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

MPC	Line				
5836	11	For	40.7+	read	0.7+
5850	15	For	Soyuz-Apollo	read	Soyuz-Apollo = 1977 OH

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N	Obs.
7		1975 05	14.49670	13 35 42.64	-15 57 40.5	MPC 4040			420
10		1955 06	14.11014	12 25 35.66	-07 35 45.1	MPC 1267			804
20		1974 05	17.84714	14 35 39.41	-14 49 00.0	MPC 5149			073
41		1978 12	07.07153	03 50 45.00	+00 17 36.8	MPC 4687			792
41		1978 12	07.07500	03 50 44.87	+00 17 35.6	MPC 4687			792
41		1978 12	07.07847	03 50 44.57	+00 17 36.2	MPC 4687			792
41		1978 12	07.10347	03 50 43.44	+00 17 33.6	MPC 4687			792
192		1974 11	11.93958	02 56 47.97	+30 28 34.0	MPC 4044			990
364		1979 03	23.95253	11 25 40.14	+14 07 30.9	MPC 4815		1	542
364		1979 03	23.96023	11 25 39.73	+14 07 33.2	MPC 4815		1	542
364		1979 03	23.96552	11 25 39.37	+14 07 33.9	MPC 4815		1	542
364		1979 03	24.95025	11 24 45.47	+14 12 38.8	MPC 4815		1	542
364		1979 03	24.95976	11 24 44.80	+14 12 42.5	MPC 4815		1	542
364		1979 03	24.96613	11 24 44.41	+14 12 43.0	MPC 4815		1	542
1167		1966 03	28.87793	11 49 36.93	-04 57 59.0	MPC 2658			095
1177		1972 09	30.93785	23 24 59.75	+18 08 28.9	MPC 3748			029
1177		1972 10	06.89792	23 21 26.55	+17 27 13.2	MPC 4169			029
1221		1948 04	12.94437	16 18 18.80	+35 07 37.9	MPC 145	14.0		029
1941	SY	1941 09	27.86979	00 37 52.65	+04 39 31.9	MPC 5929		2	062
1961	TD1	1961 10	10.34583	02 18 54.48	-01 52 13.0	MPC 3786			760
1961	TD1	1961 10	10.39375	02 18 52.56	-01 52 39.5	MPC 3786			760
1981	CB	1981 04	25.59618	10 41 38.85	+13 50 48.6	MPC 5996			372
1981	GA *	1981 04	02.69583	12 41 25.08	-02 24 39.3	MPC 5970	16		879

Note 1: observations erroneously designated (423). 2: 1941 SY = (2386).

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DELETED OBSERVATIONS.

The following observations are to be deleted.

Object	Date	UT	R. A. (1950)	Decl.	Reference	N	Obs.
23	1975 07	19.08389	00 33 48.38	-09 32 11.5	MPC 5337		073
2060	1979 11	12.88264	02 35 21.24	+13 34 21.4	MPC 5879		552

2060		1979	11	12.93403	02	35	21.27	+13	34	21.0	MPC 5879 552
A906 YA	*	1906	12	18.81203	01	53	41.27	+04	24	09.0	AN 192 024
1938 GC		1938	05	02.9449	12	41	05.69	+06	44	54.8	TI 12 062
1938 GE		1938	04	08.96	13	13.2		+06	18		RI 1774 062
1938 WL		1938	11	26.0956	03	40	24.69	+23	55	01.7	TI 32 1 062
1940 CL	*	1940	02	02.9820	07	41	32.18	+29	20	44.0	MPC 5801 062
1942 ES		1942	03	14.03	12	10.1		-00	48		RI 2356 062
1955 FP1	*	1955	03	22.90407	10	13	12.13	+17	28	44.3	MPC 1754 020
1955 FQ1	*	1955	03	22.90407	10	18	24.10	+17	57	42.4	MPC 1754 020
1971 UR		1973	02	27.92986	09	00	48.52	+25	56	11.9	MPC 3526 029
1971 UR		1973	02	27.96528	09	00	46.95	+25	56	14.8	MPC 3526 029

Note 1: 1938 WL = (2004).

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IDENTIFICATION CHANGES.

Continuation to MPC 5983.

Object		Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1932 CJ1	*	1932 02	06.01660	11 28.5	+12 41	1019	15	024
1936 QN1	*	1936 08	25.04319	23 42 28.37	-00 27 05.1	1936 RC	14	024
1954 UE3	*	1954 10	27.0	03 11.9	+13 41	555	14.5	020
1954 WA1	*	1954 11	18.9	02 53.7	+12 22	555		020
1954 WA1		1954 11	27.818	02 45.4	+11 55	555		210
1957 YT	*	1957 12	27.32586	06 20 29.09	+29 07 19.5	1957 XC	16.3	760
1957 YT		1957 12	27.36822	06 20 25.74	+29 07 26.5	1957 XC		760
1957 YT		1958 01	11.13126	06 02 28.80	+29 41 12.7	1957 XC	15.9	760
1957 YT		1958 01	11.17500	06 02 25.70	+29 41 18.1	1957 XC		760
1957 YU	*	1957 12	19.54685	02 28 06.40	+12 42 40.6	1957 XF		330
1961 VC1	*	1961 11	10.04793	02 40 24.53	+21 05 38.8	1961 TL1	15.8	760
1961 VC1		1961 11	10.09100	02 40 21.86	+21 05 34.4	1961 TL1		760
1965 VL	*	1965 11	01.33	02 03.6	+09 17	837		760
1965 WY	*	1965 11	20.06040	01 40 51.43	+04 26 00.6	1965 VK		760
1965 WY		1965 11	20.10276	01 40 49.76	+04 26 03.8	1965 VK		760
1971 TE3	*	1971 10	14.82327	00 23 39.00	-06 18 43.0	1971 SO2	17.0	095
1971 UN4		1971 10	20.17676	00 46 07.18	+06 33 13.8	1971 TU	16.0	805
1971 UN4		1971 10	20.20177	00 46 06.13	+06 33 07.4	1971 TU		805
1971 UN4	*	1971 10	21.79968	00 44 59.82	+06 26 32.4	1971 TU	16.5	095
1972 JQ1	*	1972 05	12.91405	15 04 41.66	-14 09 38.2	1972 JK	16.5	095

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IDENTIFICATIONS.

The following list of identifications with numbered minor planets continues that on MPC 5983.

	Note		Note		Note
A907 GD = (1251)	1	A908 LA = (402)	1	A908 QB = (2043)	1
A908 WA = (1493)	1	A924 UA = (1726)	3	1925 WH = (37)	2
1926 RP = (1325)	2	1927 CC = (2209)	2	1929 SQ = (1305)	2
1929 SR = (1797)	2	1929 TN = (1350)	2	1929 TO = (2009)	2
1929 WR = (2132)	2	1929 WX = (1056)	2	1929 WB1 = (1341)	2
1929 WE1 = (1723)	2	1931 MH = (2393)	1	1948 EU = (47)	1
1948 SF = (1848)	1	1949 QF2 = (1128)	1	1949 UC = (2178)	5
1950 BB = (1595)	5	1950 DZ = (1576)	5	1950 EF = (1823)	1
1951 EO2 = (1283)	1	1952 DS = (1082)	1	1952 FB1 = (2025)	1
1952 QG1 = (1595)	5	1953 EU1 = (1639)	1	1954 UC = (1253)	1
1954 UH2 = (555)	1	1955 FU1 = (723)	1	1955 MO = (288)	1

1957 LM	= (307)	1	1958 FG	= (1378)	1	1958 JC	= (795)	1
1959 GB	= (288)	1	1959 NA	= (1499)	1	1959 NB	= (956)	1
1961 CG	= (1903)	1	1961 TL1	= (1366)	1	1963 RK	= (2145)	1
1963 TM	= (1420)	5	1964 VO	= (1257)	1	1965 HA	= (2084)	1
1965 MC	= (1794)	1	1965 OG	= (1584)	1	1965 RA	= (1811)	1
1965 UW	= (1623)	6	1965 VJ	= (837)	1	1966 UB	= (2244)	1
1966 UX	= (2132)	1	1967 GP	= (561)	1	1967 TL	= (1827)	1
1971 SJ	= (1393)	6	1974 TG	= (2173)	6	1978 TH3	= (1239)	7

Note 1: identification by B. G. Marsden. 2: identification by E. Bowell. 3 = 1 + 2. 4: the double designations 1949 RB = 1949 UC (NAZ 12, 22), 1950 AC = 1950 DZ (NAZ 12, 23) and 1963 TM = 1963 VB (MPC 2808) and the identification (1595) = 1950 BC (MPC 1021) are invalid; the implication on MPC 1021 that (1595) is not equal to 1952 QG1 is incorrect. 5 = 1 + 4. 6: identification by H. Oishi (JAM 833, 849 and 851). 7: identification by F. N. Bowman.

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OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

006 Fabra Observatory, Barcelona. Observers J. Nunez and J. M. Mundet. Computer N. Torras. Communicated by J. M. Codina.
012 Uccle. Observers F. Rigaux and E. Delporte. New measurements by H. Debehogne.
372 Geisei. Observer T. Seki. From Orient. Astron. Assoc. Comet Bull. No. 216.
491 Centro Astronomico de Yebes. Observers M. de Pascual, J. Garcia and C. Cabanas.
662 Lick Observatory. Observer H. M. Jeffers. New measurements by A. R. Klemola.
687 Northern Arizona University. Observers C. B. Luginbuhl and B. A. Skiff. Measured by Luginbuhl.
691 Steward Observatory, Kitt Peak. Observer E. Roemer. The many assistants are included in the list on MPC 5860.
693 Lunar and Planetary Laboratory, Catalina station. Observer E. Roemer. The many assistants are included in the list on MPC 5860.
711 McDonald Observatory. Observers A. Cochran and W. Cochran.
801 Oak Ridge Observatory (formerly Harvard College Observatory's Agassiz Station). Observers R. E. McCrosky, C.-Y. Shao, G. Schwartz and J. Bulger (assisted by C. M. Bardwell and B. G. Marsden).
879 Tokai. Observer T. Furuta. From Orient. Astron. Assoc. Comet Bull. Nos. 215-216.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
		Periodic Comet Wilk				
/1937 II	1937	03 03.79839	00 46 28.97	+25 04 11.7		012
/1937 II	1937	03 04.14329	00 47 26.03	+25 33 39.0		662
/1937 II	1937	03 06.84320	00 55 09.29	+29 29 12.5		1 012
/1937 II	1937	03 08.16831	00 59 09.32	+31 28 02.3		662
/1937 II	1937	04 01.16458	04 20 31.41	+69 06 54.9		662
/1937 II	1937	04 01.16806	04 20 35.99	+69 07 06.2		662
/1937 II	1937	04 30.18958	10 56 31.91	+45 37 21.9		2 662
/1937 II	1937	04 30.20139	10 56 34.32	+45 36 35.2		2 662
		Comet Rudnicki (1967 II)				
/1967 II	1966	11 12.28447	01 31 00.94	-05 22 59.8		693

Comet Seki (1967 IV)

/1967 IV	1967	02	12.53866	19 32 09.48	+26 23 13.4	693
/1967 IV	1967	02	12.54630	19 32 14.64	+26 23 23.1	693

Periodic Comet Tuttle

/1967 V	1967	01	07.14162	22 42 44.81	+41 49 36.0	693
/1967 V	1967	01	07.16662	22 42 50.05	+41 49 06.9	693

Periodic Comet Arend

/1967 VI	1967	11	04.44855	09 36 40.65	+38 23 30.4	693
/1967 VI	1967	11	04.49716	09 36 44.56	+38 23 28.5	693

Periodic Comet Schwassmann-Wachmann 2

/1968 II	1968	05	26.17644	08 35 43.52	+20 01 14.0	693
/1968 II	1968	05	26.18477	08 35 44.50	+20 01 10.9	693
/1968 II	1969	03	15.38897	15 55 38.81	-15 49 45.8	693
/1968 II	1969	03	15.45148	15 55 39.13	-15 49 42.7	693
/1968 II	1969	04	20.39794	15 45 09.45	-14 41 20.6	693
/1968 II	1969	04	20.44447	15 45 07.59	-14 41 13.4	693
/1968 II	1969	05	18.24513	15 24 02.95	-13 25 31.5	693
/1968 II	1969	05	18.29166	15 24 00.68	-13 25 24.6	693

Comet Whitaker-Thomas (1968 V)

/1968 V	1968	06	27.23388	15 22 43.70	+26 08 44.2	693
/1968 V	1968	06	27.24082	15 22 43.90	+26 09 12.6	693

Periodic Comet Honda-Mrkos-Pajdusakova

/1969 V	1969	10	11.49881	10 53 04.08	+00 35 39.2	693
/1969 V	1969	10	11.50749	10 53 05.85	+00 35 22.0	693

Periodic Comet Swift-Gehrels

/1972 VII	1973	03	26.18993	08 02 42.04	+19 24 55.8	691
/1972 VII	1973	03	26.23895	08 02 43.50	+19 24 44.6	691

Comet Heck-Sause (1972 VIII)

/1972 VIII	1973	02	06.29062	11 45 40.28	+28 30 05.6	693
/1972 VIII	1973	02	06.29757	11 45 39.22	+28 30 21.8	693
/1972 VIII	1973	11	21.44190	09 20 05.35	+62 42 25.4	691
/1972 VIII	1973	11	21.46528	09 20 03.70	+62 42 46.5	691

Comet Kojima (1973 II)

/1973 II	1972	12	03.36562	06 58 47.18	-24 07 27.0	693
/1973 II	1972	12	03.37674	06 58 44.27	-24 07 29.9	693
/1973 II	1973	01	01.30312	04 29 42.42	-18 46 20.4	693
/1973 II	1973	01	01.30938	04 29 40.59	-18 46 10.6	693
/1973 II	1973	09	03.41736	00 09 43.44	+37 57 42.8	693
/1973 II	1973	09	03.42708	00 09 41.55	+37 57 41.7	693
/1973 II	1973	09	29.31042	22 49 41.57	+33 58 17.5	693
/1973 II	1973	09	29.32361	22 49 39.46	+33 58 05.6	693
/1973 II	1973	11	19.06788	21 38 49.85	+21 33 09.0	691
/1973 II	1973	11	19.08137	21 38 49.55	+21 33 01.8	691
/1973 II	1974	05	25.42216	22 03 38.35	+27 07 45.7	691
/1973 II	1974	05	25.44803	22 03 37.67	+27 07 54.6	691
/1973 II	1974	06	15.33582	21 51 09.80	+28 55 35.8	691
/1973 II	1974	06	15.39630	21 51 07.12	+28 55 52.0	691

Comet Sandage (1973 X)

/1973 X	1973	09	03.12465	14 41 28.56	+19 56 06.6	693
/1973 X	1973	09	03.15139	14 41 28.45	+19 56 02.5	693

/1973 X	1974	12	20.44798	12	06 51.79	+41	29 11.4				691
/1973 X	1975	03	05.35035	10	33 40.77	+50	48 04.0				691
/1973 X	1975	03	05.39404	10	33 36.25	+50	48 08.1				691
			Periodic Comet Schwassmann-Wachmann 1								
/1974 II	1981	04	25.49410	10	00 09.28	+07	32 01.2	12	T		879
			Periodic Comet Gunn								
/1976 III	1981	02	04.32880	09	33 57.49	+27	56 42.0			3	801
			Comet Tsuchinshan (1977 X)								
/1977 X	1978	08	09.30845	23	21 05.87	+01	02 07.1	19	N		801
/1977 X	1978	08	27.26255	22	56 36.21	-00	55 11.1				801
/1977 X	1978	09	05.25112	22	43 59.04	-01	58 54.9				801
/1977 X	1978	09	26.19975	22	16 44.79	-04	21 45.2				801
/1977 X	1978	10	31.02172	21	46 28.65	-07	08 50.0	20	N	4	801
/1977 X	1978	11	01.02858	21	45 55.40	-07	12 01.6			4	801
			Periodic Comet Reinmuth 1								
/1979j	1981	03	12.33888	13	01 51.27	+07	03 57.8			3	801
			Comet Bowell (1980b)								
/1980b	1981	04	06.57847	12	18 55.95	+00	08 54.6	12	T		879
/1980b	1981	04	06.58854	12	18 55.74	+00	08 56.6				879
/1980b	1981	04	23.53507	12	12 23.84	+00	50 18.7	12	T		879
/1980b	1981	04	23.54045	12	12 23.67	+00	50 19.2				879
/1980b	1981	04	25.20000	12	11 51.89	+00	53 33.4				687
/1980b	1981	04	28.58056	12	10 50.95	+00	59 33.0	12	T		879
/1980b	1981	04	28.58576	12	10 50.90	+00	59 35.8				879
			Periodic Comet Brooks 2								
/1980f	1981	01	31.01521	01	09 41.74	+03	13 46.3				801
/1980f	1981	03	02.01661	02	14 21.51	+09	13 08.2				801
			Periodic Comet Stephan-Oterma								
/1980g	1980	12	11.97506	05	31 47.24	+25	34 56.4				491
/1980g	1980	12	12.97199	05	31 46.84	+26	08 10.2				491
/1980g	1981	01	07.88022	05	35 03.08	+38	10 19.4				491
/1980g	1981	01	08.07309	05	35 07.27	+38	14 12.3				491
/1980g	1981	01	08.80841	05	35 28.38	+38	28 53.1				491
/1980g	1981	01	09.01981	05	35 33.43	+38	33 04.5				491
/1980g	1981	03	02.11111	06	45 48.49	+44	06 27.9				801
			Periodic Comet Borrelly								
/1980i	1981	01	30.98852	01	03 21.92	-04	46 18.0	14	T		801
/1980i	1981	04	25.15556	05	17 12.01	+37	48 24.3				687
			Comet Meier (1980q)								
/1980q	1981	04	02.76181	15	45 30.20	+23	17 19.8	11	T		879
/1980q	1981	04	02.77726	15	45 26.58	+23	17 17.8				879
/1980q	1981	04	10.35159	15	14 05.12	+22	31 52.9			5	801
/1980q	1981	04	28.59948	14	00 05.78	+18	08 31.0	14	T		879
/1980q	1981	04	28.60313	14	00 04.88	+18	08 27.1				879
			Comet Bradfield (1980t)								
/1980t	1981	01	15.77361	20	58 49.85	+02	37 31.0				006
/1980t	1981	01	24.76709	21	25 17.95	+05	09 30.8				006

Comet Panther (1980u)

/1980u	1981	04	25.17361	08 15 33.25	+46 16 06.5		687

Comet Bus (1981d)

/1981d	1981	05	07.73299	14 38 22.1	-04 49 02	16 T	372
/1981d	1981	05	08.26921	14 36 02.61	-04 43 18.7		801

Periodic Comet Gehrels 2

/1981f	1981	06	08.4391	00 33 34	+08 21.1	19.5T	711
/1981f	1981	06	09.4330	00 34 59	+08 29.8		711

Note 1: time uncertain. 2: new positions. 3: weak or poor solution. 4: weak, diffuse spot; ink dot measured. 5: poor star configuration; no reverse measurement.

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OBSERVATIONS MADE AT UCCLE BY J. DOMMANGET AND H. DEBEHOGNE. MEASURED BY DEBEHOGNE.

Object	Date	UT	R. A. (1950)	Decl.	N Obs.
1019	1964	05 08.99253	16 06 58.59	+34 20 10.0	3 012
1019	1964	05 08.99600	16 06 58.34	+34 20 11.5	3 012
1019	1964	05 14.94844	16 01 10.93	+34 52 51.5	1 012

Note 1: remeasurement of positions on MPC 2653. 2: date of observation previously given incorrectly. 3 = 1 + 2.

OBSERVATIONS MADE AT BERGEDORF BY J. LARINK AND H. BRUGGEMANN. MEASURED BY W. DIECKVOSS.

Object	Date	UT	R. A. (1950)	Decl.	N Obs.
1019	1935	05 30.94964	17 19 49.33	+29 57 18.9	1 029
1019	1935	05 31.94970	17 18 46.95	+29 56 24.7	029
1019	1935	05 31.98638	17 18 44.84	+29 56 19.3	029

Note 1: difficult to measure.

OBSERVATIONS MADE AT TAUTENBURG BY BORNGEN, KALLOGLJAN, LOCHNO, SCHORCHT, SPLITTGERBER, THUMER AND ZIENER. REDUCTION BY F. BORNGEN AND K. KIRSCH. COMMUNICATED BY S. MARX.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
45		1975	10 11.01458	02 04 05.61	+03 38 13.0	11.9V	033
333		1970	11 23.83125	03 38 48.51	+25 05 26.5	12.1R	033
604		1977	10 20.04549	03 49 48.62	+24 09 11.6	12.3R	033
1970 WF1	*	1970	11 23.83125	03 37 08.04	+24 31 11.4	15.4R	033
1970 WG1	*	1970	11 23.83125	03 38 00.64	+22 55 13.4	13.2R	033
1970 WH1	*	1970	11 23.83125	03 41 22.28	+24 21 22.9	15.4R	033
1970 WJ1	*	1970	11 23.83125	03 41 43.69	+23 39 46.8	14.8R	033
1970 WK1	*	1970	11 23.83125	03 42 21.99	+23 22 56.9	14.1R	033
1970 WL1	*	1970	11 23.83125	03 42 24.79	+22 45 38.7	15.2R	033
1970 WM1	*	1970	11 23.83125	03 43 00.85	+24 37 57.6	14.2R	033
1970 WN1	*	1970	11 23.83125	03 47 23.56	+25 04 32.0	15.5R	033
1970 WO1	*	1970	11 23.83125	03 49 03.15	+23 52 28.6	15.7R	033
1970 WP1	*	1970	11 23.83125	03 49 46.84	+23 48 32.0	15.2R	033
1975 TY3		1975	10 11.01458	02 02 02.31	+03 22 58.2	17.3V	033
1975 TM6	*	1975	10 11.01458	01 59 08.67	+04 24 25.1	16.5V	033
1975 TN6	*	1975	10 11.01458	01 59 46.69	+03 24 27.1	17.8V	033
1975 TO6	*	1975	10 11.01458	02 02 15.19	+02 32 43.5	17.3V	033
1975 TP6		1975	10 11.00416	02 05 19.52	+02 09 10.8		033
1975 TP6	*	1975	10 11.01458	02 05 19.26	+02 08 55.0	14.9V	1 033
1975 TP6		1975	10 11.02499	02 05 19.02	+02 08 38.7		033
1975 TQ6	*	1975	10 11.01458	02 06 25.03	+03 12 56.2	16.8V	033

1975	UK	*	1975	10	30.97569	01	55	09.37	+04	03	15.7	17.4V 033
1975	UL	*	1975	10	30.97569	01	55	26.30	+04	03	48.3	16.5V 033
1975	UM	*	1975	10	30.97569	01	56	51.12	+04	18	54.8	15.9V 033
1975	UM		1975	10	31.88264	01	55	55.86	+04	15	24.0	033
1975	UN	*	1975	10	30.97569	01	58	00.42	+02	37	40.1	15.3V 033
1975	UN		1975	10	31.88264	01	57	07.33	+02	38	05.8	033
1975	UO	*	1975	10	30.97569	01	58	58.06	+03	23	55.2	17.5V 033
1975	UO		1975	10	31.88264	01	58	07.88	+03	20	14.1	033
1975	UP	*	1975	10	30.97569	02	01	11.06	+04	22	26.6	17.0V 033
1975	UP		1975	10	31.88264	02	00	12.25	+04	22	34.5	033
1975	UQ	*	1975	10	30.97569	02	01	24.01	+01	32	46.7	16.7V 033
1975	UQ		1975	10	31.88264	02	00	29.86	+01	28	22.8	033
1975	UR	*	1975	10	30.97569	02	01	33.50	+03	46	48.9	18.0V 033
1975	UR		1975	10	31.88264	02	00	37.37	+03	47	13.1	033
1975	US	*	1975	10	30.97569	02	01	46.93	+03	06	03.4	16.5V 033
1975	US		1975	10	31.88264	02	00	56.57	+03	01	34.5	033
1975	UT	*	1975	10	30.97569	02	01	49.56	+04	20	48.7	17.1V 033
1975	UT		1975	10	31.88264	02	00	54.90	+04	22	08.9	033
1975	UU	*	1975	10	30.97569	02	04	44.66	+03	24	50.6	17.2V 033
1975	UU		1975	10	31.88264	02	03	59.78	+03	23	47.0	033
1975	UV	*	1975	10	30.97569	02	07	04.52	+01	34	30.6	16.9V 033
1975	UV		1975	10	31.88264	02	06	22.16	+01	32	15.9	033
1975	WZ1	*	1975	11	24.85278	02	06	53.47	+03	54	19.9	033
1975	WZ1		1975	11	25.83229	02	06	12.56	+04	00	20.8	16.8V 033
1975	WZ1		1975	11	25.85347	02	06	11.72	+04	00	29.0	033
1977	UV1	*	1977	10	20.02986	03	39	48.40	+25	30	48.9	15.3R 1 033
1977	UV1		1977	10	20.06111	03	39	47.45	+25	30	17.3	033
1977	UW1	*	1977	10	20.04549	03	37	32.22	+24	50	37.5	14.7R 033
1977	UX1	*	1977	10	20.04549	03	38	08.21	+24	05	44.7	15.9R 033
1977	UY1	*	1977	10	20.04549	03	38	32.82	+22	51	36.4	14.9R 033
1977	UZ1	*	1977	10	20.04549	03	39	35.47	+24	54	34.5	15.1R 033
1977	UA2	*	1977	10	20.04549	03	40	31.34	+22	51	52.7	15.5R 033
1977	UB2	*	1977	10	20.04549	03	41	03.73	+22	46	33.5	16.4R 033
1977	UC2	*	1977	10	20.04549	03	41	56.67	+23	15	40.9	16.1R 033
1977	UD2	*	1977	10	20.04549	03	42	36.74	+24	31	47.5	15.4R 033
1977	UE2	*	1977	10	20.04549	03	44	45.60	+23	24	54.7	13.4R 033
1977	UF2	*	1977	10	20.04549	03	46	09.03	+24	02	32.2	16.6R 033
1977	UG2	*	1977	10	20.04549	03	47	26.42	+25	19	39.0	15.5V 033
1977	UH2	*	1977	10	20.04549	03	47	37.56	+23	41	17.1	14.9R 033

Note 1: fast-moving object.

OBSERVATIONS MADE AT TURKU BY Y. VAISALA, L. OTERMA, H. A. ALIKOSKI AND V. LAIHO. MEASURED BY M.-O. SNARE AND J. LEHTINEN.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
156	1942 09	08.03985	00 28 30.03	+15 43 54.6		062
156	1942 09	11.98400	00 25 44.12	+15 28 40.7		062
156	1942 09	12.01097	00 25 42.96	+15 28 33.1		062
156	1942 10	03.90613	00 08 35.23	+13 22 53.6		062
156	1942 10	11.89644	00 02 36.41	+12 26 02.7		062
1907	1942 03	11.91270	12 14 10.40	+00 59 19.5		062
1907	1942 03	12.94140	12 13 22.22	+01 06 22.2		062
1907	1942 03	12.97172	12 13 20.80	+01 06 34.5		062
1907	1942 03	14.03017	12 12 30.29	+01 13 50.8		062
2379	1953 11	12.95822	02 58 55.71	+16 20 06.9		062
2379	1953 11	12.98241	02 58 54.48	+16 20 02.9		062
2379	1953 11	12.99375	02 58 53.86	+16 20 00.0		062
2380	1939 09	18.93078	01 04 28.86	+09 26 53.8		062
2380	1939 09	19.86867	01 03 45.00	+09 23 52.3		062
1938	GC	1938 04	05.05762	13 05 01.22	+03 55 51.6		062

1938 GC		1938	04	27.98238	12	44	49.44	+06	26	23.3	1 062
1938 GC		1938	04	30.92391	12	42	51.05	+06	36	00.0	062
1938 GC		1938	05	02.94487	12	41	37.41	+06	41	08.3	1 062
1938 GD		1938	04	05.01062	13	05	06.55	+06	10	17.7	062
1938 GD		1938	04	05.04640	13	05	05.01	+06	10	26.1	062
1938 GD		1938	04	05.05762	13	05	04.12	+06	10	29.5	062
1938 GD		1938	04	06.98839	13	03	19.41	+06	19	23.9	062
1938 GE		1938	04	05.01062	13	17	48.51	+05	58	10.9	062
1938 GE		1938	04	05.04640	13	17	46.37	+05	58	23.9	062
1938 GE		1938	04	05.05762	13	17	45.80	+05	58	28.1	062
1938 GE		1938	04	06.98839	13	16	01.52	+06	09	21.8	062
1942 ED		1942	03	06.81596	09	14	42.29	+10	36	02.3	062
1942 ED		1942	03	06.84200	09	14	41.57	+10	36	13.9	062
1942 EF		1942	03	12.94140	12	07	12.87	-01	42	14.0	062
1942 EF		1942	03	12.97172	12	07	11.20	-01	42	01.3	062
1942 EF		1942	03	14.03017	12	06	13.57	-01	34	25.3	062
1942 ES		1942	03	11.91270	12	11	56.10	-00	54	38.2	062
1942 ES		1942	03	12.94140	12	10	59.12	-00	52	02.3	062
1942 ES		1942	03	12.97172	12	10	57.33	-00	51	56.2	062
1942 EN1	*	1942	03	11.91270	12	15	22.72	+00	18	53.8	15.6 062
1942 EN1		1942	03	12.94140	12	14	37.21	+00	24	45.6	062
1942 EN1		1942	03	12.97172	12	14	35.64	+00	24	55.4	062
1942 EN1		1942	03	14.03017	12	13	48.22	+00	31	03.9	062
1942 GD		1942	04	14.93538	12	46	58.13	-05	57	09.2	062
1942 GD		1942	04	14.96388	12	46	56.45	-05	57	04.7	062
1942 GD		1942	04	17.89448	12	44	19.34	-05	48	12.0	062
1943 GF		1943	04	03.95993	12	44	02.85	+03	25	05.7	062
1943 GF		1943	04	03.99477	12	44	00.86	+03	25	11.1	062
1943 GF		1943	04	07.91737	12	40	29.03	+03	37	15.1	062
1943 GF		1943	04	07.92490	12	40	28.41	+03	37	20.6	062
1943 GR		1943	04	08.94990	13	31	15.74	+09	12	22.8	062
1943 GR		1943	04	09.00383	13	31	13.46	+09	13	09.2	062
1943 GR		1943	04	09.89331	13	30	35.77	+09	25	38.2	062
1943 GR		1943	04	09.90222	13	30	35.43	+09	25	46.1	062
1943 GU		1943	03	27.96123	12	58	13.54	+01	00	29.0	062
1943 GU		1943	03	27.99664	12	58	12.09	+01	00	53.6	062
1943 GU		1943	04	03.95993	12	53	16.36	+02	13	45.4	2 062
1943 GU		1943	04	03.99477	12	53	14.58	+02	14	05.8	2 062
1943 GU		1943	04	07.92490	12	50	23.04	+02	52	59.8	2 062
1948 TB		1948	10	08.91817	00	18	52.49	+05	57	27.0	062
1948 TB		1948	10	08.92975	00	18	51.85	+05	57	21.5	062
1948 TB		1948	10	08.95880	00	18	50.49	+05	57	15.7	062
1948 TC		1948	10	08.91817	00	23	49.29	+04	52	33.4	062
1948 TC		1948	10	08.95880	00	23	47.30	+04	52	24.3	062
1948 TF		1948	10	08.91817	00	37	52.26	+04	47	02.9	062
1948 TF		1948	10	08.95880	00	37	50.18	+04	47	08.9	062

Note 1: extremely faint image. 2: near edge of plate.

OBSERVATIONS MADE AT GEISEI BY T. SEKI. FROM JAPAN ASTRON. STUDY ASSOC. MINOR PLANET CIRC. SER. II NO. 847.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1981 CB	1981	03 11.68715	10 58 04.85	+09 16 15.6	16	372
1981 CB	1981	03 11.70278	10 58 04.20	+09 16 22.2		372

OBSERVATIONS MADE AT THE TOKYO ASTRONOMICAL OBSERVATORY'S KISO STATION BY H. KOSAI AND K. HURUKAWA.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1979 SQ	1981	01 08.58625	07 57 52.94	+20 21 14.0	17.5	381
1979 SQ	1981	01 08.69318	07 57 49.82	+20 21 19.7		381

OBSERVATIONS MADE WITH THE 1.2-M SCHMIDT TELESCOPE AT SIDING SPRING BY S. B. TRITTON. SCANNED AND MEASURED BY D. A. PICKUP.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
452		1978	05 25.35862	11 32 22.03	+07 09 40.4	17	1	413
452		1978	05 25.41070	11 32 22.94	+07 09 26.4		1	413
1978 KB	*	1978	05 25.35862	11 32 36.81	+07 11 08.5	19.5	1	413
1978 KB		1978	05 25.41070	11 32 38.21	+07 10 53.3		1	413

Note 1: beginning and end of trail.

OBSERVATIONS MADE AT KAMBAH BY D. HERALD.

Object	Date	UT	R. A. (1950)	Decl.	N	Obs.
3	1981	04 24.46563	14 02 48.23	+00 32 25.7		415
3	1981	04 28.52685	13 59 36.86	+00 56 46.7		415
36	1981	04 30.55903	14 16 32.71	-32 46 30.9		415
39	1981	04 24.46563	14 08 20.68	+00 23 52.4		415
39	1981	04 28.52685	14 05 10.35	+00 46 45.0		415
99	1981	04 27.54306	13 09 08.77	+00 13 28.2		415
126	1981	04 27.51557	12 14 02.04	-00 53 26.5		415
126	1981	04 28.47167	12 13 28.49	-00 50 56.6		415
213	1981	04 24.46563	13 48 51.60	+00 32 02.3		415
213	1981	04 28.52685	13 45 32.10	+00 49 00.0		415
247	1981	04 30.55903	13 48 20.60	-35 54 51.0		415
307	1981	04 24.46563	13 43 04.89	-01 34 20.0		415
307	1981	04 28.52685	13 39 58.17	-01 20 57.8		415
340	1981	04 27.51557	12 15 50.56	-00 07 43.9		415
340	1981	04 28.47167	12 15 17.35	-00 06 26.4	1	415
454	1981	04 27.54306	13 10 49.65	-06 21 29.5		415
623	1981	04 30.55903	13 49 21.66	-35 17 00.7		415
706	1981	04 30.55903	14 03 16.24	-34 40 42.8		415
808	1981	04 24.46563	13 40 49.47	-06 49 49.8		415
907	1981	04 24.46563	13 42 53.22	-01 39 48.7		415
907	1981	04 28.52685	13 38 39.82	-01 51 11.0		415
1651	1981	04 24.46563	13 55 31.06	-07 28 50.6		415

Note 1: faint image.

OBSERVATIONS MADE AT MOUNT JOHN UNIVERSITY OBSERVATORY BY A. C. GILMORE AND P. M. KILMARTIN (ASSISTED BY R. MC INTOSH).

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1537		1981	05 02.45556	13 42 00.23	-12 18 07.6		474
1537		1981	05 02.47882	13 41 59.14	-12 18 01.0		474
1537		1981	05 03.57121	13 41 14.42	-12 13 02.5		474
1537		1981	05 03.59444	13 41 13.40	-12 12 57.1		474
1537		1981	05 04.55035	13 40 34.71	-12 08 36.1		474
1537		1981	05 04.57214	13 40 33.92	-12 08 30.7		474
2388		1981	05 01.52639	15 09 39.69	-22 13 49.7		474
2388		1981	05 01.54815	15 09 38.49	-22 13 46.2		474
2388		1981	05 03.65972	15 07 45.58	-22 07 58.5		474
2388		1981	05 03.67431	15 07 44.74	-22 07 55.6		474
2393		1981	04 02.40671	10 46 11.67	-03 56 48.1	15.8	474
2393		1981	04 02.42986	10 46 10.92	-03 56 40.5		474
1981 GX		1981	04 30.35168	10 59 58.87	-27 44 22.2		474
1981 GX		1981	04 30.37373	10 59 59.60	-27 43 55.9		474
1981 GX		1981	05 03.32813	11 01 56.09	-26 47 16.4		474
1981 GX		1981	05 03.34966	11 01 56.98	-26 46 51.7		474
1981 GF1		1981	04 30.45087	12 16 54.06	-08 56 33.9		474
1981 GF1		1981	05 03.42425	12 15 23.79	-08 48 24.3		474
1981 GF1		1981	05 03.53371	12 15 20.57	-08 48 07.3		474
1981 HA	*	1981	04 30.40498	11 44 17.69	-01 31 46.1		474
1981 HA		1981	04 30.49974	11 44 16.03	-01 31 38.1		474

1981 JD1	*	1981	05	02.45556	13	42	16.65	-12	19	52.1	18.5	474
1981 JD1		1981	05	02.47882	13	42	15.47	-12	19	45.5		474
1981 JD1		1981	05	03.57121	13	41	26.84	-12	15	04.3		474
1981 JD1		1981	05	03.59444	13	41	25.86	-12	14	58.9		474
1981 KA	*	1981	05	27.50973	15	06	22.75	-30	02	08.5	16	474
1981 KA		1981	05	27.53902	15	06	21.07	-30	02	08.3		474
1981 KA		1981	05	30.40887	15	03	37.27	-30	01	37.4	16	474
1981 KA		1981	05	30.43478	15	03	35.59	-30	01	37.3		474
1981 KA		1981	06	03.39566	15	00	03.13	-29	59	48.8	16	474
1981 KA		1981	06	03.41921	15	00	01.83	-29	59	48.1		474

OBSERVATIONS MADE AT MOUNT WILSON OBSERVATORY BY L. E. CUNNINGHAM. MEASURED BY J. L. BRADY AND A. G. MOWBRAY. RE-REDUCTION BY J. GIBSON.

Object		Date	UT	R. A. (1950)			Decl.			Mag.	N	Obs.
1952 SU1	*	1952	09 23.29761	03	06	46.42	37	54	51.3		1	672
1952 SU1		1952	09 24.28042	03	06	57.54	38	02	57.0	18		672
1952 SU1		1952	09 24.28841	03	06	57.64	38	03	01.3			672
1952 SU1		1952	09 26.38693	03	07	12.13	38	19	31.7			672
1952 SU1		1952	09 26.39458	03	07	12.09	38	19	35.2			672
1952 SU1		1952	09 26.40118	03	07	12.16	38	19	37.4	17.5		672
1952 SU1		1952	10 15.48903	03	00	19.82	39	44	10.1	18		672
1952 SU1		1952	10 15.49736	03	00	19.37	39	44	10.5			672
1952 SU1		1952	10 17.52358	02	58	43.15	39	44	59.9			672
1952 SU1		1952	10 17.53122	02	58	42.74	39	45	00.2			672
1952 UZ1	*	1952	10 17.40640	03	05	15.65	18	53	49.2		2	672
1952 UZ1		1952	10 17.41838	03	05	15.02	18	53	47.2			672
1952 UZ1		1952	10 18.40848	03	04	26.65	18	50	25.4			672
1952 UZ1		1952	10 18.41821	03	04	26.15	18	50	23.1			672
1952 UZ1		1952	10 19.27628	03	03	43.43	18	47	23.8	16.5		672
1952 UZ1		1952	10 19.29026	03	03	42.68	18	47	20.6			672
1952 UZ1		1952	10 19.30641	03	03	41.85	18	47	17.2			672
1952 UZ1		1952	11 21.23873	02	32	25.98	16	16	24.5	18		672
1952 UZ1		1952	11 21.24845	02	32	25.52	16	16	21.8			672
1952 UZ1		1953	01 19.24446	02	29	28.34	15	23	08.6		3	672
1952 UZ1		1953	01 19.25679	02	29	28.75	15	23	09.5		4	672

Note 1: discoverer Cunningham. 2: discoverer Brady. 3: image almost unmeasurable. 4: near edge of plate.

OBSERVATIONS MADE WITH THE 0.46-M SCHMIDT TELESCOPE AT PALOMAR BY E. HELIN AND S. J. BUS. SCANNED AND MEASURED BY C. SHOEMAKER.

Object		Date	UT	R. A. (1950)			Decl.			Mag.	Obs.
1980 JQ	*	1980	05 07.30486	17	10	19.59	-15	05	22.8	18	675
1980 KP	*	1980	05 16.44444	17	17	13.21	-17	10	35.2	18	675
1980 KQ	*	1980	05 16.44444	17	24	05.28	-17	57	18.2	18	675
1980 LM		1980	05 07.30486	16	56	42.20	-16	42	52.5	15	675
1980 LM		1980	05 16.41806	16	49	57.62	-17	03	24.9	15.5	675
1980 LO		1980	05 16.41806	17	03	30.18	-15	20	16.2	16.5	675
1980 LO		1980	07 09.19722	16	20	09.26	-14	20	02.1	17	675
1980 LP		1980	05 16.41806	17	11	14.56	-15	34	42.7	17.5	675
1980 LP		1980	05 16.44444	17	11	13.18	-15	34	44.4	17.5	675
1980 LU		1980	07 09.14444	16	38	18.12	-16	21	54.9	18	675
1980 LB1		1980	05 16.44444	17	16	44.29	-15	00	53.0	18	675
1980 LE1		1980	07 09.14444	16	52	07.39	-13	16	23.5	16.5	675

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

Object		Date	UT	R. A. (1950)			Decl.			N	Obs.
1980 RG1		1980	10 31.16944	00	23	32.22	+09	13	19.8	1	675
1980 RG1		1980	10 31.19028	00	23	32.90	+09	13	14.4	1	675
1980 RG1		1980	11 02.14236	00	25	10.24	+09	02	37.5	1	675

1980	RG1		1980	11	02.16319	00	25	11.04	+09	02	31.9	1 675
1980	RG1		1980	11	29.16736	00	55	22.93	+08	20	43.1	1 675
1980	RG1		1980	11	29.18819	00	55	24.53	+08	20	46.5	1 675
1980	RG1		1980	12	01.19028	00	58	07.38	+08	24	42.1	675
1980	RM1		1980	09	16.33958	00	11	34.54	+09	59	01.7	2 675
1980	RM1		1980	10	31.14444	00	07	48.68	+03	05	09.3	1 675
1980	RM1		1980	10	31.16528	00	07	49.09	+03	05	02.6	1 675
1980	RM1		1980	11	02.11597	00	08	51.86	+02	54	28.8	1 675
1980	RM1		1980	11	02.13681	00	08	52.35	+02	54	23.5	1 675

Note 1: beginning and end of trail. 2: correction to MPC 5669.

OBSERVATIONS MADE AT PALOMAR BY T. GEHRELS. SCANNED AND MEASURED BY C. J. VAN HOUTEN AND I. VAN HOUTEN-GROENEVELD.

Object		Date	UT	R. A. (1950)			Decl.			Obs.
4008	P-L *	1960	09 24.37573	00	27	16.07	+07	31	09.1	675
4008	P-L	1960	09 25.42780	00	26	16.18	+07	28	22.9	675
4008	P-L	1960	09 26.30558	00	25	26.36	+07	25	56.6	675
4008	P-L	1960	09 28.36808	00	23	26.90	+07	19	52.9	675
4008	P-L	1960	10 17.27085	00	06	33.83	+06	14	21.5	675
4008	P-L	1960	10 22.22293	00	03	19.79	+05	58	59.8	675
4008	P-L	1960	10 24.35836	00	02	09.93	+05	53	10.6	675
4008	P-L	1960	10 26.32573	00	01	14.18	+05	48	20.2	675
6816	P-L *	1960	09 24.35002	00	10	12.10	-03	21	23.3	675
6816	P-L	1960	09 26.28543	00	08	51.79	-03	37	34.1	675
6816	P-L	1960	09 27.34237	00	08	07.80	-03	46	20.6	675
6816	P-L	1960	09 28.33822	00	07	26.48	-03	54	32.7	675
6816	P-L	1960	10 17.28198	23	55	39.79	-06	11	12.2	675
9086	P-L *	1960	10 17.21390	23	41	56.91	+02	54	25.5	675
9086	P-L	1960	10 22.15559	23	43	20.36	+02	15	36.2	675
9086	P-L	1960	10 24.18787	23	44	10.11	+02	01	39.7	675
9086	P-L	1960	10 26.26113	23	45	10.14	+01	48	46.3	675

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

Object		Date	UT	R. A. (1950)			Decl.			Mag.	Obs.
50		1981	06 02.22083	14	19	20.72	-10	34	53.9		688
50		1981	06 02.27986	14	19	18.56	-10	34	44.3		688
91		1981	06 02.22083	14	03	08.51	-14	26	46.5		688
91		1981	06 02.27986	14	03	06.90	-14	26	38.5		688
167		1981	06 02.22083	14	15	22.76	-10	35	04.1		688
167		1981	06 02.27986	14	15	21.14	-10	34	57.3		688
315		1981	06 02.22083	14	11	21.11	-09	18	08.1		688
315		1981	06 02.27986	14	11	18.98	-09	18	00.2		688
401		1981	06 02.22083	14	16	50.79	-15	20	43.5		688
401		1981	06 02.27986	14	16	49.05	-15	20	39.6		688
644		1981	06 02.22083	14	08	14.41	-11	33	26.9	16.8	688
644		1981	06 02.27986	14	08	12.52	-11	33	18.8		688
2387		1981	06 02.22083	14	19	22.08	-12	12	31.2	17.2	688
2387		1981	06 02.27986	14	19	20.14	-12	12	32.1		688
1981	JK	1981	06 02.22083	14	12	31.52	-10	19	56.1	16.8	688
1981	JK	1981	06 02.27986	14	12	30.01	-10	19	52.5		688
1981	JL	1981	06 02.22083	14	14	23.41	-13	59	11.9	17.0	688
1981	JL	1981	06 02.27986	14	14	21.81	-13	59	09.5		688

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

Object	Date	UT	R. A. (1950)			Decl.			Obs.
2376	1954	09 27.15346	23	48	27.75	-07	03	15.0	760
2376	1954	09 27.20346	23	48	25.68	-07	03	26.5	760

2379	1964 09 04.21389	22 45 57.07	-07 59 33.1			760
1955 FV	1955 03 29.36945	13 38 07.20	-10 24 01.0			760
1955 FV	1955 03 29.41321	13 38 05.05	-10 23 50.2			760
1956 AD	1956 01 13.27606	06 00 10.16	+26 59 59.1			760
1956 AD	1956 01 13.31634	06 00 08.01	+26 59 48.4			760
1958 DY	1958 02 24.33679	10 12 44.71	+10 53 42.6			760
1958 DY	1958 02 24.37917	10 12 42.20	+10 53 56.3			760
1962 QG	1962 08 03.22910	21 25 01.73	-12 31 51.7			760
1962 QG	1962 08 03.27354	21 24 59.78	-12 32 08.2			760
1962 QG	1962 08 09.27135	21 20 37.92	-13 06 56.0			760
1962 QG	1962 08 30.16629	21 05 42.93	-15 08 47.8			760
1962 QG	1962 08 30.21038	21 05 40.94	-15 09 01.9			760

OBSERVATIONS MADE AT THE OAK RIDGE OBSERVATORY (FORMERLY THE HARVARD COLLEGE OBSERVATORY'S AGASSIZ STATION) BY R. E. MC CROSKY, C.-Y. SHAO, J. BULGER AND G. SCHWARTZ (WITH ASSISTANCE FROM C. M. BARDWELL AND B. G. MARSDEN).

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
50	1981 05 09.17860	14 37 26.56	-12 04 24.6		13	1	801
431	1981 02 01.03595	04 04 01.19	+19 25 49.3				801
1187	1980 09 19.16414	22 17 03.82	-04 48 59.4				801
1537	1981 02 28.34109	14 16 21.35	-15 41 46.1				801
1537	1981 03 04.38977	14 15 41.94	-15 38 25.0				801
2228	1981 05 09.17860	14 37 13.04	-12 29 43.9		17.5		801
2387	1981 05 09.17860	14 36 47.41	-12 20 40.3		16.5		801
1928 TK	1981 05 09.15160	14 17 42.13	-13 11 41.1				801
1972 KJ	1981 03 11.16123	09 30 14.92	+09 06 56.8				801
1972 KJ	1981 05 03.11329	09 28 41.37	+12 04 36.7				801
1972 LD1	1980 09 16.29543	02 09 00.14	-09 56 59.0				801
1976 EC	1976 03 30.10308	09 10 26.93	+15 08 08.1				801
1976 GJ3	1981 03 04.32556	10 47 44.34	+30 37 57.4				801
1976 GJ3	1981 03 27.16806	10 29 08.99	+30 13 10.7				801
1978 PP2	1981 03 27.19007	11 08 00.32	+05 42 14.7				801
1979 MS8	1981 02 01.03595	04 03 16.78	+19 23 44.7				801
1980 LA	1980 09 11.08640	19 19 26.49	+15 24 55.4				801
1980 PS	1980 10 06.05731	20 26 40.41	-07 01 33.3				801

Note 1: on a star.

OBSERVATIONS MADE AT THE UNIVERSITY OF CHILE'S CERRO EL ROBLE STATION BY L. E. GONZALEZ. COMMUNICATED BY C. TORRES.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1981 KA	1981 05 29.31944	15 04 38.82	-30 02 01.5		16	805
1981 KA	1981 06 04.19306	14 59 21.93	-29 59 17.7		16	805
1981 KB *	1981 05 29.31944	15 14 07.0	-30 32 55		18	805

OBSERVATIONS MADE AT THE ESTACION ASTRONOMICA DE ALTURA EL LEONCITO OF OBSERVATORIO ASTRONOMICO FELIX AGUILAR BY M. R. CESCO, H. MIRA, G. SANCHEZ AND J. A. VICENTELA (COORDINATED BY C. U. CESCO AND J. G. SANGUIN).

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
620	1981 04 08.26986	15 48 26.84	-28 25 01.6				808
620	1981 04 08.31280	15 48 25.82	-28 25 10.8				808
620	1981 04 11.25807	15 47 16.88	-28 36 17.6				808
620	1981 04 11.34186	15 47 14.35	-28 36 33.4				808
620	1981 04 25.26845	15 38 10.13	-29 14 51.2				808
620	1981 05 09.24409	15 24 17.26	-29 23 53.9				808
620	1981 05 09.29464	15 24 13.88	-29 23 52.4				808
765	1981 05 09.24409	15 28 18.07	-27 14 06.2		17.9		808
765	1981 05 09.29464	15 28 15.05	-27 13 58.5				808
2118	1981 05 09.24409	15 24 40.60	-28 17 31.6				808
2118	1981 05 09.29464	15 24 37.39	-28 17 21.9				808

1977	RZ6		1981	04	08.26986	15	49	42.75	-28	19	06.8	17.2	808
1977	RZ6		1981	04	08.31280	15	49	41.70	-28	19	08.5		808
1977	RZ6		1981	04	11.25807	15	48	28.67	-28	25	56.3	1	808
1977	RZ6		1981	04	11.34186	15	48	26.45	-28	26	18.1	1	808
1977	RZ6		1981	05	09.24409	15	28	57.19	-28	48	55.6		808
1977	RZ6		1981	05	09.29464	15	28	54.39	-28	48	53.1		808
1981	GJ1	*	1981	04	08.26986	15	43	09.42	-30	34	33.7	16.3	808
1981	GJ1		1981	04	08.31280	15	43	08.70	-30	34	38.1		808
1981	GJ1		1981	04	25.26845	15	34	48.03	-30	51	08.5	15.4	1 808
1981	GJ1		1981	05	04.14416	15	27	33.65	-30	38	58.2	1	808
1981	GJ1		1981	05	04.19333	15	27	31.03	-30	38	51.6	1	808
1981	GJ1		1981	05	07.19969	15	24	45.87	-30	31	14.4		808
1981	GJ1		1981	05	07.24886	15	24	43.03	-30	31	06.6		808
1981	GJ1		1981	05	09.24409	15	22	50.51	-30	25	00.8		808
1981	GJ1		1981	05	09.29464	15	22	47.52	-30	24	50.4		808
1981	HB	*	1981	04	25.26845	15	31	33.08	-29	19	57.0	1	808
1981	HC	*	1981	04	25.26845	15	34	32.70	-29	44	59.8		808
1981	JE1	*	1981	05	04.14416	15	22	41.61	-31	42	40.4		808
1981	JF1	*	1981	05	04.14416	15	25	43.82	-30	22	24.9	1	808
1981	JF1		1981	05	04.19333	15	25	42.44	-30	22	18.9	1	808
1981	JG1	*	1981	05	04.14416	15	26	17.78	-29	41	41.9	17.3	808
1981	JG1		1981	05	04.19333	15	26	16.44	-29	41	49.3		808
1981	JH1	*	1981	05	04.14416	15	29	13.71	-29	51	58.9	16.0	1 808
1981	JJ1	*	1981	05	04.14416	15	34	21.42	-30	27	02.2		808
1981	JK1	*	1981	05	09.24409	15	14	56.41	-31	59	20.3		808
1981	JK1		1981	05	09.29464	15	14	52.94	-31	59	16.5		808
1981	JL1	*	1981	05	09.24409	15	20	34.97	-27	15	04.9	15.8	808
1981	JL1		1981	05	09.29464	15	20	31.61	-27	14	54.6		808
1981	JM1	*	1981	05	09.24409	15	21	06.73	-29	19	14.2	17.5	808
1981	JM1		1981	05	09.29464	15	21	03.45	-29	18	59.0		808
1981	JN1	*	1981	05	09.24409	15	22	34.05	-28	16	15.8	17.8	808
1981	JN1		1981	05	09.29464	15	22	31.10	-28	16	17.9		808
1981	JO1	*	1981	05	09.24409	15	26	27.40	-29	27	15.2		808
1981	JO1		1981	05	09.29464	15	26	24.40	-29	26	49.0		808
1981	JP1	*	1981	05	09.24409	15	28	41.51	-30	42	04.8	17.9	808
1981	JP1		1981	05	09.29464	15	28	38.71	-30	41	54.7		808
1981	JQ1	*	1981	05	09.24409	15	31	00.66	-29	52	39.9	18.0	808
1981	JQ1		1981	05	09.29464	15	30	57.74	-29	52	36.3		808
1981	JR1	*	1981	05	09.24409	15	37	06.12	-32	15	51.1	17.5	808
1981	JR1		1981	05	09.29464	15	37	02.39	-32	16	17.8		808
1981	JR1		1981	05	14.17018	15	31	06.32	-32	58	18.7		808
1981	JR1		1981	05	14.22143	15	31	02.27	-32	58	42.6		808
1981	JR1		1981	05	15.16260	15	29	51.65	-33	06	09.4		808
1981	JR1		1981	05	15.22493	15	29	46.62	-33	06	38.0		808
1981	JS1	*	1981	05	09.24409	15	37	32.70	-29	50	36.1	17.8	808
1981	JS1		1981	05	09.29464	15	37	29.30	-29	50	28.1		808
1981	JT1	*	1981	05	09.24409	15	40	20.16	-28	47	18.4	17.5	808
1981	JT1		1981	05	09.29464	15	40	17.54	-28	47	10.1		808
1981	JU1	*	1981	05	09.24409	15	40	42.74	-29	40	39.8	17.9	808
1981	JU1		1981	05	09.29464	15	40	40.12	-29	40	33.6		808
1981	KA		1981	04	08.26986	15	48	06.72	-27	46	48.5	16.4	808
1981	KA		1981	04	08.31280	15	48	05.56	-27	47	00.4		808
1981	KA		1981	04	11.25807	15	46	49.79	-28	01	59.8		808
1981	KA		1981	04	11.34186	15	46	46.80	-28	02	19.8		808
1981	KA		1981	05	07.19969	15	27	00.73	-29	40	15.4	16.4	808
1981	KA		1981	05	07.24886	15	26	57.75	-29	40	22.1		808
1981	KA		1981	05	09.24409	15	24	58.12	-29	44	44.2	15.8	808
1981	KA		1981	05	09.29464	15	24	55.02	-29	44	50.3		808

Note 1: bad image.

OBSERVATIONS MADE WITH THE 0.4-M ASTROGRAPH AT THE EUROPEAN SOUTHERN OBSERVATORY BY H. DEBEHOGNE AND G. DE SANCTIS (ASSISTED BY G. ROMAN). MEASURED BY DEBEHOGNE, L. E. MACHADO AND STAFF. REDUCTION BY DEBEHOGNE AND G. VIEIRA.

Object	Date	UT	R. A. (1950)	Decl.	O - C	Mag.	Obs.
53	1981	03 01.30130	13 07 56.19	-01 47 23.1	0.3- 1+	12.9	809
53	1981	03 01.30823	13 07 55.99	-01 47 20.5	0.3- 1+		809
53	1981	03 01.31515	13 07 55.77	-01 47 18.3	0.3- 1+		809
53	1981	03 05.37487	13 06 02.16	-01 22 51.6	0.1- 0		809
53	1981	03 05.38187	13 06 01.92	-01 22 49.1	0.1- 0		809
53	1981	03 05.38876	13 06 01.72	-01 22 46.2	0.1- 0		809
90	1981	02 27.29845	10 41 36.39	+11 36 51.1	0.0 1-	14.2	809
90	1981	02 27.31300	10 41 35.71	+11 36 55.3	0.0 1-		809
90	1981	03 01.14756	10 40 13.15	+11 45 09.6	0.0 1-		809
90	1981	03 01.15454	10 40 12.82	+11 45 11.5	0.0 1-		809
90	1981	03 01.16141	10 40 12.49	+11 45 13.8	0.0 1-		809
90	1981	03 02.10120	10 39 30.21	+11 49 23.6	0.0 1-		809
90	1981	03 02.10812	10 39 29.88	+11 49 25.7	0.0 1-		809
90	1981	03 02.11505	10 39 29.58	+11 49 27.5	0.0 1-		809
90	1981	03 03.14210	10 38 43.22	+11 54 00.6	0.0 1-		809
90	1981	03 03.14902	10 38 42.90	+11 54 02.4	0.0 1-		809
90	1981	03 03.15595	10 38 42.60	+11 54 04.2	0.0 1-		809
90	1981	03 04.14421	10 37 58.08	+11 58 22.0	0.0 1-		809
90	1981	03 04.15114	10 37 57.78	+11 58 23.7	0.0 1-		809
90	1981	03 04.15806	10 37 57.47	+11 58 25.4	0.0 1-		809
90	1981	03 06.19658	10 36 26.18	+12 07 11.1	0.1+ 1-		809
90	1981	03 06.20385	10 36 25.86	+12 07 12.9	0.1+ 1-		809
90	1981	03 06.21078	10 36 25.54	+12 07 14.7	0.1+ 1-		809
90	1981	03 07.10322	10 35 45.97	+12 10 59.9	0.1+ 1-		809
90	1981	03 07.10970	10 35 45.67	+12 11 01.6	0.1+ 1-		809
90	1981	03 07.11663	10 35 45.36	+12 11 03.6	0.1+ 1-		809
90	1981	03 08.19493	10 34 57.58	+12 15 32.8	0.1+ 1-		809
90	1981	03 08.20185	10 34 57.29	+12 15 34.4	0.1+ 1-		809
90	1981	03 08.20878	10 34 56.96	+12 15 36.3	0.1+ 1-		809
90	1981	03 09.12087	10 34 16.96	+12 19 19.5	0.1+ 1-		809
90	1981	03 09.12779	10 34 16.65	+12 19 21.3	0.1+ 1-		809
90	1981	03 09.13472	10 34 16.34	+12 19 23.0	0.1+ 1-		809
90	1981	03 09.14857	10 34 15.76	+12 19 26.6	0.1+ 1-		809
90	1981	03 09.15549	10 34 15.46	+12 19 28.4	0.1+ 1-		809
90	1981	03 09.16242	10 34 15.12	+12 19 30.0	0.1+ 1-		809
90	1981	03 10.17977	10 33 30.76	+12 23 36.3	0.1+ 1-		809
90	1981	03 10.18670	10 33 30.46	+12 23 37.9	0.1+ 1-		809
90	1981	03 10.19293	10 33 30.18	+12 23 39.6	0.1+ 1-		809
90	1981	03 12.15527	10 32 05.96	+12 31 22.2	0.1+ 1-		809
90	1981	03 12.16011	10 32 05.73	+12 31 23.5	0.1+ 1-		809
90	1981	03 12.16496	10 32 05.49	+12 31 24.6	0.1+ 1-		809
90	1981	03 13.09471	10 31 26.24	+12 34 58.1	0.1+ 1-		809
90	1981	03 13.10302	10 31 25.83	+12 34 59.9	0.1+ 1-		809
90	1981	03 14.07674	10 30 45.09	+12 38 38.2	0.1+ 1-		809
90	1981	03 14.08367	10 30 44.83	+12 38 39.6	0.1+ 1-		809
90	1981	03 14.09059	10 30 44.55	+12 38 41.3	0.1+ 1-		809
90	1981	03 15.05289	10 30 04.83	+12 42 13.5	0.1+ 1-		809
90	1981	03 15.05912	10 30 04.58	+12 42 10.1	0.1+ 1-		809
90	1981	03 15.06535	10 30 04.33	+12 42 16.0	0.1+ 1-		809
90	1981	03 16.05431	10 29 24.11	+12 45 48.6	0.1+ 0		809
90	1981	03 16.06193	10 29 23.78	+12 45 50.2	0.1+ 0		809
90	1981	03 16.06955	10 29 23.49	+12 45 52.0	0.1+ 0		809
126	1981	03 01.27845	12 59 52.43	-04 48 34.3	0.2- 1+	13.9	809
126	1981	03 01.28537	12 59 52.19	-04 48 33.2	0.2- 1+		809

126	1981	03	01.29230	12	59	51.94	-04	48	32.6	0.2-	1+	809
126	1981	03	05.34094	12	57	36.66	-04	36	51.5	0.1-	0	809
126	1981	03	05.34786	12	57	36.41	-04	36	50.0	0.1-	0	809
126	1981	03	05.35479	12	57	36.16	-04	36	49.0	0.1-	0	809
140	1981	03	01.25213	12	37	55.01	+00	41	05.8	0.2-	1+ 13.4	809
140	1981	03	01.25906	12	37	54.75	+00	41	07.6	0.2-	1+	809
140	1981	03	01.26598	12	37	54.55	+00	41	09.6	0.2-	1+	809
217	1981	03	01.25213	12	37	36.54	+00	41	57.6	0.2-	1+ 15.5	809
217	1981	03	01.25906	12	37	36.30	+00	41	59.7	0.2-	1+	809
217	1981	03	01.26598	12	37	36.08	+00	42	02.3	0.2-	1+	809
272	1981	03	01.25213	12	37	30.65	+00	28	58.9	0.2-	1+ 15.4	809
272	1981	03	01.25906	12	37	30.41	+00	28	59.9	0.2-	1+	809
272	1981	03	01.26598	12	37	30.12	+00	29	01.5	0.2-	1+	809
272	1981	03	05.31531	12	34	59.91	+00	43	29.6	0.1-	1+	809
272	1981	03	05.32224	12	34	59.62	+00	43	30.6	0.1-	1+	809
272	1981	03	05.32916	12	34	59.30	+00	43	32.0	0.1-	1+	809
280	1981	03	02.23624	10	40	58.89	+15	01	25.1	0.1+	1- 15.4	809
280	1981	03	02.24317	10	40	58.51	+15	01	26.1	0.1+	1-	809
280	1981	03	02.25009	10	40	58.13	+15	01	27.3	0.1+	1-	809
280	1981	03	03.17465	10	40	08.58	+15	03	46.5	0.1+	1-	809
280	1981	03	03.18157	10	40	08.21	+15	03	47.4	0.1+	1-	809
280	1981	03	03.18850	10	40	07.84	+15	03	48.3	0.1+	1-	809
280	1981	03	07.18450	10	36	35.94	+15	12	51.2	0.0	1-	809
280	1981	03	07.19143	10	36	35.56	+15	12	51.9	0.1+	1-	809
280	1981	03	07.19835	10	36	35.20	+15	12	52.8	0.1+	1-	809
280	1981	03	09.22890	10	34	50.27	+15	16	49.2	0.1+	1-	809
280	1981	03	09.23583	10	34	49.91	+15	16	49.7	0.1+	1-	809
280	1981	03	09.24275	10	34	49.55	+15	16	50.3	0.1+	1-	809
322	1981	02	26.15852	09	13	52.52	+04	41	16.1	0.1+	0 14.5	809
322	1981	02	26.16683	09	13	52.14	+04	41	18.0	0.1+	0	809
322	1981	02	26.17375	09	13	51.82	+04	41	19.9	0.1+	0	809
322	1981	02	28.14890	09	12	25.25	+04	49	59.6	0.2+	0	809
322	1981	02	28.15583	09	12	24.96	+04	50	01.0	0.2+	0	809
322	1981	02	28.16275	09	12	24.66	+04	50	03.0	0.2+	0	809
331	1981	03	01.25213	12	31	27.47	+00	07	17.6	0.2-	1+ 15.1	809
331	1981	03	01.25906	12	31	27.20	+00	07	18.9	0.2-	1+	809
331	1981	03	01.26598	12	31	26.98	+00	07	20.0	0.2-	1+	809
334	1981	02	27.29845	10	37	42.46	+11	37	16.5	0.0	0 14.0	809
334	1981	02	27.31300	10	37	41.91	+11	37	20.6	0.0	0	809
334	1981	03	01.14756	10	36	32.90	+11	45	30.9	0.0	0	809
334	1981	03	01.15454	10	36	32.63	+11	45	32.8	0.0	0	809
334	1981	03	01.16141	10	36	32.33	+11	45	35.1	0.0	0	809
334	1981	03	02.10120	10	35	56.98	+11	49	44.5	0.0	0	809
334	1981	03	02.10812	10	35	56.72	+11	49	46.2	0.0	0	809
334	1981	03	02.11505	10	35	56.47	+11	49	48.8	0.0	0	809
334	1981	03	03.14210	10	35	17.86	+11	54	18.2	0.0	0	809
334	1981	03	03.14902	10	35	17.59	+11	54	20.0	0.0	0	809
334	1981	03	03.15595	10	35	17.34	+11	54	21.8	0.0	0	809
334	1981	03	04.14421	10	34	40.31	+11	58	39.0	0.0	0	809
334	1981	03	04.15114	10	34	40.08	+11	58	40.9	0.0	0	809
334	1981	03	04.15806	10	34	39.78	+11	58	42.7	0.0	0	809
334	1981	03	05.21766	10	34	00.18	+12	03	15.5	0.0	0	809
334	1981	03	05.22459	10	33	59.91	+12	03	17.4	0.0	0	809
334	1981	03	05.23151	10	33	59.65	+12	03	19.5	0.0	0	809
334	1981	03	06.19658	10	33	23.87	+12	07	26.2	0.0	0	809
334	1981	03	06.20385	10	33	23.58	+12	07	28.2	0.0	0	809
334	1981	03	06.21078	10	33	23.33	+12	07	29.8	0.0	0	809
334	1981	03	07.10322	10	32	50.49	+12	11	15.7	0.0	0	809
334	1981	03	07.10970	10	32	50.26	+12	11	17.9	0.0	0	809

334		1981	03	07.11663	10	32	50.00	+12	11	18.8	0.0	0	809
334		1981	03	07.12771	10	32	49.54	+12	11	21.8	0.0	0	809
334		1981	03	07.13464	10	32	49.28	+12	11	23.2	0.0	0	809
334		1981	03	07.14156	10	32	49.03	+12	11	24.9	0.0	0	809
334		1981	03	08.10628	10	32	13.66	+12	15	26.5	0.0	0	809
334		1981	03	08.11321	10	32	13.42	+12	15	28.4	0.0	0	809
334		1981	03	08.12013	10	32	13.15	+12	15	29.7	0.0	0	809
334		1981	03	08.13606	10	32	12.52	+12	15	33.2	0.0	0	809
334		1981	03	08.19493	10	32	10.38	+12	15	48.4	0.0	0	809
334		1981	03	08.20185	10	32	10.15	+12	15	50.0	0.0	0	809
334		1981	03	08.20878	10	32	09.89	+12	15	51.9	0.0	0	809
334		1981	03	09.12087	10	31	36.73	+12	19	36.4	0.1+	0	809
334		1981	03	09.12779	10	31	36.48	+12	19	37.9	0.1+	0	809
334		1981	03	09.13472	10	31	36.23	+12	19	40.0	0.1+	0	809
334		1981	03	10.17977	10	30	58.47	+12	23	53.1	0.1+	0	809
334		1981	03	10.18670	10	30	58.21	+12	23	55.0	0.1+	0	809
334		1981	03	10.19293	10	30	57.96	+12	23	56.8	0.1+	0	809
334		1981	03	10.28920	10	30	54.46	+12	24	20.6	0.1+	1-	809
334		1981	03	10.29681	10	30	54.18	+12	24	21.8	0.1+	1-	809
334		1981	03	10.30305	10	30	53.95	+12	24	23.2	0.1+	1-	809
334		1981	03	12.15527	10	29	48.41	+12	31	44.4	0.1+	1-	809
334		1981	03	12.16011	10	29	48.22	+12	31	45.7	0.1+	1-	809
334		1981	03	12.16496	10	29	48.07	+12	31	46.7	0.1+	1-	809
334		1981	03	13.09471	10	29	15.66	+12	35	22.7	0.1+	1-	809
334		1981	03	13.10302	10	29	15.38	+12	35	24.3	0.1+	1-	809
334		1981	03	14.07674	10	28	41.83	+12	39	06.7	0.1+	1-	809
334		1981	03	14.08367	10	28	41.58	+12	39	08.1	0.1+	1-	809
334		1981	03	14.09059	10	28	41.34	+12	39	09.4	0.1+	1-	809
334		1981	03	14.10618	10	28	40.76	+12	39	14.1	0.1+	1-	809
334		1981	03	14.11310	10	28	40.52	+12	39	15.3	0.1+	1-	809
334		1981	03	14.12003	10	28	40.25	+12	39	16.5	0.1+	1-	809
334		1981	03	14.12695	10	28	40.05	+12	39	18.4	0.1+	1-	809
334		1981	03	14.13318	10	28	39.82	+12	39	19.7	0.1+	1-	809
334		1981	03	14.13942	10	28	39.60	+12	39	21.5	0.1+	1-	809
334		1981	03	15.05289	10	28	08.64	+12	42	45.1	0.1+	0	809
334		1981	03	15.05912	10	28	08.40	+12	42	46.2	0.1+	0	809
334		1981	03	15.06535	10	28	08.20	+12	42	47.9	0.1+	0	809
334		1981	03	16.05431	10	27	35.12	+12	46	24.7	0.1+	0	809
334		1981	03	16.06193	10	27	34.86	+12	46	26.8	0.1+	0	809
334		1981	03	16.06955	10	27	34.60	+12	46	28.5	0.1+	0	809
340		1981	03	01.27845	12	58	36.25	-03	20	02.4	0.3-	1+ 15.2	809
340		1981	03	01.28537	12	58	36.02	-03	20	01.1	0.3-	1+	809
340		1981	03	01.29230	12	58	35.78	-03	19	59.9	0.3-	1+	809
340		1981	03	05.34094	12	56	20.21	-03	08	58.5	0.2-	1+	809
340		1981	03	05.34786	12	56	19.96	-03	08	57.6	0.2-	1+	809
340		1981	03	05.35479	12	56	19.72	-03	08	56.2	0.2-	1+	809
436		1981	03	02.23624	10	40	57.29	+15	18	49.4	0.0	1- 15.6	809
436		1981	03	02.24317	10	40	56.91	+15	18	49.4	0.0	1-	809
436		1981	03	02.25009	10	40	56.52	+15	18	49.9	0.0	1-	809
436		1981	03	03.17465	10	40	06.25	+15	19	25.7	0.0	1-	809
436		1981	03	03.18157	10	40	05.85	+15	19	25.9	0.0	1-	809
436		1981	03	03.18850	10	40	05.44	+15	19	26.1	0.0	1-	809
436		1981	03	07.18450	10	36	29.62	+15	21	15.6	0.0	0	809
436		1981	03	07.19143	10	36	29.25	+15	21	15.8	0.0	0	809
436		1981	03	07.19835	10	36	28.85	+15	21	15.5	0.1+	0	809
436		1981	03	09.22890	10	34	41.24	+15	21	40.8	0.1+	1-	809
436		1981	03	09.23583	10	34	40.86	+15	21	40.7	0.1+	1-	809
436		1981	03	09.24275	10	34	40.49	+15	21	40.5	0.1+	1-	809
524		1981	02	28.17314	10	20	36.61	+08	06	48.7	0.1+	1- 14.3	809

524		1981	02	28.18007	10	20	36.25	+08	06	49.8	0.1+	1-	809
524		1981	02	28.18699	10	20	35.90	+08	06	50.2	0.1+	1-	809
524		1981	03	01.12228	10	19	41.98	+08	09	14.7	0.1+	1-	809
524		1981	03	01.12886	10	19	41.61	+08	09	15.5	0.1+	1-	809
524		1981	03	01.13578	10	19	41.18	+08	09	16.7	0.1+	1-	809
526		1981	02	27.29845	10	37	34.56	+09	56	57.9	0.1+	1-	14.4 809
526		1981	02	27.31300	10	37	33.87	+09	57	03.1	0.1+	1-	809
526		1981	03	01.14756	10	36	09.80	+10	06	53.4	0.1+	1-	809
526		1981	03	01.15454	10	36	09.51	+10	06	55.8	0.1+	1-	809
526		1981	03	01.16141	10	36	09.14	+10	06	58.6	0.1+	1-	809
526		1981	03	02.10120	10	35	26.20	+10	11	57.3	0.1+	1-	809
526		1981	03	02.10812	10	35	25.85	+10	11	59.8	0.1+	1-	809
526		1981	03	02.11505	10	35	25.54	+10	12	02.1	0.1+	1-	809
526		1981	03	03.14210	10	34	38.66	+10	17	26.1	0.1+	1-	809
526		1981	03	03.14902	10	34	38.33	+10	17	28.4	0.1+	1-	809
526		1981	03	03.15595	10	34	38.00	+10	17	30.6	0.1+	1-	809
526		1981	03	04.14421	10	33	53.10	+10	22	41.0	0.1+	1-	809
526		1981	03	04.15114	10	33	52.75	+10	22	43.1	0.1+	1-	809
526		1981	03	04.15806	10	33	52.42	+10	22	45.3	0.1+	1-	809
526		1981	03	08.16653	10	30	53.96	+10	43	08.9	0.1+	1-	809
526		1981	03	08.17346	10	30	53.67	+10	43	11.0	0.1+	1-	809
526		1981	03	08.18038	10	30	53.36	+10	43	13.0	0.1+	1-	809
526		1981	03	14.07674	10	26	48.00	+11	10	49.8	0.2+	1-	809
526		1981	03	14.08367	10	26	47.72	+11	10	51.9	0.2+	1-	809
526		1981	03	14.09059	10	26	47.42	+11	10	53.8	0.2+	1-	809
526		1981	03	16.05431	10	25	31.73	+11	19	19.6	0.1+	1-	809
526		1981	03	16.06193	10	25	31.44	+11	19	21.6	0.1+	1-	809
526		1981	03	16.06955	10	25	31.15	+11	19	23.5	0.1+	1-	809
573		1981	02	27.29845	10	37	56.75	+10	05	19.0	0.0	1-	15.2 809
573		1981	02	27.31300	10	37	55.98	+10	05	21.4	0.0	1-	809
573		1981	03	01.14756	10	36	22.12	+10	10	01.6	0.0	1-	809
573		1981	03	01.15454	10	36	21.75	+10	10	02.6	0.0	1-	809
573		1981	03	01.16141	10	36	21.38	+10	10	03.5	0.0	1-	809
573		1981	03	02.10120	10	35	33.38	+10	12	24.6	0.0	1-	809
573		1981	03	02.10812	10	35	33.03	+10	12	25.8	0.0	1-	809
573		1981	03	02.11505	10	35	32.70	+10	12	26.9	0.0	1-	809
573		1981	03	03.14210	10	34	40.29	+10	14	58.0	0.0	1-	809
573		1981	03	03.14902	10	34	39.98	+10	14	58.9	0.0	1-	809
573		1981	03	03.15595	10	34	39.61	+10	14	59.8	0.0	1-	809
573		1981	03	04.14421	10	33	49.38	+10	17	25.1	0.0	1-	809
573		1981	03	04.15114	10	33	49.03	+10	17	26.0	0.0	1-	809
573		1981	03	04.15806	10	33	48.68	+10	17	26.9	0.0	1-	809
573		1981	03	08.16653	10	30	28.20	+10	26	47.9	0.0	0	809
573		1981	03	08.17346	10	30	27.83	+10	26	48.7	0.0	0	809
573		1981	03	08.18038	10	30	27.49	+10	26	49.8	0.0	0	809
615		1981	02	27.29845	10	43	29.83	+10	51	24.7	0.0	0	14.6 809
615		1981	02	27.31300	10	43	28.96	+10	51	28.9	0.0	0	809
615		1981	03	01.14756	10	41	47.82	+10	59	55.8	0.0	0	809
615		1981	03	01.15454	10	41	47.38	+10	59	57.5	0.0	0	809
615		1981	03	01.16141	10	41	46.94	+10	59	59.9	0.0	0	809
615		1981	03	02.10120	10	40	54.99	+11	04	17.0	0.0	0	809
615		1981	03	02.10812	10	40	54.58	+11	04	18.6	0.0	0	809
615		1981	03	02.11505	10	40	54.21	+11	04	20.6	0.0	0	809
615		1981	03	03.14210	10	39	57.26	+11	09	00.2	0.0	0	809
615		1981	03	03.14902	10	39	56.85	+11	09	01.8	0.0	0	809
615		1981	03	03.15595	10	39	56.49	+11	09	04.0	0.0	0	809
615		1981	03	04.14421	10	39	01.81	+11	13	29.1	0.0	0	809
615		1981	03	04.15114	10	39	01.41	+11	13	31.0	0.0	0	809
615		1981	03	04.15806	10	39	01.01	+11	13	32.8	0.0	0	809

615	1981	03	06.19658	10	37	08.74	+11	22	28.7	0.0	0	809
615	1981	03	06.20385	10	37	08.31	+11	22	30.5	0.0	0	809
615	1981	03	06.21078	10	37	07.93	+11	22	32.1	0.0	0	809
615	1981	03	07.10322	10	36	19.39	+11	26	21.4	0.0	0	809
615	1981	03	07.10970	10	36	19.03	+11	26	23.1	0.0	0	809
615	1981	03	07.11663	10	36	18.63	+11	26	24.9	0.0	0	809
615	1981	03	08.19493	10	35	19.97	+11	30	56.5	0.0	0	809
615	1981	03	08.20185	10	35	19.58	+11	30	58.5	0.0	0	809
615	1981	03	08.20878	10	35	19.18	+11	31	00.0	0.0	0	809
615	1981	03	09.14857	10	34	28.69	+11	34	52.5	0.1+	1-	809
615	1981	03	09.15549	10	34	28.31	+11	34	54.2	0.1+	1-	809
615	1981	03	09.16242	10	34	27.91	+11	34	55.8	0.1+	1-	809
615	1981	03	09.17281	10	34	27.37	+11	34	58.4	0.1+	1-	809
615	1981	03	09.18112	10	34	26.90	+11	35	00.6	0.1+	1-	809
615	1981	03	09.18804	10	34	26.51	+11	35	02.3	0.1+	1-	809
615	1981	03	10.17977	10	33	33.68	+11	39	02.1	0.1+	1-	809
615	1981	03	10.18670	10	33	33.28	+11	39	03.8	0.1+	1-	809
615	1981	03	10.19293	10	33	32.92	+11	39	05.4	0.1+	1-	809
615	1981	03	10.20193	10	33	32.40	+11	39	07.5	0.1+	1-	809
615	1981	03	10.20886	10	33	32.02	+11	39	08.9	0.1+	1-	809
615	1981	03	10.21578	10	33	31.68	+11	39	10.6	0.1+	1-	809
615	1981	03	12.15527	10	31	50.13	+11	46	44.9	0.1+	1-	809
615	1981	03	12.16011	10	31	49.86	+11	46	46.0	0.1+	1-	809
615	1981	03	12.16496	10	31	49.56	+11	46	46.8	0.1+	1-	809
615	1981	03	13.09471	10	31	01.91	+11	50	15.7	0.1+	1-	809
615	1981	03	13.10302	10	31	01.43	+11	50	17.5	0.1+	1-	809
615	1981	03	14.07674	10	30	12.09	+11	53	51.4	0.1+	1-	809
615	1981	03	14.08367	10	30	11.74	+11	53	53.2	0.1+	1-	809
615	1981	03	14.09059	10	30	11.38	+11	53	54.1	0.1+	1-	809
615	1981	03	15.05289	10	29	23.44	+11	57	18.4	0.1+	1-	809
615	1981	03	15.05912	10	29	23.11	+11	57	19.4	0.1+	1-	809
615	1981	03	15.06535	10	29	22.85	+11	57	20.8	0.1+	1-	809
615	1981	03	16.05431	10	28	34.38	+12	00	43.5	0.0	0	809
615	1981	03	16.06193	10	28	33.98	+12	00	45.7	0.0	0	809
615	1981	03	16.06955	10	28	33.62	+12	00	47.4	0.0	0	809
660	1981	02	28.17314	10	21	11.74	+09	44	49.6	0.1+	1- 13.7	809
660	1981	02	28.18007	10	21	11.40	+09	44	54.4	0.1+	1-	809
660	1981	02	28.18699	10	21	11.05	+09	44	58.3	0.1+	1-	809
660	1981	03	01.12228	10	20	24.59	+09	55	27.6	0.1+	1-	809
660	1981	03	01.12886	10	20	24.24	+09	55	32.3	0.1+	1-	809
660	1981	03	01.13578	10	20	23.88	+09	55	37.1	0.1+	1-	809
660	1981	03	07.15784	10	15	31.98	+11	01	56.3	0.1+	0	809
660	1981	03	07.16511	10	15	31.60	+11	02	00.6	0.1+	0	809
660	1981	03	07.17134	10	15	31.31	+11	02	04.5	0.1+	0	809
668	1981	02	26.15852	09	16	10.50	+06	33	25.3	0.0	0 18.0	809
668	1981	02	26.16683	09	16	10.15	+06	33	27.1	0.0	0	809
668	1981	02	26.17375	09	16	09.88	+06	33	29.1	0.0	0	809
668	1981	02	28.14890	09	14	45.52	+06	43	07.9	0.1+	0	809
668	1981	02	28.15583	09	14	45.19	+06	43	09.8	0.1+	0	809
668	1981	02	28.16275	09	14	44.92	+06	43	11.9	0.1+	0	809
723	1981	03	01.27845	12	53	23.33	-03	07	13.3	0.2-	1+ 15.2	809
723	1981	03	01.28537	12	53	23.19	-03	07	11.7	0.2-	1+	809
723	1981	03	01.29230	12	53	22.98	-03	07	09.9	0.2-	1+	809
755	1981	02	28.17314	10	24	41.22	+08	05	04.2	0.0	0 14.5	809
755	1981	02	28.18007	10	24	40.94	+08	05	06.3	0.0	0	809
755	1981	02	28.18699	10	24	40.66	+08	05	08.0	0.0	0	809
755	1981	03	01.12228	10	23	58.11	+08	10	17.0	0.0	0	809
755	1981	03	01.12886	10	23	57.78	+08	10	19.2	0.0	0	809
755	1981	03	01.13578	10	23	57.42	+08	10	21.4	0.0	0	809

947	1981	03	01.30130	13	09	48.88	-00	57	12.9	0.2-	1+	15.9	809
947	1981	03	01.30823	13	09	48.63	-00	57	11.3	0.2-	1+		809
947	1981	03	01.31515	13	09	48.43	-00	57	10.0	0.2-	1+		809
1010	1981	03	01.30130	13	14	53.27	-02	13	32.9	0.2-	1+	16.1	809
1010	1981	03	01.30823	13	14	53.08	-02	13	32.2	0.2-	1+		809
1010	1981	03	01.31515	13	14	52.87	-02	13	32.0	0.2-	1+		809
1018	1981	03	01.20504	11	58	11.84	+01	29	16.7	0.1-	1+	16.5	809
1018	1981	03	01.21196	11	58	11.51	+01	29	18.1	0.1-	1+		809
1018	1981	03	01.21889	11	58	11.15	+01	29	19.6	0.1-	1+		809
1018	1981	03	02.15106	11	57	25.79	+01	32	38.2	0.2-	1+		809
1018	1981	03	02.15798	11	57	25.46	+01	32	39.6	0.2-	1+		809
1018	1981	03	02.16491	11	57	25.10	+01	32	40.7	0.2-	1+		809
1018	1981	03	03.22624	11	56	32.48	+01	36	31.1	0.1-	1+		809
1018	1981	03	03.23317	11	56	32.13	+01	36	32.7	0.1-	1+		809
1018	1981	03	03.24009	11	56	31.73	+01	36	34.2	0.1-	1+		809
1018	1981	03	04.25918	11	55	40.49	+01	40	17.9	0.1-	1+		809
1018	1981	03	04.26610	11	55	40.13	+01	40	19.7	0.1-	1+		809
1018	1981	03	04.27303	11	55	39.79	+01	40	21.3	0.1-	1+		809
1018	1981	03	05.29384	11	54	47.74	+01	44	10.0	0.1-	1+		809
1018	1981	03	05.30077	11	54	47.36	+01	44	11.2	0.1-	1+		809
1018	1981	03	05.30769	11	54	47.01	+01	44	13.0	0.1-	1+		809
1079	1981	02	28.17314	10	23	18.72	+09	52	01.8	0.1+	0	15.7	809
1079	1981	02	28.18007	10	23	18.40	+09	52	03.8	0.1+	0		809
1079	1981	02	28.18699	10	23	18.04	+09	52	05.9	0.1+	0		809
1079	1981	03	01.12228	10	22	31.28	+09	56	11.9	0.1+	0		809
1079	1981	03	01.12886	10	22	31.00	+09	56	13.5	0.1+	0		809
1079	1981	03	01.13578	10	22	30.61	+09	56	15.3	0.1+	0		809
1204	1981	03	01.14756	10	37	48.28	+10	09	54.8	0.0	1-	17.0	809
1204	1981	03	01.15454	10	37	47.86	+10	09	57.4	0.0	1-		809
1204	1981	03	01.16141	10	37	47.38	+10	09	59.4	0.0	1-		809
1204	1981	03	02.10120	10	36	50.11	+10	15	11.1	0.0	1-		809
1204	1981	03	02.10812	10	36	49.72	+10	15	13.4	0.0	1-		809
1204	1981	03	02.11505	10	36	49.29	+10	15	15.6	0.0	1-		809
1204	1981	03	03.14210	10	35	46.53	+10	20	53.0	0.0	1-		809
1204	1981	03	03.14902	10	35	46.14	+10	20	55.2	0.0	1-		809
1204	1981	03	03.15595	10	35	45.70	+10	20	57.5	0.0	1-		809
1204	1981	03	04.14421	10	34	45.56	+10	26	21.2	0.0	1-		809
1204	1981	03	04.15114	10	34	45.13	+10	26	23.5	0.0	1-		809
1204	1981	03	04.15806	10	34	44.70	+10	26	25.4	0.0	1-		809
1204	1981	03	06.19658	10	32	41.19	+10	37	23.2	0.0	1-		809
1204	1981	03	06.20385	10	32	40.78	+10	37	25.6	0.0	1-		809
1204	1981	03	06.21078	10	32	40.35	+10	37	27.9	0.0	1-		809
1204	1981	03	08.16653	10	30	43.16	+10	47	44.0	0.1+	1-		809
1204	1981	03	08.17346	10	30	42.75	+10	47	46.4	0.1+	1-		809
1204	1981	03	08.18038	10	30	42.33	+10	47	48.3	0.1+	1-		809
1204	1981	03	10.29681	10	28	37.37	+10	58	36.9	0.1+	1-		809
1204	1981	03	10.30305	10	28	37.01	+10	58	38.4	0.1+	1-		809
1204	1981	03	12.15527	10	26	50.14	+11	07	47.1	0.2+	2-		809
1204	1981	03	12.16011	10	26	49.86	+11	07	48.9	0.2+	2-		809
1204	1981	03	12.16496	10	26	49.56	+11	07	50.6	0.2+	2-		809
1277	1981	02	26.15852	09	19	54.09	+05	18	08.4	0.0	0	16.6	809
1277	1981	02	26.16683	09	19	53.66	+05	18	10.2	0.0	0		809
1277	1981	02	26.17375	09	19	53.35	+05	18	12.3	0.0	0		809
1277	1981	02	28.14890	09	18	19.98	+05	27	07.3	0.1+	0		809
1277	1981	02	28.15583	09	18	19.65	+05	27	09.3	0.1+	0		809
1277	1981	02	28.16275	09	18	19.33	+05	27	11.2	0.1+	0		809
1586	1981	03	01.30130	13	14	54.13	-01	53	37.5	0.4-	2+	15.8	809
1586	1981	03	01.30823	13	14	54.02	-01	53	35.6	0.4-	2+		809
1586	1981	03	01.31515	13	14	53.90	-01	53	33.7	0.4-	2+		809

1640	1981	03	05.29384	11	51	24.22	+01	18	45.2		17.8	809
1640	1981	03	05.30077	11	51	23.77	+01	18	46.8			809
1640	1981	03	05.30769	11	51	23.27	+01	18	48.2			809
1667	1981	03	02.23624	10	41	18.52	+16	48	47.2	0.0 2-	16.0	809
1667	1981	03	02.24317	10	41	18.02	+16	48	49.6	0.0 2-		809
1667	1981	03	02.25009	10	41	17.54	+16	48	52.5	0.0 2-		809
1667	1981	03	03.17465	10	40	18.09	+16	55	01.5	0.0 2-		809
1667	1981	03	03.18157	10	40	17.66	+16	55	04.2	0.0 2-		809
1667	1981	03	03.18850	10	40	17.15	+16	55	07.1	0.0 2-		809
1802	1981	03	01.20504	11	56	08.74	+02	35	50.2	0.1+ 0	16.7	809
1802	1981	03	01.21196	11	56	08.42	+02	35	52.6	0.1+ 0		809
1802	1981	03	01.21889	11	56	08.22	+02	35	54.6	0.1+ 0		809
1802	1981	03	02.15106	11	55	29.86	+02	41	07.0	0.0 0		809
1802	1981	03	02.15798	11	55	29.59	+02	41	09.2	0.0 0		809
1802	1981	03	02.16491	11	55	29.27	+02	41	11.3	0.0 0		809
1802	1981	03	03.22624	11	54	44.61	+02	47	11.8	0.1+ 0		809
1802	1981	03	03.23317	11	54	44.32	+02	47	14.0	0.1+ 0		809
1802	1981	03	03.24009	11	54	44.02	+02	47	17.0	0.1+ 0		809
1802	1981	03	05.27099	11	53	16.42	+02	58	57.2	0.1+ 1-		809
1802	1981	03	05.27792	11	53	16.09	+02	58	59.5	0.1+ 1-		809
1802	1981	03	05.28484	11	53	15.81	+02	59	02.2	0.1+ 1-		809
1802	1981	03	06.30358	11	52	30.83	+03	04	58.4	0.2+ 1-		809
1802	1981	03	06.31050	11	52	30.50	+03	05	00.5	0.2+ 1-		809
1802	1981	03	06.31743	11	52	30.17	+03	05	02.7	0.2+ 1-		809
1824	1981	03	01.20504	11	57	10.87	+01	31	30.0	0.2- 1+	16.6	809
1824	1981	03	01.21196	11	57	10.59	+01	31	31.8	0.2- 1+		809
1824	1981	03	01.21889	11	57	10.30	+01	31	33.2	0.2- 1+		809
1824	1981	03	02.15106	11	56	30.67	+01	35	26.3	0.2- 1+		809
1824	1981	03	02.15798	11	56	30.34	+01	35	28.0	0.2- 1+		809
1824	1981	03	02.16491	11	56	30.03	+01	35	30.0	0.2- 1+		809
1824	1981	03	03.22624	11	55	43.83	+01	39	59.8	0.2- 1+		809
1824	1981	03	03.23317	11	55	43.52	+01	40	01.5	0.2- 1+		809
1824	1981	03	03.24009	11	55	43.21	+01	40	03.5	0.2- 1+		809
1824	1981	03	04.25918	11	54	58.16	+01	44	25.8	0.1- 0		809
1824	1981	03	04.26610	11	54	57.84	+01	44	27.4	0.1- 0		809
1824	1981	03	04.27303	11	54	57.52	+01	44	29.0	0.1- 0		809
1824	1981	03	05.29384	11	54	11.66	+01	48	57.1	0.1- 0		809
1824	1981	03	05.30077	11	54	11.32	+01	48	59.2	0.1- 0		809
1824	1981	03	05.30769	11	54	10.98	+01	49	01.1	0.1- 0		809
1843	1981	02	26.15852	09	18	05.13	+04	36	43.3	0.1+ 0	16.7	809
1843	1981	02	26.16683	09	18	04.72	+04	36	45.2	0.1+ 0		809
1843	1981	02	26.17375	09	18	04.38	+04	36	46.7	0.1+ 0		809
1843	1981	02	28.14890	09	16	28.97	+04	44	33.8	0.2+ 0		809
1843	1981	02	28.15583	09	16	28.65	+04	44	35.2	0.2+ 0		809
1843	1981	02	28.16275	09	16	28.31	+04	44	36.7	0.2+ 0		809
1923	1981	03	07.15784	10	17	54.60	+12	56	03.7	0.1+ 1-	17.1	809
1923	1981	03	07.16511	10	17	54.23	+12	56	04.5	0.1+ 1-		809
1923	1981	03	07.17134	10	17	53.82	+12	56	05.2	0.1+ 1-		809
1986	1981	03	08.16653	10	27	24.83	+10	20	08.4	0.1- 0	18.0	809
1986	1981	03	08.17346	10	27	24.56	+10	20	10.6	0.1- 0		809
1986	1981	03	08.18038	10	27	24.33	+10	20	11.4	0.1- 0		809
2045	1981	03	05.34094	12	58	02.20	-04	16	05.8	0.2- 1+	15.8	809
2045	1981	03	05.34786	12	58	01.92	-04	16	05.6	0.2- 1+		809
2045	1981	03	05.35479	12	58	01.68	-04	16	05.6	0.2- 1+		809
2200	1981	03	07.15784	10	15	02.06	+11	58	04.9		16.8	809
2200	1981	03	07.16511	10	15	01.61	+11	58	06.8			809
2200	1981	03	07.17134	10	15	01.21	+11	58	08.5			809
2394	1981	03	05.21766	10	29	47.05	+10	44	32.8		17.7	809
2394	1981	03	05.22459	10	29	46.72	+10	44	34.8			809

2394		1981	03	05.23151	10	29	46.40	+10	44	36.9	809
2394		1981	03	07.12771	10	28	22.58	+10	53	19.7	809
2394		1981	03	07.13464	10	28	22.28	+10	53	21.3	809
2394		1981	03	07.14156	10	28	22.00	+10	53	23.1	809
2394		1981	03	08.10628	10	27	39.98	+10	57	43.1	809
2394		1981	03	08.11321	10	27	39.67	+10	57	44.9	809
2394		1981	03	08.12013	10	27	39.38	+10	57	46.6	809
2394		1981	03	08.13606	10	27	38.68	+10	57	51.0	809
2394		1981	03	08.16653	10	27	37.26	+10	57	59.8	809
2394		1981	03	08.17346	10	27	36.97	+10	58	01.6	809
2394		1981	03	08.18038	10	27	36.68	+10	58	03.1	809
2394		1981	03	09.12087	10	26	56.37	+11	02	11.8	809
2394		1981	03	09.12779	10	26	56.03	+11	02	13.8	809
2394		1981	03	09.13472	10	26	55.67	+11	02	15.8	809
2394		1981	03	10.28920	10	26	06.53	+11	07	16.5	809
2394		1981	03	10.29681	10	26	06.22	+11	07	18.1	809
2394		1981	03	10.30305	10	26	05.94	+11	07	19.9	809
2394		1981	03	12.15527	10	24	49.32	+11	15	09.7	809
2394		1981	03	12.16011	10	24	49.15	+11	15	10.8	809
2394		1981	03	12.16496	10	24	48.98	+11	15	11.8	809
2394		1981	03	15.08890	10	22	52.95	+11	26	55.5	809
2394		1981	03	15.09513	10	22	52.70	+11	26	57.2	809
2394		1981	03	15.10137	10	22	52.43	+11	26	59.0	809
1977	NT	1981	03	08.16653	10	31	57.22	+10	05	47.3	17.9 809
1977	NT	1981	03	08.17346	10	31	56.96	+10	05	52.1	809
1978	PF3	1981	02	28.17314	10	21	29.52	+09	44	07.0	18.0 809
1978	PF3	1981	02	28.18007	10	21	29.16	+09	44	08.9	809
1978	PF3	1981	02	28.18699	10	21	28.78	+09	44	10.9	809
1978	PF3	1981	03	01.12228	10	20	38.92	+09	48	18.2	809
1978	PF3	1981	03	01.12886	10	20	38.59	+09	48	19.8	809
1978	PF3	1981	03	01.13578	10	20	38.25	+09	48	21.6	809
1978	PP3	1981	03	01.25213	12	37	19.97	-00	28	03.2	18.2 809
1978	PP3	1981	03	01.25906	12	37	19.71	-00	28	03.0	809
1978	PP3	1981	03	01.26598	12	37	19.44	-00	28	02.9	809
1979	UG	1981	03	01.14756	10	38	23.26	+10	26	36.9	17.8 809
1979	UG	1981	03	01.15454	10	38	22.84	+10	26	40.0	809
1979	UG	1981	03	01.16141	10	38	22.38	+10	26	43.1	809
1979	UG	1981	03	02.10120	10	37	27.38	+10	33	14.1	809
1979	UG	1981	03	02.10812	10	37	26.97	+10	33	17.0	809
1979	UG	1981	03	02.11505	10	37	26.57	+10	33	20.0	809
1979	UG	1981	03	03.14210	10	36	26.39	+10	40	24.5	809
1979	UG	1981	03	03.14902	10	36	25.98	+10	40	27.0	809
1979	UG	1981	03	03.15595	10	36	25.54	+10	40	29.8	809
1979	UG	1981	03	04.14421	10	35	27.92	+10	47	15.6	809
1979	UG	1981	03	04.15114	10	35	27.51	+10	47	18.3	809
1979	UG	1981	03	04.15806	10	35	27.16	+10	47	21.2	809
1979	UG	1981	03	06.19658	10	33	29.13	+11	01	05.3	809
1979	UG	1981	03	06.20385	10	33	28.76	+11	01	07.8	809
1979	UG	1981	03	06.21078	10	33	28.38	+11	01	10.1	809
1979	UG	1981	03	07.10322	10	32	37.37	+11	07	05.3	809
1979	UG	1981	03	07.10970	10	32	37.02	+11	07	07.8	809
1979	UG	1981	03	07.11663	10	32	36.63	+11	07	10.4	809
1979	UG	1981	03	07.12771	10	32	36.00	+11	07	13.5	809
1979	UG	1981	03	07.13464	10	32	35.61	+11	07	15.8	809
1979	UG	1981	03	07.14156	10	32	35.22	+11	07	18.3	809
1979	UG	1981	03	08.10628	10	31	40.36	+11	13	38.4	809
1979	UG	1981	03	08.11321	10	31	39.98	+11	13	41.3	809
1979	UG	1981	03	08.12013	10	31	39.60	+11	13	44.1	809
1979	UG	1981	03	08.13606	10	31	38.65	+11	13	49.6	809

1979	UG	1981	03	08.16653	10	31	36.90	+11	14	02.0	809
1979	UG	1981	03	08.17346	10	31	36.50	+11	14	04.7	809
1979	UG	1981	03	08.18038	10	31	36.11	+11	14	06.9	809
1979	UG	1981	03	08.19493	10	31	35.28	+11	14	11.7	809
1979	UG	1981	03	08.20185	10	31	34.89	+11	14	14.4	809
1979	UG	1981	03	08.20878	10	31	34.52	+11	14	16.9	809
1979	UG	1981	03	09.12087	10	30	43.37	+11	20	10.3	809
1979	UG	1981	03	09.12779	10	30	42.96	+11	20	13.0	809
1979	UG	1981	03	09.13472	10	30	42.55	+11	20	15.7	809
1979	UG	1981	03	10.28920	10	29	38.18	+11	27	34.1	809
1979	UG	1981	03	10.29681	10	29	37.76	+11	27	36.9	809
1979	UG	1981	03	10.30305	10	29	37.42	+11	27	39.4	809
1979	UG	1981	03	12.15527	10	27	56.86	+11	39	05.4	809
1979	UG	1981	03	12.16011	10	27	56.61	+11	39	07.3	809
1979	UG	1981	03	12.16496	10	27	56.36	+11	39	09.4	809
1981	AF	1981	02	27.29845	10	38	06.16	+11	10	55.2	16.2 809
1981	AF	1981	02	27.31300	10	38	05.24	+11	11	00.9	809
1981	AF	1981	03	01.14756	10	36	17.61	+11	24	17.9	809
1981	AF	1981	03	01.15454	10	36	17.21	+11	24	20.7	809
1981	AF	1981	03	01.16141	10	36	16.81	+11	24	23.9	809
1981	AF	1981	03	02.10120	10	35	21.69	+11	31	07.2	809
1981	AF	1981	03	02.10812	10	35	21.29	+11	31	10.0	809
1981	AF	1981	03	02.11505	10	35	20.89	+11	31	13.1	809
1981	AF	1981	03	03.14210	10	34	20.58	+11	38	28.7	809
1981	AF	1981	03	03.14902	10	34	20.16	+11	38	31.7	809
1981	AF	1981	03	03.15595	10	34	19.77	+11	38	34.6	809
1981	AF	1981	03	04.14421	10	33	22.12	+11	45	28.5	809
1981	AF	1981	03	04.15114	10	33	21.73	+11	45	31.3	809
1981	AF	1981	03	04.15806	10	33	21.30	+11	45	34.2	809
1981	AF	1981	03	05.21766	10	32	19.76	+11	52	52.1	809
1981	AF	1981	03	05.22459	10	32	19.34	+11	52	54.8	809
1981	AF	1981	03	05.23151	10	32	18.94	+11	52	57.8	809
1981	AF	1981	03	06.19658	10	31	23.63	+11	59	30.0	809
1981	AF	1981	03	06.20385	10	31	23.21	+11	59	33.0	809
1981	AF	1981	03	06.21078	10	31	22.81	+11	59	35.9	809
1981	AF	1981	03	07.12771	10	30	30.97	+12	05	42.9	809
1981	AF	1981	03	07.13464	10	30	30.55	+12	05	45.4	809
1981	AF	1981	03	07.14156	10	30	30.14	+12	05	47.7	809
1981	AF	1981	03	08.10628	10	29	36.00	+12	12	07.7	809
1981	AF	1981	03	08.11321	10	29	35.63	+12	12	10.2	809
1981	AF	1981	03	08.12013	10	29	35.23	+12	12	12.9	809
1981	AF	1981	03	08.13606	10	29	34.28	+12	12	19.2	809
1981	AF	1981	03	08.16653	10	29	32.47	+12	12	31.2	809
1981	AF	1981	03	08.17346	10	29	32.08	+12	12	33.7	809
1981	AF	1981	03	09.12087	10	28	39.81	+12	18	37.3	809
1981	AF	1981	03	09.12779	10	28	39.42	+12	18	39.9	809
1981	AF	1981	03	09.13472	10	28	39.01	+12	18	42.7	809
1981	AF	1981	03	10.28920	10	27	35.75	+12	25	55.4	809
1981	AF	1981	03	10.29681	10	27	35.33	+12	25	58.3	809
1981	AF	1981	03	10.30305	10	27	34.96	+12	26	00.5	809
1981	AF	1981	03	12.15527	10	25	57.39	+12	37	11.0	809
1981	AF	1981	03	12.16011	10	25	57.14	+12	37	12.7	809
1981	AF	1981	03	12.16496	10	25	56.92	+12	37	14.3	809
1981	AF	1981	03	14.10618	10	24	18.43	+12	48	18.8	809
1981	AF	1981	03	14.11310	10	24	18.11	+12	48	21.2	809
1981	AF	1981	03	14.12003	10	24	17.79	+12	48	23.5	809
1981	AF	1981	03	14.12695	10	24	17.46	+12	48	26.5	809
1981	AF	1981	03	14.13318	10	24	17.16	+12	48	28.4	809
1981	AF	1981	03	14.13942	10	24	16.86	+12	48	30.5	809

1981	AF		1981	03	15.08890	10	23	30.56	+12	53	40.2	809
1981	AF		1981	03	15.09513	10	23	30.27	+12	53	42.1	809
1981	AF		1981	03	15.10137	10	23	30.03	+12	53	44.3	809
1981	DD	*	1981	02	26.15852	09	16	02.18	+05	39	56.6	17.8 809
1981	DD		1981	02	26.16683	09	16	01.78	+05	39	59.4	809
1981	DD		1981	02	26.17375	09	16	01.43	+05	40	02.1	809
1981	DE	*	1981	02	26.15852	09	18	20.04	+05	56	49.6	17.8 809
1981	DE		1981	02	26.16683	09	18	19.59	+05	56	51.9	809
1981	DE		1981	02	26.17375	09	18	19.25	+05	56	53.8	809
1981	DE		1981	02	28.14890	09	16	44.34	+06	07	12.4	809
1981	DE		1981	02	28.15583	09	16	44.00	+06	07	14.4	809
1981	DE		1981	02	28.16275	09	16	43.66	+06	07	16.3	809
1981	DF	*	1981	02	28.17314	10	19	28.18	+08	53	22.2	17.4 809
1981	DF		1981	02	28.18007	10	19	27.83	+08	53	22.4	809
1981	DF		1981	02	28.18699	10	19	27.49	+08	53	22.7	809
1981	DF		1981	03	01.12228	10	18	37.09	+08	53	59.9	809
1981	DF		1981	03	01.12886	10	18	36.74	+08	54	00.2	809
1981	DF		1981	03	01.13578	10	18	36.37	+08	54	00.4	809
1981	DG	*	1981	02	28.17314	10	22	04.58	+09	09	49.7	17.0 809
1981	DG		1981	02	28.18007	10	22	04.26	+09	09	51.6	809
1981	DG		1981	02	28.18699	10	22	03.94	+09	09	53.4	809
1981	DG		1981	03	01.12228	10	21	17.45	+09	14	07.4	809
1981	DG		1981	03	01.12886	10	21	17.14	+09	14	08.9	809
1981	DG		1981	03	01.13578	10	21	16.82	+09	14	10.7	809
1981	DH	*	1981	02	28.17314	10	25	10.42	+09	16	53.7	17.5 809
1981	DH		1981	02	28.18007	10	25	10.12	+09	16	55.7	809
1981	DH		1981	02	28.18699	10	25	09.81	+09	16	57.4	809
1981	DH		1981	03	01.12228	10	24	29.25	+09	20	55.0	809
1981	DH		1981	03	01.12886	10	24	28.98	+09	20	56.6	809
1981	DH		1981	03	01.13578	10	24	28.69	+09	20	58.8	809
1981	EH	*	1981	03	01.12228	10	18	11.91	+08	06	21.0	17.0 809
1981	EH		1981	03	01.12886	10	18	12.00	+08	06	11.9	809
1981	EH		1981	03	01.13578	10	18	12.09	+08	06	02.8	809
1981	EJ	*	1981	03	01.14756	10	35	54.03	+11	09	42.3	17.8 809
1981	EJ		1981	03	01.15454	10	35	53.55	+11	09	44.0	809
1981	EJ		1981	03	01.16141	10	35	53.10	+11	09	45.8	809
1981	EJ		1981	03	02.10120	10	34	53.27	+11	14	47.2	809
1981	EJ		1981	03	02.10812	10	34	52.83	+11	14	49.4	809
1981	EJ		1981	03	02.11505	10	34	52.39	+11	14	51.5	809
1981	EJ		1981	03	03.14210	10	33	47.15	+11	20	17.4	809
1981	EJ		1981	03	03.14902	10	33	46.71	+11	20	19.7	809
1981	EJ		1981	03	03.15595	10	33	46.24	+11	20	22.1	809
1981	EJ		1981	03	05.21766	10	31	36.27	+11	31	00.7	809
1981	EJ		1981	03	05.22459	10	31	35.84	+11	31	03.1	809
1981	EJ		1981	03	05.23151	10	31	35.41	+11	31	05.4	809
1981	EJ		1981	03	06.19658	10	30	35.51	+11	35	57.0	809
1981	EJ		1981	03	06.20385	10	30	35.05	+11	35	59.2	809
1981	EJ		1981	03	06.21078	10	30	34.61	+11	36	01.1	809
1981	EJ		1981	03	07.12771	10	29	38.18	+11	40	32.4	809
1981	EJ		1981	03	07.13464	10	29	37.77	+11	40	34.6	809
1981	EJ		1981	03	07.14156	10	29	37.35	+11	40	36.8	809
1981	EJ		1981	03	08.10628	10	28	38.45	+11	45	17.6	809
1981	EJ		1981	03	08.11321	10	28	38.04	+11	45	19.8	809
1981	EJ		1981	03	08.12013	10	28	37.61	+11	45	22.0	809
1981	EJ		1981	03	08.13606	10	28	36.59	+11	45	26.2	809
1981	EJ		1981	03	08.16653	10	28	34.71	+11	45	35.5	809
1981	EJ		1981	03	08.17346	10	28	34.30	+11	45	37.0	809
1981	EJ		1981	03	08.18038	10	28	33.91	+11	45	39.0	809
1981	EJ		1981	03	09.12087	10	27	37.19	+11	50	07.3	809

1981	EJ		1981	03	09.12779	10	27	36.80	+11	50	08.9	809
1981	EJ		1981	03	09.13472	10	27	36.40	+11	50	11.0	809
1981	EJ		1981	03	10.28920	10	26	27.47	+11	55	30.7	809
1981	EJ		1981	03	10.29681	10	26	26.98	+11	55	32.4	809
1981	EJ		1981	03	10.30305	10	26	26.57	+11	55	33.8	809
1981	EJ		1981	03	12.15527	10	24	39.13	+12	03	50.7	809
1981	EJ		1981	03	12.16011	10	24	38.83	+12	03	52.0	809
1981	EJ		1981	03	12.16496	10	24	38.56	+12	03	53.4	809
1981	EK	*	1981	03	01.14756	10	36	26.45	+11	08	37.8	17.0 809
1981	EK		1981	03	01.15454	10	36	26.13	+11	08	40.3	809
1981	EK		1981	03	01.16141	10	36	25.77	+11	08	42.6	809
1981	EK		1981	03	02.10120	10	35	39.71	+11	14	04.1	809
1981	EK		1981	03	02.10812	10	35	39.38	+11	14	06.2	809
1981	EK		1981	03	02.11505	10	35	39.06	+11	14	08.3	809
1981	EK		1981	03	03.14210	10	34	48.68	+11	19	56.6	809
1981	EK		1981	03	03.14902	10	34	48.34	+11	19	58.8	809
1981	EK		1981	03	03.15595	10	34	48.00	+11	20	01.2	809
1981	EK		1981	03	04.14421	10	33	59.92	+11	25	31.7	809
1981	EK		1981	03	04.15114	10	33	59.57	+11	25	34.0	809
1981	EK		1981	03	04.15806	10	33	59.24	+11	25	36.3	809
1981	EK		1981	03	05.21766	10	33	07.80	+11	31	26.6	809
1981	EK		1981	03	05.22459	10	33	07.45	+11	31	29.0	809
1981	EK		1981	03	05.23151	10	33	07.09	+11	31	31.5	809
1981	EK		1981	03	06.19658	10	32	20.88	+11	36	45.9	809
1981	EK		1981	03	06.20385	10	32	20.50	+11	36	48.6	809
1981	EK		1981	03	06.21078	10	32	20.15	+11	36	51.2	809
1981	EK		1981	03	07.10322	10	31	37.70	+11	41	40.2	809
1981	EK		1981	03	07.10970	10	31	37.40	+11	41	42.2	809
1981	EK		1981	03	07.11663	10	31	37.09	+11	41	44.3	809
1981	EK		1981	03	07.12771	10	31	36.55	+11	41	45.8	809
1981	EK		1981	03	07.13464	10	31	36.22	+11	41	48.2	809
1981	EK		1981	03	07.14156	10	31	35.90	+11	41	50.5	809
1981	EK		1981	03	08.10628	10	30	50.42	+11	46	57.0	809
1981	EK		1981	03	08.11321	10	30	50.13	+11	46	59.0	809
1981	EK		1981	03	08.12013	10	30	49.80	+11	47	00.8	809
1981	EK		1981	03	08.13606	10	30	49.04	+11	47	06.3	809
1981	EK		1981	03	08.16653	10	30	47.49	+11	47	16.0	809
1981	EK		1981	03	08.17346	10	30	47.17	+11	47	18.2	809
1981	EK		1981	03	08.18038	10	30	46.85	+11	47	20.4	809
1981	EK		1981	03	09.12087	10	30	03.12	+11	52	13.7	809
1981	EK		1981	03	09.12779	10	30	02.81	+11	52	15.9	809
1981	EK		1981	03	09.13472	10	30	02.47	+11	52	18.1	809
1981	EK		1981	03	10.28920	10	29	09.09	+11	58	11.1	809
1981	EK		1981	03	10.29681	10	29	08.76	+11	58	13.0	809
1981	EK		1981	03	10.30305	10	29	08.50	+11	58	14.5	809
1981	EK		1981	03	12.15527	10	27	45.34	+12	07	26.2	809
1981	EK		1981	03	12.16011	10	27	45.12	+12	07	27.4	809
1981	EK		1981	03	12.16496	10	27	44.88	+12	07	28.6	809
1981	EK		1981	03	14.12695	10	26	19.45	+12	16	47.9	809
1981	EK		1981	03	14.13318	10	26	19.21	+12	16	49.3	809
1981	EK		1981	03	14.13942	10	26	18.97	+12	16	50.7	809
1981	EK		1981	03	15.05289	10	25	40.40	+12	21	01.0	809
1981	EK		1981	03	15.05912	10	25	40.15	+12	21	02.7	809
1981	EK		1981	03	15.06535	10	25	39.88	+12	21	03.7	809
1981	EK		1981	03	15.08890	10	25	38.81	+12	21	10.7	809
1981	EK		1981	03	15.09513	10	25	38.56	+12	21	12.4	809
1981	EK		1981	03	15.10137	10	25	38.31	+12	21	14.4	809
1981	EL	*	1981	03	01.14756	10	42	08.33	+11	07	38.4	16.4 809
1981	EL		1981	03	01.15454	10	42	07.90	+11	07	40.4	809

1981	EL		1981	03	01.16141	10	42	07.50	+11	07	42.3	809
1981	EL		1981	03	02.10120	10	41	15.03	+11	11	40.3	809
1981	EL		1981	03	02.10812	10	41	14.65	+11	11	42.0	809
1981	EL		1981	03	02.11505	10	41	14.27	+11	11	43.6	809
1981	EL		1981	03	03.14210	10	40	16.82	+11	16	01.7	809
1981	EL		1981	03	03.14902	10	40	16.43	+11	16	03.5	809
1981	EL		1981	03	03.15595	10	40	16.05	+11	16	05.1	809
1981	EL		1981	03	04.14421	10	39	21.10	+11	20	08.0	809
1981	EL		1981	03	04.15114	10	39	20.73	+11	20	09.5	809
1981	EL		1981	03	04.15806	10	39	20.33	+11	20	11.1	809
1981	EL		1981	03	06.19658	10	37	27.89	+11	28	17.9	809
1981	EL		1981	03	06.20385	10	37	27.48	+11	28	19.5	809
1981	EL		1981	03	06.21078	10	37	27.11	+11	28	21.0	809
1981	EL		1981	03	07.10322	10	36	38.72	+11	31	46.9	809
1981	EL		1981	03	07.10970	10	36	38.37	+11	31	48.5	809
1981	EL		1981	03	07.11663	10	36	37.99	+11	31	50.2	809
1981	EL		1981	03	08.19493	10	35	39.71	+11	35	52.2	809
1981	EL		1981	03	08.20185	10	35	39.34	+11	35	53.7	809
1981	EL		1981	03	08.20878	10	35	38.97	+11	35	55.1	809
1981	EL		1981	03	09.14857	10	34	49.01	+11	39	20.6	809
1981	EL		1981	03	09.15549	10	34	48.64	+11	39	22.1	809
1981	EL		1981	03	09.16242	10	34	48.27	+11	39	23.5	809
1981	EL		1981	03	09.17281	10	34	47.70	+11	39	25.8	809
1981	EL		1981	03	09.18112	10	34	47.24	+11	39	27.6	809
1981	EL		1981	03	09.18804	10	34	46.89	+11	39	29.4	809
1981	EL		1981	03	10.17977	10	33	54.80	+11	42	59.0	809
1981	EL		1981	03	10.18670	10	33	54.45	+11	43	00.7	809
1981	EL		1981	03	10.19293	10	33	54.07	+11	43	02.1	809
1981	EL		1981	03	10.20193	10	33	53.57	+11	43	03.5	809
1981	EL		1981	03	10.20886	10	33	53.19	+11	43	05.0	809
1981	EL		1981	03	10.21578	10	33	52.83	+11	43	06.3	809
1981	EL		1981	03	12.15527	10	32	13.50	+11	49	37.5	809
1981	EL		1981	03	12.16011	10	32	13.26	+11	49	38.2	809
1981	EL		1981	03	12.16496	10	32	12.97	+11	49	38.7	809
1981	EL		1981	03	13.09471	10	31	26.69	+11	52	36.3	809
1981	EL		1981	03	13.10302	10	31	26.22	+11	52	37.7	809
1981	EL		1981	03	14.07674	10	30	38.67	+11	55	36.4	809
1981	EL		1981	03	14.08367	10	30	38.28	+11	55	38.1	809
1981	EL		1981	03	14.09059	10	30	37.89	+11	55	39.9	809
1981	EM	*	1981	03	01.14756	10	42	25.51	+10	58	29.3	18.1 809
1981	EM		1981	03	01.15454	10	42	25.07	+10	58	30.9	809
1981	EM		1981	03	01.16141	10	42	24.64	+10	58	32.7	809
1981	EM		1981	03	02.10120	10	41	25.68	+11	02	02.1	809
1981	EM		1981	03	02.10812	10	41	25.24	+11	02	03.8	809
1981	EM		1981	03	02.11505	10	41	24.78	+11	02	05.6	809
1981	EM		1981	03	03.14210	10	40	20.40	+11	05	50.6	809
1981	EM		1981	03	03.14902	10	40	19.96	+11	05	51.7	809
1981	EM		1981	03	03.15595	10	40	19.54	+11	05	52.9	809
1981	EM		1981	03	04.14421	10	39	18.09	+11	09	25.7	809
1981	EM		1981	03	04.15114	10	39	17.66	+11	09	26.8	809
1981	EM		1981	03	04.15806	10	39	17.23	+11	09	27.7	809
1981	EM		1981	03	06.19658	10	37	11.78	+11	16	29.0	809
1981	EM		1981	03	06.20385	10	37	11.36	+11	16	30.5	809
1981	EM		1981	03	06.21078	10	37	10.95	+11	16	31.9	809
1981	EM		1981	03	07.10322	10	36	17.15	+11	19	29.0	809
1981	EM		1981	03	07.10970	10	36	16.75	+11	19	30.3	809
1981	EM		1981	03	07.11663	10	36	16.30	+11	19	31.5	809
1981	EM		1981	03	08.19493	10	35	11.56	+11	22	59.8	809
1981	EM		1981	03	08.20185	10	35	11.18	+11	23	00.9	809

1981	EM		1981	03	08.20878	10	35	10.79	+11	23	01.9	809
1981	EM		1981	03	09.12087	10	34	17.07	+11	25	53.0	809
1981	EM		1981	03	09.12779	10	34	16.67	+11	25	54.3	809
1981	EM		1981	03	09.13472	10	34	16.22	+11	25	55.6	809
1981	EM		1981	03	09.14857	10	34	15.33	+11	25	58.5	809
1981	EM		1981	03	09.15549	10	34	14.93	+11	26	00.2	809
1981	EM		1981	03	09.16242	10	34	14.51	+11	26	01.8	809
1981	EM		1981	03	09.17281	10	34	13.87	+11	26	03.9	809
1981	EM		1981	03	09.18112	10	34	13.40	+11	26	05.2	809
1981	EM		1981	03	09.18804	10	34	13.00	+11	26	06.3	809
1981	EM		1981	03	10.17977	10	33	15.31	+11	29	05.5	809
1981	EM		1981	03	10.18670	10	33	14.85	+11	29	06.9	809
1981	EM		1981	03	10.19293	10	33	14.43	+11	29	08.1	809
1981	EM		1981	03	10.20193	10	33	13.90	+11	29	09.2	809
1981	EM		1981	03	10.20886	10	33	13.45	+11	29	10.3	809
1981	EM		1981	03	10.21578	10	33	13.04	+11	29	11.7	809
1981	EN	*	1981	03	01.20504	11	54	38.26	+02	32	14.9	17.2 809
1981	EN		1981	03	01.21196	11	54	38.06	+02	32	19.9	809
1981	EN		1981	03	01.21889	11	54	37.86	+02	32	25.1	809
1981	EN		1981	03	02.15106	11	54	05.53	+02	43	40.8	809
1981	EN		1981	03	02.15798	11	54	05.29	+02	43	45.5	809
1981	EN		1981	03	02.16491	11	54	05.04	+02	43	50.6	809
1981	EN		1981	03	03.22624	11	53	26.68	+02	56	48.4	809
1981	EN		1981	03	03.23317	11	53	26.36	+02	56	53.6	809
1981	EN		1981	03	03.24009	11	53	26.02	+02	56	58.5	809
1981	EN		1981	03	05.27099	11	52	09.48	+03	22	09.4	809
1981	EN		1981	03	05.27792	11	52	09.16	+03	22	14.4	809
1981	EN		1981	03	05.28484	11	52	08.84	+03	22	19.3	809
1981	EN		1981	03	06.30358	11	51	28.88	+03	35	07.4	809
1981	EN		1981	03	06.31050	11	51	28.61	+03	35	12.2	809
1981	EN		1981	03	06.31743	11	51	28.33	+03	35	16.9	809
1981	EO	*	1981	03	01.20504	11	56	00.69	+01	38	07.7	17.8 809
1981	EO		1981	03	01.21196	11	56	00.28	+01	38	06.8	809
1981	EO		1981	03	01.21889	11	55	59.87	+01	38	05.6	809
1981	EO		1981	03	02.15106	11	55	03.80	+01	36	00.5	809
1981	EO		1981	03	02.15798	11	55	03.38	+01	35	59.8	809
1981	EO		1981	03	02.16491	11	55	02.96	+01	35	59.1	809
1981	EO		1981	03	03.22624	11	53	57.36	+01	33	40.1	809
1981	EO		1981	03	03.23317	11	53	56.92	+01	33	39.0	809
1981	EO		1981	03	03.24009	11	53	56.46	+01	33	38.1	809
1981	EO		1981	03	05.29384	11	51	45.90	+01	29	19.1	809
1981	EO		1981	03	05.30077	11	51	45.45	+01	29	17.9	809
1981	EO		1981	03	05.30769	11	51	45.01	+01	29	16.7	809
1981	EP	*	1981	03	01.20504	12	00	33.63	+00	55	03.2	18.0 809
1981	EP		1981	03	01.21196	12	00	33.41	+00	55	07.9	809
1981	EP		1981	03	01.21889	12	00	33.15	+00	55	12.5	809
1981	EQ	*	1981	03	01.25213	12	34	41.06	+00	15	25.1	18.2 809
1981	EQ		1981	03	01.25906	12	34	40.81	+00	15	25.6	809
1981	EQ		1981	03	01.26598	12	34	40.53	+00	15	26.2	809
1981	EQ		1981	03	05.31531	12	32	08.68	+00	19	58.7	809
1981	EQ		1981	03	05.32224	12	32	08.40	+00	19	59.2	809
1981	EQ		1981	03	05.32916	12	32	08.11	+00	19	59.4	809
1981	ER	*	1981	03	01.27845	12	59	12.12	-04	16	42.9	18.0 809
1981	ER		1981	03	01.28537	12	59	11.91	-04	16	42.7	809
1981	ER		1981	03	01.29230	12	59	11.68	-04	16	42.5	809
1981	ER		1981	03	05.34094	12	57	10.79	-04	15	42.0	809
1981	ER		1981	03	05.34786	12	57	10.57	-04	15	41.9	809
1981	ER		1981	03	05.35479	12	57	10.35	-04	15	41.7	809
1981	ES	*	1981	03	02.10120	10	42	29.58	+10	17	16.4	16.8 809

1981	ES		1981	03	02.10812	10	42	29.15	+10	17	18.4		809
1981	ES		1981	03	02.11505	10	42	28.77	+10	17	20.0		809
1981	ES		1981	03	04.14421	10	40	28.34	+10	26	50.4		809
1981	ES		1981	03	04.15114	10	40	27.96	+10	26	52.1		809
1981	ES		1981	03	04.15806	10	40	27.55	+10	26	53.7		809
1981	ES		1981	03	09.17281	10	35	34.46	+10	49	11.5		809
1981	ES		1981	03	09.18112	10	35	34.00	+10	49	13.9		809
1981	ES		1981	03	09.18804	10	35	33.60	+10	49	15.8		809
1981	ES		1981	03	10.20193	10	34	35.91	+10	53	30.2		809
1981	ES		1981	03	10.20886	10	34	35.52	+10	53	31.8		809
1981	ES		1981	03	10.21578	10	34	35.13	+10	53	33.4		809
1981	ET	*	1981	03	02.15106	11	51	38.81	+02	37	11.5	18.0	809
1981	ET		1981	03	02.15798	11	51	38.49	+02	37	12.7		809
1981	ET		1981	03	02.16491	11	51	38.16	+02	37	14.1		809
1981	ET		1981	03	03.22624	11	50	46.58	+02	40	31.6		809
1981	ET		1981	03	03.23317	11	50	46.25	+02	40	32.9		809
1981	ET		1981	03	03.24009	11	50	45.91	+02	40	34.5		809
1981	ET		1981	03	05.27099	11	49	05.23	+02	47	02.7		809
1981	ET		1981	03	05.27792	11	49	04.88	+02	47	03.7		809
1981	ET		1981	03	05.28484	11	49	04.52	+02	47	04.9		809
1981	ET		1981	03	06.30358	11	48	13.16	+02	50	23.3		809
1981	ET		1981	03	06.31050	11	48	12.79	+02	50	24.7		809
1981	ET		1981	03	06.31743	11	48	12.44	+02	50	25.8		809
1981	EU	*	1981	03	02.15106	11	52	53.52	+01	29	05.4	18.2	809
1981	EU		1981	03	02.15798	11	52	53.21	+01	29	07.9		809
1981	EU		1981	03	02.16491	11	52	52.93	+01	29	10.0		809
1981	EU		1981	03	03.22624	11	52	08.66	+01	34	29.7		809
1981	EU		1981	03	03.23317	11	52	08.34	+01	34	31.8		809
1981	EU		1981	03	03.24009	11	52	08.02	+01	34	33.7		809
1981	EU		1981	03	05.29384	11	50	40.30	+01	45	05.6		809
1981	EU		1981	03	05.30077	11	50	40.01	+01	45	07.9		809
1981	EU		1981	03	05.30769	11	50	39.73	+01	45	09.9		809
1981	EV	*	1981	03	02.23624	10	42	58.79	+15	18	42.9	16.8	809
1981	EV		1981	03	02.24317	10	42	58.42	+15	18	46.7		809
1981	EV		1981	03	02.25009	10	42	58.07	+15	18	50.0		809
1981	EV		1981	03	03.17465	10	42	05.59	+15	27	17.3		809
1981	EV		1981	03	03.18157	10	42	05.20	+15	27	21.2		809
1981	EV		1981	03	03.18850	10	42	04.82	+15	27	24.9		809
1981	EV		1981	03	07.18450	10	38	19.76	+16	02	23.7		809
1981	EV		1981	03	07.19143	10	38	19.36	+16	02	27.4		809
1981	EV		1981	03	07.19835	10	38	18.97	+16	02	30.9		809
1981	EW	*	1981	03	03.17465	10	36	21.52	+15	02	12.7	17.8	809
1981	EW		1981	03	03.18157	10	36	21.17	+15	02	16.8		809
1981	EW		1981	03	03.18850	10	36	20.81	+15	02	21.1		809
1981	EX	*	1981	03	03.17465	10	37	30.97	+15	18	42.6	17.8	809
1981	EX		1981	03	03.18157	10	37	30.54	+15	18	42.4		809
1981	EX		1981	03	03.18850	10	37	30.11	+15	18	41.7		809
1981	EX		1981	03	07.18450	10	33	05.93	+15	11	03.4		809
1981	EX		1981	03	07.19143	10	33	05.48	+15	11	02.3		809
1981	EX		1981	03	07.19835	10	33	05.03	+15	11	01.4		809
1981	EX		1981	03	09.22890	10	30	54.14	+15	06	16.5		809
1981	EX		1981	03	09.23583	10	30	53.71	+15	06	15.9		809
1981	EX		1981	03	09.24275	10	30	53.30	+15	06	15.0		809
1981	EY	*	1981	03	04.14421	10	41	06.39	+11	49	06.3	16.8	809
1981	EY		1981	03	04.15114	10	41	06.01	+11	49	06.9		809
1981	EY		1981	03	04.15806	10	41	05.60	+11	49	07.5		809
1981	EY		1981	03	07.10322	10	38	26.31	+11	51	11.2		809
1981	EY		1981	03	07.10970	10	38	25.94	+11	51	11.7		809
1981	EY		1981	03	07.11663	10	38	25.56	+11	51	12.1		809

1981	EY		1981	03	08.19493	10	37	27.76	+11	51	48.5	809
1981	EY		1981	03	08.20185	10	37	27.38	+11	51	48.6	809
1981	EY		1981	03	08.20878	10	37	27.01	+11	51	48.9	809
1981	EY		1981	03	09.14857	10	36	37.32	+11	52	17.7	809
1981	EY		1981	03	09.15549	10	36	36.94	+11	52	17.5	809
1981	EY		1981	03	09.16242	10	36	36.55	+11	52	18.0	809
1981	EY		1981	03	09.17281	10	36	35.97	+11	52	18.5	809
1981	EY		1981	03	09.18112	10	36	35.51	+11	52	18.6	809
1981	EY		1981	03	09.18804	10	36	35.14	+11	52	19.1	809
1981	EY		1981	03	10.17977	10	35	43.11	+11	52	44.6	809
1981	EY		1981	03	10.18670	10	35	42.69	+11	52	44.9	809
1981	EY		1981	03	10.19293	10	35	42.34	+11	52	45.2	809
1981	EY		1981	03	10.20193	10	35	41.85	+11	52	45.1	809
1981	EY		1981	03	10.20886	10	35	41.48	+11	52	45.4	809
1981	EY		1981	03	10.21578	10	35	41.12	+11	52	45.5	809
1981	EZ	*	1981	03	04.25918	11	55	36.01	+01	41	20.0	17.8 809
1981	EZ		1981	03	04.26610	11	55	35.71	+01	41	21.4	809
1981	EZ		1981	03	04.27303	11	55	35.40	+01	41	22.5	809
1981	EZ		1981	03	05.29384	11	54	50.44	+01	45	23.9	809
1981	EZ		1981	03	05.30077	11	54	50.14	+01	45	25.7	809
1981	EZ		1981	03	05.30769	11	54	49.86	+01	45	27.8	809
1981	EA1	*	1981	03	05.21766	10	29	26.54	+12	26	45.5	17.7 809
1981	EA1		1981	03	05.22459	10	29	26.14	+12	26	48.2	809
1981	EA1		1981	03	05.23151	10	29	25.74	+12	26	51.0	809
1981	EA1		1981	03	07.12771	10	27	35.32	+12	38	58.1	809
1981	EA1		1981	03	07.13464	10	27	34.94	+12	39	00.8	809
1981	EA1		1981	03	07.14156	10	27	34.55	+12	39	03.6	809
1981	EA1		1981	03	08.10628	10	26	39.42	+12	45	02.6	809
1981	EA1		1981	03	08.11321	10	26	39.01	+12	45	05.2	809
1981	EA1		1981	03	08.12013	10	26	38.61	+12	45	07.9	809
1981	EA1		1981	03	08.13606	10	26	37.56	+12	45	14.8	809
1981	EA1		1981	03	09.12087	10	25	42.41	+12	51	13.1	809
1981	EA1		1981	03	09.12779	10	25	41.99	+12	51	15.4	809
1981	EA1		1981	03	09.13472	10	25	41.57	+12	51	17.8	809
1981	EA1		1981	03	10.28920	10	24	37.32	+12	58	04.4	809
1981	EA1		1981	03	10.29681	10	24	36.92	+12	58	06.4	809
1981	EA1		1981	03	10.30305	10	24	36.57	+12	58	07.9	809
1981	EA1		1981	03	14.12695	10	21	17.40	+13	18	56.6	809
1981	EA1		1981	03	14.13318	10	21	17.13	+13	18	58.5	809
1981	EA1		1981	03	14.13942	10	21	16.78	+13	19	00.4	809
1981	EA1		1981	03	15.08890	10	20	30.37	+13	23	44.0	809
1981	EA1		1981	03	15.09513	10	20	30.06	+13	23	45.7	809
1981	EA1		1981	03	15.10137	10	20	29.69	+13	23	47.6	809
1981	EB1	*	1981	03	05.27099	11	46	05.87	+04	03	07.7	18.2 809
1981	EB1		1981	03	05.27792	11	46	05.58	+04	03	09.9	809
1981	EB1		1981	03	05.28484	11	46	05.27	+04	03	12.0	809
1981	EB1		1981	03	06.30358	11	45	22.85	+04	08	41.5	809
1981	EB1		1981	03	06.31050	11	45	22.56	+04	08	43.8	809
1981	EB1		1981	03	06.31743	11	45	22.27	+04	08	46.0	809
1981	EC1	*	1981	03	05.27099	11	50	30.91	+04	08	58.9	17.6 809
1981	EC1		1981	03	05.27792	11	50	30.57	+04	09	00.9	809
1981	EC1		1981	03	05.28484	11	50	30.24	+04	09	02.7	809
1981	EC1		1981	03	06.30358	11	49	49.62	+04	13	58.0	809
1981	EC1		1981	03	06.31050	11	49	49.27	+04	14	00.3	809
1981	EC1		1981	03	06.31743	11	49	48.93	+04	14	02.4	809
1981	ED1	*	1981	03	05.27099	11	51	10.91	+03	42	43.5	18.2 809
1981	ED1		1981	03	05.27792	11	51	10.51	+03	42	44.5	809
1981	ED1		1981	03	05.28484	11	51	10.09	+03	42	45.5	809
1981	ED1		1981	03	06.30358	11	50	11.19	+03	44	32.6	809

1981	ED1		1981	03	06.31050	11	50	10.78	+03	44	33.0	809
1981	ED1		1981	03	06.31743	11	50	10.38	+03	44	33.8	809
1981	EE1	*	1981	03	05.27099	11	51	32.58	+03	30	56.9	17.5 809
1981	EE1		1981	03	05.27792	11	51	32.26	+03	31	00.3	809
1981	EE1		1981	03	05.28484	11	51	31.92	+03	31	03.3	809
1981	EE1		1981	03	06.30358	11	50	45.01	+03	38	22.9	809
1981	EE1		1981	03	06.31050	11	50	44.70	+03	38	26.0	809
1981	EE1		1981	03	06.31743	11	50	44.37	+03	38	29.0	809
1981	EF1	*	1981	03	05.31531	12	34	52.74	-00	25	36.6	809
1981	EF1		1981	03	05.32224	12	34	52.49	-00	25	36.4	809
1981	EF1		1981	03	05.32916	12	34	52.25	-00	25	35.8	809
1981	EG1	*	1981	03	05.34094	12	55	41.43	-03	59	21.8	809
1981	EG1		1981	03	05.34786	12	55	41.18	-03	59	20.6	809
1981	EG1		1981	03	05.35479	12	55	40.92	-03	59	19.4	809
1981	EH1	*	1981	03	06.16504	10	20	03.15	+11	29	02.0	17.0 809
1981	EH1		1981	03	06.17373	10	20	02.73	+11	29	06.0	809
1981	EH1		1981	03	06.18118	10	20	02.44	+11	29	09.0	809
1981	EH1		1981	03	07.15784	10	19	22.90	+11	35	49.7	809
1981	EH1		1981	03	07.16511	10	19	22.61	+11	35	52.4	809
1981	EH1		1981	03	07.17134	10	19	22.37	+11	35	54.9	809
1981	EJ1	*	1981	03	06.16504	10	22	16.24	+11	40	41.2	17.6 809
1981	EJ1		1981	03	06.17373	10	22	15.80	+11	40	46.0	809
1981	EJ1		1981	03	06.18118	10	22	15.37	+11	40	51.0	809
1981	EJ1		1981	03	07.15784	10	21	30.71	+11	49	41.7	809
1981	EJ1		1981	03	07.16511	10	21	30.39	+11	49	44.9	809
1981	EJ1		1981	03	07.17134	10	21	30.08	+11	49	49.5	809
1981	EK1	*	1981	03	06.19658	10	33	44.76	+12	20	53.4	18.1 809
1981	EK1		1981	03	06.20385	10	33	44.34	+12	20	53.6	809
1981	EK1		1981	03	06.21078	10	33	43.92	+12	20	54.1	809
1981	EK1		1981	03	07.10322	10	32	48.19	+12	21	24.5	809
1981	EK1		1981	03	07.10970	10	32	47.81	+12	21	24.9	809
1981	EK1		1981	03	07.11663	10	32	47.36	+12	21	25.0	809
1981	EK1		1981	03	08.10628	10	31	46.09	+12	21	52.4	809
1981	EK1		1981	03	08.11321	10	31	45.67	+12	21	52.5	809
1981	EK1		1981	03	08.12013	10	31	45.26	+12	21	52.4	809
1981	EK1		1981	03	08.13606	10	31	44.20	+12	21	52.0	809
1981	EK1		1981	03	08.19493	10	31	40.41	+12	21	54.0	809
1981	EK1		1981	03	08.20185	10	31	39.99	+12	21	54.1	809
1981	EK1		1981	03	08.20878	10	31	39.59	+12	21	54.2	809
1981	EK1		1981	03	09.12087	10	30	44.08	+12	22	12.9	809
1981	EK1		1981	03	09.12779	10	30	43.66	+12	22	13.0	809
1981	EK1		1981	03	09.13472	10	30	43.20	+12	22	12.9	809
1981	EK1		1981	03	10.28920	10	29	33.52	+12	22	28.1	809
1981	EK1		1981	03	10.29681	10	29	33.06	+12	22	28.2	809
1981	EK1		1981	03	10.30305	10	29	32.68	+12	22	28.3	809
1981	EL1	*	1981	03	06.19658	10	38	03.56	+12	18	52.4	16.0 809
1981	EL1		1981	03	06.20385	10	38	03.07	+12	18	50.3	809
1981	EL1		1981	03	06.21078	10	38	02.62	+12	18	47.9	809
1981	EL1		1981	03	07.10322	10	37	03.02	+12	14	32.8	809
1981	EL1		1981	03	07.10970	10	37	02.59	+12	14	30.8	809
1981	EL1		1981	03	07.11663	10	37	02.12	+12	14	29.1	809
1981	EL1		1981	03	08.19493	10	35	50.39	+12	09	15.3	809
1981	EL1		1981	03	08.20185	10	35	49.94	+12	09	13.0	809
1981	EL1		1981	03	08.20878	10	35	49.49	+12	09	11.2	809
1981	EL1		1981	03	09.14857	10	34	48.16	+12	04	31.2	809
1981	EL1		1981	03	09.15549	10	34	47.71	+12	04	28.8	809
1981	EL1		1981	03	09.16242	10	34	47.23	+12	04	26.7	809
1981	EL1		1981	03	09.17281	10	34	46.58	+12	04	24.1	809
1981	EL1		1981	03	09.18112	10	34	46.01	+12	04	21.6	809

1981	EL1		1981	03	09.18804	10	34	45.50	+12	04	19.6	809
1981	EL1		1981	03	10.17977	10	33	41.63	+11	59	17.4	809
1981	EL1		1981	03	10.18670	10	33	41.17	+11	59	15.5	809
1981	EL1		1981	03	10.19293	10	33	40.75	+11	59	13.6	809
1981	EL1		1981	03	10.20193	10	33	40.11	+11	59	11.2	809
1981	EL1		1981	03	10.20886	10	33	39.66	+11	59	08.9	809
1981	EL1		1981	03	10.21578	10	33	39.19	+11	59	06.6	809
1981	EL1		1981	03	12.15527	10	31	37.69	+11	48	59.5	809
1981	EL1		1981	03	12.16011	10	31	37.37	+11	48	58.1	809
1981	EL1		1981	03	12.16496	10	31	37.06	+11	48	56.5	809
1981	EL1		1981	03	13.09471	10	30	40.52	+11	43	55.7	809
1981	EL1		1981	03	13.10302	10	30	40.03	+11	43	52.8	809
1981	EL1		1981	03	14.07674	10	29	41.98	+11	38	33.8	809
1981	EL1		1981	03	14.08367	10	29	41.50	+11	38	31.7	809
1981	EL1		1981	03	14.09059	10	29	41.01	+11	38	29.4	809
1981	EM1	*	1981	03	07.10322	10	38	39.97	+11	00	45.9	17.0 809
1981	EM1		1981	03	07.10970	10	38	39.67	+11	00	48.0	809
1981	EM1		1981	03	07.11663	10	38	39.36	+11	00	50.2	809
1981	EM1		1981	03	08.19493	10	37	51.54	+11	05	58.8	809
1981	EM1		1981	03	08.20185	10	37	51.20	+11	06	00.5	809
1981	EM1		1981	03	08.20878	10	37	50.90	+11	06	02.3	809
1981	EM1		1981	03	09.14857	10	37	09.81	+11	10	27.7	809
1981	EM1		1981	03	09.15549	10	37	09.49	+11	10	29.8	809
1981	EM1		1981	03	09.16242	10	37	09.17	+11	10	31.7	809
1981	EM1		1981	03	09.17281	10	37	08.65	+11	10	35.7	809
1981	EM1		1981	03	09.18112	10	37	08.28	+11	10	38.2	809
1981	EM1		1981	03	09.18804	10	37	07.96	+11	10	40.2	809
1981	EM1		1981	03	10.17977	10	36	25.04	+11	15	14.4	809
1981	EM1		1981	03	10.18670	10	36	24.73	+11	15	16.5	809
1981	EM1		1981	03	10.19293	10	36	24.43	+11	15	18.2	809
1981	EM1		1981	03	10.20193	10	36	24.01	+11	15	20.8	809
1981	EM1		1981	03	10.20886	10	36	23.70	+11	15	22.3	809
1981	EM1		1981	03	10.21578	10	36	23.38	+11	15	23.9	809
1981	EN1	*	1981	03	07.10322	10	38	40.05	+11	37	52.7	17.8 809
1981	EN1		1981	03	07.10970	10	38	39.62	+11	37	54.9	809
1981	EN1		1981	03	07.11663	10	38	39.17	+11	37	57.7	809
1981	EN1		1981	03	09.14857	10	36	36.14	+11	49	54.1	809
1981	EN1		1981	03	09.15549	10	36	35.74	+11	49	56.5	809
1981	EN1		1981	03	09.16242	10	36	35.31	+11	49	58.9	809
1981	EN1		1981	03	09.17281	10	36	34.71	+11	50	02.2	809
1981	EN1		1981	03	09.18112	10	36	34.22	+11	50	05.1	809
1981	EN1		1981	03	09.18804	10	36	33.81	+11	50	07.6	809
1981	EN1		1981	03	10.17977	10	35	34.74	+11	55	46.1	809
1981	EN1		1981	03	10.18670	10	35	34.33	+11	55	48.8	809
1981	EN1		1981	03	10.19293	10	35	33.90	+11	55	51.2	809
1981	EN1		1981	03	10.20193	10	35	33.33	+11	55	54.2	809
1981	EN1		1981	03	10.20886	10	35	32.94	+11	55	56.3	809
1981	EN1		1981	03	10.21578	10	35	32.53	+11	55	58.5	809
1981	EO1	*	1981	03	07.10322	10	38	56.83	+12	47	42.4	15.8 809
1981	EO1		1981	03	07.10970	10	38	56.38	+12	47	42.6	809
1981	EO1		1981	03	07.11663	10	38	55.96	+12	47	42.9	809
1981	EO1		1981	03	08.19493	10	37	48.60	+12	48	51.1	809
1981	EO1		1981	03	08.20185	10	37	48.17	+12	48	51.2	809
1981	EO1		1981	03	08.20878	10	37	47.75	+12	48	51.7	809
1981	EO1		1981	03	09.14857	10	36	49.64	+12	49	44.0	809
1981	EO1		1981	03	09.15549	10	36	49.22	+12	49	44.1	809
1981	EO1		1981	03	09.16242	10	36	48.74	+12	49	44.6	809
1981	EO1		1981	03	10.17977	10	35	46.27	+12	50	37.0	809
1981	EO1		1981	03	10.18670	10	35	45.83	+12	50	37.2	809

1981	EO1		1981	03	10.19293	10	35	45.42	+12	50	37.4	809
1981	EO1		1981	03	13.09471	10	32	51.00	+12	52	33.1	809
1981	EO1		1981	03	13.10302	10	32	50.45	+12	52	32.7	809
1981	EO1		1981	03	14.07674	10	31	53.25	+12	53	00.5	809
1981	EO1		1981	03	14.08367	10	31	52.86	+12	53	00.6	809
1981	EO1		1981	03	14.09059	10	31	52.46	+12	53	00.8	809
1981	EO1		1981	03	15.05289	10	30	56.68	+12	53	22.5	809
1981	EO1		1981	03	15.05912	10	30	56.33	+12	53	22.9	809
1981	EO1		1981	03	15.06535	10	30	55.99	+12	53	22.5	809
1981	EO1		1981	03	16.05431	10	29	59.54	+12	53	37.8	809
1981	EO1		1981	03	16.06193	10	29	59.14	+12	53	38.3	809
1981	EO1		1981	03	16.06955	10	29	58.73	+12	53	38.0	809
1981	EP1	*	1981	03	07.18450	10	31	15.06	+16	03	53.2	17.2 809
1981	EP1		1981	03	07.19143	10	31	14.68	+16	03	53.2	809
1981	EP1		1981	03	07.19835	10	31	14.31	+16	03	53.3	809
1981	EP1		1981	03	09.22890	10	29	25.17	+16	02	52.8	809
1981	EP1		1981	03	09.23583	10	29	24.82	+16	02	52.6	809
1981	EP1		1981	03	09.24275	10	29	24.45	+16	02	52.3	809
1981	EQ1	*	1981	03	08.16653	10	28	50.89	+10	31	29.8	17.8 809
1981	EQ1		1981	03	08.17346	10	28	50.57	+10	31	31.2	809
1981	EQ1		1981	03	08.18038	10	28	50.27	+10	31	32.4	809
1981	ER1	*	1981	03	08.16653	10	29	22.13	+11	34	38.8	18.2 809
1981	ER1		1981	03	08.17346	10	29	21.77	+11	34	39.7	809
1981	ER1		1981	03	08.18038	10	29	21.46	+11	34	40.7	809
1981	ES1	*	1981	03	08.19493	10	39	24.78	+11	23	07.7	809
1981	ES1		1981	03	08.20185	10	39	24.46	+11	23	09.5	809
1981	ES1		1981	03	08.20878	10	39	24.14	+11	23	11.3	809
1981	ES1		1981	03	09.14857	10	38	40.82	+11	27	33.6	809
1981	ES1		1981	03	09.15549	10	38	40.52	+11	27	35.6	809
1981	ES1		1981	03	09.16242	10	38	40.21	+11	27	37.6	809
1981	ES1		1981	03	09.17281	10	38	39.73	+11	27	40.4	809
1981	ES1		1981	03	09.18112	10	38	39.37	+11	27	42.7	809
1981	ES1		1981	03	09.18804	10	38	39.03	+11	27	44.5	809
1981	ES1		1981	03	10.17977	10	37	53.54	+11	32	17.2	809
1981	ES1		1981	03	10.18670	10	37	53.23	+11	32	19.1	809
1981	ES1		1981	03	10.19293	10	37	52.89	+11	32	20.5	809
1981	ES1		1981	03	10.20193	10	37	52.45	+11	32	22.4	809
1981	ES1		1981	03	10.20886	10	37	52.15	+11	32	24.0	809
1981	ES1		1981	03	10.21578	10	37	51.84	+11	32	25.7	809
1981	ET1	*	1981	03	09.14857	10	39	04.30	+11	20	59.0	18.1 809
1981	ET1		1981	03	09.15549	10	39	03.96	+11	21	00.4	809
1981	ET1		1981	03	09.16242	10	39	03.60	+11	21	01.9	809
1981	ET1		1981	03	09.17281	10	39	03.07	+11	21	03.9	809
1981	ET1		1981	03	09.18112	10	39	02.61	+11	21	05.5	809
1981	ET1		1981	03	09.18804	10	39	02.23	+11	21	07.0	809
1981	ET1		1981	03	10.17977	10	38	11.95	+11	24	42.2	809
1981	ET1		1981	03	10.18670	10	38	11.58	+11	24	43.7	809
1981	ET1		1981	03	10.19293	10	38	11.24	+11	24	45.0	809
1981	ET1		1981	03	10.20193	10	38	10.77	+11	24	46.8	809
1981	ET1		1981	03	10.20886	10	38	10.45	+11	24	48.2	809
1981	ET1		1981	03	10.21578	10	38	10.12	+11	24	49.7	809
1981	FQ		1981	03	01.20504	11	56	13.19	+00	44	09.1	17.7 809
1981	FQ		1981	03	01.21196	11	56	12.93	+00	44	10.6	809
1981	FQ		1981	03	01.21889	11	56	12.68	+00	44	12.2	809
1981	FQ		1981	03	03.22624	11	54	53.99	+00	52	37.8	809
1981	FQ		1981	03	03.23317	11	54	53.70	+00	52	39.8	809
1981	FQ		1981	03	03.24009	11	54	53.39	+00	52	41.3	809
1981	FQ		1981	03	04.25918	11	54	12.10	+00	57	05.7	809
1981	FQ		1981	03	04.26610	11	54	11.82	+00	57	08.0	809

1981 FQ		1981 03 04.27303	11 54 11.54	+00 57 10.1							809
1981 FQ		1981 03 05.29384	11 53 29.51	+01 01 39.9							809
1981 FQ		1981 03 05.30077	11 53 29.19	+01 01 41.7							809
1981 FQ		1981 03 05.30769	11 53 28.87	+01 01 43.6							809
1981 GO		1981 03 01.27845	12 57 42.83	-04 08 08.0					17.8		809
1981 GO		1981 03 01.28537	12 57 42.63	-04 08 07.1							809
1981 GO		1981 03 01.29230	12 57 42.44	-04 08 06.6							809
1981 GQ		1981 03 01.30130	13 07 51.09	-02 04 15.6					17.0		809
1981 GQ		1981 03 01.30823	13 07 50.89	-02 04 17.2							809
1981 GQ		1981 03 01.31515	13 07 50.68	-02 04 18.7							809
1981 GQ		1981 03 05.37487	13 05 45.87	-02 18 25.1							809
1981 GQ		1981 03 05.38187	13 05 45.56	-02 18 27.3							809
1981 GQ		1981 03 05.38876	13 05 45.34	-02 18 27.5							809

OBSERVATIONS MADE AT THE EUROPEAN SOUTHERN OBSERVATORY BY H.-E. SCHUSTER.
SCANNED AND MEASURED BY R. M. WEST.

Object		Date	UT	R. A. (1950)	Decl.			Mag.	N	Obs.
514		1976 05 02.17783	14 35 33.14	-19 36 02.2				14.5		809
1497		1976 05 02.17783	14 41 45.55	-17 22 40.7				17.0		809
1976 JX6	*	1976 05 02.17783	14 30 37.76	-17 46 21.8				19.5	1	809
1976 JY6	*	1976 05 02.17783	14 30 53.47	-18 16 35.7				18.0	2	809
1976 JZ6	*	1976 05 02.17783	14 31 27.53	-17 37 57.0				19.0		809
1976 JA7	*	1976 05 02.17783	14 31 27.97	-18 48 11.3				18.0		809
1976 JB7	*	1976 05 02.17783	14 31 28.36	-21 24 23.7				17.0		809
1976 JC7	*	1976 05 02.17783	14 31 29.53	-18 16 45.1				17.5		809
1976 JD7	*	1976 05 02.17783	14 32 25.52	-20 36 13.0				18.5		809
1976 JE7	*	1976 05 02.17783	14 32 29.62	-19 38 27.5				19.0		809
1976 JF7	*	1976 05 02.17783	14 32 43.45	-21 51 12.7				17.0		809
1976 JG7	*	1976 05 02.17783	14 32 45.96	-22 09 05.5				19.0	2	809
1976 JH7	*	1976 05 02.17783	14 32 49.15	-22 06 15.0				19.0		809
1976 JJ7	*	1976 05 02.17783	14 33 19.63	-18 28 09.4				18.5		809
1976 JK7	*	1976 05 02.17783	14 33 45.65	-17 54 52.7				18.5		809
1976 JL7	*	1976 05 02.17783	14 34 07.54	-17 30 20.3				18.5		809
1976 JM7	*	1976 05 02.17783	14 34 14.08	-21 53 59.8				19.0		809
1976 JN7	*	1976 05 02.17783	14 34 15.79	-20 50 26.8				19.0		809
1976 JO7	*	1976 05 02.17783	14 34 17.63	-19 06 59.6				18.0		809
1976 JP7	*	1976 05 02.17783	14 34 32.91	-20 45 12.5				18.5	2	809
1976 JQ7	*	1976 05 02.17783	14 34 51.99	-22 13 29.3				17.5		809
1976 JR7	*	1976 05 02.17783	14 35 01.79	-20 21 18.9				19.5		809
1976 JS7	*	1976 05 02.17783	14 35 09.12	-17 31 07.9				19.0		809
1976 JT7	*	1976 05 02.17783	14 35 15.06	-20 34 00.5				18.0		809
1976 JU7	*	1976 05 02.17783	14 35 23.36	-21 59 51.1				18.0		809
1976 JV7	*	1976 05 02.17783	14 36 11.01	-18 28 41.7				18.0	2	809
1976 JW7	*	1976 05 02.17783	14 36 53.36	-18 05 13.8				18.5		809
1976 JX7	*	1976 05 02.17783	14 37 23.66	-19 41 54.6				19.0		809
1976 JY7	*	1976 05 02.17783	14 37 29.87	-20 42 51.3				18.5		809
1976 JZ7	*	1976 05 02.17783	14 37 40.30	-19 18 39.0				19.5		809
1976 JA8	*	1976 05 02.17783	14 37 40.98	-21 30 23.9				19.0		809
1976 JB8	*	1976 05 02.17783	14 37 48.97	-22 24 56.9				19.0		809
1976 JC8	*	1976 05 02.17783	14 37 54.40	-18 21 35.0				18.5		809
1976 JD8	*	1976 05 02.17783	14 37 54.86	-17 55 16.6				19.0		809
1976 JE8	*	1976 05 02.17783	14 38 04.27	-22 16 05.8				18.0		809
1976 JF8	*	1976 05 02.17783	14 38 08.63	-18 48 39.6				19.0		809
1976 JG8	*	1976 05 02.17783	14 38 12.27	-17 20 07.2				19.5		809
1976 JH8	*	1976 05 02.17783	14 38 12.90	-21 07 44.8				18.5		809
1976 JJ8	*	1976 05 02.17783	14 38 39.16	-17 48 20.9				18.5		809
1976 JK8	*	1976 05 02.17783	14 38 49.83	-20 32 50.6				17.0		809
1976 JL8	*	1976 05 02.17783	14 38 56.42	-21 10 13.8				19.5		809
1976 JM8	*	1976 05 02.17783	14 39 08.26	-21 30 57.6				18.5		809

1976	JN8	*	1976	05	02.17783	14	39	46.75	-17	55	43.5	18.5	809
1976	JO8	*	1976	05	02.17783	14	39	57.53	-19	08	45.4	18.5	809
1976	JP8	*	1976	05	02.17783	14	40	18.06	-22	20	59.9	19.0	809
1976	JQ8	*	1976	05	02.17783	14	40	30.09	-20	44	04.0	19.5	809
1976	JR8	*	1976	05	02.17783	14	40	32.18	-19	25	00.9	19.5	809
1976	JS8	*	1976	05	02.17783	14	40	33.83	-19	23	58.1	15.0	809
1976	JT8	*	1976	05	02.17783	14	40	36.41	-17	57	30.7	19.0	809
1976	JU8	*	1976	05	02.17783	14	40	50.96	-17	42	40.7	16.5	809
1976	JV8	*	1976	05	02.17783	14	40	51.66	-19	07	10.7	19.5	809
1976	JW8	*	1976	05	02.17783	14	40	53.18	-18	02	34.5	19.5	809
1976	JX8	*	1976	05	02.17783	14	40	55.85	-17	43	35.8	19.0	809
1976	JY8	*	1976	05	02.17783	14	41	01.55	-18	55	10.4	17.0	809
1976	JZ8	*	1976	05	02.17783	14	41	05.69	-21	36	21.3	19.0	809
1976	JA9	*	1976	05	02.17783	14	41	26.65	-18	49	44.3	18.0	809
1976	JB9	*	1976	05	02.17783	14	41	41.38	-19	01	26.4	19.0	809
1976	JC9	*	1976	05	02.17783	14	41	54.21	-19	22	20.2	19.0	809
1976	JD9	*	1976	05	02.17783	14	42	05.88	-19	39	59.2	19.0	809
1976	JE9	*	1976	05	02.17783	14	42	21.07	-19	53	33.0	19.5	809
1976	JF9	*	1976	05	02.17783	14	42	33.28	-17	25	25.0	18.5	809
1976	JG9	*	1976	05	02.17783	14	42	34.15	-22	15	39.8	17.5	809
1976	JH9	*	1976	05	02.17783	14	43	01.22	-18	11	48.5	19.5	809
1976	JJ9	*	1976	05	02.17783	14	43	19.31	-17	38	59.2	18.0	809
1976	JK9	*	1976	05	02.17783	14	43	25.63	-17	26	35.3	18.5	809
1976	JL9	*	1976	05	02.17783	14	43	26.31	-17	42	08.8	19.5	809
1976	JM9	*	1976	05	02.17783	14	43	55.08	-17	17	09.9	18.5 1	809
1976	JN9	*	1976	05	02.17783	14	44	09.95	-21	45	37.3	19.0	809
1976	JO9	*	1976	05	02.17783	14	44	13.17	-22	13	24.1	18.0	809
1976	JP9	*	1976	05	02.17783	14	44	17.24	-18	45	54.3	19.0	809
1976	JQ9	*	1976	05	02.17783	14	44	37.85	-17	40	47.5	18.5	809
1976	JR9	*	1976	05	02.17783	14	44	40.60	-19	31	27.4	19.5	809
1976	JS9	*	1976	05	02.17783	14	44	45.94	-18	25	57.9	17.5	809
1976	JT9	*	1976	05	02.17783	14	44	47.75	-18	02	53.2	19.0	809
1976	JU9	*	1976	05	02.17783	14	45	28.16	-19	28	30.3	18.0	809
1976	JV9	*	1976	05	02.17783	14	45	28.18	-18	19	16.2	18.0	809
1976	JW9	*	1976	05	02.17783	14	45	55.88	-18	50	53.9	19.5	809
1976	JX9	*	1976	05	02.17783	14	46	11.92	-21	40	42.3	18.5	809
1976	JY9	*	1976	05	02.17783	14	46	13.94	-19	43	42.4	18.5	809
1976	JZ9	*	1976	05	02.17783	14	46	36.11	-21	53	54.5	18.0	809
1976	JA10	*	1976	05	02.17783	14	46	38.47	-19	09	27.0	18.5	809
1976	JB10	*	1976	05	02.17783	14	46	49.77	-20	22	04.2	19.5	809
1976	JC10	*	1976	05	02.17783	14	47	19.44	-21	15	39.1	18.5	809
1976	JD10	*	1976	05	02.17783	14	47	32.16	-18	28	18.1	19.5	809
1976	JE10	*	1976	05	02.17783	14	47	50.19	-17	40	52.4	19.5	809
1976	JF10	*	1976	05	02.17783	14	47	53.63	-18	38	01.8	19.0	809
1976	JG10	*	1976	05	02.17783	14	48	14.66	-22	22	44.8	18.5 3	809
1976	JH10	*	1976	05	02.17783	14	48	19.24	-17	14	51.6	19.5	809
1976	JJ10	*	1976	05	02.17783	14	48	49.12	-19	54	55.1	19.0	809
1976	JK10	*	1976	05	02.17783	14	48	53.57	-21	16	17.2	18.5	809
1976	JL10	*	1976	05	02.17783	14	48	59.83	-20	53	02.7	19.0	809
1976	JM10	*	1976	05	02.17783	14	49	01.03	-19	24	22.6	18.0	809
1976	JN10	*	1976	05	02.17783	14	49	44.84	-20	36	18.1	18.5	809
1976	JO10	*	1976	05	02.17783	14	49	58.56	-18	49	59.3	18.0	809
1976	JP10	*	1976	05	02.17783	14	50	05.09	-21	11	25.3	18.5	809
1976	JQ10	*	1976	05	02.17783	14	50	13.00	-20	22	23.0	18.0	809
1976	JR10	*	1976	05	02.17783	14	50	21.18	-21	08	23.1	18.0	809
1976	JS10	*	1976	05	02.17783	14	50	49.65	-17	44	28.9	18.0 1	809
1976	JT10	*	1976	05	02.17783	14	50	55.85	-21	11	42.1	18.5	809
1976	JU10	*	1976	05	02.17783	14	51	18.85	-21	21	26.0	18.0	809
1976	JV10	*	1976	05	02.17783	14	51	46.43	-19	24	32.6	19.0	809

1976 JW10*	1976	05	02.17783	14	51	54.85	-19	08	35.6	18.5	809
1976 JX10*	1976	05	02.17783	14	51	59.18	-20	04	41.8	17.0	809
1976 JY10*	1976	05	02.17783	14	52	11.26	-19	51	00.4	18.5	809
1976 JZ10*	1976	05	02.17783	14	52	22.27	-17	21	11.9	18.0	1 809
1976 JA11*	1976	05	02.17783	14	52	27.28	-21	22	32.8	18.5	2 809
1976 JB11*	1976	05	02.17783	14	52	35.33	-20	41	16.5	19.0	3 809

Note 1: near edge of plate. 2: one end of trail not well defined. 3: image overlapping star.

OBSERVATIONS MADE AT TOKAI BY T. FURUTA. FROM JAPAN ASTRON. STUDY ASSOC. MINOR PLANET CIRC. SER. II NOS. 834 AND 843.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
352	1981 04	25.49410	09 59 16.12	+07 40 48.6	879
352	1981 04	28.55590	10 00 30.22	+07 40 22.2	879
352	1981 04	28.56701	10 00 30.29	+07 40 21.5	879
737	1981 04	25.49410	10 01 30.56	+07 10 35.4	879
737	1981 04	28.55590	10 01 56.39	+07 20 25.2	879
737	1981 04	28.56701	10 01 56.44	+07 20 25.7	879
865	1981 04	02.61493	11 07 51.94	+06 05 59.1	879
865	1981 04	02.62830	11 07 51.53	+06 06 08.2	879
1051	1981 04	02.72726	14 07 11.36	+01 31 43.3	879
1051	1981 04	02.74167	14 07 10.82	+01 31 52.0	879
1394	1981 04	02.61493	11 07 42.82	+05 24 39.5	879
1394	1981 04	02.62830	11 07 42.27	+05 24 45.1	879
1678	1981 04	02.54086	10 34 08.54	+09 57 27.2	879
1678	1981 04	02.56111	10 34 07.79	+09 57 26.8	879
1824	1981 04	06.51389	11 29 29.06	+04 07 07.5	879
1975 FW	1981 05	04.60451	14 52 58.25	-14 06 02.3	879
1975 FW	1981 05	04.61791	14 52 57.49	-14 06 02.6	879
1976 KV	1981 05	04.66927	16 03 22.36	-21 07 34.6	879
1976 KV	1981 05	04.68247	16 03 21.91	-21 07 31.0	879

OBSERVATION MADE AT OJIMA BY T. NIIJIMA. MEASURED BY M. TAKEISHI. FROM NIHONDAIRA OBS. CIRC. NO. 1201.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1981 CB	1981 04	07.63646	10 43 03.36	+12 47 44.3	887

* * * * *

ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are B = C. M. Bardwell, b = F. N. Bowman, F = E. Fogelin, G = D. W. E. Green, I = H. Oishi, M = B. G. Marsden, O = L. Oterma, U = T. Urata, W = J. G. Williams. For further information see MPC 5833.

Planet	B(1,0)	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1943 GU	14.8	430404	350.11	47.53	160.01	6.36	0.1944	2.3167	11	5		O
1952 SU1	16.0	520925	19.88	49.16	299.32	11.37	0.3282	2.5629	24	0		W
1952 UZ1	14.5	521214	94.28	36.16	268.49	1.16	0.1300	2.4601	94	0		W
1957 UK1		571118	354.35	231.77	182.15	1.72	0.0609	2.8467	45	6	1	B
1966 PO	14.5	660803	357.27	206.92	110.34	5.47	0.0474	2.2782	9	7	1	U
1971 RA	15.3	710926	31.43	232.64	86.37	4.84	0.1956	2.2017	30	5	1	U
1980 LM	13.0	800611	343.21	188.70	85.19	8.03	0.1030	2.2974	42	5		M
1980 LO	14.0	800611	303.54	153.96	166.20	4.36	0.0898	2.3876	54	6		M
1980 LP	14.5	800611	300.90	227.66	105.23	6.92	0.1684	2.3380	35	7		M
1980 LU	16.0	800611	341.17	119.47	166.55	3.11	0.2043	2.4421	29	5		M
1980 LB1	13.0	800611	185.77	215.48	216.13	9.63	0.0721	3.0179	35	6		M
1980 LE1	14.5	800611	29.29	343.03	240.33	12.58	0.1091	2.6132	29	6		M

1980 PS	14.0	800829	87.50	261.21	305.37	22.56	0.2417	2.3757	60	9	M
1980 RG1	17.2	801008	7.82	109.87	238.34	4.45	0.4678	2.6509	79	0	W
1981 AE1	10.5	810205	83.70	271.96	133.43	27.39	0.0465	5.1888	31	6 1	M
1981 EK	13.5	810317	71.39	315.87	128.78	2.90	0.0466	2.8341	14	0	G
1981 EL	14.0	810317	10.03	136.64	14.41	2.62	0.1051	2.5585	13	0	G
1981 EM	15.5	810317	85.66	55.19	355.07	5.52	0.2356	2.4443	9	0	G
1981 EN	15.0	810317	17.47	346.81	163.69	9.69	0.1668	2.3852	5	0	G
1981 EO	15.5	810317	316.82	240.40	352.92	16.04	0.1638	2.5543	4	0	B
1981 ES	15.0	810317	319.14	207.51	9.37	2.14	0.1381	2.3982	8	0	G
1981 ET	15.0	810317	40.76	104.75	2.24	4.87	0.2765	3.0573	4	0	G
1981 EU	15.0	810317	38.19	326.16	148.96	1.08	0.2420	3.1706	3	9	B
1981 EV	15.0	810317	327.89	73.04	126.14	6.60	0.0535	2.2181	5	9	G
1981 EX	15.5	810317	342.38	194.89	353.62	12.73	0.1909	2.6849	6	9	B
1981 EY	13.0	810317	15.13	157.30	347.73	14.43	0.0388	3.1551	6	0	B
1981 EA1	16.0	810317	355.71	53.25	114.87	2.03	0.0551	2.1445	10	0	B
1981 EK1	16.0	810317	30.54	133.84	351.52	8.26	0.1092	2.4259	4	0	B
1981 EL1	14.5	810317	5.58	167.11	348.01	13.52	0.2431	2.6852	8	0	B
1981 EM1	13.5	810317	0.20	46.10	116.05	2.12	0.1142	3.1939	3	0	B
1981 EN1	16.0	810317	291.30	162.93	80.20	1.56	0.0924	2.2012	3	0	B
1981 EO1	12.0	810317	205.16	331.66	349.67	14.73	0.1184	2.5554	9	0	B
1981 ES1		810317	167.63	245.35	103.65	2.32	0.2346	2.8633	2	0	G
1981 FQ	14.5	810317	311.86	209.92	29.75	0.33	0.1617	3.1219	27	0	M
1981 GO	16.0	810317	332.74	63.26	155.95	2.71	0.1223	2.2921	39	0	M
1981 GQ	14.5	810317	10.10	154.25	13.49	13.74	0.2774	3.1226	39	0	M
1981 GX	15.5	810426	41.92	253.16	253.88	20.22	0.0990	1.9342	31	0	M
1981 GF1	14.0	810426	284.91	309.19	342.16	8.03	0.1691	3.1754	29	9	M
1981 JR1	16.0	810426	347.14	220.92	28.11	13.97	0.2086	2.4464	6	6	F
1981 KA	12.0	810426	296.97	284.96	27.33	15.64	0.1588	3.0891	57	0	M

Note 1: double designations 1957 UK1 = 1957 XF (B); 1966 PO = 1966 PY (I, JAM 853); 1971 RA = 1971 SO2 = 1971 TL2 (I, JAM 852); 1981 AE1 = 1981 CL (b).

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ORBITAL ELEMENTS BY W. LANDGRAF, UNIVERSITY OF GOTTINGEN.

Periodic Comet Wilk (1937 II)
Epoch 1937 Mar. 8.0 ET = JDE 2428600.5
T 1937 Feb. 21.53408 ET

		(1950.0)	P	Q
q 0.6189374	Peri.	31.46190	+0.06151632	-0.92689550
n 0.00526004	Node	57.57137	+0.80019225	-0.17591958
a 32.7448920	Incl.	26.01754	+0.59658035	+0.33153738
e 0.9810982				

P 187.38
From 108 observations 1937 Feb. 27-May 8, mean residual 1".5.

Comet Friend (1939 IX)
Epoch 1939 Dec. 3.0 ET = JDE 2429600.5
T 1939 Nov. 5.62602 ET

		(1950.0)	P	Q
q 0.9452088	Peri.	126.77926	+0.56265487	+0.77703849
z 0.0029710	Node	196.41339	-0.12666929	+0.41835078
+/-0.000334	Incl.	92.95806	+0.81692986	-0.47031246
e 0.9971918				

From 61 observations 1939 Nov. 6-1940 Jan. 9, mean residual 2".0.

(1019) Strackea
Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	297.51758	(1950.0)	P	Q
n	0.37289932	Peri. 121.71534	-0.02159269	+0.96341141
a	1.91164974	Node 143.91988	-0.99968331	-0.01735135
e	0.07139512	Incl. 26.97746	-0.01292430	-0.26746472

From 38 observations at 14 oppositions 1924-1980, mean residual 1".3.

(1685) Toro
Epoch 1980 Dec. 27.0 ET = JDE 2444600.5

M	52.20870	(1950.0)	P	Q
n	0.61655494	Peri. 126.73281	+0.74888219	-0.64248319
a	1.36716688	Node 273.84243	+0.54416694	+0.73607747
e	0.43591109	Incl. 9.37053	+0.37822984	+0.21308524

From 114 observations at 8 oppositions 1948-1980, mean residual 1".0.

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ORBITAL ELEMENTS BY L. K. KRISTENSEN, INSTITUTE OF PHYSICS, AARHUS.

(1537) Transylvania
The 1940 Budapest observations have been reconstructed from the elements and residuals given in Astron. Nachr. 272, 82 and 85, 1941.
Epoch 1981 July 15.0 ET = JDE 2444800.5

M	216.51864	(1950.0)	P	Q
n	0.18457895	Peri. 148.68486	+0.94798020	-0.31417700
a	3.0550238	Node 229.71516	+0.27639215	+0.89222483
e	0.2988481	Incl. 3.85207	+0.15792694	+0.32438815
P	5.34	B(1,0) 12.9		

Residuals in seconds of arc

031028	024	1.6+	1.8+	401004	053	0.9-	0.5-	810228	801	0.5+	2.3+
031114	024	1.2-	1.9+	401021	053	1.7+	1.5-	810304	801	3.3+	2.8+
400827	053	0.8+	0.6+	401125	053	0.9-	2.6-	810404	474	0.8+	0.8+
400904	053	1.2+	2.9+	420212	053	(8.1+	60.9+)X	810404	474	1.0+	0.6-
400906	053	1.5+	1.2+	621230	760	1.9-	0.4-	810410	801	(6.2+	4.3+)
400923	053	0.1-	0.1-	621230	760	1.2+	1.2-	810411	801	1.2+	0.6-
400924	053	0.2+	0.2+	760503	809	0.5-	0.1-				
400927	053	0.9+	0.6-	810215	675	1.0-	0.6-				

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ORBITAL ELEMENTS BY S. NAKANO, SUMOTO, AND T. URATA, SHIMIZU, JAPAN.

The following orbital elements are from NOC 1201, 1202 and 1204. The identifications are by T. Urata unless otherwise stated.

(2396)* 1981 CB = 1953 EV = 1972 FJ = 1978 RY3
Discovered 1981 Feb. 9 by T. Seki at Geisei.
Epoch 1981 July 15.0 ET = JDE 2444800.5

M	350.66249	(1950.0)	P	Q
n	0.21101456	Peri. 48.33169	-0.88620940	+0.45629549
a	2.7942232	Node 158.43837	-0.46271127	-0.86314995
e	0.0755439	Incl. 12.60041	-0.02304745	-0.21625582
P	4.67	B(1,0) 12.5		

Residuals in seconds of arc

530306	024	0.1+	0.3+		810209	372	(2.3- | 8.3+)Y	810311	372	0.2-	0.3-
720316	095	0.4-	2.4-		810211	372	0.5-	0.3-	810311	372	0.8+	2.8-
720321	095	0.0	1.5+		810211	372	1.0+	1.3+	810407	887	1.0-	1.6+
780903	095	1.2-	0.4+		810305	372	1.1-	1.8-	810422	372	3.5-	3.6+
780927	095	1.6+	0.8+		810305	372	0.6-	0.3+	810425	372	2.6+	1.0+
780928	095	0.7-	0.6+		810309	372	0.8+	1.6-	810503	688	(3.2+ | 0.9+)
810209	372	0.4-	2.7+	Y	810309	372	2.1+	0.5-	810503	688	(1.0+ | 0.8+)

1953 TC1 = 1969 TX4 = 1972 RB3 = 1972 TN = 1974 CV = 1974 EK
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

			(1950.0)	P	Q
M	169.98871				
n	0.30831124	Peri.	291.55710	-0.07602318	-0.99709481
a	2.1700880	Node	162.80089	+0.92060543	-0.07201380
e	0.0339353	Incl.	0.91751	+0.38302235	-0.02481846
P	3.20	B(1,0)	14.5		

Residuals in seconds of arc

531008	760	1.5-	0.4-		531015	760	1.7-	2.4+	720908	095	2.0-	0.8-
531008	760	1.2-	0.3-		531015	760	2.7+	0.2-	721004	095	3.5+	0.1+
531010	760	0.6+	1.8-		691014	095	0.0	0.3-	740214	095	3.2-	2.2+
531010	760	0.2+	0.4+		720904	095	0.7-	0.5-	740315	095	2.8+	3.4-

1976 GN3 = 1968 KE = 1972 HA = 1980 GU
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

			(1950.0)	P	Q
M	313.21970				
n	0.23980167	Peri.	309.52640	+0.98957464	+0.11845877
a	2.5658747	Node	43.84887	-0.06597325	+0.87841603
e	0.0110967	Incl.	6.79055	-0.12802176	+0.46298250
P	4.11	B(1,0)	14.0		

Residuals in seconds of arc

680522	095	0.6+	1.3+		760402	095	0.7+	1.4-	760503	095	1.3+	0.5-
720418	095	1.6-	2.8-		760404	095	1.2+	1.6+	800413	033	(15.3- | 13.7+)
760401	095	1.8-	2.1+		760423	095	0.9-	0.0				

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

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

(2397)* 1938 DV = 1932 AF = 1962 QG = 1972 LF1 = 1976 GK4 = 1978 PR = 1981 FS

Discovered 1938 Feb. 22 by Y. Vaisala at Turku. The identification 1938 DV = 1932 AF is by O. Kippes (MPC 2807).
Epoch 1981 July 15.0 ET = JDE 2444800.5

			(1950.0)	P	Q
M	63.09132				
n	0.18096054	Peri.	297.58961	+0.10583694	-0.98931267
a	3.0956140	Node	145.87327	+0.96367006	+0.07717092
e	0.1672774	Incl.	10.29813	+0.24523160	+0.12371375
P	5.45	B(1,0)	11.5		

Residuals in seconds of arc

320107	094	(26.0+ | 47.4-)X		620803	760	0.3+	0.0	780808	095	1.1-	1.1-
380222	062	3.5-	0.1-		620803	760	0.3+	1.3-	810327	046	0.1+	0.9-
380225	062	1.9+	3.7-		620809	760	0.7+	0.4+	810327	046	0.6-	0.5-
380308	062	1.6+	0.6+		620830	760	2.2+	1.3-	810329	046	0.8-	0.2+
380323	062	4.1-	2.8-		620830	760	1.4-	0.9-	810329	046	0.8-	0.8-
380404	062	1.7+	1.5-		720614	095	1.4-	1.4+				
380420	062	1.2-	1.8-		760402	095	4.8+	8.0+				

(2398)* 1965 UD2 = 1948 EL = 1954 XQ = 1978 JV1 = 1981 BJ

Discovered 1965 Oct. 24 at the Purple Mountain Observatory. The double designation 1948 EL = 1948 GG (MPC 1330) is invalid.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	55.06334	(1950.0)	P	Q	
n	0.26650162	Peri.	11.36277	-0.15885295	-0.98514946
a	2.3914950	Node	87.80187	+0.90059889	-0.17163332
e	0.2376620	Incl.	3.73900	+0.40458295	-0.00474838
P	3.70	B(1,0)	14.5		

Residuals in seconds of arc

480305	012(11.2+	3.6-)	651024	330	0.3+	0.2-	651213 330	1.4- 0.9-
541214	388	0.3- 0.3-	651120	330	0.0	0.1-	780506 095	0.1+ 0.3+
541217	388	2.3+ 2.1+	651123	330	(5.3+	0.8-)	810130 688	0.4+ 1.1-
541217	388	2.2- 6.5+	651126	330	0.1+	0.4+	810130 688	0.1- 1.3-
541220	388	1.3- 4.5-	651130	330	1.6+	2.3-		

(2399)* 1971 MA = 1968 TD = 1973 AX2 = 1978 QS1 = 1978 SV3 = 1981 JC1

Discovered 1971 June 17 by C. U. Cesco at the Yale-Columbia Southern Station, El Leoncito. The key identification 1971 MA = 1981 JC1 is by E. Bowell.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	335.29421	(1950.0)	P	Q	
n	0.29406989	Peri.	159.13794	+0.57464465	+0.81686824
a	2.2395925	Node	145.88094	-0.76292122	+0.55683825
e	0.1685760	Incl.	5.12419	-0.29620050	+0.15052385
P	3.35	B(1,0)	14.5		

Residuals in seconds of arc

681015	095	1.1+ 1.8-	710701	808	0.6+	1.0-	780831 095	0.1+ 1.6+
710617	808	0.3+ 0.5-	710713	808	1.0-	0.8-	780927 095	0.3- 2.4-
710617	808	0.8+ 0.3-	710714	808	0.1-	1.1-	810505 688	0.8+ 1.7-
710618	808	0.1+ 0.5-	710716	808	0.8-	0.0	810505 688	0.4+ 2.0-
710618	808	1.0- 0.6-	710716	808	0.9-	0.7+	810508 688	0.1+ 0.6-
710701	808	0.1- 1.0-	730102	095	0.2-	7.9-	810508 688	0.4- 1.1-

(2400)* 1972 KJ = 1978 QX1

Discovered 1972 May 17 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	230.93360	(1950.0)	P	Q	
n	0.18937295	Peri.	135.56486	+0.60927233	+0.79254893
a	3.0032449	Node	171.85453	-0.76845886	+0.59809081
e	0.0993567	Incl.	10.39381	-0.19559704	+0.11896882
P	5.20	B(1,0)	13.0		

Residuals in seconds of arc

720517	095	0.5- 2.1-	780824	414	1.3+	0.1+	780905 095	1.7- 0.8-
720606	095	0.2- 2.2+	780824	414	0.8+	0.7+	780927 095	0.5- 0.1+
720610	095	0.7+ 0.1+	780826	414	0.6+	0.1+	810311 801	0.1+ 1.5+
780823	414	0.0 0.0	780826	414	0.2+	0.3+	810503 801	0.3+ 0.2+
780823	414	0.1+ 1.5+	780831	095	1.0-	0.6-		

(2401)* 1975 VM2 = 1954 CP = 1957 WC = 1978 JS1

Discovered 1975 Nov. 2 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	24.20921	(1950.0)	P	Q	
n	0.21378227	Peri.	36.89656	+0.04230164	-0.99738744
a	2.7700542	Node	50.75534	+0.89760761	+0.01220060
e	0.0572742	Incl.	4.33629	+0.43876092	+0.07119999
P	4.61	B(1,0)	13.5		

Residuals in seconds of arc

540209	760	0.6+	0.3-	751102	095	1.4+	1.6+	751128	381	0.5-	0.6-
540209	760	0.1+	0.6+	751107	095	1.2+	0.7+	751128	381	0.2-	0.1+
571118	330	0.2+	2.9-	751109	381	0.9-	0.1+	780506	095	0.7-	0.8-
571120	330	0.4-	1.1-	751109	381	0.2-	0.4+				

(2402)* 1979 OR13 = A903 UB = 1931 AT = 1936 RC = 1966 TH = 1969 SC = 1971 BF1 = 1971 DS1

Discovered 1979 July 31 by N. S. Chernykh at the Crimean Astrophysical Observatory. The double designation 1971 BF1 = 1971 DS1 is by C. M. Bardwell (MPC 4637). The identification 1978 SR = 1969 SC (NOC 1067) is invalid.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	152.82254		(1950.0)	P	Q
n	0.29739071	Peri.	63.90454	+0.74981830	-0.66073721
a	2.2228890	Node	337.39913	+0.57026738	+0.67191547
e	0.1304872	Incl.	5.16911	+0.33551099	+0.33459817
P	3.31	B(1,0)	13.5		

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

031020	024	1.7-	0.0	360915	012	2.2+	0.0	710218	095	(3.3+	8.3+)
310113	690	(49.5+	36.7-)X	661013	095	0.4-	0.6-	710223	095	2.9+	2.2+
310115	690	(0.04+	0.01+)X	661017	095	1.3+	0.1-	790731	095	0.5+	1.6+
360912	012	0.1+	1.8+	690919	808	0.1+	0.1+	790819	095	0.6-	1.1+
360914	029	(77.8-	79.2-)X	690920	808	0.9-	0.4+	790827	095	4.0-	2.4+
360914	012	(4.1-	2.5-)	710126	095	1.2+	5.7+				

(2403)* 1979 SQ = A918 RC = 1934 PZ = 1951 WD1 = 1963 TK1

Discovered 1979 Sept. 25 by A. Mrkos at the Klet Observatory. The 1981 observations were recognized by H. Kosai on the basis of an ephemeris by B. G. Marsden.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	181.03734		(1950.0)	P	Q
n	0.24240716	Peri.	38.90949	+0.85868850	+0.50967185
a	2.5474505	Node	290.36860	-0.48334981	+0.77052231
e	0.1286270	Incl.	3.28663	-0.17037317	+0.38279233
P	4.07	B(1,0)	13.5		

Residuals in seconds of arc

180903	024	1.1+	7.9+	790925	046	1.3-	1.2-	791010	330	(1.1-	5.7+)
180906	024	4.6-	0.1+	790925	046	1.4-	1.1-	791012	046	0.0	0.5-
340808	078	(22.3-	0.7-)X	790926	046	0.5+	0.4-	791012	046	0.2+	1.0-
511129	711	2.2+	3.4+ Y	790926	046	1.0+	0.2+	791015	046	0.7+	0.6-
631015	760	1.0-	0.1+	790927	046	1.3+	0.1+	791015	046	0.6+	0.4-
631015	760	1.0-	4.2-	790927	046	0.4+	0.0	810108	381	2.9+	0.2-
790925	330	1.0+	0.2+	790928	330	1.3+	1.1-	810108	381	3.3-	0.9+

(2404)* 1980 TE = 1933 BP = 1934 GQ = 1951 LN = 1969 TH5 = 1976 WG

Discovered 1980 Oct. 1 by A. Mrkos at the Klet Observatory.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	148.11857		(1950.0)	P	Q
n	0.17847390	Peri.	151.36996	-0.14035545	+0.98912354
a	3.1243013	Node	110.53296	-0.91707575	-0.11312916
e	0.1359721	Incl.	2.69231	-0.37319218	-0.09400217
P	5.52	B(1,0)	13.0		

Residuals in seconds of arc

330129	024	2.5-	0.6+	691015	095	1.8-	2.0-	801001	046	2.3+	0.8+
330220	024	0.3-	1.9-	691017	095	1.5-	1.2-	801001	046	0.6+	1.5+
330226	024	2.0+	4.4-	761125	693	0.1-	1.3+	801003	046	0.3-	0.6+
340415	024	(6.9-	2.1-)	761125	693	0.1+	1.2+	801003	046	0.4+	0.4-
510607	711	0.4-	3.1-	800916	046	2.0-	1.5-				
691014	095	4.0+	1.1-	800916	046	0.4-	0.9-				

1941 FN = 1967 ET = 1976 SG5 = 1978 EM6

The key identification 1941 FN = 1967 ET was independently found by C. M. Bardwell.

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	292.69589		(1950.0)	P	Q
n	0.26550210	Peri.	190.32267	-0.96841570	+0.24920098
a	2.3974981	Node	4.13587	-0.21969428	-0.83693189
e	0.0882014	Incl.	6.65713	-0.11792141	-0.48728212
P	3.71	B(1,0)	13.5		

Residuals in seconds of arc

410318	062	2.6+	2.0+	410320	062	1.3+	1.1+	670404	095	2.6-	2.2-
410319	012	(24.3-	7.2-)X	410416	062	2.3-	9.0+	760924	095	1.7-	3.3+
410320	062	3.9+	0.2-	670309	095	0.3-	4.8-	780306	095	1.7-	1.8-

1973 QY1 = 1961 TD1 = 1965 UC = 1977 QS1

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	334.09451		(1950.0)	P	Q
n	0.24379854	Peri.	209.18155	+0.99393480	+0.07058627
a	2.5377539	Node	146.44622	-0.04470764	+0.95995192
e	0.2616758	Incl.	8.77583	-0.10047306	+0.27112707
P	4.04	B(1,0)	14.5		

Residuals in seconds of arc

611010	760	1.9+	1.1-	611015	760	0.3+	0.8+	730905	095	1.6+	0.3-
611010	760	1.8+	1.2-	651026	095	7.9-	2.6-	730927	095	2.7+	0.0
611015	760	1.0-	3.7+	730831	095	3.2+	0.6-	770819	095	4.6-	2.3+

1975 VB9 = 1953 TP1

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	108.77009		(1950.0)	P	Q
n	0.22612224	Peri.	43.85210	+0.57607723	-0.81644327
a	2.6683414	Node	11.16958	+0.68253869	+0.45392598
e	0.1829748	Incl.	11.74713	+0.44975098	+0.35689157
P	4.36	B(1,0)	14.5		

Residuals in seconds of arc

531006	210	(15.8+	36.4-)X	531010	760	1.3+	0.3+	751108	095	0.2+	0.3-
531008	760	1.3-	0.3+	531010	760	2.6+	0.4-	751112	095	0.1-	0.5+
531008	760	5.8-	0.8-	531015	760	3.0+	0.1-	751127	095	0.6-	0.2-
531008	210	(9.8-	16.1-)X	531015	760	0.3+	0.8+	751128	095	0.5+	0.3+

1976 QD = 1965 SG

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	46.24373		(1950.0)	P	Q
n	0.26659941	Peri.	79.20654	+0.35865561	-0.93244858
a	2.3909149	Node	349.45687	+0.73571899	+0.31115086
e	0.1053538	Incl.	13.80313	+0.57452912	+0.18364310
P	3.70	B(1,0)	13.5		

Residuals in seconds of arc

650921	095	0.9+	1.3-	760830	675	2.0+	0.8-	760928	095	0.2-	3.1-
650923	095	1.0+	4.0+	760830	675	1.1+	1.2+	760928	095	1.0-	1.2+
650927	095	1.5-	2.6-	760924	095	0.6-	0.3+	760929	095	(11.6+	6.9-)
760826	095	1.4-	0.3+	760928	095	0.0	1.1+				

1977 NR = 1951 KK = 1966 PN

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	14.07713		(1950.0)	P	Q
n	0.26899684	Peri.	336.02353	+0.91049872	+0.41351179
a	2.3766877	Node	359.55054	-0.37320459	+0.82144799
e	0.2275683	Incl.	2.09861	-0.17807419	+0.39272280
P	3.66	B(1,0)	15.0		

Residuals in seconds of arc

510525	760	1.2+	1.8+	660808	074	2.3-	3.3+	770714	095	5.6-	3.2+
510525	760	1.7-	5.2+	660809	074	0.6+	4.2+	770719	095	5.0-	2.9+
660807	074	0.4-	5.4+	660810	074	0.7-	3.4+	770722	095	4.6-	3.5+
660807	074	1.1-	5.3+	660812	074	2.6+	4.2+	770818	095	2.8+	4.4+
660808	074	0.5+	3.3+	660812	074	1.5+	4.3+				

1978 PB4 = 1934 EG = 1947 BJ

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	91.86497		(1950.0)	P	Q
n	0.29773872	Peri.	244.52048	-0.98639713	+0.14187789
a	2.2211610	Node	303.53287	-0.09048342	-0.89025933
e	0.0876913	Incl.	5.71550	-0.13723504	-0.43279208
P	3.31	B(1,0)	14.0		

Residuals in seconds of arc

340312	078	4.0-	1.2+ X	470128	754	8.8-	7.7+	780831	095	1.5+	0.4-
470126	754	2.1+	6.0+	780809	095	5.0+	1.6+	780905	095	6.0+	0.3-

1980 KN = 1957 JD = 1968 DU

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	74.54322		(1950.0)	P	Q
n	0.17154517	Peri.	161.03101	-0.60821819	+0.79285311
a	3.2078785	Node	71.49021	-0.73333679	-0.54287421
e	0.1428281	Incl.	2.30503	-0.30378903	-0.27689625
P	5.75	B(1,0)	13.5		

Residuals in seconds of arc

570424	081	2.3+	2.1-	800524	809	0.7+	0.4+	800604	809	0.1-	0.4-
570424	081	0.9-	3.2-	800525	809	0.1-	0.3+	800604	809	0.2-	0.2+
570502	760	0.1+	0.2-	800525	809	0.3+	0.1+	800605	809	0.3-	0.9-
570502	760	1.7-	0.3-	800525	809	0.8+	0.0	800605	809	0.4-	0.3-
680227	095	1.0+	1.3+	800526	809	0.9-	0.9+	800605	809	0.4-	0.7-
800522	809	0.4-	0.7+	800526	809	0.3-	0.3+	800606	809	0.4-	1.1-
800522	809	0.0	0.4+	800531	809	0.8+	0.3-	800606	809	0.2+	0.9-
800522	809	0.2-	0.6+	800601	809	0.6-	0.1-	800606	809	0.2+	0.4-
800523	809	1.0-	0.2+	800602	809	0.8-	0.5-	800611	809	0.8+	0.3-
800523	809	1.0-	0.3+	800602	809	0.1-	1.0-	800611	809	1.1+	0.4-
800523	809	0.4-	0.1+	800602	809	0.0	0.7-	800611	809	0.8+	0.7-
800524	809	0.3-	0.3-	800603	809	0.2-	1.3-	800611	809	0.5-	1.1-
800524	809	0.7-	0.3-	800603	809	0.2-	1.0-	800613	809	0.7+	0.3-
800524	809	0.4-	0.4+	800603	809	0.2+	0.6-	800613	809	0.0	0.1-
800524	809	0.6+	0.2+	800604	809	0.2+	0.3-	800613	809	0.3-	0.2+

1980 VJ = 1926 VD = 1953 TJ

The key identification 1980 VJ = 1926 VD is by E. Bowell.

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	60.39235	(1950.0)	P	Q
n	0.29201513	Peri. 130.59077	+0.63611225	-0.76719841
a	2.2500906	Node 279.71251	+0.68028138	+0.60794728
e	0.1742592	Incl. 4.78764	+0.36411322	+0.20446687
P	3.38	B(1,0) 14.0		

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

261110 024	2.5-	2.6+	801108 688	0.4-	0.8+	801129 688	0.8-	1.2+
261207 024	0.9-	1.0+	801108 688	0.4-	0.8-	801129 688	0.2-	1.6+
531013 062	(0.03+	0.02+)X	801111 688	0.1+	1.0-	801204 688	0.4-	1.9-
531102 062	(56.5+	44.8-)X	801111 688	0.3+	0.9-	801204 688	0.4-	2.6-

4008 P-L = A923 RD = 1957 XC

The key identification 4008 P-L = A923 RD is by E. Bowell.

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	50.79336	(1950.0)	P	Q
n	0.29331143	Peri. 57.35514	+0.87036971	-0.49147812
a	2.2434562	Node 332.04832	+0.42750115	+0.78457308
e	0.1643270	Incl. 3.68150	+0.24433448	+0.37801367
P	3.36	B(1,0) 15.5		

Residuals in seconds of arc

230911 024	0.1-	1.5-	600924 675	0.7-	0.3-	601017 675	0.6-	0.3-
231015 024	2.5+	3.2-	600925 675	0.3-	0.7+	601022 675	0.1-	1.3+
571215 760	2.8-	1.5-	600926 675	0.4+	0.0	601024 675	0.7+	1.5+
571215 760	1.9+	1.6-	600928 675	0.8-	0.1-	601026 675	0.2+	1.0+

9086 P-L = 1980 RM1

The identification is by J. G. Williams.

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	82.13110	(1950.0)	P	Q
n	0.29598853	Peri. 158.02487	+0.97696184	-0.20808686
a	2.2299082	Node 214.09440	+0.18104516	+0.92565846
e	0.3113047	Incl. 4.84919	+0.11299649	+0.31600042
P	3.33	B(1,0) 18.0		

Residuals in seconds of arc

601017 675	0.1+	1.2+	800913 675	1.7+	0.6+	801014 675	0.2+	0.4-
601022 675	0.8-	2.4+	800914 675	2.2-	2.1-	801031 675	2.1+	0.3-
601024 675	0.3+	2.2+	800914 675	0.2+	1.4+	801031 675	0.4+	0.2+
601026 675	1.2+	2.6+	800916 675	0.5+	0.7-	801102 675	2.6+	1.5-
800913 675	1.3-	1.5-	801014 675	0.7-	3.2-	801102 675	0.6+	0.5-

* * * * *

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

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

(2405)* 1963 UF = 1965 AG1 = 1969 VV = 1972 JQ1 = 1974 RR = 1977 DN9 = 1979 OJ6 = 1980 RC2 = 1980 TF

Discovered 1963 Oct. 18 at the Goethe Link Observatory, Indiana University. The identifications 1963 UF = 1969 VV = 1979 OJ6 = 1980 TF were found independently by E. Bowell. The double designation 1980 RC2 = 1980 TF is by F. N. Bowman (MPC 5788).

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	310.28973	(1950.0)		P	Q
n	0.17061065	Peri.	347.03514	-0.42818021	-0.90318715
a	3.2195756	Node	128.30870	+0.83248427	-0.40724096
e	0.1220295	Incl.	2.20887	+0.35161290	-0.13567524
P	5.78	B(1,0)	12.5		

Residuals in seconds of arc

631018	760	0.2-	1.1+	691113	095	0.3-	0.4+	800915	511	0.6-	0.3+
631018	760	1.0-	1.5+	720512	095	2.0+	0.5-	800915	511	0.8-	0.2-
631022	760	2.1-	0.5-	740911	095	0.8-	0.2-	801002	046	2.0+	3.5-
631022	760	0.1+	1.4+	770219	381	1.3-	1.4-	801003	046	0.4+	1.4-
631026	760	0.8+	2.3+	770219	381	0.5-	1.6-	801003	046	5.4+	2.0-
631026	760	0.6+	1.5+	790724	675	1.3-	0.2+	801003	046	2.0+	2.6-
650111	330	0.6-	2.8-	790725	675	1.7-	0.6+	801005	046	0.3-	2.8-
691111	095	2.3-	3.0+	800915	511	0.2-	1.1+	801005	046	1.0+	2.2-

(2406)* 1966 QG = 1937 TR = 1975 GZ = 1976 US4 = 1978 GE1 = 1979 QL6 = 1981 EJ

Discovered 1966 Aug. 20 at the Crimean Astrophysical Observatory. The key identifications 1966 QG = 1975 GZ, 1966 QG = 1979 QL6 and 1966 QG = 1981 EJ are by E. Bowell, B. G. Marsden and D. W. E. Green, respectively.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	192.11486	(1950.0)		P	Q
n	0.30339894	Peri.	347.01296	+0.99987107	+0.01360634
a	2.1934446	Node	12.21702	-0.00856278	+0.90102255
e	0.1630672	Incl.	2.30928	-0.01358369	+0.43355879
P	3.25	B(1,0)	15.0		

Residuals in seconds of arc

371011	020	1.7+	1.5-	810302	809	0.3-	0.2-	810308	809	0.3-	0.1+
371013	020(11.3+	1.1+)		810302	809	0.1-	0.3-	810308	809	0.6-	0.3-
660820	095	0.7-	4.0-	810303	809	0.2+	0.1-	810308	809	0.1-	0.2+
660822	095	1.7-	2.1-	810303	809	0.4+	0.1+	810308	809	0.3+	0.3-
660918	095	1.1+	1.0-	810303	809	0.1+	0.3+	810308	809	0.9+	0.3-
750415	805	1.8+	1.2-	810305	809	1.3-	0.1-	810309	809	0.7-	0.3+
750420	805	2.3+	0.7-	810305	809	1.0-	0.2+	810309	809	0.1-	0.0
761030	095	1.1+	1.3+	810305	809	0.8-	0.4+	810309	809	0.3+	0.1+
780407	095	1.3-	1.1-	810306	809	0.3+	0.4+	810310	809	0.9+	0.4-
790819	095	1.2+	2.7+	810306	809	0.3+	0.4+	810310	809	0.4+	0.8-
790827	095	1.4-	3.3+	810306	809	0.4+	0.3+	810310	809	0.1-	1.0-
790924	095	0.6-	0.1+	810307	809	0.4-	0.6-	810312	809	0.6-	1.0+
810301	809	0.4+	0.9+	810307	809	0.0	0.4-	810312	809	0.7-	1.1+
810301	809	0.1+	0.3+	810307	809	0.3+	0.3-	810312	809	0.5-	1.2+
810301	809	0.1+	0.1-	810308	809	0.7-	0.2-				
810302	809	0.5-	0.2-	810308	809	0.3-	0.1-				

(2407)* 1973 DH = 1951 YT = 1969 JB = 1970 ND = 1976 YL1 = 1978 EA6

Discovered 1973 Feb. 27 by L. Kohoutek at Bergedorf.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	31.54783	(1950.0)		P	Q
n	0.19743744	Peri.	9.30192	+0.98925711	+0.14559129
a	2.9208979	Node	342.31023	-0.13675046	+0.88978984
e	0.2219445	Incl.	2.48473	-0.05166891	+0.43252422
P	4.99	B(1,0)	12.0		

Residuals in seconds of arc

511223	711	0.0	0.8- Y	730227	029	1.0+	0.0	761216	095	2.0-	0.4+
690505	095	3.1-	1.0-	730227	029	0.9+	0.3+	761218	095	1.0+	0.3-
700705	095	3.8+	2.8+	730309	029	1.1+	0.3-	780306	095	0.4-	0.6+
700707	095	3.3-	1.2-	730321	029	1.0+	0.8+				

(2408)* 1978 QK1 = 1943 GR = 1948 RH = 1977 DG5

Discovered 1978 Aug. 31 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	293.27311		(1950.0)		P		Q				
n	0.22995487	Peri.	101.42613		-0.05825394		+0.99500116				
a	2.6386046	Node	164.52368		-0.99268457		-0.04912753				
e	0.2414849	Incl.	17.69637		-0.10575355		-0.08694356				
P	4.29	B(1,0)	14.0								

Residuals in seconds of arc

430408	062	0.1+	1.0-	480908	690	0.6-	1.5-	780831	095	0.6+	3.5+
430409	062	1.2+	0.3-	480909	690	0.6-	5.8-	780905	095	0.0	1.3+
430409	062	1.0-	0.4-	770218	381	0.5-	2.2-	780927	095	0.4-	4.7-
430409	062	0.3-	0.0	770219	381	0.7-	1.3-				
480907	690	1.5+	0.3-	770219	381	0.2+	2.9-				

(2409)* 1979 UG = 1931 PA = 1938 TA = 1975 JO = 1976 YR7

Discovered 1979 Oct. 17 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The identifications 1979 UG = 1931 PA = 1938 TA are by P. Herget.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	205.91365		(1950.0)		P		Q				
n	0.28872615	Peri.	207.18433		+0.97590076		+0.21468498				
a	2.2671416	Node	140.35606		-0.18740740		+0.91633420				
e	0.1904797	Incl.	3.51265		-0.11178627		+0.33799701				
P	3.41	B(1,0)	14.0								

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

310807	078(19.4+	9.0-)X		810303	809	0.0	0.1-	810308	809	0.7-	0.1-
310810	078(54.5+	0.1+)X		810303	809	0.1+	0.5-	810308	809	0.3-	0.4+
310817	078(0.24-	0.00+)X		810303	809	0.3-	0.6-	810308	809	0.2-	0.4+
381001	094(24.0-	9.2+)X		810304	809	0.3-	0.1-	810308	809	0.0	0.1-
750514	095	0.0	0.6+	810304	809	0.2-	0.2-	810308	809	0.2+	0.9-
761220	095	0.1-	3.7+	810304	809	0.8+	0.1-	810308	809	0.4+	0.9-
780306	095	0.2-	2.1-	810306	809	0.2+	0.6+	810308	809	1.0+	1.1-
791017	688	0.6+	0.5-	810306	809	1.1+	0.2+	810309	809	0.2-	0.0
791029	688	0.0	0.5-	810306	809	1.6+	0.3-	810309	809	0.4-	0.0
791122	688	0.6-	1.2-	810307	809	0.3-	0.6+	810309	809	0.5-	0.0
791207	688	0.4+	0.0	810307	809	0.2+	0.6+	810310	809	0.6-	0.1-
791208	688	1.2+	2.2-	810307	809	0.5+	0.4+	810310	809	0.5-	0.2-
810301	809	0.6-	0.3+	810307	809	0.8+	0.9-	810310	809	0.3-	0.0
810301	809	0.6-	0.5+	810307	809	1.0+	1.3-	810312	809	0.4-	0.3-
810301	809	1.2-	0.7+	810307	809	1.3+	1.6-	810312	809	0.1-	0.2-
810302	809	0.4-	0.2+	810308	809	1.1-	0.3+	810312	809	0.2+	0.1+
810302	809	0.3-	0.2+	810308	809	0.8-	0.5+				
810302	809	0.0	0.3+	810308	809	0.4-	0.6+				

(2410)* 1981 AF = A905 CA = 1953 XH1 = 1955 HH = 1958 FA = 1968 HH = 1969 TG = 1971 DC

Discovered 1981 Jan. 3 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The identification 1968 HH = 1969 UD2 (NOC 1067) is invalid.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	14.14639		(1950.0)		P		Q				
n	0.29877564	Peri.	61.93160		-0.98954739		+0.14019477				
a	2.2160145	Node	126.10828		-0.14257895		-0.91602568				
e	0.0628845	Incl.	2.39666		-0.02161497		-0.37582227				
P	3.30	B(1,0)	14.0								

Residuals in seconds of arc

050209	024	(86.2+	12.8-)	810303	809	0.0	0.1+	810309	809	0.2+	0.3-
531208	024	0.5+	3.3-	810303	809	0.5+	0.1+	810309	809	0.3+	0.3-
550427	760	(57.8-	45.7-)X	810304	809	0.3-	0.3-	810309	809	0.2+	0.2-
580317	024	0.2+	0.9-	810304	809	0.2+	0.4-	810310	809	0.1-	0.4-
680422	095	1.0-	3.4-	810304	809	0.1+	0.4-	810310	809	0.0	0.3-
680426	095	1.1+	0.0	810305	809	0.0	0.2-	810310	809	0.3-	0.3-
680430	095	2.3-	1.3-	810305	809	0.0	0.4-	810312	809	0.1-	0.3+
691007	095	0.3+	0.3+	810305	809	0.2+	0.2-	810312	809	0.2+	0.3+
710218	095	(2.1+	5.7+)	810306	809	0.1-	0.4-	810312	809	0.8+	0.2+
810103	688	0.2-	0.7-	810306	809	0.1+	0.4-	810314	809	1.7-	0.0
810103	688	0.4+	1.1-	810306	809	0.3+	0.2-	810314	809	1.1-	0.1+
810227	809	0.2+	0.5+	810307	809	0.6+	0.1+	810314	809	0.5-	0.0
810227	809	0.2-	0.1-	810307	809	0.4+	0.2-	810314	809	0.0	0.7+
810301	809	0.8-	0.2+	810307	809	0.5+	0.6-	810314	809	0.4+	0.6+
810301	809	0.3-	0.0	810308	809	0.4-	0.6+	810314	809	0.8+	0.6+
810301	809	0.0	0.2+	810308	809	0.1+	0.4+	810315	809	0.3+	0.0
810302	809	0.2-	0.6+	810308	809	0.2+	0.4+	810315	809	0.7+	0.1-
810302	809	0.1+	0.4+	810308	809	0.1-	0.4+	810315	809	1.8+	0.0
810302	809	0.5+	0.5+	810308	809	0.4-	0.5+				
810303	809	0.0	0.0	810308	809	0.1-	0.4+				

(2411)* 1981 JK = 1952 UP1 = 1961 GB = 1961 JE = 1964 CF = 1972 TF8 = 1974 EN

Discovered 1981 May 3 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The double designation 1961 GB = 1961 JE is by O. Kippes (MPC 2324).

Epoch 1981 July 15.0 ET = JDE 2444800.5

			(1950.0)	P	Q
M	349.15476				
n	0.29690718	Peri.	128.99012	-0.18090116	+0.98326796
a	2.2253018	Node	130.57395	-0.91079804	-0.15926994
e	0.0865238	Incl.	1.61610	-0.37110873	-0.08841496
P	3.32	B(1,0)	14.0		

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

521017	024	0.3+	1.1-	640306	760	1.6+	0.6+	810508	688	0.4+	0.6-
610414	760	(71.1-	39.1-)X	640314	760	(0.11-	0.14+)	810508	688	0.4+	0.2-
610511	760	(28.3+	51.1+)X	721006	095	0.3+	0.3-	810602	688	0.5-	0.3-
640215	760	2.3-	0.1+	740315	095	1.4-	2.1-	810602	688	0.1-	0.1+
640215	760	1.1-	1.0+	810503	688	0.2+	0.3-				
640306	760	2.8+	0.2-	810503	688	0.8-	0.4+				

(2412)* 3537 P-L = 1955 MK = 1969 TD4 = 1973 TD = 1981 GJ1

Discovered 1960 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Epoch 1981 July 15.0 ET = JDE 2444800.5

			(1950.0)	P	Q
M	334.84645				
n	0.22458985	Peri.	341.73661	+0.26374175	+0.95903811
a	2.6804598	Node	303.43598	-0.86879055	+0.18961625
e	0.1458741	Incl.	7.11580	-0.41909815	+0.21045567
P	4.39	B(1,0)	13.0		

Residuals in seconds of arc

550627	760	(17.3-	34.0+)X	601026	675	0.1+	0.5-	810504	808	0.2-	1.9+
601017	675	0.6-	0.2+	691011	095	0.1-	0.2-	810507	808	1.8-	1.5-
601017	675	0.6+	0.7-	731001	095	0.3+	0.2-	810507	808	1.4-	2.2-
601022	675	0.1-	1.2+	810408	808	2.0+	0.5-	810509	808	0.9+	1.0-
601024	675	0.1+	0.6+	810408	808	1.9+	1.1+	810509	808	1.0+	0.8-
601024	675	0.3-	0.3+	810425	808	0.3+	1.8+				
601026	675	0.2-	0.0	810504	808	2.0-	1.7+				

(2413)* 6816 P-L = 1931 EM = 1952 DV1 = 1973 FY1 = 1978 ER4

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

Epoch 1981 July 15.0 ET = JDE 2444800.5

		(1950.0)	P	Q
M	304.79953			
n	0.18824539	Peri. 250.09819	+0.54528396	-0.83715816
a	3.0152256	Node 166.60116	+0.82145415	+0.52349083
e	0.1157854	Incl. 10.64295	+0.16696847	+0.15850417
P	5.24	B(1,0) 13.0		

Residuals in seconds of arc

310315	024	1.7+	4.6+		600924	675	0.6+	0.2-		730330	095	2.6-	5.0-
310317	024	0.1-	2.8-		600926	675	0.4+	0.2-		730331	095	1.7+	4.2-
310319	024	2.2+	1.2-		600927	675	0.6+	0.9-		780306	095	2.0+	1.2-
520219	711	0.7-	3.6+	Y	600928	675	0.1+	0.9-					
520219	711	4.4-	3.2+	Y	601017	675	1.2-	0.7-					

1937 TD = 1971 ST3 = 1971 TU = 1971 UT3

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

		(1950.0)	P	Q
M	219.27742			
n	0.17441737	Peri. 78.44212	+0.28956641	-0.95715778
a	3.1725643	Node 354.72580	+0.87591800	+0.26520754
e	0.1758997	Incl. 0.32328	+0.38590017	+0.11624946
P	5.65	B(1,0) 12.5		

Residuals in seconds of arc

371011	024	0.5-	1.3+		371103	024	0.1+	0.0		711011	095	3.5-	2.4-
371026	024	1.3-	0.1-		371107	024	1.9-	0.7-		711020	805	0.4+	1.7-
371027	024	2.7-	0.3-		710926	805	0.2-	3.6-		711020	805	1.7+	1.8-
371028	024	1.2+	1.1-		710927	805	1.0-	6.0+					

1938 GC = 1972 ND

The identification 1938 GC = 1952 RM (MPC 2635) is invalid.

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

		(1950.0)	P	Q
M	253.74008			
n	0.29327768	Peri. 144.04034	+0.13881962	+0.98734959
a	2.2436283	Node 133.80069	-0.93155398	+0.15644418
e	0.2062553	Incl. 6.09353	-0.33605996	-0.02580703
P	3.36	B(1,0) 14.5		

Residuals in seconds of arc

380405	062	1.8+	1.0+		380420	062	1.2-	0.6+		380430	062	2.4+	2.0-
380405	062	0.6-	1.7+		380421	062	1.3+	1.5-		380502	062	3.5+	2.6-
380406	062	0.7+	0.6-		380423	062	3.7-	2.7+		720715	095	2.6-	0.5+
380408	062	0.3+	1.3-		380427	062	4.5-	1.8+		720718	095	2.3+	0.6+

1939 TM = 1968 QR = 1972 XP1 = 1974 FP

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

		(1950.0)	P	Q
M	164.67851			
n	0.27009267	Peri. 163.34561	+0.92932794	-0.36365854
a	2.3702549	Node 218.17564	+0.32585470	+0.88925535
e	0.1057290	Incl. 5.94789	+0.17369024	+0.27744797
P	3.65	B(1,0) 14.5		

Residuals in seconds of arc

391007	062	2.4-	1.5+		391020	062	0.5-	1.2+		721201	095	0.3+	3.6-
391018	062	1.2+	0.7+		391111	062	1.2-	0.3+		740322	805	1.2+	0.6+
391018	062	0.8+	3.8+		680827	095	0.5+	1.0-		740323	805	0.3+	4.1+

1940 GG = 1943 DN = 1965 VF = 1965 WY = 1970 ER = 1972 XC1 = 1975 VP2
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M 201.59570		(1950.0)	P	Q
n 0.29329957	Peri.	13.97896	+0.12078271	-0.98721985
a 2.2435167	Node	69.16463	+0.89969504	+0.06461097
e 0.1212713	Incl.	6.38670	+0.41947630	+0.14567908
P 3.36	B(1,0)	14.0		

Residuals in seconds of arc

400403	062	0.9+	1.7+	430301	062	(57.3-	3.8-)X	721202	095	0.6-	4.4-
400404	062	0.6+	1.9+	651101	760	0.2+	1.3+	721206	095	1.1+	3.0+
400412	062	0.3+	1.9+	651101	760	0.3-	2.8+	751102	095	2.1-	1.5+
400412	062	3.9-	0.9+	651120	760	1.5-	0.9+	751107	095	0.2-	1.7+
400428	062	5.6+	0.4+	651120	760	0.1-	1.1-				
430226	062	(24.6-	45.8+)X	700307	095	(52.5+	14.0-)				

1969 TH6 = 1974 XF = 1976 GD3
The identification 1969 TH6 = 1976 GH7 (NOC 1067) is invalid.
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M 107.87164		(1950.0)	P	Q
n 0.21111509	Peri.	92.13158	-0.50236415	-0.86219585
a 2.7933417	Node	28.32331	+0.72857989	-0.46269392
e 0.1820033	Incl.	7.89647	+0.46561958	-0.20623445
P 4.67	B(1,0)	13.5		

Residuals in seconds of arc

691015	095	1.0-	1.5+	691113	095	2.1-	3.8-	760404	095	0.8+	2.5-
691016	095	1.4+	0.4-	741214	095	0.2-	0.4+				
691017	095	2.3+	1.0+	760401	095	1.4-	1.4+				

1974 SG1 = 1956 EH = 1970 SN = 1978 QU1
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M 233.19977		(1950.0)	P	Q
n 0.24181384	Peri.	19.43601	+0.98558538	-0.16831696
a 2.5516209	Node	350.20699	+0.13888750	+0.86255655
e 0.1142633	Incl.	5.75458	+0.09660081	+0.47714315
P 4.08	B(1,0)	14.5		

Residuals in seconds of arc

560309	024	0.1+	0.1+	740919	095	0.3-	2.1+	780831	095	0.4+	0.4-
700927	095	1.8+	1.0-	740923	095	1.3+	3.3+	780905	095	0.0	1.2-
701001	095	1.2-	2.2-	741009	095	1.9-	0.0	780927	095	0.1-	0.8-

1977 PA2 = 1974 SE4
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M 139.90677		(1950.0)	P	Q
n 0.29991022	Peri.	333.50934	-0.27122489	+0.95742970
a 2.2104264	Node	280.62121	-0.86424480	-0.28744066
e 0.0740397	Incl.	5.77042	-0.42369562	-0.02657489
P 3.29	B(1,0)	15.0		

Residuals in seconds of arc

740922	095	1.1-	1.8-	770814	095	0.6+	0.4-	770909	095	0.7+	0.1+
740925	095	0.1+	0.2+	770821	095	2.0-	0.2+				

1978 RU5 = 1976 GG2
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M 178.97566		(1950.0)	P	Q
n 0.23435069	Peri.	259.54840	-0.03794617	-0.99806120
a 2.6055100	Node	192.93664	+0.98118363	-0.02786044
e 0.1535460	Incl.	12.73074	+0.18931130	-0.05565644
P 4.21	B(1,0)	14.0		

Residuals in seconds of arc

760401	095	0.0	0.6+	780913	095	0.1+	0.1-	781003	095	0.2-	0.4-
760404	095	0.1+	0.3+	780927	095	0.8-	0.0	781007	095	0.2+	0.4+

1979 MO6 = 1975 TG6
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	83.96367		(1950.0)	P	Q
n	0.22435832	Peri.	280.96751	+0.73353068	-0.65430253
a	2.6823089	Node	120.18515	+0.67647204	+0.67669655
e	0.1991394	Incl.	12.28373	+0.06571400	+0.33759440
P	4.39	B(1,0)	15.0		

Residuals in seconds of arc

751001	808	0.8+	0.6+	751008	808	0.5-	0.3-	790629	413	0.3-	0.2-
751002	808	0.5-	0.7-	790623	413	0.6+	1.0+	790724	675	0.8-	0.3-
751002	808	0.1+	0.1+	790624	413	0.0	0.7-	790725	675	0.2+	0.1+
751008	808	0.2+	0.4+	790625	413	0.3+	0.2+				

1980 PJ = 1973 SG2 = 1976 JU10
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	97.16718		(1950.0)	P	Q
n	0.28067504	Peri.	330.21945	+0.80571306	+0.59226720
a	2.3102965	Node	353.45002	-0.53097402	+0.71716014
e	0.2051004	Incl.	3.40963	-0.26247484	+0.36728858
P	3.51	B(1,0)	15.5		

Residuals in seconds of arc

730922	095	0.9-	0.1-	800808	688	0.4+	0.5+	800907	688	1.8+	1.3-
730923	095	0.9-	0.4+	800902	688	0.3-	1.6-	801002	688	2.6-	0.3+
760502	809	0.3+	0.1-	800904	688	0.3-	1.4-				

1981 FN = 1974 DQ = 1976 YK1
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	57.35732		(1950.0)	P	Q
n	0.29707649	Peri.	100.09092	-0.97142028	-0.21035993
a	2.2244606	Node	67.83289	+0.14301562	-0.88842778
e	0.0915203	Incl.	6.81921	+0.18944440	-0.40797644
P	3.32	B(1,0)	14.5		

Residuals in seconds of arc

740216	095	0.7+	4.9+	810330	688	1.0-	0.1+	810410	688	0.5-	0.2-
761216	095	1.7-	2.5-	810405	688	1.1-	1.2-	810503	688	1.7+	0.2-
761218	095	3.0+	2.0-	810405	688	3.0-	1.2-	810503	688	1.8+	0.5-
810330	688	0.2+	0.3+	810410	688	0.2+	1.4-				

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EPHEMERIDES.

1978 RU5 Elements MPC 6111

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	06 25	17 41.83	-04 58.1	2.028	3.004	160.1	6.6	18.1
1981	07 05	17 33.54	-05 01.9					
1981	07 15	17 26.55	-05 19.1	2.117	3.006	144.9	11.2	18.3
1981	07 25	17 21.40	-05 47.7					
1981	08 04	17 18.42	-06 25.1	2.291	3.005	126.3	15.8	18.6
1981	08 14	17 17.75	-07 08.5					
1981	08 24	17 19.33	-07 55.3	2.523	3.002	108.6	18.6	18.8
1981	09 03	17 23.04	-08 43.2					
1981	09 13	17 28.70	-09 30.2	2.784	2.998	92.3	19.6	19.1
1981	09 23	17 36.09	-10 14.7					
1981	10 03	17 45.03	-10 55.2	3.048	2.991	77.3	19.0	19.2

1940 GG Elements MPC 6111

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 06 25	18 32.40	-28 00.6	1.495	2.507	173.6	2.6	16.8
1981 07 05	18 20.75	-28 30.4					
1981 07 15	18 09.85	-28 50.5	1.523	2.500	159.5	8.2	17.1
1981 07 25	18 00.95	-29 01.5					
1981 08 04	17 54.89	-29 05.4	1.647	2.491	137.5	16.0	17.4
1981 08 14	17 52.13	-29 04.9					
1981 08 24	17 52.69	-29 01.8	1.839	2.479	117.9	21.1	17.8
1981 09 03	17 56.37	-28 57.3					
1981 09 13	18 02.87	-28 51.3	2.069	2.466	100.9	23.6	18.1
1981 09 23	18 11.83	-28 43.4					
1981 10 03	18 22.92	-28 32.6	2.311	2.450	85.8	24.0	18.3

1937 TD Elements MPC 6110

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 06 25	18 49.51	-23 23.6	2.644	3.653	171.6	2.3	17.3
1981 07 05	18 41.38	-23 32.4					
1981 07 15	18 33.37	-23 39.1	2.643	3.637	165.6	4.0	17.4
1981 07 25	18 26.17	-23 43.6					
1981 08 04	18 20.33	-23 45.9	2.753	3.620	143.6	9.6	17.7
1981 08 14	18 16.29	-23 46.7					
1981 08 24	18 14.26	-23 46.3	2.950	3.601	123.0	13.6	17.9
1981 09 03	18 14.31	-23 45.1					
1981 09 13	18 16.40	-23 43.2	3.201	3.581	104.1	15.8	18.2
1981 09 23	18 20.39	-23 40.4					
1981 10 03	18 26.12	-23 36.2	3.475	3.560	86.7	16.3	18.3

1978 PB4 Elements MPC 6105

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 06 25	19 42.86	-24 48.6	1.244	2.224	159.4	9.2	16.4
1981 07 05	19 32.13	-24 46.2					
1981 07 15	19 20.50	-24 38.6	1.230	2.244	175.5	2.0	16.1
1981 07 25	19 09.55	-24 24.4					
1981 08 04	19 00.64	-24 04.5	1.314	2.264	152.7	11.9	16.6
1981 08 14	18 54.76	-23 40.7					
1981 08 24	18 52.29	-23 14.9	1.482	2.283	131.7	19.3	17.1
1981 09 03	18 53.20	-22 48.2					
1981 09 13	18 57.25	-22 20.7	1.707	2.301	113.5	23.6	17.5
1981 09 23	19 04.01	-21 51.8					
1981 10 03	19 13.09	-21 20.4	1.962	2.319	97.7	25.3	17.9
1981 10 13	19 24.11	-20 45.4					
1981 10 23	19 36.69	-20 05.8	2.227	2.335	83.6	25.1	18.2

1976 GN3 Elements MPC 6101

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 06 25	21 30.39	-25 05.7	1.725	2.548	135.2	16.3	17.6
1981 07 05	21 27.37	-25 55.0					
1981 07 15	21 21.57	-26 49.8	1.588	2.547	155.2	9.6	17.3
1981 07 25	21 13.47	-27 43.9					
1981 08 04	21 03.91	-28 30.2	1.542	2.545	168.7	4.5	17.0
1981 08 14	20 54.09	-29 02.3					
1981 08 24	20 45.27	-29 16.9	1.599	2.543	153.4	10.2	17.3
1981 09 03	20 38.48	-29 13.5					
1981 09 13	20 34.43	-28 53.8	1.745	2.542	133.2	16.8	17.6
1981 09 23	20 33.38	-28 20.8					
1981 10 03	20 35.28	-27 37.1	1.955	2.541	114.6	21.0	18.0
1981 10 13	20 39.91	-26 44.5					
1981 10 23	20 46.90	-25 44.5	2.201	2.540	98.1	22.8	18.3

1973 QY1 Elements MPC 6104

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 06 25	21 56.60 -06 55.7	1.283	2.033	123.9	24.5	17.1
1981 07 05	22 01.32 -07 02.5					
1981 07 15	22 03.34 -07 34.4	1.090	1.990	141.6	18.5	16.6
1981 07 25	22 02.55 -08 33.9					
1981 08 04	21 59.07 -10 00.1	0.960	1.952	162.6	8.9	16.1
1981 08 14	21 53.57 -11 47.0					
1981 08 24	21 47.13 -13 43.5	0.912	1.921	174.0	3.1	15.7
1981 09 03	21 41.15 -15 36.3					
1981 09 13	21 37.08 -17 12.6	0.953	1.897	151.1	14.8	16.1
1981 09 23	21 35.90 -18 24.4					
1981 10 03	21 38.12 -19 08.2	1.066	1.881	131.1	23.6	16.6
1981 10 13	21 43.80 -19 23.9					
1981 10 23	21 52.58 -19 13.4	1.228	1.874	114.5	28.9	17.0
1981 11 02	22 04.05 -18 39.2					
1981 11 12	22 17.71 -17 44.1	1.420	1.876	100.7	31.2	17.3
1981 11 22	22 33.08 -16 30.8					
1981 12 02	22 49.77 -15 01.7	1.629	1.886	88.8	31.5	17.7

1980 KN Elements MPC 6105

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 06 25	22 38.30 -11 26.9	2.539	3.122	116.0	17.0	18.4
1981 07 05	22 38.84 -11 33.9					
1981 07 15	22 37.31 -11 52.8	2.343	3.149	135.5	13.1	18.1
1981 07 25	22 33.79 -12 22.4					
1981 08 04	22 28.47 -13 00.5	2.219	3.177	156.9	7.2	17.9
1981 08 14	22 21.79 -13 43.5					
1981 08 24	22 14.39 -14 27.1	2.195	3.205	176.7	1.0	17.5
1981 09 03	22 06.97 -15 07.0					
1981 09 13	22 00.30 -15 39.2	2.283	3.232	156.8	7.0	18.0
1981 09 23	21 54.99 -16 01.5					
1981 10 03	21 51.47 -16 12.4	2.472	3.259	135.2	12.5	18.3
1981 10 13	21 49.99 -16 11.9					
1981 10 23	21 50.55 -16 00.5	2.735	3.286	115.3	15.9	18.6
1981 11 02	21 53.08 -15 39.0					
1981 11 12	21 57.40 -15 08.3	3.040	3.312	97.1	17.3	18.9
1981 11 22	22 03.28 -14 29.3					
1981 12 02	22 10.53 -13 42.9	3.357	3.337	80.4	16.9	19.1

(2190) Coubertin Elements MPC 5127

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 07 15	00 42.13 +05 35.1	2.224	2.603	100.1	22.6	17.9
1981 07 25	00 47.00 +06 09.7					
1981 08 04	00 49.71 +06 30.7	1.995	2.618	117.1	20.2	17.7
1981 08 14	00 50.04 +06 36.7					
1981 08 24	00 47.87 +06 26.7	1.802	2.632	136.8	15.3	17.3
1981 09 03	00 43.22 +06 00.4					
1981 09 13	00 36.42 +05 19.3	1.679	2.644	159.2	7.8	17.0
1981 09 23	00 28.12 +04 27.0					
1981 10 03	00 19.21 +03 28.7	1.656	2.655	176.3	1.4	16.6
1981 10 13	00 10.74 +02 31.6					
1981 10 23	00 03.65 +01 42.1	1.743	2.665	152.4	9.9	17.2
1981 11 02	23 58.63 +01 05.0					
1981 11 12	23 56.07 +00 43.5	1.925	2.674	130.3	16.4	17.5
1981 11 22	23 56.03 +00 38.3					
1981 12 02	23 58.42 +00 49.0	2.170	2.681	110.7	20.1	17.9
1981 12 12	00 03.01 +01 14.3					
1981 12 22	00 09.52 +01 52.4	2.444	2.687	93.3	21.4	18.2

(2413) 6816 P-L Elements MPC 6110

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 07 15	00 38.22	+03 23.6	2.457	2.846	101.9	20.5	17.7
1981 07 25	00 43.69	+03 25.2					
1981 08 04	00 47.35	+03 11.4	2.191	2.825	119.0	18.3	17.4
1981 08 14	00 48.98	+02 41.1					
1981 08 24	00 48.46	+01 53.9	1.968	2.805	138.3	13.9	17.0
1981 09 03	00 45.78	+00 50.7					
1981 09 13	00 41.16	-00 25.4	1.819	2.786	159.9	7.1	16.7
1981 09 23	00 35.08	-01 49.2					
1981 10 03	00 28.23	-03 13.8	1.772	2.768	173.0	2.5	16.4
1981 10 13	00 21.49	-04 31.2					
1981 10 23	00 15.71	-05 34.9	1.835	2.751	151.6	9.9	16.7
1981 11 02	00 11.58	-06 20.3					
1981 11 12	00 09.56	-06 45.4	1.991	2.735	130.0	16.1	17.1
1981 11 22	00 09.81	-06 50.3					
1981 12 02	00 12.34	-06 36.6	2.211	2.720	110.7	19.8	17.4
1981 12 12	00 17.01	-06 06.5					
1981 12 22	00 23.59	-05 22.4	2.461	2.708	93.6	21.3	17.6

1950 FC Elements MPC 5275

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 07 15	00 56.32	+14 32.1	2.849	3.081	93.4	19.2	18.7
1981 07 25	00 59.98	+15 36.0					
1981 08 04	01 01.77	+16 31.4	2.585	3.086	110.2	18.0	18.4
1981 08 14	01 01.50	+17 16.3					
1981 08 24	00 59.02	+17 48.7	2.350	3.088	129.0	14.7	18.1
1981 09 03	00 54.33	+18 06.5					
1981 09 13	00 47.64	+18 07.7	2.180	3.088	149.4	9.6	17.9
1981 09 23	00 39.41	+17 51.8					
1981 10 03	00 30.33	+17 19.6	2.105	3.086	166.3	4.4	17.6
1981 10 13	00 21.29	+16 34.6					
1981 10 23	00 13.17	+15 42.3	2.144	3.082	156.5	7.4	17.8
1981 11 02	00 06.68	+14 48.7					
1981 11 12	00 02.31	+13 59.7	2.289	3.075	135.6	13.0	18.0
1981 11 22	00 00.28	+13 20.0					
1981 12 02	00 00.59	+12 52.2	2.510	3.066	115.5	16.9	18.3
1981 12 12	00 03.12	+12 37.9					
1981 12 22	00 07.64	+12 37.1	2.773	3.055	97.1	18.6	18.6

1979 DF Elements MPC 4771

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 07 15	01 01.77	-05 52.3	2.750	3.091	-0.57	-6.7	18.6
1981 07 25	01 05.34	-05 44.2					
1981 08 04	01 07.00	-05 47.0	2.483	3.082	-0.64	-7.5	18.3
1981 08 14	01 06.54	-06 00.4					
1981 08 24	01 03.83	-06 23.1	2.257	3.072	-0.73	-8.3	18.0
1981 09 03	00 58.86	-06 52.9					
1981 09 13	00 51.87	-07 26.2	2.107	3.060	-0.80	-8.8	17.7
1981 09 23	00 43.32	-07 58.3					
1981 10 03	00 33.92	-08 24.1	2.061	3.046	-0.82	-8.8	17.5
1981 10 13	00 24.57	-08 39.1					
1981 10 23	00 16.13	-08 40.2	2.129	3.030	-0.78	-8.2	17.8
1981 11 02	00 09.32	-08 26.0					
1981 11 12	00 04.61	-07 56.7	2.296	3.013	-0.70	-7.5	18.0
1981 11 22	00 02.21	-07 13.6					
1981 12 02	00 02.12	-06 18.4	2.529	2.993	-0.62	-6.8	18.3
1981 12 12	00 04.21	-05 12.9					
1981 12 22	00 08.25	-03 58.8	2.792	2.971	-0.55	-6.3	18.5

1942 CB Elements MPC 6053

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 07 15	00 48.20	+07 19.8	2.189	2.539	98.0	23.3	18.3
1981 07 25	00 54.56	+08 15.2					
1981 08 04	00 59.02	+09 00.0	1.908	2.499	114.0	21.8	17.9
1981 08 14	01 01.23	+09 32.3					
1981 08 24	01 00.92	+09 50.3	1.660	2.458	132.4	17.7	17.5
1981 09 03	00 57.88	+09 51.9					
1981 09 13	00 52.16	+09 36.0	1.472	2.416	153.7	10.6	17.0
1981 09 23	00 44.16	+09 03.3					
1981 10 03	00 34.69	+08 16.5	1.373	2.372	175.4	1.9	16.4
1981 10 13	00 24.94	+07 21.9					
1981 10 23	00 16.17	+06 27.1	1.380	2.328	156.8	9.7	16.8
1981 11 02	00 09.48	+05 40.0					
1981 11 12	00 05.61	+05 07.0	1.481	2.283	134.1	18.1	17.1
1981 11 22	00 04.85	+04 51.4					
1981 12 02	00 07.17	+04 54.5	1.645	2.239	114.3	23.7	17.4
1981 12 12	00 12.37	+05 15.8					
1981 12 22	00 20.11	+05 53.5	1.841	2.195	97.3	26.4	17.6

1980 GB Elements MPC 5347

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 07 15	00 53.66	-03 58.8	2.058	2.465	-0.97	-6.2	19.2
1981 07 25	00 59.92	-04 07.4					
1981 08 04	01 03.96	-04 32.7	1.837	2.477	-1.11	-7.3	18.9
1981 08 14	01 05.50	-05 14.8					
1981 08 24	01 04.32	-06 12.6	1.654	2.487	-1.27	-8.5	18.5
1981 09 03	01 00.36	-07 22.9					
1981 09 13	00 53.85	-08 39.9	1.540	2.496	-1.42	-9.2	18.2
1981 09 23	00 45.38	-09 55.7					
1981 10 03	00 35.87	-11 01.2	1.522	2.503	-1.47	-8.8	18.1
1981 10 13	00 26.49	-11 48.6					
1981 10 23	00 18.36	-12 13.1	1.609	2.508	-1.37	-7.7	18.4
1981 11 02	00 12.31	-12 13.3					
1981 11 12	00 08.85	-11 50.6	1.785	2.510	-1.20	-6.5	18.8
1981 11 22	00 08.10	-11 08.1					
1981 12 02	00 09.97	-10 09.2	2.017	2.511	-1.02	-5.7	19.1
1981 12 12	00 14.21	-08 57.0					
1981 12 22	00 20.52	-07 34.6	2.275	2.510	-0.88	-5.2	19.4

1975 DA Elements MPC 5224

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 07 15	01 02.25	+25 19.9	2.643	2.796	87.8	21.3	18.8
1981 07 25	01 07.77	+27 10.7					
1981 08 04	01 11.35	+28 55.1	2.410	2.811	102.6	20.6	18.6
1981 08 14	01 12.69	+30 30.6					
1981 08 24	01 11.55	+31 53.9	2.197	2.825	118.6	18.3	18.4
1981 09 03	01 07.75	+33 00.8					
1981 09 13	01 01.40	+33 46.3	2.031	2.837	135.5	14.4	18.1
1981 09 23	00 52.91	+34 05.9					
1981 10 03	00 43.04	+33 56.5	1.940	2.849	149.7	10.2	17.9
1981 10 13	00 32.90	+33 18.5					
1981 10 23	00 23.62	+32 16.4	1.947	2.859	151.3	9.6	17.9
1981 11 02	00 16.18	+30 57.9					
1981 11 12	00 11.27	+29 32.5	2.053	2.868	138.3	13.3	18.2
1981 11 22	00 09.13	+28 09.2					
1981 12 02	00 09.78	+26 54.7	2.241	2.876	121.1	17.1	18.4
1981 12 12	00 13.02	+25 53.6					
1981 12 22	00 18.54	+25 08.1	2.482	2.883	104.0	19.3	18.7

(2279) 1968 DL Elements MPC 5444

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	07 15	01 01.00	+04 26.3	2.488	2.788	96.2	21.3	18.7
1981	07 25	01 06.14	+04 44.9					
1981	08 04	01 09.32	+04 50.3	2.243	2.803	113.2	19.4	18.4
1981	08 14	01 10.33	+04 41.5					
1981	08 24	01 09.01	+04 18.1	2.031	2.817	132.7	15.3	18.1
1981	09 03	01 05.31	+03 40.3					
1981	09 13	00 59.42	+02 50.0	1.885	2.828	154.7	8.7	17.8
1981	09 23	00 51.81	+01 50.8					
1981	10 03	00 43.18	+00 48.0	1.838	2.837	176.3	1.3	17.4
1981	10 13	00 34.47	-00 11.9					
1981	10 23	00 26.60	-01 02.8	1.904	2.843	156.4	8.1	17.8
1981	11 02	00 20.33	-01 40.2					
1981	11 12	00 16.18	-02 01.3	2.072	2.848	133.7	14.5	18.2
1981	11 22	00 14.38	-02 05.7					
1981	12 02	00 14.93	-01 54.1	2.311	2.850	113.3	18.5	18.5
1981	12 12	00 17.71	-01 27.8					
1981	12 22	00 22.47	-00 49.0	2.586	2.849	95.2	20.1	18.8

1932 BH Elements MPC 5275

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	07 15	00 57.23	+02 49.5	2.727	3.035	97.7	19.4	18.0
1981	07 25	01 02.77	+03 12.4					
1981	08 04	01 06.66	+03 24.1	2.423	2.988	114.4	18.0	17.7
1981	08 14	01 08.69	+03 23.7					
1981	08 24	01 08.67	+03 10.8	2.157	2.942	133.1	14.5	17.3
1981	09 03	01 06.50	+02 45.4					
1981	09 13	01 02.25	+02 08.9	1.957	2.896	154.2	8.7	17.0
1981	09 23	00 56.23	+01 23.9					
1981	10 03	00 48.99	+00 34.8	1.852	2.850	175.2	1.7	16.5
1981	10 13	00 41.34	-00 12.7					
1981	10 23	00 34.16	-00 53.0	1.858	2.806	158.1	7.6	16.8
1981	11 02	00 28.25	-01 21.4					
1981	11 12	00 24.28	-01 34.6	1.966	2.762	135.7	14.5	17.0
1981	11 22	00 22.58	-01 31.4					
1981	12 02	00 23.29	-01 11.9	2.146	2.720	115.5	19.1	17.3
1981	12 12	00 26.34	-00 37.4					
1981	12 22	00 31.56	+00 10.5	2.364	2.680	97.7	21.3	17.5

1943 EO Elements MPC 6054

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	07 15	01 15.89	+03 01.2	3.183	3.397	93.3	17.4	18.1
1981	07 25	01 19.48	+03 39.6					
1981	08 04	01 21.43	+04 10.3	2.874	3.368	110.7	16.4	17.8
1981	08 14	01 21.53	+04 32.9					
1981	08 24	01 19.63	+04 47.0	2.597	3.338	130.0	13.4	17.5
1981	09 03	01 15.65	+04 52.7					
1981	09 13	01 09.68	+04 50.6	2.386	3.307	151.7	8.3	17.2
1981	09 23	01 02.03	+04 41.8					
1981	10 03	00 53.20	+04 28.7	2.275	3.273	175.2	1.5	16.7
1981	10 13	00 43.94	+04 14.3					
1981	10 23	00 35.05	+04 02.1	2.283	3.238	160.6	5.9	17.0
1981	11 02	00 27.28	+03 55.2					
1981	11 12	00 21.26	+03 56.6	2.403	3.202	137.3	12.1	17.2
1981	11 22	00 17.32	+04 07.8					
1981	12 02	00 15.62	+04 29.7	2.604	3.163	116.1	16.3	17.5
1981	12 12	00 16.13	+05 02.5					
1981	12 22	00 18.71	+05 45.4	2.848	3.124	97.0	18.2	17.7

1976 YX1 Elements MPC 5321

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 07 15	00 59.28	+06 06.1	2.376	2.680	96.0	22.2	17.5
1981 07 25	01 06.60	+06 52.5					
1981 08 04	01 12.20	+07 28.2	2.106	2.653	111.6	20.8	17.2
1981 08 14	01 15.81	+07 51.8					
1981 08 24	01 17.21	+08 02.2	1.867	2.629	129.5	17.3	16.9
1981 09 03	01 16.21	+07 58.5					
1981 09 13	01 12.84	+07 40.7	1.687	2.607	150.0	11.1	16.5
1981 09 23	01 07.39	+07 10.3					
1981 10 03	01 00.42	+06 30.4	1.592	2.588	172.8	2.8	16.0
1981 10 13	00 52.83	+05 46.1					
1981 10 23	00 45.62	+05 03.6	1.603	2.572	163.4	6.3	16.2
1981 11 02	00 39.72	+04 28.8					
1981 11 12	00 35.88	+04 06.6	1.714	2.559	140.8	14.2	16.5
1981 11 22	00 34.47	+03 59.5					
1981 12 02	00 35.61	+04 08.4	1.903	2.549	120.5	19.5	16.9
1981 12 12	00 39.23	+04 32.7					
1981 12 22	00 45.10	+05 11.0	2.137	2.543	102.8	22.2	17.2

1964 VY Elements MPC 5448

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 07 15	00 55.57	+04 56.5	1.833	2.206	97.3	27.2	18.7
1981 07 25	01 05.41	+05 50.2					
1981 08 04	01 13.48	+06 31.5	1.577	2.168	111.7	25.8	18.3
1981 08 14	01 19.40	+06 58.3					
1981 08 24	01 22.77	+07 09.0	1.349	2.130	128.5	21.8	17.8
1981 09 03	01 23.21	+07 01.6					
1981 09 13	01 20.52	+06 35.7	1.169	2.094	148.6	14.5	17.3
1981 09 23	01 14.83	+05 52.6					
1981 10 03	01 06.72	+04 56.4	1.064	2.060	171.8	4.0	16.7
1981 10 13	00 57.39	+03 54.8					
1981 10 23	00 48.32	+02 57.6	1.054	2.027	163.1	8.2	16.8
1981 11 02	00 40.98	+02 14.1					
1981 11 12	00 36.47	+01 51.0	1.135	1.997	140.0	18.6	17.2
1981 11 22	00 35.33	+01 51.0					
1981 12 02	00 37.63	+02 13.8	1.281	1.971	120.2	25.6	17.6
1981 12 12	00 43.18	+02 57.4					
1981 12 22	00 51.59	+03 58.5	1.463	1.948	103.8	29.4	17.9

1980 KJ Elements MPC 5650

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 07 15	00 51.84	+12 07.7	1.768	2.119	95.3	28.5	17.4
1981 07 25	01 02.53	+13 21.8					
1981 08 04	01 11.42	+14 22.7	1.540	2.103	109.0	27.1	17.1
1981 08 14	01 18.11	+15 07.7					
1981 08 24	01 22.21	+15 34.1	1.336	2.089	125.2	23.3	16.7
1981 09 03	01 23.35	+15 38.4					
1981 09 13	01 21.39	+15 17.7	1.175	2.078	144.7	16.3	16.2
1981 09 23	01 16.51	+14 31.0					
1981 10 03	01 09.35	+13 19.8	1.084	2.071	167.0	6.2	15.8
1981 10 13	01 01.10	+11 50.8					
1981 10 23	00 53.19	+10 14.9	1.086	2.066	166.5	6.5	15.8
1981 11 02	00 46.97	+08 44.4					
1981 11 12	00 43.45	+07 29.9	1.182	2.065	143.8	16.5	16.2
1981 11 22	00 43.04	+06 37.8					
1981 12 02	00 45.81	+06 10.3	1.351	2.067	123.6	23.4	16.7
1981 12 12	00 51.53	+06 06.6					
1981 12 22	00 59.81	+06 23.7	1.564	2.072	106.6	27.1	17.1

1980 LD Elements MPC 5518

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 08 04	01 37.19	-03 44.4	2.618	3.107	109.5	17.9	17.0
1981 08 14	01 40.01	-04 13.9					
1981 08 24	01 40.83	-04 55.1	2.379	3.099	127.4	15.0	16.7
1981 09 03	01 39.52	-05 46.2					
1981 09 13	01 36.11	-06 44.2	2.201	3.091	146.5	10.3	16.4
1981 09 23	01 30.80	-07 44.5					
1981 10 03	01 24.00	-08 41.6	2.113	3.082	162.5	5.6	16.2
1981 10 13	01 16.39	-09 29.2					
1981 10 23	01 08.75	-10 02.3	2.133	3.072	156.7	7.4	16.2
1981 11 02	01 01.86	-10 17.4					
1981 11 12	00 56.40	-10 13.2	2.259	3.063	137.6	12.6	16.5
1981 11 22	00 52.81	-09 50.5					
1981 12 02	00 51.32	-09 11.2	2.464	3.053	118.0	16.6	16.8
1981 12 12	00 51.97	-08 17.6					
1981 12 22	00 54.65	-07 12.6	2.716	3.043	99.9	18.6	17.0
1982 01 01	00 59.19	-05 58.5					
1982 01 11	01 05.39	-04 37.3	2.984	3.033	83.4	18.8	17.2

1950 DL Elements MPC 5447

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 08 04	01 38.30	+12 07.5	2.038	2.485	103.9	23.3	18.1
1981 08 14	01 42.59	+12 21.3					
1981 08 24	01 44.43	+12 19.4	1.833	2.515	121.6	20.0	17.8
1981 09 03	01 43.59	+12 00.4					
1981 09 13	01 40.03	+11 23.7	1.671	2.543	142.4	14.0	17.5
1981 09 23	01 34.00	+10 30.4					
1981 10 03	01 26.04	+09 23.5	1.588	2.570	165.9	5.5	17.1
1981 10 13	01 17.08	+08 08.7					
1981 10 23	01 08.18	+06 53.7	1.611	2.595	169.3	4.1	17.1
1981 11 02	01 00.40	+05 46.0					
1981 11 12	00 54.59	+04 52.1	1.743	2.618	145.4	12.4	17.6
1981 11 22	00 51.18	+04 15.6					
1981 12 02	00 50.36	+03 57.7	1.961	2.640	123.8	18.1	18.0
1981 12 12	00 52.04	+03 57.8					
1981 12 22	00 56.01	+04 14.0	2.231	2.660	104.9	20.9	18.3
1982 01 01	01 02.00	+04 44.1					
1982 01 11	01 09.74	+05 25.6	2.522	2.677	88.2	21.5	18.6

1978 VQ4 Elements MPC 5133

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 08 04	01 34.93	+14 26.1	1.457	1.964	103.8	30.1	18.0
1981 08 14	01 42.84	+15 13.3					
1981 08 24	01 47.90	+15 41.9	1.293	1.996	119.6	26.1	17.7
1981 09 03	01 49.66	+15 49.4					
1981 09 13	01 47.92	+15 33.7	1.161	2.030	138.9	19.0	17.3
1981 09 23	01 42.83	+14 54.1					
1981 10 03	01 34.95	+13 52.0	1.091	2.066	161.8	8.7	17.0
1981 10 13	01 25.50	+12 33.3					
1981 10 23	01 15.98	+11 07.8	1.113	2.103	172.1	3.7	16.9
1981 11 02	01 07.85	+09 46.7					
1981 11 12	01 02.24	+08 40.1	1.233	2.140	148.5	14.0	17.4
1981 11 22	00 59.67	+07 53.7					
1981 12 02	01 00.24	+07 29.7	1.433	2.178	127.5	21.1	18.0
1981 12 12	01 03.75	+07 27.2					
1981 12 22	01 09.84	+07 43.7	1.685	2.216	109.4	24.7	18.4
1982 01 01	01 18.13	+08 16.0					
1982 01 11	01 28.27	+09 01.0	1.964	2.253	93.8	25.8	18.8

(2284) 1974 TG1 Elements MPC 5446

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 04	01 46.04	+06 42.6	1.971	2.426	104.0	23.9	17.9
1981	08 14	01 51.63	+06 42.8					
1981	08 24	01 54.87	+06 27.2	1.749	2.431	121.2	20.8	17.6
1981	09 03	01 55.43	+05 55.3					
1981	09 13	01 53.19	+05 07.6	1.569	2.435	141.2	15.0	17.3
1981	09 23	01 48.21	+04 06.5					
1981	10 03	01 40.89	+02 56.4	1.463	2.439	163.3	6.8	16.9
1981	10 13	01 32.06	+01 44.4					
1981	10 23	01 22.82	+00 38.5	1.459	2.441	167.8	5.0	16.8
1981	11 02	01 14.34	-00 13.6					
1981	11 12	01 07.67	-00 46.6	1.561	2.442	145.5	13.3	17.2
1981	11 22	01 03.43	-00 58.3					
1981	12 02	01 01.93	-00 49.2	1.746	2.442	124.4	19.5	17.6
1981	12 12	01 03.18	-00 21.0					
1981	12 22	01 06.96	+00 23.1	1.982	2.442	105.9	22.8	17.9
1982	01 01	01 13.01	+01 20.4					
1982	01 11	01 21.04	+02 28.2	2.239	2.440	89.7	23.8	18.2

(2278) 1953 GE Elements MPC 5444

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 04	02 02.18	+08 40.7	2.148	2.525	99.6	23.3	18.2
1981	08 14	02 07.32	+09 04.8					
1981	08 24	02 10.12	+09 17.0	1.936	2.556	116.7	20.7	17.9
1981	09 03	02 10.31	+09 16.5					
1981	09 13	02 07.75	+09 03.4	1.760	2.586	136.7	15.5	17.6
1981	09 23	02 02.51	+08 38.7					
1981	10 03	01 54.94	+08 04.2	1.654	2.615	159.4	7.7	17.3
1981	10 13	01 45.78	+07 24.0					
1981	10 23	01 36.02	+06 43.1	1.650	2.642	174.7	2.0	17.1
1981	11 02	01 26.79	+06 07.1					
1981	11 12	01 19.08	+05 41.3	1.758	2.668	151.2	10.3	17.6
1981	11 22	01 13.56	+05 28.8					
1981	12 02	01 10.59	+05 31.0	1.960	2.692	129.1	16.5	18.0
1981	12 12	01 10.24	+05 48.0					
1981	12 22	01 12.33	+06 18.2	2.223	2.714	109.5	20.0	18.4
1982	01 01	01 16.65	+07 00.1					
1982	01 11	01 22.91	+07 51.8	2.516	2.735	92.1	21.1	18.7

(2389) 1977 QC1 Elements MPC 6052

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 04	01 56.18	+17 02.9	1.630	2.038	98.1	29.5	17.8
1981	08 14	02 04.18	+18 40.6					
1981	08 24	02 09.47	+20 07.4	1.465	2.081	113.1	26.5	17.5
1981	09 03	02 11.60	+21 21.1					
1981	09 13	02 10.26	+22 18.8	1.327	2.128	131.2	20.8	17.2
1981	09 23	02 05.39	+22 57.1					
1981	10 03	01 57.36	+23 12.5	1.243	2.177	151.9	12.5	16.9
1981	10 13	01 47.12	+23 03.4					
1981	10 23	01 36.12	+22 32.3	1.245	2.228	168.3	5.2	16.8
1981	11 02	01 25.91	+21 45.4					
1981	11 12	01 17.87	+20 52.4	1.348	2.280	154.2	10.9	17.2
1981	11 22	01 12.81	+20 02.6					
1981	12 02	01 11.00	+19 23.1	1.541	2.332	133.5	17.9	17.7
1981	12 12	01 12.36	+18 57.9					
1981	12 22	01 16.56	+18 48.1	1.798	2.383	114.8	22.0	18.2
1982	01 01	01 23.21	+18 53.0					
1982	01 11	01 31.95	+19 11.0	2.091	2.435	98.3	23.6	18.6

(2184) Fujian Elements MPC 5035

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 04	01 54.14	+17 26.0	2.477	2.810	98.4	20.9	16.7
1981	08 14	01 59.81	+18 08.0					
1981	08 24	02 03.52	+18 39.1	2.226	2.807	115.0	19.1	16.4
1981	09 03	02 05.02	+18 57.8					
1981	09 13	02 04.16	+19 02.4	2.013	2.806	133.9	15.0	16.1
1981	09 23	02 00.97	+18 51.9					
1981	10 03	01 55.68	+18 25.6	1.866	2.806	155.2	8.6	15.8
1981	10 13	01 48.84	+17 44.7					
1981	10 23	01 41.27	+16 52.3	1.817	2.808	174.0	2.1	15.4
1981	11 02	01 33.89	+15 53.8					
1981	11 12	01 27.63	+14 55.5	1.878	2.812	156.1	8.2	15.8
1981	11 22	01 23.18	+14 03.5					
1981	12 02	01 20.96	+13 22.7	2.039	2.817	134.3	14.5	16.1
1981	12 12	01 21.14	+12 55.7					
1981	12 22	01 23.65	+12 43.5	2.272	2.824	114.4	18.5	16.5
1982	01 01	01 28.33	+12 45.5					
1982	01 11	01 34.96	+13 00.4	2.544	2.833	96.7	20.2	16.8

1980 PP Elements MPC 5638

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981	08 04	02 01.70	+22 18.1	2.867	3.123	-0.77	-2.9	18.2
1981	08 14	02 06.36	+23 06.4					
1981	08 24	02 09.16	+23 45.7	2.596	3.116	-0.87	-3.1	17.9
1981	09 03	02 09.86	+24 14.4					
1981	09 13	02 08.33	+24 30.3	2.358	3.107	-0.98	-3.5	17.7
1981	09 23	02 04.59	+24 31.5					
1981	10 03	01 58.84	+24 16.3	2.186	3.099	-1.06	-4.1	17.4
1981	10 13	01 51.58	+23 44.2					
1981	10 23	01 43.54	+22 56.9	2.110	3.090	-1.08	-4.8	17.1
1981	11 02	01 35.59	+21 57.9					
1981	11 12	01 28.61	+20 53.1	2.147	3.081	-1.02	-5.0	17.3
1981	11 22	01 23.28	+19 48.9					
1981	12 02	01 20.06	+18 51.1	2.290	3.071	-0.92	-4.7	17.5
1981	12 12	01 19.16	+18 04.1					
1981	12 22	01 20.55	+17 30.2	2.510	3.062	-0.82	-4.1	17.8
1982	01 01	01 24.12	+17 10.1					
1982	01 11	01 29.65	+17 03.5	2.772	3.052	-0.74	-3.5	18.1

(2276) 1933 QA Elements MPC 5443

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 04	02 11.48	+14 29.9	2.063	2.385	95.5	25.1	18.0
1981	08 14	02 18.44	+15 01.9					
1981	08 24	02 23.09	+15 20.9	1.857	2.422	111.8	22.8	17.8
1981	09 03	02 25.08	+15 25.9					
1981	09 13	02 24.20	+15 15.6	1.678	2.458	130.9	18.0	17.5
1981	09 23	02 20.40	+14 49.6					
1981	10 03	02 13.90	+14 08.3	1.559	2.493	153.2	10.4	17.2
1981	10 13	02 05.34	+13 14.2					
1981	10 23	01 55.72	+12 12.2	1.533	2.527	177.8	0.8	16.7
1981	11 02	01 46.19	+11 08.9					
1981	11 12	01 37.93	+10 11.7	1.617	2.559	157.3	8.6	17.3
1981	11 22	01 31.77	+09 26.5					
1981	12 02	01 28.19	+08 57.1	1.802	2.589	134.4	15.8	17.7
1981	12 12	01 27.34	+08 44.8					
1981	12 22	01 29.08	+08 48.8	2.055	2.618	114.3	20.0	18.1
1982	01 01	01 33.19	+09 07.6					
1982	01 11	01 39.38	+09 38.9	2.345	2.644	96.5	21.7	18.5

1964 TX1 Elements MPC 4643

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 08 04	02 05.52	+09 06.4	2.243	2.597	98.7	22.7	18.2
1981 08 14	02 12.91	+09 43.0					
1981 08 24	02 18.40	+10 09.7	1.983	2.573	114.5	20.9	17.9
1981 09 03	02 21.69	+10 25.9					
1981 09 13	02 22.50	+10 31.3	1.759	2.551	132.8	16.8	17.5
1981 09 23	02 20.72	+10 26.3					
1981 10 03	02 16.41	+10 11.5	1.596	2.533	153.8	10.0	17.2
1981 10 13	02 09.98	+09 49.4					
1981 10 23	02 02.20	+09 23.5	1.525	2.518	176.1	1.5	16.7
1981 11 02	01 54.07	+08 58.5					
1981 11 12	01 46.73	+08 39.5	1.559	2.507	158.7	8.3	17.0
1981 11 22	01 41.09	+08 31.0					
1981 12 02	01 37.82	+08 35.5	1.691	2.500	136.5	15.8	17.4
1981 12 12	01 37.22	+08 54.3					
1981 12 22	01 39.29	+09 26.7	1.894	2.497	116.8	20.6	17.7
1982 01 01	01 43.88	+10 11.3					
1982 01 11	01 50.76	+11 06.4	2.137	2.498	99.7	22.8	18.1

1976 UW15 Elements MPC 5602

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 08 04	02 26.92	+11 23.4	2.667	2.902	93.0	20.4	17.4
1981 08 14	02 33.23	+11 48.2					
1981 08 24	02 37.75	+12 03.6	2.403	2.901	109.4	19.2	17.2
1981 09 03	02 40.20	+12 09.2					
1981 09 13	02 40.37	+12 04.7	2.168	2.899	128.1	15.8	16.9
1981 09 23	02 38.18	+11 50.2					
1981 10 03	02 33.66	+11 26.4	1.991	2.898	149.4	10.1	16.5
1981 10 13	02 27.15	+10 55.1					
1981 10 23	02 19.25	+10 19.3	1.907	2.896	172.3	2.6	16.1
1981 11 02	02 10.79	+09 42.9					
1981 11 12	02 02.72	+09 10.6	1.935	2.894	162.4	5.9	16.4
1981 11 22	01 55.90	+08 46.7					
1981 12 02	01 50.96	+08 34.1	2.072	2.893	139.5	12.8	16.7
1981 12 12	01 48.30	+08 34.6					
1981 12 22	01 48.02	+08 48.2	2.288	2.891	118.6	17.4	17.0
1982 01 01	01 50.05	+09 14.1					
1982 01 11	01 54.25	+09 50.8	2.551	2.889	100.0	19.6	17.3

(2197) Shanghai Elements MPC 5132

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 08 04	02 33.23	+13 23.1	2.946	3.131	90.9	18.9	16.8
1981 08 14	02 39.46	+13 52.3					
1981 08 24	02 44.08	+14 13.4	2.652	3.107	107.3	18.1	16.5
1981 09 03	02 46.82	+14 26.1					
1981 09 13	02 47.49	+14 29.8	2.384	3.082	125.8	15.3	16.2
1981 09 23	02 45.95	+14 24.4					
1981 10 03	02 42.20	+14 09.8	2.172	3.058	146.7	10.3	15.9
1981 10 13	02 36.46	+13 46.9					
1981 10 23	02 29.22	+13 17.5	2.051	3.035	169.7	3.4	15.5
1981 11 02	02 21.17	+12 44.6					
1981 11 12	02 13.21	+12 12.2	2.041	3.011	166.1	4.5	15.5
1981 11 22	02 06.18	+11 44.4					
1981 12 02	02 00.78	+11 25.1	2.143	2.988	142.8	11.5	15.8
1981 12 12	01 57.49	+11 16.7					
1981 12 22	01 56.51	+11 20.4	2.331	2.966	121.5	16.4	16.1
1982 01 01	01 57.86	+11 36.1					
1982 01 11	02 01.42	+12 03.1	2.571	2.944	102.5	19.0	16.3

(2311) 1974 TA1 Elements MPC 5645

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 04	02 35.72	+10 03.9	3.379	3.550	91.3	16.6	17.3
1981	08 14	02 40.82	+10 06.5					
1981	08 24	02 44.39	+10 00.1	3.104	3.556	108.4	15.6	17.1
1981	09 03	02 46.24	+09 44.7					
1981	09 13	02 46.28	+09 20.6	2.859	3.561	127.4	13.0	16.8
1981	09 23	02 44.46	+08 48.4					
1981	10 03	02 40.88	+08 09.6	2.678	3.567	148.2	8.5	16.6
1981	10 13	02 35.78	+07 26.4					
1981	10 23	02 29.61	+06 41.9	2.592	3.573	168.8	3.1	16.3
1981	11 02	02 22.93	+05 59.7					
1981	11 12	02 16.38	+05 23.3	2.621	3.579	162.8	4.7	16.4
1981	11 22	02 10.58	+04 55.9					
1981	12 02	02 06.03	+04 39.6	2.764	3.585	141.1	10.0	16.7
1981	12 12	02 03.10	+04 35.4					
1981	12 22	02 01.95	+04 43.1	2.995	3.591	120.2	13.7	17.0
1982	01 01	02 02.63	+05 01.9					
1982	01 11	02 05.06	+05 30.4	3.278	3.598	101.0	15.6	17.2

1977 NR Elements MPC 6105

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 24	02 51.66	+17 15.1	1.392	1.916	104.7	30.7	17.8
1981	09 03	03 00.19	+18 07.8					
1981	09 13	03 05.53	+18 47.5	1.239	1.952	120.5	26.4	17.5
1981	09 23	03 07.28	+19 13.3					
1981	10 03	03 05.13	+19 24.0	1.120	1.993	139.9	18.9	17.2
1981	10 13	02 59.28	+19 18.7					
1981	10 23	02 50.47	+18 57.9	1.065	2.037	163.0	8.2	16.9
1981	11 02	02 40.02	+18 24.3					
1981	11 12	02 29.68	+17 44.2	1.101	2.085	171.2	4.2	16.8
1981	11 22	02 21.02	+17 05.5					
1981	12 02	02 15.17	+16 35.2	1.235	2.134	147.7	14.3	17.4
1981	12 12	02 12.66	+16 18.3					
1981	12 22	02 13.49	+16 16.5	1.448	2.186	127.0	21.1	18.0
1982	01 01	02 17.40	+16 29.3					
1982	01 11	02 24.01	+16 54.8	1.712	2.238	109.2	24.5	18.5
1982	01 21	02 32.88	+17 30.3					
1982	01 31	02 43.68	+18 13.4	2.004	2.290	93.7	25.4	18.9

1942 RZ Elements MPC 5355

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 24	02 48.66	+18 03.8	1.324	1.864	105.1	31.6	17.4
1981	09 03	02 59.37	+18 39.4					
1981	09 13	03 07.20	+18 58.5	1.150	1.869	120.0	27.8	17.0
1981	09 23	03 11.63	+19 00.2					
1981	10 03	03 12.20	+18 43.3	1.008	1.879	138.5	20.6	16.6
1981	10 13	03 08.84	+18 07.4					
1981	10 23	03 02.01	+17 14.3	0.925	1.893	161.1	9.8	16.1
1981	11 02	02 52.84	+16 08.5					
1981	11 12	02 43.06	+14 58.7	0.925	1.912	173.8	3.2	15.9
1981	11 22	02 34.49	+13 55.2					
1981	12 02	02 28.54	+13 07.0	1.019	1.935	149.7	14.9	16.5
1981	12 12	02 26.02	+12 39.5					
1981	12 22	02 27.08	+12 33.6	1.188	1.961	128.9	23.0	17.1
1982	01 01	02 31.53	+12 47.4					
1982	01 11	02 38.97	+13 17.6	1.407	1.990	111.5	27.4	17.6
1982	01 21	02 48.94	+13 59.9					
1982	01 31	03 01.06	+14 50.6	1.653	2.021	96.7	29.0	18.0

(2373) 1929 PC Elements MPC 5978

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 24	03 19.99	+07 36.1	1.932	2.339	100.5	25.2	18.4
1981	09 03	03 28.32	+07 08.2					
1981	09 13	03 34.27	+06 27.3	1.731	2.355	116.2	22.5	18.1
1981	09 23	03 37.53	+05 34.8					
1981	10 03	03 37.85	+04 33.1	1.567	2.375	134.2	17.6	17.8
1981	10 13	03 35.23	+03 26.4					
1981	10 23	03 29.93	+02 20.3	1.467	2.397	153.2	10.8	17.5
1981	11 02	03 22.57	+01 21.9					
1981	11 12	03 14.16	+00 38.1	1.459	2.423	163.0	6.8	17.4
1981	11 22	03 05.86	+00 14.2					
1981	12 02	02 58.77	+00 12.8	1.553	2.450	148.9	12.0	17.7
1981	12 12	02 53.74	+00 33.7					
1981	12 22	02 51.22	+01 13.9	1.735	2.480	129.6	17.8	18.1
1982	01 01	02 51.37	+02 09.9					
1982	01 11	02 54.09	+03 17.5	1.979	2.512	111.5	21.4	18.5
1982	01 21	02 59.15	+04 33.1					
1982	01 31	03 06.30	+05 53.6	2.256	2.545	95.4	22.7	18.8

1980 OH Elements MPC 5651

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 24	03 45.12	+17 44.8	3.193	3.387	92.2	17.4	18.0
1981	09 03	03 49.68	+17 56.9					
1981	09 13	03 52.42	+18 02.9	2.935	3.410	109.8	16.1	17.8
1981	09 23	03 53.16	+18 02.9					
1981	10 03	03 51.79	+17 57.0	2.708	3.433	129.6	13.0	17.5
1981	10 13	03 48.30	+17 45.2					
1981	10 23	03 42.90	+17 28.0	2.547	3.454	151.5	7.9	17.3
1981	11 02	03 35.95	+17 06.3					
1981	11 12	03 28.05	+16 41.8	2.488	3.475	174.8	1.5	16.9
1981	11 22	03 19.94	+16 16.8					
1981	12 02	03 12.37	+15 53.8	2.549	3.494	160.6	5.4	17.2
1981	12 12	03 06.01	+15 35.8					
1981	12 22	03 01.33	+15 24.7	2.723	3.513	137.7	10.9	17.6
1982	01 01	02 58.61	+15 21.7					
1982	01 11	02 57.96	+15 27.2	2.979	3.530	116.5	14.4	17.8
1982	01 21	02 59.29	+15 40.9					
1982	01 31	03 02.50	+16 01.9	3.282	3.546	97.4	16.0	18.1

(2273) 1975 EV1 Elements MPC 5442

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	08 24	03 25.30	+18 24.4	1.969	2.316	96.7	25.7	17.9
1981	09 03	03 35.03	+18 59.0					
1981	09 13	03 42.74	+19 25.0	1.707	2.281	111.8	24.2	17.5
1981	09 23	03 48.03	+19 42.2					
1981	10 03	03 50.42	+19 50.3	1.474	2.247	129.5	20.1	17.1
1981	10 13	03 49.60	+19 48.6					
1981	10 23	03 45.45	+19 36.8	1.294	2.215	150.5	12.8	16.6
1981	11 02	03 38.26	+19 14.9					
1981	11 12	03 28.89	+18 44.6	1.197	2.184	174.5	2.5	16.0
1981	11 22	03 18.71	+18 09.6					
1981	12 02	03 09.27	+17 35.4	1.201	2.156	160.5	8.8	16.3
1981	12 12	03 02.02	+17 08.4					
1981	12 22	02 57.87	+16 53.5	1.300	2.130	137.3	18.2	16.6
1982	01 01	02 57.25	+16 53.1					
1982	01 11	03 00.15	+17 07.4	1.465	2.108	117.5	24.4	17.0
1982	01 21	03 06.29	+17 34.5					
1982	01 31	03 15.34	+18 11.9	1.665	2.089	101.0	27.6	17.3

1976 WB1 Elements MPC 5791

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 08 24	03 58.10	+09 14.1	2.813	3.004	90.9	19.7	18.1
1981 09 03	04 04.50	+08 59.4					
1981 09 13	04 09.07	+08 36.7	2.550	3.007	107.3	18.6	17.9
1981 09 23	04 11.58	+08 06.9					
1981 10 03	04 11.80	+07 31.1	2.313	3.009	125.7	15.7	17.6
1981 10 13	04 09.64	+06 51.4					
1981 10 23	04 05.16	+06 10.4	2.134	3.009	145.8	10.7	17.3
1981 11 02	03 58.62	+05 31.4					
1981 11 12	03 50.60	+04 58.3	2.046	3.008	163.5	5.4	17.0
1981 11 22	03 41.86	+04 35.0					
1981 12 02	03 33.31	+04 24.5	2.071	3.007	157.7	7.1	17.1
1981 12 12	03 25.82	+04 28.3					
1981 12 22	03 20.06	+04 46.6	2.204	3.004	137.6	12.8	17.4
1982 01 01	03 16.45	+05 18.2					
1982 01 11	03 15.18	+06 01.1	2.418	3.000	117.4	16.9	17.7
1982 01 21	03 16.23	+06 53.0					
1982 01 31	03 19.47	+07 51.4	2.678	2.995	99.1	19.0	18.0

(2236) Austrasia Elements MPC 5315

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 09 13	04 32.86	+29 23.3	1.918	2.296	98.6	25.7	17.3
1981 09 23	04 39.15	+30 33.2					
1981 10 03	04 42.32	+31 40.4	1.733	2.345	115.6	22.6	17.1
1981 10 13	04 41.94	+32 43.6					
1981 10 23	04 37.77	+33 39.8	1.582	2.394	135.2	17.0	16.8
1981 11 02	04 29.83	+34 24.2					
1981 11 12	04 18.79	+34 51.3	1.502	2.441	156.3	9.4	16.5
1981 11 22	04 05.87	+34 57.1					
1981 12 02	03 52.75	+34 41.1	1.521	2.486	164.7	6.0	16.5
1981 12 12	03 41.15	+34 07.9					
1981 12 22	03 32.34	+33 25.3	1.650	2.529	146.6	12.4	16.9
1982 01 01	03 26.98	+32 41.3					
1982 01 11	03 25.23	+32 02.2	1.867	2.571	126.0	18.0	17.3
1982 01 21	03 26.82	+31 31.5					
1982 01 31	03 31.39	+31 10.4	2.140	2.610	107.4	21.1	17.7
1982 02 10	03 38.52	+30 58.6					
1982 02 20	03 47.80	+30 54.4	2.438	2.646	91.0	21.9	18.1

(2307) 1957 HJ Elements MPC 5644

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 09 13	04 31.50	+24 48.6	2.895	3.221	99.7	17.9	17.4
1981 09 23	04 35.40	+24 50.2					
1981 10 03	04 37.12	+24 46.2	2.629	3.222	118.0	15.9	17.1
1981 10 13	04 36.51	+24 36.0					
1981 10 23	04 33.52	+24 19.0	2.408	3.222	138.6	11.8	16.8
1981 11 02	04 28.28	+23 54.8					
1981 11 12	04 21.19	+23 23.3	2.268	3.222	161.6	5.6	16.5
1981 11 22	04 12.90	+22 45.4					
1981 12 02	04 04.24	+22 03.3	2.239	3.221	173.9	1.9	16.3
1981 12 12	03 56.14	+21 20.1					
1981 12 22	03 49.37	+20 39.5	2.330	3.220	150.1	8.8	16.7
1982 01 01	03 44.52	+20 04.7					
1982 01 11	03 41.93	+19 38.1	2.520	3.218	127.8	14.0	17.0
1982 01 21	03 41.66	+19 20.6					
1982 01 31	03 43.66	+19 12.0	2.775	3.215	107.7	17.0	17.2
1982 02 10	03 47.75	+19 11.6					
1982 02 20	03 53.71	+19 17.9	3.059	3.211	89.8	17.9	17.5

(2291) 1941 FS Elements MPC 5519

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	09 13	04 28.74	-02 19.7	2.535	2.937	103.5	19.5	16.3
1981	09 23	04 33.49	-03 55.3					
1981	10 03	04 36.11	-05 39.3	2.310	2.927	118.8	17.4	16.1
1981	10 13	04 36.41	-07 27.7					
1981	10 23	04 34.36	-09 15.3	2.139	2.918	133.9	14.2	15.8
1981	11 02	04 30.04	-10 55.1					
1981	11 12	04 23.86	-12 19.5	2.046	2.910	144.6	11.4	15.6
1981	11 22	04 16.41	-13 21.6					
1981	12 02	04 08.52	-13 55.9	2.047	2.902	143.8	11.6	15.6
1981	12 12	04 01.09	-14 00.5					
1981	12 22	03 54.93	-13 36.4	2.140	2.895	132.2	14.6	15.8
1982	01 01	03 50.62	-12 47.4					
1982	01 11	03 48.53	-11 38.5	2.307	2.888	116.9	17.7	16.0
1982	01 21	03 48.75	-10 15.3					
1982	01 31	03 51.25	-08 42.8	2.520	2.882	101.4	19.6	16.3
1982	02 10	03 55.87	-07 05.2					
1982	02 20	04 02.40	-05 26.2	2.755	2.877	86.9	20.1	16.5

1973 FF1 Elements MPC 5032

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	09 13	04 36.89	+33 01.2	2.865	3.153	97.2	18.5	17.7
1981	09 23	04 41.61	+33 48.0					
1981	10 03	04 44.03	+34 32.1	2.601	3.151	114.6	16.8	17.5
1981	10 13	04 43.88	+35 12.3					
1981	10 23	04 41.00	+35 46.4	2.377	3.149	133.9	13.2	17.2
1981	11 02	04 35.43	+36 11.4					
1981	11 12	04 27.53	+36 24.0	2.227	3.147	154.0	7.9	16.9
1981	11 22	04 18.00	+36 21.5					
1981	12 02	04 07.82	+36 03.0	2.181	3.144	165.0	4.7	16.7
1981	12 12	03 58.17	+35 30.4					
1981	12 22	03 50.05	+34 48.0	2.250	3.140	149.9	9.0	16.9
1982	01 01	03 44.20	+34 01.2					
1982	01 11	03 41.03	+33 15.3	2.419	3.136	129.4	14.0	17.2
1982	01 21	03 40.61	+32 34.2					
1982	01 31	03 42.84	+32 00.3	2.655	3.132	110.0	17.2	17.5
1982	02 10	03 47.49	+31 34.5					
1982	02 20	03 54.26	+31 16.2	2.925	3.127	92.4	18.4	17.7

(2283) 1974 SV4 Elements MPC 5445

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	09 13	04 36.25	+18 06.2	2.001	2.384	99.6	24.6	17.7
1981	09 23	04 43.77	+17 45.4					
1981	10 03	04 48.78	+17 15.4	1.751	2.370	116.2	22.3	17.3
1981	10 13	04 50.92	+16 36.8					
1981	10 23	04 49.90	+15 50.5	1.538	2.354	135.6	17.2	16.9
1981	11 02	04 45.59	+14 58.0					
1981	11 12	04 38.29	+14 01.9	1.392	2.337	157.7	9.3	16.5
1981	11 22	04 28.71	+13 06.1					
1981	12 02	04 18.02	+12 15.5	1.343	2.320	170.0	4.2	16.2
1981	12 12	04 07.70	+11 35.5					
1981	12 22	03 59.07	+11 10.1	1.401	2.301	149.1	12.7	16.5
1982	01 01	03 53.12	+11 01.5					
1982	01 11	03 50.38	+11 09.5	1.547	2.282	127.4	20.0	16.9
1982	01 21	03 50.92	+11 31.8					
1982	01 31	03 54.59	+12 05.7	1.747	2.263	108.5	24.4	17.2
1982	02 10	04 01.09	+12 47.8					
1982	02 20	04 10.07	+13 34.8	1.970	2.243	92.5	26.1	17.5

(2188) Orlenok Elements MPC 5036

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	09 13	04 47.66	+19 24.7	2.519	2.820	96.7	20.8	17.7
1981	09 23	04 53.50	+19 25.1					
1981	10 03	04 57.08	+19 21.1	2.279	2.838	114.1	18.8	17.5
1981	10 13	04 58.16	+19 13.1					
1981	10 23	04 56.60	+19 01.7	2.074	2.856	133.9	14.5	17.2
1981	11 02	04 52.40	+18 47.3					
1981	11 12	04 45.87	+18 30.7	1.940	2.874	156.4	7.9	16.9
1981	11 22	04 37.61	+18 12.8					
1981	12 02	04 28.49	+17 55.0	1.908	2.892	176.0	1.3	16.5
1981	12 12	04 19.56	+17 39.5					
1981	12 22	04 11.79	+17 28.4	1.992	2.911	154.4	8.4	17.0
1982	01 01	04 05.94	+17 23.7					
1982	01 11	04 02.48	+17 26.5	2.178	2.929	132.0	14.5	17.4
1982	01 21	04 01.56	+17 36.8					
1982	01 31	04 03.15	+17 54.1	2.433	2.946	111.9	18.1	17.7
1982	02 10	04 07.06	+18 17.1					
1982	02 20	04 13.04	+18 44.3	2.723	2.964	94.2	19.4	18.0

(2271) Kiso Elements MPC 5440

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	09 13	04 50.62	+18 41.7	2.479	2.773	96.1	21.1	16.7
1981	09 23	04 56.74	+18 40.2					
1981	10 03	05 00.61	+18 34.1	2.234	2.785	113.3	19.3	16.4
1981	10 13	05 01.96	+18 24.3					
1981	10 23	05 00.62	+18 11.2	2.023	2.798	133.0	15.1	16.1
1981	11 02	04 56.57	+17 55.8					
1981	11 12	04 50.07	+17 38.7	1.880	2.809	155.3	8.5	15.8
1981	11 22	04 41.69	+17 21.0					
1981	12 02	04 32.32	+17 04.3	1.837	2.821	175.2	1.7	15.4
1981	12 12	04 23.02	+16 50.7					
1981	12 22	04 14.85	+16 42.2	1.911	2.832	154.8	8.5	15.9
1982	01 01	04 08.60	+16 40.6					
1982	01 11	04 04.82	+16 46.9	2.086	2.843	132.3	14.8	16.2
1982	01 21	04 03.66	+17 00.9					
1982	01 31	04 05.10	+17 22.0	2.331	2.854	112.3	18.6	16.5
1982	02 10	04 08.97	+17 48.7					
1982	02 20	04 15.01	+18 19.5	2.610	2.863	94.6	20.1	16.8

(2364) 1978 GD Elements MPC 5894

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	09 13	05 03.04	+26 20.0	3.347	3.535	92.4	16.5	17.7
1981	09 23	05 07.57	+26 51.8					
1981	10 03	05 10.21	+27 23.0	3.050	3.524	110.3	15.4	17.5
1981	10 13	05 10.75	+27 53.5					
1981	10 23	05 09.02	+28 22.7	2.787	3.511	130.1	12.5	17.2
1981	11 02	05 04.98	+28 49.3					
1981	11 12	04 58.77	+29 11.7	2.594	3.498	151.8	7.7	17.0
1981	11 22	04 50.80	+29 28.0					
1981	12 02	04 41.70	+29 36.9	2.505	3.483	171.8	2.3	16.6
1981	12 12	04 32.35	+29 37.9					
1981	12 22	04 23.63	+29 32.3	2.536	3.468	158.0	6.1	16.8
1982	01 01	04 16.35	+29 22.4					
1982	01 11	04 11.09	+29 11.2	2.679	3.451	135.6	11.5	17.1
1982	01 21	04 08.15	+29 01.3					
1982	01 31	04 07.64	+28 54.7	2.902	3.434	114.8	15.1	17.3
1982	02 10	04 09.49	+28 52.5					
1982	02 20	04 13.50	+28 54.8	3.167	3.416	96.1	16.7	17.6

1980 RX Elements MPC 5638

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981	09 13	05 05.41	+33 42.9	2.790	2.986	-0.91	-0.0	17.8
1981	09 23	05 12.51	+34 19.4					
1981	10 03	05 17.36	+34 53.9	2.543	3.003	-1.02	+0.4	17.5
1981	10 13	05 19.66	+35 25.8					
1981	10 23	05 19.16	+35 53.9	2.322	3.021	-1.15	+0.5	17.3
1981	11 02	05 15.74	+36 15.8					
1981	11 12	05 09.56	+36 28.2	2.161	3.039	-1.27	+0.1	17.0
1981	11 22	05 01.11	+36 28.1					
1981	12 02	04 51.23	+36 12.9	2.094	3.057	-1.33	-0.7	16.8
1981	12 12	04 41.08	+35 42.8					
1981	12 22	04 31.79	+35 00.3	2.140	3.074	-1.27	-1.5	16.9
1982	01 01	04 24.35	+34 10.1					
1982	01 11	04 19.41	+33 17.7	2.295	3.091	-1.14	-1.8	17.2
1982	01 21	04 17.21	+32 27.7					
1982	01 31	04 17.75	+31 43.2	2.531	3.108	-0.99	-1.6	17.6
1982	02 10	04 20.86	+31 05.8					
1982	02 20	04 26.23	+30 35.5	2.813	3.125	-0.88	-1.2	17.8

(2267) Agassiz Elements MPC 5414

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	09 13	05 12.96	+25 09.3	2.241	2.462	90.3	24.1	18.8
1981	09 23	05 21.66	+25 26.0					
1981	10 03	05 28.01	+25 39.8	2.001	2.478	106.5	22.8	18.5
1981	10 13	05 31.60	+25 51.3					
1981	10 23	05 32.09	+26 00.7	1.781	2.492	125.3	19.0	18.2
1981	11 02	05 29.19	+26 07.2					
1981	11 12	05 22.91	+26 09.4	1.613	2.503	147.3	12.3	17.8
1981	11 22	05 13.64	+26 05.3					
1981	12 02	05 02.28	+25 53.1	1.533	2.512	171.7	3.3	17.4
1981	12 12	04 50.18	+25 32.9					
1981	12 22	04 38.86	+25 07.0	1.565	2.519	161.8	7.0	17.6
1982	01 01	04 29.61	+24 39.6					
1982	01 11	04 23.33	+24 15.0	1.704	2.522	138.0	15.1	18.0
1982	01 21	04 20.35	+23 56.4					
1982	01 31	04 20.67	+23 45.4	1.919	2.524	117.0	20.4	18.4
1982	02 10	04 24.05	+23 41.9					
1982	02 20	04 30.12	+23 44.6	2.172	2.522	98.9	22.8	18.7

1980 RP Elements MPC 5638

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981	09 13	05 20.91	+40 55.4	2.984	3.108	-0.86	+0.2	18.9
1981	09 23	05 28.51	+41 52.9					
1981	10 03	05 33.78	+42 50.5	2.762	3.150	-0.96	+0.7	18.7
1981	10 13	05 36.37	+43 47.3					
1981	10 23	05 35.97	+44 41.5	2.561	3.191	-1.08	+1.0	18.5
1981	11 02	05 32.38	+45 29.9					
1981	11 12	05 25.69	+46 07.7	2.414	3.231	-1.21	+0.7	18.3
1981	11 22	05 16.33	+46 30.0					
1981	12 02	05 05.16	+46 32.4	2.353	3.270	-1.28	-0.2	18.2
1981	12 12	04 53.45	+46 12.8					
1981	12 22	04 42.51	+45 32.9	2.401	3.308	-1.24	-1.3	18.3
1982	01 01	04 33.46	+44 37.2					
1982	01 11	04 27.07	+43 32.4	2.556	3.345	-1.11	-1.8	18.5
1982	01 21	04 23.63	+42 24.7					
1982	01 31	04 23.14	+41 19.1	2.796	3.381	-0.96	-1.8	18.8
1982	02 10	04 25.37	+40 18.9					
1982	02 20	04 30.00	+39 25.5	3.089	3.416	-0.84	-1.4	19.1

(2407) 1973 DH Elements MPC 6107

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 09 13	05 14.26	+25 38.3	2.329	2.536	90.0	23.4	16.4
1981 09 23	05 23.26	+25 57.9					
1981 10 03	05 29.92	+26 14.5	2.117	2.579	106.0	21.9	16.2
1981 10 13	05 33.90	+26 28.9					
1981 10 23	05 34.93	+26 41.4	1.926	2.622	124.6	18.2	15.9
1981 11 02	05 32.83	+26 51.2					
1981 11 12	05 27.71	+26 57.2	1.788	2.667	146.1	11.9	15.7
1981 11 22	05 19.97	+26 57.6					
1981 12 02	05 10.44	+26 51.0	1.737	2.712	169.6	3.8	15.4
1981 12 12	05 00.29	+26 37.3					
1981 12 22	04 50.75	+26 18.1	1.798	2.758	164.4	5.5	15.6
1982 01 01	04 42.92	+25 56.4					
1982 01 11	04 37.55	+25 35.8	1.968	2.804	141.3	12.7	16.0
1982 01 21	04 34.96	+25 18.8					
1982 01 31	04 35.19	+25 07.0	2.220	2.849	120.5	17.3	16.4
1982 02 10	04 38.07	+25 00.6					
1982 02 20	04 43.29	+24 58.9	2.522	2.895	102.1	19.5	16.8

(2195) 1941 SP1 Elements MPC 5131

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 09 13	04 59.63	+18 08.6	1.646	1.989	94.0	30.3	16.8
1981 09 23	05 12.42	+18 20.6					
1981 10 03	05 22.81	+18 27.4	1.443	1.995	108.0	28.5	16.5
1981 10 13	05 30.34	+18 31.0					
1981 10 23	05 34.50	+18 33.7	1.260	2.003	125.0	24.0	16.1
1981 11 02	05 34.85	+18 37.4					
1981 11 12	05 31.22	+18 43.7	1.119	2.015	145.6	16.1	15.6
1981 11 22	05 23.85	+18 53.0					
1981 12 02	05 13.61	+19 05.3	1.052	2.029	169.5	5.1	15.2
1981 12 12	05 02.10	+19 20.1					
1981 12 22	04 51.16	+19 37.5	1.082	2.046	163.9	7.6	15.4
1982 01 01	04 42.49	+19 58.2					
1982 01 11	04 37.23	+20 23.3	1.208	2.064	140.6	17.6	15.9
1982 01 21	04 35.80	+20 53.0					
1982 01 31	04 38.17	+21 26.5	1.402	2.085	120.7	24.0	16.4
1982 02 10	04 44.00	+22 02.6					
1982 02 20	04 52.81	+22 39.2	1.637	2.107	104.0	27.1	16.8

1980 OF Elements MPC 5638

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 09 13	05 21.97	+33 11.6	2.907	3.039	-0.84	+0.6	18.7
1981 09 23	05 29.46	+33 39.4					
1981 10 03	05 34.79	+34 05.7	2.666	3.070	-0.92	+1.1	18.5
1981 10 13	05 37.68	+34 30.3					
1981 10 23	05 37.88	+34 52.4	2.446	3.102	-1.03	+1.3	18.3
1981 11 02	05 35.25	+35 10.3					
1981 11 12	05 29.88	+35 21.2	2.281	3.133	-1.14	+1.1	18.0
1981 11 22	05 22.14	+35 22.3					
1981 12 02	05 12.74	+35 11.0	2.205	3.163	-1.20	+0.4	17.8
1981 12 12	05 02.70	+34 46.5					
1981 12 22	04 53.11	+34 10.4	2.243	3.194	-1.17	-0.4	17.9
1982 01 01	04 44.97	+33 26.0					
1982 01 11	04 39.02	+32 38.2	2.394	3.223	-1.07	-0.9	18.2
1982 01 21	04 35.60	+31 51.2					
1982 01 31	04 34.82	+31 08.2	2.635	3.252	-0.94	-0.9	18.5
1982 02 10	04 36.56	+30 30.9					
1982 02 20	04 40.57	+29 59.9	2.928	3.280	-0.82	-0.6	18.8

1980 LE — Elements MPC 5516

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 09 13	05 22.95	+28 18.2	2.455	2.618	-0.94	-0.0	19.3
1981 09 23	05 31.56	+28 37.8					
1981 10 03	05 37.90	+28 55.3	2.213	2.641	-1.06	+0.4	19.0
1981 10 13	05 41.62	+29 11.1					
1981 10 23	05 42.37	+29 25.2	1.989	2.661	-1.21	+0.6	18.7
1981 11 02	05 39.90	+29 36.4					
1981 11 12	05 34.20	+29 42.7	1.814	2.680	-1.38	+0.3	18.4
1981 11 22	05 25.59	+29 41.5					
1981 12 02	05 14.84	+29 30.1	1.725	2.696	-1.48	-0.6	18.1
1981 12 12	05 03.17	+29 07.8					
1981 12 22	04 51.95	+28 36.2	1.750	2.710	-1.44	-1.6	18.2
1982 01 01	04 42.45	+27 59.2					
1982 01 11	04 35.58	+27 21.6	1.887	2.722	-1.28	-2.0	18.6
1982 01 21	04 31.76	+26 47.7					
1982 01 31	04 31.06	+26 20.0	2.106	2.731	-1.11	-1.8	18.9
1982 02 10	04 33.31	+25 59.4					
1982 02 20	04 38.18	+25 45.6	2.372	2.738	-0.96	-1.3	19.2

1977 PA2 — Elements MPC 6111

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 09 13	05 16.62	+27 36.9	2.151	2.364	89.3	25.2	19.1
1981 09 23	05 27.02	+27 49.7					
1981 10 03	05 35.14	+27 58.3	1.908	2.369	104.7	24.1	18.8
1981 10 13	05 40.53	+28 03.4					
1981 10 23	05 42.78	+28 05.0	1.681	2.372	122.7	20.7	18.5
1981 11 02	05 41.52	+28 02.7					
1981 11 12	05 36.62	+27 54.6	1.501	2.374	144.0	14.2	18.1
1981 11 22	05 28.33	+27 38.5					
1981 12 02	05 17.43	+27 12.4	1.401	2.374	168.0	4.9	17.7
1981 12 12	05 05.29	+26 35.9					
1981 12 22	04 53.54	+25 51.5	1.409	2.373	165.1	6.1	17.7
1982 01 01	04 43.70	+25 04.4					
1982 01 11	04 36.86	+24 20.2	1.523	2.370	141.1	15.1	18.1
1982 01 21	04 33.50	+23 43.2					
1982 01 31	04 33.66	+23 15.4	1.715	2.366	119.9	21.2	18.5
1982 02 10	04 37.11	+22 57.0					
1982 02 20	04 43.45	+22 46.4	1.950	2.360	101.8	24.2	18.9

(2404) 1980 TE — Elements MPC 6103

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 09 13	05 26.42	+21 15.5	3.424	3.527	87.5	16.6	18.8
1981 09 23	05 31.77	+21 17.3					
1981 10 03	05 35.36	+21 17.3	3.140	3.534	105.0	15.9	18.6
1981 10 13	05 37.01	+21 16.1					
1981 10 23	05 36.55	+21 14.0	2.880	3.539	124.5	13.4	18.3
1981 11 02	05 33.92	+21 11.2					
1981 11 12	05 29.20	+21 07.7	2.678	3.544	146.2	8.9	18.1
1981 11 22	05 22.66	+21 03.2					
1981 12 02	05 14.78	+20 57.7	2.573	3.547	169.6	2.9	17.8
1981 12 12	05 06.27	+20 51.6					
1981 12 22	04 57.90	+20 45.4	2.587	3.549	165.8	3.9	17.8
1982 01 01	04 50.44	+20 40.3					
1982 01 11	04 44.53	+20 37.6	2.719	3.549	142.3	9.7	18.1
1982 01 21	04 40.55	+20 38.2					
1982 01 31	04 38.71	+20 42.7	2.943	3.548	120.7	13.8	18.4
1982 02 10	04 39.05	+20 51.1					
1982 02 20	04 41.44	+21 03.1	3.220	3.546	101.1	15.9	18.7

1980 RQ Elements MPC 5638

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981	10 03	05 45.61	+33 12.2	2.585	2.961	-0.92	+0.5	17.9
1981	10 13	05 49.13	+33 42.3					
1981	10 23	05 49.94	+34 11.7	2.353	2.985	-1.03	+0.8	17.6
1981	11 02	05 47.78	+34 38.8					
1981	11 12	05 42.65	+35 01.0	2.171	3.007	-1.16	+0.6	17.3
1981	11 22	05 34.82	+35 15.0					
1981	12 02	05 24.91	+35 17.1	2.074	3.027	-1.25	-0.2	17.1
1981	12 12	05 13.95	+35 05.3					
1981	12 22	05 03.16	+34 39.9	2.090	3.046	-1.23	-1.1	17.1
1982	01 01	04 53.70	+34 03.7					
1982	01 11	04 46.48	+33 21.5	2.220	3.063	-1.12	-1.6	17.4
1982	01 21	04 41.98	+32 38.1					
1982	01 31	04 40.36	+31 57.3	2.440	3.079	-0.98	-1.6	17.7
1982	02 10	04 41.52	+31 21.6					
1982	02 20	04 45.21	+30 51.6	2.715	3.093	-0.86	-1.2	18.0
1982	03 02	04 51.12	+30 27.1					
1982	03 12	04 58.96	+30 07.4	3.010	3.105	-0.77	-0.7	18.3

(2254) Requiem Elements MPC 5350

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	05 44.94	+29 45.8	1.663	2.118	102.5	27.5	17.4
1981	10 13	05 53.24	+30 16.8					
1981	10 23	05 58.20	+30 47.0	1.479	2.148	119.2	23.9	17.1
1981	11 02	05 59.31	+31 16.1					
1981	11 12	05 56.33	+31 42.1	1.332	2.179	139.2	17.3	16.7
1981	11 22	05 49.35	+32 01.3					
1981	12 02	05 39.06	+32 08.8	1.254	2.212	161.6	8.1	16.4
1981	12 12	05 26.89	+32 00.8					
1981	12 22	05 14.69	+31 37.0	1.275	2.245	167.4	5.5	16.4
1982	01 01	05 04.26	+31 01.1					
1982	01 11	04 56.94	+30 19.7	1.399	2.279	145.6	14.1	16.8
1982	01 21	04 53.31	+29 38.9					
1982	01 31	04 53.44	+29 02.8	1.605	2.313	124.8	20.5	17.3
1982	02 10	04 57.04	+28 33.1					
1982	02 20	05 03.62	+28 09.5	1.861	2.347	106.9	23.8	17.7
1982	03 02	05 12.75	+27 50.6					
1982	03 12	05 23.95	+27 34.6	2.140	2.381	91.3	24.7	18.1

1979 HA Elements MPC 4771

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981	10 03	05 58.52	+33 17.2	2.319	2.672	-1.07	-5.1	18.0
1981	10 13	06 04.47	+34 53.7					
1981	10 23	06 07.79	+36 40.0	2.039	2.640	-1.31	-5.4	17.6
1981	11 02	06 07.89	+38 35.8					
1981	11 12	06 04.24	+40 38.3	1.807	2.607	-1.60	-6.2	17.2
1981	11 22	05 56.48	+42 41.3					
1981	12 02	05 44.66	+44 35.1	1.656	2.571	-1.83	-8.1	16.9
1981	12 12	05 29.62	+46 08.3					
1981	12 22	05 13.04	+47 12.0	1.611	2.534	-1.85	-10.6	16.8
1982	01 01	04 57.13	+47 42.9					
1982	01 11	04 44.06	+47 45.6	1.672	2.496	-1.61	-12.0	16.9
1982	01 21	04 35.22	+47 28.9					
1982	01 31	04 31.17	+47 02.3	1.813	2.456	-1.35	-11.6	17.2
1982	02 10	04 31.86	+46 33.4					
1982	02 20	04 36.83	+46 06.2	1.998	2.415	-1.18	-10.1	17.5
1982	03 02	04 45.57	+45 42.4					
1982	03 12	04 57.53	+45 21.8	2.196	2.374	-1.11	-8.3	17.7

1979 MK2 Elements MPC 5784

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1981 10 03	05 58.37 +17 26.7	2.687	3.020	-0.82	-1.4	19.5
1981 10 13	06 02.71 +17 16.9					
1981 10 23	06 04.87 +17 07.3	2.390	2.985	-0.93	-1.5	19.2
1981 11 02	06 04.59 +16 58.9					
1981 11 12	06 01.73 +16 53.0	2.136	2.949	-1.06	-1.7	18.8
1981 11 22	05 56.33 +16 50.4					
1981 12 02	05 48.65 +16 51.7	1.961	2.911	-1.16	-2.1	18.4
1981 12 12	05 39.35 +16 57.1					
1981 12 22	05 29.34 +17 06.6	1.896	2.871	-1.17	-2.5	18.2
1982 01 01	05 19.70 +17 20.2					
1982 01 11	05 11.47 +17 38.2	1.947	2.830	-1.10	-2.8	18.4
1982 01 21	05 05.44 +18 00.4					
1982 01 31	05 02.08 +18 26.6	2.094	2.787	-0.99	-2.8	18.7
1982 02 10	05 01.56 +18 56.2					
1982 02 20	05 03.80 +19 28.3	2.299	2.744	-0.88	-2.6	19.0
1982 03 02	05 08.64 +20 01.7					
1982 03 12	05 15.81 +20 34.9	2.527	2.699	-0.81	-2.3	19.2

(2220) Hicks Elements MPC 5221

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 03	05 57.63 +22 08.3	2.415	2.767	99.8	20.9	17.8
1981 10 13	06 03.04 +22 10.6					
1981 10 23	06 05.99 +22 13.1	2.192	2.797	117.7	18.4	17.6
1981 11 02	06 06.23 +22 16.7					
1981 11 12	06 03.70 +22 21.6	2.011	2.827	138.2	13.5	17.3
1981 11 22	05 58.55 +22 27.4					
1981 12 02	05 51.17 +22 33.3	1.907	2.859	161.3	6.3	17.0
1981 12 12	05 42.37 +22 38.3					
1981 12 22	05 33.14 +22 41.8	1.911	2.891	174.2	2.0	16.8
1982 01 01	05 24.56 +22 44.3					
1982 01 11	05 17.60 +22 46.5	2.030	2.925	150.2	9.6	17.3
1982 01 21	05 12.89 +22 49.7					
1982 01 31	05 10.74 +22 54.8	2.245	2.958	128.3	15.1	17.7
1982 02 10	05 11.22 +23 02.1					
1982 02 20	05 14.18 +23 11.5	2.522	2.993	108.9	18.2	18.0
1982 03 02	05 19.38 +23 22.2					
1982 03 12	05 26.54 +23 33.2	2.830	3.027	91.7	19.2	18.3

1959 RJ Elements MPC 5648

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 03	05 58.46 +17 26.9	2.066	2.441	99.6	23.8	17.1
1981 10 13	06 04.73 +17 03.9					
1981 10 23	06 08.30 +16 39.9	1.861	2.475	116.9	21.0	16.8
1981 11 02	06 08.87 +16 16.9					
1981 11 12	06 06.35 +15 56.5	1.694	2.510	137.0	15.6	16.5
1981 11 22	06 00.87 +15 40.2					
1981 12 02	05 52.87 +15 29.3	1.599	2.545	159.5	7.8	16.2
1981 12 12	05 43.26 +15 24.6					
1981 12 22	05 33.20 +15 26.5	1.606	2.581	170.1	3.8	16.1
1982 01 01	05 23.93 +15 35.3					
1982 01 11	05 16.54 +15 50.6	1.726	2.616	148.7	11.3	16.5
1982 01 21	05 11.68 +16 11.9					
1982 01 31	05 09.68 +16 38.0	1.936	2.651	127.3	17.2	16.9
1982 02 10	05 10.55 +17 07.4					
1982 02 20	05 14.06 +17 38.6	2.205	2.686	108.4	20.5	17.3
1982 03 02	05 19.94 +18 10.1					
1982 03 12	05 27.86 +18 40.1	2.502	2.720	91.7	21.4	17.7

1980 OC Elements MPC 5523

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	05 58.91	+24 02.5	2.371	2.722	99.5	21.3	17.5
1981	10 13	06 04.68	+24 02.2					
1981	10 23	06 07.96	+24 01.5	2.135	2.737	117.2	18.9	17.3
1981	11 02	06 08.45	+24 00.9					
1981	11 12	06 06.05	+24 00.4	1.939	2.752	137.7	14.0	17.0
1981	11 22	06 00.86	+23 59.5					
1981	12 02	05 53.25	+23 57.1	1.818	2.769	160.8	6.7	16.6
1981	12 12	05 44.04	+23 52.1					
1981	12 22	05 34.29	+23 44.3	1.804	2.785	174.5	1.9	16.4
1982	01 01	05 25.17	+23 34.3					
1982	01 11	05 17.73	+23 24.0	1.905	2.802	150.3	10.0	16.9
1982	01 21	05 12.67	+23 15.0					
1982	01 31	05 10.35	+23 09.0	2.101	2.819	128.3	15.9	17.2
1982	02 10	05 10.84	+23 06.5					
1982	02 20	05 13.96	+23 07.2	2.358	2.837	108.8	19.3	17.6
1982	03 02	05 19.46	+23 10.3					
1982	03 12	05 27.04	+23 14.7	2.645	2.854	91.8	20.4	17.9

(2328) 1972 HW Elements MPC 5680

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	05 52.71	+12 46.9	1.937	2.342	100.9	24.8	17.9
1981	10 13	06 00.38	+11 48.4					
1981	10 23	06 05.58	+10 44.2	1.681	2.309	116.9	22.6	17.5
1981	11 02	06 07.92	+09 36.4					
1981	11 12	06 07.12	+08 28.7	1.464	2.276	135.2	17.8	17.0
1981	11 22	06 03.10	+07 25.4					
1981	12 02	05 56.06	+06 31.7	1.313	2.243	154.3	11.0	16.6
1981	12 12	05 46.77	+05 53.4					
1981	12 22	05 36.40	+05 35.2	1.256	2.210	161.4	8.2	16.4
1982	01 01	05 26.40	+05 39.5					
1982	01 11	05 18.22	+06 05.5	1.298	2.179	145.2	14.9	16.6
1982	01 21	05 12.87	+06 49.8					
1982	01 31	05 10.89	+07 47.6	1.420	2.148	125.6	21.9	16.9
1982	02 10	05 12.44	+08 53.9					
1982	02 20	05 17.30	+10 03.8	1.592	2.120	108.1	26.3	17.2
1982	03 02	05 25.19	+11 13.5					
1982	03 12	05 35.74	+12 19.6	1.787	2.094	93.3	28.3	17.5

(2280) Kunikov Elements MPC 5444

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	05 54.38	+20 00.3	1.502	1.952	100.6	30.3	17.8
1981	10 13	06 04.36	+19 59.3					
1981	10 23	06 11.20	+19 58.2	1.324	1.978	116.4	26.8	17.5
1981	11 02	06 14.37	+19 59.5					
1981	11 12	06 13.52	+20 05.0	1.175	2.007	135.8	20.1	17.1
1981	11 22	06 08.59	+20 15.6					
1981	12 02	05 59.94	+20 30.6	1.086	2.038	159.1	9.9	16.8
1981	12 12	05 48.73	+20 48.2					
1981	12 22	05 36.66	+21 06.4	1.088	2.070	174.5	2.6	16.5
1982	01 01	05 25.61	+21 24.4					
1982	01 11	05 17.22	+21 42.6	1.192	2.102	150.0	13.5	17.1
1982	01 21	05 12.40	+22 01.9					
1982	01 31	05 11.44	+22 22.9	1.379	2.136	128.4	21.2	17.6
1982	02 10	05 14.18	+22 45.4					
1982	02 20	05 20.19	+23 08.1	1.618	2.169	110.3	25.3	18.1
1982	03 02	05 29.02	+23 29.7					
1982	03 12	05 40.19	+23 48.6	1.883	2.202	94.8	26.7	18.5

(2281) 1971 UQ1 Elements MPC 5444

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 06.09	+22 19.2	1.889	2.255	97.8	26.1	18.4
1981	10 13	06 13.53	+22 08.8					
1981	10 23	06 18.04	+21 57.7	1.682	2.286	114.9	23.3	18.2
1981	11 02	06 19.22	+21 47.3					
1981	11 12	06 16.84	+21 38.3	1.507	2.316	135.1	17.5	17.8
1981	11 22	06 10.88	+21 30.7					
1981	12 02	06 01.75	+21 23.8	1.398	2.344	158.8	8.8	17.5
1981	12 12	05 50.43	+21 16.6					
1981	12 22	05 38.33	+21 08.7	1.389	2.371	174.8	2.1	17.2
1982	01 01	05 27.04	+21 00.9					
1982	01 11	05 17.94	+20 55.0	1.492	2.395	150.1	11.8	17.7
1982	01 21	05 11.90	+20 52.7					
1982	01 31	05 09.26	+20 55.0	1.685	2.417	127.8	18.8	18.2
1982	02 10	05 09.99	+21 01.8					
1982	02 20	05 13.77	+21 12.2	1.934	2.437	108.6	22.6	18.6
1982	03 02	05 20.24	+21 24.7					
1982	03 12	05 29.01	+21 37.5	2.208	2.455	92.2	23.9	18.9

(2405) 1963 UF Elements MPC 6106

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	05 58.75	+21 19.2	2.584	2.921	99.5	19.7	17.3
1981	10 13	06 04.41	+21 15.2					
1981	10 23	06 07.87	+21 11.0	2.312	2.905	117.2	17.7	17.0
1981	11 02	06 08.85	+21 07.5					
1981	11 12	06 07.24	+21 05.3	2.084	2.890	137.3	13.4	16.7
1981	11 22	06 03.07	+21 04.6					
1981	12 02	05 56.63	+21 05.1	1.931	2.877	159.9	6.8	16.4
1981	12 12	05 48.55	+21 06.4					
1981	12 22	05 39.74	+21 08.1	1.883	2.865	175.1	1.7	16.0
1982	01 01	05 31.25	+21 10.4					
1982	01 11	05 24.10	+21 13.8	1.951	2.854	151.6	9.4	16.4
1982	01 21	05 19.03	+21 19.1					
1982	01 31	05 16.52	+21 27.0	2.115	2.845	129.5	15.5	16.8
1982	02 10	05 16.72	+21 37.5					
1982	02 20	05 19.54	+21 50.2	2.343	2.838	110.0	19.1	17.1
1982	03 02	05 24.80	+22 04.2					
1982	03 12	05 32.23	+22 18.3	2.602	2.833	92.9	20.5	17.3

(2292) 1942 RM Elements MPC 5520

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 10.59	+07 34.5	2.654	2.937	96.3	19.8	17.9
1981	10 13	06 14.44	+06 38.1					
1981	10 23	06 16.05	+05 40.6	2.434	2.976	113.6	17.8	17.7
1981	11 02	06 15.23	+04 44.6					
1981	11 12	06 11.95	+03 53.1	2.252	3.012	132.6	14.0	17.5
1981	11 22	06 06.36	+03 09.7					
1981	12 02	05 58.81	+02 37.9	2.144	3.045	151.2	9.0	17.3
1981	12 12	05 49.96	+02 20.8					
1981	12 22	05 40.65	+02 20.1	2.140	3.077	158.5	6.7	17.2
1982	01 01	05 31.77	+02 35.9					
1982	01 11	05 24.17	+03 06.8	2.249	3.105	144.8	10.5	17.5
1982	01 21	05 18.44	+03 49.6					
1982	01 31	05 14.95	+04 41.0	2.454	3.132	125.6	14.8	17.8
1982	02 10	05 13.80	+05 37.8					
1982	02 20	05 14.93	+06 36.7	2.721	3.155	107.0	17.4	18.1
1982	03 02	05 18.18	+07 35.5					
1982	03 12	05 23.32	+08 32.1	3.017	3.176	90.0	18.2	18.3

1971 SC Elements MPC 5032

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981	10 03	06 09.95	+08 27.8	1.227	1.669	-1.72	-3.1	18.9
1981	10 13	06 19.69	+06 50.0					
1981	10 23	06 25.48	+05 11.7	1.141	1.764	-1.92	-4.9	18.7
1981	11 02	06 26.96	+03 38.1					
1981	11 12	06 24.04	+02 16.3	1.071	1.862	-2.25	-6.3	18.6
1981	11 22	06 16.96	+01 13.5					
1981	12 02	06 06.50	+00 37.1	1.051	1.960	-2.51	-6.2	18.4
1981	12 12	05 54.08	+00 32.3					
1981	12 22	05 41.49	+00 59.2	1.114	2.056	-2.47	-4.7	18.5
1982	01 01	05 30.41	+01 53.6					
1982	01 11	05 22.14	+03 07.9	1.273	2.150	-2.14	-3.2	19.0
1982	01 21	05 17.24	+04 33.8					
1982	01 31	05 15.80	+06 04.2	1.512	2.241	-1.75	-2.2	19.6
1982	02 10	05 17.60	+07 33.9					
1982	02 20	05 22.20	+08 59.0	1.807	2.327	-1.41	-1.6	20.2
1982	03 02	05 29.19	+10 17.5					
1982	03 12	05 38.15	+11 27.8	2.130	2.409	-1.16	-1.0	20.6

(2287) Kalmykia Elements MPC 5446

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 16.04	+20 55.8	2.077	2.390	95.5	24.6	18.5
1981	10 13	06 23.05	+20 58.9					
1981	10 23	06 27.36	+21 04.0	1.859	2.423	112.7	22.3	18.3
1981	11 02	06 28.61	+21 12.7					
1981	11 12	06 26.53	+21 25.7	1.670	2.453	132.9	17.2	18.0
1981	11 22	06 21.06	+21 43.1					
1981	12 02	06 12.49	+22 03.5	1.547	2.482	156.4	9.2	17.6
1981	12 12	06 01.59	+22 24.7					
1981	12 22	05 49.60	+22 44.2	1.525	2.508	177.9	0.8	17.2
1982	01 01	05 37.98	+23 00.9					
1982	01 11	05 28.13	+23 15.0	1.617	2.531	152.7	10.3	17.8
1982	01 21	05 21.01	+23 27.6					
1982	01 31	05 17.12	+23 40.3	1.807	2.552	129.8	17.2	18.2
1982	02 10	05 16.54	+23 53.9					
1982	02 20	05 19.04	+24 08.5	2.058	2.571	110.1	21.2	18.6
1982	03 02	05 24.30	+24 23.6					
1982	03 12	05 31.96	+24 38.3	2.337	2.586	93.0	22.6	18.9

1971 UG1 Elements MPC 5519

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 09.65	+21 17.7	2.331	2.646	97.0	22.0	18.0
1981	10 13	06 16.55	+21 06.4					
1981	10 23	06 21.07	+20 54.7	2.088	2.655	114.1	20.0	17.7
1981	11 02	06 22.89	+20 43.8					
1981	11 12	06 21.84	+20 34.7	1.881	2.665	133.9	15.5	17.4
1981	11 22	06 17.92	+20 27.9					
1981	12 02	06 11.36	+20 23.2	1.743	2.676	156.4	8.5	17.0
1981	12 12	06 02.84	+20 20.3					
1981	12 22	05 53.33	+20 18.7	1.705	2.687	176.7	1.2	16.6
1982	01 01	05 43.99	+20 18.4					
1982	01 11	05 35.99	+20 19.9	1.780	2.700	154.2	9.1	17.1
1982	01 21	05 30.18	+20 23.7					
1982	01 31	05 27.06	+20 30.4	1.955	2.713	131.9	15.7	17.5
1982	02 10	05 26.80	+20 39.9					
1982	02 20	05 29.30	+20 51.6	2.195	2.727	112.2	19.6	17.8
1982	03 02	05 34.32	+21 04.3					
1982	03 12	05 41.57	+21 16.9	2.470	2.742	95.1	21.2	18.1

1978 LB Elements MPC 5971

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 10 03	06 20.05	+21 18.1	3.336	3.558	-0.59	-2.5	18.2
1981 10 13	06 23.84	+21 38.5					
1981 10 23	06 25.72	+22 02.2	3.039	3.550	-0.66	-2.7	18.0
1981 11 02	06 25.51	+22 29.9					
1981 11 12	06 23.09	+23 01.7	2.782	3.540	-0.73	-2.9	17.7
1981 11 22	06 18.46	+23 37.1					
1981 12 02	06 11.82	+24 14.7	2.602	3.529	-0.80	-3.3	17.4
1981 12 12	06 03.61	+24 52.6					
1981 12 22	05 54.51	+25 28.7	2.533	3.516	-0.82	-3.8	17.0
1982 01 01	05 45.33	+26 01.3					
1982 01 11	05 36.95	+26 29.7	2.589	3.503	-0.78	-4.1	17.4
1982 01 21	05 30.10	+26 54.1					
1982 01 31	05 25.29	+27 15.4	2.754	3.489	-0.72	-4.1	17.7
1982 02 10	05 22.81	+27 34.8					
1982 02 20	05 22.69	+27 53.0	2.993	3.474	-0.65	-3.8	17.9
1982 03 02	05 24.88	+28 10.7					
1982 03 12	05 29.19	+28 27.8	3.268	3.458	-0.60	-3.4	18.1

1970 PL Elements MPC 5521

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 03	06 21.27	+28 20.1	2.227	2.513	94.5	23.4	18.3
1981 10 13	06 29.15	+28 29.2					
1981 10 23	06 34.50	+28 39.6	1.971	2.511	111.4	21.7	18.0
1981 11 02	06 36.90	+28 51.9					
1981 11 12	06 35.99	+29 06.0	1.743	2.506	130.9	17.4	17.6
1981 11 22	06 31.57	+29 20.2					
1981 12 02	06 23.73	+29 31.7	1.578	2.499	153.4	10.2	17.2
1981 12 12	06 13.09	+29 36.6					
1981 12 22	06 00.80	+29 31.4	1.509	2.489	173.9	2.4	16.8
1982 01 01	05 48.40	+29 14.9					
1982 01 11	05 37.49	+28 49.2	1.554	2.478	154.5	9.8	17.2
1982 01 21	05 29.29	+28 18.4					
1982 01 31	05 24.48	+27 46.7	1.697	2.464	131.6	17.4	17.5
1982 02 10	05 23.26	+27 17.6					
1982 02 20	05 25.44	+26 52.4	1.905	2.449	111.7	22.0	17.9
1982 03 02	05 30.68	+26 31.2					
1982 03 12	05 38.58	+26 12.8	2.142	2.431	94.5	24.0	18.1

(2253) Espinette Elements MPC 5350

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 03	06 33.12	+19 08.4	2.129	2.375	91.4	24.9	18.6
1981 10 13	06 40.43	+18 50.6					
1981 10 23	06 45.09	+18 34.3	1.931	2.434	108.3	22.8	18.4
1981 11 02	06 46.76	+18 21.0					
1981 11 12	06 45.21	+18 12.4	1.754	2.490	128.2	18.2	18.1
1981 11 22	06 40.39	+18 09.3					
1981 12 02	06 32.51	+18 11.8	1.635	2.544	151.1	10.8	17.8
1981 12 12	06 22.24	+18 19.0					
1981 12 22	06 10.66	+18 29.8	1.613	2.594	174.3	2.2	17.5
1982 01 01	05 59.08	+18 42.9					
1982 01 11	05 48.83	+18 57.8	1.708	2.641	156.9	8.4	18.0
1982 01 21	05 40.91	+19 14.2					
1982 01 31	05 35.87	+19 32.1	1.906	2.684	133.8	15.4	18.4
1982 02 10	05 33.91	+19 51.4					
1982 02 20	05 34.86	+20 11.5	2.175	2.724	113.5	19.4	18.8
1982 03 02	05 38.47	+20 31.5					
1982 03 12	05 44.40	+20 50.5	2.479	2.761	95.7	21.0	19.2

1978 PA Elements MPC 4576

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981	10 03	06 25.08	-03 09.1	1.416	1.762	-1.52	-17.1	17.8
1981	10 13	06 36.40	-03 29.0					
1981	10 23	06 44.85	-03 41.8	1.251	1.785	-1.80	-19.4	17.5
1981	11 02	06 49.91	-03 41.0					
1981	11 12	06 51.08	-03 18.3	1.090	1.810	-2.23	-21.2	17.1
1981	11 22	06 47.95	-02 24.1					
1981	12 02	06 40.35	-00 49.1	0.961	1.836	-2.70	-21.7	16.7
1981	12 12	06 28.78	+01 32.9					
1981	12 22	06 14.52	+04 39.3	0.906	1.863	-2.94	-20.8	16.4
1982	01 01	05 59.59	+08 17.1					
1982	01 11	05 46.31	+12 05.9	0.956	1.890	-2.71	-19.5	16.6
1982	01 21	05 36.44	+15 46.1					
1982	01 31	05 30.97	+19 05.8	1.108	1.918	-2.24	-17.8	17.1
1982	02 10	05 30.11	+22 00.3					
1982	02 20	05 33.54	+24 29.6	1.327	1.945	-1.83	-15.4	17.7
1982	03 02	05 40.77	+26 35.6					
1982	03 12	05 51.22	+28 20.6	1.579	1.971	-1.56	-12.8	18.2

(2286) Fesenkov Elements MPC 5446

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 25.93	+23 34.3	1.876	2.177	93.3	27.3	18.2
1981	10 13	06 36.16	+23 33.0					
1981	10 23	06 43.76	+23 32.8	1.663	2.199	109.0	25.3	17.9
1981	11 02	06 48.27	+23 35.6					
1981	11 12	06 49.29	+23 42.8	1.471	2.220	127.8	20.6	17.5
1981	11 22	06 46.56	+23 54.8					
1981	12 02	06 40.07	+24 10.5	1.332	2.241	150.1	12.7	17.2
1981	12 12	06 30.37	+24 27.0					
1981	12 22	06 18.58	+24 40.9	1.280	2.262	175.2	2.1	16.7
1982	01 01	06 06.31	+24 49.8					
1982	01 11	05 55.32	+24 53.1	1.336	2.281	158.9	8.9	17.1
1982	01 21	05 46.99	+24 52.5					
1982	01 31	05 42.11	+24 50.2	1.490	2.299	135.6	17.5	17.6
1982	02 10	05 40.95	+24 48.2					
1982	02 20	05 43.29	+24 47.1	1.711	2.317	115.6	22.6	18.0
1982	03 02	05 48.77	+24 46.5					
1982	03 12	05 56.96	+24 45.4	1.966	2.332	98.7	24.9	18.4

(2316) 1980 RH Elements MPC 5647

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 40.23	+21 16.9	2.558	2.745	89.9	21.4	18.3
1981	10 13	06 47.22	+21 04.9					
1981	10 23	06 51.99	+20 54.2	2.308	2.766	106.9	20.1	18.1
1981	11 02	06 54.24	+20 46.4					
1981	11 12	06 53.74	+20 42.3	2.080	2.784	126.5	16.6	17.8
1981	11 22	06 50.36	+20 42.5					
1981	12 02	06 44.17	+20 46.7	1.910	2.801	148.9	10.5	17.5
1981	12 12	06 35.60	+20 53.9					
1981	12 22	06 25.41	+21 02.5	1.836	2.815	173.3	2.3	17.1
1982	01 01	06 14.69	+21 11.2					
1982	01 11	06 04.63	+21 19.3	1.879	2.827	161.0	6.5	17.4
1982	01 21	05 56.27	+21 26.7					
1982	01 31	05 50.35	+21 34.2	2.032	2.836	137.4	13.6	17.7
1982	02 10	05 47.24	+21 42.1					
1982	02 20	05 46.98	+21 50.7	2.262	2.843	116.4	18.2	18.1
1982	03 02	05 49.43	+21 59.7					
1982	03 12	05 54.30	+22 08.3	2.534	2.848	98.0	20.2	18.4

1979 KN Elements MPC 5846

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 03	06 34.47 +13 35.2	2.700	2.891	90.8	20.2	18.9
1981 10 13	06 41.21 +13 10.8					
1981 10 23	06 45.95 +12 47.2	2.446	2.903	107.4	19.1	18.7
1981 11 02	06 48.44 +12 26.3					
1981 11 12	06 48.50 +12 10.4	2.218	2.915	126.3	15.9	18.4
1981 11 22	06 46.06 +12 01.4					
1981 12 02	06 41.21 +12 00.8	2.049	2.927	147.3	10.5	18.1
1981 12 12	06 34.35 +12 09.9					
1981 12 22	06 26.10 +12 28.8	1.973	2.940	167.2	4.2	17.9
1982 01 01	06 17.36 +12 56.6					
1982 01 11	06 09.10 +13 31.8	2.011	2.954	159.8	6.6	18.0
1982 01 21	06 02.20 +14 12.3					
1982 01 31	05 57.33 +14 55.9	2.158	2.967	138.3	12.8	18.3
1982 02 10	05 54.87 +15 40.7					
1982 02 20	05 54.91 +16 25.0	2.387	2.981	118.0	17.0	18.7
1982 03 02	05 57.39 +17 07.3					
1982 03 12	06 02.11 +17 46.5	2.661	2.995	99.8	19.1	18.9

1980 OB Elements MPC 5522

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 03	06 42.42 +26 26.7	2.382	2.580	89.8	22.8	18.5
1981 10 13	06 50.77 +26 19.5					
1981 10 23	06 56.80 +26 13.5	2.124	2.586	106.3	21.7	18.2
1981 11 02	07 00.14 +26 09.8					
1981 11 12	07 00.45 +26 09.0	1.887	2.590	125.4	18.1	17.9
1981 11 22	06 57.51 +26 10.7					
1981 12 02	06 51.26 +26 13.4	1.704	2.591	147.6	11.8	17.5
1981 12 12	06 42.09 +26 14.6					
1981 12 22	06 30.83 +26 11.5	1.611	2.589	172.1	3.0	17.1
1982 01 01	06 18.72 +26 02.1					
1982 01 11	06 07.27 +25 46.2	1.633	2.585	161.5	6.9	17.3
1982 01 21	05 57.77 +25 25.8					
1982 01 31	05 51.12 +25 03.7	1.764	2.578	137.6	14.9	17.6
1982 02 10	05 47.77 +24 42.4					
1982 02 20	05 47.70 +24 23.5	1.969	2.569	116.6	20.1	18.0
1982 03 02	05 50.70 +24 07.0					
1982 03 12	05 56.42 +23 52.4	2.214	2.558	98.5	22.6	18.3

1980 MA Elements MPC 5516

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1981 10 03	06 33.57 +22 12.6	2.024	2.281	-1.27	-3.5	16.4
1981 10 13	06 44.09 +22 42.2					
1981 10 23	06 52.26 +23 17.0	1.809	2.306	-1.44	-3.1	16.2
1981 11 02	06 57.67 +23 59.5					
1981 11 12	06 59.92 +24 51.3	1.615	2.334	-1.68	-2.8	15.8
1981 11 22	06 58.73 +25 52.6					
1981 12 02	06 53.99 +27 01.6	1.474	2.363	-1.94	-2.9	15.5
1981 12 12	06 46.04 +28 13.6					
1981 12 22	06 35.72 +29 22.1	1.420	2.394	-2.11	-3.9	15.2
1982 01 01	06 24.37 +30 20.9					
1982 01 11	06 13.65 +31 05.7	1.475	2.427	-2.04	-5.0	15.4
1982 01 21	06 04.99 +31 36.1					
1982 01 31	05 59.38 +31 54.5	1.633	2.461	-1.80	-5.3	15.9
1982 02 10	05 57.26 +32 04.0					
1982 02 20	05 58.60 +32 07.6	1.864	2.495	-1.54	-4.7	16.3
1982 03 02	06 03.12 +32 06.8					
1982 03 12	06 10.42 +32 02.6	2.138	2.530	-1.32	-3.6	16.7

(2352) 1969 RY Elements MPC 5842

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 45.94	+15 09.3	2.962	3.094	88.1	18.9	17.4
1981	10 13	06 51.93	+14 12.5					
1981	10 23	06 55.96	+13 13.9	2.708	3.118	105.0	17.9	17.2
1981	11 02	06 57.84	+12 14.8					
1981	11 12	06 57.42	+11 16.9	2.480	3.142	123.9	15.2	17.0
1981	11 22	06 54.68	+10 22.3					
1981	12 02	06 49.72	+09 33.1	2.311	3.165	144.4	10.4	16.8
1981	12 12	06 42.92	+08 51.6					
1981	12 22	06 34.85	+08 19.7	2.236	3.188	162.5	5.3	16.6
1982	01 01	06 26.27	+07 58.8					
1982	01 11	06 18.07	+07 49.3	2.276	3.210	158.3	6.5	16.6
1982	01 21	06 11.00	+07 50.5					
1982	01 31	06 05.68	+08 01.0	2.426	3.232	138.6	11.6	16.9
1982	02 10	06 02.47	+08 18.6					
1982	02 20	06 01.49	+08 40.8	2.660	3.253	118.7	15.5	17.2
1982	03 02	06 02.72	+09 05.4					
1982	03 12	06 06.01	+09 30.3	2.942	3.273	100.6	17.4	17.5

(730) Anthanasia Elements MPC 5788

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 39.19	+21 37.5	2.313	2.523	90.2	23.4	19.2
1981	10 13	06 48.27	+21 33.6					
1981	10 23	06 55.30	+21 31.7	2.028	2.496	106.2	22.5	18.8
1981	11 02	06 59.87	+21 33.5					
1981	11 12	07 01.61	+21 40.8	1.764	2.466	124.8	19.2	18.4
1981	11 22	07 00.17	+21 54.9					
1981	12 02	06 55.36	+22 15.7	1.551	2.434	146.5	12.9	18.0
1981	12 12	06 47.34	+22 42.0					
1981	12 22	06 36.73	+23 10.9	1.424	2.400	171.2	3.6	17.5
1982	01 01	06 24.69	+23 38.9					
1982	01 11	06 12.81	+24 03.1	1.407	2.365	162.9	7.0	17.6
1982	01 21	06 02.63	+24 22.6					
1982	01 31	05 55.35	+24 38.0	1.495	2.327	138.6	16.3	17.9
1982	02 10	05 51.65	+24 50.7					
1982	02 20	05 51.66	+25 01.8	1.657	2.288	117.5	22.5	18.2
1982	03 02	05 55.23	+25 11.6					
1982	03 12	06 02.01	+25 19.6	1.854	2.248	99.8	25.8	18.5

(2305) 1980 RJ1 Elements MPC 5643

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 44.92	+29 28.1	2.562	2.741	89.4	21.4	17.2
1981	10 13	06 53.90	+29 50.4					
1981	10 23	07 00.76	+30 16.6	2.305	2.747	105.7	20.4	17.0
1981	11 02	07 05.13	+30 47.6					
1981	11 12	07 06.69	+31 23.8	2.071	2.752	124.3	17.3	16.7
1981	11 22	07 05.20	+32 04.3					
1981	12 02	07 00.57	+32 46.4	1.892	2.759	145.1	11.8	16.4
1981	12 12	06 53.05	+33 25.8					
1981	12 22	06 43.34	+33 57.4	1.801	2.765	165.6	5.1	16.1
1982	01 01	06 32.51	+34 16.9					
1982	01 11	06 21.95	+34 21.9	1.822	2.771	161.2	6.6	16.1
1982	01 21	06 12.94	+34 13.6					
1982	01 31	06 06.45	+33 54.8	1.951	2.778	139.9	13.2	16.5
1982	02 10	06 03.01	+33 29.7					
1982	02 20	06 02.73	+33 01.5	2.160	2.784	119.5	18.0	16.8
1982	03 02	06 05.45	+32 32.3					
1982	03 12	06 10.87	+32 03.0	2.416	2.790	101.6	20.4	17.1

(2221) Chilton Elements MPC 5222

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 53.63	+18 59.3	2.569	2.701	86.6	21.7	19.0
1981	10 13	07 01.24	+18 02.7					
1981	10 23	07 06.70	+17 03.9	2.325	2.727	103.0	20.8	18.8
1981	11 02	07 09.71	+16 04.3					
1981	11 12	07 10.05	+15 05.3	2.100	2.753	121.8	17.8	18.5
1981	11 22	07 07.62	+14 08.7					
1981	12 02	07 02.44	+13 16.1	1.927	2.777	142.9	12.4	18.2
1981	12 12	06 54.86	+12 29.5					
1981	12 22	06 45.52	+11 50.7	1.842	2.800	163.9	5.6	18.0
1982	01 01	06 35.36	+11 21.1					
1982	01 11	06 25.51	+11 01.7	1.871	2.822	161.8	6.3	18.0
1982	01 21	06 16.98	+10 52.4					
1982	01 31	06 10.54	+10 52.1	2.011	2.842	140.6	12.7	18.4
1982	02 10	06 06.66	+10 59.1					
1982	02 20	06 05.44	+11 11.2	2.235	2.860	120.0	17.4	18.7
1982	03 02	06 06.81	+11 26.3					
1982	03 12	06 10.55	+11 42.1	2.506	2.877	101.7	19.8	19.0

1976 YP7 Elements MPC 4833

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 44.64	+20 29.9	2.616	2.781	88.8	21.1	18.0
1981	10 13	06 52.92	+20 11.7					
1981	10 23	06 59.21	+19 54.2	2.351	2.781	105.1	20.2	17.7
1981	11 02	07 03.21	+19 39.0					
1981	11 12	07 04.67	+19 27.4	2.108	2.782	123.8	17.2	17.4
1981	11 22	07 03.43	+19 20.5					
1981	12 02	06 59.47	+19 18.8	1.918	2.784	145.1	11.7	17.1
1981	12 12	06 53.06	+19 22.2					
1981	12 22	06 44.77	+19 29.7	1.816	2.786	168.5	4.0	16.7
1982	01 01	06 35.52	+19 39.9					
1982	01 11	06 26.42	+19 51.6	1.826	2.789	165.8	5.0	16.8
1982	01 21	06 18.53	+20 04.0					
1982	01 31	06 12.70	+20 16.5	1.946	2.793	142.5	12.4	17.2
1982	02 10	06 09.47	+20 29.1					
1982	02 20	06 08.98	+20 41.4	2.151	2.797	121.5	17.5	17.5
1982	03 02	06 11.21	+20 52.8					
1982	03 12	06 15.93	+21 02.7	2.405	2.802	103.1	20.2	17.8

1980 RR Elements MPC 5638

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981	10 03	06 48.17	+36 58.9	2.401	2.591	-1.18	+2.4	17.6
1981	10 13	06 58.99	+37 33.7					
1981	10 23	07 07.44	+38 12.3	2.171	2.609	-1.32	+3.6	17.4
1981	11 02	07 13.08	+38 55.4					
1981	11 12	07 15.50	+39 42.6	1.963	2.628	-1.51	+4.6	17.1
1981	11 22	07 14.37	+40 31.6					
1981	12 02	07 09.52	+41 18.0	1.805	2.647	-1.74	+4.7	16.8
1981	12 12	07 01.23	+41 55.2					
1981	12 22	06 50.31	+42 16.2	1.729	2.668	-1.90	+3.6	16.6
1982	01 01	06 38.08	+42 15.3					
1982	01 11	06 26.25	+41 51.2	1.759	2.689	-1.87	+1.8	16.7
1982	01 21	06 16.33	+41 06.9					
1982	01 31	06 09.38	+40 08.3	1.892	2.710	-1.66	+0.7	17.0
1982	02 10	06 05.91	+39 02.4					
1982	02 20	06 05.88	+37 54.3	2.105	2.732	-1.41	+0.6	17.3
1982	03 02	06 09.03	+36 47.4					
1982	03 12	06 14.93	+35 43.1	2.367	2.754	-1.20	+1.0	17.6

(452) Hamiltonia Elements MPC 5975

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	06 48.60	+22 17.2	2.693	2.840	88.0	20.6	18.3
1981	10 13	06 56.80	+22 12.3					
1981	10 23	07 03.06	+22 09.4	2.421	2.838	104.5	19.8	18.0
1981	11 02	07 07.07	+22 10.1					
1981	11 12	07 08.56	+22 15.6	2.170	2.836	123.3	17.0	17.7
1981	11 22	07 07.35	+22 26.5					
1981	12 02	07 03.38	+22 42.5	1.972	2.834	144.7	11.6	17.4
1981	12 12	06 56.88	+23 02.4					
1981	12 22	06 48.40	+23 24.1	1.862	2.832	168.5	4.0	17.0
1982	01 01	06 38.82	+23 44.9					
1982	01 11	06 29.28	+24 02.8	1.865	2.831	166.7	4.6	17.1
1982	01 21	06 20.88	+24 17.0					
1982	01 31	06 14.53	+24 27.4	1.980	2.829	143.0	12.1	17.4
1982	02 10	06 10.81	+24 35.0					
1982	02 20	06 09.91	+24 40.5	2.180	2.827	121.7	17.3	17.7
1982	03 02	06 11.79	+24 44.2					
1982	03 12	06 16.26	+24 46.1	2.431	2.826	103.0	20.0	18.0

1980 PN Elements MPC 5649

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 23	07 06.48	+21 48.5	2.255	2.671	103.7	21.2	17.3
1981	11 02	07 11.19	+21 40.9					
1981	11 12	07 13.25	+21 37.8	2.037	2.697	122.1	18.1	17.0
1981	11 22	07 12.47	+21 40.0					
1981	12 02	07 08.83	+21 47.6	1.868	2.724	143.3	12.5	16.7
1981	12 12	07 02.59	+21 59.4					
1981	12 22	06 54.34	+22 13.8	1.784	2.752	167.0	4.6	16.4
1982	01 01	06 45.01	+22 28.3					
1982	01 11	06 35.77	+22 41.3	1.811	2.781	168.2	4.1	16.4
1982	01 21	06 27.70	+22 51.7					
1982	01 31	06 21.68	+22 59.6	1.949	2.811	144.6	11.7	16.9
1982	02 10	06 18.25	+23 05.5					
1982	02 20	06 17.57	+23 09.8	2.173	2.841	123.5	16.9	17.2
1982	03 02	06 19.56	+23 12.5					
1982	03 12	06 24.02	+23 13.4	2.452	2.872	104.9	19.5	17.6
1982	03 22	06 30.62	+23 12.0					
1982	04 01	06 39.06	+23 07.5	2.753	2.903	88.5	20.1	17.9

(2308) 1967 JM Elements MPC 5644

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 23	07 19.33	+35 24.6	2.622	2.995	102.2	18.9	18.4
1981	11 02	07 23.54	+36 18.4					
1981	11 12	07 25.05	+37 19.5	2.366	2.992	120.5	16.6	18.1
1981	11 22	07 23.52	+38 26.6					
1981	12 02	07 18.74	+39 36.0	2.163	2.987	140.2	12.2	17.8
1981	12 12	07 10.78	+40 42.1					
1981	12 22	07 00.15	+41 37.9	2.046	2.980	157.7	7.2	17.6
1982	01 01	06 47.80	+42 16.5					
1982	01 11	06 35.16	+42 33.8	2.041	2.970	156.8	7.5	17.6
1982	01 21	06 23.69	+42 29.8					
1982	01 31	06 14.62	+42 07.6	2.146	2.959	138.7	12.7	17.8
1982	02 10	06 08.72	+41 33.0					
1982	02 20	06 06.22	+40 51.2	2.334	2.944	119.1	17.1	18.1
1982	03 02	06 07.05	+40 06.4					
1982	03 12	06 10.90	+39 21.1	2.570	2.928	101.1	19.4	18.3
1982	03 22	06 17.37	+38 36.3					
1982	04 01	06 26.08	+37 52.1	2.822	2.910	85.0	20.0	18.5

(2390) 1980 PA1 Elements MPC 6052

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 19.86	+32 33.9	2.431	2.809	101.9	20.3	17.6
1981 11 02	07 24.05	+32 47.5					
1981 11 12	07 25.38	+33 05.2	2.202	2.834	120.4	17.5	17.4
1981 11 22	07 23.62	+33 26.0					
1981 12 02	07 18.66	+33 47.4	2.021	2.857	141.2	12.5	17.1
1981 12 12	07 10.76	+34 05.1					
1981 12 22	07 00.53	+34 14.5	1.925	2.879	162.7	5.8	16.8
1982 01 01	06 49.00	+34 11.7					
1982 01 11	06 37.53	+33 54.8	1.941	2.899	163.9	5.4	16.8
1982 01 21	06 27.38	+33 25.3					
1982 01 31	06 19.54	+32 46.4	2.072	2.918	142.8	11.8	17.2
1982 02 10	06 14.60	+32 02.6					
1982 02 20	06 12.70	+31 17.3	2.290	2.934	121.8	16.6	17.5
1982 03 02	06 13.71	+30 32.8					
1982 03 12	06 17.36	+29 50.1	2.562	2.950	103.1	19.2	17.8
1982 03 22	06 23.29	+29 09.2					
1982 04 01	06 31.15	+28 29.6	2.853	2.963	86.4	19.7	18.1

(2312) 1976 GU2 Elements MPC 5646

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 12.56	+25 11.4	3.167	3.521	102.7	16.0	16.6
1981 11 02	07 15.69	+25 22.4					
1981 11 12	07 16.74	+25 37.6	2.914	3.537	121.8	13.8	16.4
1981 11 22	07 15.62	+25 56.9					
1981 12 02	07 12.34	+26 19.5	2.716	3.553	142.9	9.6	16.1
1981 12 12	07 07.12	+26 43.8					
1981 12 22	07 00.36	+27 07.4	2.609	3.570	165.5	4.0	15.9
1982 01 01	06 52.69	+27 28.2					
1982 01 11	06 44.89	+27 44.3	2.617	3.588	168.9	3.0	15.8
1982 01 21	06 37.74	+27 54.9					
1982 01 31	06 31.93	+28 00.2	2.744	3.606	146.4	8.7	16.2
1982 02 10	06 27.98	+28 00.8					
1982 02 20	06 26.11	+27 58.0	2.966	3.626	125.1	12.9	16.5
1982 03 02	06 26.42	+27 52.6					
1982 03 12	06 28.82	+27 45.3	3.249	3.646	105.7	15.2	16.7
1982 03 22	06 33.13	+27 36.3					
1982 04 01	06 39.15	+27 25.4	3.559	3.667	88.2	15.8	16.9

1979 MZ3 Elements MPC 5900

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 23.89	+20 53.6	2.823	3.144	99.5	18.2	18.7
1981 11 02	07 27.88	+20 40.9					
1981 11 12	07 29.66	+20 32.4	2.553	3.144	118.1	16.1	18.4
1981 11 22	07 29.09	+20 29.0					
1981 12 02	07 26.07	+20 30.9	2.330	3.143	139.2	11.8	18.1
1981 12 12	07 20.74	+20 37.7					
1981 12 22	07 13.47	+20 48.1	2.189	3.141	162.4	5.4	17.8
1982 01 01	07 04.87	+21 00.6					
1982 01 11	06 55.85	+21 13.3	2.161	3.139	172.8	2.2	17.6
1982 01 21	06 47.35	+21 24.9					
1982 01 31	06 40.22	+21 34.6	2.251	3.137	149.0	9.3	18.0
1982 02 10	06 35.13	+21 42.4					
1982 02 20	06 32.41	+21 48.3	2.438	3.133	126.9	14.6	18.3
1982 03 02	06 32.19	+21 52.4					
1982 03 12	06 34.38	+21 54.7	2.687	3.130	107.3	17.6	18.5
1982 03 22	06 38.76	+21 54.7					
1982 04 01	06 45.11	+21 51.9	2.962	3.126	90.0	18.6	18.8

(2359) 1931 TV Elements MPC 5892

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 25.75	+17 30.3	2.359	2.693	98.6	21.4	18.0
1981 11 02	07 30.69	+16 58.6					
1981 11 12	07 33.17	+16 30.7	2.106	2.698	116.6	19.1	17.7
1981 11 22	07 32.93	+16 08.4					
1981 12 02	07 29.82	+15 53.0	1.892	2.701	137.3	14.3	17.4
1981 12 12	07 23.93	+15 45.5					
1981 12 22	07 15.65	+15 45.9	1.755	2.702	160.3	7.1	17.0
1982 01 01	07 05.71	+15 53.3					
1982 01 11	06 55.23	+16 06.4	1.726	2.701	170.6	3.4	16.8
1982 01 21	06 45.39	+16 23.5					
1982 01 31	06 37.28	+16 42.8	1.811	2.698	148.0	11.1	17.2
1982 02 10	06 31.65	+17 03.2					
1982 02 20	06 28.89	+17 23.5	1.989	2.693	126.1	17.2	17.5
1982 03 02	06 29.04	+17 42.6					
1982 03 12	06 31.96	+17 59.6	2.224	2.687	106.9	20.7	17.9
1982 03 22	06 37.35	+18 13.2					
1982 04 01	06 44.91	+18 22.7	2.482	2.679	90.2	21.9	18.1

(2302) 1972 TL2 Elements MPC 5642

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 29.23	+31 54.7	1.988	2.370	99.8	24.4	16.9
1981 11 02	07 36.16	+31 45.1					
1981 11 12	07 39.88	+31 38.7	1.790	2.409	117.2	21.4	16.7
1981 11 22	07 40.08	+31 35.5					
1981 12 02	07 36.57	+31 33.7	1.630	2.450	137.6	15.7	16.4
1981 12 12	07 29.53	+31 29.7					
1981 12 22	07 19.56	+31 19.1	1.543	2.491	160.4	7.6	16.1
1982 01 01	07 07.81	+30 57.8					
1982 01 11	06 55.83	+30 24.3	1.561	2.533	169.1	4.2	16.0
1982 01 21	06 45.13	+29 40.0					
1982 01 31	06 36.90	+28 48.8	1.690	2.575	147.3	11.9	16.5
1982 02 10	06 31.82	+27 55.0					
1982 02 20	06 30.02	+27 02.1	1.910	2.617	126.0	17.8	16.9
1982 03 02	06 31.34	+26 11.8					
1982 03 12	06 35.44	+25 24.4	2.187	2.658	107.3	20.9	17.3
1982 03 22	06 41.87	+24 39.3					
1982 04 01	06 50.26	+23 55.5	2.490	2.699	91.0	21.7	17.6

(2330) Ontake Elements MPC 5681

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 24.44	+14 56.7	3.014	3.310	98.5	17.3	17.4
1981 11 02	07 27.97	+14 39.9					
1981 11 12	07 29.48	+14 27.9	2.744	3.313	117.0	15.4	17.1
1981 11 22	07 28.84	+14 22.1					
1981 12 02	07 26.00	+14 23.7	2.519	3.316	137.8	11.5	16.9
1981 12 12	07 21.09	+14 33.3					
1981 12 22	07 14.45	+14 50.6	2.376	3.318	160.1	5.8	16.6
1982 01 01	07 06.62	+15 14.9					
1982 01 11	06 58.37	+15 44.4	2.345	3.320	170.9	2.7	16.4
1982 01 21	06 50.52	+16 17.2					
1982 01 31	06 43.83	+16 51.3	2.433	3.321	149.6	8.6	16.7
1982 02 10	06 38.91	+17 25.1					
1982 02 20	06 36.10	+17 57.4	2.622	3.322	127.9	13.6	17.0
1982 03 02	06 35.56	+18 27.2					
1982 03 12	06 37.24	+18 53.7	2.876	3.322	108.1	16.5	17.3
1982 03 22	06 41.00	+19 16.4					
1982 04 01	06 46.64	+19 34.8	3.159	3.322	90.5	17.5	17.5

(2304) Slavia Elements MPC 5643

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 30.47	+07 01.0	2.674	2.943	95.6	19.7	18.4
1981 11 02	07 34.85	+05 56.2					
1981 11 12	07 37.09	+04 53.5	2.404	2.933	112.8	18.1	18.2
1981 11 22	07 37.02	+03 55.5					
1981 12 02	07 34.49	+03 05.4	2.173	2.921	131.6	14.6	17.8
1981 12 12	07 29.58	+02 26.7					
1981 12 22	07 22.57	+02 02.6	2.012	2.908	150.4	9.6	17.6
1982 01 01	07 14.03	+01 55.9					
1982 01 11	07 04.79	+02 07.4	1.952	2.893	159.5	6.8	17.4
1982 01 21	06 55.83	+02 36.1					
1982 01 31	06 48.08	+03 19.2	2.003	2.877	146.6	10.9	17.6
1982 02 10	06 42.30	+04 12.3					
1982 02 20	06 38.91	+05 11.0	2.149	2.859	127.3	16.0	17.8
1982 03 02	06 38.11	+06 11.2					
1982 03 12	06 39.86	+07 09.5	2.358	2.839	108.9	19.3	18.1
1982 03 22	06 43.99	+08 03.3					
1982 04 01	06 50.25	+08 50.9	2.596	2.818	92.2	20.8	18.3

1980 PG Elements MPC 5638

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 10 23	07 34.84	+38 20.7	2.130	2.494	-1.32	+7.2	17.4
1981 11 02	07 42.98	+38 34.4					
1981 11 12	07 48.01	+38 52.2	1.908	2.505	-1.49	+8.8	17.1
1981 11 22	07 49.54	+39 13.4					
1981 12 02	07 47.22	+39 35.1	1.723	2.517	-1.73	+9.7	16.8
1981 12 12	07 41.04	+39 52.1					
1981 12 22	07 31.46	+39 57.8	1.607	2.530	-1.95	+9.2	16.5
1982 01 01	07 19.51	+39 45.1					
1982 01 11	07 06.79	+39 09.9	1.591	2.545	-2.00	+7.4	16.4
1982 01 21	06 55.05	+38 13.0					
1982 01 31	06 45.74	+36 59.2	1.683	2.562	-1.83	+5.6	16.7
1982 02 10	06 39.74	+35 35.8					
1982 02 20	06 37.31	+34 09.1	1.866	2.579	-1.55	+4.8	17.0
1982 03 02	06 38.30	+32 43.5					
1982 03 12	06 42.33	+31 21.2	2.109	2.598	-1.29	+4.6	17.4
1982 03 22	06 48.91	+30 02.8					
1982 04 01	06 57.62	+28 47.4	2.382	2.618	-1.09	+4.8	17.7

1980 VN Elements MPC 5836

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 42.08	+37 26.9	3.243	3.521	97.9	16.3	18.0
1981 11 02	07 46.59	+38 16.9					
1981 11 12	07 48.82	+39 13.6	3.004	3.549	115.8	14.5	17.8
1981 11 22	07 48.55	+40 15.6					
1981 12 02	07 45.63	+41 20.3	2.813	3.576	134.8	11.3	17.6
1981 12 12	07 40.09	+42 23.2					
1981 12 22	07 32.25	+43 19.3	2.703	3.603	152.3	7.3	17.4
1982 01 01	07 22.71	+44 03.0					
1982 01 11	07 12.42	+44 30.3	2.702	3.629	157.3	6.0	17.4
1982 01 21	07 02.43	+44 39.4					
1982 01 31	06 53.76	+44 31.1	2.814	3.654	143.6	9.2	17.6
1982 02 10	06 47.18	+44 08.6					
1982 02 20	06 43.12	+43 35.6	3.021	3.679	125.0	12.7	17.8
1982 03 02	06 41.72	+42 56.0					
1982 03 12	06 42.88	+42 12.7	3.292	3.702	106.7	14.9	18.1
1982 03 22	06 46.37	+41 27.7					
1982 04 01	06 51.90	+40 42.2	3.592	3.725	89.8	15.6	18.3