	1988 QE	13582
1988 QO	13843	1988 QP	13859	1988 QQ	13843	1988 QR	13843
1988 QU	13997	1988 QV	13674	1988 QW	13674	1988 QY	13674
1988 QZ	13674	1988 RA	14024	1988 RB	13682	1988 RC	13674

1988 RD	13843	1988 RE	13859	1988 RJ	13843	1988 RN	13682
1988 RO	13843	1988 RP	13692	1988 RR	13674	1988 RV	13674
1988 RA1	13674	1988 RB1	13674	1988 RD1	13843	1988 RE1	13843
1988 RK1	13674	1988 RM1	13674	1988 RO1	14024	1988 RP1	13693
1988 RY1	13674	1988 RZ1	13674	1988 RA2	13674	1988 RB2	13674
1988 RC2	13674	1988 RE2	13674	1988 RF2	13674	1988 RG2	13674
1988 RH2	13674	1988 RM2	13843	1988 RN2	13843	1988 RO2	13843
1988 RP2	13843	1988 RQ2	13843	1988 RW2	13843	1988 RX2	13843
1988 RY2	13843	1988 RZ2	13843	1988 RA3	13843	1988 RC3	13843
1988 RD3	13843	1988 RE3	13843	1988 RH3	13997	1988 RJ3	13997
1988 RM3	13997	1988 RN3	13997	1988 RO3	13997	1988 RP3	13997
1988 RR3	13997	1988 RS3	13997	1988 RT3	13997	1988 RU3	13997
1988 RW3	13997	1988 RX3	13997	1988 RY3	13997	1988 RZ3	13997
1988 RA4	13997	1988 SA	13843	1988 SB	13844	1988 SC	13844
1988 SD	13844	1988 SH	13859	1988 SM	13676	1988 SN	13844
1988 TA	14024	1988 TD	13687	1988 TE	13844	1988 TG	13997
1988 TJ	13844	1988 TK	13844	1988 TL	13844	1988 TN	13844
1988 TO	13997	1988 TP	13859	1988 TQ	13860	1988 TR	13844
1988 TS	13844	1988 TT	13844	1988 TU	13844	1988 TV	13844
1988 TX	13844	1988 TY	13844	1988 TZ	13844	1988 TA1	13844
1988 TB1	13997	1988 TC1	13844	1988 TF1	13860	1988 TG1	13860
1988 TJ1	13861	1988 TK1	13861	1988 TL1	13997	1988 TM1	13844
1988 TN1	13844	1988 TO1	13861	1988 TP1	13997	1988 TQ1	13997
1988 TR1	13997	1988 TS1	13997	1988 TV1	13844	1988 TW1	13844
1988 TX1	13844	1988 TB2	13844	1988 TC2	13844	1988 TE2	13844
1988 TG2	13844	1988 TH2	13861	1988 TJ2	13844	1988 TM2	13844
1988 TR2	13844	1988 TS2	13844	1988 TT2	13844	1988 TV2	14024
1988 TW2	13997	1988 TX2	13997	1988 UA	13844	1988 UB	13862
1988 UC	13844	1988 UF	13844	1988 UH	13997	1988 UJ	13997
1988 UO	13997	1988 UP	13862	1988 US	14024	1988 UT	13997
1988 VA	13997	1988 VB	13862	1988 VC	14024	1988 VD	13997
1988 VF	13997	1988 VH	13997	1988 VJ	13862	1988 VK	13997
1988 VL	14025	1988 VN	13997	1988 VO	13997	1988 VP	14025
1988 VR	14025	1988 VS	14025	1988 VT	13997	1988 VV	13997
1988 VW	13997	1988 VY	13997	1988 VZ	13997	1988 VA1	13997
1988 VB1	13997	1988 VC1	13997	1988 VD1	14026	1988 VE1	13997
1988 VF1	14026	1988 VG1	13997	1988 VH1	14026	1988 VJ1	13997
1988 VO1	14026	1988 VQ1	13997	1988 VR1	13997	1988 VS1	13997
1988 VT1	13998	1988 VU1	13998	1988 VV1	13998	1988 VW1	13998
1988 VY1	14027	1988 VZ1	13998	1988 VA2	13998	1988 VB2	13998
1988 VC2	13998	1988 VD2	13998	1988 VF2	13845	1988 VH2	13998
1988 VJ2	13998	1988 VK2	13998	1988 VL2	13998	1988 VM2	14027
1988 VQ2	13998	1988 VT2	13998	1988 VU2	13998	1988 VV2	13998
1988 VY2	13998	1988 VZ2	14027	1988 VB3	13998	1988 VD3	14028
1988 VE3	13998	1988 VG3	13998	1988 VH3	13998	1988 VK3	13998
1988 VM3	13998	1988 VN3	13998	1988 VO3	13998	1988 VR3	13998
1988 VT3	13998	1988 VZ3	13998	1988 VN4	14028	1988 VP4	14028
1988 VS4	13998	1988 VT4	13998	1988 VW4	13998	1988 VX4	13998
1988 VA5	13998	1988 VB5	13998	1988 VD5	13998	1988 VF5	13998
1988 VG5	13998	1988 VJ5	13998	1988 VM5	13998	1988 VN5	13998
1988 VO5	13998	1988 VP5	13998	1988 VR5	13998	1988 VT5	13998
1988 VV5	13998	1988 VW5	13998	1988 VY5	13998	1988 WA	13998
1988 WB	13998	1988 WC	14028	1988 XB	14028	1988 XC	13998
1988 XF	13998	1988 XK	13998	1988 XL	13998	1988 XQ	13998
1988 XS	13998	1988 XT	13998	2636 P-L	13607	2678 P-L	13303
4517 P-L	13863	4598 P-L	13687	6647 P-L	13314	7068 P-L	13693
9507 P-L	13303	9515 P-L	13154	1120 T-3	13162	1128 T-3	13688
2035 T-3	13688	2416 T-3	13863	3006 T-3	13476	3107 T-3	13863
4271 T-3	14028	4327 T-3	13304	5191 T-3	14029		

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

010 Caussols. 0.9-m Schmidt. Observers J. D. Mulholland and A. Maury. Measured by R. Chemin. Communicated by C. Pollas.
056 Skalnate Pleso. 0.3-m f/5 astrograph. Observers M. Antal, G. Cervak, J. Klobusnik, E. M. Pittich, P. Rychtarcik, P. Schalling and J. Svoren.
071 Rozhen. Observers V. Shkodrov, V. Ivanova, V. Umlenski, T. Bonev and A. Stoev.
095 Crimean Astrophysical Observatory. Observers S. B. Aleksantsrov, D. Bajtsrakov, A. S. Borotsulin, L. I. Chernykh, N. S. Chernykh, K. I. Churyumov, D. N. Efimov, S. E. Gur'yanov, V. P. Korneev, D. S. Kosenkov, A. Kostikov, T. V. Kryachko, Yu. V. Nesterov, A. A. Pichevskij, A. N. Shirokov, A. R. Tearo, E. A. Tregubov, V. A. Vasilyus and A. A. Zaikin. From Kiev Komet. Tsirk.
190 Gissar. Observer S. I. Gerasimenko. Communicated by G. R. Kastel'.
293 Burlington remote site. Observer T. Handley.
372 Geisei. Observer T. Seki.
381 Kiso. 1.05-m Schmidt. Observers Y. Taniguchi and H. Hata.
391 Sendai Observatory, Ayashi Station. 0.20-m reflector. Observer M. Koishikawa. Measured by S. Kasahira, M. Koishikawa and T. Yusa.
400 Kitami. Observer K. Endate. 0.2-m reflector. Measured by K. Watanabe.
401 Oosato. 0.20-m f/4.8 reflector. Observer Y. Yamagishi. Measured by S. Hayakawa.
402 Dynic Astronomical Observatory. 0.60-m f/5.0 reflector. Observers J. Sugie and H. Tsujino.
403 Kani. Observer Y. Mizuno. Long. and Parallax 137.06, -348, -246 (see MPC 11200). From Orient. Astron. Assoc. Comet Bull.
404 Yamamoto. 0.20-m reflector. Observer S. Otomo. Measured by T. Yusa. Long. and Parallax 140.78, -335, -263 (see MPC 11200).
405 Kamihoriguchi. O.30-m f/3.8 reflector. Observers H. Shimoda and K. Kanai. Measured by K. Kanai and T. Niijima. Long. and Parallax 139.33, -344, -251 (see MPC 11200).
413 Siding Spring. U.K. Schmidt on Jan. 27.43, otherwise Uppsala Southern Schmidt. Observers M. Hartley and R. H. McNaught.
415 Kambah, near Canberra. Observer D. Herald.
494 Stakenbridge. 0.26-m reflector. Communicated by G. M. Hurst.
500 The geocentric code is given to observations from the SMM (Solar Maximum Mission) satellite. Observers S. A. Beck, J. Klein, D. Kobe, D. Pitone, A. Stanger, O. C. St. Cyr, B. Twambly and C. Waugh.
503 Cambridge. Observer J. D. Shanklin.
674 Ford Observatory, Wrightwood. 0.46-m reflector. Observer J. Child. Measured by B. Roman.
675 Palomar. 1.5-m reflector + CCD and 0.46-m Schmidt. Observers R. Crockett, J. Gibson, E. Helin, B. Roman, C. Shoemaker and E. Shoemaker.
801 Oak Ridge Observatory. Observers R. E. McCrosky and C.-Y. Shao.
871 Akou. Observer K. Kawanishi.
875 Yorii. 0.30-m f/3.8 reflector. Observer M. Arai. Measured by H. Mori.
877 Okutama. 0.30-m f/3.8 hyperboloid astrocamera. Observer T. Hioki. Measured by N. Kawasato and T. Hioki.
887 Ojima. 0.30-m f/5.8 reflector. Observers T. Niijima and K. Kanai. Measured by K. Kanai.
892 YGCO Nagano Station. 0.25-m f/4.0 reflector. Observer S. Hayakawa.
893 Sendai Observatory. 0.41-m reflector. Observer T. Yusa.
897 YGCO Chiyoda Observatory. 0.25-m f/3.4 Wright-Schmidt camera. Observer T. Kojima.
978 Conder Brow. 0.55-m reflector. Observer D. Buczynski.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
		Periodic Comet Schwassmann-Wachmann 1					
/1974 II	1988	12 07.38675	21 58 16.90	-08 06 15.1	14	T	897
/1974 II	1988	12 07.41470	21 58 17.62	-08 06 09.1			897
/1974 II	1988	12 10.38287	21 59 37.90	-07 58 56.0	14	T	897
/1974 II	1988	12 10.39971	21 59 38.35	-07 58 53.1			897
/1974 II	1988	12 30.37182	22 10 17.36	-06 59 09.5	14	T	897
/1974 II	1988	12 30.39988	22 10 18.39	-06 59 02.5			897
/1974 II	1989	01 01.36991	22 11 29.54	-06 52 13.7	14	T 1	897
/1974 II	1989	01 01.40139	22 11 30.62	-06 52 07.5			897
/1974 II	1989	01 02.39959	22 12 07.30	-06 48 35.5	14	T 2	897
		Comet Kohler (1977 XIV)					
/1977 XIV	1977	09 24.75972	16 06 57.35	+22 18 37.2			056
		Comet Meier (1978 XXI)					
/1978 XXI	1979	09 19.83229	22 45 48.06	-18 34 51.1			056
/1978 XXI	1979	09 19.90799	22 45 44.05	-18 34 49.8			056
/1978 XXI	1979	09 26.89514	22 39 55.35	-18 24 38.9			056
/1978 XXI	1979	09 26.95486	22 39 52.67	-18 24 35.1			056
		Comet Meier (1979 IX)					
/1979 IX	1979	11 22.95313	12 03 36.13	+53 46 13.9		3	056
/1979 IX	1979	11 23.92431	12 01 16.18	+53 41 14.7			056
/1979 IX	1979	11 26.08056	11 55 48.06	+53 30 24.5			056
		Comet Bradfield (1979 X)					
/1979 X	1980	02 14.81736	03 32 27.19	+15 39 35.9			056
		Periodic Comet Stephan-Oterma					
/1980 X	1980	11 02.02674	05 15 17.67	+07 13 50.1			056
/1980 X	1980	11 02.11146	05 15 22.24	+07 15 18.6			056
/1980 X	1980	11 02.93229	05 16 08.83	+07 29 52.4			056
/1980 X	1980	11 03.02743	05 16 13.64	+07 31 37.2			056
/1980 X	1980	11 08.92187	05 21 10.84	+09 27 25.9			056
/1980 X	1980	11 08.95521	05 21 11.94	+09 28 07.1			056
/1980 X	1980	11 11.11667	05 22 45.37	+10 15 24.1			056
/1980 X	1980	11 11.13958	05 22 46.10	+10 15 56.0			056
/1980 X	1980	11 11.86597	05 23 16.91	+10 32 29.0		3	056
/1980 X	1980	11 13.91111	05 24 35.59	+11 20 41.7			056
/1980 X	1980	11 13.97083	05 24 37.59	+11 22 08.9			056
/1980 X	1980	12 02.93333	05 31 21.11	+20 33 22.3			056
/1980 X	1980	12 03.96389	05 31 27.82	+21 07 19.2			056
/1980 X	1980	12 18.08831	05 31 42.56	+28 55 14.8			056
/1980 X	1980	12 18.12998	05 31 42.79	+28 56 31.3			056
/1980 X	1980	12 29.01736	05 32 17.59	+34 18 03.7			056
/1980 X	1980	12 29.06736	05 32 17.89	+34 19 26.5			056
/1980 X	1980	12 30.99167	05 32 37.20	+35 09 29.9			056
		Periodic Comet Tuttle					
/1980 XIII	1980	11 02.05278	09 57 30.40	+42 46 44.3			056
/1980 XIII	1980	11 03.04931	09 59 27.85	+41 44 18.1		3	056
/1980 XIII	1980	11 08.98958	10 10 31.34	+34 38 22.5			056
/1980 XIII	1980	11 09.02326	10 10 35.06	+34 35 39.2			056
/1980 XIII	1980	11 11.12882	10 14 16.32	+31 39 00.6			056
/1980 XIII	1980	11 12.06632	10 15 52.63	+30 15 25.7			056

/1980 XIII 1980 11 12.09236 10 15 55.50 +30 13 05.7 056
/1980 XIII 1980 12 03.11910 10 50 09.71 -15 16 47.1 3 056

Comet 1984 XII (SOLWIND 5)

/1984 XII 1984 07 28.37292 08 24 02 +18 50.4 500
/1984 XII 1984 07 28.43889 08 26 53 +19 02.4 500

Periodic Comet Tempel 2

/1987g 1988 05 11.95232 16 03 22.73 +03 16 15.4 190
/1987g 1988 05 19.81076 15 56 43.04 +03 48 05.0 190
/1987g 1988 05 19.83575 15 56 42.18 +03 48 07.1 190
/1987g 1988 06 07.80311 15 38 06.53 +03 28 12.4 190
/1987g 1988 06 07.82255 15 38 05.35 +03 28 08.9 190
/1987g 1988 07 08.70832 15 23 43.04 -02 46 05.4 190
/1987g 1988 07 11.70909 15 24 25.81 -03 41 03.9 190
/1987g 1988 07 15.82303 15 26 06.40 -05 00 06.4 095
/1987g 1988 07 15.84375 15 26 07.22 -05 00 35.1 095
/1987g 1988 07 16.83813 15 26 39.10 -05 20 16.8 071
/1987g 1988 07 16.86220 15 26 39.80 -05 20 44.3 071
/1987g 1988 07 18.82500 15 27 51.17 -06 00 17.1 095
/1987g 1988 07 19.82645 15 28 32.35 -06 20 49.4 095
/1987g 1988 07 19.83391 15 28 32.51 -06 20 55.9 095
/1987g 1988 09 11.76889 17 13 56.47 -25 21 17.4 071
/1987g 1988 11 06.40035 20 36 50.70 -29 30 35.6 403
/1987g 1988 11 06.40613 20 36 51.77 -29 30 36.7 403
/1987g 1988 12 01.38478 22 00 53.13 -24 24 11.4 897
/1987g 1988 12 01.43247 22 01 01.4 -24 23 31 897
/1987g 1988 12 05.39201 22 13 03.21 -23 22 16.0 897
/1987g 1988 12 05.40799 22 13 06.02 -23 21 53.8 897
/1987g 1988 12 26.39884 23 11 32.29 -17 30 55.9 897
/1987g 1988 12 26.41319 23 11 34.25 -17 30 36.6 897

Periodic Comet Shoemaker-Holt

/1987z 1988 12 07.64653 07 50 10.07 +15 26 34.9 16 T 897
/1987z 1988 12 11.70243 07 48 42.80 +15 24 14.7 877
/1987z 1988 12 11.76429 07 48 41.29 +15 24 16.1 877
/1987z 1988 12 17.74850 07 45 57.72 +15 23 02.3 16 T 897
/1987z 1988 12 17.79427 07 45 56.17 +15 23 03.5 897

Comet Liller (1988a)

/1988a 1988 04 23.90907 01 48 22.61 +58 47 50.4 978
/1988a 1988 04 23.92392 01 48 27.54 +58 48 54.1 978
/1988a 1988 04 26.92709 02 05 41.26 +62 16 54.9 978
/1988a 1988 04 26.95961 02 05 53.76 +62 19 06.6 978
/1988a 1988 05 01.96849 02 47 34.33 +67 54 46.0 978
/1988a 1988 05 01.97304 02 47 37.92 +67 55 02.6 978
/1988a 1988 05 02.94086 02 58 18.57 +68 55 54.3 978
/1988a 1988 05 02.94446 02 58 21.36 +68 56 08.7 978
/1988a 1988 05 09.98129 04 55 28.41 +74 31 40.4 978
/1988a 1988 05 09.99960 04 55 53.95 +74 32 11.4 978
/1988a 1988 05 10.97355 05 17 55.44 +74 54 23.2 978
/1988a 1988 05 10.97761 05 18 01.71 +74 54 28.9 978

Comet Shoemaker-Holt (1988g)

/1988g 1988 07 16.96319 21 27 03.35 +56 57 57.0 095
/1988g 1988 07 17.00069 21 26 58.21 +56 58 39.2 095
/1988g 1988 07 18.97222 21 22 28.58 +57 27 17.6 095
/1988g 1988 07 18.98264 21 22 27.35 +57 27 27.9 095

Comet Shoemaker-Holt-Rodriquez (1988h)

/1988h	1988	07	15.89062	19	41	37.25	+14	49	53.2			095
/1988h	1988	07	15.93472	19	41	34.19	+14	49	24.6			095
/1988h	1988	07	16.87708	19	40	29.09	+14	39	31.0			095
/1988h	1988	07	16.91944	19	40	26.05	+14	39	00.5			095
/1988h	1988	07	17.90966	19	39	17.33	+14	28	18.7			095
/1988h	1988	07	17.95550	19	39	14.11	+14	27	47.5			095
/1988h	1988	07	18.87639	19	38	09.82	+14	17	38.7			095
/1988h	1988	07	18.91667	19	38	07.02	+14	17	12.1			095
/1988h	1988	07	19.87529	19	36	59.89	+14	06	21.4			095
/1988h	1988	07	19.91111	19	36	57.21	+14	05	55.4			095
/1988h	1988	07	22.98282	19	33	21.33	+13	29	36.4			095
/1988h	1988	07	22.98958	19	33	20.89	+13	29	32.5			095

Periodic Comet Ge-Wang

/1988o	1988	11	30.54931	02	37	28.88	+02	09	53.5	17	T	372
/1988o	1988	12	13.11101	02	34	37.53	+02	06	15.2		4	801

Comet 1988q (SMM 7)

/1988q	1988	10	24.68333	13	52	10	-12	21	6			500
/1988q	1988	10	24.74861	13	54	05	-12	12	6			500

Comet Yanaka (1988r)

/1988r	1989	01	01.84097	16	20	32.75	-01	16	28.6	8.5	T	372
/1988r	1989	01	01.84219	16	20	32.54	-01	16	39.0			893
/1988r	1989	01	01.84323	16	20	31.76	-01	16	36.2	9	T 5	897
/1988r	1989	01	01.84369	16	20	31.78	-01	16	44.3			893
/1988r	1989	01	01.84525	16	20	31.13	-01	16	46.2			897
/1988r	1989	01	01.85243	16	20	29.00	-01	17	09.9			404
/1988r	1989	01	01.85902	16	20	27.00	-01	17	30.2			372
/1988r	1989	01	01.86186	16	20	25.90	-01	17	40.8			897
/1988r	1989	01	01.86597	16	20	24.75	-01	17	55.1			897
/1988r	1989	01	01.87188	16	20	22.92	-01	18	12.6			372
/1988r	1989	01	02.83715	16	15	15.67	-02	14	31.4			391
/1988r	1989	01	02.83791	16	15	15.35	-02	14	33.4			887
/1988r	1989	01	02.83900	16	15	15.23	-02	14	34.8			877
/1988r	1989	01	02.84132	16	15	14.35	-02	14	46.1			887
/1988r	1989	01	02.84236	16	15	13.83	-02	14	50.3			391
/1988r	1989	01	02.84601	16	15	12.39	-02	15	04.2			405
/1988r	1989	01	02.85833	16	15	08.33	-02	15	47.7			405
/1988r	1989	01	02.86215	16	15	07.53	-02	16	11.2			893
/1988r	1989	01	03.48872	16	11	41.91	-02	55	11.3	9.5	T	675
/1988r	1989	01	03.85000	16	09	39.74	-03	18	43.4	9	T	372
/1988r	1989	01	03.85035	16	09	39.59	-03	18	47.3			404
/1988r	1989	01	03.85382	16	09	38.44	-03	19	00.2			404
/1988r	1989	01	03.86042	16	09	36.36	-03	19	26.1			877
/1988r	1989	01	04.82049	16	04	03.18	-04	25	29.5	8.5	T	892
/1988r	1989	01	04.82743	16	04	00.76	-04	26	00.1			892
/1988r	1989	01	04.84618	16	03	54.00	-04	27	20.8	9	T	875
/1988r	1989	01	04.85954	16	03	49.23	-04	28	16.3			887
/1988r	1989	01	04.86050	16	03	48.78	-04	28	22.2			887
/1988r	1989	01	04.86139	16	03	48.48	-04	28	26.6			887
/1988r	1989	01	04.86479	16	03	47.29	-04	28	40.9			887
/1988r	1989	01	04.86683	16	03	46.61	-04	28	49.9			887
/1988r	1989	01	05.23854	16	01	33.07	-04	55	52.8			978
/1988r	1989	01	05.25406	16	01	27.21	-04	57	02.8	10	T	503
/1988r	1989	01	05.25938	16	01	25.60	-04	57	22.1			978
/1988r	1989	01	05.82326	15	57	58.5	-05	39	56	8.5	T	372
/1988r	1989	01	05.84653	15	57	49.70	-05	41	44.4	9.0	T	871

/1988r	1989	01	11.24921	15	18	14.06	-14	07	48.7		6	503
/1988r	1989	01	13.25164	14	59	34.94	-18	00	27.7			503
/1988r	1989	01	16.86493	14	18	04.58	-25	46	10.7			897
/1988r	1989	01	16.86927	14	18	01.31	-25	46	50.0			897

Comet Yanaka (1989a)

/1989a	1989	01	02.80208	13	47	07.64	+09	40	46.1	11	T	391
/1989a	1989	01	02.80953	13	47	08.2	+09	40	53			381
/1989a	1989	01	02.81250	13	47	08.90	+09	40	56.2			391
/1989a	1989	01	02.81942	13	47	09.4	+09	41	04			381
/1989a	1989	01	03.45747	13	48	27.41	+09	53	16.7	10.5	T	675
/1989a	1989	01	03.48281	13	48	30.21	+09	53	45.3			675
/1989a	1989	01	03.79757	13	49	08.10	+09	59	49.3			404
/1989a	1989	01	03.83021	13	49	12.17	+10	00	28.2			404
/1989a	1989	01	04.25556	13	50	03.01	+10	08	40.5			978
/1989a	1989	01	04.71181	13	50	58.61	+10	17	37.5	11	T	875
/1989a	1989	01	04.77049	13	51	05.36	+10	18	45.5	11	T	892
/1989a	1989	01	04.78142	13	51	06.80	+10	18	59.9	10.5	T	372
/1989a	1989	01	04.78160	13	51	06.61	+10	18	57.9			892
/1989a	1989	01	04.79238	13	51	08.04	+10	19	12.0			401
/1989a	1989	01	04.80771	13	51	09.79	+10	19	27.8			887
/1989a	1989	01	04.81127	13	51	10.23	+10	19	32.0			887
/1989a	1989	01	04.82049	13	51	11.25	+10	19	42.6			405
/1989a	1989	01	04.83212	13	51	12.78	+10	19	56.9			405
/1989a	1989	01	04.83611	13	51	13.40	+10	20	04.4			875
/1989a	1989	01	04.83802	13	51	13.33	+10	20	04.5			405
/1989a	1989	01	04.84111	13	51	13.78	+10	20	07.5			887
/1989a	1989	01	04.84558	13	51	14.30	+10	20	12.2			887
/1989a	1989	01	05.20486	13	51	57.86	+10	27	17.8			978
/1989a	1989	01	05.21889	13	51	59.30	+10	27	32.8			978
/1989a	1989	01	05.22692	13	51	59.91	+10	27	42.4	12	T	503
/1989a	1989	01	05.24928	13	52	02.80	+10	28	09.2			494
/1989a	1989	01	05.26165	13	52	04.14	+10	28	24.3			494
/1989a	1989	01	05.78038	13	53	06.38	+10	38	46.7			405
/1989a	1989	01	05.78507	13	53	06.93	+10	38	50.5			405
/1989a	1989	01	05.79271	13	53	07.87	+10	38	56.3			391
/1989a	1989	01	05.79670	13	53	08.22	+10	39	01.7			893
/1989a	1989	01	05.80556	13	53	09.34	+10	39	09.5			893
/1989a	1989	01	05.80729	13	53	09.53	+10	39	14.3			391
/1989a	1989	01	05.81771	13	53	10.76	+10	39	28.4			391
/1989a	1989	01	05.83108	13	53	12.13	+10	39	42.9	11	T	372
/1989a	1989	01	05.83403	13	53	12.58	+10	39	47.9			405
/1989a	1989	01	06.84063	13	55	12.43	+10	59	58.5			391
/1989a	1989	01	06.84896	13	55	13.13	+11	00	06.0			391
/1989a	1989	01	06.85903	13	55	14.31	+11	00	17.1			391
/1989a	1989	01	10.26294	14	01	52.05	+12	10	38.4	13	T	503
/1989a	1989	01	13.24146	14	07	33.60	+13	14	50.2			503
/1989a	1989	01	13.83819	14	08	41.25	+13	27	58.4	12	T	391
/1989a	1989	01	13.85417	14	08	42.83	+13	28	18.1			391
/1989a	1989	01	14.77639	14	10	25.77	+13	48	52.0	12	T	391
/1989a	1989	01	14.79444	14	10	28.09	+13	49	13.6			405
/1989a	1989	01	14.79957	14	10	28.85	+13	49	23.3			405
/1989a	1989	01	14.80833	14	10	29.51	+13	49	36.1			405
/1989a	1989	01	14.81580	14	10	30.62	+13	49	40.1			405
/1989a	1989	01	14.83333	14	10	32.53	+13	50	09.4			391
/1989a	1989	01	16.82778	14	14	13.16	+14	35	13.2			875
/1989a	1989	01	16.83056	14	14	13.28	+14	35	17.9			405
/1989a	1989	01	16.83507	14	14	14.01	+14	35	23.1			875

/1989a	1989	01	16.83594	14	14	13.67	+14	35	24.1				405
/1989a	1989	01	17.80903	14	16	00.12	+14	57	44.9	12	T		391
/1989a	1989	01	17.81944	14	16	01.37	+14	57	59.7				391
/1989a	1989	01	18.24810	14	16	47.73	+15	07	54.3	14	T	7	503

Periodic Comet Helin-Roman-Crockett (1989b)

/1989b	1989	01	02.43247	08	37	30.21	+21	20	00.7	15.5	T	8	675
/1989b	1989	01	03.43733	08	36	56.10	+21	23	20.8	15.5	T		675
/1989b	1989	01	03.46354	08	36	55.25	+21	23	24.6				675
/1989b	1989	01	04.97639	08	36	02.93	+21	28	27.7	17	T		010
/1989b	1989	01	06.27020	08	35	16.67	+21	32	50.4				801
/1989b	1989	01	07.37986	08	34	35.95	+21	36	39.0				675
/1989b	1989	01	08.64236	08	33	48.2	+21	40	54	15.5	T		372
/1989b	1989	01	09.62014	08	33	10.92	+21	44	18.8	15.0	T		400
/1989b	1989	01	09.63889	08	33	10.31	+21	44	23.7				400
/1989b	1989	01	11.22175	08	32	08.33	+21	49	51.3			3	801
/1989b	1989	01	12.71354	08	31	08.29	+21	55	01.5	16	T		372
/1989b	1989	01	12.72535	08	31	07.87	+21	55	04.4				372
/1989b	1989	01	13.61597	08	30	31.76	+21	58	10.6	15	T		400
/1989b	1989	01	13.63200	08	30	31.03	+21	58	11.9				400
/1989b	1989	01	14.28333	08	30	04.30	+22	00	28.5				293
/1989b	1989	01	15.47917	08	29	14.60	+22	04	37.9				674
/1989b	1989	01	16.73032	08	28	22.03	+22	08	55.4	15.5	T		897
/1989b	1989	01	16.75619	08	28	20.91	+22	09	00.9				897
/1989b	1989	01	28.55469	08	19	51.84	+22	47	44.3	16	T		897
/1989b	1989	01	28.59201	08	19	50.28	+22	47	49.4				897

Periodic Comet Bradfield 2 (1989c)

/1989c	1989	01	07.45612	21	20	11.60	-55	56	21.1	11	T	9	415
/1989c	1989	01	07.46557	21	20	18.13	-55	55	58.3			9	415
/1989c	1989	01	07.47259	21	20	22.68	-55	55	50.6				415
/1989c	1989	01	08.45465	21	31	12.23	-55	25	36.1			A	415
/1989c	1989	01	08.46622	21	31	20.10	-55	25	16.5			A	415
/1989c	1989	01	09.45065	21	41	38.89	-54	52	02.7			B	415
/1989c	1989	01	09.45683	21	41	43.02	-54	51	49.4			B	415
/1989c	1989	01	09.46013	21	41	45.54	-54	51	44.1			B	415
/1989c	1989	01	11.45625	22	01	07.57	-53	37	24.0			C	415
/1989c	1989	01	12.47854	22	10	16.19	-52	56	29.6			D	413
/1989c	1989	01	12.47986	22	10	17.01	-52	56	24.8			D	413
/1989c	1989	01	12.48116	22	10	17.75	-52	56	23.2			D	413
/1989c	1989	01	13.45177	22	18	31.27	-52	16	09.0				415
/1989c	1989	01	13.46239	22	18	36.19	-52	15	40.7			E	415
/1989c	1989	01	13.46761	22	18	38.52	-52	15	24.8				413
/1989c	1989	01	27.43279	23	40	06.94	-42	01	15.8				413
/1989c	1989	01	27.45448	23	40	12.36	-42	00	21.7			F	413
/1989c	1989	01	30.44869	23	51	42.18	-39	57	10.5			F	413
/1989c	1989	01	31.49172	23	55	24.24	-39	15	31.5			F	413
/1989c	1989	02	01.46546	23	58	43.51	-38	37	32.6			O	413

Periodic Comet Russell 3

/1989d	1989	01	01.44638	09	31	12.15	-02	28	04.9	20	N	G	675
/1989d	1989	01	01.45139	09	31	12.03	-02	28	05.2			G	675
/1989d	1989	01	01.51071	09	31	10.75	-02	28	16.4			G	675
/1989d	1989	01	01.51899	09	31	10.59	-02	28	18.3			G	675
/1989d	1989	01	01.52360	09	31	10.49	-02	28	19.1			G	675
/1989d	1989	01	02.32238	09	30	53.76	-02	30	43.1			B	675
/1989d	1989	01	02.32741	09	30	53.58	-02	30	43.9			B	675
/1989d	1989	01	02.33326	09	30	53.53	-02	30	45.3			B	675
/1989d	1989	01	02.33951	09	30	53.40	-02	30	46.3			B	675

Comet Shoemaker (1989e)

/1989e	1989	01	13.52725	10	12	18.67	+19	05	54.7	13	T	H	675
/1989e	1989	01	13.54531	10	12	17.39	+19	06	37.5			H	675
/1989e	1989	01	14.38489	10	11	19.87	+19	39	15.1			H	675
/1989e	1989	01	15.67604	10	09	47.22	+20	30	04.8	12.5T			400
/1989e	1989	01	15.69687	10	09	45.80	+20	30	49.9				400
/1989e	1989	01	15.70799	10	09	44.71	+20	31	13.9				400
/1989e	1989	01	15.71910	10	09	43.93	+20	31	50.3				400
/1989e	1989	01	15.72639	10	09	43.79	+20	32	05.6	14	T	H	402
/1989e	1989	01	15.74340	10	09	42.81	+20	32	41.5	14	T	H	402
/1989e	1989	01	15.75625	10	09	41.02	+20	33	12.3	13	T		400
/1989e	1989	01	15.76597	10	09	40.33	+20	33	33.2				400
/1989e	1989	01	15.77500	10	09	39.48	+20	33	59.9				400
/1989e	1989	01	15.78333	10	09	39.14	+20	34	18.4				372
/1989e	1989	01	16.73802	10	08	27.12	+21	12	27.0	13.5T		I	897
/1989e	1989	01	16.78137	10	08	23.67	+21	14	09.1			I	897
/1989e	1989	01	16.80347	10	08	21.73	+21	15	06.5	15	T		405
/1989e	1989	01	16.81094	10	08	21.35	+21	15	20.1				405
/1989e	1989	01	16.81823	10	08	20.79	+21	15	35.2				405
/1989e	1989	01	17.80382	10	07	04.05	+21	55	25.1	13.5T			875
/1989e	1989	01	17.80903	10	07	03.68	+21	55	40.3				875
/1989e	1989	01	28.53536	09	50	08.54	+29	27	13.5	13.5T		J	897
/1989e	1989	01	28.58322	09	50	03.30	+29	29	16.7			J	897

Comet Shoemaker (1989f)

/1989f	1989	01	11.39461	09	07	10.99	+48	39	41.3	16	T	K	675
/1989f	1989	01	14.48020	09	06	28.25	+49	19	34.4			K	675
/1989f	1989	01	28.51782	09	01	00.80	+51	37	27.3	16	T		897
/1989f	1989	01	28.56296	09	00	59.62	+51	37	46.4				897
/1989f	1989	01	28.57986	09	00	58.86	+51	37	55.7				887
/1989f	1989	01	28.60683	09	00	58.26	+51	38	06.4				887
/1989f	1989	01	28.61829	09	00	57.87	+51	38	11.0				887

Note 1: diffuse with strong condensation. 2: diffuse with condensation. 3: poor sky. 4: weak image; close to bright star. 5: 10′ tail in p.a. 315 . 6: plate badly trailed. 7: very weak image. 8: small tail to northwest. 9: involved with star. A: distribution of reference stars poor in declination. B: poor seeing. C: poor; comet very faint. D: weak images. E: inkdot measured. F: comet very faint and extremely diffuse. G: faint coma with sharp condensation. H: 5′ tail in p.a. 210 . I: 6′ tail in p.a. 210 . J: 20′ tail in p.a. 220 . K: coma asymmetric to southwest. O = 9 + F.

* * * * *

OBSERVATIONS OF MINOR PLANETS.

The observations are listed separately for each observatory code. Alphabetic note codes shown with some of the observations are defined according to the scheme below. Numerical codes are defined in the headings for the individual observatories.

A earlier approximate position inferior
a sense of motion ambiguous
B black or dark plate
b bad seeing
C correction to earlier position
c crowded star field

D declination uncertain
d diffuse image
E at or near edge of plate
F faint image
G poor guiding
g no guiding
I involved with star
i inkdot measured
M measurement difficult
N near edge of plate, measurement uncertain
O image out of focus
o plate measured in one direction only
P position uncertain
p poor image
R right ascension uncertain
r outside reference star set
S poor sky
s streaked image
T time uncertain
t trailed image
U uncertain image
u unconfirmed image
V very faint image
W weak image
w weak solution

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
010 Caussols								
J.-L. Heudier, CERGA Caussols, F-06460 Saint Vallier de Thiey, France								
Observers A. Maury, C. Pollas								
Measurer R. Chemin								
0.9-m Schmidt telescope								
Observations in association with INAS								
1988 XW	*	1988 12 09.98611	03 44 29.38		+19 56 16.0	16.5V		010
1988 XW		1988 12 10.04410	03 44 26.00		+19 55 01.3			010
1988 XW		1988 12 13.89030	03 40 24.47		+18 13 16.0			010
1989 AC	*	1989 01 04.81250	03 36 16.24		+17 39 11.2			010
1989 AC		1989 01 04.85428	03 36 45.88		+17 41 10.1			010
1989 AC		1989 01 04.87014	03 36 56.46		+17 41 53.2			010
1989 AC		1989 01 04.91181	03 37 25.85		+17 43 49.8	12		010
1989 AC		1989 01 06.91944	03 59 50.68		+19 06 50.7			010
1989 AC		1989 01 06.92986	03 59 57.03		+19 07 11.3			010
1989 AC		1989 01 08.95208	04 19 45.94		+20 11 01.3			010
1989 AC		1989 01 08.95561	04 19 47.51		+20 11 04.8			010
1989 AC		1989 01 26.90279	05 59 55.79		+23 09 15.5			010
1989 AC		1989 01 26.91668	05 59 58.46		+23 09 16.9			010
1989 AC		1989 01 26.92362	05 59 59.90		+23 09 17.7			010
1989 AC		1989 01 26.92721	06 00 00.43		+23 09 18.3			010
026 Zimmerwald								
P. Wild, Astronomisches Institut der Universitat, Sidlerstrasse 5, CH-3012 Berne, Switzerland								
Observer P. Wild								
0.4-m Schmidt telescope								
1989 BA	*	1989 01 28.90139	08 52 06.10		+52 28 58.8	15		026
1989 BA		1989 01 29.88472	08 49 58.14		+52 12 13.2			026
1989 BA		1989 01 30.95278	08 47 40.20		+51 53 12.1			026

033 Tautenburg
S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg,
Democratic Republic of Germany
Observer F. Borngen
1.3-m Schmidt telescope
SAOC

1974 QM2		1988	11	03.96389	04	13	34.02	+30	20	07.4		033
1974 QM2		1988	11	04.01250	04	13	30.99	+30	20	07.0	19.0	033
1974 QM2		1988	11	04.97917	04	12	31.06	+30	19	54.4		033
1974 SR1		1988	11	03.96389	04	18	42.67	+29	24	01.0		033
1974 SR1		1988	11	04.01250	04	18	39.54	+29	24	01.9	17.7	033
1974 SR1		1988	11	04.97917	04	17	37.77	+29	24	08.0		033
1974 SX1		1988	11	03.96389	04	19	08.03	+30	01	05.4		033
1974 SX1		1988	11	04.01250	04	19	05.20	+30	01	14.1	17.9	033
1974 SX1		1988	11	04.97917	04	18	10.40	+30	04	03.9		033
1978 VH8		1988	12	07.97465	07	15	34.52	+21	30	05.8	18.6	033
1978 VH8		1988	12	08.01701	07	15	32.84	+21	30	07.9		033
1981 QD2		1988	09	09.00382	00	59	53.27	+00	34	02.9	17.2	033
1981 QD2		1988	09	09.06076	00	59	51.54	+00	33	54.2		033
1981 QD2		1988	09	10.00903	00	59	24.29	+00	31	26.2		033
1982 DN		1988	12	07.97465	07	23	42.34	+19	15	57.6	18.4	033
1982 DN		1988	12	08.01701	07	23	40.87	+19	15	58.4		033
1982 SU3		1988	11	06.10764	07	41	10.20	+06	36	23.4	19.1	033
1982 SU3		1988	11	06.14931	07	41	10.61	+06	36	14.1	W	033
1982 UR3		1988	11	05.02361	07	26	30.27	+20	28	41.1		033
1982 UR3		1988	11	05.07847	07	26	31.35	+20	28	37.2	17.8	033
1982 UR3		1988	11	06.08681	07	26	51.75	+20	27	15.2		033
1982 UR3		1988	12	07.97465	07	23	27.85	+20	13	45.7	17.2	033
1982 UR3		1988	12	08.01701	07	23	26.48	+20	13	47.2		033
1987 SA7		1988	11	05.09757	07	04	02.05	+10	04	31.0		033
1987 SA7		1988	11	06.06667	07	04	05.14	+10	01	19.3	18.4	033
1987 SA7		1988	11	06.12778	07	04	05.22	+10	01	07.5		033
1987 SA7		1988	12	07.95208	06	53	58.47	+08	52	09.0	17.9	I 033
1987 SA7		1988	12	07.99583	06	53	56.70	+08	52	06.1		033
1988 PT1		1988	09	08.82639	21	37	35.06	+14	00	36.2	17.0	033
1988 PT1		1988	09	08.84375	21	37	34.56	+14	00	27.3		033
1988 PT1		1988	09	08.86111	21	37	33.89	+14	00	15.3		033
1988 PT1		1988	09	08.87847	21	37	33.44	+14	00	07.0		033
1988 RA3		1988	11	03.85451	01	09	00.89	+05	17	31.0		033
1988 RA3		1988	11	03.91285	01	08	58.96	+05	17	17.9	18.3	033
1988 RA3		1988	11	04.89132	01	08	28.64	+05	13	43.5		033
1988 RD3		1988	11	03.85451	01	03	13.22	+05	27	48.5		033
1988 RD3		1988	11	03.91285	01	03	10.75	+05	27	30.5	18.7	033
1988 RC4	*	1988	09	09.00328	01	04	10.65	+02	08	59.9	16.9	033
1988 RC4		1988	09	09.06076	01	04	09.63	+02	08	12.4		033
1988 RC4		1988	09	10.00903	01	03	54.20	+01	54	43.4		033
1988 RD4	*	1988	09	09.00382	01	01	10.32	-00	14	27.2	19.0	033
1988 RD4		1988	09	09.06076	01	01	08.19	-00	14	32.1		033
1988 RD4		1988	09	10.00903	01	00	35.07	-00	15	49.9		033
1988 TG		1988	11	04.79861	01	01	11.97	+00	28	49.3	p	033
1988 TG		1988	11	04.81528	01	01	11.92	+00	28	27.6		033
1988 TG		1988	11	04.83125	01	01	11.73	+00	27	57.3	16.6	033
1988 TG		1988	11	04.84861	01	01	11.66	+00	27	33.6		033
1988 TX		1988	11	03.85451	01	11	31.58	+06	24	38.9		033
1988 TX		1988	11	03.91285	01	11	30.81	+06	24	14.2	18.8	033
1988 TA1		1988	11	03.85451	01	09	33.17	+06	29	34.7		033
1988 TA1		1988	11	03.91285	01	09	31.14	+06	29	09.4	17.9	033
1988 TA1		1988	11	04.89132	01	08	59.61	+06	22	18.7		033
1988 TB1		1988	11	03.85451	01	07	59.65	+07	08	29.7		033

1988	TB1		1988	11	03.91285	01	07	57.62	+07	08	05.6	18.6	033
1988	TB1		1988	11	04.89132	01	07	26.04	+07	01	32.1		033
1988	TL1		1988	11	03.85451	01	04	51.02	+07	43	02.1		033
1988	TL1		1988	11	03.91285	01	04	48.97	+07	42	35.6	18.0	033
1988	TL1		1988	11	04.89132	01	04	18.16	+07	35	13.5		033
1988	TM1		1988	11	03.85451	01	12	09.96	+07	48	48.6		033
1988	TM1		1988	11	03.91285	01	12	07.66	+07	48	30.4	17.8	033
1988	TM1		1988	11	04.89132	01	11	32.58	+07	43	25.4		033
1988	TR1		1988	11	04.80694	01	00	50.95	+01	09	03.8		033
1988	TR1		1988	11	04.83993	01	00	50.13	+01	08	44.6	18.6	033
1988	TX1		1988	11	03.85451	01	03	53.78	+07	01	15.9		033
1988	TX1		1988	11	03.91285	01	03	51.82	+07	00	53.8	18.9	033
1988	TX1		1988	11	04.89132	01	03	20.46	+06	54	48.7		033
1988	TR2		1988	11	03.85451	01	04	43.69	+07	46	12.7		033
1988	TR2		1988	11	03.91285	01	04	40.50	+07	46	25.1	17.3	033
1988	TR2		1988	11	04.89132	01	03	49.37	+07	49	55.5		033
1988	TS2		1988	11	03.85451	01	13	05.37	+05	15	07.6		033
1988	TS2		1988	11	03.91285	01	13	02.80	+05	15	05.7	17.6	033
1988	TS2		1988	11	04.89132	01	12	21.52	+05	14	38.9		033
1988	TT2		1988	11	03.85451	01	12	24.11	+06	25	02.3		033
1988	TT2		1988	11	03.91285	01	12	21.51	+06	24	54.3	17.1	033
1988	TT2		1988	11	04.89132	01	11	40.48	+06	22	50.4		033
1988	VB6	*	1988	11	03.96389	04	13	30.76	+32	09	57.0		033
1988	VB6		1988	11	04.01250	04	13	28.27	+32	09	59.1	18.4	033
1988	VB6		1988	11	04.97917	04	12	38.96	+32	10	26.7		033
1988	VC6	*	1988	11	03.96389	04	13	36.69	+30	34	29.0		033
1988	VC6		1988	11	04.01250	04	13	33.70	+30	34	40.4	17.8	033
1988	VC6		1988	11	04.97917	04	12	34.77	+30	38	17.8		033
1988	VD6	*	1988	11	03.96389	04	15	05.54	+30	35	08.5		033
1988	VD6		1988	11	04.01250	04	15	02.64	+30	35	17.9	18.9	033
1988	VD6		1988	11	04.97917	04	14	05.24	+30	38	07.7		033
1988	VE6	*	1988	11	03.96389	04	16	37.51	+30	39	26.8	V	033
1988	VE6		1988	11	04.01250	04	16	35.28	+30	39	26.0	20.0	033
1988	VE6		1988	11	04.97917	04	15	51.83	+30	38	53.5	V	033
1988	VF6	*	1988	11	03.96389	04	19	04.64	+29	31	17.8		033
1988	VF6		1988	11	04.01250	04	19	02.55	+29	31	08.3	19.3	033
1988	VF6		1988	11	04.97917	04	18	21.43	+29	27	41.5		033
1988	VG6	*	1988	11	03.96389	04	20	01.94	+30	49	29.0		033
1988	VG6		1988	11	04.01250	04	19	59.71	+30	49	33.4	19.1	033
1988	VG6		1988	11	04.97917	04	19	15.02	+30	50	54.6		033
1988	VH6	*	1988	11	03.96389	04	20	35.76	+30	35	20.2		033
1988	VH6		1988	11	04.01250	04	20	33.23	+30	35	22.7	18.7	033
1988	VH6		1988	11	04.97917	04	19	43.68	+30	35	57.2		033
1988	VJ6	*	1988	11	03.96389	04	20	38.86	+31	56	06.7		033
1988	VJ6		1988	11	04.01250	04	20	36.49	+31	56	10.5	19.7	033
1988	VJ6		1988	11	04.97917	04	19	50.73	+31	57	21.6	V	033
1988	VK6	*	1988	11	03.96389	04	22	11.26	+32	08	36.3		033
1988	VK6		1988	11	04.01250	04	22	08.48	+32	07	45.5	17.8	033
1988	VK6		1988	11	04.97917	04	21	13.36	+31	51	02.8		033
1988	VL6	*	1988	11	03.96389	04	22	27.78	+32	23	56.0		033
1988	VL6		1988	11	04.01250	04	22	25.64	+32	24	01.7	18.9	033
1988	VL6		1988	11	04.97917	04	21	43.52	+32	25	45.4		033
1988	VM6	*	1988	11	03.96389	04	23	32.29	+29	29	52.3		033
1988	VM6		1988	11	04.01250	04	23	30.22	+29	29	43.5	18.5	033
1988	VM6		1988	11	04.97917	04	22	49.88	+29	26	47.0		033
1988	VN6	*	1988	11	03.96389	04	24	05.51	+29	36	52.0		033
1988	VN6		1988	11	04.01250	04	24	02.61	+29	36	53.6	19.1	033
1988	VN6		1988	11	04.97917	04	23	05.77	+29	37	21.9		033
1988	VO6	*	1988	11	03.96389	04	24	44.14	+30	15	13.5		033

1988	VO6		1988	11	04.01250	04	24	41.34	+30	15	28.4	16.6	033
1988	VO6		1988	11	04.97917	04	23	45.92	+30	20	12.5		033
1988	VP6	*	1988	11	03.85451	01	05	14.07	+05	16	03.3		033
1988	VP6		1988	11	03.91285	01	05	11.79	+05	15	41.2	18.7	033
1988	VP6		1988	11	04.89132	01	04	35.97	+05	09	40.6		033
1988	VQ6	*	1988	11	03.85451	01	06	46.92	+06	15	39.7		033
1988	VQ6		1988	11	03.91285	01	06	44.52	+06	15	54.8	19.6	033
1988	VQ6		1988	11	04.89132	01	06	08.76	+06	20	09.4		033
1988	VR6	*	1988	11	03.85451	01	07	36.95	+06	07	12.6		033
1988	VR6		1988	11	03.91285	01	07	34.44	+06	06	44.9	19.5	033
1988	VR6		1988	11	04.89132	01	06	56.11	+05	59	27.2		033
1988	VS6	*	1988	11	03.85451	01	07	58.43	+07	41	17.4		033
1988	VS6		1988	11	03.91285	01	07	56.55	+07	41	00.7	18.9	033
1988	VS6		1988	11	04.89132	01	07	27.20	+07	36	28.0		033
1988	VT6	*	1988	11	03.85451	01	09	33.92	+05	18	40.0		033
1988	VT6		1988	11	03.91285	01	09	31.93	+05	18	29.1	19.4	033
1988	VT6		1988	11	04.89132	01	08	59.90	+05	15	12.1		033
1988	VU6	*	1988	11	03.85451	01	09	56.02	+07	16	02.3		033
1988	VU6		1988	11	03.91285	01	09	53.63	+07	15	44.8	19.0	033
1988	VU6		1988	11	04.89132	01	09	15.96	+07	10	54.9		033
1988	VV6	*	1988	11	03.85451	01	10	03.55	+07	02	42.7		033
1988	VV6		1988	11	03.91285	01	10	01.32	+07	02	29.4	19.3	033
1988	VV6		1988	11	04.89132	01	09	26.13	+06	58	51.9		033
1988	VW6	*	1988	11	03.85451	01	10	20.71	+05	14	29.6		033
1988	VW6		1988	11	03.91285	01	10	18.57	+05	14	17.0	19.1	033
1988	VW6		1988	11	04.89132	01	09	43.51	+05	10	49.1		033
1988	VX6	*	1988	11	03.85451	01	10	56.65	+06	41	08.4		033
1988	VX6		1988	11	03.91285	01	10	54.19	+06	40	50.9	19.0	033
1988	VX6		1988	11	04.89132	01	10	15.74	+06	36	00.6		033
1988	VY6	*	1988	11	03.85451	01	12	21.48	+05	54	04.4		033
1988	VY6		1988	11	03.91285	01	12	19.18	+05	53	47.6	18.5	033
1988	VY6		1988	11	04.89132	01	11	43.37	+05	49	28.4		033
1988	VA7	*	1988	11	03.85451	01	12	50.64	+05	37	21.8		033
1988	VA7		1988	11	03.91285	01	12	48.57	+05	36	58.5	19.2	033
1988	VA7		1988	11	04.89132	01	12	15.14	+05	30	29.4		033
1988	VB7	*	1988	11	03.85451	01	14	57.69	+05	56	07.2		033
1988	VB7		1988	11	03.91285	01	14	55.26	+05	55	50.3	20.1	033
1988	VB7		1988	11	04.89132	01	14	17.10	+05	51	25.2		033
1988	VC7	*	1988	11	03.85451	01	15	46.46	+05	49	29.3		033
1988	VC7		1988	11	03.91285	01	15	43.86	+05	49	21.7	19.2	033
1988	VC7		1988	11	04.89132	01	15	01.66	+05	47	28.1		033
1988	VF7	*	1988	11	05.09757	07	01	27.56	+10	46	49.0		033
1988	VF7		1988	11	06.06667	07	01	52.22	+10	42	21.3	17.3	033
1988	VF7		1988	11	06.12778	07	01	53.67	+10	42	04.1		033
1988	VG7	*	1988	11	05.09757	07	02	02.17	+09	00	57.8		033
1988	VG7		1988	11	06.06667	07	02	02.32	+08	59	24.9	18.1	033
1988	VG7		1988	11	06.12778	07	02	02.21	+08	59	18.8		033
1988	XE1		1988	09	10.06806	04	01	45.38	+24	13	27.4	18.1	033
1988	XE1		1988	09	10.11250	04	01	47.29	+24	13	31.0		033
1989	AR		1988	12	07.97465	07	21	20.68	+21	17	30.5	17.9	033
1989	AR		1988	12	08.01701	07	21	19.83	+21	17	47.4		033

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Observers A. Mrkos, Z. Vavrova
0.6-m Maksutov reflector

1971	QR1		1988	11	12.89115	03	28	39.18	+17	30	36.3	16.7	046
1971	QR1		1988	11	12.90388	03	28	38.50	+17	30	30.6		046

1983 GR		1988	11	04.96811	02	52	05.13	+18	12	43.6	16.6	046
1983 GR		1988	11	04.98229	02	52	04.16	+18	12	38.7		046
1983 GR		1988	11	05.95312	02	51	00.14	+18	10	54.6		046
1983 GR		1988	11	05.96597	02	50	59.38	+18	10	52.5		046
1988 QA1		1988	08	15.89757	21	14	45.98	-14	21	23.4		046
1988 QA1		1988	08	15.91181	21	14	45.00	-14	21	26.4		046
1988 VR		1988	11	04.90856	02	27	29.26	+09	03	24.1	16.1	046
1988 VR		1988	11	04.92130	02	27	28.21	+09	03	25.4		046
1988 VR		1988	11	05.89039	02	26	26.75	+09	04	37.3		046
1988 VR		1988	11	05.90312	02	26	25.92	+09	04	38.0		046
1988 VH7		1988	11	11.86505	02	29	35.49	+13	21	41.2		046
1988 VJ7	*	1988	11	05.95312	02	48	23.44	+17	01	58.0		046
1988 VJ7		1988	11	05.96597	02	48	22.51	+17	01	55.9		046
1988 VJ7		1988	11	11.88403	02	42	12.22	+16	55	37.1	17.0	046
1988 VJ7		1988	11	11.89670	02	42	11.72	+16	55	35.1		046
1988 VK7	*	1988	11	05.95312	02	51	17.63	+16	19	14.9		046
1988 VK7		1988	11	05.96597	02	51	16.90	+16	19	12.6		046
1988 VK7		1988	11	11.88403	02	47	04.56	+15	57	50.8	16.8	046
1988 VK7		1988	11	11.89670	02	47	04.05	+15	57	48.5		046

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Observers K. Augustesen, P. Jensen
Measurer P. Jensen
0.45-m Schmidt
Observations in part in association with INAS

1981 QN		1988	12	01.93197	03	01	45.72	+20	19	56.2	16.0	054
1984 SM		1988	12	01.98735	05	41	52.15	+25	06	44.4	17.0	054
1988 US		1988	11	03.97585	03	44	40.60	+25	20	31.7	16.0	054
1988 US		1988	11	03.98800	03	44	39.88	+25	20	29.4		054
1988 US		1988	11	04.92891	03	43	44.34	+25	16	41.8		054
1988 VP		1988	12	01.93197	03	11	14.76	+19	49	49.9	16.0	054
1988 VL2		1988	12	01.94973	03	23	39.29	+17	06	08.9	16.5	054
1988 VQ2		1988	12	01.93197	03	16	55.82	+19	30	13.0	16.0	054
1988 VQ2		1988	12	01.94973	03	16	54.70	+19	30	16.9		054
1988 VZ2		1988	12	01.96652	03	17	38.80	+25	36	04.1	14.8	054
1988 VZ2		1988	12	07.81016	03	13	56.21	+24	40	46.5		054
1988 VT3		1988	12	01.93197	03	10	38.31	+18	35	06.6	17.0	054
1988 VT3		1988	12	01.94973	03	10	37.42	+18	34	59.5		054
1988 VG4		1988	12	07.81016	03	13	16.20	+23	18	49.5	17.0	054
1988 VK4		1988	12	01.96652	03	11	41.73	+26	16	47.2	18 V	054
1988 WA		1988	12	01.94973	03	19	52.74	+19	10	44.7	17.5	054
1988 XG1		1988	12	01.94973	03	18	19.18	+16	14	49.9	17.0	054
1988 XQ1		1988	12	01.94973	03	15	16.33	+16	02	37.6	17.5	054

071 Bulgarian National Observatory
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1978 RV5		1988	09	12.92426	23	54	52.14	-01	36	42.5	071
1978 RV5		1988	09	12.94428	23	54	51.05	-01	36	46.6	071
1978 RV5		1988	09	14.00376	23	53	50.25	-01	40	22.9	071
1978 RV5		1988	09	14.02512	23	53	49.04	-01	40	27.7	071
1981 QD2		1988	09	12.00949	00	58	20.94	+00	25	59.2	071
1981 QD2		1988	09	12.05522	00	58	19.28	+00	25	51.8	071
1981 UM11		1988	09	11.92986	00	05	06.18	+01	30	23.0	071
1981 UM11		1988	09	11.96991	00	05	04.34	+01	30	06.1	071
1981 UM11		1988	09	12.92426	00	04	22.36	+01	23	26.0	071

1981	UM11		1988	09	12.94428	00	04	21.54	+01	23	17.8	071
1984	HS1		1988	09	11.91089	23	33	50.49	-00	24	51.7	071
1984	HS1		1988	09	11.95190	23	33	48.20	-00	25	05.0	071
1988	RD		1988	09	10.02430	01	23	47.93	+07	43	48.9	071
1988	RD		1988	09	10.06694	01	23	45.18	+07	44	33.4	071
1988	RD		1988	09	12.03155	01	21	52.77	+08	16	45.8	071
1988	RK		1988	09	11.91089	23	33	17.43	-00	33	31.8	071
1988	RK		1988	09	11.95190	23	33	15.77	-00	34	08.9	071
1988	RJ3		1988	09	11.92986	00	12	18.65	+01	19	59.1	071
1988	RJ3		1988	09	11.96991	00	12	16.39	+01	19	48.5	071
1988	RP3		1988	09	11.92986	00	15	25.59	+01	28	58.8	071
1988	RP3		1988	09	11.96991	00	15	23.20	+01	29	04.0	071
1988	RC4		1988	09	12.00949	01	03	16.10	+01	25	38.6	071
1988	RC4		1988	09	12.05522	01	03	15.00	+01	24	58.1	071
1988	RE4	*	1988	09	11.92986	23	58	18.83	+01	33	28.2	071
1988	RE4		1988	09	11.96991	23	58	16.95	+01	33	23.2	071
1988	RE4		1988	09	12.92426	23	57	32.71	+01	31	31.7	071
1988	RE4		1988	09	12.94428	23	57	31.74	+01	31	29.9	071
1988	RS4		1988	09	11.84773	22	39	19.47	-09	01	04.2	071
1988	RS4		1988	09	11.88750	22	39	17.77	-09	01	13.9	071

092 Piwnice
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Measurer M. Antal
Reductions by E. M. Pittich and M. Antal
0.6-m Schmidt telescope
SAOC

1988	VE7	*	1988	11	07.91042	05	34	09.58	+11	51	49.2	17.5	E 092
1988	VE7		1988	11	07.96875	05	34	08.83	+11	51	39.5		E 092
1988	VE7		1988	11	09.94861	05	33	42.36	+11	46	34.0	17.6	E 092
1988	VE7		1988	11	10.00139	05	33	41.46	+11	46	27.1		E 092
1988	VE7		1988	11	10.97500	05	33	25.25	+11	44	02.5	17.8	E 092
1988	VE7		1988	11	11.02361	05	33	24.30	+11	43	55.9	17.6	E 092

095 Crimean Astrophysical Observatory
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T. M. Smirnova, L. V. Zhuravleva, B. Burnasheva

1937	TB		1985	08	23.90671	00	05	11.18	-03	00	16.4		095
1937	TB		1985	09	15.87222	23	49	48.00	-04	14	41.0		095
1937	TB		1985	09	20.89561	23	45	32.24	-04	33	13.2		E 095
1951	JQ		1985	09	19.93764	00	49	35.99	+18	09	06.4	17.0	095
1951	JQ		1985	09	21.93536	00	48	05.58	+18	01	14.3	17.0	095
1951	JQ		1985	10	18.84030	00	26	46.20	+15	15	12.4	17.0	095
1953	TV		1983	09	17.02304	01	20	42.73	+11	57	11.8	17.0	095
1964	TT2		1985	08	13.95098	23	17	24.16	-09	43	52.1		095
1964	TT2		1985	08	15.94465	23	16	23.75	-09	50	06.3		095
1964	TT2		1985	08	17.96531	23	15	16.07	-09	56	50.2		095
1964	TT2		1985	08	19.96132	23	14	03.56	-10	03	45.2		095
1964	TT2		1985	08	24.94771	23	10	40.54	-10	21	58.8		095
1964	TT2		1985	09	11.89236	22	56	11.50	-11	25	08.6		095
1964	TT2		1985	09	19.86502	22	50	03.19	-11	43	53.5		095
1964	TT2		1985	09	20.83145	22	49	22.70	-11	45	28.6		E 095
1966	TP		1983	09	17.02304	01	28	41.56	+17	13	48.0	17.0	095
1974	SF		1985	10	18.91663	01	49	16.03	+07	22	21.5	17.0	D 095

1975	VA9		1983	08	06.87039	21	32	12.81	-01	45	51.0	17.0	095
1976	YW2		1983	01	12.99579	06	47	01.75	+24	15	22.3	17.0	095
1977	JD		1985	10	18.91663	01	40	15.92	+06	38	57.7		095
1978	GR3		1985	08	23.90671	23	48	14.25	-01	05	48.1	17.5 F	095
1978	NN1		1983	09	10.83562	21	56	35.85	-16	07	21.0	16.5	095
1978	PR4		1985	08	13.95098	23	42	03.72	-08	46	36.5		095
1978	PR4		1985	08	17.96531	23	39	23.98	-09	04	47.4		095
1978	PR4		1985	08	19.96132	23	37	55.50	-09	14	22.7		095
1978	PR4		1985	08	24.94771	23	33	51.06	-09	39	23.2		095
1978	QA2		1985	08	23.90671	23	58	42.67	+03	13	51.2		095
1978	QA2		1985	09	15.87222	23	46	55.16	+00	37	48.8		095
1978	QA2		1985	09	20.89561	23	43	24.85	-00	06	03.8		095
1978	RV5		1983	01	15.02700	08	52	32.21	+22	41	18.3	17.0 E	095
1978	SU5		1983	01	06.87979	06	55	50.93	+13	52	11.8	17.0 E	095
1978	VS5		1985	09	22.96814	01	01	53.59	+08	36	44.4	17.5 E	095
1979	OM15		1985	09	15.95150	01	17	58.46	+08	16	04.6	16.5	095
1979	OM15		1985	09	20.96502	01	15	12.36	+07	58	10.0	16.5	095
1979	OM15		1985	09	22.96814	01	13	58.73	+07	50	15.7	16.0	095
1979	QK4		1985	09	20.89561	23	10	55.22	-05	50	50.1	17.0 E	095
1979	SU9		1985	11	13.05627	05	41	46.21	+23	48	25.4	17.0	095
1979	SG10		1985	08	23.90671	00	02	12.20	+01	52	36.7		095
1979	SG10		1985	09	20.89561	23	45	05.52	+00	06	53.5	E	095
1979	YV8		1983	09	11.95476	23	10	26.25	-07	23	56.0	17.5	095
1980	GF		1985	09	15.87222	23	28	00.50	-04	56	16.8		095
1980	GF		1985	09	20.89561	23	23	33.42	-05	27	47.8		095
1981	DP2		1983	09	11.88046	22	18	21.47	-02	22	14.9	17.5	095
1981	EQ40		1985	08	18.96152	23	49	48.29	+00	22	22.8		095
1981	EQ40		1985	08	23.90671	23	48	22.36	+00	04	53.0		095
1981	EQ40		1985	09	15.87222	23	33	45.00	-02	17	26.1		095
1981	EQ40		1985	09	20.89561	23	29	57.29	-02	53	17.6		095
1981	SN		1985	10	18.91663	01	44	20.17	+12	24	07.4		095
1981	SN		1985	11	12.81951	01	26	47.50	+09	08	45.8		095
1982	BQ4		1983	04	11.98611	14	34	23.18	-01	25	59.3	16.5	095
1982	UG7		1985	09	21.99628	01	48	07.21	+12	31	04.8		095
1982	UG7		1985	10	18.91663	01	27	09.26	+09	25	29.3		095
1982	UG7		1985	11	12.81951	01	10	39.07	+06	48	53.1		095
1983	AW		1983	01	14.95272	07	57	33.72	+12	58	31.8	17.0	095
1983	AW		1983	02	10.82567	07	34	40.61	+14	53	24.2	17.5	095
1983	AJ1		1983	01	14.95272	08	02	40.81	+14	23	17.1	17.5	095
1983	AO2		1983	01	06.87979	07	02	22.63	+15	41	01.0	16.5 E	095
1983	AH4	*	1983	01	06.87979	06	25	56.20	+21	09	09.8	17.0 E	095
1983	AJ4	*	1983	01	06.87979	06	28	35.52	+20	34	31.4	17.0 E	095
1983	AK4	*	1983	01	06.87979	06	30	24.63	+15	29	01.0	17.5 E	095
1983	AL4	*	1983	01	06.87979	06	32	51.31	+19	27	52.4	17.0	095
1983	AM4	*	1983	01	06.87979	06	47	52.84	+20	09	04.9	17.5	095
1983	AN4	*	1983	01	06.87979	06	56	22.12	+21	55	45.4	17.0	095
1983	AO4	*	1983	01	06.87979	06	56	44.82	+16	09	56.0	17.5	095
1983	AP4	*	1983	01	12.99579	06	20	33.18	+25	17	22.2		095
1983	AQ4	*	1983	01	12.99579	06	36	00.38	+21	43	36.6	17.0	095
1983	AR4	*	1983	01	12.99579	06	44	25.54	+22	57	07.1	17.0	095
1983	AS4	*	1983	01	12.99579	06	49	58.09	+21	35	43.1	E	095
1983	AT4	*	1983	01	14.80485	04	56	29.47	+31	41	17.3	17.0	095
1983	AU4	*	1983	01	14.80485	04	56	43.92	+34	42	15.8	17.5 E	095
1983	AV4	*	1983	01	14.80485	05	03	24.20	+30	38	33.5	17.0	095
1983	AW4	*	1983	01	14.80485	05	07	48.08	+27	18	11.2	17.5	095
1983	AX4	*	1983	01	14.80485	05	08	08.26	+33	58	30.1	16.5	095
1983	AY4	*	1983	01	14.80485	05	17	04.27	+30	04	32.4		095
1983	AZ4	*	1983	01	14.80485	05	18	07.74	+30	12	43.3	17.5	095
1983	AA5	*	1983	01	14.80485	05	18	40.51	+29	29	11.6	16.5	095

1983	AB5	*	1983	01	14.80485	05	25	59.52	+31	58	39.7	16.8	095
1983	AC5	*	1983	01	14.80485	05	30	12.36	+32	43	47.3	17.5 E	095
1983	AD5	*	1983	01	14.95272	07	35	52.60	+15	37	51.0	17.0 E	095
1983	AE5	*	1983	01	14.95272	07	38	52.16	+16	28	30.8	17.0 E	095
1983	AF5	*	1983	01	14.95272	07	43	50.37	+10	34	43.1	17.5	095
1983	AG5	*	1983	01	14.95272	07	44	28.69	+10	34	40.6	17.0	095
1983	AH5	*	1983	01	14.95272	07	49	06.85	+18	00	17.2	17.0	095
1983	AJ5	*	1983	01	14.95272	07	49	34.45	+18	39	33.3	17.0 E	095
1983	AK5	*	1983	01	14.95272	07	51	30.48	+15	55	36.8	17.0	095
1983	AL5	*	1983	01	14.95272	07	51	49.74	+14	14	02.4	17.5	095
1983	AM5	*	1983	01	14.95272	07	52	44.18	+13	22	12.7	17.5	095
1983	AN5	*	1983	01	14.95272	07	53	58.31	+16	57	04.1	17.5	095
1983	AO5	*	1983	01	14.95272	07	58	23.16	+15	07	28.2	17.0	095
1983	AP5	*	1983	01	14.95272	07	59	15.71	+18	36	57.3	17.0 E	095
1983	AQ5	*	1983	01	14.95272	08	00	36.39	+13	41	02.1	17.0	095
1983	AS5	*	1983	01	14.95272	08	02	52.66	+10	05	53.6	17.0	095
1983	AT5	*	1983	01	14.95272	08	06	03.58	+09	43	14.4	17.0 E	095
1983	AU5	*	1983	01	14.95272	08	07	35.46	+17	16	13.6	17.5	095
1983	AV5	*	1983	01	14.95272	08	07	58.63	+13	19	37.4	17.0	095
1983	AW5	*	1983	01	14.95272	08	08	38.22	+13	54	11.2	17.5	095
1983	AX5	*	1983	01	14.95272	08	08	45.63	+10	28	56.6	17.0	095
1983	AY5	*	1983	01	14.95272	08	11	02.06	+15	31	58.8	17.0	095
1983	AZ5	*	1983	01	14.95272	08	11	45.74	+16	33	32.8	17.5	095
1983	AA6	*	1983	01	14.95272	08	11	51.84	+12	56	17.7	17.0	095
1983	AB6	*	1983	01	14.95272	08	13	37.50	+13	33	47.7	17.0 E	095
1983	AC6	*	1983	01	14.95272	08	13	37.52	+12	27	56.6	17.0 E	095
1983	AD6	*	1983	01	14.95272	08	13	41.77	+13	10	42.3	17.0 E	095
1983	AE6	*	1983	01	14.95272	08	14	42.75	+14	15	58.9	17.0 E	095
1983	AF6	*	1983	01	15.02700	08	45	40.77	+24	23	05.8	17.0	095
1983	AG6	*	1983	01	15.02700	08	53	52.35	+25	48	13.7	17.0	095
1983	AH6	*	1983	01	15.02700	09	01	59.09	+28	01	26.6	17.0	095
1983	AJ6	*	1983	01	15.02700	09	07	16.31	+22	52	58.9	17.0 E	095
1983	AK6	*	1983	01	15.11102	10	24	46.13	+20	19	45.4	16.5	095
1983	AL6	*	1983	01	15.11102	10	25	15.52	+18	18	07.4	16.5	095
1983	AM6	*	1983	01	15.11102	10	28	47.35	+19	10	23.7	17.2	095
1983	AN6	*	1983	01	15.11102	10	33	58.76	+18	08	26.5	17.5	095
1983	AO6	*	1983	01	15.11102	10	46	31.95	+21	48	46.7	17.0 E	095
1983	AP6	*	1983	01	15.11102	10	55	26.23	+16	40	52.8	17.0 E	095
1983	BS		1983	01	14.95272	07	41	57.34	+12	09	01.0	17.0	095
1983	BS		1983	02	10.82567	07	22	17.18	+14	40	47.8	17.0 M	095
1983	CE		1983	03	14.79517	09	29	03.88	+26	13	12.5	16.5 E	095
1983	CA1		1983	03	15.78010	09	17	30.00	+17	01	23.4	16.5	095
1983	CL2		1983	02	10.96801	10	11	45.85	+16	29	32.5	17.5	095
1983	CM7	*	1983	02	02.81729	06	22	51.15	+18	22	53.1	17.0	095
1983	CN7	*	1983	02	02.81729	06	23	50.79	+20	05	46.8	17.0	095
1983	CO7	*	1983	02	10.82567	07	25	59.37	+14	57	06.3	17.5	095
1983	CP7	*	1983	02	10.82567	07	26	33.14	+19	00	17.5	17.0	095
1983	CQ7	*	1983	02	10.82567	07	27	55.57	+15	20	35.0	17.5	095
1983	CR7	*	1983	02	10.82567	07	32	01.39	+11	37	54.4	17.0 N	095
1983	CS7	*	1983	02	10.82567	07	33	02.70	+15	38	42.4	17.0	095
1983	CT7	*	1983	02	10.82567	07	39	27.71	+14	28	36.7	17.0	095
1983	CU7	*	1983	02	10.82567	07	47	13.40	+14	02	34.1	17.5 N	095
1983	CV7	*	1983	02	10.82567	07	48	03.83	+17	03	00.4	17.5 E	095
1983	CW7	*	1983	02	10.82567	07	49	19.55	+19	25	47.9	17.5 E	095
1983	CX7	*	1983	02	10.82567	07	50	01.88	+16	54	43.7	17.5 N	095
1983	CY7	*	1983	02	10.89720	08	13	17.78	+22	48	31.0	17.0 E	095
1983	CZ7	*	1983	02	10.89720	08	14	35.10	+25	51	39.4	E	095
1983	CA8	*	1983	02	10.89720	08	24	51.17	+26	23	30.7	17.5	095
1983	CB8	*	1983	02	10.89720	08	26	29.60	+29	58	22.0	17.0 E	095

1983	CC8	*	1983	02	10.89720	08	27	30.06	+26	06	19.4	17.0	095
1983	CD8	*	1983	02	10.89720	08	34	03.61	+27	10	57.8	16.5	095
1983	CE8	*	1983	02	10.89720	08	39	27.84	+29	50	48.4	17.0 E	095
1983	CF8	*	1983	02	10.89720	08	42	24.03	+24	41	09.6	17.0	095
1983	CG8	*	1983	02	10.89720	08	45	09.64	+28	58	38.5	17.0	095
1983	CH8	*	1983	02	10.96801	09	57	21.57	+16	45	40.4	17.5 E	095
1983	CJ8	*	1983	02	10.96801	10	06	24.29	+21	22	41.3	17.5	095
1983	CK8	*	1983	02	10.96801	10	09	33.40	+20	20	19.6	17.0	095
1983	CL8	*	1983	02	10.96801	10	10	40.53	+18	39	46.7	17.5	095
1983	CM8	*	1983	02	10.96801	10	11	19.79	+24	18	51.9	17.5	095
1983	CO8	*	1983	02	10.96801	10	13	08.84	+17	53	43.6	17.0	095
1983	CP8	*	1983	02	10.96801	10	13	55.62	+15	45	09.5	17.5	095
1983	CQ8	*	1983	02	10.96801	10	26	42.54	+23	48	16.6	17.5 M	095
1983	CR8	*	1983	02	10.96801	10	27	03.82	+19	03	58.8	17.5 M	095
1983	CS8	*	1983	02	10.96801	10	28	35.10	+16	12	29.0	17.0 E	095
1983	CT8	*	1983	02	10.96801	10	29	20.52	+15	14	53.0	17.5 E	095
1983	CV8	*	1983	02	15.09030	11	18	48.50	+12	31	30.5	16.5 M	095
1983	DC		1983	03	16.81258	10	08	43.34	+11	06	44.5	17.0	095
1983	DK		1983	02	11.03084	11	38	19.61	+14	53	09.3	16.5	095
1983	DK		1983	02	15.09030	11	35	30.78	+15	10	31.8	16.5 M	095
1983	EX		1983	04	10.86780	12	42	58.06	+22	02	44.7	17.0	095
1983	EX		1983	04	12.89244	12	41	28.56	+22	05	05.2	16.5	095
1983	EM1		1983	04	09.87132	12	22	21.72	-01	28	11.1	17.5	095
1983	EM1		1983	04	11.83706	12	20	30.94	-01	22	21.9	17.3	095
1983	EV1		1983	03	16.00229	13	24	35.58	-08	12	34.4	17.0	095
1983	EO2	*	1983	03	05.76557	08	07	05.85	+26	42	26.8	17.5	095
1983	EP2	*	1983	03	05.76557	08	10	04.50	+24	42	36.0	17.5	095
1983	EQ2	*	1983	03	05.76557	08	16	24.43	+26	38	07.2	17.0	095
1983	ER2	*	1983	03	05.76557	08	18	28.84	+25	40	49.8	16.5	095
1983	ES2	*	1983	03	05.76557	08	22	34.34	+24	07	38.5	17.0	095
1983	ET2	*	1983	03	05.76557	08	22	42.88	+22	16	10.2	16.5	095
1983	EU2	*	1983	03	05.76557	08	24	32.84	+25	04	35.0	16.5	095
1983	EV2	*	1983	03	05.76557	08	26	45.56	+26	43	26.4	17.5	095
1983	EW2	*	1983	03	05.92212	11	38	57.11	+01	30	21.4	16.5	095
1983	EW2		1983	03	15.85473	11	33	11.65	+01	44	47.5	17.5	095
1983	EX2	*	1983	03	05.92212	11	58	26.78	+00	52	20.0	17.0 E	095
1983	EY2	*	1983	03	13.96090	12	58	11.55	+10	43	53.4	17.0 M	095
1983	EZ2	*	1983	03	13.96090	13	11	07.32	+10	38	01.0	M	095
1983	EA3	*	1983	03	14.79517	09	40	58.11	+29	13	21.5	17.5	095
1983	EB3	*	1983	03	14.79517	09	45	28.55	+29	02	33.4	17.5	095
1983	EC3	*	1983	03	14.79517	09	46	41.61	+27	17	26.2	17.5	095
1983	ED3	*	1983	03	14.79517	09	54	02.35	+27	54	00.9	17.0	095
1983	EE3	*	1983	03	14.79517	10	01	51.36	+27	48	04.3	17.5	095
1983	EF3	*	1983	03	14.79517	10	06	15.14	+32	25	55.3	17.0 E	095
1983	EG3	*	1983	03	14.94031	11	50	56.75	+04	54	49.8	17.5 E	095
1983	EH3	*	1983	03	14.94031	11	58	04.17	+02	46	37.2	17.5	095
1983	EJ3	*	1983	03	14.94031	11	59	45.70	+00	28	27.5	16.5	095
1983	EK3	*	1983	03	14.94031	12	08	36.31	+04	33	27.7	17.5	095
1983	EL3	*	1983	03	14.94031	12	08	40.93	+05	50	05.9	17.0 N	095
1983	EM3	*	1983	03	14.94031	12	21	12.32	+01	07	41.3	17.5	095
1983	EN3	*	1983	03	14.94031	12	24	54.00	-01	43	41.8	17.0 E	095
1983	EO3	*	1983	03	14.94031	12	27	35.83	+03	45	56.4	17.0 E	095
1983	EP3	*	1983	03	15.01184	12	49	23.28	+10	20	51.7	17.5 E	095
1983	EQ3	*	1983	03	15.01184	12	51	23.34	+09	11	47.0	17.0	095
1983	ER3	*	1983	03	15.01184	12	56	57.09	+05	44	21.1	17.5	095
1983	ES3	*	1983	03	15.01184	12	58	06.04	+07	55	09.3	17.5	095
1983	ET3	*	1983	03	15.78010	09	17	01.72	+16	16	31.1	17.0 I	095
1983	EU3	*	1983	03	15.78010	09	21	36.38	+18	10	03.0	17.0	095
1983	EV3	*	1983	03	15.78010	09	23	52.16	+17	33	48.2	17.0	095

1983	EW3	*	1983	03	15.78010	09	28	17.80	+14	48	29.4	17.5	E 095
1983	EX3	*	1983	03	15.78010	09	28	56.17	+18	37	05.5	17.0	095
1983	EY3	*	1983	03	15.78010	09	29	02.94	+20	47	10.7	17.5	095
1983	EZ3	*	1983	03	15.78010	09	35	04.69	+17	07	15.2	17.5	095
1983	EA4	*	1983	03	15.78010	09	37	48.48	+17	22	10.8	17.5	095
1983	EB4	*	1983	03	15.78010	09	42	29.10	+17	18	35.9	17.5	095
1983	EC4	*	1983	03	15.85473	11	21	42.87	+02	22	17.3	17.5	095
1983	EC4		1983	03	20.93906	11	15	57.60	+03	09	50.2	18.0	095
1983	ED4	*	1983	03	15.85473	11	27	48.03	+05	57	36.4	17.5	095
1983	EE4	*	1983	03	15.85473	11	29	10.40	+02	12	55.5	17.5	d 095
1983	EE4		1983	03	18.87096	11	26	56.34	+02	48	29.8	17.0	095
1983	EF4	*	1983	03	15.85473	11	35	30.82	+05	17	04.0	18.0	095
1983	EG4	*	1983	03	15.85473	11	48	03.88	+02	18	48.1	18.0	E 095
1983	EH4	*	1983	03	15.92799	12	24	02.80	-13	15	02.4	17.0	095
1983	FK	*	1983	03	16.00229	13	19	43.40	-04	56	52.6	16.5	095
1983	FL	*	1983	03	16.00229	13	20	04.69	-11	39	56.0	17.0	095
1983	FN	*	1983	03	16.81258	10	18	02.56	+09	00	47.2	17.0	095
1983	FO	*	1983	03	18.79146	11	29	43.95	+02	08	17.0	17.0	M 095
1983	FO		1983	03	18.87096	11	29	40.14	+02	08	33.5	17.0	095
1983	FP	*	1983	03	18.79146	11	32	58.79	+05	32	40.3	17.0	095
1983	FP		1983	03	20.93906	11	31	15.80	+05	50	56.5	18.0	095
1983	FQ	*	1983	03	18.87096	11	44	39.82	+02	15	42.2	17.5	095
1983	FR	*	1983	03	20.93906	11	08	17.31	+07	14	12.1	17.5	E 095
1983	FS	*	1983	03	20.93906	11	14	09.29	+01	50	28.6	18.0	M 095
1983	FT	*	1983	03	20.93906	11	17	53.90	+04	40	37.8	18.0	095
1983	FU	*	1983	03	20.93906	11	24	24.63	+03	37	54.5	17.0	095
1983	FV	*	1983	03	20.93906	11	29	23.19	+01	51	37.3	17.0	I 095
1983	GQ		1983	04	12.95210	14	43	50.94	-15	25	53.9		095
1983	GV	*	1983	04	09.79474	10	55	39.82	+05	39	12.9	17.8	095
1983	GW	*	1983	04	09.79474	10	56	51.78	+08	13	46.8	18.0	095
1983	GY	*	1983	04	09.79474	10	59	23.29	+10	35	41.4	17.5	N 095
1983	GZ	*	1983	04	09.79474	11	09	44.22	+05	21	05.0	17.8	P 095
1983	GA1	*	1983	04	09.87132	11	59	22.80	+01	18	08.9	17.5	N 095
1983	GB1	*	1983	04	09.87132	11	59	42.73	+01	54	52.1	17.0	N 095
1983	GC1	*	1983	04	09.87132	12	01	56.06	-00	02	45.6	17.0	095
1983	GD1	*	1983	04	09.87132	12	02	42.83	+03	23	16.2	17.8	E 095
1983	GE1	*	1983	04	09.87132	12	05	03.86	-02	55	28.6	17.5	095
1983	GF1	*	1983	04	09.87132	12	09	20.14	-01	17	34.4	17.8	095
1983	GG1	*	1983	04	09.87132	12	09	20.31	-02	44	09.4	17.8	095
1983	GH1	*	1983	04	09.87132	12	09	50.64	+03	50	51.8	17.8	095
1983	GJ1	*	1983	04	09.87132	12	12	31.02	-01	31	02.4	17.0	095
1983	GK1	*	1983	04	09.87132	12	12	46.68	-04	33	14.8	17.0	N 095
1983	GL1	*	1983	04	09.87132	12	16	08.52	+00	02	58.2	17.5	095
1983	GL1		1983	04	11.83706	12	14	12.56	+00	10	30.6	17.0	095
1983	GM1	*	1983	04	09.87132	12	18	22.04	-01	23	03.6	16.0	095
1983	GM1		1983	04	11.83706	12	16	26.75	-01	21	23.2	16.0	095
1983	GN1	*	1983	04	09.87132	12	19	07.92	-00	49	46.7	17.5	095
1983	GO1	*	1983	04	09.87132	12	19	44.56	+03	14	12.9	17.5	095
1983	GP1	*	1983	04	09.87132	12	20	47.70	+02	28	35.6	17.5	095
1983	GQ1	*	1983	04	09.87132	12	23	59.09	-01	27	59.5	17.5	095
1983	GR1	*	1983	04	09.87132	12	25	11.60	+02	03	34.6	17.0	095
1983	GR1		1983	04	11.83706	12	23	42.08	+02	13	40.0	17.5	095
1983	GT1	*	1983	04	09.87132	12	26	34.14	-01	53	55.5	17.8	095
1983	GU1	*	1983	04	09.87132	12	29	51.41	-04	24	44.4	17.5	095
1983	GV1	*	1983	04	09.87132	12	34	25.60	-00	16	31.6	17.5	N 095
1983	GW1	*	1983	04	09.94752	14	08	06.55	+11	58	22.7	17.0	095
1983	GW1		1983	04	11.90696	14	06	51.28	+12	14	23.0	17.0	095
1983	GX1	*	1983	04	09.94752	14	26	40.22	+04	20	31.2	17.3	E 095
1983	GY1	*	1983	04	09.94752	14	31	48.76	+09	44	20.4	17.0	095

1983	GY1		1983	04	11.90696	14	30	18.83	+09	55	09.6		095
1983	GZ1	*	1983	04	09.94752	14	33	19.41	+12	48	48.8	E	095
1983	GA2	*	1983	04	10.02730	15	08	18.09	-18	23	33.2		095
1983	GA2		1983	04	11.00298	15	07	52.61	-18	19	02.6		095
1983	GA2		1983	05	12.90253	14	43	53.82	-14	52	59.6		095
1983	GA2		1983	06	02.85072	14	30	43.76	-12	51	12.4	E	095
1983	GB2	*	1983	04	10.02730	15	17	29.30	-15	36	24.9		095
1983	GC2	*	1983	04	10.02730	15	17	39.23	-16	45	06.9		095
1983	GC2		1983	04	11.00298	15	17	18.60	-16	45	02.1		095
1983	GC2		1983	05	12.90253	14	53	21.95	-16	03	27.0		095
1983	GD2	*	1983	04	10.02730	15	18	32.18	-15	26	38.4		095
1983	GD2		1983	05	12.90253	14	53	48.84	-13	41	19.4		095
1983	GE2	*	1983	04	10.86780	12	40	51.99	+21	08	56.8	d	095
1983	GE2		1983	04	12.89244	12	39	31.28	+21	20	37.0	E	095
1983	GF2	*	1983	04	10.92058	13	48	52.13	-16	35	50.6		095
1983	GG2	*	1983	04	10.92058	13	50	32.54	-13	28	38.4		095
1983	GH2	*	1983	04	10.92058	13	51	01.19	-16	41	52.2		095
1983	GJ2	*	1983	04	10.92058	13	53	04.13	-16	32	13.4		095
1983	GK2	*	1983	04	10.92058	14	00	06.87	-15	09	10.9		095
1983	GL2	*	1983	04	10.92058	14	02	35.23	-19	04	36.6	P	095
1983	GM2	*	1983	04	10.92058	14	14	01.85	-12	50	18.2	E	095
1983	GN2	*	1983	04	10.92058	14	16	55.85	-18	01	51.4	N	095
1983	GO2	*	1983	04	11.00298	15	27	51.51	-16	36	28.0		095
1983	GP2	*	1983	04	11.98611	14	34	19.64	-00	48	33.6		095
1983	GQ2	*	1983	04	11.98611	14	34	32.36	-00	39	53.6		095
1983	GR2	*	1983	04	11.98611	14	45	24.47	-02	28	27.8		095
1983	GS2	*	1983	04	11.98611	14	54	58.14	+01	01	35.8		095
1983	GT2	*	1983	04	12.89244	12	46	10.99	+18	18	03.4		095
1983	GU2	*	1983	04	12.89244	12	54	43.85	+16	35	37.2		095
1983	GU2		1983	05	01.82020	12	41	13.78	+17	39	12.7		095
1983	GV2	*	1983	04	12.89244	13	04	29.09	+16	51	11.9		095
1983	GW2	*	1983	04	12.95210	14	32	08.34	-11	42	06.8		095
1983	GX2	*	1983	04	12.95210	14	36	56.53	-13	20	58.8		095
1983	HA1		1983	04	09.87132	12	25	57.48	+03	07	35.7		095
1983	HB1		1983	04	10.86780	12	45	06.71	+14	34	56.0		095
1983	HB1		1983	04	12.89244	12	43	39.05	+14	42	29.9		095
1983	HB1		1983	05	01.82020	12	31	53.41	+15	15	22.7		095
1983	HO1		1983	04	09.79474	10	58	04.06	+08	42	12.9		095
1983	JM		1983	05	12.90253	15	07	14.68	-14	54	05.3	E	095
1983	JM		1983	06	02.85072	14	51	49.40	-12	19	38.3		095
1983	JQ		1983	05	14.90257	16	01	52.96	-16	51	23.9		095
1983	JQ		1983	06	05.85487	15	44	37.49	-16	13	08.4		095
1983	JV	*	1983	05	12.90253	14	37	54.33	-14	32	01.5		095
1983	JW	*	1983	05	12.90253	14	41	00.15	-15	08	20.0		095
1983	JY	*	1983	05	12.90253	14	54	46.45	-12	59	42.5		095
1983	JA1	*	1983	05	14.90257	15	36	11.90	-12	06	30.0	E	095
1983	JB1	*	1983	05	14.90257	15	49	06.48	-15	43	33.6		095
1983	JC1	*	1983	05	14.90257	15	49	35.70	-17	49	50.7		095
1983	JE1	*	1983	05	14.90257	15	57	12.31	-11	36	25.0	E	095
1983	JF1	*	1983	05	14.90257	16	03	34.10	-14	40	12.9		095
1983	JG1	*	1983	05	15.81426	13	29	58.50	-10	40	31.7		095
1983	JH1	*	1983	05	15.81426	13	47	36.52	-10	00	58.4	N	095
1983	JJ1	*	1983	05	15.88554	14	19	00.53	-01	40	35.5		095
1983	JK1	*	1983	05	15.88554	14	25	27.80	-00	16	19.6	t	095
1983	KB		1983	05	14.90257	15	53	43.43	-13	19	41.1		095
1983	LW	*	1983	06	02.85072	14	28	34.61	-11	54	09.1	E	095
1983	LX	*	1983	06	02.85072	14	45	43.41	-13	58	35.8	P	095
1983	LZ	*	1983	06	02.85072	15	02	44.62	-08	03	22.4	S	095
1983	LA1	*	1983	06	05.85487	15	32	12.10	-18	15	58.3		095

1983	LB1	*	1983	06	05.85487	15	42	48.55	-12	24	10.1		16.0	095
1983	PA1	*	1983	08	05.81529	19	21	06.16	+02	24	10.4		16.5	095
1983	PB1	*	1983	08	05.88612	21	22	34.13	-14	11	54.4			M 095
1983	PC1	*	1983	08	05.95625	22	12	58.50	-13	13	51.8		16.5	095
1983	PD1	*	1983	08	06.87039	21	30	41.56	-04	58	19.0		17.0	095
1983	PE1	*	1983	08	06.93671	22	09	03.94	+03	39	55.0		17.5	E 095
1983	PF1	*	1983	08	06.93671	22	14	13.25	+02	28	37.1		17.0	095
1983	PG1	*	1983	08	06.93671	22	17	10.44	+05	31	07.5		17.5	095
1983	PH1	*	1983	08	06.93671	22	18	39.84	+07	23	06.5		17.0	095
1983	PJ1	*	1983	08	06.93671	22	19	34.00	+06	21	00.6		17.5	095
1983	PK1	*	1983	08	06.93671	22	29	07.57	+07	39	18.2		17.5	095
1983	PL1	*	1983	08	06.93671	22	29	41.47	+06	27	22.0		17.5	095
1983	PM1	*	1983	08	06.93671	22	36	17.50	+05	05	11.4		16.5	095
1983	PM1		1983	09	11.88046	22	09	13.83	+04	36	59.4		16.5	E 095
1983	PM1		1983	09	14.93429	22	07	12.04	+04	22	50.1		16.5	E 095
1983	PN1	*	1983	08	06.93671	22	41	19.94	+00	44	10.3		17.0	M 095
1983	PO1	*	1983	08	07.00130	23	11	21.13	-03	47	46.9		16.0	E 095
1983	PP1	*	1983	08	07.00130	23	17	27.38	-01	42	32.5		16.5	095
1983	PQ1	*	1983	08	07.00130	23	18	20.32	-08	46	10.9		16.5	E 095
1983	PR1	*	1983	08	07.00130	23	21	31.78	-05	18	45.3		16.5	095
1983	PS1	*	1983	08	07.00130	23	23	16.94	-02	50	14.2		16.5	095
1983	PU1	*	1983	08	07.00130	23	28	38.50	-04	50	59.7		16.5	095
1983	PV1	*	1983	08	07.00130	23	35	31.28	-03	13	08.6		17.0	095
1983	PW1	*	1983	08	07.00130	23	37	02.06	-04	52	56.8		17.0	095
1983	PX1	*	1983	08	07.00130	23	38	51.56	-01	01	05.4		16.5	095
1983	PY1	*	1983	08	07.00130	23	41	03.41	-01	10	43.2		16.5	095
1983	PZ1	*	1983	08	07.00130	23	41	37.56	-03	39	15.4		16.5	095
1983	PB2	*	1983	08	11.86201	18	56	48.38	-18	36	25.4		16.0	095
1983	PC2	*	1983	08	11.86201	19	06	03.47	-22	06	13.7		16.0	095
1983	PD2	*	1983	08	11.86201	19	13	52.10	-18	42	55.4		16.0	095
1983	PE2	*	1983	08	11.93632	21	48	05.50	+05	39	15.2		16.5	095
1983	PF2	*	1983	08	11.93632	21	50	11.44	+01	41	21.0		16.5	E 095
1983	PG2	*	1983	08	12.94105	22	10	57.44	+05	38	08.1		17.0	095
1983	PH2	*	1983	08	12.94105	22	19	16.06	+04	26	32.8		16.5	095
1983	PJ2	*	1983	08	12.94105	22	29	18.38	+04	14	57.9		17.0	095
1983	PK2	*	1983	08	12.94105	22	36	53.00	+00	46	02.8		16.5	095
1983	PL2	*	1983	08	13.00910	23	43	55.41	-04	21	36.8		16.5	095
1983	PM2	*	1983	08	13.98542	22	10	03.85	-11	22	39.2			095
1983	QE		1983	09	04.87510	22	03	50.50	-04	53	08.6		17.0	095
1983	QE		1983	09	06.86816	22	02	44.47	-05	22	23.6		17.0	095
1983	QJ1	*	1983	08	16.90178	21	50	55.22	-11	41	43.0		16.0	095
1983	QK1	*	1983	08	16.90178	22	02	21.60	-06	51	42.3		17.0	095
1983	QL1	*	1983	08	16.96776	22	39	07.50	-04	07	22.6			E 095
1983	QM1	*	1983	08	16.96776	22	40	11.85	-09	55	52.0		17.0	095
1983	QN1	*	1983	08	16.96776	22	56	56.34	-06	17	57.8		17.0	095
1983	QO1	*	1983	08	16.96776	22	57	49.72	-10	49	00.7		16.5	095
1983	QP1	*	1983	08	16.96776	23	04	07.63	-06	58	51.6			M 095
1983	QQ1	*	1983	08	16.96776	23	05	50.19	-06	57	39.3		17.0	095
1983	QR1	*	1983	08	16.96776	23	06	39.93	-07	15	35.5		17.0	095
1983	QS1	*	1983	08	16.96776	23	09	37.19	-09	13	15.8		17.0	E 095
1983	RX		1983	08	07.00130	23	28	03.00	-01	22	27.9		17.0	095
1983	RJ1		1983	09	06.86816	22	20	54.66	-07	20	11.0			095
1983	RS1		1983	09	06.93969	22	56	06.03	-11	48	30.5		16.5	095
1983	RT1		1983	09	06.93969	22	59	34.32	-10	20	38.7		17.0	095
1983	RW1		1983	09	11.95476	22	58	40.41	-06	08	42.9		17.0	095
1983	RX1		1983	09	06.93969	23	04	09.60	-11	10	09.4		17.0	095
1983	RY1		1983	09	06.93969	23	05	15.50	-07	16	50.2		17.0	095
1983	RO2		1983	08	16.96776	22	45	36.85	-09	09	03.5			095
1983	RO2		1983	09	13.85317	22	24	17.19	-12	57	01.0			095

1983	RP2		1983	09	13.85317	22	24	26.38	-11	52	25.8	16.5	095
1983	RD3		1983	09	11.95476	22	57	45.53	-05	31	17.9	17.0	095
1983	RH3		1983	09	03.83293	21	39	11.28	-07	33	14.8	16.5 E	095
1983	RQ3		1983	08	16.96776	22	35	00.38	-08	54	30.4	16.5 N	095
1983	RT3		1983	09	11.88046	22	28	17.91	-04	31	51.1	16.5 E	095
1983	RV3		1983	09	06.86816	22	20	46.10	-07	15	26.8	17.0	095
1983	RY3		1983	09	04.94524	23	15	40.88	-11	34	49.2	17.0	095
1983	RY3		1983	09	11.95476	23	09	42.94	-11	50	46.2	17.5	095
1983	RB4		1983	09	11.95476	23	18	38.63	-10	31	08.4	17.5	095
1983	RC4		1983	09	11.95476	23	22	11.97	-10	20	46.5	17.0	095
1983	RH4		1983	09	13.00984	00	51	55.84	-02	50	34.6	16.0 E	095
1983	RM4		1983	08	07.00130	23	42	44.25	-04	57	47.6	16.5	095
1983	RM4		1983	09	11.95476	23	20	43.69	-07	31	54.6	18.0	095
1983	RE5	*	1983	09	01.79895	20	50	02.41	-06	50	11.2	17.0	095
1983	RF5	*	1983	09	01.87810	22	03	29.06	+00	20	18.0	17.0 E	095
1983	RF5		1983	09	11.88046	21	56	59.47	-00	50	23.6	17.0 E	095
1983	RG5	*	1983	09	01.87810	22	08	20.47	+01	59	42.1	17.5 M	095
1983	RH5	*	1983	09	01.87810	22	09	00.22	+02	14	59.8	17.5	095
1983	RJ5	*	1983	09	01.87810	22	14	04.50	+05	35	52.7	17.0 M	095
1983	RK5	*	1983	09	01.87810	22	17	51.50	+01	26	42.7	16.5 M	095
1983	RL5	*	1983	09	01.87810	22	18	49.88	+05	19	46.8	17.5	095
1983	RM5	*	1983	09	01.87810	22	18	51.12	+04	12	36.2	17.0	095
1983	RM5		1983	09	11.88046	22	09	29.03	+04	12	00.0	16.5 E	095
1983	RN5	*	1983	09	01.87810	22	19	14.75	+04	56	41.8	17.0	095
1983	RN5		1983	09	08.93288	22	11	34.87	+04	44	28.7	16.5	095
1983	RO5	*	1983	09	01.87810	22	21	03.28	+02	05	21.0	17.0	095
1983	RO5		1983	09	11.88046	22	14	16.28	+00	53	21.7		095
1983	RP5	*	1983	09	01.87810	22	25	47.75	+06	01	26.3	17.5	095
1983	RP5		1983	09	11.88046	22	20	12.13	+03	53	41.3	17.5 E	095
1983	RQ5	*	1983	09	01.87810	22	29	57.13	+05	58	52.3	17.0	095
1983	RR5	*	1983	09	01.87810	22	34	25.54	+03	13	00.6	17.0 E	095
1983	RS5	*	1983	09	02.88008	22	44	29.35	-17	34	17.2	16.0	095
1983	RT5	*	1983	09	02.88008	22	53	21.66	-15	36	16.0	16.0	095
1983	RU5	*	1983	09	02.88008	22	57	23.62	-15	37	13.0	17.0 M	095
1983	RV5	*	1983	09	03.83293	21	21	00.75	+02	32	55.5	16.5 E	095
1983	RW5	*	1983	09	03.83293	21	21	18.32	-06	20	17.2	17.0	095
1983	RX5	*	1983	09	03.83293	21	26	18.60	-01	01	21.8	16.5	095
1983	RY5	*	1983	09	03.83293	21	39	40.10	-03	15	22.3	17.0	095
1983	RZ5	*	1983	09	03.95531	23	49	02.16	+06	40	41.6	16.5 E	095
1983	RA6	*	1983	09	03.95531	23	52	09.91	+02	24	59.7	17.0	095
1983	RB6	*	1983	09	03.95531	23	57	51.81	+01	11	35.9	16.5	095
1983	RC6	*	1983	09	03.95531	00	01	48.80	+04	10	00.1	16.5	095
1983	RD6	*	1983	09	03.95531	00	05	46.35	+02	31	08.5	16.5	095
1983	RE6	*	1983	09	03.95531	00	11	03.91	+00	15	16.1	16.5	095
1983	RE6		1983	09	13.98314	00	01	50.57	-00	35	12.3	16.5	095
1983	RF6	*	1983	09	04.87510	22	17	43.06	-03	57	50.2	16.5	095
1983	RG6	*	1983	09	04.94524	22	55	17.85	-11	12	06.2	17.0 E	095
1983	RH6	*	1983	09	04.94524	23	08	57.90	-09	51	06.8	17.0	095
1983	RJ6	*	1983	09	04.94524	23	16	14.54	-10	37	05.2	17.0	095
1983	RJ6		1983	09	06.93969	23	15	01.50	-11	00	33.0	17.5	095
1983	RK6	*	1983	09	05.01538	00	14	30.44	+12	35	35.8	17.5	095
1983	RK6		1983	09	07.01191	00	13	03.52	+12	24	16.7	17.5 M	095
1983	RL6	*	1983	09	05.01538	00	23	01.75	+19	38	54.4	17.5 E	095
1983	RM6	*	1983	09	05.01538	00	23	33.82	+13	13	58.4	17.5	095
1983	RM6		1983	09	07.01191	00	22	21.58	+13	00	38.7	17.5	095
1983	RN6	*	1983	09	05.01538	00	30	21.27	+15	56	10.7	17.5	095
1983	RO6	*	1983	09	05.01538	00	31	53.10	+17	08	47.5	17.5	095
1983	RP6	*	1983	09	05.82698	20	49	25.81	-04	33	07.7	17.0	095
1983	RQ6	*	1983	09	05.82698	20	54	39.19	-07	46	34.7	17.5 M	095

1983	RR6	*	1983	09	05.82698	21	08	01.19	-08	31	37.9	17.5	M 095
1983	RS6	*	1983	09	05.82698	21	09	16.97	-07	51	22.6	16.5	095
1983	RV6	*	1983	09	06.93969	23	01	16.44	-10	24	30.9	17.0	095
1983	RY6	*	1983	09	06.93969	23	06	31.41	-14	57	54.6	17.0	E 095
1983	RZ6	*	1983	09	07.01191	00	18	09.15	+17	06	08.3	17.5	095
1983	RA7	*	1983	09	07.01191	00	19	03.24	+12	42	34.8	17.5	095
1983	RB7	*	1983	09	07.01191	00	26	58.62	+12	23	20.6	17.5	095
1983	RC7	*	1983	09	09.88067	22	19	47.50	-04	44	46.5	17.5	M 095
1983	RD7	*	1983	09	09.88067	22	23	21.00	-05	58	58.0	17.5	095
1983	RE7	*	1983	09	09.95081	00	09	48.54	+13	48	09.5	17.5	M 095
1983	RF7	*	1983	09	09.95081	00	13	32.72	+09	39	52.6	17.0	E 095
1983	RG7	*	1983	09	09.95081	00	18	36.08	+08	58	27.3	17.5	E 095
1983	RH7	*	1983	09	10.83562	21	56	37.53	-17	50	57.1	16.5	095
1983	RJ7	*	1983	09	10.95834	00	04	57.76	+02	53	21.6	16.5	095
1983	RJ7		1983	09	13.98314	00	03	27.01	+02	38	08.2	16.5	095
1983	RK7	*	1983	09	11.80338	21	05	47.25	-07	01	06.3	17.0	095
1983	RL7	*	1983	09	11.80338	21	10	17.85	-09	15	52.5	17.5	E 095
1983	RM7	*	1983	09	11.88046	22	02	13.19	-02	42	59.0	17.0	E 095
1983	RN7	*	1983	09	11.88046	22	04	44.47	-02	35	14.9	17.5	095
1983	RO7	*	1983	09	11.88046	22	06	36.35	+04	14	34.3	17.0	N 095
1983	RP7	*	1983	09	11.88046	22	10	11.10	+00	27	07.5	17.0	095
1983	RQ7	*	1983	09	11.88046	22	12	44.81	-02	22	09.7	17.5	095
1983	RR7	*	1983	09	11.88046	22	12	56.56	+03	38	20.0		095
1983	RT7	*	1983	09	11.88046	22	18	49.93	+00	28	46.6	17.5	095
1983	RU7	*	1983	09	11.88046	22	19	16.47	-00	03	13.9	17.5	095
1983	RV7	*	1983	09	11.88046	22	25	33.25	+00	51	35.4	17.5	M 095
1983	RW7	*	1983	09	11.88046	22	28	54.94	-03	01	29.2	17.5	095
1983	RX7	*	1983	09	11.88046	22	30	01.50	-00	50	52.5	17.5	095
1983	RY7	*	1983	09	11.95476	22	54	00.94	-07	00	37.2	17.5	095
1983	RZ7	*	1983	09	11.95476	22	56	51.28	-11	00	39.7	17.5	M 095
1983	RC8	*	1983	09	11.95476	22	59	59.94	-07	33	47.2	18.0	M 095
1983	RD8	*	1983	09	11.95476	23	02	44.06	-06	50	28.6	17.5	095
1983	RE8	*	1983	09	11.95476	23	03	45.40	-07	10	04.5	17.5	095
1983	RF8	*	1983	09	11.95476	23	04	04.54	-10	04	52.7	17.5	095
1983	RG8	*	1983	09	11.95476	23	04	20.75	-05	39	58.0	17.0	095
1983	RH8	*	1983	09	11.95476	23	05	33.87	-09	14	52.0	17.5	095
1983	RJ8	*	1983	09	11.95476	23	07	02.16	-09	35	24.3	17.5	095
1983	RK8	*	1983	09	11.95476	23	07	57.63	-05	01	37.5	17.5	095
1983	RL8	*	1983	09	11.95476	23	08	53.97	-12	10	24.6	17.0	095
1983	RM8	*	1983	09	11.95476	23	10	59.53	-09	31	02.4	17.5	095
1983	RN8	*	1983	09	11.95476	23	11	52.78	-11	57	17.8	17.0	E 095
1983	RO8	*	1983	09	11.95476	23	12	00.81	-12	02	46.5	17.5	N 095
1983	RP8	*	1983	09	11.95476	23	13	36.00	-06	26	20.6	18.0	095
1983	RQ8	*	1983	09	11.95476	23	14	32.57	-05	37	47.2	17.5	095
1983	RR8	*	1983	09	11.95476	23	15	18.47	-04	13	46.1	17.5	E 095
1983	RS8	*	1983	09	11.95476	23	15	23.34	-06	38	04.3	18.0	095
1983	RT8	*	1983	09	11.95476	23	15	29.50	-12	43	17.5	17.5	E 095
1983	RU8	*	1983	09	11.95476	23	18	40.31	-06	09	30.4	17.5	095
1983	RV8	*	1983	09	11.95476	23	19	54.25	-04	05	27.9	17.5	N 095
1983	RX8	*	1983	09	11.95476	23	20	52.44	-06	49	51.8	18.0	M 095
1983	RY8	*	1983	09	11.95476	23	23	36.88	-09	36	57.9	17.5	095
1983	RZ8	*	1983	09	11.95476	23	24	49.34	-09	04	02.7	17.5	095
1983	RA9	*	1983	09	11.95476	23	26	02.19	-05	06	25.3	18.0	E 095
1983	RB9	*	1983	09	11.95476	23	26	46.81	-09	41	19.8	17.5	E 095
1983	RD9	*	1983	09	13.85317	22	14	52.43	-12	34	51.1	16.5	095
1983	RE9	*	1983	09	13.85317	22	19	26.25	-12	24	37.8	16.5	095
1983	RF9	*	1983	09	15.91402	21	51	45.47	-09	34	18.6	17.0	E 095
1983	RG9	*	1983	09	11.95476	23	11	04.93	-10	27	55.1	17.5	095
1983	SB		1983	09	03.95531	23	46	30.97	+04	05	48.3	16.5	E 095

1983	SO	*	1983	09	17.02304	01	06	38.99	+17	38	18.7	17.5	M 095
1983	SP	*	1983	09	17.02304	01	07	07.51	+14	27	28.0	17.5	095
1983	SQ	*	1983	09	17.02304	01	07	57.23	+11	32	42.0	17.0	095
1983	SR	*	1983	09	17.02304	01	13	36.28	+17	34	23.0	16.5	095
1983	SS	*	1983	09	17.02304	01	15	15.01	+14	39	28.8	17.0	095
1983	ST	*	1983	09	17.02304	01	16	33.08	+18	08	11.9	17.5	E 095
1983	SU	*	1983	09	17.02304	01	17	32.15	+13	19	03.0	17.0	095
1983	SV	*	1983	09	17.02304	01	21	34.86	+15	32	48.3	17.5	095
1983	TD2		1983	09	03.95531	00	08	30.80	+03	27	22.7	16.5	095
1983	TD2		1983	09	10.95834	00	04	15.30	+02	29	54.8	16.5	095
1983	TD2		1983	09	13.98314	00	02	09.72	+02	02	27.9	16.5	095
1984	EM		1985	08	16.96669	00	01	41.87	+00	29	31.5		095
1984	EM		1985	08	18.96152	00	00	44.78	+00	20	42.9		095
1984	EM		1985	09	15.87222	23	38	46.56	-02	41	55.7		095
1984	EM		1985	09	20.89561	23	34	05.68	-03	19	14.2		095
1985	CV		1983	09	04.94524	23	18	14.47	-13	07	55.5	16.5	095
1985	CV		1983	09	06.93969	23	16	46.90	-13	31	27.3	17.0	095
1985	JZ1		1985	05	23.85802	15	19	46.68	-18	54	36.8	17.0	095
1985	KC1	*	1985	05	23.85802	15	12	00.78	-18	18	29.4		N 095
1985	KD1	*	1985	05	23.85802	15	16	00.15	-18	46	52.1	17.5	E 095
1985	KE1	*	1985	05	23.85802	15	19	01.42	-17	55	01.0		095
1985	KF1	*	1985	05	23.85802	15	48	50.51	-15	13	52.9	16.0	P 095
1985	KG1	*	1985	05	23.85802	15	51	42.17	-16	46	28.6	17.5	E 095
1985	PE1		1985	08	16.96669	23	49	42.24	+02	46	43.4		M 095
1985	PE1		1985	08	23.90671	23	46	50.72	+03	00	48.8		095
1985	PM1		1985	09	20.83145	23	13	08.80	-11	49	47.6		095
1985	PG2	*	1985	08	13.95098	23	11	44.60	-12	43	38.0	17.5	E 095
1985	PG2		1985	08	17.96531	23	09	14.44	-13	05	54.0	17.5	E 095
1985	PG2		1985	08	24.94771	23	04	01.38	-13	46	23.6	17.0	E 095
1985	PH2	*	1985	08	13.95098	23	14	18.34	-06	33	09.6	16.5	E 095
1985	PH2		1985	08	15.94465	23	12	34.03	-06	17	43.0	16.0	095
1985	PH2		1985	08	17.96531	23	10	40.22	-06	02	16.3	16.0	E 095
1985	PH2		1985	08	19.96132	23	08	40.75	-05	47	11.2	16.0	E 095
1985	PJ2	*	1985	08	13.95098	23	23	36.25	-15	33	28.8		E 095
1985	PK2	*	1985	08	13.95098	23	28	34.00	-12	03	30.4	17.0	I 095
1985	PK2		1985	08	17.96531	23	24	44.56	-11	52	17.6	17.0	095
1985	PL2	*	1985	08	13.95098	23	31	25.75	-15	33	17.5	17.0	E 095
1985	PM2	*	1985	08	13.95098	23	35	59.72	-09	17	21.2	17.5	095
1985	PM2		1985	08	24.94771	23	27	25.94	-09	00	30.1	17.0	095
1985	PN2	*	1985	08	13.95098	23	45	32.41	-13	58	43.5	17.0	E 095
1985	PO2	*	1985	08	13.95098	23	46	02.34	-12	40	44.5	17.5	E 095
1985	PP2	*	1985	08	14.96914	23	38	33.68	-01	31	41.3	17.0	095
1985	PQ2	*	1985	08	14.96914	23	50	30.14	+02	30	39.1	17.0	E 095
1985	PR2	*	1985	08	14.96914	23	51	49.30	-02	02	31.9	17.5	095
1985	PS2	*	1985	08	14.96914	23	56	24.43	+02	16	12.6	17.0	E 095
1985	PT2	*	1985	08	14.96914	23	59	10.56	-05	52	47.6	17.0	095
1985	PU2	*	1985	08	14.96914	00	02	36.77	-03	11	29.5	17.0	095
1985	PV2	*	1985	08	14.96914	00	05	19.97	-01	53	06.1	17.3	095
1985	PW2	*	1985	08	14.96914	00	12	54.08	-04	48	42.0	16.0	s 095
1985	PX2	*	1985	08	14.96914	00	16	09.01	-05	02	45.6	17.3	N 095
1985	PY2	*	1985	08	15.94465	23	09	24.56	-13	01	23.4	17.0	E 095
1985	PZ2	*	1985	08	15.94465	23	25	31.06	-08	41	27.8	17.5	095
1985	PA3	*	1985	08	15.94465	23	25	32.54	-07	58	44.7	17.0	095
1985	PB3	*	1985	08	15.94465	23	43	13.44	-09	17	01.8	17.0	E 095
1985	QN		1985	08	16.96669	00	10	13.90	-01	37	14.8		095
1985	QN		1985	08	18.96152	00	09	37.59	-01	44	28.2		095
1985	QN		1985	08	23.90671	00	07	41.50	-02	04	55.0		095
1985	QN		1985	09	15.87222	23	52	37.78	-04	11	41.6		E 095
1985	QN		1985	09	20.89561	23	48	38.86	-04	41	20.0		E 095

1985	QM4		1985	08	13.95098	23	45	03.63	-07	41	34.3	17.5	E 095
1985	QN4	*	1985	08	16.96669	23	40	52.94	+03	44	09.4	17.0	E 095
1985	QO4	*	1985	08	16.96669	23	48	02.44	-01	47	24.6	17.0	095
1985	QP4	*	1985	08	16.96669	00	00	58.51	+03	02	05.1		095
1985	QQ4	*	1985	08	16.96669	00	01	20.73	-02	26	14.3	17.3	P 095
1985	QR4	*	1985	08	16.96669	00	10	14.60	+01	52	06.5	17.0	095
1985	QS4	*	1985	08	17.96531	23	24	08.72	-08	22	33.6	17.5	P 095
1985	QS4		1985	08	24.94771	23	18	44.56	-08	48	53.2	17.0	095
1985	QT4	*	1985	08	17.96531	23	25	39.72	-11	02	33.4	17.0	095
1985	QT4		1985	08	24.94771	23	21	45.72	-11	39	41.6	17.0	095
1985	QU4	*	1985	08	17.96531	23	26	05.02	-07	32	10.8	17.3	095
1985	QU4		1985	08	19.96132	23	24	43.25	-07	31	06.8	17.0	095
1985	QU4		1985	08	24.94771	23	20	48.25	-07	29	49.6	16.5	095
1985	QV4	*	1985	08	17.96531	23	33	27.78	-05	48	18.0	17.5	095
1985	QV4		1985	08	19.96132	23	32	05.31	-05	50	29.3	17.5	095
1985	QW4	*	1985	08	17.96531	23	43	05.18	-07	50	07.6	17.5	E 095
1985	QX4	*	1985	08	18.96152	23	38	28.34	-00	33	15.6	17.5	E 095
1985	QX4		1985	09	15.87222	23	23	49.62	-02	56	56.3	17.5	095
1985	QX4		1985	09	20.89561	23	20	56.62	-03	25	01.2	17.7	095
1985	QY4	*	1985	08	18.96152	23	54	55.06	+03	02	59.1	17.2	095
1985	QZ4	*	1985	08	18.96152	23	55	56.28	-05	18	51.0	17.5	N 095
1985	QA5	*	1985	08	18.96152	00	06	26.62	+04	12	24.4	17.5	E 095
1985	QB5	*	1985	08	18.96152	00	07	13.74	+04	06	41.0	17.0	E 095
1985	QC5	*	1985	08	19.96132	23	36	08.66	-05	30	15.8	17.5	E 095
1985	QD5	*	1985	08	19.96132	23	36	55.78	-13	20	33.4	17.8	095
1985	QE5	*	1985	08	19.96132	23	46	36.26	-08	13	48.9	17.5	E 095
1985	QF5	*	1985	08	23.90671	23	39	50.46	+02	18	12.3	17.0	E 095
1985	QG5	*	1985	08	23.90671	23	44	18.96	-04	31	11.8	17.0	095
1985	QG5		1985	09	15.87222	23	28	54.75	-06	11	53.4	17.0	095
1985	QG5		1985	09	20.89561	23	25	13.46	-06	33	41.8	17.0	095
1985	QH5	*	1985	08	23.90671	23	54	51.92	-00	01	31.4	17.3	095
1985	QH5		1985	09	15.87222	23	39	12.19	-02	05	06.6	16.8	095
1985	QH5		1985	09	20.89561	23	35	01.22	-02	37	33.2	17.0	095
1985	QJ5	*	1985	08	23.90671	23	55	18.21	-03	11	58.8	17.5	095
1985	QJ5		1985	09	15.87222	23	36	37.10	-02	56	40.8	17.0	095
1985	QJ5		1985	09	20.89561	23	32	00.86	-02	54	43.0	17.5	095
1985	QK5	*	1985	08	23.90671	00	01	51.66	+00	33	50.0	17.0	095
1985	QL5	*	1985	08	23.90671	00	03	34.56	-00	12	33.5	17.3	095
1985	QL5		1985	09	15.87222	23	43	21.06	-01	00	47.8	17.0	095
1985	QL5		1985	09	20.89561	23	38	17.23	-01	16	20.3	17.5	095
1985	QM5	*	1985	08	23.90671	00	05	13.53	-00	56	36.4	17.5	095
1985	QM5		1985	09	15.87222	23	51	04.12	-02	59	58.7	17.5	E 095
1985	QM5		1985	09	20.89561	23	47	19.26	-03	29	52.0	17.5	095
1985	QN5	*	1985	08	23.90671	00	06	10.96	+03	52	18.7	17.0	N 095
1985	QO5	*	1985	08	23.90671	00	06	52.68	+01	05	07.2	17.5	095
1985	QP5	*	1985	08	23.90671	00	07	10.00	-03	41	59.2	17.3	095
1985	QP5		1985	09	15.87222	23	44	51.25	-03	23	58.0	17.0	I 095
1985	QP5		1985	09	20.89561	23	39	19.74	-03	21	13.5	17.5	095
1985	QQ5	*	1985	08	23.90671	00	07	53.48	+00	58	53.4	17.0	095
1985	QR5	*	1985	08	23.90671	00	09	49.27	-00	21	26.7	16.5	095
1985	QS5	*	1985	08	24.94771	23	04	42.97	-10	50	01.2		095
1985	QT5	*	1985	08	24.94771	23	06	23.18	-10	34	07.4	17.3	095
1985	QU5	*	1985	08	24.94771	23	10	22.31	-10	12	51.1	17.0	095
1985	QV5	*	1985	08	24.94771	23	11	01.44	-14	39	35.8	17.0	095
1985	QW5	*	1985	08	24.94771	23	13	50.76	-07	34	03.2	17.0	E 095
1985	QX5	*	1985	08	24.94771	23	14	22.94	-09	37	15.6	16.8	095
1985	QY5	*	1985	08	24.94771	23	14	48.91	-12	00	45.4	17.0	095
1985	QZ5	*	1985	08	24.94771	23	14	55.54	-10	14	26.6	17.5	095
1985	QA6	*	1985	08	24.94771	23	14	57.32	-10	47	36.6	17.3	095

1985	QB6	*	1985	08	24.94771	23	15	13.31	-09	58	51.6		16.5	s 095
1985	QC6	*	1985	08	24.94771	23	15	14.62	-13	31	18.0		17.5	095
1985	QD6	*	1985	08	24.94771	23	17	24.88	-12	00	03.3		16.8	095
1985	QD6		1985	09	11.89236	23	07	51.34	-14	27	56.0		17.0	095
1985	QD6		1985	09	19.86502	23	03	30.25	-15	17	09.2		16.5	095
1985	QD6		1985	09	20.83145	23	03	02.25	-15	21	57.9		17.0	095
1985	QE6	*	1985	08	24.94771	23	18	42.78	-10	42	02.1		17.5	095
1985	QF6	*	1985	08	24.94771	23	19	05.88	-14	48	28.3		17.5	095
1985	QG6	*	1985	08	24.94771	23	20	16.12	-13	22	01.0		17.0	095
1985	QH6	*	1985	08	24.94771	23	23	15.72	-09	16	39.2		17.3	W 095
1985	QJ6	*	1985	08	24.94771	23	24	03.81	-14	30	59.5		17.0	095
1985	QK6	*	1985	08	24.94771	23	24	58.00	-15	00	41.9		17.2	095
1985	QL6	*	1985	08	24.94771	23	25	22.63	-10	58	42.0		16.8	095
1985	QM6	*	1985	08	24.94771	23	26	02.62	-07	53	16.2		17.5	W 095
1985	QN6	*	1985	08	24.94771	23	28	55.88	-15	50	46.6		17.5	E 095
1985	QO6	*	1985	08	24.94771	23	30	55.41	-06	34	04.6		16.5	E 095
1985	QP6	*	1985	08	24.94771	23	32	23.63	-12	35	22.2		17.5	W 095
1985	QQ6	*	1985	08	24.94771	23	32	38.04	-11	57	06.8		17.5	095
1985	QQ6		1985	09	11.89236	23	19	47.06	-14	08	15.9		17.5	095
1985	QR6	*	1985	08	24.94771	23	32	58.66	-09	27	17.7		17.5	095
1985	QS6	*	1985	08	24.94771	23	33	00.42	-09	55	25.7		17.2	095
1985	QT6	*	1985	08	24.94771	23	33	31.94	-12	04	50.3		17.5	095
1985	QU6	*	1985	08	24.94771	23	38	30.10	-10	05	39.2		17.3	E 095
1985	QV6	*	1985	08	24.94771	23	38	47.56	-09	14	28.0		17.8	E 095
1985	QW6	*	1985	08	24.94771	23	38	54.00	-09	00	40.1		17.0	N 095
1985	RG		1985	08	23.90671	23	48	18.22	-02	13	35.9		17.0	095
1985	RG		1985	09	15.87222	23	32	07.69	-03	42	35.6		16.8	095
1985	RG		1985	09	20.89561	23	27	52.76	-04	05	23.1		17.0	095
1985	RH		1985	08	18.96152	23	57	57.50	-01	53	03.3			095
1985	RH		1985	09	15.87222	23	31	52.34	-02	05	45.0			095
1985	RH		1985	09	20.89561	23	26	41.74	-02	11	02.7			095
1985	RJ		1985	09	15.87222	23	38	05.78	+01	21	18.0			095
1985	RJ		1985	09	20.89561	23	34	52.06	+00	11	41.0			095
1985	RS		1985	08	23.90671	00	14	26.52	-00	46	28.2		17.5	E 095
1985	RR1		1985	08	24.94771	23	23	00.10	-09	37	45.8		17.0	095
1985	RD2		1985	08	13.95098	23	20	52.00	-08	05	26.2		16.5	095
1985	RD2		1985	08	15.94465	23	19	25.60	-07	56	30.7		17.0	095
1985	RD2		1985	08	17.96531	23	17	50.50	-07	47	45.2		16.5	095
1985	RD2		1985	08	19.96132	23	16	09.75	-07	39	18.0		16.0	095
1985	RD2		1985	08	24.94771	23	11	32.06	-07	19	00.8		16.0	095
1985	RE2		1985	08	15.94465	23	14	08.62	-05	15	28.1		15.5	E 095
1985	RE2		1985	08	17.96531	23	13	02.63	-05	16	06.6		15.5	E 095
1985	RE2		1985	08	19.96132	23	11	50.56	-05	17	22.0		15.5	E 095
1985	RJ2		1985	08	13.95098	23	21	32.13	-06	24	56.9		17.0	E 095
1985	RF3		1985	09	19.86502	22	54	02.81	-16	09	05.9			095
1985	RF3		1985	09	20.83145	22	53	31.27	-16	13	48.0			095
1985	RJ3		1985	08	23.90671	23	51	51.22	-00	38	48.7			095
1985	RJ3		1985	09	15.87222	23	36	26.13	-02	32	13.0			E 095
1985	RJ3		1985	09	20.89561	23	32	45.40	-02	58	50.2			095
1985	RK3		1985	09	15.87222	23	39	56.00	-03	28	56.3			095
1985	RK3		1985	09	20.89561	23	37	05.00	-04	41	23.5			095
1985	RN3		1985	08	19.96132	23	29	41.34	-06	09	20.7			095
1985	RQ3		1985	08	18.96152	23	42	05.22	-02	29	34.2			095
1985	RR3		1985	09	15.87222	23	27	25.12	-04	02	00.2			095
1985	RU3		1983	04	09.87132	12	35	00.00	+01	43	32.8		17.0	E 095
1985	RU3		1983	04	11.83706	12	33	35.46	+02	00	44.2		17.0	E 095
1985	RC4		1985	09	20.89561	23	15	47.52	-07	08	29.0			095
1985	RE4		1985	08	13.95098	23	16	44.28	-10	37	04.2			095
1985	RE4		1985	08	15.94465	23	15	47.56	-10	53	38.4			095

1985	RE4		1985	08	17.96531	23	14	45.74	-11	10	41.5		095
1985	RE4		1985	08	19.96132	23	13	40.91	-11	27	41.7		095
1985	RE4		1985	08	24.94771	23	10	43.97	-12	11	01.1		095
1985	RE4		1985	09	11.89236	22	58	31.53	-14	42	11.0		095
1985	RE4		1985	09	19.86502	22	53	13.75	-15	38	56.3		095
1985	RE4		1985	09	20.83145	22	52	37.80	-15	45	06.0		095
1985	RR4		1985	08	23.90671	23	48	38.02	+02	33	17.2		095
1985	RR4		1985	09	15.87222	23	35	13.50	-00	51	44.7		095
1985	RR4		1985	09	20.89561	23	31	50.15	-01	42	09.6		095
1985	RS4		1983	03	15.85473	11	43	33.02	+05	25	48.6	18.0	095
1985	RD5	*	1985	09	11.89236	23	00	53.53	-13	27	44.0	17.5	095
1985	RE5	*	1985	09	11.89236	23	06	11.72	-12	35	51.9	17.5	095
1985	RF5	*	1985	09	11.89236	23	07	48.38	-11	16	53.8	17.0	095
1985	RG5	*	1985	09	11.89236	23	10	00.19	-12	02	38.4	17.5	095
1985	RH5	*	1985	09	11.89236	23	12	54.22	-18	25	25.3	17.0 E	095
1985	RJ5	*	1985	09	11.89236	23	14	56.00	-10	41	53.0	17.0	095
1985	RJ5		1985	09	19.86502	23	08	04.44	-11	13	02.7	17.0	095
1985	RJ5		1985	09	20.83145	23	07	16.82	-11	16	07.7	17.0	095
1985	RK5	*	1985	09	11.89236	23	27	08.47	-13	21	57.9	17.3	095
1985	RK5		1985	09	19.86502	23	21	10.13	-13	55	43.0	17.5	095
1985	RK5		1985	09	20.83145	23	20	29.27	-13	58	43.4	17.3	095
1985	RL5	*	1985	09	15.87222	23	16	40.72	-02	09	40.4	17.0 E	095
1985	RM5	*	1985	09	15.87222	23	17	29.06	-01	55	22.5	17.0 N	095
1985	RN5	*	1985	09	15.87222	23	22	20.94	-00	01	47.2	17.5 d	095
1985	RO5	*	1985	09	15.87222	23	23	31.84	-03	55	26.6	17.8	095
1985	RP5	*	1985	09	15.87222	23	27	11.78	-02	26	37.6	17.5	095
1985	RQ5	*	1985	09	15.87222	23	27	46.58	-02	38	55.1	17.8	095
1985	RR5	*	1985	09	15.87222	23	27	53.50	-01	58	13.2	17.8	095
1985	RR5		1985	09	20.89561	23	24	00.90	-02	23	14.0	17.5	095
1985	RS5	*	1985	09	15.87222	23	27	59.93	-08	17	25.4	17.5 N	095
1985	RT5	*	1985	09	15.87222	23	29	50.78	+00	44	32.4	17.0 E	095
1985	RT5		1985	09	20.89561	23	24	57.08	+00	34	47.2	17.5 E	095
1985	RU5	*	1985	09	15.87222	23	31	01.88	+00	42	29.4	17.5 E	095
1985	RU5		1985	09	20.89561	23	26	08.94	+00	23	20.2	17.8	095
1985	RV5	*	1985	09	15.87222	23	34	07.94	+01	11	38.3	17.5 E	095
1985	RV5		1985	09	20.89561	23	30	04.22	+00	39	01.0	17.5	095
1985	RW5	*	1985	09	15.87222	23	35	41.84	-04	23	41.3	17.0	095
1985	RW5		1985	09	20.89561	23	31	50.98	-04	52	57.0	17.5	095
1985	RX5	*	1985	09	15.87222	23	35	42.19	-04	28	35.6	17.0	095
1985	RX5		1985	09	20.89561	23	31	46.46	-05	19	12.4	17.5	095
1985	RY5	*	1985	09	15.87222	23	38	15.41	-00	40	20.0	17.7	095
1985	RY5		1985	09	20.89561	23	34	38.58	-01	26	49.3	17.8	095
1985	RZ5	*	1985	09	15.87222	23	38	19.25	-04	49	27.4	17.5	095
1985	RZ5		1985	09	20.89561	23	34	21.40	-05	08	36.0	18.0	095
1985	RA6	*	1985	09	15.87222	23	41	42.19	-06	16	09.2	17.5	095
1985	RA6		1985	09	20.89561	23	37	32.38	-06	58	14.6	18.0 U	095
1985	RB6	*	1985	09	15.87222	23	42	32.22	-06	48	27.0	17.5	095
1985	RB6		1985	09	20.89561	23	38	47.38	-07	14	39.4	17.0 E	095
1985	RC6	*	1985	09	15.87222	23	46	01.91	-02	00	51.2	17.5	095
1985	RC6		1985	09	20.89561	23	41	35.42	-02	37	07.3	17.5	095
1985	RD6	*	1985	09	15.87222	23	46	28.16	-06	53	25.4	17.5	095
1985	RD6		1985	09	20.89561	23	42	34.65	-07	23	22.5	17.5 E	095
1985	RE6	*	1985	09	15.87222	23	47	06.44	-01	33	29.2	17.0	095
1985	RE6		1985	09	20.89561	23	43	14.89	-02	05	34.8	17.8	095
1985	RF6	*	1985	09	15.87222	23	47	20.78	-06	05	06.8	17.8	095
1985	RG6	*	1985	09	15.87222	23	47	41.22	+00	55	43.1	17.0 E	095
1985	RG6		1985	09	20.89561	23	44	27.89	+00	05	13.2	17.5	095
1985	RH6	*	1985	09	15.87222	23	48	51.32	-07	31	17.6	17.8 E	095
1985	RJ6	*	1985	09	15.95150	01	11	39.76	+08	55	02.0	17.5	095

1985	RJ6		1985	09	22.96814	01	07	45.80	+08	06	52.8	17.8	095
1985	RK6	*	1985	09	15.95150	01	12	30.77	+10	09	54.6	17.3	095
1985	RK6		1985	09	20.96502	01	08	53.30	+09	31	34.0	17.0	095
1985	RK6		1985	09	22.96814	01	07	17.98	+09	15	03.4	17.0	095
1985	RL6	*	1985	09	15.95150	01	12	51.32	+07	57	50.9		095
1985	RM6	*	1985	09	15.95150	01	16	47.41	+08	15	14.3	17.5	095
1985	RM6		1985	09	20.96502	01	14	06.28	+07	58	52.2	17.0	095
1985	RM6		1985	09	22.96814	01	12	54.58	+07	51	30.7	17.0	095
1985	RN6	*	1985	09	15.95150	01	18	05.34	+05	32	19.0	17.5 N	095
1985	RN6		1985	09	20.96502	01	14	25.58	+05	33	14.1	17.0 E	095
1985	RN6		1985	09	22.96814	01	12	47.84	+05	33	01.6	16.5	095
1985	RO6	*	1985	09	15.95150	01	20	01.98	+09	59	42.0	17.5	095
1985	RO6		1985	09	20.96502	01	17	17.96	+09	31	49.4	17.5	095
1985	RO6		1985	09	22.96814	01	16	03.08	+09	19	31.0	17.0	095
1985	RP6	*	1985	09	15.95150	01	21	19.04	+11	03	24.2	17.5	095
1985	RP6		1985	09	22.96814	01	17	23.66	+10	49	58.0	17.5	095
1985	RQ6	*	1985	09	15.95150	01	23	36.70	+07	48	31.5	17.5	095
1985	RQ6		1985	09	22.96814	01	19	42.60	+07	17	49.2	17.0	095
1985	RR6	*	1985	09	15.95150	01	34	32.34	+14	49	48.8	17.0 E	095
1985	SA		1985	08	13.95098	23	16	22.34	-12	50	20.0	P	095
1985	SA		1985	08	19.96132	23	12	52.94	-13	49	46.2	E	095
1985	SA		1985	08	24.94771	23	09	23.22	-14	40	01.3	P	095
1985	SB		1985	09	21.93536	00	56	23.33	+09	26	35.4	E	095
1985	SB		1985	10	18.84030	00	30	37.21	+08	40	04.6	E	095
1985	SE1		1985	09	22.96814	01	14	53.82	+03	53	37.2	E	095
1985	SO1	*	1985	09	19.86502	22	52	15.88	-12	42	51.5	17.8 u	095
1985	SP1	*	1985	09	19.86502	22	54	42.56	-10	41	56.0	16.0 u	095
1985	SQ1	*	1985	09	19.86502	22	54	58.31	-13	51	34.6	17.3 u	095
1985	SR1	*	1985	09	19.86502	22	56	39.38	-14	26	30.7	17.5	095
1985	SR1		1985	09	20.83145	22	56	05.11	-14	34	35.2	17.2	095
1985	SS1	*	1985	09	19.86502	22	58	10.44	-12	27	24.0	17.5 u	095
1985	ST1	*	1985	09	19.86502	22	58	46.81	-17	22	36.0	17.0 u	095
1985	SU1	*	1985	09	19.86502	22	58	54.50	-13	01	45.0	17.5 u	095
1985	SV1	*	1985	09	19.86502	22	59	16.75	-12	53	43.9	17.5 u	095
1985	SW1	*	1985	09	19.86502	23	11	15.50	-09	27	48.8	17.5 E	095
1985	SW1		1985	09	20.83145	23	10	31.93	-09	33	34.7	17.0 E	095
1985	SX1	*	1985	09	19.86502	23	13	01.56	-18	32	56.4	17.0 E	095
1985	SY1	*	1985	09	19.86502	23	13	32.44	-16	17	04.0	17.5	095
1985	SY1		1985	09	20.83145	23	12	39.49	-16	17	22.8	17.5	095
1985	SZ1	*	1985	09	19.86502	23	21	41.44	-13	39	02.2	17.5	095
1985	SZ1		1985	09	20.83145	23	20	57.95	-13	41	43.6	17.3	095
1985	SA2	*	1985	09	19.86502	23	24	30.81	-16	56	16.9	17.5 E	095
1985	SA2		1985	09	20.83145	23	24	19.54	-17	00	13.8	17.0	095
1985	SB2	*	1985	09	19.93764	00	36	27.30	+17	43	58.2	17.5 E	095
1985	SC2	*	1985	09	19.93764	00	37	28.50	+14	07	05.8	17.3 E	095
1985	SD2	*	1985	09	19.93764	00	39	07.47	+15	51	39.8	17.5 E	095
1985	SE2	*	1985	09	19.93764	00	40	49.72	+16	00	54.4	17.8	095
1985	SE2		1985	09	21.93536	00	39	04.95	+15	56	28.8	17.5 E	095
1985	SF2	*	1985	09	19.93764	00	42	03.76	+14	16	46.6	16.5	095
1985	SF2		1985	09	21.93536	00	40	19.56	+14	10	15.8	16.5	095
1985	SF2		1985	10	18.84030	00	14	57.87	+11	33	00.0	16.5 E	095
1985	SG2	*	1985	09	19.93764	00	42	37.76	+14	09	13.0	17.5	095
1985	SG2		1985	09	21.93536	00	40	55.05	+14	04	37.6	17.0	095
1985	SG2		1985	10	18.84030	00	18	06.78	+12	13	00.0	17.5	095
1985	SH2	*	1985	09	19.93764	00	43	14.81	+17	43	08.5	17.8	095
1985	SJ2	*	1985	09	19.93764	00	43	26.21	+17	50	23.7	17.5	095
1985	SK2	*	1985	09	19.93764	00	43	54.28	+12	27	32.0	16.8	095
1985	SK2		1985	09	21.93536	00	42	15.64	+12	15	06.5	17.0	095
1985	SL2	*	1985	09	19.93764	00	46	05.28	+11	23	45.0	17.5 N	095

1985	SL2		1985	09	21.93536	00	44	17.86	+11	09	18.4	17.5	095
1985	SM2	*	1985	09	19.93764	00	46	28.54	+17	48	06.5	17.5	095
1985	SM2		1985	09	21.93536	00	44	58.10	+17	37	17.2	17.5	095
1985	SM2		1985	10	18.84030	00	23	33.40	+14	13	54.1	17.5	095
1985	SN2	*	1985	09	19.93764	00	46	50.46	+16	56	32.6	18.0	095
1985	SO2	*	1985	09	19.93764	00	49	09.54	+15	44	26.5	17.3	095
1985	SP2	*	1985	09	19.93764	00	50	30.40	+12	54	13.0	17.5	095
1985	SQ2	*	1985	09	19.93764	00	52	21.80	+13	00	11.8	18.0	095
1985	SR2	*	1985	09	19.93764	00	53	35.58	+14	17	13.2	17.5	095
1985	SS2	*	1985	09	19.93764	00	53	46.26	+14	19	31.9	18.0	095
1985	SS2		1985	09	21.93536	00	52	00.83	+14	17	09.8	18.0	095
1985	ST2	*	1985	09	19.93764	00	54	02.08	+13	33	15.3	17.5	095
1985	SU2	*	1985	09	19.93764	00	55	26.44	+19	45	57.8	17.5 E	095
1985	SV2	*	1985	09	19.93764	00	55	33.32	+17	34	38.2	17.0	095
1985	SV2		1985	09	21.93536	00	53	59.84	+17	29	57.4	17.3	095
1985	SV2		1985	10	18.84030	00	30	26.72	+15	04	00.4	17.5	095
1985	SW2	*	1985	09	19.93764	00	58	03.02	+13	46	57.2	17.5	095
1985	SX2	*	1985	09	19.93764	00	58	23.90	+11	07	59.1	17.5 E	095
1985	SX2		1985	09	21.93536	00	56	55.41	+11	03	44.0	17.3	095
1985	SX2		1985	10	18.84030	00	33	58.60	+09	21	29.7	17.5 E	095
1985	SY2	*	1985	09	19.93764	00	58	25.60	+16	31	46.4	18.0	095
1985	SZ2	*	1985	09	19.93764	00	58	29.67	+13	20	14.8	17.5	095
1985	SA3	*	1985	09	19.93764	00	59	47.65	+17	12	55.0	18.0	095
1985	SB3	*	1985	09	19.93764	01	02	39.88	+17	14	08.8	17.5	095
1985	SC3	*	1985	09	19.93764	01	03	20.13	+15	11	22.0	17.0	095
1985	SC3		1985	09	21.93536	01	02	15.81	+14	56	17.5	17.0	095
1985	SC3		1985	10	18.84030	00	43	44.72	+10	08	06.1	17.3	095
1985	SD3	*	1985	09	19.93764	01	03	27.66	+17	14	52.6	17.0	095
1985	SE3	*	1985	09	19.93764	01	03	37.58	+13	00	04.2	17.8	095
1985	SF3	*	1985	09	19.93764	01	07	35.70	+14	35	34.7	17.5	095
1985	SG3	*	1985	09	19.93764	01	07	50.50	+19	04	49.7	17.0 E	095
1985	SG3		1985	09	21.93536	01	06	40.73	+18	52	24.2	17.0 E	095
1985	SG3		1985	10	18.84030	00	48	32.12	+15	00	04.2	17.3 E	095
1985	SH3	*	1985	09	19.93764	01	09	11.66	+16	54	02.6	17.8	095
1985	SJ3	*	1985	09	19.93764	01	09	52.68	+14	10	00.4	17.5	095
1985	SJ3		1985	09	20.96502	01	08	55.74	+14	08	08.0	17.5 E	095
1985	SJ3		1985	09	21.93536	01	08	01.40	+14	06	07.0	17.0	095
1985	SJ3		1985	10	18.84030	00	40	01.56	+12	16	59.0	17.5	095
1985	SK3	*	1985	09	19.93764	01	09	59.49	+19	59	01.7	17.5 E	095
1985	SL3	*	1985	09	19.93764	01	12	27.58	+17	41	54.6	17.5	095
1985	SL3		1985	09	21.93536	01	10	56.28	+17	41	54.6	17.5	095
1985	SL3		1985	10	18.84030	00	45	45.56	+16	06	54.4	17.3	095
1985	SM3	*	1985	09	19.93764	01	12	32.68	+15	09	27.9	17.5	095
1985	SM3		1985	09	20.96502	01	11	50.76	+15	09	24.6	17.3 E	095
1985	SM3		1985	09	21.93536	01	11	10.11	+15	08	55.3	16.7	095
1985	SM3		1985	10	18.84030	00	46	29.32	+13	35	34.8	17.0 E	095
1985	SN3	*	1985	09	19.93764	01	15	15.53	+15	13	48.8	17.0 E	095
1985	SN3		1985	09	20.96502	01	14	38.72	+15	09	40.5	16.8	095
1985	SN3		1985	09	21.93536	01	14	02.70	+15	05	24.4	17.0 E	095
1985	SO3	*	1985	09	20.83145	22	50	34.65	-11	51	53.6	17.5 E	095
1985	SP3	*	1985	09	20.83145	22	56	59.16	-14	57	06.6	17.2	095
1985	SQ3	*	1985	09	20.83145	23	01	27.10	-12	08	02.6	17.5	095
1985	SR3	*	1985	09	20.83145	23	05	38.15	-10	34	26.2	17.5	095
1985	SS3	*	1985	09	20.83145	23	19	44.66	-10	39	34.2	17.0	095
1985	ST3	*	1985	09	20.83145	23	25	13.90	-13	21	21.4	17.5 E	095
1985	SU3	*	1985	09	20.89561	23	10	09.97	-03	45	45.6	17.5 E	095
1985	SV3	*	1985	09	20.89561	23	15	10.59	-02	09	50.6	17.8	095
1985	SW3	*	1985	09	20.89561	23	16	51.21	-00	55	21.6	17.5 W	095
1985	SX3	*	1985	09	20.89561	23	18	00.27	-00	40	30.2	17.0	095

1985	SY3	*	1985	09	20.89561	23	18	07.84	-03	38	50.8	18.0	W 095
1985	SZ3	*	1985	09	20.89561	23	20	28.34	-04	28	36.0	17.5	095
1985	SA4	*	1985	09	20.89561	23	22	04.48	-01	07	26.2	17.8	095
1985	SB4	*	1985	09	20.89561	23	23	52.51	-06	01	34.4	17.8	095
1985	SC4	*	1985	09	20.89561	23	25	50.13	-06	04	05.1	18.0	095
1985	SD4	*	1985	09	20.89561	23	26	08.52	+00	36	00.9	17.5	095
1985	SE4	*	1985	09	20.89561	23	28	46.30	-03	35	43.5	17.5	095
1985	SF4	*	1985	09	20.89561	23	30	56.81	-02	07	44.0	17.5	095
1985	SG4	*	1985	09	20.89561	23	31	26.86	-00	50	59.5	17.8	095
1985	SH4	*	1985	09	20.89561	23	31	44.64	+00	17	07.0	18.0	095
1985	SJ4	*	1985	09	20.89561	23	32	32.35	-02	31	53.4	17.5	095
1985	SK4	*	1985	09	20.89561	23	34	28.06	-01	28	28.4	18.0	095
1985	SL4	*	1985	09	20.89561	23	37	29.31	-04	00	16.6	17.5	095
1985	SM4	*	1985	09	20.89561	23	38	39.03	-00	24	57.0	17.5	095
1985	SN4	*	1985	09	20.89561	23	40	16.95	-04	21	55.4	17.7	095
1985	SO4	*	1985	09	20.89561	23	40	49.62	-07	46	22.0	17.0	E 095
1985	SP4	*	1985	09	20.89561	23	41	47.98	-00	18	33.6	17.5	095
1985	SQ4	*	1985	09	20.96502	01	02	34.66	+12	43	41.6	17.8	E 095
1985	SR4	*	1985	09	20.96502	01	03	10.42	+09	49	45.7	17.0	E 095
1985	SR4		1985	09	21.93536	01	02	38.47	+09	45	48.2	17.0	D 095
1985	SR4		1985	09	22.96814	01	02	02.05	+09	41	33.6	17.0	E 095
1985	SS4	*	1985	09	20.96502	01	09	32.44	+11	39	53.9	17.0	095
1985	SS4		1985	09	22.96814	01	08	38.66	+11	18	20.4	17.0	095
1985	ST4	*	1985	09	20.96502	01	10	31.67	+11	54	02.4	18.0	V 095
1985	SU4	*	1985	09	20.96502	01	15	07.88	+09	51	26.2	17.8	095
1985	SU4		1985	09	22.96814	01	13	29.40	+09	49	44.8	17.8	095
1985	SV4	*	1985	09	20.96502	01	15	31.86	+05	21	59.2	17.5	N 095
1985	SW4	*	1985	09	20.96502	01	25	01.16	+06	23	07.6	17.5	095
1985	SW4		1985	09	22.96814	01	23	37.38	+06	19	08.1	17.5	095
1985	SX4	*	1985	09	20.96502	01	27	05.03	+05	35	43.6	17.5	E 095
1985	SX4		1985	09	22.96814	01	25	26.12	+05	31	16.0	17.0	095
1985	SY4	*	1985	09	20.96502	01	28	50.92	+09	28	55.7	17.5	095
1985	SY4		1985	09	22.96814	01	27	15.64	+09	25	08.2	17.5	095
1985	SZ4	*	1985	09	20.96502	01	32	58.44	+06	36	54.5	17.5	095
1985	SZ4		1985	09	22.96814	01	31	46.98	+06	25	15.8	17.0	095
1985	SA5	*	1985	09	20.96502	01	34	47.42	+06	33	40.8	17.5	095
1985	SA5		1985	09	22.96814	01	33	38.46	+06	17	36.1	17.0	095
1985	SB5	*	1985	09	20.96502	01	36	20.24	+12	09	59.4	17.5	095
1985	SB5		1985	09	22.96814	01	35	09.98	+11	58	44.7	17.8	095
1985	SC5	*	1985	09	20.96502	01	36	21.32	+12	30	32.2	17.0	095
1985	SC5		1985	09	22.96814	01	35	04.17	+12	06	26.4	17.5	095
1985	SD5	*	1985	09	21.93536	00	36	59.72	+13	13	41.8	17.5	E 095
1985	SE5	*	1985	09	21.93536	00	38	23.12	+15	13	11.4	17.5	E 095
1985	SF5	*	1985	09	21.93536	00	40	01.33	+13	15	24.7	17.8	E 095
1985	SG5	*	1985	09	21.93536	00	42	09.34	+17	33	44.5	17.5	095
1985	SH5	*	1985	09	21.93536	00	43	05.78	+10	52	24.1	17.5	095
1985	SJ5	*	1985	09	21.93536	00	44	31.18	+10	57	25.6	17.0	095
1985	SK5	*	1985	09	21.93536	00	44	59.77	+12	30	48.8	17.3	095
1985	SL5	*	1985	09	21.93536	00	47	55.34	+09	31	38.8	16.5	N 095
1985	SM5	*	1985	09	21.93536	00	48	26.44	+11	48	57.3	17.3	095
1985	SN5	*	1985	09	21.93536	00	51	06.82	+15	21	20.0	18.0	095
1985	SO5	*	1985	09	21.93536	00	53	30.82	+13	58	28.1	17.8	095
1985	SP5	*	1985	09	21.93536	00	54	11.44	+11	28	36.6	17.8	095
1985	SQ5	*	1985	09	21.93536	01	02	06.30	+12	46	16.6	17.3	095
1985	SR5	*	1985	09	21.93536	01	03	22.05	+15	34	17.4	18.0	E 095
1985	SS5	*	1985	09	21.93536	01	13	43.37	+14	51	15.9	18.0	095
1985	ST5	*	1985	09	21.99628	01	38	33.88	+09	44	21.9	16.5	E 095
1985	SU5	*	1985	09	21.99628	01	45	06.08	+10	51	31.6	17.5	095
1985	SV5	*	1985	09	21.99628	01	48	03.71	+13	55	29.8	17.5	095

1985	SW5	*	1985	09	21.99628	01	51	58.40	+13	15	54.1		17.0	095
1985	SX5	*	1985	09	21.99628	01	52	21.09	+14	30	48.3		17.5	E 095
1985	SY5	*	1985	09	21.99628	01	52	31.95	+15	20	19.2		17.0	E 095
1985	SZ5	*	1985	09	21.99628	01	53	39.25	+13	10	27.3		17.0	095
1985	SA6	*	1985	09	21.99628	01	54	08.62	+09	45	53.2		17.5	095
1985	SC6	*	1985	09	21.99628	01	55	28.59	+12	06	35.3		17.3	095
1985	SD6	*	1985	09	21.99628	01	57	15.54	+13	53	33.8		17.0	095
1985	SE6	*	1985	09	21.99628	01	59	48.94	+10	36	18.8			095
1985	SF6	*	1985	09	21.99628	02	00	13.70	+13	58	14.0		17.5	095
1985	SG6	*	1985	09	21.99628	02	04	38.85	+10	29	57.8		17.5	095
1985	SH6	*	1985	09	21.99628	02	08	40.38	+14	08	20.1		17.5	E 095
1985	SJ6	*	1985	09	21.99628	02	12	11.66	+14	01	34.7		17.0	E 095
1985	SK6	*	1985	09	21.99628	02	15	09.44	+13	34	33.8		17.0	E 095
1985	SL6	*	1985	09	21.99628	02	16	11.69	+12	17	51.7		17.5	E 095
1985	SM6	*	1985	09	22.96814	01	00	46.93	+05	52	13.6		17.5	E 095
1985	SN6	*	1985	09	22.96814	01	05	30.32	+09	59	39.6		17.5	095
1985	SO6	*	1985	09	22.96814	01	07	37.72	+09	44	43.6		17.5	095
1985	SP6	*	1985	09	22.96814	01	13	04.36	+04	48	06.0		17.5	E 095
1985	SQ6	*	1985	09	22.96814	01	13	52.07	+06	25	18.0		17.5	095
1985	SR6	*	1985	09	22.96814	01	13	52.68	+04	40	19.0		17.0	E 095
1985	SS6	*	1985	09	22.96814	01	15	02.70	+07	35	28.7		17.5	095
1985	ST6	*	1985	09	22.96814	01	16	00.25	+08	02	43.2		17.8	095
1985	SU6	*	1985	09	22.96814	01	16	21.94	+12	20	48.3		17.0	095
1985	SV6	*	1985	09	22.96814	01	19	29.29	+06	16	13.0		17.8	095
1985	SW6	*	1985	09	22.96814	01	19	45.22	+11	29	55.6		17.8	095
1985	SX6	*	1985	09	22.96814	01	24	11.49	+11	53	08.4		17.8	095
1985	SY6	*	1985	09	22.96814	01	24	23.52	+04	43	54.6		17.0	E 095
1985	SZ6	*	1985	09	22.96814	01	29	11.05	+10	16	45.2		16.0	s 095
1985	SA7	*	1985	09	22.96814	01	34	36.33	+05	33	10.0		17.3	095
1985	SB7	*	1985	09	22.96814	01	37	50.57	+09	54	03.1		17.0	t 095
1985	TC		1985	09	21.99628	01	46	47.48	+13	21	24.0			095
1985	TC		1985	10	18.91663	01	28	49.28	+10	31	13.4			095
1985	TC		1985	11	12.81951	01	13	23.85	+07	45	56.0			095
1985	TL		1985	09	20.96502	01	23	06.49	+12	46	28.6		18.0	095
1985	TL		1985	09	22.96814	01	21	55.53	+12	37	22.9		17.0	E 095
1985	TN		1985	09	20.96502	01	34	24.36	+07	12	32.1		17.0	095
1985	TO		1985	09	15.95150	01	39	50.52	+11	20	21.1			095
1985	TO		1985	09	20.96502	01	36	34.66	+11	16	45.4			095
1985	TO		1985	09	22.96814	01	35	03.81	+11	14	06.2			095
1985	TP		1985	09	15.95150	01	33	51.22	+08	59	38.4			095
1985	TP		1985	09	20.96502	01	31	07.87	+08	39	40.4			095
1985	TP		1985	09	22.96814	01	29	54.96	+08	30	53.6			095
1985	TQ		1985	09	22.96814	01	24	18.12	+08	28	36.8			095
1985	TQ		1985	11	12.81951	01	00	15.42	+06	21	52.6			E 095
1985	TR		1985	09	20.96502	01	35	03.20	+09	51	43.8			095
1985	TR		1985	09	22.96814	01	33	45.89	+09	48	33.4			095
1985	TS		1985	09	20.96502	01	38	37.63	+11	17	24.5			V 095
1985	TS		1985	09	22.96814	01	37	20.44	+11	16	31.8			E 095
1985	TT		1985	09	15.95150	01	34	29.40	+08	34	03.8			095
1985	TT		1985	09	20.96502	01	32	11.83	+08	10	08.7			095
1985	TT		1985	09	22.96814	01	31	11.10	+08	00	01.3			095
1985	TT		1985	10	18.91663	01	15	25.60	+05	35	45.4			E 095
1985	TT		1985	11	12.81951	01	02	41.08	+03	43	23.4			095
1985	TU		1985	09	20.96502	01	34	02.18	+12	01	52.8			095
1985	TU		1985	09	22.96814	01	33	08.18	+11	56	17.3			095
1985	TU		1985	10	18.91663	01	14	56.20	+09	51	31.5			E 095
1985	TV		1985	10	18.91663	01	16	32.85	+06	38	52.3			E 095
1985	TW		1985	09	20.96502	01	39	42.07	+10	36	50.2			095
1985	TW		1985	09	21.99628	01	39	08.58	+10	34	52.8			E 095

1985	TW	1985	09	22.96814	01	38	35.76	+10	32	51.4		E	095
1985	TW	1985	10	18.91663	01	17	18.48	+08	57	25.8		E	095
1985	TW	1985	11	12.81951	01	00	57.41	+07	36	21.3		P	095
1985	TA1	1985	10	18.91663	01	20	03.68	+07	52	57.6			095
1985	TB1	1985	09	21.99628	01	40	20.25	+11	33	31.3	17.5	E	095
1985	TB1	1985	10	18.91663	01	20	21.54	+09	31	21.8	17.0		095
1985	TE1	1985	09	20.96502	01	43	31.30	+10	33	18.4		E	095
1985	TE1	1985	09	21.99628	01	42	59.51	+10	29	49.7			095
1985	TE1	1985	10	18.91663	01	22	06.34	+08	15	15.3			095
1985	TE1	1985	11	12.81951	01	04	20.74	+06	18	42.8			095
1985	TH1	1985	09	21.99628	01	48	28.50	+09	57	18.1	17.5		095
1985	TH1	1985	10	18.91663	01	28	49.03	+07	43	14.6	17.0		095
1985	TH1	1985	11	12.81951	01	10	51.68	+05	46	14.8	17.5		095
1985	TS1	1985	09	19.93764	00	35	31.62	+17	11	01.5	17.5	E	095
1985	TS1	1985	10	18.84030	00	13	33.82	+14	47	09.8	17.3	E	095
1985	TT1	1985	10	18.84030	00	15	43.20	+15	04	24.9	17.3		095
1985	TW1	1985	09	19.93764	00	51	56.43	+20	16	37.6	16.0	E	095
1985	TY1	1985	09	19.93764	00	51	57.02	+17	50	56.9	17.5		095
1985	TY1	1985	09	21.93536	00	50	31.64	+17	42	07.4	17.2		095
1985	TY1	1985	10	18.84030	00	29	28.58	+14	32	06.8	17.3		095
1985	TZ1	1985	09	19.93764	00	56	31.12	+15	20	37.4	16.7		095
1985	TZ1	1985	09	21.93536	00	55	09.76	+15	10	17.2	17.0		095
1985	TZ1	1985	10	18.84030	00	35	23.44	+12	01	35.9	17.0		095
1985	TA2	1985	10	18.84030	00	35	12.54	+18	26	35.4	17.0	E	095
1985	TV2	1985	09	15.95150	01	24	57.53	+13	38	01.7	17.0		095
1985	TV2	1985	09	20.96502	01	21	53.06	+13	08	24.8	17.0		095
1985	TV2	1985	09	22.96814	01	20	30.47	+12	55	12.7	17.0	E	095
1985	TB3	1985	09	22.96814	01	18	25.62	+06	16	18.8			095
1985	TH3	1985	09	21.93536	00	37	58.54	+15	00	58.6	17.5	E	095
1985	TP3	1985	09	19.93764	01	15	06.88	+17	30	36.2	17.0	E	095
1985	TP3	1985	09	21.93536	01	14	02.46	+17	30	05.4	17.0	E	095
1985	TZ3	1985	09	19.93764	00	56	00.65	+15	17	23.4	17.0		095
1985	TZ3	1985	09	21.93536	00	54	08.39	+15	12	02.3	17.0		095
1985	TZ3	1985	10	18.84030	00	27	28.98	+12	53	50.4	17.3		095
1985	UC	1985	09	20.96502	01	34	29.25	+11	21	56.3			095
1985	UC	1985	09	22.96814	01	32	28.85	+11	30	19.4		P	095
1985	UF	1985	09	21.99628	01	41	00.69	+06	51	08.2		E	095
1985	UF	1985	10	18.91663	01	13	58.96	+06	51	12.4		E	095
1985	UJ	1985	10	18.91663	01	33	00.45	+12	09	47.1		E	095
1985	UR	1985	09	21.99628	01	55	24.07	+10	41	16.8	17.8	P	095
1985	UR	1985	10	18.91663	01	42	26.98	+04	23	52.3	16.5		095
1985	UT	1985	10	18.91663	01	43	34.84	+03	33	44.4			095
1985	UU	1985	11	12.81951	01	26	26.33	+04	16	05.4			095
1985	UY	1985	09	21.99628	02	05	32.26	+06	46	38.8	17.5	P	095
1985	UB2	1985	10	18.91663	01	48	15.20	+06	53	09.4	17.5		095
1985	UG2	1985	09	21.99628	02	10	46.66	+10	24	05.2	17.5		095
1985	UG2	1985	10	18.91663	01	52	29.00	+08	01	09.0	17.0		095
1985	UG2	1985	11	12.81951	01	31	22.10	+05	53	19.6	17.3		095
1985	UH2	1985	10	18.91663	01	52	31.18	+07	35	29.4	17.0		095
1985	UH2	1985	11	12.81951	01	30	25.98	+06	25	35.6	17.3		095
1985	UJ2	1985	10	18.91663	01	53	13.27	+05	08	04.4	17.0	N	095
1985	UJ2	1985	11	12.81951	01	29	37.20	+04	55	11.8	17.8		095
1985	UD3	1985	10	18.91663	01	33	52.74	+06	50	08.6	17.5		095
1985	UF3	1985	09	21.99628	01	56	35.94	+11	03	30.2			095
1985	UF3	1985	10	18.91663	01	41	27.16	+05	47	21.6			095
1985	UF3	1985	11	12.81951	01	26	25.04	+01	27	12.2		E	095
1985	UH3	1985	09	21.99628	02	02	34.13	+07	52	53.2	16.5		095
1985	UH3	1985	10	18.91663	01	43	21.82	+05	09	29.8	16.0		095
1985	UH3	1985	11	12.81951	01	25	19.50	+03	26	27.6	17.8		095

1985	UJ3		1985	09	21.99628	02	06	15.35	+10	08	46.2	17.0	095
1985	UJ3		1985	10	18.91663	01	45	06.16	+08	05	34.2	17.5	095
1985	UK3		1985	09	21.99628	02	11	07.73	+10	03	36.9	17.0	095
1985	UK3		1985	10	18.91663	01	46	30.24	+08	56	02.6	17.0	095
1985	UK3		1985	11	12.81951	01	22	53.76	+07	55	43.8	17.3	095
1985	UN3		1985	10	18.91663	01	44	14.52	+06	34	21.5	17.5	095
1985	UO3		1985	10	18.91663	01	44	40.00	+06	56	20.6	17.3 P	095
1985	UO3		1985	11	12.81951	01	16	30.84	+08	29	04.2	17.5 P	095
1985	UJ5	*	1985	10	18.84030	00	20	39.49	+11	26	38.0	17.8	095
1985	UK5	*	1985	10	18.84030	00	23	16.32	+11	39	38.1	17.3	095
1985	UL5	*	1985	10	18.84030	00	26	49.38	+11	36	44.0	17.8	095
1985	UM5	*	1985	10	18.84030	00	28	42.90	+13	28	29.2	17.8	095
1985	UN5	*	1985	10	18.84030	00	29	19.34	+13	57	52.1	17.8	095
1985	UO5	*	1985	10	18.84030	00	29	24.16	+10	03	40.1	17.5	095
1985	UP5	*	1985	10	18.84030	00	29	27.97	+13	25	13.8	17.3	095
1985	UQ5	*	1985	10	18.84030	00	35	38.43	+10	57	49.7	17.5	095
1985	UR5	*	1985	10	18.84030	00	37	41.25	+10	45	46.4	17.3	095
1985	US5	*	1985	10	18.84030	00	38	10.39	+17	14	31.7	17.0	095
1985	UT5	*	1985	10	18.84030	00	46	50.50	+14	01	17.0	17.5 E	095
1985	UU5	*	1985	10	18.91663	01	16	40.76	+03	38	44.5	17.5 E	095
1985	UV5	*	1985	10	18.91663	01	17	09.57	+07	04	15.2	17.3 E	095
1985	UW5	*	1985	10	18.91663	01	20	42.26	+07	54	16.4	17.5	095
1985	UX5	*	1985	10	18.91663	01	21	08.50	+08	08	00.3	17.5	095
1985	UY5	*	1985	10	18.91663	01	23	03.68	+10	11	51.6	17.8	095
1985	UZ5	*	1985	10	18.91663	01	23	17.00	+05	42	55.0	17.8	095
1985	UA6	*	1985	10	18.91663	01	23	24.90	+05	01	31.4	17.5	095
1985	UB6	*	1985	10	18.91663	01	23	47.58	+06	54	55.1	17.5	095
1985	UC6	*	1985	10	18.91663	01	24	27.62	+08	53	12.6	17.5	095
1985	UD6	*	1985	10	18.91663	01	25	14.74	+06	15	44.9	17.0	095
1985	UE6	*	1985	10	18.91663	01	28	05.26	+10	27	54.3	17.8	095
1985	UF6	*	1985	10	18.91663	01	31	02.84	+06	16	15.9	17.8	095
1985	UG6	*	1985	10	18.91663	01	31	10.75	+09	54	24.5	17.8	095
1985	UH6	*	1985	10	18.91663	01	34	09.51	+11	31	16.0	16.8	095
1985	UJ6	*	1985	10	18.91663	01	34	52.20	+11	26	10.6	17.0	095
1985	UK6	*	1985	10	18.91663	01	35	21.62	+09	54	31.8	17.5	095
1985	UL6	*	1985	10	18.91663	01	35	30.61	+08	34	06.6	17.5	095
1985	UM6	*	1985	10	18.91663	01	36	16.36	+11	47	52.4	17.3 E	095
1985	UN6	*	1985	10	18.91663	01	36	19.34	+08	02	37.2	17.0 I	095
1985	UO6	*	1985	10	18.91663	01	36	26.23	+04	34	16.2	17.0	095
1985	UP6	*	1985	10	18.91663	01	37	29.19	+03	06	35.5	17.0 E	095
1985	UQ6	*	1985	10	18.91663	01	38	30.60	+07	38	10.7	17.8	095
1985	UR6	*	1985	10	18.91663	01	39	00.06	+10	20	38.8	17.0	095
1985	US6	*	1985	10	18.91663	01	39	00.28	+09	15	27.0	17.5 P	095
1985	UT6	*	1985	10	18.91663	01	40	31.35	+10	10	06.3	17.0	095
1985	UU6	*	1985	10	18.91663	01	41	04.17	+09	20	12.6	17.8 P	095
1985	UV6	*	1985	10	18.91663	01	41	56.89	+08	31	24.4	17.3	095
1985	UW6	*	1985	10	18.91663	01	42	56.72	+10	19	49.8	17.0	095
1985	UX6	*	1985	10	18.91663	01	43	17.90	+10	38	51.3	15.5	095
1985	UY6	*	1985	10	18.91663	01	43	20.04	+05	37	33.3	17.0	095
1985	UZ6	*	1985	10	18.91663	01	46	33.19	+10	16	00.2	17.0	095
1985	UA7	*	1985	10	18.91663	01	47	29.20	+09	16	21.6	17.5	095
1985	UB7	*	1985	10	18.91663	01	47	44.29	+07	39	34.7	17.8	095
1985	UC7	*	1985	10	18.91663	01	53	52.66	+06	09	06.4	17.5	095
1985	VP		1985	09	19.93764	00	52	31.58	+12	49	56.0	17.5	095
1985	VP		1985	09	21.93536	00	50	58.20	+12	49	39.0	17.0	095
1985	VP		1985	10	18.84030	00	28	28.19	+12	12	22.2	17.0	095
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1985	VC1		1985	11	12.81951	01	08	17.52	+05	11	17.8	16.5	095
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1985 VD1    1985 11 12.81951  01 09 44.62  +10 11 52.8            17.5   E 095
1985 VE1    1983 03 14.94031  12 16 20.57  +00 33 56.1            17.5     095
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1985 VF1    1985 11 12.81951  01 11 52.91  +09 45 20.8            17.5     095
1985 VL1    1985 11 12.81951  01 29 05.83  +08 24 46.4            17.5     095
1985 VV5 *  1985 11 12.81951  01 02 43.58  +06 38 53.6            17.8     095
1985 VW5 *  1985 11 12.81951  01 04 08.81  +02 42 58.2            17.5     095
1985 VX5 *  1985 11 12.81951  01 11 21.87  +09 59 56.6            17.5   E 095
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1985 VA6 *  1985 11 12.81951  01 18 47.62  +09 56 12.4            17.5     095
1985 VD6 *  1985 11 12.81951  01 27 50.67  +06 12 39.3            17.0   P 095
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1987 DW5    1985 09 21.99628  01 47 45.76  +06 24 39.8            17.0     095
1987 DW5    1985 10 18.91663  01 28 31.64  +03 49 18.6            17.5     095
1987 EC     1985 09 21.99628  01 51 30.94  +12 44 25.8            17.0     095
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1987 SW3    1983 04 10.92058  13 54 07.68  -19 21 33.1            17.5     095
1987 YT1    1983 09 05.82698  20 58 09.88  -07 33 14.8            17.5     095
1988 AJ5    1985 10 18.91663  01 32 15.68  +08 37 03.8            17.8     095
1988 BF     1983 03 14.79517  09 26 19.57  +28 32 13.7            16.5   E 095
1988 BU     1983 04 09.87132  12 18 57.50  +02 53 20.8            17.5     095
1988 BW3    1983 09 17.02304  01 01 21.11  +11 20 09.8            16.5     095
1988 DQ1    1983 03 15.85473  11 17 03.83  +03 20 17.0            17.5   E 095
1988 DQ1    1983 03 20.93906  11 13 33.74  +03 58 53.7            17.5     095
1988 EU     1985 08 18.96152  00 09 22.83  -04 22 43.9            17.0     095
1988 EU     1985 08 23.90671  00 07 12.74  -04 36 12.6            16.3     095
1988 EU     1985 09 15.87222  23 52 14.10  -05 56 34.0            16.5   E 095
1988 EU     1985 09 20.89561  23 48 21.28  -06 14 37.2            16.5   E 095
1988 GH     1985 10 18.91663  01 36 36.36  +10 55 42.0            17.5     095
1988 TK1    1983 04 10.92058  14 03 05.01  -17 18 32.4            17.5     095
2126 P-L    1983 09 11.95476  23 00 49.16  -05 14 29.8            18.0     095
6034 P-L    1985 09 21.99628  01 44 26.88  +11 43 13.3            17.0     095
6034 P-L    1985 10 18.91663  01 26 40.44  +07 29 39.2            17.0     095

293 Burlington remote site
T. Handley, 13 Linden Avenue, Burlington, NJ 08016, U.S.A.
0.20-m f/4.0 astrograph
SAOC
1977 SN     1988 10 15.19583  00 47 24.35  -03 58 01.5                     293
1977 SN     1988 10 15.21111  00 47 23.59  -03 58 02.7                     293
1979 YM8    1988 11 12.13924  01 13 24.57  +29 17 28.6                     293
1981 QN     1988 11 12.23438  03 19 29.91  +22 49 48.1                     293
1984 BL     1988 11 12.28333  03 22 50.62  +16 37 28.0                     293

364 JCPM Kagoshima Station
M. Takeishi, Odori 4, Hamatonbetsu Esashigun, Hokkaido 098-57, Japan
Observer M. Mukai
Measurer M. Takeishi
0.25-m f/4.2 Wright Schmidt telescope
1988 XQ     1988 12 11.49097  05 05 22.16  +22 13 23.9            16       364
1988 XQ     1988 12 11.50833  05 05 21.07  +22 13 12.4                     364
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372 Geisei
T. Seki, Kamimachi 2-9-35, Kochi, Japan
0.60-m reflector

1987	SH		1989	01	01.69931	10	03	27.48	+07	11	50.4	17	372
1987	SH		1989	01	03.74167	10	02	58.09	+07	07	37.9	17	372
1987	SH		1989	01	15.79306	09	57	33.38	+06	56	53.6	17	372
1987	SH		1989	01	15.80347	09	57	32.92	+06	56	55.2		372
1988	VA		1988	11	30.56007	02	15	02.15	+08	34	31.4	17.5	372
1988	VA		1988	11	30.57073	02	15	02.03	+08	34	25.6		372
1988	VH		1988	11	30.61076	02	54	54.4	+19	14	46	17.5	372
1988	VH		1988	12	02.54514	02	53	40.08	+18	56	42.7	17.5	372
1988	VH		1988	12	02.55694	02	53	39.71	+18	56	38.2		372
1988	VH		1988	12	05.59514	02	51	54.90	+18	29	30.4	17.5	372
1988	VH		1988	12	05.60694	02	51	54.58	+18	29	22.6		372
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1988	VH		1988	12	07.63160	02	50	52.25	+18	11	56.9		372
1988	VE1		1988	11	30.60694	02	57	21.31	+19	01	05.5	17.5	372
1988	VE1		1988	11	30.61458	02	57	20.33	+19	01	05.5		372
1988	VF1		1988	11	18.70035	03	08	47.70	+19	12	19.8	16	372
1988	VF1		1988	11	18.71076	03	08	47.05	+19	12	17.9		372
1988	VF1		1988	12	03.60243	02	57	15.20	+17	36	50.6	18	372
1988	VF1		1988	12	03.62917	02	57	14.30	+17	36	40.3		372
1988	VY1		1988	12	11.58368	02	38	49.41	+17	20	36.8	17	372
1988	VY1		1988	12	11.59757	02	38	49.07	+17	20	32.2		372
1988	VY1		1988	12	13.58924	02	37	55.92	+17	10	36.6	17	372
1988	VY1		1988	12	13.60174	02	37	55.60	+17	10	34.3		372
1988	VY1		1988	12	14.63993	02	37	30.30	+17	05	34.6	16.5	372
1988	VH7		1988	11	02.59444	02	38	12.3	+14	29	04	18	372
1988	VH7		1988	11	02.60764	02	38	11.8	+14	29	03		372
1988	WB		1988	11	30.60694	02	57	51.18	+19	22	19.8	18	372
1988	WB		1988	11	30.61458	02	57	50.48	+19	22	13.7		372
1988	WB		1988	12	09.59201	02	51	07.22	+18	42	15.1	17.5	372
1988	WB		1988	12	09.60243	02	51	06.81	+18	42	12.6		372
1988	WB		1988	12	11.61424	02	49	57.44	+18	34	28.8	17	372
1988	WB		1988	12	12.40938	02	49	32.97	+18	31	33.8		372
1988	XB		1988	12	09.72691	07	20	55.36	+25	33	18.9	14	372
1988	XB		1988	12	09.73385	07	20	52.65	+25	33	29.2		372
1988	XB		1988	12	15.70764	06	46	37.75	+27	30	33.9	14.5	372
1988	XB		1988	12	19.76528	06	29	13.23	+28	12	15.0	15	372
1988	XL1	*	1988	12	07.66632	04	44	24.63	+14	34	02.1	17	372
1988	XL1		1988	12	07.67813	04	44	23.80	+14	34	00.6		372
1988	XL1		1988	12	09.66285	04	42	25.51	+14	33	48.6	17	372
1988	XL1		1988	12	09.67465	04	42	25.24	+14	33	48.6		372
1988	XL1		1988	12	12.47882	04	39	39.73	+14	33	53.1	16.5	372
1988	XL1		1988	12	12.48958	04	39	38.78	+14	33	53.7		372
1988	XL1		1988	12	15.68437	04	36	34.51	+14	34	54.5	17	372
1988	XL1		1988	12	27.44444	04	26	41.43	+14	48	06.7	17.5	372
1988	XL1		1988	12	27.45868	04	26	40.74	+14	48	10.8		372
1988	XM1	*	1988	12	09.66285	04	39	10.13	+14	35	24.8	17.5	372
1988	XM1		1988	12	09.67465	04	39	09.41	+14	35	22.6		372
1988	XM1		1988	12	12.48420	04	36	37.46	+14	31	36.4	17	372
1988	XM1		1988	12	14.60937	04	34	44.82	+14	29	11.8	16.5	372
1988	XN1	*	1988	12	12.48420	04	39	55.77	+14	38	33.7	17	372
1988	XN1		1988	12	13.64236	04	38	54.93	+14	34	23.2	17	372
1988	XN1		1988	12	13.65486	04	38	53.66	+14	34	16.9		372
1988	XH2	*	1988	12	15.68437	04	32	22.57	+14	38	43.1	18	372
1988	XH2		1988	12	16.67326	04	31	29.55	+14	35	28.8	18	372
1988	XJ2	*	1988	12	15.68437	04	33	20.59	+14	42	42.6	19	372
1988	XJ2		1988	12	16.67326	04	32	19.83	+14	37	31.6	19	372

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1988	XK2		1988	12	15.73090	04	46	56.86	+10	07	50.4		372
1988	XK2		1988	12	16.65243	04	46	19.41	+10	06	36.6	15.5	372
1988	XK2		1988	12	30.48194	04	38	08.04	+09	59	02.4	16.5	372
1988	XK2		1989	01	01.64340	04	37	06.47	+09	59	40.9	16.5	372
1988	XK2		1989	01	01.65590	04	37	06.19	+09	59	42.5		372
1988	XK2		1989	01	04.60556	04	35	50.78	+10	01	25.4	17	372
1988	XK2		1989	01	04.61736	04	35	50.52	+10	01	26.0		372
1988	YA	*	1988	12	16.69167	04	10	07.64	+17	42	57.7	18.5	372
1988	YA		1988	12	16.70313	04	10	07.31	+17	42	57.1		372
1988	YA		1988	12	27.41736	04	04	08.70	+17	15	30.2	18	372
1988	YA		1988	12	27.43056	04	04	08.63	+17	15	24.2		372
1989	AC		1989	01	08.56701	04	16	11.36	+20	00	16.3	11	372
1989	AC		1989	01	08.57170	04	16	13.91	+20	00	25.5		372
1989	AC		1989	01	09.63299	04	25	51.54	+20	28	53.6	12	372
1989	AG		1989	01	12.60799	07	56	33.18	+28	26	08.2	16	372
1989	AG		1989	01	12.69271	07	56	27.96	+28	26	57.2		372
1989	AG		1989	01	15.71910	07	53	27.03	+28	55	22.3	16	372
1989	AG		1989	01	15.73056	07	53	26.10	+28	55	28.7		372
1989	AH	*	1989	01	03.65243	07	50	17.48	+28	42	05.3	17	372
1989	AH		1989	01	03.66493	07	50	16.60	+28	42	11.8		372
1989	AH		1989	01	04.63819	07	49	26.27	+28	50	01.9	17	372
1989	AH		1989	01	04.65208	07	49	25.65	+28	50	08.8		372
1989	AH		1989	01	05.68576	07	48	30.76	+28	58	28.5	17	372
1989	AH		1989	01	05.69896	07	48	30.15	+28	58	35.8		372
1989	AH		1989	01	12.63785	07	42	11.50	+29	52	42.2	17	372
1989	AH		1989	01	15.68299	07	39	21.32	+30	15	13.0	18	372
1989	AG1	*	1989	01	05.75278	08	21	18.47	+15	33	24.3	18	372
1989	AG1		1989	01	05.76528	08	21	17.91	+15	33	25.3		372
1989	AG1		1989	01	09.69757	08	18	00.14	+15	34	29.5	17.5	372
1989	AG1		1989	01	09.70972	08	17	59.57	+15	34	29.7		372
1989	AG1		1989	01	12.66527	08	15	25.21	+15	35	43.2	17	372
1989	AG1		1989	01	15.70208	08	12	42.78	+15	37	21.0		372
1989	AO1	*	1989	01	12.73854	08	32	22.36	+25	30	25.8	18	372
1989	AO1		1989	01	12.74931	08	32	21.78	+25	30	26.3		372
1989	AO1		1989	01	15.76319	08	31	04.69	+25	34	28.9	18	372
1989	AO1		1989	01	15.77361	08	31	04.12	+25	34	31.6		372

385 Nihondaira Observatory, Oohira Station
M. Kizawa, 1458-10, Minami Numagami, Shizuoka 420, Japan
Observers W. Kakkei, M. Kizawa, T. Urata
Measurer M. Kizawa

1977	TS3		1988	12	08.48368	03	11	11.85	+12	09	41.0	16.5	385
1977	TS3		1988	12	08.52951	03	11	10.18	+12	09	40.3		385
1988	VF1		1988	12	08.49549	02	54	58.57	+17	12	14.9	16.5	385
1988	VF1		1988	12	08.51840	02	54	57.72	+17	12	08.2		385
1988	WF		1988	12	06.53542	04	54	10.07	+21	48	00.0		385
1988	WF		1988	12	06.56111	04	54	08.61	+21	47	59.2		385
1988	XJ		1988	12	06.54826	04	52	35.29	+22	52	36.4	15.5	385
1988	XJ		1988	12	06.57326	04	52	33.64	+22	52	32.3		385
1989	AC		1989	01	16.57309	05	14	57.06	+22	19	47.5		385
1989	AC		1989	01	16.57882	05	14	59.07	+22	19	52.7		385
1989	AC		1989	01	16.58455	05	15	00.63	+22	19	56.9		385
1989	AC		1989	01	24.44618	05	51	12.50	+23	03	42.1		385
1989	AC		1989	01	24.44965	05	51	13.05	+23	03	43.6		385
1989	AC		1989	01	24.46076	05	51	15.33	+23	03	46.1		385

386 Yatsugatake-Kobuchizawa
O. Muramatsu, 119-1, 2-8 Sakurazutsumi, Musashino, Tokyo 180, Japan

Observers M. Inoue, O. Muramatsu
Measurer O. Muramatsu
0.31-m reflector

1988 VR1		1988	12	10.58056	02	53	04.68	+09	40	50.5	16.5		386
1988 VR1		1988	12	10.59601	02	53	04.31	+09	40	46.0			386
1988 VF2		1988	12	10.54931	02	45	36.37	+21	50	20.5	17.0		386
1988 VF2		1988	12	10.56458	02	45	35.86	+21	50	19.7			386
1988 WG		1988	12	09.75671	04	47	48.12	+28	08	40.2	15.5		386
1988 WG		1988	12	09.76496	04	47	47.49	+28	08	42.8			386
1988 WG		1988	12	10.62153	04	46	48.02	+28	13	07.6			386
1988 WG		1988	12	17.71181	04	38	43.46	+28	46	21.0		r	386
1988 WG		1988	12	17.72569	04	38	42.61	+28	46	24.0		r	386

391 Sendai Observatory, Ayashi Station
M. Koishikawa, Sendai Municipal Observatory, 1-1 Sakuragaoka-koen, Sendai 980, Japan
Observer M. Koishikawa
Measurers S. Kasahara, M. Koishikawa
0.20-m reflector

1988 XB		1988	12	11.81181	07	07	35.21	+26	23	55.4	16		391
1988 XB		1988	12	11.82569	07	07	30.12	+26	24	11.6			391
1988 XB		1988	12	12.76389	07	02	01.40	+26	43	18.5	16		391
1988 XB		1988	12	12.77778	07	01	56.93	+26	43	32.3			391
1988 XB		1988	12	12.78333	07	01	54.30	+26	43	38.9			391
1988 XB		1988	12	12.79861	07	01	49.77	+26	43	53.8			391
1988 XF		1988	12	11.58264	03	56	33.67	+22	14	33.7			391
1988 XF		1988	12	12.55556	03	55	43.41	+22	13	24.5			391
1988 XF		1988	12	12.57639	03	55	42.27	+22	13	23.0			391
1988 XF		1988	12	14.59028	03	54	02.88	+22	11	04.1			391
1988 XF		1988	12	14.61181	03	54	01.70	+22	11	02.5			391
1989 AF1	*	1989	01	05.66944	07	08	57.09	+19	40	23.7	17.0		391
1989 AF1		1989	01	05.69028	07	08	55.73	+19	40	28.4			391
1989 AF1		1989	01	13.64306	06	59	46.19	+20	20	12.3		I	391
1989 AF1		1989	01	13.66319	06	59	44.72	+20	20	17.9			391
1989 AF1		1989	01	14.69861	06	58	36.29	+20	25	20.7		p	391
1989 AF1		1989	01	14.71944	06	58	34.47	+20	25	28.1		p	391

399 Kushiro
H. Kaneda, 12-7-2, 1 Chome, Ishiyama 1 Jo, Minami-Ku, Sapporo 005, Japan
Observers S. Ueda, M. Matsuyama
Measurers H. Kaneda, K. Watanabe
0.16-m f/3.8 Wright-Schmidt camera
AGK3, SAOC

1967 CC		1988	12	11.47083	04	56	39.20	+24	00	03.2	16		399
1967 CC		1988	12	11.48542	04	56	38.44	+24	00	01.0			399
1967 CC		1988	12	11.50081	04	56	37.61	+23	59	59.3			399
1967 CC		1988	12	11.51597	04	56	36.67	+23	59	58.3			399
1971 SS1		1988	12	07.63559	05	34	08.66	+23	53	41.4	16		399
1971 SS1		1988	12	07.65000	05	34	07.92	+23	53	41.4			399
1971 SS1		1988	12	07.66597	05	34	07.04	+23	53	40.5			399
1971 SS1		1988	12	07.68056	05	34	06.16	+23	53	41.2			399
1971 SS1		1988	12	11.61458	05	30	30.96	+23	54	17.7	16		399
1971 SS1		1988	12	11.62917	05	30	30.15	+23	54	17.1			399
1971 SS1		1988	12	11.64792	05	30	29.00	+23	54	19.1			399
1971 SS1		1988	12	11.66250	05	30	28.20	+23	54	17.9			399
1976 SF		1988	12	07.48681	04	48	38.61	+20	14	57.0	16		399
1976 SF		1988	12	07.50139	04	48	37.81	+20	14	56.2			399
1976 SF		1988	12	07.51609	04	48	36.97	+20	14	55.4			399

1984	SM		1988	12	11.61458	05	30	40.31	+24	37	15.1	16.5	399
1984	SM		1988	12	11.62917	05	30	39.37	+24	37	13.1		399
1984	SM		1988	12	11.64792	05	30	38.03	+24	37	07.5		399
1984	SM		1988	12	11.66250	05	30	37.03	+24	37	05.3		399
1984	SW3		1989	01	04.65104	07	21	18.96	+24	43	53.8	15	399
1984	SW3		1989	01	04.66545	07	21	17.72	+24	43	49.2		399
1984	SW3		1989	01	04.68090	07	21	16.48	+24	43	45.2		399
1984	SW3		1989	01	04.69549	07	21	15.16	+24	43	42.8		399
1984	SW3		1989	01	06.57118	07	18	51.04	+24	35	52.9	15	399
1984	SW3		1989	01	06.58617	07	18	49.87	+24	35	49.5		399
1987	SN1		1989	01	04.65104	07	24	50.56	+24	52	20.1	16.5	399
1987	SN1		1989	01	04.66545	07	24	49.54	+24	52	23.0		399
1987	SN1		1989	01	04.68090	07	24	48.65	+24	52	25.9		399
1987	SN1		1989	01	04.69549	07	24	47.63	+24	52	27.1		399
1988	VH7		1988	11	02.51562	02	38	17.09	+14	29	40.3		399
1988	VH7		1988	11	02.52998	02	38	16.01	+14	29	31.3		399
1988	VH7		1988	11	02.54769	02	38	15.16	+14	29	25.2		399
1988	VH7	*	1988	11	02.56806	02	38	13.95	+14	29	15.1	16.5	399
1988	VH7		1988	11	02.58323	02	38	13.11	+14	29	07.2		399
1988	VH7		1988	11	02.60104	02	38	12.21	+14	29	01.5		399
1988	WD		1988	12	07.48681	04	37	04.68	+20	36	52.8	16.5	399
1988	WD		1988	12	07.50139	04	37	03.55	+20	36	53.0		399
1988	WD		1988	12	07.51609	04	37	02.75	+20	36	55.2		399
1988	WD		1988	12	07.53056	04	37	01.67	+20	36	55.9		399
1988	WH	*	1988	11	17.61285	03	31	09.31	+18	51	24.4	16.5	399
1988	WH		1988	11	17.62922	03	31	08.31	+18	51	20.4		399
1988	WH		1988	11	17.64734	03	31	07.43	+18	51	19.6		399
1988	WH		1988	11	17.66389	03	31	06.44	+18	51	17.8		399
1988	WH		1988	12	02.44745	03	18	11.74	+18	18	07.6	17	399
1988	WH		1988	12	02.46216	03	18	11.02	+18	18	04.3		399
1988	WH		1988	12	02.47755	03	18	10.53	+18	18	03.8		399
1988	WH		1988	12	02.49213	03	18	09.90	+18	18	01.7		399
1988	XA		1988	12	07.48681	04	49	21.05	+19	51	40.6	15.5	399
1988	XA		1988	12	07.50139	04	49	20.38	+19	51	38.3		399
1988	XA		1988	12	07.51609	04	49	19.57	+19	51	34.5		399
1988	XA		1988	12	07.53056	04	49	18.69	+19	51	31.1		399
1988	XE		1989	01	04.51668	04	43	03.68	+15	45	34.9	16	399
1988	XE		1989	01	04.53565	04	43	03.12	+15	45	27.6		399
1988	XE		1989	01	04.55741	04	43	02.87	+15	45	16.0		399
1988	XS		1988	12	11.54387	05	09	51.43	+23	34	09.0	15.5	399
1988	XS		1988	12	11.55833	05	09	50.37	+23	34	03.5		399
1988	XS		1988	12	11.57361	05	09	49.36	+23	34	00.6		399
1988	XS		1988	12	11.58819	05	09	48.34	+23	33	55.6		399
1988	XT		1988	12	07.55851	05	15	47.02	+22	49	46.3	16.5	399
1988	XT		1988	12	07.57303	05	15	45.75	+22	49	44.3		399
1988	XT		1988	12	07.58912	05	15	44.70	+22	49	44.8		399
1988	XT		1988	12	07.60347	05	15	43.71	+22	49	43.0		399
1988	XY		1988	12	07.55851	05	06	35.83	+24	51	15.7	16	399
1988	XY		1988	12	07.57303	05	06	34.99	+24	51	21.9		399
1988	XY		1988	12	07.58912	05	06	33.93	+24	51	27.2		399
1988	XY		1988	12	07.60347	05	06	32.99	+24	51	29.6		399
1988	XY		1988	12	11.47083	05	02	37.50	+25	07	17.6	16	399
1988	XY		1988	12	11.48542	05	02	36.50	+25	07	21.2		399
1988	XY		1988	12	11.50081	05	02	35.71	+25	07	25.3		399
1988	XY		1988	12	11.51597	05	02	34.69	+25	07	29.2		399
1988	XF1		1988	12	02.51829	04	54	10.29	+19	37	03.8	16.5	399
1988	XF1		1988	12	02.53333	04	54	09.23	+19	37	01.7		399
1988	XF1		1988	12	02.55006	04	54	08.33	+19	36	58.4		399
1988	XF1		1988	12	02.56484	04	54	07.40	+19	36	57.7		399

1988	XH1		1988	12	02.51829	04	44	01.19	+19	42	25.0	16.5	399
1988	XH1		1988	12	02.53333	04	44	00.16	+19	42	27.0		399
1988	XH1		1988	12	02.55006	04	43	58.97	+19	42	32.6		399
1988	XH1		1988	12	02.56484	04	43	58.07	+19	42	35.6		399
1988	XH1	*	1988	12	07.48681	04	38	33.82	+19	56	40.3	16.5	399
1988	XH1		1988	12	07.50139	04	38	32.63	+19	56	43.7		399
1988	XH1		1988	12	07.51609	04	38	31.70	+19	56	45.8		399
1988	XH1		1988	12	07.53056	04	38	30.71	+19	56	48.7		399
1988	XH1		1988	12	16.67535	04	28	56.74	+20	22	38.1	16.5	399
1988	XH1		1988	12	16.68958	04	28	55.90	+20	22	43.8		399
1988	XK1	*	1988	12	07.63559	05	24	55.24	+23	43	12.3	16	399
1988	XK1		1988	12	07.65000	05	24	54.17	+23	43	11.7		399
1988	XK1		1988	12	07.66597	05	24	52.96	+23	43	13.3		399
1988	XK1		1988	12	07.68056	05	24	51.95	+23	43	12.7		399
1988	XK1		1988	12	11.54387	05	20	12.01	+23	43	23.5	16	399
1988	XK1		1988	12	11.55833	05	20	10.86	+23	43	24.0		399
1988	XK1		1988	12	11.57361	05	20	09.85	+23	43	23.6		399
1988	XK1		1988	12	11.58819	05	20	08.72	+23	43	23.9		399
1988	XV1	*	1988	12	11.47083	04	53	52.71	+24	49	06.3	15.5	399
1988	XV1		1988	12	11.48542	04	53	51.64	+24	49	11.2		399
1988	XV1		1988	12	11.50081	04	53	50.60	+24	49	17.0		399
1988	XV1		1988	12	11.51597	04	53	49.45	+24	49	22.8		399
1988	XV1		1988	12	15.66806	04	49	20.52	+25	12	55.1	16	399
1988	XV1		1988	12	15.68218	04	49	19.47	+25	13	00.5		399
1988	XW1	*	1988	12	11.47083	04	59	45.67	+25	09	15.2	15.5	399
1988	XW1		1988	12	11.48542	04	59	44.71	+25	09	17.3		399
1988	XW1		1988	12	11.50081	04	59	43.83	+25	09	18.3		399
1988	XW1		1988	12	11.51597	04	59	42.97	+25	09	21.4		399
1988	XW1		1988	12	15.66806	04	55	37.00	+25	17	58.1	15.5	399
1988	XW1		1988	12	15.68218	04	55	36.13	+25	17	58.9		399
1988	XW1		1989	01	04.44861	04	39	20.32	+25	49	45.5	16.5	399
1988	XW1		1989	01	04.46970	04	39	19.31	+25	49	45.1		399
1988	XW1		1989	01	04.48822	04	39	18.57	+25	49	47.9		399
1988	XY1	*	1988	12	11.47083	04	52	00.03	+26	31	48.3	16.5	399
1988	XY1		1988	12	11.48542	04	51	59.03	+26	31	46.3		399
1988	XY1		1988	12	11.50081	04	51	58.00	+26	31	44.6		399
1988	XY1		1988	12	11.51597	04	51	56.85	+26	31	41.1		399
1988	XY1		1988	12	16.62431	04	46	06.34	+26	14	57.5	16	399
1988	XY1		1988	12	16.63889	04	46	05.25	+26	14	55.6		399
1989	AC		1989	01	13.53125	04	56	03.63	+21	43	53.2	13	399
1989	AC		1989	01	13.53889	04	56	06.56	+21	44	00.1		399
1989	AK		1989	01	04.57778	06	55	19.56	+24	40	55.8	15.5	399
1989	AK		1989	01	04.59236	06	55	18.75	+24	40	58.7		399
1989	AK		1989	01	04.60764	06	55	18.06	+24	41	02.1		399
1989	AK		1989	01	04.62396	06	55	17.13	+24	41	05.9		399
1989	AK		1989	01	06.53542	06	53	34.25	+24	47	59.2	15.5	399
1989	AK		1989	01	06.55000	06	53	33.20	+24	48	03.8		399
1989	AL		1989	01	04.57778	07	06	54.78	+23	31	08.4	15	399
1989	AL		1989	01	04.59236	07	06	53.85	+23	31	09.1		399
1989	AL		1989	01	04.60764	07	06	52.79	+23	31	10.1		399
1989	AL		1989	01	04.62396	07	06	51.71	+23	31	09.6		399
1989	AL		1989	01	06.53542	07	04	45.22	+23	31	39.8	15.5	399
1989	AL		1989	01	06.55000	07	04	44.21	+23	31	39.4		399
1989	AQ	*	1989	01	04.57778	07	01	19.82	+23	57	10.9	16	399
1989	AQ		1989	01	04.59236	07	01	19.11	+23	57	12.2		399
1989	AQ		1989	01	04.60764	07	01	18.34	+23	57	14.6		399
1989	AQ		1989	01	04.62396	07	01	17.33	+23	57	17.0		399
1989	AQ		1989	01	06.52017	06	59	33.85	+24	00	55.2		399
1989	AQ		1989	01	06.53542	06	59	32.84	+24	00	57.4	16	399

1989	AQ		1989	01	06.55000	06	59	32.09	+24	01	00.4		399
1989	AQ		1989	01	13.57361	06	53	16.61	+24	13	22.5	16	399
1989	AQ		1989	01	13.59028	06	53	15.82	+24	13	22.6		399
1989	AQ		1989	01	13.60486	06	53	14.85	+24	13	24.3		399
1989	AR	*	1989	01	04.57778	07	01	34.92	+24	51	37.4	16	399
1989	AR		1989	01	04.59236	07	01	34.00	+24	51	45.9		399
1989	AR		1989	01	04.60764	07	01	33.04	+24	51	53.4		399
1989	AR		1989	01	04.62396	07	01	32.19	+24	52	00.9		399
1989	AR		1989	01	06.53542	06	59	42.62	+25	06	59.9	16	399
1989	AR		1989	01	06.55000	06	59	41.57	+25	07	09.1		399
1989	AS	*	1989	01	04.57778	07	03	38.30	+24	02	07.3	16.5	399
1989	AS		1989	01	04.59236	07	03	37.10	+24	01	59.7		399
1989	AS		1989	01	04.60764	07	03	36.11	+24	01	53.9		399
1989	AS		1989	01	06.52017	07	01	15.29	+23	47	37.3		399
1989	AS		1989	01	06.53542	07	01	14.15	+23	47	32.5	16	399
1989	AS		1989	01	06.55000	07	01	13.13	+23	47	25.8		399
1989	AT	*	1989	01	04.57778	07	09	28.45	+24	26	55.3	16.5	399
1989	AT		1989	01	04.59236	07	09	27.59	+24	27	01.1		399
1989	AT		1989	01	04.60764	07	09	26.65	+24	27	08.6		399
1989	AT		1989	01	04.62396	07	09	25.57	+24	27	16.9		399
1989	AT		1989	01	06.52017	07	07	38.42	+24	40	06.1		399
1989	AT		1989	01	06.53542	07	07	37.63	+24	40	11.1	16.5	399
1989	AT		1989	01	06.55000	07	07	36.64	+24	40	18.3		399
1989	AT		1989	01	13.57361	07	01	00.87	+25	26	06.9	16	399
1989	AT		1989	01	13.59028	07	00	59.83	+25	26	13.0		399
1989	AT		1989	01	13.60486	07	00	58.96	+25	26	17.9		399
1989	AU	*	1989	01	04.65104	07	24	24.33	+24	54	37.7	16	399
1989	AU		1989	01	04.66545	07	24	23.38	+24	54	42.3		399
1989	AU		1989	01	04.68090	07	24	22.28	+24	54	46.1		399
1989	AU		1989	01	04.69549	07	24	21.34	+24	54	50.7		399
1989	AU		1989	01	06.57118	07	22	17.74	+25	04	00.1	16	399
1989	AU		1989	01	06.58617	07	22	16.84	+25	04	04.7		399
1989	AU		1989	01	13.64317	07	14	34.72	+25	36	05.6	16	399
1989	AU		1989	01	13.65764	07	14	33.68	+25	36	07.7		399
1989	AU		1989	01	13.67500	07	14	32.57	+25	36	10.3		399
1989	AV	*	1989	01	04.65104	07	30	16.45	+24	14	47.3	15.5	399
1989	AV		1989	01	04.66545	07	30	15.53	+24	14	48.4		399
1989	AV		1989	01	04.68090	07	30	14.52	+24	14	49.6		399
1989	AV		1989	01	04.69549	07	30	13.60	+24	14	50.1		399
1989	AV		1989	01	06.57118	07	28	16.34	+24	16	50.7	16	399
1989	AV		1989	01	06.58617	07	28	15.47	+24	16	52.4		399
1989	AV		1989	01	13.64317	07	20	45.93	+24	22	53.6	16	399
1989	AV		1989	01	13.65764	07	20	45.10	+24	22	54.1		399
1989	AV		1989	01	13.67500	07	20	44.00	+24	22	53.5		399
1989	AX	*	1989	01	04.60764	07	03	10.38	+23	51	44.4	16	399
1989	AX		1989	01	04.62396	07	03	09.41	+23	51	45.8		399
1989	AX		1989	01	06.52017	07	01	18.44	+23	56	42.4	16	399
1989	AX		1989	01	06.53543	07	01	17.54	+23	56	44.8		399
1989	AX		1989	01	06.55000	07	01	16.54	+23	56	46.8		399
1989	AX		1989	01	13.57361	06	54	31.90	+24	13	40.8	16	399
1989	AX		1989	01	13.59028	06	54	30.92	+24	13	42.8		399
1989	AX		1989	01	13.60486	06	54	30.03	+24	13	44.6		399
1989	AA1	*	1989	01	04.60764	07	08	29.25	+24	05	15.7	16	399
1989	AA1		1989	01	04.62396	07	08	28.41	+24	05	16.8		399
1989	AA1		1989	01	06.52017	07	06	46.29	+24	09	31.3	16	399
1989	AA1		1989	01	06.53542	07	06	45.21	+24	09	33.0		399
1989	AA1		1989	01	06.55000	07	06	44.32	+24	09	35.8		399
1989	AA1		1989	01	13.57361	07	00	27.04	+24	24	08.3	16	399
1989	AA1		1989	01	13.59028	07	00	26.05	+24	24	11.8		399

1989	AA1		1989	01	13.60486	07	00	25.11	+24	24	14.4		399
1989	AK1	*	1989	01	13.70145	07	46	32.82	+24	40	11.0	16.5	399
1989	AK1		1989	01	13.71597	07	46	31.99	+24	40	11.9		399
1989	AK1		1989	01	13.73270	07	46	31.01	+24	40	11.5		399
1989	AK1		1989	01	15.68750	07	44	35.93	+24	39	16.6	16.5	399
1989	AK1		1989	01	15.70174	07	44	35.01	+24	39	16.3		399
1989	AK1		1989	01	15.71736	07	44	33.75	+24	39	17.0		399
1989	AK1		1989	01	15.73194	07	44	32.88	+24	39	16.4		399
1989	AN1	*	1989	01	06.64769	07	40	30.44	+24	35	23.7	16	399
1989	AN1		1989	01	06.66250	07	40	29.43	+24	35	27.0		399
1989	AN1		1989	01	06.67813	07	40	28.61	+24	35	28.3		399
1989	AN1		1989	01	06.69271	07	40	27.72	+24	35	30.3		399

400 Kitami
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Sapporo 004, Japan
Observers K. Endate, T. Fujii, M. Yanai
Measurer K. Watanabe
AGK3

1967	CC		1988	12	16.60486	04	52	03.41	+23	55	25.3	15.5	400
1967	CC		1988	12	16.62569	04	52	02.40	+23	55	22.4		400
1967	CC		1988	12	16.64028	04	52	01.50	+23	55	21.4		400
1971	QP1		1989	01	13.55833	08	20	42.86	+23	59	55.6	16.5	400
1971	QP1		1989	01	13.57917	08	20	41.60	+23	59	57.6		400
1971	QP1		1989	01	13.59444	08	20	40.83	+23	59	56.0		400
1971	QP1		1989	01	15.65347	08	18	42.71	+24	01	27.0	16.0	400
1971	QP1		1989	01	15.66736	08	18	41.85	+24	01	26.1		400
1971	QP1		1989	01	15.68264	08	18	40.98	+24	01	25.6		400
1976	SZ9		1988	12	11.49062	04	48	59.33	+27	54	01.8	16.0	400
1976	SZ9		1988	12	11.50799	04	48	58.50	+27	54	01.5		400
1976	SZ9		1988	12	11.52257	04	48	57.35	+27	53	59.4		400
1978	SC6		1988	12	02.47778	04	58	06.62	+24	04	52.5	16.5	400
1978	SC6		1988	12	02.50625	04	58	04.57	+24	04	47.4		400
1988	VR3		1988	12	11.49028	03	42	57.93	+15	49	46.1	17	400
1988	VR3		1988	12	11.50833	03	42	57.14	+15	49	45.4		400
1988	VZ3		1988	12	11.48542	03	08	04.58	+23	18	44.6	16.0	400
1988	VZ3		1988	12	11.50625	03	08	03.87	+23	18	33.5		400
1988	WG		1988	12	06.58472	04	51	29.02	+27	51	42.0	14	400
1988	WG		1988	12	06.60903	04	51	27.46	+27	51	51.9		400
1988	WG		1988	12	06.62986	04	51	25.84	+27	51	57.1		400
1988	WG		1988	12	11.49062	04	45	47.72	+28	17	27.8	14.0	400
1988	WG		1988	12	11.50799	04	45	46.56	+28	17	31.9		400
1988	WG		1988	12	11.52257	04	45	45.30	+28	17	36.6		400
1988	XA		1988	12	11.55764	04	45	43.67	+19	33	21.6	16	400
1988	XA		1988	12	11.57222	04	45	42.88	+19	33	16.5		400
1988	XA		1988	12	11.58438	04	45	42.17	+19	33	12.5		400
1988	XA		1988	12	30.57083	04	31	13.32	+18	16	45.3	16.0	400
1988	XA		1988	12	30.59722	04	31	12.27	+18	16	40.7		400
1988	XC		1988	12	10.70451	04	16	11.12	+27	24	56.7	16.0	400
1988	XC		1988	12	10.72187	04	16	10.08	+27	24	56.5		400
1988	XC		1988	12	10.73437	04	16	09.54	+27	24	54.5		400
1988	XD		1988	12	10.64097	04	48	19.49	+22	10	12.8	17	400
1988	XD		1988	12	10.65625	04	48	18.88	+22	10	13.2		400
1988	XE		1988	12	10.75417	04	58	04.92	+20	22	00.3	16	400
1988	XE		1988	12	10.77014	04	58	04.10	+20	21	46.9		400
1988	XE		1988	12	11.52292	04	57	25.39	+20	11	51.7	16	400
1988	XE		1988	12	11.53333	04	57	24.92	+20	11	42.9		400
1988	XE		1988	12	16.58264	04	53	12.76	+19	06	38.9	15.0	400
1988	XE		1988	12	16.59236	04	53	12.33	+19	06	31.4		400

1988	XQ		1988	12	10.67778	05	06	06.70	+22	21	49.8	16	400
1988	XQ		1988	12	10.69375	05	06	05.74	+22	21	38.5		400
1988	XQ		1988	12	16.66042	05	00	43.62	+21	20	14.2	16.0	400
1988	XQ		1988	12	16.67569	05	00	42.68	+21	20	03.1		400
1988	XQ		1988	12	30.44306	04	51	10.35	+19	12	25.7	16.0	400
1988	XQ		1988	12	30.45764	04	51	09.87	+19	12	18.2		400
1988	XR		1988	12	10.67778	05	08	12.10	+22	07	14.5	16.5	400
1988	XR		1988	12	10.69375	05	08	11.11	+22	07	12.2		400
1988	XS		1988	12	10.71111	05	10	43.09	+23	38	37.5	16	400
1988	XS		1988	12	10.72847	05	10	41.95	+23	38	31.3		400
1988	XS		1988	12	27.50493	04	54	56.48	+22	09	46.3	16.5	400
1988	XS		1988	12	27.51951	04	54	56.02	+22	09	40.6		400
1988	XT		1988	12	11.60000	05	11	06.49	+22	42	15.9	16	400
1988	XT		1988	12	11.61458	05	11	05.55	+22	42	15.2		400
1988	XZ	*	1988	12	03.50625	05	10	48.79	+22	16	31.7	16.0	400
1988	XZ		1988	12	03.52361	05	10	47.68	+22	16	29.6		400
1988	XZ		1988	12	03.53611	05	10	46.86	+22	16	26.3		400
1988	XZ		1988	12	06.51667	05	07	34.62	+22	05	02.9	16.0	400
1988	XZ		1988	12	06.53125	05	07	33.52	+22	04	58.9		400
1988	XZ		1988	12	06.54375	05	07	32.87	+22	04	55.6		400
1988	XZ		1988	12	16.66042	04	56	38.06	+21	25	05.1	16.5	400
1988	XZ		1988	12	16.67569	04	56	36.90	+21	25	02.5		400
1988	XZ		1988	12	30.52153	04	43	55.65	+20	33	52.5	16.5	400
1988	XZ		1988	12	30.53958	04	43	55.20	+20	33	51.1		400
1988	XE1		1988	11	16.58264	03	47	56.49	+21	46	32.0	16	400
1988	XE1		1988	11	16.60694	03	47	55.18	+21	46	22.6		400
1988	XE1		1988	11	16.62778	03	47	53.37	+21	46	13.3		400
1988	XE1	*	1988	12	03.47361	03	30	53.25	+19	57	28.8	16.0	400
1988	XE1		1988	12	03.49792	03	30	51.75	+19	57	13.5		400
1988	XE1		1988	12	03.51875	03	30	50.63	+19	57	07.5		400
1988	XE1		1988	12	10.65660	03	24	48.14	+19	12	40.6	16.5	400
1988	XE1		1988	12	10.67396	03	24	47.27	+19	12	34.5		400
1988	XE1		1988	12	10.68507	03	24	46.86	+19	12	32.0		400
1988	XF1	*	1988	12	03.56042	04	53	06.90	+19	34	19.2	16.5	400
1988	XF1		1988	12	03.57500	04	53	05.79	+19	34	16.2		400
1988	XF1		1988	12	03.58750	04	53	04.98	+19	34	12.2		400
1988	XM2	*	1988	12	03.50625	05	07	23.40	+22	28	42.2	16.0	400
1988	XM2		1988	12	03.52361	05	07	22.09	+22	28	38.2		400
1988	XM2		1988	12	03.53611	05	07	21.26	+22	28	33.4		400
1988	XM2		1988	12	30.47986	04	36	12.39	+20	26	10.4	16.5	400
1988	XM2		1988	12	30.50208	04	36	11.47	+20	26	05.3		400
1989	AG		1989	01	04.56493	08	04	02.27	+27	06	57.5	16	400
1989	AG		1989	01	04.58160	08	04	01.41	+27	07	07.9		400
1989	AG		1989	01	04.59340	08	04	00.80	+27	07	15.8		400
1989	AG		1989	01	06.47882	08	02	21.53	+27	26	05.2	16	400
1989	AG		1989	01	06.49479	08	02	20.57	+27	26	12.1		400
1989	AG		1989	01	06.50729	08	02	19.84	+27	26	21.0		400
1989	AP		1988	12	31.52572	07	33	17.95	+22	47	47.2	16.0	400
1989	AP		1988	12	31.54186	07	33	17.10	+22	47	49.1		400
1989	AP		1988	12	31.55488	07	33	16.39	+22	47	52.8		400
1989	AP	*	1989	01	04.46667	07	29	53.76	+22	55	10.9	16.5	400
1989	AP		1989	01	04.47917	07	29	52.65	+22	55	15.4		400
1989	AP		1989	01	04.49444	07	29	52.03	+22	55	20.9		400
1989	AV		1988	12	31.52572	07	34	26.09	+24	09	51.8	16	400
1989	AV		1988	12	31.54186	07	34	25.05	+24	09	52.6		400
1989	AV		1988	12	31.55488	07	34	24.53	+24	09	54.5		400
1989	AV		1989	01	06.49097	07	28	21.42	+24	16	46.1	15.5	400
1989	AV		1989	01	06.50625	07	28	20.55	+24	16	48.2		400
1989	AV		1989	01	06.51875	07	28	19.68	+24	16	48.7		400

1989 AC1	*	1989	01	04.47917	07	33	34.60	+21	43	58.5	16.5	400
1989 AC1		1989	01	04.49444	07	33	33.92	+21	43	57.0		400
1989 AC1		1989	01	09.55000	07	29	48.27	+21	46	09.5	16.5	400
1989 AC1		1989	01	09.56458	07	29	47.20	+21	46	13.9		400
1989 AE1	*	1989	01	04.61111	07	54	54.74	+26	15	07.9	15	400
1989 AE1		1989	01	04.62639	07	54	53.73	+26	15	17.0		400
1989 AE1		1989	01	04.63958	07	54	52.81	+26	15	25.6		400
1989 AE1		1989	01	06.62292	07	52	41.14	+26	33	31.4	15	400
1989 AE1		1989	01	06.64028	07	52	39.84	+26	33	42.3		400
1989 AH1	*	1989	01	13.55833	08	19	53.31	+22	16	30.7	16.5	400
1989 AH1		1989	01	13.57917	08	19	52.02	+22	16	35.1		400
1989 AH1		1989	01	13.59444	08	19	51.29	+22	16	40.5		400
1989 AH1		1989	01	15.65347	08	17	59.27	+22	25	00.8	16.5	400
1989 AH1		1989	01	15.66736	08	17	58.60	+22	25	03.9		400
1989 AH1		1989	01	15.68264	08	17	57.60	+22	25	07.6		400
1989 AJ1	*	1989	01	13.66250	08	39	08.54	+21	15	02.8	16.5	400
1989 AJ1		1989	01	13.68056	08	39	07.69	+21	15	04.7		400
1989 AJ1		1989	01	13.69375	08	39	06.96	+21	15	07.4		400
1989 AJ1		1989	01	15.72292	08	37	25.04	+21	23	28.7	16.5	400
1989 AJ1		1989	01	15.73819	08	37	24.24	+21	23	32.2		400
1989 AL1		1989	01	13.57917	08	20	04.66	+24	14	53.3	16	400
1989 AL1		1989	01	13.59444	08	20	03.76	+24	14	53.5		400
1989 AL1	*	1989	01	15.65347	08	17	57.25	+24	31	15.9	16.0	400
1989 AL1		1989	01	15.66736	08	17	56.31	+24	31	23.0		400
1989 AL1		1989	01	15.68264	08	17	55.38	+24	31	29.5		400
1989 AM1	*	1989	01	04.60660	08	00	20.64	+22	44	10.9	16	400
1989 AM1		1989	01	04.62326	08	00	19.82	+22	44	11.3		400
1989 AM1		1989	01	04.63646	08	00	19.21	+22	44	10.3		400
1989 AM1		1989	01	15.69722	07	50	03.59	+22	34	08.5	15.5	400
1989 AM1		1989	01	15.71458	07	50	02.56	+22	34	06.4		400
1989 AM1		1989	01	15.72778	07	50	01.75	+22	34	06.5		400
1989 AN1		1988	12	31.62016	07	46	09.50	+24	17	23.2	16.5	400
1989 AN1		1988	12	31.63683	07	46	08.58	+24	17	23.1		400
1989 AN1		1988	12	31.64933	07	46	08.02	+24	17	26.3		400
1989 AS1		1989	01	13.55833	08	19	20.91	+24	43	40.4	16.5	400
1989 AS1		1989	01	13.57917	08	19	19.78	+24	43	43.9		400
1989 AS1		1989	01	13.59444	08	19	18.65	+24	43	46.0		400
1989 AS1	*	1989	01	15.65347	08	17	03.83	+24	53	41.0	16.0	400
1989 AS1		1989	01	15.66736	08	17	02.81	+24	53	44.8		400
1989 AS1		1989	01	15.68264	08	17	01.78	+24	53	47.1		400
1989 AT1		1989	01	13.55833	08	21	49.21	+24	30	13.7	16.5	400
1989 AT1		1989	01	13.57917	08	21	48.04	+24	30	20.5		400
1989 AT1		1989	01	13.59444	08	21	46.98	+24	30	22.0		400
1989 AT1	*	1989	01	15.65347	08	19	40.90	+24	41	09.3	15.5	400
1989 AT1		1989	01	15.66736	08	19	40.13	+24	41	12.2		400
1989 AT1		1989	01	15.68264	08	19	39.17	+24	41	15.1		400

401 Oosato
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Observers Y. Yamagishi, S. Hayakawa
Measurer S. Hayakawa
0.20-m f/4.8 reflector

1988 XS		1988	12	10.59028	05	10	50.91	+23	39	17.5	15.5	401
1988 XS		1988	12	10.61112	05	10	49.55	+23	39	12.0		401
1988 XS		1988	12	11.54236	05	09	51.55	+23	34	10.7		401
1988 XS		1988	12	11.56319	05	09	50.21	+23	34	04.9		401
1988 XK1		1988	12	16.64097	05	14	07.33	+23	42	40.5	16	401
1988 XK1		1988	12	16.66180	05	14	06.04	+23	42	40.3		401

402 Dynic Astronomical Observatory
J. Sugie, Dynic Astronomical Observatoty, Taga 270, Taga-Cho, Inukami-Gun, Shiga-Ken, 522-03, Japan
Observers J. Sugie, H. Tsujino
0.60-m f/5.0 reflector
SAOC

1988 XP1	*	1988 12 06.57986	06 48 37.62	+23 32 50.6			18		402
1988 XP1		1988 12 06.65729	06 48 33.61	+23 33 07.0					402
1988 XP1		1988 12 07.61847	06 47 47.06	+23 36 13.5					402
1988 XP1		1988 12 07.68739	06 47 43.49	+23 36 26.8					402
1988 XP1		1988 12 13.55938	06 42 24.14	+23 55 47.2			17.0		402
1988 XP1		1988 12 13.62292	06 42 20.21	+23 56 01.5			17.0		402
1988 XP1		1989 01 02.47917	06 20 36.70	+24 55 20.4			16.5		402
1988 XP1		1989 01 02.53368	06 20 33.06	+24 55 28.8			16.5		402
1988 XP1		1989 01 05.51424	06 17 21.05	+25 02 29.7			16.5		402
1988 XP1		1989 01 05.58472	06 17 16.58	+25 02 39.5			16.5		402
1989 AB1	*	1989 01 02.50764	06 14 35.24	+23 40 40.6			17.5		402
1989 AB1		1989 01 02.58472	06 14 29.75	+23 40 42.1			17.5		402
1989 AB1		1989 01 05.52951	06 11 18.96	+23 42 15.9			17.5		402
1989 AB1		1989 01 05.63611	06 11 12.15	+23 42 19.8			17.5		402
1989 AF1		1989 01 13.46205	06 59 58.65	+20 19 19.7					402
1989 AF1		1989 01 13.48277	06 59 57.36	+20 19 25.5					402
1989 AF1		1989 01 13.53120	06 59 53.53	+20 19 40.7					402

405 Kamihoriguchi
T. Niijima, 86 Horiguchi, Ojima-machi, Nitta-gun, Gunma 370-04, Japan
Observers H. Shimoda, K. Kanai
Measurers K. Kanai, T. Niijima
0.30-m f/3.8 reflector

1989 AC		1989 01 12.53542	04 49 03.55	+21 28 27.8			14		405
1989 AC		1989 01 12.57674	04 49 20.29	+21 29 08.3					405
1989 AC		1989 01 12.60972	04 49 34.82	+21 29 43.0					405

406 Bibai
K. Watanabe, 13-23-202, 4 chome, Atsubetsu cyuo 3 jo, Shiroishi-ku, Sapporo 004, Japan
Observer M. Saito
Measurer K. Watanabe
Long. and Parallax 141.82, -311, -291 (see MPC 11200)
0.31-m f/6.1 reflector
AGK3, SAOC

1989 AC		1989 01 12.49757	04 48 47.36	+21 27 47.8					406
1989 AC		1989 01 12.53750	04 49 04.37	+21 28 28.3					406
1989 AC		1989 01 13.46771	04 55 38.37	+21 42 59.2					406

413 Siding Spring
R. H. McNaught, Siding Spring Observatory, Coonabarabran, N.S.W. 2357, Australia
Observers M. Hartley, R. H. McNaught
Measurer R. H. McNaught
1.2-m Schmidt and (1) Uppsala Southern Schmidt

1982 DB		1981 09 30.66562	01 41 23.18	+15 02 10.2					413
1982 DB		1981 09 30.70729	01 41 21.77	+15 02 16.2					413
1986 LA		1988 11 03.62043	03 49 43.72	+21 55 51.1					413
1986 LA		1988 11 03.66904	03 49 37.69	+21 54 23.2					413
1988 GF1	*	1988 04 12.54375	12 32 19.57	-12 15 46.0			17.5		413
1988 GF1		1988 04 12.61319	12 32 16.03	-12 15 32.7					413
1989 AC		1989 01 12.49218	04 48 44.89	+21 28 33.7			12	1	413
1989 AC		1989 01 12.49683	04 48 46.88	+21 28 37.0				1	413

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1989 AC    1989 01 16.47335  05 14 24.06  +22 19 31.9                  1 413
1989 AC    1989 01 16.47439  05 14 24.35  +22 19 32.8                  1 413
1989 AC    1989 01 16.47546  05 14 24.72  +22 19 32.9                  1 413
1989 AC    1989 01 17.46852  05 19 54.46  +22 28 22.6                  1 413
1989 AC    1989 01 17.47199  05 19 55.56  +22 28 24.3                  1 413
1989 AC    1989 01 17.47546  05 19 56.64  +22 28 25.5                  1 413
1989 AC    1989 01 27.46367  06 01 48.42  +23 10 41.9                  1 413
1989 AC    1989 01 27.46714  06 01 49.03  +23 10 41.3                  1 413
1989 AC    1989 01 27.47061  06 01 49.72  +23 10 42.1                  1 413
1989 AC    1989 01 28.49707  06 05 08.46  +23 12 06.2                  1 413
1989 AC    1989 01 28.50053  06 05 09.11  +23 12 06.5                  1 413
1989 AC    1989 01 30.51424  06 11 17.57  +23 13 56.8                  1 413
1989 AC    1989 01 30.51771  06 11 18.14  +23 13 57.3                  1 413
1989 AC    1989 01 30.52118  06 11 18.72  +23 13 57.2                  1 413
1989 AC    1989 01 31.50399  06 14 09.32  +23 14 27.5                  1 413
1989 AC    1989 01 31.50747  06 14 09.91  +23 14 27.3                  1 413
1989 AC    1989 01 31.51094  06 14 10.42  +23 14 27.6                  1 413

494 Stakenbridge
B. Manning, Moonrakers, Stakenbridge, Churchill, Kidderminster,
   Worcs. DY10 3LS, England
1989 AC    1989 01 10.83494  04 36 02.12  +20 56 20.0                    494
1989 AC    1989 01 10.85185  04 36 10.07  +20 56 41.5                    494
1989 AC    1989 01 11.88577  04 44 15.15  +21 16 59.4                    494
1989 AC    1989 01 11.89404  04 44 18.82  +21 17 08.9                    494

503 Cambridge
J. D. Shanklin, 11 City Road, Cambridge, CB1 1DP, England
Observer J. D. Shanklin
0.44-m Schmidt
1989 AC    1989 01 12.91056  04 51 45.15  +21 34 24.1                    503

511 Haute Provence
E. W. Elst, Royal Observatory, B-1180 Brussels, Belgium
Observers E. W. Elst, G. Sause
Measurer E. W. Elst
0.6-m Schmidt
1982 UG7   1988 08 18.01597  22 45 21.59  -02 50 47.9          16.5    511
1982 UG7   1988 08 18.03819  22 45 20.66  -02 50 54.5          16.5    511
1982 UG7   1988 08 18.06111  22 45 19.88  -02 51 01.0                  511
1988 PK1   1988 09 11.88958  21 47 22.83  +01 28 01.1          17.3    511
1988 PK1   1988 09 11.91154  21 47 22.04  +01 27 54.6                  511
1988 PK1   1988 09 14.92674  21 45 38.63  +01 11 52.8          17.3    511
1988 PK1   1988 09 14.94410  21 45 37.97  +01 11 48.7                  511
1988 PM1   1988 08 18.99931  22 49 31.68  -06 10 15.7          17.0    511
1988 PM1   1988 08 19.02014  22 49 30.89  -06 10 24.3                  511
1988 PM1   1988 08 19.04722  22 49 29.82  -06 10 35.8          17.0    511
1988 PN1   1988 08 18.99931  22 50 00.80  -07 11 35.0          17.7    511
1988 PN1   1988 08 19.02014  22 49 59.94  -07 11 41.8                  511
1988 PN1   1988 08 19.04722  22 49 58.87  -07 11 51.2          17.8    511
1988 PU1   1988 08 18.01597  22 43 57.84  -00 48 32.4          16.5    511
1988 PU1   1988 08 18.03819  22 43 57.11  -00 48 38.5          16.5    511
1988 PU1   1988 08 18.06111  22 43 56.46  -00 48 47.5                  511
1988 PV1   1988 08 18.01597  22 43 41.84  -01 05 43.0          17.4    511
1988 PV1   1988 08 18.03819  22 43 40.51  -01 05 42.3          17.5    511
1988 PV1   1988 08 18.06111  22 43 39.66  -01 05 42.5                  511
1988 PB2   1988 08 13.11215  00 07 32.07  +01 36 23.0          17.2    511
1988 PB2   1988 08 13.13021  00 07 31.74  +01 36 24.4                  511
1988 PX2 * 1988 08 12.95208  22 47 05.21  -00 06 40.1          17.6    511
```

1988 PX2	1988 08 12.96944	22 47 04.70	-00 06 45.5	17.6	511
1988 PX2	1988 08 14.99514	22 45 54.88	-00 18 12.6	17.6	511
1988 PX2	1988 08 15.01667	22 45 54.16	-00 18 21.3		511
1988 PX2	1988 08 18.01597	22 44 05.16	-00 36 28.2	17.6	511
1988 PX2	1988 08 18.03819	22 44 04.30	-00 36 36.2	17.5	511
1988 PX2	1988 08 18.06111	22 44 03.58	-00 36 43.0		511
1988 SH	1988 09 15.07778	00 20 36.80	+05 01 59.3	16.9	511
1988 SH	1988 09 15.09687	00 20 35.95	+05 01 59.5		511
1988 SH	1988 09 15.11597	00 20 35.09	+05 01 59.3		511
1988 SJ	1988 09 15.07778	00 22 31.36	+05 23 01.2	17.8	511
1988 SJ	1988 09 15.09687	00 22 30.44	+05 23 01.5		511
1988 SJ	1988 09 15.11597	00 22 29.45	+05 22 58.2		511
1988 SK	1988 09 15.07778	00 22 19.73	+04 01 04.3	17.4	511
1988 SK	1988 09 15.09687	00 22 18.94	+04 01 01.4		511
1988 SK	1988 09 15.11597	00 22 18.09	+04 00 57.7		511
1988 SL	1988 09 15.07778	00 23 04.51	+03 38 00.9	16.9	511
1988 SL	1988 09 15.09687	00 23 04.05	+03 37 52.8		511
1988 SL	1988 09 15.11597	00 23 03.46	+03 37 43.1		511
2142 P-L	1988 09 15.07778	00 34 08.64	+05 58 35.4	18.0	511
2142 P-L	1988 09 15.09687	00 34 07.98	+05 58 27.4		511
2142 P-L	1988 09 15.11597	00 34 07.39	+05 58 19.7		511

552 San Vittore
E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy
Observers C. Vacchi, G. Sassi
Measurers C. Vacchi, V. Goretti, E. Colombini
AGK3, SAOC

1985 CX	1988 12 09.91319	05 15 44.66	+21 04 17.0	16.5	552
1985 CX	1988 12 09.93958	05 15 43.00	+21 04 22.5	16.5	552
1988 VY1	1988 12 13.81458	02 37 50.62	+17 09 28.9	16.8	552
1988 VY1	1988 12 13.84167	02 37 49.79	+17 09 21.0	16.8	552
1988 XS	1988 12 11.89722	05 09 29.43	+23 32 10.0	15.8	552
1988 XS	1988 12 11.91736	05 09 28.07	+23 32 04.8	15.8	552
1988 XS	1988 12 13.88611	05 07 26.75	+23 21 26.8	15.8	552
1988 XS	1988 12 13.90417	05 07 25.55	+23 21 26.0	15.8	552

567 Osservatorio Chaonis
J. M. Baur, Via Zara 20, I-33083 Chions, Italy
Observers J. M. Baur, G. Carniel
Measurer J. M. Baur
0.6-m f/3 Wright reflector
AGK3

1983 LM	1988 11 14.83611	02 12 40.72	+12 12 01.7		567
1983 LM	1988 11 14.85694	02 12 39.74	+12 11 50.4	16.7	567

568 Mauna Kea Observatory
D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive,
Honolulu, HI 96822, U.S.A.
Observer D. J. Tholen
2.24-m telescope encoders
AGK3

1988 VP4	1989 01 27.24354	00 28 18.72	+05 01 02.7	17.5V	568
1989 AC	1989 01 27.37488	06 01 30.04	+23 10 11.5	14.6V	568
1989 AZ	1989 01 27.46188	08 33 17.84	+04 19 47.7	17.1V	568

657 Victoria, Climenhaga Observatory
J. B. Tatum, Dept. of Physics, University of Victoria, P.O. Box 1700,
Victoria, BC V8W 2Y2, Canada
Observers J. B. Tatum, D. D. Balam

1988 XB 1988 12 14.28062 06 53 49.00 +27 09 33.8 657
1988 XB 1988 12 15.32576 06 48 30.64 +27 25 11.4 657
1989 AC 1989 01 11.27153 04 39 30.07 +21 05 20.5 657

675 Palomar
J. Gibson, OAO Corporation and Jet Propulsion Laboratory, MS 238-332, Pasadena, CA 91109, U.S.A. (1)
E. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A. (2)
C. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A. (3)
C. J. van Houten, Sterrewacht Leiden, Postbus 9513, NL-2300 RA Leiden, The Netherlands (4)
Observers R. Crockett (2, S), T. Gehrels (4, L), J. Gibson (1, C), E. Helin (2, S), E. Majkowski (2, S), B. Roman (2, S), C. Shoemaker (3, S), E. Shoemaker (3, S)
Measurers J. Gibson (1), E. Majkowski (2), B. Roman (2), C. Shoemaker (3), C. J. van Houten (4), I. van Houten-Groeneveld (4)
1.5-m reflector + CCD (C), 1.2-m (L) and 0.46-m (S) Schmidt telescopes

1978 VL7 1989 01 03.44392 08 46 33.34 +14 33 00.6 17.2 2 675
1978 VL7 1989 01 03.46997 08 46 31.94 +14 33 05.1 2 675
1988 QC 1988 11 07.20069 00 03 10.25 -16 03 23.0 19.0 3 675
1988 QC 1988 11 07.23542 00 03 12.81 -16 03 03.7 3 675
1988 RF1 1988 10 08.25434 23 12 59.72 -10 42 31.3 18.5 3 675
1988 RF1 1988 10 08.29132 23 12 58.50 -10 42 29.3 3 675
1988 RG1 1988 10 08.25434 23 23 11.34 -11 35 17.3 18.0 3 675
1988 RG1 1988 10 10.25868 23 22 28.39 -11 43 42.8 3 675
1988 RG1 1988 11 06.18385 23 16 44.51 -12 58 46.4 18.6 3 675
1988 RG1 1988 11 08.24115 23 16 38.91 -13 01 27.9 3 675
1988 RH1 1988 10 10.30278 23 57 35.63 -07 31 40.9 17.8 3 675
1988 RH1 1988 10 12.26858 23 56 46.73 -07 38 22.3 17.8 3 675
1988 RH1 1988 11 05.19427 23 49 21.68 -08 34 23.2 3 675
1988 RH1 1988 11 07.18281 23 49 00.46 -08 36 43.4 3 675
1988 RK1 1988 10 07.30677 00 22 44.66 -08 17 46.0 17.3 3 675
1988 RK1 1988 10 09.28108 00 21 44.56 -08 21 37.2 3 675
1988 RK1 1988 11 05.20156 00 10 40.12 -08 41 59.2 3 675
1988 RK1 1988 11 07.19097 00 10 07.63 -08 40 52.7 3 675
1988 RM1 1988 08 15.41962 22 50 29.23 +02 46 48.7 18.3 3 675
1988 RM1 1988 08 19.42049 22 48 43.30 +02 36 49.9 3 675
1988 RM1 1988 10 07.23993 22 27 41.09 -00 18 05.1 18.5 3 675
1988 RM1 1988 10 09.18819 22 27 10.25 -00 24 55.5 3 675
1988 RQ1 1988 09 14.28490 22 43 30.02 -20 28 28.0 3 675
1988 TA 1988 12 07.23330 01 39 19.06 +06 19 10.0 1 675
1988 TA 1988 12 07.23758 01 39 19.22 +06 19 11.7 1 675
1988 TA 1988 12 07.24188 01 39 19.50 +06 19 12.8 1 675
1988 TA 1988 12 07.24839 01 39 19.81 +06 19 16.2 1 675
1988 TH1 1988 11 04.24288 00 40 27.63 -01 20 19.2 18.2 3 675
1988 TH1 1988 11 06.31806 00 39 47.37 -01 25 37.7 3 675
1988 TU1 1988 11 05.25469 00 53 57.30 -16 08 21.7 17.0 3 675
1988 TU1 1988 11 07.24427 00 53 15.35 -16 09 04.7 3 675
1988 TA3 * 1988 10 10.30278 00 10 06.97 -05 38 48.7 17.8 3 675
1988 TA3 1988 10 12.26858 00 09 17.69 -05 45 08.7 3 675
1988 TB3 * 1988 10 07.30677 00 22 22.73 -08 19 44.7 17.3 3 675
1988 TB3 1988 10 09.28108 00 21 07.98 -08 37 03.7 3 675
1988 VM2 1988 11 12.33958 03 47 26.73 +20 18 41.1 15.5 2 675
1988 VM2 1988 11 13.40330 03 46 16.24 +20 29 43.8 2 675
1988 VO2 1988 12 06.23559 02 56 30.51 +27 35 34.2 15.8 2 675
1988 VO2 1988 12 07.31875 02 55 52.00 +27 26 22.1 2 675
1988 VO2 1989 01 03.18368 02 54 04.42 +24 21 02.7 16.5 2 675
1988 VO2 1989 01 03.21181 02 54 05.09 +24 20 54.8 2 675

1988	VR2		1988	12	06.34687	04	05	03.48	+11	55	04.1	16.5	2 675
1988	VR2		1988	12	07.34358	04	04	06.40	+12	01	51.5		2 675
1988	VR2		1989	01	02.19167	03	47	26.21	+15	32	09.5	17.0	2 675
1988	VR2		1989	01	02.22257	03	47	25.59	+15	32	26.7		2 675
1988	VS2		1988	12	06.34687	04	06	41.30	+07	12	37.1	17.0	2 675
1988	VS2		1988	12	07.34358	04	05	51.15	+07	06	40.8		2 675
1988	VX3		1988	12	06.34687	04	05	43.20	+07	24	20.5	16.0	2 675
1988	VX3		1988	12	07.34358	04	04	57.47	+07	24	12.8		2 675
1988	XB		1988	12	08.42014	07	30	06.06	+24	54	30.9		2 675
1988	XB		1988	12	14.49826	06	52	37.06	+27	13	11.5	17.5	3 675
1988	XB		1988	12	14.52309	06	52	29.18	+27	13	31.1		3 675
1988	XE		1988	12	06.38472	05	01	58.01	+21	20	20.3	15.5	2 675
1988	XE		1988	12	06.41215	05	01	56.65	+21	19	56.6		2 675
1988	XE		1988	12	07.35877	05	01	05.90	+21	07	15.7		2 675
1988	XS		1988	12	06.38472	05	15	15.10	+24	01	40.7	16.5	2 675
1988	XS		1988	12	06.41215	05	15	13.39	+24	01	30.3		2 675
1988	XS		1988	12	07.35877	05	14	13.90	+23	56	30.6		2 675
1988	XX		1988	11	10.31128	02	39	08.33	+02	44	15.3	16.0	2 675
1988	XX		1988	11	12.24253	02	37	03.42	+02	48	59.9		2 675
1988	XX		1988	11	13.27170	02	35	57.41	+02	51	49.1		2 675
1988	XX	*	1988	12	06.22899	02	16	20.50	+04	45	27.9	16.0	2 675
1988	XX		1988	12	07.32639	02	15	44.64	+04	53	12.4		2 675
1988	XY	*	1988	12	06.38472	05	07	47.01	+24	46	24.0	17.0	2 675
1988	XY		1988	12	06.41215	05	07	45.27	+24	46	30.0		2 675
1988	XY		1988	12	07.35877	05	06	48.22	+24	50	28.6		2 675
1988	XB1	*	1988	12	07.44705	06	10	55.60	+24	11	07.2	16.0	2 675
1988	XB1		1988	12	08.44444	06	10	12.34	+23	59	20.7		2 675
1988	XB1		1988	12	08.47882	06	10	09.97	+23	58	52.4		2 675
1988	XC1	*	1988	12	06.23559	02	45	58.85	+27	59	27.5	16.0	2 675
1988	XC1		1988	12	07.31875	02	45	10.66	+27	58	17.9		2 675
1988	XO1	*	1988	12	07.43264	06	19	32.56	+02	11	13.3	15.5	2 675
1988	XO1		1988	12	08.43681	06	18	48.40	+02	06	31.9		2 675
1988	XO1		1989	01	03.25156	05	57	00.20	+01	33	49.5	15.0	2 675
1988	XO1		1989	01	03.27795	05	56	58.75	+01	33	55.5		2 675
1989	AA	*	1989	01	02.42066	07	11	48.11	+08	11	19.9	16.2	2 675
1989	AA		1989	01	03.32899	07	10	30.02	+07	58	21.6		2 675
1989	AA		1989	01	05.31476	07	07	37.54	+07	30	30.5	16.5	2 675
1989	AA		1989	01	05.33819	07	07	35.47	+07	30	10.9		2 675
1989	AC		1989	01	03.21615	03	16	16.02	+16	15	35.2	11.5	3 675
1989	AC		1989	01	03.22101	03	16	18.57	+16	15	47.9		3 675
1989	AC		1989	01	07.11250	04	01	53.44	+19	13	53.9		3 675
1989	AC		1989	01	07.11944	04	01	57.13	+19	14	05.4		3 675
1989	AC		1989	01	07.23576	04	03	07.16	+19	18	10.9		3 675
1989	AC		1989	01	07.24271	04	03	11.23	+19	18	24.2		3 675
1989	AJ		1989	01	02.41372	07	25	53.95	+22	43	18.0	15.8	2 675
1989	AJ		1989	01	05.38281	07	22	54.94	+22	38	38.6		2 675
1989	AM	*	1989	01	03.22465	03	37	31.16	+20	59	55.0	16.0	2 675
1989	AM		1989	01	05.27552	03	36	19.36	+21	28	58.5		2 675
1989	AN	*	1989	01	03.37378	07	14	23.41	+27	38	33.9	16.0	2 675
1989	AN		1989	01	07.35226	07	09	26.31	+27	43	31.9		2 675
1989	AO	*	1989	01	02.43247	08	32	43.83	+18	18	43.8	16.8	2 675
1989	AO		1989	01	03.46354	08	32	03.82	+18	33	42.6		2 675
1989	AO		1989	01	05.34774	08	30	46.47	+19	01	33.5		2 675
1989	AO		1989	01	07.31962	08	29	18.98	+19	31	04.4		2 675
1989	AW	*	1989	01	02.41372	07	07	17.84	+21	22	00.2	17.5	2 675
1989	AW		1989	01	05.38281	07	03	51.90	+21	32	08.0		2 675
1989	AY	*	1989	01	03.40503	07	30	18.62	+14	03	50.7	16.2	2 675
1989	AY		1989	01	05.45191	07	28	20.73	+14	04	18.9		2 675
1989	AZ	*	1989	01	08.49496	10	04	29.96	+20	41	44.8	17	3 675

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1989 AZ    1989 01 09.45989  09 55 58.47  +19 11 23.0                3 675
1989 AZ    1989 01 13.42361  09 27 17.50  +13 56 04.8                3 675
1989 AZ    1989 01 13.50850  09 26 44.48  +13 50 14.1                3 675
1989 AZ    1989 01 14.53750  09 20 41.93  +12 42 44.9                3 675
1989 AP1 * 1989 01 03.46354  08 40 12.36  +20 13 51.1          17.2  2 675
1989 AP1   1989 01 05.34774  08 38 51.64  +20 21 04.4                2 675
1989 AQ1 * 1989 01 09.41145  08 34 40.86  +34 46 43.7          16.5  3 675
1989 AQ1   1989 01 10.44045  08 34 05.76  +34 51 43.8                3 675
1989 AQ1   1989 01 11.41970  08 33 31.75  +34 56 27.4                3 675
1989 AR1 * 1989 01 08.46944  08 51 29.93  +30 15 24.5          17.5  3 675
1989 AR1   1989 01 10.44045  08 50 24.36  +30 20 05.9                3 675
4523 P-L * 1960 09 24.41183  00 22 46.18  +02 58 04.5          18.4  4 675
4523 P-L   1960 09 26.31530  00 21 49.94  +02 51 47.5                4 675
4523 P-L   1960 09 27.40836  00 21 17.48  +02 48 12.7                4 675
4523 P-L   1960 09 28.39725  00 20 48.20  +02 44 55.4                4 675
4523 P-L   1960 10 17.27085  00 11 53.22  +01 44 34.8                4 675
4523 P-L   1960 10 17.31529  00 11 52.11  +01 44 27.6                4 675
4523 P-L   1960 10 22.22293  00 09 51.11  +01 30 34.5                4 675
4523 P-L   1960 10 24.35836  00 09 01.96  +01 24 55.7                4 675
4523 P-L   1960 10 26.32573  00 08 18.89  +01 19 55.2                4 675
4271 T-3   1988 11 08.13108  22 43 42.99  -18 17 38.9          17.8  3 675
5010 T-3   1977 10 11.31111  01 23 40.99  -02 41 49.3                4 675
5010 T-3   1977 10 11.37865  01 23 39.05  -02 42 05.2                4 675
5010 T-3   1977 10 12.30885  01 23 12.38  -02 45 48.6                4 675
5010 T-3   1977 10 12.37500  01 23 10.45  -02 46 03.8                4 675
5010 T-3 * 1977 10 16.29444  01 21 17.66  -03 01 11.9          17.8  4 675
5010 T-3   1977 10 16.36024  01 21 15.72  -03 01 27.2                4 675
5010 T-3   1977 10 17.29688  01 20 48.81  -03 04 57.1                4 675
5010 T-3   1977 10 17.36372  01 20 46.83  -03 05 11.7                4 675
5010 T-3   1977 10 21.37622  01 18 52.20  -03 19 32.9                4 675
5010 T-3   1977 10 21.43611  01 18 50.49  -03 19 44.8                4 675
5010 T-3   1977 10 22.37274  01 18 23.98  -03 22 54.8                4 675
5010 T-3   1977 10 22.43872  01 18 22.18  -03 23 11.5                4 675
```

698 Mt. Bigelow
C. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A.
Observers E. M. Shoemaker, C. S. Shoemaker, D. Levy
Measurer C. S. Shoemaker
0.40-m Schmidt
Long. and Parallax 249.28, -360, -227 (see MPC 11200)

```
1988 VP4   1988 12 14.23750  23 29 18.93  +15 34 23.3                  698
1988 VP4   1988 12 14.26180  23 29 19.53  +15 34 01.2                  698
```

801 Oak Ridge
R. E. McCrosky, Harvard-Smithsonian Center for Astrophysics,
60 Garden Street, Cambridge, MA 02138, U.S.A.
Observers R. E. McCrosky, C.-Y. Shao
1.5-m reflector
AC

```
1950 JB    1988 12 05.44562  09 12 57.00  +15 53 41.6                  801
1950 JB    1988 12 07.39814  09 13 25.41  +16 01 00.6                  801
1953 TV    1988 12 10.23958  06 06 14.18  +13 06 22.5                  801
1955 BG    1988 12 09.94749  01 40 27.89  -04 49 24.2                  801
1964 ED    1988 12 06.37568  07 19 46.69  +15 35 21.7                  801
1964 ED    1988 12 10.39967  07 17 39.30  +15 34 57.9                  801
1967 CC    1988 12 07.25376  05 00 28.81  +24 03 15.0                  801
1967 CC    1988 12 10.17155  04 57 49.81  +24 01 03.9                  801
1971 SN1   1985 03 25.27741  12 19 31.78  +04 09 52.5                  801
1971 SN1   1988 12 07.34869  06 16 42.56  +45 09 50.1                  801
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1971	SN1	1988	12	10.31220	06	13	25.00	+45	22	07.1	801
1971	SN1	1989	01	06.31492	05	41	49.46	+45	38	34.1	801
1973	SM	1988	12	08.38068	08	28	59.01	+16	33	00.2	801
1973	SM	1989	01	06.36201	08	18	01.60	+17	01	58.4	801
1975	VP	1988	12	06.16361	03	38	17.00	+12	39	22.8	801
1975	VA9	1988	12	06.21047	03	54	56.73	+34	01	10.3	801
1976	SZ9	1988	12	06.23366	04	53	57.42	+27	59	21.3	801
1976	YW2	1988	12	05.42329	08	28	38.96	+22	27	52.6	801
1976	YW2	1988	12	06.39933	08	28	34.00	+22	33	44.4	801
1977	DY8	1988	12	06.11533	01	44	30.54	+12	44	50.1	801
1977	TG7	1988	10	13.22953	00	26	15.65	-01	15	29.5	801
1977	TG7	1988	12	07.01280	00	13	50.64	-01	19	42.4	801
1978	SC6	1988	12	07.22953	04	52	26.91	+23	59	12.8	801
1978	SC6	1988	12	10.12827	04	48	59.94	+23	55	11.6	801
1978	VB	1988	12	10.28553	05	22	54.93	+45	27	44.1	801
1978	VB	1988	12	13.25796	05	19	11.31	+45	23	19.0	801
1978	VK9	1986	02	09.07735	07	28	24.83	+15	19	13.2	801
1978	VK9	1988	12	07.08756	02	34	54.38	+16	16	20.5	w 801
1978	VK9	1989	01	06.01297	02	42	15.66	+15	12	48.9	801
1979	ME9	1988	12	07.37096	06	27	33.66	+44	32	02.7	801
1979	ME9	1988	12	10.33617	06	24	01.74	+44	47	35.8	801
1979	ME9	1988	12	13.28792	06	20	19.27	+45	01	07.3	801
1979	ME9	1989	01	06.29632	05	48	30.17	+45	26	38.5	801
1979	ME9	1989	01	11.31973	05	42	49.68	+45	13	41.1	801
1981	ET38	1988	12	07.20565	04	55	10.91	+09	03	18.0	801
1981	ET38	1988	12	10.15188	04	52	29.57	+08	54	40.5	801
1981	QN	1988	12	07.16463	02	58	43.96	+19	44	48.5	801
1981	QD2	1988	12	07.03878	00	29	14.76	+01	50	53.7	801
1981	TL4	1987	05	02.17246	12	43	37.66	-13	23	37.5	801
1981	TL4	1988	11	12.11412	00	22	44.46	+10	57	02.3	801
1981	TL4	1988	12	06.05945	00	27	42.29	+09	53	30.7	801
1982	QS3	1988	12	07.18101	03	56	15.64	+11	28	28.4	w 801
1982	SB6	1988	12	07.06073	01	11	45.97	+04	31	37.7	801
1982	SB6	1988	12	12.97328	01	11	56.29	+04	37	43.7	801
1982	VK12	1988	12	08.35553	08	01	27.37	+20	36	04.2	801
1982	VK12	1989	01	06.33974	07	43	07.35	+21	50	20.0	801
1984	QE1	1988	12	05.39913	06	33	46.63	+37	54	22.3	W 801
1984	QE1	1988	12	10.37787	06	28	02.47	+38	05	16.5	801
1984	SM	1988	12	07.29053	05	35	48.22	+24	51	11.8	801
1984	SM	1988	12	10.19648	05	32	22.09	+24	41	56.0	801
1984	SM	1989	01	06.13896	05	03	47.57	+23	04	57.5	801
1985	CX	1988	12	06.28187	05	19	22.29	+20	52	50.8	801
1985	SA	1988	06	12.14343	15	00	00.91	-05	31	59.5	w 801
1986	JV	1988	12	06.19495	03	53	25.50	+21	12	33.1	801
1986	JV	1988	12	10.10649	03	50	02.21	+21	13	29.1	801
1986	JV	1989	01	10.98844	03	33	36.53	+21	35	20.1	801
1987	SB5	1988	12	05.33731	05	09	26.72	+18	33	34.9	801
1987	YT1	1988	12	07.41993	09	25	44.81	+03	30	06.9	801
1987	YT1	1988	12	08.41496	09	25	48.30	+03	29	07.2	801
1988	RA	1988	12	05.02931	23	15	42.30	+30	52	19.8	801
1988	RA	1988	12	06.00803	23	16	04.72	+31	02	53.8	801
1988	RA	1989	01	05.98440	23	53	05.50	+37	35	27.8	801
1988	VN4	1988	12	06.08557	01	42	48.06	-01	35	17.9	801
1988	VN4	1988	12	09.96725	01	47	04.95	-03	34	42.9	w 801
1988	VP4	1988	12	05.00968	23	27	24.77	+18	01	58.0	801
1988	VP4	1988	12	06.03109	23	27	22.87	+17	44	37.6	801
1988	VP4	1989	01	05.96162	23	51	55.07	+10	37	19.1	801
1988	WC	1989	01	06.05404	03	11	38.72	+00	14	12.3	801
1988	XB	1988	12	13.32762	06	58	52.92	+26	53	38.7	801

1988 XB		1989	01	04.21546	05	51	28.48	+28	52	13.4	801
1988 XX1	*	1988	12	07.37096	06	27	53.59	+44	27	48.3	17.5 801
1988 XX1		1988	12	10.33617	06	24	20.31	+44	46	55.4	801
1988 XX1		1988	12	13.28792	06	20	34.74	+45	03	37.0	801
1988 XX1		1989	01	06.29632	05	48	30.32	+45	39	09.9	801
1989 AC		1989	01	06.09305	03	50	57.97	+18	35	21.1	801
1989 AC		1989	01	06.24111	03	52	33.26	+18	41	06.2	801
1989 AC		1989	01	10.96984	04	37	08.29	+20	59	14.9	801
1175 T-3		1988	10	07.30252	00	51	40.61	+15	45	07.3	801
1175 T-3		1988	12	10.00115	00	29	37.29	+11	49	54.1	801
5142 T-3		1988	11	12.28707	04	00	03.14	+10	29	26.3	801
5142 T-3		1988	12	06.17892	03	39	17.73	+10	37	28.2	801
5142 T-3		1989	01	11.07013	03	23	48.58	+12	24	35.5	801

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Measurers H. Debehogne, E. W. Elst, L. Hansen
GPO 0.4-m astrograph and Danish 1.5-m reflector

1978 TU5		1988	08	31.99618	20	59	50.02	-14	33	16.9	16.0 3 809
1978 TU5		1988	09	01.00243	20	59	49.77	-14	33	17.0	3 809
1978 TU5		1988	09	01.00868	20	59	49.49	-14	33	17.1	3 809
1978 TU5		1988	09	03.01563	20	58	27.02	-14	33	22.3	3 809
1978 TU5		1988	09	03.02188	20	58	26.80	-14	33	22.3	3 809
1978 TU5		1988	09	03.02813	20	58	26.55	-14	33	22.4	3 809
1981 DP2		1988	08	31.99618	20	56	21.36	-13	44	44.0	3 809
1981 DP2		1988	09	01.00243	20	56	21.06	-13	44	45.1	3 809
1981 DP2		1988	09	01.00868	20	56	20.78	-13	44	46.3	3 809
1981 EW14		1987	08	30.32014	22	51	39.39	-05	40	05.7	17.7 4 809
1981 EW14		1987	08	30.33056	22	51	38.70	-05	40	04.9	4 809
1981 EW14		1987	08	30.34097	22	51	38.19	-05	40	03.4	4 809
1981 EW14		1987	09	03.26806	22	47	28.63	-05	33	41.7	18.0 4 809
1982 XV		1988	09	01.04201	22	10	36.58	-13	24	00.6	16.1 3 809
1982 XV		1988	09	01.04826	22	10	36.25	-13	24	02.5	3 809
1982 XV		1988	09	01.05451	22	10	35.90	-13	24	04.6	3 809
1982 XV		1988	09	03.08368	22	08	42.13	-13	36	32.4	3 809
1982 XV		1988	09	03.08993	22	08	41.79	-13	36	34.5	3 809
1982 XV		1988	09	03.09618	22	08	41.44	-13	36	36.5	3 809
1982 XV		1988	09	06.08785	22	05	59.26	-13	54	08.1	3 809
1982 XV		1988	09	06.09410	22	05	58.94	-13	54	10.1	3 809
1982 XV		1988	09	06.10035	22	05	58.58	-13	54	12.2	3 809
1983 TL		1988	09	08.29271	23	01	30.78	-10	18	06.4	3 809
1983 TL		1988	09	08.29896	23	01	30.45	-10	18	07.6	3 809
1983 TL		1988	09	08.30521	23	01	30.14	-10	18	08.5	3 809
1983 TL		1988	09	18.10347	22	53	33.33	-10	46	28.0	3 809
1983 TL		1988	09	18.10903	22	53	33.08	-10	46	29.0	3 809
1983 TL		1988	09	18.11458	22	53	32.81	-10	46	29.8	3 809
1983 TL		1988	09	19.26389	22	52	39.36	-10	49	16.5	3 809
1983 TL		1988	09	19.26944	22	52	39.08	-10	49	17.5	3 809
1983 TL		1988	09	19.27500	22	52	38.80	-10	49	18.3	3 809
1983 TL		1988	09	20.25313	22	51	54.13	-10	51	34.2	3 809
1983 TL		1988	09	20.25799	22	51	53.88	-10	51	35.3	3 809
1983 TL		1988	09	20.26285	22	51	53.60	-10	51	36.4	3 809
1984 HG1		1988	09	06.12604	22	09	18.35	-05	04	13.4	16.5 3 809

1984	HG1	1988	09	06.13229	22	09	18.04	-05	04	15.5		3 809
1984	HG1	1988	09	06.13854	22	09	17.73	-05	04	17.5		3 809
1984	HG1	1988	09	08.10035	22	07	38.03	-05	14	23.1		3 809
1984	HG1	1988	09	08.10660	22	07	37.72	-05	14	25.0		3 809
1984	HG1	1988	09	08.11285	22	07	37.40	-05	14	27.0		3 809
1985	GX	1987	08	26.35208	00	53	50.42	-00	02	47.7	18.0	4 809
1985	GX	1987	08	26.37361	00	53	50.21	-00	02	57.4		4 809
1985	GX	1987	08	26.39514	00	53	49.94	-00	03	04.6		4 809
1985	GX	1987	09	02.34444	00	51	41.21	-00	56	17.0	17.6	4 809
1985	GX	1987	09	02.35486	00	51	40.94	-00	56	23.8		4 809
1985	GX	1987	09	02.36528	00	51	40.69	-00	56	30.7		4 809
1985	GX	1987	09	03.38819	00	51	16.59	-01	04	56.2	17.7	4 809
1985	GX	1987	09	03.39861	00	51	16.25	-01	05	01.8		4 809
1985	SA	1988	02	13.35338	15	18	56.15	-09	39	50.2		6 809
1985	SA	1988	02	13.35828	15	18	56.48	-09	39	50.5		6 809
1985	SA	1988	02	13.36968	15	18	57.25	-09	39	50.3		6 809
1987	OQ	1987	08	20.25139	21	33	28.19	+07	47	06.7	17.5	4 809
1987	OQ	1987	08	20.26181	21	33	27.64	+07	47	04.5		4 809
1987	OQ	1987	08	20.27222	21	33	27.05	+07	47	02.5		4 809
1987	OQ	1987	08	21.17257	21	32	41.70	+07	44	00.6	17.2	4 809
1987	OQ	1987	08	21.18333	21	32	41.15	+07	43	58.8		4 809
1987	OQ	1987	08	21.19444	21	32	40.57	+07	43	56.4		4 809
1987	QC	1987	08	28.18403	21	58	17.16	-08	04	42.0	16.0	4 809
1987	QC	1987	08	28.19722	21	58	16.60	-08	04	44.1		4 809
1987	QC	1987	08	28.20764	21	58	16.15	-08	04	46.2		4 809
1987	QC	1987	08	29.24028	21	57	32.92	-08	08	22.3	16.0	4 809
1987	QC	1987	08	29.25139	21	57	32.41	-08	08	23.9		4 809
1987	QC	1987	08	29.26181	21	57	31.95	-08	08	26.2		4 809
1987	QC	1987	08	30.29792	21	56	48.78	-08	12	04.1	16.5	4 809
1987	QC	1987	08	30.30764	21	56	48.43	-08	12	05.5	16.5	4 809
1987	QC	1987	08	31.23889	21	56	10.50	-08	15	20.0	16.3	4 809
1987	QC	1987	08	31.24931	21	56	10.05	-08	15	22.2		4 809
1987	QC	1987	09	04.14653	21	53	37.27	-08	29	01.5	16.5	4 809
1987	QC	1987	09	04.15694	21	53	36.84	-08	29	04.5		4 809
1987	QV	1987	08	21.17257	21	36	47.87	+06	53	37.4	17.5	4 809
1987	QV	1987	08	21.18333	21	36	47.32	+06	53	38.5		4 809
1987	QV	1987	08	21.19444	21	36	46.77	+06	53	39.4		4 809
1987	QV	1987	08	29.14792	21	30	35.95	+06	52	19.4	16.5	4 809
1987	QV	1987	08	29.15972	21	30	35.44	+06	52	20.1		4 809
1987	QV	1987	08	29.17014	21	30	35.02	+06	52	19.4		4 809
1987	QV	1987	08	30.13698	21	29	53.85	+06	50	56.0	16.7	4 809
1987	QV	1987	08	30.14653	21	29	53.37	+06	50	55.7		4 809
1987	QV	1987	08	30.15764	21	29	52.88	+06	50	54.3		4 809
1987	QV	1987	08	31.15903	21	29	11.49	+06	49	14.1	17.0	4 809
1987	QV	1987	08	31.16944	21	29	11.08	+06	49	12.3		4 809
1987	QC1	1987	08	24.27847	21	36	02.91	-18	17	40.4	17.7	4 809
1987	QC1	1987	08	24.29444	21	36	01.83	-18	17	34.7		4 809
1987	QC1	1987	08	28.24861	21	31	46.04	-17	47	15.5	17.0	4 809
1987	QC1	1987	08	28.26528	21	31	44.97	-17	47	06.9		4 809
1987	QC1	1987	08	28.28056	21	31	43.98	-17	46	59.1		4 809
1987	QC1	1987	09	03.30972	21	25	51.03	-16	57	44.0	17.8	4 809
1987	QC1	1987	09	03.32083	21	25	50.39	-16	57	37.4		4 809
1987	QF1	1987	08	28.18403	22	02	03.91	-08	34	57.8	17.3	4 809
1987	QF1	1987	08	28.19722	22	02	03.39	-08	35	01.9		4 809
1987	QF1	1987	08	28.20764	22	02	02.85	-08	35	06.0		4 809
1987	QF1	1987	08	29.24028	22	01	15.38	-08	40	45.3	17.5	4 809
1987	QF1	1987	08	29.25139	22	01	14.89	-08	40	48.8		4 809
1987	QF1	1987	08	29.26181	22	01	14.42	-08	40	52.6		4 809
1987	QF1	1987	08	31.23889	21	59	45.04	-08	51	40.6	17.7	4 809

1987	QF1	1987	08	31.24931	21	59	44.57	-08	51	43.9		4 809
1987	QG1	1987	08	24.31042	22	06	13.68	-05	20	58.8	17.5	4 809
1987	QG1	1987	08	24.32361	22	06	13.06	-05	20	55.5		4 809
1987	QG1	1987	08	24.33403	22	06	12.48	-05	20	51.3		4 809
1987	QZ1	1987	09	03.22083	21	31	44.71	-12	44	21.2	17.6	4 809
1987	QZ1	1987	09	03.23611	21	31	43.87	-12	44	22.8		4 809
1987	QD2	1987	08	24.25243	21	40	21.45	-15	30	10.7	18.0	4 809
1987	QD2	1987	08	24.26319	21	40	21.03	-15	30	17.9		4 809
1987	QO2	1987	08	25.26042	21	19	53.10	-13	20	47.4	18.0	4 809
1987	QO2	1987	08	25.27083	21	19	52.51	-13	20	45.7		4 809
1987	QO2	1987	08	25.28125	21	19	51.95	-13	20	42.8		4 809
1987	QO2	1987	08	26.24583	21	19	01.29	-13	17	11.0	18.0	4 809
1987	QO2	1987	08	26.25851	21	19	00.85	-13	17	08.6		4 809
1987	QO2	1987	08	26.27014	21	19	00.44	-13	17	07.3		4 809
1987	QS2	1987	08	25.26042	21	21	50.39	-14	12	36.5	17.7	4 809
1987	QS2	1987	08	25.27083	21	21	49.86	-14	12	42.6		4 809
1987	QS2	1987	08	25.28125	21	21	49.39	-14	12	48.4		4 809
1987	QS2	1987	08	26.24583	21	21	02.50	-14	21	48.9	18.0	4 809
1987	QS2	1987	08	26.25851	21	21	02.03	-14	21	55.2		4 809
1987	QS2	1987	08	26.27014	21	21	01.56	-14	22	01.5		4 809
1987	QT2	1987	08	25.26042	21	22	22.20	-13	06	26.9	17.7	4 809
1987	QT2	1987	08	25.27083	21	22	21.71	-13	06	28.9		4 809
1987	QT2	1987	08	25.28125	21	22	21.25	-13	06	31.4		4 809
1987	QT2	1987	08	26.24583	21	21	35.00	-13	09	37.0	17.5	4 809
1987	QT2	1987	08	26.25851	21	21	34.42	-13	09	38.2		4 809
1987	QT2	1987	08	26.27014	21	21	33.85	-13	09	40.7		4 809
1987	QV2	1987	08	25.26042	21	24	04.20	-14	10	15.4	17.5	4 809
1987	QV2	1987	08	25.27083	21	24	03.59	-14	10	14.2		4 809
1987	QV2	1987	08	25.28125	21	24	02.91	-14	10	12.3		4 809
1987	QW2	1987	08	24.25243	21	36	51.81	-16	25	38.6	18.0	4 809
1987	QW2	1987	08	24.26319	21	36	51.35	-16	25	40.8		4 809
1987	QW2	1987	09	01.30903	21	31	09.26	-16	50	20.1	17.6	4 809
1987	QW2	1987	09	01.31944	21	31	08.87	-16	50	20.1		4 809
1987	QX2	1987	08	24.25243	21	37	31.19	-15	50	52.7	17.8	4 809
1987	QX2	1987	08	24.26319	21	37	30.69	-15	50	57.3		4 809
1987	QX2	1987	09	01.30903	21	31	23.49	-16	27	33.6	17.6	4 809
1987	QX2	1987	09	01.31944	21	31	23.00	-16	27	35.0		4 809
1987	QB3	1987	08	28.18403	21	57	58.12	-07	46	52.4		4 809
1987	QB3	1987	08	28.19722	21	57	57.47	-07	46	56.4		4 809
1987	QB3	1987	08	28.20764	21	57	56.95	-07	47	01.5		4 809
1987	QB3	1987	08	29.24028	21	57	04.25	-07	53	41.7	17.8	4 809
1987	QB3	1987	08	29.25139	21	57	03.66	-07	53	45.4		4 809
1987	QB3	1987	08	29.26181	21	57	03.19	-07	53	48.2		4 809
1987	QC3	1987	08	28.18403	21	58	21.02	-07	33	17.5	17.3	4 809
1987	QC3	1987	08	28.19722	21	58	20.22	-07	33	18.8		4 809
1987	QC3	1987	08	28.20764	21	58	19.56	-07	33	18.5		4 809
1987	QC3	1987	08	29.24028	21	57	16.32	-07	35	24.6	17.5	4 809
1987	QC3	1987	08	29.25139	21	57	15.60	-07	35	25.4		4 809
1987	QC3	1987	08	29.26181	21	57	14.93	-07	35	26.4		4 809
1987	QC3	1987	08	30.29792	21	56	11.95	-07	37	32.3	17.5	4 809
1987	QC3	1987	08	30.30764	21	56	11.40	-07	37	32.6	17.5	4 809
1987	QD3	1987	08	28.18403	22	01	16.47	-08	39	51.1	18.2	4 809
1987	QD3	1987	08	28.19722	22	01	15.69	-08	39	56.6		4 809
1987	QD3	1987	08	28.20764	22	01	15.11	-08	40	01.6		4 809
1987	QD3	1987	08	29.24028	22	00	19.08	-08	47	48.3	18.0	4 809
1987	QD3	1987	08	29.25139	22	00	18.67	-08	47	50.4		4 809
1987	QD3	1987	08	29.26181	22	00	18.34	-08	47	53.5		4 809
1987	QD3	1987	08	31.23889	21	58	31.99	-09	02	45.0	18.0	4 809
1987	QD3	1987	08	31.24931	21	58	31.44	-09	02	49.4		4 809

1987	QF3		1987	08	21.31667	22	57	28.99	-10	20	58.6	17.5	4	809
1987	QF3		1987	08	21.32708	22	57	28.54	-10	21	03.4		4	809
1987	QH3		1987	08	21.31667	23	00	34.24	-10	57	10.0	17.6	4	809
1987	QH3		1987	08	21.32708	23	00	33.58	-10	57	11.2		4	809
1987	QH3		1987	08	24.34653	22	57	44.58	-11	03	32.5	17.8	4	809
1987	QH3		1987	08	24.35625	22	57	43.99	-11	03	34.1		4	809
1987	QH3		1987	08	24.36667	22	57	43.33	-11	03	35.7		4	809
1987	QK3		1987	08	30.09653	21	31	39.47	-08	09	14.7	17.5	4	809
1987	QK3		1987	08	30.10694	21	31	38.99	-08	09	16.2		4	809
1987	QK3		1987	08	30.11736	21	31	38.47	-08	09	19.4		4	809
1987	QS5		1987	08	25.32847	22	53	07.04	-05	28	16.7	18.0	4	809
1987	QS5		1987	08	25.33889	22	53	06.49	-05	28	18.1		4	809
1987	QS5		1987	08	25.34931	22	53	05.98	-05	28	17.9		4	809
1987	QS5		1987	08	27.26458	22	51	29.06	-05	29	30.8	18.0	4	809
1987	QS5		1987	08	27.27986	22	51	28.27	-05	29	31.4		4	809
1987	QS5		1987	08	27.29028	22	51	27.83	-05	29	31.3		4	809
1987	QX5		1987	09	01.30903	21	29	35.17	-15	25	44.7	17.5	4	809
1987	QX5		1987	09	01.31944	21	29	34.88	-15	25	47.4		4	809
1987	QY5		1987	08	31.23889	22	00	56.19	-09	27	38.6	18.0	4	809
1987	QY5		1987	08	31.24931	22	00	55.69	-09	27	43.1		4	809
1987	QZ5		1987	08	31.23889	22	01	03.38	-09	03	11.3	17.5	4	809
1987	QZ5		1987	08	31.24931	22	01	02.69	-09	03	10.8		4	809
1987	QB6		1987	08	31.26389	21	58	06.63	-11	14	29.8	17.5	4	809
1987	QB6		1987	08	31.27431	21	58	06.28	-11	14	36.8		4	809
1987	QY6		1987	08	24.31042	22	00	11.21	-04	36	16.7	17.2	4	809
1987	QY6		1987	08	24.32361	22	00	10.56	-04	36	15.2		4	809
1987	QY6		1987	08	24.33403	22	00	09.95	-04	36	13.2		4	809
1987	QZ6		1987	08	24.31042	22	02	18.41	-05	30	46.5	17.4	4	809
1987	QZ6		1987	08	24.32361	22	02	17.72	-05	30	49.3		4	809
1987	QZ6		1987	08	24.33403	22	02	17.14	-05	30	50.7		4	809
1987	QS7		1987	08	30.32014	22	54	59.61	-06	35	29.0	18.0	4	809
1987	QS7		1987	08	30.33056	22	54	59.13	-06	35	31.9		4	809
1987	QS7		1987	08	30.34097	22	54	58.51	-06	35	35.7		4	809
1987	QW7		1987	08	22.05625	20	15	10.80	-16	02	30.3	17.2	4	809
1987	QW7		1987	08	22.06667	20	15	10.41	-16	02	32.0		4	809
1987	QW7		1987	08	25.08750	20	13	15.46	-16	11	23.0	17.7	4	809
1987	QW7		1987	08	25.09861	20	13	15.00	-16	11	25.3		4	809
1987	QW7		1987	08	25.11007	20	13	14.61	-16	11	27.8		4	809
1987	QW7		1987	08	27.09167	20	12	07.74	-16	16	57.5	17.7	4	809
1987	QW7		1987	08	27.10208	20	12	07.39	-16	16	59.3		4	809
1987	QW7		1987	08	27.11250	20	12	07.14	-16	17	00.4		4	809
1987	QX7		1987	08	25.08750	20	15	17.77	-16	52	20.8	17.7	4	809
1987	QX7		1987	08	25.09861	20	15	17.52	-16	52	24.2		4	809
1987	QX7		1987	08	25.11007	20	15	17.31	-16	52	28.2		4	809
1987	QX7		1987	08	26.13681	20	14	56.37	-16	57	59.7	17.5	4	809
1987	QX7		1987	08	26.15208	20	14	56.03	-16	58	04.0	17.5	4	809
1987	QX7		1987	08	27.09167	20	14	38.77	-17	02	58.7	17.5	4	809
1987	QX7		1987	08	27.10208	20	14	38.55	-17	03	02.4		4	809
1987	QX7		1987	08	27.11250	20	14	38.41	-17	03	05.0		4	809
1987	QY7		1987	08	26.09097	21	56	48.92	-32	50	50.3	17.5	4	809
1987	QY7		1987	08	26.10764	21	56	48.07	-32	50	54.7		4	809
1987	QY7		1987	08	26.12083	21	56	47.42	-32	50	57.1		4	809
1987	QH9	*	1987	08	24.27847	21	36	29.63	-18	03	57.9	18.0	4	809
1987	QH9		1987	08	24.29444	21	36	28.97	-18	04	03.1		4	809
1987	QH9		1987	08	28.24861	21	33	56.60	-18	31	33.2	17.4	4	809
1987	QH9		1987	08	28.26528	21	33	56.00	-18	31	39.5		4	809
1987	QH9		1987	08	28.28056	21	33	55.44	-18	31	44.7		4	809
1987	QJ9	*	1987	08	26.24583	21	23	10.27	-14	05	57.9	18.0	4	809
1987	QJ9		1987	08	26.25851	21	23	09.91	-14	05	57.4		4	809

1987	QJ9		1987	08	26.27014	21	23	09.64	-14	05	57.1	4 809
1987	QK9	*	1987	08	31.29861	21	32	12.37	-18	50	17.3	17.5 4 809
1987	QK9		1987	08	31.30903	21	32	12.13	-18	50	19.5	4 809
1987	QL9	*	1987	08	26.35208	00	56	23.24	-00	43	12.3	18.2 4 809
1987	QL9		1987	08	26.37361	00	56	22.90	-00	43	13.2	4 809
1987	QL9		1987	08	26.39514	00	56	22.66	-00	43	14.3	4 809
1987	QM9	*	1987	08	29.14792	21	27	32.75	+06	45	47.6	18.0 4 809
1987	QM9		1987	08	29.15972	21	27	31.96	+06	45	48.1	4 809
1987	QM9		1987	08	29.17014	21	27	31.27	+06	45	48.6	4 809
1987	QM9		1987	08	30.13698	21	26	34.99	+06	47	49.2	18.0 4 809
1987	QM9		1987	08	30.14653	21	26	34.34	+06	47	47.7	4 809
1987	QM9		1987	08	30.15764	21	26	33.58	+06	47	49.2	4 809
1987	QN9	*	1987	08	29.35069	01	01	27.49	-00	35	20.7	18.0 4 809
1987	QN9		1987	08	29.36111	01	01	27.19	-00	35	23.3	4 809
1987	QN9		1987	08	29.37153	01	01	26.81	-00	35	25.7	4 809
1987	QO9	*	1987	08	21.31667	22	55	08.47	-11	00	37.8	17.0 4 809
1987	QO9		1987	08	21.32708	22	55	08.09	-11	00	41.6	4 809
1987	QP9	*	1987	08	21.31667	22	58	27.19	-10	47	01.4	17.2 4 809
1987	QP9		1987	08	21.32708	22	58	26.74	-10	47	06.9	4 809
1987	RG		1987	09	02.34444	00	48	37.46	+00	12	00.7	17.5 4 809
1987	RG		1987	09	02.35486	00	48	37.19	+00	11	57.6	4 809
1987	RG		1987	09	02.36528	00	48	36.99	+00	11	54.7	4 809
1987	RG		1987	09	03.38819	00	48	11.89	+00	07	21.4	17.5 4 809
1987	RG		1987	09	03.39861	00	48	11.69	+00	07	18.3	4 809
1987	RJ		1987	09	02.34444	00	51	46.91	-00	10	25.6	17.0 4 809
1987	RJ		1987	09	02.35486	00	51	46.67	-00	10	27.8	4 809
1987	RJ		1987	09	02.36528	00	51	46.46	-00	10	29.6	4 809
1987	RJ		1987	09	03.38819	00	51	23.37	-00	14	16.2	17.0 4 809
1987	RJ		1987	09	03.39861	00	51	23.13	-00	14	18.5	4 809
1987	RK		1987	09	02.34444	00	51	59.47	+00	08	44.7	18.0 4 809
1987	RK		1987	09	02.35486	00	51	59.27	+00	08	40.9	4 809
1987	RK		1987	09	02.36528	00	51	59.10	+00	08	37.9	4 809
1987	RK		1987	09	03.38819	00	51	41.70	+00	02	59.9	18.5 4 809
1987	RK		1987	09	03.39861	00	51	41.53	+00	02	56.2	4 809
1987	RM		1987	09	02.34549	00	55	31.77	-01	20	35.6	18.2 4 809
1987	RM		1987	09	02.35486	00	55	31.60	-01	20	39.5	4 809
1987	RM		1987	09	02.36528	00	55	31.46	-01	20	42.3	4 809
1987	RS1	*	1987	09	03.17500	21	40	32.51	-13	12	41.7	17.5 4 809
1987	RS1		1987	09	03.18542	21	40	32.30	-13	12	43.0	4 809
1987	RS1		1987	09	03.19583	21	40	32.13	-13	12	44.4	4 809
1987	RT1	*	1987	09	02.30417	00	48	07.60	+01	59	17.7	17.5 4 809
1987	RT1		1987	09	02.31979	00	48	07.26	+01	59	13.1	4 809
1987	RT1		1987	09	02.33542	00	48	06.92	+01	59	08.7	4 809
1987	SR9		1987	08	26.35208	00	54	48.17	-00	45	02.4	17.8 4 809
1987	SR9		1987	08	26.37361	00	54	48.00	-00	45	03.4	4 809
1987	SR9		1987	08	26.39514	00	54	47.73	-00	45	03.4	4 809
1988	CL1		1988	02	11.30417	10	48	10.44	-03	10	12.9	17.5 4 809
1988	CL1		1988	02	11.31458	10	48	10.00	-03	10	10.4	4 809
1988	CL1		1988	02	11.32500	10	48	09.66	-03	10	07.1	4 809
1988	CL1		1988	02	17.30087	10	44	19.00	-02	37	57.6	17.7 4 809
1988	CL1		1988	02	17.31111	10	44	18.66	-02	37	54.0	4 809
1988	DF5	*	1988	02	17.30087	10	41	20.83	-02	29	59.2	17.5 4 809
1988	DF5		1988	02	17.31111	10	41	20.35	-02	29	57.3	4 809
1988	PM1		1988	09	02.12674	22	39	58.07	-07	44	04.9	16.1 3 809
1988	PM1		1988	09	02.13299	22	39	57.81	-07	44	07.5	3 809
1988	PM1		1988	09	02.13924	22	39	57.55	-07	44	10.2	3 809
1988	PM1		1988	09	06.24479	22	37	02.56	-08	12	36.2	3 809
1988	PM1		1988	09	06.25104	22	37	02.28	-08	12	38.8	3 809
1988	PM1		1988	09	06.25729	22	37	02.02	-08	12	41.5	3 809

1988	PR1		1988	09	09.12813	22	35	32.54	-07	12	07.6	15.8	3	809
1988	PR1		1988	09	09.13438	22	35	32.29	-07	12	11.2		3	809
1988	PR1		1988	09	09.14063	22	35	32.05	-07	12	14.6		3	809
1988	PR1		1988	09	12.29097	22	33	23.62	-07	40	48.9		3	809
1988	PR1		1988	09	12.29653	22	33	23.39	-07	40	51.9		3	809
1988	PR1		1988	09	12.30208	22	33	23.13	-07	40	52.9		3	809
1988	QA1	*	1988	08	31.99618	21	00	25.87	-14	59	30.0	16.1	3	809
1988	QA1		1988	09	01.00243	21	00	25.62	-14	59	30.5		3	809
1988	QA1		1988	09	01.00868	21	00	25.37	-14	59	31.2		3	809
1988	QA1		1988	09	03.01563	20	59	04.27	-15	02	48.9		3	809
1988	QA1		1988	09	03.02188	20	59	03.97	-15	02	49.5		3	809
1988	QA1		1988	09	03.02813	20	59	03.70	-15	02	50.0		3	809
1988	RF4	*	1988	09	01.04201	22	04	00.22	-13	19	50.7	16.3	3	809
1988	RF4		1988	09	01.04826	22	03	59.90	-13	19	50.6		3	809
1988	RF4		1988	09	01.05451	22	03	59.58	-13	19	50.6		3	809
1988	RF4		1988	09	03.06076	22	02	10.60	-13	20	05.6		3	809
1988	RF4		1988	09	03.06701	22	02	10.27	-13	20	05.6		3	809
1988	RF4		1988	09	03.07326	22	02	09.96	-13	20	05.5		3	809
1988	RF4		1988	09	06.06701	21	59	35.33	-13	19	47.8		3	809
1988	RF4		1988	09	06.07326	21	59	35.02	-13	19	47.8		3	809
1988	RF4		1988	09	06.07951	21	59	34.69	-13	19	47.6		3	809
1988	RF4		1988	09	08.02049	21	58	01.02	-13	19	02.5		3	809
1988	RF4		1988	09	08.02674	21	58	00.72	-13	19	02.4		3	809
1988	RF4		1988	09	08.03299	21	58	00.42	-13	19	02.2		3	809
1988	RG4	*	1988	09	01.06285	22	03	31.42	-17	58	38.0	16.7	3	809
1988	RG4		1988	09	01.06910	22	03	31.10	-17	58	40.2		3	809
1988	RG4		1988	09	01.07535	22	03	30.78	-17	58	42.5		3	809
1988	RG4		1988	09	03.11875	22	01	45.38	-18	11	22.6		3	809
1988	RG4		1988	09	03.12500	22	01	45.05	-18	11	24.6		3	809
1988	RG4		1988	09	03.13090	22	01	44.72	-18	11	26.8		3	809
1988	RH4	*	1988	09	01.06285	22	05	30.19	-17	35	16.0	16.2	3	809
1988	RH4		1988	09	01.06910	22	05	29.85	-17	35	14.9		3	809
1988	RH4		1988	09	01.07535	22	05	29.51	-17	35	13.8		3	809
1988	RH4		1988	09	03.11875	22	03	40.06	-17	29	15.2		3	809
1988	RH4		1988	09	03.12500	22	03	39.72	-17	29	14.1		3	809
1988	RH4		1988	09	03.13090	22	03	39.39	-17	29	13.2		3	809
1988	RJ4	*	1988	09	01.08646	22	45	25.83	-05	06	40.2	16.8	3	809
1988	RJ4		1988	09	01.09271	22	45	25.52	-05	06	42.5		3	809
1988	RJ4		1988	09	01.09896	22	45	25.20	-05	06	44.8		3	809
1988	RJ4		1988	09	03.18646	22	43	43.07	-05	18	45.6		3	809
1988	RJ4		1988	09	03.19271	22	43	42.77	-05	18	47.9		3	809
1988	RJ4		1988	09	03.19896	22	43	42.46	-05	18	50.2		3	809
1988	RK4	*	1988	09	01.08646	22	47	04.10	-05	30	00.1	15.5	3	809
1988	RK4		1988	09	01.09271	22	47	03.73	-05	30	01.7		3	809
1988	RK4		1988	09	01.09896	22	47	03.38	-05	30	03.6		3	809
1988	RK4		1988	09	03.18646	22	45	06.21	-05	40	09.2		3	809
1988	RK4		1988	09	03.19271	22	45	05.86	-05	40	10.9		3	809
1988	RK4		1988	09	03.19896	22	45	05.51	-05	40	12.6		3	809
1988	RL4	*	1988	09	01.08646	22	48	19.79	-06	32	35.1	16.5	3	809
1988	RL4		1988	09	01.09271	22	48	19.47	-06	32	38.0		3	809
1988	RL4		1988	09	01.09896	22	48	19.12	-06	32	40.6		3	809
1988	RL4		1988	09	03.18646	22	46	29.83	-06	47	52.1		3	809
1988	RL4		1988	09	03.19271	22	46	29.50	-06	47	54.7		3	809
1988	RL4		1988	09	03.19896	22	46	29.17	-06	47	57.6		3	809
1988	RM4	*	1988	09	01.08646	22	49	08.43	-05	58	21.0	16.7	3	809
1988	RM4		1988	09	01.09271	22	49	08.10	-05	58	23.5		3	809
1988	RM4		1988	09	01.09896	22	49	07.78	-05	58	25.9		3	809
1988	RM4		1988	09	03.18646	22	47	23.04	-06	12	53.8		3	809
1988	RM4		1988	09	03.19271	22	47	22.72	-06	12	56.4		3	809

1988	RM4		1988	09	03.19896	22	47	22.40	-06	12	59.0	3 809
1988	RN4	*	1988	09	01.08646	22	51	16.75	-05	47	43.7	16.4 3 809
1988	RN4		1988	09	01.09271	22	51	16.34	-05	47	44.0	3 809
1988	RN4		1988	09	01.09896	22	51	15.90	-05	47	44.3	3 809
1988	RN4		1988	09	03.18646	22	48	59.70	-05	49	10.3	3 809
1988	RN4		1988	09	03.19271	22	48	59.27	-05	49	10.6	3 809
1988	RN4		1988	09	03.19896	22	48	58.84	-05	49	10.8	3 809
1988	RO4	*	1988	09	01.13021	22	45	07.91	-07	13	17.7	16.7 3 809
1988	RO4		1988	09	01.13646	22	45	07.64	-07	13	20.7	3 809
1988	RO4		1988	09	01.14271	22	45	07.37	-07	13	23.9	3 809
1988	RO4		1988	09	03.20660	22	43	40.29	-07	30	40.3	3 809
1988	RO4		1988	09	03.21285	22	43	40.04	-07	30	43.5	3 809
1988	RO4		1988	09	03.21910	22	43	39.77	-07	30	46.8	3 809
1988	RP4	*	1988	09	01.13021	22	45	41.34	-06	49	05.4	16.8 3 809
1988	RP4		1988	09	01.13646	22	45	40.98	-06	49	06.8	3 809
1988	RP4		1988	09	01.14271	22	45	40.63	-06	49	08.2	3 809
1988	RP4		1988	09	03.20660	22	43	35.56	-06	55	48.8	3 809
1988	RP4		1988	09	03.21285	22	43	35.18	-06	55	49.7	3 809
1988	RP4		1988	09	03.21910	22	43	34.79	-06	55	50.8	3 809
1988	RP4		1988	09	09.12813	22	37	38.21	-07	14	51.5	3 809
1988	RP4		1988	09	09.13438	22	37	37.86	-07	14	52.6	3 809
1988	RP4		1988	09	09.14063	22	37	37.49	-07	14	53.8	3 809
1988	RQ4	*	1988	09	01.13021	22	46	02.75	-06	45	24.4	17.1 3 809
1988	RQ4		1988	09	01.13646	22	46	02.47	-06	45	26.8	3 809
1988	RQ4		1988	09	01.14271	22	46	02.19	-06	45	29.5	3 809
1988	RQ4		1988	09	03.20660	22	44	28.21	-06	56	37.0	3 809
1988	RQ4		1988	09	03.21285	22	44	27.93	-06	56	39.6	3 809
1988	RQ4		1988	09	03.21910	22	44	27.64	-06	56	42.2	3 809
1988	RR4	*	1988	09	01.13021	22	46	58.88	-08	13	32.0	16.6 3 809
1988	RR4		1988	09	01.13646	22	46	58.56	-08	13	34.5	3 809
1988	RR4		1988	09	01.14271	22	46	58.25	-08	13	37.0	3 809
1988	RR4		1988	09	03.20660	22	45	16.38	-08	26	55.9	3 809
1988	RR4		1988	09	03.21285	22	45	16.08	-08	26	58.5	3 809
1988	RR4		1988	09	03.21910	22	45	15.78	-08	27	01.0	3 809
1988	RS4	*	1988	09	01.13021	22	48	08.82	-08	13	29.1	16.8 3 809
1988	RS4		1988	09	01.13646	22	48	08.52	-08	13	30.8	3 809
1988	RS4		1988	09	01.14271	22	48	08.19	-08	13	32.7	3 809
1988	RS4		1988	09	03.20660	22	46	24.57	-08	22	57.2	3 809
1988	RS4		1988	09	03.21285	22	46	24.26	-08	22	58.9	3 809
1988	RS4		1988	09	03.21910	22	46	23.94	-08	23	00.6	3 809
1988	RT4	*	1988	09	01.13021	22	48	12.43	-08	05	01.3	16.7 3 809
1988	RT4		1988	09	01.13646	22	48	12.15	-08	05	03.4	3 809
1988	RT4		1988	09	01.14271	22	48	11.87	-08	05	05.4	3 809
1988	RT4		1988	09	03.20660	22	46	41.02	-08	15	55.3	3 809
1988	RT4		1988	09	03.21285	22	46	40.74	-08	15	57.2	3 809
1988	RT4		1988	09	03.21910	22	46	40.46	-08	15	59.3	3 809
1988	RU4	*	1988	09	01.15382	23	17	10.59	-01	37	13.5	16.7 3 809
1988	RU4		1988	09	01.16007	23	17	10.24	-01	37	15.6	3 809
1988	RU4		1988	09	01.16632	23	17	09.91	-01	37	18.1	3 809
1988	RU4		1988	09	03.23646	23	15	19.51	-01	49	16.6	3 809
1988	RU4		1988	09	03.24271	23	15	19.17	-01	49	18.9	3 809
1988	RU4		1988	09	03.24896	23	15	18.82	-01	49	21.2	3 809
1988	RU4		1988	09	06.35590	23	12	30.61	-02	07	51.0	3 809
1988	RU4		1988	09	06.36215	23	12	30.27	-02	07	53.4	3 809
1988	RU4		1988	09	06.36840	23	12	29.92	-02	07	55.8	3 809
1988	RU4		1988	09	10.35035	23	08	53.54	-02	32	14.3	3 809
1988	RU4		1988	09	10.35660	23	08	53.19	-02	32	16.5	3 809
1988	RU4		1988	09	10.36285	23	08	52.83	-02	32	18.8	3 809
1988	RU4		1988	09	18.26736	23	01	59.00	-03	20	21.6	3 809

1988	RU4		1988	09	18.27292	23	01	58.72	-03	20	24.9	3 809
1988	RU4		1988	09	18.27847	23	01	58.46	-03	20	27.0	3 809
1988	RV4	*	1988	09	01.15382	23	22	28.18	-01	51	52.6	16.5 3 809
1988	RV4		1988	09	01.16007	23	22	27.88	-01	51	54.4	3 809
1988	RV4		1988	09	01.16632	23	22	27.57	-01	51	55.8	3 809
1988	RV4		1988	09	03.23646	23	20	49.54	-02	00	19.9	3 809
1988	RV4		1988	09	03.24271	23	20	49.24	-02	00	21.7	3 809
1988	RV4		1988	09	03.24896	23	20	48.94	-02	00	23.3	3 809
1988	RV4		1988	09	07.37951	23	17	27.08	-02	18	06.8	3 809
1988	RV4		1988	09	07.38576	23	17	26.77	-02	18	08.5	3 809
1988	RV4		1988	09	07.39201	23	17	26.46	-02	18	10.3	3 809
1988	RV4		1988	09	08.37396	23	16	37.91	-02	22	30.8	3 809
1988	RV4		1988	09	08.38021	23	16	37.60	-02	22	32.5	3 809
1988	RV4		1988	09	08.38646	23	16	37.29	-02	22	34.2	3 809
1988	RV4		1988	09	20.30660	23	06	59.31	-03	16	28.2	3 809
1988	RV4		1988	09	20.31146	23	06	59.08	-03	16	29.8	3 809
1988	RV4		1988	09	20.31632	23	06	58.85	-03	16	31.5	3 809
1988	RW4	*	1988	09	01.15382	23	23	05.14	-03	10	00.2	16.3 3 809
1988	RW4		1988	09	01.16007	23	23	04.94	-03	10	00.7	3 809
1988	RW4		1988	09	01.16632	23	23	04.72	-03	10	01.2	3 809
1988	RW4		1988	09	03.23646	23	21	54.74	-03	12	27.3	3 809
1988	RW4		1988	09	03.24271	23	21	54.52	-03	12	27.8	3 809
1988	RW4		1988	09	03.24896	23	21	54.30	-03	12	28.3	3 809
1988	RX4	*	1988	09	02.04271	21	56	28.32	-18	30	13.7	16.1 3 809
1988	RX4		1988	09	02.04896	21	56	28.04	-18	30	15.8	3 809
1988	RX4		1988	09	02.05521	21	56	27.77	-18	30	17.6	3 809
1988	RX4		1988	09	04.14132	21	55	00.35	-18	40	18.0	3 809
1988	RX4		1988	09	04.14757	21	55	00.07	-18	40	19.7	3 809
1988	RX4		1988	09	04.15382	21	54	59.80	-18	40	21.4	3 809
1988	RY4	*	1988	09	02.04271	21	57	26.92	-18	29	41.0	17.3 3 809
1988	RY4		1988	09	02.04896	21	57	26.62	-18	29	38.3	3 809
1988	RY4		1988	09	02.05521	21	57	26.31	-18	29	35.8	3 809
1988	RY4		1988	09	07.08854	21	53	14.42	-17	53	51.3	3 809
1988	RY4		1988	09	07.09479	21	53	14.13	-17	53	48.6	3 809
1988	RY4		1988	09	07.10104	21	53	13.83	-17	53	45.9	3 809
1988	RY4		1988	09	08.04201	21	52	30.83	-17	46	35.6	3 809
1988	RY4		1988	09	08.04826	21	52	30.51	-17	46	32.9	3 809
1988	RY4		1988	09	08.05451	21	52	30.21	-17	46	30.1	3 809
1988	RY4		1988	09	11.16979	21	50	17.19	-17	21	52.6	3 809
1988	RY4		1988	09	11.17604	21	50	16.89	-17	21	49.6	3 809
1988	RY4		1988	09	11.18229	21	50	16.59	-17	21	46.9	3 809
1988	RZ4	*	1988	09	02.04271	21	59	12.94	-20	15	18.0	17.1 3 809
1988	RZ4		1988	09	02.04896	21	59	12.69	-20	15	20.3	3 809
1988	RZ4		1988	09	02.05521	21	59	12.44	-20	15	22.4	3 809
1988	RZ4		1988	09	05.09896	21	57	08.98	-20	34	34.2	3 809
1988	RZ4		1988	09	05.10521	21	57	08.73	-20	34	36.4	3 809
1988	RZ4		1988	09	05.11146	21	57	08.47	-20	34	38.7	3 809
1988	RZ4		1988	09	07.15382	21	55	48.18	-20	46	52.1	3 809
1988	RZ4		1988	09	07.16007	21	55	47.93	-20	46	54.7	3 809
1988	RZ4		1988	09	07.16632	21	55	47.68	-20	46	57.3	3 809
1988	RA5	*	1988	09	02.04271	22	00	47.66	-18	35	13.9	15.7 3 809
1988	RA5		1988	09	02.04896	22	00	47.39	-18	35	15.6	3 809
1988	RA5		1988	09	02.05521	22	00	47.08	-18	35	17.3	3 809
1988	RA5		1988	09	03.11875	21	59	58.62	-18	40	00.0	3 809
1988	RA5		1988	09	03.12500	21	59	58.32	-18	40	01.7	3 809
1988	RA5		1988	09	03.13090	21	59	58.04	-18	40	03.3	3 809
1988	RA5		1988	09	04.14132	21	59	13.08	-18	44	21.5	3 809
1988	RA5		1988	09	04.14757	21	59	12.80	-18	44	23.2	3 809
1988	RA5		1988	09	04.15382	21	59	12.52	-18	44	24.7	3 809

1988	RB5	*	1988	09	02.06493	22	23	04.44	-19	41	53.7	17.2	3 809
1988	RB5		1988	09	02.07118	22	23	04.09	-19	41	56.6		3 809
1988	RB5		1988	09	02.07743	22	23	03.77	-19	41	59.4		3 809
1988	RB5		1988	09	05.21215	22	20	16.90	-20	05	57.4		3 809
1988	RB5		1988	09	05.21840	22	20	16.55	-20	06	00.4		3 809
1988	RB5		1988	09	05.22465	22	20	16.20	-20	06	03.5		3 809
1988	RC5	*	1988	09	02.06493	22	23	24.93	-21	19	15.0	17.0	3 809
1988	RC5		1988	09	02.07118	22	23	24.59	-21	19	16.0		3 809
1988	RC5		1988	09	02.07743	22	23	24.25	-21	19	17.1		3 809
1988	RC5		1988	09	05.21215	22	20	30.87	-21	27	22.0		3 809
1988	RC5		1988	09	05.21840	22	20	30.53	-21	27	23.0		3 809
1988	RC5		1988	09	05.22465	22	20	30.19	-21	27	24.1		3 809
1988	RD5	*	1988	09	02.10104	22	19	17.53	-13	39	57.1	16.3	3 809
1988	RD5		1988	09	02.10729	22	19	17.25	-13	39	58.5		3 809
1988	RD5		1988	09	02.11354	22	19	16.96	-13	40	00.0		3 809
1988	RD5		1988	09	05.23229	22	16	55.13	-13	52	06.0		3 809
1988	RD5		1988	09	05.23854	22	16	54.85	-13	52	07.3		3 809
1988	RD5		1988	09	05.24479	22	16	54.57	-13	52	08.8		3 809
1988	RE5	*	1988	09	02.10104	22	19	57.73	-14	30	51.8	16.5	3 809
1988	RE5		1988	09	02.10729	22	19	57.42	-14	30	54.4		3 809
1988	RE5		1988	09	02.11354	22	19	57.11	-14	30	56.8		3 809
1988	RE5		1988	09	05.23229	22	17	31.84	-14	49	39.5		3 809
1988	RE5		1988	09	05.23854	22	17	31.53	-14	49	42.0		3 809
1988	RE5		1988	09	05.24479	22	17	31.22	-14	49	44.5		3 809
1988	RF5	*	1988	09	02.10104	22	20	16.69	-14	09	50.7	16.7	3 809
1988	RF5		1988	09	02.10729	22	20	16.37	-14	09	50.2		3 809
1988	RF5		1988	09	02.11354	22	20	16.03	-14	09	49.6		3 809
1988	RF5		1988	09	05.23229	22	17	37.30	-14	04	40.4		3 809
1988	RF5		1988	09	05.23854	22	17	36.97	-14	04	39.8		3 809
1988	RF5		1988	09	05.24479	22	17	36.63	-14	04	39.0		3 809
1988	RG5	*	1988	09	02.10104	22	22	21.13	-14	25	56.2	17.4	3 809
1988	RG5		1988	09	02.10729	22	22	20.88	-14	25	57.8		3 809
1988	RG5		1988	09	02.11354	22	22	20.62	-14	25	58.9		3 809
1988	RG5		1988	09	05.23229	22	20	19.12	-14	36	48.5		3 809
1988	RG5		1988	09	05.23854	22	20	18.85	-14	36	50.1		3 809
1988	RG5		1988	09	05.24479	22	20	18.60	-14	36	51.5		3 809
1988	RH5	*	1988	09	02.10104	22	23	29.54	-13	48	35.8		3 809
1988	RH5		1988	09	02.10729	22	23	29.31	-13	48	37.1		3 809
1988	RH5		1988	09	02.11354	22	23	29.08	-13	48	38.4		3 809
1988	RH5		1988	09	05.23229	22	21	42.83	-13	58	02.5		3 809
1988	RH5		1988	09	05.23854	22	21	42.60	-13	58	03.8		3 809
1988	RH5		1988	09	05.24479	22	21	42.35	-13	58	05.2		3 809
1988	RJ5	*	1988	09	02.10104	22	24	17.18	-14	46	35.1	17.3	3 809
1988	RJ5		1988	09	02.10729	22	24	16.87	-14	46	36.8		3 809
1988	RJ5		1988	09	02.11354	22	24	16.55	-14	46	38.3		3 809
1988	RJ5		1988	09	05.23229	22	21	48.75	-14	59	03.1		3 809
1988	RJ5		1988	09	05.23854	22	21	48.42	-14	59	04.5		3 809
1988	RJ5		1988	09	05.24479	22	21	48.13	-14	59	06.0		3 809
1988	RK5	*	1988	09	02.12674	22	34	08.51	-07	51	41.4	16.8	3 809
1988	RK5		1988	09	02.13299	22	34	08.15	-07	51	44.2		3 809
1988	RK5		1988	09	02.13924	22	34	07.79	-07	51	46.7		3 809
1988	RK5		1988	09	06.24479	22	30	18.62	-08	19	02.1		3 809
1988	RK5		1988	09	06.25104	22	30	18.24	-08	19	04.8		3 809
1988	RK5		1988	09	06.25729	22	30	17.87	-08	19	07.3		3 809
1988	RL5	*	1988	09	02.12674	22	34	41.40	-08	18	08.9	17.3	3 809
1988	RL5		1988	09	02.13299	22	34	41.15	-08	18	11.7		3 809
1988	RL5		1988	09	02.13924	22	34	40.90	-08	18	14.5		3 809
1988	RL5		1988	09	06.24479	22	31	21.03	-08	48	16.5		3 809
1988	RL5		1988	09	06.25104	22	31	20.79	-08	48	19.2		3 809

1988	RL5		1988	09	06.25729	22	31	20.55	-08	48	22.0	3 809
1988	RM5	*	1988	09	02.12674	22	35	24.70	-08	16	50.5	17.1 3 809
1988	RM5		1988	09	02.13299	22	35	24.42	-08	16	54.9	3 809
1988	RM5		1988	09	02.13924	22	35	24.15	-08	16	59.4	3 809
1988	RM5		1988	09	06.24479	22	32	20.47	-09	04	53.7	3 809
1988	RM5		1988	09	06.25104	22	32	20.20	-09	04	58.1	3 809
1988	RM5		1988	09	06.25729	22	32	19.93	-09	05	02.5	3 809
1988	RN5	*	1988	09	02.14965	22	48	11.90	-03	10	34.9	17.5 3 809
1988	RN5		1988	09	02.15590	22	48	11.60	-03	10	37.0	3 809
1988	RN5		1988	09	02.16215	22	48	11.28	-03	10	38.9	3 809
1988	RN5		1988	09	06.30590	22	44	52.86	-03	31	17.7	3 809
1988	RN5		1988	09	06.31215	22	44	52.55	-03	31	19.7	3 809
1988	RN5		1988	09	06.31840	22	44	52.24	-03	31	21.7	3 809
1988	RO5	*	1988	09	02.14965	22	50	26.16	-02	45	12.4	17.6 3 809
1988	RO5		1988	09	02.15590	22	50	25.82	-02	45	12.9	3 809
1988	RO5		1988	09	02.16215	22	50	25.45	-02	45	13.5	3 809
1988	RO5		1988	09	05.28993	22	47	19.92	-02	49	25.9	3 809
1988	RO5		1988	09	05.29618	22	47	19.55	-02	49	26.5	3 809
1988	RO5		1988	09	05.30243	22	47	19.18	-02	49	27.0	3 809
1988	RO5		1988	09	06.30590	22	46	19.63	-02	50	54.9	3 809
1988	RO5		1988	09	06.31215	22	46	19.26	-02	50	55.5	3 809
1988	RO5		1988	09	06.31840	22	46	18.88	-02	50	56.0	3 809
1988	RP5	*	1988	09	02.14965	22	53	15.91	-03	31	52.2	17.6 3 809
1988	RP5		1988	09	02.15590	22	53	15.62	-03	31	54.5	3 809
1988	RP5		1988	09	02.16215	22	53	15.33	-03	31	56.7	3 809
1988	RP5		1988	09	05.28993	22	50	55.89	-03	50	48.3	3 809
1988	RP5		1988	09	05.29618	22	50	55.61	-03	50	51.6	3 809
1988	RP5		1988	09	05.30243	22	50	55.33	-03	50	53.8	3 809
1988	RQ5	*	1988	09	02.14965	22	55	09.93	-03	51	03.9	17.7 3 809
1988	RQ5		1988	09	02.15590	22	55	09.64	-03	51	06.2	3 809
1988	RQ5		1988	09	02.16215	22	55	09.35	-03	51	08.6	3 809
1988	RQ5		1988	09	05.28993	22	52	46.36	-04	09	29.5	3 809
1988	RQ5		1988	09	05.29618	22	52	46.06	-04	09	31.8	3 809
1988	RQ5		1988	09	05.30243	22	52	45.76	-04	09	33.8	3 809
1988	RR5	*	1988	09	02.17049	22	47	38.68	-10	42	16.8	16.7 3 809
1988	RR5		1988	09	02.17674	22	47	38.34	-10	42	18.4	3 809
1988	RR5		1988	09	02.18299	22	47	37.96	-10	42	20.0	3 809
1988	RR5		1988	09	07.31354	22	42	26.69	-11	04	30.3	3 809
1988	RR5		1988	09	07.31979	22	42	26.33	-11	04	31.8	3 809
1988	RR5		1988	09	07.32604	22	42	25.95	-11	04	33.5	3 809
1988	RS5	*	1988	09	02.17049	22	47	39.23	-10	17	21.4	17.3 3 809
1988	RS5		1988	09	02.17674	22	47	38.90	-10	17	22.4	3 809
1988	RS5		1988	09	02.18299	22	47	38.56	-10	17	23.4	3 809
1988	RS5		1988	09	07.31354	22	43	09.52	-10	31	03.1	3 809
1988	RS5		1988	09	07.31979	22	43	09.19	-10	31	04.1	3 809
1988	RS5		1988	09	07.32604	22	43	08.85	-10	31	05.1	3 809
1988	RT5	*	1988	09	02.17049	22	48	58.81	-10	11	02.2	17.2 3 809
1988	RT5		1988	09	02.17674	22	48	58.48	-10	11	02.9	3 809
1988	RT5		1988	09	02.18299	22	48	58.15	-10	11	03.5	3 809
1988	RT5		1988	09	07.31354	22	44	24.74	-10	19	05.8	3 809
1988	RT5		1988	09	07.31979	22	44	24.50	-10	19	06.4	3 809
1988	RT5		1988	09	07.32604	22	44	24.27	-10	19	07.1	3 809
1988	RU5	*	1988	09	03.06076	21	58	02.63	-13	10	38.9	16.5 3 809
1988	RU5		1988	09	03.06701	21	58	02.36	-13	10	41.0	3 809
1988	RU5		1988	09	03.07326	21	58	02.09	-13	10	43.0	3 809
1988	RU5		1988	09	06.06701	21	55	49.73	-13	26	32.3	3 809
1988	RU5		1988	09	06.07326	21	55	49.46	-13	26	34.1	3 809
1988	RU5		1988	09	06.07951	21	55	49.19	-13	26	36.0	3 809
1988	RU5		1988	09	08.02049	21	54	28.73	-13	36	15.0	3 809

1988	RU5		1988	09	08.02674	21	54	28.47	-13	36	16.9	3 809
1988	RU5		1988	09	08.03299	21	54	28.21	-13	36	18.8	3 809
1988	RV5	*	1988	09	03.08368	22	11	17.20	-14	44	45.8	16.2 3 809
1988	RV5		1988	09	03.08993	22	11	16.93	-14	44	48.7	3 809
1988	RV5		1988	09	03.09618	22	11	16.68	-14	44	51.6	3 809
1988	RV5		1988	09	06.08785	22	09	14.81	-15	07	52.6	3 809
1988	RV5		1988	09	06.09410	22	09	14.56	-15	07	55.5	3 809
1988	RV5		1988	09	06.10035	22	09	14.30	-15	07	57.8	3 809
1988	RW5	*	1988	09	03.08368	22	12	11.55	-14	22	00.9	15.2 3 809
1988	RW5		1988	09	03.08993	22	12	11.29	-14	22	02.7	3 809
1988	RW5		1988	09	03.09618	22	12	11.01	-14	22	04.1	3 809
1988	RW5		1988	09	06.08785	22	09	57.99	-14	35	09.6	3 809
1988	RW5		1988	09	06.09410	22	09	57.71	-14	35	11.3	3 809
1988	RW5		1988	09	06.10035	22	09	57.45	-14	35	13.0	3 809
1988	RX5	*	1988	09	03.16215	22	09	40.87	-10	52	49.8	16.5 3 809
1988	RX5		1988	09	03.16840	22	09	40.55	-10	52	51.5	3 809
1988	RX5		1988	09	03.17465	22	09	40.21	-10	52	53.5	3 809
1988	RX5		1988	09	05.33229	22	07	52.29	-11	03	59.0	3 809
1988	RX5		1988	09	05.33854	22	07	51.97	-11	04	00.7	3 809
1988	RX5		1988	09	05.34479	22	07	51.63	-11	04	02.7	3 809
1988	RY5	*	1988	09	03.16215	22	11	41.44	-09	26	11.0	16.6 3 809
1988	RY5		1988	09	03.16840	22	11	41.17	-09	26	13.1	3 809
1988	RY5		1988	09	03.17465	22	11	40.90	-09	26	14.9	3 809
1988	RY5		1988	09	05.33229	22	10	03.20	-09	37	18.9	3 809
1988	RY5		1988	09	05.33854	22	10	02.93	-09	37	21.0	3 809
1988	RY5		1988	09	05.34479	22	10	02.66	-09	37	23.2	3 809
1988	RZ5	*	1988	09	03.16215	22	11	58.65	-09	24	30.7	16.7 3 809
1988	RZ5		1988	09	03.16840	22	11	58.34	-09	24	33.3	3 809
1988	RZ5		1988	09	03.17465	22	11	58.04	-09	24	35.9	3 809
1988	RZ5		1988	09	05.33229	22	10	15.30	-09	39	43.3	3 809
1988	RZ5		1988	09	05.33854	22	10	14.99	-09	39	46.0	3 809
1988	RZ5		1988	09	05.34479	22	10	14.69	-09	39	48.7	3 809
1988	RA6	*	1988	09	03.16215	22	12	46.22	-10	43	42.4	16.4 3 809
1988	RA6		1988	09	03.16840	22	12	45.86	-10	43	41.6	3 809
1988	RA6		1988	09	03.17465	22	12	45.50	-10	43	40.8	3 809
1988	RA6		1988	09	05.33229	22	10	40.13	-10	38	40.3	3 809
1988	RA6		1988	09	05.33854	22	10	39.77	-10	38	49.4	3 809
1988	RA6		1988	09	05.34479	22	10	39.41	-10	38	48.5	3 809
1988	RB6	*	1988	09	03.25660	23	21	48.72	-05	17	42.1	16.5 3 809
1988	RB6		1988	09	03.26285	23	21	48.52	-05	17	47.7	3 809
1988	RB6		1988	09	03.26910	23	21	48.30	-05	17	53.4	3 809
1988	RB6		1988	09	06.38785	23	20	05.10	-06	05	17.0	3 809
1988	RB6		1988	09	06.39410	23	20	04.89	-06	05	22.4	3 809
1988	RB6		1988	09	06.40035	23	20	04.68	-06	05	28.1	3 809
1988	RB6		1988	09	12.35035	23	16	41.38	-07	35	12.6	3 809
1988	RB6		1988	09	12.35660	23	16	41.16	-07	35	18.1	3 809
1988	RB6		1988	09	12.36285	23	16	40.95	-07	35	23.8	3 809
1988	RC6	*	1988	09	05.09896	21	57	29.14	-21	05	59.9	16.9 3 809
1988	RC6		1988	09	05.10521	21	57	28.88	-21	06	02.3	3 809
1988	RC6		1988	09	05.11146	21	57	28.64	-21	06	04.6	3 809
1988	RC6		1988	09	07.15382	21	56	07.96	-21	18	30.8	3 809
1988	RC6		1988	09	07.16007	21	56	07.73	-21	18	33.3	3 809
1988	RC6		1988	09	07.16632	21	56	07.48	-21	18	35.6	3 809
1988	RD6	*	1988	09	05.13576	21	51	48.02	-17	12	21.4	16.8 3 809
1988	RD6		1988	09	05.14201	21	51	47.76	-17	12	22.2	3 809
1988	RD6		1988	09	05.14826	21	51	47.49	-17	12	23.1	3 809
1988	RD6		1988	09	07.08854	21	50	21.28	-17	17	20.8	3 809
1988	RD6		1988	09	07.09479	21	50	21.01	-17	17	21.8	3 809
1988	RD6		1988	09	07.10104	21	50	20.75	-17	17	22.5	3 809

1988	RD6		1988	09	08.04201	21	49	40.78	-17	19	34.0	3 809
1988	RD6		1988	09	08.04826	21	49	40.50	-17	19	35.0	3 809
1988	RD6		1988	09	08.05451	21	49	40.24	-17	19	35.9	3 809
1988	RD6		1988	09	11.16979	21	47	36.20	-17	25	41.5	3 809
1988	RD6		1988	09	11.17604	21	47	35.93	-17	25	42.4	3 809
1988	RD6		1988	09	11.18229	21	47	35.67	-17	25	43.2	3 809
1988	RE6	*	1988	09	05.31076	22	49	01.73	-11	15	49.9	3 809
1988	RE6		1988	09	05.31701	22	49	01.37	-11	15	52.1	3 809
1988	RE6		1988	09	05.32326	22	49	01.01	-11	15	54.3	3 809
1988	RE6		1988	09	07.31354	22	47	07.36	-11	27	37.9	3 809
1988	RE6		1988	09	07.31979	22	47	07.00	-11	27	40.0	3 809
1988	RE6		1988	09	07.32604	22	47	06.66	-11	27	42.1	3 809
1988	RE6		1988	09	07.33368	22	47	06.22	-11	27	44.7	3 809
1988	RE6		1988	09	07.33993	22	47	05.85	-11	27	46.8	3 809
1988	RE6		1988	09	07.34618	22	47	05.50	-11	27	48.9	3 809
1988	RE6		1988	09	10.10833	22	44	28.72	-11	43	37.2	3 809
1988	RE6		1988	09	10.11632	22	44	28.26	-11	43	40.0	3 809
1988	RE6		1988	09	10.12431	22	44	27.80	-11	43	42.6	3 809
1988	RE6		1988	09	10.13299	22	44	27.30	-11	43	45.4	3 809
1988	RE6		1988	09	10.13924	22	44	26.94	-11	43	47.5	3 809
1988	RE6		1988	09	10.14549	22	44	26.58	-11	43	49.6	3 809
1988	RF6	*	1988	09	05.31076	22	51	54.13	-10	58	56.7	17.4 3 809
1988	RF6		1988	09	05.31701	22	51	53.83	-10	58	59.1	3 809
1988	RF6		1988	09	05.32326	22	51	53.52	-10	59	01.5	3 809
1988	RF6		1988	09	07.33368	22	50	16.85	-11	11	42.8	3 809
1988	RF6		1988	09	07.33993	22	50	16.56	-11	11	45.3	3 809
1988	RF6		1988	09	07.34618	22	50	16.25	-11	11	47.6	3 809
1988	RF6		1988	09	10.13299	22	48	04.65	-11	28	44.3	3 809
1988	RF6		1988	09	10.13924	22	48	04.36	-11	28	46.2	3 809
1988	RF6		1988	09	10.14549	22	48	04.08	-11	28	48.1	3 809
1988	RG6	*	1988	09	06.06701	21	57	23.96	-12	43	43.1	16.9 3 809
1988	RG6		1988	09	06.07326	21	57	23.70	-12	43	44.4	3 809
1988	RG6		1988	09	06.07951	21	57	23.46	-12	43	45.7	3 809
1988	RG6		1988	09	08.02049	21	56	02.94	-12	50	24.0	3 809
1988	RG6		1988	09	08.02674	21	56	02.69	-12	50	25.0	3 809
1988	RG6		1988	09	08.03299	21	56	02.44	-12	50	26.2	3 809
1988	RH6	*	1988	09	06.12604	22	07	44.36	-06	34	44.3	17.0 3 809
1988	RH6		1988	09	06.13229	22	07	43.98	-06	34	44.8	3 809
1988	RH6		1988	09	06.13854	22	07	43.60	-06	34	45.3	3 809
1988	RH6		1988	09	08.10035	22	05	48.63	-06	36	03.0	3 809
1988	RH6		1988	09	08.10660	22	05	48.29	-06	36	03.5	3 809
1988	RH6		1988	09	08.11285	22	05	47.95	-06	36	03.8	3 809
1988	RJ6	*	1988	09	06.35590	23	09	57.29	-02	13	48.2	17.3 3 809
1988	RJ6		1988	09	06.36215	23	09	56.95	-02	13	49.2	3 809
1988	RJ6		1988	09	06.36840	23	09	56.61	-02	13	50.0	3 809
1988	RJ6		1988	09	10.35035	23	06	09.10	-02	22	21.2	3 809
1988	RJ6		1988	09	10.35660	23	06	08.75	-02	22	22.2	3 809
1988	RJ6		1988	09	10.36285	23	06	08.40	-02	22	23.2	3 809
1988	RJ6		1988	09	18.26736	22	58	39.05	-02	41	04.3	3 809
1988	RJ6		1988	09	18.27292	22	58	38.73	-02	41	05.2	3 809
1988	RJ6		1988	09	18.27847	22	58	38.40	-02	41	06.1	3 809
1988	RK6	*	1988	09	06.35590	23	10	36.77	-01	39	18.8	17.6 3 809
1988	RK6		1988	09	06.36215	23	10	36.49	-01	39	22.7	3 809
1988	RK6		1988	09	06.36840	23	10	36.21	-01	39	26.8	3 809
1988	RK6		1988	09	10.35035	23	07	35.08	-02	21	06.7	3 809
1988	RK6		1988	09	10.35660	23	07	34.80	-02	21	10.6	3 809
1988	RK6		1988	09	10.36285	23	07	34.52	-02	21	14.4	3 809
1988	RK6		1988	09	18.26736	23	01	44.32	-03	45	00.8	3 809
1988	RK6		1988	09	18.27292	23	01	44.10	-03	45	04.7	3 809

1988	RK6		1988	09	18.27847	23	01	43.88	-03	45	08.3	3 809
1988	RL6	*	1988	09	06.38785	23	22	11.33	-05	56	04.6	16.8 3 809
1988	RL6		1988	09	06.39410	23	22	11.05	-05	56	08.6	3 809
1988	RL6		1988	09	06.40035	23	22	10.77	-05	56	12.7	3 809
1988	RL6		1988	09	12.35035	23	17	47.56	-06	59	02.8	3 809
1988	RL6		1988	09	12.35660	23	17	47.26	-06	59	06.6	3 809
1988	RL6		1988	09	12.36285	23	17	46.98	-06	59	10.8	3 809
1988	RM6	*	1988	09	07.08854	21	48	08.96	-18	10	27.4	16.3 3 809
1988	RM6		1988	09	07.09479	21	48	08.74	-18	10	29.2	3 809
1988	RM6		1988	09	07.10104	21	48	08.51	-18	10	31.0	3 809
1988	RM6		1988	09	08.04201	21	47	34.17	-18	15	02.9	3 809
1988	RM6		1988	09	08.04826	21	47	33.95	-18	15	04.8	3 809
1988	RM6		1988	09	08.05451	21	47	33.73	-18	15	06.4	3 809
1988	RM6		1988	09	11.16979	21	45	49.65	-18	28	39.3	3 809
1988	RM6		1988	09	11.17604	21	45	49.43	-18	28	41.0	3 809
1988	RM6		1988	09	11.18229	21	45	49.22	-18	28	42.6	3 809
1988	RN6	*	1988	09	07.08854	21	48	47.84	-17	15	55.6	17.4 3 809
1988	RN6		1988	09	07.09479	21	48	47.54	-17	15	56.0	3 809
1988	RN6		1988	09	07.10104	21	48	47.24	-17	15	56.4	3 809
1988	RN6		1988	09	11.16979	21	45	36.36	-17	19	13.4	3 809
1988	RN6		1988	09	11.17604	21	45	36.04	-17	19	13.9	3 809
1988	RN6		1988	09	11.18229	21	45	35.75	-17	19	14.3	3 809
1988	RO6	*	1988	09	07.08854	21	48	57.09	-16	36	42.3	16.8 3 809
1988	RO6		1988	09	07.09479	21	48	56.78	-16	36	42.3	3 809
1988	RO6		1988	09	07.10104	21	48	56.46	-16	36	42.1	3 809
1988	RO6		1988	09	08.04201	21	48	06.82	-16	36	31.4	3 809
1988	RO6		1988	09	08.04826	21	48	06.50	-16	36	31.3	3 809
1988	RO6		1988	09	08.05451	21	48	06.18	-16	36	31.2	3 809
1988	RO6		1988	09	11.16979	21	45	30.23	-16	34	57.4	3 809
1988	RO6		1988	09	11.17604	21	45	29.96	-16	34	57.2	3 809
1988	RO6		1988	09	11.18229	21	45	29.69	-16	34	56.9	3 809
1988	RP6	*	1988	09	07.33368	22	43	17.81	-12	08	20.3	16.8 3 809
1988	RP6		1988	09	07.33993	22	43	17.64	-12	08	22.0	3 809
1988	RP6		1988	09	07.34618	22	43	17.33	-12	08	23.6	3 809
1988	RP6		1988	09	10.10833	22	41	08.38	-12	20	54.5	3 809
1988	RP6		1988	09	10.11632	22	41	08.01	-12	20	56.8	3 809
1988	RP6		1988	09	10.12431	22	41	07.64	-12	20	59.1	3 809
1988	RQ6	*	1988	09	07.33368	22	47	16.05	-12	27	56.0	17.3 3 809
1988	RQ6		1988	09	07.33993	22	47	15.77	-12	27	57.7	3 809
1988	RQ6		1988	09	07.34618	22	47	15.48	-12	27	59.5	3 809
1988	RQ6		1988	09	10.10833	22	45	09.17	-12	36	04.3	3 809
1988	RQ6		1988	09	10.11632	22	45	08.80	-12	36	06.4	3 809
1988	RQ6		1988	09	10.12431	22	45	08.44	-12	36	08.5	3 809
1988	RQ6		1988	09	10.13299	22	45	08.03	-12	36	11.6	3 809
1988	RQ6		1988	09	10.13924	22	45	07.75	-12	36	12.6	3 809
1988	RQ6		1988	09	10.14549	22	45	07.46	-12	36	13.7	3 809
1988	RR6	*	1988	09	07.37951	23	17	27.35	-01	53	02.1	15.5 3 809
1988	RR6		1988	09	07.38576	23	17	27.08	-01	53	05.9	3 809
1988	RR6		1988	09	07.39201	23	17	26.81	-01	53	09.8	3 809
1988	RR6		1988	09	08.37396	23	16	41.79	-02	03	36.4	3 809
1988	RR6		1988	09	08.38021	23	16	41.51	-02	03	40.3	3 809
1988	RR6		1988	09	08.38646	23	16	41.22	-02	03	44.2	3 809
1988	RR6		1988	09	20.30660	23	07	46.24	-04	10	52.0	3 809
1988	RR6		1988	09	20.31146	23	07	46.02	-04	10	55.2	3 809
1988	RR6		1988	09	20.31632	23	07	45.80	-04	10	58.4	3 809
1988	RS6	*	1988	09	08.27188	22	57	57.90	-05	25	27.6	16.3 3 809
1988	RS6		1988	09	08.27813	22	57	57.64	-05	25	29.8	3 809
1988	RS6		1988	09	08.28438	22	57	57.40	-05	25	31.8	3 809
1988	RS6		1988	09	09.27813	22	57	18.04	-05	31	14.9	3 809

1988	RS6		1988	09	09.28438	22	57	17.79	-05	31	17.0	3 809
1988	RS6		1988	09	09.29063	22	57	17.55	-05	31	19.3	3 809
1988	RT6	*	1988	09	08.27188	22	58	13.66	-03	38	56.0	16.2 3 809
1988	RT6		1988	09	08.27813	22	58	13.40	-03	39	01.0	3 809
1988	RT6		1988	09	08.28438	22	58	13.13	-03	39	05.9	3 809
1988	RT6		1988	09	09.27813	22	57	30.17	-03	52	07.3	3 809
1988	RT6		1988	09	09.28438	22	57	29.90	-03	52	12.2	3 809
1988	RT6		1988	09	09.29063	22	57	29.64	-03	52	17.2	3 809
1988	RU6	*	1988	09	08.27188	23	00	02.31	-04	41	47.8	17.1 3 809
1988	RU6		1988	09	08.27813	23	00	01.99	-04	41	50.0	3 809
1988	RU6		1988	09	08.28438	23	00	01.67	-04	41	52.2	3 809
1988	RU6		1988	09	09.27813	22	59	11.72	-04	47	39.0	3 809
1988	RU6		1988	09	09.28438	22	59	11.40	-04	47	41.0	3 809
1988	RU6		1988	09	09.29063	22	59	11.08	-04	47	42.9	3 809
1988	RV6	*	1988	09	08.27188	23	01	07.61	-04	34	27.5	16.4 3 809
1988	RV6		1988	09	08.27813	23	01	07.21	-04	34	29.3	3 809
1988	RV6		1988	09	08.28438	23	01	06.82	-04	34	31.0	3 809
1988	RV6		1988	09	09.27813	23	00	04.30	-04	39	07.6	3 809
1988	RV6		1988	09	09.28438	23	00	03.91	-04	39	09.4	3 809
1988	RV6		1988	09	09.29063	23	00	03.51	-04	39	11.2	3 809
1988	RW6	*	1988	09	08.27188	23	01	30.49	-05	08	39.2	16.8 3 809
1988	RW6		1988	09	08.27813	23	01	30.11	-05	08	40.0	3 809
1988	RW6		1988	09	08.28438	23	01	29.73	-05	08	40.8	3 809
1988	RW6		1988	09	09.27813	23	00	30.39	-05	11	13.3	3 809
1988	RW6		1988	09	09.28438	23	00	30.01	-05	11	14.3	3 809
1988	RW6		1988	09	09.29063	23	00	29.62	-05	11	15.3	3 809
1988	RX6	*	1988	09	08.29271	22	58	56.39	-10	02	45.0	3 809
1988	RX6		1988	09	08.29896	22	58	56.21	-10	02	46.6	3 809
1988	RX6		1988	09	08.30521	22	58	56.04	-10	02	48.0	3 809
1988	RX6		1988	09	09.15035	22	58	08.63	-10	07	47.0	3 809
1988	RX6		1988	09	09.15660	22	58	08.45	-10	07	48.4	3 809
1988	RX6		1988	09	09.16285	22	58	08.27	-10	07	49.8	3 809
1988	RY6	*	1988	09	08.29271	22	59	04.46	-09	58	37.8	17.0 3 809
1988	RY6		1988	09	08.29896	22	59	04.05	-09	58	38.7	3 809
1988	RY6		1988	09	08.30521	22	59	03.64	-09	58	39.4	3 809
1988	RY6		1988	09	09.15035	22	58	07.82	-10	00	21.7	3 809
1988	RY6		1988	09	09.15660	22	58	07.41	-10	00	22.6	3 809
1988	RY6		1988	09	09.16285	22	58	06.99	-10	00	23.5	3 809
1988	RZ6	*	1988	09	08.37396	23	17	18.88	-01	39	58.9	16.5 3 809
1988	RZ6		1988	09	08.38021	23	17	18.57	-01	40	02.1	3 809
1988	RZ6		1988	09	08.38646	23	17	18.24	-01	40	05.3	3 809
1988	RZ6		1988	09	20.30660	23	07	00.33	-03	21	11.2	3 809
1988	RZ6		1988	09	20.31146	23	07	00.01	-03	21	14.4	3 809
1988	RZ6		1988	09	20.31632	23	06	59.70	-03	21	17.6	3 809
1988	RA7	*	1988	09	09.12813	22	39	17.76	-07	37	57.5	3 809
1988	RA7		1988	09	09.13438	22	39	17.45	-07	38	00.1	3 809
1988	RA7		1988	09	09.14063	22	39	17.14	-07	38	02.6	3 809
1988	RA7		1988	09	12.29097	22	36	45.13	-08	05	02.0	3 809
1988	RA7		1988	09	12.29653	22	36	44.86	-08	05	04.7	3 809
1988	RA7		1988	09	12.30208	22	36	44.59	-08	05	07.4	3 809
1988	RB7	*	1988	09	10.35035	23	07	56.30	-01	24	54.7	17.6 3 809
1988	RB7		1988	09	10.35660	23	07	56.06	-01	24	58.4	3 809
1988	RB7		1988	09	10.36285	23	07	55.82	-01	25	02.2	3 809
1988	RB7		1988	09	18.26736	23	02	42.78	-02	44	54.8	3 809
1988	RB7		1988	09	18.27292	23	02	42.56	-02	44	58.1	3 809
1988	RB7		1988	09	18.27847	23	02	42.34	-02	45	01.4	3 809
1988	RC7	*	1988	09	10.35035	23	10	28.64	-01	24	47.3	15.5 3 809
1988	RC7		1988	09	10.35660	23	10	28.41	-01	24	52.4	3 809
1988	RC7		1988	09	10.36285	23	10	28.19	-01	24	57.7	3 809

1988	RC7		1988	09	20.30660	23	04	14.22	-03	46	03.7	3 809
1988	RC7		1988	09	20.31146	23	04	14.04	-03	46	08.1	3 809
1988	RC7		1988	09	20.31632	23	04	13.87	-03	46	12.4	3 809
1988	SP	*	1988	09	18.10347	22	49	58.00	-10	56	27.7	16.9 3 809
1988	SP		1988	09	18.10903	22	49	57.73	-10	56	30.1	3 809
1988	SP		1988	09	18.11458	22	49	57.45	-10	56	31.8	3 809
1988	SP		1988	09	19.26389	22	48	57.38	-11	02	03.5	3 809
1988	SP		1988	09	19.26944	22	48	57.10	-11	02	05.7	3 809
1988	SP		1988	09	19.27500	22	48	56.82	-11	02	07.6	3 809
1988	SP		1988	09	20.25313	22	48	07.02	-11	06	40.4	3 809
1988	SP		1988	09	20.25799	22	48	06.78	-11	06	42.2	3 809
1988	SP		1988	09	20.26285	22	48	06.54	-11	06	44.1	3 809
1988	SQ	*	1988	09	18.10347	22	50	19.41	-10	55	44.0	16.7 3 809
1988	SQ		1988	09	18.10903	22	50	19.19	-10	55	44.1	3 809
1988	SQ		1988	09	18.11458	22	50	18.98	-10	55	44.3	3 809
1988	SQ		1988	09	19.26389	22	49	31.99	-10	56	22.2	3 809
1988	SQ		1988	09	19.26944	22	49	31.77	-10	56	22.4	3 809
1988	SQ		1988	09	19.27500	22	49	31.56	-10	56	22.6	3 809
1988	SQ		1988	09	20.25313	22	48	52.28	-10	56	49.0	3 809
1988	SQ		1988	09	20.25799	22	48	52.07	-10	56	49.2	3 809
1988	SQ		1988	09	20.26285	22	48	51.86	-10	56	49.5	3 809
1988	SR	*	1988	09	19.26389	22	47	08.14	-10	13	33.2	3 809
1988	SR		1988	09	19.26944	22	47	07.90	-10	13	35.0	3 809
1988	SR		1988	09	19.27500	22	47	07.76	-10	13	36.6	3 809
1988	SR		1988	09	20.25313	22	46	27.67	-10	17	50.8	3 809
1988	SR		1988	09	20.25799	22	46	27.47	-10	17	52.7	3 809
1988	SR		1988	09	20.26285	22	46	27.27	-10	17	54.1	3 809
1988	SS	*	1988	09	19.26389	22	51	01.10	-11	23	17.4	3 809
1988	SS		1988	09	19.26944	22	51	00.84	-11	23	17.5	3 809
1988	SS		1988	09	19.27500	22	51	00.58	-11	23	17.7	3 809
1988	SS		1988	09	20.25313	22	50	13.58	-11	23	31.2	3 809
1988	SS		1988	09	20.25799	22	50	13.31	-11	23	31.4	3 809
1988	SS		1988	09	20.26285	22	50	13.05	-11	23	31.5	3 809
3538	P-L		1987	08	24.31042	22	03	48.45	-05	08	43.7	17.3 4 809
3538	P-L		1987	08	24.32361	22	03	47.83	-05	08	43.4	4 809
3538	P-L		1987	08	24.33403	22	03	47.32	-05	08	43.5	4 809

871 Akou
K. Kawanishi, 2045-1, Kariya, Akou, Hyogo-Ken 678-02, Japan
0.20-m f/4.8 reflector

1988	VJ2		1988	12	09.55277	03	32	35.60	+12	02	58.8	15.0 871
1988	VJ2		1988	12	09.56579	03	32	35.53	+12	02	55.0	15.0 871

872 Tokushima
T. Furuta, Mitsuike 17-2, Kakiya-Cho, Tokai, Aichi-Ken 477, Japan
Observers M. Iwamoto
Measurer T. Furuta
0.25-m Wright-Schmidt

1985	CX		1988	12	12.59468	05	13	01.92	+21	12	42.8	872
1985	CX		1988	12	12.61007	05	13	01.04	+21	12	45.8	872
1985	CX		1988	12	13.55307	05	12	03.95	+21	15	41.8	872
1985	CX		1988	12	13.57205	05	12	02.68	+21	15	45.4	872
1988	VZ		1988	11	11.50984	02	32	12.04	+16	52	13.5	872
1988	VZ		1988	11	11.52859	02	32	10.99	+16	52	12.3	872
1988	VZ		1988	11	13.50515	02	30	26.34	+16	51	19.1	872
1988	VZ		1988	11	14.52135	02	29	33.25	+16	50	55.3	872
1988	VZ		1988	11	14.58678	02	29	32.55	+16	50	53.2	872
1988	XS		1988	12	12.59468	05	08	45.99	+23	28	32.0	16.5 872
1988	XS		1988	12	12.61007	05	08	44.96	+23	28	26.5	872

1988	XS		1988	12	13.50981	05	07	49.91	+23	23	36.1	872
1988	XS		1988	12	13.52593	05	07	49.01	+23	23	31.2	872
1988	XU1	*	1988	12	12.59468	05	10	09.95	+21	27	25.2	16.5	872
1988	XU1		1988	12	12.61007	05	10	09.07	+21	27	20.9	872
1988	XU1		1988	12	13.55307	05	09	15.80	+21	29	01.7	872
1988	XU1		1988	12	13.57205	05	09	14.78	+21	29	06.4	872

875 Yorii
M. Arai, 2695, Tomita, Saitama, 369-12 Japan
Observers M. Arai, H. Mori
Measurer H. Mori
0.30-m f/3.8 reflector

1977	RD7		1988	12	02.53958	04	23	44.16	+24	21	48.2	17	875
1977	RD7		1988	12	02.55972	04	23	42.79	+24	21	46.3	875
1977	RD7		1988	12	05.55208	04	20	19.93	+24	12	13.6	17	875
1977	RD7		1988	12	05.57153	04	20	18.53	+24	12	09.9	875
1977	TS3		1988	12	07.50486	03	11	44.72	+12	09	20.6	16	875
1977	TS3		1988	12	07.52708	03	11	44.01	+12	09	22.2	875
1977	TS3		1988	12	14.55764	03	08	20.63	+12	14	42.1	16	875
1977	TS3		1988	12	14.57153	03	08	20.19	+12	14	42.9	875
1988	VO		1988	11	30.52986	02	20	27.90	+26	24	53.5	17	875
1988	VO		1988	11	30.55220	02	20	26.05	+26	25	14.0	875
1988	VM2		1988	11	30.58819	03	27	00.48	+23	15	03.9	875
1988	WC		1988	12	07.50486	03	18	16.15	+13	09	38.4	15.5	875
1988	WC		1988	12	07.52708	03	18	14.78	+13	08	58.3	875
1988	WC		1988	12	09.55278	03	16	30.91	+12	02	55.7	15	875
1988	WC		1988	12	12.50417	03	14	16.74	+10	28	45.5	15	875
1988	WC		1988	12	16.69028	03	11	44.35	+08	20	44.0	15	875
1988	WC		1988	12	16.69792	03	11	44.06	+08	20	33.2	875
1988	WC		1989	01	03.54722	03	10	32.59	+01	00	39.1	15	875
1988	WC		1989	01	12.49375	03	15	50.36	-01	28	20.6	16	875
1988	WC		1989	01	12.51111	03	15	51.08	-01	28	37.1	875
1988	WC		1989	01	12.51817	03	15	51.42	-01	28	44.3	875
1988	XD1	*	1988	12	02.53958	04	28	49.03	+24	07	37.2	16	875
1988	XD1		1988	12	02.55972	04	28	47.52	+24	07	39.5	875
1988	XD1		1988	12	05.51389	04	25	26.98	+24	11	14.7	16.5	875
1988	XD1		1988	12	05.53542	04	25	25.59	+24	11	16.3	875
1988	XD1		1988	12	09.65764	04	20	52.35	+24	15	13.5	16	875
1988	XD1		1988	12	09.68611	04	20	50.45	+24	15	13.8	875
1988	XD1		1988	12	10.58958	04	19	53.27	+24	16	05.8	16	875
1988	XD1		1988	12	10.61111	04	19	51.88	+24	16	06.0	875
1988	XG1		1988	11	15.56944	03	35	45.47	+17	02	38.2	17	875
1988	XG1		1988	11	15.58958	03	35	44.03	+17	02	35.6	875
1988	XG1	*	1988	12	05.58125	03	14	56.96	+16	06	02.1	17	875
1988	XG1		1988	12	05.60729	03	14	55.28	+16	05	58.9	875
1988	XG1		1988	12	07.46250	03	13	19.08	+16	01	54.8	17	875
1988	XG1		1988	12	07.48472	03	13	17.71	+16	01	51.7	875
1988	XG1		1988	12	09.59097	03	11	33.85	+15	57	38.1	17	875
1988	XG1		1988	12	09.61181	03	11	32.92	+15	57	34.6	875
1988	XQ1	*	1988	12	05.58125	03	12	31.49	+15	56	18.9	17.5	875
1988	XQ1		1988	12	05.60729	03	12	30.26	+15	56	14.0	875
1988	XQ1		1988	12	09.59097	03	09	45.28	+15	50	19.5	17.5	875
1988	XQ1		1988	12	09.61181	03	09	44.46	+15	50	17.8	875
1988	XR1	*	1988	12	07.50486	03	13	33.54	+13	13	50.5	17	875
1988	XR1		1988	12	07.52708	03	13	32.31	+13	13	54.2	875
1988	XR1		1988	12	14.55764	03	08	45.01	+13	34	25.9	17	875
1988	XR1		1988	12	14.57153	03	08	44.25	+13	34	27.6	875
1988	XR1		1988	12	16.61603	03	07	39.06	+13	41	32.5	17.5	875
1988	XR1		1988	12	16.63403	03	07	38.21	+13	41	36.4	875

1988	XG2		1989	01	12.56875	07	42	40.24	+15	10	18.0	16	875
1988	XG2		1989	01	12.59549	07	42	38.46	+15	10	16.5		875
1989	AJ	*	1989	01	04.56667	07	23	44.63	+22	39	58.6	17	875
1989	AJ		1989	01	04.58889	07	23	43.15	+22	39	53.6		875
1989	AJ		1989	01	04.59792	07	23	42.73	+22	39	52.5		875
1989	AJ		1989	01	06.60278	07	21	40.48	+22	36	40.5	16.5	875
1989	AJ		1989	01	06.60978	07	21	40.13	+22	36	38.9		875
1989	AJ		1989	01	12.53056	07	15	38.93	+22	26	33.5	16	875
1989	AJ		1989	01	12.55000	07	15	37.77	+22	26	30.5		875
1989	AJ		1989	01	12.55729	07	15	37.22	+22	26	29.6		875

877 Okutama
N. Kawasato, 3-51, Hana-Koganei, Kodaira, Tokyo 187, Japan
Observer T. Hioki
Measurers N. Kawasato, T. Hioki
0.30-m f/3.8 hyperboloid astrocamera

1972	TC2		1989	01	03.76285	08	23	07.2	+26	32	10	17	W 877
1972	TC2		1989	01	03.78438	08	23	06.1	+26	32	18		W 877
1972	TC2		1989	01	05.73715	08	21	14.38	+26	43	37.7		877
1972	TC2		1989	01	05.75660	08	21	13.26	+26	43	43.9		877
1988	VK2		1988	12	07.66655	03	33	36.57	+16	34	35.5		877
1988	VK2		1988	12	07.68304	03	33	35.67	+16	34	38.3		877
1988	VR3		1988	12	14.57847	03	40	57.4	+15	44	39	17	N 877
1988	VR3		1988	12	14.59618	03	40	56.8	+15	44	35		N 877
1988	VD7	*	1988	11	10.75876	04	20	50.8	+18	58	36	16.5	877
1988	VD7		1988	11	10.77951	04	20	49.4	+18	58	40		877
1988	VD7		1988	11	11.78333	04	19	42.3	+18	59	32		877
1988	VD7		1988	11	11.79722	04	19	41.3	+18	59	32		877
1988	VD7		1988	12	11.61389	03	45	35.84	+19	15	01.7	17	877
1988	VD7		1988	12	11.63264	03	45	34.91	+19	15	01.0		877
1988	XJ1	*	1988	12	07.58264	03	51	59.6	+17	03	54	17.5	877
1988	XJ1		1988	12	07.60590	03	51	58.3	+17	03	57		877
1988	XJ1		1988	12	11.58194	03	48	39.89	+17	11	18.9		877
1988	XJ1		1988	12	11.59896	03	48	39.11	+17	11	22.0		877
1988	XJ1		1988	12	14.57847	03	46	19.65	+17	17	15.2		877
1988	XJ1		1988	12	14.59618	03	46	18.87	+17	17	20.6		877
1988	XZ1	*	1988	12	11.58194	03	45	13.48	+17	21	26.3	17	877
1988	XZ1		1988	12	11.59896	03	45	12.73	+17	21	24.8		877
1988	XZ1		1988	12	14.57847	03	43	07.0	+17	14	49		877
1988	XZ1		1988	12	14.59618	03	43	06.2	+17	14	50		877
1988	XA2	*	1988	12	11.58194	03	48	41.12	+16	25	21.1	17	877
1988	XA2		1988	12	11.59896	03	48	40.17	+16	25	21.7		877
1988	XA2		1988	12	14.57847	03	46	05.7	+16	29	48		877
1988	XA2		1988	12	14.59618	03	46	04.8	+16	29	51		877
1988	XD2		1988	12	11.61389	03	45	39.94	+19	20	03.5		877
1988	XD2		1988	12	11.63264	03	45	39.09	+19	20	01.5		877
1988	YB	*	1988	12	30.64412	07	52	30.80	+22	48	03.0	17	877
1988	YB		1988	12	30.66042	07	52	30.00	+22	48	06.5		877
1988	YB		1989	01	02.60903	07	50	12.0	+22	56	17	17	N 877
1988	YB		1989	01	02.63941	07	50	10.5	+22	56	23		N 877
1988	YB		1989	01	04.65712	07	48	31.5	+23	02	10		N 877
1988	YB		1989	01	04.67882	07	48	30.5	+23	02	14		N 877
1989	AG	*	1989	01	02.73616	08	05	34.1	+26	48	43	17	877
1989	AG		1989	01	02.75538	08	05	33.2	+26	48	54		877
1989	AG		1989	01	03.71875	08	04	45.35	+26	58	33.9		877
1989	AG		1989	01	03.74479	08	04	43.94	+26	58	48.8		877
1989	AG		1989	01	04.72257	08	03	53.64	+27	08	33.6		877
1989	AG		1989	01	04.76059	08	03	51.77	+27	08	57.9		877

881 Toyota
T. Furuta, Mitsuike 17-2, Kakiya-Cho, Tokai, Aichi-Ken 477, Japan
Observer K. Suzuki
Measurer T. Furuta
0.31-m f/5.7 reflector

1988 VH		1988 11 13.61007	03	08	57.59	+22	04	32.7	881
1988 VH		1988 11 13.62535	03	08	56.93	+22	04	24.4	881
1988 VH		1988 11 20.54028	03	02	41.28	+20	54	00.0	881
1988 VH		1988 11 20.56944	03	02	39.84	+20	53	43.8	881
1989 AF	*	1989 01 01.60243	07	40	44.92	+26	58	24.2	16.5 881
1989 AF		1989 01 01.62188	07	40	43.69	+26	58	28.9	881
1989 AF		1989 01 04.60729	07	37	31.00	+27	12	43.6	881
1989 AF		1989 01 04.63021	07	37	29.48	+27	12	49.1	881
1989 AF		1989 01 13.51979	07	27	26.72	+27	50	43.4	16. 881
1989 AF		1989 01 13.54479	07	27	25.10	+27	50	49.8	881
1989 AU		1989 01 01.53715	07	27	48.06	+24	38	57.1	16.5 881
1989 AU		1989 01 01.55868	07	27	46.57	+24	39	01.9	881
1989 AU		1989 01 02.55521	07	26	41.80	+24	44	09.1	881

888 Gekko
Y. Oshima, Gekko Observatory, Kan-nami, Shizuoka 419-01, Japan
Observer Y. Oshima
0.5-m f/4 reflector

1936 QV		1988 12 02.54930	03	10	46.03	+13	35	25.9	18.0 888
1936 QV		1988 12 02.58194	03	10	44.42	+13	35	19.3	888
1936 QV		1988 12 10.54722	03	05	23.32	+13	13	03.1	17.5 888
1936 QV		1988 12 10.57917	03	05	22.20	+13	12	58.8	888
1950 JB		1989 01 05.77917	09	07	38.22	+19	13	22.1	16.5 888
1950 JB		1989 01 05.80972	09	07	37.06	+19	13	38.0	888
1953 TV		1988 12 03.72917	06	11	52.68	+13	22	06.5	18.0 888
1953 TV		1988 12 03.76042	06	11	51.02	+13	22	00.9	888
1953 TV		1988 12 10.68542	06	05	49.76	+13	05	24.8	17.5 888
1953 TV		1988 12 10.71875	06	05	47.75	+13	05	19.7	888
1953 TV		1989 01 03.63125	05	43	15.66	+12	38	40.1	17.0 888
1953 TV		1989 01 03.66597	05	43	13.87	+12	38	39.9	888
1972 TC2		1988 12 15.72083	08	36	26.52	+24	44	40.9	17.5 888
1972 TC2		1988 12 15.75208	08	36	25.66	+24	44	50.1	888
1972 TC2		1989 01 02.70347	08	24	06.29	+26	25	56.7	17.5 888
1972 TC2		1989 01 02.73750	08	24	04.32	+26	26	08.2	888
1973 SM		1988 12 17.73125	08	26	25.50	+16	38	28.9	18.0 888
1973 SM		1988 12 17.76319	08	26	24.85	+16	38	31.0	888
1973 SM		1989 01 03.64861	08	19	23.08	+16	57	56.6	17.5 888
1973 SM		1989 01 03.68194	08	19	21.98	+16	57	59.6	888
1974 SX1		1988 12 02.56597	03	45	40.82	+30	06	47.7	17.0 888
1974 SX1		1988 12 02.59792	03	45	38.50	+30	06	42.6	888
1974 SX1		1988 12 10.59167	03	37	20.66	+29	43	53.9	17.0 888
1974 SX1		1988 12 10.62431	03	37	18.78	+29	43	47.8	888
1976 SF		1988 12 02.62847	04	52	56.75	+20	21	20.9	18.0 888
1976 SF		1988 12 02.66111	04	52	55.08	+20	21	21.3	888
1976 SF		1988 12 10.60833	04	45	54.10	+20	10	59.1	17.0 888
1976 SF		1988 12 10.64097	04	45	52.19	+20	10	55.0	888
1976 SZ5		1988 12 15.67431	06	54	40.52	+20	47	18.7	18.0 888
1976 SZ5		1988 12 15.70764	06	54	39.02	+20	47	20.5	888
1976 SZ9		1988 12 02.63681	04	57	22.66	+28	01	43.1	18.0 888
1976 SZ9		1988 12 02.66944	04	57	21.00	+28	01	41.6	888
1976 SZ9		1988 12 10.61597	04	49	48.42	+27	55	05.8	17.0 888
1976 SZ9		1988 12 10.64931	04	49	46.52	+27	55	03.5	888
1978 TQ8		1988 12 01.61597	03	47	56.50	+15	54	11.3	17.5 888
1978 TQ8		1988 12 01.63958	03	47	55.10	+15	54	06.5	888

1978	TQ8	1988	12	03.56736	03	46	02.71	+15	48	26.9	17.5	888
1978	TQ8	1988	12	03.60000	03	46	00.66	+15	48	21.1		888
1981	QZ2	1988	12	03.63542	04	27	25.35	+19	12	29.1	18.0	888
1981	QZ2	1988	12	03.66875	04	27	23.75	+19	12	25.9		888
1981	QZ2	1988	12	06.67639	04	24	55.18	+19	07	38.7	18.5	888
1981	QZ2	1988	12	06.70208	04	24	53.80	+19	07	36.4		888
1981	SW6	1989	01	05.70278	09	26	22.34	+06	24	31.3	17.0	888
1981	SW6	1989	01	05.73542	09	26	21.41	+06	24	35.5		888
1981	SJ7	1988	12	02.61250	03	51	11.11	+26	38	00.8	17.0	888
1981	SJ7	1988	12	02.64514	03	51	08.99	+26	37	48.8		888
1981	SJ7	1988	12	10.60000	03	43	07.01	+25	49	30.5	17.0	888
1981	SJ7	1988	12	10.63264	03	43	05.17	+25	49	17.5		888
1981	TQ1	1988	11	30.45903	00	42	42.19	+11	08	46.5	17.5	888
1981	TQ1	1988	11	30.49167	00	42	42.49	+11	08	46.9		888
1982	SE1	1988	12	07.51528	02	35	13.36	+19	54	40.3	17.0	888
1982	SE1	1988	12	07.54931	02	35	12.51	+19	54	31.1		888
1982	SE1	1988	12	11.57014	02	33	45.37	+19	39	12.8	17	888
1982	SE1	1988	12	11.60139	02	33	44.71	+19	39	07.0		888
1982	SE1	1988	12	28.49514	02	32	11.13	+18	54	03.8	17.5	888
1982	SE1	1988	12	28.52639	02	32	11.24	+18	54	01.2		888
1982	SE1	1989	01	01.42639	02	32	52.21	+18	48	33.4	17	888
1982	SE1	1989	01	01.45764	02	32	52.76	+18	48	34.8		888
1983	VP1	1988	12	07.67361	04	08	48.85	+19	08	04.7	17.0	888
1983	VP1	1988	12	07.70764	04	08	47.09	+19	07	54.4		888
1983	VP1	1988	12	15.64931	04	02	26.24	+18	21	35.7	16.5	888
1983	VP1	1988	12	15.68333	04	02	24.70	+18	21	24.2		888
1984	SB6	1988	12	01.52986	02	37	26.71	+11	25	43.5	17.5	888
1984	SB6	1988	12	01.56111	02	37	25.56	+11	25	43.3		888
1984	SB6	1988	12	07.50694	02	34	38.97	+11	28	06.8	17.5	888
1984	SB6	1988	12	07.54167	02	34	38.09	+11	28	08.5		888
1985	HV1	1988	12	02.55764	03	33	57.62	+19	03	18.6	17.0	888
1985	HV1	1988	12	02.59028	03	33	55.99	+19	03	14.2		888
1985	HV1	1988	12	11.59306	03	27	08.92	+18	42	22.9	17.0	888
1985	HV1	1988	12	11.62500	03	27	07.54	+18	42	18.8		888
1985	JF	1988	12	03.70000	05	11	04.90	+02	29	21.0	17.5	888
1985	JF	1988	12	03.73750	05	11	03.03	+02	29	10.4		888
1985	JF	1988	12	07.68194	05	07	55.49	+02	12	11.7	17.5	888
1985	JF	1988	12	07.71597	05	07	53.84	+02	12	03.3		888
1986	EL1	1988	12	03.64375	03	28	52.69	+20	41	48.4	17.0	888
1986	EL1	1988	12	03.67708	03	28	50.93	+20	41	45.5		888
1986	EL1	1988	12	11.58542	03	22	34.86	+20	31	46.8	17.0	888
1986	EL1	1988	12	11.61736	03	22	33.49	+20	31	44.6		888
1986	FA	1988	12	17.74722	09	12	22.23	+23	48	39.9	18.0	888
1986	FA	1988	12	17.77917	09	12	22.11	+23	48	47.9		888
1986	FA	1989	01	03.71250	09	06	49.67	+25	14	59.9	17.5	888
1986	FA	1989	01	03.74514	09	06	48.27	+25	15	11.6		888
1987	SB5	1988	12	03.65208	05	10	54.61	+18	39	24.4	17.5	888
1987	SB5	1988	12	03.68542	05	10	52.73	+18	39	17.3		888
1987	SB5	1988	12	10.67500	05	04	45.35	+18	15	24.6	17.0	888
1987	SB5	1988	12	10.71047	05	04	43.42	+18	15	18.3		888
1988	TG	1988	11	30.48333	01	09	02.83	-07	15	13.4	17.0	888
1988	TG	1988	11	30.51667	01	09	04.05	-07	15	34.8		888
1988	VT	1988	11	30.46667	00	45	56.83	+09	27	16.0	17.5	888
1988	VT	1988	11	30.50000	00	45	57.24	+09	27	06.2		888
1988	VF1	1988	12	01.63194	02	58	24.50	+17	47	51.3	16.5	888
1988	VF1	1988	12	01.65555	02	58	23.51	+17	47	43.3		888
1988	VV1	1988	11	30.47500	00	54	05.04	+24	14	25.3	18.0	888
1988	VV1	1988	11	30.50833	00	54	04.93	+24	14	12.8		888
1988	VW1	1988	11	30.55139	02	41	26.34	+11	24	54.4	17.0	888

1988	VW1	1988	11	30.58333	02	41	25.10	+11	24	50.9	888
1988	VW1	1988	12	07.53403	02	37	35.67	+11	14	37.4	17.0 888
1988	VW1	1988	12	07.56875	02	37	34.63	+11	14	35.1	888
1988	VH2	1989	01	03.55069	03	32	31.61	+19	10	50.9	17.5 888
1988	VH2	1989	01	03.58333	03	32	31.48	+19	10	59.5	888
1988	VH2	1989	01	05.55556	03	32	28.85	+19	21	06.3	17.5 888
1988	VH2	1989	01	05.58889	03	32	28.79	+19	21	15.5	888
1988	VZ2	1988	12	05.57778	03	15	14.16	+25	01	48.8	16.0 888
1988	VZ2	1988	12	06.62639	03	14	36.09	+24	51	56.4	16.0 888
1988	VZ2	1988	12	06.69375	03	14	33.55	+24	51	18.2	888
1988	VZ2	1988	12	07.59097	03	14	03.11	+24	42	52.9	16.0 888
1988	VZ2	1988	12	07.62431	03	14	01.89	+24	42	33.7	888
1988	VZ2	1988	12	11.57778	03	12	05.44	+24	06	19.1	17.0 888
1988	VZ2	1988	12	11.60903	03	12	04.57	+24	06	00.6	888
1988	VZ2	1988	12	14.51042	03	11	00.17	+23	40	16.8	16.0 888
1988	VZ2	1988	12	14.54375	03	10	59.44	+23	39	59.7	888
1988	VZ2	1988	12	15.59097	03	10	40.44	+23	31	01.0	16.0 888
1988	VZ2	1988	12	15.62361	03	10	39.80	+23	30	44.9	888
1988	VZ2	1988	12	28.51042	03	10	10.23	+21	54	53.0	16.0 888
1988	VZ2	1988	12	28.54236	03	10	10.51	+21	54	40.5	888
1988	VM3	1988	11	30.55903	02	41	23.48	+19	21	10.3	17.5 888
1988	VM3	1988	11	30.59097	02	41	21.93	+19	21	02.7	888
1988	VM3	1988	12	05.56042	02	38	13.79	+19	04	36.1	17.5 888
1988	VM3	1988	12	10.52222	02	35	59.26	+18	51	09.8	17.5 888
1988	VM3	1988	12	10.55486	02	35	58.58	+18	51	05.7	888
1988	VN3	1988	11	30.56667	02	49	58.18	+14	48	34.7	17.5 888
1988	VN3	1988	11	30.59861	02	49	56.82	+14	48	22.7	888
1988	VN3	1988	12	05.56944	02	46	53.83	+14	19	13.9	18.0 888
1988	VN3	1988	12	10.53056	02	44	38.71	+13	54	47.2	17.0 888
1988	VN3	1988	12	10.56250	02	44	37.92	+13	54	38.5	888
1988	VO3	1988	11	30.57500	03	19	24.16	+25	17	03.7	17.5 888
1988	VO3	1988	11	30.60694	03	19	22.33	+25	16	59.6	888
1988	VO3	1988	12	05.57778	03	15	23.18	+25	06	24.1	18.0 888
1988	VO3	1988	12	06.62639	03	14	38.03	+25	04	07.3	17.5 888
1988	VO3	1988	12	06.69375	03	14	35.02	+25	03	57.9	888
1988	VO3	1988	12	11.57778	03	11	34.93	+24	53	32.7	17.5 888
1988	VO3	1988	12	11.60903	03	11	33.70	+24	53	27.1	888
1988	VP3	1988	12	01.53750	02	39	35.44	+20	16	03.3	18.0 888
1988	VP3	1988	12	01.55347	02	39	34.81	+20	16	04.0	888
1988	VP3	1988	12	01.56944	02	39	33.87	+20	16	02.7	888
1988	VP3	1988	12	01.60764	02	39	32.22	+20	16	02.5	888
1988	VP3	1988	12	07.52292	02	35	43.26	+20	15	35.2	17.5 888
1988	VP3	1988	12	07.55694	02	35	42.09	+20	15	35.6	888
1988	VP3	1988	12	11.57014	02	33	53.14	+20	16	48.3	18.0 888
1988	VP3	1988	12	11.60139	02	33	52.35	+20	16	48.3	888
1988	VP3	1988	12	14.49514	02	32	58.68	+20	18	38.6	17.5 888
1988	VP3	1988	12	14.52708	02	32	58.09	+20	18	39.2	888
1988	VP3	1988	12	15.57569	02	32	43.39	+20	19	32.3	17.5 888
1988	VP3	1988	12	15.60764	02	32	42.94	+20	19	33.1	888
1988	VQ3	1988	12	01.61597	03	50	02.09	+15	43	30.3	17.5 888
1988	VQ3	1988	12	01.63958	03	50	00.79	+15	43	20.0	888
1988	VQ3	1988	12	11.63750	03	41	45.47	+14	36	08.8	18.0 888
1988	VQ3	1988	12	11.67083	03	41	43.95	+14	35	57.5	888
1988	VS3	1988	12	01.62361	03	53	45.82	+20	44	16.9	17.0 888
1988	VS3	1988	12	01.64722	03	53	44.51	+20	44	04.9	888
1988	VS3	1988	12	06.68542	03	49	23.07	+20	04	05.2	17.0 888
1988	VS3	1988	12	06.71042	03	49	21.79	+20	03	53.7	888
1988	VS3	1988	12	11.64514	03	45	35.55	+19	26	48.5	18.0 888
1988	VS3	1988	12	11.67917	03	45	34.02	+19	26	33.9	888

1988	VS3		1988	12	14.51875	03	43	39.99	+19	06	33.6	17.0	888
1988	VS3		1988	12	14.55208	03	43	38.63	+19	06	19.5		888
1988	VS3		1988	12	14.57708	03	43	37.83	+19	06	06.1		888
1988	VS3		1988	12	14.60903	03	43	36.50	+19	05	52.8		888
1988	VS3		1988	12	15.59931	03	42	59.41	+18	59	12.8	17	888
1988	VS3		1988	12	15.63194	03	42	58.21	+18	59	00.9		888
1988	VB5		1988	12	07.58333	02	38	14.90	+09	07	41.1	17.0	888
1988	VB5		1988	12	07.61597	02	38	14.26	+09	07	29.6		888
1988	VB5		1988	12	14.56875	02	36	53.00	+08	32	30.5	17.0	888
1988	VB5		1988	12	14.59236	02	36	52.70	+08	32	22.3		888
1988	VD7		1988	12	11.64514	03	45	34.15	+19	15	02.5	17.5	888
1988	VD7		1988	12	11.67917	03	45	32.21	+19	15	03.1		888
1988	VD7		1988	12	14.51875	03	43	02.64	+19	17	12.6	17.0	888
1988	VD7		1988	12	14.55208	03	43	00.92	+19	17	13.6		888
1988	VD7		1988	12	15.59931	03	42	09.36	+19	18	07.4	17.0	888
1988	VD7		1988	12	15.63194	03	42	07.72	+19	18	08.6		888
1988	WG		1988	12	10.61597	04	46	48.72	+28	13	05.9	16.5	888
1988	WG		1988	12	10.64931	04	46	46.32	+28	13	14.2		888
1988	XB		1988	12	10.70208	07	14	30.54	+25	58	35.9	16.0	888
1988	XB		1988	12	10.73958	07	14	15.37	+25	59	30.6		888
1988	XB		1988	12	14.67708	06	51	44.34	+27	15	57.9	16.0	888
1988	XB		1989	01	02.67847	05	53	42.50	+28	52	34.0	17.0	888
1988	XB		1989	01	02.71250	05	53	39.09	+28	52	32.4		888
1988	XB		1989	01	05.62083	05	49	39.27	+28	51	35.0	17.0	888
1988	XB		1989	01	05.65486	05	49	36.38	+28	51	32.2		888
1988	XH		1988	12	07.59931	03	37	42.04	+30	20	08.3	16.0	888
1988	XH		1988	12	07.63264	03	37	39.96	+30	19	59.9		888
1988	XK		1988	12	14.58472	04	17	29.93	+18	27	46.7	17.5	888
1988	XK		1988	12	14.61667	04	17	28.26	+18	27	38.3		888
1988	XL		1988	12	14.58472	04	17	03.74	+18	37	04.4	18.0	888
1988	XL		1988	12	14.61667	04	17	01.94	+18	36	58.5		888
1988	XB2		1988	12	01.53750	02	38	42.99	+20	52	43.1	17	888
1988	XB2		1988	12	01.55347	02	38	42.53	+20	52	45.3		888
1988	XB2		1988	12	01.56944	02	38	41.69	+20	52	38.1		888
1988	XB2	*	1988	12	07.52292	02	35	49.08	+20	34	57.4	17.5	888
1988	XB2		1988	12	07.55694	02	35	48.26	+20	34	52.1		888
1988	XB2		1988	12	11.57014	02	34	35.44	+20	25	06.7	17.0	888
1988	XB2		1988	12	11.60139	02	34	34.85	+20	25	01.4		888
1988	XB2		1988	12	14.49514	02	34	04.92	+20	19	13.7	17.5	888
1988	XB2		1988	12	14.52708	02	34	04.66	+20	19	11.1		888
1988	XB2		1988	12	15.57569	02	33	58.15	+20	17	21.0	17	888
1988	XB2		1988	12	15.60764	02	33	57.87	+20	17	17.9		888
1988	XB2		1989	01	03.46944	02	38	41.58	+20	10	47.7	18.0	888
1988	XB2		1989	01	03.50208	02	38	42.71	+20	10	45.9		888
1988	XC2	*	1988	12	11.64514	03	45	23.44	+18	50	53.7	16.5	888
1988	XC2		1988	12	11.67917	03	45	22.63	+18	50	53.3		888
1988	XC2		1988	12	14.51875	03	44	17.19	+18	50	34.3	16.0	888
1988	XC2		1988	12	14.55208	03	44	16.39	+18	50	33.5		888
1988	XC2		1988	12	14.57708	03	44	16.06	+18	50	29.0		888
1988	XC2		1988	12	14.60903	03	44	15.30	+18	50	29.0		888
1988	XD2	*	1988	12	11.64514	03	45	38.51	+19	20	00.1	17.5	888
1988	XD2		1988	12	11.67917	03	45	36.62	+19	20	02.9		888
1988	XD2		1988	12	14.51875	03	43	10.74	+19	22	02.4	17.5	888
1988	XD2		1988	12	14.55208	03	43	09.03	+19	22	03.7		888
1988	XD2		1988	12	15.59931	03	42	17.39	+19	22	50.9	17.5	888
1988	XD2		1988	12	15.63194	03	42	15.80	+19	22	52.1		888
1988	XE2	*	1988	12	11.65347	04	46	49.42	+20	42	46.5	17.5	888
1988	XE2		1988	12	11.68750	04	46	46.68	+20	42	47.1		888
1988	XE2		1988	12	14.59236	04	43	17.10	+20	47	10.5	17.5	888

1988	XE2		1988	12	14.62500	04	43	14.68	+20	47	13.3	888
1988	XE2		1988	12	15.65764	04	42	01.81	+20	48	44.1	17.0 888
1988	XE2		1988	12	15.69167	04	41	59.35	+20	48	46.5	888
1988	XF2	*	1988	12	14.50278	02	39	53.33	+21	11	34.4	16.0 888
1988	XF2		1988	12	14.53542	02	39	53.11	+21	11	16.8	888
1988	XF2		1988	12	15.58333	02	39	45.75	+21	01	31.5	16.0 888
1988	XF2		1988	12	15.61528	02	39	45.50	+21	01	13.1	888
1988	XG2	*	1988	12	15.73611	08	04	50.41	+16	11	18.8	18.0 888
1988	XG2		1988	12	15.76806	08	04	49.36	+16	11	12.7	888
1988	XG2		1988	12	17.72361	08	03	51.38	+16	04	51.2	17.5 888
1988	XG2		1988	12	17.75556	08	03	50.33	+16	04	45.5	888
1988	XG2		1989	01	01.65347	07	53	06.73	+15	27	07.2	17.0 888
1988	XG2		1989	01	01.68681	07	53	04.93	+15	27	02.2	888
1988	XG2		1989	01	03.64028	07	51	19.63	+15	23	33.7	17.0 888
1988	XG2		1989	01	03.67431	07	51	17.69	+15	23	29.5	888
1988	XG2		1989	01	05.62917	07	49	29.72	+15	20	17.3	17 888
1988	XG2		1989	01	05.66319	07	49	27.81	+15	20	14.0	888
1988	XL2		1988	11	14.59792	02	57	43.85	+19	34	49.0	17 888
1988	XL2		1988	11	14.62986	02	57	41.60	+19	34	54.9	888
1988	XL2		1988	12	01.53750	02	41	32.59	+20	35	23.9	17 888
1988	XL2		1988	12	01.55347	02	41	31.95	+20	35	28.3	888
1988	XL2		1988	12	01.56944	02	41	30.95	+20	35	29.6	888
1988	XL2		1988	12	01.60764	02	41	29.36	+20	35	39.2	888
1988	XL2	*	1988	12	07.52292	02	37	19.42	+20	55	40.8	17 888
1988	XL2		1988	12	07.55694	02	37	18.22	+20	55	49.3	888
1988	XN2	*	1988	12	01.53750	02	39	24.43	+20	09	49.9	17.5 888
1988	XN2		1988	12	01.55347	02	39	23.92	+20	09	47.8	888
1988	XN2		1988	12	01.56944	02	39	23.19	+20	09	43.1	888
1988	XN2		1988	12	01.60764	02	39	21.74	+20	09	35.5	888
1988	XN2		1988	12	07.51528	02	36	04.15	+19	49	07.2	18.0 888
1988	XN2		1988	12	07.54931	02	36	03.12	+19	49	01.7	888
1989	AC		1989	01	16.61701	05	15	11.44	+22	20	12.4	13.0 888
1989	AC		1989	01	16.61875	05	15	11.94	+22	20	13.3	888
1989	AU1	*	1989	01	01.65347	07	52	24.84	+15	33	56.4	17.0 888
1989	AU1		1989	01	01.68681	07	52	23.74	+15	33	57.5	888
1989	AU1		1989	01	03.64028	07	51	20.72	+15	35	11.2	17 888
1989	AU1		1989	01	03.67431	07	51	19.37	+15	35	11.9	888
1989	AV1	*	1989	01	02.47500	03	38	41.34	+18	51	45.3	16.0 888
1989	AV1		1989	01	02.50764	03	38	40.95	+18	51	47.0	888
1989	AV1		1989	01	05.56389	03	38	06.44	+18	52	36.5	16.0 888
1989	AV1		1989	01	05.59722	03	38	06.09	+18	52	36.6	888
2126	P-L		1989	01	05.71875	09	51	39.57	+19	25	38.6	888
2126	P-L		1989	01	05.75139	09	51	38.71	+19	25	42.0	17.5 888
2538	P-L		1988	12	02.54167	02	59	31.98	+24	31	28.1	18.0 888
2538	P-L		1988	12	02.57431	02	59	30.03	+24	31	23.9	888
2538	P-L		1988	12	10.53889	02	52	32.76	+24	13	34.1	17.5 888
2538	P-L		1988	12	10.57083	02	52	31.24	+24	13	29.5	888
2820	P-L		1988	12	15.74444	08	41	51.95	+27	05	11.8	18.0 888
2820	P-L		1988	12	15.77639	08	41	51.48	+27	05	21.1	888
2820	P-L		1989	01	03.69583	08	31	31.08	+28	36	26.0	17.5 888
2820	P-L		1989	01	03.72847	08	31	29.19	+28	36	35.0	888
6627	P-L		1988	12	17.72361	08	04	35.79	+16	08	26.3	18.0 888
6627	P-L		1988	12	17.75556	08	04	34.74	+16	08	28.5	888
6627	P-L		1989	01	02.69514	07	53	43.15	+16	36	22.4	18.0 888
6627	P-L		1989	01	02.72917	07	53	41.42	+16	36	27.1	888

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Measurers S. Miyasaka, T. Takahata
0.25-m f/4.8 reflector

1975	VA9		1988	12	10.56723	03	51	05.36	+33 16 12.3		894
1975	VA9		1988	12	10.58998	03	51	04.21	+33 16 00.7		894
1981	WQ		1988	12	10.45809	03	24	06.47	+21 27 56.1		894
1981	WQ		1988	12	10.49018	03	24	04.43	+21 27 58.4		894
1984	BL		1988	12	03.52856	03	05	52.49	+15 54 51.1		894
1984	BL		1988	12	03.56537	03	05	51.00	+15 54 45.1		894
1988	WC		1988	12	10.50133	03	15	45.54	+11 32 21.3		894
1988	WC		1988	12	10.52347	03	15	44.52	+11 31 41.2		894
1988	WC		1988	12	10.54337	03	15	43.44	+11 31 01.0		894
1988	XM		1988	12	10.51370	04	26	58.48	+14 26 43.3		894
1988	XM		1988	12	10.53227	04	26	57.39	+14 26 43.6		894
1988	XM		1988	12	10.55204	04	26	56.13	+14 26 46.6		894

896 Yatsugatake South Base Observatory
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Observers Y. Kushida, M. Inoue
Measurer O. Muramatsu
0.20-m f/4.8 reflector

1972	YR		1989	01	03.68438	08	05	24.70	+20 28 27.1	16.5	D 896
1972	YR		1989	01	03.71910	08	05	22.71	+20 28 30.6		D 896
1972	YR		1989	01	05.69612	08	03	25.59	+20 31 28.3		896
1972	YR		1989	01	05.73085	08	03	23.55	+20 31 32.4		896
1988	VS1		1988	12	05.63362	02	52	20.81	+12 09 46.3	16.8	896
1988	VS1		1988	12	05.66001	02	52	19.82	+12 09 45.7		896

897 YGCO Chiyoda Station
T. Kojima, 45 Shimonakamori, Chiyoda-cyo, Ora-Gun,
Gunma-ken, 370-07 Japan
Observer T. Kojima
0.25-m f/3.4 Wright-Schmidt camera

1988	WE		1988	12	10.48738	02	28	19.32	+07 31 59.8	16.5	897
1988	WE		1988	12	10.55932	02	28	18.30	+07 32 18.0		897
1988	XB		1988	12	17.81273	06	37	03.71	+27 54 53.8	16	897
1988	XM		1989	01	01.45023	04	10	05.76	+15 33 39.2	16	897
1988	XM		1989	01	01.49745	04	10	04.30	+15 33 50.3		897
1988	XO		1988	12	17.73061	05	15	46.76	+19 15 42.6	17	897
1988	XO		1988	12	17.75764	05	15	45.06	+19 15 49.5		897
1988	XP		1988	12	16.54167	05	15	20.84	+09 48 21.6	16.5	897
1988	XP		1988	12	16.56979	05	15	19.03	+09 48 29.4		897
1988	XS1	*	1988	12	10.57176	05	25	32.26	+35 47 25.1	16.5	897
1988	XS1		1988	12	10.60978	05	25	30.03	+35 47 17.4		897
1988	XS1		1988	12	17.73941	05	18	24.47	+35 21 12.6	17	897
1988	XS1		1988	12	17.77685	05	18	22.41	+35 21 02.1		897
1988	XT1	*	1988	12	10.58704	05	22	55.65	+44 03 17.0	16	897
1988	XT1		1988	12	10.62506	05	22	52.51	+44 03 33.2		897
1988	XT1		1988	12	16.48079	05	15	19.38	+44 41 11.1	16	897
1988	XT1		1988	12	16.52396	05	15	16.16	+44 41 25.9		897
1988	XT1		1989	01	01.46019	04	57	14.42	+45 25 24.2	16.5	897
1988	XT1		1989	01	01.50689	04	57	11.88	+45 25 25.8		897
1989	AB	*	1989	01	01.47292	06	28	54.86	+37 02 02.5	15	897
1989	AB		1989	01	01.52153	06	28	51.28	+37 02 01.6		897
1989	AB		1989	01	03.45440	06	26	34.63	+37 00 06.0	15	897
1989	AB		1989	01	03.49549	06	26	31.57	+37 00 03.1		897
1989	AB		1989	01	12.50579	06	16	54.74	+36 37 49.2	15	897
1989	AB		1989	01	12.54659	06	16	52.23	+36 37 40.9		897

1989 AD	*	1989	01	03.42795	05	30	30.21	+35	28	55.5	16.5	897
1989 AD		1989	01	03.46944	05	30	28.01	+35	28	48.8		897
1989 AD		1989	01	05.48993	05	28	54.95	+35	20	22.2	16	897
1989 AD		1989	01	05.53021	05	28	52.90	+35	20	12.8		897
1989 AD		1989	01	12.49595	05	24	47.48	+34	47	27.3	16	897
1989 AD		1989	01	12.53912	05	24	46.29	+34	47	14.2		897
1989 AE	*	1989	01	03.53819	07	17	32.07	+22	59	04.0	16.5	897
1989 AE		1989	01	03.57639	07	17	29.52	+22	59	04.1		897
1989 AE		1989	01	05.52245	07	15	19.73	+22	59	24.4	16.5	897
1989 AE		1989	01	05.56181	07	15	17.00	+22	59	24.6		897
1989 AE		1989	01	12.51470	07	07	37.69	+22	59	29.0	17	897
1989 AE		1989	01	12.55417	07	07	34.95	+22	59	30.3		897
1989 AE		1989	01	16.72222	07	03	12.11	+22	58	29.7	17.5	897
1989 AE		1989	01	16.74647	07	03	11.21	+22	58	26.6		897
1989 AK		1988	12	30.50833	06	59	53.22	+24	21	42.3	15.5	897
1989 AK		1988	12	30.54653	06	59	50.98	+24	21	50.7		897
1989 AK	*	1989	01	05.49740	06	54	30.09	+24	44	17.8	16 I	897
1989 AK		1989	01	05.53898	06	54	27.76	+24	44	26.9		897
1989 AK		1989	01	06.53640	06	53	33.86	+24	48	01.2	16	897
1989 AK		1989	01	06.56800	06	53	32.21	+24	48	03.4	I	897
1989 AL	*	1989	01	05.52245	07	05	52.35	+23	31	25.9	15.5	897
1989 AL		1989	01	05.56181	07	05	49.66	+23	31	26.3		897
1989 AL		1989	01	06.54410	07	04	44.58	+23	31	40.7	15.5	897
1989 AL		1989	01	06.57546	07	04	42.49	+23	31	41.4		897
1989 AL		1989	01	12.51470	06	58	11.37	+23	32	11.4	15.5	897
1989 AL		1989	01	12.55417	06	58	08.77	+23	32	11.7		897
1989 AA1		1989	01	05.52245	07	07	39.99	+24	07	20.7	16.5	897
1989 AA1		1989	01	05.56181	07	07	37.90	+24	07	25.0		897
1989 AA1		1989	01	12.51470	07	01	23.02	+24	22	06.1	16	897
1989 AA1		1989	01	12.55417	07	01	20.86	+24	22	11.7		897
1989 AD1		1988	12	30.52361	07	01	49.01	+17	03	31.6	17	897
1989 AD1		1988	12	30.56181	07	01	46.95	+17	03	28.8		897
1989 AD1	*	1989	01	05.51267	06	54	55.12	+16	52	06.0	16.5	897
1989 AD1		1989	01	05.55426	06	54	52.24	+16	52	00.4		897
1989 AD1		1989	01	12.52222	06	47	06.19	+16	41	17.1	17	897
1989 AD1		1989	01	12.56163	06	47	03.65	+16	41	13.9		897

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0.55-m reflector
AGK3

1989 AC		1989	01	09.84133	04	27	43.08	+20	33	50.7		978
1989 AC		1989	01	09.88121	04	28	03.01	+20	34	45.8		978
1989 AC		1989	01	09.92987	04	28	27.58	+20	35	56.1		978
1989 AC		1989	01	10.77847	04	35	35.34	+20	55	07.7		978
1989 AC		1989	01	10.85382	04	36	11.37	+20	56	41.1		978
1989 AC		1989	01	10.96458	04	37	03.65	+20	59	03.3		978
1989 AC		1989	01	11.00632	04	37	22.94	+20	59	52.3		978

* * * * *

ORBITAL ELEMENTS.

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The name of the orbit computer is shown on the line giving T for a comet and Epoch for a displayed minor-planet orbit; for many of the minor planets (O-C) residuals are shown in full (in R.A. and Decl.); observations are identified by date and observatory code, X referring to an approximate and Y to a semiaccurate position. For displayed minor planets "Id." shows those involved in establishing the identifications (generally with the principal contributors first), "k" indicating key identifications and "d" (only) double (or multiple) designations; no identifier is shown if only the orbit computer is involved and the results were not previously published. J-P indicates that only the perturbations by the outer planets were considered, and a and n are then related by a gravitational constant augmented by the masses of the inner planets. For the one-opposition orbits, equinox 1950.0 is used, and the columns headed Arc and O show the time span in days covered by the observations and the number of observations utilized in the computation (0 = 10 or more). In the note column N, D means that there are double (or multiple) designations, E means that the value of the eccentricity was assumed, F means both; the double designations are listed at the end; the codes for the orbit computers (column C) are as listed above.

Periodic Comet Shoemaker-Holt (1987z)
Epoch 1988 June 8.0 ET = JDE 2447320.5

T 1988 May 21.35856 ET				Nakano
q 3.0530228		(1950.0)	P	Q
n 0.10315911	Peri.	210.41288	+0.43542883	-0.89922446
a 4.5026100	Node	213.82661	+0.84047878	+0.42294941
e 0.3219438	Incl.	4.36741	+0.32248591	+0.11184443
P 9.55				

From 57 observations 1987 Sept. 24-1988 Dec. 17, mean residual 1".2.

Periodic Comet Helin-Roman-Crockett (1989b)
T 1988 Sept. 6.27419 ET Nakano

q	3.4467033	(1950.0)	P	Q
n	0.12075617	Peri. 9.01153	-0.17480507	-0.98189136
a	4.0538079	Node 91.08013	+0.89869847	-0.18941222
e	0.1497616	Incl. 4.18846	+0.40222412	-0.00351823
P	8.16			

From 16 observations 1989 Jan. 3-28.

Comet Yanaka (1989a)
T 1988 Oct. 31.92331 ET Marsden

q	1.8961644	(1950.0)	P	Q
		Peri. 351.63389	-0.87125897	-0.37462029
		Node 156.41879	+0.48358130	-0.76575714
e	1.0	Incl. 52.43979	+0.08400553	+0.52275772

From 37 observations 1989 Jan. 2-18.

Comet Shoemaker (1989f)
T 1988 Nov. 2.09648 ET Nakano

q	2.2106812	(1950.0)	P	Q
		Peri. 18.87314	-0.01359626	-0.91043067
		Node 73.64217	+0.85294042	-0.22634486
e	1.0	Incl. 25.52339	+0.52183118	+0.34624268

From 7 observations 1989 Jan. 11-28.

Periodic Comet Bradfield 2 (1989c)
T 1988 Dec. 5.22367 ET Green

q	0.4194933	(1950.0)	P	Q
n	0.01368173	Peri. 194.59371	-0.84229160	+0.27727117
a	17.3131204	Node 27.75110	-0.33853077	+0.39521199
e	0.9757702	Incl. 83.08021	-0.41945414	-0.87574436
P	72.04			

From 14 observations 1989 Jan. 7-31.

Comet Yanaka (1988r)
T 1988 Dec. 11.65339 ET Marsden

q	0.4278033	(1950.0)	P	Q
		Peri. 88.12510	+0.25373839	-0.69699860
		Node 314.82365	-0.18698450	+0.64494712
e	1.0	Incl. 71.01027	+0.94902773	+0.31342648

From 31 observations 1989 Jan. 1-16.

Comet Shoemaker (1989e)
T 1989 Feb. 25.47256 ET Nakano

q	2.6418013	(1950.0)	P	Q
		Peri. 18.90952	-0.65998488	+0.30979653
		Node 136.44919	+0.49467687	-0.50646333
e	1.0	Incl. 96.60013	+0.56543324	+0.80468690

From 15 observations 1989 Jan. 13-28.

Periodic Comet Russell 3 (1989d)
Epoch 1990 May 29.0 ET = JDE 2448040.5
T 1990 May 17.88599 ET Marsden

q	2.5172492	(1950.0)	P	Q
n	0.13133982	Peri. 353.22426	-0.47785030	+0.84895040
a	3.8329967	Node 248.01581	-0.79405759	-0.52732825
e	0.3432686	Incl. 14.08745	-0.37567490	+0.03475823
P	7.50			

From 46 observations 1983-1989.

One-opposition minor planets

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1983 AW	15.0	830126	3.67	281.99	193.55	3.67	0.1674	2.2337	30	7		G
1983 AO2	12.0	830106	0.21	339.90	124.41	13.52	0.1048	3.1200	5	4		G
1983 DC	14.0	830215	26.08	137.21	338.22	2.70	0.1614	2.3854	29	8		G
1983 DK	13.5	830215	8.62	118.39	29.00	8.11	0.0718	2.2604	8	4		N
1983 HB1	10.5	830416	255.12	198.41	112.16	12.94	0.1467	3.1106	21	5		N
1983 PM1	13.5	830903	355.72	77.69	267.91	7.92	0.2133	2.5574	39	3		G
1983 RX	14.0	830903	31.79	340.81	318.50	4.15	0.1669	2.1706	33	5		N
1983 RS1	14.0	830903	33.96	289.84	7.34	5.37	0.1276	2.2261	5	5		N
1983 RT1	15.0	830903	17.63	312.47	3.27	4.67	0.1755	2.2099	5	5		N
1983 RX1	14.0	830903	70.78	257.31	5.90	6.55	0.0692	2.1932	5	5	E	N
1983 RQ3	14.5	830814	354.65	7.82	329.01	4.63	0.2427	2.3535	31	0		G
1983 RB4	14.5	830903	351.02	309.15	48.80	3.00	0.2200	2.4385	10	7		G
1983 RH4	13.5	830903	358.26	333.28	24.95	8.86	0.2604	2.5843	2	5	E	M
1983 RM4	16.0	830903	8.36	274.23	59.34	1.51	0.1311	2.1849	35	4		N
1985 JZ1	13.0	850515	356.08	359.20	240.80	4.07	0.2030	3.1432	10	3		G
1985 PM1		850823	354.56	188.16	162.04	17.19	0.3258	2.7411	37	0		G
1985 PG2	13.9	850823	315.48	334.21	62.45	3.88	0.1703	2.4280	11	3		F
1985 PH2	14.3	850813	345.87	18.12	336.09	14.35	0.2005	2.3379	6	4		F
1985 QU4	14.4	850823	344.42	7.92	351.99	6.18	0.1643	2.1945	7	3		F
1985 QX4	11.5	850823	14.58	154.44	175.48	8.16	0.0915	3.9710	33	3	E	G
1985 QG5	12.8	850912	359.92	284.52	65.83	1.69	0.1585	3.1644	28	3		F
1985 QH5	13.7	850912	317.70	236.72	176.36	1.73	0.1988	2.5906	28	3		F
1985 QJ5	12.9	850912	349.30	14.18	354.06	13.30	0.1968	3.2160	28	3		F
1985 QL5	14.9	850912	35.21	309.21	348.59	3.57	0.2301	2.2311	28	3		F
1985 QM5	13.1	850912	14.15	185.94	148.88	2.54	0.1490	2.9397	28	3		F
1985 QP5	13.5	850912	40.97	304.57	357.80	13.70	0.1131	2.5486	28	3		F
1985 QD6	15.2	850912	0.35	223.80	121.52	5.22	0.2939	2.5624	27	4		F
1985 RG	14.5	850823	335.88	9.22	10.58	0.98	0.2090	2.4092	28	7		G
1985 RJ	14.5	850823	23.90	119.24	182.31	11.99	0.2895	2.6458	37	8		G
1985 RS	12.5	850912	158.43	192.65	359.21	12.69	0.1509	2.6424	25	5		N
1985 RR1	12.5	850912	358.18	5.56	343.70	27.81	0.2596	2.5513	20	5	E	N
1985 RD2	14.0	850823	5.09	345.94	343.15	10.61	0.2231	2.4411	30	6		G
1985 RJ2	14.5	850912	359.21	3.28	343.70	6.05	0.1551	2.2171	31	3		G
1985 RJ3	13.0	850823	68.47	91.95	173.48	1.88	0.1320	3.1010	28	0		G
1985 RN3	16.0	850823	2.79	341.76	353.12	4.62	0.1589	2.1792	32	0		G
1985 RQ3	14.0	850823	37.95	121.33	160.62	10.73	0.2578	2.7309	33	0		G
1985 RR4	14.5	850823	6.83	157.24	179.04	9.41	0.1706	2.7834	28	0		G
1985 RJ5	15.0	850912	335.26	334.66	53.50	2.70	0.2481	2.3490	9	3		K
1985 RK5	16.0	850912	9.17	243.51	89.46	3.87	0.2330	2.2431	9	3		G
1985 RM6	13.0	850912	3.26	143.59	220.66	0.16	0.1910	3.1790	7	3	E	G
1985 RN6	13.6	850922	332.41	28.20	17.69	8.95	0.1336	2.5593	7	3		F
1985 RO6	14.0	850922	26.50	127.10	200.95	3.80	0.2371	2.6545	7	3		F
1985 SG2	13.5	851002	39.06	351.02	313.55	6.38	0.2863	2.8804	29	3		F
1985 SM2	12.4	851002	183.84	312.77	236.12	10.84	0.0895	2.6081	29	3		F
1985 SV2	14.4	850922	13.80	70.38	281.47	5.87	0.1205	2.3903	29	3		K
1985 SC3	15.2	850922	9.86	132.90	220.15	6.54	0.1939	2.1955	29	3		V
1985 SG3	12.9	851002	32.74	94.94	226.93	12.24	0.2517	3.1586	29	3		F
1985 SN3	13.5	850912	357.57	132.86	238.89	5.20	0.1243	2.5122	2	3	E	G
1985 SR4	14.5	850912	357.27	131.85	236.27	1.83	0.2443	2.4849	2	3	E	G
1985 TL	13.0	851002	38.68	98.18	224.24	4.89	0.1835	3.1019	29	6		G
1985 TN	15.0	851002	353.14	359.00	25.56	4.64	0.1623	2.2325	29	5		G
1985 TO	14.0	851002	47.86	311.83	3.41	3.81	0.1411	2.2477	52	0		G
1985 TP	12.5	851002	62.66	130.11	178.35	1.89	0.0586	2.8539	52	9		G
1985 TR	14.0	851002	312.58	62.79	13.89	3.72	0.1322	2.4315	47	8		G
1985 TS	14.5	851002	10.04	358.93	4.91	3.80	0.1237	2.2951	47	9		G
1985 TU	14.5	851002	350.47	152.80	239.08	1.56	0.2188	2.6225	47	0		G
1985 TW	14.5	851002	17.02	344.44	6.81	1.30	0.1932	2.4054	53	0		G

1985	TB1	12.5	851002	260.14	256.55	234.91	1.21	0.1077	2.8359	27	4		G
1985	TS1	12.0	851002	111.44	339.39	278.67	8.30	0.0149	2.9672	29	4		G
1985	TY1	13.5	851002	10.66	111.69	248.35	8.01	0.0870	2.6457	29	5		G
1985	TV2	13.0	850912	210.35	313.40	211.62	8.34	0.0793	2.3325	26	5		G
1985	TB3	15.0	851002	6.51	188.33	175.81	3.81	0.1509	2.1840	24	5		G
1985	TH3	14.0	851002	28.88	347.32	343.81	14.14	0.1678	2.7077	21	4		G
1985	TZ3	14.0	851002	63.03	343.98	306.20	5.32	0.1728	2.2739	31	6		G
1985	UC	14.0	851002	48.65	293.05	11.02	16.86	0.2365	2.5860	29	8		G
1985	UF	14.0	851002	34.31	304.22	25.22	8.97	0.1651	2.4316	46	8		G
1985	UR	14.0	851022	351.28	207.60	192.38	12.68	0.1995	2.4274	32	8		N
1985	UT	12.5	851002	29.60	279.26	62.40	6.87	0.1441	2.9738	5	7		G
1985	UU	14.0	851022	334.56	15.24	48.27	10.44	0.1829	2.4256	23	7		G
1985	UY	11.5	851022	355.60	214.28	178.40	10.14	0.0916	3.4287	32	5	D	N
1985	UG2	14.0	851002	343.49	251.95	149.45	1.92	0.1164	2.1979	52	7		G
1985	UH2	14.0	851022	22.82	294.24	65.67	3.14	0.1048	2.3347	25	6		G
1985	UJ2	14.5	851022	327.87	17.48	56.92	6.10	0.1943	2.3754	26	4		G
1985	UF3		851002	3.35	180.76	194.44	12.49	0.1666	2.6016	52	7		G
1985	UH3	14.5	851022	31.56	190.90	146.99	3.07	0.2224	2.4370	52	5		N
1985	UK3	13.5	851022	65.72	264.74	39.60	4.59	0.1560	2.2496	52	7		N
1985	UO3	13.5	851022	22.29	330.70	31.35	22.51	0.0452	2.6087	25	6		G
1985	VD1	13.0	851002	8.02	356.09	12.62	5.33	0.1743	3.1025	52	5		G
1985	VF1	15.0	851002	331.17	150.92	271.48	1.21	0.2132	2.3532	52	5		G
1987	QV	14.0	870813	0.98	53.98	269.07	10.93	0.2790	2.6085	12	0		G
1987	QC1	14.0	870902	353.68	7.11	332.62	14.33	0.2637	2.6741	29	0		G
1987	QF1	14.0	870813	354.69	133.32	200.98	2.26	0.1920	2.6437	9	0		G
1987	QZ1	13.0	870813	296.64	82.30	318.83	5.74	0.1334	2.4276	13	0		G
1987	QO2	15.0	870813	347.21	24.66	318.10	8.62	0.2694	2.6098	4	8		G
1987	QS2	14.0	870813	309.58	252.77	147.73	9.79	0.2761	2.6589	4	9		G
1987	QT2	14.0	870813	331.29	101.42	275.76	1.54	0.3387	2.9034	4	9		G
1987	QX2	12.0	870813	137.56	46.59	128.56	3.98	0.1422	2.8146	10	0		G
1987	QB3	15.0	870813	353.17	133.32	201.20	2.83	0.1197	2.2779	2	8	E	G
1987	QC3	14.5	870813	315.13	77.77	306.18	5.41	0.1403	2.2742	8	0		G
1987	QD3	13.5	870813	156.85	355.61	171.32	5.59	0.0895	2.2923	4	7	E	G
1987	QE3	12.5	870813	267.01	277.93	171.49	8.63	0.2574	2.8252	7	0		G
1987	QF3	14.0	870813	22.49	171.03	135.77	5.74	0.0763	2.4586	10	7		M
1987	QK3	13.5	870813	355.50	53.31	275.58	4.29	0.1108	2.5140	2	8	E	G
1987	QS5	14.0	870813	18.90	332.72	332.09	8.91	0.2206	3.1331	3	0		G
1987	QX5	14.0	870813	40.03	106.90	144.41	4.48	0.3074	2.4845	4	8	E	G
1987	QZ5	14.5	870813	355.50	13.51	319.59	6.21	0.2066	2.5265	3	8	E	G
1987	QB6	13.5	870813	310.50	234.81	153.30	19.53	0.1258	2.6349	9	7	D	G
1987	QY6	14.5	870813	345.40	41.68	308.06	9.05	0.2294	2.5053	4	0		M
1987	QZ6	14.0	870813	10.52	24.30	290.44	4.95	0.0657	2.2523	4	0		M
1987	QW7	14.0	870813	328.45	153.36	220.42	1.96	0.3456	2.7307	6	0		G
1987	QX7	14.0	870813	358.38	161.46	152.20	5.51	0.2395	2.8386	6	0		G
1987	QY7	13.0	870813	328.84	299.87	65.93	12.17	0.1805	3.0829	6	9		G
1987	SR9	15.0	870902	24.08	273.08	39.67	4.12	0.2627	2.3432	27	0	D	G
1987	SL10	13.5	870902	336.13	241.61	159.33	9.27	0.2388	3.9624	31	0	D	N
1988	BS	13.0	880120	303.27	262.60	285.77	7.41	0.1357	2.5721	5	6		M
1988	PK1	12.0	880827	50.98	24.54	250.47	9.31	0.0748	2.9981	32	8		M
1988	PM1	14.5	880827	3.52	164.66	165.92	2.46	0.2270	2.3762	33	0		M
1988	PN1	15.0	880807	344.58	195.65	155.06	2.66	0.1909	2.2857	6	8		M
1988	PV1	15.0	880807	339.10	69.10	288.84	4.56	0.1610	2.2951	5	7		M
1988	PB2	12.0	880807	358.11	4.19	343.91	8.14	0.0568	2.7976	5	6	E	M
1988	PX2	12.0	880807	288.18	260.08	177.83	12.76	0.2763	3.1477	5	7	E	M
1988	RD	13.0	880916	346.49	23.30	5.24	24.27	0.2304	2.3846	31	8		N
1988	RK	14.0	880916	1.74	173.62	176.51	9.72	0.1815	2.2043	4	4	E	N
1988	RF1	11.0	880916	6.76	337.89	1.54	22.38	0.1199	5.1134	28	4		B
1988	RG1	10.5	881006	28.89	161.46	159.17	23.81	0.0636	5.2850	59	6		B

1988	RK1	10.0	881006	16.12	283.04	61.43	9.34	0.0924	5.2588	58	7		B
1988	RM1	10.5	880827	359.45	120.40	221.40	8.63	0.0491	5.1020	55	7		B
1988	RA3	14.5	881006	23.53	165.79	174.25	1.83	0.2385	2.5761	58	0		G
1988	RD3	15.0	881006	85.83	88.59	188.76	2.20	0.1368	2.2137	57	0		N
1988	RJ3	15.0	880916	65.46	287.36	356.98	2.53	0.0774	2.3426	3	8	E	N
1988	RP3	14.5	880916	7.35	350.14	356.96	10.49	0.1882	2.4562	3	8	E	N
1988	RC4	14.0	880916	6.85	183.43	171.18	13.22	0.1352	2.2342	3	5		N
1988	RF4	14.0	880827	7.96	338.73	341.35	4.78	0.1734	2.2897	7	0		G
1988	RP4	12.0	880827	205.45	169.31	336.55	11.98	0.3531	2.3486	8	9		G
1988	RS4	12.0	880827	103.02	229.59	353.90	1.48	0.1125	2.7646	11	8	E	N
1988	RV4	13.5	880827	12.21	23.26	302.55	1.63	0.1757	2.6556	19	0		G
1988	RY4	15.5	880827	349.76	4.06	348.01	9.80	0.3466	2.7590	9	0		G
1988	RZ4	12.0	880827	302.49	284.29	126.91	13.03	0.2246	3.3704	5	9		G
1988	RA5	13.0	880827	353.02	246.66	93.56	3.72	0.1743	2.5436	2	9	E	G
1988	RO5	14.5	880827	317.31	70.05	324.32	8.19	0.1358	2.5415	4	9		G
1988	RU5	13.5	880827	7.52	177.82	143.11	2.15	0.1355	2.4360	5	9		G
1988	RB6	14.0	880827	11.28	160.21	162.40	13.02	0.2511	2.6053	9	9		G
1988	RD6	14.0	880827	353.60	288.45	49.87	2.15	0.1435	2.4073	6	0		G
1988	RE6		880827	303.95	342.00	77.66	1.87	0.2346	2.4107	5	0		G
1988	RF6	15.0	880827	354.86	225.64	119.59	2.59	0.1765	2.4289	5	9		G
1988	RJ6	15.0	880827	325.59	69.72	326.22	4.25	0.2386	2.3899	12	9		G
1988	RK6	15.5	880827	348.13	177.68	179.86	6.65	0.1422	2.2848	12	9		G
1988	RM6	13.5	880827	44.38	127.51	125.74	5.30	0.3061	2.4031	4	9	E	G
1988	RO6	14.0	880827	320.67	33.30	351.15	5.56	0.1781	2.3386	4	9		G
1988	SJ	13.5	880916	73.79	284.96	352.00	10.19	0.0995	2.7635	3	9	E	M
1988	SK	14.5	880916	328.32	68.61	338.46	2.20	0.2006	2.5819	3	9	E	M
1988	SL	13.0	880916	3.08	172.45	184.15	11.72	0.1893	3.1884	3	9	E	M
1988	SP	14.0	880916	358.73	259.97	87.33	1.81	0.0160	2.2123	2	9	E	G
1988	SQ	11.0	880916	359.45	349.23	355.17	12.04	0.1531	3.9795	2	9	E	G
1988	TG	14.0	881026	351.73	196.74	203.77	25.16	0.2771	2.4446	53	0		N
1988	TX	15.5	881006	16.99	136.28	206.75	4.78	0.3157	2.1956	21	0		G
1988	TA1	12.0	881006	336.44	205.82	203.39	10.03	0.1080	3.0624	30	0		G
1988	TB1	14.0	881006	20.38	143.00	208.27	5.01	0.1511	2.4350	22	0		G
1988	TH1	10.0	881006	73.28	107.85	172.83	11.51	0.1638	5.1830	29	4		B
1988	TL1	13.5	881006	351.64	175.64	213.87	4.91	0.1390	2.2860	22	0		G
1988	TM1	13.0	881006	344.23	189.64	212.49	1.85	0.1794	2.4314	22	0		G
1988	TU1	9.5	881006	23.12	206.35	134.62	19.09	0.1432	5.2068	52	6		B
1988	TX1	11.5	881006	73.42	89.59	205.88	9.31	0.0941	3.0277	30	0		G
1988	TR2	13.0	881006	333.48	39.11	25.90	15.71	0.2726	3.0458	24	0		G
1988	VA	14.5	881115	2.36	182.78	218.38	11.81	0.1974	2.4324	28	0		N
1988	VO	14.5	881115	354.99	14.17	44.19	25.63	0.2384	2.3366	27	0		N
1988	VT	12.5	881115	45.05	105.86	226.49	12.22	0.1209	2.7318	28	0		N
1988	VZ	12.0	881115	34.77	314.99	37.18	9.66	0.2172	3.1910	31	0		N
1988	VE1	12.5	881115	78.35	273.05	45.00	8.07	0.1306	2.7730	28	0		N
1988	VR1	12.5	881115	337.01	241.67	204.02	7.01	0.2119	2.7590	33	8		N
1988	VS1	14.0	881115	41.94	248.32	102.34	3.17	0.1946	2.1821	28	8		N
1988	VV1	12.5	881115	67.88	355.70	302.41	12.42	0.2397	2.9089	28	8		N
1988	VF2	13.0	881115	57.36	304.02	33.20	7.44	0.1615	2.3156	33	6		N
1988	VH2	13.5	881205	40.67	289.66	74.92	9.56	0.2171	2.4184	58	0		N
1988	VJ2	12.9	881205	7.96	196.29	211.74	5.31	0.3340	2.5339	32	9		N
1988	VK2	13.0	881115	28.31	305.16	74.86	7.62	0.1325	2.5590	30	8		N
1988	VO2	13.0	881205	359.15	129.68	291.88	7.23	0.1447	2.3963	52	6		B
1988	VR2	13.0	881205	348.60	359.39	87.86	13.33	0.2816	2.9275	51	6		B
1988	VS2	13.0	881115	39.95	151.80	211.43	13.36	0.1987	2.5943	25	4		M
1988	VM3	14.0	881205	60.25	340.81	357.22	2.21	0.1705	2.1721	29	0		N
1988	VN3	13.5	881205	341.59	214.65	226.64	4.87	0.1282	2.2857	29	0		N
1988	VO3	14.0	881115	24.02	0.29	14.83	4.91	0.2495	2.5634	38	0		N
1988	VP3	14.0	881205	4.67	18.03	33.59	6.05	0.1260	2.2317	33	0		N
1988	VQ3	13.5	881205	295.09	270.88	229.87	11.90	0.1106	2.7007	29	8		N

1988 VR3	14.0	881205	32.16	194.86	182.57	2.25	0.2040	2.4097	31	0		N
1988 VS3	13.0	881205	46.68	111.04	245.63	10.30	0.2182	2.6810	32	0		N
1988 VG4	12.0	881115	356.36	147.09	272.88	6.26	0.1634	3.1666	34	4		M
1988 VK4	13.5	881115	179.31	210.85	25.22	8.79	0.0851	2.2627	28	4		M
1988 VE7	14.0	881026	326.83	337.21	133.85	7.07	0.2128	2.4499	3	6		M
1988 WB	13.5	881205	326.64	163.65	288.98	1.68	0.0172	2.1920	15	0		N
1988 WD	14.5	881205	24.30	304.95	87.49	2.62	0.2387	2.2401	7	7	E	N
1988 WE	13.5	881205	9.98	292.08	108.28	4.78	0.1719	2.2942	11	6		N
1988 WF	15.0	881205	17.86	291.56	106.56	0.58	0.3193	2.2855	7	6	E	N
1988 XD	14.0	881205	352.10	6.64	81.52	1.35	0.2782	2.9340	8	8	E	N
1988 XE	13.0	881205	7.41	168.18	252.15	12.77	0.2982	2.6517	33	0		M
1988 XK	12.5	881205	275.09	285.97	238.31	8.24	0.0852	2.8325	11	7		N
1988 XL	14.0	881205	72.15	122.47	219.87	3.04	0.1350	2.4880	11	7		N
1988 XO	13.0	881205	56.79	270.18	90.43	14.92	0.1930	2.5793	12	6		N
1988 XQ	13.5	881225	13.29	163.75	256.55	9.71	0.2716	2.5450	27	0		N
1988 XY	10.5	881205	150.96	208.21	73.98	24.14	0.0744	3.1369	5	0		N
1988 XZ	12.5	881225	333.99	220.40	250.46	4.60	0.0593	2.4042	27	0		N
1988 XD1	13.5	881205	357.69	19.05	54.91	4.32	0.1621	2.2583	8	8	E	N
1988 XE1	12.5	881115	283.22	254.80	246.69	6.14	0.0704	2.3854	91	0		N
1988 XH1	12.0	881205	81.58	253.16	78.24	13.27	0.1633	2.6596	14	0		N
1988 XJ1	12.5	881205	345.23	7.22	73.36	13.42	0.0612	3.1728	7	6		N
1988 XO1	11.5	881205	0.74	255.59	189.30	12.80	0.1748	2.7549	27	3		M
1988 XQ1	12.5	881205	274.93	63.60	81.56	3.17	0.0222	2.9054	8	5		M
1988 XR1	14.0	881225	3.62	340.61	81.87	7.19	0.1073	2.3595	9	6		N
1988 XT1	12.5	881225	19.79	8.60	40.99	17.94	0.3011	3.0359	22	6		N
1988 XX1	13.5	881205	52.35	349.92	24.91	14.44	0.1894	2.5834	30	4		B
1988 XB2	14.0	881205	32.86	15.54	353.59	3.13	0.1954	2.3893	32	0		N
1988 XE2	13.0	881225	105.11	223.89	81.61	9.29	0.2835	2.2536	4	6	E	N
1988 XG2	12.5	881225	349.02	217.39	265.47	7.48	0.1343	2.7059	28	0		N
1988 XL2	12.7	881205	13.61	349.25	44.11	16.01	0.2314	3.1029	23	6		I
1988 YB	13.0	890114	11.54	31.47	61.90	1.51	0.2498	3.1793	5	6	E	N
1989 AA	14.0	881225	300.22	270.16	264.85	19.30	0.1200	1.9787	3	4	E	B
1989 AE	14.0	890114	42.72	118.15	292.95	3.07	0.1652	2.4722	13	8		N
1989 AH	12.5	890114	166.07	207.13	98.91	24.47	0.0570	3.1815	12	8		N
1989 AJ	12.5	890114	15.00	157.06	290.01	6.08	0.1988	2.7809	10	0		N
1989 AO	14.0	881225	22.11	313.50	114.66	14.34	0.3069	2.5700	5	4		B
1989 AQ	11.5	890114	20.88	358.09	78.03	1.80	0.1792	3.1720	9	0	E	N
1989 AR	13.5	890114	10.36	353.90	95.96	7.79	0.2520	2.5934	30	8		N
1989 AT	12.0	890114	4.99	1.56	98.97	11.18	0.1668	2.9775	9	0	E	N
1989 AU	12.0	890114	69.91	271.94	93.26	7.40	0.2952	2.6696	12	0		N
1989 AA1	10.5	890114	175.85	203.65	86.53	3.44	0.0701	3.0592	9	0		N
1989 AF1	14.0	890114	63.70	264.88	123.88	4.68	0.1434	2.1844	9	7		N
1989 AG1	11.5	890114	143.89	46.98	281.48	9.32	0.1243	2.9477	10	6		N
1989 AQ1	9.0	881225	358.56	33.97	87.95	23.24	0.0135	5.2094	2	3	E	B
1989 BA	12.5	890114	351.53	151.38	340.52	25.20	0.3162	2.5364	2	3		M

1985 UY = 1985 UF2 (S. Nakano)
1987 QB6 = 1987 QE1 (D. W. E. Green)
1987 SR9 = 1987 RL (S. Nakano, MPC 13436)
1987 SL10 = 1987 RK (S. Nakano)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(38) Leda Obs. 128 M 178.74033 Peri. 169.21579
H 8.31 G 0.05 Opp. 33 n 0.21706583 Node 295.44890
rms res. 1".31 (M-P) 1904-1986 e 0.1518397 Incl. 6.95262

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(73) Klytia Obs. 112 M 227.24493 Peri. 54.64886
H 9.00 G 0.25 Opp. 31 n 0.22651287 Node 6.73911
rms res. 2".57 (M-P) 1916-1984 e 0.0415019 Incl. 2.37775

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(79) Eurynome Obs. 207 M 324.74360 Peri. 200.39527
H 7.83 G 0.18 Opp. 32 n 0.25794160 Node 206.34596
rms res. 1".51 (M-P) 1928-1987 e 0.1928943 Incl. 4.62915

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(109) Felicitas Obs. 98 M 8.62513 Peri. 56.53246
H 8.87 G 0.11 Opp. 29 n 0.22283074 Node 2.84721
rms res. 1".51 (M-P) 1907-1986 e 0.2997421 Incl. 7.87829

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(124) Alkeste Obs. 200 M 238.11227 Peri. 62.19519
H 8.13 G 0.31 Opp. 43 n 0.23107184 Node 187.75185
rms res. 1".97 (M-P) 1902-1984 e 0.0779365 Incl. 2.95462

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(130) Elektra Obs. 158 M 177.20570 Peri. 234.73808
H 7.06 G 0.15 Opp. 31 n 0.17946233 Node 145.28771
rms res. 1".24 (M-P) 1901-1984 e 0.2181980 Incl. 22.88130

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(132) Aethra Obs. 46 M 268.13745 Peri. 254.23265
H 9.35 G 0.12 Opp. 19 n 0.23358162 Node 258.42693
rms res. 2".58 (M-P) 1937-1983 e 0.3851552 Incl. 25.08144

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(154) Bertha Obs. 75 M 235.61076 Peri. 152.88217
H 7.09 G 0.15 Opp. 24 n 0.17363769 Node 36.69733
rms res. 1".85 (M-P) 1926-1983 e 0.0939150 Incl. 21.11487

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(164) Eva Obs. 58 M 119.04204 Peri. 283.75940
H 8.60 G 0.01 Opp. 15 n 0.23085034 Node 76.61751
rms res. 1".56 (M-P) 1913-1982 e 0.3451454 Incl. 24.49446

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(168) Sibylla Obs. 107 M 63.73025 Peri. 165.89643
H 7.93 G 0.15 Opp. 33 n 0.15790436 Node 206.90720
rms res. 1".87 (M-P) 1902-1987 e 0.0526806 Incl. 4.61546

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(170) Maria Obs. 65 M 242.29880 Peri. 157.38828
H 9.42 G 0.25 Opp. 22 n 0.24168861 Node 300.88757
rms res. 1".56 (M-P) 1918-1985 e 0.0647705 Incl. 14.42652

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(197) Arete Obs. 222 M 52.29762 Peri. 245.01961
H 9.44 G 0.25 Opp. 32 n 0.21734905 Node 81.43001
rms res. 1".61 (M-P) 1915-1987 e 0.1607274 Incl. 8.80813

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(252) Clementina Obs. 78 M 208.81889 Peri. 156.27530
H 9.53 G 0.15 Opp. 25 n 0.17599610 Node 201.91020
rms res. 1".58 (M-P) 1902-1986 e 0.0828118 Incl. 10.07828

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(253) Mathilde Obs. 52 M 88.16229 Peri. 156.35878
H 10.30 G 0.15 Opp. 20 n 0.22841727 Node 179.37201
rms res. 2".44 (M-P) 1902-1987 e 0.2631445 Incl. 6.69803

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(297) Caecilia Obs. 72 M 194.88930 Peri. 358.10611
H 9.43 G 0.15 Opp. 25 n 0.17545058 Node 331.62133
rms res. 2".27 (M-P) 1911-1984 e 0.1457336 Incl. 7.54696

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(299) Thora Obs. 58 M 17.26577 Peri. 151.33956
H 11.72 G 0.25 Opp. 10 n 0.25948057 Node 240.90491
rms res. 1".35 (M-P) 1932-1983 e 0.0613826 Incl. 1.60368

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(309) Fraternitas Obs. 92 M 129.72139 Peri. 310.35007
H 10.49 G 0.15 Opp. 24 n 0.22623594 Node 356.24807
rms res. 1".79 (M-P) 1925-1986 e 0.1144706 Incl. 3.70945

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(311) Claudia Obs. 137 M 78.34192 Peri. 75.00204
H 10.09 G 0.25 Opp. 33 n 0.19980836 Node 80.73380
rms res. 1".45 (M-P) 1902-1988 e 0.0041878 Incl. 3.22692

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(315) Constantia Obs. 89 M 88.59664 Peri. 172.51240
H 13.43 G 0.25 Opp. 12 n 0.29352420 Node 161.21610
rms res. 0".89 (M-P) 1928-1987 e 0.1677239 Incl. 2.42768

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(327) Columbia Obs. 75 M 284.55450 Peri. 306.48137
H 10.23 G 0.15 Opp. 22 n 0.21315745 Node 354.57462
rms res. 2".35 (M-P) 1903-1984 e 0.0639488 Incl. 7.14347

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(340) Eduarda Obs. 111 M 62.39030 Peri. 40.70552
H 10.38 G 0.25 Opp. 25 n 0.21667108 Node 26.81540
rms res. 1".33 (M-P) 1919-1986 e 0.1176621 Incl. 4.68177

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(342) Endymion Obs. 67 M 148.78230 Peri. 225.59376
H 10.15 G 0.15 Opp. 20 n 0.23935504 Node 232.21902
rms res. 1".71 (M-P) 1904-1986 e 0.1279993 Incl. 7.32910

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Goffin
(356) Liguria Obs. 91 M 80.40930 Peri. 77.06152
H 8.17 G 0.15 Opp. 26 n 0.21543827 Node 354.84415
rms res. 0".9 (M-N) 1912-1987 e 0.2398629 Incl. 8.23248

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(369) Aeria Obs. 88 M 33.60707 Peri. 268.74458
H 8.55 G 0.22 Opp. 29 n 0.22864867 Node 93.96335
rms res. 2".37 (M-P) 1901-1986 e 0.0963236 Incl. 12.73496

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(377) Campania Obs. 118 M 245.11826 Peri. 195.52070
H 8.98 G 0.31 Opp. 29 n 0.22323625 Node 209.73013
rms res. 1".77 (M-P) 1905-1986 e 0.0753436 Incl. 6.67410

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(378) Holmia Obs. 79 M 286.11015 Peri. 156.14890
H 9.99 G 0.25 Opp. 22 n 0.21288907 Node 232.31294
rms res. 1".55 (M-P) 1913-1985 e 0.1274510 Incl. 6.99405

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(381) Myrrha Obs. 61 M 127.97308 Peri. 133.58923
H 8.50 G 0.15 Opp. 26 n 0.17146034 Node 124.95268
rms res. 1".32 (M-P) 1911-1986 e 0.1087088 Incl. 12.54995

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(387) Aquitania Obs. 97 M 274.23195 Peri. 156.32081
H 7.48 G 0.24 Opp. 21 n 0.21759823 Node 127.90466
rms res. 1".11 (M-P) 1939-1985 e 0.2377830 Incl. 18.07906

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(400) Ducrosa Obs. 67 M 346.37454 Peri. 241.07960
H 10.00 G 0.25 Opp. 17 n 0.17782056 Node 326.80125
rms res. 2".07 (M-P) 1938-1988 e 0.1069484 Incl. 10.50203

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(403) Cyane Obs. 78 M 102.05537 Peri. 253.62421
H 9.34 G 0.25 Opp. 29 n 0.20908815 Node 244.27455
rms res. 1".82 (M-P) 1906-1987 e 0.0956997 Incl. 9.15378

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(418) Alemannia Obs. 72 M 79.47968 Peri. 126.30114
H 9.84 G 0.25 Opp. 20 n 0.23596568 Node 248.52996
rms res. 1".17 (M-P) 1905-1980 e 0.1193641 Incl. 6.83580

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(430) Hybris Obs. 18 M 61.53029 Peri. 178.32290
H 10.40 G 0.15 Opp. 9 n 0.20582112 Node 249.16937
rms res. 1".2 (M-P) 1940-1981 e 0.2578955 Incl. 14.63558

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(647) Adelgunde Obs. 32 M 122.92490 Peri. 175.65335
H 11.49 G 0.25 Opp. 14 n 0.25832754 Node 254.41598
rms res. 1".4 (M-P) 1907-1987 e 0.1931364 Incl. 7.31340

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Goffin
(1317) Silvretta Obs. 34 M 177.94895 Peri. 29.97406
H 9.93 G 0.15 Opp. 15 n 0.17389922 Node 6.88103
rms res. 1".2 (M-N) 1935-1988 e 0.2506191 Incl. 20.70778

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1392) Pierre Obs. 41 M 17.31574 Peri. 44.30105
H 11.72 G 0.15 Opp. 12 n 0.23402431 Node 357.92841
rms res. 1".4 (M-P) 1936-1984 e 0.2027808 Incl. 12.23977

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1422) Stromgrenia Obs. 76 M 246.53985 Peri. 170.34162
H 13.43 G 0.25 Opp. 11 n 0.29250764 Node 201.18070
rms res. 1".0 (M-P) 1933-1982 e 0.1671146 Incl. 2.67643

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Goffin
(1467) Mashona Obs. 56 M 81.54203 Peri. 342.85332
H 8.55 G 0.15 Opp. 21 n 0.15983120 Node 326.41401
rms res. 0".9 (M-N) 1923-1988 e 0.1458389 Incl. 22.08484

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1478) Vihuri Obs. 37 M 142.37129 Peri. 159.65833
H 12.75 G 0.25 Opp. 12 n 0.25445509 Node 318.08212
rms res. 1".4 (M-P) 1938-1986 e 0.0914392 Incl. 7.85364

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1663) van den Bos Obs. 65 M 274.64861 Peri. 274.34838
H 13.7 G 0.25 Opp. 14 n 0.29400352 Node 82.85448
rms res. 1".0 (M-P) 1928-1986 e 0.1795011 Incl. 5.36517

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1666) van Gent Obs. 97 M 83.35103 Peri. 83.13013
H 12.91 G 0.25 Opp. 19 n 0.30489985 Node 262.77561
rms res. 1".2 (M-P) 1930-1987 e 0.1821752 Incl. 2.68620

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1668) Hanna Obs. 57 M 320.92686 Peri. 188.72157
H 12.4 G 0.25 Opp. 16 n 0.20950442 Node 160.65505
rms res. 1".1 (M-P) 1933-1988 e 0.2143340 Incl. 4.72938

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1671) Chaika Obs. 54 M 43.79256 Peri. 248.46141
H 12.40 G 0.15 Opp. 10 n 0.23702543 Node 177.32002
rms res. 1".5 (M-P) 1930-1986 e 0.2607544 Incl. 3.96778

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1688) Wilkens Obs. 34 M 308.79129 Peri. 41.50222
H 12.2 G 0.25 Opp. 9 n 0.23235279 Node 245.40213
rms res. 1".1 (M-P) 1951-1986 e 0.2376265 Incl. 11.75887

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1729) Beryl Obs. 82 M 11.80901 Peri. 261.66629
H 12.4 G 0.25 Opp. 15 n 0.29604534 Node 8.69109
rms res. 1".0 (M-P) 1933-1988 e 0.1013841 Incl. 2.44069

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1739) Meyermann Obs. 35 M 310.41050 Peri. 81.67282
H 13.53 G 0.25 Opp. 11 n 0.28992377 Node 202.92741
rms res. 1".5 (M-P) 1929-1986 e 0.1246708 Incl. 3.40803

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1741) Giclas Obs. 66 M 127.81913 Peri. 337.12757
H 11.5 G 0.25 Opp. 15 n 0.20133297 Node 55.24365
rms res. 1".5 (M-P) 1953-1987 e 0.0701719 Incl. 2.89505

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1742) Schaifers Obs. 60 M 69.60468 Peri. 213.52623
H 11.88 G 0.25 Opp. 19 n 0.20037771 Node 151.89818
rms res. 1".3 (M-P) 1934-1988 e 0.0953115 Incl. 2.48959

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Schmadel
(1745) Ferguson Obs. 42 M 320.82258 Peri. 338.99286
H 12.1 G 0.25 Opp. 13 n 0.20542893 Node 78.42865
rms res. 1".0 (M-P) 1941-1987 e 0.0552182 Incl. 3.26044

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(1821) Aconcagua Obs. 50 M 250.55491 Peri. 349.65368
H 13.7 G 0.25 Opp. 10 n 0.26892720 Node 297.00679
rms res. 1".36 (M-P) 1950-1987 e 0.2030927 Incl. 2.10820

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2278) 1953 GE Obs. 22 M 138.50378 Peri. 204.78344
H 14.27 G 0.15 Opp. 6 n 0.25681225 Node 53.16676
rms res. 0".95 (M-P) 1953-1987 e 0.1518234 Incl. 4.22444

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2380) Heilongjiang Obs. 38 M 91.67937 Peri. 107.82459
H 13.2 G 0.25 Opp. 12 n 0.30379774 Node 324.18671
rms res. 1".23 (M-P) 1939-1986 e 0.0600298 Incl. 1.92155

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2383) Bradley Obs. 71 M 200.43277 Peri. 183.87560
H 13.47 G 0.25 Opp. 9 n 0.29848450 Node 14.03839
rms res. 1".10 (M-P) 1928-1984 e 0.1055676 Incl. 3.56983

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2418) 1971 UV Obs. 20 M 80.37747 Peri. 30.68137
H 12.6 G 0.25 Opp. 6 n 0.17969407 Node 31.28244
rms res. 0".71 (M-P) 1971-1984 e 0.1747404 Incl. 1.32531

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2480) Papanov Obs. 41 M 334.88804 Peri. 13.32899
H 13.49 G 0.25 Opp. 8 n 0.29686874 Node 34.78002
rms res. 1".60 (M-P) 1959-1988 e 0.1197651 Incl. 2.91915

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2487) Juhani Obs. 53 M 56.28253 Peri. 36.61747
H 13.2 G 0.25 Opp. 7 n 0.26547731 Node 347.25015
rms res. 1".55 (M-P) 1940-1985 e 0.1844642 Incl. 2.81675

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2575) Bulgaria Obs. 53 M 321.36728 Peri. 287.14969
H 12.8 G 0.25 Opp. 8 n 0.29401790 Node 321.56412
rms res. 1".27 (M-P) 1923-1987 e 0.1232056 Incl. 4.67441

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2604) Marshak Obs. 32 M 252.39190 Peri. 134.78553
H 13.0 G 0.25 Opp. 6 n 0.26700209 Node 122.55623
rms res. 1".49 (M-P) 1950-1983 e 0.2314850 Incl. 14.85518

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2660) Wasserman Obs. 29 M 187.94307 Peri. 85.27413
H 12.09 G 0.15 Opp. 5 n 0.23260953 Node 203.76980
rms res. 1".86 (M-P) 1924-1983 e 0.1702323 Incl. 12.33272

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2749) 1937 TD Obs. 20 M 22.55490 Peri. 78.13237
H 12.26 G 0.15 Opp. 5 n 0.17418992 Node 354.62482
rms res. 1".65 (M-P) 1937-1984 e 0.1754017 Incl. 0.32512

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2799) Justus Obs. 34 M 2.88295 Peri. 18.63215
H 14.6 G 0.25 Opp. 5 n 0.26707010 Node 282.60048
rms res. 1".41 (M-P) 1960-1986 e 0.1274113 Incl. 5.30326

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2811) 1980 JA Obs. 55 M 104.40573 Peri. 107.34875
H 12.11 G 0.25 Opp. 9 n 0.20331162 Node 332.03321
rms res. 1".33 (M-P) 1950-1985 e 0.0345681 Incl. 1.03083

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2832) Lada Obs. 12 M 276.82873 Peri. 347.77353
H 12.5 G 0.25 Opp. 7 n 0.25300430 Node 162.43285
rms res. 2".06 (M-P) 1952-1983 e 0.0865311 Incl. 4.16890

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2879) Shimizu Obs. 22 M 172.77910 Peri. 24.08912
H 11.7 G 0.25 Opp. 6 n 0.21420293 Node 148.99951
rms res. 2".05 (M-P) 1932-1987 e 0.1450616 Incl. 10.74737

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(2925) Beatty Obs. 21 M 290.45533 Peri. 278.11462
H 14.2 G 0.25 Opp. 5 n 0.26750546 Node 216.75391
rms res. 1".21 (M-P) 1950-1987 e 0.1919410 Incl. 2.22105

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(2928) Epstein Obs. 40 M 295.87443 Peri. 154.00215
H 11.67 G 0.25 Opp. 7 n 0.18921787 Node 310.38220
rms res. 0".91 (M-P) 1968-1987 e 0.0691314 Incl. 9.54004

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(2945) 1935 ST1 Obs. 24 M 165.66620 Peri. 242.72305
H 12.1 G 0.25 Opp. 7 n 0.22618396 Node 95.44386
rms res. 1".58 (M-P) 1935-1986 e 0.1393120 Incl. 2.62974

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(2954) Delsemme Obs. 19 M 21.35996 Peri. 50.56025
H 13.83 G 0.25 Opp. 6 n 0.28492365 Node 163.98166
rms res. 2".01 (M-P) 1944-1986 e 0.1949603 Incl. 3.93712

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2958) 1981 DG Obs. 53 M 185.78888 Peri. 309.05615
H 12.2 G 0.25 Opp. 8 n 0.20207391 Node 297.46898
rms res. 0".92 (M-P) 1969-1986 e 0.0129167 Incl. 1.02439

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2969) Mikula Obs. 22 M 181.75605 Peri. 103.13980
H 12.63 G 0.25 Opp. 5 n 0.20509047 Node 181.12496
rms res. 1".65 (M-P) 1976-1987 e 0.0276786 Incl. 1.87620

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(2977) Chivilikhin Obs. 20 M 84.14175 Peri. 185.09604
H 12.73 G 0.15 Opp. 4 n 0.21184067 Node 170.18034
rms res. 1".22 (M-P) 1974-1986 e 0.1700501 Incl. 9.58326

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Sumzina
(2988) 1943 EM Obs. 16 M 315.17986 Peri. 132.37849
H 11.9 G 0.25 Opp. 6 n 0.23428255 Node 100.49034
rms res. 1".54 (M-P) 1931-1985 e 0.1272154 Incl. 14.70659

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(3080) Moisseiev Obs. 28 M 303.58980 Peri. 306.24728
H 11.67 G 0.15 Opp. 4 n 0.23365982 Node 47.89194
rms res. 1".83 (M-P) 1935-1986 e 0.1952652 Incl. 13.84561

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(3089) 1981 XK2 Obs. 26 M 15.72707 Peri. 182.84391
H 10.9 G 0.25 Opp. 7 n 0.19665893 Node 88.03975
rms res. 1".29 (M-P) 1964-1986 e 0.1874582 Incl. 16.73012

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(3103) 1982 BB Obs. 46 M 289.45340 Peri. 253.70532
H 14.7 G 0.25 Opp. 4 n 0.59084535 Node 129.26397
rms res. 0".93 (M-P) 1982-1987 e 0.3545944 Incl. 20.94227

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(3114) Ercilla Obs. 26 M 125.53331 Peri. 106.57024
H 14.13 G 0.25 Opp. 6 n 0.26162755 Node 176.51535
rms res. 1".52 (M-P) 1976-1987 e 0.1965037 Incl. 2.23266

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(3117) Niepce Obs. 21 M 332.13864 Peri. 220.08360
H 12.31 G 0.15 Opp. 7 n 0.20517500 Node 93.02186
rms res. 1".96 (M-P) 1962-1986 e 0.0578629 Incl. 3.24182

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(3187) 1977 TO3 Obs. 31 M 136.95325 Peri. 104.53881
H 13.2 G 0.25 Opp. 4 n 0.28568923 Node 311.90504
rms res. 1".05 (M-P) 1977-1986 e 0.0581858 Incl. 2.75531

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(3193) Elliot Obs. 24 M 119.22866 Peri. 75.63259
H 13.26 G 0.15 Opp. 5 n 0.28335517 Node 11.39167
rms res. 1".49 (M-P) 1977-1987 e 0.1057761 Incl. 5.72690

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(3195) Fedchenko Obs. 32 M 87.10626 Peri. 57.88325
H 12.61 G 0.15 Opp. 6 n 0.19818600 Node 275.06067
rms res. 1".20 (M-P) 1964-1986 e 0.0607470 Incl. 0.86605

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(3306) Byron Obs. 18 M 78.43032 Peri. 63.57594
H 12.6 G 0.25 Opp. 9 n 0.29261288 Node 212.97696
rms res. 1".23 (M-P) 1951-1986 e 0.1449134 Incl. 4.52870

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Filenko
(3320) Namba Obs. 35 M 131.02465 Peri. 349.60444
H 13.4 G 0.25 Opp. 5 n 0.25569014 Node 217.92397
rms res. 0".62 (M-P) 1978-1986 e 0.0485228 Incl. 4.07079

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (1950.0) Bardwell
(3709) Polypoites Obs. 19 M 70.53100 Peri. 247.33316
H 9.5 G 0.25 Opp. 4 n 0.08157098 Node 186.48643
rms res. " (M-P) 1971-1987 e 0.0632354 Incl. 19.60816

(3957)* 1933 OD = 1955 SZ = 1986 EO5
Discovered 1933 July 24 by K. Reinmuth at Heidelberg.
Id. S. Nakano (MPC 12796)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano
M 130.51910 (1950.0) P Q
n 0.18071020 Peri. 132.28885 +0.69438230 +0.71960027
a 3.0984722 Node 181.69780 -0.68598374 +0.66069703
e 0.1889375 Incl. 5.70180 -0.21739255 +0.21367003
P 5.45 H 12.4 G 0.25
Residuals in seconds of arc

330724	024	0.7+	2.1-	820823	095	1.4-	0.8-	860307 809	0.7- 0.5-
330727	024	1.3-	1.1-	820916	095	0.3-	0.3+	860307 809	0.7+ 0.6+
330825	024	1.0+	0.7+	820919	095	1.2+	0.4-	881103 897	1.1+ 0.1+
330827	024	0.6-	3.1+	820921	095	0.7+	0.1-	881103 897	0.2+ 0.7+
330828	024	(25.9-	9.7-)	860306	809	0.0	0.3-	881110 801	0.3+ 0.5-
550918	760	(78.1-	12.1-)X	860306	809	0.1-	0.1-	881112 801	1.6- 0.6-

(3958)* 1953 TC = 1930 WK = 1949 QC2 = 1974 DR = 1978 EV5 = 1986 EN1 = 1986 EY3

Discovered 1953 Oct. 10 by P. F. Shajn at Simeis.

Id. S. Nakano (MPC 12939)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	83.15874	(1950.0)	P	Q
n	0.25426230	Peri. 27.29925	+0.78063983	-0.62475663
a	2.4676377	Node 11.41142	+0.55682288	+0.68308444
e	0.2097270	Incl. 4.85682	+0.28381284	+0.37825230
P	3.88	H 12.4	G 0.25	

Residuals in seconds of arc

301126	094	(60.6-	46.2-)X	531030	760	0.4-	0.0	881009	894	0.7+	0.1-
301129	094	(51.1+	61.7-)X	531030	760	1.0-	1.3-	881010	657	0.2+	0.2-
490826	094	(10.8+	34.6-)X	740216	095	2.3-	1.1-	881010	657	0.3+	0.3-
531010	760	(5.6+	2.2-)	780306	095	2.1+	0.2+	881014	894	1.0-	2.2+
531010	760	0.5-	0.2+	860305	688	1.0+	0.3-	881015	894	2.0-	0.2-
531010	094	(0.5+	1.7-)X	860312	809	1.1-	0.7+	881102	894	2.4+	1.1+
531012	094	(96.7-	12.8+)X	880911	657	2.4-	2.8-	881102	894	1.4+	0.3+
531015	760	2.4+	0.3+	880911	657	0.6-	1.2-				
531015	760	(6.2+	0.6+)	881009	894	0.1-	1.5+				

(3959)* 1954 UN2 = 1981 TP4 = 1981 UX10 = 1986 CY1

Discovered 1954 Oct. 28 at the Goethe Link Observatory.

Id. S. Nakano (MPC 12940)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	96.36606	(1950.0)	P	Q
n	0.29039642	Peri. 197.66956	+0.66874441	-0.74292868
a	2.2584399	Node 210.37960	+0.68883357	+0.63376295
e	0.1875498	Incl. 3.28126	+0.27980212	+0.21541009
P	3.39	H 14.2	G 0.25	

Residuals in seconds of arc

541028	760	2.5+	1.6-	860212	809	0.1+	1.8-	860216	809	0.4+	0.2+
541028	760	2.5+	0.1-	860213	809	0.3-	0.1-	860216	809	0.4+	0.2+
541116	760	1.4-	0.3-	860213	809	0.2-	0.0	860217	809	0.3+	0.2+
541116	760	2.5-	0.9-	860213	809	0.0	0.1-	860217	809	0.2+	0.2+
541117	760	(5.7-	0.9+)	860214	809	0.2-	0.0	860217	809	0.2+	0.2+
541117	760	0.4-	0.2+	860214	809	0.0	0.1+	881105	877	0.5-	1.7+
811005	688	1.2+	3.5-	860214	809	0.3-	0.0	881105	877	0.0	1.5+
811005	688	0.8+	3.5-	860215	809	0.8-	0.1-	881110	897	1.3-	2.4+
811022	095	1.0-	3.7+	860215	809	0.7-	0.1-	881110	897	1.1+	0.7-
860212	809	0.1-	1.4-	860215	809	0.6-	0.1-	881112	801	(3.7+	1.6+)
860212	809	0.0	1.5-	860216	809	0.4+	0.2+				

(3960)* 1955 BG = A921 EF = 1984 YZ3

Discovered 1955 Jan. 20 at the Purple Mountain Observatory.

Id. L. D. Schmadel (MPC 10402), S. Nakano (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	38.20753	(1950.0)	P	Q
n	0.22943547	Peri. 10.81615	-0.08754243	-0.96464089
a	2.6425852	Node 84.54664	+0.89425617	-0.18605828
e	0.2785036	Incl. 14.46183	+0.43891027	+0.18668226
P	4.30	H 12.1	G 0.25	

Residuals in seconds of arc

210313	029	(8.8+	32.1-)X	550221	330	1.9+	0.6+	841229	095	0.0	1.3-
550120	330	2.9-	3.6+	550221	330	0.7+	0.6-	841230	095	0.2+	0.5-
550122	330	1.1-	0.7-	550222	330	0.5+	0.8-	841231	095	0.3+	1.9-
550125	330	3.2-	3.7+	550223	330	0.6-	0.4-	860414	801	0.3+	0.1+
550126	330	1.2-	0.4-	550310	330	2.0+	1.0-	860511	801	0.7-	0.7+
550128	330	1.4-	0.8+	550314	330	1.6+	0.5+	880912	657	(4.4-	1.0-)
550130	330	2.5+	1.1-	550315	330	0.7+	1.5-	880912	657	0.3-	0.4+
550203	330	0.2+	1.0+	550316	330	1.5+	0.1+	881112	894	0.2-	1.1+
550214	330	(12.4+	2.8-)	550323	330	0.4-	0.8-	881112	894	2.9+	0.3+
550217	330	1.8+	0.3-	841227	095	0.1+	0.1+	881209	801	2.7-	0.9-

(3961)* 1962 OB = 1962 PQ = 1962 QL = 1978 GG = 1979 OF14 = 1979 QJ7 = 1980 WL

Discovered 1962 July 31 at the Goethe Link Observatory.

Id. O. Kippes (d, MPC 2324), L. Boyer (d, MPC 5333), T. Furuta (k, d, MPC 11746), H. Oishi (MPC 11746)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Oishi

M	168.49093		(1950.0)	P	Q
n	0.23185763	Peri.	326.47619	+0.22776462	+0.96184978
a	2.6241488	Node	316.14464	-0.83835420	+0.11454650
e	0.1548846	Incl.	12.63512	-0.49526308	+0.24844334
P	4.25	H	12.4	G 0.25	

Residuals in seconds of arc

620731	760	(3.3-	1.9+)	790719	095	(1.8-	8.3-)	881107	888	0.7-	1.2+
620731	760	0.3-	0.9-	790730	095	0.4-	2.8-	881107	888	1.1-	0.5+
620809	760	1.1+	1.2-	790820	095	1.5+	3.0+	881108	801	0.6-	1.1+
620830	760	1.8-	1.2+	801130	095	1.1+	3.3-	881110	888	(4.9-	1.1+)
620830	760	1.2+	0.4-	881009	888	0.1+	0.6+	881110	888	2.4-	1.7+
780407	809	0.0	0.2-	881009	888	0.2-	0.5+	881114	888	1.0+	2.0-
780407	809	0.2-	0.4+	881102	888	0.4+	0.4+	881114	888	0.2-	1.9-
780407	809	0.4+	0.5+	881102	888	0.8+	0.0				

(3962)* 1967 CC = 1973 GL1 = 1976 UT10 = 1982 XE1 = 1984 DC2

Discovered 1967 Feb. 8 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Id. A. Lowe (k, MPC 13852), S. Nakano (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	357.54038		(1950.0)	P	Q
n	0.17231745	Peri.	92.86411	-0.79666991	-0.60382106
a	3.1982804	Node	49.99351	+0.53969265	-0.73061040
e	0.1299371	Incl.	2.00361	+0.27211927	-0.31876099
P	5.72	H	12.0	G 0.25	

Residuals in seconds of arc

670208	095	0.8+	0.6-	821213	381	0.1+	0.1+	881211	399	0.6-	1.0+
670216	095	0.8-	0.4+	821214	381	0.5+	0.5-	881211	399	0.3-	0.0
730401	095	2.4-	1.4-	821214	381	0.2+	0.4-	881211	399	1.6-	0.3-
730404	095	1.0-	0.2+	840226	095	1.3+	0.1+	881216	400	0.1+	0.0
761022	381	0.3+	0.0	840305	095	2.9+	0.2-	881216	400	1.8+	1.7-
761022	381	0.7+	0.1-	881207	801	0.6-	0.3+	881216	400	0.2+	1.8-
761024	381	1.7+	0.2-	881210	801	1.4-	0.3-				
821213	381	0.5-	0.2-	881211	399	1.3-	2.5+				

(3963)* 1969 TP2 = 1979 HS3 = 1984 QR1

Discovered 1969 Oct. 8 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. H. Oishi (MPC 11142)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Oishi

M	80.55662	(1950.0)	P	Q	
n	0.25875624	Peri.	284.44108	+0.82815255	-0.55791132
a	2.4389833	Node	109.49689	+0.53372186	+0.75560248
e	0.1974228	Incl.	3.27399	+0.17118509	+0.34321982
P	3.81	H	13.8	G 0.25	

Residuals in seconds of arc

691008	095	3.7+	2.6-	790425	095	0.0	0.2-	881015	888	0.6+	1.2+
691013	095	(4.3+ | 3.7-)	840831	688	0.0	0.3-	881015	888	0.1+	1.2+
691016	095	(5.0+ | 1.2-)	840831	688	0.3-	1.0-	881105	888	0.4+	0.9+
691104	095	1.5+	1.5-	840831	688	0.6+	0.1-	881105	888	0.8-	0.8+
691111	095	1.0-	1.0-	881013	888	1.2-	1.5+	881113	888	0.5-	0.2+
691113	095	1.9-	1.5-	881013	888	1.5-	1.2+	881113	888	0.0	0.2+

(3964)* 1974 RG1 = 1951 RH = 1979 VL1 = 1983 PK

Discovered 1974 Sept. 12 by L. V. Zhuravleva at at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (MPC 12004)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	115.70569	(1950.0)	P	Q	
n	0.21519098	Peri.	8.69784	+0.95245316	+0.29727688
a	2.7579518	Node	333.70748	-0.28781669	+0.80593122
e	0.1673033	Incl.	8.67088	-0.09997267	+0.51195833
P	4.58	H	12.5	G 0.25	

Residuals in seconds of arc

510904	024	1.3+	1.1+	830813	688	0.6-	0.1-	881107	054	1.5+	1.7-
510905	024	1.4+	1.4-	830813	688	0.5-	1.2+	881107	054	(0.9+ | 3.9-)
510906	024	1.9-	2.0-	830902	688	0.6+	0.8-	881109	054	0.3-	1.5-
740912	095	(0.6- | 5.7+)	830902	688	0.2-	0.8+	881110	801	0.8-	1.1+
740920	095	0.3-	2.4-	881014	801	3.2-	0.8+	881113	054	0.9+	0.4-
740922	095	0.5+	4.0+	881103	054	0.1+	0.2+	881113	054	0.9+	0.1+
791114	095	0.3+	1.1+	881103	054	0.6+	0.3+				

(3965)* 1975 VA9 = 1985 AB

Discovered 1975 Nov. 8 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Urata (MPC 9477)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	76.84150	(1950.0)	P	Q	
n	0.22862419	Peri.	131.34255	+0.54634364	-0.80993739
a	2.6488331	Node	284.31114	+0.68753047	+0.57915189
e	0.1580440	Incl.	12.71861	+0.47834139	+0.09265259
P	4.31	H	12.4	G 0.25	

Residuals in seconds of arc

751108	095	1.7-	1.5-	850120	881	0.9+	0.9-	870724	801	0.5+	2.1-
751112	095	0.7+	0.5+	850121	881	0.3+	2.0-	881102	894	0.3-	2.0+
751127	095	0.1+	0.3-	850121	881	1.3-	0.2-	881102	894	(0.0 | 3.3+)
751128	095	0.7+	0.6-	850211	881	0.5-	0.0	881206	801	1.2+	1.2+
830806	095	0.9+	0.5+	850211	881	0.9+	1.2+	881210	894	0.8-	2.0-
850115	881	0.3-	1.7-	850215	889	0.1+	1.2+	881210	894	0.2-	0.8+
850115	881	1.4+	1.6-	850215	889	2.4-	0.9+				
850120	881	0.6-	0.6-	870629	801	0.4+	2.4-				

(3966)* 1976 SD3 = 1982 SV4 = 1982 UL

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

Id. H. Oishi (MPC 9956)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Oishi

M	359.59744	(1950.0)	P	Q
n	0.16925050	Peri. 63.12516	-0.09315909	-0.99510090
a	3.2368016	Node 32.27293	+0.89003679	-0.09813179
e	0.0284920	Incl. 3.55403	+0.44626885	-0.01201471
P	5.82	H 12.1	G 0.25	

Residuals in seconds of arc

760924	095	0.6-	0.1+	821017	688	1.3+	0.7+	881105	888	0.4-	0.2+
760929	095	1.4+	0.4+	840124	381	2.2+	0.3-	881105	888	0.7+	0.3-
761026	095	0.2-	2.2-	840124	381	2.2-	0.0	881110	888	0.9+	1.0+
820926	095	1.0-	2.9+	881009	888	0.3-	0.1+	881110	888	(4.1-	0.5+)
821017	688	0.8-	2.4-	881009	888	1.2-	0.6-				

(3967)* 1976 YW2 = 1977 AF = 1978 EB7 = 1983 CX5

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

Id. B. G. Marsden (d, MPC 9153), W. Landgraf (MPC 13603), L. D. Schmadel (ibid.), S. Nakano (ibid).

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	56.81625	(1950.0)	P	Q
n	0.16935141	Peri. 1.35848	-0.21792743	-0.93002903
a	3.2355156	Node 101.29247	+0.89251604	-0.31257932
e	0.0689148	Incl. 17.56191	+0.39487055	+0.19323603
P	5.82	H 11.3	G 0.25	

Residuals in seconds of arc

761216	095	0.3-	0.8-	830112	095	0.9+	1.0-	881112	801	0.5-	1.6+
770113	095	0.2-	0.2-	830202	095	1.4+	2.1+	881205	801	0.7-	1.2+
770120	095	0.4+	0.2-	830210	095	1.1-	2.5-	881206	801	0.1-	1.0+
780306	095	0.0	0.5-	881111	801	0.6+	0.4-				

(3968)* 1978 TU5 = 1953 VN = 1974 SN3 = 1975 XB6 = 1980 FX9 = 1981 RY2

Discovered 1978 Oct. 8 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. S. Nakano (MPC 11852)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	162.20364	(1950.0)	P	Q
n	0.27849008	Peri. 311.73020	-0.11124832	+0.99051372
a	2.3223601	Node 311.69448	-0.87666115	-0.13604104
e	0.0909401	Incl. 6.20145	-0.46806949	+0.01937514
P	3.54	H 12.8	G 0.25	

Residuals in seconds of arc

531102	760	1.2-	0.1-	781027	675	0.6-	1.0+	880831	809	0.4-	0.5+
531102	760	3.6+	1.4-	800316	095	1.6-	2.6-	880901	809	0.0	0.5+
740922	095	1.4-	2.7-	810902	095	1.3-	0.4+	880901	809	0.0	0.5+
751204	095	(6.8+	9.3+)	880807	046	0.8-	3.1-	880903	809	0.5+	1.2+
781008	095	0.9+	1.3-	880807	046	0.1-	2.4-	880903	809	1.1+	1.3+
781026	675	0.5-	0.9+	880810	801	1.3+	0.7+	880903	809	1.2+	1.2+

(3969)* 1978 TQ8 = 1978 VX14 = 1968 UU2 = 1981 RJ3 = 1986 AH2

Discovered 1978 Oct. 9 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. C. M. Bardwell (d, MPC 12695), S. Nakano (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	121.70768	(1950.0)	P	Q
n	0.29799669	Peri. 211.54057	+0.91544952	-0.40240061
a	2.2198745	Node 172.18269	+0.37655972	+0.85206245
e	0.1260124	Incl. 2.14503	+0.14196811	+0.33475861
P	3.31	H 14.1	G 0.25	

Residuals in seconds of arc

681023	095	2.1+	1.7-	860112	688	0.8-	0.2-	881201	400	1.1+	0.6+
781009	095	1.1-	1.3+	860117	688	0.6+	0.2-	881201	400	2.0+	2.3+
781028	675	0.2+	0.9-	881108	801	1.4-	1.2+	881201	888	1.3+	2.5-
781029	675	0.1-	0.2-	881111	801	2.0-	0.1+	881201	888	2.3+	2.8-
781101	095	1.7-	1.4-	881116	400	0.4-	2.1+	881203	888	0.7-	0.5-
810902	095	0.2+	0.6-	881116	400	0.2+	1.4+	881203	888	1.9-	0.7-
860112	688	0.3-	1.3-	881116	400	0.6+	2.6+				

(3970)* 1979 ME9 = 1979 RH = 1963 UT = 1971 ST1 = 1982 FQ3

Discovered 1979 June 28 by C. Torres at Cerro El Roble.

Id. H. Oishi (d, JAM 2068), S. Nakano (MPC 11999)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	181.62161	(1950.0)	P	Q
n	0.24121730	Peri. 303.86798	+0.81148194	+0.57650509
a	2.5558209	Node 21.42296	-0.41120835	+0.67955698
e	0.1326384	Incl. 15.17290	-0.41521652	+0.45370056
P	4.09	H 12.6	G 0.25	

Residuals in seconds of arc

631023	760(99.9+	39.6+)X		820323	809	1.0-	0.1+	820329	809	1.2+	0.9+
710923	095 (3.9-	6.3+)		820324	809	0.1+	0.3+	820329	809	1.5+	0.6+
711011	095	0.4+	0.5-	820324	809	0.2+	0.4+	820331	809	1.3-	0.5-
790628	805	0.0	0.8+	820324	809	0.3+	0.1+	820331	809	1.4-	0.3-
790628	805	0.4-	1.0+	820327	809	1.1+	1.6-	820331	809	0.7-	0.0
790629	805	0.9-	0.6+	820327	809	1.6+	1.6-	820401	809	0.9-	0.4-
790629	805 (3.8+	1.0+)		820327	809	1.8+	1.4-	820401	809	0.8-	0.4-
790629	805	1.1-	0.0	820328	809	0.8-	0.3+	820401	809	0.8-	0.4-
790901	095	0.5+	0.4-	820328	809	0.6-	0.4+	881207	801	0.3+	0.3+
820322	809	0.1-	0.0	820328	809	0.6-	0.4+	881210	801	0.6-	0.4+
820322	809	0.0	0.1-	820329	809	0.6+	0.4+	881213	801	0.1-	1.0+
820322	809	0.2-	0.2-	820329	809	0.8+	0.4+	890106	801	0.2+	0.1+
820323	809	0.5-	1.1+	820329	809	0.9+	0.4+	890111	801	0.2+	0.1+
820323	809	1.1-	0.7+	820329	809	1.1+	1.1+				

(3971)* 1979 YM8 = 1980 AD = 1940 WQ = 1955 YD = 1971 BF3 = 1974 XP

Discovered 1979 Dec. 23 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. S. Nakano (MPC 10631)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	85.88490	(1950.0)	P	Q
n	0.20474955	Peri. 83.19424	+0.96605166	-0.13902107
a	2.8509357	Node 284.62682	+0.03003167	+0.89758744
e	0.1837227	Incl. 13.00575	+0.25659751	+0.41834188
P	4.81	H 11.8	G 0.25	

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

401121	119(0.08-	0.08+)X		800117	330	1.1-	0.2-	881110	894	0.5-	1.1+
551220	024	1.0+	1.1-	881011	657	0.1-	1.9-	881111	894	1.1-	1.9+
710127	805	1.5-	0.2-	881011	657	1.2+	2.5-	881111	894	0.2+	0.0
741214	095	2.0-	3.8+	881012	801	0.5-	0.7-	881112	293 (4.1+		0.2+)
791223	095	2.4+	1.8-	881108	801	0.8+	0.0				
800114	330	0.2+	1.1-	881110	894	0.5+	0.9+				

(3972)* 1981 JD3 = 1950 XF = 1953 VW = 1972 RN

Discovered 1981 May 6 by C. S. Shoemaker at Palomar.

Id. T. Furuta (MPC 9755)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Oishi

M	132.97034	(1950.0)	P	Q
n	0.30972452	Peri. 178.73449	+0.94831639	+0.31660120
a	2.1634772	Node 162.76111	-0.29175898	+0.89648774
e	0.1775796	Incl. 4.14881	-0.12479068	+0.30995710
P	3.18	H 14.4	G 0.25	

Residuals in seconds of arc

501210	839	0.0	1.6+	810505	675	1.4+	1.7+	881013	888	0.4-	0.8-
531105	760	2.1-	0.6-	810506	675	0.3+	0.1+	881015	888	0.3+	0.9+
531105	760	2.0+	0.5-	810510	675	0.5-	1.8-	881015	888	0.1-	0.3+
720907	095	1.1+	1.8+	881008	675	0.6+	0.2+	881103	888	0.8+	0.0
720909	095	1.1-	0.7-	881010	675	0.2+	0.1+	881103	888	0.5-	0.2-
810411	675	1.3-	0.7+	881013	888	0.5-	0.4-	881114	888	0.5-	0.7-

(3973)* 1981 UC1 = 1981 SN5 = 1948 NA = 1959 RB = 1970 QK1 = 1974 VH1

Discovered 1981 Oct. 30 by L. G. Taff at the Lincoln Laboratory ETS, New Mexico.

Id. S. Nakano (MPC 10757; unpublished)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	122.25984	(1950.0)	P	Q
n	0.27187070	Peri. 244.74091	+0.71126633	+0.70226228
a	2.3599046	Node 70.63340	-0.63271182	+0.65849981
e	0.2077224	Incl. 1.85032	-0.30622862	+0.27056550
P	3.63	H 13.2	G 0.25	

Residuals in seconds of arc

480705	078(30.0-	36.8-)X	810925	095	0.6+	0.9+	880811	657	1.3+	0.3-	
590905	760	0.8+	0.7+	811024	095	1.2-	2.2+	880821	657	1.1+	1.2+
590905	760	1.2-	1.3+	811030	704	1.4+	2.6-	880823	657	0.4+	0.3-
700831	095	1.0-	0.0	811030	704	0.7+	1.9-	880823	657	0.5+	0.7-
741112	095	1.0-	1.5-	811031	704	0.3+	0.6+	880911	293	2.5-	0.7-
741117	095	0.3+	2.4+	880811	657	2.0+	0.2-	880911	293	2.4-	0.7-

(3974)* 1982 FS = 1963 TN = 1971 TL3 = 1980 TZ13

Discovered 1982 Mar. 28 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

Id. T. Kobayashi (MPC 13691)

M	291.94695	(1950.0)	P	Q
n	0.23478426	Peri. 159.05647	-0.99651539	-0.00904124
a	2.6022962	Node 20.94715	-0.04139524	-0.80943187
e	0.1079506	Incl. 13.41091	+0.07241213	-0.58714420
P	4.20	H 11.8	G 0.25	

Residuals in seconds of arc

631013	760	(1.8+	59.5+)X	820328	688	0.4+	1.5-	881013	399	2.0+	0.5+
711013	095	2.2+	3.4-	820330	704	2.0-	1.2+	881013	399	0.4+	0.0
711014	095	2.6-	1.7+	820331	704	2.0+	0.8-	881016	399	0.7-	1.6+
711015	095	1.8+	0.4+	820401	704	1.3-	0.3-	881016	399	1.1-	0.3+
801013	095	0.2+	0.4-	820402	704	1.5+	2.1+				
820328	688	0.1-	2.3-	881013	399	0.4-	1.2-				

(3975)* 1982 UR3 = 1952 RE = 1953 VQ2 = 1975 EJ5 = 1977 QU3 = 1977 RO2
Discovered 1982 Oct. 19 by F. Borngen at Tautenburg.
Id. D. W. E. Green (MPC 13595)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Schmadel

M	67.17413	(1950.0)	P	Q
n	0.19978864	Peri. 244.79028	+0.01244787	-0.99987881
a	2.8979364	Node 204.50195	+0.92529042	+0.01506278
e	0.0519897	Incl. 1.29177	+0.37905500	-0.00393371
P	4.93	H 12.0	G 0.25	

Residuals in seconds of arc

520913	760	(13.7-	2.1+)	770909	095	0.5-	0.8-	821019	033	0.5+	0.3-
531109	024	1.5+	1.5-	820916	095	0.7-	0.8+	881105	033	0.7+	0.2+
531208	024	0.9-	1.5-	820918	095	3.0+	1.6-	881105	033	0.3+	0.7+
750315	095	3.4-	4.1-	820920	095	0.2-	0.5-	881106	033	0.1+	0.7+
750317	095	1.7+	0.6-	820926	095	0.9-	1.0+	881207	033	0.8-	0.4+
770823	095	0.2-	1.2-	821019	033	0.3+	0.5-	881208	033	0.0	0.5+

(3976)* 1983 JM = 1983 KA = 1943 TF = 1951 KS = 1974 KL = 1978 JD1 = 1979 OM14 = 1980 TF15
Discovered 1983 May 6 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory.
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	56.07301	(1950.0)	P	Q
n	0.21524253	Peri. 101.35636	+0.78883674	+0.59650939
a	2.7575115	Node 222.25487	-0.61382298	+0.75251331
e	0.0685566	Incl. 12.71745	-0.03095082	+0.27910620
P	4.58	H 11.7	G 0.25	

Residuals in seconds of arc

431005	062	1.2+	1.6-	790720	095	0.5-	0.5+	830506	688	2.1+	2.1-
431005	062	0.9-	1.6-	790801	095	1.8-	1.6+	830512	095	3.7+	0.8-
510527	711	1.8+	0.9- Y	801015	095	0.5-	2.4+	830516	046	3.1-	0.5+
740524	095	2.3-	0.1+	801017	095	1.7+	0.5-	830516	046	2.8-	0.1-
780506	095	3.2-	2.2+	830506	688	2.9+	1.6-	830602	095	1.7+	1.7+

(3977)* 1983 LM = 1978 JG1 = 1979 SB9 = 1979 TO
Discovered 1983 June 14 by C. S. Shoemaker at Palomar.
Id. S. Nakano (MPC 12321)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	164.92271	(1950.0)	P	Q
n	0.22934088	Peri. 73.04724	+0.34439625	+0.92927382
a	2.6433118	Node 217.95700	-0.92261476	+0.30868265
e	0.1674365	Incl. 12.54257	-0.17370444	+0.20289204
P	4.30	H 12.3	G 0.25	

Residuals in seconds of arc

780506	095	0.3-	0.6-	830805	095	1.0-	2.5-	881102	399	0.2+	0.3-
790928	095	0.4-	1.4+	830810	095	0.3-	0.1-	881102	399	0.8+	0.0
791014	095	0.7-	3.3+	830813	095	0.6+	1.3+	881108	801	0.3-	0.7+
830613	675	0.1+	1.1+	830829	095	(9.5+	12.0-)	881110	567	0.7-	0.1-
830613	675	1.1+	0.7+	830831	095	(1.0-	4.2+)	881110	567	0.3+	0.6+
830614	675	0.5-	0.3+	881006	801	0.2+	0.1-	881111	567	(5.6-	1.0-)
830614	675	0.1-	0.5+	881030	897	1.6+	1.4-	881111	567	(4.8-	0.4-)
830713	688	0.6-	1.5-	881030	897	0.5-	2.3-	881114	567	0.9-	0.4+
830713	688	1.4+	2.4-	881102	399	1.2+	1.0-	881114	567	1.5-	0.8-

(3978)* 1983 VP1 = 1965 AN = 1976 JF7 = 1978 TX5 = 1985 BE2
Discovered 1983 Nov. 7 by Z. Vavrova at Klet.
Id. T. Kobayashi (MPC 14018)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 29.03147	(1950.0)	P	Q	
n 0.20143846	Peri. 216.83264	-0.14375722	-0.97186812	
a 2.8820917	Node 242.12441	+0.95079767	-0.08336078	
e 0.0038019	Incl. 12.18412	+0.27444061	-0.22028015	
P 4.89	H 11.8	G 0.25		

Residuals in seconds of arc

650101	330	1.8+	0.5+	831108	046	1.2+	0.2-	850119	688	1.1-	0.5+
650110	330	1.6-	0.1-	831108	381	2.7-	1.2+	850119	688	0.9+	0.9-
760502	809	0.1-	1.1-	831108	381	0.3+	0.3+	881207	888	0.5-	1.5-
781008	095	0.3-	0.4+	831108	046	1.4-	1.6-	881207	888	0.2-	0.7+
831107	046	1.0+	2.2-	831108	046	1.3+	1.2-	881215	888	0.2+	0.8+
831107	046	0.4-	1.1-	831112	046	0.1-	1.9+	881215	888	0.3+	0.9+
831107	046	0.4+	1.4-	831112	046	0.9+	1.7+				

(3979)* 1983 VV1 = 1974 CQ = 1977 RG5
Discovered 1983 Nov. 8 by A. Mrkos at Klet.
Id. W. Landgraf (MPC 8540)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Rogers

M 352.80567	(1950.0)	P	Q	
n 0.17996088	Peri. 107.63166	-0.02832912	-0.99948946	
a 3.1070672	Node. 343.97009	+0.89558686	-0.01881374	
e 0.0444735	Incl. 3.06698	+0.44398383	-0.02582372	
P 5.48	H 11.8	G 0.25		

Residuals in seconds of arc

740214	095	0.4+	3.4+	831205	552	0.7+	2.1+	850318	688	0.8+	1.0-
740218	095	0.4+	1.3+	850212	046	0.2-	0.0	850318	688	0.5-	1.1-
770909	095	0.5-	1.1+	850212	046	2.9-	1.6+	850321	801	0.8+	2.3+
831108	381	0.6-	1.0+	850213	046	2.1-	0.4-	850324	688	1.8+	0.8-
831108	381	0.0	1.4+	850213	046	1.0-	0.7-	850324	688	1.3+	1.6-
831108	046	(3.3-	1.6-)	850215	046	0.8+	1.6-	881004	046	0.8+	1.5-
831109	046	0.0	0.1+	850215	046	1.2-	1.0-	881004	046	0.8+	2.4-
831109	046	0.6-	0.4+	850216	046	0.6-	1.1+	881011	046	0.5+	2.0+
831110	046	0.0	0.3-	850216	046	(3.1-	2.2+)	881011	046	0.5-	1.0+
831110	046	1.2-	0.0	850225	688	1.6+	1.0-	881014	046	0.2+	1.1-
831205	552	(2.2+	3.4+)	850225	688	0.1-	0.4-	881014	046	0.7+	1.6-

(3980)* 1983 XU = 1972 XF2 = 1972 YF1 = 3128 T-3
Discovered 1983 Dec. 4 by A. Mrkos at Klet.
Id. S. Nakano (MPC 10759, 12697), K. Hurukawa
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 23.29339	(1950.0)	P	Q	
n 0.17858048	Peri. 358.67457	+0.30104061	-0.95284375	
a 3.1230581	Node 73.80425	+0.87524447	+0.26015374	
e 0.1679543	Incl. 2.28295	+0.37857849	+0.15623324	
P 5.52	H 12.6	G 0.25		

Residuals in seconds of arc

721201	095	0.8-	1.6+	771017	675	1.1-	1.4+	831205	046	0.6+	0.8-
721230	095	1.9+	3.3-	771017	675	1.2-	2.1+	881004	046	0.9+	2.5-
771007	675	0.8+	1.3-	771021	675	0.1-	1.2+	881004	046	1.0+	2.8-
771011	675	1.0-	1.9+	771021	675	0.9-	1.6+	881011	046	1.3+	1.4-
771011	675	0.9-	2.0+	771022	675	0.0	0.6-	881011	046	0.6+	0.8-
771012	675	0.8-	0.1-	771022	675	1.3+	0.2-	881014	046	0.7-	1.5-
771012	675	1.0-	0.5-	831204	046	1.8-	0.8+	881014	046	0.3+	0.8-
771016	675	0.6+	1.1+	831204	046	1.3-	0.7+	881105	888	1.4+	1.1+
771016	675	0.4-	0.0	831205	046	1.6+	0.3+	881105	888	(5.1-	0.7-)

(3981)* 1984 BL = 1965 SR = 1971 UF2 = 1976 SS = 1977 VB2 = 1979 FT1
Discovered 1984 Jan. 26 by A. Mrkos at Klet.
Id. S. Nakano (MPC 13158)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 44.72416	(1950.0)	P	Q	
n 0.17600898	Peri. 349.72941	+0.35568813	-0.93364713	
a 3.1534031	Node 79.42501	+0.86046441	+0.30947148	
e 0.1834124	Incl. 2.46604	+0.36481085	+0.18036196	
P 5.60	H 11.9	G 0.25		

Residuals in seconds of arc

650921	330	0.9+	0.3-	840126	046	(4.8+	1.0-)	881107	801	2.6-	2.0+
711021	095	1.2-	1.4+	840127	046	2.9-	2.0-	881108	801	0.1+	0.5+
760924	095	1.5-	1.7-	840127	046	(4.2-	2.0-)	881110	897	0.4+	0.4+
771114	330	0.2-	0.5-	840129	046	0.3-	1.5-	881110	897	0.0	0.4-
790323	095	0.6-	0.2-	840129	046	0.7-	1.2-	881110	897	(0.1+	3.1+)
790329	095	0.4-	2.4-	840201	046	0.0	1.9+	881110	897	1.0-	1.4+
820917	095	(3.0+	4.2-)	840201	046	0.2+	1.6+	881112	293	1.1-	2.3-
820919	095	1.8+	0.7-	881102	894	0.8-	1.4+	881112	046	1.0+	1.6-
820924	095	0.6+	2.5-	881102	894	1.4-	2.2+	881112	046	2.2+	1.0-
820927	095	1.6+	0.2-	881103	881	1.9+	0.4+ Y	881203	894	0.4-	0.6-
840126	046	3.6+	0.7-	881103	881	0.6+	1.0- Y	881203	894	(0.4+	3.3-)

(3982)* 1984 JP1 = 1930 MF = 1947 NE = 1954 RC = 1978 TT5
Discovered 1984 May 2 by L. G. Karachkina at the Crimean Astrophysical Observatory.
Id. S. Nakano (MPC 12579)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 149.91288	(1950.0)	P	Q	
n 0.29002407	Peri. 50.46058	+0.52633449	+0.84575120	
a 2.2603725	Node 251.50857	-0.80568098	+0.46313935	
e 0.2183518	Incl. 5.30099	-0.27175386	+0.26496574	
P 3.40	H 13.0	G 0.25		

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

300623	690	0.4-	1.2-	470713	078	(6.6+	12.9+)X	840505	095	0.6-	1.5+
300625	078	(14.1-	11.0+)Y	540901	760	(0.05-	0.00+)X	840520	095	1.8+	1.1+
300626	690	1.0-	0.5-	781008	095	0.7-	1.1+	880911	801	0.7-	1.9+
300627	690	1.9+	0.1-	840502	095	0.5+	2.4+	881007	801	0.2-	1.4+

(3983)* 1984 SX = 1952 FX = 1971 BO = 1975 EG3
Discovered 1984 Sept. 20 by A. Mrkos at Klet.
Id. H. Oishi (MPC 10518)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Oishi

M 278.83215	(1950.0)	P	Q	
n 0.25713831	Peri. 223.89892	-0.97382328	+0.22610233	
a 2.4492034	Node 329.14622	-0.19394610	-0.88010890	
e 0.1162471	Incl. 2.61131	-0.11854585	-0.41747583	
P 3.83	H 12.5	G 0.25		

Residuals in seconds of arc

520323	711	(11.7-	1.6-)Y	840927	046	(4.0+	1.5-)	881013	888	0.0	1.8-
520323	711	0.6-	1.4- Y	840927	046	(5.7+	0.2+)	881014	801	(5.1-	0.7-)
710122	095	(9.0-	0.7-)	840929	046	2.7+	0.8-	881015	888	0.3+	1.2+
710128	095	1.8-	0.6+	840929	046	3.4+	0.0	881015	888	0.1-	0.2+
750312	095	0.0	1.8-	840930	046	3.2+	1.3-	881018	399	1.5-	0.1-
750315	095	0.3-	1.9-	840930	046	1.0-	0.1+	881018	399	2.3-	0.1-
750317	095	0.4-	0.9+	860413	801	0.5+	0.8-	881103	888	0.9+	0.3-
820119	095	0.7+	0.4+	881013	399	0.7+	0.7-	881110	801	2.4-	1.3-
820120	095	1.2+	0.2-	881013	399	0.7+	1.3+	881113	888	0.8-	0.7+
840920	046	1.8-	2.1-	881013	399	0.3+	2.3+	881113	888	0.1+	0.7+
840920	046	0.8-	1.3-	881013	888	0.5-	1.7-				

(3984)* 1984 SB6 = 1969 VE1 = 1980 PS2

Discovered 1984 Sept. 21 by H. Debehogne at the European Southern Observatory.

Id. T. Furuta (MPC 9826)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Oishi

M	114.74224	(1950.0)	P	Q	
n	0.25931313	Peri.	262.60085	+0.99790155	-0.04052721
a	2.4354901	Node	99.71227	+0.05704130	+0.91928835
e	0.1841733	Incl.	2.93668	-0.03063973	+0.39149262
P	3.80	H	14.1	G 0.25	

Residuals in seconds of arc

691111 095	2.4+	0.2+	840927 809	0.1-	0.7-	841001 809	1.1-	0.3-
691113 095	2.5-	0.0	840927 809	0.1-	0.6-	841001 809	0.3+	0.5-
800815 323	1.7-	0.0	840927 809	0.2-	0.5-	841001 809	0.4+	0.5-
800815 323	1.3+	1.4+	840928 809	0.5+	0.3-	841001 809	0.7+	0.7-
840921 809	0.8-	1.2+	840928 809	0.8+	0.4-	881014 801	2.1-	0.7-
840921 809	0.7-	1.2+	840928 809	0.8+	0.5-	881104 046	2.5+	0.9+
840921 809	0.6-	1.0+	840929 809	0.1-	0.9-	881104 046	2.1+	1.4-
840922 809	0.4+	0.8+	840929 809	0.4+	0.4-	881105 888	0.8+	0.2-
840922 809	0.4+	0.8+	840929 809	0.7+	0.5-	881105 888	0.9+	0.1-
840922 809	0.6+	0.7+	840929 809	0.2+	0.3-	881105 046	(5.3-	0.1+)
840923 809	0.6-	0.1+	840929 809	0.3+	0.3-	881105 046	(7.9-	0.1+)
840923 809	0.2-	0.1-	840929 809	0.3+	0.3-	881108 801	0.9-	0.7+
840923 809	0.0	0.0	840930 809	0.6+	0.3-	881111 046	(3.2-	2.7-)
840924 809	0.5-	0.9+	840930 809	0.3+	0.3-	881112 046	(3.8-	1.0-)
840924 809	0.7-	0.8+	840930 809	0.2+	0.7-	881112 046	1.9-	0.4+
840924 809	0.6-	0.9+	840930 809	0.6-	0.1-	881201 888	0.6-	0.3+
840926 809	0.5+	0.0	840930 809	0.2-	0.1-	881201 888	0.9-	0.3+
840926 809	0.4+	0.1-	840930 809	0.1+	0.1-	881207 888	0.3-	0.6+
840926 809	0.5+	0.1+	841001 809	1.4-	0.7-	881207 888	0.6-	0.5+

(3985)* 1985 CX = 1952 KQ = 1952 LF = 1970 AF = 1978 WJ

Discovered 1985 Feb. 12 by C. S. Shoemaker at Palomar.

Id. S. Nakano (MPC 11425)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	270.01297	(1950.0)	P	Q	
n	0.20484200	Peri.	150.58863	-0.56514839	+0.77650557
a	2.8500778	Node	83.62783	-0.80104386	-0.43570907
e	0.0973415	Incl.	16.28308	-0.19732214	-0.45518864
P	4.81	H	11.4	G 0.25	

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

520520 711(0.06+	0.00+)Y		850212 675	0.5+	1.7+	881201 897	0.9-	1.2-
520612 760	0.9-	1.5-	850216 675	1.5+	1.2+	881206 801	1.2+	0.2-
520612 760	0.9-	0.3-	850226 675	0.1+	0.5-	881209 552	1.2+	0.0
700104 095	1.4+	4.5-	870928 675	0.9-	0.7-	881209 552	0.7+	0.5+
781124 046	0.0	0.1+	870928 675	0.7+	1.3+	881212 872	2.0-	0.5+
781124 046	0.9+	1.2-	881111 801	0.5+	0.3+	881212 872	1.0-	0.6+
781125 046	0.9+	0.9+	881112 801	0.3+	0.9+	881213 872	0.5-	0.2-
781125 046	0.8+	0.0	881201 897	1.4-	0.2-	881213 872	1.8-	0.2-

(3986)* 1985 SF2 = 1929 CQ = 1956 AQ = 1968 QW = 1982 YA4 = 1988 NX

Discovered 1985 Sept. 19 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Green

M	5.19666	(1950.0)	P	Q	
n	0.29121807	Peri.	163.50237	+0.09122336	-0.99223578
a	2.2541899	Node	281.20401	+0.90359848	+0.11815580
e	0.1333688	Incl.	4.94384	+0.41855477	-0.03882484
P	3.38	H	13.3	G 0.25	

Residuals in seconds of arc

290204	024	4.4+	0.4-		821223	095	1.0+	0.1+		880714	675	0.9-	0.6+
290207	024	2.4-	1.8+		850919	095	0.1+	0.5+		880715	675	1.6-	0.9+
560114	760	2.8-	1.3-		850921	095	0.8-	1.8+		880809	675	1.5+	0.9-
680827	095	0.0	1.6-		851018	095	0.6+	0.3-		880811	675	0.7+	0.3-

(3987)* 1986 EL1 = 1969 OS = 1979 VX2 = 1979 YS1

Discovered 1986 Mar. 5 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. K. Hurukawa (MPC 10755), N. S. Chernykh (d, ibid.), H. Oishi (MPC 13857)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Oishi

M	119.27058	(1950.0)	P	Q	
n	0.21814949	Peri.	307.47348	+0.99512299	+0.07607820
a	2.7329598	Node	48.25587	-0.04002722	+0.89320080
e	0.1189521	Incl.	4.82728	-0.09015576	+0.44317541
P	4.52	H	12.2	G 0.25	

Residuals in seconds of arc

690717	095	0.1+	0.4-		860410	054	0.6+	2.5+		881111	567	1.0-	0.1-
791114	095	1.4+	0.1+		881105	877	2.3-	2.8-	Y	881112	888	1.4+	0.9+
791223	095	1.9-	1.2+		881105	877	0.1+	0.2-	Y	881112	888	0.9+	0.4+
860305	688	1.3+	2.8-		881106	888	0.4+	0.5+		881203	400	(5.1-	2.6+)
860305	688	0.5+	2.0-		881106	888	0.2+	0.3+		881203	400	(5.5-	2.6+)
860403	054	0.2+	0.1+		881111	897	1.0+	0.4-		881203	888	0.1-	0.7-
860404	054	1.2-	2.6+		881111	897	0.2-	0.6+		881203	888	0.5+	0.7-
860405	054	0.1-	0.5+		881111	888	(4.1-	2.2+)		881211	888	0.4-	0.3-
860409	688	2.1-	1.0-		881111	888	(4.7-	0.6+)		881211	888	0.1+	0.2-
860409	688	0.7+	0.7-		881111	567	0.0	1.0+					

(3988)* 1986 LA

Discovered 1986 June 4 by E. Helin at Palomar.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	224.94620	(1950.0)	P	Q	
n	0.51344147	Peri.	86.54677	+0.70486887	+0.69501438
a	1.5445741	Node	229.36065	-0.70209094	+0.65507318
e	0.3168200	Incl.	10.77214	-0.10113451	+0.29636826
P	1.92	H	18.6	G 0.25	

Residuals in seconds of arc

860604	675	1.3+	0.2+		860727	691	0.7+	0.5-		861030	691	0.4+	1.1+
860604	675	0.9-	0.9+		860727	691	0.2+	0.4-		861030	691	0.8+	1.1+
860606	675	2.8+	0.1+		860727	691	0.7+	0.4-		861030	691	1.5+	0.8+
860606	675	0.9-	1.2+		860805	801	0.5-	0.5+		861125	688	0.8+	1.1-
860607	675	0.1+	0.7-		860831	691	0.6-	0.7-		861125	688	0.9+	1.1-
860607	675	0.2+	1.6-		860831	691	0.5-	0.8-		861202	691	0.9-	0.3-
860608	675	0.1-	0.6+		860831	691	0.6-	0.5-		861202	691	1.2-	0.2-
860608	675	1.6-	0.0		860901	801	1.4+	0.6+		861202	691	0.8-	0.6-
860615	688	0.6-	0.9+		860902	691	0.4+	0.0		861204	691	0.1+	0.2-
860702	675	0.8-	0.5+		860902	691	0.2+	0.1-		861204	691	0.2+	0.3-
860702	675	1.4-	0.1-		860902	691	0.1+	0.2+		861204	691	0.3+	0.1+
860704	801	0.7-	1.3+		860925	691	0.9+	0.2+		861231	688	0.1-	0.0
860705	691	1.6+	0.7-		860925	691	0.8+	0.2+		861231	688	0.3-	0.2-
860705	691	1.5+	0.7-		860926	691	0.5-	0.2-		870202	688	0.9-	0.4+
860705	691	1.4+	0.8-		860926	691	0.5-	0.4-		870202	688	2.2-	0.4+
860708	801	1.3-	1.4+		861001	801	0.2+	0.6+		870202	688	1.9-	0.0
860710	675	(5.4+	0.7+)		861025	691	0.6-	0.4+		880520	688	0.9-	0.3+
860710	675	(3.2+	2.3-)		861025	691	0.6-	0.1+		880520	688	0.5-	0.5+
860710	691	0.6-	1.5-		861025	691	0.4-	0.3+		881103	413	4.2+	2.8+
860710	691	0.3-	0.1-		861029	801	0.1-	0.1+		881103	413	2.9-	2.0-

(3989)* 1986 RM = 1952 RD = 1952 SO1 = 1959 UF = 1969 QO = 1976 WW
Discovered 1986 Sept. 8 by P. Jensen at Brorfelde.
Id. T. Kobayashi (MPC 11625), O. Kippes (d, NAZ 12, 23)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	302.15692		(1950.0)	P	Q
n	0.29060383	Peri.	51.92845	+0.94437131	-0.32723440
a	2.2573652	Node	327.13530	+0.27956591	+0.85138647
e	0.1861633	Incl.	3.47273	+0.17322163	+0.40994965
P	3.39	H	14.3	G 0.25	

Residuals in seconds of arc

520913	760	3.1-	0.5-	690908	095	0.5+	0.0	860912	054	1.8+	0.0
520916	839	1.0+	0.2-	761118	381	0.3-	1.2+	861001	054	0.4-	1.0+
520916	839	1.2+	1.3-	761118	381	0.8+	0.2-	880218	413	1.8-	0.9-
591028	760	0.7+	2.0-	860905	046	3.3-	0.4-	880218	413	1.3+	0.5-
591028	760	0.7-	0.1+	860906	046	1.1-	0.7+	880511	413	1.0+	0.3-
690823	095	3.0+	0.3+	860908	054	(5.7+	1.9+)	880511	413	1.3-	0.5+

(3990)* 1987 SO3 = 1971 QJ3 = 1972 TG2 = 1972 XM = 1979 SA3 = 1988 XK2
Discovered 1987 Sept. 25 by P. Jensen at Brorfelde.
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	63.06745		(1950.0)	P	Q
n	0.12557960	Peri.	200.20864	+0.84463010	-0.53420239
a	3.9493291	Node	192.26644	+0.51102917	+0.82403336
e	0.2382228	Incl.	9.49294	+0.15952798	+0.18867120
P	7.85	H	10.6	G 0.25	

Residuals in seconds of arc

710818	095	0.8-	5.8+	870929	054	0.5+	1.6-	881230	372	0.9+	0.5+
721008	095	3.7-	0.3-	870930	054	0.3+	0.3+	890101	372	0.4-	0.9-
721202	095	3.7+	1.2-	870930	054	0.0	1.1-	890101	372	0.7+	0.4+
790923	095	0.1-	0.9-	871001	054	0.1+	1.0-	890104	372	0.4+	1.4+
870925	054	0.4-	0.1+	881215	372	0.3-	0.0	890104	372	0.9+	1.5+
870925	054	0.1+	0.9-	881215	372	1.5-	0.5+				
870929	054	0.2+	0.8+	881216	372	0.5-	0.7+				

(3991)* 1987 SW3 = 1936 MJ = 1970 QO1 = 1976 GD8 = 1976 GG8
Discovered 1987 Sept. 26 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Id. S. Nakano (MPC 12449), O. Kippes (d, MPC 6840), T. Urata (d, ibid.)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	277.09164		(1950.0)	P	Q
n	0.29209230	Peri.	355.69629	+0.14003822	+0.98794537
a	2.2496898	Node	282.34408	-0.90636807	+0.10107872
e	0.1745734	Incl.	3.87274	-0.39860534	+0.11724777
P	3.37	H	13.3	G 0.25	

Residuals in seconds of arc

360624	078	(39.6-	38.7+)X	771012	675	1.6-	0.6+	771022	675	1.1-	1.9+
700831	095	0.5-	1.2+	771012	675	1.2-	0.4+	830410	095	0.1+	0.8-
760401	808	1.9+	1.2+	771016	675	0.6-	2.6-	870926	688	1.0-	0.8-
760401	808	0.1+	1.3+	771016	675	0.2+	2.7-	870926	688	0.2+	0.3-
760404	808	0.5-	0.7+	771017	675	1.7+	0.2+	871016	688	0.4-	1.1+
760404	808	0.5-	0.1+	771017	675	0.1-	0.5-	871016	688	0.0	1.3+
771007	675	0.4-	0.6-	771021	675	2.3+	1.0-	871026	688	0.2-	0.4+
771011	675	0.4-	1.1+	771021	675	2.9+	0.0	871026	688	0.3+	0.2+
771011	675	1.1-	0.3+	771022	675	0.2+	2.3+				

(3992)* 1987 SA7 = 1951 YZ = 1953 EF1 = 1954 JB = 1982 UH1

Discovered 1987 Sept. 29 by F. Borngen at Tautenburg.

Id. E. Goffin (MPC 13457)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Schmadel

M 175.95017	(1950.0)	P	Q	
n 0.18831327	Peri. 158.25493	+0.83749924	+0.54524614	
a 3.0145010	Node 168.49447	-0.52420159	+0.82030822	
e 0.0866684	Incl. 10.42098	-0.15429750	+0.17262988	
P 5.23	H 12.0	G 0.25		

Residuals in seconds of arc

511223	711	0.3+	5.4+ Y	870923	809	1.0-	0.9-	870930 809	0.4+ 1.2+
530314	760	(44.6-	28.5+)	870923	809	0.6-	0.2+	870930 809	0.6+ 1.2+
540504	760	0.0	1.2+	870923	809	0.5-	0.0	870930 033	0.7+ 0.1-
540504	760	0.2-	0.5-	870924	809	0.4-	0.1+	871001 033	0.7- 0.3-
821021	688	2.4-	1.5-	870924	809	0.3-	0.0	871001 809	0.1+ 0.6+
821021	688	0.1-	2.3-	870924	809	0.3-	0.0	871001 809	0.2+ 0.7+
870918	809	0.2+	0.3-	870926	809	0.1+	0.2+	871001 809	0.6+ 0.9+
870918	809	0.3+	0.6-	870926	809	0.1+	0.2+	881105 033	0.4- 1.7-
870918	809	0.3+	0.6-	870926	809	0.0	0.2+	881106 033	0.2+ 1.0-
870919	809	0.2+	0.0	870929	033	0.8+	0.6-	881106 033	0.0 0.8-
870919	809	0.2+	0.1-	870930	033	0.0	0.3-	881207 033	0.6+ 0.4+
870919	809	0.1+	0.1-	870930	809	0.5+	1.0+	881207 033	0.1+ 0.6-

(3993)* 1988 VV5 = 1949 GP = 1963 TE1 = 1967 RF1 = 1969 AA1 = 1972 YU = 1984 WS = 1986 EW5

Discovered 1988 Nov. 4 by A. Mrkos at Klet.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 38.87598	(1950.0)	P	Q	
n 0.23917826	Peri. 245.95262	-0.02494941	-0.99942120	
a 2.5703262	Node 205.50954	+0.93555842	-0.01519063	
e 0.0716923	Incl. 3.07816	+0.35228960	-0.03043873	
P 4.12	H 12.4	G 0.25		

Residuals in seconds of arc

490404	760	4.5-	0.4+	841118	688	1.2-	0.3-	881104 046	(5.1- 3.7-)
490404	760	1.5-	1.5+	841124	688	4.5+	0.9+	881104 046	(5.1- 2.8-)
631015	760	(42.2+	44.1-)X	841124	688	0.0	1.3+	881105 046	0.8- 2.2-
670912	095	4.7+	4.7+	860311	809	1.2+	2.1-	881105 046	1.1- 1.6-
690115	095	2.3+	1.2+	860311	809	0.2-	2.1+	881111 046	3.9- 0.0
721229	095	1.7+	2.7-	860317	809	1.7+	0.5+	881112 046	2.8- 0.4-
841118	688	0.8+	1.2+	860317	809	2.0+	1.0+	881112 046	2.1- 0.4+

(3994)* 1988 XF = 1936 VE = 1936 XF = 1949 WD = 1966 RL = 1975 WR = 1977 DU3 = 1977 EV2 = 1979 SE4 = 1986 EM4

Discovered 1988 Dec. 2 by M. Koishikawa at the Ayashi Station of the Sendai Municipal Observatory.

Id. S. Nakano, B. G. Marsden (d)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 120.78487	(1950.0)	P	Q	
n 0.22800120	Peri. 296.79344	+0.97896305	+0.19768849	
a 2.6536561	Node 51.84751	-0.15684097	+0.88742010	
e 0.2422978	Incl. 3.68228	-0.13050769	+0.41641906	
P 4.32	H 12.6	G 0.25		

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

361109	020	0.3-	3.7-	770219	381	0.6+	0.2-	881203	391	0.3+	0.7+
361109	020	1.3-	1.6-	770219	381	0.2+	0.3-	881205	391	(4.7+	1.9+)
361115	020	(12.6+	3.8+)	770312	381	0.1+	0.3-	881206	391	0.6-	0.4-
361116	020	(0.01-	0.06-)	770312	381	0.5+	1.0-	881206	391	(3.3+	0.4-)
361206	020	(1.9-	28.8+)	770315	381	0.3+	0.8-	881207	391	1.0+	0.5+
361206	020	(2.0+	29.3+)	770315	381	(0.9+	4.6-)	881207	391	0.2-	0.4+
491117	012	0.2-	1.7+	790924	095	3.0-	0.3-	881211	391	0.5-	2.3-
660915	095	4.4+	1.1-	860312	809	3.1-	1.2+	881212	391	1.4-	1.6-
751128	095	5.7+	4.2+	881202	391	1.1-	1.3+	881212	391	1.9-	1.6-
770218	381	(7.9-	9.6-)	881202	391	0.9-	0.7+	881214	391	0.8+	0.4+
770218	381	0.5+	1.8-	881203	391	0.3+	1.0+	881214	391	0.7-	0.3+

(3995)* 1988 XM = 1958 XE = 1978 JB1 = 1981 CF = 1984 YV4

Discovered 1988 Dec. 5 by T. Kojima at YGCO Chiyoda Station.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	115.32008		(1950.0)	P	Q
n	0.23050712	Peri.	275.73494	+0.95225765	-0.26027401
a	2.6343885	Node	99.42843	+0.30204416	+0.87926193
e	0.0952443	Incl.	9.30883	-0.04443741	+0.39894347
P	4.28	H	12.1	G 0.25	

Residuals in seconds of arc

581204	024	0.2+	0.5-	841228	095	0.1-	1.0+	881210	894	0.2+	0.5+
780506	095	0.5-	0.5-	881205	897	1.2+	0.9-	881210	894	0.7-	0.8+
810202	046	0.1-	1.2+	881205	897	0.9+	0.1+	890101	897	0.5-	0.7-
810202	046	2.3+	0.4-	881207	897	0.7-	1.0-	890101	897	0.1+	0.5-
841223	010	(1.4-	8.4-)	881207	897	0.7+	0.2+				
841223	010	3.0-	3.1-	881210	894	0.3-	2.8+				

(3996)* 1988 XG1 = 1939 FZ = 1957 TB = 1981 SO5 = 1981 UM16

Discovered 1988 Dec. 5 by M. Arai and H. Mori at Yorii.

Id. T. Kobayashi, S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	258.44388		(1950.0)	P	Q
n	0.29022798	Peri.	155.91606	-0.40246826	+0.91456473
a	2.2593137	Node	90.33104	-0.84619588	-0.35505349
e	0.1032284	Incl.	2.28576	-0.34924466	-0.19367077
P	3.40	H	12.9	G 0.25	

Residuals in seconds of arc

390317	062	0.2+	0.8-	881115	875	0.9-	0.5+	881207	875	1.6+	0.0
390322	062	1.0-	1.5-	881115	875	1.8-	1.6+	881207	875	1.3-	0.3-
571002	024	0.9+	2.7-	881201	054	0.5+	0.1-	881209	875	0.7-	0.8+
810925	095	0.4-	0.4-	881205	875	2.1+	1.1-	881209	875	0.7+	0.2-
811024	095	1.4+	0.3+	881205	875	1.3-	0.7-				

(3997)* 1988 XP1 = 1931 TZ3 = 1965 VK = 1965 WC = 1971 FK1 = 1973 YP3 = 1980 RN4

Discovered 1988 Dec. 6 by J. Sugie at Dynic Astronomical Observatory.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	118.68739		(1950.0)	P	Q
n	0.26111099	Peri.	309.18203	+0.83542393	-0.54600782
a	2.4242977	Node	83.99730	+0.52169753	+0.75186842
e	0.1720774	Incl.	3.61972	+0.17291194	+0.36955288
P	3.77	H	13.3	G 0.25	

Residuals in seconds of arc

311012	690	1.8-	1.3-		731225	095	2.2+	0.1+		881213	402	0.7-	1.2-
311014	690	0.2+	0.1-		800907	095	0.9-	1.5-		881213	402	1.3-	0.0
651101	760	0.8+	1.2+		800909	095	0.5+	1.6-		890102	402	1.8-	0.7-
651101	760	0.2+	2.3+		881206	402	2.0+	0.1+		890102	402	1.0-	0.9-
651120	760	3.1+	0.4-		881206	402	0.0	1.0+		890105	402	1.6-	0.4-
651120	760	0.5-	0.8+		881207	402	0.2+	0.5+		890105	402	0.5+	0.4-
710319	095	0.2-	1.3-		881207	402	0.5+	0.1+					

(3998)* 1989 AB = 1943 TJ = 1950 WD = 1974 SW4 = 1976 JU7 = 1981 UF20 = 1984 SR4

Discovered 1989 Jan. 1 by T. Kojima at YGCO Chiyoda Station.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	89.89505	(1950.0)	P	Q
n	0.28644709	Peri. 75.32758	+0.16540981	-0.98617200
a	2.2791510	Node 5.18395	+0.85569353	+0.13835886
e	0.1959384	Incl. 6.49256	+0.49033476	+0.09122287
P	3.44	H 13.0	G 0.25	

Residuals in seconds of arc

431005	062	0.1-	2.3-		760502	809	1.8+	0.1-		890101	897	0.7-	0.0
431006	062	0.1-	2.7-		811028	095	3.3+	3.4+		890103	897	0.2-	0.1+
501116	711	0.1+	2.5+	Y	840919	071	4.3-	0.6-		890103	897	0.8-	0.6-
501203	711	(3.9+	13.2-)	Y	840919	071	2.1+	0.5+		890112	897	0.1+	0.6-
740926	095	1.9+	1.2+		890101	897	1.4-	0.2-		890112	897	0.7-	0.4-

(3999)* 1989 AL = 1943 EW = 1951 GD1 = 1970 DA = 1972 TJ1 = 1974 EH = 1975 NA1 = 1976 UQ4 = 1979 QC7 = 1980 XF1 = 1984 YH3

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

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	36.61158	(1950.0)	P	Q
n	0.25571497	Peri. 208.88616	-0.82355345	-0.56584512
a	2.4582834	Node 296.59907	+0.52857454	-0.74011254
e	0.1232733	Incl. 2.54708	+0.20583653	-0.36339059
P	3.85	H 12.4	G 0.25	

Residuals in seconds of arc

430307	062	2.7-	2.8+		761030	095	2.3+	2.5+		890105	897	1.6-	0.1+
430307	062	1.1+	1.1+		790820	095	0.2-	1.6+		890105	897	1.4-	0.4-
510407	711	3.4+	0.9+	Y	801209	330	1.1-	4.2+		890106	399	0.6+	0.4-
700227	805	0.8-	1.0+		801213	330	2.6-	3.7+		890106	897	0.6-	0.4-
721007	095	2.4+	1.4+		841227	095	2.2-	2.2-		890106	399	0.5+	1.1-
740313	095	0.7-	2.8-		890104	399	0.7-	0.7-		890106	897	0.3+	0.3-
740320	095	2.5+	4.1+		890104	399	0.3+	0.3-		890112	897	0.8-	1.8-
750711	095	4.1-	1.2-		890104	399	0.1+	0.5+		890112	897	0.1-	1.5-
750713	095	(6.3+	7.6+)		890104	399	0.6+	0.3-					

(4000)* 1989 AV = 1963 XA = 1975 TW4 = 1977 FZ2 = 1978 NG8 = 1979 WU4 = 1984 YX5

Discovered 1989 Jan. 4 by S. Ueda and H. Kaneda at Kushiro.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	44.28094	(1950.0)	P	Q
n	0.23651179	Peri. 173.63181	-0.66834730	-0.74318517
a	2.5896089	Node 318.30148	+0.68033299	-0.59364906
e	0.1117614	Incl. 2.70791	+0.30076389	-0.30863667
P	4.17	H 12.6	G 0.25	

Residuals in seconds of arc

631215	760	0.6+	0.8+	841230	095	2.6+	0.7-	890106	400	2.4-	0.0
631215	760	2.5-	0.9-	881231	400	2.1-	0.6-	890106	400	0.8-	1.0+
751014	095	3.4+	2.3+	881231	400	3.0-	1.1-	890106	400	1.7-	0.7+
770326	095	1.2+	0.1+	881231	400	0.7+	0.3-	890106	399	0.7-	1.0-
780707	675	0.4-	0.1+	890104	399	1.7+	0.0	890106	399	0.7+	0.2-
780708	675	0.7-	0.3-	890104	399	1.8+	0.2+	890113	399	1.3-	0.7+
780709	675	0.0	0.3-	890104	399	1.5+	0.4+	890113	399	0.3+	0.7+
791117	095	1.1-	0.7-	890104	399	1.7+	0.0	890113	399	0.8+	0.5-

1928 RB = 1969 PS = 1988 CP6

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 303.02833		(1950.0)		P	Q
n 0.23980464	Peri.	172.38454	+0.94730006	+0.31703263	
a 2.5658484	Node	168.80116	-0.30496637	+0.93641218	
e 0.2514571	Incl.	13.69059	-0.09807196	+0.15040792	
P 4.11	H	13.5	G 0.25		

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

280905	024	1.1+	4.8+	280911	024	3.0-	3.0-	690813	095	0.1+	0.8-
280908	024	1.9+	0.9-	280915	024	(0.07-	0.02-)	880210	033	0.7+	0.3-
280908	024	(47.5+	73.7+)	281015	024	0.1-	0.9-	880211	033	0.7-	0.2-

1933 SD = 1972 TK2 = 1978 NC4 = 1988 PU1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P)				Marsden	
M 110.18976		(1950.0)		P	Q
n 0.30436185	Peri.	165.44596	+0.99630046	+0.08488194	
a 2.1888203	Node	189.71461	-0.08463659	+0.94204628	
e 0.2337709	Incl.	4.56598	-0.01490087	+0.32456719	
P 3.24	H	14.5	G 0.25		

Residuals in seconds of arc

330917	012	5.5-	2.5+	721008	095	0.2-	5.9-	880908	046	1.7+	2.1-
330921	012	5.0-	5.3+	780710	095	0.9+	1.1+	880908	046	2.7+	1.1-
330925	012	5.3-	0.9+	880812	511	2.9-	1.1+	880910	046	3.4+	2.3-
330927	012	1.0+	5.2+	880812	511	3.9-	1.9+	880910	046	3.0+	1.6-
331012	012	3.3+	5.1+	880814	511	3.8-	0.3+	880912	511	1.9+	2.2-
331014	012	2.5+	0.2+	880815	511	3.1-	0.4+	880912	511	2.6+	2.0-
331017	012	1.3-	3.5+	880818	511	1.6-	1.9-	880912	511	4.3+	0.3-
331019	012	3.1+	1.0-	880818	511	1.8-	0.2-	880917	511	1.5+	2.9-
331020	012	1.8+	2.2-	880818	511	0.5-	1.1-	880917	511	0.8+	1.6-

1935 SC = 1955 QB1 = 1972 VF = 1977 DA6 = 1982 TY

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 38.22532		(1950.0)		P	Q
n 0.29384738	Peri.	18.42057	+0.99197852	-0.12521818	
a 2.2407230	Node	348.73079	+0.10197212	+0.87354796	
e 0.1869408	Incl.	5.07658	+0.07470138	+0.47035558	
P 3.35	H	14.0	G 0.25		

Residuals in seconds of arc

350921	094	0.7+	3.2-	351015	078	1.1-	0.7+	770219	381	0.0	0.7-
350922	012	2.5+	0.8-	351018	078	1.1-	1.1-	770219	381	0.7-	1.1-
350923	012	0.8+	0.7+	550825	760	0.4-	0.5+	821015	704	(2.4+	5.8+)
350928	012	3.3+	2.4+	550825	760	1.0-	0.5+	821015	704	1.6+	0.5-
351001	012	2.8-	1.8-	721108	095	2.8-	2.4+				

1935 SA2 = 1972 TE5 = 1979 WB3
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 345.17960 (1950.0) P Q
n 0.29228395 Peri. 26.51131 +0.77533300 -0.63111334
a 2.2487063 Node 12.70465 +0.55872799 +0.66806703
e 0.1655198 Incl. 6.14760 +0.29441769 +0.39418573
P 3.37 H 13.5 G 0.25
Residuals in seconds of arc
350928 078 0.3+ 0.9+ 351018 078 2.2- 0.1+ 791116 095 0.1+ 0.2-
351001 078 2.0+ 0.8- 351027 078 0.5+ 0.2+
351016 078 0.7- 0.2- 721006 095 0.0 0.0

1936 NB = 1985 OB
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 291.47601 (1950.0) P Q
n 0.18227240 Peri. 346.33559 +0.25351085 +0.92490160
a 3.0807428 Node 297.69917 -0.85467150 +0.07696552
e 0.2544320 Incl. 18.66467 -0.45306609 +0.37233498
P 5.41 H 12.0 G 0.25
Residuals in seconds of arc
360712 078 0.5- 2.2- 850717 046 0.1- 0.0 850721 046 1.3+ 0.4-
360723 078 1.4+ 3.5+ 850718 046 (7.2+ 1.6-) 850721 046 0.4+ 0.1-
360815 078 0.8- 0.9- 850718 046 1.0+ 1.9+

1939 BM = 1939 CE1 = 1979 WR7 = 1987 OE1
Id. O. Kippes (d, MPC 1375), T. Kobayashi
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 5.79976 (1950.0) P Q
n 0.21394191 Peri. 355.74043 -0.42300101 -0.89259399
a 2.7686760 Node 119.21775 +0.83651052 -0.45085976
e 0.2052404 Incl. 10.29860 +0.34831063 -0.00120361
P 4.61 H 12.0 G 0.25
Residuals in seconds of arc
390120 062 0.0 0.6- 390212 062 0.3+ 0.1- 870728 010 0.6+ 0.0
390120 062 0.4+ 0.4- 390212 062 0.2+ 0.8+ 870728 010 0.8- 0.5-
390208 062 1.8- 0.0 791117 095 0.0 0.1+ 870728 010 (3.0- 1.4-)

1964 TU2 = 1983 CP4 = 1985 XO
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 73.29072 (1950.0) P Q
n 0.28444646 Peri. 45.16846 +0.93749840 -0.34584906
a 2.2898254 Node 334.98942 +0.28798103 +0.83323081
e 0.1673762 Incl. 5.22992 +0.19535527 +0.43141030
P 3.47 H 14.5 G 0.25
Residuals in seconds of arc
641009 330 0.2- 0.3+ 641109 330 0.2- 0.2+ 851209 046 0.5+ 0.4+
641030 330 0.3+ 0.3- 830214 381 0.1+ 0.1+ 851209 046 0.5- 0.5-

1965 SO = 1988 TT2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Bardwell
M 135.89683 (1950.0) P Q
n 0.25777978 Peri. 277.77480 +0.75441693 +0.65545520
a 2.4451435 Node 41.28062 -0.57926711 +0.68998268
e 0.1877559 Incl. 3.05165 -0.30871461 +0.30708692
P 3.82 H 13.0 G 0.25

Residuals in seconds of arc

650920 330	1.3+	0.2-	881012 046	0.9+	0.7-	881103 033	0.3+	0.7+
650923 330	0.7-	1.4+	881014 046	1.5-	0.6-	881103 033	0.3+	0.4+
651018 330	0.1+	0.4+	881014 046	0.8-	0.0	881104 033	0.5+	0.8+
651021 330	0.8-	1.2-	881016 046	1.0-	0.0			
881011 046	0.3+	1.7-	881016 046	0.9+	0.6-			

1967 DB = 1935 EE = 1949 FG = 1972 BP

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 341.05878	(1950.0)		P	Q	
n 0.21524271	Peri.	13.22304	-0.87273851	-0.45775698	
a 2.7575099	Node	138.14975	+0.42154665	-0.88191312	
e 0.0775119	Incl.	14.73203	+0.24622329	-0.11264013	
P 4.58	H	11.5	G 0.25		

Residuals in seconds of arc

350308 012(58.7- 20.7-)X			670216 095	1.4+	0.9+	720126 805	0.2+	0.4-
490328 062	0.7-	0.8+	670218 095	2.6-	2.1-	720126 805	0.6-	0.6-
490328 062	0.8+	0.2-	670303 095	4.0-	2.4-			
670208 095	3.0+	0.6+	670307 095	2.3+	3.3+			

1969 GD = 1988 XF2

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P)				Nakano	
M 77.05335	(1950.0)		P	Q	
n 0.23179151	Peri.	151.19321	+0.68147441	-0.70108967	
a 2.6246530	Node	254.97050	+0.62283629	+0.70621217	
e 0.1603951	Incl.	12.55366	+0.38427541	+0.09867950	
P 4.25	H	12.0	G 0.25		

Residuals in seconds of arc

690409 808	0.6-	0.9-	690419 808	0.4-	0.8+	881214 888	0.8-	1.4-
690410 808	0.1-	0.4+	690424 808	0.9+	0.7-	881215 888	1.6+	2.1+
690412 808	0.6+	0.9+	690508 808	0.3-	0.4+	881215 888	1.7+	1.7+
690413 808	0.0	1.0-	881214 888	2.5-	2.4-			

1969 TN4 = 1973 YA2 = 1988 XJ

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 70.66797	(1950.0)		P	Q	
n 0.26292330	Peri.	183.99625	+0.07760754	-0.99672279	
a 2.4131446	Node	261.55375	+0.91530847	+0.08030420	
e 0.1737797	Incl.	1.32193	+0.39520562	+0.00974198	
P 3.75	H	13.5	G 0.25		

Residuals in seconds of arc

691013 095	0.1-	0.6+	731220 095	0.3+	1.3-	881205 385	0.2+	1.1+
691016 095	0.1-	1.0+	881203 385	3.0-	2.3-	881206 385	1.3+	1.5+
691111 095	2.1-	0.3+	881203 385	0.4+	0.1-	881206 385	1.1+	1.3+
691113 095	3.0+	2.2-	881205 385	0.7+	0.5+			

1970 PS = 1983 BS

Id. D. W. E. Green; 1970 PS = 1975 RM (NOC 1040) is invalid

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P)				Green	
M 143.26635	(1950.0)		P	Q	
n 0.18555768	Peri.	269.06279	+0.53421146	-0.83954273	
a 3.0442779	Node	148.01300	+0.83069366	+0.49964516	
e 0.0914133	Incl.	10.76300	+0.15673597	+0.21336054	
P 5.31	H	12.0	G 0.25		

Residuals in seconds of arc

700810 095	2.1-	0.4+	830114 095	0.8+	2.2-	830210 095	1.7+	1.4-
700828 095	2.1+	0.1-	830121 688	1.0+	0.5-			
700831 095	1.9-	1.6+	830121 688	2.8+	0.5-			

1970 WD = 1989 AD1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 143.23477 (1950.0) P Q
n 0.27875370 Peri. 125.29543 +0.92117728 -0.36892743
a 2.3208957 Node 256.63599 +0.30274599 +0.87929907
e 0.1224516 Incl. 7.31010 +0.24449393 +0.30120707
P 3.54 H 13.5 G 0.25
Residuals in seconds of arc

701124	029	0.9-	0.1-	701221	029	0.9-	1.0+	890105	897	0.3+ 0.2+
701124	029	0.1+	0.3-	881230	897	2.7-	1.8-	890112	897	0.9+ 0.0
701215	029	1.8+	0.5-	881230	897	(6.7+	0.0)	890112	897	2.0+ 0.2-
701221	029	0.2-	0.3+	890105	897	0.8-	1.7+			

1973 UJ5 = 1988 XZ1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 95.57960 (1950.0) P Q
n 0.20179342 Peri. 195.39258 +0.91697598 -0.39891556
a 2.8787166 Node 188.12239 +0.36937741 +0.85334643
e 0.0775607 Incl. 1.87738 +0.15071622 +0.33565794
P 4.88 H 12.0 G 0.25
Residuals in seconds of arc

731027	033	0.3-	0.5-	731101	033	0.1+	0.0	881211	877	0.1-	0.3+
731027	033	0.1-	1.0-	731102	033	0.5+	0.8+	881214	877	0.7+	1.5- Y
731028	033	0.9+	0.3-	731103	033	0.6-	0.4+	881214	877	0.1-	1.7+ Y
731031	033	0.4-	0.7+	881211	877	0.5-	0.6-				

1975 SS = 1978 GZ1 = 1988 CL1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 130.04853 (1950.0) P Q
n 0.18884707 Peri. 301.89195 -0.72689307 -0.68503898
a 3.0088238 Node 195.05852 +0.67607864 -0.70142286
e 0.0565138 Incl. 10.74927 +0.12059908 -0.19679319
P 5.22 H 12.5 G 0.25
Residuals in seconds of arc

750930	675	0.4+	0.1-	880210	809	0.5-	0.7-	880217	809	0.8- 0.6-
751001	675	0.7+	0.3+	880210	809	1.6-	0.6+	880217	809	0.6+ 0.6-
751002	675	1.1+	0.6+	880210	809	0.2+	0.3+	880220	413	0.2+ 0.5+
751015	675	0.5-	0.8-	880211	809	0.6+	0.4+	880220	413	0.7+ 0.1+
751016	675	1.8-	0.3+	880211	809	0.1-	0.1-			
780407	095	0.1+	0.3+	880211	809	0.7+	0.1+			

1975 TQ3 = 1988 VO6
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Bardwell
M 137.46517 (1950.0) P Q
n 0.23268149 Peri. 303.59920 +0.91731386 +0.37632270
a 2.6179561 Node 34.80763 -0.24561326 +0.79191813
e 0.1824794 Incl. 13.17068 -0.31338380 +0.48088139
P 4.24 H 12.5 G 0.25
Residuals in seconds of arc

751003	095	0.7+	1.0-	751106	095	1.4-	1.6-	881104	033	0.4+ 0.6+
751013	095	1.3-	1.3+	881103	033	0.0	0.3+			
751101	095	1.6+	1.3+	881104	033	0.3+	0.5+			

1976 EB = A924 SB = 1951 WO = 1951 XA = 1988 XH
Id. T. Kobayashi, O. Kippes (d, MPC 969)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 82.88147		(1950.0)	P	Q
n 0.29368012	Peri.	88.63224	+0.29079453	-0.95644387
a 2.2415737	Node	344.38934	+0.83566268	+0.26690439
e 0.1244577	Incl.	5.45186	+0.46594681	+0.11822510
P 3.36	H	13.0	G 0.25	

Residuals in seconds of arc

240929 024 3.5+ 1.4-	760303 049 0.4+ 0.1+	760321 414 2.1- 0.3+
241001 024 2.7- 0.0	760304 049(18.8+ 9.4+)	760322 414 (2.5- 7.4-)
511128 094(72.8- 21.2-)X	760304 049 1.8+ 0.7-	760322 414 (1.2- 27.1+)
511203 760 1.5- 0.9+	760304 049(15.6+ 12.3+)	881202 888 1.9+ 2.6-
511203 760 0.6+ 0.3+	760304 049 2.5+ 1.2-	881202 888 1.6+ 1.5-
760302 049 0.3+ 0.2-	760321 414 2.7- 0.6-	881203 888 0.9- 1.8+
760302 049 (5.1+ 4.5-)	760321 414 2.3- 0.2+	881203 888 2.5- 1.8+
760302 049 1.0+ 0.0	760321 414 1.3- 0.2+	
760303 049 0.1+ 0.6-	760321 414 1.0+ 1.6+	

1976 GL3 = 1973 UV1 = 1986 HS = 1988 VW1
Id. H. Oishi
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden

M 110.44501		(1950.0)	P	Q
n 0.19798948	Peri.	221.46318	+0.99247218	+0.11705736
a 2.9154718	Node	131.77691	-0.09574223	+0.92492140
e 0.0769067	Incl.	2.76755	-0.07637012	+0.36168767
P 4.98	H	12.5	G 0.25	

Residuals in seconds of arc

731026 095 0.3+ 0.9-	881105 888 (2.0- 2.7-)	881112 046 0.1- 0.2+
760401 095 0.4+ 2.7+	881105 046 (4.0- 0.1+)	881112 046 0.5- 0.2+
760402 095 0.6- 1.4-	881105 046 (5.6- 1.4+)	881114 888 1.2+ 2.5-
760404 095 1.0+ 0.8-	881106 888 0.3- 0.7+	881114 888 0.9+ 1.9-
760503 095 1.0- 0.9-	881106 888 0.3- 0.7+	881130 888 0.1- 0.1-
860429 675(35.0+ 5.9-)	881107 888 0.5+ 1.5+	881130 888 0.1- 0.0
860429 675(32.1+ 4.2-)	881107 888 0.6+ 0.6+	881207 888 0.6- 0.1-
881104 046 1.0+ 0.3+	881110 888 0.5- 1.7+	881207 888 0.6- 0.2-
881104 046 0.5- 0.4+	881110 888 0.4- 1.0+	
881105 888 2.2- 2.2-	881111 046 1.9+ 0.0	

1976 QL2 = 1988 TS2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M 42.12806		(1950.0)	P	Q
n 0.17462965	Peri.	9.90638	+0.70752463	-0.69968804
a 3.1699927	Node	35.17970	+0.63598343	+0.56921068
e 0.0928551	Incl.	9.91707	+0.30811359	+0.43178218
P 5.64	H	12.5	G 0.25	

Residuals in seconds of arc

760820 808 0.3+ 1.3-	760830 808 0.9- 0.5+	881016 046 2.5- 2.4+
760820 808 0.5+ 2.3-	760830 808 0.1+ 1.2+	881016 046 2.1+ 0.1+
760823 808 1.8- 0.0	881011 046 1.2- 1.5-	881103 033 0.5- 0.3-
760823 808 1.1+ 0.1-	881012 046 1.4- 1.2-	881103 033 0.6- 0.4-
760828 808 0.4+ 1.5+	881014 046 3.5+ 0.0	881104 033 0.5- 0.3-
760828 808 0.4+ 0.7+	881014 046 1.1+ 1.0+	

1978 RR = 1988 VH6
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Bardwell
M 182.57159 (1950.0) P Q
n 0.21156136 Peri. 285.45093 +0.31629873 +0.94863441
a 2.7894121 Node 3.01491 -0.81207978 +0.27452357
e 0.2033964 Incl. 7.55883 -0.49038917 +0.15725637
P 4.66 H 13.5 G 0.25
Residuals in seconds of arc

780901 095	1.0+	0.8-	780928 095	2.8+	0.3-	881104 033	0.2+	0.6+
780905 095	0.7-	0.2+	781004 095	0.8-	0.5+	881104 033	0.2+	0.9+
780907 095	0.2-	0.9+	781009 095	1.7-	0.7-			
780912 095	0.0	0.7+	881103 033	0.3+	0.1+			

1978 RJ7 = 1969 VM2 = 1972 TQ7 = 1988 VU5
Id. F. N. Bowman, T. Kobayashi, S. Nakano
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 343.68403 (1950.0) P Q
n 0.31031272 Peri. 350.96349 -0.98147426 -0.19158190
a 2.1607467 Node 177.98757 +0.17938833 -0.92284118
e 0.0546595 Incl. 3.51877 +0.06729114 -0.33415644
P 3.18 H 13.5 G 0.25
Residuals in seconds of arc

691115 095	0.4-	2.1+	780902 809	0.3-	0.2-	780910 809	1.1+	0.8-
721006 095	0.5-	1.5+	780906 809	0.1-	0.0	881104 046	0.0	0.1+
780902 809	0.2-	0.6-	780910 809	0.2-	2.1+	881104 046	3.0+	1.4-
780902 809	0.9-	0.4-	780910 809	0.1-	1.6-	881105 046	2.2-	2.0-
780902 809	0.8+	0.7+	780910 809	0.0	0.6+	881105 046	0.1+	0.1-

1980 GO = 1980 EP1 = 1988 VW6
Id. B. G. Marsden (d, MPC 9203), S. Nakano
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 244.58433 (1950.0) P Q
n 0.17430623 Peri. 52.04733 -0.94565082 +0.32473508
a 3.1739127 Node 146.89225 -0.30728620 -0.87518784
e 0.1090631 Incl. 1.79168 -0.10639413 -0.35859917
P 5.65 H 13.0 G 0.25
Residuals in seconds of arc

800315 095	0.0	0.0	800414 046	1.7-	0.5+	881103 033	0.1+	0.3-
800413 046	1.4+	1.3-	800415 046	1.9-	1.2-	881104 033	0.2+	0.5+
800413 046	1.0-	1.5+	800415 046	0.8+	2.6+			
800414 046	2.4+	2.2-	881103 033	0.3-	0.3-			

1980 NB = 1977 UJ2 = 1988 RU4
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green
M 160.36634 (1950.0) P Q
n 0.25848697 Peri. 29.30274 -0.03789461 +0.99899532
a 2.4406817 Node 238.53495 -0.92215332 -0.04418272
e 0.1709730 Incl. 1.60723 -0.38496395 +0.00749863
P 3.81 H 13.5 G 0.25
Residuals in seconds of arc

771022 801	0.6-	1.9+	880901 809	0.9-	0.7+	880906 809	0.8+	0.4-
800711 805	0.4-	0.5+	880901 809	0.9-	0.7+	880910 809	0.8-	1.1-
800712 805	0.2+	0.8+	880901 809	0.7-	0.3+	880910 809	0.8-	1.0-
800712 805	1.5+	1.2+	880903 809	0.2+	0.2-	880910 809	1.0-	1.0-
800712 805	1.3-	0.4-	880903 809	0.4+	0.3-	880918 809	0.5+	1.4+
800712 805	0.8+	0.1+	880903 809	0.4+	0.4-	880918 809	0.6+	0.1+
800713 805	0.0	0.2+	880906 809	0.7+	0.1-	880918 809	1.0+	0.0
800713 805	0.4-	0.0	880906 809	0.9+	0.3-			

1981 ED1 = 1979 VB1 = 1983 RG9
Id. K. Hurukawa (JAM 1901), L. D. Schmadel, D. W. E. Green
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green

M	70.79878		(1950.0)	P	Q
n	0.22417056	Peri.	67.22369	+0.39940684	-0.91676895
a	2.6838065	Node	359.21628	+0.74072954	+0.32462379
e	0.1454652	Incl.	12.58250	+0.54017953	+0.23271033
P	4.40	H	13.5	G 0.25	

Residuals in seconds of arc

791114	095	0.3-	0.4+	810307	413	0.4-	0.8+	810315	809	0.1+	1.3+
810202	413	0.6-	0.6-	810307	413	0.8+	0.3+	810315	809	0.1+	2.1+
810213	413	0.6+	1.0-	810308	809	0.7+	0.8-	810316	413	(4.6+	0.8-)
810305	809	0.0	0.5+	810308	809	1.0+	0.7-	810329	413	1.5-	0.0
810305	809	0.1+	0.7+	810308	809	1.3+	0.9-	810329	413	1.1+	0.2-
810305	809	0.0	1.0+	810309	809	(3.8+	1.7-)	810407	413	0.3+	0.1+
810306	809	0.6-	0.8+	810309	809	(4.0+	1.4-)	810408	413	0.5+	0.7-
810306	809	0.5-	0.5+	810309	809	(3.8+ | 1.7-)	810411	413	(2.5- | 0.2+)
810306	809	0.3-	0.5+	810309	809	(3.8+	1.7-)	810411	413	1.4+	1.3-
810307	809	1.1-	1.2-	810311	413	1.8-	0.9+	810430	413	0.2+	0.3+
810307	809	0.7-	1.0-	810311	413	0.3+	0.2-	810502	413	0.7+	0.1+
810307	809	0.6-	0.6-	810315	809	0.2-	0.3+	830911	095	0.6-	0.9+

1981 ES8 = 1983 RO5
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	32.31818		(1950.0)	P	Q
n	0.18813845	Peri.	161.61734	+0.98675754	-0.14327772
a	3.0163741	Node	206.97299	+0.11965089	+0.95945962
e	0.1043359	Incl.	9.65021	+0.10951359	+0.24271119
P	5.24	H	12.5	G 0.25	

Residuals in seconds of arc

810202	413	0.8-	0.7+	810315	413	0.2+	0.2-	810412	413	0.6-	0.4+
810214	413	0.4+	0.2+	810405	413	1.2-	1.8+	810412	413	0.4+	0.1-
810301	413	1.0+	0.4-	810405	413	0.3-	0.2+	810430	413	0.6+	1.4-
810307	413	0.2+	0.5+	810406	413	0.7-	0.2-	810502	413	1.7+	0.0
810307	413	0.6+	0.3+	810406	413	0.0	1.1-	830901	095	1.1+	0.4-
810311	413	0.1+	0.7-	810407	413	0.9-	1.0+	830911	095	1.2-	0.8+
810315	413	1.0-	0.3-	810407	413	0.6+	0.3-				

1981 EM24 = 1988 XN2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	87.13297		(1950.0)	P	Q
n	0.21147172	Peri.	51.88797	+0.90497768	-0.42487318
a	2.7902003	Node	333.23305	+0.37317393	+0.81786756
e	0.1035525	Incl.	2.84075	+0.20434437	+0.38804050
P	4.66	H	14.0	G 0.25	

Residuals in seconds of arc

810209	413	1.2+	0.1+	810311	413	0.9+	0.0	881201	888	0.0	0.3-
810212	413	1.2+	1.1-	810315	413	2.4-	0.5+	881201	888	1.8+	1.1+
810213	413	0.3-	1.6+	810315	413	3.9-	2.4+	881201	888	0.5+	0.1-
810302	413	0.8-	0.2-	810410	413	3.3+	1.4-	881201	888	1.4+	0.9+
810302	413	1.6+	1.6-	810502	413	0.9+	0.1+	881207	888	2.0-	1.3-
810306	413	1.9-	0.5-	810503	413	0.9+	0.2+	881207	888	1.8-	0.2-

1981 RV4 = 1935 SN = 1935 SC1 = 1973 FH = 1988 RR6
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green
M 124.34276 (1950.0) P Q
n 0.27860773 Peri. 149.02338 +0.82707188 +0.56205033
a 2.3217109 Node 176.75179 -0.53815191 +0.79546355
e 0.1326202 Incl. 7.27894 -0.16231030 +0.22657709
P 3.54 H 13.0 G 0.25
Residuals in seconds of arc (or two decimals in units of degrees)

350921	078(0.03+	0.01-)X	811005	095	0.5+	1.4+	880908 809	0.3+ 0.3+
350921	094(11.9-	21.4+)X	811026	095	(2.4-	0.8+)	880908 809	0.4+ 0.4+
350929	078(85.5+	83.0-)X	880907	809	0.6-	0.5-	880920 809	0.1+ 0.4+
730329	805	0.0 0.1+	880907	809	0.3-	0.3-	880920 809	0.0 0.2+
810908	095	0.3- 0.9-	880907	809	0.1+	0.2-	880920 809	0.1- 0.0
810928	095	0.1- 0.9-	880908	809	0.0	0.2+		

1981 SA7 = 1973 YK2 = 1985 PJ2
Id. L. D. Schmadel, N. S. Chernykh
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green
M 295.56094 (1950.0) P Q
n 0.23265919 Peri. 354.44394 +0.65798455 -0.74722232
a 2.6181234 Node 54.37008 +0.69520811 +0.55513231
e 0.1729725 Incl. 6.59534 +0.28938213 +0.36535863
P 4.24 H 12.9 G 0.25
Residuals in seconds of arc

731220	095	0.0 0.6-	811006	095	0.7-	0.2+	850813 095	0.6+ 1.0-
810928	095	1.3- 0.2+	811026	095	1.5+	0.4+		

1982 JB3 = 1951 YF = 1988 XX
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green
M 35.19443 (1950.0) P Q
n 0.23856339 Peri. 29.66908 -0.19757549 -0.95451983
a 2.5747460 Node 72.49407 +0.84693448 -0.28090737
e 0.1972246 Incl. 13.54020 +0.49362528 +0.09991469
P 4.13 H 12.0 G 0.25
Residuals in seconds of arc

511222	711	1.5- 2.2- Y	820516	675	0.9-	0.1+	881112 675	0.4+ 0.2-
511222	711	1.6+ 1.9+ Y	820517	675	0.9-	0.3-	881113 675	1.7+ 0.3+
820515	675	0.4+ 0.3-	820518	675	0.2+	0.5-	881206 675	0.6- 0.4-
820516	675	0.6+ 0.0	881110	675	0.0	0.1+	881207 675	1.4- 0.4-

1982 VM5 = 1975 TU1 = 1985 SL2
Id. D. W. E. Green (k), S. Nakano
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 140.18634 (1950.0) P Q
n 0.29522923 Peri. 51.35552 +0.17586772 +0.98243134
a 2.2337300 Node 228.89149 -0.92693740 +0.14390856
e 0.1834124 Incl. 4.75385 -0.33144775 +0.11882336
P 3.34 H 14.0 G 0.25
Residuals in seconds of arc

751003	095	0.3- 1.0+	821214	381	0.9-	1.5+	850919 095	0.7- 0.8-
821114	381	0.0 0.8-	821214	381	0.4+	1.1-	850921 095	1.0+ 0.0
821114	381	0.5+ 0.1+	821214	381	0.6+	1.5+		
821213	381	0.8- 0.5-	821214	381	0.1+	0.8-		

1983 CE = 1983 CB1 = 1970 EH = 1987 BF3
Id. F. Bowman (d, MPC 7830), D. W. E. Green
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green

M	163.37648	(1950.0)	P	Q
n	0.22889020	Peri. 59.17690	-0.97814114	+0.03029597
a	2.6467857	Node 121.81684	-0.08627660	-0.95928352
e	0.1097546	Incl. 14.01064	+0.18919898	-0.28081537
P	4.31	H 12.5	G 0.25	

Residuals in seconds of arc

700307	095	0.0	1.2+	830215	688	0.1+	1.0-	830309	688	0.4-	0.2+
830211	688	0.2-	0.7+	830215	688	0.8+	0.4-	830314	095	1.0-	0.6+
830211	675	1.6-	1.3+	830219	688	0.4-	1.2-	870130	010	0.8+	0.3+
830211	688	0.3+	0.3-	830219	688	0.9+	1.2-	870130	010	0.8+	1.0-
830211	675	0.1-	1.4+	830309	688	1.5+	1.1-	870130	010	1.6-	0.4+

1983 CA1 = 1955 DM = 1966 PA1 = 1966 PF1 = 1988 GF1
Id. D. W. E. Green, H. Oishi (d, JAM 2017)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green

M	141.94548	(1950.0)	P	Q
n	0.21237242	Peri. 181.37566	-0.92989718	-0.36431208
a	2.7823056	Node 337.05550	+0.33868079	-0.79432341
e	0.1576777	Incl. 7.46897	+0.14348015	-0.48613478
P	4.64	H 13.5	G 0.25	

Residuals in seconds of arc

550225	760	2.2-	1.1+	830214	381	0.5-	0.3+	830315	095	0.7+	1.1-
550225	760	3.3+	1.9+	830215	688	0.8+	0.9-	880412	413	0.8-	0.2+
660810	074	0.0	0.2-	830215	688	0.3+	0.4-	880412	413	1.2+	0.4+
660812	074	0.1-	0.5+	830219	688	1.5-	0.1-				
660816	074	(7.6-	1.3-)	830219	688	1.0-	1.1-				

1983 EX = 1959 CY = 1972 JL1 = 1975 XB2 = 1981 YK1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green

M	120.48441	(1950.0)	P	Q
n	0.16827738	Peri. 6.37735	-0.11146663	-0.94761706
a	3.2492746	Node 90.31624	+0.89798023	-0.22506696
e	0.0558252	Incl. 17.41750	+0.42568381	+0.22664239
P	5.86	H 11.0	G 0.25	

Residuals in seconds of arc

590212	760	0.0	0.6-	811228	033	0.1-	0.7+	830315	675	0.1-	0.8-
590212	760	(1.0+	4.7+)	811228	033	0.2+	1.3+	830315	675	0.3+	0.2-
720512	805	0.1-	0.1+	830309	688	(0.8-	2.6-)	830410	095	0.9+	1.5+
720512	805	0.0	0.0	830311	675	1.1-	0.0	830412	095	(1.3-	4.3+)
720512	805	0.1+	0.5-	830311	675	0.5-	0.4-				
751201	095	0.0	1.7-	830313	675	0.3+	0.3+				

1983 EM1 = 1978 VS2 = 1986 AQ2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	36.04969	(1950.0)	P	Q
n	0.29888831	Peri. 117.21599	-0.71080686	-0.70300901
a	2.2154619	Node 18.14659	+0.61627650	-0.63824795
e	0.0824315	Incl. 4.24683	+0.33905291	-0.31371626
P	3.30	H 14.0	G 0.25	

Residuals in seconds of arc

781030	010	1.2+	1.0-	830409	095	0.4-	0.9-	860306	675	(81.8+	2.4+)
781101	010	0.8-	0.5-	830411	095	0.8+	0.2+	860308	675	(77.1+	0.1+)
781101	010	0.1+	0.6-	860112	688	0.6+	0.5+	860308	675	(77.2+	0.6+)
830311	381	0.7-	0.4-	860112	688	0.0	1.1+				
830311	381	0.8-	1.0-	860306	675	(80.4+	0.3+)				

1983 GA2 = 1972 LC = 1975 EY5 = 1984 SW

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Green	
M 265.96986		(1950.0)		P	Q
n 0.26301500	Peri.	350.68357		-0.85356901	+0.51845884
a 2.4125884	Node	220.67857		-0.47276526	-0.81210924
e 0.1365786	Incl.	4.50431		-0.21889027	-0.26772938
P 3.75	H	13.0	G	0.25	

Residuals in seconds of arc

720607	095	0.5-	2.6-	830410	095	2.5-	0.5-	840920	046	1.1+	0.9-
720614	095	0.6+	1.9-	830411	095	0.7-	1.0-	840920	046	2.0+	1.0-
750303	688	1.3-	3.8-	830512	095	0.2+	0.3-	840930	046	0.5+	2.2-
750305	688	0.5-	3.5-	830602	095	2.8+	1.1+	840930	046	1.0-	2.9-

1983 GC2 = 1934 HH = 1949 FE1 = 1968 HF1 = 1987 MW

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 256.50366		(1950.0)		P	Q
n 0.26176223	Peri.	166.43436		-0.75591606	+0.65383311
a 2.4202799	Node	54.44637		-0.60434621	-0.67750291
e 0.1887376	Incl.	2.32912		-0.25170730	-0.33688586
P 3.77	H	13.5	G	0.25	

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

340417	078	(0.03-	0.02+)X	680522	095	1.4+	1.3+	830512	095	0.9-	0.8-
490326	094	(17.1-	8.6+)X	830410	095	0.0	0.6-	870628	675	6.4+	0.4-
680427	095	1.1-	0.2-	830411	095	0.6+	0.4+	870630	675	6.3-	0.1+

1983 JQ = 1982 DZ1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Green	
M 15.81516		(1950.0)		P	Q
n 0.17163056	Peri.	156.78710		+0.05734827	+0.99739603
a 3.2068145	Node	116.47634		-0.92341821	+0.06964262
e 0.1671708	Incl.	2.80025		-0.37948648	-0.01873671
P 5.74	H	12.5	G	0.25	

Residuals in seconds of arc

820216	046	1.0+	1.6-	820221	046	0.5-	0.6+	830514	095	0.6+	0.3+
820216	046	0.4+	0.6+	830506	688	0.4-	1.6-	830605	095	0.5-	0.6-
820221	046	1.1+	0.9+	830506	688	0.1+	0.6-				

1983 RY4 = 1988 XS

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 112.24527		(1950.0)		P	Q
n 0.21526250	Peri.	103.95485		+0.98469873	-0.08664416
a 2.7573409	Node	261.17713		+0.02459016	+0.92804120
e 0.2366769	Incl.	8.80139		+0.17252170	+0.36226001
P 4.58	H	12.5	G	0.25	

Residuals in seconds of arc

830905	095	1.7-	1.3+	881206	400	0.3+	0.4+	881210	401	0.2+	0.8+
830907	095	1.3+	0.4-	881206	400	2.0+	2.9+	881210	400	0.2+	0.2-
830912	095	1.0+	0.6-	881207	399	1.3+	0.6+	881210	400	0.2-	0.7-
881203	400	1.1-	1.6-	881207	399	1.7+	0.3-	881211	401	0.2+	0.4+
881203	400	0.1-	3.0-	881207	399	1.2-	1.0+	881211	401	0.2+	1.3+
881203	400	0.5-	2.5-	881207	399	1.7-	0.9+	881227	400	1.5-	0.0
881206	400	0.6+	1.4+	881210	401	0.4+	0.4-	881227	400	2.0+	1.4-

1983 TS1 = 1929 VE = 1972 TQ = 1978 YC1 = 1988 RW5

Id. H. Oishi (MPC 13154), E. Bowell, C. M. Bardwell, D. W. E. Green; see also MPC 13583

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Bardwell

M	34.86879		(1950.0)	P	Q
n	0.18200725	Peri.	286.13838	+0.89861400	-0.43687734
a	3.0837402	Node	99.78110	+0.41655627	+0.82065531
e	0.1868666	Incl.	2.34877	+0.13774527	+0.36832466
P	5.42	H	12.5	G 0.25	

Residuals in seconds of arc

291027	690	2.3-	1.5-	831011	688	0.1+	2.4-	880903	809	0.2-	0.5-
291102	094	(13.5+	22.3+)X	831012	688	0.2+	1.2-	880903	809	0.0	0.2-
291103	690	1.9+	3.8+	831012	688	0.2+	1.0-	880906	809	0.1+	0.2+
721007	095	1.5-	3.6+	831104	688	1.4+	0.7-	880906	809	0.2+	0.1+
781222	095	(1.6-	6.5+)	831104	688	0.6+	0.2-	880906	809	0.6+	0.0
831011	688	0.6-	0.9+	880903	809	0.7-	0.4-				

1983 WA = 1976 JP3 = 3076 P-L

Id. K. Hurukawa (MPC 10029; unpublished), H. Oishi

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Oishi

M	70.06018		(1950.0)	P	Q
n	0.21878642	Peri.	240.62889	-0.52845896	-0.84050890
a	2.7276586	Node	241.75254	+0.81830975	-0.46683565
e	0.2221711	Incl.	7.79530	+0.22605371	-0.27497138
P	4.50	H	13.6	G 0.25	

Residuals in seconds of arc

600924	675	1.1+	0.3+	831130	372	2.5-	0.0	831206	688	2.1+	0.2-
600925	675	0.5-	0.4-	831130	372	0.6+	1.7+	831206	552	1.4+	0.1-
600927	675	0.6-	0.4-	831201	688	0.4+	0.0	831206	552	1.1+	0.0
600928	675	0.2+	0.1-	831201	688	1.1-	0.4+	831207	372	0.8+	2.4-
600929	675	(3.1-	0.0)	831201	889	2.4-	0.4-	831209	688	1.2+	0.5-
760503	809	0.2-	1.3-	831201	889	0.2+	1.7+	831209	688	0.8-	0.4+
831128	688	(4.5+	1.9+)	831202	372	0.6-	2.4-	831209	372	1.2-	2.1+
831128	688	0.1-	0.5-	831202	372	(3.6-	0.6-)	831209	372	1.8+	1.0+
831128	889	0.9+	1.0+	831205	688	0.5-	0.5-	831227	552	1.4-	0.0
831128	889	(4.4-	0.8-)	831205	688	1.0-	2.0-	831227	552	2.0+	0.1+
831128	372	1.8+	0.8-	831205	372	1.5+	0.2+				
831128	372	2.5-	0.9-	831205	372	1.6-	1.4+				

1984 DY = 1989 AP

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	33.65903		(1950.0)	P	Q
n	0.17738165	Peri.	127.68262	-0.59918878	-0.80060775
a	3.1371137	Node	359.12913	+0.73047859	-0.54660487
e	0.1369078	Incl.	0.72266	+0.32767947	-0.24545947
P	5.56	H	12.5	G 0.25	

Residuals in seconds of arc

840226	809	0.8-	0.1+		840304	809	0.1-	0.1+		840309	809	0.5-	0.3-
840226	809	0.9-	0.1+		840304	809	0.1-	0.6-		840309	809	0.7-	0.3+
840226	809	0.7-	0.2+		840305	809	0.6+	0.0		840309	809	0.1-	0.2+
840227	809	0.2+	0.3-		840305	809	0.4+	0.1-		840309	809	0.6+	0.3+
840227	809	0.3+	0.4-		840305	809	0.1+	0.3-		840310	809	0.4-	1.1+
840227	809	0.6+	0.2-		840306	809	1.2+	0.5-		840310	809	0.4-	0.8+
840228	809	0.7-	0.4+		840306	809	1.4+	0.4-		840310	809	0.1-	0.9+
840228	809	0.5-	0.0		840306	809	1.0+	0.5-		840311	809	0.7+	0.1-
840228	809	0.5-	0.1-		840306	809	0.5-	0.2+		840311	809	1.0+	0.2-
840301	809	0.3+	0.3-		840306	809	0.3-	0.3+		840311	809	0.7+	0.0
840301	809	0.5+	0.4-		840306	809	0.3-	0.3+		881231	400	0.1+	1.5-
840301	809	0.7+	0.4-		840308	809	1.0-	0.6+		881231	400	0.1-	1.5-
840303	809	0.6+	0.4-		840308	809	1.3-	0.5+		881231	400	0.5-	0.7+
840303	809	0.7+	0.5-		840308	809	0.6-	0.5+		890104	400	(6.5+	0.7-)
840303	809	1.1+	0.4-		840309	809	0.7-	0.7-		890104	400	0.5+	2.3+
840304	809	0.7-	0.2+		840309	809	0.4-	0.0		890104	400	(3.4+	6.0+)

1984 HS1 = 1978 QS2
Id. T. Kobayashi (MPC 13856)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 165.56949		(1950.0)		P	Q
n 0.29572682	Peri.	67.56019		+0.28725301	+0.95770226
a 2.2312236	Node	219.14618		-0.88842732	+0.25972067
e 0.1275289	Incl.	1.55131		-0.35802599	+0.12390141
P 3.33	H	14.5	G	0.25	

Residuals in seconds of arc

780831	095	0.3-	0.4+		840429	809	0.1+	0.8-		840505	809	0.5+	0.9+
780905	095	0.2-	0.7+		840429	809	0.9-	0.7-		840505	809	0.1+	1.3+
840428	809	1.1+	2.0-		840502	809	0.1-	1.5+		880911	071	0.6-	2.4-
840428	809	0.1-	1.2-		840502	809	0.8-	0.8+		880911	071	1.2+	1.0+

1984 OA = 1983 GU2
Id. C. M. Bardwell, S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Bardwell	
M 49.61046		(1950.0)		P	Q
n 0.22953329	Peri.	207.15363		+0.92711343	+0.31096653
a 2.6418397	Node	133.07964		-0.27024290	+0.94141748
e 0.2154120	Incl.	16.64272		-0.25967182	+0.13051034
P 4.29	H	13.5	G	0.25	

Residuals in seconds of arc

830412	095	0.6+	0.2-		840724	046	0.8-	0.3-		840731	046	0.4-	0.4-
830501	095	0.5-	0.0		840724	046	(8.3-	0.1-)		840731	046	0.1-	0.2+
840721	046	0.4-	1.4-		840729	046	0.3-	0.8-		840820	046	0.2+	0.4-
840721	046	1.0+	0.0		840729	046	0.3+	2.3+		840820	046	0.4+	0.0
840722	046	1.0+	1.2+		840730	046	1.2-	0.9+		840821	046	1.1+	0.5-
840722	046	1.0+	0.5+		840730	046	0.6-	0.3+		840821	046	0.2+	1.5+

1984 SQ3 = 1954 QC = 1954 SY = 1983 GL1
Id. C. M. Bardwell, S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Bardwell	
M 226.82511		(1950.0)		P	Q
n 0.29690703	Peri.	297.60858		+0.75389637	+0.65625476
a 2.2253070	Node	21.42335		-0.56868781	+0.67557018
e 0.1450923	Incl.	4.89134		-0.32899002	+0.33605747
P 3.32	H	13.5	G	0.25	

Residuals in seconds of arc

540831 760	1.3+	2.0-	830409 095	0.0	1.3-	841026 688	0.7+	0.7-
540831 760	(1.4+	29.1+)	830411 095	0.8-	0.4-	841026 688	0.7-	0.6-
540927 760	0.6+	0.2-	840928 688	1.0-	0.8+	841031 688	0.2-	0.1-
540927 760	1.3-	1.1+	840928 688	0.4-	0.8+	841031 688	2.1+	1.1-

1985 GM = 1957 UE = 1964 BH = 1972 TB7 = 1989 AJ1
Id. L. D. Schmadel, S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 239.08082		(1950.0)		P	Q
n 0.19869355	Peri.	207.61067		+0.42212862	+0.90480144
a 2.9085803	Node	87.40448		-0.82100067	+0.40778590
e 0.0143468	Incl.	3.21651		-0.38440257	+0.12265810
P 4.96	H	12.0	G	0.25	

Residuals in seconds of arc

571025 024	2.0-	1.9+	850423 688	0.4+	1.0-	890113 400	1.0-	3.0+
640121 760	0.0	4.9-	850423 688	1.4+	1.4-	890113 400	1.8-	2.4+
721006 095	3.0+	3.6-	850515 688	2.4-	0.1-	890115 400	2.4+	3.0-
850414 688	0.6+	0.3+	850515 688	0.4-	0.1-	890115 400	2.3+	3.2-
850414 688	0.4-	0.4-	890113 400	2.0-	5.6+			

1985 RE2 = 1934 RH = 1951 RF1 = 1975 VE3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 84.64573		(1950.0)		P	Q
n 0.28984746	Peri.	344.14661		+0.76822525	+0.63993272
a 2.2612951	Node	336.03866		-0.58246380	+0.68717211
e 0.2410230	Incl.	2.50902		-0.26564240	+0.34391948
P 3.40	H	13.0	G	0.25	

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

340901 078	(0.08+	0.04+)X	751102 095	1.1-	1.5-	850819 095	0.4-	0.5+
510902 711	1.6+	3.4- Y	751107 095	1.1+	1.4+	850913 675	0.2+	2.1+
510902 094	(18.2+	41.5+)X	850815 095	0.8-	0.7+	850914 675	(7.8+	0.7+)
510906 094	(0.05+	0.02+)X	850817 095	0.7-	0.3+			

1985 RK6 = 1964 JB = 1987 DV4 = 1988 NT
Id. D. W. E. Green, C. M. Bardwell, S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Green	
M 138.84957		(1950.0)		P	Q
n 0.29054029	Peri.	80.68745		+0.18606038	+0.98182570
a 2.2576988	Node	200.15278		-0.93867833	+0.16637560
e 0.1530911	Incl.	6.23444		-0.29028353	+0.09130966
P 3.39	H	13.5	G	0.25	

Residuals in seconds of arc

640510 760	(61.3+	53.1-)X	870228 010	0.9+	0.4-	880714 675	1.9-	0.7+
850915 095	0.7-	1.6+	870228 010	0.9-	0.7-	880808 675	2.3+	2.5-
850920 095	0.1-	1.0-	870228 010	0.0	1.1-	880808 675	1.6+	0.1+
850922 095	0.4+	0.8-	880712 675	1.4-	0.6+			

1985 SX2 = 1981 UP8 = 1981 UU15
Id. D. W. E. Green, S. Nakano (d, MPC 10752)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green

M	316.53519	(1950.0)	P	Q
n	0.23230445	Peri. 78.83630	+0.74360453	-0.66750846
a	2.6207880	Node 323.02035	+0.58569580	+0.67809617
e	0.1399456	Incl. 3.67273	+0.32251005	+0.30760046
P	4.24	H 14.0	G 0.25	

Residuals in seconds of arc

811024	095	0.2-	3.9+	811030	381	0.7-	0.1+	851018	095	1.2+	0.7-
811024	095	0.4+	5.0-	850919	095	1.6-	0.3-				
811030	381	0.0	0.6+	850921	095	0.3+	0.6+				

1985 SJ3 = 1978 PV1 = 1978 QB1 = 1981 KH
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green

M	167.58767	(1950.0)	P	Q
n	0.29314569	Peri. 286.49902	-0.18717124	+0.98116716
a	2.2443017	Node 332.57454	-0.85707025	-0.18685295
e	0.1460625	Incl. 5.94778	-0.47999741	-0.04895896
P	3.36	H 14.0	G 0.25	

Residuals in seconds of arc

780808	095	0.9+	0.1-	810528	809	0.2+	0.2-	850921	095	0.4-	0.8+
780831	095	0.7-	0.1-	850919	095	1.3-	0.1-	851018	095	1.7+	0.4-
810528	809	0.1-	0.0	850920	095	(4.3-	2.4+)				

1985 SL3 = 1978 SC2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	86.76487	(1950.0)	P	Q
n	0.28742294	Peri. 27.04808	+0.90677153	+0.41533179
a	2.2739939	Node 308.22319	-0.40159896	+0.79841632
e	0.1867063	Incl. 5.29946	-0.12838870	+0.43592532
P	3.43	H 14.5	G 0.25	

Residuals in seconds of arc

780926	095	0.1-	0.4+	850919	095	1.3-	0.4-	851018	095	0.3-	0.2+
781002	095	0.1+	0.3-	850921	095	1.7+	0.1+				

1985 SM3 = 1988 PQ1
Id. D. W. E. Green, S. Nakano
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green

M	82.88308	(1950.0)	P	Q
n	0.31211529	Peri. 83.24549	+0.85733238	-0.51199480
a	2.1524194	Node 307.53723	+0.44170701	+0.78488800
e	0.1418456	Incl. 3.85524	+0.26434089	+0.34901596
P	3.16	H 14.5	G 0.25	

Residuals in seconds of arc

850919	095	0.4+	1.7+	880814	511	0.1-	1.2-	880910	046	(3.5+	0.1-)
850920	095	(2.2-	7.5+)	880815	511	1.8+	2.1+	880910	046	0.4-	2.4-
850921	095	2.0+	1.7+	880816	511	0.2-	2.3+	880917	511	1.4-	0.0
851018	095	0.5-	0.8+	880909	046	1.6+	1.5-	880917	511	0.7+	1.4-
880814	511	2.1-	0.2+	880909	046	1.6+	0.9-				

1985 TH1 = 1958 VT = 1973 AH3 = 1976 UY2 = 1982 BF11
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Vinogradova

M	259.83617	(1950.0)	P	Q
n	0.21731800	Peri. 271.68874	+0.10608663	-0.99434832
a	2.7399265	Node 172.21786	+0.92395472	+0.09704052
e	0.0662101	Incl. 1.74682	+0.36749598	+0.04306446
P	4.54	H 13.1	G 0.25	

Residuals in seconds of arc

581111 760	0.1-	0.1+	761026 095	2.6+	1.2-	851015 688	2.7-	1.1-
581111 760(16.0-	40.2+)X		820120 095	0.3-	0.5+	851018 095	0.1-	1.1+
581111 760	0.5-	0.6-	850921 095	0.3-	1.5+	851112 095	0.3-	1.0+
730102 095	0.3+	0.0	851015 688	1.6+	0.9-			

1985 TQ1 = 1974 TQ = 1983 EA2

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 283.86343		(1950.0)	P	Q
n 0.17501784	Peri.	315.25384	+0.91238177	+0.40504614
a 3.1652973	Node	21.06992	-0.31412998	+0.78544907
e 0.0868477	Incl.	9.46783	-0.26245356	+0.46798225
P 5.63	H	12.5	G 0.25	

Residuals in seconds of arc

741012 330	0.3+	0.4-	851012 688	1.4+	0.4-	851107 688	3.1-	0.7-
830311 381	1.1-	0.2+	851015 688	0.2+	0.0	851107 688	0.9-	0.2+
830311 381	1.0+	0.3-	851015 688	1.9+	0.9+			

1985 TW1 = 1985 TY3 = 1975 XK7 = 1978 NQ7 = 1982 YJ3 = 1983 AE4

Id. F. N. Bowman (d, MPC 11826), S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M 60.29160		(1950.0)	P	Q
n 0.29322359	Peri.	72.90390	+0.90390700	-0.41573946
a 2.2439042	Node	311.53638	+0.32322148	+0.81789283
e 0.1978481	Incl.	7.72080	+0.28014285	+0.39775875
P 3.36	H	14.0	G 0.25	

Residuals in seconds of arc

751203 033	0.3-	0.1-	780713 675	(7.5-	1.5+)Y	851011 675	1.8-	0.7-
751203 033	0.0	0.6+	821222 095	0.2+	0.3-	851013 675(12.8-	1.5-)	
780710 675	1.8+	3.6- Y	830106 095	1.1-	3.6-	851015 688	0.3+	0.1-
780711 675 (5.3+	11.8-)Y		850919 095	1.3+	1.8+	851015 688	0.1+	0.5-

1985 TZ1 = 1975 VN3 = 1980 TD7 = 1988 CU4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Vinogradova

M 324.45098		(1950.0)	P	Q
n 0.19286957	Peri.	74.20788	+0.65420459	+0.74862117
a 2.9668363	Node	237.15799	-0.73364019	+0.59354679
e 0.2020830	Incl.	7.35962	-0.18381628	+0.29541250
P 5.11	H	12.8	G 0.25	

Residuals in seconds of arc

751102 095	0.5-	1.3+	851015 688	0.7-	0.2+	880216 809	0.0	0.3+
801014 330 (0.4+	5.8-)		851018 095	1.3+	2.4-	880216 809	1.3-	0.1-
850919 095	0.3-	0.3+	880213 809	0.2+	0.0	880221 809	0.5+	0.1-
850921 095	0.4+	1.2+	880215 809	0.8+	0.8-	880221 809	0.4+	0.0
851015 688	0.3-	0.9-	880216 809	1.1-	0.2+	880221 809	0.1+	0.0

1985 UA = 1988 RV6

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green

M 21.34667		(1950.0)	P	Q
n 0.30574533	Peri.	124.78210	-0.07597141	-0.99668927
a 2.1822125	Node	329.53587	+0.89510393	-0.05537227
e 0.1097720	Incl.	3.27487	+0.43933735	-0.05953501
P 3.22	H	14.0	G 0.25	

Residuals in seconds of arc

851020	688	0.4+	0.0	851106	675	0.5+	0.3+	880908	809	0.2-	0.3-
851020	688	1.1-	0.5-	851219	675	0.0	0.5-	880908	809	0.0	0.3-
851023	675	0.3-	0.1-	851219	675	0.1-	0.5-	880908	809	0.2+	0.3-
851023	675	0.3-	0.0	851220	675	0.1-	0.6-	880909	809	0.7-	0.0
851105	675	0.3+	0.1+	851220	675	0.1-	0.6-	880909	809	0.5-	0.1-
851105	675	0.4+	0.0	860102	675	0.1+	1.2+	880909	809	0.4-	0.2-
851106	675	0.6+	0.3+	860102	675	0.0	1.0+				

1985 UK = 1946 UE = 1980 BC5 = 1988 QA1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M	86.91029	(1950.0)		P	Q
n	0.30315855	Peri.	72.46339	+0.97572199	-0.21655576
a	2.1946084	Node	300.03250	+0.18385662	+0.89107528
e	0.1780397	Incl.	2.16556	+0.11900983	+0.39885892
P	3.25	H	13.5	G	0.25

Residuals in seconds of arc

461019	062	0.6+	1.4+	851021	046	2.2+	1.4-	880901	809	0.8-	0.3-
461019	062	1.4+	1.6+	851021	046	0.4+	0.5-	880901	809	0.4-	0.2-
461022	062	3.8-	1.8+	851024	046	1.1+	1.3-	880903	809	1.5+	0.7+
800122	095	0.6-	1.9-	880815	046	0.6+	1.0-	880903	809	0.9+	0.7+
851020	046	1.5-	1.1-	880815	046	0.5-	1.6-	880903	809	0.7+	0.9+
851020	046	0.4-	0.3-	880831	809	1.3-	0.5-				

1985 VP = 1973 SL3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Vinogradova	
M	163.66546	(1950.0)		P	Q
n	0.16985298	Peri.	109.75247	-0.21735872	-0.97554171
a	3.2291429	Node	352.56850	+0.77351553	-0.15167778
e	0.0395524	Incl.	14.67431	+0.59533933	-0.15909815
P	5.80	H	11.8	G	0.25

Residuals in seconds of arc

730923	095	0.7-	0.1+	850921	095	0.2-	0.3-	851115	054	0.0	0.5+
730928	095	0.7+	0.1-	851018	095	0.1+	0.3-				
850919	095	0.1+	0.3+	851114	054	0.0	0.1-				

1985 VC1 = 1972 XG1 = 1976 QQ2

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Green	
M	319.82936	(1950.0)		P	Q
n	0.22585872	Peri.	355.65340	+0.84936135	-0.50807438
a	2.6704165	Node	36.05897	+0.49126477	+0.66193294
e	0.1751268	Incl.	14.05910	+0.19298759	+0.55109455
P	4.36	H	13.0	G	0.25

Residuals in seconds of arc

721203	095	0.0	0.3+	851018	095	0.5-	0.4+	851112	095	0.6-	0.6-
760829	808	0.2-	0.2-	851107	688	0.2-	0.4+				
760829	808	0.2+	0.5+	851107	688	1.9+	0.3-				

1987 QD1 = 1982 UL1 = 1982 VM9 = 1988 VX3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Marsden	
M	116.71195	(1950.0)		P	Q
n	0.17088586	Peri.	202.99349	+0.95167813	+0.28829133
a	3.2161244	Node	139.76950	-0.25009280	+0.92752767
e	0.1473426	Incl.	9.42956	-0.17821986	+0.23786665
P	5.77	H	11.5	G	0.25

Residuals in seconds of arc

821024	688	0.1-	1.3-		870822	046	3.6+	0.6+		881112	675	0.4-	0.3+
821024	688	0.7-	1.2-		870826	046	4.0-	1.6-		881113	675	1.2-	0.6-
821110	095	1.2+	0.9+		870826	046	2.1-	1.0-		881206	675	0.5-	1.3+
870821	046	3.3+	1.8+		870830	046	1.1-	0.6+		881207	675	1.7+	0.7+
870822	046	1.9+	1.5+		870830	046	1.8-	1.2-					

1987 QW2 = 1952 KF1 = 1976 SV3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	150.60666		(1950.0)	P	Q
n	0.17171761	Peri.	257.30398	+0.48149310	+0.87631139
a	3.2057306	Node	41.49067	-0.79468387	+0.44400176
e	0.1429910	Incl.	1.34754	-0.36965109	+0.18692452
P	5.74	H	12.5	G 0.25	

Residuals in seconds of arc

520525	839	0.0	0.2+		870822	809	0.3-	0.1-		870829	809	(3.7-	4.6+)
760924	095	1.6-	0.2-		870824	809	0.1+	0.3+		870901	809	0.1-	1.1-
760929	095	1.4+	0.6+		870824	809	0.6+	0.2+		870901	809	0.4+	0.6+
870822	809	0.2-	0.4-		870829	809	(3.7-	5.0+)					
870822	809	0.4-	0.2+		870829	809	(3.9-	4.8+)					

1987 QH3 = 1987 SE2 = 1982 DG = 1984 YD1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden

M	174.14208		(1950.0)	P	Q
n	0.28555061	Peri.	38.59372	+0.82722755	-0.56180279
a	2.2839233	Node	355.56152	+0.48438077	+0.72072811
e	0.1400082	Incl.	6.30389	+0.28472768	+0.40611404
P	3.45	H	14.0	G 0.25	

Residuals in seconds of arc

820220	688	0.1+	3.2-		870824	809	0.2-	0.3+		870831	809	0.7-	0.3+
820220	688	2.5-	1.6-		870824	809	0.8-	0.0		870918	071	2.4+	2.9-
841217	095	0.3-	1.2+		870828	809	2.2-	1.1+		870918	071	3.9+	1.2-
870821	809	2.0+	2.0-		870828	809	0.6-	1.3+		870924	071	1.4+	0.8+
870821	809	1.0+	1.9-		870831	809	0.5-	0.5+		870924	071	1.9-	0.9-
870824	809	0.1-	0.7+		870831	809	1.3-	0.0					

1987 RC1 = 1988 VU3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	166.84610		(1950.0)	P	Q
n	0.17092026	Peri.	252.55349	+0.32250028	+0.94648185
a	3.2156863	Node	36.26880	-0.85995009	+0.29864426
e	0.1301966	Incl.	1.24673	-0.39557479	+0.12240795
P	5.77	H	11.5	G 0.25	

Residuals in seconds of arc

870913	809	0.1-	0.1+		870918	809	0.6+	0.4+		870926	809	0.1+	0.3+
870913	809	0.7-	0.1+		870918	809	0.7+	0.6+		870926	809	0.2+	0.2+
870913	809	0.5+	0.2-		870918	809	0.8+	0.3+		870927	809	0.3-	0.1-
870914	809	0.7-	0.9-		870924	809	0.2+	0.3+		870927	809	0.3-	0.3-
870914	809	1.1-	1.0-		870924	809	0.7+	0.3+		870927	809	0.1-	0.4-
870914	809	0.1-	0.1+		870924	809	0.3+	0.2+		881114	399	2.5+	0.4-
870916	809	0.5+	0.0		870924	071	(4.9-	3.0-)		881114	399	2.0+	0.3-
870916	809	0.6+	0.2+		870924	071	(5.4-	4.0-)		881114	399	0.3+	0.5+
870916	809	0.6+	0.0		870925	809	0.2+	0.3+		881117	399	1.1-	0.8+
870917	809	0.4+	0.1+		870925	809	0.5+	0.4+		881117	399	1.2-	0.2+
870917	809	0.3+	0.2+		870925	809	0.7+	0.3+		881117	399	0.4+	0.2-
870917	809	0.4+	0.2+		870926	809	0.0	0.3+		881117	399	2.0-	0.4-

1987 SH = 1961 VD1 = 1972 RG1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 155.82087 (1950.0) P Q
n 0.26240297 Peri. 125.60724 +0.75334856 -0.65175396
a 2.4163336 Node 275.23695 +0.57127047 +0.71461199
e 0.0621719 Incl. 5.04962 +0.32575451 +0.25405999
P 3.76 H 13.0 G 0.25
Residuals in seconds of arc

611110	760	1.1-	0.2-		870919	372	1.4-	0.9-	Y	871017	372	1.4-	1.8+
611110	760	1.3+	0.1-		870926	688	0.1+	0.9+		890101	372	1.1-	0.0
720910	095	1.6+	3.4-		870926	688	1.5+	0.3+		890103	372	1.7+	0.2-
870917	372	2.4-	1.1+	Y	870926	372	(13.6+	7.4+)		890115	372	0.1+	0.7-
870918	372	0.1+	0.9-	Y	871001	372	2.7+	0.9+		890115	372	0.7-	0.8+
870919	688	0.7-	0.4+		871017	372	0.1+	0.2+					

1987 SS3 = 1951 JN = 1983 GD2
Id. B. G. Marsden, S. Nakano
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 252.52736 (1950.0) P Q
n 0.27772533 Peri. 171.94061 +0.16560481 +0.98583555
a 2.3266260 Node 107.58876 -0.90631401 +0.16273833
e 0.2069089 Incl. 1.59422 -0.38880582 +0.04055259
P 3.55 H 14.0 G 0.25
Residuals in seconds of arc

510502	711	0.1+	0.3+	Y	870916	809	0.4+	0.4+		870926	809	0.1-	0.3-
510503	711	(2.9-	10.2-)Y		870918	809	0.6-	0.2-		870926	809	0.1+	0.4-
830410	095	0.0	0.8+		870918	809	0.4-	0.1-		870926	809	0.2+	0.5-
830512	095	0.1-	1.2-		870918	809	0.3-	0.2-		870927	809	0.3+	0.1-
870914	809	(1.4- | 2.4+)		870920	071	(3.9- | 3.5+)		870927	809	0.1+	0.2-
870914	809	0.6-	1.4+		870920	071	(1.1-	3.6+)		870927	809	0.2+	0.3-
870914	809	0.3-	1.4+		870923	809	0.6-	0.4-		870928	809	0.8+	0.0
870916	809	0.2+	0.2+		870923	809	0.6-	0.6-		870928	809	0.8+	0.0
870916	809	0.4+	0.4+		870923	809	0.6-	0.5-		870928	809	0.6+	0.0

1988 BK = 1962 XH = 1969 FL = 1985 QQ6
Id. S. Nakano (k), D. W. E. Green
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green
M 64.68942 (1950.0) P Q
n 0.20173008 Peri. 68.74163 -0.90186360 +0.40618102
a 2.8793191 Node 134.87277 -0.43136041 -0.86545494
e 0.2195794 Incl. 11.98580 +0.02387977 -0.29326562
P 4.89 H 12.5 G 0.25
Residuals in seconds of arc

621201	760	(57.1-	5.9-)X		880116	364	2.1+	1.1-		880127	364	2.1+	1.5+
690324	095	0.4-	1.3-		880121	364	0.5+	0.6-		880127	364	2.0-	1.8-
850824	095	0.5+	0.4-		880121	364	2.0-	1.0-		880216	881	0.6+	1.2+
850911	095	0.0	1.2-		880121	364	2.2-	0.7-		880216	881	0.8+	2.1+
880116	364	(4.3+ | 1.6+)		880121	364	(0.2- | 3.3-)					

1988 PT1 = 1975 GX = 1983 UM1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 25.55944 (1950.0) P Q
n 0.17484779 Peri. 175.94613 +0.88912852 -0.41638746
a 3.1673556 Node 210.96656 +0.40880634 +0.90916001
e 0.1152318 Incl. 21.66136 +0.20573733 -0.00704006
P 5.64 H 12.0 G 0.25

Residuals in seconds of arc

750415	805	0.2+	0.0	880813	675	0.3+	0.1-	880908	033	1.2-	0.6-
750420	805	0.3-	0.6+	880817	675	1.4+	1.4-	880908	033	0.8+	1.3+
831030	675	0.2+	0.9-	880908	033	1.4-	0.1-				
831104	675	0.2-	1.2+	880908	033	0.1-	1.2+				

1988 PK2 = 1978 TP9 = 1983 VH = 1984 YL = 1986 EG1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5					Kobayashi
M 210.29753		(1950.0)		P	Q
n 0.18480123	Peri.	119.60930		-0.89120630	+0.45349262
a 3.0525736	Node	87.36021		-0.41946354	-0.81573679
e 0.0649250	Incl.	0.56136		-0.17263163	-0.35905143
P 5.33	H	12.0	G	0.25	

Residuals in seconds of arc

781005	095	0.1-	0.3+	880813	033	1.0-	0.1-	880914	511	2.2+	3.5-
831105	801	0.1-	0.4+	880814	033	1.6-	0.1-	880914	511	3.6+	1.6-
841223	046	0.2+	2.3+	880814	033	1.8-	0.1-	880915	511	1.1+	1.3-
841223	046	0.2-	2.4-	880907	033	0.3-	1.6+	880915	511	0.6-	0.8-
860305	688	0.3-	0.8-	880908	033	0.5-	0.7+	880915	511	0.9+	2.3+
860305	688	0.2-	0.3-	880908	033	1.6-	1.0+				

1988 QC

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5					Bardwell
M 82.55044		(1950.0)		P	Q
n 0.22936957	Peri.	213.00360		+0.99458945	-0.07696014
a 2.6430914	Node	151.16573		+0.09345185	+0.95619493
e 0.4409499	Incl.	8.31900		-0.04537163	+0.28243298
P 4.30	H	17.5	G	0.25	

From 16 observations 1988 Aug. 18-Nov. 7, mean residual 0".7.

1988 RA

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5					Bardwell
M 51.53363		(1950.0)		P	Q
n 0.21225583	Peri.	79.90160		+0.14729796	-0.98897147
a 2.7833188	Node	1.85223		+0.61086022	+0.07867327
e 0.4683323	Incl.	28.55778		+0.77791587	+0.12548286
P 4.64	H	13.0	G	0.25	

From 9 observations 1988 Sept. 7-1989 Jan. 5, mean residual 0".5.

1988 TA

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5					Bardwell
M 213.24212		(1950.0)		P	Q
n 0.51533604	Peri.	104.45547		+0.48551550	+0.87415636
a 1.5407862	Node	194.60656		-0.81818487	+0.44984203
e 0.4789169	Incl.	2.54470		-0.30797438	+0.18301039
P 1.91	H	21.0	G	0.25	

From 34 observations 1988 Oct. 5-Dec. 7, mean residual 0".8.

1988 VH = 1987 KC = 1987 KL5

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P)					Nakano
M 127.55212		(1950.0)		P	Q
n 0.23795789	Peri.	100.37380		+0.93450231	+0.30184130
a 2.5791118	Node	242.27796		-0.34733121	+0.88920749
e 0.1673266	Incl.	12.30628		+0.07788753	+0.34380499
P 4.14	H	13.0	G	0.25	

Residuals in seconds of arc

870522	675	1.9-	0.8-		881113	881	2.2+	0.4-		881130	372 (5.1- 3.7+)Y
870523	675	1.9+	0.7+		881120	881	0.5-	1.1-		881202	372 (5.3- 1.3-)
881103	881	1.8-	0.8-		881120	881	1.4+	0.5+		881202	372 (4.0- 0.7+)
881103	881	0.1+	2.4+ Y		881127	385	1.3+	0.5+		881205	372 (4.6+ 5.2+)
881107	881	0.7+	0.5-		881127	385	0.7+	0.6+		881205	372 (5.8+ 3.6+)
881107	881	0.4-	0.6-		881129	385	0.2+	1.8+		881207	372 0.7- 1.5-
881113	881	1.0-	1.4-		881129	385	2.5-	1.1+		881207	372 0.3+ 0.8-

1988 VU1 = 1979 ST10 = 1984 YH5

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi
M 122.06550		(1950.0)	P	Q
n 0.22572437	Peri.	109.39834	+0.99129228	-0.08956593
a 2.6714707	Node	255.83234	+0.04732845	+0.92640223
e 0.0708632	Incl.	5.71358	+0.12288055	+0.36572784
P 4.37	H	12.5	G 0.25	

Residuals in seconds of arc

790929	095	0.1-	0.4+		881111	391	0.1+	0.9+		881205	391 2.9+ 4.3+
841228	095	0.1+	0.8+		881115	391	2.4-	0.1-		881206	391 0.0 3.4-
881108	391	(12.1-	2.2-)		881115	391	1.6+	0.6-		881206	391 3.3+ 0.9+
881108	391	(10.6-	2.5-)		881202	391	0.3-	0.6-		881207	391 4.8- 0.9-
881109	391	(7.9-	2.5-)		881202	391	0.7-	0.1+		881207	391 1.9- 1.7-
881109	391	4.6-	1.0+		881203	391	3.9+	0.1+			
881111	391	0.6-	0.1+		881203	391	3.6+	0.6-			

1988 VZ3 = 1981 TV1 = 1981 WV4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi
M 85.69210		(1950.0)	P	Q
n 0.28508168	Peri.	150.20556	+0.46258571	-0.88002709
a 2.2864226	Node	272.05382	+0.79061897	+0.46436385
e 0.1779355	Incl.	6.17803	+0.40116842	+0.09959180
P 3.46	H	14.0	G 0.25	

Residuals in seconds of arc

811003	095	1.2-	2.2-		881114	400	0.7+	2.4+		881202	400 0.0 1.7-
811124	095	1.4+	1.3+		881114	400	1.2-	0.1-		881211	400 0.5+ 0.3-
881113	400	2.3+	0.5-		881114	400	0.0	1.5+		881211	400 1.1- 1.0-
881113	400	1.8+	1.3+		881202	400	1.5-	0.5-			
881113	400	1.9+	1.5+		881202	400	3.5-	2.3-			

1988 VN4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Bardwell
M 101.49206		(1950.0)	P	Q
n 0.40401648	Peri.	230.48117	-0.10962065	-0.96776196
a 1.8121883	Node	227.40657	+0.98001058	-0.06712607
e 0.3208955	Incl.	17.94023	+0.16601982	-0.24275683
P 2.44	H	17.0	G 0.25	

From 8 observations 1988 Oct. 8-Dec. 9, mean residual 0".6.

1988 VP4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Bardwell
M 64.53017		(1950.0)	P	Q
n 0.28944534	Peri.	215.53179	-0.72742091	-0.65712804
a 2.2633845	Node	282.12687	+0.66697868	-0.60944450
e 0.6528330	Incl.	11.65975	+0.16123978	-0.44357653
P 3.41	H	15.5	G 0.25	

From 14 observations 1988 Sept. 13-1989 Jan. 27, mean residual 1".0.

1988 VB5 = 1964 WF = 1972 XV1 = 1980 UZ
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 113.91156 (1950.0) P Q
n 0.24505845 Peri. 139.37285 +0.98961156 +0.05530041
a 2.5290483 Node 218.08594 -0.08540371 +0.96866802
e 0.1866542 Incl. 12.42357 +0.11565104 +0.24212422
P 4.02 H 13.0 G 0.25
Residuals in seconds of arc

641129	760(94.1+	17.3-)X	881111	046	0.0	0.7-	881203	888	0.5-	0.1+
721201	095	0.0	3.0-	881112	046	0.1+	0.6+	881203	888	0.2+	0.4+
801018	095	0.2+	4.0+	881112	046	0.1-	1.3+	881207	888	0.0	0.9+
881104	046	0.0	1.7-	881114	888	2.8+	2.5-	881207	888	0.1+	1.1+
881104	046	0.4-	2.9-	881114	888	2.0+	0.9-	881214	888	0.8+	1.4+
881105	046	2.1-	0.5-	881201	888	0.6-	2.4+	881214	888	1.1-	0.9-
881105	046	1.3-	0.1-	881201	888	0.1-	1.7+				

1988 VD7 = 1981 TL3 = 1981 UV19
Id. S. Nakano, N. S. Chernykh (d)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 153.31805 (1950.0) P Q
n 0.28657154 Peri. 263.48157 +0.89510022 +0.43410361
a 2.2784957 Node 70.75047 -0.35448781 +0.83127603
e 0.2104664 Incl. 6.18608 -0.27043294 +0.34718039
P 3.44 H 13.5 G 0.25
Residuals in seconds of arc

811007	095	0.7+	0.2-	881111	877	1.9-	3.6+	Y	881214	888	0.2-	0.4+
811027	095	0.7-	0.2+	881211	877	1.4-	0.4+		881214	888	0.3+	0.2-
881110	877	1.0+	5.3-	Y	881211	877	0.7+	1.0-	881215	888	0.6+	0.4+
881110	877	1.2+	2.1-	Y	881211	888	0.2+	0.0	881215	888	0.6+	0.1+
881111	877	1.3-	4.1+	Y	881211	888	0.3+	0.5-				

1988 WC
Epoch 1988 Dec. 5.0 ET = JDE 2447500.5 Nakano
M 329.23298 (1950.0) P Q
n 0.29773427 Peri. 252.61994 -0.61950283 -0.71096072
a 2.2211787 Node 240.43237 +0.78281032 -0.59111839
e 0.4037546 Incl. 22.49607 -0.05851711 -0.38093819
P 3.31 H 13.5 G 0.25
From 23 observations 1988 Nov. 29-1989 Jan. 12.

1988 WG = 1947 GF = 1951 CJ1 = 1951 DK = 1975 XE7
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 43.01215 (1950.0) P Q
n 0.23156539 Peri. 63.47725 -0.50986678 -0.84902287
a 2.6263613 Node 57.86022 +0.71946316 -0.50914792
e 0.2854536 Incl. 9.41735 +0.47160218 -0.14116854
P 4.26 H 12.0 G 0.25
Residuals in seconds of arc

470413	062	0.4+	0.9-	881205	896	(0.8- | 5.2+)		881210	386	1.0-	1.7+
470413	062	0.9+	2.8+	881205	896	2.6+	2.0+		881210	888	3.4+	0.1-
510209	094(80.4+ | 7.1-)X	881206	400	2.3-	2.6-			881211	400	1.7-	1.1+
510211	711	1.4-	3.2-	Y	881206	400	0.3+	0.7-		881211	400	0.5-	0.1-
510226	094 (6.3- | 12.1+)X	881206	400	1.3-	2.3-			881211	400	3.2-	0.1+
751201	095	1.3+	0.9+	881209	386	0.3+	1.5+		881217	386	0.9-	0.5+
751203	095	0.2+	3.8-	881209	386	0.2-	1.7+		881217	386	0.3+	0.1+
881130	896 (0.9- | 10.3+)Y	881210	888	2.9+	1.5+						

1988 XA = 1972 TL4 = 1972 VQ = 1982 UO5
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 28.16505 (1950.0) P Q
n 0.18839421 Peri. 221.11252 -0.24717556 -0.95784150
a 3.0136435 Node 243.66671 +0.92623548 -0.18917385
e 0.0490350 Incl. 9.40388 +0.28459108 -0.21622422
P 5.23 H 11.0 G 0.25
Residuals in seconds of arc

721005 095	1.2+	1.2-	881202 399	2.1+	1.5+	881211 400	0.5-	1.0-
721108 095	1.2-	1.5+	881202 399	0.3+	0.2-	881211 400	0.4-	2.2-
821020 095	0.0	0.1-	881202 399	0.3-	0.6+	881211 400	1.1-	2.9-
881130 399	0.2+	0.3-	881207 399	2.5-	1.5-	881230 400	1.3+	0.7+
881130 399	1.5+	0.6+	881207 399	0.6-	0.1+	881230 400	0.3+	1.6+
881130 399	2.0+	0.6+	881207 399	0.6-	0.3+			
881202 399	0.3+	1.0+	881207 399	1.8-	0.8+			

1988 XB
Epoch 1988 Dec. 5.0 ET = JDE 2447500.5 Nakano
M 33.37122 (1950.0) P Q
n 0.55503967 Peri. 279.69405 +0.99073997 +0.12540891
a 1.4664031 Node 73.11535 -0.09312286 +0.90651234
e 0.4811222 Incl. 3.11683 -0.09880514 +0.40312278
P 1.78 H 17.0 G 0.25
From 31 observations 1988 Dec. 5-1989 Jan. 5.

1988 XC = 1973 AX3 = 1977 VU1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 54.78567 (1950.0) P Q
n 0.18214134 Peri. 58.24803 +0.34407365 -0.93884442
a 3.0822204 Node 11.65044 +0.83706493 +0.30015532
e 0.2869352 Incl. 3.85662 +0.42536528 +0.16875410
P 5.41 H 13.0 G 0.25
Residuals in seconds of arc

730102 095	1.3-	0.5-	881203 400	0.6-	2.2-	881206 400	0.9+	0.9+
730104 095	1.3+	0.4+	881203 400	0.7+	2.4-	881210 400	0.4+	0.4+
771108 330	0.0	0.1+	881205 897	1.0+	2.1-	881210 400	1.5-	2.0+
881201 897	2.1-	2.7+	881205 897	1.5+	1.0-	881210 400	0.2-	1.2+
881201 897	2.8-	0.3-	881206 400	1.2+	0.7-			
881203 400 (0.8+	4.9-)		881206 400	1.0+	1.5+			

1988 XP = 1980 TB
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 109.31649 (1950.0) P Q
n 0.25839533 Peri. 253.50421 +0.86520567 -0.49050865
a 2.4412539 Node 135.72442 +0.49779516 +0.81537899
e 0.2088323 Incl. 8.56921 +0.06015918 +0.30750345
P 3.81 H 13.5 G 0.25
Residuals in seconds of arc

801010 688	0.5-	0.0	881205 897	0.1-	0.9-	881207 897	1.7+	0.8-
801010 688	0.2+	0.2-	881205 897	0.0	1.3-	881216 897	0.1+	0.9-
801013 095	0.2-	0.1+	881207 897	2.1-	3.2+	881216 897	0.5-	0.5+

1988 XR = 1969 TF2 = 1969 VF
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 103.41503 (1950.0) P Q
n 0.26209842 Peri. 160.92970 +0.80286109 -0.59598178
a 2.4182050 Node 235.66193 +0.54458437 +0.74328699
e 0.2284007 Incl. 1.02874 +0.24257355 +0.30385878
P 3.76 H 14.5 G 0.25

Residuals in seconds of arc

691008 095	0.5+	1.7-	881203 400	0.6-	0.9+	881206 400	0.1+	0.1+
691016 095	0.4-	1.7+	881203 400	0.4+	0.7+	881210 400	0.7-	0.6+
691104 095	(73.5+	70.2-)	881206 400	0.6+	1.0-	881210 400	0.1+	0.3+
881203 400	0.1-	0.2-	881206 400	0.3+	1.5-			

1988 XT = 1981 VH

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	40.51870	(1950.0)		P	Q
n	0.29145806	Peri.	243.48241	-0.68053082	-0.73258530
a	2.2529524	Node	249.41008	+0.67744376	-0.62178585
e	0.1006909	Incl.	0.85817	+0.27919127	-0.27694969
P	3.38	H	13.5	G 0.25	

Residuals in seconds of arc

811102 688	0.4-	1.4-	881203 400	2.7+	0.1-	881207 399	0.4-	1.9+
811102 688	1.0+	1.0+	881206 400	1.8-	1.0-	881207 399	0.0	1.6+
811105 688	1.2-	1.3-	881206 400	0.6-	0.8-	881211 400	0.2+	1.6-
811105 688	0.3+	1.5+	881206 400	2.8-	0.4-	881211 400	1.7+	0.6-
881203 400	0.5+	0.3-	881207 399	1.5+	0.2+			
881203 400	0.1-	1.3+	881207 399	1.8-	0.3-			

1988 XK1 = 1973 SP3 = 1973 SH6 = 1984 UN

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	149.92700	(1950.0)		P	Q
n	0.27004156	Peri.	270.41951	+0.95025615	+0.30921024
a	2.3705492	Node	71.56917	-0.26774528	+0.87236174
e	0.2386985	Incl.	2.26215	-0.15914054	+0.37864762
P	3.65	H	13.5	G 0.25	

Residuals in seconds of arc

730925 095	0.0	1.9+	881207 399	0.6+	0.4-	881211 399	0.1+	0.2-
730928 095	0.4+	2.8-	881207 399	0.6+	1.1-	881211 399	0.4-	0.1+
841023 688	0.0	0.9+	881207 399	0.3+	0.4+	881216 401	1.6-	0.4+
841023 688	0.7+	0.2+	881207 399	1.3+	0.2-	881216 401	1.4+	0.6+
841029 688	0.4-	0.2+	881211 399	0.7-	0.3-			
841029 688	0.8-	0.3-	881211 399	1.6-	0.2+			

1988 XL1 = 1979 WK3 = 1979 YS6 = 1985 FT

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	27.51433	(1950.0)		P	Q
n	0.21999444	Peri.	3.29667	-0.67733312	-0.73225514
a	2.7176587	Node	129.35350	+0.67282245	-0.65554308
e	0.2416507	Incl.	5.25851	+0.29753956	-0.18456892
P	4.48	H	13.5	G 0.25	

Residuals in seconds of arc

791116 095	0.5-	0.2+	881207 372	(2.6-	8.9-)	881215 372	0.9+	3.1-
791223 095	0.0	2.0+	881209 372	2.3-	1.3+	881227 372	1.2+	2.0-
850321 688	0.8-	0.5-	881209 372	4.3+	1.4+	881227 372	0.4+	0.5+
850321 688	0.9+	0.9+	881212 372	0.1+	0.3-			
881207 372	(1.1-	7.6-)	881212 372	4.2-	0.1+			

1988 XM1 = 1976 GY6 = 1985 DH3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	14.22085	(1950.0)		P	Q
n	0.20895824	Peri.	322.47395	-0.57753536	-0.81599042
a	2.8125249	Node	162.75919	+0.76774665	-0.55319638
e	0.0553611	Incl.	4.78997	+0.27752115	-0.16773014
P	4.72	H	12.5	G 0.25	

Residuals in seconds of arc

760404 095	0.0	0.0	881209 372	0.0	1.8+	881214 372	0.9+	1.1-
850220 675	0.1-	0.3-	881209 372	0.7-	0.6+			
850222 675	0.1+	0.3+	881212 372	0.2-	1.3-			

1988 XW1 = 1977 SN3 = 1982 SM

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 100.63734		(1950.0)		P	Q
n 0.18775949	Peri.	313.14845	+0.91450752		-0.36566387
a 3.0204254	Node	68.98325	+0.40362797		+0.79547705
e 0.1094203	Incl.	10.68697	+0.02757634		+0.48322479
P 5.25	H	12.5	G	0.25	

Residuals in seconds of arc

770923 095	1.1+	0.4-	881211 399	0.9-	0.7+	890104 399	1.6+	0.6+
771008 095	0.5-	0.8-	881211 399	0.1-	0.3-	890104 399	1.0-	1.5-
820922 688	0.6+	0.7+	881211 399	0.9+	0.7+	890104 399	1.3-	0.2-
820922 688	1.2-	0.2+	881215 399	0.5+	0.3+			
881211 399	0.0	0.6+	881215 399	0.1+	0.5-			

1988 XD2 = 1934 HB = 1975 VX1 = 1975 WJ1 = 1979 WK7 = 1982 HW1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Oishi

M 208.67393		(1950.0)		P	Q
n 0.22537246	Peri.	206.16760	+0.03944968		+0.97820963
a 2.6742562	Node	66.67274	-0.87336258		+0.13286688
e 0.1622606	Incl.	12.82551	-0.48547042		-0.15953784
P 4.37	H	12.1	G	0.25	

Residuals in seconds of arc

340419 012	2.3+	2.3+	820428 688	0.5-	0.3-	881211 888	0.4-	0.1-
340422 012	0.3-	2.4+	820526 688	0.3-	2.2-	881214 888	0.2-	0.1-
751102 095	1.9+	1.3+	820526 688	0.1-	2.8-	881214 888	0.1-	0.3-
751126 330	0.8-	1.5+	881211 877	(3.5-	2.9+)	881215 888	0.1+	0.3-
791117 095	(11.5+	4.1+)	881211 877	1.1-	0.2+	881215 888	0.6+	0.5-
820428 688	1.3-	0.6+	881211 888	0.3+	1.7-			

1989 AC

Epoch 1989 Jan. 14.0 ET = JDE 2447540.5 Marsden

M 13.07064		(1950.0)		P	Q
n 0.24945894	Peri.	274.99007	+0.74108940		-0.67137523
a 2.4992133	Node	127.18340	+0.61914537		+0.67964748
e 0.6398044	Incl.	0.46503	+0.25970276		+0.29552429
P 3.95	H	14.5	G	0.25	

From 55 observations 1989 Jan. 4-31.

1989 AD = 1938 UV = 1961 VJ = 1980 TF7 = 1982 FU3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 92.27854		(1950.0)		P	Q
n 0.25746347	Peri.	54.55409	+0.57543895		-0.81784453
a 2.4471409	Node	0.31731	+0.71178785		+0.50046342
e 0.2589023	Incl.	6.08194	+0.40277546		+0.28401882
P 3.83	H	13.0	G	0.25	

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

381024 024	(0.01-	0.05-)X	820326 809	0.3+	0.5+	890103 897	0.3+	1.2-
611107 760	1.1+	0.2-	820328 809	0.5+	0.8-	890103 897	0.5-	1.4+
611107 760	0.3-	0.6-	820328 809	1.1+	0.9-	890105 897	0.4+	0.2-
801010 095	0.7+	0.0	820328 809	1.7+	1.2-	890105 897	1.3-	0.6+
801015 095	1.9-	2.5+	820330 809	0.7-	1.0+	890112 897	0.4+	0.2+
820326 809	0.0	0.3+	820330 809	0.6-	1.0+	890112 897	1.7+	0.0
820326 809	0.2+	0.6+	820330 809	1.0-	1.2+			

1989 AF = 1951 WX1 = 1962 XD1 = 1986 GF1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Ichikawa

M 93.76898		(1950.0)	P	Q
n 0.26868673	Peri.	20.46126	+0.06878829	-0.99473793
a 2.3785161	Node	65.65797	+0.90328278	+0.02979538
e 0.0208242	Incl.	4.78019	+0.42349544	+0.09802387
P 3.67	H 12.8	G 0.25		

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

511129	711	0.8-	0.9- Y	860415	046	1.0-	0.1-	890104 881	0.4+	0.1-
511129	711	0.9+	0.6+ Y	860415	046	1.9+	1.1+	890113 881	2.3-	0.8-
621203	760(0.06+	0.01-)X		890101	881	1.0+	0.7+	890113 881	0.4-	0.3-
860414	046	0.1+	1.1-	890101	881	1.6+	0.3-			
860414	046	1.1-	0.0	890104	881	0.2-	0.9+			

1989 AG = 1979 XN1
Id. T. Kobayashi
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M 47.19477		(1950.0)	P	Q
n 0.22630170	Peri.	35.84924	-0.63286545	-0.74203039
a 2.6669306	Node	94.49675	+0.64859929	-0.66401561
e 0.1380685	Incl.	12.81203	+0.42284783	-0.09205519
P 4.36	H 12.5	G 0.25		

Residuals in seconds of arc

791214	095	2.0+	0.9-	890104	400	0.3-	1.6-	890106 400	1.3+	2.5-
791218	095	2.0-	0.9+	890104	400	0.2+	1.3-	890106 400	0.8+	1.2-
890102	877	1.8-	1.2+ Y	890104	400	0.5+	0.5-	890112 372	0.7-	0.0
890102	877	0.6-	0.8+ Y	890104	877	2.2-	1.0-	890112 372	0.6-	0.5+
890103	877	1.6+	1.9+	890104	877	0.2+	0.7+	890115 372	0.6+	0.5+
890103	877	1.1+	1.3+	890106	400	2.3+	0.3+	890115 372	2.2-	0.6+

1989 AK = 1977 VZ1 = 1977 XD = 1984 EK
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 59.95893		(1950.0)	P	Q
n 0.18168540	Peri.	353.73453	+0.12086672	-0.98974945
a 3.0873749	Node	89.30509	+0.91398273	+0.08105587
e 0.2766034	Incl.	4.36326	+0.38733294	+0.11758387
P 5.42	H 12.5	G 0.25		

Residuals in seconds of arc

771114	330	2.0+	0.3-	881230	897	0.8+	0.9+	890105 897	0.5-	0.8+
771208	330	1.6-	1.0-	881230	897	0.9-	0.0	890105 897	0.4-	0.5+
840301	688	0.6-	1.4+	890104	399	0.7-	0.6+	890106 399	2.4+	1.6-
840301	688	0.0	0.4-	890104	399	0.5-	0.3+	890106 897	2.8-	0.5-
840306	688	0.7+	1.1-	890104	399	1.8+	0.3+	890106 399	0.8-	0.2-
840306	688	0.4-	0.7-	890104	399	1.7+	0.5+	890106 897	(1.1-	5.3-)

1989 AX = 1932 ET = 1978 WT14 = 1982 PO = 1985 FX1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M 100.05773		(1950.0)	P	Q
n 0.20555744	Peri.	323.48022	+0.58575294	-0.80848025
a 2.8434665	Node	90.59506	+0.75642655	+0.52005382
e 0.0636105	Incl.	3.26991	+0.29105388	+0.27550626
P 4.79	H 12.0	G 0.25		

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

320314	024	1.2-	2.7-	850322	688	2.0+	0.3-	890106 399	0.4+	0.1-
320315	024(0.09-	0.07-)		850322	688	1.9-	0.5-	890106 399	1.3-	0.4-
781128	330	0.7+	0.3-	890104	399	0.5+	0.2-	890113 399	0.0	0.8+
820814	095	0.6-	0.8-	890104	399	0.7+	1.4-	890113 399	0.3-	0.5+
820816	095	1.7+	2.7-	890106	399	0.2+	0.1-	890113 399	0.9-	0.4+

1989 AZ
Epoch 1989 Jan. 14.0 ET = JDE 2447540.5 Marsden
M 26.49696 (1950.0) P Q
n 0.46962211 Peri. 111.51017 +0.66878689 -0.72041934
a 1.6392192 Node 295.15207 +0.58463296 +0.66220384
e 0.4657655 Incl. 11.70457 +0.45926943 +0.20611173
P 2.10 H 19.4 G 0.25
From 6 observations 1989 Jan. 8-27.

4523 P-L = 1977 CE1
Id. E. Bowell, T. Kobayashi
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 216.10693 (1950.0) P Q
n 0.08301722 Peri. 110.18399 +0.73995715 +0.67260988
a 5.2042394 Node 207.54890 -0.62317233 +0.68116743
e 0.0460025 Incl. 0.95456 -0.25321861 +0.28914856
P 11.87 H 10.5 G 0.25
Residuals in seconds of arc

600924 675	0.1-	0.0	601017 675	2.0-	0.5-	601026 675	1.0+	0.5-
600926 675	0.4-	1.0-	601017 675	1.0-	0.1+	770213 675	1.5-	0.6+
600927 675	0.2-	1.0+	601022 675	0.0	0.3-	770214 675	0.1-	0.1+
600928 675	0.6+	0.2+	601024 675	0.8+	0.6+			

4657 P-L = 1976 SD6 = 1976 US11 = 1981 SK6
Id. K. Hurukawa (MPC 9301), O. Kippes (ibid.), E. Bowell (ibid.), H. Oishi (d, MPC 9065; unpublished)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Oishi
M 166.48156 (1950.0) P Q
n 0.18797124 Peri. 272.32942 +0.84565625 -0.53353837
a 3.0181626 Node 119.91574 +0.49595468 +0.77568040
e 0.0939236 Incl. 0.94030 +0.19721681 +0.33713013
P 5.24 H 13.4 G 0.25
Residuals in seconds of arc

600924 675	0.6+	0.5-	601022 675	0.2-	0.5+	761024 381	0.5-	0.1+
600924 675	0.8-	0.2-	601025 675	0.1-	0.6-	810928 095	0.4-	0.9+
600926 675	0.5+	0.1+	601026 675	0.2+	1.0-	860905 688	2.5+	0.7-
600927 675	0.7-	0.6+	760924 095	1.0+	0.1-	860905 688	2.4-	0.4+
600928 675	0.3+	0.4+	761022 381	0.5-	0.1-			
601017 675	0.4+	0.3+	761022 381	0.2+	0.0			

5010 T-3 = 1988 RH1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Bardwell
M 32.22391 (1950.0) P Q
n 0.08485421 Peri. 204.05237 +0.99573930 +0.01176057
a 5.1288656 Node 154.75459 +0.00780542 +0.97752481
e 0.0111606 Incl. 12.38297 -0.09188209 +0.21049212
P 11.62 H 10.0 G 0.25
Residuals in seconds of arc

771011 675	0.3+	0.6+	771017 675	0.0	0.7-	880910 675	0.8+	0.9-
771011 675	1.0+	0.9+	771017 675	0.2-	0.5-	880916 675	0.3-	0.2+
771012 675	0.4+	0.4-	771021 675	0.4-	0.3-	881010 675	0.3-	0.8-
771012 675	0.7+	0.1+	771021 675	0.1-	0.1+	881012 675	0.6+	0.4+
771016 675	0.2+	0.0	771022 675	1.4-	2.1+	881105 675	1.5-	0.9+
771016 675	0.2+	0.4-	771022 675	0.1+	1.2-	881107 675	0.2+	0.3-

NEW NAMES OF MINOR PLANETS.

(2247) Hiroshima = 6512 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Named for the Japanese city Hiroshima in the hope that this planet may be a symbol for world peace.

(2691) Sersic = 1974 KB
Discovered 1974 May 18 at the El Leoncito Station of the Felix Aguilar Observatory.
Named in honor of Jose Luis Sersic, well known for his work in extragalactic astronomy and on supernovae. He has served as director of the Cordoba Observatory and is currently head of the section for extragalactic studies. With Jorge Sahade he was responsible for establishing IAFE, the Argentinian Institute for Astronomy and Physics of Space, and he played an important role in the establishment of the El Leoncito Station.

(2853) Harvill = 1963 RG
Discovered 1963 Sept. 14 at the Goethe Link Observatory, Indiana University.
Named in memory of Richard A. Harvill (1905-1988), president of the University of Arizona from 1951 to 1971, the longest term in the history of the university and a period of major growth. During these 20 years the enrollment grew from 5700 to 26 500, and 45 new buildings were constructed. Harvill provided significant help in many ways to those who were involved in the establishment of the Kitt Peak National Observatory. He was also successful in using the presence of AURA and KPNO to push for increased appropriations from the legislature, following Board of Regents approval, for expansion of the department of astronomy and increased support for the other physical sciences. Name proposed by F. K. Edmondson.

(3859) Borngen = 1987 EW
Discovered 1987 Mar. 4 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of Freimut Borngen, senior staff astronomer at the Karl Schwarzschild Observatory, Tautenburg. For 27 years Borngen has worked as an observer at the 1.3-m Schmidt telescope. He has been particularly interested in problems of photographic photometry and has published numerous papers on galaxies of a wide variety of types. Eighteen of his many minor planet discoveries have so far been numbered. Name suggested and citation provided by L. D. Schmadel.

(3874) Stuart = 1986 TJ1
Discovered 1986 Oct. 4 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of Stuart E. Jones on the occasion of his retirement as Lowell Observatory’s photographic specialist. A member of the Lowell staff since 1962, Jones has been responsible for a wide variety of photographic tasks, including, in particular, the processing of high-quality photographic images for the International Planetary Patrol, a decade-long program that led to the production of about 1 million planetary images. He helped develop a method of photographically extracting fine planetary surface features by means of compositing and a method of reproducing images of planets in true color. Jones will be warmly remembered for his multifaceted talents, which range from practical chemistry to the construction of sophisticated electronics, and for his cheerful disposition and dedication.

(3896) Pordenone = 1987 WM
Discovered 1987 Nov. 18 by J. M. Baur at the Chaonis Observatory.
Named in memory of Giovanni Antonio Licinio (1483-1539), also known as Il Pordenone, from his birthplace, not far from the Chaonis Observatory. One of the masters of painting of the sixteenth century, Il Pordenone was declared a prince of the Friuli region, and the Pictor Modernus, for his exploits in drawing, chiaroscuro and relief. He invented an original language that was violently dynamic and expressive. A disciple of Bellini and Giorgione, he studied the works of Raffael and Michelangelo, influenced Tintoretto and was a rival of Titian.

(3903) Kliment Ohridski = 1987 SV2
Discovered 1987 Sept. 20 by E. W. Elst, V. Shkodrov and V. Ivanova at the Bulgarian National Observatory.
Named in memory of Kliment Ohridski (840-916), one of the first Bulgarian philosophers. A disciple of Konstantin, he took holy orders in Rome in 868. A pupil and collaborator of Kyril and Methodius, he established a school where he taught some 3500 students the Bulgarian alphabet and contributed to development of the Bulgarian language. This minor planet, named on the occasion of the 100th anniversary of the founding of the University of Sofia, of which he is considered the patron, is testament to Ohridski's influence on Bulgarian science and culture.

(3912) Troja = 1988 SG
Discovered 1988 Sept. 16 by E. W. Elst at Haute Provence.
Named for the ancient legendary city featured in the works of Homer. The historical site of Troy was found in 1872 at Hissarlik, Turkey, by Schliemann.

(3917) Franz Schubert = 1961 CX
Discovered 1961 Feb. 15 by F. Borngen at Tautenburg.
Named for the great composer Franz Schubert (1797-1828).

(3924) Birch = 1977 CU
Discovered 1977 Feb. 11 by E. Bowell on plates taken by C. T. Kowal at Palomar.
Named in honor of Peter V. Birch. An astronomer at the Perth Observatory since 1970, Birch made many planetary photographic observations as part of Lowell Observatory's International Planetary Patrol Program. In 1977 he was involved in the discovery of the rings of Uranus. He has also carried out a variety of photometric observations, including photoelectric lightcurves of minor planets and comets and CCD work on Comet Halley. Citation provided by M. P. Candy at the request of the discoverer.

(3931) Batten = 1984 EN
Discovered 1984 Mar. 1 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of Alan H. Batten, an astronomer at the Dominion Astrophysical Observatory in Victoria, British Columbia. Batten's research has centered on close binary stars and radial velocities. He has served as a vice president of the IAU, as president of two of its commissions and as editor of the Journal of the Royal Astronomical Society of Canada. Name suggested and citation provided by C. E. Spratt.

(3941) Haydn = 1973 UU5
Discovered 1973 Oct. 27 by F. Borngen at Tautenburg.
Named for the great composer Franz Joseph Haydn (1732-1809).

(3943) Silbermann = 1981 RG1
Discovered 1981 Sept. 3 by F. Borngen at Tautenburg.
Named for the famous Saxon organ builder Gottfried Silbermann (1683-1753), several of whose instruments have been carefully preserved. They have an excellent soft sound of a silver clearness. The specific Silbermann timbre is the prototype for numerous twentieth-century organs.

(3954) Mendelssohn = 1987 HU
Discovered 1987 Apr. 24 by F. Borngen at Tautenburg.
Named for the celebrated composer Felix Mendelssohn-Bartholdy (1809-1847).

(3955) Bruckner = 1988 RF3
Discovered 1988 Sept. 9 by F. Borngen at Tautenburg.
Named for the Austrian composer Anton Bruckner (1824-1896), chiefly known for his nine monumental symphonies.

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EPHEMERIDES.

Periodic Comet Bradfield 2 (1989c) Elements MPC 14154

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1989	02 03	00 03.72	-37 38.5	1.879	1.364	44.5	30.4	13.7
1989	02 08	00 18.33	-34 37.3					
1989	02 13	00 30.90	-31 52.2	2.110	1.530	42.2	25.7	14.5
1989	02 18	00 41.96	-29 22.0					
1989	02 23	00 51.86	-27 05.4	2.340	1.690	39.0	21.6	15.1
1989	02 28	01 00.87	-25 00.8					
1989	03 05	01 09.17	-23 07.1	2.564	1.844	35.2	18.1	15.7
1989	03 10	01 16.90	-21 23.1					
1989	03 15	01 24.15	-19 47.8	2.776	1.994	31.3	15.0	16.2

1988 VP4 a,e,i = 2.26, 0.65, 12 Elements MPC 14200

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	00 40.53	+02 01.7	0.436	0.829	56.5	97.5	16.6
1989	02 08	00 48.88	-00 56.2					
1989	02 13	00 56.05	-04 46.2	0.360	0.793	48.1	112.2	16.9
1989	02 18	01 01.35	-09 42.1					
1989	02 23	01 03.96	-15 55.0	0.292	0.787	39.6	126.7	17.6
1989	02 28	01 02.94	-23 28.3					
1989	03 05	00 57.15	-32 09.1	0.245	0.811	37.5	131.9	17.8
1989	03 10	00 45.21	-41 25.1					
1989	03 15	00 25.15	-50 29.8	0.229	0.862	49.1	119.3	16.6
1989	03 20	23 54.24	-58 36.6					
1989	03 25	23 08.90	-65 10.3	0.237	0.934	67.7	98.7	15.6
1989	03 30	22 05.94	-69 47.0					
1989	04 04	20 47.2	-72 10.5	0.258	1.018	86.6	78.7	15.1
1989	04 09	19 24.7	-72 19.6					
1989	04 14	18 13.3	-70 38.8	0.287	1.111	104.6	60.9	15.0
1989	04 19	17 18.68	-67 45.6					
1989	04 24	16 38.65	-64 11.1	0.322	1.207	121.9	45.0	15.0
1989	04 29	16 09.30	-60 15.9					
1989	05 04	15 47.56	-56 13.6	0.370	1.306	137.6	31.4	15.1
1989	05 09	15 31.39	-52 14.2					
1989	05 14	15 19.47	-48 25.6	0.435	1.404	150.0	21.1	15.3
1989	05 19	15 10.83	-44 53.4					

1989 05 24	15 04.74	-41 40.8	0.519	1.501	155.8	16.0	15.7
1989 05 29	15 00.70	-38 49.1					
1989 06 03	14 58.32	-36 18.2	0.623	1.597	153.6	16.4	16.3

1988 XB a,e,i = 1.47, 0.48, 3 Elements MPC 14202

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03		05 45.88	+28 11.8	0.663	1.518	133.1	28.3	18.1
1989 02 13		05 54.01	+27 56.3					
1989 02 23		06 04.96	+27 40.0	0.935	1.643	117.2	32.4	19.1
1989 03 05		06 17.94	+27 21.5					
1989 03 15		06 32.43	+26 59.4	1.233	1.754	103.4	33.5	19.9
1989 03 25		06 48.03	+26 32.6					
1989 04 04		07 04.38	+26 00.2	1.544	1.851	90.8	32.7	20.5

1989 AC a,e,i = 2.50, 0.64, 0 Elements MPC 14204

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03		06 20.98	+23 14.5	0.412	1.332	141.2	27.6	15.1
1989 02 13		06 44.23	+23 05.7					
1989 02 23		07 03.73	+22 46.3	0.667	1.512	130.9	29.7	16.5
1989 03 05		07 21.38	+22 19.4					
1989 03 15		07 38.16	+21 45.8	0.971	1.692	118.8	31.0	17.6
1989 03 25		07 54.49	+21 06.0					
1989 04 04		08 10.54	+20 20.3	1.314	1.867	106.7	30.9	18.4
1989 04 14		08 26.41	+19 28.9					
1989 04 24		08 42.12	+18 32.1	1.686	2.034	94.8	29.5	19.1
1989 05 04		08 57.65	+17 30.5					
1989 05 14		09 13.01	+16 24.3	2.073	2.194	83.1	27.2	19.7
1989 05 24		09 28.18	+15 14.1					
1989 06 03		09 43.14	+14 00.4	2.461	2.345	71.5	24.2	20.1

Periodic Comet Helin-Roman-Crockett (1989b) Elements MPC 14154

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1989 02 03		08 16.02	+23 03.6	2.520	3.488	167.0	3.6	14.4
1989 02 13		08 09.60	+23 28.0					
1989 02 23		08 04.56	+23 45.0	2.647	3.499	144.4	9.5	14.6
1989 03 05		08 01.33	+23 54.4					
1989 03 15		08 00.13	+23 56.5	2.865	3.512	123.4	13.7	14.7
1989 03 25		08 01.01	+23 51.8					
1989 04 04		08 03.88	+23 40.9	3.140	3.526	104.5	15.9	15.0
1989 04 14		08 08.55	+23 24.1					
1989 04 24		08 14.81	+23 01.9	3.439	3.541	87.5	16.5	15.2

1989 AZ a,e,i = 1.64, 0.47, 12 Elements MPC 14206

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03		08 21.29	+02 35.2	0.267	1.242	162.3	13.9	17.7
1989 02 13		08 11.66	+01 26.2					
1989 02 23		08 09.39	+01 13.1	0.449	1.383	145.7	23.8	19.3
1989 03 05		08 12.19	+01 23.3					
1989 03 15		08 18.70	+01 39.9	0.674	1.520	130.4	29.9	20.6

Comet Shoemaker (1989f) Elements MPC 14154

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1989 02 03		08 58.43	+52 09.9	1.583	2.454	144.6	13.5	16.4
1989 02 13		08 54.21	+52 37.7					
1989 02 23		08 51.70	+52 28.5	1.772	2.559	133.8	16.2	16.8
1989 03 05		08 51.63	+51 48.8					
1989 03 15		08 54.26	+50 45.4	2.029	2.677	120.8	18.6	17.3
1989 03 25		08 59.44	+49 24.7					
1989 04 04		09 06.76	+47 51.8	2.335	2.806	107.8	19.8	17.8

1989 04 14	09 15.83	+46 10.3					
1989 04 24	09 26.21	+44 23.2	2.676	2.944	95.3	19.9	18.3

Periodic Comet Russell 3 (1989d) Elements MPC 14154

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1989 02 03	09 12.53	-02 57.1	2.685	3.627	160.2	5.3	19.7
1989 02 13	09 05.15	-02 36.8					
1989 02 23	08 58.08	-02 05.2	2.639	3.564	155.6	6.6	19.6
1989 03 05	08 51.95	-01 25.7					
1989 03 15	08 47.28	-00 42.1	2.703	3.500	137.4	11.1	19.6
1989 03 25	08 44.44	+00 01.5					
1989 04 04	08 43.57	+00 42.1	2.850	3.436	118.1	14.9	19.6
1989 04 14	08 44.73	+01 16.9					
1989 04 24	08 47.81	+01 44.1	3.044	3.372	100.3	17.1	19.7
1989 05 04	08 52.68	+02 02.6					
1989 05 14	08 59.15	+02 11.6	3.255	3.308	84.1	17.7	19.8
1989 05 24	09 07.03	+02 11.0					
1989 06 03	09 16.13	+02 00.8	3.456	3.244	69.5	17.0	19.8
1989 06 13	09 26.30	+01 40.9					
1989 06 23	09 37.38	+01 11.9	3.632	3.181	56.2	15.4	19.8
1989 07 03	09 49.23	+00 34.1					
1989 07 13	10 01.76	-00 12.2	3.771	3.118	43.8	13.0	19.8
1989 07 23	10 14.86	-01 06.3					
1989 08 02	10 28.46	-02 07.7	3.867	3.056	32.2	10.2	19.8

Comet Yanaka (1988r) Elements MPC 14154

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1989 02 03	09 32.57	-42 35.5	0.443	1.268	120.3	42.2	11.8
1989 02 08	08 42.43	-39 50.0					
1989 02 13	08 10.39	-36 47.7	0.626	1.441	125.0	34.2	13.1
1989 02 18	07 49.79	-34 00.9					
1989 02 23	07 36.37	-31 35.7	0.844	1.608	122.3	31.3	14.2
1989 02 28	07 27.66	-29 30.9					
1989 03 05	07 22.17	-27 43.4	1.080	1.770	117.3	29.9	15.1
1989 03 10	07 18.98	-26 10.5					
1989 03 15	07 17.50	-24 50.0	1.326	1.927	111.4	28.7	16.0
1989 03 20	07 17.30	-23 40.1					
1989 03 25	07 18.10	-22 39.3	1.579	2.079	105.4	27.5	16.7
1989 03 30	07 19.69	-21 46.4					
1989 04 04	07 21.90	-21 00.5	1.835	2.227	99.3	26.3	17.3
1989 04 09	07 24.64	-20 21.0					
1989 04 14	07 27.80	-19 47.2	2.093	2.372	93.3	25.0	17.9
1989 04 19	07 31.32	-19 18.7					
1989 04 24	07 35.11	-18 55.1	2.350	2.513	87.4	23.6	18.4

Comet Shoemaker (1989e) Elements MPC 14154

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1989 02 03	09 39.49	+33 19.5	1.699	2.652	161.6	6.7	12.9
1989 02 13	09 17.09	+39 57.5					
1989 02 23	08 52.62	+45 29.9	1.809	2.642	139.7	14.0	13.0
1989 03 05	08 28.67	+49 41.8					
1989 03 15	08 07.82	+52 40.2	2.086	2.648	113.8	20.1	13.3
1989 03 25	07 51.78	+54 43.2					
1989 04 04	07 41.12	+56 09.3	2.433	2.671	92.5	22.0	13.7
1989 04 14	07 35.72	+57 13.0					
1989 04 24	07 35.02	+58 04.4	2.782	2.711	75.5	21.1	14.1
1989 05 04	07 38.39	+58 49.4					
1989 05 14	07 45.31	+59 31.7	3.089	2.765	62.1	18.9	14.4

Comet Yanaka (1989a) Elements MPC 14154

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1989 02 03	14 42.85	+21 40.2	1.813	2.222	100.9	25.8	11.3
1989 02 13	14 56.46	+26 08.7					
1989 02 23	15 07.32	+30 40.5	1.807	2.355	111.3	23.0	11.5
1989 03 05	15 15.06	+35 04.5					
1989 03 15	15 19.38	+39 09.1	1.877	2.501	117.8	20.6	11.8
1989 03 25	15 20.24	+42 43.6					
1989 04 04	15 17.84	+45 39.9	2.020	2.656	119.3	19.2	12.3
1989 04 14	15 12.71	+47 52.2					
1989 04 24	15 05.78	+49 18.4	2.221	2.819	116.6	18.6	12.7
1989 05 04	14 58.14	+49 59.8					
1989 05 14	14 50.89	+49 59.9	2.469	2.987	111.2	18.4	13.2
1989 05 24	14 44.93	+49 24.9					
1989 06 03	14 40.80	+48 21.4	2.749	3.159	104.4	18.1	13.7

1986 PA a,e,i = 1.06, 0.44, 11 Elements MPC 11997

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 03 25	21 55.16	+21 50.6	0.162	0.878	39.4	133.9	19.8
1989 03 30	21 06.95	+29 09.9					
1989 04 04	20 11.49	+35 28.5	0.152	0.960	70.4	101.0	17.3
1989 04 09	19 12.17	+39 51.2					
1989 04 14	18 14.12	+41 59.6	0.170	1.038	97.1	73.6	16.6
1989 04 19	17 22.10	+42 12.2					
1989 04 24	16 38.50	+41 03.2	0.207	1.111	115.6	54.7	16.6
1989 04 29	16 03.42	+39 04.2					
1989 05 04	15 35.83	+36 37.4	0.257	1.178	126.1	43.7	16.9
1989 05 09	15 14.48	+33 57.1					
1989 05 14	14 58.20	+31 12.5	0.319	1.240	130.1	38.6	17.4
1989 05 19	14 46.00	+28 29.2					
1989 05 24	14 37.06	+25 50.4	0.390	1.295	129.3	37.2	17.9
1989 05 29	14 30.73	+23 17.6					
1989 06 03	14 26.55	+20 51.1	0.471	1.345	125.8	37.7	18.4
1989 06 08	14 24.17	+18 31.0					
1989 06 13	14 23.28	+16 17.4	0.558	1.388	121.0	38.8	18.8
1989 06 18	14 23.66	+14 10.0					
1989 06 23	14 25.11	+12 08.6	0.652	1.426	115.7	40.0	19.2
1989 06 28	14 27.46	+10 12.7					
1989 07 03	14 30.60	+08 21.8	0.751	1.458	110.2	40.9	19.6
1989 07 08	14 34.47	+06 35.5					
1989 07 13	14 38.96	+04 53.6	0.852	1.484	104.7	41.5	20.0

1987 UA a,e,i = 1.73, 0.30, 16 Elements MPC 12787

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989 04 04	16 23.58	-09 54.9	1.339	2.099	-1.79	-0.7	21.2
1989 04 14	16 22.86	-07 44.1					
1989 04 24	16 18.43	-05 15.1	1.138	2.051	-2.18	-0.6	20.6
1989 05 04	16 10.37	-02 34.8					
1989 05 14	15 59.33	+00 04.6	1.019	1.997	-2.48	-1.3	20.1
1989 05 24	15 46.59	+02 27.8					
1989 06 03	15 33.84	+04 20.4	0.996	1.936	-2.48	-3.4	20.2
1989 06 13	15 22.80	+05 32.9					
1989 06 23	15 14.78	+06 03.9	1.053	1.870	-2.21	-5.3	20.5

1984 SQ3 a,e,i = 2.23, 0.15, 5 Elements MPC 14192

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	07 42.36	+29 11.0	1.587	2.526	157.5	8.6	17.0
1989 02 13	07 33.17	+29 10.5					
1989 02 23	07 27.07	+28 57.4	1.739	2.535	134.9	16.1	17.5

1989 03 05	07 24.36	+28 35.2					
1989 03 15	07 24.99	+28 06.4	1.960	2.542	114.8	20.8	17.9
1989 03 25	07 28.64	+27 32.6					
1989 04 04	07 34.89	+26 54.7	2.216	2.547	97.4	22.9	18.2
1989 04 14	07 43.32	+26 12.7					
1989 04 24	07 53.55	+25 26.3	2.480	2.548	82.3	23.0	18.5
1989 05 04	08 05.20	+24 35.2					
1989 05 14	08 18.00	+23 39.0	2.733	2.547	68.8	21.7	18.6

(3709) Polypoites a,e,i = 5.27, 0.06, 20 Elements MPC 14165

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03		08 35.91	-01 57.8	4.132	5.069	160.0	3.8	16.4
1989 02 13		08 31.07	-01 19.1					
1989 02 23		08 26.82	-00 34.8	4.202	5.077	149.2	5.7	16.5
1989 03 05		08 23.45	+00 12.7					
1989 03 15		08 21.20	+01 00.8	4.378	5.086	131.0	8.5	16.8
1989 03 25		08 20.20	+01 47.2					
1989 04 04		08 20.49	+02 30.2	4.631	5.094	112.2	10.5	16.9
1989 04 14		08 22.06	+03 08.4					
1989 04 24		08 24.84	+03 40.7	4.928	5.102	94.2	11.3	17.1
1989 05 04		08 28.73	+04 06.7					
1989 05 14		08 33.61	+04 26.0	5.235	5.111	77.4	11.1	17.2
1989 05 24		08 39.35	+04 38.6					
1989 06 03		08 45.84	+04 44.6	5.525	5.120	61.5	10.0	17.3

1936 NB a,e,i = 3.08, 0.25, 19 Elements MPC 14182

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03		09 58.53	-01 17.4	2.591	3.523	157.5	6.1	17.2
1989 02 13		09 50.11	-01 16.1					
1989 02 23		09 41.40	-01 04.5	2.521	3.486	164.8	4.3	17.1
1989 03 05		09 33.12	-00 44.9					
1989 03 15		09 25.97	-00 20.8	2.570	3.447	147.0	9.0	17.3
1989 03 25		09 20.47	+00 04.2					
1989 04 04		09 16.94	+00 26.8	2.717	3.407	126.4	13.7	17.5
1989 04 14		09 15.51	+00 44.6					
1989 04 24		09 16.15	+00 55.5	2.925	3.365	107.4	16.6	17.7
1989 05 04		09 18.73	+00 58.5					
1989 05 14		09 23.06	+00 52.8	3.160	3.322	90.2	17.7	17.9
1989 05 24		09 28.94	+00 38.2					
1989 06 03		09 36.17	+00 14.6	3.393	3.277	74.8	17.4	18.0

4523 P-L a,e,i = 5.20, 0.05, 1 Elements MPC 14206

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03		10 31.94	+08 13.3	4.514	5.435	157.0	4.1	17.8
1989 02 13		10 27.44	+08 39.6					
1989 02 23		10 22.57	+09 08.1	4.444	5.433	179.0	0.2	17.5
1989 03 05		10 17.68	+09 36.8					
1989 03 15		10 13.12	+10 03.7	4.498	5.431	157.7	4.0	17.8
1989 03 25		10 09.21	+10 27.1					
1989 04 04		10 06.19	+10 45.5	4.664	5.429	136.1	7.3	18.0
1989 04 14		10 04.24	+10 58.2					
1989 04 24		10 03.44	+11 04.6	4.913	5.426	115.8	9.6	18.2
1989 05 04		10 03.81	+11 04.6					
1989 05 14		10 05.33	+10 58.2	5.210	5.424	96.8	10.7	18.3
1989 05 24		10 07.93	+10 45.9					
1989 06 03		10 11.51	+10 27.8	5.518	5.421	79.2	10.6	18.5
1989 06 13		10 15.96	+10 04.5					
1989 06 23		10 21.18	+09 36.3	5.810	5.418	62.6	9.6	18.5

1983 WA a,e,i = 2.73, 0.22, 8 Elements MPC 14191

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	10 38.56	-05 51.4	1.270	2.167	147.5	14.1	16.5
1989	02 13	10 31.82	-05 40.3					
1989	02 23	10 23.81	-05 03.3	1.222	2.192	164.8	6.8	16.2
1989	03 05	10 15.78	-04 05.9					
1989	03 15	10 09.01	-02 57.0	1.270	2.221	157.3	10.0	16.4
1989	03 25	10 04.53	-01 46.8					
1989	04 04	10 02.83	-00 43.4	1.410	2.254	138.0	17.3	16.9
1989	04 14	10 04.05	+00 07.4					
1989	04 24	10 08.03	+00 42.5	1.616	2.291	120.0	22.4	17.4
1989	05 04	10 14.42	+01 01.2					
1989	05 14	10 22.87	+01 03.6	1.865	2.330	104.3	24.8	17.8
1989	05 24	10 33.00	+00 50.9					
1989	06 03	10 44.47	+00 24.8	2.135	2.372	90.6	25.3	18.1
1989	06 13	10 57.03	-00 13.5					
1989	06 23	11 10.45	-01 02.2	2.412	2.416	78.1	24.3	18.4
1989	07 03	11 24.54	-01 59.6					
1989	07 13	11 39.18	-03 04.5	2.684	2.462	66.5	22.2	18.6

1987 QH3 a,e,i = 2.28, 0.14, 6 Elements MPC 14197

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	11 20.71	+08 07.9	1.530	2.409	145.6	13.4	17.5
1989	02 13	11 12.96	+08 38.1					
1989	02 23	11 03.15	+09 15.6	1.455	2.436	170.0	4.0	17.1
1989	03 05	10 52.38	+09 53.7					
1989	03 15	10 41.97	+10 25.8	1.490	2.461	164.1	6.4	17.2
1989	03 25	10 33.14	+10 46.6					
1989	04 04	10 26.74	+10 53.7	1.629	2.485	140.7	14.8	17.8
1989	04 14	10 23.18	+10 46.2					
1989	04 24	10 22.51	+10 25.0	1.843	2.507	120.4	20.3	18.2
1989	05 04	10 24.50	+09 51.5					
1989	05 14	10 28.85	+09 06.8	2.101	2.527	102.9	22.9	18.6
1989	05 24	10 35.21	+08 12.4					
1989	06 03	10 43.23	+07 09.4	2.374	2.544	87.7	23.5	18.9
1989	06 13	10 52.63	+05 58.8					
1989	06 23	11 03.16	+04 41.6	2.644	2.560	74.1	22.5	19.1
1989	07 03	11 14.62	+03 18.6					
1989	07 13	11 26.86	+01 50.5	2.895	2.573	61.6	20.3	19.2

4657 P-L a,e,i = 3.02, 0.09, 1 Elements MPC 14206

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	11 38.41	+03 15.9	2.366	3.184	139.8	11.5	18.4
1989	02 13	11 33.80	+03 49.5					
1989	02 23	11 27.56	+04 32.8	2.238	3.198	163.0	5.2	18.1
1989	03 05	11 20.27	+05 21.9					
1989	03 15	11 12.64	+06 11.9	2.222	3.211	172.8	2.2	17.9
1989	03 25	11 05.46	+06 57.6					
1989	04 04	10 59.40	+07 35.0	2.322	3.223	149.5	9.1	18.3
1989	04 14	10 54.99	+08 01.3					
1989	04 24	10 52.50	+08 15.1	2.517	3.235	128.0	14.2	18.7
1989	05 04	10 52.02	+08 16.3					
1989	05 14	10 53.50	+08 05.4	2.774	3.246	108.9	17.1	19.0
1989	05 24	10 56.78	+07 43.3					
1989	06 03	11 01.65	+07 11.4	3.059	3.256	91.9	18.1	19.2
1989	06 13	11 07.93	+06 30.5					
1989	06 23	11 15.39	+05 41.8	3.348	3.265	76.6	17.6	19.4
1989	07 03	11 23.88	+04 46.5					
1989	07 13	11 33.22	+03 45.2	3.618	3.273	62.3	16.0	19.5

1970 PS a,e,i = 3.04, 0.09, 11 Elements MPC 14183

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	12 01.89	+04 34.8	2.336	3.111	134.8	13.0	17.0
1989 02 13	11 58.96	+05 33.7					
1989 02 23	11 54.17	+06 43.5	2.192	3.128	157.2	7.1	16.6
1989 03 05	11 47.95	+07 59.4					
1989 03 15	11 40.93	+09 15.0	2.155	3.144	173.1	2.2	16.4
1989 03 25	11 33.90	+10 23.8					
1989 04 04	11 27.59	+11 20.9	2.234	3.160	153.5	8.1	16.7
1989 04 14	11 22.61	+12 02.5					
1989 04 24	11 19.41	+12 27.4	2.413	3.176	132.1	13.6	17.1
1989 05 04	11 18.15	+12 35.8					
1989 05 14	11 18.86	+12 29.0	2.660	3.191	112.8	17.0	17.4
1989 05 24	11 21.45	+12 08.8					
1989 06 03	11 25.72	+11 36.9	2.942	3.205	95.6	18.4	17.7
1989 06 13	11 31.48	+10 55.1					
1989 06 23	11 38.54	+10 05.0	3.232	3.219	80.2	18.1	17.9
1989 07 03	11 46.69	+09 07.9					
1989 07 13	11 55.79	+08 05.2	3.509	3.232	66.0	16.7	18.1

1983 EX a,e,i = 3.25, 0.06, 17 Elements MPC 14189

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 46.51	+11 12.5	2.732	3.228	111.6	16.5	16.5
1989 02 13	13 48.75	+11 59.8					
1989 02 23	13 48.86	+12 56.4	2.518	3.239	129.5	13.6	16.2
1989 03 05	13 46.80	+13 58.7					
1989 03 15	13 42.65	+15 01.5	2.372	3.249	146.7	9.7	16.0
1989 03 25	13 36.75	+15 58.9					
1989 04 04	13 29.62	+16 44.9	2.322	3.260	155.8	7.2	15.9
1989 04 14	13 21.95	+17 14.0					
1989 04 24	13 14.49	+17 23.1	2.377	3.271	147.6	9.5	16.0
1989 05 04	13 07.94	+17 11.4					
1989 05 14	13 02.82	+16 39.7	2.526	3.281	131.2	13.4	16.3
1989 05 24	12 59.47	+15 50.6					
1989 06 03	12 58.02	+14 47.3	2.746	3.291	114.0	16.4	16.6
1989 06 13	12 58.46	+13 32.7					
1989 06 23	13 00.67	+12 09.6	3.007	3.301	97.8	17.8	16.8
1989 07 03	13 04.50	+10 40.3					
1989 07 13	13 09.78	+09 06.7	3.283	3.311	82.7	17.7	17.0

1985 TQ1 a,e,i = 3.17, 0.09, 9 Elements MPC 14195

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 07.01	-19 49.9	2.917	3.299	104.0	16.9	18.2
1989 03 05	15 09.55	-20 26.1					
1989 03 15	15 09.99	-20 56.0	2.635	3.284	123.0	14.7	17.9
1989 03 25	15 08.22	-21 18.8					
1989 04 04	15 04.23	-21 33.8	2.409	3.269	143.8	10.4	17.6
1989 04 14	14 58.24	-21 40.1					
1989 04 24	14 50.70	-21 37.6	2.270	3.254	165.7	4.4	17.2
1989 05 04	14 42.26	-21 27.0					
1989 05 14	14 33.74	-21 10.4	2.242	3.238	168.6	3.5	17.1
1989 05 24	14 25.96	-20 50.8					
1989 06 03	14 19.58	-20 31.8	2.324	3.222	147.0	9.9	17.4
1989 06 13	14 15.09	-20 16.7					
1989 06 23	14 12.74	-20 08.3	2.496	3.206	126.5	14.8	17.7
1989 07 03	14 12.59	-20 07.9					
1989 07 13	14 14.58	-20 16.2	2.725	3.190	108.0	17.6	18.0
1989 07 23	14 18.55	-20 33.1					
1989 08 02	14 24.33	-20 57.8	2.981	3.173	91.5	18.6	18.2

1928 RB a,e,i = 2.57, 0.25, 14 Elements MPC 14181

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 05.66	-06 53.6	2.451	2.907	107.6	18.9	18.6
1989	03 05	15 09.48	-06 07.0					
1989	03 15	15 11.09	-05 06.8	2.165	2.866	126.1	16.3	18.2
1989	03 25	15 10.31	-03 54.5					
1989	04 04	15 07.12	-02 32.4	1.938	2.822	145.8	11.5	17.8
1989	04 14	15 01.66	-01 05.1					
1989	04 24	14 54.38	+00 21.3	1.802	2.776	162.0	6.4	17.4
1989	05 04	14 45.99	+01 39.8					
1989	05 14	14 37.38	+02 43.4	1.772	2.727	156.3	8.6	17.4
1989	05 24	14 29.50	+03 27.0					
1989	06 03	14 23.14	+03 48.4	1.841	2.677	137.4	14.9	17.7
1989	06 13	14 18.86	+03 47.4					
1989	06 23	14 16.97	+03 26.1	1.984	2.625	118.5	19.9	18.0
1989	07 03	14 17.51	+02 47.4					
1989	07 13	14 20.41	+01 54.5	2.166	2.572	101.7	22.8	18.2
1989	07 23	14 25.52	+00 50.6					
1989	08 02	14 32.64	-00 21.6	2.360	2.518	86.9	23.7	18.4

1985 TZ1 a,e,i = 2.97, 0.20, 7 Elements MPC 14195

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 02.55	-21 15.2	2.555	2.962	104.6	18.9	18.0
1989	03 05	15 06.85	-21 29.3					
1989	03 15	15 08.96	-21 32.8	2.258	2.922	123.0	16.6	17.7
1989	03 25	15 08.70	-21 24.6					
1989	04 04	15 06.03	-21 03.7	2.014	2.881	143.6	11.9	17.2
1989	04 14	15 01.06	-20 29.6					
1989	04 24	14 54.27	-19 43.0	1.853	2.839	166.0	4.9	16.8
1989	05 04	14 46.35	-18 46.2					
1989	05 14	14 38.20	-17 43.6	1.798	2.798	169.8	3.7	16.6
1989	05 24	14 30.81	-16 40.7					
1989	06 03	14 24.94	-15 43.3	1.850	2.757	147.2	11.5	17.0
1989	06 13	14 21.18	-14 56.2					
1989	06 23	14 19.83	-14 22.2	1.987	2.717	126.5	17.5	17.3
1989	07 03	14 20.93	-14 02.5					
1989	07 13	14 24.40	-13 56.8	2.178	2.677	108.3	21.1	17.5
1989	07 23	14 30.07	-14 03.8					
1989	08 02	14 37.73	-14 21.5	2.393	2.639	92.4	22.6	17.8

1985 VP a,e,i = 3.23, 0.04, 15 Elements MPC 14196

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	16 33.27	-36 39.9	2.972	3.314	101.3	17.1	17.6
1989	03 25	16 36.78	-37 42.1					
1989	04 04	16 37.89	-38 41.4	2.718	3.319	118.9	15.3	17.3
1989	04 14	16 36.38	-39 36.0					
1989	04 24	16 32.25	-40 22.7	2.514	3.324	137.3	11.8	17.0
1989	05 04	16 25.66	-40 58.2					
1989	05 14	16 17.10	-41 18.8	2.390	3.329	154.2	7.6	16.8
1989	05 24	16 07.39	-41 22.3					
1989	06 03	15 57.51	-41 08.2	2.367	3.333	158.9	6.3	16.7
1989	06 13	15 48.47	-40 38.9					
1989	06 23	15 41.15	-39 58.6	2.448	3.337	145.7	9.9	16.9
1989	07 03	15 36.07	-39 12.6					
1989	07 13	15 33.54	-38 25.7	2.619	3.341	127.9	13.9	17.2
1989	07 23	15 33.58	-37 42.0					
1989	08 02	15 36.04	-37 03.8	2.852	3.344	110.5	16.5	17.5
1989	08 12	15 40.75	-36 32.4					
1989	08 22	15 47.45	-36 07.9	3.118	3.347	94.2	17.5	17.7

1975 SS a,e,i = 3.01, 0.06, 11 Elements MPC 14184

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	16 55.32	-14 44.3	2.697	3.025	99.5	18.9	17.9
1989	03 25	17 00.28	-14 08.5					
1989	04 04	17 03.12	-13 26.6	2.445	3.036	117.3	17.0	17.6
1989	04 14	17 03.67	-12 39.9					
1989	04 24	17 01.90	-11 50.1	2.237	3.047	136.6	13.1	17.3
1989	05 04	16 57.92	-10 59.2					
1989	05 14	16 52.04	-10 10.1	2.104	3.058	156.5	7.6	17.0
1989	05 24	16 44.82	-09 25.7					
1989	06 03	16 36.95	-08 49.0	2.072	3.068	166.6	4.4	16.9
1989	06 13	16 29.23	-08 22.7					
1989	06 23	16 22.45	-08 08.2	2.148	3.078	151.2	9.1	17.1
1989	07 03	16 17.17	-08 06.0					
1989	07 13	16 13.81	-08 15.4	2.317	3.088	131.7	14.2	17.5
1989	07 23	16 12.55	-08 34.9					
1989	08 02	16 13.41	-09 02.6	2.551	3.098	113.4	17.5	17.8
1989	08 12	16 16.31	-09 36.5					
1989	08 22	16 21.10	-10 14.4	2.821	3.107	96.7	18.9	18.1

1979 SO11 a,e,i = 3.15, 0.20, 1 Elements MPC 10830

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 11.52	-21 45.1	3.066	3.306	95.1	17.4	18.8
1989	03 25	17 17.03	-21 47.5					
1989	04 04	17 20.67	-21 47.3	2.749	3.269	112.8	16.4	18.5
1989	04 14	17 22.21	-21 44.8					
1989	04 24	17 21.53	-21 40.3	2.469	3.231	132.2	13.3	18.2
1989	05 04	17 18.59	-21 33.9					
1989	05 14	17 13.50	-21 25.6	2.257	3.193	153.4	8.1	17.8
1989	05 24	17 06.64	-21 15.3					
1989	06 03	16 58.57	-21 03.2	2.142	3.154	175.8	1.3	17.3
1989	06 13	16 50.07	-20 50.3					
1989	06 23	16 41.99	-20 37.8	2.137	3.115	160.8	6.2	17.5
1989	07 03	16 35.11	-20 27.4					
1989	07 13	16 30.04	-20 20.7	2.236	3.075	138.9	12.5	17.8
1989	07 23	16 27.17	-20 19.0					
1989	08 02	16 26.64	-20 22.7	2.410	3.035	119.0	17.0	18.1
1989	08 12	16 28.48	-20 31.7					
1989	08 22	16 32.55	-20 45.3	2.628	2.995	101.3	19.3	18.3

1982 BW a,e,i = 3.02, 0.06, 11 Elements MPC 13056

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 16.00	-21 45.8	2.975	3.202	94.1	18.0	17.2
1989	03 25	17 21.37	-22 09.2					
1989	04 04	17 24.75	-22 32.3	2.695	3.203	111.8	16.9	17.0
1989	04 14	17 25.93	-22 55.6					
1989	04 24	17 24.77	-23 19.4	2.449	3.204	131.3	13.6	16.7
1989	05 04	17 21.23	-23 43.2					
1989	05 14	17 15.47	-24 06.2	2.271	3.203	152.8	8.3	16.3
1989	05 24	17 07.89	-24 27.2					
1989	06 03	16 59.11	-24 45.1	2.190	3.202	175.2	1.5	15.9
1989	06 13	16 49.97	-24 59.3					
1989	06 23	16 41.34	-25 10.1	2.222	3.200	161.1	5.9	16.2
1989	07 03	16 34.01	-25 18.8					
1989	07 13	16 28.58	-25 26.8	2.358	3.198	139.3	12.0	16.5
1989	07 23	16 25.40	-25 35.9					
1989	08 02	16 24.59	-25 47.1	2.572	3.194	119.4	16.1	16.8
1989	08 12	16 26.12	-26 01.1					
1989	08 22	16 29.85	-26 17.7	2.832	3.191	101.5	18.1	17.1

1979 SQ11 a,e,i = 3.19, 0.17, 0 Elements MPC 10761

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 13.98	-22 57.5	3.233	3.455	94.4	16.7	18.0
1989	03 25	17 19.03	-23 03.3					
1989	04 04	17 22.23	-23 07.0	2.922	3.429	112.3	15.7	17.8
1989	04 14	17 23.39	-23 08.8					
1989	04 24	17 22.38	-23 08.7	2.647	3.402	131.9	12.7	17.4
1989	05 04	17 19.21	-23 06.6					
1989	05 14	17 14.00	-23 02.2	2.441	3.374	153.2	7.8	17.1
1989	05 24	17 07.13	-22 55.2					
1989	06 03	16 59.15	-22 45.4	2.333	3.346	175.9	1.3	16.6
1989	06 13	16 50.80	-22 33.5					
1989	06 23	16 42.88	-22 20.7	2.338	3.316	161.3	5.7	16.8
1989	07 03	16 36.08	-22 08.6					
1989	07 13	16 30.99	-21 58.9	2.447	3.286	139.4	11.6	17.1
1989	07 23	16 27.96	-21 53.1					
1989	08 02	16 27.13	-21 51.9	2.635	3.255	119.4	15.8	17.4
1989	08 12	16 28.53	-21 55.4					
1989	08 22	16 32.04	-22 03.4	2.869	3.224	101.4	17.9	17.6

(3841) 1983 VG7 a,e,i = 2.27, 0.16, 5 Elements MPC 13295

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 14.87	-24 14.4	2.360	2.626	94.1	22.2	18.1
1989	03 25	17 22.45	-24 39.6					
1989	04 04	17 27.77	-25 03.8	2.086	2.616	110.9	20.9	17.8
1989	04 14	17 30.46	-25 27.6					
1989	04 24	17 30.24	-25 51.2	1.842	2.604	129.9	17.2	17.4
1989	05 04	17 26.90	-26 13.9					
1989	05 14	17 20.48	-26 34.1	1.657	2.590	151.3	10.8	17.0
1989	05 24	17 11.39	-26 49.5					
1989	06 03	17 00.43	-26 57.8	1.562	2.572	173.6	2.5	16.5
1989	06 13	16 48.81	-26 58.0					
1989	06 23	16 37.89	-26 51.3	1.573	2.553	160.2	7.8	16.7
1989	07 03	16 28.84	-26 40.5					
1989	07 13	16 22.52	-26 29.3	1.682	2.531	138.0	15.6	17.1
1989	07 23	16 19.34	-26 20.9					
1989	08 02	16 19.34	-26 17.3	1.861	2.506	118.3	20.9	17.4
1989	08 12	16 22.39	-26 19.0					
1989	08 22	16 28.22	-26 25.8	2.077	2.480	101.1	23.6	17.7

1984 FS a,e,i = 2.64, 0.11, 14 Elements MPC 12965

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 13.92	-07 16.2	2.397	2.682	95.5	21.7	17.5
1989	03 25	17 20.56	-06 31.7					
1989	04 04	17 24.96	-05 42.2	2.171	2.705	111.7	20.1	17.2
1989	04 14	17 26.90	-04 50.2					
1989	04 24	17 26.26	-03 58.7	1.977	2.727	129.3	16.6	16.9
1989	05 04	17 23.05	-03 11.4					
1989	05 14	17 17.47	-02 32.4	1.844	2.749	147.3	11.4	16.6
1989	05 24	17 10.01	-02 05.9					
1989	06 03	17 01.39	-01 55.3	1.799	2.770	159.1	7.5	16.5
1989	06 13	16 52.51	-02 02.4					
1989	06 23	16 44.31	-02 27.4	1.855	2.790	151.5	10.0	16.6
1989	07 03	16 37.56	-03 08.4					
1989	07 13	16 32.83	-04 02.5	2.004	2.809	134.2	15.0	17.0
1989	07 23	16 30.41	-05 06.2					
1989	08 02	16 30.37	-06 16.0	2.223	2.827	116.6	18.7	17.3
1989	08 12	16 32.63	-07 29.1					
1989	08 22	16 37.04	-08 42.8	2.483	2.844	100.3	20.5	17.6

1988 AL a,e,i = 2.79, 0.17, 9 Elements MPC 13450

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 10.70	-13 57.2	2.247	2.549	95.9	22.8	16.7
1989	03 25	17 18.30	-13 24.3					
1989	04 04	17 23.53	-12 45.8	2.031	2.582	112.3	21.0	16.5
1989	04 14	17 26.16	-12 03.4					
1989	04 24	17 26.05	-11 19.5	1.848	2.617	130.7	17.0	16.2
1989	05 04	17 23.22	-10 36.5					
1989	05 14	17 17.88	-09 57.4	1.725	2.651	150.5	10.8	15.9
1989	05 24	17 10.59	-09 25.3					
1989	06 03	17 02.12	-09 02.9	1.691	2.687	165.9	5.3	15.7
1989	06 13	16 53.43	-08 52.6					
1989	06 23	16 45.52	-08 55.1	1.761	2.722	156.2	8.7	15.9
1989	07 03	16 39.17	-09 10.0					
1989	07 13	16 34.93	-09 36.1	1.925	2.757	137.0	14.6	16.3
1989	07 23	16 33.07	-10 11.2					
1989	08 02	16 33.61	-10 52.9	2.160	2.793	118.7	18.6	16.7
1989	08 12	16 36.46	-11 38.9					
1989	08 22	16 41.43	-12 27.1	2.437	2.827	102.0	20.5	17.1

1985 YP a,e,i = 1.73, 0.15, 16 Elements MPC 12011

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 05.40	-38 08.2	1.611	1.962	94.8	30.3	18.7
1989	03 25	17 19.31	-38 40.4					
1989	04 04	17 30.45	-39 04.4	1.377	1.946	108.8	29.1	18.3
1989	04 14	17 38.09	-39 19.6					
1989	04 24	17 41.55	-39 24.1	1.161	1.925	125.3	25.2	17.8
1989	05 04	17 40.15	-39 13.7					
1989	05 14	17 33.50	-38 41.3	0.984	1.901	144.9	17.8	17.2
1989	05 24	17 21.96	-37 37.7					
1989	06 03	17 06.87	-35 55.7	0.875	1.873	165.2	7.9	16.6
1989	06 13	16 50.61	-33 35.2					
1989	06 23	16 35.96	-30 47.5	0.857	1.842	159.1	11.4	16.6
1989	07 03	16 24.97	-27 51.8					
1989	07 13	16 18.77	-25 06.8	0.926	1.808	137.0	22.5	17.1
1989	07 23	16 17.48	-22 44.5					
1989	08 02	16 20.64	-20 48.7	1.055	1.772	117.7	30.5	17.5
1989	08 12	16 27.72	-19 18.0					
1989	08 22	16 38.07	-18 08.1	1.211	1.733	102.2	34.8	17.9

1988 BA a,e,i = 2.42, 0.03, 6 Elements MPC 12944

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 11.87	-27 03.7	2.206	2.491	94.6	23.5	17.7
1989	03 25	17 20.77	-27 41.9					
1989	04 04	17 27.34	-28 19.1	1.955	2.492	110.8	22.0	17.4
1989	04 14	17 31.19	-28 56.0					
1989	04 24	17 31.98	-29 32.3	1.733	2.493	129.1	18.2	17.0
1989	05 04	17 29.49	-30 06.8					
1989	05 14	17 23.74	-30 36.9	1.567	2.492	149.7	11.8	16.6
1989	05 24	17 15.17	-30 59.2					
1989	06 03	17 04.62	-31 10.3	1.487	2.492	169.6	4.2	16.2
1989	06 13	16 53.39	-31 08.7					
1989	06 23	16 42.91	-30 55.6	1.509	2.491	160.5	7.8	16.4
1989	07 03	16 34.42	-30 34.5					
1989	07 13	16 28.77	-30 10.4	1.627	2.489	139.5	15.4	16.8
1989	07 23	16 26.36	-29 47.5					
1989	08 02	16 27.17	-29 28.6	1.815	2.487	120.3	20.6	17.2
1989	08 12	16 31.03	-29 14.8					
1989	08 22	16 37.63	-29 06.1	2.044	2.484	103.5	23.3	17.5

1978 PO3 a,e,i = 2.44, 0.13, 1 Elements MPC 11504

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	16 58.51	-23 09.4	1.927	2.288	97.9	25.5	17.8
1989	03 25	17 09.04	-23 28.7					
1989	04 04	17 17.34	-23 43.7	1.669	2.261	113.4	24.0	17.4
1989	04 14	17 22.99	-23 55.5					
1989	04 24	17 25.61	-24 04.6	1.442	2.236	131.1	19.8	16.9
1989	05 04	17 24.92	-24 11.4					
1989	05 14	17 20.84	-24 15.1	1.271	2.212	151.5	12.6	16.4
1989	05 24	17 13.77	-24 14.8					
1989	06 03	17 04.51	-24 09.4	1.179	2.191	174.3	2.6	15.8
1989	06 13	16 54.40	-23 59.0					
1989	06 23	16 44.98	-23 45.5	1.183	2.172	161.9	8.4	16.1
1989	07 03	16 37.59	-23 32.0					
1989	07 13	16 33.21	-23 21.9	1.275	2.155	140.1	17.6	16.5
1989	07 23	16 32.28	-23 17.5					
1989	08 02	16 34.81	-23 19.5	1.431	2.142	121.4	23.9	16.9
1989	08 12	16 40.61	-23 27.3					
1989	08 22	16 49.34	-23 39.1	1.625	2.132	105.5	27.2	17.3

1981 EX43 a,e,i = 2.37, 0.14, 6 Elements MPC 13157

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 10.42	-19 27.1	2.226	2.524	95.5	23.1	19.2
1989	03 25	17 18.99	-19 08.8					
1989	04 04	17 25.39	-18 44.0	1.948	2.498	111.8	21.8	18.9
1989	04 14	17 29.28	-18 13.5					
1989	04 24	17 30.37	-17 38.4	1.700	2.471	130.1	18.1	18.4
1989	05 04	17 28.49	-16 59.7					
1989	05 14	17 23.65	-16 19.0	1.511	2.443	150.7	11.7	18.0
1989	05 24	17 16.21	-15 38.0					
1989	06 03	17 06.90	-14 59.3	1.407	2.413	170.6	3.9	17.5
1989	06 13	16 56.81	-14 25.9					
1989	06 23	16 47.23	-14 00.9	1.404	2.383	159.5	8.6	17.6
1989	07 03	16 39.27	-13 46.5					
1989	07 13	16 33.82	-13 44.0	1.495	2.352	138.2	16.7	18.0
1989	07 23	16 31.32	-13 53.2					
1989	08 02	16 31.90	-14 12.5	1.652	2.321	119.1	22.5	18.4
1989	08 12	16 35.46	-14 39.9					
1989	08 22	16 41.78	-15 12.7	1.846	2.290	102.6	25.5	18.7

1985 FU1 a,e,i = 2.34, 0.11, 4 Elements MPC 9767

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 03.87	-17 42.3	1.749	2.117	97.2	27.8	17.4
1989	03 25	17 14.80	-17 37.4					
1989	04 04	17 23.20	-17 26.7	1.539	2.131	112.4	25.7	17.1
1989	04 14	17 28.65	-17 12.1					
1989	04 24	17 30.83	-16 55.8	1.357	2.146	130.0	21.0	16.7
1989	05 04	17 29.55	-16 39.6					
1989	05 14	17 24.85	-16 25.4	1.227	2.164	150.4	13.3	16.3
1989	05 24	17 17.27	-16 15.0					
1989	06 03	17 07.74	-16 09.5	1.175	2.183	171.3	4.0	15.9
1989	06 13	16 57.62	-16 10.4					
1989	06 23	16 48.37	-16 18.6	1.218	2.204	160.8	8.7	16.2
1989	07 03	16 41.18	-16 34.6					
1989	07 13	16 36.86	-16 58.4	1.351	2.226	139.8	17.2	16.7
1989	07 23	16 35.73	-17 28.9					
1989	08 02	16 37.73	-18 04.7	1.548	2.249	121.2	22.7	17.2
1989	08 12	16 42.68	-18 43.8					
1989	08 22	16 50.24	-19 24.2	1.787	2.272	105.2	25.4	17.6

1981 VS a,e,i = 2.78, 0.29, 9 Elements MPC 11629

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 24.67	-17 16.3	3.347	3.530	92.3	16.4	19.1
1989	03 25	17 29.12	-16 53.3					
1989	04 04	17 31.77	-16 26.6	3.038	3.513	110.3	15.5	18.9
1989	04 14	17 32.44	-15 57.0					
1989	04 24	17 31.03	-15 25.2	2.762	3.493	129.8	12.8	18.6
1989	05 04	17 27.55	-14 52.1					
1989	05 14	17 22.13	-14 19.0	2.554	3.471	150.7	8.2	18.2
1989	05 24	17 15.11	-13 47.0					
1989	06 03	17 07.00	-13 17.9	2.444	3.446	169.2	3.2	17.9
1989	06 13	16 58.45	-12 53.4					
1989	06 23	16 50.21	-12 34.9	2.448	3.418	159.4	6.0	18.0
1989	07 03	16 42.94	-12 23.6					
1989	07 13	16 37.19	-12 20.1	2.559	3.388	138.5	11.5	18.3
1989	07 23	16 33.32	-12 24.5					
1989	08 02	16 31.50	-12 36.0	2.749	3.355	118.6	15.4	18.6
1989	08 12	16 31.77	-12 53.6					
1989	08 22	16 34.05	-13 16.0	2.985	3.320	100.4	17.4	18.8

1982 JE1 a,e,i = 2.26, 0.18, 5 Elements MPC 10938

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 12.96	-21 13.9	2.170	2.461	94.8	23.7	19.1
1989	03 25	17 22.04	-21 32.0					
1989	04 04	17 29.01	-21 48.2	1.883	2.427	110.8	22.7	18.8
1989	04 14	17 33.48	-22 03.9					
1989	04 24	17 35.08	-22 20.1	1.626	2.390	129.0	19.1	18.3
1989	05 04	17 33.49	-22 37.4					
1989	05 14	17 28.59	-22 55.5	1.422	2.352	149.9	12.5	17.8
1989	05 24	17 20.61	-23 13.1					
1989	06 03	17 10.22	-23 28.7	1.301	2.312	173.2	3.0	17.2
1989	06 13	16 58.60	-23 40.8					
1989	06 23	16 47.28	-23 49.5	1.281	2.271	162.4	7.8	17.3
1989	07 03	16 37.68	-23 56.2					
1989	07 13	16 30.93	-24 03.7	1.355	2.229	139.7	17.2	17.7
1989	07 23	16 27.66	-24 14.2					
1989	08 02	16 28.00	-24 29.2	1.495	2.186	120.0	23.7	18.1
1989	08 12	16 31.86	-24 48.8					
1989	08 22	16 38.94	-25 11.9	1.671	2.144	103.4	27.3	18.3

1967 DA a,e,i = 3.01, 0.28, 4 Elements MPC 13043

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 27.78	-19 06.5	3.108	3.287	91.5	17.6	18.4
1989	03 25	17 32.67	-18 59.8					
1989	04 04	17 35.57	-18 51.0	2.865	3.333	109.4	16.4	18.2
1989	04 14	17 36.33	-18 40.9					
1989	04 24	17 34.87	-18 30.1	2.653	3.378	129.1	13.4	17.9
1989	05 04	17 31.24	-18 19.1					
1989	05 14	17 25.63	-18 08.3	2.505	3.421	150.4	8.4	17.7
1989	05 24	17 18.45	-17 58.1					
1989	06 03	17 10.28	-17 49.0	2.454	3.461	171.9	2.4	17.4
1989	06 13	17 01.82	-17 41.6					
1989	06 23	16 53.81	-17 36.9	2.517	3.500	162.5	5.0	17.6
1989	07 03	16 46.88	-17 35.6					
1989	07 13	16 41.54	-17 38.3	2.689	3.537	141.0	10.4	18.0
1989	07 23	16 38.07	-17 45.5					
1989	08 02	16 36.58	-17 56.9	2.943	3.572	120.9	14.1	18.3
1989	08 12	16 37.08	-18 12.2					
1989	08 22	16 39.44	-18 30.6	3.247	3.605	102.5	15.9	18.6

1988 DM a,e,i = 2.56, 0.26, 7 Elements MPC 13053

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	16 57.45	-24 47.3	1.982	2.338	98.0	24.9	17.3
1989	03 25	17 08.44	-24 44.8					
1989	04 04	17 17.40	-24 33.9	1.692	2.282	113.3	23.7	16.9
1989	04 14	17 23.89	-24 14.7					
1989	04 24	17 27.54	-23 47.3	1.436	2.226	130.7	20.0	16.4
1989	05 04	17 28.03	-23 11.6					
1989	05 14	17 25.21	-22 27.4	1.235	2.173	150.7	13.2	15.8
1989	05 24	17 19.36	-21 35.1					
1989	06 03	17 11.14	-20 36.0	1.112	2.122	172.9	3.4	15.2
1989	06 13	17 01.76	-19 33.5					
1989	06 23	16 52.74	-18 32.7	1.083	2.075	162.6	8.4	15.3
1989	07 03	16 45.48	-17 39.3					
1989	07 13	16 41.08	-16 57.9	1.140	2.032	140.8	18.5	15.7
1989	07 23	16 40.13	-16 30.7					
1989	08 02	16 42.73	-16 17.2	1.260	1.994	122.1	25.6	16.0
1989	08 12	16 48.76	-16 15.5					
1989	08 22	16 57.91	-16 22.3	1.417	1.962	106.6	29.6	16.4

1976 DK a,e,i = 3.22, 0.06, 19 Elements MPC 13453

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 23.28	-19 52.3	3.019	3.219	92.5	18.0	17.3
1989	03 25	17 29.04	-19 11.2					
1989	04 04	17 32.83	-18 24.1	2.747	3.229	110.0	16.9	17.0
1989	04 14	17 34.49	-17 31.6					
1989	04 24	17 33.92	-16 34.6	2.509	3.240	129.2	13.9	16.7
1989	05 04	17 31.16	-15 34.0					
1989	05 14	17 26.36	-14 31.7	2.337	3.250	149.7	9.0	16.4
1989	05 24	17 19.93	-13 29.8					
1989	06 03	17 12.41	-12 30.9	2.262	3.261	167.8	3.8	16.1
1989	06 13	17 04.52	-11 37.8					
1989	06 23	16 57.02	-10 53.1	2.299	3.271	159.7	6.2	16.3
1989	07 03	16 50.55	-10 18.6					
1989	07 13	16 45.65	-09 55.2	2.440	3.280	139.6	11.6	16.6
1989	07 23	16 42.64	-09 42.5					
1989	08 02	16 41.65	-09 39.5	2.660	3.290	120.3	15.5	17.0
1989	08 12	16 42.68	-09 44.6					
1989	08 22	16 45.63	-09 55.8	2.927	3.299	102.6	17.4	17.2

1937 QC a,e,i = 2.31, 0.17, 5 Elements MPC 13049

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 28.35	-27 36.8	2.498	2.703	90.9	21.6	19.1
1989	03 25	17 36.52	-27 51.6					
1989	04 04	17 42.50	-28 04.5	2.224	2.699	107.5	20.7	18.8
1989	04 14	17 45.93	-28 15.7					
1989	04 24	17 46.54	-28 25.4	1.974	2.692	126.1	17.6	18.4
1989	05 04	17 44.12	-28 32.5					
1989	05 14	17 38.64	-28 35.4	1.778	2.682	147.0	11.9	18.0
1989	05 24	17 30.42	-28 31.9					
1989	06 03	17 20.16	-28 19.9	1.667	2.670	169.3	4.0	17.6
1989	06 13	17 08.90	-27 58.6					
1989	06 23	16 57.95	-27 29.2	1.662	2.655	164.5	5.9	17.6
1989	07 03	16 48.47	-26 55.0					
1989	07 13	16 41.38	-26 20.1	1.760	2.638	142.2	13.7	18.0
1989	07 23	16 37.18	-25 48.4					
1989	08 02	16 36.01	-25 22.4	1.936	2.618	121.9	19.2	18.4
1989	08 12	16 37.80	-25 03.0					
1989	08 22	16 42.30	-24 50.0	2.157	2.595	104.1	22.2	18.7

1981 ER5 a,e,i = 2.39, 0.27, 7 Elements MPC 13038

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 00.75	-28 38.0	1.937	2.280	96.8	25.7	18.3
1989	03 25	17 12.69	-28 56.0					
1989	04 04	17 22.65	-29 07.5	1.645	2.219	111.7	24.8	17.8
1989	04 14	17 30.16	-29 12.8					
1989	04 24	17 34.77	-29 11.4	1.382	2.157	128.5	21.4	17.3
1989	05 04	17 36.04	-29 02.4					
1989	05 14	17 33.68	-28 43.9	1.170	2.096	148.0	14.8	16.7
1989	05 24	17 27.79	-28 13.4					
1989	06 03	17 18.96	-27 28.6	1.031	2.037	170.0	5.0	16.0
1989	06 13	17 08.44	-26 29.4					
1989	06 23	16 57.99	-25 19.3	0.982	1.980	164.8	7.7	15.9
1989	07 03	16 49.32	-24 05.1					
1989	07 13	16 43.81	-22 54.8	1.019	1.927	142.5	18.7	16.3
1989	07 23	16 42.20	-21 54.6					
1989	08 02	16 44.62	-21 07.1	1.119	1.879	123.3	26.8	16.7
1989	08 12	16 50.92	-20 32.4					
1989	08 22	17 00.69	-20 08.0	1.256	1.837	107.7	31.6	17.0

1979 WE2 a,e,i = 3.20, 0.14, 2 Elements MPC 12438

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 27.88	-21 29.0	3.289	3.458	91.3	16.7	18.1
1989	03 25	17 33.52	-21 27.4					
1989	04 04	17 37.41	-21 23.7	2.979	3.436	108.9	16.0	17.8
1989	04 14	17 39.32	-21 18.5					
1989	04 24	17 39.15	-21 12.3	2.700	3.413	128.1	13.4	17.5
1989	05 04	17 36.83	-21 05.1					
1989	05 14	17 32.44	-20 57.1	2.483	3.390	149.0	8.8	17.2
1989	05 24	17 26.28	-20 48.4					
1989	06 03	17 18.81	-20 38.9	2.360	3.365	171.2	2.7	16.7
1989	06 13	17 10.69	-20 29.1					
1989	06 23	17 02.69	-20 19.8	2.347	3.340	165.4	4.4	16.8
1989	07 03	16 55.54	-20 12.1					
1989	07 13	16 49.86	-20 07.1	2.442	3.315	143.4	10.5	17.1
1989	07 23	16 46.08	-20 05.9					
1989	08 02	16 44.41	-20 08.9	2.622	3.288	123.1	15.0	17.4
1989	08 12	16 44.93	-20 16.1					
1989	08 22	16 47.58	-20 27.1	2.854	3.262	104.7	17.5	17.6

(3904) 1988 DQ a,e,i = 2.56, 0.10, 15 Elements MPC 13601

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 30.48	-38 24.3	2.615	2.795	89.8	20.8	16.7
1989	03 25	17 39.55	-39 05.5					
1989	04 04	17 46.28	-39 46.1	2.359	2.800	105.7	20.1	16.5
1989	04 14	17 50.25	-40 25.6					
1989	04 24	17 51.14	-41 02.7	2.125	2.804	123.1	17.5	16.2
1989	05 04	17 48.71	-41 34.8					
1989	05 14	17 42.92	-41 57.7	1.942	2.806	141.8	12.9	15.8
1989	05 24	17 34.15	-42 06.4					
1989	06 03	17 23.17	-41 56.2	1.839	2.807	158.4	7.6	15.5
1989	06 13	17 11.22	-41 24.4					
1989	06 23	16 59.74	-40 32.2	1.838	2.807	158.2	7.7	15.5
1989	07 03	16 49.97	-39 24.3					
1989	07 13	16 42.85	-38 07.6	1.938	2.805	141.4	13.1	15.8
1989	07 23	16 38.82	-36 48.9					
1989	08 02	16 37.92	-35 33.6	2.119	2.801	122.8	17.7	16.2
1989	08 12	16 40.00	-34 25.1					
1989	08 22	16 44.75	-33 24.5	2.352	2.796	105.5	20.4	16.5

(3824) 1929 TK a,e,i = 2.25, 0.24, 3 Elements MPC 13148

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 34.71	-26 18.0	2.590	2.766	89.5	21.1	18.1
1989	03 25	17 42.22	-26 31.4					
1989	04 04	17 47.53	-26 43.6	2.324	2.777	106.4	20.2	17.8
1989	04 14	17 50.32	-26 55.1					
1989	04 24	17 50.34	-27 05.9	2.079	2.784	125.3	17.1	17.5
1989	05 04	17 47.40	-27 15.3					
1989	05 14	17 41.52	-27 22.0	1.889	2.788	146.5	11.5	17.1
1989	05 24	17 33.02	-27 23.7					
1989	06 03	17 22.58	-27 18.7	1.785	2.788	169.4	3.9	16.7
1989	06 13	17 11.20	-27 06.0					
1989	06 23	17 00.10	-26 46.4	1.790	2.784	165.1	5.4	16.8
1989	07 03	16 50.38	-26 22.4					
1989	07 13	16 42.91	-25 57.6	1.901	2.777	142.5	12.9	17.2
1989	07 23	16 38.19	-25 35.2					
1989	08 02	16 36.36	-25 17.4	2.092	2.766	121.9	18.1	17.5
1989	08 12	16 37.36	-25 05.1					
1989	08 22	16 40.97	-24 58.4	2.330	2.752	103.8	20.9	17.8

1986 QQ2 a,e,i = 2.34, 0.09, 8 Elements MPC 13456

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 25.37	-15 03.1	2.307	2.548	92.3	23.0	18.3
1989	03 25	17 33.74	-14 45.8					
1989	04 04	17 39.98	-14 24.4	2.049	2.547	108.3	21.9	18.0
1989	04 14	17 43.75	-14 00.6					
1989	04 24	17 44.83	-13 36.3	1.817	2.545	126.4	18.6	17.7
1989	05 04	17 43.03	-13 13.3					
1989	05 14	17 38.34	-12 53.9	1.637	2.542	146.5	12.7	17.3
1989	05 24	17 31.10	-12 40.1					
1989	06 03	17 21.93	-12 33.6	1.539	2.536	166.3	5.4	16.8
1989	06 13	17 11.79	-12 36.0					
1989	06 23	17 01.86	-12 47.9	1.544	2.529	161.8	7.2	16.9
1989	07 03	16 53.23	-13 09.3					
1989	07 13	16 46.78	-13 39.5	1.647	2.521	141.2	14.7	17.3
1989	07 23	16 43.02	-14 17.2					
1989	08 02	16 42.12	-15 00.6	1.825	2.511	121.7	20.1	17.7
1989	08 12	16 44.07	-15 47.9					
1989	08 22	16 48.67	-16 37.2	2.048	2.500	104.4	23.1	18.0

(3835) 1977 SD3 a,e,i = 2.67, 0.15, 13 Elements MPC 13168

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 30.08	-10 43.8	2.874	3.063	91.3	18.9	17.8
1989	03 25	17 36.34	-10 00.4					
1989	04 04	17 40.73	-09 11.8	2.592	3.053	108.0	18.2	17.5
1989	04 14	17 43.02	-08 19.5					
1989	04 24	17 43.06	-07 25.5	2.339	3.041	125.9	15.5	17.2
1989	05 04	17 40.80	-06 32.2					
1989	05 14	17 36.31	-05 42.5	2.145	3.027	144.6	11.1	16.9
1989	05 24	17 29.87	-04 59.9					
1989	06 03	17 22.00	-04 27.5	2.039	3.011	159.7	6.7	16.6
1989	06 13	17 13.41	-04 08.3					
1989	06 23	17 04.93	-04 03.8	2.037	2.994	155.9	8.0	16.6
1989	07 03	16 57.37	-04 14.4					
1989	07 13	16 51.38	-04 38.8	2.135	2.974	138.6	13.1	16.9
1989	07 23	16 47.43	-05 14.9					
1989	08 02	16 45.73	-06 00.0	2.310	2.954	120.2	17.3	17.2
1989	08 12	16 46.34	-06 51.4					
1989	08 22	16 49.18	-07 46.5	2.532	2.931	103.1	19.6	17.4

1975 TC6 a,e,i = 2.44, 0.17, 9 Elements MPC 13305

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 26.59	-28 58.1	2.043	2.290	91.2	25.7	17.4
1989	03 25	17 37.38	-29 53.9					
1989	04 04	17 45.71	-30 50.2	1.837	2.329	106.6	24.3	17.2
1989	04 14	17 51.12	-31 48.2					
1989	04 24	17 53.26	-32 47.7	1.652	2.368	124.2	20.6	16.9
1989	05 04	17 51.80	-33 47.4					
1989	05 14	17 46.65	-34 43.7	1.516	2.407	143.8	14.3	16.5
1989	05 24	17 38.17	-35 31.3					
1989	06 03	17 27.20	-36 04.7	1.458	2.446	162.9	7.0	16.2
1989	06 13	17 15.07	-36 19.9					
1989	06 23	17 03.41	-36 16.3	1.498	2.484	161.6	7.4	16.3
1989	07 03	16 53.63	-35 57.6					
1989	07 13	16 46.75	-35 29.3	1.636	2.521	142.7	14.1	16.8
1989	07 23	16 43.23	-34 57.4					
1989	08 02	16 43.08	-34 26.2	1.848	2.557	123.9	19.2	17.2
1989	08 12	16 46.07	-33 58.3					
1989	08 22	16 51.86	-33 34.5	2.109	2.592	106.9	21.9	17.6

1985 QR a,e,i = 3.03, 0.10, 10 Elements MPC 10403

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 31.87	-12 37.9	3.157	3.323	90.8	17.4	18.7
1989	03 25	17 37.53	-12 11.3					
1989	04 04	17 41.42	-11 41.5	2.872	3.319	107.9	16.7	18.5
1989	04 14	17 43.35	-11 09.7					
1989	04 24	17 43.20	-10 37.5	2.617	3.315	126.4	14.1	18.2
1989	05 04	17 40.95	-10 06.6					
1989	05 14	17 36.67	-09 39.0	2.422	3.309	146.0	9.8	17.9
1989	05 24	17 30.67	-09 16.7					
1989	06 03	17 23.41	-09 01.4	2.317	3.302	163.4	5.0	17.6
1989	06 13	17 15.51	-08 54.9					
1989	06 23	17 07.70	-08 57.9	2.320	3.294	160.2	6.0	17.6
1989	07 03	17 00.68	-09 10.4					
1989	07 13	16 55.05	-09 32.1	2.427	3.285	141.6	11.1	17.9
1989	07 23	16 51.21	-10 01.6					
1989	08 02	16 49.38	-10 37.3	2.618	3.275	122.4	15.2	18.2
1989	08 12	16 49.64	-11 17.6					
1989	08 22	16 51.93	-12 00.8	2.861	3.264	104.5	17.5	18.5

1968 OA1 a,e,i = 2.33, 0.12, 6 Elements MPC 13038

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 24.10	-19 51.3	2.296	2.538	92.3	23.0	18.8
1989	03 25	17 33.17	-19 30.1					
1989	04 04	17 40.16	-19 02.9	2.020	2.520	108.3	22.1	18.5
1989	04 14	17 44.71	-18 30.6					
1989	04 24	17 46.54	-17 54.3	1.769	2.499	126.3	18.9	18.1
1989	05 04	17 45.45	-17 15.1					
1989	05 14	17 41.36	-16 34.3	1.570	2.477	146.5	13.0	17.6
1989	05 24	17 34.54	-15 53.7					
1989	06 03	17 25.58	-15 15.1	1.453	2.453	167.4	5.2	17.1
1989	06 13	17 15.46	-14 41.2					
1989	06 23	17 05.41	-14 14.7	1.437	2.429	163.3	6.9	17.2
1989	07 03	16 56.61	-13 57.8					
1989	07 13	16 50.04	-13 51.9	1.519	2.403	142.0	15.1	17.5
1989	07 23	16 46.28	-13 56.8					
1989	08 02	16 45.53	-14 11.6	1.674	2.376	122.3	21.2	17.9
1989	08 12	16 47.79	-14 34.2					
1989	08 22	16 52.85	-15 02.3	1.871	2.348	105.2	24.6	18.2

1986 QA3 a,e,i = 2.23, 0.13, 2 Elements MPC 12134

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 02.37	-21 20.9	1.673	2.051	97.2	28.7	17.3
1989	03 25	17 15.50	-21 36.1					
1989	04 04	17 26.52	-21 45.8	1.434	2.026	111.4	27.4	16.9
1989	04 14	17 34.93	-21 51.8					
1989	04 24	17 40.29	-21 55.8	1.221	2.002	127.8	23.4	16.4
1989	05 04	17 42.18	-21 59.1					
1989	05 14	17 40.30	-22 02.5	1.055	1.981	147.2	16.0	15.9
1989	05 24	17 34.82	-22 06.2					
1989	06 03	17 26.37	-22 09.2	0.958	1.964	169.6	5.4	15.3
1989	06 13	17 16.22	-22 11.2					
1989	06 23	17 06.15	-22 12.3	0.947	1.950	166.6	7.0	15.3
1989	07 03	16 57.82	-22 14.3					
1989	07 13	16 52.58	-22 19.3	1.020	1.939	144.4	17.8	15.8
1989	07 23	16 51.10	-22 29.0					
1989	08 02	16 53.49	-22 43.5	1.158	1.933	125.6	25.3	16.3
1989	08 12	16 59.57	-23 01.9					
1989	08 22	17 08.92	-23 22.1	1.335	1.931	110.0	29.5	16.7

(3792) Preston a,e,i = 2.29, 0.22, 24 Elements MPC 12956

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 44.95	-23 43.0	2.387	2.542	87.3	23.0	18.3
1989	03 25	17 53.01	-24 47.3					
1989	04 04	17 58.85	-25 56.6	2.150	2.580	103.9	22.1	18.1
1989	04 14	18 02.05	-27 12.6					
1989	04 24	18 02.27	-28 35.9	1.932	2.615	122.6	18.9	17.8
1989	05 04	17 59.19	-30 05.6					
1989	05 14	17 52.66	-31 38.8	1.766	2.647	143.4	13.2	17.4
1989	05 24	17 42.87	-33 10.0					
1989	06 03	17 30.47	-34 32.4	1.688	2.676	163.6	6.1	17.1
1989	06 13	17 16.61	-35 39.5					
1989	06 23	17 02.80	-36 27.8	1.719	2.702	161.4	6.9	17.2
1989	07 03	16 50.49	-36 57.7					
1989	07 13	16 40.85	-37 13.1	1.857	2.725	141.2	13.5	17.6
1989	07 23	16 34.52	-37 19.3					
1989	08 02	16 31.66	-37 21.1	2.075	2.745	121.5	18.4	18.0
1989	08 12	16 32.16	-37 22.1					
1989	08 22	16 35.72	-37 24.4	2.338	2.762	103.9	20.8	18.4

1982 UE12 a,e,i = 2.52, 0.02, 10 Elements MPC 13595

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 26.16	-33 56.4	2.354	2.571	91.0	22.8	17.4
1989	03 25	17 36.40	-34 39.0					
1989	04 04	17 44.40	-35 20.7	2.100	2.570	106.5	21.9	17.1
1989	04 14	17 49.74	-36 01.8					
1989	04 24	17 52.06	-36 41.8	1.870	2.569	123.8	19.0	16.8
1989	05 04	17 51.04	-37 18.8					
1989	05 14	17 46.56	-37 49.5	1.689	2.568	142.8	13.8	16.4
1989	05 24	17 38.91	-38 09.0					
1989	06 03	17 28.77	-38 12.7	1.585	2.566	161.0	7.4	16.0
1989	06 13	17 17.35	-37 57.1					
1989	06 23	17 06.13	-37 22.5	1.580	2.564	161.3	7.3	16.0
1989	07 03	16 56.51	-36 32.8					
1989	07 13	16 49.54	-35 34.2	1.674	2.561	143.3	13.7	16.4
1989	07 23	16 45.78	-34 33.3					
1989	08 02	16 45.32	-33 35.1	1.845	2.559	124.3	19.1	16.7
1989	08 12	16 48.02	-32 42.6					
1989	08 22	16 53.57	-31 56.7	2.067	2.555	107.2	22.2	17.1

(3780) Maury a,e,i = 2.87, 0.06, 3 Elements MPC 12938

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 26.83	-20 17.9	2.632	2.840	91.6	20.5	17.4
1989	03 25	17 34.88	-20 15.2					
1989	04 04	17 40.97	-20 09.6	2.352	2.827	108.1	19.7	17.1
1989	04 14	17 44.84	-20 02.0					
1989	04 24	17 46.27	-19 53.5	2.099	2.815	126.4	16.7	16.7
1989	05 04	17 45.13	-19 44.8					
1989	05 14	17 41.41	-19 36.5	1.901	2.802	146.8	11.4	16.3
1989	05 24	17 35.40	-19 28.8					
1989	06 03	17 27.61	-19 22.1	1.788	2.790	168.8	4.0	15.9
1989	06 13	17 18.86	-19 16.6					
1989	06 23	17 10.14	-19 13.2	1.780	2.779	166.7	4.8	15.9
1989	07 03	17 02.40	-19 12.6					
1989	07 13	16 56.47	-19 16.0	1.874	2.768	144.8	12.2	16.3
1989	07 23	16 52.87	-19 24.0					
1989	08 02	16 51.83	-19 36.6	2.049	2.757	124.8	17.6	16.7
1989	08 12	16 53.38	-19 53.4					
1989	08 22	16 57.41	-20 13.3	2.276	2.747	107.0	20.6	17.0

1988 BL a,e,i = 2.25, 0.12, 5 Elements MPC 12945

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	17 30.92	-17 31.2	2.284	2.503	90.8	23.4	17.8
1989	03 25	17 39.78	-17 19.6					
1989	04 04	17 46.49	-17 04.4	2.029	2.508	106.8	22.4	17.5
1989	04 14	17 50.71	-16 47.0					
1989	04 24	17 52.17	-16 29.1	1.796	2.510	124.8	19.2	17.1
1989	05 04	17 50.67	-16 12.1					
1989	05 14	17 46.15	-15 57.5	1.612	2.510	145.3	13.3	16.7
1989	05 24	17 38.90	-15 46.5					
1989	06 03	17 29.50	-15 40.0	1.509	2.508	166.9	5.3	16.3
1989	06 13	17 18.95	-15 39.0					
1989	06 23	17 08.46	-15 44.0	1.508	2.503	164.8	6.1	16.3
1989	07 03	16 59.20	-15 55.6					
1989	07 13	16 52.13	-16 14.0	1.608	2.497	143.1	14.1	16.7
1989	07 23	16 47.82	-16 38.6					
1989	08 02	16 46.48	-17 08.8	1.784	2.488	123.1	20.0	17.1
1989	08 12	16 48.08	-17 43.3					
1989	08 22	16 52.42	-18 20.3	2.007	2.478	105.6	23.2	17.4

1986 TK4 a,e,i = 2.35, 0.24, 7 Elements MPC 11345

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	04 04	17 48.54	-27 29.6	2.194	2.653	106.2	21.2	18.7
1989	04 14	17 53.37	-28 03.7					
1989	04 24	17 55.56	-28 40.1	1.912	2.612	124.1	18.6	18.3
1989	05 04	17 54.76	-29 18.8					
1989	05 14	17 50.73	-29 58.2	1.680	2.568	144.1	13.3	17.9
1989	05 24	17 43.55	-30 35.5					
1989	06 03	17 33.62	-31 06.6	1.527	2.522	165.3	5.8	17.3
1989	06 13	17 21.89	-31 27.5					
1989	06 23	17 09.72	-31 36.0	1.476	2.473	165.4	5.9	17.2
1989	07 03	16 58.57	-31 32.5					
1989	07 13	16 49.76	-31 20.6	1.527	2.423	143.9	14.3	17.6
1989	07 23	16 44.14	-31 04.7					
1989	08 02	16 42.06	-30 48.9	1.654	2.371	123.6	20.9	17.9
1989	08 12	16 43.56	-30 36.0					
1989	08 22	16 48.40	-30 26.9	1.825	2.318	106.0	24.8	18.1
1989	09 01	16 56.28	-30 21.3					
1989	09 11	17 06.86	-30 17.9	2.014	2.264	90.8	26.4	18.3

(3823) Yorii a,e,i = 3.08, 0.24, 5 Elements MPC 13055

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	04 04	17 53.10	-19 24.1	2.935	3.340	105.2	16.8	18.2
1989	04 14	17 54.95	-19 20.6					
1989	04 24	17 54.64	-19 17.6	2.709	3.381	124.4	14.2	18.0
1989	05 04	17 52.12	-19 15.5					
1989	05 14	17 47.51	-19 14.6	2.539	3.419	145.4	9.7	17.7
1989	05 24	17 41.11	-19 14.9					
1989	06 03	17 33.40	-19 16.2	2.459	3.456	167.5	3.6	17.4
1989	06 13	17 25.02	-19 18.5					
1989	06 23	17 16.73	-19 22.0	2.491	3.492	168.2	3.4	17.5
1989	07 03	17 09.21	-19 26.9					
1989	07 13	17 03.06	-19 34.0	2.634	3.525	146.4	9.2	17.9
1989	07 23	16 58.69	-19 43.5					
1989	08 02	16 56.29	-19 55.6	2.867	3.558	125.8	13.4	18.2
1989	08 12	16 55.92	-20 10.4					
1989	08 22	16 57.52	-20 27.3	3.159	3.588	107.0	15.6	18.5
1989	09 01	17 00.95	-20 45.8					
1989	09 11	17 06.06	-21 05.2	3.478	3.616	89.7	16.2	18.8

1969 UR a,e,i = 2.64, 0.15, 13 Elements MPC 13602

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	04 04	17 52.50	-15 29.8	2.602	3.024	105.3	18.6	17.3
1989	04 14	17 55.26	-14 40.8					
1989	04 24	17 55.71	-13 48.8	2.351	3.027	123.8	16.0	17.0
1989	05 04	17 53.76	-12 55.3					
1989	05 14	17 49.48	-12 02.2	2.155	3.029	143.7	11.4	16.7
1989	05 24	17 43.12	-11 11.6					
1989	06 03	17 35.19	-10 26.1	2.046	3.029	162.5	5.8	16.4
1989	06 13	17 26.38	-09 48.3					
1989	06 23	17 17.55	-09 20.2	2.044	3.027	162.0	5.9	16.4
1989	07 03	17 09.52	-09 03.3					
1989	07 13	17 03.00	-08 58.0	2.147	3.022	143.1	11.6	16.7
1989	07 23	16 58.48	-09 03.3					
1989	08 02	16 56.19	-09 17.8	2.334	3.016	123.6	16.3	17.0
1989	08 12	16 56.21	-09 39.7					
1989	08 22	16 58.45	-10 06.6	2.572	3.008	105.8	18.9	17.3
1989	09 01	17 02.75	-10 36.8					
1989	09 11	17 08.94	-11 08.1	2.833	2.999	89.5	19.6	17.5

(3884) 1977 EM1 a,e,i = 3.12, 0.13, 1 Elements MPC 13473

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	04 04	17 53.23	-24 36.7	2.921	3.326	105.2	16.9	18.1
1989	04 14	17 55.74	-24 41.5					
1989	04 24	17 56.04	-24 46.1	2.676	3.346	124.1	14.4	17.9
1989	05 04	17 54.05	-24 50.3					
1989	05 14	17 49.86	-24 53.6	2.487	3.365	144.9	9.9	17.6
1989	05 24	17 43.72	-24 55.1					
1989	06 03	17 36.12	-24 54.1	2.386	3.382	167.2	3.8	17.2
1989	06 13	17 27.71	-24 50.0					
1989	06 23	17 19.30	-24 42.9	2.395	3.399	169.7	3.1	17.2
1989	07 03	17 11.63	-24 33.9					
1989	07 13	17 05.37	-24 24.3	2.514	3.415	147.5	9.2	17.6
1989	07 23	17 00.97	-24 15.7					
1989	08 02	16 58.66	-24 09.2	2.724	3.430	126.9	13.7	17.9
1989	08 12	16 58.51	-24 05.5					
1989	08 22	17 00.45	-24 04.8	2.993	3.444	108.1	16.2	18.2
1989	09 01	17 04.34	-24 06.7					
1989	09 11	17 10.01	-24 10.5	3.291	3.457	90.9	16.9	18.5