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TWX 710-320-6842 ASTROGRAM CAM ** Brian G. Marsden, Director
Telephone 617-495-7244/7440/7444 ** Conrad M. Bardwell, Associate Director

ERRATA.

MPC	Line	
12933	- 5	For 0/45 read 0.45
12965	-16	Add the reference (MPC 12132)
12969	15	For 1975 QP read 1975 QD
12969	15-21	The name and citation for (2893) are to be deleted.

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N Obs.
1959 GT	1959 04	16.34255	13 55 29.65	-08 49 15.3	MPC11821		760
1985 TB2 *	1985 10	10.84350	23 46 17.46	+01 23 27.7	MPC10234	17.3	1 054
1985 TB2	1985 10	12.89732	23 44 22.45	+01 28 07.1	MPC10234		1 054
1985 TC2 *	1985 10	10.84350	23 47 44.04	+01 44 38.1	MPC10234	17.0	1 054
1985 TC2	1985 10	12.89732	23 46 24.42	+01 29 02.9	MPC10234		1 054
1985 TJ2 *	1985 10	10.84350	23 51 19.57	+00 36 18.0	MPC10234	17.2	1 054
1985 TJ2	1985 10	12.89732	23 49 07.96	+00 28 14.5	MPC10234		1 054
1986 XO *	1986 12	02.19630	03 25 01.89	+03 14 15.6	MPC11491	16.0	2 688

Note 1: time originally given as one hour earlier. 2: 1986 XO = (3793).

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 12852.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1952 JQ *	1952 05	14.13472	13 36 53.55	-09 27 13.8	1952 HD1	16.9	760
1952 JQ	1952 05	14.19303	13 36 51.85	-09 27 05.5	1952 HD1		760
1967 GL1 *	1967 04	13.80892	10 57 17.94	+00 29 23.3	1967 EL		095
1969 QW *	1969 08	21.89728	22 15 46.59	-04 18 49.5	1969 PL	17.0	095

* * * * *

INDEX TO ORBITAL ELEMENTS.

The following index to orbital elements continues that on MPC 12026-12031 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. The index does not include the set of one-opposition T-3 orbits given on MPC 12536-12560.

Comet	MPC	Comet	MPC	Comet	MPC	Comet	MPC
/1983 XII	12704	/1985 XII	12704	/1985 XIV	12704	/1986 IV	12307
/1986 IX	12704	/1986 XIII	12124	/1986 XIV	12704	/1986 XV	12124
/1986 XVI	12128	/1986 XVII	12124	/1986 XVIII	12200	/1986l	12797
/1986n	12454	/1987e	12200	/1987j	12704	/1987s	12440
/1987u	12446	/1987v	12201	/1987w	12792	/1987x	12454
/1987y	12575	/1987z	12792	/1987a1	12792	/1987b1	12787
/1987d1	12710	/1987f1	12953	/1987g1	12953	/1988a	12953
/1988b	12952	/1988c	12953	/1988d	12953		

Comet	MPC	Comet	MPC
/Clark	12128	/du Toit-Neujmin-Delporte	12135
/Gehrels 2	12124	/Honda-Mrkos-Pajdusakova	12128
/Johnson	12123	/Kearns-Kwee	12123
/Kopff	12123	/Lovas 1	12135
/Peters-Hartley	12128	/Pons-Winnecke	12123
/Russell 3	12136	/Russell 4	12136
/Sanguin	12125	/Schwassmann-Wachmann 3	12122
/Taylor	12136	/Tritton	12125
/Tuttle-Giacobini-Kresak	12135	/Wild 2	12125

Planet	MPC	Planet	MPC	Planet	MPC	Planet	MPC	Planet	MPC
(1)	12187	(3)	12686	(4)	12686	(6)	12686	(11)	12686
(12)	12187	(17)	12187	(18)	12686	(22)	12188	(25)	12188
(30)	12680	(39)	12686	(40)	12687	(42)	12188	(48)	12188
(52)	12188	(53)	12188	(56)	12189	(57)	12189	(58)	12189
(62)	12189	(65)	12302	(70)	12118	(75)	12189	(78)	12189
(89)	12190	(90)	12190	(95)	12190	(103)	12190	(104)	12190
(105)	12190	(112)	12191	(114)	12191	(121)	12191	(131)	12671
(134)	12191	(135)	12303	(139)	12303	(141)	12303	(149)	12671
(169)	12303	(175)	12303	(192)	12432	(198)	12303	(206)	12304
(209)	12304	(211)	12304	(243)	12687	(256)	12304	(261)	12671
(274)	12671	(276)	12304	(318)	12304	(354)	12680	(363)	12560
(372)	12305	(423)	12305	(426)	12305	(453)	12305	(466)	12305
(471)	12680	(475)	12671	(479)	12305	(486)	12671	(516)	12306
(566)	12306	(586)	12306	(594)	12119	(623)	12306	(632)	12432
(702)	12432	(751)	12433	(771)	12671	(801)	12119	(810)	12672
(841)	12672	(847)	12119	(849)	12672	(851)	12672	(870)	12672
(871)	12307	(872)	12433	(885)	12672	(889)	12672	(899)	12433
(923)	12680	(940)	12433	(951)	12687	(952)	12680	(953)	12681
(959)	12681	(961)	12433	(965)	12681	(971)	12681	(972)	12681
(973)	12681	(974)	12681	(981)	12681	(986)	12681	(988)	12681
(991)	12681	(995)	12681	(1006)	12681	(1026)	12936	(1042)	12681
(1049)	12681	(1052)	12672	(1067)	12682	(1074)	12682	(1098)	12682
(1106)	12682	(1108)	12682	(1112)	12682	(1114)	12672	(1118)	12682
(1122)	12672	(1124)	12672	(1136)	12672	(1138)	12672	(1152)	12434
(1157)	12672	(1163)	12672	(1171)	12673	(1176)	12673	(1195)	12673
(1200)	12434	(1205)	12673	(1209)	12673	(1223)	12673	(1232)	12673
(1246)	12673	(1249)	12673	(1251)	12673	(1262)	12434	(1267)	12673
(1272)	12673	(1274)	12673	(1279)	12673	(1285)	12673	(1289)	12674
(1290)	12674	(1304)	12682	(1329)	12682	(1330)	12682	(1332)	12434
(1350)	12200	(1406)	12119	(1425)	12119	(1449)	12119	(1492)	12120
(1496)	12120	(1500)	12120	(1507)	12306	(1516)	12435	(1522)	12120
(1523)	12120	(1536)	12120	(1609)	12121	(1614)	12121	(1625)	12121
(1645)	12682	(1675)	12121	(1681)	12121	(1682)	12435	(1685)	12191
(1713)	12121	(1748)	12682	(1784)	12682	(1786)	12682	(1798)	12682
(1800)	12683	(1808)	12683	(1813)	12683	(1814)	12683	(1818)	12683
(1847)	12683	(1849)	12683	(1864)	12191	(1866)	12192	(1874)	12683
(1880)	12683	(1905)	12683	(1915)	12192	(1916)	12192	(1917)	12192

(1927) 12683 (1940) 12683 (1941) 12683 (1942) 12683 (1943) 12192
(1944) 12683 (1980) 12192 (1981) 12194 (1984) 12684 (1988) 12684
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(3736) 12705 (3737) 12710 (3738) 12711 (3739) 12712 (3740) 12712

(3741) 12713	(3742) 12713	(3743) 12713	(3744) 12714	(3745) 12781
(3746) 12781	(3747) 12782	(3748) 12782	(3749) 12782	(3750) 12783
(3751) 12783	(3752) 12783	(3753) 12784	(3754) 12788	(3755) 12788
(3756) 12788	(3757) 12789	(3758) 12789	(3759) 12790	(3760) 12790
(3761) 12793	(3762) 12793	(3763) 12794	(3764) 12794	(3765) 12794
(3766) 12795	(3767) 12795	(3768) 12797	(3769) 12798	(3770) 12798
(3771) 12798	(3772) 12799	(3773) 12799	(3774) 12799	(3775) 12936
(3776) 12936	(3777) 12937	(3778) 12937	(3779) 12937	(3780) 12938
(3781) 12938	(3782) 12938	(3783) 12939	(3784) 12939	(3785) 12947
(3786) 12947	(3787) 12953	(3788) 12954	(3789) 12954	(3790) 12955
(3791) 12955	(3792) 12956	(3793) 12956	(3794) 12956	(3795) 12957
(3796) 12957	(3797) 12957	(3798) 12957	(3799) 12962	(3800) 12963
(3801) 12963	(3802) 12965	(3803) 12966	(3804) 12966	(3805) 12966
(3806) 12967	(3807) 12967			

Planet	MPC	Planet	MPC	Planet	MPC	Planet	MPC
1930 UT	12431	1930 UV	12187	1930 UX	12187	1931 AF1	12934
1931 RE1	12187	1931 TS1	12795	1931 TC2	12578	1933 OD	12796
1935 SP1	12442	1936 SO	12187	1938 DK1	12948	1940 RG	12442
1940 WA	12437	1949 PV	12454	1953 TC	12939	1953 TS2	12784
1953 UD	12316	1954 UN2	12940	1959 LM	12139	1961 BC	12670
1961 CX	12312	1962 RN	12204	1966 TP	12447	1967 UQ	12581
1968 HP	12450	1968 OC1	12450	1969 QR	12958	1969 TB6	12710
1970 OB	12456	1970 WC	12450	1971 OH	12323	1971 RA	12142
1971 UQ	12442	1972 GL	12948	1972 RF	12312	1972 RQ	12324
1972 YR	12324	1973 SM	12451	1973 SW	12958	1973 ST1	12940
1973 SA2	12320	1974 SF	12447	1974 SW	12695	1975 XH	12199
1976 GJ1	12199	1976 GO3	12122	1976 GP3	12695	1976 GQ6	12143
1976 QC1	12940	1976 SJ	12948	1976 SD3	12451	1976 SN3	12711
1976 UD4	12431	1976 UJ4	12431	1976 UG15	12438	1976 UH16	12784
1977 AH1	12301	1977 AL1	12447	1977 AZ1	12448	1977 AC2	12301
1977 BY	12958	1977 CD	12320	1977 CZ	12438	1977 DN4	12451
1977 DY8	12940	1977 EG7	12581	1977 KL1	12324	1977 QH4	12143
1977 RF2	12202	1977 RJ6	12567	1977 RR6	12123	1977 RY6	12568
1977 RB7	12941	1977 RD7	12568	1977 RL7	12535	1977 RO7	12568
1977 RP7	12536	1977 RR7	12569	1977 SS2	12569	1977 SD3	12569
1977 SG3	12570	1977 TO6	12536	1977 TQ6	12578	1977 TG7	12578
1977 UD	12536	1977 VL1	12536	1978 PY2	12443	1978 PW3	12948
1978 PL4	12443	1978 PT4	12949	1978 RG1	12443	1978 RE3	12452
1978 SH1	12325	1978 SP6	12131	1978 TB2	12326	1978 TP6	12325
1978 TO8	12949	1978 TQ8	12695	1978 TT8	12670	1978 TU8	12670
1978 TV8	12695	1978 UV	12949	1978 UU1	12203	1978 UL2	12670
1978 UP2	12670	1978 VK3	12958	1978 VS5	12579	1978 VD7	12696
1978 VG8	12696	1978 VH8	12576	1978 VY14	12696	1978 VE15	12670
1978 XQ	12131	1979 HG5	12205	1979 ML	12202	1979 MK1	12131
1979 MK3	12941	1979 MR3	12785	1979 MR6	12696	1979 SJ	12143
1979 SS	12312	1979 SG2	12934	1979 SU2	12934	1979 SL7	12697
1979 VS2	12785	1979 WE2	12438	1979 YO	12941	1979 YQ	12705
1980 EB	12714	1980 FH5	12126	1980 KR1	12959	1980 OG	12576
1980 PA	12964	1980 RJ	12792	1981 ET	12443	1981 EB1	12790
1981 EF2	12321	1981 EK5	12576	1981 EM8	12714	1981 EC10	12715
1981 EC11	12791	1981 EE12	12706	1981 EC13	12143	1981 EK14	12706
1981 EP20	12452	1981 ET20	12785	1981 EA26	12444	1981 EZ27	12706
1981 ES32	12313	1981 ES33	12796	1981 EO34	12444	1981 ER35	12577
1981 EB37	12785	1981 EG39	12577	1981 EX41	12796	1981 ED43	12697
1981 EW45	12715	1981 GD1	12126	1981 JE3	12122	1981 PK	12205
1981 QF	12208	1981 QH2	12122	1981 QY2	12452	1981 QA3	12323
1981 RQ	12205	1981 RD2	12444	1981 RU3	12323	1981 RD5	12313
1981 ST	12706	1981 SE2	12325	1981 SJ7	12453	1981 SF9	12707

1981 VP2	12707	1981 XM2	12301	1981 YG	12301	1981 YS1	12301
1981 YA2	12301	1982 BU	12301	1982 BW	12301	1982 BH2	12301
1982 BJ2	12301	1982 BP2	12308	1982 BQ2	12301	1982 DY1	12321
1982 DV2	12585	1982 FZ1	12131	1982 OR	12800	1982 SW3	12301
1982 TT	12445	1982 UD2	12707	1982 UQ6	12941	1982 UV10	12708
1982 UC11	12452	1982 WE	12949	1983 AC	12964	1983 AJ	12570
1983 AY	12453	1983 AF2	12570	1983 CA1	12431	1983 CD1	12431
1983 CK1	12964	1983 HJ	12959	1983 LM	12321	1983 OD	12786
1983 RM3	12964	1983 RT3	12317	1983 RC4	12203	1983 TL	12786
1983 TW1	12454	1983 VC7	12954	1983 XU	12697	1984 CP	12800
1984 DE1	12942	1984 FS	12965	1984 JP1	12579	1984 KB	12959
1984 QS	12455	1984 SX5	12579	1984 UX2	12202	1984 WM1	12205
1984 WA4	12536	1984 WB4	12536	1984 YH1	12580	1984 YU1	12536
1984 YY1	12536	1985 CG	12780	1985 CE2	12697	1985 CR2	12708
1985 FZ1	12144	1985 JG1	12950	1985 PO	12580	1985 RH	12967
1985 RE4	12200	1985 TG3	12786	1985 UA4	12301	1985 UE4	12301
1985 UK4	12302	1985 UM4	12302	1985 UO4	12302	1985 UQ4	12302
1985 UT4	12326	1985 UV4	12302	1985 UW4	12302	1985 UY4	12317
1985 UA5	12302	1985 UB5	12317	1985 UF5	12302	1985 UG5	12321
1985 VD	12302	1985 VE	12302	1985 VF	12302	1985 VG	12302
1985 VH	12302	1985 VK	12302	1985 VL	12302	1985 VN	12302
1985 VD2	12302	1985 VK2	12317	1985 WD	12302	1986 AK	12959
1986 CL1	12318	1986 ET	12116	1986 EK1	12116	1986 EE2	12116
1986 EM2	12140	1986 EN4	12132	1986 EZ4	12581	1986 EA5	12116
1986 ED5	12116	1986 EE5	12455	1986 EF5	12116	1986 EJ5	12116
1986 EL5	12116	1986 EN5	12116	1986 EP5	12116	1986 EQ5	12116
1986 ET5	12116	1986 GM	12117	1986 GU	12203	1986 GZ	12313
1986 GY1	12117	1986 JT	12439	1986 JA1	12960	1986 OA	12708
1986 PP	12187	1986 PQ	12117	1986 PY	12117	1986 PD1	12117
1986 PE1	12117	1986 PJ1	12117	1986 PL1	12117	1986 PT1	12117
1986 PU1	12117	1986 PO2	12117	1986 PS4	12117	1986 PT4	12117
1986 QK	12117	1986 QL	12132	1986 QM	12117	1986 QQ	12117
1986 QR	12117	1986 QS	12117	1986 QT	12117	1986 QU	12117
1986 QV	12117	1986 QW	12117	1986 QY	12942	1986 QZ	12117
1986 QA1	12117	1986 QB1	12133	1986 QC1	12117	1986 QD1	12117
1986 QE1	12117	1986 QF1	12117	1986 QG1	12117	1986 QH1	12117
1986 QJ1	12117	1986 QL1	12133	1986 QM1	12117	1986 QN1	12117
1986 QO1	12117	1986 QP1	12134	1986 QQ1	12117	1986 QR1	12117
1986 QS1	12117	1986 QT1	12117	1986 QU1	12117	1986 QW1	12117
1986 QX1	12960	1986 QY1	12117	1986 QZ1	12117	1986 QC2	12117
1986 QE2	12117	1986 QG2	12117	1986 QH2	12117	1986 QJ2	12117
1986 QK2	12117	1986 QL2	12117	1986 QN2	12117	1986 QO2	12117
1986 QP2	12117	1986 QQ2	12117	1986 QR2	12117	1986 QT2	12117
1986 QU2	12117	1986 QV2	12206	1986 QW2	12118	1986 QY2	12118
1986 QZ2	12134	1986 QA3	12134	1986 QB3	12206	1986 QC3	12118
1986 QD3	12118	1986 QF3	12118	1986 QG3	12118	1986 QH3	12118
1986 QK3	12118	1986 QL3	12118	1986 QN3	12127	1986 QO3	12118
1986 QP3	12118	1986 QQ3	12118	1986 QR3	12118	1986 QS3	12118
1986 QT3	12118	1986 QX3	12207	1986 QY3	12118	1986 RO2	12791
1986 RP2	12118	1986 RJ4	12118	1986 RY4	12118	1986 RA5	12118
1986 RB5	12118	1986 RC5	12118	1986 RD5	12118	1986 RE5	12118
1986 RJ5	12118	1986 RL5	12118	1986 RM5	12118	1986 RN5	12118
1986 RP5	12118	1986 RQ5	12118	1986 TM	12960	1986 TX	12942
1986 UG	12709	1986 VG	12943	1986 VV6	12584	1986 VW6	12584
1986 WA	12715	1986 WN4	12431	1986 WQ4	12431	1986 WR4	12431
1986 WC8	12431	1986 XF1	12431	1986 XH1	12431	1986 XR5	12431
1987 BB2	12207	1987 BJ2	12187	1987 CJ	12670	1987 HU	12709
1987 HZ	12187	1987 HD2	12118	1987 JG	12934	1987 KF	12961
1987 KE1	12187	1987 MC	12302	1987 MK	12322	1987 MO	12716

1987 MX	12431	1987 MA1	12187	1987 ME1	12187	1987 ML1	12118
1987 MM1	12118	1987 NO	12431	1987 OA	12204	1987 OC	12716
1987 OM	12207	1987 ON	12431	1987 OO	12431	1987 OQ	12322
1987 OR	12431	1987 OS	12187	1987 OT	12302	1987 OV	12187
1987 OY	12302	1987 PA	12204	1987 PB	12203	1987 QA	12961
1987 QB	12792	1987 QC	12448	1987 QD	12302	1987 QH	12431
1987 QM	12780	1987 QN	12670	1987 QV	12302	1987 QW	12536
1987 QX	12793	1987 QY	12431	1987 QC1	12431	1987 QD1	12431
1987 QF1	12302	1987 QG1	12431	1987 QS1	12431	1987 QT1	12431
1987 QU1	12670	1987 QV1	12780	1987 QW1	12950	1987 QZ1	12670
1987 QA2	12670	1987 QB2	12302	1987 QC2	12934	1987 QD2	12302
1987 QG2	12780	1987 QH2	12302	1987 QX2	12302	1987 QY2	12302
1987 QZ2	12302	1987 QE3	12780	1987 QO5	12780	1987 QG6	12431
1987 QY6	12780	1987 QZ6	12780	1987 QE7	12431	1987 QF7	12439
1987 QH7	12934	1987 QS7	12943	1987 QT7	12670	1987 QV7	12431
1987 QY8	12670	1987 RF	12302	1987 RG	12448	1987 RJ	12448
1987 RR	12934	1987 RC1	12934	1987 RE1	12934	1987 RF1	12934
1987 RM1	12934	1987 SB	12791	1987 SD	12780	1987 SE	12582
1987 SF	12431	1987 SG	12455	1987 SH	12431	1987 SJ	12455
1987 SK	12456	1987 SL	12787	1987 SO	12431	1987 SV	12449
1987 SY	12791	1987 SB1	12431	1987 SC1	12431	1987 SL1	12934
1987 SN1	12449	1987 SQ1	12432	1987 SS1	12787	1987 ST1	12432
1987 SW1	12560	1987 SB2	12456	1987 SH2	12670	1987 SV2	12449
1987 SB3	12432	1987 SC3	12432	1987 SD3	12432	1987 SE3	12432
1987 SF3	12709	1987 SG3	12934	1987 SH3	12934	1987 SJ3	12780
1987 SK3	12432	1987 SL3	12934	1987 SM3	12934	1987 SN3	12934
1987 SO3	12432	1987 SQ3	12536	1987 SU3	12432	1987 SW3	12449
1987 SZ3	12670	1987 SC4	12432	1987 SD4	12950	1987 SE4	12450
1987 SH4	12432	1987 SM4	12432	1987 SU4	12670	1987 SA5	12670
1987 SB5	12968	1987 SF5	12670	1987 SJ5	12670	1987 SK5	12670
1987 SL5	12670	1987 SM5	12670	1987 SO5	12670	1987 SP5	12670
1987 SA7	12934	1987 SB7	12432	1987 SD7	12432	1987 SF7	12780
1987 SH7	12780	1987 SS9	12670	1987 SY9	12670	1987 SA10	12670
1987 SB10	12670	1987 SD10	12670	1987 SK10	12670	1987 SL10	12670
1987 SM10	12670	1987 SN10	12670	1987 SO10	12670	1987 SP10	12670
1987 SQ10	12670	1987 SR10	12670	1987 ST10	12670	1987 SU10	12670
1987 SV10	12670	1987 SW10	12670	1987 SX10	12670	1987 SZ10	12670
1987 TA	12536	1987 UA	12787	1987 UG	12943	1987 UJ	12580
1987 UK	12582	1987 UL	12536	1987 UM	12432	1987 UN	12671
1987 UR	12536	1987 UW	12961	1987 UX	12536	1987 UA1	12671
1987 UB1	12780	1987 UE1	12934	1987 UF1	12944	1987 UN1	12671
1987 UQ1	12582	1987 UT1	12780	1987 UV1	12536	1987 UW1	12671
1987 UX1	12688	1987 UY1	12934	1987 UZ1	12780	1987 VA	12934
1987 VB	12671	1987 VC	12780	1987 VD	12671	1987 VF	12671
1987 VG	12671	1987 VQ	12934	1987 VR	12934	1987 VT	12934
1987 VU	12934	1987 VC1	12934	1987 WA	12961	1987 WB	12961
1987 WC	12962	1987 WF	12671	1987 WQ	12671	1987 WR	12944
1987 WS	12800	1987 WW	12801	1987 WY	12780	1987 WE1	12688
1987 WF1	12780	1987 WJ1	12780	1987 WO1	12934	1987 WT1	12780
1987 WV1	12780	1987 WS3	12934	1987 WG4	12934	1987 XC	12801
1987 XD	12934	1987 XO	12781	1987 YA	12934	1987 YB	12801
1987 YD	12781	1987 YH	12951	1987 YJ	12951	1987 YK	12934
1987 YQ	12781	1988 AC	12796	1988 AF	12934	1988 AG	12944
1988 AE1	12934	1988 AF1	12934	1988 AJ1	12934	1988 AK1	12934
1988 AL1	12934	1988 AN1	12934	1988 AO1	12934	1988 AR1	12934
1988 AS1	12934	1988 AT1	12934	1988 AU1	12934	1988 AV1	12935
1988 AW1	12935	1988 AX1	12935	1988 AA2	12935	1988 BA	12944
1988 BB	12945	1988 BC	12935	1988 BE	12951	1988 BF	12945
1988 BG	12935	1988 BH	12935	1988 BJ	12935	1988 BK	12935

1988 BL	12945	1988 BN	12935	1988 BU	12935	1988 BV	12945
1988 BY	12935	1988 BJ1	12935	1988 BW1	12935	1988 BX1	12935
1988 BY1	12935	1988 BZ1	12935	1988 BA2	12935	1988 BL2	12962
1988 BM2	12935	1988 BY2	12935	1988 BA3	12935	1988 CA	12935
1988 CC	12935	1988 CE	12951	1988 CF	12935	1988 CG	12935
1988 CH	12935	1988 CJ	12952	1988 CK	12935	1988 CL	12946
1988 CO	12952	1988 CP	12935	1988 CU	12935	1988 CV	12935
1988 CW	12935	1988 CY	12935	1988 CZ	12935	1988 CA1	12935
1988 CR3	12935	1988 CC6	12935	1988 CF6	12935	1988 DA	12946
1988 DB	12946	1988 DD	12935	1988 DE	12935	1988 DF	12935
1988 DG	12935	1988 DJ	12947	1988 DK	12935	1988 DL	12935
1988 DM	12935	1988 DN	12935	1988 DO	12935	1988 DQ	12935
1988 DR	12935	1988 DH1	12935	1988 DJ1	12935	1988 DN1	12952
1988 EA	12935	1988 EB	12935	1988 EC	12935	1988 ED	12935
1988 EE	12935	1988 EG	12962	1988 EH	12935	1988 EP	12935
2024 P-L	12585	2110 P-L	12698	2121 P-L	12570	2126 P-L	12687
2142 P-L	12582	2208 P-L	12571	2527 P-L	12689	2534 P-L	12689
2546 P-L	12689	2548 P-L	12689	2558 P-L	12690	2570 P-L	12698
2574 P-L	12571	3108 P-L	12571	3538 P-L	12690	4009 P-L	12688
4028 P-L	12797	4068 P-L	12797	4075 P-L	12688	4127 P-L	12698
4153 P-L	12585	4581 P-L	12947	4636 P-L	12699	4665 P-L	12583
4806 P-L	12699	4831 P-L	12572	5568 P-L	12583	6047 P-L	12208
6048 P-L	12699	6053 P-L	12699	6092 P-L	12144	6245 P-L	12700
6568 P-L	12583	6573 P-L	12700	6575 P-L	12583	6608 P-L	12572
6766 P-L	12700	7604 P-L	12584	7618 P-L	12584	1017 T-3	12700
1078 T-3	12701	1128 T-3	12802	1175 T-3	12701	2041 T-3	12572
2141 T-3	12573	2203 T-3	12701	2321 T-3	12573	2390 T-3	12701
2480 T-3	12574	2672 T-3	12574	3019 T-3	12801	3134 T-3	12574
3279 T-3	12803	3502 T-3	12802	4017 T-3	12702	4059 T-3	12702
4071 T-3	12702	4134 T-3	12802	4171 T-3	12703	4203 T-3	12703
4343 T-3	12703	5142 T-3	12575				

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

006 Fabra Observatory, Barcelona. 0.38-m f/11 Mailhat astrograph. Observer J. M. Codina. Measured by N. Torras.
046 Klet. Observer A. Mrkos.
083 Golosseevo-Kiev. 0.4-m f/5 telescope. Observers Yu. V. Sizonenko and S. V. Kaltygina. From Kiev Komet. Tsirk.
085 Kiev. 0.20-m astrograph. Observers V. I. Mazur and K. I. Churyumov. Reductions by T. I. Levitskaya. From Kiev Komet. Tsirk.
086 Odessa. 0.45-m f/4.4 telescope. Observers L. Ya. Skoblikova, Yu. M. Gorbanev and A. V. Ryabov. From Kiev Komet. Tsirk.
087 Helwan. 0.21-m f/3.5 camera. Observers N. S. Bakhtigaraev, B. B. Bagus, M. Ya. Tovadrus and Ya. El-Khilali. From Kiev Komet. Tsirk.
136 Engelhardt Observatory, Kasan. 0.35-m telescope. Observers M. I. Kibardina, S. S. Tokhtas'ev and S. K. Fomin. From Kiev Komet. Tsirk.
210 Alma-Ata. 0.50-m f/2.2 telescope. Observer K. I. Churyumov. Reductions by T. I. Levitskaya. From Kiev Komet. Tsirk.
293 Burlington remote site. Observer T. Handley.
323 Perth Observatory, Bickley. Observers M. P. Candy, J. Johnston and G. Lowe.
372 Geisei. Observer T. Seki.
400 Kitami. Observers K. Endate and T. Fujii. Measured by K. Watanabe.

493 Calar Alto. 0.80-m Schmidt. Observers L. Kohoutek, Haug and Maudrich. Measured by Kohoutek.
503 Cambridge. Observer J. D. Shanklin.
662 Lick Observatory. Observer G. Harland. Measured by S. Francic.
675 Palomar. Observer J. Gibson.
688 Lowell Observatory, Anderson Mesa Station. Observers S. J. Bus, C. J. Cunningham and B. A. Skiff. Measured by Skiff, Cunningham and E. Bowell.
691 University of Arizona, Kitt Peak. 0.91-m SPACEWATCH telescope, CCD in scanning mode. Observers T. Gehrels and J. V. Scotti.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao.
886 Mishima. Observer M. Akiyama. Measured by T. Furuta. From Orient. Astron. Assoc. Comet Bull.
892 YGCO Nagano and Chiyoda Stations. Observers S. Hayakawa and T. Kojima.
894 Kiyasato. Observers S. Miyasaka and Y. Yaita.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
		Periodic Comet Schwassmann-Wachmann 1					
/1974 II	1987	11 09.52986	20 13 33.58	-20 10 09.1			323
		Periodic Comet Churyumov-Gerasimenko					
/1982 VIII	1983	01 07.95300	07 09 30.92	+40 05 04.8			085
/1982 VIII	1983	01 08.85991	07 09 23.58	+40 05 27.2			085
/1982 VIII	1983	01 08.88502	07 09 22.65	+40 05 27.5			085
/1982 VIII	1983	01 13.82011	07 08 48.01	+40 01 07.9			085
/1982 VIII	1983	01 13.84917	07 08 47.76	+40 01 04.8			085
/1982 VIII	1983	01 13.87930	07 08 47.51	+40 01 00.5			085
/1982 VIII	1983	01 14.02660	07 08 45.90	+40 00 43.0			085
/1982 VIII	1983	01 14.06800	07 08 45.77	+40 00 42.2			085
/1982 VIII	1983	01 18.97382	07 08 35.93	+39 46 20.3			085
/1982 VIII	1983	01 22.84024	07 08 52.81	+39 29 24.1			085
/1982 VIII	1983	01 23.02002	07 08 53.27	+39 28 28.9			085
/1982 VIII	1983	01 23.86458	07 09 00.93	+39 24 13.3			085
/1982 VIII	1983	01 24.89329	07 09 11.10	+39 18 44.2			085
		Periodic Comet Giacobini-Zinner					
/1985 XIII	1985	09 24.08779	06 32 43.11	+06 18 18.8			087
/1985 XIII	1985	09 24.10515	06 32 45.72	+06 16 57.6			087
		Periodic Comet Halley					
/1986 III	1985	11 04.85518	05 05 41.06	+22 03 38.5			087
/1986 III	1985	11 05.83924	05 00 45.24	+22 06 53.9			087
/1986 III	1985	11 05.85521	05 00 40.63	+22 07 00.0			087
/1986 III	1985	11 05.87604	05 00 33.82	+22 07 03.4			087
/1986 III	1985	11 10.86689	04 30 19.43	+22 13 34.6			087
/1986 III	1985	11 10.87448	04 30 16.01	+22 13 33.2			087
/1986 III	1985	11 10.87882	04 30 14.17	+22 13 30.4			087
/1986 III	1985	11 10.89097	04 30 08.94	+22 13 29.3			087
/1986 III	1985	11 10.91337	04 29 59.57	+22 13 29.3			087
/1986 III	1985	11 10.92552	04 29 54.49	+22 13 29.5			087
/1986 III	1986	01 07.08351	22 01 34.72	-03 53 53.4			662
/1986 III	1986	01 07.08628	22 01 34.36	-03 53 55.7			662
/1986 III	1986	01 10.08620	21 55 40.95	-04 29 06.0			662
/1986 III	1986	01 10.08898	21 55 40.63	-04 29 07.9			662
/1986 III	1986	04 29.16754	11 01 16.74	-20 02 18.5			662

/1986 III	1986	04	29.16832	11	01	16.57	-20	02	15.4		662
/1986 III	1986	04	29.16979	11	01	16.21	-20	02	10.3		662
/1986 III	1986	05	05.21484	10	43	20.13	-15	06	01.9		662
/1986 III	1986	05	05.21832	10	43	19.66	-15	05	53.8		662
/1986 III	1986	05	05.22188	10	43	19.18	-15	05	45.1		662
/1986 III	1986	05	18.18749	10	27	12.46	-09	19	29.7		662
/1986 III	1986	05	18.19479	10	27	12.22	-09	19	22.3		662
/1986 III	1986	05	18.20174	10	27	11.95	-09	19	15.3		662
/1986 III	1986	05	30.19496	10	23	53.15	-06	48	36.0		662
/1986 III	1986	05	30.19844	10	23	53.14	-06	48	34.0		662
/1986 III	1986	05	30.20191	10	23	53.09	-06	48	33.3		662
/1986 III	1986	06	08.21076	10	24	45.40	-05	48	04.4		662
/1986 III	1986	06	09.19514	10	24	58.03	-05	43	20.2		662
/1986 III	1986	06	09.19861	10	24	58.05	-05	43	19.2		662
/1986 III	1986	06	09.20208	10	24	58.11	-05	43	18.1		662
/1986 III	1986	11	02.54792	11	37	29.46	-12	49	19.6		662
/1986 III	1986	11	05.54167	11	38	10.43	-13	03	35.5		662
/1986 III	1986	11	13.54514	11	39	32.49	-13	40	44.6		662
/1986 III	1986	12	01.54757	11	39	49.92	-14	56	27.1		662
/1986 III	1986	12	10.53681	11	38	17.59	-15	28	10.4		662
/1986 III	1987	01	08.51910	11	24	23.52	-16	24	46.9		662
/1986 III	1987	02	01.41181	11	02	50.83	-15	53	52.0		662
/1986 III	1987	02	26.39028	10	35	03.06	-13	53	31.2		662
/1986 III	1987	03	20.31806	10	12	28.84	-11	18	34.2		662
/1986 III	1987	03	25.23611	10	08	11.05	-10	41	57.1		662
/1986 III	1987	03	26.23125	10	07	21.44	-10	34	32.7		662
/1986 III	1987	03	31.22014	10	03	26.24	-09	57	51.2		662
/1986 III	1987	04	02.21875	10	01	58.58	-09	43	21.5		662
/1986 III	1987	04	17.17847	09	53	04.08	-08	01	38.6		662
/1986 III	1987	04	17.21458	09	53	03.02	-08	01	25.7		662
/1986 III	1987	04	20.19167	09	51	42.20	-07	42	59.2		662
/1986 III	1987	04	25.19097	09	49	45.04	-07	13	33.5		662
/1986 III	1987	04	26.18924	09	49	24.41	-07	07	56.2		662
/1986 III	1987	04	27.19097	09	49	04.58	-07	02	22.8		662
			Comet Shoemaker (1986 XIV)								
/1986 XIV	1988	03	14.46186	15	37	34.68	+28	17	04.2	18.8N 1	691
/1986 XIV	1988	03	14.48145	15	37	33.98	+28	17	17.5		691
/1986 XIV	1988	03	14.49404	15	37	33.55	+28	17	26.1	16.6T	691
			Periodic Comet Schwassmann-Wachmann 2								
/1986h	1988	03	12.70729	13	28	08.46	-03	30	14.8	15 T	892
/1986h	1988	03	12.74513	13	28	07.29	-03	30	04.4		892
/1986h	1988	03	17.62917	13	25	23.16	-03	05	01.9		400
/1986h	1988	03	17.64792	13	25	22.46	-03	04	57.7		400
/1986h	1988	03	17.66597	13	25	21.72	-03	04	51.1		400
			Periodic Comet Comas Sola								
/1986j	1988	03	12.73784	13	21	05.96	+09	11	19.4	16 T	892
/1986j	1988	03	12.77569	13	21	04.46	+09	11	29.5		892
/1986j	1988	04	12.32661	12	54	20.72	+10	08	49.1	19.1N 2	691
/1986j	1988	04	12.34428	12	54	19.80	+10	08	48.6	16.4T	691
			Periodic Comet Kohoutek								
/1986k	1988	03	16.06022	08	22	59.22	+11	21	59.1		801
			Comet Wilson (1986l)								
/1986l	1986	08	14.88963	22	04	50.18	+24	06	32.6		210
/1986l	1986	08	17.81735	21	59	03.62	+23	39	25.6		210

/1986l	1986	09	02.73489	21	25	31.42	+20	07	33.0			136
/1986l	1986	09	04.73533	21	21	13.04	+19	33	24.1			136
/1986l	1986	09	04.86185	21	20	56.54	+19	31	13.1			136
/1986l	1986	09	10.84722	21	08	14.68	+17	40	11.0			136
/1986l	1986	09	11.74153	21	06	23.09	+17	22	35.5			136
/1986l	1986	11	24.60660	19	50	02.95	-06	07	13.9			136
/1986l	1986	11	26.59549	19	50	00.08	-06	32	49.6			136
/1986l	1988	03	10.50821	06	56	20.14	+19	30	51.7	15	T 3	892
/1986l	1988	03	10.53171	06	56	19.21	+19	31	01.3		4	892
/1986l	1988	03	10.55642	06	56	18.15	+19	31	06.6			892
/1986l	1988	03	15.91964	06	53	21.78	+19	55	28.0			503
/1986l	1988	03	17.49028	06	52	38.07	+20	02	08.2			400
/1986l	1988	03	17.50278	06	52	37.59	+20	02	10.9			400
/1986l	1988	03	21.97549	06	50	51.34	+20	20	04.4			503
/1986l	1988	04	13.11888	06	47	45.80	+21	27	13.4	18.6N	5	691
/1986l	1988	04	13.12770	06	47	45.80	+21	27	14.8	15.7T		691
/1986l	1988	04	13.88299	06	47	48.87	+21	31	36.6	16	T	503
			Periodic Comet Grigg-Skjellerup									
/1986m	1987	05	21.86883	08	04	27.08	+08	12	05.2			493
/1986m	1987	05	28.86528	08	30	38.77	+09	19	01.6			493
/1986m	1987	06	03.86840	08	54	56.32	+10	13	17.5			493
/1986m	1987	06	04.87726	08	59	11.12	+10	22	03.2			493
/1986m	1987	06	05.87014	09	03	24.67	+10	30	33.0			493
/1986m	1987	07	20.87153	12	49	28.04	+12	29	05.9			493
/1986m	1987	08	04.85868	14	05	16.96	+10	18	54.4			493
			Comet Sorrells (1986n)									
/1986n	1987	07	21.89726	19	37	15.82	+01	45	03.7			086
/1986n	1987	07	21.91826	19	37	10.08	+01	44	36.0			086
/1986n	1987	07	30.89858	18	59	52.83	-01	43	30.1			086
			Periodic Comet Tempel 2									
/1987g	1988	03	13.45812	15	57	11.87	-03	15	29.7			691
/1987g	1988	03	13.47166	15	57	12.54	-03	15	25.8			691
/1987g	1988	03	13.48976	15	57	13.44	-03	15	21.1	18.5T		691
/1987g	1988	04	12.38873	16	12	50.82	-00	11	59.9	17.8T	6	691
/1987g	1988	04	12.39994	16	12	50.87	-00	11	55.1			691
/1987g	1988	04	12.43937	16	12	51.12	-00	11	37.1	18.3N		691
			Periodic Comet Klemola									
/1987i	1987	11	09.58819	00	26	22.35	-06	08	05.7			323
/1987i	1987	11	18.65903	00	30	57.83	-06	01	04.5			323
			Periodic Comet d’Arrest									
/1987k	1988	03	13.40135	13	29	33.56	+13	08	31.0	20.4T		691
/1987k	1988	03	13.40598	13	29	33.43	+13	08	33.8			691
/1987k	1988	03	13.41058	13	29	33.30	+13	08	36.0			691
/1987k	1988	03	13.44155	13	29	32.27	+13	08	54.3			691
/1987k	1988	03	13.44612	13	29	32.12	+13	08	56.9			691
/1987k	1988	03	13.45066	13	29	31.94	+13	08	60.0			691
			Periodic Comet Brooks 2									
/1987m	1987	11	12.57708	00	29	12.14	-02	33	00.8			323
			Periodic Comet Harrington									
/1987n	1987	11	24.59583	22	15	15.90	-21	13	03.0			323

Periodic Comet Borrelly

/1987p	1987	11	09.63472	03	11	35.27	-32	57	09.8		323
/1987p	1987	11	10.60833	03	10	01.80	-32	27	25.2		323
/1987p	1987	11	12.62222	03	06	44.47	-31	20	50.9		323
/1987p	1987	11	24.65000	02	46	57.95	-22	17	10.7		323
/1987p	1987	11	26.59167	02	44	00.85	-20	26	10.1		323
/1987p	1987	11	26.61042	02	43	59.14	-20	25	04.8		323
/1987p	1987	11	30.60208	02	38	19.31	-16	18	49.4		323
/1987p	1987	12	01.60764	02	36	59.74	-15	13	22.4		323
/1987p	1988	02	15.13194	03	45	10.12	+47	34	24.2		293
/1987p	1988	02	15.13819	03	45	11.37	+47	34	32.5		293
/1987p	1988	03	10.48836	05	06	14.11	+52	48	02.6	12 T	892
/1987p	1988	03	10.49305	05	06	15.09	+52	48	03.2		892
/1987p	1988	03	15.88677	05	26	01.98	+53	16	21.1		503
/1987p	1988	03	18.47916	05	35	38.32	+53	25	12.2		892
/1987p	1988	03	18.49305	05	35	41.24	+53	25	19.7		892
/1987p	1988	03	20.03372	05	41	24.92	+53	29	03.3		801
/1987p	1988	03	21.96362	05	48	35.43	+53	32	17.2		503
/1987p	1988	04	06.88090	06	47	00.16	+53	02	35.9		503
/1987p	1988	04	09.91213	06	57	44.83	+52	46	37.9		503

Periodic Comet Reinmuth 1

/1987r	1988	03	12.42320	04	54	37.29	+20	27	15.1	16 T	892
/1987r	1988	03	12.44521	04	54	39.30	+20	27	27.6		892
/1987r	1988	03	18.02304	05	04	53.20	+21	07	43.3		801

Comet Bradfield (1987s)

/1987s	1987	10	21.68183	16	51	15.94	-04	39	38.7		083
/1987s	1987	10	23.67359	16	57	59.26	-03	53	03.3		083
/1987s	1987	11	02.67503	17	34	07.77	+00	24	01.7		083
/1987s	1987	11	02.70031	17	34	13.69	+00	24	46.5		083
/1987s	1987	11	03.49653	17	37	17.71	+00	47	06.2		323
/1987s	1987	11	04.51042	17	41	14.96	+01	15	39.3		323
/1987s	1987	11	09.50278	18	01	32.61	+03	41	36.8		323
/1987s	1987	11	09.65592	18	02	11.55	+03	46	04.6		083
/1987s	1987	11	09.69089	18	02	20.59	+03	47	08.8		083
/1987s	1987	11	10.50347	18	05	47.24	+04	11	59.1		323
/1987s	1987	11	12.50486	18	14	28.81	+05	13	32.4		323
/1987s	1987	11	18.50972	18	42	19.19	+08	25	25.3		323
/1987s	1987	12	06.71240	20	27	22.33	+18	25	12.1		083
/1987s	1987	12	06.73652	20	27	31.96	+18	25	55.4		083
/1987s	1987	12	06.74344	20	27	34.78	+18	26	06.2		083
/1987s	1987	12	14.64836	21	23	01.97	+22	04	27.5		083
/1987s	1987	12	14.67116	21	23	11.83	+22	04	59.5		083
/1987s	1987	12	23.64065	22	28	55.61	+24	52	22.6		083
/1987s	1987	12	23.64543	22	28	57.83	+24	52	27.0		083
/1987s	1988	01	02.90347	23	39	44.74	+26	08	42.2		006
/1987s	1988	01	02.90972	23	39	47.10	+26	08	43.2		006
/1987s	1988	01	04.86597	23	52	09.71	+26	11	50.3		006
/1987s	1988	01	04.87153	23	52	11.68	+26	11	50.6		006
/1987s	1988	01	07.89236	00	10	26.41	+26	11	16.1		006
/1987s	1988	01	07.90556	00	10	31.04	+26	11	15.0		006
/1987s	1988	01	08.78403	00	15	37.91	+26	10	03.8		006
/1987s	1988	01	08.79722	00	15	42.45	+26	10	02.5		006
/1987s	1988	01	14.77292	00	48	06.08	+25	52	42.6		006
/1987s	1988	01	14.79028	00	48	11.33	+25	52	38.7		006
/1987s	1988	01	22.77569	01	25	30.11	+25	14	59.5		006
/1987s	1988	01	29.81875	01	53	36.38	+24	37	43.8		006
/1987s	1988	01	29.83264	01	53	39.31	+24	37	39.4		006

/1987s	1988	02	05.79826	02	17	53.23	+24	01	56.0	006
/1987s	1988	02	05.81215	02	17	55.88	+24	01	52.1	006
/1987s	1988	02	08.49028	02	26	28.19	+23	48	58.5	886
/1987s	1988	02	08.53507	02	26	36.53	+23	48	43.3	886
/1987s	1988	03	15.87774	03	56	07.58	+21	44	33.9	503
/1987s	1988	04	13.87159	04	49	17.27	+20	40	12.9	503

Comet Rudenko (1987u)

/1987u	1987	11	30.62639	09	24	34.71	-62	54	15.9	323
/1987u	1987	12	01.62639	09	14	29.09	-64	22	48.2	323
/1987u	1987	12	19.71319	04	19	59.56	-72	10	53.7	323

Periodic Comet Helin

/1987w	1988	02	12.10693	02	01	49.23	+07	44	23.1	19.8T	7	691
/1987w	1988	02	12.13172	02	01	51.21	+07	44	33.4		7	691
/1987w	1988	02	13.13700	02	03	05.98	+07	52	21.5	19.8T	7	691

Periodic Comet West-Kohoutek-Ikemura

/1987x	1988	04	12.35436	13	22	26.99	+39	00	41.1		691
/1987x	1988	04	12.37066	13	22	25.90	+39	00	36.4		691
/1987x	1988	04	12.37582	13	22	25.45	+39	00	34.3	21.3N	691

Periodic Comet Mueller

/1987a1	1987	12	23.16596	00	59	46.72	+12	58	55.6	17.9T	691

Comet McNaught (1987b1)

/1987b1	1987	11	03.48819	15	32	10.17	-42	28	29.3	323
/1987b1	1987	11	04.49028	15	35	44.49	-41	49	46.6	323
/1987b1	1987	11	10.49514	15	55	36.80	-37	52	23.8	323
/1987b1	1987	11	12.49653	16	01	43.68	-36	31	21.7	323
/1987b1	1988	03	15.82583	23	32	41.43	+63	10	46.0	503
/1987b1	1988	03	23.83751	00	28	39.29	+64	38	46.0	503
/1987b1	1988	03	24.83102	00	35	23.06	+64	45	08.9	503
/1987b1	1988	04	09.92394	02	12	29.13	+64	51	27.7	503

Comet Ichimura (1987d1)

/1987d1	1987	11	26.63056	03	27	16.62	-30	25	24.9	323
/1987d1	1987	11	26.63889	03	27	12.18	-30	26	50.0	323

Comet Furuyama (1987f1)

/1987f1	1987	12	19.67708	03	10	02.52	+00	42	11.9	323
/1987f1	1987	12	24.65208	02	51	33.80	-03	22	17.3	894

Comet Liller (1988a)

/1988a	1988	03	12.40873	00	26	46.95	+16	36	54.7	7	T	892
/1988a	1988	03	12.41527	00	26	47.32	+16	37	14.6			892
/1988a	1988	03	23.81951	00	38	03.96	+26	33	37.9			503
/1988a	1988	03	24.82089	00	39	11.13	+27	28	29.4			503
/1988a	1988	03	26.82435	00	41	30.94	+29	19	21.8			503
/1988a	1988	03	30.82987	00	46	35.76	+33	06	37.2			503
/1988a	1988	04	09.87417	01	03	13.47	+43	12	00.7			503
/1988a	1988	04	10.44271	01	04	24.40	+43	47	56.8			400
/1988a	1988	04	10.45104	01	04	25.51	+43	48	27.7			400
/1988a	1988	04	11.42048	01	06	31.72	+44	50	05.7			892
/1988a	1988	04	11.42743	01	06	32.71	+44	50	34.8			892
/1988a	1988	04	11.85581	01	07	30.54	+45	18	00.2			503
/1988a	1988	04	12.84648	01	09	49.73	+46	21	49.6			503
/1988a	1988	04	13.84508	01	12	18.01	+47	26	42.9			503

Comet Shoemaker (1988b)

/1988b	1988	03	06.44299	09	43	16.31	+33	12	51.4		675
/1988b	1988	03	06.44679	09	43	16.09	+33	12	50.3		675
/1988b	1988	03	06.45147	09	43	15.82	+33	12	48.9		675
/1988b	1988	03	07.32160	09	42	27.29	+33	08	35.7		675
/1988b	1988	03	07.32495	09	42	27.09	+33	08	34.8		675
/1988b	1988	03	07.32800	09	42	26.93	+33	08	34.1		675
/1988b	1988	03	07.33130	09	42	26.73	+33	08	33.1		675
/1988b	1988	03	16.16512	09	34	46.41	+32	21	52.2		801
/1988b	1988	03	17.86632	09	33	25.03	+32	12	03.1	16.3T	046
/1988b	1988	03	17.88125	09	33	24.50	+32	12	01.8		046

Comet Maury-Phinney (1988c)

/1988c	1988	04	12.14760	08	28	18.30	+61	04	29.6		691
/1988c	1988	04	12.16150	08	28	17.68	+61	04	33.7		691
/1988c	1988	04	12.18204	08	28	16.98	+61	04	39.7	21.2N 8	691
/1988c	1988	04	12.18670	08	28	16.96	+61	04	42.2		691

Periodic Comet Hartley 3

/1988d	1988	03	17.18278	09	53	09.81	-01	51	55.9		801

Comet Levy (1988e)

/1988e	1988	03	22.53541	21	36	32.62	+18	00	11.1		675
/1988e	1988	03	22.80625	21	36	54.65	+18	07	49.7	11.7T	372
/1988e	1988	03	24.49612	21	39	09.40	+18	55	19.9		688
/1988e	1988	03	24.50417	21	39	09.53	+18	55	32.2	9	688
/1988e	1988	03	27.80312	21	43	28.3	+20	28	01	12 T	892
/1988e	1988	03	27.81354	21	43	28.8	+20	28	18		892
/1988e	1988	03	30.50000	21	46	53.03	+21	43	13.1		688
/1988e	1988	04	10.77743	22	00	17.3	+26	54	19	15 T	372
/1988e	1988	04	10.78472	22	00	17.6	+26	54	31		372
/1988e	1988	04	19.33301	22	09	24.64	+30	46	21.1		801
/1988e	1988	04	19.35605	22	09	26.18	+30	46	59.0		801
/1988e	1988	04	19.46791	22	09	32.89	+30	49	59.7	A	691
/1988e	1988	04	19.48081	22	09	33.69	+30	50	20.6		691
/1988e	1988	04	19.49898	22	09	34.78	+30	50	50.1		691

Note 1: 2′.1 tail curving from p.a. 169 to 147 . 2: 6′.0 tail curving from p.a. 269 to 292 . 3: secondary nucleus 8".5 east, 5".9 south. 4: secondary nucleus 11".4 east, 6".7 south. 5: secondary nucleus at 12".2 + 0".7 in p.a. 120 + 3 ; 4′.5 tail in p.a. 122 . 6: nearly stellar; 14" tail in p.a. 284 . 7: image faint and diffuse. 8: 19" tail in p.a. 146 . 9: right ascension uncertain. A: 4′.3 tail in p.a. 359 .

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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 R. Chemin, J.-L. Heudier, C. Labeyrie, T. Laverge, C. Pollas							
0.9-m Schmidt telescope							
Observations in association with INAS							
1983 RM3	1987 12	24.07361	08 35 47.41	+24 43 40.9			010
1983 RM3	1987 12	24.09444	08 35 46.84	+24 43 41.0			010
1983 RM3	1987 12	24.10486	08 35 46.40	+24 43 40.6			010
1985 NE	1987 12	24.07361	08 33 24.32	+28 01 13.5			010
1985 NE	1987 12	24.09444	08 33 23.59	+28 01 17.9			010
1985 NE	1987 12	24.10486	08 33 23.16	+28 01 20.8			010
1987 YX1 *	1987 12	20.09097	07 53 22.28	+14 53 22.5			010
1987 YX1	1987 12	20.11181	07 53 20.93	+14 53 25.4			010
1987 YX1	1987 12	20.12407	07 53 20.80	+14 53 27.2			010
1987 YX1	1987 12	29.05903	07 46 42.82	+15 10 09.8			010
1987 YX1	1987 12	29.10069	07 46 40.26	+15 10 16.4			010
1988 AC	1987 12	20.09097	07 46 48.87	+10 59 45.3			010
1988 AC	1987 12	20.11181	07 46 48.23	+10 59 43.4			010
1988 AC	1987 12	20.12407	07 46 47.72	+10 59 41.7			010
1988 AK1	1987 12	24.07361	08 30 17.16	+25 25 14.6			010
1988 AK1	1987 12	24.09444	08 30 16.47	+25 25 17.8			010
1988 AK1	1987 12	24.10486	08 30 16.02	+25 25 19.8			010
1988 AW1	1987 12	24.07361	08 37 55.16	+24 18 04.0			010
1988 AW1	1987 12	24.09444	08 37 54.43	+24 18 05.3			010
1988 AW1	1987 12	24.10486	08 37 53.97	+24 18 05.6			010
1988 AX1	1987 12	24.07361	08 39 41.73	+24 35 55.6			010
1988 AX1	1987 12	24.09444	08 39 41.18	+24 35 52.8			010
1988 AX1	1987 12	24.10486	08 39 40.72	+24 35 50.7			010
1988 BF	1987 12	24.07361	08 47 34.24	+25 08 40.4			010
1988 BF	1987 12	24.09444	08 47 33.78	+25 08 49.4			010
1988 BF	1987 12	24.10486	08 47 33.45	+25 08 54.6			010

1988	CH	1987	12	20.14236	09	48	06.84	+07	50	45.4	010
1988	CH	1987	12	20.17361	09	48	07.61	+07	50	42.0	010
244		1987	12	29.05903	07	47	47.69	+16	03	18.4	14.5 010
244		1987	12	29.10069	07	47	45.05	+16	03	22.3	010
426		1987	12	24.07361	08	43	45.14	+27	12	26.6	12.5 010
426		1987	12	24.10486	08	43	43.94	+27	12	25.1	010
1354		1987	12	23.88125	02	49	21.53	+20	08	17.9	15.5 010
1354		1987	12	23.91250	02	49	20.88	+20	08	15.9	010
1420		1987	12	20.14236	09	39	37.37	+10	32	50.4	16 010
1420		1987	12	20.17708	09	39	37.23	+10	32	48.9	010
1501		1987	12	23.94306	04	47	33.22	+34	49	29.6	14.5 010
1501		1987	12	23.96389	04	47	32.09	+34	49	27.1	010
1501		1987	12	23.97431	04	47	31.44	+34	49	26.5	010
1601		1987	12	24.07361	08	38	21.35	+23	23	44.2	16 010
1601		1987	12	24.09444	08	38	20.71	+23	23	50.9	010
1601		1987	12	24.10486	08	38	20.37	+23	23	54.9	010
1905		1987	12	20.14236	09	54	50.60	+09	04	34.2	17 010
1905		1987	12	20.17708	09	54	50.98	+09	04	31.1	010
2032		1987	12	23.88125	02	46	14.75	+17	03	37.3	16 010
2032		1987	12	23.91250	02	46	14.42	+17	03	35.6	010
2103		1987	12	20.14236	09	40	22.91	+11	16	25.9	15 010
2103		1987	12	20.17708	09	40	22.94	+11	16	18.1	010
2143		1987	12	20.91181	04	27	32.74	+36	05	41.3	16 010
2143		1987	12	20.93264	04	27	31.50	+36	05	38.7	010
2143		1987	12	20.93958	04	27	30.85	+36	05	37.6	010
2143		1987	12	20.94653	04	27	30.56	+36	05	37.1	010
2186		1987	12	20.14236	09	51	07.44	+11	47	05.5	16 010
2186		1987	12	20.17708	09	51	07.41	+11	47	04.6	010
2252		1987	12	24.07361	08	31	47.33	+24	54	19.3	16.5 010
2252		1987	12	24.09444	08	31	46.76	+24	54	22.5	010
2252		1987	12	24.10486	08	31	46.28	+24	54	25.0	010
2265		1987	12	20.14236	09	45	02.22	+07	19	52.6	16 010
2265		1987	12	20.16319	09	45	02.81	+07	19	57.8	010
2265		1987	12	20.17361	09	45	03.10	+07	20	02.8	010
2275		1987	12	20.09097	07	48	39.04	+10	43	19.2	16.8 010
2275		1987	12	20.12407	07	48	37.55	+10	43	20.2	010
2543		1987	12	23.94306	04	51	00.11	+36	33	44.3	16 010
2543		1987	12	23.96389	04	50	58.86	+36	33	44.6	010
2543		1987	12	23.97431	04	50	58.14	+36	33	45.5	010
2576		1987	12	20.14236	09	53	23.12	+12	29	32.0	16.5 010
2584		1987	12	23.88125	02	51	21.53	+16	57	38.8	17 010
2584		1987	12	23.91250	02	51	21.12	+16	57	38.4	010
2714		1987	12	20.14236	09	51	14.30	+12	01	02.2	17 010
2798		1987	12	20.09097	07	51	08.42	+13	00	32.2	010
2798		1987	12	20.11181	07	51	07.44	+13	00	33.2	16 010
2798		1987	12	20.12407	07	51	06.94	+13	00	33.2	010
2799		1987	12	20.14236	09	51	12.59	+09	48	50.8	18.5 010
2996		1987	12	23.88125	02	40	41.66	+20	52	11.7	16 010
2996		1987	12	23.91250	02	40	41.24	+20	52	06.9	010
3078		1987	12	23.88125	02	41	34.29	+19	40	32.3	16 010
3078		1987	12	23.91250	02	41	33.73	+19	40	29.2	010
3383		1987	12	20.14236	09	54	04.00	+09	08	30.4	17 010
3383		1987	12	20.17361	09	54	04.26	+09	08	35.1	010
3506		1987	12	20.91181	04	11	22.17	+35	02	02.5	15 010
3506		1987	12	20.93264	04	11	21.23	+35	01	57.4	010
3506		1987	12	20.94306	04	11	20.64	+35	01	54.0	010
3654		1987	12	29.05903	07	46	47.71	+17	18	58.4	010
3654		1987	12	29.10069	07	46	44.90	+17	19	03.5	010

3779		1987 12 23.88125	02	57	34.70	+18	31	04.4		010
3779		1987 12 23.91250	02	57	33.89	+18	31	12.0		010

033 Tautenburg
S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg,
Democratic Republic of Germany
Observers F. Borngen, H. Meusinger, C. Hogner, F. Ludwig, K.-H. Mau
Measurer F. Borngen
1.3-m Schmidt telescope
SAOC

1973	UV5	1988 01 11.97986	10	21	07.57	+02	06	05.4		033
1973	UV5	1988 01 13.04271	10	20	59.07	+02	04	21.8		033
1973	UV5	1988 01 14.07361	10	20	48.72	+02	02	56.9		033
1973	UV5	1988 02 10.92361	10	03	49.96	+03	11	30.6		033
1973	UV5	1988 02 11.02222	10	03	44.24	+03	12	05.2		033
1973	UV5	1988 03 14.86806	09	37	22.44	+07	04	50.3		033
1973	UV5	1988 03 14.91528	09	37	21.12	+07	05	08.6		033
1981	EW13	1988 01 11.81667	05	53	15.42	+23	05	02.2	19.2	033
1981	EW13	1988 01 11.86250	05	53	12.83	+23	05	00.1		033
1981	VP2	1988 01 11.81667	05	47	21.54	+23	23	35.4	18.4	033
1981	VP2	1988 01 11.86250	05	47	19.58	+23	23	37.7		033
1983	CK1	1988 01 11.81667	05	46	50.65	+22	36	16.7	18.5	033
1983	CK1	1988 01 11.86250	05	46	48.56	+22	36	18.0		033
1985	CR2	1988 01 11.81667	05	43	42.70	+23	26	57.6	18.1	033
1985	CR2	1988 01 11.86250	05	43	40.24	+23	26	55.9		033
1986	QB3	1988 01 11.81667	05	40	19.53	+23	52	13.9	18.9	033
1986	QB3	1988 01 11.86250	05	40	17.55	+23	52	14.7		033
1987	WQ1	1988 01 11.81667	05	40	44.17	+22	57	44.3	18.4	033
1987	WQ1	1988 01 11.86250	05	40	42.25	+22	57	46.5		033
1987	WV1	1988 01 11.81667	05	43	32.91	+22	15	37.6	18.8	033
1987	WV1	1988 01 11.86250	05	43	30.75	+22	15	39.4		033
1987	YC1	1988 01 11.81667	05	41	39.38	+23	02	04.6	19.4	033
1987	YC1	1988 01 11.86250	05	41	37.34	+23	02	04.7		033
1987	YD1	1988 01 11.81667	05	43	51.21	+23	04	56.8	18.6	033
1987	YD1	1988 01 11.86250	05	43	49.15	+23	04	57.5		033
1987	YE1	1988 01 11.81667	05	42	03.72	+23	45	40.3	17.8	033
1987	YE1	1988 01 11.86250	05	42	01.75	+23	45	36.0		033
1987	YK1	1988 01 11.81667	05	49	42.03	+22	22	40.4	18.3	033
1987	YK1	1988 01 11.86250	05	49	39.52	+22	22	45.5		033
654		1988 01 11.81667	05	46	03.02	+22	34	48.9	11.1	033
654		1988 01 11.86250	05	46	00.29	+22	34	01.8		033
2525		1988 01 11.81667	05	43	06.30	+23	54	56.9	16.2	033
2525		1988 01 11.86250	05	43	04.29	+23	54	58.1		033
3313		1988 01 11.81667	05	50	47.18	+22	32	12.5	18.2	033
3313		1988 01 11.86250	05	50	44.76	+22	32	03.9		033
3383		1988 01 22.10104	09	45	24.79	+12	16	09.7	16.2	033
3789		1988 01 11.81667	05	45	47.46	+23	59	25.2	17.9	033
3789		1988 01 11.86250	05	45	45.49	+23	59	26.9		033

046 Klet
A. Mrkos, Dept. of Astronomy and Astrophysics, Charles University,
Svedska 8, C-15000 Prague 5, Czechoslovakia
Observers A. Mrkos, Z. Vavrova
0.6-m Maksutov reflector

1983	RM3	1988 01 19.81690	08	09	10.72	+24	19	33.6		046
1983	RM3	1988 01 19.83102	08	09	09.73	+24	19	31.6		046
1988	AJ1	1988 01 19.81690	07	58	14.37	+25	03	22.8		046
1988	AJ1	1988 01 19.83102	07	58	13.54	+25	03	21.6		046
1988	AL1	1988 01 19.81690	08	07	40.63	+25	04	22.4		046

1988	AL1	1988	01	19.83102	08	07	40.00	+25	04	29.2		046
412		1988	01	19.81690	07	58	35.67	+24	59	17.0		046
412		1988	01	19.83102	07	58	34.84	+24	59	23.0		046
422		1988	03	17.90706	11	50	01.12	+02	52	57.9		046
422		1988	03	17.93194	11	50	00.06	+02	53	02.3		046
799		1988	03	17.90706	11	46	26.87	+03	22	39.1		046
799		1988	03	17.93194	11	46	25.89	+03	22	47.5		046
810		1988	03	17.90706	11	55	23.71	+02	29	22.9		046
810		1988	03	17.93194	11	55	22.62	+02	29	30.3		046
962		1988	03	17.90706	11	54	26.94	+02	47	43.6		046
962		1988	03	17.93194	11	54	26.09	+02	47	51.5		046
2252		1988	01	19.81690	08	07	39.00	+26	11	21.4		046
2252		1988	01	19.83102	08	07	38.23	+26	11	23.6		046
2718		1988	03	17.90706	11	59	10.81	+01	46	22.3		046
2718		1988	03	17.93194	11	59	09.74	+01	46	32.3		046

054 Brorfelde
H. G. Fogh Olsen, Copenhagen University Observatory, Brorfelde,
DK-4340 Tollose, Denmark
Observers K. Augustesen, P. Jensen
Measurer P. Jensen
0.45-m Schmidt
Observations in part in association with INAS

1986	TK4	1988	03	13.00616	12	06	20.04	+07	17	36.8	18 V	054
1986	TK4	1988	03	13.01831	12	06	19.29	+07	17	40.9		054
1986	XF	1988	03	13.03914	12	35	02.19	-01	56	55.3		054
1986	XF	1988	03	14.98296	12	33	27.41	-01	48	06.8		054
1988	EM1 *	1988	03	13.03914	12	37	53.21	-01	40	04.9	16.0	054
1988	EM1	1988	03	14.98296	12	36	44.10	-01	17	06.8		054
1988	EM1	1988	03	18.96339	12	34	12.42	-00	29	09.6		054
1988	EM1	1988	03	18.97554	12	34	11.85	-00	29	00.2		054
113		1988	03	12.91484	09	16	06.36	+19	55	31.1		054
113		1988	03	12.93220	09	16	05.54	+19	55	35.9		054
492		1988	03	13.03914	12	36	14.14	-02	17	20.2		054
492		1988	03	14.98296	12	34	56.90	-02	09	14.3		054
721		1988	03	13.00616	12	01	38.09	+08	12	08.4		054
721		1988	03	13.01831	12	01	37.42	+08	12	11.4		054
1727		1988	03	15.03134	12	44	46.12	+31	30	40.2		054
2030		1988	03	13.03914	12	33	38.47	-02	34	48.4		054
2030		1988	03	14.98296	12	32	08.28	-02	21	15.7		054
2055		1988	03	12.91484	09	18	33.69	+20	36	10.7		054
2055		1988	03	12.93220	09	18	32.44	+20	35	57.0		054
2082		1988	03	12.91484	09	09	26.84	+20	11	46.3		054
2082		1988	03	12.93220	09	09	26.24	+20	11	48.1		054
2391		1988	03	13.03914	12	42	21.62	-02	41	22.5		054
2391		1988	03	14.98296	12	40	49.58	-02	28	26.8		054
2541		1988	03	12.91484	09	17	57.41	+20	10	49.4		054
2541		1988	03	12.93220	09	17	56.75	+20	10	51.0		054
2989		1988	03	12.91484	09	18	38.14	+21	08	40.9		054
2989		1988	03	12.93220	09	18	37.32	+21	07	43.7		054
3383		1988	03	12.91484	09	06	55.09	+19	49	05.7		054
3383		1988	03	12.93220	09	06	54.51	+19	49	12.0		054
3587		1988	03	13.00616	12	01	33.21	+07	57	29.5		054
3587		1988	03	13.01831	12	01	32.44	+07	57	32.5		054

220 Kavalur
R. Rajamohan, Indian Institute of Astrophysics, Bangalore 560034, India
0.45-m f/3 Schmidt
SAOC

1988 CA		1988 02 12.61111	08 20 30.3	+11 25 04						220
1988 CD7	*	1988 02 10.64236	07 50 52.5	+07 02 48						220
1988 CD7		1988 02 11.60000	07 50 13.6	+07 06 12						220
1988 CE7	*	1988 02 10.70903	08 03 14.7	+05 12 03						220
1988 CE7		1988 02 11.63403	08 02 04.4	+05 05 48						220
1988 DR		1988 03 14.61389	09 04 27.1	+10 18 01						220
1988 DQ1	*	1988 02 17.72500	09 18 37.5	+07 26 33					14.3	220
1988 DQ1		1988 02 17.76111	09 18 35.9	+07 26 47						220
1988 DQ1		1988 02 18.65903	09 17 56.1	+07 32 35						220
1988 DQ1		1988 03 13.67222	09 03 54.1	+10 02 36						220
1988 DQ1		1988 03 14.61389	09 03 33.4	+10 07 54						220
1988 DR1	*	1988 02 17.72500	09 19 20.6	+06 36 51					14.8	220
1988 DR1		1988 02 17.76111	09 19 18.2	+06 36 55						220
1988 DR1		1988 02 18.65903	09 18 25.8	+06 38 29						220
3786		1988 01 17.79861	06 41 57.2	+13 45 37					14.8	220

293 Burlington remote site
T. Handley, 13 Linden Avenue, Burlington, NJ 08016, U.S.A.
0.20-m f/4.0 astrograph
SAOC

1965 AK1		1988 03 12.13750	10 33 59.86	+26 22 47.5						293
3108 P-L		1988 03 12.16910	10 13 45.86	-12 24 45.1						293
3108 P-L		1988 03 12.18368	10 13 45.03	-12 24 39.2						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

1984 FC		1988 04 08.64132	13 40 43.08	-10 04 10.1					17	364
1984 FC		1988 04 08.66007	13 40 41.74	-10 04 05.5						364
117		1988 04 09.56076	12 04 07.53	-09 09 40.3					13	364
117		1988 04 09.57951	12 04 06.49	-09 09 37.8						364
205		1988 04 09.51424	11 52 20.35	-06 28 36.3					14	364
205		1988 04 09.53368	11 52 19.57	-06 28 26.1						364
1005		1988 04 09.51424	11 53 58.30	-08 33 44.6					17	364
1005		1988 04 09.53368	11 53 57.43	-08 33 43.5						364

372 Geisei
T. Seki, Kamimachi 2-9-35, Kochi, Japan
0.60-m reflector

1988 DP1		1988 03 09.61736	12 15 00.9	-03 30 46					18	372
1988 DP1		1988 03 10.61354	12 14 08.41	-03 26 58.9					16.5	372
1988 DP1		1988 03 10.62708	12 14 07.56	-03 26 54.6						372
1988 DP1		1988 03 18.63333	12 06 33.77	-02 52 29.0						372
1988 DP1		1988 03 18.71389	12 06 28.79	-02 52 06.9					16	372
1988 DP1		1988 03 18.72500	12 06 28.01	-02 52 05.0						372
1988 DP1		1988 03 22.65277	12 02 31.87	-02 32 57.6					16	372
1988 DP1		1988 03 22.66667	12 02 31.04	-02 32 53.8						372
1988 DP1		1988 04 08.57188	11 46 25.09	-01 10 52.3					17.5	372
1988 DP1		1988 04 08.58576	11 46 24.37	-01 10 48.1						372
1988 DP1		1988 04 09.60243	11 45 34.16	-01 06 21.6					18	372
1988 DP1		1988 04 09.61632	11 45 33.74	-01 06 18.0						372
1066		1988 04 08.57188	11 45 32.77	-01 03 13.2					18	372
1066		1988 04 08.58576	11 45 32.08	-01 03 07.4						372
1066		1988 04 09.60243	11 44 43.49	-00 58 50.2					18	372
1066		1988 04 09.61632	11 44 42.67	-00 58 46.7						372

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

886		1988 04 14.65451	14 01 14.18	+01 10 21.5					385
1015		1988 04 14.58507	13 57 27.56	+02 06 32.4					385
1015		1988 04 14.65451	13 57 24.67	+02 06 50.7					385

386 Yatsugatake-Kobuchizawa
O. Muramatsu, 119-1, 2-8 Sakurazutsumi, Musashino, Tokyo 180, Japan
Observers M. Inoue, O. Muramatsu, T. Urata
0.31-m reflector

1988 EP		1988 04 09.64788	11 51 05.62	+11 10 27.6			16.5	t	386
1988 EP		1988 04 09.66160	11 51 05.33	+11 10 37.4			16.5	t	386
1988 EP		1988 04 09.67644	11 51 04.93	+11 10 46.5			16.5	R	386

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

1977 EN1		1988 03 16.60877	12 16 54.43	+01 44 50.9			16		399
1977 EN1		1988 03 17.61050	12 16 10.15	+01 49 41.5			16.5		399
1977 EN1		1988 03 17.62364	12 16 09.42	+01 49 45.5					399
1977 EN1		1988 03 17.64010	12 16 08.71	+01 49 51.6					399
1977 EN1		1988 03 24.66076	12 10 49.29	+02 23 30.5			16		399
1977 EN1		1988 03 24.67205	12 10 48.68	+02 23 33.6					399
1977 EN1		1988 03 24.68721	12 10 47.87	+02 23 38.2					399
1979 OK15		1988 02 11.55955	09 19 59.9	+13 39 48			16.5		399
1979 OK15		1988 02 11.57645	09 19 58.6	+13 39 55					399
1979 OK15		1988 02 11.59549	09 19 57.71	+13 40 01.4					399
1982 DY1		1988 03 16.60877	12 16 23.96	+03 02 55.5			16.5		399
1982 DY1		1988 03 16.62112	12 16 23.28	+03 03 03.5					399
1982 DY1		1988 03 17.61050	12 15 40.39	+03 07 31.7			16.5		399
1982 DY1		1988 03 17.62364	12 15 39.65	+03 07 36.1					399
1982 DY1		1988 03 17.64010	12 15 39.14	+03 07 42.1					399
1985 JU1		1988 03 16.56667	12 03 12.81	+09 48 51.1			16.5		399
1985 JU1		1988 03 16.58083	12 03 11.92	+09 48 58.3					399
1985 JU1		1988 03 16.59931	12 03 10.58	+09 49 07.5					399
1988 DG		1988 04 08.44688	10 49 54.62	+21 16 22.0			16		399
1988 DG		1988 04 08.46395	10 49 54.32	+21 16 21.8					399
1988 DG		1988 04 08.48241	10 49 53.89	+21 16 22.0					399
1988 EF1		1988 03 16.56667	12 02 14.64	+09 49 05.7			16		399
1988 EF1		1988 03 16.58183	12 02 13.99	+09 49 08.1					399
1988 EF1		1988 03 16.59931	12 02 13.21	+09 49 11.5					399
1988 EF1		1988 04 07.52141	11 47 39.15	+10 27 55.1			15.5		399
1988 EF1		1988 04 07.54010	11 47 38.41	+10 27 55.4					399
1988 EF1		1988 04 07.56385	11 47 37.48	+10 27 57.3					399
1988 EF1		1988 04 08.63542	11 47 00.19	+10 28 32.3					399
1988 FB	*	1988 03 16.60877	12 16 46.97	+01 55 59.1			16		399
1988 FB		1988 03 16.62112	12 16 46.40	+01 56 02.4					399
1988 FB		1988 03 17.61050	12 15 51.79	+02 00 54.4			16		399
1988 FB		1988 03 17.62364	12 15 50.94	+02 00 58.0					399
1988 FB		1988 03 17.64010	12 15 50.09	+02 01 02.6					399
1988 FC	*	1988 03 16.62847	11 57 17.43	+13 32 12.2			16		399
1988 FC		1988 03 16.64896	11 57 16.54	+13 32 21.5					399
1988 FC		1988 03 16.66435	11 57 15.85	+13 32 28.2					399
1988 FC		1988 03 17.55781	11 56 36.99	+13 38 58.8			15.5		399
1988 FC		1988 03 17.57431	11 56 36.25	+13 39 05.4					399

1988	FC		1988	03	17.59456	11	56	35.25	+13	39	15.5		399
1988	FC		1988	03	21.56753	11	53	41.09	+14	06	53.2	16	399
1988	FC		1988	03	21.58281	11	53	40.35	+14	06	59.4		399
1988	FC		1988	03	21.60023	11	53	39.56	+14	07	06.2		399
1988	FC		1988	04	08.50590	11	41	45.30	+15	38	22.3	16	399
1988	FC		1988	04	08.52118	11	41	44.86	+15	38	25.0		399
1988	FC		1988	04	08.53912	11	41	44.27	+15	38	28.6		399
1988	FD	*	1988	03	16.62847	12	02	36.88	+14	39	48.0	16	399
1988	FD		1988	03	16.64896	12	02	34.83	+14	39	40.1		399
1988	FD		1988	03	16.66435	12	02	33.41	+14	39	34.4		399
1988	FD		1988	03	17.55781	12	01	10.08	+14	33	53.1	16	399
1988	FD		1988	03	17.57431	12	01	08.60	+14	33	47.3		399
1988	FD		1988	03	17.59456	12	01	06.61	+14	33	39.2		399
1988	FD		1988	03	21.56753	11	54	57.53	+14	06	12.9	16	399
1988	FD		1988	03	21.58281	11	54	56.23	+14	06	06.0		399
1988	FD		1988	03	21.60023	11	54	54.58	+14	05	58.6		399
1988	FD		1988	04	07.45131	11	32	00.57	+11	35	49.8	16.5	399
1988	FD		1988	04	07.46991	11	31	59.36	+11	35	37.7		399
1988	FD		1988	04	07.49167	11	31	57.77	+11	35	24.6		399
1988	FE	*	1988	03	16.68819	12	19	30.6	+15	03	11	16.5	399
1988	FE		1988	03	16.70440	12	19	29.5	+15	03	14		399
1988	FE		1988	03	16.72436	12	19	28.2	+15	03	17		399
1988	FE		1988	03	17.61794	12	18	34.8	+15	04	55	16	399
1988	FE		1988	03	17.63663	12	18	33.5	+15	04	56		399
1988	FE		1988	03	17.65284	12	18	32.6	+15	04	58		399
1988	FE		1988	03	21.62963	12	14	27.12	+15	09	45.9	16.5	399
1988	FE		1988	03	21.64479	12	14	26.24	+15	09	47.9		399
1988	FE		1988	03	21.66539	12	14	24.83	+15	09	48.1		399
1988	FF	*	1988	03	16.68819	12	23	13.33	+13	33	45.9	16	399
1988	FF		1988	03	16.70440	12	23	12.57	+13	33	49.7		399
1988	FF		1988	03	16.72436	12	23	11.61	+13	33	57.2		399
1988	FF		1988	03	17.61794	12	22	27.55	+13	39	17.4	16	399
1988	FF		1988	03	17.63663	12	22	26.58	+13	39	26.1		399
1988	FF		1988	03	17.65284	12	22	25.80	+13	39	31.0		399
1988	FF		1988	04	07.59207	12	04	39.49	+15	06	06.8	16	399
1988	FF		1988	04	07.60874	12	04	38.61	+15	06	08.8		399
1988	FF		1988	04	07.62720	12	04	37.60	+15	06	10.8		399
1988	FF		1988	04	08.56944	12	03	53.33	+15	07	56.1	16	399
1988	FF		1988	04	08.58808	12	03	52.59	+15	07	56.4		399
1988	FF		1988	04	08.60799	12	03	51.74	+15	07	59.1		399
1988	FG	*	1988	03	16.68819	12	30	06.27	+13	27	52.9	16	399
1988	FG		1988	03	16.70440	12	30	05.39	+13	27	56.3		399
1988	FG		1988	03	16.72436	12	30	04.39	+13	28	03.0		399
1988	FG		1988	03	17.61794	12	29	22.48	+13	32	04.8	16	399
1988	FG		1988	03	17.63663	12	29	21.49	+13	32	11.1		399
1988	FG		1988	03	17.65284	12	29	20.74	+13	32	14.6		399
1988	FG		1988	03	21.68738	12	26	07.0	+13	49	20	16.5	399
1988	FG		1988	03	21.70220	12	26	06.2	+13	49	26		399
1988	FG		1988	03	21.71927	12	26	05.4	+13	49	29		399
1988	FL	*	1988	03	17.61050	12	14	45.43	+01	53	49.8	16.5	399
1988	FL		1988	03	17.62364	12	14	44.39	+01	53	51.9		399
1988	FL		1988	03	17.64010	12	14	43.82	+01	54	00.0		399
1988	FL		1988	03	24.68721	12	09	12.31	+02	34	33.7	16	399
1988	FL		1988	03	24.71276	12	09	11.07	+02	34	38.4		399
1988	FL		1988	03	24.72503	12	09	10.38	+02	34	47.6		399
1988	GG	*	1988	04	11.58108	13	28	37.66	-04	29	39.7	16	399
1988	GG		1988	04	11.59618	13	28	36.25	-04	29	51.9		399
1988	GG		1988	04	11.61331	13	28	34.35	-04	30	06.9		399

1988	GG		1988	04	16.56944	13	20	01.27	-05	45	17.8	16	399
1988	GG		1988	04	16.58403	13	19	59.69	-05	45	32.3		399
1988	GG		1988	04	16.60289	13	19	57.84	-05	45	48.4		399
1988	GH		1988	04	16.56944	13	11	46.9	-07	20	59	16	399
1988	GH		1988	04	16.58403	13	11	46.2	-07	20	58		399
1988	GH		1988	04	16.60289	13	11	45.1	-07	20	55		399
1988	HA	*	1988	04	16.56944	13	09	32.1	-07	34	22	16	399
1988	HA		1988	04	16.58403	13	09	31.6	-07	34	18		399
1988	HA		1988	04	16.60289	13	09	30.5	-07	34	10		399
113			1988	01	24.59537	09	56	04.44	+14	42	27.4	12	399
113			1988	01	24.61060	09	56	03.83	+14	42	33.3		399
113			1988	01	25.70642	09	55	17.86	+14	50	05.8		399
113			1988	01	25.72222	09	55	17.17	+14	50	12.6		399
113			1988	01	25.74097	09	55	16.36	+14	50	20.2		399
721			1988	03	13.58666	12	01	14.15	+08	14	12.6	14.5	399
721			1988	03	13.60087	12	01	13.60	+08	14	14.6		399
721			1988	03	13.61892	12	01	12.80	+08	14	19.0		399
1028			1988	04	08.44688	10	50	08.29	+20	35	52.4	14.5	399
1028			1988	04	08.46395	10	50	07.89	+20	35	51.3		399
1028			1988	04	08.48241	10	50	07.26	+20	35	50.4		399
1463			1988	01	24.59537	09	58	02.24	+14	40	10.2	15	399
1463			1988	01	24.61060	09	58	01.48	+14	40	12.1		399
1463			1988	01	25.70642	09	57	12.63	+14	42	36.2	15	399
1463			1988	01	25.72222	09	57	11.97	+14	42	37.7		399
1463			1988	01	25.74097	09	57	11.02	+14	42	40.2		399
1831			1988	03	16.56667	12	01	53.38	+10	52	52.2	14.5	399
1831			1988	03	16.58183	12	01	52.42	+10	52	57.9		399
1831			1988	03	16.59931	12	01	51.36	+10	53	04.0		399
3587			1988	03	13.58666	12	01	02.09	+07	59	43.2	16.0	399
3587			1988	03	13.60087	12	01	01.32	+07	59	46.9		399
3587			1988	03	13.61982	12	01	00.28	+07	59	52.2		399

400 Kitami
H. Kaneda, 12-7-2, 1 Chome, Ishiyama 1 Jo, Minami-Ku,
Sapporo 005, Japan
Observers K. Endate, T. Fujii
Measurer K. Watanabe
0.20-m f/4.8 reflector

1986	RC2		1988	03	17.62917	13	27	07.47	-03	03	23.2	16	400
1986	RC2		1988	03	17.64792	13	27	06.76	-03	03	00.3		400
1988	DA		1988	03	16.51910	10	46	45.98	+10	53	17.7	16	400
1988	DA		1988	03	16.53646	10	46	44.95	+10	53	18.9		400
1988	DA		1988	03	17.53715	10	45	48.59	+10	54	56.0	16	400
1988	DA		1988	03	17.55451	10	45	47.72	+10	54	55.5		400
1988	DA		1988	03	21.55174	10	42	15.96	+10	59	41.4	16	400
1988	DA		1988	03	21.56910	10	42	14.99	+10	59	42.0		400
1988	DF		1988	03	16.51910	10	48	36.68	+10	45	42.6	16.5	400
1988	DF		1988	03	16.53646	10	48	35.61	+10	45	48.0		400
1988	DF		1988	03	17.53715	10	47	58.07	+10	51	07.3	16.5	400
1988	DF		1988	03	17.55451	10	47	57.35	+10	51	16.2		400
1988	GH	*	1988	04	08.59725	13	18	41.68	-07	34	13.1	16	400
1988	GH		1988	04	08.62363	13	18	40.52	-07	34	08.2		400
1988	HA		1988	04	08.59725	13	16	25.18	-08	21	27.5	16	400
1988	HA		1988	04	08.62363	13	16	23.62	-08	21	16.8		400
2367			1988	04	08.59725	13	14	44.64	-07	19	11.1	15	400
2367			1988	04	08.62363	13	14	43.08	-07	19	03.2		400
2367			1988	04	16.52708	13	07	13.99	-06	23	30.9	16	400
2367			1988	04	16.55417	13	07	12.87	-06	23	21.8		400

413 Siding Spring
R. H. McNaught, Siding Spring Observatory, Coonabarabran, N.S.W. 2857, Australia
Observers R. H. McNaught, M. Hartley
Measurer R. H. McNaught
Uppsala Southern Schmidt, 1.2-m U.K. Schmidt

1969	QR	1988	03	10.53479	10	00	57.74	-00	38	33.8		413
1969	QR	1988	03	10.54660	10	00	57.19	-00	38	29.5		413
1981	WM4	1988	01	28.64531	10	59	09.70	-08	47	23.9	18 R	413
1981	WM4	1988	01	28.71476	10	59	07.65	-08	47	26.0	I	413
1988	DJ	1988	03	10.53479	09	59	30.33	-01	16	42.4		413
1988	DJ	1988	03	10.54660	09	59	29.92	-01	16	38.7		413
1988	DK	1988	03	10.53479	10	00	18.47	-01	14	29.7		413
1988	DK	1988	03	10.54660	10	00	18.11	-01	14	25.5		413
1988	DL	1988	03	10.53479	09	58	31.18	-01	12	43.1	F	413
1988	DL	1988	03	10.54660	09	58	30.79	-01	12	40.3	F	413
1988	DM	1988	03	10.53479	09	59	24.80	+01	23	45.1		413
1988	DM	1988	03	10.54660	09	59	24.41	+01	23	47.7		413
1988	DN	1988	03	10.53479	10	01	02.73	+01	25	45.1		413
1988	DN	1988	03	10.54660	10	01	02.37	+01	25	48.4		413
1988	DO	1988	03	10.53479	09	59	19.99	+00	34	16.7		413
1988	DO	1988	03	10.54660	09	59	19.48	+00	34	17.7		413
1988	DP	1988	02	25.59934	10	14	26.88	-02	11	53.3	C	413
1988	DP	1988	02	25.61323	10	14	26.06	-02	11	48.2	C	413
1988	DQ	1988	03	10.53479	10	02	55.52	-00	19	07.6	15.5	413
1988	DQ	1988	03	10.54660	10	02	55.01	-00	19	06.8		413
3108	P-L	1988	03	12.50370	10	13	30.86	-12	21	50.2	16 R	413
3108	P-L	1988	03	12.57315	10	13	27.45	-12	21	15.1		413
12		1988	03	10.53479	10	03	47.06	-01	33	37.6		413
12		1988	03	10.54660	10	03	46.48	-01	33	32.8		413
65		1988	03	24.64448	12	39	44.86	-01	19	26.5		413
65		1988	03	24.64589	12	39	44.78	-01	19	26.4		413
485		1988	03	10.53479	09	58	16.75	-01	33	48.8		413
485		1988	03	10.54660	09	58	16.40	-01	33	41.8		413
509		1988	01	28.64531	11	07	44.76	-12	42	17.7		413
509		1988	01	28.71476	11	07	43.14	-12	42	18.7		413
789		1988	01	28.64531	10	57	14.14	-09	12	54.2		413
789		1988	01	28.71476	10	57	12.34	-09	12	58.4		413
879		1988	01	28.64531	10	47	42.21	-11	09	30.8		413
879		1988	01	28.71476	10	47	39.66	-11	09	42.4		413
879		1988	03	12.50370	10	10	22.99	-09	48	06.9		413
879		1988	03	12.57315	10	10	19.40	-09	47	43.2		413
1189		1988	01	28.64531	11	07	02.26	-06	59	48.3		413
1189		1988	01	28.71476	11	07	00.47	-06	59	53.5		413
1287		1988	03	10.53479	09	58	21.10	+01	18	29.3		413
1287		1988	03	10.54660	09	58	20.71	+01	18	33.2		413
3645		1988	03	10.53479	09	59	18.80	+01	16	22.5		413
3645		1988	03	10.54660	09	59	18.42	+01	16	25.2		413

503 Cambridge
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0.44-m Schmidt

46		1988	03	15.93064	10	30	47.92	+08	11	13.3		503
46		1988	03	21.99701	10	26	21.45	+08	42	14.8		503
46		1988	04	06.90700	10	18	03.14	+09	43	34.2		503

657 Victoria, Climenhaga Observatory
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Observers J. B. Tatum, D. D. Balam

168	1987 09 17.19243	20 02 31.42	-14 43 40.9				657
482	1987 08 25.37611	00 35 47.65	+04 30 02.4				657
482	1987 08 31.32535	00 33 36.24	+03 50 05.8				657
482	1987 09 21.29271	00 21 40.37	+00 56 10.1				657
483	1987 08 24.37674	23 19 22.86	+00 38 30.9				657
487	1988 02 23.40597	12 57 34.08	+08 02 44.5				657
487	1988 02 23.45528	12 57 33.02	+08 03 05.6				657
995	1987 09 14.20833	23 39 28.25	+16 15 35.8				657
1496	1987 09 14.25521	22 36 03.41	-04 33 44.3				657

675 Palomar
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Measurers J. Alu (2), S. J. Bus (6), J. Gibson (1), E. Majkowski (2), B. Roman (2), T. Rodriquez (3), 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

1971 SC		1985 01 11.10764	02 01 33.29	-03 41 27.2			1	675
1971 SC		1985 01 11.10903	02 01 33.44	-03 41 26.1			1	675
1971 SC		1985 01 11.11042	02 01 33.54	-03 41 24.9			1	675
1977 BY		1988 03 18.35503	10 24 47.23	+09 17 56.5		16	3	675
1977 BY		1988 03 21.28315	10 23 51.78	+10 27 43.6			3	675
1977 BY		1988 03 22.26736	10 23 36.35	+10 50 21.3			3	675
1977 CD		1988 03 17.51719	14 12 06.80	-03 29 13.6		16.8	3	675
1977 CD		1988 03 22.51302	14 10 25.04	-01 44 22.5			3	675
1979 MK1		1983 10 30.26910	01 49 04.81	+06 06 52.7		17.5	6	675
1979 MK1		1983 11 04.24827	01 44 26.38	+05 40 01.5			6	675
1979 MR6		1983 10 30.26910	01 55 10.69	+06 31 20.3		19.8	6	675
1979 MR6		1983 11 04.24827	01 50 25.78	+06 01 46.1			6	675
1980 TK5		1988 03 17.44462	13 47 13.99	-16 56 06.4			3	675
1980 TK5		1988 03 20.44497	13 45 49.84	-16 43 34.7			3	675
1981 EY17		1983 10 30.32604	02 23 16.93	+10 54 17.4		17.0	6	675
1981 EY17		1983 11 04.30521	02 18 48.88	+10 26 31.3			6	675
1981 EB27		1983 10 30.32604	02 29 35.25	+09 37 25.6		19.5	6	675
1981 EB27		1983 11 04.30521	02 25 02.97	+09 11 03.8			6	675
1981 EF35		1983 10 30.32604	02 31 04.33	+09 53 00.9		19.2	6	675
1981 EF35		1983 11 04.30521	02 26 31.31	+09 25 07.9			6	675
1981 EJ35		1983 10 30.32604	02 14 34.57	+06 36 41.9		19.5	6	675
1981 EJ35		1983 11 04.30521	02 09 51.25	+06 03 14.2			6	675
1981 EM40		1983 10 30.26910	01 54 31.92	+06 12 59.1		19.2	6	675
1981 EM40		1983 11 04.24827	01 50 25.88	+05 52 09.2			6	675
1981 EP42		1983 10 30.26910	01 43 02.35	+08 35 42.3		18.2	6	675
1982 FZ1		1987 11 22.42986	04 33 32.33	+15 58 28.5			3	675
1982 FZ1		1987 11 23.39774	04 32 30.57	+15 54 49.2			3	675
1983 UJ	*	1983 10 30.26910	01 50 57.29	+08 14 06.9		17.2	6	675

1983	UJ		1983	11	04.24827	01	46	16.18	+07	51	24.2		6 675
1983	UK	*	1983	10	30.26910	01	54	09.39	+04	39	13.1	16.5	6 675
1983	UK		1983	11	04.24827	01	49	57.27	+04	01	36.2		6 675
1983	UL	*	1983	10	30.26910	01	54	20.33	+08	30	49.6	18.0	6 675
1983	UL		1983	11	04.24827	01	50	47.63	+08	11	55.2		6 675
1983	UM	*	1983	10	30.26910	01	54	21.89	+08	31	26.0	17.0	6 675
1983	UM		1983	11	04.24827	01	50	17.97	+08	11	54.9		6 675
1983	UN	*	1983	10	30.26910	01	54	29.23	+05	31	45.9	16.8	6 675
1983	UN		1983	11	04.24827	01	50	46.53	+04	44	55.9		6 675
1983	UO	*	1983	10	30.26910	01	54	51.90	+05	00	44.3	16.5	6 675
1983	UO		1983	11	04.24827	01	51	18.32	+04	25	53.1		6 675
1983	UP	*	1983	10	30.26910	01	54	55.75	+07	51	42.9	17.5	6 675
1983	UP		1983	11	04.24827	01	51	30.86	+07	07	25.3		6 675
1983	UQ	*	1983	10	30.26910	01	56	33.38	+05	52	22.6	17.5	6 675
1983	UQ		1983	11	04.24827	01	52	37.43	+04	51	10.7		6 675
1983	UR	*	1983	10	30.26910	02	00	37.29	+07	44	57.0	17.2	6 675
1983	UR		1983	11	04.24827	01	56	08.70	+07	21	35.6		6 675
1983	US	*	1983	10	30.26910	02	03	58.37	+05	54	54.3	16.5	6 675
1983	US		1983	11	04.24827	01	59	32.93	+06	20	29.5		6 675
1983	UT	*	1983	10	30.26910	02	04	15.58	+06	39	31.5	16.0	6 675
1983	UT		1983	11	04.24827	02	00	53.99	+06	01	28.1		6 675
1983	UU	*	1983	10	30.26910	02	05	25.67	+07	55	19.7	17.5	6 675
1983	UU		1983	11	04.24827	02	01	20.67	+07	34	11.5		6 675
1983	UV	*	1983	10	30.26910	02	06	31.08	+06	55	20.8	16.8	6 675
1983	UV		1983	10	30.32604	02	06	28.01	+06	54	55.2	16.2	6 675
1983	UV		1983	11	04.24827	02	02	31.21	+06	21	23.8		6 675
1983	UW	*	1983	10	30.30000	02	23	16.27	+11	04	12.2	17.5	6 675
1983	UW		1983	10	30.35208	02	23	10.73	+11	04	51.7		6 675
1983	UX	*	1983	10	30.32604	02	06	38.90	+05	15	37.5	15.0	6 675
1983	UX		1983	11	04.25827	02	02	16.85	+05	03	15.6	14.8	6 675
1983	UY	*	1983	10	30.32604	02	10	16.88	+06	51	27.5	16.5	6 675
1983	UY		1983	11	04.25827	02	05	07.20	+06	58	04.8	17.2	6 675
1983	UZ	*	1983	10	30.32604	02	11	34.07	+05	25	07.9	16.5	6 675
1983	UZ		1983	11	04.30521	02	06	59.68	+04	57	47.2		6 675
1983	UA1	*	1983	10	30.32604	02	14	44.03	+09	01	53.0	17.0	6 675
1983	UA1		1983	11	04.30521	02	10	09.62	+08	45	07.9		6 675
1983	UB1	*	1983	10	30.32604	02	15	00.08	+07	42	08.1	17.8	6 675
1983	UB1		1983	11	04.30521	02	11	16.64	+07	06	26.0		6 675
1983	UC1	*	1983	10	30.32604	02	16	42.52	+08	23	05.2	17.2	6 675
1983	UC1		1983	11	04.30521	02	11	25.92	+08	25	55.4		6 675
1983	UD1	*	1983	10	30.32604	02	19	10.76	+07	09	01.9	17.2	6 675
1983	UD1		1983	11	04.30521	02	14	06.13	+07	05	09.0		6 675
1983	UE1	*	1983	10	30.32604	02	19	15.46	+06	09	41.8	16.2	6 675
1983	UE1		1983	11	04.30521	02	15	29.94	+05	37	42.2		6 675
1983	UF1	*	1983	10	30.32604	02	19	19.59	+07	16	13.4	17.2	6 675
1983	UF1		1983	11	04.30521	02	13	14.13	+07	58	51.6		6 675
1983	UG1	*	1983	10	30.32604	02	24	01.17	+09	23	56.6	18.5	6 675
1983	UG1		1983	11	04.30521	02	14	13.55	+10	55	21.0		6 675
1983	UH1	*	1983	10	30.32604	02	25	41.42	+06	50	36.9	16.8	6 675
1983	UH1		1983	11	04.30521	02	20	35.32	+06	51	29.4		6 675
1983	UJ1	*	1983	10	30.32604	02	25	49.64	+06	52	26.1	18.8	6 675
1983	UJ1		1983	11	04.30521	02	21	48.12	+05	01	15.0		6 675
1983	UK1	*	1983	10	30.32604	02	25	58.20	+06	39	33.1	17.2	6 675
1983	UK1		1983	11	04.30521	02	21	56.58	+05	54	59.6		6 675
1983	UL1	*	1983	10	30.32604	02	30	39.08	+09	17	43.2	17.0	6 675
1983	UL1		1983	11	04.30521	02	25	29.42	+08	54	36.5		6 675
1983	UM1	*	1983	10	30.35208	02	19	34.47	+10	38	57.6	16.0	6 675
1983	UM1		1983	11	04.30521	02	16	03.70	+09	42	17.5		6 675
1983	VG7		1983	10	30.32604	02	11	55.69	+11	11	05.6	14.8	6 675

1983	VG7		1983	11	04.30521	02	06	43.02	+11	07	57.2		6 675
1983	VM7		1983	10	30.32604	02	19	18.71	+09	57	16.6	15.5	6 675
1983	VM7		1983	11	04.30521	02	14	15.48	+09	47	00.1		6 675
1983	VN7		1983	10	30.32604	02	19	02.05	+11	11	43.7	16.8	6 675
1983	VN7		1983	11	04.30521	02	15	05.12	+10	50	44.0		6 675
1985	CL		1988	03	17.43177	13	10	44.25	-17	39	33.7		3 675
1985	CL		1988	03	17.46302	13	10	41.61	-17	39	47.4		3 675
1985	UA		1985	12	19.23715	00	54	33.35	+10	34	35.6		1 675
1985	UA		1985	12	19.24821	00	54	33.82	+10	34	37.6		1 675
1985	UA		1985	12	20.18611	00	55	16.63	+10	37	34.6		1 675
1985	UA		1985	12	20.19444	00	55	17.00	+10	37	36.2		1 675
1985	UA		1986	01	02.19843	01	07	30.73	+11	32	36.8		1 675
1985	UA		1986	01	02.20486	01	07	31.14	+11	32	38.6		1 675
1986	QA3		1983	10	30.26910	01	55	51.52	+09	13	06.4	17.5	6 675
1986	QA3		1983	11	04.24827	01	50	53.37	+08	49	14.3		6 675
1986	RC2		1988	03	18.44045	13	26	36.64	-02	45	29.2	17	3 675
1986	RC2		1988	03	18.49809	13	26	34.20	-02	44	11.4		3 675
1986	RC2		1988	03	22.44513	13	23	50.52	-01	14	49.8		3 675
1987	UW		1987	11	23.25712	02	10	53.05	-04	36	03.3		3 675
1987	UW		1987	11	24.29618	02	10	23.23	-04	49	52.3		3 675
1987	UX		1987	11	23.25712	02	23	25.59	-04	58	11.0		3 675
1987	UX		1987	11	24.29618	02	23	02.43	-05	12	11.9		3 675
1987	WS3		1987	11	22.35364	04	14	22.05	+21	41	48.3		3 675
1987	WS3		1987	11	22.37795	04	14	20.67	+21	41	26.9		3 675
1988	BV		1983	10	30.32604	02	13	32.36	+08	26	43.7	16.8	6 675
1988	BV		1983	11	04.30521	02	08	42.04	+08	10	17.4		6 675
1988	BZ		1988	02	16.19983	06	03	16.15	+44	28	25.3		3 675
1988	BZ		1988	02	17.15087	06	03	36.33	+44	08	34.8		3 675
1988	BZ		1988	03	19.17639	06	32	37.01	+34	21	14.5		3 675
1988	BW1		1988	03	17.24149	07	03	01.04	+42	09	38.6	18.5	3 675
1988	BW1		1988	03	18.15885	07	03	06.01	+42	07	21.5		3 675
1988	BX1		1988	03	17.24149	07	06	30.72	+44	27	35.9	17.8	3 675
1988	BX1		1988	03	18.15885	07	06	36.29	+44	25	52.7		3 675
1988	BY1		1988	03	17.25034	07	28	48.95	+45	04	54.5	17.7	3 675
1988	BY1		1988	03	18.21770	07	28	52.82	+45	01	05.2		3 675
1988	BL2		1988	03	17.25034	07	33	43.30	+44	57	21.1	17.4	3 675
1988	BL2		1988	03	18.21770	07	33	56.68	+44	49	46.7		3 675
1988	BM2		1988	03	17.25034	07	49	07.54	+44	00	27.3	17.5	3 675
1988	BO2		1988	02	16.26372	08	52	43.06	+43	14	56.7		3 675
1988	BO2		1988	02	17.31806	08	51	15.61	+43	09	07.0		3 675
1988	BO2		1988	03	17.22309	08	26	14.59	+38	57	13.5		3 675
1988	BO2		1988	03	18.22726	08	25	55.96	+38	46	31.3		3 675
1988	BO2		1988	03	19.18576	08	25	40.29	+38	36	14.9		3 675
1988	EF		1988	04	07.22274	10	31	28.19	-03	07	56.6	16.0	2 675
1988	EF		1988	04	09.23924	10	32	08.88	-02	28	47.2		2 675
1988	EF		1988	04	10.36753	10	32	34.50	-02	07	38.0		2 675
1988	EG		1988	03	22.26736	10	58	47.55	+05	01	47.3	17.0	7 675
1988	EG		1988	03	22.31597	10	58	45.02	+05	02	52.1		7 675
1988	EG		1988	03	23.38333	10	58	06.54	+05	25	04.7		1 675
1988	EG		1988	03	23.38668	10	58	06.40	+05	25	08.7		1 675
1988	EG		1988	03	23.39036	10	58	06.24	+05	25	13.1		1 675
1988	EH		1988	04	09.24757	11	19	20.60	+09	18	27.4	17.0	2 675
1988	EH		1988	04	09.26406	11	19	20.07	+09	18	38.9		2 675
1988	EK		1988	03	13.27483	10	48	41.96	+04	05	47.2		2 675
1988	EK		1988	04	07.22726	10	43	58.08	+10	14	27.2	17.0	2 675
1988	EK		1988	04	10.22552	10	44	32.93	+10	44	50.6		2 675
1988	EG1	*	1988	03	10.21753	10	11	57.55	+04	19	34.7	17.2	2 675
1988	EG1		1988	03	13.22344	10	08	57.14	+04	30	18.5		2 675
1988	EH1	*	1988	03	11.39306	11	48	34.52	-08	48	17.1	17.0	2 675

1988	EH1		1988	03	14.26007	11	46	43.47	-08	00	09.9		2 675
1988	EJ1	*	1988	03	12.30677	11	13	41.51	-02	05	36.3	16.8	2 675
1988	EJ1		1988	03	15.29826	11	10	57.91	-01	42	07.0		2 675
1988	EK1	*	1988	03	13.28785	11	07	34.35	+01	22	06.9	16.8	2 675
1988	EK1		1988	03	15.29427	11	05	41.52	+01	37	59.5		2 675
1988	EL1	*	1988	03	14.32378	13	24	11.72	+07	47	22.5	17.5	2 675
1988	EL1		1988	03	15.36806	13	23	35.77	+07	52	59.0		2 675
1988	EN1	*	1988	03	11.39653	11	40	14.23	-06	05	17.6	17.0	2 675
1988	EN1		1988	03	14.26007	11	37	59.42	-05	34	17.1		2 675
1988	EO1	*	1988	03	13.35816	13	15	27.35	-07	17	49.3	17.5	2 675
1988	EO1		1988	03	15.36337	13	14	26.24	-07	12	12.8		2 675
1988	FA	*	1988	03	18.27257	08	48	39.64	+46	00	41.9	16	3 675
1988	FA		1988	03	19.14931	08	49	07.89	+45	33	22.4	16	7 675
1988	FA		1988	03	19.19097	08	49	09.1	+45	32	10		7 675
1988	FA		1988	03	21.23854	08	50	20.93	+44	28	28.7		3 675
1988	FA		1988	03	22.15225	08	50	56.59	+44	00	10.0		3 675
1988	FH	*	1988	03	19.31909	11	10	55.00	+12	13	02.6	17	3 675
1988	FH		1988	03	21.32500	11	09	46.52	+12	53	43.2		3 675
1988	FH		1988	03	22.29913	11	09	15.15	+13	12	44.5		3 675
1988	FJ		1988	03	18.34167	11	16	05.98	+13	54	57.2		3 675
1988	FJ	*	1988	03	19.31909	11	14	30.57	+13	45	02.9	16.5	3 675
1988	FJ		1988	03	21.32500	11	11	19.03	+13	24	04.5		3 675
1988	FJ		1988	03	22.29913	11	09	48.61	+13	13	35.4		3 675
1988	FK	*	1988	03	19.33697	11	56	32.91	+22	13	01.0	17.5	3 675
1988	FK		1988	03	22.36388	11	54	11.56	+23	24	43.6		3 675
1988	FN	*	1988	03	17.30555	10	05	10.46	-00	05	21.3	17.2	3 675
1988	FN		1988	03	18.34861	10	03	49.85	-00	18	36.7		3 675
1988	FN		1988	03	20.23281	10	01	31.78	-00	42	12.0		3 675
1988	GA	*	1988	04	08.25764	11	56	36.99	-02	19	31.8	16.0	2 675
1988	GA		1988	04	10.41875	11	55	14.69	-02	02	09.1		2 675
1988	GB	*	1988	04	12.31094	13	04	08.61	-05	58	35.4	17	3 675
1988	GB		1988	04	12.35451	13	04	02.54	-06	00	05.2		3 675
1988	GB		1988	04	14.29288	12	59	40.94	-07	08	00.1		3 675
1988	GB		1988	04	18.26736	12	50	33.08	-09	31	49.8		3 675
1988	GC	*	1988	04	07.27292	13	06	16.10	-00	28	38.4	17.0	2 675
1988	GC		1988	04	10.43247	13	03	03.87	-00	09	31.5		2 675
1988	GD	*	1988	04	08.26319	12	46	45.05	+05	14	27.0	17.5	2 675
1988	GD		1988	04	10.42795	12	44	50.76	+05	24	32.1		2 675
1988	GF	*	1988	04	10.29627	12	50	45.16	-17	03	17.5	16.5	2 675
1988	GF		1988	04	10.31736	12	50	44.03	-17	03	04.5		2 675
1988	GF		1988	04	11.36736	12	49	53.75	-16	51	50.0	16.5	2 675
1988	GF		1988	04	11.40017	12	49	52.17	-16	51	26.7		2 675
3546	P-L	*	1960	10	22.29097	00	29	52.15	+13	51	00.0	18.0	4 675
3546	P-L		1960	10	25.32778	00	27	17.88	+13	41	51.9		4 675
3546	P-L		1960	10	26.37951	00	26	26.89	+13	38	42.5		4 675
4581	P-L	*	1960	09	24.41183	00	35	42.13	-00	54	31.7	17.0	4 675
4581	P-L		1960	09	26.31530	00	33	55.93	-01	03	29.0		4 675
4581	P-L		1960	09	27.40836	00	32	53.73	-01	08	34.6		4 675
4581	P-L		1960	09	28.39725	00	31	57.34	-01	13	10.3		4 675
4581	P-L		1960	10	22.23406	00	11	31.79	-02	29	55.7		4 675
4581	P-L		1960	10	25.25350	00	09	46.50	-02	32	29.2		4 675
4581	P-L		1960	10	26.31531	00	09	13.36	-02	32	53.9		4 675
44			1983	10	30.32604	02	10	20.79	+06	17	04.0		6 675
44			1983	11	04.24827	02	05	39.16	+05	52	05.1		6 675
44			1983	11	04.30521	02	05	35.95	+05	51	47.4		6 675
384			1983	10	30.32604	02	07	54.62	+10	35	21.0		6 675
443			1983	10	30.32604	02	10	12.38	+08	04	44.3		6 675
443			1983	11	04.24827	02	05	21.68	+07	31	27.1		6 675
920			1983	10	30.26910	01	51	08.98	+04	56	37.2		6 675

920	1983	11	04.24827	01	47	17.45	+04	12	31.8	6 675
1235	1988	03	18.40503	12	50	48.62	+02	17	26.8	16.5 3 675
1235	1988	03	21.33350	12	45	50.32	+02	03	12.1	3 675
1235	1988	03	22.42378	12	43	56.77	+01	57	47.5	3 675
1235	1988	04	08.25764	12	14	55.44	+00	25	33.2	16.8 2 675
1235	1988	04	10.41875	12	11	29.44	+00	12	28.7	2 675
1990	1983	10	30.32604	02	06	50.43	+10	43	00.8	6 675
1995	1983	10	30.26910	02	05	30.81	+08	27	22.6	6 675
1995	1983	11	04.24827	02	00	25.56	+08	21	53.0	6 675
2023	1988	02	16.16927	06	59	03.27	+50	42	00.8	18 3 675
2023	1988	02	17.16944	06	58	33.05	+50	33	01.7	3 675
2023	1988	02	20.26284	06	57	14.42	+50	04	36.8	3 675
2166	1983	10	30.26910	01	42	53.77	+03	35	06.0	6 675
2354	1983	10	30.32604	02	17	40.07	+10	04	26.9	6 675
2354	1983	11	04.30521	02	13	27.53	+09	37	34.8	6 675
2435	1983	10	30.32604	02	16	09.04	+06	29	51.0	6 675
2435	1983	11	04.30521	02	11	36.08	+05	59	48.7	6 675
2542	1983	10	30.32604	02	21	57.42	+07	36	34.1	6 675
2542	1983	11	04.30521	02	18	10.70	+07	15	54.3	6 675
2616	1983	11	04.30521	02	21	05.37	+11	14	54.4	6 675
2653	1983	11	04.24827	01	50	10.20	+08	36	35.7	6 675
2934	1983	10	30.32604	02	24	17.38	+11	00	49.9	6 675
2934	1983	11	04.30521	02	20	37.31	+10	31	32.8	6 675
2986	1983	10	30.26910	01	42	46.73	+09	06	08.6	6 675
3275	1983	10	30.26910	01	48	55.37	+07	39	50.6	6 675
3275	1983	11	04.24827	01	43	52.89	+07	28	02.0	6 675
3279	1983	10	30.26910	01	43	16.21	+08	13	38.3	6 675
3685	1983	10	30.26910	01	45	42.80	+06	33	31.0	6 675
3685	1983	11	04.24827	01	42	31.50	+05	29	38.8	6 675
3701	1983	10	30.32604	02	26	40.95	+06	11	30.1	6 675
3701	1983	11	04.30521	02	22	23.99	+05	52	57.4	6 675
3742	1983	10	30.32604	02	26	00.82	+10	50	34.4	6 675
3742	1983	11	04.30521	02	21	26.29	+10	24	52.0	6 675
3800	1988	01	20.31632	06	48	33.44	+34	08	14.1	3 675
3800	1988	01	23.32465	06	43	50.71	+34	58	32.5	3 675

691 Kitt Peak, Steward Observatory
T. Gehrels, Space Sciences Building, University of Arizona,
Tucson, AZ 85721, U.S.A.
Observers T. Gehrels, J. V. Scotti
0.91-m SPACEWATCH telescope
SAOC 1984
See also MPC 9198, MPC 10373 and Astron. J. 91, 1242, 1986

1986 WA	1988	03	13.12498	06	34	43.99	-18	59	19.0	691
1986 WA	1988	03	13.12694	06	34	43.89	-18	59	17.1	691
1986 WA	1988	03	15.10941	06	33	50.33	-18	25	45.6	18.7V 691
1986 WA	1988	03	15.11646	06	33	50.18	-18	25	38.2	691
1988 EG	1988	04	12.20257	10	58	59.43	+08	13	50.0	18.8V 691
1988 EG	1988	04	12.20722	10	58	59.53	+08	13	50.7	691
1988 EG	1988	04	12.21778	10	58	59.73	+08	13	51.4	691
1988 EG	1988	04	12.27433	10	59	00.87	+08	13	56.3	691
1988 EG	1988	04	12.27902	10	59	00.94	+08	13	56.8	691

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

1965	AK1	1988	02	19.30121	10	49	31.49	+23	08	54.6	801
1965	AK1	1988	03	17.23834	10	30	45.23	+26	53	32.4	801
1971	QP1	1987	11	23.10257	00	21	20.85	+14	48	14.7	w 801
1975	TJ6	1986	10	07.19508	00	36	52.99	-16	58	24.5	801
1975	TJ6	1988	03	17.36369	13	38	39.46	+09	06	28.8	801
1977	BY	1988	03	16.21786	10	25	36.48	+08	24	53.4	801
1977	CD	1988	03	22.32607	14	10	30.24	-01	48	22.2	W 801
1979	SR9	1988	02	19.32178	11	45	51.81	+05	12	31.5	801
1979	SR9	1988	03	18.22477	11	20	17.69	+08	08	33.2	801
1980	JE	1988	02	19.38632	13	06	56.68	+14	45	17.9	801
1980	JE	1988	03	17.28842	12	52	58.17	+16	51	42.0	w 801
1981	JA	1987	06	24.23869	17	56	05.86	-21	35	21.1	801
1981	XA	1988	03	17.40155	11	39	49.10	+46	28	44.1	w 801
1982	DY1	1988	03	18.35709	12	15	07.55	+03	11	01.2	801
1983	AR	1988	02	19.28043	10	35	52.28	+26	27	39.6	801
1983	AR	1988	03	17.20935	10	11	44.05	+27	19	46.3	801
1983	BE	1988	03	18.10456	07	38	03.77	+26	25	27.2	801
1983	VG7	1988	03	18.17910	09	47	23.36	+21	39	06.3	801
1984	DV	1987	11	23.02976	00	15	15.23	+14	52	09.8	801
1985	NE	1986	12	05.14770	01	55	25.00	+19	08	24.7	W 801
1985	RC3	1988	03	19.19868	11	20	04.83	+05	03	42.4	801
1985	RC3	1988	03	22.23130	11	17	56.35	+05	17	23.4	p 801
1985	VK2	1988	03	16.08518	08	38	12.37	+43	36	50.7	w 801
1986	RB	1988	02	15.34297	10	58	05.17	+03	41	45.0	801
1986	RB	1988	03	16.20036	10	22	16.63	+03	35	16.7	801
1986	RC2	1988	03	17.34046	13	27	18.09	-03	09	50.6	801
1986	TM	1988	03	17.26036	12	28	05.14	+06	43	44.6	801
1986	TJ1	1988	03	22.05818	07	50	24.12	+14	37	36.5	W 801
1986	TP6	1988	03	22.08251	08	17	34.83	+15	10	11.5	801
1988	GB	1988	04	18.12012	12	50	53.65	-09	26	28.1	801
3169		1988	03	20.01453	06	30	26.84	+43	10	16.2	801
3780		1988	03	18.25911	11	24	42.08	+05	56	20.3	801

809 European Southern Observatory
E. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium
Observers E. W. Elst, G. Pizarro
Measurers E. W. Elst, M. Desrulles, P. Van den Eynde
0.4-m GPO astrograph and 1.0-m Schmidt telescope

1970	QA1	1988	02	15.10764	07	33	07.64	+23	27	56.3	18.2 809
1970	QA1	1988	02	17.10556	07	31	40.55	+23	27	25.5	17.5 809
1970	QA1	1988	02	17.11597	07	31	40.03	+23	27	24.9	809
1970	QA1	1988	02	17.12639	07	31	39.59	+23	27	25.2	809
1981	EZ27	1988	02	15.10764	07	40	23.35	+23	03	21.7	19.7 809
1981	EZ27	1988	02	17.10556	07	39	01.47	+23	06	05.1	19.2 809
1981	EZ27	1988	02	17.11597	07	39	01.06	+23	06	06.0	809
1981	EZ27	1988	02	17.12639	07	39	00.62	+23	06	06.8	809
1981	JU2	1988	02	15.14931	10	15	55.17	+02	22	23.6	16.8 809
1981	JU2	1988	02	16.20278	10	14	57.04	+02	27	25.5	16.8 809
1981	JU2	1988	02	16.21319	10	14	56.44	+02	27	28.4	809
1981	JU2	1988	02	16.22361	10	14	55.82	+02	27	31.3	809
1983	RM3	1988	02	15.10764	07	42	47.05	+23	00	56.0	16.9 809
1983	RM3	1988	02	17.10556	07	41	40.11	+22	52	43.6	16.8 809
1983	RM3	1988	02	17.11597	07	41	39.72	+22	52	40.6	809
1983	RM3	1988	02	17.12639	07	41	39.33	+22	52	38.3	809
1985	QX	1988	02	15.14931	10	06	30.53	+01	50	46.0	17.3 809
1985	QX	1988	02	16.20278	10	05	43.61	+01	56	34.4	17.2 809
1985	QX	1988	02	16.21319	10	05	43.14	+01	56	37.9	809
1985	QX	1988	02	16.22361	10	05	42.66	+01	56	40.7	809

1986	WC	1988	02	15.14931	10	04	18.89	+02	41	57.1	16.5	809
1986	WC	1988	02	16.20278	10	03	31.73	+02	46	28.1	17.0	809
1986	WC	1988	02	16.21319	10	03	31.22	+02	46	30.4		809
1986	WC	1988	02	16.22361	10	03	30.69	+02	46	33.7		809
1988	AW1	1988	02	15.10764	07	45	17.29	+23	34	24.1	17.2	809
1988	AW1	1988	02	17.10556	07	43	49.80	+23	29	20.3	17.0	809
1988	AW1	1988	02	17.11597	07	43	49.32	+23	29	18.2		809
1988	AW1	1988	02	17.12639	07	43	48.86	+23	29	17.5		809
1988	AX1	1988	02	10.11181	07	50	46.80	+21	17	15.6	18.0	809
1988	AX1	1988	02	10.12292	07	50	46.23	+21	17	10.6		809
1988	AX1	1988	02	10.13333	07	50	45.55	+21	17	06.4		809
1988	AX1	1988	02	12.08750	07	49	08.66	+21	06	27.5	18.0	809
1988	AX1	1988	02	12.09792	07	49	08.23	+21	06	24.2		809
1988	AX1	1988	02	12.10833	07	49	07.67	+21	06	21.9		809
1988	AX1	1988	02	12.11736	07	49	07.11	+21	06	17.1	17.5	809
1988	AX1	1988	02	12.14167	07	49	05.98	+21	06	09.6		809
1988	AX1	1988	02	12.17083	07	49	04.49	+21	06	00.0		809
1988	AX1	1988	02	13.09306	07	48	21.67	+21	00	56.1	17.5	809
1988	AX1	1988	02	13.10347	07	48	21.19	+21	00	52.8		809
1988	AX1	1988	02	13.11389	07	48	20.64	+21	00	48.4		809
1988	AX1	1988	02	14.07153	07	47	37.57	+20	55	32.7	17.5	809
1988	AX1	1988	02	14.08194	07	47	37.08	+20	55	28.7		809
1988	AX1	1988	02	14.09236	07	47	36.54	+20	55	23.9		809
1988	AX1	1988	02	15.05903	07	46	55.12	+20	50	03.1	17.2	809
1988	AX1	1988	02	15.06944	07	46	54.68	+20	50	00.5		809
1988	AX1	1988	02	15.09931	07	46	53.46	+20	49	51.6		809
1988	AX1	1988	02	15.10764	07	46	53.02	+20	49	46.2	17	809
1988	AX1	1988	02	17.10556	07	45	33.12	+20	38	39.0	17.4	809
1988	AX1	1988	02	17.11597	07	45	32.67	+20	38	35.1		809
1988	AX1	1988	02	17.12639	07	45	32.21	+20	38	31.8		809
1988	BJ	1988	02	12.08750	07	49	59.46	+21	01	51.4	18.0	809
1988	BJ	1988	02	12.09792	07	49	58.87	+21	01	43.1		809
1988	BJ	1988	02	12.10833	07	49	57.88	+21	01	34.5		809
1988	BJ	1988	02	12.11736	07	49	57.07	+21	01	24.9	17.5	809
1988	BJ	1988	02	12.14167	07	49	55.42	+21	01	06.4		809
1988	BJ	1988	02	12.17083	07	49	52.50	+21	00	35.9		809
1988	BJ	1988	02	13.09306	07	48	37.84	+20	46	23.0	17.5	809
1988	BJ	1988	02	13.10347	07	48	37.02	+20	46	13.7		809
1988	BJ	1988	02	13.11389	07	48	36.06	+20	46	03.4		809
1988	BJ	1988	02	14.07153	07	47	21.17	+20	31	22.3	18.0	809
1988	BJ	1988	02	14.08194	07	47	20.36	+20	31	12.4		809
1988	BJ	1988	02	14.09236	07	47	19.61	+20	31	04.4		809
1988	BJ	1988	02	15.05903	07	46	06.53	+20	16	13.5	17.7	809
1988	BJ	1988	02	15.06944	07	46	05.81	+20	16	04.2		809
1988	BJ	1988	02	15.09931	07	46	03.38	+20	15	37.1		809
1988	BJ	1988	02	15.10764	07	46	02.95	+20	15	29.4	17	809
1988	BJ	1988	02	16.06667	07	44	53.51	+20	00	51.5	17.5	809
1988	BJ	1988	02	16.07708	07	44	52.74	+20	00	41.4		809
1988	BJ	1988	02	16.08750	07	44	51.94	+20	00	31.5		809
1988	BJ	1988	02	17.10556	07	43	41.31	+19	45	02.3	17.5	809
1988	BJ	1988	02	17.11597	07	43	40.57	+19	44	52.8		809
1988	BJ	1988	02	17.12639	07	43	39.80	+19	44	42.9		809
1988	BU	1988	02	15.10764	07	38	05.26	+23	15	40.1	17.4	809
1988	BU	1988	02	17.10556	07	37	07.64	+23	19	01.1	16.9	809
1988	BU	1988	02	17.11597	07	37	07.29	+23	19	01.5		809
1988	BU	1988	02	17.12639	07	37	07.01	+23	19	02.6		809
1988	CR	1988	02	15.14931	10	17	19.00	-01	18	22.3	17.5	809
1988	CR	1988	02	16.20278	10	16	18.57	-00	56	57.3	17.7	809
1988	CR	1988	02	16.21319	10	16	17.93	-00	56	44.7		809

1988	CR	1988	02	16.22361	10	16	17.33	-00	56	31.6	809
1988	CO1	1988	02	15.10764	07	34	16.82	+21	46	04.6	18.2 809
1988	CO1	1988	02	17.10556	07	33	26.00	+21	52	46.9	17.2 809
1988	CO1	1988	02	17.11597	07	33	25.71	+21	52	48.2	809
1988	CO1	1988	02	17.12639	07	33	25.40	+21	52	50.5	809
1988	CP1	1988	02	15.10764	07	35	38.43	+20	44	04.1	17.7 809
1988	CP1	1988	02	17.10556	07	34	37.19	+20	48	48.0	18.0 809
1988	CP1	1988	02	17.11597	07	34	36.78	+20	48	49.2	809
1988	CP1	1988	02	17.12639	07	34	36.43	+20	48	50.8	809
1988	CR1	1988	02	15.10764	07	36	49.49	+22	04	24.7	17.7 809
1988	CR1	1988	02	17.10556	07	35	41.95	+22	08	05.7	17.5 809
1988	CR1	1988	02	17.11597	07	35	41.54	+22	08	06.3	809
1988	CR1	1988	02	17.12639	07	35	41.15	+22	08	07.4	809
1988	CT1	1988	02	15.10764	07	37	53.01	+24	07	42.8	17.5 809
1988	CT1	1988	02	17.10556	07	36	33.52	+24	13	57.7	17.5 809
1988	CT1	1988	02	17.11597	07	36	33.18	+24	13	59.2	809
1988	CT1	1988	02	17.12639	07	36	32.71	+24	14	01.8	809
1988	CW1	1988	02	15.10764	07	40	40.73	+21	15	54.7	19.5 809
1988	CW1	1988	02	17.10556	07	39	28.85	+21	11	51.9	18.0 809
1988	CW1	1988	02	17.11597	07	39	28.52	+21	11	52.0	809
1988	CW1	1988	02	17.12639	07	39	28.19	+21	11	51.2	809
1988	CX1	1988	02	15.10764	07	40	14.19	+20	33	07.5	17.7 809
1988	CX1	1988	02	17.10556	07	38	47.54	+20	34	46.6	17.7 809
1988	CX1	1988	02	17.11597	07	38	47.04	+20	34	46.6	809
1988	CX1	1988	02	17.12639	07	38	46.53	+20	34	46.9	809
1988	CY1	1988	02	15.10764	07	40	22.90	+21	23	16.3	19 809
1988	CY1	1988	02	17.10556	07	38	57.34	+21	26	45.0	17.5 809
1988	CY1	1988	02	17.11597	07	38	56.86	+21	26	47.2	809
1988	CY1	1988	02	17.12639	07	38	56.35	+21	26	47.7	809
1988	CA2	1988	02	15.10764	07	41	23.10	+22	04	35.7	18.5 809
1988	CA2	1988	02	17.10556	07	40	16.05	+22	14	31.5	18.5 809
1988	CA2	1988	02	17.11597	07	40	15.65	+22	14	34.1	809
1988	CA2	1988	02	17.12639	07	40	15.29	+22	14	36.7	809
1988	CB2	1988	02	15.10764	07	41	29.80	+19	55	46.1	19.5 809
1988	CB2	1988	02	17.10556	07	40	19.61	+19	54	01.3	18.7 809
1988	CB2	1988	02	17.11597	07	40	19.25	+19	54	00.7	809
1988	CB2	1988	02	17.12639	07	40	18.85	+19	54	00.3	809
1988	CC2	1988	02	10.11181	07	45	02.25	+22	29	59.1	17.8 809
1988	CC2	1988	02	10.12292	07	45	01.64	+22	29	58.3	809
1988	CC2	1988	02	10.13333	07	45	01.03	+22	29	58.5	809
1988	CC2	1988	02	15.10764	07	41	33.38	+22	25	52.5	17.5 809
1988	CC2	1988	02	17.10556	07	40	24.00	+22	23	47.0	17.5 809
1988	CC2	1988	02	17.11597	07	40	23.58	+22	23	46.2	809
1988	CC2	1988	02	17.12639	07	40	23.21	+22	23	45.5	809
1988	CD2	1988	02	15.10764	07	41	51.85	+20	29	08.0	19 809
1988	CD2	1988	02	17.10556	07	40	50.36	+20	34	32.1	18.0 809
1988	CD2	1988	02	17.11597	07	40	50.02	+20	34	33.4	809
1988	CD2	1988	02	17.12639	07	40	49.71	+20	34	34.6	809
1988	CE2	1988	02	15.10764	07	41	23.27	+21	37	34.0	18.5 809
1988	CE2	1988	02	17.10556	07	40	00.50	+21	35	20.2	18.0 809
1988	CE2	1988	02	17.11597	07	39	59.99	+21	35	18.7	809
1988	CE2	1988	02	17.12639	07	39	59.60	+21	35	17.8	809
1988	CF2	1988	02	15.10764	07	41	19.36	+22	18	51.3	18.5 809
1988	CF2	1988	02	17.10556	07	39	51.75	+22	24	20.1	17.7 809
1988	CF2	1988	02	17.11597	07	39	51.27	+22	24	21.1	809
1988	CF2	1988	02	17.12639	07	39	50.77	+22	24	23.5	809
1988	CG2	1988	02	15.10764	07	42	18.43	+21	39	27.2	17.7 809
1988	CG2	1988	02	17.10556	07	41	06.66	+21	55	04.9	17.4 809
1988	CG2	1988	02	17.11597	07	41	06.28	+21	55	09.1	809

1988	CG2	1988	02	17.12639	07	41	05.83	+21	55	13.9		809
1988	CH2	1988	02	15.10764	07	43	03.98	+20	05	29.0	17.5	809
1988	CH2	1988	02	17.10556	07	41	50.19	+20	15	21.0	17.5	809
1988	CH2	1988	02	17.11597	07	41	49.78	+20	15	24.1		809
1988	CH2	1988	02	17.12639	07	41	49.31	+20	15	26.6		809
1988	CK2	1988	02	15.10764	07	43	55.15	+19	28	43.5	18	809
1988	CK2	1988	02	17.10556	07	42	40.61	+19	30	07.8	18.5	809
1988	CK2	1988	02	17.11597	07	42	40.22	+19	30	08.0		809
1988	CK2	1988	02	17.12639	07	42	39.73	+19	30	08.8		809
1988	CL2	1988	02	15.10764	07	44	23.32	+21	27	08.6	18	809
1988	CL2	1988	02	17.10556	07	43	08.39	+21	34	14.3	19.0	809
1988	CL2	1988	02	17.11597	07	43	07.98	+21	34	16.2		809
1988	CL2	1988	02	17.12639	07	43	07.59	+21	34	18.1		809
1988	CM2	1988	02	13.09306	07	46	10.64	+20	19	51.5	17.7	809
1988	CM2	1988	02	13.10347	07	46	10.15	+20	19	54.0		809
1988	CM2	1988	02	13.11389	07	46	09.71	+20	19	55.9		809
1988	CM2	1988	02	14.07153	07	45	33.68	+20	22	30.6	17.5	809
1988	CM2	1988	02	14.08194	07	45	33.34	+20	22	32.3		809
1988	CM2	1988	02	14.09236	07	45	32.96	+20	22	34.2		809
1988	CM2	1988	02	15.05903	07	44	57.86	+20	25	08.1	17.7	809
1988	CM2	1988	02	15.06944	07	44	57.51	+20	25	10.2		809
1988	CM2	1988	02	15.09931	07	44	56.36	+20	25	15.9		809
1988	CM2	1988	02	15.10764	07	44	56.07	+20	25	13.4	16.6	809
1988	CM2	1988	02	16.06667	07	44	22.45	+20	27	43.3	18.0	809
1988	CM2	1988	02	16.07708	07	44	22.06	+20	27	45.8		809
1988	CM2	1988	02	16.08750	07	44	21.65	+20	27	48.5		809
1988	CM2	1988	02	17.07569	07	43	48.55	+20	30	14.8	18.0	809
1988	CM2	1988	02	17.08681	07	43	48.17	+20	30	17.3		809
1988	CM2	1988	02	17.09722	07	43	47.81	+20	30	19.1		809
1988	CM2	1988	02	17.10556	07	43	47.54	+20	30	18.5	17.3	809
1988	CM2	1988	02	17.11597	07	43	47.13	+20	30	20.2		809
1988	CM2	1988	02	17.12639	07	43	46.69	+20	30	22.0		809
1988	CN2	1988	02	13.09306	07	46	26.27	+20	11	18.6	18.0	809
1988	CN2	1988	02	13.10347	07	46	25.83	+20	11	20.1		809
1988	CN2	1988	02	13.11389	07	46	25.44	+20	11	22.1		809
1988	CN2	1988	02	14.07153	07	45	52.22	+20	13	07.9	17.6	809
1988	CN2	1988	02	14.08194	07	45	51.81	+20	13	09.4		809
1988	CN2	1988	02	14.09236	07	45	51.42	+20	13	10.7		809
1988	CN2	1988	02	15.05903	07	45	19.12	+20	14	56.8	17.8	809
1988	CN2	1988	02	15.06944	07	45	18.84	+20	14	58.6		809
1988	CN2	1988	02	15.09931	07	45	17.72	+20	15	01.6		809
1988	CN2	1988	02	15.10764	07	45	17.46	+20	14	59.6	17.5	809
1988	CN2	1988	02	16.06667	07	44	46.73	+20	16	43.1	17.5	809
1988	CN2	1988	02	16.07708	07	44	46.37	+20	16	44.2		809
1988	CN2	1988	02	16.08750	07	44	46.06	+20	16	45.9		809
1988	CN2	1988	02	17.07569	07	44	15.77	+20	18	26.7	17.8	809
1988	CN2	1988	02	17.08681	07	44	15.44	+20	18	26.5		809
1988	CN2	1988	02	17.09722	07	44	15.07	+20	18	28.3		809
1988	CN2	1988	02	17.10556	07	44	14.88	+20	18	27.9	17.2	809
1988	CN2	1988	02	17.11597	07	44	14.51	+20	18	28.4		809
1988	CN2	1988	02	17.12639	07	44	14.12	+20	18	29.2		809
1988	CP2	1988	02	14.07153	07	47	28.51	+20	45	31.9	18.0	809
1988	CP2	1988	02	14.08194	07	47	27.99	+20	45	33.8		809
1988	CP2	1988	02	14.09236	07	47	27.52	+20	45	36.2		809
1988	CP2	1988	02	15.05903	07	46	50.42	+20	48	03.8	18.0	809
1988	CP2	1988	02	15.06944	07	46	50.02	+20	48	05.6		809
1988	CP2	1988	02	15.09931	07	46	48.95	+20	48	10.8		809
1988	CP2	1988	02	15.10764	07	46	48.56	+20	48	09.8	17.7	809
1988	CP2	1988	02	17.10556	07	45	35.19	+20	53	04.3	17.2	809

1988	CP2	1988	02	17.11597	07	45	34.76	+20	53	05.0	809
1988	CP2	1988	02	17.12639	07	45	34.30	+20	53	07.3	809
1988	CQ2	1988	02	14.07153	07	48	45.82	+20	29	44.5	18.0 809
1988	CQ2	1988	02	14.08194	07	48	45.42	+20	29	46.7	809
1988	CQ2	1988	02	14.09236	07	48	45.11	+20	29	48.7	809
1988	CQ2	1988	02	15.05903	07	48	16.92	+20	32	48.7	17.8 809
1988	CQ2	1988	02	15.06944	07	48	16.74	+20	32	50.4	809
1988	CQ2	1988	02	15.09931	07	48	15.93	+20	32	56.5	809
1988	CQ2	1988	02	15.10764	07	48	15.51	+20	32	58.7	17.7 809
1988	CQ2	1988	02	16.06667	07	47	49.06	+20	35	53.2	18.0 809
1988	CQ2	1988	02	16.07708	07	47	48.76	+20	35	55.9	809
1988	CQ2	1988	02	16.08750	07	47	48.53	+20	35	58.2	809
1988	CQ2	1988	02	17.10556	07	47	21.99	+20	38	58.0	17.7 809
1988	CQ2	1988	02	17.11597	07	47	21.72	+20	38	59.3	809
1988	CQ2	1988	02	17.12639	07	47	21.42	+20	39	00.8	809
1988	CR2	1988	02	15.10764	07	48	33.95	+23	14	04.2	19.5 809
1988	CR2	1988	02	17.10556	07	47	13.33	+23	21	26.6	18.0 809
1988	CR2	1988	02	17.11597	07	47	12.88	+23	21	28.7	809
1988	CR2	1988	02	17.12639	07	47	12.43	+23	21	32.1	809
1988	CS2	1988	02	15.10764	07	48	46.36	+20	54	59.6	17.6 809
1988	CS2	1988	02	17.10556	07	47	21.04	+20	55	13.9	17.5 809
1988	CS2	1988	02	17.11597	07	47	20.53	+20	55	14.2	809
1988	CS2	1988	02	17.12639	07	47	20.04	+20	55	14.4	809
1988	CT2	1988	02	15.10764	07	49	36.94	+21	25	35.4	19.3 809
1988	CT2	1988	02	17.10556	07	48	11.05	+21	31	11.5	19.5 809
1988	CT2	1988	02	17.11597	07	48	10.58	+21	31	13.5	809
1988	CT2	1988	02	17.12639	07	48	10.18	+21	31	14.7	809
1988	CV2	1988	02	15.10764	07	50	58.68	+23	15	36.2	19 809
1988	CV2	1988	02	17.10556	07	49	55.23	+23	22	38.8	18.3 809
1988	CV2	1988	02	17.11597	07	49	54.87	+23	22	41.1	809
1988	CV2	1988	02	17.12639	07	49	54.63	+23	22	42.0	809
1988	CW2	1988	02	15.10764	07	50	58.54	+22	05	03.4	18.4 809
1988	CW2	1988	02	17.10556	07	49	49.13	+22	08	26.3	17.7 809
1988	CW2	1988	02	17.11597	07	49	48.76	+22	08	27.0	809
1988	CW2	1988	02	17.12639	07	49	48.44	+22	08	28.7	809
1988	CX2	1988	02	15.10764	07	50	45.27	+23	20	09.0	16.6 809
1988	CX2	1988	02	17.10556	07	49	30.44	+23	26	19.2	16.7 809
1988	CX2	1988	02	17.11597	07	49	30.07	+23	26	21.0	809
1988	CX2	1988	02	17.12639	07	49	29.64	+23	26	23.4	809
1988	CY2	1988	02	15.10764	07	50	21.17	+22	44	42.1	19.5 809
1988	CY2	1988	02	17.10556	07	48	47.52	+22	45	13.9	19.5 809
1988	CY2	1988	02	17.11597	07	48	47.01	+22	45	14.3	809
1988	CY2	1988	02	17.12639	07	48	46.43	+22	45	14.8	809
1988	CZ2	1988	02	15.10764	07	53	42.79	+21	17	35.5	19 809
1988	CZ2	1988	02	17.10556	07	52	28.47	+21	26	30.3	18.5 809
1988	CZ2	1988	02	17.11597	07	52	28.09	+21	26	33.4	809
1988	CZ2	1988	02	17.12639	07	52	27.68	+21	26	35.8	809
1988	CM3	1988	02	15.14931	10	02	55.41	-01	40	28.2	19 809
1988	CM3	1988	02	16.20278	10	01	53.06	-01	20	53.3	18.0 809
1988	CM3	1988	02	16.21319	10	01	52.38	-01	20	41.2	809
1988	CM3	1988	02	16.22361	10	01	51.74	-01	20	29.4	809
1988	CT3	1988	02	15.14931	10	01	14.72	-00	19	44.6	16.9 809
1988	CT3	1988	02	16.20278	10	00	29.63	-00	13	38.2	17.0 809
1988	CT3	1988	02	16.21319	10	00	29.19	-00	13	34.8	809
1988	CT3	1988	02	16.22361	10	00	28.69	-00	13	31.7	809
1988	CU3	1988	02	15.14931	10	01	59.60	+01	31	40.8	17.5 809
1988	CU3	1988	02	16.20278	10	01	05.44	+01	33	46.5	17.0 809
1988	CU3	1988	02	16.21319	10	01	04.84	+01	33	47.6	809
1988	CU3	1988	02	16.22361	10	01	04.28	+01	33	48.3	809

1988	CV3	1988	02	15.14931	10	02	52.01	-01	13	05.9	18.2	809
1988	CV3	1988	02	16.20278	10	02	02.58	-01	06	26.5	17.7	809
1988	CV3	1988	02	16.21319	10	02	02.05	-01	06	22.4		809
1988	CV3	1988	02	16.22361	10	02	01.56	-01	06	19.2		809
1988	CW3	1988	02	15.14931	10	02	56.91	+00	39	29.5	19.6	809
1988	CW3	1988	02	16.20278	10	01	52.81	+00	44	39.2	18.5	809
1988	CW3	1988	02	16.21319	10	01	52.34	+00	44	45.3		809
1988	CW3	1988	02	16.22361	10	01	51.61	+00	44	47.4		809
1988	CX3	1988	02	15.14931	10	03	46.79	+01	43	29.2	16.8	809
1988	CX3	1988	02	16.20278	10	02	47.31	+01	48	10.3	17.0	809
1988	CX3	1988	02	16.21319	10	02	46.72	+01	48	13.3		809
1988	CX3	1988	02	16.22361	10	02	46.07	+01	48	16.0		809
1988	CY3	1988	02	15.14931	10	04	23.28	-01	26	16.9	18.5	809
1988	CY3	1988	02	16.20278	10	03	30.34	-01	21	05.9	18.5	809
1988	CY3	1988	02	16.21319	10	03	29.82	-01	21	03.1		809
1988	CY3	1988	02	16.22361	10	03	29.26	-01	20	59.9		809
1988	CZ3	1988	02	15.14931	10	05	08.94	+01	56	53.6	18.4	809
1988	CZ3	1988	02	16.20278	10	04	17.23	+02	06	14.5	18.3	809
1988	CZ3	1988	02	16.21319	10	04	16.74	+02	06	19.5		809
1988	CZ3	1988	02	16.22361	10	04	16.24	+02	06	25.0		809
1988	CB4	1988	02	15.14931	10	04	47.62	+01	37	08.4	17.8	809
1988	CB4	1988	02	16.20278	10	03	38.09	+01	40	27.6	17.5	809
1988	CB4	1988	02	16.21319	10	03	37.39	+01	40	29.6		809
1988	CB4	1988	02	16.22361	10	03	36.67	+01	40	31.2		809
1988	CC4	1988	02	15.14931	10	05	47.08	-00	44	13.0	18.5	809
1988	CC4	1988	02	16.20278	10	04	56.75	-00	40	28.0	18.0	809
1988	CC4	1988	02	16.21319	10	04	56.21	-00	40	26.0		809
1988	CC4	1988	02	16.22361	10	04	55.66	-00	40	22.9		809
1988	CD4	1988	02	15.14931	10	05	56.45	-00	42	54.8	17.2	809
1988	CD4	1988	02	16.20278	10	05	07.06	-00	39	29.8	17.5	809
1988	CD4	1988	02	16.21319	10	05	06.54	-00	39	27.8		809
1988	CD4	1988	02	16.22361	10	05	06.03	-00	39	25.7		809
1988	CE4	1988	02	15.14931	10	06	09.72	+02	54	54.7	17.2	809
1988	CE4	1988	02	16.20278	10	05	18.26	+03	04	36.0	18.0	809
1988	CE4	1988	02	16.21319	10	05	17.70	+03	04	41.8		809
1988	CE4	1988	02	16.22361	10	05	17.19	+03	04	47.2		809
1988	CF4	1988	02	15.14931	10	06	41.16	-02	07	46.7	18.8	809
1988	CF4	1988	02	16.20278	10	05	53.49	-02	03	17.3	18.0	809
1988	CF4	1988	02	16.21319	10	05	52.95	-02	03	15.4		809
1988	CF4	1988	02	16.22361	10	05	52.44	-02	03	12.8		809
1988	CG4	1988	02	15.14931	10	06	28.00	+00	58	39.3	19	809
1988	CG4	1988	02	16.20278	10	05	26.81	+01	03	50.4	18.0	809
1988	CG4	1988	02	16.21319	10	05	26.21	+01	03	53.5		809
1988	CG4	1988	02	16.22361	10	05	25.29	+01	03	56.4		809
1988	CK4	1988	02	15.14931	10	07	45.93	-01	11	06.1	17.8	809
1988	CK4	1988	02	16.20278	10	06	46.45	-01	09	42.1	17.8	809
1988	CK4	1988	02	16.21319	10	06	45.87	-01	09	41.4		809
1988	CK4	1988	02	16.22361	10	06	45.25	-01	09	40.5		809
1988	CL4	1988	02	15.14931	10	08	13.35	-02	04	36.6	17	809
1988	CL4	1988	02	16.20278	10	07	20.74	-02	00	19.0	17.6	809
1988	CL4	1988	02	16.21319	10	07	20.21	-02	00	17.1		809
1988	CL4	1988	02	16.22361	10	07	19.62	-02	00	14.5		809
1988	CN4	1988	02	15.14931	10	08	38.19	+01	37	19.7	16.9	809
1988	CN4	1988	02	16.20278	10	07	43.61	+01	43	10.8	17.0	809
1988	CN4	1988	02	16.21319	10	07	43.10	+01	43	14.3		809
1988	CN4	1988	02	16.22361	10	07	42.49	+01	43	17.7		809
1988	CO4	1988	02	15.14931	10	08	56.63	-01	19	13.6	17.7	809
1988	CO4	1988	02	16.20278	10	07	54.63	-01	16	37.7	17.6	809
1988	CO4	1988	02	16.21319	10	07	53.98	-01	16	35.6		809

1988	CO4	1988	02	16.22361	10	07	53.36	-01	16	34.7	809
1988	CQ4	1988	02	15.14931	10	09	49.97	+02	01	51.0	17.8 809
1988	CQ4	1988	02	16.20278	10	08	47.59	+02	06	27.6	17.7 809
1988	CQ4	1988	02	16.21319	10	08	46.93	+02	06	29.8	809
1988	CQ4	1988	02	16.22361	10	08	46.33	+02	06	32.0	809
1988	CR4	1988	02	15.14931	10	10	26.39	+00	46	07.8	17 809
1988	CR4	1988	02	16.20278	10	09	42.46	+00	58	01.1	16.8 809
1988	CR4	1988	02	16.21319	10	09	42.01	+00	58	08.3	809
1988	CR4	1988	02	16.22361	10	09	41.57	+00	58	15.4	809
1988	CS4	1988	02	15.14931	10	10	25.99	-01	19	52.0	17.7 809
1988	CS4	1988	02	16.20278	10	09	37.12	-01	09	10.5	18.3 809
1988	CS4	1988	02	16.21319	10	09	36.65	-01	09	04.8	809
1988	CS4	1988	02	16.22361	10	09	36.12	-01	08	57.8	809
1988	CT4	1988	02	15.14931	10	10	33.32	+00	33	09.1	17.5 809
1988	CT4	1988	02	16.20278	10	09	46.34	+00	38	52.1	17.5 809
1988	CT4	1988	02	16.21319	10	09	45.88	+00	38	54.7	809
1988	CT4	1988	02	16.22361	10	09	45.39	+00	38	58.1	809
1988	CU4	1988	02	15.14931	10	10	44.11	+00	24	08.7	17.7 809
1988	CU4	1988	02	16.20278	10	09	55.77	+00	28	12.0	17.6 809
1988	CU4	1988	02	16.21319	10	09	55.35	+00	28	14.6	809
1988	CU4	1988	02	16.22361	10	09	54.77	+00	28	16.5	809
1988	CV4	1988	02	15.14931	10	11	06.25	-01	55	50.6	19.2 809
1988	CV4	1988	02	16.20278	10	10	23.37	-01	49	26.0	18.0 809
1988	CV4	1988	02	16.21319	10	10	22.94	-01	49	22.0	809
1988	CV4	1988	02	16.22361	10	10	22.47	-01	49	18.2	809
1988	CW4	1988	02	15.14931	10	11	04.32	+00	11	23.9	17.5 809
1988	CW4	1988	02	16.20278	10	10	13.84	+00	15	06.7	17.6 809
1988	CW4	1988	02	16.21319	10	10	13.35	+00	15	09.1	809
1988	CW4	1988	02	16.22361	10	10	12.83	+00	15	10.9	809
1988	CX4	1988	02	15.14931	10	11	28.10	+01	29	31.1	19.2 809
1988	CX4	1988	02	16.20278	10	10	36.63	+01	36	22.2	18.8 809
1988	CX4	1988	02	16.21319	10	10	36.20	+01	36	25.5	809
1988	CX4	1988	02	16.22361	10	10	35.62	+01	36	29.3	809
1988	CZ4	1988	02	15.14931	10	11	28.84	+00	17	38.9	18 809
1988	CZ4	1988	02	16.20278	10	10	32.68	+00	24	12.1	17.9 809
1988	CZ4	1988	02	16.21319	10	10	32.06	+00	24	16.2	809
1988	CZ4	1988	02	16.22361	10	10	31.43	+00	24	19.7	809
1988	CD5	1988	02	15.14931	10	12	30.83	-01	59	30.1	19.3 809
1988	CD5	1988	02	16.20278	10	11	40.29	-01	56	48.7	18.7 809
1988	CD5	1988	02	16.21319	10	11	39.74	-01	56	47.0	809
1988	CD5	1988	02	16.22361	10	11	39.22	-01	56	44.0	809
1988	CE5	1988	02	15.14931	10	12	21.07	+01	22	39.8	18.8 809
1988	CE5	1988	02	16.20278	10	11	21.02	+01	29	10.4	18.0 809
1988	CE5	1988	02	16.21319	10	11	20.43	+01	29	14.7	809
1988	CE5	1988	02	16.22361	10	11	19.82	+01	29	18.9	809
1988	CF5	1988	02	15.14931	10	14	21.24	+02	37	42.8	18 809
1988	CF5	1988	02	16.20278	10	13	28.97	+02	44	07.9	17.5 809
1988	CF5	1988	02	16.21319	10	13	28.41	+02	44	11.4	809
1988	CF5	1988	02	16.22361	10	13	27.95	+02	44	15.1	809
1988	CH5	1988	02	15.14931	10	15	11.22	+01	48	59.3	18.2 809
1988	CH5	1988	02	16.20278	10	14	10.97	+01	52	15.2	18.0 809
1988	CH5	1988	02	16.21319	10	14	10.31	+01	52	17.6	809
1988	CH5	1988	02	16.22361	10	14	09.69	+01	52	19.7	809
1988	CJ5	1988	02	15.14931	10	15	28.59	+01	16	02.5	17.2 809
1988	CJ5	1988	02	16.20278	10	14	36.92	+01	24	39.1	17.0 809
1988	CJ5	1988	02	16.21319	10	14	36.42	+01	24	44.8	809
1988	CJ5	1988	02	16.22361	10	14	35.87	+01	24	49.6	809
1988	CK5	1988	02	15.14931	10	15	36.06	-00	00	08.7	19.2 809
1988	CK5	1988	02	16.20278	10	14	46.38	+00	03	05.4	19.5 809

1988	CK5		1988	02	16.21319	10	14	45.87	+00	03	08.1	809
1988	CK5		1988	02	16.22361	10	14	45.47	+00	03	09.8	809
1988	CL5		1988	02	15.14931	10	15	20.51	+02	55	48.9	18.3 809
1988	CL5		1988	02	16.20278	10	14	21.85	+03	02	16.8	18.8 809
1988	CL5		1988	02	16.21319	10	14	21.26	+03	02	21.4	809
1988	CL5		1988	02	16.22361	10	14	20.69	+03	02	24.8	809
1988	CM5		1988	02	15.14931	10	16	20.17	-00	35	27.8	17.8 809
1988	CM5		1988	02	16.20278	10	15	32.74	-00	26	01.1	17.0 809
1988	CM5		1988	02	16.21319	10	15	32.28	-00	25	55.5	809
1988	CM5		1988	02	16.22361	10	15	31.77	-00	25	49.8	809
1988	CN5		1988	02	15.14931	10	17	19.44	+01	01	59.8	17.5 809
1988	CN5		1988	02	16.20278	10	16	34.96	+01	14	16.4	17.5 809
1988	CN5		1988	02	16.21319	10	16	34.55	+01	14	23.3	809
1988	CN5		1988	02	16.22361	10	16	34.08	+01	14	30.3	809
1988	CO5		1988	02	15.14931	10	17	15.99	+00	44	15.9	19.2 809
1988	CO5		1988	02	16.20278	10	16	16.30	+00	48	07.9	18.7 809
1988	CO5		1988	02	16.21319	10	16	15.71	+00	48	10.3	809
1988	CO5		1988	02	16.22361	10	16	15.08	+00	48	13.1	809
1988	CP5		1988	02	15.14931	10	17	56.32	-00	56	46.8	17.8 809
1988	CP5		1988	02	16.20278	10	17	06.13	-00	52	31.9	18.0 809
1988	CP5		1988	02	16.21319	10	17	05.58	-00	52	28.5	809
1988	CP5		1988	02	16.22361	10	17	05.07	-00	52	26.5	809
1988	CQ5		1988	02	15.14931	10	18	17.94	-00	12	52.3	18.8 809
1988	CQ5		1988	02	16.20278	10	17	17.66	-00	07	46.9	18.0 809
1988	CQ5		1988	02	16.21319	10	17	17.09	-00	07	44.2	809
1988	CQ5		1988	02	16.22361	10	17	16.44	-00	07	41.1	809
1988	CR5		1988	02	15.14931	10	18	46.12	+01	06	26.0	17.5 809
1988	CR5		1988	02	16.20278	10	17	37.53	+01	07	30.2	17.6 809
1988	CR5		1988	02	16.21319	10	17	36.87	+01	07	30.2	809
1988	CR5		1988	02	16.22361	10	17	36.17	+01	07	31.2	809
1988	CS5		1988	02	15.14931	10	20	15.47	+01	17	58.4	18 809
1988	CS5		1988	02	16.20278	10	19	14.49	+01	20	04.5	19.0 809
1988	CS5		1988	02	16.21319	10	19	13.85	+01	20	05.7	809
1988	CS5		1988	02	16.22361	10	19	13.24	+01	20	07.1	809
1988	CF7	*	1988	02	15.14931	10	06	47.29	-00	45	28.2	18 809
1988	CF7		1988	02	16.20278	10	05	52.32	-00	40	29.7	17.8 809
1988	CF7		1988	02	16.21319	10	05	51.77	-00	40	26.9	809
1988	CF7		1988	02	16.22361	10	05	51.22	-00	40	24.4	809
1988	CG7	*	1988	02	15.14931	10	13	43.74	-02	04	56.1	19.5 809
1988	CG7		1988	02	16.20278	10	12	51.25	-01	59	45.0	18.7 809
1988	CG7		1988	02	16.21319	10	12	50.71	-01	59	41.7	809
1988	CG7		1988	02	16.22361	10	12	50.16	-01	59	39.0	809
1988	CH7	*	1988	02	15.14931	10	15	04.75	+02	42	34.8	18.2 809
1988	CH7		1988	02	16.20278	10	14	13.35	+02	44	30.9	19.0 809
1988	CH7		1988	02	16.21319	10	14	12.74	+02	44	32.3	809
1988	CH7		1988	02	16.22361	10	14	12.34	+02	44	33.5	809
1988	CJ7	*	1988	02	15.14931	10	16	29.23	-01	43	49.9	19 809
1988	CJ7		1988	02	16.20278	10	15	26.64	-01	44	44.2	18.3 809
1988	CJ7		1988	02	16.21319	10	15	26.03	-01	44	45.5	809
1988	CJ7		1988	02	16.22361	10	15	25.35	-01	44	45.8	809
1988	CK7	*	1988	02	15.14931	10	06	50.13	-00	40	27.7	19.2 809
1988	CK7		1988	02	16.20278	10	06	02.12	-00	33	55.3	18.5 809
1988	CK7		1988	02	16.21319	10	06	01.60	-00	33	50.9	809
1988	CK7		1988	02	16.22361	10	06	01.17	-00	33	46.7	809
1988	CL7	*	1988	02	15.10764	07	38	54.91	+21	53	59.3	18.7 809
1988	CL7		1988	02	17.10556	07	37	53.47	+21	56	19.1	18.0 809
1988	CL7		1988	02	17.11597	07	37	53.14	+21	56	20.2	809
1988	CL7		1988	02	17.12639	07	37	52.81	+21	56	20.5	809
1988	CM7	*	1988	02	15.10764	07	40	39.46	+23	15	06.1	17.7 809

1988	CM7		1988	02	17.10556	07	39	22.42	+23	15	22.6	17.0	809
1988	CM7		1988	02	17.11597	07	39	22.02	+23	15	22.7		809
1988	CM7		1988	02	17.12639	07	39	21.59	+23	15	22.6		809
1988	CN7	*	1988	02	15.10764	07	41	49.86	+20	38	42.1	19.2	809
1988	CN7		1988	02	17.10556	07	40	42.17	+20	42	56.2	19.5	809
1988	CN7		1988	02	17.11597	07	40	41.74	+20	42	57.3		809
1988	CN7		1988	02	17.12639	07	40	41.31	+20	42	59.6		809
1988	CO7	*	1988	02	15.10764	07	43	11.59	+22	30	06.9	19	809
1988	CO7		1988	02	17.10556	07	41	52.54	+22	33	29.4	18.0	809
1988	CO7		1988	02	17.11597	07	41	52.04	+22	33	30.4		809
1988	CO7		1988	02	17.12639	07	41	51.59	+22	33	30.7		809
1988	CP7	*	1988	02	15.10764	07	43	32.27	+22	03	10.5	19.5	809
1988	CP7		1988	02	17.10556	07	41	51.56	+22	05	48.3	19.5	809
1988	CP7		1988	02	17.11597	07	41	51.10	+22	05	48.2		809
1988	CP7		1988	02	17.12639	07	41	50.68	+22	05	49.0		809
1988	CQ7	*	1988	02	15.10764	07	47	04.34	+23	47	31.3	18.8	809
1988	CQ7		1988	02	17.10556	07	45	33.79	+23	50	12.6	18.8	809
1988	CQ7		1988	02	17.11597	07	45	33.41	+23	50	13.4		809
1988	CQ7		1988	02	17.12639	07	45	32.85	+23	50	14.0		809
1988	CR7	*	1988	02	15.10764	07	48	52.18	+23	37	07.0	19.2	809
1988	CR7		1988	02	17.10556	07	47	45.53	+23	36	39.2	19.5	809
1988	CR7		1988	02	17.11597	07	47	45.09	+23	36	40.5		809
1988	CR7		1988	02	17.12639	07	47	44.71	+23	36	40.5		809
1988	CS7	*	1988	02	15.10764	07	53	24.21	+20	08	22.0	19	809
1988	CS7		1988	02	17.10556	07	52	21.94	+20	14	05.6	19.5	809
1988	CS7		1988	02	17.11597	07	52	21.62	+20	14	07.1		809
1988	CS7		1988	02	17.12639	07	52	21.26	+20	14	09.1		809
1988	DM		1988	02	15.14931	10	20	17.54	-00	38	14.4	18	809
1988	DM		1988	02	16.20278	10	19	23.39	-00	34	02.1	17.6	809
1988	DM		1988	02	16.21319	10	19	22.83	-00	33	59.8		809
1988	DM		1988	02	16.22361	10	19	22.25	-00	33	56.7		809
1988	DN		1988	02	15.14931	10	19	59.77	-01	09	33.4	17	809
1988	DN		1988	02	16.20278	10	19	08.42	-01	04	10.3	17.2	809
1988	DN		1988	02	16.21319	10	19	07.92	-01	04	07.0		809
1988	DN		1988	02	16.22361	10	19	07.38	-01	04	04.4		809
166			1988	02	14.07153	07	44	19.92	+20	05	59.2	15.0	809
166			1988	02	14.08194	07	44	19.50	+20	06	03.4		809
166			1988	02	14.09236	07	44	19.08	+20	06	07.7		809
166			1988	02	15.05903	07	43	45.38	+20	12	12.0	15.0	809
166			1988	02	15.06944	07	43	44.99	+20	12	16.5		809
166			1988	02	15.09931	07	43	43.88	+20	12	28.0		809
166			1988	02	15.10764	07	43	43.60	+20	12	27.1	15	809
166			1988	02	16.06667	07	43	11.66	+20	18	24.8	15.0	809
166			1988	02	16.07708	07	43	11.24	+20	18	29.5		809
166			1988	02	16.08750	07	43	10.91	+20	18	33.9		809
166			1988	02	17.07569	07	42	39.60	+20	24	31.8	15.0	809
166			1988	02	17.08681	07	42	39.18	+20	24	36.7		809
166			1988	02	17.09722	07	42	38.89	+20	24	39.7		809
166			1988	02	17.10556	07	42	38.65	+20	24	40.7	15.0	809
166			1988	02	17.11597	07	42	38.29	+20	24	44.2		809
166			1988	02	17.12639	07	42	37.84	+20	24	48.1		809
271			1988	02	15.10764	07	50	07.91	+23	41	08.2	16.5	809
271			1988	02	17.10556	07	48	54.31	+23	41	25.6	16.0	809
271			1988	02	17.11597	07	48	53.87	+23	41	25.3		809
271			1988	02	17.12639	07	48	53.50	+23	41	25.8		809
426			1988	02	15.10764	07	49	41.65	+24	03	32.6	14	809
426			1988	02	17.10556	07	48	05.66	+23	51	58.9	15.0	809
426			1988	02	17.11597	07	48	05.07	+23	51	54.7		809
426			1988	02	17.12639	07	48	04.59	+23	51	50.7		809

435	1988	02	15.10764	07	43	45.80	+24	01	23.9	16	809
435	1988	02	17.10556	07	42	25.97	+24	02	55.0	16.0	809
435	1988	02	17.11597	07	42	25.47	+24	02	55.3		809
435	1988	02	17.12639	07	42	25.01	+24	02	56.4		809
500	1988	02	15.14931	10	10	52.30	+00	48	08.8	16	809
500	1988	02	16.20278	10	09	53.37	+00	50	42.5	15.0	809
500	1988	02	16.21319	10	09	52.69	+00	50	43.9		809
500	1988	02	16.22361	10	09	52.04	+00	50	45.4		809
761	1988	02	15.10764	07	50	20.11	+24	05	36.4	16.5	809
761	1988	02	17.10556	07	49	02.70	+24	07	27.7	16.5	809
761	1988	02	17.11597	07	49	02.30	+24	07	27.9		809
761	1988	02	17.12639	07	49	01.85	+24	07	28.5		809
850	1988	02	10.11181	07	50	58.88	+21	45	13.7	16.0	809
850	1988	02	10.12292	07	50	58.40	+21	45	17.0		809
850	1988	02	10.13333	07	50	57.91	+21	45	21.5		809
850	1988	02	12.08750	07	49	34.72	+21	56	00.7	16.0	809
850	1988	02	12.09792	07	49	34.30	+21	56	04.5		809
850	1988	02	12.10833	07	49	33.90	+21	56	08.3		809
850	1988	02	12.11736	07	49	33.48	+21	56	11.2	16.0	809
850	1988	02	12.14167	07	49	32.48	+21	56	19.6		809
850	1988	02	12.17083	07	49	31.29	+21	56	29.1		809
850	1988	02	15.10764	07	47	33.60	+22	11	52.9	16	809
850	1988	02	17.10556	07	46	18.70	+22	22	00.9	16.0	809
850	1988	02	17.11597	07	46	18.26	+22	22	04.0		809
850	1988	02	17.12639	07	46	17.83	+22	22	07.0		809
1269	1988	02	12.08750	07	51	55.47	+20	13	12.5	16.0	809
1269	1988	02	12.09792	07	51	55.13	+20	13	13.5		809
1269	1988	02	12.10833	07	51	54.66	+20	13	15.9		809
1269	1988	02	12.11736	07	51	54.28	+20	13	13.7	16.0	809
1269	1988	02	12.14167	07	51	53.32	+20	13	17.4		809
1269	1988	02	12.17083	07	51	52.28	+20	13	21.5		809
1269	1988	02	15.10764	07	50	15.60	+20	19	41.8	15.8	809
1269	1988	02	17.10556	07	49	14.14	+20	23	45.8	16.0	809
1269	1988	02	17.11597	07	49	13.81	+20	23	46.5		809
1269	1988	02	17.12639	07	49	13.43	+20	23	48.1		809
1287	1988	02	15.14931	10	15	46.84	-01	24	11.6	16	809
1287	1988	02	16.20278	10	15	00.39	-01	18	22.9	16.0	809
1287	1988	02	16.21319	10	14	59.79	-01	18	19.1		809
1287	1988	02	16.22361	10	14	59.25	-01	18	15.8		809
1358	1988	02	15.10764	07	50	16.39	+24	08	23.4	16.8	809
1358	1988	02	17.10556	07	48	47.85	+24	10	31.2	17.0	809
1358	1988	02	17.11597	07	48	47.37	+24	10	31.7		809
1358	1988	02	17.12639	07	48	46.86	+24	10	32.7		809
1379	1988	02	15.14931	10	21	33.53	+01	30	54.6	15	809
1485	1988	02	15.10764	07	50	24.29	+19	32	54.1	17.5	809
1485	1988	02	17.10556	07	49	07.45	+19	32	47.5	17.2	809
1485	1988	02	17.11597	07	49	07.03	+19	32	47.0		809
1485	1988	02	17.12639	07	49	06.59	+19	32	47.1		809
2220	1988	02	15.10764	07	51	11.92	+22	46	49.1	17.6	809
2220	1988	02	17.10556	07	50	01.41	+22	50	13.8	17.5	809
2220	1988	02	17.11597	07	50	01.06	+22	50	15.0		809
2220	1988	02	17.12639	07	50	00.61	+22	50	16.3		809
2682	1988	02	15.10764	07	44	32.79	+21	02	30.9	17.7	809
2682	1988	02	17.10556	07	43	05.61	+21	09	50.4	18.0	809
2682	1988	02	17.11597	07	43	05.13	+21	09	52.2		809
2682	1988	02	17.12639	07	43	04.63	+21	09	54.3		809
3498	1988	02	15.14931	10	19	20.63	-00	18	30.5	17.4	809
3498	1988	02	16.20278	10	18	21.80	-00	12	42.1	17.5	809
3498	1988	02	16.21319	10	18	21.22	-00	12	39.1		809

3498		1988 02 16.22361	10 18 20.55	-00 12 35.2						809
3626		1988 02 15.10764	07 41 27.61	+19 35 20.6			17.7			809
3626		1988 02 17.10556	07 40 18.74	+19 37 22.4			18.0			809
3626		1988 02 17.11597	07 40 18.39	+19 37 23.1						809
3626		1988 02 17.12639	07 40 17.91	+19 37 24.2						809
3645		1988 02 15.14931	10 19 45.51	-00 31 05.2			16.9			809
3645		1988 02 16.20278	10 18 51.50	-00 27 32.8			16.9			809
3645		1988 02 16.21319	10 18 50.97	-00 27 30.7						809
3645		1988 02 16.22361	10 18 50.37	-00 27 28.7						809

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

1988 EN		1988 03 18.71806	11 22 38.83	+06 35 54.3			17			875
1988 EC1		1988 03 10.61325	11 45 38.28	+10 13 20.4			16.5			875
1988 EC1		1988 03 18.63924	11 39 34.28	+11 01 13.9			15.5			875
1988 EC1		1988 03 18.65972	11 39 33.44	+11 01 17.0						875
1988 EC1		1988 03 18.67153	11 39 32.86	+11 01 18.4			15.5			875
1988 EC1		1988 03 23.58889	11 35 57.55	+11 26 20.5			16			875
1988 EC1		1988 03 23.59653	11 35 57.13	+11 26 22.1						875
1988 EC1		1988 04 09.50243	11 26 03.80	+12 18 46.5			16			875
1988 EC1		1988 04 09.53270	11 26 03.10	+12 18 46.3						875
1988 EC1		1988 04 15.56944	11 23 53.05	+12 23 38.9			16			875
1988 ED1		1988 03 18.60382	11 50 46.76	+29 27 48.6			15			875
1988 ED1		1988 03 18.62431	11 50 45.40	+29 27 53.0						875
1988 ED1		1988 03 23.49167	11 46 06.98	+29 43 15.6			15.5			875
1988 ED1		1988 04 09.62743	11 32 13.30	+29 37 36.7			16			875
1988 ED1		1988 04 15.58819	11 28 48.42	+29 15 48.6			16			875
1988 ED1		1988 04 15.60972	11 28 47.54	+29 15 41.7						875
1988 FM	*	1988 03 18.63924	11 37 42.15	+12 03 57.4			16.5			875
1988 FM		1988 03 18.65972	11 37 40.72	+12 03 55.8						875
1988 FM		1988 03 23.62639	11 32 14.05	+11 57 37.7			16.5			875
1988 FM		1988 03 23.64792	11 32 12.51	+11 57 35.0						875

881 Toyota
T. Urata, 6-1-303, 1 Chome, Muramatsuhara, Shimizu, Shizuoka-ken, 424 Japan
Observers K. Suzuki, T. Urata
Measurer M. Kizawa
0.31-m f/5.7 reflector

1986 VG		1988 03 12.55382	08 52 21.79	+24 43 41.0						881
1986 WC		1988 03 12.53090	09 45 56.02	+04 52 01.8			16.5		F	881
1986 WC		1988 03 12.56979	09 45 54.64	+04 52 12.4					F	881

883 Shizuoka
M. Kizawa, 1458-10, Minami Numagami, Shizuoka 420, Japan
Observer M. Kizawa
0.31-m f/6.4 reflector

1988 EB		1988 03 22.60065	10 55 35.17	+15 46 34.7			16.0			883
1988 EB		1988 03 22.61856	10 55 34.31	+15 46 35.9						883

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

1987 DM		1988 03 12.71042	13 13 01.06	-06 16 56.9						888
1987 DM		1988 03 12.74306	13 13 00.13	-06 16 52.9						888

1988 DA	1988 03 12.57500	10 50 37.79	+10 45 34.4		17.0		888
1988 DA	1988 03 12.60694	10 50 35.75	+10 45 38.2				888
1988 DA	1988 03 22.66319	10 41 21.01	+11 00 33.4		16.5		888
1988 DA	1988 03 22.69653	10 41 19.43	+11 00 34.1				888
1988 DF	1988 03 12.57500	10 51 14.22	+10 23 12.6				888
1988 DF	1988 03 12.60694	10 51 12.85	+10 23 24.2				888
1988 DF	1988 03 22.65486	10 45 01.05	+11 16 00.5		17.0		888
1988 DF	1988 03 22.68819	10 44 59.94	+11 16 09.2				888
1988 DH1	1988 03 12.52083	09 57 10.14	+14 11 42.3				888
1988 DH1	1988 03 12.53750	09 57 09.49	+14 11 49.7				888
1988 DH1	1988 03 22.57569	09 51 51.06	+15 20 05.5		17.5		888
1988 DH1	1988 03 22.60833	09 51 50.28	+15 20 17.1				888
1988 EC	1988 03 12.51250	09 50 31.06	+14 43 16.9				888
1988 EC	1988 03 12.52917	09 50 29.83	+14 43 08.5				888
1988 EC	1988 03 22.59167	09 40 12.64	+13 36 39.8		17.5		888
1988 EC	1988 03 22.62500	09 40 10.83	+13 36 25.5				888
1988 ED	1988 03 12.55139	09 56 25.58	+12 50 28.8				888
1988 ED	1988 03 12.58333	09 56 23.88	+12 50 24.7				888
1988 ED	1988 03 22.64653	09 49 15.11	+12 25 28.8		17.0		888
1988 ED	1988 03 22.67986	09 49 13.89	+12 25 22.7				888
1988 EN	1988 03 12.63958	11 28 10.51	+05 43 05.3		17.0		888
1988 EN	1988 03 12.67153	11 28 08.70	+05 43 22.0				888
1988 EN	1988 03 12.69375	11 28 07.65	+05 43 30.0				888
1988 EN	1988 03 12.72708	11 28 05.72	+05 43 47.7				888
1988 EN	1988 03 22.67153	11 19 07.61	+07 09 07.0		17.0		888
1988 EN	1988 03 22.70486	11 19 05.78	+07 09 23.5				888
2717	1988 03 22.64653	09 50 45.34	+12 29 28.1		16.5		888
2717	1988 03 22.67986	09 50 44.06	+12 29 37.1				888
3558	1988 03 22.57569	09 52 40.28	+15 07 15.5		17.0		888
3558	1988 03 22.60833	09 52 38.89	+15 07 12.1				888
3780	1988 03 12.63958	11 29 05.10	+05 24 23.5		16.5		888
3780	1988 03 12.67653	11 29 03.71	+05 24 33.2				888
3780	1988 03 12.69375	11 29 02.69	+05 24 38.8				888
3780	1988 03 12.72708	11 29 01.16	+05 24 49.8				888

892 YGCO Chiyoda Station
T. Kobayashi, 1717-2, Shimo-Koizumi, Oizumi-Cho, Ora-Gun,
Gunma-ken, 370-05 Japan
Observer T. Kojima
0.25-m f/3.4 Wright-Schmidt camera

1988 CC	1988 03 10.54027	08 51 00.22	+11 25 16.3		16.5		892

896 Astro Village Observatory
O. Muramatsu, 119-1, 2-8 Sakurazutsumi, Musashino, Tokyo 180, Japan
Long. and Parallax 138.37, -346, -248 (see MPC 12000)
Observers Y. Kushida, M. Inoue
Measurer O. Muramatsu
0.20-m f/4.8 reflector

114	1988 04 10.69306	12 49 30.68	-00 28 33.5		11.0		896
114	1988 04 10.71944	12 49 29.28	-00 28 18.7		11.0		896

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ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The columns headed Arc and O give 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

other multiple) designations, E means that the value of the eccentricity was assumed, F means both; the designations are listed at the end.

The orbit computers (column C) are B = C. M. Bardwell, G = D. W. E. Green, I = H. Oishi, M = B. G. Marsden, m = R. H. McNaught, N = S. Nakano.

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1985 UA	14.0	851111	306.91	125.05	329.58	3.27	0.1094	2.1824	74	0		B
1987 UX	14.5	871101	20.75	159.66	204.70	24.37	0.2442	2.3815	37	8		B
1987 WV1	15.5	871211	30.25	267.04	137.62	0.94	0.1592	2.2565	47	7		G
1987 WS3	12.5	871211	14.01	163.03	243.23	13.50	0.2405	2.5717	76	8		B
1987 YC1	15.0	871231	337.43	351.30	130.13	0.39	0.1356	3.0120	20	5		G
1987 YD1	14.0	871231	305.84	63.94	101.52	1.64	0.1865	3.2843	20	5		G
1987 YE1	15.5	871231	32.06	119.31	285.14	1.55	0.2166	2.3192	20	5		G
1988 AK1	12.5	871231	153.52	327.71	348.78	4.83	0.0649	2.3845	28	0		M
1988 BJ	15.0	880120	302.89	234.48	309.27	22.76	0.0644	1.9296	26	0		G
1988 BW1	10.0	880209	209.73	206.54	58.39	21.90	0.0471	5.2683	57	8		B
1988 BX1	9.5	880209	39.18	354.43	77.40	31.42	0.0581	5.2657	57	8		B
1988 BY1	10.0	880209	49.46	10.56	43.34	21.52	0.1319	5.2224	55	7		B
1988 BM2	12.5	880209	8.31	65.63	43.88	16.67	0.2383	2.9442	53	6		B
1988 CC	11.0	880229	103.59	216.96	167.87	10.42	0.1181	2.9939	31	9		N
1988 CR	14.5	880209	164.10	178.31	163.75	25.38	0.0591	1.9542	3	5	E	M
1988 CO1	14.0	880209	341.34	28.45	126.40	3.51	0.2273	2.5898	6	5		G
1988 CP1	13.0	880209	333.76	18.94	135.61	2.86	0.1072	3.0258	6	5	E	G
1988 CT1	14.0	880209	283.43	104.29	107.31	4.49	0.0899	2.1909	6	5	E	G
1988 CW1	14.0	880209	30.92	142.43	304.19	8.97	0.0901	2.8061	6	5		G
1988 CX1	13.5	880209	105.45	52.02	295.53	3.61	0.3215	2.2301	6	5		G
1988 CY1	13.5	880209	190.87	150.08	145.03	0.11	0.1477	2.3197	6	5	E	G
1988 CA2	14.0	880209	39.03	317.68	123.62	7.41	0.0596	2.3597	6	5		M
1988 CB2	14.5	880209	344.24	206.74	297.14	6.44	0.1157	2.8491	6	5	E	G
1988 CC2	14.0	880209	357.81	171.45	316.56	3.68	0.1052	2.4068	6	5	E	G
1988 CD2	15.0	880209	5.23	335.92	143.40	1.89	0.1141	2.3431	6	5		G
1988 CE2	14.0	880209	87.60	58.75	306.43	7.29	0.2817	2.3477	6	5		G
1988 CF2	13.5	880209	157.77	201.05	115.90	4.29	0.2448	2.2605	6	5	E	G
1988 CG2	13.5	880209	316.86	64.70	124.93	14.94	0.2324	2.8960	6	5		G
1988 CH2	13.5	880209	106.00	237.64	132.54	7.06	0.0798	2.3282	6	5		G
1988 CK2	13.0	880209	161.20	33.64	287.55	4.22	0.0274	2.7906	6	5	E	G
1988 CL2	14.0	880209	174.23	185.42	124.73	4.94	0.0046	2.4705	6	5	E	G
1988 CM2	12.5	880209	322.15	32.48	136.90	2.70	0.1009	2.9664	6	0	E	G
1988 CP2		880209	143.34	205.93	129.39	2.99	0.0723	2.8243	6	9	E	G
1988 CQ2	13.5	880209	31.11	299.85	132.66	3.54	0.2686	3.0001	6	0		G
1988 CR2	14.0	880209	287.30	93.32	113.72	5.81	0.0818	2.4680	6	5		G
1988 CS2	13.5	880209	106.79	65.59	305.83	3.70	0.0714	2.2580	6	5		G
1988 CT2	14.0	880209	136.98	210.35	121.38	3.86	0.2418	2.4182	6	5		G
1988 CV2	15.5	880209	356.31	20.05	112.39	4.01	0.1514	2.3376	6	5		G
1988 CW2	14.0	880209	0.66	32.21	92.64	1.15	0.1225	2.6946	6	5	E	G
1988 CY2	15.0	880209	205.95	319.56	324.08	3.58	0.1002	2.3066	6	5		G
1988 CZ2	15.0	880209	337.21	30.27	126.81	4.25	0.1282	2.3113	6	5		G
1988 CX3	12.5	880209	107.95	136.10	249.47	6.12	0.1459	2.5001	3	5		M
1988 CY3	14.0	880209	66.48	193.16	226.87	8.26	0.1991	2.8604	3	5		M
1988 CB4	13.0	880209	157.79	64.75	281.48	7.57	0.1104	2.1712	3	5		M
1988 CC4	14.0	880209	22.86	232.15	244.72	7.32	0.1682	3.0598	3	5		M
1988 CD4	12.5	880209	57.09	183.51	254.48	8.08	0.1406	3.1954	3	5		M
1988 CE4	14.0	880209	32.83	261.77	181.42	8.48	0.3402	2.8342	3	5		M
1988 CF4	13.0	880209	77.30	177.68	228.83	9.26	0.2316	3.2387	3	5		M
1988 CG4	13.5	880209	171.95	99.21	236.21	6.13	0.0861	2.3225	3	5	E	M
1988 CL4	13.0	880209	49.10	216.91	237.05	8.09	0.0728	2.7931	3	5		M
1988 CN4	13.5	880209	28.72	248.31	219.15	5.50	0.1723	2.5801	3	5		M
1988 CO4	14.0	880209	346.30	258.28	265.96	7.45	0.0594	2.3766	3	5	E	M

1988 CS4	14.0	880209	14.81	314.27	177.41	15.71	0.0649	2.6166	3	5		M
1988 CT4	12.5	880209	283.45	43.27	197.71	9.31	0.1278	3.0483	3	7	D	N
1988 CU4	12.0	880209	278.11	40.65	230.30	7.39	0.3422	3.2146	3	5		M
1988 CW4	12.5	880209	282.55	4.26	244.14	6.94	0.1793	3.0013	3	5		M
1988 CX4	14.0	880209	279.88	79.73	184.64	10.85	0.3058	2.8256	3	5		M
1988 CZ4	14.0	880209	269.62	60.80	199.74	8.32	0.1869	2.4637	3	5		M
1988 CD5	13.0	880209	231.95	25.77	276.43	10.68	0.3022	2.9359	3	5		M
1988 CF5	13.5	880209	43.75	229.85	203.68	5.99	0.3086	3.0094	3	5		M
1988 CH5	15.5	880209	27.43	191.88	268.27	4.70	0.2718	2.4386	3	5		M
1988 CJ5	13.0	880209	57.52	250.11	183.14	10.17	0.1723	2.6548	3	5		M
1988 CK5	13.0	880209	200.53	48.95	270.32	8.26	0.2402	2.9017	3	5		M
1988 CL5	15.0	880209	64.51	214.02	211.60	4.91	0.1677	2.4445	3	5		M
1988 CM5	13.5	880209	26.20	285.81	184.51	10.94	0.1947	2.7033	3	5		M
1988 CP5	13.5	880209	33.49	207.45	241.34	6.68	0.3167	3.2523	3	5		M
1988 CQ5	14.5	880209	36.11	213.26	240.81	5.08	0.2164	2.3164	3	5		M
1988 CR5	13.5	880209	259.29	330.62	301.35	10.36	0.1958	2.2979	3	5		M
1988 DK	15.5	880229	15.41	277.93	216.73	9.45	0.1596	3.0916	17	8		m
1988 DL	15.5	880229	62.21	189.18	252.35	8.22	0.1161	2.7980	17	6		m
1988 DN	13.0	880209	40.78	231.52	220.94	7.00	0.1929	2.8031	26	0		M
1988 DO	16.0	880229	23.16	188.02	298.26	8.54	0.1403	2.3027	20	0		m
1988 DH1	14.1	880320	326.72	51.88	150.87	6.53	0.1170	2.2428	32	0		I
1988 EC	13.9	880320	140.31	32.84	339.72	19.17	0.0991	1.9293	15	0		I
1988 ED	12.5	880209	30.11	133.55	337.52	12.98	0.1024	2.6022	63	0	D	N
1988 EH	12.5	880320	75.39	254.38	172.64	23.09	0.2835	2.3959	29	6		B
1988 EK	14.0	880320	14.12	331.41	173.14	15.10	0.2741	2.5889	31	4		B
1988 EN	14.3	880320	318.68	84.37	153.81	3.54	0.2424	2.3171	12	8		I
1988 EP	14.0	880320	346.87	37.63	163.09	10.58	0.2426	2.3734	28	0		N
1988 ED1	11.0	880320	93.04	335.42	86.60	16.64	0.1402	2.5651	34	8		N
1988 EM1	13.5	880229	21.97	328.60	175.51	11.48	0.2039	2.6453	6	4		M
1988 FD	13.0	880320	46.97	98.65	12.49	22.91	0.1738	2.3097	22	0		N
1988 FE	14.0	880320	350.93	142.62	48.97	9.42	0.1926	2.3063	5	9		N
1988 FF	11.5	880320	306.14	169.80	81.80	9.13	0.1795	2.7827	23	0		N
1988 FJ	14.5	880320	22.62	141.76	3.48	17.97	0.0809	1.9239	4	4		B
1988 FN	15.0	880229	345.05	210.74	333.14	22.03	0.2387	2.3226	3	3		B

1988 CT4 = 1988 CE6 (S. Nakano)
1988 ED = 1988 BA3 = 1988 CJ1 (S. Nakano)

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ORBITAL ELEMENTS BY L. D. SCHMADEL, ASTRONOMISCHES RECHEN-INSTITUT.

(3808)* 1982 FQ2 = 1975 EL1

Discovered 1982 Mar. 24 by F. Borngen at Tautenburg. The identification is by C. M. Bardwell (MPC 7780).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	305.48108	(1950.0)	P	Q	
n	0.28124270	Peri.	10.34963	-0.95611535	-0.28859908
a	2.3071821	Node	152.71172	+0.26030620	-0.91589338
e	0.1470855	Incl.	6.32862	+0.13447723	-0.27901591
P	3.50	H	15.0	G 0.25	

Residuals in seconds of arc

750306	095	0.9+	4.0-	820324	033	0.2-	0.3+	870929	033	0.6-	0.8+
750315	095	1.2-	3.3+	820324	033	0.3-	0.4+	870930	033	0.6+	0.4+
820222	010	0.1+	0.5+	820326	033	0.1+	0.2-	870930	033	0.3-	0.4-
820227	010	0.7+	0.1+	820326	033	0.0	0.0	871001	033	0.1+	0.3-

ORBITAL ELEMENTS BY J. E. ROGERS, CAMARILLO, CALIFORNIA.

(3809)* 1984 FA = 1951 XO = 1986 VT4

Discovered 1984 Mar. 26 at the Osservatorio San Vittore. The identifications 1984 FA = 1951 XO and 1984 FA = 1986 VT4 are by B. G. Marsden and by E. Bowell, respectively (MPC 11431).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	111.67143		(1950.0)		P		Q
n	0.22313508	Peri.	307.11618		+0.31255313		-0.94522121
a	2.6920977	Node.	124.41113		+0.90367807		+0.26533229
e	0.1042377	Incl.	6.55409		+0.29270548		+0.19014635
P	4.42	H	12.6	G	0.25		

Residuals in seconds of arc

511204	711	1.6-	0.2+	Y	840427	046	(5.0-	1.8-)	880123	801	0.9+	0.8+
511204	711	3.9+	2.2+	Y	861105	688	0.5+	1.6-	880213	054	1.7+	0.6+
840326	552	1.1+	1.7+		861105	688	1.4+	1.7-	880213	054	0.3-	0.1-
840326	552	(4.2+	3.8-)		861107	010	1.1-	1.3-	880213	552	2.2-	0.2+
840419	046	0.5-	1.4-		861107	010	(8.7+	1.3-)	880213	552	2.3+	2.0-
840419	046	1.8-	0.9-		861202	688	0.8+	2.8-	880216	552	0.5-	0.3-
840425	046	0.5+	2.2-		861202	688	1.0+	1.0-	880216	552	1.1-	0.5-
840425	046	0.4+	2.8-		871222	801	0.1-	0.1-	880221	552	1.8-	0.5+
840427	046	(5.1-	2.0-)		880117	801	1.5+	0.3-	880222	552	1.4-	0.3-

(3810)* 1985 DX = 1982 KC

Discovered 1985 Feb. 20 by A. C. Gilmore and P. M. Kilmartin at the Mount John University Observatory. The identification was found independently by C. M. Bardwell and W. Landgraf (MPC 11505).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	358.61932		(1950.0)		P		Q
n	0.29216755	Peri.	287.71029		-0.98215626		-0.15514180
a	2.2493035	Node.	243.47648		+0.18283048		-0.92010205
e	0.1083984	Incl.	6.82321		-0.04406928		-0.35964321
P	3.37	H	13.3	G	0.25		

Residuals in seconds of arc

820521	688	0.6+	0.6+		850310	474	0.8-	0.3+	850525	801	1.3+	1.0+
820521	688	0.7+	0.9+		850310	474	0.9-	0.8-	860713	474	0.0	0.2-
850220	474	(4.5-	0.3-)		850320	474	0.8+	0.4+	860713	474	0.6-	0.4-
850220	474	(1.8+	8.7-)		850320	474	0.7+	0.3+	860909	474	0.1+	0.9-
850301	474	0.8-	1.6-		850325	474	0.1+	0.8+	860909	474	0.1+	0.6-
850301	474	0.7-	2.3-		850325	474	0.3+	1.2+	880116	801	0.2+	0.9+
850302	474	1.2-	1.4-		850424	474	0.6-	1.2+	880123	801	1.1+	1.8+
850302	474	0.7-	1.0-		850424	474	1.1+	0.4+	880219	801	0.5+	0.7+

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ORBITAL ELEMENTS BY C. M. BARDWELL, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by C. M. Bardwell unless otherwise stated.

(3811)* 1953 TH = 1984 FA2

Discovered 1953 Oct. 13 by L. Oterma at Turku.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	137.91197		(1950.0)		P		Q
n	0.23824923	Peri.	67.44289		+0.68971310		-0.72116071
a	2.5770037	Node	338.52337		+0.58183494		+0.60540256
e	0.1286239	Incl.	10.22395		+0.43100341		+0.33677140
P	4.14	H	11.7	G	0.25		

Residuals in seconds of arc

531013 062	0.6-	0.7-	880213 054	0.3+	0.0	880214 033	2.3-	0.7+
531102 062	0.5-	0.2+	880213 033	1.8-	1.1+	880214 552	0.9-	0.2-
531112 210(15.2+	10.8-)X		880213 033	1.4+	0.5-	880215 033	2.0+	0.2-
531112 062	0.4+	1.1-	880213 552	1.1-	0.0	880215 033	0.3+	0.3+
531112 062	1.2-	2.1+	880213 033	(3.7-	0.9+)	880215 552	0.3+	0.2-
840330 095	0.6+	0.7-	880214 552	1.8-	1.8-	880215 033	1.1+	0.1-
840403 095	0.4-	1.0+	880214 033	0.0	0.4-	880215 552	0.7+	0.2+
861204 801	0.1+	1.0+	880214 033	0.8+	0.2-	880216 033	1.0+	0.2+
861228 801	0.0	1.3-	880214 033	0.8+	0.1+			
880213 054	0.3-	0.9+	880214 552	0.3-	0.2+			

(3812)* 1965 AK1 = 1982 BU2

Discovered 1965 Jan. 11 at the Purple Mountain Observatory.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 27.08752		(1950.0)	P	Q
n 0.17382540	Peri.	38.89840	-0.92179306	-0.28261942
a 3.1797566	Node	122.67866	+0.22702910	-0.94838447
e 0.1088166	Incl.	18.37771	+0.31425364	-0.14385115
P 5.67	H	12.1	G 0.25	

Residuals in seconds of arc

650111 330	1.1-	2.6+	820120 046	0.1-	0.6+	820125 046	0.7+	0.1+
650202 330	2.2+	3.2-	820120 046	0.7-	0.6+	820327 801	0.6+	0.7+
650304 330	1.1-	0.2+	820121 046	0.4-	0.3+	880219 801	2.4+	0.8-
780705 675	0.1+	1.0+	820121 046	0.3+	0.5+	880312 293	3.0-	0.4+
780706 675	0.4+	0.7+	820125 046	0.7-	0.4+	880317 801	0.6+	0.8-

(3813)* 1970 QA1 = 1934 NJ = 1960 OD = 1986 PL

Discovered 1970 Aug. 30 by T. Smirnova at the Crimean Astrophysical Observatory. The identifications 1970 QA1 = 1934 NJ = 1960 OD are by L. D. Schmadel (MPC 11052).

Observatory.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 232.43665		(1950.0)	P	Q
n 0.30396685	Peri.	348.79346	+0.61864098	+0.78425824
a 2.1907117	Node	319.39927	-0.71508903	+0.53719182
e 0.1759783	Incl.	4.15406	-0.32547044	+0.31042546
P 3.24	H	13.3	G 0.25	

Residuals in seconds of arc

340706 078(23.0+	18.4-)X		860803 046	0.8-	1.1-	860904 688	1.8+	1.1+
600721 760	0.5+	0.0	860803 046	0.1-	1.3-	861005 801	0.3-	1.3+
600721 760	0.5-	0.7+	860803 046	1.6-	0.1-	880211 809	0.8-	1.4-
700830 095	0.1+	0.2-	860804 046	0.4+	1.1-	880211 809	1.8-	0.4-
700905 095	2.3+	0.9-	860804 675(14.2+		2.2+)	880211 809	0.6-	1.2-
700910 095	0.2+	0.8+	860806 675(13.5+		3.5+)	880215 809	0.2+	2.1-
700927 095	1.4-	0.0	860806 046	0.8+	0.5-	880217 809	1.2+	0.2+
701001 095	1.5-	0.4+	860807 046	1.3-	1.7-	880217 809	0.4+	0.2-
860802 675 (5.1+	1.7+)		860904 688	3.2+	0.3+	880217 809	0.6+	0.3+

(3814)* 1981 JA = 1975 EZ2 = 1975 EQ3 = 1980 BL4

Discovered 1981 May 4 by T. Furuta at Tokai. The key identification and double designation 1981 JA = 1975 EZ2 = 1975 EQ3 are by T. Urata (MPC 6192).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 122.76383		(1950.0)	P	Q
n 0.17717551	Peri.	70.59350	-0.84507788	+0.53438382
a 3.1395465	Node	141.70359	-0.50003405	-0.77896536
e 0.1202284	Incl.	1.53978	-0.18923353	-0.32809588
P 5.56	H	12.3	G 0.25	

Residuals in seconds of arc

750308	095	0.3+	0.2-	810506	675	0.2+	0.3-	860305	688	1.0+	0.1+
750314	095	0.0	0.4+	810507	372	2.4+	1.6-	860309	809	0.8-	0.1+
800122	095	0.8-	3.0-	810507	372	0.5+	1.8+	860309	809	0.7-	0.3+
810430	372	2.2-	0.5-	810508	688	0.3+	0.7-	860314	809	0.0	0.2-
810430	372	2.4-	1.5+	810508	688	0.2-	0.7+	860314	809	0.2+	0.5+
810503	688	0.1+	0.2-	810510	675	2.0+	1.3+	860315	809	0.1+	0.2-
810504	879	0.9+	1.4-	810601	372	1.0-	0.9+	860315	809	0.3+	0.3+
810504	879	0.3+	0.9-	810601	372	1.7-	1.6+	860318	809	0.3-	0.2+
810505	675	0.2-	1.7-	810604	688	(5.3+	1.0-)	860318	809	0.4-	0.5+
810505	675	0.1+	1.5-	810604	688	1.3+	0.7-	860414	801	1.8+	1.1+
810506	675	1.3-	0.2+	860209	801	(5.3+	0.8+)	870624	801	0.2+	1.1-

1968 OA1 = 1988 CE5
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	173.86024	(1950.0)	P	Q	
n	0.27702634	Peri.	168.55800	+0.94416600	-0.32454073
a	2.3305381	Node	210.56863	+0.29277223	+0.90548965
e	0.1246039	Incl.	6.41015	+0.15111252	+0.27342605
P	3.56	H	14.0	G 0.25	

Residuals in seconds of arc

680718	805	0.2-	0.1-	680823	805	0.5+	0.1+	880216	809	0.3-	0.2-
680725	805	0.2-	0.5-	880213	809	0.5-	0.6+	880216	809	0.3-	0.1+
680728	805	0.4-	0.3+	880215	809	1.0+	0.3-				
680730	805	0.6-	1.9+	880216	809	0.7-	0.6-				

1976 WC = 1988 FH
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	83.88569	(1950.0)	P	Q	
n	0.27240400	Peri.	292.49068	-0.12502278	-0.98661487
a	2.3568235	Node	163.61748	+0.99058413	-0.13006147
e	0.3495510	Incl.	21.78864	+0.05578872	+0.09836212
P	3.62	H	14.5	G 0.25	

Residuals in seconds of arc

761130	809	0.8-	0.1-	761227	801	0.3-	0.3+	770326	809	0.0	0.6+
761130	809	0.7-	0.3+	770116	801	0.2-	1.4+	770327	809	0.2+	1.0-
761203	809	1.0+	0.0	770129	809	1.3+	1.3-	770411	809	0.4-	0.1-
761204	809	0.1+	0.1-	770130	809	1.0+	0.3-	770419	801	0.2+	1.1+
761206	809	0.0	0.5-	770130	809	0.6+	0.2+	880319	675	0.3+	0.2+
761223	809	2.0+	1.4-	770222	801	2.8-	1.1-	880321	675	0.7+	0.7-
761223	809	1.4-	0.4+	770312	809	1.1+	1.0+	880322	675	0.1+	0.5-
761224	809	1.4+	0.3-	770313	809	0.1+	0.6+				
761224	809	2.0-	0.7+	770318	801	1.4-	1.2+				

1981 ER5 = 1986 XC5 = 1988 CO5
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	241.11934	(1950.0)	P	Q	
n	0.26746345	Peri.	53.24914	+0.83232422	+0.53947851
a	2.3857629	Node	273.77024	-0.54047027	+0.73893549
e	0.2665890	Incl.	7.32819	-0.12299707	+0.40365490
P	3.69	H	14.0	G 0.25	

Residuals in seconds of arc

810209	413	0.0	0.3+	810307	413	0.9+	0.4-	810409	413	0.0	0.0
810214	413	1.3-	0.1+	810308	413	0.8-	1.1+	861204	046	3.0-	0.7-
810228	413	2.3+	1.4+	810308	413	1.8+	0.2-	861204	046	3.0+	1.4+
810228	413	2.0+	0.5+	810310	413	2.2-	0.8-	880213	809	1.3+	0.0
810302	413	(5.8-	0.1-)	810310	413	1.3+	1.0-	880215	809	0.2-	1.1-
810302	413	1.1+	0.5-	810312	413	0.0	0.5-	880216	809	0.7-	0.5-
810306	413	0.6-	1.7+	810407	413	2.0-	1.3+	880216	809	0.5-	0.4-
810306	413	0.2+	0.8-	810407	413	0.9-	0.8+	880216	809	0.8-	0.0
810307	413	1.8-	0.7+	810409	413	0.8+	1.0-				

1985 HG1 = 1985 JZ = 1983 UL1 = 1988 CX2

The double designation 1985 HG1 = 1985 JZ is by F. N. Bowman (MPC 10151).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	30.56152		(1950.0)	P	Q
n	0.28443216	Peri.	54.17101	-0.94647881	-0.31801580
a	2.2899067	Node	107.22960	+0.27435007	-0.88270863
e	0.1329815	Incl.	3.31141	+0.17002913	-0.34596448
P	3.47	H	14.0	G 0.25	

Residuals in seconds of arc

831030	675	0.7-	0.1-	850513	675	0.1-	3.1+	880217	809	0.0	0.1-
831104	675	0.4+	1.2+	850514	675	0.3+	0.6+	880217	809	0.4+	0.1-
850421	046	0.6-	1.6-	880211	809	2.1-	0.8+	880217	809	0.0	0.4+
850422	046	0.8+	1.0-	880215	809	1.7+	0.5-				

1986 RB

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	181.78645		(1950.0)	P	Q
n	0.27481086	Peri.	36.73193	+0.95829212	-0.21741482
a	2.3430422	Node	333.90236	+0.02301521	+0.70564742
e	0.2582005	Incl.	24.93974	+0.28486226	+0.67438307
P	3.59	H	12.5	G 0.25	

Residuals in seconds of arc

860809	095	(5.5-	3.5+)	860905	688	1.7+	0.1+	861007	801	0.2-	0.7+
860812	095	2.8-	3.2+	860906	675	0.9-	0.2+	861030	801	0.4+	1.6+
860813	095	1.1+	1.2-	860906	675	0.0	0.2+	861128	801	0.4-	1.8+
860829	095	3.0-	3.0+	860906	095	(5.0-	0.9+)	861227	801	0.6+	0.1+
860901	675	2.0-	0.2+	860911	688	(6.1+	2.5-)	870129	801	0.2-	0.8-
860901	675	1.2+	1.4-	860911	688	1.7+	1.0+	870202	801	0.9-	1.6-
860902	675	0.8+	3.5-	860929	095	0.3+	0.8-	880215	801	1.8+	0.9+
860902	675	1.6+	2.0-	860929	095	1.5-	0.6-	880316	801	0.5+	1.1+
860905	688	(4.9+	5.9+)	861003	801	0.0	0.7+				

1986 RC2

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	241.22874		(1950.0)	P	Q
n	0.36969141	Peri.	185.86146	+0.98693444	-0.15855117
a	1.9226924	Node	183.65475	+0.15996113	+0.98550985
e	0.0835045	Incl.	26.72806	+0.01930908	-0.06026493
P	2.67	H	13.0	G 0.25	

Residuals in seconds of arc

860909	095	(1.8+	7.8-)	861003	801	1.5+	1.1+	880317	400	0.5+	1.8+
860913	095	0.4+	0.1-	861003	095	0.9-	1.2-	880317	400	0.9+	0.1-
860914	095	1.6+	0.3+	861007	801	0.3+	0.6-	880318	675	0.1+	0.9-
860916	095	0.7+	1.0+	861030	801	1.3-	1.1-	880318	675	1.2-	0.0
860926	095	1.8-	0.1+	861227	801	0.1+	0.7+	880322	675	0.6-	1.3-
860929	095	0.0	0.6-	880317	801	(4.6+	5.4-)				

1988 BZ = 1952 BC1 = 1986 QA2
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 37.94993		(1950.0)	P	Q
n 0.27290616	Peri.	166.70852	-0.70788484	-0.67112423
a 2.3539315	Node	327.48147	+0.60475427	-0.41480599
e 0.1700073	Incl.	24.18179	+0.36492648	-0.61443328
P 3.61	H 12.5	G 0.25		

Residuals in seconds of arc

520126	711	0.6+	0.9+	Y	860830	809	0.2-	0.6-	880125	675	0.4-	0.1-
860828	809	0.3-	0.8+		860830	809	0.3-	0.6-	880216	675	0.3+	0.2+
860828	809	0.0	0.7+		860830	809	0.1-	0.6-	880217	675	0.0	0.7+
860828	809	0.4+	0.8+		880123	675	0.1-	1.3-	880319	675	0.2+	0.1-

1988 BO2 = 1944 RL = 1951 RY1 = 1970 AA
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 184.86773		(1950.0)	P	Q
n 0.28003236	Peri.	348.11486	+0.95830220	+0.28369407
a 2.3138253	Node	354.99392	-0.21925808	+0.65307355
e 0.2123791	Incl.	23.12578	-0.18325609	+0.70214856
P 3.52	H 12.0	G 0.25		

Residuals in seconds of arc

440913	062	1.3-	0.4+		700104	095	1.1+	1.2-	880317	675	0.3+	0.5-
440913	062	0.4+	0.3-		880124	675	0.1-	1.5+	880318	675	0.2+	0.7-
440920	062	0.1-	0.6-		880124	675	0.1+	1.6+	880319	675	0.0	1.0-
440920	062	0.8+	0.6+		880216	675	0.1+	0.2+				
510905	711	0.5-	0.4+	Y	880217	675	0.7+	0.5+				

1988 EG
Epoch 1988 Mar. 20.0 ET = JDE 2447240.5

M 53.87259		(1950.0)	P	Q
n 0.68893400	Peri.	241.42485	+0.44268491	-0.89667390
a 1.2696508	Node	182.30402	+0.84245379	+0.41684831
e 0.4996554	Incl.	3.49035	+0.30708578	+0.14904163
P 1.43	H 19.0	G 0.25		

From 18 observations 1988 Mar. 12-Apr. 12.

1988 GB
Epoch 1988 Apr. 9.0 ET = JDE 2447260.5

M 337.59204		(1950.0)	P	Q
n 0.35545307	Peri.	222.25786	-0.45914239	+0.88023997
a 1.9737003	Node	21.28967	-0.70083541	-0.27599869
e 0.3333756	Incl.	19.27550	-0.54591025	-0.38600819
P 2.77	H 17.0	G 0.25		

From 5 observations 1988 Apr. 12-Apr. 18.

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ORBITAL ELEMENTS BY D. W. E. GREEN, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

Periodic Comet Arend-Rigaux
Epoch 1991 Sept. 21.0 ET = JDE 2448520.5
T 1991 Oct. 2.71803 ET

q 1.4378217		(1950.0)	P	Q
n 0.14459452	Peri.	329.05878	-0.03011686	-0.96459094
a 3.5950216	Node	121.45197	+0.96833814	-0.09315000
e 0.6000520	Incl.	17.88774	+0.24781894	+0.24675372
P 6.82				

From 89 observations 1951-1986, mean residual 1".0.

1981 EW13
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	10.56276	(1950.0)	P	Q
n	0.26045961	Peri. 242.77807	-0.89445428	-0.44609020
a	2.4283428	Node 270.71483	+0.42040012	-0.81536743
e	0.0770330	Incl. 1.77110	+0.15236561	-0.36902506
P	3.78	H 15.5	G 0.25	

Residuals in seconds of arc

780707	675	0.4+	0.7-	810308	413	0.2-	0.6+	810409	413	1.5-	0.2+
780708	675	0.3-	0.4-	810308	413	0.9+	0.4+	810409	413	0.3+	0.7-
810212	413	0.1-	0.4-	810311	413	0.2-	0.7-	810410	413	1.3-	0.1-
810212	413	0.1-	0.5-	810311	413	0.3-	0.2-	810410	413	0.0	2.3-
810301	413	0.8-	1.6+	810312	413	0.9-	1.6+	810501	413	0.3-	0.9-
810301	413	2.3+	0.0	810312	413	2.2+	0.3+	810503	413	1.9-	0.8-
810302	413	0.7+	0.4+	810315	413	0.3-	0.6-	880111	033	0.0	0.6-
810306	413	2.1-	0.2-	810405	413	0.1+	0.9+	880111	033	0.5-	0.2-
810306	413	0.7+	1.0+	810408	413	0.6-	0.3-				
810306	413	1.1+	0.5+	810408	413	2.3+	1.0-				

1988 AW1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	169.50484	(1950.0)	P	Q
n	0.23542182	Peri. 36.49374	+0.96611469	+0.19693712
a	2.5976010	Node 311.26597	-0.25601211	+0.81344352
e	0.1464885	Incl. 12.82498	+0.03286663	+0.54728914
P	4.19	H 12.0	G 0.25	

From 12 observations 1987 Dec. 24-1988 Feb. 17, mean residual 0".8.

1988 AX1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	59.72425	(1950.0)	P	Q
n	0.23553341	Peri. 161.61728	-0.32486437	-0.92861368
a	2.5967804	Node 306.95139	+0.83709597	-0.19410658
e	0.1535056	Incl. 12.96373	+0.44015165	-0.31622661
P	4.18	H 14.0	G 0.25	

From 34 observations 1987 Dec. 24-1988 Feb. 17, mean residual 0".9.

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ORBITAL ELEMENTS BY B. G. MARSDEN, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by B. G. Marsden unless otherwise stated. The 1983 observations of the 1981 UCAS objects have been identified by S. J. Bus.

Comet Levy (1988e)
T 1987 Nov. 29.87024 ET

q	1.1818697	(1950.0)	P	Q
		Peri. 326.86407	+0.02340553	+0.53365818
		Node 288.13827	-0.60789962	-0.66371944
e	1.0	Incl. 62.82069	-0.79366884	+0.52410442

From 10 observations 1988 Mar. 22-Apr. 19.

Comet Maury-Phinney (1988c)
T 1987 Dec. 26.78844 ET

		(1950.0)	P	Q
q 1.9305336	Peri.	346.83146	-0.82183878	-0.16127621
	Node	146.82144	+0.56971947	-0.23119862
e 1.0	Incl.	93.16273	-0.00085954	+0.95944629

From 22 observations 1988 Feb. 16-Apr. 12.

Periodic Comet Van Biesbroeck
Epoch 1991 Apr. 14.0 ET = JDE 2448360.5
T 1991 Apr. 24.71262 ET

		(1950.0)	P	Q
q 2.4009095	Peri.	134.14746	+0.22043120	+0.97353475
n 0.07926748	Node	148.43988	-0.92455774	+0.22825080
a 5.3670959	Incl.	6.61946	-0.31081034	+0.01147449
e 0.5526613				

P 12.43
From 99 observations 1954-1979, mean residual 0".8.

Periodic Comet Arend
Epoch 1991 May 24.0 ET = JDE 2448400.5
T 1991 May 26.02201 ET

		(1950.0)	P	Q
q 1.8500610	Peri.	47.06857	+0.73306845	-0.67962806
n 0.12338152	Node	355.49636	+0.48118070	+0.54602450
a 3.9960966	Incl.	19.92887	+0.48070342	+0.48986013
e 0.5370330				

P 7.99
From 56 observations 1951-1976, mean residual 1".3. Nongravitational parameters A1 = +0.14, A2 = -0.0286.

Periodic Comet Machholz (1986 VIII)
Epoch 1991 July 3.0 ET = JDE 2448440.5
T 1991 July 22.61437 ET

		(1950.0)	P	Q
q 0.1255490	Peri.	14.53049	-0.18911192	-0.46400199
n 0.18813782	Node	93.82143	+0.79189848	-0.59318831
a 3.0163749	Incl.	60.15110	+0.58063197	+0.65789800
e 0.9583775				

P 5.24
From 65 observations 1986 May 13-Sept. 5, mean residual 1".0.

Periodic Comet Skiff-Kosai (1976 XVI)
Epoch 1991 Sept. 21.0 ET = JDE 2448520.5
T 1991 Sept. 14.85777 ET

		(1950.0)	P	Q
q 2.8463656	Peri.	26.52531	-0.28619690	-0.95659191
n 0.13072200	Node	80.14610	+0.86884742	-0.28328304
a 3.8450642	Incl.	3.19919	+0.40397462	-0.06842978
e 0.2597352				

P 7.54
From 8 observations 1977 Feb. 13-Mar. 12, mean residual 0".3.

Periodic Comet Faye
Epoch 1991 Oct. 31.0 ET = JDE 2448560.5
T 1991 Nov. 16.19368 ET

		(1950.0)	P	Q
q 1.5933855	Peri.	203.95376	+0.73497900	-0.67615963
n 0.13424761	Node	198.88006	+0.64483824	+0.72026955
a 3.7774466	Incl.	9.09095	+0.20973676	+0.15498366
e 0.5781845				

P 7.34
From 82 observations 1961-1985, mean residual 1".4. Nongravitational parameters A1 = +0.45, A2 = -0.0049.

1967 DA = 1988 DF
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	56.89543	(1950.0)	P	Q
n	0.18870716	Peri. 339.88235	-0.51224789	-0.85770146
a	3.0103108	Node 140.89581	+0.79720154	-0.49398501
e	0.2753461	Incl. 4.01500	+0.31948680	-0.14257285
P	5.22	H 12.5	G 0.25	

Residuals in seconds of arc

670208	095	0.9+	2.5-	880307	888	0.9+	0.6+	880312	888	0.2-	0.2+
670216	095	0.6-	3.3+	880307	888	1.1+	0.0	880316	400	2.0+	0.1-
670303	095	0.9+	0.3-	880308	888	0.0	0.7-	880316	400	3.4-	0.4-
880218	888	3.4+	1.1-	880308	888	1.4+	1.0-	880317	400	1.1+	2.2-
880218	888	2.7+	1.4+	880310	888	1.2-	2.1-	880317	400	0.5+	1.2+
880219	888	4.0-	0.9+	880310	888	0.7-	0.2-	880322	888	0.1+	1.6+
880219	888	3.4-	0.0	880312	888	0.6-	0.0	880322	888	0.0	1.7+

1978 VP8 = 1978 WU12 = 1969 FA = 1983 UL = 1986 EC3
The double designation 1978 VP8 = 1978 WU12 is by H. Oishi (JAM 2046).
The key identification 1978 VP8 = 1983 UL is by S. J. Bus.
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	124.22824	(1950.0)	P	Q
n	0.17224180	Peri. 85.46879	-0.86099483	+0.50764089
a	3.1992232	Node 125.03485	-0.48052859	-0.79163718
e	0.1430721	Incl. 2.20073	-0.16667386	-0.34001661
P	5.72	H 12.0	G 0.25	

Residuals in seconds of arc

690323	095	1.1-	2.6-	781108	675	0.3+	0.3-	831104	675	1.3+	0.5-
781105	675	0.3+	0.4+	781129	675	0.1-	0.3+	860312	809	0.4+	1.0+
781106	675	0.1-	0.7-	781130	675	0.6-	0.2+				
781107	675	0.1+	1.1+	831030	675	0.3-	2.1-				

1981 EB27
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	347.04749	(1950.0)	P	Q
n	0.24158850	Peri. 324.06408	-0.54923058	-0.83539162
a	2.5532073	Node 159.22367	+0.78019364	-0.52185893
e	0.0620119	Incl. 3.49125	+0.29940550	-0.17258067
P	4.08	H 16.5	G 0.25	

Residuals in seconds of arc

810209	413	0.8+	1.1-	810306	413	2.2-	0.6+	810405	413	1.3+	0.4+
810212	413	0.9+	1.4-	810311	413	1.0-	0.4+	810426	413	0.9+	0.7-
810213	413	0.7+	0.2-	810311	413	0.2-	0.7+	810501	413	0.3-	0.2-
810302	413	2.3+	1.1-	810315	413	2.2-	1.1+	831030	675	1.3-	4.9-
810302	413	0.6-	0.4+	810315	413	0.7+	0.3+	831104	675	1.2+	5.3+

1981 EF35
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	42.16313	(1950.0)	P	Q
n	0.24747541	Peri. 272.28165	+0.22545490	-0.97412358
a	2.5125548	Node 164.66056	+0.91603350	+0.20639074
e	0.0765743	Incl. 3.44945	+0.33174195	+0.09212009
P	3.98	H 15.0	G 0.25	

Residuals in seconds of arc

810213	413	0.0	1.6-	810311	413	0.8+	0.3+	831030	675	0.3+	0.4-
810302	413	2.3-	0.8+	810311	413	0.0	0.4+	831104	675	0.3-	0.6+
810303	413	0.1-	0.8+	810502	413	1.0-	0.1-				
810307	413	1.7+	0.8-	810503	413	0.7+	0.4+				

1981 EJ35
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 39.79931		(1950.0)	P	Q
n 0.26552623	Peri.	315.92170	-0.54913394	-0.83551131
a 2.3973529	Node	167.34527	+0.78906082	-0.52594025
e 0.1766537	Incl.	5.05608	+0.27538144	-0.15908394
P 3.71	H 18.0	G 0.25		

Residuals in seconds of arc

810209	413	0.6-	0.3-	810307	413	1.2+	0.2+	831030	675	0.3+	0.3-
810213	413	0.8+	0.3+	810311	413	1.6+	1.8-	831104	675	0.3-	0.3+
810302	413	1.0-	0.4+	810316	413	3.2-	2.3+				
810307	413	0.4-	0.2+	810316	413	1.7+	1.4-				

1981 EM40
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 51.63605		(1950.0)	P	Q
n 0.22306944	Peri.	241.02160	+0.98625892	-0.15966796
a 2.6926311	Node	128.13384	+0.16402682	+0.91574568
e 0.1059833	Incl.	3.09151	+0.01971176	+0.36866787
P 4.42	H 15.5	G 0.25		

Residuals in seconds of arc

810209	413	0.8+	0.7+	810307	413	1.5-	0.2+	810502	413	0.6-	0.4+
810213	413	2.1+	0.7-	810311	413	3.0-	0.5+	831030	675	0.2-	0.6-
810302	413	0.1-	1.1-	810426	413	3.1+	0.1+	831104	675	0.1+	0.9+

1981 GP = 1983 TL2 = 1988 FA
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 61.93497		(1950.0)	P	Q
n 0.27293703	Peri.	103.03142	-0.40158417	-0.91257727
a 2.3537587	Node	11.58535	+0.61842046	-0.33224786
e 0.3178354	Incl.	22.55306	+0.67548967	-0.23835703
P 3.61	H 13.5	G 0.25		

Residuals in seconds of arc

810327	046	0.6-	1.5+	810405	688	1.5+	1.3-	831004	688	2.8+	2.5-	
810327	046	2.4-	0.9+	810407	688	0.2-	0.3+	831004	688	0.4+	0.6-	
810329	046	0.1-	1.3-	810407	688	1.5+	0.3-	880318	675	0.2-	0.1+	
810329	046	0.7-	0.2-	810409	688	1.6+	1.6-	880319	675	0.1+	2.0-	
810402	046	0.9-	0.9-	810409	688	2.0+	0.5-	880319	675	0.5+	3.1+	Y
810403	046	2.0-	0.9-	810409	046	2.5-	1.4+	880321	675	0.1-	0.7-	
810405	688	1.1+	0.9-	810409	046	0.9-	0.9+	880322	675	0.4-	0.4-	

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ORBITAL ELEMENTS BY S. NAKANO, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by S. Nakano unless otherwise stated.

Periodic Comet Russell 1
Epoch 1991 Jan. 24.0 ET = JDE 2448280.5
T 1991 Jan. 4.53763 ET

q 2.1749372		(1950.0)	P	Q
n 0.12933620	Peri.	333.74061	-0.92723665	+0.30399936
a 3.8724812	Node	225.80953	-0.26679612	-0.94604443
e 0.4383608	Incl.	17.75623	-0.26277752	-0.11217992
P 7.62				

From 20 observations 1979-1985, mean residual 1".3.

Periodic Comet Swift-Gehrels
Epoch 1991 Mar. 5.0 ET = JDE 2448320.5
T 1991 Feb. 22.67740 ET

		(1950.0)	P	Q
q	1.3551155			
n	0.10700170	Peri.	84.84777	+0.77253526	-0.62425338
a	4.3941574	Node	313.71777	+0.50002957	+0.71085612
e	0.6916097	Incl.	9.24995	+0.39135624	+0.32402361
P	9.21			

From 47 observations 1973-1982, mean residual 1".2.

Periodic Comet Haneda-Campos (1978 XX)
Epoch 1991 Apr. 14.0 ET = JDE 2448360.5
T 1991 Apr. 9.54074 ET

		(1950.0)	P	Q
q	1.2246799			
n	0.15689769	Peri.	305.44688	+0.97310807	-0.21629121
a	3.4045393	Node	67.16059	+0.22919284	+0.87471130
e	0.6402803	Incl.	4.93239	+0.02305068	+0.43370296
P	6.28			

From 55 observations 1978 July 30-Nov. 29, mean residual 1".2.

Periodic Comet Hartley 1 (1985 VII)
Epoch 1991 Apr. 14.0 ET = JDE 2448360.5
T 1991 Apr. 28.75213 ET

		(1950.0)	P	Q
q	1.7954501			
n	0.16640487	Peri.	179.47127	-0.78989567	+0.55184195
a	3.2735982	Node	38.30062	-0.56418277	-0.48301443
e	0.4515362	Incl.	25.56510	-0.24033858	-0.67982903
P	5.92			

From 11 observations 1985 June 13-Aug. 14, mean residual 0".6.

Periodic Comet Harrington-Abell
Epoch 1991 July 3.0 ET = JDE 2448440.5
T 1991 July 6.92766 ET

		(1950.0)	P	Q
q	1.7743892			
n	0.12991071	Peri.	138.67541	-0.43164890	-0.89931619
a	3.8610557	Node	336.63545	+0.77419560	-0.32948797
e	0.5404394	Incl.	10.17657	+0.46292592	-0.28752054
P	7.59			

From 23 observations 1968-1984, mean residual 1".2.

Periodic Comet Kowal-Mrkos (1984 X)
Epoch 1991 July 3.0 ET = JDE 2448440.5
T 1991 July 19.06657 ET

		(1950.0)	P	Q
q	2.6674218			
n	0.10664381	Peri.	315.94924	-0.93240051	+0.35159366
a	4.4039829	Node	244.80646	-0.30069067	-0.88315298
e	0.3943160	Incl.	5.30948	-0.20053532	-0.31052007
P	9.24			

From 8 observations 1984 Apr. 23-May 19, mean residual 1".3.

Periodic Comet Takamizawa (1984 VII)
Epoch 1991 Aug. 12.0 ET = JDE 2448480.5
T 1991 Aug. 18.42665 ET

		(1950.0)	P	Q
q	1.5897058			
n	0.13640409	Peri.	147.64430	+0.03911368	+0.98990952
a	3.7375279	Node	124.25067	-0.94824360	+0.07975582
e	0.5746638	Incl.	9.48384	-0.31512570	-0.11712453
P	7.23			

From 105 observations 1984 July 6-Nov. 25, mean residual 1".0.

Periodic Comet Hartley 2 (1985 V)
Epoch 1991 Sept. 21.0 ET = JDE 2448520.5
T 1991 Sept. 17.22034 ET

q	0.9525317		(1950.0)	P	Q
n	0.15696316	Peri.	174.95255	+0.75370678	-0.64692699
a	3.4035925	Node	226.06300	+0.59718006	+0.74772093
e	0.7201393	Incl.	9.25460	+0.27441222	+0.14966254
P	6.28				

From 15 observations 1986 Mar. 15-June 7, mean residual 0".5.

Periodic Comet Wirtanen
Epoch 1991 Sept. 21.0 ET = JDE 2448520.5
T 1991 Sept. 20.68670 ET

q	1.0832855		(1950.0)	P	Q
n	0.17925945	Peri.	356.14665	+0.21062869	-0.95682072
a	3.1151671	Node	81.61342	+0.90218272	+0.11135192
e	0.6522544	Incl.	11.68256	+0.37643312	+0.26850484
P	5.50				

From 21 observations 1960-1986, mean residual 1".9. Nongravitational parameters A1 = +0.75, A2 = -0.1215.

Periodic Comet Shoemaker 1 (1984 XVI)
Epoch 1991 Dec. 10.0 ET = JDE 2448600.5
T 1991 Dec. 18.84531 ET

q	1.9858468		(1950.0)	P	Q
n	0.13573888	Peri.	18.78676	+0.98765619	-0.00026957
a	3.7497289	Node	339.24824	-0.11656866	+0.66669695
e	0.4704026	Incl.	26.23657	+0.10462793	+0.74532885
P	7.26				

From 65 observations 1984 Sept. 22-1985 Feb. 19, mean residual 1".1.

Periodic Comet Kowal 2 (1979 II)
Epoch 1991 Dec. 10.0 ET = JDE 2448600.5
T 1991 Dec. 28.43109 ET

q	1.4995900		(1950.0)	P	Q
n	0.15260963	Peri.	189.64965	+0.23648687	-0.93859957
a	3.4680186	Node	247.01614	+0.90862405	+0.30522015
e	0.5675946	Incl.	15.83503	+0.34420386	-0.16084624
P	6.46				

From 14 observations 1979 Jan. 27-Mar. 23, mean residual 1".0.

(3815)* 1959 GG = 1959 GT = 1959 JD = 1955 HJ = 1967 EL = 1967 GR = 1969 VZ = 1977 UZ = 1981 RT3 = 1985 TC2

Discovered 1959 Apr. 15 by A. Konig, G. Jakisch and W. Wenzel at Heidelberg. The double designation 1959 GG = 1959 JD was suggested by R. Mitrinovic (MPC 2015).
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	43.94681		(1950.0)	P	Q
n	0.23891629	Peri.	9.92957	-0.89287944	+0.44818810
a	2.5722047	Node	196.90485	-0.42270676	-0.86755792
e	0.1023206	Incl.	8.60689	-0.15519436	-0.21557058
P	4.13	H	12.1	G	0.25

Residuals in seconds of arc

550427	760	1.5+	0.8-	670308	095	1.6+	3.0-	851010	054	0.7+	0.8-
550427	760	0.1+	2.6-	670413	095	1.0-	1.2+	851012	054	2.4+	0.2+
590415	024	0.2-	0.9-	691111	095	0.7-	0.6-	851014	010	3.3-	1.1-
590416	760	(0.0	8.4+)	691113	095	0.8-	1.6+	851015	010	(8.0-	1.8-)
590416	760	1.2-	0.6+	691115	095	1.8+	0.6+	851018	054	0.5+	0.5-
590502	760	0.2+	2.2+	771017	095	1.7-	2.8-				
590502	760	0.9-	2.3+	810903	095	1.3+	2.9+				

(3816)* 1975 VG9 = 1978 NL2 = 1985 CF

Discovered 1975 Nov. 8 by N. S. Chernykh at the Crimean Astrophysical Observatory. The key identification 1975 VG9 = 1985 CF is by T. Urata (NOC 1508).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	299.81077		(1950.0)		P		Q
n	0.23397172	Peri.	196.47117		-0.83462597		-0.52718188
a	2.6083176	Node	310.60962		+0.52609132		-0.67710485
e	0.1235776	Incl.	12.13753		+0.16317908		-0.51342797
P	4.21	H	12.0	G	0.25		

Residuals in seconds of arc

751108	095	0.4-	0.4-	850214	881	(1.8+	4.6+)	870929	054	1.8-	0.1+
751112	095	1.0+	2.9-	850214	881	3.0+	3.4+	870930	054	1.3-	0.5+
751127	095	0.4-	1.4+	850217	889	1.3+	2.5-	870930	054	0.9-	0.5+
751127	095	0.1+	1.5-	850217	889	0.7-	0.2-	871001	054	3.0+	2.0+
780707	095	1.6-	0.5+	850224	881	0.2-	1.2-	871120	801	(4.1-	0.0)
780709	675	0.1-	1.9-	850224	881	3.3-	0.4+				
780709	675	3.5+	1.5-	870929	054	1.2-	0.0				

(3817)* 1979 MK1 = 1976 SK9 = 1986 PH4

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

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	264.89187		(1950.0)		P		Q
n	0.28850657	Peri.	112.64784		-0.10595053		+0.99399190
a	2.2682918	Node	151.22850		-0.93194911		-0.08962791
e	0.1106420	Incl.	3.27174		-0.34676410		-0.06282462
P	3.42	H	14.4	G	0.25		

Residuals in seconds of arc

760929	095	1.1+	2.9-	860808	033	0.4-	0.7+	860902	809	0.1-	0.4+
790623	413	0.7+	0.5-	860826	809	0.2-	1.2-	860907	809	0.9-	1.2+
790624	413	1.4+	0.3-	860826	809	0.1+	1.1-	860907	809	1.1-	1.0+
790625	413	2.3-	0.5-	860826	809	0.2+	1.4-	860907	809	1.1-	0.6+
790721	095	1.4-	0.0	860828	809	0.5+	0.7-	860908	809	0.1-	0.0
790724	675	0.0	0.1-	860828	809	0.5+	0.8-	860908	809	0.3+	0.0
790724	413	2.3+	0.3+	860828	809	0.5+	0.8-	860908	809	0.3+	0.0
790725	675	1.0-	0.1+	860830	809	0.1-	0.2+	860910	809	0.4+	0.8+
790823	675	0.7+	0.7+	860830	809	0.1-	0.1+	860910	809	0.5+	0.8+
831030	675	0.3+	0.1+	860830	809	0.2+	0.1+	860910	809	0.5+	0.9+
831104	675	0.8-	1.3+	860902	809	0.0	0.3+				
860807	033	0.5-	0.4+	860902	809	0.1-	0.3+				

(3818)* 1979 QL8 = 1979 SR3 = 1968 QL

Discovered 1979 Aug. 20 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	195.48278		(1950.0)		P		Q
n	0.27061234	Peri.	62.67677		+0.59406819		+0.80377800
a	2.3672147	Node	243.80558		-0.75003294		+0.53909072
e	0.1802628	Incl.	2.04366		-0.29074659		+0.25163886
P	3.64	H	14.4	G	0.25		

Residuals in seconds of arc

680826	095	0.7+	2.4-		790924	095	(3.6+ | 6.4+)	871126	033	1.3-	0.1-
680831	095	0.4+	0.6-		860609	801	0.7+	0.6-	871126	033	1.3-	1.2-
790820	095	3.3-	1.9+		860708	801	0.7-	0.4+	880112	033	2.6+	0.6+
790828	095	2.0+	0.9+		860902	801	0.1+	0.6+	880112	033	0.1-	0.5+

(3819)* 1983 AR = 1951 EB1 = 1972 TW = 1986 VF1

Discovered 1983 Jan. 12 by B. A. Skiff at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	138.88996		(1950.0)	P	Q
n	0.21348756	Peri.	350.47546	+0.80181277	-0.58128840
a	2.7726028	Node	46.00673	+0.56013807	+0.65031317
e	0.1370415	Incl.	11.10486	+0.20818653	+0.48907727
P	4.62	H	12.3	G 0.25	

Residuals in seconds of arc

510309	760	1.4-	1.4+		830116	688	0.6+	1.4-	861102	054	2.3-	1.3+
510309	760	1.4+	2.5+		830121	688	1.6+	0.9+	861106	054	1.4-	1.5+
721007	095	3.3+	2.0-		830121	688	2.3+	0.5+	880219	801	0.5-	1.1+
830112	688	0.5+	1.2-		830215	688	0.1+	1.8-	880317	801	1.5+	0.7+
830112	688	1.1-	1.5-		830215	688	1.4-	2.1-				
830116	688	1.3-	0.2-		861029	054	1.5-	1.2+				

(3820)* 1984 DV = 1979 FN1 = 1982 UR8 = 1982 VP9

Discovered 1984 Feb. 25 by H. Debehogne at the European Southern Observatory. The identification and double designation 1984 DV = 1982 UR8 = 1982 VP9 are by T. Furuta (JAM 1694).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	47.02190		(1950.0)	P	Q
n	0.18928409	Peri.	73.23812	+0.82424835	-0.55618620
a	3.0041848	Node	320.37757	+0.43504431	+0.74206675
e	0.1144610	Incl.	9.58314	+0.36242392	+0.37415753
P	5.21	H	12.1	G 0.25	

Residuals in seconds of arc

790323	095	0.5-	0.8-		840229	809	0.2+	0.2-	840306	809	0.1-	0.3-
821021	095	1.1-	1.0+		840301	809	0.3+	0.0	840306	809	0.0	0.3-
821111	095	0.9+	0.1-		840301	809	0.6+	0.0	840308	809	0.4+	0.5-
840225	809	0.1-	0.0		840301	809	0.9+	0.1-	840308	809	0.2+	0.4-
840225	809	0.1+	0.3+		840302	809	0.1+	0.6+	840308	809	0.2+	0.1-
840225	809	0.6+	0.3+		840302	809	0.2-	0.5+	840309	809	0.6-	0.2-
840227	809	1.0-	0.6+		840302	809	0.3+	0.6+	840309	809	0.5-	0.2-
840227	809	0.7-	0.4+		840304	809	0.9+	0.1+	840309	809	0.4-	0.2-
840227	809	0.6-	0.4+		840304	809	0.8+	0.2+	870830	010	0.6-	0.4-
840228	809	0.6-	0.1+		840304	809	0.7+	0.3+	870830	010	0.7+	0.4-
840228	809	0.9-	0.1-		840305	809	0.1-	0.2-	870830	010	0.3+	0.1-
840228	809	0.6-	0.1-		840305	809	0.0	0.4-	871123	801	0.3+	0.6-
840229	809	0.0	0.2-		840305	809	0.1+	0.5-				
840229	809	0.2+	0.2-		840306	809	0.3-	0.3-				

(3821)* 1985 RC3 = 1951 YV = 1979 QQ5 = 1982 DH5 = 1986 WH

Discovered 1985 Sept. 6 by H. Debehogne at the European Southern Observatory.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	95.56934		(1950.0)	P	Q
n	0.16820319	Peri.	330.89434	+0.12648889	-0.99192705
a	3.2502236	Node	111.83769	+0.91193765	+0.11270255
e	0.1809435	Incl.	0.55653	+0.39034637	+0.05812799
P	5.86	H	12.1	G 0.25	

Residuals in seconds of arc

511223	711	0.4+	2.0-	Y	850916	809	1.0-	0.3+	861201	552	1.9-	1.2-
511223	711	0.1-	0.3+	Y	850916	809	1.2-	0.3+	861202	552	1.1-	0.3-
790830	809	(11.4+ | 8.3+)		850918	809	1.3-	0.2-	861202	552	0.9-	0.0
790830	809	(11.2+ | 1.7-)		850918	809	1.2-	0.3-	861203	552	1.5+	1.1+
820222	010	1.1-	1.0+		850918	809	1.3-	0.3-	861203	552	0.3+	1.9+
850906	809	1.3+	0.1-		850920	809	0.9+	1.2+	861204	552	0.8-	2.2+
850906	809	1.4+	0.2-		850920	809	0.9+	1.3+	861204	552	0.0	2.2+
850906	809	1.4+	0.2-		850920	809	0.9+	1.4+	861205	552	0.0	0.2-
850910	809	0.3-	0.3-		861126	552	1.2+	0.4-	861205	552	0.2+	1.5-
850910	809	0.2-	0.3-		861126	552	0.3-	1.3-	861222	552	0.4+	0.6+
850910	809	0.3-	0.5-		861129	552	0.5+	0.2+	861222	552	0.6+	0.4+
850914	809	0.0	0.2-		861129	552	1.6+	0.2-	880213	054	0.4-	0.1+
850914	809	0.1+	0.4-		861130	552	0.4-	0.1+	880213	054	2.5-	0.5+
850914	809	0.2+	0.5-		861130	552	0.1+	0.1+	880319	801	2.6+	0.9-
850916	809	0.9-	0.3+		861201	552	1.5-	1.5-	880322	801	2.0+	1.2+

1937 QC = 1937 TV = 1976 YM6 = 1983 VX1

The redesignation of 1937 QC as 1937 TV on MPC 5287 was unnecessary.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	129.18337		(1950.0)	P	Q
n	0.28075417	Peri.	115.32745	+0.53608521	-0.84140518
a	2.3098623	Node	302.08623	+0.74264068	+0.50847933
e	0.1705259	Incl.	4.61643	+0.40136948	+0.18299206
P	3.51	H	14.0	G 0.25	

Residuals in seconds of arc

370831	029	1.6-	1.4-		371007	029	1.2-	2.0+	831109	046	2.0-	0.8-
370901	029	0.2-	0.3-		371007	029	(1.3- | 14.4-)	831110	046	0.5-	0.1-
370907	029	2.6+	0.2-		761220	095	0.4+	2.5-	831110	046	3.0-	0.6+
370907	029	0.9-	0.1+		831108	046	0.7+	1.6+	831111	675	3.8+	1.9+
370908	029	1.6+	0.7-		831109	046	2.4+	0.4-				
370910	029	(28.2+ | 9.8+)		831109	046	1.6-	0.6-				

1941 HC = 1978 GZ4 = 1979 OA15 = 1982 BB9 = 1988 FC

The identifications were found independently by T. Kobayashi.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	61.17196		(1950.0)	P	Q
n	0.18754741	Peri.	12.79344	-0.78025441	-0.60720170
a	3.0227081	Node	128.78704	+0.55553024	-0.78299705
e	0.0483359	Incl.	11.09727	+0.28738338	-0.13498786
P	5.26	H	11.0	G 0.25	

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

410403	062	(53.6- | 96.7+)		790721	095	0.8+	0.9+	880317	399	0.1-	1.1+
410403	062	(0.02- | 0.03+)		820119	095	0.6-	1.8-	880321	399	0.7+	0.5+
410419	062	1.6-	1.9+		880316	399	0.9-	0.2-	880321	399	0.0	0.5+
410421	062	1.6+	1.5-		880316	399	0.4-	0.1+	880321	399	0.0	0.4+
410428	062	0.4+	0.2-		880316	399	0.4-	0.0	880408	399	0.7-	0.5+
780412	095	1.7-	1.4-		880317	399	1.1+	0.3+	880408	399	0.6+	0.1+
780505	095	1.2-	1.7-		880317	399	1.2+	0.2-	880408	399	1.2+	0.0

1951 WH = 1951 UG = 1971 UY2 = 1981 UZ6

The double designation 1951 WH = 1951 UG was suggested by O. Kippes (MPC 1750).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	32.66324		(1950.0)	P	Q
n	0.29590513	Peri.	336.89597	+0.90720275	-0.41501952
a	2.2303228	Node	47.81047	+0.39901761	+0.79698971
e	0.1756888	Incl.	5.33278	+0.13329712	+0.43882366
P	3.33	H	13.5	G 0.25	

Residuals in seconds of arc

511029	760	1.2-	0.9+		511129	020	2.0-	0.7-		811028	095	1.1+	3.0-
511029	760	0.3-	1.1+		511201	020	(99.7+	3.4+)		811030	381	1.6-	1.2+
511124	020	4.8+	2.0-		711028	095	(2.4-	7.9-)		811030	381	1.2-	1.2+
511129	760	1.2-	1.2+		811024	095	0.2-	2.8-					
511129	760	1.0-	1.3+		811024	095	2.5+	1.4+					

1952 HJ2 = 1952 HC4 = 1952 JQ = 1954 UR2 = 1984 FC2
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	220.90751		(1950.0)	P	Q
n	0.18300860	Peri.	202.30091	-0.17332657	+0.98475250
a	3.0724813	Node	57.72068	-0.90087898	-0.15243657
e	0.1456663	Incl.	1.00619	-0.39796353	-0.08381891
P	5.39	H	11.5	G 0.25	

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

520418	760	0.7+	0.0		520514	760	2.3-	1.3+		840330	095	2.0+	1.4+
520418	760	0.1-	0.7+		520514	760	3.1+	0.0		840403	095	2.0-	1.3-
520424	711	1.3-	2.0-	Y	541028	760	(0.05-	0.04-)	X				

1955 SG1 = 1955 UP = 1955 VG1 = 1969 QW = 1985 AG = 1986 HH = 1986 LR1 = 1987 SP6
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	101.18724		(1950.0)	P	Q
n	0.27671965	Peri.	147.31091	+0.99635920	+0.07933219
a	2.3322597	Node	208.18887	-0.08523246	+0.93525258
e	0.0978652	Incl.	3.78962	+0.00194368	+0.34497684
P	3.56	H	13.5	G 0.25	

Residuals in seconds of arc

550918	760	0.7-	1.6+		690821	095	4.6+	1.9-		860604	675	(57.7+	0.4-)
550918	760	0.5-	2.4+		850111	567	2.1+	1.7+		860606	675	1.3+	1.9+
551020	760	0.5-	3.7+		850111	567	0.6+	2.5-		860606	675	2.4+	2.5+
551020	760	1.0-	2.2+		860429	675	0.9-	2.5+		870921	046	1.0-	1.5-
551110	760	2.0-	1.0+		860429	675	1.2-	3.7+		870922	046	0.3-	1.7-
551110	760	2.0-	1.5+		860604	675	(57.2+	2.1-)					

1957 UK1 = 1957 XF = 1974 HP1 = 1981 UY14 = 1986 XG5

The double designation 1957 UK1 = 1957 XF and the identification 1957 UK1 = 1974 HP1 are by C. M. Bardwell (MPC 6099) and L. D. Schmadel (MPC 7239), respectively.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	135.38618		(1950.0)	P	Q
n	0.20507109	Peri.	236.84611	+0.52675028	-0.85001978
a	2.8479604	Node	181.36836	+0.78952862	+0.48957752
e	0.0585129	Incl.	1.72579	+0.31492650	+0.19437137
P	4.81	H	13.0	G 0.25	

Residuals in seconds of arc

571031	330	0.5+	2.6+		571215	330	1.0+	1.7+		861204	046	1.6+	0.8-
571111	330	3.3-	3.9+		740424	805	1.3-	1.2+		861205	046	3.6+	0.6-
571112	330	1.0+	1.1+		740425	805	2.6+	2.3+		861205	046	0.4+	0.5-
571114	330	1.9-	0.9+		811023	095	0.8+	3.0-		861207	046	2.2-	0.7-
571118	330	0.4-	1.1+		861204	046	0.6+	1.1-		861207	046	3.0-	1.7-

1972 KM = 1980 KC1 = 1980 KB2 = 1984 KX

The identifications 1972 KM = 1980 KC1 = 1980 KB2 are by T. Urata (MPC 7613).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 346.33857		(1950.0)	P	Q
n 0.24390106	Peri.	178.99333	+0.26279317	+0.95300010
a 2.5370428	Node	106.23011	-0.88628508	+0.30019116
e 0.2552152	Incl.	9.03423	-0.38136400	-0.04093997
P 4.04	H	13.0	G 0.25	

Residuals in seconds of arc

720518 095 0.2- 0.8+	800517 095 0.1+ 0.7-	840530 095 0.1+ 3.2+
720609 095 0.8+ 0.7+	800518 095 (4.0+ 6.2+)	
720613 095 0.7- 1.4-	840519 095 0.1- 2.5-	

1976 SZ5 = 1976 UD10 = 1937 UF = 1970 QS

The double designation 1976 SZ5 = 1976 UD10 and the identification 1976 SZ5 = 1970 QS are by H. Oishi (JAM 1665) and K. Hurukawa (MPC 9069), respectively.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 90.07442		(1950.0)	P	Q
n 0.17763126	Peri.	178.17446	+0.87397009	+0.48576773
a 3.1341804	Node	152.74802	-0.44625210	+0.81387020
e 0.1665776	Incl.	1.79617	-0.19244571	+0.31881815
P 5.55	H	12.5	G 0.25	

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

371027 024(0.04- 0.03-)X	700830 095 0.4+ 0.4-	761022 381 0.1+ 0.2+
371028 024 0.3- 0.8+	760924 095 0.2+ 1.5-	761024 381 0.0 0.1-
700828 095 0.4- 0.7+	761022 381 0.0 0.4+	

1978 TT2 = 1976 GA8 = 1986 LL1

The identification 1978 TT2 = 1976 GA8 is by T. Urata (NOC 1399).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 203.27819		(1950.0)	P	Q
n 0.20201333	Peri.	139.94030	-0.98177817	+0.18627865
a 2.8766271	Node	50.83606	-0.18438662	-0.88597821
e 0.0178205	Incl.	2.77779	-0.04596952	-0.42466797
P 4.88	H	12.5	G 0.25	

Residuals in seconds of arc

760401 095 1.7+ 0.1+	860602 809 0.6- 1.3-	860604 809 0.4+ 0.4-
760404 095 1.7- 0.0	860602 809 1.0- 1.2-	860607 809 1.5+ 2.3+
780927 095 2.5- 1.2-	860603 809 1.3- 0.5-	860607 809 1.4+ 1.7+
781003 095 0.8+ 0.3+	860603 809 0.3- 0.4-	
781007 095 1.7+ 0.8+	860604 809 0.1- 0.2-	

1979 OM15 = 1935 SC2 = 1974 SD2

The identification 1979 OM15 = 1974 SD2 is by T. Urata (NOC 1251).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 207.93487		(1950.0)	P	Q
n 0.17723694	Peri.	152.66439	+0.96643573	+0.25690034
a 3.1388273	Node	192.44990	-0.23739773	+0.88996714
e 0.1879023	Incl.	0.54388	-0.09820536	+0.37677673
P 5.56	H	12.0	G 0.25	

Residuals in seconds of arc

350928 078 1.1+ 2.3-	780510 675 1.1+ 1.4+	801130 095 1.3+ 1.1+
740919 095 2.1- 2.8+	790721 095 1.5+ 0.7+	801210 095 1.0- 1.4+
740922 095 0.2+ 0.0	790730 095 0.6+ 1.2+	
780509 675 0.6- 1.5+	790820 095 2.1- 0.5-	

1980 DA1 = 1972 EA = 1988 EF1

The identification 1980 DA1 = 1972 EA was suggested by L. D. Schmadel. The identifications were found independently by T. Kobayashi.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	50.03976		(1950.0)	P	Q
n	0.12348791	Peri.	96.94667	-0.70061815	-0.70569233
a	3.9938090	Node	38.25633	+0.56866128	-0.64154575
e	0.1584497	Incl.	9.81131	+0.43099717	-0.30069485
P	7.98	H	10.0	G 0.25	

Residuals in seconds of arc

720313 095	1.2+	2.0+	800222 046	0.5+	0.2-	880313 399	0.3+	1.2+
800215 046	0.5-	1.0-	800222 046	0.1+	0.0	880407 399	1.3+	0.6-
800215 046	1.6-	0.4+	800223 046	0.2-	0.2-	880407 399	0.4+	1.0-
800219 046	1.0-	0.6-	800223 046	0.7+	0.5-	880407 399	0.7-	0.0
800220 046	0.5+	0.7-	800315 095	1.1-	0.3-	880408 399	1.8-	0.6-
800221 046	0.3-	0.0	880313 399	1.5+	0.5+			
800221 046	0.5+	0.4-	880313 399	0.1-	1.9+			

1987 WQ1 = 1987 YB1 = 1958 XZ = 1977 DP1 = 1981 WM8

The double designation 1987 WQ1 = 1987 YB1 is by D. W. E. Green.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	38.84013		(1950.0)	P	Q
n	0.17056452	Peri.	354.76553	-0.07245254	-0.99607704
a	3.2201625	Node	99.38247	+0.91688485	-0.08656653
e	0.1344065	Incl.	2.95169	+0.39252108	+0.01835119
P	5.78	H	13.0	G 0.25	

Residuals in seconds of arc

581203 024	0.3-	1.3+	770219 381	0.0	0.2+	871222 033	0.2-	0.6-
770218 381	0.0	0.3-	811125 095	0.1-	0.3+	880111 033	0.2+	0.2-
770218 381	0.3+	0.3+	871126 033	0.1-	0.2-	880111 033	0.3+	0.3-
770219 381	0.0	0.7+	871126 033	0.1-	0.6-			

1988 BU = 1965 AX = 1971 DU = 1975 WA1

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	62.41686		(1950.0)	P	Q
n	0.17144577	Peri.	343.30085	+0.08816715	-0.99462688
a	3.2091183	Node	101.61612	+0.92008050	+0.06044579
e	0.1404218	Incl.	3.17538	+0.38167844	+0.08404569
P	5.75	H	11.5	G 0.25	

Residuals in seconds of arc

650109 330	0.1+	0.3+	880119 400	0.9+	0.2-	880211 809	0.5+	0.8-
710218 095	0.6+	1.8+	880123 400	1.7-	1.7-	880215 809	1.4-	0.2-
751128 095	0.2-	0.6+	880123 400	1.2+	3.4-	880217 809	1.6-	0.2-
880119 400	1.0+	1.2+	880124 400	1.9+	3.3+	880217 809	2.2-	0.8-
880119 400	1.7+	1.2-	880124 400	0.8+	2.1+	880217 809	1.9-	0.7-

1988 CH = 1974 SM = 1978 RW3

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	86.07478		(1950.0)	P	Q
n	0.24068759	Peri.	275.40076	+0.14851747	-0.98868847
a	2.5595746	Node	166.00592	+0.93808338	+0.13415785
e	0.2293078	Incl.	4.96294	+0.31295707	+0.06705798
P	4.09	H	13.0	G 0.25	

Residuals in seconds of arc

740919 095	0.5+	1.4-	880213 875	0.6-	0.1+	880221 875	1.4-	1.5-
780903 095	0.1+	0.4-	880213 875	1.7-	0.8+	880221 875	1.8-	1.6-
871220 010	1.4-	1.8+	880215 875	2.7+	1.7-	880312 894	0.4+	1.0-
871220 010	1.7+	1.8+	880215 875	0.9+	1.5-	880312 894	0.2+	2.6+
880210 875	(8.4+	0.8-)Y	880219 875	0.6+	0.2+			
880210 875	(8.0+	1.1-)Y	880219 875	0.2+	0.5-			

1988 CR1 = 1978 JJ1 = 1986 WM8
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	319.75348		(1950.0)		P		Q				
n	0.17993915	Peri.	97.25713		-0.85284794		+0.52076640				
a	3.1073235	Node	114.13330		-0.49402247		-0.78110107				
e	0.1212730	Incl.	2.39367		-0.16909224		-0.34450467				
P	5.48	H	12.5	G	0.25						

Residuals in seconds of arc

780506	095	0.0	0.0	861201	381	0.8-	0.7+	880217	809	0.3-	0.1-
861130	381	0.4+	0.8-	880211	809	0.3+	0.5+	880217	809	0.7-	0.1-
861130	381	0.3+	0.2-	880215	809	0.2+	0.8-				
861201	381	0.1+	0.2+	880217	809	0.5+	0.4+				

1988 CN2 = 1975 VE4
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	43.77235		(1950.0)		P		Q				
n	0.17638543	Peri.	297.66561		-0.38478249		-0.92300633				
a	3.1489210	Node	174.96408		+0.85201938		-0.35573954				
e	0.1270412	Incl.	0.86287		+0.35497242		-0.14665842				
P	5.59	H	12.5	G	0.25						

Residuals in seconds of arc

751102	095	1.0-	0.4-	880214	809	0.6-	0.3+	880217	809	0.2+	0.7+
751107	095	1.1+	0.4+	880215	809	0.4-	0.7+	880217	809	0.5+	0.6-
880211	809	0.7+	3.3-	880215	809	0.7+	1.4+	880217	809	0.0	0.1+
880213	809	0.4+	1.0+	880215	809	0.5-	1.1+	880217	809	1.0+	1.1-
880213	809	0.3-	1.3+	880215	809	0.1-	1.8-	880217	809	0.5+	1.6-
880213	809	0.4-	2.1+	880216	809	0.4-	0.3+	880217	809	0.4-	1.9-
880214	809	0.1+	0.1-	880216	809	0.6-	0.3+				
880214	809	0.4-	0.2+	880216	809	0.1-	0.9+				

1988 DJ = 1979 OO8
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	66.67038		(1950.0)		P		Q				
n	0.18291547	Peri.	238.39083		-0.47148291		-0.87211589				
a	3.0735241	Node	240.28957		+0.85150210		-0.41160522				
e	0.0536318	Incl.	8.66386		+0.22945162		-0.26456570				
P	5.39	H	13.5	G	0.25						

Residuals in seconds of arc

790724	413	1.5+	0.2-	880222	413	0.8-	0.7+	880225	413	1.3-	2.6+
790726	675	1.5-	0.2+	880222	413	1.3+	1.4-	880225	413	1.6+	1.9+
880219	413	2.6-	3.4-	880223	413	0.0	0.4+	880310	413	0.8-	0.3-
880219	413	(4.4+	6.0-)	880223	413	2.5+	0.1+	880310	413	0.1+	0.6-

1988 DM = 1973 TW = 1977 RE4 = 1986 VZ7
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	255.73521		(1950.0)		P		Q				
n	0.24031968	Peri.	69.95549		+0.70465134		+0.70055775				
a	2.5621862	Node	245.37967		-0.68846220		+0.63662322				
e	0.2557471	Incl.	7.11680		-0.17171571		+0.32238131				
P	4.10	H	13.0	G	0.25						

Residuals in seconds of arc

731002	095	0.8-	2.1+	880215	809	0.6-	0.6-	880222	413	1.6+	0.3-
770909	095	0.8+	2.1-	880216	809	0.7+	0.5-	880223	413	0.3+	0.1+
861108	033	0.5+	0.9-	880216	809	0.6+	0.7-	880225	413	0.2+	0.1+
861108	033	0.6-	0.3-	880216	809	0.2+	0.2-	880310	413	1.9-	0.8+
880213	809	0.8+	0.0	880222	413	2.7-	1.5+	880310	413	0.7+	0.5-

1988 DQ = 1939 CC1 = 1947 CG = 1951 CN1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 112.02973		(1950.0)	P	Q
n 0.24120867	Peri.	126.17884	+0.18457226	-0.96372104
a 2.5558869	Node	311.98533	+0.79767091	+0.26149663
e 0.0983715	Incl.	15.03379	+0.57415521	-0.05349091
P 4.09	H	11.5	G 0.25	

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

390213 062	0.6+	0.9+	470220 754	1.4+	1.1+		880223 413	1.3-	0.3+		
390217 062	(0.03+	0.00+)	510207 711	1.0-	1.4-	Y	880223 413	0.0	0.4+		
470214 754	(37.6+	3.5+)	510207 711	(0.7+	8.7-)	Y	880225 413	1.4-	0.2-		
470214 754	(34.5+	2.6+)	880219 413	1.0-	0.4-		880225 413	0.0	0.1-		
470219 754	(4.2+	1.4+)	880219 413	1.2+	0.9-		880310 413	0.3-	0.1-		
470219 754	0.5+	1.1+	880222 413	2.1-	0.4-		880310 413	2.2+	0.1-		
470220 754	0.0	0.6+	880222 413	1.1+	0.8-						

1988 DQ1 = 1978 GU1 = 1979 OF = 1983 HU1 = 1985 PU1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 313.81110		(1950.0)	P	Q
n 0.18477857	Peri.	53.53531	-0.66121948	+0.75004567
a 3.0528293	Node	174.99360	-0.73114054	-0.63987043
e 0.0442261	Incl.	9.79247	-0.16799497	-0.16732402
P 5.33	H	12.0	G 0.25	

Residuals in seconds of arc

780407 095	2.4-	0.2+	830416 033	2.4+	0.8-		880218 220	0.3-	2.1+	Y	
790721 805	0.8-	0.0	850814 010	0.2+	2.1-		880313 220	2.0+	3.5-	Y	
790722 805	0.4+	0.8+	850816 010	0.1+	1.1+		880314 220	1.1-	0.0	Y	
790722 805	0.6+	0.3+	880217 220	2.0-	1.1+	Y					
830416 033	2.2+	1.0-	880217 220	0.8-	1.2+	Y					

1988 EB = 1948 UK = 1969 EV = 1986 SS
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 73.36481		(1950.0)	P	Q
n 0.20549261	Peri.	69.92659	-0.27328202	-0.95941855
a 2.8440645	Node	36.16311	+0.83262718	-0.27211939
e 0.2240906	Incl.	6.76589	+0.48171456	-0.07393972
P 4.80	H	12.0	G 0.25	

Residuals in seconds of arc

481028 094	(19.4-	33.8+)	X 861003 046	0.2+	1.9-		880312 385	2.4-	0.5-		
690312 095	1.7+	0.9+	861003 046	0.1+	2.0-		880312 385	0.2-	1.0-		
690323 095	2.4-	2.1-	880309 385	1.1+	1.8+		880318 894	0.2+	1.2+		
860930 046	0.4-	2.0+	880309 385	0.7+	0.9+		880318 894	0.2-	1.1-		
860930 046	1.9-	1.4+	880309 385	(3.4+	3.5+)		880322 883	1.1+	2.3-		
861001 046	0.9+	0.4-	880310 385	0.7+	0.8+		880322 883	0.6+	1.4-		
861001 046	1.9+	0.5-	880310 385	1.4-	1.4+						

1988 EF = 1983 VX
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 76.49557		(1950.0)	P	Q
n 0.26517651	Peri.	264.96241	-0.16307424	-0.98213586
a 2.3994602	Node	195.41567	+0.98563503	-0.15793505
e 0.3745163	Incl.	20.68448	+0.04393612	-0.10230187
P 3.72	H	13.5	G 0.25	

Residuals in seconds of arc

831009 675	0.4-	0.6-	831109 675	0.1+	0.0		880407 675	3.2+	2.4-		
831009 675	0.3+	0.7+	880310 675	0.2+	0.3-		880409 675	1.7-	0.2-		
831109 675	0.1+	0.1+	880313 675	(35.8+	2.2-)		880410 675	1.9-	3.1+		

ORBITAL ELEMENTS BY T. KOBAYASHI, GUNMA, JAPAN.

The identifications are by T. Kobayashi unless otherwise stated.

(3822)* 1988 DP1 = 1962 ST = 1976 YE2 = 1979 UP = 1986 WV9
Discovered 1988 Feb. 21 by T. Seki at Geisei.
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	344.51257	(1950.0)		P	Q
n	0.28828124	Peri.	279.61736	-0.25574922	+0.96656651
a	2.2694736	Node	335.54054	-0.86849745	-0.23811295
e	0.1182107	Incl.	2.55814	-0.42462279	-0.09513887
P	3.42	H	13.5	G 0.25	

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

620926	033	0.2+	0.3-	861201	381	1.5+	1.6-	880318	372	0.4-	4.5-
620926	033	0.0	0.0	861201	381	0.2-	0.8-	880322	372	0.9+	3.6+
761216	095	0.3+	1.2+	880221	372	0.4+	2.4+	880322	372	1.7+	3.3+
791019	046	0.9-	2.4-	880221	372	1.0-	4.5+	880408	372	0.9+	4.1-
791019	046	1.2+	0.8-	880309	372	0.2-	0.4+ Y	880408	372	1.0+	3.6-
791020	046	(0.01+	0.05-)	880310	372	3.3-	2.1+	880409	372	1.6-	1.7-
791020	046	(0.01+	0.05-)	880310	372	4.7-	3.2+	880409	372	2.7+	1.7-
861130	381	0.2+	1.1+	880318	372	0.7+	2.6-				
861130	381	0.5-	0.1+	880318	372	1.0+	3.2-				

(3823)* 1988 EC1 = 1966 BS = 1975 TV3 = 1977 DM4 = 1980 TH2 = 1982 BP8 = 1986 WU2
Discovered 1988 Mar. 10 by M. Arai and H. Mori at Yorii.
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	57.81547	(1950.0)		P	Q
n	0.18281651	Peri.	16.31924	-0.61362970	-0.78455597
a	3.0746270	Node	111.62040	+0.71327196	-0.59915539
e	0.2416182	Incl.	5.49696	+0.33867641	-0.15963943
P	5.39	H	12.5	G 0.25	

Residuals in seconds of arc

660121	330	0.0	0.0	861127	033	0.9-	0.7+	880318	875	0.5-	1.6-
751003	095	0.7+	0.8-	861128	033	1.6-	0.1+	880323	875	2.6+	0.5+
770218	381	0.6-	1.5-	861129	033	1.0-	0.2+	880323	875	1.5+	0.1-
770218	381	0.9-	1.5-	880310	875	(8.0+	1.7-)	880409	875	1.9-	3.2+
770219	381	0.9-	0.6-	880310	875	(7.8+	0.8-)	880409	875	0.1+	0.4+
770219	381	0.3-	0.2-	880310	875	(5.7+	0.5-)	880415	875	0.4+	0.6+
801005	809	1.3+	0.2+	880318	875	(1.9-	4.5+)				
820119	095	1.8+	1.5+	880318	875	0.1-	0.9+				

1966 CF = 1973 AL3 = 1988 DG
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	52.81505	(1950.0)		P	Q
n	0.27002793	Peri.	42.90392	-0.91041670	-0.38800353
a	2.3706290	Node	113.74929	+0.32421897	-0.88466748
e	0.0852883	Incl.	9.02037	+0.25695036	-0.25848927
P	3.65	H	12.5	G 0.25	

Residuals in seconds of arc

660213	330	1.2-	1.4+	880219	399	1.4-	0.6+	880313	399	0.9-	1.5+
660216	330	2.6-	1.2-	880221	399	3.0+	0.4-	880313	399	2.0-	0.9+
660225	330	3.6+	0.2-	880221	399	1.4+	0.3+	880408	399	0.8+	1.5-
730102	095	0.1+	0.4-	880221	399	1.1+	0.5+	880408	399	1.1+	1.2-
880219	399	1.5-	0.6-	880312	399	0.1-	0.7-	880408	399	0.1-	0.5-
880219	399	2.5-	0.5+	880313	399	1.3+	0.4+				

1978 RH1 = 1978 TM1 = 1987 HA2

The double designation 1978 RH1 = 1978 TM1 is by T. Furuta (JAM 1968).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	113.74825		(1950.0)		P		Q				
n	0.30676023	Peri.	81.54365		-0.09938207		+0.99504527				
a	2.1773923	Node	182.75757		-0.93461070		-0.09432760				
e	0.1131351	Incl.	3.39377		-0.34150556		-0.03141992				
P	3.21	H	14.0	G	0.25						

Residuals in seconds of arc

780905	095	0.2-	0.2+	870428	046	0.6-	0.6-	870429	046	0.0	0.1+
781002	095	0.8+	1.4-	870428	046	0.4+	0.4-				
781008	095	0.6-	1.2+	870429	046	0.2+	0.9+				

1979 TY1 = 1979 UT1 = 1986 VJ6 = 1986 XB1

The double designation 1979 TY1 = 1979 UT1 is by H. Oishi (JAM 1789).

The double designation 1986 VJ6 = 1986 XB1 was suggested by B. G. Marsden.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	170.11751		(1950.0)		P		Q				
n	0.28371302	Peri.	30.78359		+0.44984246		-0.88953062				
a	2.2937700	Node	32.67764		+0.78630298		+0.35205941				
e	0.1494435	Incl.	8.50561		+0.42352023		+0.29118627				
P	3.47	H	14.5	G	0.25						

Residuals in seconds of arc

791014	095	1.0-	2.0-	861106	688	1.4+	1.4+	861107	046	1.3-	1.5-
791019	010	1.1+	1.1+	861106	688	0.3+	0.1-	861204	688	0.1-	0.2+
791023	010	0.3-	1.2+	861107	046	(7.9-	0.6+)	861204	688	0.3-	0.3-

1980 TE4 = 1987 BM

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	295.61865		(1950.0)		P		Q				
n	0.21535006	Peri.	311.28489		+0.70893939		+0.70526436				
a	2.7565935	Node	3.86702		-0.63463620		+0.63958432				
e	0.2523948	Incl.	2.26743		-0.30763914		+0.30583341				
P	4.58	H	13.5	G	0.25						

Residuals in seconds of arc

801007	675	1.7+	1.6+	801010	675	1.6-	0.1-	870126	033	1.3+	2.0-
801008	675	0.6+	0.4+	801010	095	2.8-	2.4-	870127	033	0.1-	1.0+
801009	675	0.3-	0.2+	801015	095	2.3+	0.2+	870128	033	1.2-	1.1+

1980 UC = 1986 WA2

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	180.28396		(1950.0)		P		Q				
n	0.17762249	Peri.	227.53656		+0.92074988		+0.38765481				
a	3.1342773	Node	109.61147		-0.34280062		+0.85777169				
e	0.2274258	Incl.	2.68235		-0.18629920		+0.33756699				
P	5.55	H	12.5	G	0.25						

Residuals in seconds of arc

801030	046	1.2-	1.1+	801111	046	2.0+	0.2+	861130	046	2.3-	2.2+
801030	046	0.4-	2.5+	801111	046	1.5-	0.6-	861130	046	1.6-	1.7+
801106	688	1.1+	1.2-	861129	046	1.5+	0.7-	861201	046	0.8+	1.2-
801106	688	0.1+	2.2-	861129	046	3.0+	0.1+	861201	046	1.3-	1.9-

1982 BW = 1952 JF = 1970 WF = 1978 GS4 = 1988 FG

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	135.52612		(1950.0)		P		Q				
n	0.18766264	Peri.	359.98296		+0.37799187		-0.90809885				
a	3.0214645	Node	67.80737		+0.84939435		+0.26271870				
e	0.0602720	Incl.	11.22353		+0.36830882		+0.32609103				
P	5.25	H	11.5	G	0.25						

Residuals in seconds of arc

520503	839	0.0	0.1+	820118	688	1.2+	2.7-	880317	399	0.0	0.4+
701125	026	0.4+	2.2+	820120	095	0.2+	1.4+	880317	399	1.2-	1.7+
701125	026	0.8-	0.3+	820131	688	2.5-	0.5-	880317	399	0.6-	0.9+
701206	026	1.7-	1.2+	820131	688	1.4+	0.8-	880321	399	1.7+	1.6- Y
780412	095	1.2+	0.2+	880316	399	0.8+	0.9+	880321	399	0.8+	0.9+ Y
780505	095	1.0-	0.7-	880316	399	0.6-	0.1-	880321	399	1.5+	0.2- Y
820118	688	0.6+	2.3-	880316	399	1.2-	1.2+				

* * * * *

ORBITAL ELEMENTS BY S. SZUTOWICZ, POLISH ACADEMY OF SCIENCES, WARSAW.

The following orbital elements are taken from Acta Astronomica:

Periodic Comet Wolf-Harrington
Epoch 1991 Apr. 14.0 ET = JDE 2448360.5
T 1991 Apr. 4.82921 ET

			(1950.0)	P	Q
q	1.6078356				
n	0.15129403	Peri.	186.97471	+0.15993810	-0.93887718
a	3.4880940	Node	254.17122	+0.92024768	+0.25355047
e	0.5390504	Incl.	18.47303	+0.35716104	-0.23285575
P	6.51				

From 73 observations 1971-1985, mean residual 2".2. Nongravitational parameters A1 = +0.39, A2 = -0.0145.

Periodic Comet Tsuchinshan 1
Epoch 1991 Aug. 12.0 ET = JDE 2448480.5
T 1991 Aug. 30.53152 ET

			(1950.0)	P	Q
q	1.4975172				
n	0.14832092	Peri.	22.75577	-0.47745534	-0.85976284
a	3.5345525	Node	96.18457	+0.77545680	-0.50930384
e	0.5763206	Incl.	10.50322	+0.41316238	-0.03764920
P	6.65				

From 86 observations 1965-1985, mean residual 1".6. Nongravitational parameters A1 = +0.08, A2 = +0.0038, with center-of-light displacement.

* * * * *

EPHEMERIDES.

1988 GB a,e,i = 1.97, 0.33, 19 Elements MPC 13040

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 04	29	12 26.72	-16 11.1	0.394	1.366	151.7	20.5	16.5
1988 05	09	12 09.02	-22 04.0					
1988 05	19	11 58.28	-27 16.9	0.439	1.331	128.6	36.5	17.1
1988 05	29	11 55.38	-31 51.4					
1988 06	08	11 59.99	-35 55.5	0.519	1.316	114.3	44.7	17.7
1988 06	18	12 11.61	-39 36.5					
1988 06	28	12 29.86	-42 58.6	0.609	1.324	106.3	47.5	18.1
1988 07	08	12 54.40	-46 00.4					
1988 07	18	13 25.12	-48 36.9	0.706	1.354	102.1	47.2	18.5
1988 07	28	14 01.65	-50 41.1					
1988 08	07	14 43.07	-52 03.7	0.816	1.402	99.5	45.5	18.8

Comet Levy (1988e) Elements MPC 13041

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1988 04 29	22 18.50	+35 03.6	2.851	2.479	58.5	20.3	12.7
1988 05 09	22 26.37	+39 23.1					
1988 05 19	22 32.42	+43 34.6	2.920	2.702	67.6	20.3	13.1
1988 05 29	22 36.29	+47 35.9					
1988 06 08	22 37.57	+51 24.5	2.994	2.922	76.2	19.7	13.5
1988 06 18	22 35.72	+54 57.3					
1988 06 28	22 30.18	+58 09.9	3.076	3.141	84.2	18.8	13.9
1988 07 08	22 20.47	+60 57.4					
1988 07 18	22 06.37	+63 14.1	3.174	3.356	91.4	17.6	14.3
1988 07 28	21 48.30	+64 54.4					
1988 08 07	21 27.53	+65 54.2	3.292	3.568	97.4	16.4	14.6
1988 08 17	21 06.12	+66 12.6					
1988 08 27	20 46.40	+65 52.6	3.438	3.777	101.9	15.2	15.0
1988 09 06	20 30.16	+65 01.1					
1988 09 16	20 18.31	+63 46.2	3.615	3.983	104.2	14.2	15.3
1988 09 26	20 11.00	+62 16.7					
1988 10 06	20 07.82	+60 39.9	3.827	4.186	104.2	13.4	15.6
1988 10 16	20 08.17	+59 01.9					
1988 10 26	20 11.46	+57 27.5	4.073	4.386	101.8	12.8	16.0

Comet Rudenko (1987u) Elements MPC 12446

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1988 04 29	03 05.69	-37 02.5	3.816	3.297	52.3	14.0	16.6
1988 05 09	03 14.35	-37 10.2					
1988 05 19	03 22.83	-37 35.1	3.977	3.536	57.4	14.0	17.0
1988 05 29	03 31.00	-38 17.3					
1988 06 08	03 38.72	-39 16.4	4.082	3.769	65.1	14.1	17.3
1988 06 18	03 45.86	-40 32.5					
1988 06 28	03 52.23	-42 05.0	4.147	3.996	74.4	14.2	17.6
1988 07 08	03 57.64	-43 53.1					
1988 07 18	04 01.85	-45 55.6	4.195	4.218	84.3	13.9	17.9
1988 07 28	04 04.55	-48 10.5					
1988 08 07	04 05.41	-50 35.1	4.251	4.435	93.8	13.2	18.1
1988 08 17	04 04.01	-53 05.7					
1988 08 27	03 59.88	-55 37.6	4.340	4.648	101.5	12.3	18.4
1988 09 06	03 52.56	-58 05.1					
1988 09 16	03 41.62	-60 21.6	4.483	4.856	106.0	11.5	18.6
1988 09 26	03 26.88	-62 19.9					
1988 10 06	03 08.60	-63 53.3	4.690	5.061	106.2	10.9	18.9
1988 10 16	02 47.63	-64 56.2					
1988 10 26	02 25.48	-65 25.8	4.963	5.263	102.2	10.6	19.2

Comet Jensen-Shoemaker (1987g1) Elements MPC 12953

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1988 05 19	02 59.98	-16 39.0	4.268	3.522	37.7	10.1	17.6
1988 05 29	03 13.64	-17 45.2					
1988 06 08	03 27.31	-19 03.3	4.187	3.587	47.9	12.1	17.7
1988 06 18	03 40.92	-20 34.4					
1988 06 28	03 54.37	-22 19.1	4.083	3.659	58.7	13.7	17.7
1988 07 08	04 07.58	-24 17.7					
1988 07 18	04 20.42	-26 30.3	3.976	3.739	69.2	14.7	17.7
1988 07 28	04 32.77	-28 56.3					
1988 08 07	04 44.47	-31 34.7	3.885	3.825	79.1	15.1	17.8
1988 08 17	04 55.36	-34 23.9					
1988 08 27	05 05.22	-37 21.5	3.827	3.918	87.7	14.9	17.8
1988 09 06	05 13.86	-40 24.6					
1988 09 16	05 21.00	-43 29.7	3.814	4.015	94.2	14.5	17.9

1988 09 26	05 26.38	-46 32.8					
1988 10 06	05 29.73	-49 29.6	3.852	4.118	98.4	13.9	18.1
1988 10 16	05 30.79	-52 15.6					
1988 10 26	05 29.38	-54 46.0	3.940	4.225	99.9	13.4	18.2

1980 PA a,e,i = 1.93, 0.46, 2 Elements MPC 12964

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 06 08		21 08.90	-14 48.2	0.916	1.687	-3.22	-16.5	20.1
1988 06 13		21 14.92	-14 06.4					
1988 06 18		21 20.59	-13 23.5	0.787	1.624	-3.87	-20.6	19.7
1988 06 23		21 25.89	-12 39.5					
1988 06 28		21 30.81	-11 54.3	0.668	1.560	-4.72	-25.8	19.2
1988 07 03		21 35.30	-11 07.7					
1988 07 08		21 39.34	-10 19.7	0.559	1.496	-5.84	-32.7	18.6
1988 07 13		21 42.88	-09 30.0					
1988 07 18		21 45.90	-08 38.4	0.463	1.433	-7.31	-41.8	18.0
1988 07 23		21 48.39	-07 44.4					
1988 07 28		21 50.37	-06 47.2	0.378	1.370	-9.24	-54.1	17.4
1988 08 02		21 51.85	-05 46.1					
1988 08 07		21 52.85	-04 40.0	0.304	1.309	-11.76	-71.2	16.7
1988 08 12		21 53.45	-03 27.9					
1988 08 17		21 53.78	-02 07.8	0.242	1.251	-15.03	-95.7	16.0
1988 08 22		21 54.08	-00 37.3					
1988 08 27		21 54.64	+01 07.0	0.190	1.196	-19.29	-132.5	15.4
1988 09 01		21 55.80	+03 09.4					
1988 09 06		21 58.02	+05 35.1	0.147	1.148	-25.17	-191.0	14.9

1984 KB a,e,i = 2.22, 0.76, 5 Elements MPC 12959

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 06 08		21 32.06	-10 20.8	2.694	3.254	-0.29	-0.9	21.0
1988 06 18		21 27.87	-10 33.3					
1988 06 28		21 21.46	-10 57.4	2.533	3.345	-0.35	-1.0	20.8
1988 07 08		21 13.05	-11 32.0					
1988 07 18		21 03.04	-12 15.1	2.456	3.428	-0.40	-1.2	20.5
1988 07 28		20 52.09	-13 03.6					
1988 08 07		20 40.98	-13 53.6	2.495	3.504	-0.43	-1.2	20.4
1988 08 17		20 30.51	-14 41.7					
1988 08 27		20 21.41	-15 25.1	2.660	3.573	-0.42	-1.1	20.9

1987 KF a,e,i = 1.84, 0.68, 12 Elements MPC 12961

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 06 08		21 34.10	-18 34.6	2.486	3.082	-0.50	-1.0	20.7
1988 06 18		21 31.27	-19 18.5					
1988 06 28		21 25.79	-20 15.6	2.243	3.078	-0.58	-1.1	20.4
1988 07 08		21 17.67	-21 23.5					
1988 07 18		21 07.14	-22 38.0	2.084	3.065	-0.65	-1.0	19.9
1988 07 28		20 54.80	-23 52.9					
1988 08 07		20 41.60	-25 01.6	2.040	3.044	-0.68	-0.5	19.8
1988 08 17		20 28.63	-25 58.8					
1988 08 27		20 17.05	-26 41.3	2.120	3.014	-0.64	+0.1	20.1
1988 09 06		20 07.71	-27 09.0					
1988 09 16		20 01.14	-27 23.2	2.297	2.975	-0.57	+0.5	20.4
1988 09 26		19 57.54	-27 26.2					
1988 10 06		19 56.83	-27 20.1	2.530	2.927	-0.50	+0.5	20.7

Periodic Comet Churyumov-Gerasimenko Elements MPC 11502

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1988 06 28		20 16.63	-28 40.4	2.541	3.487	154.6	7.2	21.9
1988 07 08		20 08.42	-29 24.0					

1988 07 18	19 58.68	-30 04.5	2.361	3.368	170.7	2.8	21.6
1988 07 28	19 48.17	-30 37.7					
1988 08 07	19 37.79	-31 00.6	2.297	3.246	155.2	7.5	21.4
1988 08 17	19 28.47	-31 12.0					
1988 08 27	19 21.05	-31 12.3	2.338	3.119	133.4	13.6	21.3
1988 09 06	19 16.06	-31 03.1					
1988 09 16	19 13.82	-30 46.3	2.451	2.989	112.9	18.0	21.2
1988 09 26	19 14.40	-30 23.7					
1988 10 06	19 17.68	-29 56.4	2.598	2.855	94.4	20.4	21.1
1988 10 16	19 23.50	-29 24.8					
1988 10 26	19 31.62	-28 48.8	2.745	2.717	77.9	21.0	21.0
1988 11 05	19 41.79	-28 07.8					
1988 11 15	19 53.79	-27 21.1	2.868	2.576	63.1	20.0	20.9
1988 11 25	20 07.39	-26 27.7					
1988 12 05	20 22.40	-25 26.6	2.951	2.432	49.6	18.0	20.7
1988 12 15	20 38.67	-24 16.9					
1988 12 25	20 56.04	-22 57.7	2.986	2.285	37.4	15.2	20.5

1982 DB a,e,i = 1.49, 0.36, 1 Elements MPC 8683

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 06 28	21 40.45	-14 30.9	1.172	2.011	-1.67	-9.7	21.3
1988 07 08	21 33.96	-14 57.8					
1988 07 18	21 23.18	-15 42.7	1.014	1.989	-2.05	-11.2	20.6
1988 07 28	21 08.67	-16 40.3					
1988 08 07	20 51.86	-17 41.9	0.943	1.956	-2.24	-10.7	20.0
1988 08 17	20 34.86	-18 37.7					
1988 08 27	20 20.04	-19 20.4	0.973	1.913	-2.03	-8.3	20.6
1988 09 06	20 09.13	-19 47.2					
1988 09 16	20 02.96	-19 58.9	1.082	1.859	-1.63	-6.2	21.1

1959 LM a,e,i = 1.98, 0.64, 7 Elements MPC 12139

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	00 14.24	+07 43.1	3.080	3.238	89.6	18.3	20.3
1988 07 08	00 16.62	+08 22.6					
1988 07 18	00 17.16	+08 52.2	2.788	3.242	107.5	17.4	20.1
1988 07 28	00 15.68	+09 10.2					
1988 08 07	00 12.02	+09 14.8	2.522	3.239	127.4	14.4	19.8
1988 08 17	00 06.13	+09 04.1					
1988 08 27	23 58.16	+08 37.1	2.318	3.229	149.4	9.2	19.4
1988 09 06	23 48.51	+07 54.3					
1988 09 16	23 37.80	+06 57.6	2.217	3.212	170.1	3.1	19.0
1988 09 26	23 26.90	+05 51.6					
1988 10 06	23 16.69	+04 41.8	2.239	3.187	157.8	6.8	19.2
1988 10 16	23 07.95	+03 34.5					
1988 10 26	23 01.28	+02 35.1	2.377	3.155	134.7	12.9	19.5
1988 11 05	22 56.94	+01 47.1					
1988 11 15	22 55.01	+01 12.8	2.594	3.116	113.0	17.0	19.8
1988 11 25	22 55.40	+00 52.9					
1988 12 05	22 57.89	+00 47.1	2.848	3.069	93.4	18.7	20.0

1983 XF a,e,i = 3.12, 0.53, 4 Elements MPC 9430

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 07 18	00 46.30	-00 00.3	3.137	3.529	-0.55	-3.8	21.0
1988 07 28	00 48.49	+00 00.6					
1988 08 07	00 48.99	-00 09.7	2.781	3.438	-0.63	-4.3	20.6
1988 08 17	00 47.61	-00 31.7					
1988 08 27	00 44.26	-01 05.3	2.479	3.344	-0.71	-4.8	20.2
1988 09 06	00 38.96	-01 49.3					
1988 09 16	00 31.94	-02 41.2	2.263	3.246	-0.77	-5.1	19.7

1988 09 26	00 23.64	-03 36.8					
1988 10 06	00 14.75	-04 31.2	2.161	3.145	-0.77	-5.0	19.5
1988 10 16	00 06.06	-05 18.8					
1988 10 26	23 58.41	-05 54.9	2.174	3.040	-0.71	-4.6	19.7
1988 11 05	23 52.44	-06 16.3					
1988 11 15	23 48.61	-06 21.6	2.280	2.932	-0.63	-4.1	19.9
1988 11 25	23 47.17	-06 10.5					
1988 12 05	23 48.11	-05 44.1	2.439	2.820	-0.57	-3.9	20.1
1988 12 15	23 51.35	-05 03.3					
1988 12 25	23 56.70	-04 09.8	2.613	2.706	-0.54	-3.8	20.2
1989 01 04	00 03.97	-03 05.0					
1989 01 14	00 12.95	-01 50.2	2.772	2.588	-0.53	-3.9	20.2
1989 01 24	00 23.48	-00 26.7					
1989 02 03	00 35.40	+01 04.4	2.898	2.469	-0.56	-4.1	20.1

Comet Furuyama (1987f1) Elements MPC 12953

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1988 07 18	04 58.3	-83 58.1	1.930	2.425	106.6	23.7	11.8
1988 07 28	12 24	-85 55.6					
1988 08 07	14 28.4	-79 08.0	2.155	2.602	104.5	22.2	12.3
1988 08 17	15 01.6	-72 41.8					
1988 08 27	15 21.43	-67 11.5	2.528	2.783	93.8	21.2	13.0
1988 09 06	15 37.01	-62 36.0					
1988 09 16	15 50.76	-58 48.7	2.982	2.968	79.5	19.5	13.6
1988 09 26	16 03.54	-55 42.0					
1988 10 06	16 15.73	-53 08.4	3.456	3.155	64.4	16.6	14.2
1988 10 16	16 27.50	-51 01.6					
1988 10 26	16 38.94	-49 16.5	3.904	3.343	49.3	13.0	14.7
1988 11 05	16 50.05	-47 48.8					
1988 11 15	17 00.84	-46 35.2	4.294	3.530	35.1	9.3	15.1

Periodic Comet Reinmuth 2 (1987l) Elements MPC 10522

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1988 07 18	05 25.42	+27 04.0	3.600	2.803	33.0	11.4	20.4
1988 07 28	05 41.67	+27 11.3					
1988 08 07	05 57.05	+27 12.9	3.524	2.896	45.0	14.3	20.5
1988 08 17	06 11.43	+27 09.7					
1988 08 27	06 24.68	+27 02.7	3.400	2.989	58.0	16.6	20.5
1988 09 06	06 36.66	+26 53.2					
1988 09 16	06 47.21	+26 42.3	3.235	3.082	72.3	18.1	20.5
1988 09 26	06 56.14	+26 31.1					
1988 10 06	07 03.28	+26 20.9	3.042	3.173	88.2	18.4	20.5
1988 10 16	07 08.41	+26 12.6					
1988 10 26	07 11.33	+26 07.1	2.843	3.263	106.2	17.0	20.3
1988 11 05	07 11.89	+26 04.6					
1988 11 15	07 09.98	+26 05.1	2.667	3.352	126.5	13.7	20.2
1988 11 25	07 05.65	+26 07.5					
1988 12 05	06 59.14	+26 10.5	2.556	3.439	149.1	8.5	20.0
1988 12 15	06 50.91	+26 12.2					
1988 12 25	06 41.69	+26 10.9	2.546	3.524	172.8	2.0	19.8

1972 KM a,e,i = 2.54, 0.26, 9 Elements MPC 13050

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 04 29	14 37.75	+01 02.2	1.178	2.165	164.3	7.2	15.5
1988 05 09	14 28.37	+01 26.8					
1988 05 19	14 19.63	+01 27.1	1.171	2.113	150.8	13.5	15.7
1988 05 29	14 12.79	+01 00.8					
1988 06 08	14 08.68	+00 09.4	1.245	2.065	131.8	21.5	16.0
1988 06 18	14 07.71	-01 03.9					

1988 06 28	14 09.96	-02 34.8	1.371	2.021	114.8	27.2	16.3
1988 07 08	14 15.26	-04 18.9					
1988 07 18	14 23.34	-06 12.4	1.527	1.982	100.5	30.3	16.6
1988 07 28	14 33.96	-08 12.0					
1988 08 07	14 46.80	-10 14.4	1.695	1.948	88.3	31.3	16.8

(3815) 1959 GG a,e,i = 2.57, 0.10, 9 Elements MPC 13046

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 04 29		15 20.72	-10 58.5	1.331	2.320	165.8	6.1	15.0
1988 05 09		15 12.68	-09 40.2					
1988 05 19		15 04.50	-08 30.3	1.335	2.329	165.7	6.2	15.0
1988 05 29		14 57.37	-07 35.5					
1988 06 08		14 52.19	-07 00.0	1.435	2.339	144.8	14.5	15.4
1988 06 18		14 49.49	-06 45.0					
1988 06 28		14 49.48	-06 49.3	1.610	2.351	125.5	20.6	15.9
1988 07 08		14 52.10	-07 10.4					
1988 07 18		14 57.15	-07 45.0	1.832	2.365	108.9	24.0	16.3
1988 07 28		15 04.40	-08 30.0					
1988 08 07		15 13.55	-09 22.1	2.078	2.380	94.3	25.1	16.6

1978 TO8 a,e,i = 3.07, 0.19, 1 Elements MPC 12949

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19		20 51.93	-16 32.9	2.463	2.922	106.9	19.3	18.1
1988 05 29		20 55.95	-16 12.5					
1988 06 08		20 57.88	-16 00.3	2.185	2.884	124.5	16.9	17.8
1988 06 18		20 57.55	-15 57.6					
1988 06 28		20 54.90	-16 04.9	1.958	2.846	144.3	12.0	17.4
1988 07 08		20 50.05	-16 21.4					
1988 07 18		20 43.33	-16 45.5	1.811	2.809	166.2	4.9	16.9
1988 07 28		20 35.40	-17 14.4					
1988 08 07		20 27.12	-17 44.6	1.767	2.772	170.5	3.5	16.7
1988 08 17		20 19.43	-18 12.5					
1988 08 27		20 13.24	-18 35.5	1.827	2.737	147.9	11.3	17.1
1988 09 06		20 09.21	-18 51.8					
1988 09 16		20 07.73	-19 00.6	1.973	2.702	127.2	17.2	17.4
1988 09 26		20 08.91	-19 01.4					
1988 10 06		20 12.67	-18 54.1	2.175	2.670	108.8	20.8	17.7
1988 10 16		20 18.80	-18 38.5					
1988 10 26		20 27.04	-18 14.6	2.403	2.639	92.4	22.1	17.9

1977 JD a,e,i = 2.30, 0.10, 7 Elements MPC 10940

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19		20 53.45	-25 45.3	1.507	2.069	108.9	27.6	17.6
1988 05 29		21 02.38	-26 03.9					
1988 06 08		21 08.34	-26 36.0	1.320	2.073	124.7	23.7	17.2
1988 06 18		21 10.93	-27 22.3					
1988 06 28		21 09.86	-28 20.8	1.177	2.080	143.0	17.1	16.7
1988 07 08		21 05.13	-29 26.2					
1988 07 18		20 57.17	-30 30.2	1.100	2.090	161.9	8.7	16.3
1988 07 28		20 47.09	-31 22.5					
1988 08 07		20 36.47	-31 54.7	1.111	2.102	163.2	8.0	16.3
1988 08 17		20 27.02	-32 02.6					
1988 08 27		20 20.22	-31 47.0	1.210	2.117	144.7	16.0	16.8
1988 09 06		20 16.86	-31 12.0					
1988 09 16		20 17.15	-30 22.1	1.380	2.133	126.1	22.4	17.3
1988 09 26		20 20.91	-29 21.2					
1988 10 06		20 27.68	-28 11.8	1.597	2.151	109.7	25.9	17.7
1988 10 16		20 36.99	-26 55.3					
1988 10 26		20 48.35	-25 32.2	1.841	2.171	95.3	27.1	18.1

1981 EX4 a,e,i = 3.10, 0.13, 20 Elements MPC 8143

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	20 55.61	+06 37.4	2.387	2.728	98.5	21.5	18.0
1988	05 29	21 00.43	+08 18.0					
1988	06 08	21 03.25	+09 51.5	2.158	2.717	112.8	20.2	17.7
1988	06 18	21 03.91	+11 13.8					
1988	06 28	21 02.38	+12 20.1	1.964	2.708	127.7	17.3	17.4
1988	07 08	20 58.75	+13 05.7					
1988	07 18	20 53.32	+13 26.1	1.828	2.701	141.9	13.4	17.1
1988	07 28	20 46.66	+13 17.8					
1988	08 07	20 39.53	+12 40.5	1.771	2.697	150.0	10.8	17.0
1988	08 17	20 32.78	+11 36.6					
1988	08 27	20 27.28	+10 11.7	1.803	2.694	145.0	12.4	17.1
1988	09 06	20 23.66	+08 33.5					
1988	09 16	20 22.34	+06 49.8	1.922	2.694	131.3	16.3	17.3
1988	09 26	20 23.49	+05 08.2					
1988	10 06	20 27.05	+03 34.1	2.110	2.696	115.5	19.6	17.6
1988	10 16	20 32.86	+02 11.4					
1988	10 26	20 40.70	+01 02.6	2.342	2.700	100.1	21.3	17.9

1981 DG3 a,e,i = 3.20, 0.09, 15 Elements MPC 11837

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 14.50	-26 23.7	2.639	3.053	104.5	18.7	16.9
1988	05 29	21 17.85	-26 09.6					
1988	06 08	21 18.89	-26 02.5	2.405	3.069	122.3	16.2	16.6
1988	06 18	21 17.50	-26 01.8					
1988	06 28	21 13.66	-26 05.7	2.221	3.086	142.0	11.7	16.3
1988	07 08	21 07.55	-26 11.6					
1988	07 18	20 59.60	-26 16.1	2.118	3.104	162.8	5.5	16.0
1988	07 28	20 50.48	-26 15.6					
1988	08 07	20 41.08	-26 07.4	2.121	3.122	168.8	3.6	15.9
1988	08 17	20 32.30	-25 50.2					
1988	08 27	20 24.98	-25 24.0	2.233	3.139	148.6	9.7	16.3
1988	09 06	20 19.67	-24 50.0					
1988	09 16	20 16.68	-24 09.9	2.438	3.157	128.0	14.5	16.6
1988	09 26	20 16.10	-23 24.9					
1988	10 06	20 17.79	-22 36.3	2.705	3.175	109.1	17.3	17.0
1988	10 16	20 21.56	-21 44.5					
1988	10 26	20 27.17	-20 49.6	3.004	3.194	91.8	18.1	17.2

1982 HS1 a,e,i = 3.06, 0.21, 4 Elements MPC 11842

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 03.13	-16 47.4	2.017	2.471	104.4	23.4	17.5
1988	05 29	21 09.61	-16 35.8					
1988	06 08	21 13.69	-16 35.9	1.815	2.495	121.1	20.4	17.2
1988	06 18	21 15.18	-16 49.2					
1988	06 28	21 13.98	-17 15.9	1.655	2.522	140.3	14.9	16.8
1988	07 08	21 10.23	-17 54.5					
1988	07 18	21 04.27	-18 42.0	1.567	2.553	161.9	7.1	16.5
1988	07 28	20 56.82	-19 33.3					
1988	08 07	20 48.84	-20 22.8	1.574	2.586	174.3	2.2	16.3
1988	08 17	20 41.36	-21 05.6					
1988	08 27	20 35.37	-21 38.0	1.685	2.621	152.2	10.4	16.8
1988	09 06	20 31.54	-21 58.7					
1988	09 16	20 30.23	-22 07.4	1.882	2.658	131.6	16.4	17.3
1988	09 26	20 31.52	-22 04.8					
1988	10 06	20 35.26	-21 51.9	2.142	2.697	113.2	19.9	17.7
1988	10 16	20 41.20	-21 29.5					
1988	10 26	20 49.04	-20 58.3	2.437	2.737	96.7	21.1	18.0

1981 EG44 a,e,i = 3.07, 0.05, 10 Elements MPC 9964

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 16.42	-27 04.9	2.836	3.237	104.2	17.6	19.1
1988 05 29	21 20.15	-27 16.9					
1988 06 08	21 21.78	-27 37.6	2.583	3.236	121.9	15.4	18.9
1988 06 18	21 21.13	-28 06.4					
1988 06 28	21 18.16	-28 41.4	2.380	3.235	141.2	11.4	18.5
1988 07 08	21 12.97	-29 19.4					
1988 07 18	21 05.86	-29 56.3	2.258	3.234	160.4	6.1	18.2
1988 07 28	20 57.42	-30 27.2					
1988 08 07	20 48.44	-30 47.9	2.241	3.232	165.2	4.6	18.1
1988 08 17	20 39.80	-30 55.8					
1988 08 27	20 32.37	-30 50.1	2.332	3.229	147.4	9.7	18.4
1988 09 06	20 26.79	-30 31.7					
1988 09 16	20 23.45	-30 02.6	2.514	3.226	127.5	14.3	18.8
1988 09 26	20 22.52	-29 24.7					
1988 10 06	20 23.93	-28 40.1	2.757	3.222	108.8	17.1	19.0
1988 10 16	20 27.52	-27 50.0					
1988 10 26	20 33.06	-26 55.3	3.032	3.217	91.6	18.0	19.3

2037 P-L a,e,i = 3.22, 0.15, 18 Elements MPC 8786

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 22.19	-37 30.7	2.353	2.800	105.6	20.4	18.5
1988 05 29	21 28.08	-37 57.8					
1988 06 08	21 31.26	-38 33.4	2.151	2.818	121.5	17.9	18.2
1988 06 18	21 31.44	-39 15.7					
1988 06 28	21 28.50	-40 00.6	1.997	2.837	138.3	13.8	18.0
1988 07 08	21 22.55	-40 42.2					
1988 07 18	21 13.99	-41 13.5	1.916	2.859	152.9	9.3	17.7
1988 07 28	21 03.68	-41 27.7					
1988 08 07	20 52.80	-41 20.0	1.930	2.882	155.1	8.5	17.7
1988 08 17	20 42.60	-40 49.0					
1988 08 27	20 34.22	-39 56.8	2.042	2.906	142.0	12.4	18.0
1988 09 06	20 28.37	-38 47.7					
1988 09 16	20 25.38	-37 26.8	2.239	2.931	124.8	16.4	18.4
1988 09 26	20 25.24	-35 58.3					
1988 10 06	20 27.73	-34 25.5	2.494	2.957	107.8	18.8	18.7
1988 10 16	20 32.51	-32 50.3					
1988 10 26	20 39.25	-31 13.9	2.783	2.984	91.8	19.4	19.0

1985 UG5 a,e,i = 2.32, 0.17, 9 Elements MPC 12321

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 10.14	-23 34.3	2.029	2.486	104.7	23.2	19.0
1988 05 29	21 17.21	-23 57.5					
1988 06 08	21 21.99	-24 35.0	1.769	2.454	121.3	20.7	18.6
1988 06 18	21 24.13	-25 28.2					
1988 06 28	21 23.30	-26 36.4	1.552	2.420	139.9	15.7	18.1
1988 07 08	21 19.38	-27 56.5					
1988 07 18	21 12.43	-29 22.6	1.407	2.385	159.2	8.7	17.6
1988 07 28	21 03.05	-30 45.5					
1988 08 07	20 52.30	-31 55.5	1.356	2.348	164.3	6.7	17.5
1988 08 17	20 41.60	-32 44.6					
1988 08 27	20 32.50	-33 09.2	1.403	2.311	146.1	14.1	17.8
1988 09 06	20 26.14	-33 09.9					
1988 09 16	20 23.22	-32 50.1	1.528	2.274	126.4	20.9	18.1
1988 09 26	20 23.93	-32 13.5					
1988 10 06	20 28.06	-31 23.8	1.703	2.236	108.8	25.0	18.4
1988 10 16	20 35.25	-30 22.9					
1988 10 26	20 45.08	-29 12.4	1.900	2.198	93.6	26.8	18.7

1978 VL11 a,e,i = 2.41, 0.17, 6 Elements MPC 11995

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 12.82	-20 17.9	1.762	2.223	103.2	26.3	17.0
1988	05 29	21 20.41	-20 21.6					
1988	06 08	21 25.29	-20 39.3	1.578	2.259	119.6	23.0	16.7
1988	06 18	21 27.16	-21 12.4					
1988	06 28	21 25.82	-22 00.2	1.432	2.296	138.7	17.0	16.4
1988	07 08	21 21.32	-22 59.8					
1988	07 18	21 13.98	-24 05.5	1.352	2.333	160.0	8.6	16.0
1988	07 28	21 04.65	-25 09.5					
1988	08 07	20 54.51	-26 03.9	1.365	2.370	170.1	4.2	15.9
1988	08 17	20 44.93	-26 42.8					
1988	08 27	20 37.17	-27 03.7	1.478	2.408	150.3	12.0	16.4
1988	09 06	20 32.07	-27 07.0					
1988	09 16	20 30.00	-26 55.2	1.674	2.444	130.0	18.4	16.9
1988	09 26	20 31.01	-26 30.7					
1988	10 06	20 34.81	-25 55.8	1.927	2.480	111.9	22.0	17.3
1988	10 16	20 41.08	-25 12.2					
1988	10 26	20 49.42	-24 20.8	2.212	2.515	95.9	23.1	17.7

1981 EY26 a,e,i = 3.18, 0.10, 5 Elements MPC 11046

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 17.02	-20 14.0	2.560	2.945	102.2	19.6	16.3
1988	05 29	21 21.60	-19 57.2					
1988	06 08	21 24.05	-19 49.1	2.324	2.961	119.6	17.3	16.0
1988	06 18	21 24.20	-19 50.1					
1988	06 28	21 22.01	-19 59.7	2.133	2.977	139.1	12.9	15.7
1988	07 08	21 17.58	-20 16.5					
1988	07 18	21 11.21	-20 37.8	2.016	2.994	160.6	6.5	15.3
1988	07 28	21 03.47	-21 00.1					
1988	08 07	20 55.14	-21 19.8	2.000	3.011	174.5	1.8	15.1
1988	08 17	20 47.08	-21 33.9					
1988	08 27	20 40.17	-21 40.2	2.093	3.029	153.2	8.6	15.5
1988	09 06	20 35.03	-21 38.2					
1988	09 16	20 32.06	-21 28.0	2.280	3.048	132.1	14.2	15.9
1988	09 26	20 31.44	-21 10.1					
1988	10 06	20 33.11	-20 45.3	2.535	3.067	113.0	17.5	16.3
1988	10 16	20 36.91	-20 14.2					
1988	10 26	20 42.61	-19 36.9	2.826	3.086	95.6	18.7	16.5

1979 YV8 a,e,i = 3.15, 0.14, 2 Elements MPC 10632

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 20.32	-17 32.5	3.273	3.600	100.7	16.0	18.6
1988	05 29	21 23.12	-17 25.3					
1988	06 08	21 24.16	-17 26.3	3.002	3.604	118.9	14.3	18.4
1988	06 18	21 23.32	-17 36.0					
1988	06 28	21 20.60	-17 53.8	2.778	3.607	139.0	10.7	18.1
1988	07 08	21 16.10	-18 18.8					
1988	07 18	21 10.06	-18 48.9	2.634	3.608	160.6	5.4	17.8
1988	07 28	21 02.91	-19 21.3					
1988	08 07	20 55.23	-19 53.1	2.596	3.608	175.7	1.2	17.5
1988	08 17	20 47.68	-20 21.4					
1988	08 27	20 40.93	-20 43.8	2.673	3.607	153.7	7.1	17.9
1988	09 06	20 35.52	-20 59.1					
1988	09 16	20 31.85	-21 06.8	2.851	3.604	132.2	11.9	18.2
1988	09 26	20 30.13	-21 06.9					
1988	10 06	20 30.41	-20 59.9	3.100	3.600	112.3	14.9	18.5
1988	10 16	20 32.62	-20 46.1					
1988	10 26	20 36.63	-20 26.0	3.385	3.595	94.0	16.0	18.7

1979 TZ1 a,e,i = 2.90, 0.02, 1 Elements MPC 10941

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 17.86	-16 46.2	2.578	2.944	101.0	19.7	17.8
1988 05 29	21 22.45	-16 26.0					
1988 06 08	21 24.99	-16 15.0	2.326	2.947	118.4	17.6	17.5
1988 06 18	21 25.30	-16 14.0					
1988 06 28	21 23.31	-16 23.3	2.116	2.950	137.9	13.4	17.2
1988 07 08	21 19.08	-16 42.2					
1988 07 18	21 12.87	-17 08.8	1.978	2.952	159.6	6.9	16.8
1988 07 28	21 05.19	-17 40.0					
1988 08 07	20 56.80	-18 11.9	1.941	2.954	177.2	1.0	16.4
1988 08 17	20 48.57	-18 40.9					
1988 08 27	20 41.38	-19 03.9	2.013	2.956	154.3	8.5	16.9
1988 09 06	20 35.93	-19 19.2					
1988 09 16	20 32.67	-19 25.9	2.181	2.958	132.8	14.4	17.3
1988 09 26	20 31.83	-19 24.0					
1988 10 06	20 33.36	-19 13.9	2.416	2.959	113.4	18.1	17.6
1988 10 16	20 37.14	-18 55.8					
1988 10 26	20 42.93	-18 30.1	2.687	2.960	96.0	19.5	17.9

2534 P-L a,e,i = 3.18, 0.17, 1 Elements MPC 12689

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 12.82	-16 41.9	2.601	2.983	102.1	19.4	17.8
1988 05 29	21 17.87	-16 21.8					
1988 06 08	21 20.99	-16 10.3	2.319	2.951	119.3	17.5	17.5
1988 06 18	21 21.98	-16 08.7					
1988 06 28	21 20.74	-16 17.4	2.081	2.921	138.5	13.3	17.1
1988 07 08	21 17.29	-16 35.9					
1988 07 18	21 11.82	-17 02.8	1.915	2.891	159.8	7.0	16.7
1988 07 28	21 04.80	-17 35.2					
1988 08 07	20 56.95	-18 09.2	1.848	2.862	177.2	1.0	16.3
1988 08 17	20 49.12	-18 40.9					
1988 08 27	20 42.24	-19 06.9	1.888	2.834	154.5	8.8	16.7
1988 09 06	20 37.08	-19 24.8					
1988 09 16	20 34.14	-19 33.7	2.022	2.807	133.1	15.1	17.0
1988 09 26	20 33.71	-19 33.1					
1988 10 06	20 35.78	-19 23.3	2.222	2.782	113.9	19.2	17.3
1988 10 16	20 40.23	-19 04.5					
1988 10 26	20 46.85	-18 37.0	2.458	2.759	96.8	21.0	17.6

1982 BE1 a,e,i = 2.55, 0.19, 6 Elements MPC 10529

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 18.31	-13 53.4	2.494	2.850	100.0	20.5	18.6
1988 05 29	21 23.50	-13 39.0					
1988 06 08	21 26.72	-13 35.2	2.208	2.820	117.2	18.7	18.3
1988 06 18	21 27.74	-13 44.0					
1988 06 28	21 26.40	-14 06.4	1.961	2.788	136.5	14.5	17.9
1988 07 08	21 22.66	-14 42.5					
1988 07 18	21 16.65	-15 31.1	1.784	2.754	158.3	7.9	17.4
1988 07 28	21 08.82	-16 28.7					
1988 08 07	20 59.89	-17 30.4	1.705	2.719	178.2	0.7	16.9
1988 08 17	20 50.83	-18 30.7					
1988 08 27	20 42.69	-19 24.3	1.734	2.682	154.5	9.3	17.4
1988 09 06	20 36.38	-20 07.6					
1988 09 16	20 32.51	-20 38.9	1.859	2.644	132.5	16.3	17.7
1988 09 26	20 31.43	-20 57.6					
1988 10 06	20 33.14	-21 04.1	2.047	2.604	112.9	20.7	18.0
1988 10 16	20 37.51	-20 58.9					
1988 10 26	20 44.29	-20 42.8	2.267	2.564	95.7	22.7	18.3

1980 SD a,e,i = 2.59, 0.18, 13 Elements MPC 7779

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 07.34	-34 07.4	1.603	2.141	107.8	26.7	17.7
1988	05 29	21 18.22	-34 40.2					
1988	06 08	21 26.21	-35 24.0	1.412	2.133	122.2	23.8	17.4
1988	06 18	21 30.83	-36 18.6					
1988	06 28	21 31.65	-37 20.7	1.262	2.129	138.0	18.6	17.0
1988	07 08	21 28.50	-38 23.8					
1988	07 18	21 21.58	-39 18.3	1.174	2.130	153.0	12.5	16.6
1988	07 28	21 11.79	-39 52.7					
1988	08 07	21 00.67	-39 58.0	1.166	2.135	156.6	10.9	16.6
1988	08 17	20 50.07	-39 30.2					
1988	08 27	20 41.74	-38 31.3	1.244	2.145	144.0	16.1	16.9
1988	09 06	20 36.74	-37 08.1					
1988	09 16	20 35.46	-35 27.9	1.395	2.159	127.5	21.7	17.3
1988	09 26	20 37.80	-33 37.1					
1988	10 06	20 43.30	-31 40.1	1.599	2.178	111.8	25.2	17.7
1988	10 16	20 51.44	-29 39.4					
1988	10 26	21 01.73	-27 36.0	1.837	2.200	97.5	26.6	18.1

1941 HD a,e,i = 2.61, 0.14, 14 Elements MPC 11835

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 16.08	-04 00.8	2.050	2.400	97.4	24.7	17.0
1988	05 29	21 22.90	-03 21.2					
1988	06 08	21 27.51	-02 54.5	1.842	2.427	113.1	22.6	16.7
1988	06 18	21 29.69	-02 43.9					
1988	06 28	21 29.30	-02 52.7	1.664	2.456	131.2	18.1	16.4
1988	07 08	21 26.38	-03 22.9					
1988	07 18	21 21.12	-04 15.6	1.543	2.485	151.8	11.1	16.0
1988	07 28	21 14.07	-05 28.7					
1988	08 07	21 06.07	-06 57.5	1.509	2.515	170.4	3.9	15.7
1988	08 17	20 58.10	-08 34.9					
1988	08 27	20 51.22	-10 12.6	1.581	2.545	157.8	8.6	16.0
1988	09 06	20 46.23	-11 43.4					
1988	09 16	20 43.64	-13 02.4	1.749	2.575	136.8	15.5	16.5
1988	09 26	20 43.68	-14 06.5					
1988	10 06	20 46.29	-14 54.8	1.988	2.605	117.5	19.9	16.9
1988	10 16	20 51.28	-15 27.3					
1988	10 26	20 58.37	-15 44.7	2.270	2.635	100.3	21.8	17.3

2091 P-L a,e,i = 2.32, 0.12, 4 Elements MPC 9297

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 16.70	-12 43.6	1.881	2.286	100.0	25.8	20.0
1988	05 29	21 24.87	-11 42.5					
1988	06 08	21 30.86	-10 48.6	1.631	2.259	115.3	24.0	19.6
1988	06 18	21 34.35	-10 04.4					
1988	06 28	21 35.05	-09 32.6	1.414	2.233	132.9	19.5	19.2
1988	07 08	21 32.81	-09 15.3					
1988	07 18	21 27.64	-09 14.0	1.252	2.208	153.2	12.0	18.6
1988	07 28	21 19.99	-09 28.3					
1988	08 07	21 10.71	-09 55.8	1.173	2.183	173.3	3.1	18.1
1988	08 17	21 01.04	-10 31.9					
1988	08 27	20 52.41	-11 10.7	1.189	2.160	158.1	10.0	18.4
1988	09 06	20 46.01	-11 46.6					
1988	09 16	20 42.65	-12 15.6	1.292	2.138	136.7	18.8	18.9
1988	09 26	20 42.67	-12 34.4					
1988	10 06	20 46.01	-12 41.6	1.457	2.118	117.9	24.6	19.3
1988	10 16	20 52.39	-12 36.3					
1988	10 26	21 01.45	-12 18.1	1.656	2.100	101.9	27.6	19.6

(3804) 1969 TB2 a,e,i = 2.90, 0.06, 2 Elements MPC 12966

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 26.37	-17 41.1	2.365	2.719	99.3	21.5	17.6
1988	05 29	21 32.78	-17 18.8					
1988	06 08	21 37.11	-17 06.1	2.117	2.718	115.9	19.6	17.3
1988	06 18	21 39.16	-17 04.4					
1988	06 28	21 38.75	-17 14.1	1.906	2.718	134.6	15.4	16.9
1988	07 08	21 35.87	-17 34.7					
1988	07 18	21 30.66	-18 04.3	1.761	2.719	155.7	8.9	16.5
1988	07 28	21 23.57	-18 39.2					
1988	08 07	21 15.34	-19 15.0	1.708	2.721	176.6	1.3	16.1
1988	08 17	21 06.90	-19 46.8					
1988	08 27	20 59.28	-20 10.8	1.761	2.724	157.9	8.0	16.5
1988	09 06	20 53.33	-20 24.8					
1988	09 16	20 49.64	-20 27.8	1.911	2.728	136.4	14.7	16.9
1988	09 26	20 48.51	-20 20.0					
1988	10 06	20 49.95	-20 02.3	2.130	2.733	117.0	19.0	17.3
1988	10 16	20 53.82	-19 35.4					
1988	10 26	20 59.86	-18 59.8	2.390	2.739	99.7	21.0	17.6

1977 EO a,e,i = 2.24, 0.10, 7 Elements MPC 11999

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 31.89	-21 54.8	1.790	2.195	99.4	27.0	17.5
1988	05 29	21 40.35	-21 24.4					
1988	06 08	21 46.17	-21 04.5	1.588	2.217	115.0	24.5	17.2
1988	06 18	21 49.01	-20 56.6					
1988	06 28	21 48.57	-21 01.0	1.416	2.239	133.3	19.3	16.9
1988	07 08	21 44.75	-21 16.3					
1988	07 18	21 37.69	-21 38.9	1.301	2.261	154.5	11.2	16.5
1988	07 28	21 28.00	-22 03.3					
1988	08 07	21 16.80	-22 23.0	1.272	2.283	173.7	2.8	16.1
1988	08 17	21 05.51	-22 32.5					
1988	08 27	20 55.62	-22 28.7	1.343	2.304	156.1	10.2	16.5
1988	09 06	20 48.25	-22 11.7					
1988	09 16	20 44.02	-21 43.0	1.504	2.324	134.7	17.9	17.0
1988	09 26	20 43.11	-21 04.6					
1988	10 06	20 45.31	-20 18.2	1.727	2.343	115.9	22.6	17.5
1988	10 16	20 50.28	-19 24.8					
1988	10 26	20 57.63	-18 25.0	1.986	2.361	99.4	24.5	17.9

1981 DP2 a,e,i = 3.02, 0.07, 9 Elements MPC 10295

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 35.03	-14 57.4	2.886	3.165	96.5	18.5	17.6
1988	05 29	21 39.45	-14 17.4					
1988	06 08	21 42.03	-13 44.3	2.606	3.154	113.7	17.1	17.4
1988	06 18	21 42.59	-13 19.2					
1988	06 28	21 41.02	-13 02.8	2.362	3.143	132.8	13.7	17.0
1988	07 08	21 37.34	-12 55.0					
1988	07 18	21 31.69	-12 55.4	2.186	3.131	153.9	8.2	16.7
1988	07 28	21 24.44	-13 02.5					
1988	08 07	21 16.21	-13 14.0	2.106	3.119	175.9	1.3	16.2
1988	08 17	21 07.72	-13 27.4					
1988	08 27	20 59.84	-13 39.7	2.138	3.106	159.8	6.5	16.5
1988	09 06	20 53.28	-13 48.9					
1988	09 16	20 48.59	-13 53.2	2.273	3.093	137.8	12.6	16.9
1988	09 26	20 46.11	-13 51.5					
1988	10 06	20 45.92	-13 43.3	2.485	3.079	117.7	16.7	17.2
1988	10 16	20 47.98	-13 28.3					
1988	10 26	20 52.11	-13 06.2	2.740	3.065	99.5	18.7	17.5

(3658) Feldman a,e,i = 2.19, 0.06, 4 Elements MPC 12126

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 27.39	-17 20.6	1.890	2.279	99.0	26.0	17.9
1988	05 29	21 35.59	-16 36.3					
1988	06 08	21 41.48	-16 00.7	1.650	2.268	114.6	24.0	17.6
1988	06 18	21 44.72	-15 36.0					
1988	06 28	21 45.00	-15 23.7	1.440	2.256	132.6	19.4	17.1
1988	07 08	21 42.15	-15 24.3					
1988	07 18	21 36.15	-15 37.0	1.286	2.243	153.8	11.5	16.6
1988	07 28	21 27.47	-15 58.8					
1988	08 07	21 17.03	-16 24.9	1.216	2.229	177.5	1.1	16.0
1988	08 17	21 06.11	-16 49.6					
1988	08 27	20 56.23	-17 08.0	1.245	2.215	158.2	9.7	16.5
1988	09 06	20 48.65	-17 17.0					
1988	09 16	20 44.17	-17 15.4	1.363	2.200	136.0	18.5	16.9
1988	09 26	20 43.13	-17 02.9					
1988	10 06	20 45.42	-16 40.1	1.543	2.185	116.9	24.1	17.3
1988	10 16	20 50.77	-16 07.2					
1988	10 26	20 58.78	-15 24.5	1.757	2.170	100.5	26.8	17.7

1975 VS5 a,e,i = 2.26, 0.16, 6 Elements MPC 7140

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 21.15	-09 16.7	2.009	2.370	97.9	25.0	18.9
1988	05 29	21 29.10	-08 28.2					
1988	06 08	21 35.05	-07 49.1	1.743	2.338	113.3	23.5	18.5
1988	06 18	21 38.70	-07 22.4					
1988	06 28	21 39.77	-07 11.4	1.506	2.303	130.9	19.5	18.1
1988	07 08	21 38.07	-07 18.8					
1988	07 18	21 33.54	-07 46.6	1.324	2.268	151.2	12.4	17.5
1988	07 28	21 26.51	-08 34.5					
1988	08 07	21 17.68	-09 39.4	1.223	2.233	172.6	3.4	17.0
1988	08 17	21 08.15	-10 55.2					
1988	08 27	20 59.30	-12 13.7	1.220	2.196	159.8	9.1	17.2
1988	09 06	20 52.37	-13 27.0					
1988	09 16	20 48.29	-14 29.2	1.309	2.160	137.6	18.3	17.6
1988	09 26	20 47.54	-15 16.3					
1988	10 06	20 50.17	-15 47.1	1.461	2.125	118.2	24.5	18.0
1988	10 16	20 55.98	-16 01.1					
1988	10 26	21 04.64	-15 58.5	1.649	2.090	101.7	27.8	18.3

1978 SB8 a,e,i = 2.27, 0.18, 5 Elements MPC 10952

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 15.21	-23 09.6	1.666	2.141	103.4	27.4	18.8
1988	05 29	21 25.80	-22 51.6					
1988	06 08	21 34.15	-22 43.5	1.422	2.100	118.1	25.2	18.4
1988	06 18	21 39.83	-22 47.6					
1988	06 28	21 42.43	-23 04.9	1.212	2.061	135.1	20.4	17.9
1988	07 08	21 41.62	-23 34.7					
1988	07 18	21 37.23	-24 13.9	1.058	2.024	154.7	12.4	17.3
1988	07 28	21 29.62	-24 55.5					
1988	08 07	21 19.71	-25 30.8	0.981	1.989	170.6	4.8	16.8
1988	08 17	21 09.01	-25 51.1					
1988	08 27	20 59.39	-25 50.5	0.994	1.957	155.1	12.5	17.1
1988	09 06	20 52.42	-25 28.2					
1988	09 16	20 49.08	-24 46.4	1.084	1.929	134.7	21.7	17.5
1988	09 26	20 49.73	-23 48.5					
1988	10 06	20 54.16	-22 37.9	1.229	1.906	117.1	27.8	17.9
1988	10 16	21 01.97	-21 16.4					
1988	10 26	21 12.63	-19 45.2	1.405	1.887	102.3	31.0	18.3

1983 WF1 a,e,i = 3.18, 0.31, 21 Elements MPC 9687

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 15.55	-23 46.4	2.267	2.690	103.5	21.5	16.8
1988	05 29	21 23.87	-24 41.3					
1988	06 08	21 30.45	-25 54.0	1.973	2.628	119.7	19.6	16.4
1988	06 18	21 34.97	-27 26.1					
1988	06 28	21 37.11	-29 17.5	1.729	2.569	137.1	15.6	16.0
1988	07 08	21 36.65	-31 25.5					
1988	07 18	21 33.45	-33 44.1	1.560	2.511	153.5	10.4	15.5
1988	07 28	21 27.73	-36 03.3					
1988	08 07	21 20.10	-38 11.2	1.486	2.456	158.2	8.8	15.3
1988	08 17	21 11.60	-39 56.6					
1988	08 27	21 03.62	-41 11.4	1.509	2.405	144.7	14.1	15.5
1988	09 06	20 57.48	-41 53.2					
1988	09 16	20 54.21	-42 03.6	1.611	2.357	127.1	19.9	15.8
1988	09 26	20 54.36	-41 46.8					
1988	10 06	20 57.99	-41 07.4	1.764	2.314	110.7	23.8	16.0
1988	10 16	21 04.89	-40 09.3					
1988	10 26	21 14.65	-38 55.5	1.943	2.277	96.3	25.7	16.3

(3672) Stevedberg a,e,i = 2.18, 0.14, 6 Elements MPC 12139

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 27.65	-23 02.7	1.858	2.274	100.7	25.9	17.6
1988	05 29	21 36.93	-22 48.5					
1988	06 08	21 43.96	-22 45.2	1.605	2.243	115.9	24.0	17.2
1988	06 18	21 48.35	-22 54.8					
1988	06 28	21 49.71	-23 17.9	1.386	2.212	133.5	19.5	16.7
1988	07 08	21 47.74	-23 53.6					
1988	07 18	21 42.32	-24 38.4	1.223	2.180	153.5	12.0	16.2
1988	07 28	21 33.76	-25 25.5					
1988	08 07	21 22.96	-26 06.2	1.142	2.147	169.7	4.8	15.7
1988	08 17	21 11.31	-26 32.2					
1988	08 27	21 00.56	-26 37.7	1.156	2.114	154.9	11.7	16.0
1988	09 06	20 52.23	-26 21.8					
1988	09 16	20 47.31	-25 46.7	1.254	2.082	134.0	20.3	16.4
1988	09 26	20 46.22	-24 55.8					
1988	10 06	20 48.84	-23 52.6	1.410	2.051	115.6	26.1	16.8
1988	10 16	20 54.81	-22 39.3					
1988	10 26	21 03.67	-21 16.8	1.596	2.020	99.9	29.0	17.1

1978 TU5 a,e,i = 2.32, 0.09, 6 Elements MPC 11852

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 29.43	-17 42.0	1.728	2.129	98.7	28.0	16.9
1988	05 29	21 38.73	-16 40.6					
1988	06 08	21 45.53	-15 46.9	1.521	2.140	113.6	25.8	16.6
1988	06 18	21 49.49	-15 03.3					
1988	06 28	21 50.31	-14 31.3	1.343	2.153	131.1	20.8	16.2
1988	07 08	21 47.86	-14 11.7					
1988	07 18	21 42.18	-14 04.2	1.217	2.167	151.9	12.7	15.8
1988	07 28	21 33.79	-14 06.6					
1988	08 07	21 23.68	-14 14.8	1.171	2.183	175.3	2.2	15.3
1988	08 17	21 13.19	-14 24.7					
1988	08 27	21 03.80	-14 31.6	1.222	2.200	160.6	8.8	15.7
1988	09 06	20 56.70	-14 32.7					
1988	09 16	20 52.61	-14 26.5	1.363	2.219	138.7	17.4	16.2
1988	09 26	20 51.81	-14 11.9					
1988	10 06	20 54.15	-13 48.9	1.569	2.238	119.6	22.9	16.7
1988	10 16	20 59.34	-13 17.3					
1988	10 26	21 06.97	-12 36.9	1.815	2.258	103.1	25.4	17.1

1987 DF1 a,e,i = 2.59, 0.14, 13 Elements MPC 12002

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 22.90	-04 27.2	1.962	2.298	95.9	26.0	17.3
1988 05 29	21 31.17	-03 45.3					
1988 06 08	21 37.28	-03 16.3	1.754	2.320	111.0	24.1	17.0
1988 06 18	21 41.00	-03 03.8					
1988 06 28	21 42.13	-03 11.1	1.572	2.345	128.6	19.8	16.7
1988 07 08	21 40.60	-03 40.9					
1988 07 18	21 36.52	-04 34.4	1.442	2.371	148.9	12.8	16.3
1988 07 28	21 30.33	-05 50.3					
1988 08 07	21 22.78	-07 23.5	1.394	2.399	170.0	4.2	16.0
1988 08 17	21 14.86	-09 06.6					
1988 08 27	21 07.72	-10 50.4	1.447	2.428	161.9	7.4	16.2
1988 09 06	21 02.29	-12 26.4					
1988 09 16	20 59.22	-13 48.9	1.598	2.457	140.3	15.1	16.7
1988 09 26	20 58.84	-14 54.3					
1988 10 06	21 01.14	-15 41.8	1.824	2.488	120.8	20.2	17.2
1988 10 16	21 05.94	-16 11.6					
1988 10 26	21 12.97	-16 24.8	2.095	2.519	103.4	22.6	17.6

(3652) 1981 TC3 a,e,i = 2.37, 0.19, 2 Elements MPC 12007

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 10.72	-14 15.1	1.455	1.936	101.9	30.8	16.6
1988 05 29	21 22.71	-13 00.6					
1988 06 08	21 32.37	-11 52.8	1.256	1.923	115.3	28.5	16.2
1988 06 18	21 39.31	-10 55.2					
1988 06 28	21 43.19	-10 11.3	1.086	1.915	131.3	23.5	15.8
1988 07 08	21 43.78	-09 44.0					
1988 07 18	21 41.00	-09 35.6	0.963	1.914	150.5	15.2	15.3
1988 07 28	21 35.27	-09 45.7					
1988 08 07	21 27.49	-10 11.5	0.910	1.919	171.8	4.3	14.7
1988 08 17	21 19.01	-10 47.2					
1988 08 27	21 11.47	-11 25.4	0.941	1.930	162.8	8.9	15.0
1988 09 06	21 06.19	-11 59.2					
1988 09 16	21 04.03	-12 23.7	1.055	1.947	141.8	18.6	15.6
1988 09 26	21 05.32	-12 35.5					
1988 10 06	21 09.91	-12 33.6	1.230	1.969	123.6	25.0	16.1
1988 10 16	21 17.44	-12 17.5					
1988 10 26	21 27.47	-11 47.4	1.448	1.996	108.2	28.2	16.6

1987 GC a,e,i = 2.69, 0.11, 13 Elements MPC 11855

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 34.19	+00 11.1	2.397	2.630	91.7	22.6	17.9
1988 05 29	21 40.65	+01 20.5					
1988 06 08	21 45.16	+02 21.2	2.173	2.652	106.9	21.5	17.7
1988 06 18	21 47.54	+03 10.2					
1988 06 28	21 47.65	+03 44.3	1.971	2.675	124.0	18.4	17.4
1988 07 08	21 45.44	+04 00.4					
1988 07 18	21 41.04	+03 55.7	1.819	2.698	142.7	13.2	17.1
1988 07 28	21 34.80	+03 28.6					
1988 08 07	21 27.34	+02 40.0	1.745	2.720	160.1	7.3	16.8
1988 08 17	21 19.46	+01 32.7					
1988 08 27	21 12.10	+00 12.5	1.772	2.743	159.9	7.3	16.9
1988 09 06	21 06.06	-01 13.5					
1988 09 16	21 01.97	-02 38.7	1.901	2.764	142.1	12.9	17.3
1988 09 26	21 00.21	-03 56.9					
1988 10 06	21 00.84	-05 04.5	2.112	2.785	123.0	17.5	17.7
1988 10 16	21 03.81	-05 58.9					
1988 10 26	21 08.93	-06 39.1	2.376	2.806	105.2	20.0	18.0

1982 VE4 a,e,i = 2.20, 0.15, 4 Elements MPC 11736

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 12.91	-16 28.5	1.382	1.875	102.0	31.8	16.8
1988 05 29	21 25.60	-15 55.7					
1988 06 08	21 35.84	-15 35.5	1.199	1.877	115.7	29.2	16.4
1988 06 18	21 43.22	-15 31.6					
1988 06 28	21 47.33	-15 47.0	1.045	1.885	132.2	23.5	15.9
1988 07 08	21 47.92	-16 22.9					
1988 07 18	21 44.88	-17 17.8	0.937	1.897	152.2	14.5	15.5
1988 07 28	21 38.63	-18 25.9					
1988 08 07	21 30.18	-19 38.1	0.902	1.913	173.6	3.4	15.0
1988 08 17	21 21.00	-20 43.5					
1988 08 27	21 12.86	-21 32.8	0.953	1.933	160.1	10.3	15.4
1988 09 06	21 07.15	-22 01.4					
1988 09 16	21 04.74	-22 08.5	1.084	1.958	139.1	19.7	16.0
1988 09 26	21 05.89	-21 55.7					
1988 10 06	21 10.39	-21 25.6	1.275	1.985	121.1	25.6	16.5
1988 10 16	21 17.84	-20 40.5					
1988 10 26	21 27.74	-19 42.2	1.504	2.015	105.7	28.4	17.0

A904 PC a,e,i = 2.80, 0.12, 11 Elements MPC 11618

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 40.21	-09 54.0	2.371	2.636	93.7	22.5	16.9
1988 05 29	21 47.17	-08 32.2					
1988 06 08	21 52.24	-07 14.5	2.100	2.614	109.1	21.5	16.6
1988 06 18	21 55.18	-06 02.9					
1988 06 28	21 55.76	-04 59.4	1.858	2.593	126.3	18.4	16.2
1988 07 08	21 53.87	-04 06.1					
1988 07 18	21 49.50	-03 25.1	1.669	2.572	145.6	12.9	15.8
1988 07 28	21 42.91	-02 58.1					
1988 08 07	21 34.68	-02 45.5	1.562	2.553	164.5	6.1	15.4
1988 08 17	21 25.65	-02 46.7					
1988 08 27	21 16.91	-02 58.7	1.554	2.536	162.4	6.9	15.4
1988 09 06	21 09.47	-03 17.7					
1988 09 16	21 04.14	-03 39.3	1.645	2.520	142.7	14.0	15.8
1988 09 26	21 01.45	-03 59.0					
1988 10 06	21 01.55	-04 13.5	1.814	2.506	123.3	19.5	16.2
1988 10 16	21 04.38	-04 20.3					
1988 10 26	21 09.72	-04 17.5	2.030	2.493	106.0	22.5	16.5

1978 RS a,e,i = 2.25, 0.19, 2 Elements MPC 10390

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 19.10	-16 45.5	1.608	2.053	100.7	29.0	17.7
1988 05 29	21 30.66	-15 46.8					
1988 06 08	21 40.20	-14 54.3	1.366	2.012	114.5	27.3	17.3
1988 06 18	21 47.33	-14 10.9					
1988 06 28	21 51.66	-13 39.3	1.154	1.973	130.6	23.0	16.7
1988 07 08	21 52.86	-13 21.5					
1988 07 18	21 50.66	-13 19.0	0.990	1.937	149.7	15.3	16.2
1988 07 28	21 45.21	-13 30.8					
1988 08 07	21 37.17	-13 53.3	0.895	1.905	172.1	4.2	15.5
1988 08 17	21 27.75	-14 20.9					
1988 08 27	21 18.67	-14 46.1	0.885	1.877	164.1	8.5	15.6
1988 09 06	21 11.56	-15 02.9					
1988 09 16	21 07.66	-15 07.7	0.956	1.855	142.0	19.5	16.1
1988 09 26	21 07.58	-14 58.3					
1988 10 06	21 11.33	-14 34.5	1.088	1.838	123.4	27.0	16.6
1988 10 16	21 18.59	-13 56.4					
1988 10 26	21 28.88	-13 04.4	1.256	1.828	108.1	31.1	17.0

1986 CH a,e,i = 2.99, 0.06, 9 Elements MPC 11843

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 48.62	-06 53.3	2.902	3.085	90.7	19.1	17.6
1988 05 29	21 53.79	-05 51.5					
1988 06 08	21 57.22	-04 56.1	2.640	3.094	107.1	18.3	17.4
1988 06 18	21 58.76	-04 08.8					
1988 06 28	21 58.27	-03 31.4	2.403	3.102	125.1	15.5	17.1
1988 07 08	21 55.73	-03 05.3					
1988 07 18	21 51.22	-02 51.9	2.223	3.110	144.9	10.8	16.8
1988 07 28	21 45.02	-02 51.5					
1988 08 07	21 37.61	-03 03.4	2.128	3.117	164.5	5.0	16.5
1988 08 17	21 29.65	-03 26.0					
1988 08 27	21 21.93	-03 56.1	2.140	3.124	164.0	5.1	16.5
1988 09 06	21 15.17	-04 29.9					
1988 09 16	21 09.98	-05 03.8	2.259	3.130	144.1	10.9	16.8
1988 09 26	21 06.78	-05 34.2					
1988 10 06	21 05.73	-05 58.7	2.465	3.136	124.0	15.3	17.2
1988 10 16	21 06.86	-06 15.5					
1988 10 26	21 10.04	-06 23.4	2.725	3.141	105.5	17.8	17.5

(3644) 1931 TW a,e,i = 2.25, 0.09, 4 Elements MPC 12002

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 42.33	-17 25.9	2.078	2.399	95.7	24.8	17.5
1988 05 29	21 50.84	-16 50.0					
1988 06 08	21 57.28	-16 23.6	1.823	2.384	111.1	23.4	17.2
1988 06 18	22 01.35	-16 08.8					
1988 06 28	22 02.72	-16 07.0	1.595	2.368	128.8	19.5	16.8
1988 07 08	22 01.18	-16 18.9					
1988 07 18	21 56.62	-16 43.5	1.419	2.351	149.3	12.7	16.3
1988 07 28	21 49.26	-17 17.7					
1988 08 07	21 39.75	-17 56.3	1.324	2.332	172.0	3.5	15.7
1988 08 17	21 29.16	-18 33.0					
1988 08 27	21 18.86	-19 01.5	1.329	2.313	162.6	7.5	15.9
1988 09 06	21 10.18	-19 17.7					
1988 09 16	21 04.12	-19 19.9	1.430	2.293	140.0	16.4	16.4
1988 09 26	21 01.24	-19 08.3					
1988 10 06	21 01.65	-18 44.0	1.600	2.272	120.0	22.4	16.7
1988 10 16	21 05.17	-18 08.2					
1988 10 26	21 11.48	-17 21.7	1.810	2.250	102.8	25.5	17.1

1987 DQ a,e,i = 2.29, 0.11, 6 Elements MPC 11744

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 42.97	-11 20.6	1.974	2.272	93.5	26.4	17.3
1988 05 29	21 52.04	-10 46.0					
1988 06 08	21 58.99	-10 23.6	1.761	2.296	108.7	24.8	17.0
1988 06 18	22 03.53	-10 16.1					
1988 06 28	22 05.38	-10 26.0	1.569	2.320	126.3	20.7	16.7
1988 07 08	22 04.40	-10 54.7					
1988 07 18	22 00.52	-11 42.1	1.425	2.343	146.9	13.7	16.3
1988 07 28	21 54.03	-12 45.6					
1988 08 07	21 45.59	-13 59.5	1.360	2.366	170.2	4.2	15.9
1988 08 17	21 36.20	-15 16.4					
1988 08 27	21 27.11	-16 27.9	1.396	2.387	165.4	6.1	16.0
1988 09 06	21 19.49	-17 27.6					
1988 09 16	21 14.21	-18 11.7	1.531	2.408	142.6	14.7	16.6
1988 09 26	21 11.79	-18 38.6					
1988 10 06	21 12.29	-18 49.1	1.741	2.427	122.4	20.4	17.0
1988 10 16	21 15.58	-18 44.3					
1988 10 26	21 21.37	-18 25.7	1.996	2.445	104.7	23.1	17.4

1978 SU5 a,e,i = 2.31, 0.05, 6 Elements MPC 10536

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 46.96	-06 38.2	2.140	2.383	91.0	25.1	19.1
1988 05 29	21 55.29	-05 24.7					
1988 06 08	22 01.65	-04 18.7	1.906	2.391	105.8	24.1	18.8
1988 06 18	22 05.79	-03 22.8					
1988 06 28	22 07.44	-02 40.0	1.691	2.397	122.7	20.9	18.4
1988 07 08	22 06.46	-02 12.8					
1988 07 18	22 02.75	-02 04.0	1.519	2.404	142.1	15.1	18.0
1988 07 28	21 56.56	-02 15.0					
1988 08 07	21 48.41	-02 45.2	1.421	2.409	162.8	7.2	17.6
1988 08 17	21 39.18	-03 32.0					
1988 08 27	21 30.04	-04 29.7	1.420	2.413	166.0	5.8	17.6
1988 09 06	21 22.11	-05 31.4					
1988 09 16	21 16.31	-06 30.6	1.519	2.417	145.6	13.6	18.0
1988 09 26	21 13.23	-07 21.8					
1988 10 06	21 13.04	-08 01.5	1.698	2.419	125.4	19.7	18.4
1988 10 16	21 15.67	-08 27.8					
1988 10 26	21 20.89	-08 40.0	1.929	2.421	107.5	23.1	18.8

1973 SW4 a,e,i = 2.45, 0.15, 3 Elements MPC 9162

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 39.24	-15 04.4	1.997	2.325	95.6	25.7	17.7
1988 05 29	21 48.97	-14 07.5					
1988 06 08	21 56.80	-13 17.4	1.735	2.293	110.2	24.6	17.3
1988 06 18	22 02.41	-12 36.6					
1988 06 28	22 05.50	-12 07.1	1.501	2.262	126.9	21.1	16.9
1988 07 08	22 05.80	-11 50.5					
1988 07 18	22 03.13	-11 47.8	1.314	2.232	146.4	14.6	16.4
1988 07 28	21 57.62	-11 58.4					
1988 08 07	21 49.76	-12 19.7	1.201	2.204	168.7	5.2	15.8
1988 08 17	21 40.47	-12 47.1					
1988 08 27	21 31.10	-13 14.7	1.182	2.179	167.4	5.8	15.8
1988 09 06	21 23.01	-13 37.0					
1988 09 16	21 17.32	-13 50.2	1.256	2.156	144.6	15.7	16.2
1988 09 26	21 14.76	-13 51.6					
1988 10 06	21 15.52	-13 40.6	1.402	2.135	124.7	22.7	16.6
1988 10 16	21 19.50	-13 16.9					
1988 10 26	21 26.38	-12 40.7	1.593	2.118	107.7	26.6	17.0

(3651) 1978 VB5 a,e,i = 2.38, 0.11, 7 Elements MPC 12006

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	21 48.96	-19 40.8	2.035	2.349	94.9	25.4	18.1
1988 05 29	21 58.31	-19 35.4					
1988 06 08	22 05.49	-19 43.5	1.821	2.372	110.3	23.7	17.9
1988 06 18	22 10.20	-20 06.9					
1988 06 28	22 12.16	-20 46.5	1.633	2.396	127.9	19.6	17.5
1988 07 08	22 11.15	-21 41.1					
1988 07 18	22 07.12	-22 47.9	1.497	2.419	147.8	12.9	17.2
1988 07 28	22 00.32	-24 00.5					
1988 08 07	21 51.41	-25 10.8	1.444	2.441	166.5	5.6	16.8
1988 08 17	21 41.43	-26 10.3					
1988 08 27	21 31.69	-26 51.8	1.490	2.463	159.7	8.2	17.0
1988 09 06	21 23.42	-27 12.3					
1988 09 16	21 17.54	-27 11.9	1.633	2.484	139.4	15.3	17.5
1988 09 26	21 14.57	-26 52.8					
1988 10 06	21 14.58	-26 18.4	1.847	2.503	120.2	20.2	17.9
1988 10 16	21 17.41	-25 31.5					
1988 10 26	21 22.76	-24 34.4	2.105	2.522	103.0	22.6	18.3

1969 UP1 a,e,i = 2.19, 0.03, 6 Elements MPC 11728

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	05 19	21 46.64	-20 05.3	1.924	2.258	95.5	26.5	18.1
1988	05 29	21 56.69	-19 45.0					
1988	06 08	22 04.64	-19 36.5	1.692	2.256	110.4	24.9	17.8
1988	06 18	22 10.11	-19 42.1					
1988	06 28	22 12.77	-20 03.0	1.484	2.253	127.6	21.0	17.4
1988	07 08	22 12.32	-20 39.3					
1988	07 18	22 08.59	-21 28.7	1.326	2.250	147.3	14.1	17.0
1988	07 28	22 01.75	-22 26.2					
1988	08 07	21 52.40	-23 23.7	1.245	2.245	167.3	5.7	16.5
1988	08 17	21 41.63	-24 12.5					
1988	08 27	21 30.97	-24 44.6	1.260	2.240	161.2	8.3	16.7
1988	09 06	21 21.85	-24 56.2					
1988	09 16	21 15.41	-24 47.0	1.368	2.235	140.2	16.8	17.1
1988	09 26	21 12.27	-24 19.2					
1988	10 06	21 12.52	-23 36.1	1.545	2.229	120.8	22.7	17.5
1988	10 16	21 15.97	-22 40.3					
1988	10 26	21 22.25	-21 33.9	1.764	2.223	103.9	25.7	17.9

1987 EA a,e,i = 2.24, 0.10, 3 Elements MPC 11862

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 09.83	-15 34.4	1.846	2.365	108.0	24.1	18.1
1988	06 18	22 14.29	-15 25.8					
1988	06 28	22 16.05	-15 32.0	1.642	2.381	125.6	20.3	17.7
1988	07 08	22 14.92	-15 53.3					
1988	07 18	22 10.79	-16 28.7	1.486	2.396	146.0	13.7	17.3
1988	07 28	22 03.88	-17 14.7					
1988	08 07	21 54.79	-18 05.7	1.408	2.410	168.4	4.9	16.9
1988	08 17	21 44.48	-18 54.7					
1988	08 27	21 34.27	-19 34.8	1.431	2.422	165.3	6.1	17.0
1988	09 06	21 25.39	-20 01.3					
1988	09 16	21 18.82	-20 12.5	1.554	2.432	142.8	14.5	17.5
1988	09 26	21 15.15	-20 08.2					
1988	10 06	21 14.51	-19 50.1	1.753	2.440	122.5	20.2	17.9
1988	10 16	21 16.79	-19 19.7					
1988	10 26	21 21.69	-18 38.5	1.998	2.447	104.7	23.1	18.3
1988	11 05	21 28.84	-17 47.6					
1988	11 15	21 37.89	-16 47.9	2.262	2.452	88.9	23.8	18.6

1976 QE1 a,e,i = 3.40, 0.20, 18 Elements MPC 11638

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 17.78	-25 27.9	2.619	3.106	109.3	18.0	16.4
1988	06 18	22 19.53	-25 27.2					
1988	06 28	22 18.94	-25 34.9	2.419	3.142	127.4	14.9	16.1
1988	07 08	22 15.97	-25 49.0					
1988	07 18	22 10.69	-26 06.5	2.278	3.179	147.0	10.0	15.9
1988	07 28	22 03.44	-26 23.3					
1988	08 07	21 54.76	-26 34.9	2.226	3.216	165.0	4.7	15.6
1988	08 17	21 45.43	-26 37.4					
1988	08 27	21 36.33	-26 28.1	2.283	3.253	160.6	5.9	15.8
1988	09 06	21 28.29	-26 06.3					
1988	09 16	21 21.95	-25 32.8	2.447	3.290	141.1	11.1	16.1
1988	09 26	21 17.72	-24 49.2					
1988	10 06	21 15.73	-23 57.7	2.697	3.328	121.3	14.9	16.5
1988	10 16	21 15.96	-23 00.0					
1988	10 26	21 18.23	-21 57.3	3.000	3.365	102.9	16.7	16.8
1988	11 05	21 22.32	-20 50.7					
1988	11 15	21 27.98	-19 40.5	3.327	3.401	85.8	16.9	17.1

1981 EK5 a,e,i = 3.15, 0.14, 7 Elements MPC 12576

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 10.96	-08 46.6	2.460	2.899	105.3	19.7	19.1
1988 06 18	22 13.81	-08 04.5					
1988 06 28	22 14.53	-07 32.7	2.241	2.923	123.1	16.9	18.9
1988 07 08	22 13.05	-07 12.1					
1988 07 18	22 09.41	-07 03.6	2.071	2.947	143.1	12.0	18.6
1988 07 28	22 03.83	-07 06.6					
1988 08 07	21 56.77	-07 19.8	1.983	2.973	164.6	5.2	18.2
1988 08 17	21 48.89	-07 40.7					
1988 08 27	21 41.00	-08 05.7	1.999	2.999	169.8	3.4	18.2
1988 09 06	21 33.91	-08 31.2					
1988 09 16	21 28.30	-08 53.9	2.123	3.025	148.3	10.1	18.6
1988 09 26	21 24.66	-09 10.9					
1988 10 06	21 23.19	-09 20.6	2.337	3.052	127.6	15.0	19.0
1988 10 16	21 23.94	-09 21.9					
1988 10 26	21 26.79	-09 14.2	2.612	3.078	108.7	17.8	19.3
1988 11 05	21 31.53	-08 57.7					
1988 11 15	21 37.93	-08 32.3	2.916	3.105	91.6	18.6	19.6

1984 UX2 a,e,i = 2.68, 0.20, 12 Elements MPC 12202

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 03.91	-29 06.5	1.637	2.241	113.2	24.6	16.5
1988 06 18	22 11.23	-29 22.3					
1988 06 28	22 15.63	-29 49.5	1.431	2.215	128.8	21.0	16.1
1988 07 08	22 16.76	-30 26.5					
1988 07 18	22 14.35	-31 08.9	1.276	2.193	145.8	15.1	15.7
1988 07 28	22 08.51	-31 49.2					
1988 08 07	21 59.86	-32 17.8	1.193	2.175	160.2	9.1	15.3
1988 08 17	21 49.52	-32 25.5					
1988 08 27	21 39.15	-32 06.0	1.199	2.162	156.1	10.9	15.4
1988 09 06	21 30.33	-31 18.4					
1988 09 16	21 24.28	-30 06.1	1.291	2.153	139.0	17.8	15.7
1988 09 26	21 21.65	-28 35.0					
1988 10 06	21 22.49	-26 50.6	1.451	2.150	121.6	23.3	16.1
1988 10 16	21 26.55	-24 57.3					
1988 10 26	21 33.42	-22 57.6	1.657	2.152	105.8	26.4	16.5
1988 11 05	21 42.59	-20 53.4					
1988 11 15	21 53.64	-18 45.2	1.888	2.159	91.8	27.3	16.8

1975 QO a,e,i = 2.64, 0.31, 11 Elements MPC 9291

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 03.13	-19 08.0	1.670	2.239	110.6	25.1	17.4
1988 06 18	22 09.88	-18 13.5					
1988 06 28	22 14.10	-17 24.8	1.408	2.173	126.6	22.1	16.9
1988 07 08	22 15.42	-16 42.1					
1988 07 18	22 13.51	-16 05.6	1.192	2.109	145.2	16.0	16.3
1988 07 28	22 08.30	-15 33.5					
1988 08 07	22 00.09	-15 03.2	1.047	2.048	167.0	6.4	15.6
1988 08 17	21 49.77	-14 31.4					
1988 08 27	21 38.79	-13 54.4	0.991	1.993	169.0	5.6	15.4
1988 09 06	21 28.86	-13 10.3					
1988 09 16	21 21.47	-12 18.5	1.026	1.943	146.0	16.8	15.8
1988 09 26	21 17.65	-11 19.2					
1988 10 06	21 17.72	-10 13.1	1.131	1.900	126.1	25.2	16.2
1988 10 16	21 21.61	-09 00.1					
1988 10 26	21 28.96	-07 39.8	1.280	1.866	109.7	30.1	16.5
1988 11 05	21 39.26	-06 11.8					
1988 11 15	21 52.07	-04 35.6	1.450	1.842	96.2	32.3	16.8

1966 PM a,e,i = 3.10, 0.13, 2 Elements MPC 11145

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 17.09	-13 26.1	3.059	3.472	105.6	16.4	18.4
1988 06 18	22 19.10	-13 22.9					
1988 06 28	22 19.29	-13 30.0	2.805	3.479	124.2	14.0	18.1
1988 07 08	22 17.60	-13 47.3					
1988 07 18	22 14.05	-14 14.0	2.606	3.485	144.6	9.7	17.8
1988 07 28	22 08.82	-14 48.4					
1988 08 07	22 02.25	-15 27.4	2.495	3.489	166.6	3.9	17.5
1988 08 17	21 54.85	-16 07.6					
1988 08 27	21 47.29	-16 45.1	2.494	3.492	169.5	3.0	17.5
1988 09 06	21 40.25	-17 16.6					
1988 09 16	21 34.33	-17 39.7	2.607	3.494	147.2	9.0	17.8
1988 09 26	21 30.02	-17 53.1					
1988 10 06	21 27.59	-17 56.5	2.812	3.495	126.1	13.4	18.1
1988 10 16	21 27.15	-17 50.0					
1988 10 26	21 28.67	-17 34.3	3.078	3.495	106.6	15.8	18.4
1988 11 05	21 32.01	-17 10.2					
1988 11 15	21 37.01	-16 38.2	3.371	3.493	88.8	16.4	18.6

1978 SH1 a,e,i = 2.26, 0.16, 8 Elements MPC 12325

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 08.04	-21 06.3	1.709	2.268	110.1	24.9	18.2
1988 06 18	22 15.31	-21 29.4					
1988 06 28	22 20.08	-22 09.9	1.474	2.232	126.4	21.5	17.7
1988 07 08	22 22.01	-23 08.3					
1988 07 18	22 20.74	-24 22.9	1.287	2.197	144.7	15.5	17.2
1988 07 28	22 16.18	-25 48.5					
1988 08 07	22 08.63	-27 15.9	1.173	2.161	162.1	8.3	16.7
1988 08 17	21 58.91	-28 33.6					
1988 08 27	21 48.44	-29 30.1	1.150	2.126	159.3	9.7	16.7
1988 09 06	21 38.85	-29 58.2					
1988 09 16	21 31.61	-29 55.9	1.216	2.091	140.4	17.8	17.0
1988 09 26	21 27.73	-29 25.9					
1988 10 06	21 27.52	-28 32.8	1.348	2.059	121.8	24.4	17.4
1988 10 16	21 30.92	-27 21.1					
1988 10 26	21 37.56	-25 54.5	1.520	2.028	105.6	28.2	17.7
1988 11 05	21 46.94	-24 15.6					
1988 11 15	21 58.59	-22 25.8	1.710	2.000	91.6	29.6	18.0

1981 JH a,e,i = 2.22, 0.19, 4 Elements MPC 9683

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	21 56.67	-18 15.6	1.152	1.796	111.8	31.6	16.6
1988 06 18	22 07.51	-17 55.8					
1988 06 28	22 15.26	-17 52.3	0.997	1.797	126.4	27.1	16.1
1988 07 08	22 19.53	-18 06.5					
1988 07 18	22 19.94	-18 38.4	0.879	1.805	144.3	19.2	15.7
1988 07 28	22 16.51	-19 23.7					
1988 08 07	22 09.80	-20 14.5	0.821	1.819	164.6	8.5	15.2
1988 08 17	22 00.96	-21 00.3					
1988 08 27	21 51.80	-21 30.6	0.842	1.840	166.7	7.3	15.2
1988 09 06	21 44.09	-21 39.2					
1988 09 16	21 39.20	-21 24.8	0.943	1.866	146.6	17.3	15.8
1988 09 26	21 37.84	-20 49.1					
1988 10 06	21 40.04	-19 55.9	1.110	1.897	128.1	24.5	16.4
1988 10 16	21 45.51	-18 48.3					
1988 10 26	21 53.76	-17 28.8	1.323	1.933	112.3	28.4	16.9
1988 11 05	22 04.25	-15 59.4					
1988 11 15	22 16.52	-14 21.4	1.566	1.972	98.5	29.7	17.4

6543 P-L a,e,i = 3.18, 0.17, 2 Elements MPC 9302

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 10.24	-13 17.0	2.180	2.662	107.1	21.4	17.6
1988	06 18	22 15.47	-12 59.9					
1988	06 28	22 18.55	-12 55.1	1.944	2.652	124.1	18.5	17.3
1988	07 08	22 19.32	-13 03.5					
1988	07 18	22 17.68	-13 25.2	1.757	2.645	143.5	13.2	16.9
1988	07 28	22 13.75	-13 58.5					
1988	08 07	22 07.91	-14 40.0	1.647	2.640	165.1	5.7	16.5
1988	08 17	22 00.78	-15 24.9					
1988	08 27	21 53.30	-16 07.3	1.636	2.638	171.0	3.4	16.4
1988	09 06	21 46.42	-16 42.2					
1988	09 16	21 41.02	-17 05.8	1.727	2.640	148.9	11.3	16.8
1988	09 26	21 37.75	-17 16.1					
1988	10 06	21 36.93	-17 12.8	1.904	2.644	128.4	17.2	17.2
1988	10 16	21 38.62	-16 56.4					
1988	10 26	21 42.70	-16 27.8	2.138	2.651	110.2	20.6	17.6
1988	11 05	21 48.92	-15 48.0					
1988	11 15	21 56.99	-14 58.1	2.404	2.661	93.9	21.8	17.9

1968 HP a,e,i = 2.46, 0.13, 6 Elements MPC 12450

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 11.59	-07 46.2	1.752	2.238	104.8	26.0	17.0
1988	06 18	22 17.92	-07 20.8					
1988	06 28	22 21.74	-07 12.0	1.562	2.264	121.3	22.6	16.7
1988	07 08	22 22.83	-07 22.2					
1988	07 18	22 21.06	-07 52.7	1.411	2.290	140.8	16.3	16.3
1988	07 28	22 16.56	-08 42.7					
1988	08 07	22 09.78	-09 48.7	1.329	2.318	163.2	7.3	15.9
1988	08 17	22 01.54	-11 04.5					
1988	08 27	21 52.97	-12 21.6	1.341	2.347	172.7	3.1	15.8
1988	09 06	21 45.27	-13 32.1					
1988	09 16	21 39.45	-14 29.5	1.454	2.376	149.5	12.4	16.3
1988	09 26	21 36.18	-15 10.4					
1988	10 06	21 35.70	-15 33.8	1.650	2.406	128.7	18.9	16.8
1988	10 16	21 37.99	-15 40.1					
1988	10 26	21 42.83	-15 30.6	1.902	2.435	110.5	22.5	17.3
1988	11 05	21 49.86	-15 07.0					
1988	11 15	21 58.75	-14 30.5	2.182	2.465	94.4	23.6	17.6

1983 CZ2 a,e,i = 2.41, 0.18, 6 Elements MPC 8138

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 28.04	-10 17.1	2.416	2.808	102.0	20.7	19.1
1988	06 18	22 31.28	-09 43.5					
1988	06 28	22 32.32	-09 20.9	2.173	2.818	119.7	18.3	18.8
1988	07 08	22 31.02	-09 10.2					
1988	07 18	22 27.27	-09 11.9	1.972	2.826	139.9	13.4	18.4
1988	07 28	22 21.21	-09 25.5					
1988	08 07	22 13.19	-09 48.8	1.848	2.832	162.4	6.2	18.0
1988	08 17	22 03.85	-10 18.7					
1988	08 27	21 54.09	-10 50.9	1.829	2.834	173.3	2.4	17.8
1988	09 06	21 44.90	-11 20.9					
1988	09 16	21 37.16	-11 45.0	1.920	2.835	149.8	10.3	18.3
1988	09 26	21 31.55	-12 00.6					
1988	10 06	21 28.41	-12 06.5	2.104	2.832	128.1	16.1	18.6
1988	10 16	21 27.82	-12 02.1					
1988	10 26	21 29.70	-11 47.5	2.347	2.827	108.7	19.5	19.0
1988	11 05	21 33.80	-11 23.1					
1988	11 15	21 39.87	-10 49.3	2.617	2.820	91.3	20.5	19.2

2321 T-3 a,e,i = 2.43, 0.13, 6 Elements MPC 12573

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 13.09	-03 57.8	1.681	2.151	103.0	27.4	16.9
1988	06 18	22 19.92	-02 39.2					
1988	06 28	22 24.24	-01 32.9	1.489	2.166	118.4	24.4	16.5
1988	07 08	22 25.80	-00 42.1					
1988	07 18	22 24.43	-00 10.3	1.332	2.184	136.5	18.7	16.2
1988	07 28	22 20.21	-00 00.1					
1988	08 07	22 13.54	-00 12.4	1.236	2.205	156.8	10.5	15.8
1988	08 17	22 05.19	-00 46.1					
1988	08 27	21 56.37	-01 36.1	1.226	2.227	169.4	4.8	15.5
1988	09 06	21 48.31	-02 35.2					
1988	09 16	21 42.13	-03 35.4	1.312	2.251	152.2	12.0	16.0
1988	09 26	21 38.59	-04 29.4					
1988	10 06	21 37.99	-05 12.2	1.482	2.276	132.1	19.0	16.5
1988	10 16	21 40.31	-05 41.0					
1988	10 26	21 45.33	-05 54.6	1.711	2.303	114.1	23.2	16.9
1988	11 05	21 52.67	-05 52.9					
1988	11 15	22 02.00	-05 36.7	1.973	2.330	98.2	24.8	17.3

1978 XQ a,e,i = 3.19, 0.14, 1 Elements MPC 12131

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 23.74	-09 13.4	3.238	3.598	102.6	16.0	18.1
1988	06 18	22 25.89	-08 59.9					
1988	06 28	22 26.34	-08 56.4	2.975	3.604	120.9	14.0	17.9
1988	07 08	22 25.03	-09 03.2					
1988	07 18	22 21.96	-09 20.3	2.761	3.610	141.2	10.2	17.6
1988	07 28	22 17.28	-09 47.0					
1988	08 07	22 11.29	-10 21.1	2.632	3.614	163.1	4.7	17.2
1988	08 17	22 04.41	-11 00.1					
1988	08 27	21 57.24	-11 40.5	2.611	3.617	173.9	1.7	17.1
1988	09 06	21 50.39	-12 18.8					
1988	09 16	21 44.46	-12 52.0	2.705	3.619	151.2	7.7	17.4
1988	09 26	21 39.93	-13 17.8					
1988	10 06	21 37.11	-13 34.9	2.898	3.619	129.7	12.3	17.7
1988	10 16	21 36.14	-13 42.6					
1988	10 26	21 37.06	-13 40.9	3.159	3.619	109.8	15.0	18.0
1988	11 05	21 39.74	-13 30.2					
1988	11 15	21 44.07	-13 10.9	3.453	3.617	91.5	15.9	18.2

1983 AY a,e,i = 2.36, 0.08, 6 Elements MPC 12453

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 22.15	-07 28.3	1.874	2.313	102.3	25.4	17.0
1988	06 18	22 27.64	-06 23.8					
1988	06 28	22 30.65	-05 30.7	1.667	2.331	118.6	22.5	16.7
1988	07 08	22 30.96	-04 51.0					
1988	07 18	22 28.40	-04 26.9	1.496	2.350	137.7	16.9	16.3
1988	07 28	22 23.06	-04 19.5					
1988	08 07	22 15.35	-04 28.5	1.392	2.368	159.2	8.7	15.9
1988	08 17	22 06.02	-04 51.6					
1988	08 27	21 56.21	-05 24.4	1.381	2.386	172.1	3.3	15.7
1988	09 06	21 47.13	-06 01.3					
1988	09 16	21 39.86	-06 36.5	1.472	2.403	151.4	11.5	16.2
1988	09 26	21 35.14	-07 05.1					
1988	10 06	21 33.30	-07 24.1	1.649	2.420	130.5	18.3	16.6
1988	10 16	21 34.35	-07 31.8					
1988	10 26	21 38.09	-07 27.2	1.884	2.437	111.9	22.2	17.1
1988	11 05	21 44.18	-07 10.6					
1988	11 15	21 52.30	-06 42.2	2.150	2.453	95.6	23.7	17.4

1982 DV2 a,e,i = 2.55, 0.15, 3 Elements MPC 12585

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 19.67	-07 56.5	2.348	2.760	103.0	21.0	18.1
1988 06 18	22 24.12	-07 28.0					
1988 06 28	22 26.53	-07 11.5	2.077	2.734	120.2	18.7	17.7
1988 07 08	22 26.72	-07 08.8					
1988 07 18	22 24.53	-07 21.3	1.850	2.707	139.8	14.0	17.3
1988 07 28	22 20.00	-07 48.9					
1988 08 07	22 13.41	-08 30.3	1.696	2.679	161.8	6.8	16.8
1988 08 17	22 05.31	-09 22.2					
1988 08 27	21 56.56	-10 19.2	1.642	2.649	173.9	2.3	16.5
1988 09 06	21 48.17	-11 15.3					
1988 09 16	21 41.11	-12 05.0	1.695	2.618	150.7	10.8	16.9
1988 09 26	21 36.17	-12 44.0					
1988 10 06	21 33.79	-13 09.9	1.838	2.587	129.1	17.5	17.3
1988 10 16	21 34.12	-13 21.8					
1988 10 26	21 37.11	-13 19.6	2.039	2.555	109.9	21.5	17.6
1988 11 05	21 42.53	-13 04.0					
1988 11 15	21 50.10	-12 35.7	2.268	2.523	93.1	23.0	17.9

2563 P-L a,e,i = 3.20, 0.15, 2 Elements MPC 6207

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 19.87	-09 46.4	2.448	2.863	103.6	20.2	17.6
1988 06 18	22 24.02	-09 25.4					
1988 06 28	22 26.11	-09 16.7	2.226	2.886	121.1	17.6	17.3
1988 07 08	22 26.03	-09 20.9					
1988 07 18	22 23.76	-09 38.4	2.051	2.911	140.9	12.7	17.0
1988 07 28	22 19.45	-10 08.1					
1988 08 07	22 13.46	-10 47.4	1.952	2.936	162.8	5.9	16.7
1988 08 17	22 06.36	-11 32.5					
1988 08 27	21 58.93	-12 18.6	1.956	2.962	174.1	2.0	16.5
1988 09 06	21 52.00	-13 01.0					
1988 09 16	21 46.29	-13 35.9	2.068	2.989	151.4	9.3	17.0
1988 09 26	21 42.39	-14 00.5					
1988 10 06	21 40.58	-14 13.8	2.273	3.017	130.3	14.6	17.4
1988 10 16	21 40.97	-14 15.4					
1988 10 26	21 43.49	-14 05.8	2.542	3.045	111.2	17.7	17.8
1988 11 05	21 47.96	-13 45.6					
1988 11 15	21 54.14	-13 15.7	2.845	3.074	93.8	18.7	18.1

1976 EC a,e,i = 2.91, 0.07, 2 Elements MPC 10940

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 24.79	-08 25.2	2.744	3.118	102.0	18.6	18.0
1988 06 18	22 28.15	-08 04.1					
1988 06 28	22 29.62	-07 54.1	2.487	3.120	119.8	16.4	17.7
1988 07 08	22 29.09	-07 56.3					
1988 07 18	22 26.50	-08 11.1	2.276	3.121	139.7	12.2	17.4
1988 07 28	22 21.97	-08 38.0					
1988 08 07	22 15.80	-09 15.0	2.142	3.121	161.6	5.9	17.0
1988 08 17	22 08.47	-09 59.2					
1988 08 27	22 00.71	-10 46.2	2.113	3.121	174.9	1.6	16.8
1988 09 06	21 53.27	-11 31.5					
1988 09 16	21 46.90	-12 11.1	2.196	3.119	152.0	8.7	17.2
1988 09 26	21 42.19	-12 42.0					
1988 10 06	21 39.50	-13 02.5	2.375	3.117	130.4	14.1	17.6
1988 10 16	21 39.00	-13 11.7					
1988 10 26	21 40.66	-13 09.7	2.619	3.114	110.8	17.4	17.9
1988 11 05	21 44.33	-12 57.0					
1988 11 15	21 49.83	-12 34.1	2.896	3.110	93.1	18.5	18.1

1986 EQ2 a,e,i = 2.90, 0.08, 2 Elements MPC 11143

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 20.23	-08 41.4	2.370	2.782	103.2	20.8	18.3
1988 06 18	22 25.03	-08 11.7					
1988 06 28	22 27.83	-07 53.8	2.113	2.768	120.2	18.5	18.0
1988 07 08	22 28.46	-07 48.9					
1988 07 18	22 26.80	-07 58.2	1.900	2.754	139.5	13.9	17.6
1988 07 28	22 22.92	-08 21.6					
1988 08 07	22 17.10	-08 57.3	1.761	2.741	161.2	6.8	17.2
1988 08 17	22 09.87	-09 42.2					
1988 08 27	22 02.04	-10 31.2	1.720	2.728	175.3	1.8	16.9
1988 09 06	21 54.53	-11 19.0					
1988 09 16	21 48.23	-12 00.5	1.786	2.717	152.4	9.9	17.3
1988 09 26	21 43.86	-12 31.9					
1988 10 06	21 41.83	-12 51.2	1.943	2.706	131.0	16.2	17.7
1988 10 16	21 42.29	-12 57.5					
1988 10 26	21 45.20	-12 50.7	2.163	2.697	112.0	20.0	18.0
1988 11 05	21 50.34	-12 31.6					
1988 11 15	21 57.48	-12 00.7	2.415	2.689	95.0	21.5	18.3

(3640) Gostin a,e,i = 2.22, 0.09, 4 Elements MPC 11994

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 23.86	-07 59.1	1.917	2.349	102.1	25.0	17.3
1988 06 18	22 29.86	-07 00.4					
1988 06 28	22 33.56	-06 12.3	1.675	2.335	118.2	22.6	16.9
1988 07 08	22 34.67	-05 37.1					
1988 07 18	22 32.94	-05 16.9	1.469	2.318	137.0	17.4	16.5
1988 07 28	22 28.33	-05 13.2					
1988 08 07	22 21.07	-05 25.8	1.327	2.301	158.6	9.2	16.0
1988 08 17	22 11.80	-05 52.9					
1988 08 27	22 01.59	-06 30.0	1.276	2.283	173.8	2.7	15.6
1988 09 06	21 51.76	-07 11.0					
1988 09 16	21 43.56	-07 49.5	1.326	2.264	152.2	12.0	16.0
1988 09 26	21 37.99	-08 20.2					
1988 10 06	21 35.52	-08 39.6	1.461	2.245	130.7	19.7	16.4
1988 10 16	21 36.27	-08 45.8					
1988 10 26	21 40.07	-08 38.0	1.652	2.225	112.1	24.5	16.8
1988 11 05	21 46.59	-08 16.6					
1988 11 15	21 55.46	-07 41.7	1.870	2.205	96.0	26.5	17.1

1978 TB2 a,e,i = 2.27, 0.12, 4 Elements MPC 12326

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 23.35	-05 12.9	1.995	2.407	101.1	24.4	18.3
1988 06 18	22 29.70	-04 24.7					
1988 06 28	22 33.93	-03 48.8	1.740	2.383	117.2	22.3	17.9
1988 07 08	22 35.78	-03 27.8					
1988 07 18	22 34.99	-03 24.6	1.521	2.358	135.7	17.5	17.5
1988 07 28	22 31.47	-03 41.1					
1988 08 07	22 25.40	-04 17.4	1.363	2.331	157.1	9.8	17.0
1988 08 17	22 17.28	-05 11.8					
1988 08 27	22 08.07	-06 18.7	1.296	2.304	174.9	2.2	16.5
1988 09 06	21 58.97	-07 30.7					
1988 09 16	21 51.20	-08 39.6	1.330	2.276	153.9	11.2	16.9
1988 09 26	21 45.81	-09 38.2					
1988 10 06	21 43.36	-10 22.0	1.452	2.248	132.1	19.3	17.3
1988 10 16	21 44.05	-10 48.7					
1988 10 26	21 47.81	-10 57.8	1.632	2.220	113.2	24.3	17.7
1988 11 05	21 54.31	-10 49.8					
1988 11 15	22 03.22	-10 25.6	1.841	2.192	96.9	26.6	18.0

1980 FR1 a,e,i = 3.16, 0.13, 4 Elements MPC 10757

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 28.52	-10 22.0	2.670	3.045	101.9	19.0	17.9
1988	06 18	22 32.74	-09 50.6					
1988	06 28	22 35.09	-09 29.1	2.391	3.020	119.1	17.1	17.6
1988	07 08	22 35.43	-09 18.3					
1988	07 18	22 33.65	-09 18.9	2.157	2.995	138.5	13.0	17.2
1988	07 28	22 29.79	-09 30.5					
1988	08 07	22 24.08	-09 51.7	1.997	2.970	160.0	6.7	16.8
1988	08 17	22 16.97	-10 19.9					
1988	08 27	22 09.16	-10 51.1	1.936	2.946	177.0	1.0	16.4
1988	09 06	22 01.49	-11 21.1					
1988	09 16	21 54.76	-11 46.2	1.986	2.922	153.9	8.7	16.8
1988	09 26	21 49.69	-12 03.1					
1988	10 06	21 46.73	-12 10.0	2.131	2.900	132.4	14.8	17.2
1988	10 16	21 46.10	-12 06.3					
1988	10 26	21 47.82	-11 51.5	2.342	2.878	112.9	18.6	17.5
1988	11 05	21 51.73	-11 26.1					
1988	11 15	21 57.64	-10 50.5	2.589	2.858	95.4	20.2	17.7

1977 QW2 a,e,i = 2.39, 0.21, 5 Elements MPC 10153

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 05.65	-04 14.1	1.351	1.887	104.9	31.3	17.2
1988	06 18	22 15.89	-02 57.8					
1988	06 28	22 23.60	-01 57.0	1.180	1.892	118.7	28.1	16.8
1988	07 08	22 28.45	-01 15.6					
1988	07 18	22 30.16	-00 58.4	1.041	1.905	135.6	21.9	16.4
1988	07 28	22 28.66	-01 08.5					
1988	08 07	22 24.25	-01 46.7	0.953	1.924	155.8	12.5	16.0
1988	08 17	22 17.66	-02 50.2					
1988	08 27	22 10.15	-04 11.1	0.942	1.949	173.3	3.5	15.6
1988	09 06	22 03.14	-05 38.3					
1988	09 16	21 57.95	-07 00.6	1.019	1.979	155.8	12.0	16.2
1988	09 26	21 55.51	-08 08.7					
1988	10 06	21 56.17	-08 57.5	1.175	2.014	135.5	20.3	16.8
1988	10 16	21 59.90	-09 25.2					
1988	10 26	22 06.42	-09 31.9	1.390	2.053	118.0	25.3	17.3
1988	11 05	22 15.30	-09 19.4					
1988	11 15	22 26.13	-08 49.4	1.642	2.095	102.7	27.4	17.8

1983 TR2 a,e,i = 3.06, 0.21, 15 Elements MPC 10529

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 27.81	-29 24.9	1.917	2.434	108.3	23.3	16.8
1988	06 18	22 35.45	-29 39.4					
1988	06 28	22 40.48	-30 05.6	1.709	2.423	123.5	20.5	16.5
1988	07 08	22 42.58	-30 42.0					
1988	07 18	22 41.49	-31 25.2	1.547	2.415	140.0	15.7	16.1
1988	07 28	22 37.22	-32 09.1					
1988	08 07	22 30.11	-32 45.5	1.454	2.413	155.2	10.2	15.8
1988	08 17	22 20.94	-33 05.6					
1988	08 27	22 10.95	-33 02.3	1.451	2.414	157.1	9.4	15.8
1988	09 06	22 01.54	-32 32.4					
1988	09 16	21 53.93	-31 36.8	1.541	2.420	142.9	14.5	16.1
1988	09 26	21 49.00	-30 19.6					
1988	10 06	21 47.07	-28 46.2	1.709	2.430	125.5	19.6	16.5
1988	10 16	21 48.14	-27 01.4					
1988	10 26	21 51.94	-25 08.7	1.934	2.444	108.9	22.6	16.8
1988	11 05	21 58.09	-23 10.7					
1988	11 15	22 06.22	-21 09.0	2.190	2.462	93.7	23.6	17.1

1982 XV a,e,i = 2.21, 0.06, 2 Elements MPC 12000

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 29.81	-09 32.6	1.775	2.210	101.3	26.8	17.5
1988	06 18	22 37.25	-09 00.3					
1988	06 28	22 42.28	-08 43.1	1.567	2.224	117.2	24.0	17.2
1988	07 08	22 44.64	-08 43.3					
1988	07 18	22 44.05	-09 02.6	1.392	2.237	136.0	18.4	16.8
1988	07 28	22 40.45	-09 40.8					
1988	08 07	22 34.07	-10 35.3	1.278	2.251	157.9	9.8	16.4
1988	08 17	22 25.52	-11 40.7					
1988	08 27	22 15.89	-12 48.8	1.254	2.263	177.1	1.3	15.9
1988	09 06	22 06.49	-13 51.2					
1988	09 16	21 58.59	-14 40.7	1.330	2.275	153.8	11.3	16.5
1988	09 26	21 53.16	-15 13.1					
1988	10 06	21 50.71	-15 27.3	1.492	2.287	132.1	18.9	17.0
1988	10 16	21 51.32	-15 23.7					
1988	10 26	21 54.84	-15 03.7	1.713	2.297	113.4	23.4	17.4
1988	11 05	22 00.91	-14 29.3					
1988	11 15	22 09.16	-13 41.9	1.965	2.307	97.1	25.2	17.8

1980 DE1 a,e,i = 3.22, 0.11, 10 Elements MPC 10613

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 42.77	-19 12.4	3.219	3.567	101.8	16.2	18.1
1988	06 18	22 45.93	-19 18.9					
1988	06 28	22 47.33	-19 35.5	2.952	3.566	119.6	14.4	17.8
1988	07 08	22 46.87	-20 01.7					
1988	07 18	22 44.47	-20 36.2	2.735	3.564	138.9	10.8	17.5
1988	07 28	22 40.21	-21 16.6					
1988	08 07	22 34.31	-21 59.0	2.597	3.561	158.6	6.0	17.2
1988	08 17	22 27.18	-22 39.5					
1988	08 27	22 19.40	-23 13.4	2.565	3.557	167.0	3.7	17.1
1988	09 06	22 11.66	-23 37.1					
1988	09 16	22 04.64	-23 48.4	2.645	3.551	150.0	8.1	17.4
1988	09 26	21 58.97	-23 46.4					
1988	10 06	21 55.02	-23 31.5	2.823	3.545	129.6	12.5	17.7
1988	10 16	21 53.04	-23 04.9					
1988	10 26	21 53.08	-22 28.2	3.070	3.538	110.2	15.3	17.9
1988	11 05	21 55.04	-21 43.0					
1988	11 15	21 58.78	-20 50.2	3.350	3.530	92.2	16.3	18.1

1978 VZ7 a,e,i = 3.09, 0.20, 1 Elements MPC 10613

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 25.83	-11 09.0	2.051	2.481	102.8	23.5	19.0
1988	06 18	22 32.93	-10 31.1					
1988	06 28	22 37.93	-10 05.0	1.818	2.473	118.7	21.1	18.7
1988	07 08	22 40.60	-09 52.3					
1988	07 18	22 40.77	-09 53.9	1.625	2.468	137.0	16.3	18.3
1988	07 28	22 38.41	-10 09.7					
1988	08 07	22 33.73	-10 37.7	1.497	2.467	158.0	8.9	17.9
1988	08 17	22 27.24	-11 14.4					
1988	08 27	22 19.79	-11 54.1	1.460	2.470	178.3	0.7	17.4
1988	09 06	22 12.40	-12 30.9					
1988	09 16	22 06.09	-12 59.6	1.524	2.477	156.1	9.5	17.9
1988	09 26	22 01.73	-13 16.4					
1988	10 06	21 59.79	-13 19.6	1.679	2.488	135.0	16.5	18.4
1988	10 16	22 00.46	-13 08.8					
1988	10 26	22 03.69	-12 44.6	1.899	2.503	116.2	20.9	18.8
1988	11 05	22 09.23	-12 07.9					
1988	11 15	22 16.80	-11 19.9	2.158	2.521	99.7	22.8	19.1

1985 UY4 a,e,i = 2.28, 0.13, 6 Elements MPC 12317

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 31.28	-06 22.5	2.033	2.421	99.8	24.4	18.0
1988	06 18	22 38.29	-05 49.2					
1988	06 28	22 43.30	-05 29.8	1.774	2.397	115.7	22.5	17.6
1988	07 08	22 46.01	-05 26.7					
1988	07 18	22 46.15	-05 42.7	1.548	2.372	134.2	17.9	17.1
1988	07 28	22 43.59	-06 18.9					
1988	08 07	22 38.40	-07 15.0	1.384	2.345	155.7	10.2	16.6
1988	08 17	22 30.98	-08 27.7					
1988	08 27	22 22.15	-09 50.3	1.308	2.318	179.5	0.2	16.0
1988	09 06	22 13.07	-11 14.1					
1988	09 16	22 04.98	-12 30.1	1.334	2.290	156.0	10.3	16.5
1988	09 26	21 58.98	-13 31.2					
1988	10 06	21 55.79	-14 13.4	1.451	2.261	133.7	18.6	16.9
1988	10 16	21 55.69	-14 35.5					
1988	10 26	21 58.67	-14 37.8	1.630	2.232	114.4	23.9	17.3
1988	11 05	22 04.47	-14 21.9					
1988	11 15	22 12.74	-13 49.4	1.838	2.203	97.9	26.4	17.6

(3669) 1982 UO7 a,e,i = 2.21, 0.07, 5 Elements MPC 12138

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 37.72	-12 46.6	1.962	2.370	100.6	24.9	17.7
1988	06 18	22 44.93	-12 33.4					
1988	06 28	22 49.92	-12 35.5	1.728	2.367	116.8	22.5	17.3
1988	07 08	22 52.41	-12 54.5					
1988	07 18	22 52.12	-13 31.4	1.528	2.364	135.6	17.5	16.9
1988	07 28	22 48.91	-14 25.0					
1988	08 07	22 42.90	-15 31.5	1.392	2.358	156.8	9.7	16.4
1988	08 17	22 34.56	-16 44.6					
1988	08 27	22 24.85	-17 55.3	1.346	2.351	172.3	3.3	16.1
1988	09 06	22 14.98	-18 54.8					
1988	09 16	22 06.26	-19 36.8	1.403	2.343	152.9	11.3	16.5
1988	09 26	21 59.79	-19 57.9					
1988	10 06	21 56.18	-19 58.1	1.548	2.334	131.5	18.7	16.9
1988	10 16	21 55.68	-19 39.4					
1988	10 26	21 58.19	-19 04.0	1.752	2.323	112.7	23.3	17.3
1988	11 05	22 03.39	-18 14.4					
1988	11 15	22 10.96	-17 12.4	1.985	2.311	96.2	25.2	17.6

1981 WG9 a,e,i = 2.38, 0.14, 3 Elements MPC 10942

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	22 25.50	-08 15.5	1.768	2.212	101.8	26.7	17.5
1988	06 18	22 34.31	-07 29.6					
1988	06 28	22 41.06	-06 56.8	1.529	2.185	116.8	24.5	17.1
1988	07 08	22 45.44	-06 39.7					
1988	07 18	22 47.13	-06 41.1	1.322	2.159	134.4	19.7	16.6
1988	07 28	22 45.93	-07 02.7					
1988	08 07	22 41.88	-07 44.1	1.173	2.136	155.1	11.5	16.1
1988	08 17	22 35.36	-08 42.3					
1988	08 27	22 27.24	-09 50.6	1.105	2.115	178.5	0.7	15.5
1988	09 06	22 18.78	-11 00.0					
1988	09 16	22 11.34	-12 01.3	1.132	2.097	157.7	10.5	16.0
1988	09 26	22 06.15	-12 47.1					
1988	10 06	22 03.93	-13 13.7	1.244	2.082	135.9	19.5	16.4
1988	10 16	22 04.97	-13 19.8					
1988	10 26	22 09.18	-13 06.0	1.416	2.070	117.3	25.2	16.9
1988	11 05	22 16.24	-12 34.1					
1988	11 15	22 25.77	-11 45.5	1.622	2.062	101.6	28.0	17.2

1984 QO a,e,i = 2.56, 0.26, 14 Elements MPC 10767

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 49.61	-15 43.3	2.359	2.711	99.0	21.7	17.5
1988 06 18	22 55.27	-15 02.5					
1988 06 28	22 58.91	-14 30.4	2.059	2.659	115.4	20.2	17.1
1988 07 08	23 00.27	-14 07.7					
1988 07 18	22 59.03	-13 54.7	1.794	2.605	134.1	16.3	16.6
1988 07 28	22 55.01	-13 50.6					
1988 08 07	22 48.24	-13 53.5	1.592	2.549	155.3	9.6	16.1
1988 08 17	22 39.03	-13 59.9					
1988 08 27	22 28.17	-14 05.0	1.484	2.493	175.8	1.7	15.5
1988 09 06	22 16.77	-14 04.2					
1988 09 16	22 06.13	-13 53.8	1.484	2.436	155.7	9.8	15.8
1988 09 26	21 57.45	-13 31.4					
1988 10 06	21 51.52	-12 57.1	1.579	2.378	133.2	17.8	16.2
1988 10 16	21 48.76	-12 11.2					
1988 10 26	21 49.21	-11 14.7	1.738	2.320	113.4	23.2	16.5
1988 11 05	21 52.64	-10 08.5					
1988 11 15	21 58.74	-08 52.9	1.929	2.263	96.4	25.7	16.7

(3638) Davis a,e,i = 3.01, 0.07, 11 Elements MPC 11994

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 40.72	-14 43.2	2.480	2.848	100.7	20.5	16.6
1988 06 18	22 46.73	-14 56.9					
1988 06 28	22 50.82	-15 25.1	2.241	2.858	117.6	18.4	16.4
1988 07 08	22 52.81	-16 08.4					
1988 07 18	22 52.54	-17 06.3	2.045	2.868	136.4	14.2	16.0
1988 07 28	22 50.00	-18 16.2					
1988 08 07	22 45.36	-19 33.8	1.921	2.879	156.3	8.1	15.7
1988 08 17	22 39.02	-20 52.8					
1988 08 27	22 31.66	-22 06.0	1.895	2.891	167.9	4.2	15.5
1988 09 06	22 24.13	-23 06.7					
1988 09 16	22 17.33	-23 50.3	1.977	2.903	152.1	9.3	15.8
1988 09 26	22 12.03	-24 14.4					
1988 10 06	22 08.75	-24 19.3	2.152	2.916	131.9	14.8	16.2
1988 10 16	22 07.76	-24 06.6					
1988 10 26	22 09.10	-23 38.5	2.393	2.929	113.1	18.2	16.6
1988 11 05	22 12.62	-22 57.5					
1988 11 15	22 18.10	-22 05.5	2.671	2.943	96.0	19.5	16.8

7618 P-L a,e,i = 3.18, 0.09, 6 Elements MPC 12584

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 46.11	-08 32.4	3.045	3.327	97.2	17.6	18.3
1988 06 18	22 50.56	-08 19.6					
1988 06 28	22 53.39	-08 17.9	2.759	3.312	114.5	16.2	18.1
1988 07 08	22 54.44	-08 28.3					
1988 07 18	22 53.62	-08 51.2	2.511	3.296	133.7	12.9	17.8
1988 07 28	22 50.92	-09 26.4					
1988 08 07	22 46.47	-10 12.1	2.334	3.280	154.9	7.5	17.4
1988 08 17	22 40.58	-11 05.5					
1988 08 27	22 33.76	-12 02.4	2.255	3.264	176.5	1.1	17.0
1988 09 06	22 26.67	-12 57.8					
1988 09 16	22 20.02	-13 47.3	2.289	3.247	158.8	6.4	17.3
1988 09 26	22 14.49	-14 26.8					
1988 10 06	22 10.59	-14 54.3	2.427	3.229	136.8	12.2	17.6
1988 10 16	22 08.63	-15 08.6					
1988 10 26	22 08.76	-15 09.8	2.643	3.212	116.5	16.1	17.9
1988 11 05	22 10.92	-14 58.7					
1988 11 15	22 15.00	-14 36.1	2.901	3.194	98.1	17.9	18.2

1986 XO2 a,e,i = 2.36, 0.22, 24 Elements MPC 11844

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 06 08	22 49.43	+00 35.5	2.259	2.523	-0.88	+1.9	16.8
1988 06 18	22 55.72	+00 34.7					
1988 06 28	22 59.97	+00 15.6	2.040	2.566	-0.98	+1.9	16.5
1988 07 08	23 01.99	-00 24.2					
1988 07 18	23 01.59	-01 27.3	1.846	2.608	-1.11	+1.5	16.2
1988 07 28	22 58.71	-02 54.4					
1988 08 07	22 53.51	-04 43.9	1.712	2.647	-1.25	+1.1	15.9
1988 08 17	22 46.39	-06 50.9					
1988 08 27	22 38.06	-09 07.2	1.675	2.683	-1.32	+0.7	15.4
1988 09 06	22 29.45	-11 22.2					
1988 09 16	22 21.55	-13 26.0	1.753	2.717	-1.29	+0.8	15.9
1988 09 26	22 15.23	-15 11.0					
1988 10 06	22 11.07	-16 33.3	1.938	2.747	-1.18	+1.1	16.3
1988 10 16	22 09.37	-17 32.2					
1988 10 26	22 10.15	-18 08.9	2.197	2.775	-1.03	+1.1	16.8
1988 11 05	22 13.26	-18 25.8					
1988 11 15	22 18.45	-18 25.5	2.495	2.800	-0.89	+1.0	17.1

1981 FQ a,e,i = 3.11, 0.15, 0 Elements MPC 12010

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 51.68	-07 36.8	2.755	3.026	95.5	19.5	17.5
1988 06 18	22 56.53	-07 07.8					
1988 06 28	22 59.55	-06 50.0	2.519	3.057	112.5	17.9	17.3
1988 07 08	23 00.60	-06 44.2					
1988 07 18	22 59.59	-06 51.1	2.317	3.087	131.6	14.3	17.0
1988 07 28	22 56.53	-07 10.6					
1988 08 07	22 51.60	-07 41.1	2.180	3.117	152.9	8.5	16.7
1988 08 17	22 45.17	-08 20.2					
1988 08 27	22 37.82	-09 03.9	2.138	3.147	175.8	1.4	16.3
1988 09 06	22 30.28	-09 47.6					
1988 09 16	22 23.29	-10 27.1	2.209	3.176	161.0	5.9	16.6
1988 09 26	22 17.54	-10 58.7					
1988 10 06	22 13.51	-11 20.0	2.384	3.205	138.8	11.9	17.0
1988 10 16	22 11.46	-11 30.0					
1988 10 26	22 11.49	-11 28.4	2.639	3.233	118.5	15.7	17.4
1988 11 05	22 13.50	-11 15.9					
1988 11 15	22 17.35	-10 52.9	2.941	3.261	100.0	17.4	17.7

1982 UG7 a,e,i = 2.15, 0.19, 2 Elements MPC 10309

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 13.75	-07 13.7	1.265	1.805	104.1	33.1	17.5
1988 06 18	22 26.52	-05 44.2					
1988 06 28	22 37.15	-04 25.1	1.073	1.779	116.7	30.7	17.1
1988 07 08	22 45.28	-03 20.2					
1988 07 18	22 50.43	-02 34.4	0.910	1.760	131.9	25.4	16.6
1988 07 28	22 52.28	-02 11.9					
1988 08 07	22 50.70	-02 15.6	0.791	1.747	150.7	16.5	16.0
1988 08 17	22 45.94	-02 46.4					
1988 08 27	22 38.98	-03 39.8	0.736	1.742	172.1	4.6	15.4
1988 09 06	22 31.29	-04 46.6					
1988 09 16	22 24.60	-05 54.8	0.759	1.744	162.5	10.0	15.7
1988 09 26	22 20.45	-06 52.4					
1988 10 06	22 19.69	-07 31.6	0.856	1.753	141.5	20.8	16.3
1988 10 16	22 22.59	-07 48.4					
1988 10 26	22 28.95	-07 42.1	1.011	1.769	123.8	27.8	16.9
1988 11 05	22 38.27	-07 14.2					
1988 11 15	22 50.06	-06 26.9	1.205	1.792	109.1	31.4	17.4

1981 JA2 a,e,i = 2.19, 0.13, 2 Elements MPC 10298

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 37.25	-06 34.8	1.489	1.922	98.5	31.5	17.5
1988 06 18	22 47.97	-05 14.1					
1988 06 28	22 56.29	-04 05.7	1.310	1.938	112.2	29.1	17.1
1988 07 08	23 01.87	-03 12.8					
1988 07 18	23 04.35	-02 38.7	1.153	1.957	128.8	23.9	16.8
1988 07 28	23 03.49	-02 26.0					
1988 08 07	22 59.32	-02 35.9	1.041	1.980	149.0	15.3	16.3
1988 08 17	22 52.24	-03 07.6					
1988 08 27	22 43.25	-03 56.0	1.000	2.005	171.7	4.2	15.8
1988 09 06	22 33.73	-04 53.2					
1988 09 16	22 25.21	-05 50.0	1.051	2.033	162.7	8.5	16.2
1988 09 26	22 19.00	-06 37.6					
1988 10 06	22 15.81	-07 10.6	1.188	2.062	140.7	17.9	16.8
1988 10 16	22 15.91	-07 26.2					
1988 10 26	22 19.15	-07 23.9	1.392	2.092	121.6	23.9	17.3
1988 11 05	22 25.17	-07 04.7					
1988 11 15	22 33.56	-06 30.0	1.636	2.123	105.3	26.7	17.8

2527 P-L a,e,i = 3.15, 0.28, 15 Elements MPC 12689

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 38.92	+04 12.7	2.503	2.764	93.9	21.5	18.1
1988 06 18	22 46.04	+05 07.1					
1988 06 28	22 51.64	+05 51.0	2.201	2.709	109.0	20.8	17.8
1988 07 08	22 55.50	+06 21.5					
1988 07 18	22 57.40	+06 35.3	1.927	2.654	125.9	18.1	17.4
1988 07 28	22 57.20	+06 28.7					
1988 08 07	22 54.90	+05 59.2	1.705	2.601	145.0	12.9	16.9
1988 08 17	22 50.65	+05 04.7					
1988 08 27	22 44.94	+03 46.2	1.562	2.551	164.8	6.0	16.4
1988 09 06	22 38.48	+02 08.0					
1988 09 16	22 32.18	+00 17.4	1.519	2.502	164.3	6.2	16.3
1988 09 26	22 27.02	-01 35.6					
1988 10 06	22 23.77	-03 21.8	1.580	2.457	143.6	14.0	16.6
1988 10 16	22 22.94	-04 53.6					
1988 10 26	22 24.77	-06 06.1	1.721	2.415	123.4	20.1	17.0
1988 11 05	22 29.22	-06 57.4					
1988 11 15	22 36.11	-07 27.2	1.914	2.378	105.5	23.6	17.3

2141 T-3 a,e,i = 2.40, 0.17, 4 Elements MPC 12573

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 43.87	-03 25.8	1.997	2.328	95.7	25.7	18.4
1988 06 18	22 52.54	-02 06.2					
1988 06 28	22 59.41	-00 54.5	1.730	2.289	110.2	24.6	18.0
1988 07 08	23 04.21	+00 07.1					
1988 07 18	23 06.61	+00 55.4	1.490	2.251	126.7	21.2	17.5
1988 07 28	23 06.33	+01 27.4					
1988 08 07	23 03.26	+01 40.6	1.299	2.213	145.9	14.9	17.0
1988 08 17	22 57.52	+01 32.9					
1988 08 27	22 49.68	+01 04.6	1.181	2.177	166.6	6.2	16.5
1988 09 06	22 40.72	+00 19.4					
1988 09 16	22 31.94	-00 36.3	1.156	2.142	164.4	7.2	16.4
1988 09 26	22 24.70	-01 33.9					
1988 10 06	22 20.02	-02 25.0	1.224	2.109	142.9	16.6	16.8
1988 10 16	22 18.51	-03 03.6					
1988 10 26	22 20.34	-03 25.6	1.362	2.080	123.2	23.6	17.2
1988 11 05	22 25.32	-03 29.6					
1988 11 15	22 33.15	-03 15.6	1.543	2.053	106.3	27.5	17.6

1973 ST1 a,e,i = 3.95, 0.13, 3 Elements MPC 12940

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	23 01.57	-05 40.7	4.170	4.335	92.5	13.5	19.0
1988 06 18	23 04.49	-05 25.2					
1988 06 28	23 06.09	-05 18.0	3.887	4.348	110.4	12.7	18.8
1988 07 08	23 06.33	-05 19.6					
1988 07 18	23 05.15	-05 30.4	3.640	4.361	129.8	10.3	18.6
1988 07 28	23 02.60	-05 50.1					
1988 08 07	22 58.81	-06 17.7	3.460	4.373	150.7	6.5	18.3
1988 08 17	22 53.99	-06 51.8					
1988 08 27	22 48.48	-07 30.0	3.380	4.384	172.7	1.7	18.0
1988 09 06	22 42.69	-08 09.6					
1988 09 16	22 37.06	-08 47.8	3.417	4.395	164.7	3.5	18.2
1988 09 26	22 32.05	-09 21.7					
1988 10 06	22 28.01	-09 49.4	3.568	4.405	142.7	7.9	18.5
1988 10 16	22 25.22	-10 09.4					
1988 10 26	22 23.86	-10 20.8	3.810	4.414	121.7	11.0	18.7
1988 11 05	22 23.95	-10 23.3					
1988 11 15	22 25.50	-10 17.3	4.109	4.423	102.0	12.6	19.0

1981 UC1 a,e,i = 2.36, 0.21, 2 Elements MPC 10757

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 28.62	-11 42.0	1.377	1.877	102.3	31.9	16.8
1988 06 18	22 41.36	-10 43.9					
1988 06 28	22 51.83	-09 58.9	1.193	1.871	115.5	29.4	16.4
1988 07 08	22 59.67	-09 29.9					
1988 07 18	23 04.45	-09 19.8	1.036	1.871	131.4	24.1	15.9
1988 07 28	23 05.86	-09 29.8					
1988 08 07	23 03.83	-09 59.0	0.926	1.878	150.7	15.3	15.4
1988 08 17	22 58.63	-10 43.4					
1988 08 27	22 51.18	-11 34.8	0.885	1.892	172.6	4.0	14.9
1988 09 06	22 42.88	-12 23.4					
1988 09 16	22 35.31	-12 59.9	0.929	1.912	162.4	9.2	15.3
1988 09 26	22 29.91	-13 17.6					
1988 10 06	22 27.50	-13 14.5	1.055	1.938	141.2	18.9	15.9
1988 10 16	22 28.40	-12 51.1					
1988 10 26	22 32.47	-12 09.1	1.243	1.969	123.0	25.1	16.5
1988 11 05	22 39.34	-11 11.2					
1988 11 15	22 48.55	-09 59.8	1.473	2.005	107.4	28.1	16.9

1981 QC a,e,i = 2.34, 0.22, 26 Elements MPC 8144

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 40.31	-38 54.4	1.745	2.278	108.3	25.0	17.5
1988 06 18	22 53.46	-40 45.4					
1988 06 28	23 04.59	-42 56.2	1.536	2.228	120.2	23.2	17.1
1988 07 08	23 13.13	-45 24.4					
1988 07 18	23 18.34	-48 05.0	1.378	2.178	130.3	20.8	16.8
1988 07 28	23 19.47	-50 48.2					
1988 08 07	23 15.92	-53 20.6	1.284	2.129	135.4	19.5	16.5
1988 08 17	23 07.54	-55 25.7					
1988 08 27	22 55.28	-56 46.9	1.257	2.081	133.0	20.8	16.5
1988 09 06	22 41.23	-57 13.0					
1988 09 16	22 28.14	-56 40.2	1.289	2.035	124.6	24.0	16.6
1988 09 26	22 18.47	-55 13.2					
1988 10 06	22 13.47	-53 01.9	1.367	1.992	113.8	27.3	16.8
1988 10 16	22 13.31	-50 16.5					
1988 10 26	22 17.48	-47 06.3	1.477	1.953	102.7	29.8	16.9
1988 11 05	22 25.16	-43 38.4					
1988 11 15	22 35.59	-39 57.4	1.609	1.918	92.0	31.0	17.1

1967 UQ a,e,i = 2.36, 0.17, 3 Elements MPC 12581

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 08	23 00.66	-10 09.5	2.436	2.711	94.5	21.9	19.0
1988	06 18	23 07.23	-09 44.4					
1988	06 28	23 11.97	-09 31.6	2.164	2.696	110.7	20.7	18.7
1988	07 08	23 14.64	-09 32.5					
1988	07 18	23 14.98	-09 48.4	1.919	2.679	129.1	17.1	18.4
1988	07 28	23 12.83	-10 19.2					
1988	08 07	23 08.17	-11 03.7	1.732	2.659	150.0	11.0	17.9
1988	08 17	23 01.21	-11 58.5					
1988	08 27	22 52.53	-12 57.9	1.633	2.637	171.9	3.1	17.4
1988	09 06	22 43.00	-13 55.2					
1988	09 16	22 33.70	-14 43.8	1.641	2.613	161.1	7.2	17.6
1988	09 26	22 25.69	-15 18.1					
1988	10 06	22 19.80	-15 35.8	1.752	2.586	138.5	14.8	18.0
1988	10 16	22 16.51	-15 36.1					
1988	10 26	22 16.02	-15 19.9	1.936	2.558	118.0	20.1	18.4
1988	11 05	22 18.21	-14 48.9					
1988	11 15	22 22.87	-14 04.6	2.160	2.528	100.0	22.7	18.6

1977 SS2 a,e,i = 3.17, 0.18, 16 Elements MPC 12569

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 05.94	+00 16.3	2.219	2.715	108.2	20.8	15.8
1988	07 08	23 10.56	+00 15.3					
1988	07 18	23 13.21	-00 04.0	1.966	2.689	125.7	17.9	15.4
1988	07 28	23 13.77	-00 43.8					
1988	08 07	23 12.20	-01 44.7	1.766	2.666	145.7	12.4	15.0
1988	08 17	23 08.64	-03 05.9					
1988	08 27	23 03.48	-04 43.2	1.649	2.646	168.2	4.5	14.5
1988	09 06	22 57.40	-06 30.1					
1988	09 16	22 51.21	-08 17.7	1.636	2.628	168.1	4.5	14.5
1988	09 26	22 45.85	-09 57.1					
1988	10 06	22 42.06	-11 21.0	1.728	2.612	145.2	12.6	14.9
1988	10 16	22 40.37	-12 25.0					
1988	10 26	22 41.07	-13 07.4	1.905	2.600	124.5	18.4	15.3
1988	11 05	22 44.16	-13 28.6					
1988	11 15	22 49.49	-13 30.0	2.134	2.591	106.2	21.5	15.6
1988	11 25	22 56.86	-13 13.7					
1988	12 05	23 05.97	-12 42.0	2.388	2.585	90.1	22.4	15.9

1932 EO a,e,i = 3.06, 0.04, 9 Elements MPC 11517

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 24.45	-09 03.9	2.682	3.144	107.7	17.9	16.9
1988	07 08	23 26.58	-08 46.7					
1988	07 18	23 26.72	-08 40.3	2.432	3.139	126.0	15.2	16.7
1988	07 28	23 24.79	-08 44.4					
1988	08 07	23 20.79	-08 58.2	2.238	3.134	146.4	10.3	16.3
1988	08 17	23 14.93	-09 19.6					
1988	08 27	23 07.63	-09 45.5	2.132	3.129	168.6	3.7	15.9
1988	09 06	22 59.53	-10 11.8					
1988	09 16	22 51.38	-10 34.7	2.135	3.123	167.0	4.2	15.9
1988	09 26	22 44.00	-10 50.3					
1988	10 06	22 38.06	-10 56.3	2.249	3.117	144.5	10.7	16.3
1988	10 16	22 34.02	-10 51.3					
1988	10 26	22 32.15	-10 35.0	2.450	3.111	123.5	15.5	16.7
1988	11 05	22 32.45	-10 07.9					
1988	11 15	22 34.84	-09 30.6	2.706	3.105	104.5	18.0	16.9
1988	11 25	22 39.14	-08 44.0					
1988	12 05	22 45.10	-07 49.0	2.985	3.098	87.2	18.5	17.2

1983 TL a,e,i = 3.04, 0.18, 5 Elements MPC 12786

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 20.49	-08 48.4	2.297	2.791	108.5	20.2	17.9
1988	07 08	23 24.42	-08 27.7					
1988	07 18	23 26.27	-08 19.0	2.035	2.757	126.0	17.4	17.5
1988	07 28	23 25.86	-08 22.7					
1988	08 07	23 23.12	-08 38.3	1.826	2.725	145.8	12.1	17.1
1988	08 17	23 18.16	-09 04.0					
1988	08 27	23 11.37	-09 36.4	1.698	2.693	167.7	4.6	16.7
1988	09 06	23 03.43	-10 10.5					
1988	09 16	22 55.24	-10 40.9	1.673	2.663	167.7	4.6	16.6
1988	09 26	22 47.80	-11 02.6					
1988	10 06	22 41.97	-11 12.1	1.752	2.635	145.3	12.5	17.0
1988	10 16	22 38.37	-11 07.5					
1988	10 26	22 37.31	-10 48.4	1.913	2.609	124.6	18.3	17.3
1988	11 05	22 38.81	-10 15.6					
1988	11 15	22 42.74	-09 29.9	2.127	2.585	106.3	21.5	17.6
1988	11 25	22 48.87	-08 32.7					
1988	12 05	22 56.90	-07 25.1	2.366	2.564	90.1	22.6	17.9

1985 UL a,e,i = 2.21, 0.03, 4 Elements MPC 11996

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 24.26	+01 11.6	1.789	2.257	103.7	26.0	17.1
1988	07 08	23 29.76	+02 10.6					
1988	07 18	23 32.81	+02 55.0	1.576	2.262	120.0	22.9	16.7
1988	07 28	23 33.15	+03 21.9					
1988	08 07	23 30.62	+03 29.0	1.401	2.267	139.2	17.0	16.3
1988	08 17	23 25.28	+03 14.4					
1988	08 27	23 17.56	+02 38.5	1.292	2.271	161.0	8.3	15.8
1988	09 06	23 08.33	+01 44.9					
1988	09 16	22 58.77	+00 39.8	1.277	2.275	170.6	4.1	15.6
1988	09 26	22 50.20	-00 27.6					
1988	10 06	22 43.69	-01 29.2	1.362	2.277	148.9	13.1	16.1
1988	10 16	22 39.94	-02 18.1					
1988	10 26	22 39.24	-02 50.6	1.530	2.279	127.8	20.1	16.6
1988	11 05	22 41.50	-03 05.1					
1988	11 15	22 46.48	-03 01.9	1.751	2.281	109.5	24.1	17.0
1988	11 25	22 53.83	-02 42.0					
1988	12 05	23 03.17	-02 07.1	1.997	2.281	93.6	25.5	17.3

1981 UC10 a,e,i = 2.37, 0.17, 2 Elements MPC 10942

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 17.18	-06 21.4	1.596	2.145	108.3	26.7	17.2
1988	07 08	23 24.56	-05 33.4					
1988	07 18	23 29.58	-04 59.2	1.368	2.112	124.0	23.5	16.8
1988	07 28	23 31.89	-04 40.8					
1988	08 07	23 31.21	-04 39.5	1.183	2.082	142.6	17.2	16.3
1988	08 17	23 27.46	-04 55.4					
1988	08 27	23 20.95	-05 26.0	1.063	2.054	164.5	7.6	15.7
1988	09 06	23 12.52	-06 05.9					
1988	09 16	23 03.40	-06 47.5	1.030	2.030	171.5	4.2	15.4
1988	09 26	22 55.15	-07 22.1					
1988	10 06	22 49.07	-07 43.1	1.090	2.010	148.3	15.2	15.9
1988	10 16	22 46.04	-07 46.6					
1988	10 26	22 46.42	-07 30.9	1.223	1.994	127.9	23.2	16.4
1988	11 05	22 50.12	-06 57.0					
1988	11 15	22 56.84	-06 05.9	1.403	1.983	110.8	27.8	16.8
1988	11 25	23 06.17	-04 59.6					
1988	12 05	23 17.68	-03 40.1	1.609	1.977	96.3	29.7	17.2

1981 EV28 a,e,i = 2.98, 0.10, 10 Elements MPC 10620

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	23 23.33	+07 06.0	2.301	2.693	101.4	21.7	19.4
1988 07 08	23 28.08	+07 55.8					
1988 07 18	23 30.84	+08 31.6	2.068	2.696	117.8	19.5	19.1
1988 07 28	23 31.45	+08 50.7					
1988 08 07	23 29.85	+08 50.7	1.874	2.701	136.4	15.0	18.8
1988 08 17	23 26.14	+08 29.8					
1988 08 27	23 20.67	+07 47.7	1.749	2.707	156.7	8.5	18.4
1988 09 06	23 14.04	+06 46.7					
1988 09 16	23 07.07	+05 31.4	1.720	2.714	169.3	3.9	18.2
1988 09 26	23 00.65	+04 09.0					
1988 10 06	22 55.58	+02 47.3	1.797	2.723	152.5	9.8	18.5
1988 10 16	22 52.44	+01 33.2					
1988 10 26	22 51.57	+00 32.1	1.969	2.734	131.8	15.7	18.9
1988 11 05	22 53.03	-00 13.3					
1988 11 15	22 56.71	-00 41.8	2.207	2.745	112.7	19.4	19.3
1988 11 25	23 02.43	-00 53.6					
1988 12 05	23 09.92	-00 49.8	2.481	2.758	95.6	20.8	19.6

(3708) 1974 FV1 a,e,i = 5.21, 0.16, 13 Elements MPC 12323

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	23 31.73	+09 28.8	4.117	4.384	98.5	13.3	17.1
1988 07 08	23 33.28	+10 17.5					
1988 07 18	23 33.48	+10 58.5	3.842	4.384	116.0	12.0	16.9
1988 07 28	23 32.33	+11 30.4					
1988 08 07	23 29.85	+11 52.2	3.613	4.385	134.6	9.5	16.6
1988 08 17	23 26.17	+12 02.9					
1988 08 27	23 21.53	+12 02.2	3.462	4.387	153.2	6.0	16.4
1988 09 06	23 16.25	+11 50.5					
1988 09 16	23 10.74	+11 29.0	3.412	4.390	164.6	3.5	16.3
1988 09 26	23 05.46	+11 00.1					
1988 10 06	23 00.83	+10 26.7	3.476	4.394	153.5	5.8	16.4
1988 10 16	22 57.21	+09 51.9					
1988 10 26	22 54.88	+09 19.0	3.645	4.398	134.4	9.3	16.7
1988 11 05	22 53.96	+08 50.7					
1988 11 15	22 54.52	+08 28.9	3.892	4.404	115.1	11.7	16.9
1988 11 25	22 56.53	+08 15.1					
1988 12 05	22 59.90	+08 10.0	4.186	4.411	96.7	12.8	17.1

9522 P-L a,e,i = 2.80, 0.20, 7 Elements MPC 11857

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	23 38.94	-07 48.9	2.028	2.477	103.9	23.5	17.5
1988 07 08	23 43.57	-07 14.6					
1988 07 18	23 45.77	-06 53.6	1.836	2.515	120.9	20.3	17.2
1988 07 28	23 45.37	-06 46.2					
1988 08 07	23 42.31	-06 51.8	1.686	2.554	140.7	14.6	16.9
1988 08 17	23 36.74	-07 08.7					
1988 08 27	23 29.11	-07 33.3	1.610	2.593	163.0	6.5	16.5
1988 09 06	23 20.22	-08 00.8					
1988 09 16	23 11.05	-08 25.9	1.635	2.634	172.1	3.0	16.4
1988 09 26	23 02.68	-08 43.6					
1988 10 06	22 55.97	-08 50.6	1.766	2.675	149.4	11.0	17.0
1988 10 16	22 51.49	-08 45.4					
1988 10 26	22 49.51	-08 27.4	1.986	2.716	128.3	16.7	17.4
1988 11 05	22 50.01	-07 57.5					
1988 11 15	22 52.81	-07 16.7	2.265	2.757	109.4	19.8	17.8
1988 11 25	22 57.66	-06 25.9					
1988 12 05	23 04.25	-05 26.6	2.575	2.797	92.5	20.6	18.2

(3814) a,e,i = 3.14, 0.12, 2 Elements MPC 13037

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 38.09	-02 51.1	2.952	3.318	102.1	17.4	18.1
1988	07 08	23 40.84	-02 37.8					
1988	07 18	23 41.82	-02 36.2	2.707	3.337	120.3	15.3	17.8
1988	07 28	23 40.93	-02 47.0					
1988	08 07	23 38.18	-03 09.8	2.511	3.355	140.4	11.1	17.5
1988	08 17	23 33.70	-03 43.7					
1988	08 27	23 27.79	-04 26.2	2.396	3.373	162.5	5.2	17.2
1988	09 06	23 20.95	-05 13.9					
1988	09 16	23 13.79	-06 02.6	2.388	3.389	174.1	1.7	17.0
1988	09 26	23 07.00	-06 47.6					
1988	10 06	23 01.20	-07 25.2	2.495	3.405	151.2	8.1	17.4
1988	10 16	22 56.86	-07 52.6					
1988	10 26	22 54.32	-08 08.3	2.701	3.420	129.5	13.0	17.8
1988	11 05	22 53.67	-08 11.8					
1988	11 15	22 54.92	-08 03.4	2.973	3.434	109.6	15.7	18.1
1988	11 25	22 57.94	-07 43.9					
1988	12 05	23 02.56	-07 14.3	3.278	3.447	91.5	16.6	18.3

1982 HL a,e,i = 2.75, 0.10, 6 Elements MPC 7363

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 42.57	-09 09.1	2.599	3.005	103.5	19.2	18.3
1988	07 08	23 46.18	-09 07.6					
1988	07 18	23 47.81	-09 19.2	2.354	3.009	121.3	16.8	18.0
1988	07 28	23 47.31	-09 43.6					
1988	08 07	23 44.63	-10 19.8	2.155	3.013	141.1	12.2	17.7
1988	08 17	23 39.82	-11 05.6					
1988	08 27	23 33.21	-11 56.6	2.037	3.015	162.3	5.9	17.3
1988	09 06	23 25.36	-12 47.7					
1988	09 16	23 17.01	-13 33.2	2.024	3.016	168.5	3.8	17.2
1988	09 26	23 09.03	-14 08.0					
1988	10 06	23 02.21	-14 28.8	2.122	3.016	147.8	10.2	17.6
1988	10 16	22 57.16	-14 34.1					
1988	10 26	22 54.25	-14 23.9	2.312	3.014	126.8	15.3	18.0
1988	11 05	22 53.59	-13 59.5					
1988	11 15	22 55.14	-13 22.3	2.562	3.012	107.5	18.2	18.3
1988	11 25	22 58.73	-12 34.0					
1988	12 05	23 04.12	-11 36.2	2.840	3.008	90.1	19.1	18.5

4016 P-L a,e,i = 2.80, 0.02, 5 Elements MPC 9299

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 39.66	-02 55.0	2.361	2.755	101.8	21.2	17.8
1988	07 08	23 44.08	-02 13.9					
1988	07 18	23 46.48	-01 44.5	2.114	2.753	118.8	18.9	17.5
1988	07 28	23 46.64	-01 27.7					
1988	08 07	23 44.48	-01 24.3	1.909	2.750	138.3	14.2	17.1
1988	08 17	23 40.03	-01 34.4					
1988	08 27	23 33.58	-01 56.3	1.776	2.748	160.2	7.1	16.7
1988	09 06	23 25.72	-02 27.0					
1988	09 16	23 17.25	-03 02.3	1.743	2.747	175.9	1.5	16.4
1988	09 26	23 09.14	-03 36.6					
1988	10 06	23 02.27	-04 05.1	1.819	2.745	152.7	9.6	16.8
1988	10 16	22 57.33	-04 24.0					
1988	10 26	22 54.74	-04 30.8	1.988	2.744	130.9	15.9	17.2
1988	11 05	22 54.59	-04 24.7					
1988	11 15	22 56.84	-04 05.5	2.221	2.743	111.6	19.6	17.6
1988	11 25	23 01.27	-03 33.9					
1988	12 05	23 07.62	-02 51.0	2.487	2.743	94.3	21.0	17.9

(3676) Hahn a,e,i = 2.15, 0.05, 3 Elements MPC 12141

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	23 40.02	-04 26.8	1.698	2.157	102.3	27.4	17.9
1988 07 08	23 46.89	-03 39.1					
1988 07 18	23 51.26	-03 06.1	1.495	2.169	118.3	24.4	17.6
1988 07 28	23 52.80	-02 49.7					
1988 08 07	23 51.27	-02 51.0	1.325	2.182	137.3	18.4	17.1
1988 08 17	23 46.59	-03 10.0					
1988 08 27	23 39.07	-03 44.2	1.218	2.194	159.6	9.2	16.7
1988 09 06	23 29.51	-04 28.8					
1988 09 16	23 19.08	-05 16.5	1.201	2.205	175.6	2.0	16.3
1988 09 26	23 09.25	-05 59.0					
1988 10 06	23 01.28	-06 29.8	1.285	2.216	151.6	12.4	16.9
1988 10 16	22 56.04	-06 44.8					
1988 10 26	22 53.95	-06 42.3	1.453	2.226	130.0	20.0	17.4
1988 11 05	22 54.97	-06 22.9					
1988 11 15	22 58.87	-05 47.6	1.676	2.235	111.4	24.3	17.9
1988 11 25	23 05.28	-04 58.2					
1988 12 05	23 13.80	-03 56.6	1.926	2.243	95.3	25.9	18.2

1978 VP8 a,e,i = 3.20, 0.14, 2 Elements MPC 13043

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	23 44.21	-03 10.1	3.095	3.434	100.9	16.9	17.9
1988 07 08	23 46.99	-02 59.7					
1988 07 18	23 48.06	-03 00.7	2.847	3.456	119.0	14.9	17.7
1988 07 28	23 47.33	-03 13.5					
1988 08 07	23 44.81	-03 37.9	2.646	3.477	139.1	11.0	17.4
1988 08 17	23 40.58	-04 12.7					
1988 08 27	23 34.94	-04 55.6	2.526	3.496	161.0	5.4	17.1
1988 09 06	23 28.33	-05 43.2					
1988 09 16	23 21.31	-06 31.5	2.512	3.515	175.2	1.4	16.9
1988 09 26	23 14.54	-07 16.0					
1988 10 06	23 08.62	-07 53.2	2.615	3.533	152.6	7.5	17.3
1988 10 16	23 04.03	-08 20.4					
1988 10 26	23 01.12	-08 35.9	2.818	3.549	130.8	12.2	17.6
1988 11 05	23 00.02	-08 39.5					
1988 11 15	23 00.75	-08 31.4	3.092	3.565	110.8	15.0	17.9
1988 11 25	23 03.23	-08 12.3					
1988 12 05	23 07.29	-07 43.4	3.400	3.579	92.3	16.0	18.2

1980 VO a,e,i = 2.55, 0.32, 10 Elements MPC 9292

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	23 21.13	-19 30.9	1.452	2.061	112.0	27.2	17.5
1988 07 08	23 31.25	-19 26.5					
1988 07 18	23 39.10	-19 36.1	1.217	1.993	126.1	24.3	16.9
1988 07 28	23 44.22	-19 59.8					
1988 08 07	23 46.15	-20 35.3	1.026	1.930	142.1	18.9	16.3
1988 08 17	23 44.51	-21 17.8					
1988 08 27	23 39.34	-21 57.8	0.897	1.872	157.9	11.7	15.8
1988 09 06	23 31.28	-22 23.3					
1988 09 16	23 21.62	-22 22.3	0.844	1.822	160.3	10.7	15.5
1988 09 26	23 12.25	-21 46.0					
1988 10 06	23 04.95	-20 33.3	0.870	1.781	144.5	19.0	15.8
1988 10 16	23 01.01	-18 48.3					
1988 10 26	23 01.02	-16 37.8	0.961	1.750	127.1	26.9	16.2
1988 11 05	23 04.88	-14 09.3					
1988 11 15	23 12.24	-11 27.9	1.097	1.731	112.1	32.0	16.6
1988 11 25	23 22.58	-08 37.8					
1988 12 05	23 35.37	-05 42.2	1.262	1.725	99.5	34.3	16.9

1981 EL24 a,e,i = 2.91, 0.06, 1 Elements MPC 11043

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 41.83	-01 27.8	2.464	2.835	100.7	20.6	18.6
1988	07 08	23 46.62	-00 52.0					
1988	07 18	23 49.51	-00 28.1	2.205	2.824	117.6	18.6	18.3
1988	07 28	23 50.30	-00 17.4					
1988	08 07	23 48.89	-00 20.9	1.986	2.813	136.9	14.3	17.9
1988	08 17	23 45.28	-00 38.6					
1988	08 27	23 39.70	-01 09.3	1.838	2.803	158.5	7.6	17.5
1988	09 06	23 32.65	-01 50.0					
1988	09 16	23 24.84	-02 36.4	1.788	2.793	177.8	0.8	17.1
1988	09 26	23 17.20	-03 22.6					
1988	10 06	23 10.57	-04 03.2	1.847	2.784	154.6	8.9	17.6
1988	10 16	23 05.67	-04 33.8					
1988	10 26	23 02.97	-04 51.3	2.003	2.775	132.7	15.3	18.0
1988	11 05	23 02.63	-04 54.7					
1988	11 15	23 04.64	-04 43.8	2.225	2.767	113.1	19.2	18.3
1988	11 25	23 08.84	-04 19.3					
1988	12 05	23 14.98	-03 42.4	2.483	2.760	95.7	20.8	18.6

(3678) 1966 BO a,e,i = 2.55, 0.19, 8 Elements MPC 12198

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 48.41	-03 45.6	2.532	2.890	100.1	20.3	16.5
1988	07 08	23 52.57	-03 46.9					
1988	07 18	23 54.76	-04 03.2	2.298	2.915	117.8	18.0	16.2
1988	07 28	23 54.82	-04 35.2					
1988	08 07	23 52.66	-05 22.6	2.105	2.937	137.8	13.4	15.9
1988	08 17	23 48.33	-06 23.7					
1988	08 27	23 42.12	-07 35.0	1.988	2.957	159.9	6.8	15.6
1988	09 06	23 34.56	-08 50.9					
1988	09 16	23 26.36	-10 04.9	1.976	2.975	172.6	2.5	15.4
1988	09 26	23 18.39	-11 10.5					
1988	10 06	23 11.47	-12 02.6	2.077	2.991	151.1	9.3	15.8
1988	10 16	23 06.22	-12 38.1					
1988	10 26	23 03.07	-12 56.2	2.274	3.004	129.4	14.8	16.2
1988	11 05	23 02.13	-12 57.5					
1988	11 15	23 03.39	-12 43.4	2.535	3.015	109.6	18.0	16.5
1988	11 25	23 06.70	-12 15.8					
1988	12 05	23 11.82	-11 36.6	2.827	3.024	91.9	19.0	16.8

1977 RO7 a,e,i = 2.40, 0.18, 4 Elements MPC 12568

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 30.46	+00 26.0	1.508	1.993	102.6	29.9	17.0
1988	07 08	23 39.51	+01 21.5					
1988	07 18	23 46.07	+01 59.0	1.333	2.015	117.4	26.6	16.7
1988	07 28	23 49.83	+02 15.5					
1988	08 07	23 50.53	+02 08.8	1.190	2.040	135.4	20.4	16.3
1988	08 17	23 48.10	+01 37.5					
1988	08 27	23 42.85	+00 43.3	1.102	2.070	156.9	11.0	15.9
1988	09 06	23 35.54	-00 28.6					
1988	09 16	23 27.29	-01 49.7	1.098	2.103	178.1	0.9	15.4
1988	09 26	23 19.51	-03 08.7					
1988	10 06	23 13.41	-04 16.1	1.190	2.139	155.2	11.3	16.1
1988	10 16	23 09.82	-05 05.1					
1988	10 26	23 09.15	-05 32.6	1.366	2.177	133.9	19.2	16.7
1988	11 05	23 11.36	-05 38.6					
1988	11 15	23 16.21	-05 24.7	1.602	2.216	115.5	23.8	17.2
1988	11 25	23 23.37	-04 53.0					
1988	12 05	23 32.45	-04 06.5	1.874	2.257	99.5	25.5	17.7

1985 UT4 a,e,i = 2.18, 0.14, 2 Elements MPC 12326

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 24.71	-02 25.9	1.441	1.968	105.0	29.9	18.0
1988	07 08	23 34.65	-01 28.0					
1988	07 18	23 42.40	-00 45.7	1.230	1.943	119.4	27.1	17.6
1988	07 28	23 47.54	-00 22.3					
1988	08 07	23 49.72	-00 20.6	1.053	1.921	136.7	21.2	17.0
1988	08 17	23 48.64	-00 42.9					
1988	08 27	23 44.39	-01 28.5	0.930	1.903	157.6	11.7	16.5
1988	09 06	23 37.54	-02 32.9					
1988	09 16	23 29.19	-03 47.5	0.884	1.889	178.6	0.8	15.8
1988	09 26	23 20.95	-05 00.3					
1988	10 06	23 14.37	-05 59.9	0.926	1.880	154.7	13.1	16.5
1988	10 16	23 10.60	-06 38.4					
1988	10 26	23 10.28	-06 51.9	1.045	1.875	133.6	22.6	17.0
1988	11 05	23 13.42	-06 40.6					
1988	11 15	23 19.78	-06 06.5	1.216	1.874	116.0	28.3	17.5
1988	11 25	23 28.92	-05 12.3					
1988	12 05	23 40.37	-04 01.3	1.417	1.879	101.4	30.9	17.9

1961 CX a,e,i = 2.36, 0.02, 2 Elements MPC 12312

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 41.83	-02 42.3	1.956	2.374	101.2	24.8	18.3
1988	07 08	23 48.61	-02 10.5					
1988	07 18	23 53.24	-01 53.8	1.723	2.369	117.4	22.4	18.0
1988	07 28	23 55.44	-01 54.2					
1988	08 07	23 54.99	-02 12.9	1.526	2.364	136.2	17.3	17.6
1988	08 17	23 51.79	-02 50.0					
1988	08 27	23 46.03	-03 43.2	1.392	2.359	158.0	9.2	17.1
1988	09 06	23 38.28	-04 47.7					
1988	09 16	23 29.44	-05 56.3	1.350	2.354	176.7	1.4	16.7
1988	09 26	23 20.73	-07 00.1					
1988	10 06	23 13.29	-07 51.6	1.411	2.349	153.7	10.9	17.2
1988	10 16	23 08.05	-08 25.7					
1988	10 26	23 05.55	-08 39.9	1.562	2.345	131.8	18.4	17.7
1988	11 05	23 05.91	-08 34.5					
1988	11 15	23 09.03	-08 10.9	1.772	2.340	112.8	22.9	18.0
1988	11 25	23 14.65	-07 30.9					
1988	12 05	23 22.42	-06 36.9	2.013	2.335	96.2	24.8	18.4

1986 EN4 a,e,i = 3.24, 0.11, 2 Elements MPC 12132

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 49.77	-03 02.6	2.708	3.046	99.5	19.2	17.9
1988	07 08	23 54.04	-02 38.9					
1988	07 18	23 56.48	-02 27.0	2.468	3.064	116.8	17.2	17.7
1988	07 28	23 56.94	-02 27.8					
1988	08 07	23 55.37	-02 41.1	2.270	3.083	136.3	13.1	17.4
1988	08 17	23 51.80	-03 06.5					
1988	08 27	23 46.49	-03 41.7	2.143	3.103	157.9	7.0	17.1
1988	09 06	23 39.90	-04 23.4					
1988	09 16	23 32.65	-05 07.3	2.118	3.123	177.7	0.7	16.7
1988	09 26	23 25.51	-05 48.4					
1988	10 06	23 19.21	-06 22.4	2.205	3.143	155.6	7.5	17.2
1988	10 16	23 14.33	-06 46.1					
1988	10 26	23 11.30	-06 57.4	2.393	3.163	133.8	13.1	17.6
1988	11 05	23 10.27	-06 56.0					
1988	11 15	23 11.28	-06 41.9	2.652	3.184	113.9	16.5	17.9
1988	11 25	23 14.22	-06 16.1					
1988	12 05	23 18.88	-05 39.8	2.951	3.204	95.8	17.8	18.2

1979 FV1 a,e,i = 3.44, 0.03, 7 Elements MPC 10033

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 53.95	-01 47.9	3.248	3.538	98.1	16.5	17.6
1988	07 08	23 56.97	-01 17.6					
1988	07 18	23 58.38	-00 56.7	2.975	3.538	115.8	15.0	17.3
1988	07 28	23 58.05	-00 45.8					
1988	08 07	23 55.95	-00 45.1	2.743	3.538	135.4	11.6	17.1
1988	08 17	23 52.12	-00 54.5					
1988	08 27	23 46.78	-01 12.7	2.585	3.537	156.9	6.4	16.7
1988	09 06	23 40.30	-01 37.6					
1988	09 16	23 33.19	-02 06.5	2.531	3.536	179.2	0.2	16.3
1988	09 26	23 26.10	-02 35.6					
1988	10 06	23 19.66	-03 01.6	2.593	3.535	157.1	6.3	16.7
1988	10 16	23 14.40	-03 21.3					
1988	10 26	23 10.73	-03 32.4	2.761	3.534	135.0	11.5	17.1
1988	11 05	23 08.86	-03 33.8					
1988	11 15	23 08.86	-03 24.9	3.005	3.533	114.6	14.7	17.4
1988	11 25	23 10.68	-03 05.7					
1988	12 05	23 14.18	-02 36.9	3.291	3.531	95.9	16.1	17.6

1981 EH34 a,e,i = 2.91, 0.02, 2 Elements MPC 11044

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 50.87	-01 29.9	2.581	2.913	98.7	20.2	18.8
1988	07 08	23 55.66	-00 55.8					
1988	07 18	23 58.61	-00 33.2	2.321	2.908	115.6	18.4	18.5
1988	07 28	23 59.52	-00 23.4					
1988	08 07	23 58.28	-00 26.9	2.099	2.904	134.7	14.4	18.1
1988	08 17	23 54.87	-00 44.0					
1988	08 27	23 49.50	-01 13.4	1.946	2.900	156.3	8.1	17.8
1988	09 06	23 42.59	-01 52.2					
1988	09 16	23 34.80	-02 36.4	1.890	2.895	179.6	0.1	17.2
1988	09 26	23 27.00	-03 20.6					
1988	10 06	23 20.02	-03 59.6	1.945	2.891	156.8	7.8	17.7
1988	10 16	23 14.57	-04 29.1					
1988	10 26	23 11.17	-04 46.2	2.100	2.887	134.7	14.2	18.1
1988	11 05	23 10.02	-04 49.7					
1988	11 15	23 11.15	-04 39.4	2.326	2.883	114.6	18.2	18.5
1988	11 25	23 14.45	-04 15.8					
1988	12 05	23 19.69	-03 40.3	2.591	2.878	96.8	19.9	18.7

1128 T-3 a,e,i = 3.16, 0.13, 14 Elements MPC 12802

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 59.73	-03 30.4	2.436	2.759	97.4	21.4	18.8
1988	07 08	00 04.72	-02 28.1					
1988	07 18	00 07.73	-01 34.7	2.194	2.767	113.9	19.6	18.5
1988	07 28	00 08.53	-00 51.1					
1988	08 07	00 06.99	-00 18.0	1.987	2.777	132.7	15.6	18.2
1988	08 17	00 03.07	+00 04.3					
1988	08 27	23 56.97	+00 16.2	1.845	2.788	154.0	9.1	17.8
1988	09 06	23 49.15	+00 19.3					
1988	09 16	23 40.33	+00 16.0	1.798	2.802	176.5	1.3	17.4
1988	09 26	23 31.45	+00 09.8					
1988	10 06	23 23.44	+00 04.6	1.861	2.817	158.9	7.3	17.8
1988	10 16	23 17.09	+00 03.9					
1988	10 26	23 12.91	+00 10.6	2.026	2.834	136.8	13.9	18.2
1988	11 05	23 11.13	+00 26.2					
1988	11 15	23 11.75	+00 51.6	2.266	2.852	116.8	18.0	18.6
1988	11 25	23 14.61	+01 27.1					
1988	12 05	23 19.48	+02 12.0	2.547	2.871	99.0	19.8	18.9

4127 P-L a,e,i = 3.15, 0.17, 0 Elements MPC 12698

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	23 46.18	-01 07.9	2.269	2.636	99.6	22.3	19.3
1988 07 08	23 52.74	-00 24.3					
1988 07 18	23 57.43	+00 07.2	2.020	2.624	115.6	20.4	19.0
1988 07 28	00 00.02	+00 25.0					
1988 08 07	00 00.34	+00 28.0	1.807	2.615	133.9	16.2	18.6
1988 08 17	23 58.32	+00 15.5					
1988 08 27	23 54.10	-00 11.5	1.659	2.609	154.8	9.5	18.2
1988 09 06	23 48.12	-00 50.4					
1988 09 16	23 41.06	-01 36.7	1.600	2.605	177.8	0.9	17.7
1988 09 26	23 33.85	-02 24.3					
1988 10 06	23 27.43	-03 07.0	1.647	2.605	158.9	8.0	18.2
1988 10 16	23 22.62	-03 39.5					
1988 10 26	23 19.97	-03 58.2	1.791	2.608	137.0	15.1	18.6
1988 11 05	23 19.73	-04 01.7					
1988 11 15	23 21.91	-03 49.6	2.006	2.613	117.4	19.6	19.0
1988 11 25	23 26.37	-03 22.9					
1988 12 05	23 32.84	-02 42.9	2.262	2.622	100.2	21.7	19.3

(3684) 1983 AK a,e,i = 2.29, 0.15, 7 Elements MPC 12208

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	00 00.13	-07 26.2	2.281	2.636	98.9	22.4	18.4
1988 07 08	00 05.96	-07 24.5					
1988 07 18	00 09.76	-07 38.2	2.036	2.639	115.6	20.3	18.1
1988 07 28	00 11.28	-08 08.2					
1988 08 07	00 10.30	-08 54.3	1.827	2.640	134.6	15.9	17.8
1988 08 17	00 06.72	-09 54.6					
1988 08 27	00 00.68	-11 05.0	1.684	2.638	155.6	9.1	17.4
1988 09 06	23 52.63	-12 19.1					
1988 09 16	23 43.34	-13 29.0	1.639	2.633	169.1	4.1	17.1
1988 09 26	23 33.87	-14 26.5					
1988 10 06	23 25.27	-15 05.8	1.702	2.625	151.8	10.4	17.4
1988 10 16	23 18.47	-15 24.1					
1988 10 26	23 14.07	-15 21.0	1.859	2.615	130.5	16.8	17.8
1988 11 05	23 12.32	-14 58.4					
1988 11 15	23 13.20	-14 18.7	2.078	2.603	111.1	20.8	18.2
1988 11 25	23 16.54	-13 24.7					
1988 12 05	23 22.04	-12 18.7	2.328	2.588	93.9	22.3	18.4

1955 SF a,e,i = 2.22, 0.20, 5 Elements MPC 11339

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	23 37.37	-04 18.0	1.274	1.798	102.9	33.4	18.0
1988 07 08	23 49.45	-02 33.1					
1988 07 18	23 59.19	-00 57.8	1.095	1.787	115.6	30.8	17.6
1988 07 28	00 06.15	+00 25.2					
1988 08 07	00 09.87	+01 33.5	0.944	1.784	131.3	25.3	17.2
1988 08 17	00 09.95	+02 24.1					
1988 08 27	00 06.32	+02 55.4	0.837	1.788	150.7	16.0	16.6
1988 09 06	23 59.43	+03 07.1					
1988 09 16	23 50.35	+03 01.7	0.797	1.799	172.8	4.0	16.1
1988 09 26	23 40.80	+02 45.7					
1988 10 06	23 32.58	+02 27.3	0.840	1.816	161.6	10.0	16.5
1988 10 16	23 27.10	+02 14.7					
1988 10 26	23 25.18	+02 14.2	0.962	1.840	140.3	20.2	17.1
1988 11 05	23 26.89	+02 28.7					
1988 11 15	23 32.00	+02 59.2	1.144	1.870	122.3	26.6	17.7
1988 11 25	23 40.04	+03 44.9					
1988 12 05	23 50.50	+04 44.2	1.365	1.904	107.1	29.6	18.2

1980 FU a,e,i = 2.29, 0.11, 7 Elements MPC 11837

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	00 07.08	-00 22.3	2.053	2.361	94.5	25.4	19.0
1988	07 08	00 13.82	+00 42.2					
1988	07 18	00 18.40	+01 35.3	1.835	2.385	110.2	23.6	18.7
1988	07 28	00 20.53	+02 15.4					
1988	08 07	00 19.94	+02 41.1	1.642	2.408	128.5	19.2	18.3
1988	08 17	00 16.50	+02 51.1					
1988	08 27	00 10.29	+02 45.3	1.502	2.430	149.9	12.0	17.9
1988	09 06	00 01.77	+02 25.1					
1988	09 16	23 51.75	+01 53.8	1.449	2.450	173.4	2.7	17.5
1988	09 26	23 41.41	+01 17.1					
1988	10 06	23 31.95	+00 41.2	1.502	2.469	161.1	7.5	17.8
1988	10 16	23 24.39	+00 12.2					
1988	10 26	23 19.41	-00 05.6	1.655	2.486	138.2	15.4	18.3
1988	11 05	23 17.27	-00 09.8					
1988	11 15	23 17.94	+00 00.4	1.880	2.501	118.0	20.4	18.8
1988	11 25	23 21.20	+00 24.6					
1988	12 05	23 26.72	+01 01.6	2.146	2.515	100.2	22.7	19.1

(3665) 1979 FE a,e,i = 2.42, 0.09, 15 Elements MPC 12136

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	23 50.14	-12 11.1	1.868	2.318	102.9	25.3	16.8
1988	07 08	23 59.47	-12 47.4					
1988	07 18	00 06.84	-13 45.0	1.638	2.300	118.2	22.9	16.4
1988	07 28	00 11.90	-15 04.9					
1988	08 07	00 14.33	-16 45.8	1.450	2.284	135.1	18.3	16.0
1988	08 17	00 13.87	-18 43.9					
1988	08 27	00 10.49	-20 51.0	1.327	2.268	151.7	12.2	15.6
1988	09 06	00 04.52	-22 55.4					
1988	09 16	23 56.73	-24 43.5	1.292	2.254	157.4	9.9	15.5
1988	09 26	23 48.30	-26 02.9					
1988	10 06	23 40.57	-26 46.6	1.350	2.241	144.6	15.0	15.7
1988	10 16	23 34.69	-26 52.6					
1988	10 26	23 31.46	-26 24.0	1.485	2.230	127.1	20.8	16.1
1988	11 05	23 31.20	-25 26.6					
1988	11 15	23 33.86	-24 05.9	1.672	2.221	110.5	24.7	16.5
1988	11 25	23 39.21	-22 27.2					
1988	12 05	23 46.88	-20 35.0	1.886	2.213	95.8	26.3	16.8

(3648) 1957 HK a,e,i = 2.41, 0.11, 8 Elements MPC 12005

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	00 02.11	+07 40.0	2.160	2.426	92.4	24.8	17.2
1988	07 08	00 09.52	+08 36.5					
1988	07 18	00 14.96	+09 19.6	1.940	2.449	107.8	23.3	17.0
1988	07 28	00 18.18	+09 46.7					
1988	08 07	00 18.93	+09 55.5	1.741	2.472	125.5	19.5	16.6
1988	08 17	00 17.09	+09 43.4					
1988	08 27	00 12.72	+09 09.2	1.591	2.494	146.2	13.0	16.3
1988	09 06	00 06.20	+08 13.3					
1988	09 16	23 58.21	+06 59.0	1.523	2.516	168.4	4.6	15.9
1988	09 26	23 49.75	+05 32.9					
1988	10 06	23 41.87	+04 03.6	1.560	2.536	164.1	6.2	16.0
1988	10 16	23 35.53	+02 40.2					
1988	10 26	23 31.42	+01 29.8	1.701	2.556	141.6	14.0	16.5
1988	11 05	23 29.84	+00 36.9					
1988	11 15	23 30.83	+00 03.2	1.921	2.574	121.0	19.2	16.9
1988	11 25	23 34.25	-00 11.3					
1988	12 05	23 39.81	-00 08.3	2.188	2.591	102.8	21.8	17.3

6582 P-L a,e,i = 3.15, 0.16, 1 Elements MPC 11844

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	00 09.92	+00 41.5	3.200	3.415	93.4	17.3	18.5
1988 07 08	00 14.35	+01 10.5					
1988 07 18	00 17.25	+01 29.6	2.899	3.391	110.5	16.3	18.2
1988 07 28	00 18.47	+01 37.9					
1988 08 07	00 17.89	+01 34.7	2.629	3.366	129.4	13.5	17.9
1988 08 17	00 15.43	+01 19.6					
1988 08 27	00 11.19	+00 53.1	2.423	3.340	150.5	8.6	17.6
1988 09 06	00 05.42	+00 16.9					
1988 09 16	23 58.55	-00 26.1	2.313	3.313	173.3	2.0	17.1
1988 09 26	23 51.22	-01 11.9					
1988 10 06	23 44.12	-01 55.9	2.316	3.286	163.2	5.1	17.3
1988 10 16	23 37.94	-02 33.8					
1988 10 26	23 33.23	-03 01.9	2.429	3.257	140.4	11.2	17.6
1988 11 05	23 30.35	-03 18.3					
1988 11 15	23 29.50	-03 21.8	2.626	3.228	119.4	15.5	17.9
1988 11 25	23 30.68	-03 12.3					
1988 12 05	23 33.79	-02 50.5	2.872	3.199	100.3	17.6	18.1

1977 RH7 a,e,i = 2.39, 0.19, 5 Elements MPC 9960

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	23 55.76	-05 38.0	1.505	1.946	99.2	31.1	17.0
1988 07 08	00 06.55	-04 30.6					
1988 07 18	00 14.94	-03 36.9	1.329	1.963	113.0	28.5	16.7
1988 07 28	00 20.54	-02 58.7					
1988 08 07	00 23.01	-02 37.1	1.178	1.986	129.8	23.1	16.3
1988 08 17	00 22.05	-02 32.7					
1988 08 27	00 17.69	-02 44.0	1.074	2.014	150.2	14.5	15.9
1988 09 06	00 10.41	-03 07.1					
1988 09 16	00 01.16	-03 36.2	1.045	2.046	173.1	3.4	15.4
1988 09 26	23 51.39	-04 03.3					
1988 10 06	23 42.60	-04 21.4	1.109	2.082	161.7	8.7	15.8
1988 10 16	23 36.02	-04 25.4					
1988 10 26	23 32.39	-04 12.8	1.262	2.120	139.7	17.6	16.4
1988 11 05	23 31.91	-03 43.9					
1988 11 15	23 34.45	-02 59.9	1.482	2.161	120.6	23.2	17.0
1988 11 25	23 39.68	-02 02.4					
1988 12 05	23 47.17	-00 53.8	1.744	2.203	104.2	25.7	17.5

1978 SL5 a,e,i = 2.98, 0.03, 1 Elements MPC 11638

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	00 08.11	+01 08.5	2.702	2.947	93.7	20.1	17.9
1988 07 08	00 13.70	+01 48.6					
1988 07 18	00 17.56	+02 17.9	2.445	2.953	110.1	18.9	17.6
1988 07 28	00 19.50	+02 35.1					
1988 08 07	00 19.38	+02 39.2	2.218	2.959	128.7	15.5	17.3
1988 08 17	00 17.11	+02 29.6					
1988 08 27	00 12.80	+02 06.8	2.050	2.966	149.6	9.9	17.0
1988 09 06	00 06.75	+01 32.4					
1988 09 16	23 59.51	+00 49.7	1.972	2.972	172.5	2.5	16.6
1988 09 26	23 51.82	+00 03.3					
1988 10 06	23 44.51	-00 41.5	2.005	2.978	163.7	5.4	16.8
1988 10 16	23 38.34	-01 19.7					
1988 10 26	23 33.90	-01 47.5	2.145	2.985	141.0	12.1	17.2
1988 11 05	23 31.53	-02 02.6					
1988 11 15	23 31.35	-02 04.1	2.367	2.991	120.3	16.6	17.5
1988 11 25	23 33.33	-01 52.0					
1988 12 05	23 37.28	-01 27.4	2.638	2.997	101.7	18.8	17.8

1987 GG a,e,i = 2.65, 0.31, 30 Elements MPC 11997

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	00 15.96	-08 45.2	2.758	3.033	95.8	19.5	18.5
1988 07 08	00 21.12	-09 45.1					
1988 07 18	00 24.47	-11 02.9	2.537	3.083	113.3	17.6	18.3
1988 07 28	00 25.83	-12 38.5					
1988 08 07	00 25.06	-14 29.9	2.357	3.131	132.3	13.9	18.0
1988 08 17	00 22.10	-16 33.4					
1988 08 27	00 17.10	-18 42.7	2.255	3.175	150.8	8.9	17.8
1988 09 06	00 10.40	-20 49.6					
1988 09 16	00 02.56	-22 45.6	2.258	3.216	158.9	6.5	17.7
1988 09 26	23 54.34	-24 22.6					
1988 10 06	23 46.56	-25 35.7	2.375	3.255	146.3	9.8	18.0
1988 10 16	23 39.94	-26 22.8					
1988 10 26	23 35.04	-26 44.7	2.590	3.290	127.4	13.9	18.3
1988 11 05	23 32.15	-26 44.4					
1988 11 15	23 31.38	-26 25.2	2.869	3.322	108.8	16.4	18.7
1988 11 25	23 32.68	-25 50.7					
1988 12 05	23 35.85	-25 04.3	3.178	3.352	91.5	17.1	18.9

6047 P-L a,e,i = 2.31, 0.08, 5 Elements MPC 12208

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	00 05.37	+04 43.1	2.212	2.481	92.9	24.2	18.5
1988 07 08	00 12.91	+05 33.9					
1988 07 18	00 18.62	+06 12.1	1.961	2.476	108.3	22.9	18.2
1988 07 28	00 22.21	+06 35.4					
1988 08 07	00 23.44	+06 41.6	1.732	2.469	126.0	19.4	17.8
1988 08 17	00 22.07	+06 28.5					
1988 08 27	00 18.09	+05 55.0	1.553	2.461	146.7	13.0	17.4
1988 09 06	00 11.76	+05 01.7					
1988 09 16	00 03.67	+03 51.7	1.456	2.452	169.9	4.1	16.9
1988 09 26	23 54.78	+02 31.7					
1988 10 06	23 46.23	+01 10.2	1.462	2.441	164.7	6.2	17.0
1988 10 16	23 39.10	-00 04.1					
1988 10 26	23 34.21	-01 03.8	1.572	2.429	141.4	14.8	17.4
1988 11 05	23 32.00	-01 45.1					
1988 11 15	23 32.59	-02 06.2	1.758	2.416	120.6	20.6	17.8
1988 11 25	23 35.85	-02 07.7					
1988 12 05	23 41.51	-01 51.1	1.988	2.402	102.5	23.6	18.2

(3668) 1982 UM7 a,e,i = 2.19, 0.10, 3 Elements MPC 12137

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	00 07.17	+03 07.9	1.952	2.249	93.1	26.8	17.6
1988 07 08	00 15.59	+04 01.6					
1988 07 18	00 21.96	+04 41.2	1.739	2.271	108.1	25.2	17.3
1988 07 28	00 25.96	+05 04.4					
1988 08 07	00 27.31	+05 09.2	1.546	2.292	125.8	21.0	17.0
1988 08 17	00 25.78	+04 53.6					
1988 08 27	00 21.37	+04 17.0	1.399	2.312	146.8	13.9	16.5
1988 09 06	00 14.41	+03 21.2					
1988 09 16	00 05.60	+02 10.4	1.332	2.330	170.6	4.1	16.1
1988 09 26	23 56.06	+00 52.6					
1988 10 06	23 47.04	-00 23.1	1.368	2.347	164.4	6.6	16.3
1988 10 16	23 39.68	-01 28.1					
1988 10 26	23 34.79	-02 16.1	1.504	2.362	141.1	15.3	16.8
1988 11 05	23 32.72	-02 44.4					
1988 11 15	23 33.51	-02 52.6	1.715	2.375	120.5	21.0	17.3
1988 11 25	23 36.98	-02 41.8					
1988 12 05	23 42.79	-02 14.3	1.969	2.386	102.6	23.8	17.6

1981 EY20 a,e,i = 2.94, 0.11, 1 Elements MPC 10384

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	00 05.13	+00 58.8	2.347	2.629	94.4	22.7	18.4
1988 07 08	00 12.32	+01 50.5					
1988 07 18	00 17.71	+02 31.0	2.101	2.628	110.0	21.3	18.1
1988 07 28	00 21.06	+02 58.6					
1988 08 07	00 22.17	+03 12.1	1.883	2.629	127.8	17.7	17.8
1988 08 17	00 20.88	+03 10.4					
1988 08 27	00 17.25	+02 53.4	1.719	2.632	148.3	11.6	17.4
1988 09 06	00 11.57	+02 22.8					
1988 09 16	00 04.39	+01 41.5	1.639	2.637	171.1	3.4	17.0
1988 09 26	23 56.59	+00 54.9					
1988 10 06	23 49.13	+00 09.1	1.665	2.643	165.1	5.6	17.1
1988 10 16	23 42.91	-00 30.0					
1988 10 26	23 38.65	-00 57.7	1.793	2.651	142.4	13.2	17.6
1988 11 05	23 36.71	-01 11.2					
1988 11 15	23 37.22	-01 09.6	2.001	2.661	122.0	18.4	18.0
1988 11 25	23 40.09	-00 53.1					
1988 12 05	23 45.11	-00 22.8	2.258	2.672	103.9	21.0	18.3

(3664) 4260 P-L a,e,i = 2.79, 0.13, 4 Elements MPC 12130

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	00 04.52	+04 46.4	2.340	2.601	93.0	23.0	17.2
1988 07 08	00 12.14	+05 52.3					
1988 07 18	00 18.10	+06 48.5	2.072	2.576	108.1	22.0	16.9
1988 07 28	00 22.12	+07 33.0					
1988 08 07	00 23.96	+08 03.7	1.828	2.552	125.3	18.9	16.5
1988 08 17	00 23.40	+08 18.3					
1988 08 27	00 20.40	+08 15.4	1.635	2.530	145.1	13.2	16.1
1988 09 06	00 15.16	+07 54.3					
1988 09 16	00 08.15	+07 16.2	1.520	2.509	166.7	5.3	15.6
1988 09 26	00 00.25	+06 25.1					
1988 10 06	23 52.47	+05 27.2	1.507	2.490	166.7	5.3	15.6
1988 10 16	23 45.85	+04 30.0					
1988 10 26	23 41.25	+03 40.7	1.595	2.473	144.6	13.5	16.0
1988 11 05	23 39.14	+03 04.3					
1988 11 15	23 39.73	+02 44.1	1.765	2.458	124.0	19.5	16.4
1988 11 25	23 42.95	+02 41.0					
1988 12 05	23 48.58	+02 54.5	1.984	2.446	106.0	22.8	16.7

1981 EV26 a,e,i = 2.92, 0.02, 1 Elements MPC 11043

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	00 12.38	+02 17.9	2.640	2.866	92.2	20.8	18.3
1988 07 08	00 18.71	+03 03.4					
1988 07 18	00 23.36	+03 38.4	2.377	2.863	108.3	19.7	18.0
1988 07 28	00 26.11	+04 01.3					
1988 08 07	00 26.79	+04 11.0	2.140	2.860	126.4	16.6	17.7
1988 08 17	00 25.25	+04 06.4					
1988 08 27	00 21.55	+03 47.4	1.957	2.857	146.9	11.1	17.3
1988 09 06	00 15.94	+03 15.2					
1988 09 16	00 08.88	+02 32.5	1.860	2.855	169.7	3.6	16.9
1988 09 26	00 01.14	+01 43.7					
1988 10 06	23 53.58	+00 54.6	1.871	2.853	166.4	4.7	17.0
1988 10 16	23 47.04	+00 10.6					
1988 10 26	23 42.22	-00 23.5	1.990	2.851	143.5	12.0	17.4
1988 11 05	23 39.51	-00 44.6					
1988 11 15	23 39.09	-00 51.3	2.193	2.850	122.5	17.0	17.8
1988 11 25	23 40.95	-00 43.4					
1988 12 05	23 44.92	-00 21.8	2.447	2.849	103.9	19.6	18.1

1987 HU a,e,i = 2.14, 0.09, 3 Elements MPC 12709

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	06 28	00 10.57	+01 33.9	1.867	2.171	92.9	27.9	19.6
1988	07 08	00 19.93	+02 22.6					
1988	07 18	00 27.26	+02 56.5	1.659	2.192	107.6	26.2	19.4
1988	07 28	00 32.23	+03 13.2					
1988	08 07	00 34.51	+03 10.8	1.469	2.212	125.0	22.1	19.0
1988	08 17	00 33.83	+02 47.5					
1988	08 27	00 30.12	+02 03.5	1.323	2.231	145.7	14.8	18.6
1988	09 06	00 23.62	+01 00.9					
1988	09 16	00 14.99	-00 14.9	1.253	2.249	169.3	4.7	18.1
1988	09 26	00 05.36	-01 35.2					
1988	10 06	23 56.04	-02 50.1	1.284	2.266	165.4	6.4	18.2
1988	10 16	23 48.26	-03 51.0					
1988	10 26	23 42.94	-04 32.0	1.414	2.281	142.0	15.6	18.8
1988	11 05	23 40.51	-04 51.2					
1988	11 15	23 41.04	-04 48.9	1.618	2.294	121.4	21.6	19.3
1988	11 25	23 44.35	-04 27.1					
1988	12 05	23 50.11	-03 48.4	1.865	2.306	103.7	24.5	19.7

(3656) 1978 QX a,e,i = 2.20, 0.14, 1 Elements MPC 12125

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 31.82	+03 57.9	1.630	2.148	106.2	27.0	17.8
1988	07 28	00 36.83	+04 35.7					
1988	08 07	00 39.08	+04 56.2	1.453	2.181	123.3	22.9	17.5
1988	08 17	00 38.27	+04 57.4					
1988	08 27	00 34.35	+04 38.7	1.317	2.213	143.7	15.7	17.1
1988	09 06	00 27.57	+04 01.2					
1988	09 16	00 18.62	+03 08.3	1.254	2.245	167.2	5.7	16.6
1988	09 26	00 08.64	+02 07.1					
1988	10 06	23 58.97	+01 06.0	1.289	2.276	167.7	5.4	16.7
1988	10 16	23 50.85	+00 13.3					
1988	10 26	23 45.21	-00 24.6	1.426	2.306	144.2	14.6	17.3
1988	11 05	23 42.47	-00 44.6					
1988	11 15	23 42.69	-00 45.9	1.639	2.335	123.4	20.7	17.8
1988	11 25	23 45.67	-00 29.5					
1988	12 05	23 51.07	+00 02.6	1.900	2.361	105.4	23.7	18.2
1988	12 15	23 58.56	+00 48.5					
1988	12 25	00 07.80	+01 46.0	2.181	2.386	89.6	24.3	18.6

2570 P-L a,e,i = 3.16, 0.12, 6 Elements MPC 12698

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 30.44	+03 55.3	2.869	3.305	106.5	17.1	18.7
1988	07 28	00 32.42	+03 57.3					
1988	08 07	00 32.57	+03 46.5	2.636	3.325	125.2	14.4	18.4
1988	08 17	00 30.84	+03 22.5					
1988	08 27	00 27.31	+02 45.9	2.459	3.345	146.0	9.7	18.1
1988	09 06	00 22.20	+01 58.5					
1988	09 16	00 15.92	+01 03.2	2.373	3.364	168.7	3.4	17.8
1988	09 26	00 09.07	+00 04.3					
1988	10 06	00 02.30	-00 53.3	2.399	3.383	167.7	3.6	17.8
1988	10 16	23 56.26	-01 44.8					
1988	10 26	23 51.50	-02 26.3	2.539	3.400	144.8	9.7	18.2
1988	11 05	23 48.40	-02 55.5					
1988	11 15	23 47.13	-03 11.3	2.770	3.417	123.5	14.0	18.6
1988	11 25	23 47.75	-03 13.5					
1988	12 05	23 50.16	-03 03.0	3.059	3.433	104.0	16.2	18.9
1988	12 15	23 54.23	-02 41.1					
1988	12 25	23 59.77	-02 08.9	3.370	3.448	86.2	16.5	19.1

1979 KD a,e,i = 2.59, 0.16, 8 Elements MPC 11836

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 30.63	+00 29.8	2.062	2.562	107.8	22.2	18.1
1988	07 28	00 34.40	+00 17.5					
1988	08 07	00 35.83	-00 12.3	1.867	2.596	125.9	18.4	17.8
1988	08 17	00 34.76	-00 59.8					
1988	08 27	00 31.23	-02 03.2	1.725	2.628	146.7	12.2	17.4
1988	09 06	00 25.53	-03 18.6					
1988	09 16	00 18.19	-04 40.1	1.667	2.661	168.7	4.2	17.1
1988	09 26	00 10.08	-05 59.7					
1988	10 06	00 02.16	-07 09.8	1.718	2.692	163.8	6.0	17.2
1988	10 16	23 55.35	-08 04.2					
1988	10 26	23 50.37	-08 39.3	1.873	2.722	141.5	13.1	17.7
1988	11 05	23 47.63	-08 54.3					
1988	11 15	23 47.25	-08 50.2	2.108	2.752	121.0	17.9	18.1
1988	11 25	23 49.18	-08 29.0					
1988	12 05	23 53.20	-07 53.1	2.392	2.780	102.7	20.2	18.5
1988	12 15	23 59.07	-07 04.9					
1988	12 25	00 06.54	-06 06.7	2.694	2.806	86.2	20.5	18.8

1984 JP1 a,e,i = 2.26, 0.22, 5 Elements MPC 12579

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 22.67	+10 44.1	1.271	1.827	105.4	32.4	16.0
1988	07 28	00 30.93	+12 13.8					
1988	08 07	00 36.23	+13 23.8	1.130	1.859	120.2	28.1	15.7
1988	08 17	00 38.17	+14 10.0					
1988	08 27	00 36.55	+14 28.3	1.019	1.897	138.3	20.7	15.3
1988	09 06	00 31.59	+14 15.7					
1988	09 16	00 23.94	+13 32.0	0.966	1.939	159.4	10.5	14.9
1988	09 26	00 14.93	+12 21.9					
1988	10 06	00 06.14	+10 55.6	0.995	1.985	168.5	5.8	14.9
1988	10 16	23 59.03	+09 26.1					
1988	10 26	23 54.67	+08 05.9	1.116	2.033	148.8	14.7	15.5
1988	11 05	23 53.48	+07 03.4					
1988	11 15	23 55.46	+06 22.5	1.314	2.083	128.9	21.7	16.1
1988	11 25	00 00.32	+06 04.0					
1988	12 05	00 07.65	+06 06.1	1.565	2.134	111.6	25.4	16.6
1988	12 15	00 17.04	+06 26.4					
1988	12 25	00 28.12	+07 02.0	1.845	2.185	96.3	26.6	17.1

1971 SN2 a,e,i = 3.18, 0.16, 2 Elements MPC 9472

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 33.95	+00 31.2	2.172	2.654	107.0	21.5	16.7
1988	07 28	00 38.61	+00 49.7					
1988	08 07	00 41.16	+00 54.5	1.949	2.656	124.3	18.4	16.4
1988	08 17	00 41.38	+00 45.0					
1988	08 27	00 39.25	+00 21.7	1.776	2.662	144.1	12.9	16.0
1988	09 06	00 34.92	-00 13.4					
1988	09 16	00 28.81	-00 56.8	1.683	2.669	166.1	5.2	15.6
1988	09 26	00 21.63	-01 43.2					
1988	10 06	00 14.29	-02 26.6	1.691	2.680	169.3	4.0	15.6
1988	10 16	00 07.70	-03 01.2					
1988	10 26	00 02.67	-03 22.7	1.805	2.693	146.9	11.6	16.1
1988	11 05	23 59.71	-03 29.0					
1988	11 15	23 59.06	-03 19.3	2.005	2.708	126.1	17.2	16.5
1988	11 25	00 00.74	-02 54.4					
1988	12 05	00 04.60	-02 15.8	2.261	2.726	107.6	20.2	16.8
1988	12 15	00 10.42	-01 25.4					
1988	12 25	00 17.96	-00 24.8	2.545	2.745	91.1	21.0	17.1

2480 T-3 a,e,i = 2.40, 0.13, 8 Elements MPC 12574

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 48.24	+04 25.9	2.106	2.525	102.2	23.2	18.1
1988	07 28	00 51.98	+05 14.2					
1988	08 07	00 53.33	+05 50.5	1.891	2.550	119.6	20.2	17.8
1988	08 17	00 52.07	+06 13.3					
1988	08 27	00 48.10	+06 21.9	1.717	2.573	139.9	14.7	17.4
1988	09 06	00 41.58	+06 16.1					
1988	09 16	00 32.95	+05 57.1	1.618	2.595	162.8	6.6	17.1
1988	09 26	00 23.07	+05 28.1					
1988	10 06	00 13.00	+04 54.1	1.622	2.616	171.9	3.1	16.9
1988	10 16	00 03.85	+04 20.8					
1988	10 26	23 56.56	+03 54.0	1.736	2.634	148.3	11.4	17.4
1988	11 05	23 51.70	+03 37.5					
1988	11 15	23 49.52	+03 33.8	1.940	2.651	126.6	17.4	17.9
1988	11 25	23 49.99	+03 43.9					
1988	12 05	23 52.89	+04 07.3	2.200	2.666	107.4	20.6	18.2
1988	12 15	23 57.97	+04 43.0					
1988	12 25	00 04.92	+05 29.9	2.485	2.679	90.4	21.5	18.5

1985 RW a,e,i = 1.96, 0.08, 19 Elements MPC 11996

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 29.02	+27 55.4	1.699	2.074	96.3	29.2	19.4
1988	07 28	00 36.89	+29 55.8					
1988	08 07	00 42.40	+31 42.4	1.491	2.061	109.3	27.7	19.0
1988	08 17	00 45.06	+33 10.0					
1988	08 27	00 44.47	+34 11.9	1.303	2.047	124.1	24.1	18.6
1988	09 06	00 40.48	+34 39.7					
1988	09 16	00 33.29	+34 23.9	1.155	2.032	140.2	18.5	18.2
1988	09 26	00 23.84	+33 17.4					
1988	10 06	00 13.64	+31 19.1	1.075	2.016	152.5	13.2	17.9
1988	10 16	00 04.45	+28 36.9					
1988	10 26	23 57.86	+25 28.4	1.083	1.998	148.3	15.2	17.9
1988	11 05	23 54.77	+22 14.6					
1988	11 15	23 55.49	+19 14.0	1.178	1.981	131.9	21.8	18.3
1988	11 25	23 59.85	+16 39.6					
1988	12 05	00 07.39	+14 36.8	1.338	1.962	114.4	27.2	18.7
1988	12 15	00 17.66	+13 06.4					
1988	12 25	00 30.17	+12 06.0	1.533	1.944	98.8	30.0	19.0

2142 P-L a,e,i = 2.79, 0.21, 7 Elements MPC 12582

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 33.19	+07 35.3	2.191	2.635	104.4	21.9	18.2
1988	07 28	00 38.65	+08 01.4					
1988	08 07	00 42.17	+08 12.4	1.916	2.591	121.2	19.6	17.8
1988	08 17	00 43.49	+08 06.2					
1988	08 27	00 42.45	+07 40.8	1.685	2.547	140.6	14.6	17.4
1988	09 06	00 39.06	+06 55.8					
1988	09 16	00 33.57	+05 52.1	1.526	2.504	162.7	6.9	16.9
1988	09 26	00 26.61	+04 34.0					
1988	10 06	00 19.07	+03 08.6	1.467	2.462	173.1	2.8	16.5
1988	10 16	00 12.01	+01 44.5					
1988	10 26	00 06.45	+00 30.8	1.513	2.422	149.4	12.0	17.0
1988	11 05	00 03.10	-00 26.2					
1988	11 15	00 02.38	-01 02.7	1.646	2.384	127.8	19.1	17.3
1988	11 25	00 04.40	-01 17.5					
1988	12 05	00 09.02	-01 11.8	1.834	2.349	109.0	23.4	17.6
1988	12 15	00 16.03	-00 47.3					
1988	12 25	00 25.14	-00 06.5	2.049	2.316	92.8	25.1	17.9