The MINOR PLANET CIRCULARS/MINOR PLANETS AND COMETS are published, on behalf of Commission 20 of the International Astronomical Union, usually in batches on the date of each full moon, by:

Minor Planet Center
Smithsonian Astrophysical Observatory
Cambridge, MA 02138, U.S.A.

TWX 710-320-6842 ASTROGRAM CAM ** Brian G. Marsden, Director
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ERRATA.

MPC	Line	
7658	-14	For 353.6142 read 355.6142
7658	-14	For +0.71887694 -0.64311373 read +0.69599468 -0.66781040
7658	-13	For +0.65201963 +0.49222081 read +0.66880069 +0.46916581
7658	-12	For +0.24101108 +0.58662032 read +0.26133702 +0.57785181
8134	19-20	Delete the remark concerning observatory code 980. The locations Eastfield and West Chinnock (cf., e.g., MPC 8185, line 4) are synonymous, but the former is the preferred name.
8140	-7	Add The identifications 1978 PW2 = 1940 AF = 1967 EK = 1977 FC were found independently by T. Urata (NOC 1447).
8210	7	Add The key identification 1977 NQ = 1983 PL was found by E. Bowell.

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Mag.	Obs.
792	1980 07	12.09069	18 14 32.42	-20 15 54.6	MPC 8203		805
792	1980 07	12.10597	18 14 31.54	-20 15 52.6	MPC 8203		805
792	1980 07	12.12194	18 14 30.84	-20 15 52.6	MPC 8203		805
976	1980 07	12.09069	18 02 42.09	-17 46 09.8	MPC 8203		805
976	1980 07	12.10597	18 02 41.44	-17 46 08.2	MPC 8203		805
976	1980 07	12.12194	18 02 40.70	-17 46 07.2	MPC 8203		805
1609	1980 07	12.09069	18 20 54.97	-21 16 32.0	MPC 8203		805
1609	1980 07	12.10597	18 20 53.98	-21 16 44.3	MPC 8203		805
1609	1980 07	12.12194	18 20 52.71	-21 17 00.0	MPC 8203		805
1979 HF3	1979 04	30.86134	13 36 10.02	-06 43 15.5	MPC 6396	17.5	095
1979 MC	1979 07	02.34861	20 03 00.73	-03 29 43.6	MPC 4816		688
1980 NA	1980 07	12.15736	18 04 32.64	-21 38 34.5	MPC 8204		805
1980 NB	1980 07	12.09069	18 05 59.27	-21 20 48.7	MPC 8204		805
1980 NB	1980 07	12.10597	18 05 58.63	-21 20 48.0	MPC 8204		805
1980 NB	1980 07	12.12194	18 05 57.67	-21 20 49.3	MPC 8204		805
1980 ND	1980 07	12.09069	18 07 18.03	-18 12 04.4	MPC 8204		805
1980 ND	1980 07	12.10597	18 07 17.33	-18 12 04.2	MPC 8204		805
1980 ND	1980 07	12.12194	18 07 16.59	-18 12 00.2	MPC 8204		805
1980 NE	1980 07	12.09069	18 07 43.77	-20 30 21.6	MPC 8204		805
1980 NE	1980 07	12.10597	18 07 43.06	-20 30 21.5	MPC 8204		805
1980 NE	1980 07	12.12194	18 07 42.33	-20 30 14.3	MPC 8204		805

1980	NF	1980	07	12.15736	18	07	51.97	-19 38 30.0	MPC 8205	805
1980	NG	1980	07	12.15736	18	10	31.87	-17 57 26.1	MPC 8205	805
1980	NH	1980	07	12.09069	18	16	12.39	-19 05 32.0	MPC 8205	805
1980	NH	1980	07	12.10597	18	16	11.62	-19 05 28.9	MPC 8205	805
1980	NH	1980	07	12.12194	18	16	10.85	-19 05 27.3	MPC 8205	805
1980	NJ	1980	07	12.15736	18	16	22.51	-20 29 31.4	MPC 8205	805
1980	NK	1980	07	12.15736	18	16	28.07	-20 40 36.8	MPC 8205	805
1980	NL	1980	07	12.15736	18	16	45.61	-21 42 51.2	MPC 8205	805
1980	NM	1980	07	12.09069	18	17	31.55	-20 23 34.1	MPC 8205	805
1980	NM	1980	07	12.10597	18	17	30.70	-20 23 33.8	MPC 8205	805
1980	NM	1980	07	12.12194	18	17	29.91	-20 23 34.8	MPC 8205	805
1980	NN	1980	07	12.15736	18	19	17.07	-18 20 45.5	MPC 8205	805
1980	NO	1980	07	12.15736	18	19	21.37	-18 08 50.6	MPC 8205	805
1980	NP	1980	07	12.09069	18	20	39.54	-19 12 00.8	MPC 8205	805
1980	NP	1980	07	12.10597	18	20	38.62	-19 11 56.2	MPC 8205	805
1980	NP	1980	07	12.12194	18	20	37.80	-19 11 49.2	MPC 8205	805
1980	NQ	1980	07	12.15736	18	20	54.12	-18 09 40.9	MPC 8205	805
1980	NR	1980	07	12.15736	18	20	58.96	-18 28 09.8	MPC 8205	805

* * * * *

DELETED OBSERVATIONS.

The following observations are to be deleted.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Obs.
340	1940 04	04.87	12 20.6	+00 33	RI 2124	062
464	1949 03	29.94	12 55.3	+09 57	MPC 294	062
557	1945 09	11.90	23 17.9	-00 43	MPC 83	062
1764	1953 12	11.21680	03 03 01.66	+14 10 32.8	MPC 2930	760
1774	1953 11	05.09656	00 35 36.37	+02 35 46.5	MPC 4141	760
1979 MC	1979 08	27.19132	19 41 01.38	-15 48 33.2	MPC 5027	688
1983 TB	1983 10	12.12153	17 50 47.78	+59 10 35.3	MPC 8201	688
1983 TB	1983 10	12.18472	17 52 10.98	+59 08 45.5	MPC 8201	688

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 8184.

Object		Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1932 HT	*	1932 04	24.85639	09 31 27.90	+21 21 49.8	1932 BG	17	024
1940 TP	*	1940 10	03.90	01 15.4	-02 00	567	15.0	062
1941 UA1	*	1941 10	16.07	03 22.2	+16 56	821	15.9	062
1942 RK1	*	1942 09	11.99	00 48.3	+04 48	808		062
1945 GF	*	1945 04	15.87	12 56.1	-02 02	383	15.2	062
1945 RQ	*	1945 09	07.99	02 21.4	+14 55	77	13.1	062
1946 FF	*	1946 03	30.85	11 01.7	+05 42	846	15.5	062
1946 FF		1946 04	03.87	10 59.6	+06 08	846		062
1948 CG	*	1948 02	07.99	09 23.8	+12 08	18		062
1948 TK2	*	1948 10	08.84	22 44.3	+05 27	565	15.3	062
1949 FM1	*	1949 03	27.03	12 12.3	+02 50	222	15.9	062
1949 HP1	*	1949 04	24.91	12 49.7	+02 22	553	13.9	062
1953 TN3	*	1953 10	14.00	02 55.1	+20 15	378	14.7	062
1954 LK	*	1954 06	05.20648	16 21 13.67	-22 46 21.3	1713	16.3	760
1954 LK		1954 06	05.25926	16 21 10.67	-22 46 11.4	1713		760
1964 US	*	1964 10	31.14	00 47.9	+07 41	2070	16.0	760
1971 SA4	*	1971 09	22.88735	23 21 02.42	-17 45 01.1	1971 QL1	16.0	095

IDENTIFICATIONS.

The following list of identifications with numbered minor planets continues that on MPC 8085.

	Note		Note		Note
1940 TP = (1703)	1	1941 UA1 = (1650)	1	1942 RK1 = (2534)	1
1945 GF = (635)	1	1945 RQ = (176)	2	1946 FF = (1605)	1
1948 CG = (183)	2	1949 FM1 = (1581)	1	1949 HP1 = (482)	1
1953 TN3 = (428)	1				

Note 1: identification by B. G. Marsden. 2: identification by L. Oterma.

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OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

046 Klet. Observer A. Mrkos.
049 Kvistaberg. Observer T. Oja. Measured by G. Hahn.
085 Kiev. Observers E. M. Izhakevich, I. V. Ledovskaya, S. P. Major, S. V. Shatokina, Yu. V. Sizonenko, Yatsenko and Sereda. From Kiev Komet. Tsirk. Nos. 309 and 310.
102 Zvenigorod. Observers V. P. Osipenko, Yu. V. Rusin, V. A. Yurevich and A. M. Lozinskij. From Kiev Komet. Tsirk. Nos. 308 and 312.
119 Abastumani. Observer G. A. Majsuradze. From Kiev Komet. Tsirk. Nos. 311 and 312.
168 Ural'skij University, Kourovskaya. Observers E. V. Starikov, G. S. Romashin, S. N. Nosul'ya, S. N. Timofeev, L. V. Sokolova and A. R. Tearo. Long. and Parallax, 60.58, -233, -356 (see MPC 7759). From Kiev Komet. Tsirk. Nos. 305 and 308.
186 Kitab. Observers E. R. Rakhmatov and E. R. Mirmakhmudov. From Kiev Komet. Tsirk. No. 311.
372 Geisei. Observer T. Seki. From Orient. Astron. Assoc. Comet Bull. No. 251.
413 Siding Spring. 1.2-m U.K. Schmidt Telescope Unit. Observers J. Barrow and K. S. Russell. Measured by Russell.
474 Mt. John University Observatory. Observer A. C. Gilmore. Measured by P. M. Kilmartin (assisted by R. McIntosh and W. M. Kissling).
491 Yebes. Observers M. de Pascual, J. Garcia, C. Cabanas and F. Sanchez.
494 Stakenbridge. Observer B. Manning.
552 Osservatore S. Vittore.
657 Climenhaga Observatory. Observers D. D. Balam and J. B. Tatum.
675 Palomar. The observations of comet 1983p were made by C. Shoemaker and E. Shoemaker with the 0.46-m Schmidt telescope. The observations of comet 1983s are by J. Gibson with the 1.2-m Schmidt.
688 Lowell Observatory, Anderson Mesa Station. Observer B. Skiff. Measured by E. Bowell.
707 Chamberlin Observatory, field station. Observer E. Everhart.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao (assisted by C. M. Bardwell, D. W. E. Green and B. G. Marsden).
805 Cerro El Roble. Observers C. Torres, J. Maza, H. Wroblewski and L. E. Gonzalez. Measured by Torres and M. Wischnjewsky.
808 Felix Aguilar Observatory, El Leoncito Station. Observer C. Lopez.
890 JCPM Tone Station. Observer S. Furuyama. Measured by N. Ishiyama. From Orient. Astron. Assoc. Comet Bull. No. 251.
985 Telford. Observer D. McAdam. Measured by P. Birtwhistle. Communicated by G. M. Hurst.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
		Periodic Comet Wild 2					
/1978 XI	1979	06 27.26718	20 55 52.25	-16 11 18.6		1	801
/1983s	1983	10 16.47223	04 59 16.82	+18 34 53.0			675
/1983s	1983	10 18.48474	04 59 05.60	+18 32 20.3			675
		Comet Torres (1980 II)					
/1980 II	1980	07 12.09069	18 14 52.21	-20 35 18.7		2	805
/1980 II	1980	07 12.10597	18 14 50.61	-20 34 54.9		2	805
/1980 II	1980	07 12.12194	18 14 48.93	-20 34 30.8		2	805
/1980 II	1980	08 06.10556	17 44 06.32	-11 18 05.3			805
		Comet Bowell (1980b)					
/1980b	1983	10 04.08274	21 53 16.30	-14 04 35.7		3	801
		Periodic Comet Tempel 2					
/1982d	1983	10 07.37855	03 06 07.84	-07 40 24.0			801
/1982d	1983	10 14.22813	02 59 47.86	-08 21 31.7			707
		Periodic Comet Churyumov-Gerasimenko					
/1982f	1982	11 27.76076	06 50 35.12	+32 56 03.3			168
/1982f	1982	11 27.78854	06 50 37.50	+32 56 36.1			168
/1982f	1982	12 05.76424	07 01 12.78	+35 13 42.4			168
/1982f	1982	12 14.90139	07 08 16.63	+37 25 35.9			168
/1982f	1982	12 22.83021	07 10 37.85	+38 50 32.3			168
/1982f	1982	12 22.83888	07 10 37.99	+38 50 36.3			168
/1982f	1982	12 22.89793	07 10 37.98	+38 52 11.2			168
/1982f	1983	03 08.86902	07 41 45.86	+33 28 45.8			491
/1982f	1983	03 09.86076	07 42 58.58	+33 19 40.2			491
		Comet Austin (1982g)					
/1982g	1982	08 23.71875	11 19 49.06	+44 15 49.5			168
/1982g	1982	08 25.71111	11 36 55.16	+44 42 37.2			168
/1982g	1982	08 25.78854	11 37 30.63	+44 43 05.3			168
/1982g	1982	08 26.73958	11 44 25.73	+44 48 10.6			168
/1982g	1982	08 27.72569	11 50 52.87	+44 49 25.8			168
/1982g	1982	08 28.72431	11 56 45.01	+44 47 27.3			168
/1982g	1982	08 29.70417	12 01 55.07	+44 42 54.0			168
/1982g	1982	08 31.72083	12 10 58.26	+44 27 14.5			168
/1982g	1982	09 01.71233	12 14 44.56	+44 17 06.2			168
/1982g	1982	09 03.69097	12 21 11.73	+43 53 36.1			168
/1982g	1982	09 04.68472	12 23 58.13	+43 40 29.2			168
/1982g	1982	09 08.75851	12 32 50.30	+42 41 21.8			168
/1982g	1982	09 21.71042	12 47 11.39	+39 22 16.7			168
		Periodic Comet Tempel 1					
/1982j	1983	03 07.94136	13 12 22.68	+13 18 47.4			491
/1982j	1983	03 08.97810	13 12 13.93	+13 25 37.4			491
/1982j	1983	03 09.97572	13 12 03.45	+13 32 14.3			491
/1982j	1983	04 08.97552	12 53 18.92	+15 53 22.1			491
/1982j	1983	04 09.94164	12 52 25.95	+15 53 39.9			491
/1982j	1983	04 12.94452	12 49 41.14	+15 52 04.1			491
/1982j	1983	04 13.86528	12 48 50.64	+15 50 46.2			119
/1982j	1983	04 13.91250	12 48 47.90	+15 50 41.4			119
/1982j	1983	04 13.94352	12 48 46.62	+15 50 37.5			491
/1982j	1983	04 14.79375	12 48 00.23	+15 49 02.0			119
/1982j	1983	05 11.06336	12 31 54.28	+12 06 20.2			491
/1982j	1983	05 18.99164	12 31 54.58	+09 59 08.2			491

/1982j	1983	06	01.83111	12	38	24.28	+05	29	21.3	119
/1982j	1983	06	01.86028	12	38	25.52	+05	28	43.6	119

Periodic Comet Kopff

/1982k	1983	04	09.07976	15	45	07.38	-11	10	15.1	491
/1982k	1983	04	10.09070	15	45	26.11	-11	07	37.6	491
/1982k	1983	04	12.98815	15	46	10.24	-10	59	43.2	491
/1982k	1983	04	13.98957	15	46	22.07	-10	56	49.1	491
/1982k	1983	05	11.03185	15	41	11.92	-09	32	17.5	491
/1982k	1983	05	19.01554	15	36	39.19	-09	15	24.1	491

Periodic Comet Pons-Winnecke

/1983b	1983	04	16.73438	21	29	36.00	-15	02	53.7	4 474

Comet IRAS-Araki-Alcock (1983d)

/1983d	1983	05	04.95925	18	49	51.53	+54	18	56.1	049
/1983d	1983	05	04.96479	18	49	49.86	+54	19	20.7	049
/1983d	1983	05	05.88520	18	44	12.64	+55	49	28.0	049
/1983d	1983	05	05.89073	18	44	10.19	+55	50	01.0	049
/1983d	1983	05	05.97076	18	43	36.11	+55	59	38.9	491
/1983d	1983	05	05.97387	18	43	34.61	+55	59	52.8	491
/1983d	1983	05	08.89983	17	40	53.75	+66	25	55.9	049
/1983d	1983	05	08.90262	17	40	44.34	+66	26	54.9	049
/1983d	1983	05	09.88646	15	43	01.72	+73	12	45.9	102
/1983d	1983	05	09.88767	15	42	44.60	+73	13	11.4	102
/1983d	1983	05	09.88889	15	42	29.66	+73	13	34.4	102
/1983d	1983	05	09.92049	15	35	08.51	+73	23	51.9	102
/1983d	1983	05	09.92448	15	34	12.12	+73	25	07.2	102
/1983d	1983	05	09.92688	15	33	55.01	+73	26	16.5	491
/1983d	1983	05	09.93693	15	31	32.85	+73	29	20.8	491
/1983d	1983	05	09.94175	15	30	01.22	+73	30	20.7	102
/1983d	1983	05	09.95278	15	27	18.68	+73	33	42.8	102
/1983d	1983	05	09.95718	15	26	31.82	+73	35	26.8	491
/1983d	1983	05	09.96549	15	24	26.91	+73	37	42.2	491
/1983d	1983	05	09.96965	15	23	23.80	+73	38	54.9	491
/1983d	1983	05	09.97597	15	21	46.00	+73	40	39.4	491
/1983d	1983	05	10.83628	10	58	55.59	+65	43	33.1	102
/1983d	1983	05	10.83929	10	58	13.44	+65	38	38.0	102
/1983d	1983	05	10.84034	10	57	58.86	+65	36	55.4	102
/1983d	1983	05	10.84103	10	57	48.98	+65	35	46.8	102
/1983d	1983	05	10.84172	10	57	39.39	+65	34	39.4	102
/1983d	1983	05	10.84261	10	57	26.35	+65	33	42.8	085
/1983d	1983	05	10.84474	10	56	56.96	+65	30	05.8	085
/1983d	1983	05	10.84690	10	56	27.40	+65	26	34.6	085
/1983d	1983	05	10.84862	10	56	02.91	+65	23	40.8	085
/1983d	1983	05	10.85042	10	55	38.62	+65	20	48.8	085
/1983d	1983	05	10.85836	10	53	49.84	+65	07	00.4	102
/1983d	1983	05	10.85940	10	53	35.57	+65	05	16.3	102
/1983d	1983	05	10.85978	10	53	30.73	+65	04	36.6	102
/1983d	1983	05	10.86408	10	52	31.81	+64	57	51.4	085
/1983d	1983	05	10.86410	10	52	31.68	+64	57	49.5	085
/1983d	1983	05	10.86609	10	52	04.41	+64	54	23.9	085
/1983d	1983	05	10.86612	10	52	04.27	+64	54	22.4	085
/1983d	1983	05	10.87248	10	50	49.38	+64	44	52.6	491
/1983d	1983	05	10.87260	10	50	37.03	+64	43	19.8	085
/1983d	1983	05	10.87261	10	50	37.19	+64	43	18.7	085
/1983d	1983	05	10.87525	10	50	12.30	+64	40	09.7	491
/1983d	1983	05	10.87793	10	49	36.66	+64	35	33.8	491
/1983d	1983	05	10.87906	10	49	11.78	+64	32	27.4	085

/1983d	1983	05	10.87909	10	49	11.70	+64	32	13.6		085
/1983d	1983	05	10.88070	10	48	59.39	+64	30	44.0		491
/1983d	1983	05	10.88249	10	48	26.01	+64	26	13.6		085
/1983d	1983	05	10.88252	10	48	26.69	+64	26	16.2		085
/1983d	1983	05	10.88408	10	48	14.89	+64	24	56.6		491
/1983d	1983	05	10.91392	10	41	44.51	+63	29	54.7		102
/1983d	1983	05	10.91461	10	41	35.96	+63	28	38.9		102
/1983d	1983	05	10.91603	10	41	18.26	+63	26	04.4		102
/1983d	1983	05	11.79364	08	58	24.63	+28	25	25.7		085
/1983d	1983	05	11.79482	08	58	20.23	+28	22	27.8		085
/1983d	1983	05	11.79569	08	58	16.91	+28	20	14.8		085
/1983d	1983	05	11.84138	08	55	28.35	+26	25	58.5		085
/1983d	1983	05	11.85691	08	54	34.02	+25	47	55.7		085
/1983d	1983	05	11.85823	08	54	29.69	+25	44	36.2		085
/1983d	1983	05	11.86098	08	54	20.40	+25	37	58.4		085
/1983d	1983	08	14.73704	07	16	51.70	-51	23	20.3	5	474
/1983d	1983	08	14.75845	07	16	51.27	-51	23	38.4		474
/1983d	1983	10	04.59582	05	48	55.44	-65	23	58.1	18.6N 5	474
/1983d	1983	10	04.63853	05	48	45.57	-65	24	29.3		474

Comet Saigusa-Sugano-Fujikawa (1983e)

/1983e	1983	05	13.02124	01	21	59.49	+40	22	12.2		085

Periodic Comet du Toit-Neujmin-Delporte

/1983g	1983	10	08.17045	23	45	39.16	-01	10	00.0		801

Periodic Comet Johnson

/1983h	1983	10	04.36700	18	43	07.18	-25	19	01.3	17.1N	474
/1983h	1983	10	04.41075	18	43	10.76	-25	19	08.7		474

Periodic Comet Russell 3

/1983i	1983	10	03.99719	19	55	40.11	-04	44	50.4		801
/1983i	1983	10	09.99992	19	58	41.59	-04	57	43.6	6	801

Periodic Comet IRAS

/1983j	1983	09	04.96472	01	16	41.66	+14	31	10.6	11.0T	046
/1983j	1983	09	04.96785	01	16	41.30	+14	31	16.7		046
/1983j	1983	09	07.98403	01	10	21.38	+16	54	55.2		046
/1983j	1983	09	26.79711	00	17	11.33	+30	44	49.9		046
/1983j	1983	09	26.80012	00	17	10.63	+30	44	54.3		046
/1983j	1983	09	27.82731	00	13	49.84	+31	22	05.0		046
/1983j	1983	09	27.83027	00	13	49.13	+31	22	10.1		046
/1983j	1983	09	28.19278	00	12	38.32	+31	35	00.9		657
/1983j	1983	09	28.84340	00	10	30.37	+31	57	38.3		046
/1983j	1983	09	28.84641	00	10	29.75	+31	57	43.1		046
/1983j	1983	09	29.21207	00	09	17.97	+32	10	10.2		657
/1983j	1983	09	29.89774	00	07	02.75	+32	33	15.3		046
/1983j	1983	09	29.90075	00	07	02.36	+32	33	20.6		046
/1983j	1983	09	30.25729	00	05	52.06	+32	45	03.4		657
/1983j	1983	10	01.22500	00	02	41.86	+33	16	12.4		657
/1983j	1983	10	03.96181	23	53	46.67	+34	37	58.9		552
/1983j	1983	10	03.98333	23	53	42.47	+34	38	36.4		552
/1983j	1983	10	03.99722	23	53	39.91	+34	38	57.0		552
/1983j	1983	10	04.27708	23	52	45.89	+34	46	49.0		688
/1983j	1983	10	05.30936	23	49	27.08	+35	14	48.5		657
/1983j	1983	10	09.14629	23	37	27.27	+36	48	05.4		801
/1983j	1983	10	11.31469	23	30	59.14	+37	33	14.0		657
/1983j	1983	10	12.26471	23	28	14.26	+37	51	26.0		657
/1983j	1983	10	18.19735	23	12	26.30	+39	25	03.2		657

Comet Cernis (1983l)

/1983l	1983	07	21.93720	02	42	48.60	+11	09	45.6		186
/1983l	1983	07	22.94525	02	42	42.52	+10	57	32.3		186
/1983l	1983	07	23.95904	02	42	35.18	+10	45	03.1		186
/1983l	1983	07	25.98464	02	42	16.94	+10	19	09.9		119
/1983l	1983	08	14.08402	02	34	57.75	+05	22	30.8		985
/1983l	1983	08	14.11361	02	34	56.68	+05	21	58.2		985
/1983l	1983	08	14.99549	02	34	23.09	+05	05	42.3		119
/1983l	1983	08	15.00000	02	34	22.89	+05	05	36.8		119
/1983l	1983	08	16.99792	02	33	01.87	+04	27	43.2		119
/1983l	1983	08	17.98194	02	32	19.46	+04	08	35.4		119
/1983l	1983	08	18.00694	02	32	18.36	+04	08	04.6		119
/1983l	1983	09	05.71840	02	13	13.55	-02	55	55.8		890
/1983l	1983	09	06.73854	02	11	51.81	-03	22	07.9		890
/1983l	1983	09	07.99525	02	10	08.33	-03	54	46.1		046
/1983l	1983	09	10.10606	02	07	07.46	-04	50	25.1		494
/1983l	1983	09	14.1019	02	01	02.72	-06	38	20.8		494
/1983l	1983	09	29.90903	01	32	39.51	-13	58	47.8		046
/1983l	1983	09	29.91146	01	32	39.24	-13	58	49.7		046
/1983l	1983	10	01.33333	01	29	49.88	-14	37	43.9		657
/1983l	1983	10	01.93206	01	28	38.13	-14	54	02.5		046
/1983l	1983	10	01.93374	01	28	38.05	-14	54	05.3		046
/1983l	1983	10	04.30208	01	23	50.83	-15	57	43.9		688
/1983l	1983	10	05.34514	01	21	43.30	-16	25	09.3		657
/1983l	1983	10	05.63135	01	21	08.08	-16	32	37.4	13.1N	474
/1983l	1983	10	05.63541	01	21	07.62	-16	32	43.7		474
/1983l	1983	10	10.33998	01	11	25.19	-18	32	36.6		657
/1983l	1983	10	11.25208	01	09	31.93	-18	54	58.1		688
/1983l	1983	10	11.33529	01	09	21.54	-18	56	57.2		657

Periodic Comet Crommelin

/1983n	1983	10	27.12326	19	47	54.73	+13	07	36.7		707

Comet IRAS (1983o)

/1983o	1983	08	04.42645	11	25	35.18	-63	17	07.6	16 T	413

Comet Shoemaker (1983p)

/1983p	1983	09	15.74583	23	35	45.62	+17	19	56.5	15 T	372
/1983p	1983	09	29.78148	23	07	03.81	+11	04	00.8	11.2T	046
/1983p	1983	09	29.79572	23	07	02.22	+11	03	39.2		046
/1983p	1983	09	30.24444	23	06	09.36	+10	50	59.0		657
/1983p	1983	10	01.78681	23	03	10.99	+10	08	11.3		046
/1983p	1983	10	01.80093	23	03	09.48	+10	07	47.0		046
/1983p	1983	10	03.89236	22	59	11.98	+09	09	30.5	12.8T	552
/1983p	1983	10	03.91944	22	59	09.03	+09	08	48.4		552
/1983p	1983	10	03.92951	22	59	07.90	+09	08	33.1		552
/1983p	1983	10	03.94479	22	59	06.16	+09	08	04.5		046
/1983p	1983	10	03.95903	22	59	04.40	+09	07	40.2		046
/1983p	1983	10	05.11420	22	56	56.25	+08	35	39.1		808
/1983p	1983	10	05.13983	22	56	53.43	+08	34	57.1		808
/1983p	1983	10	05.78322	22	55	43.35	+08	17	05.9		046
/1983p	1983	10	05.79740	22	55	41.52	+08	16	37.0		046
/1983p	1983	10	06.09416	22	55	09.05	+08	08	29.8		808
/1983p	1983	10	06.12117	22	55	06.07	+08	07	45.7		808
/1983p	1983	10	07.81351	22	52	04.65	+07	21	00.5		494
/1983p	1983	10	08.06342	22	51	37.97	+07	14	11.9		808
/1983p	1983	10	08.11051	22	51	32.98	+07	12	55.0		808
/1983p	1983	10	08.14168	22	51	29.62	+07	12	01.6		808
/1983p	1983	10	09.10952	22	49	48.41	+06	45	32.4		808

/1983p	1983	10	09.12434	22	49	46.89	+06	45	06.4		801
/1983p	1983	10	09.13611	22	49	45.67	+06	44	41.9		675
/1983p	1983	10	09.13722	22	49	45.46	+06	44	47.7		808
/1983p	1983	10	09.18819	22	49	40.43	+06	43	20.2		675
/1983p	1983	10	09.20972	22	49	38.09	+06	42	45.7		675
/1983p	1983	10	09.24722	22	49	34.08	+06	41	43.6		675
/1983p	1983	10	09.27291	22	49	31.38	+06	41	02.1		675
/1983p	1983	10	10.08843	22	48	07.53	+06	18	53.2		808
/1983p	1983	10	10.11267	22	48	05.07	+06	18	14.3		808
/1983p	1983	10	10.82951	22	46	52.43	+05	58	44.4		494
/1983p	1983	10	11.10371	22	46	24.71	+05	51	24.3		808
/1983p	1983	10	11.12795	22	46	22.24	+05	50	45.2		808
/1983p	1983	10	12.25235	22	44	30.69	+05	20	33.5		657
/1983p	1983	10	24.06424	22	27	21.48	+00	22	23.2		707
/1983p	1983	10	28.14618	22	22	29.32	-01	10	32.9		707

Periodic Comet Kowal-Vavrova

/1983t	1983	05	31.87898	15	22	53.50	-14	18	48.1	16 T	046
/1983t	1983	05	31.89039	15	22	53.30	-14	18	44.3		046
/1983t	1983	09	28.40793	16	41	20.63	-18	29	20.1	18 T	413
/1983t	1983	09	28.42182	16	41	21.58	-18	29	22.3		413

Note 1: very faint image; inkdot measured. 2: correction to MPC 8185. 3: very faint and diffuse; measurement uncertain. 4: slightly trailed image. 5: comet on a star trail. 6: poor image.

* * * * *

OBSERVATIONS MADE AT ZIMMERWALD BY P. WILD.

Object	Date	UT	R. A. (1950)			Decl.			N	Obs.
1983 RJ	1983	09 08.03264	00	30	08.47	-11	18	24.1		026
1983 RJ	1983	09 17.03264	00	22	16.76	-11	34	12.2		026
1983 RJ	1983	09 28.94410	00	10	12.45	-11	33	34.4		026
1983 RJ	1983	10 02.95035	00	06	12.72	-11	25	58.1		026
1983 RJ	1983	10 03.02569	00	06	08.13	-11	25	46.9		026
1983 RJ	1983	10 04.91667	00	04	19.83	-11	20	45.2		026
1983 RJ	1983	10 13.91979	23	56	48.31	-10	43	58.1	1	026
1983 SA	1983	10 01.91736	22	50	22.45	+14	08	15.3		026
1983 SA	1983	10 02.89485	22	49	02.63	+14	38	22.0		026
1983 SA	1983	10 04.88270	22	46	35.52	+15	35	13.3		026
1983 SA	1983	10 05.81910	22	45	33.60	+16	00	04.0		026
1983 SA	1983	10 10.87222	22	41	10.53	+17	55	45.2		026
1983 SA	1983	10 12.83750	22	39	59.40	+18	33	29.4		026
1983 SA	1983	10 13.93542	22	39	26.21	+18	53	03.8		026

Note 1: bad image.

OBSERVATIONS MADE AT KLET BY A. MRKOS, Z. VAVROVA AND M. MAHROVA.

Object	Date	UT	R. A. (1950)			Decl.			Mag.	Obs.
82	1983	10 07.88600	01	23	49.66	+08	20	19.6		046
82	1983	10 07.90012	01	23	48.90	+08	20	15.6		046
82	1983	10 09.88096	01	22	07.05	+08	11	55.5		046
82	1983	10 09.89074	01	22	06.56	+08	11	52.3		046
318	1983	09 26.77292	22	13	19.37	-10	47	34.6		046
318	1983	09 26.78428	22	13	19.00	-10	47	37.2		046
920	1983	10 07.99028	02	08	10.82	+08	29	26.3		046
920	1983	10 08.00440	02	08	10.21	+08	29	17.1		046
973	1983	09 29.82176	23	34	02.61	+01	37	57.8		046
973	1983	09 29.83600	23	34	01.90	+01	37	56.5		046
973	1983	10 01.82905	23	32	23.58	+01	35	36.0		046

973	1983	10	01.84317	23	32	22.78	+01	35	33.9	046
973	1983	10	05.81927	23	29	13.42	+01	31	02.4	046
973	1983	10	05.83339	23	29	12.80	+01	31	01.8	046
1044	1983	10	07.92222	01	32	51.43	+04	51	56.3	046
1044	1983	10	07.93704	01	32	50.49	+04	51	51.4	046
1219	1983	10	05.96944	01	42	17.71	+06	56	52.2	046
1219	1983	10	05.98356	01	42	16.95	+06	56	50.1	046
1219	1983	10	06.97865	01	41	21.53	+06	54	09.8	046
1219	1983	10	06.99288	01	41	20.63	+06	54	07.4	046
1219	1983	10	07.92222	01	40	28.16	+06	51	32.4	046
1219	1983	10	07.93704	01	40	27.22	+06	51	30.3	046
1282	1983	09	29.78148	23	03	30.00	+10	06	25.8	046
1282	1983	09	29.79572	23	03	29.35	+10	06	24.2	046
1282	1983	10	01.78681	23	01	52.33	+10	03	07.5	046
1282	1983	10	01.80093	23	01	51.72	+10	03	06.8	046
1282	1983	10	03.94479	23	00	11.30	+09	59	18.6	046
1282	1983	10	03.95903	23	00	10.63	+09	59	17.0	046
1282	1983	10	05.78322	22	58	49.39	+09	55	53.0	046
1282	1983	10	05.79740	22	58	48.80	+09	55	51.4	046
1383	1983	10	07.95689	02	03	38.76	+12	32	20.9	046
1383	1983	10	07.97095	02	03	38.15	+12	32	18.1	046
1692	1983	10	07.95689	02	04	57.39	+12	12	45.5	046
1692	1983	10	07.97095	02	04	56.81	+12	12	43.2	046
1802	1983	09	29.86916	23	38	29.30	-04	54	52.6	046
1802	1983	09	29.88385	23	38	28.75	-04	54	59.5	046
1802	1983	10	01.86389	23	37	02.39	-05	05	14.7	046
1802	1983	10	01.87801	23	37	01.80	-05	05	19.3	046
1802	1983	10	05.85839	23	34	16.09	-05	24	46.7	046
1802	1983	10	05.87274	23	34	15.33	-05	24	51.0	046
1802	1983	10	06.86181	23	33	36.25	-05	29	22.0	046
1802	1983	10	06.87604	23	33	35.59	-05	29	27.8	046
1805	1983	09	05.04667	23	45	28.00	-05	23	38.3	046
2042	1983	10	05.93310	01	31	46.85	+10	00	30.3	046
2042	1983	10	05.94740	01	31	46.05	+10	00	29.0	046
2042	1983	10	06.93866	01	30	55.20	+09	58	13.1	046
2042	1983	10	06.95625	01	30	54.34	+09	58	10.3	046
2042	1983	10	07.88600	01	30	06.36	+09	56	02.2	046
2042	1983	10	07.90012	01	30	05.68	+09	56	00.2	046
2042	1983	10	09.88096	01	28	20.79	+09	51	15.7	046
2042	1983	10	09.89074	01	28	20.30	+09	51	12.7	046
2123	1983	10	05.93310	01	27	58.57	+10	49	31.0	046
2123	1983	10	05.94740	01	27	57.96	+10	49	26.9	046
2123	1983	10	06.93866	01	27	11.18	+10	45	09.3	046
2123	1983	10	06.95625	01	27	10.18	+10	45	04.8	046
2123	1983	10	07.88600	01	26	26.04	+10	41	00.0	046
2123	1983	10	07.90012	01	26	25.27	+10	40	55.7	046
2123	1983	10	09.88096	01	24	49.39	+10	32	03.8	046
2123	1983	10	09.89074	01	24	48.88	+10	32	01.0	046
2125	1983	09	26.77292	22	09	38.94	-10	03	33.7	046
2125	1983	09	26.78428	22	09	38.47	-10	03	37.1	046
2166	1983	10	07.99028	02	03	43.00	+06	17	19.4	046
2166	1983	10	08.00440	02	03	42.03	+06	17	09.3	046
2181	1983	10	05.93310	01	28	56.94	+10	24	08.7	046
2181	1983	10	05.94740	01	28	56.23	+10	24	08.4	046
2181	1983	10	06.93866	01	27	56.96	+10	23	26.4	046
2181	1983	10	06.95625	01	27	55.93	+10	23	25.8	046
2181	1983	10	07.88600	01	27	00.11	+10	22	45.1	046
2181	1983	10	07.90012	01	26	59.22	+10	22	42.9	046
2181	1983	10	09.88096	01	24	58.05	+10	21	04.7	046

2181			1983	10	09.89074	01	24	57.65	+10	21	05.1	046
2258			1983	10	05.81927	23	38	45.11	-00	18	31.9	046
2258			1983	10	05.83339	23	38	44.44	-00	18	34.8	046
2441			1983	09	29.86916	23	39	45.02	-07	27	56.8	16.8 046
2441			1983	09	29.88385	23	39	44.45	-07	28	00.7	046
2727			1983	09	29.82176	23	39	51.83	+00	09	18.9	16.8 046
2727			1983	09	29.83600	23	39	51.11	+00	09	13.4	046
2727			1983	10	01.82905	23	38	17.54	-00	03	46.2	046
2727			1983	10	01.84317	23	38	17.04	-00	03	49.8	046
2727			1983	10	05.81927	23	35	18.01	-00	29	05.3	046
2727			1983	10	05.83339	23	35	17.26	-00	29	10.7	046
1978	WH14		1983	10	05.96944	01	37	39.77	+07	31	20.4	046
1978	WH14		1983	10	05.98356	01	37	39.33	+07	31	17.2	046
1978	WH14		1983	10	06.97865	01	36	56.40	+07	26	42.0	046
1978	WH14		1983	10	06.99288	01	36	55.78	+07	26	37.3	046
1978	WH14		1983	10	07.92222	01	36	15.22	+07	22	16.1	046
1978	WH14		1983	10	07.93704	01	36	14.42	+07	22	10.8	046
1979	SF		1983	08	15.90714	20	46	35.74	-22	59	02.5	046
1979	SF		1983	08	15.92126	20	46	34.95	-22	59	01.6	046
1980	YL		1983	10	01.90069	00	45	36.21	-08	35	16.9	046
1980	YL		1983	10	01.91481	00	45	35.71	-08	35	20.0	046
1980	YL		1983	10	05.89705	00	41	34.58	-08	52	44.3	046
1980	YL		1983	10	05.91123	00	41	33.85	-08	52	50.9	046
1980	YL		1983	10	06.90365	00	40	33.31	-08	56	43.3	046
1980	YL		1983	10	06.91782	00	40	32.67	-08	56	45.7	046
1983	RB2	*	1983	09	05.98762	23	33	26.58	+00	15	21.8	16.8 046
1983	RB2		1983	09	06.00179	23	33	26.22	+00	15	12.5	046
1983	RB2		1983	09	07.95226	23	32	08.92	-00	11	16.0	046
1983	RB2		1983	09	07.96684	23	32	08.32	-00	11	28.9	046
1983	RB2		1983	09	08.93624	23	31	29.44	-00	24	44.9	046
1983	RB2		1983	09	08.95036	23	31	28.69	-00	24	58.8	046
1983	SD	*	1983	09	27.77471	22	58	22.80	+03	22	23.7	16.8 046
1983	SD		1983	09	27.78883	22	58	22.10	+03	22	26.9	046
1983	SD		1983	09	28.78003	22	57	40.66	+03	19	26.8	046
1983	SD		1983	09	28.79554	22	57	39.96	+03	19	22.9	046
1983	SE	*	1983	09	27.77471	23	00	16.30	+03	58	26.0	17.2 046
1983	SE		1983	09	27.78883	23	00	15.46	+03	58	22.5	046
1983	SF	*	1983	09	29.78148	23	03	09.10	+10	11	46.1	16.8 046
1983	SF		1983	09	29.79572	23	03	08.53	+10	11	42.4	046
1983	SF		1983	10	01.78681	23	01	50.00	+10	02	38.4	046
1983	SF		1983	10	01.80093	23	01	49.56	+10	02	36.2	046
1983	SF		1983	10	03.94479	23	00	29.55	+09	52	36.6	046
1983	SF		1983	10	03.95903	23	00	28.93	+09	52	37.8	046
1983	SF		1983	10	05.78322	22	59	25.71	+09	43	57.9	046
1983	SF		1983	10	05.79740	22	59	25.11	+09	43	53.7	046
1983	SG	*	1983	09	29.82176	23	40	29.31	+01	21	30.1	16.7 046
1983	SG		1983	09	29.83600	23	40	28.47	+01	21	26.3	046
1983	SG		1983	10	01.82905	23	38	52.84	+01	12	38.5	046
1983	SG		1983	10	01.84317	23	38	52.26	+01	12	34.6	046
1983	SG		1983	10	05.81927	23	35	53.39	+00	55	39.4	046
1983	SG		1983	10	05.83339	23	35	52.78	+00	55	36.4	046
1983	SH	*	1983	09	29.86916	23	34	56.60	-07	00	25.4	16.4 046
1983	SH		1983	09	29.88385	23	34	56.09	-07	00	30.7	046
1983	SJ	*	1983	09	29.86916	23	40	18.69	-05	33	18.7	16.8 046
1983	SJ		1983	09	29.88385	23	40	18.06	-05	33	21.3	046
1983	SK	*	1983	09	29.86916	23	40	51.15	-03	24	28.6	16.5 046
1983	SK		1983	09	29.88385	23	40	50.43	-03	24	35.8	046
1983	TE	*	1983	10	01.82905	23	39	29.81	+00	11	15.2	046
1983	TE		1983	10	01.84317	23	39	29.19	+00	11	10.3	046

1983	TF	*	1983	10	01.86389	23	35	47.26	-03	54	09.7	16.7	046
1983	TF		1983	10	01.87801	23	35	46.26	-03	54	17.3		046
1983	TG	*	1983	10	01.86389	23	40	45.03	-06	29	14.7	17.0	046
1983	TG		1983	10	01.87801	23	40	44.32	-06	29	17.3		046
1983	TG		1983	10	05.85839	23	38	09.82	-06	43	25.6		046
1983	TG		1983	10	05.87274	23	38	09.29	-06	43	28.5		046
1983	TH	*	1983	10	01.90069	00	45	16.98	-06	48	45.2	16.4	046
1983	TH		1983	10	01.91481	00	45	16.13	-06	48	44.8		046
1983	TH		1983	10	05.89705	00	41	07.01	-06	49	04.1		046
1983	TH		1983	10	05.91123	00	41	06.09	-06	49	05.1		046
1983	TH		1983	10	06.90365	00	40	03.78	-06	48	40.1		046
1983	TH		1983	10	06.91782	00	40	02.68	-06	48	40.0		046
1983	TJ	*	1983	10	05.85839	23	30	13.06	-07	16	38.2	17.0	046
1983	TJ		1983	10	05.87274	23	30	12.38	-07	16	34.6		046
1983	TK	*	1983	10	05.85839	23	37	19.08	-04	20	54.3	16.7	046
1983	TK		1983	10	05.87274	23	37	18.10	-04	20	57.8		046
1983	TL	*	1983	10	05.93310	01	26	56.28	+10	08	32.9	16.8	046
1983	TL		1983	10	05.94740	01	26	55.42	+10	08	30.2		046
1983	TL		1983	10	06.93866	01	26	08.06	+10	06	18.2		046
1983	TL		1983	10	06.95625	01	26	07.15	+10	06	15.5		046
1983	TL		1983	10	07.88600	01	25	22.60	+10	04	10.1		046
1983	TL		1983	10	07.90012	01	25	21.85	+10	04	06.0		046
1983	TL		1983	10	09.88096	01	23	44.42	+09	59	23.2		046
1983	TL		1983	10	09.89074	01	23	43.89	+09	59	24.7		046
1983	TM	*	1983	10	05.96944	01	32	05.03	+07	56	23.8	16.7	046
1983	TM		1983	10	05.98356	01	32	04.21	+07	56	16.6		046
1983	TM		1983	10	06.97865	01	31	11.17	+07	50	07.1		046
1983	TM		1983	10	06.99288	01	31	10.36	+07	50	03.2		046
1983	TM		1983	10	07.92222	01	30	20.35	+07	44	13.8		046
1983	TM		1983	10	07.93704	01	30	19.53	+07	44	05.9		046
1983	TM		1983	10	09.88096	01	28	32.94	+07	31	49.7		046
1983	TM		1983	10	09.89074	01	28	32.26	+07	31	45.0		046
1983	TN	*	1983	10	05.96944	01	38	27.91	+05	33	52.7		046
1983	TN		1983	10	05.98356	01	38	27.13	+05	33	49.2		046
1983	TN		1983	10	06.97865	01	37	38.69	+05	29	04.6		046
1983	TN		1983	10	06.99288	01	37	37.76	+05	28	59.1		046
1983	TN		1983	10	07.92222	01	36	52.18	+05	24	32.3		046
1983	TN		1983	10	07.93704	01	36	51.28	+05	24	27.1		046
1983	TO	*	1983	10	05.96944	01	41	29.62	+07	24	06.7	16.8	046
1983	TO		1983	10	05.98356	01	41	29.04	+07	23	59.8		046
1983	TO		1983	10	06.97865	01	40	48.86	+07	17	14.7		046
1983	TO		1983	10	06.99288	01	40	48.20	+07	17	07.9		046
1983	TO		1983	10	07.92222	01	40	10.37	+07	10	43.0		046
1983	TO		1983	10	07.93704	01	40	09.77	+07	10	37.2		046
1983	TP	*	1983	10	06.93866	01	30	42.42	+08	19	11.5	16.7	046
1983	TP		1983	10	06.95625	01	30	41.58	+08	19	06.3		046
1983	TP		1983	10	07.88600	01	30	00.68	+08	11	28.0		046
1983	TP		1983	10	07.90012	01	29	59.95	+08	11	19.9		046
1983	TQ	*	1983	10	07.88600	01	19	24.64	+09	48	42.2	17.2	046
1983	TQ		1983	10	07.90012	01	19	23.51	+09	48	38.7		046
1983	TR	*	1983	10	07.88600	01	19	55.20	+10	35	46.6	16.0	046
1983	TR		1983	10	07.90012	01	19	54.71	+10	35	40.3		046
1983	TR		1983	10	09.88096	01	18	36.47	+10	21	19.9		046
1983	TR		1983	10	09.89074	01	18	36.01	+10	21	14.4		046
1983	TS	*	1983	10	07.95689	02	02	04.87	+11	05	08.6	16.0	046
1983	TS		1983	10	07.97095	02	02	04.37	+11	05	06.0		046
1983	TT	*	1983	10	07.95689	02	04	07.46	+14	56	57.9	17.0	046
1983	TT		1983	10	07.97095	02	04	06.65	+14	56	56.2		046

1983 TU	*	1983	10	07.99028	01	58	29.92	+07	28	10.7	16.2 046
1983 TU		1983	10	08.00440	01	58	28.80	+07	28	10.7	046

OBSERVATIONS MADE AT KVISTABERG BY T. OJA. MEASURED BY G. HAHN.

Object	Date	UT	R. A. (1950)			Decl.			N Obs.
1983 RD	1983	10 07.09492	04	10	10.4	-13	51	15	1 049
1983 RD	1983	10 07.10323	04	10	12.3	-13	51	25	1 049

Note 1: beginning and end of trail.

OBSERVATIONS MADE AT TURKU. MEASURED BY L. OTERMA.

Object	Date	UT	R. A. (1950)			Decl.			N Obs.
77	1945	09 07.98009	02	15	13.15	+14	34	22.0	062
77	1945	09 07.99977	02	15	13.24	+14	34	23.5	062
176	1945	09 07.98009	02	21	22.72	+14	54	55.2	062
176	1945	09 07.99977	02	21	22.85	+14	54	45.8	062
305	1938	10 21.89310	01	33	08.86	+10	08	42.4	1 062
333	1940	04 09.91689	13	47	47.12	-14	08	28.2	2 062
333	1940	04 09.95045	13	47	45.58	-14	08	22.2	2 062
333	1940	04 11.93466	13	46	16.88	-14	01	51.9	062
340	1940	03 30.85498	12	25	00.31	+00	00	25.3	062
340	1940	03 30.89954	12	24	58.06	+00	00	35.8	062
340	1940	04 04.87050	12	20	44.77	+00	19	37.7	062
365	1940	03 30.85498	12	33	37.40	-02	24	29.7	062
365	1940	03 30.89954	12	33	35.35	-02	24	08.9	062
365	1940	04 04.87050	12	29	56.66	-01	43	47.7	3 062
399	1951	10 25.82017	00	42	12.74	+15	57	09.0	4 062
399	1951	10 25.84338	00	42	11.66	+15	57	03.9	4 062
399	1951	10 25.86630	00	42	10.56	+15	57	00.1	4 062
428	1953	10 13.98310	02	55	06.73	+20	14	34.2	062
428	1953	10 14.00787	02	55	05.59	+20	14	41.1	062
464	1949	03 27.02135	12	57	23.91	+09	25	06.6	062
464	1949	03 27.05804	12	57	22.15	+09	25	18.7	062
482	1949	04 24.89663	12	49	41.88	+02	21	46.8	5 062
482	1949	04 24.90971	12	49	41.35	+02	21	54.0	5 062
482	1949	04 24.92927	12	49	40.68	+02	21	58.9	062
482	1949	04 24.94362	12	49	40.21	+02	22	07.3	062
529	1946	03 29.98742	13	12	39.55	+06	01	59.3	062
529	1946	03 30.03105	13	12	37.72	+06	02	06.4	062
529	1946	04 04.91189	13	07	58.20	+06	22	42.2	6 062
544	1954	09 29.87981	00	19	35.70	+16	14	43.4	062
544	1954	09 29.91396	00	19	33.78	+16	14	32.5	062
544	1954	10 01.87582	00	17	43.89	+16	05	08.0	7 062
565	1948	10 08.82118	22	42	12.24	+05	27	54.9	062
565	1948	10 08.86493	22	42	11.29	+05	27	34.4	062
567	1940	10 03.88095	01	16	23.98	-01	49	10.2	062
567	1940	10 03.91538	01	16	22.24	-01	49	19.9	062
635	1945	04 15.86160	12	56	03.26	-02	02	40.5	8 062
635	1945	04 15.88394	12	56	02.51	-02	02	31.0	062
808	1942	09 08.01358	00	49	42.92	+05	06	33.7	062
808	1942	09 11.97278	00	47	33.04	+04	45	29.6	062
808	1942	09 11.99986	00	47	31.98	+04	45	20.7	062
846	1946	03 30.83069	11	12	14.95	+04	46	13.4	9 062
846	1946	03 30.86623	11	12	13.61	+04	46	26.5	062
846	1946	04 03.85866	11	09	53.17	+05	01	22.6	062
846	1946	04 03.88759	11	09	52.37	+05	01	26.7	062
1581	1949	03 27.01383	12	12	18.09	+02	49	41.0	5 062
1581	1949	03 27.05041	12	12	16.46	+02	49	50.4	062
1581	1949	03 28.94120	12	10	53.23	+02	59	02.0	A 062
1581	1949	04 01.94275	12	07	59.77	+03	17	39.4	062

1605		1946	03	30.83069	11	01	40.51	+05	42	27.6		062
1605		1946	03	30.86623	11	01	39.21	+05	42	40.0		062
1605		1946	04	03.85866	10	59	40.92	+06	08	37.3	5	062
1605		1946	04	03.88759	10	59	40.23	+06	08	48.5		062
1650		1941	10	16.04722	03	22	08.81	+16	55	22.7		062
1650		1941	10	16.08507	03	22	07.01	+16	55	15.6		062
1703		1940	10	03.88095	01	15	11.70	-01	59	18.7		062
1703		1940	10	03.91538	01	15	09.69	-01	59	31.6		062
1768		1942	10	03.92789	00	33	29.00	+03	11	46.4		062
2534		1942	09	08.01358	00	50	14.14	+05	03	06.4		062
2534		1942	09	11.97278	00	48	13.89	+04	48	54.6		062
2534		1942	09	11.99986	00	48	12.91	+04	48	47.6		062
2534		1942	10	03.82570	00	33	32.07	+03	07	25.7		062
2534		1942	10	03.92789	00	33	27.40	+03	06	54.2		062
1948	TK2	1948	10	08.82118	22	44	11.09	+05	26	02.5		062
1948	TK2	1948	10	08.86493	22	44	09.87	+05	25	52.2		062

Note 1: correction to Turku Informo No. 32. 2: approximate position on RI 2125 in error. 3: approximate position on RI 2124 in error. 4: approximate position on MPC 928 in error. 5: object close to plate edge, transferred. 6: approximate position on MPC 222 in error. 7: approximate position on MPC 1299 in error. 8: image irregular in shape. 9: double points not very satisfactory. A: image very faint.

OBSERVATIONS MADE AT THE BULGARIAN NATIONAL OBSERVATORY, SMOLYAN, BY E. HELIN, V. SHKODROV, V. IVANOVA AND A. THINTHAROVA.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
2581		1983	09 28.74653	23 25 59.55	+01 09 27.3	17		071
2581		1983	09 28.79097	23 25 57.17	+01 09 09.8			071
2581		1983	09 28.81667	23 25 55.80	+01 09 00.3			071
2581		1983	09 28.83055	23 25 55.10	+01 08 55.0			071
2581		1983	09 29.73472	23 25 06.46	+01 03 00.9			071
2581		1983	09 29.78473	23 25 03.70	+01 02 41.2			071
2581		1983	09 29.80764	23 25 02.78	+01 02 34.9			071
2581		1983	09 29.82084	23 25 02.00	+01 02 28.4			071
2581		1983	09 30.87750	23 24 05.99	+00 55 37.6			071
2581		1983	09 30.89699	23 24 04.73	+00 55 28.2			071
2581		1983	09 30.91667	23 24 04.00	+00 55 23.0			071
2581		1983	09 30.92986	23 24 03.41	+00 55 18.2			071
2581		1983	10 05.88735	23 19 57.53	+00 24 00.8			071
2581		1983	10 05.92135	23 19 56.00	+00 23 48.3			071
2919		1983	09 03.97847	01 18 12.97	+07 19 49.1		1	071
2919		1983	09 04.00278	01 18 12.49	+07 19 45.7		1	071
1981	EE20	1983	09 04.01528	01 43 47.91	+10 36 28.4		1	071
1981	EE20	1983	09 04.03958	01 43 47.49	+10 36 26.3		1	071
1983	RT2 *	1983	09 04.01528	01 43 22.74	+10 38 30.2		1	071
1983	RT2	1983	09 04.03958	01 43 22.63	+10 38 28.6		1	071
1983	RU2 *	1983	09 04.01528	01 43 16.88	+10 37 49.8		1	071
1983	RU2	1983	09 04.03958	01 43 16.76	+10 37 42.3		1	071
1983	SB *	1983	09 28.74653	23 27 14.09	+01 15 18.2	17.5		071
1983	SB	1983	09 28.79097	23 27 12.14	+01 14 58.6			071
1983	SB	1983	09 28.81667	23 27 11.48	+01 14 47.6			071
1983	SB	1983	09 28.83055	23 27 10.44	+01 14 41.9			071
1983	SB	1983	09 29.73472	23 26 32.24	+01 07 54.0			071
1983	SB	1983	09 29.78473	23 26 30.14	+01 07 33.0			071
1983	SB	1983	09 29.80764	23 26 29.47	+01 07 23.3			071
1983	SB	1983	09 29.82084	23 26 28.80	+01 07 18.4			071
1983	SB	1983	09 29.83333	23 26 28.00	+01 07 10.2			071
1983	SB	1983	09 29.89792	23 26 25.26	+01 06 42.9			071
1983	SB	1983	09 30.87750	23 25 45.09	+00 59 28.0			071

1983 SB		1983	09	30.89699	23	25	44.27	+00	59	20.4		071
1983 SB		1983	09	30.91667	23	25	43.47	+00	59	11.0		071
1983 SB		1983	09	30.92986	23	25	43.01	+00	59	05.2		071
1983 SB		1983	10	05.88735	23	22	40.01	+00	23	44.1		071
1983 SB		1983	10	05.92135	23	22	38.98	+00	23	31.9		071
1983 SC	*	1983	09	28.74653	23	27	37.81	+01	02	01.5	18	071
1983 SC		1983	09	28.79097	23	27	35.52	+01	01	52.1		071
1983 SC		1983	09	28.81667	23	27	34.36	+01	01	47.8		071
1983 SC		1983	09	28.83055	23	27	33.71	+01	01	45.2		071
1983 SC		1983	09	29.73472	23	26	48.66	+00	58	42.6		071
1983 SC		1983	09	29.78473	23	26	46.05	+00	58	32.8		071
1983 SC		1983	09	29.80764	23	26	45.09	+00	58	29.1		071
1983 SC		1983	09	29.82084	23	26	44.39	+00	58	25.4		071
1983 SC		1983	09	29.83333	23	26	43.59	+00	58	21.5		071
1983 SC		1983	09	29.89792	23	26	40.57	+00	58	08.9		071
1983 SC		1983	09	30.87750	23	25	52.54	+00	54	54.5		071
1983 SC		1983	09	30.89699	23	25	51.54	+00	54	50.7		071
1983 SC		1983	09	30.91667	23	25	50.70	+00	54	47.1		071
1983 SC		1983	09	30.92986	23	25	50.14	+00	54	45.5		071
1983 SC		1983	10	05.88735	23	21	59.35	+00	38	46.0		071
1983 SC		1983	10	05.92135	23	21	58.05	+00	38	40.4		071
1983 TL		1983	09	04.01528	01	43	31.46	+10	32	08.8	1	071
1983 TL		1983	09	04.03958	01	43	31.18	+10	32	10.5	1	071

Note 1: trail ends on 2-m reflector plate measured by S. Swanson.

ORBSERVATIONS MADE AT GEISEI BY T. SEKI.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1983 VC	*	1983	11 01.67049	02 42 11.06	+20 18 04.4	16	372
1983 VC		1983	11 06.59028	02 37 04.72	+19 50 14.6	16.5	372
1983 VD	*	1983	11 06.59028	02 36 59.76	+20 05 45.7	16.5	372
1983 VD		1983	11 07.63195	02 35 58.70	+20 00 18.5	16.5	372

OBSERVATIONS MADE WITH THE 1.2-M U.K. SCHMIDT TELESCOPE AT SIDING SPRING BY J. DAWE, J. BARROW, M. HARTLEY, D. MORGAN, K. RUSSELL AND A. SAVAGE IN THE COURSE OF THE U.K.-CALTECH ASTEROID SURVEY UNDER THE DIRECTION OF E. HELIN AND E. SHOEMAKER. SCANNED AND MEASURED BY S. J. BUS (WITH ASSISTANCE FROM R. S. DUNBAR).

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
969	1981	03 03.56736	11 54 10.52	-02 47 04.0			413
969	1981	03 03.61076	11 54 08.46	-02 46 53.2			413
969	1981	03 07.60751	11 50 43.44	-02 27 20.1			413
969	1981	03 16.69028	11 42 34.91	-01 38 34.7			413
969	1981	03 16.73195	11 42 32.63	-01 38 20.6			413
1940	1981	03 10.53941	11 34 22.84	-07 47 24.4			413
1940	1981	03 10.58108	11 34 20.90	-07 47 14.5			413
1940	1981	03 12.52945	11 32 51.59	-07 38 28.1			413
1940	1981	03 12.56765	11 32 49.81	-07 38 18.0			413
2354	1981	03 02.63403	12 28 09.85	-02 43 49.7	15.5V		413
2354	1981	03 02.67917	12 28 08.21	-02 43 36.6			413
2354	1981	03 06.60816	12 25 38.52	-02 23 32.4			413
2354	1981	03 11.66134	12 22 06.98	-01 55 37.4			413
2354	1981	03 11.70301	12 22 05.11	-01 55 22.2			413
2354	1981	03 15.69509	12 19 06.32	-01 31 59.8			413
2354	1981	03 15.73328	12 19 04.52	-01 31 44.9			413
2799	1981	03 01.57987	11 57 56.98	-08 29 28.3			413
2799	1981	03 07.66569	11 52 47.91	-08 10 09.6			413
2799	1981	03 11.54742	11 49 15.72	-07 54 26.8			413
2799	1981	03 11.58909	11 49 13.39	-07 54 17.0			413
2799	1981	03 15.64523	11 45 23.03	-07 35 22.6			413

2799		1981	03	15.68342	11	45	20.90	-07	35	12.2	413
1935	QF	1981	03	01.59302	12	28	32.34	-07	08	19.9	17.5V 413
1935	QF	1981	03	01.63816	12	28	30.63	-07	08	03.9	413
1935	QF	1981	03	06.66426	12	25	27.11	-06	38	00.5	413
1935	QF	1981	03	06.70593	12	25	25.48	-06	37	44.6	413
1935	QF	1981	03	08.68165	12	24	07.26	-06	24	56.8	413
1935	QF	1981	03	08.72332	12	24	05.57	-06	24	40.7	413
1935	QF	1981	03	12.58070	12	21	24.35	-05	58	13.1	413
1935	QF	1981	03	12.61890	12	21	22.77	-05	57	57.8	413
1978	QO2	1981	03	11.70301	11	58	05.32	+01	39	02.1	413
1978	QO2	1981	03	15.69509	11	55	12.29	+01	57	51.7	413
1978	QO2	1981	03	15.73328	11	55	10.86	+01	57	59.6	413
1979	SF2	1981	03	12.61890	12	07	54.25	-04	16	53.7	413
1981	DJ	1981	03	02.52074	12	05	28.73	-11	46	12.3	413
1981	DJ	1981	03	02.56588	12	05	27.43	-11	46	03.9	413
1981	DY	1981	03	01.59302	12	12	12.10	-11	17	29.7	413
1981	DA2	1981	03	01.59302	12	22	14.06	-11	26	53.6	413
1981	DR2 *	1981	02	28.55482	12	08	13.19	-13	19	12.4	17.5V 413
1981	DR2	1981	02	28.59996	12	08	10.74	-13	19	16.6	413
1981	DR2	1981	03	06.54930	12	03	09.12	-13	20	27.4	413
1981	DR2	1981	03	06.59096	12	03	06.96	-13	20	29.0	413
1981	DR2	1981	03	07.55280	12	02	15.13	-13	19	57.8	413
1981	DR2	1981	03	07.59447	12	02	13.05	-13	19	56.7	413
1981	DR2	1981	03	08.56669	12	01	20.02	-13	19	13.4	413
1981	DR2	1981	03	08.60836	12	01	17.79	-13	19	12.4	413
1981	DR2	1981	03	10.53941	11	59	30.49	-13	17	14.7	413
1981	DR2	1981	03	10.58108	11	59	28.43	-13	17	11.7	413
1981	DR2	1981	03	12.63230	11	57	32.40	-13	14	18.8	413
1981	DR2	1981	03	12.67049	11	57	30.36	-13	14	15.6	413
1981	DS2 *	1981	02	28.55482	12	08	21.77	-16	30	54.6	19.0V 413
1981	DS2	1981	02	28.59996	12	08	19.88	-16	30	56.6	413
1981	DS2	1981	03	06.54930	12	03	43.04	-16	28	41.1	413
1981	DS2	1981	03	08.56669	12	02	01.70	-16	26	06.7	413
1981	DS2	1981	03	08.60836	12	01	59.47	-16	26	04.4	413
1981	DS2	1981	03	12.63230	11	58	28.50	-16	18	16.0	413
1981	DS2	1981	03	12.67049	11	58	26.55	-16	18	10.7	413
1981	DT2 *	1981	02	28.55482	12	08	57.68	-12	51	18.6	17.0V 413
1981	DT2	1981	02	28.59996	12	08	55.47	-12	51	24.5	413
1981	DT2	1981	03	06.54930	12	03	32.16	-12	59	49.3	413
1981	DT2	1981	03	06.59096	12	03	29.83	-12	59	53.3	413
1981	DT2	1981	03	08.56669	12	01	35.26	-13	01	08.0	413
1981	DT2	1981	03	08.60836	12	01	32.87	-13	01	09.9	413
1981	DT2	1981	03	10.53941	11	59	38.04	-13	01	41.5	413
1981	DT2	1981	03	10.58108	11	59	35.63	-13	01	42.1	413
1981	DT2	1981	03	12.52945	11	57	37.62	-13	01	31.1	413
1981	DT2	1981	03	12.56765	11	57	35.58	-13	01	30.9	413
1981	DT2	1981	03	12.63230	11	57	31.36	-13	01	28.5	413
1981	DT2	1981	03	12.67049	11	57	29.15	-13	01	28.4	413
1981	DU2 *	1981	02	28.55482	12	09	35.61	-14	59	47.8	19.0V 413
1981	DU2	1981	03	06.54930	12	04	47.01	-15	07	01.5	413
1981	DU2	1981	03	06.59096	12	04	45.01	-15	07	04.5	413
1981	DU2	1981	03	08.56669	12	03	01.49	-15	07	46.9	413
1981	DU2	1981	03	08.60836	12	02	59.33	-15	07	48.1	413
1981	DU2	1981	03	12.63230	11	59	17.60	-15	06	47.7	413
1981	DU2	1981	03	12.67049	11	59	15.54	-15	06	46.6	413
1981	DV2 *	1981	02	28.55482	12	10	13.45	-13	11	37.7	18.5V 413
1981	DV2	1981	03	06.54930	12	05	45.25	-11	47	58.9	413
1981	DV2	1981	03	06.59096	12	05	43.09	-11	47	23.8	413
1981	DV2	1981	03	08.56669	12	04	07.98	-11	17	41.9	413

1981	DV2		1981	03	08.60836	12	04	05.94	-11	17	06.1	413
1981	DV2		1981	04	08.55338	11	40	05.40	-02	49	45.5	413
1981	DV2		1981	04	08.58810	11	40	04.27	-02	49	15.6	413
1981	DV2		1981	04	09.50909	11	39	33.54	-02	35	19.7	413
1981	DV2		1981	04	09.54382	11	39	32.42	-02	34	51.1	413
1981	DW2	*	1981	02	28.55482	12	13	58.88	-11	36	26.3	19.5V 413
1981	DW2		1981	02	28.59996	12	13	56.97	-11	36	18.5	413
1981	DW2		1981	03	08.56669	12	07	44.92	-11	10	46.9	413
1981	DW2		1981	03	08.60836	12	07	42.75	-11	10	37.4	413
1981	DW2		1981	03	12.63230	12	04	09.95	-10	52	27.7	413
1981	DW2		1981	03	12.67049	12	04	08.02	-10	52	16.8	413
1981	DW2		1981	04	09.50909	11	38	48.56	-07	45	03.5	413
1981	DW2		1981	04	09.54382	11	38	47.13	-07	44	50.6	413
1981	DX2	*	1981	02	28.55482	12	15	23.06	-14	20	38.1	19.5V 413
1981	DX2		1981	02	28.59996	12	15	20.76	-14	20	34.5	413
1981	DX2		1981	03	08.60836	12	10	12.23	-14	05	36.8	413
1981	DX2		1981	03	12.67049	12	07	15.67	-13	53	18.4	413
1981	DX2		1981	04	09.55619	11	46	29.27	-11	27	49.9	413
1981	DX2		1981	04	09.59091	11	46	28.01	-11	27	37.5	413
1981	DY2	*	1981	02	28.59996	12	16	32.42	-16	21	29.4	19.0V 413
1981	DY2		1981	03	06.54930	12	10	25.40	-16	48	09.6	413
1981	DY2		1981	03	08.56669	12	08	11.94	-16	55	26.7	413
1981	DY2		1981	03	08.60836	12	08	09.15	-16	55	36.4	413
1981	DZ2	*	1981	02	28.55482	12	16	53.13	-17	26	45.8	18.5V 413
1981	DZ2		1981	02	28.59996	12	16	52.12	-17	26	20.5	413
1981	DZ2		1981	03	06.59096	12	14	38.03	-16	21	11.5	413
1981	DZ2		1981	03	08.56669	12	13	45.25	-15	56	51.4	413
1981	DZ2		1981	03	08.60836	12	13	44.17	-15	56	24.3	413
1981	DZ2		1981	03	12.63230	12	11	46.43	-15	02	55.8	413
1981	DZ2		1981	03	12.67049	12	11	45.31	-15	02	27.0	413
1981	DA3	*	1981	02	28.55482	12	17	02.33	-12	43	08.1	20.0V 413
1981	DA3		1981	02	28.59996	12	17	00.41	-12	43	05.4	413
1981	DA3		1981	03	08.60836	12	12	41.47	-12	30	06.1	413
1981	DA3		1981	03	12.67049	12	10	14.84	-12	20	11.9	413
1981	DA3		1981	04	09.55619	11	52	52.71	-10	30	43.3	413
1981	DA3		1981	04	09.59091	11	52	51.56	-10	30	33.7	413
1981	DB3	*	1981	02	28.55482	12	17	41.42	-11	35	28.7	19.5V 413
1981	DB3		1981	03	08.56669	12	12	07.05	-11	02	14.9	413
1981	DB3		1981	03	08.60836	12	12	05.16	-11	02	02.5	413
1981	DB3		1981	03	12.63230	12	09	00.46	-10	41	35.2	413
1981	DB3		1981	04	09.50909	11	47	04.37	-07	37	45.2	413
1981	DB3		1981	04	09.54382	11	47	03.07	-07	37	31.8	413
1981	DC3	*	1981	02	28.55482	12	18	51.90	-11	34	18.6	20.0V 413
1981	DC3		1981	03	08.56669	12	13	14.80	-11	17	27.3	413
1981	DC3		1981	03	08.60836	12	13	12.70	-11	17	19.9	413
1981	DC3		1981	03	12.63230	12	09	55.44	-11	03	21.2	413
1981	DC3		1981	03	12.67049	12	09	53.46	-11	03	12.0	413
1981	DC3		1981	04	09.55619	11	45	32.49	-08	17	50.2	413
1981	DC3		1981	04	09.59091	11	45	31.02	-08	17	33.9	413
1981	DD3	*	1981	02	28.55482	12	19	29.95	-11	39	40.1	19.0V 413
1981	DD3		1981	02	28.59996	12	19	28.32	-11	39	35.7	413
1981	DD3		1981	03	06.54930	12	15	16.71	-11	29	21.2	413
1981	DD3		1981	03	06.59096	12	15	14.93	-11	29	18.3	413
1981	DD3		1981	03	08.60836	12	13	42.35	-11	24	26.4	413
1981	DD3		1981	03	12.63230	12	10	29.37	-11	12	50.3	413
1981	DD3		1981	04	08.63658	11	48	16.07	-09	09	27.3	413
1981	DD3		1981	04	09.55619	11	47	36.74	-09	04	36.4	413
1981	DD3		1981	04	09.59091	11	47	35.33	-09	04	26.2	413
1981	DE3	*	1981	02	28.55482	12	19	35.42	-14	44	06.0	18.5V 413

1981	DE3		1981	02	28.59996	12	19	33.59	-14	44	17.8	413
1981	DE3		1981	03	06.54930	12	14	56.19	-15	04	57.9	413
1981	DE3		1981	03	06.59096	12	14	54.10	-15	05	05.9	413
1981	DE3		1981	03	08.56669	12	13	11.59	-15	10	06.1	413
1981	DE3		1981	03	08.60836	12	13	09.44	-15	10	12.4	413
1981	DE3		1981	03	12.63230	12	09	27.56	-15	17	33.8	413
1981	DE3		1981	03	12.67049	12	09	25.41	-15	17	36.2	413
1981	DF3	*	1981	02	28.55482	12	20	55.22	-15	39	34.3	18.5V 413
1981	DF3		1981	02	28.59996	12	20	53.70	-15	39	43.2	413
1981	DF3		1981	03	06.54930	12	16	55.09	-15	57	03.2	413
1981	DF3		1981	03	06.59096	12	16	53.31	-15	57	11.5	413
1981	DF3		1981	03	08.56669	12	15	23.23	-16	01	12.7	413
1981	DF3		1981	03	08.60836	12	15	21.33	-16	01	17.5	413
1981	DF3		1981	03	12.63230	12	12	03.94	-16	06	47.0	413
1981	DF3		1981	03	12.67049	12	12	01.81	-16	06	48.7	413
1981	DG3	*	1981	02	28.55482	12	21	13.54	-15	19	04.8	15.5V 413
1981	DG3		1981	02	28.59996	12	21	11.90	-15	19	12.3	413
1981	DG3		1981	03	06.54930	12	16	59.53	-15	32	30.3	413
1981	DG3		1981	03	06.59096	12	16	57.69	-15	32	36.3	413
1981	DG3		1981	03	08.56669	12	15	26.29	-15	35	39.9	413
1981	DG3		1981	03	08.60836	12	15	24.34	-15	35	44.1	413
1981	DG3		1981	03	12.63230	12	12	08.64	-15	39	56.8	413
1981	DG3		1981	03	12.67049	12	12	06.75	-15	39	57.9	413
1981	DH3	*	1981	02	28.55482	12	22	07.93	-14	00	09.3	19.0V 413
1981	DH3		1981	02	28.59996	12	22	06.22	-14	00	00.5	413
1981	DH3		1981	03	08.56669	12	16	36.57	-13	28	48.4	413
1981	DH3		1981	03	08.60836	12	16	34.82	-13	28	36.8	413
1981	DH3		1981	03	12.63230	12	13	24.72	-13	07	42.9	413
1981	DH3		1981	03	12.67049	12	13	23.28	-13	07	32.3	413
1981	DH3		1981	04	08.60186	11	50	23.38	-09	43	39.4	413
1981	DH3		1981	04	08.63658	11	50	21.97	-09	43	24.8	413
1981	DH3		1981	04	09.55619	11	49	39.56	-09	35	24.2	413
1981	DH3		1981	04	09.59091	11	49	38.02	-09	35	07.1	413
1981	DJ3	*	1981	02	28.55482	12	23	46.57	-13	29	59.8	19.5V 413
1981	DJ3		1981	03	08.56669	12	18	05.83	-13	16	08.4	413
1981	DJ3		1981	03	08.60836	12	18	04.08	-13	16	04.1	413
1981	DJ3		1981	03	12.67049	12	14	49.95	-13	04	14.9	413
1981	DJ3		1981	04	09.55619	11	52	02.69	-10	44	29.6	413
1981	DJ3		1981	04	09.59091	11	52	01.37	-10	44	17.9	413
1981	DK3	*	1981	02	28.55482	12	24	03.81	-16	17	25.7	18.0V 413
1981	DK3		1981	02	28.59996	12	24	02.13	-16	17	27.1	413
1981	DK3		1981	03	06.54930	12	19	38.37	-16	16	01.5	413
1981	DK3		1981	03	06.59096	12	19	36.53	-16	16	01.7	413
1981	DK3		1981	03	08.56669	12	18	02.08	-16	14	10.2	413
1981	DK3		1981	03	08.60836	12	18	00.15	-16	14	07.8	413
1981	DK3		1981	03	12.63230	12	14	39.37	-16	08	15.2	413
1981	DK3		1981	03	12.67049	12	14	37.50	-16	08	10.7	413
1981	DL3	*	1981	02	28.55482	12	26	17.14	-12	09	04.7	18.5V 413
1981	DL3		1981	02	28.59996	12	26	15.29	-12	08	59.6	413
1981	DL3		1981	03	06.54930	12	21	41.34	-11	56	02.9	413
1981	DL3		1981	03	06.59096	12	21	39.44	-11	55	57.6	413
1981	DL3		1981	03	08.56669	12	19	58.96	-11	49	58.7	413
1981	DL3		1981	03	08.60836	12	19	56.79	-11	49	51.5	413
1981	DL3		1981	04	08.60186	11	50	42.90	-09	00	32.4	413
1981	DL3		1981	04	08.63658	11	50	41.07	-09	00	16.9	413
1981	DL3		1981	04	09.55619	11	49	55.24	-08	54	14.0	413
1981	DL3		1981	04	09.59091	11	49	53.60	-08	54	00.0	413
1981	DM3	*	1981	02	28.55482	12	28	06.39	-12	19	33.4	18.5V 413
1981	DM3		1981	02	28.59996	12	28	03.34	-12	20	01.6	413

1981	DM3		1981	03	06.54930	12	20	02.86	-13	25	22.2		413
1981	DM3		1981	03	06.59096	12	19	59.21	-13	25	47.7		413
1981	DM3		1981	03	08.56669	12	17	02.75	-13	45	39.0		413
1981	DM3		1981	03	08.60836	12	16	59.03	-13	46	02.7		413
1981	DM3		1981	03	12.63230	12	10	38.53	-14	23	15.1		413
1981	DN3	*	1981	02	28.55482	12	28	26.48	-11	22	17.5	20.0V	413
1981	DN3		1981	02	28.59996	12	28	24.64	-11	22	06.6		413
1981	DN3		1981	03	08.56669	12	22	27.87	-10	55	55.7		413
1981	DN3		1981	03	08.60836	12	22	25.92	-10	55	46.8		413
1981	DN3		1981	03	12.67049	12	18	56.45	-10	37	34.4		413
1981	DN3		1981	04	09.50909	11	52	28.42	-07	32	19.8		413
1981	DN3		1981	04	09.54382	11	52	26.63	-07	32	05.1		413
1981	DO3	*	1981	02	28.55482	12	29	55.13	-11	55	50.9	19.0V	413
1981	DO3		1981	02	28.59996	12	29	53.97	-11	55	46.9		413
1981	DO3		1981	03	06.54930	12	26	30.51	-11	46	15.3		413
1981	DO3		1981	03	06.59096	12	26	29.10	-11	46	11.6		413
1981	DO3		1981	03	08.60836	12	25	13.81	-11	41	51.8		413
1981	DO3		1981	03	12.63230	12	22	34.30	-11	31	35.0		413
1981	DO3		1981	03	12.67049	12	22	32.85	-11	31	28.6		413
1981	DP3	*	1981	02	28.55482	12	30	24.64	-13	31	08.7	18.5V	413
1981	DP3		1981	02	28.59996	12	30	23.38	-13	30	59.7		413
1981	DP3		1981	03	06.54930	12	27	16.66	-13	09	29.6		413
1981	DP3		1981	03	08.60836	12	26	03.86	-13	00	29.3		413
1981	DQ3	*	1981	02	28.59996	12	30	48.51	-14	45	29.3	16.0V	413
1981	DQ3		1981	03	06.54930	12	26	50.44	-15	05	33.0		413
1981	DQ3		1981	03	06.59096	12	26	48.65	-15	05	41.2		413
1981	DQ3		1981	03	08.56669	12	25	18.09	-15	10	38.2		413
1981	DQ3		1981	03	08.60836	12	25	16.17	-15	10	44.0		413
1981	DQ3		1981	03	12.63230	12	21	56.96	-15	18	17.6		413
1981	DQ3		1981	03	12.67049	12	21	54.99	-15	18	20.1		413
1981	EE1		1981	03	02.57859	11	53	31.91	+03	11	59.0	16.5V	413
1981	EE1		1981	03	02.62373	11	53	29.98	+03	12	16.3		413
1981	EE1		1981	03	03.56736	11	52	49.06	+03	18	52.5		413
1981	EE1		1981	03	03.61076	11	52	47.12	+03	19	10.5		413
1981	EE1		1981	03	07.60751	11	49	43.83	+03	47	51.9		413
1981	EE1		1981	03	07.64918	11	49	41.81	+03	48	09.5		413
1981	EE1		1981	03	11.60352	11	46	29.14	+04	17	14.2		413
1981	EE1		1981	03	11.64518	11	46	27.03	+04	17	32.1		413
1981	EK3		1981	03	01.53473	11	49	53.02	-08	45	04.7		413
1981	EK3		1981	03	01.57987	11	49	51.03	-08	44	55.4		413
1981	EK3		1981	03	07.66569	11	45	19.51	-08	18	53.0		413
1981	EK3		1981	03	07.70735	11	45	17.62	-08	18	40.5		413
1981	EK3		1981	03	11.54742	11	42	13.23	-07	58	29.7		413
1981	EK3		1981	03	11.58909	11	42	11.26	-07	58	17.2		413
1981	EK3		1981	03	15.64523	11	38	49.88	-07	34	14.3		413
1981	EV3		1981	03	01.53473	11	52	47.27	-08	38	51.9		413
1981	EV3		1981	03	01.57987	11	52	45.21	-08	38	44.0		413
1981	EV3		1981	03	07.66569	11	47	43.47	-08	12	46.2		413
1981	EV3		1981	03	07.70735	11	47	41.17	-08	12	32.8		413
1981	EV3		1981	03	11.54742	11	44	18.69	-07	52	52.8		413
1981	EV3		1981	03	11.58909	11	44	16.49	-07	52	41.1		413
1981	EA4		1981	03	15.64523	11	42	20.14	-07	40	56.6		413
1981	EG5		1981	03	01.53473	12	02	36.59	-08	39	16.5		413
1981	EJ5		1981	03	01.57987	12	03	15.00	-08	37	41.9		413
1981	EJ5		1981	03	07.66569	11	57	48.75	-08	19	55.4		413
1981	EJ5		1981	03	07.70735	11	57	46.27	-08	19	45.0		413
1981	EJ5		1981	03	11.58909	11	53	57.33	-08	04	28.5		413
1981	EP5		1981	03	01.59302	12	05	22.34	-10	39	53.7		413
1981	EP5		1981	03	01.63816	12	05	20.28	-10	39	52.5		413

1981	EQ5	1981	03	01.59302	12	05	20.50	-09 19 35.1	413
1981	EQ5	1981	03	01.63816	12	05	18.51	-09 19 28.1	413
1981	ER5	1981	02	28.55482	12	06	52.72	-12 22 46.8	413
1981	ER5	1981	02	28.59996	12	06	50.58	-12 22 42.1	413
1981	ER5	1981	03	06.54930	12	02	02.02	-12 06 35.7	413
1981	ER5	1981	03	06.59096	12	01	59.87	-12 06 30.1	413
1981	ER5	1981	03	08.56669	12	00	16.96	-11 59 37.6	413
1981	ER5	1981	03	08.60836	12	00	14.87	-11 59 29.8	413
1981	EA6	1981	03	11.54742	11	44	41.67	-07 58 08.3	413
1981	EA6	1981	03	15.64523	11	41	39.33	-07 39 27.5	413
1981	EA6	1981	03	15.68342	11	41	37.56	-07 39 15.4	413
1981	ER6	1981	03	01.59302	12	13	01.29	-11 05 04.3	413
1981	ER6	1981	03	01.63816	12	12	59.54	-11 05 01.3	413
1981	ER6	1981	03	06.66426	12	09	34.59	-10 55 02.1	413
1981	ER6	1981	03	08.72332	12	08	02.63	-10 49 14.5	413
1981	ER6	1981	03	12.58070	12	05	00.90	-10 35 53.2	413
1981	ER6	1981	03	12.61890	12	04	58.99	-10 35 44.8	413
1981	ET6	1981	03	01.63816	12	15	41.65	-10 53 11.6	413
1981	ET6	1981	03	06.66426	12	12	45.31	-10 51 10.9	413
1981	ET6	1981	03	06.70593	12	12	44.06	-10 51 09.7	413
1981	ET6	1981	03	08.68165	12	11	29.85	-10 49 28.4	413
1981	ET6	1981	03	08.72332	12	11	28.33	-10 49 26.1	413
1981	EX6	1981	03	01.59302	12	21	38.60	-10 50 06.5	413
1981	EX6	1981	03	01.63816	12	21	36.99	-10 50 08.4	413
1981	EX6	1981	03	06.66426	12	18	09.73	-10 49 27.4	413
1981	EX6	1981	03	06.70593	12	18	08.04	-10 49 28.4	413
1981	EX6	1981	03	08.72332	12	16	40.20	-10 48 22.4	413
1981	EP7	1981	03	10.53941	11	35	48.36	-08 03 00.4	413
1981	EP7	1981	03	10.58108	11	35	46.09	-08 02 48.3	413
1981	EP7	1981	03	12.52945	11	33	58.22	-07 51 30.2	413
1981	EP7	1981	03	12.56765	11	33	56.14	-07 51 18.4	413
1981	EA8	1981	03	02.62373	11	45	42.87	-02 38 57.4	413
1981	EA8	1981	03	03.56736	11	44	52.75	-02 36 13.5	413
1981	EA8	1981	03	03.61076	11	44	50.33	-02 36 06.7	413
1981	EA8	1981	03	07.60751	11	41	07.09	-02 23 03.5	413
1981	EA8	1981	03	07.64918	11	41	04.64	-02 22 55.8	413
1981	EN9	1981	03	02.62373	11	54	08.25	-02 36 15.6	413
1981	EN9	1981	03	03.56736	11	53	19.57	-02 36 45.9	413
1981	EN9	1981	03	03.61076	11	53	17.24	-02 36 48.3	413
1981	ED10	1981	03	02.57859	11	57	23.56	-02 28 01.6	413
1981	ED10	1981	03	02.62373	11	57	21.61	-02 27 56.1	413
1981	ED10	1981	03	03.56736	11	56	39.75	-02 25 45.0	413
1981	ED10	1981	03	03.61076	11	56	37.72	-02 25 39.4	413
1981	ED10	1981	03	07.60751	11	53	26.77	-02 14 41.8	413
1981	ED10	1981	03	11.60352	11	49	59.25	-02 01 22.8	413
1981	ED10	1981	03	11.64518	11	49	57.01	-02 01 14.8	413
1981	EW10	1981	03	10.53941	11	54	21.16	-07 53 27.4	413
1981	EW10	1981	03	10.58108	11	54	18.96	-07 53 25.2	413
1981	EW10	1981	03	12.56765	11	52	19.20	-07 50 47.2	413
1981	ED11	1981	03	01.63816	12	05	14.27	-07 48 10.4	413
1981	EE11	1981	03	02.67917	12	04	36.09	-03 33 14.0	413
1981	EF11	1981	03	01.59302	12	05	44.58	-06 10 40.4	413
1981	EF11	1981	03	01.63816	12	05	42.37	-06 10 37.2	413
1981	EG11	1981	03	01.59302	12	05	47.98	-07 40 18.2	413
1981	EG11	1981	03	01.63816	12	05	46.17	-07 40 04.1	413
1981	EG11	1981	03	06.66426	12	02	20.22	-07 07 08.7	413
1981	EG11	1981	03	06.70593	12	02	18.44	-07 06 52.7	413
1981	EG11	1981	03	08.68165	12	00	50.72	-06 52 28.1	413
1981	EG11	1981	03	08.72332	12	00	48.91	-06 52 11.0	413

1981	EG11	1981	03	12.58070	11	57	50.44	-06 22 01.7	413
1981	EH11	1981	03	01.63816	12	05	58.52	-05 19 01.6	413
1981	EH11	1981	03	02.67917	12	05	07.18	-05 17 58.7	413
1981	EH11	1981	03	06.70593	12	01	40.68	-05 12 48.8	413
1981	EJ11	1981	03	01.59302	12	06	37.53	-06 14 10.3	413
1981	EJ11	1981	03	01.63816	12	06	35.41	-06 14 02.1	413
1981	EJ11	1981	03	06.66426	12	02	36.57	-05 57 07.9	413
1981	EJ11	1981	03	06.70593	12	02	34.64	-05 57 02.1	413
1981	EJ11	1981	03	08.68165	12	00	53.88	-05 49 19.9	413
1981	EJ11	1981	03	08.72332	12	00	51.80	-05 49 10.8	413
1981	EN11	1981	03	02.57859	11	49	55.26	-02 05 35.2	413
1981	EN11	1981	03	02.62373	11	49	52.41	-02 05 40.4	413
1981	EN11	1981	03	03.61076	11	48	48.93	-02 07 25.6	413
1981	EN11	1981	03	07.60751	11	44	23.55	-02 12 38.4	413
1981	EN11	1981	03	07.64918	11	44	20.64	-02 12 41.6	413
1981	EY11	1981	03	01.59302	12	07	03.90	-05 58 04.5	413
1981	EY11	1981	03	01.63816	12	07	01.31	-05 58 01.9	413
1981	EY11	1981	03	06.66426	12	02	19.97	-05 49 15.4	413
1981	EY11	1981	03	06.70593	12	02	17.58	-05 49 11.2	413
1981	EY11	1981	03	08.68165	12	00	19.74	-05 44 34.3	413
1981	EY11	1981	03	08.72332	12	00	17.36	-05 44 29.7	413
1981	EZ11	1981	03	06.60816	12	03	01.23	-03 36 01.7	413
1981	EZ11	1981	03	06.64983	12	02	58.98	-03 35 53.5	413
1981	EZ11	1981	03	11.66134	11	58	21.77	-03 19 17.4	413
1981	EZ11	1981	03	15.69509	11	54	25.78	-03 03 47.6	413
1981	EZ11	1981	03	15.73328	11	54	23.72	-03 03 40.2	413
1981	EA12	1981	03	02.63403	12	06	21.89	-03 51 27.2	413
1981	EA12	1981	03	06.60816	12	03	06.74	-03 28 56.0	413
1981	EA12	1981	03	06.64983	12	03	04.67	-03 28 41.2	413
1981	EA12	1981	03	11.66134	11	58	36.30	-02 56 47.2	413
1981	EA12	1981	03	11.70301	11	58	34.00	-02 56 31.0	413
1981	EA12	1981	03	15.73328	11	54	47.43	-02 28 48.1	413
1981	EE12	1981	03	10.53941	11	59	31.76	-09 30 34.2	413
1981	EE12	1981	03	10.58108	11	59	29.57	-09 30 24.8	413
1981	EE12	1981	03	12.52945	11	57	37.61	-09 21 39.6	413
1981	EE12	1981	03	12.56765	11	57	35.63	-09 21 29.4	413
1981	EQ13	1981	03	12.63230	12	06	47.46	-10 34 32.1	413
1981	EQ13	1981	03	12.67049	12	06	45.13	-10 34 42.9	413
1981	EZ13	1981	03	08.56669	12	11	49.05	-10 34 19.8	413
1981	EZ13	1981	03	08.60836	12	11	46.76	-10 34 27.8	413
1981	EZ13	1981	03	12.63230	12	07	54.81	-10 46 10.2	413
1981	EZ13	1981	03	12.67049	12	07	52.53	-10 46 15.6	413
1981	ED14	1981	03	02.63403	12	17	24.97	-05 16 03.1	413
1981	ED14	1981	03	02.67917	12	17	23.06	-05 15 59.9	413
1981	EH14	1981	02	28.55482	12	19	06.27	-11 19 00.3	413
1981	EH14	1981	02	28.59996	12	19	04.67	-11 18 44.3	413
1981	ER14	1981	03	08.56669	12	13	16.11	-10 32 24.4	413
1981	ER14	1981	03	08.60836	12	13	13.89	-10 32 22.5	413
1981	ER14	1981	03	12.63230	12	09	20.85	-10 26 49.7	413
1981	ER14	1981	03	12.67049	12	09	18.67	-10 26 45.8	413
1981	EW14	1981	03	12.63230	12	11	04.33	-10 22 34.2	413
1981	EW14	1981	03	12.67049	12	11	02.30	-10 22 31.2	413
1981	EF15	1981	03	12.67049	12	15	38.49	-10 12 44.1	413
1981	ES16	1981	03	11.70301	12	06	54.75	-04 33 54.7	413
1981	ES16	1981	03	15.69509	12	03	27.79	-04 18 23.9	413
1981	EX16	1981	03	02.63403	12	19	42.99	-04 44 20.4	413
1981	EX16	1981	03	06.60816	12	16	22.42	-04 42 51.7	413
1981	EX16	1981	03	06.64983	12	16	20.44	-04 42 50.4	413
1981	EX16	1981	03	11.66134	12	11	50.44	-04 38 58.4	413

1981	EX16	1981	03	11.70301	12	11	48.18	-04 38 55.1	413
1981	EZ16	1981	03	06.60816	12	19	50.89	-04 53 05.2	413
1981	EZ16	1981	03	11.66134	12	15	23.56	-04 41 25.3	413
1981	EZ16	1981	03	11.70301	12	15	21.00	-04 41 15.5	413
1981	EF17	1981	03	16.69028	11	38	34.92	-01 37 39.2	413
1981	EF17	1981	03	16.73195	11	38	32.94	-01 37 17.8	413
1981	EG17	1981	03	16.69028	11	44	46.97	-01 38 00.5	413
1981	EG17	1981	03	16.73195	11	44	45.29	-01 37 27.5	413
1981	EM17	1981	03	11.66134	12	05	21.33	-04 40 36.5	413
1981	EM17	1981	03	11.70301	12	05	19.26	-04 40 20.0	413
1981	EM17	1981	03	15.69509	12	02	08.20	-04 13 57.5	413
1981	EM17	1981	03	15.73328	12	02	06.50	-04 13 42.7	413
1981	EN17	1981	03	11.66134	12	04	41.37	-04 42 31.4	413
1981	EN17	1981	03	11.70301	12	04	39.15	-04 42 15.0	413
1981	EN17	1981	03	15.69509	12	01	02.43	-04 14 32.3	413
1981	EO17	1981	03	02.63403	12	18	46.60	-05 20 24.2	413
1981	EO17	1981	03	02.67917	12	18	44.37	-05 20 09.2	413
1981	EO17	1981	03	06.64983	12	15	31.78	-04 55 57.9	413
1981	EO17	1981	03	11.66134	12	11	06.48	-04 21 59.2	413
1981	EO17	1981	03	15.73328	12	07	18.62	-03 52 12.3	413
1981	EQ17	1981	03	02.63403	12	26	33.74	-05 13 18.5	413
1981	EQ17	1981	03	11.66134	12	20	13.05	-04 30 19.2	413
1981	EQ17	1981	03	11.70301	12	20	11.11	-04 30 05.9	413
1981	EQ17	1981	03	15.69509	12	16	54.14	-04 07 01.2	413
1981	EL18	1981	03	01.53473	11	47	22.19	-02 31 01.8	413
1981	EL18	1981	03	01.57987	11	47	20.25	-02 30 49.2	413
1981	EN18	1981	03	01.53473	11	47	41.68	-02 46 37.5	413
1981	EN18	1981	03	01.57987	11	47	39.95	-02 46 24.2	413
1981	EN18	1981	03	07.66569	11	43	38.40	-02 11 26.4	413
1981	EN18	1981	03	11.58909	11	40	54.18	-01 47 09.2	413
1981	EN18	1981	03	15.64523	11	38	01.03	-01 21 00.4	413
1981	EN18	1981	03	15.68342	11	37	59.28	-01 20 44.4	413
1981	EV18	1981	03	01.53473	11	49	13.20	-02 33 53.1	413
1981	EV18	1981	03	07.70735	11	44	57.91	-02 02 00.1	413
1981	EV18	1981	03	11.54742	11	42	10.03	-01 40 25.5	413
1981	EY18	1981	03	01.53473	11	49	38.60	-02 50 14.3	413
1981	EY18	1981	03	01.57987	11	49	36.21	-02 50 02.3	413
1981	EY18	1981	03	07.66569	11	43	45.66	-02 17 33.0	413
1981	EY18	1981	03	07.70735	11	43	43.21	-02 17 19.0	413
1981	EY18	1981	03	11.54742	11	39	51.38	-01 54 33.5	413
1981	EY18	1981	03	11.58909	11	39	48.89	-01 54 19.1	413
1981	EY18	1981	03	15.64523	11	35	40.81	-01 29 04.6	413
1981	EY18	1981	03	15.68342	11	35	38.69	-01 28 52.4	413
1981	EL20	1981	03	11.58909	11	47	09.69	-01 44 52.8	413
1981	EL20	1981	03	15.64523	11	43	48.91	-01 33 57.1	413
1981	EL20	1981	03	15.68342	11	43	47.10	-01 33 51.0	413
1981	EB21	1981	03	01.53473	11	56	55.17	-02 38 51.3	413
1981	EB21	1981	03	01.57987	11	56	53.44	-02 38 42.2	413
1981	EB21	1981	03	07.66569	11	52	30.07	-02 14 59.7	413
1981	EB21	1981	03	07.70735	11	52	28.03	-02 14 47.9	413
1981	EB21	1981	03	11.54742	11	49	32.78	-01 58 16.0	413
1981	EB21	1981	03	11.58909	11	49	31.03	-01 58 05.8	413
1981	EB21	1981	03	15.64523	11	46	21.65	-01 39 44.5	413
1981	EB21	1981	03	15.68342	11	46	19.86	-01 39 34.2	413
1981	EJ22	1981	03	01.57987	12	01	36.62	-02 38 21.3	413
1981	EQ22	1981	03	07.66569	11	58	03.22	-02 02 11.3	413
1981	EY22	1981	03	02.63403	12	05	08.58	-00 57 43.0	413
1981	EY22	1981	03	02.67917	12	05	06.70	-00 57 26.4	413
1981	EY22	1981	03	06.60816	12	02	01.33	-00 29 09.6	413

1981	EY22	1981	03	11.66134	11	57	36.43	+00	10	29.3	413
1981	EY22	1981	03	11.70301	11	57	34.25	+00	10	47.7	413
1981	EA23	1981	03	02.63403	12	05	20.64	-01	02	37.7	413
1981	EA23	1981	03	02.67917	12	05	18.42	-01	02	34.2	413
1981	EV23	1981	03	02.63403	12	06	15.51	+00	28	45.6	413
1981	EV23	1981	03	02.67917	12	06	13.30	+00	28	50.1	413
1981	EV23	1981	03	06.60816	12	02	44.42	+00	37	38.7	413
1981	EV23	1981	03	11.66134	11	57	58.30	+00	50	23.2	413
1981	EV23	1981	03	11.70301	11	57	55.97	+00	50	29.2	413
1981	EX23	1981	03	15.64523	11	38	35.20	-01	26	46.1	413
1981	EN24	1981	03	15.64523	11	55	20.79	-02	55	46.7	413
1981	EN24	1981	03	15.68342	11	55	18.56	-02	55	32.0	413
1981	EO27	1981	03	01.63816	12	23	20.73	-05	06	09.6	413
1981	ET28*	1981	03	01.57987	11	42	55.58	-07	45	23.5	18.5V 413
1981	ET28	1981	03	07.66569	11	37	22.36	-07	38	41.7	413
1981	ET28	1981	03	07.70735	11	37	20.11	-07	38	38.3	413
1981	ET28	1981	03	11.54742	11	33	42.14	-07	31	46.0	413
1981	EU28*	1981	03	01.53473	11	43	24.11	-04	05	02.5	17.5V 413
1981	EU28	1981	03	07.66569	11	37	31.11	-03	38	15.6	413
1981	EU28	1981	03	07.70735	11	37	28.55	-03	38	04.3	413
1981	EU28	1981	03	11.54742	11	33	35.65	-03	18	47.1	413
1981	EU28	1981	03	11.58909	11	33	33.14	-03	18	35.0	413
1981	EV28*	1981	03	01.57987	11	44	34.94	-07	47	18.2	19.0V 413
1981	EV28	1981	03	07.70735	11	40	24.74	-07	13	28.0	413
1981	EV28	1981	03	11.54742	11	37	40.82	-06	49	54.7	413
1981	EV28	1981	03	11.58909	11	37	39.26	-06	49	42.5	413
1981	EV28	1981	03	15.68342	11	34	41.68	-06	22	58.7	413
1981	EV28	1981	04	12.62048	11	17	05.04	-03	06	50.7	413
1981	EV28	1981	04	12.65521	11	17	03.95	-03	06	35.6	413
1981	EW28*	1981	03	01.53473	11	44	47.03	-03	52	18.1	18.5V 413
1981	EW28	1981	03	01.57987	11	44	44.71	-03	52	08.9	413
1981	EW28	1981	03	07.66569	11	39	15.45	-03	27	20.7	413
1981	EW28	1981	03	07.70735	11	39	12.83	-03	27	10.4	413
1981	EW28	1981	03	11.54742	11	35	32.80	-03	08	40.3	413
1981	EW28	1981	03	11.58909	11	35	30.44	-03	08	29.4	413
1981	EW28	1981	03	15.64523	11	31	33.72	-02	47	12.5	413
1981	EX28*	1981	03	01.53473	11	44	59.69	-07	55	40.7	18.0V 413
1981	EX28	1981	03	07.66569	11	39	19.77	-07	42	06.6	413
1981	EX28	1981	03	07.70735	11	39	17.45	-07	41	59.4	413
1981	EX28	1981	03	11.54742	11	35	30.79	-07	29	48.5	413
1981	EX28	1981	03	11.58909	11	35	28.31	-07	29	41.4	413
1981	EX28	1981	03	15.64523	11	31	22.83	-07	14	11.0	413
1981	EX28	1981	03	15.68342	11	31	20.56	-07	14	01.4	413
1981	EY28*	1981	03	01.53473	11	46	32.75	-05	53	01.0	19.0V 413
1981	EY28	1981	03	07.66569	11	41	06.22	-05	43	14.7	413
1981	EY28	1981	03	07.70735	11	41	04.07	-05	43	10.2	413
1981	EY28	1981	03	11.54742	11	37	32.15	-05	35	08.3	413
1981	EY28	1981	03	11.58909	11	37	29.97	-05	35	04.5	413
1981	EY28	1981	03	15.68342	11	33	41.54	-05	25	12.2	413
1981	EY28	1981	04	12.62048	11	10	56.34	-04	05	00.7	413
1981	EY28	1981	04	12.65521	11	10	55.15	-04	04	55.9	413
1981	EZ28*	1981	03	01.53473	11	49	09.60	-08	26	58.1	19.0V 413
1981	EZ28	1981	03	01.57987	11	49	06.49	-08	27	07.7	413
1981	EZ28	1981	03	02.56588	11	47	54.59	-08	30	33.1	413
1981	EZ28	1981	03	07.55280	11	41	37.30	-08	45	34.7	413
1981	EZ28	1981	03	07.59447	11	41	34.09	-08	45	42.0	413
1981	EZ28	1981	03	10.53941	11	37	42.64	-08	52	47.7	413
1981	EZ28	1981	03	10.58108	11	37	39.36	-08	52	54.6	413
1981	EZ28	1981	03	12.52945	11	35	03.97	-08	56	53.2	413

1981	EZ28	1981	03	12.56765	11	35	01.25	-08	56	57.7	413
1981	EA29*	1981	03	01.53473	11	51	04.09	-03	45	01.7	19.0V 413
1981	EA29	1981	03	01.57987	11	51	02.44	-03	44	48.0	413
1981	EA29	1981	03	07.66569	11	46	30.85	-03	04	54.2	413
1981	EA29	1981	03	07.70735	11	46	29.12	-03	04	39.2	413
1981	EA29	1981	03	11.54742	11	43	30.28	-02	37	46.3	413
1981	EA29	1981	03	11.58909	11	43	28.51	-02	37	31.7	413
1981	EA29	1981	03	15.64523	11	40	17.15	-02	08	17.1	413
1981	EA29	1981	04	08.50490	11	23	25.93	+00	40	33.4	413
1981	EA29	1981	04	08.53962	11	23	24.49	+00	40	47.7	413
1981	EA29	1981	04	11.56596	11	21	47.37	+00	59	24.2	413
1981	EA29	1981	04	11.60069	11	21	46.34	+00	59	35.8	413
1981	EB29*	1981	03	01.53473	11	51	15.64	-04	03	42.1	19.0V 413
1981	EB29	1981	03	01.57987	11	51	13.99	-04	03	18.7	413
1981	EB29	1981	03	07.66569	11	47	13.02	-03	05	08.4	413
1981	EB29	1981	03	07.70735	11	47	11.33	-03	04	45.4	413
1981	EB29	1981	03	11.54742	11	44	26.49	-02	24	56.7	413
1981	EB29	1981	03	11.58909	11	44	24.58	-02	24	30.3	413
1981	EB29	1981	03	15.64523	11	41	24.42	-01	40	41.9	413
1981	EB29	1981	03	15.68342	11	41	22.71	-01	40	18.8	413
1981	EB29	1981	03	16.69028	11	40	37.67	-01	29	13.6	413
1981	EB29	1981	04	08.50490	11	26	11.41	+02	30	08.4	413
1981	EB29	1981	04	08.53962	11	26	10.48	+02	30	24.4	413
1981	EB29	1981	04	11.56596	11	24	58.73	+02	56	50.9	413
1981	EB29	1981	04	11.60069	11	24	58.02	+02	57	05.8	413
1981	EC29*	1981	03	01.57987	11	57	33.02	-04	00	15.2	20.0V 413
1981	EC29	1981	03	11.54742	11	49	42.82	-03	16	38.9	413
1981	EC29	1981	03	11.58909	11	49	40.71	-03	16	29.8	413
1981	EC29	1981	03	15.64523	11	46	15.56	-02	56	08.7	413
1981	EC29	1981	04	12.62048	11	24	46.44	-00	30	56.5	413
1981	ED29*	1981	03	01.53473	11	57	58.63	-05	17	35.5	19.0V 413
1981	ED29	1981	03	07.66569	11	52	22.42	-05	28	53.8	413
1981	ED29	1981	03	07.70735	11	52	20.18	-05	28	56.8	413
1981	ED29	1981	03	11.54742	11	48	28.11	-05	33	00.3	413
1981	ED29	1981	03	15.64523	11	44	09.12	-05	34	60.0	413
1981	ED29	1981	03	15.68342	11	44	06.78	-05	35	00.6	413
1981	ED29	1981	04	09.60259	11	20	11.14	-05	18	26.3	413
1981	ED29	1981	04	09.63731	11	20	09.63	-05	18	24.8	413
1981	EE29*	1981	03	01.53473	11	58	03.34	-06	36	30.6	19.5V 413
1981	EE29	1981	03	07.66569	11	52	33.88	-06	18	40.4	413
1981	EE29	1981	03	11.54742	11	48	50.05	-06	03	58.6	413
1981	EE29	1981	03	11.58909	11	48	47.67	-06	03	49.1	413
1981	EE29	1981	03	15.64523	11	44	46.59	-05	46	08.0	413
1981	EE29	1981	04	06.46361	11	25	10.42	-03	53	53.3	413
1981	EE29	1981	04	06.49834	11	25	08.88	-03	53	43.3	413
1981	EF29*	1981	03	01.53473	11	58	16.67	-02	44	05.4	19.5V 413
1981	EF29	1981	03	01.57987	11	58	14.92	-02	43	57.1	413
1981	EF29	1981	03	02.57859	11	57	34.73	-02	41	02.4	413
1981	EF29	1981	03	03.61076	11	56	52.08	-02	37	57.5	413
1981	EF29	1981	03	07.60751	11	54	01.02	-02	25	03.2	413
1981	EF29	1981	03	07.64918	11	53	59.22	-02	24	55.0	413
1981	EF29	1981	03	07.70735	11	53	56.60	-02	24	43.2	413
1981	EF29	1981	03	11.54742	11	51	04.41	-02	11	06.8	413
1981	EF29	1981	03	11.58909	11	51	02.80	-02	11	00.5	413
1981	EF29	1981	03	15.64523	11	47	55.25	-01	55	44.5	413
1981	EF29	1981	03	15.68342	11	47	53.39	-01	55	34.4	413
1981	EF29	1981	04	05.45665	11	32	21.04	-00	33	19.6	413
1981	EF29	1981	04	07.46608	11	31	02.33	-00	25	59.2	413
1981	EF29	1981	04	07.50080	11	31	01.06	-00	25	52.4	413

1981	EF29	1981	04	12.62048	11	27	56.26	-00	08	19.6	413
1981	EF29	1981	04	12.65521	11	27	55.31	-00	08	13.8	413
1981	EG29*	1981	03	01.53473	12	00	30.34	-03	39	17.1	18.5V 413
1981	EG29	1981	03	01.57987	12	00	28.74	-03	38	57.2	413
1981	EG29	1981	03	07.66569	11	56	19.63	-02	47	32.5	413
1981	EG29	1981	03	07.70735	11	56	17.73	-02	47	09.2	413
1981	EG29	1981	03	11.54742	11	53	28.88	-02	12	29.6	413
1981	EG29	1981	03	11.58909	11	53	27.08	-02	12	08.1	413
1981	EG29	1981	03	15.64523	11	50	23.07	-01	34	21.0	413
1981	EG29	1981	03	15.68342	11	50	21.25	-01	33	59.0	413
1981	EG29	1981	03	16.73195	11	49	33.43	-01	24	06.9	413
1981	EG29	1981	03	29.52805	11	40	13.23	+00	35	04.7	413
1981	EG29	1981	03	29.56451	11	40	11.84	+00	35	22.8	413
1981	EH29*	1981	03	01.53473	12	02	26.59	-06	14	12.1	19.5V 413
1981	EH29	1981	03	01.57987	12	02	24.57	-06	14	10.3	413
1981	EH29	1981	03	11.54742	11	54	14.64	-05	54	10.9	413
1981	EH29	1981	03	11.58909	11	54	12.30	-05	54	03.1	413
1981	EH29	1981	03	15.64523	11	50	24.44	-05	40	41.8	413
1981	EH29	1981	03	15.68342	11	50	22.18	-05	40	31.8	413
1981	EH29	1981	04	12.65521	11	26	22.13	-03	35	01.6	413
1981	EJ29*	1981	03	01.53473	12	02	52.66	-06	08	21.7	18.5V 413
1981	EJ29	1981	03	07.66569	11	59	02.92	-05	29	52.3	413
1981	EJ29	1981	03	07.70735	11	59	01.26	-05	29	35.3	413
1981	EJ29	1981	03	11.58909	11	56	24.68	-05	02	47.9	413
1981	EJ29	1981	03	15.68342	11	53	33.33	-04	32	54.6	413
1981	EJ29	1981	04	05.58312	11	39	30.47	-01	51	56.2	413
1981	EJ29	1981	04	06.56195	11	38	56.13	-01	44	33.3	413
1981	EJ29	1981	04	10.52714	11	36	47.99	-01	16	00.1	413
1981	EJ29	1981	04	10.56186	11	36	46.82	-01	15	46.0	413
1981	EK29*	1981	03	01.53473	12	02	55.07	-06	37	35.9	19.5V 413
1981	EK29	1981	03	01.57987	12	02	53.55	-06	37	25.2	413
1981	EK29	1981	03	07.70735	11	58	40.43	-06	06	08.8	413
1981	EK29	1981	03	11.54742	11	55	49.80	-05	43	57.6	413
1981	EK29	1981	03	15.64523	11	52	41.25	-05	18	33.5	413
1981	EK29	1981	03	15.68342	11	52	39.79	-05	18	21.0	413
1981	EK29	1981	04	09.50909	11	34	51.42	-02	31	34.5	413
1981	EK29	1981	04	12.62048	11	33	09.46	-02	12	17.6	413
1981	EL29*	1981	03	01.57987	12	02	59.30	-03	54	12.2	20.0V 413
1981	EL29	1981	03	07.70735	11	58	31.03	-03	13	03.2	413
1981	EL29	1981	03	11.54742	11	55	25.86	-02	44	15.8	413
1981	EL29	1981	03	15.68342	11	51	56.20	-02	11	19.7	413
1981	EL29	1981	03	29.52805	11	40	05.80	-00	14	27.0	413
1981	EL29	1981	03	29.56451	11	40	04.04	-00	14	11.0	413
1981	EM29*	1981	03	01.59302	12	11	37.92	-10	52	11.2	19.5V 413
1981	EM29	1981	03	06.66426	12	07	40.74	-10	47	29.3	413
1981	EM29	1981	03	06.70593	12	07	38.74	-10	47	26.8	413
1981	EM29	1981	03	08.56669	12	06	03.50	-10	44	13.4	413
1981	EM29	1981	03	08.60836	12	06	01.67	-10	44	10.4	413
1981	EM29	1981	03	08.68165	12	05	57.25	-10	43	58.5	413
1981	EM29	1981	03	08.72332	12	05	55.25	-10	43	54.1	413
1981	EM29	1981	03	12.63230	12	02	22.77	-10	34	28.5	413
1981	EM29	1981	04	07.61151	11	37	47.65	-08	29	30.9	413
1981	EM29	1981	04	07.64623	11	37	45.99	-08	29	19.1	413
1981	EM29	1981	04	08.63658	11	36	59.06	-08	23	31.4	413
1981	EM29	1981	04	09.55619	11	36	16.85	-08	18	08.7	413
1981	EM29	1981	04	09.59091	11	36	15.44	-08	17	58.5	413
1981	EN29*	1981	03	01.59302	12	22	56.88	-07	44	16.0	19.0V 413
1981	EN29	1981	03	01.63816	12	22	55.27	-07	43	31.2	413
1981	EN29	1981	03	06.66426	12	19	51.00	-06	15	14.5	413

1981	EN29	1981	03	08.68165	12	18	26.53	-05	37	11.2	413
1981	EN29	1981	03	08.72332	12	18	24.75	-05	36	28.3	413
1981	EO29*	1981	03	01.59302	12	23	00.85	-10	00	16.3	19.5V 413
1981	EO29	1981	03	06.66426	12	20	28.13	-09	50	39.4	413
1981	EO29	1981	03	08.68165	12	19	22.15	-09	45	54.3	413
1981	EO29	1981	03	08.72332	12	19	20.84	-09	45	47.8	413
1981	EO29	1981	03	12.58070	12	17	07.12	-09	35	16.4	413
1981	EO29	1981	03	12.61890	12	17	05.79	-09	35	11.0	413
1981	EP29*	1981	03	01.59302	12	26	01.21	-07	56	16.0	18.5V 413
1981	EP29	1981	03	01.63816	12	25	59.52	-07	55	59.3	413
1981	EP29	1981	03	06.70593	12	23	11.19	-07	30	21.5	413
1981	EP29	1981	03	08.68165	12	21	59.68	-07	19	21.7	413
1981	EP29	1981	03	08.72332	12	21	58.22	-07	19	08.0	413
1981	EP29	1981	03	12.58070	12	19	31.05	-06	56	14.8	413
1981	EP29	1981	03	12.61890	12	19	29.79	-06	56	03.4	413
1981	EQ29*	1981	03	01.59302	12	26	32.03	-08	23	37.7	19.0V 413
1981	EQ29	1981	03	01.63816	12	26	30.46	-08	23	27.3	413
1981	EQ29	1981	03	06.66426	12	23	35.88	-08	07	12.0	413
1981	EQ29	1981	03	08.68165	12	22	20.44	-07	59	49.3	413
1981	EQ29	1981	03	08.72332	12	22	18.86	-07	59	38.9	413
1981	EQ29	1981	03	12.58070	12	19	47.25	-07	44	12.3	413
1981	EQ29	1981	03	12.61890	12	19	45.71	-07	44	03.2	413
1981	ER29*	1981	03	01.59302	12	26	59.56	-09	09	02.0	18.0V 413
1981	ER29	1981	03	01.63816	12	26	58.34	-09	08	41.6	413
1981	ER29	1981	03	06.66426	12	24	26.10	-08	22	59.5	413
1981	ER29	1981	03	06.70593	12	24	24.54	-08	22	34.7	413
1981	ER29	1981	03	08.68165	12	23	16.46	-08	02	57.0	413
1981	ER29	1981	03	08.72332	12	23	15.01	-08	02	33.0	413
1981	ER29	1981	03	12.61890	12	20	49.97	-07	21	29.5	413
1981	ES29*	1981	03	01.59302	12	27	04.34	-10	50	00.1	15.0V 413
1981	ES29	1981	03	06.66426	12	24	54.56	-10	24	00.8	413
1981	ES29	1981	03	06.70593	12	24	53.32	-10	23	47.1	413
1981	ES29	1981	03	08.68165	12	23	54.06	-10	11	55.2	413
1981	ES29	1981	03	08.72332	12	23	52.59	-10	11	39.5	413
1981	ES29	1981	03	12.58070	12	21	45.27	-09	45	50.9	413
1981	ES29	1981	03	12.61890	12	21	43.97	-09	45	35.8	413
1981	ET29*	1981	03	01.59302	12	29	06.86	-08	17	30.6	19.0V 413
1981	ET29	1981	03	01.63816	12	29	05.54	-08	17	22.6	413
1981	ET29	1981	03	06.66426	12	26	22.08	-07	59	12.1	413
1981	ET29	1981	03	06.70593	12	26	20.43	-07	59	02.9	413
1981	ET29	1981	03	08.68165	12	25	10.07	-07	50	55.1	413
1981	ET29	1981	03	08.72332	12	25	08.65	-07	50	44.0	413
1981	EU29*	1981	03	01.63816	12	29	47.44	-08	06	07.3	18.0V 413
1981	EU29	1981	03	06.66426	12	26	25.99	-08	01	15.4	413
1981	EU29	1981	03	06.70593	12	26	24.51	-08	01	12.7	413
1981	EU29	1981	03	08.68165	12	24	59.30	-07	58	32.8	413
1981	EU29	1981	03	08.72332	12	24	57.51	-07	58	27.5	413
1981	EV29*	1981	03	02.52074	11	42	10.44	-11	39	17.5	19.5V 413
1981	EV29	1981	03	02.56588	11	42	08.68	-11	39	02.7	413
1981	EV29	1981	03	07.55280	11	38	35.48	-11	03	01.1	413
1981	EV29	1981	03	07.59447	11	38	33.56	-11	02	42.9	413
1981	EV29	1981	03	10.53941	11	36	20.70	-10	38	35.8	413
1981	EV29	1981	03	10.58108	11	36	18.88	-10	38	17.3	413
1981	EV29	1981	03	12.52945	11	34	49.03	-10	21	17.3	413
1981	EV29	1981	03	12.56765	11	34	47.11	-10	20	54.8	413
1981	EV29	1981	04	12.62048	11	14	16.16	-04	55	01.6	413
1981	EV29	1981	04	12.65521	11	14	15.40	-04	54	42.8	413
1981	EW29*	1981	03	02.52074	11	42	34.37	-13	03	30.0	18.5V 413
1981	EW29	1981	03	02.56588	11	42	31.44	-13	03	50.1	413

1981	EW29	1981	03	07.55280	11	37	02.02	-13	35	26.4	413
1981	EW29	1981	03	07.59447	11	36	59.18	-13	35	42.0	413
1981	EW29	1981	03	10.53941	11	33	35.42	-13	52	12.8	413
1981	EX29*	1981	03	02.56588	11	42	43.04	-13	08	54.4	18.5V 413
1981	EX29	1981	03	07.55280	11	38	06.31	-13	09	36.7	413
1981	EX29	1981	03	07.59447	11	38	03.86	-13	09	37.4	413
1981	EX29	1981	03	10.53941	11	35	12.65	-13	07	42.8	413
1981	EX29	1981	03	10.58108	11	35	10.40	-13	07	41.9	413
1981	EX29	1981	03	12.52945	11	33	14.70	-13	05	31.1	413
1981	EX29	1981	03	12.56765	11	33	12.60	-13	05	29.2	413
1981	EY29*	1981	03	02.57859	11	43	11.01	+02	02	09.3	19.5V 413
1981	EY29	1981	03	07.60751	11	39	53.92	+02	46	14.3	413
1981	EY29	1981	03	07.64918	11	39	52.15	+02	46	34.8	413
1981	EY29	1981	03	11.60352	11	37	05.91	+03	22	36.4	413
1981	EY29	1981	03	11.64518	11	37	04.02	+03	22	59.1	413
1981	EZ29*	1981	03	02.57859	11	44	05.00	+01	59	57.0	19.0V 413
1981	EZ29	1981	03	02.62373	11	44	02.18	+02	00	05.7	413
1981	EZ29	1981	03	03.61076	11	43	04.21	+02	03	49.5	413
1981	EZ29	1981	03	07.60751	11	38	59.45	+02	19	41.0	413
1981	EZ29	1981	03	07.64918	11	38	57.02	+02	19	49.6	413
1981	EZ29	1981	03	11.60352	11	34	42.51	+02	36	33.9	413
1981	EA30*	1981	03	02.57859	11	44	25.48	+00	28	55.4	18.5V 413
1981	EA30	1981	03	02.62373	11	44	24.22	+00	29	28.4	413
1981	EA30	1981	03	03.56736	11	43	56.86	+00	41	48.4	413
1981	EA30	1981	03	03.61076	11	43	55.49	+00	42	21.1	413
1981	EA30	1981	03	07.60751	11	41	52.00	+01	35	56.9	413
1981	EA30	1981	03	07.64918	11	41	50.61	+01	36	28.9	413
1981	EA30	1981	03	11.60352	11	39	40.18	+02	31	04.6	413
1981	EA30	1981	03	11.64518	11	39	38.77	+02	31	36.5	413
1981	EA30	1981	03	16.73195	11	36	45.67	+03	42	36.9	413
1981	EB30*	1981	03	02.57859	11	44	37.57	-01	40	22.6	20.0V 413
1981	EB30	1981	03	07.64918	11	39	32.97	-01	36	13.3	413
1981	EB30	1981	03	11.64518	11	35	23.39	-01	31	36.3	413
1981	EB30	1981	03	16.73195	11	30	00.38	-01	24	29.4	413
1981	EC30*	1981	03	02.56588	11	46	27.52	-13	43	23.3	19.5V 413
1981	EC30	1981	03	07.55280	11	42	01.63	-13	49	53.1	413
1981	EC30	1981	03	07.59447	11	41	59.37	-13	49	56.0	413
1981	EC30	1981	03	10.53941	11	39	16.47	-13	51	44.0	413
1981	EC30	1981	03	10.58108	11	39	14.17	-13	51	47.0	413
1981	EC30	1981	03	12.52945	11	37	24.62	-13	52	11.9	413
1981	EC30	1981	03	12.56765	11	37	22.44	-13	52	12.3	413
1981	ED30*	1981	03	02.52074	11	56	47.75	-13	47	14.2	19.5V 413
1981	ED30	1981	03	07.55280	11	53	37.16	-13	34	35.8	413
1981	ED30	1981	03	10.53941	11	51	38.70	-13	25	20.6	413
1981	ED30	1981	03	10.58108	11	51	37.21	-13	25	13.1	413
1981	ED30	1981	03	12.52945	11	50	18.34	-13	18	30.9	413
1981	EE30*	1981	03	02.52074	11	57	36.65	-11	30	25.0	20.0V 413
1981	EE30	1981	03	02.56588	11	57	34.53	-11	30	15.3	413
1981	EE30	1981	03	07.55280	11	53	30.78	-11	08	41.9	413
1981	EE30	1981	03	07.59447	11	53	28.69	-11	08	28.7	413
1981	EE30	1981	03	10.53941	11	50	54.94	-10	53	13.2	413
1981	EE30	1981	03	10.58108	11	50	52.55	-10	52	57.3	413
1981	EE30	1981	03	12.56765	11	49	06.39	-10	41	45.5	413
1981	EE30	1981	04	09.60259	11	24	40.86	-07	09	51.6	413
1981	EE30	1981	04	09.63731	11	24	39.50	-07	09	35.9	413
1981	EF30*	1981	03	02.57859	11	59	31.54	+01	57	26.0	17.0V 413
1981	EF30	1981	03	02.62373	11	59	29.62	+01	57	47.0	413
1981	EF30	1981	03	03.56736	11	58	48.59	+02	06	04.5	413
1981	EF30	1981	03	03.61076	11	58	46.79	+02	06	25.7	413

1981	EF30	1981	03	07.60751	11	55	42.87	+02	42	28.3	413
1981	EF30	1981	03	07.64918	11	55	40.91	+02	42	49.3	413
1981	EF30	1981	03	11.60352	11	52	26.84	+03	19	30.9	413
1981	EF30	1981	03	11.64518	11	52	24.69	+03	19	53.3	413
1981	EF30	1981	03	16.69028	11	48	07.22	+04	07	01.0	413
1981	EF30	1981	03	16.73195	11	48	05.15	+04	07	22.4	413
1981	EG30*	1981	03	02.57859	11	59	45.86	+01	10	22.4	15.0V 413
1981	EG30	1981	03	02.62373	11	59	44.29	+01	10	51.6	413
1981	EG30	1981	03	03.56736	11	59	10.74	+01	21	30.2	413
1981	EG30	1981	03	03.61076	11	59	09.24	+01	21	58.7	413
1981	EG30	1981	03	07.60751	11	56	41.11	+02	07	40.4	413
1981	EG30	1981	03	07.64918	11	56	39.53	+02	08	07.9	413
1981	EG30	1981	03	11.60352	11	54	05.92	+02	53	59.9	413
1981	EG30	1981	03	11.64518	11	54	04.22	+02	54	28.9	413
1981	EG30	1981	03	16.69028	11	50	42.66	+03	53	05.3	413
1981	EG30	1981	03	16.73195	11	50	40.98	+03	53	34.2	413
1981	EH30*	1981	03	02.62373	12	00	19.81	-00	27	30.7	19.5V 413
1981	EH30	1981	03	03.56736	11	59	47.71	-00	20	49.5	413
1981	EH30	1981	03	03.61076	11	59	46.20	-00	20	32.2	413
1981	EH30	1981	03	07.60751	11	57	22.44	+00	08	47.2	413
1981	EH30	1981	03	07.64918	11	57	20.83	+00	09	07.4	413
1981	EH30	1981	03	11.60352	11	54	49.56	+00	39	19.8	413
1981	EH30	1981	03	11.64518	11	54	47.98	+00	39	37.3	413
1981	EJ30*	1981	03	02.57859	12	01	06.74	-02	02	19.2	16.5V 413
1981	EJ30	1981	03	02.62373	12	01	06.49	-02	02	00.3	413
1981	EJ30	1981	03	03.56736	12	01	06.22	-01	54	02.7	413
1981	EJ30	1981	03	03.61076	12	01	05.94	-01	53	43.1	413
1981	EJ30	1981	03	07.60751	12	00	47.12	-01	16	29.8	413
1981	EJ30	1981	03	07.64918	12	00	46.63	-01	16	08.2	413
1981	EJ30	1981	03	11.66134	12	00	05.23	-00	33	27.8	413
1981	EJ30	1981	03	11.70301	12	00	04.47	-00	33	01.7	413
1981	EJ30	1981	03	15.73328	11	59	06.15	+00	14	01.5	413
1981	EK30*	1981	03	02.52074	12	01	37.02	-11	31	40.6	19.0V 413
1981	EK30	1981	03	02.56588	12	01	35.06	-11	31	35.6	413
1981	EK30	1981	03	07.55280	11	57	30.32	-11	16	53.3	413
1981	EK30	1981	03	07.59447	11	57	28.26	-11	16	46.0	413
1981	EK30	1981	03	10.53941	11	54	51.32	-11	05	12.1	413
1981	EK30	1981	03	10.58108	11	54	49.24	-11	05	02.2	413
1981	EK30	1981	04	09.60259	11	27	55.82	-07	47	48.4	413
1981	EK30	1981	04	09.63731	11	27	54.47	-07	47	34.4	413
1981	EL30*	1981	03	02.52074	12	02	34.42	-13	30	58.6	19.5V 413
1981	EL30	1981	03	07.59447	11	58	53.18	-13	32	30.6	413
1981	EL30	1981	03	10.53941	11	56	35.26	-13	31	11.7	413
1981	EL30	1981	03	10.58108	11	56	33.44	-13	31	10.3	413
1981	EL30	1981	03	12.56765	11	54	57.48	-13	29	22.0	413
1981	EM30*	1981	03	02.57859	12	03	34.13	+02	02	54.4	19.0V 413
1981	EM30	1981	03	03.61076	12	02	50.64	+02	08	22.7	413
1981	EM30	1981	03	07.60751	11	59	55.54	+02	30	07.0	413
1981	EM30	1981	03	07.64918	11	59	53.76	+02	30	20.4	413
1981	EM30	1981	03	11.60352	11	56	53.41	+02	52	18.2	413
1981	EN30*	1981	03	02.57859	12	04	41.43	+02	05	24.9	18.5V 413
1981	EN30	1981	03	02.62373	12	04	39.91	+02	05	35.8	413
1981	EN30	1981	03	07.60751	12	01	22.56	+02	27	25.9	413
1981	EN30	1981	03	11.64518	11	58	34.07	+02	45	40.8	413
1981	EO30*	1981	03	02.57859	12	05	01.72	-00	55	03.6	18.5V 413
1981	EO30	1981	03	02.63403	12	04	59.93	-00	54	32.4	413
1981	EO30	1981	03	02.67917	12	04	58.17	-00	54	05.3	413
1981	EO30	1981	03	03.56736	12	04	27.04	-00	45	19.3	413
1981	EO30	1981	03	03.61076	12	04	25.52	-00	44	53.6	413

1981	EO30	1981	03	06.60816	12	02	33.86	-00	14	23.4	413
1981	EO30	1981	03	07.60751	12	01	54.82	-00	03	55.8	413
1981	EO30	1981	03	11.60352	11	59	10.48	+00	39	10.1	413
1981	EO30	1981	03	11.64518	11	59	08.73	+00	39	35.3	413
1981	EO30	1981	03	11.66134	11	59	07.93	+00	39	48.8	413
1981	EO30	1981	03	11.70301	11	59	06.21	+00	40	14.5	413
1981	EO30	1981	03	15.69509	11	56	11.75	+01	24	53.8	413
1981	EO30	1981	03	15.73328	11	56	10.28	+01	25	15.7	413
1981	EP30*	1981	03	02.63403	12	09	10.98	+00	03	59.1	17.5V 413
1981	EP30	1981	03	02.67917	12	09	09.46	+00	04	23.4	413
1981	EP30	1981	03	06.60816	12	06	55.37	+00	42	17.0	413
1981	EP30	1981	03	06.64983	12	06	54.12	+00	42	39.5	413
1981	EP30	1981	03	11.66134	12	03	49.32	+01	32	38.6	413
1981	EP30	1981	03	11.70301	12	03	47.74	+01	33	02.8	413
1981	EQ30*	1981	03	02.67917	12	10	23.46	+00	51	44.4	19.0V 413
1981	EQ30	1981	03	11.66134	12	02	25.39	+01	14	35.1	413
1981	EQ30	1981	03	15.73328	11	58	32.10	+01	25	56.0	413
1981	EQ30	1981	04	05.55430	11	38	30.18	+02	20	54.4	413
1981	EQ30	1981	04	05.58312	11	38	29.02	+02	20	55.5	413
1981	EQ30	1981	04	06.56195	11	37	36.90	+02	23	00.9	413
1981	EQ30	1981	04	06.59668	11	37	35.18	+02	23	03.2	413
1981	EQ30	1981	04	10.52714	11	34	15.71	+02	30	29.0	413
1981	ER30*	1981	03	02.67917	12	10	57.74	-03	15	55.1	19.5V 413
1981	ER30	1981	03	11.66134	12	04	15.05	-02	29	36.8	413
1981	ER30	1981	03	11.70301	12	04	13.12	-02	29	22.6	413
1981	ER30	1981	03	15.69509	12	01	00.39	-02	06	44.9	413
1981	ER30	1981	03	15.73328	12	00	58.68	-02	06	32.0	413
1981	ER30	1981	04	05.58312	11	44	31.45	-00	05	28.3	413
1981	ER30	1981	04	10.52714	11	41	14.71	+00	20	06.9	413
1981	ER30	1981	04	10.56186	11	41	13.37	+00	20	14.5	413
1981	ES30*	1981	03	02.63403	12	11	09.14	+00	25	02.9	20.0V 413
1981	ES30	1981	03	06.60816	12	08	26.98	+00	49	58.9	413
1981	ES30	1981	03	06.64983	12	08	25.11	+00	50	15.2	413
1981	ES30	1981	03	11.66134	12	04	34.63	+01	24	15.0	413
1981	ES30	1981	03	11.70301	12	04	32.65	+01	24	32.0	413
1981	ET30*	1981	03	02.63403	12	11	24.67	-01	16	03.3	19.0V 413
1981	ET30	1981	03	06.60816	12	08	41.45	-00	42	37.5	413
1981	ET30	1981	03	06.64983	12	08	39.44	-00	42	16.0	413
1981	ET30	1981	03	11.66134	12	04	49.52	+00	03	00.6	413
1981	ET30	1981	03	11.70301	12	04	47.51	+00	03	22.7	413
1981	ET30	1981	03	15.69509	12	01	30.92	+00	41	05.8	413
1981	EU30*	1981	03	02.67917	12	12	01.20	-04	16	13.6	20.0V 413
1981	EU30	1981	03	11.66134	12	03	54.26	-03	49	33.7	413
1981	EU30	1981	03	11.70301	12	03	51.97	-03	49	25.5	413
1981	EU30	1981	03	15.69509	11	59	56.94	-03	34	53.5	413
1981	EU30	1981	04	05.55430	11	39	37.91	-02	09	24.0	413
1981	EV30*	1981	03	02.63403	12	12	34.13	-03	56	24.3	19.5V 413
1981	EV30	1981	03	02.67917	12	12	32.35	-03	56	15.9	413
1981	EV30	1981	03	11.66134	12	05	39.76	-03	22	29.0	413
1981	EV30	1981	03	11.70301	12	05	37.71	-03	22	18.1	413
1981	EV30	1981	03	15.69509	12	02	19.43	-03	05	06.3	413
1981	EV30	1981	04	05.55430	11	45	05.35	-01	28	28.4	413
1981	EW30*	1981	03	02.63403	12	13	43.08	-01	21	16.4	19.5V 413
1981	EW30	1981	03	02.67917	12	13	40.68	-01	21	02.5	413
1981	EW30	1981	03	06.60816	12	10	20.07	-00	57	43.7	413
1981	EW30	1981	03	11.70301	12	05	37.32	-00	25	01.9	413
1981	EW30	1981	03	15.69509	12	01	43.22	+00	01	58.1	413
1981	EW30	1981	03	15.73328	12	01	41.04	+00	02	13.1	413
1981	EW30	1981	04	05.58312	11	41	22.07	+02	21	52.0	413

1981	EX30*	1981	03	02.63403	12	13	53.40	+00	34	46.7	20.5V 413
1981	EX30	1981	03	02.67917	12	13	50.96	+00	35	01.8	413
1981	EX30	1981	03	11.66134	12	06	24.67	+01	33	16.2	413
1981	EX30	1981	03	15.69509	12	02	49.19	+02	00	32.6	413
1981	EX30	1981	03	15.73328	12	02	46.95	+02	00	50.4	413
1981	EY30*	1981	03	02.63403	12	14	06.74	+00	29	55.5	18.0V 413
1981	EY30	1981	03	02.67917	12	14	04.79	+00	30	11.7	413
1981	EY30	1981	03	06.60816	12	10	57.09	+00	57	41.8	413
1981	EY30	1981	03	06.64983	12	10	55.08	+00	57	59.5	413
1981	EY30	1981	03	11.66134	12	06	34.13	+01	35	06.3	413
1981	EY30	1981	03	11.70301	12	06	31.92	+01	35	24.3	413
1981	EZ30*	1981	03	02.67917	12	14	16.21	-03	21	09.8	20.0V 413
1981	EZ30	1981	03	11.66134	12	07	31.49	-02	47	39.8	413
1981	EZ30	1981	03	15.69509	12	04	14.08	-02	30	29.9	413
1981	EZ30	1981	03	15.73328	12	04	12.43	-02	30	20.1	413
1981	EZ30	1981	04	06.59668	11	46	35.75	-00	52	25.0	413
1981	EA31*	1981	03	02.67917	12	14	55.68	-04	43	48.8	19.5V 413
1981	EA31	1981	03	11.66134	12	08	00.61	-04	14	21.1	413
1981	EA31	1981	03	15.69509	12	04	27.72	-03	57	09.8	413
1981	EA31	1981	03	15.73328	12	04	25.56	-03	56	59.0	413
1981	EA31	1981	04	08.55338	11	43	45.80	-01	58	58.0	413
1981	EA31	1981	04	08.58810	11	43	44.39	-01	58	50.5	413
1981	EA31	1981	04	09.50909	11	43	06.60	-01	54	42.0	413
1981	EA31	1981	04	09.54382	11	43	05.10	-01	54	33.8	413
1981	EB31*	1981	03	02.63403	12	15	47.03	+00	13	17.7	18.5V 413
1981	EB31	1981	03	02.67917	12	15	45.55	+00	13	33.3	413
1981	EB31	1981	03	06.60816	12	13	28.82	+00	39	42.8	413
1981	EB31	1981	03	06.64983	12	13	27.36	+00	39	59.1	413
1981	EB31	1981	03	11.66134	12	10	14.78	+01	15	06.0	413
1981	EB31	1981	03	11.70301	12	10	13.02	+01	15	24.3	413
1981	EB31	1981	03	15.69509	12	07	29.35	+01	44	14.8	413
1981	EB31	1981	03	15.73328	12	07	27.79	+01	44	30.5	413
1981	EC31*	1981	03	02.63403	12	16	03.11	-01	36	27.1	20.0V 413
1981	EC31	1981	03	02.67917	12	16	00.15	-01	36	29.9	413
1981	EC31	1981	03	11.66134	12	07	29.67	-01	38	00.8	413
1981	EC31	1981	03	15.69509	12	03	21.90	-01	36	56.8	413
1981	EC31	1981	03	15.73328	12	03	19.66	-01	36	57.0	413
1981	EC31	1981	04	05.58312	11	42	25.88	-01	26	56.2	413
1981	ED31*	1981	03	02.67917	12	16	23.02	-00	00	59.3	19.5V 413
1981	ED31	1981	03	06.60816	12	13	19.75	+00	25	38.6	413
1981	ED31	1981	03	11.66134	12	09	03.35	+01	01	46.2	413
1981	ED31	1981	03	11.70301	12	09	01.32	+01	02	03.2	413
1981	ED31	1981	03	15.73328	12	05	24.93	+01	31	48.4	413
1981	EE31*	1981	03	02.63403	12	16	32.30	-03	24	18.4	19.0V 413
1981	EE31	1981	03	02.67917	12	16	30.84	-03	23	45.1	413
1981	EE31	1981	03	06.60816	12	14	04.87	-02	28	03.6	413
1981	EE31	1981	03	11.70301	12	10	28.33	-01	10	10.8	413
1981	EE31	1981	03	15.69509	12	07	21.39	-00	05	19.5	413
1981	EE31	1981	03	15.73328	12	07	19.64	-00	04	45.7	413
1981	EF31*	1981	03	02.63403	12	17	58.42	-00	03	46.3	19.0V 413
1981	EF31	1981	03	06.60816	12	14	59.57	+00	25	52.4	413
1981	EF31	1981	03	06.64983	12	14	57.53	+00	26	12.9	413
1981	EF31	1981	03	11.66134	12	10	48.31	+01	05	52.3	413
1981	EF31	1981	03	11.70301	12	10	46.11	+01	06	12.9	413
1981	EF31	1981	03	15.69509	12	07	13.99	+01	38	55.6	413
1981	EF31	1981	03	15.73328	12	07	12.06	+01	39	13.3	413
1981	EG31*	1981	03	02.63403	12	18	59.38	-04	51	19.3	20.5V 413
1981	EG31	1981	03	02.67917	12	18	57.25	-04	51	12.5	413
1981	EG31	1981	03	06.60816	12	16	04.02	-04	38	03.5	413

1981	EG31	1981	03	06.64983	12	16	02.32	-04	37	56.8	413
1981	EG31	1981	03	11.70301	12	11	59.82	-04	18	27.6	413
1981	EG31	1981	03	15.69509	12	08	36.22	-04	01	23.7	413
1981	EG31	1981	04	09.54382	11	47	17.71	-02	02	54.4	413
1981	EH31*	1981	03	02.63403	12	19	01.78	-00	19	52.2	20.0V 413
1981	EH31	1981	03	02.67917	12	18	59.75	-00	19	29.9	413
1981	EH31	1981	03	06.64983	12	16	05.64	+00	14	15.5	413
1981	EH31	1981	03	11.66134	12	12	07.23	+00	58	30.5	413
1981	EH31	1981	03	11.70301	12	12	05.08	+00	58	54.2	413
1981	EH31	1981	03	15.69509	12	08	44.92	+01	34	58.0	413
1981	EH31	1981	03	15.73328	12	08	43.09	+01	35	18.0	413
1981	EJ31*	1981	03	02.63403	12	19	42.35	-00	53	29.6	19.5V 413
1981	EJ31	1981	03	02.67917	12	19	40.84	-00	53	11.4	413
1981	EJ31	1981	03	11.66134	12	13	48.96	+00	16	52.4	413
1981	EJ31	1981	03	15.69509	12	10	44.75	+00	51	09.3	413
1981	EJ31	1981	03	15.73328	12	10	42.99	+00	51	28.7	413
1981	EJ31	1981	04	06.56195	11	53	28.23	+03	53	24.8	413
1981	EJ31	1981	04	06.59668	11	53	26.72	+03	53	38.5	413
1981	EK31*	1981	03	02.63403	12	20	40.62	-04	28	42.2	20.0V 413
1981	EK31	1981	03	11.66134	12	13	05.97	-04	13	42.7	413
1981	EK31	1981	03	11.70301	12	13	04.03	-04	13	37.3	413
1981	EK31	1981	03	15.73328	12	09	22.05	-04	04	33.1	413
1981	EK31	1981	04	09.50909	11	46	44.13	-02	57	01.2	413
1981	EK31	1981	04	09.54382	11	46	42.16	-02	56	54.9	413
1981	EL31*	1981	03	02.67917	12	21	32.78	-00	47	18.7	18.0V 413
1981	EL31	1981	03	06.64983	12	19	14.87	-00	13	05.8	413
1981	EL31	1981	03	11.66134	12	15	50.87	+00	33	28.5	413
1981	EL31	1981	03	11.70301	12	15	49.08	+00	33	51.8	413
1981	EL31	1981	03	15.69509	12	12	48.16	+01	12	54.0	413
1981	EL31	1981	03	15.73328	12	12	46.31	+01	13	16.3	413
1981	EM31*	1981	03	02.63403	12	21	39.95	-01	46	43.8	20.0V 413
1981	EM31	1981	03	02.67917	12	21	38.22	-01	46	32.7	413
1981	EM31	1981	03	11.66134	12	14	48.23	-00	56	22.1	413
1981	EM31	1981	03	11.70301	12	14	46.20	-00	56	06.1	413
1981	EM31	1981	03	15.69509	12	11	20.82	-00	31	21.2	413
1981	EM31	1981	04	05.55430	11	52	43.39	+01	41	02.9	413
1981	EM31	1981	04	05.58312	11	52	42.14	+01	41	09.7	413
1981	EM31	1981	04	10.52714	11	48	48.29	+02	08	28.1	413
1981	EN31*	1981	03	02.63403	12	22	09.77	-00	19	20.3	19.5V 413
1981	EN31	1981	03	02.67917	12	22	07.69	-00	18	59.7	413
1981	EN31	1981	03	06.60816	12	19	16.34	+00	07	51.0	413
1981	EN31	1981	03	11.66134	12	15	11.88	+00	44	45.0	413
1981	EN31	1981	03	11.70301	12	15	09.70	+00	45	05.3	413
1981	EO31*	1981	03	02.63403	12	22	55.79	-02	23	31.8	19.5V 413
1981	EO31	1981	03	02.67917	12	22	54.37	-02	23	19.7	413
1981	EO31	1981	03	11.66134	12	17	16.67	-01	29	55.7	413
1981	EO31	1981	03	11.70301	12	17	14.82	-01	29	38.0	413
1981	EO31	1981	03	15.73328	12	14	18.42	-01	02	45.2	413
1981	EO31	1981	04	05.58312	11	58	14.33	+01	20	56.9	413
1981	EP31*	1981	03	02.63403	12	23	49.80	-00	15	39.0	20.0V 413
1981	EP31	1981	03	11.66134	12	16	32.03	+00	23	59.3	413
1981	EP31	1981	03	15.69509	12	12	52.79	+00	43	31.9	413
1981	EP31	1981	04	05.55430	11	52	59.70	+02	24	40.0	413
1981	EP31	1981	04	05.58312	11	52	58.46	+02	24	44.9	413
1981	EQ31*	1981	03	02.63403	12	23	59.63	-00	49	16.7	19.0V 413
1981	EQ31	1981	03	06.64983	12	21	39.41	-00	26	17.6	413
1981	EQ31	1981	03	15.69509	12	15	46.57	+00	28	57.6	413
1981	EQ31	1981	03	15.73328	12	15	44.95	+00	29	12.5	413
1981	ER31*	1981	03	02.63403	12	25	07.49	-00	10	40.2	18.5V 413

1981	ER31	1981	03	06.60816	12	22	44.22	+00	19	00.0	413
1981	ER31	1981	03	06.64983	12	22	42.56	+00	19	19.4	413
1981	ER31	1981	03	11.70301	12	19	12.14	+00	59	43.6	413
1981	ER31	1981	03	15.69509	12	16	09.35	+01	32	58.9	413
1981	ER31	1981	03	15.73328	12	16	07.58	+01	33	17.9	413
1981	ES31*	1981	03	02.67917	12	26	16.25	+00	13	47.2	19.0V 413
1981	ES31	1981	03	06.60816	12	24	14.43	+00	43	01.5	413
1981	ES31	1981	03	06.64983	12	24	13.13	+00	43	20.0	413
1981	ES31	1981	03	11.66134	12	21	21.12	+01	22	16.1	413
1981	ET31*	1981	03	02.63403	12	26	17.57	-02	51	50.9	18.5V 413
1981	ET31	1981	03	02.67917	12	26	15.63	-02	51	28.5	413
1981	ET31	1981	03	06.60816	12	23	52.65	-02	23	11.6	413
1981	ET31	1981	03	06.64983	12	23	51.23	-02	22	54.5	413
1981	ET31	1981	03	11.66134	12	20	31.12	-01	44	46.4	413
1981	ET31	1981	03	11.70301	12	20	29.25	-01	44	26.8	413
1981	ET31	1981	03	15.69509	12	17	40.02	-01	12	54.0	413
1981	ET31	1981	03	15.73328	12	17	38.42	-01	12	35.9	413
1981	EU31*	1981	03	02.63403	12	27	00.79	-02	17	29.4	19.5V 413
1981	EU31	1981	03	06.64983	12	24	36.87	-02	02	25.8	413
1981	EU31	1981	03	11.70301	12	21	19.50	-01	41	52.5	413
1981	EU31	1981	03	15.69509	12	18	33.77	-01	24	36.8	413
1981	EU31	1981	03	15.73328	12	18	32.00	-01	24	25.9	413
1981	EV31*	1981	03	02.67917	12	27	07.28	-01	43	51.1	20.0V 413
1981	EV31	1981	03	06.64983	12	24	09.68	-01	15	19.9	413
1981	EV31	1981	03	15.69509	12	16	28.90	-00	04	30.0	413
1981	EV31	1981	03	15.73328	12	16	26.83	-00	04	11.9	413
1981	EV31	1981	04	05.55430	11	57	42.87	+02	39	31.0	413
1981	EV31	1981	04	05.58312	11	57	41.59	+02	39	42.1	413
1981	EW31*	1981	03	02.67917	12	27	09.49	-00	16	47.4	19.0V 413
1981	EW31	1981	03	06.60816	12	24	58.85	+00	07	33.3	413
1981	EW31	1981	03	06.64983	12	24	57.44	+00	07	51.8	413
1981	EW31	1981	03	11.70301	12	21	53.65	+00	40	40.9	413
1981	EW31	1981	03	15.69509	12	19	19.45	+01	07	21.6	413
1981	EX31*	1981	03	02.67917	12	28	45.62	-02	38	10.4	19.0V 413
1981	EX31	1981	03	06.60816	12	26	20.88	-02	16	29.4	413
1981	EX31	1981	03	06.64983	12	26	19.40	-02	16	15.1	413
1981	EX31	1981	03	11.66134	12	22	57.12	-01	46	37.5	413
1981	EX31	1981	03	11.70301	12	22	55.45	-01	46	21.5	413
1981	EY31*	1981	03	03.56736	11	41	14.42	-00	58	08.2	18.0V 413
1981	EY31	1981	03	07.60751	11	37	41.22	-00	37	38.3	413
1981	EY31	1981	03	07.64918	11	37	39.11	-00	37	27.5	413
1981	EY31	1981	03	11.60352	11	33	59.46	-00	15	35.4	413
1981	EY31	1981	03	11.64518	11	33	57.16	-00	15	22.8	413
1981	EZ31*	1981	03	06.59096	12	01	51.85	-15	02	05.7	19.5V 413
1981	EZ31	1981	03	08.60836	12	00	27.35	-14	59	34.2	413
1981	EZ31	1981	03	12.63230	11	57	30.09	-14	51	57.2	413
1981	EZ31	1981	03	12.67049	11	57	28.41	-14	51	51.5	413
1981	EZ31	1981	04	09.59091	11	37	13.36	-12	45	33.0	413
1981	EA32*	1981	03	06.54930	12	13	22.23	-14	16	31.2	20.0V 413
1981	EA32	1981	03	06.59096	12	13	20.23	-14	16	21.4	413
1981	EA32	1981	03	08.56669	12	12	02.19	-14	08	31.2	413
1981	EA32	1981	03	08.60836	12	12	00.51	-14	08	19.9	413
1981	EA32	1981	03	12.63230	12	09	12.96	-13	50	17.6	413
1981	EA32	1981	04	09.55619	11	49	26.01	-10	54	55.4	413
1981	EA32	1981	04	09.59091	11	49	24.93	-10	54	43.0	413
1981	EB32*	1981	03	06.54930	12	13	50.93	-13	51	59.2	19.5V 413
1981	EB32	1981	03	06.59096	12	13	49.39	-13	51	54.1	413
1981	EB32	1981	03	08.56669	12	12	32.13	-13	45	47.1	413
1981	EB32	1981	03	08.60836	12	12	30.66	-13	45	40.7	413

1981	EB32	1981	03	12.63230	12	09	45.28	-13	31	07.7	413
1981	EB32	1981	04	09.55619	11	49	53.49	-10	54	35.5	413
1981	EB32	1981	04	09.59091	11	49	52.23	-10	54	22.3	413
1981	EC32*	1981	03	06.54930	12	18	07.58	-14	37	37.4	19.0V 413
1981	EC32	1981	03	06.59096	12	18	05.36	-14	37	30.7	413
1981	EC32	1981	03	08.56669	12	16	47.98	-14	32	17.9	413
1981	EC32	1981	03	08.60836	12	16	46.51	-14	32	10.1	413
1981	EC32	1981	03	12.63230	12	14	00.36	-14	19	26.9	413
1981	EC32	1981	03	12.67049	12	13	58.76	-14	19	18.8	413
1981	EC32	1981	04	09.55619	11	53	42.30	-11	55	05.8	413
1981	EC32	1981	04	09.59091	11	53	41.06	-11	54	53.4	413
1981	ED32*	1981	03	06.54930	12	18	21.59	-11	03	38.2	20.0V 413
1981	ED32	1981	03	06.59096	12	18	19.57	-11	03	32.2	413
1981	ED32	1981	03	08.56669	12	16	35.14	-10	57	07.9	413
1981	ED32	1981	03	08.60836	12	16	32.92	-10	56	59.4	413
1981	ED32	1981	03	12.67049	12	12	47.28	-10	41	17.7	413
1981	ED32	1981	04	09.55619	11	46	11.08	-08	01	19.1	413
1981	ED32	1981	04	09.59091	11	46	09.42	-08	01	10.9	413
1981	EE32*	1981	03	06.54930	12	23	00.60	-11	14	56.7	19.0V 413
1981	EE32	1981	03	06.59096	12	22	58.52	-11	14	43.8	413
1981	EE32	1981	03	08.56669	12	21	36.33	-11	05	33.7	413
1981	EE32	1981	03	08.60836	12	21	34.55	-11	05	21.1	413
1981	EE32	1981	03	12.63230	12	18	33.92	-10	43	52.4	413
1981	EE32	1981	03	12.67049	12	18	32.19	-10	43	39.9	413
1981	EE32	1981	04	09.50909	11	55	51.35	-07	10	45.5	413
1981	EE32	1981	04	09.54382	11	55	49.95	-07	10	29.5	413
1981	EF32*	1981	03	06.54930	12	24	06.53	-16	05	50.1	19.5V 413
1981	EF32	1981	03	06.59096	12	24	04.87	-16	05	48.9	413
1981	EF32	1981	03	08.56669	12	22	35.25	-16	03	30.5	413
1981	EF32	1981	03	08.60836	12	22	33.50	-16	03	28.8	413
1981	EF32	1981	03	12.63230	12	19	17.43	-15	55	52.7	413
1981	EF32	1981	03	12.67049	12	19	15.46	-15	55	46.1	413
1981	EF32	1981	04	08.60186	11	54	51.39	-13	40	33.5	413
1981	EF32	1981	04	09.55619	11	54	04.84	-13	33	58.4	413
1981	EF32	1981	04	09.59091	11	54	03.35	-13	33	45.3	413
1981	EG32*	1981	03	06.54930	12	25	06.56	-13	06	39.1	18.5V 413
1981	EG32	1981	03	06.59096	12	25	05.83	-13	06	09.1	413
1981	EG32	1981	03	08.60836	12	24	26.40	-12	36	24.2	413
1981	EG32	1981	03	12.63230	12	22	54.09	-11	32	23.7	413
1981	EG32	1981	03	12.67049	12	22	53.05	-11	31	47.2	413
1981	EH32*	1981	03	06.54930	12	25	13.75	-14	50	09.0	19.5V 413
1981	EH32	1981	03	08.56669	12	24	03.01	-14	41	44.5	413
1981	EH32	1981	03	08.60836	12	24	01.55	-14	41	34.5	413
1981	EH32	1981	03	12.63230	12	21	30.35	-14	22	20.5	413
1981	EJ32*	1981	03	06.59096	12	26	16.59	-11	15	48.2	19.5V 413
1981	EJ32	1981	03	08.56669	12	24	54.50	-11	10	44.1	413
1981	EJ32	1981	03	12.63230	12	21	52.91	-10	58	00.6	413
1981	EJ32	1981	03	12.67049	12	21	51.14	-10	57	52.8	413
1981	EJ32	1981	04	09.55619	11	58	21.91	-08	29	12.8	413
1981	EK32*	1981	03	07.66569	11	37	42.61	-07	33	02.4	20.0V 413
1981	EK32	1981	03	07.70735	11	37	40.60	-07	32	52.0	413
1981	EK32	1981	03	11.54742	11	34	07.82	-07	09	35.0	413
1981	EK32	1981	03	11.58909	11	34	05.76	-07	09	22.5	413
1981	EK32	1981	03	15.68342	11	30	14.39	-06	41	58.5	413
1981	EL32*	1981	03	07.66569	11	39	23.52	-02	41	29.6	19.0V 413
1981	EL32	1981	03	07.70735	11	39	21.17	-02	41	28.1	413
1981	EL32	1981	03	11.58909	11	35	25.22	-02	38	19.7	413
1981	EL32	1981	03	15.68342	11	31	11.90	-02	33	51.8	413
1981	EM32*	1981	03	07.60751	11	41	46.18	-01	58	20.6	20.0V 413

1981	EM32	1981	03	07.64918	11	41	43.99	-01	58	28.0		413
1981	EM32	1981	03	11.54742	11	37	27.45	-02	10	04.7		413
1981	EM32	1981	03	15.64523	11	32	53.51	-02	21	03.3		413
1981	EM32	1981	03	15.68342	11	32	50.72	-02	21	11.2		413
1981	EN32*	1981	03	07.59447	11	52	00.96	-11	08	16.3	19.0V	413
1981	EN32	1981	03	10.53941	11	49	50.06	-10	55	59.0		413
1981	EN32	1981	03	10.58108	11	49	48.26	-10	55	49.3		413
1981	EN32	1981	03	12.52945	11	48	19.85	-10	47	01.5		413
1981	EN32	1981	04	09.60259	11	28	19.54	-08	01	23.3		413
1981	EN32	1981	04	09.63731	11	28	18.36	-08	01	09.3		413
1981	EO32*	1981	03	07.70735	11	55	03.37	-05	53	28.8	20.0V	413
1981	EO32	1981	03	11.54742	11	52	00.42	-05	37	01.3		413
1981	EO32	1981	03	11.58909	11	51	58.41	-05	36	51.4		413
1981	EO32	1981	03	15.64523	11	48	38.57	-05	17	46.9		413
1981	EO32	1981	04	12.62048	11	27	45.99	-02	51	02.3		413
1981	EO32	1981	04	12.65521	11	27	44.40	-02	50	51.6		413
1981	EP32*	1981	03	07.66569	11	58	25.65	-03	11	05.1	19.0V	413
1981	EP32	1981	03	11.58909	11	54	18.30	-03	07	17.9		413
1981	EP32	1981	03	15.68342	11	49	46.34	-03	01	45.7		413
1981	EP32	1981	04	12.62048	11	20	08.51	-02	10	12.7		413
1981	EP32	1981	04	12.65521	11	20	06.82	-02	10	09.9		413
1981	EQ32*	1981	03	07.55280	11	59	36.19	-08	37	49.8	19.5V	413
1981	EQ32	1981	03	07.59447	11	59	34.44	-08	37	38.9		413
1981	EQ32	1981	03	10.53941	11	57	19.86	-08	22	54.2		413
1981	EQ32	1981	03	10.58108	11	57	18.16	-08	22	41.2		413
1981	EQ32	1981	03	12.52945	11	55	47.21	-08	12	24.3		413
1981	EQ32	1981	03	12.56765	11	55	45.46	-08	12	11.3		413
1981	EQ32	1981	04	09.50909	11	34	09.43	-05	15	36.4		413
1981	ER32*	1981	03	07.60751	12	00	01.30	+02	29	52.3	20.0V	413
1981	ER32	1981	03	07.64918	11	59	59.52	+02	30	11.0		413
1981	ER32	1981	03	11.64518	11	57	07.53	+03	01	31.1		413
1981	ER32	1981	03	16.73195	11	53	23.43	+03	41	20.2		413
1981	ES32*	1981	03	07.55280	12	00	43.34	-10	18	32.6	20.0V	413
1981	ES32	1981	03	07.59447	12	00	41.21	-10	18	27.6		413
1981	ES32	1981	03	10.53941	11	57	49.83	-10	09	32.4		413
1981	ES32	1981	03	12.52945	11	55	50.41	-10	02	37.2		413
1981	ES32	1981	04	09.60259	11	29	17.02	-07	39	13.1		413
1981	ES32	1981	04	09.63731	11	29	15.37	-07	39	00.3		413
1981	ET32*	1981	03	08.60836	12	08	50.54	-15	45	31.6	20.0V	413
1981	ET32	1981	03	12.63230	12	05	52.34	-15	35	04.0		413
1981	ET32	1981	04	09.55619	11	44	36.31	-13	23	00.3		413
1981	ET32	1981	04	09.59091	11	44	34.99	-13	22	48.4		413
1981	FB	1981	03	01.59302	12	29	07.13	-09	09	02.7	15.0V	413
1981	FB	1981	03	06.66426	12	26	31.55	-08	23	51.1		413
1981	FB	1981	03	06.70593	12	26	30.12	-08	23	28.5		413
1981	FB	1981	03	08.68165	12	25	21.36	-08	04	15.1		413
1981	FB	1981	03	08.72332	12	25	19.76	-08	03	50.5		413
1981	FD	1981	03	02.63403	12	24	56.61	+00	13	21.5	15.0V	1 413
1981	FD	1981	03	02.67917	12	24	55.83	+00	13	19.2		1 413
1981	FD	1981	03	11.66134	12	21	50.08	+00	08	32.5		1 413
1981	FD	1981	03	11.70301	12	21	48.77	+00	08	33.4		1 413
1981	FD	1981	03	15.69509	12	19	53.40	+00	08	31.6		413
1981	FD	1981	03	15.73328	12	19	52.13	+00	08	33.0		413
3042	P-L	1981	03	01.53473	11	51	36.66	-08	47	50.8		413
3042	P-L	1981	03	01.57987	11	51	34.69	-08	47	43.2		413
3042	P-L	1981	03	07.66569	11	46	52.78	-08	25	03.2		413
3042	P-L	1981	03	07.70735	11	46	50.82	-08	24	52.2		413

Note 1: replacement to position on MPC 5946.

OBSERVATIONS MADE WITH THE 1.2-M U.K. SCHMIDT AT SIDING SPRING BY J. BARROW.
MEASURED BY K. S. RUSSELL.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1983 VA	1983 11	03.43435	22 01 47.32	-57 28 09.6	17	413
1983 VA	1983 11	03.44824	22 01 44.23	-57 28 07.6		413

OBSERVATIONS MADE AT MT. JOHN UNIVERSITY OBSERVATORY BY A. C. GILMORE.
MEASURED BY P. M. KILMARTIN (ASSISTED BY R. McINTOSH AND W. M. KISSLING).

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1566	1982 08	20.55005	20 49 39.48	-62 56 05.3		474
1566	1982 08	20.57979	20 49 25.51	-62 56 41.5		474
2696	1982 09	22.66087	04 21 37.64	+01 15 45.7	17.2	474
2696	1982 09	22.68853	04 21 38.57	+01 15 22.4		474
2734	1982 05	27.49979	15 08 25.19	-26 14 52.4		474
2734	1982 05	27.52144	15 08 24.01	-26 14 52.2		474
2735	1982 09	22.60693	22 37 13.88	-02 19 44.0		474
2735	1982 09	22.63031	22 37 11.52	-02 19 27.9		474
2786	1982 08	20.67100	23 04 29.81	-20 44 50.4		474
2786	1982 08	20.69374	23 04 28.45	-20 44 52.5		474
2790	1982 10	16.55282	00 05 53.01	-18 18 08.4		474
2790	1982 10	16.57823	00 05 51.66	-18 17 59.8		474
2790	1982 11	14.51865	23 52 53.32	-14 13 02.1		474
2790	1982 11	14.54075	23 52 53.29	-14 12 46.4		474
2905	1983 08	08.43183	15 58 35.15	-31 33 59.0	18.0	474
2905	1983 08	08.45382	15 58 36.07	-31 33 57.2		474
1975 VB9	1983 10	05.48355	20 46 01.92	-29 01 59.1	18.2	474
1975 VB9	1983 10	05.50716	20 46 02.26	-29 01 47.3		474
1979 QU9	1983 05	22.39817	14 52 10.79	-39 55 33.5		474
1979 QU9	1983 05	22.42034	14 52 09.48	-39 55 29.8		474
1980 LA	1983 03	18.49875	13 29 38.66	-39 54 59.4		474
1980 LA	1983 03	18.54123	13 29 36.64	-39 55 05.5		474
1981 AA	1983 08	08.59363	21 19 19.56	-34 10 28.1	16.1	474
1981 AA	1983 08	08.61539	21 19 18.00	-34 10 50.3		474
1981 QB	1982 02	26.40104	06 24 48.10	-06 55 21.0		474
1981 QB	1982 02	26.42969	06 24 51.00	-06 53 54.9		474
1981 QC	1981 10	28.50251	00 48 11.24	-34 51 03.4		474
1981 QC	1981 10	28.52439	00 48 09.72	-34 50 36.7		474
1981 QC	1981 10	30.49745	00 46 07.47	-34 11 42.9		474
1981 QC	1981 10	30.51235	00 46 06.52	-34 11 24.0		474
1981 YH1	1983 08	10.56076	18 41 27.83	-36 20 28.2		474
1981 YH1	1983 08	10.58252	18 41 26.83	-36 20 28.8		474
1982 BC1	1983 08	10.51111	17 10 07.76	-31 04 35.6	16.4	474
1982 BC1	1983 08	10.53310	17 10 07.92	-31 04 23.4		474
1982 KD1	1983 08	10.64757	22 57 25.01	-25 03 17.3		474
1982 KD1	1983 08	10.66898	22 57 24.22	-25 03 25.3		474
1982 TA	1982 10	19.47229	23 16 10.54	-01 31 05.4		474
1982 TA	1982 10	19.48606	23 16 06.63	-01 31 10.6		474
1982 TA	1982 11	15.42073	20 56 57.69	-02 52 03.2		474
1982 TA	1982 11	15.43612	20 56 52.71	-02 52 01.7		474
1983 PB	1983 09	11.42743	21 38 38.43	-28 11 33.6		474
1983 PB	1983 09	11.53212	21 38 36.38	-28 11 15.0		474
1983 PB	1983 09	28.44767	21 39 15.88	-26 38 17.7		474
1983 PB	1983 09	28.46955	21 39 16.25	-26 38 07.5		474
1983 RB	1983 09	28.49663	22 36 49.70	-15 55 28.3		474
1983 RB	1983 09	28.52221	22 36 51.61	-15 56 07.3		474
1983 RB	1983 10	05.58760	22 45 59.37	-18 23 41.3	16.8	474
1983 RB	1983 10	05.61006	22 46 00.99	-18 24 01.8		474
1983 RD	1983 09	16.51978	01 25 33.28	+05 47 28.8	12	474
1983 RD	1983 09	16.52464	01 25 36.45	+05 47 07.1		474

1983 RD		1983 09 28.54304	03 21 51.45	-08 06 53.4				474
1983 RD		1983 09 28.54860	03 21 53.83	-08 07 10.8				474

OBSERVATIONS MADE WITH THE INFRARED ASTRONOMY SATELLITE UNDER THE DIRECTION OF J. DAVIES AND S. GREEN.

Object		Date UT	R. A. (1950)	Decl.	Mag.	Obs.
1983 VA	*	1983 11 01.41522	22 10.36	-57 33.7	17	500
1983 VA		1983 11 01.48679	22 10.13	-57 33.4		500

OBSERVATIONS MADE AT THE OSSERVATORIO S. VITTORE.

Object		Date UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1933 QU		1983 10 05.89931	23 35 44.22	+18 58 18.0	16.0		552
1933 QU		1983 10 05.93611	23 35 41.96	+18 58 12.1			552
1981 EM4		1983 09 04.94722	00 25 16.03	+14 29 26.8			552
1981 EM4		1983 09 04.98681	00 25 14.29	+14 29 30.9			552
1981 EM4		1983 10 12.89444	23 50 50.10	+13 30 56.6	15.5		552
1981 EM4		1983 10 12.92292	23 50 48.70	+13 30 51.3			552
1981 EM4		1983 10 13.88125	23 50 00.02	+13 27 07.1		1	552
1981 EM4		1983 10 13.90139	23 49 59.00	+13 27 02.3			552
1981 EM4		1983 10 14.90833	23 49 08.83	+13 23 09.8	15.6		552
1981 EM4		1983 10 14.91875	23 49 08.46	+13 23 07.4			552
1981 EM4		1983 10 14.93750	23 49 07.39	+13 23 03.7			552
1982 JA		1983 10 11.97222	02 17 39.10	+00 45 39.8	17.0		552
1982 JA		1983 10 11.98819	02 17 38.14	+00 45 39.2	17.0		552
1982 JA		1983 10 12.00347	02 17 37.27	+00 45 34.3	17.0		552
1982 JA		1983 10 12.95208	02 16 44.10	+00 42 17.0			552
1982 JA		1983 10 12.97222	02 16 42.92	+00 42 12.5			552
1982 JA		1983 10 12.99514	02 16 41.73	+00 42 09.5			552
1982 JA		1983 10 13.01319	02 16 40.54	+00 42 05.0			552
1982 JA		1983 10 13.92917	02 15 48.67	+00 38 58.3			552
1982 JA		1983 10 13.95069	02 15 47.42	+00 38 54.8			552
1982 JA		1983 10 13.96667	02 15 46.51	+00 38 51.5			552
1982 JA		1983 10 27.84236	02 01 47.85	+00 01 42.7	17.2		552
1982 JA		1983 10 27.85833	02 01 46.71	+00 01 41.9			552
1983 TC	*	1983 10 12.89444	23 50 28.23	+13 39 01.5	16.0		552
1983 TC		1983 10 12.92292	23 50 27.32	+13 38 41.7			552
1983 TC		1983 10 13.88125	23 50 00.02	+13 27 07.1		1	552
1983 TC		1983 10 13.90139	23 49 59.48	+13 26 52.8			552
1982 TC		1983 10 14.90833	23 49 32.20	+13 14 48.6	16.0		552
1982 TC		1983 10 14.91875	23 49 31.79	+13 14 40.3			552
1982 TC		1983 10 14.93750	23 49 31.34	+13 14 27.4			552
1982 TC		1983 10 26.81806	23 46 02.30	+10 56 41.2	16.3		552
1982 TC		1983 10 26.83194	23 46 02.12	+10 56 33.6			552
1982 TC		1983 10 27.80000	23 45 55.12	+10 46 03.1	16.3		552
1982 TC		1983 10 27.82153	23 45 54.84	+10 45 49.8			552

Note 1: these observations appear to be coincident!

OBSERVATION MADE AT THE CLIMENHAGA OBSERVATORY, VICTORIA, BY D. D. BALAM.

Object	Date UT	R. A. (1950)	Decl.	Obs.
1983 RD	1983 09 15.41556	01 12 52.96	+07 08 37.0	657

OBSERVATIONS MADE WITH THE 0.46-M SCHMIDT TELESCOPE AT PALOMAR BY C. SHOEMAKER AND E. SHOEMAKER (ASSISTED BY P. SHOEMAKER AND P. KEMPCHINSKY).

Object	Date UT	R. A. (1950)	Decl.	Mag.	Obs.
1983 RC	1983 10 09.33194	00 58 20.52	-14 54 36.3		675
1983 RC	1983 10 09.35000	00 58 20.12	-14 54 56.7		675
1983 RH	1983 10 09.34097	00 19 25.50	+11 44 11.8		675
1983 RH	1983 10 09.32152	00 19 26.11	+11 44 44.6		675
1983 SA	1983 10 06.24513	22 45 06.30	+16 11 04.2		675

1983 SA		1983 10 06.27569	22 45 04.26	+16 11 49.1							675
1983 SA		1983 10 09.19444	22 42 24.82	+17 20 32.8							675
1983 SA		1983 10 09.21458	22 42 23.67	+17 21 01.1							675
1983 SA		1983 10 09.22638	22 42 23.03	+17 21 15.7							675
1983 TA1	*	1983 10 09.33194	00 59 59.60	-11 30 40.4					17		675
1983 TA1		1983 10 09.35000	00 59 58.94	-11 30 59.9							675

OBSERVATIONS MADE WITH THE 1.2-M SCHMIDT TELESCOPE AT PALOMAR.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
2340		1983 10 18.45211	06 56 19.65	+23 04 01.5			1	675
1983 QC		1983 10 03.26321	22 48 03.93	-13 53 39.6			1	675
1983 SA		1983 09 12.36319	23 37 32.82	-02 51 29.7			2	675
1983 SA		1983 09 12.37361	23 37 30.65	-02 50 44.5			2	675
1983 TB		1983 10 12.23472	17 53 15.00	+59 07 23.1		16.0	3	675
1983 TB		1983 10 12.24861	17 53 33.07	+59 06 57.9		16.0	3	675
1983 TB		1983 10 13.13055	18 12 28.85	+58 37 27.0		16.0	7	675
1983 TB		1983 10 16.12971	19 08 36.59	+55 58 10.5			1	675
1983 TB		1983 10 18.14603	19 38 53.60	+53 39 29.2			1	675
1983 TB		1983 10 18.35020	19 41 37.89	+53 24 25.8			1	675
1983 UA	*	1983 10 28.23782	23 28 11.67	+10 16 38.3		20.5	1	675
1983 UA		1983 10 29.14307	23 27 45.87	+10 12 48.6			1	675
1983 VB	*	1983 11 06.49792	07 11 23.74	+59 55 41.0		16.0	3	675
1983 VB		1983 11 06.51181	07 11 15.03	+59 54 02.4			3	675
1983 VB		1983 11 08.35625	06 54 31.60	+56 03 25.7		16.0	3	675

Note 1: observer J. Gibson. 2: observer R. S. Dunbar, measurer S. Swanson; ends of a prediscovery trail. 3: observer C. Kowal. 4: time changed by +5 min. 7 = 3 + 4.

OBSERVATIONS MADE AT THE LOWELL OBSERVATORY'S ANDERSON MESA STATION BY B. SKIFF. MEASURED BY E. BOWELL.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
24	1983 08 13.37292	22 49 45.97	-08 26 30.2				688
24	1983 08 13.41042	22 49 44.50	-08 26 38.3				688
24	1983 09 04.22569	22 34 33.78	-09 56 43.8				688
24	1983 09 04.26597	22 34 32.01	-09 56 53.5				688
24	1983 09 06.20486	22 33 07.88	-10 04 55.6				688
24	1983 09 06.23611	22 33 06.36	-10 05 02.1				688
24	1983 09 10.27222	22 30 13.55	-10 21 19.9				688
24	1983 09 10.30278	22 30 12.20	-10 21 27.7				688
24	1983 09 12.24722	22 28 50.95	-10 29 02.5				688
24	1983 09 12.27778	22 28 49.63	-10 29 09.3				688
40	1983 07 10.25139	19 49 26.02	-23 27 24.4				688
40	1983 07 10.28264	19 49 24.00	-23 27 34.5				688
65	1983 07 10.33056	20 27 12.64	-16 00 37.1				688
65	1983 07 10.36111	20 27 11.39	-16 00 41.6				688
65	1983 07 13.27917	20 25 15.23	-16 09 04.3				688
65	1983 07 13.31111	20 25 13.92	-16 09 10.0				688
66	1983 07 10.33056	20 24 51.22	-23 54 14.8				688
66	1983 07 10.36111	20 24 49.74	-23 54 19.6				688
90	1983 10 04.20903	22 34 43.91	-12 29 37.6				688
90	1983 10 04.24653	22 34 42.89	-12 29 40.0				688
124	1983 10 04.20903	22 47 01.76	-06 20 23.1				688
124	1983 10 04.24653	22 47 00.50	-06 20 33.9				688
159	1983 07 10.33056	20 31 19.89	-16 51 34.6				688
159	1983 07 10.36111	20 31 18.60	-16 51 40.6				688
159	1983 07 13.27917	20 29 17.75	-17 02 09.9				688
159	1983 07 13.31111	20 29 16.35	-17 02 17.6				688
163	1983 10 04.20903	22 47 36.94	-09 25 26.8				688
163	1983 10 04.24653	22 47 35.40	-09 25 39.5				688

180	1983	07	13.27917	20	40	02.39	-18	36	35.5	688
180	1983	07	13.31111	20	40	00.86	-18	36	40.8	688
206	1983	09	06.20486	22	36	10.31	-10	21	46.8	688
206	1983	09	06.23611	22	36	08.64	-10	21	56.8	688
206	1983	09	10.27222	22	32	58.90	-10	45	39.2	688
206	1983	09	10.30278	22	32	57.38	-10	45	50.4	688
206	1983	09	12.24722	22	31	28.51	-10	56	50.0	688
206	1983	09	12.27778	22	31	27.09	-10	57	00.1	688
244	1983	08	13.15625	19	35	38.37	-16	13	45.5	688
244	1983	08	13.20278	19	35	36.21	-16	13	53.9	688
288	1983	08	13.37292	22	37	53.72	-12	11	43.6	688
288	1983	08	13.41042	22	37	52.01	-12	11	56.5	688
288	1983	09	02.20139	22	21	55.79	-14	06	06.2	688
288	1983	09	02.23194	22	21	54.28	-14	06	15.5	688
288	1983	09	04.22569	22	20	17.66	-14	16	47.0	688
288	1983	09	04.26597	22	20	15.69	-14	16	59.5	688
288	1983	09	06.20486	22	18	43.34	-14	26	53.1	688
288	1983	09	06.23611	22	18	41.84	-14	27	03.2	688
288	1983	09	10.27222	22	15	35.59	-14	46	29.4	688
288	1983	09	10.30278	22	15	34.12	-14	46	38.7	688
288	1983	09	12.24722	22	14	08.38	-14	55	23.6	688
288	1983	09	12.27778	22	14	06.97	-14	55	31.1	688
295	1983	07	10.25139	19	29	14.80	-20	54	22.4	688
295	1983	07	10.28264	19	29	13.07	-20	54	24.7	688
318	1983	08	13.37292	22	40	42.53	-06	11	25.6	688
318	1983	08	13.41042	22	40	41.16	-06	11	38.4	688
318	1983	09	10.27222	22	22	31.28	-09	10	53.4	688
318	1983	09	10.30278	22	22	30.02	-09	11	05.8	688
358	1983	07	11.31736	21	31	25.94	-11	08	42.3	688
358	1983	07	11.38611	21	31	23.91	-11	08	52.1	688
367	1983	08	13.37292	22	46	34.56	-12	42	42.7	688
367	1983	08	13.41042	22	46	32.56	-12	42	55.5	688
367	1983	09	02.20139	22	27	46.70	-14	48	06.9	688
367	1983	09	02.23194	22	27	44.79	-14	48	17.5	688
367	1983	09	04.22569	22	25	45.85	-14	59	45.7	688
367	1983	09	04.26597	22	25	43.36	-14	59	59.2	688
367	1983	09	06.20486	22	23	49.19	-15	10	42.9	688
367	1983	09	06.23611	22	23	47.35	-15	10	52.5	688
367	1983	09	10.27222	22	19	55.88	-15	31	36.3	688
367	1983	09	10.30278	22	19	54.05	-15	31	45.6	688
367	1983	09	12.24722	22	18	07.25	-15	40	54.5	688
367	1983	09	12.27778	22	18	05.56	-15	41	02.3	688
371	1983	07	10.25139	19	35	10.54	-20	09	13.9	688
371	1983	07	10.28264	19	35	08.70	-20	09	11.7	688
440	1983	07	11.36319	21	43	45.19	-12	49	52.0	688
440	1983	07	11.43056	21	43	42.68	-12	49	58.2	688
440	1983	08	13.26528	21	15	04.90	-14	41	15.3	688
440	1983	08	13.29583	21	15	03.01	-14	41	23.3	688
474	1983	09	04.22569	22	16	56.03	-09	07	44.8	688
474	1983	09	04.26597	22	16	54.42	-09	08	12.5	688
474	1983	09	06.20486	22	15	44.18	-09	30	44.1	688
474	1983	09	06.23611	22	15	42.78	-09	31	07.5	688
474	1983	09	10.27222	22	13	26.51	-10	16	31.7	688
474	1983	09	10.30278	22	13	25.41	-10	16	52.1	688
474	1983	09	12.24722	22	12	26.37	-10	37	51.0	688
474	1983	09	12.27778	22	12	25.31	-10	38	10.4	688
523	1983	07	13.27917	20	25	16.87	-15	14	56.2	688
523	1983	07	13.31111	20	25	15.36	-15	14	59.3	688
526	1983	07	11.31736	21	25	23.93	-14	47	21.9	688

526		1983	07	11.38611	21	25	21.78	-14	47	33.5	688
526		1983	07	13.34514	21	24	18.77	-14	53	16.2	688
526		1983	07	13.39792	21	24	16.71	-14	53	25.7	688
526		1983	08	13.24931	21	02	47.06	-16	43	23.0	688
526		1983	08	13.28056	21	02	45.70	-16	43	30.3	688
538		1983	08	13.37292	22	47	16.01	-09	50	17.7	688
538		1983	08	13.41042	22	47	14.69	-09	50	31.0	688
538		1983	09	02.20139	22	34	24.02	-12	00	38.0	688
538		1983	09	02.23194	22	34	22.72	-12	00	48.8	688
538		1983	09	04.26597	22	32	57.33	-12	14	07.4	688
538		1983	09	06.20486	22	31	36.78	-12	26	35.2	688
538		1983	09	06.23611	22	31	35.36	-12	26	46.8	688
538		1983	09	10.27222	22	28	50.93	-12	51	49.9	688
538		1983	09	10.30278	22	28	49.65	-12	52	00.9	688
538		1983	09	12.24722	22	27	33.20	-13	03	31.4	688
538		1983	09	12.27778	22	27	31.96	-13	03	43.1	688
542		1983	07	13.36736	21	45	34.58	-06	55	04.4	688
542		1983	07	13.42708	21	45	33.45	-06	55	19.6	688
624		1983	08	13.37292	22	48	39.48	-10	15	57.5	688
624		1983	08	13.41042	22	48	38.34	-10	15	59.2	688
624		1983	09	06.20486	22	35	52.25	-10	46	15.0	688
624		1983	09	06.23611	22	35	51.04	-10	46	16.0	688
624		1983	09	10.27222	22	33	39.09	-10	50	54.8	688
624		1983	09	10.30278	22	33	37.99	-10	50	58.5	688
624		1983	09	12.24722	22	32	35.48	-10	53	01.0	688
624		1983	09	12.27778	22	32	34.54	-10	53	02.7	688
627		1983	07	11.31736	21	22	08.62	-12	50	53.4	688
627		1983	07	11.38611	21	22	06.61	-12	51	09.6	688
627		1983	08	13.24931	20	59	14.62	-15	47	11.3	688
627		1983	08	13.28056	20	59	13.14	-15	47	22.5	688
641		1983	09	06.20486	22	37	34.21	-11	44	44.4	688
641		1983	09	06.23611	22	37	32.15	-11	44	52.9	688
641		1983	09	10.27222	22	33	32.29	-12	05	13.5	688
641		1983	09	10.30278	22	33	30.40	-12	05	22.3	688
641		1983	09	12.24722	22	31	38.15	-12	14	29.3	688
641		1983	09	12.27778	22	31	36.35	-12	14	37.6	688
647		1983	07	10.34583	21	04	33.87	-07	33	06.1	688
647		1983	07	10.37639	21	04	32.56	-07	33	04.0	688
647		1983	07	13.32639	21	02	27.59	-07	31	06.1	688
647		1983	07	13.38611	21	02	24.57	-07	31	02.9	1 688
656		1983	07	10.25139	19	43	29.56	-20	36	49.7	688
656		1983	07	10.28264	19	43	28.06	-20	36	52.6	688
666		1983	08	13.15625	19	24	21.67	-09	26	58.0	688
666		1983	08	13.20278	19	24	19.65	-09	27	12.6	2 688
744		1983	07	11.36319	22	02	35.77	-11	08	18.3	688
744		1983	07	11.43056	22	02	34.15	-11	08	26.0	688
744		1983	07	13.36736	22	01	53.15	-11	15	06.3	688
744		1983	07	13.42708	22	01	51.70	-11	15	17.2	688
825		1983	07	10.33056	20	16	57.13	-21	16	08.2	688
825		1983	07	10.36111	20	16	55.36	-21	16	18.1	688
834		1983	07	13.27917	20	14	03.89	-13	43	14.8	688
834		1983	07	13.31111	20	14	02.48	-13	43	19.8	688
893		1983	07	13.36736	22	02	25.30	-07	59	28.3	688
893		1983	07	13.42708	22	02	24.43	-07	59	50.0	688
933		1983	08	13.37292	22	29	14.22	-10	50	57.8	688
933		1983	08	13.41042	22	29	12.31	-10	51	14.4	688
933		1983	09	02.20139	22	11	41.22	-13	08	27.9	688
933		1983	09	02.23194	22	11	39.57	-13	08	41.3	688
933		1983	09	04.22569	22	09	53.65	-13	21	46.5	1 688

933	1983	09	04.26597	22	09	51.37	-13	22	02.4			688
958	1983	10	04.20903	22	30	46.07	-09	13	06.7			688
958	1983	10	04.24653	22	30	45.23	-09	13	10.3			688
988	1983	07	11.31736	21	15	06.34	-18	25	00.2			688
988	1983	07	11.38611	21	15	04.18	-18	25	12.4			688
988	1983	08	13.24931	20	51	00.61	-20	14	20.0			688
988	1983	08	13.28056	20	50	59.17	-20	14	26.3			688
1027	1983	07	10.25139	19	51	32.78	-22	47	23.2			688
1027	1983	07	10.28264	19	51	31.26	-22	47	27.6			688
1040	1983	07	10.34583	20	59	50.21	-05	45	10.9			688
1040	1983	07	10.37639	20	59	48.89	-05	45	06.9			688
1040	1983	07	13.32639	20	57	50.89	-05	39	03.7			688
1040	1983	07	13.38611	20	57	48.07	-05	38	57.0		1	688
1085	1983	08	13.24931	20	48	47.68	-16	38	25.1			688
1085	1983	08	13.28056	20	48	46.33	-16	38	34.4			688
1104	1983	07	11.31736	21	27	58.47	-14	36	18.8			688
1104	1983	07	13.34514	21	27	05.29	-14	46	14.6		1	688
1104	1983	07	13.39792	21	27	03.35	-14	46	34.2			688
1104	1983	08	13.24931	21	02	53.26	-18	17	59.7			688
1113	1983	08	13.37292	22	30	12.23	-06	47	25.4			688
1113	1983	08	13.41042	22	30	10.40	-06	47	26.3			688
1142	1983	08	13.37292	22	45	54.01	-08	39	18.1			688
1142	1983	08	13.41042	22	45	52.56	-08	39	28.4			688
1142	1983	09	02.20139	22	32	03.36	-10	13	40.3			688
1142	1983	09	02.23194	22	32	02.02	-10	13	48.8			688
1142	1983	09	04.22569	22	30	35.47	-10	23	17.7			688
1142	1983	09	04.26597	22	30	33.62	-10	23	28.6			688
1142	1983	09	06.20486	22	29	10.36	-10	32	33.2			688
1142	1983	09	06.23611	22	29	08.89	-10	32	41.0			688
1142	1983	09	10.27222	22	26	19.27	-10	50	57.4			688
1142	1983	09	10.30278	22	26	17.95	-10	51	07.1			688
1142	1983	09	12.24722	22	24	59.10	-10	59	32.1			688
1142	1983	09	12.27778	22	24	57.78	-10	59	40.2			688
1143	1983	07	11.31736	21	24	29.27	-11	18	44.4			688
1143	1983	07	11.38611	21	24	27.75	-11	18	50.6			688
1212	1983	07	13.27917	20	28	15.86	-14	35	49.8	16.5		688
1212	1983	07	13.31111	20	28	14.73	-14	35	55.4			688
1229	1983	10	04.20903	22	42	04.06	-07	26	59.4			688
1229	1983	10	04.24653	22	42	02.98	-07	27	05.9			688
1242	1983	09	06.20486	22	38	32.82	-12	04	41.5			688
1242	1983	09	06.23611	22	38	30.76	-12	04	41.8			688
1242	1983	09	10.27222	22	34	31.53	-12	06	27.9			688
1242	1983	09	10.30278	22	34	29.60	-12	06	29.6			688
1242	1983	09	12.24722	22	32	36.98	-12	06	46.7			688
1242	1983	09	12.27778	22	32	35.20	-12	06	47.3			688
1246	1983	07	10.33056	20	19	43.85	-16	45	49.7			688
1246	1983	07	10.36111	20	19	41.98	-16	45	30.1			688
1246	1983	07	13.27917	20	16	48.60	-16	14	15.6			688
1246	1983	07	13.31111	20	16	46.55	-16	13	55.1			688
1246	1983	08	13.15625	19	43	54.21	-10	52	53.3			688
1246	1983	08	13.20278	19	43	51.70	-10	52	27.7			688
1254	1983	07	10.33056	20	21	10.91	-17	34	09.3	16.5		688
1254	1983	07	10.36111	20	21	09.44	-17	34	08.7			688
1254	1983	07	13.27917	20	18	53.85	-17	35	42.8			688
1254	1983	07	13.31111	20	18	52.21	-17	35	43.7			688
1340	1983	10	04.20903	22	45	06.38	-07	53	48.8			688
1340	1983	10	04.24653	22	45	05.11	-07	53	54.6			688
1345	1983	07	11.31736	21	28	47.92	-13	55	16.3			688
1345	1983	07	11.38611	21	28	46.18	-13	55	29.9			688

1345	1983	08	13.24931	21	11	17.87	-16	02	08.9			688
1345	1983	08	13.28056	21	11	16.76	-16	02	19.2			688
1352	1983	07	10.25139	19	28	26.36	-16	08	55.1			688
1352	1983	07	10.28264	19	28	24.64	-16	08	58.1			688
1404	1983	07	11.36319	22	03	53.28	-17	04	32.1			688
1404	1983	07	11.43056	22	03	51.61	-17	04	32.7			688
1405	1983	07	11.31736	21	20	02.43	-17	09	43.2			688
1405	1983	07	11.38611	21	19	59.59	-17	09	43.9			688
1405	1983	07	13.34514	21	18	36.01	-17	09	39.8			688
1405	1983	07	13.39792	21	18	33.35	-17	09	40.2			688
1405	1983	08	13.24931	20	46	55.24	-17	24	30.3			688
1405	1983	08	13.28056	20	46	53.08	-17	24	29.5			688
1433	1983	08	13.24931	20	49	40.34	-19	41	25.8			688
1433	1983	08	13.28056	20	49	38.52	-19	41	27.3			688
1437	1983	07	13.36736	22	07	34.02	-07	26	48.1			688
1437	1983	07	13.42708	22	07	32.66	-07	26	45.0			688
1439	1983	08	13.26528	21	30	24.14	-20	20	30.4			688
1439	1983	08	13.29583	21	30	22.85	-20	20	36.4			688
1446	1983	10	04.20903	22	41	20.22	-12	25	51.6			688
1446	1983	10	04.24653	22	41	18.68	-12	25	50.7			688
1513	1983	08	13.24931	21	05	47.25	-16	42	18.9			688
1513	1983	08	13.28056	21	05	45.38	-16	42	30.9			688
1590	1983	08	13.15625	19	40	43.96	-12	37	27.1			688
1629	1983	07	11.36319	22	04	52.67	-11	13	32.6			688
1629	1983	07	13.36736	22	04	23.31	-11	28	20.9			688
1629	1983	07	13.42708	22	04	22.11	-11	28	48.8			688
1681	1983	09	14.31250	00	41	05.52	-08	03	04.1			688
1681	1983	09	14.37153	00	41	02.95	-08	03	27.0			688
1681	1983	10	12.23125	00	18	03.86	-10	37	47.2			688
1681	1983	10	12.26181	00	18	02.35	-10	37	53.0			688
1739	1983	07	10.34583	20	46	06.59	-11	07	40.8		16.5	688
1909	1983	07	10.25139	19	44	40.38	-18	06	56.3			688
1909	1983	07	10.28264	19	44	38.43	-18	07	00.4			688
1964	1983	07	13.36736	22	08	38.05	-07	34	15.9			688
1975	1983	07	13.36736	21	48	08.66	-07	04	19.1			688
1975	1983	07	13.42708	21	48	07.39	-07	04	27.0			688
2009	1983	07	10.33056	20	15	00.02	-20	33	02.5			688
2009	1983	07	13.27917	20	12	47.68	-20	41	49.6			688
2009	1983	07	13.31111	20	12	46.34	-20	41	56.2			688
2125	1983	08	13.37292	22	41	56.87	-07	26	20.4		16.8	688
2125	1983	08	13.41042	22	41	55.25	-07	26	27.5			688
2125	1983	09	04.22569	22	24	39.31	-08	50	14.4		16.5	688
2125	1983	09	04.26597	22	24	37.22	-08	50	23.9			688
2125	1983	09	06.20486	22	23	03.22	-08	58	08.6			688
2125	1983	09	06.23611	22	23	01.60	-08	58	15.9			688
2125	1983	09	10.27222	22	19	52.14	-09	13	46.6		17.2	688
2125	1983	09	10.30278	22	19	50.66	-09	13	55.3			688
2127	1983	07	10.33056	20	20	24.91	-23	16	32.3		16.8	688
2127	1983	07	10.36111	20	20	23.65	-23	16	44.5			688
2171	1983	07	10.33056	20	32	09.96	-22	44	01.5			688
2171	1983	07	10.36111	20	32	08.64	-22	44	20.4			688
2187	1983	08	13.37292	22	50	44.56	-13	17	14.6		17.2	2 688
2187	1983	08	13.41042	22	50	43.23	-13	17	36.5			688
2206	1983	09	14.31250	00	43	22.50	-10	44	41.8			688
2206	1983	09	14.37153	00	43	19.95	-10	44	58.3			688
2206	1983	10	09.23611	00	23	48.92	-12	11	09.6			688
2206	1983	10	12.23125	00	21	29.93	-12	16	12.9			688
2206	1983	10	12.26181	00	21	28.56	-12	16	16.9			688
2208	1983	07	13.34514	21	20	40.16	-21	25	47.4			688

2208	1983	07	13.39792	21	20	38.09	-21	26	01.2			688
2228	1983	10	04.20903	22	41	04.19	-09	47	55.2			688
2228	1983	10	04.24653	22	41	02.99	-09	48	02.5			688
2246	1983	07	13.27917	20	38	13.63	-13	51	57.4		1	688
2246	1983	07	13.31111	20	38	12.27	-13	52	02.5			688
2249	1983	07	11.31736	21	35	46.03	-12	32	58.0			688
2249	1983	07	11.38611	21	35	44.26	-12	33	09.6			688
2249	1983	08	13.26528	21	14	29.96	-14	51	21.2			688
2249	1983	08	13.29583	21	14	28.63	-14	51	30.4			688
2297	1983	07	11.31736	21	13	54.45	-15	28	31.0			688
2297	1983	07	11.38611	21	13	52.29	-15	28	43.9			688
2297	1983	08	13.24931	20	49	55.85	-17	26	11.8			688
2297	1983	08	13.28056	20	49	54.47	-17	26	19.0			688
2334	1983	07	10.33056	20	33	12.66	-18	21	27.6			688
2334	1983	07	10.36111	20	33	11.18	-18	21	36.9			688
2334	1983	07	13.27917	20	30	40.05	-18	37	47.3			688
2334	1983	07	13.31111	20	30	38.53	-18	37	57.9			688
2398	1983	09	04.22569	22	34	49.39	-15	07	15.7			688
2398	1983	09	04.26597	22	34	46.84	-15	07	29.4			688
2398	1983	09	10.27222	22	28	59.45	-15	41	53.6			688
2457	1983	07	13.36736	22	08	22.04	-10	41	45.9			688
2457	1983	07	13.42708	22	08	20.79	-10	42	00.7			688
2460	1983	07	13.36736	21	52	03.66	-08	45	23.3	16.5		688
2460	1983	07	13.42708	21	52	01.81	-08	45	33.0			688
2461	1983	08	13.37292	22	34	25.67	-11	22	21.9			688
2461	1983	08	13.41042	22	34	24.25	-11	22	33.5			688
2461	1983	09	02.20139	22	20	31.62	-13	01	16.4			688
2461	1983	09	02.23194	22	20	30.20	-13	01	24.8			688
2461	1983	09	04.22569	22	19	04.52	-13	10	45.5			688
2461	1983	09	04.26597	22	19	02.80	-13	10	57.2			688
2461	1983	09	06.20486	22	17	41.10	-13	19	45.7			688
2461	1983	09	06.23611	22	17	39.75	-13	19	55.9			688
2461	1983	09	10.27222	22	14	55.56	-13	37	14.1			688
2461	1983	09	10.30278	22	14	54.16	-13	37	21.4			688
2461	1983	09	12.24722	22	13	39.26	-13	45	07.3			688
2461	1983	09	12.27778	22	13	38.09	-13	45	14.1			688
2584	1983	07	10.33056	20	30	58.48	-21	31	53.5	16.8		688
2584	1983	07	10.36111	20	30	56.86	-21	32	00.2			688
2602	1983	07	13.27917	20	16	35.95	-13	12	00.1			688
2602	1983	07	13.31111	20	16	34.35	-13	12	06.6		1	688
2602	1983	08	13.20278	19	49	22.94	-15	59	54.0			688
2625	1983	10	04.20903	22	52	06.43	-13	39	50.2			688
2625	1983	10	04.24653	22	52	05.26	-13	39	57.5			688
2627	1983	07	13.27917	20	28	12.52	-19	47	21.2			688
2627	1983	07	13.31111	20	28	11.31	-19	47	26.7			688
2647	1983	07	10.33056	20	31	43.59	-17	58	22.4			688
2647	1983	07	10.36111	20	31	41.67	-17	58	24.0			688
2647	1983	07	13.27917	20	28	57.46	-18	01	56.3			688
2647	1983	07	13.31111	20	28	55.63	-18	01	59.4			688
2675	1983	10	04.20903	22	29	36.06	-10	45	05.4			688
2675	1983	10	04.24653	22	29	34.93	-10	45	05.3			688
2683	1983	07	10.33056	20	25	18.08	-20	55	06.8			688
2683	1983	07	10.36111	20	25	16.63	-20	55	12.6			688
2683	1983	07	13.27917	20	22	59.68	-21	02	20.9			688
2683	1983	07	13.31111	20	22	58.17	-21	02	25.0		3	688
2684	1983	07	10.37639	20	57	12.43	-10	33	39.5			688
2687	1983	09	14.31250	00	26	15.30	-12	33	55.4			688
2687	1983	09	14.37153	00	26	11.96	-12	34	07.7			688
2687	1983	10	09.23611	00	02	13.70	-13	11	54.0			688

2687		1983	10	09.26667	00	02	12.19	-13	11	51.3			688
2688		1983	10	04.20903	22	50	59.31	-12	32	26.6			688
2688		1983	10	04.24653	22	50	58.15	-12	32	31.5			688
2711		1983	07	13.36736	22	00	55.59	-06	27	03.0			688
2711		1983	07	13.42708	22	00	54.57	-06	27	15.4			688
2713		1983	07	10.33056	20	29	53.28	-20	25	09.2			688
2713		1983	07	10.36111	20	29	51.94	-20	25	13.4			688
2713		1983	07	13.27917	20	27	34.51	-20	32	36.0			688
2713		1983	07	13.31111	20	27	32.75	-20	32	41.3			688
2722		1983	08	13.37292	22	48	57.52	-08	27	47.2			688
2722		1983	08	13.41042	22	48	56.36	-08	27	58.8		3	688
2722		1983	09	04.22569	22	33	27.59	-10	11	13.5			688
2722		1983	09	04.26597	22	33	25.85	-10	11	26.9			688
2722		1983	09	06.20486	22	32	01.16	-10	20	28.9			688
2722		1983	09	06.23611	22	31	59.60	-10	20	37.2			688
2722		1983	09	10.27222	22	29	07.79	-10	38	44.5			688
2722		1983	09	10.30278	22	29	06.38	-10	38	55.8			688
2814		1983	07	10.25139	19	39	58.15	-18	46	02.7			688
2814		1983	07	10.28264	19	39	56.71	-18	46	10.9			688
2819		1983	07	13.34514	21	18	43.13	-19	45	55.9			688
2819		1983	07	13.39792	21	18	41.01	-19	46	05.3			688
2819		1983	08	13.24931	20	54	14.68	-21	27	32.5			688
2819		1983	08	13.28056	20	54	12.98	-21	27	38.1			688
2833		1983	10	04.20903	22	48	06.68	-07	05	02.7			688
2833		1983	10	04.24653	22	48	05.47	-07	05	09.8			688
2910		1983	09	06.20486	22	37	40.94	-14	45	40.1	16.2		688
2910		1983	09	06.23611	22	37	39.01	-14	45	46.4			688
2910		1983	09	10.27222	22	33	53.31	-15	00	18.5			688
2910		1983	09	10.30278	22	33	51.48	-15	00	25.5			688
2910		1983	09	12.24722	22	32	07.34	-15	06	19.9			688
2910		1983	09	12.27778	22	32	05.60	-15	06	24.8			688
2931		1983	10	04.20903	22	38	03.24	-10	45	31.9	16.8		688
2931		1983	10	04.24653	22	38	01.97	-10	45	34.8			688
1930	YV	1983	07	11.36319	21	51	37.23	-18	01	36.3	17.5		688
1930	YV	1983	07	11.43056	21	51	35.21	-18	01	48.7			688
1930	YV	1983	08	13.26528	21	23	05.54	-20	15	57.3	16.8		688
1930	YV	1983	08	13.29583	21	23	03.46	-20	16	04.6			688
1932	BG	1983	07	10.28264	19	39	14.77	-19	55	09.3	15.8		688
1941	UV	1983	10	04.20903	22	39	19.61	-07	58	41.0	17.2		688
1941	UV	1983	10	04.24653	22	39	17.93	-07	58	48.2			688
1974	SP	1983	07	10.34583	20	57	18.31	-05	26	48.3	16.8		688
1974	SP	1983	07	10.37639	20	57	17.32	-05	26	53.0			688
1974	VQ2	1983	09	14.31250	00	41	56.56	-12	52	36.6	15.5		688
1974	VQ2	1983	09	14.37153	00	41	54.48	-12	53	08.7			688
1974	VQ2	1983	10	09.23611	00	24	20.44	-15	53	00.6	15.5		688
1974	VQ2	1983	10	09.26667	00	24	19.03	-15	53	08.8			688
1974	VQ2	1983	10	12.23125	00	22	10.39	-16	04	28.8	15.8		688
1974	VQ2	1983	10	12.26181	00	22	09.03	-16	04	35.0			688
1976	UU	1983	09	14.31250	00	33	23.40	-12	05	50.9	17.0	3	688
1976	UU	1983	09	14.37153	00	33	20.94	-12	06	21.0			688
1978	PT2	1983	10	04.20903	22	29	53.69	-08	07	11.3	17.5		688
1978	PT2	1983	10	04.24653	22	29	52.40	-08	07	20.2			688
1978	SR	1983	07	13.31111	20	31	12.44	-20	26	32.2	17.0	1	688
1978	SB5	1983	07	10.33056	20	28	59.63	-18	32	13.0			688
1978	SB5	1983	07	10.36111	20	28	58.29	-18	32	19.8			688
1978	SB5	1983	07	13.27917	20	27	00.70	-18	41	37.9	16.8		688
1978	SB5	1983	07	13.31111	20	26	59.29	-18	41	45.4			688
1979	MC	1979	07	02.38056	20	02	59.93	-03	29	57.4			688
1979	MC	1983	09	14.31250	00	36	22.66	-09	33	57.9	16.5		688

1979	MC		1983	09	14.37153	00	36	20.49	-09	34	46.8		688
1979	MC		1983	10	09.23611	00	19	19.78	-14	24	45.7	17.0	688
1979	MC		1983	10	12.23125	00	17	31.59	-14	45	31.1	17.0	688
1979	MC		1983	10	12.26181	00	17	30.54	-14	45	44.7		688
1979	SF		1983	08	13.24931	20	49	06.47	-23	00	55.8	16.5	688
1979	SF		1983	08	13.28056	20	49	04.68	-23	00	54.6		688
1979	SV11		1983	07	11.36319	21	53	26.66	-11	21	13.5	17.0	688
1979	SV11		1983	07	11.43056	21	53	24.84	-11	21	17.8		688
1979	SV11		1983	07	13.36736	21	52	38.47	-11	24	23.6	16.8	688
1979	SV11		1983	07	13.42708	21	52	36.78	-11	24	29.6		688
1981	EK		1983	09	06.20486	22	35	13.65	-11	17	39.8	17.0	688
1981	EK		1983	09	06.23611	22	35	12.04	-11	17	52.4		688
1981	EK		1983	09	10.27222	22	32	04.80	-11	38	58.6	17.0	688
1981	EK		1983	09	10.30278	22	32	03.29	-11	39	07.1		688
1981	EK		1983	09	12.24722	22	30	35.47	-11	48	49.8	17.2	688
1981	EK		1983	09	12.27778	22	30	34.06	-11	48	59.2		688
1982	BL1		1983	08	13.24931	21	08	08.37	-17	56	19.1	16.8	688
1982	BL1		1983	08	13.28056	21	08	06.52	-17	56	34.7		688
1982	DP		1983	07	11.36319	21	53	38.42	-17	13	55.9	16.8	688
1982	DP		1983	07	11.43056	21	53	36.10	-17	14	05.3		688
1982	DP		1983	08	13.26528	21	25	38.46	-18	54	59.4	16.5	688
1982	DP		1983	08	13.29583	21	25	36.55	-18	55	04.7		688
1982	HN1		1983	08	13.37292	22	36	29.97	-11	45	22.4	17.2	688
1982	HN1		1983	08	13.41042	22	36	28.19	-11	45	35.2		688
1982	HN1		1983	09	02.20139	22	20	41.18	-13	33	53.2	17.0	688
1982	HN1		1983	09	02.23194	22	20	39.59	-13	34	03.7		688
1982	HN1		1983	09	06.20486	22	17	29.65	-13	53	44.1	17.0	688
1982	HN1		1983	09	06.23611	22	17	28.21	-13	53	54.6		688
1982	HN1		1983	09	10.27222	22	14	23.65	-14	12	25.2	17.2	688
1982	HN1		1983	09	10.30278	22	14	22.05	-14	12	33.8		688
1982	HN1		1983	09	12.24722	22	12	57.65	-14	20	48.0	17.2	688
1982	HN1		1983	09	12.27778	22	12	56.28	-14	20	56.0		688
1983	NA		1983	07	10.37639	21	00	46.11	-09	33	04.8	1	688
1983	NA		1983	07	13.38611	20	56	08.76	-08	25	58.6	3	688
1983	NJ	*	1983	07	10.34583	20	47	39.79	-06	29	57.7	17.0 4	688
1983	NJ		1983	07	10.37639	20	47	38.74	-06	30	03.9		688
1983	NJ		1983	07	13.32639	20	45	54.07	-06	45	37.4	16.8	688
1983	NJ		1983	07	13.38611	20	45	51.57	-06	45	56.5	1	688
1983	NJ		1983	08	13.18750	20	24	13.63	-10	28	39.6	16.8	688
1983	NJ		1983	08	13.23333	20	24	11.72	-10	29	03.3		688
1983	NK	*	1983	07	10.34583	20	51	39.96	-06	12	52.6	16.8 4	688
1983	NK		1983	07	10.37639	20	51	38.69	-06	12	46.6		688
1983	NK		1983	07	13.32639	20	49	36.48	-06	03	58.6	16.8	688
1983	NK		1983	07	13.38611	20	49	33.48	-06	03	47.7	1	688
1983	NK		1983	08	13.18750	20	24	40.58	-05	33	47.0	16.5	688
1983	NK		1983	08	13.23333	20	24	38.42	-05	33	48.9		688
1983	NL	*	1983	07	10.34583	20	54	05.50	-04	19	25.9	17.0 4	688
1983	NL		1983	07	10.37639	20	54	04.73	-04	19	41.8		688
1983	NL		1983	07	13.32639	20	52	57.05	-04	45	16.3	16.8	688
1983	NL		1983	07	13.38611	20	52	54.99	-04	45	47.6	1	688
1983	NL		1983	08	13.18750	20	33	21.60	-11	45	39.1	16.5 2	688
1983	NL		1983	08	13.23333	20	33	19.73	-11	46	23.3		688
1983	NM	*	1983	07	10.25139	19	32	29.34	-18	51	59.3	16.8 4	688
1983	NM		1983	07	10.28264	19	32	27.65	-18	51	52.3		688
1983	NN	*	1983	07	10.33056	20	18	21.55	-20	40	30.6	16.5 4	688
1983	NN		1983	07	10.36111	20	18	19.90	-20	40	14.5		688
1983	NN		1983	07	13.27917	20	15	42.44	-20	15	58.0	16.0	688
1983	NN		1983	07	13.31111	20	15	40.51	-20	15	42.0		688
1983	NN		1983	08	13.15625	19	46	21.78	-15	44	32.2	16.5	688

1983	NN		1983	08	13.20278	19	46	19.70	-15	44	09.5		688
1983	NO	*	1983	07	10.33056	20	24	24.93	-18	15	34.0	17.0 4	688
1983	NO		1983	07	10.36111	20	24	23.07	-18	15	44.5		688
1983	NO		1983	07	13.27917	20	21	39.40	-18	34	43.9	16.8	688
1983	NO		1983	07	13.31111	20	21	37.54	-18	34	55.7		688
1983	NP	*	1983	07	10.33056	20	37	39.45	-20	45	28.7	17.0 4	688
1983	NP		1983	07	10.36111	20	37	37.96	-20	45	34.1		688
1983	NQ	*	1983	07	11.31736	21	23	49.68	-17	34	51.7	17.0 4	688
1983	NQ		1983	07	11.38611	21	23	47.39	-17	34	59.6		688
1983	NR	*	1983	07	11.31736	21	28	32.62	-18	38	51.4	16.5 4	688
1983	NR		1983	07	11.38611	21	28	29.44	-18	38	32.5		688
1983	NR		1983	07	13.34514	21	27	00.70	-18	29	34.0	16.5	688
1983	NR		1983	07	13.39792	21	26	57.84	-18	29	18.8		688
1983	NR		1983	08	13.24931	20	54	24.82	-16	08	09.2	16.2	688
1983	NR		1983	08	13.28056	20	54	22.67	-16	08	00.0		688
1983	NS	*	1983	07	11.31736	21	28	59.27	-16	01	57.0	16.8 4	688
1983	NS		1983	07	11.38611	21	28	56.81	-16	02	13.9		688
1983	NS		1983	07	13.34514	21	27	45.50	-16	10	24.9	17.0	688
1983	NS		1983	07	13.39792	21	27	43.02	-16	10	38.0		688
1983	NT	*	1983	07	11.31736	21	29	46.43	-17	47	06.8	17.0 4	688
1983	NT		1983	07	11.38611	21	29	43.41	-17	47	15.8		688
1983	NT		1983	07	13.34514	21	28	17.98	-17	50	45.7	16.8	688
1983	NT		1983	07	13.39792	21	28	15.25	-17	50	51.8		688
1983	NT		1983	08	13.24931	20	57	08.39	-18	58	39.0	16.8	688
1983	NT		1983	08	13.28056	20	57	06.22	-18	58	43.6		688
1983	NU	*	1983	07	11.36319	21	47	56.72	-13	46	48.0	16.5 4	688
1983	NU		1983	07	11.43056	21	47	55.14	-13	46	49.5		688
1983	NU		1983	07	13.36736	21	47	17.58	-13	47	50.0	16.2	688
1983	NU		1983	07	13.42708	21	47	16.07	-13	47	52.9		688
1983	NU		1983	08	13.26528	21	24	51.98	-14	57	13.0	15.5	688
1983	NU		1983	08	13.29583	21	24	50.23	-14	57	18.6		688
1983	NV	*	1983	07	13.34514	21	41	52.92	-19	53	05.5	16.5 4	688
1983	NV		1983	07	13.39792	21	41	51.77	-19	53	39.7		688
1983	NW	*	1983	07	13.34514	21	42	12.99	-17	51	31.7	16.8 6	688
1983	NW		1983	07	13.39792	21	42	11.54	-17	51	48.6		688
1983	NW		1983	08	13.26528	21	24	07.61	-20	40	03.0	16.8	688
1983	NW		1983	08	13.29583	21	24	05.80	-20	40	05.2		688
1983	NX	*	1983	07	13.36736	22	01	33.72	-07	29	17.3	16.8 4	688
1983	NX		1983	07	13.42708	22	01	32.36	-07	29	18.1		688
1983	NY		1983	07	11.36319	22	04	36.20	-14	08	26.4	17.0 2	688
1983	NY		1983	07	11.43056	22	04	35.53	-14	08	43.4		688
1983	NY	*	1983	07	13.36736	22	04	26.47	-14	18	17.2	17.0 4	688
1983	NY		1983	07	13.42708	22	04	25.84	-14	18	34.9		688
1983	NZ	*	1983	07	13.36736	22	06	13.70	-07	59	21.3	17.0 4	688
1983	NZ		1983	07	13.42708	22	06	13.24	-07	59	21.7		688
1983	OD	*	1983	07	17.35556	22	09	39.67	-11	23	23.8	16.5 4	688
1983	OD		1983	07	17.40972	22	09	39.94	-11	23	59.8		688
1983	OE	*	1983	07	17.35556	22	14	19.26	-11	09	15.4	17.0 4	688
1983	OE		1983	07	17.40972	22	14	18.15	-11	09	35.3		688
1983	OF	*	1983	07	17.35556	22	27	12.98	-11	08	25.4	17.2 4	688
1983	OF		1983	07	17.40972	22	27	12.18	-11	08	47.9		688
1983	OG	*	1983	07	17.35556	22	31	18.92	-11	00	45.6	16.8 4	688
1983	OG		1983	07	17.40972	22	31	17.69	-11	00	31.6		688
1983	OH	*	1983	07	17.35556	22	26	27.03	-10	01	29.2	17.0 4	688
1983	OH		1983	07	17.40972	22	26	25.83	-10	01	27.6		688
1983	PR	*	1983	08	13.24931	20	51	00.88	-18	45	58.3	17.0 4	688
1983	PR		1983	08	13.28056	20	50	59.59	-18	46	02.7		688
1983	PS	*	1983	08	13.26528	21	18	15.57	-19	44	54.7	16.8 4	688
1983	PS		1983	08	13.29583	21	18	13.59	-19	44	51.0		688

1983	PT	*	1983	08	13.26528	21	29	26.89	-20	55	50.3	17.2	4 688
1983	PT		1983	08	13.29583	21	29	24.87	-20	55	59.4		688
1983	QA		1983	07	17.35556	22	33	38.92	-11	30	31.2	16.5	688
1983	QA		1983	07	17.40972	22	33	38.81	-11	30	08.4		688
1983	RJ		1983	09	14.31250	00	24	50.81	-11	30	32.4	15.5	688
1983	RJ		1983	09	14.37153	00	24	47.43	-11	30	37.6		688
1983	RJ		1983	10	09.23611	00	00	28.09	-11	05	43.8	15.8	688
1983	RJ		1983	10	12.23125	23	58	03.23	-10	52	28.2	15.8	688
1983	RJ		1983	10	12.26181	23	58	01.69	-10	52	18.4		688
1983	RC2		1983	09	04.35278	00	09	47.81	+04	27	16.0	16.8	688
1983	RC2		1983	09	04.38333	00	09	46.19	+04	27	07.3		688
1983	RC2	*	1983	09	14.27847	00	01	49.27	+03	37	56.3	16.5	4 688
1983	RC2		1983	09	14.35278	00	01	45.22	+03	37	30.9		688
1983	RD2	*	1983	09	14.27847	00	04	13.24	+02	11	15.0	17.0	4 688
1983	RD2		1983	09	14.35278	00	04	09.40	+02	10	50.6		688
1983	RE2		1983	08	13.37292	22	33	10.37	-13	01	52.7	16.8	688
1983	RE2		1983	08	13.41042	22	33	09.08	-13	02	03.6		688
1983	RE2		1983	09	02.20139	22	20	41.94	-14	39	43.6	17.0	688
1983	RE2		1983	09	02.23194	22	20	40.74	-14	39	50.5		688
1983	RE2	*	1983	09	04.22569	22	19	22.65	-14	49	08.4	16.8	4 688
1983	RE2		1983	09	04.26597	22	19	20.96	-14	49	21.0		688
1983	RE2		1983	09	06.20486	22	18	05.91	-14	58	09.9	16.8	688
1983	RE2		1983	09	06.23611	22	18	04.69	-14	58	17.6		688
1983	RE2		1983	09	10.27222	22	15	31.59	-15	15	49.2	16.8	688
1983	RE2		1983	09	10.30278	22	15	30.22	-15	15	58.2		688
1983	RE2		1983	09	12.24722	22	14	19.20	-15	23	56.1	16.8	688
1983	RE2		1983	09	12.27778	22	14	18.04	-15	24	03.0		688
1983	RF2	*	1983	09	14.31250	00	29	39.98	-12	50	11.6	16.5	4 688
1983	RF2		1983	09	14.37153	00	29	37.50	-12	50	29.8		688
1983	RF2		1983	10	09.23611	00	10	50.06	-14	04	38.8	16.8	688
1983	RF2		1983	10	12.23125	00	08	45.96	-14	02	18.7	17.2	688
1983	RF2		1983	10	12.26181	00	08	44.63	-14	02	16.0		688
1983	RG2	*	1983	09	14.31250	00	30	34.03	-11	05	08.6	16.8	4 688
1983	RG2		1983	09	14.37153	00	30	31.16	-11	05	25.7		688
1983	RG2		1983	10	09.23611	00	09	20.22	-12	07	02.5	16.8	688
1983	RG2		1983	10	12.23125	00	07	03.40	-12	03	21.8	16.8	688
1983	RG2		1983	10	12.26181	00	07	02.02	-12	03	19.4		688
1983	RH2	*	1983	09	14.31250	00	35	18.20	-07	57	31.4	16.8	7 688
1983	RH2		1983	09	14.37153	00	35	15.09	-07	57	45.1		688
1983	RJ2		1983	08	13.37292	22	28	34.13	-08	44	01.1	16.8	688
1983	RJ2		1983	08	13.41042	22	28	32.63	-08	44	14.1		688
1983	RJ2		1983	09	02.20139	22	13	36.39	-10	48	19.3	16.2	688
1983	RJ2		1983	09	02.23194	22	13	34.85	-10	48	31.4		688
1983	RJ2	*	1983	09	04.22569	22	12	03.36	-11	01	04.6	16.8	4 688
1983	RJ2		1983	09	04.26597	22	12	01.33	-11	01	19.5		688
1983	RK2		1983	08	13.41042	22	38	17.18	-13	34	10.4	17.2	688
1983	RK2		1983	09	02.20139	22	18	58.20	-14	24	13.8	17.0	688
1983	RK2		1983	09	02.23194	22	18	56.05	-14	24	17.6		688
1983	RK2	*	1983	09	04.22569	22	16	51.12	-14	28	07.8	17.2	4 688
1983	RK2		1983	09	04.26597	22	16	48.51	-14	28	13.1		688
1983	RK2		1983	09	06.20486	22	14	48.33	-14	31	32.0	17.0	688
1983	RK2		1983	09	06.23611	22	14	46.28	-14	31	35.3		688
1983	RK2		1983	09	10.27222	22	10	43.10	-14	37	00.0	17.0	688
1983	RK2		1983	09	10.30278	22	10	41.12	-14	37	02.1		688
1983	RK2		1983	09	12.24722	22	08	49.37	-14	38	49.9	17.0	688
1983	RK2		1983	09	12.27778	22	08	47.50	-14	38	51.9		688
1983	RL2		1983	08	13.37292	22	41	51.06	-13	33	52.8	16.8	688
1983	RL2		1983	08	13.41042	22	41	49.18	-13	33	59.1		688
1983	RL2		1983	09	02.20139	22	24	46.78	-14	36	17.3	16.8	688

1983	RL2		1983	09	02.23194	22	24	45.05	-14	36	21.9		688
1983	RL2	*	1983	09	04.22569	22	23	00.36	-14	41	21.8	16.5 4	688
1983	RL2		1983	09	04.26597	22	22	58.28	-14	41	27.0		688
1983	RL2		1983	09	06.20486	22	21	18.60	-14	45	56.2	16.5	688
1983	RL2		1983	09	06.23611	22	21	17.03	-14	46	00.5		688
1983	RL2		1983	09	10.27222	22	17	57.04	-14	53	57.6	16.8	688
1983	RL2		1983	09	10.30278	22	17	55.50	-14	54	01.9		688
1983	RL2		1983	09	12.24722	22	16	24.38	-14	57	10.6	16.5	688
1983	RL2		1983	09	12.27778	22	16	22.89	-14	57	11.4		688
1983	RM2		1983	09	02.20139	22	26	01.51	-16	39	57.7	16.8	688
1983	RM2		1983	09	02.23194	22	26	00.10	-16	40	08.8		688
1983	RM2	*	1983	09	04.22569	22	24	30.64	-16	50	29.7	16.8 4	688
1983	RM2		1983	09	04.26597	22	24	28.56	-16	50	40.8		688
1983	RM2		1983	09	06.20486	22	23	03.48	-17	00	08.4	16.8	688
1983	RM2		1983	09	06.23611	22	23	02.23	-17	00	17.5		688
1983	RM2		1983	09	12.24722	22	18	56.18	-17	25	07.4	16.8	688
1983	RM2		1983	09	12.27778	22	18	54.89	-17	25	12.4		688
1983	RN2	*	1983	09	04.22569	22	24	49.77	-08	59	17.6	16.5 4	688
1983	RN2		1983	09	04.26597	22	24	47.69	-08	59	40.4		688
1983	RN2		1983	09	06.20486	22	23	13.44	-09	17	09.0	16.0	688
1983	RN2		1983	09	06.23611	22	23	11.73	-09	17	25.2		688
1983	RN2		1983	09	10.27222	22	20	05.43	-09	52	28.9	16.2	688
1983	RN2		1983	09	10.30278	22	20	03.94	-09	52	45.1		688
1983	RN2		1983	09	12.24722	22	18	40.79	-10	08	51.0	16.5	688
1983	RN2		1983	09	12.27778	22	18	39.33	-10	09	05.5		688
1983	RO2		1983	08	13.37292	22	47	52.24	-08	40	45.7	16.5	688
1983	RO2		1983	08	13.41042	22	47	50.86	-08	41	01.8		688
1983	RO2		1983	09	02.20139	22	33	05.97	-11	27	30.9	16.5	688
1983	RO2		1983	09	02.23194	22	33	04.41	-11	27	45.9		688
1983	RO2	*	1983	09	04.22569	22	31	27.75	-11	44	21.8	16.2 4	688
1983	RO2		1983	09	04.26597	22	31	25.64	-11	44	41.9		688
1983	RO2		1983	09	06.20486	22	29	53.43	-12	00	24.8	16.5	688
1983	RO2		1983	09	06.23611	22	29	51.82	-12	00	39.8		688
1983	RO2		1983	09	10.27222	22	26	47.38	-12	31	43.5	16.5	688
1983	RO2		1983	09	10.30278	22	26	45.93	-12	31	56.6		688
1983	RO2		1983	09	12.24722	22	25	22.83	-12	45	55.2	16.5	688
1983	RO2		1983	09	12.27778	22	25	21.42	-12	46	08.9		688
1983	RP2		1983	08	13.37292	22	47	56.96	-07	36	42.8	17.2	688
1983	RP2		1983	08	13.41042	22	47	55.63	-07	36	56.8		688
1983	RP2		1983	09	02.20139	22	33	32.81	-10	17	27.6	16.8	688
1983	RP2		1983	09	02.23194	22	33	31.11	-10	17	41.3		688
1983	RP2	*	1983	09	04.22569	22	31	53.31	-10	34	45.5	17.0 4	688
1983	RP2		1983	09	04.26597	22	31	51.13	-10	35	06.5		688
1983	RP2		1983	09	06.20486	22	30	16.99	-10	51	28.5	17.0	688
1983	RP2		1983	09	06.23611	22	30	15.48	-10	51	44.0		688
1983	RP2		1983	09	10.27222	22	27	04.53	-11	24	45.9	17.0	688
1983	RP2		1983	09	10.30278	22	27	03.03	-11	25	01.3		688
1983	RP2		1983	09	12.27778	22	25	34.49	-11	40	28.0	17.2	688
1983	RQ2		1983	09	02.20139	22	34	07.03	-16	15	41.8	16.8	688
1983	RQ2		1983	09	02.23194	22	34	05.00	-16	15	34.5		688
1983	RQ2	*	1983	09	04.22569	22	32	02.97	-16	07	01.5	16.2 4	688
1983	RQ2		1983	09	04.26597	22	32	00.36	-16	06	50.5		688
1983	RQ2		1983	09	06.20486	22	30	04.18	-15	57	57.7	16.5	688
1983	RQ2		1983	09	06.23611	22	30	02.32	-15	57	48.4		688
1983	RQ2		1983	09	10.27222	22	26	10.72	-15	37	30.2	16.5	688
1983	RQ2		1983	09	10.30278	22	26	08.81	-15	37	23.2		688
1983	RQ2		1983	09	12.24722	22	24	24.77	-15	26	42.8	16.5	688
1983	RQ2		1983	09	12.27778	22	24	23.07	-15	26	32.4		688
1983	RR2	*	1983	09	06.20486	22	33	00.88	-16	45	16.0	17.0 4	688

1983	RR2		1983	09	06.23611	22	32	59.07	-16	45	17.4	688
1983	RR2		1983	09	10.27222	22	28	58.86	-16	46	39.8	17.0 688
1983	RR2		1983	09	10.30278	22	28	57.01	-16	46	40.0	688
1983	RR2		1983	09	12.24722	22	27	07.02	-16	46	22.7	16.8 688
1983	RR2		1983	09	12.27778	22	27	05.19	-16	46	21.1	688
1983	RS2	*	1983	09	06.20486	22	33	55.47	-09	39	44.7	17.0 4 688
1983	RS2		1983	09	06.23611	22	33	53.56	-09	39	51.2	688
1983	RS2		1983	09	10.27222	22	30	17.22	-09	56	31.2	16.8 688
1983	RS2		1983	09	10.30278	22	30	15.49	-09	56	41.4	688
1983	RS2		1983	09	12.24722	22	28	34.39	-10	04	19.9	17.0 688
1983	RS2		1983	09	12.27778	22	28	32.84	-10	04	28.7	688
1983	SA		1983	10	11.14514	22	40	59.99	+18	01	14.7	688
1983	SA		1983	10	12.13819	22	40	23.08	+18	20	28.8	688
1983	TB		1983	10	12.09653	17	50	12.79	+59	11	14.2	5 688
1983	TB		1983	10	12.11458	17	50	37.46	+59	10	48.3	5 688
1983	TB		1983	10	27.09653	21	02	11.88	+42	50	33.7	16.2 688
1983	TB		1983	10	27.11875	21	02	19.89	+42	49	10.3	688
1983	TB		1983	10	27.13958	21	02	27.18	+42	47	44.9	688
1983	TC1		1983	10	09.23611	00	02	26.80	-16	47	48.5	16.5 688
1983	TC1	*	1983	10	12.23125	00	00	25.50	-16	54	32.7	16.2 4 688
1983	TC1		1983	10	12.26181	00	00	24.24	-16	54	37.4	688
1983	TD1		1983	10	09.23611	00	03	55.47	-17	15	09.7	16.5 688
1983	TD1	*	1983	10	12.23125	00	01	57.05	-17	22	15.2	16.2 4 688
1983	TD1		1983	10	12.26181	00	01	55.81	-17	22	19.2	688

Note 1: right ascension uncertain. 2: declination uncertain. 3 = 1 + 2. 4: discoverer Bowell. 5: the position is that of the beginning of a trail affected by clouds; measurement uncertain. 6 = 2 + 4. 7 = 3 + 4.

OBSERVATIONS MADE AT THE GOETHE LINK OBSERVATORY. MEASURED AND REDUCED AT INDIANA UNIVERSITY.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1713	1954	06 05.20648	16 21 22.48	-22 48 18.2	760
1713	1954	06 05.25926	16 21 18.81	-22 48 18.7	760
2777	1961	11 30.18784	04 18 18.74	+25 54 25.5	760
2777	1961	11 30.22673	04 18 16.00	+25 54 24.2	760
1950 AE	1950	01 16.32497	09 32 06.82	+11 10 43.1	760
1950 AE	1950	01 16.39648	09 32 03.97	+11 10 60.0	760
1955 DD	1955	02 23.35630	12 09 31.27	+07 18 46.9	760
1955 DD	1955	02 23.39657	12 09 29.64	+07 18 48.3	760
1955 EK	1955	03 14.17838	09 49 04.80	+13 54 12.8	760
1955 KA	1955	05 17.16942	16 56 32.41	-09 44 56.3	760
1955 KA	1955	05 17.20900	16 56 30.92	-09 44 52.5	760
1956 RM	1956	09 08.25208	22 54 46.39	-09 54 01.3	760
1961 XM	1961	12 06.32188	06 20 46.95	+25 32 01.1	760
1961 XM	1961	12 06.38611	06 20 43.52	+25 32 29.0	760
1963 SU	1963	09 23.26597	23 46 52.46	+11 23 34.7	760
1963 SU	1963	09 23.30937	23 46 49.96	+11 23 27.2	760
1964 US	1964	10 31.13943	00 47 58.78	+07 40 15.5	760
1964 US	1964	10 31.18698	00 47 56.54	+07 40 10.4	760

OBSERVATIONS MADE AT THE OAK RIDGE OBSERVATORY BY R. E. MC CROSKY, C.-Y. SHAO AND G. SCHWARTZ (WITH ASSISTANCE FROM C. M. BARDWELL, D. W. E. GREEN AND B. G. MARSDEN).

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1246	1983	10 09.99992	19 57 58.16	-04 46 03.4			801
2060	1983	10 07.40020	04 02 47.83	+16 56 50.9			801
2340	1983	10 18.30397	06 57 53.64	+23 07 28.2			801
2934	1983	10 07.31314	02 39 35.08	+13 11 40.8			801

1933	QU		1983	09	03.22126	00	08	25.54	+18	07	45.7		801
1933	QU		1983	10	07.18562	23	34	33.05	+18	54	26.8		801
1941	UV		1983	10	08.10757	22	37	19.42	-08	10	02.3		801
1955	QK		1983	10	07.04482	19	48	08.21	-13	03	25.4		801
1955	QP1		1983	10	07.12673	22	27	09.92	-04	38	51.6		801
1964	VM1		1983	10	07.22677	00	54	14.87	+03	10	57.7		801
1969	TD2		1983	10	04.11849	22	01	13.28	+00	51	27.8	1	801
1969	TD2		1983	10	09.10516	21	59	58.98	+00	15	25.5		801
1974	VQ2		1983	10	10.12554	00	23	41.11	-15	56	42.5		801
1976	UU		1983	10	08.22337	00	14	44.59	-15	23	45.7		801
1978	NN1		1983	10	09.00651	21	55	36.33	-17	55	21.1		801
1978	SB5		1983	10	07.99112	20	06	59.13	-20	51	24.5		801
1979	QK2		1983	10	08.25150	01	05	07.65	+05	34	53.1		801
1979	QK2		1983	10	09.20471	01	04	13.47	+05	28	24.9		801
1979	QK2		1983	10	10.15212	01	03	19.93	+05	21	56.8		801
1979	SF		1983	10	08.01416	20	32	25.64	-20	06	21.8		801
1979	SG9		1983	10	04.04864	21	36	54.13	-04	32	18.9		801
1979	SY9		1983	10	07.20684	00	04	23.44	+00	05	45.2		801
1980	LB		1983	05	13.14505	11	14	19.78	+47	51	19.0		801
1980	YL		1983	10	04.22711	00	43	15.85	-08	45	46.0		801
1981	EL1		1983	10	07.15928	23	21	51.97	-00	37	11.2	19.0	801
1981	EJ10		1983	10	09.18506	00	04	00.18	+07	29	03.3		801
1981	EU17		1983	10	08.20316	23	20	58.27	-05	53	47.7		801
1981	EE20		1983	10	08.27265	01	24	58.99	+08	38	52.8		801
1981	JA3		1983	10	04.30445	01	51	25.81	+05	28	53.6		801
1982	BH		1983	09	03.37630	02	55	35.07	+07	34	40.0		801
1982	BH		1983	10	07.35962	02	36	28.22	+13	04	56.4		801
1982	BT1		1983	10	09.07090	22	36	30.69	-09	32	46.3		801
1982	BX1		1983	10	08.13019	22	46	48.05	-11	50	57.6		801
1982	HE1		1983	10	07.28138	02	12	30.74	+08	43	31.9		801
1982	HN1		1983	10	09.04256	22	00	38.76	-15	23	40.7		801
1982	HB2		1982	05	27.12207	13	57	06.90	-12	45	47.8		801
1983	PA		1983	10	08.98386	20	45	05.72	+25	37	12.4	2	801
1983	QG		1983	09	12.22333	02	51	28.56	-10	25	05.6	3	801
1983	QG		1983	10	07.33583	02	49	23.05	-10	57	49.9		801
1983	RB		1983	10	04.14036	22	44	09.10	-17	59	07.4		801
1983	RD		1983	10	08.33492	04	15	10.57	-14	25	19.1		801
1983	RE		1983	10	07.09829	21	39	15.05	-06	02	38.1		801
1983	RE		1983	10	11.03414	21	39	59.27	-06	05	31.9		801
1983	RA2	*	1983	09	08.33862	00	11	01.38	-09	47	23.8	18	801
1983	SA		1983	10	07.06892	22	44	17.10	+16	31	30.4		801
1983	SA		1983	10	10.09064	22	41	43.26	+17	39	43.4		801
1983	TV	*	1983	10	07.15928	23	22	37.86	-00	38	12.3	19 4	801
1983	TW	*	1983	10	08.25150	01	03	34.20	+05	31	40.3	18.0	801
1983	TW		1983	10	10.15212	01	01	32.68	+05	22	12.5		801
1983	TX	*	1983	10	08.25150	01	04	00.06	+05	36	06.6	18.0	801
1983	TX		1983	10	09.20471	01	03	20.00	+05	28	07.1		801
1983	TX		1983	10	10.15212	01	02	40.09	+05	20	10.2		801
1983	TY	*	1983	10	08.25150	01	04	18.34	+05	35	16.0	17.5	801
1983	TY		1983	10	09.20471	01	03	21.13	+05	29	58.6		801
1983	TY		1983	10	10.15212	01	02	24.30	+05	24	45.0		801
1983	TZ	*	1983	10	08.25150	01	04	45.63	+05	21	11.2	18.0	801
1983	TZ		1983	10	09.20471	01	03	54.21	+05	18	14.5	2	801
1983	TZ		1983	10	10.15212	01	03	03.09	+05	15	18.2		801
1983	TB1	*	1983	10	09.16316	23	49	34.44	-11	32	40.6	18 5	801
3042	P-L		1983	10	11.00764	21	20	33.67	-06	23	38.1		801

Note 1: weak image. 2: measured in one direction only. 3: very dark plate; inkdot measured. 4: very weak. 5: near edge of plate.

OBSERVATIONS MADE WITH THE MAKSUTOV ASTROGRAPH AT THE UNIVERSITY OF CHILE'S CERRO EL ROBLE STATION BY C. TORRES, J. MAZA, H. WROBLEWSKI, E. COSTA AND L. E. GONZALEZ. MEASURED BY GONZALEZ AND M. WISCHNJEWSKY.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
36	1980 03	23.25354	11 00 25.11	+11 30 08.1		805
36	1980 03	24.07229	10 59 40.39	+11 29 47.8		805
36	1980 04	16.21935	10 44 09.98	+10 50 12.6		805
194	1980 03	23.22229	09 11 38.47	+11 49 13.9		805
304	1980 01	10.24375	08 21 22.65	+04 06 38.8		805
304	1980 01	11.24826	08 20 28.05	+04 11 46.9		805
304	1980 01	13.31007	08 18 33.95	+04 22 52.8		805
304	1980 01	16.18333	08 15 51.53	+04 39 32.9		805
320	1979 07	15.15481	18 35 13.53	-10 30 06.7		805
320	1979 07	15.24752	18 35 08.97	-10 30 09.2		805
320	1979 07	16.12286	18 34 28.33	-10 30 34.3		805
320	1979 07	16.18536	18 34 25.49	-10 30 37.9		805
433	1979 07	22.27876	22 12 08.23	-06 49 50.5		805
512	1980 03	23.32021	12 24 46.33	+11 44 25.3		805
512	1980 03	24.10424	12 24 00.20	+11 50 02.6		805
1036	1980 04	15.14089	13 58 41.67	-16 04 59.6		805
1036	1980 04	16.17630	13 57 43.99	-15 54 19.5		805
1386	1979 10	27.33221	03 35 11.33	+00 11 10.7		805
1386	1979 10	29.29201	03 33 23.18	-00 05 17.9		805
1724	1979 10	27.33221	03 31 11.23	+01 48 12.6	16.5	805
1724	1979 10	29.29201	03 29 48.40	+01 33 41.9		805
1973	1979 07	15.14162	18 30 22.83	-07 42 24.5		805
1973	1979 07	15.15481	18 30 22.26	-07 42 25.1		805
1973	1979 07	15.22530	18 30 19.15	-07 42 36.1		805
1973	1979 07	15.24752	18 30 18.15	-07 42 38.8		805
1973	1979 07	16.12286	18 29 40.73	-07 44 49.0		805
1973	1979 07	16.18536	18 29 38.21	-07 45 00.4		805
1974	1979 07	15.14162	18 36 42.92	-09 04 13.9		805
1974	1979 07	15.15481	18 36 42.34	-09 04 17.7		805
1974	1979 07	15.24752	18 36 38.21	-09 04 35.7		805
1974	1979 07	16.12286	18 36 00.97	-09 07 40.9		805
1974	1979 07	16.18536	18 35 58.29	-09 07 56.7		805
1980 NC	1980 07	12.15736	18 07 05.08	-20 25 31.9		805
1980 NM	1980 07	13.15388	18 16 40.92	-20 24 31.4		805
1980 NR	1980 07	12.29381	18 20 50.78	-18 27 53.2		805

OBSERVATIONS MADE AT THE EL LEONCITO STATION OF THE FELIX AGUILAR OBSERVATORY BY M. R. CESCO, C. LOPEZ, H. MIRA, G. SANCHEZ AND J. A. VICENTELA (WITH ASSISTANCE FROM C. U. CESCO AND J. G. SANGUIN).

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
24	1981 03	04.29933	13 12 09.56	-07 04 49.5		808
27	1981 06	24.01114	15 23 26.71	-17 28 17.8		808
27	1981 06	24.05344	15 23 25.46	-17 28 15.5		808
32	1981 02	09.27900	11 24 09.91	-04 20 41.6		808
67	1981 02	09.27900	11 31 14.82	-02 59 15.2		808
84	1980 03	15.12973	10 52 35.96	+01 54 51.8		808
84	1980 03	15.16436	10 52 33.90	+01 54 59.3		808
121	1981 06	24.01114	15 30 58.69	-17 19 46.5		808
121	1981 06	24.05344	15 30 57.48	-17 19 46.5		808
126	1981 03	13.24389	12 52 10.60	-04 08 16.4		808
137	1981 11	24.25452	05 42 40.80	+07 59 21.5		808
141	1981 08	19.00920	16 38 44.00	-32 27 03.8		808
141	1981 08	19.04660	16 38 45.20	-32 26 52.5		808
239	1980 05	18.09245	14 55 17.97	-10 10 14.5		808
242	1981 11	19.12923	02 37 55.22	+09 30 11.6		808

242		1981	11	19.16731	02	37	53.49	+09	29	58.1			808
303		1980	03	23.27963	13	13	45.65	-13	26	04.5			808
303		1980	03	23.32327	13	13	43.75	-13	25	59.3			808
303		1980	04	20.16925	12	52	15.69	-12	00	29.1			808
303		1980	04	20.21150	12	52	13.75	-12	00	20.5			808
313		1981	02	09.27900	11	14	43.81	-03	24	08.0			808
327		1980	04	20.16925	13	03	19.02	-12	29	40.6			808
327		1980	04	20.21150	13	03	16.77	-12	29	33.2			808
329		1981	01	04.21105	07	28	56.27	-02	17	00.2			808
377		1980	05	18.13782	16	21	09.44	-15	50	35.5			808
377		1980	05	18.18076	16	21	07.19	-15	50	24.3			808
390		1981	06	02.06532	14	38	14.17	-33	56	31.5			808
390		1981	06	02.11518	14	38	12.25	-33	56	06.6			808
392		1980	03	23.27963	13	16	47.31	-13	06	15.8			808
392		1980	03	23.32327	13	16	45.59	-13	05	58.5			808
523		1981	02	09.27900	11	20	21.15	-02	33	25.1			808
533		1981	03	04.29933	13	10	13.60	-06	16	05.3			808
570		1980	06	15.05721	15	45	36.89	-19	01	57.5			808
570		1980	06	15.10015	15	45	35.25	-19	01	52.5			808
577		1980	04	14.09664	11	08	06.11	+01	51	16.6		16.6	808
577		1980	04	14.12157	11	08	04.76	+01	51	24.4			808
577		1980	04	15.11968	11	07	38.38	+01	53	48.8			808
577		1980	04	15.16525	11	07	37.06	+01	53	55.2			808
620		1981	06	23.47810	14	45	42.34	-27	15	47.5			808
620		1981	06	23.52795	14	45	41.28	-27	15	38.3			808
646		1980	03	14.11896	09	42	18.73	+07	59	18.5			808
646		1980	03	14.16397	09	42	16.61	+07	59	27.8			808
770		1981	03	04.29933	13	26	29.29	-04	32	42.2			808
787		1980	12	03.16858	02	37	25.88	-01	34	32.9			808
787		1980	12	03.20667	02	37	24.54	-01	34	36.3			808
818		1980	06	15.05721	15	50	27.25	-18	30	06.9			808
818		1980	06	15.10015	15	50	25.27	-18	30	12.5			808
836		1981	11	19.12923	02	41	34.66	+10	20	27.5			808
836		1981	11	19.16731	02	41	32.89	+10	20	14.8			808
863		1980	02	09.07848	08	04	11.61	+25	34	12.3			808
863		1980	02	10.11107	08	03	24.39	+25	42	17.9			808
863		1980	02	10.14085	08	03	22.99	+25	42	31.9			808
863		1980	02	13.21992	08	01	07.26	+26	05	46.8			808
863		1980	02	13.25524	08	01	05.76	+26	06	02.4			808
901		1980	03	15.12973	10	53	06.39	+01	16	59.5			808
901		1980	03	15.16436	10	53	04.32	+01	17	12.4			808
937		1982	01	22.21184	08	48	17.70	+12	27	24.1			808
984		1981	02	09.27900	11	20	08.35	-02	07	36.8			808
1051		1981	04	08.19645	14	04	01.67	+02	25	42.5			808
1065		1980	04	18.18925	14	21	19.67	-27	58	27.2			808
1065		1980	04	18.22319	14	21	17.37	-27	58	25.2			808
1084		1980	05	18.13782	16	20	03.80	-15	57	26.3			808
1084		1980	05	18.18076	16	20	01.56	-15	57	16.2			808
1100		1980	03	22.11339	10	15	00.17	+09	55	41.4			808
1100		1980	03	22.14249	10	14	59.07	+09	55	48.6			808
1113		1980	02	09.07848	08	13	35.74	+26	22	21.8			808
1113		1980	02	10.11107	08	12	40.92	+26	19	15.6			808
1113		1980	02	10.14085	08	12	39.29	+26	19	10.5			808
1113		1980	02	13.21992	08	10	03.14	+26	09	13.5			808
1113		1980	02	13.25524	08	10	01.42	+26	09	06.8			808
1120		1980	05	18.09245	15	08	28.88	-10	52	30.2			808
1149		1981	02	27.15607	08	46	31.93	+02	52	21.0			808
1149		1981	02	27.19901	08	46	30.24	+02	52	30.1			808
1200		1982	01	22.21184	08	28	05.94	+12	24	23.5			808

1246	1981	02	03.14992	08	52	22.72	+08	01	53.7	808
1246	1981	02	03.18940	08	52	20.35	+08	01	56.2	808
1246	1981	03	09.06125	08	25	26.69	+08	52	47.3	808
1246	1981	03	09.09587	08	25	25.62	+08	52	50.8	808
1250	1982	01	22.21184	08	32	34.25	+11	32	12.4	808
1276	1980	07	08.06297	17	18	16.72	-07	38	25.7	808
1279	1980	03	23.17577	11	29	27.70	-00	45	31.4	808
1279	1980	03	23.21802	11	29	24.98	-00	45	22.1	808
1279	1980	04	14.09664	11	10	27.14	+00	28	09.5	808
1279	1980	04	14.12157	11	10	25.40	+00	28	15.9	808
1279	1980	04	15.11968	11	09	50.58	+00	30	30.0	808
1279	1980	04	15.16525	11	09	48.77	+00	30	36.6	808
1287	1981	11	24.25452	05	33	30.54	+11	34	19.3	808
1298	1981	07	10.22023	20	14	04.42	-20	23	41.7	808
1298	1981	07	10.26317	20	14	02.40	-20	23	43.4	808
1308	1980	02	09.07848	08	04	17.56	+26	48	27.8	808
1308	1980	02	10.11107	08	03	26.36	+26	48	39.2	808
1308	1980	02	10.14085	08	03	24.85	+26	48	39.9	808
1308	1980	02	13.21992	08	00	58.76	+26	48	27.9	808
1308	1980	02	13.25524	08	00	57.17	+26	48	26.7	808
1315	1982	01	22.21184	08	39	00.07	+08	43	50.8	808
1349	1980	03	13.17363	09	42	59.58	+06	47	03.3	808
1349	1980	03	13.21553	09	42	57.86	+06	47	08.0	808
1349	1980	03	14.11896	09	42	21.31	+06	48	55.6	808
1349	1980	03	14.16397	09	42	19.43	+06	49	00.2	808
1365	1981	02	09.27900	11	12	01.27	-04	10	15.1	808
1369	1980	12	04.16447	05	40	37.26	+04	02	59.9	808
1369	1980	12	04.20464	05	40	35.46	+04	02	56.0	808
1369	1980	12	30.08932	05	20	16.95	+03	50	30.9	808
1369	1980	12	30.12325	05	20	15.57	+03	50	33.3	808
1450	1980	02	09.07848	08	11	30.10	+26	55	51.8	808
1450	1980	02	10.11107	08	10	40.32	+26	58	34.5	808
1450	1980	02	10.14085	08	10	38.78	+26	58	39.2	808
1450	1980	02	13.21992	08	08	19.40	+27	05	33.1	808
1450	1980	02	13.25524	08	08	17.83	+27	05	37.1	808
1457	1980	03	13.17363	09	39	30.01	+07	40	25.6	808
1457	1980	03	13.21553	09	39	28.23	+07	40	31.6	808
1457	1980	03	14.11896	09	38	51.62	+07	42	57.6	808
1457	1980	03	14.16397	09	38	49.76	+07	43	05.4	808
1457	1980	03	18.13020	09	36	22.62	+07	53	09.4	808
1457	1981	07	10.22023	20	08	35.55	-20	27	13.3	808
1457	1981	07	10.26317	20	08	33.36	-20	27	13.3	808
1474	1980	07	11.20229	20	27	11.07	-41	53	21.0	808
1474	1980	07	11.23138	20	27	08.49	-41	53	20.8	808
1474	1980	07	20.16940	20	13	02.29	-41	42	39.8	808
1474	1980	07	20.20058	20	12	58.98	-41	42	34.6	808
1474	1980	08	05.09560	19	46	22.00	-40	21	13.8	808
1571	1980	08	05.16589	21	07	11.34	-07	49	52.9	808
1571	1980	08	05.20883	21	07	09.08	-07	49	52.1	808
1603	1981	11	21.14107	03	39	29.73	+05	42	15.8	808
1608	1980	03	23.27963	13	25	56.28	-11	17	22.3	808
1608	1980	03	23.32327	13	25	53.96	-11	17	16.0	808
1608	1980	05	08.09725	12	42	05.98	-08	13	35.7	808
1608	1980	05	08.13534	12	42	04.52	-08	13	28.2	808
1627	1980	11	14.21700	02	54	52.70	-02	45	06.6	808
1627	1980	11	14.24747	02	54	50.13	-02	45	03.7	808
1627	1980	12	03.16858	02	36	23.96	-01	21	27.4	808
1627	1980	12	03.20667	02	36	22.58	-01	21	10.0	808
1688	1981	05	29.08351	13	47	33.77	-17	55	49.7	808

1688			1981	05	29.12230	13	47	33.02	-17	55	25.9			808
1690			1980	12	04.25796	06	02	01.86	+12	32	42.8			808
1690			1980	12	04.29190	06	02	00.19	+12	32	33.7			808
1719			1980	02	09.07848	08	11	14.13	+26	49	22.5			808
1719			1980	02	10.11107	08	10	12.50	+26	46	08.8			808
1719			1980	02	10.14085	08	10	10.69	+26	46	03.1			808
1719			1980	02	13.21992	08	07	15.52	+26	35	39.0			808
1719			1980	02	13.25524	08	07	13.47	+26	35	32.1			808
1735			1980	04	18.18925	14	27	46.75	-26	37	19.0			808
1735			1980	04	18.22319	14	27	44.85	-26	37	21.2			808
1735			1980	05	17.11008	14	00	33.85	-26	31	29.4			808
1735			1980	05	17.13638	14	00	32.50	-26	31	27.2			808
1829			1981	07	10.22023	20	13	02.85	-19	28	11.2			808
1829			1981	07	10.26317	20	13	00.15	-19	28	12.7			808
1958			1980	04	18.18925	14	24	03.74	-27	31	20.6			808
1958			1980	04	18.22319	14	24	01.94	-27	31	20.7			808
2035			1981	10	26.23734	03	42	33.96	-13	40	17.5			808
2035			1981	10	26.26920	03	42	31.07	-13	40	11.6			808
2045			1981	03	13.24389	12	52	23.51	-04	08	13.1			808
2147			1981	12	01.12138	04	27	47.78	+06	58	48.5			808
2147			1981	12	01.19133	04	27	44.22	+06	58	42.7			808
2150			1981	02	02.17793	08	06	19.96	-27	31	26.6			808
2150			1981	02	02.21360	08	06	17.73	-27	31	01.9			808
2281			1980	06	15.05721	15	42	28.53	-17	40	19.4			808
2281			1980	06	15.10015	15	42	26.55	-17	40	12.1			808
2306			1982	01	22.21184	08	41	27.55	+12	03	11.0			808
2412			1981	06	01.15634	15	01	55.91	-28	31	12.4			808
2412			1981	06	23.47810	14	51	43.68	-26	19	09.4			808
2412			1981	06	23.52795	14	51	43.02	-26	18	53.3			808
2412			1981	07	27.02666	15	04	31.92	-24	26	31.9			808
2412			1981	07	27.07097	15	04	34.04	-24	26	29.1			808
2426			1981	06	24.01114	15	29	11.34	-16	23	25.1			808
2426			1981	06	24.05344	15	29	10.56	-16	23	16.5			808
2426			1981	06	27.05281	15	28	24.61	-16	12	31.9			808
2426			1981	06	27.09505	15	28	23.96	-16	12	23.4			808
2426			1981	07	23.04553	15	31	25.69	-15	30	05.3			808
2426			1981	07	23.08778	15	31	26.62	-15	30	03.8			808
2434			1981	06	01.15634	15	02	01.35	-30	01	00.9			808
2476			1981	04	08.19645	14	04	12.63	+01	12	23.7			808
2477			1980	03	23.17577	11	24	31.67	-01	41	11.3		17.6	808
2477			1980	03	23.21802	11	24	29.53	-01	40	54.2			808
2477			1980	04	15.11968	11	09	26.25	+00	58	40.5			808
2477			1980	04	15.16525	11	09	24.78	+00	58	52.8			808
2522			1980	08	05.16589	21	00	09.86	-08	06	47.0			808
2522			1980	08	05.20883	21	00	07.72	-08	06	51.2			808
2523			1980	07	20.26706	21	24	17.25	-08	17	23.6		17.5	808
2523			1980	07	20.31000	21	24	15.36	-08	17	22.5			808
2523			1980	08	05.16589	21	11	58.98	-08	29	13.0			808
2523			1980	08	05.20883	21	11	56.80	-08	29	16.0			808
2612			1980	05	18.23512	18	12	16.01	-01	30	37.4			808
2612			1980	05	18.28014	18	12	14.63	-01	30	31.3			808
1978	VK9		1980	04	20.16925	12	58	36.37	-11	36	33.7		18.0	808
1978	VK9		1980	04	20.21150	12	58	34.04	-11	36	15.2			808
1980	DA		1980	03	14.11896	09	49	30.10	+06	57	43.2			808
1980	DA		1980	03	14.16397	09	49	28.14	+06	57	52.6			808
1980	ED2	*	1980	03	07.08024	08	27	38.23	-16	28	51.7			808
1980	EE2	*	1980	03	13.17363	09	42	13.36	+07	42	50.6			808
1980	EE2		1980	03	13.21553	09	42	11.76	+07	43	03.1			808
1980	EE2		1980	03	14.11896	09	41	40.88	+07	47	47.6			808

1980	EE2		1980	03	14.16397	09	41	39.26	+07	48	00.6	808
1980	EE2		1980	03	18.13020	09	39	40.94	+08	07	40.8	808
1980	EF2	*	1980	03	15.12973	10	53	22.29	+02	49	24.2	17.3 808
1980	EF2		1980	03	15.16436	10	53	20.48	+02	49	37.3	808
1980	EG2	*	1980	03	15.12973	10	54	26.67	+03	21	39.0	16.1 808
1980	EG2		1980	03	15.16436	10	54	24.98	+03	22	01.4	808
1980	FH1		1980	03	23.17577	11	25	56.31	-00	00	56.4	17.9 808
1980	FH1		1980	03	23.21802	11	25	54.00	-00	00	53.8	808
1980	FE2		1980	03	23.17577	11	29	53.44	+00	09	36.5	18.2 808
1980	FE2		1980	03	23.21802	11	29	51.18	+00	09	45.3	808
1980	FX5		1980	03	23.17577	11	17	45.09	-00	10	37.7	808
1980	FX5		1980	03	23.21802	11	17	43.02	-00	10	29.7	808
1980	FB6		1980	03	23.17577	11	18	29.20	-01	10	40.4	18.0 808
1980	FB6		1980	03	23.21802	11	18	26.79	-01	10	23.0	808
1980	FK6		1980	03	23.17577	11	22	20.17	+00	12	06.9	17.8 808
1980	FK6		1980	03	23.21802	11	22	17.81	+00	12	30.1	808
1980	FD12	*	1980	03	23.27963	13	20	46.63	-12	39	58.8	808
1980	FD12		1980	03	23.32327	13	20	44.62	-12	39	52.3	808
1980	FD12		1980	04	20.16925	12	56	52.58	-10	48	45.2	808
1980	FD12		1980	04	20.21150	12	56	50.47	-10	48	33.1	808
1980	FE12	*	1980	03	23.27963	13	26	02.38	-13	05	32.1	17.7 808
1980	FE12		1980	03	23.32327	13	26	00.21	-13	05	21.9	808
1980	FE12		1980	04	20.16925	12	59	29.00	-10	42	27.0	18.0 808
1980	FE12		1980	04	20.21150	12	59	26.57	-10	42	12.2	808
1980	GL1	*	1980	04	14.09664	11	03	03.23	-00	33	05.8	17.7 808
1980	GL1		1980	04	14.12157	11	03	01.82	-00	33	02.7	808
1980	HE	*	1980	04	18.18925	14	18	08.85	-26	29	11.8	16.4 808
1980	HE		1980	04	18.22319	14	18	07.26	-26	29	00.2	808
1980	HF	*	1980	04	20.16925	13	02	39.27	-10	11	06.5	17.2 808
1980	HF		1980	04	20.21150	13	02	36.44	-10	10	52.1	808
1980	KE2	*	1980	05	18.09245	15	07	03.30	-12	01	28.1	17.0 808
1980	KF2	*	1980	05	18.13782	16	17	34.23	-17	15	57.8	808
1980	KF2		1980	05	18.18076	16	17	31.74	-17	15	38.3	808
1980	KG2	*	1980	05	18.13782	16	17	36.92	-18	05	29.0	808
1980	KG2		1980	05	18.18076	16	17	34.34	-18	05	27.1	808
1980	KH2	*	1980	05	18.13782	16	23	35.62	-18	03	39.5	808
1980	KH2		1980	05	18.18076	16	23	34.02	-18	03	30.1	808
1980	KJ2	*	1980	05	18.13782	16	24	20.14	-16	50	52.7	808
1980	KJ2		1980	05	18.18076	16	24	17.36	-16	51	00.4	808
1980	KK2	*	1980	05	18.13782	16	25	58.73	-17	09	40.0	808
1980	KK2		1980	05	18.18076	16	25	56.28	-17	09	45.9	808
1980	KL2	*	1980	05	18.18076	16	26	17.94	-17	20	44.1	808
1980	KM2	*	1980	05	18.23512	18	15	25.62	-02	34	10.9	808
1980	KM2		1980	05	18.28014	18	15	24.45	-02	34	05.5	808
1980	KM2		1980	06	15.16456	17	56	22.47	-02	55	28.6	808
1980	KM2		1980	06	15.20749	17	56	20.10	-02	55	40.0	808
1980	NS	*	1980	07	11.07764	17	25	36.90	-07	54	54.6	808
1980	NS		1980	07	11.14551	17	25	33.62	-07	55	18.7	808
1980	NT	*	1980	07	11.20229	20	18	01.38	-42	50	11.3	808
1980	NT		1980	07	11.23138	20	17	59.43	-42	50	17.9	808
1980	NU	*	1980	07	11.20229	20	33	03.89	-41	52	35.7	808
1980	NU		1980	07	11.23138	20	33	02.22	-41	52	50.4	808
1980	PT		1980	08	05.16589	21	05	10.50	-06	31	51.1	808
1980	PT		1980	08	05.20883	21	05	08.49	-06	32	05.3	808
1980	PN2	*	1980	08	05.16589	21	06	12.48	-06	47	56.6	808
1980	PN2		1980	08	05.20883	21	06	10.02	-06	48	04.8	808
1980	PO2	*	1980	08	05.16589	21	14	11.34	-07	51	56.9	808
1980	PO2		1980	08	05.20883	21	14	09.62	-07	52	08.3	808
1981	CH		1981	03	09.06125	08	30	13.84	+09	02	27.0	808

1981	CH		1981	03	09.09587	08	30	12.44	+09	02	05.8		808
1981	EU32	*	1981	03	04.29933	13	29	11.53	-03	40	28.0	16.8	808
1981	JR1		1981	05	28.13750	15	13	36.23	-34	25	52.1		808
1981	JR1		1981	05	28.19081	15	13	32.17	-34	26	01.3		808
1981	KT1	*	1981	05	28.13750	15	17	53.80	-34	56	11.2		808
1981	KT1		1981	05	28.19081	15	17	49.90	-34	55	57.9		808
1981	KU1	*	1981	05	29.08351	13	43	22.86	-18	27	00.2		808
1981	KU1		1981	05	29.12230	13	43	22.11	-18	26	42.3		808
1981	MB	*	1981	06	27.05281	15	28	34.56	-14	37	18.0		808
1981	MB		1981	06	27.09505	15	28	32.69	-14	37	12.8		808
1981	MC	*	1981	06	29.11037	14	50	47.44	-29	02	59.0		808
1981	MD	*	1981	06	29.11037	14	53	25.18	-28	47	41.0		808
1981	ME	*	1981	06	29.11037	14	55	13.36	-28	05	11.4		808
1981	MF	*	1981	06	29.11037	14	55	38.33	-29	20	10.8		808
1981	NR1	*	1981	07	10.22023	20	06	12.50	-19	43	16.0		808
1981	NR1		1981	07	10.26317	20	06	10.66	-19	43	25.7		808
1981	NS1	*	1981	07	10.22023	20	17	30.58	-19	18	17.0		808
1981	NS1		1981	07	10.26317	20	17	28.43	-19	18	24.7		808
1981	OR	*	1981	07	23.04553	15	33	52.27	-15	12	50.7		808
1981	OR		1981	07	23.08778	15	33	53.92	-15	12	43.6		808
1981	WG4	*	1981	11	19.27888	04	31	18.49	+06	28	13.0		808
1981	XC2		1981	11	29.16769	04	26	02.21	+08	13	32.6		808
1981	XC2		1981	11	29.20995	04	25	59.55	+08	13	23.6		808
1981	XC2		1981	12	01.12138	04	24	02.08	+08	06	58.7		808
1981	XC2		1981	12	01.19133	04	23	57.46	+08	06	43.8		808
1981	XC2		1981	12	03.19764	04	21	54.57	+08	00	43.3		808
1981	XC2		1981	12	03.27936	04	21	49.19	+08	00	28.4		808
1981	XL2	*	1981	12	01.12138	04	26	37.44	+08	31	15.7		808
1981	XL2		1981	12	01.19133	04	26	33.72	+08	31	17.2		808
1982	BD8	*	1982	01	22.21184	09	09	43.13	-03	31	55.3		808
1982	BE8	*	1982	01	22.21184	09	18	57.30	-04	49	06.2		808
1982	BF8	*	1982	01	22.21184	09	20	57.07	-03	55	51.4		808
1982	BG8	*	1982	01	22.21184	09	27	39.84	-03	32	00.2		808
1982	BH8	*	1982	01	22.21184	09	30	20.36	-04	14	48.9		808
1982	FF4	*	1982	03	30.24280	13	38	58.82	+10	46	18.7		808
1982	FG4	*	1982	03	30.24280	13	47	34.23	+11	43	58.0		808
1983	RD		1983	10	05.29080	04	02	06.52	-12	53	40.7		808
1983	RD		1983	10	05.30812	04	02	10.99	-12	54	15.8		808
1983	RD		1983	10	10.28962	04	22	14.50	-15	11	59.9		808
1983	RD		1983	10	10.31732	04	22	19.49	-15	12	37.5		808
1983	RD		1983	10	11.33329	04	25	35.97	-15	34	43.7		808
1983	RD		1983	10	11.35406	04	25	39.41	-15	35	08.4		808

OBSERVATIONS MADE AT JCPM OI STATION BY K. SUZUKI. MEASURED BY T. URATA.
FROM NIHONDAIRA OBS. CIRC. NO. 1452.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
708		1983 10	11.55896	00 47 05.24	+07 00 17.0		882
708		1983 10	11.59993	00 47 02.86	+07 00 04.7		882
1983	TD *	1983 10	11.55896	00 46 29.01	+07 12 25.9	15	882
1983	TD	1983 10	11.59993	00 46 22.72	+07 11 47.3		882

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ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers are B = C. M. Bardwell, E = E. Bowell, g = A. C. Gilmore, M = B. G. Marsden. For further information see MPC 7828.

Planet	B(1,0)	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1980 EE2		800322	349.27	304.43	230.34	3.28	0.1189	2.3219	5	5		M
1980 NA	15.5	800720	140.86	26.08	101.89	13.67	0.1409	2.9450	2	5		M
1980 NB	13.0	800720	5.86	35.96	238.50	1.65	0.1745	2.5221	2	7		M
1980 ND	14.0	800720	328.45	71.23	256.11	8.53	0.2008	3.1043	2	7	1	M
1980 NK	14.5	800720	354.31	98.24	189.31	1.73	0.0391	2.8320	2	5		M
1980 NN	19.0	800720	344.54	169.11	144.72	3.19	0.2586	2.2628	2	5		M
1980 NO	15.0	800720	86.41	46.04	115.48	12.68	0.2929	2.9365	2	5		M
1980 NR	17.5	800720	310.32	100.14	254.71	5.97	0.2062	2.4734	2	5		M
1981 CH	15.5	810225	1.35	185.74	315.85	24.67	0.1898	2.3511	34	0		M
1981 DR2	15.0	810317	65.97	140.41	314.76	10.90	0.1786	2.7253	12	0		B
1981 DS2	16.0	810317	224.07	32.30	290.34	10.29	0.0613	2.5892	12	7		B
1981 DT2	14.5	810317	93.79	107.93	328.14	14.49	0.1040	2.6058	12	0		B
1981 DU2	16.0	810317	281.53	328.68	312.28	11.74	0.1772	2.6381	12	7		B
1981 DV2	16.5	810317	66.20	245.92	192.09	22.38	0.3004	2.4210	40	9		B
1981 DW2	17.0	810317	240.48	53.86	257.20	5.93	0.1163	2.3083	40	8		B
1981 DX2	16.5	810317	355.55	280.62	267.02	7.93	0.0579	2.9925	40	6		B
1981 DY2	16.5	810317	104.35	91.41	336.36	21.84	0.1140	2.5141	8	4		B
1981 DZ2	16.5	810317	15.04	312.28	200.67	20.57	0.2952	3.0812	12	7		B
1981 DA3	16.0	810317	4.40	259.99	277.62	7.43	0.1414	3.9870	40	6		B
1981 DB3	16.0	810317	181.42	130.03	231.10	8.10	0.2049	2.6129	40	6		B
1981 DC3	18.0	810317	306.06	336.92	267.50	5.30	0.0914	2.4151	40	7		B
1981 DD3	16.0	810317	116.66	121.60	296.08	6.73	0.0849	2.7518	40	9		B
1981 DE3	16.5	810317	4.64	216.83	320.08	11.43	0.1273	2.6126	12	8		B
1981 DF3	16.0	810317	320.12	297.62	309.41	10.16	0.2518	2.8085	12	8		B
1981 DG3	12.0	810317	325.67	258.24	327.95	15.18	0.0951	3.2013	12	8		B
1981 DH3	16.0	810317	245.15	88.41	229.17	9.57	0.2176	2.4673	40	0		B
1981 DJ3	16.5	810317	64.52	174.07	284.62	6.88	0.1801	2.8105	40	6		B
1981 DK3	14.0	810317	159.61	67.18	312.52	11.85	0.1879	2.6975	12	8		B
1981 DL3	16.0	810317	169.65	87.91	283.17	5.71	0.1223	2.2783	40	0		B
1981 DM3	17.5	810317	89.73	103.62	343.22	20.34	0.0493	1.9007	12	7		B
1981 DN3	17.0	810317	234.47	72.07	253.94	5.23	0.2208	2.2581	40	7		B
1981 DO3	15.0	810317	251.76	15.62	290.09	6.20	0.1187	3.2066	12	7		B
1981 DP3	15.0	810317	285.42	63.07	220.14	10.70	0.2090	3.0123	8	4		B
1981 DQ3	14.0	810317	335.60	256.35	321.03	10.45	0.1473	2.6830	12	7		B
1981 EE1	15.5	810317	8.78	18.42	144.97	2.95	0.1293	2.4531	15	0		B
1981 ET28	15.5	810317	97.51	106.79	322.60	11.41	0.0843	2.7050	10	4		B
1981 EU28	15.0	810317	237.36	17.72	296.14	4.09	0.1970	2.2296	10	5		B
1981 EV28	15.5	810317	217.79	113.83	210.53	10.18	0.0984	2.9851	42	7		B
1981 EW28	17.0	810317	8.93	238.28	286.66	3.12	0.0603	2.2806	14	7		B
1981 EX28	16.0	810317	289.83	319.50	297.30	6.29	0.0945	2.3290	14	7		B
1981 EY28	15.5	810317	158.10	36.68	334.75	14.44	0.2006	2.7016	42	8		B
1981 EZ28	16.5	810317	205.13	357.17	341.68	26.16	0.1464	2.2937	11	9		B
1981 EA29	15.5	810317	121.76	202.39	194.08	8.42	0.2082	2.7302	41	0		B
1981 EB29	17.5	810317	8.90	337.56	186.63	9.61	0.1302	2.5315	41	0		B
1981 EC29	17.0	810317	229.86	38.45	278.28	2.72	0.1194	2.6659	42	5		B
1981 ED29	18.0	810317	337.73	235.39	333.64	8.71	0.1743	2.3994	39	8		B
1981 EE29	18.0	810317	58.47	168.89	301.09	4.55	0.0867	2.3113	36	7		B
1981 EF29	16.0	810317	265.31	317.89	328.42	4.28	0.1291	3.1071	42	0		B
1981 EG29	16.5	810317	49.06	282.31	185.83	9.12	0.1970	2.7527	28	0		B
1981 EH29	18.5	810317	324.48	285.90	302.23	3.82	0.1824	2.3264	42	7		B
1981 EJ29	15.5	810317	49.25	287.70	197.40	9.70	0.0449	3.0194	40	9		B
1981 EK29	16.5	810317	81.29	236.32	217.28	5.74	0.0316	2.8063	42	8		B
1981 EL29	18.0	810317	288.71	66.51	194.43	5.45	0.1085	2.4044	28	6		B
1981 EM29	18.0	810317	306.29	310.76	293.14	5.76	0.0999	2.3122	39	0		B
1981 EN29	17.5	810317	225.08	136.75	181.73	21.79	0.0482	1.9577	7	5		B
1981 EO29	15.5	810317	341.02	300.20	272.24	4.99	0.2027	3.9781	11	6		B
1981 EP29	15.0	810317	58.55	268.08	203.80	8.00	0.1168	3.1320	11	7		B
1981 EQ29	15.0	810317	172.29	124.56	245.88	4.07	0.0490	3.1384	11	7		B

1981	ER29	16.0	810317	32.42	305.20	192.57	12.99	0.1583	2.6270	11	7	B
1981	ES29	13.5	810317	9.63	315.61	210.45	7.74	0.2450	2.8925	11	7	B
1981	ET29	16.0	810317	30.80	280.75	225.67	4.62	0.0955	3.2187	7	6 1	B
1981	EU29	14.0	810317	230.52	342.16	344.45	10.99	0.1659	2.9877	7	5	B
1981	EV29	17.0	810317	306.20	35.20	209.76	12.65	0.1472	2.6347	41	0	B
1981	EW29	16.0	810317	332.90	249.24	334.56	24.88	0.2478	3.1660	8	5	B
1981	EX29	15.5	810317	281.17	327.76	311.56	13.10	0.1955	2.6707	10	7	B
1981	EY29	18.5	810317	358.61	8.71	167.52	5.38	0.2115	2.5626	9	5	B
1981	EZ29	17.5	810317	277.59	282.81	351.14	4.43	0.1567	2.1884	9	6	B
1981	EA30	17.0	810317	358.19	5.56	172.09	15.91	0.2630	3.0820	14	9	B
1981	EB30	17.0	810317	234.74	327.31	344.08	14.92	0.1338	2.5294	14	4	B
1981	EC30	16.0	810317	325.46	250.34	325.52	18.60	0.0245	3.0588	10	7	B
1981	ED30	15.5	810317	76.27	194.64	264.64	9.52	0.0431	3.5080	10	5	B
1981	EE30	17.5	810317	255.77	63.27	239.98	7.65	0.1991	2.3861	38	9	B
1981	EF30	15.5	810317	35.92	333.02	161.97	6.05	0.0676	2.3408	14	0	B
1981	EG30	11.5	810317	66.67	277.41	171.96	23.33	0.1809	3.1596	14	0	B
1981	EH30	16.5	810317	7.84	351.12	175.29	8.59	0.1408	3.1992	9	7	B
1981	EJ30	17.5	810317	345.99	27.99	175.74	4.57	0.2982	2.0213	13	9	B
1981	EK30	17.0	810317	284.64	4.03	261.86	6.12	0.1007	2.2944	38	8	B
1981	EL30	16.5	810317	329.08	278.20	305.94	10.21	0.1703	3.1359	10	5	B
1981	EM30	15.5	810317	96.97	285.54	131.36	2.28	0.2124	2.9480	9	5	B
1981	EN30	14.5	810317	119.61	345.05	63.26	1.84	0.0975	3.2286	9	4 1	B
1981	EO30	16.5	810317	305.36	75.24	174.49	12.53	0.1695	2.6254	13	0	B
1981	EP30	14.0	810317	73.35	287.07	173.67	19.38	0.0381	3.1100	9	6	B
1981	EQ30	15.5	810317	242.30	317.45	1.09	12.83	0.2706	2.5930	39	8	B
1981	ER30	16.5	810317	118.70	196.39	214.01	2.09	0.1060	2.7101	39	8	B
1981	ES30	18.5	810317	331.12	62.22	152.44	2.37	0.1266	2.3968	9	5	B
1981	ET30	17.5	810317	341.69	24.44	173.77	6.38	0.0490	2.3133	13	6	B
1981	EU30	17.5	810317	196.73	5.65	340.58	6.54	0.1305	2.3485	34	5	B
1981	EV30	16.0	810317	188.74	25.30	327.33	3.28	0.1117	2.6969	34	6	B
1981	EW30	17.0	810317	197.35	175.29	170.46	0.91	0.1655	2.1581	34	7	B
1981	EX30	17.5	810317	156.89	222.47	150.74	3.03	0.2319	2.3627	13	5	B
1981	EY30	15.5	810317	219.55	172.61	157.64	3.96	0.1904	2.2405	9	6	B
1981	EZ30	17.0	810317	96.60	102.75	332.81	2.73	0.0669	2.7947	35	5	B
1981	EA31	18.0	810317	354.66	239.85	306.23	2.09	0.1213	2.3436	38	8	B
1981	EB31	15.5	810317	8.77	2.84	165.31	6.40	0.1065	3.0295	13	8	B
1981	EC31	17.5	810317	56.15	115.34	355.86	13.64	0.1150	2.6803	34	6	B
1981	ED31	17.0	810317	142.64	230.76	158.30	3.46	0.1107	2.3224	13	5	B
1981	EE31	17.0	810317	287.91	106.40	177.77	21.98	0.2851	2.3540	13	6	B
1981	EF31	17.0	810317	122.96	249.76	161.08	4.34	0.0527	2.2667	13	7	B
1981	EG31	17.5	810317	223.32	0.96	327.58	3.45	0.1624	2.5840	38	7	B
1981	EH31	17.5	810317	93.54	254.47	169.07	8.46	0.2012	2.4752	13	7	B
1981	EJ31	18.0	810317	334.45	43.73	167.35	5.14	0.1127	2.4305	35	7	B
1981	EK31	17.0	810317	165.73	22.87	350.25	10.12	0.0836	2.6254	38	6	B
1981	EL31	17.0	810317	351.36	23.47	166.53	5.83	0.1120	2.2804	13	6	B
1981	EM31	17.5	810317	249.21	139.90	162.12	1.32	0.1117	2.4086	39	8	B
1981	EN31	17.0	810317	220.89	167.09	159.84	4.26	0.1234	2.3082	9	5	B
1981	EO31	17.5	810317	340.37	30.66	175.24	3.31	0.1326	2.6654	34	6	B
1981	EP31	17.0	810317	249.28	292.05	19.06	3.71	0.2135	2.4227	34	5	B
1981	EQ31	15.5	810317	85.65	272.36	167.91	6.27	0.1317	3.1792	13	4	B
1981	ER31	17.0	810317	18.01	358.08	158.90	4.74	0.1150	2.4353	13	6	B
1981	ES31	15.5	810317	276.45	98.04	170.16	13.37	0.0292	3.2164	9	4	B
1981	ET31	15.5	810317	67.90	267.79	178.64	9.62	0.2360	3.0074	13	8	B
1981	EU31	15.5	810317	224.57	302.42	25.21	0.99	0.1428	3.1078	13	5	B
1981	EV31	17.5	810317	125.49	233.24	169.23	5.01	0.1505	2.2845	34	6	B
1981	EW31	15.0	810317	157.57	211.23	168.98	9.78	0.0982	3.1273	13	5	B
1981	EX31	15.5	810317	159.32	201.57	176.59	5.60	0.1313	2.8137	9	5	B
1981	EY31	16.5	810317	300.63	344.97	268.58	1.59	0.1834	2.3996	8	5	B
1981	EZ31	17.0	810317	0.08	261.84	279.31	8.70	0.1890	3.1375	34	5	B

1981	EA32	16.5	810317	140.30	159.73	236.27	10.24	0.1006	2.9920	34	7		B
1981	EB32	16.0	810317	358.71	292.02	252.35	8.22	0.0386	3.0963	34	7		B
1981	EC32	15.5	810317	221.21	64.12	260.66	8.35	0.0257	3.0634	34	8		B
1981	ED32	17.5	810317	153.44	92.13	289.67	5.64	0.1633	2.2632	34	7		B
1981	EE32	17.0	810317	21.57	286.39	231.40	5.99	0.0653	2.4270	34	8		B
1981	EF32	17.0	810317	277.81	355.22	279.04	7.76	0.0688	2.4414	34	9		B
1981	EG32	17.0	810317	350.34	6.13	192.63	21.32	0.2573	2.7584	6	5		B
1981	EH32	16.5	810317	303.01	26.70	225.61	11.05	0.1054	3.0078	6	4		B
1981	EJ32	17.0	810317	290.41	355.45	270.90	4.91	0.1178	2.6080	34	5		B
1981	EK32	18.0	810317	253.27	46.52	242.05	5.72	0.0585	2.2991	8	5		B
1981	EL32	16.5	810317	272.77	291.82	340.55	13.27	0.0873	2.6243	8	4		B
1981	EM32	18.5	810317	4.65	183.69	344.89	15.72	0.1841	2.7803	8	5		B
1981	EN32	16.0	810317	91.59	193.89	252.41	7.68	0.0092	2.9555	33	6		B
1981	EO32	17.0	810317	244.80	22.30	274.48	3.90	0.0348	2.7553	36	6		B
1981	EP32	17.0	810317	290.35	290.00	344.49	9.86	0.2369	2.3618	36	5		B
1981	EQ32	15.5	810317	229.69	102.34	228.32	7.40	0.3045	2.6980	33	7		B
1981	ER32	16.5	810317	81.64	256.45	167.02	11.12	0.2796	3.0503	9	4		B
1981	ES32	18.0	810317	129.28	98.37	302.87	7.04	0.1131	2.2917	33	6		B
1981	ET32	16.5	810317	229.73	45.31	276.93	9.61	0.1066	2.9734	32	4		B
1981	FB	14.0	810317	37.53	300.15	192.58	13.15	0.1466	2.6233	62	0		B
1981	JR1	16.0	810516	349.30	225.67	28.03	13.96	0.2104	2.4464	19	8		M
1981	XC2		811202	345.68	271.72	171.11	7.68	0.0434	2.3159	4	9		M
1982	HB2	15.0	820421	13.10	157.02	42.67	4.72	0.0736	2.1863	38	7		M
1983	NJ	12.9	830725	36.27	112.87	151.14	15.77	0.0766	3.0878	34	6		E
1983	NK	12.8	830725	19.88	11.87	271.48	13.33	0.1101	3.1389	34	6		E
1983	NL	14.8	830725	338.43	195.20	145.86	15.47	0.2386	2.5083	34	6		E
1983	NN	15.0	830725	344.11	33.75	296.28	11.65	0.2923	2.5415	34	6		E
1983	NT	13.7	830725	167.68	175.66	324.34	5.83	0.1078	2.2358	33	6		E
1983	NU	14.0	830725	9.73	343.46	315.37	1.81	0.1563	2.4280	33	6		E
1983	PA	14.0	830923	349.88	84.81	288.14	20.17	0.3930	2.4077	62	0		M
1983	PB	15.8	830913	11.18	244.59	72.68	6.09	0.2323	2.2205	55	0		g
1983	QA	15.0	830814	344.53	31.19	321.70	8.67	0.2564	2.3552	51	0		M
1983	QC	17.5	830903	354.81	191.11	162.08	7.24	0.4324	2.5932	34	6		M
1983	QG	14.5	830923	7.00	279.80	80.16	14.30	0.3446	2.6362	35	7		M
1983	RC	14.0	830903	355.91	198.13	165.73	19.20	0.3164	2.5852	34	0		M
1983	RE	15.0	830923	58.17	337.62	289.12	5.52	0.1536	2.1940	41	7		M
1983	RB2	13.0	830903	274.39	274.87	173.35	29.80	0.1193	2.9215	3	6		M
1983	RE2	12.5	830923	317.98	285.63	120.97	5.23	0.2755	3.9335	30	0		M
1983	RF2	15.0	830923	350.09	298.77	78.19	7.34	0.2669	2.6324	28	5		E
1983	RG2	15.4	830923	355.62	296.61	69.72	6.33	0.2013	2.2928	28	5		E
1983	RL2	14.0	830903	34.62	282.47	7.97	4.73	0.1356	2.7404	30	0		M
1983	RM2	15.0	830903	357.89	242.75	96.41	3.77	0.2229	2.6175	10	8		M
1983	RO2	15.0	830903	12.24	177.95	143.02	4.17	0.1486	2.2385	30	0		M
1983	RP2	16.0	830903	334.47	223.56	150.14	4.24	0.1706	2.2845	30	0		M
1983	RR2	14.7	830903	43.72	271.59	8.78	7.42	0.1389	2.3904	6	6		E
1983	RS2	13.5	830903	169.11	181.17	346.14	2.83	0.0847	2.5014	6	6	1	M
1983	SB	16.0	830923	5.06	125.74	223.93	2.93	0.1607	2.2160	7	0		M
1983	SC	15.0	830923	306.98	90.89	332.04	5.97	0.1360	2.7817	7	0		M
1983	SF	13.5	830923	351.33	77.78	289.88	10.07	0.1694	3.0640	6	8		M
1983	SG	15.0	830923	8.44	31.34	315.21	2.33	0.1575	2.4502	6	6		M
1983	TC	14.0	831013	12.95	121.77	228.42	12.01	0.1951	2.6988	15	0		M
1983	TH	15.0	830923	335.97	355.02	45.20	8.23	0.2065	2.2988	5	6		M
1983	TL	13.0	830923	305.68	81.06	14.24	6.59	0.2229	3.1806	36	0		M
1983	TO	13.5	830923	357.73	195.46	185.38	6.95	0.0926	3.0132	2	6		M
1983	TX	16.0	831013	351.31	200.66	189.95	6.40	0.2074	2.8596	2	3		M
1983	TY	15.0	831013	178.19	157.54	40.79	1.65	0.1084	2.2542	2	3	1	M
1983	TZ	14.5	831013	139.28	207.62	22.79	7.88	0.1042	2.7336	2	3	1	M

Note 1: e assumed.

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

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

Periodic Comet Kowal-Vavrova (1983t)
T 1983 Apr. 2.18561 ET

		(1950.0)	P	Q
q 2.6081812				
n 0.06179350	Peri.	19.42609	-0.75195781	+0.65861602
a 6.3363744	Node	201.84416	-0.61430914	-0.71551734
e 0.5883796	Incl.	4.31676	-0.23913119	-0.23293748

P 15.95
From 12 observations 1983 May 8-Sept. 28.

Comet IRAS-Araki-Alcock (1983d)
Epoch 1983 May 26.0 ET = JDE 2445480.5
T 1983 May 21.25287 ET

		(1950.0)	P	Q
q 0.9913412				
z 0.0099716	Peri.	192.84389	-0.59933435	+0.35771570
+/-0.0000277	Node	48.40529	-0.62327204	+0.35284781
e 0.9901147	Incl.	73.24953	-0.50232490	-0.86460274

From 90 observations 1983 Apr. 27-Oct. 4, mean residual 1".5.

Comet Cernis (1983l)
Epoch 1983 July 5.0 ET = JDE 2445520.5
T 1983 July 21.15695 ET

		(1950.0)	P	Q
q 3.3177059				
z -0.0004801	Peri.	186.20421	+0.90720281	+0.24314261
+/-0.0001143	Node	208.88247	+0.41003467	-0.32850456
e 1.0015927	Incl.	134.70205	+0.09409908	-0.91266994

From 72 observations 1983 July 21-Oct. 11.

Comet Shoemaker (1983p)
T 1983 Nov. 23.84990 ET

		(1950.0)	P	Q
q 3.3446973				
	Peri.	176.05077	+0.97293983	-0.13705217
	Node	163.98519	-0.22613337	-0.39945369
e 1.0	Incl.	137.60192	-0.04745287	-0.90645102

From 53 observations 1983 Sept. 7-Oct. 28.

Comet IRAS (1983o)
T 1983 Nov. 28.02670 ET

		(1950.0)	P	Q
q 2.2546458				
	Peri.	333.99176	-0.76276113	-0.57192131
	Node	200.56003	-0.33217532	-0.05394988
e 1.0	Incl.	120.74471	-0.55484683	+0.81853248

From 5 observations 1983 Aug. 4-Sept. 16.

Periodic Comet Haneda-Campos (1978 XX)
Epoch 1985 Jan. 15.0 ET = JDE 2446080.5
T 1984 Dec. 27.35042 ET

		(1950.0)	P	Q
q 1.2211708				
n 0.15708021	Peri.	305.39214	+0.97320975	-0.21583208
a 3.4019015	Node	67.18820	+0.22878246	+0.87483804
e 0.6410329	Incl.	4.93157	+0.02283336	+0.43367605

P 6.27
From 49 observations 1978 Aug. 9-Nov. 29, mean residual 1".2.

Periodic Comet Honda-Mrkos-Pajdusakova
Epoch 1985 May 15.0 ET = JDE 2446200.5
T 1985 May 23.90700 ET

		(1950.0)	P	Q
q	0.5422952			
n	0.18585101	Peri. 325.67833	+0.58076719	-0.81073205
a	3.0410678	Node 88.70930	+0.76240991	+0.50997088
e	0.8216761	Incl. 4.22422	+0.28537799	+0.28747738
P	5.30			

From 32 observations 1964-1975, mean residual 1".3. Nongravitational parameters A1 = +0.06, A2 = -0.0488.

Periodic Comet Kowal 2 (1979 II)
Epoch 1985 June 24.0 ET = JDE 2446240.5
T 1985 July 8.70188 ET

		(1950.0)	P	Q
q	1.5026192			
n	0.15240665	Peri. 189.49476	+0.23786001	-0.93823756
a	3.4710971	Node 247.08465	+0.90805340	+0.30662359
e	0.5671054	Incl. 15.83041	+0.34476316	-0.16028800
P	6.47			

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

Periodic Comet Daniel
Epoch 1985 Aug. 3.0 ET = JDE 2446280.5
T 1985 Aug. 4.33197 ET

		(1950.0)	P	Q
q	1.6510209			
n	0.13939439	Peri. 10.84362	+0.19639907	-0.92675422
a	3.6838832	Node 68.45440	+0.87183232	+0.01559347
e	0.5518259	Incl. 20.13896	+0.44870458	+0.37534446
P	7.07			

From 6 observations 1964-1979, mean residual 1".0.

Periodic Comet Boethin (1975 I)
Epoch 1986 Jan. 10.0 ET = JDE 2446440.5
T 1986 Jan. 19.93100 ET

		(1950.0)	P	Q
q	1.1141955			
n	0.08773865	Peri. 11.63066	+0.79409869	-0.60621594
a	5.0158216	Node 25.84085	+0.54925782	+0.68498465
e	0.7778638	Incl. 5.75379	+0.26023667	+0.40410179
P	11.23			

From 35 observations 1975 Feb. 8-June 3, mean residual 1".3.

Periodic Comet Holmes
Epoch 1986 Mar. 31.0 ET = JDE 2446520.5
T 1986 Mar. 14.13523 ET

		(1950.0)	P	Q
q	2.1684629			
n	0.13923544	Peri. 23.34085	+0.97493507	+0.13437188
a	3.6866863	Node 327.34260	-0.21732340	+0.74589484
e	0.4118125	Incl. 19.18521	+0.04766712	+0.65236882
P	7.08			

From 33 observations 1964-1980, mean residual 1".4.

Periodic Comet Wirtanen
Epoch 1986 Mar. 31.0 ET = JDE 2446520.5
T 1986 Mar. 19.35929 ET

		(1950.0)	P	Q
q	1.0843605			
n	0.17911073	Peri.	356.05778	+0.21145383	-0.95666238
a	3.1168912	Node	81.65215	+0.90213632	+0.11221495
e	0.6521019	Incl.	11.67469	+0.37608154	+0.26870968
P	5.50				

From 36 observations 1948-1975, mean residual 1".7. Nongravitational parameters A1 = +0.52, A2 = -0.0871.

Periodic Comet Kojima
Epoch 1986 Mar. 31.0 ET = JDE 2446520.5
T 1986 Apr. 4.72767 ET

		(1950.0)	P	Q
q	2.4138670			
n	0.12497906	Peri.	348.39908	-0.79425028	-0.60755369
a	3.9619703	Node	154.18444	+0.55865147	-0.73457300
e	0.3907408	Incl.	0.88265	+0.23890378	-0.30212749
P	7.89				

From 64 observations 1970-1978, mean residual 1".5.

Periodic Comet Whipple
Epoch 1986 June 19.0 ET = JDE 2446600.5
T 1986 June 25.02336 ET

		(1950.0)	P	Q
q	3.0774910			
n	0.11606594	Peri.	202.04508	+0.91480929	-0.40384959
a	4.1622950	Node	181.80139	+0.39152537	+0.89003147
e	0.2606264	Incl.	9.94345	+0.09915565	+0.21154074
P	8.49				

From 90 observations 1947-1978, mean residual 1".1. Nongravitational parameters A1 = +0.61, A2 = -0.0435.

(2625) 1976 JQ2
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

		(1950.0)	P	Q
M	160.84090			
n	0.30282725	Peri.	170.12644	+0.47690030	+0.87683759
a	2.1962044	Node	128.33015	-0.81160124	+0.46593982
e	0.1410617	Incl.	4.46048	-0.33744560	+0.11855771
P	3.25	B(1,0)	14.0		

Residuals in seconds of arc

760406	808	0.7+	1.6+	790420	095	2.1-	2.2+	820226	801	1.8+	2.5+
760422	808	0.0	0.6+	790425	095	0.3+	1.0-	820323	801	1.8+	0.9+
760422	808	1.2+	1.6-	820216	046	1.8-	0.9-	830906	688	0.2+	0.4+
760426	808	0.5-	1.8+	820216	046	1.9-	1.7-	830906	688	0.0	0.1+
760426	808	0.1-	1.3+	820220	046	4.5+	0.7-	831004	688	0.1-	2.4+
760502	095	2.0-	0.2+	820220	046	1.3-	0.8+	831004	688	1.8-	1.0+
760525	095	0.4+	1.4-	820221	046	0.2+	0.3+				
760530	095	1.5+	1.6-	820221	046	1.0-	1.4+				

(2935)* 1976 UU = 1982 HW

Discovered 1976 Oct. 24 by R. M. West at the European Southern Observatory. The identification is by E. Bowell (MPC 6949).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

		(1950.0)	P	Q
M	170.17792			
n	0.23520791	Peri.	134.70360	+0.01706147	+0.98733714
a	2.5991705	Node	135.54141	-0.96915555	+0.05511765
e	0.1257348	Incl.	13.01356	-0.24585853	-0.14875284
P	4.19	B(1,0)	14.0		

Residuals in seconds of arc

761024	809	0.2+	0.5-	761102	809	0.0	0.4-	830904	801	1.7-	0.8-
761025	809	2.3-	0.3+	761102	809	0.3+	0.3+	830914	688	1.1-	2.2-
761031	809	0.1+	0.1+	820421	688	0.3+	0.3-	830914	688	1.5+	3.3+
761031	809	0.4+	0.1+	820421	688	1.2-	0.3-	831008	801	1.2+	0.2-
761101	809	1.0+	0.0	820428	688	3.6+	1.8-				
761101	809	0.2+	0.3+	820428	688	2.7-	2.6+				

(2936)* 1979 SF = 1966 UL

Discovered 1979 Sept. 17 by A. Mrkos at Klet.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	115.54952				
n	0.22480557	Peri.	319.99468	+0.40335956	+0.91270275
a	2.6787448	Node	333.59929	-0.79739099	+0.31555043
e	0.0742804	Incl.	8.45553	-0.44885261	+0.25961820
P	4.38	B(1,0)	13.5		

Residuals in seconds of arc

661018	095	0.9-	0.9+	790927	330	1.7+	0.2+	820323	046	2.9-	2.9-
790917	046	0.4-	1.0-	790927	046	0.9+	2.0-	820323	046	2.5-	2.5-
790917	046	0.4-	1.5-	790927	046	0.3+	2.0-	820326	046	0.0	1.1-
790918	046	0.5+	0.7-	791011	046	3.6+	0.1+	820326	046	1.1+	0.3-
790918	046	3.0-	1.5-	791011	046	1.6+	1.2+	820327	046	2.0-	0.4+
790919	046	0.7+	0.2+	791015	046	0.0	0.6-	820327	046	0.5-	1.2-
790919	046	1.3+	0.6+	791015	046	0.5+	1.4-	830813	688	0.2+	1.3+
790925	046	0.9+	1.1-	791019	046	0.0	1.0-	830813	688	1.3+	1.4+
790925	046	0.3+	0.9-	791019	046	1.5+	0.7-	830815	046	1.4-	0.5+
790926	046	1.4+	1.6-	820321	688	0.2-	3.0-	830815	046	1.2-	0.7+
790926	046	1.2+	1.2-	820321	688	1.4-	1.7-	831008	801	0.4-	1.1+

(2937)* 1980 LA

Discovered 1980 June 14 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	55.87478				
n	0.27882510	Peri.	71.38526	+0.85173801	+0.37114161
a	2.3204995	Node	265.42014	-0.49628995	+0.79782760
e	0.3021122	Incl.	21.78005	+0.16804361	+0.47510528
P	3.53	B(1,0)	14.0		

Residuals in seconds of arc

800614	688	1.0+	0.2+	800714	688	0.4+	0.6-	801012	801	0.2+	1.0+
800614	688	1.2+	2.2+	800717	688	0.4-	0.4+	801030	801	0.4-	1.1+
800617	688	0.6-	2.6+	800804	688	0.4+	1.2-	820128	474	0.2+	0.6-
800617	688	0.5-	2.3-	800804	688	0.2-	0.7-	820128	474	1.7-	1.3-
800618	688	0.1+	0.2-	800806	688	0.7-	0.2-	830318	474	1.0+	0.8+
800618	688	0.4-	1.2-	800808	801	0.1+	1.9+	830318	474	0.4+	0.3+
800705	688	0.3-	1.2-	800902	688	1.1+	1.0-	830519	474	0.7-	1.0+
800705	688	0.2+	1.5-	800911	801	0.6-	0.9+				

(2938)* 1980 LB

Discovered 1980 June 14 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	238.02008				
n	0.17746485	Peri.	263.48044	+0.74138875	-0.23805941
a	3.1361330	Node	108.70520	+0.38217929	+0.91831115
e	0.3378016	Incl.	41.48469	-0.55161735	+0.31627890
P	5.55	B(1,0)	12.5		

Residuals in seconds of arc

800611	688	0.2+	0.2-	800705	688	2.1+	1.0-	820102	879	0.8+	2.4-
800611	688	0.2-	2.6-	800714	688	0.1-	1.2+	820102	879	2.0+	1.1-
800614	688	1.8-	1.5-	800808	688	0.6+	2.3-	820115	675	0.1+	0.6-
800614	688	2.2-	3.4-	801206	474	1.8+	0.9+	820116	675	0.4-	0.3-
800617	688	0.5-	0.8-	801206	474	1.0+	0.9-	820116	688	2.4+	3.0-
800617	688	1.5-	1.4+	811125	801	0.1-	1.0+	820116	675	0.2-	0.2-
800618	688	0.1+	0.2+	811220	688	0.8+	0.8-	830122	801	0.1+	0.7+
800618	688	0.8-	0.1+	811220	688	2.1+	3.6-	830513	801	0.8+	2.4-
800619	801	3.9-	2.1+	811220	801	0.3-	1.1+				
800705	688	0.1-	4.2-	811223	675	0.8-	0.4-				

(2939)* 1982 DP = 1952 HU3 = 1976 ST4

Discovered 1982 Feb. 21 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	189.38339				
n	0.25845211	Peri.	234.49266	-0.71358718	+0.70046195
a	2.4408963	Node	349.95184	-0.61817407	-0.63769591
e	0.1615107	Incl.	3.97656	-0.32962729	-0.32046371
P	3.81	B(1,0)	14.0		

Residuals in seconds of arc

520427	711	3.8-	3.4- Y	820221	688	1.6-	0.3+	830711	688	1.3+	0.9-
520428	711	1.2-	1.8+ Y	820228	688	0.6+	2.1-	830711	688	0.9-	1.0-
520520	711	5.8+	3.5+ Y	820228	688	0.9-	0.3-	830813	688	0.9+	2.1-
760924	095	1.3-	2.7+	820328	688	0.3-	0.2-	830813	688	1.3+	2.1-
820221	688	0.1-	0.7-	820328	688	0.6+	0.7-				

(2940)* 3042 P-L = 1981 ER3

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

			(1950.0)	P	Q
M	50.62109				
n	0.21207168	Peri.	116.52535	+0.85866493	-0.50017864
a	2.7849299	Node	273.67253	+0.42121923	+0.81302013
e	0.2334994	Incl.	6.43665	+0.29200838	+0.29802616
P	4.65	B(1,0)	15.0		

Residuals in seconds of arc

600924	675	0.1-	0.2+	600928	675	0.1+	0.4-	810307	413	0.1-	0.5+
600924	675	0.4-	0.7+	600929	675	0.5+	0.3+	810310	413	2.7-	1.6+
600924	675	0.7+	0.1-	600929	675	0.7-	0.2-	810310	413	0.4-	0.5+
600925	675	0.6-	0.3-	601017	675	0.6+	0.2+	810312	413	1.1+	0.5+
600925	675	0.5-	0.3-	601024	675	0.1-	0.1-	810312	413	2.9+	0.8-
600926	675	0.7+	0.9+	601026	675	0.5+	0.6-	810409	413	2.0-	0.4-
600926	675	0.3+	0.2-	810301	413	0.7-	0.3+	810409	413	0.5+	1.3-
600926	675	0.0	0.2+	810301	413	0.7+	1.0-	830814	801	0.3+	0.5-
600927	675	0.6-	0.1-	810302	413	1.6+	0.1+	830907	801	0.8+	0.5+
600927	675	0.3-	0.3+	810307	413	1.0-	0.9+	831011	801	1.6-	0.5+
600928	675	0.4+	0.6-	810307	413	1.4+	0.3-				
600928	675	0.3-	0.1+	810307	413	1.3-	0.2-				

1978 WH14 = 1980 DT4

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

			(1950.0)	P	Q
M	27.59830				
n	0.18564469	Peri.	312.82701	+0.17911193	-0.98356023
a	3.0433265	Node	126.84086	+0.91077394	+0.15693292
e	0.1625010	Incl.	1.64561	+0.37203458	+0.08933835
P	5.31	B(1,0)	13.5		

Residuals in seconds of arc

781031	330	0.3-	1.4+	781229	330	0.3-	0.8-	831007	046	1.6-	1.5-
781128	330	1.0-	1.0+	800221	095	0.6-	1.3-				
781202	330	2.0+	0.6+	831005	046	1.0-	1.1-				

1979 MC = 1979 QC
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	135.06907		(1950.0)	P	Q
n	0.26028743	Peri.	160.85881	+0.62893760	+0.76934163
a	2.4294136	Node	147.82555	-0.73790118	+0.63608676
e	0.2682802	Incl.	12.14505	-0.24482512	+0.05922068
P	3.79	B(1,0)	15.0		

Residuals in seconds of arc

790628	688	0.2+	0.9-	790731	095	0.6-	1.5+	830914	688	1.6-	1.5-
790702	688	0.6+	1.6+	790822	675	0.3+	4.1-	830914	688	0.2+	1.1+
790702	688	0.9+	0.2-	790822	675	1.0-	2.9-	831009	688	1.9+	0.0
790723	688	0.6-	1.2-	790823	675	0.4-	0.6+	831012	688	1.0-	1.5+
790730	688	0.7+	2.0+	790823	675	0.4-	2.7+	831012	688	0.3+	0.4-

1981 EM4
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	344.35484		(1950.0)	P	Q
n	0.22666064	Peri.	157.04932	-0.55988267	-0.81967531
a	2.6641142	Node	326.63520	+0.72190897	-0.41084039
e	0.1138995	Incl.	12.71984	+0.40666796	-0.39917735
P	4.35	B(1,0)	11.5		

Residuals in seconds of arc

810302	413	0.7-	0.4-	810407	413	1.2-	1.1+	831012	552	1.0-	2.2+
810302	413	0.7+	0.3-	810407	413	0.1+	0.1+	831012	552	0.5+	3.4+
810307	413	0.1-	0.0	810408	413	1.1-	0.9+	831013	552	1.0-	1.5-
810307	413	0.8+	0.6-	810408	413	0.4+	0.2+	831013	552	0.7-	1.7-
810310	413	0.5-	0.1+	810409	413	1.2-	0.0	831014	552	1.3-	1.1-
810310	413	0.9+	0.4-	810409	413	0.2-	0.1-	831014	552	1.0+	1.1-
810312	413	1.0-	0.6-	830904	552	0.1-	0.5-	831014	552	0.7-	0.4-
810312	413	0.3+	1.0-	830904	552	0.6+	0.0				

1981 YH1
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	300.55065		(1950.0)	P	Q
n	0.30617288	Peri.	39.96091	-0.51595727	-0.79985285
a	2.1801761	Node	83.20918	+0.68562349	-0.60019171
e	0.2386107	Incl.	17.98686	+0.51352559	-0.00230632
P	3.22	B(1,0)	14.5		

Residuals in seconds of arc

811202	511	0.7+	0.5-	820220	688	1.3+	1.8-	820420	801	0.4-	1.3+
811230	511	0.1-	1.8+	820220	688	0.6+	2.8-	820527	801	1.1+	0.1-
820127	511	1.9-	1.0+	820223	511	2.6+	0.8+	830810	474	0.2+	0.9-
820127	511	1.3-	1.3+	820225	511	2.2-	1.5+	830810	474	0.4-	0.2+
820131	688	0.2-	1.1-	820226	511	1.2-	0.2-				
820131	688	2.3+	2.3-	820327	801	0.3+	0.5+				

1982 JA
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	188.52470		(1950.0)	P	Q
n	0.26251031	Peri.	206.41685	+0.23716735	+0.95817669
a	2.4156796	Node	77.64965	-0.85972423	+0.28377922
e	0.1176793	Incl.	9.43609	-0.45235593	-0.03697010
P	3.75	B(1,0)	14.0		

Residuals in seconds of arc

820515	552	2.5-	1.2+		820525	552	0.7+	1.1-		831012	552	0.3+	1.6-
820515	552	0.8-	0.7+		820525	552	0.5+	0.5-		831012	552	0.8-	0.9-
820516	552	3.8-	0.7+		820611	552	2.6+	1.5+		831012	552	0.9-	1.2-
820516	552	0.4-	0.3-		820611	552	1.0+	2.2-		831012	552	1.3+	0.5+
820518	552	0.3-	1.4-		820612	552	0.1+	1.1-		831013	552	0.7-	0.3-
820518	552	0.6+	2.3-		820612	552	1.1+	0.4-		831013	552	1.0+	0.5+
820519	552	0.0	1.9+		820614	552	2.7-	4.1+		831013	552	1.2+	1.4+
820519	552	0.9+	1.4+		820614	552	1.5+	1.1-		831013	552	1.7+	1.3+
820524	552	0.8+	1.3-		831011	552	0.9+	2.7-		831027	552	1.1-	1.0+
820524	552	1.3+	0.0		831011	552	0.2+	0.0		831027	552	3.2-	1.9+

1983 RB
Epoch 1983 Sept. 3.0 ET = JDE 2445580.5

M	16.87441	(1950.0)	P	Q
n	0.29759509	Peri. 114.76274	+0.24618043	+0.96710779
a	2.2218712	Node 168.90154	-0.96509159	+0.25068799
e	0.5068316	Incl. 19.42332	-0.08940592	-0.04310520
P	3.31	B(1,0) 17.0		

From 17 observations 1983 Sept. 7-Oct. 5.

1983 TB
Epoch 1983 Oct. 13.0 ET = JDE 2445620.5

M	27.10089	(1950.0)	P	Q
n	0.64743682	Peri. 323.62931	-0.64500584	+0.66100721
a	1.3233390	Node 262.68207	-0.57757328	-0.75025021
e	0.8979580	Incl. 22.74329	-0.50037643	+0.01393145
P	1.52	B(1,0) 16.0		

From 11 observations 1983 Oct. 12-27.

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OBSERVATIONS MADE BY C. M. BARDWELL, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

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

(2941)* 1930 YV = 1933 WH = 1947 BD = 1976 JY8 = 1982 FA2
Discovered 1930 DeC. W. 24 by C. W. Tombaugh at the Lowell Observatory. The key identification 1930 YV = 1982 FA2 is by E. Bowell and F. Bowman, who found it independently (MPC 7467).
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	30.56310	(1950.0)	P	Q
n	0.31229047	Peri. 64.59159	+0.26649717	-0.96378603
a	2.1516101	Node 9.96734	+0.86269889	+0.23399372
e	0.0899957	Incl. 3.24083	+0.42980213	+0.12791962
P	3.16	B(1,0) 15.0		

Residuals in seconds of arc

301220	690	4.9-	1.0-		820323	675	2.2+	1.2-		830714	801	1.1-	1.5+
301224	690	0.9+	0.1+		820324	675	0.5-	0.4-		830813	688	0.3+	1.7-
301225	690	1.3+	1.7-		820331	675	0.6-	0.5-		830813	688	0.9+	1.9-
331120	024	2.2+	1.2+		820331	675	0.6-	0.2-		830816	801	2.2-	1.0-
470117	012	(9.2+	2.0+)		830711	688	0.8+	1.0+					
760502	809	0.3+	0.1+		830711	688	0.1-	1.2+					

(2942)* 1932 BG = 1936 KF = 1976 GS6 = 1982 BG2

Discovered 1932 Jan. 29 by K. Reinmuth at Heidelberg.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M 153.92981		(1950.0)	P	Q
n 0.29420333	Peri.	154.30638	+0.00867298	+0.99425329
a 2.2389153	Node	116.03262	-0.93667048	+0.04543709
e 0.1531908	Incl.	6.81992	-0.35010452	-0.09693231
P 3.35	B(1,0)	14.0		

Residuals in seconds of arc

320129	024	(6.9-	4.1+)	760403	095	1.0-	0.7+	820119	046	0.8-	0.1-
320206	024	3.4+	3.4-	760407	095	0.5+	0.4-	820119	046	0.3+	1.0+
320212	024	(14.6+	8.1-)	820116	046	2.8-	0.1-	830710	688	2.0+	1.2-
320305	024	0.4-	0.0	820116	046	1.1-	0.6+	830711	801	1.0+	0.3+
320325	024	1.7+	1.0+	820118	046	1.0+	1.0-	830814	801	0.6-	1.6-
360527	078	2.7-	0.5+	820118	046	1.1-	1.2-				

(2943)* 1933 QU = 1970 EJ2 = 1977 AM1 = 1979 OK14 = 1979 SY2

Discovered 1933 Aug. 25 by K. Reinmuth at Heidelberg. The identification and double designation 1933 QU = 1979 OK14 = 1979 SY2 are by L. D. Schmadel (MPC 7239). The identification 1933 QU = 1970 EJ2 is by O. Kippes (MPC 7239).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M 107.06835		(1950.0)	P	Q
n 0.25730540	Peri.	43.60741	+0.98610744	+0.03472889
a 2.4481430	Node	313.63568	-0.11685970	+0.84001852
e 0.1540870	Incl.	12.97004	+0.11805056	+0.54144509
P 3.83	B(1,0)	14.5		

Residuals in seconds of arc

330825	024	0.5+	0.1+	700304	805	0.0	0.8-	830914	552	1.5+	0.6-
330827	024	(6.4+	4.1-)	770113	095	(2.9-	7.1-)	830914	552	1.6+	0.2-
330828	024	1.5-	1.7+	790719	095	0.8-	1.8+	831005	552	1.7+	0.9-
330916	024	0.8-	0.8+	790730	095	5.6+	5.3-	831005	552	0.2+	0.5-
700304	805	1.0-	1.1-	790923	095	3.3-	1.3+	831007	801	0.0	0.2-
700304	805	0.4-	0.4-	830903	801	3.3-	0.1+				

(2944)* 1935 QF = 1969 MA = 1982 NA

Discovered 1935 Aug. 31 by K. Reinmuth at Heidelberg. The key identification 1935 QF = 1982 NA is by E. Bowell (MPC 7468).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M 141.99466		(1950.0)	P	Q
n 0.22846807	Peri.	153.35878	+0.97569774	+0.21416454
a 2.6500397	Node	194.50138	-0.21907338	+0.94902303
e 0.1649342	Incl.	10.66491	-0.00455807	+0.23127653
P 4.31	B(1,0)	14.0		

Residuals in seconds of arc

350831	024	3.2+	3.5-	810301	413	0.0	1.1-	810312	413	0.6-	0.6+
350901	024	0.6-	0.5+	810301	413	1.6-	0.2-	810312	413	1.2+	0.3-
350909	024	0.3+	2.9-	810306	413	1.0-	0.1+	820714	675	0.3+	0.0
350920	024	2.2-	2.5+	810306	413	0.3-	0.1+	820715	675	0.0	0.3-
350924	024	0.3-	1.7+	810308	413	0.6+	0.4-				
690619	095	0.6-	1.2+	810308	413	1.4+	0.8-				

(2945)* 1935 ST1 = 1957 UC1 = 1970 SY = 1970 WM = 1975 XY5 = 1983 TN

Discovered 1935 Sept. 28 by H. van Gent at Johannesburg.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	118.77960	(1950.0)	P	Q	
n	0.22586383	Peri.	242.94277	+0.92900260	+0.36724680
a	2.6703709	Node	95.48196	-0.32119515	+0.86141521
e	0.1370950	Incl.	2.62852	-0.18381471	+0.35084700
P	4.36	B(1,0)	13.0		

Residuals in seconds of arc

350928	078	0.9-	0.2-	571021	760	2.3+	1.3-	831006	046	1.1+	1.1+
351002	078	2.6+	1.9+	700930	095	2.6-	0.7-	831006	046	2.0-	0.3-
351016	078	0.3-	2.0+	701126	095	1.1+	3.2-	831007	046	1.7+	0.6+
351018	078	0.3-	1.3-	751204	095	0.1+	2.2+	831007	046	0.4-	0.3-
351027	078	0.8-	1.0+	831005	046	0.8+	0.4-				
351030	078	2.0-	0.1-	831005	046	0.2-	0.1+				

(2946)* 1941 UV = 1958 DY = 1968 UJ1 = 1972 XH2

Discovered 1941 Oct. 15 by L. Oterma at Turku.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	45.01361	(1950.0)	P	Q	
n	0.25639181	Peri.	102.92798	+0.42672607	-0.90435896
a	2.4539551	Node	321.81007	+0.82570894	+0.39243888
e	0.1744614	Incl.	0.58412	+0.36893033	+0.16770986
P	3.84	B(1,0)	14.0		

Residuals in seconds of arc

411015	062	1.7-	0.1-	681023	095	1.0+	0.7-	830906	688	0.4-	1.7-
411027	062	0.5-	0.3-	681026	095	3.2-	1.5+	830906	688	1.3+	0.3+
411112	062	1.1-	0.9+	721201	095	3.7+	2.4-	830907	801	0.3+	1.4+
411114	062	0.1-	4.0+	790730	095	0.8-	0.3+	831004	688	3.0+	0.6-
411115	062	0.6-	0.7+	830813	688	1.1-	0.5-	831004	688	1.8-	0.5-
580224	760	0.8-	0.5-	830813	688	2.6+	0.1+	831008	801	1.4-	1.8+
580224	760	0.4-	0.3+	830902	688	0.4-	2.7-				
681022	095	2.8-	0.1+	830902	688	0.6-	0.9-				

(2947)* 1955 QP1 = 1955 SE = 1943 GC1 = 1973 YD1

Discovered 1955 Aug. 22 by I. Groeneveld at Heidelberg. The key identification 1955 QP1 = 1973 YD1 is by E. Bowell (MPC 7015). The double designation 1955 QP1 = 1955 SE was found independently by O. Kippes and S. Kanda (MPC 1453).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	24.79443	(1950.0)	P	Q	
n	0.28113393	Peri.	165.96548	+0.00609896	-0.99856921
a	2.3077772	Node	283.66488	+0.91206389	+0.02733738
e	0.1253427	Incl.	3.13411	+0.41000275	-0.04595872
P	3.51	B(1,0)	14.5		

Residuals in seconds of arc

430404	020	2.7-	1.3+	550916	760	1.1+	0.2+	830908	801	0.2+	1.6+
430404	020	3.2+	0.1-	731220	095	0.4+	1.1+	830909	801	0.4-	2.1+
550822	024	0.2-	3.6-	731221	095	0.6-	0.6-	831007	801	2.4-	0.2-
550826	024	0.9+	0.8-	830905	801	0.1-	1.5+				

(2948)* 1969 TD2 = 1981 EW4

Discovered 1969 Oct. 8 by L. I. Chernykh at the Crimean Astrophysical Observatory. The indentification was found by F. Bowman (MPC 7240) and by L. D. Schmadel, who found it independently.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	340.51541	(1950.0)	P	Q	
n	0.20344669	Peri.	245.80058	-0.06871702	-0.99235467
a	2.8630941	Node	208.71949	+0.97511496	-0.04509854
e	0.1079276	Incl.	12.31872	+0.21078133	-0.11488396
P	4.84	B(1,0)	13.5		

Residuals in seconds of arc

691008	095	1.2+	3.1+	810310	413	0.9+	0.1+	810409	413	0.3-	0.8-
691016	095	0.5+	0.5+	810312	413	0.7-	0.4+	810409	413	0.6-	1.2-
691111	095	1.3-	6.3-	810312	413	3.3+	0.9-	830816	801	1.1-	2.3-
810302	413	1.2-	0.4+	810407	413	1.4-	0.9-	830905	801	1.9+	1.0-
810307	413	0.1-	0.8+	810407	413	0.7+	2.1-	831004	801	0.4+	0.5+
810307	413	0.7+	0.0	810408	413	2.2-	0.3-	831009	801	0.4-	0.8-
810310	413	0.5-	1.1+	810408	413	0.0	1.8-				

(2949)* 1970 PR = 1953 FY = 1957 SB = 1976 GS7 = 1976 KM1 = 1979 FU1 = 1980 TQ10 = 1982 BV3 = 1982 DN4 = 1983 RN2

Discovered 1970 Aug. 9 by T. Smirnova at the Crimean Astrophysical Observatory. The key identification 1970 PR = 1983 RN2 is by E. Bowell.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	161.23033	(1950.0)	P	Q	
n	0.30307630	Peri.	130.19441	+0.39062828	+0.92020509
a	2.1950011	Node	162.74843	-0.86821891	+0.37736255
e	0.1397015	Incl.	4.86323	-0.30595009	+0.10401966
P	3.25	B(1,0)	14.5		

Residuals in seconds of arc

530316	024	0.3-	2.5-	760405	095	1.9+	3.8+	830904	688	1.4+	0.8+
530320	024	1.1-	2.0-	760530	095	0.3+	1.8-	830904	688	1.8+	0.0
570918	760(20.9+	18.1+)X		790323	095	2.4-	0.1-	830906	688	0.4+	1.5-
700809	095	0.4+	1.6+	801008	095	0.0	2.3+	830906	688	1.4-	0.9-
700810	095	0.4-	0.4-	820120	033	0.2+	1.8-	830910	688	0.3-	1.6-
700828	095	1.5-	3.3+	820120	033	0.1+	1.9-	830910	688	0.9-	2.4-
700829	095	0.0	1.5-	820219	033	0.5-	0.4-	830912	688	1.6+	2.6-
700831	095(90.0+	29.8+)		820219	033	0.1-	0.4-	830912	688	0.3+	2.2-

(2950)* 1974 VQ2 = 1939 CE = 1962 CG = 1980 AG

Discovered 1974 Nov. 9 by P. Wild at Zimmerwald. The identifications 1974 VQ2 = 1939 CE = 1962 CG were found independently by L. D. Schmadel.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	59.86762	(1950.0)	P	Q	
n	0.21543658	Peri.	294.13616	+0.68393083	-0.71294434
a	2.7558554	Node	111.77436	+0.71511819	+0.61316857
e	0.2628584	Incl.	9.59277	+0.14437656	+0.34019797
P	4.57	B(1,0)	13.5		

Residuals in seconds of arc

390212	062	0.7+	2.1-	741220	026	1.3-	1.5+	830903	801	1.6-	0.9+
620204	760	0.5-	0.7+	750101	026	0.4+	0.6-	830914	688	0.3-	0.0
620204	760	0.3-	1.5-	750105	026	1.2+	0.7+	830914	688	0.1-	0.1+
741109	026	0.7-	2.7-	750110	026	1.1+	0.9-	831009	688	0.6+	0.0
741113	026	0.9-	0.3-	800114	330	1.0+	0.0	831009	688	1.0+	0.3-
741202	026	0.4+	0.3-	800117	330	2.3-	4.6+	831010	801	1.0-	0.7+
741213	026	0.5+	0.6-	800117	330	2.3+	0.4+	831012	688	0.6+	0.0
741214	026	1.0+	1.4+	800120	330	0.8-	1.7-	831012	688	0.8+	0.0

(2951)* 1977 RB8 = 1930 FD = 1933 UW1 = 1944 UA = 1950 WE = 1952 DM2
= 1955 UG = 1958 HC = 1969 JF = 1971 SA4 = 1971 UU1
= 1980 JP

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

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M 348.97476		(1950.0)	P	Q
n 0.17858131	Peri.	115.01812	-0.75375869	-0.64827508
a 3.1230483	Node	25.01213	+0.47272756	-0.64868375
e 0.1308474	Incl.	14.74941	+0.45648273	-0.39868385
P 5.52	B(1,0)	11.5		

Residuals in seconds of arc

300324	094(40.9+ 16.8+)X		580424	024	0.0	1.8+	800511	046	0.1+ 0.3+
331019	078	0.4- 1.4+	580426	024	2.7+	1.1+	800512	046	1.1+ 0.6-
441022	062	0.2- 0.1-	690505	095	1.2+	3.2+	800512	046	0.5+ 0.2+
441022	062	1.9- 0.2-	690516	095	2.0+	3.1-	800513	046	0.3+ 0.0
501116	711	5.0+ 0.3+ Y	710922	095	0.4+	0.2+	800513	046	0.3+ 1.2+
501203	711	2.2- 4.2+ Y	711016	095	0.1+	3.7+	800514	046	0.4- 0.5+
520220	711	1.2- 2.1+ Y	770913	095	1.1+	1.8-	800514	046	0.8- 0.4+
551020	760	0.7- 0.1-	770918	095	1.1-	0.8-	800515	046	0.0 0.7+
551020	760	0.8- 1.1-	770919	095	1.0-	1.5+	800515	046	0.1- 0.8+
551110	760	1.9- 0.4+	771009	095	0.3-	0.8+			
551110	760	1.3- 0.8+	800511	046	0.8-	0.3-			

(2952)* 1979 SF2 = 1965 UL = 1974 HK3

Discovered 1979 Sept. 22 by N. S. Chernykh at the Crimean Astrophysical Observatory. The key identification 1979 SF2 = 1974 HK3 is by L. D. Schmadel (MPC 7240).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M 134.29525		(1950.0)	P	Q
n 0.28021317	Peri.	78.19175	+0.75176927	-0.65850358
a 2.3128299	Node	322.97836	+0.58018695	+0.68564142
e 0.1713835	Incl.	3.32011	+0.31341036	+0.31027227
P 3.52	B(1,0)	15.5		

Residuals in seconds of arc

651028	760	1.9- 0.3+	790924	095	1.7+	2.6+	810315	413	1.0- 0.1-
651028	760	2.1+ 0.2+	790928	095	0.2-	5.7-	810315	413	0.1+ 0.0
740422	805	1.0- 0.7-	810302	413	1.5+	0.4-	810406	413	2.3- 0.0
740424	805	0.7- 0.2+	810306	413	1.8-	0.2+	810406	413	0.1+ 0.8-
740425	805	0.5- 0.0	810306	413	1.7+	0.5-	810408	413	1.1- 0.0
790827	095	0.5- 0.4+	810311	413	0.2+	0.8-	810408	413	2.2+ 1.5-
790902	095	0.9+ 1.4+	810311	413	0.6+	0.2-	810409	413	2.2- 0.2-
790922	095	0.1+ 3.3-	810312	413	1.7+	0.3+	810409	413	0.4- 1.1-

(2953)* 1979 SV11 = 1951 YG1 = 1969 RU1 = 1975 XR5 = 1978 PQ

Discovered 1979 Sept. 24 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M 154.47725		(1950.0)	P	Q
n 0.20717848	Peri.	3.83315	-0.26104843	+0.96516341
a 2.8286092	Node	251.03522	-0.88612256	-0.24686347
e 0.0234856	Incl.	1.07244	-0.38293669	-0.08670650
P 4.76	B(1,0)	13.0		

Residuals in seconds of arc

511227	711	0.7- 5.5+ Y	791014	095	0.9+	1.0-	830713	801	1.7- 1.7+
690913	095	1.7+ 0.4-	791116	095	0.8-	2.6-	830713	688	1.9+ 0.3-
751204	095	1.4+ 0.6+	791122	095	0.8-	0.6-	830713	688	0.8+ 0.2-
780808	095	2.2- 0.6+	830711	688	0.9+	0.9-	830814	801	1.2- 1.5+
790924	095	0.2+ 0.5-	830711	688	1.7-	0.8+	830902	801	1.4+ 2.1+

(2954)* 1982 BT1 = 1944 DE = 1951 ER2 = 1976 QJ2
Discovered 1982 Jan. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	229.53922		(1950.0)		P		Q				
n	0.28484885	Peri.	49.77371		-0.83024016		+0.55708621				
a	2.2876684	Node	164.05190		-0.52998323		-0.77845249				
e	0.1941995	Incl.	3.93881		-0.17268194		-0.28925192				
P	3.46	B(1,0)	15.0								

Residuals in seconds of arc

440221	062	0.1-	2.4+		760830	675(40.6- | 19.5-)		820228	688	0.2+	0.9+
440221	062	1.0+	3.0+		820130	688	1.0-	1.4-	820328	688	1.1-	0.4+
440228	062	0.6+	2.5+		820130	688	0.8-	1.9-	820328	688	0.8-	1.1-
510313	711	1.7-	4.7-	Y	820221	688	2.1+	1.7-	830908	801	0.9+	1.6+
760827	675	2.3+	2.1-		820221	688	0.8+	2.0-	831009	801	1.0-	2.0-
760828	675	0.6-	2.8-		820228	688	1.2-	2.7-				

(2955)* 1982 BX1 = 1976 JG3 = 1979 FZ1
Discovered 1982 Jan. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	192.84674		(1950.0)		P		Q				
n	0.30608367	Peri.	233.90399		-0.07098369		+0.99692150				
a	2.1805997	Node	32.07403		-0.89378037		-0.04874754				
e	0.1152486	Incl.	3.59530		-0.44285207		-0.06141007				
P	3.22	B(1,0)	14.5								

Residuals in seconds of arc

760502	095	0.4-	4.1-		820214	046	0.1-	2.6+	820228	688	3.0+	0.3+
790323	095	3.6-	1.5+		820216	046	3.5-	1.4+	820228	688	0.3+	2.9-
790329	095	2.7+	3.2+		820216	046	0.4-	0.3+	820321	688	1.1-	1.3-
801013	095	1.8+	4.2-		820219	046	0.2-	2.7-	820321	688	2.9-	2.1-
820130	688	1.5+	0.9-		820219	046	2.3-	1.3-	830816	801	1.5+	0.5+
820130	688	2.8+	0.7-		820220	688	2.8+	0.4-	830907	801	3.5+	0.3+
820214	046	0.0	3.0+		820220	688	0.4+	0.3-	831008	801	6.5-	0.4+

(2956)* 1982 HN1 = 1950 JG = 1974 RN1 = 1977 DL10
Discovered 1982 Apr. 28 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	181.55627		(1950.0)		P		Q				
n	0.21449067	Peri.	120.70494		-0.60539549		+0.79457414				
a	2.7639517	Node	111.96599		-0.74624312		-0.54639175				
e	0.0926153	Incl.	2.86467		-0.27679868		-0.26477914				
P	4.60	B(1,0)	13.5								

Residuals in seconds of arc

500515	078(25.5- | 11.6+)X			820520	688	0.1+	0.6+	830907	801	1.3-	1.3+
740914	095	0.3-	0.7+		820520	688	0.3-	0.6+	830910	688	0.6+	1.5-
770219	381	0.7-	0.8-		830813	688	1.1+	0.5+	830910	688	2.3-	2.2-
770219	381	0.0	1.1-		830813	688	0.1-	0.1-	830912	688	0.6+	0.5+
820418	688	1.1+	0.6-		830902	688	1.0+	0.0	830912	688	0.4+	0.1+
820418	688	0.2+	1.3-		830902	688	0.1+	1.0-	831009	801	1.3-	0.7+
820428	688	0.6-	0.3+		830906	688	0.4+	0.4+				
820428	688	0.4-	1.0+		830906	688	1.5+	1.0-				

1949 SF = 1960 MC = 1983 RQ2

The key identification 1949 SF = 1983 RQ2 is by E. Bowell.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	116.11290		(1950.0)	P	Q
n	0.26020139	Peri.	328.99013	+0.81999156	+0.57227339
a	2.4299491	Node	356.04978	-0.48766173	+0.68861056
e	0.2497880	Incl.	9.03386	-0.29966628	+0.44532983
P	3.79	B(1,0)	15.0		

Residuals in seconds of arc

490923	024	2.5-	1.8-	830902	688	1.2-	0.3+	830906	688	1.5+	0.4+
491015	024	2.7+	2.2+	830902	688	1.9-	0.3+	830910	688	0.1-	0.2+
491022	024	0.1+	1.4-	830904	688	0.6-	0.0	830910	688	1.8-	2.6-
600624	839	0.3+	1.9-	830904	688	0.8-	0.4+	830912	688	0.9+	1.9-
600624	839	1.1-	1.8-	830906	688	0.1+	0.2-	830912	688	1.1+	1.8-

1976 QN1 = 1983 TM

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	133.02961		(1950.0)	P	Q
n	0.28739950	Peri.	189.51649	+0.99222254	+0.12426303
a	2.2741176	Node	163.34003	-0.11246173	+0.92001292
e	0.0783918	Incl.	1.45699	-0.05335539	+0.37166506
P	3.43	B(1,0)	15.0		

Residuals in seconds of arc

760826	095	0.7+	0.0	831005	046	1.2+	1.0-	831007	046	0.2+	1.2-
760924	095	1.5-	0.6-	831006	046	0.1+	0.2-	831009	046	0.6+	1.7+
760928	095	0.7+	0.6+	831006	046	0.1-	1.2+	831009	046	1.2-	0.7+
831005	046	1.8+	1.0+	831007	046	0.1-	1.1+				

1980 TP = 1961 UL = 1983 QB = 1983 RJ2

The key identification 1980 TP = 1983 RJ2 is by E. Bowell.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	122.70800		(1950.0)	P	Q
n	0.31113810	Peri.	189.67844	+0.97758575	+0.21025760
a	2.1569237	Node	158.17495	-0.19114930	+0.90799248
e	0.1898432	Incl.	1.67327	-0.08824994	+0.36241053
P	3.17	B(1,0)	16.0		

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

611018	760(0.05+	0.04+)X		801030	046	3.5-	3.4+	830816	046	1.6-	0.3+
801003	046	0.2+	0.7-	801111	046	1.2+	0.6-	830816	046	1.0-	0.2+
801003	046	0.0	0.3+	801111	046	1.3+	1.1-	830902	688	0.8+	1.6-
801005	046	0.3+	0.3+	801113	046	1.6+	1.0-	830902	688	0.7+	1.9-
801005	046	0.5-	0.2+	801113	046	0.9-	2.4-	830904	688	0.1-	0.3-
801008	095	0.5+	1.9+	830813	688	0.8+	1.3+	830904	688	0.8-	0.1-
801030	046	0.4-	0.6+	830813	688	1.6+	0.4+				

1981 EM = 1969 AG = 1983 RK2

The key identification 1981 EM = 1983 RK2 is by E. Bowell.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	61.07305		(1950.0)	P	Q
n	0.25466187	Peri.	53.46137	+0.67144931	-0.74098385
a	2.4650608	Node	354.32848	+0.64366865	+0.58980645
e	0.2630196	Incl.	5.77120	+0.36721449	+0.32104716
P	3.87	B(1,0)	15.0		

Residuals in seconds of arc

690115	095	0.0	0.3+	810307	809	0.1+	0.1-	810310	809	0.8+	0.3-
810301	809	1.9-	0.1+	810307	809	0.2+	0.1-	810310	809	0.1+	0.2-
810301	809	1.7-	0.1+	810307	809	0.1-	0.3-	810310	809	0.2+	0.7-
810301	809	1.5-	0.4+	810308	809	0.5-	0.6-	810310	809	0.3-	0.9-
810302	809	0.3-	0.6+	810308	809	0.1+	0.8-	810310	809	0.3-	0.7-
810302	809	0.2-	0.7+	810308	809	0.7+	1.2-	830813	688	1.3+	2.2+
810302	809	0.4-	0.9+	810309	809	0.6+	1.0-	830902	688	3.0+	0.7-
810303	809	0.6-	1.2+	810309	809	0.9+	1.0-	830902	688	0.7+	0.7-
810303	809	0.5-	0.8+	810309	809	0.4+	0.9-	830904	688	2.0+	0.4-
810303	809	0.1-	0.5+	810309	809	0.3-	0.6-	830904	688	2.2+	1.1-
810304	809	0.0	1.6+	810309	809	0.0	0.2-	830906	688	1.0+	1.1-
810304	809	0.2+	1.2+	810309	809	0.0	0.1+	830906	688	0.4+	1.2-
810304	809	0.4+	0.6+	810309	809	0.1-	0.3+	830910	688	1.7-	1.1-
810306	809	1.2-	0.3+	810309	809	0.4+	0.1+	830910	688	3.2-	1.3-
810306	809	0.7-	0.3+	810309	809	0.7+	0.1-	830912	688	2.1-	0.6-
810306	809	0.3-	0.3+	810310	809	1.4+	0.5-	830912	688	3.0-	1.1-

1982 BL1 = 1977 TS6

The identification is by L. D. Schmadel.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	290.53757		(1950.0)	P	Q
n	0.30359534	Peri.	29.66291	-0.92235685	-0.37956414
a	2.1925029	Node	127.85310	+0.33404888	-0.87720111
e	0.0534722	Incl.	5.23438	+0.19408552	-0.29402257
P	3.25	B(1,0)	14.5		

Residuals in seconds of arc

771008	095	0.1+	0.1-	820216	046	2.6-	1.0+	820228	688	0.6+	1.8-
820124	688	1.7-	1.3-	820216	046	1.2-	2.9+	820321	688	1.3+	0.3-
820124	688	1.3+	2.4-	820219	046	1.1-	0.8+	820321	688	1.2+	0.5-
820130	688	2.6+	1.0-	820219	046	4.8-	2.9+	830813	688	0.4-	0.3-
820130	688	2.4+	2.6-	820220	688	0.9+	1.9-	830813	688	1.0+	2.7-
820214	046	1.7-	1.8+	820220	688	2.4+	2.0-				
820214	046	0.9-	1.2+	820228	688	1.2+	0.1-				

1983 NR = 1979 OH14

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	114.31761		(1950.0)	P	Q
n	0.24078412	Peri.	351.89487	+0.57021256	+0.79794507
a	2.5588904	Node	312.61112	-0.73800374	+0.39314725
e	0.1293564	Incl.	15.38852	-0.36084361	+0.45685764
P	4.09	B(1,0)	14.0		

Residuals in seconds of arc

790719	095	1.6+	2.6-	830711	688	0.9+	0.4+	830813	688	0.1-	0.3-
790730	095	1.5-	2.0+	830713	688	0.3+	0.3-	830813	688	0.0	0.0
830711	688	1.3+	0.3+	830713	688	3.1-	0.6+				

1983 RJ = 1979 HF3 = 1980 YG

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	132.04586		(1950.0)	P	Q
n	0.30076043	Peri.	296.29967	+0.94005525	+0.32825880
a	2.2062588	Node	44.70102	-0.24674111	+0.84178894
e	0.1959642	Incl.	7.55023	-0.23540378	+0.42852949
P	3.28	B(1,0)	14.5		

Residuals in seconds of arc

790425	095	0.2-	0.8-		830914	688	0.3+	0.4-		831009	688	1.7+	1.1-
790430	095	0.3+	1.3+		830917	026	0.1-	1.2+		831012	688	0.4-	2.3-
801231	688	0.9-	0.0		830928	026	0.9+	0.4+		831012	688	0.9-	1.4-
801231	688	0.4+	1.1+		831002	026	0.5+	1.4+		831013	026	0.7-	0.7-
830908	026	0.9-	0.6+		831003	026	1.1+	1.5+					
830914	688	1.2-	0.8-		831004	026	1.0-	0.7+					

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ORBITAL ELEMENTS BY T. URATA, NIHONDAIRA OBSERVATORY, SHIMIZU, JAPAN.

The following orbital elements are from NOC 1449-1453. The identifications are by T. Urata unless otherwise stated.

(2957)* 1934 CB1 = 1935 FM = 1937 TM = 1952 OD = 1957 MB = 1958 TM1 = 1978 LO = 1983 LA

Discovered 1934 Feb. 5 by K. Reinmuth at Heidelberg. The key identifications 1934 CB1 = 1978 LO = 1983 LA are by T. Furuta (JAM 1479).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	47.72960		(1950.0)	P	Q
n	0.18779656	Peri.	57.07688	+0.58738644	+0.79677527
a	3.0200280	Node	249.53951	-0.78384541	+0.51647413
e	0.0887902	Incl.	8.70922	-0.20140394	+0.31369354
P	5.25	B(1,0)	11.5		

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

340205	024	1.6+	5.4+		581007	690	(10.9+ | 4.6+)		830601	882	0.2+	3.5+ Y
340210	024	0.6-	0.5+		581008	690	0.2+	0.6-		830608	372	1.9+	0.5- Y
340214	024	1.1-	4.3-		581010	690	0.7-	0.1+		830610	372	3.8+	3.1- Y
350328	078	(12.7- | 26.5+)X		581011	690	1.4+	1.3- Y		830610	372	4.1+	5.8- Y
371008	094	(0.05- | 0.00+)X		780609	095	2.8-	3.2-		830614	889	5.2-	1.5+ Y
520722	024	0.5-	3.9+		780706	095	0.2+	1.5+		830614	372	3.0-	1.3- Y
570626	760	(55.8- | 10.6-)X		830601	882	0.3+	4.3+ Y					

(2958)* 1981 DG = 1969 VJ = 1972 HM = 1974 WQ = 1976 JA = 1983 RQ

Discovered 1981 Feb. 28 by H. Debehogne and G. de Sanctis at the European Southern Observatory.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	184.76537		(1950.0)	P	Q
n	0.20232268	Peri.	305.73093	-0.44847551	+0.89365482
a	2.8736883	Node	297.61579	-0.81412022	-0.41574570
e	0.0153334	Incl.	1.02404	-0.36888750	-0.16892771
P	4.87	B(1,0)	13.0		

Residuals in seconds of arc

691105	095	0.8-	2.1-		810303	809	0.2-	0.3+		810308	809	1.3+	0.4-
720418	095	0.2-	2.8-		810303	809	0.1+	0.1+		810308	809	1.3+	0.6-
741118	095	1.5+	0.8-		810304	809	0.5-	0.4-		810308	809	1.6+	0.7-
760501	801	1.5+	2.1+		810304	809	0.6-	0.4-		810309	809	0.8-	0.3+
810228	809	1.0-	0.1-		810304	809	0.5-	0.3-		810309	809	0.4-	0.3+
810228	809	0.5-	0.1-		810305	809	0.3+	0.6+		810309	809	0.3-	0.3+
810228	809	0.0	0.2-		810305	809	0.5+	0.4+		830905	046	0.1-	2.6-
810301	809	1.8-	0.7+		810305	809	0.9+	0.4+		830905	046	2.3-	0.0
810301	809	1.4-	0.4+		810306	809	0.7-	0.3+		830907	046	0.9-	1.0+
810301	809	0.9-	0.3+		810306	809	0.5-	0.2+		830907	046	0.0	1.1+
810302	809	0.7+	0.2-		810306	809	0.6-	0.1-		830908	046	1.0+	1.8+
810302	809	0.7+	0.2-		810307	809	0.8+	0.0		830908	046	1.5+	0.7+
810302	809	0.5+	0.3-		810307	809	0.7+	0.1-					
810303	809	0.3-	0.4+		810307	809	0.6+	0.2-					

1979 FJ2 = 1979 HS2 = 1976 YU4 = 1981 VG2

The double designation 1979 FJ2 = 1979 HS2 is by H. Oishi (JAM 1459).

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	272.50047		(1950.0)	P	Q
n	0.17935767	Peri.	192.24109	+0.41205617	+0.90977815
a	3.1140359	Node	102.11013	-0.83154530	+0.39797587
e	0.1586803	Incl.	2.93914	-0.37248104	+0.11797847
P	5.50	B(1,0)	12.5		

Residuals in seconds of arc

761218 095	2.1-	0.0	790329 095	1.3-	0.0	811103 033	0.0	0.1-
761220 095	2.1+	0.0	790420 095	0.3+	0.5+	811103 033	0.0	0.1+
790323 095	0.1+	0.2+	790425 095	1.0+	0.6-			

1979 HF5 = 1983 RW

The identification was found independently by C. M. Bardwell.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	204.33888		(1950.0)	P	Q
n	0.29464286	Peri.	73.81529	-0.24014685	+0.97073040
a	2.2366926	Node	182.29798	-0.92031858	-0.22880675
e	0.0988341	Incl.	4.95164	-0.30877694	-0.07300658
P	3.35	B(1,0)	14.5		

Residuals in seconds of arc

790425 095	0.2-	0.5-	790526 095	0.2+	1.4-	830908 046	0.3-	2.6-
790428 095	1.3-	1.3+	830905 046	1.4+	1.7+	830908 046	0.1-	1.3-
790430 095	1.3+	0.6+	830906 046	1.0-	2.4+			

1979 RZ = 1979 TN = 1958 TN = 1969 UN2 = 1974 SC4 = 1978 KA

The double designation 1979 RZ = 1979 TN is by T. Furuta (JAM 1459). The identifications 1979 RZ = 1969 UN2 = 1974 SC4 = 1978 KA were found independently by W. Landgraf.

Epoch 1984 Oct. 27.0 ET = JDE 2446000.5 (J-P)

M	344.08743		(1950.0)	P	Q
n	0.18709828	Peri.	132.56901	+0.98049130	+0.13259166
a	3.0275434	Node	220.45380	-0.16395568	+0.95887669
e	0.0950296	Incl.	12.92313	+0.10842205	+0.25094808
P	5.27	B(1,0)	13.0		

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

581013 760(0.07-	0.02-)X		740922 095	0.7-	0.6-	790928 095	0.9+	0.7-
691018 095	0.7-	0.8-	780530 095	0.1-	0.4+	791014 095	0.2+	0.2-
691105 095	1.0+	1.6+	790914 095	0.8-	1.1+			

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ORBITAL ELEMENTS BY W. LANDGRAF, UNIVERSITY OF GOTTINGEN.

The identifications are by W. Landgraf unless otherwise stated.

Periodic Comet Faye

Epoch 1984 June 29.0 ET = JDE 2445880.5

T 1984 July 9.89263 ET

q	1.5935178		(1950.0)	P	Q
n	0.13420077	Peri.	203.83072	+0.73524105	-0.67585407
a	3.7783256	Node	198.98109	+0.64448303	+0.72056610
e	0.5782476	Incl.	9.09238	+0.20991002	+0.15493796
P	7.34				

From 156 observations 1961-1977, mean residual 1".3. Nongravitational parameters A1 = +0.17, A2 = -0.0102.

1981 EH26 = 1978 RC4 = 1978 SP3
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	26.93329	(1950.0)		P	Q
n	0.18263783	Peri.	245.18772	+0.93981874	-0.34036847
a	3.0766321	Node	134.69559	+0.32666652	+0.86951492
e	0.2764224	Incl.	2.40534	+0.10014849	+0.35790096
P	5.40	B(1,0)	14.0		

Residuals in seconds of arc

780903	095	0.6+	0.6+	810306	413	1.5+	0.5-	810405 413 (6.0- 3.4+)
780927	095	0.5-	1.2-	810311	413	0.3+	0.3-	810406 413 1.3+ 0.3-
810302	413	0.8-	0.6-	810315	413	2.2-	1.2+	810407 413 0.3+ 0.2-
810302	413	0.8+	1.1-	810315	413	1.1-	0.8+	810410 413 0.2- 0.3+

1981 EO27 = 1972 NJ
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	320.48789	(1950.0)		P	Q
n	0.31379693	Peri.	107.81773	+0.43793467	+0.89885366
a	2.1447182	Node	188.21313	-0.86251625	+0.41488236
e	0.2020447	Incl.	6.66994	-0.25353292	+0.14119036
P	3.14	B(1,0)	16.0		

Residuals in seconds of arc

720713	095	0.1-	0.7-	810311	413	1.0-	0.2-	810406 413 2.5+ 1.4-
720716	095	0.1+	0.7+	810311	413	0.4-	0.7-	810407 413 0.0 0.3+
810302	413	0.1-	1.3+	810315	413	0.5-	0.4-	810407 413 0.9+ 1.0-
810302	413	0.3+	0.7+	810405	413	0.5-	0.2-	810410 413 1.4- 1.1+
810306	413	1.3-	0.3+	810405	413	(4.4+	3.9-)	
810306	413	2.3+	1.3-	810406	413	0.8-	1.5+	

1981 EB28 = 1978 NV
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	323.86856	(1950.0)		P	Q
n	0.28450682	Peri.	109.64230	-0.37568408	+0.92642688
a	2.2895014	Node	138.26508	-0.86337108	-0.34030734
e	0.1641712	Incl.	2.09945	-0.33682614	-0.16100979
P	3.46	B(1,0)	15.5		

Residuals in seconds of arc

780707	675	0.5-	0.3-	810306	413	1.4+	0.3-	810405 413 (2.6+ 1.1-)
780710	675	0.1-	0.6-	810311	413	0.5-	0.2-	810406 413 0.0 0.2+
780713	675	0.6+	0.8+	810311	413	0.1-	0.7+	810407 413 0.6- 0.6+
810302	413	0.2+	0.8-	810315	413	0.4-	0.3-	810407 413 (4.0- 1.5-)
810302	413	(1.7+	1.3-)	810315	413	0.3-	0.6+	810410 413 0.2+ 0.1+
810306	413	0.7-	0.2-	810405	413	0.1-	0.1-	810410 413 0.9+ 0.3-

1983 AT2 = 1974 TR = 1974 WJ1
Epoch 1984 Oct. 27.0 ET = JDE 2446000.5

M	218.25153	(1950.0)		P	Q
n	0.26352567	Peri.	45.02664	+0.45606284	-0.88930151
a	2.4094659	Node	17.92530	+0.78232737	+0.38246022
e	0.0961331	Incl.	6.32448	+0.42422938	+0.25073293
P	3.74	B(1,0)	15.0		

Residuals in seconds of arc

741012	330	0.7+	0.2-	830111	675	1.4+	0.3+	830211 675 0.7+ 0.4-
741118	330	0.7-	0.1+	830111	675	0.8-	0.0	830211 675 0.2- 0.5-
830110	675	0.7+	1.2-	830112	675	0.2-	0.1-	830215 675 0.7- 0.3+
830110	675	0.3+	0.2-	830112	675	1.2-	1.7+	

ORBITAL ELEMENTS BY S. NAKANO, TOKYO.

The following orbital elements are from NK 425, 427 and 430.

Periodic Comet Wolf-Harrington
Epoch 1984 Sept. 17.0 ET = JDE 2445960.5
T 1984 Sept. 22.72633 ET

		(1950.0)	P	Q
q	1.6158919			
n	0.15081307	Peri.	186.86312	+0.16106133	-0.93879047
a	3.4955060	Node	254.21129	+0.91984065	+0.25461514
e	0.5377230	Incl.	18.44887	+0.35770438	-0.23204220
P	6.54				

From 110 observations 1951-1978, mean residual 1".3. Nongravitational parameters A1 = +0.24, A2 = -0.0488.

Periodic Comet Russell 1 (1979 V)
Epoch 1985 June 24.0 ET = JDE 2446240.5
T 1985 July 5.22419 ET

		(1950.0)	P	Q
q	1.6115404			
n	0.16161469	Peri.	0.39239	-0.63617762	+0.71261885
a	3.3379679	Node	230.13036	-0.70888748	-0.69117471
e	0.5172091	Incl.	22.66268	-0.30455962	+0.12021601
P	6.10				

From 9 observations 1979 Feb. 27-Aug. 14, mean residual 1".3.

Periodic Comet Giclas (1978 XXII)
Epoch 1985 Sept. 12.0 ET = JDE 2446320.5
T 1985 Oct. 1.90946 ET

		(1950.0)	P	Q
q	1.8379142			
n	0.14211369	Peri.	276.31789	+0.87333985	-0.47268661
a	3.6367387	Node	111.94457	+0.48183053	+0.80281774
e	0.4946257	Incl.	7.28792	+0.07153217	+0.36338828
P	6.94				

From 62 observations 1978 Sept. 3-1979 Feb. 23, mean residual 1".5.

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ORBITAL ELEMENTS BY D. K. YEOMANS, JET PROPULSION LABORATORY.

Periodic Comet Giacobini-Zinner
Epoch 1985 Sept. 12.0 ET = JDE 2446320.5
T 1985 Sept. 5.25422 ET

		(1950.0)	P	Q
q	1.0282632			
n	0.14950756	Peri.	172.48996	+0.98711938	-0.08730128
a	3.5158252	Node	194.70591	+0.10494925	+0.98584190
e	0.7075329	Incl.	31.87829	+0.12075176	-0.14315803
P	6.59				

From 82 observations 1965-1978, mean residual 1".2. Nongravitational parameters A1 = -0.16, A2 = -0.0463.

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EPHEMERIDES.

1983 TB a,e,i = 1.32, 0.90, 23 Elements MPC 8278

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 11 02	21 32.49	+36 59.7	0.621	1.354	112.0	42.8	16.6
1983 11 07	21 51.21	+33 01.4					
1983 11 12	22 06.24	+29 49.0	0.793	1.479	111.7	38.5	17.2

1983 11 17	22 18.93	+27 14.0						
1983 11 22	22 30.07	+25 09.0	0.981	1.593	108.0	36.1	17.8	
1983 11 27	22 40.15	+23 28.2						
1983 12 02	22 49.48	+22 07.1	1.181	1.697	102.7	34.5	18.3	
1983 12 07	22 58.28	+21 02.2						
1983 12 12	23 06.69	+20 10.9	1.388	1.792	96.6	33.1	18.7	
1983 12 17	23 14.81	+19 30.9						
1983 12 22	23 22.71	+19 00.5	1.597	1.879	90.2	31.6	19.1	
1983 12 27	23 30.43	+18 38.1						
1984 01 01	23 38.03	+18 22.7	1.807	1.959	83.6	29.9	19.4	
1984 01 06	23 45.54	+18 13.4						
1984 01 11	23 52.97	+18 09.3	2.014	2.033	77.0	28.1	19.7	
1984 01 16	00 00.34	+18 09.8						
1984 01 21	00 07.66	+18 14.3	2.215	2.100	70.4	26.2	19.9	
1984 01 26	00 14.95	+18 22.1						
1984 01 31	00 22.21	+18 33.0	2.408	2.161	63.7	24.1	20.1	
1984 02 05	00 29.45	+18 46.6						
1984 02 10	00 36.68	+19 02.5	2.590	2.216	57.2	22.0	20.3	

1978 CA a,e,i = 1.12, 0.21, 26 Elements MPC 4660

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1983 12 12	10 32.34	-22 13.3	0.874	1.315	-3.23	-18.8	20.4
1983 12 17	10 43.00	-23 10.5					
1983 12 22	10 53.82	-24 02.8	0.783	1.295	-3.82	-21.1	20.2
1983 12 27	11 04.84	-24 49.4					
1984 01 01	11 16.15	-25 29.1	0.690	1.272	-4.60	-23.6	19.9
1984 01 06	11 27.83	-25 59.9					
1984 01 11	11 40.01	-26 19.8	0.595	1.247	-5.63	-26.6	19.5
1984 01 16	11 52.86	-26 26.1					
1984 01 21	12 06.58	-26 15.1	0.500	1.218	-7.02	-30.2	19.1
1984 01 26	12 21.44	-25 42.1					
1984 01 31	12 37.73	-24 39.8	0.407	1.187	-8.90	-34.6	18.6
1984 02 05	12 55.86	-22 58.2					
1984 02 10	13 16.35	-20 23.3	0.319	1.154	-11.46	-39.1	18.0
1984 02 15	13 39.85	-16 36.5					
1984 02 20	14 07.09	-11 14.6	0.245	1.120	-14.74	-36.0	17.4
1984 02 25	14 38.75	-03 56.0					
1984 03 01	15 15.25	+05 21.2	0.198	1.085	-18.12	+13.9	17.0
1984 03 06	15 56.41	+15 51.7					
1984 03 11	16 41.07	+26 02.8	0.194	1.049	-18.58	+145.4	17.1
1984 03 16	17 27.06	+34 27.4					
1984 03 21	18 11.80	+40 32.9	0.231	1.014	-12.08	+215.2	17.7
1984 03 26	18 53.20	+44 34.6					
1984 03 31	19 30.20	+47 03.4	0.288	0.981	-3.71	+201.7	18.2
1984 04 05	20 02.73	+48 27.7					
1984 04 10	20 31.32	+49 08.1	0.351	0.950	+0.27	+172.4	18.6
1984 04 15	20 56.73	+49 18.2					
1984 04 20	21 19.73	+49 06.8	0.411	0.924	+1.22	+149.2	18.9
1984 04 25	21 40.93	+48 40.0					
1984 04 30	22 00.86	+48 01.2	0.467	0.903	+1.03	+132.6	19.2
1984 05 05	22 19.88	+47 12.7					
1984 05 10	22 38.33	+46 15.8	0.514	0.890	+0.51	+120.2	19.3
1984 05 15	22 56.45	+45 11.5					
1984 05 20	23 14.41	+44 00.8	0.554	0.883	-0.03	+109.9	19.4

1982 BB a,e,i = 1.41, 0.35, 21 Elements MPC 6951

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1983 12 12	13 22.48	+03 49.9	1.971	1.741	-0.96	+1.6	19.4
1983 12 22	13 41.77	+03 35.7					

1984 01 01	14 00.11	+03 39.0	1.814	1.797	-0.99	+2.7	19.3
1984 01 11	14 17.32	+04 02.2					
1984 01 21	14 33.18	+04 47.6	1.634	1.842	-1.07	+4.4	19.1
1984 01 31	14 47.43	+05 57.5					
1984 02 10	14 59.65	+07 34.0	1.445	1.874	-1.23	+6.7	18.9
1984 02 20	15 09.42	+09 38.2					
1984 03 01	15 16.20	+12 09.8	1.267	1.896	-1.49	+9.6	18.6
1984 03 11	15 19.35	+15 06.1					
1984 03 21	15 18.33	+18 19.4	1.122	1.905	-1.88	+12.1	18.2
1984 03 31	15 12.68	+21 37.2					
1984 04 10	15 02.41	+24 40.4	1.036	1.903	-2.30	+11.8	17.9
1984 04 20	14 48.30	+27 06.9					
1984 04 30	14 31.97	+28 38.4	1.026	1.890	-2.44	+7.9	17.9
1984 05 10	14 15.64	+29 04.6					
1984 05 20	14 01.48	+28 27.7	1.085	1.865	-2.16	+3.7	18.1
1984 05 30	13 50.92	+26 58.3					
1984 06 09	13 44.58	+24 49.4	1.193	1.828	-1.71	+2.0	18.4
1984 06 19	13 42.40	+22 13.8					
1984 06 29	13 43.97	+19 20.9	1.323	1.780	-1.34	+2.2	18.7
1984 07 09	13 48.84	+16 17.1					
1984 07 19	13 56.51	+13 07.1	1.454	1.720	-1.10	+3.4	18.8
1984 07 29	14 06.61	+09 53.7					
1984 08 08	14 18.87	+06 38.7	1.573	1.649	-0.96	+4.8	18.9
1984 08 18	14 33.07	+03 23.7					
1984 08 28	14 49.09	+00 09.8	1.669	1.567	-0.90	+6.3	18.9
1984 09 07	15 06.89	-03 02.1					
1984 09 17	15 26.47	-06 10.5	1.738	1.474	-0.92	+7.7	18.9
1984 09 27	15 47.90	-09 14.3					
1984 10 07	16 11.28	-12 11.5	1.776	1.373	-1.00	+9.1	18.7

1981 QA a,e,i = 2.15, 0.45, 8 Elements MPC 6950

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1984 02 10	14 42.96	-11 17.0	2.030	2.379	-1.17	+3.8	21.0
1984 02 20	14 52.02	-11 14.9					
1984 03 01	14 59.32	-10 56.9	1.688	2.283	-1.47	+4.6	20.5
1984 03 11	15 04.43	-10 20.8					
1984 03 21	15 06.91	-09 25.0	1.380	2.182	-1.85	+5.6	19.8
1984 03 31	15 06.28	-08 08.4					
1984 04 10	15 02.24	-06 31.3	1.133	2.076	-2.27	+6.5	19.1
1984 04 20	14 54.83	-04 37.5					
1984 04 30	14 44.54	-02 34.9	0.969	1.965	-2.55	+6.4	18.5
1984 05 10	14 32.55	-00 36.1					
1984 05 20	14 20.55	+01 04.4	0.901	1.850	-2.48	+4.3	18.5
1984 05 30	14 10.29	+02 15.0					
1984 06 09	14 03.19	+02 49.0	0.909	1.733	-2.14	+1.8	18.6
1984 06 19	14 00.08	+02 46.4					
1984 06 29	14 01.21	+02 10.4	0.956	1.615	-1.81	+0.5	18.8
1984 07 09	14 06.52	+01 05.5					
1984 07 19	14 15.75	-00 23.0	1.009	1.501	-1.61	+0.6	18.9
1984 07 29	14 28.63	-02 10.8					
1984 08 08	14 44.97	-04 14.1	1.047	1.394	-1.57	+1.5	18.9
1984 08 18	15 04.61	-06 28.9					
1984 08 28	15 27.52	-08 51.2	1.067	1.302	-1.67	+2.8	18.8
1984 09 07	15 53.74	-11 16.4					
1984 09 17	16 23.27	-13 38.6	1.071	1.231	-1.90	+4.0	18.8
1984 09 27	16 56.15	-15 50.9					
1984 10 07	17 32.30	-17 45.0	1.075	1.192	-2.25	+4.3	18.7
1984 10 17	18 11.36	-19 11.8					
1984 10 27	18 52.77	-20 02.6	1.096	1.189	-2.62	+2.6	18.8

Comet IRAS (1983o) Elements MPC 8272

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1983 12 12	14 35.91	-28 57.0	2.990	2.260	35.4	14.6	15.9
1983 12 22	14 42.42	-27 12.0					
1984 01 01	14 47.52	-25 14.2	2.745	2.288	52.7	20.0	15.8
1984 01 11	14 50.87	-22 57.2					
1984 01 21	14 52.08	-20 13.4	2.425	2.337	73.1	23.8	15.6
1984 01 31	14 50.67	-16 53.5					
1984 02 10	14 46.04	-12 46.5	2.079	2.407	97.0	24.0	15.4
1984 02 20	14 37.58	-07 41.6					
1984 03 01	14 24.75	-01 33.2	1.792	2.494	124.8	19.0	15.2
1984 03 11	14 07.28	+05 30.7					
1984 03 21	13 45.61	+12 59.9	1.681	2.597	150.8	10.8	15.3
1984 03 31	13 21.04	+20 06.4					
1984 04 10	12 55.71	+26 05.4	1.824	2.713	145.9	12.0	15.6
1984 04 20	12 32.00	+30 35.6					
1984 04 30	12 11.70	+33 41.3	2.176	2.839	121.8	17.5	16.2
1984 05 10	11 55.72	+35 39.3					
1984 05 20	11 44.12	+36 49.2	2.632	2.974	99.7	19.6	16.8
1984 05 30	11 36.48	+37 26.5					
1984 06 09	11 32.24	+37 42.8	3.112	3.116	80.9	18.8	17.4
1984 06 19	11 30.76	+37 46.1					
1984 06 29	11 31.54	+37 41.7	3.564	3.264	64.8	16.4	17.9
1984 07 09	11 34.11	+37 33.3					
1984 07 19	11 38.12	+37 23.9	3.959	3.415	51.2	13.4	18.3

(2951) 1977 RB8 a,e,i = 3.12, 0.13, 15 Elements MPC 8282

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 11 02	03 16.65	+27 24.3	2.112	3.072	162.2	5.7	15.7
1983 11 12	03 06.85	+27 33.2					
1983 11 22	02 56.84	+27 31.1	2.077	3.046	166.5	4.4	15.5
1983 12 02	02 47.68	+27 20.7					
1983 12 12	02 40.26	+27 06.1	2.156	3.020	145.6	10.6	15.8
1983 12 22	02 35.23	+26 52.2					
1984 01 01	02 32.86	+26 42.8	2.328	2.995	124.3	15.7	16.1
1984 01 11	02 33.21	+26 40.6					
1984 01 21	02 36.15	+26 46.8	2.557	2.970	105.1	18.7	16.3
1984 01 31	02 41.45	+27 01.6					
1984 02 10	02 48.86	+27 24.3	2.808	2.945	88.1	19.6	16.5

(2952) 1979 SF2 a,e,i = 2.31, 0.17, 3 Elements MPC 8282

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 11 02	07 57.54	+24 18.3	1.553	2.008	101.9	28.9	18.6
1983 11 12	08 06.73	+23 57.1					
1983 11 22	08 12.60	+23 43.2	1.373	2.038	118.5	25.2	18.3
1983 12 02	08 14.74	+23 38.5					
1983 12 12	08 12.84	+23 43.5	1.227	2.071	138.6	18.3	17.9
1983 12 22	08 06.98	+23 56.0					
1984 01 01	07 57.74	+24 12.1	1.148	2.106	162.3	8.2	17.6
1984 01 11	07 46.32	+24 26.2					
1984 01 21	07 34.54	+24 33.5	1.166	2.144	171.3	4.0	17.5
1984 01 31	07 24.18	+24 31.9					
1984 02 10	07 16.65	+24 21.8	1.285	2.182	147.4	14.1	18.1
1984 02 20	07 12.70	+24 05.2					
1984 03 01	07 12.44	+23 43.9	1.485	2.221	126.4	21.0	18.6
1984 03 11	07 15.62	+23 18.9					
1984 03 21	07 21.77	+22 50.3	1.735	2.260	108.7	24.7	19.0
1984 03 31	07 30.38	+22 17.8					
1984 04 10	07 40.98	+21 40.6	2.009	2.299	93.5	25.8	19.4

1981 EB28 a,e,i = 2.29, 0.16, 2 Elements MPC 8288

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 11 02	08 11.23	+18 27.7	2.269	2.594	97.6	22.3	19.9
1983 11 12	08 17.38	+18 06.7					
1983 11 22	08 21.16	+17 53.3	1.992	2.573	115.3	20.3	19.5
1983 12 02	08 22.24	+17 49.3					
1983 12 12	08 20.33	+17 56.2	1.751	2.550	135.7	15.6	19.1
1983 12 22	08 15.37	+18 14.3					
1984 01 01	08 07.54	+18 42.4	1.582	2.525	159.2	7.9	18.7
1984 01 11	07 57.49	+19 17.3					
1984 01 21	07 46.32	+19 54.7	1.516	2.498	175.1	1.9	18.3
1984 01 31	07 35.38	+20 30.2					
1984 02 10	07 26.05	+21 00.6	1.564	2.468	150.0	11.5	18.7
1984 02 20	07 19.37	+21 24.2					
1984 03 01	07 15.90	+21 40.7	1.704	2.437	127.5	18.8	19.0
1984 03 11	07 15.79	+21 50.4					
1984 03 21	07 18.88	+21 53.3	1.899	2.404	108.2	23.2	19.3
1984 03 31	07 24.84	+21 49.5					
1984 04 10	07 33.30	+21 38.7	2.116	2.369	91.8	25.0	19.6

1979 FJ2 a,e,i = 3.11, 0.16, 3 Elements MPC 8287

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 12 12	10 34.98	+11 07.0	3.191	3.540	102.7	15.7	18.1
1983 12 22	10 37.32	+11 03.5					
1984 01 01	10 37.83	+11 11.3	2.899	3.525	122.4	13.6	17.9
1984 01 11	10 36.38	+11 30.8					
1984 01 21	10 33.00	+12 01.3	2.664	3.510	144.1	9.5	17.6
1984 01 31	10 27.84	+12 40.9					
1984 02 10	10 21.25	+13 26.7	2.523	3.492	167.4	3.5	17.2
1984 02 20	10 13.79	+14 14.5					
1984 03 01	10 06.14	+14 59.9	2.499	3.474	167.7	3.5	17.2
1984 03 11	09 59.03	+15 38.9					
1984 03 21	09 53.11	+16 08.6	2.593	3.454	144.7	9.6	17.5
1984 03 31	09 48.85	+16 27.4					
1984 04 10	09 46.53	+16 34.9	2.779	3.434	123.4	14.1	17.7
1984 04 20	09 46.22	+16 31.4					
1984 04 30	09 47.86	+16 17.7	3.020	3.412	104.3	16.6	17.9
1984 05 10	09 51.31	+15 54.6					
1984 05 20	09 56.39	+15 23.0	3.283	3.389	87.2	17.4	18.1

1981 EO27 a,e,i = 2.14, 0.20, 7 Elements MPC 8288

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 12 12	11 04.60	+00 20.8	2.273	2.505	91.8	23.1	20.3
1983 12 22	11 11.73	-00 31.0					
1984 01 01	11 16.92	-01 10.6	1.985	2.481	108.6	22.1	20.0
1984 01 11	11 19.84	-01 34.8					
1984 01 21	11 20.19	-01 40.6	1.723	2.454	127.9	18.4	19.6
1984 01 31	11 17.76	-01 25.1					
1984 02 10	11 12.52	-00 46.6	1.517	2.423	150.1	11.7	19.1
1984 02 20	11 04.81	+00 14.3					
1984 03 01	10 55.37	+01 33.5	1.402	2.389	173.4	2.7	18.6
1984 03 11	10 45.33	+03 03.6					
1984 03 21	10 35.99	+04 34.6	1.398	2.353	158.4	9.0	18.8
1984 03 31	10 28.51	+05 57.4					
1984 04 10	10 23.70	+07 04.8	1.492	2.314	135.2	17.8	19.1
1984 04 20	10 21.96	+07 53.1					
1984 04 30	10 23.26	+08 21.3	1.652	2.272	115.2	23.7	19.4
1984 05 10	10 27.43	+08 29.9					
1984 05 20	10 34.13	+08 20.3	1.843	2.228	98.4	26.7	19.7

1981 QJ a,e,i = 3.13, 0.19, 1 Elements MPC 7360

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 27.80	-02 16.4	3.383	3.555	92.0	16.0	19.8
1984	01 11	12 31.48	-02 39.5					
1984	01 21	12 33.50	-02 52.0	3.107	3.577	110.8	14.9	19.6
1984	01 31	12 33.72	-02 53.0					
1984	02 10	12 32.07	-02 42.1	2.867	3.598	131.5	11.8	19.3
1984	02 20	12 28.61	-02 19.9					
1984	03 01	12 23.52	-01 47.6	2.699	3.616	154.0	6.9	19.1
1984	03 11	12 17.16	-01 07.5					
1984	03 21	12 10.09	-00 23.1	2.638	3.634	177.5	0.7	18.6
1984	03 31	12 02.89	+00 21.6					
1984	04 10	11 56.22	+01 02.5	2.697	3.649	158.9	5.7	19.1
1984	04 20	11 50.60	+01 36.2					
1984	04 30	11 46.43	+02 00.4	2.864	3.664	136.7	10.9	19.4
1984	05 10	11 43.92	+02 13.6					
1984	05 20	11 43.16	+02 15.7	3.111	3.676	116.5	14.3	19.6
1984	05 30	11 44.09	+02 07.0					
1984	06 09	11 46.60	+01 48.1	3.401	3.687	98.3	15.8	19.9

(2932) 1980 TK4 a,e,i = 3.63, 0.10, 2 Elements MPC 8211

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	12 55.35	-05 22.8	3.634	4.000	104.8	13.8	19.1
1984	01 31	12 56.73	-05 26.7					
1984	02 10	12 56.50	-05 20.3	3.353	4.000	124.9	11.7	18.9
1984	02 20	12 54.63	-05 03.6					
1984	03 01	12 51.23	-04 37.0	3.135	4.000	146.5	7.9	18.7
1984	03 11	12 46.49	-04 02.1					
1984	03 21	12 40.78	-03 21.3	3.015	3.998	169.4	2.6	18.3
1984	03 31	12 34.57	-02 37.5					
1984	04 10	12 28.37	-01 54.3	3.012	3.996	167.4	3.1	18.4
1984	04 20	12 22.72	-01 15.2					
1984	04 30	12 18.04	-00 43.0	3.125	3.993	145.0	8.3	18.7
1984	05 10	12 14.67	-00 19.9					
1984	05 20	12 12.77	-00 06.9	3.331	3.989	124.3	12.1	18.9
1984	05 30	12 12.42	-00 04.4					
1984	06 09	12 13.59	-00 12.0	3.594	3.985	105.3	14.2	19.1
1984	06 19	12 16.20	-00 29.1					
1984	06 29	12 20.13	-00 54.8	3.883	3.980	88.0	14.8	19.3

1975 XP3 a,e,i = 2.35, 0.13, 3 Elements MPC 7606

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 15.10	-07 22.7	2.065	2.430	99.5	23.5	19.0
1984	01 31	13 20.52	-08 03.4					
1984	02 10	13 23.45	-08 30.2	1.841	2.457	117.5	20.9	18.8
1984	02 20	13 23.63	-08 41.7					
1984	03 01	13 20.92	-08 37.3	1.655	2.483	138.2	15.4	18.4
1984	03 11	13 15.40	-08 17.0					
1984	03 21	13 07.55	-07 42.6	1.543	2.508	161.6	7.2	18.1
1984	03 31	12 58.16	-06 58.2					
1984	04 10	12 48.35	-06 09.4	1.533	2.531	173.6	2.5	17.9
1984	04 20	12 39.29	-05 23.2					
1984	04 30	12 31.94	-04 45.5	1.631	2.552	149.8	11.4	18.4
1984	05 10	12 26.95	-04 20.8					
1984	05 20	12 24.57	-04 11.1	1.816	2.572	128.6	17.9	18.8
1984	05 30	12 24.78	-04 16.6					
1984	06 09	12 27.42	-04 36.6	2.057	2.590	110.2	21.6	19.1
1984	06 19	12 32.19	-05 09.5					
1984	06 29	12 38.82	-05 53.5	2.325	2.606	94.3	22.9	19.4

(2915) 1977 QY2 a,e,i = 2.56, 0.19, 13 Elements MPC 8140

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 21.48	-11 51.6	2.738	3.010	96.4	19.0	19.5
1984	01 31	13 24.91	-12 51.3					
1984	02 10	13 26.26	-13 42.6	2.446	2.998	114.9	17.4	19.2
1984	02 20	13 25.30	-14 24.0					
1984	03 01	13 21.89	-14 54.2	2.196	2.983	135.3	13.5	18.9
1984	03 11	13 16.08	-15 11.3					
1984	03 21	13 08.17	-15 14.6	2.022	2.966	157.4	7.4	18.5
1984	03 31	12 58.76	-15 04.4					
1984	04 10	12 48.71	-14 42.5	1.953	2.947	170.8	3.1	18.3
1984	04 20	12 39.01	-14 13.2					
1984	04 30	12 30.57	-13 41.3	2.000	2.925	151.6	9.4	18.5
1984	05 10	12 24.08	-13 12.2					
1984	05 20	12 19.93	-12 50.4	2.143	2.902	130.3	15.4	18.8
1984	05 30	12 18.24	-12 38.6					
1984	06 09	12 18.97	-12 38.5	2.348	2.876	111.2	19.2	19.1
1984	06 19	12 21.92	-12 50.5					
1984	06 29	12 26.86	-13 14.2	2.583	2.848	94.4	20.8	19.3

(2893) 1975 QD a,e,i = 5.23, 0.08, 15 Elements MPC 8055

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 13.53	+08 36.5	4.888	5.238	105.5	10.4	17.3
1984	01 31	13 14.96	+09 02.3					
1984	02 10	13 15.14	+09 35.1	4.600	5.226	124.8	8.9	17.1
1984	02 20	13 14.07	+10 13.6					
1984	03 01	13 11.81	+10 55.7	4.379	5.214	144.1	6.4	16.9
1984	03 11	13 08.50	+11 39.1					
1984	03 21	13 04.35	+12 20.7	4.256	5.203	159.9	3.8	16.7
1984	03 31	12 59.66	+12 57.9					
1984	04 10	12 54.77	+13 27.9	4.247	5.191	158.3	4.1	16.7
1984	04 20	12 50.06	+13 48.7					
1984	04 30	12 45.84	+13 59.3	4.349	5.179	141.9	6.9	16.9
1984	05 10	12 42.41	+13 59.0					
1984	05 20	12 39.96	+13 48.2	4.543	5.167	123.2	9.4	17.1
1984	05 30	12 38.62	+13 27.7					
1984	06 09	12 38.45	+12 58.4	4.797	5.156	105.1	11.0	17.2
1984	06 19	12 39.43	+12 21.7					
1984	06 29	12 41.52	+11 38.8	5.079	5.144	88.0	11.4	17.3

1982 QQ a,e,i = 1.88, 0.05, 25 Elements MPC 7768

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	12 56.94	-17 34.1	1.553	1.972	99.6	29.5	17.9
1984	01 31	13 06.56	-17 22.4					
1984	02 10	13 13.67	-16 38.3	1.318	1.966	116.4	26.7	17.5
1984	02 20	13 17.85	-15 15.3					
1984	03 01	13 18.71	-13 07.3	1.115	1.959	136.8	20.2	17.0
1984	03 11	13 16.08	-10 10.8					
1984	03 21	13 10.30	-06 29.6	0.980	1.950	161.4	9.4	16.4
1984	03 31	13 02.21	-02 17.7					
1984	04 10	12 53.19	+02 00.4	0.948	1.941	169.0	5.6	16.2
1984	04 20	12 44.88	+05 56.8					
1984	04 30	12 38.64	+09 11.0	1.022	1.930	144.0	17.9	16.7
1984	05 10	12 35.37	+11 33.5					
1984	05 20	12 35.38	+13 05.4	1.172	1.918	122.7	26.3	17.2
1984	05 30	12 38.57	+13 52.9					
1984	06 09	12 44.66	+14 03.7	1.359	1.906	105.9	30.8	17.6
1984	06 19	12 53.23	+13 45.4					
1984	06 29	13 03.91	+13 04.2	1.555	1.893	92.4	32.5	17.9

1975 XY1 a,e,i = 2.39, 0.21, 24 Elements MPC 7940

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 04.08	-35 03.6	1.823	2.081	90.6	28.2	17.0
1984	01 31	13 13.45	-37 07.7					
1984	02 10	13 20.05	-38 54.8	1.659	2.126	104.0	26.8	16.9
1984	02 20	13 23.43	-40 20.6					
1984	03 01	13 23.22	-41 19.5	1.510	2.173	119.2	23.5	16.6
1984	03 11	13 19.36	-41 44.1					
1984	03 21	13 12.34	-41 27.5	1.398	2.221	135.5	18.3	16.4
1984	03 31	13 03.18	-40 24.8					
1984	04 10	12 53.42	-38 36.5	1.352	2.269	148.8	13.2	16.2
1984	04 20	12 44.70	-36 10.7					
1984	04 30	12 38.24	-33 21.6	1.396	2.318	148.9	13.0	16.3
1984	05 10	12 34.75	-30 25.8					
1984	05 20	12 34.39	-27 38.4	1.534	2.367	135.8	17.4	16.7
1984	05 30	12 36.95	-25 09.5					
1984	06 09	12 42.08	-23 04.8	1.746	2.414	119.6	21.5	17.1
1984	06 19	12 49.37	-21 25.5					
1984	06 29	12 58.43	-20 10.6	2.009	2.461	104.0	23.6	17.5

1977 DX8 a,e,i = 2.22, 0.16, 2 Elements MPC 7778

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 19.81	-05 55.0	2.177	2.525	99.0	22.6	18.7
1984	01 31	13 25.11	-06 16.5					
1984	02 10	13 28.04	-06 23.1	1.934	2.542	117.2	20.2	18.4
1984	02 20	13 28.33	-06 14.0					
1984	03 01	13 25.82	-05 48.8	1.731	2.555	138.0	15.0	18.1
1984	03 11	13 20.55	-05 08.4					
1984	03 21	13 12.91	-04 15.8	1.603	2.566	161.4	7.1	17.7
1984	03 31	13 03.63	-03 15.8					
1984	04 10	12 53.75	-02 15.3	1.578	2.575	172.7	2.9	17.5
1984	04 20	12 44.42	-01 21.4					
1984	04 30	12 36.61	-00 40.1	1.663	2.580	149.2	11.5	17.9
1984	05 10	12 31.03	-00 15.0					
1984	05 20	12 28.02	-00 07.4	1.836	2.583	127.7	18.1	18.3
1984	05 30	12 27.59	-00 16.7					
1984	06 09	12 29.62	-00 41.6	2.064	2.582	109.2	21.8	18.6
1984	06 19	12 33.85	-01 20.0					
1984	06 29	12 40.01	-02 09.8	2.316	2.579	93.1	23.2	18.9

1949 GK a,e,i = 2.31, 0.20, 2 Elements MPC 7605

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	12 53.93	-05 59.8	1.500	1.995	104.9	28.5	17.5
1984	01 31	13 04.26	-06 50.9					
1984	02 10	13 12.37	-07 25.0	1.264	1.959	120.5	25.7	17.1
1984	02 20	13 17.83	-07 39.8					
1984	03 01	13 20.21	-07 33.0	1.068	1.927	138.8	19.8	16.5
1984	03 11	13 19.25	-07 03.7					
1984	03 21	13 15.11	-06 13.6	0.932	1.900	160.3	10.2	16.0
1984	03 31	13 08.42	-05 07.7					
1984	04 10	13 00.43	-03 55.4	0.878	1.878	175.0	2.7	15.5
1984	04 20	12 52.76	-02 48.8					
1984	04 30	12 46.87	-01 58.3	0.912	1.863	152.1	14.7	16.0
1984	05 10	12 43.86	-01 31.1					
1984	05 20	12 44.21	-01 29.7	1.017	1.853	132.0	23.9	16.4
1984	05 30	12 47.91	-01 53.0					
1984	06 09	12 54.71	-02 38.1	1.169	1.851	115.7	29.6	16.9
1984	06 19	13 04.20	-03 41.1					
1984	06 29	13 15.98	-04 58.2	1.348	1.855	102.4	32.4	17.2

1978 RS1 a,e,i = 2.24, 0.18, 6 Elements MPC 7607

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 01 21	13 14.99	-05 06.3	1.968	2.354	100.4	24.3	18.9
1984 01 31	13 22.86	-05 22.5					
1984 02 10	13 28.63	-05 21.7	1.689	2.315	117.4	22.2	18.5
1984 02 20	13 31.93	-05 02.1					
1984 03 01	13 32.43	-04 22.7	1.449	2.275	136.9	17.3	18.0
1984 03 11	13 29.91	-03 23.6					
1984 03 21	13 24.52	-02 07.8	1.276	2.234	158.9	9.3	17.5
1984 03 31	13 16.73	-00 41.3					
1984 04 10	13 07.54	+00 46.7	1.197	2.193	171.3	3.9	17.1
1984 04 20	12 58.27	+02 05.1					
1984 04 30	12 50.22	+03 04.9	1.218	2.151	150.0	13.5	17.4
1984 05 10	12 44.48	+03 40.2					
1984 05 20	12 41.69	+03 49.0	1.320	2.109	129.0	21.9	17.7
1984 05 30	12 42.00	+03 32.9					
1984 06 09	12 45.35	+02 54.5	1.471	2.068	111.2	27.2	18.0
1984 06 19	12 51.45	+01 57.3					
1984 06 29	13 00.00	+00 44.8	1.644	2.028	96.5	29.9	18.3

(2850) 1978 TM7 a,e,i = 2.45, 0.05, 8 Elements MPC 7770

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 01 21	13 23.06	+00 41.6	2.060	2.441	100.6	23.3	17.2
1984 01 31	13 29.99	+00 45.4					
1984 02 10	13 34.58	+01 05.9	1.828	2.452	118.0	20.8	16.9
1984 02 20	13 36.57	+01 42.7					
1984 03 01	13 35.73	+02 34.6	1.638	2.462	137.6	15.7	16.6
1984 03 11	13 32.06	+03 37.9					
1984 03 21	13 25.86	+04 46.9	1.521	2.473	158.1	8.6	16.3
1984 03 31	13 17.79	+05 54.0					
1984 04 10	13 08.81	+06 50.7	1.501	2.484	165.4	5.9	16.2
1984 04 20	13 00.10	+07 29.9					
1984 04 30	12 52.66	+07 47.7	1.585	2.494	147.5	12.6	16.5
1984 05 10	12 47.28	+07 42.9					
1984 05 20	12 44.37	+07 17.0	1.753	2.503	127.8	18.6	16.8
1984 05 30	12 43.99	+06 33.0					
1984 06 09	12 46.07	+05 33.9	1.975	2.513	110.2	22.3	17.2
1984 06 19	12 50.35	+04 22.8					
1984 06 29	12 56.58	+03 02.5	2.224	2.522	94.8	23.7	17.5

1974 ST a,e,i = 3.17, 0.23, 2 Elements MPC 7838

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 01 21	13 30.67	-06 45.7	3.018	3.273	96.2	17.4	18.9
1984 01 31	13 35.45	-07 04.7					
1984 02 10	13 38.50	-07 13.0	2.694	3.230	114.5	16.1	18.6
1984 02 20	13 39.64	-07 09.8					
1984 03 01	13 38.73	-06 55.0	2.411	3.187	134.6	12.8	18.2
1984 03 11	13 35.73	-06 28.8					
1984 03 21	13 30.81	-05 52.7	2.202	3.142	156.7	7.2	17.9
1984 03 31	13 24.34	-05 09.3					
1984 04 10	13 16.91	-04 22.5	2.097	3.097	176.5	1.1	17.3
1984 04 20	13 09.28	-03 37.2					
1984 04 30	13 02.22	-02 57.9	2.105	3.052	155.9	7.8	17.7
1984 05 10	12 56.42	-02 28.9					
1984 05 20	12 52.40	-02 12.7	2.213	3.006	134.1	14.0	17.9
1984 05 30	12 50.41	-02 10.5					
1984 06 09	12 50.57	-02 22.4	2.390	2.961	114.7	18.2	18.2
1984 06 19	12 52.81	-02 47.3					
1984 06 29	12 57.00	-03 24.1	2.604	2.916	97.5	20.2	18.4

(2868) 1972 UA a,e,i = 2.81, 0.18, 8 Elements MPC 7831

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 35.84	-03 27.0	2.942	3.201	96.2	17.8	19.8
1984	01 31	13 40.24	-03 22.5					
1984	02 10	13 42.76	-03 05.1	2.679	3.220	114.8	16.1	19.6
1984	02 20	13 43.25	-02 35.1					
1984	03 01	13 41.62	-01 53.2	2.457	3.237	135.3	12.4	19.3
1984	03 11	13 37.93	-01 01.2					
1984	03 21	13 32.42	-00 02.4	2.312	3.253	157.0	6.9	19.0
1984	03 31	13 25.55	+00 58.9					
1984	04 10	13 17.95	+01 57.4	2.275	3.266	170.2	3.0	18.8
1984	04 20	13 10.35	+02 48.0					
1984	04 30	13 03.46	+03 26.8	2.352	3.278	152.4	8.2	19.1
1984	05 10	12 57.87	+03 51.1					
1984	05 20	12 53.96	+04 00.0	2.529	3.288	131.5	13.3	19.4
1984	05 30	12 51.92	+03 54.1					
1984	06 09	12 51.79	+03 34.7	2.773	3.296	112.4	16.5	19.7
1984	06 19	12 53.49	+03 03.4					
1984	06 29	12 56.86	+02 22.2	3.052	3.303	95.2	17.9	19.9

1974 MH a,e,i = 2.28, 0.15, 6 Elements MPC 6294

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 20.07	-09 44.2	1.780	2.143	97.5	27.1	19.0
1984	01 31	13 29.53	-11 15.5					
1984	02 10	13 36.93	-12 38.8	1.521	2.110	112.9	25.5	18.6
1984	02 20	13 41.81	-13 52.7					
1984	03 01	13 43.71	-14 55.7	1.293	2.079	130.6	21.2	18.1
1984	03 11	13 42.26	-15 45.0					
1984	03 21	13 37.37	-16 18.3	1.120	2.049	151.1	13.6	17.6
1984	03 31	13 29.39	-16 33.3					
1984	04 10	13 19.29	-16 29.7	1.026	2.022	171.1	4.4	17.1
1984	04 20	13 08.59	-16 10.7					
1984	04 30	12 58.97	-15 43.0	1.026	1.998	158.5	10.6	17.3
1984	05 10	12 51.88	-15 15.3					
1984	05 20	12 48.19	-14 55.5	1.110	1.977	137.5	20.2	17.7
1984	05 30	12 48.17	-14 48.8					
1984	06 09	12 51.73	-14 57.8	1.251	1.961	119.5	26.8	18.1
1984	06 19	12 58.50	-15 22.5					
1984	06 29	13 08.07	-16 01.4	1.424	1.948	104.7	30.3	18.4

1979 YE9 a,e,i = 2.34, 0.11, 2 Elements MPC 8060

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 27.02	-09 32.9	1.782	2.124	96.0	27.4	17.5
1984	01 31	13 36.40	-10 40.5					
1984	02 10	13 43.42	-11 35.1	1.568	2.140	111.8	25.3	17.2
1984	02 20	13 47.69	-12 15.2					
1984	03 01	13 48.85	-12 39.3	1.381	2.159	130.3	20.5	16.8
1984	03 11	13 46.68	-12 46.0					
1984	03 21	13 41.34	-12 34.9	1.248	2.179	152.0	12.4	16.5
1984	03 31	13 33.38	-12 07.4					
1984	04 10	13 23.84	-11 27.2	1.200	2.200	175.5	2.1	16.0
1984	04 20	13 14.15	-10 41.2					
1984	04 30	13 05.65	-09 57.0	1.252	2.223	159.4	9.2	16.4
1984	05 10	12 59.41	-09 21.9					
1984	05 20	12 56.02	-09 00.8	1.393	2.247	137.6	17.7	16.9
1984	05 30	12 55.61	-08 55.9					
1984	06 09	12 58.07	-09 07.1	1.599	2.271	119.0	23.0	17.3
1984	06 19	13 03.08	-09 33.3					
1984	06 29	13 10.31	-10 12.2	1.841	2.296	103.1	25.5	17.7

1980 GD a,e,i = 2.58, 0.15, 15 Elements MPC 7600

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 47.31	+06 34.6	2.333	2.639	96.9	21.7	17.9
1984	01 31	13 53.85	+06 51.4					
1984	02 10	13 58.16	+07 22.8	2.113	2.670	113.9	19.8	17.7
1984	02 20	13 59.97	+08 07.4					
1984	03 01	13 59.11	+09 02.4	1.930	2.699	132.4	15.7	17.4
1984	03 11	13 55.53	+10 03.5					
1984	03 21	13 49.46	+11 04.3	1.815	2.728	150.7	10.3	17.2
1984	03 31	13 41.41	+11 57.7					
1984	04 10	13 32.20	+12 36.3	1.795	2.755	159.1	7.5	17.1
1984	04 20	13 22.85	+12 54.6					
1984	04 30	13 14.30	+12 50.2	1.881	2.781	147.1	11.4	17.4
1984	05 10	13 07.37	+12 23.4					
1984	05 20	13 02.55	+11 36.7	2.056	2.805	129.0	16.3	17.7
1984	05 30	13 00.03	+10 33.7					
1984	06 09	12 59.82	+09 17.9	2.295	2.829	111.5	19.5	18.0
1984	06 19	13 01.74	+07 52.6					
1984	06 29	13 05.57	+06 20.4	2.566	2.850	95.5	20.8	18.3

1971 UX a,e,i = 2.32, 0.19, 1 Elements MPC 6294

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 46.01	-11 45.2	2.563	2.759	90.8	20.9	20.7
1984	01 31	13 52.43	-12 22.4					
1984	02 10	13 56.91	-12 48.4	2.282	2.756	108.3	19.9	20.5
1984	02 20	13 59.15	-13 02.1					
1984	03 01	13 58.92	-13 02.3	2.028	2.750	127.9	16.5	20.1
1984	03 11	13 56.06	-12 48.0					
1984	03 21	13 50.68	-12 19.0	1.832	2.741	150.0	10.5	19.7
1984	03 31	13 43.12	-11 36.6					
1984	04 10	13 34.06	-10 43.7	1.730	2.729	174.1	2.2	19.3
1984	04 20	13 24.49	-09 45.6					
1984	04 30	13 15.43	-08 48.4	1.741	2.714	161.4	6.8	19.5
1984	05 10	13 07.81	-07 58.3					
1984	05 20	13 02.31	-07 20.3	1.854	2.697	138.5	14.4	19.8
1984	05 30	12 59.25	-06 56.9					
1984	06 09	12 58.72	-06 49.4	2.042	2.677	118.3	19.5	20.1
1984	06 19	13 00.60	-06 57.0					
1984	06 29	13 04.70	-07 18.5	2.269	2.654	100.7	22.1	20.4

1978 VG6 a,e,i = 5.26, 0.13, 2 Elements MPC 7662

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 45.14	-13 23.2	5.308	5.406	90.5	10.5	19.0
1984	01 31	13 47.48	-13 41.1					
1984	02 10	13 48.66	-13 52.8	4.973	5.388	109.8	9.9	18.9
1984	02 20	13 48.63	-13 57.7					
1984	03 01	13 47.39	-13 55.8	4.677	5.370	130.2	8.1	18.7
1984	03 11	13 44.98	-13 46.8					
1984	03 21	13 41.55	-13 31.4	4.454	5.351	151.5	5.1	18.5
1984	03 31	13 37.31	-13 10.2					
1984	04 10	13 32.56	-12 44.6	4.337	5.333	173.1	1.3	18.1
1984	04 20	13 27.63	-12 16.3					
1984	04 30	13 22.87	-11 47.4	4.339	5.314	163.9	3.0	18.3
1984	05 10	13 18.61	-11 19.9					
1984	05 20	13 15.12	-10 55.7	4.455	5.296	142.7	6.7	18.5
1984	05 30	13 12.61	-10 36.5					
1984	06 09	13 11.21	-10 23.4	4.662	5.277	122.5	9.3	18.7
1984	06 19	13 10.97	-10 16.9					
1984	06 29	13 11.90	-10 17.4	4.927	5.258	103.5	10.8	18.8

(2906) Caltech a,e,i = 3.16, 0.12, 31 Elements MPC 8062

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 55.42	+25 04.1	3.168	3.492	101.0	16.1	16.6
1984	01 31	14 00.08	+26 07.5					
1984	02 10	14 02.76	+27 21.4	2.957	3.501	115.8	14.7	16.4
1984	02 20	14 03.26	+28 42.3					
1984	03 01	14 01.47	+30 05.3	2.797	3.509	129.3	12.6	16.2
1984	03 11	13 57.39	+31 24.1					
1984	03 21	13 51.26	+32 31.6	2.710	3.516	138.2	10.9	16.1
1984	03 31	13 43.52	+33 21.2					
1984	04 10	13 34.83	+33 47.3	2.712	3.522	138.1	10.9	16.2
1984	04 20	13 25.98	+33 46.9					
1984	04 30	13 17.74	+33 19.7	2.802	3.527	129.2	12.8	16.3
1984	05 10	13 10.77	+32 27.5					
1984	05 20	13 05.53	+31 14.2	2.967	3.530	116.0	14.9	16.4
1984	05 30	13 02.21	+29 44.1					
1984	06 09	13 00.87	+28 01.4	3.183	3.533	101.8	16.3	16.6
1984	06 19	13 01.42	+26 09.9					
1984	06 29	13 03.69	+24 12.7	3.426	3.534	87.7	16.7	16.8

(2918) 1980 TU4 a,e,i = 3.16, 0.16, 2 Elements MPC 8141

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 43.34	-08 45.7	3.122	3.315	92.5	17.3	19.0
1984	01 31	13 48.62	-09 07.4					
1984	02 10	13 52.24	-09 19.0	2.807	3.286	110.6	16.3	18.7
1984	02 20	13 54.01	-09 19.7					
1984	03 01	13 53.78	-09 09.1	2.526	3.257	130.4	13.4	18.4
1984	03 11	13 51.49	-08 47.3					
1984	03 21	13 47.25	-08 15.2	2.313	3.227	152.1	8.3	18.0
1984	03 31	13 41.37	-07 34.8					
1984	04 10	13 34.35	-06 49.3	2.198	3.197	174.7	1.7	17.6
1984	04 20	13 26.91	-06 03.0					
1984	04 30	13 19.77	-05 20.3	2.197	3.166	160.9	6.0	17.8
1984	05 10	13 13.65	-04 45.6					
1984	05 20	13 09.07	-04 21.9	2.302	3.135	138.8	12.3	18.1
1984	05 30	13 06.37	-04 11.0					
1984	06 09	13 05.69	-04 13.4	2.484	3.104	118.9	16.6	18.3
1984	06 19	13 07.03	-04 28.5					
1984	06 29	13 10.28	-04 55.3	2.710	3.072	101.1	18.9	18.5

1982 SA a,e,i = 1.93, 0.11, 22 Elements MPC 7841

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 56.28	-18 54.5	1.951	2.123	86.0	27.5	18.2
1984	01 31	14 05.34	-21 30.0					
1984	02 10	14 12.28	-24 06.4	1.710	2.129	100.8	27.1	17.9
1984	02 20	14 16.57	-26 43.5					
1984	03 01	14 17.58	-29 19.7	1.488	2.131	117.2	24.4	17.6
1984	03 11	14 14.65	-31 51.0					
1984	03 21	14 07.31	-34 10.8	1.309	2.131	134.7	19.4	17.2
1984	03 31	13 55.48	-36 08.7					
1984	04 10	13 39.88	-37 33.0	1.203	2.129	149.6	13.8	16.9
1984	04 20	13 22.28	-38 15.1					
1984	04 30	13 05.06	-38 14.1	1.189	2.123	150.1	13.7	16.8
1984	05 10	12 50.56	-37 38.5					
1984	05 20	12 40.32	-36 43.1	1.264	2.115	136.3	19.3	17.1
1984	05 30	12 34.86	-35 42.6					
1984	06 09	12 34.07	-34 48.3	1.403	2.104	120.1	24.7	17.4
1984	06 19	12 37.42	-34 07.1					
1984	06 29	12 44.33	-33 41.6	1.577	2.091	105.4	28.0	17.7

(2792) 1977 EY1 a,e,i = 2.28, 0.13, 9 Elements MPC 7456

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 49.41	-08 35.3	2.022	2.267	91.2	25.7	18.4
1984	01 31	13 57.71	-09 45.4					
1984	02 10	14 03.72	-10 45.5	1.799	2.297	107.4	24.2	18.1
1984	02 20	14 07.07	-11 35.0					
1984	03 01	14 07.42	-12 13.1	1.598	2.325	126.2	20.1	17.8
1984	03 11	14 04.52	-12 38.8					
1984	03 21	13 58.44	-12 51.6	1.448	2.353	148.0	12.9	17.5
1984	03 31	13 49.60	-12 51.6					
1984	04 10	13 38.89	-12 40.3	1.384	2.380	172.0	3.4	17.1
1984	04 20	13 27.63	-12 21.7					
1984	04 30	13 17.13	-12 00.8	1.425	2.406	162.6	7.2	17.3
1984	05 10	13 08.57	-11 43.5					
1984	05 20	13 02.68	-11 34.6	1.566	2.430	140.0	15.5	17.8
1984	05 30	12 59.73	-11 36.8					
1984	06 09	12 59.69	-11 51.3	1.778	2.453	120.3	20.9	18.2
1984	06 19	13 02.32	-12 18.1					
1984	06 29	13 07.31	-12 55.9	2.031	2.474	103.4	23.6	18.5

1978 TU7 a,e,i = 2.38, 0.23, 9 Elements MPC 7608

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 54.55	-01 57.9	2.698	2.909	92.3	19.8	19.9
1984	01 31	14 00.26	-02 02.2					
1984	02 10	14 04.04	-01 54.0	2.426	2.916	110.1	18.5	19.7
1984	02 20	14 05.64	-01 33.1					
1984	03 01	14 04.85	-01 00.3	2.185	2.920	129.8	15.1	19.4
1984	03 11	14 01.57	-00 17.1					
1984	03 21	13 55.94	+00 33.3	2.009	2.921	151.1	9.5	19.1
1984	03 31	13 48.31	+01 26.7					
1984	04 10	13 39.33	+02 17.4	1.931	2.918	168.0	4.1	18.8
1984	04 20	13 29.87	+02 59.7					
1984	04 30	13 20.84	+03 28.9	1.966	2.913	155.4	8.3	19.0
1984	05 10	13 13.09	+03 41.9					
1984	05 20	13 07.23	+03 37.8	2.104	2.904	134.5	14.4	19.3
1984	05 30	13 03.55	+03 17.4					
1984	06 09	13 02.18	+02 42.3	2.312	2.892	115.1	18.5	19.6
1984	06 19	13 03.03	+01 54.6					
1984	06 29	13 05.92	+00 56.6	2.557	2.877	97.8	20.5	19.8

(2822) Sacajawea a,e,i = 2.58, 0.13, 15 Elements MPC 7598

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 45.35	+07 30.0	2.067	2.406	97.7	23.9	17.5
1984	01 31	13 53.77	+07 53.2					
1984	02 10	13 59.87	+08 32.9	1.860	2.431	113.7	21.8	17.3
1984	02 20	14 03.35	+09 27.5					
1984	03 01	14 03.95	+10 34.0	1.688	2.457	131.3	17.6	17.0
1984	03 11	14 01.55	+11 47.3					
1984	03 21	13 56.34	+12 59.7	1.580	2.484	148.4	12.1	16.7
1984	03 31	13 48.81	+14 02.7					
1984	04 10	13 39.82	+14 47.2	1.560	2.511	156.5	9.1	16.7
1984	04 20	13 30.50	+15 06.7					
1984	04 30	13 21.93	+14 58.6	1.639	2.539	146.2	12.7	16.9
1984	05 10	13 15.05	+14 23.5					
1984	05 20	13 10.43	+13 25.2	1.803	2.566	129.3	17.8	17.2
1984	05 30	13 08.27	+12 08.5					
1984	06 09	13 08.57	+10 37.8	2.027	2.594	112.7	21.2	17.6
1984	06 19	13 11.14	+08 57.3					
1984	06 29	13 15.72	+07 10.1	2.287	2.621	97.5	22.6	17.9

(2851) 1978 UQ2 a,e,i = 2.48, 0.13, 9 Elements MPC 7770

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 52.48	-04 26.6	2.377	2.603	91.9	22.2	18.0
1984	01 31	13 59.39	-04 57.8					
1984	02 10	14 04.19	-05 17.4	2.133	2.627	109.1	20.8	17.7
1984	02 20	14 06.62	-05 25.1					
1984	03 01	14 06.42	-05 21.2	1.916	2.649	128.5	17.0	17.4
1984	03 11	14 03.48	-05 06.3					
1984	03 21	13 57.90	-04 42.6	1.759	2.670	150.3	10.7	17.1
1984	03 31	13 50.10	-04 12.9					
1984	04 10	13 40.81	-03 41.7	1.693	2.689	172.0	3.0	16.8
1984	04 20	13 31.03	-03 14.0					
1984	04 30	13 21.81	-02 54.3	1.739	2.707	159.9	7.3	17.0
1984	05 10	13 14.07	-02 46.3					
1984	05 20	13 08.43	-02 51.8	1.886	2.724	138.0	14.4	17.4
1984	05 30	13 05.20	-03 11.0					
1984	06 09	13 04.44	-03 43.1	2.106	2.738	118.4	19.0	17.7
1984	06 19	13 06.00	-04 26.7					
1984	06 29	13 09.67	-05 20.1	2.368	2.751	101.1	21.3	18.1

1964 VE a,e,i = 2.34, 0.28, 25 Elements MPC 7459

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 53.79	-21 40.0	2.679	2.783	85.6	20.6	20.3
1984	01 31	14 00.45	-21 57.6					
1984	02 10	14 05.06	-22 01.5	2.427	2.819	103.1	19.9	20.1
1984	02 20	14 07.35	-21 49.5					
1984	03 01	14 07.14	-21 19.5	2.191	2.853	122.9	17.0	19.9
1984	03 11	14 04.34	-20 29.5					
1984	03 21	13 59.10	-19 18.2	2.009	2.883	145.1	11.4	19.6
1984	03 31	13 51.83	-17 46.7					
1984	04 10	13 43.22	-15 58.2	1.919	2.909	169.0	3.8	19.2
1984	04 20	13 34.19	-13 59.5					
1984	04 30	13 25.67	-11 59.1	1.948	2.932	164.6	5.2	19.4
1984	05 10	13 18.48	-10 05.7					
1984	05 20	13 13.20	-08 26.5	2.091	2.951	141.4	12.4	19.7
1984	05 30	13 10.10	-07 05.5					
1984	06 09	13 09.24	-06 04.3	2.320	2.966	120.4	17.2	20.1
1984	06 19	13 10.52	-05 22.6					
1984	06 29	13 13.75	-04 58.5	2.596	2.978	101.9	19.5	20.4

(2908) 1981 WA a,e,i = 2.98, 0.16, 13 Elements MPC 8063

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 52.15	-20 23.5	3.346	3.428	86.4	16.6	18.7
1984	01 31	13 57.45	-20 58.2					
1984	02 10	14 01.06	-21 23.5	3.055	3.433	104.2	16.2	18.5
1984	02 20	14 02.80	-21 38.2					
1984	03 01	14 02.53	-21 40.7	2.786	3.436	123.7	13.9	18.2
1984	03 11	14 00.21	-21 29.5					
1984	03 21	13 55.97	-21 03.7	2.575	3.437	144.8	9.6	18.0
1984	03 31	13 50.09	-20 23.0					
1984	04 10	13 43.10	-19 28.6	2.456	3.437	166.2	4.0	17.7
1984	04 20	13 35.65	-18 23.8					
1984	04 30	13 28.45	-17 12.8	2.451	3.436	165.5	4.2	17.7
1984	05 10	13 22.17	-16 01.1					
1984	05 20	13 17.33	-14 53.9	2.560	3.433	144.3	9.9	17.9
1984	05 30	13 14.23	-13 55.4					
1984	06 09	13 13.02	-13 08.3	2.758	3.428	123.8	14.2	18.2
1984	06 19	13 13.71	-12 33.9					
1984	06 29	13 16.19	-12 12.4	3.012	3.422	105.2	16.7	18.4

(2888) 1982 TO a,e,i = 2.26, 0.13, 8 Elements MPC 7940

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 53.45	-14 01.5	2.177	2.363	88.3	24.6	18.6
1984	01 31	14 01.78	-15 19.8					
1984	02 10	14 07.97	-16 29.1	1.943	2.389	104.5	23.6	18.4
1984	02 20	14 11.66	-17 28.5					
1984	03 01	14 12.50	-18 16.6	1.728	2.414	122.9	20.2	18.1
1984	03 11	14 10.23	-18 51.4					
1984	03 21	14 04.84	-19 10.9	1.560	2.437	144.0	13.9	17.7
1984	03 31	13 56.65	-19 13.3					
1984	04 10	13 46.45	-18 58.3	1.474	2.459	166.2	5.6	17.4
1984	04 20	13 35.41	-18 28.5					
1984	04 30	13 24.85	-17 49.0	1.493	2.478	164.5	6.2	17.5
1984	05 10	13 15.97	-17 06.9					
1984	05 20	13 09.59	-16 29.1	1.614	2.496	142.8	14.2	17.9
1984	05 30	13 06.07	-16 00.9					
1984	06 09	13 05.46	-15 45.3	1.811	2.511	122.9	19.8	18.2
1984	06 19	13 07.57	-15 43.6					
1984	06 29	13 12.10	-15 55.1	2.054	2.525	105.6	22.8	18.6

1944 BA a,e,i = 2.67, 0.19, 19 Elements MPC 7661

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 55.17	+10 10.5	2.411	2.703	96.3	21.2	17.6
1984	01 31	14 02.36	+10 57.3					
1984	02 10	14 07.39	+11 59.9	2.206	2.742	112.6	19.4	17.4
1984	02 20	14 10.01	+13 16.3					
1984	03 01	14 10.03	+14 42.9	2.040	2.780	129.7	15.9	17.1
1984	03 11	14 07.39	+16 14.0					
1984	03 21	14 02.26	+17 42.0	1.941	2.817	145.2	11.7	17.0
1984	03 31	13 55.09	+18 58.6					
1984	04 10	13 46.59	+19 55.6	1.934	2.852	151.1	9.8	16.9
1984	04 20	13 37.71	+20 27.0					
1984	04 30	13 29.37	+20 30.6	2.025	2.887	142.1	12.4	17.1
1984	05 10	13 22.38	+20 07.0					
1984	05 20	13 17.28	+19 19.5	2.202	2.919	126.5	16.2	17.4
1984	05 30	13 14.32	+18 12.7					
1984	06 09	13 13.57	+16 51.1	2.439	2.951	110.4	18.8	17.7
1984	06 19	13 14.88	+15 18.9					
1984	06 29	13 18.09	+13 39.3	2.710	2.980	95.3	19.9	18.0

1981 WE a,e,i = 2.60, 0.19, 13 Elements MPC 7449

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 53.80	-17 30.3	2.800	2.920	87.1	19.7	18.9
1984	01 31	14 01.25	-18 02.3					
1984	02 10	14 07.01	-18 23.1	2.489	2.892	104.0	19.3	18.6
1984	02 20	14 10.82	-18 31.1					
1984	03 01	14 12.43	-18 24.6	2.199	2.861	122.9	16.9	18.3
1984	03 11	14 11.63	-18 01.8					
1984	03 21	14 08.41	-17 21.3	1.961	2.829	144.0	11.9	17.9
1984	03 31	14 02.95	-16 22.9					
1984	04 10	13 55.74	-15 08.3	1.809	2.795	167.3	4.5	17.5
1984	04 20	13 47.54	-13 41.9					
1984	04 30	13 39.28	-12 10.1	1.767	2.760	167.9	4.4	17.4
1984	05 10	13 31.92	-10 40.7					
1984	05 20	13 26.22	-09 20.9	1.833	2.723	144.7	12.4	17.7
1984	05 30	13 22.69	-08 16.0					
1984	06 09	13 21.56	-07 28.9	1.984	2.685	123.8	18.3	18.0
1984	06 19	13 22.84	-07 00.2					
1984	06 29	13 26.40	-06 48.8	2.185	2.646	105.5	21.7	18.2

1980 RT2 a,e,i = 3.49, 0.07, 3 Elements MPC 7149

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 17.10	-17 13.0	3.347	3.683	102.2	15.2	18.3
1984	02 20	14 19.27	-17 33.3					
1984	03 01	14 19.61	-17 44.6	3.075	3.691	121.6	13.2	18.1
1984	03 11	14 18.08	-17 46.2					
1984	03 21	14 14.74	-17 37.7	2.857	3.698	142.6	9.4	17.8
1984	03 31	14 09.80	-17 19.3					
1984	04 10	14 03.64	-16 51.8	2.729	3.705	164.7	4.1	17.6
1984	04 20	13 56.81	-16 17.3					
1984	04 30	13 49.90	-15 38.6	2.713	3.711	170.8	2.5	17.4
1984	05 10	13 43.54	-14 59.2					
1984	05 20	13 38.24	-14 22.8	2.812	3.717	149.1	8.0	17.8
1984	05 30	13 34.38	-13 52.2					
1984	06 09	13 32.18	-13 29.8	3.006	3.722	128.3	12.4	18.0
1984	06 19	13 31.72	-13 16.8					
1984	06 29	13 32.96	-13 13.5	3.263	3.726	109.4	14.9	18.3
1984	07 09	13 35.82	-13 19.6					
1984	07 19	13 40.15	-13 34.5	3.552	3.730	92.1	15.8	18.5

(2837) 1971 TJ2 a,e,i = 2.90, 0.06, 3 Elements MPC 7660

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 18.96	-11 26.6	2.644	3.033	103.7	18.4	17.9
1984	02 20	14 22.23	-11 40.5					
1984	03 01	14 23.37	-11 43.9	2.389	3.041	122.7	15.9	17.7
1984	03 11	14 22.21	-11 36.6					
1984	03 21	14 18.80	-11 19.1	2.187	3.048	143.8	11.1	17.4
1984	03 31	14 13.33	-10 52.5					
1984	04 10	14 06.26	-10 18.9	2.071	3.055	166.7	4.3	17.0
1984	04 20	13 58.28	-09 41.7					
1984	04 30	13 50.19	-09 05.1	2.065	3.061	169.3	3.5	17.0
1984	05 10	13 42.80	-08 33.3					
1984	05 20	13 36.82	-08 09.9	2.169	3.066	146.7	10.4	17.4
1984	05 30	13 32.66	-07 57.2					
1984	06 09	13 30.58	-07 56.5	2.362	3.070	126.0	15.5	17.7
1984	06 19	13 30.61	-08 07.7					
1984	06 29	13 32.66	-08 30.1	2.610	3.074	107.6	18.4	17.9
1984	07 09	13 36.59	-09 02.5					
1984	07 19	13 42.19	-09 43.4	2.884	3.077	91.2	19.3	18.2

1983 BF a,e,i = 3.23, 0.15, 1 Elements MPC 8016

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1984	02 10	14 16.97	-12 05.6	2.616	3.010	-0.79	+4.1	17.9
1984	02 20	14 20.45	-12 16.8					
1984	03 01	14 21.78	-12 17.0	2.383	3.037	-0.87	+4.5	17.7
1984	03 11	14 20.84	-12 05.8					
1984	03 21	14 17.70	-11 44.0	2.204	3.066	-0.96	+5.0	17.4
1984	03 31	14 12.59	-11 12.8					
1984	04 10	14 06.00	-10 34.6	2.111	3.095	-1.02	+5.5	17.1
1984	04 20	13 58.61	-09 53.2					
1984	04 30	13 51.19	-09 12.6	2.128	3.124	-1.01	+5.6	17.1
1984	05 10	13 44.51	-08 37.1					
1984	05 20	13 39.19	-08 10.2	2.254	3.153	-0.94	+5.4	17.5
1984	05 30	13 35.61	-07 54.2					
1984	06 09	13 33.99	-07 50.1	2.469	3.182	-0.84	+4.9	17.8
1984	06 19	13 34.35	-07 57.7					
1984	06 29	13 36.58	-08 16.2	2.742	3.212	-0.75	+4.3	18.1
1984	07 09	13 40.56	-08 44.4					
1984	07 19	13 46.09	-09 20.8	3.043	3.241	-0.67	+3.8	18.4

(2870) 1981 LD a,e,i = 2.39, 0.21, 4 Elements MPC 7832

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 22.80	-09 27.6	2.488	2.881	103.4	19.5	18.7
1984	02 20	14 26.25	-09 32.2					
1984	03 01	14 27.43	-09 25.4	2.214	2.870	122.4	17.0	18.4
1984	03 11	14 26.15	-09 07.0					
1984	03 21	14 22.35	-08 37.7	1.992	2.855	143.6	11.9	18.0
1984	03 31	14 16.20	-07 59.1					
1984	04 10	14 08.13	-07 14.0	1.855	2.838	166.4	4.8	17.7
1984	04 20	13 58.90	-06 27.1					
1984	04 30	13 49.41	-05 43.2	1.827	2.818	167.0	4.6	17.6
1984	05 10	13 40.65	-05 07.5					
1984	05 20	13 33.45	-04 43.9	1.909	2.795	144.4	12.2	17.9
1984	05 30	13 28.34	-04 34.6					
1984	06 09	13 25.62	-04 40.3	2.076	2.770	123.6	17.8	18.2
1984	06 19	13 25.32	-05 00.3					
1984	06 29	13 27.33	-05 33.1	2.292	2.741	105.3	21.0	18.5
1984	07 09	13 31.47	-06 17.2					
1984	07 19	13 37.51	-07 10.6	2.527	2.710	89.2	22.0	18.7

(2845) 1981 OF a,e,i = 2.26, 0.16, 6 Elements MPC 7665

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 05.65	-07 05.2	1.695	2.211	108.2	25.1	17.9
1984	02 20	14 13.11	-06 59.6					
1984	03 01	14 18.10	-06 36.2	1.444	2.174	125.3	21.8	17.5
1984	03 11	14 20.21	-05 54.3					
1984	03 21	14 19.20	-04 55.1	1.242	2.136	145.0	15.5	17.0
1984	03 31	14 15.05	-03 41.8					
1984	04 10	14 08.17	-02 20.8	1.115	2.100	165.3	7.0	16.5
1984	04 20	13 59.50	-01 01.5					
1984	04 30	13 50.33	+00 05.7	1.081	2.064	162.6	8.4	16.4
1984	05 10	13 42.11	+00 51.7					
1984	05 20	13 36.07	+01 11.1	1.137	2.031	141.9	17.9	16.7
1984	05 30	13 32.93	+01 03.2					
1984	06 09	13 33.01	+00 29.8	1.257	2.000	122.9	25.2	17.1
1984	06 19	13 36.25	-00 25.3					
1984	06 29	13 42.40	-01 37.9	1.416	1.972	107.2	29.5	17.4
1984	07 09	13 51.17	-03 04.1					
1984	07 19	14 02.23	-04 40.1	1.591	1.947	94.0	31.4	17.7

(2878) 1980 RX a,e,i = 3.04, 0.09, 10 Elements MPC 7837

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 20.73	-24 55.7	2.907	3.208	98.7	17.7	17.8
1984	02 20	14 24.21	-25 54.5					
1984	03 01	14 25.61	-26 45.4	2.624	3.195	116.7	16.1	17.5
1984	03 11	14 24.74	-27 26.5					
1984	03 21	14 21.53	-27 55.4	2.386	3.180	136.2	12.5	17.2
1984	03 31	14 16.13	-28 09.9					
1984	04 10	14 08.92	-28 08.0	2.225	3.165	155.8	7.5	16.9
1984	04 20	14 00.56	-27 49.4					
1984	04 30	13 51.89	-27 15.5	2.166	3.150	164.8	4.8	16.7
1984	05 10	13 43.81	-26 30.2					
1984	05 20	13 37.11	-25 39.0	2.217	3.134	149.8	9.3	16.9
1984	05 30	13 32.33	-24 47.6					
1984	06 09	13 29.79	-24 01.0	2.361	3.117	130.4	14.4	17.2
1984	06 19	13 29.57	-23 23.2					
1984	06 29	13 31.58	-22 56.0	2.570	3.100	112.2	17.7	17.4
1984	07 09	13 35.67	-22 40.4					
1984	07 19	13 41.63	-22 36.2	2.813	3.083	95.6	19.1	17.6

1982 XA a,e,i = 2.27, 0.14, 5 Elements MPC 7829

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1984	02 10	14 25.20	-16 43.7	2.113	2.490	-1.02	+3.5	18.1
1984	02 20	14 30.62	-17 05.1					
1984	03 01	14 33.50	-17 12.8	1.879	2.509	-1.17	+3.9	17.8
1984	03 11	14 33.56	-17 05.4					
1984	03 21	14 30.72	-16 42.1	1.686	2.526	-1.34	+4.7	17.5
1984	03 31	14 25.09	-16 02.7					
1984	04 10	14 17.17	-15 08.4	1.567	2.541	-1.47	+5.7	17.1
1984	04 20	14 07.83	-14 03.3					
1984	04 30	13 58.16	-12 53.2	1.552	2.554	-1.46	+6.2	16.9
1984	05 10	13 49.33	-11 45.5					
1984	05 20	13 42.27	-10 47.2	1.644	2.565	-1.33	+5.9	17.4
1984	05 30	13 37.58	-10 03.0					
1984	06 09	13 35.51	-09 35.4	1.823	2.573	-1.16	+5.2	17.8
1984	06 19	13 36.04	-09 24.7					
1984	06 29	13 38.99	-09 29.6	2.055	2.578	-1.00	+4.3	18.1
1984	07 09	13 44.13	-09 48.4					
1984	07 19	13 51.17	-10 18.8	2.313	2.581	-0.88	+3.6	18.4

(2825) 1938 SD1 a,e,i = 2.25, 0.17, 4 Elements MPC 7603

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 34.30	-18 24.3	2.233	2.563	97.9	22.4	18.3
1984	02 20	14 39.50	-19 07.2					
1984	03 01	14 42.23	-19 39.7	1.991	2.582	115.9	20.2	18.0
1984	03 11	14 42.18	-20 00.4					
1984	03 21	14 39.19	-20 08.0	1.786	2.599	136.3	15.4	17.7
1984	03 31	14 33.34	-20 01.0					
1984	04 10	14 25.03	-19 38.6	1.652	2.612	158.9	7.9	17.3
1984	04 20	14 15.08	-19 02.3					
1984	04 30	14 04.56	-18 15.3	1.620	2.623	173.3	2.6	17.1
1984	05 10	13 54.68	-17 23.3					
1984	05 20	13 46.48	-16 33.2	1.697	2.631	151.5	10.6	17.5
1984	05 30	13 40.62	-15 50.5					
1984	06 09	13 37.45	-15 19.7	1.865	2.636	130.1	17.1	17.9
1984	06 19	13 36.99	-15 02.6					
1984	06 29	13 39.06	-14 59.5	2.091	2.638	111.4	21.0	18.2
1984	07 09	13 43.46	-15 09.6					
1984	07 19	13 49.87	-15 31.3	2.346	2.636	95.0	22.6	18.5

1981 WV1 a,e,i = 2.88, 0.05, 1 Elements MPC 6818

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 33.39	-16 15.4	2.684	2.999	98.8	19.0	18.5
1984	02 20	14 38.08	-16 43.1					
1984	03 01	14 40.71	-17 01.3	2.408	2.992	117.1	17.2	18.2
1984	03 11	14 41.06	-17 09.2					
1984	03 21	14 39.06	-17 06.2	2.175	2.985	137.4	13.1	17.9
1984	03 31	14 34.76	-16 52.2					
1984	04 10	14 28.48	-16 27.4	2.017	2.977	159.7	6.7	17.5
1984	04 20	14 20.81	-15 53.7					
1984	04 30	14 12.53	-15 14.1	1.963	2.969	176.2	1.3	17.1
1984	05 10	14 04.52	-14 33.0					
1984	05 20	13 57.62	-13 55.0	2.020	2.961	153.5	8.8	17.6
1984	05 30	13 52.43	-13 24.3					
1984	06 09	13 49.36	-13 03.8	2.173	2.952	132.1	14.8	17.9
1984	06 19	13 48.54	-12 55.1					
1984	06 29	13 49.93	-12 58.3	2.390	2.943	113.2	18.5	18.2
1984	07 09	13 53.41	-13 12.9					
1984	07 19	13 58.79	-13 37.8	2.641	2.933	96.4	20.1	18.4

1977 DK3 a,e,i = 2.22, 0.11, 5 Elements MPC 7606

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 02 10	14 32.57	-09 48.7	1.776	2.190	101.0	26.3	18.6
1984 02 20	14 40.27	-09 55.4					
1984 03 01	14 45.28	-09 46.8	1.570	2.216	118.0	23.2	18.2
1984 03 11	14 47.25	-09 23.1					
1984 03 21	14 45.96	-08 45.1	1.401	2.242	137.9	17.3	17.9
1984 03 31	14 41.45	-07 55.2					
1984 04 10	14 34.12	-06 57.5	1.300	2.268	159.9	8.7	17.5
1984 04 20	14 24.87	-05 58.3					
1984 04 30	14 14.88	-05 04.9	1.294	2.292	169.9	4.4	17.4
1984 05 10	14 05.50	-04 24.1					
1984 05 20	13 57.89	-04 00.8	1.388	2.316	149.3	12.9	17.8
1984 05 30	13 52.74	-03 56.8					
1984 06 09	13 50.42	-04 11.7	1.563	2.339	129.0	19.7	18.3
1984 06 19	13 50.90	-04 43.4					
1984 06 29	13 53.98	-05 28.9	1.791	2.360	111.4	23.7	18.7
1984 07 09	13 59.40	-06 25.7					
1984 07 19	14 06.84	-07 30.9	2.047	2.380	96.1	25.1	19.0

1972 KE a,e,i = 2.58, 0.08, 10 Elements MPC 7661

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 02 10	14 35.91	-02 46.4	2.365	2.749	102.2	20.5	18.0
1984 02 20	14 41.30	-02 24.2					
1984 03 01	14 44.51	-01 49.1	2.108	2.740	119.9	18.3	17.7
1984 03 11	14 45.29	-01 02.3					
1984 03 21	14 43.51	-00 06.3	1.898	2.731	139.2	13.8	17.4
1984 03 31	14 39.23	+00 55.1					
1984 04 10	14 32.76	+01 56.7	1.765	2.720	157.9	8.0	17.1
1984 04 20	14 24.74	+02 51.8					
1984 04 30	14 16.02	+03 34.3	1.734	2.709	161.6	6.7	17.0
1984 05 10	14 07.57	+03 59.1					
1984 05 20	14 00.30	+04 03.6	1.806	2.696	144.7	12.5	17.2
1984 05 30	13 54.88	+03 47.7					
1984 06 09	13 51.71	+03 13.1	1.961	2.683	125.7	17.9	17.5
1984 06 19	13 50.93	+02 22.5					
1984 06 29	13 52.47	+01 19.0	2.170	2.669	108.2	21.2	17.8
1984 07 09	13 56.19	+00 05.4					
1984 07 19	14 01.88	-01 15.8	2.404	2.655	92.7	22.5	18.0

(2839) 1929 TP a,e,i = 2.22, 0.15, 5 Elements MPC 7663

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 02 10	14 45.06	-13 33.9	2.169	2.489	97.0	23.2	17.7
1984 02 20	14 51.17	-14 06.1					
1984 03 01	14 54.86	-14 28.1	1.926	2.506	114.6	21.1	17.4
1984 03 11	14 55.80	-14 39.6					
1984 03 21	14 53.78	-14 40.3	1.717	2.520	134.7	16.3	17.1
1984 03 31	14 48.77	-14 30.0					
1984 04 10	14 41.05	-14 09.4	1.576	2.531	157.5	8.7	16.7
1984 04 20	14 31.33	-13 40.7					
1984 04 30	14 20.63	-13 07.2	1.533	2.540	177.7	0.9	16.2
1984 05 10	14 10.19	-12 33.9					
1984 05 20	14 01.15	-12 06.1	1.599	2.546	153.7	10.1	16.8
1984 05 30	13 54.31	-11 48.0					
1984 06 09	13 50.16	-11 42.3	1.757	2.549	131.9	17.3	17.2
1984 06 19	13 48.80	-11 49.9					
1984 06 29	13 50.10	-12 10.4	1.975	2.550	112.9	21.5	17.5
1984 07 09	13 53.86	-12 42.5					
1984 07 19	13 59.78	-13 24.5	2.224	2.548	96.5	23.3	17.8

1981 VB a,e,i = 2.74, 0.08, 6 Elements MPC 7601

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 02 10	14 40.26	-11 02.6	2.552	2.874	98.8	19.8	18.8
1984 02 20	14 45.94	-11 02.2					
1984 03 01	14 49.59	-10 50.0	2.274	2.860	116.8	18.0	18.5
1984 03 11	14 50.96	-10 25.9					
1984 03 21	14 49.93	-09 50.4	2.038	2.846	136.7	13.9	18.1
1984 03 31	14 46.51	-09 04.9					
1984 04 10	14 40.93	-08 11.7	1.877	2.832	158.3	7.5	17.8
1984 04 20	14 33.74	-07 15.1					
1984 04 30	14 25.67	-06 20.0	1.816	2.817	171.7	3.0	17.5
1984 05 10	14 17.64	-05 31.7					
1984 05 20	14 10.52	-04 55.1	1.865	2.801	152.4	9.6	17.8
1984 05 30	14 05.02	-04 33.0					
1984 06 09	14 01.60	-04 26.8	2.006	2.785	131.6	15.8	18.1
1984 06 19	14 00.45	-04 36.3					
1984 06 29	14 01.58	-04 59.8	2.210	2.769	112.9	19.8	18.4
1984 07 09	14 04.89	-05 35.7					
1984 07 19	14 10.19	-06 21.6	2.446	2.753	96.5	21.5	18.6

1981 QF2 a,e,i = 2.46, 0.13, 2 Elements MPC 6711

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 02 10	14 43.07	-13 29.7	2.402	2.712	97.4	21.1	18.6
1984 02 20	14 49.24	-13 48.5					
1984 03 01	14 53.30	-13 56.7	2.120	2.694	115.1	19.5	18.2
1984 03 11	14 54.95	-13 53.6					
1984 03 21	14 53.97	-13 39.3	1.876	2.674	134.9	15.3	17.9
1984 03 31	14 50.32	-13 13.8					
1984 04 10	14 44.17	-12 38.2	1.701	2.653	157.1	8.4	17.5
1984 04 20	14 36.08	-11 55.2					
1984 04 30	14 26.86	-11 08.8	1.624	2.630	176.5	1.3	17.0
1984 05 10	14 17.57	-10 24.1					
1984 05 20	14 09.29	-09 46.6	1.655	2.606	154.6	9.6	17.4
1984 05 30	14 02.83	-09 20.6					
1984 06 09	13 58.76	-09 08.9	1.780	2.581	132.9	16.8	17.7
1984 06 19	13 57.30	-09 12.1					
1984 06 29	13 58.42	-09 29.7	1.967	2.554	113.9	21.3	18.0
1984 07 09	14 02.01	-10 00.2					
1984 07 19	14 07.82	-10 41.8	2.185	2.526	97.4	23.5	18.3

1980 RN1 a,e,i = 3.04, 0.27, 13 Elements MPC 7779

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 02 10	14 47.46	-10 37.0	3.497	3.751	97.2	15.1	19.9
1984 02 20	14 50.81	-10 19.7					
1984 03 01	14 52.48	-09 52.5	3.182	3.728	116.3	13.8	19.7
1984 03 11	14 52.33	-09 15.5					
1984 03 21	14 50.35	-08 29.3	2.914	3.703	136.8	10.6	19.4
1984 03 31	14 46.58	-07 35.3					
1984 04 10	14 41.26	-06 35.9	2.727	3.676	158.1	5.8	19.1
1984 04 20	14 34.78	-05 34.3					
1984 04 30	14 27.66	-04 34.4	2.651	3.647	170.0	2.8	18.9
1984 05 10	14 20.51	-03 40.3					
1984 05 20	14 13.95	-02 55.6	2.692	3.616	151.9	7.6	19.1
1984 05 30	14 08.48	-02 22.6					
1984 06 09	14 04.48	-02 02.7	2.834	3.583	131.1	12.3	19.3
1984 06 19	14 02.18	-01 56.0					
1984 06 29	14 01.64	-02 01.8	3.044	3.548	111.7	15.4	19.5
1984 07 09	14 02.85	-02 18.7					
1984 07 19	14 05.73	-02 45.2	3.288	3.511	94.2	16.8	19.7

1981 PL a,e,i = 2.58, 0.14, 10 Elements MPC 7610

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 48.03	-25 22.4	2.592	2.817	92.7	20.5	17.3
1984	02 20	14 54.11	-26 03.1					
1984	03 01	14 57.98	-26 34.0	2.340	2.838	110.1	19.1	17.1
1984	03 11	14 59.35	-26 53.7					
1984	03 21	14 58.08	-27 00.2	2.118	2.857	129.5	15.6	16.8
1984	03 31	14 54.16	-26 51.5					
1984	04 10	14 47.85	-26 25.8	1.958	2.875	150.8	9.8	16.5
1984	04 20	14 39.74	-25 43.0					
1984	04 30	14 30.68	-24 44.6	1.893	2.891	169.8	3.5	16.2
1984	05 10	14 21.69	-23 34.9					
1984	05 20	14 13.73	-22 20.4	1.940	2.905	158.4	7.4	16.4
1984	05 30	14 07.53	-21 07.8					
1984	06 09	14 03.57	-20 02.9	2.088	2.917	137.3	13.6	16.7
1984	06 19	14 02.01	-19 09.7					
1984	06 29	14 02.79	-18 30.1	2.311	2.927	117.9	17.9	17.1
1984	07 09	14 05.79	-18 04.5					
1984	07 19	14 10.77	-17 52.0	2.575	2.936	100.5	19.9	17.4

(2860) 1978 TA a,e,i = 2.33, 0.22, 23 Elements MPC 7775

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	15 03.62	-38 36.0	2.721	2.824	85.7	20.4	18.9
1984	02 20	15 10.70	-40 33.6					
1984	03 01	15 15.53	-42 29.5	2.469	2.831	101.0	20.1	18.7
1984	03 11	15 17.60	-44 21.8					
1984	03 21	15 16.43	-46 07.4	2.239	2.834	117.1	18.2	18.4
1984	03 31	15 11.66	-47 41.3					
1984	04 10	15 03.17	-48 57.0	2.057	2.835	132.8	15.0	18.2
1984	04 20	14 51.40	-49 46.9					
1984	04 30	14 37.35	-50 04.7	1.951	2.832	144.5	11.9	18.0
1984	05 10	14 22.65	-49 47.5					
1984	05 20	14 09.08	-48 58.2	1.937	2.826	145.0	11.8	18.0
1984	05 30	13 58.10	-47 44.4					
1984	06 09	13 50.60	-46 16.5	2.013	2.817	134.2	15.0	18.1
1984	06 19	13 46.85	-44 45.0					
1984	06 29	13 46.69	-43 18.0	2.163	2.805	119.3	18.4	18.3
1984	07 09	13 49.79	-42 01.0					
1984	07 19	13 55.71	-40 57.0	2.360	2.789	104.2	20.7	18.6

1981 UX9 a,e,i = 3.02, 0.05, 10 Elements MPC 7662

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 54.36	-10 05.4	2.729	2.993	95.8	19.1	18.0
1984	02 20	15 00.43	-09 51.1					
1984	03 01	15 04.57	-09 25.0	2.467	3.003	113.5	17.6	17.8
1984	03 11	15 06.57	-08 47.4					
1984	03 21	15 06.31	-07 59.3	2.244	3.012	133.0	14.0	17.5
1984	03 31	15 03.80	-07 02.6					
1984	04 10	14 59.23	-06 00.2	2.091	3.022	153.6	8.5	17.2
1984	04 20	14 53.06	-04 56.4					
1984	04 30	14 45.89	-03 56.0	2.038	3.031	168.4	3.8	17.0
1984	05 10	14 38.50	-03 04.2					
1984	05 20	14 31.68	-02 25.1	2.094	3.041	154.9	8.1	17.2
1984	05 30	14 26.08	-02 01.0					
1984	06 09	14 22.19	-01 53.1	2.248	3.050	134.8	13.7	17.5
1984	06 19	14 20.24	-02 00.5					
1984	06 29	14 20.32	-02 21.7	2.472	3.059	116.1	17.4	17.8
1984	07 09	14 22.38	-02 54.6					
1984	07 19	14 26.27	-03 36.9	2.736	3.068	99.3	19.1	18.1

(2877) 1969 TR2 a,e,i = 3.10, 0.20, 2 Elements MPC 7837

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 59.81	-14 58.0	2.926	3.138	93.1	18.3	18.7
1984	02 20	15 05.93	-15 20.3					
1984	03 01	15 10.31	-15 34.8	2.608	3.100	110.7	17.4	18.4
1984	03 11	15 12.68	-15 41.2					
1984	03 21	15 12.86	-15 39.2	2.324	3.061	130.0	14.4	18.1
1984	03 31	15 10.76	-15 29.0					
1984	04 10	15 06.43	-15 10.8	2.104	3.021	151.3	9.2	17.7
1984	04 20	15 00.20	-14 45.9					
1984	04 30	14 52.61	-14 16.2	1.978	2.982	174.0	2.0	17.2
1984	05 10	14 44.41	-13 44.8					
1984	05 20	14 36.50	-13 15.4	1.963	2.942	162.1	6.1	17.4
1984	05 30	14 29.68	-12 51.7					
1984	06 09	14 24.59	-12 36.8	2.051	2.903	140.1	13.0	17.7
1984	06 19	14 21.64	-12 32.7					
1984	06 29	14 21.00	-12 40.0	2.215	2.864	120.2	17.9	17.9
1984	07 09	14 22.66	-12 58.6					
1984	07 19	14 26.52	-13 27.3	2.424	2.826	102.7	20.5	18.2

(2912) 1942 DM a,e,i = 2.29, 0.07, 7 Elements MPC 8138

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	14 50.16	-07 08.0	1.763	2.131	97.6	27.3	17.0
1984	02 20	15 00.59	-07 16.1					
1984	03 01	15 08.70	-07 10.3	1.543	2.135	113.0	25.3	16.7
1984	03 11	15 14.05	-06 51.4					
1984	03 21	15 16.30	-06 20.7	1.353	2.141	130.7	20.7	16.3
1984	03 31	15 15.19	-05 40.7					
1984	04 10	15 10.75	-04 55.7	1.218	2.148	150.7	13.2	15.9
1984	04 20	15 03.46	-04 11.4					
1984	04 30	14 54.24	-03 34.6	1.163	2.157	167.2	5.9	15.6
1984	05 10	14 44.39	-03 11.9					
1984	05 20	14 35.35	-03 08.0	1.203	2.167	156.0	10.9	15.8
1984	05 30	14 28.25	-03 24.6					
1984	06 09	14 23.86	-04 01.0	1.329	2.179	136.3	18.8	16.2
1984	06 19	14 22.49	-04 54.4					
1984	06 29	14 24.08	-06 01.4	1.517	2.192	118.5	24.1	16.7
1984	07 09	14 28.43	-07 18.6					
1984	07 19	14 35.24	-08 42.9	1.741	2.206	103.1	26.7	17.0

(2938) 1980 LB a,e,i = 3.14, 0.34, 41 Elements MPC 8275

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	15 17.67	+29 05.0	3.902	4.183	99.7	13.4	18.9
1984	02 20	15 21.10	+30 27.4					
1984	03 01	15 22.74	+31 56.0	3.702	4.174	111.9	12.7	18.7
1984	03 11	15 22.43	+33 26.9					
1984	03 21	15 20.10	+34 55.3	3.551	4.163	121.8	11.7	18.6
1984	03 31	15 15.78	+36 15.7					
1984	04 10	15 09.66	+37 22.5	3.465	4.150	127.3	11.1	18.5
1984	04 20	15 02.13	+38 10.5					
1984	04 30	14 53.70	+38 35.6	3.455	4.134	126.5	11.3	18.5
1984	05 10	14 45.02	+38 35.6					
1984	05 20	14 36.77	+38 10.2	3.520	4.116	119.7	12.3	18.6
1984	05 30	14 29.50	+37 21.3					
1984	06 09	14 23.68	+36 11.6	3.645	4.096	109.4	13.5	18.7
1984	06 19	14 19.54	+34 45.2					
1984	06 29	14 17.19	+33 05.8	3.815	4.074	97.5	14.3	18.8
1984	07 09	14 16.63	+31 17.3					
1984	07 19	14 17.75	+29 22.8	4.007	4.049	85.2	14.5	18.9

(2838) 1971 UM1 a,e,i = 2.34, 0.19, 2 Elements MPC 7660

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	15 08.93	-15 46.5	2.529	2.727	90.8	21.2	19.7
1984	02 20	15 15.69	-16 10.2					
1984	03 01	15 20.36	-16 24.9	2.269	2.744	108.1	20.1	19.4
1984	03 11	15 22.64	-16 30.3					
1984	03 21	15 22.30	-16 26.3	2.035	2.758	127.6	16.6	19.1
1984	03 31	15 19.24	-16 12.8					
1984	04 10	15 13.54	-15 50.1	1.859	2.769	149.5	10.6	18.8
1984	04 20	15 05.62	-15 19.3					
1984	04 30	14 56.19	-14 42.7	1.775	2.777	173.1	2.5	18.4
1984	05 10	14 46.21	-14 03.9					
1984	05 20	14 36.74	-13 27.6	1.802	2.783	162.3	6.4	18.6
1984	05 30	14 28.70	-12 57.8					
1984	06 09	14 22.74	-12 38.1	1.933	2.785	139.7	13.6	19.0
1984	06 19	14 19.22	-12 30.3					
1984	06 29	14 18.20	-12 34.8	2.140	2.785	119.5	18.5	19.3
1984	07 09	14 19.60	-12 51.0					
1984	07 19	14 23.23	-13 17.5	2.389	2.782	101.8	20.9	19.6

6548 P-L a,e,i = 2.64, 0.27, 4 Elements MPC 7663

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	02 10	15 15.70	-15 03.8	2.914	3.067	89.4	18.8	19.7
1984	02 20	15 21.37	-15 10.2					
1984	03 01	15 25.09	-15 07.5	2.662	3.105	107.3	17.7	19.5
1984	03 11	15 26.63	-14 55.8					
1984	03 21	15 25.86	-14 35.1	2.437	3.140	127.2	14.6	19.3
1984	03 31	15 22.77	-14 06.1					
1984	04 10	15 17.50	-13 29.5	2.272	3.173	149.0	9.4	19.0
1984	04 20	15 10.45	-12 47.6					
1984	04 30	15 02.19	-12 02.9	2.204	3.203	171.3	2.7	18.7
1984	05 10	14 53.51	-11 19.0					
1984	05 20	14 45.20	-10 39.9	2.250	3.230	162.7	5.3	18.9
1984	05 30	14 37.98	-10 08.5					
1984	06 09	14 32.39	-09 47.5	2.405	3.255	140.8	11.4	19.2
1984	06 19	14 28.73	-09 37.8					
1984	06 29	14 27.10	-09 39.5	2.641	3.277	120.5	15.5	19.5
1984	07 09	14 27.50	-09 51.7					
1984	07 19	14 29.79	-10 13.4	2.925	3.295	102.4	17.5	19.8

1981 PM a,e,i = 2.25, 0.17, 5 Elements MPC 6287

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1984	02 10	14 40.59	-19 38.8	1.735	2.086	-1.61	+5.0	18.1
1984	02 20	14 53.04	-20 31.8					
1984	03 01	15 03.66	-21 12.3	1.478	2.049	-1.96	+5.2	17.7
1984	03 11	15 11.96	-21 38.8					
1984	03 21	15 17.46	-21 49.8	1.249	2.015	-2.42	+6.0	17.2
1984	03 31	15 19.71	-21 43.5					
1984	04 10	15 18.44	-21 17.9	1.066	1.983	-2.90	+7.7	16.7
1984	04 20	15 13.78	-20 32.3					
1984	04 30	15 06.37	-19 28.0	0.955	1.954	-3.22	+9.8	16.1
1984	05 10	14 57.46	-18 10.0					
1984	05 20	14 48.72	-16 47.5	0.931	1.929	-3.13	+10.6	16.1
1984	05 30	14 41.70	-15 31.1					
1984	06 09	14 37.58	-14 30.3	0.992	1.908	-2.75	+9.3	16.5
1984	06 19	14 36.94	-13 50.3					
1984	06 29	14 39.84	-13 32.4	1.117	1.891	-2.33	+7.2	16.9
1984	07 09	14 46.09	-13 35.1					
1984	07 19	14 55.31	-13 54.9	1.279	1.880	-2.00	+5.3	17.3

1936 XA a,e,i = 2.75, 0.20, 8 Elements MPC 7661

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 31.22	-23 32.0	2.646	3.039	103.9	18.5	18.5
1984	03 11	15 33.96	-23 40.6					
1984	03 21	15 34.32	-23 39.7	2.411	3.070	123.0	15.8	18.2
1984	03 31	15 32.22	-23 28.6					
1984	04 10	15 27.74	-23 06.4	2.229	3.098	144.3	10.9	17.9
1984	04 20	15 21.23	-22 33.0					
1984	04 30	15 13.25	-21 49.4	2.135	3.125	167.0	4.1	17.7
1984	05 10	15 04.58	-20 57.9					
1984	05 20	14 56.12	-20 02.6	2.152	3.150	168.3	3.7	17.7
1984	05 30	14 48.65	-19 08.0					
1984	06 09	14 42.80	-18 18.6	2.280	3.173	146.0	10.3	18.0
1984	06 19	14 38.96	-17 37.9					
1984	06 29	14 37.26	-17 07.7	2.496	3.194	125.3	15.1	18.4
1984	07 09	14 37.71	-16 48.9					
1984	07 19	14 40.16	-16 41.1	2.768	3.213	106.8	17.6	18.7
1984	07 29	14 44.44	-16 43.2					
1984	08 08	14 50.37	-16 53.8	3.065	3.230	90.1	18.3	18.9

1981 PG a,e,i = 2.25, 0.19, 2 Elements MPC 6945

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 20.73	-21 10.6	1.855	2.342	106.8	23.9	18.2
1984	03 11	15 27.00	-21 40.0					
1984	03 21	15 30.63	-21 59.2	1.587	2.301	124.3	21.0	17.8
1984	03 31	15 31.23	-22 06.9					
1984	04 10	15 28.55	-22 01.6	1.367	2.258	144.5	14.9	17.3
1984	04 20	15 22.65	-21 41.9					
1984	04 30	15 14.03	-21 07.2	1.221	2.215	167.2	5.8	16.8
1984	05 10	15 03.70	-20 19.4					
1984	05 20	14 53.13	-19 23.5	1.172	2.171	167.6	5.8	16.6
1984	05 30	14 43.80	-18 26.7					
1984	06 09	14 36.96	-17 37.0	1.217	2.127	144.4	16.1	16.9
1984	06 19	14 33.34	-17 00.4					
1984	06 29	14 33.18	-16 40.2	1.334	2.083	124.3	23.8	17.3
1984	07 09	14 36.43	-16 37.0					
1984	07 19	14 42.82	-16 49.2	1.491	2.041	107.4	28.4	17.6
1984	07 29	14 52.02	-17 14.5					
1984	08 08	15 03.72	-17 49.9	1.665	2.000	93.4	30.4	17.8

(2916) 1978 PW2 a,e,i = 2.23, 0.10, 4 Elements MPC 8140

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 18.33	-23 06.8	1.495	2.018	106.8	28.0	17.5
1984	03 11	15 26.62	-24 03.2					
1984	03 21	15 31.84	-24 48.6	1.298	2.024	123.2	24.3	17.2
1984	03 31	15 33.54	-25 21.6					
1984	04 10	15 31.43	-25 39.8	1.143	2.032	142.6	17.4	16.7
1984	04 20	15 25.70	-25 40.7					
1984	04 30	15 17.04	-25 22.6	1.054	2.042	164.2	7.7	16.3
1984	05 10	15 06.77	-24 46.3					
1984	05 20	14 56.64	-23 57.0	1.055	2.055	167.9	5.9	16.3
1984	05 30	14 48.22	-23 02.7					
1984	06 09	14 42.67	-22 12.3	1.146	2.071	146.7	15.6	16.7
1984	06 19	14 40.55	-21 32.6					
1984	06 29	14 41.88	-21 06.9	1.307	2.088	127.4	22.8	17.2
1984	07 09	14 46.44	-20 56.0					
1984	07 19	14 53.83	-20 58.7	1.515	2.106	111.1	26.7	17.6
1984	07 29	15 03.67	-21 12.5					
1984	08 08	15 15.61	-21 34.8	1.748	2.126	97.1	28.2	18.0

1977 QB1 a,e,i = 2.44, 0.23, 4 Elements MPC 6523

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 27.12	-16 30.2	2.124	2.586	106.5	21.5	18.7
1984	03 11	15 32.36	-16 28.4					
1984	03 21	15 35.18	-16 15.7	1.838	2.540	124.6	18.8	18.3
1984	03 31	15 35.30	-15 51.6					
1984	04 10	15 32.55	-15 16.3	1.604	2.493	145.1	13.3	17.8
1984	04 20	15 27.04	-14 31.0					
1984	04 30	15 19.20	-13 37.8	1.450	2.444	167.5	5.1	17.3
1984	05 10	15 09.87	-12 41.0					
1984	05 20	15 00.21	-11 46.4	1.398	2.394	166.4	5.7	17.2
1984	05 30	14 51.41	-11 00.0					
1984	06 09	14 44.54	-10 27.1	1.446	2.343	143.8	14.8	17.5
1984	06 19	14 40.30	-10 10.6					
1984	06 29	14 38.99	-10 11.3	1.569	2.292	123.5	21.7	17.8
1984	07 09	14 40.67	-10 28.5					
1984	07 19	14 45.19	-10 59.9	1.734	2.241	106.2	25.8	18.0
1984	07 29	14 52.30	-11 42.9					
1984	08 08	15 01.77	-12 34.9	1.917	2.191	91.5	27.6	18.3

1980 OD a,e,i = 3.02, 0.24, 10 Elements MPC 6894

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 34.13	-07 26.6	3.239	3.650	106.7	15.1	19.2
1984	03 11	15 35.91	-06 56.9					
1984	03 21	15 35.83	-06 20.3	2.956	3.631	125.9	12.8	18.9
1984	03 31	15 33.83	-05 38.0					
1984	04 10	15 29.98	-04 52.1	2.735	3.609	145.9	9.0	18.7
1984	04 20	15 24.50	-04 05.5					
1984	04 30	15 17.77	-03 21.4	2.609	3.585	163.3	4.6	18.4
1984	05 10	15 10.34	-02 43.4					
1984	05 20	15 02.84	-02 14.5	2.594	3.560	159.5	5.7	18.4
1984	05 30	14 55.88	-01 57.1					
1984	06 09	14 50.03	-01 52.5	2.688	3.533	140.7	10.5	18.6
1984	06 19	14 45.68	-02 00.6					
1984	06 29	14 43.06	-02 20.7	2.867	3.503	121.2	14.4	18.8
1984	07 09	14 42.28	-02 51.5					
1984	07 19	14 43.31	-03 31.2	3.096	3.473	103.2	16.6	19.0
1984	07 29	14 46.08	-04 18.2					
1984	08 08	14 50.46	-05 10.7	3.346	3.440	86.7	17.1	19.2

(2900) 1972 AR a,e,i = 3.02, 0.11, 10 Elements MPC 8058

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 34.62	-23 28.0	2.583	2.969	103.1	19.0	17.9
1984	03 11	15 38.60	-24 18.9					
1984	03 21	15 40.30	-25 05.4	2.304	2.948	121.3	16.8	17.5
1984	03 31	15 39.49	-25 46.3					
1984	04 10	15 36.08	-26 20.2	2.076	2.927	141.4	12.3	17.2
1984	04 20	15 30.22	-26 45.2					
1984	04 30	15 22.32	-26 59.7	1.930	2.906	162.3	6.1	16.9
1984	05 10	15 13.13	-27 02.6					
1984	05 20	15 03.64	-26 54.9	1.888	2.886	168.0	4.2	16.7
1984	05 30	14 54.88	-26 39.3					
1984	06 09	14 47.75	-26 20.0	1.953	2.866	148.2	10.8	17.0
1984	06 19	14 42.87	-26 01.5					
1984	06 29	14 40.56	-25 47.4	2.104	2.846	128.1	16.3	17.3
1984	07 09	14 40.89	-25 40.5					
1984	07 19	14 43.75	-25 41.8	2.313	2.828	110.1	19.7	17.5
1984	07 29	14 48.94	-25 51.5					
1984	08 08	14 56.26	-26 08.9	2.551	2.810	94.0	21.1	17.8

(2802) Weisell a,e,i = 3.12, 0.11, 10 Elements MPC 7462

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 34.85	-07 32.8	2.360	2.808	106.5	19.8	16.6
1984	03 11	15 39.33	-07 07.4					
1984	03 21	15 41.51	-06 33.6	2.131	2.817	124.5	17.0	16.3
1984	03 31	15 41.26	-05 53.2					
1984	04 10	15 38.59	-05 09.1	1.956	2.827	143.8	12.1	16.0
1984	04 20	15 33.75	-04 24.9					
1984	04 30	15 27.20	-03 44.9	1.865	2.839	161.8	6.4	15.7
1984	05 10	15 19.66	-03 13.7					
1984	05 20	15 11.99	-02 54.9	1.876	2.852	161.1	6.6	15.8
1984	05 30	15 05.02	-02 50.9					
1984	06 09	14 59.47	-03 02.5	1.988	2.866	143.2	12.2	16.1
1984	06 19	14 55.81	-03 28.9					
1984	06 29	14 54.27	-04 08.2	2.181	2.882	124.5	16.9	16.4
1984	07 09	14 54.92	-04 58.3					
1984	07 19	14 57.66	-05 56.6	2.427	2.898	107.4	19.5	16.7
1984	07 29	15 02.33	-07 00.8					
1984	08 08	15 08.77	-08 09.0	2.701	2.916	91.9	20.3	16.9

1979 FH2 a,e,i = 2.74, 0.03, 4 Elements MPC 7608

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 43.89	-17 51.3	2.261	2.655	102.3	21.4	18.4
1984	03 11	15 49.42	-18 14.3					
1984	03 21	15 52.55	-18 30.6	2.013	2.657	120.1	18.9	18.1
1984	03 31	15 53.03	-18 40.2					
1984	04 10	15 50.73	-18 43.2	1.809	2.658	140.3	13.9	17.7
1984	04 20	15 45.77	-18 39.6					
1984	04 30	15 38.56	-18 30.1	1.682	2.660	162.6	6.5	17.4
1984	05 10	15 29.83	-18 15.6					
1984	05 20	15 20.61	-17 58.8	1.655	2.663	173.7	2.4	17.1
1984	05 30	15 11.95	-17 42.6					
1984	06 09	15 04.83	-17 30.4	1.733	2.666	150.8	10.7	17.6
1984	06 19	14 59.90	-17 25.3					
1984	06 29	14 57.50	-17 28.9	1.899	2.669	130.1	16.9	17.9
1984	07 09	14 57.73	-17 42.0					
1984	07 19	15 00.46	-18 03.9	2.124	2.673	111.8	20.7	18.2
1984	07 29	15 05.50	-18 33.7					
1984	08 08	15 12.62	-19 09.9	2.378	2.678	95.8	22.1	18.5

1981 SJ1 a,e,i = 2.78, 0.10, 8 Elements MPC 6646

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 46.90	-13 30.8	2.596	2.972	102.5	19.0	18.4
1984	03 11	15 51.03	-13 10.0					
1984	03 21	15 52.94	-12 40.3	2.347	2.985	121.0	16.6	18.1
1984	03 31	15 52.50	-12 02.4					
1984	04 10	15 49.68	-11 17.9	2.149	2.997	141.3	12.1	17.8
1984	04 20	15 44.68	-10 28.9					
1984	04 30	15 37.91	-09 38.3	2.033	3.008	162.2	5.9	17.5
1984	05 10	15 30.02	-08 50.1					
1984	05 20	15 21.81	-08 08.2	2.023	3.018	166.9	4.4	17.5
1984	05 30	15 14.11	-07 36.0					
1984	06 09	15 07.65	-07 16.1	2.122	3.026	147.3	10.4	17.8
1984	06 19	15 02.95	-07 09.5					
1984	06 29	15 00.29	-07 15.9	2.309	3.033	127.2	15.5	18.1
1984	07 09	14 59.80	-07 34.2					
1984	07 19	15 01.39	-08 02.8	2.553	3.040	109.0	18.4	18.4
1984	07 29	15 04.95	-08 39.5					
1984	08 08	15 10.31	-09 22.6	2.825	3.044	92.6	19.4	18.6

(2805) Kalle a,e,i = 2.69, 0.15, 7 Elements MPC 7463

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 52.34	-19 03.6	2.614	2.954	100.1	19.3	18.4
1984	03 11	15 56.96	-19 29.6					
1984	03 21	15 59.39	-19 50.6	2.326	2.932	118.3	17.4	18.1
1984	03 31	15 59.40	-20 06.5					
1984	04 10	15 56.82	-20 17.0	2.081	2.909	138.5	13.2	17.7
1984	04 20	15 51.72	-20 21.8					
1984	04 30	15 44.40	-20 20.6	1.914	2.885	160.9	6.6	17.3
1984	05 10	15 35.45	-20 13.7					
1984	05 20	15 25.78	-20 02.4	1.849	2.859	175.3	1.7	17.0
1984	05 30	15 16.38	-19 48.9					
1984	06 09	15 08.21	-19 36.6	1.895	2.832	152.1	9.7	17.4
1984	06 19	15 02.02	-19 28.5					
1984	06 29	14 58.23	-19 27.1	2.033	2.804	130.7	15.9	17.6
1984	07 09	14 57.04	-19 34.1					
1984	07 19	14 58.40	-19 49.6	2.233	2.776	111.8	19.9	17.9
1984	07 29	15 02.18	-20 13.3					
1984	08 08	15 08.17	-20 44.2	2.462	2.746	95.2	21.6	18.1

(2841) Puijo a,e,i = 2.25, 0.08, 5 Elements MPC 7664

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 43.17	-13 59.1	1.619	2.083	103.3	27.6	17.3
1984	03 11	15 51.94	-14 14.9					
1984	03 21	15 57.90	-14 21.7	1.414	2.094	119.6	24.4	16.9
1984	03 31	16 00.63	-14 20.3					
1984	04 10	15 59.84	-14 12.2	1.247	2.106	138.7	18.3	16.5
1984	04 20	15 55.53	-13 59.2					
1984	04 30	15 48.09	-13 43.5	1.143	2.120	160.5	9.1	16.1
1984	05 10	15 38.43	-13 28.0					
1984	05 20	15 27.96	-13 16.7	1.128	2.135	172.1	3.7	15.9
1984	05 30	15 18.17	-13 12.9					
1984	06 09	15 10.40	-13 19.7	1.208	2.151	150.7	13.4	16.4
1984	06 19	15 05.48	-13 38.7					
1984	06 29	15 03.77	-14 09.5	1.366	2.169	130.5	20.9	16.8
1984	07 09	15 05.26	-14 51.0					
1984	07 19	15 09.71	-15 41.2	1.576	2.187	113.3	25.3	17.3
1984	07 29	15 16.79	-16 37.6					
1984	08 08	15 26.19	-17 38.0	1.815	2.206	98.5	27.0	17.6

(2895) 1981 AE1 a,e,i = 5.20, 0.05, 27 Elements MPC 8056

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	15 52.84	+09 40.2	5.129	5.462	104.5	10.1	18.0
1984	03 11	15 54.06	+10 27.2					
1984	03 21	15 54.04	+11 16.6	4.883	5.462	120.9	9.0	17.8
1984	03 31	15 52.78	+12 06.0					
1984	04 10	15 50.35	+12 52.9	4.699	5.463	135.9	7.3	17.7
1984	04 20	15 46.91	+13 34.6					
1984	04 30	15 42.66	+14 08.5	4.600	5.463	145.8	5.9	17.6
1984	05 10	15 37.88	+14 32.2					
1984	05 20	15 32.89	+14 44.2	4.601	5.463	145.2	6.1	17.6
1984	05 30	15 28.04	+14 43.7					
1984	06 09	15 23.62	+14 30.6	4.700	5.463	134.8	7.6	17.7
1984	06 19	15 19.92	+14 05.6					
1984	06 29	15 17.12	+13 30.2	4.881	5.463	120.1	9.3	17.8
1984	07 09	15 15.38	+12 45.9					
1984	07 19	15 14.76	+11 54.6	5.120	5.462	104.4	10.4	18.0
1984	07 29	15 15.28	+10 58.0					
1984	08 08	15 16.91	+09 57.8	5.389	5.461	88.7	10.7	18.1

1983 CM1 a,e,i = 2.85, 0.06, 3 Elements MPC 7835

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 03 01	15 53.32	-17 13.8	2.504	2.853	100.3	20.0	17.7
1984 03 11	15 58.84	-17 25.3					
1984 03 21	16 02.17	-17 30.2	2.232	2.840	118.1	18.0	17.4
1984 03 31	16 03.10	-17 28.6					
1984 04 10	16 01.46	-17 21.0	2.003	2.828	138.0	13.7	17.1
1984 04 20	15 57.34	-17 07.9					
1984 04 30	15 51.02	-16 50.1	1.849	2.816	159.9	7.1	16.7
1984 05 10	15 43.07	-16 29.3					
1984 05 20	15 34.37	-16 07.6	1.794	2.804	175.4	1.7	16.4
1984 05 30	15 25.85	-15 48.1					
1984 06 09	15 18.46	-15 33.7	1.847	2.792	153.3	9.4	16.8
1984 06 19	15 12.91	-15 27.1					
1984 06 29	15 09.63	-15 29.6	1.993	2.781	132.3	15.7	17.1
1984 07 09	15 08.82	-15 41.8					
1984 07 19	15 10.46	-16 03.1	2.202	2.769	113.6	19.7	17.4
1984 07 29	15 14.40	-16 32.6					
1984 08 08	15 20.46	-17 08.7	2.444	2.758	97.0	21.4	17.6

1981 QP a,e,i = 2.43, 0.13, 9 Elements MPC 6514

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1984 03 01	15 59.67	-13 12.6	2.148	2.510	-1.05	+6.2	18.4
1984 03 11	16 06.77	-13 28.2					
1984 03 21	16 11.62	-13 38.1	1.874	2.482	-1.24	+7.0	18.0
1984 03 31	16 13.86	-13 43.3					
1984 04 10	16 13.19	-13 45.2	1.637	2.454	-1.46	+8.1	17.6
1984 04 20	16 09.50	-13 45.0					
1984 04 30	16 02.92	-13 44.4	1.465	2.424	-1.65	+9.2	17.2
1984 05 10	15 53.97	-13 44.9					
1984 05 20	15 43.63	-13 48.8	1.386	2.395	-1.72	+10.1	16.7
1984 05 30	15 33.10	-13 58.0					
1984 06 09	15 23.69	-14 14.6	1.411	2.365	-1.62	+10.2	17.1
1984 06 19	15 16.45	-14 40.1					
1984 06 29	15 12.01	-15 15.1	1.523	2.336	-1.42	+9.6	17.4
1984 07 09	15 10.69	-15 59.3					
1984 07 19	15 12.46	-16 51.8	1.695	2.307	-1.24	+8.7	17.7
1984 07 29	15 17.12	-17 50.9					
1984 08 08	15 24.45	-18 54.9	1.898	2.279	-1.11	+7.7	18.0

1983 AT2 a,e,i = 2.41, 0.10, 6 Elements MPC 8288

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 03 01	16 06.10	-23 50.5	2.327	2.623	96.0	22.1	19.4
1984 03 11	16 12.75	-24 34.5					
1984 03 21	16 17.01	-25 14.3	2.072	2.630	113.2	20.4	19.2
1984 03 31	16 18.57	-25 49.5					
1984 04 10	16 17.14	-26 19.3	1.851	2.635	132.6	16.2	18.8
1984 04 20	16 12.67	-26 42.1					
1984 04 30	16 05.37	-26 55.8	1.695	2.639	154.2	9.6	18.5
1984 05 10	15 55.83	-26 58.4					
1984 05 20	15 45.08	-26 49.5	1.633	2.641	173.0	2.7	18.1
1984 05 30	15 34.31	-26 30.6					
1984 06 09	15 24.77	-26 05.4	1.679	2.641	156.5	8.8	18.4
1984 06 19	15 17.41	-25 39.0					
1984 06 29	15 12.76	-25 16.0	1.819	2.640	135.2	15.8	18.8
1984 07 09	15 11.05	-24 59.7					
1984 07 19	15 12.21	-24 52.0	2.026	2.637	116.1	20.2	19.1
1984 07 29	15 16.02	-24 53.1					
1984 08 08	15 22.24	-25 02.3	2.269	2.632	99.4	22.3	19.4

1983 CF a,e,i = 2.23, 0.20, 5 Elements MPC 7781

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	16 06.32	-16 40.1	2.133	2.464	97.3	23.5	17.6
1984	03 11	16 14.26	-16 58.0					
1984	03 21	16 20.02	-17 09.9	1.846	2.427	113.9	22.0	17.3
1984	03 31	16 23.19	-17 16.3					
1984	04 10	16 23.41	-17 17.8	1.591	2.388	132.8	17.9	16.8
1984	04 20	16 20.46	-17 15.2					
1984	04 30	16 14.34	-17 08.8	1.398	2.346	154.3	10.7	16.3
1984	05 10	16 05.41	-16 59.6					
1984	05 20	15 54.60	-16 49.1	1.292	2.303	176.3	1.6	15.7
1984	05 30	15 43.16	-16 39.7					
1984	06 09	15 32.54	-16 34.4	1.289	2.258	156.9	10.2	16.1
1984	06 19	15 24.04	-16 36.7					
1984	06 29	15 18.50	-16 48.8	1.376	2.212	134.7	19.1	16.4
1984	07 09	15 16.33	-17 12.0					
1984	07 19	15 17.58	-17 45.8	1.522	2.166	115.7	25.0	16.7
1984	07 29	15 22.04	-18 28.8					
1984	08 08	15 29.48	-19 19.3	1.698	2.118	99.7	28.2	16.9

1983 CW1 a,e,i = 2.70, 0.02, 11 Elements MPC 7782

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	16 10.58	-33 07.1	2.455	2.698	93.2	21.5	17.6
1984	03 11	16 18.67	-34 07.1					
1984	03 21	16 24.43	-35 02.8	2.203	2.704	109.5	20.3	17.3
1984	03 31	16 27.51	-35 53.4					
1984	04 10	16 27.57	-36 37.0	1.981	2.709	127.4	17.1	17.0
1984	04 20	16 24.50	-37 10.7					
1984	04 30	16 18.40	-37 30.6	1.816	2.714	146.5	11.8	16.7
1984	05 10	16 09.80	-37 32.7					
1984	05 20	15 59.66	-37 14.7	1.737	2.719	162.4	6.5	16.5
1984	05 30	15 49.21	-36 36.9					
1984	06 09	15 39.75	-35 43.1	1.760	2.724	157.1	8.3	16.6
1984	06 19	15 32.34	-34 39.9					
1984	06 29	15 27.60	-33 34.3	1.879	2.728	138.9	14.2	16.9
1984	07 09	15 25.83	-32 32.5					
1984	07 19	15 26.96	-31 38.6	2.073	2.733	120.5	18.7	17.2
1984	07 29	15 30.78	-30 54.3					
1984	08 08	15 37.03	-30 20.2	2.313	2.737	103.7	21.1	17.5

1983 CB a,e,i = 3.20, 0.12, 22 Elements MPC 7835

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	16 13.36	-41 51.8	2.696	2.887	90.9	20.1	16.9
1984	03 11	16 22.27	-43 41.9					
1984	03 21	16 29.04	-45 32.1	2.438	2.874	105.8	19.5	16.7
1984	03 31	16 33.21	-47 21.2					
1984	04 10	16 34.26	-49 06.5	2.212	2.862	121.1	17.4	16.4
1984	04 20	16 31.85	-50 43.9					
1984	04 30	16 25.81	-52 07.4	2.041	2.851	135.7	14.3	16.2
1984	05 10	16 16.43	-53 10.0					
1984	05 20	16 04.65	-53 45.2	1.946	2.842	145.9	11.5	16.0
1984	05 30	15 51.92	-53 49.5					
1984	06 09	15 40.01	-53 23.5	1.940	2.834	145.3	11.8	16.0
1984	06 19	15 30.48	-52 32.8					
1984	06 29	15 24.29	-51 25.4	2.020	2.828	134.7	14.8	16.1
1984	07 09	15 21.87	-50 10.1					
1984	07 19	15 23.14	-48 53.9	2.170	2.824	120.5	18.1	16.4
1984	07 29	15 27.77	-47 41.7					
1984	08 08	15 35.38	-46 36.3	2.369	2.822	106.0	20.2	16.6

1983 AN a,e,i = 2.41, 0.12, 7 Elements MPC 7829

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1984	03 01	16 21.26	-15 49.7	2.370	2.630	-0.87	+4.1	18.0
1984	03 11	16 28.27	-16 00.4					
1984	03 21	16 33.03	-16 05.6	2.119	2.644	-0.99	+4.5	17.7
1984	03 31	16 35.25	-16 06.3					
1984	04 10	16 34.70	-16 03.2	1.897	2.656	-1.14	+5.0	17.4
1984	04 20	16 31.30	-15 57.3					
1984	04 30	16 25.18	-15 49.5	1.737	2.667	-1.28	+5.7	17.1
1984	05 10	16 16.78	-15 40.9					
1984	05 20	16 06.94	-15 33.0	1.668	2.675	-1.34	+6.3	16.7
1984	05 30	15 56.68	-15 27.5					
1984	06 09	15 47.10	-15 26.6	1.707	2.682	-1.29	+6.5	17.0
1984	06 19	15 39.18	-15 32.2					
1984	06 29	15 33.55	-15 45.3	1.845	2.687	-1.15	+6.2	17.3
1984	07 09	15 30.55	-16 06.5					
1984	07 19	15 30.23	-16 35.5	2.055	2.690	-1.00	+5.5	17.7
1984	07 29	15 32.47	-17 11.2					
1984	08 08	15 37.08	-17 52.3	2.305	2.691	-0.89	+4.8	18.0

1983 CY2 a,e,i = 2.99, 0.06, 9 Elements MPC 7829

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1984	03 01	16 22.72	-31 18.1	2.982	3.159	-0.79	+1.4	18.3
1984	03 11	16 29.17	-32 02.2					
1984	03 21	16 33.57	-32 43.1	2.709	3.164	-0.89	+1.2	18.1
1984	03 31	16 35.63	-33 20.2					
1984	04 10	16 35.16	-33 52.1	2.466	3.169	-1.01	+1.3	17.8
1984	04 20	16 32.10	-34 16.8					
1984	04 30	16 26.57	-34 32.0	2.282	3.173	-1.12	+1.7	17.5
1984	05 10	16 18.96	-34 35.0					
1984	05 20	16 10.00	-34 24.3	2.189	3.176	-1.17	+2.5	17.3
1984	05 30	16 00.57	-33 59.9					
1984	06 09	15 51.68	-33 23.9	2.204	3.178	-1.13	+3.1	17.3
1984	06 19	15 44.20	-32 40.6					
1984	06 29	15 38.73	-31 54.5	2.323	3.180	-1.03	+3.3	17.6
1984	07 09	15 35.64	-31 10.2					
1984	07 19	15 35.01	-30 31.0	2.523	3.181	-0.91	+3.1	17.9
1984	07 29	15 36.76	-29 58.8					
1984	08 08	15 40.75	-29 34.3	2.774	3.181	-0.81	+2.5	18.1

(2907) 1975 TT2 a,e,i = 3.01, 0.10, 10 Elements MPC 8063

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	16 20.85	-12 19.3	2.990	3.224	94.6	17.8	17.8
1984	03 11	16 26.45	-11 54.2					
1984	03 21	16 30.19	-11 21.7	2.701	3.211	112.1	16.7	17.6
1984	03 31	16 31.91	-10 42.7					
1984	04 10	16 31.45	-09 58.5	2.449	3.198	131.0	13.7	17.3
1984	04 20	16 28.84	-09 11.1					
1984	04 30	16 24.22	-08 22.8	2.266	3.184	150.8	8.9	17.0
1984	05 10	16 17.93	-07 36.7					
1984	05 20	16 10.55	-06 56.2	2.178	3.169	165.7	4.5	16.7
1984	05 30	16 02.77	-06 24.5					
1984	06 09	15 55.35	-06 04.2	2.199	3.153	155.9	7.6	16.9
1984	06 19	15 48.99	-05 56.7					
1984	06 29	15 44.21	-06 02.1	2.320	3.137	136.5	12.9	17.1
1984	07 09	15 41.37	-06 19.7					
1984	07 19	15 40.60	-06 47.9	2.515	3.120	117.7	16.8	17.4
1984	07 29	15 41.90	-07 24.7					
1984	08 08	15 45.19	-08 08.0	2.753	3.103	100.6	18.7	17.6

1981 WD4 a,e,i = 3.17, 0.13, 5 Elements MPC 7450

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 03 01	16 26.06	-19 10.8	3.175	3.363	92.3	17.1	18.6
1984 03 11	16 31.10	-19 22.0					
1984 03 21	16 34.25	-19 28.9	2.907	3.384	110.3	16.0	18.4
1984 03 31	16 35.33	-19 32.0					
1984 04 10	16 34.25	-19 31.5	2.672	3.404	130.0	13.0	18.2
1984 04 20	16 31.03	-19 27.7					
1984 04 30	16 25.85	-19 20.6	2.504	3.423	151.4	8.1	17.9
1984 05 10	16 19.07	-19 10.8					
1984 05 20	16 11.28	-18 59.1	2.433	3.441	173.9	1.8	17.6
1984 05 30	16 03.17	-18 46.8					
1984 06 09	15 55.47	-18 35.4	2.475	3.458	162.7	5.0	17.8
1984 06 19	15 48.84	-18 26.9					
1984 06 29	15 43.77	-18 22.7	2.625	3.474	140.9	10.6	18.1
1984 07 09	15 40.56	-18 24.1					
1984 07 19	15 39.35	-18 31.4	2.857	3.489	120.9	14.5	18.4
1984 07 29	15 40.12	-18 44.7					
1984 08 08	15 42.78	-19 03.3	3.138	3.503	102.7	16.4	18.7

1983 CX2 a,e,i = 3.09, 0.10, 3 Elements MPC 7836

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 03 01	16 24.61	-23 43.9	3.065	3.252	91.9	17.7	18.4
1984 03 11	16 30.33	-23 59.3					
1984 03 21	16 34.09	-24 10.1	2.794	3.266	109.6	16.7	18.2
1984 03 31	16 35.70	-24 16.1					
1984 04 10	16 35.01	-24 17.1	2.554	3.280	129.1	13.7	17.9
1984 04 20	16 32.04	-24 12.5					
1984 04 30	16 26.95	-24 02.1	2.378	3.293	150.4	8.7	17.7
1984 05 10	16 20.12	-23 45.4					
1984 05 20	16 12.18	-23 23.1	2.298	3.305	172.9	2.2	17.3
1984 05 30	16 03.86	-22 56.5					
1984 06 09	15 55.97	-22 27.9	2.330	3.316	163.6	5.0	17.5
1984 06 19	15 49.25	-22 00.1					
1984 06 29	15 44.20	-21 35.7	2.468	3.326	141.7	10.9	17.8
1984 07 09	15 41.16	-21 17.0					
1984 07 19	15 40.24	-21 05.1	2.689	3.336	121.6	15.0	18.1
1984 07 29	15 41.41	-21 00.4					
1984 08 08	15 44.56	-21 02.4	2.959	3.345	103.5	17.1	18.4

(2813) 1981 WZ a,e,i = 3.14, 0.14, 15 Elements MPC 7465

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 03 01	16 27.52	-22 06.6	3.126	3.303	91.5	17.5	18.0
1984 03 11	16 33.02	-21 52.3					
1984 03 21	16 36.58	-21 31.1	2.861	3.328	109.4	16.4	17.8
1984 03 31	16 38.02	-21 03.0					
1984 04 10	16 37.24	-20 28.1	2.627	3.351	129.2	13.4	17.5
1984 04 20	16 34.30	-19 46.7					
1984 04 30	16 29.38	-18 59.6	2.459	3.373	150.6	8.4	17.3
1984 05 10	16 22.87	-18 08.0					
1984 05 20	16 15.36	-17 14.2	2.389	3.395	172.5	2.2	16.9
1984 05 30	16 07.53	-16 20.9					
1984 06 09	16 00.12	-15 31.3	2.434	3.416	162.5	5.1	17.2
1984 06 19	15 53.77	-14 48.2					
1984 06 29	15 48.95	-14 13.8	2.586	3.435	140.9	10.8	17.5
1984 07 09	15 45.95	-13 49.2					
1984 07 19	15 44.90	-13 34.4	2.821	3.454	120.9	14.6	17.8
1984 07 29	15 45.76	-13 28.8					
1984 08 08	15 48.44	-13 31.2	3.105	3.472	102.7	16.6	18.0

1941 UL a,e,i = 3.15, 0.20, 3 Elements MPC 6894

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	16 28.97	-20 19.5	3.488	3.649	91.4	15.8	18.9
1984	03 11	16 33.71	-20 28.8					
1984	03 21	16 36.73	-20 34.2	3.170	3.627	109.5	15.0	18.6
1984	03 31	16 37.85	-20 36.0					
1984	04 10	16 36.95	-20 34.1	2.885	3.603	129.2	12.4	18.4
1984	04 20	16 34.02	-20 28.6					
1984	04 30	16 29.16	-20 19.5	2.666	3.578	150.6	8.0	18.1
1984	05 10	16 22.68	-20 07.1					
1984	05 20	16 15.07	-19 51.9	2.545	3.552	173.1	2.0	17.7
1984	05 30	16 06.96	-19 35.2					
1984	06 09	15 59.06	-19 18.5	2.538	3.524	163.7	4.6	17.8
1984	06 19	15 52.05	-19 03.8					
1984	06 29	15 46.47	-18 53.0	2.640	3.494	141.7	10.4	18.1
1984	07 09	15 42.70	-18 47.7					
1984	07 19	15 40.92	-18 48.5	2.825	3.464	121.3	14.5	18.3
1984	07 29	15 41.17	-18 55.8					
1984	08 08	15 43.41	-19 09.3	3.061	3.432	102.8	16.7	18.5

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	16 27.62	-15 43.6	2.370	2.607	92.4	22.3	20.0
1984	03 11	16 35.37	-15 30.3					
1984	03 21	16 40.96	-15 09.1	2.107	2.609	109.1	21.1	19.7
1984	03 31	16 44.09	-14 40.4					
1984	04 10	16 44.48	-14 05.3	1.871	2.609	127.9	17.6	19.3
1984	04 20	16 42.01	-13 25.3					
1984	04 30	16 36.74	-12 42.1	1.693	2.606	148.7	11.6	19.0
1984	05 10	16 29.02	-11 58.4					
1984	05 20	16 19.58	-11 17.6	1.602	2.601	168.2	4.6	18.7
1984	05 30	16 09.40	-10 43.4					
1984	06 09	15 59.60	-10 19.3	1.617	2.592	159.5	7.9	18.8
1984	06 19	15 51.24	-10 07.8					
1984	06 29	15 45.05	-10 09.7	1.730	2.581	138.5	15.1	19.1
1984	07 09	15 41.47	-10 24.8					
1984	07 19	15 40.62	-10 51.6	1.916	2.568	119.1	20.2	19.4
1984	07 29	15 42.42	-11 27.8					
1984	08 08	15 46.70	-12 11.3	2.141	2.551	101.9	22.9	19.7

1979 MU2 a,e,i = 3.11, 0.16, 6 Elements MPC 6639

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	16 20.81	-15 43.5	2.763	3.000	94.0	19.2	21.0
1984	03 11	16 27.84	-15 36.5					
1984	03 21	16 33.02	-15 22.7	2.463	2.969	111.0	18.3	20.7
1984	03 31	16 36.12	-15 02.8					
1984	04 10	16 36.92	-14 37.4	2.196	2.939	129.7	15.2	20.4
1984	04 20	16 35.36	-14 07.9					
1984	04 30	16 31.50	-13 35.7	1.992	2.908	150.0	10.0	20.0
1984	05 10	16 25.62	-13 02.9					
1984	05 20	16 18.31	-12 32.1	1.878	2.878	169.3	3.7	19.7
1984	05 30	16 10.31	-12 06.0					
1984	06 09	16 02.53	-11 47.5	1.870	2.850	161.0	6.7	19.8
1984	06 19	15 55.80	-11 38.5					
1984	06 29	15 50.80	-11 40.3	1.963	2.821	140.4	13.3	20.0
1984	07 09	15 47.98	-11 53.0					
1984	07 19	15 47.51	-12 15.8	2.131	2.795	121.1	18.1	20.3
1984	07 29	15 49.42	-12 47.1					
1984	08 08	15 53.62	-13 25.3	2.345	2.769	103.9	20.8	20.5

1978 SA3 a,e,i = 3.98, 0.22, 4 Elements MPC 7453

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 03 01	16 32.92	-25 51.6	4.517	4.619	89.7	12.4	18.9
1984 03 11	16 36.40	-26 07.6					
1984 03 21	16 38.41	-26 21.0	4.186	4.597	108.3	11.9	18.7
1984 03 31	16 38.84	-26 31.6					
1984 04 10	16 37.61	-26 38.9	3.887	4.573	128.1	9.9	18.5
1984 04 20	16 34.78	-26 42.3					
1984 04 30	16 30.45	-26 41.4	3.656	4.549	149.0	6.6	18.2
1984 05 10	16 24.87	-26 35.6					
1984 05 20	16 18.45	-26 25.0	3.524	4.524	170.1	2.2	17.9
1984 05 30	16 11.62	-26 09.8					
1984 06 09	16 04.92	-25 51.3	3.508	4.498	165.5	3.2	18.0
1984 06 19	15 58.85	-25 30.9					
1984 06 29	15 53.80	-25 10.5	3.605	4.471	144.4	7.6	18.2
1984 07 09	15 50.11	-24 51.9					
1984 07 19	15 47.95	-24 36.5	3.793	4.443	124.1	10.9	18.4
1984 07 29	15 47.40	-24 25.2					
1984 08 08	15 48.47	-24 18.7	4.041	4.414	105.1	12.8	18.6

1982 AN a,e,i = 3.16, 0.09, 10 Elements MPC 7840

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 03 01	16 27.57	-12 51.7	3.109	3.310	92.9	17.4	19.0
1984 03 11	16 33.36	-12 29.8					
1984 03 21	16 37.37	-12 01.3	2.814	3.294	110.3	16.5	18.7
1984 03 31	16 39.44	-11 26.9					
1984 04 10	16 39.41	-10 47.7	2.553	3.278	129.1	13.7	18.4
1984 04 20	16 37.28	-10 05.6					
1984 04 30	16 33.15	-09 22.5	2.357	3.262	148.9	9.2	18.1
1984 05 10	16 27.33	-08 41.2					
1984 05 20	16 20.31	-08 04.5	2.255	3.245	165.5	4.5	17.9
1984 05 30	16 12.76	-07 35.2					
1984 06 09	16 05.39	-07 16.0	2.262	3.228	158.4	6.6	18.0
1984 06 19	15 58.92	-07 08.2					
1984 06 29	15 53.88	-07 12.2	2.371	3.210	139.2	11.9	18.2
1984 07 09	15 50.66	-07 27.6					
1984 07 19	15 49.44	-07 53.0	2.559	3.192	120.1	16.0	18.4
1984 07 29	15 50.27	-08 26.6					
1984 08 08	15 53.09	-09 06.8	2.794	3.174	102.7	18.2	18.7

(2872) 1981 RU a,e,i = 2.74, 0.12, 3 Elements MPC 7832

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 03 01	16 30.21	-22 31.8	2.624	2.817	90.8	20.6	18.3
1984 03 11	16 37.67	-22 42.5					
1984 03 21	16 43.01	-22 47.5	2.373	2.840	107.8	19.5	18.1
1984 03 31	16 45.98	-22 47.0					
1984 04 10	16 46.35	-22 41.1	2.148	2.863	126.8	16.3	17.8
1984 04 20	16 44.06	-22 29.6					
1984 04 30	16 39.23	-22 12.5	1.980	2.884	148.0	10.7	17.5
1984 05 10	16 32.22	-21 49.7					
1984 05 20	16 23.73	-21 22.0	1.901	2.905	171.0	3.1	17.2
1984 05 30	16 14.61	-20 51.1					
1984 06 09	16 05.86	-20 19.7	1.931	2.925	165.5	5.0	17.3
1984 06 19	15 58.36	-19 50.9					
1984 06 29	15 52.75	-19 27.5	2.065	2.943	143.2	11.9	17.7
1984 07 09	15 49.42	-19 11.6					
1984 07 19	15 48.49	-19 04.0	2.281	2.961	123.1	16.7	18.0
1984 07 29	15 49.91	-19 04.5					
1984 08 08	15 53.52	-19 12.4	2.546	2.977	105.2	19.2	18.3

1977 QC5 a,e,i = 2.38, 0.20, 4 Elements MPC 7607

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	16 13.97	-18 57.6	2.017	2.325	95.1	25.1	18.4
1984	03 11	16 24.60	-19 27.3					
1984	03 21	16 33.32	-19 51.6	1.733	2.281	110.4	24.2	18.0
1984	03 31	16 39.72	-20 11.3					
1984	04 10	16 43.34	-20 27.3	1.478	2.236	127.7	20.8	17.6
1984	04 20	16 43.84	-20 40.2					
1984	04 30	16 40.97	-20 50.2	1.273	2.192	147.8	14.2	17.1
1984	05 10	16 34.83	-20 57.1					
1984	05 20	16 26.00	-21 00.9	1.145	2.149	170.5	4.4	16.5
1984	05 30	16 15.55	-21 01.5					
1984	06 09	16 05.02	-21 00.7	1.110	2.108	165.5	6.9	16.5
1984	06 19	15 56.00	-21 01.3					
1984	06 29	15 49.69	-21 06.6	1.165	2.069	142.9	17.3	16.8
1984	07 09	15 46.86	-21 19.2					
1984	07 19	15 47.75	-21 40.2	1.287	2.033	123.5	24.6	17.2
1984	07 29	15 52.25	-22 09.1					
1984	08 08	16 00.10	-22 44.5	1.448	2.000	107.4	28.9	17.5

(2876) 6558 P-L a,e,i = 2.60, 0.12, 15 Elements MPC 7834

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	16 36.88	-34 03.5	2.656	2.797	87.7	20.7	19.3
1984	03 11	16 45.36	-35 19.4					
1984	03 21	16 51.69	-36 35.1	2.407	2.815	103.7	20.1	19.1
1984	03 31	16 55.47	-37 50.4					
1984	04 10	16 56.33	-39 04.1	2.179	2.831	121.2	17.6	18.9
1984	04 20	16 54.00	-40 13.5					
1984	04 30	16 48.38	-41 14.5	2.003	2.846	139.6	13.3	18.6
1984	05 10	16 39.72	-42 01.8					
1984	05 20	16 28.76	-42 30.1	1.907	2.860	155.6	8.4	18.4
1984	05 30	16 16.61	-42 36.1					
1984	06 09	16 04.70	-42 19.7	1.912	2.872	156.6	8.1	18.4
1984	06 19	15 54.37	-41 44.9					
1984	06 29	15 46.57	-40 58.0	2.016	2.883	141.5	12.7	18.6
1984	07 09	15 41.85	-40 06.1					
1984	07 19	15 40.33	-39 15.3	2.201	2.892	123.7	17.0	18.9
1984	07 29	15 41.85	-38 29.3					
1984	08 08	15 46.15	-37 50.5	2.438	2.899	106.8	19.6	19.2

(2927) 1981 TM a,e,i = 2.53, 0.17, 17 Elements MPC 8147

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	03 01	16 26.10	-03 20.3	2.375	2.646	94.6	21.9	18.0
1984	03 11	16 34.49	-02 23.4					
1984	03 21	16 40.95	-01 15.3	2.100	2.612	109.8	21.0	17.7
1984	03 31	16 45.19	+00 02.3					
1984	04 10	16 46.95	+01 26.4	1.858	2.577	125.9	18.3	17.3
1984	04 20	16 46.05	+02 52.6					
1984	04 30	16 42.49	+04 15.4	1.673	2.542	141.7	14.2	17.0
1984	05 10	16 36.48	+05 27.5					
1984	05 20	16 28.61	+06 21.4	1.568	2.505	151.7	11.0	16.7
1984	05 30	16 19.69	+06 50.6					
1984	06 09	16 10.78	+06 51.1	1.553	2.469	147.2	12.9	16.7
1984	06 19	16 02.94	+06 22.5					
1984	06 29	15 56.98	+05 27.5	1.624	2.432	132.8	17.9	16.9
1984	07 09	15 53.48	+04 10.8					
1984	07 19	15 52.69	+02 38.1	1.758	2.395	116.9	22.2	17.1
1984	07 29	15 54.60	+00 54.5					
1984	08 08	15 59.14	-00 55.3	1.931	2.359	101.9	24.9	17.4