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    MARS DEN@CFA.BITNET BRIAN@CFAPS1.SPAN MARS DEN@CFAPS2.SPAN
Brian G. Marsden, Director Conrad M. Bardwell, Associate Director
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ERRATA.

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13353 - 5 to -1 For MPC 12664 read MPC 12644
13354 1 to 7 For MPC 12664 read MPC 12644
13355 5 For Borngen read Borngen
13461 25 For MPC 11732 read MPC 11737
13531 14 Add Sapporo 004, Japan
13583 17 Add The double designation 1952 HT2 = 1952 HD4 was
found by O. Kippes (MPC 6840).
    
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CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N	Obs.
1988 PA1 *	1988 08 15.50174		22 19 23.56	+00 05 37.7	MPC13531	15.0	1	400
1988 PA1	1988 08 15.52083		22 19 22.70	+00 05 26.2	MPC13531		1	400
1988 PA1	1988 08 15.53472		22 19 22.10	+00 05 20.8	MPC13531		1	400

Note 1: time corrected.

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IDENTIFICATION CHANGES.

Continuation to MPC 13491.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1940 YP *	1940 12 20.81458		04 23.0	+13 25	1940 XA	15.2	053
1967 RK1 *	1967 09 11.89378		22 57 45.81	-03 12 04.7	1967 RF		095
1977 GF1 *	1977 04 10.53416		09 52 04.39	+17 29 18.6	1977 EV2	17.5	381
1977 GF1	1977 04 10.55839		09 52 04.15	+17 29 16.7	1977 EV2	17.5	381
1977 RE9 *	1977 09 09.91884		23 32 05.02	-05 43 08.8	1977 QQ3	17.0	095

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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. Observers A. Mrkos and Z. Vavrova.
- 061 Uzhgorod. 0.42-m astrograph. Observers I. I. Goroshchak, T. Yu.

- Galas, N. E. Nazarenko and E. I. Skrip. From Kiev Komet. Tsirk.
 091 Aurec-sur-Loire. Observer R. Chanal.
 095 Nauchnyj. Observer N. S. Chernykh.
 114 Engelhardt Observatory, Zelenchukskaya Station. 0.40-m astrograph.
 Observers I. E. Tselishchev and T. V. Kryachko. From Kiev Komet. Tsirk.
 168 Kourovskaya. 0.4-m camera. Observers G. S. Romashin, G. M.
 Sobolenko, A. R. Tearo, S. M. Timirshin and O. G. Yuminova.
 372 Geisei. Observer T. Seki.
 503 Cambridge. Observer J. D. Shanklin.
 657 Victoria. Observers J. B. Tatum and D. D. Balam.
 801 Oak Ridge Observatory. Observers R. E. McCrosky and C.-Y. Shao.
 809 European Southern Observatory. GPO 0.4-m astrograph. Observer H.
 Bohnhardt. Measured by H. Bohnhardt and M. Geffert. Reductions by
 M. Geffert and L. Kohoutek.
 812 Vina del Mar. 0.20-m Schmidt camera. Observer W. Liller. Measured
 by R. H. McNaught.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
Periodic Comet Schwassmann-Wachmann 1						
/1974 II	1987 10	24.11978	20 07 27.68	-20 41 24.3		809
/1974 II	1988 08	06.98681	22 13 52.95	-07 19 42.1	16.0T	046
/1974 II	1988 08	06.99861	22 13 52.63	-07 19 46.3		046
/1974 II	1988 08	16.01337	22 09 54.47	-07 32 57.4	12.8T	046
/1974 II	1988 08	16.02778	22 09 54.08	-07 32 57.9		046
/1974 II	1988 08	18.00587	22 08 59.87	-07 36 11.4		046
/1974 II	1988 08	18.01721	22 08 59.46	-07 36 13.2		046
/1974 II	1988 08	18.93312	22 08 34.33	-07 37 42.8	12.5T	046
/1974 II	1988 08	18.94447	22 08 34.02	-07 37 44.1		046
/1974 II	1988 08	23.32090	22 06 33.01	-07 45 03.6		657
/1974 II	1988 08	23.35562	22 06 31.99	-07 45 07.9		657
/1974 II	1988 08	24.05081	22 06 12.53	-07 46 21.0	13.0T	046
/1974 II	1988 08	24.06215	22 06 12.17	-07 46 22.5		046
/1974 II	1988 08	24.37368	22 06 03.82	-07 46 54.0		657
/1974 II	1988 09	02.25382	22 02 00.32	-08 02 20.4		657
/1974 II	1988 09	08.84167	21 59 07.78	-08 13 45.8	15.4T	046
/1974 II	1988 09	08.85579	21 59 07.52	-08 13 49.0		046
/1974 II	1988 09	09.83229	21 58 43.02	-08 15 27.0	15.3T	046
/1974 II	1988 09	09.84641	21 58 42.59	-08 15 27.4		046
/1974 II	1988 09	10.83750	21 58 17.94	-08 17 09.4	15.3T	046
/1974 II	1988 09	10.85174	21 58 17.52	-08 17 09.2		046
Comet Thiele (1985 XIX)						
/1985 XIX	1985 11	16.69344	22 38 50.88	+29 25 18.8	10.8T	168
/1985 XIX	1985 11	16.69556	22 38 49.71	+29 25 10.9		168
/1985 XIX	1985 11	16.72888	22 38 32.18	+29 22 51.7		168
/1985 XIX	1985 11	16.78044	22 38 05.34	+29 19 14.2		168
/1985 XIX	1985 11	16.78235	22 38 04.44	+29 19 06.2		168
/1985 XIX	1985 11	16.88061	22 37 13.02	+29 12 11.7	11.8T	168
/1985 XIX	1985 11	16.88235	22 37 12.09	+29 12 02.2		168
/1985 XIX	1985 11	17.75179	22 30 01.22	+28 12 34.2	11.1T	168
/1985 XIX	1985 11	17.75405	22 29 59.96	+28 12 23.4		168
/1985 XIX	1985 11	17.78513	22 29 45.28	+28 10 15.5		168
/1985 XIX	1985 11	17.78860	22 29 43.56	+28 10 02.2	11.1T	168
/1985 XIX	1985 11	17.79068	22 29 42.42	+28 09 55.5		168
Comet Wilson (19861)						
/19861	1987 10	22.35378	09 46 53.04	+02 02 07.1		809
/19861	1987 10	23.35746	09 46 42.99	+02 04 21.0		809

/19861	1987 10	24.35317	09 46	31.95	+02 06	37.8	809
/19861	1987 10	24.36702	09 46	31.79	+02 06	39.8	809
/19861	1987 10	27.35641	09 45	51.76	+02 13	59.2	809
/19861	1987 10	27.36229	09 45	51.72	+02 14	00.3	809
/19861	1987 10	28.36303	09 45	36.01	+02 16	37.4	809
/19861	1987 10	28.36597	09 45	35.98	+02 16	38.2	809
/19861	1987 10	29.33121	09 45	19.70	+02 19	14.8	809
/19861	1987 10	29.34437	09 45	19.48	+02 19	16.7	809

Periodic Comet Tempel 2

/1987g	1988 08	14.85141	16 03	01.06	-15 52	13.6	046
/1987g	1988 08	14.85720	16 03	01.65	-15 52	21.2	046
/1987g	1988 08	18.83093	16 11	04.37	-17 20	49.0	046
/1987g	1988 08	18.83671	16 11	05.01	-17 20	56.6	046
/1987g	1988 09	12.01572	17 14	42.79	-25 25	31.9	801

Periodic Comet Klemola

/1987i	1987 10	22.26866	00 22	09.38	-05 09	11.7	809
/1987i	1987 10	23.23546	00 22	12.57	-05 15	02.2	809
/1987i	1987 10	24.20012	00 22	16.88	-05 20	32.2	809
/1987i	1987 10	27.17877	00 22	36.86	-05 35	35.2	809
/1987i	1987 10	29.26823	00 22	57.12	-05 44	21.3	809

Periodic Comet Brooks 2

/1987m	1987 10	22.15191	00 24	40.31	-01 47	19.8	809
/1987m	1987 10	24.24721	00 24	35.26	-01 57	29.5	809
/1987m	1987 10	24.26175	00 24	35.19	-01 57	33.7	809
/1987m	1987 10	27.13825	00 24	39.28	-02 09	35.6	809
/1987m	1987 10	28.18331	00 24	43.53	-02 13	23.4	809
/1987m	1987 10	28.19191	00 24	43.57	-02 13	24.7	809
/1987m	1987 10	29.23806	00 24	49.55	-02 16	54.6	809
/1987m	1987 10	29.24810	00 24	49.60	-02 16	56.7	809

Periodic Comet Borrelly

/1987p	1987 10	22.28903	03 34	37.42	-38 12	22.5	809
/1987p	1987 10	22.30357	03 34	36.62	-38 12	16.8	809
/1987p	1987 10	23.34032	03 33	44.05	-38 04	44.2	809
/1987p	1987 10	23.34240	03 33	43.96	-38 04	42.6	809
/1987p	1987 10	23.34447	03 33	43.78	-38 04	41.8	809
/1987p	1987 10	24.32500	03 32	51.00	-37 56	38.9	809
/1987p	1987 10	24.33309	03 32	50.46	-37 56	34.0	809
/1987p	1987 10	24.33690	03 32	50.28	-37 56	32.2	809
/1987p	1987 10	24.34036	03 32	50.04	-37 56	30.5	809
/1987p	1987 10	24.34382	03 32	49.82	-37 56	28.5	809
/1987p	1987 10	26.30927	03 30	54.44	-37 37	27.4	809
/1987p	1987 10	26.32624	03 30	53.22	-37 37	15.8	809
/1987p	1987 10	26.33247	03 30	52.85	-37 37	11.7	809
/1987p	1987 10	27.25495	03 29	54.75	-37 26	52.8	809
/1987p	1987 10	27.26118	03 29	54.31	-37 26	48.0	809
/1987p	1987 10	27.26672	03 29	53.94	-37 26	44.1	809
/1987p	1987 10	27.28404	03 29	52.74	-37 26	32.2	809
/1987p	1987 10	27.28958	03 29	52.40	-37 26	28.4	809
/1987p	1987 10	28.28688	03 28	45.93	-37 14	12.9	809
/1987p	1987 10	28.29169	03 28	45.66	-37 14	08.8	809
/1987p	1987 10	28.31005	03 28	44.25	-37 13	54.8	809
/1987p	1987 10	28.31358	03 28	43.96	-37 13	52.0	809
/1987p	1987 10	28.32424	03 28	43.19	-37 13	43.3	809
/1987p	1987 10	29.29970	03 27	35.46	-37 00	36.6	809
/1987p	1987 10	29.30939	03 27	34.70	-37 00	28.2	809

/1987p	1987 10 29.31424	03 27 34.33	-37 00 24.4	809
/1987p	1987 10 29.31943	03 27 33.95	-37 00 19.7	809
Comet Bradfield (1987s)				
/1987s	1987 10 22.01305	16 52 22.34	-04 31 52.2	809
/1987s	1987 10 22.01582	16 52 22.89	-04 31 48.0	809
/1987s	1987 10 22.01738	16 52 23.16	-04 31 45.3	809
/1987s	1987 10 22.04162	16 52 27.99	-04 31 11.9	809
/1987s	1987 10 23.01378	16 55 44.56	-04 08 30.7	809
/1987s	1987 10 23.01655	16 55 45.12	-04 08 26.5	809
/1987s	1987 10 23.01984	16 55 45.76	-04 08 22.2	809
/1987s	1987 10 23.04079	16 55 50.01	-04 07 51.9	809
/1987s	1987 10 24.00620	16 59 07.32	-03 44 58.9	809
/1987s	1987 10 24.01036	16 59 08.17	-03 44 53.6	809
/1987s	1987 10 25.99867	17 06 01.22	-02 56 35.7	809
/1987s	1987 10 26.00022	17 06 01.54	-02 56 33.1	809
/1987s	1987 10 26.00189	17 06 01.81	-02 56 30.6	809
/1987s	1987 10 26.00328	17 06 02.20	-02 56 28.7	809
/1987s	1987 10 26.00473	17 06 02.47	-02 56 26.4	809
/1987s	1987 10 27.00892	17 09 34.57	-02 31 27.2	809
/1987s	1987 10 28.00429	17 13 07.30	-02 06 19.7	809
/1987s	1987 10 28.00775	17 13 08.07	-02 06 14.8	809
/1987s	1987 10 28.01121	17 13 08.86	-02 06 08.6	809
/1987s	1987 10 28.01476	17 13 09.60	-02 06 03.8	809
/1987s	1987 10 28.01848	17 13 10.32	-02 05 58.4	809
/1987s	1987 10 28.03545	17 13 13.92	-02 05 32.7	809
/1987s	1987 10 29.00225	17 16 43.19	-01 40 43.1	809
/1987s	1987 10 29.00571	17 16 43.91	-01 40 37.4	809
/1987s	1987 10 29.00918	17 16 44.55	-01 40 33.3	809
/1987s	1987 10 29.01264	17 16 45.28	-01 40 27.7	809
/1987s	1987 10 29.01627	17 16 46.06	-01 40 22.5	809
/1987s	1987 10 29.03411	17 16 49.95	-01 39 53.9	809
/1987s	1987 10 29.03699	17 16 50.54	-01 39 50.0	809
/1987s	1987 10 29.04051	17 16 50.31	-01 39 44.9	809
Comet Rudenko (1987u)				
/1987u	1987 09 01.79757	13 34 45.37	+30 14 48.0	061
/1987u	1987 09 01.80000	13 34 45.09	+30 14 45.0	061
Periodic Comet Shoemaker-Holt				
/1987z	1987 10 02.96355	01 17 13.70	+10 01 15.4	16 T 095
Comet McNaught (1987b1)				
/1987b1	1987 10 27.02396	15 02 59.72	-47 06 58.4	812
/1987b1	1988 04 08.99444	02 07 34.69	+64 54 42.8	114
/1987b1	1988 04 10.81441	02 17 07.62	+64 48 05.7	061
/1987b1	1988 04 10.81632	02 17 08.91	+64 48 05.9	061
/1987b1	1988 04 10.81910	02 17 09.44	+64 48 03.8	061
/1987b1	1988 04 15.74131	02 41 27.17	+64 25 12.9	114
Comet Liller (1988a)				
/1988a	1988 04 06.70960	00 57 11.60	+39 55 27.5	168
/1988a	1988 04 06.71146	00 57 11.76	+39 55 31.4	168
/1988a	1988 04 06.91065	00 57 33.37	+40 07 44.5	168
/1988a	1988 04 06.91130	00 57 33.53	+40 07 46.7	168
/1988a	1988 04 06.96173	00 57 38.79	+40 10 53.6	168
/1988a	1988 04 06.96267	00 57 38.99	+40 10 57.2	168
/1988a	1988 04 06.98212	00 57 41.03	+40 12 08.3	168
/1988a	1988 04 09.02530	01 01 31.52	+42 18 43.5	114

/1988a	1988 04 13.70746	01 11 56.95	+47 17 45.2	114
/1988a	1988 04 15.72265	01 17 20.85	+49 30 15.6	114
/1988a	1988 04 19.72316	01 30 18.36	+53 59 29.2	114
/1988a	1988 04 20.04190	01 31 30.65	+54 21 15.6	114
/1988a	1988 04 21.03891	01 35 24.66	+55 29 35.9	114
/1988a	1988 04 21.72442	01 38 14.71	+56 16 46.0	114
/1988a	1988 04 22.71921	01 42 38.87	+57 25 28.6	114
/1988a	1988 04 24.74128	01 52 43.39	+59 45 35.8	114
/1988a	1988 04 25.04278	01 54 23.41	+60 06 30.3	114
/1988a	1988 04 26.03578	02 00 07.32	+61 15 19.7	114
/1988a	1988 04 26.75214	02 04 33.33	+62 04 49.7	114
/1988a	1988 05 03.79587	03 08 40.73	+69 47 44.1	114
/1988a	1988 05 04.83773	03 22 35.93	+70 48 00.8	114
/1988a	1988 05 05.81157	03 36 59.60	+71 40 55.3	114
/1988a	1988 05 07.90637	04 12 58.58	+73 19 55.8	061
/1988a	1988 05 07.90706	04 12 59.55	+73 19 58.4	061
/1988a	1988 05 07.90776	04 13 00.44	+73 19 59.7	061
/1988a	1988 05 09.87439	04 53 08.53	+74 28 45.8	061
/1988a	1988 05 09.87578	04 53 10.26	+74 28 48.9	061
/1988a	1988 05 10.86952	05 15 30.99	+74 52 26.4	061
/1988a	1988 05 10.87022	05 15 32.46	+74 52 26.4	061
/1988a	1988 05 10.87091	05 15 32.91	+74 52 27.0	061
/1988a	1988 05 19.75719	08 30 34.75	+72 03 40.9	168
/1988a	1988 05 19.80087	08 31 17.80	+72 01 24.8	168
/1988a	1988 05 19.86736	08 32 23.09	+71 57 56.6	168
/1988a	1988 06 11.86736	11 12 04.94	+46 42 13.0	006
/1988a	1988 06 11.88750	11 12 08.33	+46 40 57.8	006
/1988a	1988 06 14.86944	11 20 04.88	+43 42 12.4	006
/1988a	1988 06 14.88958	11 20 07.94	+43 41 00.7	006

Comet Shoemaker-Holt-Rodriquez (1988h)

/1988h	1988 07 16.99444	19 40 20.63	+14 38 09.1	14.5T	091
/1988h	1988 07 18.98611	19 38 01.91	+14 16 29.6	14.5T	091
/1988h	1988 07 22.96042	19 33 23.04	+13 29 52.3		046
/1988h	1988 07 22.96771	19 33 22.57	+13 29 46.8		046
/1988h	1988 07 24.03681	19 32 07.25	+13 16 34.1		046
/1988h	1988 07 24.04410	19 32 06.53	+13 16 32.9		046
/1988h	1988 08 05.86803	19 17 15.44	+10 18 19.8		046
/1988h	1988 08 05.87845	19 17 14.80	+10 18 12.0		046
/1988h	1988 08 06.85660	19 16 08.30	+10 03 13.9		046
/1988h	1988 08 06.87847	19 16 07.42	+10 02 53.9		046
/1988h	1988 08 07.83333	19 15 03.73	+09 48 07.8		095
/1988h	1988 08 07.84375	19 15 03.01	+09 47 57.9		095
/1988h	1988 08 07.87083	19 15 01.30	+09 47 32.8		046
/1988h	1988 08 07.88194	19 15 00.63	+09 47 22.7		046
/1988h	1988 08 08.82292	19 13 58.29	+09 32 40.7		095
/1988h	1988 08 08.83333	19 13 57.59	+09 32 29.7		095
/1988h	1988 08 11.84375	19 10 41.89	+08 44 32.8		046
/1988h	1988 08 11.85417	19 10 41.50	+08 44 22.3		046
/1988h	1988 08 11.88194	19 10 39.66	+08 43 54.8		095
/1988h	1988 08 11.89236	19 10 39.01	+08 43 44.6		095
/1988h	1988 08 13.77049	19 08 40.32	+08 13 06.2		095
/1988h	1988 08 13.78299	19 08 39.58	+08 12 52.5		095
/1988h	1988 08 13.84097	19 08 35.86	+08 11 57.8		046
/1988h	1988 08 13.85139	19 08 35.15	+08 11 47.7		046
/1988h	1988 08 14.87520	19 07 31.64	+07 54 52.4		046
/1988h	1988 08 14.88527	19 07 30.98	+07 54 42.2		046
/1988h	1988 08 15.77778	19 06 36.36	+07 39 52.1		095
/1988h	1988 08 15.78819	19 06 35.70	+07 39 41.9		095

/1988h	1988 08 15.84167	19 06 32.37	+07 38 46.0	046
/1988h	1988 08 15.85347	19 06 31.59	+07 38 35.7	046
/1988h	1988 08 16.80903	19 05 33.91	+07 22 36.6	095
/1988h	1988 08 16.82118	19 05 33.19	+07 22 24.0	095
/1988h	1988 08 17.79340	19 04 35.20	+07 06 02.9	095
/1988h	1988 08 17.80556	19 04 34.52	+07 05 49.2	095
/1988h	1988 08 17.90014	19 04 28.77	+07 04 13.5	046
/1988h	1988 08 17.91009	19 04 28.20	+07 04 02.2	046
/1988h	1988 08 18.85905	19 03 32.61	+06 47 58.8	046
/1988h	1988 08 18.86617	19 03 32.22	+06 47 51.6	046
/1988h	1988 09 01.79654	18 51 38.95	+02 45 27.2	046
/1988h	1988 09 01.80233	18 51 38.90	+02 45 21.2	046
/1988h	1988 09 07.80682	18 47 38.47	+00 59 51.8	046
/1988h	1988 09 07.81399	18 47 38.15	+00 59 44.3	046
/1988h	1988 09 08.79861	18 47 02.93	+00 42 32.3	046
/1988h	1988 09 08.80579	18 47 02.73	+00 42 26.1	046
/1988h	1988 09 09.11461	18 46 51.79	+00 37 04.2	801
/1988h	1988 09 09.80955	18 46 28.09	+00 24 55.3	046
/1988h	1988 09 09.81534	18 46 27.86	+00 24 48.0	046
/1988h	1988 09 10.81424	18 45 54.68	+00 07 25.8	046
/1988h	1988 09 10.81962	18 45 54.50	+00 07 20.2	046
/1988h	1988 09 11.12834	18 45 44.25	+00 02 03.7	1 801
/1988h	1988 09 11.83237	18 45 22.10	-00 10 11.6	503
/1988h	1988 09 12.90043	18 44 49.22	-00 28 43.2	503
/1988h	1988 09 18.84898	18 42 12.62	-02 10 15.3	503

Comet Machholz (1988j)

/1988j	1988 08 17.05429	05 54 41.91	-00 17 17.2	095
/1988j	1988 08 25.81196	07 15 59.70	-01 10 19	7.5T 372

Note 1: dark plate; ink dot measured.

* * * * *

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.

024 Heidelberg

R. M. West, European Southern Observatory, Karl Schwarzschild Strasse 2,
 D-8046 Garching bei Munchen, Federal Republic of Germany

Observer F. Kaiser

Measurer R. M. West

Remeasurement on S-30000 measuring engine

719	1911 09	16.86858	23 59	00.77	+12 52	56.3		024
719	1911 09	16.88520	23 59	03.67	+12 52	01.7		024
719	1911 10	17.94125	01 05	51.16	-05 33	54.9		024
719	1911 10	17.99807	01 05	55.01	-05 34	55.5		024

033 Tautenburg

S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg,
 Democratic Republic of Germany

Observers F. Borngen, K.-H. Mau, C. Hogner

Measurer F. Borngen

1.3-m Schmidt telescope

SAOC

1961 CX	1988 08	13.00764	23 53	24.93	-02 33	04.6		033
1961 CX	1988 08	14.01007	23 53	03.11	-02 37	03.8	18.2	033
1961 CX	1988 08	14.04479	23 53	02.28	-02 37	12.3		033
1961 CX	1988 09	07.95556	23 36	37.12	-05 01	07.3	17.7	033
1961 CX	1988 09	08.00417	23 36	34.49	-05 01	28.2		033
1961 CX	1988 09	08.92778	23 35	46.23	-05 07	48.9		033
1986 EN4	1988 08	13.00764	23 53	39.85	-02 53	38.4		033
1986 EN4	1988 08	14.01007	23 53	16.67	-02 56	21.4	18.4	033
1986 EN4	1988 08	14.04479	23 53	15.77	-02 56	27.3		033
1986 EN4	1988 09	07.95556	23 38	44.32	-04 30	28.1	17.8	033
1986 EN4	1988 09	08.00417	23 38	42.27	-04 30	40.7		033
1986 EN4	1988 09	08.92778	23 38	02.43	-04 34	45.4		033
1988 PZ1	1988 08	13.00764	23 47	42.54	-01 51	28.7		E 033
1988 PZ1	1988 08	14.01007	23 47	22.65	-01 53	36.2	17.8	033
1988 PZ1	1988 08	14.04479	23 47	21.89	-01 53	41.0		033
1988 PE2 *	1988 08	12.98681	22 28	41.98	+10 03	02.4	19.1	033
1988 PE2	1988 08	13.95660	22 28	03.27	+09 57	05.5		033
1988 PE2	1988 08	13.98854	22 28	01.98	+09 56	53.9		033
1988 PF2 *	1988 08	12.98681	22 30	50.48	+12 29	02.4	18.6	033
1988 PF2	1988 08	13.95660	22 30	02.20	+12 32	09.1		033
1988 PF2	1988 08	13.98854	22 30	00.47	+12 32	15.1		033
1988 PF2	1988 08	14.94271	22 29	12.09	+12 34	58.9		033
1988 PF2	1988 08	14.99410	22 29	09.31	+12 35	07.1		033
1988 PG2 *	1988 08	13.00764	23 47	25.59	-04 00	18.9		V 033
1988 PG2	1988 08	14.01007	23 47	19.52	-04 04	14.7	18.6	E 033

1988	PG2	1988	08	14.04479	23	47	19.32	-04	04	23.2		033
1988	PH2	* 1988	08	13.00764	23	48	18.28	-01	03	20.7		U 033
1988	PH2	1988	08	14.01007	23	47	37.82	-01	06	47.4	19.1	E 033
1988	PH2	1988	08	14.04479	23	47	37.35	-01	06	46.4		033
1988	PJ2	* 1988	08	13.00764	23	49	28.11	-04	05	41.4		033
1988	PJ2	1988	08	14.01007	23	49	29.49	-04	10	37.3	17.4	033
1988	PJ2	1988	08	14.04479	23	49	29.39	-04	10	47.9		033
1988	PK2	* 1988	08	13.00764	23	49	30.85	-01	57	44.0		033
1988	PK2	1988	08	14.01007	23	49	05.74	-02	00	38.8	18.1	033
1988	PK2	1988	08	14.04479	23	49	04.81	-02	00	45.0		033
1988	PK2	1988	09	07.95556	23	34	01.11	-03	41	30.2	18.0	033
1988	PK2	1988	09	08.00417	23	33	58.92	-03	41	45.0		033
1988	PK2	1988	09	08.92778	23	33	18.38	-03	46	08.6		033
1988	PL2	* 1988	08	13.00764	23	49	38.41	-01	39	58.3		033
1988	PL2	1988	08	14.01007	23	49	22.80	-01	33	42.5	17.6	033
1988	PL2	1988	08	14.04479	23	49	22.14	-01	33	29.9		033
1988	PM2	* 1988	08	13.00764	23	52	13.65	-04	00	05.9		V 033
1988	PM2	1988	08	14.01007	23	51	55.09	-04	04	51.3	18.8	033
1988	PM2	1988	08	14.04479	23	51	54.27	-04	05	02.2		033
1988	PN2	* 1988	08	13.00764	23	54	11.90	-02	10	38.3		V 033
1988	PN2	1988	08	14.01007	23	53	47.39	-02	14	15.4	19.7	033
1988	PN2	1988	08	14.04479	23	53	46.47	-02	14	21.9		033
1988	PO2	* 1988	08	13.00764	23	56	15.95	-02	19	27.6		033
1988	PO2	1988	08	14.01007	23	56	09.78	-02	24	59.3	18.1	033
1988	PO2	1988	08	14.04479	23	56	09.50	-02	25	10.3		033
1988	PP2	* 1988	08	13.00764	23	56	49.62	-01	29	01.1		E 033
1988	PP2	1988	08	14.01007	23	56	38.31	-01	28	46.3	18.3	033
1988	PP2	1988	08	14.04479	23	56	37.80	-01	28	45.8		033
1988	PQ2	* 1988	08	13.00764	23	58	26.53	-03	39	46.0		033
1988	PQ2	1988	08	14.01007	23	58	25.81	-03	41	46.1	18.4	033
1988	PQ2	1988	08	14.04479	23	58	25.66	-03	41	50.2		033
1988	RJ	1988	09	07.95556	23	32	52.89	-04	59	18.5	16.5	033
1988	RJ	1988	09	08.00417	23	32	51.39	-05	00	19.9		033
1988	RJ	1988	09	08.92778	23	32	25.55	-05	19	25.1		033
1988	RS1	* 1988	09	07.95556	23	30	25.20	-05	50	33.9	19.2	033
1988	RS1	1988	09	08.00417	23	30	23.01	-05	50	50.4		033
1988	RS1	1988	09	08.92778	23	29	43.09	-05	55	35.3		E 033
1988	RT1	* 1988	09	07.95556	23	31	58.13	-03	56	32.9	19.5	033
1988	RT1	1988	09	08.00417	23	31	56.00	-03	57	03.3		033
1988	RT1	1988	09	08.92778	23	31	16.00	-04	06	19.4		033
1988	RU1	* 1988	09	07.95556	23	33	04.04	-05	12	56.2	19.3	033
1988	RU1	1988	09	08.00417	23	33	01.72	-05	13	10.4		033
1988	RU1	1988	09	08.92778	23	32	19.22	-05	17	19.7		033
1988	RV1	* 1988	09	07.95556	23	36	28.65	-05	40	22.0	19.4	033
1988	RV1	1988	09	08.00417	23	36	25.80	-05	40	34.8		033
1988	RV1	1988	09	08.92778	23	35	32.07	-05	44	30.8		033
1988	RW1	* 1988	09	07.95556	23	37	21.93	-03	30	55.3	18.7	033
1988	RW1	1988	09	08.00417	23	37	19.15	-03	31	12.6		033
1988	RW1	1988	09	08.92778	23	36	28.24	-03	36	46.7		033
1988	RX1	* 1988	09	07.95556	23	40	01.96	-03	54	13.8	18.9	033
1988	RX1	1988	09	08.00417	23	39	59.01	-03	54	22.2		033
1988	RX1	1988	09	08.92778	23	39	05.41	-03	56	23.5		V 033
1988	RY1	1988	08	14.01007	23	50	16.28	-03	20	46.8	19.6	033
1988	RY1	1988	08	14.04479	23	50	16.13	-03	20	55.9		033
1988	RY1	* 1988	09	07.95556	23	40	19.19	-06	13	11.4	19.6	033
1988	RY1	1988	09	08.00417	23	40	16.99	-06	13	35.7		033
1988	RY1	1988	09	08.92778	23	39	38.23	-06	21	24.2		033
1988	SF	1988	09	07.95556	23	40	00.67	-05	31	14.7	16.5	033

1988 SF	1988 09 08.00417	23 39 57.98	-05 31 22.1		033
1988 SF	1988 09 08.92778	23 39 07.87	-05 33 36.3		033
1988 SG	1988 09 07.95556	23 42 38.08	-04 30 14.2	17.3	033
1988 SG	1988 09 08.00417	23 42 35.38	-04 30 29.2		033
1988 SG	1988 09 08.92778	23 41 45.20	-04 35 08.2		033
1091	1988 08 13.00764	23 48 30.98	-02 55 33.6		033
1091	1988 08 14.01007	23 48 08.03	-02 58 22.7	17.1	033
1091	1988 08 14.04479	23 48 07.20	-02 58 28.6		033
1091	1988 09 07.95556	23 34 24.11	-04 32 33.9	16.6	033
1091	1988 09 08.00417	23 34 22.15	-04 32 46.9		033
1091	1988 09 08.92778	23 33 45.14	-04 36 49.0		033
1512	1988 09 07.95556	23 30 31.88	-06 34 34.7	16.3	E 033
1512	1988 09 08.00417	23 30 29.99	-06 34 43.5		E 033
1512	1988 09 08.92778	23 29 53.89	-06 37 28.5		N 033
2238	1988 08 13.00764	23 52 24.02	-02 30 24.1		033
2238	1988 08 14.01007	23 52 04.65	-02 32 33.0	17.2	033
2238	1988 08 14.04479	23 52 03.90	-02 32 37.4		033
2238	1988 09 07.95556	23 37 50.29	-04 00 54.9	16.7	033
2238	1988 09 08.00417	23 37 48.12	-04 01 07.6		033
2238	1988 09 08.92778	23 37 06.89	-04 05 13.1		033
2241	1988 08 12.98681	22 35 31.90	+11 44 14.6	16.2	033
2241	1988 08 13.95660	22 35 05.93	+11 43 36.8		033
2241	1988 08 13.98854	22 35 05.06	+11 43 35.4		033
2241	1988 08 14.94271	22 34 39.26	+11 42 52.9		033
2241	1988 08 14.99410	22 34 37.84	+11 42 50.3		033
2599	1988 09 07.95556	23 30 49.35	-06 01 49.3	15.4	033
2599	1988 09 08.00417	23 30 45.85	-06 01 39.6		033
2599	1988 09 08.92778	23 29 40.86	-05 58 29.1		E 033
3072	1988 08 13.00764	23 50 08.06	-02 21 27.6		033
3072	1988 08 14.01007	23 49 52.39	-02 28 15.5	17.1	033
3072	1988 08 14.04479	23 49 51.71	-02 28 29.8		033
3072	1988 09 07.95556	23 34 41.32	-06 13 24.2	16.7	033
3072	1988 09 08.00417	23 34 38.75	-06 13 54.1		033
3072	1988 09 08.92778	23 33 52.53	-06 23 08.9		033
3241	1988 08 13.00764	23 55 31.11	-02 04 55.4		033
3241	1988 08 14.01007	23 55 11.21	-02 07 51.5	17.7	033
3241	1988 08 14.04479	23 55 10.45	-02 07 57.9		033
3241	1988 09 07.95556	23 41 19.62	-03 54 48.7	17.0	033
3241	1988 09 08.00417	23 41 17.47	-03 55 04.0		033
3241	1988 09 08.92778	23 40 37.31	-03 59 53.9		033
3292	1988 08 13.00764	23 47 01.74	-03 21 49.7		E 033
3292	1988 08 14.01007	23 46 39.71	-03 24 21.4	18.2	033
3292	1988 08 14.04479	23 46 38.90	-03 24 25.9		033
3292	1988 09 07.95556	23 32 05.81	-04 57 04.6	17.8	033
3292	1988 09 08.00417	23 32 03.59	-04 57 18.1		033
3292	1988 09 08.92778	23 31 22.63	-05 01 25.9		033
3676	1988 08 13.00764	23 48 49.39	-03 00 28.2		033
3676	1988 08 14.01007	23 48 18.40	-03 02 38.9	17.7	033
3676	1988 08 14.04479	23 48 17.20	-03 02 43.9		033

035 Copenhagen

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DK-8000 Aarhus C, Denmark

Observer C. H. Pechule

Re-reduction by L. K. Kristensen

0.36-m refractor

719	1911 10 05.05606	00 45 55.76	-00 05 24.8		035
719	1911 10 05.09498	00 45 59.90	-00 06 46.6		035

046 Klet

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Observers A. Mrkos, Z. Vavrova

0.6-m Maksutov reflector

A904 PC	1988 08 07.98750	21 33 46.07	-02 45 05.5	046
A904 PC	1988 08 08.00208	21 33 45.35	-02 45 05.8	046
A904 PC	1988 08 13.96389	21 28 22.41	-02 45 02.8	046
A904 PC	1988 08 13.97847	21 28 21.47	-02 45 03.2	046
A904 PC	1988 08 15.93403	21 26 34.80	-02 45 59.0	046
A904 PC	1988 08 15.94861	21 26 34.07	-02 45 59.5	046
1977 SS2	1988 09 08.96157	22 55 31.27	-07 02 31.1	046
1977 SS2	1988 09 08.97569	22 55 30.76	-07 02 40.3	046
1977 SS2	1988 09 09.93924	22 54 54.61	-07 13 07.2	046
1977 SS2	1988 09 09.95336	22 54 54.04	-07 13 16.5	046
1977 SS2	1988 09 10.94728	22 54 16.83	-07 24 01.3	046
1977 SS2	1988 09 10.96134	22 54 16.28	-07 24 11.4	046
1978 TU5	1988 08 07.94722	21 22 35.89	-14 16 16.4	046
1978 TU5	1988 08 07.96181	21 22 34.98	-14 16 16.6	046
1981 DP2	1988 08 07.94722	21 15 24.28	-13 15 21.8	046
1981 DP2	1988 08 07.96181	21 15 23.36	-13 15 21.7	046
1981 JA2	1988 09 08.89028	22 30 44.55	-05 12 21.1	046
1981 JA2	1988 09 08.90451	22 30 43.79	-05 12 25.0	046
1981 JA2	1988 09 09.86782	22 29 52.76	-05 17 58.8	046
1981 JA2	1988 09 09.88194	22 29 52.06	-05 18 04.5	046
1981 JA2	1988 09 10.87083	22 29 00.61	-05 23 46.5	046
1981 JA2	1988 09 10.88495	22 29 00.04	-05 23 49.7	046
1982 UG7	1988 09 08.89028	22 29 13.36	-05 06 41.6	046
1982 UG7	1988 09 08.90451	22 29 12.80	-05 06 46.6	046
1982 UG7	1988 09 09.86782	22 28 32.18	-05 13 27.4	046
1982 UG7	1988 09 09.88194	22 28 31.58	-05 13 34.0	046
1982 UG7	1988 09 10.87083	22 27 50.87	-05 20 23.6	046
1982 UG7	1988 09 10.88495	22 27 50.22	-05 20 29.7	046
1984 QO	1988 09 08.92442	22 13 30.83	-14 02 30.8	046
1984 QO	1988 09 08.93854	22 13 29.85	-14 02 30.0	046
1984 QO	1988 09 09.90399	22 12 26.70	-14 01 41.3	046
1984 QO	1988 09 09.91806	22 12 25.88	-14 01 40.0	046
1984 QO	1988 09 10.90608	22 11 21.80	-14 00 43.2	046
1984 QO	1988 09 10.92031	22 11 20.87	-14 00 42.6	046
1985 DO2	1988 09 08.99248	00 20 20.41	-08 23 17.1	046
1985 DO2	1988 09 08.99687	00 20 20.65	-08 23 39.1	046
1985 DO2	1988 09 10.00191	00 21 25.63	-09 45 54.9	046
1985 DO2	1988 09 10.00492	00 21 25.78	-09 46 09.6	046
1985 DO2	1988 09 11.01227	00 22 27.91	-11 07 00.9	046
1985 DO2	1988 09 11.01528	00 22 28.08	-11 07 15.9	046
1986 CH	1988 08 07.98750	21 36 52.46	-03 04 55.0	046
1986 CH	1988 08 08.00208	21 36 51.72	-03 04 56.5	046
1986 CH	1988 08 13.96389	21 32 07.17	-03 17 56.0	046
1986 CH	1988 08 13.97847	21 32 06.14	-03 17 55.0	046
1986 CH	1988 08 15.93403	21 30 32.51	-03 22 50.6	046
1986 CH	1988 08 15.94861	21 30 31.79	-03 22 54.9	046
1988 PK	1988 08 18.00587	22 09 23.02	-08 46 48.7	046
1988 PK	1988 08 18.01721	22 09 22.44	-08 46 52.8	046
1988 PK	1988 08 18.93312	22 08 46.56	-08 53 57.4	046
1988 PK	1988 08 18.94447	22 08 45.99	-08 54 06.2	046
1988 PK	1988 08 24.05081	22 05 18.99	-09 34 31.6	046
1988 PK	1988 08 24.06215	22 05 18.68	-09 34 36.0	046
1988 PQ1	1988 09 09.86782	22 24 52.23	-05 06 52.9	046
1988 PQ1	1988 09 09.88194	22 24 51.37	-05 06 55.2	046

16.8

1988	PQ1	1988	09	10.87083	22	23	54.20	-05	10	11.6		046	
1988	PQ1	1988	09	10.88495	22	23	53.09	-05	10	16.7		046	
1988	PU1	1988	09	08.89028	22	30	56.30	-03	49	00.1	16.3	046	
1988	PU1	1988	09	08.90451	22	30	55.82	-03	49	07.4		046	
1988	PU1	1988	09	10.87083	22	29	48.11	-04	08	05.1		046	
1988	PU1	1988	09	10.88495	22	29	47.56	-04	08	12.6		046	
1988	PC2	*	1988	08	07.98750	21	31	27.28	-00	58	03.9	16.4	046
1988	PC2		1988	08	08.00208	21	31	26.71	-00	58	13.0		046
1988	PC2		1988	08	13.96389	21	27	22.37	-01	56	14.7		046
1988	PC2		1988	08	13.97847	21	27	21.85	-01	56	22.6		046
1988	PC2		1988	08	15.93403	21	26	01.33	-02	16	53.2		046
1988	PC2		1988	08	15.94861	21	26	00.73	-02	17	01.9		046
1988	PD2	*	1988	08	13.96389	21	30	50.28	-03	24	45.7	16.8	046
1988	PD2		1988	08	13.97847	21	30	49.57	-03	24	40.9		046
1988	PD2		1988	08	15.93403	21	30	48.68	-03	36	26.0		046
1988	PD2		1988	08	15.94861	21	30	47.95	-03	36	24.3		046
1988	QA		1988	08	17.93492	21	44	24.06	-12	46	28.9	16.6	046
1988	QA		1988	08	17.94910	21	44	23.33	-12	46	32.7		046
1988	QA		1988	08	18.89742	21	43	37.90	-12	52	05.4	16.6	046
1988	QA		1988	08	18.91148	21	43	37.18	-12	52	06.1		046
1988	QA		1988	08	23.98773	21	39	34.82	-13	21	21.7		046
1988	QA		1988	08	24.00069	21	39	34.17	-13	21	26.1		046
1988	QB		1988	08	18.89742	21	44	43.77	-11	13	45.1		046
1988	QB		1988	08	18.91148	21	44	43.17	-11	13	53.9		046
1988	QV	*	1988	08	17.93492	21	49	51.06	-10	29	46.5	16.7	046
1988	QV		1988	08	17.94910	21	49	50.50	-10	29	52.9		046
1988	QV		1988	08	18.89742	21	49	05.73	-10	38	27.7		046
1988	QV		1988	08	18.91148	21	49	05.22	-10	38	35.3		046
1988	QV		1988	08	23.98773	21	45	06.98	-11	24	34.7		046
1988	QV		1988	08	24.00069	21	45	06.39	-11	24	41.6		046
1988	QW	*	1988	08	17.93492	21	52	13.44	-10	47	47.9	16.8	046
1988	QW		1988	08	17.94910	21	52	12.60	-10	47	48.0		046
1988	QW		1988	08	18.89742	21	51	15.14	-10	50	40.9		046
1988	QW		1988	08	18.91148	21	51	14.28	-10	50	44.0		046
1988	QW		1988	08	23.98773	21	46	03.45	-11	06	16.9		046
1988	QW		1988	08	24.00069	21	46	02.58	-11	06	18.7		046
1988	QX	*	1988	08	17.97172	22	16	08.26	-12	05	40.6	16.9	046
1988	QX		1988	08	17.98579	22	16	07.18	-12	05	40.7		046
1988	QX		1988	08	18.96154	22	15	02.90	-12	05	52.3		046
1988	QX		1988	08	18.97294	22	15	02.05	-12	05	53.5		046
1988	QX		1988	08	24.01944	22	09	21.88	-12	06	43.0		046
1988	QX		1988	08	24.03218	22	09	21.01	-12	06	44.6		046
1988	RL1		1988	09	08.89028	22	25	33.13	-05	05	12.0	16.7	046
1988	RL1		1988	09	08.90451	22	25	32.55	-05	05	21.0		046
1988	RZ1	*	1988	09	08.92442	22	23	31.63	-14	40	36.7	16.6	046
1988	RZ1		1988	09	08.93854	22	23	31.16	-14	40	38.7		046
1988	RZ1		1988	09	09.90399	22	22	43.25	-14	46	07.2		046
1988	RZ1		1988	09	09.91806	22	22	42.58	-14	46	11.4		046
1988	RZ1		1988	09	10.90608	22	21	54.30	-14	51	40.1		046
1988	RZ1		1988	09	10.92031	22	21	53.53	-14	51	45.0		046
1988	RA2	*	1988	09	08.96157	22	46	40.28	-06	58	15.6	16.2	046
1988	RA2		1988	09	08.97569	22	46	39.76	-06	58	19.3		046
1988	RA2		1988	09	09.93924	22	45	55.87	-07	04	54.9		046
1988	RA2		1988	09	09.95336	22	45	55.08	-07	05	01.2		046
1988	RA2		1988	09	10.94728	22	45	10.56	-07	12	06.1		046
1988	RB2	*	1988	09	08.96157	22	49	51.67	-08	40	05.7	16.7	046
1988	RB2		1988	09	08.97569	22	49	51.08	-08	40	11.8		046
1988	RB2		1988	09	09.93924	22	49	08.76	-08	47	06.5		046
1988	RB2		1988	09	09.95336	22	49	08.14	-08	47	11.8		046

1988	RB2	1988	09	10.94728	22	48	25.07	-08	54	11.6		046
1988	RB2	1988	09	10.96134	22	48	24.29	-08	54	19.4		046
1988	RC2	* 1988	09	08.96157	22	50	07.09	-08	15	41.9	16.6	046
1988	RC2	1988	09	08.97569	22	50	06.48	-08	15	48.2		046
1988	RC2	1988	09	09.93924	22	49	23.82	-08	20	41.5		046
1988	RC2	1988	09	09.95336	22	49	22.94	-08	20	48.3		046
1988	RC2	1988	09	10.94728	22	48	39.32	-08	25	56.2		046
1988	RC2	1988	09	10.96134	22	48	38.67	-08	25	59.2		046
1988	RD2	* 1988	09	08.96157	22	54	16.36	-08	29	52.0	16.9	046
1988	RD2	1988	09	08.97569	22	54	15.71	-08	29	56.4		046
1988	RD2	1988	09	10.94728	22	52	30.24	-08	38	48.7		046
1988	RD2	1988	09	10.96134	22	52	29.51	-08	38	51.8		046
1988	RE2	* 1988	09	08.96157	22	54	38.44	-09	24	12.0	16.8	046
1988	RE2	1988	09	08.97569	22	54	37.65	-09	24	17.5		046
1988	RE2	1988	09	09.93924	22	53	54.30	-09	29	10.1		046
1988	RE2	1988	09	09.95336	22	53	53.50	-09	29	15.9		046
1988	RE2	1988	09	10.94728	22	53	08.77	-09	34	17.3		046
1988	RE2	1988	09	10.96134	22	53	08.19	-09	34	20.9		046
1988	RF2	* 1988	09	09.01007	23	58	13.26	+06	45	45.2	16.6	046
1988	RF2	1988	09	09.02431	23	58	12.33	+06	45	47.0		046
1988	RF2	1988	09	09.97326	23	57	12.63	+06	48	42.8		046
1988	RF2	1988	09	09.98750	23	57	11.78	+06	48	44.7		046
1988	RF2	1988	09	10.98356	23	56	08.18	+06	51	41.1		046
1988	RF2	1988	09	10.99769	23	56	07.52	+06	51	43.3		046
1988	RG2	* 1988	09	09.01007	00	02	01.63	+04	41	41.4	16.5	046
1988	RG2	1988	09	09.97326	00	01	17.21	+04	39	00.3		046
1988	RG2	1988	09	09.98750	00	01	16.37	+04	38	57.5		046
1988	RG2	1988	09	10.98356	00	00	29.63	+04	36	05.4		046
1988	RG2	1988	09	10.99769	00	00	28.97	+04	36	02.0		046
1988	RH2	* 1988	09	09.01007	00	06	21.34	+07	22	37.9	16.6	046
1988	RH2	1988	09	09.02431	00	06	20.55	+07	22	35.4		046
1988	RH2	1988	09	09.97326	00	05	23.56	+07	20	32.2		046
1988	RH2	1988	09	09.98750	00	05	22.70	+07	20	29.9		046
1988	RH2	1988	09	10.99769	00	04	21.49	+07	18	07.3		046
1988	RJ2	* 1988	09	09.97326	00	03	25.97	+03	59	10.6	17.0	046
1988	RJ2	1988	09	09.98750	00	03	25.45	+03	59	04.5		046
1988	RJ2	1988	09	10.98356	00	02	46.47	+03	51	45.8		046
1988	RJ2	1988	09	10.99769	00	02	45.92	+03	51	38.3		046
1988	RR2	* 1988	09	09.93924	22	58	16.66	-07	59	26.9	16.5	046
1988	RR2	1988	09	09.95336	22	58	15.81	-07	59	33.0		046
1988	RR2	1988	09	10.94728	22	57	25.39	-08	06	28.1	16.4	046
1988	RR2	1988	09	10.96134	22	57	24.56	-08	06	33.0		046
37		1988	09	08.96157	22	59	09.08	-08	40	49.5		046
37		1988	09	08.97569	22	59	08.28	-08	40	53.1		046
37		1988	09	09.93924	22	58	15.97	-08	44	57.7		046
37		1988	09	09.95336	22	58	15.16	-08	45	01.3		046
37		1988	09	10.94728	22	57	21.21	-08	49	10.8		046
37		1988	09	10.96134	22	57	20.37	-08	49	15.1		046
150		1988	09	08.89028	22	34	10.84	-06	18	24.9		046
150		1988	09	08.90451	22	34	10.23	-06	18	29.5		046
150		1988	09	09.86782	22	33	28.24	-06	23	30.5		046
150		1988	09	09.88194	22	33	27.60	-06	23	34.9		046
150		1988	09	10.87083	22	32	44.97	-06	28	42.8		046
150		1988	09	10.88495	22	32	44.34	-06	28	47.8		046
180		1988	09	08.96157	22	42	47.32	-07	28	35.2		046
180		1988	09	08.97569	22	42	46.66	-07	28	39.8		046
180		1988	09	09.93924	22	41	59.28	-07	33	13.2		046
180		1988	09	09.95336	22	41	58.56	-07	33	17.8		046
180		1988	09	10.94728	22	41	10.16	-07	37	58.5		046

180	1988 09 10.96134	22 41 09.43	-07 38 03.1	046
227	1988 08 17.97172	22 12 47.02	-10 38 56.3	046
227	1988 08 17.98579	22 12 46.34	-10 38 58.4	046
227	1988 08 18.96154	22 11 57.10	-10 40 56.9	046
227	1988 08 18.97294	22 11 56.46	-10 40 58.5	046
227	1988 08 24.01944	22 07 40.52	-10 51 17.5	046
227	1988 08 24.03218	22 07 39.85	-10 51 18.7	046
246	1988 08 24.05081	21 58 05.21	-06 28 35.5	046
246	1988 08 24.06215	21 58 04.73	-06 28 42.9	046
253	1988 08 06.91042	21 59 29.31	-03 32 39.0	046
253	1988 08 06.92500	21 59 28.85	-03 32 43.7	046
295	1988 08 07.94722	21 15 56.46	-13 01 30.3	046
295	1988 08 07.96181	21 15 55.75	-13 01 33.5	046
295	1988 08 15.89757	21 09 00.10	-13 27 35.0	046
295	1988 08 15.91181	21 08 59.34	-13 27 39.2	046
310	1988 07 24.00694	20 41 40.79	-13 20 34.9	046
310	1988 07 24.01979	20 41 39.90	-13 20 37.4	046
358	1988 08 17.93492	21 53 54.40	-10 14 39.8	046
358	1988 08 17.94910	21 53 53.70	-10 14 42.0	046
358	1988 08 18.89742	21 53 08.38	-10 19 43.6	046
358	1988 08 18.91148	21 53 07.73	-10 19 48.6	046
358	1988 08 23.98773	21 49 04.41	-10 46 47.5	046
358	1988 08 24.00069	21 49 03.83	-10 46 51.6	046
398	1988 07 24.00694	20 32 02.35	-12 31 09.9	046
398	1988 07 24.01979	20 32 01.43	-12 31 10.6	046
542	1988 08 17.93492	21 47 27.96	-10 31 24.5	046
542	1988 08 17.94910	21 47 27.29	-10 31 31.4	046
542	1988 08 18.89742	21 46 46.06	-10 40 11.6	046
542	1988 08 18.91148	21 46 45.51	-10 40 19.1	046
542	1988 08 23.98773	21 43 05.47	-11 26 49.6	046
542	1988 08 24.00069	21 43 04.87	-11 26 57.2	046
667	1988 08 07.90972	21 08 03.03	-05 49 09.6	046
667	1988 08 07.92431	21 08 02.31	-05 49 17.0	046
667	1988 08 13.87292	21 03 52.54	-06 36 08.0	046
667	1988 08 13.88854	21 03 51.83	-06 36 15.2	046
673	1988 08 18.00587	22 15 27.43	-06 11 26.9	046
673	1988 08 18.01721	22 15 26.90	-06 11 30.5	046
673	1988 08 18.93312	22 14 43.84	-06 15 35.9	046
673	1988 08 18.94447	22 14 43.28	-06 15 39.5	046
673	1988 08 24.05081	22 10 38.92	-06 39 22.0	046
673	1988 08 24.06215	22 10 38.40	-06 39 24.6	046
673	1988 09 08.84167	21 58 30.77	-07 55 49.4	046
673	1988 09 08.85579	21 58 30.16	-07 55 53.3	046
673	1988 09 09.83229	21 57 49.49	-08 00 28.0	046
673	1988 09 09.84641	21 57 48.90	-08 00 25.8	046
673	1988 09 10.83750	21 57 08.54	-08 05 08.5	046
673	1988 09 10.85174	21 57 07.95	-08 05 12.4	046
755	1988 07 23.02257	20 16 51.63	-15 38 04.1	046
755	1988 07 23.03542	20 16 51.00	-15 38 06.5	046
903	1988 09 08.96157	22 41 54.39	-08 44 34.8	046
903	1988 09 08.97569	22 41 53.88	-08 44 41.1	046
903	1988 09 09.93924	22 41 16.18	-08 51 35.2	046
903	1988 09 09.95336	22 41 15.72	-08 51 42.1	046
903	1988 09 10.94728	22 40 37.25	-08 58 45.0	046
903	1988 09 10.96134	22 40 36.77	-08 58 51.0	046
1233	1988 09 09.01007	23 51 24.48	+08 01 11.2	046
1233	1988 09 09.02431	23 51 23.78	+08 01 08.3	046
1347	1988 08 05.89859	21 03 15.25	+03 10 37.4	046
1347	1988 08 05.91178	21 03 14.67	+03 10 34.5	046

1467	1988	09	08.84167	21	58	37.39	-06	47	42.4	046
1467	1988	09	08.85579	21	58	36.74	-06	47	40.3	046
1467	1988	09	09.83229	21	57	46.68	-06	45	38.1	046
1467	1988	09	09.84641	21	57	45.94	-06	45	35.9	046
1467	1988	09	10.83750	21	56	56.07	-06	43	31.5	046
1467	1988	09	10.85174	21	56	55.28	-06	43	29.5	046
1524	1988	09	08.92442	22	09	30.22	-16	05	26.8	046
1524	1988	09	08.93854	22	09	29.53	-16	05	25.7	046
1524	1988	09	09.90399	22	08	41.83	-16	04	37.7	046
1524	1988	09	09.91806	22	08	41.09	-16	04	36.3	046
1524	1988	09	10.90608	22	07	53.11	-16	03	39.2	046
1524	1988	09	10.92031	22	07	52.37	-16	03	38.8	046
1617	1988	08	17.93492	21	45	42.06	-10	07	31.9	046
1617	1988	08	17.94910	21	45	41.55	-10	07	37.6	046
1617	1988	08	18.89742	21	45	02.32	-10	13	44.8	046
1617	1988	08	18.91148	21	45	01.69	-10	13	49.7	046
1617	1988	08	23.98773	21	41	33.34	-10	46	35.5	046
1617	1988	08	24.00069	21	41	32.83	-10	46	40.8	046
1733	1988	08	17.93492	21	51	35.25	-11	03	28.6	046
1733	1988	08	17.94910	21	51	34.50	-11	03	34.2	046
1733	1988	08	18.89742	21	50	39.22	-11	10	34.4	046
1733	1988	08	18.91148	21	50	38.40	-11	10	39.8	046
1733	1988	08	23.98773	21	45	42.03	-11	48	08.0	046
1733	1988	08	24.00069	21	45	41.12	-11	48	14.2	046
1867	1988	08	08.02847	22	01	21.65	+15	55	56.1	046
1867	1988	08	08.04306	22	01	21.25	+15	55	57.4	046
1930	1988	08	15.89757	21	10	10.68	-16	23	21.4	046
1930	1988	08	15.91181	21	10	09.82	-16	23	18.8	046
1938	1988	09	08.96157	22	48	50.50	-06	38	39.1	046
1938	1988	09	08.97569	22	48	49.60	-06	38	46.5	046
1938	1988	09	09.93924	22	47	56.24	-06	46	01.8	046
1938	1988	09	09.95336	22	47	55.34	-06	46	09.0	046
1938	1988	09	10.94728	22	47	00.76	-06	53	35.6	046
1938	1988	09	10.96134	22	46	59.93	-06	53	43.2	046
1984	1988	07	24.00694	20	43	31.86	-11	29	33.6	046
1984	1988	07	24.01979	20	43	31.21	-11	29	36.7	046
2016	1988	09	08.96157	22	55	29.82	-07	46	22.5	046
2016	1988	09	08.97569	22	55	29.16	-07	46	26.4	046
2016	1988	09	09.93924	22	54	46.18	-07	50	28.0	046
2016	1988	09	09.95336	22	54	45.46	-07	50	31.2	046
2016	1988	09	10.94728	22	54	01.18	-07	54	38.0	046
2016	1988	09	10.96134	22	54	00.54	-07	54	41.8	046
2264	1988	08	15.89757	21	05	28.12	-16	25	25.5	046
2264	1988	08	15.91181	21	05	27.41	-16	25	26.6	046
2399	1988	09	08.92442	22	09	27.57	-13	47	04.0	046
2399	1988	09	08.93854	22	09	27.09	-13	47	09.7	046
2399	1988	09	09.90399	22	08	50.65	-13	54	23.3	046
2399	1988	09	09.91806	22	08	50.20	-13	54	28.2	046
2399	1988	09	10.90608	22	08	14.19	-14	01	39.4	046
2399	1988	09	10.92031	22	08	13.61	-14	01	47.0	046
2545	1988	09	09.01007	23	58	21.16	+06	19	23.6	046
2545	1988	09	09.02431	23	58	20.26	+06	19	21.9	046
2545	1988	09	09.97326	23	57	26.54	+06	17	59.1	046
2545	1988	09	09.98750	23	57	25.70	+06	17	57.7	046
2545	1988	09	10.98356	23	56	28.17	+06	16	20.6	046
2545	1988	09	10.99769	23	56	27.33	+06	16	18.5	046
2649	1988	08	15.97153	21	12	49.30	+04	15	40.4	046
2649	1988	08	15.98611	21	12	48.65	+04	15	38.4	046
2713	1988	08	07.94722	21	30	51.33	-15	32	04.6	046

2713	1988	08	07.96181	21	30	50.62	-15	32	06.5		046
2832	1988	08	17.93492	21	44	44.58	-11	23	55.9		046
2832	1988	08	17.94910	21	44	43.86	-11	23	59.9		046
2832	1988	08	18.89742	21	43	53.26	-11	29	47.8	16.6	046
2832	1988	08	18.91148	21	43	52.71	-11	29	53.1		046
2832	1988	08	23.98773	21	39	25.13	-12	00	42.6		046
2832	1988	08	24.00069	21	39	24.46	-12	00	45.8		046
2834	1988	09	09.01007	00	03	26.04	+06	02	21.7	16.4	046
2834	1988	09	09.02431	00	03	25.43	+06	02	16.4		046
2834	1988	09	09.97326	00	02	42.31	+05	56	29.0		046
2834	1988	09	09.98750	00	02	41.77	+05	56	24.4		046
2834	1988	09	10.98356	00	01	56.01	+05	50	10.1		046
2834	1988	09	10.99769	00	01	55.29	+05	50	05.6		046
2919	1988	08	06.94583	21	56	09.23	-11	47	43.6		046
2919	1988	08	06.96042	21	56	08.57	-11	47	45.6		046
2928	1988	08	15.89757	21	09	35.04	-14	27	43.4		046
2928	1988	08	15.91181	21	09	34.51	-14	27	44.3		046
2973	1988	08	17.97172	22	16	08.68	-11	07	42.7		046
2973	1988	08	17.98579	22	16	07.94	-11	07	46.5		046
2973	1988	08	18.96154	22	15	14.37	-11	12	05.6		046
2973	1988	08	18.97294	22	15	13.75	-11	12	10.0		046
2973	1988	08	24.01944	22	10	30.35	-11	34	49.9		046
2973	1988	08	24.03218	22	10	30.06	-11	34	49.9		046
2981	1988	08	17.97172	22	08	32.46	-10	33	44.5		046
2981	1988	08	17.98579	22	08	31.82	-10	33	48.9		046
2981	1988	08	18.96154	22	07	47.49	-10	38	06.9		046
2981	1988	08	18.97294	22	07	47.02	-10	38	10.3		046
2981	1988	08	24.01944	22	03	56.76	-11	00	34.6		046
2981	1988	08	24.03218	22	03	56.36	-11	00	37.0		046
3023	1988	07	24.00694	20	37	40.22	-11	10	43.7		046
3023	1988	07	24.01979	20	37	39.24	-11	10	47.5		046
3408	1988	08	17.97172	22	12	12.09	-12	52	40.4		046
3408	1988	08	17.98579	22	12	11.39	-12	52	47.1		046
3408	1988	08	18.96154	22	11	30.18	-12	59	38.5		046
3408	1988	08	18.97294	22	11	29.65	-12	59	43.2		046
3408	1988	08	24.01944	22	07	51.39	-13	34	54.5		046
3408	1988	08	24.03218	22	07	50.68	-13	35	01.6		046
3868	1988	06	18.92639	18	13	14.93	-09	11	29.2	17.0	046
3868	1988	06	18.94097	18	13	14.16	-09	11	27.1		046
3892	1988	08	07.90972	21	05	16.15	-07	06	24.8		046
3892	1988	08	07.92431	21	05	15.29	-07	06	31.7		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

1971	US1	1988	09	16.88620	23	10	27.47	+17	07	25.7	15.5	054
1971	US1	1988	09	20.86766	23	08	18.88	+16	14	33.0		054
1971	US1	1988	09	20.88155	23	08	18.49	+16	14	21.1		054
1984	SC5	1988	09	07.96676	23	27	53.79	+09	24	45.5		054
1984	SC5	1988	09	08.92338	23	26	51.53	+09	25	49.0		054
1984	SC5	1988	09	09.90357	23	25	47.48	+09	26	43.2		054
1984	SC5	1988	09	09.92093	23	25	46.20	+09	26	41.8		054
1984	SC5	1988	09	16.90495	23	18	09.48	+09	28	05.8		054
1988	NF	1988	10	10.95571	00	01	28.88	+55	44	11.1		054
1988	NF	1988	10	10.97307	00	01	29.22	+55	43	48.5		054

1988 RB	1988 09 16.88620	22 58 35.80	+17 30 14.9		054
1988 RB	1988 09 20.86766	22 55 43.88	+16 57 21.7		054
1988 RB	1988 09 20.88155	22 55 43.28	+16 57 13.8		054
1988 RC	1988 09 16.88620	23 01 40.87	+17 24 21.0		054
1988 RM *	1988 09 07.96676	23 26 41.70	+10 06 12.0	16.5	054
1988 RM	1988 09 08.92338	23 26 01.63	+10 00 47.9		054
1988 RM	1988 09 09.90357	23 25 20.38	+09 55 07.2		054
1988 RM	1988 09 09.92093	23 25 19.52	+09 54 59.5		054
1988 RM	1988 09 16.90495	23 20 21.57	+09 10 41.8		054
1988 RN *	1988 09 07.96676	23 33 44.74	+09 48 17.9	16.5	054
1988 RN	1988 09 08.92338	23 32 48.58	+09 48 10.8		054
1988 RN	1988 09 09.90357	23 31 50.35	+09 47 52.0		054
1988 RN	1988 09 09.92093	23 31 49.25	+09 47 51.8		054
1988 RN	1988 09 16.90495	23 24 46.49	+09 41 41.4		054
1988 RN	1988 10 02.81132	23 09 25.65	+09 06 00.5		054
1988 RN	1988 10 10.89946	23 03 01.20	+08 41 50.2		054
1988 RN	1988 10 10.91682	23 03 00.37	+08 41 45.1		054
1988 RO *	1988 09 08.92338	23 25 35.95	+08 59 28.6	17.5	054
1988 RO	1988 09 09.90357	23 25 08.49	+08 55 10.5		054
1988 RO	1988 09 09.92093	23 25 07.88	+08 55 03.3		054
1988 RO	1988 09 16.90495	23 21 50.26	+08 22 24.5		054
1988 RA1 *	1988 09 08.92338	23 22 27.63	+09 21 55.2	17.5	054
1988 RA1	1988 09 09.90357	23 21 54.57	+09 20 36.7		054
1988 RA1	1988 09 09.92093	23 21 53.87	+09 20 33.5		054
1988 RA1	1988 09 16.90495	23 17 57.07	+09 09 09.4		054
1988 RA1	1988 09 20.90322	23 15 43.44	+09 01 19.3		054
1988 RA1	1988 10 02.81132	23 09 31.02	+08 34 12.0	17.5	054
1988 RA1	1988 10 10.89946	23 05 54.08	+08 14 11.0		054
1988 RA1	1988 10 10.91682	23 05 53.58	+08 14 05.3		054
1988 RB1 *	1988 09 08.92338	23 25 13.18	+08 37 13.3	18	054
1988 RB1	1988 09 09.90357	23 24 17.39	+08 32 50.7		054
1988 RB1	1988 09 09.92093	23 24 16.40	+08 32 45.8		054
1988 RB1	1988 09 16.90495	23 17 36.92	+07 56 09.6	17.5	054
1988 RC1 *	1988 09 08.92338	23 27 30.47	+10 24 39.6	17.5	054
1988 RC1	1988 09 16.90495	23 21 35.38	+10 00 18.1		054
1988 RD1 *	1988 09 09.90357	23 28 52.00	+06 04 00.9	17.0	054
1988 RD1	1988 09 09.92093	23 28 51.12	+06 03 56.7		054
1988 RD1	1988 09 16.90495	23 22 52.31	+05 50 29.8		054
1988 RE1	1988 09 08.92338	23 31 13.65	+07 41 59.5		054
1988 RE1 *	1988 09 09.90357	23 30 31.87	+07 31 39.9	17.5	054
1988 RE1	1988 09 09.92093	23 30 31.02	+07 31 27.6		054
1988 RE1	1988 09 16.90495	23 25 27.05	+06 13 02.6		054
1988 RK2 *	1988 09 08.94421	23 51 29.23	+11 08 43.3	17.5	054
1988 RK2	1988 09 08.96123	23 51 28.56	+11 08 36.7		054
1988 RK2	1988 09 09.94037	23 50 46.39	+11 02 22.5		054
1988 RL2 *	1988 09 08.94421	23 53 03.51	+10 46 50.0	17.5	054
1988 RL2	1988 09 08.96123	23 53 02.55	+10 46 48.9		054
1988 RL2	1988 09 09.94037	23 52 05.36	+10 46 52.0		054
1988 RM2 *	1988 09 08.94421	23 58 16.10	+11 12 44.1	17.0	054
1988 RM2	1988 09 08.96123	23 58 15.21	+11 12 41.3		054
1988 RM2	1988 09 09.94037	23 57 30.90	+11 11 24.3		054
1988 RN2 *	1988 09 08.94421	23 58 31.02	+09 49 54.3	17.5	054
1988 RN2	1988 09 08.96123	23 58 30.35	+09 49 50.0		054
1988 RN2	1988 09 09.94037	23 57 46.31	+09 46 19.4		054
1988 RO2 *	1988 09 08.94421	23 58 37.72	+10 26 20.1	17.5	054
1988 RO2	1988 09 08.96123	23 58 36.88	+10 26 18.3		054
1988 RO2	1988 09 09.94037	23 57 50.56	+10 25 46.2		054
1988 RP2 *	1988 09 08.94421	23 59 03.10	+12 36 14.0	17.5	054
1988 RP2	1988 09 08.96123	23 59 02.30	+12 36 09.9		054

1988 RP2	1988 09 09.94037	23 58 16.39	+12 33 14.7		054
1988 RQ2 *	1988 09 08.94421	00 00 22.76	+13 10 23.1	17.0	054
1988 RQ2	1988 09 08.96123	00 00 21.92	+13 10 20.1		054
1988 RQ2	1988 09 09.94037	23 59 33.68	+13 08 56.6		054
612	1988 04 13.89575	11 42 07.20	-07 46 24.8	17.0	054
884	1988 09 08.94421	23 57 18.29	+10 02 01.8		054
884	1988 09 08.96123	23 57 17.77	+10 01 58.3		054
884	1988 09 09.94037	23 56 49.06	+10 00 01.6		054
1873	1988 09 16.90495	23 30 59.44	+07 47 18.8	18	054
2223	1988 09 08.94421	23 55 30.85	+13 26 57.5		054
2223	1988 09 08.96123	23 55 30.37	+13 26 52.6		054
2223	1988 09 09.94037	23 55 04.25	+13 23 29.0		054
2686	1988 09 08.94421	00 02 32.86	+11 00 53.7		054
2686	1988 09 08.96123	00 02 32.16	+11 00 48.0		054
2686	1988 09 09.94037	00 01 53.20	+10 56 03.2		054
2948	1988 09 08.92338	23 18 01.12	+08 06 14.2	18	054
2948	1988 09 09.90357	23 17 18.40	+07 59 06.8		054
2948	1988 09 09.92093	23 17 17.63	+07 58 57.6		054
3060	1988 04 13.89575	11 34 10.27	-05 13 51.5	17.5	054
3428	1988 09 07.96676	23 29 58.97	+08 47 34.6		054
3428	1988 09 08.92338	23 29 14.04	+08 42 16.4		054
3428	1988 09 09.90357	23 28 27.83	+08 36 43.5		054
3428	1988 09 09.92093	23 28 27.00	+08 36 35.1		054
3428	1988 09 16.90495	23 22 53.91	+07 53 40.4		054

071 Bulgarian National Observatory

V. G. Shkodrov, Dept. of Astronomy, Bulgarian Academy of Sciences,
72 Lenin Boulevard, BG-1784 Sofia, Bulgaria

Observers V. G. Ivanova, V. I. Umlensky, T. R. Bonev, V. G. Shkodrov

1988 RD *	1988 09 10.04814	01 23 46.34	+07 44 14.2		071
1988 RD	1988 09 12.07707	01 21 50.12	+08 17 26.4		071
1988 RD	1988 09 13.04903	01 20 50.51	+08 33 24.5		071

293 Burlington remote site

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

0.20-m f/4.0 astrograph

SAOC

1981 UC1	1988 09 11.13924	22 38 43.83	-12 44 41.1		293
1981 UC1	1988 09 11.15660	22 38 42.99	-12 44 44.9		293

372 Geisei

T. Seki, Kamimachi 2-9-35, Kochi, Japan

0.60-m reflector

1942 AC	1988 10 07.65590	00 42 13.96	-23 45 58.0	17.5	372
1942 AC	1988 10 07.66701	00 42 13.50	-23 46 00.0		372
1942 AC	1988 10 08.64097	00 41 19.79	-23 49 10.9	17.5	372
1984 UA	1988 09 13.66319	01 15 47.83	+24 21 08.9	17	372
1984 UA	1988 09 14.73888	01 15 11.00	+24 18 04.2	17	372
1984 UA	1988 09 15.69410	01 14 37.02	+24 15 05.4		372
1987 SE	1988 10 09.80625	05 35 31.07	+33 56 36.6	18	372
1987 SE	1988 10 09.81944	05 35 31.07	+33 56 39.1		372
2969	1988 10 09.70694	02 55 28.04	+15 05 51.4	18.5	372
2969	1988 10 13.62743	02 53 01.32	+14 52 02.2		372
2969	1988 10 13.67292	02 52 59.50	+14 51 51.4		372

391 Sendai Observatory, Ayashi Station

M. Koishikawa, Sendai Municipal Observatory, 1-1 Sakuragaoka-koen,
Sendai 980, Japan

0.20-m reflector

1988 TC	*	1988 10	03.61667	23 17	31.51	+03 25	48.9	16.5	391
1988 TC		1988 10	04.58472	23 16	52.27	+03 23	11.1	16.5	391
885		1988 10	03.75417	02 09	01.52	+08 27	32.9		391
885		1988 10	04.77552	02 08	24.51	+08 22	41.4		391
1495		1988 03	12.72986	11 09	35.40	+15 15	36.6		391
1639		1988 10	03.61667	23 12	01.61	+03 33	28.2		391

399 Kushiro

H. Kaneda, 12-7-2, 1 Chome, Ishiyama 1 Jo, Minami-Ku,
Sapporo 005, Japan

Observer S. Ueda

Measurer H. Kaneda

1977 RH7		1988 09	13.64595	00 03	34.12	-03 28	19.3	16	399
1977 RH7		1988 09	13.66042	00 03	33.28	-03 28	22.7		399
1977 RH7		1988 09	13.67791	00 03	32.27	-03 28	22.3		399
1977 RH7		1988 09	21.60645	23 55	46.18	-03 51	15.5		399
1977 RH7		1988 09	22.67257	23 54	43.35	-03 54	07.1	15.5	399
1977 RH7		1988 09	22.69039	23 54	42.48	-03 54	10.4		399
1977 RH7		1988 09	22.70747	23 54	41.29	-03 54	12.8		399
1988 RR	*	1988 09	13.57014	23 48	48.45	-02 39	08.3	16.5	399
1988 RR		1988 09	13.59493	23 48	47.18	-02 39	14.9		399
1988 RR		1988 09	13.60937	23 48	46.23	-02 39	20.6		399
1988 RR		1988 09	17.52928	23 45	06.98	-02 58	41.9	16.5	399
1988 RR		1988 09	17.56979	23 45	04.55	-02 58	55.0		399
1988 RR		1988 09	17.58715	23 45	03.40	-02 59	00.3		399
1988 RR		1988 09	17.61059	23 45	01.90	-02 59	06.2		399
1988 RR		1988 09	17.63241	23 45	00.82	-02 59	13.9		399
1988 RS	*	1988 09	13.62812	23 54	12.15	-01 39	08.2	16.5	399
1988 RS		1988 09	13.64595	23 54	11.00	-01 39	12.2		399
1988 RS		1988 09	13.66042	23 54	09.99	-01 39	14.3		399
1988 RS		1988 09	13.67791	23 54	09.03	-01 39	18.0		399
1988 RS		1988 09	17.52928	23 50	25.59	-01 52	38.7	16.0	399
1988 RS		1988 09	17.58715	23 50	21.93	-01 52	52.8		399
1988 RS		1988 09	17.61059	23 50	20.66	-01 52	57.4		399
1988 RS		1988 09	17.63241	23 50	19.29	-01 53	00.0		399
1988 RS		1988 09	22.67257	23 45	22.45	-02 10	28.2	16.5	399
1988 RS		1988 09	22.69039	23 45	21.34	-02 10	34.5		399
1988 SN	*	1988 09	22.73495	01 12	49.02	+10 06	25.7	16.5	399
1988 SN		1988 09	22.74954	01 12	48.24	+10 06	25.4		399
1988 SN		1988 09	22.77007	01 12	47.37	+10 06	28.1		399
1988 SN		1988 10	03.47326	01 02	46.99	+10 04	13.2		399
1988 SN		1988 10	03.49265	01 02	45.76	+10 04	11.6	16	399
1988 SN		1988 10	03.50758	01 02	44.80	+10 04	11.3		399
1988 SN		1988 10	03.53021	01 02	43.54	+10 04	09.9		399
1988 SN		1988 10	03.54485	01 02	42.40	+10 04	08.2		399
1988 SN		1988 10	05.48819	01 00	43.18	+10 02	18.1	16.5	399
1988 SN		1988 10	05.50486	01 00	42.21	+10 02	16.9		399
1988 SN		1988 10	05.52616	01 00	40.88	+10 02	16.0		399
1988 TD		1988 09	22.73495	01 08	15.56	+10 24	23.1	16	399
1988 TD		1988 09	22.74954	01 08	14.74	+10 24	17.6		399
1988 TD		1988 09	22.77007	01 08	13.86	+10 24	12.8		399
1988 TD	*	1988 10	03.47326	00 59	53.12	+09 37	12.1	16	399
1988 TD		1988 10	03.49265	00 59	52.03	+09 37	06.3		399
1988 TD		1988 10	03.53021	00 59	49.90	+09 36	55.8		399
1988 TD		1988 10	03.54485	00 59	49.17	+09 36	50.0		399
1988 TD		1988 10	05.48819	00 58	10.22	+09 26	45.2	16	399
1988 TD		1988 10	05.50486	00 58	09.19	+09 26	40.8		399
1988 TD		1988 10	05.52616	00 58	08.22	+09 26	35.2		399
1988 TE		1988 09	17.65700	01 11	41.07	+10 05	50.9	16	399

1988	TE	1988	09	22.74954	01	08	48.32	+09	49	28.6	16	399	
1988	TE	1988	09	22.77007	01	08	47.52	+09	49	26.5		399	
1988	TE	*	1988	10	03.47326	01	01	02.68	+09	00	46.6	16	399
1988	TE		1988	10	03.49265	01	01	01.44	+09	00	40.7		399
1988	TE		1988	10	03.53021	01	00	59.69	+09	00	30.0		399
1988	TE		1988	10	03.54485	01	00	59.06	+09	00	24.4		399
1988	TE		1988	10	05.48819	00	59	25.44	+08	50	00.1	16	399
1988	TE		1988	10	05.50486	00	59	24.67	+08	49	55.9		399
1988	TE		1988	10	05.52616	00	59	23.59	+08	49	48.7		399
1988	TF	*	1988	10	03.49265	01	15	08.31	+10	13	29.3	15.5	399
1988	TF		1988	10	03.50758	01	15	07.68	+10	13	27.0		399
1988	TF		1988	10	03.53021	01	15	06.40	+10	13	23.4		399
1988	TF		1988	10	03.54485	01	15	05.71	+10	13	19.9		399
1988	TF		1988	10	05.55069	01	13	28.23	+10	07	38.2	16	399
1988	TF		1988	10	05.56528	01	13	27.59	+10	07	36.8		399
1988	TF		1988	10	05.58229	01	13	26.53	+10	07	30.8		399
168			1988	10	05.55069	01	28	42.78	+10	06	55.6	12	399
168			1988	10	05.56528	01	28	42.23	+10	06	51.3		399
168			1988	10	05.58229	01	28	41.58	+10	06	46.3		399
223			1988	09	13.64595	00	08	39.35	-01	25	23.1	14.5	399
223			1988	09	13.66042	00	08	38.76	-01	25	26.6		399
223			1988	09	13.67791	00	08	38.00	-01	25	31.5		399
1268			1988	10	03.49265	01	13	27.41	+10	35	21.0	14.5	399
1268			1988	10	03.50758	01	13	26.83	+10	35	17.5		399
1268			1988	10	03.53021	01	13	26.05	+10	35	14.5		399
1268			1988	10	03.54485	01	13	25.49	+10	35	11.8		399
1295			1988	09	13.57014	23	41	34.83	-01	09	38.4	16	399
1295			1988	09	13.59493	23	41	33.82	-01	09	47.0		399
1295			1988	09	13.60937	23	41	33.30	-01	09	50.0		399
1380			1988	09	13.59493	23	45	53.73	-03	16	41.1	16.5	399
1380			1988	09	13.60937	23	45	53.18	-03	16	43.3		399
1742			1988	09	13.64595	00	05	59.72	-01	11	57.2	16	399
1742			1988	09	13.66042	00	05	59.09	-01	12	03.6		399
1742			1988	09	13.67791	00	05	58.31	-01	12	08.8		399
1824			1988	09	22.67257	23	55	47.64	-01	21	33.5	15.5	399
1824			1988	09	22.69039	23	55	46.75	-01	21	39.2		399
1824			1988	09	22.70747	23	55	45.96	-01	21	42.2		399
2125			1988	10	05.55069	01	14	51.42	+10	32	27.2	15.5	399
2125			1988	10	05.56528	01	14	50.81	+10	32	22.9		399
2125			1988	10	05.58229	01	14	49.87	+10	32	18.2		399
2586			1988	09	13.62812	23	58	42.16	-01	30	24.2	16	399
2586			1988	09	13.64595	23	58	41.19	-01	30	31.8		399
2586			1988	09	13.67791	23	58	39.58	-01	30	47.3		399
2586			1988	09	17.52928	23	55	29.13	-02	02	24.1	16	399
2586			1988	09	17.56979	23	55	27.17	-02	02	43.2		399
2586			1988	09	17.63241	23	55	23.78	-02	03	13.8		399
2586			1988	09	21.60645	23	52	04.01	-02	35	44.9		399
2586			1988	09	22.67257	23	51	10.23	-02	44	23.4	15.5	399
2586			1988	09	22.69039	23	51	09.46	-02	44	33.9		399
2859			1988	09	22.67257	23	55	14.73	-02	04	24.8	16	399
2859			1988	09	22.69039	23	55	13.78	-02	04	33.6		399
2859			1988	09	22.70747	23	55	12.54	-02	04	42.0		399
2931			1988	09	13.57014	23	47	53.33	-03	17	37.7	16	399
2931			1988	09	13.59493	23	47	52.21	-03	17	43.3		399
2931			1988	09	13.60937	23	47	51.50	-03	17	49.3		399
2931			1988	09	17.52928	23	44	42.17	-03	35	22.0	16	399
2931			1988	09	17.56979	23	44	40.08	-03	35	32.7		399
2931			1988	09	17.58715	23	44	39.28	-03	35	39.8		399
2931			1988	09	17.63241	23	44	36.98	-03	35	49.6		399

400 Kitami

K. Watanabe, 13-23-202, 4 Chome, Atsubetsu cyuo 3 jo, Shiroishi-ku,
Sapporo 004, Japan

Observers K. Endate, T. Fujii, M. Yanai

Measurer K. Watanabe

AGK3

1988 PV	1988 09 04.48125	21 28 44.92	-03 33 14.4	16.0	400
1988 PV	1988 09 05.46944	21 28 15.64	-03 40 12.7	16.0	400
1988 PA1	1988 09 07.49132	22 02 06.62	-04 21 58.3	15.5	400
1988 PA1	1988 09 07.52257	22 02 05.27	-04 22 20.9		400
1988 PA1	1988 09 17.51632	21 56 09.28	-06 21 02.4	15.5	400
1988 RP *	1988 09 07.50139	23 36 46.08	+02 02 23.7	16.0	400
1988 RP	1988 09 07.52222	23 36 44.74	+02 02 17.1		400
1988 RP	1988 09 07.53681	23 36 43.91	+02 02 14.2		400
1988 RP	1988 09 12.47083	23 31 47.15	+01 41 52.1	16.0	400
1988 RP	1988 09 12.48472	23 31 46.23	+01 41 52.3		400
1988 RP	1988 09 12.49861	23 31 45.40	+01 41 46.5		400
1988 RP	1988 09 13.61875	23 30 36.40	+01 36 49.3	16.0	400
1988 RP	1988 09 13.64306	23 30 34.97	+01 36 41.9		400
1988 RP	1988 10 02.51250	23 12 36.04	+00 07 26.9	16.0	400
1988 RP	1988 10 02.52639	23 12 35.38	+00 07 22.5		400
1988 RP	1988 10 04.54028	23 11 01.12	-00 01 29.0	16.0	400
1988 RP	1988 10 04.55417	23 11 00.61	-00 01 31.1		400
1988 RQ *	1988 09 12.47083	23 33 56.05	+02 04 37.8	16.5	400
1988 RQ	1988 09 12.48472	23 33 55.58	+02 04 32.2		400
1988 RQ	1988 09 12.49861	23 33 54.95	+02 04 28.1		400
1988 RQ	1988 09 13.61875	23 33 08.26	+01 57 46.1	16.5	400
1988 RQ	1988 09 13.63125	23 33 07.78	+01 57 40.4		400
1988 RQ	1988 09 13.64306	23 33 07.31	+01 57 38.6		400
1988 RD1	1988 09 07.58472	23 30 49.23	+06 07 18.5	15.5	400
1988 RD1	1988 09 07.60278	23 30 48.17	+06 07 15.1		400
1988 RD1	1988 09 07.61528	23 30 47.63	+06 07 15.0		400
1988 RP1 *	1988 09 10.61528	00 11 17.41	-03 28 29.9	15.5	400
1988 RP1	1988 09 10.64167	00 11 16.08	-03 28 38.5		400
1988 RP1	1988 09 10.65833	00 11 15.08	-03 28 36.1		400
1988 RP1	1988 09 22.70213	23 59 12.88	-03 59 26.5	15.0	400
1988 RP1	1988 09 22.71463	23 59 12.10	-03 59 28.9		400
1988 RP1	1988 09 22.72574	23 59 11.36	-03 59 30.2		400
1988 RP1	1988 10 02.54028	23 49 01.19	-04 19 02.0	16.0	400
1988 RP1	1988 10 02.55278	23 49 00.46	-04 19 03.6		400
1988 RP1	1988 10 04.57153	23 47 01.32	-04 21 45.6	16.0	400
1988 RP1	1988 10 04.58472	23 47 00.56	-04 21 47.5		400
168	1988 10 05.59271	01 28 41.12	+10 06 45.4	13.0	400
168	1988 10 05.61354	01 28 40.16	+10 06 37.1		400
168	1988 10 05.63160	01 28 39.39	+10 06 32.1		400
186	1988 10 05.59271	01 24 47.29	+10 41 42.4	11.5	400
186	1988 10 05.61354	01 24 45.68	+10 41 46.2		400
186	1988 10 05.63160	01 24 44.50	+10 41 48.9		400
223	1988 09 10.61389	00 10 47.01	-01 12 01.6	13.5	400
223	1988 09 10.62847	00 10 46.37	-01 12 05.7		400
223	1988 09 10.64167	00 10 45.90	-01 12 09.0		400
533	1988 09 10.55313	00 10 18.52	+01 32 23.3	14.0	400
533	1988 09 10.57986	00 10 17.33	+01 32 12.6		400
533	1988 09 10.59618	00 10 16.72	+01 32 06.7		400
570	1988 09 10.55139	00 12 22.63	+03 22 48.7	13.5	400
570	1988 09 10.56667	00 12 21.99	+03 22 44.5		400
570	1988 09 10.57986	00 12 21.51	+03 22 42.2		400
954	1988 09 10.55313	00 12 01.81	+00 50 14.8	13.5	400
954	1988 09 10.57986	00 12 00.65	+00 50 03.5		400

954	1988	09	10.59618	00	11	59.93	+00	50	02.6		400
955	1988	09	10.55139	00	10	38.18	+02	58	36.3	13.5	400
955	1988	09	10.56667	00	10	37.08	+02	58	34.3		400
955	1988	09	10.57986	00	10	36.25	+02	58	34.2		400
1268	1988	10	05.51563	01	12	11.21	+10	29	29.7	14.5	400
1268	1988	10	05.53333	01	12	10.55	+10	29	25.2		400
1268	1988	10	05.55590	01	12	09.53	+10	29	20.1		400
1268	1988	10	05.57674	01	12	08.64	+10	29	17.4		400
1401	1988	09	10.61285	23	15	56.19	+11	57	54.1	13.0	400
1401	1988	09	10.63438	23	15	54.98	+11	57	51.5		400
1401	1988	09	10.65313	23	15	53.90	+11	57	47.8		400
2125	1988	10	05.51563	01	14	53.34	+10	32	34.2	15.5	400
2125	1988	10	05.55590	01	14	51.04	+10	32	24.7		400
2125	1988	10	05.57674	01	14	49.89	+10	32	22.2		400
2196	1988	10	05.51563	01	07	53.54	+11	07	55.6	15.0	400
2196	1988	10	05.55590	01	07	52.16	+11	07	44.0		400
2196	1988	10	05.57674	01	07	51.29	+11	07	37.2		400
3016	1988	09	22.70213	00	00	18.21	-03	43	34.2	16.0	400
3016	1988	09	22.71463	00	00	17.52	-03	43	39.8		400
3016	1988	09	22.72574	00	00	17.20	-03	43	43.1		400
3022	1988	09	22.74102	00	09	09.48	+00	35	15.0	15.5	400
3022	1988	09	22.75282	00	09	08.95	+00	34	56.8		400

413 Siding Spring

R. H. McNaught, Siding Spring Observatory, Coonabarabran, N.S.W. 2357,
Australia

Observers C. S. Bembrick, J. Byron, R. H. McNaught, Q. A. Parker,
J. A. Dawe, M. Hartley, P. McKenzie, K. S. Russell

Measurers C. S. Bembrick, R. H. McNaught

1.2-m Schmidt

1977 BY	1983	11	06.66634	05	06	13.82	-18	06	42.2	16	413
1977 BY	1983	11	06.70801	05	06	12.78	-18	07	19.5		413
1977 BY	1988	01	28.64531	10	48	24.56	-10	13	22.3	16	413
1977 BY	1988	01	28.71476	10	48	23.99	-10	12	27.2		413
1977 BY	1988	02	20.60191	10	39	46.14	-02	35	25.6	15.5	413
1977 BY	1988	02	20.66788	10	39	43.45	-02	33	46.5		413
1980 JH	1988	04	20.49211	12	03	51.09	-02	54	20.5	17.5	413
1980 JH	1988	04	20.55808	12	03	48.72	-02	53	47.9		413
1983 AY	1988	08	11.59492	22	11	18.95	-04	36	44.6	17	413
1983 AY	1988	08	11.65395	22	11	15.61	-04	36	52.9		413
1985 DO2	1988	10	03.55271	00	36	21.05	-31	31	55.4	15	413
1985 DO2	1988	10	03.60826	00	36	21.72	-31	33	32.3		413
1985 DO2	1988	10	04.70868	00	36	44.54	-32	04	39.4		413
1985 RB1	1978	05	02.54192	14	54	14.30	-39	50	02.9	17.5	413
1985 RB1	1978	05	02.60442	14	54	10.90	-39	49	41.8		413
1985 RB1	1984	05	31.73138	21	21	35.11	-10	24	06.9	18.5	413
1985 RB1	1984	05	31.77305	21	21	35.31	-10	23	55.4		413
1986 VE	1984	03	29.51314	10	58	07.75	-12	18	41.4	18.5	I 413
1986 VE	1984	03	29.55480	10	58	06.03	-12	18	21.5		413
1986 WQ2	1986	07	27.74259	01	24	12.07	-25	14	10.4	17	I 413
1986 WQ2	1986	07	27.80509	01	24	17.11	-25	15	00.1		413
1988 BC5 *	1988	01	28.64531	10	47	22.11	-10	26	19.7	17	413
1988 BC5	1988	01	28.71476	10	47	20.20	-10	26	53.4		413
1988 BC5	1988	02	23.56544	10	28	16.34	-12	52	08.8	16	413
1988 BC5	1988	02	23.64877	10	28	11.53	-12	52	18.5		413
1988 BC5	1988	03	12.50370	10	11	50.87	-12	50	45.5	16	413
1988 BC5	1988	03	12.57315	10	11	47.20	-12	50	36.5		413
1988 BC5	1988	03	16.49486	10	08	41.54	-12	40	44.8	16.5	413
1988 BC5	1988	03	16.56431	10	08	38.39	-12	40	33.1		413

1988	BD5	*	1988	01	28.64531	11	00	48.09	-11	26	17.1	17.5	413
1988	BD5		1988	01	28.71476	11	00	46.35	-11	26	24.8		413
1988	BD5		1988	02	23.56544	10	44	13.81	-10	54	51.7	17	413
1988	BD5		1988	02	23.64877	10	44	09.57	-10	54	29.3		413
1988	BD5		1988	03	12.50370	10	29	09.06	-09	03	56.2	17.5	413
1988	BD5		1988	03	12.57315	10	29	05.60	-09	03	24.4		413
1988	BE5	*	1988	01	28.64531	10	48	28.19	-11	45	30.1	17.5	413
1988	BE5		1988	01	28.71476	10	48	26.67	-11	45	36.9		413
1988	BE5		1988	02	23.56544	10	32	29.02	-10	44	42.5	17	413
1988	BE5		1988	02	23.64877	10	32	24.83	-10	44	10.1		413
1988	BE5		1988	03	12.50370	10	18	52.17	-08	13	18.7	17	413
1988	BE5		1988	03	12.57315	10	18	49.22	-08	12	37.0		413
1988	BF5	*	1988	01	28.64531	10	51	48.98	-10	09	39.2	19	413
1988	BF5		1988	01	28.71476	10	51	47.52	-10	09	50.3		413
1988	BF5		1988	02	23.56544	10	34	51.16	-10	07	33.7	18	413
1988	BF5		1988	02	23.64877	10	34	46.83	-10	07	14.4		413
1988	BF5		1988	03	12.50370	10	19	50.58	-08	28	51.5	18	413
1988	BF5		1988	03	12.57315	10	19	47.25	-08	28	21.2		413
1988	BG5	*	1988	01	28.64531	10	56	21.04	-12	05	21.3	18.5	V 413
1988	BG5		1988	02	23.56544	10	38	59.31	-11	47	28.6	18.5	V 413
1988	BG5		1988	02	23.64877	10	38	55.28	-11	47	09.8		V 413
1988	BG5		1988	03	12.57315	10	23	46.06	-10	06	54.7	18.5	F 413
1988	BH5	*	1988	01	28.64531	10	56	47.75	-11	28	42.6	17.5	413
1988	BH5		1988	01	28.71476	10	56	46.08	-11	29	05.6		413
1988	BH5		1988	02	23.56544	10	38	57.96	-12	31	57.0	17	413
1988	BH5		1988	02	23.64877	10	38	53.25	-12	31	49.1		413
1988	BH5		1988	03	12.50370	10	22	55.72	-11	25	52.4	17.5	413
1988	BH5		1988	03	12.57315	10	22	52.07	-11	25	28.7		413
1988	BJ5	*	1988	01	28.64531	10	58	04.71	-08	55	20.5	18	413
1988	BJ5		1988	01	28.71476	10	58	02.72	-08	55	39.5		F 413
1988	BJ5		1988	02	23.56544	10	39	08.88	-09	43	44.4	18	413
1988	BJ5		1988	02	23.64877	10	39	04.18	-09	43	37.6		413
1988	BJ5		1988	03	12.50370	10	22	57.61	-08	52	21.0	18	413
1988	BJ5		1988	03	12.57315	10	22	53.93	-08	52	03.1		413
1988	BK5	*	1988	01	28.64531	10	58	38.63	-07	39	58.3	18	413
1988	BK5		1988	01	28.71476	10	58	36.42	-07	40	16.2		p 413
1988	BK5		1988	02	23.56544	10	39	01.70	-08	41	40.3	18	413
1988	BK5		1988	02	23.64877	10	38	57.14	-08	41	39.5		413
1988	BK5		1988	03	12.50370	10	23	20.41	-08	21	25.5	18	413
1988	BK5		1988	03	12.57315	10	23	16.93	-08	21	15.5		413
1988	BL5	*	1988	01	28.64531	11	02	49.46	-09	02	25.2	19	F 413
1988	BL5		1988	01	28.71476	11	02	47.42	-09	02	41.7		V 413
1988	BL5		1988	02	23.56544	10	42	19.54	-09	39	40.4	19	413
1988	BL5		1988	02	23.64877	10	42	14.59	-09	39	30.8		F 413
1988	BL5		1988	03	12.50370	10	25	06.40	-08	38	22.5	18	413
1988	BL5		1988	03	12.57315	10	25	02.43	-08	38	02.1		413
1988	BM5		1980	03	13.58738	11	59	45.98	-21	42	42.5	18	413
1988	BM5		1980	03	13.62905	11	59	43.66	-21	42	41.8		413
1988	BM5		1984	03	29.51314	10	56	44.40	-14	09	31.2	18	413
1988	BM5		1984	03	29.55480	10	56	42.23	-14	09	18.0		413
1988	BM5	*	1988	01	28.64531	11	07	19.94	-08	22	00.2	19	413
1988	BM5		1988	01	28.71476	11	07	18.00	-08	22	20.8		F 413
1988	BM5		1988	02	23.56544	10	48	06.66	-09	29	46.2	19	413
1988	BM5		1988	02	23.64877	10	48	01.72	-09	29	44.1		413
1988	BM5		1988	03	12.50370	10	30	13.95	-08	55	32.3	18	413
1988	BM5		1988	03	12.57315	10	30	09.67	-08	55	18.0		413
1988	BN5	*	1988	01	28.64531	10	48	52.93	-08	38	37.9	18.5	413
1988	BN5		1988	01	28.71476	10	48	51.17	-08	39	00.6		413
1988	BN5		1988	02	23.56544	10	31	02.27	-09	57	14.7		413

1988 BN5	1988 02	23.64877	10 30	57.88	-09 57	13.4		413
1988 BN5	1988 03	12.50370	10 16	22.88	-09 23	04.4	18.5	413
1988 BN5	1988 03	12.57315	10 16	19.69	-09 22	49.6		413
1988 DD3	1983 05	06.35815	10 47	14.53	-04 46	37.9	19	413
1988 DD3	1983 05	06.39981	10 47	14.80	-04 46	34.0		413
1988 DS4	1983 05	06.33815	10 46	18.36	-01 53	29.2	18	413
1988 DS4	1983 05	06.39981	10 46	18.66	-01 53	21.8		413
1988 JO	1988 08	04.36819	15 41	49.48	-13 02	52.6	17.0	413
1988 JO	1988 08	04.42028	15 41	51.20	-13 03	43.8		413
1988 MB	1988 08	10.52978	20 09	49.10	-00 35	27.5	15	413
1988 MB	1988 08	10.58534	20 09	44.63	-00 34	59.9		413
1988 PG1	1988 10	10.54120	21 47	59.57	-01 52	28.6	17.5	413
1988 PG1	1988 10	11.50822	21 48	03.86	-01 50	46.8		413
1988 PH1	1988 09	18.64676	21 53	49.56	-00 54	11.2	16	413
1988 PH1	1988 10	10.54120	21 44	15.26	-00 02	38.2	16.5	413
1988 PH1	1988 10	11.50822	21 44	08.83	-00 00	10.7		413
1988 PJ1	1988 08	10.61566	22 31	49.19	-03 02	18.8		413
1988 PJ1	1988 08	10.67122	22 31	45.91	-03 02	08.4		413
1988 PJ1	1988 09	18.64676	21 53	43.14	-02 09	08.1		F 413
1988 PJ1	1988 10	10.54120	21 45	12.17	-01 55	53.0	17.5	413
1988 PJ1	1988 10	11.50822	21 45	09.67	-01 54	45.8		413
1988 SM *	1988 09	29.40850	22 08	00.09	-12 25	12.8	17	413
1988 SM	1988 09	29.46752	22 08	05.67	-12 21	17.6		413
1988 SM	1988 10	03.53054	22 15	04.87	-08 11	39.8	17	F 413
1988 SM	1988 10	03.54096	22 15	05.76	-08 11	07.2		F 413
3876	1988 08	04.36819	15 46	10.98	-14 21	32.2	16.5	413
3876	1988 08	04.42028	15 46	12.26	-14 21	51.6		413

503 Cambridge

J. D. Shanklin, 11 City Road, Cambridge, CB1 1DP, England

Observer J. D. Shanklin

0.44-m Schmidt

1980 PA	1988 09	11.84481	22 10	42.98	+10 09	49.0		503
1980 PA	1988 09	18.85818	22 24	06.51	+16 06	18.9		503
1980 PA	1988 10	06.87257	00 21	18.73	+41 21	39.6		503
1985 DO2	1988 09	11.97473	00 23	25.44	-12 22	38.0		503

511 Haute Provence

E. W. Elst, Royal Observatory, B-1180 Brussels, Belgium

Observers E. W. Elst, G. Sause

Measurer E. W. Elst

0.6-m Schmidt

1961 CX	1988 09	16.00694	23 29	26.84	-05 56	25.3	18.0	511
1961 CX	1988 09	16.02639	23 29	26.20	-05 56	28.9		511
1961 CX	1988 09	17.03056	23 28	31.70	-06 03	18.4		511
1961 CX	1988 09	17.05139	23 28	30.72	-06 03	25.7		511
1980 PA	1988 08	17.90556	21 57	58.86	-01 26	21.0	17.0	511
1980 PA	1988 08	17.94861	21 57	58.84	-01 25	34.5	17.0	511
1981 JA2	1988 09	12.92500	22 27	16.73	-05 35	23.0	17.5	511
1981 JA2	1988 09	12.94418	22 27	15.88	-05 35	28.4		511
1981 JA2	1988 09	12.96146	22 27	15.16	-05 35	32.9		511
1981 JA2	1988 09	17.94861	22 23	26.43	-06 02	23.3		511
1981 JA2	1988 09	17.96944	22 23	25.49	-06 02	26.9		511
1982 UG7	1988 08	12.95208	22 48	15.04	-02 30	43.1	16.5	511
1982 UG7	1988 08	12.96944	22 48	14.53	-02 30	46.0		511
1982 UG7	1988 08	14.99514	22 47	09.45	-02 38	03.9		511
1982 UG7	1988 08	15.01667	22 47	08.76	-02 38	08.6		511
1982 UG7	1988 09	12.92500	22 26	29.28	-05 34	25.1	17.5	511
1982 UG7	1988 09	12.94418	22 26	28.64	-05 34	32.0		511

1982 UG7	1988 09	12.96146	22 26	28.05	-05 34	37.2		511
1982 UG7	1988 09	17.94861	22 23	35.44	-06 07	09.8		511
1982 UG7	1988 09	17.96944	22 23	34.62	-06 07	15.6		511
1985 UT4	1988 08	13.06875	23 49	25.17	-00 31	35.2	17.5	511
1985 UT4	1988 08	13.08889	23 49	24.89	-00 31	36.3		511
1986 EN4	1988 09	16.00694	23 32	52.36	-05 05	51.9	17.7	511
1986 EN4	1988 09	16.02639	23 32	51.61	-05 05	56.6		511
1986 EN4	1988 09	17.03056	23 32	07.37	-05 10	14.2		511
1986 EN4	1988 09	17.05139	23 32	06.36	-05 10	20.8		511
1988 PY	1988 09	16.98264	22 30	51.76	-04 13	23.9	18	511
1988 PY	1988 09	17.00486	22 30	50.90	-04 13	32.5		511
1988 PY	1988 09	17.99722	22 30	21.73	-04 15	53.6		511
1988 PY	1988 09	18.01667	22 30	21.11	-04 15	56.9		511
1988 PY	1988 09	18.03437	22 30	20.52	-04 15	58.8		511
1988 PE1	1988 09	12.98542	23 37	37.02	-05 57	04.1		511
1988 PE1	1988 09	13.00521	23 37	36.36	-05 57	17.3		511
1988 PE1	1988 09	13.02257	23 37	35.71	-05 57	30.1		511
1988 PE1	1988 09	14.01875	23 36	58.43	-06 10	18.3		511
1988 PE1	1988 09	14.03958	23 36	57.79	-06 10	32.7		511
1988 PE1	1988 09	15.03125	23 36	20.63	-06 23	15.8		511
1988 PE1	1988 09	15.05208	23 36	19.81	-06 23	30.1		511
1988 PE1	1988 09	16.00694	23 35	44.06	-06 35	41.6	16.5	511
1988 PE1	1988 09	16.02639	23 35	43.45	-06 35	54.9		511
1988 PE1	1988 09	17.03056	23 35	05.39	-06 48	39.0		511
1988 PE1	1988 09	17.05139	23 35	04.71	-06 48	53.4		511
1988 PM1	1988 09	13.95486	22 32	02.35	-09 03	03.2		511
1988 PM1	1988 09	13.97396	22 32	01.74	-09 03	08.1		511
1988 PM1	1988 09	13.99132	22 32	01.23	-09 03	13.9		511
1988 PM1	1988 09	14.96667	22 31	27.48	-09 09	03.4		511
1988 PM1	1988 09	14.98681	22 31	26.73	-09 09	08.8		511
1988 PQ1	1988 09	17.94861	22 17	36.21	-05 32	44.5		511
1988 PQ1	1988 09	17.96944	22 17	35.29	-05 32	49.6		511
1988 PR1	1988 09	13.95486	22 32	18.38	-07 55	43.6		511
1988 PR1	1988 09	13.97396	22 32	17.82	-07 55	51.8		511
1988 PR1	1988 09	13.99132	22 32	17.31	-07 55	59.8		511
1988 PR1	1988 09	14.96667	22 31	39.90	-08 04	33.1		511
1988 PR1	1988 09	14.98681	22 31	39.10	-08 04	42.6		511
1988 PU1 *	1988 08	12.95208	22 46	04.23	-00 22	42.2	16.5	511
1988 PU1	1988 08	12.96944	22 46	03.74	-00 22	45.9		511
1988 PU1	1988 08	14.99514	22 45	17.64	-00 32	10.0		511
1988 PU1	1988 08	15.01667	22 45	17.09	-00 32	16.3		511
1988 PU1	1988 09	12.92500	22 28	41.16	-04 27	47.3	16.5	511
1988 PU1	1988 09	12.94418	22 28	40.53	-04 27	58.1		511
1988 PU1	1988 09	12.96146	22 28	40.04	-04 28	06.3		511
1988 PU1	1988 09	17.94861	22 26	20.85	-05 14	50.9		511
1988 PU1	1988 09	17.96944	22 26	20.22	-05 15	00.9		511
1988 PV1 *	1988 08	12.95208	22 47	27.13	-01 05	10.2	17.5	511
1988 PV1	1988 08	12.96944	22 47	26.42	-01 05	11.0		511
1988 PV1	1988 08	14.99514	22 46	00.33	-01 04	46.3		511
1988 PV1	1988 08	15.01667	22 45	59.42	-01 04	46.7		511
1988 PW1 *	1988 08	12.95208	22 53	28.72	+00 28	34.7	17.0	511
1988 PW1	1988 08	12.96944	22 53	28.14	+00 28	26.4		511
1988 PW1	1988 08	14.99514	22 52	29.97	+00 10	22.5		511
1988 PW1	1988 08	15.01667	22 52	29.26	+00 10	11.5		511
1988 PX1 *	1988 08	13.06875	23 40	33.36	-01 53	58.0	17.5	511
1988 PX1	1988 08	13.08889	23 40	33.04	-01 54	06.0		511
1988 PX1	1988 08	15.05069	23 40	02.86	-02 07	33.2		511
1988 PX1	1988 08	15.07465	23 40	02.37	-02 07	43.3		511
1988 PY1 *	1988 08	13.06875	23 43	20.58	-02 18	55.7	17.7	511

1988	PY1	1988	08	13.08889	23	43	20.02	-02	18	57.5		511
1988	PY1	1988	08	15.05069	23	42	37.85	-02	23	35.2		511
1988	PY1	1988	08	15.07465	23	42	37.26	-02	23	38.4		511
1988	PZ1	* 1988	08	13.06875	23	47	41.31	-01	51	36.2	18.0	511
1988	PZ1	1988	08	13.08889	23	47	40.89	-01	51	37.6		511
1988	PZ1	1988	08	15.05069	23	47	00.55	-01	55	56.9		511
1988	PZ1	1988	08	15.07465	23	46	59.98	-01	55	59.5		511
1988	PA2	* 1988	08	13.06875	23	49	15.44	+00	31	17.4	16.5	511
1988	PA2	1988	08	13.08889	23	49	15.07	+00	31	14.4		511
1988	PA2	1988	08	15.05069	23	48	41.40	+00	26	17.9		511
1988	PA2	1988	08	15.07465	23	48	40.96	+00	26	12.1		511
1988	PB2	* 1988	08	14.10312	00	07	10.44	+01	37	28.9		511
1988	PB2	1988	08	14.12049	00	07	09.87	+01	37	31.1		511
1988	PB2	1988	08	18.09306	00	05	30.06	+01	40	34.7		511
1988	PB2	1988	08	18.12083	00	05	29.22	+01	40	36.0	17.0	511
1988	PL2	1988	08	13.06875	23	49	37.42	-01	39	34.1	18.0	511
1988	PL2	1988	08	13.08889	23	49	37.14	-01	39	27.0		511
1988	RJ	1988	09	16.00694	23	29	00.44	-07	42	17.9	17.7	511
1988	RJ	1988	09	16.02639	23	28	59.95	-07	42	37.6		511
1988	RJ	1988	09	17.03056	23	28	30.95	-08	02	08.7		511
1988	RJ	1988	09	17.05139	23	28	30.50	-08	02	28.2		511
1988	RR	1988	08	18.09306	00	06	44.48	-01	01	14.8		511
1988	RR	1988	08	18.12083	00	06	44.00	-01	01	17.7	18.0	511
1988	RY	* 1988	09	12.92500	22	26	47.45	-05	26	31.1	18.0	511
1988	RY	1988	09	12.94418	22	26	46.63	-05	26	39.6		511
1988	RY	1988	09	12.96146	22	26	45.73	-05	26	45.8		511
1988	RY	1988	09	17.94861	22	23	10.21	-05	55	12.1		511
1988	RY	1988	09	17.96944	22	23	09.31	-05	55	19.3		511
1988	RL1	* 1988	09	12.92500	22	21	44.80	-05	16	29.3	17.8	511
1988	RL1	1988	09	12.94418	22	21	44.04	-05	16	28.5		511
1988	RL1	1988	09	12.96146	22	21	43.60	-05	16	28.2		511
1988	SA	* 1988	09	16.00694	23	24	13.57	-07	56	56.3	17.6	511
1988	SA	1988	09	16.02639	23	24	12.53	-07	56	54.2		511
1988	SA	1988	09	17.03056	23	23	13.09	-07	57	25.7		511
1988	SA	1988	09	17.05139	23	23	12.06	-07	57	23.6		511
1988	SB	* 1988	09	16.00694	23	25	54.43	-07	32	28.0	17.8	511
1988	SB	1988	09	16.02639	23	25	53.53	-07	32	30.6		511
1988	SB	1988	09	17.03056	23	24	51.54	-07	35	49.0		511
1988	SB	1988	09	17.05139	23	24	50.36	-07	35	52.5		511
1988	SC	* 1988	09	16.00694	23	27	24.93	-07	28	30.2	18.5	511
1988	SC	1988	09	16.02639	23	27	23.96	-07	28	30.3		511
1988	SC	1988	09	17.03056	23	26	18.61	-07	28	51.5		511
1988	SC	1988	09	17.05139	23	26	17.33	-07	28	48.4		511
1988	SD	* 1988	09	16.00694	23	27	51.93	-07	40	22.9	17.5	511
1988	SD	1988	09	16.02639	23	27	50.90	-07	40	22.8		511
1988	SD	1988	09	17.03056	23	26	51.41	-07	42	23.4		511
1988	SD	1988	09	17.05139	23	26	50.23	-07	42	22.7		511
1988	SE	* 1988	09	16.00694	23	28	12.45	-08	08	38.5	17.4	511
1988	SE	1988	09	16.02639	23	28	11.39	-08	08	33.9		511
1988	SE	1988	09	17.03056	23	27	03.10	-08	05	13.7		511
1988	SE	1988	09	17.05139	23	27	01.93	-08	05	08.3		511
1988	SF	* 1988	09	16.00694	23	32	37.62	-05	50	16.3	17.0	511
1988	SF	1988	09	16.02639	23	32	36.74	-05	50	16.9		511
1988	SF	1988	09	17.03056	23	31	41.20	-05	52	31.9		511
1988	SF	1988	09	17.05139	23	31	40.19	-05	52	33.8		511
1988	SG	* 1988	09	16.00694	23	35	08.11	-05	10	56.4	17.6	511
1988	SG	1988	09	16.02639	23	35	07.18	-05	11	01.8		511
1988	SG	1988	09	17.03056	23	34	09.86	-05	16	01.3		511
1988	SG	1988	09	17.05139	23	34	08.80	-05	16	09.0		511

1988 SH *	1988 09 17.07431	00 18 53.92	+05 00 37.3	17.7	511
1988 SH	1988 09 17.09340	00 18 52.85	+05 00 39.0		511
1988 SH	1988 09 17.11076	00 18 51.97	+05 00 38.0		511
1988 SH	1988 09 18.05972	00 18 01.94	+04 59 47.9		511
1988 SH	1988 09 18.08056	00 18 01.10	+04 59 47.8		511
1988 SH	1988 09 18.09965	00 18 00.02	+04 59 47.9		511
1988 SJ *	1988 09 17.07431	00 20 44.52	+05 19 57.1	18.5	511
1988 SJ	1988 09 17.09340	00 20 43.55	+05 19 59.5		511
1988 SJ	1988 09 17.11076	00 20 42.98	+05 19 58.3		511
1988 SJ	1988 09 18.05972	00 19 50.33	+05 18 19.8		511
1988 SJ	1988 09 18.08056	00 19 49.57	+05 18 19.6		511
1988 SJ	1988 09 18.09965	00 19 48.93	+05 18 21.3		511
1988 SK *	1988 09 17.07431	00 20 46.15	+03 54 18.2	18.0	511
1988 SK	1988 09 17.09340	00 20 45.49	+03 54 16.1		511
1988 SK	1988 09 17.11076	00 20 44.70	+03 54 14.3		511
1988 SK	1988 09 18.05972	00 19 58.64	+03 50 47.1		511
1988 SK	1988 09 18.08056	00 19 57.86	+03 50 44.8		511
1988 SK	1988 09 18.09965	00 19 57.11	+03 50 42.4		511
1988 SL *	1988 09 17.07431	00 21 55.88	+03 19 48.1	17.5	511
1988 SL	1988 09 17.09340	00 21 55.33	+03 19 37.1		511
1988 SL	1988 09 17.11076	00 21 54.72	+03 19 29.0		511
1988 SL	1988 09 18.05972	00 21 21.38	+03 10 41.2		511
1988 SL	1988 09 18.08056	00 21 20.87	+03 10 30.4		511
1988 SL	1988 09 18.09965	00 21 20.21	+03 10 21.2		511
2142 P-L	1988 09 17.07431	00 32 52.36	+05 44 11.6	18.0	511
2142 P-L	1988 09 17.09340	00 32 51.77	+05 44 03.3		511
2142 P-L	1988 09 17.11076	00 32 51.19	+05 43 55.1		511
2142 P-L	1988 09 18.05972	00 32 13.61	+05 36 55.3		511
2142 P-L	1988 09 18.08056	00 32 13.01	+05 36 46.6		511
2142 P-L	1988 09 18.09965	00 32 12.07	+05 36 36.5		511
1128 T-3	1988 08 18.09306	00 02 40.65	+00 08 23.2		511
1128 T-3	1988 08 18.12083	00 02 39.70	+00 08 26.0	18.0	511
97	1988 09 13.95486	22 36 03.37	-09 59 29.5	12.0	511
97	1988 09 13.97396	22 36 02.53	-09 59 42.1		511
97	1988 09 13.99132	22 36 01.76	-09 59 50.5		511
97	1988 09 14.96667	22 35 17.93	-10 09 46.5		511
97	1988 09 14.98681	22 35 16.82	-10 09 57.7		511
122	1988 09 17.07431	00 31 33.99	+03 09 17.2	15.0	511
122	1988 09 17.09340	00 31 33.34	+03 09 13.0		511
122	1988 09 17.11076	00 31 32.77	+03 09 08.9		511
122	1988 09 18.05972	00 30 55.25	+03 04 43.0		511
122	1988 09 18.08056	00 30 54.61	+03 04 38.6		511
122	1988 09 18.09965	00 30 53.77	+03 04 33.9		511
150	1988 09 12.92500	22 31 17.34	-06 39 15.9	14.0	511
150	1988 09 12.94418	22 31 16.61	-06 39 21.8		511
150	1988 09 12.96146	22 31 15.85	-06 39 26.6		511
150	1988 09 17.94861	22 27 57.37	-07 04 05.7		511
150	1988 09 17.96944	22 27 56.52	-07 04 12.9		511
180	1988 09 13.95486	22 38 44.65	-07 51 55.3	16.5	511
180	1988 09 13.97396	22 38 43.85	-07 51 59.0		511
180	1988 09 13.99132	22 38 43.10	-07 52 01.5		511
309	1988 09 17.07431	00 19 07.82	+02 35 13.8	16.5	511
309	1988 09 17.09340	00 19 07.01	+02 35 10.5		511
309	1988 09 17.11076	00 19 06.19	+02 35 08.5		511
309	1988 09 18.05972	00 18 17.22	+02 31 37.4		511
309	1988 09 18.08056	00 18 16.32	+02 31 34.9		511
309	1988 09 18.09965	00 18 15.33	+02 31 32.0		511
399	1988 08 14.10312	00 03 44.72	+01 35 35.6		511
399	1988 08 14.12049	00 03 44.23	+01 35 35.1		511

399	1988 08 18.09306	00 01 46.69	+01 36 39.8		511
399	1988 08 18.12083	00 01 45.79	+01 36 39.8	16.0	511
586	1988 09 13.95486	22 24 10.37	-07 38 39.6	16.0	511
586	1988 09 13.97396	22 24 09.71	-07 38 43.6		511
586	1988 09 13.99132	22 24 08.98	-07 38 47.3		511
586	1988 09 14.96667	22 23 29.55	-07 43 02.8		511
586	1988 09 14.98681	22 23 28.71	-07 43 08.1		511
801	1988 09 16.98264	22 23 47.43	-00 58 21.7		511
801	1988 09 17.00486	22 23 46.56	-00 58 33.5		511
801	1988 09 17.99722	22 23 07.90	-01 08 04.5	17.0	511
801	1988 09 18.01667	22 23 07.18	-01 08 15.0		511
801	1988 09 18.03437	22 23 06.53	-01 08 24.4		511
903	1988 09 13.95486	22 38 42.59	-09 19 52.0	16.0	511
903	1988 09 13.97396	22 38 42.03	-09 19 58.5		511
903	1988 09 13.99132	22 38 41.46	-09 20 05.0		511
903	1988 09 14.96667	22 38 05.34	-09 26 48.2		511
903	1988 09 14.98681	22 38 04.46	-09 26 55.8		511
1076	1988 09 13.95486	22 37 50.07	-10 34 58.9	17.0	511
1076	1988 09 13.97396	22 37 49.34	-10 35 02.2		511
1076	1988 09 13.99132	22 37 48.74	-10 35 06.2		511
1076	1988 09 14.96667	22 36 59.87	-10 41 08.4		511
1076	1988 09 14.98681	22 36 58.77	-10 41 15.0		511
1079	1988 09 14.96667	22 37 09.59	-08 16 35.9		511
1079	1988 09 14.98681	22 37 08.60	-08 16 40.4		511
1091	1988 09 16.00694	23 28 56.70	-05 07 46.4	17.5	511
1091	1988 09 16.02639	23 28 55.90	-05 07 50.2		511
1091	1988 09 17.03056	23 28 14.76	-05 12 12.8		511
1091	1988 09 17.05139	23 28 13.93	-05 12 17.2		511
1376	1988 08 13.06875	23 40 36.32	-01 04 31.9	16.8	511
1376	1988 08 13.08889	23 40 36.02	-01 04 38.3		511
1376	1988 08 15.05069	23 40 17.16	-01 13 45.5		511
1376	1988 08 15.07465	23 40 16.78	-01 13 52.2		511
1512	1988 09 16.00694	23 25 16.98	-06 58 25.4	17.0	511
1512	1988 09 16.02639	23 25 16.39	-06 58 27.6		511
1512	1988 09 17.03056	23 24 37.04	-07 01 19.5		511
1512	1988 09 17.05139	23 24 36.32	-07 01 22.1		511
1559	1988 09 17.07431	00 23 25.37	+05 39 21.2	17.5	511
1559	1988 09 17.09340	00 23 24.31	+05 39 16.5		511
1559	1988 09 17.11076	00 23 23.61	+05 39 12.8		511
1559	1988 09 18.05972	00 22 32.45	+05 34 55.5		511
1559	1988 09 18.08056	00 22 31.55	+05 34 50.6		511
1559	1988 09 18.09965	00 22 30.48	+05 34 45.9		511
1767	1988 09 16.98264	22 28 49.56	-01 41 53.8		511
1767	1988 09 17.00486	22 28 48.79	-01 42 03.3		511
1767	1988 09 17.99722	22 28 14.21	-01 49 56.5	17.2	511
1767	1988 09 18.01667	22 28 13.52	-01 50 04.7		511
1767	1988 09 18.03437	22 28 13.02	-01 50 13.7		511
2110	1988 08 13.06875	23 42 07.61	-02 38 44.9	17.0	511
2110	1988 08 13.08889	23 42 07.27	-02 38 48.8		511
2110	1988 08 15.05069	23 41 40.64	-02 44 20.2		511
2110	1988 08 15.07465	23 41 40.13	-02 44 24.3		511
2357	1988 08 14.10312	00 07 23.69	+01 02 18.5		511
2357	1988 08 14.12049	00 07 23.36	+01 02 14.5		511
2357	1988 08 18.09306	00 06 15.57	+00 54 19.2		511
2357	1988 08 18.12083	00 06 16.74	+00 53 57.9	17.0	511
2439	1988 08 13.06875	23 37 45.24	-02 44 12.5	17.5	511
2439	1988 08 13.08889	23 37 44.68	-02 44 15.3		511
2439	1988 08 15.05069	23 36 52.39	-02 50 07.9		511
2439	1988 08 15.07465	23 36 51.78	-02 50 13.2		511

2501	1988 08	18.09306	00 02	47.44	-02 04	47.9		511
2501	1988 08	18.12083	00 02	46.36	-02 04	52.6	17.0	511
2609	1988 09	16.98264	22 27	32.95	-02 51	44.7		511
2609	1988 09	17.00486	22 27	31.90	-02 51	50.6		511
2609	1988 09	17.99722	22 26	39.41	-02 56	09.7	18.0	511
2609	1988 09	18.01667	22 26	38.49	-02 56	13.5		511
2609	1988 09	18.03437	22 26	37.57	-02 56	17.9		511
2674	1988 08	13.06875	23 42	55.35	-01 26	07.1	17.7	511
2674	1988 08	13.08889	23 42	54.91	-01 26	09.5		511
2674	1988 08	15.05069	23 42	17.37	-01 30	29.3		511
2674	1988 08	15.07465	23 42	16.86	-01 30	31.0		511
2757	1988 09	17.07431	00 29	21.39	+03 01	43.3	17.5	511
2757	1988 09	17.09340	00 29	20.79	+03 01	41.0		511
2757	1988 09	17.11076	00 29	20.18	+03 01	38.1		511
2757	1988 09	18.05972	00 28	40.78	+02 57	37.4		511
2757	1988 09	18.08056	00 28	40.05	+02 57	33.2		511
2757	1988 09	18.09965	00 28	39.28	+02 57	29.7		511
2931	1988 08	14.10312	00 06	27.45	-01 28	18.7		511
2931	1988 08	14.12049	00 06	27.15	-01 28	22.3		511
2931	1988 08	18.09306	00 04	58.50	-01 37	29.3		511
2931	1988 08	18.12083	00 04	57.78	-01 37	32.9	17.0	511
3028	1988 09	17.07431	00 22	39.53	+04 16	16.2	17.0	511
3028	1988 09	17.09340	00 22	38.88	+04 16	09.7		511
3028	1988 09	17.11076	00 22	38.32	+04 16	03.5		511
3028	1988 09	18.05972	00 22	00.35	+04 09	27.1		511
3028	1988 09	18.08056	00 21	59.74	+04 09	19.8		511
3028	1988 09	18.09965	00 21	59.00	+04 09	11.5		511
3072	1988 09	16.00694	23 27	52.67	-07 32	17.3	17.5	511
3072	1988 09	16.02639	23 27	51.87	-07 32	26.0		511
3072	1988 09	17.03056	23 27	01.20	-07 41	51.7		511
3072	1988 09	17.05139	23 27	00.20	-07 42	01.1		511

552 San Vittore

E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy

Observers C. Vacchi, G. Sassi

Measurers C. Vacchi, V. Goretti, E. Colombini

AGK3, SAOC

1986 WG	1988 07	06.89444	17 18	40.37	-07 08	13.5	18.2	552
1986 WG	1988 07	06.91875	17 18	39.27	-07 08	09.2		552
1988 QA	1988 08	22.88889	21 40	26.95	-13 15	05.9	15.8	552
1988 QA	1988 08	22.90694	21 40	26.07	-13 15	15.1		552
1988 QA	1988 09	03.84514	21 31	45.30	-14 19	21.4	16.0	552
1988 QA	1988 09	03.86250	21 31	44.54	-14 19	24.7		552
1988 QA	1988 09	03.91319	21 31	42.54	-14 19	41.4	17.4	552
1988 QA	1988 09	03.93889	21 31	41.52	-14 19	48.2		552
1988 QA	1988 09	07.85764	21 29	22.20	-14 37	58.2	16.2	552
1988 QA	1988 09	07.87569	21 29	21.59	-14 38	02.5		552
1988 QA	1988 09	10.87014	21 27	49.71	-14 50	35.6	16.4	552
1988 QA	1988 09	10.88542	21 27	49.20	-14 50	37.6		552
1988 QB	1988 08	22.92083	21 41	27.38	-11 52	39.8	16.0	552
1988 QB	1988 08	22.93819	21 41	26.36	-11 52	50.8		552
1988 QB	1988 08	23.88819	21 40	40.29	-12 02	02.8	16.0	552
1988 QB	1988 08	23.90486	21 40	39.41	-12 02	12.5		552
1988 QB	1988 09	03.87847	21 32	21.00	-13 46	00.2	16.1	552
1988 QB	1988 09	03.89722	21 32	20.21	-13 46	10.2		552
1988 QB	1988 09	07.85764	21 29	46.78	-14 21	08.5	16.2	552
1988 QB	1988 09	07.87569	21 29	46.11	-14 21	16.7		552
1988 QB	1988 09	10.87014	21 28	03.59	-14 46	13.1	16.5	552
1988 QB	1988 09	10.88542	21 28	03.10	-14 46	19.9		552

1988 QU *	1988 08	22.97708	21 39	42.13	-12 29	38.7	17.0	552
1988 QU	1988 08	22.99375	21 39	41.42	-12 29	48.5		552
1988 QU	1988 09	03.91319	21 31	16.36	-14 29	46.8	17.4	552
1988 QU	1988 09	03.93889	21 31	15.34	-14 30	02.5		552
372	1988 09	03.84514	21 33	23.30	-14 27	08.7	12.3	552
372	1988 09	03.86250	21 33	22.31	-14 27	06.9		552
372	1988 09	07.85764	21 29	55.02	-14 22	03.5		552
372	1988 09	07.87569	21 29	54.08	-14 22	02.5		552
542	1988 08	17.92917	21 47	28.41	-10 31	16.9	12.5	552
542	1988 08	17.95556	21 47	27.21	-10 31	32.3		552
1617	1988 08	17.92917	21 45	42.68	-10 07	24.7	15.8	552
1617	1988 08	17.95556	21 45	41.69	-10 07	36.3		552
1733	1988 08	17.92917	21 51	35.73	-11 03	24.0	15.6	552
1733	1988 08	17.95556	21 51	33.85	-11 03	35.2		552
2832	1988 08	17.92917	21 44	45.20	-11 23	53.3	16.0	552
2832	1988 08	17.95556	21 44	43.71	-11 24	02.0		552
2832	1988 08	18.92708	21 43	52.03	-11 29	55.7	16.0	552
2832	1988 08	18.94306	21 43	51.14	-11 30	01.1		552
2832	1988 08	18.95764	21 43	50.27	-11 30	09.0		552
2832	1988 08	18.97361	21 43	49.40	-11 30	15.9		552
2832	1988 08	22.92083	21 40	21.11	-11 54	14.3	16.1	552
2832	1988 08	22.93819	21 40	20.06	-11 54	22.0		552
2832	1988 08	23.88819	21 39	30.55	-12 00	06.7	16.1	552
2832	1988 08	23.90486	21 39	29.67	-12 00	11.8		552
2919	1988 08	17.92917	21 47	56.93	-12 36	12.2	15.7	552
2919	1988 08	17.95556	21 47	55.57	-12 36	18.7		552

568 Mauna Kea

D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive,
Honolulu, HI 96822, U.S.A.

1980 PA	1988 10	07.30648	00 26	59.83	+42 01	55.1		568
1980 PA	1988 10	07.40171	00 28	09.42	+42 10	42.5		568
1980 PA	1988 10	07.61660	00 30	50.34	+42 28	34.4		568
1985 DO2	1988 10	07.40794	00 37	41.69	-33 12	10.0		568
1988 NF	1988 10	07.24001	23 59	41.39	+56 59	08.9		568
1512	1988 10	07.43470	23 12	38.18	-07 47	34.0		568
1578	1988 10	07.41992	22 46	15.99	-08 56	58.9		568
2825	1988 10	07.22642	18 45	43.25	-24 30	21.6		568

571 Cavriana

L. Lai, Via Mantovana 130, I-37062 Dossobuono (Verona), Italy
Observers L. Lai, I. Rocchetti, M. Ruzza, G. Vesentini

0.4-m reflector

SAOC

32	1986 07	28.87361	18 32	26.85	-15 07	35.0		571
32	1986 07	28.88750	18 32	26.44	-15 07	37.0		571
311	1986 10	28.93611	00 54	02.62	+01 16	07.8		571
311	1986 10	28.95000	00 54	02.03	+01 16	04.6		571
311	1986 10	30.86181	00 52	46.10	+01 10	34.0		571
311	1986 10	30.87569	00 52	45.64	+01 10	32.0		571
311	1986 11	04.85972	00 49	44.54	+00 58	24.2		571
311	1986 11	04.87361	00 49	44.08	+00 58	19.9		571
311	1986 11	04.89028	00 49	43.34	+00 58	21.9		571
311	1986 11	04.90417	00 49	42.86	+00 58	21.2		571
424	1986 06	04.87847	15 06	36.89	-08 59	49.8		571
424	1986 06	04.89236	15 06	36.38	-08 59	49.8		571
716	1986 07	28.87361	18 31	23.47	-15 10	26.3		571
716	1986 07	28.88750	18 31	22.92	-15 10	31.5		571
879	1986 11	25.94896	02 34	12.95	+30 17	24.2		571

879	1986	11	26.88750	02	33	35.66	+30	05	50.8	571
879	1986	11	26.90208	02	33	35.12	+30	05	40.0	571
879	1986	11	27.88403	02	32	57.27	+29	53	26.5	571
879	1986	11	27.89792	02	32	56.63	+29	53	15.9	571
879	1986	11	28.89965	02	32	20.00	+29	40	52.2	571
1171	1986	10	24.84167	00	59	29.99	+01	08	04.0	571
1171	1986	10	24.85556	00	59	29.42	+01	08	01.3	571
1171	1986	10	28.90069	00	56	53.29	+00	53	42.2	571
1171	1986	10	28.91458	00	56	52.78	+00	53	39.7	571
1171	1986	10	30.83542	00	55	43.88	+00	47	41.8	571
1171	1986	10	30.84931	00	55	43.29	+00	47	40.3	571
1171	1986	11	04.85972	00	53	01.78	+00	34	47.6	571
1171	1986	11	04.87361	00	53	01.31	+00	34	45.7	571
1303	1986	06	04.87847	15	03	55.10	-08	27	52.8	571
1303	1986	06	04.89236	15	03	54.64	-08	27	58.4	571
1372	1986	11	26.85694	02	08	14.98	+41	47	30.5	571
1372	1986	11	26.87083	02	08	14.31	+41	47	24.2	571
1372	1986	11	27.85278	02	07	30.38	+41	39	49.4	571
1372	1986	11	27.86667	02	07	29.69	+41	39	43.7	571
1372	1986	11	28.86806	02	06	47.52	+41	31	57.5	571
1372	1986	11	28.87847	02	06	47.02	+41	31	51.5	571
1390	1986	10	24.84167	00	57	59.70	+00	32	42.3	571
1390	1986	10	24.85556	00	57	59.07	+00	32	42.4	571
1390	1986	10	28.90069	00	54	50.13	+00	35	54.4	571
1390	1986	10	28.91458	00	54	49.49	+00	35	54.5	571
1390	1986	10	30.83542	00	53	23.74	+00	37	54.8	571
1390	1986	10	30.84931	00	53	23.09	+00	37	55.9	571
1390	1986	11	04.85972	00	49	54.22	+00	44	42.4	571
1390	1986	11	04.87361	00	49	53.83	+00	44	44.7	571
1390	1986	11	04.89028	00	49	52.83	+00	44	47.5	571
1390	1986	11	04.90417	00	49	52.31	+00	44	48.5	571
1815	1986	10	28.93611	00	53	00.80	+01	23	26.4	571
1815	1986	10	28.95000	00	53	00.27	+01	23	21.2	571
1815	1986	10	30.86181	00	51	46.97	+01	16	49.8	571
1815	1986	10	30.87569	00	51	46.64	+01	16	48.4	571
1815	1986	11	04.89028	00	48	49.71	+01	01	51.3	571
1815	1986	11	04.90417	00	48	49.20	+01	01	47.9	571

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A904	PC	1988	08	11.26049	21	30	49.88	-02	44	30.8	657
A904	PC	1988	08	11.30146	21	30	47.68	-02	44	30.7	657
A904	PC	1988	08	22.35764	21	20	49.11	-02	52	02.7	657
A904	PC	1988	08	22.39896	21	20	47.04	-02	52	02.4	657
A904	PC	1988	09	02.21597	21	12	02.03	-03	10	04.3	657
A904	PC	1988	09	02.24236	21	12	00.68	-03	10	06.0	657
A904	PC	1988	09	12.22118	21	05	49.34	-03	31	09.5	657
A904	PC	1988	09	12.27743	21	05	47.54	-03	31	17.1	657
1981	UC1	1988	08	11.33687	23	01	51.86	-10	17	19.4	657
1981	UC1	1988	08	11.38549	23	01	50.21	-10	17	32.4	657
1981	UC1	1988	08	21.37292	22	55	30.39	-11	06	08.3	657
1981	UC1	1988	08	23.34451	22	54	00.93	-11	16	24.0	657
1981	UC1	1988	08	23.38062	22	53	59.17	-11	16	35.7	657
1985	DO2	1988	09	11.37708	00	22	49.92	-11	35	52.4	657
1985	DO2	1988	09	14.29972	00	25	32.73	-15	17	51.5	657
1987	KE1	1988	08	11.36257	00	17	44.27	-10	36	00.2	657
1987	KE1	1988	08	11.40215	00	17	43.98	-10	36	29.0	657

1987 KE1	1988 08 21.38437	00 16 06.56	-12 50 56.2	657
1987 KE1	1988 08 21.44583	00 16 05.26	-12 51 48.6	657
1987 KE1	1988 08 24.39729	00 15 11.07	-13 33 57.9	657
1987 KE1	1988 08 24.43132	00 15 10.39	-13 34 26.6	657
1988 NF	1988 09 08.38792	23 50 57.15	+59 19 42.3	657
1988 NF	1988 09 08.43583	23 50 57.93	+59 20 04.7	657
1988 NF	1988 09 12.33687	23 52 18.72	+59 45 02.8	657
1988 NF	1988 09 12.39174	23 52 19.52	+59 45 19.8	657
673	1988 09 02.25382	22 03 22.50	-07 24 03.4	657
673	1988 09 04.27778	22 01 50.00	-07 33 56.8	657
1467	1988 09 02.25382	22 04 34.30	-07 01 31.3	657
1467	1988 09 04.27778	22 02 41.52	-06 57 14.7	657
1685	1988 08 24.45076	06 58 50.01	+55 25 09.2	657
1685	1988 08 24.46396	06 58 57.41	+55 24 23.2	657

675 Palomar

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1.5-m reflector + CCD (C), 1.2-m (L) and 0.46-m (S) Schmidt telescopes

1974 XT	1988 09 05.17795	20 02 39.84	-28 19 43.2	17.2	2 675
1974 XT	1988 09 07.18038	20 01 56.43	-28 41 39.0		2 675
1980 PA	1988 09 19.36561	22 25 22.61	+16 37 12.1		1 675
1980 PA	1988 09 19.36752	22 25 22.88	+16 37 18.8		1 675
1980 PA	1988 09 19.36921	22 25 23.09	+16 37 24.9		1 675
1980 PA	1988 09 19.37472	22 25 23.87	+16 37 44.6		1 675
1980 PA	1988 09 20.30969	22 28 05.00	+17 36 03.9		1 675
1980 PA	1988 09 20.31140	22 28 05.23	+17 36 10.4		1 675
1980 PA	1988 09 20.31370	22 28 05.56	+17 36 19.3		1 675
1983 XF	1988 09 20.35712	00 28 31.28	-03 04 44.0		1 675
1983 XF	1988 09 20.36308	00 28 30.96	-03 04 46.2		1 675
1983 XF	1988 09 20.36906	00 28 30.66	-03 04 48.1		1 675
1985 DO2	1988 09 06.34184	00 17 15.04	-04 39 57.3	14.0	2 675
1985 DO2	1988 09 06.38507	00 17 17.75	-04 43 39.8		2 675
1985 DO2	1988 09 08.37413	00 19 38.71	-07 31 55.2		2 675
1985 DO2	1988 09 08.40278	00 19 40.33	-07 34 16.1		2 675
1986 CB	1988 09 07.16962	20 46 15.10	-26 43 25.5	17.5	2 675
1986 CB	1988 09 07.19097	20 46 14.18	-26 43 40.1		2 675
1988 ND	1988 09 05.15573	20 04 29.75	-25 27 21.9	16.0	2 675
1988 ND	1988 09 07.18038	20 04 05.08	-26 01 28.7		2 675
1988 NN	1988 09 04.16615	19 38 08.35	+03 46 34.7	15.5	2 675
1988 NN	1988 09 04.19062	19 38 08.56	+03 46 18.7		2 675
1988 PA	1988 09 07.20694	21 09 58.09	-13 26 32.6	17.2	2 675
1988 PA	1988 09 07.23420	21 10 00.63	-13 27 04.4		2 675
1988 PE	1988 09 05.17240	20 44 23.54	-22 01 31.7	16.0	2 675
1988 PE	1988 09 07.18559	20 44 05.70	-21 39 48.8		2 675
1988 PF	1988 09 07.20035	20 59 01.39	-23 59 00.2	17.5	2 675
1988 PF	1988 09 07.22639	20 59 00.86	-23 59 07.6		2 675

1988	PO	1988	09	08.25208	22	32	06.08	+13	14	15.3	16.5	2	675
1988	PO	1988	09	09.32674	22	31	12.19	+13	10	12.7		2	675
1988	PP	1988	09	05.21250	21	25	40.35	-20	42	04.6	16.5	2	675
1988	PP	1988	09	05.23802	21	25	39.24	-20	42	13.7		2	675
1988	PT	1988	09	03.26753	22	04	19.07	+02	26	53.6	17.5	2	675
1988	PT	1988	09	06.23403	22	02	09.35	+01	57	03.3		2	675
1988	PU	1988	09	05.20156	21	04	38.35	+02	37	37.9	16.8	2	675
1988	PU	1988	09	08.27778	21	03	03.37	+02	20	16.3		2	675
1988	PW	1988	09	11.24931	22	14	33.14	-18	55	05.7	15.8	3	675
1988	PW	1988	09	13.30660	22	14	34.24	-18	52	24.5		3	675
1988	PW	1988	09	16.21076	22	14	48.34	-18	46	31.2		3	675
1988	PX	1988	09	11.24931	22	17	43.72	-19	42	56.7	17.4	3	675
1988	PX	1988	09	13.30660	22	17	14.34	-19	17	45.2		3	675
1988	PY	1988	09	10.34444	22	34	11.79	-03	57	40.7	17.5	3	675
1988	PY	1988	09	12.27065	22	33	12.34	-04	02	17.0		3	675
1988	PY	1988	09	13.28194	22	32	41.43	-04	04	42.4		3	675
1988	PH1	1988	09	03.29774	22	07	20.31	-01	36	15.8	15.5	2	675
1988	PH1	1988	09	06.23403	22	04	28.10	-01	27	14.7		2	675
1988	QY *	1988	08	18.27326	21	43	53.56	+23	16	43.5	18	3	675
1988	QY	1988	08	18.30555	21	43	52.56	+23	16	37.4		3	675
1988	QY	1988	09	10.20885	21	33	00.59	+21	33	07.1	18.5	3	675
1988	QY	1988	09	12.15399	21	32	14.38	+21	21	23.1		3	675
1988	QY	1988	09	13.16233	21	31	51.24	+21	15	10.6		3	675
1988	QZ *	1988	08	16.45347	00	04	14.23	+02	02	18.8	17.2	3	675
1988	QZ	1988	08	16.49062	00	04	13.61	+02	03	01.3		3	675
1988	QZ	1988	09	11.34566	23	46	07.44	+09	37	28.2	16.8	3	675
1988	QZ	1988	09	13.36701	23	43	54.89	+10	06	45.5		3	675
1988	RE *	1988	09	11.38750	01	47	49.5	+36	16	04	17	7	675
1988	RE	1988	09	11.42917	01	47	49.0	+36	14	44		7	675
1988	RE	1988	09	14.36597	01	47	18.1	+34	30	05		7	675
1988	RE	1988	09	14.40417	01	47	17.4	+34	28	45		7	675
1988	RE	1988	09	19.45823	01	45	22.86	+31	05	02.5		1	675
1988	RE	1988	09	19.46171	01	45	22.73	+31	04	53.5		1	675
1988	RE	1988	09	19.46561	01	45	22.58	+31	04	43.2		1	675
1988	RE	1988	09	20.41091	01	44	53.75	+30	23	20.5		1	675
1988	RE	1988	09	20.41424	01	44	53.64	+30	23	11.7		1	675
1988	RE	1988	09	20.41875	01	44	53.47	+30	22	59.6		1	675
1988	RE	1988	10	05.30556	01	33	22.18	+17	37	30.6		7	675
1988	RE	1988	10	05.33681	01	33	20.33	+17	35	48.3		7	675
1988	RF *	1988	09	05.32517	00	04	19.98	+18	54	50.4	16.8	2	675
1988	RF	1988	09	07.29184	00	01	58.31	+19	20	49.1		2	675
1988	RG *	1988	09	08.26233	23	20	00.66	-02	40	18.3	16.0	2	675
1988	RG	1988	09	09.32066	23	19	24.02	-02	55	53.3		2	675
1988	RH *	1988	09	08.26233	23	20	24.25	-01	29	52.3	17.0	2	675
1988	RH	1988	09	09.32066	23	18	32.79	-01	16	05.5		2	675
1988	RJ *	1988	09	08.26233	23	32	44.59	-05	05	39.8	16.2	2	675
1988	RJ	1988	09	09.32066	23	32	14.39	-05	27	32.7		2	675
1988	RK *	1988	09	08.26233	23	35	30.52	+00	19	56.5	16.0	2	675
1988	RK	1988	09	09.32066	23	34	52.55	+00	04	36.1		2	675
1988	RL *	1988	09	08.36076	00	55	44.69	+20	50	07.3	15.0	2	675
1988	RL	1988	09	09.41962	00	55	06.02	+20	57	20.5		2	675
1988	RO	1988	09	11.29270	23	24	29.17	+08	48	53.3	17.8	3	675
1988	RO	1988	09	11.37942	23	24	26.54	+08	48	31.5		3	675
1988	RT *	1988	09	11.28420	23	06	27.32	+03	02	54.5	17	3	675
1988	RT	1988	09	16.37413	23	03	58.00	+02	48	13.5		3	675
1988	RU *	1988	09	11.28420	23	16	53.34	+03	37	02.1	16	3	675
1988	RU	1988	09	16.37413	23	14	26.34	+03	17	27.9		3	675
1988	RV	1988	08	16.38194	22	39	12.02	-15	00	43.4	18.0	3	675
1988	RV	1988	08	16.41233	22	39	11.14	-15	00	47.4		3	675

1988	RV	*	1988	09	11.22396	22	25	33.66	-15	39	45.1	17.9	3	675
1988	RV		1988	09	13.29063	22	24	30.73	-15	41	49.3		3	675
1988	RW	*	1988	09	11.31875	23	16	27.33	-02	48	57.9	18.1	3	675
1988	RW		1988	09	12.31536	23	15	54.79	-02	51	23.5		3	675
1988	RW		1988	09	16.37413	23	13	43.26	-03	01	16.3		3	675
1988	RX	*	1988	09	13.34149	23	00	40.62	-13	13	05.9	17.6	3	675
1988	RX		1988	09	16.32256	22	59	16.01	-13	25	51.7		3	675
1988	RA1		1988	09	11.29270	23	21	07.46	+09	18	33.0	17.1	3	675
1988	RA1		1988	09	11.32725	23	21	06.22	+09	18	30.7		3	675
1988	RF1	*	1988	09	10.31666	23	29	49.42	-10	42	12.9	18.3	3	675
1988	RF1		1988	09	12.38177	23	28	29.72	-10	43	36.6		3	675
1988	RG1	*	1988	09	10.31666	23	35	11.94	-09	08	24.3	17.7	3	675
1988	RG1		1988	09	12.38177	23	34	15.91	-09	20	33.3		3	675
1988	RH1	*	1988	09	10.38542	00	11	07.90	-05	26	24.4	17.5	3	675
1988	RH1		1988	09	16.42326	00	08	26.78	-05	53	39.3		3	675
1988	RJ1	*	1988	09	10.38542	00	23	12.10	-03	44	49.8	18	3	675
1988	RJ1		1988	09	16.42326	00	21	28.17	-03	48	50.7		3	675
1988	RK1	*	1988	09	10.38542	00	36	16.95	-07	05	42.4	17.5	3	675
1988	RK1		1988	09	14.40174	00	34	25.36	-07	17	53.5		3	675
1988	RK1		1988	09	16.42326	00	33	27.01	-07	23	53.1		3	675
1988	RM1	*	1988	09	10.34444	22	38	14.49	+01	24	23.6	18.1	3	675
1988	RM1		1988	09	11.30104	22	37	47.33	+01	20	50.4		3	675
1988	RM1		1988	09	12.27065	22	37	20.07	+01	17	06.0		3	675
1988	RN1	*	1988	09	10.34444	22	52	35.71	+00	01	02.9	17	3	675
1988	RN1		1988	09	12.27065	22	51	27.63	+00	00	26.8		3	675
1988	RO1		1988	08	18.42291	23	31	39.62	+18	09	06.3	17.8	3	675
1988	RO1		1988	08	18.45451	23	31	43.24	+18	08	41.7		3	675
1988	RO1		1988	09	13.39175	00	15	14.64	+07	46	38.9		3	675
1988	RO1	*	1988	09	13.41736	00	15	16.23	+07	45	52.5	17	3	675
1988	RO1		1988	09	14.33506	00	16	24.06	+07	16	56.0		3	675
1988	RO1		1988	09	14.36909	00	16	26.21	+07	15	50.9		3	675
1988	RQ1	*	1988	09	10.25469	22	44	37.68	-19	54	37.3	17.5	3	675
1988	RQ1		1988	09	14.31770	22	43	29.56	-20	28	41.7		3	675
1988	RR1	*	1988	09	10.44930	01	04	34.18	+03	14	23.7	18.1	3	675
1988	RR1		1988	09	12.42951	01	03	47.67	+03	13	37.8		3	675
1988	RS2	*	1988	09	05.30799	00	38	50.73	+08	06	23.0	16.0	2	675
1988	RS2		1988	09	07.29757	00	38	17.69	+07	50	21.8		2	675
1988	RT2	*	1988	09	05.33594	00	51	51.31	+01	10	31.7	16.5	2	675
1988	RT2		1988	09	08.40833	00	50	41.65	+00	48	53.9		2	675
1988	TA	*	1988	10	05.30556	01	37	12.30	+12	30	54.2	16	7	675
1988	TA		1988	10	05.33681	01	37	03.85	+12	27	39.9		7	675
1988	TA		1988	10	06.30694	01	34	11.10	+11	00	26.4		7	675
1988	TA		1988	10	06.32778	01	34	06.76	+10	58	49.6		7	675
1988	TA		1988	10	09.29809	01	28	32.40	+08	13	04.7		3	675
1988	TA		1988	10	10.32726	01	27	13.94	+07	35	43.6		3	675
1988	TA		1988	10	10.48576	01	26	58.31	+07	30	31.2		3	675
1988	TH	*	1988	10	08.31563	00	52	06.33	+00	53	05.4	17	3	675
1988	TH		1988	10	10.31892	00	47	35.59	+01	52	34.0		3	675
2636	P-L	*	1960	09	24.46184	00	37	20.77	+02	18	05.8	18.7	4	675
2636	P-L		1960	09	26.31530	00	35	36.70	+02	04	36.9		4	675
2636	P-L		1960	09	27.40836	00	34	34.77	+01	56	40.5		4	675
2636	P-L		1960	09	28.39725	00	33	38.64	+01	49	26.6		4	675
2636	P-L		1960	10	17.31529	00	16	54.11	-00	16	27.7		4	675
2636	P-L		1960	10	22.26809	00	13	22.06	-00	42	23.7		4	675
2636	P-L		1960	10	25.25350	00	11	29.74	-00	55	59.4		4	675
2636	P-L		1960	10	25.30351	00	11	27.89	-00	56	12.8		4	675
2636	P-L		1960	10	26.31531	00	10	52.70	-01	00	27.6		4	675
4598	P-L	*	1960	09	24.41183	00	19	06.96	+01	37	29.6	17.8	4	675
4598	P-L		1960	09	26.31530	00	17	22.74	+01	27	43.2		4	675

4598	P-L	1960	09	27.40836	00	16	22.76	+01	22	08.4		4	675
4598	P-L	1960	09	28.32780	00	15	32.63	+01	17	24.9		4	675
4598	P-L	1960	09	28.39725	00	15	28.73	+01	17	03.9		4	675
4598	P-L	1960	10	22.23406	23	56	57.41	-00	24	34.0		4	675
4598	P-L	1960	10	25.25350	23	55	21.23	-00	32	48.3		4	675
4598	P-L	1960	10	26.31531	23	54	50.52	-00	35	22.2		4	675
7068	P-L	* 1960	10	17.27085	23	58	08.40	+04	58	50.5	17.3	4	675
7068	P-L	1960	10	22.22293	23	56	48.09	+04	11	31.3		4	675
7068	P-L	1960	10	24.35836	23	56	25.25	+03	52	34.4		4	675
7068	P-L	1960	10	26.32573	23	56	11.63	+03	35	58.8		4	675
2035	T-3	1977	10	07.25868	01	09	21.62	+13	24	57.2		4	675
2035	T-3	1977	10	11.27743	01	07	10.28	+13	14	52.2		4	675
2035	T-3	1977	10	11.34375	01	07	08.06	+13	14	41.6		4	675
2035	T-3	1977	10	12.27587	01	06	37.64	+13	12	14.4		4	675
2035	T-3	1977	10	12.34271	01	06	35.34	+13	12	03.8		4	675
2035	T-3	* 1977	10	16.26233	01	04	27.94	+13	01	32.6	19.1	4	675
2035	T-3	1977	10	16.32795	01	04	25.64	+13	01	21.9		4	675
2035	T-3	1977	10	17.26458	01	03	55.45	+12	58	49.6		4	675
2035	T-3	1977	10	17.33177	01	03	53.20	+12	58	39.5		4	675
2035	T-3	1977	10	21.40868	01	01	43.71	+12	47	20.0		4	675
2035	T-3	1977	10	21.46910	01	01	41.87	+12	47	09.3		4	675
2035	T-3	1977	10	22.41528	01	01	12.34	+12	44	30.5		4	675
2035	T-3	1977	10	22.46962	01	01	10.64	+12	44	21.8		4	675
1827		1988	08	07.25660	20	07	30.21	-13	28	10.8	16.5	2	675
1827		1988	08	07.28333	20	07	28.76	-13	28	15.5		2	675
2276		1988	09	07.27986	23	17	16.07	-00	59	37.3		2	675

688 Lowell Observatory, Anderson Mesa Station

E. Bowell, Lowell Observatory, 1400 West Mars Hill Road,
Flagstaff, AZ 86001, U.S.A.

Observers A. Cummings, B. A. Skiff, N. G. Thomas, K. W. Zeigler
Measurer K. W. Zeigler

0.33-m photographic telescope

PDS scanning microdensitometer

AGK3 and Perth 70 secondary nets, global solutions

See also MPC 9533

1977	CD	1988	05	13.16736	13	31	34.41	+13	26	10.6	16.8		688
1977	CD	1988	05	13.29722	13	31	30.48	+13	27	06.6			688
1977	CU	1988	08	08.32986	22	27	58.96	-10	21	23.9	17.0	P	688
1977	CU	1988	08	08.35486	22	27	57.53	-10	21	28.7		P	688
1978	RS	1988	08	09.20000	21	35	12.12	-13	59	03.7	15.8	P	688
1978	RS	1988	08	09.23680	21	35	10.18	-13	59	11.9			688
1981	WG9	1988	08	09.26806	22	40	38.19	-07	55	54.0	16.8		688
1981	WG9	1988	08	09.31944	22	40	36.37	-07	56	11.5			688
1982	SY2	1988	05	12.21528	13	41	02.40	-10	44	59.5	16.8		688
1982	SY2	1988	05	12.29444	13	40	58.41	-10	44	49.1			688
1982	UP6	1988	05	20.28478	14	11	43.69	-08	32	04.1	15.5		688
1982	UP6	1988	05	20.32940	14	11	42.34	-08	31	12.8			688
1982	UP6	1988	06	08.21010	14	07	42.36	-03	25	06.0			688
1982	UP6	1988	06	08.26690	14	07	42.44	-03	24	26.3			688
1982	UG7	1988	08	09.26806	22	49	55.45	-02	20	10.0	16.5		688
1982	UG7	1988	08	09.31944	22	49	54.04	-02	20	17.1			688
1986	RC2	1988	05	12.17569	12	45	26.33	+14	23	17.5	16.5		688
1986	RC2	1988	05	12.24792	12	45	25.03	+14	23	54.2			688
1988	JD1	* 1988	05	15.19792	14	04	01.75	-11	04	22.9	16.5		688
1988	JD1	1988	05	15.30764	14	03	57.76	-11	03	19.6			688
1988	JD1	1988	05	20.28478	14	01	17.23	-10	14	33.4	16.2		688
1988	JD1	1988	05	20.32940	14	01	15.84	-10	14	08.5			688
1988	JD1	1988	06	08.18194	13	56	40.26	-07	56	21.6	16.2		688

1988	JD1	1988	06	08.23771	13	56	40.17	-07	56	06.9	688
9		1988	06	08.18194	13	43	33.76	-07	12	55.3	688
9		1988	06	08.23771	13	43	33.01	-07	13	02.1	688
18		1988	08	09.26806	23	02	21.31	-06	06	25.8	688
18		1988	08	09.31944	23	02	20.55	-06	06	58.3	688
97		1988	08	09.26806	23	00	56.04	-04	15	02.9	688
97		1988	08	09.31944	23	00	54.55	-04	15	25.6	688
150		1988	08	09.26806	22	55	14.08	-03	57	49.1	688
150		1988	08	09.31944	22	55	12.42	-03	57	59.0	688
184		1988	08	08.32986	22	35	38.79	-08	54	31.7	688
184		1988	08	08.35486	22	35	37.82	-08	54	36.2	688
189		1988	06	08.18194	13	40	02.94	-07	32	01.0	688
189		1988	06	08.23771	13	40	02.63	-07	31	57.6	688
227		1988	08	08.32986	22	20	38.56	-10	20	18.7	688
227		1988	08	08.35486	22	20	37.36	-10	20	21.4	688
251		1988	08	09.20000	21	31	35.28	-10	15	43.2	688
251		1988	08	09.23680	21	31	33.71	-10	15	55.6	688
308		1988	08	09.20000	21	36	55.47	-09	22	17.7	688
308		1988	08	09.23680	21	36	53.77	-09	22	29.8	688
355		1988	08	08.32986	22	30	28.19	-12	20	31.2	688
355		1988	08	08.35486	22	30	26.99	-12	20	36.2	688
429		1988	05	20.28478	14	05	39.65	-12	07	07.4	688
429		1988	05	20.32940	14	05	37.90	-12	06	50.9	688
429		1988	06	08.18194	13	57	07.64	-10	32	41.7	688
429		1988	06	08.23771	13	57	06.75	-10	32	30.0	688
586		1988	08	09.26806	22	49	20.16	-05	06	01.5	688
586		1988	08	09.31944	22	49	18.37	-05	06	11.9	688
627		1988	08	09.20000	21	32	39.74	-14	00	07.9	688
627		1988	08	09.23680	21	32	38.05	-14	00	21.8	688
709		1988	08	09.26806	22	44	15.93	-04	21	40.5	688
709		1988	08	09.31944	22	44	13.38	-04	21	32.0	688
725		1988	06	09.24684	14	17	40.74	-11	55	27.0	688
834		1988	05	20.28478	14	01	58.36	-08	21	22.3	688
834		1988	05	20.32940	14	01	56.92	-08	21	13.6	688
834		1988	06	08.18194	13	55	29.35	-07	40	58.4	688
834		1988	06	08.23771	13	55	28.82	-07	40	57.7	688
847		1988	05	20.28478	14	03	23.33	-15	25	17.9	688
847		1988	05	20.32940	14	03	21.74	-15	25	04.1	688
931		1988	05	12.24792	12	38	10.86	+11	24	17.4	688
941		1988	05	20.28478	13	58	26.17	-09	53	20.5	688
946		1988	06	08.18194	13	52	10.16	-10	38	15.7	688
946		1988	06	08.23771	13	52	09.42	-10	38	13.8	688
1074		1988	05	20.28478	14	10	20.20	-13	13	20.8	688
1074		1988	05	20.32940	14	10	18.69	-13	13	11.8	688
1074		1988	06	08.23771	14	01	31.30	-12	29	26.3	688
1087		1988	06	08.18194	13	36	05.32	-12	35	39.3	688
1087		1988	06	08.23771	13	36	04.35	-12	35	39.9	688
1117		1988	08	09.31944	22	57	35.77	-06	59	55.5	688
1279		1988	08	08.32986	22	31	18.74	-11	22	07.6	688
1279		1988	08	08.35486	22	31	17.35	-11	22	08.8	688
1353		1988	06	08.18194	13	36	36.22	-07	58	24.2	688
1353		1988	06	08.23771	13	36	35.88	-07	58	16.9	688
1383		1988	08	08.32986	22	36	05.42	-08	46	14.2	688
1383		1988	08	08.35486	22	36	04.50	-08	46	17.8	688
1449		1988	06	08.21010	14	01	08.19	-01	42	41.3	688
1449		1988	06	08.26690	14	01	07.98	-01	43	05.2	688
1467		1988	08	08.32986	22	28	14.99	-08	02	07.8	688
1467		1988	08	08.35486	22	28	13.66	-08	02	03.3	688
1537		1988	08	09.26806	22	39	10.67	-01	31	15.0	688

1537	1988 08 09.31944	22 39 09.12	-01 31 19.8	688
1561	1988 08 09.20000	21 34 27.88	-07 21 20.4	688
1561	1988 08 09.23680	21 34 26.30	-07 21 31.5	688
1684	1988 06 09.24684	14 32 52.40	-10 30 57.3	688
1690	1988 06 08.18194	13 44 07.50	-13 22 57.7	688
1690	1988 06 08.23771	13 44 06.77	-13 22 41.7	688
1708	1988 08 09.20000	21 31 36.58	-07 12 24.3	688
1708	1988 08 09.23680	21 31 34.97	-07 12 36.6	688
1725	1988 06 09.24684	14 23 48.16	-09 56 31.2	688
1765	1988 05 13.16736	13 30 07.72	+10 58 05.2	688
1765	1988 05 13.29722	13 30 02.56	+10 57 42.2	688
1851	1988 08 08.32986	22 23 13.48	-12 30 08.1	688
2122	1988 06 08.21010	14 08 50.57	-02 29 14.1	688
2122	1988 06 08.26690	14 08 49.37	-02 29 26.7	688
2248	1988 05 20.28478	14 03 32.41	-12 57 24.7	688
2248	1988 05 20.32940	14 03 30.73	-12 57 17.1	688
2277	1988 05 12.17569	12 44 58.00	+14 18 10.7	688
2277	1988 05 12.24792	12 44 56.80	+14 17 44.1	688
2399	1988 08 08.32986	22 32 28.99	-09 04 12.9	688
2399	1988 08 08.35486	22 32 28.12	-09 04 23.0	688
2659	1988 08 08.32986	22 39 22.74	-08 19 25.8	688
2929	1988 05 12.17569	12 52 30.65	+13 29 32.7	688
2929	1988 05 12.24792	12 52 29.10	+13 29 27.4	688
3171	1988 05 20.28478	13 56 26.35	-14 08 50.0	688
3171	1988 05 20.32940	13 56 24.47	-14 08 45.1	688
3408	1988 08 08.32986	22 18 17.51	-11 47 34.7	688
3408	1988 08 08.35486	22 18 16.66	-11 47 43.5	688
3533	1988 06 08.18194	13 52 00.44	-07 38 31.8	688
3533	1988 06 08.23771	13 51 59.93	-07 38 29.3	688
3591	1988 05 20.28478	14 02 24.90	-12 54 38.2	688
3591	1988 05 20.32940	14 02 23.19	-12 54 31.3	688
3616	1988 05 12.17569	12 44 39.96	+16 17 37.3	688
3616	1988 05 12.24792	12 44 38.61	+16 17 16.6	688
3631	1988 05 13.16736	13 31 02.66	+08 55 30.3	688
3631	1988 05 13.29722	13 30 58.84	+08 55 42.1	688
3687	1988 05 20.28478	13 59 28.84	-13 37 30.0	688
3687	1988 05 20.32940	13 59 27.00	-13 37 06.4	688
3857	1988 06 09.19245	14 24 28.18	-15 15 23.8	688
3857	1988 06 09.24684	14 24 27.52	-15 15 24.7	688

16.8

697 Kitt Peak, McGraw-Hill Observatory

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1.3-m reflector

1988 TB was discovered on Oct. 3.2 by D. Hudek, D. Meyer and
K. Roth with the 4-m reflector at Kitt Peak

1988 TB *	1988 10 03.27677	23 48 25.04	-01 08 31.7	15.6V	697
1988 TB	1988 10 03.28272	23 48 24.77	-01 08 34.3		697
1988 TB	1988 10 03.28902	23 48 24.47	-01 08 37.0		697
1988 TB	1988 10 03.29332	23 48 24.22	-01 08 39.6		697
1988 TB	1988 10 07.34944	23 45 35.96	-01 36 35.9		697

801 Oak Ridge

R. E. McCrosky, Harvard-Smithsonian Center for Astrophysics,
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Observers R. E. McCrosky, C.-Y. Shao

1.5-m reflector

AC

1977 CU	1988 08 09.31333	22 27 13.01	-10 23 24.8		801
1977 RH7	1988 09 14.31718	00 02 54.95	-03 30 19.9	T	801
1977 SS2	1988 08 13.30807	23 10 09.30	-02 33 51.0		801
1977 SS2	1988 09 09.28611	22 55 19.00	-07 05 56.6		801
1978 RS	1988 08 10.25725	21 34 12.68	-14 02 01.9		801
1978 RS	1988 09 16.10563	21 07 39.78	-15 07 38.7		801
1978 TU5	1988 08 10.23471	21 20 10.41	-14 18 30.3		801
1981 WG9	1987 05 02.19563	13 29 07.77	-05 15 59.8		801
1981 WG9	1988 08 13.28962	22 38 03.30	-08 19 02.3		801
1981 WG9	1988 09 14.17758	22 12 35.35	-11 51 02.2	T	801
1982 UG7	1988 09 12.24732	22 26 55.38	-05 29 46.1		801
1983 AY	1988 09 12.16017	21 42 29.32	-06 22 51.1		801
1984 QO	1988 08 10.31725	22 45 24.76	-13 55 34.7		801
1984 QO	1988 09 14.15588	22 07 57.83	-13 56 44.0	T	801
1985 UL	1988 09 12.26800	23 02 10.68	+01 04 19.5		801
1985 UL	1988 09 15.31087	22 59 17.87	+00 43 54.7		801
1986 CH	1988 08 09.27036	21 35 51.66	-03 07 23.2		801
1987 KE1	1988 09 14.28848	00 04 20.98	-18 36 11.6	T	801
1988 NF	1988 09 15.37086	23 53 10.38	+59 55 22.0		801
1988 NF	1988 09 15.38175	23 53 10.47	+59 55 22.6		801
1988 NF	1988 10 06.40941	23 59 16.80	+57 13 55.6		801
1988 PA	1988 09 09.14761	21 13 04.65	-13 58 45.6		801
1988 RO1	1988 10 06.17148	00 36 07.81	-03 14 35.4		801
1988 SM	1988 10 07.09096	22 21 01.16	-05 03 21.2	17.5	801
1988 TA	1988 10 10.32720	01 27 10.10	+07 35 31.7		801
1988 TA	1988 10 13.18552	01 24 35.41	+06 20 38.3	t	801
2321 T-3	1988 09 09.17317	21 46 06.65	-02 54 33.5		801
929	1988 09 12.26800	23 02 19.19	+00 42 23.4	E	801
929	1988 09 15.31087	22 59 32.16	+00 19 50.1		801
951	1988 09 09.03677	18 08 07.90	-19 28 16.5		801
3451	1988 09 12.26800	23 03 40.03	+01 02 21.6		801

807 Cerro Tololo

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1.5-m telescope

1988 PA	1988 09 19.21233	21 29 43.30	-16 05 16.2		807
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809 European Southern Observatory

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Measurers H. Bohnhardt, M. Geffert, W. Landgraf

Reductions M. Geffert, L. Kohoutek, W. Landgraf

GPO 0.4-m astrograph

1988 JE	1988 05 23.16736	14 33 26.69	-09 29 56.1	16.4	2 809
1988 JE	1988 05 23.17292	14 33 26.47	-09 29 56.3		2 809
1988 JE	1988 05 24.16007	14 32 47.29	-09 27 50.7		2 809
1988 JE	1988 05 24.16493	14 32 47.02	-09 27 50.0	17.0	2 809
1988 JE	1988 05 24.16979	14 32 46.94	-09 27 49.5		2 809
1988 JE	1988 05 25.26632	14 32 04.07	-09 25 35.1		2 809
1988 KV	1988 05 16.25660	14 42 53.36	-09 09 47.0	16.2	2 809
1988 KV	1988 05 23.16181	14 37 03.98	-09 13 01.0		2 809
1988 KV	1988 05 23.16736	14 37 03.78	-09 13 02.0	16.4	2 809
1988 KV	1988 05 24.16007	14 36 18.33	-09 14 07.1		2 809

1988	KV	*	1988	05	24.16493	14	36	18.09	-09	14	06.3	16.3	2	809
1988	KV		1988	05	24.16979	14	36	17.77	-09	14	07.0		2	809
1988	KV		1988	05	25.26146	14	35	29.33	-09	15	26.6		2	809
1988	KV		1988	05	25.26632	14	35	29.11	-09	15	27.2		2	809
1988	KV		1988	05	25.27118	14	35	28.87	-09	15	27.3		2	809
1988	KW		1988	05	23.16736	14	35	53.75	-07	47	54.7	17.7	2	809
1988	KW		1988	05	24.16007	14	35	19.83	-07	44	16.3		2	809
1988	KW	*	1988	05	24.16493	14	35	19.45	-07	44	13.7	18.2	2	809
1988	KW		1988	05	24.16979	14	35	19.15	-07	44	12.5		2	809
1988	KX		1988	05	23.16181	14	35	04.64	-09	00	43.4		2	809
1988	KX	*	1988	05	23.16736	14	35	04.51	-09	00	43.9	16.1	2	809
1988	KX		1988	05	23.17292	14	35	04.34	-09	00	44.3		2	809
1988	KX		1988	05	24.16493	14	34	37.56	-09	02	41.1	16.6	2	809
1988	KX		1988	05	25.26146	14	34	08.36	-09	04	54.1		2	809
1988	KX		1988	05	25.26632	14	34	08.07	-09	04	52.9		2	809
1988	KX		1988	05	25.27118	14	34	08.08	-09	04	54.2		2	809
1988	KY		1988	05	23.16181	14	36	28.18	-09	11	35.5		2	809
1988	KY		1988	05	23.16736	14	36	28.04	-09	11	37.5	17.2	2	809
1988	KY		1988	05	23.17292	14	36	27.83	-09	11	36.8		2	809
1988	KY		1988	05	24.16007	14	35	55.94	-09	09	23.4		2	809
1988	KY	*	1988	05	24.16493	14	35	55.77	-09	09	22.0	16.7	2	809
1988	KY		1988	05	24.16979	14	35	55.47	-09	09	22.7		2	809
8			1987	10	28.05415	21	24	41.09	-22	03	03.7		6	809
8			1987	10	28.06211	21	24	41.57	-22	03	00.3		6	809
8			1987	10	28.07631	21	24	42.51	-22	02	55.0		6	809
8			1987	10	29.09990	21	25	49.22	-21	56	44.7		6	809
8			1987	10	29.10890	21	25	49.78	-21	56	41.2		6	809
8			1987	10	29.11827	21	25	50.40	-21	56	37.6		6	809
39			1987	10	28.12829	23	33	55.46	-11	07	44.9		6	809
39			1987	10	28.13968	23	33	55.36	-11	07	46.9		6	809
39			1987	10	28.14764	23	33	55.27	-11	07	47.9		6	809
39			1987	10	29.12621	23	33	47.82	-11	09	59.4		6	809
39			1987	10	29.14214	23	33	47.68	-11	10	01.3		6	809
39			1987	10	29.15438	23	33	47.59	-11	10	03.1		6	809
40			1987	10	28.16738	02	06	59.49	+05	33	19.2		6	809
40			1987	10	28.17154	02	06	59.21	+05	33	18.4		6	809
40			1987	10	29.16361	02	05	58.51	+05	29	29.6		6	809
40			1987	10	29.17261	02	05	57.97	+05	29	28.0		6	809
40			1987	10	29.17919	02	05	57.53	+05	29	26.2		6	809
3132			1988	05	23.16181	14	34	39.18	-09	08	38.6		2	809
3132			1988	05	23.16736	14	34	38.97	-09	08	37.6	15.4	2	809
3132			1988	05	23.17292	14	34	38.73	-09	08	36.8		2	809
3132			1988	05	24.16007	14	34	00.62	-09	06	39.6		2	809
3132			1988	05	24.16493	14	34	00.43	-09	06	38.5	14.9	2	809
3132			1988	05	24.16979	14	34	00.23	-09	06	38.2		2	809
3132			1988	05	25.26146	14	33	18.76	-09	04	34.0		2	809
3132			1988	05	25.26632	14	33	18.62	-09	04	33.5		2	809
3132			1988	05	25.27118	14	33	18.43	-09	04	32.4		2	809
3882			1988	05	24.20625	14	43	56.80	-10	14	06.2	13.6	2	809

870 Campinas

G. G. Vieira, Observatorio do Valongo, Universidade Federal Rio de Janeiro, BR-20080 Rio de Janeiro, Brazil

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Measurers J. F. Caldeira, E. R. Netto, G. G. Vieira

0.40-m f/5 astrograph

3652			1988	08	13.16597	21	22	13.0	-10	32	47	14.5	870
3652			1988	08	16.11042	21	19	44.33	-10	43	50.1	14.5	870
3652			1988	08	16.12153	21	19	44.73	-10	43	52.3	14.5	870

3652	1988 08 16.13264	21 19 43.24	-10 43 56.4	14.5	870
3652	1988 08 21.18403	21 15 38.37	-11 03 21.6	14.5	870

888 Gekko

Y. Oshima, Gekko Observatory, Kan-nami, Shizuoka 419-01, Japan

Observer Y. Oshima

0.5-m f/4 reflector

1962 OB	1988 10 09.59514	01 29 11.91	+29 20 28.8	16.5	888
1962 OB	1988 10 09.62847	01 29 09.78	+29 20 24.7		888
1976 SD3	1988 10 09.61181	02 25 40.88	+14 23 06.9	17.5	888
1976 SD3	1988 10 09.64514	02 25 39.46	+14 23 01.7		888
1981 TQ1	1988 10 09.58681	01 11 30.60	+14 05 10.6	17.0	888
1981 TQ1	1988 10 09.62014	01 11 28.44	+14 05 03.1		888
1988 TG *	1988 10 09.58681	01 10 05.27	+13 36 03.2	17.0	888
1988 TG	1988 10 09.62014	01 10 04.24	+13 35 02.7		888
1988 TG	1988 10 10.69306	01 09 34.50	+13 02 21.5		888
1988 TG	1988 10 10.72500	01 09 33.58	+13 01 23.3		888
1472	1988 10 09.60347	01 49 24.46	+06 57 49.8	15	888
1472	1988 10 09.63681	01 49 22.53	+06 57 47.8		888

* * * * *

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, l = W. Landgraf, M = B. G. Marsden, m = R. H. McNaught, N = S. Nakano.

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1980 DX	13.0	800211	201.71	155.27	155.54	9.61	0.0682	2.6183	30	9	D	N
1987 SG13	14.0	871012	324.56	28.21	21.90	4.71	0.1160	2.2219	51	0	D	N
1988 BE5	13.0	880219	12.10	281.20	220.43	12.16	0.1327	2.6252	44	6		m
1988 BF5	14.0	880219	317.67	329.13	243.61	10.67	0.1357	2.6640	44	6		m
1988 BG5	14.0	880219	260.36	35.74	240.20	12.55	0.1479	2.6683	44	4		m
1988 BH5	13.5	880219	350.48	267.16	264.54	11.63	0.1159	2.5805	44	6		m
1988 BJ5	13.5	880219	10.27	227.66	280.65	12.05	0.0648	2.7108	44	6		m
1988 BK5	12.5	880219	59.87	141.68	305.07	18.13	0.1395	3.2104	44	6		m
1988 BL5	14.0	880219	78.59	145.72	282.36	11.85	0.1197	2.5197	44	6		m
1988 BN5	15.0	880219	6.23	226.72	281.72	12.73	0.2315	3.1713	44	6		m
1988 JE	11.5	880608	301.38	187.89	119.40	3.76	0.1760	3.1780	15	8		l
1988 KV	13.0	880608	353.23	161.50	83.67	5.59	0.1462	2.3946	9	3		l
1988 KX	14.5	880519	358.51	131.58	101.16	3.48	0.2994	2.5301	2	7	E	M
1988 ND	13.0	880807	277.93	267.88	134.30	26.11	0.0922	1.9306	55	7		B
1988 PE	14.0	880807	8.21	320.14	337.95	9.13	0.2618	2.3058	29	4		M
1988 PF	13.5	880807	27.51	152.06	126.73	12.02	0.1468	2.4689	29	4		G
1988 PK	14.5	880807	354.02	168.64	163.85	3.84	0.2338	2.3559	12	0		M
1988 PO	13.0	880807	341.62	95.28	266.19	10.97	0.2009	2.5536	29	4		B
1988 PP	12.0	880807	93.55	86.21	131.03	12.69	0.0839	2.6247	51	6		G
1988 PU	12.5	880807	38.11	21.02	250.96	11.65	0.1370	2.6980	29	4		B
1988 PV	12.5	880827	354.47	115.52	222.84	5.18	0.2123	2.2661	30	0		N
1988 PW	15.0	880827	7.20	221.48	94.14	2.89	0.3652	2.3451	34	5		M
1988 PX	16.5	880827	4.87	308.44	13.09	5.41	0.3444	2.2064	31	5		M

1988	PY	10.0	880827	329.77	67.80	309.77	7.16	0.1219	5.1521	36 0	M
1988	PG1	14.5	880906	1.70	20.41	314.70	12.21	0.1969	2.7209	61 8	m
1988	PH1	11.5	880827	352.96	25.91	320.41	19.90	0.2174	3.2010	61 0	M
1988	PJ1	14.0	880906	34.02	338.42	316.57	14.63	0.1177	2.5999	62 0	m
1988	PM1	14.5	880827	4.22	163.46	165.96	2.43	0.2273	2.3666	33 0	M
1988	PQ1	14.5	880827	317.85	83.60	307.51	3.85	0.1423	2.1517	35 0	M
1988	PU1	15.0	880827	348.35	165.74	189.66	4.59	0.2341	2.1947	36 0	M
1988	PZ1	13.0	880807	310.90	30.84	20.57	0.54	0.1996	3.0116	2 7	E M
1988	PC2	13.0	880807	3.97	137.56	175.74	11.77	0.1956	2.6498	8 6	M
1988	PF2	15.5	880807	23.17	24.61	270.91	12.27	0.2048	2.4786	2 5	M
1988	PK2	12.5	880807	178.70	79.21	86.96	0.56	0.0750	3.0189	27 6	M
1988	QA	13.0	880827	338.25	206.96	153.84	2.54	0.2106	2.6696	24 0	M
1988	QB	12.5	880827	315.09	240.37	152.64	9.21	0.2125	2.5582	24 0	M
1988	QV	12.0	880807	183.58	348.97	151.35	15.78	0.0911	2.6851	6 6	E M
1988	QW	13.0	880807	291.66	115.17	311.74	4.88	0.3056	2.5661	6 6	E M
1988	QY	10.5	880827	15.94	92.03	222.21	29.67	0.0743	5.1480	26 5	B
1988	QZ	15.5	880827	359.90	9.07	335.55	12.59	0.3412	2.3954	28 4	M
1988	RC	13.5	880827	40.97	53.36	247.74	13.37	0.0699	2.5344	9 5	M
1988	RD		880827	339.17	26.54	5.29	24.49	0.2325	2.3862	3 3	M
1988	RJ	15.5	880827	16.44	146.98	164.79	14.59	0.2908	2.3816	9 9	M
1988	RO	10.5	880827	19.38	121.47	208.07	16.10	0.0590	5.0966	8 6	E B
1988	RR	14.0	880916	22.52	303.60	20.85	1.39	0.1396	2.2425	30 0	N
1988	RV	10.0	880827	278.15	70.34	353.06	14.25	0.0693	5.3320	28 4	E B
1988	RA1	10.0	880916	16.18	18.52	316.20	15.88	0.1101	5.2057	32 0	M
1988	RB1	14.5	880916	26.05	51.17	271.79	6.04	0.0778	2.2374	8 4	N
1988	RD1	12.5	880916	346.97	51.40	318.48	9.82	0.0989	2.9994	9 6	N
1988	RE1	13.5	880827	324.02	194.65	195.90	14.01	0.0920	2.5667	8 4	M
1988	RK1	10.0	880827	358.28	300.44	61.57	9.31	0.0892	5.2439	6 3	E B
1988	RM1	11.0	880827	358.65	119.62	223.15	8.45	0.0770	5.1882	2 3	E B
1988	RY1	17.5	880916	357.91	215.29	140.02	3.43	0.1921	2.1966	26 5	N
1988	RZ1	12.0	880827	176.56	33.18	124.37	5.04	0.1005	2.4779	2 6	E M
1988	RA2	13.0	880827	356.54	174.20	169.31	3.67	0.1431	2.6237	2 5	E M
1988	RB2	13.0	880827	356.90	187.42	155.85	5.65	0.1145	2.8273	2 6	E M
1988	RC2	12.0	880827	357.20	196.00	147.11	1.84	0.0902	3.0237	2 6	E M
1988	RE2	13.0	880827	357.08	227.75	115.99	1.84	0.1494	2.9427	2 6	E M
1988	RF2	13.5	880827	349.72	20.12	345.50	20.79	0.0794	2.8098	2 6	M
1988	RG2	12.0	880827	47.79	330.17	326.48	5.30	0.1005	2.9381	2 5	E M
1988	RH2	12.5	880827	175.60	206.86	330.73	8.36	0.1349	2.1836	2 5	E M
1988	SN	13.5	881006	351.82	25.27	0.74	6.91	0.1317	2.3873	13 0	N
1988	TE	13.5	880916	3.75	99.52	260.52	1.18	0.2226	2.4071	18 0	N

1980 DX = 1980 BA3 (S. Nakano)

1987 SG13 = 1987 WZ2 (S. Nakano)

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

The identifications are by D. W. E. Green unless otherwise stated.

1978 SS5 = 1982 UZ3 = 1985 HR1

The identifications were found independently by L. D. Schmadel.

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

M	154.41009	(1950.0)	P	Q
n	0.23756726	Peri. 166.04579	+0.99975371	+0.01943604
a	2.5819383	Node 192.85488	-0.02197120	+0.93485351
e	0.1603818	Incl. 2.75980	+0.00312721	+0.35450128
P	4.15	H 14.0	G 0.25	

Residuals in seconds of arc

780927	095	1.4-	1.7+	820916	095	0.9-	0.9+	821019	033	0.2-	1.3-
781003	095	0.1+	0.2+	820918	095	0.5+	1.8-	821019	033	0.2-	1.0-
781007	095	0.5+	0.9+	820926	095	1.3+	1.7+	850425	801	0.5+	1.4+

1982 QS3 = 1972 TX6 = 1977 RK5 = 1983 XJ = 1987 PE

The key identification 1982 QS3 = 1983 XJ is by A. Lowe.

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

M	281.10433		(1950.0)		P		Q
n	0.18905318	Peri.	281.64960	-0.61226097			-0.78716588
a	3.0066365	Node	206.54518	+0.77457201			-0.57832483
e	0.0372198	Incl.	9.55780	+0.15866536			-0.21426680
P	5.21	H	12.0	G	0.25		

Residuals in seconds of arc

721006	095	1.0-	3.0+	831206	688	0.4+	0.1+	870806	010	1.9-	0.4-
770909	095	0.4+	1.1-	831206	688	2.3+	0.3-	870806	010	1.1+	0.4-
820829	095	1.3+	1.0+	831209	688	1.5-	0.3-	870806	010	0.3+	0.3-
820920	095	0.0	1.3-	831209	688	1.2-	0.9-				

1982 ST6 = 1977 RM2 = 1983 YC1

The key identification 1982 ST6 = 1983 YC1 is by A. Lowe.

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

M	151.21182		(1950.0)		P		Q
n	0.20694133	Peri.	329.32358	+0.53492402			+0.84483747
a	2.8307755	Node	333.01114	-0.77046577			+0.48276196
e	0.0512102	Incl.	1.29965	-0.34675466			+0.23063074
P	4.76	H	13.0	G	0.25		

Residuals in seconds of arc

770909	095	0.6+	1.3-	820928	095	1.8-	0.4-	840108	675	0.1-	0.7-
820916	095	0.9+	1.2+	831230	675	0.3-	1.4-				

1983 XG = 1988 RQ

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

M	343.65876		(1950.0)		P		Q
n	0.17329042	Peri.	162.49470	+0.98063263			-0.19162257
a	3.1863041	Node	208.64823	+0.16805633			+0.92945303
e	0.1511270	Incl.	4.84612	+0.10058186			+0.31527426
P	5.69	H	12.0	G	0.25		

Residuals in seconds of arc

831128	688	(4.9+	0.0)	831206	688	0.1-	0.4+	880912	400	1.3+	0.1+
831128	688	1.4+	1.1-	840102	688	2.4+	0.9+	880912	400	0.7+	0.9+
831201	688	1.1-	0.2-	840104	688	1.0-	1.0+	880913	400	1.6-	0.6-
831201	688	(3.6-	0.3-)	840104	688	(2.4+	3.7+)	880913	400	0.7-	1.8-
831206	688	0.7-	0.1+	880912	400	0.5-	0.7+	880913	400	0.1-	0.6+

1988 BM5

The 1980 and 1984 observations were identified by R. H. McNaught.

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

M	322.34155		(1950.0)		P		Q
n	0.24134028	Peri.	329.10444	-0.14118539			+0.96837786
a	2.5549576	Node	292.09143	-0.85685265			-0.22360188
e	0.1409466	Incl.	12.82618	-0.49585302			+0.11066395
P	4.08	H	14.0	G	0.25		

Residuals in seconds of arc

800313	413	0.9-	0.3+	880128	413	1.3-	0.6-	880312	413	1.8+	0.4+
800313	413	1.1+	0.2+	880128	413	0.8-	0.4+	880312	413	0.2-	0.4+
840329	413	0.1-	0.7-	880223	413	0.2-	0.5-				
840329	413	0.4-	0.7-	880223	413	0.9+	0.8+				

1988 NF

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

M	0.00046		(1950.0)		P		Q
n	0.30227737	Peri.	93.97304	+0.90895418		+0.20345983	
a	2.1988714	Node	254.57661	-0.31394916		+0.90833279	
e	0.3626455	Incl.	22.17710	+0.27429587		+0.36542530	
P	3.26	H	12.0	G	0.25		

From 22 observations 1988 July 13-Oct. 10, mean residual 1".0.

1988 RO1

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	1.41042		(1950.0)		P		Q
n	0.22523203	Peri.	153.89009	+0.90921175		+0.41630020	
a	2.6753624	Node	181.53863	-0.40813063		+0.88870788	
e	0.5092601	Incl.	11.39333	-0.08223975		+0.19207409	
P	4.38	H	17.5	G	0.25		

From 7 observations 1988 Aug. 18-Oct. 6.

1988 SM

Epoch 1988 Sept. 16.0 ET = JDE 2447420.5

M	16.09759		(1950.0)		P		Q
n	0.45511699	Peri.	313.03033	+0.68749149		+0.72619116	
a	1.6738660	Node	0.40909	-0.59837865		+0.56755066	
e	0.3468303	Incl.	10.99394	-0.41145892		+0.38798537	
P	2.17	H	18.0	G	0.25		

From 5 observations 1988 Sept. 29-Oct. 7.

1988 TA

Epoch 1988 Oct. 6.0 ET = JDE 2447440.5

M	24.73575		(1950.0)		P		Q
n	0.46759821	Peri.	104.25025	+0.48355788		+0.87522910	
a	1.6439458	Node	194.68604	-0.82029384		+0.44830662	
e	0.5182403	Incl.	2.72996	-0.30543377		+0.18164581	
P	2.11	H	21.0	G	0.25		

From 7 observations 1988 Oct. 5-13.

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

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

(3905)* 1984 QO = 1980 RP2

Discovered 1984 Aug. 28 by A. Mrkos at Klet.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	290.52571		(1950.0)		P		Q
n	0.24073746	Peri.	89.23610	+0.28989201		-0.95450274	
a	2.5592159	Node	343.39203	+0.75158223		+0.27226787	
e	0.2594672	Incl.	14.15739	+0.59252576		+0.12163357	
P	4.09	H	12.8	G	0.25		

Residuals in seconds of arc

800908	095	1.2+	1.5+	840928	688	1.0+	1.5-	860309	071	(0.8-	5.0+)
840828	046	0.5+	0.2+	840928	688	2.5+	0.8-	860309	071	0.7-	0.4-
840828	046	(2.9+	6.1-)	841223	801	0.6+	1.1+	860311	809	0.5+	0.3-
840829	046	0.9-	0.8-	860306	809	0.5-	0.2+	860311	809	0.3-	0.3+
840829	046	1.0-	0.5+	860306	809	0.9-	0.5+	860314	071	0.5-	0.5-
840831	046	(5.9-	0.9-)	860306	688	0.5-	0.3+	860314	071	0.1+	0.1-
840831	046	2.5-	0.0	860306	688	2.1+	0.4-	860316	809	0.2+	0.4-
840901	046	2.3-	0.4-	860307	809	0.3-	0.0	860316	809	0.7-	0.3+
840901	046	2.8-	1.8-	860307	809	1.0-	0.2+	860413	801	0.3+	0.6+
840925	688	1.6+	0.4-	860309	071	0.5-	1.1-	880810	801	1.6+	0.8+
840925	688	2.4+	0.9-	860309	071	0.7+	1.7-	880914	801	0.6+	0.5+

(3906)* 1987 KE1 = 1987 MD = 1956 GE = 1966 EA = 1986 GB2

Discovered 1987 May 31 by C. S. Shoemaker at Palomar. The double designation 1987 KE1 = 1987 MD is by F. N. Bowman (MPC 12187).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	354.89035		(1950.0)			P		Q		
n	0.19629668	Peri.	207.77121			+0.97376281		+0.01256046		
a	2.9322033	Node	148.84243			-0.00993897		+0.99987024		
e	0.0689640	Incl.	26.05030			-0.22734823		+0.01008689		
P	5.02	H	11.0			G	0.25			

Residuals in seconds of arc

560412	760	0.2-	4.7-	870621	675	0.3+	0.1-	880811	657	1.5-	0.2-
660315	330	0.1+	1.4-	870622	675	0.6-	0.1+	880821	657	2.9+	0.3+
860413	071	0.7-	0.5-	870623	675	0.6+	1.1-	880821	657	0.1-	0.1+
860413	071	0.6+	0.6+	870626	675	0.3-	0.8+	880824	657	0.6-	1.4-
870531	675	1.2+	0.1+	870628	675	1.4-	2.1+	880824	657	0.2+	0.7-
870531	675	1.2+	0.6-	880811	657	0.4+	1.6-	880914	801	2.0-	0.9-

1983 RX3 = 1977 DE5 = 1982 FN3 = 1988 RG

The identification 1983 RX3 = 1982 FN3 is by W. Landgraf.

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

M	19.23705		(1950.0)			P		Q		
n	0.20280626	Peri.	134.39142			+0.57884311		+0.81451289		
a	2.8691241	Node	170.73915			-0.79981984		+0.57639152		
e	0.3181808	Incl.	13.97019			-0.15883600		+0.06589060		
P	4.86	H	13.5			G	0.25			

Residuals in seconds of arc

770218	381(63.5+	95.7+)		820322	809	0.2-	0.4-	830911	095	0.2+	1.9+
770219	381	2.0-	0.8+	820322	809	0.6+	1.0-	880908	675	0.2+	0.6-
770219	381	2.1+	2.1-	830901	095	1.0+	1.4-	880909	675	0.2+	1.4-
820322	809	0.9-	0.3+	830905	095	0.8-	0.2+				

1983 XF

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	292.62607		(1950.0)			P		Q		
n	0.17871360	Peri.	54.71675			-0.61182268		-0.78795561		
a	3.1215070	Node	73.15325			+0.70015182		-0.58022646		
e	0.5333396	Incl.	4.15075			+0.36804950		-0.20606604		
P	5.52	H	15.0			G	0.25			

Residuals in seconds of arc

831128	688	1.5+	0.3-	831205	688	2.6-	0.8+	831208	046	2.0-	0.9-
831128	688	0.6-	1.4-	831205	688	0.5+	1.1-	831208	330(24.6+	3.4-)	
831201	688	0.5+	1.0-	831205	046	(4.7-	2.0+)	831208	046	0.7-	2.4-
831201	688	2.4+	0.5-	831205	046	2.2-	1.9+	831209	688	0.1-	0.4-
831204	046	(4.6-	0.9-)	831206	688	1.4+	1.0-	831209	688	0.0	0.1+
831204	046	(4.0-	0.8-)	831206	688	1.1+	0.5-	831229	688	0.5+	0.1+

831229	688	0.0	1.3-	840123	381	0.1+	3.1+	840505	688	1.3+	0.5+
840102	688	1.1+	0.2-	840123	381	1.0-	1.6+	840505	688	0.5-	0.5+
840102	707	0.2-	1.4+	840201	801	0.5-	0.9+	840519	675	1.2-	0.2-
840102	688	0.4+	0.5-	840209	801	(4.9+	1.6+)	840525	801	0.2+	0.7+
840104	688	0.3+	1.8-	840221	675	1.4-	1.0-	880822	675	0.7-	0.4+
840104	688	1.7+	1.1-	840301	801	0.1-	1.2+	880822	675	0.6-	0.5+
840104	688	1.9-	0.7-	840307	801	0.6+	1.5+	880822	675	1.1-	0.6+
840104	688	1.4+	0.4-	840308	801	0.5+	1.2+	880920	675	0.4-	1.8+
840105	046	1.1-	2.2+	840403	801	0.2-	0.9+	880920	675	0.4-	1.9+
840105	046	0.9+	1.1+	840421	675	0.5-	0.8-	880920	675	0.2-	2.0+
840108	801	0.3+	0.5+	840430	801	0.1+	0.4-				

1988 PT = 1979 HX3

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

M	72.79580		(1950.0)		P		Q
n	0.23699004	Peri.	41.61002	-0.54840602		+0.83410884	
a	2.5861290	Node	195.43585	-0.81391988		-0.54870134	
e	0.2109100	Incl.	12.86751	-0.19179486		-0.05647379	
P	4.16	H	13.0	G	0.25		

Residuals in seconds of arc

790425	095	0.8+	2.0-	880811	675	0.4-	0.3-	880906	675	0.8+	0.7+
790430	095	0.5-	3.9+	880812	675	0.5-	0.0				
790501	095	0.3-	1.9-	880903	675	0.1+	0.5-				

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

The identifications are by B. G. Marsden unless otherwise stated.

(3907)* A904 PC = 1955 MM = 1975 XE2 = 1981 DU3

Discovered 1904 Aug. 14 by M. Wolf at Heidelberg.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	325.48621		(1950.0)		P		Q
n	0.21103866	Peri.	86.12081	+0.96830695		-0.16704511	
a	2.7940105	Node	283.42493	+0.07245440		+0.89933013	
e	0.1186576	Incl.	11.00518	+0.23902303		+0.40410548	
P	4.67	H	11.6	G	0.25		

Residuals in seconds of arc

040815	024	3.1-	1.9+	841121	675	1.1+	2.3-	880815	046	0.1+	0.1-
040817	045	0.8-	1.1-	880711	801	1.3-	0.6+	880815	046	1.5+	0.1-
040819	045	1.6+	5.0+	880807	046	0.1+	0.5-	880822	657	0.4-	0.5-
040905	024	(8.2+	2.7-)	880808	046	1.3+	1.2-	880822	657	2.0+	2.9+
550628	760	0.5+	0.4+	880809	801	1.9-	2.3+	880902	657	2.5+	3.0-
550628	760	2.9-	0.1+	880811	657	1.2-	2.3-	880902	657	0.1+	1.5-
751201	095	0.2+	4.4+	880811	657	0.0	2.1-	880912	657	1.3+	1.9+
810223	095	1.4-	1.7-	880813	046	0.0	1.4-	880912	657	1.1+	1.6+
820219	809	2.2+	0.4+	880813	046	1.8-	1.5-				

(3908)* 1980 PA

Discovered 1980 Aug. 6 by H.-E. Schuster at the European Southern Observatory.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	340.59441		(1950.0)			P		Q	
n	0.36876740	Peri.	125.20420			+0.89171821		-0.45104764	
a	1.9259028	Node	261.63281			+0.40198654		+0.82722717	
e	0.4586635	Incl.	2.16325			+0.20795540		+0.33503917	
P	2.67	H	17.7		G	0.25			

Residuals in seconds of arc

800806	809	0.6+	0.1-	800907	688	2.0+	2.5+	880903	568	0.5-	1.0-
800807	809	1.4+	0.1-	800918	688	0.8-	0.1+	880907	568	0.1+	0.3+
800808	801	0.7-	1.4+	801106	801	0.2+	1.4+	880908	568	0.6+	0.2+
800808	688	1.0-	2.1-	801205	801	0.4-	0.2-	880909	801	0.0	0.6+
800809	809	2.7-	1.2-	810103	801	0.5+	1.0-	880911	503	0.5+	0.1-
800810	801	(2.6-	6.5+)Y	810106	801	0.5+	1.4+	880912	801	0.0	0.9+
800810	809	0.6+	0.0	880706	675	0.2-	0.3-	880918	503	1.3-	2.0+
800813	801	0.3-	0.4-	880706	675	0.2-	0.3-	880919	675	0.3+	0.9-
800814	801	1.5+	2.4+	880707	675	0.4-	0.9+	880919	675	0.5+	1.0-
800814	809	2.8+	1.5+	880707	675	0.4-	0.7+	880919	675	0.1+	0.9-
800817	688	0.7+	2.4-	880708	675	0.0	1.1+	880919	675	0.4+	0.9-
800818	801	1.4-	0.3-	880708	675	0.0	0.8+	880920	675	0.5+	0.0
800902	046	0.8-	0.4-	880708	675	0.0	0.9+	880920	675	0.2+	0.0
800902	046	0.8-	1.0-	880729	568	0.0	0.8-	880920	675	0.1+	0.3+
800903	046	(3.3-	3.3-)	880809	801	2.6-	0.5+	881006	503	(1.0-	1.6-)
800903	046	(3.8-	3.7-)	880817	511	(4.9-	0.8+)	881007	568	(1.4-	2.0-)
800904	801	0.0	0.9+	880817	511	(4.5-	0.4+)	881007	568	(2.4+	1.0+)
800907	801	0.7-	0.0	880902	503	0.1+	1.2-	881007	568	(1.8+	3.4+)

(3909)* 1988 JD1 = 1937 DA = 1954 HD = 1972 RQ3 = 1981 WD = 1984 KB1

Discovered 1988 May 15 by K. W. Zeigler at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	6.59209		(1950.0)			P		Q	
n	0.23343838	Peri.	26.10806			-0.43982732		+0.88697966	
a	2.6122889	Node	218.25351			-0.85861659		-0.46125952	
e	0.1188045	Incl.	13.14282			-0.26330492		+0.02251076	
P	4.22	H	12.3		G	0.25			

Residuals in seconds of arc

370218	020	4.0+	0.1-	811202	688	0.4+	1.7-	880520	688	0.1+	0.3-
540425	760	2.2-	0.3+	811202	688	1.8+	1.8-	880520	688	0.0	0.5-
540425	760	3.1-	0.5+	840523	095	0.5+	0.1-	880608	688	0.0	1.8+
720905	095	1.4-	0.1+	840526	095	1.5+	0.2+	880608	688	0.0	0.8-
811120	688	0.9-	1.0-	880515	688	0.5-	3.6-				
811120	688	(1.6-	3.9-)	880515	688	(1.5+	7.4-)				

(3910)* 1988 SF = 1954 GC = 1974 RP1 = 1977 DK4 = 1977 GF1 = 1979 WX4
= 1984 WD2

Discovered 1988 Sept. 16 by E. W. Elst at Haute Provence.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	60.10465		(1950.0)			P		Q	
n	0.21115649	Peri.	270.02484			+0.04901163		+0.99877065	
a	2.7929710	Node	2.81677			-0.84572651		+0.04545139	
e	0.1330874	Incl.	8.68439			-0.53136101		+0.01978305	
P	4.67	H	12.2		G	0.25			

Residuals in seconds of arc

540402	760	0.7+	4.6+	740921	808	1.0+	1.4+	770410	381	0.3+	1.1-
540402	760	1.4-	0.9+	770218	381	(10.6+	25.6-)	770410	381	0.8+	1.1+
740914	095	1.8+	2.6-	770218	381	1.0+	1.2-	791117	095	2.1-	3.0-
740914	095	2.2+	3.9+	770219	381	0.6+	0.5-	841120	675	0.8-	0.9+
740921	808	0.9+	1.1+	770219	381	1.2+	0.4-	841121	675	0.6-	1.0+

880907 033	0.7-	0.4-	880916 511	2.2-	0.6-	880917 511	0.1+	1.6+
880908 033	0.9-	1.0-	880916 511	1.1+	1.4+			
880908 033	0.6-	0.7-	880917 511	2.4-	0.7+			

1978 WU14 = 1962 XO1 = 1962 YC = 1972 RM1 = 1988 RM

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

M 279.61382		(1950.0)		P		Q
n 0.18451721	Peri.	219.53174		+0.13534825		-0.98230438
a 3.0557114	Node	223.14440		+0.95019064		+0.16571099
e 0.1084955	Incl.	10.91242		+0.28074649		-0.08728106
P 5.34	H 11.5			G 0.25		

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

621203 760(0.04+ 0.16-)X	781202 330	3.1+	0.8-	880909 054	1.2+	0.5+
621230 760(0.03+ 0.01-)X	781206 330	2.8-	1.1+	880909 054	0.4-	1.1-
720910 095 0.0 0.1+	880907 054	0.2+	0.2-	880916 054	1.1-	0.5+
781128 330 0.3- 0.4-	880908 054	0.1+	0.1+			

1980 KH = 1984 DG1 = 1988 BD5

The key identification 1980 KH = 1988 BD5 is by R. H. McNaught. The identification 1980 KH = 1984 DG1 was suggested by H. Debehogne.

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

M 309.45186		(1950.0)		P		Q
n 0.23071042	Peri.	39.51405		+0.00483682		+0.98661846
a 2.6328459	Node	231.38958		-0.96211227		-0.03983818
e 0.1434760	Incl.	12.03828		-0.27261068		+0.15810420
P 4.27	H 13.0			G 0.25		

Residuals in seconds of arc

800522 809 0.5- 0.5+	800525 809	1.0+	0.3-	800604 809	1.2+	0.0
800522 809 0.3+ 0.5-	800526 809	0.3-	0.4-	800611 809	0.8+	1.0+
800522 809 0.7- 0.5+	800526 809	0.3-	0.4-	800611 809	0.5+	2.1+
800523 809 0.0 0.1-	800531 809	0.6-	0.3-	800611 809	0.3+	3.1+
800523 809 0.2- 0.6-	800531 809	0.2-	0.2-	800612 809	0.7+	0.3-
800523 809 0.1- 0.5-	800531 809	0.1+	0.6-	800612 809	0.1-	0.2-
800524 809 0.1+ 0.2-	800601 809	1.2-	0.4-	800612 809	1.1-	0.1-
800524 809 0.2- 0.1+	800601 809	0.1+	0.4-	840225 809	0.2+	0.9+
800524 809 0.3- 0.5-	800602 809	1.0+	0.6-	840225 809	0.2+	0.8+
800524 809 0.6- 0.4+	800603 809	0.2+	1.1-	840225 809	0.2+	0.8+
800524 809 1.0- 0.4-	800603 809	0.3-	0.2+	880128 413	0.3-	0.4-
800524 809 1.0+ 0.1+	800603 809	0.5+	1.0-	880128 413	0.7-	0.5-
800524 809 0.1+ 0.3-	800603 809	0.2-	0.5-	880223 413	0.4-	0.3-
800524 809 1.2- 0.0	800603 809	0.9+	0.1+	880223 413	0.3+	0.2+
800525 809 0.4- 1.1+	800603 809	0.3+	0.2-	880312 413	0.3+	0.2-
800525 809 0.5- 1.1+	800604 809	0.0	0.4-	880312 413	0.3+	0.4-
800525 809 0.6+ 0.4-	800604 809	0.2+	0.2-			

1981 EH41 = 1976 GU6 = 1983 VT = 1988 RJ2

The identification 1981 EH41 = 1976 GU6 was suggested by K. Hurukawa (JAM 1901) and L. D. Schmadel, and the latter also suggested the identification 1981 EH41 = 1983 VT.

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

M 54.52202		(1950.0)		P		Q
n 0.19017061	Peri.	101.90179		+0.36191092		+0.93177149
a 2.9948470	Node	189.46739		-0.90868022		+0.34573967
e 0.0816545	Incl.	10.04041		-0.20813636		+0.11075180
P 5.18	H 12.5			G 0.25		

Residuals in seconds of arc

760404	095	0.0	0.0	810315	413	0.3+	0.2-	810501	413	1.9-	0.4+
810212	413	1.3-	0.9+	810405	413	1.0-	0.8+	810503	413	0.7-	1.6-
810212	413	1.2+	0.7+	810405	413	2.6+	2.3-	831109	801	0.4+	2.0-
810302	413	0.1-	0.1+	810406	413	0.8-	0.0	880909	046	0.2+	1.8-
810302	413	0.4+	1.5-	810407	413	0.7-	0.6+	880909	046	0.9+	1.7-
810306	413	1.3-	0.1+	810407	413	0.2-	1.1-	880910	046	0.2-	0.0
810306	413	1.1+	1.1-	810410	413	0.3-	0.5+	880910	046	0.2+	1.2-
810311	413	0.7-	0.5-	810410	413	2.1+	2.2-				
810315	413	1.3-	0.2-	810501	413	0.8+	0.1+				

1985 RB1 = 1988 BC5

The identification is by R. H. McNaught, who also identified the 1978 and 1984 observations.

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

M	16.90944		(1950.0)	P	Q
n	0.18990760	Peri.	264.82841	-0.94790608	+0.19737478
a	2.9976115	Node	286.38047	-0.06616197	-0.88978423
e	0.2490485	Incl.	15.10642	-0.31160335	-0.41149388
P	5.19	H	12.5	G	0.25

Residuals in seconds of arc

780502	413	0.8-	0.1+	850916	691	0.0	0.2+	880223	413	0.8-	0.8-
780502	413	0.7+	0.1+	850916	691	0.2-	0.1-	880223	413	0.1+	0.5+
840531	413	0.2-	1.4+	850921	691	0.4+	0.1-	880312	413	1.1+	0.3+
840531	413	0.2+	0.2-	850921	691	0.0	0.0	880312	413	0.2+	0.4+
850914	691	0.2-	0.2+	850921	691	0.2+	0.4+	880316	413	0.6-	0.7+
850914	691	0.9-	1.0+	880128	413	0.8-	0.9-	880316	413	1.4+	0.5+
850914	691	0.8-	0.6+	880128	413	0.6+	1.4+				

1988 DD3

The 1983 observations were identified by R. H. McNaught.

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

M	23.38521		(1950.0)	P	Q
n	0.19118986	Peri.	257.90905	-0.96958543	-0.18863033
a	2.9841937	Node	271.06848	+0.23629953	-0.88746847
e	0.0388848	Incl.	8.97390	-0.06377006	-0.42049770
P	5.16	H	13.0	G	0.25

Residuals in seconds of arc

830506	413	1.0+	1.2+	880223	413	0.5+	0.8+	880310	413	1.1+	0.4+
830506	413	1.2-	1.6-	880225	413	0.3-	0.1+	880711	413	0.2+	0.5+
880222	413	1.3-	0.4+	880225	413	0.3-	0.4-				
880222	413	0.1+	0.9-	880310	413	0.2+	0.2-				

1988 PR1 = 1978 ND3

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

M	58.74057		(1950.0)	P	Q
n	0.20483994	Peri.	96.38496	-0.13665554	+0.98919463
a	2.8501026	Node	165.43469	-0.97169435	-0.12342555
e	0.1602487	Incl.	12.18879	-0.19270533	-0.07912091
P	4.81	H	12.5	G	0.25

Residuals in seconds of arc

780710	095	0.2-	0.3-	880815	511	1.4-	0.1+	880913	511	2.9+	1.3+
780712	095	0.2+	0.3+	880816	511	0.4-	0.4-	880914	511	0.1+	0.3-
880814	511	0.7+	0.1+	880913	511	3.0-	1.7-	880914	511	0.0	0.7+
880814	511	1.0+	0.2+	880913	511	0.1+	0.1+				

1988 RB = 1937 KH = 1976 YB1 = 1980 TS11 = 1980 VH2

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

M	21.25415		(1950.0)		P		Q	
n	0.23447815	Peri.	60.58334		+0.66343535		+0.72092029	
a	2.6045658	Node	252.41491		-0.73842935		+0.58764406	
e	0.2133689	Incl.	12.13046		-0.12072955		+0.36735322	
P	4.20	H	12.0		G	0.25		

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

370531	078	(0.22+ 0.05+)X	801110	330	1.0+	3.6+	880909	054	0.2+	0.1+
761216	095	2.7- 1.7-	880907	054	0.7+	0.6+	880916	054	0.4-	0.6-
761218	095	2.1+ 0.2-	880907	054	0.6-	0.5-	880920	054	0.0	0.1+
801009	095	0.8- 1.6-	880908	054	0.2+	0.3+	880920	054	0.0	0.6-

1988 RE

Epoch 1988 Sept. 16.0 ET = JDE 2447420.5

M	36.74416		(1950.0)		P		Q	
n	0.40065037	Peri.	105.53891		+0.53966534		+0.81477658	
a	1.8223244	Node	201.63244		-0.80208924		+0.57407090	
e	0.2525568	Incl.	35.08500		+0.25576192		+0.08112782	
P	2.46	H	15.0		G	0.25		

From 12 observations 1988 Sept. 11-Oct. 5.

1988 RN = 1952 DQ1 = 1973 AG4

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

M	267.66007		(1950.0)		P		Q	
n	0.23303418	Peri.	135.88641		-0.15843349		-0.97608262	
a	2.6153140	Node	322.48403		+0.82459299		-0.04787188	
e	0.1324657	Incl.	14.14950		+0.54308860		-0.21206366	
P	4.23	H	12.0		G	0.25		

Residuals in seconds of arc

520219	711	3.8+ 4.1- Y	880908	054	0.9+	0.4+	881002	054	0.3+	0.2+
520219	711	4.3- 3.4+ Y	880909	054	0.6-	2.1-	881010	054	1.3+	2.1+
730103	095	0.2+ 0.3+	880909	054	1.3-	1.9-	881010	054	0.2+	0.2+
880907	054	0.2- 0.6+	880916	054	0.2-	0.1+				

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ORBITAL ELEMENTS BY S. NAKANO, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by S. Nakano unless otherwise stated.

(3911)* 1940 QB = 1951 TU = 1954 EU = 1962 WB = 1976 KA1 = 1979 FL
= 1983 VC2 = 1986 GC2 = 1987 MS

Discovered 1940 Aug. 31 by K. Reinmuth at Heidelberg.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	12.60273		(1950.0)		P		Q	
n	0.18611275	Peri.	137.44931		+0.97111886		+0.21931055	
a	3.0382159	Node	210.26424		-0.23600207		+0.94083993	
e	0.0943828	Incl.	10.74625		+0.03508815		+0.25830816	
P	5.30	H	11.4		G	0.25		

Residuals in seconds of arc

400831	024	0.2+ 0.2+	621123	760	0.0	0.6+	860408	675	0.9+	2.0+
400903	024	0.3+ 2.0+	760526	095	1.6+	0.1-	860408	675	0.5-	0.3+
400905	024	1.3- 2.1-	790328	801	0.1-	1.1-	860409	675	2.1-	0.5+
511001	094	(99.0- 20.5+)X	831107	675	0.5+	0.3-	870626	675	(22.5+ 3.1-)	
540302	839	0.5+ 1.2-	831107	675	0.3+	0.4+	870628	675	(49.5+ 1.8-)	
540302	839	0.0 0.1+	831107	675	0.6-	0.2-				
621123	760	0.4+ 0.9+	831107	675	0.0	0.3+				

(3912)* 1988 SG = 1937 VJ = 1970 SZ = 1970 WK = 1977 RE9 = 1981 UC14
= 1985 XD

Discovered 1988 Sept. 16 by E. W. Elst at Haute Provence.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	263.06446		(1950.0)		P		Q
n	0.26930834	Peri.	61.91033		+0.04032629		-0.99901952
a	2.3748500	Node	25.79792		+0.90132493		+0.02847866
e	0.0323285	Incl.	2.40601		+0.43126229		+0.03389637
P	3.66	H	13.2	G	0.25		

Residuals in seconds of arc

371107	024	0.3+	1.0+	851215	801	0.0	0.5+	880916	511	2.5+	0.4-
700930	095	1.7-	0.3+	880907	033	0.1+	0.8+	880917	511	1.9-	0.2+
701126	095	1.0-	0.5+	880908	033	0.3+	0.4+	880917	511	0.5+	1.3-
770909	095	1.3-	1.0+	880908	033	0.1+	0.4+				
811023	095	2.4+	2.2-	880916	511	0.7-	0.8-				

1932 CY = 1977 KW1 = 1979 UB4

The identification 1932 CY = 1977 KW1 is by E. Bowell.

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

M	51.23599		(1950.0)		P		Q
n	0.17889444	Peri.	70.10078		-0.97206301		+0.23409419
a	3.1194093	Node	123.43393		-0.22229085		-0.89470167
e	0.1410435	Incl.	1.17613		-0.07536764		-0.38040614
P	5.51	H	12.0	G	0.25		

Residuals in seconds of arc

320214	024	0.9+	3.5-	320315	024	0.3-	0.8+	791016	095	0.1+	0.2-
320306	024	2.8+	4.1+	770518	675	0.5+	0.5-				
320314	024	3.5-	1.6-	770519	675	0.5-	0.2+				

1964 ED = 1933 FG1 = 1967 RK1 = 1968 UL3 = 1974 SE2 = 1978 GM4 = 1980 RH2
= 1980 TP6 = 1981 WV8

The double designation 1980 RH2 = 1980 TP6 was suggested by N. S.

Chernykh.

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

M	152.99565		(1950.0)		P		Q
n	0.15508849	Peri.	99.12236		+0.34225995		+0.93945752
a	3.4309722	Node	190.93642		-0.89285498		+0.31965497
e	0.0806295	Incl.	5.03909		-0.29269116		+0.12345150
P	6.36	H	11.0	G	0.25		

Residuals in seconds of arc

330325	024	0.6+	3.2-	640309	033	0.1-	0.7+	740919	095	1.0+	3.0+
640308	033	0.6-	0.4+	640311	033	0.6-	0.3+	740922	095	3.8+	3.1-
640308	033	0.5-	0.0	640311	033	0.2-	0.2+	780411	095	0.7+	1.0-
640308	033	0.4-	0.5-	640311	033	0.3-	0.8+	780505	095	0.5+	1.6-
640308	033	0.1+	0.4+	640311	033	0.5-	0.8+	800907	095	0.4-	0.9+
640309	033	0.7-	0.8+	640312	033	0.3-	0.5-	800908	095	(3.6+	6.7-)
640309	033	0.9-	0.7+	670911	095	1.4-	1.0-	801008	095	3.1-	0.6-
640309	033	0.2-	0.4+	681026	095	1.1+	2.9-	811125	095	2.2+	0.4-

1975 SA1 = 1974 OV1 = 1974 QP3

The double designation 1974 OV1 = 1974 QP3 was suggested by B. G.

Marsden.

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

M	293.91127		(1950.0)		P		Q
n	0.19052851	Peri.	228.01547		-0.28689425		+0.95476306
a	2.9910954	Node	25.62925		-0.81668676		-0.20108620
e	0.0588633	Incl.	10.41918		-0.50071391		-0.21907039
P	5.17	H	12.5	G	0.25		

Residuals in seconds of arc

740726 808	1.1-	1.5+	750930 675	0.4+	0.4-	751015 675	0.4-	0.1+
740726 808	1.6-	1.1+	751001 675	1.6+	0.5+	751016 675	2.7-	1.2-
740818 809	2.8+	2.9-	751002 675	1.0+	1.2+			

1976 YO4 = 1969 QL = 1971 DN = 1979 SX7 = 1979 TK1

The double designation 1979 SX7 = 1979 TK1 was suggested by N. S. Chernykh.

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

M 282.41978		(1950.0)		P		Q
n 0.30134100	Peri.	184.69346	+0.97361873		+0.22753345	
a 2.2034241	Node	162.12643	-0.20747729		+0.91410105	
e 0.0593904	Incl.	3.20861	-0.09497237		+0.33563045	
P 3.27	H 13.5		G 0.25			

Residuals in seconds of arc

690821 095	0.0	0.1+	761218 095	1.3-	1.0-	790923 095	0.5-	0.8+
710218 095	0.3+	1.0+	761220 095	1.5+	0.2+	791014 095	0.1+	0.1+

1977 QK1 = 1977 RW2 = 1977 TQ2 = 1948 TB2 = 1988 TF

The triple designation 1977 QK1 = 1977 RW2 = 1977 TQ2 is by H. Oishi (MPC 10816).

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

M 353.25561		(1950.0)		P		Q
n 0.27091957	Peri.	24.64049	+0.98659387		-0.16296295	
a 2.3654294	Node	344.73085	+0.14371019		+0.89281322	
e 0.2344916	Incl.	1.89210	+0.07732990		+0.41991384	
P 3.64	H 14.0		G 0.25			

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

481011 094(0.08- 0.02+)X		770909 095	0.2-	0.8-	881003 399	0.4-	0.6-	
770819 095	1.5-	1.2+	771007 095	0.8+	0.8-	881005 399	0.0	0.1+
770820 095	1.5+	1.3+	881003 399	0.9-	0.6+	881005 399	1.9+	1.2+
770821 095	0.2-	1.7-	881003 399	0.8+	0.6+	881005 399	0.6-	1.8-
770823 095(0.02+ 0.07+)		881003 399	1.2-	0.6+				

1978 RV5 = 1988 RS

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

M 348.10744		(1950.0)		P		Q
n 0.29260416	Peri.	0.63993	+0.99885175		-0.04785871	
a 2.2470699	Node	2.10691	+0.04368565		+0.89124798	
e 0.1150080	Incl.	3.39058	+0.01966591		+0.45098401	
P 3.37	H 13.5		G 0.25			

Residuals in seconds of arc

780913 095	0.6-	1.9+	781003 095	0.2+	0.6-	880917 399	0.1-	0.6+
780926 095	2.1-	1.4+	781004 675	1.6+	0.8+	880917 399	1.7-	1.3-
780927 095	0.7-	0.9+	781005 675	1.4+	0.4-	880917 399	0.9+	1.0-
780930 049	0.2+	0.8-	880913 399	1.7+	0.5-	880917 399	0.5+	0.9+
780930 049	0.5+	1.0-	880913 399	0.5+	0.9-	880922 399	0.6+	2.2+
781001 049	0.4+	0.9-	880913 399	1.7-	0.0	880922 399	0.1+	0.5-
781002 095	1.1-	0.4-	880913 399	0.4-	0.1-			

1979 HX4 = 1969 PV = 1973 YH = 1976 OH = 1980 TP11 = 1984 YD5

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

M 90.89612		(1950.0)		P		Q
n 0.27627563	Peri.	227.47320	+0.99538767		-0.06063699	
a 2.3347580	Node	135.84883	+0.08168734		+0.94205715	
e 0.1506586	Incl.	6.12664	-0.05030463		+0.32992648	
P 3.57	H 13.0		G 0.25			

Residuals in seconds of arc

690813 095	1.2+	0.7-	760729 095	1.1-	3.4+	790430 095	0.4+	1.9+
731219 095	1.6-	2.4+	790425 095	0.4-	0.5+	801008 095	0.8+	0.1-
760727 095	0.7-	0.8-	790428 095	1.3+	1.1-	841228 095	0.0	0.7+

1980 DO = 1986 PO3

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

M 258.53989		(1950.0)		P		Q
n 0.20715351	Peri.	69.25608	-0.98449180			+0.16581552
a 2.8288422	Node	120.24941	-0.17522921			-0.91382482
e 0.2876487	Incl.	3.80205	-0.00840328			-0.37071472
P 4.76	H 12.0		G 0.25			

Residuals in seconds of arc

800214 046	0.1+	0.1-	800219 046	2.5+	1.0-	860801 675	(8.7-	0.4-)
800214 046	2.1-	0.5+	800220 046	0.9+	0.0	860801 675	2.7-	1.4+
800215 046	0.2+	0.6-	800220 046	0.1-	0.7+	860802 675	0.8+	0.4-
800215 046	0.8+	0.2+	800221 046	2.4-	0.5-	860802 675	1.9+	1.0-
800219 046	1.3+	0.8+	800222 046	1.1-	0.1+			

1980 JH = 1981 UP11

The identification is by T. Furuta (JAM 1946).

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

M 285.40035		(1950.0)		P		Q
n 0.23333693	Peri.	115.28107	+0.68404363			+0.72599870
a 2.6130513	Node	198.45143	-0.72344596			+0.66280452
e 0.1690274	Incl.	12.92303	-0.09332875			+0.18334683
P 4.22	H 12.5		G 0.25			

Residuals in seconds of arc

800511 046	1.5-	1.4+	800513 046	2.3+	0.9-	811024 095	3.0+	1.3+
800511 046	0.4+	0.8+	800513 046	1.6-	0.1+	811028 095	0.3+	0.6-
800512 046	0.0	0.1+	800517 095	1.0+	1.9-	880420 413	0.2+	0.6+
800512 046	0.6-	0.6+	811022 095	3.4-	0.4-	880420 413	0.2-	0.5-

1982 SL1 = 1940 XB = 1940 YP

The identification 1982 SL1 = 1940 XB was found independently by L. D. Schmadel.

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

M 280.68821		(1950.0)		P		Q
n 0.30283437	Peri.	181.95693	+0.96872630			-0.24751101
a 2.1961743	Node	192.41570	+0.22873930			+0.91817855
e 0.1705645	Incl.	4.67943	+0.09616489			+0.30933225
P 3.25	H 14.5		G 0.25			

Residuals in seconds of arc

401202 053	0.0	0.0	X 820916 046	2.0-	1.0-	820918 046	0.4+	0.3+
401203 053	(45.6+	11.6-)	X 820916 046	0.0	0.3+	820918 046	0.6+	0.1-
401220 053	(12.6-	45.8-)	X 820917 046	0.8+	0.2+	820919 095	0.5+	0.2+
820823 095	0.1+	0.1-	820917 046	0.4-	0.2+	820921 095	0.1-	0.0

1982 SO1 = 1978 VN14 = 1986 RN2

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

M 182.42999		(1950.0)		P		Q
n 0.23737516	Peri.	141.42859	+0.79399659			+0.60790475
a 2.5833310	Node	181.16316	-0.59872242			+0.78064448
e 0.2022156	Incl.	13.12301	-0.10536073			+0.14507244
P 4.15	H 13.0		G 0.25			

Residuals in seconds of arc

781101 095	0.0	1.5+	820918 046	0.8-	0.9+	820927 095	0.9+	5.7-
820917 095	(2.3-	10.6+)	820919 095	1.8+	3.1+	860905 688	(7.2+	4.8+)
820917 046	0.4+	1.6-	820919 046	0.5+	0.1-	860905 688	0.0	0.4-
820917 046	0.4-	0.2+	820919 046	(3.1+	9.0+)	860911 688	1.1+	0.0
820918 046	2.1-	1.7-	820924 095	0.2-	2.4+	860911 688	1.1-	1.8+

1982 SX2 = 1970 AU = 1972 TT6 = 1984 ES

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

M 591.71045		(1950.0)		P	Q
n 0.29049592	Peri.	32.50260	+0.77180195	-0.63574074	
a 2.2579287	Node	7.01232	+0.55935204	+0.66947791	
e 0.1031812	Incl.	5.86194	+0.30240214	+0.38423045	
P 3.39	H 14.0		G 0.25		

Residuals in seconds of arc

700104 095	0.3-	1.4-	820922 704	(8.1-	0.2-)	840306 688	1.2+	0.2+
721006 095	0.9-	2.1+	820923 704	(5.4-	8.2-)	840306 688	0.7-	0.0
820916 095	0.1+	0.6+	820924 704	(3.6+	7.1-)	840309 688	0.9-	1.7+
820919 095	0.1+	1.2-	820924 704	(6.7-	3.9+)	840309 688	1.5+	0.0

1982 SY2 = 1968 DS = 1969 VM = 1978 JN

The identifications are by D. W. E. Green and L. D. Schmadel.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 351.03268		(1950.0)		P	Q
n 0.29891213	Peri.	238.69702	+0.09997293	+0.99446383	
a 2.2153398	Node	37.08334	-0.89362663	+0.10404195	
e 0.1752277	Incl.	3.07629	-0.43753499	+0.01472981	
P 3.30	H 13.5		G 0.25		

Residuals in seconds of arc

680227 095	0.4-	0.2-	820920 095	2.4+	1.5+	821015 095	0.4-	1.5+
691111 095	0.1-	0.5+	820924 033	0.2+	0.7-	821022 095	2.0-	0.2-
780505 095	0.1-	1.0-	820924 033	0.7+	0.6-	880512 688	0.7-	0.4+
820916 095	1.6-	0.5-	820926 095	0.5+	1.4-	880512 688	1.1+	0.7+

1982 SK8 = 1963 TC = 1968 UN

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

M 68.73617		(1950.0)		P	Q
n 0.20662030	Peri.	211.21860	+0.87208783	-0.48934790	
a 2.8337069	Node	178.07792	+0.45601789	+0.81179257	
e 0.0695378	Incl.	2.05490	+0.17751195	+0.31864000	
P 4.77	H 12.5		G 0.25		

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

631013 760(0.05-	0.03-)	X	820919 095	0.0	2.0+	820927 095	1.6+	2.8+
681022 095	0.9+	0.3+	820919 095	0.5-	1.8-			
681026 095	0.9-	0.4-	820921 095	1.2-	3.0-			

1982 SG12 = 1982 ST12 = 1977 EJ6

The double designation 1982 SG12 = 1982 ST12 was suggested by N. S. Chernykh.

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

M 199.34863		(1950.0)		P	Q
n 0.28140193	Peri.	235.69095	+0.51048485	-0.85985730	
a 2.3063163	Node	183.63497	+0.82118219	+0.48994554	
e 0.1177014	Incl.	6.44468	+0.25507850	+0.14352278	
P 3.50	H 14.5		G 0.25		

Residuals in seconds of arc

770312	381	2.0-	1.3+	770315	381	1.6+	0.6-	820918	095	3.0-	2.3+
770312	381	0.0	0.2+	770315	381	0.4-	0.4-	820926	095	0.2-	0.9-
770314	381	0.9+	0.5-	820916	095	3.1+	1.3-				

1982 TK3 = 1988 AM2

The identification is by D. W. E. Green.

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

M	86.67872		(1950.0)		P		Q
n	0.21347416	Peri.	73.66338	+0.82823824		-0.55139832	
a	2.7727244	Node	319.64994	+0.43691932		+0.74705863	
e	0.1339493	Incl.	8.87657	+0.35088877		+0.37129948	
P	4.62	H	13.0	G	0.25		

Residuals in seconds of arc

821015	095	0.4-	0.0	821111	095	2.7+	0.7-	880111	033	0.0	0.0
821024	095	1.0+	0.2+	871220	010	0.0	0.1-	880111	033	0.1+	0.3+
821109	095	3.3-	0.6+	871220	010	0.1-	0.2-				

1987 SG1 = 1954 SP = 1975 XO6

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

M	118.57891		(1950.0)		P		Q
n	0.23914933	Peri.	118.34869	+0.40876521		+0.91250032	
a	2.5705387	Node	175.68426	-0.89381381		+0.40380195	
e	0.2932832	Incl.	12.23088	-0.18441224		+0.06547631	
P	4.12	H	14.0	G	0.25		

Residuals in seconds of arc

540923	760	1.8-	8.7+	870921	688	(3.0-	1.3-)	871001	809	0.2-	0.0
751206	809	0.3-	0.1+	870921	688	0.2-	0.0	871001	809	0.3-	0.1+
751206	809	0.4+	0.1-	870923	809	0.6-	0.2-	871001	809	0.3-	0.2+
751207	809	1.0-	0.3+	870923	809	0.6-	0.0	871001	809	0.5-	0.3-
751207	809	0.9+	0.4+	870923	809	0.1-	0.2-	871001	809	0.4-	0.5-
870918	809	0.7+	0.9-	870924	809	0.4+	0.1-	871001	809	0.7-	0.6-
870918	809	0.8+	0.9-	870924	809	0.3+	0.0	871002	809	0.8-	0.4-
870918	809	0.8+	0.9-	870924	809	0.2+	0.1+	871002	809	0.4-	0.5-
870919	809	0.4+	1.0-	870927	809	0.2+	0.4-	871002	809	0.1-	0.5-
870919	809	1.0+	0.7-	870927	809	0.6+	0.4-				
870919	809	1.1+	0.9-	870927	809	0.5+	0.4-				

1988 TD = 1969 UM2

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

M	4.83087		(1950.0)		P		Q
n	0.25786745	Peri.	69.00337	+0.98934381		+0.14339045	
a	2.4445893	Node	282.74576	-0.14134233		+0.90422441	
e	0.1984885	Incl.	1.48395	-0.03494525		+0.40226533	
P	3.82	H	13.5	G	0.25		

Residuals in seconds of arc

691018	095	0.2-	0.6+	880922	399	0.9-	0.7-	881003	399	0.2-	1.0-
691105	095	0.1+	0.4-	881003	399	2.2+	0.5-	881005	399	0.0	0.7-
880922	399	1.5+	1.9+	881003	399	1.1+	0.4-	881005	399	2.0-	0.1+
880922	399	1.2-	0.4-	881003	399	0.9-	0.4+	881005	399	0.5+	1.1+

4598 P-L = 1988 RD2

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

M	60.53711		(1950.0)		P		Q
n	0.24493434	Peri.	252.77861	-0.11130563		+0.99376948	
a	2.5299026	Node	10.83568	-0.89967742		-0.09829788	
e	0.1458955	Incl.	1.75847	-0.42212747		-0.05253333	
P	4.02	H	13.5	G	0.25		

Residuals in seconds of arc

600924	675	0.0	0.4+	600928	675	0.0	0.4-	880908	046	1.3-	0.5-
600926	675	0.5-	0.1-	601022	675	0.2+	0.8+	880908	046	0.7+	1.0-
600927	675	0.4+	1.1+	601025	675	0.3-	0.5-	880910	046	0.0	0.4+
600928	675	0.3-	0.7-	601026	675	0.5+	0.5-	880910	046	0.6+	1.0+

1128 T-3 = 4192 P-L

The identification is by K. Hurukawa (MPC 12802).

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

M	22.27444		(1950.0)		P		Q
n	0.17556260	Peri.	332.71909		+0.78486389		+0.61796088
a	3.1587524	Node	348.75667		-0.51679983		+0.61183758
e	0.1297662	Incl.	13.63644		-0.34191608		+0.49373994
P	5.61	H	13.5		G	0.25	

Residuals in seconds of arc

600924	675	0.5+	0.4+	771007	675	0.2+	0.9+	771017	675	0.1-	0.3-
600925	675	0.6+	0.0	771011	675	1.1+	1.9+	771017	675	0.4-	0.8+
600925	675	0.0	0.3-	771011	675	0.4-	3.0+	771022	675	0.2+	3.7-
600926	675	0.1-	0.5-	771012	675	0.3-	1.1+	771022	675	1.0+	3.7-
600926	675	0.0	0.3-	771012	675	0.4+	1.1+	880818	511	0.1-	0.2+
600928	675	0.3+	1.0-	771016	675	1.5-	0.0	880818	511	0.5-	0.4+
600928	675	0.2+	0.3-	771016	675	1.0-	0.5+				

2035 T-3 = 1988 RW

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

M	23.06683		(1950.0)		P		Q
n	0.08414547	Peri.	338.93783		+0.72042245		+0.69210667
a	5.1576250	Node	337.07588		-0.61882492		+0.61252456
e	0.1492792	Incl.	6.55946		-0.31312493		+0.38184031
P	11.71	H	11.5		G	0.25	

Residuals in seconds of arc

771007	675	1.7+	0.3+	771016	675	0.8-	1.8-	771022	675	0.3+	0.8+
771011	675	0.2-	1.4+	771017	675	1.0-	0.3-	880911	675	0.1+	0.2+
771011	675	0.1-	1.1+	771017	675	1.5-	0.6+	880912	675	0.8-	0.1-
771012	675	0.1-	0.3-	771021	675	0.2+	0.4+	880916	675	0.7+	0.1-
771012	675	0.9-	0.4-	771021	675	1.3+	0.0				
771016	675	1.0+	1.9-	771022	675	0.2+	0.2+				

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ORBITAL ELEMENTS BY T. KOBAYASHI, GUNMA, JAPAN.

The identifications are by T. Kobayashi unless otherwise stated.

(3913)* 1986 XO2 = 1969 EW1

Discovered 1986 Dec. 2 at Caussols. The identification is by S. Nakano.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	117.75393		(1950.0)		P		Q
n	0.27236475	Peri.	43.20582		-0.92315812		+0.34540797
a	2.3570499	Node	155.41743		-0.35437129		-0.93476295
e	0.2247394	Incl.	23.92970		+0.14899691		-0.08313582
P	3.62	H	12.0		G	0.25	

Residuals in seconds of arc

690313	095	0.0	4.3+	870305	809	1.0-	0.0	870309	809	0.8+	0.0
861202	010	2.2-	3.1+	870305	809	0.8-	0.0	870309	809	0.2-	0.2-
861202	010	(6.4-	5.1+)	870305	809	0.6-	0.0	870309	809	0.3+	0.2-
861202	010	(4.9-	4.5+)	870305	887	0.8-	1.1+	870309	809	0.5+	0.1+
870225	887	2.3-	0.5-	870305	887	0.3-	0.0	870310	809	0.3+	0.0
870225	887	(0.8-	3.3+)	870305	220	0.5-	2.4-	870310	809	0.4+	0.0
870228	897	0.8-	0.4-	870306	809	0.3-	1.1+	870310	809	0.2+	0.0
870228	897	(2.0-	3.7+)	870306	809	0.1+	0.9+	870311	809	1.0+	1.1-
870302	809	0.2-	0.0	870306	809	0.2+	0.9+	870311	809	1.2+	1.1-
870302	809	0.0	0.0	870306	220	(0.9-	4.6+)	870311	809	1.3+	1.1-
870302	809	0.1+	0.0	870307	809	0.1-	0.4+	870311	809	0.5+	0.6-
870302	809	0.1-	0.0	870307	809	0.0	0.2+	870311	809	0.7+	0.5-
870302	809	0.2-	0.1-	870307	809	0.3+	0.2+	870311	809	0.9+	0.2-
870302	809	0.0	0.1-	870308	809	0.1+	0.2+	870318	887	0.1+	1.9-
870302	887	0.4-	0.6- Y	870308	809	0.0	0.3+	870318	887	1.2-	0.0
870303	809	0.7-	0.6+	870308	809	0.3+	0.4+	870327	801	1.2+	1.0-
870303	809	0.5-	0.5+	870308	809	0.3+	0.5-	870428	801	(3.9+	3.0-)
870303	809	0.0	0.5+	870308	809	0.4+	0.3-	880809	801	(4.4-	0.4+)
870304	809	0.4+	0.1-	870308	809	0.2+	0.0	880812	511	0.5-	0.8+
870304	809	0.3+	0.0	870309	809	0.4+	0.3-	880813	511	0.1+	0.0
870304	809	0.2+	0.0	870309	809	0.6+	0.2-	880813	511	0.3+	0.8-

(3914)* 1987 SE = 1950 PS = 1971 OJ1 = 1979 BM1 = 1984 BJ1

Discovered 1987 Sept. 16 by T. Seki at Geisei.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	131.33376	(1950.0)	P	Q
n	0.18773097	Peri. 321.28699	+0.22470149	+0.96917253
a	3.0207313	Node 321.39552	-0.84882512	+0.14374691
e	0.0766786	Incl. 9.32163	-0.47854484	+0.20010357
P	5.25	H 11.7	G 0.25	

Residuals in seconds of arc

500814	760	(56.7-	14.7-)X	840124	381	0.5-	1.2+	870926	688	1.7+	0.1+
710728	095	2.0+	2.6-	870916	372	0.5+	2.7+ Y	870926	372	0.3-	0.7+
790124	095	0.6-	1.6-	870917	372	2.4-	0.0 Y	871001	372	0.9-	0.2-
821015	095	0.4+	0.0	870918	372	(2.4+	4.4-)Y	871016	688	1.2+	0.2+
821024	095	1.4+	1.0-	870919	688	0.7+	0.3+	871016	688	1.3-	2.1+
821109	095	1.4-	0.3-	870919	688	0.9-	0.2-	871026	688	1.2+	1.4-
821111	095	0.9-	0.4+	870919	372	0.7-	1.5- Y	881009	372	1.4+	0.5-
840124	381	0.2+	0.6-	870926	688	0.1-	0.4-	881009	372	0.5-	0.1-

(3915)* 1988 PA1 = 1926 GQ = 1935 UL = 1935 UX = 1950 QT = 1975 EX5
= 1977 TW3 = 1977 TV7 = 1979 FH1 = 1983 EM

Discovered 1988 Aug. 15 by M. Yanai and K. Watanabe at Kitami. The identification 1926 GQ = 1983 EM was independently suggested by A. Lowe. The double designation 1935 UL = 1935 UX is by B. G. Marsden (MPC 6840). Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	16.35531	(1950.0)	P	Q
n	0.25890191	Peri. 142.18206	+0.71440373	+0.69911406
a	2.4380684	Node 173.22518	-0.68730919	+0.70899111
e	0.0391155	Incl. 14.45255	-0.13127599	+0.09258041
P	3.81	H 11.8	G 0.25	

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

260413	024	(0.5- 9.7+)	771012	330	(2.9- 2.7-)	880818	400	0.7-	2.3-
260414	024	(9.5+ 97.2-)X	790323	095	2.0+ 1.8+	880818	400	0.9+	1.9-
260415	024	1.0- 2.5-	830312	046	1.0- 0.5+	880819	400	0.2-	2.7+
351025	020	(8.3+ 15.9-)	830312	046	1.2+ 0.5-	880819	400	1.7+	2.1+
351028	078	(0.00+ 0.04-)X	830313	046	0.3- 0.4+	880819	400	1.8-	0.6+
500821	760	0.1- 1.5+	830313	046	0.5- 0.8+	880907	400	(11.7+	0.3-)
500821	760	0.9+ 0.1-	880815	400	(5.2+ 3.2-)	880907	400	(11.5+	0.0)
750303	688	0.0 0.9-	880815	400	(5.2+ 3.1-)	880917	400	1.0+	0.5-
750305	688	0.1+ 0.8-	880815	400	(5.6+ 0.0)				
771010	095	1.0- 1.2-	880818	400	0.7- 1.9-				

1942 AC = 1981 BW

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 282.32997		(1950.0)		P		Q
n 0.22715948	Peri.	0.23907		-0.10410912		-0.95470816
a 2.6602073	Node	95.74634		+0.91198577		-0.20345079
e 0.1960593	Incl.	16.26877		+0.39679119		+0.21711773
P 4.34	H 12.5		G 0.25			

Residuals in seconds of arc

420114	024	0.3- 2.6-	420205	062	0.7- 1.8-	420411	024	0.2-	1.0+
420116	024	0.1+ 2.1+	420205	062	1.7- 1.3-	810130	095	0.2-	1.6+
420120	024	1.6+ 0.6-	420209	024	0.8- 1.4+	881007	372	0.5-	0.6+
420120	024	0.4+ 0.4+	420218	024	1.3+ 0.1+	881007	372	1.8+	0.8+
420122	024	0.4+ 0.5-	420411	024	0.7- 1.1+	881008	372	1.6-	1.0-

1972 HR = 1962 QA = 1968 UL2 = 1988 GW

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 299.41280		(1950.0)		P		Q
n 0.17947734	Peri.	230.63334		+0.36541340		+0.92610568
a 3.1126453	Node	61.03992		-0.81761688		+0.36750541
e 0.1463669	Incl.	6.15525		-0.44494458		+0.08525286
P 5.49	H 12.0		G 0.25			

Residuals in seconds of arc

620827	760	0.1- 0.1+	720509	095	0.3- 1.6+	880409	054	0.3+	0.4-
681023	095	(63.1- 2.7-)	720512	095	1.2- 0.5-	880415	054	0.6-	0.3+
720418	095	1.5+ 1.3-	880409	054	0.5+ 0.5+				

1977 UD = 1981 WL4 = 1981 XT1 = 1986 AT1

The double designation 1981 WL4 = 1981 XT1 is by M. Kretlow (MPC 9019).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 269.56202		(1950.0)		P		Q
n 0.26091867	Peri.	19.75259		+0.13899565		-0.98837139
a 2.4254888	Node	62.29971		+0.89890991		+0.09979912
e 0.1663061	Incl.	3.99353		+0.41550112		+0.11472630
P 3.78	H 14.0		G 0.25			

Residuals in seconds of arc

771012	675	0.7+ 1.6-	771021	675	1.5+ 1.0-	811118	330	1.8-	1.8+
771016	675	1.3+ 0.0	771021	675	1.9- 0.8+	811127	330	0.0	0.1+
771016	675	0.8+ 1.2+	771021	675	0.1+ 2.5-	811201	330	(25.7+	1.2-)
771016	675	0.1+ 0.6+	771021	675	1.3- 1.0+	811204	511	0.2+	1.1+
771016	675	0.5- 2.6+	771022	801	0.7- 0.5+	811204	511	0.3+	1.0+
771017	675	0.2- 1.1+	771022	675	1.1- 2.3-	860112	688	1.2-	0.5-
771017	675	1.2+ 0.0	771022	675	0.0 1.0-	860112	688	1.0+	2.2-
771017	675	0.9- 1.4+	771022	675	2.6+ 2.5-				
771017	675	0.6+ 0.9-	771022	675	0.6- 0.3-				

1979 KO = 1971 BC1 = 1981 YA2

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 107.52156	(1950.0)		P		Q
n 0.17379244	Peri. 295.38029		+0.71211455		-0.62731435
a 3.1801587	Node 105.16134		+0.70185145		+0.64713268
e 0.1881207	Incl. 19.06237		-0.01724530		+0.43323897
P 5.67	H 11.5	G 0.25			

Residuals in seconds of arc

710125 095	0.0	1.9-	790524 809	0.6+	0.8+	820119 095	1.3+	4.1+
790519 809	0.0	0.1+	811220 330	2.4-	1.0-			
790520 809	0.1-	0.9+	811223 330	0.3+	0.1+			

1981 YA1 = A924 YC = 1932 UD = 1932 WE = 1948 SD = 1948 TK2 = 1964 PE
= 1966 DC = 1972 NF = 1973 YR3 = 1985 XX

The double designation 1948 SD = 1948 TK2 is by B. G. Marsden (MPC 8482). The identification 1985 QG4 = 1932 UD (MPC 11854) is invalid. The identification 1985 QG4 = 1977 DT5 is therefore suspect, and the one-opposition orbit on MPC 10751 should be reinstated.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 267.74658	(1950.0)		P		Q
n 0.24276045	Peri. 108.96773		+0.74370074		-0.65667588
a 2.5449784	Node 292.28973		+0.55103735		+0.70823301
e 0.2006644	Incl. 7.77932		+0.37850634		+0.25919645
P 4.06	H 12.0	G 0.25			

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

241222 024	0.4-	2.4-	640812 760(20.6-	79.7-)X	811227 704	4.1-	0.3+	
321031 094(46.5+	5.0+)X	660218 760(51.3-	20.3+)X	811229 704	2.5+	2.2-		
321031 094(13.8+	7.7+)X	720715 095	0.6+	2.3-	811230 704	1.3+	0.9+	
321130 012(0.05+	0.06-)X	720718 095	1.1+	3.5-	811231 704	0.4-	0.8+	
480925 012	5.3-	0.3-	731225 095	0.6+	1.4+	820101 704	1.1+	0.9-
481008 062	2.2+	1.6+	811224 704	1.5+	1.8+	851214 010	3.3-	2.1+
481008 062	2.4+	2.4+	811225 704	0.5+	3.5-	851214 010	0.5+	3.3-

1982 FS = 1963 TN = 1971 TL3 = 1980 TZ13

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 197.97310	(1950.0)		P		Q
n 0.23501418	Peri. 159.09915		-0.99650017		-0.00717798
a 2.6005987	Node 21.01439		-0.04313696		-0.80923634
e 0.1091456	Incl. 13.42900		+0.07160032		-0.58743937
P 4.19	H 12.5	G 0.25			

Residuals in seconds of arc

631013 760(78.5-	12.3+)X	801013 095	0.0	0.1+	820331 704	2.0+	0.5-	
711013 095	1.5+	2.7-	820328 688	0.0	1.7-	820401 704	1.4-	0.1-
711014 095	3.3-	2.5+	820328 688	0.5+	0.8-	820402 704	1.4+	2.2+
711015 095	1.1+	1.1+	820330 704	2.0-	1.6+			

1982 SO5 = 1978 WV1

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 140.00630	(1950.0)		P		Q
n 0.23061257	Peri. 352.86570		+0.99474799		+0.10235234
a 2.6335854	Node 1.26024		-0.09234267		+0.90023641
e 0.3094597	Incl. 1.73673		-0.04415061		+0.42320019
P 4.27	H 15.0	G 0.25			

Residuals in seconds of arc

781129 675	0.1+	0.2+	820916 095	0.2-	0.1+	820921 095	0.2-	0.1+
781130 675	0.1-	0.2-	820919 095	0.4+	0.2-			

1982 SX5 = 1956 TB1

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	169.65528		(1950.0)		P		Q	
n	0.22800139	Peri.	351.61037	+0.62335303			+0.78151076	
a	2.6536545	Node	316.94577	-0.71515891			+0.55639727	
e	0.1965938	Incl.	2.17602	-0.31619413			+0.28224636	
P	4.32	H	12.5	G	0.25			

Residuals in seconds of arc

561001	024	0.0	2.4-	820916	095	0.7-	2.9+	821022	095	0.1+	0.1-
561001	024	0.7+	2.8-	820920	095	1.2-	2.6+				
561010	024	1.9+	0.3-	820926	095	0.6-	0.1-				

1984 UA = 1970 EV2

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	53.59303		(1950.0)		P		Q	
n	0.23858241	Peri.	51.49815	+0.41343768			+0.89071016	
a	2.5746039	Node	243.91668	-0.88709460			+0.34724448	
e	0.1712078	Incl.	12.14481	-0.20526191			+0.29335419	
P	4.13	H	13.0	G	0.25			

Residuals in seconds of arc

700306	805	0.3+	0.2+	841025	372	0.1-	0.6-	841103	372	0.7+	0.1-
700306	805	0.2+	0.1+	841028	372	1.0-	1.4-	880913	372	0.1-	0.6+
700306	805	0.3-	0.4-	841028	372	1.0+	1.6+	880914	372	0.8+	0.8-
841021	372	1.2-	0.3+	841031	372	0.6+	1.8-	880915	372	0.7-	0.2-
841022	372	1.6+	2.5+	841031	372	0.7-	0.5-				
841025	372	0.7+	0.4-	841102	372	1.6-	0.7+				

1987 SM12 = 1980 FG

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	38.00490		(1950.0)		P		Q	
n	0.19913212	Peri.	44.15205	+0.90911228			-0.41648904	
a	2.9043024	Node	340.45758	+0.37595225			+0.82782010	
e	0.0806470	Incl.	1.23222	+0.17937329			+0.37583342	
P	4.95	H	13.0	G	0.25			

Residuals in seconds of arc

800316	809	0.2-	0.1+	870916	809	0.0	0.2-	870924	809	0.8+	0.6+
800316	809	0.1+	0.0	870916	809	0.1-	0.1-	870925	809	0.4+	0.2+
800316	809	0.6+	0.2-	870918	809	0.4-	0.2+	870925	809	0.7+	0.0
800316	809	0.6-	0.2+	870918	809	0.3-	0.2+	870925	809	0.7+	0.2+
800317	809	0.4+	0.1+	870918	809	0.1+	0.2+	870927	809	0.8-	0.3-
800317	809	0.5-	0.6+	870919	809	0.0	0.2-	870927	809	0.7-	0.4-
800317	809	0.1-	0.4-	870919	809	0.5+	0.3-	870927	809	0.9-	0.4-
800317	809	0.6+	0.4-	870924	809	0.5+	0.6+				
870916	809	0.1-	0.2-	870924	809	0.5+	0.5+				

1988 RP = 1980 BQ3 = 1985 VJ1

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	323.05501		(1950.0)		P		Q	
n	0.30763800	Peri.	72.43200	+0.90024374			-0.43287581	
a	2.1732485	Node	313.18950	+0.37120316			+0.81914633	
e	0.0284852	Incl.	3.67147	+0.22752896			+0.37632143	
P	3.20	H	13.0	G	0.25			

Residuals in seconds of arc

800122	095	0.0	0.1+	880907	400	1.7+	1.4-	880913	400	0.4+	0.5+
851107	688	2.5-	1.0-	880912	400	0.7+	1.4-	881002	400	1.6-	0.6+
851107	688	2.9+	0.2+	880912	400	0.0	2.4+	881002	400	0.9-	0.1-
880907	400	2.0+	0.0	880912	400	0.6+	0.3+	881004	400	2.5-	0.7-
880907	400	0.8+	1.9-	880913	400	1.4-	1.3+	881004	400	0.3-	0.8+

1988 RP1 = 1978 SK6

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 312.33417	(1950.0)		P	Q
n 0.29111339	Peri. 34.80583		+0.62112955	-0.78316242
a 2.2547303	Node 16.85713		+0.69416535	+0.53246403
e 0.1531717	Incl. 5.78618		+0.36377541	+0.32115212
P 3.39	H 13.0	G 0.25		

Residuals in seconds of arc

780928 095	0.9+	0.3-	880910 400	0.3-	2.0+	881002 400	0.6+	0.0
781004 095	0.9-	0.3+	880922 400	0.7+	0.0	881002 400	1.4+	0.5-
880910 400	2.2-	1.6+	880922 400	1.2+	0.7-	881004 400	1.8-	0.9+
880910 400	0.4+	3.0-	880922 400	1.0+	0.4-	881004 400	1.2-	0.0

7068 P-L = 1982 S08

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 128.23111	(1950.0)		P	Q
n 0.22472047	Peri. 154.85956		+0.99514710	-0.06873281
a 2.6794210	Node 209.34605		+0.04651964	+0.95920612
e 0.2530628	Incl. 8.26064		+0.08670735	+0.27422513
P 4.39	H 14.0	G 0.25		

Residuals in seconds of arc

601017 675	0.0	0.0	601024 675	0.6-	0.1+	820919 095	1.9+	1.5-
601022 675	0.4+	0.4-	601026 675	0.2+	0.0	820921 095	1.9-	1.7+

* * * * *

ORBITAL ELEMENTS BY H. OISHI, NIIZA, JAPAN.

The identifications are by H. Oishi unless otherwise stated.

(3916)* 1981 QA3 = 1972 BC = 1972 CA = 1978 EE6

Discovered 1981 Aug. 24 by H. Debehogne at the European Southern Observatory.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 328.48104	(1950.0)		P	Q
n 0.17053302	Peri. 80.02461		-0.30672548	-0.95166339
a 3.2205526	Node 27.85366		+0.85923918	-0.28409318
e 0.1557799	Incl. 1.96351		+0.40942339	-0.11673839
P 5.78	H 11.9	G 0.25		

Residuals in seconds of arc

720117 095	(9.1+	2.5+)	810828 809	0.0	0.7-	810906 809	0.7-	1.1-
720206 095	0.1+	0.6+	810828 809	0.4-	0.8-	870917 809	1.4-	0.5-
780306 095	0.5-	1.3-	810831 809	0.5+	0.7-	870917 809	0.9-	0.6-
810824 809	1.7-	0.8-	810831 809	0.9+	0.8-	870919 809	0.3+	0.4-
810824 809	1.3-	0.6-	810831 809	1.1+	0.9-	870919 809	0.1-	0.4-
810824 809	1.6-	0.4-	810901 809	(3.1-	1.5+)	870919 809	0.3+	0.5-
810825 809	0.4-	1.3+	810901 809	0.3+	1.2+	870924 809	0.1+	0.1-
810825 809	0.8-	1.3+	810901 809	0.2+	1.0+	870924 809	0.3+	0.2-
810825 809	0.6-	1.3+	810902 809	0.9+	0.1+	870924 809	0.5+	0.2-
810826 809	0.6-	0.2+	810902 809	1.1+	0.3-	871001 809	0.4+	0.2-
810826 809	0.2-	0.1+	810902 809	0.7+	0.5-	871001 809	0.4+	0.1+
810826 809	0.1+	0.2-	810904 809	0.8-	0.1-	871001 809	0.5+	0.5+
810826 809	0.7-	0.5+	810904 809	0.6-	0.4-	871002 809	0.2+	0.3+
810826 809	0.1+	0.6+	810904 809	0.0	0.6-	871002 809	0.3+	0.2+
810826 809	0.8+	1.0+	810905 809	0.6-	0.6-	871002 809	0.2+	0.4+
810827 809	1.2+	1.3+	810905 809	0.4-	0.7-	871002 809	0.5-	0.1+
810827 809	1.7+	1.2+	810905 809	0.1-	0.6-	871002 809	0.2-	0.5+
810827 809	1.8+	1.0+	810906 809	0.0	0.5-	871002 809	0.3-	0.7+
810828 809	0.1-	0.7-	810906 809	0.4+	0.5-			

ORBITAL ELEMENTS BY E. GOFFIN, AGFA-GEVAERT, N.V., MORTSEL, BELGIUM.

(3918)* 1988 PE1 = 1931 VF1 = 1951 RX1 = 1968 UN3 = 1971 OK = 1978 TE4
= 1980 DQ4

Discovered 1988 Aug. 13 by E. W. Elst at Haute Provence. The identifications were found independently by E. Goffin and B. G. Marsden.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	347.54628		(1950.0)		P		Q
n	0.29320455	Peri.	202.49691		+0.99773270		-0.05076186
a	2.2439969	Node	160.25892		+0.06118771		+0.95761115
e	0.2086719	Incl.	7.51734		-0.02802711		+0.28355620
P	3.36	H	13.4		G	0.25	

Residuals in seconds of arc

311104	690	1.7+	0.1+	800221	095	2.5-	3.4-	880914	511	0.8-	1.5+	
311106	690	1.2-	1.4-	880813	511	1.0+	2.0-	880915	511	1.4-	0.5-	
510903	711	2.2-	2.3-	Y	880813	511	0.9+	0.7+	880915	511	1.0-	1.1+
510903	711	2.9-	1.6-	Y	880815	511	2.0+	1.6-	880916	511	0.8-	0.8-
510905	711	2.6+	3.3-	Y	880815	511	1.4+	1.8-	880916	511	2.0+	0.7+
681027	095	1.4+	0.3+		880912	511	(3.4-	1.5-)	880917	511	1.6-	1.0-
710726	095	(8.7-	4.2+)		880913	511	1.3-	0.6+	880917	511	0.9+	0.3+
710727	095	0.5+	1.4+		880913	511	0.5-	1.1+				
781004	095	1.1-	1.1+		880914	511	(3.9-	0.1-)				

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

(3919)* 1984 DS = 1962 TB = 1965 OB = 1975 RF2 = 1978 JZ2 = 1985 RO3

Discovered 1984 Feb. 23 by H. Debehogne at the European Southern Observatory. The identifications are by B. G. Marsden (MPC 10763).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	358.80699		(1950.0)		P		Q
n	0.29833586	Peri.	137.37894		+0.43103320		+0.90196916
a	2.2181917	Node.	158.11598		-0.84532344		+0.41360988
e	0.1887471	Incl.	3.95832		-0.31565592		+0.12401013
P	3.30	H	14.3		G	0.25	

Residuals in seconds of arc

621001	760	1.1-	0.8+	850816	010	1.8-	0.7+	850916	809	0.4+	0.5+	
621001	760	0.4+	0.6+	850907	809	0.3-	0.2+	850916	809	0.3+	0.3+	
650729	760	(91.5+	27.1-)	X	850907	809	0.2+	0.1+	850916	809	0.2+	0.3+
750904	808	0.5+	0.0	850907	809	0.8+	0.0	850917	809	0.2-	0.2+	
750904	808	0.5+	0.4+	850910	809	0.4-	0.5+	850917	809	0.0	0.2+	
780509	095	0.4+	1.2+	850910	809	0.0	0.3+	850917	809	0.1+	0.3+	
840223	809	0.8-	0.9-	850910	809	0.2+	0.1+	850919	809	0.0	1.5+	
840223	809	0.1-	0.8-	850911	809	0.4-	0.3-	850919	809	0.0	1.4+	
840223	809	0.8+	0.6-	850911	809	0.2-	0.4-	850919	809	0.2-	1.7+	
840226	809	0.5+	0.8+	850911	809	0.1+	0.6-	850921	809	0.5-	0.4+	
840226	809	1.0+	0.8+	850912	809	0.9-	0.9-	850921	809	0.3-	0.4+	
840226	809	1.4+	0.8+	850912	809	0.8-	1.1-	850921	809	0.4-	0.3+	
840301	809	0.3-	0.5+	850912	809	0.6-	1.0-	850922	809	0.3-	0.5-	
840301	809	0.4-	0.5+	850914	809	0.4+	0.4-	850922	809	0.2-	0.4-	
840301	809	0.6-	0.6+	850914	809	0.3+	0.4-	880614	801	0.5-	0.2-	
850814	010	(4.1+	4.0+)		850914	809	0.2+	0.5-	880810	801	0.7+	0.1+

ORBITAL ELEMENTS BY A. LOWE, CALGARY.

1973 EK = 1977 AA1 = 1982 DC5

The identifications are by A. Lowe.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	168.36628	(1950.0)		P		Q
n	0.22225874	Peri.	322.02886	-0.93475134		-0.35520265
a	2.6991694	Node	197.17109	+0.33255712		-0.86631509
e	0.0682613	Incl.	1.63573	+0.12508277		-0.35118264
P	4.43	H	13.1	G	0.25	

Residuals in seconds of arc

730307 029	0.6+	0.4+	770113 095	0.2+	0.8-	820227 010	0.1+	0.6+
730307 029	0.5-	0.7+	770120 095	0.3-	0.8+			
730309 029	0.0	0.9-	820222 010	0.2-	0.8-			

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EPHEMERIDES.

1981 QB	a, e, i = 2.24, 0.52, 37					Elements MPC 6895			
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V	
1988 09 16		08 39.87	-04 59.4	1.718	1.217	-1.59	-10.9	18.9	
1988 09 26		09 08.40	-05 42.2						
1988 10 06		09 34.56	-06 20.2	1.784	1.332	-1.43	-11.9	19.1	
1988 10 16		09 58.54	-06 52.5						
1988 10 26		10 20.47	-07 17.5	1.801	1.463	-1.34	-12.3	19.3	
1988 11 05		10 40.46	-07 33.6						
1988 11 15		10 58.51	-07 38.3	1.761	1.601	-1.30	-12.4	19.5	
1988 11 25		11 14.58	-07 28.6						
1988 12 05		11 28.56	-07 01.1	1.670	1.740	-1.26	-12.3	19.6	
1988 12 15		11 40.24	-06 11.4						
1988 12 25		11 49.33	-04 54.7	1.542	1.877	-1.23	-11.7	19.5	
1989 01 04		11 55.52	-03 06.0						
1989 01 14		11 58.42	-00 40.4	1.405	2.009	-1.19	-10.3	19.3	
1989 01 24		11 57.75	+02 24.1						
1989 02 03		11 53.38	+06 04.8	1.305	2.137	-1.21	-7.7	19.1	
1989 02 13		11 45.53	+10 11.4						
1989 02 23		11 34.95	+14 24.6	1.297	2.258	-1.33	-4.9	18.8	
1989 03 05		11 22.90	+18 21.3						
1989 03 15		11 10.91	+21 41.6	1.415	2.373	-1.35	-3.5	19.1	
1989 03 25		11 00.46	+24 14.9						
1989 04 04		10 52.52	+26 00.8	1.650	2.481	-1.16	-3.3	19.8	
1989 04 14		10 47.58	+27 04.6						
1989 04 24		10 45.67	+27 34.6	1.962	2.583	-0.92	-3.1	20.4	

1988 SM	a, e, i = 1.67, 0.35, 11					Elements MPC 13676			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V	
1988 10 06		22 19.22	-05 58.1	0.256	1.212	141.9	30.6	16.6	
1988 10 16		22 35.51	+01 10.4						
1988 10 26		22 51.83	+06 06.2	0.394	1.296	133.1	34.0	17.8	
1988 11 05		23 08.55	+09 38.6						
1988 11 15		23 25.91	+12 20.0	0.573	1.390	123.6	36.4	18.8	
1988 11 25		23 43.96	+14 30.9						
1988 12 05		00 02.59	+16 23.0	0.785	1.488	113.9	37.3	19.7	
1988 12 15		00 21.80	+18 04.0						
1988 12 25		00 41.53	+19 38.1	1.028	1.586	104.0	37.0	20.4	

1988 RO1		a,e,i = 2.68, 0.51, 11				Elements MPC 13676		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 06		00 36.01	-03 10.4	0.405	1.401	171.6	6.0	16.7
1988 10 16		00 42.55	-06 22.0					
1988 10 26		00 49.13	-08 14.5	0.530	1.485	152.9	17.7	17.8
1988 11 05		00 56.43	-08 58.3					
1988 11 15		01 04.84	-08 48.0	0.713	1.587	137.1	25.1	18.8
1988 11 25		01 14.51	-07 58.3					
1988 12 05		01 25.35	-06 41.7	0.946	1.701	123.3	29.0	19.7
1988 12 15		01 37.25	-05 07.6					
1988 12 25		01 50.09	-03 23.0	1.223	1.821	110.8	30.3	20.4

1988 RE		a,e,i = 1.82, 0.25, 35				Elements MPC 13682		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 06		01 32.71	+16 58.4	0.587	1.571	163.3	10.5	15.4
1988 10 16		01 23.25	+07 35.4					
1988 10 26		01 15.20	-00 43.8	0.659	1.635	162.9	10.3	15.7
1988 11 05		01 09.99	-07 07.3					
1988 11 15		01 08.24	-11 29.6	0.845	1.701	136.0	23.8	16.8
1988 11 25		01 09.95	-14 10.3					
1988 12 05		01 14.69	-15 34.7	1.095	1.768	116.2	30.0	17.6
1988 12 15		01 22.00	-16 03.9					
1988 12 25		01 31.44	-15 54.1	1.372	1.833	100.9	31.8	18.2
1989 01 04		01 42.59	-15 17.2					
1989 01 14		01 55.15	-14 21.4	1.652	1.895	88.1	31.2	18.7
1989 01 24		02 08.88	-13 13.2					
1989 02 03		02 23.57	-11 57.3	1.924	1.955	77.0	29.4	19.0
1989 02 13		02 39.10	-10 37.3					
1989 02 23		02 55.34	-09 16.2	2.178	2.010	67.0	27.0	19.3

1988 TA		a,e,i = 1.64, 0.52, 3				Elements MPC 13676		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 06		01 34.98	+11 26.6	0.056	1.054	166.2	13.1	15.5
1988 10 11		01 26.50	+07 15.5					
1988 10 16		01 22.83	+05 33.2	0.137	1.133	176.9	2.8	17.2
1988 10 21		01 20.93	+04 41.8					
1988 10 26		01 20.08	+04 15.2	0.225	1.215	167.2	10.4	18.8
1988 10 31		01 19.99	+04 03.5					
1988 11 05		01 20.59	+04 02.3	0.323	1.296	157.5	17.0	19.9
1988 11 10		01 21.83	+04 09.0					
1988 11 15		01 23.71	+04 22.3	0.431	1.375	148.4	22.1	20.8

1979 VA		a,e,i = 2.64, 0.63, 3				Elements MPC 5319		
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 11 15		09 58.25	+10 44.1	2.305	2.417	-0.60	+3.1	21.0
1988 11 25		10 03.23	+10 04.8					
1988 12 05		10 05.68	+09 38.3	2.156	2.557	-0.63	+3.3	20.9
1988 12 15		10 05.38	+09 26.4					
1988 12 25		10 02.20	+09 30.2	2.019	2.691	-0.72	+3.6	20.8
1989 01 04		09 56.19	+09 49.6					
1989 01 14		09 47.62	+10 23.2	1.938	2.818	-0.85	+4.0	20.6
1989 01 24		09 37.13	+11 07.6					
1989 02 03		09 25.64	+11 58.0	1.957	2.938	-0.96	+4.1	20.3
1989 02 13		09 14.23	+12 48.8					
1989 02 23		09 03.96	+13 35.3	2.102	3.052	-0.97	+3.9	20.8
1989 03 05		08 55.61	+14 14.1					
1989 03 15		08 49.64	+14 43.6	2.361	3.160	-0.89	+3.4	21.3
1989 03 25		08 46.19	+15 03.4					
1989 04 04		08 45.14	+15 13.8	2.699	3.263	-0.78	+2.9	21.8

Periodic Comet Gunn

					Elements MPC 11502				
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2	
1988 11 15		13 16.02	-00 10.1	3.807	3.055	35.4	10.8	17.8	
1988 11 25		13 29.70	-01 32.0						
1988 12 05		13 43.25	-02 49.9	3.565	2.997	48.0	14.1	17.5	
1988 12 15		13 56.58	-04 02.9						
1988 12 25		14 09.57	-05 10.4	3.285	2.939	61.1	17.0	17.3	
1989 01 04		14 22.11	-06 11.9						
1989 01 14		14 34.03	-07 06.7	2.978	2.884	75.0	19.2	17.0	
1989 01 24		14 45.16	-07 54.5						
1989 02 03		14 55.28	-08 35.1	2.658	2.830	89.7	20.4	16.6	
1989 02 13		15 04.14	-09 08.3						
1989 02 23		15 11.46	-09 34.2	2.344	2.778	105.6	20.1	16.3	
1989 03 05		15 16.97	-09 53.1						
1989 03 15		15 20.36	-10 05.7	2.055	2.729	123.1	17.8	15.9	
1989 03 25		15 21.39	-10 12.8						
1989 04 04		15 19.92	-10 15.7	1.818	2.682	142.6	13.1	15.6	
1989 04 14		15 15.99	-10 16.1						
1989 04 24		15 09.92	-10 16.3	1.659	2.640	163.7	6.1	15.3	
1989 05 04		15 02.34	-10 18.6						
1989 05 14		14 54.13	-10 25.9	1.600	2.601	169.7	4.0	15.2	
1989 05 24		14 46.32	-10 40.7						
1989 06 03		14 39.84	-11 04.7	1.644	2.567	148.9	11.8	15.2	
1989 06 13		14 35.41	-11 38.9						
1989 06 23		14 33.47	-12 23.4	1.772	2.537	128.9	18.2	15.3	
1989 07 03		14 34.14	-13 17.3						
1989 07 13		14 37.41	-14 19.5	1.956	2.513	111.4	22.1	15.5	
1989 07 23		14 43.11	-15 28.1						
1989 08 02		14 51.02	-16 41.7	2.171	2.494	96.2	23.9	15.7	
1989 08 12		15 00.95	-17 58.3						
1989 08 22		15 12.67	-19 16.3	2.398	2.480	82.6	23.9	15.8	
1989 09 01		15 26.00	-20 33.9						
1989 09 11		15 40.80	-21 49.6	2.623	2.473	70.3	22.5	16.0	
1989 09 21		15 56.89	-23 01.7						
1989 10 01		16 14.15	-24 08.7	2.838	2.472	58.8	20.3	16.2	
1989 10 11		16 32.47	-25 09.2						
1989 10 21		16 51.69	-26 02.0	3.034	2.477	47.8	17.3	16.3	
1989 10 31		17 11.70	-26 45.9						
1989 11 10		17 32.37	-27 20.1	3.206	2.488	37.0	13.9	16.5	

Comet Machholz (1988j)

					Elements MPC 13591				
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1	
1988 11 15		18 17.52	-01 40.9	2.005	1.509	46.7	28.5	17.3	
1988 11 25		18 45.81	-02 05.4						
1988 12 05		19 09.87	-02 12.8	2.499	1.865	40.6	20.1	18.7	
1988 12 15		19 30.86	-02 06.3						
1988 12 25		19 49.52	-01 48.6	2.965	2.193	31.9	13.7	19.8	
1989 01 04		20 06.33	-01 21.6						
1989 01 14		20 21.63	-00 46.9	3.375	2.499	23.0	8.8	20.6	

Periodic Comet Russell 3

					Elements MPC 12136				
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2	
1988 12 05		09 33.87	-00 25.6	3.422	3.814	106.1	14.4	20.5	
1988 12 15		09 34.34	-01 17.2						
1988 12 25		09 33.08	-02 00.7	3.101	3.753	125.0	12.4	20.2	
1989 01 04		09 30.06	-02 34.1						
1989 01 14		09 25.37	-02 55.1	2.845	3.691	144.6	8.9	19.9	
1989 01 24		09 19.31	-03 02.5						
1989 02 03		09 12.29	-02 55.6	2.685	3.628	160.2	5.3	19.7	

1989 02 13	09 04.91	-02 35.3							
1989 02 23	08 57.85	-02 03.7	2.641	3.565	155.6	6.6	19.6		
1989 03 05	08 51.73	-01 24.2							
1989 03 15	08 47.06	-00 40.7	2.705	3.501	137.3	11.1	19.6		
1989 03 25	08 44.23	+00 02.9							
1989 04 04	08 43.37	+00 43.4	2.852	3.437	118.1	14.9	19.6		
1989 04 14	08 44.53	+01 18.2							
1989 04 24	08 47.63	+01 45.3	3.046	3.373	100.2	17.1	19.7		
1989 05 04	08 52.50	+02 03.7							
1989 05 14	08 58.97	+02 12.7	3.257	3.309	84.1	17.7	19.8		
1989 05 24	09 06.85	+02 12.1							
1989 06 03	09 15.96	+02 01.8	3.458	3.245	69.5	17.0	19.8		
1989 06 13	09 26.13	+01 41.9							
1989 06 23	09 37.21	+01 12.9	3.634	3.182	56.1	15.4	19.8		
1989 07 03	09 49.06	+00 35.0							
1989 07 13	10 01.59	-00 11.2	3.773	3.119	43.7	13.0	19.8		
1989 07 23	10 14.69	-01 05.3							
1989 08 02	10 28.29	-02 06.8	3.868	3.057	32.2	10.2	19.8		

Periodic Comet Pons-Winnecke

Periodic Comet Pons-Winnecke				Elements MPC 12123					
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2	
1988 12 05		11 45.63	+22 13.1	2.781	2.872	85.2	20.0	21.1	
1988 12 15		11 57.24	+22 32.9						
1988 12 25		12 08.08	+23 10.0	2.387	2.734	99.9	20.8	20.7	
1989 01 04		12 17.92	+24 06.9						
1989 01 14		12 26.45	+25 26.5	2.017	2.592	115.1	20.1	20.2	
1989 01 24		12 33.31	+27 10.1						
1989 02 03		12 38.04	+29 17.9	1.697	2.447	129.7	18.1	19.6	
1989 02 13		12 40.12	+31 47.2						
1989 02 23		12 39.06	+34 30.9	1.447	2.298	140.5	15.9	19.1	
1989 03 05		12 34.51	+37 17.2						
1989 03 15		12 26.45	+39 49.6	1.281	2.147	141.0	16.9	18.7	
1989 03 25		12 15.56	+41 49.6						
1989 04 04		12 03.25	+43 01.9	1.196	1.996	130.4	22.4	18.6	
1989 04 14		11 51.46	+43 17.1						
1989 04 24		11 42.18	+42 34.5	1.168	1.845	116.0	29.4	18.5	
1989 05 04		11 36.72	+40 59.4						
1989 05 14		11 35.71	+38 38.7	1.166	1.698	102.3	35.5	18.5	
1989 05 24		11 39.13	+35 39.5						
1989 06 03		11 46.57	+32 06.2	1.167	1.561	91.1	40.5	18.5	
1989 06 13		11 57.57	+28 01.5						
1989 06 23		12 11.64	+23 27.1	1.160	1.439	82.5	44.5	18.4	
1989 07 03		12 28.36	+18 23.8						
1989 07 13		12 47.52	+12 53.0	1.149	1.342	76.3	47.4	18.4	
1989 07 23		13 08.94	+06 58.0						
1989 08 02		13 32.60	+00 44.0	1.148	1.280	72.3	49.1	18.3	
1989 08 12		13 58.63	-05 40.5						
1989 08 22		14 27.17	-12 03.9	1.173	1.261	70.1	48.9	18.3	
1989 09 01		14 58.45	-18 12.3						
1989 09 11		15 32.66	-23 50.7	1.243	1.289	69.0	46.8	18.4	
1989 09 21		16 09.80	-28 44.7						
1989 10 01		16 49.56	-32 42.4	1.365	1.359	68.1	43.1	18.6	
1989 10 11		17 31.22	-35 36.4						
1989 10 21		18 13.67	-37 24.6	1.539	1.463	66.5	38.6	18.9	
1989 10 31		18 55.62	-38 10.1						
1989 11 10		19 35.92	-38 00.4	1.757	1.588	63.6	34.0	19.2	
1989 11 20		20 13.73	-37 05.8						
1989 11 30		20 48.67	-35 36.7	2.011	1.728	59.2	29.4	19.6	
1989 12 10		21 20.71	-33 42.8						

1989 12 20	21 50.03	-31 32.5	2.289	1.876	53.4	24.9	19.9
1989 12 30	22 16.94	-29 12.0					
1990 01 09	22 41.77	-26 46.5	2.577	2.027	46.4	20.6	20.2

Periodic Comet Reinmuth 1 (1987r)

Elements MPC 10524

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1988 12 05		14 46.70	-09 35.6	3.352	2.557	30.9	11.4	20.0
1988 12 15		15 03.14	-10 39.3					
1988 12 25		15 18.86	-11 33.4	3.294	2.659	42.9	14.6	20.1
1989 01 04		15 33.74	-12 18.1					
1989 01 14		15 47.67	-12 53.3	3.190	2.762	56.0	17.2	20.2
1989 01 24		16 00.46	-13 19.5					
1989 02 03		16 11.97	-13 37.0	3.045	2.865	70.2	18.9	20.3
1989 02 13		16 22.00	-13 46.4					
1989 02 23		16 30.34	-13 48.3	2.872	2.968	85.8	19.4	20.2
1989 03 05		16 36.80	-13 43.8					
1989 03 15		16 41.19	-13 33.5	2.689	3.070	103.0	18.4	20.1
1989 03 25		16 43.33	-13 18.6					
1989 04 04		16 43.15	-13 00.2	2.524	3.172	122.1	15.5	20.0
1989 04 14		16 40.64	-12 39.6					
1989 04 24		16 35.98	-12 18.3	2.412	3.271	143.0	10.7	19.8
1989 05 04		16 29.52	-11 57.9					
1989 05 14		16 21.80	-11 40.2	2.387	3.370	163.8	4.8	19.7
1989 05 24		16 13.51	-11 26.9					
1989 06 03		16 05.38	-11 19.4	2.473	3.466	166.1	4.0	19.8
1989 06 13		15 58.07	-11 18.8					
1989 06 23		15 52.12	-11 25.5	2.670	3.561	146.4	9.1	20.2
1989 07 03		15 47.84	-11 39.4					
1989 07 13		15 45.40	-11 59.9	2.957	3.654	126.4	12.9	20.6

(3911) 1940 QB

a,e,i = 3.04, 0.09, 11

Elements MPC 13682

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 06		00 36.24	+09 37.6	1.776	2.772	174.7	1.9	15.1
1988 10 16		00 29.57	+08 11.5					
1988 10 26		00 24.01	+06 49.0	1.845	2.781	155.7	8.5	15.5
1988 11 05		00 20.19	+05 36.9					
1988 11 15		00 18.51	+04 40.1	2.014	2.790	133.7	14.8	15.9
1988 11 25		00 19.10	+04 00.9					
1988 12 05		00 21.89	+03 39.8	2.253	2.801	113.9	18.8	16.2
1988 12 15		00 26.74	+03 35.7					
1988 12 25		00 33.41	+03 47.0	2.530	2.813	96.3	20.3	16.5

1942 AC

a,e,i = 2.66, 0.20, 16

Elements MPC 13690

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 06		00 43.75	-23 39.9	1.644	2.566	151.4	10.7	16.2
1988 10 16		00 34.77	-24 03.0					
1988 10 26		00 26.94	-23 53.6	1.702	2.524	137.3	15.5	16.4
1988 11 05		00 21.13	-23 13.2					
1988 11 15		00 17.88	-22 05.7	1.836	2.482	119.9	20.2	16.7
1988 11 25		00 17.40	-20 36.4					
1988 12 05		00 19.60	-18 50.2	2.017	2.441	103.4	23.1	16.9
1988 12 15		00 24.28	-16 51.3					
1988 12 25		00 31.15	-14 43.1	2.219	2.401	88.3	24.2	17.1

1988 TD

a,e,i = 2.44, 0.20, 1

Elements MPC 13687

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 06		00 57.73	+09 24.1	0.988	1.985	174.6	2.7	15.2
1988 10 16		00 49.32	+08 28.9					
1988 10 26		00 42.23	+07 36.6	1.041	2.005	160.2	9.6	15.7

1988	11	05	00	37.59	+06	55.9						
1988	11	15	00	36.02	+06	32.5	1.181	2.030	138.5	18.8	16.2	
1988	11	25	00	37.68	+06	29.1						
1988	12	05	00	42.34	+06	44.9	1.384	2.060	119.8	24.5	16.8	
1988	12	15	00	49.66	+07	18.1						
1988	12	25	00	59.25	+08	06.0	1.627	2.093	103.9	27.1	17.2	

1984 UA		a,e,i = 2.57, 0.17, 12						Elements MPC 13692				
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V				
1988	10	06	00	59.01	+22	12.2	1.470	2.442	162.4	7.1	16.2	
1988	10	16	00	50.53	+20	37.1						
1988	10	26	00	43.13	+18	51.2	1.521	2.479	160.3	7.8	16.4	
1988	11	05	00	37.71	+17	05.5						
1988	11	15	00	34.83	+15	29.7	1.673	2.516	140.6	14.5	16.8	
1988	11	25	00	34.66	+14	10.6						
1988	12	05	00	37.09	+13	11.2	1.904	2.553	120.8	19.4	17.3	
1988	12	15	00	41.88	+12	32.3						
1988	12	25	00	48.74	+12	12.5	2.185	2.590	103.0	21.7	17.7	

1977 QK1		a,e,i = 2.37, 0.23, 2						Elements MPC 13684				
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V				
1988	10	06	01	13.10	+10	06.4	0.818	1.813	171.4	4.7	15.2	
1988	10	16	01	04.65	+09	32.4						
1988	10	26	00	57.06	+08	57.7	0.847	1.824	164.1	8.6	15.5	
1988	11	05	00	51.82	+08	31.4						
1988	11	15	00	49.84	+08	20.3	0.957	1.842	142.3	19.2	16.1	
1988	11	25	00	51.44	+08	28.0						
1988	12	05	00	56.43	+08	54.2	1.130	1.868	123.9	26.0	16.7	
1988	12	15	01	04.42	+09	37.3						
1988	12	25	01	14.99	+10	34.5	1.345	1.901	108.4	29.4	17.2	

1982 FS		a,e,i = 2.60, 0.11, 13						Elements MPC 13691				
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V				
1988	10	06	01	41.70	+11	03.5	1.882	2.858	164.8	5.2	16.5	
1988	10	16	01	31.78	+10	51.4						
1988	10	26	01	21.65	+10	36.1	1.864	2.849	170.4	3.3	16.4	
1988	11	05	01	12.33	+10	21.6						
1988	11	15	01	04.69	+10	12.1	1.961	2.838	146.4	11.1	16.8	
1988	11	25	00	59.35	+10	11.1						
1988	12	05	00	56.56	+10	20.7	2.149	2.825	124.4	16.7	17.2	
1988	12	15	00	56.37	+10	41.8						
1988	12	25	00	58.63	+11	14.4	2.393	2.812	104.9	19.8	17.5	

1982 QS3		a,e,i = 3.01, 0.04, 10						Elements MPC 13675				
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V				
1988	10	06	04	31.54	+16	23.6	2.303	2.975	123.5	16.3	16.9	
1988	10	16	04	30.57	+15	41.8						
1988	10	26	04	27.19	+14	54.4	2.104	2.968	144.2	11.3	16.6	
1988	11	05	04	21.62	+14	03.0						
1988	11	15	04	14.36	+13	10.4	1.992	2.961	165.8	4.7	16.2	
1988	11	25	04	06.17	+12	20.4						
1988	12	05	03	57.96	+11	36.7	1.992	2.954	164.6	5.1	16.2	
1988	12	15	03	50.65	+11	02.8						
1988	12	25	03	44.99	+10	41.2	2.105	2.947	142.6	11.7	16.6	
1989	01	04	03	41.46	+10	32.5						
1989	01	14	03	40.30	+10	36.3	2.304	2.941	121.6	16.5	16.9	
1989	01	24	03	41.53	+10	51.2						
1989	02	03	03	45.02	+11	15.0	2.554	2.935	102.9	19.1	17.2	

1980 DO		a,e,i = 2.83, 0.29, 4			Elements MPC 13685			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 06		05 32.43	+19 37.9	2.619	3.091	108.9	17.8	17.4
1988 10 16		05 34.54	+19 32.3					
1988 10 26		05 34.28	+19 25.7	2.322	3.039	128.2	14.9	17.0
1988 11 05		05 31.49	+19 18.6					
1988 11 15		05 26.16	+19 11.1	2.087	2.985	150.1	9.5	16.5
1988 11 25		05 18.59	+19 03.7					
1988 12 05		05 09.38	+18 56.5	1.949	2.929	173.2	2.3	16.0
1988 12 15		04 59.41	+18 50.3					
1988 12 25		04 49.77	+18 46.3	1.928	2.872	160.2	6.7	16.2
1989 01 04		04 41.49	+18 45.8					
1989 01 14		04 35.37	+18 50.4	2.016	2.814	136.6	13.9	16.5
1989 01 24		04 31.91	+19 00.8					
1989 02 03		04 31.28	+19 17.2	2.182	2.754	115.5	18.8	16.7
1989 02 13		04 33.46	+19 38.9					
1989 02 23		04 38.26	+20 04.8	2.387	2.694	97.0	21.4	17.0
1989 03 05		04 45.43	+20 33.3					
1989 03 15		04 54.73	+21 02.9	2.599	2.632	81.0	21.9	17.1

1953 TV		a,e,i = 2.64, 0.07, 8			Elements MPC 13694			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 06		06 17.85	+16 56.9	2.462	2.784	98.1	20.8	17.0
1988 10 16		06 23.00	+16 18.7					
1988 10 26		06 25.78	+15 39.1	2.211	2.791	115.7	18.7	16.7
1988 11 05		06 25.97	+14 59.6					
1988 11 15		06 23.44	+14 21.9	2.001	2.797	135.8	14.3	16.3
1988 11 25		06 18.28	+13 47.8					
1988 12 05		06 10.85	+13 18.9	1.866	2.802	157.6	7.7	16.0
1988 12 15		06 01.81	+12 57.0					
1988 12 25		05 52.17	+12 43.4	1.836	2.806	168.3	4.1	15.8
1989 01 04		05 42.97	+12 38.8					
1989 01 14		05 35.22	+12 43.1	1.920	2.809	148.9	10.4	16.1
1989 01 24		05 29.66	+12 55.6					
1989 02 03		05 26.67	+13 14.9	2.100	2.811	127.5	16.2	16.5
1989 02 13		05 26.37	+13 39.2					
1989 02 23		05 28.67	+14 06.5	2.341	2.812	108.3	19.5	16.9
1989 03 05		05 33.34	+14 34.8					
1989 03 15		05 40.12	+15 02.4	2.608	2.812	91.3	20.7	17.1

1987 SG1		a,e,i = 2.57, 0.29, 12			Elements MPC 13687			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 06		06 48.25	+10 01.1	2.973	3.141	90.2	18.6	19.7
1988 10 16		06 52.58	+09 15.7					
1988 10 26		06 54.89	+08 30.6	2.727	3.173	107.7	17.4	19.5
1988 11 05		06 55.00	+07 47.9					
1988 11 15		06 52.78	+07 09.7	2.508	3.202	127.0	14.3	19.2
1988 11 25		06 48.28	+06 38.5					
1988 12 05		06 41.70	+06 16.5	2.353	3.228	147.5	9.5	19.0
1988 12 15		06 33.48	+06 05.8					
1988 12 25		06 24.31	+06 07.6	2.300	3.251	162.5	5.2	18.7
1989 01 04		06 15.01	+06 21.8					
1989 01 14		06 06.43	+06 47.4	2.364	3.271	153.0	7.9	18.9
1989 01 24		05 59.31	+07 22.2					
1989 02 03		05 54.15	+08 03.5	2.536	3.288	132.9	12.7	19.3
1989 02 13		05 51.22	+08 48.9					
1989 02 23		05 50.57	+09 35.7	2.786	3.301	113.1	16.0	19.6
1989 03 05		05 52.10	+10 22.1					
1989 03 15		05 55.65	+11 06.2	3.074	3.312	95.0	17.4	19.8

1987 SM12		a,e,i = 2.90, 0.08, 1			Elements MPC 13692			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 06		06 39.43	+24 29.0	2.505	2.752	93.4	21.3	18.1
1988 10 16		06 46.77	+24 25.5					
1988 10 26		06 51.83	+24 23.9	2.257	2.766	110.5	19.7	17.8
1988 11 05		06 54.32	+24 25.0					
1988 11 15		06 54.02	+24 29.4	2.038	2.780	130.0	15.8	17.5
1988 11 25		06 50.84	+24 36.8					
1988 12 05		06 44.96	+24 45.9	1.884	2.794	152.3	9.4	17.2
1988 12 15		06 36.85	+24 54.9					
1988 12 25		06 27.38	+25 01.5	1.827	2.809	176.2	1.3	16.7
1989 01 04		06 17.67	+25 04.2					
1989 01 14		06 08.86	+25 03.0	1.886	2.825	158.7	7.3	17.1
1989 01 24		06 01.95	+24 58.7					
1989 02 03		05 57.55	+24 52.7	2.050	2.841	135.8	14.0	17.5
1989 02 13		05 55.94	+24 46.4					
1989 02 23		05 57.12	+24 40.4	2.288	2.857	115.5	18.2	17.9
1989 03 05		06 00.87	+24 34.6					
1989 03 15		06 06.92	+24 28.5	2.565	2.873	97.7	20.1	18.2
1964 ED		a,e,i = 3.43, 0.08, 5			Elements MPC 13683			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		07 24.02	+16 28.2	3.360	3.696	102.0	15.3	17.2
1988 11 05		07 26.03	+16 08.4					
1988 11 15		07 26.12	+15 52.5	3.088	3.700	121.3	13.2	17.0
1988 11 25		07 24.25	+15 41.4					
1988 12 05		07 20.45	+15 35.7	2.872	3.703	142.6	9.3	16.7
1988 12 15		07 14.93	+15 35.5					
1988 12 25		07 08.10	+15 40.7	2.747	3.705	164.8	4.0	16.4
1989 01 04		07 00.51	+15 50.4					
1989 01 14		06 52.85	+16 03.7	2.740	3.707	167.5	3.3	16.3
1989 01 24		06 45.81	+16 19.5					
1989 02 03		06 40.01	+16 36.6	2.853	3.707	145.5	8.7	16.6
1989 02 13		06 35.87	+16 54.4					
1989 02 23		06 33.67	+17 11.7	3.062	3.708	124.1	12.8	16.9
1989 03 05		06 33.47	+17 28.1					
1989 03 15		06 35.22	+17 42.8	3.331	3.707	104.5	15.1	17.2
1989 03 25		06 38.80	+17 55.0					
1989 04 04		06 44.02	+18 04.3	3.624	3.706	86.9	15.6	17.4
1977 RF2		a,e,i = 2.25, 0.19, 5			Elements MPC 12202			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 20.88	+24 40.7	2.375	2.583	90.5	22.6	19.4
1988 11 05		08 28.45	+24 30.4					
1988 11 15		08 33.64	+24 28.0	2.130	2.606	107.6	21.2	19.1
1988 11 25		08 36.12	+24 35.1					
1988 12 05		08 35.60	+24 52.1	1.908	2.625	127.3	17.4	18.8
1988 12 15		08 31.87	+25 18.3					
1988 12 25		08 24.98	+25 50.8	1.745	2.642	149.9	10.8	18.4
1989 01 04		08 15.35	+26 25.2					
1989 01 14		08 03.85	+26 55.6	1.678	2.656	172.3	2.8	18.0
1989 01 24		07 51.79	+27 16.9					
1989 02 03		07 40.56	+27 26.5	1.727	2.666	157.9	8.0	18.3
1989 02 13		07 31.40	+27 24.1					
1989 02 23		07 25.12	+27 11.6	1.882	2.673	134.9	15.2	18.7
1989 03 05		07 22.02	+26 51.7					
1989 03 15		07 22.07	+26 26.3	2.108	2.677	114.4	19.8	19.1
1989 03 25		07 25.02	+25 56.7					
1989 04 04		07 30.47	+25 23.5	2.371	2.678	96.7	21.8	19.4

1976 YW2		a,e,i = 3.24, 0.07, 18				Elements MPC 13603		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 13.04	+20 05.3	2.822	3.012	91.3	19.3	16.5
1988 11 05		08 20.02	+20 24.0					
1988 11 15		08 25.12	+20 52.5	2.546	3.013	108.7	18.1	16.2
1988 11 25		08 28.08	+21 32.7					
1988 12 05		08 28.69	+22 25.3	2.301	3.014	128.4	14.8	15.9
1988 12 15		08 26.80	+23 30.2					
1988 12 25		08 22.46	+24 45.1	2.121	3.016	150.4	9.3	15.6
1989 01 04		08 15.96	+26 05.8					
1989 01 14		08 07.88	+27 26.6	2.043	3.019	171.3	2.8	15.2
1989 01 24		07 59.11	+28 41.2					
1989 02 03		07 50.69	+29 44.7	2.083	3.023	158.7	6.8	15.4
1989 02 13		07 43.59	+30 34.1					
1989 02 23		07 38.59	+31 09.1	2.231	3.027	136.6	13.0	15.8
1989 03 05		07 36.11	+31 30.9					
1989 03 15		07 36.30	+31 41.1	2.457	3.033	116.4	17.1	16.2
1989 03 25		07 39.07	+31 41.7					
1989 04 04		07 44.19	+31 34.0	2.725	3.039	98.5	19.0	16.4

1985 TG3		a,e,i = 5.26, 0.05, 12				Elements MPC 12786		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 22.85	+22 55.0	5.099	5.189	89.7	11.0	17.7
1988 11 05		08 25.51	+22 42.3					
1988 11 15		08 26.85	+22 33.4	4.794	5.196	108.7	10.4	17.6
1988 11 25		08 26.79	+22 28.6					
1988 12 05		08 25.31	+22 27.7	4.525	5.204	129.2	8.4	17.4
1988 12 15		08 22.46	+22 30.0					
1988 12 25		08 18.39	+22 34.9	4.329	5.212	151.1	5.2	17.1
1989 01 04		08 13.32	+22 41.0					
1989 01 14		08 07.60	+22 47.1	4.241	5.219	173.6	1.2	16.9
1989 01 24		08 01.65	+22 51.9					
1989 02 03		07 55.90	+22 54.4	4.277	5.227	162.8	3.2	17.0
1989 02 13		07 50.75	+22 54.1					
1989 02 23		07 46.58	+22 50.5	4.433	5.235	140.6	6.9	17.3
1989 03 05		07 43.60	+22 43.7					
1989 03 15		07 41.98	+22 33.9	4.680	5.243	119.6	9.5	17.5
1989 03 25		07 41.77	+22 21.3					
1989 04 04		07 42.91	+22 06.1	4.982	5.250	100.1	10.8	17.7

1972 TC2		a,e,i = 2.45, 0.15, 7				Elements MPC 13599		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 21.40	+22 48.6	2.397	2.594	90.0	22.5	17.4
1988 11 05		08 29.55	+22 49.8					
1988 11 15		08 35.44	+23 00.4	2.159	2.622	106.9	21.2	17.2
1988 11 25		08 38.79	+23 22.1					
1988 12 05		08 39.29	+23 55.8	1.943	2.649	126.3	17.4	16.9
1988 12 15		08 36.74	+24 41.0					
1988 12 25		08 31.17	+25 35.2	1.786	2.674	148.5	11.1	16.5
1989 01 04		08 22.91	+26 33.5					
1989 01 14		08 12.71	+27 29.6	1.722	2.697	170.5	3.5	16.1
1989 01 24		08 01.76	+28 16.9					
1989 02 03		07 51.36	+28 51.3	1.774	2.719	159.3	7.3	16.4
1989 02 13		07 42.71	+29 11.2					
1989 02 23		07 36.68	+29 17.5	1.933	2.739	136.8	14.3	16.8
1989 03 05		07 33.63	+29 12.6					
1989 03 15		07 33.62	+28 58.8	2.166	2.756	116.4	18.8	17.2
1989 03 25		07 36.44	+28 38.1					
1989 04 04		07 41.74	+28 11.6	2.438	2.772	98.7	20.9	17.6

1982 BJ		a,e,i = 2.32, 0.19, 24				Elements MPC 10828		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		07 52.24	+07 05.2	1.759	2.072	93.5	28.6	17.9
1988 11 05		08 03.84	+07 08.4					
1988 11 15		08 13.56	+07 26.4	1.496	2.032	107.9	27.6	17.5
1988 12 05		08 25.75	+09 13.3	1.254	1.994	125.4	23.7	17.0
1988 12 15		08 27.31	+10 57.2					
1988 12 25		08 25.35	+13 22.8	1.061	1.960	147.0	15.8	16.3
1989 01 04		08 19.81	+16 30.3					
1989 01 14		08 11.16	+20 10.7	0.951	1.931	172.7	3.7	15.6
1989 01 24		08 00.66	+24 04.7					
1989 02 03		07 50.16	+27 48.5	0.951	1.906	159.6	10.4	15.9
1989 02 13		07 41.72	+31 02.6					
1989 02 23		07 36.99	+33 37.3	1.050	1.887	135.4	21.6	16.4
1989 03 05		07 36.80	+35 32.6					
1989 03 15		07 41.29	+36 52.2	1.212	1.874	115.9	28.5	16.9
1989 03 25		07 50.11	+37 41.0					
1989 04 04		08 02.62	+38 03.0	1.402	1.867	100.7	31.8	17.3

(3723) 1976 GK2		a,e,i = 2.26, 0.11, 1				Elements MPC 12691		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 18.25	+19 46.1	2.287	2.493	90.0	23.5	18.4
1988 11 05		08 27.03	+19 21.0					
1988 11 15		08 33.67	+19 02.5	2.018	2.485	106.3	22.5	18.0
1988 12 05		08 37.84	+18 52.9					
1988 12 15		08 39.20	+18 54.1	1.772	2.475	125.3	19.0	17.7
1988 12 25		08 37.46	+19 07.5					
1988 12 25		08 32.53	+19 32.7	1.577	2.463	147.3	12.5	17.2
1989 01 04		08 24.64	+20 07.5					
1989 01 14		08 14.46	+20 47.8	1.471	2.449	172.0	3.2	16.7
1989 01 24		08 03.17	+21 27.9					
1989 02 03		07 52.20	+22 02.7	1.476	2.433	162.2	7.1	16.8
1989 02 13		07 42.95	+22 29.2					
1989 02 23		07 36.48	+22 46.0	1.586	2.416	138.3	15.8	17.3
1989 03 05		07 33.30	+22 53.7					
1989 03 15		07 33.51	+22 53.0	1.769	2.397	117.6	21.6	17.7
1989 03 25		07 36.91	+22 44.7					
1989 04 04		07 43.12	+22 29.1	1.989	2.377	100.0	24.5	18.0

1981 EF5		a,e,i = 2.60, 0.21, 11				Elements MPC 10769		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 01.87	+11 18.6	1.757	2.049	92.0	29.0	18.4
1988 11 05		08 13.68	+09 30.7					
1988 11 15		08 23.10	+07 41.9	1.553	2.055	105.8	27.6	18.1
1988 12 05		08 29.79	+05 55.6					
1988 12 05		08 33.43	+04 16.1	1.370	2.067	121.8	23.9	17.7
1988 12 15		08 33.76	+02 48.6					
1988 12 25		08 30.77	+01 38.8	1.232	2.084	140.1	17.6	17.4
1989 01 04		08 24.78	+00 52.4					
1989 01 14		08 16.57	+00 33.5	1.165	2.107	157.3	10.4	17.0
1989 01 24		08 07.43	+00 43.0					
1989 02 03		07 58.80	+01 17.5	1.189	2.134	157.7	10.1	17.1
1989 02 13		07 52.03	+02 10.4					
1989 02 23		07 48.07	+03 13.1	1.306	2.166	141.0	16.7	17.5
1989 03 05		07 47.29	+04 17.6					
1989 03 15		07 49.72	+05 17.9	1.494	2.201	123.2	22.2	18.0
1989 03 25		07 55.10	+06 09.4					
1989 04 04		08 03.00	+06 49.9	1.728	2.240	107.3	25.2	18.5

1972 RF		a,e,i = 2.42, 0.23, 24				Elements MPC 12312		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 27.34	-04 40.2	2.738	2.786	82.4	20.7	18.3
1988 11 05		08 33.66	-05 58.9					
1988 11 15		08 38.03	-07 13.9	2.513	2.818	97.5	20.4	18.1
1988 11 25		08 40.23	-08 21.9					
1988 12 05		08 40.09	-09 19.2	2.297	2.846	114.2	18.4	17.9
1988 12 15		08 37.48	-10 01.1					
1988 12 25		08 32.48	-10 22.7	2.120	2.872	131.9	14.8	17.6
1989 01 04		08 25.38	-10 19.7					
1989 01 14		08 16.75	-09 49.1	2.016	2.895	147.5	10.5	17.4
1989 01 24		08 07.42	-08 50.7					
1989 02 03		07 58.35	-07 27.8	2.014	2.914	150.8	9.5	17.4
1989 02 13		07 50.46	-05 46.5					
1989 02 23		07 44.47	-03 54.9	2.119	2.931	138.1	13.0	17.6
1989 03 05		07 40.80	-02 00.6					
1989 03 15		07 39.63	-00 10.1	2.312	2.945	120.5	16.9	18.0
1989 03 25		07 40.89	+01 31.8					
1989 04 04		07 44.40	+03 02.4	2.563	2.956	103.2	19.2	18.3

1973 SM		a,e,i = 5.16, 0.04, 2				Elements MPC 12451		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 26.00	+17 02.3	5.132	5.186	87.6	11.0	17.5
1988 11 05		08 28.88	+16 47.9					
1988 11 15		08 30.51	+16 37.6	4.824	5.192	106.5	10.5	17.4
1988 11 25		08 30.83	+16 32.0					
1988 12 05		08 29.80	+16 31.4	4.547	5.198	126.8	8.7	17.2
1988 12 15		08 27.45	+16 35.9					
1988 12 25		08 23.91	+16 44.9	4.340	5.204	148.5	5.7	17.0
1989 01 04		08 19.39	+16 57.9					
1989 01 14		08 14.18	+17 13.7	4.237	5.210	171.0	1.7	16.7
1989 01 24		08 08.67	+17 30.9					
1989 02 03		08 03.27	+17 48.4	4.257	5.216	165.4	2.7	16.8
1989 02 13		07 58.38	+18 04.8					
1989 02 23		07 54.35	+18 19.2	4.397	5.222	143.2	6.5	17.0
1989 03 05		07 51.43	+18 31.0					
1989 03 15		07 49.79	+18 39.6	4.632	5.228	122.0	9.3	17.3
1989 03 25		07 49.50	+18 44.9					
1989 04 04		07 50.55	+18 46.6	4.927	5.234	102.4	10.8	17.5

1966 PK		a,e,i = 2.98, 0.22, 2				Elements MPC 13583		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 26.88	+20 30.3	2.762	2.906	88.2	20.0	18.4
1988 11 05		08 33.71	+20 14.7					
1988 11 15		08 38.46	+20 06.4	2.528	2.950	105.5	18.8	18.2
1988 11 25		08 40.92	+20 06.8					
1988 12 05		08 40.91	+20 16.7	2.316	2.994	125.2	15.6	18.0
1988 12 15		08 38.33	+20 36.1					
1988 12 25		08 33.29	+21 03.5	2.162	3.037	147.4	10.0	17.7
1989 01 04		08 26.15	+21 36.3					
1989 01 14		08 17.52	+22 10.9	2.104	3.080	171.4	2.8	17.3
1989 01 24		08 08.31	+22 43.2					
1989 02 03		07 59.49	+23 10.1	2.163	3.121	163.5	5.1	17.5
1989 02 13		07 51.96	+23 29.7					
1989 02 23		07 46.41	+23 41.3	2.335	3.161	140.4	11.5	18.0
1989 03 05		07 43.18	+23 45.5					
1989 03 15		07 42.39	+23 43.0	2.592	3.200	119.5	15.7	18.3
1989 03 25		07 43.95	+23 34.6					
1989 04 04		07 47.62	+23 20.8	2.896	3.238	100.9	17.7	18.7

1987 QF7		a,e,i = 2.74, 0.24, 7			Elements MPC 12439			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 29.46	+13 09.0	2.625	2.739	85.8	21.2	18.2
1988 11 05		08 36.29	+12 14.8					
1988 11 15		08 41.03	+11 25.7	2.401	2.789	102.6	20.2	18.0
1988 11 25		08 43.44	+10 43.6					
1988 12 05		08 43.37	+10 10.6	2.193	2.838	121.7	17.2	17.8
1988 12 15		08 40.71	+09 48.5					
1988 12 25		08 35.57	+09 38.5	2.037	2.885	143.2	11.8	17.5
1989 01 04		08 28.30	+09 41.0					
1989 01 14		08 19.52	+09 55.2	1.970	2.931	165.1	4.9	17.2
1989 01 24		08 10.14	+10 18.8					
1989 02 03		08 01.13	+10 48.7	2.017	2.975	163.6	5.4	17.3
1989 02 13		07 53.39	+11 21.7					
1989 02 23		07 47.63	+11 54.5	2.177	3.018	141.9	11.7	17.7
1989 03 05		07 44.19	+12 24.6					
1989 03 15		07 43.20	+12 50.3	2.423	3.059	121.2	16.2	18.1
1989 03 25		07 44.58	+13 10.4					
1989 04 04		07 48.08	+13 24.1	2.720	3.097	102.7	18.4	18.5

1985 CH2		a,e,i = 2.57, 0.07, 10			Elements MPC 10310			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 11.34	+11 06.2	2.188	2.399	89.7	24.5	18.6
1988 11 05		08 20.92	+10 20.6					
1988 11 15		08 28.48	+09 40.4	1.938	2.393	105.1	23.5	18.3
1988 11 25		08 33.70	+09 09.0					
1988 12 05		08 36.31	+08 49.7	1.707	2.389	122.9	20.3	17.9
1988 12 15		08 36.04	+08 46.0					
1988 12 25		08 32.84	+09 00.6	1.523	2.387	143.5	14.2	17.5
1989 01 04		08 26.94	+09 34.8					
1989 01 14		08 18.92	+10 27.4	1.420	2.386	165.7	5.9	17.1
1989 01 24		08 09.84	+11 34.5					
1989 02 03		08 00.93	+12 49.7	1.422	2.386	164.2	6.5	17.1
1989 02 13		07 53.46	+14 06.2					
1989 02 23		07 48.43	+15 17.9	1.529	2.388	142.0	14.8	17.5
1989 03 05		07 46.34	+16 20.8					
1989 03 15		07 47.37	+17 12.4	1.714	2.391	121.7	20.7	18.0
1989 03 25		07 51.37	+17 51.7					
1989 04 04		07 58.02	+18 18.4	1.945	2.396	104.2	23.9	18.3

2820 P-L		a,e,i = 2.27, 0.08, 5			Elements MPC 11338			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 07.27	+25 59.1	1.805	2.118	93.8	27.9	18.2
1988 11 05		08 19.94	+25 52.0					
1988 11 15		08 30.26	+25 52.2	1.573	2.109	108.6	26.4	17.9
1988 11 25		08 37.80	+26 02.5					
1988 12 05		08 42.10	+26 24.9	1.364	2.101	126.1	22.2	17.4
1988 12 15		08 42.67	+27 00.1					
1988 12 25		08 39.29	+27 45.6	1.203	2.096	146.7	14.9	16.9
1989 01 04		08 32.08	+28 35.9					
1989 01 14		08 21.82	+29 22.4	1.121	2.093	167.7	5.7	16.5
1989 01 24		08 10.06	+29 55.7					
1989 02 03		07 58.70	+30 09.9	1.139	2.092	159.9	9.3	16.6
1989 02 13		07 49.60	+30 03.6					
1989 02 23		07 44.03	+29 39.6	1.249	2.093	138.2	18.4	17.1
1989 03 05		07 42.45	+29 02.4					
1989 03 15		07 44.79	+28 15.7	1.425	2.096	119.0	24.5	17.6
1989 03 25		07 50.62	+27 21.7					
1989 04 04		07 59.36	+26 21.7	1.638	2.101	102.9	27.7	18.0

1971 QP1		a,e,i = 3.03, 0.11, 9				Elements MPC 9469		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 28.80	+24 36.4	2.734	2.889	88.7	20.1	17.9
1988 11 05		08 36.16	+24 10.5					
1988 11 15		08 41.40	+23 50.5	2.481	2.910	105.7	19.1	17.6
1988 11 25		08 44.29	+23 37.5					
1988 12 05		08 44.61	+23 31.8	2.252	2.931	125.1	16.0	17.4
1988 12 15		08 42.24	+23 33.2					
1988 12 25		08 37.25	+23 40.0	2.079	2.953	146.9	10.5	17.0
1989 01 04		08 29.96	+23 49.6					
1989 01 14		08 21.01	+23 58.7	2.000	2.974	170.3	3.2	16.7
1989 01 24		08 11.35	+24 03.7					
1989 02 03		08 02.03	+24 02.5	2.037	2.996	163.7	5.3	16.8
1989 02 13		07 54.03	+23 54.1					
1989 02 23		07 48.12	+23 39.0	2.186	3.018	140.8	12.0	17.2
1989 03 05		07 44.67	+23 18.3					
1989 03 15		07 43.80	+22 52.9	2.419	3.040	119.9	16.5	17.6
1989 03 25		07 45.40	+22 23.8					
1989 04 04		07 49.24	+21 51.2	2.700	3.061	101.6	18.7	17.9

1983 WG		a,e,i = 2.81, 0.22, 11				Elements MPC 8540		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 00.58	+23 54.9	1.894	2.213	94.9	26.6	17.2
1988 11 05		08 13.07	+24 18.8					
1988 11 15		08 23.43	+24 53.9	1.661	2.205	110.0	24.9	16.8
1988 11 25		08 31.26	+25 43.0					
1988 12 05		08 36.14	+26 48.3	1.458	2.202	127.5	20.8	16.4
1988 12 15		08 37.66	+28 09.9					
1988 12 25		08 35.63	+29 44.5	1.310	2.204	147.5	13.9	16.0
1989 01 04		08 30.20	+31 25.0					
1989 01 14		08 22.04	+33 00.7	1.247	2.212	165.2	6.5	15.6
1989 01 24		08 12.49	+34 20.4					
1989 02 03		08 03.23	+35 16.0	1.284	2.225	157.0	10.0	15.8
1989 02 13		07 55.87	+35 44.7					
1989 02 23		07 51.60	+35 48.5	1.413	2.242	137.2	17.5	16.3
1989 03 05		07 50.91	+35 32.1					
1989 03 15		07 53.81	+34 59.8	1.610	2.264	118.9	22.6	16.8
1989 03 25		07 59.93	+34 15.3					
1989 04 04		08 08.78	+33 21.1	1.846	2.291	103.2	25.2	17.2

(3721) Widorn		a,e,i = 3.02, 0.08, 9				Elements MPC 12687		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 25.53	+24 22.6	2.603	2.777	89.4	21.0	17.1
1988 11 05		08 33.72	+23 51.2					
1988 11 15		08 39.83	+23 24.9	2.338	2.778	106.0	20.0	16.8
1988 11 25		08 43.56	+23 04.9					
1988 12 05		08 44.69	+22 51.9	2.096	2.780	124.9	16.9	16.5
1988 12 15		08 43.02	+22 46.0					
1988 12 25		08 38.59	+22 46.1	1.911	2.784	146.5	11.2	16.1
1989 01 04		08 31.67	+22 49.7					
1989 01 14		08 22.88	+22 53.7	1.815	2.789	170.1	3.5	15.7
1989 01 24		08 13.21	+22 54.6					
1989 02 03		08 03.80	+22 50.1	1.833	2.795	164.5	5.4	15.8
1989 02 13		07 55.73	+22 39.1					
1989 02 23		07 49.83	+22 21.8	1.960	2.802	141.4	12.7	16.3
1989 03 05		07 46.56	+21 59.1					
1989 03 15		07 46.05	+21 32.0	2.170	2.811	120.7	17.7	16.6
1989 03 25		07 48.18	+21 00.9					
1989 04 04		07 52.68	+20 26.2	2.428	2.820	102.6	20.2	17.0

1981 ST		a,e,i = 3.12, 0.05, 17				Elements MPC 12706		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 27.12	+03 09.9	3.110	3.167	84.1	18.2	17.3
1988 11 05		08 33.23	+02 14.3					
1988 11 15		08 37.64	+01 22.7	2.845	3.176	100.4	17.8	17.1
1988 11 25		08 40.17	+00 37.8					
1988 12 05		08 40.67	+00 02.1	2.596	3.185	118.4	15.8	16.8
1988 12 15		08 39.05	-00 21.5					
1988 12 25		08 35.38	-00 30.0	2.395	3.193	137.9	11.9	16.6
1989 01 04		08 29.88	-00 21.6					
1989 01 14		08 23.00	+00 05.0	2.277	3.202	156.3	7.1	16.3
1989 01 24		08 15.41	+00 48.7					
1989 02 03		08 07.88	+01 46.8	2.267	3.210	159.6	6.1	16.2
1989 02 13		08 01.17	+02 55.0					
1989 02 23		07 55.96	+04 08.3	2.371	3.217	143.1	10.6	16.5
1989 03 05		07 52.65	+05 21.7					
1989 03 15		07 51.50	+06 31.4	2.566	3.224	123.6	14.9	16.8
1989 03 25		07 52.51	+07 34.3					
1989 04 04		07 55.58	+08 28.7	2.821	3.231	105.2	17.4	17.1

1986 QV2		a,e,i = 2.79, 0.16, 8				Elements MPC 12206		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 27.42	+14 49.7	2.921	3.031	86.7	19.1	18.1
1988 11 05		08 34.45	+14 24.7					
1988 11 15		08 39.75	+14 05.8	2.615	3.006	103.6	18.7	17.8
1988 11 25		08 43.08	+13 55.0					
1988 12 05		08 44.21	+13 54.3	2.329	2.979	122.7	16.2	17.5
1988 12 15		08 42.95	+14 05.3					
1988 12 25		08 39.27	+14 28.6	2.096	2.951	144.3	11.2	17.1
1989 01 04		08 33.31	+15 03.9					
1989 01 14		08 25.52	+15 49.0	1.953	2.922	167.9	4.0	16.6
1989 01 24		08 16.66	+16 40.3					
1989 02 03		08 07.67	+17 33.4	1.924	2.892	166.5	4.6	16.6
1989 02 13		07 59.58	+18 24.0					
1989 02 23		07 53.27	+19 08.9	2.010	2.861	142.8	12.1	16.9
1989 03 05		07 49.32	+19 46.1					
1989 03 15		07 48.02	+20 14.7	2.181	2.830	121.4	17.5	17.3
1989 03 25		07 49.41	+20 34.5					
1989 04 04		07 53.31	+20 45.5	2.402	2.797	102.7	20.4	17.5

1987 WS		a,e,i = 3.08, 0.08, 12				Elements MPC 12800		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 36.69	+31 44.4	3.155	3.289	88.9	17.6	17.4
1988 11 05		08 43.69	+31 58.9					
1988 11 15		08 48.73	+32 21.9	2.884	3.297	106.0	16.8	17.2
1988 11 25		08 51.58	+32 53.8					
1988 12 05		08 52.00	+33 34.0	2.640	3.304	124.9	14.2	16.9
1988 12 15		08 49.81	+34 20.6					
1988 12 25		08 45.02	+35 10.0	2.457	3.311	145.0	9.8	16.6
1989 01 04		08 37.87	+35 57.3					
1989 01 14		08 28.90	+36 36.6	2.369	3.317	161.5	5.4	16.4
1989 01 24		08 18.99	+37 02.9					
1989 02 03		08 09.16	+37 13.0	2.396	3.322	156.2	6.9	16.5
1989 02 13		08 00.44	+37 06.2					
1989 02 23		07 53.67	+36 44.4	2.532	3.326	137.1	11.7	16.8
1989 03 05		07 49.32	+36 10.5					
1989 03 15		07 47.58	+35 27.9	2.750	3.329	117.6	15.4	17.1
1989 03 25		07 48.39	+34 39.2					
1989 04 04		07 51.53	+33 46.5	3.015	3.331	99.6	17.2	17.3

1951 WH		a,e,i = 2.23, 0.18, 5				Elements MPC 13049		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 21.84	+23 54.6	1.767	2.029	90.1	29.3	17.4
1988 11 05		08 34.52	+23 46.3					
1988 11 15		08 44.62	+23 47.4	1.578	2.068	105.0	27.5	17.2
1988 12 05		08 55.44	+24 29.1	1.404	2.108	122.8	23.1	16.8
1988 12 15		08 55.34	+25 12.3					
1988 12 25		08 51.27	+26 08.2	1.274	2.149	144.0	15.6	16.4
1989 01 04		08 43.44	+27 10.9					
1989 01 14		08 32.67	+28 11.5	1.222	2.190	166.4	6.1	16.1
1989 01 24		08 20.48	+29 00.3					
1989 02 03		08 08.67	+29 30.8	1.273	2.231	162.0	7.9	16.3
1989 02 13		07 58.95	+29 41.0					
1989 02 23		07 52.48	+29 33.1	1.423	2.271	139.9	16.3	16.8
1989 03 05		07 49.68	+29 11.2					
1989 03 15		07 50.50	+28 38.8	1.645	2.310	120.1	21.9	17.3
1989 03 25		07 54.56	+27 58.8					
1989 04 04		08 01.35	+27 12.5	1.908	2.347	103.1	24.5	17.8

(3820) 1984 DV		a,e,i = 3.00, 0.11, 10				Elements MPC 13048		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 10 26		08 34.95	+24 50.2	2.721	2.855	87.5	20.4	17.4
1988 11 05		08 42.73	+24 22.3					
1988 11 15		08 48.42	+24 00.3	2.469	2.877	104.2	19.5	17.2
1988 12 05		08 51.78	+23 45.5					
1988 12 05		08 52.57	+23 38.4	2.238	2.899	123.3	16.5	16.9
1988 12 15		08 50.65	+23 38.6					
1988 12 25		08 46.04	+23 44.9	2.061	2.922	144.9	11.2	16.6
1989 01 04		08 39.01	+23 54.3					
1989 01 14		08 30.17	+24 03.6	1.975	2.944	168.2	3.9	16.2
1989 01 24		08 20.42	+24 08.9					
1989 02 03		08 10.85	+24 07.7	2.003	2.967	165.5	4.8	16.3
1989 02 13		08 02.47	+23 58.9					
1989 02 23		07 56.10	+23 42.8	2.144	2.990	142.5	11.6	16.8
1989 03 05		07 52.18	+23 20.4					
1989 03 15		07 50.86	+22 53.0	2.371	3.013	121.5	16.3	17.1
1989 03 25		07 52.07	+22 21.5					
1989 04 04		07 55.56	+21 46.4	2.650	3.035	103.0	18.7	17.5

1986 PQ1		a,e,i = 3.16, 0.02, 3				Elements MPC 11148		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 45.28	+19 15.2	2.736	3.123	103.7	17.9	18.0
1988 11 25		08 48.62	+19 11.3					
1988 12 05		08 49.76	+19 16.5	2.478	3.125	122.9	15.3	17.7
1988 12 15		08 48.55	+19 31.3					
1988 12 25		08 45.01	+19 55.1	2.274	3.127	144.5	10.5	17.3
1989 01 04		08 39.32	+20 25.9					
1989 01 14		08 31.95	+21 01.0	2.161	3.129	168.0	3.8	17.0
1989 01 24		08 23.62	+21 36.3					
1989 02 03		08 15.23	+22 08.1	2.163	3.132	167.3	4.0	17.0
1989 02 13		08 07.68	+22 33.8					
1989 02 23		08 01.76	+22 51.6	2.280	3.135	144.0	10.7	17.4
1989 03 05		07 57.96	+23 01.4					
1989 03 15		07 56.55	+23 03.3	2.486	3.137	122.8	15.5	17.7
1989 03 25		07 57.53	+22 57.9					
1989 04 04		08 00.74	+22 46.0	2.745	3.140	104.0	18.0	18.0
1989 04 14		08 05.97	+22 27.9					
1989 04 24		08 12.96	+22 03.7	3.025	3.143	87.3	18.6	18.2

1981 TO3		a,e,i = 3.21, 0.17, 2			Elements MPC 10028			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 50.55	+18 38.7	2.992	3.346	102.4	16.8	18.0
1988 11 25		08 52.99	+18 34.8					
1988 12 05		08 53.32	+18 39.5	2.750	3.377	122.0	14.3	17.7
1988 12 15		08 51.46	+18 53.2					
1988 12 25		08 47.45	+19 15.1	2.563	3.406	143.8	9.8	17.5
1989 01 04		08 41.53	+19 43.3					
1989 01 14		08 34.13	+20 15.3	2.468	3.435	167.4	3.6	17.1
1989 01 24		08 25.93	+20 47.7					
1989 02 03		08 17.72	+21 17.3	2.492	3.463	168.1	3.4	17.2
1989 02 13		08 10.29	+21 41.7					
1989 02 23		08 04.30	+21 59.5	2.634	3.490	144.8	9.4	17.6
1989 03 05		08 00.19	+22 10.3					
1989 03 15		07 58.20	+22 14.3	2.870	3.515	123.3	13.7	17.9
1989 03 25		07 58.35	+22 12.0					
1989 04 04		08 00.51	+22 03.8	3.161	3.540	104.1	15.9	18.2
1989 04 14		08 04.50	+21 50.1					
1989 04 24		08 10.11	+21 31.3	3.476	3.564	86.8	16.4	18.4

1978 VL7		a,e,i = 2.17, 0.07, 2			Elements MPC 10941			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 45.42	+15 55.2	1.850	2.283	102.8	25.0	18.1
1988 11 25		08 51.64	+15 15.9					
1988 12 05		08 55.12	+14 46.0	1.606	2.270	120.5	22.0	17.7
1988 12 15		08 55.46	+14 28.0					
1988 12 25		08 52.46	+14 23.9	1.404	2.257	141.2	15.8	17.3
1989 01 04		08 46.15	+14 33.9					
1989 01 14		08 36.97	+14 56.8	1.277	2.242	165.1	6.5	16.7
1989 01 24		08 26.00	+15 28.5					
1989 02 03		08 14.67	+16 03.9	1.253	2.227	168.1	5.2	16.6
1989 02 13		08 04.59	+16 38.0					
1989 02 23		07 57.12	+17 06.7	1.333	2.211	144.0	15.3	17.1
1989 03 05		07 52.99	+17 27.9					
1989 03 15		07 52.49	+17 40.6	1.489	2.194	122.8	22.4	17.5
1989 03 25		07 55.46	+17 44.1					
1989 04 04		08 01.51	+17 38.4	1.689	2.177	105.2	26.3	17.9
1989 04 14		08 10.23	+17 23.1					
1989 04 24		08 21.16	+16 57.8	1.905	2.160	90.3	27.8	18.2

1987 SJ		a,e,i = 2.57, 0.31, 5			Elements MPC 12455			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 56.45	+11 43.8	2.791	3.104	99.1	18.3	18.6
1988 11 25		08 58.64	+11 18.8					
1988 12 05		08 58.61	+11 03.1	2.554	3.145	118.5	16.0	18.4
1988 12 15		08 56.24	+10 58.2					
1988 12 25		08 51.58	+11 04.6	2.364	3.183	140.2	11.4	18.1
1989 01 04		08 44.84	+11 22.4					
1989 01 14		08 36.48	+11 50.0	2.262	3.217	163.5	5.0	17.8
1989 01 24		08 27.23	+12 24.9					
1989 02 03		08 17.94	+13 03.9	2.277	3.248	168.2	3.5	17.7
1989 02 13		08 09.49	+13 43.4					
1989 02 23		08 02.60	+14 20.6	2.413	3.276	145.5	9.8	18.2
1989 03 05		07 57.74	+14 53.3					
1989 03 15		07 55.15	+15 20.3	2.643	3.301	123.8	14.5	18.5
1989 03 25		07 54.85	+15 40.7					
1989 04 04		07 56.69	+15 54.3	2.930	3.323	104.4	17.0	18.8
1989 04 14		08 00.47	+16 01.1					
1989 04 24		08 05.95	+16 01.0	3.240	3.341	87.0	17.5	19.1

(3725) 1981 EA11		a,e,i = 2.68, 0.20, 11				Elements MPC 12691		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 01.18	+28 41.8	2.326	2.719	102.6	20.8	18.8
1988 11 25		09 05.18	+28 48.2					
1988 12 05		09 06.36	+29 04.3	2.117	2.761	121.3	17.8	18.5
1988 12 15		09 04.47	+29 29.0					
1988 12 25		08 59.49	+29 59.3	1.958	2.802	142.3	12.4	18.2
1989 01 04		08 51.66	+30 30.3					
1989 01 14		08 41.60	+30 56.2	1.885	2.841	163.3	5.7	17.9
1989 01 24		08 30.35	+31 11.0					
1989 02 03		08 19.19	+31 11.4	1.924	2.879	162.3	6.0	18.0
1989 02 13		08 09.32	+30 56.5					
1989 02 23		08 01.72	+30 28.2	2.076	2.916	141.4	12.2	18.5
1989 03 05		07 56.86	+29 49.8					
1989 03 15		07 54.90	+29 04.3	2.313	2.951	120.9	16.8	18.9
1989 03 25		07 55.69	+28 14.2					
1989 04 04		07 58.93	+27 21.0	2.602	2.984	102.6	19.1	19.2
1989 04 14		08 04.28	+26 25.3					
1989 04 24		08 11.40	+25 27.4	2.909	3.015	86.2	19.4	19.5

1982 ST6		a,e,i = 2.83, 0.05, 1				Elements MPC 13675		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 52.00	+18 37.6	2.605	2.973	102.0	19.0	18.3
1988 11 25		08 55.69	+18 23.6					
1988 12 05		08 57.10	+18 18.6	2.344	2.974	121.0	16.5	18.0
1988 12 15		08 56.03	+18 23.4					
1988 12 25		08 52.46	+18 37.8	2.134	2.975	142.5	11.6	17.6
1989 01 04		08 46.53	+19 00.3					
1989 01 14		08 38.69	+19 28.3	2.011	2.976	166.2	4.5	17.2
1989 01 24		08 29.70	+19 57.9					
1989 02 03		08 20.51	+20 25.5	2.002	2.975	169.0	3.6	17.2
1989 02 13		08 12.12	+20 48.0					
1989 02 23		08 05.43	+21 03.4	2.107	2.974	145.2	10.9	17.6
1989 03 05		08 00.98	+21 11.2					
1989 03 15		07 59.08	+21 11.7	2.303	2.973	123.7	16.2	17.9
1989 03 25		07 59.73	+21 05.1					
1989 04 04		08 02.76	+20 52.0	2.552	2.970	104.8	19.0	18.2
1989 04 14		08 07.93	+20 32.5					
1989 04 24		08 14.96	+20 07.0	2.823	2.967	88.2	19.8	18.5

1949 PV		a,e,i = 2.29, 0.17, 5				Elements MPC 12454		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 55.85	+14 58.6	2.162	2.531	100.1	22.6	18.6
1988 11 25		09 00.52	+14 45.8					
1988 12 05		09 02.60	+14 45.4	1.934	2.558	118.7	19.7	18.3
1988 12 15		09 01.82	+14 59.2					
1988 12 25		08 58.06	+15 27.8	1.748	2.582	140.3	14.1	18.0
1989 01 04		08 51.47	+16 10.2					
1989 01 14		08 42.53	+17 03.2	1.642	2.604	164.7	5.7	17.6
1989 01 24		08 32.15	+18 01.4					
1989 02 03		08 21.53	+18 58.7	1.648	2.624	169.6	3.9	17.5
1989 02 13		08 11.93	+19 49.9					
1989 02 23		08 04.41	+20 31.5	1.767	2.640	145.1	12.4	18.0
1989 03 05		07 59.61	+21 02.3					
1989 03 15		07 57.79	+21 22.3	1.974	2.654	123.4	18.2	18.4
1989 03 25		07 58.88	+21 32.1					
1989 04 04		08 02.63	+21 32.6	2.231	2.666	104.7	21.3	18.8
1989 04 14		08 08.70	+21 24.3					
1989 04 24		08 16.74	+21 07.7	2.506	2.674	88.4	22.1	19.1

1981 RD2		a,e,i = 3.19, 0.17, 11				Elements MPC 12444		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 57.00	+11 21.3	2.668	2.984	98.8	19.1	17.4
1988 11 25		09 00.26	+10 24.3					
1988 12 05		09 01.30	+09 34.2	2.436	3.018	117.3	16.9	17.1
1988 12 15		09 00.00	+08 52.9					
1988 12 25		08 56.37	+08 21.7	2.249	3.052	138.0	12.4	16.8
1989 01 04		08 50.63	+08 01.7					
1989 01 14		08 43.21	+07 53.1	2.145	3.086	159.7	6.4	16.5
1989 01 24		08 34.81	+07 55.1					
1989 02 03		08 26.28	+08 05.9	2.151	3.120	167.3	4.0	16.5
1989 02 13		08 18.47	+08 22.8					
1989 02 23		08 12.14	+08 42.7	2.273	3.154	147.7	9.6	16.8
1989 03 05		08 07.78	+09 03.0					
1989 03 15		08 05.63	+09 21.2	2.490	3.188	126.9	14.4	17.2
1989 03 25		08 05.74	+09 35.5					
1989 04 04		08 07.96	+09 44.7	2.768	3.222	108.1	17.2	17.5
1989 04 14		08 12.10	+09 47.8					
1989 04 24		08 17.92	+09 44.2	3.074	3.255	91.2	18.0	17.8

1981 JE3		a,e,i = 2.68, 0.14, 1				Elements MPC 12122		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 52.76	+15 51.7	2.472	2.834	101.1	20.0	19.4
1988 11 25		08 57.28	+15 27.1					
1988 12 05		08 59.56	+15 11.5	2.188	2.808	119.6	17.8	19.1
1988 12 15		08 59.33	+15 06.4					
1988 12 25		08 56.49	+15 12.7	1.949	2.780	140.6	13.0	18.6
1989 01 04		08 51.09	+15 30.2					
1989 01 14		08 43.47	+15 57.4	1.793	2.752	164.1	5.6	18.2
1989 01 24		08 34.37	+16 30.8					
1989 02 03		08 24.77	+17 06.5	1.745	2.723	170.6	3.4	18.0
1989 02 13		08 15.81	+17 40.3					
1989 02 23		08 08.55	+18 08.9	1.812	2.693	146.5	11.7	18.4
1989 03 05		08 03.69	+18 30.4					
1989 03 15		08 01.63	+18 44.0	1.967	2.663	124.8	17.9	18.7
1989 03 25		08 02.43	+18 49.2					
1989 04 04		08 05.93	+18 46.3	2.175	2.632	106.0	21.4	19.0
1989 04 14		08 11.86	+18 35.1					
1989 04 24		08 19.91	+18 15.6	2.404	2.602	89.7	22.7	19.2

1987 QC		a,e,i = 2.87, 0.34, 2				Elements MPC 12448		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 02.61	+15 20.8	2.659	2.974	98.7	19.2	18.3
1988 11 25		09 05.45	+15 00.1					
1988 12 05		09 05.97	+14 49.1	2.449	3.038	118.0	16.6	18.1
1988 12 15		09 04.03	+14 48.7					
1988 12 25		08 59.69	+14 58.9	2.284	3.101	139.8	11.8	17.9
1989 01 04		08 53.17	+15 18.5					
1989 01 14		08 44.95	+15 45.4	2.205	3.161	163.7	5.0	17.6
1989 01 24		08 35.79	+16 16.2					
1989 02 03		08 26.56	+16 47.6	2.242	3.220	171.0	2.8	17.5
1989 02 13		08 18.15	+17 16.4					
1989 02 23		08 11.31	+17 40.3	2.399	3.275	147.3	9.4	18.0
1989 03 05		08 06.52	+17 58.4					
1989 03 15		08 03.98	+18 10.0	2.652	3.329	125.4	14.1	18.4
1989 03 25		08 03.71	+18 15.2					
1989 04 04		08 05.54	+18 14.1	2.964	3.380	106.0	16.5	18.8
1989 04 14		08 09.27	+18 07.0					
1989 04 24		08 14.64	+17 54.1	3.302	3.428	88.6	17.1	19.1

1987 SD4		a,e,i = 2.39, 0.22, 7			Elements MPC 12950			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 04.38	+16 21.0	2.512	2.833	98.6	20.2	19.1
1988 11 25		09 07.76	+15 47.3					
1988 12 05		09 08.72	+15 22.1	2.262	2.854	117.5	17.8	18.9
1988 12 15		09 07.06	+15 06.5					
1988 12 25		09 02.70	+15 01.1	2.055	2.872	139.1	13.0	18.5
1989 01 04		08 55.80	+15 05.1					
1989 01 14		08 46.78	+15 17.1	1.931	2.887	163.1	5.7	18.1
1989 01 24		08 36.45	+15 34.0					
1989 02 03		08 25.84	+15 52.7	1.921	2.898	170.7	3.1	18.0
1989 02 13		08 16.02	+16 10.2					
1989 02 23		08 07.97	+16 24.1	2.029	2.907	146.6	10.8	18.4
1989 03 05		08 02.28	+16 33.2					
1989 03 15		07 59.25	+16 36.9	2.230	2.912	124.6	16.3	18.8
1989 03 25		07 58.90	+16 34.9					
1989 04 04		08 01.02	+16 27.1	2.487	2.915	105.3	19.3	19.2
1989 04 14		08 05.38	+16 13.4					
1989 04 24		08 11.64	+15 53.7	2.765	2.914	88.3	20.2	19.4

1979 MM8		a,e,i = 2.45, 0.13, 4			Elements MPC 13603			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 57.86	+13 12.6	2.324	2.667	99.2	21.5	19.4
1988 11 25		09 02.37	+12 43.2					
1988 12 05		09 04.46	+12 24.1	2.082	2.684	117.6	19.0	19.1
1988 12 15		09 03.90	+12 17.2					
1988 12 25		09 00.60	+12 23.7	1.882	2.700	138.7	13.9	18.7
1989 01 04		08 54.68	+12 43.9					
1989 01 14		08 46.55	+13 16.2	1.760	2.714	162.3	6.3	18.3
1989 01 24		08 37.02	+13 57.2					
1989 02 03		08 27.14	+14 42.5	1.749	2.726	170.8	3.3	18.2
1989 02 13		08 18.03	+15 27.4					
1989 02 23		08 10.71	+16 07.9	1.851	2.737	147.3	11.3	18.6
1989 03 05		08 05.82	+16 41.5					
1989 03 15		08 03.66	+17 06.9	2.045	2.745	125.6	17.1	19.0
1989 03 25		08 04.26	+17 23.4					
1989 04 04		08 07.41	+17 31.2	2.294	2.752	106.6	20.4	19.4
1989 04 14		08 12.84	+17 30.3					
1989 04 24		08 20.21	+17 20.9	2.566	2.757	90.0	21.4	19.7

1978 PY2		a,e,i = 2.69, 0.09, 2			Elements MPC 12443			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 55.70	+14 27.9	2.236	2.597	100.0	22.0	17.8
1988 11 25		09 00.95	+13 56.8					
1988 12 05		09 03.75	+13 35.6	2.003	2.615	118.1	19.4	17.5
1988 12 15		09 03.86	+13 26.5					
1988 12 25		09 01.20	+13 30.4	1.812	2.634	139.0	14.2	17.1
1989 01 04		08 55.90	+13 47.4					
1989 01 14		08 48.36	+14 15.8	1.698	2.652	162.3	6.5	16.7
1989 01 24		08 39.40	+14 52.0					
1989 02 03		08 30.08	+15 31.8	1.692	2.671	171.7	3.1	16.5
1989 02 13		08 21.53	+16 10.4					
1989 02 23		08 14.76	+16 44.3	1.798	2.690	148.2	11.2	17.0
1989 03 05		08 10.40	+17 11.0					
1989 03 15		08 08.77	+17 29.5	1.994	2.708	126.7	17.1	17.5
1989 03 25		08 09.86	+17 39.4					
1989 04 04		08 13.46	+17 40.6	2.247	2.726	108.0	20.4	17.8
1989 04 14		08 19.29	+17 33.3					
1989 04 24		08 27.01	+17 17.6	2.525	2.744	91.6	21.5	18.1

(3805) 1981 DK3		a,e,i = 2.68, 0.19, 12				Elements MPC 12966		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 07.02	+21 47.0	2.271	2.623	99.5	21.8	17.3
1988 11 25		09 11.39	+21 13.3					
1988 12 05		09 13.08	+20 48.0	2.054	2.663	118.0	19.1	17.0
1988 12 15		09 11.85	+20 31.6					
1988 12 25		09 07.64	+20 23.5	1.880	2.703	139.4	13.7	16.7
1989 01 04		09 00.65	+20 21.8					
1989 01 14		08 51.38	+20 23.5	1.786	2.743	163.4	5.9	16.4
1989 01 24		08 40.78	+20 25.0					
1989 02 03		08 29.99	+20 23.1	1.803	2.781	171.1	3.1	16.3
1989 02 13		08 20.19	+20 15.9					
1989 02 23		08 12.37	+20 02.7	1.936	2.819	147.1	11.0	16.8
1989 03 05		08 07.09	+19 44.0					
1989 03 15		08 04.59	+19 20.6	2.161	2.855	125.4	16.5	17.2
1989 03 25		08 04.79	+18 53.0					
1989 04 04		08 07.45	+18 21.5	2.443	2.890	106.4	19.4	17.6
1989 04 14		08 12.26	+17 46.1					
1989 04 24		08 18.88	+17 06.6	2.748	2.923	89.8	20.1	17.9
1953 UD		a,e,i = 2.64, 0.18, 13				Elements MPC 12316		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 59.40	+01 56.2	2.423	2.702	95.4	21.4	17.5
1988 11 25		09 03.55	+00 42.9					
1988 12 05		09 05.40	-00 21.9	2.205	2.739	112.6	19.4	17.3
1988 12 15		09 04.78	-01 15.0					
1988 12 25		09 01.64	-01 52.8	2.021	2.774	131.7	15.3	17.0
1989 01 04		08 56.14	-02 12.0					
1989 01 14		08 48.70	-02 10.2	1.907	2.809	151.1	9.7	16.7
1989 01 24		08 40.03	-01 47.0					
1989 02 03		08 31.06	-01 04.5	1.894	2.842	160.4	6.7	16.6
1989 02 13		08 22.76	-00 06.8					
1989 02 23		08 16.01	+00 59.9	1.991	2.873	147.2	10.8	16.9
1989 03 05		08 11.37	+02 09.6					
1989 03 15		08 09.16	+03 16.9	2.183	2.903	128.0	15.7	17.3
1989 03 25		08 09.42	+04 17.8					
1989 04 04		08 12.00	+05 09.8	2.438	2.931	109.7	18.7	17.6
1989 04 14		08 16.68	+05 51.5					
1989 04 24		08 23.17	+06 22.2	2.725	2.957	93.2	19.8	17.9
1981 UE10		a,e,i = 3.17, 0.18, 2				Elements MPC 11237		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 04.31	+15 43.2	3.278	3.560	98.4	16.0	18.1
1988 11 25		09 06.93	+15 32.1					
1988 12 05		09 07.65	+15 29.5	3.015	3.582	117.8	14.1	17.9
1988 12 15		09 06.36	+15 36.0					
1988 12 25		09 03.08	+15 51.5	2.799	3.603	139.3	10.3	17.6
1989 01 04		08 57.94	+16 15.2					
1989 01 14		08 51.28	+16 45.1	2.671	3.622	162.6	4.7	17.3
1989 01 24		08 43.64	+17 18.6					
1989 02 03		08 35.69	+17 52.5	2.659	3.640	173.1	1.9	17.1
1989 02 13		08 28.15	+18 24.0					
1989 02 23		08 21.69	+18 50.9	2.770	3.657	149.5	7.9	17.5
1989 03 05		08 16.82	+19 11.7					
1989 03 15		08 13.83	+19 25.9	2.981	3.672	127.5	12.4	17.8
1989 03 25		08 12.85	+19 33.4					
1989 04 04		08 13.84	+19 34.5	3.257	3.685	107.6	15.0	18.1
1989 04 14		08 16.66	+19 29.2					
1989 04 24		08 21.12	+19 18.0	3.562	3.698	89.8	15.8	18.4

1981 EX21		a,e,i = 2.65, 0.20, 12				Elements MPC 13157		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 02.69	+04 18.4	2.464	2.739	95.4	21.1	18.6
1988 11 25		09 07.03	+03 32.2					
1988 12 05		09 09.12	+02 56.2	2.240	2.779	113.1	19.0	18.3
1988 12 15		09 08.76	+02 33.5					
1988 12 25		09 05.92	+02 26.8	2.051	2.817	133.1	14.8	18.0
1989 01 04		09 00.73	+02 38.1					
1989 01 14		08 53.56	+03 08.3	1.934	2.854	154.5	8.5	17.7
1989 01 24		08 45.11	+03 55.9					
1989 02 03		08 36.26	+04 57.5	1.921	2.889	166.4	4.6	17.6
1989 02 13		08 27.98	+06 07.8					
1989 02 23		08 21.15	+07 20.8	2.024	2.922	149.8	9.8	17.9
1989 03 05		08 16.37	+08 31.2					
1989 03 15		08 13.96	+09 35.1	2.225	2.954	129.0	15.2	18.3
1989 03 25		08 13.98	+10 29.8					
1989 04 04		08 16.32	+11 14.1	2.492	2.984	109.9	18.4	18.7
1989 04 14		08 20.74	+11 47.4					
1989 04 24		08 26.99	+12 09.7	2.790	3.012	92.8	19.5	19.0

1986 FA		a,e,i = 2.24, 0.09, 5				Elements MPC 10633		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 55.85	+22 56.9	1.844	2.270	102.3	25.2	18.1
1988 11 25		09 04.00	+22 57.8					
1988 12 05		09 09.52	+23 11.4	1.595	2.250	119.4	22.4	17.7
1988 12 15		09 11.94	+23 39.9					
1988 12 25		09 10.90	+24 23.1	1.388	2.229	139.4	16.7	17.2
1989 01 04		09 06.25	+25 18.5					
1989 01 14		08 58.17	+26 20.3	1.253	2.208	161.6	8.1	16.7
1989 01 24		08 47.56	+27 19.2					
1989 02 03		08 35.84	+28 06.0	1.216	2.187	166.9	5.9	16.5
1989 02 13		08 24.82	+28 33.8					
1989 02 23		08 16.16	+28 40.6	1.280	2.167	145.0	15.2	17.0
1989 03 05		08 10.92	+28 28.3					
1989 03 15		08 09.54	+28 00.3	1.423	2.147	124.3	22.5	17.4
1989 03 25		08 11.95	+27 20.0					
1989 04 04		08 17.72	+26 29.7	1.611	2.128	106.9	26.7	17.7
1989 04 14		08 26.37	+25 30.6					
1989 04 24		08 37.37	+24 23.4	1.817	2.110	92.2	28.4	18.0

1985 CV		a,e,i = 2.60, 0.20, 13				Elements MPC 11854		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		08 55.88	+08 03.5	1.881	2.245	98.1	25.9	17.2
1988 11 25		09 03.20	+07 39.6					
1988 12 05		09 07.92	+07 30.5	1.682	2.281	115.1	23.0	16.9
1988 12 15		09 09.77	+07 40.0					
1988 12 25		09 08.57	+08 11.0	1.515	2.319	135.2	17.4	16.5
1989 01 04		09 04.41	+09 04.7					
1989 01 14		08 57.64	+10 19.7	1.417	2.359	158.4	8.8	16.1
1989 01 24		08 49.13	+11 50.6					
1989 02 03		08 40.02	+13 29.5	1.419	2.401	173.3	2.7	15.9
1989 02 13		08 31.60	+15 07.3					
1989 02 23		08 25.04	+16 36.0	1.531	2.443	150.7	11.4	16.5
1989 03 05		08 21.06	+17 50.9					
1989 03 15		08 19.99	+18 49.7	1.736	2.485	129.0	18.1	17.0
1989 03 25		08 21.82	+19 32.1					
1989 04 04		08 26.29	+19 59.1	1.999	2.528	110.4	21.8	17.4
1989 04 14		08 33.06	+20 11.9					
1989 04 24		08 41.76	+20 11.6	2.291	2.570	94.3	23.0	17.8

1987 SB2		a,e,i = 3.14, 0.25, 15			Elements MPC 12456			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 15.33	+33 29.1	2.817	3.156	100.9	17.9	17.1
1988 11 25		09 19.52	+34 03.3					
1988 12 05		09 21.22	+34 47.6	2.608	3.205	119.1	15.6	16.9
1988 12 15		09 20.23	+35 40.1					
1988 12 25		09 16.46	+36 37.2	2.450	3.253	138.5	11.6	16.6
1989 01 04		09 10.06	+37 33.7					
1989 01 14		09 01.44	+38 23.1	2.378	3.299	155.7	7.0	16.4
1989 01 24		08 51.40	+38 59.1					
1989 02 03		08 40.97	+39 17.3	2.416	3.345	156.9	6.6	16.5
1989 02 13		08 31.23	+39 16.0					
1989 02 23		08 23.15	+38 56.3	2.565	3.389	140.7	10.7	16.8
1989 03 05		08 17.32	+38 21.5					
1989 03 15		08 14.05	+37 35.4	2.803	3.432	121.7	14.3	17.1
1989 03 25		08 13.35	+36 41.3					
1989 04 04		08 15.00	+35 42.2	3.097	3.473	103.7	16.2	17.4
1989 04 14		08 18.75	+34 39.7					
1989 04 24		08 24.29	+33 34.9	3.415	3.513	87.2	16.6	17.7

1982 UF4		a,e,i = 2.85, 0.07, 1			Elements MPC 13595			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 05.35	+17 58.4	2.423	2.754	98.8	20.8	17.0
1988 11 25		09 10.71	+17 37.2					
1988 12 05		09 13.75	+17 25.8	2.177	2.767	117.0	18.5	16.7
1988 12 15		09 14.24	+17 25.4					
1988 12 25		09 12.06	+17 36.2	1.973	2.781	137.7	13.8	16.4
1989 01 04		09 07.30	+17 57.3					
1989 01 14		09 00.27	+18 26.3	1.847	2.795	161.0	6.6	16.0
1989 01 24		08 51.68	+18 59.0					
1989 02 03		08 42.48	+19 31.0	1.827	2.810	174.1	2.1	15.8
1989 02 13		08 33.76	+19 58.2					
1989 02 23		08 26.52	+20 17.8	1.922	2.824	150.2	10.0	16.2
1989 03 05		08 21.46	+20 28.6					
1989 03 15		08 18.96	+20 30.5	2.112	2.839	128.4	15.9	16.6
1989 03 25		08 19.10	+20 23.8					
1989 04 04		08 21.73	+20 09.4	2.362	2.853	109.3	19.3	17.0
1989 04 14		08 26.59	+19 47.5					
1989 04 24		08 33.38	+19 18.7	2.641	2.868	92.6	20.5	17.3

1977 RW6		a,e,i = 2.89, 0.09, 2			Elements MPC 9754			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 09.33	+18 50.0	2.701	3.006	98.2	19.0	18.4
1988 11 25		09 13.81	+18 38.1					
1988 12 05		09 16.11	+18 35.7	2.446	3.020	116.7	16.9	18.1
1988 12 15		09 16.02	+18 43.9					
1988 12 25		09 13.47	+19 02.5	2.233	3.034	137.8	12.6	17.8
1989 01 04		09 08.53	+19 29.9					
1989 01 14		09 01.53	+20 03.6	2.100	3.047	161.0	6.0	17.4
1989 01 24		08 53.08	+20 39.3					
1989 02 03		08 44.05	+21 12.8	2.078	3.060	173.5	2.1	17.2
1989 02 13		08 35.39	+21 40.4					
1989 02 23		08 28.05	+21 59.6	2.174	3.071	150.0	9.3	17.7
1989 03 05		08 22.65	+22 09.5					
1989 03 15		08 19.61	+22 10.4	2.367	3.082	128.1	14.7	18.0
1989 03 25		08 19.03	+22 02.8					
1989 04 04		08 20.80	+21 47.8	2.623	3.092	108.7	17.8	18.4
1989 04 14		08 24.73	+21 25.8					
1989 04 24		08 30.55	+20 57.6	2.907	3.101	91.5	18.9	18.6

1950 JB		a, e, i = 2.52, 0.03, 15				Elements MPC 11999		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 02.90	+15 11.8	2.244	2.583	98.6	22.2	16.3
1988 11 25		09 09.25	+15 23.4					
1988 12 05		09 13.31	+15 49.8	1.988	2.584	116.6	19.9	15.9
1988 12 15		09 14.79	+16 33.6					
1988 12 25		09 13.47	+17 35.8	1.774	2.585	137.4	14.9	15.5
1989 01 04		09 09.31	+18 55.1					
1989 01 14		09 02.53	+20 27.5	1.636	2.585	160.8	7.2	15.1
1989 01 24		08 53.80	+22 05.9					
1989 02 03		08 44.12	+23 41.5	1.605	2.584	171.6	3.2	14.9
1989 02 13		08 34.76	+25 06.1					
1989 02 23		08 26.94	+26 14.2	1.689	2.584	148.2	11.6	15.3
1989 03 05		08 21.55	+27 03.7					
1989 03 15		08 19.11	+27 35.0	1.864	2.582	126.4	18.0	15.7
1989 03 25		08 19.72	+27 50.2					
1989 04 04		08 23.21	+27 51.3	2.094	2.580	107.7	21.7	16.1
1989 04 14		08 29.27	+27 40.1					
1989 04 24		08 37.55	+27 18.2	2.348	2.578	91.5	23.0	16.4

(3839) 1971 OU		a, e, i = 2.45, 0.18, 3				Elements MPC 13295		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 12.78	+13 33.0	2.590	2.864	95.8	20.1	18.1
1988 11 25		09 17.59	+12 58.7					
1988 12 05		09 20.26	+12 33.0	2.303	2.850	114.0	18.4	17.8
1988 12 15		09 20.54	+12 17.8					
1988 12 25		09 18.24	+12 14.5	2.054	2.833	134.6	14.3	17.4
1989 01 04		09 13.37	+12 23.6					
1989 01 14		09 06.12	+12 44.6	1.878	2.813	157.8	7.6	17.0
1989 01 24		08 57.08	+13 15.1					
1989 02 03		08 47.11	+13 51.5	1.808	2.792	175.0	1.8	16.6
1989 02 13		08 37.29	+14 29.5					
1989 02 23		08 28.72	+15 04.9	1.856	2.767	151.7	9.7	17.0
1989 03 05		08 22.22	+15 34.6					
1989 03 15		08 18.33	+15 56.9	2.002	2.741	129.2	16.3	17.4
1989 03 25		08 17.24	+16 10.7					
1989 04 04		08 18.85	+16 15.9	2.210	2.713	109.5	20.3	17.7
1989 04 14		08 22.96	+16 12.3					
1989 04 24		08 29.28	+15 59.9	2.444	2.682	92.5	22.0	17.9

(3793) Leonteus		a, e, i = 5.17, 0.09, 21				Elements MPC 12956		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 07.63	-05 01.5	4.604	4.730	91.2	12.1	16.1
1988 11 25		09 09.72	-05 48.1					
1988 12 05		09 10.49	-06 28.8	4.325	4.736	108.8	11.4	16.0
1988 12 15		09 09.90	-07 01.8					
1988 12 25		09 07.99	-07 25.1	4.083	4.743	127.2	9.5	15.8
1989 01 04		09 04.85	-07 37.1					
1989 01 14		09 00.70	-07 36.5	3.912	4.750	144.9	6.8	15.6
1989 01 24		08 55.85	-07 22.9					
1989 02 03		08 50.66	-06 56.7	3.840	4.758	156.1	4.8	15.5
1989 02 13		08 45.56	-06 19.3					
1989 02 23		08 40.98	-05 33.3	3.882	4.766	150.2	5.9	15.5
1989 03 05		08 37.25	-04 41.4					
1989 03 15		08 34.66	-03 46.9	4.030	4.774	133.9	8.6	15.7
1989 03 25		08 33.36	-02 52.9					
1989 04 04		08 33.44	-02 01.6	4.261	4.783	115.9	10.8	15.9
1989 04 14		08 34.87	-01 15.2					
1989 04 24		08 37.61	-00 35.0	4.542	4.792	98.3	12.0	16.1

1981 GM1		a,e,i = 2.59, 0.10, 14				Elements MPC 10290		
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 11 15		09 12.41	+33 03.6	2.108	2.498	-2.07	+8.2	18.1
1988 11 25		09 20.55	+33 19.5					
1988 12 05		09 26.00	+33 46.7	1.858	2.478	-2.50	+10.0	17.7
1988 12 15		09 28.28	+34 25.0					
1988 12 25		09 27.04	+35 11.8	1.650	2.458	-2.98	+11.5	17.3
1989 01 04		09 22.10	+36 02.0					
1989 01 14		09 13.63	+36 47.2	1.514	2.440	-3.32	+11.7	16.9
1989 01 24		09 02.49	+37 17.3					
1989 02 03		08 50.05	+37 24.2	1.476	2.422	-3.24	+10.2	16.8
1989 02 13		08 38.07	+37 03.3					
1989 02 23		08 28.22	+36 16.0	1.540	2.406	-2.80	+8.3	17.1
1989 03 05		08 21.55	+35 07.8					
1989 03 15		08 18.55	+33 44.8	1.687	2.391	-2.32	+7.1	17.4
1989 03 25		08 19.16	+32 12.7					
1989 04 04		08 22.98	+30 35.1	1.886	2.377	-1.95	+6.8	17.7
1989 04 14		08 29.56	+28 54.0					
1989 04 24		08 38.40	+27 10.3	2.111	2.366	-1.68	+6.9	18.0

(3732) 1984 SR1		a,e,i = 2.16, 0.07, 2				Elements MPC 12694		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 11.22	+15 49.9	1.975	2.312	96.8	25.1	19.1
1988 11 25		09 18.71	+15 08.7					
1988 12 05		09 23.70	+14 37.3	1.729	2.310	113.8	23.0	18.8
1988 12 15		09 25.83	+14 18.2					
1988 12 25		09 24.78	+14 13.3	1.514	2.307	133.8	17.9	18.3
1989 01 04		09 20.43	+14 23.5					
1989 01 14		09 12.92	+14 47.8	1.364	2.302	157.1	9.6	17.8
1989 01 24		09 02.94	+15 22.4					
1989 02 03		08 51.66	+16 02.0	1.311	2.296	176.9	1.3	17.4
1989 02 13		08 40.57	+16 40.3					
1989 02 23		08 31.19	+17 12.1	1.367	2.288	152.0	11.7	17.9
1989 03 05		08 24.58	+17 34.6					
1989 03 15		08 21.33	+17 46.4	1.512	2.279	129.6	19.7	18.4
1989 03 25		08 21.54	+17 47.5					
1989 04 04		08 24.94	+17 38.2	1.713	2.268	110.6	24.4	18.7
1989 04 14		08 31.17	+17 18.8					
1989 04 24		08 39.80	+16 49.6	1.939	2.256	94.7	26.4	19.1

1979 FU2		a,e,i = 3.12, 0.09, 14				Elements MPC 8908		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 17.97	+31 10.6	3.034	3.346	99.7	16.9	17.3
1988 11 25		09 22.87	+31 45.2					
1988 12 05		09 25.67	+32 30.7	2.762	3.338	117.8	15.1	17.1
1988 12 15		09 26.10	+33 26.3					
1988 12 25		09 24.00	+34 29.5	2.540	3.328	137.1	11.6	16.8
1989 01 04		09 19.38	+35 36.3					
1989 01 14		09 12.44	+36 40.7	2.401	3.318	154.9	7.2	16.5
1989 01 24		09 03.76	+37 36.0					
1989 02 03		08 54.16	+38 16.3	2.371	3.308	158.4	6.3	16.4
1989 02 13		08 44.68	+38 37.8					
1989 02 23		08 36.35	+38 39.4	2.453	3.296	142.8	10.4	16.6
1989 03 05		08 29.97	+38 22.8					
1989 03 15		08 26.04	+37 51.0	2.626	3.284	123.8	14.6	16.9
1989 03 25		08 24.72	+37 07.7					
1989 04 04		08 25.94	+36 15.8	2.857	3.272	105.7	17.1	17.1
1989 04 14		08 29.50	+35 17.5					
1989 04 24		08 35.09	+34 14.5	3.113	3.258	89.2	18.0	17.4

1987 VC		a,e,i = 2.81, 0.15, 9				Elements MPC 13590		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 22.64	+25 44.2	2.902	3.181	97.2	18.0	17.1
1988 11 25		09 27.12	+25 53.0					
1988 12 05		09 29.45	+26 12.1	2.641	3.194	115.7	16.1	16.9
1988 12 15		09 29.39	+26 41.4					
1988 12 25		09 26.81	+27 19.4	2.423	3.206	136.2	12.3	16.6
1989 01 04		09 21.74	+28 03.3					
1989 01 14		09 14.43	+28 48.3	2.284	3.215	157.5	6.7	16.3
1989 01 24		09 05.45	+29 29.1					
1989 02 03		08 55.66	+30 00.3	2.256	3.223	166.6	4.1	16.1
1989 02 13		08 46.03	+30 18.3					
1989 02 23		08 37.56	+30 21.6	2.346	3.230	148.2	9.3	16.4
1989 03 05		08 30.99	+30 11.0					
1989 03 15		08 26.76	+29 48.3	2.534	3.234	127.2	14.2	16.8
1989 03 25		08 25.06	+29 16.2					
1989 04 04		08 25.78	+28 36.7	2.785	3.237	108.0	17.1	17.1
1989 04 14		08 28.75	+27 51.4					
1989 04 24		08 33.68	+27 01.5	3.065	3.238	90.7	18.1	17.3

1981 EO7		a,e,i = 2.60, 0.11, 13				Elements MPC 8392		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 10.39	+00 48.4	2.211	2.460	92.4	23.7	18.7
1988 11 25		09 17.08	-00 34.2					
1988 12 05		09 21.52	-01 48.7	1.988	2.481	108.3	22.1	18.4
1988 12 15		09 23.46	-02 51.3					
1988 12 25		09 22.74	-03 37.8	1.791	2.503	126.4	18.4	18.1
1989 01 04		09 19.35	-04 04.0					
1989 01 14		09 13.51	-04 05.9	1.651	2.526	145.8	12.7	17.8
1989 01 24		09 05.82	-03 41.8					
1989 02 03		08 57.16	-02 52.5	1.599	2.548	160.3	7.5	17.5
1989 02 13		08 48.62	-01 42.4					
1989 02 23		08 41.31	-00 18.8	1.652	2.571	152.7	10.2	17.7
1989 03 05		08 36.04	+01 10.0					
1989 03 15		08 33.31	+02 36.5	1.803	2.594	134.0	16.0	18.1
1989 03 25		08 33.29	+03 54.8					
1989 04 04		08 35.88	+05 01.6	2.024	2.617	115.6	20.2	18.5
1989 04 14		08 40.84	+05 54.7					
1989 04 24		08 47.87	+06 33.6	2.285	2.639	99.2	22.1	18.8

(3766) Junepatterson		a,e,i = 3.22, 0.12, 1				Elements MPC 12795		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 10.26	+15 54.4	2.525	2.823	97.1	20.3	17.0
1988 11 25		09 16.39	+15 29.5					
1988 12 05		09 20.42	+15 14.1	2.265	2.823	114.8	18.5	16.7
1988 12 15		09 22.12	+15 09.9					
1988 12 25		09 21.34	+15 17.6	2.044	2.825	134.9	14.3	16.3
1989 01 04		09 18.10	+15 37.2					
1989 01 14		09 12.62	+16 07.1	1.895	2.829	157.6	7.6	15.9
1989 01 24		09 05.45	+16 43.9					
1989 02 03		08 57.40	+17 23.4	1.850	2.835	178.2	0.6	15.5
1989 02 13		08 49.43	+18 00.8					
1989 02 23		08 42.56	+18 32.3	1.918	2.843	154.3	8.7	16.0
1989 03 05		08 37.52	+18 55.4					
1989 03 15		08 34.82	+19 08.9	2.085	2.852	132.4	14.9	16.4
1989 03 25		08 34.62	+19 12.6					
1989 04 04		08 36.86	+19 06.9	2.320	2.863	113.0	18.8	16.8
1989 04 14		08 41.35	+18 52.2					
1989 04 24		08 47.81	+18 29.0	2.589	2.875	96.1	20.4	17.0

1981 EF19		a,e,i = 2.58, 0.23, 3			Elements MPC 11840			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 02.82	+19 26.4	1.586	2.007	99.8	29.0	19.1
1988 11 25		09 13.43	+18 38.1					
1988 12 05		09 21.17	+17 59.1	1.396	2.025	115.4	26.1	18.8
1988 12 15		09 25.62	+17 32.4					
1988 12 25		09 26.50	+17 19.7	1.238	2.049	134.3	20.1	18.4
1989 01 04		09 23.67	+17 21.0					
1989 01 14		09 17.42	+17 34.5	1.138	2.079	156.8	10.7	18.0
1989 01 24		09 08.59	+17 55.1					
1989 02 03		08 58.55	+18 16.8	1.128	2.113	178.0	1.0	17.5
1989 02 13		08 48.94	+18 33.8					
1989 02 23		08 41.30	+18 42.2	1.218	2.152	154.0	11.6	18.2
1989 03 05		08 36.59	+18 40.3					
1989 03 15		08 35.22	+18 28.4	1.394	2.193	132.6	19.5	18.8
1989 03 25		08 37.14	+18 06.7					
1989 04 04		08 42.00	+17 36.2	1.629	2.238	114.6	24.0	19.3
1989 04 14		08 49.35	+16 57.3					
1989 04 24		08 58.73	+16 10.4	1.897	2.285	99.2	25.7	19.7

(3775) 1931 TC4		a,e,i = 2.79, 0.23, 8			Elements MPC 12936			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 26.43	+24 32.3	2.883	3.144	96.0	18.2	18.1
1988 11 25		09 30.87	+24 41.7					
1988 12 05		09 33.14	+25 01.8	2.639	3.179	114.6	16.4	17.9
1988 12 15		09 33.02	+25 32.8					
1988 12 25		09 30.39	+26 13.0	2.436	3.211	135.3	12.4	17.6
1989 01 04		09 25.29	+26 59.8					
1989 01 14		09 17.98	+27 48.5	2.313	3.241	157.0	6.8	17.3
1989 01 24		09 09.05	+28 33.6					
1989 02 03		08 59.31	+29 10.0	2.299	3.269	167.5	3.7	17.2
1989 02 13		08 49.73	+29 33.7					
1989 02 23		08 41.27	+29 43.1	2.405	3.295	149.3	8.8	17.5
1989 03 05		08 34.65	+29 38.8					
1989 03 15		08 30.30	+29 22.4	2.611	3.318	128.1	13.6	17.9
1989 03 25		08 28.40	+28 56.4					
1989 04 04		08 28.85	+28 22.7	2.882	3.340	108.7	16.5	18.2
1989 04 14		08 31.48	+27 43.0					
1989 04 24		08 36.02	+26 58.5	3.183	3.359	91.3	17.4	18.4

1979 TT2		a,e,i = 2.57, 0.27, 4			Elements MPC 13164			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 26.11	+19 17.1	2.495	2.755	94.5	21.0	19.1
1988 11 25		09 31.36	+19 09.2					
1988 12 05		09 34.27	+19 12.8	2.273	2.806	112.8	18.9	18.9
1988 12 15		09 34.58	+19 29.1					
1988 12 25		09 32.17	+19 57.5	2.084	2.854	133.7	14.4	18.6
1989 01 04		09 27.06	+20 36.5					
1989 01 14		09 19.53	+21 22.2	1.969	2.900	157.0	7.6	18.3
1989 01 24		09 10.23	+22 09.5					
1989 02 03		09 00.06	+22 52.7	1.961	2.943	173.8	2.1	18.0
1989 02 13		08 50.12	+23 27.2					
1989 02 23		08 41.46	+23 49.9	2.072	2.984	152.2	8.9	18.5
1989 03 05		08 34.84	+24 00.5					
1989 03 15		08 30.70	+23 59.6	2.284	3.022	130.1	14.6	18.9
1989 03 25		08 29.16	+23 48.7					
1989 04 04		08 30.10	+23 29.5	2.562	3.057	110.4	17.9	19.3
1989 04 14		08 33.30	+23 03.1					
1989 04 24		08 38.46	+22 30.4	2.870	3.090	92.9	19.0	19.6

(3730) Hurban		a,e,i = 2.72, 0.16, 7				Elements MPC 12693		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	09 25.34	+15 58.0	2.752	2.983	93.7	19.3	17.5
1988	11 25	09 29.90	+15 23.3					
1988	12 05	09 32.33	+14 57.0	2.497	3.007	112.0	17.7	17.3
1988	12 15	09 32.42	+14 40.5					
1988	12 25	09 30.07	+14 34.3	2.276	3.030	132.7	13.8	17.0
1989	01 04	09 25.30	+14 38.1					
1989	01 14	09 18.35	+14 50.7	2.128	3.052	155.8	7.6	16.6
1989	01 24	09 09.77	+15 09.4					
1989	02 03	09 00.35	+15 30.9	2.086	3.072	178.5	0.5	16.2
1989	02 13	08 51.03	+15 51.9					
1989	02 23	08 42.75	+16 09.3	2.165	3.090	154.9	7.8	16.7
1989	03 05	08 36.23	+16 21.1					
1989	03 15	08 31.94	+16 26.5	2.348	3.106	132.3	13.7	17.1
1989	03 25	08 30.06	+16 24.9					
1989	04 04	08 30.54	+16 16.6	2.601	3.121	112.2	17.3	17.4
1989	04 14	08 33.21	+16 01.5					
1989	04 24	08 37.82	+15 39.9	2.889	3.133	94.5	18.7	17.7

1984 ED		a,e,i = 3.02, 0.05, 11				Elements MPC 13302		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	09 13.27	+12 49.2	2.600	2.868	95.5	20.1	16.7
1988	11 25	09 19.35	+12 38.4					
1988	12 05	09 23.45	+12 39.0	2.329	2.865	113.3	18.4	16.5
1988	12 15	09 25.31	+12 53.3					
1988	12 25	09 24.80	+13 22.6	2.096	2.863	133.5	14.4	16.1
1989	01 04	09 21.89	+14 07.0					
1989	01 14	09 16.73	+15 05.0	1.933	2.861	156.3	7.9	15.7
1989	01 24	09 09.82	+16 12.9					
1989	02 03	09 01.88	+17 25.1	1.875	2.861	179.1	0.3	15.2
1989	02 13	08 53.87	+18 35.6					
1989	02 23	08 46.79	+19 38.7	1.933	2.861	155.0	8.4	15.7
1989	03 05	08 41.43	+20 30.7					
1989	03 15	08 38.34	+21 09.8	2.093	2.861	132.6	14.8	16.1
1989	03 25	08 37.77	+21 35.5					
1989	04 04	08 39.68	+21 48.6	2.321	2.863	112.9	18.8	16.5
1989	04 14	08 43.93	+21 49.9					
1989	04 24	08 50.24	+21 40.4	2.583	2.865	95.8	20.4	16.7

1983 RX2		a,e,i = 2.46, 0.14, 6				Elements MPC 8534		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	09 22.12	+20 18.9	2.323	2.614	95.7	22.1	18.9
1988	11 25	09 28.69	+20 19.2					
1988	12 05	09 32.91	+20 32.2	2.086	2.638	113.5	20.0	18.6
1988	12 15	09 34.47	+20 59.3					
1988	12 25	09 33.15	+21 40.4	1.883	2.661	133.9	15.5	18.2
1989	01 04	09 28.90	+22 33.5					
1989	01 14	09 21.90	+23 34.5	1.751	2.682	156.5	8.4	17.9
1989	01 24	09 12.76	+24 36.6					
1989	02 03	09 02.45	+25 32.7	1.723	2.701	171.2	3.2	17.6
1989	02 13	08 52.20	+26 16.6					
1989	02 23	08 43.25	+26 44.5	1.810	2.719	151.2	10.1	18.0
1989	03 05	08 36.51	+26 56.1					
1989	03 15	08 32.54	+26 52.8	1.992	2.735	129.5	16.3	18.5
1989	03 25	08 31.48	+26 36.8					
1989	04 04	08 33.19	+26 10.7	2.237	2.749	110.3	20.0	18.8
1989	04 14	08 37.40	+25 35.9					
1989	04 24	08 43.76	+24 53.8	2.511	2.761	93.5	21.3	19.1

(3739) 1977 RE2		a,e,i = 2.22, 0.16, 5			Elements MPC 12712			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	09 20.55	+15 43.4	2.273	2.551	94.7	22.7	18.3	
1988 11 25	09 27.40	+15 25.5						
1988 12 05	09 32.04	+15 19.3	2.003	2.543	112.1	21.0	17.9	
1988 12 15	09 34.11	+15 27.2						
1988 12 25	09 33.35	+15 50.9	1.763	2.532	132.3	16.7	17.5	
1989 01 04	09 29.59	+16 30.6						
1989 01 14	09 22.91	+17 24.4	1.591	2.519	155.5	9.3	17.1	
1989 01 24	09 13.79	+18 27.6						
1989 02 03	09 03.16	+19 33.4	1.518	2.503	177.2	1.1	16.5	
1989 02 13	08 52.29	+20 34.4						
1989 02 23	08 42.58	+21 24.4	1.559	2.484	153.4	10.3	17.0	
1989 03 05	08 35.12	+22 00.2						
1989 03 15	08 30.64	+22 21.1	1.697	2.463	130.6	17.9	17.4	
1989 03 25	08 29.40	+22 27.8						
1989 04 04	08 31.27	+22 22.0	1.896	2.439	110.9	22.5	17.8	
1989 04 14	08 35.99	+22 04.7						
1989 04 24	08 43.19	+21 37.1	2.121	2.413	94.2	24.6	18.0	

1983 RL4		a,e,i = 2.63, 0.27, 18			Elements MPC 9766			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	09 21.47	+00 28.9	2.343	2.539	89.7	22.9	18.8	
1988 11 25	09 27.49	-00 18.5						
1988 12 05	09 31.25	-00 54.1	2.141	2.598	106.5	21.3	18.6	
1988 12 15	09 32.54	-01 14.6						
1988 12 25	09 31.23	-01 16.5	1.959	2.657	125.8	17.5	18.4	
1989 01 04	09 27.36	-00 56.9						
1989 01 14	09 21.17	-00 14.2	1.834	2.714	147.2	11.3	18.1	
1989 01 24	09 13.25	+00 50.9						
1989 02 03	09 04.42	+02 14.5	1.803	2.769	165.5	5.1	17.9	
1989 02 13	08 55.70	+03 50.5						
1989 02 23	08 48.07	+05 30.8	1.889	2.822	156.1	8.2	18.1	
1989 03 05	08 42.28	+07 08.1						
1989 03 15	08 38.79	+08 36.6	2.081	2.874	135.2	14.1	18.6	
1989 03 25	08 37.77	+09 52.7						
1989 04 04	08 39.14	+10 54.9	2.350	2.923	115.4	18.0	19.0	
1989 04 14	08 42.71	+11 42.7						
1989 04 24	08 48.20	+12 16.7	2.661	2.970	97.8	19.6	19.4	

1985 TT		a,e,i = 3.98, 0.28, 7			Elements MPC 10634			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	09 25.09	+08 28.4	4.979	5.100	91.4	11.2	18.7	
1988 11 25	09 26.80	+08 09.9						
1988 12 05	09 27.25	+07 57.3	4.663	5.096	110.8	10.4	18.6	
1988 12 15	09 26.37	+07 51.6						
1988 12 25	09 24.18	+07 53.2	4.386	5.092	131.6	8.3	18.3	
1989 01 04	09 20.75	+08 02.4						
1989 01 14	09 16.23	+08 18.9	4.187	5.086	153.5	5.0	18.1	
1989 01 24	09 10.91	+08 41.7						
1989 02 03	09 05.13	+09 09.4	4.100	5.079	172.4	1.5	17.9	
1989 02 13	08 59.29	+09 40.3						
1989 02 23	08 53.81	+10 12.4	4.139	5.070	158.1	4.2	18.0	
1989 03 05	08 49.05	+10 43.7						
1989 03 15	08 45.33	+11 12.6	4.293	5.061	136.5	7.8	18.3	
1989 03 25	08 42.84	+11 37.6						
1989 04 04	08 41.68	+11 58.1	4.533	5.050	115.8	10.3	18.5	
1989 04 14	08 41.88	+12 13.3						
1989 04 24	08 43.40	+12 22.9	4.821	5.037	96.7	11.4	18.6	

1983 RT3		a,e,i = 2.56, 0.19, 12			Elements MPC 12317			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 31.12	+23 02.8	2.131	2.419	94.5	24.1	18.6
1988 11 25		09 38.19	+22 27.3					
1988 12 05		09 42.60	+22 01.7	1.918	2.460	111.7	21.8	18.3
1988 12 15		09 44.03	+21 46.9					
1988 12 25		09 42.25	+21 42.7	1.735	2.501	131.8	17.0	18.0
1989 01 04		09 37.23	+21 47.4					
1989 01 14		09 29.21	+21 57.5	1.617	2.541	154.8	9.5	17.6
1989 01 24		09 18.92	+22 07.8					
1989 02 03		09 07.47	+22 13.2	1.598	2.581	174.5	2.1	17.3
1989 02 13		08 56.23	+22 09.9					
1989 02 23		08 46.51	+21 56.1	1.695	2.621	154.1	9.5	17.8
1989 03 05		08 39.21	+21 32.4					
1989 03 15		08 34.83	+21 00.3	1.890	2.659	131.9	16.2	18.3
1989 03 25		08 33.44	+20 21.6					
1989 04 04		08 34.83	+19 37.4	2.151	2.696	112.4	20.1	18.7
1989 04 14		08 38.69	+18 48.6					
1989 04 24		08 44.63	+17 55.5	2.445	2.732	95.5	21.5	19.0

1982 DQ6		a,e,i = 2.31, 0.09, 6			Elements MPC 10387			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 14.53	+24 03.9	1.734	2.120	98.5	27.5	17.4
1988 11 25		09 24.94	+23 51.5					
1988 12 05		09 32.66	+23 51.3	1.521	2.127	114.4	24.9	17.1
1988 12 15		09 37.22	+24 05.4					
1988 12 25		09 38.23	+24 34.1	1.339	2.137	133.3	19.6	16.6
1989 01 04		09 35.44	+25 15.5					
1989 01 14		09 28.91	+26 04.1	1.217	2.148	154.8	11.2	16.2
1989 01 24		09 19.33	+26 51.3					
1989 02 03		09 08.00	+27 27.5	1.186	2.162	169.3	4.9	15.9
1989 02 13		08 56.65	+27 45.2					
1989 02 23		08 47.06	+27 41.3	1.256	2.177	151.4	12.6	16.3
1989 03 05		08 40.46	+27 17.5					
1989 03 15		08 37.46	+26 37.5	1.411	2.193	130.6	20.1	16.8
1989 03 25		08 38.09	+25 45.2					
1989 04 04		08 41.99	+24 43.7	1.624	2.210	112.6	24.7	17.3
1989 04 14		08 48.71	+23 34.7					
1989 04 24		08 57.73	+22 19.3	1.865	2.228	97.3	26.6	17.7

1981 SW6		a,e,i = 3.16, 0.05, 9			Elements MPC 10027			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 21.70	+07 30.6	2.954	3.145	91.9	18.3	17.1
1988 11 25		09 26.71	+06 55.3					
1988 12 05		09 29.88	+06 28.7	2.685	3.155	109.6	17.1	16.8
1988 12 15		09 31.03	+06 13.0					
1988 12 25		09 30.07	+06 10.1	2.447	3.165	129.5	13.9	16.5
1989 01 04		09 27.01	+06 21.1					
1989 01 14		09 22.01	+06 46.5	2.277	3.175	151.4	8.5	16.2
1989 01 24		09 15.51	+07 25.1					
1989 02 03		09 08.11	+08 14.1	2.207	3.185	171.4	2.6	15.9
1989 02 13		09 00.59	+09 09.7					
1989 02 23		08 53.76	+10 07.1	2.256	3.195	158.1	6.6	16.1
1989 03 05		08 48.29	+11 02.1					
1989 03 15		08 44.67	+11 51.2	2.412	3.205	136.2	12.4	16.5
1989 03 25		08 43.17	+12 31.9					
1989 04 04		08 43.83	+13 03.3	2.646	3.214	116.1	16.2	16.8
1989 04 14		08 46.55	+13 24.6					
1989 04 24		08 51.15	+13 35.9	2.923	3.224	98.2	18.0	17.1

1983 QG		a,e,i = 2.64, 0.35, 14				Elements MPC 8678		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 33.47	+24 33.2	2.508	2.768	94.5	20.9	18.6
1988 11 25		09 39.35	+25 08.0					
1988 12 05		09 42.85	+25 57.3	2.306	2.836	112.7	18.7	18.4
1988 12 15		09 43.69	+27 01.4					
1988 12 25		09 41.68	+28 18.1	2.140	2.901	133.0	14.3	18.2
1989 01 04		09 36.79	+29 43.4					
1989 01 14		09 29.26	+31 10.7	2.049	2.964	153.8	8.4	17.9
1989 01 24		09 19.69	+32 31.6					
1989 02 03		09 09.04	+33 38.6	2.067	3.024	163.1	5.4	17.9
1989 02 13		08 58.46	+34 26.0					
1989 02 23		08 49.10	+34 51.8	2.201	3.081	147.3	10.0	18.2
1989 03 05		08 41.82	+34 57.3					
1989 03 15		08 37.12	+34 45.7	2.432	3.134	127.2	14.6	18.6
1989 03 25		08 35.15	+34 20.7					
1989 04 04		08 35.78	+33 45.8	2.725	3.185	108.4	17.3	19.0
1989 04 14		08 38.75	+33 03.5					
1989 04 24		08 43.74	+32 15.5	3.046	3.232	91.5	18.1	19.3

1971 UD1		a,e,i = 2.21, 0.13, 2				Elements MPC 9465		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 21.49	+15 51.8	1.883	2.194	94.5	26.7	18.6
1988 11 25		09 30.19	+15 18.6					
1988 12 05		09 36.33	+14 57.6	1.671	2.224	111.0	24.4	18.4
1988 12 15		09 39.52	+14 51.4					
1988 12 25		09 39.48	+15 02.0	1.485	2.253	130.7	19.3	18.0
1989 01 04		09 36.06	+15 29.8					
1989 01 14		09 29.36	+16 12.9	1.358	2.282	153.7	11.0	17.6
1989 01 24		09 20.03	+17 06.1					
1989 02 03		09 09.18	+18 02.4	1.324	2.309	178.2	0.7	17.0
1989 02 13		08 58.27	+18 54.0					
1989 02 23		08 48.81	+19 34.8	1.399	2.336	155.4	10.1	17.6
1989 03 05		08 41.89	+20 01.9					
1989 03 15		08 38.14	+20 14.8	1.569	2.360	132.8	18.0	18.2
1989 03 25		08 37.67	+20 14.4					
1989 04 04		08 40.27	+20 02.0	1.800	2.383	113.6	22.6	18.6
1989 04 14		08 45.57	+19 38.9					
1989 04 24		08 53.14	+19 06.1	2.063	2.405	97.2	24.5	19.0

1987 YT1		a,e,i = 5.25, 0.16, 16				Elements MPC 13467		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 20.78	+04 12.9	4.309	4.438	91.0	12.9	16.1
1988 11 25		09 23.84	+03 49.4					
1988 12 05		09 25.55	+03 32.9	4.017	4.445	109.5	12.1	15.9
1988 12 15		09 25.82	+03 24.8					
1988 12 25		09 24.66	+03 26.2	3.761	4.452	129.5	9.8	15.7
1989 01 04		09 22.14	+03 37.9					
1989 01 14		09 18.42	+04 00.0	3.578	4.461	150.5	6.2	15.4
1989 01 24		09 13.81	+04 31.8					
1989 02 03		09 08.67	+05 11.8	3.500	4.470	168.4	2.5	15.2
1989 02 13		09 03.45	+05 57.9					
1989 02 23		08 58.61	+06 47.1	3.542	4.480	158.9	4.6	15.4
1989 03 05		08 54.57	+07 36.6					
1989 03 15		08 51.65	+08 23.9	3.699	4.491	138.4	8.5	15.6
1989 03 25		08 50.07	+09 06.8					
1989 04 04		08 49.92	+09 43.9	3.942	4.502	118.3	11.3	15.9
1989 04 14		08 51.21	+10 14.1					
1989 04 24		08 53.90	+10 37.0	4.237	4.515	99.6	12.7	16.1

2093 P-L		a,e,i = 3.03, 0.05, 9			Elements MPC 9298			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	09 24.13	+05 14.4	3.025	3.192	90.6	18.1	19.1
1988	11 25	09 28.89	+04 21.1					
1988	12 05	09 31.86	+03 34.6	2.742	3.189	108.1	17.1	18.9
1988	12 15	09 32.85	+02 57.4					
1988	12 25	09 31.74	+02 31.5	2.489	3.185	127.5	14.2	18.6
1989	01 04	09 28.54	+02 18.9					
1989	01 14	09 23.39	+02 21.2	2.301	3.181	148.5	9.3	18.3
1989	01 24	09 16.70	+02 38.5					
1989	02 03	09 09.05	+03 09.6	2.210	3.177	166.4	4.2	18.0
1989	02 13	09 01.21	+03 51.8					
1989	02 23	08 54.00	+04 40.9	2.235	3.171	157.3	6.9	18.1
1989	03 05	08 48.11	+05 32.5					
1989	03 15	08 44.08	+06 22.4	2.368	3.166	136.6	12.5	18.4
1989	03 25	08 42.18	+07 07.0					
1989	04 04	08 42.48	+07 44.1	2.579	3.159	116.8	16.4	18.7
1989	04 14	08 44.92	+08 12.3					
1989	04 24	08 49.29	+08 30.8	2.834	3.153	99.0	18.4	19.0

1977 QH4		a,e,i = 2.24, 0.11, 6			Elements MPC 12143			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	09 24.82	+21 04.3	1.860	2.186	95.3	26.8	17.6
1988	11 25	09 33.84	+20 31.0					
1988	12 05	09 40.19	+20 08.6	1.647	2.210	111.7	24.5	17.3
1988	12 15	09 43.46	+19 59.3					
1988	12 25	09 43.31	+20 03.8	1.461	2.235	131.2	19.3	16.9
1989	01 04	09 39.56	+20 21.3					
1989	01 14	09 32.33	+20 48.5	1.333	2.259	153.9	11.0	16.5
1989	01 24	09 22.29	+21 19.3					
1989	02 03	09 10.63	+21 46.6	1.299	2.282	174.7	2.3	16.1
1989	02 13	08 58.93	+22 04.2					
1989	02 23	08 48.80	+22 08.4	1.373	2.305	154.5	10.7	16.6
1989	03 05	08 41.40	+21 58.8					
1989	03 15	08 37.33	+21 37.0	1.540	2.328	132.2	18.4	17.1
1989	03 25	08 36.69	+21 05.0					
1989	04 04	08 39.19	+20 24.7	1.767	2.349	113.2	23.0	17.6
1989	04 14	08 44.46	+19 37.0					
1989	04 24	08 52.02	+18 42.6	2.026	2.369	97.0	24.9	17.9

1940 RG		a,e,i = 2.24, 0.22, 5			Elements MPC 12442			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	09 34.01	+09 17.1	2.468	2.651	89.5	21.9	18.0
1988	11 25	09 39.87	+08 22.4					
1988	12 05	09 43.58	+07 36.2	2.217	2.675	106.9	20.6	17.8
1988	12 15	09 44.86	+07 00.9					
1988	12 25	09 43.51	+06 38.7	1.989	2.695	126.7	17.0	17.4
1989	01 04	09 39.44	+06 31.4					
1989	01 14	09 32.77	+06 40.0	1.820	2.711	149.1	10.7	17.1
1989	01 24	09 23.97	+07 03.8					
1989	02 03	09 13.83	+07 40.3	1.747	2.725	170.6	3.4	16.7
1989	02 13	09 03.40	+08 25.2					
1989	02 23	08 53.85	+09 13.1	1.791	2.734	158.1	7.8	16.9
1989	03 05	08 46.10	+09 59.1					
1989	03 15	08 40.81	+10 39.4	1.942	2.741	135.4	14.8	17.4
1989	03 25	08 38.27	+11 11.4					
1989	04 04	08 38.43	+11 33.8	2.165	2.743	115.1	19.3	17.7
1989	04 14	08 41.12	+11 46.1					
1989	04 24	08 46.05	+11 48.1	2.425	2.742	97.4	21.3	18.0

(3896) 1987 WB		a,e,i = 3.00, 0.04, 10			Elements MPC 13588			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 25.75	+04 57.0	2.789	2.961	90.1	19.5	16.9
1988 11 25		09 31.46	+03 48.6					
1988 12 05		09 35.32	+02 46.2	2.511	2.953	107.0	18.6	16.7
1988 12 15		09 37.11	+01 52.2					
1988 12 25		09 36.68	+01 09.2	2.260	2.946	125.8	15.7	16.4
1989 01 04		09 33.98	+00 39.8					
1989 01 14		09 29.12	+00 26.2	2.070	2.938	146.2	10.7	16.0
1989 01 24		09 22.49	+00 29.6					
1989 02 03		09 14.70	+00 49.7	1.972	2.931	163.9	5.4	15.7
1989 02 13		09 06.58	+01 24.2					
1989 02 23		08 59.06	+02 09.1	1.985	2.925	157.7	7.4	15.8
1989 03 05		08 52.92	+02 59.2					
1989 03 15		08 48.78	+03 49.7	2.104	2.919	137.9	13.2	16.1
1989 03 25		08 46.95	+04 36.0					
1989 04 04		08 47.50	+05 15.1	2.300	2.913	118.5	17.6	16.4
1989 04 14		08 50.35	+05 45.1					
1989 04 24		08 55.29	+06 04.7	2.542	2.907	101.1	19.8	16.7

(3756) 1979 MV6		a,e,i = 2.42, 0.06, 4			Elements MPC 12788			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 28.31	+11 01.8	2.324	2.548	91.4	22.8	18.4
1988 11 25		09 35.48	+10 09.2					
1988 12 05		09 40.53	+09 25.1	2.068	2.554	108.2	21.5	18.1
1988 12 15		09 43.15	+08 52.1					
1988 12 25		09 43.11	+08 32.5	1.837	2.558	127.6	17.7	17.8
1989 01 04		09 40.28	+08 28.1					
1989 01 14		09 34.72	+08 39.9	1.664	2.562	149.7	11.2	17.4
1989 01 24		09 26.86	+09 06.7					
1989 02 03		09 17.48	+09 45.5	1.584	2.564	172.3	2.9	16.9
1989 02 13		09 07.67	+10 31.6					
1989 02 23		08 58.66	+11 19.1	1.616	2.566	159.3	7.8	17.2
1989 03 05		08 51.47	+12 02.9					
1989 03 15		08 46.80	+12 39.1	1.751	2.566	136.6	15.4	17.6
1989 03 25		08 44.99	+13 05.5					
1989 04 04		08 46.02	+13 21.0	1.957	2.565	116.6	20.4	18.0
1989 04 14		08 49.68	+13 25.5					
1989 04 24		08 55.66	+13 18.9	2.200	2.563	99.3	22.8	18.3

1952 HJ2		a,e,i = 3.07, 0.15, 1			Elements MPC 13050			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 31.98	+15 39.1	3.181	3.365	92.0	17.1	17.4
1988 11 25		09 36.86	+15 19.0					
1988 12 05		09 40.00	+15 07.4	2.873	3.344	110.3	16.0	17.2
1988 12 15		09 41.17	+15 05.7					
1988 12 25		09 40.24	+15 14.5	2.598	3.323	130.6	13.0	16.8
1989 01 04		09 37.18	+15 33.7					
1989 01 14		09 32.06	+16 02.2	2.394	3.301	153.1	7.8	16.5
1989 01 24		09 25.26	+16 37.3					
1989 02 03		09 17.32	+17 15.5	2.293	3.277	176.8	1.0	16.0
1989 02 13		09 09.00	+17 52.9					
1989 02 23		09 01.16	+18 25.6	2.312	3.253	158.6	6.4	16.3
1989 03 05		08 54.57	+18 50.9					
1989 03 15		08 49.79	+19 07.3	2.440	3.228	135.8	12.4	16.6
1989 03 25		08 47.18	+19 14.2					
1989 04 04		08 46.84	+19 12.1	2.645	3.202	115.3	16.4	16.9
1989 04 14		08 48.71	+19 01.2					
1989 04 24		08 52.62	+18 42.2	2.889	3.175	97.1	18.3	17.1

1978 VN		a,e,i = 2.74, 0.15, 4				Elements MPC 12008		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 24.88	+12 17.0	2.424	2.660	92.6	21.8	18.0
1988 11 25		09 32.28	+11 22.3					
1988 12 05		09 37.74	+10 34.5	2.133	2.628	109.3	20.7	17.6
1988 12 15		09 40.95	+09 55.8					
1988 12 25		09 41.66	+09 28.4	1.871	2.598	128.3	17.3	17.2
1989 01 04		09 39.71	+09 14.1					
1989 01 14		09 35.10	+09 14.2	1.669	2.567	149.9	11.1	16.8
1989 01 24		09 28.17	+09 28.0					
1989 02 03		09 19.60	+09 53.4	1.558	2.538	172.2	3.0	16.3
1989 02 13		09 10.39	+10 26.6					
1989 02 23		09 01.76	+11 02.4	1.556	2.509	160.1	7.7	16.4
1989 03 05		08 54.79	+11 36.0					
1989 03 15		08 50.27	+12 03.6	1.656	2.482	137.5	15.7	16.8
1989 03 25		08 48.63	+12 22.5					
1989 04 04		08 49.90	+12 31.3	1.827	2.456	117.7	21.1	17.2
1989 04 14		08 53.94	+12 29.4					
1989 04 24		09 00.46	+12 16.4	2.036	2.433	100.7	24.0	17.5

1953 TS2		a,e,i = 2.26, 0.16, 4				Elements MPC 12784		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 36.44	+16 52.9	2.361	2.582	91.4	22.5	18.4
1988 11 25		09 43.70	+16 34.6					
1988 12 05		09 48.80	+16 28.1	2.106	2.595	108.7	21.1	18.1
1988 12 15		09 51.41	+16 35.5					
1988 12 25		09 51.27	+16 57.9	1.877	2.606	128.6	17.2	17.7
1989 01 04		09 48.21	+17 35.4					
1989 01 14		09 42.24	+18 25.8	1.708	2.614	151.3	10.4	17.3
1989 01 24		09 33.77	+19 24.4					
1989 02 03		09 23.58	+20 24.6	1.636	2.619	174.1	2.2	16.9
1989 02 13		09 12.81	+21 19.3					
1989 02 23		09 02.78	+22 02.4	1.680	2.622	157.4	8.3	17.2
1989 03 05		08 54.60	+22 30.9					
1989 03 15		08 49.04	+22 44.2	1.827	2.621	134.5	15.7	17.7
1989 03 25		08 46.45	+22 43.4					
1989 04 04		08 46.80	+22 30.2	2.043	2.618	114.3	20.4	18.0
1989 04 14		08 49.89	+22 06.3					
1989 04 24		08 55.37	+21 32.9	2.293	2.613	97.0	22.5	18.3

1981 EZ17		a,e,i = 2.57, 0.13, 15				Elements MPC 10289		
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 11 15		09 21.84	+01 23.6	2.328	2.528	-1.04	+1.2	17.8
1988 11 25		09 29.92	+00 19.4					
1988 12 05		09 36.15	-00 37.0	2.050	2.500	-1.19	+1.4	17.5
1988 12 15		09 40.23	-01 21.6					
1988 12 25		09 41.91	-01 50.4	1.793	2.472	-1.39	+1.8	17.1
1989 01 04		09 41.01	-01 59.1					
1989 01 14		09 37.46	-01 43.4	1.585	2.445	-1.60	+2.4	16.6
1989 01 24		09 31.57	-01 00.6					
1989 02 03		09 23.92	+00 09.3	1.459	2.418	-1.77	+3.0	16.2
1989 02 13		09 15.48	+01 42.2					
1989 02 23		09 07.46	+03 30.3	1.438	2.392	-1.80	+2.9	16.2
1989 03 05		09 00.97	+05 23.6					
1989 03 15		08 56.89	+07 12.5	1.519	2.367	-1.68	+2.1	16.5
1989 03 25		08 55.70	+08 49.6					
1989 04 04		08 57.49	+10 10.5	1.678	2.344	-1.48	+1.3	16.9
1989 04 14		09 02.15	+11 13.0					
1989 04 24		09 09.37	+11 56.9	1.881	2.322	-1.31	+0.9	17.2

1964 UC		a, e, i = 2.23, 0.19, 3			Elements MPC 9588			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 36.59	+17 38.8	1.941	2.203	91.6	26.7	18.2
1988 11 25		09 45.59	+17 01.4					
1988 12 05		09 52.04	+16 35.6	1.737	2.246	108.0	24.7	18.0
1988 12 15		09 55.58	+16 24.1					
1988 12 25		09 55.91	+16 28.2	1.554	2.289	127.4	20.0	17.6
1989 01 04		09 52.83	+16 47.8					
1989 01 14		09 46.40	+17 21.1	1.425	2.330	150.1	12.2	17.2
1989 01 24		09 37.15	+18 03.0					
1989 02 03		09 26.09	+18 46.8	1.386	2.369	174.4	2.3	16.8
1989 02 13		09 14.60	+19 25.2					
1989 02 23		09 04.21	+19 52.8	1.458	2.407	158.7	8.6	17.2
1989 03 05		08 56.09	+20 07.0					
1989 03 15		08 50.96	+20 07.7	1.629	2.442	135.7	16.5	17.8
1989 03 25		08 49.05	+19 56.1					
1989 04 04		08 50.18	+19 33.8	1.868	2.475	115.9	21.3	18.2
1989 04 14		08 54.04	+19 02.2					
1989 04 24		09 00.22	+18 22.2	2.144	2.506	99.0	23.4	18.6

2126 P-L		a, e, i = 2.47, 0.04, 7			Elements MPC 12687			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 33.77	+20 47.2	2.093	2.365	93.3	24.7	17.7
1988 11 25		09 42.81	+20 08.9					
1988 12 05		09 49.53	+19 40.0	1.851	2.369	109.5	23.1	17.4
1988 12 15		09 53.55	+19 22.4					
1988 12 25		09 54.55	+19 17.1	1.634	2.374	128.4	18.9	17.0
1989 01 04		09 52.33	+19 23.9					
1989 01 14		09 46.84	+19 40.7	1.474	2.380	150.4	11.8	16.6
1989 01 24		09 38.53	+20 03.1					
1989 02 03		09 28.25	+20 25.1	1.404	2.386	173.2	2.8	16.1
1989 02 13		09 17.30	+20 40.7					
1989 02 23		09 07.18	+20 45.4	1.443	2.393	158.9	8.6	16.4
1989 03 05		08 59.12	+20 37.4					
1989 03 15		08 53.96	+20 17.2	1.580	2.400	136.4	16.6	16.9
1989 03 25		08 52.00	+19 46.2					
1989 04 04		08 53.15	+19 06.0	1.786	2.408	116.7	21.8	17.3
1989 04 14		08 57.13	+18 17.9					
1989 04 24		09 03.53	+17 22.5	2.030	2.417	100.0	24.2	17.6

1986 WD		a, e, i = 5.25, 0.06, 12			Elements MPC 11740			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 40.24	+01 08.5	5.088	5.105	85.5	11.1	17.2
1988 11 25		09 42.82	+00 28.7					
1988 12 05		09 44.24	-00 06.1	4.788	5.114	103.8	10.8	17.0
1988 12 15		09 44.40	-00 34.6					
1988 12 25		09 43.31	-00 55.5	4.515	5.122	123.3	9.2	16.9
1989 01 04		09 41.01	-01 08.1					
1989 01 14		09 37.61	-01 11.6	4.306	5.130	143.5	6.5	16.7
1989 01 24		09 33.34	-01 05.7					
1989 02 03		09 28.48	-00 51.1	4.194	5.138	161.4	3.5	16.5
1989 02 13		09 23.40	-00 28.7					
1989 02 23		09 18.47	-00 00.3	4.201	5.147	161.1	3.6	16.5
1989 03 05		09 14.05	+00 31.8					
1989 03 15		09 10.46	+01 05.5	4.324	5.155	143.3	6.6	16.7
1989 03 25		09 07.93	+01 38.5					
1989 04 04		09 06.60	+02 08.8	4.542	5.164	123.6	9.3	16.9
1989 04 14		09 06.52	+02 35.1					
1989 04 24		09 07.69	+02 56.1	4.823	5.172	104.8	10.8	17.1

1982 UD2		a,e,i = 2.92, 0.14, 3			Elements MPC 12707			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 42.28	+16 39.0	2.865	3.031	90.0	19.0	18.0
1988 11 25		09 48.26	+16 18.6					
1988 12 05		09 52.31	+16 08.2	2.607	3.056	107.8	17.9	17.8
1988 12 15		09 54.22	+16 09.0					
1988 12 25		09 53.82	+16 21.6	2.378	3.080	127.8	14.6	17.5
1989 01 04		09 51.06	+16 45.7					
1989 01 14		09 46.02	+17 19.5	2.212	3.103	150.1	9.1	17.2
1989 01 24		09 39.08	+17 59.7					
1989 02 03		09 30.85	+18 42.0	2.145	3.126	173.4	2.1	16.8
1989 02 13		09 22.14	+19 21.5					
1989 02 23		09 13.89	+19 54.1	2.196	3.147	160.7	6.0	17.1
1989 03 05		09 06.90	+20 17.1					
1989 03 15		09 01.79	+20 29.3	2.358	3.168	138.0	12.1	17.5
1989 03 25		08 58.90	+20 30.7					
1989 04 04		08 58.31	+20 22.3	2.599	3.187	117.5	16.2	17.9
1989 04 14		08 59.93	+20 04.9					
1989 04 24		09 03.56	+19 39.4	2.884	3.205	99.3	18.0	18.2

1978 VK8		a,e,i = 2.81, 0.16, 2			Elements MPC 13603			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 38.09	+15 33.4	2.427	2.630	90.6	22.1	19.0
1988 11 25		09 45.68	+15 05.6					
1988 12 05		09 51.16	+14 48.6	2.194	2.663	107.6	20.7	18.7
1988 12 15		09 54.25	+14 44.4					
1988 12 25		09 54.76	+14 54.1	1.986	2.696	127.1	16.9	18.4
1989 01 04		09 52.59	+15 17.7					
1989 01 14		09 47.80	+15 54.0	1.837	2.730	149.4	10.6	18.1
1989 01 24		09 40.80	+16 39.2					
1989 02 03		09 32.30	+17 28.2	1.782	2.763	173.3	2.4	17.7
1989 02 13		09 23.26	+18 15.2					
1989 02 23		09 14.78	+18 54.9	1.841	2.797	161.3	6.5	18.0
1989 03 05		09 07.81	+19 23.8					
1989 03 15		09 03.02	+19 40.6	2.007	2.830	138.6	13.4	18.5
1989 03 25		09 00.73	+19 45.0					
1989 04 04		09 00.98	+19 38.2	2.249	2.863	118.3	17.9	18.9
1989 04 14		09 03.61	+19 21.1					
1989 04 24		09 08.35	+18 54.8	2.535	2.895	100.6	20.0	19.2

1982 SK8		a,e,i = 2.83, 0.07, 2			Elements MPC 13686			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 38.98	+12 09.1	2.665	2.831	89.3	20.4	17.8
1988 11 25		09 45.77	+11 31.3					
1988 12 05		09 50.63	+11 02.7	2.405	2.845	106.5	19.4	17.5
1988 12 15		09 53.33	+10 45.3					
1988 12 25		09 53.68	+10 40.8	2.169	2.859	126.0	16.2	17.2
1989 01 04		09 51.59	+10 49.9					
1989 01 14		09 47.10	+11 12.7	1.991	2.873	148.0	10.4	16.9
1989 01 24		09 40.57	+11 47.2					
1989 02 03		09 32.58	+12 30.1	1.908	2.887	171.9	2.7	16.5
1989 02 13		09 24.00	+13 16.7					
1989 02 23		09 15.82	+14 01.8	1.939	2.900	163.2	5.7	16.6
1989 03 05		09 08.92	+14 41.2					
1989 03 15		09 03.98	+15 11.9	2.079	2.913	140.1	12.6	17.1
1989 03 25		09 01.39	+15 32.3					
1989 04 04		09 01.22	+15 42.0	2.300	2.925	119.5	17.3	17.4
1989 04 14		09 03.40	+15 41.3					
1989 04 24		09 07.70	+15 30.5	2.567	2.937	101.5	19.6	17.8

1961 CR		a,e,i = 2.30, 0.10, 4				Elements MPC 13151		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 28.37	+13 14.2	2.051	2.310	92.1	25.3	18.4
1988 11 25		09 38.25	+12 33.7					
1988 12 05		09 46.15	+12 03.3	1.785	2.288	107.8	24.2	18.0
1988 12 15		09 51.71	+11 46.1					
1988 12 25		09 54.57	+11 45.4	1.542	2.265	126.1	20.5	17.6
1989 01 04		09 54.44	+12 03.3					
1989 01 14		09 51.12	+12 41.0	1.350	2.243	147.6	13.6	17.1
1989 01 24		09 44.82	+13 36.6					
1989 02 03		09 36.15	+14 45.0	1.241	2.222	172.1	3.5	16.5
1989 02 13		09 26.24	+15 58.3					
1989 02 23		09 16.60	+17 06.9	1.237	2.201	162.5	7.8	16.7
1989 03 05		09 08.66	+18 03.5					
1989 03 15		09 03.51	+18 43.5	1.330	2.181	139.0	17.4	17.1
1989 03 25		09 01.73	+19 05.6					
1989 04 04		09 03.36	+19 10.3	1.492	2.162	119.0	23.9	17.5
1989 04 14		09 08.18	+18 58.7					
1989 04 24		09 15.80	+18 32.2	1.689	2.144	102.4	27.3	17.9

1981 DT2		a,e,i = 2.60, 0.10, 15				Elements MPC 10289		
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 11 15		09 48.20	+22 13.9	2.183	2.405	-1.61	+9.9	17.6
1988 11 25		09 56.89	+21 18.6					
1988 12 05		10 03.21	+20 31.2	1.945	2.420	-1.76	+11.4	17.3
1988 12 15		10 06.83	+19 53.1					
1988 12 25		10 07.42	+19 24.9	1.730	2.437	-1.97	+12.9	17.0
1989 01 04		10 04.79	+19 06.2					
1989 01 14		09 58.90	+18 55.2	1.567	2.454	-2.19	+14.1	16.6
1989 01 24		09 50.15	+18 48.4					
1989 02 03		09 39.37	+18 41.5	1.494	2.473	-2.31	+14.2	16.1
1989 02 13		09 27.78	+18 30.0					
1989 02 23		09 16.85	+18 10.9	1.532	2.492	-2.19	+13.1	16.4
1989 03 05		09 07.78	+17 43.3					
1989 03 15		09 01.43	+17 07.7	1.676	2.512	-1.89	+11.5	16.9
1989 03 25		08 58.16	+16 25.1					
1989 04 04		08 57.91	+15 36.8	1.895	2.533	-1.58	+10.1	17.3
1989 04 14		09 00.44	+14 43.3					
1989 04 24		09 05.38	+13 44.9	2.156	2.554	-1.31	+9.0	17.7

1987 SE4		a,e,i = 2.35, 0.13, 6				Elements MPC 12450		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 45.04	+08 08.6	2.413	2.553	86.6	22.8	17.9
1988 11 25		09 52.50	+07 01.0					
1988 12 05		09 57.95	+06 00.9	2.164	2.571	103.0	21.9	17.7
1988 12 15		10 01.10	+05 10.8					
1988 12 25		10 01.69	+04 33.1	1.932	2.588	121.7	18.9	17.3
1989 01 04		09 59.57	+04 10.4					
1989 01 14		09 54.71	+04 04.5	1.749	2.603	143.1	13.1	17.0
1989 01 24		09 47.42	+04 16.1					
1989 02 03		09 38.33	+04 43.9	1.651	2.617	165.4	5.5	16.6
1989 02 13		09 28.39	+05 24.7					
1989 02 23		09 18.77	+06 12.9	1.663	2.628	163.7	6.1	16.6
1989 03 05		09 10.56	+07 02.9					
1989 03 15		09 04.56	+07 49.2	1.784	2.637	141.6	13.6	17.0
1989 03 25		09 01.23	+08 27.8					
1989 04 04		09 00.66	+08 56.4	1.986	2.644	121.0	18.9	17.4
1989 04 14		09 02.74	+09 13.9					
1989 04 24		09 07.20	+09 19.9	2.233	2.649	103.1	21.7	17.8

(3794) Sthenelos		a,e,i = 5.19, 0.15, 6				Elements MPC 12956		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	09 49.26	+16 21.8	5.369	5.431	88.3	10.5	17.8
1988	11 25	09 51.70	+16 10.6					
1988	12 05	09 52.95	+16 05.3	5.071	5.451	107.6	9.9	17.7
1988	12 15	09 52.95	+16 06.1					
1988	12 25	09 51.68	+16 13.0	4.806	5.470	128.2	8.1	17.5
1989	01 04	09 49.20	+16 25.3					
1989	01 14	09 45.62	+16 42.1	4.615	5.489	150.1	5.1	17.3
1989	01 24	09 41.14	+17 01.9					
1989	02 03	09 36.05	+17 22.9	4.530	5.508	172.4	1.4	17.0
1989	02 13	09 30.70	+17 43.4					
1989	02 23	09 25.48	+18 01.5	4.569	5.527	164.0	2.8	17.2
1989	03 05	09 20.73	+18 15.9					
1989	03 15	09 16.76	+18 25.6	4.727	5.545	142.0	6.3	17.4
1989	03 25	09 13.82	+18 30.1					
1989	04 04	09 12.03	+18 29.2	4.979	5.563	121.2	8.8	17.6
1989	04 14	09 11.47	+18 22.9					
1989	04 24	09 12.12	+18 11.6	5.289	5.581	101.7	10.2	17.8

1985 FZ1		a,e,i = 2.65, 0.11, 13				Elements MPC 12144		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	09 26.70	+08 21.8	2.153	2.384	91.0	24.5	17.1
1988	11 25	09 36.33	+07 52.2					
1988	12 05	09 44.05	+07 34.9	1.898	2.378	106.8	23.4	16.7
1988	12 15	09 49.54	+07 33.7					
1988	12 25	09 52.52	+07 52.0	1.666	2.373	125.2	19.8	16.4
1989	01 04	09 52.77	+08 32.5					
1989	01 14	09 50.20	+09 36.8	1.486	2.370	146.7	13.2	15.9
1989	01 24	09 45.04	+11 02.8					
1989	02 03	09 37.90	+12 45.1	1.392	2.370	170.9	3.8	15.4
1989	02 13	09 29.75	+14 34.7					
1989	02 23	09 21.86	+16 21.0	1.405	2.372	163.9	6.6	15.6
1989	03 05	09 15.39	+17 55.0					
1989	03 15	09 11.27	+19 10.7	1.523	2.376	140.6	15.4	16.0
1989	03 25	09 10.01	+20 05.4					
1989	04 04	09 11.69	+20 39.5	1.715	2.382	120.4	21.2	16.5
1989	04 14	09 16.16	+20 54.4					
1989	04 24	09 23.10	+20 51.9	1.949	2.391	103.3	24.2	16.8

1986 QL		a,e,i = 2.87, 0.02, 1				Elements MPC 12132		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	09 44.92	+12 30.1	2.772	2.911	88.0	19.9	17.4
1988	11 25	09 51.82	+11 49.3					
1988	12 05	09 56.91	+11 17.0	2.493	2.910	105.1	19.1	17.2
1988	12 15	09 59.95	+10 54.9					
1988	12 25	10 00.73	+10 44.8	2.238	2.908	124.4	16.2	16.8
1989	01 04	09 59.12	+10 47.5					
1989	01 14	09 55.14	+11 03.4	2.038	2.907	146.1	10.9	16.5
1989	01 24	09 49.03	+11 30.9					
1989	02 03	09 41.32	+12 07.1	1.929	2.905	169.9	3.4	16.0
1989	02 13	09 32.80	+12 47.8					
1989	02 23	09 24.44	+13 28.2	1.935	2.903	165.3	5.0	16.1
1989	03 05	09 17.15	+14 03.8					
1989	03 15	09 11.68	+14 31.4	2.051	2.901	142.1	12.2	16.5
1989	03 25	09 08.49	+14 49.3					
1989	04 04	09 07.75	+14 56.8	2.250	2.898	121.3	17.2	16.9
1989	04 14	09 09.40	+14 53.9					
1989	04 24	09 13.27	+14 40.9	2.498	2.896	103.0	19.8	17.2

1981 EB9		a,e,i = 2.61, 0.17, 13				Elements MPC 11837		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 56.75	+21 12.0	2.886	3.023	88.3	19.1	19.1
1988 11 25		10 03.05	+20 45.3					
1988 12 05		10 07.45	+20 27.7	2.593	3.013	105.7	18.3	18.8
1988 12 15		10 09.68	+20 20.4					
1988 12 25		10 09.48	+20 23.5	2.323	3.002	125.3	15.5	18.5
1989 01 04		10 06.70	+20 36.4					
1989 01 14		10 01.29	+20 57.2	2.113	2.988	147.2	10.3	18.1
1989 01 24		09 53.51	+21 22.0					
1989 02 03		09 43.92	+21 46.2	1.997	2.972	169.4	3.5	17.7
1989 02 13		09 33.39	+22 04.6					
1989 02 23		09 23.02	+22 13.0	2.000	2.954	161.2	6.2	17.8
1989 03 05		09 13.83	+22 09.5					
1989 03 15		09 06.66	+21 53.8	2.114	2.934	138.6	13.0	18.1
1989 03 25		09 02.01	+21 27.0					
1989 04 04		09 00.02	+20 50.8	2.309	2.913	117.8	17.7	18.5
1989 04 14		09 00.62	+20 06.7					
1989 04 24		09 03.59	+19 15.8	2.548	2.889	99.5	20.1	18.7

1972 AU		a,e,i = 2.60, 0.17, 13				Elements MPC 13602		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 59.38	+20 55.6	2.711	2.848	87.7	20.3	18.3
1988 11 25		10 05.99	+20 25.4					
1988 12 05		10 10.55	+20 05.0	2.459	2.875	104.9	19.3	18.1
1988 12 15		10 12.78	+19 55.6					
1988 12 25		10 12.46	+19 57.2	2.228	2.901	124.6	16.2	17.8
1989 01 04		10 09.44	+20 09.1					
1989 01 14		10 03.74	+20 29.1	2.053	2.925	146.6	10.7	17.5
1989 01 24		09 55.68	+20 53.3					
1989 02 03		09 45.89	+21 16.7	1.972	2.946	169.2	3.6	17.1
1989 02 13		09 35.30	+21 34.4					
1989 02 23		09 25.02	+21 42.4	2.010	2.966	161.9	5.9	17.3
1989 03 05		09 16.05	+21 38.9					
1989 03 15		09 09.16	+21 23.9	2.159	2.984	139.3	12.6	17.7
1989 03 25		09 04.77	+20 58.5					
1989 04 04		09 02.97	+20 24.4	2.390	3.000	118.5	17.0	18.1
1989 04 14		09 03.66	+19 43.0					
1989 04 24		09 06.58	+18 55.4	2.668	3.014	100.2	19.2	18.4

1981 EU20		a,e,i = 2.60, 0.10, 1				Elements MPC 11840		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15		09 50.99	+13 05.3	2.735	2.856	86.8	20.2	19.3
1988 11 25		09 58.01	+12 25.9					
1988 12 05		10 03.21	+11 55.4	2.457	2.858	103.9	19.6	19.1
1988 12 15		10 06.32	+11 35.6					
1988 12 25		10 07.11	+11 28.1	2.199	2.858	123.2	16.7	18.8
1989 01 04		10 05.43	+11 33.9					
1989 01 14		10 01.24	+11 53.1	1.995	2.857	145.0	11.4	18.4
1989 01 24		09 54.78	+12 23.9					
1989 02 03		09 46.54	+13 03.2	1.880	2.854	169.1	3.7	18.0
1989 02 13		09 37.34	+13 46.3					
1989 02 23		09 28.19	+14 28.0	1.880	2.850	166.0	4.8	18.0
1989 03 05		09 20.10	+15 03.7					
1989 03 15		09 13.86	+15 30.3	1.992	2.845	142.3	12.3	18.4
1989 03 25		09 10.00	+15 46.1					
1989 04 04		09 08.70	+15 50.9	2.187	2.838	121.2	17.5	18.8
1989 04 14		09 09.91	+15 44.9					
1989 04 24		09 13.44	+15 28.7	2.431	2.829	102.8	20.3	19.1

(3898) 1981 SF9		a,e,i = 3.10, 0.17, 1			Elements MPC 13592			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	09 53.49	+12 13.3	2.930	3.026	86.0	19.0	18.0	
1988 11 25	09 59.99	+11 37.6						
1988 12 05	10 04.69	+11 11.1	2.679	3.060	103.3	18.3	17.8	
1988 12 15	10 07.37	+10 55.3						
1988 12 25	10 07.89	+10 51.6	2.449	3.094	122.8	15.5	17.5	
1989 01 04	10 06.15	+11 00.4						
1989 01 14	10 02.21	+11 21.5	2.273	3.127	144.6	10.5	17.2	
1989 01 24	09 56.34	+11 53.1						
1989 02 03	09 49.02	+12 32.2	2.189	3.160	168.4	3.6	16.9	
1989 02 13	09 40.98	+13 14.5						
1989 02 23	09 33.06	+13 55.6	2.220	3.193	167.2	3.9	17.0	
1989 03 05	09 26.05	+14 31.5						
1989 03 15	09 20.61	+14 59.5	2.366	3.225	144.0	10.4	17.4	
1989 03 25	09 17.14	+15 18.0						
1989 04 04	09 15.80	+15 26.6	2.601	3.256	123.0	14.9	17.8	
1989 04 14	09 16.59	+15 25.4						
1989 04 24	09 19.35	+15 15.0	2.890	3.286	104.3	17.3	18.1	

1986 JA1		a,e,i = 2.34, 0.23, 25			Elements MPC 12960			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05	10 02.08	-16 59.4	2.416	2.655	92.9	21.8	17.5	
1988 12 15	10 06.26	-19 09.1						
1988 12 25	10 08.24	-21 12.5	2.149	2.616	107.3	21.0	17.2	
1989 01 04	10 07.74	-23 04.9						
1989 01 14	10 04.55	-24 39.8	1.913	2.574	122.1	18.9	16.8	
1989 01 24	09 58.71	-25 50.0						
1989 02 03	09 50.54	-26 27.8	1.732	2.530	135.4	15.9	16.5	
1989 02 13	09 40.76	-26 26.8						
1989 02 23	09 30.49	-25 44.4	1.628	2.483	142.0	14.2	16.2	
1989 03 05	09 20.99	-24 23.3						
1989 03 15	09 13.43	-22 31.0	1.611	2.434	136.9	16.2	16.2	
1989 03 25	09 08.66	-20 19.2						
1989 04 04	09 07.05	-17 59.9	1.674	2.383	124.1	20.3	16.4	
1989 04 14	09 08.68	-15 43.5						
1989 04 24	09 13.34	-13 38.2	1.794	2.331	109.5	24.0	16.6	
1989 05 04	09 20.70	-11 48.6						
1989 05 14	09 30.43	-10 17.7	1.947	2.278	95.5	26.2	16.8	

9507 P-L		a,e,i = 5.24, 0.08, 5			Elements MPC 13303			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05	10 02.82	+17 32.5	5.144	5.496	105.8	9.9	18.3	
1988 12 15	10 03.30	+17 39.0						
1988 12 25	10 02.51	+17 51.7	4.867	5.506	126.2	8.3	18.1	
1989 01 04	10 00.50	+18 10.1						
1989 01 14	09 57.34	+18 32.9	4.658	5.515	147.8	5.5	17.9	
1989 01 24	09 53.21	+18 58.5						
1989 02 03	09 48.39	+19 25.0	4.554	5.525	169.2	1.9	17.7	
1989 02 13	09 43.19	+19 50.3						
1989 02 23	09 38.00	+20 12.5	4.572	5.534	165.2	2.6	17.8	
1989 03 05	09 33.17	+20 30.0						
1989 03 15	09 29.05	+20 41.9	4.709	5.543	143.8	6.1	18.0	
1989 03 25	09 25.88	+20 47.4						
1989 04 04	09 23.84	+20 46.7	4.943	5.552	123.0	8.7	18.2	
1989 04 14	09 23.01	+20 39.8						
1989 04 24	09 23.40	+20 27.3	5.239	5.560	103.5	10.1	18.4	
1989 05 04	09 24.97	+20 09.5						
1989 05 14	09 27.65	+19 47.0	5.559	5.569	85.4	10.4	18.5	

1985 JJ		a,e,i = 3.00, 0.11, 11				Elements MPC 13449		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 05.22	+01 33.4	2.998	3.309	99.6	17.1	17.8
1988 12 15		10 07.67	+01 02.6					
1988 12 25		10 08.22	+00 43.4	2.731	3.316	118.6	15.1	17.5
1989 01 04		10 06.77	+00 37.5					
1989 01 14		10 03.35	+00 46.7	2.513	3.323	139.5	11.1	17.2
1989 01 24		09 58.16	+01 11.4					
1989 02 03		09 51.59	+01 50.9	2.380	3.328	161.1	5.5	16.9
1989 02 13		09 44.22	+02 42.8					
1989 02 23		09 36.78	+03 43.0	2.360	3.332	166.9	3.9	16.8
1989 03 05		09 30.00	+04 46.7					
1989 03 15		09 24.52	+05 49.2	2.458	3.334	146.7	9.4	17.1
1989 03 25		09 20.78	+06 46.1					
1989 04 04		09 19.03	+07 34.6	2.651	3.336	125.7	14.1	17.4
1989 04 14		09 19.32	+08 13.1					
1989 04 24		09 21.57	+08 40.5	2.905	3.336	106.7	16.8	17.7
1989 05 04		09 25.61	+08 57.0					
1989 05 14		09 31.24	+09 02.7	3.186	3.335	89.6	17.6	17.9

1985 TQ		a,e,i = 5.25, 0.12, 3				Elements MPC 11435		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 04.08	+14 54.7	4.500	4.845	104.7	11.3	17.3
1988 12 15		10 05.09	+14 54.1					
1988 12 25		10 04.70	+15 00.8	4.230	4.860	124.9	9.6	17.1
1989 01 04		10 02.94	+15 14.3					
1989 01 14		09 59.88	+15 33.9	4.025	4.876	146.5	6.4	16.9
1989 01 24		09 55.72	+15 57.8					
1989 02 03		09 50.75	+16 24.1	3.921	4.891	168.9	2.2	16.6
1989 02 13		09 45.34	+16 50.6					
1989 02 23		09 39.92	+17 14.9	3.937	4.908	167.4	2.5	16.7
1989 03 05		09 34.92	+17 35.2					
1989 03 15		09 30.70	+17 50.1	4.074	4.924	145.3	6.6	16.9
1989 03 25		09 27.56	+17 58.7					
1989 04 04		09 25.68	+18 00.7	4.306	4.941	124.4	9.6	17.2
1989 04 14		09 25.14	+17 56.1					
1989 04 24		09 25.94	+17 45.3	4.602	4.958	105.0	11.3	17.4
1989 05 04		09 28.02	+17 28.7					
1989 05 14		09 31.29	+17 06.6	4.924	4.975	87.0	11.7	17.6

1987 PB		a,e,i = 2.54, 0.23, 9				Elements MPC 12203		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 13.62	+09 37.1	1.957	2.349	100.7	24.4	16.8
1988 12 15		10 17.91	+08 33.7					
1988 12 25		10 19.40	+07 42.4	1.765	2.400	119.0	21.0	16.5
1989 01 04		10 17.90	+07 05.2					
1989 01 14		10 13.36	+06 43.4	1.614	2.452	140.3	14.9	16.2
1989 01 24		10 06.07	+06 37.1					
1989 02 03		09 56.69	+06 44.6	1.542	2.503	163.7	6.3	15.9
1989 02 13		09 46.24	+07 02.8					
1989 02 23		09 35.98	+07 26.7	1.577	2.554	168.1	4.6	15.9
1989 03 05		09 27.08	+07 51.5					
1989 03 15		09 20.40	+08 12.9	1.722	2.603	145.4	12.5	16.4
1989 03 25		09 16.44	+08 27.7					
1989 04 04		09 15.25	+08 34.3	1.952	2.651	124.6	18.1	16.9
1989 04 14		09 16.70	+08 31.7					
1989 04 24		09 20.50	+08 19.8	2.233	2.698	106.5	20.9	17.3
1989 05 04		09 26.29	+07 58.7					
1989 05 14		09 33.76	+07 28.8	2.538	2.742	90.7	21.6	17.6

(3830) 1986 RL		a,e,i = 3.03, 0.11, 10				Elements MPC 13154		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 09.16	+01 41.4	3.057	3.352	98.8	16.9	17.6
1988 12 15		10 11.41	+00 50.3					
1988 12 25		10 11.77	+00 08.4	2.780	3.350	117.5	15.1	17.4
1989 01 04		10 10.13	-00 22.4					
1989 01 14		10 06.49	-00 40.2	2.550	3.347	138.1	11.3	17.1
1989 01 24		10 01.04	-00 43.9					
1989 02 03		09 54.16	-00 33.2	2.404	3.342	158.8	6.1	16.7
1989 02 13		09 46.41	-00 09.3					
1989 02 23		09 38.52	+00 25.1	2.370	3.337	165.3	4.3	16.6
1989 03 05		09 31.25	+01 06.2					
1989 03 15		09 25.24	+01 49.8	2.452	3.330	147.0	9.4	16.9
1989 03 25		09 20.99	+02 31.5					
1989 04 04		09 18.73	+03 08.3	2.629	3.323	126.5	14.0	17.2
1989 04 14		09 18.56	+03 37.7					
1989 04 24		09 20.40	+03 58.2	2.867	3.314	107.6	16.8	17.5
1989 05 04		09 24.08	+04 09.1					
1989 05 14		09 29.42	+04 10.3	3.133	3.304	90.7	17.8	17.7
1981 ER18		a,e,i = 2.56, 0.17, 5				Elements MPC 11839		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 01.49	+17 02.0	1.645	2.138	106.0	26.3	19.3
1988 12 15		10 08.81	+16 24.0					
1988 12 25		10 13.19	+15 58.8	1.440	2.143	123.3	22.6	18.9
1989 01 04		10 14.31	+15 47.9					
1989 01 14		10 11.96	+15 51.2	1.279	2.153	143.8	15.7	18.5
1989 01 24		10 06.30	+16 06.1					
1989 02 03		09 57.95	+16 27.8	1.194	2.166	167.1	5.8	18.0
1989 02 13		09 48.05	+16 49.7					
1989 02 23		09 38.16	+17 05.2	1.207	2.183	167.1	5.8	18.0
1989 03 05		09 29.75	+17 09.7					
1989 03 15		09 23.95	+17 01.2	1.319	2.204	144.1	15.3	18.6
1989 03 25		09 21.34	+16 39.8					
1989 04 04		09 21.97	+16 06.7	1.506	2.228	124.2	21.8	19.1
1989 04 14		09 25.62	+15 22.9					
1989 04 24		09 31.87	+14 29.7	1.739	2.254	107.4	25.2	19.5
1989 05 04		09 40.28	+13 27.9					
1989 05 14		09 50.45	+12 18.2	1.996	2.283	93.0	26.2	19.8
1966 TP		a,e,i = 2.63, 0.19, 6				Elements MPC 12447		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 13.66	+14 04.5	1.966	2.379	102.2	23.9	17.3
1988 12 15		10 18.70	+13 24.8					
1988 12 25		10 20.97	+12 58.0	1.765	2.417	120.5	20.5	17.0
1989 01 04		10 20.27	+12 45.2					
1989 01 14		10 16.50	+12 46.2	1.607	2.456	141.8	14.3	16.7
1989 01 24		10 09.91	+12 59.3					
1989 02 03		10 01.10	+13 20.8	1.529	2.496	165.9	5.5	16.3
1989 02 13		09 51.07	+13 45.6					
1989 02 23		09 41.08	+14 08.3	1.558	2.537	169.0	4.3	16.3
1989 03 05		09 32.32	+14 24.4					
1989 03 15		09 25.73	+14 31.4	1.696	2.577	145.3	12.7	16.9
1989 03 25		09 21.83	+14 28.1					
1989 04 04		09 20.72	+14 14.7	1.917	2.617	124.5	18.4	17.3
1989 04 14		09 22.29	+13 51.6					
1989 04 24		09 26.24	+13 19.6	2.190	2.656	106.4	21.3	17.7
1989 05 04		09 32.22	+12 39.4					
1989 05 14		09 39.89	+11 51.6	2.486	2.695	90.7	22.0	18.1

(3765) 1982 SU1		a,e,i = 2.84, 0.04, 1				Elements MPC 12794		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 09.33	+10 17.3	2.410	2.785	101.9	20.3	17.8
1988 12 15		10 13.50	+09 48.8					
1988 12 25		10 15.42	+09 32.6	2.161	2.792	120.6	17.7	17.5
1989 01 04		10 14.91	+09 29.9					
1989 01 14		10 11.92	+09 41.6	1.960	2.800	141.8	12.6	17.2
1989 01 24		10 06.60	+10 06.5					
1989 02 03		09 59.42	+10 42.3	1.843	2.807	165.3	5.1	16.7
1989 02 13		09 51.08	+11 24.6					
1989 02 23		09 42.58	+12 08.3	1.836	2.815	169.9	3.5	16.7
1989 03 05		09 34.87	+12 48.2					
1989 03 15		09 28.81	+13 20.5	1.941	2.823	146.4	11.2	17.1
1989 03 25		09 24.96	+13 42.4					
1989 04 04		09 23.54	+13 53.1	2.134	2.831	125.2	16.8	17.5
1989 04 14		09 24.58	+13 52.4					
1989 04 24		09 27.90	+13 40.7	2.382	2.839	106.7	19.8	17.8
1989 05 04		09 33.24	+13 18.8					
1989 05 14		09 40.33	+12 47.3	2.653	2.847	90.5	20.8	18.1

1969 TX5		a,e,i = 3.20, 0.07, 22				Elements MPC 13453		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 25.13	+37 06.4	2.946	3.367	106.9	16.3	17.3
1988 12 15		10 28.66	+37 53.0					
1988 12 25		10 29.73	+38 49.6	2.707	3.357	124.0	14.1	17.0
1989 01 04		10 28.11	+39 53.1					
1989 01 14		10 23.69	+40 58.4	2.530	3.348	140.5	10.8	16.7
1989 01 24		10 16.64	+41 58.3					
1989 02 03		10 07.42	+42 45.3	2.443	3.337	150.7	8.3	16.6
1989 02 13		09 56.87	+43 12.5					
1989 02 23		09 46.13	+43 15.5	2.461	3.327	145.9	9.6	16.6
1989 03 05		09 36.30	+42 53.4					
1989 03 15		09 28.34	+42 08.3	2.578	3.316	130.9	13.1	16.8
1989 03 25		09 22.83	+41 04.3					
1989 04 04		09 19.98	+39 46.3	2.770	3.304	113.9	16.1	17.1
1989 04 14		09 19.76	+38 18.3					
1989 04 24		09 21.92	+36 43.7	3.006	3.292	97.5	17.6	17.3
1989 05 04		09 26.16	+35 04.7					
1989 05 14		09 32.15	+33 22.8	3.260	3.280	82.2	17.8	17.5

(3788) 1986 QM3		a,e,i = 2.79, 0.10, 10				Elements MPC 12954		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 11.14	+10 29.3	2.501	2.866	101.5	19.7	16.9
1988 12 15		10 15.87	+10 26.4					
1988 12 25		10 18.52	+10 38.1	2.220	2.845	120.2	17.4	16.6
1989 01 04		10 18.89	+11 06.1					
1989 01 14		10 16.84	+11 50.9	1.988	2.824	141.4	12.5	16.2
1989 01 24		10 12.45	+12 51.1					
1989 02 03		10 06.04	+14 03.2	1.840	2.803	164.9	5.3	15.7
1989 02 13		09 58.24	+15 21.4					
1989 02 23		09 49.96	+16 38.5	1.803	2.782	169.7	3.7	15.6
1989 03 05		09 42.19	+17 47.5					
1989 03 15		09 35.88	+18 43.4	1.878	2.760	146.1	11.6	16.0
1989 03 25		09 31.71	+19 23.3					
1989 04 04		09 30.03	+19 46.7	2.042	2.738	124.7	17.5	16.3
1989 04 14		09 30.93	+19 54.2					
1989 04 24		09 34.29	+19 47.1	2.259	2.717	106.2	20.8	16.6
1989 05 04		09 39.86	+19 27.1					
1989 05 14		09 47.37	+18 55.4	2.498	2.696	90.0	22.0	16.9

6032 P-L		a,e,i = 2.45, 0.16, 2				Elements MPC 8395		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 05	10 22.17	+10 19.1	2.434	2.765	99.0	20.6	19.0
1988	12 15	10 26.16	+09 50.3					
1988	12 25	10 27.86	+09 33.9	2.185	2.782	117.7	18.2	18.7
1989	01 04	10 27.06	+09 31.3					
1989	01 14	10 23.66	+09 43.2	1.978	2.797	139.1	13.3	18.4
1989	01 24	10 17.78	+10 08.5					
1989	02 03	10 09.82	+10 44.7	1.852	2.810	163.0	5.9	18.0
1989	02 13	10 00.49	+11 27.7					
1989	02 23	09 50.80	+12 11.8	1.837	2.820	171.9	2.8	17.8
1989	03 05	09 41.77	+12 52.0					
1989	03 15	09 34.33	+13 24.0	1.938	2.829	147.7	10.8	18.3
1989	03 25	09 29.13	+13 45.4					
1989	04 04	09 26.45	+13 55.3	2.130	2.835	125.9	16.6	18.7
1989	04 14	09 26.33	+13 53.7					
1989	04 24	09 28.60	+13 41.2	2.379	2.838	106.9	19.8	19.0
1989	05 04	09 33.00	+13 18.6					
1989	05 14	09 39.26	+12 46.7	2.650	2.840	90.2	20.8	19.3

1987 UJ		a,e,i = 2.58, 0.14, 3				Elements MPC 12580		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 05	10 23.76	+11 21.2	2.479	2.807	99.0	20.3	18.6
1988	12 15	10 27.85	+10 55.8					
1988	12 25	10 29.68	+10 42.7	2.232	2.827	117.7	17.9	18.3
1989	01 04	10 29.07	+10 43.1					
1989	01 14	10 25.90	+10 57.3	2.029	2.846	139.0	13.1	18.0
1989	01 24	10 20.31	+11 24.0					
1989	02 03	10 12.67	+12 00.4	1.907	2.863	162.8	5.9	17.6
1989	02 13	10 03.69	+12 42.2					
1989	02 23	09 54.31	+13 23.9	1.895	2.879	172.3	2.6	17.4
1989	03 05	09 45.54	+14 00.5					
1989	03 15	09 38.27	+14 28.3	1.999	2.892	148.2	10.4	17.9
1989	03 25	09 33.14	+14 45.1					
1989	04 04	09 30.43	+14 50.4	2.196	2.904	126.5	16.1	18.3
1989	04 14	09 30.20	+14 44.5					
1989	04 24	09 32.30	+14 27.9	2.450	2.915	107.5	19.2	18.6
1989	05 04	09 36.48	+14 01.8					
1989	05 14	09 42.47	+13 26.7	2.730	2.923	90.8	20.2	18.9

1974 SD3		a,e,i = 3.36, 0.10, 10				Elements MPC 11423		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 05	10 20.16	-00 50.5	3.254	3.485	95.3	16.4	17.5
1988	12 15	10 22.88	-01 42.0					
1988	12 25	10 23.83	-02 24.3	2.989	3.502	113.7	14.9	17.3
1989	01 04	10 22.92	-02 55.5					
1989	01 14	10 20.14	-03 13.7	2.766	3.519	133.8	11.6	17.1
1989	01 24	10 15.64	-03 17.6					
1989	02 03	10 09.72	-03 06.9	2.620	3.535	154.4	6.9	16.8
1989	02 13	10 02.88	-02 42.2					
1989	02 23	09 55.74	-02 06.0	2.582	3.550	166.0	3.9	16.6
1989	03 05	09 48.96	-01 21.7					
1989	03 15	09 43.15	-00 33.6	2.661	3.565	151.3	7.7	16.9
1989	03 25	09 38.80	+00 14.0					
1989	04 04	09 36.19	+00 57.6	2.842	3.580	131.1	12.1	17.2
1989	04 14	09 35.43	+01 34.5					
1989	04 24	09 36.52	+02 02.8	3.093	3.593	112.0	15.0	17.5
1989	05 04	09 39.33	+02 21.7					
1989	05 14	09 43.71	+02 30.8	3.382	3.606	94.6	16.2	17.7

1988 BW1		a,e,i = 5.27, 0.05, 22				Elements MPC 13034		
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 12 05		10 23.70	+34 41.7	5.058	5.421	-0.60	+1.8	17.8
1988 12 15		10 25.28	+35 21.9					
1988 12 25		10 25.40	+36 08.1	4.796	5.415	-0.66	+2.0	17.6
1989 01 04		10 24.01	+36 58.2					
1989 01 14		10 21.13	+37 49.6	4.603	5.410	-0.71	+2.0	17.4
1989 01 24		10 16.92	+38 38.8					
1989 02 03		10 11.64	+39 22.4	4.507	5.404	-0.73	+1.9	17.3
1989 02 13		10 05.64	+39 57.0					
1989 02 23		09 59.41	+40 20.2	4.524	5.398	-0.71	+1.7	17.3
1989 03 05		09 53.41	+40 30.7					
1989 03 15		09 48.12	+40 28.0	4.647	5.392	-0.67	+1.5	17.5
1989 03 25		09 43.90	+40 13.0					
1989 04 04		09 41.00	+39 47.2	4.854	5.386	-0.61	+1.3	17.6
1989 04 14		09 39.55	+39 12.2					
1989 04 24		09 39.59	+38 29.8	5.114	5.380	-0.56	+1.2	17.8
1989 05 04		09 41.04	+37 41.8					
1989 05 14		09 43.82	+36 49.3	5.394	5.374	-0.52	+1.3	17.9

1982 SX5		a,e,i = 2.65, 0.20, 2				Elements MPC 13692		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 27.61	+09 39.0	2.884	3.167	97.5	18.0	18.1
1988 12 15		10 31.05	+09 14.5					
1988 12 25		10 32.50	+09 01.0	2.596	3.159	116.4	16.2	17.8
1989 01 04		10 31.81	+08 59.6					
1989 01 14		10 28.87	+09 11.0	2.351	3.150	137.7	12.1	17.5
1989 01 24		10 23.75	+09 34.4					
1989 02 03		10 16.75	+10 08.1	2.188	3.138	161.2	5.8	17.1
1989 02 13		10 08.40	+10 48.7					
1989 02 23		09 59.49	+11 31.7	2.138	3.123	174.1	1.9	16.8
1989 03 05		09 50.89	+12 12.4					
1989 03 15		09 43.43	+12 46.8	2.206	3.107	150.0	9.2	17.2
1989 03 25		09 37.77	+13 12.1					
1989 04 04		09 34.27	+13 27.0	2.372	3.088	127.8	14.8	17.5
1989 04 14		09 33.10	+13 30.9					
1989 04 24		09 34.19	+13 24.1	2.600	3.067	108.2	18.1	17.8
1989 05 04		09 37.36	+13 07.4					
1989 05 14		09 42.41	+12 41.1	2.855	3.045	91.0	19.4	18.1

1987 OM		a,e,i = 2.25, 0.23, 7				Elements MPC 12207		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 29.15	+13 02.3	2.253	2.587	98.3	22.1	19.3
1988 12 15		10 34.20	+13 05.3					
1988 12 25		10 36.84	+13 24.9	2.023	2.621	117.0	19.5	19.0
1989 01 04		10 36.81	+14 02.0					
1989 01 14		10 33.95	+14 56.4	1.834	2.652	138.4	14.3	18.6
1989 01 24		10 28.31	+16 05.3					
1989 02 03		10 20.26	+17 23.1	1.725	2.679	161.8	6.6	18.3
1989 02 13		10 10.54	+18 42.4					
1989 02 23		10 00.25	+19 54.5	1.726	2.704	168.8	4.1	18.2
1989 03 05		09 50.54	+20 52.9					
1989 03 15		09 42.47	+21 33.4	1.842	2.724	146.2	11.7	18.6
1989 03 25		09 36.79	+21 55.1					
1989 04 04		09 33.81	+21 59.5	2.046	2.742	124.7	17.5	19.0
1989 04 14		09 33.56	+21 48.6					
1989 04 24		09 35.85	+21 24.6	2.304	2.756	105.9	20.5	19.4
1989 05 04		09 40.37	+20 49.8					
1989 05 14		09 46.80	+20 05.5	2.583	2.766	89.5	21.4	19.7

1955 SG1		a,e,i = 2.33, 0.10, 4				Elements MPC 13050		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 23.69	+05 30.9	2.170	2.488	96.8	23.2	18.1
1988 12 15		10 29.36	+04 43.7					
1988 12 25		10 32.70	+04 09.5	1.929	2.502	114.5	21.0	17.8
1989 01 04		10 33.45	+03 50.9					
1989 01 14		10 31.42	+03 50.2	1.722	2.515	134.9	16.1	17.4
1989 01 24		10 26.64	+04 08.4					
1989 02 03		10 19.44	+04 45.0	1.586	2.527	158.0	8.4	17.0
1989 02 13		10 10.48	+05 36.7					
1989 02 23		10 00.84	+06 37.8	1.551	2.537	173.5	2.5	16.7
1989 03 05		09 51.68	+07 41.2					
1989 03 15		09 44.08	+08 40.1	1.628	2.545	151.1	10.9	17.2
1989 03 25		09 38.85	+09 28.9					
1989 04 04		09 36.33	+10 04.8	1.798	2.551	129.3	17.7	17.6
1989 04 14		09 36.61	+10 26.5					
1989 04 24		09 39.51	+10 33.8	2.026	2.556	110.4	21.6	18.0
1989 05 04		09 44.71	+10 27.7					
1989 05 14		09 51.92	+10 08.8	2.281	2.559	94.0	23.2	18.3

1980 PF		a,e,i = 2.26, 0.16, 8				Elements MPC 9469		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 32.01	+08 48.4	2.315	2.611	96.1	22.0	18.8
1988 12 15		10 36.70	+07 55.2					
1988 12 25		10 39.05	+07 12.7	2.057	2.620	114.3	20.0	18.5
1989 01 04		10 38.80	+06 42.6					
1989 01 14		10 35.75	+06 26.4	1.835	2.625	135.1	15.3	18.2
1989 01 24		10 29.93	+06 24.6					
1989 02 03		10 21.62	+06 36.4	1.686	2.628	158.5	7.9	17.7
1989 02 13		10 11.52	+06 59.2					
1989 02 23		10 00.67	+07 28.7	1.642	2.628	173.9	2.3	17.4
1989 03 05		09 50.26	+07 59.7					
1989 03 15		09 41.41	+08 27.4	1.714	2.626	150.5	10.7	17.9
1989 03 25		09 34.94	+08 47.9					
1989 04 04		09 31.22	+08 59.0	1.879	2.620	128.4	17.4	18.3
1989 04 14		09 30.36	+08 59.7					
1989 04 24		09 32.18	+08 49.5	2.103	2.612	109.2	21.3	18.6
1989 05 04		09 36.38	+08 28.9					
1989 05 14		09 42.66	+07 58.0	2.352	2.601	92.6	22.8	18.9

1985 GX		a,e,i = 2.69, 0.18, 14				Elements MPC 10042		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 05.39	+01 02.7	1.808	2.196	99.4	26.3	16.5
1988 12 15		10 13.73	+00 23.8					
1988 12 25		10 19.73	+00 03.1	1.590	2.203	115.7	23.7	16.2
1989 01 04		10 23.10	+00 04.9					
1989 01 14		10 23.64	+00 33.3	1.406	2.214	135.1	18.3	15.8
1989 01 24		10 21.33	+01 30.7					
1989 02 03		10 16.51	+02 56.4	1.286	2.229	157.5	9.7	15.3
1989 02 13		10 09.86	+04 45.4					
1989 02 23		10 02.51	+06 47.8	1.262	2.249	174.0	2.6	15.0
1989 03 05		09 55.69	+08 51.3					
1989 03 15		09 50.53	+10 44.5	1.344	2.272	152.2	11.8	15.6
1989 03 25		09 47.83	+12 18.7					
1989 04 04		09 47.92	+13 30.3	1.514	2.298	131.0	19.2	16.1
1989 04 14		09 50.80	+14 18.2					
1989 04 24		09 56.24	+14 43.7	1.744	2.327	112.8	23.5	16.5
1989 05 04		10 03.89	+14 49.1					
1989 05 14		10 13.40	+14 36.6	2.005	2.359	97.4	25.1	16.9

1987 MO		a,e,i = 1.92, 0.12, 20				Elements MPC 12716		
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation	V	
1988 12 05		10 31.49	-06 39.2	1.899	2.145	-0.81	+9.6	18.1
1988 12 15		10 38.22	-09 28.6					
1988 12 25		10 42.54	-12 17.5	1.664	2.141	-0.80	+10.4	17.8
1989 01 04		10 44.05	-15 02.5					
1989 01 14		10 42.28	-17 38.2	1.455	2.133	-0.82	+11.7	17.4
1989 01 24		10 36.97	-19 57.1					
1989 02 03		10 28.15	-21 49.6	1.297	2.122	-0.80	+13.9	17.0
1989 02 13		10 16.34	-23 05.3					
1989 02 23		10 02.82	-23 36.5	1.215	2.108	-0.67	+16.9	16.8
1989 03 05		09 49.31	-23 21.7					
1989 03 15		09 37.62	-22 26.9	1.219	2.092	-0.53	+18.7	16.8
1989 03 25		09 29.15	-21 04.9					
1989 04 04		09 24.61	-19 29.8	1.301	2.073	-0.50	+18.0	17.1
1989 04 14		09 24.13	-17 54.3					
1989 04 24		09 27.43	-16 27.9	1.435	2.052	-0.53	+15.7	17.4
1989 05 04		09 34.03	-15 16.0					
1989 05 14		09 43.46	-14 21.5	1.597	2.029	-0.57	+13.0	17.7

1980 LY		a,e,i = 2.17, 0.16, 5				Elements MPC 13152		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 23.93	+12 45.8	2.059	2.424	99.4	23.6	19.5
1988 12 15		10 30.74	+12 31.4					
1988 12 25		10 35.24	+12 32.5	1.788	2.401	117.1	21.4	19.1
1989 01 04		10 37.10	+12 51.6					
1989 01 14		10 35.99	+13 29.8	1.556	2.376	137.5	16.2	18.6
1989 01 24		10 31.76	+14 26.3					
1989 02 03		10 24.59	+15 37.3	1.396	2.349	160.7	8.0	18.1
1989 02 13		10 15.07	+16 55.5					
1989 02 23		10 04.35	+18 11.1	1.337	2.319	170.8	3.9	17.8
1989 03 05		09 53.84	+19 15.0					
1989 03 15		09 44.97	+20 00.4	1.386	2.288	147.4	13.5	18.2
1989 03 25		09 38.82	+20 24.6					
1989 04 04		09 35.92	+20 28.0	1.519	2.254	125.7	21.1	18.6
1989 04 14		09 36.38	+20 12.6					
1989 04 24		09 39.97	+19 40.8	1.700	2.219	107.4	25.6	18.9
1989 05 04		09 46.32	+18 54.8					
1989 05 14		09 55.04	+17 56.2	1.899	2.183	92.1	27.6	19.2

(3771) 1974 SB3		a,e,i = 2.23, 0.17, 5				Elements MPC 12798		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 28.76	+04 30.6	1.952	2.267	95.3	25.7	18.6
1988 12 15		10 35.16	+03 24.4					
1988 12 25		10 39.02	+02 31.2	1.742	2.304	112.4	23.2	18.3
1989 01 04		10 40.05	+01 53.8					
1989 01 14		10 38.03	+01 35.1	1.561	2.340	132.4	18.1	17.9
1989 01 24		10 32.98	+01 37.0					
1989 02 03		10 25.25	+01 59.7	1.443	2.374	155.2	10.0	17.5
1989 02 13		10 15.59	+02 41.1					
1989 02 23		10 05.19	+03 35.6	1.423	2.407	172.1	3.2	17.3
1989 03 05		09 55.35	+04 35.9					
1989 03 15		09 47.24	+05 34.4	1.512	2.437	152.4	10.9	17.7
1989 03 25		09 41.69	+06 24.9					
1989 04 04		09 39.03	+07 03.5	1.694	2.465	130.7	17.9	18.2
1989 04 14		09 39.28	+07 28.3					
1989 04 24		09 42.22	+07 38.8	1.935	2.491	111.9	22.0	18.6
1989 05 04		09 47.48	+07 35.7					
1989 05 14		09 54.73	+07 19.8	2.205	2.514	95.6	23.6	19.0

(3755) 1950 SJ		a,e,i = 2.25, 0.22, 8			Elements MPC 12788			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 32.75	-00 02.9	2.414	2.649	92.6	21.8	19.0
1988 12 15		10 37.54	-01 03.9					
1988 12 25		10 40.13	-01 53.6	2.166	2.672	110.3	20.2	18.7
1989 01 04		10 40.29	-02 29.2					
1989 01 14		10 37.85	-02 47.7	1.948	2.691	130.3	16.2	18.4
1989 01 24		10 32.84	-02 46.8					
1989 02 03		10 25.54	-02 25.1	1.796	2.707	152.3	9.8	18.0
1989 02 13		10 16.53	-01 43.5					
1989 02 23		10 06.75	-00 45.5	1.744	2.720	168.4	4.2	17.7
1989 03 05		09 57.26	+00 23.0					
1989 03 15		09 49.07	+01 34.8	1.806	2.730	152.9	9.5	18.0
1989 03 25		09 42.97	+02 43.0					
1989 04 04		09 39.36	+03 42.4	1.968	2.735	131.5	15.9	18.4
1989 04 14		09 38.39	+04 29.6					
1989 04 24		09 39.94	+05 03.2	2.197	2.738	112.1	19.9	18.8
1989 05 04		09 43.77	+05 22.9					
1989 05 14		09 49.61	+05 29.0	2.456	2.737	95.0	21.6	19.1

1981 SM1		a,e,i = 3.14, 0.19, 2			Elements MPC 7362			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 32.65	+09 37.4	3.112	3.366	96.3	16.9	18.4
1988 12 15		10 36.05	+09 22.2					
1988 12 25		10 37.58	+09 18.3	2.856	3.396	115.4	15.2	18.2
1989 01 04		10 37.14	+09 26.5					
1989 01 14		10 34.67	+09 46.8	2.643	3.426	136.6	11.4	17.9
1989 01 24		10 30.30	+10 18.1					
1989 02 03		10 24.30	+10 58.1	2.512	3.454	159.7	5.7	17.6
1989 02 13		10 17.16	+11 43.6					
1989 02 23		10 09.55	+12 30.0	2.493	3.480	176.0	1.1	17.3
1989 03 05		10 02.17	+13 13.3					
1989 03 15		09 55.70	+13 49.8	2.594	3.506	152.4	7.5	17.8
1989 03 25		09 50.69	+14 17.2					
1989 04 04		09 47.46	+14 34.4	2.798	3.530	130.5	12.4	18.1
1989 04 14		09 46.15	+14 41.0					
1989 04 24		09 46.76	+14 37.5	3.070	3.553	110.7	15.4	18.4
1989 05 04		09 49.15	+14 24.6					
1989 05 14		09 53.15	+14 03.1	3.376	3.575	93.0	16.4	18.7

4071 T-3		a,e,i = 2.29, 0.15, 5			Elements MPC 12702			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 21.02	+16 13.8	1.583	2.022	101.3	28.5	18.6
1988 12 15		10 30.53	+15 58.3					
1988 12 25		10 37.22	+16 00.6	1.394	2.046	117.8	25.2	18.3
1989 01 04		10 40.67	+16 22.4					
1989 01 14		10 40.54	+17 04.0	1.239	2.073	137.4	18.7	17.9
1989 01 24		10 36.75	+18 02.2					
1989 02 03		10 29.63	+19 10.1	1.150	2.102	159.6	9.4	17.5
1989 02 13		10 20.08	+20 17.7					
1989 02 23		10 09.57	+21 13.6	1.154	2.133	168.4	5.3	17.3
1989 03 05		09 59.75	+21 49.8					
1989 03 15		09 52.07	+22 02.6	1.258	2.165	147.8	14.2	17.9
1989 03 25		09 47.43	+21 52.6					
1989 04 04		09 46.13	+21 23.1	1.440	2.198	127.5	21.1	18.4
1989 04 14		09 48.03	+20 37.3					
1989 04 24		09 52.77	+19 38.6	1.674	2.231	110.3	25.0	18.9
1989 05 04		09 59.89	+18 29.4					
1989 05 14		10 08.94	+17 11.2	1.933	2.265	95.5	26.4	19.3

1985 CE2		a,e,i = 2.55, 0.10, 5			Elements MPC 12697			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 17.45	+06 58.0	1.922	2.291	98.8	25.2	17.7
1988 12 15		10 25.35	+06 17.6					
1988 12 25		10 30.95	+05 52.1	1.689	2.293	115.6	22.8	17.4
1989 01 04		10 33.93	+05 44.5					
1989 01 14		10 34.04	+05 57.4	1.491	2.297	135.3	17.5	17.0
1989 01 24		10 31.25	+06 31.9					
1989 02 03		10 25.79	+07 26.5	1.359	2.303	158.0	9.2	16.5
1989 02 13		10 18.29	+08 36.6					
1989 02 23		10 09.85	+09 54.4	1.323	2.311	176.8	1.4	16.1
1989 03 05		10 01.71	+11 10.8					
1989 03 15		09 55.08	+12 17.5	1.392	2.322	152.8	11.3	16.7
1989 03 25		09 50.85	+13 08.6					
1989 04 04		09 49.45	+13 41.7	1.550	2.334	131.2	18.8	17.1
1989 04 14		09 50.96	+13 56.4					
1989 04 24		09 55.18	+13 53.7	1.767	2.348	112.9	23.2	17.6
1989 05 04		10 01.75	+13 35.2					
1989 05 14		10 10.34	+13 02.5	2.013	2.364	97.3	25.1	17.9

(3832) Shapiro		a,e,i = 3.13, 0.19, 1			Elements MPC 13163			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 34.41	+10 08.6	2.987	3.243	96.1	17.6	18.1
1988 12 15		10 38.10	+09 49.5					
1988 12 25		10 39.85	+09 41.7	2.738	3.277	115.0	15.8	17.9
1989 01 04		10 39.56	+09 46.1					
1989 01 14		10 37.14	+10 02.7	2.531	3.311	136.1	11.9	17.6
1989 01 24		10 32.73	+10 30.4					
1989 02 03		10 26.61	+11 06.9	2.403	3.343	159.2	6.0	17.3
1989 02 13		10 19.29	+11 48.7					
1989 02 23		10 11.45	+12 31.4	2.387	3.375	176.3	1.1	17.1
1989 03 05		10 03.84	+13 10.9					
1989 03 15		09 57.19	+13 43.5	2.490	3.405	152.8	7.7	17.5
1989 03 25		09 52.05	+14 06.8					
1989 04 04		09 48.76	+14 19.8	2.696	3.435	130.9	12.7	17.9
1989 04 14		09 47.46	+14 22.4					
1989 04 24		09 48.12	+14 14.9	2.970	3.463	111.2	15.7	18.2
1989 05 04		09 50.60	+13 58.2					
1989 05 14		09 54.72	+13 33.0	3.278	3.489	93.5	16.8	18.5

1984 HE1		a,e,i = 3.14, 0.09, 11			Elements MPC 11516			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 30.34	-03 00.1	3.221	3.402	92.1	16.8	18.0
1988 12 15		10 34.01	-03 53.8					
1988 12 25		10 35.96	-04 38.6	2.930	3.394	110.0	15.8	17.7
1989 01 04		10 36.07	-05 12.2					
1989 01 14		10 34.24	-05 32.4	2.672	3.385	129.6	12.9	17.4
1989 01 24		10 30.55	-05 37.3					
1989 02 03		10 25.21	-05 25.6	2.485	3.375	150.1	8.4	17.1
1989 02 13		10 18.63	-04 57.3					
1989 02 23		10 11.42	-04 14.4	2.398	3.365	165.4	4.3	16.9
1989 03 05		10 04.27	-03 20.3					
1989 03 15		09 57.88	-02 19.7	2.427	3.353	154.7	7.3	17.0
1989 03 25		09 52.86	-01 17.9					
1989 04 04		09 49.58	-00 19.6	2.562	3.341	134.6	12.3	17.3
1989 04 14		09 48.28	+00 31.5					
1989 04 24		09 48.97	+01 12.8	2.773	3.329	115.2	15.9	17.6
1989 05 04		09 51.57	+01 43.2					
1989 05 14		09 55.93	+02 02.0	3.026	3.315	97.6	17.6	17.8

1985 FD3		a,e,i = 2.61, 0.13, 29				Elements MPC 11505		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 52.91	+24 49.3	2.382	2.692	97.3	21.3	17.9
1988 12 15		10 57.63	+24 13.1					
1988 12 25		10 59.81	+23 46.3	2.096	2.665	115.0	19.5	17.6
1989 01 04		10 59.06	+23 28.2					
1989 01 14		10 55.07	+23 17.0	1.846	2.637	135.2	15.2	17.2
1989 01 24		10 47.71	+23 08.7					
1989 02 03		10 37.21	+22 58.0	1.671	2.609	157.3	8.4	16.7
1989 02 13		10 24.27	+22 38.4					
1989 02 23		10 10.14	+22 04.3	1.605	2.580	167.7	4.7	16.4
1989 03 05		09 56.33	+21 13.2					
1989 03 15		09 44.28	+20 05.8	1.657	2.551	147.2	12.2	16.8
1989 03 25		09 35.02	+18 45.5					
1989 04 04		09 29.03	+17 16.4	1.808	2.522	125.4	18.9	17.1
1989 04 14		09 26.35	+15 41.6					
1989 04 24		09 26.75	+14 03.2	2.017	2.494	106.3	22.8	17.5
1989 05 04		09 29.83	+12 22.2					
1989 05 14		09 35.21	+10 38.7	2.250	2.466	90.0	24.2	17.7

(3742) 1981 EQ27		a,e,i = 2.56, 0.13, 3				Elements MPC 12713		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 19.90	+08 23.5	1.928	2.295	98.8	25.1	17.0
1988 12 15		10 28.29	+07 36.5					
1988 12 25		10 34.48	+07 02.6	1.677	2.277	115.3	23.0	16.7
1989 01 04		10 38.14	+06 44.7					
1989 01 14		10 38.98	+06 45.5	1.460	2.261	134.5	18.1	16.2
1989 01 24		10 36.86	+07 06.3					
1989 02 03		10 31.92	+07 46.4	1.308	2.248	156.8	9.9	15.7
1989 02 13		10 24.70	+08 42.2					
1989 02 23		10 16.22	+09 46.7	1.248	2.238	178.3	0.7	15.1
1989 03 05		10 07.77	+10 51.3					
1989 03 15		10 00.67	+11 47.7	1.292	2.230	154.3	11.2	15.7
1989 03 25		09 55.96	+12 29.7					
1989 04 04		09 54.17	+12 54.5	1.423	2.225	132.6	19.3	16.2
1989 04 14		09 55.47	+13 01.2					
1989 04 24		09 59.67	+12 50.5	1.612	2.224	114.3	24.3	16.6
1989 05 04		10 06.44	+12 24.0					
1989 05 14		10 15.39	+11 43.0	1.833	2.225	98.9	26.7	16.9

1986 RQ2		a,e,i = 3.20, 0.09, 17				Elements MPC 11348		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 33.43	+06 43.6	3.131	3.364	95.0	17.0	17.4
1988 12 15		10 37.58	+06 44.2					
1988 12 25		10 39.98	+06 58.0	2.856	3.377	114.0	15.4	17.2
1989 01 04		10 40.50	+07 26.1					
1989 01 14		10 39.05	+08 09.2	2.622	3.390	135.0	11.8	16.9
1989 01 24		10 35.70	+09 06.4					
1989 02 03		10 30.67	+10 15.3	2.467	3.402	158.0	6.2	16.5
1989 02 13		10 24.38	+11 32.1					
1989 02 23		10 17.43	+12 51.2	2.424	3.413	177.0	0.9	16.2
1989 03 05		10 10.53	+14 07.1					
1989 03 15		10 04.37	+15 14.8	2.503	3.423	153.7	7.4	16.6
1989 03 25		09 59.54	+16 10.7					
1989 04 04		09 56.43	+16 53.0	2.687	3.433	131.6	12.6	17.0
1989 04 14		09 55.23	+17 21.3					
1989 04 24		09 55.97	+17 36.1	2.941	3.443	111.7	15.7	17.3
1989 05 04		09 58.56	+17 38.5					
1989 05 14		10 02.83	+17 29.8	3.230	3.451	94.0	17.0	17.5

1987 SV		a,e,i = 2.39, 0.11, 4			Elements MPC 12449			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 37.73	+08 35.8	2.135	2.425	94.8	23.9	17.6
1988 12 15		10 44.29	+07 42.9					
1988 12 25		10 48.50	+07 02.2	1.903	2.448	112.0	21.9	17.3
1989 01 04		10 50.09	+06 35.6					
1989 01 14		10 48.82	+06 24.9	1.701	2.471	132.1	17.2	16.9
1989 01 24		10 44.65	+06 30.7					
1989 02 03		10 37.80	+06 52.0	1.564	2.493	155.1	9.6	16.5
1989 02 13		10 28.88	+07 25.7					
1989 02 23		10 18.90	+08 06.5	1.525	2.514	177.8	0.9	16.0
1989 03 05		10 09.06	+08 48.2					
1989 03 15		10 00.54	+09 24.9	1.597	2.533	154.9	9.6	16.6
1989 03 25		09 54.24	+09 52.0					
1989 04 04		09 50.61	+10 07.3	1.766	2.552	132.7	16.8	17.1
1989 04 14		09 49.81	+10 09.9					
1989 04 24		09 51.67	+09 59.9	1.998	2.569	113.4	21.1	17.5
1989 05 04		09 55.91	+09 38.1					
1989 05 14		10 02.21	+09 05.3	2.262	2.584	96.8	22.9	17.8

3019 T-3		a,e,i = 2.80, 0.16, 9			Elements MPC 12801			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 38.63	+01 12.4	3.057	3.240	91.8	17.7	18.8
1988 12 15		10 42.85	+00 35.8					
1988 12 25		10 45.30	+00 09.8	2.767	3.238	110.0	16.6	18.5
1989 01 04		10 45.82	-00 03.6					
1989 01 14		10 44.28	-00 02.5	2.510	3.234	130.3	13.4	18.2
1989 01 24		10 40.71	+00 14.1					
1989 02 03		10 35.29	+00 46.4	2.322	3.229	152.5	8.1	17.9
1989 02 13		10 28.43	+01 33.2					
1989 02 23		10 20.74	+02 31.0	2.238	3.221	172.4	2.3	17.5
1989 03 05		10 12.98	+03 35.2					
1989 03 15		10 05.91	+04 40.5	2.273	3.212	157.1	6.9	17.8
1989 03 25		10 00.23	+05 41.5					
1989 04 04		09 56.36	+06 34.4	2.415	3.201	135.0	12.8	18.1
1989 04 14		09 54.57	+07 16.4					
1989 04 24		09 54.90	+07 46.3	2.633	3.189	114.8	16.6	18.4
1989 05 04		09 57.24	+08 03.9					
1989 05 14		10 01.44	+08 09.3	2.890	3.174	96.9	18.4	18.6

1979 HX4		a,e,i = 2.33, 0.15, 6			Elements MPC 13684			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 40.10	+08 24.0	2.270	2.539	94.1	22.8	17.8
1988 12 15		10 46.60	+08 03.7					
1988 12 25		10 50.90	+07 58.5	2.030	2.564	111.8	20.9	17.5
1989 01 04		10 52.74	+08 10.5					
1989 01 14		10 51.88	+08 41.1	1.820	2.586	132.3	16.3	17.1
1989 01 24		10 48.27	+09 30.1					
1989 02 03		10 42.11	+10 34.8	1.677	2.606	155.5	9.0	16.7
1989 02 13		10 33.89	+11 50.2					
1989 02 23		10 24.54	+13 08.4	1.636	2.625	176.9	1.2	16.3
1989 03 05		10 15.15	+14 21.6					
1989 03 15		10 06.84	+15 22.8	1.709	2.641	154.2	9.4	16.8
1989 03 25		10 00.51	+16 07.7					
1989 04 04		09 56.67	+16 34.9	1.881	2.654	131.8	16.3	17.3
1989 04 14		09 55.53	+16 44.8					
1989 04 24		09 56.98	+16 39.0	2.116	2.666	112.3	20.4	17.6
1989 05 04		10 00.78	+16 19.3					
1989 05 14		10 06.64	+15 47.4	2.382	2.674	95.4	22.1	18.0

1977 RJ6		a,e,i = 2.20, 0.17, 6			Elements MPC 12567			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 39.47	+15 00.6	2.117	2.437	96.7	23.7	18.0
1988 12 15		10 47.03	+14 35.4					
1988 12 25		10 52.40	+14 23.7	1.839	2.410	113.8	21.9	17.7
1989 01 04		10 55.21	+14 27.4					
1989 01 14		10 55.09	+14 47.4	1.594	2.380	133.4	17.5	17.2
1989 01 24		10 51.81	+15 23.1					
1989 02 03		10 45.37	+16 11.1	1.414	2.348	155.8	9.9	16.7
1989 02 13		10 36.17	+17 05.4					
1989 02 23		10 25.21	+17 57.2	1.330	2.314	172.1	3.4	16.2
1989 03 05		10 13.84	+18 38.1					
1989 03 15		10 03.59	+19 01.5	1.353	2.278	151.7	11.9	16.6
1989 03 25		09 55.74	+19 04.7					
1989 04 04		09 51.03	+18 48.2	1.466	2.241	129.7	20.1	17.0
1989 04 14		09 49.73	+18 14.1					
1989 04 24		09 51.71	+17 24.9	1.635	2.203	110.9	25.2	17.3
1989 05 04		09 56.63	+16 22.8					
1989 05 14		10 04.10	+15 09.5	1.827	2.165	95.1	27.7	17.6

1983 WA		a,e,i = 2.73, 0.22, 8			Elements MPC 10029			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 23.26	+00 54.2	1.792	2.122	95.2	27.6	17.5
1988 12 15		10 32.65	-00 52.2					
1988 12 25		10 39.74	-02 28.8	1.582	2.131	110.1	25.7	17.2
1989 01 04		10 44.22	-03 52.1					
1989 01 14		10 45.79	-04 57.6	1.400	2.145	127.5	21.3	16.8
1989 01 24		10 44.34	-05 41.0					
1989 02 03		10 40.01	-05 58.6	1.270	2.165	147.2	14.3	16.4
1989 02 13		10 33.34	-05 48.1					
1989 02 23		10 25.36	-05 11.5	1.220	2.190	164.7	6.9	16.1
1989 03 05		10 17.32	-04 14.3					
1989 03 15		10 10.51	-03 05.3	1.268	2.220	157.6	9.8	16.3
1989 03 25		10 05.95	-01 54.7					
1989 04 04		10 04.16	-00 50.9	1.406	2.253	138.3	17.2	16.8
1989 04 14		10 05.30	+00 00.4					
1989 04 24		10 09.20	+00 36.0	1.612	2.290	120.3	22.3	17.3
1989 05 04		10 15.52	+00 55.1					
1989 05 14		10 23.91	+00 58.0	1.860	2.330	104.6	24.8	17.7

1986 RO2		a,e,i = 3.02, 0.05, 9			Elements MPC 12791			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 42.44	-00 55.2	2.713	2.888	90.1	20.0	16.8
1988 12 15		10 48.09	-02 10.4					
1988 12 25		10 51.87	-03 17.1	2.447	2.893	107.0	19.0	16.6
1989 01 04		10 53.59	-04 13.2					
1989 01 14		10 53.07	-04 56.1	2.209	2.898	126.0	15.9	16.3
1989 01 24		10 50.28	-05 23.4					
1989 02 03		10 45.38	-05 33.1	2.031	2.904	146.5	10.8	15.9
1989 02 13		10 38.73	-05 24.4					
1989 02 23		10 31.01	-04 58.3	1.944	2.910	164.8	5.1	15.6
1989 03 05		10 23.05	-04 18.2					
1989 03 15		10 15.74	-03 28.9	1.968	2.917	158.8	7.1	15.8
1989 03 25		10 09.87	-02 36.6					
1989 04 04		10 05.97	-01 46.8	2.097	2.925	138.9	13.0	16.1
1989 04 14		10 04.31	-01 04.0					
1989 04 24		10 04.95	-00 31.2	2.303	2.933	119.5	17.4	16.5
1989 05 04		10 07.75	-00 10.0					
1989 05 14		10 12.51	-00 01.1	2.556	2.941	102.2	19.6	16.7

1017 T-3		a,e,i = 2.78, 0.14, 8			Elements MPC 12700			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 48.72	+01 49.4	3.004	3.156	89.7	18.2	18.7
1988 12 15		10 53.32	+00 51.5					
1988 12 25		10 56.13	+00 02.1	2.709	3.148	107.5	17.3	18.5
1989 01 04		10 56.98	-00 37.2					
1989 01 14		10 55.70	-01 04.4	2.443	3.138	127.3	14.4	18.1
1989 01 24		10 52.25	-01 17.9					
1989 02 03		10 46.77	-01 16.9	2.241	3.127	148.9	9.4	17.8
1989 02 13		10 39.60	-01 01.3					
1989 02 23		10 31.36	-00 33.1	2.137	3.114	169.1	3.4	17.4
1989 03 05		10 22.82	+00 04.5					
1989 03 15		10 14.83	+00 47.0	2.150	3.100	159.3	6.5	17.6
1989 03 25		10 08.16	+01 29.4					
1989 04 04		10 03.34	+02 07.4	2.271	3.084	137.6	12.6	17.9
1989 04 14		10 00.69	+02 37.7					
1989 04 24		10 00.29	+02 58.2	2.470	3.067	117.5	16.9	18.2
1989 05 04		10 02.04	+03 07.9					
1989 05 14		10 05.79	+03 06.4	2.712	3.049	99.6	19.1	18.4

1982 UQ6		a,e,i = 2.89, 0.06, 1			Elements MPC 12941			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 43.86	+06 34.8	2.671	2.889	92.6	19.9	17.8
1988 12 15		10 49.57	+05 56.1					
1988 12 25		10 53.34	+05 28.8	2.409	2.901	110.3	18.5	17.6
1989 01 04		10 54.99	+05 14.5					
1989 01 14		10 54.33	+05 14.6	2.178	2.914	130.4	14.9	17.2
1989 01 24		10 51.36	+05 29.5					
1989 02 03		10 46.24	+05 58.4	2.014	2.926	152.8	8.9	16.9
1989 02 13		10 39.38	+06 38.9					
1989 02 23		10 31.48	+07 26.6	1.950	2.938	176.6	1.2	16.4
1989 03 05		10 23.39	+08 16.4					
1989 03 15		10 16.00	+09 02.8	2.001	2.950	158.7	7.0	16.8
1989 03 25		10 10.10	+09 41.3					
1989 04 04		10 06.18	+10 09.1	2.156	2.961	136.3	13.5	17.2
1989 04 14		10 04.50	+10 24.7					
1989 04 24		10 05.09	+10 27.8	2.386	2.972	116.3	17.7	17.6
1989 05 04		10 07.80	+10 19.0					
1989 05 14		10 12.42	+09 59.0	2.655	2.982	98.8	19.6	17.9

1982 UT6		a,e,i = 2.84, 0.09, 2			Elements MPC 9032			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 49.51	+08 36.8	2.857	3.055	92.1	18.8	18.7
1988 12 15		10 54.71	+08 05.5					
1988 12 25		10 58.05	+07 45.4	2.581	3.062	110.1	17.6	18.4
1989 01 04		10 59.34	+07 37.6					
1989 01 14		10 58.40	+07 43.1	2.338	3.068	130.4	14.1	18.1
1989 01 24		10 55.22	+08 01.7					
1989 02 03		10 49.94	+08 32.3	2.163	3.073	153.0	8.4	17.7
1989 02 13		10 42.94	+09 11.9					
1989 02 23		10 34.87	+09 56.1	2.089	3.077	177.0	1.0	17.3
1989 03 05		10 26.53	+10 40.2					
1989 03 15		10 18.79	+11 19.2	2.133	3.080	158.6	6.8	17.7
1989 03 25		10 12.41	+11 49.2					
1989 04 04		10 07.92	+12 08.3	2.283	3.082	136.0	13.0	18.0
1989 04 14		10 05.59	+12 15.3					
1989 04 24		10 05.49	+12 10.5	2.509	3.083	115.8	17.1	18.4
1989 05 04		10 07.49	+11 54.5					
1989 05 14		10 11.43	+11 28.1	2.774	3.083	98.1	18.9	18.7

1978 PL4		a,e,i = 2.68, 0.20, 11				Elements MPC 12443		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 54.70	+02 50.7	2.575	2.736	88.7	21.1	17.6
1988 12 15		11 00.08	+01 35.9					
1988 12 25		11 03.41	+00 30.3	2.339	2.776	106.0	19.9	17.4
1989 01 04		11 04.45	-00 24.3					
1989 01 14		11 03.02	-01 05.9	2.126	2.815	125.7	16.5	17.2
1989 01 24		10 59.11	-01 32.8					
1989 02 03		10 52.88	-01 43.9	1.973	2.853	147.4	10.7	16.8
1989 02 13		10 44.77	-01 39.2					
1989 02 23		10 35.54	-01 20.6	1.914	2.890	168.1	4.0	16.5
1989 03 05		10 26.11	-00 51.5					
1989 03 15		10 17.44	-00 16.9	1.971	2.924	159.8	6.7	16.7
1989 03 25		10 10.37	+00 18.1					
1989 04 04		10 05.40	+00 49.0	2.134	2.958	138.4	13.0	17.2
1989 04 14		10 02.78	+01 12.5					
1989 04 24		10 02.53	+01 26.6	2.376	2.989	118.5	17.2	17.6
1989 05 04		10 04.47	+01 30.4					
1989 05 14		10 08.37	+01 23.7	2.661	3.019	100.8	19.2	17.9

1984 SR		a,e,i = 2.37, 0.36, 22				Elements MPC 9584		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		11 17.10	+33 13.9	1.331	1.732	95.6	34.5	18.1
1988 12 15		11 28.50	+32 37.7					
1988 12 25		11 35.66	+32 18.8	1.221	1.807	109.7	30.8	17.9
1989 01 04		11 38.09	+32 16.6					
1989 01 14		11 35.27	+32 27.0	1.123	1.888	127.2	24.5	17.6
1989 01 24		11 27.04	+32 40.8					
1989 02 03		11 13.83	+32 45.5	1.072	1.971	146.7	15.9	17.4
1989 02 13		10 57.02	+32 26.9					
1989 02 23		10 38.97	+31 35.1	1.105	2.057	158.2	10.3	17.4
1989 03 05		10 22.20	+30 09.7					
1989 03 15		10 08.68	+28 18.0	1.241	2.142	146.6	14.8	17.8
1989 03 25		09 59.38	+26 10.6					
1989 04 04		09 54.32	+23 57.1	1.466	2.227	128.1	20.7	18.5
1989 04 14		09 53.09	+21 43.2					
1989 04 24		09 55.04	+19 31.9	1.753	2.310	110.8	24.0	19.0
1989 05 04		09 59.54	+17 24.2					
1989 05 14		10 06.05	+15 19.8	2.072	2.390	95.5	24.9	19.5

1986 TL2		a,e,i = 3.18, 0.11, 12				Elements MPC 11427		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 50.44	+21 48.5	3.021	3.286	96.8	17.3	16.8
1988 12 15		10 55.86	+21 59.6					
1988 12 25		10 59.43	+22 23.3	2.731	3.266	114.7	15.9	16.5
1989 01 04		11 00.94	+22 59.3					
1989 01 14		11 00.19	+23 46.4	2.483	3.245	134.1	12.6	16.2
1989 01 24		10 57.13	+24 41.5					
1989 02 03		10 51.89	+25 39.9	2.313	3.224	153.4	7.9	15.9
1989 02 13		10 44.82	+26 35.6					
1989 02 23		10 36.59	+27 21.9	2.246	3.203	162.4	5.3	15.7
1989 03 05		10 28.02	+27 53.4					
1989 03 15		10 20.01	+28 06.6	2.292	3.182	148.4	9.4	15.9
1989 03 25		10 13.40	+28 00.5					
1989 04 04		10 08.73	+27 36.7	2.434	3.160	128.9	14.3	16.1
1989 04 14		10 06.30	+26 57.2					
1989 04 24		10 06.18	+26 05.0	2.642	3.138	110.4	17.5	16.4
1989 05 04		10 08.23	+25 02.5					
1989 05 14		10 12.27	+23 51.7	2.883	3.117	93.7	18.9	16.6

1984 JA1		a,e,i = 3.15, 0.23, 9				Elements MPC 12001		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 46.09	-02 10.9	3.079	3.212	88.8	17.9	16.8
1988 12 15		10 51.36	-03 13.9					
1988 12 25		10 55.03	-04 09.5	2.754	3.168	106.0	17.4	16.5
1989 01 04		10 56.89	-04 55.4					
1989 01 14		10 56.76	-05 29.2	2.456	3.124	124.9	15.0	16.2
1989 01 24		10 54.56	-05 48.5					
1989 02 03		10 50.35	-05 51.3	2.217	3.079	145.4	10.5	15.8
1989 02 13		10 44.38	-05 36.4					
1989 02 23		10 37.18	-05 04.4	2.069	3.034	164.4	5.0	15.4
1989 03 05		10 29.46	-04 17.7					
1989 03 15		10 22.05	-03 20.8	2.033	2.988	160.3	6.4	15.3
1989 03 25		10 15.78	-02 19.7					
1989 04 04		10 11.24	-01 20.1	2.105	2.943	140.1	12.6	15.6
1989 04 14		10 08.86	-00 27.0					
1989 04 24		10 08.80	+00 15.8	2.258	2.898	120.3	17.4	15.9
1989 05 04		10 11.00	+00 46.4					
1989 05 14		10 15.34	+01 03.7	2.458	2.853	102.5	20.2	16.1

1986 AG1		a,e,i = 1.96, 0.04, 21				Elements MPC 10610		
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 12 05		10 55.39	+00 14.8	1.749	1.970	-1.03	+14.0	16.8
1988 12 15		11 04.34	-02 44.8					
1988 12 25		11 10.94	-05 45.9	1.530	1.979	-0.92	+15.2	16.5
1989 01 04		11 14.78	-08 46.9					
1989 01 14		11 15.32	-11 44.2	1.329	1.987	-0.83	+16.6	16.2
1989 01 24		11 12.14	-14 32.5					
1989 02 03		11 04.98	-17 03.9	1.173	1.995	-0.76	+18.8	15.7
1989 02 13		10 54.02	-19 07.8					
1989 02 23		10 40.24	-20 33.8	1.089	2.003	-0.61	+21.8	15.4
1989 03 05		10 25.29	-21 15.6					
1989 03 15		10 11.24	-21 14.3	1.095	2.010	-0.42	+24.0	15.4
1989 03 25		09 59.98	-20 39.7					
1989 04 04		09 52.60	-19 45.4	1.184	2.016	-0.31	+23.4	15.8
1989 04 14		09 49.52	-18 44.9					
1989 04 24		09 50.55	-17 48.9	1.334	2.021	-0.29	+20.7	16.2
1989 05 04		09 55.20	-17 03.8					
1989 05 14		10 02.94	-16 33.2	1.516	2.026	-0.30	+17.4	16.6

1977 SG3		a,e,i = 2.27, 0.13, 8				Elements MPC 12570		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 47.18	+17 18.9	1.891	2.220	95.8	26.2	17.7
1988 12 15		10 56.48	+17 16.1					
1988 12 25		11 03.32	+17 30.9	1.684	2.249	112.3	23.9	17.4
1989 01 04		11 07.33	+18 04.8					
1989 01 14		11 08.14	+18 57.8	1.505	2.279	131.4	18.9	17.0
1989 01 24		11 05.57	+20 06.8					
1989 02 03		10 59.69	+21 25.8	1.389	2.308	152.4	11.4	16.6
1989 02 13		10 51.01	+22 45.2					
1989 02 23		10 40.59	+23 53.7	1.365	2.336	165.6	6.1	16.4
1989 03 05		10 29.84	+24 41.8					
1989 03 15		10 20.23	+25 04.3	1.445	2.364	150.7	11.9	16.8
1989 03 25		10 12.94	+25 00.5					
1989 04 04		10 08.59	+24 33.6	1.615	2.390	130.6	18.5	17.3
1989 04 14		10 07.35	+23 47.8					
1989 04 24		10 09.06	+22 47.3	1.844	2.415	112.5	22.6	17.7
1989 05 04		10 13.34	+21 35.4					
1989 05 14		10 19.81	+20 14.5	2.104	2.438	96.7	24.3	18.0

1979 SL7		a,e,i = 2.57, 0.21, 6			Elements MPC 12697			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 38.29	+01 44.2	1.866	2.141	92.0	27.4	17.1
1988 12 15		10 47.70	+00 24.3					
1988 12 25		10 54.79	-00 42.7	1.667	2.176	107.5	25.5	16.8
1989 01 04		10 59.27	-01 33.7					
1989 01 14		11 00.84	-02 05.0	1.490	2.213	125.7	21.2	16.5
1989 01 24		10 59.37	-02 13.7					
1989 02 03		10 54.98	-01 57.9	1.363	2.254	146.9	13.8	16.1
1989 02 13		10 48.15	-01 18.0					
1989 02 23		10 39.81	-00 18.2	1.318	2.297	168.8	4.8	15.8
1989 03 05		10 31.14	+00 54.4					
1989 03 15		10 23.42	+02 10.4	1.376	2.341	161.5	7.7	16.0
1989 03 25		10 17.67	+03 21.0					
1989 04 04		10 14.48	+04 19.5	1.532	2.386	139.9	15.7	16.6
1989 04 14		10 14.07	+05 02.4					
1989 04 24		10 16.34	+05 28.2	1.760	2.432	120.6	20.9	17.1
1989 05 04		10 20.99	+05 37.3					
1989 05 14		10 27.71	+05 30.8	2.032	2.478	103.9	23.3	17.5

1976 YY		a,e,i = 2.42, 0.18, 3			Elements MPC 13597			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 54.64	+10 32.8	2.396	2.616	91.6	22.1	19.4
1988 12 15		11 01.16	+10 03.1					
1988 12 25		11 05.55	+09 46.8	2.157	2.648	109.2	20.5	19.2
1989 01 04		11 07.54	+09 45.3					
1989 01 14		11 06.90	+09 59.6	1.945	2.677	129.2	16.5	18.9
1989 01 24		11 03.54	+10 29.1					
1989 02 03		10 57.61	+11 11.6	1.795	2.705	152.0	9.9	18.5
1989 02 13		10 49.52	+12 02.8					
1989 02 23		10 40.08	+12 56.4	1.744	2.731	174.9	1.8	18.1
1989 03 05		10 30.32	+13 45.8					
1989 03 15		10 21.33	+14 25.3	1.808	2.754	157.7	7.9	18.5
1989 03 25		10 14.05	+14 51.2					
1989 04 04		10 09.05	+15 02.2	1.975	2.775	135.1	14.7	18.9
1989 04 14		10 06.60	+14 58.4					
1989 04 24		10 06.70	+14 41.3	2.213	2.794	115.2	19.0	19.3
1989 05 04		10 09.12	+14 12.3					
1989 05 14		10 13.62	+13 32.9	2.488	2.810	97.8	20.9	19.6

(3860) 1986 PM4		a,e,i = 2.80, 0.16, 8			Elements MPC 13443			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 55.87	+01 13.8	3.123	3.238	87.8	17.7	17.7
1988 12 15		11 00.40	+00 16.5					
1988 12 25		11 03.22	-00 32.4	2.834	3.240	105.6	17.0	17.5
1989 01 04		11 04.12	-01 11.3					
1989 01 14		11 02.96	-01 38.5	2.570	3.241	125.4	14.3	17.2
1989 01 24		10 59.70	-01 52.4					
1989 02 03		10 54.46	-01 52.3	2.368	3.240	147.0	9.5	16.9
1989 02 13		10 47.54	-01 38.0					
1989 02 23		10 39.53	-01 11.3	2.263	3.237	168.0	3.7	16.5
1989 03 05		10 31.13	-00 35.3					
1989 03 15		10 23.14	+00 06.1	2.275	3.232	161.3	5.7	16.6
1989 03 25		10 16.31	+00 47.8					
1989 04 04		10 11.17	+01 25.9	2.398	3.226	139.7	11.6	17.0
1989 04 14		10 08.06	+01 56.9					
1989 04 24		10 07.08	+02 18.6	2.604	3.218	119.3	15.8	17.3
1989 05 04		10 08.18	+02 30.0					
1989 05 14		10 11.21	+02 30.7	2.856	3.208	101.1	18.0	17.5

(3720) Hokkaido		a,e,i = 2.32, 0.13, 7				Elements MPC 12581		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 53.63	+14 14.7	2.356	2.605	93.3	22.2	17.6
1988 12 15		11 00.67	+13 48.6					
1988 12 25		11 05.62	+13 35.4	2.084	2.597	110.5	20.8	17.3
1989 01 04		11 08.18	+13 36.6					
1989 01 14		11 08.04	+13 53.0	1.841	2.587	130.2	16.9	16.9
1989 01 24		11 05.02	+14 23.5					
1989 02 03		10 59.14	+15 05.6	1.661	2.575	152.4	10.2	16.4
1989 02 13		10 50.74	+15 54.0					
1989 02 23		10 40.63	+16 41.7	1.578	2.561	172.1	3.0	16.0
1989 03 05		10 29.94	+17 21.2					
1989 03 15		10 19.92	+17 46.6	1.607	2.546	155.6	9.3	16.3
1989 03 25		10 11.73	+17 54.9					
1989 04 04		10 06.10	+17 45.7	1.734	2.528	133.4	16.7	16.7
1989 04 14		10 03.38	+17 20.3					
1989 04 24		10 03.56	+16 40.9	1.928	2.508	113.8	21.5	17.0
1989 05 04		10 06.41	+15 49.6					
1989 05 14		10 11.62	+14 47.9	2.154	2.487	96.9	23.8	17.3

1986 UT		a,e,i = 3.18, 0.12, 9				Elements MPC 11743		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 50.82	-02 29.3	3.219	3.326	87.5	17.2	17.4
1988 12 15		10 55.68	-03 33.2					
1988 12 25		10 58.94	-04 29.6	2.913	3.306	104.9	16.7	17.2
1989 01 04		11 00.41	-05 16.6					
1989 01 14		10 59.93	-05 52.1	2.632	3.285	124.0	14.4	16.9
1989 01 24		10 57.48	-06 13.8					
1989 02 03		10 53.12	-06 20.2	2.410	3.263	144.5	10.1	16.5
1989 02 13		10 47.15	-06 10.3					
1989 02 23		10 40.06	-05 44.7	2.280	3.241	163.6	5.0	16.2
1989 03 05		10 32.53	-05 05.7					
1989 03 15		10 25.31	-04 17.3	2.263	3.219	160.8	5.8	16.2
1989 03 25		10 19.14	-03 24.7					
1989 04 04		10 14.56	-02 32.8	2.356	3.196	141.1	11.3	16.5
1989 04 14		10 11.93	-01 46.3					
1989 04 24		10 11.40	-01 08.4	2.533	3.174	121.3	15.7	16.8
1989 05 04		10 12.93	-00 41.1					
1989 05 14		10 16.41	-00 25.3	2.761	3.151	103.3	18.2	17.0

1981 SW7		a,e,i = 3.09, 0.19, 5				Elements MPC 10027		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 58.20	+03 36.4	3.486	3.592	88.2	15.9	18.4
1988 12 15		11 02.03	+02 57.3					
1988 12 25		11 04.24	+02 27.1	3.203	3.609	106.6	15.1	18.3
1989 01 04		11 04.69	+02 07.0					
1989 01 14		11 03.28	+01 58.2	2.947	3.625	127.0	12.5	18.0
1989 01 24		11 00.02	+02 01.2					
1989 02 03		10 55.06	+02 15.7	2.757	3.639	149.2	8.0	17.7
1989 02 13		10 48.69	+02 40.5					
1989 02 23		10 41.43	+03 13.3	2.669	3.651	171.7	2.2	17.4
1989 03 05		10 33.88	+03 50.9					
1989 03 15		10 26.69	+04 29.4	2.702	3.662	162.2	4.8	17.5
1989 03 25		10 20.48	+05 05.2					
1989 04 04		10 15.69	+05 35.4	2.849	3.671	139.9	10.1	17.9
1989 04 14		10 12.60	+05 57.8					
1989 04 24		10 11.34	+06 11.3	3.081	3.678	119.2	13.8	18.2
1989 05 04		10 11.88	+06 15.3					
1989 05 14		10 14.11	+06 10.0	3.363	3.684	100.5	15.6	18.4

1983 AC		a,e,i = 3.01, 0.11, 12				Elements MPC 12964		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 54.91	+18 23.3	3.114	3.340	94.5	17.1	17.4
1988 12 15		11 00.21	+18 36.9					
1988 12 25		11 03.75	+19 03.6	2.829	3.335	112.7	15.8	17.1
1989 01 04		11 05.32	+19 43.7					
1989 01 14		11 04.75	+20 36.3	2.584	3.328	132.5	12.6	16.8
1989 01 24		11 02.00	+21 38.8					
1989 02 03		10 57.17	+22 47.1	2.414	3.321	152.8	7.8	16.5
1989 02 13		10 50.58	+23 55.5					
1989 02 23		10 42.81	+24 57.5	2.349	3.313	164.4	4.6	16.3
1989 03 05		10 34.64	+25 47.2					
1989 03 15		10 26.88	+26 20.4	2.400	3.303	150.7	8.5	16.5
1989 03 25		10 20.32	+26 35.4					
1989 04 04		10 15.51	+26 32.4	2.551	3.293	130.8	13.3	16.8
1989 04 14		10 12.78	+26 13.3					
1989 04 24		10 12.23	+25 40.3	2.771	3.281	111.8	16.5	17.1
1989 05 04		10 13.76	+24 55.9					
1989 05 14		10 17.22	+24 02.1	3.026	3.268	94.7	18.0	17.3

1988 BX1		a,e,i = 5.26, 0.07, 31				Elements MPC 13171		
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 12 05		10 59.42	+38 58.2	4.896	5.176	-0.66	+1.5	17.1
1988 12 15		11 03.06	+39 53.0					
1988 12 25		11 05.20	+40 55.5	4.658	5.186	-0.75	+1.7	17.0
1989 01 04		11 05.72	+42 03.7					
1989 01 14		11 04.54	+43 14.7	4.479	5.195	-0.83	+1.8	16.8
1989 01 24		11 01.68	+44 24.5					
1989 02 03		10 57.30	+45 29.0	4.386	5.205	-0.88	+1.8	16.7
1989 02 13		10 51.66	+46 23.8					
1989 02 23		10 45.23	+47 05.3	4.393	5.215	-0.87	+1.6	16.7
1989 03 05		10 38.52	+47 30.9					
1989 03 15		10 32.11	+47 39.7	4.500	5.225	-0.81	+1.3	16.9
1989 03 25		10 26.53	+47 31.9					
1989 04 04		10 22.17	+47 09.0	4.688	5.235	-0.73	+1.0	17.0
1989 04 14		10 19.31	+46 33.2					
1989 04 24		10 18.06	+45 46.8	4.932	5.245	-0.66	+0.9	17.2
1989 05 04		10 18.41	+44 52.2					
1989 05 14		10 20.29	+43 51.4	5.201	5.255	-0.60	+0.9	17.3

1974 ST		a,e,i = 3.16, 0.23, 2				Elements MPC 7838		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 59.78	+08 14.3	3.610	3.735	89.6	15.3	18.9
1988 12 15		11 03.98	+07 55.6					
1988 12 25		11 06.67	+07 46.8	3.284	3.710	108.2	14.6	18.6
1989 01 04		11 07.69	+07 48.8					
1989 01 14		11 06.90	+08 02.3	2.990	3.685	128.6	12.0	18.3
1989 01 24		11 04.27	+08 27.1					
1989 02 03		10 59.90	+09 01.9	2.765	3.657	150.8	7.6	18.0
1989 02 13		10 54.02	+09 44.7					
1989 02 23		10 47.08	+10 31.9	2.643	3.628	174.0	1.6	17.6
1989 03 05		10 39.67	+11 19.4					
1989 03 15		10 32.44	+12 02.9	2.642	3.598	161.3	5.1	17.8
1989 03 25		10 26.06	+12 38.9					
1989 04 04		10 21.03	+13 05.1	2.753	3.565	138.6	10.7	18.1
1989 04 14		10 17.70	+13 20.1					
1989 04 24		10 16.27	+13 23.6	2.948	3.532	117.8	14.6	18.3
1989 05 04		10 16.72	+13 16.2					
1989 05 14		10 18.98	+12 58.5	3.189	3.497	99.2	16.6	18.5

1976	SJ	a,e,i = 2.38, 0.22, 2					Elements MPC 13584		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V	
1988	12 05	10 59.97	+05 03.8	2.402	2.570	88.3	22.5	18.9	
1988	12 15	11 06.91	+04 21.4						
1988	12 25	11 11.79	+03 52.0	2.170	2.610	105.5	21.3	18.7	
1989	01 04	11 14.36	+03 37.4						
1989	01 14	11 14.38	+03 39.8	1.957	2.648	125.2	17.7	18.4	
1989	01 24	11 11.74	+03 59.8						
1989	02 03	11 06.53	+04 37.1	1.799	2.684	147.7	11.3	18.0	
1989	02 13	10 59.10	+05 29.3						
1989	02 23	10 50.18	+06 31.2	1.734	2.718	172.3	2.8	17.6	
1989	03 05	10 40.73	+07 36.5						
1989	03 15	10 31.81	+08 38.1	1.784	2.749	162.6	6.2	17.9	
1989	03 25	10 24.38	+09 30.0						
1989	04 04	10 19.07	+10 08.8	1.941	2.777	139.3	13.6	18.3	
1989	04 14	10 16.21	+10 32.7						
1989	04 24	10 15.86	+10 41.7	2.176	2.802	118.7	18.3	18.8	
1989	05 04	10 17.83	+10 36.7						
1989	05 14	10 21.90	+10 19.0	2.454	2.825	100.9	20.6	19.1	

1977	PE1	a,e,i = 2.78, 0.18, 5					Elements MPC 9476		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V	
1988	12 05	11 02.59	+01 01.6	3.098	3.187	86.2	18.0	19.3	
1988	12 15	11 07.73	+00 15.2						
1988	12 25	11 11.17	-00 21.5	2.824	3.205	103.9	17.3	19.1	
1989	01 04	11 12.72	-00 46.7						
1989	01 14	11 12.23	-00 58.9	2.571	3.222	123.7	14.7	18.8	
1989	01 24	11 09.66	-00 56.6						
1989	02 03	11 05.08	-00 39.5	2.376	3.237	145.5	9.9	18.5	
1989	02 13	10 58.78	-00 08.1						
1989	02 23	10 51.29	+00 35.2	2.275	3.250	168.1	3.6	18.1	
1989	03 05	10 43.29	+01 26.7						
1989	03 15	10 35.55	+02 21.5	2.291	3.261	164.6	4.7	18.2	
1989	03 25	10 28.81	+03 14.5						
1989	04 04	10 23.63	+04 01.4	2.421	3.270	142.2	10.8	18.6	
1989	04 14	10 20.36	+04 39.0						
1989	04 24	10 19.14	+05 05.6	2.638	3.277	121.4	15.2	18.9	
1989	05 04	10 19.94	+05 20.5						
1989	05 14	10 22.62	+05 23.8	2.906	3.282	102.8	17.5	19.2	

1988	BY1	a,e,i = 5.22, 0.13, 22					Elements MPC 13171		
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V	
1988	12 05	11 06.53	+29 50.0	4.928	5.131	-0.64	+2.8	17.6	
1988	12 15	11 09.50	+30 14.1						
1988	12 25	11 11.08	+30 46.2	4.668	5.152	-0.70	+3.0	17.5	
1989	01 04	11 11.19	+31 24.9						
1989	01 14	11 09.78	+32 08.2	4.456	5.172	-0.76	+3.2	17.3	
1989	01 24	11 06.90	+32 53.1						
1989	02 03	11 02.70	+33 36.5	4.327	5.193	-0.81	+3.2	17.2	
1989	02 13	10 57.42	+34 14.7						
1989	02 23	10 51.46	+34 44.2	4.302	5.213	-0.83	+3.1	17.1	
1989	03 05	10 45.24	+35 02.7						
1989	03 15	10 39.24	+35 08.5	4.391	5.233	-0.80	+2.9	17.2	
1989	03 25	10 33.90	+35 01.2						
1989	04 04	10 29.56	+34 41.5	4.578	5.253	-0.74	+2.6	17.4	
1989	04 14	10 26.46	+34 10.8						
1989	04 24	10 24.73	+33 30.7	4.838	5.274	-0.67	+2.4	17.6	
1989	05 04	10 24.39	+32 43.1						
1989	05 14	10 25.39	+31 49.4	5.139	5.293	-0.60	+2.3	17.8	

1978 PS4		a,e,i = 2.57, 0.19, 12				Elements MPC 9473		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		11 09.74	+04 45.4	2.938	3.032	85.9	18.9	19.1
1988 12 15		11 14.93	+03 46.1					
1988 12 25		11 18.33	+02 55.4	2.658	3.043	103.6	18.3	18.9
1989 01 04		11 19.70	+02 14.5					
1989 01 14		11 18.84	+01 45.1	2.399	3.052	123.4	15.6	18.6
1989 01 24		11 15.66	+01 28.0					
1989 02 03		11 10.20	+01 23.8	2.196	3.059	145.4	10.5	18.2
1989 02 13		11 02.74	+01 31.9					
1989 02 23		10 53.84	+01 50.5	2.087	3.063	168.7	3.6	17.8
1989 03 05		10 44.29	+02 16.3					
1989 03 15		10 34.99	+02 45.3	2.096	3.065	164.4	5.0	17.9
1989 03 25		10 26.81	+03 12.8					
1989 04 04		10 20.41	+03 35.3	2.218	3.065	141.5	11.7	18.3
1989 04 14		10 16.18	+03 50.0					
1989 04 24		10 14.28	+03 55.2	2.425	3.062	120.6	16.4	18.6
1989 05 04		10 14.63	+03 50.4					
1989 05 14		10 17.08	+03 35.4	2.680	3.056	102.1	18.9	18.9

1987 WA		a,e,i = 2.67, 0.13, 6				Elements MPC 12961		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		11 03.20	+12 48.7	2.710	2.893	90.6	19.9	18.8
1988 12 15		11 09.63	+12 33.3					
1988 12 25		11 14.17	+12 31.1	2.450	2.911	108.2	18.7	18.6
1989 01 04		11 16.58	+12 42.9					
1989 01 14		11 16.64	+13 09.3	2.219	2.928	128.0	15.4	18.3
1989 01 24		11 14.25	+13 49.2					
1989 02 03		11 09.49	+14 39.9	2.050	2.944	149.8	9.7	18.0
1989 02 13		11 02.64	+15 36.7					
1989 02 23		10 54.34	+16 33.6	1.979	2.958	170.0	3.3	17.6
1989 03 05		10 45.42	+17 24.0					
1989 03 15		10 36.85	+18 02.6	2.023	2.971	158.5	7.1	17.9
1989 03 25		10 29.52	+18 25.9					
1989 04 04		10 24.07	+18 32.9	2.173	2.982	136.8	13.3	18.2
1989 04 14		10 20.86	+18 24.2					
1989 04 24		10 20.00	+18 01.5	2.400	2.991	116.8	17.5	18.6
1989 05 04		10 21.38	+17 26.7					
1989 05 14		10 24.80	+16 41.5	2.667	2.999	99.2	19.4	18.9

(3808) Tempel		a,e,i = 2.31, 0.15, 6				Elements MPC 13035		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 30.22	+05 56.1	1.666	2.015	95.5	29.1	18.8
1988 12 15		10 42.25	+05 00.3					
1988 12 25		10 52.32	+04 19.0	1.433	1.998	110.1	27.5	18.4
1989 01 04		11 00.06	+03 56.2					
1989 01 14		11 05.04	+03 56.1	1.226	1.984	127.4	23.2	17.9
1989 01 24		11 06.92	+04 22.2					
1989 02 03		11 05.54	+05 15.9	1.067	1.974	148.2	15.3	17.4
1989 02 13		11 01.03	+06 35.3					
1989 02 23		10 54.14	+08 12.8	0.984	1.969	172.0	4.0	16.8
1989 03 05		10 46.09	+09 56.7					
1989 03 15		10 38.41	+11 33.2	0.996	1.968	162.8	8.6	17.0
1989 03 25		10 32.62	+12 50.4					
1989 04 04		10 29.67	+13 42.1	1.096	1.972	140.2	18.9	17.5
1989 04 14		10 30.01	+14 06.4					
1989 04 24		10 33.61	+14 04.7	1.259	1.980	121.4	25.7	18.0
1989 05 04		10 40.11	+13 40.0					
1989 05 14		10 49.12	+12 55.5	1.460	1.992	106.0	29.2	18.4

1983 CS		a,e,i = 3.20, 0.10, 2				Elements MPC 13312		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 56.82	+09 18.6	2.694	2.879	90.7	20.0	17.3
1988 12 15		11 03.86	+08 45.9					
1988 12 25		11 09.10	+08 24.7	2.427	2.885	107.8	18.9	17.1
1989 01 04		11 12.32	+08 16.5					
1989 01 14		11 13.31	+08 22.4	2.189	2.892	127.2	15.7	16.8
1989 01 24		11 11.99	+08 42.3					
1989 02 03		11 08.41	+09 15.1	2.011	2.900	148.9	10.1	16.4
1989 02 13		11 02.84	+09 57.7					
1989 02 23		10 55.85	+10 45.6	1.926	2.909	171.9	2.8	16.0
1989 03 05		10 48.23	+11 33.0					
1989 03 15		10 40.85	+12 14.5	1.955	2.920	162.9	5.7	16.2
1989 03 25		10 34.57	+12 45.6					
1989 04 04		10 30.02	+13 03.7	2.090	2.932	140.6	12.5	16.6
1989 04 14		10 27.57	+13 07.9					
1989 04 24		10 27.36	+12 58.5	2.304	2.945	120.5	17.1	17.0
1989 05 04		10 29.31	+12 36.5					
1989 05 14		10 33.24	+12 03.1	2.566	2.959	102.8	19.5	17.3

1987 SW1		a,e,i = 2.33, 0.16, 11				Elements MPC 12560		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		11 00.19	-04 49.3	2.407	2.512	84.5	23.0	18.9
1988 12 15		11 07.83	-06 06.3					
1988 12 25		11 13.54	-07 13.0	2.170	2.540	100.5	22.4	18.7
1989 01 04		11 17.06	-08 06.9					
1989 01 14		11 18.13	-08 44.6	1.945	2.566	118.7	19.7	18.4
1989 01 24		11 16.58	-09 02.8					
1989 02 03		11 12.43	-08 58.4	1.763	2.591	139.2	14.4	18.0
1989 02 13		11 05.93	-08 29.3					
1989 02 23		10 57.69	-07 36.2	1.660	2.613	160.3	7.3	17.7
1989 03 05		10 48.64	-06 22.7					
1989 03 15		10 39.84	-04 55.7	1.662	2.632	163.8	6.0	17.6
1989 03 25		10 32.34	-03 24.3					
1989 04 04		10 26.88	-01 56.9	1.774	2.650	144.1	12.8	18.0
1989 04 14		10 23.89	-00 40.3					
1989 04 24		10 23.49	+00 21.3	1.971	2.665	123.8	18.3	18.4
1989 05 04		10 25.55	+01 06.2					
1989 05 14		10 29.84	+01 34.2	2.219	2.677	105.8	21.3	18.8

1982 BQ		a,e,i = 2.26, 0.10, 6				Elements MPC 10766		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		10 39.73	+08 45.0	1.783	2.101	94.3	27.9	17.5
1988 12 15		10 51.22	+08 07.1					
1988 12 25		11 00.75	+07 44.7	1.541	2.087	109.5	26.4	17.1
1989 01 04		11 07.98	+07 41.2					
1989 01 14		11 12.46	+08 00.1	1.325	2.074	127.3	22.2	16.6
1989 01 24		11 13.86	+08 43.3					
1989 02 03		11 11.98	+09 50.7	1.159	2.063	148.2	14.6	16.1
1989 02 13		11 06.95	+11 18.2					
1989 02 23		10 59.45	+12 56.6	1.072	2.055	170.6	4.5	15.6
1989 03 05		10 50.62	+14 33.6					
1989 03 15		10 42.01	+15 56.5	1.084	2.049	160.8	9.2	15.8
1989 03 25		10 35.13	+16 55.6					
1989 04 04		10 30.98	+17 27.3	1.185	2.046	138.7	18.8	16.3
1989 04 14		10 30.10	+17 31.5					
1989 04 24		10 32.50	+17 11.1	1.350	2.046	119.9	25.2	16.7
1989 05 04		10 37.87	+16 29.8					
1989 05 14		10 45.82	+15 30.6	1.550	2.048	104.3	28.6	17.1

(3722) 1927 UE		a,e,i = 2.24, 0.20, 6			Elements MPC 12690			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		11 06.15	-01 31.3	2.413	2.515	84.4	22.9	17.9
1988 12 15		11 13.61	-02 43.4					
1988 12 25		11 19.14	-03 45.3	2.173	2.545	100.7	22.3	17.7
1989 01 04		11 22.45	-04 34.6					
1989 01 14		11 23.27	-05 08.4	1.944	2.573	119.3	19.5	17.4
1989 01 24		11 21.42	-05 24.0					
1989 02 03		11 16.89	-05 19.1	1.760	2.598	140.5	14.0	17.0
1989 02 13		11 09.92	-04 52.5					
1989 02 23		11 01.13	-04 05.4	1.657	2.619	162.9	6.4	16.6
1989 03 05		10 51.43	-03 01.9					
1989 03 15		10 41.93	-01 48.7	1.663	2.638	165.5	5.4	16.6
1989 03 25		10 33.71	-00 33.9					
1989 04 04		10 27.55	+00 35.2	1.779	2.653	143.9	12.8	17.0
1989 04 14		10 23.91	+01 33.1					
1989 04 24		10 22.91	+02 16.5	1.979	2.665	123.1	18.4	17.4
1989 05 04		10 24.44	+02 44.3					
1989 05 14		10 28.26	+02 56.7	2.228	2.674	105.0	21.4	17.8

1981 EZ2		a,e,i = 2.54, 0.10, 9			Elements MPC 10289			
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation	V	
1988 12 05		10 49.05	-02 20.5	2.218	2.395	-1.03	+4.8	17.6
1988 12 15		10 58.29	-03 47.9					
1988 12 25		11 05.78	-05 06.9	1.951	2.376	-1.14	+5.4	17.3
1989 01 04		11 11.23	-06 14.5					
1989 01 14		11 14.31	-07 07.1	1.704	2.358	-1.30	+6.2	16.9
1989 01 24		11 14.79	-07 41.0					
1989 02 03		11 12.53	-07 52.3	1.500	2.342	-1.49	+7.4	16.5
1989 02 13		11 07.68	-07 37.7					
1989 02 23		11 00.75	-06 56.7	1.371	2.327	-1.68	+8.8	16.0
1989 03 05		10 52.64	-05 52.0					
1989 03 15		10 44.52	-04 30.0	1.338	2.313	-1.77	+9.4	15.9
1989 03 25		10 37.62	-03 00.8					
1989 04 04		10 32.88	-01 34.4	1.407	2.302	-1.71	+8.7	16.3
1989 04 14		10 30.87	-00 18.9					
1989 04 24		10 31.78	+00 40.0	1.555	2.293	-1.55	+7.4	16.7
1989 05 04		10 35.47	+01 20.3					
1989 05 14		10 41.70	+01 41.2	1.753	2.285	-1.37	+6.1	17.0

1986 QB1		a,e,i = 2.86, 0.01, 3			Elements MPC 12133			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		11 05.66	+09 35.1	2.722	2.875	88.7	20.0	17.8
1988 12 15		11 12.85	+09 02.8					
1988 12 25		11 18.29	+08 42.1	2.445	2.873	105.8	19.2	17.6
1989 01 04		11 21.74	+08 34.3					
1989 01 14		11 22.97	+08 40.7	2.192	2.872	125.1	16.3	17.3
1989 01 24		11 21.83	+09 01.4					
1989 02 03		11 18.33	+09 35.2	1.996	2.871	146.6	10.9	16.9
1989 02 13		11 12.66	+10 19.4					
1989 02 23		11 05.34	+11 09.2	1.891	2.870	169.5	3.6	16.5
1989 03 05		10 57.12	+11 58.8					
1989 03 15		10 48.94	+12 42.3	1.899	2.869	164.2	5.4	16.6
1989 03 25		10 41.72	+13 14.6					
1989 04 04		10 36.18	+13 33.2	2.014	2.867	141.7	12.5	17.0
1989 04 14		10 32.80	+13 36.8					
1989 04 24		10 31.77	+13 25.9	2.212	2.866	121.3	17.4	17.3
1989 05 04		10 33.02	+13 01.8					
1989 05 14		10 36.41	+12 25.7	2.456	2.865	103.4	20.1	17.6

1977 AZ1		a,e,i = 3.21, 0.10, 11				Elements MPC 12448		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 05		11 02.69	+16 01.2	2.710	2.914	91.9	19.8	16.9
1988 12 15		11 10.34	+16 03.5					
1988 12 25		11 16.18	+16 20.0	2.452	2.924	109.0	18.5	16.6
1989 01 04		11 19.99	+16 51.5					
1989 01 14		11 21.54	+17 38.0	2.226	2.936	128.0	15.3	16.3
1989 01 24		11 20.71	+18 37.5					
1989 02 03		11 17.52	+19 46.5	2.065	2.949	148.3	10.1	16.0
1989 02 13		11 12.22	+20 59.1					
1989 02 23		11 05.35	+22 08.1	1.998	2.963	164.2	5.2	15.7
1989 03 05		10 57.67	+23 06.3					
1989 03 15		10 50.11	+23 47.8	2.043	2.978	155.8	7.9	15.9
1989 03 25		10 43.54	+24 09.5					
1989 04 04		10 38.65	+24 11.1	2.188	2.993	136.4	13.3	16.3
1989 04 14		10 35.85	+23 53.8					
1989 04 24		10 35.29	+23 20.4	2.409	3.010	117.6	17.2	16.6
1989 05 04		10 36.90	+22 33.6					
1989 05 14		10 40.51	+21 35.8	2.674	3.027	100.6	19.2	16.9

1986 OA		a,e,i = 2.56, 0.05, 13				Elements MPC 12708		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 15.88	-11 04.5	2.146	2.486	98.3	23.0	17.1
1989 01 04		11 20.67	-12 51.5					
1989 01 14		11 23.15	-14 28.1	1.900	2.477	114.6	21.2	16.8
1989 01 24		11 23.05	-15 50.5					
1989 02 03		11 20.26	-16 53.9	1.693	2.469	132.5	17.1	16.4
1989 02 13		11 14.85	-17 33.1					
1989 02 23		11 07.29	-17 44.0	1.553	2.461	150.1	11.6	16.0
1989 03 05		10 58.41	-17 24.9					
1989 03 15		10 49.32	-16 37.7	1.505	2.453	157.5	8.9	15.9
1989 03 25		10 41.26	-15 29.1					
1989 04 04		10 35.19	-14 08.3	1.555	2.447	145.6	13.3	16.1
1989 04 14		10 31.76	-12 45.4					
1989 04 24		10 31.23	-11 29.0	1.689	2.441	128.0	18.9	16.4
1989 05 04		10 33.52	-10 24.7					
1989 05 14		10 38.41	-09 35.9	1.880	2.436	111.3	22.7	16.8
1989 05 24		10 45.58	-09 03.9					
1989 06 03		10 54.67	-08 48.5	2.101	2.433	96.4	24.5	17.0

(3897) 1942 RT		a,e,i = 2.69, 0.16, 7				Elements MPC 13591		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 21.24	-00 51.1	2.770	3.117	101.4	18.0	18.3
1989 01 04		11 23.94	-01 11.6					
1989 01 14		11 24.63	-01 18.3	2.498	3.118	120.8	15.7	18.0
1989 01 24		11 23.19	-01 09.5					
1989 02 03		11 19.64	-00 44.6	2.278	3.117	142.3	11.1	17.7
1989 02 13		11 14.16	-00 03.9					
1989 02 23		11 07.17	+00 50.5	2.146	3.114	165.6	4.5	17.3
1989 03 05		10 59.34	+01 54.4					
1989 03 15		10 51.43	+03 02.3	2.128	3.109	168.5	3.7	17.2
1989 03 25		10 44.29	+04 08.3					
1989 04 04		10 38.56	+05 07.1	2.226	3.103	145.5	10.5	17.6
1989 04 14		10 34.72	+05 54.9					
1989 04 24		10 33.00	+06 29.5	2.415	3.094	124.2	15.6	17.9
1989 05 04		10 33.41	+06 50.3					
1989 05 14		10 35.87	+06 57.5	2.658	3.084	105.3	18.4	18.2
1989 05 24		10 40.17	+06 51.8					
1989 06 03		10 46.09	+06 34.5	2.924	3.071	88.6	19.3	18.4

1975 TS3		a,e,i = 3.13, 0.24, 10				Elements MPC 11430		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 25	11 27.03	+14 40.4	3.477	3.866	106.0	14.2	18.3
1989	01 04	11 28.20	+14 56.2					
1989	01 14	11 27.57	+15 22.6	3.213	3.875	126.0	11.8	18.1
1989	01 24	11 25.09	+15 58.0					
1989	02 03	11 20.84	+16 40.2	3.015	3.882	147.3	7.9	17.8
1989	02 13	11 15.03	+17 25.9					
1989	02 23	11 08.05	+18 10.7	2.918	3.887	166.4	3.4	17.6
1989	03 05	11 00.44	+18 50.4					
1989	03 15	10 52.84	+19 21.2	2.941	3.890	159.9	5.0	17.7
1989	03 25	10 45.87	+19 40.4					
1989	04 04	10 40.06	+19 47.1	3.078	3.892	139.3	9.7	17.9
1989	04 14	10 35.77	+19 41.1					
1989	04 24	10 33.21	+19 23.5	3.302	3.891	119.0	13.1	18.2
1989	05 04	10 32.42	+18 55.6					
1989	05 14	10 33.34	+18 18.8	3.577	3.889	100.4	14.8	18.4
1989	05 24	10 35.83	+17 34.5					
1989	06 03	10 39.73	+16 43.8	3.868	3.885	83.4	15.0	18.6

(3759) Piironen		a,e,i = 2.72, 0.12, 13				Elements MPC 12790		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 25	11 23.32	-06 25.4	2.172	2.515	98.6	22.7	16.6
1989	01 04	11 27.46	-08 06.1					
1989	01 14	11 29.18	-09 36.3	1.947	2.536	115.9	20.4	16.4
1989	01 24	11 28.28	-10 52.8					
1989	02 03	11 24.68	-11 52.2	1.763	2.557	135.0	15.8	16.0
1989	02 13	11 18.54	-12 30.7					
1989	02 23	11 10.39	-12 46.0	1.653	2.580	154.3	9.6	15.7
1989	03 05	11 01.10	-12 37.9					
1989	03 15	10 51.74	-12 09.0	1.641	2.603	161.5	7.0	15.6
1989	03 25	10 43.44	-11 25.6					
1989	04 04	10 37.06	-10 35.1	1.733	2.627	146.6	12.1	15.9
1989	04 14	10 33.16	-09 44.9					
1989	04 24	10 31.94	-09 01.1	1.912	2.651	127.9	17.4	16.3
1989	05 04	10 33.29	-08 27.5					
1989	05 14	10 37.02	-08 06.5	2.148	2.675	110.5	20.7	16.7
1989	05 24	10 42.82	-07 58.7					
1989	06 03	10 50.39	-08 04.0	2.413	2.700	95.1	22.0	17.0

6048 P-L		a,e,i = 2.45, 0.09, 5				Elements MPC 12699		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 25	11 26.34	+05 06.7	1.975	2.391	102.6	23.7	17.9
1989	01 04	11 31.27	+04 22.9					
1989	01 14	11 33.62	+03 53.7	1.754	2.411	120.9	20.5	17.5
1989	01 24	11 33.13	+03 40.3					
1989	02 03	11 29.72	+03 43.4	1.578	2.432	142.0	14.4	17.1
1989	02 13	11 23.54	+04 02.0					
1989	02 23	11 15.16	+04 32.8	1.481	2.452	165.9	5.6	16.7
1989	03 05	11 05.52	+05 10.7					
1989	03 15	10 55.80	+05 49.3	1.489	2.472	169.1	4.4	16.7
1989	03 25	10 47.23	+06 22.1					
1989	04 04	10 40.73	+06 44.5	1.603	2.492	145.5	13.1	17.2
1989	04 14	10 36.83	+06 53.9					
1989	04 24	10 35.72	+06 49.3	1.799	2.512	124.7	19.2	17.6
1989	05 04	10 37.26	+06 31.2					
1989	05 14	10 41.20	+06 00.5	2.045	2.531	106.9	22.5	18.0
1989	05 24	10 47.21	+05 18.4					
1989	06 03	10 54.96	+04 26.1	2.312	2.549	91.5	23.4	18.3

(3770) 1974 QT1		a,e,i = 2.19, 0.18, 6			Elements MPC 12798			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 33.92	+05 04.1	2.102	2.483	100.9	22.9	18.9
1989 01 04		11 37.91	+04 26.8					
1989 01 14		11 39.32	+04 03.9	1.870	2.506	119.6	20.0	18.6
1989 01 24		11 37.92	+03 56.7					
1989 02 03		11 33.59	+04 05.5	1.682	2.527	141.3	14.1	18.2
1989 02 13		11 26.48	+04 29.2					
1989 02 23		11 17.14	+05 04.4	1.575	2.545	165.6	5.5	17.8
1989 03 05		11 06.48	+05 45.9					
1989 03 15		10 55.69	+06 27.2	1.577	2.560	168.9	4.3	17.8
1989 03 25		10 46.01	+07 02.2					
1989 04 04		10 38.38	+07 26.4	1.690	2.572	144.7	13.0	18.3
1989 04 14		10 33.37	+07 37.3					
1989 04 24		10 31.19	+07 34.2	1.887	2.581	123.4	19.0	18.7
1989 05 04		10 31.71	+07 17.8					
1989 05 14		10 34.71	+06 48.8	2.132	2.587	105.1	22.2	19.0
1989 05 24		10 39.85	+06 08.6					
1989 06 03		10 46.80	+05 18.3	2.395	2.589	89.2	23.1	19.3

4009 P-L		a,e,i = 2.43, 0.19, 2			Elements MPC 12688			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 29.93	+03 13.2	2.533	2.888	101.0	19.5	19.3
1989 01 04		11 33.25	+02 46.9					
1989 01 14		11 34.40	+02 34.1	2.256	2.879	120.2	17.2	19.0
1989 01 24		11 33.19	+02 35.9					
1989 02 03		11 29.54	+02 52.8	2.027	2.867	141.7	12.3	18.6
1989 02 13		11 23.57	+03 24.3					
1989 02 23		11 15.70	+04 07.5	1.883	2.852	165.6	5.0	18.1
1989 03 05		11 06.61	+04 58.2					
1989 03 15		10 57.24	+05 50.7	1.852	2.835	169.4	3.7	18.0
1989 03 25		10 48.60	+06 38.7					
1989 04 04		10 41.53	+07 17.6	1.934	2.815	145.5	11.6	18.4
1989 04 14		10 36.62	+07 44.1					
1989 04 24		10 34.17	+07 56.5	2.104	2.793	124.0	17.4	18.7
1989 05 04		10 34.18	+07 55.0					
1989 05 14		10 36.53	+07 40.0	2.326	2.769	105.2	20.6	19.0
1989 05 24		10 40.98	+07 12.7					
1989 06 03		10 47.27	+06 34.2	2.567	2.741	88.9	21.7	19.3

1987 RJ		a,e,i = 2.22, 0.12, 3			Elements MPC 12448			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 30.87	+06 43.2	2.030	2.436	102.2	23.2	18.4
1989 01 04		11 35.92	+06 27.5					
1989 01 14		11 38.45	+06 28.8	1.797	2.450	120.7	20.2	18.1
1989 01 24		11 38.19	+06 48.1					
1989 02 03		11 34.99	+07 25.2	1.609	2.462	142.1	14.2	17.7
1989 02 13		11 28.96	+08 17.8					
1989 02 23		11 20.59	+09 20.5	1.501	2.472	165.7	5.7	17.2
1989 03 05		11 10.76	+10 25.9					
1989 03 15		11 00.65	+11 25.7	1.500	2.480	167.2	5.1	17.2
1989 03 25		10 51.54	+12 12.6					
1989 04 04		10 44.40	+12 42.3	1.607	2.485	143.9	13.7	17.7
1989 04 14		10 39.87	+12 53.3					
1989 04 24		10 38.19	+12 46.2	1.794	2.489	123.0	19.8	18.1
1989 05 04		10 39.24	+12 22.9					
1989 05 14		10 42.80	+11 45.3	2.027	2.490	105.1	23.1	18.5
1989 05 24		10 48.55	+10 55.5					
1989 06 03		10 56.13	+09 55.2	2.279	2.488	89.6	24.1	18.8

1974 QU1		a,e,i = 2.64, 0.24, 2				Elements MPC 8533		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 33.23	+01 09.6	2.410	2.749	99.5	20.7	18.0
1989 01 04		11 36.88	+00 43.0					
1989 01 14		11 38.24	+00 31.4	2.190	2.796	118.4	18.0	17.8
1989 01 24		11 37.18	+00 35.9					
1989 02 03		11 33.69	+00 57.0	2.014	2.840	140.0	12.9	17.5
1989 02 13		11 27.95	+01 33.7					
1989 02 23		11 20.46	+02 23.1	1.920	2.883	163.7	5.5	17.1
1989 03 05		11 11.94	+03 20.4					
1989 03 15		11 03.31	+04 19.7	1.938	2.925	171.3	3.0	17.0
1989 03 25		10 55.49	+05 14.7					
1989 04 04		10 49.21	+06 00.7	2.070	2.964	147.7	10.4	17.5
1989 04 14		10 44.95	+06 34.3					
1989 04 24		10 42.92	+06 54.3	2.293	3.001	126.4	15.7	17.9
1989 05 04		10 43.11	+07 00.7					
1989 05 14		10 45.36	+06 54.0	2.574	3.035	107.5	18.5	18.3
1989 05 24		10 49.45	+06 35.5					
1989 06 03		10 55.13	+06 06.6	2.880	3.068	90.9	19.3	18.6
1981 EF37		a,e,i = 2.55, 0.12, 15				Elements MPC 10290		
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 12 25		11 39.05	+12 26.8	2.422	2.804	-1.08	+8.6	18.0
1989 01 04		11 42.57	+12 04.1					
1989 01 14		11 43.74	+11 53.4	2.149	2.789	-1.23	+9.9	17.7
1989 01 24		11 42.33	+11 54.2					
1989 02 03		11 38.20	+12 05.5	1.926	2.774	-1.41	+11.1	17.3
1989 02 13		11 31.43	+12 24.2					
1989 02 23		11 22.47	+12 45.8	1.788	2.756	-1.56	+11.7	16.8
1989 03 05		11 12.08	+13 05.0					
1989 03 15		11 01.31	+13 16.3	1.762	2.738	-1.57	+11.5	16.8
1989 03 25		10 51.33	+13 15.7					
1989 04 04		10 43.07	+13 01.5	1.848	2.718	-1.44	+10.6	17.2
1989 04 14		10 37.21	+12 33.4					
1989 04 24		10 34.02	+11 52.5	2.020	2.697	-1.23	+9.6	17.5
1989 05 04		10 33.49	+11 00.5					
1989 05 14		10 35.46	+09 58.7	2.242	2.675	-1.03	+8.7	17.8
1989 05 24		10 39.63	+08 48.4					
1989 06 03		10 45.70	+07 30.7	2.482	2.651	-0.85	+8.0	18.0
1979 QE10		a,e,i = 2.39, 0.21, 3				Elements MPC 11739		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 30.05	+00 45.6	2.419	2.765	100.0	20.5	19.0
1989 01 04		11 34.39	+00 14.9					
1989 01 14		11 36.61	-00 01.8	2.126	2.737	118.6	18.4	18.7
1989 01 24		11 36.46	-00 02.5					
1989 02 03		11 33.81	+00 14.3	1.878	2.705	139.6	13.6	18.2
1989 02 13		11 28.67	+00 49.2					
1989 02 23		11 21.37	+01 40.2	1.709	2.672	163.2	6.2	17.7
1989 03 05		11 12.56	+02 43.5					
1989 03 15		11 03.19	+03 52.7	1.648	2.635	171.3	3.3	17.5
1989 03 25		10 54.37	+05 00.2					
1989 04 04		10 47.06	+05 59.3	1.699	2.596	147.2	12.0	17.9
1989 04 14		10 42.01	+06 44.8					
1989 04 24		10 39.60	+07 14.1	1.837	2.556	125.5	18.7	18.2
1989 05 04		10 39.87	+07 26.6					
1989 05 14		10 42.73	+07 22.5	2.028	2.513	106.7	22.7	18.5
1989 05 24		10 47.91	+07 03.2					
1989 06 03		10 55.12	+06 30.1	2.238	2.468	90.7	24.3	18.7

1986 RF		a,e,i = 2.59, 0.16, 12				Elements MPC 13606		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 23.61	-05 39.5	2.386	2.717	98.9	21.0	18.0
1989 01 04		11 28.67	-06 19.5					
1989 01 14		11 31.69	-06 44.7	2.097	2.687	116.7	19.1	17.6
1989 01 24		11 32.46	-06 51.9					
1989 02 03		11 30.83	-06 38.4	1.849	2.655	136.9	14.7	17.2
1989 02 13		11 26.82	-06 01.8					
1989 02 23		11 20.75	-05 02.0	1.674	2.622	159.1	7.7	16.7
1989 03 05		11 13.24	-03 41.8					
1989 03 15		11 05.19	-02 07.0	1.603	2.589	170.8	3.5	16.4
1989 03 25		10 57.65	-00 26.5					
1989 04 04		10 51.56	+01 10.6	1.642	2.556	149.6	11.4	16.7
1989 04 14		10 47.63	+02 36.3					
1989 04 24		10 46.24	+03 45.3	1.773	2.522	128.2	18.3	17.1
1989 05 04		10 47.47	+04 35.2					
1989 05 14		10 51.20	+05 05.5	1.961	2.489	109.5	22.5	17.4
1989 05 24		10 57.20	+05 17.1					
1989 06 03		11 05.18	+05 11.6	2.175	2.455	93.5	24.4	17.6

1987 SG		a,e,i = 2.12, 0.12, 3				Elements MPC 12455		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 32.10	-00 05.7	1.993	2.360	99.2	24.3	18.5
1989 01 04		11 37.61	-00 56.4					
1989 01 14		11 40.66	-01 32.3	1.750	2.366	117.0	21.7	18.1
1989 01 24		11 40.95	-01 50.7					
1989 02 03		11 38.28	-01 49.5	1.546	2.370	137.7	16.3	17.7
1989 02 13		11 32.65	-01 27.4					
1989 02 23		11 24.48	-00 45.7	1.413	2.371	161.2	7.7	17.2
1989 03 05		11 14.61	+00 11.8					
1989 03 15		11 04.21	+01 18.1	1.381	2.370	171.6	3.5	17.0
1989 03 25		10 54.64	+02 24.3					
1989 04 04		10 47.01	+03 22.7	1.458	2.366	148.0	12.9	17.5
1989 04 14		10 42.08	+04 07.5					
1989 04 24		10 40.14	+04 35.5	1.619	2.360	126.5	20.0	17.9
1989 05 04		10 41.13	+04 46.1					
1989 05 14		10 44.82	+04 39.9	1.830	2.351	108.2	24.1	18.3
1989 05 24		10 50.87	+04 18.1					
1989 06 03		10 58.91	+03 42.4	2.062	2.340	92.6	25.7	18.6

1968 QE		a,e,i = 2.39, 0.22, 2				Elements MPC 11145		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 36.13	+00 48.3	2.594	2.909	98.7	19.5	19.3
1989 01 04		11 39.62	+00 18.3					
1989 01 14		11 40.99	+00 01.5	2.319	2.909	117.6	17.4	18.9
1989 01 24		11 40.05	-00 00.6					
1989 02 03		11 36.72	+00 13.2	2.089	2.905	139.0	12.9	18.6
1989 02 13		11 31.07	+00 42.6					
1989 02 23		11 23.50	+01 25.8	1.939	2.899	162.6	5.9	18.2
1989 03 05		11 14.63	+02 18.9					
1989 03 15		11 05.35	+03 16.7	1.901	2.889	172.0	2.8	18.0
1989 03 25		10 56.64	+04 12.8					
1989 04 04		10 49.34	+05 01.7	1.978	2.876	148.1	10.6	18.4
1989 04 14		10 44.07	+05 39.3					
1989 04 24		10 41.16	+06 03.4	2.149	2.861	126.2	16.5	18.7
1989 05 04		10 40.64	+06 13.4					
1989 05 14		10 42.44	+06 09.5	2.375	2.842	107.1	19.9	19.0
1989 05 24		10 46.32	+05 52.6					
1989 06 03		10 52.04	+05 23.9	2.624	2.821	90.4	21.1	19.3

1983 OD		a,e,i = 2.36, 0.23, 14				Elements MPC 12786		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 34.70	+08 41.1	2.514	2.884	102.1	19.5	19.2
1989 01 04		11 38.56	+09 08.3					
1989 01 14		11 40.25	+09 53.5	2.259	2.896	121.5	16.8	18.9
1989 01 24		11 39.57	+10 56.6					
1989 02 03		11 36.44	+12 16.0	2.057	2.905	142.9	11.8	18.5
1989 02 13		11 30.96	+13 47.8					
1989 02 23		11 23.54	+15 25.2	1.946	2.910	164.3	5.3	18.1
1989 03 05		11 14.87	+17 00.1					
1989 03 15		11 05.85	+18 24.0	1.949	2.913	162.3	6.0	18.2
1989 03 25		10 57.46	+19 30.3					
1989 04 04		10 50.56	+20 15.7	2.066	2.911	141.0	12.5	18.5
1989 04 14		10 45.72	+20 39.4					
1989 04 24		10 43.25	+20 43.1	2.265	2.907	120.5	17.3	18.9
1989 05 04		10 43.15	+20 29.3					
1989 05 14		10 45.32	+20 00.5	2.511	2.900	102.3	19.9	19.2
1989 05 24		10 49.52	+19 19.5					
1989 06 03		10 55.47	+18 28.2	2.773	2.889	86.2	20.5	19.4

2041 T-3		a,e,i = 2.80, 0.04, 3				Elements MPC 12572		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 28.24	-00 44.2	2.401	2.746	99.9	20.7	17.5
1989 01 04		11 32.98	-01 29.5					
1989 01 14		11 35.61	-02 01.8	2.136	2.739	118.0	18.5	17.2
1989 01 24		11 35.93	-02 19.1					
1989 02 03		11 33.84	-02 19.9	1.914	2.731	138.4	13.8	16.8
1989 02 13		11 29.43	-02 03.2					
1989 02 23		11 23.05	-01 30.3	1.770	2.725	161.0	6.8	16.4
1989 03 05		11 15.36	-00 44.1					
1989 03 15		11 07.23	+00 10.3	1.730	2.718	172.1	2.9	16.1
1989 03 25		10 59.68	+01 06.3					
1989 04 04		10 53.56	+01 57.8	1.800	2.712	149.9	10.6	16.5
1989 04 14		10 49.49	+02 39.6					
1989 04 24		10 47.79	+03 08.3	1.961	2.707	128.8	16.8	16.9
1989 05 04		10 48.51	+03 22.8					
1989 05 14		10 51.55	+03 22.8	2.181	2.702	110.3	20.5	17.2
1989 05 24		10 56.66	+03 08.9					
1989 06 03		11 03.58	+02 42.3	2.429	2.698	94.1	22.0	17.5

1986 QZ2		a,e,i = 2.57, 0.16, 10				Elements MPC 12134		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 34.86	+11 03.5	2.253	2.652	102.9	21.2	18.3
1989 01 04		11 39.79	+10 39.9					
1989 01 14		11 42.43	+10 29.2	1.971	2.618	121.1	18.8	17.9
1989 01 24		11 42.48	+10 31.7					
1989 02 03		11 39.76	+10 46.7	1.736	2.584	141.8	13.6	17.4
1989 02 13		11 34.25	+11 12.1					
1989 02 23		11 26.29	+11 43.1	1.582	2.549	164.3	6.0	16.9
1989 03 05		11 16.60	+12 13.9					
1989 03 15		11 06.26	+12 38.0	1.534	2.514	167.2	5.0	16.8
1989 03 25		10 56.54	+12 49.5					
1989 04 04		10 48.52	+12 45.6	1.593	2.478	144.7	13.5	17.2
1989 04 14		10 42.99	+12 25.2					
1989 04 24		10 40.32	+11 49.0	1.735	2.443	123.9	20.0	17.5
1989 05 04		10 40.54	+10 59.0					
1989 05 14		10 43.46	+09 56.6	1.926	2.408	105.9	23.8	17.8
1989 05 24		10 48.79	+08 43.6					
1989 06 03		10 56.19	+07 21.2	2.136	2.374	90.6	25.3	18.0

(3744) Horn-d'Arturo		a,e,i = 2.63, 0.28,			4	Elements MPC 12714		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 37.37	-02 02.9	2.245	2.562	97.2	22.4	17.4
1989 01 04		11 41.80	-02 44.8					
1989 01 14		11 43.85	-03 11.2	2.042	2.622	115.6	19.8	17.2
1989 01 24		11 43.33	-03 20.3					
1989 02 03		11 40.21	-03 10.9	1.877	2.681	136.6	14.6	16.9
1989 02 13		11 34.67	-02 42.6					
1989 02 23		11 27.20	-01 57.6	1.787	2.738	159.9	7.1	16.6
1989 03 05		11 18.55	+01 00.0					
1989 03 15		11 09.70	+00 04.3	1.804	2.793	172.7	2.6	16.5
1989 03 25		11 01.64	+01 08.1					
1989 04 04		10 55.15	+02 05.3	1.934	2.846	150.3	10.0	17.0
1989 04 14		10 50.75	+02 51.4					
1989 04 24		10 48.67	+03 23.9	2.158	2.897	128.9	15.7	17.4
1989 05 04		10 48.87	+03 42.0					
1989 05 14		10 51.20	+03 46.1	2.443	2.946	110.0	18.8	17.8
1989 05 24		10 55.40	+03 37.2					
1989 06 03		11 01.21	+03 16.7	2.757	2.992	93.3	19.8	18.2

1986 EM1		a,e,i = 2.18, 0.12,			4	Elements MPC 10840		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 37.27	+07 12.1	2.047	2.433	100.9	23.4	18.0
1989 01 04		11 42.75	+06 46.7					
1989 01 14		11 45.78	+06 36.8	1.796	2.431	119.0	20.7	17.6
1989 01 24		11 46.05	+06 43.5					
1989 02 03		11 43.34	+07 07.0	1.588	2.427	140.0	15.1	17.2
1989 02 13		11 37.64	+07 45.7					
1989 02 23		11 29.33	+08 35.2	1.456	2.421	163.5	6.7	16.7
1989 03 05		11 19.21	+09 29.0					
1989 03 15		11 08.46	+10 19.1	1.428	2.412	169.3	4.4	16.5
1989 03 25		10 58.44	+10 58.1					
1989 04 04		10 50.28	+11 21.1	1.508	2.402	145.8	13.5	17.0
1989 04 14		10 44.78	+11 26.2					
1989 04 24		10 42.26	+11 13.5	1.670	2.389	124.5	20.3	17.4
1989 05 04		10 42.68	+10 44.6					
1989 05 14		10 45.82	+10 01.4	1.880	2.374	106.5	24.1	17.7
1989 05 24		10 51.35	+09 05.7					
1989 06 03		10 58.90	+07 59.3	2.109	2.356	91.0	25.5	18.0

(3781) 1986 RG1		a,e,i = 2.84, 0.08,			2	Elements MPC 12938		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 35.27	+01 30.5	2.743	3.057	99.1	18.5	17.6
1989 01 04		11 39.06	+01 06.4					
1989 01 14		11 40.89	+00 55.5	2.470	3.058	118.0	16.5	17.3
1989 01 24		11 40.59	+00 58.8					
1989 02 03		11 38.12	+01 16.8	2.244	3.058	139.1	12.2	16.9
1989 02 13		11 33.56	+01 49.2					
1989 02 23		11 27.26	+02 33.7	2.100	3.057	162.3	5.6	16.5
1989 03 05		11 19.78	+03 26.4					
1989 03 15		11 11.89	+04 22.4	2.065	3.055	173.4	2.2	16.3
1989 03 25		11 04.44	+05 15.7					
1989 04 04		10 58.15	+06 01.6	2.146	3.052	149.8	9.5	16.7
1989 04 14		10 53.61	+06 36.4					
1989 04 24		10 51.13	+06 58.1	2.322	3.048	128.2	15.0	17.1
1989 05 04		10 50.80	+07 06.2					
1989 05 14		10 52.56	+07 01.0	2.558	3.043	109.1	18.3	17.4
1989 05 24		10 56.24	+06 43.5					
1989 06 03		11 01.63	+06 14.8	2.823	3.038	92.3	19.5	17.6

4657 P-L		a,e,i = 3.02, 0.09, 1				Elements MPC 9301		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 25	11 36.37	+03 13.1	2.839	3.155	99.6	17.9	19.2
1989	01 04	11 39.84	+02 54.5					
1989	01 14	11 41.36	+02 48.7	2.579	3.171	118.6	15.8	18.9
1989	01 24	11 40.80	+02 56.4					
1989	02 03	11 38.14	+03 17.6	2.367	3.185	139.9	11.5	18.6
1989	02 13	11 33.51	+03 51.3					
1989	02 23	11 27.27	+04 34.6	2.240	3.199	163.1	5.2	18.3
1989	03 05	11 19.98	+05 23.8					
1989	03 15	11 12.35	+06 13.7	2.224	3.213	172.7	2.3	18.1
1989	03 25	11 05.17	+06 59.4					
1989	04 04	10 59.12	+07 36.7	2.324	3.225	149.4	9.1	18.5
1989	04 14	10 54.72	+08 02.9					
1989	04 24	10 52.24	+08 16.6	2.520	3.237	128.0	14.2	18.9
1989	05 04	10 51.77	+08 17.7					
1989	05 14	10 53.26	+08 06.8	2.777	3.248	108.9	17.1	19.2
1989	05 24	10 56.55	+07 44.7					
1989	06 03	11 01.43	+07 12.7	3.063	3.258	91.9	18.1	19.4

1987 SK		a,e,i = 2.17, 0.13, 1				Elements MPC 12456		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 25	11 38.91	+03 10.0	2.068	2.424	99.0	23.6	18.6
1989	01 04	11 44.41	+02 33.6					
1989	01 14	11 47.48	+02 12.4	1.826	2.435	117.0	21.1	18.2
1989	01 24	11 47.84	+02 08.3					
1989	02 03	11 45.30	+02 22.3	1.622	2.444	137.9	15.7	17.8
1989	02 13	11 39.85	+02 54.1					
1989	02 23	11 31.87	+03 41.1	1.491	2.451	161.7	7.3	17.4
1989	03 05	11 22.14	+04 37.9					
1989	03 15	11 11.78	+05 37.3	1.464	2.454	172.9	2.9	17.1
1989	03 25	11 02.09	+06 31.2					
1989	04 04	10 54.14	+07 13.6	1.547	2.456	148.4	12.3	17.6
1989	04 14	10 48.71	+07 40.4					
1989	04 24	10 46.13	+07 50.2	1.717	2.454	126.7	19.2	18.1
1989	05 04	10 46.38	+07 43.5					
1989	05 14	10 49.27	+07 21.4	1.938	2.451	108.3	23.1	18.4
1989	05 24	10 54.46	+06 45.6					
1989	06 03	11 01.63	+05 57.7	2.182	2.444	92.4	24.5	18.7

1984 WM1		a,e,i = 2.27, 0.11, 6				Elements MPC 12205		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 25	11 34.91	+03 36.1	1.686	2.095	100.1	27.5	17.8
1989	01 04	11 42.22	+02 23.6					
1989	01 14	11 46.81	+01 24.8	1.481	2.116	116.8	24.5	17.5
1989	01 24	11 48.33	+00 41.9					
1989	02 03	11 46.51	+00 16.8	1.310	2.138	136.8	18.4	17.1
1989	02 13	11 41.34	+00 10.4					
1989	02 23	11 33.26	+00 21.5	1.205	2.162	160.0	9.0	16.6
1989	03 05	11 23.20	+00 46.6					
1989	03 15	11 12.52	+01 19.4	1.195	2.186	173.7	2.9	16.3
1989	03 25	11 02.76	+01 52.4					
1989	04 04	10 55.14	+02 18.8	1.287	2.211	150.2	13.0	16.9
1989	04 14	10 50.44	+02 33.8					
1989	04 24	10 48.92	+02 34.9	1.461	2.237	129.2	20.4	17.5
1989	05 04	10 50.42	+02 21.5					
1989	05 14	10 54.66	+01 54.2	1.687	2.262	111.5	24.6	17.9
1989	05 24	11 01.23	+01 14.0					
1989	06 03	11 09.74	+00 22.4	1.940	2.288	96.4	26.1	18.3

(3789) Zhongguo		a,e,i = 3.27, 0.20, 3			Elements MPC 12954			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 44.97	+04 43.9	3.153	3.434	98.2	16.5	18.4
1989 01 04		11 48.03	+04 34.6					
1989 01 14		11 49.28	+04 37.3	2.902	3.468	117.5	14.6	18.2
1989 01 24		11 48.61	+04 52.3					
1989 02 03		11 46.02	+05 19.1	2.699	3.501	138.8	10.7	18.0
1989 02 13		11 41.63	+05 56.0					
1989 02 23		11 35.78	+06 40.2	2.581	3.533	161.6	5.1	17.7
1989 03 05		11 28.94	+07 27.8					
1989 03 15		11 21.73	+08 14.4	2.575	3.564	173.0	1.9	17.5
1989 03 25		11 14.83	+08 55.7					
1989 04 04		11 08.83	+09 28.3	2.689	3.594	150.7	7.8	17.9
1989 04 14		11 04.20	+09 50.1					
1989 04 24		11 01.24	+10 00.1	2.902	3.623	129.3	12.4	18.3
1989 05 04		11 00.04	+09 58.6					
1989 05 14		11 00.61	+09 46.0	3.181	3.651	109.9	15.1	18.6
1989 05 24		11 02.81	+09 23.4					
1989 06 03		11 06.50	+08 52.1	3.492	3.677	92.4	16.0	18.8

1982 TK3		a,e,i = 2.77, 0.13, 9			Elements MPC 13687			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 47.74	-02 07.9	2.703	2.953	94.8	19.4	18.4
1989 01 04		11 51.58	-03 04.6					
1989 01 14		11 53.39	-03 50.6	2.447	2.975	113.2	17.7	18.1
1989 01 24		11 52.97	-04 24.3					
1989 02 03		11 50.25	-04 44.3	2.229	2.996	133.7	13.8	17.8
1989 02 13		11 45.30	-04 49.7					
1989 02 23		11 38.42	-04 40.6	2.085	3.016	156.1	7.6	17.5
1989 03 05		11 30.20	-04 18.5					
1989 03 15		11 21.40	-03 46.6	2.046	3.034	172.6	2.4	17.2
1989 03 25		11 12.93	-03 09.6					
1989 04 04		11 05.58	-02 32.4	2.123	3.052	153.7	8.3	17.6
1989 04 14		10 59.97	-01 59.7					
1989 04 24		10 56.47	-01 35.1	2.300	3.068	132.3	14.0	17.9
1989 05 04		10 55.18	-01 20.5					
1989 05 14		10 56.05	-01 17.2	2.545	3.082	112.9	17.6	18.3
1989 05 24		10 58.90	-01 25.2					
1989 06 03		11 03.51	-01 44.0	2.824	3.095	95.8	19.0	18.6

(3747) Belinskij		a,e,i = 3.19, 0.11, 24			Elements MPC 12782			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 52.73	+31 50.8	2.398	2.832	106.1	19.5	16.4
1989 01 04		11 58.28	+32 32.6					
1989 01 14		12 01.19	+33 27.0	2.190	2.835	121.8	17.1	16.2
1989 01 24		12 01.17	+34 30.2					
1989 02 03		11 58.04	+35 36.3	2.037	2.839	137.1	13.7	15.9
1989 02 13		11 51.88	+36 37.0					
1989 02 23		11 43.16	+37 22.7	1.962	2.845	147.3	10.8	15.7
1989 03 05		11 32.73	+37 44.9					
1989 03 15		11 21.78	+37 37.6	1.983	2.853	144.6	11.6	15.8
1989 03 25		11 11.60	+36 59.1					
1989 04 04		11 03.21	+35 52.3	2.098	2.862	131.7	15.1	16.0
1989 04 14		10 57.28	+34 22.0					
1989 04 24		10 54.05	+32 34.2	2.286	2.873	116.0	18.3	16.3
1989 05 04		10 53.46	+30 34.6					
1989 05 14		10 55.27	+28 27.1	2.523	2.885	100.6	20.1	16.6
1989 05 24		10 59.16	+26 15.1					
1989 06 03		11 04.80	+24 00.5	2.784	2.898	86.1	20.4	16.8

(3879) 1983 QA		a,e,i = 2.35, 0.26, 9				Elements MPC 13472		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 52.80	-02 25.4	2.704	2.934	93.6	19.5	18.7
1989 01 04		11 56.45	-03 18.2					
1989 01 14		11 58.05	-04 00.1	2.432	2.946	112.1	18.0	18.4
1989 01 24		11 57.37	-04 29.5					
1989 02 03		11 54.29	-04 45.0	2.194	2.954	132.8	14.2	18.1
1989 02 13		11 48.82	-04 45.2					
1989 02 23		11 41.25	-04 30.2	2.029	2.958	155.6	7.9	17.7
1989 03 05		11 32.14	-04 01.6					
1989 03 15		11 22.30	-03 22.6	1.970	2.959	173.1	2.3	17.4
1989 03 25		11 12.71	-02 38.2					
1989 04 04		11 04.25	-01 54.0	2.029	2.957	153.3	8.7	17.7
1989 04 14		10 57.63	-01 15.0					
1989 04 24		10 53.27	-00 45.2	2.190	2.951	131.3	14.8	18.1
1989 05 04		10 51.30	-00 26.6					
1989 05 14		10 51.67	-00 20.4	2.416	2.942	111.6	18.6	18.4
1989 05 24		10 54.19	-00 26.6					
1989 06 03		10 58.62	-00 44.5	2.674	2.929	94.3	20.2	18.7

1976 GJ2		a,e,i = 2.68, 0.17, 11				Elements MPC 9765		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 33.87	-07 36.4	2.427	2.708	95.7	21.2	18.5
1989 01 04		11 39.83	-08 30.3					
1989 01 14		11 43.87	-09 11.3	2.130	2.671	112.9	19.8	18.1
1989 01 24		11 45.76	-09 36.3					
1989 02 03		11 45.30	-09 42.2	1.869	2.634	132.2	16.1	17.7
1989 02 13		11 42.41	-09 25.8					
1989 02 23		11 37.30	-08 45.6	1.674	2.597	153.5	9.8	17.2
1989 03 05		11 30.45	-07 42.1					
1989 03 15		11 22.66	-06 19.1	1.574	2.560	170.5	3.7	16.8
1989 03 25		11 14.97	-04 43.9					
1989 04 04		11 08.37	-03 05.7	1.583	2.523	154.5	9.8	17.1
1989 04 14		11 03.71	-01 33.7					
1989 04 24		11 01.51	-00 15.1	1.689	2.487	133.1	17.2	17.4
1989 05 04		11 01.94	+00 45.9					
1989 05 14		11 04.97	+01 27.3	1.859	2.451	114.1	22.1	17.7
1989 05 24		11 10.39	+01 49.3					
1989 06 03		11 17.92	+01 53.0	2.062	2.417	97.7	24.6	18.0

1980 PT		a,e,i = 3.02, 0.09, 10				Elements MPC 11431		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 39.76	-00 46.1	2.910	3.186	97.2	17.8	17.2
1989 01 04		11 44.07	-01 01.1					
1989 01 14		11 46.59	-01 02.5	2.617	3.172	115.9	16.2	16.9
1989 01 24		11 47.16	-00 48.7					
1989 02 03		11 45.69	-00 19.0	2.367	3.157	136.7	12.4	16.5
1989 02 13		11 42.23	+00 26.7					
1989 02 23		11 37.03	+01 26.5	2.195	3.142	159.6	6.3	16.1
1989 03 05		11 30.57	+02 36.6					
1989 03 15		11 23.48	+03 51.7	2.133	3.126	176.3	1.2	15.8
1989 03 25		11 16.57	+05 05.5					
1989 04 04		11 10.54	+06 12.3	2.188	3.109	152.5	8.5	16.2
1989 04 14		11 06.00	+07 07.3					
1989 04 24		11 03.35	+07 47.9	2.341	3.092	130.7	14.3	16.5
1989 05 04		11 02.74	+08 13.1					
1989 05 14		11 04.18	+08 23.0	2.561	3.075	111.3	17.8	16.8
1989 05 24		11 07.54	+08 18.7					
1989 06 03		11 12.65	+08 01.4	2.812	3.057	94.1	19.3	17.0

1986 VT		a,e,i = 3.10, 0.17, 1			Elements MPC 13153			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 45.89	+00 41.6	3.348	3.593	96.4	15.8	17.7
1989 01 04		11 48.93	+00 21.3					
1989 01 14		11 50.28	+00 12.0	3.048	3.584	115.6	14.3	17.4
1989 01 24		11 49.83	+00 14.7					
1989 02 03		11 47.52	+00 29.6	2.792	3.573	136.6	10.9	17.1
1989 02 13		11 43.43	+00 56.6					
1989 02 23		11 37.82	+01 33.8	2.618	3.562	159.5	5.6	16.7
1989 03 05		11 31.11	+02 18.7					
1989 03 15		11 23.87	+03 07.4	2.555	3.548	176.6	1.0	16.4
1989 03 25		11 16.78	+03 55.5					
1989 04 04		11 10.45	+04 38.8	2.612	3.533	153.1	7.3	16.8
1989 04 14		11 05.41	+05 13.9					
1989 04 24		11 02.02	+05 38.7	2.772	3.517	131.2	12.4	17.1
1989 05 04		11 00.45	+05 52.1					
1989 05 14		11 00.72	+05 53.9	3.002	3.500	111.4	15.6	17.4
1989 05 24		11 02.75	+05 44.5					
1989 06 03		11 06.40	+05 24.8	3.265	3.481	93.7	16.9	17.6

6519 P-L		a,e,i = 3.05, 0.18, 3			Elements MPC 9302			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 40.59	+05 48.3	2.214	2.569	99.6	22.2	17.9
1989 01 04		11 46.73	+05 15.2					
1989 01 14		11 50.63	+04 56.3	1.985	2.588	117.3	19.7	17.6
1989 01 24		11 52.07	+04 52.3					
1989 02 03		11 50.90	+05 03.3	1.797	2.610	137.6	14.8	17.3
1989 02 13		11 47.19	+05 28.3					
1989 02 23		11 41.27	+06 03.7	1.682	2.634	160.2	7.3	16.9
1989 03 05		11 33.78	+06 44.8					
1989 03 15		11 25.65	+07 25.5	1.669	2.661	174.2	2.2	16.7
1989 03 25		11 17.90	+07 59.6					
1989 04 04		11 11.44	+08 22.6	1.766	2.689	151.8	10.1	17.2
1989 04 14		11 06.94	+08 31.9					
1989 04 24		11 04.75	+08 26.6	1.953	2.719	130.7	16.3	17.6
1989 05 04		11 04.91	+08 07.3					
1989 05 14		11 07.33	+07 35.2	2.203	2.750	112.3	19.9	18.0
1989 05 24		11 11.76	+06 51.7					
1989 06 03		11 17.92	+05 58.5	2.485	2.782	96.1	21.3	18.3

1983 TE1		a,e,i = 2.47, 0.15, 6			Elements MPC 11144			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 47.33	-04 12.5	2.437	2.692	94.1	21.4	17.5
1989 01 04		11 52.60	-04 56.3					
1989 01 14		11 55.75	-05 26.2	2.190	2.716	112.0	19.6	17.2
1989 01 24		11 56.57	-05 40.1					
1989 02 03		11 54.93	-05 36.0	1.976	2.738	132.3	15.5	16.9
1989 02 13		11 50.83	-05 12.7					
1989 02 23		11 44.57	-04 30.7	1.830	2.758	154.9	8.7	16.5
1989 03 05		11 36.71	-03 32.4					
1989 03 15		11 28.08	-02 22.8	1.784	2.776	174.6	1.9	16.2
1989 03 25		11 19.69	-01 09.1					
1989 04 04		11 12.42	+00 01.7	1.854	2.792	155.0	8.7	16.6
1989 04 14		11 07.00	+01 03.3					
1989 04 24		11 03.83	+01 51.3	2.023	2.807	133.0	15.2	17.0
1989 05 04		11 03.02	+02 24.1					
1989 05 14		11 04.52	+02 40.9	2.259	2.819	113.5	19.2	17.4
1989 05 24		11 08.11	+02 42.7					
1989 06 03		11 13.54	+02 30.6	2.529	2.829	96.5	20.9	17.7

1979 TA		a, e, i = 2.44, 0.22, 2				Elements MPC 8402		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 53.71	-01 00.7	2.709	2.944	93.9	19.5	19.4
1989 01 04		11 57.96	-01 38.3					
1989 01 14		12 00.22	-02 03.6	2.437	2.955	112.4	17.9	19.1
1989 01 24		12 00.27	-02 15.2					
1989 02 03		11 57.99	-02 11.9	2.200	2.962	133.1	14.1	18.8
1989 02 13		11 53.39	-01 53.1					
1989 02 23		11 46.71	-01 19.9	2.034	2.967	156.2	7.7	18.4
1989 03 05		11 38.46	-00 34.7					
1989 03 15		11 29.41	+00 17.9	1.975	2.968	177.1	1.0	18.0
1989 03 25		11 20.49	+01 12.4					
1989 04 04		11 12.55	+02 03.0	2.033	2.967	154.5	8.3	18.4
1989 04 14		11 06.30	+02 44.9					
1989 04 24		11 02.18	+03 14.9	2.193	2.963	132.1	14.6	18.8
1989 05 04		11 00.36	+03 31.7					
1989 05 14		11 00.81	+03 34.7	2.420	2.956	112.3	18.4	19.1
1989 05 24		11 03.37	+03 24.7					
1989 06 03		11 07.80	+03 02.7	2.679	2.945	95.0	20.1	19.4

1985 VK2		a, e, i = 5.17, 0.12, 22				Elements MPC 12317		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 52.62	+25 50.3	4.933	5.261	104.2	10.4	16.7
1989 01 04		11 54.25	+26 21.2					
1989 01 14		11 54.49	+26 58.9	4.686	5.279	122.4	9.1	16.5
1989 01 24		11 53.33	+27 41.6					
1989 02 03		11 50.79	+28 26.5	4.504	5.297	140.0	6.9	16.3
1989 02 13		11 47.00	+29 10.5					
1989 02 23		11 42.19	+29 50.1	4.414	5.315	153.0	4.9	16.2
1989 03 05		11 36.68	+30 22.1					
1989 03 15		11 30.86	+30 43.8	4.436	5.332	151.7	5.1	16.2
1989 03 25		11 25.16	+30 53.3					
1989 04 04		11 19.99	+30 50.2	4.566	5.350	137.8	7.2	16.4
1989 04 14		11 15.66	+30 34.6					
1989 04 24		11 12.43	+30 07.6	4.785	5.367	120.6	9.3	16.6
1989 05 04		11 10.42	+29 30.7					
1989 05 14		11 09.70	+28 45.6	5.063	5.384	103.2	10.5	16.8
1989 05 24		11 10.23	+27 53.8					
1989 06 03		11 11.95	+26 56.8	5.367	5.401	86.5	10.8	16.9

(3737) 1983 PA		a, e, i = 2.41, 0.39, 20				Elements MPC 12710		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 02.26	-20 16.5	3.158	3.213	84.3	17.7	18.5
1989 01 04		12 05.42	-21 51.4					
1989 01 14		12 06.64	-23 19.0	2.907	3.245	101.3	17.3	18.4
1989 01 24		12 05.70	-24 36.6					
1989 02 03		12 02.48	-25 40.9	2.676	3.274	119.3	15.2	18.2
1989 02 13		11 56.96	-26 27.9					
1989 02 23		11 49.38	-26 53.9	2.500	3.297	137.4	11.7	17.9
1989 03 05		11 40.24	-26 55.9					
1989 03 15		11 30.24	-26 32.9	2.412	3.317	151.0	8.4	17.7
1989 03 25		11 20.31	-25 46.9					
1989 04 04		11 11.30	-24 42.7	2.433	3.333	149.4	8.8	17.8
1989 04 14		11 03.93	-23 27.0					
1989 04 24		10 58.65	-22 07.5	2.557	3.344	134.9	12.3	18.0
1989 05 04		10 55.64	-20 50.7					
1989 05 14		10 54.90	-19 41.8	2.762	3.351	117.6	15.5	18.3
1989 05 24		10 56.28	-18 44.1					
1989 06 03		10 59.57	-17 59.4	3.014	3.354	100.8	17.3	18.5

1985 AE			a,e,i = 2.37, 0.08, 2			Elements MPC 12005		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 42.51	+02 24.7	1.839	2.201	97.8	26.3	18.6
1989 01 04		11 51.00	+01 39.7					
1989 01 14		11 57.16	+01 10.9	1.615	2.211	114.4	23.9	18.2
1989 01 24		12 00.66	+01 00.5					
1989 02 03		12 01.20	+01 10.3	1.423	2.222	133.8	18.7	17.8
1989 02 13		11 58.64	+01 40.8					
1989 02 23		11 53.19	+02 29.7	1.294	2.236	156.3	10.2	17.4
1989 03 05		11 45.47	+03 32.1					
1989 03 15		11 36.51	+04 39.9	1.256	2.250	177.8	1.0	16.9
1989 03 25		11 27.66	+05 43.6					
1989 04 04		11 20.15	+06 35.1	1.322	2.266	154.5	10.9	17.5
1989 04 14		11 14.94	+07 08.9					
1989 04 24		11 12.54	+07 22.7	1.475	2.282	132.9	18.8	18.0
1989 05 04		11 13.00	+07 16.9					
1989 05 14		11 16.18	+06 53.3	1.688	2.300	114.6	23.6	18.4
1989 05 24		11 21.76	+06 13.9					
1989 06 03		11 29.36	+05 21.2	1.931	2.318	99.0	25.6	18.8

1978 PT4			a,e,i = 2.59, 0.16, 16			Elements MPC 12949		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 54.88	+12 34.3	2.527	2.850	98.9	19.9	17.7
1989 01 04		12 00.53	+13 10.8					
1989 01 14		12 04.11	+14 05.1	2.288	2.874	117.2	17.7	17.4
1989 01 24		12 05.37	+15 16.9					
1989 02 03		12 04.18	+16 43.8	2.095	2.895	137.0	13.4	17.1
1989 02 13		12 00.51	+18 21.3					
1989 02 23		11 54.62	+20 02.2	1.985	2.915	155.8	8.0	16.8
1989 03 05		11 47.04	+21 37.8					
1989 03 15		11 38.55	+22 59.3	1.981	2.933	159.5	6.8	16.8
1989 03 25		11 30.12	+23 59.9					
1989 04 04		11 22.67	+24 36.1	2.087	2.949	143.2	11.7	17.1
1989 04 14		11 16.92	+24 47.6					
1989 04 24		11 13.32	+24 36.7	2.280	2.963	124.1	16.3	17.4
1989 05 04		11 12.01	+24 06.6					
1989 05 14		11 12.94	+23 20.9	2.527	2.976	106.5	19.0	17.7
1989 05 24		11 15.94	+22 22.9					
1989 06 03		11 20.76	+21 15.2	2.797	2.986	90.6	19.9	18.0

(3728) 1983 QF			a,e,i = 2.65, 0.21, 23			Elements MPC 12692		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 42.37	-05 20.5	2.027	2.325	94.8	24.9	16.1
1989 01 04		11 50.31	-05 14.8					
1989 01 14		11 56.00	-04 46.0	1.813	2.367	112.2	22.6	15.8
1989 01 24		11 59.19	-03 51.1					
1989 02 03		11 59.69	-02 28.2	1.631	2.411	132.6	17.5	15.5
1989 02 13		11 57.47	-00 37.3					
1989 02 23		11 52.81	+01 37.5	1.518	2.455	156.1	9.4	15.1
1989 03 05		11 46.31	+04 07.9					
1989 03 15		11 38.87	+06 41.6	1.508	2.500	175.7	1.7	14.8
1989 03 25		11 31.57	+09 05.5					
1989 04 04		11 25.39	+11 08.8	1.613	2.546	153.2	10.2	15.3
1989 04 14		11 21.09	+12 45.2					
1989 04 24		11 19.09	+13 52.9	1.815	2.591	131.3	17.0	15.9
1989 05 04		11 19.46	+14 33.4					
1989 05 14		11 22.12	+14 49.9	2.079	2.636	112.4	20.8	16.3
1989 05 24		11 26.82	+14 46.1					
1989 06 03		11 33.28	+14 25.4	2.375	2.681	96.2	22.1	16.7

(3784) Chopin		a,e,i = 3.12, 0.17, 14				Elements MPC 12939		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 55.99	+14 50.8	3.120	3.423	99.5	16.5	17.0
1989 01 04		12 00.50	+15 15.5					
1989 01 14		12 03.25	+15 53.9	2.824	3.397	117.9	14.8	16.7
1989 01 24		12 04.06	+16 45.5					
1989 02 03		12 02.81	+17 48.5	2.578	3.370	137.5	11.4	16.4
1989 02 13		11 59.49	+18 59.4					
1989 02 23		11 54.29	+20 13.0	2.415	3.342	155.8	7.0	16.1
1989 03 05		11 47.59	+21 22.9					
1989 03 15		11 40.00	+22 22.6	2.361	3.313	160.1	5.9	16.0
1989 03 25		11 32.31	+23 06.5					
1989 04 04		11 25.26	+23 31.3	2.417	3.283	144.4	10.2	16.2
1989 04 14		11 19.53	+23 36.0					
1989 04 24		11 15.58	+23 21.4	2.565	3.252	125.3	14.6	16.4
1989 05 04		11 13.65	+22 49.9					
1989 05 14		11 13.79	+22 03.9	2.772	3.220	107.3	17.4	16.7
1989 05 24		11 15.92	+21 06.1					
1989 06 03		11 19.84	+19 58.6	3.006	3.188	90.9	18.6	16.8

(3768) 1937 RB		a,e,i = 3.08, 0.22, 14				Elements MPC 12797		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 59.76	+04 14.8	3.457	3.670	94.6	15.5	17.6
1989 01 04		12 03.34	+04 24.4					
1989 01 14		12 05.28	+04 46.7	3.178	3.688	113.9	14.1	17.3
1989 01 24		12 05.47	+05 22.2					
1989 02 03		12 03.86	+06 10.3	2.942	3.704	134.9	10.9	17.1
1989 02 13		12 00.49	+07 09.5					
1989 02 23		11 55.58	+08 16.6	2.787	3.718	157.0	6.0	16.8
1989 03 05		11 49.48	+09 27.5					
1989 03 15		11 42.72	+10 37.3	2.744	3.731	171.7	2.2	16.6
1989 03 25		11 35.90	+11 40.9					
1989 04 04		11 29.62	+12 34.2	2.822	3.742	153.1	6.9	16.9
1989 04 14		11 24.39	+13 14.5					
1989 04 24		11 20.60	+13 40.5	3.005	3.751	131.7	11.5	17.2
1989 05 04		11 18.45	+13 52.4					
1989 05 14		11 18.01	+13 51.1	3.260	3.758	112.0	14.4	17.5
1989 05 24		11 19.23	+13 37.8					
1989 06 03		11 21.99	+13 14.3	3.551	3.763	94.1	15.6	17.7

1980 OG		a,e,i = 2.25, 0.16, 5				Elements MPC 12576		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 59.35	+02 31.1	2.315	2.578	94.0	22.4	18.8
1989 01 04		12 05.79	+02 11.0					
1989 01 14		12 10.13	+02 06.6	2.061	2.592	111.7	20.6	18.5
1989 01 24		12 12.08	+02 19.6					
1989 02 03		12 11.42	+02 50.9	1.838	2.603	132.0	16.3	18.2
1989 02 13		12 08.05	+03 40.1					
1989 02 23		12 02.13	+04 44.5	1.681	2.611	154.8	9.3	17.8
1989 03 05		11 54.13	+05 59.1					
1989 03 15		11 44.86	+07 16.4	1.624	2.616	174.8	2.0	17.3
1989 03 25		11 35.43	+08 28.0					
1989 04 04		11 26.90	+09 26.6	1.680	2.619	154.5	9.5	17.8
1989 04 14		11 20.18	+10 07.6					
1989 04 24		11 15.83	+10 28.9	1.834	2.618	132.3	16.5	18.2
1989 05 04		11 14.05	+10 31.3					
1989 05 14		11 14.83	+10 16.1	2.051	2.615	112.9	20.9	18.5
1989 05 24		11 17.96	+09 45.6					
1989 06 03		11 23.15	+09 02.1	2.299	2.609	96.1	22.7	18.8

1981 EO42		a,e,i = 2.53, 0.14, 6			Elements MPC 10543			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 06.09	+02 18.9	2.476	2.703	92.4	21.3	19.0
1989 01 04		12 11.95	+01 37.4					
1989 01 14		12 15.75	+01 08.4	2.227	2.726	110.1	19.8	18.8
1989 01 24		12 17.24	+00 53.1					
1989 02 03		12 16.23	+00 52.2	2.007	2.748	130.2	15.9	18.5
1989 02 13		12 12.64	+01 05.8					
1989 02 23		12 06.66	+01 32.2	1.851	2.768	152.8	9.4	18.1
1989 03 05		11 58.74	+02 08.5					
1989 03 15		11 49.63	+02 49.9	1.793	2.787	176.9	1.1	17.6
1989 03 25		11 40.33	+03 30.6					
1989 04 04		11 31.81	+04 05.2	1.851	2.804	158.2	7.6	18.1
1989 04 14		11 24.89	+04 29.4					
1989 04 24		11 20.14	+04 40.8	2.010	2.820	135.8	14.4	18.5
1989 05 04		11 17.76	+04 38.5					
1989 05 14		11 17.76	+04 22.9	2.242	2.833	115.9	18.7	18.9
1989 05 24		11 19.97	+03 54.9					
1989 06 03		11 24.15	+03 15.9	2.510	2.845	98.6	20.6	19.2

(3773) 1984 YY		a,e,i = 2.17, 0.18, 1			Elements MPC 12799			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 07.02	+00 49.2	2.330	2.554	91.6	22.6	18.2
1989 01 04		12 13.73	+00 11.0					
1989 01 14		12 18.40	-00 13.5	2.066	2.561	108.9	21.3	17.9
1989 01 24		12 20.72	-00 22.5					
1989 02 03		12 20.42	-00 14.6	1.828	2.564	128.8	17.4	17.6
1989 02 13		12 17.33	+00 10.9					
1989 02 23		12 11.53	+00 52.9	1.650	2.563	151.4	10.6	17.1
1989 03 05		12 03.40	+01 48.3					
1989 03 15		11 53.70	+02 51.6	1.567	2.560	175.9	1.6	16.6
1989 03 25		11 43.53	+03 55.1					
1989 04 04		11 34.04	+04 51.5	1.596	2.553	158.4	8.3	17.0
1989 04 14		11 26.27	+05 34.6					
1989 04 24		11 20.91	+06 01.0	1.727	2.543	135.4	16.1	17.4
1989 05 04		11 18.23	+06 09.6					
1989 05 14		11 18.28	+06 01.1	1.925	2.530	115.4	21.2	17.7
1989 05 24		11 20.84	+05 36.8					
1989 06 03		11 25.65	+04 58.8	2.158	2.513	98.3	23.5	18.0

(3797) 1987 YL		a,e,i = 3.20, 0.16, 1			Elements MPC 12957			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 04.62	-00 48.8	2.908	3.094	91.5	18.5	18.0
1989 01 04		12 09.82	-01 21.8					
1989 01 14		12 13.19	-01 42.7	2.655	3.125	109.6	17.3	17.8
1989 01 24		12 14.59	-01 50.7					
1989 02 03		12 13.89	-01 44.9	2.435	3.157	129.7	13.9	17.5
1989 02 13		12 11.10	-01 25.2					
1989 02 23		12 06.42	-00 53.0	2.281	3.188	152.0	8.4	17.2
1989 03 05		12 00.22	-00 10.8					
1989 03 15		11 53.10	+00 37.7	2.227	3.219	175.7	1.3	16.8
1989 03 25		11 45.79	+01 27.4					
1989 04 04		11 39.03	+02 13.5	2.290	3.250	160.7	5.9	17.2
1989 04 14		11 33.45	+02 51.7					
1989 04 24		11 29.50	+03 19.1	2.460	3.281	138.4	11.7	17.6
1989 05 04		11 27.41	+03 34.4					
1989 05 14		11 27.24	+03 37.2	2.708	3.311	118.4	15.6	17.9
1989 05 24		11 28.91	+03 27.9					
1989 06 03		11 32.28	+03 07.6	3.002	3.340	100.5	17.4	18.2

1979 YQ		a,e,i = 2.58, 0.24, 9			Elements MPC 12705			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 09.97	+09 21.3	2.470	2.726	94.3	21.1	19.0
1989 01 04		12 16.00	+09 24.8					
1989 01 14		12 19.89	+09 44.2	2.248	2.773	112.2	19.2	18.8
1989 01 24		12 21.42	+10 19.7					
1989 02 03		12 20.41	+11 10.0	2.060	2.819	132.2	15.0	18.6
1989 02 13		12 16.82	+12 12.4					
1989 02 23		12 10.88	+13 21.7	1.943	2.862	153.4	8.9	18.3
1989 03 05		12 03.08	+14 31.2					
1989 03 15		11 54.17	+15 33.4	1.927	2.903	166.3	4.7	18.1
1989 03 25		11 45.13	+16 21.5					
1989 04 04		11 36.88	+16 51.3	2.025	2.942	151.3	9.4	18.4
1989 04 14		11 30.19	+17 01.2					
1989 04 24		11 25.57	+16 52.0	2.220	2.978	131.0	14.8	18.8
1989 05 04		11 23.18	+16 26.0					
1989 05 14		11 23.04	+15 45.7	2.481	3.012	112.2	18.1	19.2
1989 05 24		11 24.96	+14 53.9					
1989 06 03		11 28.71	+13 52.9	2.776	3.044	95.4	19.4	19.5

1987 UX1		a,e,i = 2.31, 0.17, 5			Elements MPC 12688			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 07.28	-06 22.7	2.436	2.606	88.7	22.2	18.5
1989 01 04		12 13.79	-07 25.2					
1989 01 14		12 18.31	-08 16.0	2.185	2.628	105.7	21.1	18.2
1989 01 24		12 20.55	-08 53.1					
1989 02 03		12 20.28	-09 14.2	1.955	2.646	125.0	17.8	17.9
1989 02 13		12 17.37	-09 17.0					
1989 02 23		12 11.92	-09 00.2	1.779	2.663	146.8	11.7	17.5
1989 03 05		12 04.33	-08 23.9					
1989 03 15		11 55.31	-07 30.6	1.693	2.676	169.1	4.0	17.1
1989 03 25		11 45.88	-06 25.8					
1989 04 04		11 37.07	-05 16.5	1.719	2.687	161.8	6.7	17.3
1989 04 14		11 29.84	-04 10.3					
1989 04 24		11 24.81	-03 13.7	1.850	2.696	139.5	14.0	17.7
1989 05 04		11 22.26	-02 30.5					
1989 05 14		11 22.24	-02 02.9	2.058	2.701	119.3	19.0	18.1
1989 05 24		11 24.58	-01 51.3					
1989 06 03		11 29.02	-01 54.6	2.309	2.704	101.7	21.5	18.4

(3844) 1966 BZ		a,e,i = 2.73, 0.11, 4			Elements MPC 13297			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 06.43	+01 08.0	2.790	2.988	91.8	19.2	17.3
1989 01 04		12 12.09	+00 45.2					
1989 01 14		12 15.93	+00 35.4	2.516	2.996	109.8	18.0	17.0
1989 01 24		12 17.75	+00 39.9					
1989 02 03		12 17.37	+00 59.3	2.273	3.003	129.9	14.6	16.7
1989 02 13		12 14.74	+01 33.6					
1989 02 23		12 10.00	+02 20.8	2.097	3.009	152.3	8.8	16.3
1989 03 05		12 03.50	+03 17.9					
1989 03 15		11 55.84	+04 19.6	2.021	3.013	175.0	1.6	15.9
1989 03 25		11 47.84	+05 20.0					
1989 04 04		11 40.33	+06 13.3	2.061	3.016	159.0	6.8	16.2
1989 04 14		11 34.05	+06 54.8					
1989 04 24		11 29.57	+07 21.8	2.205	3.017	136.7	13.2	16.6
1989 05 04		11 27.14	+07 33.4					
1989 05 14		11 26.87	+07 29.9	2.425	3.018	116.7	17.4	16.9
1989 05 24		11 28.66	+07 12.6					
1989 06 03		11 32.33	+06 43.0	2.684	3.016	99.1	19.4	17.2

1982 SO1		a,e,i = 2.58, 0.20, 13				Elements MPC 13685		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 04.61	-04 58.4	2.893	3.053	89.8	18.8	18.6
1989 01 04		12 10.25	-05 22.9					
1989 01 14		12 14.19	-05 34.4	2.588	3.036	107.8	18.0	18.3
1989 01 24		12 16.21	-05 30.6					
1989 02 03		12 16.12	-05 10.0	2.311	3.017	127.8	15.0	17.9
1989 02 13		12 13.82	-04 31.0					
1989 02 23		12 09.41	-03 33.9	2.096	2.995	150.1	9.5	17.5
1989 03 05		12 03.19	-02 20.6					
1989 03 15		11 55.71	-00 55.2	1.980	2.971	174.3	1.9	17.0
1989 03 25		11 47.75	+00 35.7					
1989 04 04		11 40.16	+02 04.7	1.981	2.944	161.0	6.4	17.3
1989 04 14		11 33.75	+03 24.9					
1989 04 24		11 29.11	+04 30.9	2.091	2.916	137.9	13.4	17.6
1989 05 04		11 26.58	+05 20.0					
1989 05 14		11 26.30	+05 51.2	2.278	2.885	117.3	18.1	17.9
1989 05 24		11 28.21	+06 05.2					
1989 06 03		11 32.14	+06 03.2	2.507	2.853	99.3	20.5	18.2

1982 SO5		a,e,i = 2.63, 0.31, 2				Elements MPC 13691		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 15.03	-01 09.1	3.312	3.438	89.0	16.6	21.1
1989 01 04		12 19.03	-01 36.3					
1989 01 14		12 21.35	-01 52.9	3.017	3.444	107.6	15.8	20.8
1989 01 24		12 21.83	-01 57.7					
1989 02 03		12 20.34	-01 50.1	2.750	3.448	128.2	13.0	20.6
1989 02 13		12 16.84	-01 29.8					
1989 02 23		12 11.49	-00 57.8	2.551	3.448	150.8	8.0	20.2
1989 03 05		12 04.58	-00 16.0					
1989 03 15		11 56.65	+00 32.2	2.454	3.446	174.8	1.5	19.8
1989 03 25		11 48.38	+01 22.3					
1989 04 04		11 40.48	+02 10.0	2.479	3.440	161.0	5.4	20.0
1989 04 14		11 33.60	+02 50.8					
1989 04 24		11 28.27	+03 21.8	2.616	3.432	138.1	11.3	20.4
1989 05 04		11 24.75	+03 41.2					
1989 05 14		11 23.18	+03 48.5	2.835	3.420	117.4	15.2	20.7
1989 05 24		11 23.53	+03 43.7					
1989 06 03		11 25.66	+03 27.8	3.097	3.405	98.9	17.1	20.9

1978 PG3		a,e,i = 2.57, 0.01, 9				Elements MPC 11632		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 07.37	-03 25.4	2.362	2.556	89.8	22.6	17.5
1989 01 04		12 14.50	-04 48.4					
1989 01 14		12 19.69	-06 02.7	2.097	2.554	106.3	21.7	17.2
1989 01 24		12 22.63	-07 06.6					
1989 02 03		12 23.05	-07 58.3	1.855	2.552	125.0	18.5	16.8
1989 02 13		12 20.76	-08 35.3					
1989 02 23		12 15.77	-08 56.2	1.669	2.550	146.1	12.5	16.4
1989 03 05		12 08.41	-08 59.9					
1989 03 15		11 59.36	-08 47.0	1.568	2.548	167.5	4.8	16.0
1989 03 25		11 49.66	-08 20.9					
1989 04 04		11 40.45	-07 46.8	1.575	2.547	162.5	6.8	16.1
1989 04 14		11 32.78	-07 11.3					
1989 04 24		11 27.42	-06 40.5	1.684	2.545	141.0	14.4	16.5
1989 05 04		11 24.71	-06 19.0					
1989 05 14		11 24.73	-06 09.6	1.868	2.544	121.3	19.9	16.9
1989 05 24		11 27.32	-06 13.6					
1989 06 03		11 32.20	-06 30.8	2.096	2.543	104.2	22.8	17.2

(3818) 1979 QL8		a,e,i = 2.37, 0.18, 2				Elements MPC 13047		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 06.46	-03 04.5	2.499	2.689	90.2	21.5	19.5
1989 01 04		12 13.36	-03 56.8					
1989 01 14		12 18.44	-04 38.0	2.202	2.664	107.2	20.7	19.1
1989 01 24		12 21.43	-05 05.9					
1989 02 03		12 22.05	-05 18.6	1.930	2.637	126.4	17.5	18.7
1989 02 13		12 20.08	-05 14.1					
1989 02 23		12 15.52	-04 51.6	1.714	2.608	148.2	11.5	18.3
1989 03 05		12 08.63	-04 11.7					
1989 03 15		12 00.00	-03 17.2	1.588	2.577	172.0	3.1	17.7
1989 03 25		11 50.59	-02 13.8					
1989 04 04		11 41.51	-01 08.7	1.572	2.543	162.3	6.9	17.9
1989 04 14		11 33.81	-00 09.5					
1989 04 24		11 28.31	+00 37.6	1.660	2.508	139.2	15.2	18.2
1989 05 04		11 25.41	+01 09.1					
1989 05 14		11 25.26	+01 23.2	1.820	2.472	118.8	21.0	18.6
1989 05 24		11 27.75	+01 20.1					
1989 06 03		11 32.62	+01 01.0	2.020	2.434	101.5	24.1	18.8

(3787) 1977 RG7		a,e,i = 2.85, 0.13, 12				Elements MPC 12953		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 54.81	-06 11.3	2.278	2.506	91.6	23.1	16.7
1989 01 04		12 03.07	-06 51.9					
1989 01 14		12 09.42	-07 17.1	2.033	2.519	108.1	21.8	16.5
1989 01 24		12 13.59	-07 24.0					
1989 02 03		12 15.36	-07 10.4	1.815	2.534	127.0	18.1	16.1
1989 02 13		12 14.60	-06 34.3					
1989 02 23		12 11.42	-05 35.6	1.654	2.552	148.7	11.6	15.7
1989 03 05		12 06.19	-04 16.6					
1989 03 15		11 59.58	-02 42.5	1.582	2.571	172.4	2.9	15.3
1989 03 25		11 52.53	-01 01.9					
1989 04 04		11 46.01	+00 36.1	1.619	2.591	162.9	6.5	15.5
1989 04 14		11 40.89	+02 02.8					
1989 04 24		11 37.76	+03 12.2	1.759	2.614	140.4	14.2	16.0
1989 05 04		11 36.90	+04 01.6					
1989 05 14		11 38.36	+04 30.5	1.975	2.637	120.6	19.3	16.4
1989 05 24		11 41.99	+04 40.0					
1989 06 03		11 47.56	+04 32.3	2.235	2.661	103.5	21.8	16.8

(3733) 1985 AF		a,e,i = 2.40, 0.19, 6				Elements MPC 12694		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		11 50.18	-04 11.4	1.618	1.943	93.4	30.3	16.4
1989 01 04		12 01.47	-06 11.0					
1989 01 14		12 10.52	-08 00.0	1.420	1.956	107.5	28.6	16.1
1989 01 24		12 16.94	-09 35.6					
1989 02 03		12 20.32	-10 54.3	1.245	1.975	124.2	24.4	15.8
1989 02 13		12 20.32	-11 52.0					
1989 02 23		12 16.91	-12 24.9	1.113	1.999	143.8	17.0	15.3
1989 03 05		12 10.45	-12 30.2					
1989 03 15		12 01.85	-12 07.8	1.052	2.027	164.2	7.7	14.9
1989 03 25		11 52.54	-11 22.6					
1989 04 04		11 44.07	-10 23.4	1.083	2.060	162.9	8.2	15.0
1989 04 14		11 37.74	-09 21.3					
1989 04 24		11 34.35	-08 26.2	1.203	2.095	143.0	16.8	15.6
1989 05 04		11 34.14	-07 44.8					
1989 05 14		11 36.98	-07 20.5	1.392	2.134	124.5	23.0	16.1
1989 05 24		11 42.55	-07 14.1					
1989 06 03		11 50.40	-07 24.4	1.625	2.175	108.7	26.2	16.6

1976 YP1		a,e,i = 3.10, 0.18, 2				Elements MPC 9962		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 13.52	-00 38.5	3.107	3.251	89.5	17.6	18.3
1989 01 04		12 18.36	-01 10.6					
1989 01 14		12 21.47	-01 31.5	2.846	3.282	107.7	16.6	18.1
1989 01 24		12 22.68	-01 40.3					
1989 02 03		12 21.88	-01 36.5	2.615	3.313	127.9	13.6	17.9
1989 02 13		12 19.05	-01 20.0					
1989 02 23		12 14.36	-00 51.9	2.448	3.343	150.2	8.5	17.6
1989 03 05		12 08.14	-00 14.4					
1989 03 15		12 00.93	+00 29.0	2.381	3.372	173.8	1.8	17.2
1989 03 25		11 53.41	+01 13.9					
1989 04 04		11 46.28	+01 55.9	2.432	3.399	162.4	5.1	17.5
1989 04 14		11 40.18	+02 31.0					
1989 04 24		11 35.58	+02 56.4	2.594	3.426	140.0	10.9	17.8
1989 05 04		11 32.75	+03 10.5					
1989 05 14		11 31.78	+03 12.8	2.838	3.451	119.6	14.8	18.2
1989 05 24		11 32.63	+03 03.7					
1989 06 03		11 35.17	+02 44.0	3.130	3.475	101.4	16.6	18.5

7068 P-L		a,e,i = 2.68, 0.25, 8				Elements MPC 13693		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 14.66	-07 35.3	3.228	3.317	86.5	17.2	19.9
1989 01 04		12 19.38	-08 12.3					
1989 01 14		12 22.43	-08 38.6	2.943	3.330	104.6	16.6	19.7
1989 01 24		12 23.64	-08 52.6					
1989 02 03		12 22.87	-08 52.8	2.681	3.341	124.6	14.1	19.5
1989 02 13		12 20.07	-08 37.9					
1989 02 23		12 15.38	-08 07.4	2.479	3.349	146.6	9.4	19.1
1989 03 05		12 09.08	-07 22.3					
1989 03 15		12 01.69	-06 24.8	2.372	3.354	169.3	3.2	18.8
1989 03 25		11 53.88	-05 19.4					
1989 04 04		11 46.37	-04 11.1	2.384	3.357	164.0	4.7	18.9
1989 04 14		11 39.85	-03 05.5					
1989 04 24		11 34.83	-02 07.5	2.510	3.357	141.6	10.7	19.2
1989 05 04		11 31.62	-01 20.3					
1989 05 14		11 30.36	-00 46.0	2.723	3.355	120.8	15.0	19.5
1989 05 24		11 31.02	-00 25.0					
1989 06 03		11 33.47	-00 17.2	2.986	3.349	102.2	17.2	19.8

1987 WW		a,e,i = 2.24, 0.14, 4				Elements MPC 12801		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 12.53	+01 40.7	2.349	2.557	90.7	22.6	18.8
1989 01 04		12 19.68	+00 56.4					
1989 01 14		12 24.86	+00 24.6	2.080	2.557	107.7	21.5	18.5
1989 01 24		12 27.76	+00 07.0					
1989 02 03		12 28.08	+00 04.8	1.835	2.554	127.1	17.9	18.2
1989 02 13		12 25.62	+00 18.8					
1989 02 23		12 20.39	+00 48.0	1.647	2.548	149.3	11.4	17.7
1989 03 05		12 12.69	+01 30.0					
1989 03 15		12 03.20	+02 19.9	1.550	2.540	173.6	2.5	17.2
1989 03 25		11 52.98	+03 11.0					
1989 04 04		11 43.20	+03 56.3	1.564	2.530	160.8	7.5	17.5
1989 04 14		11 34.95	+04 30.0					
1989 04 24		11 29.02	+04 48.3	1.680	2.517	137.7	15.6	17.9
1989 05 04		11 25.77	+04 50.0					
1989 05 14		11 25.28	+04 35.3	1.868	2.502	117.6	21.0	18.3
1989 05 24		11 27.40	+04 05.6					
1989 06 03		11 31.84	+03 22.4	2.092	2.484	100.3	23.7	18.6

(3776) 1938 GG a,e,i = 3.18, 0.06, 27 Elements MPC 12936

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 26.28	+28 16.1	2.775	3.071	98.0	18.5	16.0
1989 01 04		12 32.51	+28 40.8					
1989 01 14		12 36.60	+29 18.9	2.532	3.062	113.7	17.1	15.7
1989 01 24		12 38.25	+30 08.3					
1989 02 03		12 37.22	+31 05.3	2.329	3.054	129.8	14.4	15.5
1989 02 13		12 33.38	+32 04.4					
1989 02 23		12 26.83	+32 57.8	2.194	3.047	143.5	11.1	15.2
1989 03 05		12 18.02	+33 37.2					
1989 03 15		12 07.69	+33 54.8	2.152	3.040	147.7	10.1	15.1
1989 03 25		11 56.91	+33 45.3					
1989 04 04		11 46.77	+33 07.3	2.210	3.033	138.7	12.6	15.3
1989 04 14		11 38.19	+32 02.4					
1989 04 24		11 31.82	+30 35.2	2.355	3.028	123.4	16.1	15.5
1989 05 04		11 27.89	+28 50.9					
1989 05 14		11 26.44	+26 54.3	2.564	3.022	107.3	18.6	15.8
1989 05 24		11 27.28	+24 49.7					
1989 06 03		11 30.15	+22 40.0	2.807	3.018	92.0	19.6	16.0

1986 JH a,e,i = 2.37, 0.26, 23 Elements MPC 11054

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 30.19	+22 59.5	2.713	2.968	95.2	19.3	18.4
1989 01 04		12 36.28	+23 26.9					
1989 01 14		12 40.31	+24 10.0	2.449	2.957	111.7	18.0	18.1
1989 01 24		12 41.97	+25 07.6					
1989 02 03		12 40.95	+26 16.9	2.221	2.943	129.1	15.1	17.8
1989 02 13		12 37.04	+27 33.0					
1989 02 23		12 30.29	+28 48.3	2.061	2.926	144.8	11.2	17.5
1989 03 05		12 21.01	+29 53.8					
1989 03 15		12 09.93	+30 40.2	1.997	2.905	150.7	9.6	17.4
1989 03 25		11 58.12	+30 59.9					
1989 04 04		11 46.77	+30 49.8	2.036	2.881	140.7	12.7	17.5
1989 04 14		11 36.96	+30 10.3					
1989 04 24		11 29.47	+29 05.4	2.166	2.854	124.1	17.0	17.7
1989 05 04		11 24.62	+27 40.4					
1989 05 14		11 22.49	+26 00.3	2.357	2.823	107.0	20.0	18.0
1989 05 24		11 22.89	+24 09.7					
1989 06 03		11 25.56	+22 11.7	2.577	2.790	91.2	21.3	18.2

1964 VT1 a,e,i = 2.76, 0.07, 4 Elements MPC 11739

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 14.41	+02 18.4	2.613	2.799	90.5	20.6	18.2
1989 01 04		12 21.10	+01 43.3					
1989 01 14		12 25.92	+01 20.7	2.352	2.813	107.8	19.4	18.0
1989 01 24		12 28.64	+01 11.6					
1989 02 03		12 29.04	+01 16.7	2.117	2.826	127.3	16.1	17.6
1989 02 13		12 27.02	+01 36.0					
1989 02 23		12 22.66	+02 07.9	1.943	2.839	149.2	10.3	17.3
1989 03 05		12 16.26	+02 49.6					
1989 03 15		12 08.42	+03 36.4	1.863	2.851	172.2	2.7	16.9
1989 03 25		12 00.00	+04 22.4					
1989 04 04		11 51.91	+05 02.1	1.894	2.863	162.1	6.2	17.1
1989 04 14		11 45.00	+05 30.8					
1989 04 24		11 39.91	+05 45.8	2.032	2.874	139.7	13.1	17.5
1989 05 04		11 36.97	+05 46.1					
1989 05 14		11 36.30	+05 32.0	2.247	2.884	119.7	17.7	17.9
1989 05 24		11 37.81	+05 04.7					
1989 06 03		11 41.31	+04 25.7	2.507	2.894	102.1	20.0	18.2

(3758) Karttunen		a,e,i = 2.63, 0.11, 14				Elements MPC 12789		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 25	12 09.24	+15 59.5	2.004	2.338	97.0	24.7	17.1
1989	01 04	12 19.49	+16 15.7					
1989	01 14	12 27.60	+16 50.5	1.784	2.345	112.6	22.8	16.8
1989	01 24	12 33.21	+17 43.7					
1989	02 03	12 35.97	+18 53.9	1.598	2.353	129.7	18.8	16.4
1989	02 13	12 35.61	+20 16.9					
1989	02 23	12 32.11	+21 44.9	1.473	2.364	146.9	13.2	16.1
1989	03 05	12 25.80	+23 08.0					
1989	03 15	12 17.41	+24 14.5	1.434	2.378	156.2	9.7	15.9
1989	03 25	12 08.13	+24 54.7					
1989	04 04	11 59.26	+25 03.3	1.490	2.393	147.1	13.1	16.1
1989	04 14	11 51.95	+24 39.6					
1989	04 24	11 47.02	+23 47.1	1.631	2.409	130.5	18.5	16.5
1989	05 04	11 44.77	+22 31.4					
1989	05 14	11 45.25	+20 57.9	1.833	2.428	114.1	22.3	16.9
1989	05 24	11 48.23	+19 11.6					
1989	06 03	11 53.38	+17 16.2	2.070	2.447	99.3	24.1	17.2

(3740) 1981 EM		a,e,i = 2.46, 0.26, 6				Elements MPC 12712		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 25	12 28.44	-02 02.2	2.498	2.612	85.5	22.0	19.0
1989	01 04	12 35.28	-02 58.1					
1989	01 14	12 40.13	-03 42.3	2.271	2.664	102.6	21.1	18.8
1989	01 24	12 42.71	-04 13.5					
1989	02 03	12 42.81	-04 30.5	2.060	2.714	122.0	17.9	18.6
1989	02 13	12 40.27	-04 32.3					
1989	02 23	12 35.16	-04 19.2	1.898	2.761	144.0	12.2	18.2
1989	03 05	12 27.80	-03 52.2					
1989	03 15	12 18.80	-03 14.5	1.825	2.805	168.2	4.2	17.9
1989	03 25	12 09.10	-02 30.9					
1989	04 04	11 59.68	-01 47.0	1.864	2.847	166.9	4.6	18.0
1989	04 14	11 51.47	-01 08.3					
1989	04 24	11 45.16	-00 39.2	2.014	2.886	143.6	11.9	18.5
1989	05 04	11 41.10	-00 22.2					
1989	05 14	11 39.41	-00 18.3	2.249	2.922	122.7	16.9	18.9
1989	05 24	11 39.98	-00 27.4					
1989	06 03	11 42.61	-00 48.5	2.534	2.955	104.5	19.4	19.2

1987 UF1		a,e,i = 2.20, 0.19, 4				Elements MPC 12944		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 25	12 22.63	+01 59.4	2.395	2.565	88.5	22.5	18.9
1989	01 04	12 30.29	+01 32.5					
1989	01 14	12 36.04	+01 20.0	2.139	2.581	105.5	21.5	18.6
1989	01 24	12 39.57	+01 23.7					
1989	02 03	12 40.60	+01 44.4	1.903	2.594	124.8	18.2	18.3
1989	02 13	12 38.91	+02 22.6					
1989	02 23	12 34.48	+03 16.4	1.720	2.604	146.6	12.1	17.9
1989	03 05	12 27.55	+04 22.3					
1989	03 15	12 18.72	+05 34.2	1.627	2.610	169.2	4.1	17.5
1989	03 25	12 08.92	+06 43.9					
1989	04 04	11 59.28	+07 43.9	1.645	2.614	161.7	6.9	17.6
1989	04 14	11 50.84	+08 27.9					
1989	04 24	11 44.44	+08 52.7	1.768	2.614	139.2	14.6	18.0
1989	05 04	11 40.50	+08 57.9					
1989	05 14	11 39.18	+08 44.6	1.967	2.610	118.9	19.8	18.4
1989	05 24	11 40.37	+08 15.0					
1989	06 03	11 43.83	+07 31.4	2.206	2.604	101.4	22.5	18.7

1982 OR		a,e,i = 2.61, 0.26, 12				Elements MPC 12800		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 29.65	-13 45.8	3.215	3.207	80.7	17.6	18.8
1989 01 04		12 34.94	-15 01.7					
1989 01 14		12 38.58	-16 10.5	2.940	3.225	97.8	17.6	18.6
1989 01 24		12 40.34	-17 10.5					
1989 02 03		12 40.03	-17 59.9	2.677	3.240	116.5	15.8	18.3
1989 02 13		12 37.52	-18 36.0					
1989 02 23		12 32.85	-18 56.7	2.461	3.253	136.7	12.0	18.1
1989 03 05		12 26.24	-18 59.8					
1989 03 15		12 18.14	-18 44.4	2.326	3.262	156.6	7.0	17.8
1989 03 25		12 09.26	-18 11.6					
1989 04 04		12 00.41	-17 24.6	2.300	3.269	162.9	5.2	17.7
1989 04 14		11 52.38	-16 28.2					
1989 04 24		11 45.86	-15 28.8	2.387	3.273	146.4	9.8	17.9
1989 05 04		11 41.25	-14 32.0					
1989 05 14		11 38.78	-13 42.5	2.569	3.274	126.6	14.3	18.2
1989 05 24		11 38.44	-13 03.4					
1989 06 03		11 40.12	-12 36.3	2.811	3.272	108.2	17.1	18.5

1980 UC		a,e,i = 3.13, 0.23, 3				Elements MPC 13056		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 26.19	-00 12.7	3.740	3.814	86.8	14.9	19.0
1989 01 04		12 30.57	-00 32.4					
1989 01 14		12 33.51	-00 42.2	3.422	3.802	105.3	14.5	18.8
1989 01 24		12 34.86	-00 41.3					
1989 02 03		12 34.50	-00 29.2	3.130	3.788	125.4	12.2	18.5
1989 02 13		12 32.37	-00 06.1					
1989 02 23		12 28.54	+00 27.2	2.902	3.772	147.3	8.1	18.2
1989 03 05		12 23.24	+01 08.7					
1989 03 15		12 16.81	+01 55.5	2.772	3.755	170.1	2.6	17.8
1989 03 25		12 09.81	+02 43.8					
1989 04 04		12 02.80	+03 29.4	2.761	3.736	165.2	3.9	17.9
1989 04 14		11 56.39	+04 08.7					
1989 04 24		11 51.09	+04 38.6	2.865	3.716	142.7	9.4	18.2
1989 05 04		11 47.24	+04 57.4					
1989 05 14		11 45.06	+05 04.5	3.058	3.693	121.9	13.4	18.4
1989 05 24		11 44.61	+04 59.8					
1989 06 03		11 45.84	+04 44.2	3.305	3.669	103.0	15.6	18.7

1986 RD1		a,e,i = 2.80, 0.20, 8				Elements MPC 13159		
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 12 25		12 29.52	-08 22.9	3.299	3.323	82.8	17.1	18.5
1989 01 04		12 34.68	-09 22.1					
1989 01 14		12 38.25	-10 13.2	3.011	3.333	100.4	16.9	18.3
1989 01 24		12 40.02	-10 54.9					
1989 02 03		12 39.83	-11 25.7	2.740	3.340	119.7	14.8	18.0
1989 02 13		12 37.57	-11 44.1					
1989 02 23		12 33.28	-11 48.9	2.520	3.346	140.9	10.8	17.7
1989 03 05		12 27.19	-11 39.6					
1989 03 15		12 19.71	-11 16.6	2.387	3.350	162.7	5.1	17.4
1989 03 25		12 11.49	-10 42.3					
1989 04 04		12 03.26	-10 00.2	2.368	3.352	167.5	3.7	17.3
1989 04 14		11 55.76	-09 14.9					
1989 04 24		11 49.63	-08 31.3	2.465	3.351	146.7	9.5	17.6
1989 05 04		11 45.25	-07 53.6					
1989 05 14		11 42.84	-07 24.8	2.654	3.349	125.9	14.1	17.9
1989 05 24		11 42.45	-07 06.8					
1989 06 03		11 43.97	-07 00.2	2.902	3.344	107.1	16.9	18.2