The MINOR PLANET CIRCULARS/MINOR PLANETS AND COMETS are published, on behalf of Commission 20 of the International Astronomical Union, usually in batches on the 1st of each month, by:

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

TWX 710-320-6842 ASTROGRAM CAM ** Brian G. Marsden, Director
Telephone 617-864-5758 ** Conrad M. Bardwell, Associate Director

PAUL HERGET (1908-1981)

It is with deep regret that we record the sudden death, on August 27, of Paul Herget, founder of the Minor Planet Circulars, and director of the Minor Planet Center and editor of this publication from 1947 to 1978. Like Gauss a century and a half earlier, Herget played a crucial role in the study of minor planets, for just as Gauss applied his unique mathematical and arithmetical abilities both to develop and to use his powerful new method of orbit determination to predict the position of Ceres, so did Herget apply his unique experience of automatic computing methods and detailed knowledge of minor planets to rescue the subject following the tremendous disruption caused by World War II.

Full accounts of Herget's life and work will appear elsewhere. Here let it suffice to say that Paul Herget dominated the study of minor planets for several decades, and that as director of the Cincinnati Observatory he had a profound influence in many areas of celestial mechanics and astrometry and in the use of computers.

Recipients of the last batch of MPCs edited by Herget will recall that he was extremely disturbed about the future of the Cincinnati Observatory and astronomical research at the University of Cincinnati. The problem is still far from resolved, but one can have some solace in the knowledge that restoration work is in progress on the historic Cincinnati telescope. Above all, it is to be noted that, in spite of his initial pessimism, Paul Herget pursued in his retirement the study of minor planets with renewed vigor. He developed new procedures for finding and establishing identifications and computed dozens of new orbits; some of his last results appear in this batch of MPCs.

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 6145.

Object		Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1931 JT	*	1931 05	05.94160	11 09 05.26	+06 41 01.0	1931 EK	15.5	024
1939 KF	*	1939 05	24.02727	16 24 37.60	-21 27 13.2	1261	13.8	024

1941	SL2	*	1941 09 25.94	23 01.6	-00 52		1941	SC			062
1944	FD	*	1944 03 26.97	12 36.8	-00 12		272				062
1944	FD		1944 03 29.98	12 34.4	+00 01		272				062
1944	FE	*	1944 03 26.97250	12 39 10.92	-00 28	26.4	1261				062
1944	FE		1944 03 29.97730	12 36 36.94	-00 16	15.0	1261			15.6	062
1953	GX1	*	1953 04 10.97708	11 44 48.78	+01 01	55.9	1953	EP			012
1954	SP1	*	1954 09 27.15346	00 10 52.70	-02 55	57.7	1954	QC		16.2	760
1954	SP1		1954 09 27.20346	00 10 50.45	-02 56	13.4	1954	QC			760
1956	XR	*	1956 12 01.97024	04 46 07.48	+28 50	18.8	1457			15.0	020
1976	JC11	*	1976 05 03.81933	13 03 57.66	+04 47	25.6	1976	HE		17.0	095
1976	UT20	*	1976 10 26.82880	23 52 14.69	+00 24	19.2	1976	SO8		16.0	095
1978	SQ6	*	1978 09 27.96389	01 22 20.38	+11 45	22.1	1978	RT5		17.0	095
1978	TY5	*	1978 10 07.97904	01 25 10.21	+07 33	30.5	1978	TF2		17.5	095
1978	TZ5	*	1978 10 07.97904	01 39 19.32	+05 33	11.7	1978	SH5		17.8	095
1981	EU1	*	1981 03 01.27845	12 57 42.83	-04 08	08.0	1981	GO		17.8	809
1981	EU1		1981 03 01.28537	12 57 42.63	-04 08	07.1	1981	GO			809
1981	EU1		1981 03 01.29230	12 57 42.44	-04 08	06.6	1981	GO			809
1981	EV1	*	1981 03 05.34094	12 57 10.79	-04 15	42.0	1981	ER			809
1981	EV1		1981 03 05.34786	12 57 10.57	-04 15	41.9	1981	ER			809
1981	EV1		1981 03 05.35479	12 57 10.35	-04 15	41.7	1981	ER			809

* * * * *

IDENTIFICATIONS.

The following list of identifications with numbered minor planets continues that on MPC 6145.

	Note		Note		Note
A899 OF = (1)	1	A906 YD = (1639)	2	A906 YN = (1847)	2
A906 YO = (1336)	2	A906 YP = (1725)	2	A908 SC = (2112)	2
A916 HB = (1047)	2	A916 UB = (2254)	2	A917 XC = (1223)	2
A917 YA = (1223)	2	A921 GB = (1648)	2	1930 YJ = (2415)	3
1931 AU = (2274)	1	1931 UN = (2161)	1	1931 VB = (2243)	1
1931 XU = (2218)	1	1934 NQ = (2243)	1	1935 FO = (2274)	1
1938 DM2 = (962)	4	1940 TF = (983)	5	1940 TG = (408)	5
1940 TH = (607)	5	1941 SL2 = (760)	4	1942 XU = (748)	4
1943 FE = (125)	4	1944 FD = (1261)	3	1944 FE = (272)	3
1949 XH = (2170)	1	1952 DC3 = (1613)	3	1952 FY = (1613)	3
1952 HQ = (1613)	3	1957 DB = (2274)	1	1957 UX = (2203)	1
1958 TM = (2352)	6	1976 UT20= (2362)	6	1977 TE7 = (2214)	1
1977 VV1 = (2434)	7	1978 RS5 = (843)	8	1981 EO1 = (575)	9
9503 P-L = (1976)	3				

Note 1: identifications by L. D. Schmadel. 2: by C. M. Bardwell. 3: by B. G. Marsden; the double designation 1952 DC3 = 1952 FY is by O. Kippes (MPC 2324); the double designation 1952 FY = 1952 HP (MPC 1968) is invalid. 4: indentifications by L. Oterma; the reassignments for 1938 DM2, 1942 XU and 1943 FE were unnecessary. 5: identifications by E. Bowell. 6: by P. Herget. 7: by L. K. Kristensen. 8: this identification, found independently by L. K. Kristensen and B. G. Marsden, was suspected before the 1981 recovery. 9: identification by O. Kippes.

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

020 Nice. Observer B. Milet.
026 Zimmerwald. Observer P. Wild.

046 Klet. Observers A. Mrkos and Z. Vavrova.
097 Wise Observatory. Observers W. Seitter and H. Durbeck. Communicated by Y. Sheffer and E. M. Leibowitz.
372 Geisei. Observer T. Seki.
381 Tokyo Observatory, Kiso station. Observer H. Kosai.
474 Mt. John University Observatory. Observers A. C. Gilmore and P. M. Kilmartin.
489 Hemingford Abbots. Observer A. Young. Measured by B. Manning.
493 German-Spanish Astronomical Centre, Calar Alto. Observer L. Kohoutek. 0.8-m Schmidt telescope (formerly in Hamburg).
494 Stakenbridge. Observer B. Manning. Communicated by G. M. Hurst.
675 Palomar Mountain Observatory. The positions of P/van Houten are new reductions by P. Herget of the measurements by C. J. van Houten and I. van Houten-Groeneveld from plates exposed by T. Gehrels. The observations of P/Kearns-Kwee and of P/Howell on Sept. 9-21 are by J. Gibson. The remaining positions were measured by E. Howell from exposures by S. J. Bus, C. Kowal and herself.
688 Lowell Observatory, Anderson Mesa station, Observers E. Bowell and N. G. Thomas. Measurer Bowell. Acknowledgment of the Lowell Observatory's observations was inadvertently omitted on MPC 6146.
711 McDonald Observatory. Observers A. Cochran, W. Cochran and E. Barker.
801 Oak Ridge Observatory. Observers R. E. McCrosky, C.-Y. Shao, D. W. E. Green and G. Schwartz (assisted by C. M. Bardwell and B. G. Marsden).
805 Cerro el Roble. Observers L. E. Gonzalez and C. Torres. Communicated by J. Maza.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
		Periodic Comet van Houten				
/1961 X	1960	09 24.41183	00 35 34.92	+01 10 33.9		675
/1961 X	1960	09 26.31530	00 34 34.63	+01 06 24.2		675
/1961 X	1960	09 27.40836	00 33 59.57	+01 04 02.1		675
/1961 X	1960	09 28.39725	00 33 27.78	+01 01 52.7		675
/1961 X	1960	10 17.31529	00 23 30.22	+00 24 15.6		675
/1961 X	1960	10 22.26809	00 21 10.86	+00 16 50.4		675
/1961 X	1960	10 25.30351	00 19 52.06	+00 13 02.7		675
/1961 X	1960	10 26.35766	00 19 25.86	+00 11 54.5		675
		Comet Ikeya-Seki (1965 VIII)				
/1965 VIII	1965	11 06.19913	11 58 44.53	-21 33 49.6		020
/1965 VIII	1965	11 08.19983	11 51 16.98	-22 46 37.4		020
/1965 VIII	1965	11 14.18647	11 29 25.03	-26 17 06.7		020
/1965 VIII	1965	11 18.20395	11 14 25.41	-28 32 10.8		020
		Comet Barbon (1966 II)				
/1966 II	1966	08 26.99221	00 48 20.31	-03 01 56.4		020
/1966 II	1966	09 21.99528	00 40 21.26	-10 02 27.0		020
/1966 II	1966	09 22.00017	00 40 21.09	-10 02 31.4		020
		Comet Kilston (1966 V)				
/1966 V	1966	10 19.81625	19 04 33.75	-03 52 50.5		020
/1966 V	1966	11 07.78994	19 38 12.57	-08 24 17.1		020
/1966 V	1966	11 07.79410	19 38 13.02	-08 24 21.7		020
/1966 V	1966	11 29.71999	20 20 49.65	-11 55 12.7		020
/1966 V	1966	12 06.75027	20 34 58.12	-12 41 04.8		020
/1966 V	1966	12 13.71897	20 49 06.40	-13 16 59.6		020
/1966 V	1966	12 13.72660	20 49 07.27	-13 17 02.7		020

Comet Rudnicki (1967 II)

/1967 II	1966	12	13.75083	22 55 55.17	-14 17 02.8	020
/1967 II	1966	12	13.75499	22 55 53.70	-14 17 05.3	020

Comet Wild (1967 III)

/1967 III	1967	03	11.83208	05 07 50.26	+20 28 55.3	020
/1967 III	1967	03	11.84039	05 07 50.20	+20 28 17.4	020

Periodic Comet Tuttle

/1967 V	1967	01	14.85095	23 10 37.83	+39 18 53.8	020
/1967 V	1967	01	14.86204	23 10 40.37	+39 18 39.0	020

Periodic Comet Tempel 2

/1967 X	1967	06	06.94342	18 25 45.81	-02 59 34.9	020
/1967 X	1967	07	08.97548	18 30 12.39	-11 22 18.4	020
/1967 X	1967	07	12.89355	18 30 59.04	-13 15 04.8	020
/1967 X	1967	07	12.89840	18 30 59.04	-13 15 13.5	020
/1967 X	1967	09	05.87174	19 55 17.39	-37 13 31.3	020

Comet Ikeya-Seki (1968 I)

/1968 I	1968	01	08.18672	16 40 35.62	+00 57 14.7	020
/1968 I	1968	01	29.22629	16 56 46.59	+11 26 49.0	020
/1968 I	1968	04	01.17960	12 56 07.42	+87 08 06.8	020
/1968 I	1968	04	03.17846	09 53 12.63	+86 47 27.9	020
/1968 I	1968	04	17.80563	06 46 29.80	+73 46 19.2	020
/1968 I	1968	04	17.80909	06 46 29.30	+73 46 09.0	020
/1968 I	1968	04	20.82504	06 44 00.18	+71 28 03.1	020
/1968 I	1968	04	29.83102	06 42 57.48	+65 34 14.5	020

Periodic Comet Schwassmann-Wachmann 2

/1968 II	1968	01	06.10330	06 19 21.97	+20 20 09.0	020
/1968 II	1968	02	27.82483	06 14 38.89	+22 40 18.6	020
/1979k	1980	12	05.36524	06 31 39.50	+19 14 48.8	801

Periodic Comet Churyumov-Gerasimenko

/1969 IV	1969	12	09.14862	11 11 14.40	+15 05 18.8	020
/1969 IV	1969	12	09.15208	11 11 14.59	+15 05 17.8	020

Periodic Comet Faye

/1969 VI	1969	09	05.96689	03 54 34.76	+19 08 49.1	020
/1969 VI	1969	09	05.97450	03 54 35.98	+19 08 47.7	020
/1969 VI	1969	09	13.06068	04 11 06.41	+18 50 14.4	020
/1969 VI	1969	12	01.92879	05 27 11.97	+05 59 14.5	020
/1969 VI	1969	12	08.93670	05 23 39.40	+05 22 15.9	020
/1969 VI	1969	12	08.94016	05 23 39.21	+05 22 14.3	020

Comet Fujikawa (1969 VII)

/1969 VII	1969	08	27.14587	06 52 17.29	+17 41 04.5	020
/1969 VII	1969	09	06.11926	07 47 13.45	+15 27 44.2	020

Periodic Comet Comas Sola

/1969 VIII	1969	11	18.09239	10 14 35.39	+24 01 08.6	020
/1969 VIII	1969	11	20.18458	10 19 19.52	+23 57 12.1	020
/1969 VIII	1969	12	09.13131	10 58 01.73	+23 40 14.9	020
/1969 VIII	1969	12	09.13407	10 58 02.07	+23 40 13.1	020

Comet Tago-Sato-Kosaka (1969 IX)

/1969 IX	1970	02	09.83048	02 38 30.96	+32 44 52.2	020
/1969 IX	1970	02	10.77198	02 42 16.86	+33 40 59.1	020

/1969 IX	1970	02	16.77638	03	03	46.41	+38	23	00.7				020
/1969 IX	1970	03	05.81861	03	51	22.35	+45	24	26.4				020
/1969 IX	1970	03	05.82381	03	51	23.34	+45	24	28.5				020
/1969 IX	1970	03	09.79025	04	01	00.14	+46	22	43.2				020
/1969 IX	1970	03	12.78183	04	08	02.74	+47	01	01.8				020
			Comet Kohoutek (1970 III)										
/1970 III	1969	11	17.72500	18	11	08.45	+27	05	25.3				020
/1970 III	1969	12	01.73003	18	21	24.89	+28	10	35.3				020
/1970 III	1969	12	01.73418	18	21	24.97	+28	10	34.7				020
/1970 III	1969	12	08.73447	18	27	50.46	+29	02	19.0				020
/1970 III	1969	12	08.73794	18	27	50.64	+29	02	15.9				020
/1970 III	1970	02	03.74711	20	02	38.03	+47	27	12.6				020
/1970 III	1970	03	05.79022	22	31	52.24	+65	17	49.0				020
/1970 III	1970	03	05.79438	22	31	54.73	+65	17	55.3				020
			Comet Suzuki-Sato-Seki (1970 X)										
/1970 X	1970	10	21.75881	16	07	08.49	-03	01	16.8				020
/1970 X	1970	11	21.72955	18	30	03.50	+20	16	33.1				020
			Comet Abe (1970 XV)										
/1970 XV	1970	10	23.76997	16	01	11.76	+11	38	58.9				020
/1970 XV	1970	10	23.77758	16	01	11.58	+11	38	43.8				020
/1970 XV	1970	10	28.76809	15	59	42.29	+09	12	15.9				020
			Comet Toba (1971 V)										
/1971 V	1971	04	07.14571	21	57	49.88	+13	58	53.6				020
/1971 V	1971	04	07.15818	21	57	50.36	+13	58	37.6				020
/1971 V	1971	05	13.11525	22	18	56.29	-07	46	47.7				020
			Comet Sandage (1972 IX)										
/1972 IX	1972	06	17.86945	15	21	59.60	+22	26	09.7				020
/1972 IX	1972	07	06.88614	15	13	06.45	+23	54	24.5				020
/1972 IX	1972	07	13.88086	15	11	09.86	+24	11	54.2				020
			Periodic Comet Kearns-Kwee										
/1972 XI	1972	12	13.07218	06	52	42.24	+33	37	57.0				020
/1972 XI	1972	12	13.08152	06	52	41.79	+33	37	56.6				020
/1972 XI	1972	12	16.05532	06	50	48.67	+33	32	09.2				020
/1972 XI	1972	12	16.06917	06	50	47.82	+33	32	04.6				020
/1972 XI	1973	02	05.91889	06	21	57.16	+29	05	32.8				020
/1981h	1981	07	11.44171	03	34	08.59	+26	51	30.5			1	675
/1981h	1981	07	11.45242	03	34	09.86	+26	51	34.9			1	675
/1981h	1981	07	25.059	04	00	45	+28	32	19		16.5T		097
/1981h	1981	08	01.31654	04	15	07.48	+29	20	35.6	18	N	2	801
/1981h	1981	08	02.78472	04	18	02	+29	29.8		18	T	1	372
/1981h	1981	08	03.77778	04	20	00	+29	36.0				1	372
/1981h	1981	08	06.13304	04	24	38.6	+29	50	12	17	T		493
/1981h	1981	08	07.13715	04	26	38.1	+29	56	08	17	T		493
			Comet Kohoutek (1973 XII)										
/1973 XII	1973	10	27.15338	11	21	40.14	-06	30	35.3				020
/1973 XII	1974	01	04.70722	20	17	17.22	-16	04	23.7				020
/1973 XII	1974	01	10.72027	21	28	19.96	-10	53	59.8				020
/1973 XII	1974	01	28.74298	00	28	48.89	+05	07	07.1				020
/1973 XII	1974	01	28.78141	00	29	06.34	+05	08	40.1				020
/1973 XII	1974	02	07.75341	01	32	54.72	+10	26	23.3				020

/1973 XII	1974	02	07.76726	01 32 59.08	+10 26 44.4				020
/1973 XII	1974	02	20.77194	02 29 30.24	+14 25 24.8				020
			Periodic Comet Schwassmann-Wachmann 1						
/1974 II	1981	04	27.89271	10 00 07.15	+07 32 26.7				494
/1974 II	1981	04	27.95642	10 00 06.82	+07 32 26.3				489
/1974 II	1981	04	27.96389	10 00 06.82	+07 32 27.1				489
/1974 II	1981	05	02.9111	10 00 13.23	+07 32 22.0				494
			Comet Kohler (1977 XIV)						
/1977 XIV	1977	11	09.75849	19 06 52.63	-08 49 43.2				020
/1977 XIV	1977	12	06.71216	21 39 13.25	-28 49 55.7				020
/1977 XIV	1977	12	15.71586	22 29 09.72	-32 10 07.2				020
			Periodic Comet Reinmuth 1						
/1979j	1981	04	08.29602	12 44 10.57	+09 43 08.3				801
			Comet Bowell (1980b)						
/1980b	1981	02	10.36119	12 36 15.40	-01 58 13.3				801
			Periodic Comet Stephan-Oterma						
/1980g	1981	04	04.06542	07 52 27.82	+40 53 08.2			3	801
			Comet Meier (1980q)						
/1980q	1981	06	03.15944	12 39 33.29	+06 47 03.4				801
			Comet Bradfield (1980t)						
/1980t	1981	07	28.25197	21 17 49.75	+13 45 37.0	19.5N			801
/1980t	1981	08	27.16534	20 36 09.01	+08 26 08.8	20	N	1	801
			Comet Panther (1980u)						
/1980u	1981	04	09.06250	07 59 31.09	+59 29 06.4				026
			Periodic Comet Bus						
/1981b	1981	06	27.09139	12 17 10.94	-00 16 34.0			4	801
			Comet Bus (1981d)						
/1981d	1981	06	24.09927	12 11 24.83	+00 04 26.3				801
			Periodic Comet Gehrels 2						
/1981f	1981	08	01.27949	01 41 21.43	+14 48 10.3	19	N		801
/1981f	1981	08	01.44	01 41 30.7	+14 48 56	19	N		711
/1981f	1981	08	26.4089	02 01 17	+16 09 26	19	N		711
/1981f	1981	08	26.4309	02 01 19	+16 09 22				711
/1981f	1981	08	27.35874	02 01 48.95	+16 10 44.4				801
			Comet Gonzalez (1981g)						
/1981g	1981	06	29.26389	00 08 28.40	-51 24 25.6			5	805
/1981g	1981	06	29.28472	00 08 29.26	-51 25 15.4			5	805
/1981g	1981	06	29.28889	00 08 29.50	-51 25 34.0			5	805
/1981g	1981	06	29.30972	00 08 30.28	-51 26 22.4			5	805
/1981g	1981	07	22.24508	00 17 46.73	-68 54 19.2				805
/1981g	1981	07	22.27703	00 17 45.94	-68 55 43.0				805
/1981g	1981	07	22.41453	00 17 44.11	-69 01 40.8				805
/1981g	1981	07	29.25139	00 14 16.52	-73 48 45.7			6	805
/1981g	1981	07	31.19583	00 12 10.04	-75 05 59.3				805
/1981g	1981	07	31.32569	00 11 59.76	-75 11 03.6				805
/1981g	1981	07	31.38611	00 11 54.78	-75 13 26.5				805

/1981g	1981	08	03.51420	00	06	53.34	-77 12 24.2	16 N	474
/1981g	1981	08	03.53596	00	06	50.63	-77 13 12.6		474

Periodic Comet Swift-Gehrels

/1981j	1981	07	11.28627	22	40	08.05	-07 38 49.3	19.5N	801
/1981j	1981	07	31.26675	22	43	50.46	-04 41 57.5	18.5N	801
/1981j	1981	08	01.23275	22	43	44.48	-04 33 17.4		801
/1981j	1981	08	02.28005	22	43	35.89	-04 23 51.7		801
/1981j	1981	08	05.70052	22	42	54.62	-03 52 47.0	18.5T	372
/1981j	1981	08	24.94757	22	32	35.88	-00 55 21.1	16.8T	046
/1981j	1981	08	24.96169	22	32	35.12	-00 55 13.2		046
/1981j	1981	08	28.93497	22	29	15.13	-00 18 13.8		046
/1981j	1981	08	28.94914	22	29	14.31	-00 18 04.6		046
/1981j	1981	09	01.54107	22	25	59.61	+00 15 27.3	17 T	381
/1981j	1981	09	06.90943	22	20	52.41	+01 05 27.1	16.5T	046
/1981j	1981	09	06.92378	22	20	51.39	+01 05 32.5		046

Periodic Comet Howell

/1981k	1981	08	29.35347	00	37	37.69	-07 34 32.1	15 T	675
/1981k	1981	08	31.43472	00	36	24.18	-07 44 51.5		675
/1981k	1981	09	01.66142	00	35	37.36	-07 50 47.6	15 N	474
/1981k	1981	09	01.68330	00	35	36.37	-07 50 55.1		474
/1981k	1981	09	02.45000	00	35	06.17	-07 54 56.6		675
/1981k	1981	09	02.73097	00	34	54.56	-07 56 11.2	15 N	474
/1981k	1981	09	03.29306	00	34	32.21	-07 59 14.1		688
/1981k	1981	09	03.33403	00	34	30.41	-07 59 26.0		688
/1981k	1981	09	04.43403	00	33	43.46	-08 04 53.6		675
/1981k	1981	09	05.04730	00	33	16.75	-08 07 59.3	13.5T	046
/1981k	1981	09	05.06166	00	33	16.20	-08 08 04.4		046
/1981k	1981	09	05.23556	00	33	08.82	-08 08 54.2		801
/1981k	1981	09	06.53517	00	32	10.05	-08 15 09.6	15 N	474
/1981k	1981	09	06.54832	00	32	09.57	-08 15 12.6		474
/1981k	1981	09	07.20690	00	31	39.18	-08 18 41.6		801
/1981k	1981	09	09.28754	00	29	59.60	-08 28 45.5		675
/1981k	1981	09	10.25698	00	29	11.89	-08 33 22.8	6	675
/1981k	1981	09	10.50560	00	28	58.79	-08 34 33.5		675
/1981k	1981	09	20.28580	00	20	21.07	-09 15 40.5		675
/1981k	1981	09	21.34865	00	19	22.95	-09 19 22.9		675

Note 1: faint or weak image. 2: well-condensed image with coma. 3: clouds; weak image. 4: weak image; inkdot measured. 5: ends of trails; re-measurements of positions on MPC 6147. 6: inferior quality.

* * * * *

OBSERVATIONS MADE WITH THE 0.90-M SCHMIDT TELESCOPE AT CAUSSOLS BY C. POLLAS. MEASURED BY M. ROUSSEAU. COMMUNICATED BY J.-L. HEUDIER.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1981 QA	1981	08 25.87799	20 26 17.93	+01 41 05.7	13.5	010
1981 QA	1981	08 25.89881	20 26 21.65	+01 40 22.9		010

OBSERVATIONS MADE AT NICE BY B. MILET.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
2	1976	01 08.74759	00 02 51.67	-14 22 51.0	020
2	1976	01 08.74829	00 02 51.72	-14 22 50.3	020
2	1976	01 08.74898	00 02 51.79	-14 22 50.7	020
2	1976	01 09.74152	00 03 54.00	-14 18 45.1	020
2	1976	01 09.74222	00 03 54.04	-14 18 45.2	020
2	1976	01 09.74291	00 03 54.05	-14 18 44.7	020

2		1976	01	21.75371	00	17	21.61	-13 23 03.4	020
2		1976	01	21.75434	00	17	21.68	-13 23 03.1	020
2		1976	01	21.75521	00	17	21.70	-13 23 03.0	020
2		1976	01	26.75350	00	23	24.75	-12 56 57.5	020
2		1976	01	26.75420	00	23	24.79	-12 56 57.1	020
2		1976	01	26.75489	00	23	24.82	-12 56 56.9	020
3		1976	03	30.86675	10	24	31.64	+08 48 33.5	020
3		1976	03	30.86744	10	24	31.64	+08 48 34.1	020
3		1976	03	30.86813	10	24	31.63	+08 48 34.0	020
3		1976	04	02.88810	10	23	28.80	+09 08 43.6	020
3		1976	04	02.88879	10	23	28.80	+09 08 44.1	020
3		1976	04	02.88949	10	23	28.78	+09 08 43.7	020
3		1976	05	05.89057	10	25	53.77	+10 59 59.9	020
3		1976	05	05.89219	10	25	53.83	+10 59 59.7	020
3		1976	06	08.87040	10	49	29.43	+10 02 51.0	020
3		1976	06	08.87213	10	49	29.55	+10 02 48.0	020
4		1976	01	08.75075	00	13	47.17	-05 54 22.4	020
4		1976	01	08.75140	00	13	47.21	-05 54 22.3	020
4		1976	01	08.75210	00	13	47.31	-05 54 21.7	020
4		1976	01	09.74424	00	14	57.33	-05 44 17.5	020
4		1976	01	09.74476	00	14	57.39	-05 44 17.0	020
4		1976	01	09.74527	00	14	57.43	-05 44 16.6	020
4		1976	01	21.75677	00	29	48.35	-03 39 47.1	020
4		1976	01	21.75746	00	29	48.45	-03 39 47.3	020
4		1976	01	21.75816	00	29	48.46	-03 39 47.1	020
4		1976	01	26.75662	00	36	20.41	-02 46 52.5	020
4		1976	01	26.75731	00	36	20.47	-02 46 51.9	020
4		1976	01	26.75801	00	36	20.53	-02 46 51.1	020
4		1976	12	23.94337	07	36	45.07	+21 48 15.9	020
4		1976	12	23.94423	07	36	45.07	+21 48 16.0	020
4		1976	12	23.94562	07	36	44.99	+21 48 15.9	020
6		1976	11	17.72136	00	04	58.05	-21 08 21.0	020
6		1976	11	17.72217	00	04	58.09	-21 08 21.6	020
6		1976	11	17.72297	00	04	58.13	-21 08 20.4	020
6		1976	11	19.72629	00	06	09.89	-20 51 19.0	020
6		1976	11	19.72710	00	06	09.95	-20 51 18.0	020
6		1976	11	19.72790	00	06	09.94	-20 51 17.1	020
6		1976	12	23.72700	00	40	35.62	-14 11 47.5	020
6		1976	12	23.72798	00	40	35.70	-14 11 47.3	020
6		1976	12	23.72902	00	40	35.79	-14 11 46.4	020
6		1976	12	23.73000	00	40	35.86	-14 11 45.6	020
7		1976	11	17.70907	20	43	25.72	-12 39 14.2	020
7		1976	11	17.71045	20	43	25.87	-12 39 14.4	020
7		1976	11	19.71538	20	46	41.94	-12 28 51.3	020
7		1976	11	19.71676	20	46	42.04	-12 28 51.3	020
9		1976	01	09.82769	04	36	57.47	+25 13 29.5	020
9		1976	01	09.82873	04	36	57.46	+25 13 29.4	020
9		1976	01	21.79907	04	34	53.64	+25 31 17.8	020
9		1976	01	21.80081	04	34	53.68	+25 31 17.6	020
9		1976	01	26.79685	04	35	41.02	+25 39 47.9	020
9		1976	01	26.79806	04	35	41.01	+25 39 47.8	020
9		1976	02	26.78983	04	59	26.56	+26 43 11.7	020
9		1976	02	26.79098	04	59	26.64	+26 43 12.3	020
10		1976	01	08.94056	05	58	00.96	+24 14 15.4	020
10		1976	01	08.94209	05	58	00.85	+24 14 15.1	020
10		1976	01	09.83963	05	57	17.93	+24 13 24.6	020
10		1976	01	09.84085	05	57	17.91	+24 13 24.0	020
10		1976	01	21.89049	05	48	51.23	+24 01 08.7	020
10		1976	01	21.89222	05	48	51.15	+24 01 07.9	020

10	1976	02	26.79341	05	41	49.59	+23	28	58.1	020
10	1976	02	26.79531	05	41	49.38	+23	28	58.1	020
10	1976	03	30.80944	05	59	22.76	+23	12	06.5	020
10	1976	03	30.81117	05	59	22.84	+23	12	06.7	020
10	1976	04	02.83247	06	01	53.45	+23	10	26.8	020
10	1976	04	02.83385	06	01	53.54	+23	10	27.0	020
11	1976	03	30.85584	09	44	25.97	+17	23	46.7	020
11	1976	03	30.85757	09	44	25.93	+17	23	46.7	020
11	1976	04	02.87766	09	43	42.03	+17	27	43.7	020
11	1976	04	02.87916	09	43	42.00	+17	27	43.8	020
11	1976	05	05.87805	09	50	55.00	+16	45	34.8	020
11	1976	05	05.87978	09	50	55.01	+16	45	34.3	020
12	1976	01	08.78407	01	45	55.89	+11	27	59.1	020
12	1976	01	08.78615	01	45	56.01	+11	27	59.0	020
12	1976	01	09.78017	01	46	48.09	+11	29	46.4	020
12	1976	01	09.78245	01	46	48.16	+11	29	47.3	020
12	1976	01	21.76964	01	58	37.25	+12	00	45.7	020
12	1976	01	21.77206	01	58	37.29	+12	00	47.1	020
12	1976	01	26.77676	02	04	03.55	+12	18	02.4	020
12	1976	01	26.77919	02	04	03.72	+12	18	03.2	020
13	1976	03	30.89237	11	00	43.94	+29	18	09.1	020
13	1976	03	30.89376	11	00	43.84	+29	18	08.9	020
13	1976	04	02.91289	10	58	30.57	+28	58	08.6	020
13	1976	04	02.91428	10	58	30.52	+28	58	08.6	020
13	1976	05	05.89536	10	52	03.49	+23	27	53.1	020
13	1976	05	05.89692	10	52	03.53	+23	27	51.9	020
13	1976	06	08.87542	11	13	23.09	+16	11	08.1	020
13	1976	06	08.87749	11	13	23.28	+16	11	06.0	020
16	1976	01	08.80557	04	25	20.87	+17	26	20.2	020
16	1976	01	08.80713	04	25	20.86	+17	26	20.6	020
16	1976	01	09.81661	04	25	00.17	+17	27	09.8	020
16	1976	01	09.81782	04	25	00.15	+17	27	10.4	020
16	1976	01	21.79388	04	23	03.24	+17	42	29.6	020
16	1976	01	21.79561	04	23	03.21	+17	42	31.5	020
16	1976	01	26.79356	04	23	23.90	+17	51	42.9	020
16	1976	01	26.79494	04	23	23.91	+17	51	43.3	020
16	1976	02	26.78388	04	39	08.39	+19	13	21.7	020
16	1976	02	26.78544	04	39	08.47	+19	13	22.4	020
17	1976	02	26.97122	09	32	26.46	+18	00	22.8	020
17	1976	02	26.97295	09	32	26.37	+18	00	23.5	020
17	1976	03	30.83974	09	15	10.18	+19	54	06.4	020
17	1976	03	30.84182	09	15	10.13	+19	54	06.4	020
17	1976	04	02.86167	09	15	04.33	+19	55	49.8	020
17	1976	04	02.86352	09	15	04.31	+19	55	49.6	020
18	1976	03	30.86011	10	09	48.32	+14	57	21.6	020
18	1976	03	30.86173	10	09	48.25	+14	57	22.0	020
18	1976	04	02.88158	10	08	41.21	+15	09	50.4	020
18	1976	04	02.88314	10	08	41.18	+15	09	51.5	020
18	1976	05	05.88255	10	11	36.20	+15	40	13.2	020
18	1976	05	05.88428	10	11	36.23	+15	40	13.0	020
19	1976	02	26.93503	08	22	02.04	+17	01	04.4	020
19	1976	02	26.93607	08	22	01.97	+17	01	04.7	020
19	1976	03	30.82814	08	20	11.31	+17	38	13.4	020
19	1976	03	30.82964	08	20	11.36	+17	38	12.1	020
19	1976	04	02.85053	08	21	31.93	+17	36	25.3	020
19	1976	04	02.85203	08	21	31.96	+17	36	24.8	020
20	1976	12	23.94337	07	46	35.39	+19	54	14.8	020
20	1976	12	23.94423	07	46	35.31	+19	54	15.1	020
20	1976	12	23.94562	07	46	35.27	+19	54	14.8	020

22	1976	11	18.00635	04	12	11.02	+19	12	10.2	020
22	1976	11	18.01224	04	12	10.62	+19	12	12.2	020
22	1976	12	23.80855	03	39	21.26	+20	54	20.6	020
22	1976	12	23.80959	03	39	21.23	+20	54	19.9	020
22	1976	12	23.81940	03	39	20.89	+20	54	21.3	020
22	1976	12	23.83014	03	39	20.55	+20	54	24.2	020
23	1976	01	08.75752	00	05	02.56	-07	16	30.4	020
23	1976	01	08.75960	00	05	02.72	-07	16	29.4	020
23	1976	01	09.75073	00	06	01.15	-07	06	27.1	020
23	1976	01	09.75316	00	06	01.37	-07	06	23.7	020
26	1976	11	17.97431	03	31	42.60	+20	02	15.0	020
26	1976	11	17.97864	03	31	42.31	+20	02	14.6	020
27	1976	01	08.77143	00	33	49.44	+02	07	16.1	020
27	1976	01	08.77316	00	33	49.59	+02	07	18.0	020
27	1976	01	09.76536	00	35	11.40	+02	16	55.6	020
27	1976	01	09.76727	00	35	11.57	+02	16	56.6	020
29	1976	03	30.83974	09	17	58.14	+19	01	21.2	020
29	1976	03	30.84182	09	17	58.14	+19	01	21.4	020
29	1976	04	02.86167	09	17	53.75	+18	52	02.8	020
29	1976	04	02.86352	09	17	53.72	+18	52	03.7	020
34	1976	11	17.87164	02	13	32.48	+08	05	32.7	020
34	1976	11	17.87753	02	13	32.22	+08	05	30.9	020
34	1976	11	19.91605	02	12	04.41	+07	56	30.4	020
34	1976	11	19.92193	02	12	04.16	+07	56	28.6	020
39	1976	03	30.92942	12	04	47.32	+06	38	31.6	020
39	1976	03	30.93081	12	04	47.26	+06	38	32.0	020
39	1976	04	02.94789	12	02	35.57	+06	58	59.9	020
39	1976	04	02.94928	12	02	35.50	+06	59	00.4	020
39	1976	05	05.93968	11	46	47.29	+09	12	18.7	020
39	1976	05	05.94124	11	46	47.27	+09	12	19.2	020
42	1976	01	08.78972	02	46	14.06	+11	57	25.9	020
42	1976	01	08.79180	02	46	14.11	+11	57	26.6	020
42	1976	01	09.78510	02	46	32.91	+12	03	21.4	020
42	1976	01	09.78700	02	46	32.94	+12	03	21.8	020
42	1976	01	21.78038	02	52	15.38	+13	18	57.0	020
42	1976	01	21.78280	02	52	15.46	+13	18	57.2	020
42	1976	01	26.78444	02	55	35.90	+13	52	18.0	020
42	1976	01	26.78657	02	55	36.01	+13	52	19.6	020
43	1976	11	18.06989	05	53	28.56	+24	12	35.0	020
43	1976	11	18.07197	05	53	28.48	+24	12	34.5	020
43	1976	12	23.87411	05	14	09.48	+23	03	38.9	020
43	1976	12	23.87561	05	14	09.40	+23	03	38.6	020
51	1976	11	17.80966	01	14	09.83	-01	36	55.2	020
51	1976	11	17.81139	01	14	09.83	-01	36	54.9	020
51	1976	11	19.85164	01	13	20.29	-01	42	54.8	020
51	1976	11	19.85337	01	13	20.28	-01	42	55.2	020
51	1976	12	23.75032	01	15	39.40	-01	10	46.7	020
51	1976	12	23.75352	01	15	39.48	-01	10	45.9	020
52	1976	11	18.01951	04	18	42.31	+10	43	52.4	020
52	1976	11	18.02106	04	18	42.25	+10	43	53.0	020
52	1976	12	23.83810	03	51	11.87	+10	36	12.8	020
52	1976	12	23.84122	03	51	11.74	+10	36	13.7	020
61	1976	02	26.94456	08	47	12.42	+26	07	16.8	020
61	1976	02	26.95494	08	47	11.95	+26	07	15.0	020
77	1976	12	23.95197	07	04	28.96	+26	43	09.7	020
77	1976	12	23.95958	07	04	28.52	+26	43	10.6	020
78	1976	11	18.04028	04	43	21.23	+37	16	11.2	020
78	1976	11	18.04203	04	43	21.09	+37	16	11.6	020
80	1976	11	17.80118	01	09	09.68	+07	51	28.2	020

80	1976	11	17.80395	01	09	09.63	+07	51	27.5	020
80	1976	11	19.84200	01	09	13.26	+07	36	40.0	020
80	1976	11	19.84466	01	09	13.26	+07	36	38.9	020
85	1976	03	30.92406	11	57	58.86	-06	02	11.0	020
85	1976	03	30.92648	11	57	58.74	-06	02	08.8	020
85	1976	04	02.94304	11	55	41.08	-05	36	13.6	020
85	1976	04	02.94592	11	55	40.99	-05	36	11.9	020
91	1976	02	26.91616	08	00	47.17	+23	22	34.9	020
91	1976	02	26.92690	08	00	46.93	+23	22	36.3	020
94	1976	02	26.96672	09	00	17.34	+25	20	56.4	020
94	1976	02	26.97745	09	00	16.93	+25	20	56.4	020
98	1976	11	17.76395	00	41	24.36	+18	33	29.3	020
98	1976	11	17.76707	00	41	24.25	+18	33	29.2	020
98	1976	11	19.78654	00	40	23.56	+18	27	46.2	020
98	1976	11	19.78966	00	40	23.40	+18	27	45.1	020
106	1976	11	18.08415	06	05	50.43	+25	24	49.6	020
106	1976	11	18.08703	06	05	50.33	+25	24	50.9	020
133	1976	12	23.77127	03	23	03.32	+28	00	09.1	020
133	1976	12	23.78200	03	23	03.00	+28	00	07.7	020
134	1976	11	17.95821	03	19	51.79	+38	12	01.7	020
134	1976	11	17.96063	03	19	51.59	+38	12	01.4	020
134	1976	11	19.99517	03	17	25.23	+38	08	25.7	020
134	1976	11	19.99725	03	17	25.07	+38	08	25.8	020
147	1976	11	19.84200	01	01	32.04	+08	23	07.4	020
147	1976	11	19.84466	01	01	31.94	+08	23	05.6	020
163	1976	11	17.82818	01	25	34.51	+01	29	52.1	020
163	1976	11	17.83044	01	25	34.44	+01	29	52.0	020
163	1976	11	19.87484	01	24	37.69	+01	25	15.9	020
163	1976	11	19.87726	01	24	37.59	+01	25	15.6	020
175	1976	11	17.92912	02	48	39.85	+18	37	48.8	020
175	1976	11	17.93224	02	48	39.65	+18	37	49.1	020
175	1976	11	19.97959	02	47	01.24	+18	32	11.6	020
175	1976	11	19.98253	02	47	01.08	+18	32	11.5	020
181	1976	11	18.06568	05	22	57.42	-05	06	16.6	020
181	1976	11	18.06729	05	22	57.32	-05	06	17.2	020
181	1976	12	23.86649	04	55	25.77	-04	25	50.7	020
181	1976	12	23.86823	04	55	25.69	-04	25	49.4	020
192	1976	03	30.91003	11	24	13.90	+01	06	20.3	020
192	1976	03	30.91211	11	24	13.78	+01	06	20.5	020
192	1976	04	02.92977	11	21	43.89	+01	17	58.1	020
192	1976	04	02.93162	11	21	43.77	+01	17	58.5	020
192	1976	05	05.92583	11	06	33.81	+02	24	02.4	020
192	1976	05	05.92826	11	06	33.81	+02	24	02.8	020
195	1976	02	26.96672	09	01	57.10	+24	54	31.8	020
195	1976	02	26.97745	09	01	56.60	+24	54	31.9	020
200	1976	01	08.92448	04	31	41.63	+31	14	02.0	020
200	1976	01	08.92598	04	31	41.61	+31	14	01.0	020
200	1976	01	09.82388	04	31	21.58	+31	09	26.9	020
200	1976	01	09.82544	04	31	21.54	+31	09	26.2	020
201	1976	11	17.98314	03	43	24.68	+10	12	39.9	020
201	1976	11	17.98487	03	43	24.59	+10	12	40.3	020
201	1976	12	23.88604	03	18	08.41	+09	33	55.2	020
201	1976	12	23.88750	03	18	08.34	+09	33	56.2	020
230	1976	02	26.94894	08	48	08.97	+02	09	03.4	020
230	1976	02	26.95056	08	48	08.93	+02	09	03.6	020
230	1976	03	30.83206	08	39	31.95	+05	02	43.7	020
230	1976	03	30.83374	08	39	31.94	+05	02	43.4	020
230	1976	04	02.85448	08	40	17.82	+05	14	24.9	020
230	1976	04	02.85596	08	40	17.86	+05	14	26.5	020

245	1976	11	17.93934	03	00	37.11	+15	24	21.2	020
245	1976	11	17.94211	03	00	36.98	+15	24	20.6	020
245	1976	11	19.98634	02	58	53.05	+15	22	34.2	020
245	1976	11	19.98894	02	58	52.92	+15	22	33.5	020
258	1976	11	17.77295	00	51	55.46	+03	47	56.9	020
258	1976	11	17.77469	00	51	55.41	+03	47	56.9	020
258	1976	11	19.79260	00	52	08.39	+03	32	36.9	020
258	1976	11	19.79416	00	52	08.41	+03	32	35.8	020
287	1976	11	17.82351	01	19	06.96	-07	15	13.3	020
287	1976	11	17.82524	01	19	06.92	-07	15	13.5	020
287	1976	11	19.86739	01	18	16.72	-07	13	22.4	020
287	1976	11	19.86895	01	18	16.74	-07	13	22.2	020
292	1976	11	17.92912	02	39	34.18	+17	38	26.8	020
292	1976	11	17.93224	02	39	33.97	+17	38	28.1	020
292	1976	11	19.97959	02	37	21.89	+17	41	08.2	020
292	1976	11	19.98253	02	37	21.73	+17	41	07.9	020
306	1976	12	23.85323	04	27	16.00	+11	13	34.0	020
306	1976	12	23.85680	04	27	15.82	+11	13	35.0	020
324	1976	03	30.91575	11	41	38.92	-07	26	32.8	020
324	1976	03	30.91817	11	41	38.83	-07	26	31.9	020
324	1976	04	02.93450	11	39	14.31	-07	13	55.1	020
324	1976	04	02.93693	11	39	14.23	-07	13	54.5	020
324	1976	05	05.93455	11	21	32.45	-05	16	24.1	020
324	1976	05	05.93674	11	21	32.32	-05	16	24.0	020
344	1976	11	18.04790	04	44	50.94	+31	37	27.9	020
344	1976	11	18.05033	04	44	50.81	+31	37	27.8	020
349	1976	11	17.71270	21	43	45.45	-20	39	16.4	020
349	1976	11	17.71443	21	43	45.57	-20	39	16.6	020
349	1976	11	19.71988	21	45	38.31	-20	22	48.4	020
349	1976	11	19.72144	21	45	38.42	-20	22	47.7	020
354	1976	01	09.75670	00	19	09.89	-14	03	52.1	020
354	1976	01	09.75861	00	19	10.02	-14	03	50.7	020
378	1976	11	17.81451	01	15	53.33	+11	39	35.9	020
378	1976	11	17.81762	01	15	53.22	+11	39	35.6	020
378	1976	11	19.86006	01	15	16.88	+11	27	07.3	020
378	1976	11	19.86307	01	15	16.75	+11	27	05.1	020
379	1976	11	18.07745	05	54	38.13	+21	04	22.0	020
379	1976	11	18.08045	05	54	38.01	+21	04	20.9	020
383	1976	12	23.95197	07	11	01.92	+23	02	17.6	020
383	1976	12	23.95958	07	11	01.52	+23	02	18.6	020
384	1976	02	26.96672	08	56	05.71	+26	42	40.5	020
384	1976	02	26.97745	08	56	05.21	+26	42	40.4	020
389	1976	11	17.72551	00	05	53.08	+12	37	23.1	020
389	1976	11	17.72794	00	05	53.02	+12	37	22.8	020
389	1976	11	19.73044	00	05	46.52	+12	28	18.0	020
389	1976	11	19.73269	00	05	46.48	+12	28	17.1	020
389	1976	12	23.73301	00	18	17.51	+11	28	14.2	020
389	1976	12	23.73578	00	18	17.64	+11	28	14.0	020
407	1976	11	17.96444	03	24	00.90	+29	38	37.2	020
407	1976	11	17.96687	03	24	00.73	+29	38	36.4	020
407	1976	11	20.00020	03	21	56.75	+29	27	19.3	020
407	1976	11	20.00263	03	21	56.55	+29	27	18.2	020
410	1976	12	23.95197	07	08	28.81	+23	49	40.3	020
410	1976	12	23.95958	07	08	28.33	+23	49	41.8	020
419	1976	11	17.94678	03	09	46.14	+17	29	22.5	020
419	1976	11	17.95128	03	09	45.86	+17	29	21.1	020
422	1976	11	17.99232	04	03	45.80	+28	27	52.7	020
422	1976	11	17.99803	04	03	45.35	+28	27	52.5	020
422	1976	12	23.77127	03	28	39.90	+26	47	16.1	020

422	1976	12	23.78200	03	28	39.58	+26	47	14.8	020
425	1976	03	30.87246	10	23	26.97	+16	13	11.3	020
425	1976	03	30.87766	10	23	26.86	+16	13	10.4	020
425	1976	04	02.89333	10	22	13.56	+16	14	07.1	020
425	1976	04	02.89852	10	22	13.42	+16	14	08.3	020
471	1976	11	18.03659	04	34	28.51	+12	16	36.7	020
471	1976	11	18.03798	04	34	28.41	+12	16	36.8	020
471	1976	12	23.86280	04	00	50.48	+16	09	12.0	020
471	1976	12	23.86361	04	00	50.47	+16	09	12.5	020
471	1976	12	23.86442	04	00	50.45	+16	09	12.7	020
480	1976	12	23.90251	06	56	28.33	-01	06	41.6	020
480	1976	12	23.90562	06	56	28.16	-01	06	42.8	020
486	1976	12	23.95197	07	08	50.24	+24	31	52.0	020
486	1976	12	23.95958	07	08	49.75	+24	31	54.9	020
490	1976	11	17.82818	01	28	49.85	+01	16	43.6	020
490	1976	11	17.83044	01	28	49.91	+01	16	43.0	020
490	1976	11	19.87484	01	28	02.72	+01	10	40.6	020
490	1976	11	19.87726	01	28	02.68	+01	10	39.8	020
510	1976	12	23.85323	04	26	43.30	+10	42	35.0	020
510	1976	12	23.85680	04	26	43.16	+10	42	35.4	020
517	1976	11	17.97431	03	35	29.32	+22	41	28.6	020
517	1976	11	17.97864	03	35	29.05	+22	41	28.1	020
532	1976	01	08.77634	00	46	12.55	-12	27	27.5	020
532	1976	01	08.77841	00	46	12.69	-12	27	26.8	020
532	1976	01	09.77021	00	46	51.47	-12	18	25.7	020
532	1976	01	09.77246	00	46	51.52	-12	18	24.7	020
532	1976	01	21.76410	00	55	39.31	-10	26	42.8	020
532	1976	01	21.76652	00	55	39.43	-10	26	42.1	020
532	1976	01	26.77134	00	59	49.32	-09	38	58.4	020
532	1976	01	26.77365	00	59	49.48	-09	38	57.9	020
532	1976	12	23.87827	05	36	00.25	+14	12	13.8	020
532	1976	12	23.87977	05	36	00.17	+14	12	14.4	020
541	1976	11	18.05465	04	55	21.45	+25	29	06.7	020
541	1976	11	18.05898	04	55	21.27	+25	29	04.6	020
570	1976	12	23.80855	03	38	41.00	+18	35	20.5	020
570	1976	12	23.80959	03	38	41.00	+18	35	22.2	020
570	1976	12	23.81940	03	38	40.75	+18	35	20.4	020
570	1976	12	23.83014	03	38	40.45	+18	35	19.1	020
613	1976	11	17.91891	02	22	34.90	+23	59	39.1	020
613	1976	11	17.92393	02	22	34.66	+23	59	38.3	020
613	1976	11	19.96626	02	20	53.05	+23	52	43.9	020
613	1976	11	19.97145	02	20	52.80	+23	52	42.9	020
639	1976	11	17.91891	02	26	08.32	+25	30	44.0	020
639	1976	11	17.92393	02	26	08.05	+25	30	42.6	020
639	1976	11	19.96626	02	24	37.48	+25	17	08.1	020
639	1976	11	19.97145	02	24	37.31	+25	17	06.6	020
645	1976	12	23.77127	03	39	19.18	+29	46	01.4	020
645	1976	12	23.78200	03	39	18.92	+29	45	59.4	020
700	1976	02	26.94456	08	36	27.20	+27	00	56.2	020
700	1976	02	26.95494	08	36	26.75	+27	00	58.6	020
712	1976	11	17.94678	03	11	30.67	+16	57	11.2	020
712	1976	11	17.95128	03	11	30.40	+16	57	07.7	020
718	1976	11	17.97431	03	29	55.72	+21	52	57.6	020
718	1976	11	17.97864	03	29	55.64	+21	52	56.5	020
729	1976	02	26.91616	07	56	57.57	+23	38	46.9	020
729	1976	02	26.92690	07	56	57.24	+23	38	50.9	020
731	1976	11	17.88722	01	36	41.40	+06	44	25.8	020
731	1976	11	17.89311	01	36	41.12	+06	44	26.4	020
731	1976	11	19.92920	01	35	29.65	+06	47	01.0	020

731	1976 11 19.93533	01 35 29.43	+06 47 02.9				020
760	1976 11 18.02459	04 31 32.43	+40 02 08.7				020
760	1976 11 18.02782	04 31 32.23	+40 02 08.9				020
766	1976 11 17.74231	00 32 20.59	+07 55 06.5				020
766	1976 11 17.74646	00 32 20.47	+07 55 08.1				020
766	1976 11 19.74724	00 31 47.49	+07 55 32.2				020
766	1976 11 19.75157	00 31 47.45	+07 55 32.8				020
770	1976 11 18.05465	05 01 04.49	+26 01 23.2				020
770	1976 11 18.05898	05 01 04.22	+26 01 23.7				020
819	1976 11 19.96626	02 33 16.49	+23 28 55.1				020
819	1976 11 19.97145	02 33 16.26	+23 28 55.9				020
848	1976 11 18.00635	04 13 27.86	+20 18 19.0				020
848	1976 11 18.01224	04 13 27.52	+20 18 20.0				020
925	1976 11 17.83615	01 19 45.53	+42 09 11.1				020
925	1976 11 17.83892	01 19 44.81	+42 09 12.2				020
944	1976 11 17.75460	00 37 52.70	+26 38 24.5				020
944	1976 11 17.75910	00 37 52.30	+26 38 29.0				020
944	1976 11 19.76317	00 35 02.78	+26 59 45.5				020
944	1976 11 19.76749	00 35 02.21	+26 59 48.5				020
980	1976 11 18.02459	04 32 04.17	+39 08 14.1				020
980	1976 11 18.02782	04 32 03.96	+39 08 12.9				020
980	1976 12 23.84745	03 56 44.31	+33 46 16.3				020
980	1976 12 23.84918	03 56 44.27	+33 46 12.7				020
1032	1976 11 18.00635	04 18 28.18	+18 25 50.8				020
1032	1976 11 18.01224	04 18 28.16	+18 25 51.1				020
1088	1976 11 17.93934	02 57 56.10	+16 02 54.9				020
1088	1976 11 17.94211	02 57 55.91	+16 02 55.5				020
1088	1976 11 19.98634	02 55 42.01	+16 09 11.5				020
1088	1976 11 19.98894	02 55 41.79	+16 09 12.1				020
1093	1976 11 17.85450	01 33 54.72	-07 23 40.8				020
1093	1976 11 17.86022	01 33 54.50	-07 23 38.6				020
1093	1976 11 19.89804	01 32 32.32	-07 07 22.8				020
1093	1976 11 19.90531	01 32 32.02	-07 07 19.5				020
1123	1976 02 26.94456	08 41 26.29	+27 50 02.9				020
1123	1976 02 26.95494	08 41 25.75	+27 50 04.4				020
1242	1976 02 26.96672	09 10 10.18	+24 07 04.1				020
1242	1976 02 26.97745	09 10 09.53	+24 07 03.8				020
1479	1976 11 17.99232	04 05 26.52	+29 51 35.7				020
1479	1976 11 17.99803	04 05 26.07	+29 51 34.6				020
1479	1976 12 23.77127	03 32 15.24	+29 23 35.7				020
1479	1976 12 23.78200	03 32 14.83	+29 23 37.0				020
1576	1976 11 18.00635	04 07 25.79	+19 26 17.0				020
1576	1976 11 18.01224	04 07 25.48	+19 26 16.3				020
1735	1976 11 19.74724	00 31 39.16	+08 56 38.1				020
1735	1976 11 19.75157	00 31 38.97	+08 56 40.5				020

OBSERVATIONS MADE AT ZIMMERWALD BY P. WILD.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1981 PG	*	1981 08 04.91736	20 52 04.87	-13 41 39.3		15	026
1981 PG		1981 08 04.99097	20 52 00.76	-13 41 47.4			026
1981 PG		1981 08 05.98472	20 51 07.08	-13 43 36.2			026
1981 PG		1981 08 26.93333	20 35 32.3	-14 23 18			026
1981 PG		1981 09 06.94618	20 32 23.5	-14 36 06			026
1981 QN	*	1981 08 27.05000	22 19 01.17	-00 15 23.3		16	026
1981 QN		1981 08 28.98958	22 17 20.84	-00 21 49.9			026
1981 QN		1981 08 29.89567	22 16 34.32	-00 25 05.7			026
1981 QN		1981 08 30.88663	22 15 43.13	-00 28 46.7			026
1981 QN		1981 09 06.98056	22 09 51.26	-00 59 09.2			026
1981 QO	*	1981 08 27.05000	22 39 45.67	-01 17 45.8		16.5	026

1981 QO	1981 08 28.98958	22 38 08.22	-01 25 23.6				026
1981 QO	1981 08 29.99514	22 37 16.96	-01 29 37.2				026
1981 QO	1981 08 30.88663	22 36 32.03	-01 33 25.2				026
1981 QO	1981 09 07.02639	22 30 29.25	-02 07 21.2				026

OBSERVATIONS MADE AT KLET BY A. MRKOS, Z. VAVROVA AND L. BROZEK.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
18	1981 08	07.01503	22 12 46.75	-08 12 53.3		046
18	1981 08	07.02916	22 12 46.24	-08 13 02.3		046
18	1981 08	08.98192	22 11 42.44	-08 35 04.8		046
18	1981 08	08.99604	22 11 41.92	-08 35 15.4		046
18	1981 08	11.03407	22 10 29.97	-08 59 14.9		046
18	1981 08	11.04843	22 10 29.39	-08 59 25.5		046
62	1981 07	31.98406	21 35 13.22	-15 04 25.9		046
62	1981 07	31.99847	21 35 12.60	-15 04 29.3		046
62	1981 08	04.96762	21 32 18.17	-15 21 48.4		046
62	1981 08	04.98191	21 32 17.46	-15 21 52.2		046
62	1981 08	06.94073	21 30 48.40	-15 30 34.9		046
62	1981 08	06.95497	21 30 47.73	-15 30 38.8		046
500	1981 07	04.92292	18 51 03.03	-25 15 00.3		046
500	1981 07	04.93750	18 51 02.09	-25 14 57.6		046
827	1981 08	24.86794	20 41 55.46	-14 33 27.7		046
827	1981 08	24.88385	20 41 54.92	-14 33 25.3		046
1165	1981 09	07.01580	23 57 10.43	+09 52 34.7		046
1165	1981 09	07.02998	23 57 09.86	+09 52 28.1		046
1165	1981 09	07.96234	23 56 35.87	+09 45 23.9		046
1165	1981 09	07.97652	23 56 35.36	+09 45 17.7		046
1415	1981 07	31.98406	21 31 53.85	-16 13 55.5		046
1415	1981 07	31.99847	21 31 53.07	-16 13 57.6		046
1415	1981 08	04.96762	21 27 44.70	-16 26 39.1		046
1415	1981 08	04.98191	21 27 43.60	-16 26 43.9		046
1415	1981 08	06.94073	21 25 38.32	-16 32 57.4		046
1415	1981 08	06.95497	21 25 37.45	-16 33 01.0		046
1520	1981 08	21.82939	21 48 03.72	+11 04 15.8		046
1520	1981 08	21.84073	21 48 03.16	+11 04 14.7		046
1611	1981 08	29.00794	23 07 29.14	+01 17 10.8		046
1611	1981 08	29.02206	23 07 28.39	+01 17 06.9		046
1737	1981 08	28.97206	23 08 46.62	-01 17 16.9		046
1737	1981 08	28.98635	23 08 45.92	-01 17 19.4		046
1737	1981 09	04.97647	23 03 06.53	-01 33 17.4		046
1737	1981 09	04.99076	23 03 05.85	-01 33 19.2		046
1837	1981 08	29.00794	22 59 18.14	+00 03 00.5		046
1837	1981 08	29.02206	22 59 17.08	+00 02 55.4		046
1857	1981 08	24.94757	22 29 35.81	-00 36 52.2		046
1857	1981 08	24.96169	22 29 34.95	-00 36 56.4		046
1857	1981 08	28.93497	22 25 52.39	-00 58 24.3		046
1857	1981 08	28.94914	22 25 51.52	-00 58 29.6		046
1878	1981 08	24.91250	22 19 35.03	-08 45 15.2		046
1878	1981 08	24.92668	22 19 34.44	-08 45 18.4		046
1878	1981 08	28.89787	22 16 25.18	-09 05 19.1		046
1878	1981 08	28.91205	22 16 24.61	-09 05 23.8		046
1933	1981 08	07.04953	22 21 03.58	-05 48 03.1		046
1933	1981 08	07.06365	22 21 03.04	-05 48 08.3		046
1933	1981 08	09.01647	22 19 48.07	-06 01 59.8		046
1933	1981 08	09.03065	22 19 47.69	-06 02 03.6		046
1933	1981 08	11.07094	22 18 24.20	-06 17 20.3		046
1933	1981 08	11.08512	22 18 23.54	-06 17 26.4		046
2078	1981 08	21.86515	20 13 26.46	+05 19 15.4		046
2078	1981 08	21.87655	20 13 25.54	+05 19 22.4		046

1973	QY1		1981	08	05.00581	21	58	32.64	-10	10	15.5	16.0	046
1973	QY1		1981	08	05.01993	21	58	32.40	-10	10	20.2		046
1973	QY1		1981	08	06.97834	21	57	33.23	-10	30	20.1		046
1973	QY1		1981	08	06.99264	21	57	32.69	-10	30	30.4		046
1973	QY1		1981	08	08.94778	21	56	29.56	-10	51	08.2		046
1973	QY1		1981	08	08.96190	21	56	29.15	-10	51	16.5		046
1973	QY1		1981	08	11.01179	21	55	18.83	-11	13	36.9		046
1973	QY1		1981	08	12.03779	21	54	42.48	-11	25	00.5		046
1973	QY1		1981	08	12.05203	21	54	41.96	-11	25	08.9		046
1977	PY1		1981	07	31.94575	21	39	19.63	-03	02	37.1	15.8	046
1977	PY1		1981	07	31.95993	21	39	18.95	-03	02	40.5		046
1977	PY1		1981	08	04.89963	21	36	22.65	-03	17	56.4		046
1977	PY1		1981	08	04.93741	21	36	20.73	-03	18	07.8		046
1977	PY1		1981	08	06.90184	21	34	49.12	-03	26	52.2		046
1977	PY1		1981	08	06.91595	21	34	48.44	-03	26	56.4		046
1977	PZ1		1981	08	05.00581	22	03	49.31	-08	49	04.2	15.8	046
1977	PZ1		1981	08	05.01993	22	03	48.58	-08	49	06.4		046
1977	PZ1		1981	08	06.99264	22	02	10.00	-08	47	51.8		046
1977	PZ1		1981	08	08.94778	22	00	28.62	-08	46	59.5		046
1977	PZ1		1981	08	08.96190	22	00	27.94	-08	46	59.1		046
1977	PZ1		1981	08	10.99756	21	58	39.55	-08	46	34.2		046
1977	PZ1		1981	08	11.01179	21	58	38.91	-08	46	35.2		046
1977	PZ1		1981	08	12.03779	21	57	42.92	-08	46	29.3		046
1977	PZ1		1981	08	12.05203	21	57	42.01	-08	46	28.5		046
1977	QL2		1981	08	29.00794	23	08	23.38	+00	21	28.6		046
1977	QL2		1981	08	29.02206	23	08	22.35	+00	21	22.1		046
1978	RO1		1981	08	24.91250	22	20	12.09	-09	17	06.0		046
1978	RO1		1981	08	24.92668	22	20	11.40	-09	17	10.4		046
1978	RO1		1981	08	28.89787	22	16	12.13	-09	41	09.5		046
1978	RO1		1981	08	28.91205	22	16	11.29	-09	41	15.5		046
1978	RO1		1981	09	05.91336	22	08	31.16	-10	27	30.2		046
1978	RO1		1981	09	05.92713	22	08	30.32	-10	27	34.9		046
1978	SP		1981	07	31.98406	21	32	09.73	-15	44	07.5	16.6	046
1978	SP		1981	07	31.99847	21	32	09.17	-15	44	08.7		046
1978	SP		1981	08	06.94073	21	27	15.20	-16	02	41.7		046
1978	SP		1981	08	06.95497	21	27	14.44	-16	02	43.2		046
1981	OK	*	1981	07	31.94575	21	35	08.88	-04	54	41.2	17	046
1981	OK		1981	07	31.95993	21	35	09.02	-04	54	45.8		046
1981	PF		1981	08	06.97834	22	01	53.26	-08	21	29.1	16.5	046
1981	PF		1981	08	06.99264	22	01	53.01	-08	21	42.9		046
1981	PF		1981	08	08.94778	22	01	21.88	-08	55	47.4		046
1981	PF		1981	08	08.96190	22	01	21.58	-08	56	01.4		046
1981	PF		1981	08	10.99756	22	00	44.81	-09	32	39.2		046
1981	PF		1981	08	11.01179	22	00	44.52	-09	32	53.0		046
1981	PF		1981	08	12.03779	22	00	24.52	-09	51	38.1		046
1981	PF		1981	08	12.05203	22	00	24.17	-09	51	55.3		046
1981	PG		1981	08	24.86794	20	36	36.36	-14	19	57.0		046
1981	PG		1981	08	24.88385	20	36	35.67	-14	19	59.2		046
1981	PN	*	1981	08	05.00581	21	56	10.48	-10	23	51.3	16.7	046
1981	PN		1981	08	05.01993	21	56	09.80	-10	24	02.5		046
1981	PN		1981	08	06.97834	21	55	02.23	-10	46	06.9		046
1981	PN		1981	08	06.99264	21	55	01.93	-10	46	15.6		046
1981	PN		1981	08	10.99756	21	52	33.40	-11	32	44.8		046
1981	PN		1981	08	11.01179	21	52	32.77	-11	32	52.5		046
1981	PN		1981	08	12.03779	21	51	53.00	-11	45	03.0		046
1981	PN		1981	08	12.05203	21	51	52.42	-11	45	14.2		046
1981	PO	*	1981	08	06.97834	21	56	57.08	-07	13	23.3	16.8	046
1981	PO		1981	08	06.99264	21	56	56.32	-07	13	34.5		046
1981	PP	*	1981	08	06.97834	21	59	18.83	-09	39	40.1	16.8	046

1981	PP		1981	08	06.99264	21	59	18.19	-09	39	47.4	046
1981	PP		1981	08	10.99756	21	56	20.75	-10	12	51.8	046
1981	PP		1981	08	11.01179	21	56	19.95	-10	12	59.2	046
1981	PP		1981	08	12.03779	21	55	32.24	-10	21	48.3	046
1981	PP		1981	08	12.05203	21	55	31.57	-10	21	55.4	046
1981	PQ	*	1981	08	07.01503	22	11	33.32	-08	34	16.8	16.4 046
1981	PQ		1981	08	07.02916	22	11	32.52	-08	34	23.2	046
1981	PQ		1981	08	08.98192	22	10	20.60	-08	43	56.5	046
1981	PQ		1981	08	08.99604	22	10	20.17	-08	43	59.7	046
1981	PQ		1981	08	11.03407	22	09	02.70	-08	54	19.0	046
1981	PQ		1981	08	11.04843	22	09	02.09	-08	54	24.8	046
1981	PR	*	1981	08	07.04953	22	13	43.69	-04	46	16.9	16.7 046
1981	PR		1981	08	07.06365	22	13	43.10	-04	46	18.8	1 046
1981	PS	*	1981	08	07.04953	22	17	47.87	-04	37	39.0	17.0 046
1981	PS		1981	08	07.06365	22	17	47.00	-04	37	39.5	046
1981	PS		1981	08	09.01647	22	15	56.06	-04	41	28.0	046
1981	PS		1981	08	09.03065	22	15	55.20	-04	41	30.2	046
1981	PS		1981	08	11.07094	22	13	55.09	-04	46	06.9	046
1981	PS		1981	08	11.08512	22	13	54.23	-04	46	10.4	046
1981	PT	*	1981	08	07.04953	22	25	06.57	-06	14	20.5	16.8 046
1981	PT		1981	08	07.06365	22	25	05.95	-06	14	22.5	046
1981	PT		1981	08	09.01647	22	23	41.46	-06	18	41.8	046
1981	PT		1981	08	09.03065	22	23	40.78	-06	18	43.7	046
1981	PT		1981	08	11.07094	22	22	08.87	-06	23	37.9	046
1981	PT		1981	08	11.08512	22	22	07.98	-06	23	42.3	046
1981	QA	*	1981	08	21.86515	20	13	22.49	+03	58	10.4	13.4 046
1981	QA		1981	08	21.87655	20	13	24.47	+03	57	47.8	046
1981	QA		1981	08	23.88413	20	19	45.04	+02	50	21.1	046
1981	QA		1981	08	24.84144	20	22	52.27	+02	17	20.8	046
1981	QA		1981	08	24.84936	20	22	53.75	+02	17	03.5	046
1981	QA		1981	08	28.82860	20	36	22.89	-00	04	32.2	14.5 046
1981	QA		1981	08	28.84278	20	36	25.58	-00	05	01.6	046
1981	QA		1981	09	04.81375	21	01	39.62	-04	16	49.1	046
1981	QA		1981	09	04.81821	21	01	40.60	-04	16	58.0	046
1981	QA		1981	09	05.85861	21	05	32.87	-04	53	30.0	046
1981	QA		1981	09	05.86307	21	05	33.76	-04	53	38.7	046
1981	QA		1981	09	07.86315	21	13	03.23	-06	02	14.9	046
1981	QA		1981	09	07.86622	21	13	03.98	-06	02	21.6	046
1981	QO		1981	09	04.94128	22	32	13.62	-01	56	58.8	16.4 046
1981	QO		1981	09	04.95564	22	32	12.83	-01	57	02.1	046
1981	QO		1981	09	05.94802	22	31	23.09	-02	01	54.8	046
1981	QO		1981	09	05.96214	22	31	22.27	-02	02	01.7	046
1981	QO		1981	09	06.94554	22	30	33.40	-02	06	55.7	046
1981	QO		1981	09	06.95990	22	30	32.71	-02	06	59.0	046
1981	QQ	*	1981	08	24.91250	22	18	02.77	-08	44	26.5	17.0 046
1981	QQ		1981	08	24.92668	22	18	02.09	-08	44	34.4	046
1981	QQ		1981	08	28.89787	22	15	14.78	-09	18	25.2	046
1981	QQ		1981	08	28.91205	22	15	13.95	-09	18	31.0	046
1981	QR	*	1981	08	24.91250	22	19	24.16	-10	19	27.5	16.8 046
1981	QR		1981	08	24.92668	22	19	23.40	-10	19	28.2	046
1981	QR		1981	08	28.89787	22	15	31.22	-10	24	52.4	046
1981	QR		1981	08	28.91205	22	15	30.45	-10	24	53.8	046
1981	QR		1981	09	05.91336	22	07	52.24	-10	34	34.3	046
1981	QR		1981	09	05.92713	22	07	51.46	-10	34	36.1	046
1981	QS	*	1981	08	24.91250	22	20	46.95	-08	48	29.6	17.2 046
1981	QS		1981	08	24.92668	22	20	46.16	-08	48	36.6	046
1981	QS		1981	08	28.89787	22	17	30.47	-09	21	40.6	046
1981	QS		1981	08	28.91205	22	17	29.74	-09	21	49.0	046
1981	QT	*	1981	08	24.91250	22	24	57.55	-07	58	37.2	17.0 046

1981	QT		1981	08	24.92668	22	24	56.48	-07	58	43.1		046
1981	QT		1981	08	28.89787	22	21	10.68	-08	16	52.3		046
1981	QT		1981	08	28.91205	22	21	09.83	-08	16	55.7		046
1981	QT		1981	09	04.90681	22	14	35.16	-08	49	24.6		046
1981	QT		1981	09	04.92110	22	14	34.16	-08	49	28.5		046
1981	QT		1981	09	05.91336	22	13	40.08	-08	54	00.4		046
1981	QT		1981	09	05.92713	22	13	39.40	-08	54	04.1		046
1981	QU	*	1981	08	24.91250	22	25	53.26	-10	23	32.3	17.0	046
1981	QU		1981	08	24.92668	22	25	52.44	-10	23	37.3		046
1981	QU		1981	08	28.89787	22	21	52.28	-10	47	59.4		046
1981	QU		1981	08	28.91205	22	21	51.26	-10	48	05.0		046
1981	QU		1981	09	04.90681	22	14	49.86	-11	29	50.6		046
1981	QU		1981	09	04.92110	22	14	48.99	-11	29	55.6		046
1981	QU		1981	09	05.91336	22	13	50.60	-11	35	39.2		046
1981	QU		1981	09	05.92713	22	13	49.79	-11	35	43.5		046
1981	QV	*	1981	08	24.94757	22	27	51.34	-00	03	18.8	17.6	046
1981	QV		1981	08	24.96169	22	27	50.47	-00	03	25.8		046
1981	QW	*	1981	08	24.94757	22	33	35.91	+00	56	06.4	17.0	046
1981	QW		1981	08	24.96169	22	33	35.14	+00	56	02.0		046
1981	QX	*	1981	08	24.94757	22	33	56.69	+00	05	26.3	16.6	046
1981	QX		1981	08	24.96169	22	33	56.11	+00	05	16.9		046
1981	QX		1981	08	28.93497	22	31	12.91	-00	45	20.5		046
1981	QX		1981	08	28.94914	22	31	12.26	-00	45	32.3		046
1981	QX		1981	09	04.94128	22	26	31.80	-02	17	10.0		046
1981	QX		1981	09	04.95564	22	26	31.38	-02	17	21.8		046
1981	QX		1981	09	05.94802	22	25	53.64	-02	30	22.7		046
1981	QX		1981	09	05.96214	22	25	53.07	-02	30	34.0		046
1981	QX		1981	09	06.94554	22	25	16.25	-02	43	28.3		046
1981	QX		1981	09	06.95990	22	25	15.73	-02	43	37.2		046
1981	QY	*	1981	08	28.93497	22	27	05.87	-00	49	49.1	17.4	046
1981	QY		1981	08	28.94914	22	27	05.08	-00	49	57.0		046
1981	QZ	*	1981	08	28.93497	22	27	23.65	+02	42	45.5	15.8	1 046
1981	QZ		1981	08	28.94914	22	27	22.98	+02	42	41.9		1 046
1981	QZ		1981	09	04.85571	22	21	36.17	+02	13	28.0		046
1981	QZ		1981	09	04.86986	22	21	35.52	+02	13	26.3		046
1981	QZ		1981	09	05.87696	22	20	46.07	+02	08	45.6		046
1981	QZ		1981	09	05.89125	22	20	45.29	+02	08	40.8		046
1981	QZ		1981	09	06.90943	22	19	55.68	+02	03	51.6		046
1981	QZ		1981	09	06.92378	22	19	54.93	+02	03	47.5		046
1981	QA1	*	1981	08	28.97206	23	10	24.19	-01	33	54.9	17.2	046
1981	QA1		1981	08	28.98635	23	10	23.58	-01	34	00.6		046
1981	QA1		1981	09	04.97647	23	04	55.54	-02	37	46.3		046
1981	QA1		1981	09	04.99076	23	04	54.90	-02	37	52.5		046
1981	QA1		1981	09	05.98407	23	04	06.48	-02	47	24.6		046
1981	QA1		1981	09	05.99831	23	04	05.52	-02	47	30.8		046
1981	QB1	*	1981	08	28.97206	23	11	40.26	-04	45	39.0	15.6	046
1981	QB1		1981	08	28.98635	23	11	39.61	-04	45	42.5		046
1981	QB1		1981	09	05.98407	23	05	46.01	-05	22	11.8		046
1981	QB1		1981	09	05.99831	23	05	45.42	-05	22	15.6		046
1981	QC1	*	1981	08	28.97206	23	13	01.98	-02	21	59.1	16.0	046
1981	QC1		1981	08	28.98635	23	13	01.55	-02	22	08.5		046
1981	QC1		1981	09	04.97647	23	08	47.66	-03	48	44.4		046
1981	QC1		1981	09	04.99076	23	08	47.01	-03	48	57.5		046
1981	QC1		1981	09	05.98407	23	08	09.50	-04	01	35.1		046
1981	QC1		1981	09	05.99831	23	08	08.95	-04	01	45.4		046
1981	QD1	*	1981	08	28.97206	23	13	28.31	-01	17	11.2	17.0	046
1981	QD1		1981	08	28.98635	23	13	27.84	-01	17	04.9		046
1981	QE1	*	1981	08	28.97206	23	15	04.68	-01	45	22.1	17.0	046
1981	QE1		1981	08	28.98635	23	15	03.80	-01	45	24.1		046

1981	QF1	*	1981	08	29.00794	23	00	53.98	-00	26	02.0	17.6	046
1981	QF1		1981	08	29.02206	23	00	53.17	-00	26	03.9		046
1981	QG1	*	1981	08	29.00794	23	01	31.57	+01	04	30.4	17.0	046
1981	QG1		1981	08	29.02206	23	01	31.11	+01	04	21.8		046
1981	QG1		1981	09	05.01218	22	56	51.90	-00	17	46.2		046
1981	QG1		1981	09	05.02647	22	56	51.30	-00	17	58.8		046
1981	QG1		1981	09	06.02169	22	56	10.23	-00	30	17.5		046
1981	QG1		1981	09	06.03604	22	56	09.69	-00	30	26.0		046
1981	QH1	*	1981	08	29.00794	23	03	20.06	+01	10	11.3	17.0	046
1981	QH1		1981	08	29.02206	23	03	19.19	+01	10	15.2		046
1981	QH1		1981	09	05.01218	22	55	49.92	+01	50	53.5		046
1981	QH1		1981	09	05.02647	22	55	49.01	+01	50	56.6		046
1981	QH1		1981	09	06.02169	22	54	44.26	+01	56	11.2		046
1981	QH1		1981	09	06.03604	22	54	43.49	+01	56	14.8		046
1981	QH1		1981	09	06.98137	22	53	41.85	+02	01	04.4		046
1981	QH1		1981	09	06.99554	22	53	40.95	+02	01	07.8		046
1981	RL	*	1981	09	04.85571	22	20	27.48	+02	15	51.0	17.0	046
1981	RL		1981	09	04.86986	22	20	26.73	+02	15	44.9		046
1981	RL		1981	09	05.87696	22	19	39.43	+02	08	21.5		046
1981	RL		1981	09	05.89125	22	19	38.89	+02	08	17.2		046
1981	RL		1981	09	06.90943	22	18	51.34	+02	00	42.8		046
1981	RL		1981	09	06.92378	22	18	50.66	+02	00	37.8		046
1981	RM	*	1981	09	05.01218	22	51	33.74	+01	27	10.9	16.8	046
1981	RM		1981	09	05.02647	22	51	32.91	+01	27	07.5		046
1981	RM		1981	09	06.02169	22	50	39.95	+01	22	33.0		046
1981	RM		1981	09	06.03604	22	50	39.15	+01	22	28.5		046
1981	RM		1981	09	06.98137	22	49	49.00	+01	18	04.1		046
1981	RM		1981	09	06.99554	22	49	48.16	+01	17	59.6		046
1981	RN	*	1981	09	07.01580	23	55	04.39	+10	12	36.1	17.0	046
1981	RN		1981	09	07.02998	23	55	03.67	+10	12	35.0		046
1981	RN		1981	09	07.96234	23	54	15.77	+10	11	30.4		046
1981	RN		1981	09	07.97652	23	54	15.13	+10	11	29.2		046
1981	RO	*	1981	09	07.01580	23	55	05.55	+07	48	50.5	17.2	046
1981	RO		1981	09	07.02998	23	55	04.97	+07	48	45.7		046
1981	RO		1981	09	07.96234	23	54	26.65	+07	43	19.6		046
1981	RO		1981	09	07.97652	23	54	25.84	+07	43	12.9		046
1981	RP	*	1981	09	07.01580	23	56	32.24	+09	49	26.0	17.4	046
1981	RP		1981	09	07.02998	23	56	31.34	+09	49	24.5		046
1981	RP		1981	09	07.96234	23	55	45.21	+09	47	44.5		046
1981	RP		1981	09	07.97652	23	55	44.40	+09	47	40.5		046
1981	RQ	*	1981	09	07.01580	00	03	47.64	+09	19	18.9	16.5	046
1981	RQ		1981	09	07.02998	00	03	46.82	+09	19	22.8		046
1981	RQ		1981	09	07.96234	00	02	54.10	+09	23	41.6		046
1981	RQ		1981	09	07.97652	00	02	53.00	+09	23	46.3		046

Note 1: near edge of plate.

OBSERVATIONS MADE AT TURKU. MEASURED BY M.-O. SNARE. COMMUNICATED BY L. OTERMA.

Object	Date	UT	R. A. (1950)	Decl.	N Obs.
1387	1942 11	05.91596	02 58 08.90	+12 55 29.1	1 062
1387	1942 11	05.94953	02 58 06.74	+12 55 11.7	1 062
1941 SV	1941 09	21.84098	00 27 50.39	+07 17 41.0	062
1941 SV	1941 09	21.87507	00 27 48.37	+07 17 28.3	062
1941 SV	1941 09	25.98507	00 23 43.92	+06 49 11.2	062
1942 GD	1942 05	04.95266	12 32 45.34	-05 14 39.2	062
1942 VP	1942 11	05.91596	02 56 55.60	+08 53 47.4	062
1942 VP	1942 11	05.94953	02 56 53.66	+08 53 26.5	062
1942 VQ	1942 11	05.91596	02 58 12.04	+08 18 26.2	062
1942 VQ	1942 11	05.94953	02 58 09.64	+08 18 20.1	062

1948	TA	1948	10	08.83819	22	47	53.55	-01	05	37.2		062
1948	TA	1948	10	08.88079	22	47	52.00	-01	05	41.1		062
1948	TJ	1948	10	09.87763	01	07	48.94	-02	01	16.5	2	062
1948	TJ	1948	10	09.91987	01	07	46.39	-02	01	14.1	2	062
1948	TJ	1948	10	09.95928	01	07	44.24	-02	01	14.7	2	062
1948	TJ	1948	10	09.99632	01	07	42.00	-02	01	13.5	2	062
1953	EM	1953	03	10.97307	12	22	46.44	+15	57	11.9		062
1953	EM	1953	03	11.92032	12	21	58.63	+16	02	51.9		062
1953	EM	1953	03	11.94891	12	21	57.12	+16	03	03.0		062
1953	EN	1953	03	10.97307	12	27	07.28	+15	51	49.8		062
1953	EN	1953	03	11.92032	12	26	22.08	+15	55	44.6		062
1953	EN	1953	03	11.94891	12	26	20.82	+15	55	52.1		062
1953	EO	1953	03	14.80719	09	36	33.26	+23	18	32.2		062
1953	EO	1953	03	18.82535	09	34	44.49	+23	31	05.9		062
1953	EO	1953	03	18.85391	09	34	43.87	+23	31	05.8		062
1953	TH	1953	10	13.93171	01	13	03.57	+21	26	13.2		062
1953	TH	1953	11	02.84265	00	53	53.67	+20	34	38.6		062
1953	TH	1953	11	12.89635	00	47	25.32	+19	57	41.0		062
1953	TH	1953	11	12.90098	00	47	25.07	+19	57	43.2		062
1953	TK	1953	10	13.93171	01	27	01.10	+21	07	13.0		062
1953	TK	1953	11	02.84965	01	07	45.11	+19	05	42.8		062
1953	TK	1953	11	12.90098	01	01	41.60	+17	59	15.6	3	062
1953	VK	1953	11	02.83106	01	17	42.92	+20	16	55.3		062
1953	VK	1953	11	02.86824	01	17	41.59	+20	16	35.8		062

Note 1: these positions supersede those on MPC 2411. 2: near edge of plate. 3: image very faint.

OBSERVATIONS MADE AT THE CRIMEAN ASTROPHYSICAL OBSERVATORY BY N. S. CHERNYKH, L. I. CHERNYKH, L. G. KARACHKINA, T. M. SMIRNOVA AND L. V. ZHURAVLEVA (ADDENDA TO THE 42ND AND 43RD REPORTS; PART OF THE 44TH REPORT).

Object		Date	UT	R. A. (1950)	Decl.	O - C	Mag.	N	Obs.
2397		1978 07	10.97216	20 01 01.94	-13 12 22.8		17.0		095
1978 NF4	*	1978 07	10.97216	20 11 57.19	-14 55 18.6		16.5		095
1978 TB2		1978 09	13.04984	01 34 10.10	+10 11 40.4		17.5	3	095
1978 SP4		1978 09	13.04984	01 35 22.93	+08 41 06.3		17.5	1	095
1978 RH6	*	1978 09	13.04984	01 41 12.14	+12 12 28.8		17.5		095
1978 RJ6	*	1978 09	13.04984	01 42 00.95	+06 57 24.2		17.5		095
1978 RK6	*	1978 09	13.04984	01 42 34.85	+12 12 30.8		17.5		095
1978 RL6	*	1978 09	13.04984	01 42 50.76	+09 52 54.4		16.5	2	095
1978 SB5		1978 09	13.04984	01 46 43.47	+08 09 33.0		17.5		095
1978 SG5		1978 09	13.04984	01 49 31.10	+10 09 52.4		16.5		095
1978 RM6	*	1978 09	13.04984	01 52 26.10	+12 41 12.3		17.5		095
1978 RN6	*	1978 09	13.04984	01 56 02.21	+07 25 03.1		17.5		095
1978 ST5		1978 09	13.04984	02 04 57.52	+10 17 49.7		16.2		095
1978 SR6	*	1978 09	26.95463	00 50 43.02	+09 10 00.5		17.0	1	095
1978 SS6	*	1978 09	26.95463	00 51 15.36	+09 05 03.5		16.2	1	095
1535		1978 09	26.95463	00 52 04.84	+15 20 19.2	0.1+ 1+		1	095
1978 RN5		1978 09	26.95463	00 54 19.76	+12 02 35.8		15.5		095
1978 ST6	*	1978 09	26.95463	00 54 49.21	+14 36 12.5		15.5		095
1978 SU6	*	1978 09	26.95463	00 54 49.87	+10 40 58.2		16.8		095
1978 SV6	*	1978 09	26.95463	00 55 06.33	+12 36 58.2		17.0		095
1978 SW6	*	1978 09	26.95463	00 56 02.06	+07 19 35.2		17.0	1	095
2071		1978 09	26.95463	00 56 15.64	+12 59 47.0	0.2+ 2+			095
1978 SX6	*	1978 09	26.95463	00 56 35.14	+13 36 17.4		16.8		095
1978 SY6	*	1978 09	26.95463	00 56 43.06	+11 59 31.2		16.8		095
1978 SZ6	*	1978 09	26.95463	00 56 53.36	+10 49 04.7		17.0		095
1978 SA7	*	1978 09	26.95463	00 57 51.62	+12 03 55.2		16.5		095
843		1978 09	26.95463	00 59 37.63	+08 11 52.8		16.0		095
1978 SB7	*	1978 09	26.95463	00 59 55.74	+10 43 06.0		17.0		095

1978	SC7	*	1978	09	26.95463	01	00	07.10	+10	01	02.4			16.8	095
1978	SD7	*	1978	09	26.95463	01	00	36.98	+10	07	58.4			17.0	095
1978	SE7	*	1978	09	26.95463	01	02	10.40	+11	49	28.6			17.2	095
1978	SF7	*	1978	09	26.95463	01	02	13.32	+14	21	02.2			16.0	4 095
1978	SG7	*	1978	09	26.95463	01	03	04.64	+09	52	33.4			17.0	095
1978	SH7	*	1978	09	26.95463	01	03	12.24	+11	38	19.0			17.0	095
1978	SJ7	*	1978	09	26.95463	01	03	52.19	+12	09	49.6			17.0	095
1978	SK7	*	1978	09	26.95463	01	05	00.74	+10	44	10.2			17.0	095
1978	SL7	*	1978	09	26.95463	01	05	47.36	+08	49	06.6			17.0	2 095
1978	SM7	*	1978	09	26.95463	01	05	56.82	+15	33	13.2			17.0	1 095
1978	SN7	*	1978	09	26.95463	01	07	43.38	+14	10	00.6			17.2	095
1978	SO7	*	1978	09	26.95463	01	07	51.70	+10	45	52.9			16.5	095
1338			1978	09	26.95463	01	08	23.40	+14	21	17.8	0.2+	2+		095
1978	SP7	*	1978	09	26.95463	01	08	40.48	+14	05	43.1			15.5	095
1978	SQ7	*	1978	09	26.95463	01	08	49.47	+08	48	36.2			17.0	2 095
1978	SR7	*	1978	09	26.95463	01	08	51.54	+08	49	39.2			16.5	095
1978	SS7	*	1978	09	26.95463	01	09	35.98	+10	48	34.6			17.0	095
1978	ST7	*	1978	09	26.95463	01	09	52.40	+15	54	49.4			17.0	1 095
1978	SU7	*	1978	09	26.95463	01	09	59.88	+13	28	51.1			16.8	095
1978	SV7	*	1978	09	26.95463	01	10	39.82	+13	34	16.9			17.2	095
1453			1978	09	26.95463	01	11	29.41	+12	39	47.8	0.3+	1+		095
1978	SW7	*	1978	09	26.95463	01	12	01.78	+13	33	45.8			17.0	095
1978	SX7	*	1978	09	26.95463	01	13	31.00	+12	40	43.6			17.0	095
1978	SY7	*	1978	09	26.95463	01	17	44.78	+12	12	10.9			15.5	095
150			1978	09	26.95463	01	17	58.03	+09	00	08.0	0.1+	0		095
1978	SZ7	*	1978	09	26.95463	01	18	22.13	+13	17	20.3			17.0	095
1978	SA8	*	1978	09	26.95463	01	19	10.42	+10	10	54.0			17.0	2 095
1978	SB8	*	1978	09	26.95463	01	21	06.22	+08	00	33.2			17.2	095
1978	SC8	*	1978	09	26.95463	01	21	22.22	+15	12	40.6			17.0	1 095
1978	SQ6		1978	09	26.95463	01	22	54.18	+11	49	58.0			17.2	095
1978	SD8	*	1978	09	26.95463	01	23	21.31	+07	11	24.4			17.0	1 095
1978	SN4		1978	09	26.95463	01	24	10.65	+06	53	16.2			16.5	1 095
1541			1978	09	26.95463	01	24	17.03	+10	56	32.8	0.0	1+		095
1978	SO4		1978	09	26.95463	01	25	26.36	+09	28	36.9			17.0	3 095
1924			1978	09	26.95463	01	25	37.42	+11	04	19.2	0.2+	1+		3 095
1225			1978	09	26.95463	01	25	57.60	+09	15	48.1	0.2+	1+		1 095
1978	SP4		1978	09	26.95463	01	26	26.74	+08	34	18.2			17.5	3 095
611			1978	09	26.95463	01	27	02.51	+06	40	36.6	0.0	1+		1 095
1978	RV5		1978	09	26.95463	01	27	39.43	+10	37	06.2			16.2	1 095
1978	SQ4		1978	09	26.95463	01	28	49.88	+12	39	55.6			16.8	1 095
1978	RU5		1978	09	26.95463	01	28	54.18	+08	20	07.8			17.5	3 095
1846			1978	09	26.95463	01	29	15.26	+08	54	53.2	0.2+	1+		1 095
1978	TB2		1978	09	27.96389	01	26	30.30	+08	44	44.5			17.5	1 095
1978	SO6	*	1978	09	27.96389	01	38	09.49	+09	17	47.3			17.8	095
1978	TR2		1978	09	27.96389	01	49	12.06	+12	56	26.6			17.5	1 095
1978	TT2		1978	09	27.96389	01	54	45.42	+09	37	18.7			17.2	095
1978	SP6	*	1978	09	27.96389	02	02	31.88	+11	21	28.3			17.5	1 095
1978	SR6		1978	10	02.92970	00	45	25.09	+09	02	55.0			17.0	1 095
1978	TF6	*	1978	10	02.92970	00	45	39.49	+13	33	14.2			17.5	1 095
1978	SS6		1978	10	02.92970	00	46	05.98	+08	45	26.3			16.2	1 095
1535			1978	10	02.92970	00	47	30.28	+14	51	14.0	0.0	1+		1 095
1978	RR5		1978	10	02.92970	00	47	30.34	+06	13	54.1			15.5	1 095
1978	RN5		1978	10	02.92970	00	48	26.46	+12	44	24.8			15.5	095
1978	ST6		1978	10	02.92970	00	49	47.52	+13	50	43.4			15.5	095
1978	SW6		1978	10	02.92970	00	49	50.73	+07	08	21.6			17.0	1 095
2071			1978	10	02.92970	00	50	18.28	+12	30	54.6	0.1+	1+		095
1978	SV6		1978	10	02.92970	00	50	30.02	+12	24	54.0			17.0	095
1978	SX6		1978	10	02.92970	00	51	04.52	+13	37	35.6			16.8	095
1978	SZ6		1978	10	02.92970	00	51	44.95	+10	23	36.8			16.8	095

1978	SY6		1978	10	02.92970	00	52	00.44	+11	12	49.3			16.8		095
1978	SA7		1978	10	02.92970	00	52	38.72	+12	04	31.0			16.2		095
843			1978	10	02.92970	00	52	56.16	+08	14	11.8			16.0		095
1978	SC7		1978	10	02.92970	00	53	55.37	+10	11	06.8			16.8		095
1978	SB7		1978	10	02.92970	00	53	55.78	+10	22	18.2			17.0		095
1978	SD7		1978	10	02.92970	00	55	20.30	+09	18	11.4			17.0		095
1978	TG6	*	1978	10	02.92970	00	55	52.10	+12	59	05.0			17.0		095
1978	SE7		1978	10	02.92970	00	55	55.62	+11	29	47.4			17.5		095
1978	TH6	*	1978	10	02.92970	00	55	59.54	+07	40	21.2			17.0		095
1978	TJ6	*	1978	10	02.92970	00	56	37.36	+13	06	09.9			17.5	2	095
1978	TK6	*	1978	10	02.92970	00	56	50.92	+12	10	33.8			17.5	2	095
1978	SG7		1978	10	02.92970	00	56	55.38	+10	05	49.9			17.0		095
1978	SJ7		1978	10	02.92970	00	58	03.81	+12	14	05.1			17.0		095
1978	SH7		1978	10	02.92970	00	58	06.82	+11	37	39.9			16.8		095
1978	SK7		1978	10	02.92970	00	59	39.40	+10	08	27.4			17.0		095
1978	SL7		1978	10	02.92970	01	00	18.80	+08	33	04.4			17.0		095
1978	TL6	*	1978	10	02.92970	01	00	23.00	+14	41	10.2			17.0		095
1978	SM7		1978	10	02.92970	01	00	31.35	+15	00	07.2			17.0	1	095
1453			1978	10	02.92970	01	00	52.32	+13	38	22.8	0.1+	2+			095
1338			1978	10	02.92970	01	02	42.93	+14	07	13.2	0.1+	2+			095
1978	SO7		1978	10	02.92970	01	02	55.07	+10	29	23.8			16.5		095
1978	TM6	*	1978	10	02.92970	01	03	06.76	+13	48	50.8			17.2		095
1978	SU7		1978	10	02.92970	01	03	20.40	+13	35	46.8			17.0		095
1978	SN7		1978	10	02.92970	01	03	39.73	+13	30	42.2			17.0		095
1978	SS7		1978	10	02.92970	01	04	06.23	+10	38	46.4			17.0		095
1978	SR7		1978	10	02.92970	01	04	11.28	+08	19	03.4			16.5		095
1978	ST7		1978	10	02.92970	01	04	11.30	+15	41	25.4			17.0	3	095
1978	SQ7		1978	10	02.92970	01	04	34.03	+08	01	08.4			16.8		095
1978	SP7		1978	10	02.92970	01	04	35.74	+12	52	44.2			15.5		095
1978	SV7		1978	10	02.92970	01	05	40.18	+13	22	57.4			17.0		095
1978	TN6	*	1978	10	02.92970	01	06	33.36	+16	07	29.8			16.2	1	095
1978	SW7		1978	10	02.92970	01	06	49.22	+13	22	13.6			16.8		095
1978	TO6	*	1978	10	02.92970	01	07	40.96	+07	47	46.1			17.2		095
1978	SX7		1978	10	02.92970	01	08	47.62	+12	37	30.6			16.8		095
1978	TP6	*	1978	10	02.92970	01	09	31.04	+12	29	05.8			17.5		095
1978	SY7		1978	10	02.92970	01	12	05.80	+12	16	51.2			15.5		095
1978	SZ7		1978	10	02.92970	01	12	40.84	+13	00	10.2			17.0		095
1978	TQ6	*	1978	10	02.92970	01	12	59.00	+08	56	39.4			17.5		095
150			1978	10	02.92970	01	13	45.62	+08	29	39.8	0.1+	0			095
1978	SA8		1978	10	02.92970	01	15	00.84	+09	34	34.0			16.8		095
1978	SB8		1978	10	02.92970	01	15	41.42	+07	59	46.2			17.0		095
1978	TR6	*	1978	10	02.92970	01	16	30.49	+08	03	58.4			17.2	2	095
1978	SD8		1978	10	02.92970	01	17	59.38	+07	07	12.7			17.0	1	095
1978	TS6	*	1978	10	02.92970	01	18	21.82	+11	18	42.8			17.5	1	095
1541			1978	10	02.92970	01	19	31.92	+10	38	43.8	0.0	1+		1	095
1978	SN4		1978	10	02.92970	01	19	58.48	+06	29	54.2			16.5	1	095
1978	TT6	*	1978	10	02.92970	01	20	19.58	+08	47	03.4			17.5	3	095
1924			1978	10	02.92970	01	20	21.17	+10	41	41.9	0.3+	2+		1	095
1225			1978	10	02.92970	01	20	30.38	+08	54	32.6	0.1+	1+		1	095
1978	SO4		1978	10	02.92970	01	21	36.66	+09	15	15.8			17.2	1	095
1978	TU6	*	1978	10	02.92970	01	21	37.57	+10	39	33.8			17.2	1	095
1978	RV5		1978	10	02.92970	01	22	22.90	+10	23	42.4			16.2	1	095
1978	TV6	*	1978	10	02.99983	02	22	57.32	-00	38	54.6			16.0	1	095
1978	TW6	*	1978	10	02.99983	02	24	33.26	+01	19	02.2			16.8	1	095
1754			1978	10	02.99983	02	24	37.19	+02	31	35.0	0.1+	0		1	095
1978	TX6	*	1978	10	02.99983	02	26	36.98	-02	49	15.9			16.0	1	095
1144			1978	10	02.99983	02	26	55.54	+03	48	23.8	0.1+	0		1	095
1978	TY6	*	1978	10	02.99983	02	27	46.59	-03	17	56.0			16.5	1	095
1978	TZ6	*	1978	10	02.99983	02	28	24.42	-01	57	31.9			16.0		095

1978	TA7	*	1978	10	02.99983	02	28	49.18	+00	36	46.7		16.8		095
1978	TB7	*	1978	10	02.99983	02	29	38.97	-00	24	22.8		16.2		095
1978	TC7	*	1978	10	02.99983	02	29	53.00	+01	35	41.4		17.5		095
1978	TD7	*	1978	10	02.99983	02	30	34.78	-01	06	00.7		17.2	2	095
1978	TE7	*	1978	10	02.99983	02	31	15.93	+00	20	34.9		17.2		095
1978	TF7	*	1978	10	02.99983	02	32	11.86	+01	50	21.2		16.8		095
1978	TG7	*	1978	10	02.99983	02	32	13.22	+00	45	22.8		16.8		095
1384			1978	10	02.99983	02	36	32.99	-01	15	40.4	0.0 1-			095
251			1978	10	02.99983	02	38	17.17	+02	38	45.6	0.1+ 0			095
1978	TH7	*	1978	10	02.99983	02	38	56.89	+01	50	42.6		16.8		095
1833			1978	10	02.99983	02	39	31.84	+03	02	49.8	0.2+ 1+			095
1978	TJ7	*	1978	10	02.99983	02	42	03.92	-01	47	32.1		16.8		095
1693			1978	10	02.99983	02	42	48.86	+02	20	20.4	0.4- 1-			095
1504			1978	10	02.99983	02	44	21.37	-00	50	40.6	0.3+ 0			095
1978	TK7	*	1978	10	02.99983	02	44	33.83	-04	19	40.2		17.0	3	095
105			1978	10	02.99983	02	44	38.69	+03	24	41.0	0.2+ 1+			095
1978	TL7	*	1978	10	02.99983	02	46	11.00	-00	14	31.6		17.5	2	095
1978	TM7	*	1978	10	02.99983	02	46	16.72	+03	01	22.0		15.8		095
1978	TN7	*	1978	10	02.99983	02	46	47.56	-00	07	02.8		16.0		095
1978	TO7	*	1978	10	02.99983	02	47	13.91	-01	59	58.5		16.0		095
1904			1978	10	02.99983	02	47	46.65	-04	22	10.0	0.3+ 0		1	095
1978	TP7	*	1978	10	02.99983	02	48	56.23	+03	51	36.8		17.0	3	095
1978	TQ7	*	1978	10	02.99983	02	49	01.52	-01	35	31.3		16.8		095
1978	TR7	*	1978	10	02.99983	02	49	30.00	+02	13	43.2		16.2		095
1978	TS7	*	1978	10	02.99983	02	50	34.12	+00	45	10.6		17.2	2	095
1978	TT7	*	1978	10	02.99983	02	50	38.79	-00	25	03.0		16.0		095
1978	TU7	*	1978	10	02.99983	02	52	09.64	+00	37	45.8		16.0		095
1978	TV7	*	1978	10	02.99983	02	53	16.88	+04	46	14.0		16.8	1	095
1978	TW7	*	1978	10	02.99983	02	53	29.38	-00	22	48.2		17.0		095
1978	TX7	*	1978	10	02.99983	02	59	08.42	+02	10	21.0		17.0	1	095
1978	TY7	*	1978	10	02.99983	03	02	13.87	-02	05	29.3		16.8	3	095
1978	TZ7	*	1978	10	02.99983	03	02	24.74	+00	43	52.8		16.8	1	095
1978	SP4		1978	10	03.97688	01	20	45.93	+08	25	21.0		17.2	1	095
1978	SW4		1978	10	03.97688	01	29	16.15	+07	56	39.2		17.5		095
1142			1978	10	03.97688	01	33	21.89	+06	59	01.5				095
1978	TW4		1978	10	03.97688	01	39	23.02	+10	45	55.9		17.5		095
1978	SH5		1978	10	03.97688	01	41	57.28	+06	55	43.8		17.5		095
1978	TA6	*	1978	10	07.97904	01	19	32.79	+08	36	52.1		17.8	1	095
1978	TE2		1978	10	07.97904	01	23	48.03	+12	16	01.6		17.5	1	095
1978	TB6	*	1978	10	07.97904	01	24	38.63	+08	17	47.3		17.8		095
1978	TC6	*	1978	10	07.97904	01	34	06.43	+10	40	16.1		17.5		095
1978	TD6	*	1978	10	07.97904	01	41	17.94	+08	10	10.0		17.5		095
1978	TE6	*	1978	10	07.97904	01	45	56.78	+09	34	07.5		17.8		095
193			1978	10	08.92882	00	34	16.78	+14	24	37.4	0.0 1+		1	095
620			1978	10	08.92882	00	34	27.32	+07	11	34.6	0.0 0		1	095
1978	TR3		1978	10	08.92882	00	34	36.58	+08	38	48.8		16.5	1	095
1978	TA8	*	1978	10	08.92882	00	38	26.02	+12	35	31.9		17.5	1	095
1978	TB8	*	1978	10	08.92882	00	39	01.38	+10	29	14.6		17.5	1	095
1978	TC8	*	1978	10	08.92882	00	39	31.14	+12	13	59.0		17.5	1	095
1978	SR6		1978	10	08.92882	00	40	00.42	+08	53	30.4		16.8	1	095
1978	SS6		1978	10	08.92882	00	40	46.48	+08	22	23.4		16.2		095
1978	RR5		1978	10	08.92882	00	40	48.66	+06	27	08.1		15.5	1	095
1978	RN5		1978	10	08.92882	00	42	17.46	+13	20	14.4		15.5		095
1535			1978	10	08.92882	00	42	51.96	+14	18	08.2	0.1+ 0			095
1978	SW6		1978	10	08.92882	00	43	32.59	+06	55	24.1		17.0	1	095
2071			1978	10	08.92882	00	44	14.14	+11	56	59.1	0.0 0			095
1978	SU6		1978	10	08.92882	00	44	34.34	+11	03	21.8		16.5		095
1978	ST6		1978	10	08.92882	00	44	36.31	+12	58	58.4		15.5		095
1978	TD8	*	1978	10	08.92882	00	44	55.40	+08	07	30.0		17.2		095

1978	SX6		1978	10	08.92882	00	45	19.19	+13	34	44.6			16.8	095
1978	SV6		1978	10	08.92882	00	45	46.06	+12	09	36.9			17.5	095
843			1978	10	08.92882	00	46	06.75	+08	13	22.2			16.0	095
1978	SZ6		1978	10	08.92882	00	46	25.28	+09	54	47.9			16.8	095
1978	SY6		1978	10	08.92882	00	47	07.04	+10	21	30.6			16.8	095
1978	SA7		1978	10	08.92882	00	47	09.36	+12	00	30.4			16.2	095
1978	SC7		1978	10	08.92882	00	47	23.28	+10	17	57.6			16.8	095
1978	SB7		1978	10	08.92882	00	47	39.40	+09	57	40.2			17.0	095
1978	TG6		1978	10	08.92882	00	49	15.89	+13	24	43.2			17.0	095
1978	SE7		1978	10	08.92882	00	49	30.30	+11	06	15.6			17.5	095
1453			1978	10	08.92882	00	49	41.52	+14	30	18.2	0.0	0		095
1978	SD7		1978	10	08.92882	00	49	54.70	+08	25	09.8			17.5	2 095
1978	TH6		1978	10	08.92882	00	50	02.21	+07	31	52.7			17.0	1 095
1978	SG7		1978	10	08.92882	00	50	33.34	+10	15	53.2			17.0	095
1978	TE8	*	1978	10	08.92882	00	50	45.96	+09	08	34.8			17.0	095
1978	SJ7		1978	10	08.92882	00	52	02.66	+12	14	42.0			16.8	095
1978	TF8	*	1978	10	08.92882	00	52	19.78	+11	12	44.8			17.5	095
1978	SH7		1978	10	08.92882	00	52	41.08	+11	32	09.2			16.8	095
1978	SK7		1978	10	08.92882	00	53	56.32	+09	27	59.0			16.8	095
1978	SL7		1978	10	08.92882	00	54	33.91	+08	14	39.6			17.0	095
1978	SM7		1978	10	08.92882	00	54	46.58	+14	20	58.0			17.0	095
1978	SU7		1978	10	08.92882	00	56	26.15	+13	37	58.3			17.0	095
1338			1978	10	08.92882	00	56	35.44	+13	46	45.0	0.0	0		095
1978	SO7		1978	10	08.92882	00	57	36.50	+10	08	21.8			16.5	095
1978	TM6		1978	10	08.92882	00	57	42.70	+13	16	00.0			17.2	095
1978	ST7		1978	10	08.92882	00	58	02.70	+15	21	19.4			17.0	1 095
1978	SS7		1978	10	08.92882	00	58	04.84	+10	24	18.6			17.0	095
1978	TG8	*	1978	10	08.92882	00	58	05.22	+14	55	22.8			17.0	4 095
1978	SR7		1978	10	08.92882	00	59	07.86	+07	44	48.1			16.5	095
1978	SN7		1978	10	08.92882	00	59	21.35	+12	47	01.9			17.0	2 095
1978	SQ7		1978	10	08.92882	00	59	57.73	+07	10	22.0			16.8	1 095
1978	SP7		1978	10	08.92882	01	00	17.14	+11	34	44.6			15.5	095
1978	SV7		1978	10	08.92882	01	00	22.64	+13	07	23.6			17.2	095
1978	TN6		1978	10	08.92882	01	00	57.29	+15	37	25.2			16.2	1 095
1978	SW7		1978	10	08.92882	01	01	11.50	+13	05	01.7			17.0	095
1978	SX7		1978	10	08.92882	01	03	28.88	+12	28	46.7			17.0	095
1978	TP6		1978	10	08.92882	01	04	44.24	+12	08	53.9			17.2	095
1978	SY7		1978	10	08.92882	01	05	49.44	+12	16	12.2			15.5	095
1978	SZ7		1978	10	08.92882	01	06	30.88	+12	37	47.6			17.0	095
150			1978	10	08.92882	01	09	14.32	+07	56	40.3	0.1-	0		095
1978	SB8		1978	10	08.92882	01	09	42.06	+07	56	04.2			17.0	1 095
1978	SA8		1978	10	08.92882	01	10	21.05	+08	53	40.7			17.0	1 095
1978	SD8		1978	10	08.92882	01	12	03.66	+07	00	34.6			17.0	1 095
1978	SC8		1978	10	08.92882	01	12	52.87	+14	21	42.8			17.2	1 095
1541			1978	10	08.92882	01	14	26.06	+10	18	04.2	0.1-	0		1 095
1225			1978	10	08.92882	01	14	29.78	+08	29	43.6	0.1-	0		1 095
1924			1978	10	08.92882	01	14	34.52	+10	15	11.0	0.1+	1+		1 095
1978	TH8	*	1978	10	08.92882	01	14	46.28	+10	54	53.2			17.0	1 095
1978	TV6		1978	10	08.99478	02	18	53.96	-00	56	39.6			16.0	1 095
1754			1978	10	08.99478	02	21	39.32	+02	00	55.2	0.0	0		1 095
1978	TX6		1978	10	08.99478	02	22	13.30	-02	34	49.2			16.0	1 095
1978	TY6		1978	10	08.99478	02	23	24.94	-03	30	34.1			16.5	1 095
1144			1978	10	08.99478	02	23	57.86	+03	15	35.9	0.0	0		1 095
1978	TZ6		1978	10	08.99478	02	24	36.33	-02	25	12.9			16.2	095
1978	TA7		1978	10	08.99478	02	25	17.00	+00	05	32.7			16.5	095
1978	TB7		1978	10	08.99478	02	26	21.10	-01	08	04.4			16.0	095
1978	TD7		1978	10	08.99478	02	27	51.38	-01	31	18.6			17.2	2 095
1978	TG7		1978	10	08.99478	02	27	56.36	+01	03	14.0			17.0	095
1978	TJ8	*	1978	10	08.99478	02	30	51.38	-05	53	02.9			17.2	1 095

1384		1978	10	08.99478	02	33	54.20	-02	15	43.5	0.3-	1-		095
251		1978	10	08.99478	02	35	19.05	+01	57	52.2	0.1-	0		095
1833		1978	10	08.99478	02	36	01.50	+02	15	10.8	0.1-	0		095
1978	TH7	1978	10	08.99478	02	36	04.77	+01	09	26.3			16.8	095
1693		1978	10	08.99478	02	38	13.20	+02	07	32.5	0.0	0		095
1978	TJ7	1978	10	08.99478	02	38	35.06	-02	18	03.4			17.0	095
1504		1978	10	08.99478	02	40	25.72	-01	21	48.8	0.0	0		095
105		1978	10	08.99478	02	40	52.85	+02	11	46.7	0.0	0		095
1978	TM7	1978	10	08.99478	02	42	44.96	+02	31	04.8			16.0	095
1978	TO7	1978	10	08.99478	02	44	06.85	-02	26	21.5			16.2	095
1978	TN7	1978	10	08.99478	02	44	08.75	-01	51	10.6			16.0	4 095
1904		1978	10	08.99478	02	44	20.31	-04	55	48.4	0.0	0		1 095
1978	TQ7	1978	10	08.99478	02	45	43.69	-02	33	14.8			16.5	095
1978	TR7	1978	10	08.99478	02	46	40.43	+01	54	16.7			16.2	095
1978	TK8 *	1978	10	08.99478	02	46	53.11	+01	43	25.8			17.5	095
1978	TT7	1978	10	08.99478	02	46	54.88	-00	40	47.2			16.0	095
1978	TL8 *	1978	10	08.99478	02	47	18.76	-02	58	54.2			17.2	095
1978	TU7	1978	10	08.99478	02	49	26.52	+00	25	35.8			16.0	095
1978	TM8 *	1978	10	08.99478	02	53	08.34	-00	26	28.4			16.0	095
1978	TN8 *	1978	10	08.99478	02	55	56.15	-02	41	59.0			17.2	1 095
2164		1978	10	09.06006	03	10	34.16	+14	05	58.6	0.0	0		1 095
1978	TO8 *	1978	10	09.06006	03	11	53.74	+17	48	21.2			17.2	1 095
1978	TP8 *	1978	10	09.06006	03	14	11.48	+13	11	24.0			17.0	1 095
1978	TQ8 *	1978	10	09.06006	03	15	22.42	+15	22	35.0			17.2	095
821		1978	10	09.06006	03	16	40.65	+16	41	55.7	0.2-	1-		095
632		1978	10	09.06006	03	16	52.40	+20	24	02.4	0.0	0		1 095
1292		1978	10	09.06006	03	17	34.56	+20	53	54.4	0.1-	0		1 095
1978	TR8 *	1978	10	09.06006	03	18	43.76	+15	52	26.6			16.5	095
2007		1978	10	09.06006	03	18	46.00	+20	05	17.4	0.0	0		095
1978	TS8 *	1978	10	09.06006	03	21	57.98	+19	42	12.2			16.2	4 095
1981	JX	1978	10	09.06006	03	22	42.77	+16	51	16.4			16.5	095
873		1978	10	09.06006	03	23	00.34	+11	18	05.0	0.1-	1-		1 095
1978	UL2	1978	10	09.06006	03	24	55.50	+14	43	19.4			17.0	095
1978	TT8 *	1978	10	09.06006	03	25	22.68	+15	44	05.6			16.5	095
1978	TU8 *	1978	10	09.06006	03	25	40.01	+18	29	03.4			17.2	095
1269		1978	10	09.06006	03	25	51.65	+15	09	15.0	0.0	0		095
1978	TV8 *	1978	10	09.06006	03	26	21.88	+19	00	08.4			17.2	095
1978	TW8 *	1978	10	09.06006	03	28	37.86	+16	27	48.8			16.8	095
2230		1978	10	09.06006	03	28	58.96	+15	22	30.0	0.0	0		095
1978	TX8 *	1978	10	09.06006	03	29	54.48	+18	37	51.4			17.2	095
1978	TY8 *	1978	10	09.06006	03	30	30.17	+15	56	55.8			17.5	095
1522		1978	10	09.06006	03	30	32.78	+15	36	27.6	0.1-	1-		095
2369		1978	10	09.06006	03	30	54.61	+18	38	36.1				095
1978	TZ8 *	1978	10	09.06006	03	31	24.55	+18	32	43.0			16.8	095
1978	UU1	1978	10	09.06006	03	33	48.90	+13	23	28.4				095
522		1978	10	09.06006	03	34	59.77	+13	27	12.6	0.1+	0		095
1978	UM2	1978	10	09.06006	03	35	06.86	+15	48	05.2			16.5	095
1978	TA9 *	1978	10	09.06006	03	36	09.41	+20	13	04.0			17.5	1 095
1978	UQ2	1978	10	09.06006	03	37	20.30	+16	26	12.2			16.0	095
2355		1978	10	09.06006	03	38	11.46	+16	40	18.0				095
753		1978	10	09.06006	03	39	25.84	+14	25	52.8	0.1-	0		095
1296		1978	10	09.06006	03	39	35.50	+20	22	00.4				1 095
1599		1978	10	09.06006	03	39	48.24	+19	28	11.7	0.2-	1-		095
2357		1978	10	09.06006	03	40	49.00	+17	06	05.3			16.5	095
1978	TB9 *	1978	10	09.06006	03	41	43.58	+20	12	29.0			17.5	1 095
1978	TC9 *	1978	10	09.06006	03	42	43.38	+15	57	28.6			17.0	095
2263		1978	10	09.06006	03	43	06.38	+16	21	31.2				095
1545		1978	10	09.06006	03	43	49.90	+19	04	56.0	0.1-	0		095
189		1978	10	09.06006	03	49	12.44	+17	27	46.4	0.0	0		1 095

1978	VG13*	1978	11	01.82514	00	09	13.98	+07	51	11.8			17.0	1 095
1086		1978	11	01.82514	00	10	06.95	+12	22	47.2	0.1-	1-		1 095
1978	TR3	1978	11	01.82514	00	11	48.47	+08	51	19.1			16.2	1 095
1978	VH13*	1978	11	01.82514	00	13	27.98	+05	18	43.8			16.0	095
620		1978	11	01.82514	00	15	22.08	+06	41	35.6	0.1+	1-		095
1978	VJ13*	1978	11	01.82514	00	16	22.37	+06	36	11.1			17.2	095
1978	VK13*	1978	11	01.82514	00	16	40.16	+09	13	24.8			17.0	095
1978	VL13*	1978	11	01.82514	00	17	36.32	+09	44	15.4			17.2	095
1978	VM13*	1978	11	01.82514	00	18	13.88	+10	29	33.0			17.2	2 095
1978	VN13*	1978	11	01.82514	00	18	21.27	+12	11	11.6			16.8	3 095
1978	RR5	1978	11	01.82514	00	18	35.15	+07	21	57.4			15.5	095
1978	VO13*	1978	11	01.82514	00	21	17.57	+12	10	04.8			17.2	1 095
1978	SR6	1978	11	01.82514	00	21	53.54	+08	14	02.2			16.8	095
1978	VP13*	1978	11	01.82514	00	21	57.36	+07	39	55.2			17.0	095
1978	VQ13*	1978	11	01.82514	00	22	14.14	+03	42	21.4			16.5	1 095
1978	SW6	1978	11	01.82514	00	22	34.55	+06	10	26.6			17.0	095
1978	VR13*	1978	11	01.82514	00	23	18.44	+10	37	20.7			16.8	095
1978	VS13*	1978	11	01.82514	00	23	46.06	+05	14	09.2			17.0	2 095
1978	SS6	1978	11	01.82514	00	24	34.95	+06	56	03.8			16.2	095
1978	SX6	1978	11	01.82514	00	24	51.40	+13	01	03.0			17.0	1 095
843		1978	11	01.82514	00	25	08.62	+08	07	48.2			16.2	095
1978	VT13*	1978	11	01.82514	00	25	18.04	+03	47	47.5			15.5	095
2071		1978	11	01.82514	00	25	22.18	+09	36	00.3	0.1+	2-		095
1978	SB7	1978	11	01.82514	00	25	47.20	+08	13	02.8			17.0	095
1978	VU13*	1978	11	01.82514	00	26	33.44	+11	43	06.0			17.0	095
1535		1978	11	01.82514	00	27	35.52	+11	55	01.1	0.1+	1-		095
1978	VV13*	1978	11	01.82514	00	28	00.76	+10	32	36.6			17.0	095
1978	SZ6	1978	11	01.82514	00	28	09.52	+07	56	55.4			16.8	095
1978	ST6	1978	11	01.82514	00	28	38.16	+09	25	07.6			15.5	095
1978	VW13*	1978	11	01.82514	00	28	51.44	+10	59	08.0			17.2	2 095
1978	SJ7	1978	11	01.82514	00	30	59.52	+11	59	22.9			17.0	095
1978	VX13*	1978	11	01.82514	00	31	31.82	+12	24	28.4			17.2	3 095
1978	SY6	1978	11	01.82514	00	31	45.60	+07	01	50.5			17.0	2 095
1978	VY13*	1978	11	01.82514	00	32	05.74	+11	33	28.1			17.2	2 095
1978	VZ13*	1978	11	01.82514	00	32	15.82	+07	00	14.6			17.2	095
1978	SK7	1978	11	01.82514	00	33	56.24	+06	43	24.0			16.8	095
1978	SM7	1978	11	01.82514	00	34	06.25	+11	20	00.4			16.8	2 095
1338		1978	11	01.82514	00	34	37.44	+11	55	03.2	0.1+	1-		095
1978	VA14*	1978	11	01.82514	00	34	54.74	+12	50	08.4			17.0	1 095
1978	VB14*	1978	11	01.82514	00	35	17.50	+09	51	00.0			17.2	2 095
1978	VC14*	1978	11	01.82514	00	35	31.07	+11	40	06.8			17.2	095
1978	SS7	1978	11	01.82514	00	35	53.70	+09	11	42.2			17.0	095
1978	TM6	1978	11	01.82514	00	38	23.51	+10	45	27.6			17.0	095
1978	SO7	1978	11	01.82514	00	39	44.53	+08	37	55.8			16.5	095
1978	VD14*	1978	11	01.82514	00	40	27.43	+12	06	14.2			17.2	1 095
1978	SV7	1978	11	01.82514	00	41	07.48	+11	46	47.2			17.2	2 095
1978	VE14*	1978	11	01.82514	00	41	17.10	+12	22	59.0			16.8	1 095
1978	TN6	1978	11	01.82514	00	41	32.56	+13	06	56.8			16.0	1 095
1978	SR7	1978	11	01.82514	00	42	18.77	+05	39	40.8			17.0	2 095
1978	SY7	1978	11	01.82514	00	42	30.52	+11	45	56.6			15.5	095
1978	SZ7	1978	11	01.82514	00	43	14.07	+10	46	19.4			17.0	1 095
1978	SX7	1978	11	01.82514	00	43	16.90	+11	26	22.0			17.0	1 095
1978	VF14*	1978	11	01.82514	00	43	41.96	+10	00	19.2			17.0	2 095
1978	SN7	1978	11	01.82514	00	43	42.86	+09	39	42.1			17.0	3 095
1978	SP7	1978	11	01.82514	00	46	05.72	+06	34	36.6			15.8	1 095
1978	SB8	1978	11	01.82514	00	48	07.10	+07	40	51.3			17.2	1 095
1978	VG14*	1978	11	01.89461	02	02	16.38	-02	44	12.8			16.8	1 095
1978	VH14*	1978	11	01.89461	02	05	02.00	+00	27	43.0			17.0	3 095
1978	TZ6	1978	11	01.89461	02	06	07.90	-03	47	14.2			16.2	1 095

1978	TA7	1978	11	01.89461	02	07	05.59	-01	36	42.0			17.0	1 095
1754		1978	11	01.89461	02	07	43.74	+00	09	59.8	0.1-	1-		095
1144		1978	11	01.89461	02	09	12.41	+01	14	28.7	0.1-	2-		1 095
1978	TB7	1978	11	01.89461	02	09	28.52	-03	32	44.5			16.5	095
1978	VJ14*	1978	11	01.89461	02	12	02.20	-06	33	22.2			17.2	095
1978	VK14*	1978	11	01.89461	02	12	49.19	-07	06	08.2			16.8	095
1978	VL14*	1978	11	01.89461	02	12	59.38	-02	41	57.7			17.2	095
1693		1978	11	01.89461	02	15	14.64	+01	39	05.6	0.1-	2-		1 095
1978	VM14*	1978	11	01.89461	02	15	42.83	+00	27	09.7			17.2	095
1384		1978	11	01.89461	02	17	07.12	-05	42	43.4	0.4-	5-		095
1833		1978	11	01.89461	02	17	07.13	-00	35	57.0	0.2-	3-		095
1978	VN14*	1978	11	01.89461	02	18	03.69	+00	20	14.2			16.8	095
1504		1978	11	01.89461	02	18	20.84	-02	57	54.6	0.1-	3-		095
251		1978	11	01.89461	02	18	56.80	-00	33	19.5	0.2-	2-		095
1978	TJ7	1978	11	01.89461	02	19	04.74	-03	43	30.6			17.2	095
1978	TH7	1978	11	01.89461	02	19	34.02	-01	16	57.9			16.8	095
1978	VO14*	1978	11	01.89461	02	19	59.54	-03	43	15.4			17.0	2 095
1978	VP14*	1978	11	01.89461	02	20	56.66	-06	38	03.0			16.8	095
105		1978	11	01.89461	02	20	58.53	-02	24	45.1	0.1-	3-		095
1978	TM7	1978	11	01.89461	02	22	02.82	+00	46	43.6			16.0	1 095
1978	VQ14*	1978	11	01.89461	02	23	10.75	-03	01	26.0			17.0	095
1904		1978	11	01.89461	02	24	55.44	-06	26	29.6	0.1-	2-		095
1978	TT7	1978	11	01.89461	02	25	04.90	-01	01	14.7			16.0	095
1978	TO7	1978	11	01.89461	02	26	28.74	-03	41	00.2			16.2	095
1978	TQ7	1978	11	01.89461	02	27	16.61	-05	52	03.4			16.5	095
1978	VR14*	1978	11	01.89461	02	27	16.98	+00	29	19.2			17.0	1 095
1978	TR7	1978	11	01.89461	02	27	56.92	+00	58	30.8			16.2	1 095
1978	TU7	1978	11	01.89461	02	29	06.42	+00	21	35.0			16.0	095
1978	VS14*	1978	11	01.89461	02	29	13.15	-04	39	15.2			17.2	095
1978	VT14*	1978	11	01.89461	02	30	27.37	-06	05	00.8			17.2	095
1978	VU14*	1978	11	01.89461	02	36	08.85	-02	11	35.8			17.0	095
1978	TM8	1978	11	01.89461	02	36	44.48	-02	41	23.3			16.0	095
1978	VV14*	1978	11	01.89461	02	39	08.47	-02	35	34.9			17.0	1 095
1978	TX7	1978	11	01.89461	02	40	32.60	-00	02	56.6			16.8	1 095
1978	TO8	1978	11	01.96407	02	56	14.28	+16	34	07.6			17.0	1 095
1978	VW14*	1978	11	01.96407	02	57	02.22	+11	38	51.5			17.2	1 095
1978	TP8	1978	11	01.96407	02	57	57.86	+11	49	32.8			17.0	1 095
632		1978	11	01.96407	02	58	05.95	+19	26	37.8	0.0	1+		1 095
1978	VX14*	1978	11	01.96407	02	58	12.43	+13	27	30.4			17.2	1 095
2007		1978	11	01.96407	02	58	48.74	+19	19	16.0	0.0	1+		1 095
1292		1978	11	01.96407	02	59	41.98	+19	42	00.6	0.0	0		1 095
1978	VY14*	1978	11	01.96407	02	59	47.44	+14	47	59.7			17.5	1 095
1978	VZ14*	1978	11	01.96407	03	00	13.86	+13	16	14.2			17.0	1 095
1978	VA15*	1978	11	01.96407	03	00	43.48	+13	58	01.4			17.5	1 095
1978	VB15*	1978	11	01.96407	03	03	11.86	+17	29	43.8			17.2	095
1978	VC15*	1978	11	01.96407	03	03	19.98	+15	56	55.0			17.5	095
1978	VD15*	1978	11	01.96407	03	05	01.86	+16	34	37.0			17.2	095
1978	TT8	1978	11	01.96407	03	05	03.45	+15	25	05.4			16.5	095
1978	VE15*	1978	11	01.96407	03	05	14.45	+13	53	18.8			17.0	095
1978	VF15*	1978	11	01.96407	03	05	17.00	+17	56	41.8			17.5	095
1981	JX	1978	11	01.96407	03	07	47.94	+15	42	32.3			16.2	095
1978	VG15*	1978	11	01.96407	03	08	21.90	+19	47	33.4			17.5	1 095
1978	VH15*	1978	11	01.96407	03	08	40.38	+17	55	36.0			17.5	095
1978	VJ15*	1978	11	01.96407	03	10	05.56	+15	01	55.6			17.2	095
1978	TU8	1978	11	01.96407	03	10	16.44	+17	14	51.4			17.2	095
1978	VK15*	1978	11	01.96407	03	10	49.98	+13	09	14.4			17.5	2 095
1978	UL2	1978	11	01.96407	03	10	51.01	+13	32	08.8			17.0	095
1978	VL15*	1978	11	01.96407	03	11	11.94	+13	09	24.6			17.5	2 095
1978	TW8	1978	11	01.96407	03	11	37.82	+16	30	51.0			16.8	095

1978	TV8	1978	11	01.96407	03	12	13.25	+18	23	02.0		17.2	095
1978	VM15*	1978	11	01.96407	03	12	37.22	+16	13	10.7		17.0	095
1978	VN15*	1978	11	01.96407	03	12	40.18	+14	53	32.8		17.5	095
1978	VO15*	1978	11	01.96407	03	12	50.43	+17	56	46.8		17.5	095
1522		1978	11	01.96407	03	12	55.56	+15	19	15.0	0.1+ 0		095
1269		1978	11	01.96407	03	13	15.60	+14	10	31.8	0.1+ 1+		095
1978	VP15*	1978	11	01.96407	03	13	28.00	+13	18	13.5		17.5	095
2230		1978	11	01.96407	03	13	58.84	+14	00	49.8	0.1+ 0		095
1978	UJ2	1978	11	01.96407	03	14	03.23	+13	11	51.2		17.0	095
2369		1978	11	01.96407	03	14	19.52	+17	56	34.6	0.7- 2-		095
1978	VQ15*	1978	11	01.96407	03	14	39.96	+16	48	23.3		17.5	095
1978	VR15*	1978	11	01.96407	03	14	50.45	+11	59	33.8		17.5	095
1978	VS15*	1978	11	01.96407	03	15	26.29	+15	18	47.8		17.2	095
1978	TX8	1978	11	01.96407	03	15	39.43	+17	59	02.3		17.0	095
1978	VT15*	1978	11	01.96407	03	17	23.77	+13	22	26.0		17.5	095
1978	TZ8	1978	11	01.96407	03	17	27.88	+17	58	29.6		16.8	095
1978	VU15*	1978	11	01.96407	03	18	19.60	+19	36	19.6		17.2 1	095
1978	VV15*	1978	11	01.96407	03	18	26.19	+15	46	49.8		17.2	095
753		1978	11	01.96407	03	18	32.83	+14	06	19.7	0.1+ 0		095
1978	VW15*	1978	11	01.96407	03	18	37.22	+18	59	33.4		17.2 1	095
1978	VX15*	1978	11	01.96407	03	19	19.28	+19	13	51.0		17.5 1	095
1978	VY15*	1978	11	01.96407	03	19	27.99	+18	40	28.8		17.5 1	095
1978	UU1	1978	11	01.96407	03	19	34.47	+12	01	53.8			095
1978	VZ15*	1978	11	01.96407	03	19	45.71	+09	56	27.4		16.0 1	095
1978	VA16*	1978	11	01.96407	03	19	55.77	+11	44	33.1		17.5	095
1978	VB16*	1978	11	01.96407	03	20	03.18	+14	17	20.0		16.5	095
1978	VC16*	1978	11	01.96407	03	20	06.31	+18	36	47.1		17.5 3	095
1978	UM2	1978	11	01.96407	03	20	24.02	+14	46	27.4		16.0	095
1978	UQ2	1978	11	01.96407	03	20	47.20	+17	14	32.6		16.0	095
1978	VD16*	1978	11	01.96407	03	21	26.98	+11	00	56.9		17.5 3	095
2355		1978	11	01.96407	03	21	41.98	+16	46	30.2	0.5+ 3+		095
522		1978	11	01.96407	03	21	56.39	+12	26	23.5	0.2+ 0		095
1978	VE16*	1978	11	01.96407	03	22	33.63	+12	24	50.8		17.5	095
1978	VF16*	1978	11	01.96407	03	24	13.41	+16	28	02.6		17.5 2	095
1978	VG16*	1978	11	01.96407	03	24	13.60	+16	35	16.3		17.5 2	095
1978	VH16*	1978	11	01.96407	03	24	30.29	+14	13	31.2		17.5	095
1978	VJ16*	1978	11	01.96407	03	24	31.55	+19	43	44.0		17.5 1	095
1599		1978	11	01.96407	03	25	29.58	+19	34	19.0	0.1- 1-	1	095
1978	UN2	1978	11	01.96407	03	25	50.74	+13	37	32.8		16.0	095
1296		1978	11	01.96407	03	26	35.28	+18	43	47.8	0.2+ 2+	1	095
1978	VK16*	1978	11	01.96407	03	26	59.44	+13	41	50.0		17.5 2	095
2263		1978	11	01.96407	03	27	10.30	+16	50	33.5			095
1978	VL16*	1978	11	01.96407	03	27	36.52	+14	08	22.4		17.5	095
1545		1978	11	01.96407	03	29	39.66	+18	39	58.2	0.2+ 1+	1	095
1978	VM16*	1978	11	01.96407	03	31	06.18	+19	18	08.8		17.5 3	095
1978	VN16*	1978	11	01.96407	03	31	11.00	+16	22	47.7		17.2 3	095
1973	SJ4	1978	11	01.96407	03	31	16.11	+19	47	27.7			095
1978	VO16*	1978	11	01.96407	03	31	32.98	+15	18	57.0		17.5 3	095
1978	VP16*	1978	11	01.96407	03	31	33.24	+13	57	37.0		17.5 1	095
1978	VQ16*	1978	11	01.96407	03	32	07.92	+12	31	56.9		17.2 1	095
189		1978	11	01.96407	03	35	24.10	+15	29	35.2	0.1+ 1+	1	095
1978	VR16*	1978	11	01.96407	03	36	25.44	+16	37	51.0		17.2 1	095
1978	RC6	1978	11	02.88776	01	12	02.06	+06	20	30.6		16.5 1	095
1978	VC13*	1978	11	02.88776	01	14	02.47	+02	08	13.7		17.0 1	095
1978	VD13*	1978	11	02.88776	01	38	41.24	+00	06	58.5		17.8	095
1978	VE13*	1978	11	02.88776	01	39	26.52	+05	25	03.3		17.8 1	095
1978	VF13*	1978	11	02.88776	01	40	53.90	-00	41	29.2		17.8	095

Note 1: near edge of plate. 2: measurement uncertain. 3 = 1 + 2. 4: fast-moving object.

OBSERVATIONS MADE AT THE PERTH OBSERVATORY, BICKLEY, UNDER THE DIRECTION OF M. P. CANDY.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1977 QB	*	1977 08	31.53426	17 34 12.70	-34 26 02.3			323
1977 RP	*	1977 09	09.53438	23 01 32.97	-14 56 14.2			323
1977 RQ		1977 09	04.68924	00 34 52.03	-14 55 46.5			323
1977 RQ	*	1977 09	13.74792	00 26 56.49	-15 02 42.5			323
1977 UR	*	1977 10	19.59097	01 24 49.70	+00 47 57.7			323
1977 UR		1977 10	19.60764	01 24 48.76	+00 47 58.4			323
1981 QA		1981 08	25.55279	20 25 13.38	+01 53 25.7	13.0	1	323

Note 1: observer P. Jekabsons.

OBSERVATIONS MADE AT GEISEI BY T. SEKI.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1977 PY1	1981 08	05.66424	21 35 47.12	-03 21 13.1	16	372
1977 PY1	1981 08	05.67535	21 35 46.62	-03 21 13.5		372
1977 PZ1	1981 08	05.75278	22 03 12.28	-08 48 30.2	16.5	372

OBSERVATIONS MADE WITH THE 1.05-M SCHMIDT TELESCOPE AT THE TOKYO OBSERVATORY'S KISO STATION BY T. AOKI. MEASURED BY H. KOSAI.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1981 QA	1981 08	23.50299	20 18 32.28	+03 03 29.7	13	381
1981 QA	1981 08	23.51323	20 18 33.98	+03 03 08.7		381

OBSERVATIONS MADE AT MT. 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.
1981 QA	1981 08	30.34802	20 41 44.47	-00 58 34.6	13.0	474
1981 QA	1981 08	30.36990	20 41 48.91	-00 59 21.8		474
1981 QB	1981 09	01.47126	21 34 02.91	-13 50 31.6	16	474
1981 QB	1981 09	01.49360	21 34 01.27	-13 52 45.7		474
1981 QB	1981 09	02.34637	21 33 04.48	-15 17 03.2	14	474
1981 QB	1981 09	02.35782	21 33 03.44	-15 18 14.9		474
1981 QB	1981 09	02.50991	21 32 52.22	-15 33 19.0		474
1981 QB	1981 09	02.53259	21 32 50.50	-15 35 37.6	14	474
1981 QB	1981 09	02.62542	21 32 43.69	-15 44 51.1		474
1981 QB	1981 09	05.39340	21 29 36.66	-20 27 04.7	14	474
1981 QB	1981 09	05.40521	21 29 35.28	-20 28 13.4		474
1981 QB	1981 09	06.42800	21 28 26.67	-22 14 30.0	14	474
1981 QB	1981 09	06.44883	21 28 25.06	-22 16 42.3		474
1981 QC	1981 08	31.54581	01 50 49.62	-37 27 38.5	17.0	474
1981 QC	1981 08	31.56757	01 50 49.34	-37 27 50.0		474
1981 QC	1981 09	01.71559	01 50 38.02	-37 38 17.1	17.0	474
1981 QC	1981 09	01.73804	01 50 37.71	-37 38 28.9		474
1981 QC	1981 09	02.68178	01 50 25.98	-37 46 57.1	17.0	474
1981 QC	1981 09	02.70464	01 50 25.53	-37 47 09.9		474

OBSERVATIONS MADE AT STAKENBRIDGE BY B. MANNING. COMMUNICATED BY G. M. HURST.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
352	1981 05	02.9111	10 02 38.40	+07 37 21.8	494
737	1981 04	27.89271	10 01 50.06	+07 18 21.2	494

OBSERVATIONS MADE AT LA SEYNE-SUR-MER.

Object	Date	UT	R. A. (1950)	Decl.	O - C		Obs.
14	1980 06	10.93657	15 03 12.23	-10 20 46.6	0.0	0	509
14	1980 06	10.94664	15 03 11.93	-10 20 49.6	0.0	0	509
14	1980 07	06.89779	14 59 27.54	-12 38 45.7	0.0	0	509
14	1980 07	06.90410	14 59 27.65	-12 38 46.9	0.0	0	509

14	1980	07	13.90361	15	01	39.72	-13	24	28.4	0.0	0	509
14	1980	07	13.91263	15	01	39.91	-13	24	32.7	0.0	0	509
14	1980	07	18.85382	15	03	58.24	-13	58	16.2	0.0	0	509
14	1980	07	18.86285	15	03	58.50	-13	58	17.8	0.0	0	509
18	1980	06	16.85799	13	07	05.19	+04	53	35.3	0.0	0	509
18	1980	06	16.86563	13	07	05.29	+04	53	33.5	0.0	0	509
18	1980	06	16.87326	13	07	05.41	+04	53	31.7	0.0	0	509
18	1980	06	20.85897	13	08	04.51	+04	35	58.9	0.0	0	509
18	1980	06	20.86591	13	08	04.52	+04	35	56.8	0.0	0	509
18	1980	06	25.86389	13	09	46.02	+04	11	12.7	0.0	0	509
18	1980	06	25.87088	13	09	46.24	+04	11	10.3	0.0	0	509
18	1980	06	25.87778	13	09	46.40	+04	11	08.7	0.0	0	509
18	1980	07	13.85950	13	19	38.55	+02	22	00.6	0.0	0	509
18	1980	07	13.87339	13	19	39.11	+02	21	56.0	0.0	0	509
18	1980	07	13.88314	13	19	39.56	+02	21	50.8	0.0	0	509
29	1979	11	20.19167	09	27	01.90	+21	45	03.3	0.0	0	509
29	1979	11	20.19514	09	27	01.93	+21	45	01.7	0.0	0	509
29	1979	11	20.19861	09	27	02.22	+21	45	02.7	0.0	0	509
29	1980	03	15.91878	08	39	03.27	+23	19	56.7	0.0	0	509
29	1980	03	15.92619	08	39	03.21	+23	19	55.7	0.0	0	509
29	1980	03	16.84722	08	38	53.12	+23	17	12.6	0.0	0	509
29	1980	03	16.85561	08	38	53.03	+23	17	11.3	0.0	0	509
29	1980	04	04.85347	08	41	00.87	+22	04	19.7	0.0	0	509
29	1980	04	04.86152	08	41	00.97	+22	04	16.9	0.0	0	509
29	1980	04	04.86892	08	41	01.14	+22	04	14.7	0.0	0	509
29	1980	04	09.83382	08	43	11.43	+21	40	38.1	0.0	0	509
29	1980	04	09.84146	08	43	11.68	+21	40	36.3	0.0	0	509
29	1980	04	09.84771	08	43	11.86	+21	40	34.6	0.0	0	509
31	1980	04	07.99737	14	05	51.04	-11	10	29.0	0.0	0	509
31	1980	04	08.00432	14	05	50.62	-11	10	29.9	0.0	0	509
31	1980	05	05.92838	13	38	40.30	-11	35	01.4	0.0	0	509
31	1980	05	05.93689	13	38	39.66	-11	35	01.4	0.0	0	509
31	1980	05	08.98147	13	36	01.02	-11	37	52.9	0.0	0	509
31	1980	05	08.98963	13	36	00.64	-11	37	53.1	0.0	0	509
31	1980	06	11.86851	13	18	01.91	-12	39	04.9	0.0	0	509
31	1980	06	11.88499	13	18	01.69	-12	39	05.9	0.0	0	509
44	1981	01	08.04531	11	58	23.57	+02	09	12.5	0.0	0	509
44	1981	01	08.05295	11	58	23.84	+02	09	10.8	0.0	0	509
44	1981	01	08.06128	11	58	24.18	+02	09	09.5	0.0	0	509
44	1981	01	08.06615	11	58	24.43	+02	09	09.4	0.0	0	509
44	1981	01	08.13108	11	58	27.28	+02	08	59.7	0.0	0	509
44	1981	01	08.13854	11	58	27.61	+02	08	59.4	0.0	0	509
44	1981	01	08.14809	11	58	28.02	+02	08	57.4	0.0	0	509
59	1980	06	10.96637	18	57	12.49	-10	02	54.5	0.0	0	509
59	1980	06	10.97674	18	57	11.98	-10	02	54.3	0.0	0	509
59	1980	06	10.98720	18	57	11.57	-10	02	53.8	0.0	0	509
59	1980	06	20.97321	18	49	45.22	-10	01	29.0	0.0	0	509
59	1980	06	20.98640	18	49	44.64	-10	01	28.6	0.0	0	509
59	1980	06	25.91389	18	45	36.55	-10	05	09.2	0.1-	0	509
59	1980	06	25.92500	18	45	35.97	-10	05	10.3	0.1-	0	509
59	1980	07	17.96594	18	26	38.74	-10	54	59.9	0.0	0	509
59	1980	07	17.97534	18	26	38.30	-10	55	01.9	0.0	0	509
59	1980	07	17.98434	18	26	37.88	-10	55	04.3	0.0	0	509
59	1980	07	21.86875	18	23	43.32	-11	08	39.9	0.0	0	509
59	1980	07	21.87847	18	23	42.84	-11	08	42.2	0.0	0	509
59	1980	07	21.88819	18	23	42.41	-11	08	44.5	0.0	0	509
59	1980	07	30.85556	18	18	01.94	-11	44	04.6	0.0	0	509
59	1980	07	30.86528	18	18	01.61	-11	44	07.5	0.0	0	509
59	1980	07	30.87500	18	18	01.18	-11	44	08.6	0.0	0	509

121	1980	04	04.93247	12	38	43.93	+05	49	37.5	0.0	0	509
121	1980	04	05.94554	12	38	03.17	+05	53	00.7	0.0	0	509
121	1980	04	05.99236	12	38	01.27	+05	53	10.8	0.0	0	509
130	1980	07	21.91458	19	04	50.24	-02	36	56.0	0.0	0	509
130	1980	07	21.92431	19	04	49.81	-02	37	00.1	0.0	0	509
130	1980	07	21.93403	19	04	49.30	-02	37	06.0	0.0	0	509
130	1980	07	30.88403	18	58	19.36	-03	54	07.9	0.0	0	509
130	1980	07	30.89375	18	58	18.96	-03	54	13.6	0.0	0	509
130	1980	07	30.90347	18	58	18.58	-03	54	19.1	0.0	0	509
130	1980	08	01.86076	18	57	01.19	-04	12	19.0	0.0	0	509
130	1980	08	01.87118	18	57	00.85	-04	12	24.1	0.0	0	509
130	1980	09	01.83229	18	46	38.63	-09	15	52.8	0.0	0	509
130	1980	09	01.84271	18	46	38.63	-09	15	59.4	0.0	0	509
130	1980	09	01.85324	18	46	38.62	-09	16	04.2	0.0	0	509
130	1980	09	03.82255	18	46	44.06	-09	34	51.2	0.0	0	509
130	1980	09	03.83366	18	46	44.06	-09	34	57.7	0.0	0	509
130	1980	09	03.84130	18	46	43.97	-09	35	03.9	0.0	0	509
135	1980	03	15.97549	11	11	29.27	+04	47	19.7	0.1-	0	509
135	1980	03	16.89514	11	10	38.17	+04	52	04.1	0.1-	0	509
135	1980	03	18.93332	11	08	45.87	+05	02	24.9	0.1-	0	509
135	1980	04	04.88194	10	55	11.32	+06	15	58.2	0.0	0	509
135	1980	04	08.87757	10	52	44.37	+06	28	48.8	0.0	0	509
148	1980	07	06.91747	15	31	59.21	+13	13	41.1	0.0	0	509
148	1980	07	13.93520	15	30	49.21	+12	14	30.9	0.0	0	509
148	1980	07	13.94978	15	30	49.05	+12	14	21.1	0.0	0	509
148	1980	07	17.88503	15	30	36.64	+11	39	00.4	0.0	0	509
172	1980	03	16.01543	11	23	40.22	-02	41	25.7	0.1-	0	509
172	1980	03	16.92295	11	22	43.73	-02	38	38.5	0.1-	0	509
172	1980	04	04.89670	11	05	01.12	-01	38	53.4	0.0	0	509
172	1980	04	08.86333	11	02	08.28	-01	27	56.1	0.0	0	509
172	1980	04	12.84524	10	59	37.98	-01	18	08.5	0.0	0	509
199	1980	04	08.01751	13	59	36.89	+10	45	10.8	0.1-	0	509
199	1980	05	05.89105	13	37	47.22	+11	19	39.1	0.1-	0	509
199	1980	05	09.00369	13	35	39.46	+11	13	07.4	0.1-	0	509
386	1980	09	01.87674	22	18	58.80	-03	59	46.7	0.0	1-	509
386	1980	09	01.88576	22	18	58.37	-03	59	54.5	0.0	1-	509
386	1980	09	03.85590	22	17	39.67	-04	26	30.1	0.1-	1-	509
386	1980	09	03.86366	22	17	39.31	-04	26	37.4	0.1-	1-	509
386	1980	09	03.87257	22	17	39.02	-04	26	44.0	0.1-	1-	509
386	1980	10	01.83322	22	04	29.24	-10	18	18.5	0.0	0	509
386	1980	10	01.84080	22	04	29.23	-10	18	23.7	0.0	0	509
386	1980	10	01.84907	22	04	29.00	-10	18	29.5	0.0	0	509
386	1980	10	06.86014	22	03	51.41	-11	08	22.2	0.0	0	509
386	1980	10	06.86913	22	03	51.35	-11	08	28.3	0.0	0	509
386	1980	10	13.84115	22	04	04.56	-12	08	23.9	0.0	0	509
386	1980	10	13.88316	22	04	04.71	-12	08	44.3	0.0	0	509
576	1980	02	13.92733	08	52	38.96	+13	42	18.6	0.1-	0	509
1319	1980	02	13.92733	08	52	52.79	+13	39	18.1	0.0	0	509

OBSERVATIONS MADE AT GOTTINGEN BY W. LANDGRAF.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
6	1981 01	07.87286	03 23 05.53	-02 11 52.0		528
51	1980 09	17.05089	04 47 31.82	+12 46 36.0		528
51	1980 09	17.06234	04 47 32.39	+12 46 33.8		528
51	1980 09	20.13494	04 49 46.67	+12 33 52.2		528
51	1980 09	20.15677	04 49 47.59	+12 33 47.0		528
51	1981 01	07.85883	04 02 33.49	+05 47 11.8		528
433	1981 09	06.07199	02 31 54.15	+35 17 23.9	12	528
433	1981 09	06.07540	02 31 54.39	+35 17 28.7		528

433		1981	09	06.08012	02	31	54.74	+35	17	35.6	528
433		1981	09	06.09240	02	31	55.52	+35	17	50.8	528
433		1981	09	06.09516	02	31	55.71	+35	17	54.7	528
433		1981	09	06.96976	02	32	57.82	+35	37	08.7	13 528
433		1981	09	06.97406	02	32	58.10	+35	37	14.2	528
433		1981	09	06.97641	02	32	58.22	+35	37	16.6	528
433		1981	09	06.98100	02	32	58.60	+35	37	24.3	528
433		1981	09	06.98504	02	32	58.88	+35	37	29.8	528
433		1981	09	06.99100	02	32	59.22	+35	37	36.6	1 528
433		1981	09	06.99442	02	32	59.52	+35	37	42.7	1 528
433		1981	09	07.04103	02	33	02.52	+35	38	44.3	13 528
433		1981	09	07.04752	02	33	02.88	+35	38	51.7	528
433		1981	09	07.04969	02	33	03.07	+35	38	55.4	528
433		1981	09	07.05907	02	33	03.70	+35	39	08.2	1 528
433		1981	09	07.06149	02	33	03.88	+35	39	11.8	528
433		1981	09	07.06490	02	33	04.03	+35	39	14.9	528
433		1981	09	07.07064	02	33	04.48	+35	39	24.0	528
433		1981	09	07.07619	02	33	04.81	+35	39	30.6	1 528
433		1981	09	07.08725	02	33	05.50	+35	39	44.7	1 528

Note 1: measurement weak.

OBSERVATIONS MADE AT THE OSSERVATORIO S. VITTORE. COMMUNICATED BY E. COLUMBINI.

Object		Date	UT	R. A. (1950)			Decl.			Mag.	Obs.
596		1974	12 12.88472	04	41	07.93	+23	34	55.9	15.0	552
596		1974	12 12.90000	04	41	07.07	+23	34	56.9		552
1739		1980	10 10.94965	01	16	54.19	+08	32	31.6		552
1739		1980	10 10.97535	01	16	52.49	+08	32	20.6		552
2150		1979	06 02.99653	17	27	10.92	+16	34	30.5		552
2150		1979	06 03.04444	17	27	07.93	+16	35	05.4		552
2150		1979	06 15.87986	17	13	03.63	+18	36	19.9		552
2150		1979	06 15.90625	17	13	01.82	+18	36	28.8		552
2150		1979	06 15.93472	17	12	59.87	+18	36	40.0		552
2150		1979	06 21.89583	17	06	37.19	+19	02	51.5		552
2150		1979	06 21.91250	17	06	35.62	+19	02	58.4		552
2150		1979	07 29.86944	16	46	31.34	+15	43	20.3		552
2150		1979	07 29.88889	16	46	31.15	+15	43	07.8		552
2266		1980	10 10.99167	01	46	20.57	+19	50	33.7		552
2266		1980	10 11.00833	01	46	19.94	+19	50	27.8		552
2266		1980	12 06.89167	01	20	10.55	+12	15	55.9		552
2266		1980	12 06.90764	01	20	10.63	+12	15	50.6		552
2347		1980	12 29.92639	06	16	33.01	+29	10	31.9		552
2347		1980	12 29.94306	06	16	31.90	+29	10	26.4		552
2374		1980	11 14.92361	04	30	26.61	+44	38	42.9		552
2374		1980	11 14.94028	04	30	25.47	+44	38	45.1		552
2374		1980	12 08.92986	04	02	46.84	+44	11	58.9		552
2374		1980	12 08.94653	04	02	45.62	+44	11	54.8		552
1974 XZ	*	1974	12 06.91319	04	48	51.33	+23	29	13.7	17.0	552
1974 XZ		1974	12 06.93264	04	48	50.29	+23	29	12.4		552
1974 XZ		1974	12 12.88472	04	42	53.75	+23	16	57.0	17.0	552
1974 XZ		1974	12 12.90000	04	42	52.78	+23	16	54.7		552
1974 XZ		1974	12 16.90000	04	39	00.69	+23	08	13.6	17.0	552
1974 XZ		1974	12 16.91528	04	38	59.81	+23	08	10.9		552

OBSERVATIONS MADE AT THE LICK OBSERVATORY UNDER THE DIRECTION OF A. R. KLEMOLA. FROM ASTRON. J. 86, 1108, 1981.

Object	Date	UT	R. A. (1950)			Decl.			Obs.
2	1976	10 08.52934	08	01	00.67	-13	07	44.4	662
2	1976	10 08.53628	08	01	01.36	-13	07	49.3	662

2	1977 07 07.20833	10 55 36.21	+12 23 16.5	662
3	1979 11 21.54167	07 46 11.69	+02 06 27.0	662
3	1979 11 25.44549	07 47 04.62	+01 42 38.0	662
3	1979 12 01.45243	07 47 26.00	+01 11 06.0	662
3	1979 12 01.45382	07 47 25.99	+01 11 05.6	662
3	1979 12 01.45521	07 47 25.99	+01 11 05.5	662
3	1979 12 01.46285	07 47 25.96	+01 11 03.0	662
3	1979 12 01.46424	07 47 25.92	+01 11 02.6	662
3	1979 12 01.46563	07 47 25.94	+01 11 02.3	662
6	1980 09 05.44896	03 46 37.05	+00 21 18.8	662
6	1980 09 05.45035	03 46 37.12	+00 21 18.1	662
6	1980 09 05.45174	03 46 37.23	+00 21 17.6	662
6	1980 09 05.47743	03 46 38.95	+00 21 06.4	662
6	1980 09 05.47882	03 46 39.05	+00 21 05.8	662
6	1980 09 05.48021	03 46 39.14	+00 21 05.1	662
6	1980 09 10.42743	03 52 00.16	-00 16 45.3	662
6	1980 09 10.42882	03 52 00.22	-00 16 46.2	662
6	1980 09 10.43021	03 52 00.32	-00 16 46.8	662
6	1980 09 10.44132	03 52 00.96	-00 16 51.9	662
6	1980 09 10.44271	03 52 01.05	-00 16 52.8	662
6	1980 09 10.44410	03 52 01.12	-00 16 53.2	662
9	1979 12 01.47743	09 30 03.98	+20 17 18.9	662
9	1979 12 01.47882	09 30 04.04	+20 17 19.1	662
9	1979 12 01.48021	09 30 04.10	+20 17 19.2	662
9	1979 12 01.48646	09 30 04.39	+20 17 19.6	662
9	1979 12 01.48785	09 30 04.45	+20 17 19.4	662
9	1979 12 01.48924	09 30 04.49	+20 17 19.5	662
18	1978 12 06.39757	06 39 37.24	+06 38 06.9	662
48	1979 12 27.27396	05 20 49.12	+13 28 31.2	662
48	1979 12 27.28090	05 20 48.79	+13 28 31.4	662
78	1980 08 25.43403	02 23 39.65	+22 38 21.4	662
78	1980 08 25.44792	02 23 39.90	+22 38 26.8	662
78	1980 08 25.45834	02 23 40.10	+22 38 31.3	662
134	1980 11 09.21632	02 00 35.48	+30 12 17.5	662
134	1980 11 09.21910	02 00 35.31	+30 12 17.0	662
134	1980 11 09.22188	02 00 35.12	+30 12 16.5	662
134	1980 11 18.23715	01 51 51.35	+29 39 20.4	662
134	1980 11 18.23993	01 51 51.19	+29 39 19.5	662
134	1980 11 18.24271	01 51 51.06	+29 39 18.7	662
216	1980 07 04.42222	23 27 42.57	+12 34 58.4	662
216	1980 07 04.42569	23 27 42.71	+12 35 00.2	662
216	1980 09 27.26007	23 18 40.09	+11 15 54.1	662
216	1980 09 27.26146	23 18 40.04	+11 15 53.1	662
216	1980 09 27.26285	23 18 39.98	+11 15 52.1	662
216	1980 10 05.21424	23 14 32.22	+09 35 54.1	662
216	1980 10 05.21562	23 14 32.19	+09 35 53.0	662
216	1980 10 05.21701	23 14 32.15	+09 35 52.0	662
1862	1980 11 18.16354	23 11 22.50	+24 36 27.0	662
1862	1980 11 18.18924	23 12 03.20	+24 39 19.7	662
1862	1980 11 18.21076	23 12 37.13	+24 41 39.3	662

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

Object	Date UT	R. A. (1950)	Decl.	Mag.	N	Obs.
631	1960 09 25.36042	23 57 47.88	+19 46 15.5		1	675
631	1960 09 26.40208	23 57 00.74	+19 37 00.9		1	675
1235	1960 10 22.29097	00 31 22.32	+15 49 52.2		1	675
1235	1960 10 24.30972	00 27 14.31	+16 23 44.8		1	675
1235	1960 10 25.32778	00 25 12.79	+16 40 25.1		1	675
1235	1960 10 26.37951	00 23 10.37	+16 57 19.4		1	675

1976			1960	10	17.22501	23	25	41.60	-07	39	42.3		1 675
1976			1960	10	22.16324	23	23	26.80	-07	48	06.9		1 675
1976			1960	10	24.23753	23	22	41.44	-07	50	18.0		1 675
1981	QA		1981	09	09.26902	21	18	19.39	-06	48	48.9		2 675
1981	QA		1981	09	10.31983	21	22	15.43	-07	22	45.2		2 675
1981	QB	*	1981	08	28.23125	21	38	43.68	-07	14	25.7	16.0	3 675
1981	QB		1981	08	28.28333	21	38	39.84	-07	18	56.9		3 675
1981	QB		1981	08	29.20556	21	37	40.73	-08	41	47.4	16.0	3 675
1981	QB		1981	08	29.25764	21	37	36.97	-08	46	25.2		3 675
1981	QB		1981	08	30.20972	21	36	34.57	-10	14	20.2	16.0	3 675
1981	QB		1981	08	30.26181	21	36	30.81	-10	19	11.2		3 675
1981	QB		1981	08	31.20660	21	35	28.30	-11	48	33.7	16.0	3 675
1981	QB		1981	08	31.25868	21	35	24.56	-11	53	26.6		3 675
1981	QB		1981	09	01.20903	21	34	20.86	-13	25	26.7	16.0	3 675
1981	QB		1981	09	01.26111	21	34	17.28	-13	30	22.4		3 675
1981	QB		1981	09	02.20625	21	33	13.74	-15	03	34.1	16.0	3 675
1981	QB		1981	09	02.25833	21	33	09.68	-15	08	41.7		3 675
1981	QB		1981	09	03.20938	21	32	05.42	-16	44	06.9	16.0	3 675
1981	QB		1981	09	03.26146	21	32	01.61	-16	49	16.1		3 675
1981	QM	*	1981	08	28.25729	21	28	45.71	-08	55	56.0	15.0	3 675
1981	QM		1981	08	29.23160	21	28	30.45	-09	02	04.2	15.0	3 675
1981	QM		1981	08	30.23576	21	28	16.05	-09	08	16.8	15.0	3 675
1981	QM		1981	08	31.23264	21	28	03.19	-09	14	22.4	15.0	3 675
1981	QM		1981	09	01.23507	21	27	51.80	-09	20	26.6	15.0	3 675
2563	P-L	*	1960	09	24.46184	00	55	32.72	+04	13	09.1		1 675
2563	P-L		1960	09	26.37988	00	54	11.86	+04	03	50.5		1 675
2563	P-L		1960	09	28.43822	00	52	43.49	+03	53	42.9		1 675
2563	P-L		1960	09	29.39514	00	52	02.21	+03	48	59.1		1 675
2563	P-L		1960	10	22.26809	00	35	59.59	+02	01	58.2		1 675
2563	P-L		1960	10	25.30351	00	34	10.22	+01	50	11.6		1 675
2563	P-L		1960	10	26.35766	00	33	33.81	+01	46	18.6		1 675
4579	P-L	*	1960	09	24.41183	00	26	46.47	+00	07	55.1		1 675
4579	P-L		1960	09	26.31530	00	25	03.29	-00	03	55.3		1 675
4579	P-L		1960	09	27.40836	00	24	03.64	-00	10	39.4		1 675
4579	P-L		1960	09	28.39725	00	23	10.04	-00	16	41.5		1 675
4579	P-L		1960	10	17.28198	00	08	19.81	-01	49	18.9		1 675
4579	P-L		1960	10	22.23406	00	05	43.66	-02	03	02.7		1 675
4579	P-L		1960	10	25.25350	00	04	29.79	-02	08	47.3		1 675
4579	P-L		1960	10	26.31531	00	04	07.70	-02	10	18.8		1 675
7071	P-L		1960	09	24.27708	00	15	21.17	+15	46	11.4		1 675
7071	P-L		1960	09	24.36250	00	15	17.18	+15	43	52.7		1 675
7071	P-L		1960	09	24.47431	00	15	12.23	+15	40	50.5		1 675
7071	P-L		1960	09	25.22986	00	14	42.12	+15	20	19.5		1 675
7071	P-L		1960	09	25.36042	00	14	36.12	+15	16	45.2		1 675
7071	P-L		1960	09	25.46250	00	14	31.61	+15	13	57.3		1 675
7071	P-L		1960	09	26.24514	00	14	00.27	+14	52	27.4		1 675
7071	P-L		1960	09	26.29514	00	13	57.98	+14	51	04.5		1 675
7071	P-L		1960	09	26.40208	00	13	53.20	+14	48	07.6		1 675
7071	P-L		1960	09	27.27569	00	13	17.77	+14	23	47.3		1 675
7071	P-L		1960	09	27.44444	00	13	10.22	+14	19	04.0		1 675
7071	P-L		1960	09	28.34722	00	12	33.69	+13	53	43.8		1 675
7071	P-L		1960	09	28.40764	00	12	31.10	+13	52	00.8		1 675
7071	P-L		1960	09	28.46181	00	12	28.68	+13	50	28.7		1 675
7071	P-L		1960	09	29.34722	00	11	53.09	+13	25	22.7		1 675
7071	P-L		1960	09	29.47153	00	11	47.59	+13	21	50.0		1 675

Note 1: observer T. Gehrels; measurements by C. J. van Houten and I. van Houten-Groeneveld; reductions by P. Herget. 2: observer J. Gibson. 3: observer C. Kowal.

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

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
2067		1980	11 05.13333	00 15 53.40	-01 11 04.5	17	675
2067		1980	11 07.17708	00 15 13.66	-01 15 09.6	17	675
1980	TD4	1980	11 05.13333	00 14 55.89	+04 05 05.8		675
1980	TD4	1980	11 07.17708	00 14 32.76	+04 07 57.0	17.5	675
1980	TX4	1980	11 05.13333	00 12 19.12	-01 12 06.3		675
1980	TX4	1980	11 07.17708	00 11 37.48	-01 18 28.0	17	675
1980	TB5	1980	11 05.10347	00 03 45.47	+10 53 44.0		675
1980	TB5	1980	11 07.18889	00 02 46.48	+10 50 00.5	17.5	675
1980	TC5	1980	11 05.10347	00 13 02.88	+08 14 43.8		675
1980	TC5	1980	11 07.18889	00 12 48.17	+08 00 21.0	17	675
1980	TG5	1980	11 07.18889	00 14 43.79	+11 17 04.2	17	675
1980	TO5	1980	11 07.18889	00 19 01.91	+08 41 54.2	17.5	675
1980	TQ5	1980	11 07.18889	00 21 28.10	+08 41 11.7	17	675
1980	TU5	1980	11 05.10347	00 25 16.46	+08 15 45.0	16.3	675
1980	TU5	1980	11 07.18889	00 24 40.34	+08 12 54.4		675
1980	TW5	1980	11 07.18889	00 27 35.25	+08 36 41.5	17.5	675
1980	VE1 *	1980	11 07.16806	00 14 32.04	+14 50 09.6	15.5	675
1980	VE1	1980	11 07.18889	00 14 32.74	+14 49 36.6		675
1981	PF	1981	08 31.33611	21 53 16.65	-15 54 07.0	16.5	675
1981	PF	1981	08 31.34861	21 53 16.44	-15 44 19.5		675

OBSERVATIONS MADE AT THE LOWELL OBSERVATORY'S ANDERSON MESA STATION BY E. BOWELL, B. A. SKIFF AND N. G. THOMAS. MEASURED BY BOWELL.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
17	1981	08 05.27500	21 45 27.45	-15 58 18.2		688
17	1981	08 05.31042	21 45 25.51	-15 58 34.7		688
17	1981	08 27.27361	21 26 46.66	-18 34 33.4		688
17	1981	08 27.30833	21 26 44.98	-18 34 45.7		688
18	1981	07 26.32639	22 17 10.93	-06 22 41.5		688
18	1981	07 26.36042	22 17 10.40	-06 22 57.5		688
19	1981	07 24.18403	15 31 16.13	-17 38 06.0		688
19	1981	07 24.26042	15 31 17.02	-17 38 10.1		688
27	1981	07 24.18403	15 21 03.30	-17 41 25.6		688
27	1981	07 24.26042	15 21 04.61	-17 41 33.8		688
30	1981	06 24.23889	17 34 08.08	-25 33 53.4		688
30	1981	06 24.29861	17 34 04.18	-25 33 48.8		688
41	1981	07 26.25833	20 52 26.44	+02 21 20.4		688
41	1981	07 26.29236	20 52 24.64	+02 21 05.4		688
49	1981	07 24.23542	16 57 25.69	-23 56 39.0		688
49	1981	07 24.28472	16 57 24.58	-23 56 34.5		688
58	1981	09 04.17431	20 40 14.39	-15 33 06.2		688
58	1981	09 04.19444	20 40 13.78	-15 33 11.4		688
60	1981	07 24.18403	15 21 19.14	-14 27 35.6		688
60	1981	07 24.26042	15 21 20.57	-14 27 44.3		688
62	1981	07 26.30972	21 39 03.80	-14 40 55.1		688
62	1981	07 26.34375	21 39 02.45	-14 41 03.3		688
64	1981	09 04.17431	20 37 55.27	-18 13 13.8		688
64	1981	09 04.19444	20 37 54.58	-18 13 16.0		688
93	1981	07 03.36111	21 51 40.36	-25 06 13.9		688
93	1981	07 03.39792	21 51 39.75	-25 06 19.8		688
116	1981	07 26.30972	21 46 13.97	-18 40 48.9		688
116	1981	07 26.34375	21 46 12.46	-18 40 58.6		688
116	1981	08 27.27361	21 19 58.29	-20 53 38.0		688
116	1981	08 27.30833	21 19 56.60	-20 53 44.1		688
121	1981	07 24.18403	15 25 22.53	-17 51 07.5		688
121	1981	07 24.26042	15 25 22.91	-17 51 16.6		688

123	1981	06	05.17361	11	53	32.03	-07	19	26.8		688
123	1981	06	05.21315	11	53	33.02	-07	19	27.8		688
128	1981	09	03.29306	00	35	45.95	-07	11	34.9		688
128	1981	09	03.33403	00	35	44.58	-07	11	48.0		688
135	1981	08	04.23333	20	40	52.28	-21	07	20.1		688
135	1981	08	04.28542	20	40	49.31	-21	07	25.0		688
135	1981	08	28.25486	20	23	54.85	-21	14	59.0		688
135	1981	08	28.32639	20	23	53.05	-21	14	54.3		688
142	1981	06	04.26806	15	19	00.17	-21	33	49.9		688
142	1981	06	04.31049	15	18	58.25	-21	33	38.3		688
142	1981	06	09.25347	15	15	49.04	-21	13	01.8		688
142	1981	06	09.30417	15	15	47.19	-21	12	48.9		688
142	1981	07	24.18403	15	22	20.45	-20	12	49.2	1	688
157	1981	07	24.23542	16	44	50.06	-29	38	46.5		688
157	1981	07	24.28472	16	44	48.93	-29	38	47.3		688
165	1981	07	26.24097	20	01	34.17	-21	28	40.3		688
165	1981	07	26.27569	20	01	32.29	-21	28	38.5		688
181	1981	08	30.40278	01	32	56.51	-08	56	04.5		688
181	1981	08	30.46944	01	32	56.01	-08	56	41.8		688
182	1981	07	26.24097	20	12	53.46	-20	49	08.3		688
182	1981	07	26.27569	20	12	51.24	-20	49	16.5		688
184	1981	06	09.25347	14	57	15.55	-18	34	32.9		688
184	1981	06	09.30417	14	57	13.96	-18	34	25.1		688
210	1981	08	03.18750	16	23	02.64	-27	00	59.3		688
210	1981	08	03.23611	16	23	02.94	-27	00	57.7		688
223	1981	07	24.23542	16	40	56.72	-23	42	47.0		688
223	1981	07	24.28472	16	40	56.05	-23	42	45.9		688
230	1981	07	25.25972	19	48	00.71	-06	30	57.4		688
231	1981	07	03.20556	16	39	57.65	-30	29	19.7		688
231	1981	07	03.22222	16	39	57.04	-30	29	16.9		688
237	1981	07	03.36111	22	06	47.83	-22	32	42.8		688
237	1981	07	03.39792	22	06	47.63	-22	32	57.2		688
237	1981	08	05.29306	21	51	20.32	-26	36	38.5		688
237	1981	08	05.32778	21	51	18.59	-26	36	53.9		688
254	1981	08	30.37917	00	14	49.68	-03	48	50.8		688
254	1981	08	30.44514	00	14	46.43	-03	49	06.3		688
257	1981	08	04.23333	20	38	41.82	-23	56	31.5		688
257	1981	08	04.28542	20	38	39.25	-23	56	40.3		688
268	1981	08	30.37917	23	59	42.39	-02	53	52.0		688
268	1981	08	30.44514	23	59	39.99	-02	54	10.3		688
268	1981	09	03.27083	23	57	19.32	-03	11	57.4		688
268	1981	09	03.31389	23	57	17.62	-03	12	09.7		688
286	1981	08	30.40278	01	40	54.16	-06	02	17.4		688
286	1981	08	30.46944	01	40	53.75	-06	02	51.3		688
316	1981	08	04.23333	20	33	08.94	-19	01	31.0		688
316	1981	08	04.28542	20	33	06.49	-19	01	40.5		688
316	1981	08	28.25486	20	16	45.67	-20	08	52.7		688
316	1981	08	28.32639	20	16	43.51	-20	09	02.0		688
338	1981	07	26.32639	22	07	17.78	-06	12	13.3		688
338	1981	07	26.36042	22	07	16.50	-06	12	14.6		688
362	1981	07	03.28715	19	32	19.07	-34	37	36.0		688
362	1981	07	03.31979	19	32	16.98	-34	37	43.0		688
375	1981	07	03.36111	21	55	50.11	-24	00	21.4		688
375	1981	07	03.39792	21	55	49.32	-24	00	21.7		688
375	1981	08	27.27361	21	11	32.09	-23	23	52.8		688
375	1981	08	27.30833	21	11	30.26	-23	23	47.2		688
415	1981	08	03.16319	14	55	15.46	-08	25	38.1		688
415	1981	08	03.21250	14	55	16.59	-08	25	47.9	2	688
457	1981	07	25.29375	19	42	46.50	-06	03	41.8		688

468		1981	07	24.18403	15	25	22.57	-19	07	31.5		688
468		1981	07	24.26042	15	25	23.22	-19	07	34.1		688
513		1981	07	25.25972	19	54	51.33	-07	30	23.8		688
513		1981	07	25.29375	19	54	49.68	-07	30	31.2		688
539		1981	08	03.34167	20	36	46.95	-11	32	37.0		688
539		1981	08	03.37708	20	36	44.92	-11	32	40.0		688
549		1981	06	04.26806	15	12	32.80	-22	34	14.4		688
549		1981	06	04.31049	15	12	30.77	-22	34	03.9		688
549		1981	06	09.25347	15	09	01.17	-22	14	07.5		688
549		1981	06	09.30417	15	08	59.17	-22	13	55.8		688
565		1981	06	05.17361	12	10	33.23	-05	36	53.2		688
565		1981	06	05.21315	12	10	35.12	-05	36	49.2		688
570		1981	08	28.25486	20	24	51.97	-16	45	55.0		688
570		1981	08	28.32639	20	24	49.68	-16	46	04.9		688
570		1981	09	04.17431	20	21	48.97	-16	59	41.6		688
570		1981	09	04.19444	20	21	48.49	-16	59	43.8		688
577		1981	07	03.20556	16	46	26.32	-29	44	45.8		688
577		1981	07	03.22222	16	46	25.64	-29	44	42.8		688
588		1981	07	03.20556	16	39	28.18	-32	41	19.1		688
588		1981	07	03.22222	16	39	27.40	-32	41	11.8	2	688
598		1981	07	03.28715	19	35	42.54	-27	02	55.2		688
598		1981	07	03.31979	19	35	40.68	-27	03	09.2		688
604		1981	06	24.23889	17	32	07.22	-29	15	46.5		688
604		1981	06	24.29861	17	32	04.08	-29	15	44.9		688
621		1981	06	24.23889	17	40	43.19	-24	30	32.9	16.8	688
621		1981	06	24.29861	17	40	40.22	-24	30	33.2		688
645		1981	08	30.37917	23	58	45.53	-01	48	03.5		688
645		1981	08	30.44514	23	58	42.93	-01	48	13.1		688
645		1981	09	03.27083	23	56	11.21	-01	57	38.4		688
645		1981	09	03.31389	23	56	09.37	-01	57	45.0		688
669		1981	08	28.27917	21	00	35.18	-08	41	17.6		688
669		1981	08	28.30278	21	00	34.29	-08	41	28.9		688
669		1981	09	04.21944	20	56	55.91	-09	30	23.2		688
669		1981	09	04.24236	20	56	55.20	-09	30	34.5		688
681		1981	07	25.25972	20	07	31.95	-03	45	30.7		688
681		1981	07	25.29375	20	07	30.54	-03	45	39.2		688
684		1981	08	04.23333	20	29	32.60	-23	50	43.7		688
684		1981	08	04.28542	20	29	29.30	-23	50	44.9		688
691		1981	08	05.32778	22	01	38.60	-28	43	25.9		688
696		1981	08	03.18750	16	06	39.53	-30	47	58.0		688
696		1981	08	03.23611	16	06	39.29	-30	47	48.4	3	688
713		1981	07	24.18403	15	29	46.61	-12	35	31.7		688
713		1981	07	24.26042	15	29	47.35	-12	35	33.2		688
722		1981	08	04.21389	20	06	19.14	-32	29	09.5		688
722		1981	08	04.26806	20	06	15.65	-32	29	15.6		688
749		1981	09	03.29306	00	38	18.11	-04	47	27.7		688
749		1981	09	03.33403	00	38	16.33	-04	47	45.0		688
766		1981	08	30.37917	23	59	31.27	-04	54	55.2		688
766		1981	08	30.44514	23	59	28.43	-04	55	03.6		688
766		1981	09	03.27083	23	56	42.87	-05	03	24.4		688
766		1981	09	03.31389	23	56	40.89	-05	03	30.3		688
785		1981	08	05.29306	22	07	16.85	-31	11	34.1		688
785		1981	08	05.32778	22	07	15.05	-31	11	46.7		688
797		1981	06	05.17361	12	02	10.68	-03	35	00.0		688
797		1981	06	05.21315	12	02	12.08	-03	35	03.3		688
821		1981	08	03.21250	15	08	35.31	-12	48	55.9		688
827		1981	09	04.17431	20	36	11.98	-15	27	13.3		688
827		1981	09	04.19444	20	36	11.50	-15	27	18.4		688
870		1981	07	26.24097	20	06	31.44	-20	31	27.7		688

870	1981	07	26.27569	20	06	29.87	-20	31	48.4			688
872	1981	08	03.35972	21	30	27.48	-04	43	14.9			688
872	1981	08	03.39514	21	30	25.76	-04	43	23.8			688
872	1981	08	28.27917	21	11	04.29	-07	03	00.2			688
872	1981	08	28.30278	21	11	03.24	-07	03	08.9			688
872	1981	09	04.21944	21	06	40.58	-07	44	58.0			688
872	1981	09	04.24236	21	06	39.68	-07	45	06.3			688
885	1981	08	03.21250	14	51	58.61	-12	46	13.0			688
889	1981	08	27.27361	21	24	40.26	-18	22	28.0			688
889	1981	08	27.30833	21	24	38.43	-18	22	44.8			688
913	1981	07	24.23542	16	49	17.11	-23	04	59.3			688
913	1981	07	24.28472	16	49	17.62	-23	05	13.4			688
940	1981	07	24.23542	16	53	36.27	-25	24	58.7			688
940	1981	07	24.28472	16	53	35.41	-25	24	59.6			688
948	1981	07	03.37847	22	22	58.56	-17	37	11.9			688
948	1981	07	03.41528	22	22	57.90	-17	37	15.9			688
963	1981	07	03.28715	19	34	03.95	-31	15	20.7		3	688
963	1981	07	03.31979	19	34	01.36	-31	15	32.1			688
999	1981	06	05.17361	12	03	43.46	-03	25	17.4			688
999	1981	06	05.21315	12	03	43.99	-03	25	14.7			688
1071	1981	06	04.26806	15	25	39.56	-19	51	12.8			688
1071	1981	06	04.31049	15	25	37.40	-19	51	08.6			688
1071	1981	06	09.25347	15	21	54.73	-19	43	47.9			688
1071	1981	06	09.30417	15	21	52.42	-19	43	43.2			688
1081	1981	08	05.27500	21	41	47.50	-20	20	31.3	16.5		688
1081	1981	08	05.31042	21	41	45.66	-20	20	39.6			688
1081	1981	08	27.27361	21	23	50.54	-21	32	09.0			688
1081	1981	08	27.30833	21	23	48.92	-21	32	14.2			688
1082	1981	07	24.18403	15	41	02.52	-17	21	28.2			688
1082	1981	07	24.26042	15	41	03.10	-17	21	31.7			688
1100	1981	07	24.18403	15	28	21.34	-19	55	23.0			688
1100	1981	07	24.26042	15	28	22.32	-19	55	23.6			688
1111	1981	08	30.37917	00	12	52.60	-02	50	03.6			688
1111	1981	08	30.44514	00	12	50.45	-02	50	24.8			688
1116	1981	08	05.34514	22	33	49.27	-22	55	30.3			688
1116	1981	08	05.36181	22	33	48.48	-22	55	32.9			688
1137	1981	07	24.23542	16	47	57.76	-24	00	00.0			688
1137	1981	07	24.28472	16	47	57.14	-24	00	01.3			688
1162	1981	08	30.37917	00	00	15.07	-01	56	23.0			688
1162	1981	08	30.44514	00	00	12.96	-01	56	36.1			688
1162	1981	09	03.27083	23	58	10.31	-02	09	40.7			688
1162	1981	09	03.31389	23	58	08.81	-02	09	49.2			688
1180	1981	09	03.29306	00	42	44.65	-05	56	31.8			688
1180	1981	09	03.33403	00	42	43.50	-05	56	42.6			688
1186	1981	08	03.18750	16	00	11.88	-29	20	02.6			688
1186	1981	08	03.23611	16	00	12.51	-29	20	03.2			688
1194	1981	07	03.20556	17	01	37.53	-29	57	56.1			688
1194	1981	07	03.22222	17	01	36.77	-29	57	52.0			688
1194	1981	07	24.23542	16	51	53.65	-28	09	46.9			688
1194	1981	07	24.28472	16	51	53.01	-28	09	31.8		2	688
1228	1981	08	04.23333	20	17	48.13	-19	55	03.3			688
1228	1981	08	04.28542	20	17	45.36	-19	55	08.3			688
1228	1981	08	28.25486	20	00	45.41	-20	22	07.3			688
1228	1981	09	03.14861	19	58	23.00	-20	23	22.7		1	688
1228	1981	09	03.22083	19	58	21.41	-20	23	21.5			688
1245	1981	08	03.16319	15	08	18.40	-14	16	41.2			688
1245	1981	08	03.21250	15	08	20.09	-14	16	50.9			688
1249	1981	09	04.17431	20	39	23.63	-11	04	51.4			688
1249	1981	09	04.19444	20	39	22.86	-11	04	54.6			688

1274		1981	07	26.30972	21	30	16.04	-16	53	39.8	688
1274		1981	07	26.34375	21	30	14.01	-16	53	45.0	688
1276		1981	08	05.29306	22	04	51.76	-27	50	52.4	688
1276		1981	08	05.32778	22	04	50.30	-27	51	09.1	688
1294		1981	07	03.36111	21	58	26.47	-22	35	09.6	688
1294		1981	07	03.39792	21	58	26.38	-22	35	23.8	688
1294		1981	08	05.29306	21	43	18.96	-26	44	08.7	688
1294		1981	08	05.32778	21	43	17.19	-26	44	24.7	688
1295		1981	09	04.17431	20	34	57.42	-15	45	48.7	688
1295		1981	09	04.19444	20	34	56.97	-15	45	51.9	688
1296		1981	09	04.17431	20	37	57.65	-12	04	15.6	688
1296		1981	09	04.19444	20	37	56.89	-12	04	20.2	688
1298		1981	07	26.24097	20	00	33.42	-20	34	26.8	688
1298		1981	07	26.27569	20	00	31.52	-20	34	28.5	688
1338		1981	07	26.30972	21	24	05.78	-17	20	12.1	688
1338		1981	07	26.34375	21	24	03.65	-17	20	16.1	688
1349		1981	07	03.20556	17	00	21.68	-33	21	33.5	688
1377		1981	07	25.25972	19	59	57.57	-09	30	29.0	688
1377		1981	07	25.29375	19	59	55.43	-09	30	33.8	688
1388		1981	07	03.20556	16	42	01.09	-30	22	08.2	688
1388		1981	07	03.22222	16	42	00.43	-30	22	08.1	688
1401		1981	06	24.23889	17	39	36.40	-25	28	31.6	688
1401		1981	06	24.29861	17	39	32.08	-25	28	11.3	688
1407		1981	07	24.23542	16	47	19.22	-22	26	37.7	688
1407		1981	07	24.28472	16	47	18.20	-22	26	29.3	688
1412		1981	07	03.31979	19	40	37.41	-26	53	35.1	688
1415		1981	07	26.30972	21	37	26.88	-15	56	22.5	688
1415		1981	07	26.34375	21	37	24.88	-15	56	28.5	688
1421		1981	07	03.39792	21	59	43.94	-26	22	47.8	688
1421		1981	08	05.29306	21	40	12.39	-29	03	58.1	688
1421		1981	08	05.32778	21	40	10.68	-29	04	05.7	688
1450		1981	06	04.26806	15	22	50.10	-16	39	26.6	688
1450		1981	06	04.31049	15	22	48.10	-16	39	21.7	688
1454		1981	08	05.27500	21	55	28.58	-17	13	12.3	688
1454		1981	08	05.31042	21	55	26.51	-17	13	20.4	688
1455		1981	07	26.24097	20	23	27.15	-18	07	43.4	688
1455		1981	07	26.27569	20	23	25.08	-18	08	01.1	688
1455		1981	08	28.25486	19	58	57.40	-21	55	55.9	688
1455		1981	08	28.32639	19	58	55.90	-21	56	14.2	688
1455		1981	09	03.22083	19	57	41.10	-22	20	47.6	688
1465		1981	08	03.26111	18	12	50.48	-10	42	03.4	688
1465		1981	08	03.30347	18	12	49.60	-10	42	16.6	688
1472		1981	08	04.21389	19	45	30.43	-30	22	46.4	688
1472		1981	08	04.26806	19	45	27.18	-30	22	50.8	688
1498		1981	06	24.23889	17	32	32.06	-22	43	38.3	688
1498		1981	06	24.29861	17	32	28.87	-22	43	26.0	688
1504		1981	07	03.37847	22	19	25.46	-20	49	52.6	688
1504		1981	07	03.41528	22	19	25.08	-20	50	07.5	2 688
1518		1981	09	03.29306	00	25	07.19	-05	05	21.0	688
1518		1981	09	03.33403	00	25	05.39	-05	05	28.4	688
1522		1981	07	03.36111	22	00	47.23	-20	07	04.4	688
1522		1981	07	03.39792	22	00	46.71	-20	07	14.4	688
1522		1981	08	27.27361	21	19	07.24	-24	51	26.3	688
1526		1981	08	26.30764	21	54	07.04	-14	27	46.0	688
1526		1981	08	26.34653	21	54	04.60	-14	27	50.5	688
1526		1981	08	30.28542	21	49	49.58	-14	33	35.0	688
1526		1981	08	30.32014	21	49	47.39	-14	33	37.2	1 688
1550		1981	06	24.23889	17	40	10.74	-29	19	11.7	688
1550		1981	06	24.29861	17	40	06.36	-29	19	22.1	688

1554	1981	06	05.17361	11	55	50.65	-04	15	45.6		688
1560	1981	09	04.17431	20	42	35.61	-12	12	16.4		688
1560	1981	09	04.19444	20	42	34.92	-12	12	17.6		688
1576	1981	08	30.37917	00	00	04.61	-00	07	10.9		688
1576	1981	08	30.44514	00	00	02.35	-00	07	27.1		688
1576	1981	09	03.27083	23	57	50.04	-00	23	20.4		688
1576	1981	09	03.31389	23	57	48.43	-00	23	31.3		688
1583	1981	08	03.16319	15	06	28.37	-07	53	20.1		688
1583	1981	08	03.21250	15	06	29.01	-07	53	20.6		688
1593	1981	07	26.24097	19	59	55.75	-21	12	26.6		688
1593	1981	07	26.27569	19	59	54.58	-21	13	03.0		688
1602	1981	08	04.23333	20	31	27.01	-24	40	04.9		688
1602	1981	08	04.28542	20	31	23.46	-24	40	18.4		688
1623	1981	08	04.23333	20	25	58.24	-19	54	35.4		688
1623	1981	08	04.28542	20	25	55.79	-19	54	44.5		688
1633	1981	07	26.24097	20	06	52.12	-20	38	03.2		688
1633	1981	07	26.27569	20	06	50.46	-20	38	10.1		688
1638	1981	09	04.17431	20	46	04.61	-17	34	28.5		688
1638	1981	09	04.19444	20	46	04.12	-17	34	30.5		688
1645	1981	08	04.23333	20	25	14.18	-18	13	24.9		688
1645	1981	08	04.28542	20	25	11.59	-18	13	32.2		688
1645	1981	08	28.25486	20	08	54.80	-19	04	16.3		688
1645	1981	08	28.32639	20	08	52.56	-19	04	22.8		688
1645	1981	09	03.14861	20	06	32.20	-19	11	40.4		688
1645	1981	09	03.22083	20	06	30.57	-19	11	45.1		688
1659	1981	08	05.34514	22	20	24.56	-19	26	55.2		688
1659	1981	08	05.36181	22	20	23.54	-19	26	52.1		688
1659	1981	08	26.30764	21	57	05.48	-18	06	20.3		688
1659	1981	08	26.34653	21	57	02.58	-18	06	08.2		688
1659	1981	08	30.32014	21	52	25.52	-17	45	07.8		688
1666	1981	06	05.17361	12	09	42.61	-04	10	03.0		688
1698	1981	07	26.30972	21	29	40.92	-16	56	59.3		688
1698	1981	07	26.34375	21	29	39.31	-16	57	06.7		688
1701	1981	08	03.18750	16	17	08.99	-30	38	03.7		688
1701	1981	08	03.23611	16	17	09.46	-30	38	09.4		688
1748	1981	07	26.30972	21	25	41.49	-15	50	16.9		688
1748	1981	07	26.34375	21	25	40.28	-15	50	23.8		688
1753	1981	06	04.26806	15	13	42.17	-18	03	52.2		688
1753	1981	06	04.31049	15	13	40.09	-18	03	54.5		688
1753	1981	06	09.25347	15	10	05.09	-18	08	35.3		688
1753	1981	06	09.30417	15	10	02.96	-18	08	36.8		688
1756	1981	09	04.17431	20	46	59.40	-12	56	13.2		688
1756	1981	09	04.19444	20	46	58.76	-12	56	12.3	3	688
1848	1981	06	24.23889	17	33	59.28	-25	23	17.3		688
1848	1981	06	24.29861	17	33	56.00	-25	23	14.2		688
1858	1981	09	03.27083	23	52	17.38	+02	00	40.3		688
1858	1981	09	03.31389	23	52	15.48	+02	00	29.4		688
1897	1981	07	03.37847	22	15	32.20	-17	29	23.0		688
1897	1981	07	03.41528	22	15	32.72	-17	29	28.0		688
1897	1981	08	05.27500	22	07	11.80	-20	08	05.2		688
1897	1981	08	05.31042	22	07	10.18	-20	08	18.0		688
1902	1981	08	04.21389	20	06	17.57	-36	41	17.5		688
1902	1981	08	04.26806	20	06	15.18	-36	41	24.1		688
1910	1981	08	03.26111	18	04	31.04	-09	22	54.2		688
1910	1981	08	03.30347	18	04	29.98	-09	23	01.9		688
1978	1981	07	03.36111	21	53	32.79	-21	25	24.3		688
1978	1981	07	03.39792	21	53	33.56	-21	25	33.3		688
1978	1981	08	27.27361	21	28	26.91	-25	37	10.0		688
1978	1981	08	27.30833	21	28	25.28	-25	37	10.3		688

2025		1981	07	03.20556	17	04	55.69	-32	25	08.4		688
2025		1981	07	03.22222	17	04	54.98	-32	25	05.5		688
2045		1981	06	05.17361	12	10	59.38	-04	23	18.3		688
2045		1981	06	05.21315	12	11	00.63	-04	23	30.1		688
2078		1981	07	26.25833	20	50	49.01	-00	47	04.4		688
2078		1981	07	26.29236	20	50	46.22	-00	46	32.4		688
2084		1981	09	04.17431	20	34	33.11	-17	35	31.8		688
2084		1981	09	04.19444	20	34	32.56	-17	35	37.9		688
2100		1981	07	25.30972	00	21	06.99	+54	58	03.4		688
2100		1981	07	25.32569	00	21	01.78	+54	57	42.9		688
2105		1981	08	27.20417	19	44	09.32	+10	33	32.1		688
2105		1981	08	27.22778	19	44	08.15	+10	33	29.9		688
2110		1981	06	04.26806	15	09	09.33	-15	34	31.3		688
2110		1981	06	04.31049	15	09	06.83	-15	34	22.5		688
2123		1981	06	05.17361	12	14	21.34	-02	47	55.5	17.2	688
2123		1981	06	05.21315	12	14	21.96	-02	47	57.7		688
2251		1981	08	03.35972	21	25	48.12	-04	16	41.5		688
2251		1981	08	03.39514	21	25	46.42	-04	16	50.6		688
2251		1981	08	28.27917	21	06	35.40	-06	47	15.3		688
2251		1981	08	28.30278	21	06	34.29	-06	47	26.3		688
2251		1981	09	04.21944	21	02	20.23	-07	35	00.8		688
2251		1981	09	04.24236	21	02	19.45	-07	35	10.2		688
2294		1981	09	04.17431	20	25	09.55	-13	59	44.6		688
2294		1981	09	04.19444	20	25	09.10	-13	59	45.5		688
2323		1981	07	03.37847	22	25	26.74	-14	27	04.8		688
2323		1981	07	03.41528	22	25	26.41	-14	27	08.3		688
2323		1981	08	26.30764	21	55	16.33	-17	03	38.2		688
2323		1981	08	26.34653	21	55	14.36	-17	03	45.3		688
2323		1981	08	30.28542	21	52	11.18	-17	15	18.5		688
2323		1981	08	30.32014	21	52	09.58	-17	15	23.4		688
2369		1981	06	04.26806	15	11	10.06	-18	37	55.2	16.5	688
2369		1981	06	04.31049	15	11	08.25	-18	37	50.5		688
2384		1981	06	05.17361	11	55	44.93	-05	47	18.3	17.2	688
2384		1981	06	05.21315	11	55	46.13	-05	47	35.0		688
2426		1981	07	24.18403	15	31	56.30	-15	30	13.7		688
2426		1981	07	24.26042	15	31	58.25	-15	30	12.2	1	688
2433		1981	06	23.20903	13	28	51.56	+00	31	47.0	16.0	688
2433		1981	06	23.23194	13	28	52.55	+00	31	41.0		688
1939	FY	1981	08	04.21389	20	02	48.99	-32	38	02.4	17.0	1 688
1939	FY	1981	08	04.26806	20	02	45.29	-32	38	03.2		688
1973	QY1	1981	07	26.32639	22	02	11.46	-08	44	00.9	16.2	688
1973	QY1	1981	07	26.36042	22	02	10.86	-08	44	17.3		688
1974	KB	1981	06	09.35833	19	52	44.70	-25	17	12.4	17.0	688
1974	KB	1981	06	09.38194	19	52	44.10	-25	17	13.1		688
1975	BU	1981	07	26.24097	20	09	57.41	-15	23	37.7	15.5	688
1975	BU	1981	07	26.27569	20	09	55.61	-15	23	56.5		688
1975	NY	1981	08	30.37917	00	03	44.64	-02	15	15.0	16.8	688
1975	NY	1981	08	30.44514	00	03	42.17	-02	15	31.5		688
1975	NY	1981	09	03.27083	00	01	17.39	-02	31	28.7	17.0	688
1975	NY	1981	09	03.31389	00	01	15.61	-02	31	38.9		688
1975	VO2	1981	06	24.29861	17	53	01.68	-29	25	52.6	16.5	688
1976	GX2	1981	08	03.26111	17	51	19.58	-05	26	09.6	16.5	688
1976	GX2	1981	08	03.30347	17	51	19.02	-05	26	22.0		688
1976	QG1	1981	08	30.37917	00	12	07.88	+00	44	16.6	17.0	688
1976	QG1	1981	08	30.44514	00	12	05.66	+00	44	00.1		688
1976	UP20	1981	08	03.34167	20	34	59.80	-10	54	15.2	16.5	688
1976	UP20	1981	08	03.37708	20	34	58.12	-10	54	29.0		688
1977	PY1	1981	08	03.35972	21	37	32.81	-03	11	35.1	15.5	688
1977	PY1	1981	08	03.39514	21	37	31.12	-03	11	43.7		688

1977	PZ1		1981	07	26.32639	22	10	41.42	-09	02	35.2	16.5	688
1977	PZ1		1981	07	26.36042	22	10	40.23	-09	02	30.5		688
1977	UQ		1981	08	30.37917	00	01	32.15	-02	01	37.4	16.5	688
1977	UQ		1981	08	30.44514	00	01	29.73	-02	01	44.8		688
1977	UQ		1981	09	03.27083	23	59	11.04	-02	10	35.2	16.5	688
1977	UQ		1981	09	03.31389	23	59	09.24	-02	10	42.4		688
1978	GC		1981	07	25.16458	18	46	32.36	+29	37	43.9	16.2	688
1978	GC		1981	07	25.17361	18	46	32.11	+29	37	32.6		688
1978	SP		1981	07	26.30972	21	36	11.52	-15	28	24.0	17.0	688
1978	SP		1981	07	26.34375	21	36	10.01	-15	28	25.3	2	688
1978	SY2		1981	08	04.23333	20	30	12.23	-21	46	18.7	16.8	688
1978	SY2		1981	08	04.28542	20	30	08.54	-21	46	21.2		688
1978	VJ7		1981	06	04.26806	15	18	28.51	-17	25	16.0	16.8	688
1978	VJ7		1981	06	04.31049	15	18	26.79	-17	25	09.3		688
1979	DE		1981	08	26.32778	22	12	02.52	-20	17	10.8	16.8	688
1979	DE		1981	08	26.36528	22	12	00.85	-20	17	28.1		688
1980	EC		1981	07	25.25972	19	46	56.25	-06	19	52.3	16.8	688
1980	EC		1981	07	25.29375	19	46	54.57	-06	20	07.4		688
1980	GC		1981	06	05.30694	17	05	27.36	+04	23	32.5	17.5	688
1980	GC		1981	06	05.37083	17	05	25.42	+04	23	39.1		688
1980	LD		1981	08	30.40278	01	40	12.06	-05	27	01.3	16.8	688
1980	LD		1981	08	30.46944	01	40	11.31	-05	27	22.1		688
1981	FE		1981	06	05.17361	11	52	21.68	-03	58	44.7	17.5	688
1981	FE		1981	06	05.21315	11	52	22.61	-03	58	56.4		688
1981	JA		1981	05	03.34028	14	56	11.92	-14	16	28.6	16.8	688
1981	JA		1981	05	08.36528	14	52	15.38	-13	58	45.0	16.8	688
1981	JA		1981	05	08.41181	14	52	13.09	-13	58	33.7		688
1981	JA		1981	06	04.17222	14	34	44.88	-12	45	40.9	17.2	688
1981	JA		1981	06	04.22292	14	34	43.19	-12	45	35.9		688
1981	JS		1981	06	04.26806	15	07	15.39	-16	08	03.5	16.8	688
1981	JS		1981	06	04.31049	15	07	13.59	-16	07	49.0		688
1981	JS		1981	06	09.30417	15	04	22.31	-15	44	12.2	16.8	688
1981	JT		1981	06	04.26806	15	14	56.23	-16	33	09.8	16.5	688
1981	JT		1981	06	04.31049	15	14	54.01	-16	32	56.0		688
1981	JT		1981	06	09.25347	15	11	17.18	-16	10	36.5	16.2	688
1981	JT		1981	06	09.30417	15	11	15.18	-16	10	21.1		688
1981	LA		1981	07	25.20556	19	11	14.59	-37	54	18.2		688
1981	LK		1981	06	25.27604	15	34	31.81	-15	20	04.8	16.8	688
1981	LK		1981	07	24.18403	15	28	28.72	-16	10	23.4	17.0	688
1981	LK		1981	07	24.26042	15	28	28.64	-16	10	33.1		688
1981	NM1	*	1981	07	03.36111	22	04	34.60	-25	08	31.5	17.0	4 688
1981	NM1		1981	07	03.39792	22	04	35.11	-25	08	51.4		688
1981	NM1		1981	08	05.29306	21	52	27.22	-30	13	03.4	16.8	688
1981	NM1		1981	08	05.32778	21	52	25.20	-30	13	19.3		688
1981	NN1	*	1981	07	03.37847	22	07	54.54	-15	56	32.8	16.5	4 688
1981	NN1		1981	07	03.41528	22	07	54.15	-15	56	42.2		688
1981	NN1		1981	08	05.27500	21	52	59.54	-19	24	48.1	15.8	688
1981	NN1		1981	08	05.31042	21	52	57.99	-19	25	03.6		688
1981	NO1	*	1981	07	03.37847	22	25	51.90	-21	48	18.0	16.8	4 688
1981	NO1		1981	07	03.41528	22	25	52.35	-21	48	32.3		688
1981	NO1		1981	08	05.34514	22	15	21.03	-26	29	02.0	16.5	688
1981	NO1		1981	08	05.36181	22	15	20.16	-26	29	10.7		688
1981	NP1	*	1981	07	03.37847	22	33	27.63	-16	34	43.6	16.8	4 688
1981	NP1		1981	07	03.41528	22	33	27.93	-16	34	57.4		688
1981	OA	*	1981	07	26.30972	21	29	12.50	-12	15	52.0	17.2	4 688
1981	OA		1981	07	26.34375	21	29	10.88	-12	15	58.9		688
1981	OB	*	1981	07	26.30972	21	40	53.46	-18	33	07.8	16.8	4 688
1981	OB		1981	07	26.34375	21	40	51.94	-18	33	06.8		688
1981	OB		1981	08	27.27361	21	12	34.94	-18	01	51.7	16.2	688

1981	OB		1981	08	27.30833	21	12	33.21	-18	01	46.2		688
1981	OC	*	1981	07	26.24097	20	04	53.08	-20	09	05.1	16.5	4 688
1981	OC		1981	07	26.27569	20	04	51.31	-20	09	12.1		688
1981	OD	*	1981	07	26.24097	20	08	25.93	-17	27	10.7	15.0	4 688
1981	OD		1981	07	26.27569	20	08	24.42	-17	26	42.3		688
1981	OE	*	1981	07	26.24097	20	09	10.21	-17	51	04.9	16.8	4 688
1981	OE		1981	07	26.27569	20	09	07.98	-17	51	07.3		688
1981	OF	*	1981	07	26.27569	20	19	51.78	-14	53	59.3	16.2	4 688
1981	OF		1981	08	28.25486	20	00	11.70	-18	58	32.8	16.8	688
1981	OF		1981	08	28.32639	20	00	11.05	-18	58	54.4		688
1981	OG	*	1981	07	26.24097	20	20	01.66	-19	40	33.9	16.0	4 688
1981	OG		1981	07	26.27569	20	19	59.93	-19	40	39.2		688
1981	OG		1981	08	28.25486	19	58	48.29	-20	41	17.4	17.0	1 688
1981	OG		1981	08	28.32639	19	58	46.54	-20	41	21.5		3 688
1981	OG		1981	09	03.14861	19	57	18.97	-20	44	43.1	16.8	688
1981	OG		1981	09	03.22083	19	57	18.00	-20	44	43.8		688
1981	OH	*	1981	07	26.32639	21	55	22.00	-09	41	23.0	16.5	4 688
1981	OH		1981	07	26.36042	21	55	21.50	-09	41	54.5		688
1981	OH		1981	08	26.30764	21	40	50.72	-19	19	08.4	16.0	688
1981	OH		1981	08	26.34653	21	40	49.31	-19	19	52.2		688
1981	OH		1981	08	30.28542	21	38	49.70	-20	30	36.1	16.5	688
1981	OH		1981	08	30.32014	21	38	48.52	-20	31	11.8		2 688
1981	OJ	*	1981	07	26.32639	21	56	14.39	-12	54	58.4	16.2	4 688
1981	OJ		1981	07	26.36042	21	56	13.11	-12	55	40.0		2 688
1981	PB	*	1981	08	05.34514	22	16	34.87	-19	57	30.1	16.8	4 688
1981	PB		1981	08	05.36181	22	16	34.13	-19	57	26.7		688
1981	PB		1981	08	26.30764	21	59	25.92	-18	54	24.6	16.5	688
1981	PB		1981	08	26.34653	21	59	23.81	-18	54	13.4		688
1981	PB		1981	08	30.28542	21	56	18.62	-18	35	34.5	16.5	688
1981	PB		1981	08	30.32014	21	56	16.89	-18	35	24.6		688
1981	PC	*	1981	08	05.34514	22	26	43.79	-24	42	53.3	17.0	4 688
1981	PC		1981	08	05.36181	22	26	43.13	-24	42	59.3		688
1981	PD	*	1981	08	05.34514	22	28	31.06	-23	58	16.1	17.0	6 688
1981	PD		1981	08	05.36181	22	28	30.35	-23	58	25.0		688
1981	PE	*	1981	08	05.29306	21	56	04.10	-28	19	47.0	17.0	4 688
1981	PE		1981	08	05.32778	21	56	02.33	-28	20	08.6		688
1981	PF		1981	07	26.32639	22	03	14.22	-05	24	42.4	16.5	688
1981	PF		1981	07	26.36042	22	03	14.11	-05	25	09.6		688
1981	PF		1981	08	26.30764	21	55	02.22	-14	22	14.1	16.0	688
1981	PF		1981	08	26.34653	21	55	01.14	-14	23	01.5		688
1981	PF		1981	08	30.28542	21	53	37.41	-15	35	24.6	16.5	688
1981	PF		1981	08	30.32014	21	53	36.44	-15	36	06.6		688
1981	PG		1981	09	04.17431	20	32	45.57	-14	33	50.2	16.2	688
1981	PG		1981	09	04.19444	20	32	45.25	-14	33	51.4		688
1981	PH	*	1981	08	04.23333	20	22	02.75	-18	14	05.2	16.5	4 688
1981	PH		1981	08	04.28542	20	21	59.85	-18	14	05.6		688
1981	PH		1981	08	28.25486	20	03	29.54	-18	18	07.3	17.0	688
1981	PH		1981	08	28.32639	20	03	27.11	-18	18	04.9		688
1981	PH		1981	09	03.14861	20	00	45.32	-18	15	13.9	16.8	688
1981	PH		1981	09	03.22083	20	00	43.54	-18	15	10.1		688
1981	PJ	*	1981	08	04.23333	20	31	31.63	-19	25	22.4	16.8	4 688
1981	PJ		1981	08	04.28542	20	31	28.86	-19	25	29.4		688
1981	PK	*	1981	08	03.35972	21	19	06.48	+01	00	55.0	16.0	4 688
1981	PK		1981	08	03.39514	21	19	04.40	+01	01	08.0		688
1981	PK		1981	08	31.21181	20	54	30.02	+02	14	09.5	16.5	688
1981	PK		1981	08	31.24405	20	54	28.62	+02	14	08.2		688
1981	PK		1981	09	03.18958	20	52	37.51	+02	12	30.9	15.8	688
1981	PK		1981	09	03.24722	20	52	35.29	+02	12	28.4		688
1981	PL	*	1981	08	03.35972	21	22	20.83	-00	39	38.0	15.8	4 688

1981	PL		1981	08	03.39514	21	22	18.90	-00	39	39.8		688
1981	PL		1981	08	31.21181	20	57	53.96	-01	55	03.5	16.2	688
1981	PL		1981	08	31.24405	20	57	52.51	-01	55	10.4		688
1981	PL		1981	09	03.18958	20	55	46.17	-02	07	24.5	15.8	688
1981	PL		1981	09	03.24722	20	55	43.73	-02	07	39.0		688
1981	PL		1981	09	04.21944	20	55	04.39	-02	11	44.5	15.8	688
1981	PL		1981	09	04.24236	20	55	03.52	-02	11	50.5		688
1981	PM	*	1981	08	03.35972	21	26	22.26	-04	23	40.0	16.5 4	688
1981	PM		1981	08	03.39514	21	26	20.26	-04	23	46.0		688
1981	PM		1981	08	28.27917	21	04	48.45	-06	22	38.8	16.5	688
1981	PM		1981	08	28.30278	21	04	47.23	-06	22	50.5		688
1981	PM		1981	09	04.21944	21	00	46.77	-07	01	30.0	16.8	688
1981	PM		1981	09	04.24236	21	00	46.19	-07	01	37.7		688
1981	QA		1981	08	26.27292	20	27	36.54	+01	27	10.0	14.5 3	688
1981	QA		1981	08	26.28958	20	27	39.40	+01	26	39.6	3	688
1981	QA		1981	08	31.21875	20	44	50.31	-01	31	09.0		688
1981	QA		1981	08	31.24405	20	44	55.15	-01	32	08.6		688
1981	QA		1981	09	03.18958	20	55	38.97	-03	18	47.9		688
1981	QA		1981	09	03.24722	20	55	50.95	-03	20	51.5		688
1981	QA		1981	09	04.24236	20	59	31.48	-03	56	25.1	3	688
1981	QD	*	1981	08	30.37917	23	57	46.53	+01	45	59.0	16.8 4	688
1981	QD		1981	08	30.44514	23	57	43.93	+01	45	54.7		688
1981	QD		1981	09	03.27083	23	55	11.58	+01	39	51.6	17.0 1	688
1981	QD		1981	09	03.31389	23	55	09.48	+01	39	47.4		688
1981	QE	*	1981	08	30.37917	23	58	09.80	+01	16	41.1	16.8 4	688
1981	QE		1981	08	30.44514	23	58	07.66	+01	16	26.2		688
1981	QE		1981	09	03.27083	23	56	07.40	+01	01	36.5	16.8	688
1981	QE		1981	09	03.31389	23	56	05.81	+01	01	25.9		688
1981	QF	*	1981	08	30.37917	00	04	32.34	+01	30	29.5	17.0 4	688
1981	QF		1981	08	30.44514	00	04	30.01	+01	30	28.6	1	688
1981	QF		1981	09	03.27083	00	02	19.56	+01	30	08.9	17.0	688
1981	QF		1981	09	03.31389	00	02	17.76	+01	30	08.5		688
1981	QG	*	1981	08	30.37917	00	06	48.08	+00	48	54.5	17.2 4	688
1981	QG		1981	08	30.44514	00	06	45.92	+00	48	41.5		688
1981	QG		1981	09	03.27083	00	04	31.02	+00	36	23.1	17.2	688
1981	QG		1981	09	03.31389	00	04	28.84	+00	36	15.9	1	688
1981	QH	*	1981	08	30.37917	00	11	35.90	-01	04	39.8	16.2 4	688
1981	QH		1981	08	30.44514	00	11	33.01	-01	04	49.4		688
1981	QJ	*	1981	08	30.37917	00	14	50.22	+00	34	35.1	16.8 4	688
1981	QJ		1981	08	30.44514	00	14	48.04	+00	34	23.8		688
1981	QK	*	1981	08	30.37917	00	15	01.37	-00	50	24.0	16.5 4	688
1981	QK		1981	08	30.44514	00	14	58.81	-00	50	18.2		688
1981	QL	*	1981	08	30.37917	00	17	56.19	+01	47	06.2	15.5 4	688
1981	QL		1981	08	30.44514	00	17	54.17	+01	46	52.3		688
1981	QP	*	1981	08	30.40278	01	42	27.43	-05	17	07.0	16.8 4	688
1981	QP		1981	08	30.46944	01	42	27.11	-05	17	23.8		688
1981	RA		1981	08	28.25486	20	00	40.15	-16	21	15.9	16.8	688
1981	RA		1981	08	28.32639	20	00	38.55	-16	21	41.8		688
1981	RA	*	1981	09	03.14861	19	58	59.50	-16	54	14.7	16.5 5	688
1981	RA		1981	09	03.22083	19	58	58.48	-16	54	35.4		688
1981	RB	*	1981	09	03.14861	20	00	03.95	-19	28	30.1	16.8 7	688
1981	RB		1981	09	03.22083	20	00	04.11	-19	28	49.4		688
1981	RC	*	1981	09	03.14861	20	01	41.47	-20	47	11.4	16.8 8	688
1981	RC		1981	09	03.22083	20	01	41.21	-20	47	00.3		688
1981	RD	*	1981	09	03.18958	20	50	06.21	-01	38	29.5	16.8 5	688
1981	RD		1981	09	03.24722	20	50	04.26	-01	38	29.2		688
1981	RE	*	1981	09	03.27083	23	57	31.06	+01	14	48.6	16.2 5	688
1981	RE		1981	09	03.31389	23	57	29.40	+01	14	33.2		688
1981	RF	*	1981	09	03.27083	00	06	25.39	-05	09	25.6	17.0 5	688

1981	RF		1981	09	03.31389	00	06	23.84	-05	09	42.8	688
1981	RG	*	1981	09	03.29306	00	22	52.49	-03	55	36.3	17.0 5 688
1981	RG		1981	09	03.33403	00	22	51.24	-03	55	53.6	688
1981	RH	*	1981	09	03.29306	00	29	42.82	-07	42	29.3	16.8 5 688
1981	RH		1981	09	03.33403	00	29	41.91	-07	42	59.4	688
1981	RJ	*	1981	09	04.17431	20	28	41.71	-14	25	24.3	16.2 5 688
1981	RJ		1981	09	04.19444	20	28	41.17	-14	25	19.5	688
1981	RK	*	1981	09	04.21944	20	57	42.00	-08	44	31.9	15.8 5 688
1981	RK		1981	09	04.24236	20	57	41.15	-08	44	35.2	688

Note 1: right ascension uncertain. 2: declination uncertain. 3 = 1 + 2. 4: discoverer Bowell. 5: discoverer Thomas. 6 = 4 + 3. 7 = 5 + 2. 8 = 5 + 3.

OBSERVATIONS MADE AT THE LOWELL OBSERVATORY BY C. W. TOMBAUGH. MEASURED BY E. BOWELL.

Object		Date	UT	R. A. (1950)	Decl.	N Obs.
156		1931	01 17.25694	07 26 01.85	+10 14 06.8	690
156		1931	01 19.23194	07 24 05.45	+10 14 42.5	690
217		1931	01 17.25694	07 30 19.51	+10 50 05.9	2 690
217		1931	01 19.23194	07 28 41.64	+10 56 54.7	690
983		1931	01 17.25694	07 34 47.43	+06 59 56.3	690
983		1931	01 19.23194	07 33 07.61	+06 59 24.7	690
1490		1931	01 17.25694	07 37 56.81	+10 46 38.0	690
1490		1931	01 19.23194	07 35 47.76	+10 47 05.4	1 690
1743		1931	01 17.25694	07 27 50.76	+11 02 53.7	1 690
1743		1931	01 19.23194	07 25 51.74	+11 09 27.1	1 690
1931	BK	1931	01 17.25694	07 29 41.00	+08 31 01.3	690
1931	BM	1931	01 17.25694	07 40 49.08	+06 48 08.0	2 690
1931	BM	1931	01 19.23194	07 39 08.42	+06 51 45.8	690
1931	BO	1931	01 18.27569	07 39 56.47	+06 49 57.8	690
1931	BP	1931	01 17.25694	07 47 08.55	+08 51 48.1	2 690
1931	BP	1931	01 18.27569	07 46 21.67	+08 54 57.2	1 690
1931	BP	1931	01 19.23194	07 45 37.57	+08 57 54.8	690
1931	BP	1931	01 20.25139	07 44 50.49	+09 01 13.0	690
1931	BQ	1931	01 18.27569	07 52 55.88	+09 02 35.2	690
1931	BQ	1931	01 20.25139	07 50 47.62	+09 09 51.9	690
1940	TC	1940	10 07.38542	02 11 51.28	+25 00 41.8	690
1940	TC	1940	10 08.32639	02 11 03.15	+25 00 04.0	690
1940	TD	1940	10 07.38542	01 55 23.39	+25 55 33.4	690
1940	TD	1940	10 08.32639	01 54 34.87	+25 57 26.1	690
1940	TE	1940	10 07.38542	02 17 09.85	+26 05 19.1	1 690
1940	TE	1940	10 08.32639	02 16 13.82	+26 10 03.0	690
1940	TF	1940	10 07.38542	01 58 21.63	+26 39 22.2	690
1940	TF	1940	10 08.32639	01 57 52.50	+26 35 18.2	690
1940	TG	1940	10 07.38542	02 15 52.11	+28 19 47.6	690
1940	TG	1940	10 08.32639	02 15 14.59	+28 19 17.7	690
1940	TH	1940	10 07.38542	01 50 20.26	+26 33 23.8	690
1940	TH	1940	10 08.32639	01 49 34.75	+26 30 41.8	690
1940	TJ	1940	10 07.38542	01 57 59.47	+24 54 01.6	690
1940	TJ	1940	10 08.32639	01 57 13.79	+24 56 34.2	690

Note 1: right ascension uncertain. 2: declination uncertain.

OBSERVATIONS MADE AT THE LINCOLN LABORATORY ETS, NEW MEXICO, UNDER THE DIRECTION OF L. G. TAFF.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
9	1981	06 05.24235	16 38 35.71	-22 43 37.9	704
9	1981	06 05.37271	16 38 27.13	-22 43 35.7	704
9	1981	06 07.25652	16 36 26.00	-22 43 25.3	704
261	1981	06 05.36287	16 48 59.37	-19 56 33.7	704

261	1981	06	07.26151	16	46	57.97	-19	56	30.3	704
270	1981	06	05.23678	16	55	43.53	-22	34	51.7	704
270	1981	06	05.36804	16	55	34.40	-22	34	26.7	704
270	1981	06	07.18746	16	53	33.70	-22	28	21.5	704
270	1981	06	07.25289	16	53	29.07	-22	28	09.0	704
913	1981	06	05.40659	17	19	34.10	-19	14	56.3	704
913	1981	06	07.28360	17	17	43.27	-19	22	27.0	704

OBSERVATIONS MADE AT THE GOETHE LINK OBSERVATORY (CODE 760), UNION OBSERVATORY, JOHANNESBURG (CODE 076), AND AT THE LEIDEN SOUTHERN STATION (CODE 081). MEASURED AND REDUCED AT INDIANA UNIVERSITY.

Object	Date	UT	R. A. (1950)			Decl.			Obs.
2415	1961	12 07.29053	04	19	09.88	+20	07	40.4	760
2415	1961	12 07.34097	04	19	07.05	+20	07	35.8	760
1951 UD	1951	10 25.16742	23	37	15.92	+01	50	33.9	760
1951 UD	1951	10 25.20977	23	37	15.81	+01	50	22.3	760
1952 HF1	1952	04 28.27255	14	32	29.13	+01	03	15.4	760
1952 HF1	1952	04 28.31250	14	32	27.36	+01	03	20.8	760
1952 HH1	1952	04 28.27255	14	21	18.92	+02	00	33.1	760
1952 HH1	1952	04 28.31250	14	21	17.25	+02	00	38.8	760
1952 OS	1952	07 26.28646	21	42	26.52	-10	33	33.9	760
1952 QW	1952	08 28.27604	23	30	36.80	-15	20	48.9	760
1952 QW	1952	08 28.30383	23	30	36.33	-15	21	07.4	760
1952 RE	1952	09 13.21014	21	25	57.56	-13	30	45.4	760
1952 ST	1952	09 25.28927	01	10	01.13	+17	32	21.3	760
1952 SU	1952	09 25.28927	01	01	16.81	+17	28	40.4	760
1952 SY	1952	09 29.31738	01	22	45.80	+05	11	13.5	760
1952 SY	1952	09 29.36601	01	22	43.47	+05	11	03.8	760
1952 UH	1952	10 22.15528	00	26	45.06	-14	33	36.6	760
1952 UN	1952	10 22.19693	00	18	02.37	-13	52	21.9	760
1952 UX	1952	10 23.29135	02	27	34.03	+14	23	40.7	760
1952 UX	1952	10 23.33302	02	27	32.07	+14	23	26.6	760
1952 UY	1952	10 23.29135	02	31	24.12	+09	32	04.3	760
1952 UA1	1952	10 24.20351	03	04	57.56	+27	26	00.6	760
1952 UA1	1952	10 24.27365	03	04	53.67	+27	26	00.6	760
1952 WF	1952	11 18.05968	22	54	10.35	+10	17	06.0	760
1952 WF	1952	11 18.10204	22	54	10.97	+10	16	51.7	760
1952 YD	1952	12 17.33193	05	35	13.85	+27	49	20.3	760
1953 CH	1953	02 14.31425	09	56	33.20	+20	33	03.8	760
1953 DA	1953	02 19.23472	08	33	15.06	+20	01	56.0	760
1953 DC	1953	02 19.23472	08	26	00.68	+23	54	11.8	760
1953 DC	1953	02 19.28334	08	25	58.96	+23	54	36.3	760
1953 EZ	1953	03 07.09619	08	15	01.40	+17	44	26.1	760
1953 EZ	1953	03 07.18854	08	14	56.16	+17	44	46.5	760
1953 EB1	1953	03 10.19757	09	35	00.44	+18	03	25.7	760
1953 EB1	1953	03 10.23646	09	34	58.98	+18	03	23.5	760
1953 JG	1953	05 09.22435	14	47	22.53	-17	53	37.5	760
1953 JG	1953	05 09.26116	14	47	20.47	-17	53	22.8	760
1953 LB	1953	06 04.12920	14	48	13.83	-18	59	44.3	760
1953 LB	1953	06 04.17186	14	48	13.41	-18	59	45.9	760
1953 LD	1953	06 09.22810	15	56	48.32	-28	08	59.7	760
1953 NE	1953	07 14.30347	20	56	25.55	-09	18	48.7	760
1953 NE	1953	07 14.33615	20	56	24.45	-09	18	51.6	760
1953 NF	1953	07 14.30347	20	46	40.24	-11	04	23.6	760
1953 NF	1953	07 14.33615	20	46	38.67	-11	04	26.2	760
1953 PG	1953	08 09.19895	20	37	07.26	-10	21	06.9	760
1953 PG	1953	08 09.23992	20	37	05.24	-10	21	10.8	760
1953 PH	1953	08 09.19895	20	24	54.83	-12	16	23.7	760
1953 PH	1953	08 09.23992	20	24	52.67	-12	16	31.7	760

1957	LC	1957	06	02.85200	16	24	02.76	-38	09	15.1	076
1957	LC	1957	06	03.01700	16	23	52.54	-38	08	38.1	076
1957	MJ	1957	06	22.78700	16	06	45.32	-36	25	08.0	081
1957	MJ	1957	06	22.88500	16	06	41.10	-36	24	31.6	081

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

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
2060	1981 08	29.32840	03 22 39.14	+16 00 36.1			801
2060	1981 09	05.30634	03 22 32.36	+15 58 28.2	19.5		801
2086	1981 03	04.04131	07 23 50.71	+31 51 48.7			801
2100	1981 09	05.13128	20 40 12.51	+03 16 15.4			801
2326	1980 12	11.14704	03 18 53.80	-05 58 22.2			801
2349	1981 02	10.00657	03 54 44.82	+03 58 01.8			801
2370	1981 03	04.04131	07 23 40.19	+31 51 53.5			801
2377	1981 05	09.11105	12 00 52.64	-01 28 02.2			801
2386	1981 02	06.19108	07 43 23.85	+33 03 59.0			801
2386	1981 03	27.07428	07 30 10.88	+30 41 46.7			801
2425	1981 05	09.20029	14 48 48.43	-14 04 19.0			801
2425	1981 05	24.20512	14 35 58.25	-14 02 17.2			801
2426	1981 06	01.22738	15 41 38.70	-18 19 21.1			801
A921 SA	1981 02	28.03038	07 55 37.20	+33 21 29.8			801
A921 SA	1981 03	27.11177	07 53 09.33	+31 34 07.4			801
1934 FF	1981 05	09.22970	16 19 02.75	-03 49 10.9			801
1934 FF	1981 05	24.22823	16 06 32.50	-02 33 31.9			801
1934 RR	1981 06	01.25441	15 49 54.25	-14 51 08.2		1	801
1940 GN	1981 02	01.07307	04 26 27.16	+23 19 02.5		2	801
1941 SS	1981 06	02.16638	14 35 25.22	-17 05 14.7			801
1941 SS	1981 07	01.12148	14 29 11.71	-15 05 06.3			801
1966 PD	1981 03	04.12308	08 10 45.02	+14 10 39.4			801
1966 PD	1981 04	08.05059	08 14 17.19	+14 26 45.6			801
1969 TO1	1981 01	03.13788	04 37 09.58	+15 39 49.7			801
1969 TO1	1981 02	04.11882	04 31 51.10	+15 56 35.2			801
1970 HA	1981 04	07.33302	15 30 27.86	-05 52 11.9			801
1970 HA	1981 05	04.25646	15 15 16.51	-03 27 01.2			801
1970 HA	1981 06	01.18263	14 55 28.83	-02 06 31.1			801
1970 HA	1981 06	24.13610	14 47 02.37	-02 33 26.3		3	801
1972 TF2	1981 06	24.20721	16 40 41.00	-12 34 57.7			801
1972 TF2	1981 06	28.21481	16 38 02.40	-12 29 03.8			801
1974 FG	1981 04	08.20609	11 53 46.73	-02 54 28.4			801
1974 FG	1981 05	02.15090	11 44 10.57	+00 07 40.5			801
1974 XX	1981 03	11.06397	07 54 25.17	+36 12 03.4			801
1974 XX	1981 03	27.04507	07 57 59.53	+35 39 59.0			801
1975 BU	1981 06	05.26760	20 37 42.32	-10 01 26.0			801
1975 BU	1981 06	27.27877	20 31 28.85	-11 37 32.5			801
1975 BU	1981 08	02.19407	20 04 10.00	-16 24 37.7			801
1975 TU2	1980 12	04.29899	06 02 50.47	+15 29 07.9			801
1975 TU2	1981 01	03.24133	05 34 27.41	+15 57 30.1			801
1976 GX2	1981 06	29.21024	18 12 12.71	-03 28 40.1			801
1976 GX2	1981 06	30.18634	18 11 20.92	-03 29 20.8		4	801
1976 GX2	1981 07	31.17748	17 52 04.46	-05 10 18.4			801
1976 JF2	1981 04	03.36494	14 07 37.30	+00 53 30.9			801
1976 JF2	1981 05	04.22894	13 44 04.80	+02 21 23.9			801
1976 JF2	1981 05	08.24899	13 41 13.00	+02 24 59.1			801
1976 UB	1981 08	01.19222	21 31 57.18	-14 33 13.3			801
1976 UB	1981 08	08.16020	21 26 42.75	-14 58 30.5			801
1976 YS1	1981 04	03.31691	12 38 32.36	-01 58 30.2			801

1977	ET1		1981	06	27.13319	15	23	55.10	-09	51	05.0		801
1977	ET1		1981	06	28.18323	15	23	40.91	-09	51	24.1		801
1977	NT		1981	02	01.37834	10	56	03.04	+07	43	02.0		801
1977	PW1		1981	06	05.11723	14	35	30.44	-26	27	09.3		801
1977	PY1		1981	06	29.27005	21	50	43.67	-03	07	26.4		801
1977	PY1		1981	06	30.25499	21	50	48.32	-03	03	54.9		801
1977	PY1		1981	08	03.19219	21	37	40.41	-03	10	55.1		801
1977	PZ1		1981	08	08.24263	22	01	05.57	-08	47	12.8		801
1977	QM3		1981	06	05.19550	15	46	22.45	-21	50	11.1		801
1977	RC7		1981	06	28.13429	14	02	45.72	-09	48	11.3		801
1977	RC7		1981	06	29.09354	14	02	54.21	-09	49	48.7		801
1978	GB		1981	05	08.29656	16	09	11.54	+30	08	13.1		801
1978	GB		1981	06	02.22800	15	43	57.69	+31	29	18.6		801
1978	GB		1981	06	30.18692	15	27	28.43	+26	38	58.7		801
1978	GC		1981	05	09.32641	19	00	47.17	+21	00	18.9	3	801
1978	GC		1981	06	01.32862	19	13	03.22	+29	17	58.8		801
1978	GC		1981	07	28.11292	18	45	20.55	+28	36	24.5		801
1978	GC		1981	07	28.16424	18	45	19.34	+28	35	15.8		801
1978	NC3		1981	02	10.23436	09	01	47.56	+03	52	31.1		801
1978	PP2		1981	05	08.10488	10	56	34.38	+06	33	03.9		801
1978	PP2		1981	05	09.07552	10	56	46.46	+06	31	28.2		801
1978	PP3		1981	03	04.35720	12	35	35.49	-00	14	29.4		801
1978	RT		1981	01	31.29973	09	15	36.26	+23	48	47.4		801
1978	RT		1981	02	28.12461	08	53	43.06	+24	46	33.4		801
1978	SP		1981	08	02.24736	21	31	10.03	-15	47	55.8		801
1978	SY2		1981	08	03.16564	20	31	25.35	-21	45	14.1		801
1978	VQ5		1981	06	03.24657	16	19	56.29	-21	08	51.4	5	801
1978	VQ5		1981	06	05.21773	16	18	15.64	-21	06	57.0		801
1978	VJ7		1981	06	03.19490	15	19	10.70	-17	28	00.5		801
1978	VJ7		1981	06	05.17434	15	17	53.78	-17	22	58.8		801
1978	XC		1981	05	03.28487	15	49	12.17	-13	55	30.0		801
1978	XC		1981	05	25.21101	15	31	14.85	-11	56	57.9		801
1980	CF		1981	06	27.21822	16	39	30.72	-15	51	33.5		801
1980	CO		1981	05	09.25913	16	19	18.62	-18	16	17.2		801
1980	CO		1981	05	25.24442	16	06	04.09	-17	49	23.3	6	801
1980	GC		1981	06	28.24024	16	54	16.50	+04	20	35.8		801
1980	GC		1981	08	02.16326	16	44	45.34	+02	39	36.9		801
1980	GC		1981	08	03.09977	16	44	41.63	+02	35	47.6		801
1980	VX		1981	02	04.03523	03	25	41.44	+18	36	09.1		801
1980	XA		1981	02	03.99255	03	38	18.09	+25	23	05.9		801
1981	BQ	*	1981	01	31.15561	07	44	43.24	+05	33	20.0	18.5	801
1981	EB2	*	1981	03	04.35720	12	35	34.87	-00	29	07.5	18	801
1981	GK1	*	1981	04	03.31691	12	38	39.50	-02	03	51.9	17.5	801
1981	GL1	*	1981	04	07.33302	15	30	41.00	-06	04	24.3	17.5	801
1981	PA		1981	07	31.26675	22	46	00.96	-04	40	53.8		801
1981	PA	*	1981	08	01.23275	22	45	13.28	-04	33	35.7	17	801
1981	PA		1981	08	02.28005	22	44	19.28	-04	25	41.3		801
1981	PA		1981	08	08.18714	22	38	33.56	-03	42	08.5		801
1981	PF	*	1981	08	08.24263	22	01	33.36	-08	43	22.4	16.5	801
1981	PF		1981	08	29.14972	21	54	00.58	-15	14	48.0		801
1981	QA		1981	08	24.06192	20	20	20.20	+02	44	19.3	4	801
1981	QA		1981	08	24.17383	20	20	40.17	+02	40	45.2	4	801
1981	QA		1981	08	26.06258	20	26	55.09	+01	34	37.7	4	801
1981	QA		1981	08	27.12214	20	30	29.21	+00	56	57.3		801
1981	QA		1981	08	29.12097	20	37	23.42	-00	15	02.1		801
1981	QB		1981	09	05.10424	21	29	56.28	-19	57	44.1		801
1981	QB		1981	09	07.14476	21	27	37.58	-23	29	46.9		801
4021	P-L		1981	04	03.19637	11	32	56.20	+00	57	00.8	5	801
6578	P-L		1981	04	03.34142	13	08	35.84	-01	15	41.5		801

6578 P-L 1981 05 08.21525 12 43 38.01 +00 33 35.5 801
6578 P-L 1981 06 05.14956 12 45 22.78 -00 43 44.8 7 801
Note 1: image weak and diffuse; poor seeing. 2: weak solution. 3: on star trail. 4: observation with 0.4-m astrograph. 5: measurement in one direction only. 6: poor plate; inkdot measured. 7: very weak image.

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

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1979 BA	1980 08	18.23575	21 37 31.75	-15 19 13.5	18	805
1979 BA	1980 08	18.26353	21 37 29.30	-15 20 24.6		805

OBSERVATIONS MADE WITH THE 0.4-M ASTROGRAPH AT THE EUROPEAN SOUTHERN OBSERVATORY BY H. DEBEHOGNE AND G. DE SANCTIS. MEASURED BY DEBEHOGNE.

Object	Date	UT	R. A. (1950)	Decl.	O - C		Mag.	Obs.
53	1981 03	02.30688	13 07 30.39	-01 41 32.3	0.3+	1-	12.9	809
53	1981 03	02.31381	13 07 30.18	-01 41 29.9	0.3+	1-		809
53	1981 03	02.32074	13 07 29.99	-01 41 27.1	0.3+	1-		809
53	1981 03	04.29104	13 06 35.01	-01 29 34.3	0.3+	1-		809
53	1981 03	04.29796	13 06 34.81	-01 29 31.7	0.3+	1-		809
53	1981 03	04.30489	13 06 34.58	-01 29 29.2	0.3+	1-		809
53	1981 03	06.38672	13 05 30.13	-01 16 26.8	0.1+	0		809
53	1981 03	06.39292	13 05 29.90	-01 16 24.8	0.1+	0		809
53	1981 03	06.39915	13 05 29.67	-01 16 22.5	0.1+	0		809
126	1981 03	02.28472	12 59 20.99	-04 45 52.7	0.3+	2-	13.9	809
126	1981 03	02.29165	12 59 20.75	-04 45 51.6	0.3+	2-		809
126	1981 03	02.29857	12 59 20.52	-04 45 50.6	0.3+	2-		809
126	1981 03	04.36860	12 58 11.24	-04 39 52.6	0.2+	1-		809
126	1981 03	04.37559	12 58 11.00	-04 39 51.5	0.2+	1-		809
126	1981 03	04.38245	12 58 10.77	-04 39 50.3	0.2+	1-		809
126	1981 03	06.37076	12 56 58.60	-04 33 33.6	0.1+	0		809
126	1981 03	06.37674	12 56 58.38	-04 33 32.1	0.1+	0		809
126	1981 03	07.32301	12 56 22.22	-04 30 22.3	0.0	0		809
126	1981 03	07.32993	12 56 21.96	-04 30 20.9	0.0	0		809
126	1981 03	07.33686	12 56 21.68	-04 30 19.5	0.0	0		809
126	1981 03	08.36542	12 55 40.95	-04 26 45.9	0.1+	1-		809
126	1981 03	08.37223	12 55 40.65	-04 26 44.3	0.1+	1-		809
126	1981 03	08.37919	12 55 40.35	-04 26 42.6	0.1+	1-		809
126	1981 03	09.35910	12 55 00.27	-04 23 13.5	0.2+	1-		809
126	1981 03	09.36603	12 55 00.01	-04 23 12.1	0.2+	1-		809
126	1981 03	09.37295	12 54 59.71	-04 23 10.6	0.2+	1-		809
126	1981 03	10.40024	12 54 16.42	-04 19 22.8	0.2+	1-		809
126	1981 03	10.40647	12 54 16.14	-04 19 21.9	0.2+	1-		809
126	1981 03	11.37858	12 53 34.09	-04 15 38.1	0.2+	1-		809
126	1981 03	11.38550	12 53 33.78	-04 15 36.4	0.2+	1-		809
126	1981 03	11.39243	12 53 33.46	-04 15 35.0	0.2+	1-		809
126	1981 03	14.37869	12 51 17.64	-04 03 37.7	0.2+	1-		809
126	1981 03	14.38562	12 51 17.32	-04 03 36.0	0.2+	1-		809
126	1981 03	14.39254	12 51 16.98	-04 03 34.1	0.2+	1-		809
126	1981 03	15.30613	12 50 33.64	-03 59 46.3	0.1+	1-		809
126	1981 03	15.31294	12 50 33.33	-03 59 44.6	0.1+	1-		809
126	1981 03	15.31987	12 50 33.02	-03 59 42.8	0.1+	1-		809
126	1981 03	16.35107	12 49 42.95	-03 55 16.9	0.0	0		809
126	1981 03	16.35799	12 49 42.64	-03 55 15.4	0.0	0		809
126	1981 03	16.36492	12 49 42.34	-03 55 13.6	0.0	0		809
140	1981 03	04.34021	12 36 08.71	+00 56 26.7	0.2+	1-	13.4	809
140	1981 03	04.34713	12 36 08.50	+00 56 28.2	0.2+	1-		809
140	1981 03	04.35406	12 36 08.21	+00 56 30.8	0.2+	1-		809
140	1981 03	06.35068	12 34 54.06	+01 06 53.2	0.0	0		809

140	1981	03	06.35656	12	34	53.81	+01	06	55.2	0.0	0	809
140	1981	03	06.36176	12	34	53.61	+01	06	57.1	0.0	0	809
217	1981	03	04.34021	12	35	57.61	+01	02	04.8	0.2+	1- 15.5	809
217	1981	03	04.34713	12	35	57.41	+01	02	06.7	0.2+	1-	809
217	1981	03	04.35406	12	35	57.15	+01	02	09.8	0.2+	1-	809
272	1981	03	04.34021	12	35	37.69	+00	39	52.6	0.1+	1- 15.4	809
272	1981	03	04.34713	12	35	37.45	+00	39	53.5	0.1+	1-	809
272	1981	03	04.35406	12	35	37.14	+00	39	55.2	0.1+	1-	809
272	1981	03	06.35068	12	34	18.43	+00	47	22.6	0.0	1-	809
272	1981	03	06.35656	12	34	18.19	+00	47	24.5	0.0	1-	809
272	1981	03	06.36176	12	34	17.98	+00	47	25.3	0.0	1-	809
272	1981	03	07.29704	12	33	39.65	+00	51	01.5	0.0	0	809
272	1981	03	07.30362	12	33	39.40	+00	51	02.8	0.0	0	809
272	1981	03	07.31054	12	33	39.07	+00	51	04.6	0.0	0	809
272	1981	03	08.33968	12	32	55.83	+00	55	05.9	0.0	0	809
272	1981	03	08.34660	12	32	55.52	+00	55	07.0	0.0	0	809
272	1981	03	08.35353	12	32	55.21	+00	55	09.1	0.0	0	809
272	1981	03	12.38070	12	29	56.54	+01	11	25.3	0.1+	0	809
272	1981	03	12.38762	12	29	56.23	+01	11	27.1	0.1+	0	809
272	1981	03	12.39455	12	29	55.90	+01	11	28.8	0.1+	0	809
280	1981	03	04.17122	10	39	15.23	+15	06	11.1	0.0	1+ 15.4	809
280	1981	03	04.17815	10	39	14.85	+15	06	11.9	0.0	1+	809
280	1981	03	04.18507	10	39	14.48	+15	06	12.9	0.0	1+	809
280	1981	03	05.19204	10	38	20.85	+15	08	33.5	0.0	1+	809
280	1981	03	05.19896	10	38	20.48	+15	08	33.9	0.0	1+	809
280	1981	03	05.20589	10	38	20.07	+15	08	35.0	0.0	1+	809
280	1981	03	06.22671	10	37	26.07	+15	10	49.9	0.0	0	809
280	1981	03	06.23363	10	37	25.74	+15	10	50.2	0.0	0	809
280	1981	03	06.24056	10	37	25.35	+15	10	51.3	0.0	0	809
280	1981	03	08.24204	10	35	40.97	+15	14	57.6	0.1-	1+	809
280	1981	03	08.24895	10	35	40.60	+15	14	58.3	0.1-	1+	809
280	1981	03	08.25588	10	35	40.24	+15	14	59.0	0.1-	1+	809
280	1981	03	09.25386	10	34	48.95	+15	16	52.2	0.1-	1+	809
280	1981	03	09.26076	10	34	48.58	+15	16	52.9	0.1-	1+	809
280	1981	03	09.26768	10	34	48.27	+15	16	53.3	0.1-	1+	809
280	1981	03	10.22410	10	33	59.83	+15	18	33.9	0.2-	1+	809
280	1981	03	10.23103	10	33	59.41	+15	18	34.6	0.2-	1+	809
280	1981	03	13.30455	10	31	27.90	+15	23	11.7	0.2-	1+	809
280	1981	03	13.31148	10	31	27.54	+15	23	12.2	0.2-	1+	809
280	1981	03	13.31840	10	31	27.16	+15	23	12.5	0.2-	1+	809
280	1981	03	14.26788	10	30	41.92	+15	24	24.0	0.1-	1+	809
280	1981	03	14.27481	10	30	41.55	+15	24	24.5	0.1-	1+	809
280	1981	03	14.28173	10	30	41.23	+15	24	24.8	0.1-	1+	809
280	1981	03	16.29843	10	29	07.88	+15	26	31.1	0.0	0	809
280	1981	03	16.30536	10	29	07.55	+15	26	31.2	0.0	0	809
322	1981	03	01.09631	09	11	45.11	+04	54	07.6	0.3-	0 14.5	809
322	1981	03	01.10635	09	11	44.69	+04	54	10.2	0.3-	0	809
322	1981	03	01.11363	09	11	44.39	+04	54	12.0	0.3-	0	809
322	1981	03	02.04856	09	11	05.56	+04	58	17.6	0.3-	0	809
322	1981	03	02.05549	09	11	05.24	+04	58	19.8	0.3-	0	809
322	1981	03	02.06241	09	11	04.95	+04	58	21.6	0.3-	0	809
340	1981	03	02.28472	12	58	04.52	-03	17	27.3	0.2+	1- 14.5	809
340	1981	03	02.29165	12	58	04.28	-03	17	26.4	0.2+	1-	809
340	1981	03	02.29857	12	58	04.03	-03	17	25.0	0.2+	1-	809
340	1981	03	04.36860	12	56	54.53	-03	11	47.1	0.2+	1-	809
340	1981	03	04.37559	12	56	54.34	-03	11	46.0	0.2+	1-	809
340	1981	03	04.38245	12	56	54.14	-03	11	44.9	0.2+	1-	809
340	1981	03	06.37076	12	55	42.55	-03	05	55.0	0.0	0	809
340	1981	03	06.37674	12	55	42.30	-03	05	53.7	0.0	0	809

340	1981	03	07.32301	12	55	06.66	-03	02	59.2	0.1+	0	809
340	1981	03	07.32993	12	55	06.38	-03	02	57.8	0.1+	0	809
340	1981	03	07.33686	12	55	06.08	-03	02	56.2	0.1+	0	809
340	1981	03	08.36542	12	54	26.08	-02	59	40.4	0.2+	0	809
340	1981	03	08.37223	12	54	25.78	-02	59	38.9	0.2+	0	809
340	1981	03	08.37919	12	54	25.50	-02	59	37.5	0.2+	0	809
340	1981	03	09.35910	12	53	46.31	-02	56	26.6	0.3-	1+	809
340	1981	03	09.36603	12	53	46.08	-02	56	25.5	0.3-	1+	809
340	1981	03	09.37295	12	53	45.87	-02	56	24.4	0.3-	1+	809
340	1981	03	10.40024	12	53	03.56	-02	52	56.1	0.2+	0	809
340	1981	03	10.40647	12	53	03.30	-02	52	55.2	0.2+	0	809
340	1981	03	11.37858	12	52	22.42	-02	49	36.4	0.2+	0	809
340	1981	03	11.38550	12	52	22.15	-02	49	35.1	0.2+	0	809
340	1981	03	11.39243	12	52	21.83	-02	49	33.4	0.2+	0	809
340	1981	03	14.37869	12	50	10.71	-02	38	52.6	0.2+	0	809
340	1981	03	14.38562	12	50	10.39	-02	38	51.1	0.2+	0	809
340	1981	03	14.39254	12	50	10.09	-02	38	49.5	0.2+	0	809
340	1981	03	15.30613	12	49	28.58	-02	35	27.0	0.1+	0	809
340	1981	03	15.31294	12	49	28.27	-02	35	25.5	0.1+	0	809
340	1981	03	15.31987	12	49	27.96	-02	35	24.0	0.1+	0	809
436	1981	03	04.17122	10	39	11.98	+15	19	59.7	0.0	1+ 15.6	809
436	1981	03	04.17815	10	39	11.63	+15	19	59.9	0.0	1+	809
436	1981	03	04.18507	10	39	11.26	+15	20	00.1	0.0	1+	809
436	1981	03	05.19204	10	38	16.74	+15	20	31.2	0.0	1+	809
436	1981	03	05.19896	10	38	16.31	+15	20	30.8	0.0	1+	809
436	1981	03	05.20589	10	38	15.93	+15	20	30.9	0.0	1+	809
436	1981	03	06.22671	10	37	20.90	+15	20	55.7	0.0	1+	809
436	1981	03	06.23363	10	37	20.50	+15	20	55.8	0.0	1+	809
436	1981	03	06.24056	10	37	20.12	+15	20	56.3	0.0	1+	809
436	1981	03	08.24204	10	35	33.33	+15	21	31.1	0.0	1+	809
436	1981	03	08.24895	10	35	32.98	+15	21	30.9	0.0	1+	809
436	1981	03	08.25588	10	35	32.57	+15	21	31.1	0.0	1+	809
436	1981	03	09.25386	10	34	39.91	+15	21	41.1	0.1-	1+	809
436	1981	03	09.26076	10	34	39.53	+15	21	41.3	0.1-	1+	809
436	1981	03	09.26768	10	34	39.18	+15	21	41.2	0.1-	1+	809
436	1981	03	10.22410	10	33	49.27	+15	21	44.6	0.1-	2+	809
436	1981	03	10.23103	10	33	48.89	+15	21	44.9	0.1-	2+	809
436	1981	03	13.30455	10	31	11.63	+15	21	21.3	0.1-	1+	809
436	1981	03	13.31148	10	31	11.22	+15	21	21.5	0.1-	1+	809
436	1981	03	13.31840	10	31	10.82	+15	21	20.9	0.1-	1+	809
436	1981	03	14.26788	10	30	23.41	+15	21	03.3	0.1-	1+	809
436	1981	03	14.27481	10	30	23.04	+15	21	04.0	0.1-	1+	809
436	1981	03	14.28173	10	30	22.72	+15	21	04.2	0.1-	1+	809
436	1981	03	16.29843	10	28	44.20	+15	20	07.0	0.0	1+	809
436	1981	03	16.30536	10	28	43.87	+15	20	05.7	0.0	1+	809
524	1981	03	02.12474	10	18	44.51	+08	11	48.9	3.0-	0 14.3	809
524	1981	03	02.13167	10	18	44.11	+08	11	50.2	3.0-	0	809
524	1981	03	02.13859	10	18	43.70	+08	11	51.0	3.0-	0	809
524	1981	03	03.11371	10	17	48.34	+08	14	19.4	3.0-	0	809
524	1981	03	03.12063	10	17	47.92	+08	14	20.8	3.0-	0	809
524	1981	03	03.12756	10	17	47.48	+08	14	21.7	3.0-	0	809
524	1981	03	05.14425	10	15	54.63	+08	19	23.7	3.0-	0	809
524	1981	03	05.15117	10	15	54.22	+08	19	25.0	3.0-	0	809
524	1981	03	05.15810	10	15	53.83	+08	19	25.8	3.0-	0	809
660	1981	03	02.12474	10	19	35.00	+10	06	38.2	0.1-	0 13.7	809
660	1981	03	02.13167	10	19	34.63	+10	06	42.9	0.1-	0	809
660	1981	03	02.13859	10	19	34.28	+10	06	47.5	0.1-	0	809
660	1981	03	04.11859	10	17	57.41	+10	28	44.3	0.1-	0	809
660	1981	03	04.12552	10	17	57.05	+10	28	49.0	0.1-	0	809

660	1981	03	04.13244	10	17	56.70	+10	28	53.6	0.1-	0		809
660	1981	03	10.25734	10	13	09.49	+11	34	56.9	0.2-	2+	13.7	809
660	1981	03	10.26427	10	13	09.22	+11	35	01.1	0.2-	2+		809
660	1981	03	10.27050	10	13	08.91	+11	35	05.6	0.2-	2+		809
660	1981	03	13.26923	10	10	58.84	+12	05	57.2	0.2-	2+		809
660	1981	03	13.27616	10	10	58.54	+12	06	01.4	0.2-	2+		809
660	1981	03	13.28308	10	10	58.21	+12	06	05.6	0.2-	2+		809
660	1981	03	14.24018	10	10	18.59	+12	15	41.6	0.2-	2+		809
660	1981	03	14.24711	10	10	18.31	+12	15	45.3	0.2-	2+		809
660	1981	03	14.25403	10	10	18.01	+12	15	49.3	0.2-	2+		809
668	1981	03	03.08820	09	12	45.59	+06	57	21.4	0.1-	0	18.0	809
668	1981	03	03.09501	09	12	45.32	+06	57	23.4	0.1-	0		809
668	1981	03	03.10193	09	12	45.05	+06	57	25.4	0.1-	0		809
668	1981	03	04.09435	09	12	06.15	+07	02	13.7	0.1-	0		809
668	1981	03	04.10128	09	12	05.89	+07	02	15.9	0.1-	0		809
668	1981	03	04.10820	09	12	05.63	+07	02	17.9	0.1-	0		809
668	1981	03	06.10620	09	10	50.00	+07	11	50.3	0.0	0		809
668	1981	03	06.11313	09	10	49.70	+07	11	52.6	0.0	0		809
668	1981	03	06.12006	09	10	49.41	+07	11	54.9	0.0	0		809
668	1981	03	07.04668	09	10	15.70	+07	16	18.3	0.0	1+		809
668	1981	03	07.05361	09	10	15.46	+07	16	20.3	0.0	1+		809
668	1981	03	07.06053	09	10	15.24	+07	16	21.9	0.0	1+		809
668	1981	03	08.04049	09	09	40.38	+07	20	58.3	0.0	1+		809
668	1981	03	08.04742	09	09	40.17	+07	21	00.3	0.0	1+		809
668	1981	03	08.05434	09	09	39.95	+07	21	02.3	0.0	1+		809
668	1981	03	09.06200	09	09	05.00	+07	25	45.0	0.1-	1+		809
668	1981	03	09.06961	09	09	04.78	+07	25	46.9	0.1-	1+		809
668	1981	03	09.07654	09	09	04.58	+07	25	48.6	0.1-	1+		809
723	1981	03	04.36860	12	51	57.58	-02	52	29.5	0.1+	2-	15.2	809
723	1981	03	04.37559	12	51	57.39	-02	52	27.2	0.1+	2-		809
723	1981	03	04.38245	12	51	57.21	-02	52	25.8	0.1+	2-		809
755	1981	03	02.12474	10	23	12.44	+08	15	47.8	0.0	0	14.5	809
755	1981	03	02.13167	10	23	12.13	+08	15	49.8	0.0	0		809
755	1981	03	02.13859	10	23	11.81	+08	15	52.2	0.0	0		809
755	1981	03	03.11371	10	22	27.69	+08	21	13.6	0.0	0		809
755	1981	03	03.12063	10	22	27.38	+08	21	15.4	0.0	0		809
755	1981	03	03.12756	10	22	27.05	+08	21	18.1	0.0	0		809
947	1981	03	02.30688	13	09	18.46	-00	53	47.8	0.3+	1-	15.9	809
947	1981	03	02.31381	13	09	18.29	-00	53	46.4	0.3+	1-		809
947	1981	03	02.32074	13	09	18.08	-00	53	44.2	0.3+	1-		809
947	1981	03	06.38672	13	07	04.19	-00	39	09.7	0.1+	0		809
947	1981	03	06.39292	13	07	03.96	-00	39	07.4	0.1+	0		809
947	1981	03	06.39915	13	07	03.76	-00	39	06.2	0.1+	0		809
1010	1981	03	06.38672	13	12	41.73	-01	53	43.1	0.1+	0	16.1	809
1010	1981	03	06.39292	13	12	41.54	-01	53	41.8	0.0	0		809
1010	1981	03	06.39915	13	12	41.39	-01	53	39.4	0.0	0		809
1018	1981	03	04.23148	11	55	41.94	+01	40	11.3	0.1+	1-	16.5	809
1018	1981	03	04.23840	11	55	41.61	+01	40	12.8	0.1+	1-		809
1018	1981	03	04.24533	11	55	41.28	+01	40	14.3	0.1+	1-		809
1018	1981	03	06.32784	11	53	54.27	+01	48	04.3	0.1+	1-		809
1018	1981	03	06.33475	11	53	53.94	+01	48	05.8	0.1+	1-		809
1018	1981	03	06.34167	11	53	53.60	+01	48	07.3	0.1+	1-		809
1018	1981	03	07.27315	11	53	05.06	+01	51	41.3	0.0	0		809
1018	1981	03	07.28007	11	53	04.66	+01	51	42.7	0.0	0		809
1018	1981	03	07.28700	11	53	04.26	+01	51	44.3	0.0	0		809
1018	1981	03	08.31821	11	52	09.86	+01	55	44.3	0.1+	0		809
1018	1981	03	08.32513	11	52	09.55	+01	55	45.8	0.1+	0		809
1018	1981	03	08.33206	11	52	09.20	+01	55	47.8	0.1+	0		809
1018	1981	03	09.33555	11	51	15.74	+01	59	41.9	0.1+	0	16.5	809

1018	1981	03	09.34248	11	51	15.34	+01	59	43.7	0.1+	0		809
1018	1981	03	09.34941	11	51	14.95	+01	59	45.0	0.1+	0		809
1018	1981	03	10.36884	11	50	20.26	+02	03	47.2	0.1+	0		809
1018	1981	03	10.37577	11	50	19.88	+02	03	47.9	0.1+	0		809
1018	1981	03	10.38270	11	50	19.49	+02	03	49.8	0.1+	0		809
1018	1981	03	11.34880	11	49	27.27	+02	07	39.7	0.1+	0		809
1018	1981	03	11.35572	11	49	26.91	+02	07	41.6	0.1+	0		809
1018	1981	03	11.36265	11	49	26.52	+02	07	42.9	0.1+	0		809
1018	1981	03	12.34538	11	48	33.11	+02	11	37.9	0.1+	0		809
1018	1981	03	12.35230	11	48	32.78	+02	11	39.3	0.1+	0		809
1018	1981	03	12.35923	11	48	32.37	+02	11	40.7	0.1+	0		809
1018	1981	03	15.27970	11	45	52.25	+02	23	23.1	0.0	1+		809
1018	1981	03	15.28663	11	45	51.88	+02	23	24.7	0.0	1+		809
1018	1981	03	15.29355	11	45	51.57	+02	23	26.7	0.0	1+		809
1079	1981	03	02.12474	10	21	41.45	+10	00	33.5	0.1-	0	15.7	809
1079	1981	03	02.13167	10	21	41.07	+10	00	35.3	0.1-	0		809
1079	1981	03	02.13859	10	21	40.74	+10	00	37.1	0.1-	0		809
1079	1981	03	03.11371	10	20	52.80	+10	04	48.7	0.1-	0		809
1079	1981	03	03.12063	10	20	52.43	+10	04	50.2	0.1-	0		809
1079	1981	03	03.12756	10	20	52.07	+10	04	52.0	0.1-	0		809
1079	1981	03	04.11859	10	20	03.56	+10	09	05.8	0.1-	0		809
1079	1981	03	04.12552	10	20	03.22	+10	09	07.3	0.1-	0		809
1079	1981	03	04.13244	10	20	02.91	+10	09	09.1	0.1-	0		809
1079	1981	03	06.13598	10	18	26.17	+10	17	31.6	0.1-	0		809
1079	1981	03	06.14291	10	18	25.84	+10	17	33.5	0.1-	0		809
1079	1981	03	06.14993	10	18	25.49	+10	17	35.3	0.1-	0		809
1079	1981	03	07.07507	10	17	41.58	+10	21	23.1	0.1-	0		809
1079	1981	03	07.08200	10	17	41.24	+10	21	24.4	0.1-	0		809
1079	1981	03	07.08893	10	17	40.91	+10	21	26.3	0.1-	0		809
1079	1981	03	08.06820	10	16	55.16	+10	25	23.1	0.1-	0		809
1079	1981	03	08.07512	10	16	54.87	+10	25	25.1	0.1-	0		809
1079	1981	03	08.08205	10	16	54.56	+10	25	26.7	0.1-	0		809
1079	1981	03	09.09316	10	16	08.03	+10	29	26.5	0.2-	0		809
1079	1981	03	09.10009	10	16	07.70	+10	29	28.3	0.2-	0		809
1079	1981	03	09.10701	10	16	07.40	+10	29	30.0	0.2-	0		809
1079	1981	03	13.11825	10	13	10.25	+10	44	37.2	0.2-	0		809
1079	1981	03	13.12657	10	13	09.91	+10	44	39.3	0.2-	0		809
1277	1981	03	01.09631	09	17	36.22	+05	31	25.0	0.2-	1-	16.6	809
1277	1981	03	01.10635	09	17	35.78	+05	31	27.9	0.2-	1-		809
1277	1981	03	01.11363	09	17	35.46	+05	31	30.1	0.2-	1-		809
1277	1981	03	02.04856	09	16	53.00	+05	35	44.9	0.2-	0		809
1277	1981	03	02.05549	09	16	52.69	+05	35	46.6	0.2-	0		809
1277	1981	03	02.06241	09	16	52.39	+05	35	48.5	0.2-	0		809
1277	1981	03	03.08820	09	16	06.59	+05	40	29.4	0.2-	0		809
1277	1981	03	03.09501	09	16	06.27	+05	40	30.9	0.2-	0		809
1277	1981	03	03.10193	09	16	05.96	+05	40	32.4	0.2-	0		809
1277	1981	03	04.09435	09	15	22.55	+05	45	02.2	0.2-	0		809
1277	1981	03	04.10128	09	15	22.23	+05	45	03.9	0.2-	0		809
1277	1981	03	04.10820	09	15	21.91	+05	45	05.6	0.2-	0		809
1277	1981	03	06.10620	09	13	57.30	+05	54	08.0	0.1-	0		809
1277	1981	03	06.11313	09	13	57.02	+05	54	10.0	0.1-	0		809
1277	1981	03	06.12006	09	13	56.74	+05	54	11.7	0.1-	0		809
1277	1981	03	07.04668	09	13	18.87	+05	58	22.5	0.1-	0		809
1277	1981	03	07.05361	09	13	18.60	+05	58	23.8	0.1-	0		809
1277	1981	03	07.06053	09	13	18.34	+05	58	25.5	0.1-	0		809
1277	1981	03	08.04049	09	12	39.18	+06	02	49.8	0.2-	0		809
1277	1981	03	08.04742	09	12	38.93	+06	02	51.7	0.2-	0		809
1277	1981	03	08.05434	09	12	38.66	+06	02	53.3	0.2-	0		809
1277	1981	03	09.06200	09	11	59.51	+06	07	22.6	0.2-	0		809

1277	1981	03	09.06961	09	11	59.22	+06	07	24.2	0.2-	0		809
1277	1981	03	09.07654	09	11	58.97	+06	07	25.8	0.2-	0		809
1277	1981	03	13.05662	09	09	35.47	+06	24	51.5	0.3-	0		809
1277	1981	03	13.06354	09	09	35.24	+06	24	53.3	0.3-	0		809
1277	1981	03	13.07047	09	09	34.97	+06	24	55.3	0.3-	0		809
1358	1981	03	15.30613	12	51	04.96	-04	30	58.3			17.6	809
1358	1981	03	15.31294	12	51	04.64	-04	30	56.6				809
1358	1981	03	15.31987	12	51	04.31	-04	30	54.8				809
1358	1981	03	16.35107	12	50	15.80	-04	26	26.9				809
1358	1981	03	16.35799	12	50	15.45	-04	26	25.0				809
1358	1981	03	16.36492	12	50	15.12	-04	26	23.2				809
1586	1981	03	06.38672	13	13	12.73	-01	26	59.3	0.1+	1+	15.8	809
1586	1981	03	06.39292	13	13	12.54	-01	26	57.4	0.1+	1+		809
1586	1981	03	06.39915	13	13	12.43	-01	26	54.5	0.1+	1+		809
1640	1981	03	08.31821	11	48	31.68	+01	32	10.8				809
1640	1981	03	08.32513	11	48	31.29	+01	32	12.9				809
1640	1981	03	08.33206	11	48	30.89	+01	32	15.0				809
1640	1981	03	09.33555	11	47	32.63	+01	36	48.5			17.8	809
1640	1981	03	09.34248	11	47	32.23	+01	36	50.5				809
1640	1981	03	09.34941	11	47	31.84	+01	36	52.4				809
1640	1981	03	10.36884	11	46	31.99	+01	41	29.2				809
1640	1981	03	10.37577	11	46	31.59	+01	41	31.2				809
1640	1981	03	10.38270	11	46	31.20	+01	41	33.3				809
1640	1981	03	11.34880	11	45	34.19	+01	46	06.3				809
1640	1981	03	11.35572	11	45	33.81	+01	46	08.2				809
1640	1981	03	11.36265	11	45	33.42	+01	46	10.2				809
1802	1981	03	04.23148	11	54	01.59	+02	52	57.1	0.1-	0	16.7	809
1802	1981	03	04.23840	11	54	01.30	+02	52	59.4	0.1-	0		809
1802	1981	03	04.24533	11	54	01.01	+02	53	01.8	0.1-	0		809
1802	1981	03	07.24059	11	51	49.17	+03	10	28.4	0.2-	1+		809
1802	1981	03	07.25029	11	51	48.72	+03	10	31.7	0.2-	1+		809
1802	1981	03	07.25722	11	51	48.41	+03	10	34.2	0.2-	1+		809
1802	1981	03	08.28981	11	51	01.53	+03	16	40.6	0.2-	1+		809
1802	1981	03	08.29691	11	51	01.21	+03	16	42.8	0.2-	1+		809
1802	1981	03	08.30366	11	51	00.90	+03	16	44.8	0.2-	1+		809
1802	1981	03	09.30404	11	50	15.25	+03	22	40.3	0.2-	1+		809
1802	1981	03	09.31062	11	50	14.90	+03	22	42.9	0.2-	1+		809
1802	1981	03	09.31686	11	50	14.58	+03	22	45.1	0.2-	1+		809
1802	1981	03	09.32378	11	50	14.25	+03	22	48.0	0.2-	1+		809
1802	1981	03	10.34460	11	49	27.15	+03	28	51.4	0.2-	1+		809
1802	1981	03	10.35153	11	49	26.85	+03	28	53.7	0.2-	1+		809
1802	1981	03	10.35846	11	49	26.51	+03	28	56.0	0.2-	1+		809
1802	1981	03	15.27970	11	45	35.96	+03	58	19.9	0.3-	1+	16.7	809
1802	1981	03	15.28663	11	45	35.63	+03	58	22.4	0.3-	1+		809
1802	1981	03	15.29355	11	45	35.32	+03	58	24.4	0.3-	1+		809
1802	1981	03	17.36150	11	43	57.41	+04	10	40.7				809
1802	1981	03	17.36981	11	43	57.07	+04	10	43.6				809
1824	1981	03	04.23148	11	54	59.37	+01	44	18.1	0.1+	0	16.6	809
1824	1981	03	04.23840	11	54	59.07	+01	44	20.1	0.1+	0		809
1824	1981	03	04.24533	11	54	58.78	+01	44	21.9	0.1+	0		809
1824	1981	03	06.32784	11	53	24.48	+01	53	31.4	0.0	1+		809
1824	1981	03	06.33475	11	53	24.16	+01	53	33.3	0.0	1+		809
1824	1981	03	06.34167	11	53	23.84	+01	53	35.1	0.0	1+		809
1824	1981	03	07.27315	11	52	41.03	+01	57	44.6	0.0	0		809
1824	1981	03	07.28007	11	52	40.67	+01	57	46.5	0.0	0		809
1824	1981	03	07.28700	11	52	40.32	+01	57	48.6	0.0	0		809
1824	1981	03	08.31821	11	51	52.23	+02	02	27.6	0.0	0		809
1824	1981	03	08.32513	11	51	51.89	+02	02	30.0	0.0	0		809
1824	1981	03	08.33206	11	51	51.51	+02	02	32.3	0.0	0		809

1824	1981	03	09.33555	11	51	04.20	+02	07	05.7	0.0	0	16.6	809
1824	1981	03	09.34248	11	51	03.89	+02	07	06.9	0.0	0		809
1824	1981	03	09.34941	11	51	03.55	+02	07	09.2	0.0	0		809
1824	1981	03	10.36884	11	50	15.10	+02	11	50.4	0.0	0		809
1824	1981	03	10.37577	11	50	14.75	+02	11	51.7	0.0	0		809
1824	1981	03	10.38270	11	50	14.44	+02	11	53.7	0.0	0		809
1824	1981	03	11.34880	11	49	28.23	+02	16	21.2	0.0	0		809
1824	1981	03	11.35572	11	49	27.85	+02	16	23.1	0.0	0		809
1824	1981	03	11.36265	11	49	27.51	+02	16	24.9	0.0	0		809
1824	1981	03	12.34538	11	48	40.22	+02	20	57.8	0.0	0		809
1824	1981	03	12.35230	11	48	39.89	+02	20	59.4	0.0	0		809
1824	1981	03	12.35923	11	48	39.52	+02	21	01.6	0.0	0		809
1824	1981	03	15.27970	11	46	17.74	+02	34	35.6	0.0	1+		809
1824	1981	03	15.28663	11	46	17.41	+02	34	37.4	0.0	1+		809
1824	1981	03	15.29355	11	46	17.07	+02	34	39.4	0.0	1+		809
1843	1981	03	01.09631	09	15	44.49	+04	48	18.1	0.3-	0	16.7	809
1843	1981	03	01.10635	09	15	44.04	+04	48	20.0	0.3-	0		809
1843	1981	03	01.11363	09	15	43.73	+04	48	21.9	0.3-	0		809
1843	1981	03	02.04856	09	15	00.58	+04	52	04.0	0.3-	0		809
1843	1981	03	02.05549	09	15	00.26	+04	52	06.1	0.3-	0		809
1843	1981	03	02.06241	09	14	59.94	+04	52	07.9	0.3-	0		809
1923	1981	03	08.21779	10	16	55.10	+12	58	33.6	0.2-	1+	17.1	809
1923	1981	03	08.22471	10	16	54.75	+12	58	34.2	0.2-	1+		809
1923	1981	03	08.23164	10	16	54.31	+12	58	35.4	0.2-	1+		809
1923	1981	03	09.20120	10	16	01.05	+13	00	45.9	0.3-	2+		809
1923	1981	03	09.20813	10	16	00.70	+13	00	47.3	0.3-	2+		809
1923	1981	03	09.21505	10	16	00.35	+13	00	48.3	0.3-	2+		809
1923	1981	03	10.25734	10	15	03.95	+13	03	00.5	0.3-	2+		809
1923	1981	03	10.26427	10	15	03.62	+13	03	00.3	0.3-	2+		809
1923	1981	03	10.27050	10	15	03.27	+13	03	01.6	0.3-	2+		809
1923	1981	03	14.24018	10	11	40.86	+13	10	09.3	0.3-	2+		809
1923	1981	03	14.24711	10	11	40.52	+13	10	10.4	0.3-	2+		809
1923	1981	03	14.25403	10	11	40.18	+13	10	11.2	0.3-	2+		809
1953	1981	03	10.34460	11	49	38.95	+04	49	43.5			17.5	809
1953	1981	03	10.35153	11	49	38.66	+04	49	45.8				809
1953	1981	03	10.35846	11	49	38.37	+04	49	47.8				809
1953	1981	03	16.31921	11	45	14.08	+05	18	04.6				809
1953	1981	03	16.32614	11	45	13.80	+05	18	06.6				809
1953	1981	03	16.33376	11	45	13.48	+05	18	08.9				809
1953	1981	03	17.36150	11	44	27.75	+05	22	56.5				809
1953	1981	03	17.36981	11	44	27.34	+05	22	59.5				809
2045	1981	03	02.28472	12	59	45.44	-04	17	03.5	0.4+	2-	15.0	809
2045	1981	03	02.29165	12	59	45.24	-04	17	03.4	0.4+	2-		809
2045	1981	03	02.29857	12	59	45.03	-04	17	03.4	0.4+	2-		809
2045	1981	03	06.37076	12	57	23.67	-04	15	29.9	0.1+	1-		809
2045	1981	03	06.37674	12	57	23.40	-04	15	29.4	0.1+	1-		809
2045	1981	03	07.32301	12	56	46.63	-04	14	49.2	0.0	1-		809
2045	1981	03	07.32993	12	56	46.33	-04	14	49.0	0.0	1-		809
2045	1981	03	07.33686	12	56	46.04	-04	14	48.7	0.0	1-		809
2045	1981	03	08.36542	12	56	04.11	-04	13	57.6	0.1+	1-		809
2045	1981	03	08.37223	12	56	03.78	-04	13	57.4	0.1+	1-		809
2045	1981	03	08.37919	12	56	03.47	-04	13	56.6	0.1+	1-		809
2045	1981	03	09.35910	12	55	22.05	-04	13	00.4	0.2+	2-		809
2045	1981	03	09.36603	12	55	21.72	-04	13	00.4	0.2+	2-		809
2045	1981	03	09.37295	12	55	21.38	-04	13	00.5	0.2+	2-		809
2045	1981	03	10.40024	12	54	36.27	-04	11	53.9	0.3+	2-		809
2045	1981	03	10.40647	12	54	35.95	-04	11	53.9	0.3+	2-		809
2045	1981	03	11.37858	12	53	51.78	-04	10	43.1	0.3+	2-		809
2045	1981	03	11.38550	12	53	51.45	-04	10	42.4	0.3+	2-		809

2045	1981	03	11.39243	12	53	51.14	-04	10	42.1	0.3+	2-	809
2045	1981	03	14.37869	12	51	27.00	-04	06	31.4	0.2+	2-	809
2045	1981	03	14.38562	12	51	26.67	-04	06	31.0	0.2+	2-	809
2045	1981	03	14.39254	12	51	26.35	-04	06	30.6	0.2+	2-	809
2045	1981	03	15.30613	12	50	39.92	-04	05	04.3	0.1+	1-	809
2045	1981	03	15.31294	12	50	39.60	-04	05	04.1	0.1+	1-	809
2045	1981	03	15.31987	12	50	39.25	-04	05	03.4	0.1+	1-	809
2045	1981	03	16.35107	12	49	45.41	-04	03	17.5	0.1+	1-	809
2045	1981	03	16.35799	12	49	45.08	-04	03	17.1	0.1+	1-	809
2045	1981	03	16.36492	12	49	44.74	-04	03	16.2	0.1+	1-	809
2165	1981	03	07.15783	10	15	26.90	+11	50	13.4		17.6	809
2165	1981	03	07.16511	10	15	26.58	+11	50	15.2			809
2165	1981	03	07.17134	10	15	26.30	+11	50	16.6			809
2165	1981	03	08.21779	10	14	41.15	+11	54	11.5			809
2165	1981	03	08.22471	10	14	40.83	+11	54	13.0			809
2165	1981	03	08.23164	10	14	40.54	+11	54	14.8			809
2165	1981	03	09.20120	10	13	59.43	+11	57	48.8			809
2165	1981	03	09.20813	10	13	59.13	+11	57	50.3			809
2165	1981	03	09.21505	10	13	58.83	+11	57	51.6			809
2165	1981	03	10.25734	10	13	15.18	+12	01	36.3			809
2165	1981	03	10.26427	10	13	14.89	+12	01	37.7			809
2165	1981	03	10.27050	10	13	14.62	+12	01	38.9			809
2165	1981	03	13.26923	10	11	13.56	+12	11	57.3			809
2165	1981	03	13.27616	10	11	13.29	+12	11	58.6			809
2165	1981	03	13.28308	10	11	13.03	+12	11	59.9			809
2165	1981	03	14.24018	10	10	35.93	+12	15	07.4			809
2165	1981	03	14.24711	10	10	35.67	+12	15	08.7			809
2165	1981	03	14.25403	10	10	35.41	+12	15	10.0			809
2200	1981	03	07.15783	10	15	01.99	+11	58	05.8		17.5	809
2200	1981	03	07.16511	10	15	01.57	+11	58	06.6			809
2200	1981	03	07.17134	10	15	01.22	+11	58	07.4			809
2200	1981	03	08.21779	10	14	01.49	+12	00	09.3			809
2200	1981	03	08.22471	10	14	01.10	+12	00	10.1			809
2200	1981	03	08.23164	10	14	00.70	+12	00	10.9			809
2200	1981	03	09.20120	10	13	06.66	+12	01	57.8			809
2200	1981	03	09.20813	10	13	06.26	+12	01	58.8			809
2200	1981	03	09.21505	10	13	05.86	+12	01	59.7			809
2200	1981	03	10.25734	10	12	08.69	+12	03	45.1			809
2200	1981	03	10.26427	10	12	08.29	+12	03	46.0			809
2200	1981	03	10.27050	10	12	07.98	+12	03	46.3			809
2200	1981	03	14.24018	10	08	43.69	+12	09	16.2			809
2200	1981	03	14.24711	10	08	43.34	+12	09	17.0			809
2200	1981	03	14.25403	10	08	42.99	+12	09	17.8			809
2383	1981	03	05.34093	12	59	36.97	-04	41	12.8		17.5	809
2383	1981	03	05.34786	12	59	36.75	-04	41	12.1			809
2383	1981	03	05.35478	12	59	36.53	-04	41	11.5			809
2383	1981	03	06.37076	12	59	05.09	-04	40	06.3			809
2383	1981	03	06.37674	12	59	04.91	-04	40	05.9			809
2383	1981	03	07.32301	12	58	33.89	-04	38	55.1			809
2383	1981	03	07.32993	12	58	33.66	-04	38	54.6			809
2383	1981	03	07.33686	12	58	33.42	-04	38	54.1			809
2383	1981	03	08.36542	12	57	57.44	-04	37	27.2			809
2383	1981	03	08.37223	12	57	57.18	-04	37	26.7			809
2383	1981	03	08.37919	12	57	56.92	-04	37	26.2			809
2383	1981	03	10.40024	12	56	40.65	-04	34	07.8			809
2383	1981	03	10.40647	12	56	40.41	-04	34	07.3			809
2383	1981	03	14.37869	12	53	49.88	-04	25	56.7			809
2383	1981	03	14.38562	12	53	49.57	-04	25	55.7			809
2383	1981	03	14.39254	12	53	49.27	-04	25	54.7			809

2383		1981	03	15.30613	12	53	06.60	-04	23	44.8	809
2383		1981	03	15.31294	12	53	06.25	-04	23	44.0	809
2383		1981	03	15.31987	12	53	05.92	-04	23	43.1	809
2383		1981	03	16.35107	12	52	15.92	-04	21	02.4	809
2383		1981	03	16.35799	12	52	15.58	-04	21	01.4	809
2383		1981	03	16.36492	12	52	15.25	-04	21	00.4	809
2431		1981	03	02.12474	10	19	45.66	+09	52	40.7	18.0 809
2431		1981	03	02.13167	10	19	45.31	+09	52	42.5	809
2431		1981	03	02.13859	10	19	44.98	+09	52	44.5	809
2431		1981	03	03.11371	10	18	53.48	+09	56	59.0	809
2431		1981	03	03.12063	10	18	53.11	+09	57	00.5	809
2431		1981	03	03.12756	10	18	52.75	+09	57	02.6	809
2431		1981	03	04.11859	10	18	00.56	+10	01	18.4	809
2431		1981	03	04.12552	10	18	00.20	+10	01	20.3	809
2431		1981	03	04.13244	10	17	59.84	+10	01	22.3	809
2431		1981	03	06.13598	10	16	15.46	+10	09	53.8	809
2431		1981	03	06.14291	10	16	15.10	+10	09	55.4	809
2431		1981	03	06.14993	10	16	14.74	+10	09	57.0	809
2431		1981	03	07.07507	10	15	27.33	+10	13	49.6	809
2431		1981	03	07.08200	10	15	26.96	+10	13	51.4	809
2431		1981	03	07.08893	10	15	26.58	+10	13	53.4	809
2431		1981	03	08.06820	10	14	36.82	+10	17	56.0	809
2431		1981	03	08.07512	10	14	36.46	+10	17	57.9	809
2431		1981	03	08.08205	10	14	36.10	+10	17	59.6	809
1976	YS1	1981	03	13.37381	12	58	45.73	-03	44	30.3	18.0 809
1976	YS1	1981	03	13.38073	12	58	45.36	-03	44	28.5	809
1976	YS1	1981	03	13.38766	12	58	44.98	-03	44	26.7	809
1976	YS1	1981	03	15.33441	12	57	06.34	-03	35	35.0	809
1976	YS1	1981	03	15.34134	12	57	05.98	-03	35	33.1	809
1976	YS1	1981	03	15.34826	12	57	05.64	-03	35	31.2	809
1976	YS1	1981	03	17.33242	12	55	20.61	-03	26	06.2	809
1976	YS1	1981	03	17.33934	12	55	20.24	-03	26	04.4	809
1976	YS1	1981	03	17.34627	12	55	19.86	-03	26	02.7	809
1981	DD	1981	03	01.09631	09	13	34.88	+05	57	45.7	18.0 809
1981	DD	1981	03	01.10635	09	13	34.39	+05	57	49.3	809
1981	DD	1981	03	01.11363	09	13	34.04	+05	57	51.9	809
1981	DD	1981	03	02.04856	09	12	49.18	+06	03	31.2	809
1981	DD	1981	03	02.05549	09	12	48.86	+06	03	33.7	809
1981	DD	1981	03	02.06241	09	12	48.53	+06	03	36.1	809
1981	DD	1981	03	03.08820	09	12	00.37	+06	09	48.7	809
1981	DD	1981	03	03.09501	09	12	00.05	+06	09	51.1	809
1981	DD	1981	03	03.10193	09	11	59.72	+06	09	53.5	809
1981	DD	1981	03	04.09435	09	11	14.44	+06	15	52.5	809
1981	DD	1981	03	04.10128	09	11	14.13	+06	15	54.7	809
1981	DD	1981	03	04.10820	09	11	13.82	+06	15	56.9	809
1981	DD	1981	03	06.10620	09	09	46.48	+06	27	54.8	809
1981	DD	1981	03	06.11313	09	09	46.16	+06	27	56.7	809
1981	DD	1981	03	06.12006	09	09	45.84	+06	27	58.7	809
1981	DD	1981	03	07.04668	09	09	07.35	+06	33	28.7	809
1981	DD	1981	03	07.05361	09	09	07.06	+06	33	31.6	809
1981	DD	1981	03	07.06053	09	09	06.76	+06	33	34.6	809
1981	DD	1981	03	08.04049	09	08	27.26	+06	39	20.1	809
1981	DD	1981	03	08.04742	09	08	27.01	+06	39	22.5	809
1981	DD	1981	03	08.05434	09	08	26.76	+06	39	24.8	809
1981	DD	1981	03	09.06200	09	07	47.54	+06	45	18.2	809
1981	DD	1981	03	09.06961	09	07	47.24	+06	45	20.9	809
1981	DD	1981	03	09.07654	09	07	46.94	+06	45	23.3	809
1981	DE	1981	03	02.04856	09	15	17.94	+06	17	04.6	18.0 809
1981	DE	1981	03	02.05549	09	15	17.65	+06	17	06.4	809

1981	DE	1981	03	02.06241	09	15	17.36	+06	17	08.5		809
1981	DE	1981	03	03.08820	09	14	32.57	+06	22	28.3		809
1981	DE	1981	03	03.09501	09	14	32.28	+06	22	30.4		809
1981	DE	1981	03	03.10193	09	14	31.98	+06	22	32.6		809
1981	DE	1981	03	04.09435	09	13	50.32	+06	27	39.0		809
1981	DE	1981	03	04.10128	09	13	50.02	+06	27	41.1		809
1981	DE	1981	03	04.10820	09	13	49.72	+06	27	43.2		809
1981	DE	1981	03	06.10620	09	12	30.41	+06	37	52.4		809
1981	DE	1981	03	06.11313	09	12	30.15	+06	37	54.6		809
1981	DE	1981	03	06.12006	09	12	29.89	+06	37	56.3		809
1981	DE	1981	03	07.04668	09	11	55.38	+06	42	36.0		809
1981	DE	1981	03	07.05361	09	11	55.11	+06	42	38.2		809
1981	DE	1981	03	07.06053	09	11	54.84	+06	42	40.3		809
1981	DE	1981	03	08.04049	09	11	19.84	+06	47	33.4		809
1981	DE	1981	03	08.04742	09	11	19.58	+06	47	35.5		809
1981	DE	1981	03	08.05434	09	11	19.31	+06	47	37.6		809
1981	DE	1981	03	09.06200	09	10	44.95	+06	52	34.4		809
1981	DE	1981	03	09.06961	09	10	44.69	+06	52	36.5		809
1981	DE	1981	03	09.07654	09	10	44.46	+06	52	38.6		809
1981	DF	1981	03	02.12474	10	17	43.39	+08	54	38.3	17.4	809
1981	DF	1981	03	02.13167	10	17	43.00	+08	54	38.5		809
1981	DF	1981	03	02.13859	10	17	42.63	+08	54	38.8		809
1981	DF	1981	03	03.11371	10	16	50.83	+08	55	15.1		809
1981	DF	1981	03	03.12063	10	16	50.46	+08	55	15.3		809
1981	DF	1981	03	03.12756	10	16	50.10	+08	55	15.6		809
1981	DF	1981	03	04.11859	10	15	57.95	+08	55	51.0		809
1981	DF	1981	03	04.12552	10	15	57.59	+08	55	51.2		809
1981	DF	1981	03	04.13244	10	15	57.21	+08	55	51.7		809
1981	DF	1981	03	05.14425	10	15	04.34	+08	56	25.8		809
1981	DF	1981	03	05.15117	10	15	03.95	+08	56	26.0		809
1981	DF	1981	03	05.15810	10	15	03.56	+08	56	26.1		809
1981	DF	1981	03	06.13598	10	14	13.28	+08	56	58.2		809
1981	DF	1981	03	06.14291	10	14	12.94	+08	56	58.4		809
1981	DF	1981	03	06.14993	10	14	12.59	+08	56	58.4		809
1981	DF	1981	03	07.07507	10	13	25.48	+08	57	26.8		809
1981	DF	1981	03	07.08200	10	13	25.12	+08	57	26.9		809
1981	DF	1981	03	07.08893	10	13	24.75	+08	57	27.2		809
1981	DF	1981	03	08.06820	10	12	35.58	+08	57	54.4		809
1981	DF	1981	03	08.07512	10	12	35.22	+08	57	54.4		809
1981	DF	1981	03	08.08205	10	12	34.84	+08	57	55.0		809
1981	DF	1981	03	09.09316	10	11	44.71	+08	58	20.3		809
1981	DF	1981	03	09.10009	10	11	44.34	+08	58	20.8		809
1981	DF	1981	03	09.10701	10	11	43.97	+08	58	21.2		809
1981	DG	1981	03	02.12474	10	20	28.05	+09	18	36.4	17.0	809
1981	DG	1981	03	02.13167	10	20	27.70	+09	18	38.3		809
1981	DG	1981	03	02.13859	10	20	27.33	+09	18	40.1		809
1981	DG	1981	03	03.11371	10	19	39.41	+09	23	01.6		809
1981	DG	1981	03	03.12063	10	19	39.07	+09	23	03.3		809
1981	DG	1981	03	03.12756	10	19	38.74	+09	23	05.0		809
1981	DG	1981	03	04.11859	10	18	50.39	+09	27	27.5		809
1981	DG	1981	03	04.12552	10	18	50.04	+09	27	29.4		809
1981	DG	1981	03	04.13244	10	18	49.70	+09	27	31.3		809
1981	DG	1981	03	05.14425	10	18	00.84	+09	31	58.3		809
1981	DG	1981	03	05.15117	10	18	00.51	+09	32	00.0		809
1981	DG	1981	03	05.15810	10	18	00.19	+09	32	01.8		809
1981	DG	1981	03	06.13598	10	17	13.35	+09	36	16.2		809
1981	DG	1981	03	06.14291	10	17	13.02	+09	36	17.9		809
1981	DG	1981	03	06.14993	10	17	12.67	+09	36	19.4		809
1981	DG	1981	03	07.07507	10	16	29.12	+09	40	17.5		809

1981	DG	1981	03	07.08200	10	16	28.78	+09	40	19.2	809
1981	DG	1981	03	07.08893	10	16	28.44	+09	40	20.9	809
1981	DG	1981	03	08.06820	10	15	42.76	+09	44	29.5	809
1981	DG	1981	03	08.07512	10	15	42.43	+09	44	31.1	809
1981	DG	1981	03	08.08205	10	15	42.12	+09	44	32.8	809
1981	DG	1981	03	09.09316	10	14	55.36	+09	48	47.1	809
1981	DG	1981	03	09.10009	10	14	55.06	+09	48	48.9	809
1981	DG	1981	03	09.10701	10	14	54.74	+09	48	50.6	809
1981	DH	1981	03	02.12474	10	23	45.86	+09	25	10.1	17.5 809
1981	DH	1981	03	02.13167	10	23	45.56	+09	25	12.1	809
1981	DH	1981	03	02.13859	10	23	45.27	+09	25	14.2	809
1981	DH	1981	03	03.11371	10	23	03.44	+09	29	19.3	809
1981	DH	1981	03	03.12063	10	23	03.13	+09	29	21.2	809
1981	DH	1981	03	03.12756	10	23	02.82	+09	29	22.9	809
1981	DH	1981	03	04.11859	10	22	20.32	+09	33	31.5	809
1981	DH	1981	03	04.12552	10	22	20.00	+09	33	33.1	809
1981	DH	1981	03	04.13244	10	22	19.69	+09	33	34.8	809
1981	EN	1981	03	04.23148	11	52	49.34	+03	09	11.1	17.2 809
1981	EN	1981	03	04.23840	11	52	49.08	+03	09	16.5	809
1981	EN	1981	03	04.24533	11	52	48.83	+03	09	21.8	809
1981	EN	1981	03	07.24059	11	50	51.45	+03	46	56.6	809
1981	EN	1981	03	07.25029	11	50	51.04	+03	47	03.9	809
1981	EN	1981	03	07.25722	11	50	50.74	+03	47	09.0	809
1981	EN	1981	03	08.28981	11	50	08.53	+04	00	17.3	809
1981	EN	1981	03	08.29691	11	50	08.24	+04	00	22.6	809
1981	EN	1981	03	08.30366	11	50	07.94	+04	00	28.0	809
1981	EN	1981	03	09.30404	11	49	26.30	+04	13	13.5	809
1981	EN	1981	03	09.31062	11	49	26.00	+04	13	18.6	809
1981	EN	1981	03	09.31686	11	49	25.72	+04	13	23.3	809
1981	EN	1981	03	09.32378	11	49	25.46	+04	13	28.6	809
1981	EN	1981	03	10.34460	11	48	42.28	+04	26	28.9	809
1981	EN	1981	03	10.35153	11	48	41.98	+04	26	34.3	809
1981	EN	1981	03	10.35846	11	48	41.69	+04	26	39.6	809
1981	EN	1981	03	16.31921	11	44	22.33	+05	42	34.8	809
1981	EN	1981	03	16.32614	11	44	22.02	+05	42	40.1	809
1981	EN	1981	03	16.33376	11	44	21.69	+05	42	45.8	809
1981	EN	1981	03	17.36150	11	43	36.27	+05	55	38.2	809
1981	EN	1981	03	17.36981	11	43	36.00	+05	55	43.3	809
1981	EO	1981	03	04.23148	11	52	54.12	+01	31	30.8	17.8 809
1981	EO	1981	03	04.23840	11	52	53.69	+01	31	29.9	809
1981	EO	1981	03	04.24533	11	52	53.24	+01	31	28.9	809
1981	EO	1981	03	04.25918	11	52	52.20	+01	31	27.3	809
1981	EO	1981	03	04.26610	11	52	51.75	+01	31	26.5	809
1981	EO	1981	03	04.27303	11	52	51.31	+01	31	25.7	809
1981	EO	1981	03	06.32784	11	50	38.39	+01	27	12.4	809
1981	EO	1981	03	06.33475	11	50	37.93	+01	27	11.4	809
1981	EO	1981	03	06.34167	11	50	37.46	+01	27	10.4	809
1981	EO	1981	03	07.27315	11	49	35.82	+01	25	19.6	809
1981	EO	1981	03	07.28007	11	49	35.36	+01	25	18.6	809
1981	EO	1981	03	07.28700	11	49	34.91	+01	25	17.4	809
1981	EO	1981	03	08.31821	11	48	25.61	+01	23	17.8	809
1981	EO	1981	03	08.32513	11	48	25.12	+01	23	16.9	809
1981	EO	1981	03	08.33206	11	48	24.64	+01	23	16.3	809
1981	EO	1981	03	09.33555	11	47	16.31	+01	21	19.6	17.8 809
1981	EO	1981	03	09.34248	11	47	15.84	+01	21	18.8	809
1981	EO	1981	03	09.34941	11	47	15.36	+01	21	18.0	809
1981	EO	1981	03	10.36884	11	46	05.08	+01	19	22.4	809
1981	EO	1981	03	10.37577	11	46	04.61	+01	19	21.7	809
1981	EO	1981	03	10.38270	11	46	04.14	+01	19	20.9	809

1981	EO	1981	03	11.34880	11	44	57.11	+01	17	32.2	809
1981	EO	1981	03	11.35572	11	44	56.62	+01	17	31.4	809
1981	EO	1981	03	11.36265	11	44	56.13	+01	17	30.6	809
1981	EO	1981	03	12.34538	11	43	47.34	+01	15	41.0	809
1981	EO	1981	03	12.35230	11	43	46.85	+01	15	40.4	809
1981	EO	1981	03	12.35923	11	43	46.37	+01	15	39.8	809
1981	EQ	1981	03	06.35068	12	31	26.96	+00	21	19.6	809
1981	EQ	1981	03	06.35656	12	31	26.71	+00	21	19.8	809
1981	EQ	1981	03	06.36176	12	31	26.49	+00	21	20.0	809
1981	EQ	1981	03	07.29704	12	30	47.96	+00	22	35.0	809
1981	EQ	1981	03	07.30362	12	30	47.69	+00	22	35.6	809
1981	EQ	1981	03	07.31054	12	30	47.41	+00	22	36.3	809
1981	EQ	1981	03	08.33968	12	30	03.77	+00	24	03.7	809
1981	EQ	1981	03	08.34660	12	30	03.47	+00	24	04.2	809
1981	EQ	1981	03	08.35353	12	30	03.17	+00	24	04.8	809
1981	EQ	1981	03	12.38070	12	27	03.35	+00	30	10.2	809
1981	EQ	1981	03	12.38762	12	27	03.03	+00	30	12.4	809
1981	EQ	1981	03	12.39455	12	27	02.72	+00	30	12.8	809
1981	ET	1981	03	07.24059	11	47	25.44	+02	53	28.4	18.0 809
1981	ET	1981	03	07.25029	11	47	24.94	+02	53	30.3	809
1981	ET	1981	03	07.25722	11	47	24.57	+02	53	31.7	809
1981	ET	1981	03	08.28981	11	46	31.42	+02	56	56.9	809
1981	ET	1981	03	08.29691	11	46	31.05	+02	56	58.6	809
1981	ET	1981	03	08.30366	11	46	30.70	+02	57	00.3	809
1981	ET	1981	03	09.30404	11	45	38.69	+03	00	20.1	809
1981	ET	1981	03	09.31062	11	45	38.34	+03	00	21.4	809
1981	ET	1981	03	09.31686	11	45	38.01	+03	00	22.6	809
1981	ET	1981	03	09.32378	11	45	37.64	+03	00	23.8	809
1981	ET	1981	03	10.34460	11	44	44.18	+03	03	49.7	809
1981	ET	1981	03	10.35153	11	44	43.80	+03	03	51.1	809
1981	ET	1981	03	10.35846	11	44	43.44	+03	03	52.8	809
1981	ET	1981	03	15.27970	11	40	21.72	+03	20	33.6	18.0 809
1981	ET	1981	03	15.28663	11	40	21.36	+03	20	35.1	809
1981	ET	1981	03	15.29355	11	40	21.00	+03	20	36.5	809
1981	EU	1981	03	04.23148	11	51	26.14	+01	39	37.2	18.2 809
1981	EU	1981	03	04.23840	11	51	25.83	+01	39	39.6	809
1981	EU	1981	03	04.24533	11	51	25.51	+01	39	41.9	809
1981	EU	1981	03	05.29384	11	50	40.34	+01	45	05.8	809
1981	EU	1981	03	06.32784	11	49	55.27	+01	50	28.5	809
1981	EU	1981	03	06.33475	11	49	54.95	+01	50	30.7	809
1981	EU	1981	03	06.34167	11	49	54.65	+01	50	32.9	809
1981	EU	1981	03	07.27315	11	49	13.77	+01	55	26.4	809
1981	EU	1981	03	07.28007	11	49	13.45	+01	55	28.5	809
1981	EU	1981	03	07.28700	11	49	13.14	+01	55	30.6	809
1981	EU	1981	03	09.33555	11	47	41.60	+02	06	22.6	18.2 809
1981	EU	1981	03	09.34248	11	47	41.26	+02	06	24.8	809
1981	EU	1981	03	09.34941	11	47	40.90	+02	06	25.9	809
1981	EU	1981	03	10.36884	11	46	54.95	+02	11	55.3	809
1981	EU	1981	03	10.37577	11	46	54.64	+02	11	57.8	809
1981	EU	1981	03	10.38270	11	46	54.33	+02	12	00.4	809
1981	EU	1981	03	11.34880	11	46	10.34	+02	17	12.9	809
1981	EU	1981	03	11.35572	11	46	10.03	+02	17	15.3	809
1981	EU	1981	03	11.36265	11	46	09.73	+02	17	17.8	809
1981	EU	1981	03	12.34538	11	45	24.98	+02	22	32.3	809
1981	EU	1981	03	12.35230	11	45	24.65	+02	22	34.8	809
1981	EU	1981	03	12.35923	11	45	24.35	+02	22	37.2	809
1981	EU	1981	03	15.27970	11	43	10.41	+02	38	22.5	809
1981	EU	1981	03	15.28663	11	43	10.10	+02	38	24.7	809
1981	EU	1981	03	15.29355	11	43	09.77	+02	38	27.0	809

1981	EV	1981	03	04.17122	10	41	09.14	+15	36	14.9	16.8	809
1981	EV	1981	03	04.17815	10	41	08.74	+15	36	18.5		809
1981	EV	1981	03	04.18507	10	41	08.34	+15	36	22.1		809
1981	EV	1981	03	05.19204	10	40	11.39	+15	45	16.6		809
1981	EV	1981	03	05.19896	10	40	10.98	+15	45	20.2		809
1981	EV	1981	03	05.20589	10	40	10.55	+15	45	23.6		809
1981	EV	1981	03	06.22671	10	39	13.09	+15	54	15.3		809
1981	EV	1981	03	06.23363	10	39	12.71	+15	54	19.0		809
1981	EV	1981	03	06.24056	10	39	12.32	+15	54	22.4		809
1981	EV	1981	03	08.24204	10	37	21.14	+16	11	10.6		809
1981	EV	1981	03	08.24895	10	37	20.76	+16	11	14.2		809
1981	EV	1981	03	08.25588	10	37	20.38	+16	11	17.4		809
1981	EV	1981	03	09.25386	10	36	25.72	+16	19	24.8		809
1981	EV	1981	03	09.26076	10	36	25.35	+16	19	28.3		809
1981	EV	1981	03	09.26768	10	36	24.97	+16	19	31.8		809
1981	EV	1981	03	10.22410	10	35	33.51	+16	27	05.4		809
1981	EV	1981	03	10.23103	10	35	33.11	+16	27	08.3		809
1981	EV	1981	03	14.26788	10	32	04.02	+16	56	53.3		809
1981	EV	1981	03	14.27481	10	32	03.66	+16	56	56.4		809
1981	EV	1981	03	14.28173	10	32	03.30	+16	56	59.3		809
1981	EX	1981	03	04.17122	10	36	24.65	+15	17	01.6	17.8	809
1981	EX	1981	03	04.17815	10	36	24.19	+15	17	00.8		809
1981	EX	1981	03	04.18507	10	36	23.75	+15	17	00.0		809
1981	EX	1981	03	06.22671	10	34	08.43	+15	13	05.4		809
1981	EX	1981	03	06.23363	10	34	07.98	+15	13	04.6		809
1981	EX	1981	03	06.24056	10	34	07.53	+15	13	03.9		809
1981	EX	1981	03	08.24204	10	31	57.50	+15	08	39.5		809
1981	EX	1981	03	08.24895	10	31	57.05	+15	08	38.8		809
1981	EX	1981	03	08.25588	10	31	56.57	+15	08	38.0		809
1981	EX	1981	03	09.25386	10	30	52.73	+15	06	13.8		809
1981	EX	1981	03	09.26076	10	30	52.28	+15	06	12.4		809
1981	EX	1981	03	09.26768	10	30	51.83	+15	06	11.0		809
1981	EX	1981	03	12.27959	10	27	44.34	+14	57	59.8		809
1981	EX	1981	03	12.28651	10	27	43.90	+14	57	58.7		809
1981	EX	1981	03	12.29344	10	27	43.46	+14	57	57.6		809
1981	EB1	1981	03	07.24059	11	44	43.66	+04	13	46.7	18.2	809
1981	EB1	1981	03	07.25029	11	44	43.25	+04	13	49.5		809
1981	EB1	1981	03	07.25722	11	44	42.96	+04	13	51.5		809
1981	EB1	1981	03	08.28981	11	43	59.06	+04	19	29.0		809
1981	EB1	1981	03	08.29691	11	43	58.76	+04	19	31.4		809
1981	EB1	1981	03	08.30366	11	43	58.48	+04	19	33.5		809
1981	EB1	1981	03	17.36150	11	37	21.79	+05	08	57.3		809
1981	EB1	1981	03	17.36981	11	37	21.43	+05	09	00.2		809
1981	EC1	1981	03	07.24059	11	49	11.72	+04	18	30.5	17.6	809
1981	EC1	1981	03	07.25029	11	49	11.33	+04	18	33.3		809
1981	EC1	1981	03	07.25722	11	49	11.06	+04	18	35.4		809
1981	EC1	1981	03	08.28981	11	48	29.01	+04	23	37.5		809
1981	EC1	1981	03	08.29691	11	48	28.74	+04	23	39.9		809
1981	EC1	1981	03	08.30366	11	48	28.47	+04	23	41.9		809
1981	EC1	1981	03	10.34460	11	47	04.27	+04	33	39.0		809
1981	EC1	1981	03	10.35153	11	47	03.98	+04	33	41.1		809
1981	EC1	1981	03	10.35846	11	47	03.69	+04	33	43.3		809
1981	EC1	1981	03	16.31921	11	42	53.10	+05	02	48.5		809
1981	EC1	1981	03	16.32614	11	42	52.78	+05	02	50.8		809
1981	EC1	1981	03	16.33376	11	42	52.44	+05	02	52.8		809
1981	EC1	1981	03	17.36981	11	42	08.63	+05	07	53.1		809
1981	EC1	1981	03	18.37366	11	41	26.06	+05	12	40.8		809
1981	EC1	1981	03	18.37989	11	41	25.82	+05	12	42.6		809
1981	EC1	1981	03	18.38647	11	41	25.55	+05	12	44.4		809

1981	ED1	1981	03	07.24059	11	49	16.66	+03	46	10.5	18.2	809
1981	ED1	1981	03	07.25029	11	49	16.10	+03	46	11.7		809
1981	ED1	1981	03	07.25722	11	49	15.69	+03	46	12.8		809
1981	ED1	1981	03	08.28981	11	48	15.06	+03	48	03.6		809
1981	ED1	1981	03	08.29691	11	48	14.65	+03	48	04.5		809
1981	ED1	1981	03	08.30366	11	48	14.26	+03	48	05.0		809
1981	ED1	1981	03	09.30404	11	47	15.24	+03	49	52.3		809
1981	ED1	1981	03	09.31062	11	47	14.85	+03	49	53.3		809
1981	ED1	1981	03	09.31686	11	47	14.46	+03	49	53.7		809
1981	ED1	1981	03	09.32378	11	47	14.04	+03	49	54.4		809
1981	ED1	1981	03	15.27970	11	41	16.81	+04	00	35.9	18.2	809
1981	ED1	1981	03	15.28663	11	41	16.40	+04	00	37.6		809
1981	ED1	1981	03	15.29355	11	41	15.97	+04	00	39.2		809
1981	EE1	1981	03	07.24059	11	50	01.08	+03	45	10.0	17.5	809
1981	EE1	1981	03	07.25029	11	50	00.67	+03	45	13.3		809
1981	EE1	1981	03	07.25722	11	50	00.37	+03	45	15.6		809
1981	EE1	1981	03	08.28981	11	49	11.07	+03	52	49.2		809
1981	EE1	1981	03	08.29691	11	49	10.74	+03	52	52.2		809
1981	EE1	1981	03	08.30366	11	49	10.43	+03	52	55.1		809
1981	EE1	1981	03	09.30404	11	48	22.08	+04	00	15.3		809
1981	EE1	1981	03	09.31062	11	48	21.76	+04	00	18.2		809
1981	EE1	1981	03	09.31686	11	48	21.45	+04	00	20.8		809
1981	EE1	1981	03	09.32378	11	48	21.12	+04	00	24.1		809
1981	EE1	1981	03	10.34460	11	47	31.11	+04	07	55.0		809
1981	EE1	1981	03	10.35153	11	47	30.79	+04	07	57.7		809
1981	EE1	1981	03	10.35846	11	47	30.46	+04	08	00.4		809
1981	EE1	1981	03	16.31921	11	42	31.81	+04	51	48.5		809
1981	EE1	1981	03	16.32614	11	42	31.46	+04	51	51.4		809
1981	EE1	1981	03	16.33376	11	42	31.08	+04	51	54.8		809
1981	EE1	1981	03	17.36150	11	41	39.03	+04	59	21.3		809
1981	EE1	1981	03	17.36981	11	41	38.62	+04	59	23.8		809
1981	EG1	1981	03	07.32301	12	54	33.43	-03	54	19.5		809
1981	EG1	1981	03	07.32993	12	54	33.18	-03	54	18.7		809
1981	EG1	1981	03	07.33686	12	54	32.92	-03	54	17.9		809
1981	EG1	1981	03	08.36542	12	53	55.56	-03	51	29.0		809
1981	EG1	1981	03	08.37223	12	53	55.31	-03	51	28.4		809
1981	EG1	1981	03	08.37919	12	53	55.03	-03	51	27.7		809
1981	EG1	1981	03	09.35910	12	53	18.08	-03	48	40.4		809
1981	EG1	1981	03	09.36603	12	53	17.83	-03	48	39.5		809
1981	EG1	1981	03	09.37295	12	53	17.56	-03	48	38.7		809
1981	EG1	1981	03	10.40024	12	52	37.23	-03	45	35.8		809
1981	EG1	1981	03	10.40647	12	52	37.04	-03	45	34.7		809
1981	EG1	1981	03	11.37858	12	51	57.87	-03	42	34.2		809
1981	EG1	1981	03	11.38550	12	51	57.57	-03	42	33.0		809
1981	EG1	1981	03	11.39243	12	51	57.26	-03	42	32.0		809
1981	EG1	1981	03	14.37869	12	49	49.99	-03	32	47.4		809
1981	EG1	1981	03	14.38562	12	49	49.70	-03	32	46.3		809
1981	EG1	1981	03	14.39254	12	49	49.42	-03	32	45.1		809
1981	EG1	1981	03	15.30613	12	49	08.54	-03	29	38.0		809
1981	EG1	1981	03	15.31294	12	49	08.23	-03	29	36.9		809
1981	EG1	1981	03	15.31987	12	49	07.91	-03	29	35.4		809
1981	EG1	1981	03	16.35107	12	48	20.55	-03	25	57.3		809
1981	EG1	1981	03	16.35799	12	48	20.27	-03	25	56.0		809
1981	EG1	1981	03	16.36492	12	48	19.97	-03	25	54.6		809
1981	EH1	1981	03	08.21779	10	18	40.60	+11	43	00.3	17.0	809
1981	EH1	1981	03	08.22471	10	18	40.33	+11	43	03.1		809
1981	EH1	1981	03	08.23164	10	18	40.06	+11	43	05.9		809
1981	EH1	1981	03	09.20120	10	18	02.20	+11	49	31.7		809
1981	EH1	1981	03	09.20813	10	18	01.93	+11	49	34.5		809

1981	EH1		1981	03	09.21505	10	18	01.66	+11	49	37.3	809
1981	EH1		1981	03	10.25734	10	17	21.60	+11	56	26.4	809
1981	EH1		1981	03	10.26427	10	17	21.33	+11	56	29.1	809
1981	EH1		1981	03	10.27050	10	17	21.09	+11	56	31.6	809
1981	EH1		1981	03	14.24018	10	14	57.71	+12	21	19.0	809
1981	EH1		1981	03	14.24711	10	14	57.45	+12	21	21.6	809
1981	EH1		1981	03	14.25403	10	14	57.20	+12	21	24.2	809
1981	EJ1		1981	03	08.21779	10	20	42.56	+11	59	12.8	17.6 809
1981	EJ1		1981	03	08.22471	10	20	42.27	+11	59	16.5	809
1981	EJ1		1981	03	08.23164	10	20	41.97	+11	59	20.2	809
1981	EJ1		1981	03	09.20120	10	19	58.90	+12	07	52.1	809
1981	EJ1		1981	03	09.20813	10	19	58.59	+12	07	56.2	809
1981	EJ1		1981	03	09.21505	10	19	58.33	+12	08	00.3	809
1981	EJ1		1981	03	10.25734	10	19	12.86	+12	17	04.8	809
1981	EJ1		1981	03	10.26427	10	19	12.55	+12	17	08.4	809
1981	EJ1		1981	03	10.27050	10	19	12.28	+12	17	11.5	809
1981	EP1		1981	03	12.27959	10	26	46.90	+16	00	22.0	17.2 809
1981	EP1		1981	03	12.28651	10	26	46.52	+16	00	21.8	809
1981	EP1		1981	03	12.29344	10	26	46.16	+16	00	21.7	809
1981	EP1		1981	03	13.30455	10	25	55.42	+15	59	15.7	809
1981	EP1		1981	03	13.31148	10	25	55.08	+15	59	15.2	809
1981	EP1		1981	03	13.31840	10	25	54.73	+15	59	14.8	809
1981	EV1		1981	03	06.37076	12	56	32.89	-04	14	57.4	18.0 809
1981	EV1		1981	03	06.37674	12	56	32.75	-04	14	56.8	809
1981	EW1	*	1981	03	02.28472	13	01	13.73	-04	51	44.5	18.2 809
1981	EW1		1981	03	02.29165	13	01	13.44	-04	51	45.4	809
1981	EW1		1981	03	02.29857	13	01	13.11	-04	51	46.1	809
1981	EX1	*	1981	03	05.14425	10	15	07.01	+08	56	02.0	18.1 809
1981	EX1		1981	03	05.15117	10	15	06.76	+08	56	00.6	809
1981	EX1		1981	03	05.15810	10	15	06.51	+08	55	59.3	809
1981	EY1	*	1981	03	08.33968	12	37	31.12	+00	10	41.1	18.0 809
1981	EY1		1981	03	08.34660	12	37	30.80	+00	10	44.9	809
1981	EY1		1981	03	08.35353	12	37	30.46	+00	10	48.5	809
1981	EZ1	*	1981	03	08.33968	12	37	46.28	-00	39	12.9	809
1981	EZ1		1981	03	08.34660	12	37	45.93	-00	39	11.3	18.1 809
1981	EZ1		1981	03	08.35353	12	37	45.58	-00	39	09.7	809
1981	EA2	*	1981	03	15.33441	13	01	05.24	-02	22	21.7	18.2 809
1981	EA2		1981	03	15.34134	13	01	05.07	-02	22	21.2	809
1981	EA2		1981	03	15.34826	13	01	04.88	-02	22	20.2	809
1981	EA2		1981	03	17.33242	13	00	14.90	-02	18	55.4	809
1981	EA2		1981	03	17.33934	13	00	14.72	-02	18	54.8	809
1981	EA2		1981	03	17.34627	13	00	14.55	-02	18	54.1	809
1981	FQ		1981	03	06.32784	11	52	46.19	+01	06	17.0	17.7 809
1981	FQ		1981	03	06.33475	11	52	45.89	+01	06	19.0	809
1981	FQ		1981	03	06.34167	11	52	45.60	+01	06	21.0	809
1981	FQ		1981	03	07.27315	11	52	05.98	+01	10	35.2	809
1981	FQ		1981	03	07.28007	11	52	05.68	+01	10	37.2	809
1981	FQ		1981	03	07.28700	11	52	05.38	+01	10	39.0	809
1981	FQ		1981	03	08.31821	11	51	20.72	+01	15	24.8	809
1981	FQ		1981	03	08.32513	11	51	20.41	+01	15	26.4	809
1981	FQ		1981	03	08.33206	11	51	20.10	+01	15	28.2	809
1981	FQ		1981	03	09.33555	11	50	36.18	+01	20	09.1	17.7 809
1981	FQ		1981	03	09.34248	11	50	35.88	+01	20	11.0	809
1981	FQ		1981	03	09.34941	11	50	35.57	+01	20	13.0	809
1981	FQ		1981	03	10.36884	11	49	50.49	+01	25	02.5	809
1981	FQ		1981	03	10.37577	11	49	50.17	+01	25	04.4	809
1981	FQ		1981	03	10.38270	11	49	49.86	+01	25	06.2	809
1981	FQ		1981	03	11.34880	11	49	06.73	+01	29	42.4	809

1981 FQ		1981 03 11.35572	11 49 06.41	+01 29 44.3					809
1981 FQ		1981 03 11.36265	11 49 06.09	+01 29 46.2					809
1981 FQ		1981 03 12.34538	11 48 21.84	+01 34 28.8					809
1981 FQ		1981 03 12.35230	11 48 21.53	+01 34 30.8					809
1981 FQ		1981 03 12.35923	11 48 21.23	+01 34 32.9					809
1981 GO		1981 03 05.34093	12 57 27.97	-03 55 48.6				18.0	809
1981 GO		1981 03 05.34786	12 57 27.75	-03 55 46.7					809
1981 GO		1981 03 05.35478	12 57 27.53	-03 55 44.8					809
1981 GO		1981 03 06.37076	12 56 57.07	-03 50 04.0					809
1981 GO		1981 03 06.37674	12 56 56.90	-03 50 01.2					809
1981 GO		1981 03 07.32301	12 56 27.13	-03 44 32.4					809
1981 GO		1981 03 07.32993	12 56 26.87	-03 44 30.1					809
1981 GO		1981 03 07.33686	12 56 26.62	-03 44 27.9					809
1981 GO		1981 03 08.36542	12 55 52.47	-03 38 20.9					809
1981 GO		1981 03 08.37223	12 55 52.26	-03 38 18.6					809
1981 GO		1981 03 08.37919	12 55 52.04	-03 38 16.4					809
1981 GO		1981 03 09.35910	12 55 18.07	-03 32 16.6					809
1981 GO		1981 03 09.36603	12 55 17.83	-03 32 14.1					809
1981 GO		1981 03 09.37295	12 55 17.59	-03 32 11.6					809
1981 GO		1981 03 11.37858	12 54 03.47	-03 19 31.1					809
1981 GO		1981 03 11.38550	12 54 03.19	-03 19 28.4					809
1981 GO		1981 03 11.39243	12 54 02.92	-03 19 25.8					809
1981 GO		1981 03 14.37869	12 52 02.23	-02 59 31.1					809
1981 GO		1981 03 14.38562	12 52 01.95	-02 59 28.3					809
1981 GO		1981 03 14.39254	12 52 01.65	-02 59 25.4					809
1981 GO		1981 03 15.30613	12 51 22.80	-02 53 08.3					809
1981 GO		1981 03 15.31294	12 51 22.52	-02 53 05.1					809
1981 GO		1981 03 15.31987	12 51 22.23	-02 53 01.8					809
1981 GO		1981 03 16.35107	12 50 36.83	-02 45 48.0					809
1981 GO		1981 03 16.35799	12 50 36.53	-02 45 45.3					809
1981 GO		1981 03 16.36492	12 50 36.23	-02 45 42.7					809
1981 GQ		1981 03 04.29104	13 06 22.15	-02 14 44.8				17.0	809
1981 GQ		1981 03 04.29796	13 06 21.94	-02 14 46.9					809
1981 GQ		1981 03 04.30489	13 06 21.71	-02 14 48.9					809
1981 GQ		1981 03 07.34725	13 04 34.89	-02 24 49.6					809
1981 GQ		1981 03 07.35417	13 04 34.66	-02 24 50.7					809
1981 GQ		1981 03 07.36110	13 04 34.39	-02 24 52.1					809
1981 GQ		1981 03 08.38815	13 03 54.77	-02 28 06.0					809
1981 GQ		1981 03 08.39508	13 03 54.50	-02 28 07.5					809
1981 GQ		1981 03 08.40201	13 03 54.22	-02 28 09.0					809
1981 GQ		1981 03 09.38819	13 03 14.60	-02 31 10.4					809
1981 GQ		1981 03 09.39511	13 03 14.33	-02 31 11.7					809
1981 GQ		1981 03 09.40204	13 03 14.07	-02 31 13.0					809
1981 GQ		1981 03 13.37381	13 00 19.89	-02 42 52.2					809
1981 GQ		1981 03 13.38073	13 00 19.56	-02 42 53.3					809
1981 GQ		1981 03 13.38766	13 00 19.25	-02 42 54.4					809
1981 GQ		1981 03 15.33441	12 58 45.86	-02 48 18.2					809
1981 GQ		1981 03 15.34134	12 58 45.52	-02 48 19.6					809
1981 GQ		1981 03 15.34826	12 58 45.17	-02 48 20.7					809
1981 GQ		1981 03 17.33242	12 57 05.15	-02 53 39.5					809
1981 GQ		1981 03 17.33934	12 57 04.81	-02 53 40.8					809
1981 GQ		1981 03 17.34627	12 57 04.47	-02 53 41.8					809

OBSERVATIONS MADE AT THE EUROPEAN SOUTHERN OBSERVATORY BY H.-E. SCHUSTER.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1981 QC	*	1981 08 27.34448	01 50 58	-36 48.1		16	809
1981 QC		1981 08 28.34175	01 50 58	-36 57.3			809
1981 QC		1981 09 01.26042	01 50 40	-37 33.4			809

ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are B = C. M. Bardwell, b = F. N. Bowman, c = N. S. Chernykh, E = E. Bowell, I = H. Oishi, K = G. R. Kastel', M = B. G. Marsden, O = L. Oterma, P = O. Kippes, U = T. Urata, w = P. Wild. For further information see MPC 5833.

Planet	B(1,0)	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1942 GD	11.2	420418	333.62	227.35	11.40	3.35	0.1946	2.4199	20	4		O
1949 PL	13.0	490812	71.15	90.81	158.25	2.01	0.0570	2.4883	24	5		M
1953 TH	9.9	531103	346.85	67.84	338.93	10.20	0.1310	2.5759	30	4		O
1953 TK	12.5	531103	49.46	17.01	309.20	5.79	0.1594	2.2111	30	3		O
1966 PT	16.5	660803	359.08	353.94	320.98	11.69	0.1848	2.2737	2	5	1	M
1966 PU	17.0	660803	358.40	343.37	332.78	3.89	0.2075	2.2076	2	5	1	M
1967 HA		670420	358.12	230.86	331.77	14.46	0.0300	2.5983	2	3	1	M
1968 HP	13.0	680414	322.86	111.68	147.94	5.26	0.2729	2.6905	8	3	1	M
1969 VC1	14.0	691115	37.80	173.29	181.35	5.79	0.1881	2.6306	4	3		B
1970 QK	13.5	700911	335.78	30.93	333.39	14.67	0.0163	2.7709	3	3	1	M
1972 AH	16.0	720104	356.64	341.73	134.65	6.28	0.1929	2.2478	2	3	1	M
1972 AN	14.5	720104	330.26	326.01	180.19	5.72	0.0131	2.4351	2	3	1	M
1972 AO	13.0	720104	358.59	58.83	61.49	13.74	0.0454	3.2031	2	3	1	M
1972 AP	15.0	720104	357.55	34.53	83.56	16.29	0.1595	2.6176	2	3	1	M
1974 QB	16.0	740821	358.11	144.21	189.17	4.43	0.1748	2.1769	2	6		B
1974 QC	15.0	740821	314.32	191.95	195.34	3.69	0.1175	2.2093	2	6		B
1974 QF	17.0	740821	0.75	69.07	260.51	2.28	0.1990	2.2537	2	6	1	M
1974 QG	15.0	740821	0.73	88.22	243.52	3.23	0.1061	2.7960	2	6	1	M
1974 SV	14.0	740930	1.47	1.92	356.30	5.48	0.0166	2.5448	4	3	1	M
1974 SF1	13.0	740930	354.13	199.01	167.92	0.49	0.0331	3.2096	4	3	1	M
1974 XZ	14.0	741219	299.85	215.11	296.03	0.97	0.1335	2.7700	10	6		M
1975 PF	13.0	750816	47.49	305.51	295.30	12.55	0.2664	2.9127	2	3		B
1975 UJ	12.0	751104	359.02	318.91	61.33	1.98	0.0149	3.1990	9	4	3	M
1976 UR	14.5	761029	358.88	240.28	223.52	6.67	0.1108	2.6878	2	5	1	M
1976 UT	15.0	761029	358.98	265.55	201.34	5.55	0.1322	2.9424	2	6	1	M
1976 UV	16.0	761029	14.29	177.78	251.78	13.10	0.2552	2.2476	2	6	1	M
1976 UX	15.5	761029	359.28	278.75	182.84	6.55	0.0987	2.5477	2	5	1	M
1976 UA1	16.5	761029	25.67	267.81	148.58	10.95	0.1854	2.1859	2	6	1	M
1976 UC1	14.0	761029	177.48	23.71	264.54	14.65	0.0689	2.6072	2	6	1	M
1977 EM1	13.0	770318	164.25	10.37	9.83	1.49	0.0645	3.0116	12	3	1	M
1978 NK	16.0	780711	359.28	45.59	254.61	2.86	0.1915	2.5774	4	5	1	M
1978 NL	16.0	780711	2.14	45.30	250.60	3.49	0.2439	2.3139	2	3	1	M
1978 NM	16.0	780711	358.97	23.88	277.60	10.52	0.1798	2.1740	2	3	1	M
1978 NR	15.0	780711	5.31	343.62	303.99	8.51	0.0657	2.4854	4	5	1	M
1978 NT	14.0	780711	0.12	181.89	105.01	23.56	0.0679	3.1986	3	3	1	M
1978 RN5	14.5	780929	0.56	13.40	356.07	11.20	0.3317	2.7215	33	4		B
1978 RR5	14.0	781019	352.18	19.07	8.95	13.29	0.1736	2.6093	57	6	2	B
1978 RV5	14.5	780929	12.13	356.93	2.10	3.36	0.1196	2.2502	21	5		B
1978 RC6	13.0	780929	290.41	64.85	30.32	10.34	0.0601	3.0191	51	5		M
1978 RD6	14.0	780929	40.10	126.22	198.75	13.76	0.1621	2.7385	51	4	2	M
1978 SN4	13.0	780929	29.18	277.55	59.32	1.71	0.1471	3.1768	7	4	1	B
1978 SO4	12.0	780929	62.30	282.19	15.16	7.11	0.1683	3.9222	7	4	1	M
1978 SP4	13.5	780929	290.58	75.83	18.10	10.75	0.0697	2.9964	21	4		B
1978 SQ4	16.0	780929	349.30	37.41	354.03	4.46	0.2213	2.3407	11	4		B
1978 SW4	15.5	780929	66.69	216.83	72.16	0.85	0.1762	2.1898	10	3	2	M
1978 SB5	13.5	780929	61.63	169.46	126.97	2.04	0.1864	3.1885	25	4		M
1978 SH5	13.5	780929	272.51	37.40	86.09	2.59	0.1388	3.1084	10	3	2	M
1978 SR6	13.5	781009	13.73	358.24	358.23	9.93	0.1128	2.9944	36	4		K
1978 SS6	14.8	781009	3.16	38.20	330.93	2.66	0.1890	2.4275	36	4		K
1978 ST6	13.8	781009	28.89	100.46	237.13	5.79	0.1323	2.3131	36	4		K

1978	SV6	13.5	780929	17.83	8.76	339.97	7.58	0.1565	3.4030	12	3	M
1978	SW6	14.3	781009	92.21	262.26	6.32	9.70	0.1144	2.4538	36	4	K
1978	SX6	13.6	781009	320.57	77.11	352.74	12.77	0.1686	2.9907	36	4	K
1978	SY6	14.9	781009	20.68	124.00	223.02	5.44	0.1461	2.4367	36	4	K
1978	SZ6	13.8	781009	301.52	124.73	311.49	3.11	0.0302	2.6064	36	4	K
1978	SA7	14.2	780929	352.73	36.69	347.27	7.25	0.2335	2.7863	12	3	K
1978	SB7	14.5	780929	238.42	158.19	344.24	5.07	0.0925	2.2634	36	4	M
1978	SC7	14.5	780929	327.39	54.92	2.90	12.69	0.1746	2.6306	12	3	K
1978	SD7	15.9	780929	37.50	97.97	217.44	3.48	0.2078	2.1959	12	3	K
1978	SG7	14.5	780929	21.03	334.82	5.15	14.22	0.2145	2.8774	12	3	K
1978	SH7	15.3	780929	358.28	27.71	347.13	5.63	0.2377	2.6067	12	3	K
1978	SJ7	13.6	781009	37.01	327.40	1.16	14.57	0.1379	2.9298	36	4	K
1978	SL7	13.6	780929	238.61	141.09	4.89	7.66	0.1237	2.5621	12	3	K
1978	SN7	13.4	781009	312.96	211.40	220.16	9.91	0.0835	3.0254	36	4	K
1978	SO7	15.1	781009	6.55	32.65	333.55	2.69	0.1942	2.4446	36	4	K
1978	SP7	13.3	781009	34.88	115.03	207.50	13.89	0.2283	2.6755	36	4	K
1978	SQ7	15.8	780929	13.16	149.95	200.90	3.61	0.2125	2.3234	12	3	K
1978	SS7	15.3	781009	318.71	84.87	351.32	4.72	0.2035	2.3541	36	4	K
1978	ST7	14.7	780929	288.48	139.75	321.86	5.69	0.1371	2.3118	12	3	K
1978	SU7	14.3	780929	61.50	292.32	1.23	15.01	0.1786	2.5589	12	3	K
1978	SV7	14.0	781009	0.50	34.22	342.80	6.72	0.0767	2.8446	36	4	K
1978	SW7	14.9	780929	354.98	48.29	332.22	4.52	0.1394	2.4517	12	3	K
1978	SX7	15.5	781009	334.02	82.27	341.50	4.55	0.2861	2.6152	36	4	K
1978	SY7	14.2	781009	338.70	50.38	356.53	6.63	0.1605	2.2605	36	4	K
1978	SZ7	14.5	781009	254.27	154.69	339.25	4.71	0.0959	2.2584	36	4	K
1978	SA8	16.0	780929	12.13	139.07	213.88	2.04	0.2261	2.2976	12	3	K
1978	SB8	15.9	781009	6.13	353.60	14.37	5.32	0.1776	2.2626	36	4	K
1978	SD8	15.9	780929	10.04	338.01	20.10	4.96	0.1820	2.2799	12	3	K
1978	TB2	15.5	780929	319.10	232.63	191.92	4.17	0.1091	2.2641	25	4 2	M
1978	TR2	14.0	780929	9.62	80.29	289.08	1.02	0.0776	2.8474	10	3	M
1978	TT2	13.5	780929	229.14	107.23	50.15	2.87	0.0578	2.8580	10	3	M
1978	TR3	14.0	781019	317.46	65.13	2.96	14.96	0.1114	2.5639	28	3	B
1978	TM6	14.5	781009	304.82	162.32	274.31	3.94	0.0464	2.4781	30	3	K
1978	TN6	14.2	781009	34.79	43.92	289.46	4.56	0.1274	2.4022	30	3	K
1978	TZ6	12.0	781009	125.78	155.27	100.45	11.49	0.0608	3.0126	30	3	K
1978	TA7	12.9	781009	320.23	317.98	114.58	8.97	0.0703	2.9791	30	3	K
1978	TB7	12.4	781009	37.50	188.99	148.90	11.40	0.1504	3.1318	30	3	K
1978	TJ7	14.1	781009	4.67	278.61	103.29	10.79	0.0964	2.7450	30	3	K
1978	TM7	13.3	781009	307.42	340.34	105.77	7.86	0.0480	2.4491	30	3	K
1978	TO7	12.6	781009	351.55	299.78	100.27	12.26	0.1214	3.1589	30	3	K
1978	TQ7	13.1	781009	110.48	110.73	160.36	15.06	0.0869	2.5795	30	3	K
1978	TR7	13.7	781009	336.21	336.74	88.25	9.28	0.2068	2.7910	30	3	K
1978	TT7	14.1	781009	27.29	255.89	85.10	10.43	0.2629	2.6618	30	3	K
1978	TU7	14.9	781009	5.80	293.14	83.74	8.74	0.2277	2.3771	30	3	K
1978	UU1		780929	14.31	240.86	126.87	3.03	0.2240	2.3947	49	6	M
1978	UJ2	15.5	781019	44.58	240.85	93.57	2.98	0.2039	2.1486	9	4	B
1978	UL2	13.5	781019	6.27	262.05	130.48	2.56	0.1752	3.1500	26	4	B
1978	UN2	14.5	781019	356.20	348.22	57.05	12.36	0.1583	2.3279	9	3	B
1978	UQ2	13.5	781019	342.77	13.44	50.41	8.53	0.1254	2.4778	30	5	B
1980	TD4	15.5	801028	27.26	334.96	7.96	4.51	0.1596	2.1892	31	6	M
1980	TB5	13.0	801028	113.69	255.20	351.37	14.92	0.1737	2.5705	31	6	M
1980	TC5	14.0	801028	7.32	138.95	228.67	8.34	0.1743	2.8072	31	5	M
1980	TG5	13.0	801028	53.47	68.65	230.88	11.97	0.2262	3.1221	31	5	M
1980	TO5	13.5	801028	332.93	185.05	225.82	9.65	0.1033	3.0122	30	4	M
1980	TQ5	13.0	801028	42.70	37.29	282.78	4.10	0.1691	3.1505	31	5	M
1980	TU5	14.5	801028	16.85	13.65	344.43	4.27	0.1697	2.3656	30	4	M
1980	TW5	13.0	801028	70.70	33.68	269.81	3.95	0.0396	3.0711	31	5	M
1981	DD	14.5	810317	221.08	76.48	221.36	6.36	0.1281	2.3429	11	0	M

1981	DE	15.0	810317	71.47	188.20	244.04	5.49	0.0793	2.3853	11	0		M
1981	DF	13.5	810317	63.19	110.04	331.55	14.57	0.1268	3.1858	9	0		M
1981	DG	14.0	810317	317.45	275.07	294.89	0.93	0.0928	2.9206	9	0		M
1981	DH	13.0	810317	175.00	126.95	214.64	0.49	0.1621	3.2020	4	0	1	M
1981	EN	15.5	810317	15.81	349.41	163.52	9.46	0.1639	2.3597	16	0		M
1981	EO	15.5	810317	316.83	240.58	352.91	15.90	0.1656	2.5474	11	0		M
1981	EQ	14.0	810317	308.39	244.83	11.50	11.45	0.2183	3.2409	11	0		M
1981	ET	13.5	810317	240.13	318.60	358.54	10.09	0.2778	2.7568	13	0		M
1981	EU	14.5	810317	53.52	313.79	151.88	1.25	0.1553	3.0765	13	0		M
1981	EV	15.0	810317	318.10	87.27	125.24	6.39	0.0834	2.2281	12	0		M
1981	EX	15.5	810317	342.43	194.89	353.76	12.58	0.1936	2.6793	9	0		M
1981	EB1	14.5	810317	337.77	70.06	131.43	2.39	0.1078	3.1700	12	0		M
1981	ED1	14.0	810317	181.59	355.74	357.44	21.02	0.2638	2.6022	10	0		M
1981	EE1	15.5	810317	7.14	20.22	145.43	3.02	0.1225	2.4639	12	0		M
1981	EG1	15.0	810317	31.88	122.31	23.10	3.20	0.1206	2.6842	11	0	1	B
1981	EH1	13.5	810317	21.25	338.13	152.21	7.30	0.1640	3.1264	8	0		M
1981	EJ1	14.5	810317	81.49	267.24	153.48	12.08	0.1564	2.6395	4	0		M
1981	EP1	14.0	810317	354.36	170.75	357.93	11.55	0.1800	3.1634	6	0		M
1981	FQ	14.5	810317	317.19	202.04	30.63	0.32	0.1565	3.1110	27	0		B
1981	GO	15.0	810317	26.94	354.17	160.65	3.35	0.0617	2.3421	39	0	2	B
1981	GQ	14.5	810317	10.07	154.32	13.49	13.75	0.2773	3.1234	39	0		B
1981	JC	13.5	810516	130.85	230.90	228.37	4.08	0.0604	2.2220	36	8	2	M
1981	JS	14.7	810516	15.97	344.68	230.27	3.98	0.0850	2.2148	35	5		E
1981	LA	13.4	810625	153.48	32.15	95.90	24.92	0.0668	1.8922	51	9		E
1981	LK	9.6	810625	114.16	47.21	69.52	22.33	0.1022	5.2073	50	7		E
1981	OF	14.6	810804	19.01	136.09	144.10	5.99	0.1609	2.2605	39	5	2	E
1981	OG	13.5	810804	348.24	5.05	316.84	0.28	0.1762	3.1591	39	6		M
1981	OH	15.2	810804	346.19	201.34	138.96	14.81	0.2320	2.3196	35	6		E
1981	PA	14.0	810804	300.02	107.39	322.41	21.94	0.3593	2.3853	8	4		M
1981	PB	16.5	810804	9.29	302.52	357.70	4.85	0.2799	2.1376	25	6		E
1981	PF	15.5	810804	355.09	181.09	146.92	12.61	0.2878	2.3999	36	0		M
1981	PG	14.5	810824	357.85	54.71	268.68	2.44	0.1894	2.2453	33	9		M
1981	PK	14.2	810804	337.33	82.00	275.04	11.89	0.2728	2.5905	31	6		E
1981	PL	12.3	810804	263.42	172.32	258.72	10.21	0.1438	2.5774	32	8		E
1981	PM	14.7	810804	34.63	34.14	234.93	5.04	0.1659	2.2458	32	6		E
1981	PN	15.5	810804	10.39	156.44	145.70	8.99	0.2266	2.4620	7	8		B
1981	PP	14.5	810804	307.51	248.56	152.01	7.93	0.2506	2.5230	5	6		B
1981	PQ	13.0	810804	329.73	201.67	164.02	4.99	0.1550	3.2352	4	6	1	M
1981	PS	15.0	810804	61.06	318.77	286.41	4.73	0.1603	2.1860	4	6		M
1981	QC	14.5	810824	318.57	359.28	59.93	26.59	0.3113	2.4092	2	6		M
1981	QM	14.5	810824	14.70	97.21	195.86	3.12	0.3776	2.5311	4	5		M
1981	QN	15.0	810903	345.33	100.40	259.71	4.38	0.2009	2.2287	11	5		w
1981	QO	15.0	810824	346.85	97.47	257.30	3.16	0.1808	2.2844	11	0		M
1981	QR	14.5	810824	315.71	58.08	331.71	7.66	0.1484	2.6292	12	6		M
1981	QT	15.5	810824	324.25	88.94	291.04	1.33	0.1467	2.2393	12	8		M
1981	QU	14.5	810824	259.97	320.78	125.31	0.63	0.1226	2.1879	12	8	1	M
1981	QX	15.0	810824	29.92	103.52	177.86	11.28	0.2936	2.6099	13	0		M
1981	QZ	13.0	810824	339.28	96.08	263.43	7.32	0.0473	2.7066	9	8		M
1981	QA1	16.0	810824	340.66	184.14	179.82	5.34	0.1186	2.1964	8	6	1	M
1981	QC1	13.0	810824	331.64	213.56	167.60	18.74	0.1686	2.9929	8	6		M
1981	QG1	14.5	810824	322.64	217.36	177.43	13.68	0.2063	2.6481	8	6		M
1981	QH1	15.5	810824	1.58	9.08	327.72	13.99	0.2649	2.7019	9	8		M
1981	RL	13.5	810824	119.29	355.35	213.31	9.19	0.0896	2.6040	2	6		M
1981	RM	13.5	810824	150.20	269.41	278.08	5.55	0.0665	2.5399	2	6		M

Note 1: e assumed. 2: double designations 1975 UJ = 1975 VT8 (I, JAM 735), 1978 RR5 = 1978 UE2 (B), 1978 RD6 = 1978 SK5 = 1978 VG12 (M), 1978 SW4 = 1978 TY5 (c), 1978 SH5 = 1978 TZ4 (c), 1978 TB2 = 1978 TQ4 (c), 1981 GO = 1981 ER (B), 1981 JC = 1981 JT (b, U), 1981 OF = 1981 RB (E). 3 = 1 + 2.

ORBITAL ELEMENTS BY THE LATE P. HERGET.

The identifications are by P. Herget unless otherwise stated.

(2437)* 1942 RZ = 1929 SC = 1939 XE = 1955 SF1 = 1955 UO = 1965 YE = 1971 OE1 = 1977 KB

Discovered 1942 Sept. 14 by M. Vaisala at Turku. The key identification 1942 RZ = 1955 UO is by E. Bowell, and the identifications 1942 RZ = 1939 XE = 1955 SF1 = 1965 YE = 1971 OE1 are by C. M. Bardwell (MPC 5355). The identification (836) = 1929 SC (BZ 11, 75) is invalid.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M 112.68846		(1950.0)	P	Q
n 0.30446146	Peri.	150.77637	+0.98628693	-0.16190567
a 2.18833842	Node	218.58281	+0.13968744	+0.92222212
e 0.14859861	Incl.	2.94212	+0.08789483	+0.35113090
P 3.24	B(1,0)	14.7		

Residuals in seconds of arc

290927	024	1.9+	0.9-	550918	760	2.6-	1.3+	710801	095	3.3+	1.2-
290928	024	1.1+	2.8+	550918	760	1.5-	1.1+	710802	095	2.3+	4.6-
391208	020	(19.1+	14.7-)X	551020	760	0.4-	0.2+	770516	809	0.4+	1.6+
420908	062	1.2-	0.7+	551020	760	0.2-	0.7+	770517	809	0.1-	1.4+
420914	062	1.7-	0.5+	551110	760	0.4-	0.1-	770518	809	0.8-	1.6+
421003	062	0.4-	1.0-	551110	760	0.3-	0.1+	770520	809	1.0-	2.2+
421003	062	1.4-	0.0	651219	330	2.6+	0.0				
421011	062	0.4+	0.6+	710728	095	0.2+	0.8+				

(2438)* 1975 VO2 = 1954 LG = 1954 MA = 1974 JB = 1977 EM

Discovered 1975 Nov. 2 by T. M. Smirnova at the Crimean Astrophysical Observatory. The double designation 1954 LG = 1954 MA is by O. Kippes (MPC 1173). The identifications are by T. Urata (MPC 5598).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M 162.59415		(1950.0)	P	Q
n 0.29317781	Peri.	170.49717	-0.73754328	+0.67193341
a 2.24413326	Node	51.93982	-0.62502810	-0.64147742
e 0.10836586	Incl.	4.90665	-0.25567512	-0.37015160
P 3.36	B(1,0)	14.3		

Residuals in seconds of arc

540605	760	0.9+	0.4+	751102	095	1.3+	0.7+	770309	095	0.7+	0.4+
540605	760	0.8+	0.0	751109	381	1.8-	1.7+	770313	095	0.7+	0.6+
540624	760	1.2+	0.5+	751109	381	0.8-	0.0	770317	095	1.2-	0.2-
540624	760	3.1-	0.8-	751128	381	0.4+	0.2+				
740515	095	0.9+	1.9+	751128	381	0.6-	0.2+				

(2439)* 1977 QX2 = 1952 DT2 = 1972 TC4 = 1974 CM1 = 1979 BE = 1980 GN

Discovered 1977 Aug. 21 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identifications 1977 QX2 = 1972 TC4 = 1974 CM1 = 1979 BE are by T. Urata (MPC 5441).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M 240.52805		(1950.0)	P	Q
n 0.17856161	Peri.	339.06591	-0.03166859	-0.99948818
a 3.12327802	Node	112.74864	+0.91767296	-0.03086983
e 0.16712897	Incl.	0.28115	+0.39607251	-0.00839232
P 5.52	B(1,0)	12.5		

Residuals in seconds of arc

520226	711(11.0+ | 25.8-)Y		771007	095	1.6+	0.2+		800414	046	2.6-	0.3+
721005	095	2.4-	9.4-		790124	688	0.5+	0.2+		800414	046	0.0	1.0-
740215	095	4.4+	1.2-		800412	046	2.6+	2.6-		800415	046	3.3-	0.9-
770821	095	0.5+	0.9-		800412	046	1.2+	0.9-		800415	046	3.0-	0.3-
770823	095	1.6+	0.9-		800413	046	1.6-	1.6-					
770909	095	1.9+	0.4-		800413	046	2.1-	2.0-					

(2440)* 1978 VQ4 = 1928 QH = 1954 JK = 1968 US1 = 1977 JG

Discovered 1978 Nov. 7 by E. Helin and S. J. Bus at Palomar. The key identification 1978 VQ4 = 1977 JG is by J. G. Williams, and the identification 1978 VQ4 = 1968 US1 is by C. M. Bardwell (MPC 5133). The identification 1978 VQ4 = 1928 QH was found independently by E. Bowell.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	152.67646	(1950.0)	P	Q
n	0.29886009	Peri. 77.32688	+0.55994305	+0.82688416
a	2.21559695	Node 226.85130	-0.78520264	+0.50949279
e	0.16266799	Incl. 4.10403	-0.26442500	+0.23807490
P	3.30	B(1,0) 15.0		

Residuals in seconds of arc

280816	094(11.8+ | 41.2-)		770515	095	2.1+	0.4+		781108	675	0.6-	0.2-
280822	094	0.0	0.6-	770523	095	2.1-	0.1-		781129	675	2.4-	1.2-
540509	760	0.1+	1.0-	781105	675	1.0-	0.1-		781129	675	2.5+	0.6+
540509	760	0.4-	0.5-	781106	675	0.2-	0.4-		781130	675	2.0-	0.8-
681023	095	0.2+	0.8-	781107	675	0.4-	0.9+		781130	675	3.9+	0.6+

(2441)* 1979 MN2 = 1957 UK = 1972 TH2 = 1976 YA3 = 1977 AJ

Discovered 1979 June 25 by E. Helin and S. J. Bus at Siding Spring. The key identifications 1979 MN2 = 1957 UK = 1976 YA3 are by C. M. Bardwell (MPC 5794).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	255.39352	(1950.0)	P	Q
n	0.26339375	Peri. 215.70117	+0.99598424	+0.07893244
a	2.41027017	Node 139.70714	-0.05914806	+0.93438770
e	0.19202559	Incl. 3.74592	-0.06720783	+0.34740364
P	3.74	B(1,0) 14.5		

Residuals in seconds of arc

571030	024	0.1-	0.5+	790624	413	0.7-	0.1+		790725	675	1.4-	0.6+
721008	095	0.2-	0.3+	790625	413	0.5-	0.8+		790727	675	1.4+	1.1-
761216	095	0.4+	0.9-	790629	413	1.1+	0.1+		790823	675	0.5+	1.0-
770113	095	0.3-	0.1-	790724	675	0.6-	0.2+					
790623	413	0.0	0.4+	790724	413	0.3+	0.6-					

(2442)* 1980 TO = 1928 RA = 1942 GE = 1951 YN1 = 1954 QO = 1971 BB3 = 1976 QZ

Discovered 1980 Oct. 3 by Z. Vavrova at Klet. The key identifications 1980 TO = 1928 RA = 1951 YN1 = 1954 QO = 1971 BB3 are by C. M. Bardwell (MPC 5794).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	256.50644	(1950.0)	P	Q
n	0.26714087	Peri. 104.02974	+0.41047112	+0.91173697
a	2.38767832	Node 190.24747	-0.86710013	+0.38490091
e	0.11753425	Incl. 5.09032	-0.28222476	+0.14348162
P	3.69	B(1,0) 14.0		

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

280907	024	(0.01+	0.04-)	710127	805	0.1+	1.2+	801030	046	0.0	1.4-
280908	024	(32.4+	14.2+)	710129	805	0.2-	0.7-	801106	688	1.2+	0.2+
420414	062	1.9+	0.6-	760826	095	2.2-	1.4+	801106	688	0.6-	0.9+
420414	062	0.9-	0.6+	801003	046	1.3+	1.4+	801111	046	1.0-	0.5-
420417	062	0.4-	0.6-	801003	046	0.6+	0.6-	801111	046	1.2-	0.4+
511227	711	1.5-	(34.7-)Y	801005	046	1.2+	0.5-	801113	046	0.2-	0.2-
540829	839	0.7+	0.6-	801005	046	(13.2+)	0.0	801113	046	1.8+	2.0+
540829	839	0.3+	1.1-	801030	046	0.9-	1.0-				

* * * * *

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

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

Comet Gonzalez (1981g)

T 1981 Mar. 25.65407 ET

q	2.3333980		(1950.0)	P	Q
		Peri.	181.59972	+0.79620627	-0.19865026
		Node	143.26799	-0.54391904	+0.17864681
e	1.0	Incl.	107.14890	-0.26496726	-0.96365107

From 16 observations 1981 June 29-Aug. 3.

Periodic Comet Howell (1981k)

T 1981 May 4.81343 ET

q	1.6132568		(1950.0)	P	Q
n	0.16606450	Peri.	214.57678	+0.33983208	+0.93580328
a	3.2780696	Node	75.44723	-0.83949497	+0.34676126
e	0.5078638	Incl.	5.55739	-0.42398389	+0.06347326
P	5.94				

From 20 observations 1981 Aug. 29-Sept. 21.

(1457) Ankara

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	138.49338		(1950.0)	P	Q
n	0.22249351	Peri.	294.95535	-0.62063212	+0.77833301
a	2.6972704	Node	296.34744	-0.67572807	-0.59233775
e	0.1548238	Incl.	6.08162	-0.39775286	-0.20816751
P	4.43	B(1,0)	12.5		

From 54 observations at 15 oppositions 1933-1977, mean residual 1".9.

(1565) Lemaitre

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	68.17882		(1950.0)	P	Q
n	0.26650321	Peri.	115.74176	+0.89631166	-0.25784899
a	2.3914855	Node	260.96591	+0.14180505	+0.93750545
e	0.3514140	Incl.	21.42479	+0.42013895	+0.23366089
P	3.70	B(1,0)	13.8		

From 48 observations at 7 oppositions 1948-1970, mean residual 1".1.

(2443)* A906 BJ = 1927 DD = 1934 PS = 1949 MV = 1950 RD1 = 1950 TF3
= 1953 CH = 1953 EO = 1957 WH = 1959 JR = 1961 TE1
= 1961 TW1 = 1965 OE = 1974 DQ1 = 1974 FC1 = 1981 NN1

Discovered 1906 Jan. 24 by M. Wolf at Heidelberg. The identification A906 BJ = 1934 PS was independently suggested by O. Kippes (MPC 2806), but the identifications with 1941 WB1 and 1957 YB are invalid. The double designations 1950 RD1 = 1950 TF3 and 1953 CH = 1953 EO were found by O. Kippes (NAZ 13, 3; 12, 23).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M 203.00085		(1950.0)	P	Q
n 0.18896394	Peri.	65.70834	-0.98096566	+0.08639671
a 3.0075770	Node	118.83564	-0.13664958	-0.94342392
e 0.0543947	Incl.	11.45025	+0.13796109	-0.32013577
P 5.22	B(1,0)	11.5		

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

060124	024	2.1-	0.9+		530318	062	4.0-	0.1-		611010	760(0.23+ 0.01-)X
060215	024	7.4+	2.4-		530318	062	(2.6-	4.9-)		611015	760(0.04- 0.00-)X
060218	045	2.2-	0.5-		571121	760	1.4-	1.4-		650724	095 1.1- 1.0-
270225	094	(0.04+	0.01+)		571121	760	0.5-	1.4-		650725	095 1.9- 2.0-
340809	078	(48.6-	32.8-)X		571124	760	1.2-	0.6-		740216	095 3.5+ 0.1+
490618	094	(61.1+	7.9+)X		571124	760	2.0-	0.6+		740321	095 3.0+ 0.6-
490626	094	(28.1-	12.6-)X		571202	760	0.7+	2.9-		810703	688 1.8+ 2.5-
500912	711	(0.7-	2.7+)Y		571202	760	1.0-	3.0-		810703	688 1.2+ 1.3-
501007	760	0.6-	0.1-		571202	760	1.8+	0.6-		810805	688 0.7+ 1.8-
501007	760	1.1+	0.3-		571202	760	0.4+	2.2-		810805	688 0.8+ 2.1-
530214	760	0.1+	0.8+		590502	760	1.5+	1.4-			
530314	062	3.2-	1.2-		590502	760	4.1-	0.7-			

(2444)* 1934 CD = 1975 DC

Discovered 1934 Feb. 5 by K. Reinmuth at Heidelberg.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M 321.19083		(1950.0)	P	Q
n 0.21879167	Peri.	141.21268	+0.36726824	-0.89565257
a 2.7276095	Node	285.94937	+0.77502318	+0.44379592
e 0.1331005	Incl.	15.12242	+0.51425003	-0.02918305
P 4.50	B(1,0)	13.5		

Residuals in seconds of arc

340205	024	1.4-	1.6-		750219	808	0.3-	0.3-		750308	808 0.1+ 0.8+
340210	024	1.0+	0.7-		750219	808	0.0	0.2+		750309	808 0.5+ 0.9+
340214	024	0.5-	1.0-		750306	808	0.7-	0.3-		750309	808 0.5- 0.8+
750216	808	0.1+	0.0		750306	808	0.2-	1.2+		810606	688 1.5- 1.3-
750216	808	0.2-	0.2-		750307	808	0.1-	0.4-		810606	688 1.6- 3.8+
750217	808	0.5+	0.3+		750307	808	0.2+	0.6-		810609	688 1.2+ 2.1-
750217	808	0.3-	0.4+		750308	808	0.4+	0.2-		810609	688 2.8+ 3.0-
750218	808	0.5+	0.0		750308	808	0.2+	0.5-		810703	688 0.2+ 1.0+
750218	808	1.2-	0.0		750308	808	0.6+	0.5+		810703	688 0.2- 0.5-

(2445)* 1935 TC = 1942 XW = 1976 UN20

Discovered 1935 Oct. 3 by P. Shajn at Simeis.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M 216.65436		(1950.0)	P	Q
n 0.28844102	Peri.	340.76316	+0.39661138	-0.91189916
a 2.2686354	Node	85.75511	+0.85546090	+0.32544085
e 0.1474296	Incl.	6.07518	+0.33299559	+0.25005635
P 3.42	B(1,0)	14.0		

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

351002	020	(4.9+	7.6+)		421203	062	1.5+	1.3+		761112	808 0.6- 0.4+
351002	020	(6.9+	3.9+)		421207	062	1.8-	0.2-		761112	808 0.0 0.6+
351003	094	(0.00-	0.03-)X		761021	808	2.2+	0.2-		761118	808 0.6+ 0.5-
351004	094	2.6-	4.1-		761021	808	2.3+	0.6-		761118	808 0.5+ 0.6+
351019	020	0.1-	2.3+		761024	808	0.5-	0.2+		761122	808 0.0 0.0
351019	020	1.3+	2.3+		761024	808	0.1-	0.2+		810131	801 1.1+ 2.0+
351023	094	1.6+	0.8-		761111	808	0.0	1.5+		810208	688 0.4- 2.9-
351025	020	(0.9+	20.0+)		761111	808	0.3-	0.6-		810208	688 1.1- 2.2-

(2446)* 1971 TS2 = 1960 RB = 1970 FB = 1973 AU3 = 1975 XN1 = 1977 DE3

Discovered 1971 Oct. 14 by L. I. Chernykh at the Crimean Astrophysical Observatory. The identifications 1971 TS2 = 1970 FB = 1973 AU3 = 1975 XN1 (not 1975 XN) = 1977 DE3 are by H. Oishi (JAM 735). The identification 1971 TS2 = 1975 VL3 (NOC 1053) is invalid (see also MPC 6307).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	81.71469	(1950.0)	P	Q	
n	0.27277774	Peri.	250.30568	+0.03814491	+0.99903871
a	2.3546702	Node	21.91417	-0.89372332	+0.04377759
e	0.1611604	Incl.	3.31806	-0.44699394	-0.00227478
P	3.61	B(1,0)	13.5		

Residuals in seconds of arc

600912	024	1.1-	1.8-	711020	095	2.6+	0.8+	770218	381	1.6-	1.2+
700331	095	2.2+	2.9-	730102	095	0.2+	1.5-	770218	381	0.6-	1.1+
711014	095	3.1-	0.3+	730104	095	0.8+	0.4-	770219	381	0.2-	1.1+
711015	095	0.9+	1.6+	751201	095	1.0+	0.9-	770219	381	0.9-	1.3+

(2447)* 1973 QY1 = 1961 TD1 = 1965 UC = 1977 QS1

Discovered 1973 Aug. 31 by T. Smirnova at the Crimean Astrophysical Observatory.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	71.65753	(1950.0)	P	Q	
n	0.24378852	Peri.	209.08825	+0.99381448	+0.07223146
a	2.5378185	Node	146.44450	-0.04629288	+0.95988519
e	0.2617053	Incl.	8.77805	-0.10094425	+0.27092993
P	4.04	B(1,0)	14.5		

Residuals in seconds of arc

611010	760	0.4+	1.1-	730927	095	1.4+	1.0-	810806	046	0.8-	0.2-
611010	760	0.4+	1.3-	770819	095	1.6+	0.8+	810808	046	1.3-	1.1+
611015	760	1.2-	3.6+	810726	688	0.9+	1.3-	810808	046	0.2+	1.9+
611015	760	0.2+	0.7+	810726	688	1.3+	1.9-	810811	046	1.0-	0.4+
651026	095	1.2-	1.8-	810805	046	2.3-	1.9-	810812	046	0.4+	0.2+
730831	095	0.6-	2.0-	810805	046	0.7+	1.9+	810812	046	0.7+	1.3+
730905	095	1.5-	1.4-	810806	046	0.0	1.2+				

(2448)* 1975 BU

Discovered 1975 Jan. 18 by L. I. Chernykh at the Crimean Astrophysical Observatory. The 1977 observation was identified at the Crimean Astrophysical Observatory.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	169.47398	(1950.0)	P	Q	
n	0.21115788	Peri.	70.05928	-0.89927628	+0.37213338
a	2.7929588	Node	131.03490	-0.41722574	-0.88753699
e	0.1127114	Incl.	17.73896	+0.13124346	-0.27165204
P	4.67	B(1,0)	13.0		

Residuals in seconds of arc

750112	330	1.5+	2.8-	750404	095	2.0-	0.7+	800517	801	0.0	0.3+
750118	095	3.8+	2.4-	750405	095	2.9-	1.7+	800614	801	0.2+	0.8+
750118	330	3.5+	2.9+	750407	095	2.7-	1.3+	810605	801	1.1-	0.9+
750120	095	(1.8+	5.3+)	771009	095	0.6-	0.7-	810627	801	0.2-	0.7+
750304	095	1.7-	2.0+	800125	801	1.3-	0.5-	810726	688	1.0+	0.0
750314	095	0.4+	0.1+	800213	801	0.5-	0.0	810726	688	1.3+	0.5-
750316	095	(2.6+	4.0-)	800312	801	0.3+	0.0	810802	801	0.7-	0.0
750330	095	0.9-	0.7+	800313	688	0.5+	2.3-				
750404	095	0.5-	0.8-	800510	801	0.6-	1.5-				

(2449)* 1978 GC

Discovered 1978 Apr. 8 by W. Liller at Cerro Tololo Interamerican Observatory.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	155.00902		(1950.0)		P		Q				
n	0.37370412	Peri.	102.06696		+0.19952317		+0.97988261				
a	1.9089042	Node	179.38467		-0.97956528		+0.19933456				
e	0.1683438	Incl.	24.98209		+0.02534489		-0.00978773				
P	2.64	B(1,0)	14.5								

Residuals in seconds of arc

780408	807	0.0	0.2-	790924	801	0.0	0.7+	810601	801	2.5-	0.4-
780409	807	0.7-	1.7+	791121	801	1.3-	1.3-	810725	688	0.4+	2.2-
780414	801	1.0+	0.4-	791213	808	1.1+	0.2+	810725	688	0.8+	2.9-
780415	801	0.8+	1.4-	791213	808	0.2+	0.0	810728	801	0.1-	2.7+
780503	801	1.0-	0.2-	800212	801	0.7-	0.9-	810728	801	1.2+	1.2+
790918	801	0.6+	0.5+	810509	801	0.0	0.9+				

(2450)* 1978 RP

Discovered 1978 Sept. 1 by N. S. Chernykh at the Crimean Astrophysical Observatory. The 1981 observations were identified by E. Bowell. The 1959 observations were identified by E. Bowell on the basis of an ephemeris by B. G. Marsden.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	36.41064		(1950.0)		P		Q				
n	0.17966092	Peri.	95.32659		-0.84481395		+0.53361949				
a	3.1105246	Node	116.92918		-0.50667026		-0.77426444				
e	0.1200546	Incl.	2.52243		-0.17197279		-0.34024229				
P	5.49	B(1,0)	12.5								

Residuals in seconds of arc

590201	690	0.8+	0.1-	781009	095	3.7-	0.5-	810208	688	1.8+	0.0
590202	690	0.6-	1.6+	810101	688	0.5+	0.7-	810209	046	0.5-	2.2+
780901	095	0.1+	1.0-	810101	688	1.9+	1.3-	810209	046	0.2-	2.0+
780905	095	0.8+	0.2-	810110	688	0.1-	0.5-	810211	046	2.8-	0.3-
780907	095	0.5+	0.8+	810110	688	1.1+	0.8-	810211	046	2.6-	1.9+
780912	095	1.2+	1.1+	810202	046	1.0-	0.5+	810309	688	0.6+	0.6-
780928	095	1.7+	0.8-	810202	046	2.4-	0.5-	810309	688	1.8+	1.5-
781004	095	0.4-	0.6+	810208	688	2.0+	0.1-				

(2451)* 1980 RQ = 1935 QS = 1940 TC = 1953 PO = 1953 SC = 1965 CH = 1974 CL1

Discovered 1980 Sept. 2 by E. Bowell at the Anderson Mesa station of the Lowell Observatory. The double designation 1953 PO = 1953 SC is by O. Kippes (MPC 1084).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	187.77507		(1950.0)		P		Q				
n	0.21934853	Peri.	323.95428		+0.43609182		+0.89711821				
a	2.7229912	Node	331.70187		-0.78673292		+0.34191199				
e	0.1533049	Incl.	8.58071		-0.43689271		+0.27977689				
P	4.49	B(1,0)	13.0								

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

350820	078(40.2+	22.4+)X		740215	095	1.7-	3.5-	800904	688	0.9+	0.4-
401007	690	1.5-	0.9+	800717	688	1.5+	0.0	800907	688	0.9-	1.9-
401008	690	1.5+	0.8-	800808	688	0.5+	0.5-	800907	688	0.2-	0.0
530812	760(0.03-	0.01+)X		800902	688	0.3+	0.4-	800917	688	0.7+	0.9-
530916	760(0.04-	0.02+)X		800902	688	0.3+	0.2-	801002	688	0.7-	1.0+
650202	330	0.6-	0.5-	800904	688	0.3-	0.2-				

(2452)* 1981 FE = 1953 EP = 1964 FD = 1970 GM = 1975 FR

Discovered 1981 Mar. 30 by E. Bowell at the Anderson Mesa station of the Lowell Observatory. The identifications 1953 EP = 1955 UC1 (MPC 2808) and 1974 QT1 = 1970 GM (NOC 1053) are invalid.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M 80.04264		(1950.0)	P	Q
n 0.17634632	Peri.	195.02181	-0.95202614	+0.30584767
a 3.1493804	Node	2.84851	-0.25539643	-0.77579790
e 0.1298359	Incl.	11.80916	-0.16857906	-0.55190109
P 5.59	B(1,0)	13.0		

Residuals in seconds of arc

530315 012	1.7+	0.5+		750330 095	0.9+	1.9+		810409 688	1.7-	0.1+
530316 024	0.9+	1.4+		810330 688	0.1+	1.1-		810409 688	1.2-	0.1+
530320 024	0.8-	0.8+		810330 688	0.5-	0.5-		810502 688	0.6-	0.4-
640316 760(19.1-	85.3+)X			810401 688	0.2+	1.5-		810502 688	1.2-	0.7-
700407 805	1.4+	1.7+		810401 688	0.6-	2.0-		810605 688	0.3+	0.7-
700407 805	1.0+	2.0+		810405 688	1.1-	0.6-		810605 688	0.9-	0.9-
700407 805	1.4+	1.9+		810405 688	0.2-	1.4-				

1967 UO = 1955 UR1 = 1972 RJ3 = 1978 ST5

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

M 258.49560		(1950.0)	P	Q
n 0.16952835	Peri.	293.77514	+0.99508767	+0.09294842
a 3.2332703	Node	60.90703	-0.07051923	+0.90709638
e 0.1849401	Incl.	2.23483	-0.06948075	+0.41053226
P 5.81	B(1,0)	13.0		

Residuals in seconds of arc

551019 012	0.9-	2.2+		671030 029	0.5+	0.2+		780913 095	3.4-	0.3+
671013 029	0.7-	0.5+		671031 029	0.1-	0.0		780927 095	0.5+	1.1+
671014 029	2.1+	2.6-		671031 029	0.1-	0.6+		781003 095	0.2+	1.0+
671014 029	0.9-	1.4-		671031 029	0.4-	0.0		781007 095	1.5+	0.0
671030 029	0.0	0.2-		720905 095	1.5+	3.0-				

1971 UX = 1978 SR7

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

M 38.77001		(1950.0)	P	Q
n 0.27813454	Peri.	122.99170	+0.99523009	-0.09665398
a 2.3243434	Node	242.55792	+0.08378719	+0.91634124
e 0.1873609	Incl.	0.85425	+0.04996766	+0.38855725
P 3.54	B(1,0)	16.0		

Residuals in seconds of arc

711026 029	1.7+	0.3-		711110 029	1.2+	0.1+		781008 095	1.3-	0.2-
711027 029	1.7-	0.4+		711119 029	0.7-	0.5+		781101 095	0.8+	2.5-
711030 029	1.3-	0.5+		780926 095	0.1+	0.3-				
711110 029	0.3+	0.3+		781002 095	0.9+	2.1+				

1974 MH = 1974 KD = 1977 FA3 = 1978 SE7

The double designation 1974 MH = 1974 KD is by T. Urata (NOC 1051).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

M 153.50013		(1950.0)	P	Q
n 0.28542827	Peri.	263.17480	-0.34996164	+0.93637984
a 2.2845759	Node	346.24799	-0.80866998	-0.31643855
e 0.1521472	Incl.	6.47952	-0.47284216	-0.15185336
P 3.45	B(1,0)	15.5		

Residuals in seconds of arc

740526	808	0.0	1.0+	740716	808	0.1-	0.0	740720	808	0.2+	0.7+
740617	808	1.0+	0.8-	740717	808	0.5-	0.1+	770326	095	0.4+	0.8+
740617	808	0.2+	0.2-	740717	808	0.8-	0.2-	780926	095	0.0	2.6-
740622	808	0.7+	0.2+	740719	808	0.9-	0.8-	781002	095	1.0+	0.8+
740622	808	0.0	0.2+	740719	808	0.6-	0.4-	781008	095	1.4-	2.7+
740716	808	0.6+	0.1-	740720	808	0.3+	0.2+				

1975 XB = 1971 MJ = 1977 DW4

The key identification 1975 XB = 1977 DW4 is by H. Oishi (JAM 735).
The identification 1975 XB = 1968 UD2 (NOC 1053) is invalid.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

			(1950.0)	P	Q
M	73.19819				
n	0.28873248	Peri.	181.29489	+0.63548816	+0.76665637
a	2.2671129	Node	128.17029	-0.70731093	+0.62562248
e	0.1938632	Incl.	6.69181	-0.30962242	+0.14434169
P	3.41	B(1,0)	15.5		

Residuals in seconds of arc

710629	095	0.1-	1.2+	751205	805	0.1-	0.3-	770219	381	1.7-	0.1-
751201	805	1.3+	0.4+	770218	381	1.6-	0.4-	770219	381	0.8+	1.7-
751204	805	1.2+	0.8-	770218	381	1.0+	0.2+				

1978 PS3 = 1940 TJ = 1959 SP

The key identification 1978 PS3 = 1940 TJ is by E. Bowell.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

			(1950.0)	P	Q
M	329.64661				
n	0.25800503	Peri.	76.14371	+0.68507511	-0.72561270
a	2.4437201	Node	330.29217	+0.60793461	+0.61824484
e	0.2192184	Incl.	7.47657	+0.40135720	+0.30209190
P	3.82	B(1,0)	14.0		

Residuals in seconds of arc

401007	690	0.5+	0.1-	780808	095	0.8+	0.7-	781002	095	0.3-	0.1+
401008	690	0.7-	0.4+	780903	095	0.6-	1.0+				
590930	024	0.6+	1.0-	780926	095	0.2-	0.4+				

1980 LP = 1976 JC11 = 1977 SR2

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

			(1950.0)	P	Q
M	161.26361				
n	0.27573948	Peri.	227.52732	+0.88388246	+0.45303542
a	2.3377835	Node	105.22872	-0.38592503	+0.84684131
e	0.1683094	Incl.	6.91898	-0.26422275	+0.27860133
P	3.57	B(1,0)	14.5		

Residuals in seconds of arc

760503	095	0.0	0.1-	800611	675	0.9+	0.1-	800618	675	0.9-	0.3+
770919	095	0.0	0.0	800611	675	(1.3+	3.7-)	800619	675	0.1-	2.4-
800516	675	1.4+	0.8+	800612	675	3.3-	1.3+	800620	675	0.6-	0.5-
800516	675	0.8-	0.7-	800612	675	(7.4+	12.6+)				
800610	675	0.1+	0.9-	800618	675	3.4+	2.1+				

1980 MA = 1951 WF2 = 1953 EM

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

			(1950.0)	P	Q
M	105.22322				
n	0.23175298	Peri.	312.81208	+0.86050773	-0.47124095
a	2.6249439	Node	76.16648	+0.50588954	+0.74568673
e	0.1632223	Incl.	11.49738	+0.06001840	+0.47104486
P	4.25	B(1,0)	12.5		

Residuals in seconds of arc

511129	711	0.3-	0.8+	800618	688	1.9-	3.7+	800714	688	0.5-	0.5-
530310	062	1.0+	0.9+	800618	688	1.9-	0.0	800804	688	3.1+	1.7-
530311	062	0.1-	0.6-	800705	688	0.5-	1.1-	800902	688	0.9+	0.4+
530311	062	0.6-	0.2+	800705	688	0.4+	1.3-				

1981 QA
Epoch 1981 Aug. 24.0 ET = JDE 2444840.5

M	0.21429		(1950.0)	P	Q
n	0.31004327	Peri.	154.25734	+0.83008556	+0.55724093
a	2.1619941	Node	171.78111	-0.53361183	+0.80468936
e	0.4508488	Incl.	8.44258	-0.16191474	+0.20483550
P	3.18	B(1,0)	17.0		

From 33 observations 1981 Aug. 21-Sept. 10.

1981 QB
Epoch 1981 Aug. 24.0 ET = JDE 2444840.5

M	335.25340		(1950.0)	P	Q
n	0.29628354	Peri.	248.19401	+0.65813136	-0.70519290
a	2.2284233	Node	154.05402	+0.68470336	+0.70628003
e	0.5162184	Incl.	37.07310	-0.31312046	+0.06222126
P	3.33	B(1,0)	17.0		

From 25 observations 1981 Aug. 28-Sept. 7.

* * * * *

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

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

(2453)* A921 SA = 1936 MG = 1974 XD = 1979 UC2

Discovered 1921 Sept. 30 by K. Reinmuth at Heidelberg. The key identification A921 SA = 1979 UC2 is by B. G. Marsden (MPC 5792).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	228.20416		(1950.0)	P	Q
n	0.18748042	Peri.	338.02358	+0.98320854	+0.17873170
a	3.0234221	Node	11.86007	-0.12903085	+0.82359246
e	0.1092315	Incl.	10.32137	-0.12904267	+0.53828470
P	5.26	B(1,0)	12.5		

Residuals in seconds of arc

210930	024	5.2-	2.0-	360626	078	(18.5+	78.5+)X	791123	330	0.4-	1.5-
211001	024	3.3+	2.6+	741214	095	1.4-	1.7+	810210	801	0.2+	0.4-
211006	045	0.8-	0.5+	791019	330	0.3-	0.3-	810213	801	1.0+	0.6-
211006	024	0.0	0.7-	791022	330	2.1+	2.7+	810228	801	0.8-	0.2+
211009	045	2.5+	2.4-	791026	330	0.9-	0.7-	810327	801	0.4-	0.5+
211123	029	0.4-	4.0+	791119	330	1.5+	3.0-				

(2454)* 1941 SS = 1968 QQ = 1975 XV

Discovered 1941 Sept. 21 by Y. Vaisala at Turku. The key identification 1941 SS = 1968 QQ is by E. Bowell (MPC 5417).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	64.16151		(1950.0)	P	Q
n	0.29161592	Peri.	75.71182	+0.79570688	+0.60088399
a	2.2521392	Node	247.29932	-0.58261585	+0.72500409
e	0.2020131	Incl.	4.73081	-0.16555763	+0.33661178
P	3.38	B(1,0)	14.5		

Residuals in seconds of arc

410921	062	0.8-	0.3-		680831	095	1.6-	1.4-		810503	688	2.4+	2.2-
410925	062	0.8-	1.7+		751201	095	0.8-	4.1+		810503	688	1.7+	1.6-
410926	062	0.1+	0.8+		810403	474	1.6-	1.8+		810604	688	0.0	0.1+
410927	062	3.1+	2.7+		810403	474	3.0-	1.5+		810604	688	2.4+	0.6-
411015	062	0.3-	0.5+		810405	474	2.2-	2.2+		810701	801	0.9+	1.8+
680827	095	1.8+	0.9+		810405	474	2.0-	2.1+					

(2455)* 1950 TO4 = 1950 TU = 1934 CA1 = 1952 BT1 = 1959 SM = 1964 VQ = 1968 QA1 = 1972 NR = 1973 YO = 1979 BO = 1981 PH

Discovered 1950 Oct. 5 by S. Arend at Uccle. The double designation 1950 TO4 = 1950 TU is by O. Kippes (MPC 777, 5067). The identification (1476) = 1964 VQ (MPC 2805) is invalid.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	343.25438	(1950.0)	P	Q
n	0.21879365	Peri. 115.34033	+0.55297178	-0.82550730
a	2.7275931	Node 300.62451	+0.70941591	+0.53757556
e	0.0884331	Incl. 7.54290	+0.43697973	+0.17190175
P	4.50	B(1,0) 13.0		

Residuals in seconds of arc

340205	024	2.1-	1.9+		641104	760	0.2+	1.2-		790217	330	1.4-	0.8-
340210	024	(36.1-	4.6+)		680827	095	2.6+	0.3-		810804	688	0.8-	2.4-
501005	012	3.2+	2.0+		720713	095	1.2+	1.9+		810804	688	0.8+	0.9-
501011	024	2.4-	1.2+		720716	095	0.2-	2.1+		810828	688	0.5+	1.9-
501012	012	1.5-	0.1-		720719	095	0.8-	1.4+		810828	688	0.2+	1.3-
520128	711	1.1+	4.3-	Y	731220	095	3.0-	0.9+		810903	688	0.3-	3.1-
590930	024	0.1-	0.9-		790126	330	1.5+	2.4-		810903	688	0.1-	2.0-

(2456)* 1966 BA1 = 1973 TJ = 1977 AK1

Discovered 1966 Jan. 30 at the Purple Mountain Observatory.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	212.43221	(1950.0)	P	Q
n	0.08272019	Peri. 91.77791	+0.50313016	-0.85430672
a	5.2166901	Node 326.95953	+0.66673590	+0.47976057
e	0.0750334	Incl. 13.84384	+0.54983931	+0.19997457
P	11.91	B(1,0) 10.5		

Residuals in seconds of arc

660130	330	1.1+	0.3-		731001	095	0.6+	0.8-		810403	474	0.5+	1.0-
660214	330	0.0	2.3-		770113	095	0.4-	0.7-		810403	474	0.2-	1.7-
660214	330	1.5-	1.6-		770120	095	0.0	0.3-		810501	474	0.2-	1.1+
660225	330	2.6+	1.1+		810402	474	0.5-	0.6-		810501	474	0.4+	1.4+
660316	330	2.2-	3.5+		810402	474	0.3-	0.7-					

(2457)* 1975 TU2 = 1939 EL = 1956 ES = 1969 EW

Discovered 1975 Oct. 3 by L. I. Chernykh at the Crimean Astrophysical Observatory. The key identification 1975 TU2 = 1969 EW was found independently by T. Urata (NOC 1051) and E. Bowell (MPC 5356).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	14.58178	(1950.0)	P	Q
n	0.22972446	Peri. 77.64804	-0.78318102	+0.61790958
a	2.6403686	Node 140.45650	-0.60439394	-0.73029357
e	0.0681262	Incl. 6.25727	-0.14606658	-0.29130575
P	4.29	B(1,0) 14.0		

Residuals in seconds of arc

390314	062	1.0+	5.4-		690312	095	1.5+	2.2+		751106	095	1.9+	5.5-
390318	062	2.4-	4.3-		690323	095	2.2-	0.3-		780509	095	0.9+	1.8-
560309	760	0.1+	0.6-		751003	095	0.9+	1.7-		801204	801	1.0+	0.5+
560309	760	2.4-	1.3+		751013	095	0.7-	3.3-		810103	801	0.8+	1.7+

(2458)* 1977 RC7 = 1975 ER5 = 1980 DT

Discovered 1977 Sept. 11 by N. S. Chernykh at the Crimean Astrophysical Observatory. The key identification 1977 RC7 = 1980 DT is by E. Bowell (MPC 5322).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	10.04710	(1950.0)	P	Q
n	0.17714340	Peri. 178.75185	+0.60062235	+0.79902940
a	3.1399259	Node 128.16183	-0.73383334	+0.56500634
e	0.1231409	Incl. 2.06772	-0.31739788	+0.20571790
P	5.56	B(1,0) 13.0		

Residuals in seconds of arc

750315	095	0.9+	2.2+	800219	046	1.3+	1.7-	810503	688	0.4+	1.8-
770911	095	0.1-	1.0-	800219	046	1.8-	2.3+	810503	688	0.1+	1.0-
770918	095	0.6+	0.7-	800221	046	1.5+	1.5-	810624	688	1.6-	2.2-
770921	095	0.5+	1.0-	800221	046	0.1+	1.4-	810624	688	0.1+	0.8-
771009	095	0.1+	0.1-	800222	046	2.0-	0.2+	810628	801	0.3+	1.0+
800214	046	1.0-	0.3-	800222	046	0.4-	0.2+	810629	801	0.8-	1.5+
800214	046	0.4+	0.1-	800223	046	0.5-	0.4+				
800215	046	1.8+	0.1+	800223	046	0.6-	1.2-				

(2459)* 1980 LB1 = 1931 BM = 1931 BO = 1950 TT1 = 1971 UZ1 = 1974 HH2

Discovered 1980 June 11 by C. S. Shoemaker on plates taken at Palomar by E. Helin and S. J. Bus. The double designation 1931 BM = 1931 BO was found by O. Kippes (MPC 1330).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	335.11823	(1950.0)	P	Q
n	0.18779542	Peri. 215.91914	+0.31032992	-0.94540667
a	3.0200402	Node 216.29930	+0.90667093	+0.32581627
e	0.0740095	Incl. 9.67647	+0.28573265	-0.00707011
P	5.25	B(1,0) 13.0		

Residuals in seconds of arc

310117	690	0.6-	0.6-	740424	805	0.3+	1.7+	800618	675	0.9-	0.3+
310118	690	(8.4-	0.6-)	800516	675	3.0+	0.1+	800619	675	2.2-	1.2-
310119	690	0.0	2.4-	800610	675	0.3+	0.3+	800620	675	1.6-	2.8-
501013	024	0.3+	1.0-	800611	675	(11.9-	1.9-)				
711021	095	0.1-	0.4+	800612	675	1.5+	0.7-				

(2460)* 1980 TX4 = 1980 TW3 = 1931 EK = 1951 AL1 = 1960 XA = 1970 SB1 = 1970 WO = 1972 HC = 1973 QP = 1975 EG

Discovered 1980 Oct. 1 by L. G. Taff and D. Beatty at the Lincoln Laboratory ETS. The double designation 1980 TX4 = 1980 TW3 is by C. S. Shoemaker (MPC 5973). The identification 1931 EK = 1935 TG (J. Obs. 35, 167) is invalid.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	101.29196	(1950.0)	P	Q
n	0.29052284	Peri. 303.66130	-0.49061248	-0.87136422
a	2.2577847	Node 175.71083	+0.81948126	-0.46328896
e	0.1101890	Incl. 3.73969	+0.29622602	-0.16151700
P	3.39	B(1,0) 13.5		

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

310315	024	0.1-	4.2+	720418	095	4.1-	7.2+	801007	675	0.3-	0.8+
310319	024	2.2-	6.2-	730827	095	2.9+	0.1+	801008	675	0.7+	0.4+
310327	024	3.8+	2.4-	730831	095	0.7+	1.4+	801009	675	0.6-	0.5+
510106	711	7.4-	3.2+ Y	730905	095	0.6-	1.1-	801010	675	0.3+	0.8+
510108	711	3.6+	2.0+ Y	750304	095	1.2+	1.8-	801105	675	0.2+	0.4-
601214	760	(0.06-	0.01+)X	750314	095	1.7+	3.7-	801107	675	0.3+	0.1+
700930	095	2.0-	0.7+	750317	095	1.0+	3.4+				
701126	095	0.0	2.2-	801001	704	(42.1+	20.4+)				

(2461)* 1981 EC1 = 1955 SN2 = 1955 UJ = 1955 VG = 1972 TH9 = 1976 JM1 = 1978 UM2

Discovered 1981 Mar. 5 by H. Debehogne and G. de Sanctis at the European Southern Observatory. The double designation 1955 SL2 = 1955 VG (MPC 1453) is invalid.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	292.08057	(1950.0)	P	Q
n	0.17290443	Peri. 221.93719	+0.92611405	+0.37518040
a	3.1910380	Node 115.98761	-0.33339655	+0.86286703
e	0.1539655	Incl. 2.51225	-0.17652057	+0.33867411
P	5.70	B(1,0) 12.5		

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

550923	024	1.0-	1.4+	781103	330	0.4-	0.8-	810308	809	1.4+	0.7+
551020	760	(0.04-	0.01-)X	781107	330	(3.0+	8.8-)	810310	809	1.4+	0.8-
551110	760	(1.3+	10.6+)X	810305	809	0.9+	0.7+	810310	809	1.4+	0.7-
721009	033	0.3+	0.6+	810305	809	0.1+	0.7+	810310	809	1.5+	0.5-
721009	033	1.1+	0.1-	810305	809	0.6-	0.5+	810316	809	0.3-	0.2-
721009	033	0.0	0.6+	810306	809	1.4+	0.4+	810316	809	0.6-	0.1+
721009	033	0.3+	0.3+	810306	809	0.4+	0.7+	810316	809	0.7-	0.1-
721010	033	0.3-	0.0	810306	809	0.4-	0.8+	810317	809	0.1+	0.3+
721010	033	0.8+	0.7+	810307	809	0.6-	0.0	810318	809	1.5-	0.8-
760502	095	2.1-	0.7+	810307	809	0.4-	0.1-	810318	809	1.1-	0.8-
781009	095	(1.7-	0.3+)	810307	809	0.1-	0.0	810318	809	1.0-	0.9-
781029	330	1.9-	1.4-	810308	809	0.8+	0.3+				
781101	095	(0.9+	1.0-)	810308	809	1.2+	0.7+				

(2462)* 6578 P-L = 1977 DV

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groenveld on Palomar Schmidt plates taken by T. Gehrels. The identification is by E. Bowell (MPC 5687).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	165.89855	(1950.0)	P	Q
n	0.26358328	Peri. 51.66002	-0.87451619	-0.48225339
a	2.4091147	Node 99.45269	+0.42706845	-0.81604238
e	0.1401175	Incl. 2.99319	+0.22985641	-0.31860083
P	3.74	B(1,0) 15.0		

Residuals in seconds of arc

600924	675	0.6+	0.4-	601026	675	0.4-	0.2-	810403	801	0.2+	2.2+
600926	675	0.6+	0.4-	770218	381	0.3-	0.0	810405	688	0.0	0.8-
600927	675	0.2+	1.5-	770218	381	0.2-	1.4-	810405	688	1.1-	0.7-
600928	675	1.4+	0.1+	770219	381	0.2+	0.2+	810410	688	0.8-	0.1+
601017	675	0.4+	0.2+	770219	381	0.0	0.2+	810410	688	1.3-	1.0-
601022	675	1.8-	0.7-	810330	688	0.6-	1.5-	810508	801	4.3+	0.2-
601024	675	0.2+	1.1-	810330	688	0.7-	0.6+	810605	801	0.6-	1.3-

1949 PK = 1949 QS = 1949 SK = 1981 PT

The double designations 1949 PK = 1949 QS and 1949 PK = 1949 SK are by K. Reinmuth (MPC 383) and by O. Kippes (MPC 1331), respectively.

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

M	105.76750	(1950.0)	P	Q
n	0.21569456	Peri. 5.10489	+0.48557666	+0.87203087
a	2.7536630	Node 293.95744	-0.80438022	+0.41816125
e	0.0746352	Incl. 3.85636	-0.34232698	+0.25436848
P	4.57	B(1,0) 13.5		

Residuals in seconds of arc

490802	024	0.1+	0.0	490927	760	2.2+	0.5-	810809	046	0.7-	0.3+
490818	690	0.9+	3.0-	810807	046	1.3-	1.4+	810811	046	1.8+	2.4+
490820	690	0.4+	2.8-	810807	046	1.3-	1.2+	810811	046	1.5-	0.2+
490927	760	1.0-	1.9+	810809	046	0.2-	0.2+				

1974 QL = 1957 LC = 1957 MJ = 1966 BQ = 1969 RC2

The identification 1974 QL = 1969 RC2 is by T. Urata (NOC 1053). The identifications 1974 QL = 1957 LC = 1966 BQ are by H. Oishi (JAM 664). The double designation 1957 LC = 1957 MJ was found by R. S. Mitrinovic (MPC 1856).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

			(1950.0)	P	Q
M	183.20081				
n	0.18222364	Peri.	2.79761	+0.69299143	+0.70318170
a	3.0812985	Node	311.13569	-0.66545591	+0.53901456
e	0.1379840	Incl.	12.19179	-0.27736493	+0.46367962
P	5.41	B(1,0)	12.0		

Residuals in seconds of arc

570602	076	1.6+	0.7-	570622	081	0.2-	0.1-	740817	095	2.0-	3.2+
570603	076	0.7-	2.0-	660121	330	0.7+	1.0+	740820	095	0.7-	1.6+
570622	081	0.9-	0.4+	690913	095	2.0+	4.0-	740825	095	0.3+	1.0-

1975 WK1 = 1978 SK7

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

			(1950.0)	P	Q
M	354.00456				
n	0.29519899	Peri.	204.32348	+0.04234252	-0.99836476
a	2.2338826	Node	243.26926	+0.92351707	+0.05377686
e	0.0925067	Incl.	2.46448	+0.38121297	-0.01938698
P	3.34	B(1,0)	15.0		

Residuals in seconds of arc

751126	330	1.0+	0.3-	751211	330	0.2-	0.5+	781002	095	1.2-	1.7+
751129	330	1.3-	1.3+	751224	330	1.6+	1.7-	781008	095	2.1-	1.2+
751202	330	0.5-	2.4+	780926	095	0.9-	3.9-	781101	095	4.6+	1.4+

1975 XQ = 1950 TV = 1978 SM7

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

			(1950.0)	P	Q
M	276.29950				
n	0.28277470	Peri.	254.81713	-0.86687989	-0.48989919
a	2.2988460	Node	255.77309	+0.48608246	-0.78955333
e	0.1286137	Incl.	5.46361	+0.11064854	-0.36960020
P	3.49	B(1,0)	14.0		

Residuals in seconds of arc

501011	024	0.5-	0.6-	760107	026	0.6+	1.1-	781008	095	1.7-	1.0-
751207	026	1.1-	0.6-	760110	026	0.1-	1.7-	781101	095	0.8+	3.0-
751228	026	2.4+	1.5-	780926	095	0.7-	0.8+				
760104	026	0.7+	1.0-	781002	095	0.5+	1.2+				

1980 GC

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5 (J-P)

			(1950.0)	P	Q
M	108.56593				
n	0.08412085	Peri.	5.32079	-0.99630952	-0.05995691
a	5.1586310	Node	170.55955	+0.05819813	-0.99785310
e	0.0677041	Incl.	21.99128	+0.06308974	-0.02635065
P	11.72	B(1,0)	11.0		

Residuals in seconds of arc

800314	688	0.0	1.3+	800508	688	0.4+	0.3-	810605	688	0.3-	2.6-
800414	688	0.5+	0.7-	800510	688	1.5+	2.0-	810605	688	0.5+	0.3-
800415	688	0.2+	2.3-	800609	801	0.7+	1.5+	810628	801	1.0+	1.8+
800415	688	1.1+	0.3-	800611	801	0.2+	2.2+	810802	801	2.3-	0.5-
800416	688	2.6-	0.9+	800611	688	0.3-	1.1-	810803	801	1.0+	1.1+
800419	688	1.1-	0.6-	800613	801	0.5-	2.4+				

* * * * *

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

(452) Hamiltonia
Epoch 1981 July 15.0 ET = JDE 2444800.5

			(1950.0)	P	Q
M	265.06074				
n	0.20517623	Peri.	68.08535	-0.94020498	-0.33593059
a	2.8469819	Node	92.24952	+0.28800742	-0.87226768
e	0.0103055	Incl.	3.22768	+0.18184150	-0.35538673
P	4.80	B(1,0)	13.4		

Residuals in seconds of arc

991210	662	0.8+	0.2+	580119	760	0.3+	0.0	780403	330	6.1-	1.6+
991227	662	0.2-	1.3-	730330	095	1.4+	1.4+	780525	413	2.6+	2.3-
000120	662	0.8-	0.2-	730331	095	0.8-	0.2-				

(1538) Detre
The 1940 Budapest observations have been reconstructed from the elements and residuals given in Astron. Nachr. 272, 83 and 85, 1941.
Epoch 1981 July 15.0 ET = JDE 2444800.5

			(1950.0)	P	Q
M	83.68158				
n	0.27159162	Peri.	12.81604	+0.99636009	+0.07028351
a	2.3615211	Node	342.93016	-0.08519874	+0.83952915
e	0.2190546	Incl.	9.45830	+0.00278264	+0.53874950
P	3.63	B(1,0)	15.6		

Residuals in seconds of arc

400908	053	0.9+	0.4-	401005	053	1.4+	0.2+	801001	046	1.1-	0.6-
400922	053	0.7+	0.8+	401127	053	(6.3+	14.0-)	801003	046	1.1-	1.3-
400923	053	0.5+	2.2+	800929	046	2.3+	0.8-	801003	046	0.7+	0.5-
400924	053	4.0-	3.0-	800929	046	1.0+	0.8+	810105	801	0.5+	2.0-
400927	053	1.1-	3.3+	801001	046	0.6-	0.6+	810108	801	0.8-	2.6+

* * * * *

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

The identifications are by L. D. Schmadel unless otherwise stated.

(2142) Landau = 1977 EE
Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

			(1950.0)	P	Q
M	307.15410				
n	0.17414904	Peri.	37.91214	-0.97472856	+0.22333975
a	3.1758160	Node	154.99184	-0.20765542	-0.89783143
e	0.1002664	Incl.	0.65838	-0.08236182	-0.37949714
P	5.66	B(1,0)	12.9		

Residuals in seconds of arc

600222	760	0.4-	0.5-		720511	095	1.8+	1.5-		770309	095	0.0	0.1-
600301	760	0.2+	0.1+		720516	095	0.1-	0.3-		780502	801	0.7-	0.0
600301	760	0.7-	0.9+		740919	095	0.5-	0.7-		780512	801	0.1-	0.8-
720403	095	0.6-	0.1-		740921	095	1.5-	0.2-		780610	801	1.2-	1.9+
720414	095	0.5+	0.2-		740923	095	2.7+	0.2+		780702	801	0.7+	0.0

(2145) Blaauw = 1929 XS = 1963 RK = 1980 TW

The identification with 1963 RK was found independently by B. G. Marsden (MPC 6067).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

			(1950.0)	P	Q
M	303.39352				
n	0.16989300	Peri.	270.20224	-0.96169488	-0.08788850
a	3.2286358	Node	264.76261	+0.18136646	-0.91425256
e	0.0743014	Incl.	15.11394	-0.20554600	-0.39549699
P	5.80	B(1,0)	11.7		

Residuals in seconds of arc

291204	690(25.8+ | 1.8-)X		761129	809	0.6-	0.6+		790624	801	1.2-	1.2-
630913	033	0.1+	0.2-	761130	809	1.0-	0.3+		790628	805	0.7-	0.9+
630914	033	0.0	0.3-	770124	809	0.1+	0.7-		790628	805	1.1+	0.3+
630914	033	0.5-	0.1-	770124	809	0.6+	0.6-		790629	805	0.3-	0.7+
630915	033	0.1+	0.3-	770124	809	0.3+	0.6-		790629	805	0.1+	0.5+
630916	033	0.1+	0.3-	770124	809	0.9+	0.7-		790702	805	0.4-	1.2+
630917	033	0.3+	0.2-	770129	809	1.1-	0.1+		790702	805	1.3-	0.8+
761024	809	0.2+	0.4-	770130	809	0.5-	0.2+		790702	805	1.2+	1.4-
761024	809	0.0	0.2-	770411	809	0.7-	0.6-		790702	688	0.1+	2.0-
761025	809	0.4+	0.1-	780108	809	0.2-	0.4-		790715	805	1.2+	0.5-
761031	809	0.1+	0.0	780213	809	0.9+	0.5-		790716	805	0.6+	0.0
761031	809	0.1+	0.2-	780311	485	0.5-	2.0-		790723	688	0.5-	0.8+
761101	809	0.2-	0.0	780311	485	(3.3- | 8.1-)		801003	033	2.1-	0.6-
761101	809	0.0	0.1-	790524	809	0.1-	0.4-		801003	033	0.9+	1.0+
761102	809	0.1+	0.1-	790525	809	0.4-	0.2-		801029	688	2.7+	2.3-
761102	809	0.3+	0.1+	790526	809	0.2+	0.4-					
761129	809	0.7-	0.9+	790602	801	0.1+	1.2-					

(2162) Anhui = 1948 YG = 1954 PF = 1957 LH = 1958 XF = 1964 PN

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

			(1950.0)	P	Q
M	64.07763				
n	0.29656820	Peri.	284.70402	+0.60155782	-0.79773631
a	2.2269971	Node	128.23727	+0.75182188	+0.54771067
e	0.1240367	Incl.	3.04860	+0.26998528	+0.25224948
P	3.32	B(1,0)	14.0		

Residuals in seconds of arc

481228	062(56.8- | 38.9+)X		640811	095	1.1+	1.3+		710926	095	1.0+	1.1+
540808	839	2.6-	1.3+	660130	330	0.9+	0.5+		781129	801	0.8-	0.3+
540808	839	0.4+	0.6+	660214	330	0.4+	1.8-		790120	801	1.1-	0.0
570605	081(81.7- | 5.2+)X		660224	330	0.6-	0.5+		790329	801	0.6+	0.4+
581206	024	0.0	2.3+	710926	095	1.0+	3.4-					

(2163) Korczak = 1949 XK = 1951 EM1 = 1954 SP1 = 1960 WR

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

			(1950.0)	P	Q
M	336.60815				
n	0.17671827	Peri.	268.48727	+0.93017516	-0.36489253
a	3.1449596	Node	112.91226	+0.35182273	+0.85463875
e	0.1871795	Incl.	2.51033	+0.10485675	+0.36938604
P	5.58	B(1,0)	12.8		

Residuals in seconds of arc

491214	760(11.2-	71.5+)X		710916	095	1.0+	0.0		790123	801	1.0- 0.3+
510310	760	2.3+	0.8-		710923	095	1.0-	0.3-	790228	801	0.5- 1.6+
510310	760	0.7+	4.0+		711011	095	1.0-	1.4-	790328	801	1.3- 1.0-
540927	760	2.1-	1.6+		760727	095	2.7+	2.9+	810604	688	1.3- 1.1+
540927	760	1.8-	1.1+		760801	095	0.8+	2.3+	810604	688	0.1+ 0.2-
601125	760	0.8+	0.9-		781201	801	0.1-	2.1+	810624	688	2.4- 3.5-
601125	760	1.3+	0.0		781203	801	2.9+	0.3-	810624	688	0.4+ 1.1+

(2173) Maresjev = 1933 FN = 1938 DD2 = 1963 SW = 1974 TG

The identification with 1974 TG was found independently by H. Oishi (MPC 6067).

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	168.33044		(1950.0)	P	Q
n	0.17823407	Peri.	162.56551	+0.92286501	+0.38441952
a	3.1271034	Node	174.65180	-0.37636468	+0.91304422
e	0.1306785	Incl.	14.46144	-0.08166883	+0.13627872
P	5.53	B(1,0)	12.6		

Residuals in seconds of arc

330322	024	1.8+	2.6-		740919	095	3.7+	0.0		741019	808	0.6- 0.8+
330324	024	1.4-	1.1-		740921	808	1.3-	0.4-		790621	801	1.3- 0.4-
330328	024	0.3+	3.3+		740921	808	1.4-	0.0		790624	552	1.3+ 0.4+
380225	024	1.6-	2.0-		740921	095	2.8-	0.7-		790624	552	2.2+ 1.0+
630926	760(65.3+ | 32.9+)X			740923	095	5.4+	1.9-		790720	808	1.1- 0.5-
680722	095	0.5-	1.8-		741009	095(13.9- | 16.2-)			790720	808	1.0- 0.7-
680726	095	0.2-	0.1+		741010	808	1.1-	0.6+		790720	801	0.2+ 0.4+
740822	095	0.6+	2.4+		741010	808	1.0-	0.3+		790817	801	0.5+ 0.6+
740823	095 (6.1- | 8.6+)			741017	808	0.9-	0.2+		790919	801	1.1- 0.4-
740914	095	1.6+	2.2-		741019	808	1.6-	0.4+				

(2175) 1977 TY = 1964 VY1

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	60.55930		(1950.0)	P	Q
n	0.29892298	Peri.	142.86451	+0.99588670	-0.07977640
a	2.2152862	Node	221.77474	+0.05957479	+0.93374938
e	0.2074491	Incl.	3.69711	+0.06826801	+0.34892383
P	3.30	B(1,0)	15.0		

Residuals in seconds of arc

641110	330	1.5+	0.2-		771019	026	1.0-	1.1-		771110	026	1.8+ 1.1+
670911	095	1.1-	3.4+		771103	026	2.0+	0.0		771216	801	0.7- 0.6+
671005	095	0.9-	2.2-		771103	026	1.2-	1.6+		771217	801	4.3- 1.3+
771012	026	1.1+	0.9-		771108	026	0.2-	0.1-		780205	801	0.1- 0.8-
771013	026	1.7+	2.1-		771108	026	0.2-	0.9+		790328	801	1.0- 1.8+
771013	095	0.5-	0.4+		771110	026	0.5-	0.4-		790424	801	1.1+ 1.0+
771018	026	0.9-	1.2-		771110	026	0.7+	1.8+		800611	688	1.1+ 1.2+

(2190) Coubertin = 1960 DF

Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	223.06646		(1950.0)	P	Q
n	0.25381988	Peri.	317.34918	-0.77351748	+0.63361258
a	2.4705044	Node	261.97364	-0.57747321	-0.71394801
e	0.0914000	Incl.	0.83013	-0.26114251	-0.29801565
P	3.88	B(1,0)	13.6		

Residuals in seconds of arc

600227	760	0.1+	0.4+	760423	808	2.1+	0.7+	760503	808	0.6+	1.5-
730827	095	0.9+	1.5-	760423	808	0.8+	1.0+	760503	808	0.6+	0.4+
730905	095	0.3-	0.2-	760427	808	1.0-	0.1-	770819	095	0.6-	1.6+
760401	808	3.6-	1.1+	760427	808	1.0-	0.4-	770820	095	0.8-	1.2+
760401	808	0.2-	1.5+	760430	808	0.0	0.3+	770909	095	0.2+	0.1-
760402	095	0.1-	1.4-	760430	808	0.2+	0.4-				
760405	095	3.1+	0.2-	760502	095	1.4-	0.2-				

(2199) Klet = 1928 QE = 1941 HG = 1948 MD
Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	56.31127		(1950.0)	P	Q
n	0.29372067	Peri.	141.81962	+0.31941402	+0.94437104
a	2.2413673	Node	146.59858	-0.90062510	+0.32824748
e	0.2009600	Incl.	8.18192	-0.29470175	+0.02041870
P	3.36	B(1,0)	14.5		

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

280816	094(0.07+	0.01+)X	780609	095	2.3-	0.0	791121	801	0.0	1.7-
410419	062(0.04+	0.01-)X	780609	046	2.4-	0.7-	791125	046	0.4-	1.2-
410421	062(0.05+	0.02-)X	780611	046	0.2-	1.4-	791125	046	2.8+	0.5-
480629	078(0.04+	0.00)X	780611	046	0.7+	1.4-	791218	801	0.6-	1.0-
750903	095	1.3-	3.6-	780629	046	0.9-	0.9-	810327	046	0.8-	1.3-
750906	095	0.8+	0.1+	780629	046	2.6-	0.4+	810327	046	0.5-	1.2-
780511	330 (8.9-	3.0+)	780630	046	0.7-	0.0	810329	046	0.2-	0.8-
780606	046	0.9+	0.4-	780630	046	0.4-	0.0	810329	046	2.9-	0.8+
780606	046	2.5+	0.8-	780710	046	2.9+	1.4-	810402	046	1.6+	1.2-
780608	046	0.3+	1.1+	780710	046	0.0	1.1-	810402	046	1.1-	0.2-
780609	046	0.4+	0.6-	790831	801	0.0	1.0-				
780609	046	3.1+	2.8+	790918	801	1.2+	0.9-				

(2234) Schmadel = 1972 GF1
Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	51.99641		(1950.0)	P	Q
n	0.22210163	Peri.	271.63314	+0.12123716	+0.99165631
a	2.7004422	Node	5.89670	-0.65282456	+0.11290434
e	0.19877083	Incl.	25.24152	-0.74774437	+0.06221226
P	4.44	B(1,0)	13.4		

Residuals in seconds of arc

720412	095	0.1-	0.2+	770520	809	0.5-	0.1+	781101	033	0.6+	0.2+
770427	809	0.2+	0.6-	770529	809	0.9-	0.3-	781101	033	0.4+	0.3+
770509	809	0.2-	0.8+	770609	809	1.0+	0.4+	781102	381	0.7+	0.7+
770510	809	0.1-	1.1+	770621	809	0.7-	1.3-	781127	801	2.9-	0.4+
770511	809	0.0	0.3+	770707	809	(5.1+	3.6-)	781220	801	0.2+	0.3-
770512	809	0.4+	1.7+	770903	809	0.8-	0.2-	781227	801	1.2-	0.4+
770513	809	0.5+	0.4+	770905	809	0.7-	1.1-	781215	801	2.1-	1.6+
770514	809	0.4+	0.8+	781008	033	0.3+	0.2+	800114	033	1.0+	0.9-
770515	809	0.5+	1.3+	781008	033	0.2+	0.3+	800115	033	0.5+	0.1+
770516	809	0.3+	0.7+	781031	801	0.0	1.3+	800212	801	0.2-	0.7+

(2289) 6567 P-L = 1933 FT
The identification was found independently by B. G. Marsden (MPC 5983).
Epoch 1982 Aug. 19.0 ET = JDE 2445200.5

M	157.31980		(1950.0)	P	Q
n	0.23014677	Peri.	40.34379	-0.64455057	+0.76453653
a	2.6371376	Node	189.52986	-0.71073171	-0.60213986
e	0.1406659	Incl.	2.14648	-0.28180666	-0.23002495
P	4.28	B(1,0)	14.6		

Residuals in seconds of arc

330322 024	1.1-	3.3-	601017 675	0.3-	0.4+	781108 675	0.1+	0.5+
330323 024	0.5+	0.7+	601022 675	0.7-	0.2+	781129 675	0.2+	0.9-
330327 024	0.2+	2.7+	601024 675	0.9-	0.7+	781130 675	0.0	0.6-
600924 675	0.3+	0.8-	601026 675	0.4-	0.6+	800312 801	1.3+	1.1-
600926 675	0.0	2.0-	781105 675	0.9-	0.6-	800420 801	2.6-	1.7-
600927 675	1.9+	0.7-	781106 675	0.6+	0.6+			
600928 675	1.0+	1.3-	781107 675	0.0	1.2+			

* * * * *

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

The following orbital elements are from NOC 1215-1223. The identifications are by T. Urata unless otherwise stated.

1952 UZ1 = 1951 KJ = 1959 NH
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	247.36846	(1950.0)		P	Q
n	0.25585476	Peri.	35.61966	+0.54923160	+0.83542215
a	2.4573928	Node	267.70294	-0.77131887	+0.49741229
e	0.1311459	Incl.	1.16749	-0.32157713	+0.23377520
P	3.85	B(1,0)	14.5		

Residuals in seconds of arc

510525	760(17.5-	33.7+)X	521019 672	0.4-	0.6+	530119 672	0.3+	1.1+
521017 672	0.3-	0.2-	521019 672	0.6-	0.3+	530119 672	1.0-	0.1-
521017 672	0.7-	0.2+	521019 672	0.4-	0.2+	590710 760	0.6-	0.8-
521018 672	0.0	0.2-	521121 672	0.3-	0.9-	590710 760	0.2-	0.7+
521018 672	0.0	0.5-	521121 672	0.3+	0.9-			

1978 WM14 = 1978 UG2 = 1972 TT1

The double designation 1978 WM14 = 1978 UG2 is by O. Kippes (MPC 6190). The identification was independently found by C. M. Bardwell.

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

M	163.10647	(1950.0)		P	Q
n	0.17081578	Peri.	209.74673	+0.55022695	-0.83358646
a	3.2170039	Node	206.96041	+0.78576394	+0.53667193
e	0.1887510	Incl.	6.18235	+0.28253378	+0.13083140
P	5.77	B(1,0)	13.0		

Residuals in seconds of arc

721006 095	0.9-	0.2-	781028 330	2.8-	1.8-	781130 330	2.1+	3.3+
721007 095	0.9+	3.0-	781031 330	2.4-	2.4-	781205 330	0.4-	0.8-
721013 095	0.2-	4.1+	781126 330	3.9+	1.0+			

1979 ML3 = 1978 EF8
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	213.96036	(1950.0)		P	Q
n	0.23620157	Peri.	21.14294	-0.39924614	+0.91597594
a	2.5918810	Node	225.35121	-0.84898707	-0.38577077
e	0.0991582	Incl.	3.21365	-0.34615526	-0.11031311
P	4.17	B(1,0)	14.5		

Residuals in seconds of arc

780305 095	0.0	0.1-	790629 413	0.9-	0.2-	790727 675	0.4-	0.1+
790623 413	0.4+	0.1+	790724 675	0.3+	1.2+	790823 675	0.3-	1.3-
790624 413	0.2-	0.3-	790724 413	1.6-	0.3-			
790625 413	0.1+	0.3-	790725 675	2.6+	0.7+			

1980 LO = 1972 GF2 = 1976 JZ2 = 1977 RJ5
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	50.28273	(1950.0)	P	Q
n	0.26721738	Peri. 153.65511	+0.76531202	+0.64340527
a	2.3872273	Node 166.25242	-0.60314262	+0.72666703
e	0.0887656	Incl. 4.36520	-0.22475874	+0.24080009
P	3.69	B(1,0) 14.0		

Residuals in seconds of arc

720410	808	0.2-	0.2+	800610	675	1.8+	0.9-	800619	675	1.2+	1.3-
720410	808	0.2-	0.1-	800610	675	0.5-	3.4-	800620	675	3.0-	0.0
760503	095	0.2+	1.5-	800611	675	1.8+	2.3+	800709	675	2.5-	0.2+
770909	095	0.3+	0.8-	800612	675	4.6+	3.3+				
800516	675	4.9-	0.5+	800618	675	0.7+	0.0				

1980 TN = 1973 FB = 1974 MC
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	54.74124	(1950.0)	P	Q
n	0.20401661	Peri. 312.52078	+0.90283697	-0.42687791
a	2.8577653	Node 72.80849	+0.40862296	+0.81445140
e	0.0737344	Incl. 3.09513	+0.13383828	+0.39299384
P	4.83	B(1,0) 13.5		

Residuals in seconds of arc

730329	805	0.4-	0.9-	740622	808	0.1-	0.2+	801005	046	1.8-	0.1-
740617	808	0.2-	0.4+	740622	808	0.4+	0.4-	801111	046	0.8+	0.8-
740617	808	1.4-	0.0	801003	046	1.6+	1.2+	801111	046	0.6+	0.2-
740620	808	0.6+	0.3-	801003	046	0.5-	0.5+	801113	046	1.9+	0.2-
740620	808	0.6+	0.8-	801005	046	0.7+	0.1+	801113	046	2.8-	1.9-

1981 EK = 1974 TY = 1974 VS2
Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)

M	91.06319	(1950.0)	P	Q
n	0.20633019	Peri. 321.77355	-0.00797019	-0.99919233
a	2.8363625	Node 128.64789	+0.92937649	-0.02193759
e	0.0416917	Incl. 2.89059	+0.36904717	+0.03366649
P	4.78	B(1,0) 13.5		

Residuals in seconds of arc

741010	808	0.1+	0.3-	810305	809	0.3-	0.2-	810309	809	0.4+	0.2+
741010	808	0.2+	0.3-	810305	809	0.5-	0.1+	810309	809	0.3+	0.2+
741012	808	0.2-	0.1+	810306	809	0.6+	0.6-	810310	809	0.1+	0.1+
741012	808	0.7+	0.5+	810306	809	0.3+	0.2-	810310	809	0.5+	0.3-
741109	808	0.8-	0.4-	810306	809	0.2+	0.1+	810310	809	1.0+	0.6-
741109	808	0.0	0.3+	810307	809	1.6-	1.8+	810312	809	0.2+	0.6+
810301	809	0.1+	0.7-	810307	809	1.4-	1.7+	810312	809	0.2+	0.4+
810301	809	0.6+	0.6-	810307	809	0.9-	1.6+	810312	809	0.0	0.2+
810301	809	0.5+	0.6-	810307	809	0.9-	0.5-	810314	809	0.6-	0.9+
810302	809	0.1+	0.1+	810307	809	0.7-	0.3-	810314	809	0.0	0.5+
810302	809	0.4+	0.2-	810307	809	0.4-	0.3-	810314	809	0.5+	0.2+
810302	809	0.9+	0.4-	810308	809	0.8-	0.2+	810315	809	0.2+	0.4-
810303	809	0.3-	0.3+	810308	809	0.1-	0.0	810315	809	0.5+	0.5-
810303	809	0.2-	0.2+	810308	809	0.0	0.4-	810315	809	0.5+	1.2-
810303	809	0.0	0.2+	810308	809	0.2+	0.0	810315	809	0.1-	0.6-
810304	809	0.3+	0.1-	810308	809	0.8-	0.1+	810315	809	0.2+	0.6-
810304	809	0.3+	0.1-	810308	809	0.5-	0.1+	810315	809	0.5+	0.3-
810304	809	0.6+	0.1-	810308	809	0.2-	0.2+				
810305	809	0.3-	0.3-	810309	809	0.1+	0.1+				

1981 EL = 1973 FU1 = 1975 VL3

The identifications 1973 FU1 = 1971 TX (NOC 985) and 1971 TS2 = 1975 VL3 (NOC 1053; see also MPC 6292) are invalid.

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

M	41.74038	(1950.0)	P	Q
n	0.24064898	Peri. 133.27825	-0.84388094	-0.53641044
a	2.5598483	Node 14.29428	+0.47795941	-0.76119971
e	0.1036318	Incl. 2.63460	+0.24376169	-0.36447063
P	4.10	B(1,0) 14.0		

Residuals in seconds of arc

730328	095	1.6+	1.3-	810304	809	0.2+	0.2+	810309	809	0.8+	0.2+
730401	095	3.0-	3.0+	810306	809	0.1+	0.6+	810310	809	0.3+	0.4-
730404	095	1.7+	0.9-	810306	809	0.2+	0.5+	810310	809	0.7+	0.1-
751102	095	0.2-	0.4+	810306	809	0.6+	0.4+	810310	809	0.1+	0.0
810301	809	0.3-	0.4-	810307	809	0.2-	0.5+	810310	809	0.0	0.5-
810301	809	0.6-	0.2-	810307	809	0.0	0.6+	810310	809	0.0	0.4-
810301	809	0.6-	0.0	810307	809	0.2+	0.7+	810310	809	0.2+	0.6-
810302	809	0.7-	0.3-	810308	809	0.5+	0.0	810312	809	0.2-	0.1-
810302	809	0.4-	0.4-	810308	809	0.7+	0.0	810312	809	0.1+	0.4-
810302	809	0.0	0.6-	810308	809	1.0+	0.1-	810312	809	0.4-	0.8-
810303	809	0.6-	0.6+	810309	809	0.2-	0.1-	810313	809	0.4-	0.5-
810303	809	0.4-	0.6+	810309	809	0.0	0.1-	810313	809	1.0-	0.6-
810303	809	0.1-	0.5+	810309	809	0.2+	0.2-	810314	809	0.4+	0.3-
810304	809	0.3-	0.5+	810309	809	0.3+	0.1-	810314	809	0.2-	0.1+
810304	809	0.2+	0.3+	810309	809	0.3+	0.1-	810314	809	0.8-	0.6+

1981 EY = 1978 SU2

The identification is by T. Furuta (JAM 878).

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

M	46.43258	(1950.0)	P	Q
n	0.17609139	Peri. 145.51721	-0.69135858	-0.72073117
a	3.1524255	Node 347.94087	+0.59610711	-0.52935155
e	0.0517033	Incl. 14.04283	+0.40826416	-0.44758631
P	5.60	B(1,0) 13.0		

Residuals in seconds of arc

780926	095	0.6+	0.3+	810307	809	0.5+	0.5+	810309	809	0.0	0.2-
781002	095	0.5+	1.0-	810308	809	0.0	0.4-	810309	809	0.1+	0.1+
781008	095	1.0-	0.7+	810308	809	0.0	0.5-	810310	809	0.5+	0.1-
810304	809	0.7-	0.3+	810308	809	0.1+	0.5-	810310	809	0.2-	0.0
810304	809	0.5-	0.5+	810309	809	0.5+	0.1-	810310	809	0.4-	0.2+
810304	809	0.9-	0.8+	810309	809	0.5+	0.5-	810310	809	0.5-	0.1-
810307	809	0.7+	0.1+	810309	809	0.3+	0.2-	810310	809	0.4-	0.0
810307	809	0.5+	0.3+	810309	809	0.1+	0.0	810310	809	0.2-	0.1-

* * * * *

EPHEMERIDES.

Comet Gonzalez (1981g) Elements MPC 6290

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	10 03	15 51.13	-79 22.5	3.159	3.134	79.5	18.3	16.5
1981	10 13	15 58.12	-78 14.4					
1981	10 23	16 09.25	-77 31.4	3.502	3.276	68.8	16.4	16.9
1981	11 02	16 23.25	-77 10.2					
1981	11 12	16 39.50	-77 08.0	3.795	3.422	60.8	14.6	17.2
1981	11 22	16 57.85	-77 22.0					
1981	12 02	17 18.44	-77 50.4	4.024	3.572	56.3	13.3	17.6
1981	12 12	17 41.58	-78 31.3					
1981	12 22	18 08.02	-79 23.0	4.186	3.725	56.0	12.6	17.8

1982 01 01	18 39.02	-80 23.8						
1982 01 11	19 16.71	-81 31.1	4.285	3.880	59.6	12.6	18.0	
1982 01 21	20 04.90	-82 40.8						
1982 01 31	21 09.62	-83 45.3	4.334	4.037	66.1	12.9	18.2	
1982 02 10	22 37.24	-84 30.1						
1982 02 20	00 23.61	-84 34.9	4.354	4.195	74.2	13.1	18.4	
1982 03 02	02 05.46	-83 47.9						
1982 03 12	03 24.83	-82 17.4	4.371	4.353	82.4	13.1	18.6	
1982 03 22	04 22.99	-80 18.6						
1982 04 01	05 06.93	-78 03.0	4.410	4.512	89.5	12.8	18.8	
1982 04 11	05 41.89	-75 38.3						
1982 04 21	06 11.04	-73 09.7	4.493	4.672	94.0	12.4	19.0	
1982 05 01	06 36.30	-70 41.6						
1982 05 11	06 58.77	-68 17.8	4.632	4.831	95.3	12.0	19.2	
1982 05 21	07 19.14	-66 01.4						
1982 05 31	07 37.89	-63 54.9	4.829	4.990	93.3	11.7	19.4	
1982 06 10	07 55.31	-62 00.3						
1982 06 20	08 11.61	-60 19.0	5.074	5.149	88.5	11.4	19.6	
1982 06 30	08 26.94	-58 51.9						
1982 07 10	08 41.39	-57 39.5	5.350	5.307	82.1	10.9	19.9	
1982 07 20	08 55.04	-56 41.5						
1982 07 30	09 07.93	-55 57.8	5.638	5.465	75.1	10.3	20.1	

Periodic Comet Howell (1981k) Elements MPC 6290

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 03	00 09.24	-09 46.6	1.140	2.123	165.2	6.9	15.6
1981 10 13	00 02.23	-09 48.0					
1981 10 23	23 57.62	-09 28.9	1.339	2.232	145.7	14.6	16.1
1981 11 02	23 55.71	-08 51.6					
1981 11 12	23 56.49	-07 59.1	1.614	2.343	126.6	19.8	16.7
1981 11 22	23 59.67	-06 54.8					
1981 12 02	00 04.94	-05 41.2	1.943	2.455	109.5	22.2	17.3
1981 12 12	00 11.94	-04 20.7					
1981 12 22	00 20.35	-02 55.3	2.305	2.567	93.9	22.5	17.9
1982 01 01	00 29.92	-01 26.3					
1982 01 11	00 40.42	+00 05.0	2.679	2.677	79.4	21.2	18.4
1982 01 21	00 51.66	+01 37.3					
1982 01 31	01 03.50	+03 09.9	3.046	2.787	65.5	18.8	18.9
1982 02 10	01 15.82	+04 41.8					
1982 02 20	01 28.51	+06 12.2	3.392	2.894	52.2	15.7	19.3

1981 QA Elements MPC 6296

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 03	22 40.17	-15 05.9	0.301	1.261	146.1	26.2	15.5
1981 10 13	23 07.82	-15 49.1					
1981 10 23	23 31.67	-15 23.6	0.431	1.343	137.1	30.3	16.5
1981 11 02	23 52.73	-14 11.0					
1981 11 12	00 11.96	-12 27.8	0.608	1.443	127.5	33.0	17.5
1981 11 22	00 29.99	-10 25.9					
1981 12 02	00 47.37	-08 13.3	0.828	1.554	117.6	34.2	18.3
1981 12 12	01 04.43	-05 55.6					
1981 12 22	01 21.34	-03 37.0	1.087	1.671	107.4	34.2	19.1
1982 01 01	01 38.28	-01 20.1					
1982 01 11	01 55.32	+00 53.0	1.379	1.789	97.0	33.1	19.7
1982 01 21	02 12.49	+03 00.5					
1982 01 31	02 29.85	+05 01.6	1.693	1.905	86.5	31.1	20.3
1982 02 10	02 47.38	+06 55.1					
1982 02 20	03 05.08	+08 40.4	2.018	2.019	75.9	28.4	20.7

1981 QB Elements MPC 6296

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 03	21 10.86	-60 27.3	0.441	1.192	104.8	54.2	16.9
1981 10 13	21 19.74	-68 32.9					
1981 10 23	21 45.32	-74 15.7	0.558	1.113	86.8	63.1	17.4
1981 11 02	22 36.48	-78 08.5					
1981 11 12	00 00.30	-80 09.3	0.649	1.079	79.4	64.4	17.7
1981 11 22	01 39.72	-79 57.8					
1981 12 02	02 59.75	-77 42.1	0.689	1.096	79.6	62.2	17.8
1981 12 12	03 52.09	-73 52.6					
1981 12 22	04 25.94	-68 42.5	0.682	1.160	86.3	57.8	17.8
1982 01 01	04 49.82	-62 06.1					
1982 01 11	05 08.82	-53 55.4	0.656	1.261	98.5	50.5	17.7
1982 01 21	05 25.57	-44 13.5					
1982 01 31	05 41.61	-33 27.7	0.672	1.383	111.8	41.4	17.8
1982 02 10	05 57.74	-22 33.1					
1982 02 20	06 14.25	-12 29.6	0.790	1.518	116.7	35.6	18.2
1982 03 02	06 31.27	-03 56.3					
1982 03 12	06 48.80	+02 55.2	1.017	1.656	110.9	34.1	18.9
1982 03 22	07 06.69	+08 13.0					
1982 04 01	07 24.87	+12 12.1	1.321	1.794	100.4	33.2	19.6
1982 04 11	07 43.21	+15 08.0					
1982 04 21	08 01.58	+17 13.8	1.667	1.929	88.8	31.4	20.3

1980 PS Elements MPC 6099

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 09 13	02 36.24	+45 10.0	2.381	2.945	-1.12	-2.9	18.6
1981 09 23	02 31.86	+46 22.6					
1981 10 03	02 24.20	+47 15.1	2.188	2.937	-1.28	-3.7	18.4
1981 10 13	02 13.65	+47 40.8					
1981 10 23	02 01.16	+47 34.3	2.066	2.926	-1.34	-5.2	18.2
1981 11 02	01 48.10	+46 53.4					
1981 11 12	01 36.08	+45 41.2	2.038	2.912	-1.25	-6.5	18.1
1981 11 22	01 26.40	+44 05.8					
1981 12 02	01 19.89	+42 17.5	2.108	2.895	-1.08	-6.7	18.2
1981 12 12	01 16.84	+40 27.6					
1981 12 22	01 17.15	+38 44.6	2.261	2.874	-0.93	-6.0	18.5
1982 01 01	01 20.50	+37 14.4					
1982 01 11	01 26.52	+36 00.1	2.468	2.850	-0.82	-4.9	18.7

1980 LO Elements MPC 6306

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 09 13	03 55.08	+15 54.7	1.778	2.319	109.6	24.1	17.6
1981 09 23	03 59.35	+15 38.9					
1981 10 03	04 00.59	+15 13.0	1.586	2.338	127.9	19.7	17.3
1981 10 13	03 58.63	+14 37.8					
1981 10 23	03 53.54	+13 55.2	1.447	2.358	149.3	12.5	17.0
1981 11 02	03 45.76	+13 07.9					
1981 11 12	03 36.22	+12 20.2	1.395	2.378	171.2	3.7	16.6
1981 11 22	03 26.16	+11 37.5					
1981 12 02	03 16.92	+11 05.0	1.449	2.397	159.4	8.3	16.9
1981 12 12	03 09.64	+10 46.5					
1981 12 22	03 05.02	+10 43.8	1.604	2.417	136.9	16.2	17.3
1982 01 01	03 03.37	+10 56.4					
1982 01 11	03 04.66	+11 22.8	1.829	2.436	116.8	21.1	17.7
1982 01 21	03 08.67	+12 00.2					
1982 01 31	03 15.09	+12 45.9	2.093	2.455	99.4	23.3	18.1
1982 02 10	03 23.62	+13 37.3					
1982 02 20	03 33.94	+14 31.8	2.369	2.472	84.1	23.4	18.4

1980 LM Elements MPC 6098

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 09 13	04 01.86	+12 56.4	1.893	2.410	-1.12	-6.4	16.8
1981 09 23	04 05.10	+12 56.8					
1981 10 03	04 05.39	+12 51.0	1.691	2.429	-1.29	-7.3	16.5
1981 10 13	04 02.52	+12 40.3					
1981 10 23	03 56.55	+12 26.4	1.542	2.446	-1.47	-8.2	16.2
1981 11 02	03 47.87	+12 11.2					
1981 11 12	03 37.36	+11 57.6	1.481	2.463	-1.55	-8.9	15.8
1981 11 22	03 26.26	+11 48.8					
1981 12 02	03 15.89	+11 47.8	1.530	2.478	-1.48	-8.8	16.1
1981 12 12	03 07.44	+11 57.1					
1981 12 22	03 01.66	+12 17.8	1.682	2.491	-1.30	-8.1	16.5
1982 01 01	02 58.88	+12 49.6					
1982 01 11	02 59.14	+13 31.5	1.907	2.502	-1.11	-7.1	16.9
1982 01 21	03 02.19	+14 21.7					
1982 01 31	03 07.76	+15 18.1	2.171	2.512	-0.96	-6.1	17.2
1982 02 10	03 15.54	+16 18.8					
1982 02 20	03 25.20	+17 21.9	2.446	2.520	-0.87	-5.2	17.5

1980 LP Elements MPC 6295

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 03	06 04.20	+18 07.6	1.918	2.287	98.2	25.7	18.3
1981 10 13	06 11.12	+18 05.8					
1981 10 23	06 15.19	+18 05.5	1.719	2.325	115.3	22.8	18.0
1981 11 02	06 16.06	+18 08.7					
1981 11 12	06 13.50	+18 16.8	1.552	2.363	135.6	17.0	17.7
1981 11 22	06 07.57	+18 30.4					
1981 12 02	05 58.69	+18 49.0	1.453	2.400	159.1	8.4	17.4
1981 12 12	05 47.80	+19 11.4					
1981 12 22	05 36.23	+19 35.9	1.456	2.436	173.6	2.6	17.2
1982 01 01	05 25.47	+20 01.3					
1982 01 11	05 16.81	+20 27.4	1.570	2.470	149.8	11.6	17.7
1982 01 21	05 11.04	+20 54.4					
1982 01 31	05 08.52	+21 22.4	1.777	2.503	127.7	18.2	18.2
1982 02 10	05 09.23	+21 51.3					
1982 02 20	05 12.88	+22 20.4	2.040	2.534	108.5	21.7	18.6
1982 03 02	05 19.15	+22 48.8					
1982 03 12	05 27.66	+23 15.4	2.330	2.564	91.9	22.8	18.9

1974 QL Elements MPC 6300

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 37.89	+29 43.6	3.098	3.378	97.7	17.0	17.5
1981 11 02	07 41.47	+29 41.4					
1981 11 12	07 42.79	+29 43.3	2.837	3.395	116.4	15.1	17.3
1981 11 22	07 41.70	+29 48.6					
1981 12 02	07 38.12	+29 56.3	2.620	3.411	137.3	11.3	17.0
1981 12 12	07 32.18	+30 04.0					
1981 12 22	07 24.27	+30 09.0	2.486	3.426	159.7	5.7	16.8
1982 01 01	07 14.99	+30 08.6					
1982 01 11	07 05.26	+30 00.6	2.465	3.439	170.6	2.7	16.6
1982 01 21	06 55.98	+29 44.5					
1982 01 31	06 48.03	+29 21.3	2.566	3.452	149.6	8.3	16.9
1982 02 10	06 42.04	+28 52.9					
1982 02 20	06 38.35	+28 21.4	2.769	3.463	127.7	13.1	17.2
1982 03 02	06 37.06	+27 48.5					
1982 03 12	06 38.11	+27 15.3	3.038	3.473	107.8	15.8	17.5
1982 03 22	06 41.27	+26 42.4					
1982 04 01	06 46.32	+26 09.5	3.337	3.482	89.9	16.7	17.7

(2430) 1977 VC Elements MPC 6201

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 45.52 +39 40.3	1.913	2.270	97.6	25.8	17.3
1981 11 02	07 55.98 +41 33.7					
1981 11 12	08 03.39 +43 40.8	1.742	2.319	113.3	23.1	17.1
1981 11 22	08 07.09 +46 00.6					
1981 12 02	08 06.33 +48 28.5	1.612	2.368	129.8	18.7	16.8
1981 12 12	08 00.56 +50 55.1					
1981 12 22	07 49.68 +53 07.1	1.552	2.415	143.6	14.0	16.7
1982 01 01	07 34.51 +54 49.1					
1982 01 11	07 17.13 +55 49.5	1.584	2.462	146.1	12.9	16.8
1982 01 21	07 00.32 +56 04.9					
1982 01 31	06 46.70 +55 40.5	1.709	2.506	135.3	16.1	17.0
1982 02 10	06 37.85 +54 47.1					
1982 02 20	06 34.14 +53 36.1	1.908	2.549	119.9	19.7	17.4
1982 03 02	06 35.21 +52 16.1					
1982 03 12	06 40.34 +50 52.5	2.154	2.590	104.6	21.8	17.7
1982 03 22	06 48.72 +49 28.2					
1982 04 01	06 59.65 +48 04.0	2.423	2.628	90.4	22.3	18.0

1977 TB1 Elements MPC 6197

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 42.17 +23 51.2	1.666	2.025	95.8	29.3	19.3
1981 11 02	07 52.45 +23 33.7					
1981 11 12	07 59.60 +23 22.6	1.493	2.075	111.8	26.3	19.1
1981 11 22	08 03.27 +23 20.2					
1981 12 02	08 03.07 +23 27.8	1.345	2.128	131.2	20.4	18.8
1981 12 12	07 58.92 +23 44.6					
1981 12 22	07 51.10 +24 07.7	1.253	2.182	154.2	11.3	18.4
1982 01 01	07 40.46 +24 32.1					
1982 01 11	07 28.49 +24 52.3	1.253	2.236	177.0	1.3	18.0
1982 01 21	07 16.91 +25 04.5					
1982 01 31	07 07.32 +25 07.6	1.360	2.290	154.7	10.6	18.7
1982 02 10	07 00.82 +25 02.9					
1982 02 20	06 57.83 +24 52.4	1.559	2.344	132.5	18.1	19.2
1982 03 02	06 58.32 +24 37.7					
1982 03 12	07 01.96 +24 19.6	1.821	2.396	113.4	22.4	19.7
1982 03 22	07 08.28 +23 58.1					
1982 04 01	07 16.84 +23 33.0	2.114	2.447	97.1	23.9	20.1

1980 RN1 Elements MPC 5638

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1981 10 23	07 49.62 +06 35.4	2.649	2.844	-0.75	+0.9	18.8
1981 11 02	07 54.86 +05 35.2					
1981 11 12	07 57.92 +04 39.4	2.440	2.899	-0.82	+0.8	18.6
1981 11 22	07 58.66 +03 50.4					
1981 12 02	07 56.98 +03 11.4	2.259	2.954	-0.91	+0.7	18.4
1981 12 12	07 52.95 +02 45.2					
1981 12 22	07 46.86 +02 34.2	2.139	3.008	-0.99	+0.8	18.2
1982 01 01	07 39.20 +02 40.0					
1982 01 11	07 30.74 +03 02.4	2.115	3.062	-1.03	+0.9	18.1
1982 01 21	07 22.34 +03 39.5					
1982 01 31	07 14.86 +04 28.0	2.204	3.114	-1.00	+1.0	18.3
1982 02 10	07 08.99 +05 23.6					
1982 02 20	07 05.16 +06 22.0	2.398	3.166	-0.91	+0.9	18.6
1982 03 02	07 03.57 +07 19.7					
1982 03 12	07 04.23 +08 13.8	2.668	3.216	-0.81	+0.8	18.9
1982 03 22	07 06.98 +09 02.4					
1982 04 01	07 11.62 +09 44.1	2.981	3.264	-0.71	+0.8	19.2

1980 OD Elements MPC 5638

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 10	23	07 48.86	+12 32.7	2.503	2.729	-0.87	-0.4	18.2
1981 11	02	07 55.02	+12 06.5					
1981 11	12	07 58.94	+11 46.9	2.286	2.777	-0.95	-0.3	18.0
1981 11	22	08 00.42	+11 35.9					
1981 12	02	07 59.32	+11 35.8	2.097	2.825	-1.06	-0.3	17.7
1981 12	12	07 55.66	+11 48.0					
1981 12	22	07 49.70	+12 12.7	1.972	2.874	-1.16	-0.3	17.5
1982 01	01	07 41.95	+12 49.1					
1982 01	11	07 33.22	+13 34.5	1.946	2.923	-1.22	-0.3	17.2
1982 01	21	07 24.48	+14 25.5					
1982 01	31	07 16.68	+15 18.4	2.038	2.971	-1.17	-0.5	17.6
1982 02	10	07 10.63	+16 09.7					
1982 02	20	07 06.81	+16 57.0	2.235	3.018	-1.06	-0.6	18.0
1982 03	02	07 05.44	+17 39.0					
1982 03	12	07 06.51	+18 14.6	2.509	3.065	-0.94	-0.5	18.3
1982 03	22	07 09.81	+18 43.5					
1982 04	01	07 15.14	+19 05.3	2.823	3.111	-0.82	-0.4	18.6

1974 QA Elements MPC 4934

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10	23	07 50.56	+11 15.7	2.979	3.166	91.6	18.3	19.3
1981 11	02	07 55.53	+10 38.2					
1981 11	12	07 58.58	+10 05.2	2.717	3.182	109.1	17.1	19.1
1981 11	22	07 59.52	+09 38.4					
1981 12	02	07 58.26	+09 19.9	2.487	3.197	128.7	13.9	18.8
1981 12	12	07 54.79	+09 11.4					
1981 12	22	07 49.34	+09 14.0	2.322	3.211	149.9	8.8	18.6
1982 01	01	07 42.29	+09 28.1					
1982 01	11	07 34.31	+09 52.9	2.257	3.225	167.8	3.7	18.3
1982 01	21	07 26.19	+10 26.3					
1982 01	31	07 18.74	+11 05.9	2.310	3.239	156.7	6.9	18.5
1982 02	10	07 12.71	+11 48.6					
1982 02	20	07 08.57	+12 31.7	2.472	3.252	135.5	12.3	18.8
1982 03	02	07 06.60	+13 12.8					
1982 03	12	07 06.89	+13 50.3	2.711	3.264	115.5	16.0	19.1
1982 03	22	07 09.31	+14 22.8					
1982 04	01	07 13.72	+14 49.6	2.994	3.276	97.4	17.6	19.4

1979 KD Elements MPC 4927

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 10	23	07 52.49	+14 08.2	2.735	2.937	-0.78	+0.7	19.5
1981 11	02	07 58.38	+13 39.9					
1981 11	12	08 02.27	+13 16.6	2.444	2.921	-0.88	+0.9	19.2
1981 11	22	08 03.93	+13 00.3					
1981 12	02	08 03.13	+12 53.1	2.183	2.903	-1.01	+1.1	18.9
1981 12	12	07 59.78	+12 56.5					
1981 12	22	07 53.99	+13 11.3	1.985	2.883	-1.13	+1.1	18.5
1982 01	01	07 46.12	+13 37.4					
1982 01	11	07 36.87	+14 12.9	1.885	2.862	-1.19	+0.9	18.1
1982 01	21	07 27.21	+14 55.0					
1982 01	31	07 18.19	+15 40.4	1.903	2.839	-1.16	+0.5	18.3
1982 02	10	07 10.81	+16 25.6					
1982 02	20	07 05.74	+17 08.4	2.027	2.814	-1.06	+0.1	18.6
1982 03	02	07 03.34	+17 46.9					
1982 03	12	07 03.73	+18 20.1	2.226	2.788	-0.95	-0.1	18.9
1982 03	22	07 06.74	+18 47.1					
1982 04	01	07 12.17	+19 07.5	2.462	2.760	-0.85	-0.0	19.1

1953 GM Elements MPC 5601

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	07 51.28	+24 47.6	2.377	2.639	93.9	22.1	17.5
1981 11 02	07 58.90	+24 58.0					
1981 11 12	08 04.16	+25 16.6	2.135	2.657	111.1	20.3	17.2
1981 11 22	08 06.78	+25 44.7					
1981 12 02	08 06.45	+26 22.7	1.923	2.674	130.8	16.2	16.9
1981 12 12	08 03.06	+27 09.2					
1981 12 22	07 56.72	+28 00.9	1.778	2.691	153.0	9.5	16.6
1982 01 01	07 47.93	+28 52.5					
1982 01 11	07 37.62	+29 38.2	1.731	2.708	171.9	2.9	16.3
1982 01 21	07 27.03	+30 13.0					
1982 01 31	07 17.49	+30 34.4	1.799	2.724	155.1	8.8	16.6
1982 02 10	07 10.09	+30 42.5					
1982 02 20	07 05.50	+30 39.7	1.968	2.740	133.1	15.3	17.0
1982 03 02	07 03.99	+30 28.3					
1982 03 12	07 05.49	+30 10.7	2.205	2.755	113.4	19.3	17.4
1982 03 22	07 09.71	+29 48.2					
1982 04 01	07 16.32	+29 21.5	2.478	2.769	96.1	21.0	17.7

1980 PZ Elements MPC 5638

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 10 23	08 02.68	+28 41.2	2.531	2.754	-0.82	+4.5	19.7
1981 11 02	08 09.17	+28 33.9					
1981 11 12	08 13.19	+28 33.0	2.287	2.781	-0.91	+5.2	19.5
1981 11 22	08 14.45	+28 38.9					
1981 12 02	08 12.68	+28 51.2	2.070	2.805	-1.04	+5.8	19.2
1981 12 12	08 07.80	+29 08.0					
1981 12 22	07 59.99	+29 25.7	1.919	2.827	-1.18	+5.9	18.9
1982 01 01	07 49.77	+29 39.7					
1982 01 11	07 38.17	+29 45.6	1.870	2.846	-1.26	+5.2	18.6
1982 01 21	07 26.42	+29 40.5					
1982 01 31	07 15.82	+29 23.9	1.939	2.863	-1.22	+4.2	18.9
1982 02 10	07 07.43	+28 57.7					
1982 02 20	07 01.83	+28 24.9	2.113	2.878	-1.09	+3.4	19.3
1982 03 02	06 59.25	+27 48.3					
1982 03 12	06 59.59	+27 09.9	2.359	2.890	-0.94	+3.0	19.6
1982 03 22	07 02.58	+26 30.6					
1982 04 01	07 07.88	+25 50.5	2.640	2.899	-0.81	+2.9	19.9

1979 KC Elements MPC 5682

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	08 06.18	+13 14.6	2.872	3.010	88.2	19.3	19.6
1981 11 02	08 12.26	+12 58.8					
1981 11 12	08 16.45	+12 49.6	2.588	3.009	105.6	18.5	19.4
1981 11 22	08 18.53	+12 49.3					
1981 12 02	08 18.28	+12 59.9	2.327	3.006	125.2	15.5	19.1
1981 12 12	08 15.57	+13 22.8					
1981 12 22	08 10.46	+13 58.7	2.124	3.000	147.4	10.2	18.8
1982 01 01	08 03.21	+14 46.5					
1982 01 11	07 54.43	+15 43.8	2.018	2.993	170.9	3.0	18.4
1982 01 21	07 44.95	+16 46.6					
1982 01 31	07 35.77	+17 50.3	2.031	2.984	162.1	5.8	18.5
1982 02 10	07 27.86	+18 51.1					
1982 02 20	07 21.97	+19 46.0	2.158	2.973	138.6	12.7	18.8
1982 03 02	07 18.55	+20 33.5					
1982 03 12	07 17.77	+21 12.9	2.368	2.960	117.4	17.3	19.1
1982 03 22	07 19.55	+21 44.3					
1982 04 01	07 23.73	+22 07.6	2.621	2.945	98.8	19.6	19.4

1979 PB Elements MPC 5682

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	08 13.38 +14 09.1	3.032	3.136	86.7	18.5	18.3
1981 11 02	08 19.36 +13 22.0					
1981 11 12	08 23.56 +12 37.8	2.720	3.109	103.8	18.0	18.1
1981 11 22	08 25.75 +11 58.2					
1981 12 02	08 25.70 +11 24.7	2.430	3.080	123.0	15.6	17.7
1981 12 12	08 23.28 +10 59.2					
1981 12 22	08 18.50 +10 43.0	2.196	3.049	144.3	10.9	17.4
1982 01 01	08 11.57 +10 36.9					
1982 01 11	08 03.00 +10 41.0	2.053	3.016	165.7	4.6	17.0
1982 01 21	07 53.55 +10 54.1					
1982 01 31	07 44.17 +11 14.3	2.026	2.981	162.6	5.7	17.0
1982 02 10	07 35.84 +11 39.1					
1982 02 20	07 29.34 +12 05.8	2.112	2.944	140.6	12.3	17.3
1982 03 02	07 25.18 +12 32.1					
1982 03 12	07 23.62 +12 56.0	2.283	2.905	119.6	17.3	17.5
1982 03 22	07 24.62 +13 15.9					
1982 04 01	07 28.07 +13 30.7	2.501	2.864	101.0	20.0	17.7

1975 VW3 Elements MPC 5687

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	08 08.78 +28 00.3	2.687	2.877	90.7	20.2	17.4
1981 11 02	08 16.83 +28 20.4					
1981 11 12	08 22.79 +28 49.2	2.437	2.895	107.7	19.0	17.2
1981 11 22	08 26.38 +29 27.8					
1981 12 02	08 27.31 +30 16.3	2.215	2.913	126.7	15.7	16.9
1981 12 12	08 25.40 +31 13.0					
1981 12 22	08 20.68 +32 14.5	2.055	2.932	147.5	10.4	16.6
1982 01 01	08 13.42 +33 15.3					
1982 01 11	08 04.31 +34 09.0	1.989	2.951	165.2	4.9	16.4
1982 01 21	07 54.36 +34 49.9					
1982 01 31	07 44.76 +35 14.4	2.038	2.970	157.0	7.4	16.6
1982 02 10	07 36.66 +35 22.0					
1982 02 20	07 30.85 +35 14.5	2.192	2.989	136.6	13.1	16.9
1982 03 02	07 27.80 +34 55.1					
1982 03 12	07 27.60 +34 27.0	2.424	3.008	117.0	17.1	17.2
1982 03 22	07 30.09 +33 52.6					
1982 04 01	07 34.99 +33 13.4	2.699	3.027	99.4	19.0	17.5

(2332) 1940 GH Elements MPC 5684

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	08 16.87 +30 01.9	3.126	3.271	89.4	17.7	17.0
1981 11 02	08 23.86 +30 30.7					
1981 11 12	08 28.96 +31 08.5	2.849	3.275	106.8	16.8	16.7
1981 11 22	08 31.91 +31 56.1					
1981 12 02	08 32.46 +32 53.1	2.602	3.278	125.9	14.1	16.5
1981 12 12	08 30.42 +33 57.5					
1981 12 22	08 25.80 +35 06.0	2.418	3.280	146.0	9.6	16.2
1982 01 01	08 18.79 +36 13.3					
1982 01 11	08 09.96 +37 13.1	2.332	3.282	162.1	5.3	16.0
1982 01 21	08 00.16 +37 59.8					
1982 01 31	07 50.44 +38 29.7	2.361	3.282	155.3	7.2	16.1
1982 02 10	07 41.89 +38 41.8					
1982 02 20	07 35.32 +38 37.7	2.499	3.282	136.0	12.1	16.3
1982 03 02	07 31.27 +38 20.3					
1982 03 12	07 29.94 +37 53.1	2.715	3.282	116.5	15.7	16.6
1982 03 22	07 31.25 +37 18.9					
1982 04 01	07 34.99 +36 39.6	2.976	3.280	98.7	17.5	16.9

1980 VP Elements MPC 5848

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	08 17.31	+21 35.1	3.156	3.266	87.4	17.7	18.0
1981 11 02	08 23.67	+21 41.0					
1981 11 12	08 28.25	+21 54.8	2.874	3.273	105.0	17.0	17.8
1981 11 22	08 30.82	+22 17.7					
1981 12 02	08 31.17	+22 50.5	2.616	3.279	124.7	14.3	17.5
1981 12 12	08 29.19	+23 32.9					
1981 12 22	08 24.89	+24 23.4	2.418	3.284	146.6	9.5	17.2
1982 01 01	08 18.48	+25 19.0					
1982 01 11	08 10.48	+26 15.4	2.317	3.288	169.1	3.2	16.9
1982 01 21	08 01.61	+27 08.0					
1982 01 31	07 52.78	+27 52.8	2.335	3.290	163.1	5.0	17.0
1982 02 10	07 44.93	+28 27.3					
1982 02 20	07 38.78	+28 50.9	2.468	3.292	140.5	11.0	17.3
1982 03 02	07 34.83	+29 04.1					
1982 03 12	07 33.32	+29 08.4	2.688	3.293	119.5	15.2	17.6
1982 03 22	07 34.23	+29 05.2					
1982 04 01	07 37.41	+28 55.6	2.956	3.293	100.7	17.3	17.8

(2395) 1977 FA Elements MPC 6057

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	08 16.88	+19 45.5	3.134	3.239	87.1	17.9	19.0
1981 11 02	08 23.28	+19 25.0					
1981 11 12	08 27.89	+19 09.9	2.843	3.235	104.5	17.2	18.8
1981 11 22	08 30.52	+19 01.4					
1981 12 02	08 30.96	+19 00.7	2.575	3.231	123.9	14.7	18.5
1981 12 12	08 29.10	+19 08.2					
1981 12 22	08 24.98	+19 23.5	2.365	3.226	145.7	9.9	18.2
1982 01 01	08 18.80	+19 45.2					
1982 01 11	08 11.07	+20 10.8	2.248	3.220	169.5	3.2	17.9
1982 01 21	08 02.51	+20 37.3					
1982 01 31	07 53.98	+21 01.8	2.249	3.214	166.1	4.2	17.9
1982 02 10	07 46.39	+21 22.2					
1982 02 20	07 40.45	+21 37.1	2.365	3.207	142.7	10.8	18.2
1982 03 02	07 36.65	+21 46.2					
1982 03 12	07 35.22	+21 49.6	2.568	3.200	121.4	15.4	18.5
1982 03 22	07 36.14	+21 47.5					
1982 04 01	07 39.29	+21 40.2	2.824	3.192	102.5	17.8	18.8

1977 QP4 Elements MPC 5522

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 10 23	08 18.32	+18 58.9	2.135	2.302	86.6	25.6	18.5
1981 11 02	08 27.93	+18 28.7					
1981 11 12	08 35.19	+18 05.4	1.919	2.342	102.5	24.4	18.3
1981 11 22	08 39.80	+17 51.6					
1981 12 02	08 41.40	+17 49.5	1.715	2.380	121.2	20.7	18.0
1981 12 12	08 39.75	+18 00.4					
1981 12 22	08 34.76	+18 24.3	1.555	2.416	143.2	14.1	17.7
1982 01 01	08 26.66	+18 59.2					
1982 01 11	08 16.20	+19 40.8	1.478	2.449	168.2	4.7	17.4
1982 01 21	08 04.53	+20 23.7					
1982 01 31	07 53.11	+21 02.4	1.512	2.480	165.9	5.6	17.5
1982 02 10	07 43.34	+21 33.5					
1982 02 20	07 36.23	+21 55.7	1.655	2.507	141.6	14.2	17.9
1982 03 02	07 32.28	+22 08.9					
1982 03 12	07 31.58	+22 14.1	1.878	2.531	120.5	19.8	18.3
1982 03 22	07 33.91	+22 12.0					
1982 04 01	07 38.91	+22 03.0	2.145	2.552	102.3	22.5	18.7

1977 QX Elements MPC 4927

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1981 11 12	08 19.20 +17 16.0	1.474	1.989	-1.86	+4.7	17.5
1981 11 22	08 27.57 +16 43.0					
1981 12 02	08 32.78 +16 20.7	1.278	1.993	-2.19	+6.1	17.1
1981 12 12	08 34.44 +16 12.4					
1981 12 22	08 32.32 +16 20.2	1.124	2.000	-2.60	+7.2	16.7
1982 01 01	08 26.50 +16 44.0					
1982 01 11	08 17.70 +17 20.9	1.040	2.011	-2.91	+7.3	16.2
1982 01 21	08 07.21 +18 05.1					
1982 01 31	07 56.80 +18 49.9	1.052	2.024	-2.87	+6.0	16.3
1982 02 10	07 48.25 +19 29.4					
1982 02 20	07 42.79 +20 00.2	1.159	2.041	-2.52	+4.6	16.8
1982 03 02	07 41.06 +20 20.7					
1982 03 12	07 43.09 +20 30.8	1.338	2.059	-2.10	+3.8	17.2
1982 03 22	07 48.52 +20 30.5					
1982 04 01	07 56.89 +20 19.8	1.559	2.080	-1.75	+3.7	17.7
1982 04 11	08 07.67 +19 58.8					
1982 04 21	08 20.35 +19 27.6	1.800	2.102	-1.48	+3.9	18.0

1968 OG Elements MPC 6048

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	08 30.07 +10 25.1	2.891	3.240	101.7	17.4	18.8
1981 11 22	08 32.75 +09 47.4					
1981 12 02	08 33.38 +09 16.7	2.611	3.226	120.5	15.3	18.5
1981 12 12	08 31.84 +08 54.7					
1981 12 22	08 28.16 +08 43.1	2.383	3.210	141.3	11.1	18.2
1982 01 01	08 22.49 +08 42.8					
1982 01 11	08 15.28 +08 53.9	2.242	3.194	162.5	5.3	17.9
1982 01 21	08 07.17 +09 15.4					
1982 01 31	07 58.97 +09 45.2	2.214	3.177	165.1	4.6	17.8
1982 02 10	07 51.51 +10 20.2					
1982 02 20	07 45.53 +10 57.5	2.302	3.159	144.4	10.5	18.0
1982 03 02	07 41.53 +11 34.0					
1982 03 12	07 39.80 +12 07.5	2.481	3.141	123.6	15.3	18.3
1982 03 22	07 40.38 +12 36.3					
1982 04 01	07 43.17 +12 59.0	2.715	3.122	104.7	18.0	18.6
1982 04 11	07 48.00 +13 15.0					
1982 04 21	07 54.63 +13 23.6	2.972	3.103	87.9	18.9	18.8

(2345) 1974 OS Elements MPC 5835

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	08 41.16 +21 30.6	2.446	2.823	102.0	20.1	16.6
1981 11 22	08 45.44 +21 00.6					
1981 12 02	08 47.24 +20 37.3	2.198	2.830	120.6	17.4	16.3
1981 12 12	08 46.39 +20 21.3					
1981 12 22	08 42.85 +20 12.3	2.000	2.839	141.8	12.4	16.0
1982 01 01	08 36.77 +20 09.1					
1982 01 11	08 28.66 +20 09.2	1.885	2.848	165.4	5.0	15.6
1982 01 21	08 19.34 +20 10.1					
1982 01 31	08 09.85 +20 09.1	1.883	2.858	169.9	3.5	15.5
1982 02 10	08 01.28 +20 04.4					
1982 02 20	07 54.51 +19 55.3	1.994	2.869	146.2	11.1	15.9
1982 03 02	07 50.13 +19 41.8					
1982 03 12	07 48.39 +19 24.2	2.195	2.880	124.8	16.5	16.3
1982 03 22	07 49.25 +19 02.8					
1982 04 01	07 52.54 +18 37.4	2.452	2.892	106.1	19.4	16.6
1982 04 11	07 57.96 +18 07.9					
1982 04 21	08 05.20 +17 34.0	2.732	2.904	89.6	20.2	16.9

1980 LA Elements MPC 5977

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 11 12	09 04.37	+03 46.0	2.542	2.754	-0.59	+5.9	18.7
1981 11 22	09 07.44	+02 04.2					
1981 12 02	09 08.16	+00 26.7	2.314	2.798	-0.66	+6.2	18.5
1981 12 12	09 06.33	-01 03.6					
1981 12 22	09 01.88	-02 23.3	2.119	2.837	-0.76	+6.5	18.3
1982 01 01	08 54.89	-03 28.4					
1982 01 11	08 45.76	-04 15.2	1.996	2.873	-0.85	+6.9	18.0
1982 01 21	08 35.20	-04 41.0					
1982 01 31	08 24.15	-04 45.0	1.975	2.905	-0.88	+7.2	18.0
1982 02 10	08 13.69	-04 29.4					
1982 02 20	08 04.74	-03 58.3	2.067	2.934	-0.84	+7.1	18.2
1982 03 02	07 57.99	-03 17.2					
1982 03 12	07 53.79	-02 31.8	2.255	2.958	-0.75	+6.5	18.5
1982 03 22	07 52.20	-01 46.8					
1982 04 01	07 53.09	-01 05.9	2.504	2.979	-0.65	+5.8	18.8
1982 04 11	07 56.23	-00 31.6					
1982 04 21	08 01.31	-00 05.5	2.782	2.995	-0.57	+5.2	19.1

1980 PJ Elements MPC 6112

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	08 58.76	+20 45.9	2.344	2.666	97.9	21.6	20.0
1981 11 22	09 03.61	+20 34.7					
1981 12 02	09 05.91	+20 34.0	2.104	2.691	116.4	19.2	19.7
1981 12 12	09 05.40	+20 44.7					
1981 12 22	09 01.94	+21 06.3	1.904	2.713	137.6	14.1	19.4
1982 01 01	08 55.55	+21 37.1					
1982 01 11	08 46.64	+22 13.1	1.782	2.733	161.5	6.6	19.1
1982 01 21	08 35.99	+22 49.2					
1982 01 31	08 24.73	+23 20.3	1.770	2.749	171.6	3.0	18.9
1982 02 10	08 14.14	+23 42.4					
1982 02 20	08 05.34	+23 53.8	1.875	2.762	147.7	11.0	19.3
1982 03 02	07 59.09	+23 55.0					
1982 03 12	07 55.77	+23 47.0	2.073	2.772	125.6	16.9	19.7
1982 03 22	07 55.36	+23 31.5					
1982 04 01	07 57.68	+23 09.6	2.327	2.779	106.4	20.2	20.0
1982 04 11	08 02.40	+22 41.8					
1982 04 21	08 09.16	+22 08.7	2.603	2.783	89.6	21.2	20.3

(2319) 7631 P-L Elements MPC 5648

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	08 55.17	+17 19.8	2.590	2.894	97.7	19.8	18.0
1981 11 22	09 00.14	+17 06.6					
1981 12 02	09 02.90	+17 03.1	2.342	2.913	116.1	17.7	17.8
1981 12 12	09 03.24	+17 10.7					
1981 12 22	09 01.06	+17 29.6	2.135	2.932	137.0	13.2	17.5
1982 01 01	08 56.43	+17 59.0					
1982 01 11	08 49.68	+18 36.5	2.006	2.950	160.2	6.5	17.2
1982 01 21	08 41.43	+19 18.2					
1982 01 31	08 32.54	+19 59.8	1.985	2.968	175.0	1.7	16.9
1982 02 10	08 24.03	+20 37.0					
1982 02 20	08 16.82	+21 06.9	2.082	2.986	151.0	9.2	17.4
1982 03 02	08 11.61	+21 28.0					
1982 03 12	08 08.80	+21 39.9	2.276	3.003	129.0	14.9	17.7
1982 03 22	08 08.49	+21 43.2					
1982 04 01	08 10.58	+21 38.5	2.534	3.020	109.6	18.2	18.0
1982 04 11	08 14.86	+21 26.2					
1982 04 21	08 21.05	+21 06.9	2.822	3.036	92.5	19.3	18.3

(2306) 1939 PM Elements MPC 5644

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	08 56.88	+13 12.7	2.566	2.848	96.2	20.2	17.8
1981 11 22	09 01.77	+12 32.2					
1981 12 02	09 04.45	+11 59.7	2.308	2.857	114.2	18.3	17.5
1981 12 12	09 04.74	+11 37.0					
1981 12 22	09 02.52	+11 25.4	2.088	2.866	134.7	14.1	17.2
1982 01 01	08 57.83	+11 25.8					
1982 01 11	08 50.97	+11 37.9	1.941	2.874	157.3	7.6	16.9
1982 01 21	08 42.55	+11 59.9					
1982 01 31	08 33.43	+12 29.0	1.900	2.881	173.3	2.3	16.6
1982 02 10	08 24.62	+13 01.4					
1982 02 20	08 17.08	+13 33.6	1.975	2.887	152.2	9.2	17.0
1982 03 02	08 11.52	+14 02.5					
1982 03 12	08 08.40	+14 26.1	2.149	2.892	130.3	15.2	17.3
1982 03 22	08 07.82	+14 43.2					
1982 04 01	08 09.72	+14 52.8	2.387	2.897	110.8	18.8	17.6
1982 04 11	08 13.88	+14 54.8					
1982 04 21	08 20.02	+14 48.9	2.657	2.900	93.7	20.2	17.9

1980 RB Elements MPC 6198

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 09.22	+17 03.5	2.619	2.870	94.4	20.1	19.8
1981 11 22	09 13.62	+16 57.1					
1981 12 02	09 15.73	+17 01.9	2.379	2.911	113.1	18.1	19.6
1981 12 12	09 15.35	+17 18.9					
1981 12 22	09 12.35	+17 48.5	2.176	2.949	134.5	13.8	19.4
1982 01 01	09 06.75	+18 29.4					
1982 01 11	08 58.86	+19 18.5	2.048	2.984	158.3	7.0	19.1
1982 01 21	08 49.31	+20 11.5					
1982 01 31	08 38.98	+21 03.0	2.031	3.014	175.5	1.5	18.8
1982 02 10	08 28.95	+21 48.2					
1982 02 20	08 20.20	+22 24.1	2.136	3.041	151.4	9.0	19.3
1982 03 02	08 13.50	+22 49.2					
1982 03 12	08 09.28	+23 03.9	2.342	3.064	128.8	14.6	19.6
1982 03 22	08 07.65	+23 09.0					
1982 04 01	08 08.54	+23 05.7	2.613	3.084	108.8	17.9	19.9
1982 04 11	08 11.70	+22 54.9					
1982 04 21	08 16.85	+22 37.4	2.912	3.100	91.2	18.9	20.2

1980 OA Elements MPC 5516

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 11 12	08 59.18	+19 13.7	2.005	2.347	-1.15	+4.4	17.9
1981 11 22	09 06.64	+18 56.1					
1981 12 02	09 11.49	+18 50.0	1.775	2.362	-1.31	+5.4	17.6
1981 12 12	09 13.41	+18 57.3					
1981 12 22	09 12.13	+19 18.9	1.578	2.377	-1.53	+6.3	17.3
1982 01 01	09 07.52	+19 54.1					
1982 01 11	08 59.87	+20 39.3	1.449	2.391	-1.75	+6.7	16.9
1982 01 21	08 49.88	+21 28.8					
1982 01 31	08 38.75	+22 15.5	1.421	2.403	-1.84	+5.9	16.6
1982 02 10	08 27.98	+22 53.2					
1982 02 20	08 18.96	+23 18.4	1.503	2.415	-1.72	+4.6	17.1
1982 03 02	08 12.68	+23 30.1					
1982 03 12	08 09.66	+23 29.3	1.675	2.424	-1.49	+3.7	17.5
1982 03 22	08 09.90	+23 17.8					
1982 04 01	08 13.19	+22 56.8	1.904	2.433	-1.27	+3.3	17.9
1982 04 11	08 19.14	+22 27.5					
1982 04 21	08 27.31	+21 50.4	2.159	2.440	-1.09	+3.2	18.2

1980 RU — Elements MPC 5638

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981	11 12	09 14.21	+31 33.1	2.231	2.555	-0.96	+8.2	18.4
1981	11 22	09 20.97	+31 32.9					
1981	12 02	09 24.90	+31 43.2	2.013	2.585	-1.07	+9.6	18.1
1981	12 12	09 25.66	+32 03.5					
1981	12 22	09 23.02	+32 31.6	1.831	2.615	-1.24	+10.6	17.9
1982	01 01	09 16.90	+33 03.0					
1982	01 11	09 07.67	+33 30.7	1.720	2.644	-1.42	+10.6	17.6
1982	01 21	08 56.16	+33 47.3					
1982	01 31	08 43.67	+33 46.6	1.712	2.672	-1.50	+9.4	17.5
1982	02 10	08 31.72	+33 25.6					
1982	02 20	08 21.66	+32 45.8	1.815	2.699	-1.41	+7.7	17.8
1982	03 02	08 14.40	+31 51.0					
1982	03 12	08 10.34	+30 46.2	2.012	2.725	-1.22	+6.5	18.2
1982	03 22	08 09.43	+29 35.3					
1982	04 01	08 11.40	+28 21.1	2.270	2.750	-1.03	+5.8	18.5
1982	04 11	08 15.86	+27 05.1					
1982	04 21	08 22.39	+25 47.6	2.557	2.774	-0.87	+5.5	18.8

1980 SO — Elements MPC 5847

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	11 12	09 17.47	+31 52.7	2.498	2.795	96.9	20.6	17.2
1981	11 22	09 23.29	+32 04.0					
1981	12 02	09 26.49	+32 26.3	2.264	2.819	114.5	18.5	17.0
1981	12 12	09 26.78	+32 58.8					
1981	12 22	09 23.91	+33 39.3	2.067	2.842	134.2	14.4	16.7
1982	01 01	09 17.83	+34 23.1					
1982	01 11	09 08.84	+35 03.6	1.945	2.862	154.1	8.6	16.4
1982	01 21	08 57.65	+35 33.2					
1982	01 31	08 45.41	+35 45.7	1.927	2.880	161.8	6.1	16.3
1982	02 10	08 33.52	+35 37.4					
1982	02 20	08 23.26	+35 09.1	2.024	2.896	145.9	11.0	16.6
1982	03 02	08 15.54	+34 24.1					
1982	03 12	08 10.84	+33 26.9	2.215	2.910	125.8	16.1	16.9
1982	03 22	08 09.18	+32 22.0					
1982	04 01	08 10.36	+31 12.2	2.467	2.922	107.2	19.1	17.2
1982	04 11	08 14.05	+29 59.6					
1982	04 21	08 19.84	+28 45.0	2.747	2.932	90.4	20.0	17.5

1976 YQ2 — Elements MPC 5520

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	11 12	09 09.65	+16 20.4	2.331	2.597	94.1	22.3	17.9
1981	11 22	09 15.42	+15 31.0					
1981	12 02	09 18.74	+14 49.7	2.115	2.644	111.8	20.3	17.7
1981	12 12	09 19.40	+14 18.3					
1981	12 22	09 17.26	+13 57.7	1.930	2.691	132.2	15.7	17.4
1982	01 01	09 12.37	+13 48.1					
1982	01 11	09 05.05	+13 48.8	1.814	2.738	155.2	8.7	17.2
1982	01 21	08 55.97	+13 57.4					
1982	01 31	08 46.07	+14 11.0	1.800	2.784	176.3	1.3	16.8
1982	02 10	08 36.49	+14 26.0					
1982	02 20	08 28.22	+14 39.6	1.902	2.829	154.9	8.5	17.3
1982	03 02	08 22.05	+14 49.6					
1982	03 12	08 18.39	+14 54.6	2.106	2.873	132.6	14.8	17.7
1982	03 22	08 17.32	+14 54.0					
1982	04 01	08 18.75	+14 47.4	2.378	2.916	112.9	18.4	18.1
1982	04 11	08 22.41	+14 34.6					
1982	04 21	08 28.00	+14 15.4	2.685	2.958	95.7	19.8	18.5

(2416) 1979 OF13 Elements MPC 6192

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 02.64	+10 31.2	2.880	3.111	94.1	18.5	17.4
1981 11 22	09 07.63	+10 08.9					
1981 12 02	09 10.72	+09 55.8	2.596	3.104	112.1	17.1	17.1
1981 12 12	09 11.73	+09 54.0					
1981 12 22	09 10.54	+10 05.1	2.348	3.097	132.3	13.6	16.8
1982 01 01	09 07.13	+10 30.2					
1982 01 11	09 01.72	+11 08.6	2.171	3.089	154.8	7.8	16.5
1982 01 21	08 54.72	+11 58.6					
1982 01 31	08 46.82	+12 56.7	2.098	3.081	175.2	1.5	16.1
1982 02 10	08 38.87	+13 58.1					
1982 02 20	08 31.74	+14 58.2	2.145	3.073	155.7	7.6	16.5
1982 03 02	08 26.16	+15 53.0					
1982 03 12	08 22.66	+16 39.7	2.296	3.064	133.3	13.7	16.8
1982 03 22	08 21.47	+17 16.9					
1982 04 01	08 22.63	+17 44.0	2.520	3.055	113.2	17.5	17.0
1982 04 11	08 26.02	+18 00.9					
1982 04 21	08 31.41	+18 08.0	2.780	3.046	95.6	19.2	17.3

1980 TN Elements MPC 6306

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 05.62	+18 57.6	2.557	2.834	95.8	20.3	18.3
1981 11 22	09 11.54	+18 45.9					
1981 12 02	09 15.27	+18 44.3	2.305	2.849	113.7	18.5	18.0
1981 12 12	09 16.58	+18 54.0					
1981 12 22	09 15.31	+19 15.5	2.090	2.864	134.2	14.3	17.7
1982 01 01	09 11.44	+19 47.7					
1982 01 11	09 05.22	+20 27.8	1.948	2.879	157.0	7.7	17.4
1982 01 21	08 57.19	+21 11.8					
1982 01 31	08 48.16	+21 54.4	1.910	2.893	175.7	1.5	17.0
1982 02 10	08 39.21	+22 30.8					
1982 02 20	08 31.34	+22 57.9	1.989	2.908	153.6	8.7	17.5
1982 03 02	08 25.36	+23 14.0					
1982 03 12	08 21.81	+23 19.3	2.167	2.922	131.5	14.8	17.8
1982 03 22	08 20.83	+23 14.6					
1982 04 01	08 22.37	+23 01.1	2.413	2.936	111.9	18.4	18.2
1982 04 11	08 26.24	+22 39.7					
1982 04 21	08 32.12	+22 11.2	2.691	2.949	94.7	19.9	18.5

(2334) 1962 HD Elements MPC 5684

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	08 59.10	+16 01.3	2.029	2.355	96.5	24.7	18.5
1981 11 22	09 07.32	+15 36.1					
1981 12 02	09 13.23	+15 21.9	1.769	2.341	113.2	22.8	18.1
1981 12 12	09 16.47	+15 21.3					
1981 12 22	09 16.72	+15 36.6	1.542	2.325	132.8	18.1	17.7
1982 01 01	09 13.75	+16 09.0					
1982 01 11	09 07.64	+16 57.0	1.378	2.309	155.7	10.1	17.2
1982 01 21	08 58.90	+17 56.5					
1982 01 31	08 48.53	+19 00.8	1.308	2.293	178.5	0.6	16.6
1982 02 10	08 37.98	+20 01.7					
1982 02 20	08 28.73	+20 52.9	1.347	2.276	153.8	11.1	17.2
1982 03 02	08 22.04	+21 30.5					
1982 03 12	08 18.62	+21 53.3	1.477	2.259	131.2	19.3	17.6
1982 03 22	08 18.68	+22 02.0					
1982 04 01	08 22.06	+21 57.5	1.666	2.242	112.1	24.4	17.9
1982 04 11	08 28.42	+21 40.9					
1982 04 21	08 37.30	+21 13.1	1.881	2.225	96.1	26.7	18.2

1979 MX2 Elements MPC 5899

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 11.83	+13 11.6	2.980	3.184	92.7	18.1	18.8
1981 11 22	09 16.01	+12 25.4					
1981 12 02	09 18.22	+11 45.8	2.716	3.203	110.9	16.7	18.6
1981 12 12	09 18.28	+11 14.4					
1981 12 22	09 16.12	+10 52.1	2.486	3.222	131.4	13.2	18.3
1982 01 01	09 11.77	+10 39.6					
1982 01 11	09 05.48	+10 36.9	2.328	3.239	153.7	7.7	18.1
1982 01 21	08 57.71	+10 42.9					
1982 01 31	08 49.15	+10 55.8	2.275	3.256	173.3	2.0	17.7
1982 02 10	08 40.64	+11 12.9					
1982 02 20	08 32.97	+11 31.4	2.343	3.271	156.1	7.0	18.1
1982 03 02	08 26.84	+11 49.1					
1982 03 12	08 22.68	+12 03.6	2.517	3.286	134.0	12.6	18.4
1982 03 22	08 20.71	+12 13.8					
1982 04 01	08 20.93	+12 18.5	2.766	3.300	113.9	16.1	18.7
1982 04 11	08 23.21	+12 17.3					
1982 04 21	08 27.36	+12 09.6	3.053	3.312	96.0	17.6	18.9

1980 OE Elements MPC 5651

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 13.51	+16 06.7	2.287	2.541	93.2	22.9	19.3
1981 11 22	09 19.88	+15 34.2					
1981 12 02	09 23.90	+15 11.5	2.035	2.556	110.7	21.2	19.1
1981 12 12	09 25.27	+15 00.6					
1981 12 22	09 23.73	+15 03.0	1.811	2.566	131.0	16.8	18.7
1982 01 01	09 19.15	+15 19.1					
1982 01 11	09 11.71	+15 47.4	1.652	2.574	154.4	9.5	18.4
1982 01 21	09 01.95	+16 24.5					
1982 01 31	08 50.83	+17 05.5	1.593	2.578	179.4	0.2	17.7
1982 02 10	08 39.64	+17 44.8					
1982 02 20	08 29.67	+18 17.9	1.651	2.580	154.6	9.4	18.4
1982 03 02	08 21.97	+18 42.1					
1982 03 12	08 17.17	+18 56.4	1.809	2.577	131.6	16.8	18.7
1982 03 22	08 15.44	+19 01.0					
1982 04 01	08 16.71	+18 56.3	2.030	2.572	111.6	21.2	19.1
1982 04 11	08 20.67	+18 43.0					
1982 04 21	08 26.95	+18 21.4	2.280	2.563	94.5	23.0	19.4

1977 FZ Elements MPC 5681

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 04.13	+16 43.9	2.631	2.899	95.5	19.9	17.4
1981 11 22	09 10.55	+16 21.2					
1981 12 02	09 14.96	+16 07.4	2.351	2.883	113.1	18.3	17.1
1981 12 12	09 17.15	+16 04.1					
1981 12 22	09 16.94	+16 12.4	2.107	2.869	132.9	14.5	16.7
1982 01 01	09 14.27	+16 32.3					
1982 01 11	09 09.29	+17 02.5	1.933	2.857	155.3	8.3	16.4
1982 01 21	09 02.45	+17 40.0					
1982 01 31	08 54.46	+18 20.7	1.861	2.846	179.0	0.4	15.8
1982 02 10	08 46.30	+18 59.8					
1982 02 20	08 38.95	+19 33.2	1.902	2.836	156.4	8.0	16.3
1982 03 02	08 33.29	+19 58.1					
1982 03 12	08 29.91	+20 13.3	2.045	2.829	134.2	14.6	16.6
1982 03 22	08 29.05	+20 18.4					
1982 04 01	08 30.75	+20 13.9	2.258	2.823	114.5	18.8	17.0
1982 04 11	08 34.82	+20 00.2					
1982 04 21	08 41.00	+19 37.9	2.507	2.818	97.4	20.7	17.2

1980 PF Elements MPC 5638

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 11 12	09 20.83	+18 32.4	2.298	2.537	-0.84	+6.3	19.4
1981 11 22	09 27.35	+17 50.3					
1981 12 02	09 31.46	+17 16.8	2.052	2.558	-0.94	+7.2	19.1
1981 12 12	09 32.87	+16 53.6					
1981 12 22	09 31.34	+16 41.4	1.833	2.576	-1.09	+8.1	18.8
1982 01 01	09 26.73	+16 40.5					
1982 01 11	09 19.20	+16 49.1	1.677	2.592	-1.25	+8.7	18.4
1982 01 21	09 09.29	+17 04.3					
1982 01 31	08 57.96	+17 21.7	1.620	2.605	-1.34	+8.5	17.8
1982 02 10	08 46.49	+17 36.9					
1982 02 20	08 36.17	+17 46.8	1.679	2.615	-1.29	+7.6	18.4
1982 03 02	08 28.06	+17 49.5					
1982 03 12	08 22.79	+17 44.6	1.841	2.622	-1.14	+6.5	18.8
1982 03 22	08 20.55	+17 32.4					
1982 04 01	08 21.24	+17 13.3	2.070	2.627	-0.98	+5.7	19.1
1982 04 11	08 24.60	+16 47.7					
1982 04 21	08 30.24	+16 15.7	2.331	2.629	-0.84	+5.2	19.5

1971 FB Elements MPC 4636

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 11 12	08 33.88	-14 26.0	1.580	1.911	-1.93	-1.9	19.1
1981 11 22	08 45.97	-17 07.0					
1981 12 02	08 55.95	-19 41.5	1.393	1.878	-2.32	-3.2	18.8
1981 12 12	09 03.47	-22 02.9					
1981 12 22	09 08.19	-24 03.1	1.222	1.852	-2.82	-3.7	18.4
1982 01 01	09 09.81	-25 31.8					
1982 01 11	09 08.31	-26 16.7	1.076	1.834	-3.36	-2.2	18.1
1982 01 21	09 04.04	-26 05.7					
1982 01 31	08 57.86	-24 48.0	0.972	1.824	-3.66	+1.1	17.7
1982 02 10	08 51.23	-22 19.9					
1982 02 20	08 45.69	-18 48.4	0.931	1.823	-3.53	+3.3	17.6
1982 03 02	08 42.65	-14 31.4					
1982 03 12	08 42.99	-09 54.5	0.971	1.830	-3.10	+2.1	17.7
1982 03 22	08 46.95	-05 23.2					
1982 04 01	08 54.39	-01 16.8	1.090	1.845	-2.63	-0.6	18.1
1982 04 11	09 04.86	+02 13.2					
1982 04 21	09 17.81	+05 02.6	1.271	1.868	-2.24	-2.4	18.6

(2442) 1980 TO Elements MPC 6289

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 13.33	+10 29.3	2.452	2.668	91.5	21.8	18.6
1981 11 22	09 19.79	+09 43.2					
1981 12 02	09 24.16	+09 05.4	2.182	2.667	108.7	20.5	18.3
1981 12 12	09 26.18	+08 38.5					
1981 12 22	09 25.62	+08 24.6	1.940	2.663	128.3	16.9	18.0
1982 01 01	09 22.35	+08 26.0					
1982 01 11	09 16.49	+08 43.4	1.757	2.658	150.5	10.5	17.6
1982 01 21	09 08.44	+09 16.0					
1982 01 31	08 58.98	+10 01.0	1.671	2.650	172.1	2.9	17.2
1982 02 10	08 49.17	+10 53.6					
1982 02 20	08 40.16	+11 48.4	1.699	2.641	157.9	8.1	17.4
1982 03 02	08 32.97	+12 40.0					
1982 03 12	08 28.28	+13 24.7	1.830	2.630	135.2	15.4	17.8
1982 03 22	08 26.40	+14 00.0					
1982 04 01	08 27.35	+14 24.9	2.032	2.617	115.0	20.2	18.1
1982 04 11	08 30.93	+14 38.8					
1982 04 21	08 36.84	+14 41.9	2.270	2.602	97.7	22.5	18.4

1979 KL Elements MPC 5846

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 09.91 +09 44.1	2.250	2.491	92.1	23.4	17.8
1981 11 22	09 17.83 +09 11.0					
1981 12 02	09 23.60 +08 48.8	2.019	2.515	108.7	21.8	17.5
1981 12 12	09 26.94 +08 40.7					
1981 12 22	09 27.66 +08 49.1	1.814	2.540	127.9	17.8	17.2
1982 01 01	09 25.65 +09 15.9					
1982 01 11	09 21.05 +10 01.3	1.667	2.567	150.1	11.0	16.9
1982 01 21	09 14.29 +11 02.9					
1982 01 31	09 06.14 +12 16.1	1.613	2.594	173.5	2.5	16.5
1982 02 10	08 57.67 +13 33.9					
1982 02 20	08 49.98 +14 49.3	1.672	2.623	160.1	7.4	16.9
1982 03 02	08 44.03 +15 56.5					
1982 03 12	08 40.47 +16 51.7	1.834	2.652	137.4	14.7	17.3
1982 03 22	08 39.55 +17 33.2					
1982 04 01	08 41.26 +18 00.8	2.070	2.682	117.5	19.3	17.7
1982 04 11	08 45.42 +18 15.0					
1982 04 21	08 51.70 +18 16.9	2.348	2.712	100.2	21.4	18.0

1980 PM Elements MPC 5638

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1981 11 12	09 17.40 +08 36.1	2.320	2.523	-0.94	-0.2	18.2
1981 11 22	09 24.82 +08 13.8					
1981 12 02	09 30.08 +08 04.0	2.096	2.563	-1.04	+0.0	17.9
1981 12 12	09 32.92 +08 09.5					
1981 12 22	09 33.15 +08 32.8	1.893	2.602	-1.18	+0.4	17.7
1982 01 01	09 30.66 +09 15.5					
1982 01 11	09 25.58 +10 17.3	1.748	2.641	-1.33	+0.7	17.4
1982 01 21	09 18.34 +11 35.4					
1982 01 31	09 09.69 +13 04.1	1.698	2.680	-1.42	+0.8	17.0
1982 02 10	09 00.67 +14 36.0					
1982 02 20	08 52.37 +16 03.4	1.765	2.717	-1.39	+0.5	17.4
1982 03 02	08 45.75 +17 20.4					
1982 03 12	08 41.46 +18 23.4	1.939	2.753	-1.25	+0.2	17.8
1982 03 22	08 39.78 +19 11.2					
1982 04 01	08 40.71 +19 44.1	2.189	2.788	-1.09	+0.0	18.2
1982 04 11	08 44.07 +20 03.0					
1982 04 21	08 49.58 +20 09.2	2.480	2.821	-0.95	+0.1	18.5

(2339) 2509 P-L Elements MPC 5686

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 27.80 +20 19.5	2.521	2.728	91.2	21.3	19.2
1981 11 22	09 34.35 +20 03.6					
1981 12 02	09 38.67 +19 58.4	2.283	2.763	108.8	19.7	19.0
1981 12 12	09 40.50 +20 05.3					
1981 12 22	09 39.63 +20 24.4	2.071	2.796	128.9	15.9	18.7
1982 01 01	09 35.95 +20 54.9					
1982 01 11	09 29.59 +21 33.6	1.924	2.827	151.5	9.6	18.4
1982 01 21	09 21.02 +22 16.1					
1982 01 31	09 11.00 +22 56.6	1.876	2.856	173.0	2.4	18.1
1982 02 10	09 00.65 +23 29.6					
1982 02 20	08 51.08 +23 51.4	1.946	2.883	157.3	7.6	18.4
1982 03 02	08 43.27 +24 00.5					
1982 03 12	08 37.86 +23 57.4	2.121	2.908	134.8	14.0	18.8
1982 03 22	08 35.11 +23 43.4					
1982 04 01	08 35.03 +23 20.4	2.370	2.931	114.6	18.1	19.1
1982 04 11	08 37.42 +22 49.7					
1982 04 21	08 41.96 +22 12.5	2.656	2.951	96.9	19.8	19.4

1980 VG Elements MPC 5677

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981	11 12	09 31.34	+17 43.3	2.850	3.010	-0.61	+4.7	19.1
1981	11 22	09 36.55	+17 11.0					
1981	12 02	09 39.69	+16 47.4	2.605	3.051	-0.66	+5.2	18.9
1981	12 12	09 40.57	+16 33.5					
1981	12 22	09 39.04	+16 29.7	2.386	3.090	-0.74	+5.7	18.7
1982	01 01	09 35.07	+16 35.8					
1982	01 11	09 28.82	+16 50.1	2.232	3.128	-0.83	+6.0	18.4
1982	01 21	09 20.73	+17 10.0					
1982	01 31	09 11.46	+17 32.0	2.180	3.163	-0.89	+5.9	18.0
1982	02 10	09 01.93	+17 52.4					
1982	02 20	08 53.05	+18 08.2	2.249	3.197	-0.88	+5.4	18.4
1982	03 02	08 45.62	+18 17.5					
1982	03 12	08 40.21	+18 19.4	2.429	3.228	-0.81	+4.8	18.8
1982	03 22	08 37.08	+18 14.0					
1982	04 01	08 36.27	+18 01.6	2.689	3.257	-0.72	+4.2	19.1
1982	04 11	08 37.67	+17 42.8					
1982	04 21	08 41.04	+17 18.0	2.991	3.285	-0.63	+3.8	19.4

1980 RY Elements MPC 5649

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	11 12	09 18.84	+06 48.6	2.207	2.405	89.1	24.3	17.9
1981	11 22	09 27.02	+05 41.0					
1981	12 02	09 32.98	+04 42.1	1.998	2.447	105.1	22.9	17.7
1981	12 12	09 36.47	+03 54.9					
1981	12 22	09 37.29	+03 22.4	1.808	2.490	123.5	19.2	17.4
1982	01 01	09 35.34	+03 07.5					
1982	01 11	09 30.75	+03 12.4	1.669	2.535	144.5	13.0	17.1
1982	01 21	09 23.94	+03 37.3					
1982	01 31	09 15.66	+04 20.4	1.615	2.581	165.4	5.5	16.9
1982	02 10	09 06.95	+05 17.1					
1982	02 20	08 58.90	+06 21.2	1.670	2.627	161.6	6.8	17.1
1982	03 02	08 52.47	+07 26.1					
1982	03 12	08 48.31	+08 26.0	1.830	2.673	140.6	13.6	17.5
1982	03 22	08 46.71	+09 17.2					
1982	04 01	08 47.68	+09 57.2	2.069	2.719	120.8	18.4	17.9
1982	04 11	08 51.04	+10 25.2					
1982	04 21	08 56.50	+10 41.1	2.355	2.765	103.3	20.7	18.2

1979 KA Elements MPC 5682

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	11 12	09 26.87	+11 29.2	2.906	3.048	88.7	18.9	17.7
1981	11 22	09 32.68	+11 07.2					
1981	12 02	09 36.64	+10 55.0	2.635	3.063	106.4	18.0	17.4
1981	12 12	09 38.55	+10 54.5					
1981	12 22	09 38.23	+11 07.1	2.389	3.076	126.4	14.9	17.2
1982	01 01	09 35.61	+11 33.7					
1982	01 11	09 30.78	+12 13.9	2.204	3.088	148.8	9.5	16.9
1982	01 21	09 24.06	+13 05.5					
1982	01 31	09 16.02	+14 04.9	2.117	3.098	173.0	2.2	16.5
1982	02 10	09 07.46	+15 06.9					
1982	02 20	08 59.28	+16 06.6	2.150	3.106	162.0	5.6	16.7
1982	03 02	08 52.32	+16 59.6					
1982	03 12	08 47.21	+17 43.0	2.295	3.112	138.8	12.1	17.0
1982	03 22	08 44.31	+18 15.5					
1982	04 01	08 43.76	+18 36.9	2.522	3.117	117.9	16.5	17.4
1982	04 11	08 45.49	+18 47.6					
1982	04 21	08 49.30	+18 48.2	2.793	3.121	99.5	18.5	17.6

1977 RX7 Elements MPC 5318

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 12.45	+09 59.4	1.750	2.034	91.6	29.1	17.4
1981 11 22	09 23.20	+08 49.8					
1981 12 02	09 31.51	+07 49.4	1.551	2.061	106.5	27.3	17.2
1981 12 12	09 37.02	+07 02.1					
1981 12 22	09 39.42	+06 31.6	1.369	2.088	124.4	22.9	16.8
1982 01 01	09 38.43	+06 21.6					
1982 01 11	09 34.07	+06 34.7	1.232	2.118	145.6	15.2	16.4
1982 01 21	09 26.72	+07 10.7					
1982 01 31	09 17.27	+08 06.6	1.174	2.148	168.5	5.2	16.1
1982 02 10	09 07.14	+09 15.4					
1982 02 20	08 57.84	+10 28.0	1.217	2.179	162.1	8.0	16.3
1982 03 02	08 50.68	+11 36.3					
1982 03 12	08 46.53	+12 34.0	1.358	2.211	139.7	16.9	16.8
1982 03 22	08 45.66	+13 17.9					
1982 04 01	08 47.99	+13 46.6	1.568	2.242	120.1	22.7	17.3
1982 04 11	08 53.18	+14 00.3					
1982 04 21	09 00.79	+13 59.7	1.818	2.273	103.4	25.5	17.7

1975 WO1 Elements MPC 6193

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 23.88	+24 55.4	2.371	2.625	93.5	22.1	16.5
1981 11 22	09 32.62	+25 19.5					
1981 12 02	09 39.12	+25 57.3	2.158	2.667	110.4	20.3	16.3
1981 12 12	09 43.10	+26 49.7					
1981 12 22	09 44.29	+27 56.1	1.978	2.711	129.3	16.3	16.0
1982 01 01	09 42.55	+29 13.7					
1982 01 11	09 37.96	+30 37.0	1.864	2.756	149.4	10.5	15.8
1982 01 21	09 30.90	+31 58.3					
1982 01 31	09 22.16	+33 09.2	1.846	2.803	163.0	5.9	15.7
1982 02 10	09 12.84	+34 02.2					
1982 02 20	09 04.15	+34 33.4	1.938	2.850	152.2	9.3	15.9
1982 03 02	08 57.12	+34 42.1					
1982 03 12	08 52.48	+34 30.9	2.128	2.899	133.0	14.5	16.3
1982 03 22	08 50.51	+34 03.4					
1982 04 01	08 51.21	+33 23.2	2.388	2.947	114.6	18.0	16.7
1982 04 11	08 54.38	+32 33.5					
1982 04 21	08 59.67	+31 36.5	2.687	2.995	97.9	19.4	17.0

1979 ML3 Elements MPC 6305

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 27.68	+11 31.3	2.570	2.730	88.5	21.2	19.2
1981 11 22	09 35.17	+10 40.5					
1981 12 02	09 40.79	+09 56.9	2.283	2.712	105.1	20.5	18.9
1981 12 12	09 44.28	+09 22.8					
1981 12 22	09 45.39	+09 00.3	2.018	2.694	124.0	17.6	18.6
1982 01 01	09 43.92	+08 51.3					
1982 01 11	09 39.85	+08 57.2	1.806	2.675	145.5	12.0	18.2
1982 01 21	09 33.39	+09 17.6					
1982 01 31	09 25.07	+09 50.7	1.682	2.655	168.7	4.2	17.8
1982 02 10	09 15.81	+10 32.4					
1982 02 20	09 06.70	+11 17.8	1.669	2.635	164.3	5.8	17.8
1982 03 02	08 58.83	+12 01.6					
1982 03 12	08 53.08	+12 39.3	1.764	2.614	141.3	13.8	18.1
1982 03 22	08 49.96	+13 08.2					
1982 04 01	08 49.64	+13 26.7	1.939	2.593	120.5	19.4	18.5
1982 04 11	08 52.06	+13 34.2					
1982 04 21	08 56.95	+13 30.5	2.157	2.572	102.7	22.4	18.7

(2314) 1977 VD Elements MPC 5646

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 11 12	09 23.62	+21 58.1	1.999	2.271	92.7	25.8	17.9
1981 11 22	09 34.22	+21 39.6					
1981 12 02	09 42.60	+21 32.5	1.753	2.266	108.4	24.4	17.6
1981 12 12	09 48.38	+21 39.2					
1981 12 22	09 51.17	+22 01.4	1.531	2.260	126.7	20.4	17.2
1982 01 01	09 50.59	+22 39.1					
1982 01 11	09 46.47	+23 29.8	1.361	2.255	147.8	13.5	16.7
1982 01 21	09 39.02	+24 27.7					
1982 01 31	09 28.94	+25 24.0	1.275	2.249	168.3	5.1	16.4
1982 02 10	09 17.58	+26 09.0					
1982 02 20	09 06.59	+26 35.6	1.294	2.244	158.5	9.3	16.5
1982 03 02	08 57.54	+26 40.8					
1982 03 12	08 51.55	+26 25.6	1.409	2.238	136.7	17.7	16.9
1982 03 22	08 49.09	+25 53.3					
1982 04 01	08 50.15	+25 07.3	1.590	2.233	117.4	23.4	17.3
1982 04 11	08 54.42	+24 10.5					
1982 04 21	09 01.42	+23 04.6	1.807	2.228	101.0	26.3	17.6

(2318) 6521 P-L Elements MPC 5647

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	09 50.68	+10 28.6	1.752	2.195	103.0	26.0	18.5
1981 12 12	09 56.56	+10 00.4					
1981 12 22	09 59.59	+09 48.6	1.553	2.225	121.0	22.3	18.2
1982 01 01	09 59.45	+09 55.9					
1982 01 11	09 56.05	+10 23.4	1.395	2.256	142.4	15.4	17.8
1982 01 21	09 49.60	+11 09.9					
1982 01 31	09 40.70	+12 11.1	1.315	2.286	166.9	5.6	17.5
1982 02 10	09 30.53	+13 19.8					
1982 02 20	09 20.46	+14 27.3	1.340	2.315	167.4	5.4	17.5
1982 03 02	09 11.87	+15 26.3					
1982 03 12	09 05.82	+16 11.9	1.469	2.343	143.5	14.6	18.0
1982 03 22	09 02.79	+16 42.0					
1982 04 01	09 02.91	+16 56.6	1.676	2.370	122.7	20.8	18.5
1982 04 11	09 05.95	+16 56.7					
1982 04 21	09 11.54	+16 43.5	1.928	2.396	105.1	23.9	18.9
1982 05 01	09 19.29	+16 18.2					
1982 05 11	09 28.81	+15 42.1	2.200	2.420	90.0	24.7	19.2

1980 UA Elements MPC 5677

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 12 02	09 53.74	+15 32.3	2.388	2.795	-0.90	+4.3	18.6
1981 12 12	09 57.70	+15 27.2					
1981 12 22	09 59.30	+15 35.2	2.152	2.812	-1.02	+5.0	18.3
1982 01 01	09 58.36	+15 56.7					
1982 01 11	09 54.88	+16 30.9	1.969	2.829	-1.15	+5.5	18.0
1982 01 21	09 49.05	+17 15.0					
1982 01 31	09 41.39	+18 04.5	1.875	2.846	-1.25	+5.6	17.7
1982 02 10	09 32.71	+18 53.7					
1982 02 20	09 24.02	+19 37.1	1.893	2.863	-1.26	+5.0	17.7
1982 03 02	09 16.31	+20 10.3					
1982 03 12	09 10.42	+20 31.1	2.023	2.879	-1.17	+4.3	18.1
1982 03 22	09 06.83	+20 39.0					
1982 04 01	09 05.74	+20 34.8	2.237	2.896	-1.04	+3.7	18.4
1982 04 11	09 07.11	+20 19.4					
1982 04 21	09 10.73	+19 54.3	2.501	2.912	-0.91	+3.3	18.8
1982 05 01	09 16.33	+19 20.4					
1982 05 11	09 23.61	+18 38.6	2.785	2.927	-0.80	+3.2	19.0

(2353) 1975 UD Elements MPC 5842

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	12 02	10 00.33	+17 52.6	2.732	3.111	103.3	18.0	18.1
1981	12 12	10 03.33	+17 52.0					
1981	12 22	10 04.14	+18 03.0	2.473	3.116	122.7	15.4	17.8
1982	01 01	10 02.60	+18 25.6					
1982	01 11	09 58.68	+18 58.2	2.268	3.120	144.3	10.6	17.5
1982	01 21	09 52.57	+19 38.1					
1982	01 31	09 44.71	+20 21.0	2.155	3.123	167.1	4.0	17.2
1982	02 10	09 35.83	+21 01.7					
1982	02 20	09 26.82	+21 35.3	2.158	3.124	165.3	4.6	17.2
1982	03 02	09 18.61	+21 58.6					
1982	03 12	09 12.01	+22 09.7	2.275	3.124	142.7	11.1	17.5
1982	03 22	09 07.50	+22 08.7					
1982	04 01	09 05.36	+21 56.4	2.479	3.122	121.7	15.8	17.8
1982	04 11	09 05.59	+21 34.3					
1982	04 21	09 08.03	+21 03.6	2.735	3.120	103.0	18.3	18.1
1982	05 01	09 12.45	+20 25.2					
1982	05 11	09 18.60	+19 40.2	3.010	3.115	86.5	18.9	18.3

(2363) Cebriones Elements MPC 5894

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	12 02	09 55.93	-19 55.6	5.113	5.211	90.2	10.9	17.4
1981	12 12	09 57.06	-20 49.7					
1981	12 22	09 56.94	-21 36.6	4.841	5.207	106.5	10.4	17.2
1982	01 01	09 55.55	-22 14.2					
1982	01 11	09 52.96	-22 40.1	4.602	5.202	122.9	9.1	17.1
1982	01 21	09 49.31	-22 52.5					
1982	01 31	09 44.83	-22 49.6	4.429	5.197	137.5	7.4	17.0
1982	02 10	09 39.85	-22 31.0					
1982	02 20	09 34.75	-21 57.1	4.346	5.192	145.6	6.2	16.9
1982	03 02	09 29.92	-21 09.4					
1982	03 12	09 25.73	-20 10.7	4.367	5.187	142.1	6.8	16.9
1982	03 22	09 22.48	-19 04.5					
1982	04 01	09 20.37	-17 54.2	4.488	5.182	129.6	8.5	17.0
1982	04 11	09 19.53	-16 43.5					
1982	04 21	09 19.98	-15 35.5	4.687	5.177	114.0	10.2	17.2
1982	05 01	09 21.71	-14 32.7					
1982	05 11	09 24.64	-13 36.8	4.936	5.172	97.9	11.2	17.3

(2313) 1976 TA Elements MPC 5646

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	12 02	10 11.32	+09 02.0	2.552	2.857	97.7	20.0	19.0
1981	12 12	10 15.12	+08 32.6					
1981	12 22	10 16.72	+08 15.2	2.297	2.874	116.5	17.8	18.7
1982	01 01	10 15.90	+08 11.5					
1982	01 11	10 12.61	+08 22.3	2.084	2.889	137.9	13.2	18.4
1982	01 21	10 06.94	+08 47.3					
1982	01 31	09 59.24	+09 24.7	1.951	2.902	161.5	6.2	18.1
1982	02 10	09 50.21	+10 10.7					
1982	02 20	09 40.76	+11 00.3	1.929	2.912	172.7	2.5	17.9
1982	03 02	09 31.86	+11 48.3					
1982	03 12	09 24.44	+12 30.1	2.024	2.920	148.8	10.2	18.3
1982	03 22	09 19.11	+13 02.7					
1982	04 01	09 16.20	+13 24.5	2.214	2.924	126.8	15.9	18.6
1982	04 11	09 15.78	+13 35.1					
1982	04 21	09 17.71	+13 34.7	2.463	2.926	107.5	19.1	18.9
1982	05 01	09 21.77	+13 23.8					
1982	05 11	09 27.67	+13 03.2	2.736	2.926	90.6	20.2	19.2

(2427) 1976 YQ7 Elements MPC 6200

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 07.79	+06 32.5	2.372	2.687	97.7	21.3	18.5
1981 12 12	10 12.33	+05 48.0					
1981 12 22	10 14.59	+05 15.6	2.145	2.722	115.8	19.0	18.3
1982 01 01	10 14.37	+04 57.4					
1982 01 11	10 11.63	+04 55.0	1.958	2.756	136.6	14.2	18.0
1982 01 21	10 06.50	+05 08.8					
1982 01 31	09 59.37	+05 37.8	1.846	2.790	159.5	7.1	17.7
1982 02 10	09 50.97	+06 19.0					
1982 02 20	09 42.23	+07 07.7	1.841	2.823	171.9	2.8	17.5
1982 03 02	09 34.12	+07 58.3					
1982 03 12	09 27.53	+08 45.6	1.950	2.856	150.2	9.9	18.0
1982 03 22	09 23.03	+09 25.6					
1982 04 01	09 20.90	+09 55.8	2.154	2.887	128.8	15.6	18.3
1982 04 11	09 21.20	+10 15.0					
1982 04 21	09 23.74	+10 22.9	2.419	2.918	109.8	18.9	18.7
1982 05 01	09 28.31	+10 19.8					
1982 05 11	09 34.62	+10 06.3	2.714	2.947	93.1	20.0	19.0

1980 VQ Elements MPC 5677

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 12 02	10 11.59	+24 49.2	2.658	3.036	-0.83	+3.0	18.8
1981 12 12	10 16.29	+25 30.5					
1981 12 22	10 18.75	+26 26.0	2.427	3.059	-0.92	+3.7	18.5
1982 01 01	10 18.74	+27 34.4					
1982 01 11	10 16.18	+28 52.4	2.252	3.081	-1.04	+4.1	18.3
1982 01 21	10 11.17	+30 14.6					
1982 01 31	10 04.06	+31 33.8	2.166	3.103	-1.14	+4.0	18.1
1982 02 10	09 55.56	+32 42.2					
1982 02 20	09 46.59	+33 33.5	2.190	3.125	-1.18	+3.3	18.1
1982 03 02	09 38.17	+34 03.9					
1982 03 12	09 31.21	+34 12.7	2.323	3.146	-1.11	+2.5	18.4
1982 03 22	09 26.34	+34 01.8					
1982 04 01	09 23.88	+33 34.3	2.539	3.166	-1.00	+1.9	18.7
1982 04 11	09 23.88	+32 53.5					
1982 04 21	09 26.17	+32 02.6	2.805	3.186	-0.87	+1.8	19.0
1982 05 01	09 30.51	+31 03.6					
1982 05 11	09 36.62	+29 58.4	3.092	3.204	-0.76	+1.9	19.2

(2357) Phereclos Elements MPC 5843

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 08.47	+09 35.3	4.995	5.234	98.6	10.7	17.3
1981 12 12	10 09.85	+09 26.1					
1981 12 22	10 09.99	+09 23.8	4.687	5.228	118.5	9.5	17.2
1982 01 01	10 08.88	+09 28.9					
1982 01 11	10 06.56	+09 41.1	4.432	5.222	139.7	7.0	17.0
1982 01 21	10 03.15	+09 59.7					
1982 01 31	09 58.87	+10 23.7	4.269	5.216	162.1	3.3	16.7
1982 02 10	09 54.00	+10 51.3					
1982 02 20	09 48.91	+11 20.6	4.224	5.209	174.7	1.0	16.5
1982 03 02	09 43.97	+11 49.4					
1982 03 12	09 39.56	+12 15.8	4.302	5.203	152.4	5.1	16.8
1982 03 22	09 35.97	+12 38.3					
1982 04 01	09 33.44	+12 55.6	4.486	5.196	131.0	8.3	17.0
1982 04 11	09 32.12	+13 07.1					
1982 04 21	09 32.05	+13 12.5	4.745	5.190	110.9	10.4	17.2
1982 05 01	09 33.22	+13 11.7					
1982 05 11	09 35.58	+13 04.7	5.043	5.184	92.4	11.2	17.3

(2374) 1974 QE1 Elements MPC 5978

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 27.88	+19 19.5	3.187	3.459	97.6	16.4	17.6
1981 12 12	10 30.59	+19 09.1					
1981 12 22	10 31.30	+19 08.5	2.932	3.489	116.8	14.6	17.4
1982 01 01	10 29.88	+19 17.5					
1982 01 11	10 26.30	+19 34.7	2.724	3.517	138.1	10.8	17.2
1982 01 21	10 20.68	+19 57.7					
1982 01 31	10 13.32	+20 23.0	2.601	3.544	160.4	5.3	16.9
1982 02 10	10 04.79	+20 46.5					
1982 02 20	09 55.80	+21 04.4	2.592	3.569	169.6	2.9	16.8
1982 03 02	09 47.14	+21 13.7					
1982 03 12	09 39.54	+21 12.8	2.706	3.593	148.8	8.2	17.1
1982 03 22	09 33.54	+21 01.6					
1982 04 01	09 29.47	+20 40.7	2.920	3.615	127.4	12.7	17.4
1982 04 11	09 27.46	+20 11.3					
1982 04 21	09 27.45	+19 34.7	3.200	3.635	107.8	15.3	17.7
1982 05 01	09 29.30	+18 51.9					
1982 05 11	09 32.79	+18 03.7	3.509	3.654	90.1	16.0	17.9

1980 XA Elements MPC 5795

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 17.03	+05 37.3	2.723	2.978	95.2	19.2	17.0
1981 12 12	10 21.45	+04 34.1					
1981 12 22	10 23.88	+03 39.1	2.454	2.981	113.1	17.7	16.7
1982 01 01	10 24.14	+02 54.4					
1982 01 11	10 22.12	+02 21.6	2.224	2.983	133.1	13.9	16.4
1982 01 21	10 17.89	+02 02.1					
1982 01 31	10 11.70	+01 56.5	2.066	2.987	154.8	8.1	16.1
1982 02 10	10 04.10	+02 04.1					
1982 02 20	09 55.82	+02 22.6	2.011	2.991	170.4	3.2	15.9
1982 03 02	09 47.76	+02 48.6					
1982 03 12	09 40.76	+03 17.7	2.071	2.995	153.8	8.4	16.2
1982 03 22	09 35.48	+03 45.8					
1982 04 01	09 32.34	+04 09.3	2.231	3.000	132.7	14.2	16.5
1982 04 11	09 31.50	+04 25.6					
1982 04 21	09 32.89	+04 33.3	2.459	3.006	113.6	17.8	16.8
1982 05 01	09 36.37	+04 31.5					
1982 05 11	09 41.70	+04 20.1	2.724	3.012	96.6	19.5	17.0

1979 MS8 Elements MPC 5794

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 20.69	+08 52.3	2.988	3.235	95.5	17.7	19.3
1981 12 12	10 24.36	+08 27.6					
1981 12 22	10 26.14	+08 13.8	2.721	3.253	114.4	16.0	19.1
1982 01 01	10 25.84	+08 12.0					
1982 01 11	10 23.43	+08 22.9	2.495	3.269	135.4	12.2	18.8
1982 01 21	10 18.97	+08 46.1					
1982 01 31	10 12.74	+09 20.0	2.347	3.284	158.5	6.3	18.6
1982 02 10	10 05.25	+10 01.5					
1982 02 20	09 57.17	+10 46.7	2.310	3.297	176.7	1.0	18.2
1982 03 02	09 49.30	+11 31.1					
1982 03 12	09 42.40	+12 10.6	2.393	3.309	153.1	7.8	18.7
1982 03 22	09 37.04	+12 42.4					
1982 04 01	09 33.61	+13 04.6	2.578	3.320	131.0	13.1	19.0
1982 04 11	09 32.28	+13 16.5					
1982 04 21	09 33.00	+13 18.3	2.832	3.328	111.1	16.4	19.2
1982 05 01	09 35.65	+13 10.3					
1982 05 11	09 40.03	+12 53.1	3.119	3.336	93.5	17.6	19.5

1980 VW Elements MPC 5900

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 17.20	+23 39.2	2.552	2.913	101.4	19.4	17.8
1981 12 12	10 22.87	+23 57.1					
1981 12 22	10 26.34	+24 28.4	2.297	2.910	119.4	17.1	17.5
1982 01 01	10 27.34	+25 12.8					
1982 01 11	10 25.72	+26 08.0	2.092	2.907	139.1	12.8	17.2
1982 01 21	10 21.50	+27 09.9					
1982 01 31	10 14.93	+28 12.2	1.968	2.905	158.1	7.3	16.9
1982 02 10	10 06.66	+29 07.3					
1982 02 20	09 57.59	+29 48.3	1.950	2.904	161.2	6.3	16.9
1982 03 02	09 48.81	+30 10.3					
1982 03 12	09 41.36	+30 11.7	2.041	2.903	143.8	11.7	17.1
1982 03 22	09 35.97	+29 53.4					
1982 04 01	09 33.07	+29 18.3	2.219	2.902	124.4	16.5	17.4
1982 04 11	09 32.77	+28 29.5					
1982 04 21	09 34.91	+27 29.9	2.452	2.902	106.5	19.4	17.7
1982 05 01	09 39.27	+26 21.8					
1982 05 11	09 45.53	+25 06.9	2.711	2.903	90.6	20.4	17.9

1980 PH Elements MPC 5516

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 12 02	10 25.79	+10 02.8	2.257	2.537	-0.82	+5.9	19.3
1981 12 12	10 31.24	+09 19.9					
1981 12 22	10 34.31	+08 49.5	2.038	2.583	-0.92	+6.6	19.1
1982 01 01	10 34.74	+08 33.4					
1982 01 11	10 32.40	+08 32.5	1.852	2.627	-1.05	+7.4	18.8
1982 01 21	10 27.33	+08 46.7					
1982 01 31	10 19.83	+09 14.1	1.735	2.669	-1.18	+8.0	18.5
1982 02 10	10 10.61	+09 51.0					
1982 02 20	10 00.64	+10 32.2	1.722	2.710	-1.23	+7.9	18.1
1982 03 02	09 51.04	+11 11.9					
1982 03 12	09 42.85	+11 45.4	1.824	2.748	-1.17	+7.1	18.7
1982 03 22	09 36.80	+12 09.4					
1982 04 01	09 33.28	+12 22.3	2.024	2.785	-1.04	+6.2	19.1
1982 04 11	09 32.37	+12 23.9					
1982 04 21	09 33.91	+12 14.6	2.288	2.819	-0.89	+5.4	19.5
1982 05 01	09 37.65	+11 55.0					
1982 05 11	09 43.28	+11 26.0	2.584	2.850	-0.77	+4.8	19.8

1976 YX Elements MPC 5681

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 33.25	+27 06.0	2.566	2.892	99.2	19.7	18.8
1981 12 12	10 39.22	+27 47.9					
1981 12 22	10 42.89	+28 45.3	2.339	2.918	116.8	17.5	18.6
1982 01 01	10 43.98	+29 57.1					
1982 01 11	10 42.28	+31 20.2	2.158	2.942	135.6	13.5	18.3
1982 01 21	10 37.73	+32 48.7					
1982 01 31	10 30.55	+34 14.8	2.057	2.965	152.3	8.9	18.1
1982 02 10	10 21.35	+35 29.2					
1982 02 20	10 11.08	+36 24.0	2.061	2.986	154.9	8.1	18.1
1982 03 02	10 00.89	+36 53.8					
1982 03 12	09 51.94	+36 57.4	2.171	3.004	140.4	12.2	18.4
1982 03 22	09 45.08	+36 37.0					
1982 04 01	09 40.80	+35 56.6	2.367	3.021	122.3	16.2	18.6
1982 04 11	09 39.23	+35 00.9					
1982 04 21	09 40.24	+33 53.8	2.617	3.036	105.0	18.6	18.9
1982 05 01	09 43.55	+32 38.4					
1982 05 11	09 48.86	+31 17.0	2.891	3.049	89.2	19.3	19.2

1980 OG — Elements MPC 5516

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 12 02	10 28.46	+09 35.2	2.189	2.462	-0.93	+3.9	18.7
1981 12 12	10 35.18	+09 11.2					
1981 12 22	10 39.64	+09 02.0	1.954	2.489	-1.05	+4.6	18.4
1982 01 01	10 41.52	+09 09.9					
1982 01 11	10 40.60	+09 36.4	1.748	2.514	-1.21	+5.5	18.1
1982 01 21	10 36.80	+10 21.2					
1982 01 31	10 30.28	+11 22.2	1.608	2.537	-1.37	+6.1	17.8
1982 02 10	10 21.63	+12 34.0					
1982 02 20	10 11.77	+13 48.9	1.568	2.557	-1.45	+6.0	17.3
1982 03 02	10 01.88	+14 58.9					
1982 03 12	09 53.19	+15 57.0	1.643	2.574	-1.39	+5.2	17.9
1982 03 22	09 46.59	+16 39.1					
1982 04 01	09 42.65	+17 03.9	1.814	2.589	-1.23	+4.3	18.2
1982 04 11	09 41.54	+17 12.0					
1982 04 21	09 43.12	+17 04.8	2.049	2.601	-1.06	+3.6	18.6
1982 05 01	09 47.14	+16 44.3					
1982 05 11	09 53.26	+16 11.9	2.314	2.610	-0.91	+3.3	18.9

(2349) 1970 OG — Elements MPC 5839

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 26.85	+10 41.6	2.782	3.027	94.8	18.9	17.6
1981 12 12	10 32.10	+10 53.5					
1981 12 22	10 35.46	+11 20.5	2.513	3.041	113.4	17.3	17.3
1982 01 01	10 36.69	+12 04.2					
1982 01 11	10 35.69	+13 04.8	2.284	3.052	134.2	13.4	17.0
1982 01 21	10 32.42	+14 21.0					
1982 01 31	10 27.05	+15 49.1	2.132	3.063	157.0	7.2	16.7
1982 02 10	10 20.05	+17 23.4					
1982 02 20	10 12.09	+18 56.6	2.089	3.072	172.3	2.5	16.5
1982 03 02	10 04.03	+20 21.4					
1982 03 12	09 56.77	+21 32.0	2.167	3.080	152.0	8.7	16.8
1982 03 22	09 51.03	+22 25.2					
1982 04 01	09 47.32	+23 00.2	2.346	3.086	130.2	14.3	17.1
1982 04 11	09 45.89	+23 17.8					
1982 04 21	09 46.73	+23 20.0	2.590	3.091	110.6	17.7	17.4
1982 05 01	09 49.70	+23 08.7					
1982 05 11	09 54.59	+22 45.8	2.866	3.094	93.4	19.0	17.7

(1538) Detre — Elements MPC 6301

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 44.15	+13 04.0	2.486	2.702	91.7	21.4	20.2
1981 12 12	10 49.60	+12 26.9					
1981 12 22	10 52.86	+12 01.5	2.241	2.733	109.6	19.8	20.0
1982 01 01	10 53.65	+11 49.0					
1982 01 11	10 51.76	+11 49.8	2.023	2.761	130.1	15.8	19.7
1982 01 21	10 47.14	+12 03.3					
1982 01 31	10 39.94	+12 27.4	1.871	2.786	153.3	9.2	19.4
1982 02 10	10 30.69	+12 57.9					
1982 02 20	10 20.21	+13 30.0	1.821	2.808	176.8	1.1	18.9
1982 03 02	10 09.58	+13 58.1					
1982 03 12	09 59.91	+14 18.0	1.889	2.828	156.4	8.1	19.4
1982 03 22	09 52.08	+14 27.2					
1982 04 01	09 46.66	+14 24.8	2.062	2.844	133.5	14.8	19.8
1982 04 11	09 43.87	+14 11.0					
1982 04 21	09 43.64	+13 47.0	2.305	2.857	113.4	18.8	20.1
1982 05 01	09 45.78	+13 13.5					
1982 05 11	09 49.99	+12 31.6	2.582	2.867	95.9	20.5	20.4

(2317) 2524 P-L Elements MPC 5647

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 33.80	+05 11.5	2.348	2.565	91.1	22.6	18.9
1981 12 12	10 40.41	+04 26.1					
1981 12 22	10 44.89	+03 53.1	2.117	2.600	108.4	21.0	18.7
1982 01 01	10 46.99	+03 35.1					
1982 01 11	10 46.52	+03 34.1	1.910	2.634	128.2	17.1	18.4
1982 01 21	10 43.43	+03 51.2					
1982 01 31	10 37.86	+04 26.2	1.764	2.667	150.7	10.4	18.1
1982 02 10	10 30.30	+05 16.6					
1982 02 20	10 21.55	+06 17.8	1.713	2.699	174.3	2.1	17.7
1982 03 02	10 12.60	+07 23.1					
1982 03 12	10 04.52	+08 25.8	1.777	2.729	159.3	7.4	18.1
1982 03 22	09 58.15	+09 20.1					
1982 04 01	09 54.04	+10 02.3	1.944	2.757	136.6	14.4	18.5
1982 04 11	09 52.44	+10 30.6					
1982 04 21	09 53.29	+10 44.7	2.184	2.784	116.6	18.8	18.9
1982 05 01	09 56.41	+10 45.3					
1982 05 11	10 01.54	+10 33.3	2.464	2.809	99.2	20.8	19.2

1961 RA Elements MPC 5599

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 35.21	-05 26.5	2.561	2.693	86.9	21.4	18.7
1981 12 12	10 41.25	-06 33.6					
1981 12 22	10 45.32	-07 30.1	2.319	2.722	103.5	20.6	18.5
1982 01 01	10 47.18	-08 13.0					
1982 01 11	10 46.65	-08 38.8	2.095	2.748	122.2	17.6	18.2
1982 01 21	10 43.67	-08 44.4					
1982 01 31	10 38.37	-08 26.7	1.923	2.773	142.8	12.4	17.9
1982 02 10	10 31.16	-07 44.6					
1982 02 20	10 22.74	-06 39.7	1.838	2.794	161.8	6.3	17.7
1982 03 02	10 14.03	-05 16.4					
1982 03 12	10 06.02	-03 42.3	1.864	2.814	158.8	7.3	17.8
1982 03 22	09 59.53	-02 05.5					
1982 04 01	09 55.15	-00 33.9	1.999	2.830	139.0	13.4	18.1
1982 04 11	09 53.18	+00 46.9					
1982 04 21	09 53.60	+01 53.4	2.215	2.845	119.2	18.0	18.4
1982 05 01	09 56.30	+02 44.2					
1982 05 11	10 01.03	+03 19.0	2.478	2.856	101.5	20.3	18.7

4081 P-L Elements MPC 5980

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 02	10 34.86	+01 31.4	2.238	2.438	89.5	23.9	20.1
1981 12 12	10 42.05	+00 30.4					
1981 12 22	10 47.14	-00 18.9	1.999	2.461	106.2	22.6	19.9
1982 01 01	10 49.81	-00 53.5					
1982 01 11	10 49.83	-01 10.2	1.780	2.482	125.3	18.9	19.6
1982 01 21	10 47.06	-01 06.6					
1982 01 31	10 41.58	-00 40.6	1.615	2.501	147.2	12.3	19.2
1982 02 10	10 33.83	+00 07.1					
1982 02 20	10 24.58	+01 13.1	1.539	2.517	169.4	4.2	18.9
1982 03 02	10 14.94	+02 31.0					
1982 03 12	10 06.10	+03 52.3	1.574	2.531	160.2	7.7	19.1
1982 03 22	09 59.05	+05 09.0					
1982 04 01	09 54.48	+06 14.7	1.713	2.543	137.7	15.3	19.4
1982 04 11	09 52.67	+07 05.7					
1982 04 21	09 53.58	+07 40.5	1.925	2.551	117.7	20.4	19.8
1982 05 01	09 57.01	+07 59.1					
1982 05 11	10 02.67	+08 02.3	2.176	2.558	100.3	22.9	20.2

1977 UP Elements MPC 5520

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	12 02	10 44.73	+10 44.8	2.156	2.381	90.7	24.5	20.1
1981	12 12	10 52.47	+10 00.4					
1981	12 22	10 58.00	+09 28.7	1.919	2.406	107.5	23.0	19.8
1982	01 01	11 00.97	+09 11.8					
1982	01 11	11 01.10	+09 11.4	1.705	2.428	127.0	18.9	19.5
1982	01 21	10 58.18	+09 27.9					
1982	01 31	10 52.25	+10 00.1	1.545	2.447	149.7	11.7	19.2
1982	02 10	10 43.70	+10 44.4					
1982	02 20	10 33.37	+11 34.6	1.478	2.464	174.4	2.2	18.7
1982	03 02	10 22.44	+12 23.7					
1982	03 12	10 12.28	+13 04.4	1.522	2.478	159.6	8.0	19.1
1982	03 22	10 04.00	+13 32.4					
1982	04 01	09 58.36	+13 45.2	1.668	2.489	136.4	16.1	19.5
1982	04 11	09 55.68	+13 42.9					
1982	04 21	09 55.91	+13 26.6	1.884	2.498	116.3	21.1	19.8
1982	05 01	09 58.80	+12 57.5					
1982	05 11	10 04.02	+12 17.1	2.135	2.503	99.2	23.5	20.2

1962 RE Elements MPC 6048

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	12 02	10 49.11	+06 47.5	4.339	4.419	88.2	12.9	18.7
1981	12 12	10 52.43	+06 28.7					
1981	12 22	10 54.43	+06 18.2	4.023	4.414	107.1	12.3	18.5
1982	01 01	10 55.00	+06 16.6					
1982	01 11	10 54.09	+06 24.5	3.738	4.408	127.6	10.2	18.3
1982	01 21	10 51.71	+06 41.7					
1982	01 31	10 47.97	+07 07.5	3.522	4.401	149.7	6.5	18.1
1982	02 10	10 43.11	+07 40.3					
1982	02 20	10 37.46	+08 17.8	3.410	4.393	172.7	1.6	17.7
1982	03 02	10 31.48	+08 57.2					
1982	03 12	10 25.64	+09 35.3	3.421	4.384	164.0	3.6	17.9
1982	03 22	10 20.41	+10 09.6					
1982	04 01	10 16.19	+10 37.7	3.548	4.375	141.6	8.2	18.1
1982	04 11	10 13.24	+10 58.2					
1982	04 21	10 11.73	+11 10.4	3.766	4.366	120.8	11.4	18.3
1982	05 01	10 11.71	+11 14.1					
1982	05 11	10 13.14	+11 09.3	4.037	4.355	101.7	13.1	18.5

(2351) 1964 VD Elements MPC 5842

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981	12 02	10 55.44	+07 52.3	2.432	2.579	87.2	22.4	19.0
1981	12 12	11 02.74	+07 00.0					
1981	12 22	11 08.02	+06 19.0	2.200	2.618	104.0	21.4	18.8
1982	01 01	11 10.99	+05 51.3					
1982	01 11	11 11.44	+05 38.1	1.986	2.657	123.4	18.0	18.5
1982	01 21	11 09.23	+05 40.5					
1982	01 31	11 04.38	+05 58.1	1.823	2.693	145.5	12.0	18.2
1982	02 10	10 57.23	+06 29.0					
1982	02 20	10 48.42	+07 09.1	1.750	2.729	169.8	3.7	17.9
1982	03 02	10 38.86	+07 53.1					
1982	03 12	10 29.65	+08 35.1	1.790	2.762	165.3	5.2	18.1
1982	03 22	10 21.75	+09 09.9					
1982	04 01	10 15.88	+09 34.2	1.939	2.794	141.9	12.8	18.5
1982	04 11	10 12.42	+09 46.1					
1982	04 21	10 11.46	+09 45.4	2.170	2.824	121.2	17.7	18.8
1982	05 01	10 12.87	+09 32.7					
1982	05 11	10 16.41	+09 08.7	2.447	2.852	103.1	20.2	19.2

(2337) 1976 UH1 Elements MPC 5685

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 22.95	+23 15.8	1.944	2.417	106.7	22.9	16.4
1982 01 01	11 28.21	+23 42.4					
1982 01 11	11 30.51	+24 24.7	1.760	2.453	124.3	19.3	16.1
1982 01 21	11 29.60	+25 19.9					
1982 01 31	11 25.35	+26 22.7	1.629	2.490	143.4	13.7	15.9
1982 02 10	11 18.04	+27 24.4					
1982 02 20	11 08.34	+28 15.3	1.581	2.526	158.3	8.3	15.7
1982 03 02	10 57.39	+28 46.3					
1982 03 12	10 46.59	+28 51.5	1.637	2.563	153.2	10.1	15.8
1982 03 22	10 37.22	+28 30.0					
1982 04 01	10 30.20	+27 44.3	1.790	2.599	135.6	15.6	16.2
1982 04 11	10 26.02	+26 39.4					
1982 04 21	10 24.69	+25 20.1	2.016	2.635	117.5	19.8	16.6
1982 05 01	10 26.04	+23 50.6					
1982 05 11	10 29.71	+22 14.0	2.285	2.670	101.1	21.8	16.9
1982 05 21	10 35.34	+20 32.4					
1982 05 31	10 42.60	+18 47.1	2.573	2.704	86.3	22.0	17.2

4008 P-L Elements MPC 6106

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 21.63	+04 43.4	1.965	2.350	100.3	24.3	19.4
1982 01 01	11 26.55	+04 00.4					
1982 01 11	11 28.82	+03 32.7	1.751	2.383	118.5	21.3	19.1
1982 01 21	11 28.21	+03 21.9					
1982 01 31	11 24.56	+03 28.9	1.577	2.415	139.9	15.2	18.8
1982 02 10	11 18.03	+03 53.0					
1982 02 20	11 09.16	+04 31.1	1.480	2.445	164.0	6.4	18.4
1982 03 02	10 58.88	+05 17.9					
1982 03 12	10 48.45	+06 06.4	1.488	2.473	170.4	3.8	18.3
1982 03 22	10 39.10	+06 49.7					
1982 04 01	10 31.83	+07 22.5	1.605	2.499	146.3	12.8	18.8
1982 04 11	10 27.23	+07 41.6					
1982 04 21	10 25.46	+07 46.2	1.806	2.522	125.1	19.0	19.2
1982 05 01	10 26.43	+07 36.6					
1982 05 11	10 29.87	+07 13.7	2.058	2.543	106.9	22.3	19.6
1982 05 21	10 35.42	+06 39.0					
1982 05 31	10 42.78	+05 53.5	2.331	2.561	91.2	23.3	19.9

1977 VM1 Elements MPC 5217

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 12 22	11 21.14	+14 04.5	1.744	2.199	-1.18	+8.6	18.0
1982 01 01	11 27.30	+14 11.5					
1982 01 11	11 30.52	+14 37.8	1.559	2.241	-1.35	+10.3	17.7
1982 01 21	11 30.51	+15 23.1					
1982 01 31	11 27.07	+16 24.5	1.418	2.282	-1.58	+11.8	17.4
1982 02 10	11 20.41	+17 35.8					
1982 02 20	11 11.15	+18 47.7	1.356	2.322	-1.77	+12.0	17.1
1982 03 02	11 00.40	+19 49.9					
1982 03 12	10 49.62	+20 33.3	1.398	2.360	-1.77	+10.6	17.3
1982 03 22	10 40.18	+20 53.2					
1982 04 01	10 33.13	+20 49.1	1.541	2.397	-1.59	+8.7	17.7
1982 04 11	10 29.03	+20 23.4					
1982 04 21	10 27.93	+19 40.2	1.758	2.431	-1.34	+7.3	18.1
1982 05 01	10 29.64	+18 42.8					
1982 05 11	10 33.81	+17 34.3	2.018	2.464	-1.11	+6.4	18.5
1982 05 21	10 40.05	+16 17.2					
1982 05 31	10 48.00	+14 52.9	2.297	2.494	-0.94	+5.8	18.8

1980 WA Elements MPC 5788

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 12 22	11 20.87	-10 34.7	2.378	2.639	-0.86	+4.3	17.4
1982 01 01	11 25.50	-11 57.5					
1982 01 11	11 27.91	-13 08.2	2.150	2.669	-0.98	+4.5	17.2
1982 01 21	11 27.91	-14 03.5					
1982 01 31	11 25.40	-14 39.7	1.955	2.697	-1.11	+5.1	16.9
1982 02 10	11 20.48	-14 53.3					
1982 02 20	11 13.56	-14 42.1	1.826	2.725	-1.22	+5.9	16.6
1982 03 02	11 05.32	-14 05.8					
1982 03 12	10 56.72	-13 07.4	1.791	2.753	-1.24	+6.6	16.5
1982 03 22	10 48.74	-11 53.1					
1982 04 01	10 42.26	-10 31.1	1.865	2.779	-1.17	+6.6	16.7
1982 04 11	10 37.89	-09 09.6					
1982 04 21	10 35.91	-07 55.4	2.034	2.803	-1.04	+6.1	17.0
1982 05 01	10 36.35	-06 53.2					
1982 05 11	10 39.07	-06 05.5	2.269	2.827	-0.90	+5.2	17.4
1982 05 21	10 43.81	-05 33.2					
1982 05 31	10 50.32	-05 15.9	2.541	2.849	-0.80	+4.5	17.7

(2346) 1934 CB Elements MPC 5838

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 29.36	-03 50.5	2.452	2.722	95.1	21.1	18.1
1982 01 01	11 33.94	-04 45.7					
1982 01 11	11 36.38	-05 28.4	2.192	2.731	113.0	19.4	17.8
1982 01 21	11 36.47	-05 56.4					
1982 01 31	11 34.05	-06 07.1	1.966	2.737	133.3	15.2	17.5
1982 02 10	11 29.16	-05 58.7					
1982 02 20	11 22.12	-05 30.8	1.810	2.741	155.5	8.6	17.2
1982 03 02	11 13.53	-04 44.8					
1982 03 12	11 04.31	-03 45.1	1.757	2.743	170.8	3.3	16.9
1982 03 22	10 55.46	-02 38.0					
1982 04 01	10 47.95	-01 30.8	1.818	2.742	152.2	9.8	17.2
1982 04 11	10 42.48	-00 30.1					
1982 04 21	10 39.42	+00 19.4	1.975	2.738	130.7	16.2	17.5
1982 05 01	10 38.89	+00 55.1					
1982 05 11	10 40.78	+01 15.7	2.195	2.732	111.5	20.1	17.9
1982 05 21	10 44.84	+01 21.5					
1982 05 31	10 50.83	+01 13.4	2.445	2.724	94.8	21.8	18.1

1973 SD Elements MPC 4644

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 54.48	+11 20.6	1.912	2.230	95.4	26.0	20.0
1982 01 01	11 59.02	+10 08.0					
1982 01 11	12 00.62	+09 07.1	1.720	2.293	113.2	23.2	19.8
1982 01 21	11 58.96	+08 18.0					
1982 01 31	11 53.81	+07 40.3	1.558	2.355	134.5	17.4	19.5
1982 02 10	11 45.27	+07 12.5					
1982 02 20	11 33.86	+06 52.0	1.467	2.416	159.0	8.4	19.2
1982 03 02	11 20.58	+06 35.4					
1982 03 12	11 06.88	+06 18.7	1.484	2.475	174.7	2.1	19.0
1982 03 22	10 54.21	+05 58.9					
1982 04 01	10 43.77	+05 33.8	1.618	2.532	149.7	11.5	19.6
1982 04 11	10 36.25	+05 02.1					
1982 04 21	10 31.84	+04 23.7	1.846	2.586	127.7	17.9	20.1
1982 05 01	10 30.41	+03 38.5					
1982 05 11	10 31.65	+02 46.7	2.131	2.638	108.9	21.2	20.5
1982 05 21	10 35.16	+01 48.6					
1982 05 31	10 40.57	+00 44.6	2.443	2.686	92.6	22.1	20.9

(2347) 1936 TK Elements MPC 5838

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 35.96	-08 52.3	3.204	3.377	91.5	16.9	18.1
1982 01 01	11 38.79	-09 59.2					
1982 01 11	11 39.80	-10 56.9	2.950	3.410	109.7	15.7	17.9
1982 01 21	11 38.86	-11 43.4					
1982 01 31	11 35.94	-12 16.6	2.730	3.442	129.5	12.8	17.7
1982 02 10	11 31.15	-12 34.6					
1982 02 20	11 24.78	-12 36.3	2.581	3.472	149.8	8.2	17.4
1982 03 02	11 17.31	-12 21.6					
1982 03 12	11 09.39	-11 52.4	2.535	3.501	163.9	4.5	17.3
1982 03 22	11 01.73	-11 12.0					
1982 04 01	10 54.98	-10 24.9	2.605	3.528	153.6	7.2	17.5
1982 04 11	10 49.68	-09 36.3					
1982 04 21	10 46.13	-08 50.6	2.779	3.554	134.2	11.7	17.7
1982 05 01	10 44.49	-08 11.5					
1982 05 11	10 44.74	-07 41.2	3.029	3.578	115.2	14.8	18.0
1982 05 21	10 46.75	-07 21.1					
1982 05 31	10 50.37	-07 11.7	3.321	3.601	97.8	16.2	18.3

1979 QE Elements MPC 5683

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 30.41	-10 01.9	2.730	2.939	92.3	19.5	17.0
1982 01 01	11 34.91	-11 29.8					
1982 01 11	11 37.48	-12 48.9	2.468	2.944	109.4	18.4	16.7
1982 01 21	11 37.92	-13 56.7					
1982 01 31	11 36.09	-14 50.0	2.240	2.950	128.0	15.3	16.5
1982 02 10	11 32.06	-15 25.7					
1982 02 20	11 26.06	-15 41.4	2.077	2.957	147.2	10.4	16.2
1982 03 02	11 18.62	-15 35.5					
1982 03 12	11 10.50	-15 08.9	2.007	2.964	160.8	6.3	16.0
1982 03 22	11 02.58	-14 25.3					
1982 04 01	10 55.71	-13 30.2	2.046	2.971	153.0	8.8	16.1
1982 04 11	10 50.58	-12 30.6					
1982 04 21	10 47.56	-11 32.7	2.183	2.978	134.8	13.8	16.4
1982 05 01	10 46.82	-10 41.7					
1982 05 11	10 48.33	-10 01.3	2.393	2.986	116.7	17.6	16.7
1982 05 21	10 51.91	-09 33.1					
1982 05 31	10 57.35	-09 18.0	2.644	2.994	100.1	19.5	16.9

(2326) 1965 QC Elements MPC 5679

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 29.12	+02 05.0	2.561	2.861	97.5	19.9	16.8
1982 01 01	11 34.11	+02 08.8					
1982 01 11	11 37.07	+02 29.6	2.320	2.893	116.2	17.8	16.5
1982 01 21	11 37.83	+03 08.5					
1982 01 31	11 36.31	+04 06.0	2.122	2.924	137.4	13.2	16.3
1982 02 10	11 32.60	+05 20.2					
1982 02 20	11 27.02	+06 47.4	2.004	2.955	160.6	6.4	16.0
1982 03 02	11 20.12	+08 21.5					
1982 03 12	11 12.69	+09 54.8	1.996	2.985	173.0	2.3	15.8
1982 03 22	11 05.56	+11 20.0					
1982 04 01	10 59.51	+12 31.1	2.105	3.014	150.3	9.5	16.2
1982 04 11	10 55.15	+13 24.7					
1982 04 21	10 52.78	+13 59.9	2.310	3.042	128.8	14.9	16.6
1982 05 01	10 52.54	+14 17.1					
1982 05 11	10 54.34	+14 18.1	2.577	3.069	109.7	18.1	16.9
1982 05 21	10 58.01	+14 04.8					
1982 05 31	11 03.34	+13 39.2	2.873	3.094	92.9	19.1	17.2

(2422) 1968 HK1 Elements MPC 6198

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 07.65 +02 35.9	1.659	2.105	102.6	27.1	18.3
1982 01 01	11 17.15 +01 53.7					
1982 01 11	11 24.56 +01 29.1	1.402	2.063	118.7	24.7	17.9
1982 01 21	11 29.49 +01 26.1					
1982 01 31	11 31.54 +01 48.4	1.184	2.024	137.6	19.2	17.3
1982 02 10	11 30.50 +02 38.1					
1982 02 20	11 26.45 +03 54.3	1.030	1.987	159.8	9.9	16.8
1982 03 02	11 19.92 +05 31.4					
1982 03 12	11 12.06 +07 18.3	0.963	1.954	175.1	2.5	16.3
1982 03 22	11 04.34 +09 01.1					
1982 04 01	10 58.27 +10 26.8	0.990	1.926	151.1	14.5	16.7
1982 04 11	10 55.01 +11 26.5					
1982 04 21	10 55.09 +11 57.1	1.093	1.903	130.2	23.8	17.1
1982 05 01	10 58.59 +11 59.2					
1982 05 11	11 05.26 +11 35.2	1.242	1.886	113.3	29.5	17.5
1982 05 21	11 14.65 +10 48.8					
1982 05 31	11 26.33 +09 43.0	1.416	1.874	99.6	32.2	17.9

1980 TP Elements MPC 5677

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1981 12 22	11 41.49 +01 47.8	2.286	2.559	-0.82	+4.8	20.4
1982 01 01	11 47.31 +01 14.3					
1982 01 11	11 50.95 +00 55.3	2.028	2.569	-0.94	+5.6	20.1
1982 01 21	11 52.13 +00 52.9					
1982 01 31	11 50.62 +01 08.7	1.801	2.576	-1.10	+6.5	19.7
1982 02 10	11 46.35 +01 43.0					
1982 02 20	11 39.52 +02 34.3	1.642	2.579	-1.24	+7.4	19.3
1982 03 02	11 30.67 +03 38.4					
1982 03 12	11 20.74 +04 48.8	1.585	2.578	-1.30	+7.6	18.8
1982 03 22	11 10.86 +05 57.5					
1982 04 01	11 02.15 +06 57.1	1.641	2.574	-1.24	+6.9	19.4
1982 04 11	10 55.50 +07 42.2					
1982 04 21	10 51.42 +08 10.3	1.794	2.567	-1.09	+6.0	19.7
1982 05 01	10 50.07 +08 20.7					
1982 05 11	10 51.37 +08 14.4	2.007	2.556	-0.94	+5.1	20.0
1982 05 21	10 55.05 +07 53.1					
1982 05 31	11 00.83 +07 18.2	2.249	2.542	-0.83	+4.6	20.3

1980 RJ Elements MPC 5638

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1981 12 22	11 43.06 +05 28.1	1.944	2.263	-0.96	+9.0	18.6
1982 01 01	11 49.89 +04 34.8					
1982 01 11	11 54.21 +03 55.7	1.728	2.296	-1.10	+10.3	18.3
1982 01 21	11 55.70 +03 32.1					
1982 01 31	11 54.07 +03 25.3	1.542	2.328	-1.29	+11.8	18.0
1982 02 10	11 49.28 +03 34.9					
1982 02 20	11 41.60 +03 59.0	1.419	2.358	-1.48	+12.9	17.6
1982 03 02	11 31.70 +04 33.2					
1982 03 12	11 20.77 +05 11.1	1.394	2.387	-1.55	+13.0	17.1
1982 03 22	11 10.14 +05 45.9					
1982 04 01	11 01.05 +06 11.6	1.478	2.414	-1.45	+11.9	17.8
1982 04 11	10 54.43 +06 24.2					
1982 04 21	10 50.67 +06 22.5	1.654	2.439	-1.25	+10.3	18.2
1982 05 01	10 49.84 +06 06.4					
1982 05 11	10 51.73 +05 36.8	1.890	2.461	-1.05	+8.8	18.7
1982 05 21	10 55.99 +04 55.3					
1982 05 31	11 02.31 +04 03.1	2.156	2.482	-0.90	+7.7	19.0

1981 AE1 Elements MPC 6099

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1981 12 22	11 39.45 +16 12.4	5.013	5.282	-0.35	+0.1	17.9
1982 01 01	11 41.59 +16 49.3					
1982 01 11	11 42.50 +17 35.1	4.727	5.289	-0.37	+0.1	17.7
1982 01 21	11 42.16 +18 28.7					
1982 01 31	11 40.56 +19 28.4	4.503	5.295	-0.39	+0.2	17.5
1982 02 10	11 37.81 +20 31.6					
1982 02 20	11 34.07 +21 35.2	4.374	5.301	-0.41	+0.1	17.4
1982 03 02	11 29.62 +22 35.8					
1982 03 12	11 24.79 +23 30.2	4.362	5.307	-0.42	+0.1	17.3
1982 03 22	11 19.96 +24 15.5					
1982 04 01	11 15.49 +24 50.0	4.466	5.313	-0.42	-0.0	17.5
1982 04 11	11 11.73 +25 12.7					
1982 04 21	11 08.92 +25 23.8	4.669	5.319	-0.40	-0.1	17.7
1982 05 01	11 07.22 +25 23.7					
1982 05 11	11 06.73 +25 13.7	4.937	5.325	-0.37	-0.2	17.8
1982 05 21	11 07.45 +24 55.1					
1982 05 31	11 09.35 +24 29.1	5.236	5.330	-0.35	-0.1	18.0

1979 KM Elements MPC 4823

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1981 12 22	11 19.91 +03 14.5	1.781	2.180	-1.42	+6.0	20.6
1982 01 01	11 29.35 +02 39.5					
1982 01 11	11 36.83 +02 21.7	1.507	2.133	-1.73	+7.6	20.1
1982 01 21	11 41.97 +02 24.7					
1982 01 31	11 44.33 +02 52.1	1.268	2.085	-2.12	+9.7	19.6
1982 02 10	11 43.65 +03 45.8					
1982 02 20	11 39.85 +05 05.1	1.091	2.038	-2.53	+11.5	19.0
1982 03 02	11 33.30 +06 44.9					
1982 03 12	11 24.94 +08 34.7	1.001	1.993	-2.75	+11.7	18.4
1982 03 22	11 16.16 +10 20.6					
1982 04 01	11 08.55 +11 49.1	1.009	1.950	-2.63	+9.7	18.8
1982 04 11	11 03.45 +12 50.9					
1982 04 21	11 01.64 +13 22.3	1.095	1.911	-2.30	+7.5	19.1
1982 05 01	11 03.38 +13 23.8					
1982 05 11	11 08.51 +12 58.1	1.229	1.875	-1.96	+6.2	19.5
1982 05 21	11 16.64 +12 08.9					
1982 05 31	11 27.36 +10 59.6	1.385	1.844	-1.71	+5.8	19.8

(2342) Lebedev Elements MPC 5791

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 45.78 +01 19.7	3.211	3.414	93.4	16.7	18.1
1982 01 01	11 49.63 +00 54.6					
1982 01 11	11 51.76 +00 40.8	2.943	3.437	112.2	15.4	17.9
1982 01 21	11 52.02 +00 39.0					
1982 01 31	11 50.35 +00 49.9	2.713	3.460	132.9	12.0	17.6
1982 02 10	11 46.82 +01 13.0					
1982 02 20	11 41.64 +01 46.9	2.557	3.481	155.5	6.8	17.4
1982 03 02	11 35.21 +02 28.8					
1982 03 12	11 28.12 +03 15.1	2.508	3.502	179.2	0.2	16.9
1982 03 22	11 21.02 +04 01.3					
1982 04 01	11 14.55 +04 43.2	2.579	3.521	157.2	6.3	17.4
1982 04 11	11 09.29 +05 17.4					
1982 04 21	11 05.59 +05 41.5	2.756	3.540	135.2	11.5	17.7
1982 05 01	11 03.66 +05 54.5					
1982 05 11	11 03.54 +05 56.1	3.009	3.558	115.2	14.9	18.0
1982 05 21	11 05.16 +05 46.8					
1982 05 31	11 08.37 +05 27.5	3.302	3.574	97.2	16.3	18.2

(2401) 1975 VM2 Elements MPC 6102

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 42.76	+07 04.3	2.401	2.694	96.4	21.3	18.0
1982 01 01	11 48.95	+06 39.7					
1982 01 11	11 53.08	+06 28.9	2.150	2.705	114.1	19.4	17.8
1982 01 21	11 54.88	+06 32.9					
1982 01 31	11 54.18	+06 52.0	1.936	2.716	134.1	15.1	17.5
1982 02 10	11 50.94	+07 24.7					
1982 02 20	11 45.38	+08 08.2	1.792	2.727	156.4	8.3	17.1
1982 03 02	11 37.98	+08 57.4					
1982 03 12	11 29.56	+09 46.0	1.749	2.739	173.9	2.2	16.8
1982 03 22	11 21.10	+10 27.6					
1982 04 01	11 13.57	+10 57.2	1.818	2.751	154.0	9.2	17.2
1982 04 11	11 07.76	+11 11.7					
1982 04 21	11 04.15	+11 10.2	1.982	2.763	132.5	15.6	17.6
1982 05 01	11 02.93	+10 53.3					
1982 05 11	11 04.06	+10 22.6	2.213	2.775	113.5	19.5	17.9
1982 05 21	11 07.33	+09 39.7					
1982 05 31	11 12.52	+08 46.3	2.477	2.786	96.9	21.2	18.2

1979 MC Elements MPC 5008

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 12 22	11 45.12	+03 37.8	2.719	2.962	-0.72	+2.3	20.0
1982 01 01	11 50.58	+03 35.8					
1982 01 11	11 54.23	+03 49.3	2.408	2.932	-0.83	+2.7	19.7
1982 01 21	11 55.82	+04 20.0					
1982 01 31	11 55.14	+05 09.1	2.133	2.900	-0.95	+3.2	19.3
1982 02 10	11 52.09	+06 16.1					
1982 02 20	11 46.77	+07 38.5	1.932	2.864	-1.07	+3.5	18.9
1982 03 02	11 39.54	+09 11.2					
1982 03 12	11 31.06	+10 46.8	1.836	2.824	-1.13	+3.3	18.5
1982 03 22	11 22.23	+12 16.8					
1982 04 01	11 14.03	+13 33.6	1.857	2.782	-1.09	+2.7	18.8
1982 04 11	11 07.35	+14 31.8					
1982 04 21	11 02.78	+15 09.3	1.978	2.737	-0.99	+2.0	19.0
1982 05 01	11 00.66	+15 26.1					
1982 05 11	11 01.04	+15 23.6	2.161	2.689	-0.88	+1.6	19.3
1982 05 21	11 03.78	+15 04.3					
1982 05 31	11 08.70	+14 30.2	2.372	2.639	-0.79	+1.5	19.5

1980 RB1 Elements MPC 5847

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 59.07	+11 15.7	1.524	1.875	94.3	31.6	19.0
1982 01 01	12 09.16	+09 05.6					
1982 01 11	12 16.95	+06 52.1	1.249	1.820	108.7	30.8	18.5
1982 01 21	12 21.85	+04 32.9					
1982 01 31	12 23.04	+02 05.4	0.995	1.763	125.8	27.0	17.8
1982 02 10	12 19.60	-00 33.7					
1982 02 20	12 10.59	-03 26.8	0.788	1.703	146.7	18.6	17.1
1982 03 02	11 55.42	-06 32.2					
1982 03 12	11 34.69	-09 41.4	0.659	1.642	166.4	8.2	16.4
1982 03 22	11 10.61	-12 39.0					
1982 04 01	10 46.88	-15 09.6	0.633	1.581	150.4	18.2	16.4
1982 04 11	10 27.21	-17 09.5					
1982 04 21	10 13.75	-18 45.5	0.688	1.522	127.0	31.8	16.8
1982 05 01	10 07.08	-20 09.5					
1982 05 11	10 06.71	-21 32.6	0.779	1.467	109.5	40.5	17.2
1982 05 21	10 11.76	-23 01.5					
1982 05 31	10 21.53	-24 40.1	0.870	1.419	97.5	45.1	17.5

1919 SA Elements MPC 5844

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 58.97	+01 03.0	2.458	2.651	90.3	21.8	19.1
1982 01 01	12 04.75	+00 18.1					
1982 01 11	12 08.45	-00 14.1	2.209	2.680	108.0	20.4	18.8
1982 01 21	12 09.81	-00 32.3					
1982 01 31	12 08.58	-00 34.9	1.984	2.706	128.1	16.6	18.5
1982 02 10	12 04.70	-00 21.5					
1982 02 20	11 58.29	+00 07.0	1.820	2.728	151.0	10.1	18.2
1982 03 02	11 49.79	+00 48.4					
1982 03 12	11 39.99	+01 37.8	1.754	2.746	175.9	1.5	17.7
1982 03 22	11 29.91	+02 29.3					
1982 04 01	11 20.59	+03 16.6	1.805	2.761	159.1	7.4	18.1
1982 04 11	11 12.95	+03 54.4					
1982 04 21	11 07.55	+04 19.5	1.960	2.773	136.1	14.5	18.5
1982 05 01	11 04.66	+04 30.3					
1982 05 11	11 04.26	+04 26.7	2.187	2.781	115.9	19.1	18.9
1982 05 21	11 06.18	+04 09.8					
1982 05 31	11 10.18	+03 40.7	2.451	2.785	98.3	21.1	19.2

(2310) 1974 SU4 Elements MPC 5645

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 53.73	+02 23.6	2.731	2.935	92.0	19.6	17.5
1982 01 01	11 59.78	+01 55.4					
1982 01 11	12 03.98	+01 40.0	2.480	2.960	109.7	18.2	17.2
1982 01 21	12 06.14	+01 38.5					
1982 01 31	12 06.09	+01 51.7	2.260	2.987	129.6	14.7	17.0
1982 02 10	12 03.84	+02 19.1					
1982 02 20	11 59.51	+02 59.0	2.106	3.014	151.8	8.9	16.7
1982 03 02	11 53.49	+03 48.3					
1982 03 12	11 46.40	+04 42.0	2.050	3.041	174.7	1.7	16.3
1982 03 22	11 38.99	+05 34.7					
1982 04 01	11 32.09	+06 20.8	2.109	3.068	160.4	6.3	16.7
1982 04 11	11 26.40	+06 56.2					
1982 04 21	11 22.41	+07 18.5	2.273	3.096	138.3	12.5	17.0
1982 05 01	11 20.39	+07 26.7					
1982 05 11	11 20.40	+07 21.0	2.514	3.124	118.4	16.5	17.4
1982 05 21	11 22.35	+07 02.7					
1982 05 31	11 26.09	+06 33.0	2.799	3.151	100.8	18.4	17.7

(2424) 1973 UT5 Elements MPC 6199

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 12 22	11 49.89	+11 53.5	1.689	2.050	96.6	28.5	17.4
1982 01 01	12 00.48	+11 09.5					
1982 01 11	12 08.63	+10 40.4	1.483	2.063	111.9	26.3	17.0
1982 01 21	12 13.92	+10 27.4					
1982 01 31	12 15.92	+10 30.9	1.304	2.079	130.0	21.3	16.7
1982 02 10	12 14.36	+10 49.0					
1982 02 20	12 09.25	+11 17.7	1.179	2.099	150.9	13.2	16.3
1982 03 02	12 01.03	+11 50.1					
1982 03 12	11 50.77	+12 17.2	1.136	2.121	169.4	4.9	16.0
1982 03 22	11 39.93	+12 30.8					
1982 04 01	11 30.10	+12 25.5	1.192	2.145	156.2	10.8	16.3
1982 04 11	11 22.57	+11 59.5					
1982 04 21	11 18.02	+11 14.4	1.337	2.171	135.5	18.9	16.7
1982 05 01	11 16.69	+10 13.0					
1982 05 11	11 18.39	+08 58.5	1.544	2.199	117.3	24.1	17.2
1982 05 21	11 22.75	+07 33.7					
1982 05 31	11 29.40	+06 00.6	1.787	2.228	101.8	26.5	17.6

(2327) 1969 TQ4 Elements MPC 5680

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982	01 11	12 26.70	-03 40.5	2.193	2.590	102.4	21.8	19.3
1982	01 21	12 30.95	-03 58.0					
1982	01 31	12 32.82	-03 58.9	1.956	2.607	121.2	18.9	19.0
1982	02 10	12 32.12	-03 41.7					
1982	02 20	12 28.80	-03 06.1	1.766	2.622	142.7	13.2	18.6
1982	03 02	12 23.02	-02 13.3					
1982	03 12	12 15.33	-01 07.3	1.659	2.636	166.7	5.0	18.3
1982	03 22	12 06.54	+00 06.0					
1982	04 01	11 57.68	+01 18.9	1.661	2.648	168.4	4.4	18.3
1982	04 11	11 49.79	+02 23.8					
1982	04 21	11 43.67	+03 15.0	1.772	2.657	144.8	12.6	18.7
1982	05 01	11 39.84	+03 49.3					
1982	05 11	11 38.49	+04 05.5	1.966	2.665	123.9	18.3	19.0
1982	05 21	11 39.56	+04 04.6					
1982	05 31	11 42.86	+03 47.9	2.210	2.670	105.8	21.4	19.3
1982	06 10	11 48.14	+03 17.5					
1982	06 20	11 55.13	+02 35.2	2.474	2.673	89.9	22.3	19.6

(2344) Xizang Elements MPC 5792

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982	01 11	12 32.11	+01 02.8	2.889	3.254	103.0	17.1	18.3
1982	01 21	12 34.84	+01 01.8					
1982	01 31	12 35.61	+01 13.8	2.607	3.245	122.5	14.8	18.0
1982	02 10	12 34.31	+01 39.1					
1982	02 20	12 30.93	+02 16.6	2.380	3.233	144.1	10.3	17.7
1982	03 02	12 25.60	+03 04.3					
1982	03 12	12 18.74	+03 58.5	2.245	3.220	166.7	4.1	17.3
1982	03 22	12 10.92	+04 54.2					
1982	04 01	12 02.89	+05 46.2	2.224	3.205	166.7	4.1	17.3
1982	04 11	11 55.43	+06 29.4					
1982	04 21	11 49.21	+07 00.3	2.317	3.187	144.3	10.6	17.6
1982	05 01	11 44.71	+07 16.9					
1982	05 11	11 42.19	+07 18.9	2.498	3.168	123.3	15.4	17.8
1982	05 21	11 41.73	+07 06.8					
1982	05 31	11 43.25	+06 41.9	2.733	3.146	104.7	18.2	18.1
1982	06 10	11 46.61	+06 05.7					
1982	06 20	11 51.60	+05 19.7	2.988	3.123	88.0	19.0	18.3

(2370) 1965 LA Elements MPC 5976

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982	01 11	12 41.38	-01 17.1	2.811	3.134	100.0	18.0	16.6
1982	01 21	12 44.55	-01 44.2					
1982	01 31	12 45.72	-02 00.2	2.516	3.116	119.0	16.1	16.3
1982	02 10	12 44.73	-02 04.4					
1982	02 20	12 41.50	-01 56.8	2.270	3.095	140.2	11.8	16.0
1982	03 02	12 36.10	-01 38.2					
1982	03 12	12 28.87	-01 10.6	2.107	3.072	163.5	5.3	15.6
1982	03 22	12 20.39	-00 37.4					
1982	04 01	12 11.43	-00 03.0	2.055	3.048	172.1	2.6	15.4
1982	04 11	12 02.89	+00 27.9					
1982	04 21	11 55.53	+00 51.2	2.119	3.021	148.5	10.0	15.8
1982	05 01	11 49.97	+01 03.8					
1982	05 11	11 46.55	+01 04.1	2.276	2.993	126.9	15.6	16.0
1982	05 21	11 45.37	+00 51.8					
1982	05 31	11 46.38	+00 27.3	2.491	2.964	107.9	19.0	16.3
1982	06 10	11 49.42	-00 08.7					
1982	06 20	11 54.27	-00 54.9	2.731	2.933	91.1	20.3	16.5

(2325) Chernykh Elements MPC 5678

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982	01 11	12 39.65	-03 00.1	3.161	3.465	99.7	16.2	18.1
1982	01 21	12 42.36	-03 10.8					
1982	01 31	12 43.25	-03 09.5	2.900	3.488	119.2	14.3	17.9
1982	02 10	12 42.24	-02 56.1					
1982	02 20	12 39.35	-02 30.8	2.689	3.509	140.5	10.3	17.6
1982	03 02	12 34.73	-01 54.8					
1982	03 12	12 28.73	-01 10.7	2.565	3.529	163.5	4.6	17.3
1982	03 22	12 21.86	-00 22.1					
1982	04 01	12 14.73	+00 27.0	2.555	3.548	172.5	2.1	17.2
1982	04 11	12 08.01	+01 11.9					
1982	04 21	12 02.26	+01 49.1	2.663	3.566	149.6	8.2	17.6
1982	05 01	11 57.91	+02 16.1					
1982	05 11	11 55.23	+02 31.3	2.867	3.582	128.3	12.8	17.9
1982	05 21	11 54.30	+02 34.7					
1982	05 31	11 55.11	+02 26.5	3.136	3.598	109.1	15.4	18.1
1982	06 10	11 57.53	+02 07.6					
1982	06 20	12 01.42	+01 39.3	3.434	3.611	91.8	16.3	18.3

(2386) 1974 SN1 Elements MPC 6051

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982	01 11	12 42.46	-02 08.5	2.814	3.129	99.4	18.1	18.1
1982	01 21	12 45.82	-02 41.8					
1982	01 31	12 47.22	-03 04.5	2.518	3.108	118.3	16.2	17.8
1982	02 10	12 46.46	-03 15.9					
1982	02 20	12 43.47	-03 15.7	2.268	3.085	139.3	12.1	17.5
1982	03 02	12 38.30	-03 04.3					
1982	03 12	12 31.27	-02 43.4	2.100	3.062	162.4	5.6	17.1
1982	03 22	12 22.95	-02 15.8					
1982	04 01	12 14.09	-01 45.5	2.042	3.036	173.4	2.2	16.9
1982	04 11	12 05.59	-01 17.1					
1982	04 21	11 58.23	-00 54.8	2.099	3.010	149.8	9.7	17.2
1982	05 01	11 52.63	-00 41.8					
1982	05 11	11 49.16	-00 40.3	2.250	2.982	128.2	15.4	17.5
1982	05 21	11 47.93	-00 50.8					
1982	05 31	11 48.91	-01 13.4	2.462	2.954	109.1	18.9	17.7
1982	06 10	11 51.94	-01 47.3					
1982	06 20	11 56.81	-02 31.6	2.700	2.924	92.4	20.3	18.0

1979 SF Elements MPC 5126

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1982	01 11	12 40.24	-07 32.3	2.464	2.774	-0.79	+6.9	18.1
1982	01 21	12 44.81	-08 35.2					
1982	01 31	12 47.28	-09 28.1	2.186	2.760	-0.91	+7.8	17.8
1982	02 10	12 47.39	-10 09.3					
1982	02 20	12 45.00	-10 37.1	1.949	2.746	-1.05	+8.9	17.5
1982	03 02	12 40.11	-10 50.0					
1982	03 12	12 33.05	-10 47.4	1.785	2.731	-1.16	+10.0	17.1
1982	03 22	12 24.41	-10 30.3					
1982	04 01	12 15.11	-10 01.4	1.722	2.715	-1.19	+10.6	16.8
1982	04 11	12 06.20	-09 26.0					
1982	04 21	11 58.62	-08 49.8	1.771	2.699	-1.11	+10.4	17.1
1982	05 01	11 53.11	-08 18.4					
1982	05 11	11 50.06	-07 56.4	1.912	2.683	-0.98	+9.5	17.4
1982	05 21	11 49.55	-07 46.3					
1982	05 31	11 51.53	-07 49.2	2.114	2.667	-0.87	+8.4	17.7
1982	06 10	11 55.75	-08 05.4					
1982	06 20	12 01.97	-08 33.9	2.346	2.651	-0.78	+7.4	18.0

1976 QV Elements MPC 5790

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982 01 11	12 38.84	-07 15.7	2.156	2.494	98.2	23.0	18.7
1982 01 21	12 44.39	-08 09.2					
1982 01 31	12 47.63	-08 49.4	1.904	2.497	115.9	20.8	18.4
1982 02 10	12 48.29	-09 14.4					
1982 02 20	12 46.18	-09 22.2	1.689	2.498	136.2	15.9	18.0
1982 03 02	12 41.29	-09 11.5					
1982 03 12	12 33.98	-08 42.6	1.545	2.498	158.9	8.2	17.6
1982 03 22	12 24.97	-07 57.8					
1982 04 01	12 15.29	-07 02.2	1.501	2.496	173.5	2.6	17.3
1982 04 11	12 06.15	-06 03.3					
1982 04 21	11 58.60	-05 08.6	1.564	2.493	151.2	11.2	17.7
1982 05 01	11 53.37	-04 24.4					
1982 05 11	11 50.85	-03 54.7	1.718	2.488	129.8	18.2	18.1
1982 05 21	11 51.04	-03 41.3					
1982 05 31	11 53.80	-03 44.2	1.928	2.482	111.2	22.4	18.4
1982 06 10	11 58.85	-04 02.4					
1982 06 20	12 05.90	-04 34.3	2.165	2.474	95.3	24.1	18.7

(2320) 1979 QJ Elements MPC 5649

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982 01 11	12 45.21	+06 15.5	3.227	3.562	101.9	15.7	17.6
1982 01 21	12 48.35	+06 38.6					
1982 01 31	12 49.71	+07 14.4	2.959	3.569	121.1	13.7	17.3
1982 02 10	12 49.20	+08 01.8					
1982 02 20	12 46.82	+08 59.0	2.747	3.574	141.5	9.9	17.1
1982 03 02	12 42.67	+10 02.5					
1982 03 12	12 37.07	+11 07.9	2.625	3.578	160.8	5.2	16.8
1982 03 22	12 30.47	+12 09.8					
1982 04 01	12 23.47	+13 03.2	2.616	3.581	162.4	4.8	16.8
1982 04 11	12 16.74	+13 43.9					
1982 04 21	12 10.85	+14 09.3	2.720	3.583	144.1	9.5	17.1
1982 05 01	12 06.27	+14 18.5					
1982 05 11	12 03.32	+14 12.1	2.915	3.583	124.4	13.5	17.3
1982 05 21	12 02.09	+13 51.5					
1982 05 31	12 02.62	+13 18.6	3.167	3.582	106.0	15.8	17.5
1982 06 10	12 04.80	+12 35.3					
1982 06 20	12 08.48	+11 43.5	3.445	3.580	89.3	16.5	17.7

(2453) A921 SA Elements MPC 6296

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982 01 11	12 51.62	-02 07.1	3.082	3.352	97.3	16.9	18.0
1982 01 21	12 54.81	-02 36.5					
1982 01 31	12 56.14	-02 55.8	2.795	3.349	116.3	15.3	17.7
1982 02 10	12 55.49	-03 04.5					
1982 02 20	12 52.78	-03 02.8	2.551	3.345	137.2	11.6	17.4
1982 03 02	12 48.08	-02 51.2					
1982 03 12	12 41.68	-02 31.3	2.389	3.340	160.0	5.8	17.1
1982 03 22	12 34.06	-02 05.8					
1982 04 01	12 25.87	-01 38.2	2.337	3.334	175.9	1.2	16.8
1982 04 11	12 17.87	-01 12.5					
1982 04 21	12 10.76	-00 52.2	2.402	3.327	152.7	8.0	17.2
1982 05 01	12 05.09	-00 40.1					
1982 05 11	12 01.23	-00 38.2	2.567	3.319	131.0	13.3	17.5
1982 05 21	11 59.33	-00 47.0					
1982 05 31	11 59.40	-01 06.6	2.800	3.309	111.5	16.6	17.7
1982 06 10	12 01.34	-01 36.4					
1982 06 20	12 04.97	-02 15.6	3.066	3.299	94.1	17.9	17.9

6561 P-L Elements MPC 4415

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982 01 11	12 50.47	+00 37.1	1.624	2.020	98.6	28.8	17.7
1982 01 21	12 59.45	-00 17.7					
1982 01 31	13 05.77	-00 57.3	1.429	2.047	114.7	25.9	17.4
1982 02 10	13 09.01	-01 20.9					
1982 02 20	13 08.83	-01 28.1	1.264	2.076	133.9	20.1	17.1
1982 03 02	13 05.09	-01 19.6					
1982 03 12	12 58.05	-00 58.3	1.157	2.106	156.4	10.9	16.7
1982 03 22	12 48.49	-00 29.2					
1982 04 01	12 37.70	+00 00.9	1.139	2.137	175.8	2.0	16.3
1982 04 11	12 27.24	+00 24.4					
1982 04 21	12 18.49	+00 35.5	1.222	2.169	153.8	11.8	16.9
1982 05 01	12 12.42	+00 30.9					
1982 05 11	12 09.45	+00 09.7	1.389	2.202	132.6	19.8	17.4
1982 05 21	12 09.55	-00 26.8					
1982 05 31	12 12.48	-01 17.0	1.613	2.234	114.6	24.4	17.8
1982 06 10	12 17.87	-02 18.9					
1982 06 20	12 25.35	-03 30.3	1.867	2.265	99.3	26.3	18.2

(2421) 1979 UD Elements MPC 6195

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982 01 11	12 57.21	+05 51.4	3.135	3.428	99.0	16.5	17.5
1982 01 21	13 01.15	+05 58.4					
1982 01 31	13 03.31	+06 17.2	2.856	3.425	117.6	14.8	17.3
1982 02 10	13 03.55	+06 47.3					
1982 02 20	13 01.81	+07 27.0	2.625	3.421	137.6	11.2	17.0
1982 03 02	12 58.13	+08 13.8					
1982 03 12	12 52.76	+09 03.6	2.477	3.417	157.7	6.3	16.8
1982 03 22	12 46.12	+09 51.7					
1982 04 01	12 38.80	+10 32.9	2.436	3.412	165.3	4.3	16.6
1982 04 11	12 31.51	+11 03.0					
1982 04 21	12 24.91	+11 19.1	2.509	3.407	148.5	8.9	16.9
1982 05 01	12 19.55	+11 19.7					
1982 05 11	12 15.83	+11 05.1	2.677	3.400	128.6	13.4	17.1
1982 05 21	12 13.91	+10 36.6					
1982 05 31	12 13.86	+09 55.7	2.910	3.394	110.0	16.3	17.3
1982 06 10	12 15.59	+09 04.4					
1982 06 20	12 18.95	+08 04.5	3.175	3.387	93.2	17.4	17.6

(2350) von Lude Elements MPC 5841

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1982 01 11	12 50.72	-02 32.9	1.904	2.252	97.3	25.7	18.3
1982 01 21	12 58.53	-02 51.8					
1982 01 31	13 03.93	-02 52.5	1.689	2.280	114.5	23.2	18.0
1982 02 10	13 06.60	-02 33.6					
1982 02 20	13 06.28	-01 54.8	1.506	2.308	134.4	17.8	17.6
1982 03 02	13 02.89	-00 57.1					
1982 03 12	12 56.72	+00 15.4	1.388	2.335	157.0	9.6	17.3
1982 03 22	12 48.42	+01 36.0					
1982 04 01	12 39.04	+02 55.7	1.366	2.361	172.9	3.0	17.0
1982 04 11	12 29.86	+04 04.9					
1982 04 21	12 22.01	+04 56.6	1.450	2.385	152.2	11.3	17.5
1982 05 01	12 16.36	+05 26.6					
1982 05 11	12 13.34	+05 34.5	1.622	2.408	131.0	18.5	17.9
1982 05 21	12 13.02	+05 21.9					
1982 05 31	12 15.25	+04 51.3	1.851	2.429	112.6	22.7	18.3
1982 06 10	12 19.77	+04 05.7					
1982 06 20	12 26.26	+03 08.0	2.109	2.448	96.8	24.3	18.6