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

Continuation to MPC 5605.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	N Obs.
1929 EK *	1929 03	03.05139	09 24 21.43	+29 03 18.1	502	12.4	008
1933 QO1 *	1933 08	28.95968	22 39 52.21	-06 47 37.0	265		1 012
1933 VE *	1933 11	08.81919	22 38 42.48	-03 33 54.1	1933 QF		012
1933 WQ *	1933 11	19.73618	22 45 08.56	-09 07 03.0	1933 RA		012
1938 YN *	1938 12	17.90188	05 05 08	+22 46.1	1198	16.4	029
1938 YN	1938 12	17.93715	05 05 06	+22 46.0	1198		029
1957 BG1 *	1957 01	30.05463	10 43 43.83	-02 38 32.2	1955 WB	14.8	020
1957 BG1	1957 02	21.93616	10 27 46.90	-01 25 21.3	1955 WB	15.0	020
1977 UU1 *	1977 10	17.92538	01 33 09.00	+08 24 21.7	1977 TB8	16.5	095

Note 1: as given on RI 820; the observations of (265) and 1933 QN were interchanged in BAB 1, 246-248.

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IDENTIFICATIONS.

The following list of identifications with numbered minor planets continues that on MPC 5605.

	Note		Note		Note
1928 DW = (1911)	1	1933 QN = (265)	2	1937 RD = (848)	7
1949 HK1 = (1765)	3	1952 HS1 = (425)	1	1953 TU1 = (1848)	1
1972 JF = (395)	4	1972 JH = (1638)	4	1975 VE8 = (2050)	5

Note 1: identification by C. M. Bardwell. 2: see the note above concerning 1933 QO1. 3: utilized in the orbit (MPC 3081) but not published. 4: identification by B. G. Marsden. 5: utilized in the orbit (MPC 4337) but not published. 6: the identifications involving 1937 RD (BAB 4, 203) are invalid. 7 = 1 + 6.

ROMAN NUMERAL DESIGNATIONS OF COMETS IN 1979.

The following tabulation continues that on MPC 5067-5068.

Comet	T	Name	Year/letter	Ref.
1979 I	Jan. 9.0	P/Shajn-Schaldach	1978i	IAUC 3240
1979 II	Jan. 13.7	P/Kowal 2	1979a	MPC 4772
1979 III	Feb. 12.8	P/Giacobini-Zinner	1978h	IAUC 3216
1979 IV	Feb. 22.7	P/Holmes	1979f	IAUC 3384
1979 V	May 27.0	P/Russell 1	1979d	MPC 5639
1979 VI	July 15.4	Torres	1979e	MPC 5639
1979 VII	July 23.3	Bradfield	1979c	MPC 5031
1979 VIII	Sept. 2.8	P/Schwassmann-Wachmann 3	1979g	MPC 5031
1979 IX	Oct. 17.4	Meier	1979i	MPC 5175
1979 X	Dec. 21.6	Bradfield	1979l	MPC 5411

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OBSERVATIONS MADE AT THE BERNE-ZIMMERWALD STATION BY P. WILD.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
/1980k	1980 09	02.83264	14 24 04.32	+26 23 19.0	026
/1980k	1980 09	03.84236	14 27 38.06	+26 07 29.3	026

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

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
/1980q	1980 11	10.76847	18 02 17.99	+39 20 48.5	11.5T		046
/1980q	1980 11	10.77333	18 02 17.85	+39 20 40.6			046
/1980q	1980 11	13.73179	18 00 20.80	+37 42 50.4			046
/1980q	1980 11	13.73631	18 00 20.53	+37 42 41.6			046
396	1980 11	11.96720	03 31 43.24	+20 10 47.0			046
396	1980 11	11.98144	03 31 42.57	+20 10 44.4			046
710	1980 10	30.90503	01 23 03.92	+06 20 25.0			046
710	1980 10	30.91927	01 23 03.30	+06 20 24.6			046
904	1980 10	30.90503	01 26 23.86	+05 04 33.6			046
904	1980 10	30.91927	01 26 23.26	+05 04 26.9			046
904	1980 11	11.92819	01 19 30.58	+03 29 44.9			046
904	1980 11	11.94266	01 19 30.13	+03 29 39.0			046
904	1980 11	13.82954	01 18 38.16	+03 16 51.2			046
904	1980 11	13.84377	01 18 37.78	+03 16 45.3			046
1073	1980 11	11.96720	03 22 56.18	+19 07 01.9			046
1073	1980 11	11.98144	03 22 55.28	+19 06 59.0			046
1422	1980 11	11.92819	01 23 45.76	+07 22 08.1			046
1422	1980 11	11.94266	01 23 45.26	+07 22 03.1			046
2304	1980 09	09.02170	02 00 59.11	+11 52 17.2			046
2304	1980 09	09.03819	02 00 58.93	+11 52 10.2			046
2304	1980 10	30.90503	01 27 15.63	+04 38 31.6			046
2304	1980 10	30.91927	01 27 15.09	+04 38 25.5			046
2319	1980 10	30.90503	01 26 16.57	+04 01 30.7			046
2319	1980 10	30.91927	01 26 15.87	+04 01 28.3			046
2319	1980 11	11.92819	01 18 35.64	+03 28 06.7	17.2		046
2319	1980 11	11.94266	01 18 35.25	+03 28 04.5			046
2319	1980 11	13.82954	01 17 37.88	+03 24 46.8			046
2319	1980 11	13.84377	01 17 37.44	+03 24 45.6			046
1962 HD	1980 10	01.84796	00 16 11.07	-05 08 06.6			046
1962 HD	1980 10	01.86567	00 16 09.74	-05 08 16.7			046
1962 HD	1980 10	03.85596	00 14 19.74	-05 20 39.2		1	046
1962 HD	1980 10	03.87020	00 14 18.85	-05 20 41.9		1	046
1962 HD	1980 10	05.86672	00 12 30.40	-05 32 37.0			046
1962 HD	1980 10	05.88131	00 12 29.61	-05 32 40.4			046

1975 WL1	1980 10 01.89397	01 04 58.80	+02 42 19.9		046
1975 WL1	1980 10 01.90728	01 04 58.42	+02 42 18.0		046
1975 WL1	1980 10 03.89138	01 03 31.94	+02 33 23.2		046
1975 WL1	1980 10 03.90561	01 03 31.39	+02 33 19.1		046
1975 WL1	1980 10 05.90469	01 02 03.43	+02 24 25.7		046
1975 WL1	1980 10 05.91887	01 02 02.94	+02 24 19.9		046
1979 KC	1980 11 11.88931	02 19 18.93	-08 49 55.1		046
1979 KC	1980 11 11.90360	02 19 18.00	-08 49 54.4		046
1979 PB	1980 11 11.96720	03 24 10.07	+19 41 12.1	17.5	046
1979 PB	1980 11 11.98144	03 24 09.26	+19 41 08.5		046
1980 SH	1980 10 05.93686	01 08 06.97	-05 46 12.1		2 046
1980 SH	1980 10 05.94554	01 08 06.64	-05 46 25.2		2 046
1980 SH	1980 11 07.90961	00 48 43.37	-17 24 18.7		046
1980 SH	1980 11 07.92398	00 48 43.35	-17 24 29.6		046
1980 SH	1980 11 11.82391	00 48 14.14	-18 02 59.6		046
1980 SH	1980 11 11.85603	00 48 14.01	-18 03 15.2		046
1980 TE	1980 09 16.96780	01 16 20.98	+04 01 15.8		046
1980 TE	1980 09 16.98209	01 16 20.57	+04 01 12.7		046
1980 TN	1980 11 11.92819	01 20 32.16	+05 05 29.3	17.2	046
1980 TN	1980 11 11.94266	01 20 31.63	+05 05 28.4		046
1980 TN	1980 11 13.82954	01 19 29.25	+05 02 26.6		046
1980 TN	1980 11 13.84377	01 19 28.46	+05 02 23.7		046
1980 TO	1980 10 30.90503	01 27 27.25	+06 14 35.5	17.0	046
1980 TO	1980 10 30.91927	01 27 26.60	+06 14 29.4		046
1980 TO	1980 11 11.92819	01 19 11.56	+05 05 08.0	17.0	046
1980 TO	1980 11 11.94266	01 19 11.05	+05 05 04.8		046
1980 TO	1980 11 13.82954	01 18 11.52	+04 56 33.1		046
1980 TO	1980 11 13.84377	01 18 11.20	+04 56 31.7		046
1980 TP	1980 10 30.90503	01 28 19.09	+06 11 08.3	17.0	046
1980 TP	1980 10 30.91927	01 28 18.19	+06 11 07.0		046
1980 TP	1980 11 11.92819	01 21 07.22	+05 28 36.0	17.2	046
1980 TP	1980 11 11.94266	01 21 06.83	+05 28 33.6		046
1980 TP	1980 11 13.82954	01 20 24.13	+05 24 55.7		046
1980 TP	1980 11 13.84377	01 20 23.63	+05 24 52.9		046
1980 TA1 *	1980 10 05.93686	01 10 38.25	-04 37 54.2	16.0	046
1980 TA1	1980 10 05.94554	01 10 37.76	-04 37 55.6		046
1980 TA1	1980 10 30.83154	00 50 24.80	-04 55 22.3		046
1980 TA1	1980 10 30.84566	00 50 24.34	-04 55 21.0		046
1980 UB *	1980 10 30.90503	01 22 59.69	+05 45 50.0	17.7	046
1980 UB	1980 10 30.91927	01 22 58.96	+05 45 51.6		046
1980 UC *	1980 10 30.90503	01 26 06.63	+04 28 12.6		046
1980 UC	1980 10 30.91927	01 26 06.08	+04 28 11.3		046
1980 UC	1980 11 11.92819	01 19 04.10	+03 59 27.8	17.2	046
1980 UC	1980 11 11.94266	01 19 03.44	+03 59 25.6		046
1980 UD *	1980 10 30.90503	01 28 41.43	+08 00 48.7	16.4	046
1980 UD	1980 10 30.91927	01 28 40.30	+08 00 44.9		046
1980 UE *	1980 10 30.90503	01 30 07.58	+06 33 38.0	17.5	046
1980 UE	1980 10 30.91927	01 30 06.92	+06 33 27.9		046
1980 UF *	1980 10 30.90503	01 30 56.73	+05 44 08.3	17.8	046
1980 UF	1980 10 30.91927	01 30 56.03	+05 44 07.7		046
1980 UG *	1980 10 30.90503	01 33 43.71	+06 44 45.7	17.5	046
1980 UG	1980 10 30.91927	01 33 42.24	+06 44 36.3		046
1980 VV *	1980 11 11.96720	03 28 26.44	+20 56 25.4	17.8	046
1980 VV	1980 11 11.98144	03 28 25.48	+20 56 24.3		046
1980 VW *	1980 11 11.96720	03 29 54.64	+19 42 03.3	17.5	046
1980 VW	1980 11 11.98144	03 29 53.89	+19 42 03.9		046
1980 VX *	1980 11 11.96720	03 33 01.28	+21 26 13.7	17.0	046
1980 VX	1980 11 11.98144	03 33 00.15	+21 26 09.1		046

Note 1: near edge of plate. 2: correction to MPC 5614.

OBSERVATIONS MADE AT THE SKALNATE PLESO OBSERVATORY BY P. SCHALLING. FROM
KIEV KOMET. TSIRK. NO. 268.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
/1980k	1980 09	12.79446	14 57 03.09	+23 48 43.3	056
/1980k	1980 09	12.80209	14 57 04.45	+23 48 42.5	056

OBSERVATIONS MADE AT TURKU BY Y. VAISALA, L. OTERMA, I. KLEMOLA AND M.
VAISALA. MEASURED BY M.-O. SNARE AND OTERMA.

Object	Date	UT	R. A. (1950)	Decl.	N	Obs.
93	1943 02	26.89304	09 47 05.90	+21 36 53.0		062
93	1943 02	26.92719	09 47 03.98	+21 36 56.2		062
93	1943 03	01.91572	09 44 21.06	+21 41 38.4		062
93	1943 03	11.85259	09 36 13.79	+21 48 27.2		062
104	1943 02	26.89304	09 33 58.90	+18 49 10.4		062
104	1943 02	26.92719	09 33 57.29	+18 49 14.6		062
104	1943 03	01.91572	09 31 47.84	+18 57 01.6		062
124	1945 10	15.88024	01 38 52.72	+08 53 19.6		062
124	1945 10	15.92341	01 38 50.41	+08 53 05.8		062
124	1945 11	02.81594	01 24 06.81	+07 10 48.0		062
124	1945 11	02.84649	01 24 05.26	+07 10 38.3		062
260	1941 03	18.91602	11 29 40.61	+04 14 18.1		062
260	1941 03	20.90515	11 28 24.75	+04 24 46.4		062
260	1941 03	20.93802	11 28 23.50	+04 24 56.9		062
303	1941 03	18.91602	11 24 13.51	+02 19 49.8		062
303	1941 03	20.90515	11 22 40.85	+02 26 08.3		062
303	1941 03	20.93802	11 22 39.31	+02 26 13.5		062
308	1941 03	18.91602	11 24 06.70	+02 44 17.7		062
308	1941 03	20.90515	11 22 34.11	+02 57 25.5		062
308	1941 03	20.93802	11 22 32.57	+02 57 37.5		062
331	1941 10	15.85718	00 05 35.27	-01 58 28.5		062
331	1941 10	15.89282	00 05 33.74	-01 58 32.0		062
361	1945 10	15.88024	01 12 55.29	+08 08 06.0		062
361	1945 10	15.92341	01 12 53.24	+08 08 01.9		062
495	1945 10	15.88024	01 24 15.30	+07 38 15.4		062
495	1945 10	15.92341	01 24 12.99	+07 37 57.9		062
802	1941 03	18.91602	11 32 55.49	+05 23 51.1		062
868	1943 02	26.89304	09 47 19.30	+18 24 07.8		062
868	1943 02	26.92719	09 47 17.58	+18 24 18.5		062
868	1943 03	01.91572	09 44 53.40	+18 39 31.1		062
1057	1945 10	15.88024	01 17 16.70	+14 01 56.2		062
1057	1945 10	15.92341	01 17 14.76	+14 01 41.6		062
1057	1945 11	02.81594	01 05 23.80	+12 12 52.6		062
1057	1945 11	02.84649	01 05 22.90	+12 12 42.6		062
1183	1941 03	18.91602	11 25 24.72	+05 50 10.7		062
1183	1941 03	20.90515	11 23 31.41	+05 58 21.9		062
1183	1941 03	20.93802	11 23 29.39	+05 58 29.5		062
1211	1943 02	26.89304	09 36 21.48	+19 13 07.8		062
1211	1943 02	26.92719	09 36 19.79	+19 13 16.1		062
1211	1943 03	01.91572	09 34 11.22	+19 30 07.5		062
1289	1941 03	20.90515	11 12 43.09	+04 06 28.2		062
1289	1941 03	20.93802	11 12 41.50	+04 06 38.2		062
1587	1941 03	18.91602	11 17 15.16	+06 06 12.5		062
1587	1941 03	20.90515	11 15 21.32	+06 09 50.8		062
1587	1941 03	20.93802	11 15 19.41	+06 09 52.0		062
1602	1943 02	26.89304	09 43 04.89	+21 52 47.2		062
1602	1943 02	26.92719	09 43 02.99	+21 52 54.8		062
1602	1943 03	01.91572	09 40 23.68	+22 03 47.5		062
1602	1943 03	11.85259	09 33 14.16	+22 24 21.0		062
1691	1945 10	15.90183	01 29 49.28	+08 33 01.8		062

1691	1945	11	02.83122	01	17	01.84	+07	10	45.8	062
1770	1941	09	20.95660	00	19	24.83	-01	27	20.2	062
1770	1941	10	15.85718	23	56	46.22	-02	41	26.9	062
1770	1941	10	15.89282	23	56	44.65	-02	41	27.8	062
1770	1943	02	26.89304	09	43	49.36	+21	13	49.0	062
1770	1943	02	26.92719	09	43	47.41	+21	13	53.3	062
1770	1943	03	01.91572	09	41	00.99	+21	19	23.2	062
1770	1943	03	11.85259	09	33	07.89	+21	26	34.9	062
1770	1945	10	15.88024	01	26	48.82	+09	17	28.8	062
1770	1945	10	15.92341	01	26	46.25	+09	17	19.7	062
1770	1945	11	02.81594	01	09	58.06	+08	27	42.0	1 062
1770	1945	11	02.84649	01	09	56.33	+08	27	35.8	1 062
2296	1941	03	18.91602	11	19	08.99	+06	03	54.7	062
2296	1941	03	20.90515	11	17	42.52	+06	12	05.6	062
2296	1941	03	20.93802	11	17	41.24	+06	12	13.8	062
2296	1941	04	16.89634	11	03	57.35	+07	21	53.7	062
2296	1941	04	21.89634	11	03	01.34	+07	24	13.4	062
2312	1943	02	26.89304	09	41	47.16	+21	07	10.2	062
2312	1943	02	26.92719	09	41	45.94	+21	07	13.7	062
2312	1943	03	01.91572	09	39	54.07	+21	14	31.3	062
2312	1943	03	11.85259	09	34	23.44	+21	32	32.9	062
1941 FN	1941	03	18.91602	11	29	29.88	+05	44	07.2	062
1941 FN	1941	03	20.90515	11	27	28.99	+05	48	12.9	062
1941 FN	1941	03	20.93802	11	27	26.78	+05	48	18.1	062
1941 FN	1941	04	16.89634	11	07	34.39	+05	56	07.7	062

Note 1: extremely faint image.

OBSERVATIONS MADE AT THE CRIMEAN ASTROPHYSICAL OBSERVATORY BY N. S. CHERNYKH,
L. I. CHERNYKH AND L. C. ZHURAVLEVA.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
/1980k	1980	09	04.76580	14 30 50.71	+25 53 00.3	1 095
/1980k	1980	09	04.76927	14 30 51.67	+25 52 57.9	1 095
/1980k	1980	09	06.76874	14 37 40.38	+25 21 40.7	2 095
/1980k	1980	09	06.77429	14 37 41.41	+25 21 33.2	2 095
/1980k	1980	09	08.75690	14 44 14.81	+24 50 42.4	1 095
/1980k	1980	09	08.76243	14 44 15.74	+24 50 38.6	1 095
1976 UA	1976	10	27.81692	00 09 01.77	-01 39 38.2	15.0 3 095
1980 SO	1980	09	06.90587	00 25 21.16	+04 36 46.6	14.8 095
1980 SO	1980	09	07.95889	00 24 19.42	+04 41 35.2	095
1980 SO	1980	09	08.99333	00 23 17.06	+04 46 12.4	095

Note 1: diffuse coma with condensation, antitail 0 .1 long in p.a. 250 .

2: shorter exposures; diffuse coma with weak condensation. 3: correction to MPC 4458.

OBSERVATIONS MADE AT GEISEI BY T. SEKI. IN PART FROM NIHONDAIRA OBS. CIRC.
NOS. 1152, 1159 AND 1166.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
/1980s	1980	12	09.76875	09 12 47.90	+33 40 04.2	17 T 372
1862	1980	11	24.41285	00 57 14.33	+29 10 47.5	14 372
2310	1980	10	31.62847	05 06 03.11	+19 33 34.9	372
2310	1980	11	13.63681	04 59 30.75	+19 20 55.8	16 372
2310	1980	11	14.68472	04 58 49.07	+19 19 48.0	16 372
1969 TQ4	1980	11	13.57187	02 44 54.65	+09 40 05.1	16.8 372
1969 TQ4	1980	11	13.58958	02 44 53.67	+09 39 57.4	372
1975 WO1	1980	11	26.46563	23 57 22.34	-15 26 32.1	16 372
1975 WO1	1980	11	26.47830	23 57 22.69	-15 26 24.6	372
1977 DS3	1980	10	14.73889	02 27 01.69	+02 11 43.3	17 372
1977 DS3	1980	10	14.75104	02 27 01.24	+02 11 36.6	372
1977 DS3	1980	10	15.72674	02 26 21.84	+02 06 28.0	16.5 372

1977 DS3	1980 10	31.58299	02 14	52.3	+00 51	44	16.5	372
1977 DS3	1980 10	31.59896	02 14	51.3	+00 51	42		372
1977 DS3	1980 11	14.61250	02 05	04.29	+00 07	49.9	17	372
1977 DS3	1980 11	14.62813	02 05	03.75	+00 07	49.3		372
1980 VA	1980 11	13.53715	02 47	14.98	+09 05	57.1	17	372
1980 VA	1980 11	13.58958	02 47	12.57	+09 05	42.1		372
1980 VA	1980 11	14.65000	02 46	28.98	+09 01	03.5		372

OBSERVATIONS MADE AT THE TOKYO OBSERVATORY'S KISO STATION BY H. KOSAI, K. HURUKAWA, G. SASAKI AND N. KOBAYASHI.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
/1980b	1980 12	10.78902	12 19	48.76	-00 37	33.4	16 T 381
/1980b	1980 12	10.84389	12 19	51.56	-00 37	43.3	381
1977 DS3	1977 03	12.54736	10 02	23.78	+15 08	07.3	381
1977 DS3	1977 03	12.57583	10 02	22.74	+15 08	15.1	381
1977 DS3	1977 03	15.54451	10 00	38.65	+15 22	19.6	381
1977 DS3	1977 03	15.56821	10 00	37.78	+15 22	26.8	381
1977 DS3	1980 11	11.58350	02 07	02.84	+00 14	59.5	381
1977 DS3	1980 11	11.63280	02 07	00.75	+00 14	51.6	381
1977 DS3	1980 11	13.61956	02 05	42.47	+00 09	59.4	381
1977 DS3	1980 11	14.60773	02 05	04.62	+00 07	47.1	381
1977 DS3	1980 11	15.59807	02 04	27.34	+00 05	45.2	381
1977 DS3	1980 12	10.40846	01 54	05.24	+00 03	30.3	381
1977 DS3	1980 12	10.45987	01 54	04.62	+00 03	34.7	381
1979 YB	1980 02	09.48693	05 18	46.39	+00 30	12.2	1 381
1979 YB	1980 02	09.51193	05 18	46.89	+00 29	53.1	1 381
1979 YB	1980 02	10.42861	05 19	09.40	+00 18	50.0	1 381
1980 VA	1980 11	11.59808	02 48	36.70	+09 14	58.6	381
1980 VA	1980 11	11.64600	02 48	34.45	+09 14	44.5	381
1980 VA	1980 11	13.64107	02 47	10.30	+09 05	26.7	381
1980 VA	1980 11	14.66123	02 46	28.32	+09 01	01.1	381
1980 VA	1980 12	10.43277	02 37	58.89	+08 36	50.7	381
1980 VA	1980 12	10.48277	02 37	59.28	+08 37	00.3	381
1980 VB	1980 11	11.58350	02 07	45.41	-00 17	43.7	381
1980 VB	1980 11	11.63280	02 07	42.29	-00 17	27.5	381
1980 VB	1980 11	13.61956	02 05	49.17	-00 05	27.3	381
1980 VB	1980 11	14.60773	02 04	54.76	+00 00	45.8	381
1980 VB	1980 11	15.59807	02 04	01.57	+00 07	09.2	381
1980 VB	1980 12	10.40846	01 50	38.72	+03 32	22.4	381
1980 VB	1980 12	10.45987	01 50	38.25	+03 32	51.9	381
1980 XC *	1980 12	10.40846	01 51	52.05	+03 28	53.6	17 381
1980 XC	1980 12	10.45987	01 51	51.65	+03 28	56.8	381
1980 XD *	1980 12	10.43277	02 38	42.27	+09 40	47.8	18 381
1980 XD	1980 12	10.48277	02 38	40.92	+09 40	59.5	381

Note 1: from Japan Astron. Study Assoc. Minor Planet Circ. Ser. II No. 616 (= JAM 616).

OBSERVATIONS MADE AT YATSUGATAKE OBSERVATORY (CODE 386) BY A. TERUNUMA AND T. URATA AND AT THE JCPM YAKIIMO STATION (CODE 885) BY URATA. MEASURED BY URATA. FROM NIHONDAIRA OBS. CIRC. NO. 1155, 1160 AND 1166.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.	
/1980q	1980 11	15.37851	17 59	25.60	+36 51	29.8	11 T 386
/1980q	1980 11	15.38089	17 59	25.46	+36 51	26.9	386
22	1979 05	27.58241	16 01	57.83	-19 41	15.9	885
22	1979 05	27.61840	16 01	55.86	-19 41	18.4	885
95	1980 12	01.50000	04 44	05.31	+19 27	24.8	386
95	1980 12	01.51490	04 44	04.51	+19 27	18.7	386
188	1979 05	27.58241	16 03	25.22	-19 46	08.3	885
188	1979 05	27.61840	16 03	23.33	-19 45	51.1	885

704	1980	12	01.85868	04	35	16.04	+35	30	26.0		386
704	1980	12	01.86111	04	35	15.90	+35	30	25.4		386
1862	1980	12	01.47731	01	44	12.14	+29	26	24.2	14	386
1862	1980	12	01.48438	01	44	13.74	+29	26	23.2		386
2310	1980	12	01.50000	04	45	25.28	+19	01	12.6	15.5	386
2310	1980	12	01.51490	04	45	24.44	+19	01	12.4		386
1980 VA	1980	11	14.6604	02	46	28.50	+09	01	00.8	16	386
1980 VA	1980	11	14.6764	02	46	27.73	+09	00	55.6		386

OBSERVATIONS MADE AT THE JCPM HAMATONBETSU STATION BY M. TAKEISHI. FROM
HAMATONBETSU STA. REP. NO. 2.

Object	Date	UT	R. A. (1950)			Decl.	Mag.	Obs.	
2312	1980	10	12.60208	02	10	23.59	+09 00 32.9	16	394
2312	1980	10	12.62847	02	10	22.47	+09 00 25.7		394
2312	1980	11	06.44896	01	53	46.09	+07 58 46.2	16	394
2312	1980	11	06.47124	01	53	45.46	+07 58 42.8		394

OBSERVATIONS MADE AT KAMBAH BY D. HERALD.

Object	Date	UT	R. A. (1950)			Decl.	Mag.	N	Obs.
/1980g	1980	11	27.54424	05	30	23.26	+17 40 50.0		415
/1980g	1980	11	27.55208	05	30	23.35	+17 41 08.9		415
/1980g	1980	11	28.64792	05	30	38.01	+18 15 33.2		415
/1980g	1980	11	28.65451	05	30	38.01	+18 15 47.9		415
/1980g	1980	11	29.63507	05	30	50.07	+18 46 49.9		415
/1980g	1980	11	29.63997	05	30	50.06	+18 46 59.4		415
/1980h	1980	11	29.64931	10	44	24.37	-06 19 54.0	1	415
/1980h	1980	11	29.65243	10	44	24.89	-06 20 18.3		415
/1980t	1980	12	18.71840	16	23	22.08	-35 57 35.3	5.5T	2 415
/1980t	1980	12	18.71917	16	23	22.19	-35 57 34.7		2 415
/1980t	1980	12	19.72229	16	27	34.80	-35 36 42.5		2 415
/1980t	1980	12	19.72778	16	27	36.23	-35 36 35.6		2 415
/1980t	1980	12	20.72205	16	32	23.51	-35 11 25.4		2 415
26	1980	11	05.50642	01	28	53.04	+07 46 09.4		415
190	1980	11	05.50642	01	09	21.60	+03 09 50.1		415
240	1980	11	05.50642	01	17	04.54	+04 06 16.0		415
904	1980	11	05.50642	01	22	55.76	+04 17 55.4		415
1275	1980	11	05.50642	01	16	50.36	-00 16 53.3		415

Note 1: very diffuse image. 2: comet diffuse with condensation, tail up to
0.5 long; measurements uncertain at low altitude.

OBSERVATIONS MADE AT THE CENTRO ASTRONOMICO DE YEBES BY M. DE PASCUAL, J.
GARCIA AND C. CABANAS.

Object	Date	UT	R. A. (1950)			Decl.	Obs.	
/1980h	1980	11	14.13911	10	19	23.04	+26 59 10.1	491
/1980h	1980	11	15.15267	10	21	03.80	+25 17 13.7	491
/1980q	1980	11	13.83059	18	00	17.33	+37 39 43.5	491
/1980q	1980	11	14.80016	17	59	44.07	+37 09 17.5	491

OBSERVATIONS MADE AT THE ANTARES OBSERVATORY, LA SEYNE SUR MER.

Object	Date	UT	R. A. (1950)			Decl.	Obs.	
1	1979	11	19.83924	00	37	46.14	-09 09 34.8	509
1	1979	11	19.84618	00	37	46.04	-09 09 34.0	509
1	1979	11	19.85313	00	37	45.88	-09 09 31.8	509
1	1979	11	23.85633	00	36	52.10	-08 53 11.6	509
1	1979	11	23.86328	00	36	52.02	-08 53 10.0	509
1	1979	11	23.87022	00	36	51.98	-08 53 07.7	509
1	1979	11	23.88383	00	36	51.73	-08 53 03.6	509
1	1979	11	24.84410	00	36	42.29	-08 48 46.8	509
1	1979	11	25.88438	00	36	33.32	-08 43 59.7	509

1	1979	11	26.84340	00	36	26.59	-08	39	20.1	509
1	1979	11	26.85104	00	36	26.58	-08	39	18.1	509
1	1979	11	26.85868	00	36	26.50	-08	39	15.9	509
1	1979	11	27.88229	00	36	20.58	-08	34	12.5	509
1	1979	11	27.89063	00	36	20.57	-08	34	11.8	509
1	1979	12	04.86979	00	36	19.45	-07	55	58.1	509
1	1979	12	05.83507	00	36	24.28	-07	50	11.7	509
1	1979	12	05.84896	00	36	24.35	-07	50	05.8	509
3	1979	11	18.18375	07	45	02.10	+02	28	42.1	509
3	1979	11	18.18861	07	45	02.23	+02	28	39.4	509
3	1979	11	18.19402	07	45	02.37	+02	28	37.7	509
3	1979	11	20.15503	07	45	45.81	+02	15	26.8	509
3	1979	11	20.15990	07	45	45.80	+02	15	24.4	509
3	1979	11	20.16580	07	45	45.86	+02	15	22.4	509
3	1979	11	24.14373	07	46	50.30	+01	50	17.3	509
3	1979	11	24.15067	07	46	50.32	+01	50	14.7	509
3	1979	11	24.15692	07	46	50.45	+01	50	12.2	509
4	1979	11	19.86285	02	27	58.39	+04	15	23.9	509
4	1979	11	19.87049	02	27	58.00	+04	15	24.4	509
4	1979	11	19.87813	02	27	57.55	+04	15	23.5	509
4	1979	11	23.89161	02	24	35.84	+04	12	39.6	509
4	1979	11	23.89786	02	24	35.52	+04	12	39.4	509
4	1979	11	23.90411	02	24	35.17	+04	12	38.6	509
4	1979	12	04.89201	02	17	12.66	+04	19	19.4	509
4	1979	12	04.89896	02	17	12.44	+04	19	19.7	509
4	1979	12	05.85590	02	16	42.55	+04	20	53.2	509
4	1979	12	05.86285	02	16	42.35	+04	20	54.8	509
6	1979	06	07.90090	15	59	31.70	+02	01	57.9	509
6	1979	06	07.90438	15	59	31.45	+02	01	58.2	509
6	1979	06	07.90789	15	59	31.26	+02	01	57.6	509
6	1979	06	07.91137	15	59	31.20	+02	01	58.0	509
6	1979	06	14.87550	15	53	34.16	+01	49	22.6	509
6	1979	06	14.88209	15	53	33.86	+01	49	22.1	509
6	1979	06	14.88939	15	53	33.46	+01	49	20.2	509
6	1979	06	14.89049	15	53	33.46	+01	49	20.1	509
6	1979	06	24.93031	15	46	24.38	+01	13	27.8	509
6	1979	06	24.93778	15	46	24.12	+01	13	26.1	509
6	1979	06	24.94456	15	46	23.81	+01	13	24.2	509
6	1979	06	24.95150	15	46	23.62	+01	13	22.0	509
6	1979	06	26.93167	15	45	13.90	+01	04	03.7	509
6	1979	06	26.93557	15	45	13.86	+01	04	02.6	509
6	1979	06	28.94356	15	44	08.86	+00	53	47.2	509
6	1979	06	28.95095	15	44	08.57	+00	53	44.9	509
6	1979	06	28.95861	15	44	08.43	+00	53	42.8	509
11	1980	03	15.95296	11	07	15.97	+11	03	04.2	509
11	1980	03	16.87882	11	06	27.69	+11	08	51.4	509
11	1980	03	18.91563	11	04	42.33	+11	21	18.8	509
11	1980	03	20.98939	11	02	57.92	+11	33	22.8	509
11	1980	03	24.93571	10	59	48.83	+11	54	38.0	509
11	1980	03	25.88847	10	59	05.38	+11	59	23.5	509
36	1980	03	15.95296	11	07	32.97	+11	29	46.5	509
36	1980	03	16.87882	11	06	36.69	+11	30	06.6	509
36	1980	03	18.91563	11	04	34.25	+11	30	35.4	509
36	1980	03	20.98939	11	02	33.07	+11	30	33.6	509
36	1980	03	24.93571	10	58	53.53	+11	29	17.9	509
36	1980	03	25.88847	10	58	02.92	+11	28	43.2	509
39	1979	11	20.20556	09	16	55.81	+08	15	51.9	509
39	1979	11	20.21250	09	16	55.87	+08	15	51.1	509
39	1979	11	24.21039	09	18	53.56	+08	04	47.9	509

39	1979	11	24.21942	09	18	53.77	+08	04	46.5	509
39	1980	03	15.85041	08	31	33.68	+14	56	09.3	509
39	1980	03	15.85874	08	31	33.70	+14	56	11.4	509
39	1980	03	16.82326	08	31	24.10	+15	00	22.9	509
39	1980	03	16.83056	08	31	24.00	+15	00	25.5	509
39	1980	03	16.83785	08	31	23.81	+15	00	27.9	509
39	1980	03	24.86270	08	30	56.30	+15	31	36.2	509
39	1980	03	24.87104	08	30	56.35	+15	31	37.5	509
39	1980	04	04.83073	08	32	46.71	+16	02	36.1	509
39	1980	04	04.83941	08	32	46.85	+16	02	36.6	509
39	1980	04	04.84740	08	32	46.88	+16	02	37.7	509
93	1980	03	16.04698	12	13	29.48	-00	32	15.6	509
93	1980	03	16.94479	12	12	41.34	-00	29	52.1	509
93	1980	03	18.95138	12	10	51.65	-00	24	25.8	509
93	1980	03	20.91421	12	09	03.41	-00	19	02.3	509
93	1980	03	20.92848	12	09	02.58	-00	19	00.5	509
93	1980	03	20.96288	12	09	00.51	-00	18	53.9	509
93	1980	03	24.99060	12	05	15.87	-00	07	42.7	509
335	1980	02	13.96176	09	10	46.00	+14	55	40.5	509
417	1980	03	15.99549	12	00	07.94	-04	16	03.9	509
417	1980	03	16.97118	11	59	25.13	-04	08	29.3	509
482	1980	03	16.04698	12	11	50.52	-00	49	36.8	509
482	1980	03	16.94479	12	11	14.46	-00	41	23.1	509
482	1980	03	20.91421	12	08	31.96	-00	04	33.3	509
482	1980	03	20.92848	12	08	31.39	-00	04	24.9	509
482	1980	03	20.96288	12	08	29.91	-00	04	07.8	509
482	1980	03	24.99060	12	05	42.80	+00	33	28.0	509
1212	1980	02	13.96176	09	11	33.04	+14	04	23.6	509

OBSERVATIONS MADE AT HAUTE PROVENCE UNDER THE DIRECTION OF H. DEBEHOGNE.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
504	1979	11	19.99306	03 36 05.41	+01 41 34.0	511
504	1979	11	21.01632	03 35 04.78	+01 43 44.7	511
504	1979	11	21.04062	03 35 03.38	+01 43 48.4	511
504	1979	11	21.05555	03 35 02.50	+01 43 50.8	511
612	1979	11	19.99306	03 44 50.37	+02 34 45.7	511
612	1979	11	21.01632	03 44 00.09	+02 27 22.2	511
612	1979	11	21.04062	03 43 58.92	+02 27 12.2	511
612	1979	11	21.05555	03 43 58.22	+02 27 06.0	511
612	1979	11	21.97708	03 43 13.30	+02 20 37.3	511
612	1979	11	21.98889	03 43 12.70	+02 20 32.3	511
2082	1980	09	15.04566	00 27 48.28	-01 54 18.4	18.5 511
2082	1980	09	15.06009	00 27 47.65	-01 54 24.4	511
2082	1980	09	15.07454	00 27 47.05	-01 54 30.4	511
1962 HD	1980	09	15.04566	00 31 37.98	-03 09 45.3	17.8 511
1962 HD	1980	09	15.06009	00 31 37.25	-03 09 50.9	511
1962 HD	1980	09	15.07454	00 31 36.50	-03 10 02.3	511
1979 WN *	1979	11	19.99306	03 39 16.61	+02 32 23.8	16.8 511
1979 WN	1979	11	21.01632	03 38 24.83	+02 30 40.6	511
1979 WN	1979	11	21.04062	03 38 23.64	+02 30 38.3	511
1979 WN	1979	11	21.05555	03 38 22.93	+02 30 37.3	511
1979 WN	1979	11	21.97708	03 37 36.84	+02 29 14.5	511
1979 WN	1979	11	21.98889	03 37 36.27	+02 29 13.0	511
1980 RA2 *	1980	09	15.04566	00 18 51.45	-03 15 26.3	18.3 511
1980 RA2	1980	09	15.06009	00 18 50.55	-03 15 31.1	511
1980 RA2	1980	09	15.07454	00 18 49.65	-03 15 35.6	511
1980 RB2 *	1980	09	15.04566	00 19 41.26	-00 56 08.5	17.5 511
1980 RB2	1980	09	15.06009	00 19 40.62	-00 56 13.4	511
1980 RB2	1980	09	15.07454	00 19 39.99	-00 56 18.5	511

1980 RC2 *	1980 09 15.04566	00 20 25.30	-00 29 54.2	17.1	511
1980 RC2	1980 09 15.06009	00 20 24.69	-00 29 59.2		511
1980 RC2	1980 09 15.07454	00 20 24.09	-00 30 03.9		511
1980 RD2 *	1980 09 15.04566	00 23 35.32	-03 26 00.6	18.2	511
1980 RD2	1980 09 15.06009	00 23 34.70	-03 26 01.4		511
1980 RD2	1980 09 15.07454	00 23 34.08	-03 26 02.3		511
1980 RE2 *	1980 09 15.04566	00 26 20.70	-00 29 18.5	16.9	511
1980 RE2	1980 09 15.06009	00 26 19.93	-00 29 24.9		511
1980 RE2	1980 09 15.07454	00 26 19.16	-00 29 31.5		511
1980 RF2 *	1980 09 15.04566	00 28 43.08	-01 26 04.7	18.1	511
1980 RF2	1980 09 15.06009	00 28 42.38	-01 26 11.7		511
1980 RF2	1980 09 15.07454	00 28 41.78	-01 26 18.0		511

OBSERVATIONS MADE AT GOTTINGEN BY W. LANDGRAF.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1	1980 09 20.17101	07 05 16.39	+23 18 30.3	528	
1	1980 09 20.17188	07 05 16.45	+23 18 30.1	528	
1	1980 09 20.17257	07 05 16.52	+23 18 30.1	528	
1	1980 09 21.17561	07 06 37.48	+23 19 00.1	528	
1	1980 09 21.17679	07 06 37.56	+23 19 00.4	528	
1	1980 09 21.17853	07 06 37.72	+23 18 59.8	528	
7	1980 09 19.92900	23 41 38.48	+10 10 59.5	528	
7	1980 09 19.93333	23 41 38.24	+10 10 57.9	528	
7	1980 09 19.93397	23 41 38.21	+10 10 57.5	528	
7	1980 09 19.93449	23 41 38.19	+10 10 57.7	528	
7	1980 09 19.93492	23 41 38.16	+10 10 57.4	528	
7	1980 09 21.02865	23 40 42.10	+10 04 58.3	528	
7	1980 09 21.03004	23 40 42.02	+10 04 57.8	528	
7	1980 09 21.03090	23 40 41.98	+10 04 57.4	528	
7	1980 09 21.03264	23 40 41.89	+10 04 56.9	528	
7	1980 09 21.03438	23 40 41.80	+10 04 56.2	528	

OBSERVATIONS MADE AT THE OSSERVATORIO S. VITTORE.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1943 EP	1980 12 08.89375	03 48 57.91	+29 21 36.2	15.4	552	
1943 EP	1980 12 09.88403	03 47 54.11	+29 21 59.6	15.4	552	
1943 EP	1980 12 10.88194	03 46 51.15	+29 22 16.3	15.4	552	
1943 EP	1980 12 12.89375	03 44 47.67	+29 22 39.6	15.4	552	
1980 XA *	1980 12 08.89375	03 46 45.36	+29 34 22.6	16.3	552	
1980 XA	1980 12 09.88403	03 45 58.04	+29 28 56.0	16.3	552	
1980 XA	1980 12 10.88194	03 45 11.53	+29 23 21.5	16.3	552	
1980 XA	1980 12 12.89375	03 43 40.51	+29 12 08.3	16.3	552	

OBSERVATIONS MADE AT THE LICK OBSERVATORY BY E. A. HARLAN. MEASURED BY A. R. KLEMOLA.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1980 XB *	1980 12 13.33368	05 27 59.42	+36 34 47.7	15	662	
1980 XB	1980 12 14.25000	05 26 33.66	+37 08 17.8		662	
1980 XB	1980 12 15.20833	05 25 02.04	+37 43 03.8		662	
1980 XB	1980 12 16.20833	05 23 24.72	+38 19 01.3		662	

OBSERVATIONS MADE WITH THE 1.2-M SCHMIDT TELESCOPE AT PALOMAR. OBSERVATIONS IDENTIFIED BY C. J. VAN HOUTEN AND I. VAN HOUTEN-GROENEVELD ON EXPOSURES BY T. GEHRELS.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
4021 P-L *	1960 09 24.37573	00 29 35.99	+05 41 57.4	675	
4021 P-L	1960 09 25.42780	00 28 37.31	+05 37 34.1	675	
4021 P-L	1960 09 26.30558	00 27 48.35	+05 33 51.3	675	
4021 P-L	1960 09 28.36808	00 25 51.26	+05 24 53.9	675	

4021 P-L	1960 10 17.27085	00 08 38.99	+03 59 05.0	675
4021 P-L	1960 10 22.22293	00 04 58.88	+03 39 27.9	675
4021 P-L	1960 10 24.35836	00 03 34.50	+03 31 50.9	675
4021 P-L	1960 10 26.32573	00 02 23.47	+03 25 21.6	675
6578 P-L *	1960 09 24.35002	00 05 14.14	-04 32 58.3	675
6578 P-L	1960 09 26.28543	00 03 28.50	-04 44 33.3	675
6578 P-L	1960 09 27.34237	00 02 30.75	-04 50 47.7	675
6578 P-L	1960 09 28.33822	00 01 36.72	-04 56 33.2	675
6578 P-L	1960 10 17.22501	23 46 17.20	-06 24 52.3	675
6578 P-L	1960 10 22.16324	23 43 14.47	-06 39 07.5	675
6578 P-L	1960 10 24.23753	23 42 07.47	-06 43 49.8	675
6578 P-L	1960 10 26.27157	23 41 07.60	-06 47 40.1	675

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

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
/1980s	1980 12 14.46111	09 12 43.63	+33 40 53.1	17 T	675	
/1980s	1980 12 15.49306	09 12 36.17	+33 41 06.1	17 T	675	
1980 RB1	1980 10 14.17500	22 33 51.08	+11 07 36.4	17	675	
1980 RB1	1980 10 14.19583	22 33 50.35	+11 07 41.0		675	
1980 RG1	1980 10 14.24167	00 13 01.78	+11 20 17.8	17	675	
1980 RG1	1980 10 14.26250	00 13 02.14	+11 20 08.9		675	
1980 RM1	1980 10 14.21597	00 04 14.05	+05 24 01.8	17	675	
1980 RM1	1980 10 14.23681	00 04 13.92	+05 23 51.8		675	
1976 WA	1980 12 01.34965	06 23 19.86	-15 09 57.5	19.5	675	
1980 WF *	1980 11 29.21111	03 50 13.43	+16 05 26.5	15.5	675	
1980 WF	1980 11 29.26319	03 50 23.02	+16 03 01.4		675	
1980 WF	1980 12 01.20972	03 57 17.81	+14 29 23.6	15.5	675	
1980 WF	1980 12 01.26181	03 57 28.07	+14 26 50.1		675	
1980 WF	1980 12 14.27153	04 55 42.90	+01 38 17.2	15.5	675	
1980 WF	1980 12 14.29236	04 55 48.63	+01 36 59.9	15.5	675	

OBSERVATIONS MADE WITH THE 0.46-M SCHMIDT TELESCOPE AT PALOMAR BY E.

HELIN, S. J. BUS AND E. HOWELL. MEASURED BY BUS.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1980 RM1	1980 09 16.32639	00 11 34.54	+09 59 01.7	17.5	675	
1980 WF	1980 12 03.26389	04 05 04.57	+12 43 22.5	15.5	675	

OBSERVATIONS MADE AT THE ANDERSON MESA STATION OF THE LOWELL OBSERVATORY

BY E. BOWELL, H. L. GICLAS AND B. A. SKIFF. MEASURED BY BOWELL.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
75	1980 12 10.09931	01 31 23.83	+15 40 27.1				688
75	1980 12 10.14306	01 31 24.41	+15 40 28.8				688
77	1980 12 10.21806	02 35 18.50	+18 35 35.0				688
77	1980 12 10.26458	02 35 17.28	+18 35 29.1				688
87	1980 12 04.34722	08 55 38.24	+26 38 42.9				688
87	1980 12 04.39653	08 55 38.10	+26 38 54.0				688
97	1980 12 04.37222	08 33 19.31	+03 54 11.7				688
97	1980 12 04.42083	08 33 19.91	+03 54 04.0				688
188	1980 11 29.16944	01 32 40.72	+16 04 21.2				688
188	1980 11 29.20347	01 32 40.19	+16 04 05.9				688
188	1980 12 04.15347	01 31 57.36	+15 30 59.0	15.0			688
188	1980 12 04.19653	01 31 57.05	+15 30 42.5				688
188	1980 12 10.09931	01 31 55.80	+14 56 54.9				688
188	1980 12 10.14306	01 31 55.91	+14 56 41.4				688
197	1980 11 29.24931	03 16 12.44	+11 58 51.3				688
197	1980 12 04.28125	03 12 01.92	+12 02 55.9				688
197	1980 12 04.28472	03 12 01.73	+12 02 56.2				688
197	1980 12 04.28819	03 12 01.61	+12 02 56.3				688
233	1980 12 04.28125	03 11 03.51	+14 19 42.2				688

233	1980	12	04.28472	03	11	03.36	+14	19	41.4	688
233	1980	12	04.28819	03	11	03.21	+14	19	40.2	688
310	1980	12	04.21806	02	15	51.95	+13	47	13.5	688
310	1980	12	04.25208	02	15	50.89	+13	47	06.9	688
380	1980	11	29.18681	02	36	28.89	+08	07	28.6	688
380	1980	11	29.22083	02	36	27.45	+08	07	29.5	688
380	1980	12	04.21806	02	33	24.13	+08	10	33.9	688
380	1980	12	04.25208	02	33	22.93	+08	10	36.0	688
388	1980	11	29.16944	01	41	01.23	+17	35	22.9	688
388	1980	11	29.20347	01	41	00.35	+17	35	17.1	688
388	1980	12	04.15347	01	39	18.01	+17	23	10.1	688
388	1980	12	04.19653	01	39	17.18	+17	23	04.5	688
388	1980	12	10.09931	01	38	02.39	+17	11	48.0	688
388	1980	12	10.14306	01	38	01.95	+17	11	43.8	688
407	1980	11	29.12014	00	43	27.81	+16	16	54.1	688
407	1980	11	29.15278	00	43	27.94	+16	16	47.0	688
407	1980	12	04.13681	00	44	18.34	+15	58	38.4	688
407	1980	12	04.17188	00	44	18.79	+15	58	31.9	688
419	1980	11	29.16944	01	56	01.22	+12	34	17.9	688
419	1980	11	29.20347	01	56	00.20	+12	34	09.3	688
419	1980	12	04.15347	01	53	55.95	+12	16	29.1	688
419	1980	12	04.19653	01	53	54.95	+12	16	20.8	688
419	1980	12	10.09931	01	52	13.90	+11	59	47.6	3 688
419	1980	12	10.14306	01	52	13.31	+11	59	41.2	3 688
467	1980	11	29.12014	00	47	00.80	+14	13	51.1	688
467	1980	11	29.15278	00	47	00.77	+14	13	47.0	688
467	1980	12	04.13681	00	47	19.63	+14	04	44.2	688
467	1980	12	04.17188	00	47	19.87	+14	04	41.3	688
499	1980	12	10.21806	02	35	53.35	+16	28	17.0	688
499	1980	12	10.26458	02	35	52.29	+16	28	10.0	688
510	1980	11	29.24931	03	19	44.44	+10	09	39.2	688
534	1980	12	04.31250	05	18	29.59	+21	38	11.2	688
653	1980	12	04.23542	02	42	48.13	-00	28	42.8	688
653	1980	12	04.26947	02	42	46.97	-00	28	40.7	1 688
661	1980	12	04.34722	08	51	29.21	+26	20	16.1	688
661	1980	12	04.39653	08	51	29.23	+26	20	18.8	688
734	1980	12	04.34722	08	28	34.70	+26	45	38.7	688
734	1980	12	04.39653	08	28	34.33	+26	45	45.2	688
738	1980	11	29.18681	02	24	54.90	+09	11	32.7	688
738	1980	11	29.22083	02	24	53.68	+09	11	29.4	688
738	1980	12	04.21806	02	22	13.10	+09	03	33.8	688
738	1980	12	04.25208	02	22	12.05	+09	03	31.2	688
756	1980	11	29.18681	02	24	05.95	+06	08	59.6	688
756	1980	11	29.22083	02	24	04.86	+06	08	50.2	688
786	1980	12	04.34722	08	29	37.93	+25	45	47.3	688
786	1980	12	04.39653	08	29	37.52	+25	46	02.3	688
933	1980	12	10.07708	01	51	23.81	+02	57	10.3	3 688
966	1980	12	04.34722	08	57	21.60	+29	44	11.2	688
966	1980	12	04.39653	08	57	21.75	+29	44	28.6	688
977	1980	12	04.31250	05	18	59.08	+24	00	25.5	688
1044	1980	12	04.34722	08	56	22.68	+21	53	49.4	688
1044	1980	12	04.39653	08	56	22.64	+21	53	56.1	688
1097	1980	12	10.21806	02	53	05.80	+14	14	11.7	688
1097	1980	12	10.26458	02	53	04.20	+14	14	06.5	688
1141	1980	12	10.07708	01	45	35.85	+04	37	33.7	3 688
1156	1980	12	04.21806	02	35	33.80	+13	43	42.5	688
1156	1980	12	04.25208	02	35	32.44	+13	43	38.6	688
1201	1980	12	10.07708	01	49	50.94	+07	23	03.3	688
1201	1980	12	10.12153	01	49	50.65	+07	22	58.3	688

1259	1980	12	10.21806	02	48	02.63	+14	57	53.1		688
1259	1980	12	10.26458	02	48	01.11	+14	57	48.4		688
1285	1980	11	29.12014	00	54	37.51	+13	56	59.5		688
1285	1980	11	29.15278	00	54	37.33	+13	56	54.5		688
1285	1980	12	04.13681	00	54	29.97	+13	46	07.6		688
1285	1980	12	04.17188	00	54	30.04	+13	46	03.5		688
1356	1980	12	10.07708	01	48	30.30	+05	57	03.5		688
1356	1980	12	10.12153	01	48	29.72	+05	57	11.5		688
1359	1980	12	10.07708	01	55	38.24	+06	14	59.2		688
1359	1980	12	10.12153	01	55	37.50	+06	15	08.7		688
1363	1980	11	29.16944	01	36	56.48	+09	58	06.1		688
1363	1980	11	29.20347	01	36	55.77	+09	58	03.0		688
1405	1980	11	29.12014	00	51	31.68	+18	40	05.0	16.0	688
1405	1980	11	29.15278	00	51	32.12	+18	39	57.8		688
1405	1980	12	04.13681	00	53	13.96	+18	22	39.5		688
1405	1980	12	04.17188	00	53	14.77	+18	22	33.6		688
1417	1980	11	29.18681	02	32	48.72	+05	43	54.5		688
1417	1980	11	29.22083	02	32	47.35	+05	43	55.2		688
1445	1980	11	29.18681	02	31	46.41	+12	34	55.0		688
1445	1980	11	29.22083	02	31	45.22	+12	34	52.6		688
1445	1980	12	04.21806	02	29	13.34	+12	28	51.5		688
1445	1980	12	04.25208	02	29	12.36	+12	28	49.4		688
1458	1980	11	29.23750	02	37	18.93	+01	32	00.3		688
1458	1980	11	29.26389	02	37	17.90	+01	31	56.6		688
1458	1980	12	04.23542	02	34	26.73	+01	21	18.0		688
1458	1980	12	04.26947	02	34	25.57	+01	21	16.7		688
1473	1980	12	04.37222	08	43	28.60	+00	31	56.5		688
1473	1980	12	04.42083	08	43	28.15	+00	31	40.2		688
1493	1980	12	10.21806	02	57	30.95	+21	19	02.9		688
1493	1980	12	10.26458	02	57	29.22	+21	18	51.5		688
1514	1980	12	10.07708	01	33	27.13	+02	24	38.9		688
1514	1980	12	10.12153	01	33	27.79	+02	24	49.9	2	688
1532	1980	11	29.12014	00	50	07.74	+16	40	48.1		688
1532	1980	11	29.15278	00	50	07.44	+16	40	43.7		688
1532	1980	12	04.13681	00	49	48.73	+16	28	21.0		688
1532	1980	12	04.17188	00	49	48.75	+16	28	15.8		688
1579	1980	11	29.18681	02	32	08.41	+06	29	56.3		688
1579	1980	11	29.22083	02	32	07.27	+06	29	50.7		688
1579	1980	12	04.21806	02	29	41.70	+06	16	27.3		688
1579	1980	12	04.25208	02	29	40.75	+06	16	22.8		688
1582	1980	11	29.23750	02	53	15.71	+05	01	01.1	17.0	688
1582	1980	11	29.26389	02	53	14.60	+05	01	00.8		688
1582	1980	12	04.23542	02	50	01.59	+05	03	18.0	17.0	688
1582	1980	12	04.26947	02	50	00.36	+05	03	21.9		688
1715	1980	11	29.16944	01	46	22.08	+11	43	50.6		688
1715	1980	11	29.20347	01	46	20.85	+11	43	49.7	1	688
1715	1980	12	04.19653	01	43	44.33	+11	43	53.5	1	688
1715	1980	12	10.09931	01	41	30.12	+11	47	24.4	2	688
1722	1980	11	29.18681	02	32	16.24	+06	52	06.3		688
1722	1980	11	29.22083	02	32	14.88	+06	52	02.4		688
1722	1980	12	04.21806	02	29	23.28	+06	42	29.4		688
1722	1980	12	04.25208	02	29	22.14	+06	42	26.3	1	688
1729	1980	12	10.21806	02	39	47.20	+18	33	37.6		688
1729	1980	12	10.26458	02	39	45.76	+18	33	30.4		688
1859	1980	12	04.34722	08	41	07.35	+26	06	06.8		688
1859	1980	12	04.39653	08	41	07.06	+26	06	10.2		688
1862	1980	11	29.13125	01	32	28.36	+29	28	38.3		688
1862	1980	11	29.13611	01	32	29.89	+29	28	39.3		688
1862	1980	11	29.14097	01	32	31.46	+29	28	39.3		688

1874		1980	11	29.18681	02	25	32.90	+06	48	00.5		688
1874		1980	11	29.22083	02	25	31.95	+06	47	59.0		688
1874		1980	12	04.21806	02	23	44.02	+06	46	12.5		688
1874		1980	12	04.25208	02	23	43.36	+06	46	12.9		688
1893		1980	11	29.18681	02	37	14.16	+11	18	00.1		688
1893		1980	11	29.22083	02	37	12.60	+11	18	02.0		688
1893		1980	12	04.21806	02	33	43.98	+11	22	58.5		688
1893		1980	12	04.25208	02	33	42.57	+11	23	01.7		688
2029		1980	12	04.15347	01	31	11.84	+17	06	38.1		688
2029		1980	12	04.19653	01	31	11.70	+17	06	26.0		688
2029		1980	12	10.14306	01	31	53.84	+16	41	21.1		688
2103		1980	12	04.13681	00	58	18.11	+16	22	41.7	17.0	688
2103		1980	12	04.17188	00	58	17.76	+16	22	34.4		688
2113		1980	12	10.21806	02	39	13.00	+21	51	28.5		688
2113		1980	12	10.26458	02	39	11.45	+21	51	23.8		688
2224		1980	12	10.21806	02	45	11.50	+16	13	16.0	2	688
2288		1980	12	04.34722	08	57	42.75	+28	51	20.2		688
2288		1980	12	04.39653	08	57	43.51	+28	51	38.8	2	688
2312		1980	11	14.24861	01	49	02.84	+07	44	33.7	16.5	688
2312		1980	11	14.28750	01	49	01.54	+07	44	29.8		688
2312		1980	12	10.07708	01	39	40.51	+07	36	50.8	16.2	688
2312		1980	12	10.12153	01	39	40.10	+07	36	52.1		688
2313		1980	11	14.22778	01	57	52.47	+12	33	39.2	16.8	688
2313		1980	11	14.26806	01	57	50.61	+12	33	26.9		688
2313		1980	11	29.16944	01	50	37.01	+11	35	52.8	16.8	688
2313		1980	11	29.20347	01	50	36.39	+11	35	46.4		688
2313		1980	12	04.15347	01	49	40.83	+11	25	14.0	17.0	688
2313		1980	12	04.19653	01	49	40.42	+11	25	11.2		688
1936	EA	1980	12	10.21806	02	47	12.24	+17	57	04.3	16.0	688
1936	EA	1980	12	10.26458	02	47	10.71	+17	56	48.5		688
1940	GH	1980	11	29.18681	02	36	05.43	+10	15	15.1	15.8	688
1940	GH	1980	11	29.22083	02	36	03.91	+10	15	18.3		688
1940	GH	1980	12	04.21806	02	32	44.42	+10	23	13.9	16.0	688
1940	GH	1980	12	04.25208	02	32	43.15	+10	23	17.8		688
1969	TQ4	1980	11	29.18681	02	33	14.85	+08	39	48.2	17.0	688
1969	TQ4	1980	11	29.22083	02	33	13.57	+08	39	43.4		688
1970	OG	1980	12	10.24097	04	00	30.11	-04	51	30.0	16.5	688
1970	OG	1980	12	10.28611	04	00	27.87	-04	51	20.1		688
1974	OS	1980	11	29.12014	00	39	34.02	+17	34	08.3		688
1974	OS	1980	11	29.15278	00	39	33.96	+17	34	01.0		688
1974	OS	1980	12	04.13681	00	39	49.90	+17	16	08.8	16.8	688
1974	OS	1980	12	04.17188	00	39	50.01	+17	16	02.4		688
1979	KA	1980	11	29.23750	02	57	39.45	+02	29	54.3	16.2	688
1979	KA	1980	11	29.26389	02	57	38.31	+02	29	54.5		688
1979	KA	1980	12	04.23542	02	54	23.85	+02	31	17.6	16.5	688
1979	KA	1980	12	04.26947	02	54	22.55	+02	31	18.9		688
1979	QE	1980	12	04.30069	05	41	29.31	+28	53	56.5	16.5	688
1979	QE	1980	12	04.32500	05	41	27.94	+28	53	50.3		688
1979	UD	1980	12	04.34722	08	43	27.81	+25	43	24.8	17.0	688
1979	UD	1980	12	04.39653	08	43	27.52	+25	43	36.3		688
1979	UJ	1980	12	04.37222	08	39	39.50	-00	30	15.6	17.0	688
1979	UJ	1980	12	04.42083	08	39	39.39	-00	30	27.0		688
1980	VG	1980	11	29.12014	00	39	10.65	+17	21	01.7	16.8	688
1980	VG	1980	11	29.15278	00	39	11.23	+17	20	57.7		688
1980	VG	1980	12	04.13681	00	41	03.68	+17	11	58.3	17.2	688
1980	VG	1980	12	04.17188	00	41	04.52	+17	11	54.1		688
1980	VH	1980	11	29.12014	00	55	07.78	+14	55	29.5	17.5	688
1980	VH	1980	11	29.15278	00	55	08.25	+14	55	20.7		688
1980	VH	1980	12	04.17188	00	57	08.44	+14	32	52.4	17.5	3 688

1980 VJ	1980 11 29.12014	00 55 16.79	+13 41 43.4	16.0	688
1980 VJ	1980 11 29.15278	00 55 17.40	+13 41 37.2		688
1980 VJ	1980 12 04.13681	00 57 25.61	+13 27 30.3	16.5	688
1980 VJ	1980 12 04.17188	00 57 26.60	+13 27 24.9		688
1980 VN	1980 11 29.16944	01 45 06.75	+11 49 43.5	16.8	2 688
1980 VN	1980 11 29.20347	01 45 05.64	+11 49 47.3		688
1980 VN	1980 12 04.15347	01 42 58.75	+12 01 26.5	17.0	688
1980 VN	1980 12 04.19653	01 42 57.88	+12 01 33.5		688
1980 VN	1980 12 10.09931	01 41 11.78	+12 17 55.3	17.0	3 688
1980 VN	1980 12 10.14306	01 41 11.00	+12 18 04.3		688
1980 VO	1980 11 29.16944	01 49 22.45	+15 48 29.8	16.2	688
1980 VO	1980 11 29.20347	01 49 21.98	+15 48 45.8		688
1980 VO	1980 12 04.15347	01 49 05.77	+16 27 52.7	16.5	688
1980 VO	1980 12 04.19653	01 49 05.73	+16 28 16.7		688
1980 VO	1980 12 10.09931	01 50 06.63	+17 15 39.9	16.8	688
1980 VO	1980 12 10.14306	01 50 07.29	+17 16 00.3		688
1980 VP	1980 11 29.23750	02 48 45.56	+03 28 42.8	16.8	688
1980 VP	1980 11 29.26389	02 48 44.46	+03 28 45.3		688
1980 VP	1980 12 04.23542	02 45 30.40	+03 37 24.0	16.8	688
1980 VP	1980 12 04.26947	02 45 29.11	+03 37 27.5		1 688
1980 VQ	1980 11 29.23750	02 50 43.23	+05 19 10.1	17.2	688
1980 VQ	1980 11 29.26389	02 50 41.94	+05 19 15.3		688
1980 VQ	1980 12 04.26947	02 47 08.06	+05 39 45.1	17.5	3 688
1980 WA *	1980 11 29.16944	01 42 55.81	+17 57 04.8	15.8	688
1980 WA	1980 11 29.20347	01 42 55.36	+17 56 45.0		688
1980 WA	1980 12 04.15347	01 42 25.17	+17 10 49.7	16.0	688
1980 WA	1980 12 04.19653	01 42 24.98	+17 10 26.6		688
1980 WA	1980 12 10.09931	01 42 48.82	+16 22 28.3	16.2	688
1980 WA	1980 12 10.14306	01 42 49.12	+16 22 08.8		688
1980 WB *	1980 11 29.18681	02 19 24.83	+11 57 40.7	17.0	688
1980 WB	1980 11 29.22083	02 19 23.41	+11 57 44.0		688
1980 WB	1980 12 04.21806	02 16 09.10	+12 06 33.0	17.2	688
1980 WB	1980 12 04.25208	02 16 07.83	+12 06 38.5		688
1980 WC *	1980 11 29.18681	02 41 15.73	+12 58 43.4	16.8	688
1980 WC	1980 11 29.22083	02 41 14.43	+12 58 40.0		688
1980 WC	1980 12 04.21806	02 38 12.50	+12 47 44.2	17.0	688
1980 WC	1980 12 04.25208	02 38 11.33	+12 47 42.3		688
1980 WD *	1980 11 29.23750	02 41 46.20	+00 32 36.6	17.0	688
1980 WD	1980 11 29.26389	02 41 45.06	+00 32 33.7		688
1980 WE *	1980 11 29.23750	02 42 22.22	+06 27 22.2	17.0	688
1980 WE	1980 11 29.26389	02 42 21.32	+06 27 18.2		688
1980 WE	1980 12 04.23542	02 39 31.49	+06 22 01.8	17.2	3 688
1980 WE	1980 12 04.26947	02 39 30.29	+06 22 00.6		688
1980 WF	1980 12 12.20833	04 45 13.38	+03 50 30.6	16.8	688
1980 XB	1980 12 16.32431	05 23 12.99	+38 23 06.0	15.0	3 688
1980 XB	1980 12 16.34375	05 23 10.57	+38 23 52.6		3 688
1980 XE *	1980 12 04.34722	08 54 50.36	+26 39 54.2	17.0	688
1980 XE	1980 12 04.39653	08 54 50.40	+26 39 35.5		2 688
1980 XF *	1980 12 04.34722	08 56 51.93	+26 51 06.2	17.2	688
1980 XF	1980 12 04.39653	08 56 51.36	+26 51 08.8		688
1980 XG *	1980 12 04.37222	08 30 44.57	-02 36 00.1	16.8	688
1980 XG	1980 12 04.42083	08 30 45.42	-02 35 56.6		688
1980 XH *	1980 12 04.37222	08 36 05.43	+03 13 46.1	17.5	688
1980 XH	1980 12 04.42083	08 36 05.84	+03 13 14.9		3 688
1980 XJ *	1980 12 04.37222	08 43 04.56	+03 30 55.7	17.5	688
1980 XJ	1980 12 04.42083	08 43 04.16	+03 30 43.7		2 688
1980 XK *	1980 12 10.21806	02 50 27.00	+21 41 17.2	16.8	688
1980 XK	1980 12 10.26458	02 50 25.63	+21 40 59.6		688

Note 1: right ascension uncertain. 2: declination uncertain. 3 = 1 + 2.

OBSERVATIONS MADE AT THE LOWELL OBSERVATORY. MEASURED BY E. BOWELL.

Object	Date	UT	R. A. (1950)			Decl.	N	Obs.
1929 SL	1929 09	29.24097	23 46	39.83	-04 50	52.7		690
1930 KQ	1930 05	25.23611	15 25	32.13	-22 58	29.7	1	690
1930 KQ	1930 05	27.22917	15 23	36.65	-23 02	35.8		690
1930 KQ	1930 05	29.22778	15 21	43.88	-23 06	28.9		690
1930 KQ	1930 05	31.22917	15 19	55.52	-23 10	13.4		690

Note 1: right ascension uncertain.

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

Object	Date	UT	R. A. (1950)			Decl.	Obs.
1951 TD	1951 10	02.33998	01 17	42.81	+17 44	39.0	760
1951 TD	1951 10	02.37675	01 17	41.02	+17 44	26.1	760
1951 UE	1951 10	29.15816	00 05	18.80	-01 49	33.8	760
1951 UE	1951 10	29.20607	00 05	16.86	-01 49	35.6	760
1952 BM	1952 01	31.05349	05 41	28.82	+38 58	31.0	760
1952 BM	1952 01	31.09863	05 41	27.77	+38 58	21.6	760
1952 DQ	1952 02	26.31910	11 13	05.63	+09 16	05.4	760
1952 DQ	1952 02	26.37743	11 13	03.74	+09 15	57.5	760
1952 DY	1952 02	28.16494	09 29	01.23	+14 52	50.8	760
1952 DY	1952 02	28.21355	09 28	58.19	+14 52	51.6	760
1952 FJ	1952 03	27.08611	10 47	05.05	+15 38	39.8	760
1952 FJ	1952 03	27.11528	10 47	03.91	+15 38	41.1	760
1952 FL	1952 03	30.34898	14 22	08.73	-15 18	33.2	760
1952 FL	1952 03	30.40764	14 22	06.75	-15 18	14.8	760
1952 HY	1952 04	19.09376	11 00	09.94	+06 41	07.9	760
1952 HY	1952 04	19.11877	11 00	09.73	+06 41	18.6	760
1952 HC1	1952 04	27.20417	13 00	29.64	-16 44	39.0	760
1952 HC1	1952 04	27.25763	13 00	27.22	-16 44	26.8	760
1952 JM	1952 05	14.13472	13 32	18.59	-08 04	23.8	760
1952 JM	1952 05	14.19303	13 32	16.71	-08 04	09.9	760
1952 LF	1952 06	12.14929	14 59	02.39	-05 13	44.4	760
1952 LF	1952 06	12.18193	14 59	01.28	-05 13	56.1	760
1952 MH	1952 06	19.22917	17 45	57.84	-22 50	28.5	760
1952 ON	1952 07	25.24583	20 24	31.26	+03 36	53.0	760

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

Object	Date	UT	R. A. (1950)			Decl.	Mag.	N	Obs.
/1976 III	1978 10	31.26138	04 45	37.96	+21 47	42.4	19.5N	801	
/1978 XIV	1978 11	01.12231	23 52	35.66	+04 08	31.7	16.5N	801	
/1978 XXII	1978 11	01.15608	00 03	02.66	-14 57	17.5	16.5N	801	
/1979k	1980 11	09.36183	06 34	18.65	+19 09	17.8	17 N	801	
/1980f	1980 10	05.06731	22 07	07.73	-10 29	02.1		1 801	
/1980f	1980 10	06.08641	22 07	24.09	-10 33	00.0		1 801	
10	1980 11	06.29178	03 54	11.88	+24 13	20.8		801	
904	1980 11	13.16444	01 18	56.01	+03 21	16.7		801	
1522	1978 10	30.21818	03 15	39.54	+15 22	47.6		801	
1522	1978 11	04.27834	03 10	32.39	+15 16	05.3		801	
1801	1978 11	25.97983	22 38	54.60	-21 03	44.0		801	
2102	1978 12	29.42542	16 31	07.46	+39 13	15.3		801	
2212	1978 10	31.17404	23 32	57.32	-08 42	01.5		801	
2212	1978 11	26.00741	23 39	08.16	-04 39	37.2		2 801	
2302	1980 09	05.09234	19 30	43.05	-20 47	12.1		801	
2302	1980 09	09.03752	19 30	30.68	-20 28	23.8		801	
2304	1980 11	09.23013	01 21	04.80	+03 28	20.0		801	
2304	1980 11	13.16444	01 18	55.39	+03 03	04.5		801	

2306		1980	10	29.26998	01	36	03.09	+13	14	50.9		801
2306		1980	11	01.23715	01	33	44.09	+12	55	48.8		801
2306		1980	11	13.21662	01	25	43.45	+11	43	59.4		801
2311		1980	10	15.02785	21	50	12.76	-13	14	29.7	2	801
1936	EA	1980	11	06.19304	03	17	18.77	+21	26	23.3		801
1938	CG	1980	11	09.16030	23	45	51.64	-08	44	37.4		801
1940	GH	1980	11	03.29066	02	58	11.58	+10	02	25.4		801
1943	EP	1980	11	06.36219	04	24	37.96	+28	05	22.9		801
1962	HD	1980	10	13.19675	00	06	16.64	-06	10	31.7	3	801
1964	VD	1980	10	31.20795	23	40	32.04	+02	31	29.3		801
1965	QC	1980	11	06.26653	03	44	26.00	-04	54	29.6		801
1969	RY	1980	10	31.23810	23	50	10.36	+13	24	01.6		801
1972	HW	1980	08	17.21559	22	15	53.25	-01	55	44.1		801
1972	HW	1980	09	05.11948	21	59	37.17	-04	31	11.5		801
1972	HW	1980	10	29.98475	21	47	00.16	-09	48	21.1		801
1972	HW	1980	10	31.00689	21	47	27.23	-09	50	02.1		801
1974	UB	1980	10	30.15152	23	11	49.58	-22	30	39.7		801
1974	UB	1980	11	13.04562	23	01	08.63	-17	06	51.3	4	801
1974	UB	1980	12	11.95084	23	05	33.39	-05	34	40.3		801
1975	UD	1980	11	06.29178	03	54	02.60	+24	05	54.3		801
1976	UH1	1980	11	09.03080	23	32	27.95	-13	20	39.5		801
1976	WA	1980	04	20.35057	21	37	09.48	+14	07	17.7		801
1976	YQ2	1980	11	04.03568	22	04	07.92	-01	48	03.8		801
1977	RA	1980	08	16.08867	17	57	25.72	-16	16	28.3		801
1977	RA	1980	10	13.01564	20	45	40.51	-04	56	41.8	5	801
1977	TJ3	1980	11	09.39338	07	48	08.51	-13	24	56.2		801
1977	TJ3	1980	11	13.37198	07	48	09.24	-13	50	57.1		801
1978	SQ	1978	11	26.98846	23	48	13.17	-07	25	33.4		801
1978	TA	1979	01	19.03993	01	10	11.65	+38	04	25.3		801
1978	UC2	* 1978	10	30.21818	03	15	20.98	+15	07	04.7	18	801
1978	UD2	* 1978	10	30.21818	03	16	17.82	+15	31	28.1	18	801
1980	LA	1980	08	08.16464	19	24	33.58	+13	37	12.3		801
1980	LA	1980	10	12.98994	19	58	44.07	+13	42	16.9		801
1980	LA	1980	10	30.97481	20	34	03.34	+12	54	58.4		801
1980	QE	* 1980	08	17.21559	22	17	06.94	-02	04	16.9	17.5	801
1980	UA	1980	12	07.22425	01	37	28.80	+07	16	53.9		801
1980	VY	* 1980	11	09.23013	01	20	05.68	+03	33	46.5	17.5	801
2509	P-L	1980	09	19.18622	23	34	39.54	-05	58	16.1		801

Note 1: poor plate, poor sky. 2: clouds, weak image. 3: correction to MPC
5636. 4: poor guiding. 5: partly on a star.

OBSERVATIONS MADE AT TOKAI BY T. FURUTA. FROM NIHONDAIRA OBS. CIRC. NOS.
1159 AND 1166 AND JAPAN ASTRON. STUDY ASSOC. MINOR PLANET CIRC. SER. II
NO. 749.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.	
380	1980	11	15.55347	02 47 20.11	+08 16 09.3	879	
380	1980	11	15.56377	02 47 19.54	+08 16 07.2	879	
2090	1980	11	09.43750	22 55 33.84	-00 02 27.9	879	
2090	1980	11	11.50347	22 56 02.48	+00 03 00.8	879	
2118	1980	02	09.52743	08 50 12.25	+21 16 50.4	879	
2118	1980	02	09.53524	08 50 11.70	+21 16 50.8	879	
2236	1980	05	10.57361	13 50 44.10	-22 04 14.8	879	
2236	1980	05	10.58576	13 50 43.32	-22 04 13.7	879	
2266	1980	11	03.49965	01 30 25.04	+16 33 13.3	879	
2266	1980	11	03.51146	01 30 24.57	+16 33 07.5	879	
2312	1980	11	15.52014	01 48 20.42	+07 42 42.9	879	
2312	1980	11	15.52986	01 48 20.05	+07 42 44.0	879	
1936	EA	1980	11	08.60729	03 14 56.19	+21 13 03.7	879
1936	EA	1980	11	08.61771	03 14 55.75	+21 13 00.0	879

1940 GH	1980 11 08.55747	02 53 23.61	+10 02 00.3	879
1940 GH	1980 11 08.57049	02 53 22.99	+10 02 00.1	879
1940 GH	1980 11 09.64722	02 52 23.95	+10 02 03.9	879
1965 QC	1980 11 15.59028	03 37 08.09	-05 45 39.1	879
1965 QC	1980 11 15.59583	03 37 07.73	-05 45 40.2	879
1969 RY	1980 11 08.46076	23 49 21.31	+12 11 46.4	879
1969 RY	1980 11 08.47188	23 49 21.34	+12 11 40.5	879
1974 OS	1980 11 08.48715	00 45 01.82	+19 15 44.1	879
1974 OS	1980 11 08.49722	00 45 01.65	+19 15 40.7	879
1975 WO1	1980 11 29.44063	23 58 24.53	-14 56 25.6	16 879
1975 WO1	1980 11 29.45035	23 58 24.62	-14 56 20.4	879
1977 DS3	1980 11 03.53299	02 12 42.15	+00 40 22.8	879
1977 DS3	1980 11 03.54618	02 12 41.63	+00 40 19.0	879
1977 DS3	1980 11 08.51597	02 09 08.54	+00 23 40.5	879
1977 DS3	1980 11 08.53056	02 09 07.95	+00 23 35.5	879
1979 KA	1980 11 08.58611	03 14 45.39	+03 13 09.6	879
1979 KA	1980 11 08.59531	03 14 44.89	+03 13 08.2	879
1980 VA	1980 11 11.52361	02 48 40.11	+09 15 21.5	879
1980 VA	1980 11 11.53542	02 48 39.48	+09 15 17.6	879
1980 VA	1980 11 13.51250	02 47 16.12	+09 06 02.5	879
1980 VA	1980 11 13.52153	02 47 15.76	+09 05 59.8	879
1980 VA	1980 11 15.55347	02 45 53.04	+08 57 19.9	879
1980 VA	1980 11 15.56319	02 45 52.79	+08 57 18.8	879
1980 VA	1980 11 29.47708	02 38 59.53	+08 25 23.6	17 879
1980 VA	1980 11 29.49410	02 38 59.22	+08 25 23.2	879
1980 VA	1980 11 29.52153	02 38 58.98	+08 25 24.6	879

OBSERVATIONS MADE AT OXFORD BY W. G. WADDINGTON.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1639	1980 11 27.84514	01 22 25.63	+23 15 38.2	996	
1639	1980 11 27.85758	01 22 25.15	+23 15 34.7	996	
1639	1980 11 27.86395	01 22 25.20	+23 15 32.2	996	
1639	1980 11 27.86742	01 22 24.95	+23 15 30.1	996	
1639	1980 11 29.90556	01 21 58.34	+23 05 17.1	996	
1639	1980 11 29.91068	01 21 58.27	+23 05 14.8	996	
1639	1980 11 29.91647	01 21 58.21	+23 05 13.3	996	
1639	1980 11 29.92286	01 21 57.97	+23 05 11.3	996	

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ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are B = C. M. Bardwell, E = E. Bowell, I = H. Oishi, M = B. G. Marsden, O = L. Oterma, P = O. Kippes, U = T. Urata. For further information see MPC 4499.

Planet	B(1,0)	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1927 TC	15.5	271027	20.31	5.47	336.85	9.34	0.4495	2.3966	46	0		B
1930 KA	14.0	300524	349.04	212.65	43.52	7.76	0.2171	2.5988	13	6	1	B
1938 BF	14.0	380122	351.47	325.57	166.56	2.64	0.1632	2.3768	6	3		B
1941 FN	13.5	410321	349.46	182.48	4.45	6.82	0.0779	2.3993	29	4		O
1974 QM2	15.9	740910	44.36	305.20	340.53	4.94	0.1912	2.1714	19	3	1	I
1975 UJ	12.3	751104	359.05	320.46	59.53	2.07	0.0030	3.2275	9	4	3	U
1975 VE2	12.8	751104	32.18	205.23	132.94	1.58	0.1396	3.1656	26	6	1	U
1975 VK2	13.5	751104	5.31	290.32	84.05	2.94	0.1119	3.0196	26	4	1	U
1976 US2	14.0	761118	107.70	55.98	222.95	14.65	0.1077	2.5696	52	6	1	B
1977 DA	13.5	770226	182.49	345.60	344.06	4.88	0.0473	2.5412	4	5	1	B

1977	SM1	14.4	771004	202.22	141.68	38.68	2.80	0.0519	2.1681	29	4	1	U
1977	SN1	12.6	771004	272.90	156.14	344.67	1.51	0.2621	2.8633	19	3	1	I
1980	RB1	15.5	801008	70.85	280.74	343.25	24.38	0.2481	1.7830	31	7		M
1980	RG1	17.0	801008	7.90	109.60	238.45	4.43	0.4669	2.6437	31	4		M
1980	RM1	17.0	801008	0.24	155.74	214.43	4.74	0.3057	2.2014	31	7		M
1980	SH	15.0	800108	215.90	246.84	180.39	23.52	0.1034	1.9309	55	0		M
1980	SO	13.0	801008	23.84	340.83	353.40	15.51	0.1621	2.5444	27	9		M
1980	TE	13.0	800108	71.44	133.19	110.04	2.70	0.1117	3.0719	17	6		M
1980	TN	14.0	800108	303.61	310.56	72.65	3.11	0.0713	2.8597	41	0		M
1980	TO	14.0	800108	0.64	105.27	190.17	5.06	0.1148	2.3849	41	9		M
1980	TP	16.0	800108	297.83	188.65	158.35	1.68	0.1925	2.1626	41	0		M
1980	UA	14.0	801117	355.17	322.86	79.85	3.10	0.0828	2.8447	37	4		B
1980	VA	16.0	801117	4.18	233.00	168.77	3.21	0.2637	2.2525	32	0	1	M
1980	VG	14.0	801117	21.25	38.47	319.56	8.20	0.2321	2.7899	28	6		M
1980	VH	14.4	801117	18.57	102.22	260.72	7.86	0.2448	2.7818	26	7		E
1980	VJ	14.0	801117	349.44	132.18	279.53	4.80	0.1794	2.2626	26	8		E
1980	VN	12.3	801117	40.49	305.21	38.08	17.40	0.1622	3.4031	31	0		E
1980	VO	14.9	801117	9.14	347.33	38.23	9.98	0.3256	2.5464	31	0		E
1980	VP	12.4	801117	89.00	211.70	95.30	11.74	0.0893	3.0116	25	6		E
1980	VQ	13.8	801117	15.71	308.71	78.49	14.69	0.1179	3.0097	25	5		E
1980	WA	12.9	801117	353.03	165.45	245.05	12.25	0.1386	2.6166	11	6		E
1980	XA	12.0	801207	101.15	21.44	284.09	10.64	0.1718	3.0752	4	4		M
1980	XB	15.0	801207	347.56	36.49	70.48	23.76	0.3588	2.3866	3	4		M

Note 1: double designations 1930 KA = 1930 KQ (B), 1974 QM2 = 1974 RT (I, JAM 735), 1975 UJ = 1975 VT8 (I, JAM 735), 1975 VE2 = 1975 WX1 (I, JAM 735), 1975 VK2 = 1975 WY1 (I, JAM 735), 1976 US2 = 1976 YG (U, JAM 743), 1977 DA = 1977 DF3 (I, JAM 735), 1977 SM1 = 1977 TL4 = 1977 UU1 (I, JAM 732), 1977 TL4 = 1977 UU1 (P), 1977 SN1 = 1977 TQ4 (I, JAM 732), 1980 VA = 1980 VL (M). 2: perihelion orbit. 3 = 1 + 2.

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

The following orbital elements are from NOC 1141, 1155, 1156, 1158 and 1161-1165. The identifications are by T. Urata unless otherwise stated.

(2322)* 1954 UQ2 = 1954 WC = 1970 GU = 1975 VP1 = 1975 YF = 1977 JC
 Discovered 1954 Oct. 28 at the Goethe Link Observatory, Indiana University. The double designation 1954 UQ2 = 1954 WC is by O. Kippes (MPC 1400).
 Epoch 1981 July 15.0 ET = JDE 2444800.5

M	262.06566	(1950.0)	P	Q
n	0.28403259	Peri. 191.25264	+0.90108889	-0.43350813
a	2.2920492	Node 194.45145	+0.40101705	+0.84224987
e	0.0420664	Incl. 2.40324	+0.16499737	+0.32044634
P	3.47	B(1,0) 14.0		

Residuals in seconds of arc

541028	760	0.2-	0.1+	541117	760	1.8+	1.6+	751201	095	3.2+	4.1-
541028	760	3.8+	1.5+	700410	805	0.5+	0.5+	751202	330	(19.0+	3.9+)
541116	760	3.3-	0.1+	700410	805	0.3+	1.0+	751222	330	2.4-	0.2-
541116	760	3.5-	0.1-	700410	805	0.4+	0.8+	770515	095	0.2+	1.4+
541117	760	0.3-	1.6+	751102	095	0.6-	2.5+				

(2323)* 1976 SF2 = 1951 GP = 1960 WK = 1965 SW = 1965 UF1

Discovered 1976 Sept. 24 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	236.30835		(1950.0)		P		Q
n	0.17841152	Peri.	92.68524	-0.15556311			-0.98778623
a	3.1250295	Node	6.28502	+0.87106538			-0.14139980
e	0.1681429	Incl.	4.64173	+0.46588111			-0.06545581
P	5.52	B(1,0)	12.0				

Residuals in seconds of arc

510401	711	1.0+	2.0+	Y	651020	330	1.3-	1.8-	760929	095	3.2-	2.5-
601119	760	1.3+	0.2+		651024	330	(2.3+	48.2-)	761025	095	0.4+	0.7+
601119	760	1.2-	0.5-		760924	095	0.2+	1.6+	761026	095	2.7-	2.5-
650922	330	1.4+	1.6+		760925	095	1.9+	3.0+	761027	095	1.5-	0.5+
651017	330	0.3-	0.8+		760928	095	3.8+	0.6+				

(2324)* 1978 VS4 = 1949 ME = 1961 UP = 1971 OC1 = 1975 EM2 = 1977 RY4

Discovered 1978 Nov. 7 by E. Helin and S. J. Bus at Palomar.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	344.68437		(1950.0)		P		Q
n	0.18140220	Peri.	294.32399	-0.25069855			+0.96805515
a	3.0905873	Node	321.15632	-0.88556862			-0.23117334
e	0.1720490	Incl.	0.40309	-0.39104788			-0.09709851
P	5.43	B(1,0)	12.2				

Residuals in seconds of arc

490621	078	1.4-	4.2+	Y	750308	095	0.7+	1.4-	781107	675	0.1-	0.7+
611018	760	0.2-	1.0-		770909	095	1.5-	0.1+	781108	675	0.9-	0.6+
611018	760	3.1+	1.5+		781105	675	0.8+	1.4+	781129	675	1.1-	0.2+
710727	095	2.1+	3.2-		781106	675	0.4-	0.1+	781130	675	1.3-	0.2-

(2325)* 1979 SP = 1959 CH = 1971 FR = 1974 WD1 = 1974 XN

Discovered 1979 Sept. 25 by A. Mrkos at the Klet Observatory.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	87.96275		(1950.0)		P		Q
n	0.17634874	Peri.	259.34884	+0.77049613			-0.63708768
a	3.1493515	Node	140.22127	+0.59707844			+0.70958156
e	0.1655934	Incl.	1.91050	+0.22323315			+0.30102042
P	5.59	B(1,0)	12.5				

Residuals in seconds of arc

590208	024	0.1+	0.3+		790925	046	1.8+	0.5-	791012	046	1.0-	0.3+
710319	095	2.0-	5.1-		790926	046	0.1-	0.7-	791012	046	0.4-	1.3+
741118	095	0.1-	0.9+		790926	046	1.5+	0.1-	791019	046	0.1-	1.2-
741214	095	0.2+	2.0-		790927	046	0.2+	0.1-	791019	046	0.5-	1.8-
790925	046	0.8-	1.6-		790927	046	1.0+	0.4+				

1955 WB = 1955 XR = 1966 UG = 1972 XH1 = 1976 GQ8 = 1976 JW

The double designation 1955 WB = 1955 XR is by O. Kippes (MPC 1453).

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

M	231.37679		(1950.0)		P		Q
n	0.17033333	Peri.	101.60559	+0.83668788			+0.53278435
a	3.2230756	Node	226.35316	-0.54545078			+0.78974056
e	0.2009447	Incl.	10.09729	-0.04936443			+0.30405701
P	5.79	B(1,0)	11.8				

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

551117	020(10.9+	3.2+)		551213	760	1.2+	0.1-	760405	808	1.0-	0.6-
551122	020(68.7-	73.8+)	X	551213	760	1.4+	2.3-	760502	095	0.7-	0.5-
551123	020	2.3-	2.2+	661018	095	0.3+	1.0-	760524	095	0.9+	0.2+
551204	020(0.03+	0.02-)	X	721203	095	0.0	0.4+	760526	095	2.5+	0.8+
551206	020(15.5-	11.1-)		760405	808	1.7-	0.7-				

1975 WO1 = 1972 JU

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

M	15.32937		(1950.0)		P		Q
n	0.17629738	Peri.	342.06811		+0.55176081		-0.80572681
a	3.1499695	Node	73.92557		+0.78997291		+0.42213390
e	0.2430249	Incl.	12.94907		+0.26740008		+0.41546033
P	5.59	B(1,0)	12.0				

Residuals in seconds of arc

720512	095	0.0	0.0	751129	330	0.6-	0.1+	751223	330	0.6+	0.0
751126	330	0.9-	1.4-	751202	330	1.0+	1.4+	760101	330	0.4-	0.3-

1977 QL2 = 1953 TK1 = 1969 TX2 = 1973 TO

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	5.73243		(1950.0)		P		Q
n	0.24447684	Peri.	115.03407		+0.78789744		+0.61481950
a	2.5330527	Node	207.06820		-0.58897514		+0.73583659
e	0.0970437	Incl.	4.39243		-0.17979407		+0.28379833
P	4.03	B(1,0)	14.1				

Residuals in seconds of arc

531008	760	0.7+	0.5-	731001	095	1.5+	5.9-	770909	095	1.6-	0.1-
531008	760	1.0-	1.6+	770821	095	1.0+	1.1+				
691009	095	1.1-	2.5+	770823	095	0.6+	1.6+				

1978 NC3 = 1963 UN = 1968 QC1 = 1973 SM3

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

M	165.78535		(1950.0)		P		Q
n	0.18779834	Peri.	153.53526		+0.98866291		+0.13926193
a	3.0200149	Node	198.71588		-0.14874930		+0.95937983
e	0.1240105	Incl.	10.07637		+0.02047678		+0.24534966
P	5.25	B(1,0)	12.8				

Residuals in seconds of arc

631022	760(11.8-	26.6-)X	730924	095	0.0	0.1-	780711	095	0.4-	0.8-	
680827	095	0.1+	0.0	780709	095	0.8-	0.0	780809	095	1.1+	0.9+

1978 RT = 1976 GG1

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

M	227.71859		(1950.0)		P		Q
n	0.17500903	Peri.	284.76020		+0.48181532		+0.87586547
a	3.1654099	Node	14.13653		-0.75596183		+0.43088719
e	0.1504254	Incl.	6.27971		-0.44314298		+0.21724619
P	5.63	B(1,0)	13.5				

Residuals in seconds of arc

760401	095	1.1+	0.8-	780907	095	0.4-	0.1+	781008	095	0.6+	0.1+
760402	095	1.1-	0.7+	780912	095	1.5-	0.5-	781009	095	2.1-	0.2+
780901	095	0.4+	0.0	780928	095	2.5+	0.6+				
780905	095	0.2+	0.1-	781004	095	0.3+	0.5-				

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

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

(2326)* 1965 QC = 1936 SF = 1969 MB = 1973 GH1 = 1979 MB

Discovered 1965 Aug. 29 at the Goethe Link Observatory, Indiana University.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	48.43647		(1950.0)		P		Q
n	0.20367349	Peri.	256.99997	+0.58850377			-0.80147540
a	2.8609683	Node	155.96803	+0.80528113			+0.56936488
e	0.1570246	Incl.	15.13123	+0.07201116			+0.18292297
P	4.84	B(1,0)	12.0				

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

360917	078(42.3+ 43.0+)X	650903	760(18.1- 5.8+)	790723	688	0.7+	1.2-
360917	078(72.4+ 13.0+)X	650903	760(9.1- 3.3-)	790730	688	0.9+	2.5-
360926	078(39.4+ 15.2-)X	650928	760(1.7+ 1.1-)	801102	688	0.5+	1.2-
361004	078(0.07+ 0.00+)X	650928	760(2.5- 1.3+)	801102	688	0.8+	1.1-
361010	078(20.5+ 11.8-)X	690619	095(3.3+ 1.4-)	801106	801	0.3-	0.4-
361016	078(0.2- 30.9+)X	730403	095(1.2- 3.4+)	801115	879	0.7+	0.5+
650829	760(0.5- 3.2+)	790628	688(0.6- 1.0+)	801115	879	0.5-	0.8+
650829	760(0.5- 1.8+)	790702	688(2.6- 1.0-)				

(2327)* 1969 TQ4 = 1976 QQ = 1976 SU

Discovered 1969 Oct. 13 by B. Burnasheva at the Crimean Astrophysical Observatory. The identifications are by T. Urata (NOC 1060).

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	82.44426		(1950.0)		P		Q
n	0.27049462	Peri.	210.04440	+0.90906639			-0.41659788
a	2.3679015	Node	174.56276	+0.39490668			+0.85640732
e	0.1295315	Incl.	4.03747	+0.13284209			+0.30497982
P	3.64	B(1,0)	5.0				

Residuals in seconds of arc

691013	095(2.1+ 0.2+)	691113	095(1.1+ 2.3-)	801113	372	2.1-	5.4+
691016	095(0.1+ 1.1+)	760826	095(2.2+ 0.6-)	801113	372	1.9-	3.2+
691104	095(0.6- 1.9-)	760924	095(2.3- 1.5+)	801129	688	1.5+	2.1-
691111	095(0.6- 3.0-)	801108	688(1.5+ 0.5-)	801129	688	0.8+	2.2-

(2328)* 1972 HW

Discovered 1972 Apr. 19 by T. Smirnova at the Crimean Astrophysical Observatory. The 1975 observations were made on the basis of computations at the Institute for Theoretical Astronomy (MPC 4229).

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	256.32887		(1950.0)		P		Q
n	0.27508723	Peri.	339.99578	-0.95004899			-0.31205041
a	2.3414727	Node	181.84920	+0.30474550			-0.92363104
e	0.1457018	Incl.	10.00896	+0.06735792			-0.22255392
P	3.58	B(1,0)	14.0				

Residuals in seconds of arc

720419	095(2.4+ 0.7-)	720606	095(1.3+ 0.5-)	800817	801	0.8-	0.6-
720419	095(0.2- 1.7+)	720610	095(0.0 1.6-)	800905	801	0.2+	1.0+
720509	095(0.6- 0.8+)	750113	095(2.0+ 1.6-)	801029	801	0.9+	0.0
720517	095(2.5- 0.5+)	750116	095(1.9- 1.8+)	801031	801	0.1-	0.4+

(2329)* 1976 WA

Discovered 1976 Nov. 19 by H.-E. Schuster at the European Southern Observatory.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	109.54926		(1950.0)		P		Q
n	0.26451033	Peri.	145.75477	+0.71308915			+0.69659371
a	2.4034825	Node	168.95112	-0.69928665			+0.71477974
e	0.6584455	Incl.	24.38587	-0.05002041			-0.06202519
P	3.73	B(1,0)	6.3				

Residuals in seconds of arc

760531	675	0.2+	0.2-	761124	809	0.9+	0.2-	761128	809	0.5+	0.6+
760531	675	0.3+	0.4-	761124	809	0.8+	0.5-	761129	809	0.5+	0.6+
761119	809	1.4+	0.7-	761124	805	1.2-	1.4+	761130	809	0.0	0.7-
761119	809	1.7+	0.3-	761124	805	0.1-	0.4-	761130	809	0.5+	0.2-
761120	809	0.3-	0.5-	761124	805	0.1-	0.5-	761203	809	0.2-	1.8+
761120	809	0.4-	0.3+	761125	805	0.8-	0.1+	761211	809	1.0+	0.0
761121	809	0.8-	0.4-	761125	805	0.1-	0.3+	761211	809	0.9+	0.4-
761121	809	0.4-	0.8-	761125	809	0.1+	0.5+	761212	809	1.2+	0.4-
761122	809	0.4-	0.1-	761125	805	0.1-	0.6+	761212	809	0.1-	1.5-
761122	809	0.4-	0.7-	761125	809	0.6-	0.0	761227	691	0.2+	0.6+
761123	809	0.4-	1.6-	761126	809	0.1-	1.1+	761227	691	0.4+	0.4+
761123	809	0.3-	1.7-	761126	809	0.1+	0.4+	800420	801	0.5+	0.3+
761123	805	0.9-	0.5-	761127	809	0.1+	0.1-	801201	675	1.3-	0.1-
761123	805	0.8-	0.1-	761127	809	0.2+	0.3+				
761123	805	0.4-	2.0+	761128	809	0.4-	1.0+				

(2330)* 1977 DS3 = 1972 FG

Discovered 1977 Feb. 18 by H. Kosai and K. Hurukawa at the Tokyo Observatory's Kiso Station. The identification and the basis for the 1980 observations are by T. Urata.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	137.62991	(1950.0)	P	Q
n	0.17388302	Peri. 155.20078	+0.43680910	+0.89446835
a	3.1790542	Node 140.50711	-0.84832344	+0.44492674
e	0.0449745	Incl. 8.63815	-0.29924095	+0.04434596
P	5.67	B(1,0) 12.0		

Residuals in seconds of arc

720316	095	2.6-	3.2-	801014	372	1.2-	1.9+	801111	381	0.7+	1.3-
720321	095	1.1-	4.4-	801014	372	0.4-	0.9-	801113	381	0.2+	2.2-
770218	381	0.5+	1.2-	801015	372	1.5+	2.4-	801114	381	0.9+	2.7-
770218	381	0.7+	1.5-	801031	370	3.4+	0.0	801114	370	1.5-	0.6+
770219	381	0.5+	1.0-	801031	370	0.7-	1.8+	801114	370	0.4-	2.0+
770219	381	0.1-	1.0-	801103	879	0.7+	0.1+	801115	381	0.5+	1.3-
770312	381	0.6-	1.0+	801103	879	1.8+	0.8-	801210	381	0.0	0.9-
770312	381	0.1-	0.4+	801108	879	0.3+	1.9+	801210	381	0.1+	2.0-
770315	381	0.0	0.1+	801108	879	0.9+	0.4-				
770315	381	0.5-	0.7+	801111	381	1.5+	1.1-				

1976 YX = 1978 EY6 = 1980 VB

The identifications are by T. Urata.

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

M	84.59742	(1950.0)	P	Q
n	0.23007927	Peri. 293.92641	+0.96690335	+0.05208484
a	2.6376586	Node 63.91212	+0.08108903	+0.86545321
e	0.1690612	Incl. 16.14702	-0.24191418	+0.49827492
P	4.28	B(1,0) 14.0		

Residuals in seconds of arc

761216	095	3.8-	0.6+	801111	381	1.4+	0.5+	801114	372	0.4+	0.2-
761218	095	1.7+	0.0	801111	381	0.8-	0.6-	801115	381	1.5+	0.7-
761220	095	1.6+	0.8+	801113	381	0.1+	0.0	801210	381	1.4-	0.6-
780306	095	1.2-	0.5-	801114	381	0.6+	0.1-	801210	381	0.4+	0.9-
780411	095	0.7+	0.4-	801114	372	1.5-	0.9+				

1977 FZ = 1959 CN = 1963 YB = 1980 WC

The identification 1977 FZ = 1980 WC is by E. Bowell.

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)
 M 305.76723 (1950.0) P Q
 n 0.17147717 Peri. 41.88649 -0.91486633 -0.40245918
 a 3.2087265 Node 114.35474 +0.36035074 -0.85002327
 e 0.1225865 Incl. 2.03470 +0.18211793 -0.33983386
 P 5.75 B(1,0) 12.5

Residuals in seconds of arc

590215	024	7.2+	2.0+	770515	095	2.9+	1.0-	801204	688	0.4+	1.9-
631217	760	(89.3+	52.4+)X	770518	095	1.0+	1.6-	801204	688	0.8+	0.2+
770322	095	0.5-	0.7+	801129	688	0.6-	1.7-				
770326	095	0.5+	0.4+	801129	688	0.3+	0.3-				

1979 KA

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)
 M 113.01559 (1950.0) P Q
 n 0.21777163 Peri. 190.30116 +0.88784479 +0.45037987
 a 2.7361257 Node 142.46639 -0.41037676 +0.86770587
 e 0.1411122 Incl. 8.90295 -0.20814066 +0.21034376
 P 4.53 B(1,0) 12.5

Residuals in seconds of arc

790519	809	0.1-	0.1-	790721	809	0.6+	0.4+	801109	688	1.1+	1.1-
790520	809	0.4-	0.1+	790823	801	1.1-	1.2+	801129	688	0.4-	0.5-
790524	809	0.3-	0.3-	790919	801	1.0+	0.6-	801129	688	0.2-	0.0
790616	809	0.1+	0.6-	801108	879	0.7-	1.7+	801204	688	0.0	0.9-
790617	809	0.3+	0.1-	801108	879	0.6-	2.4+	801204	688	0.2-	1.1-
790618	809	0.1-	0.5-	801109	688	1.1+	1.2-				

1979 KC = 1937 NP = 1953 ET1 = 1978 EF1

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)
 M 157.25003 (1950.0) P Q
 n 0.23365695 Peri. 151.60921 +0.18937981 +0.96320575
 a 2.6106648 Node 128.65209 -0.94071345 +0.23364487
 e 0.1529796 Incl. 14.13459 -0.28141337 -0.13283360
 P 4.22 B(1,0) 14.5

Residuals in seconds of arc

370707	078	(7.6-	11.0+)X	790601	046	0.8+	0.1+	790621	046	0.9-	1.2-
530310	760	4.1-	1.1+	790601	046	2.7+	0.1-	790623	046	0.5-	1.5-
530310	760	0.7-	1.5+	790602	046	0.2-	1.1-	790623	046	0.4-	0.5-
780305	095	0.4-	2.5+	790602	046	0.7+	1.0+	801111	046	2.4+	2.7-
790531	046	0.2-	2.1+	790604	046	0.8-	0.1+	801111	046	0.8-	1.4-
790531	046	0.3+	0.2+	790621	046	0.7-	0.6-				

1979 PB = 1926 NA = 1948 NC = 1952 HL = 1962 SK

Epoch 1981 July 15.0 ET = JDE 2444800.5 (J-P)
 M 205.89538 (1950.0) P Q
 n 0.22429425 Peri. 13.82634 -0.31864912 +0.94139359
 a 2.6828197 Node 237.69743 -0.88158613 -0.33722205
 e 0.2209202 Incl. 7.52138 -0.34823646 -0.00770729
 P 4.39 B(1,0) 13.0

Residuals in seconds of arc

260713	024	1.7+	5.7-	790815	046	1.6-	0.1+	790830	046	0.7-	1.0+
480708	078	(53.7+	10.9-)X	790818	046	0.3+	0.3+	790916	046	0.9+	0.1-
520420	078	1.3+	5.8+	790818	046	0.6+	0.2-	790916	046	0.6+	0.3+
520426	711	(28.1-	1.5+)Y	790825	046	0.5-	0.7-	790919	046	1.8+	1.3+
620930	760	(27.4+	25.0+)X	790825	046	1.2-	0.1+	790919	046	1.1+	1.0+
790814	046	1.6-	0.1+	790829	046	0.0	1.0+	801111	046	0.3-	1.2+
790814	046	0.9-	0.1-	790829	046	0.2+	1.9+	801111	046	0.5-	2.0+
790815	046	0.8-	0.0	790830	046	0.0	1.4+				

1979 QE = 1969 XA

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

M	7.36535	(1950.0)	P	Q	
n	0.18594577	Peri.	200.19993	-0.45687090	-0.86120373
a	3.0400405	Node	277.55045	+0.84384578	-0.34039856
e	0.0426846	Incl.	12.98241	+0.28141300	-0.37743470
P	5.30	B(1,0)	12.0		

Residuals in seconds of arc

691201 095	0.8+	1.2-	790912 046	0.5+	0.5-	790919 046	1.6-	2.2-
790830 046	0.5-	1.4-	790912 046	2.9-	0.6-	801204 688	0.1+	2.8-
790830 046	2.1-	1.6-	790916 046	1.7-	1.7-	801204 688	0.3+	3.7-
790831 046	0.5+	0.2-	790916 046	0.9+	0.5-			

1979 UD = 1962 XJ1 = 1971 HH

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

M	164.78382	(1950.0)	P	Q	
n	0.16977515	Peri.	262.86876	+0.92740656	+0.33217066
a	3.2301362	Node	77.61554	-0.23391423	+0.87380936
e	0.0633543	Incl.	10.14180	-0.29189245	+0.35513357
P	5.81	B(1,0)	12.0		

Residuals in seconds of arc

621203 760	(62.6-	1.6+)X	791028 688	0.6+	0.5+	801204 688	0.3+	0.2+
710420 095	0.1+	0.2+	791122 688	1.5-	1.6+	801204 688	0.3-	0.3-
791017 688	0.1-	1.0-	791207 688	1.0+	0.9-			

1980 WF

Epoch 1980 Dec. 7.0 ET = JDE 2444580.5

M	354.24849	(1950.0)	P	Q	
n	0.29960992	Peri.	212.71521	-0.06586320	-0.99306593
a	2.2118988	Node	241.22959	+0.93767493	-0.02822628
e	0.5101576	Incl.	6.37812	+0.34121512	-0.11411987
P	3.29	B(1,0)	19.5		

From 8 observations 1980 Nov. 29-Dec. 14.

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

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

(2331)* 1936 EA = 1951 AE1 = 1961 TF = 1965 WQ = 1965 WW
= 1968 QM1 = 1974 FX

Discovered 1936 Mar. 12 by E. Delporte at Uccle. The identification 1936 EA = 1965 WQ was found independently by O. Kippes (MPC 5355).

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	18.35719	(1950.0)	P	Q	
n	0.26123996	Peri.	222.85789	-0.47068951	-0.88007643
a	2.4234997	Node	255.31074	+0.82595587	-0.41457944
e	0.2246650	Incl.	3.70960	+0.31023907	-0.23149377
P	3.77	B(1,0)	14.0		

Residuals in seconds of arc

360217	012	1.1+	2.7+	360325	012	(1.6+	8.4+)	651213	330	1.0-	0.3-
360220	012	1.1+	1.6+	360327	012	2.6+	2.3+	651218	330	1.8+	1.3-
360224	012	2.0-	4.5+	510105	711	1.0-	4.6-	680828	095	0.3+	0.1+
360312	012	(9.5-	1.0-)	611006	760	2.8-	3.5+	740320	095	1.4-	0.5-
360316	012	0.8+	3.5-	611006	760	0.0	2.3+	801106	801	0.7+	2.0+
360317	012	3.1-	3.3-	651120	760	0.5-	1.3+	801108	879	0.9-	0.1+
360319	012	1.3-	0.5-	651120	760	0.2-	0.9+	801108	879	2.0+	0.1-
360321	012	2.5+	0.6-	651120	330	0.5-	0.9-	801210	688	1.4+	2.2-
360323	012	3.5+	3.5+	651125	330	1.0-	0.3-	801210	688	1.9+	3.2-
360324	012	(4.1+	55.9-)	651128	330	1.7-	1.7+				

(2332)* 1940 GH = 1951 JT = 1975 XZ1 = 1975 XM3

Discovered 1940 Apr. 4 by L. Oterma at Turku.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	141.57267	(1950.0)	P	Q
n	0.18327937	Peri. 238.95736	+0.47839128	+0.84992683
a	3.0694483	Node 61.21601	-0.69502716	+0.52016733
e	0.0693981	Incl. 14.59369	-0.53672993	+0.08396618
P	5.38	B(1,0) 11.5		

Residuals in seconds of arc

400404	062	0.4-	0.1-	751129	330	0.3-	1.0+	801108	879	0.7-	0.6+
400410	062	1.0+	1.4-	751201	095	1.1+	6.0+	801108	879	0.9+	0.3+
400411	062	0.4-	1.0+	751202	095	1.9+	3.0-	801109	879	0.9+	0.6+
400412	062	0.5-	1.2+	751223	330	0.9-	1.0+	801129	688	1.0+	1.8-
510503	711	3.2-	1.1-	Y 751229	330	1.8-	2.1+	801129	688	0.7+	1.5-
510503	711	2.3-	7.2-	Y 801103	801	0.4+	2.1+	801204	688	0.6+	2.5-
751123	330	0.7-	0.2+	801108	688	2.8+	1.5-	801204	688	1.1+	2.3-
751126	330	0.1-	0.1+	801108	688	0.3+	1.6-				

(2333)* 1943 EP = 1952 HS3 = 1954 UK2 = 1973 GT

Discovered 1943 Mar. 3 by Y. Vaisala at Turku. The identification

1943 EP = 1973 GT is by E. Bowell (MPC 5355).

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	353.37538	(1950.0)	P	Q
n	0.22894206	Peri. 98.55844	-0.73457201	-0.66541535
a	2.6463807	Node 39.88587	+0.51203806	-0.67199955
e	0.1338902	Incl. 11.94874	+0.44522015	-0.32502154
P	4.31	B(1,0) 13.0		

Residuals in seconds of arc

430303	062	1.7-	2.5+	541028	760	2.8+	0.8-	730404	095	0.5-	0.8+
430308	062	0.9+	0.4+	541028	760	3.7+	4.3-	801106	801	0.3+	1.3+
430311	062	1.1+	0.1+	541116	760	0.0	1.8-	801208	552	0.7+	0.7+
430327	062	1.5+	0.9-	541116	760	0.9-	1.2-	801209	552	1.0-	0.4+
520427	711	7.0-	5.1-	Y 541117	760	0.2+	1.3-	801210	552	0.4+	1.6-
520427	711	4.5-	6.6-	Y 541117	760	0.2+	2.0-	801212	552	0.1+	1.0-
520428	711	5.0+	0.3-	Y 730401	095	0.8-	2.6-				

(2334)* 1962 HD = 1962 JQ = 1949 QK = 1959 NM = 1966 PR

Discovered 1962 Apr. 27 at the Goethe Link Observatory, Indiana University. The key identifications 1962 HD = 1949 QK = 1966 PR are by E. Bowell (MPC 5417). The double designation 1962 HD = 1962 JQ was found by O. Kippes (MPC 2324).

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	208.15895	(1950.0)	P	Q
n	0.28848144	Peri. 111.71557	-0.60837173	+0.79127881
a	2.2684235	Node 120.66558	-0.75194218	-0.54995243
e	0.0744430	Incl. 4.08888	-0.25390312	-0.26726423
P	3.42	B(1,0) 14.5		

Residuals in seconds of arc

490821	024	1.4-	0.5+	660807	074	0.8+	0.2+	800916	046	3.9+	2.0-
490822	024	0.7-	5.8+	660807	074	0.6+	0.1+	800916	046	0.2-	0.6-
590710	760	0.3+	0.3+	660808	074	3.1+	1.0-	801001	046	1.2-	2.0-
590710	760	0.3-	0.9-	660808	074	1.8-	1.4-	801001	046	5.9-	5.4-
620427	760	0.3-	0.2+	660809	074	1.1+	0.3-	801003	046	1.0-	2.3-
620427	760	0.4+	0.3+	660809	074	0.8-	0.2+	801003	046	2.2-	0.2+
620503	760	3.3-	0.2+	660810	074	2.1-	0.7+	801005	046	2.2+	0.8-
620503	760	0.2-	0.6+	800915	511	0.6+	0.8+	801005	046	2.6+	0.9+
620507	760	1.3+	2.3-	800915	511	1.1+	1.5+	801013	801	1.9+	5.2+
620507	760	0.4+	2.8-	800915	511	1.4+	3.5-				

(2335)* 1974 UB

Discovered 1974 Oct. 17 by E. Helin at Palomar.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	26.99429	(1950.0)	P	Q
n	0.31853563	Peri. 79.52848	-0.09391427	-0.97561843
a	2.1233946	Node 19.55831	+0.50876984	-0.21829516
e	0.3592253	Incl. 36.33810	+0.85576477	+0.02271360
P	3.09	B(1,0) 14.3		

Residuals in seconds of arc

741017	675	(6.2+	1.0-)	741119	675	0.8+	0.6+	771007	801	4.6-	0.1-
741018	675	0.9-	0.3+	741215	801	0.5-	0.2+	771011	801	1.4+	0.0
741019	675	0.1+	0.1+	750114	801	(7.7-	6.7-)	771109	675	1.0-	0.3+
741021	801	0.1-	0.2-	750115	675	0.6+	0.0	771109	675	0.1-	0.3+
741022	801	1.7+	2.4+	750207	801	0.6-	0.0	771117	801	1.1-	0.1+
741023	801	3.8-	0.2+	750417	691	0.8+	1.5+	801030	801	1.2-	0.4-
741025	690	1.8+	1.6-	750417	691	0.2-	1.0+	801113	801	0.8+	0.7+
741025	690	2.5+	2.0-	750505	691	1.1+	1.8+	801211	801	0.1+	0.5+
741115	801	1.7+	1.1-	770821	801	0.4+	1.6+				

(2336)* 1975 WL1 = 1974 SA1

Discovered 1975 Nov. 26 at the Purple Mountain Observatory.

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	324.69429	(1950.0)	P	Q
n	0.17130762	Peri. 26.43681	-0.40300995	-0.91388802
a	3.2108371	Node 87.36306	+0.83072389	-0.38771271
e	0.1382705	Incl. 2.80613	+0.38403227	-0.12036424
P	5.75	B(1,0) 12.5		

Residuals in seconds of arc

740919	095	0.7-	2.3-	751224	330	0.2-	1.5-	801003	046	0.8-	0.4-
740921	095	0.8+	1.9+	760105	330	0.3-	1.2-	801005	046	0.8-	2.3+
751126	330	3.0+	0.3-	800916	046	1.1-	0.2-	801005	046	1.4+	0.3+
751129	330	0.6-	1.7+	800916	046	0.9-	0.5-	801106	688	0.3-	2.5-
751202	330	1.4-	0.3-	801001	046	0.1+	0.7+	801106	688	1.4+	2.5-
751211	330	0.2+	0.3+	801001	046	3.1+	2.4+				
751222	330	0.4-	0.4-	801003	046	2.1-	0.2-				

(2337)* 1976 UH1 = 1955 TV = 1970 HF

Discovered 1976 Oct. 22 by P. Wild at Zimmerwald. The key identification 1976 UH1 = 1970 HF was found independently by T. Urata (NOC 1067) and B. G. Marsden (MPC 5418).

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	19.69422	(1950.0)	P	Q
n	0.23597957	Peri. 25.35492	+0.46901483	-0.87030809
a	2.5935012	Node 37.20067	+0.76201004	+0.31272725
e	0.1695606	Incl. 14.39375	+0.44650395	+0.38048061
P	4.18	B(1,0) 12.5		

Residuals in seconds of arc

551011	388	0.3+	0.5-	761126	026	1.4-	2.3-	801010	688	0.4+	0.6+
700429	095	1.6-	2.2-	761126	026	0.3-	1.3-	801010	688	0.4+	0.0
761022	026	1.0+	0.2-	761213	026	2.5+	1.6+	801109	801	1.3-	0.2+
761024	026	0.6+	0.3-	761214	026	0.7-	0.6+				

(2338)* 1977 QA3 = 1953 RH = 1956 EU = 1971 HG = 1975 ET2

Discovered 1977 Aug. 22 by N. Chernykh at the Crimean Astrophysical Observatory. The identifications are by T. Urata (NOC 1130).

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	326.28211		(1950.0)		P		Q
n	0.20669494	Peri.	203.67997		+0.72018028		+0.69185963
a	2.8330190	Node	112.43738		-0.62723782		+0.68112385
e	0.0588874	Incl.	3.20511		-0.29650139		+0.23958412
P	4.77	B(1,0)	13.0				

Residuals in seconds of arc

530913	760	2.4-	0.7+	560309	760	1.8-	2.6+	770908	095	0.1+	0.3-
530913	760	0.2+	1.6+	710420	095	0.2-	0.4-	770910	095	0.7-	0.7-
530917	760	1.8+	0.7+	750308	095	3.0+	0.6+	770918	095	0.3+	0.4-
530917	760	0.7+	0.6+	770822	095	0.6-	0.5+	770922	095	0.2+	0.3-
560309	760	0.4-	0.9-	770824	095	0.8-	0.3-	771007	095	0.5+	0.6-

(2339)* 2509 P-L = 1948 TH1 = 1952 UH1 = 1972 RK3 = 1976 QQ1

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groenveld on Palomar Schmidt plates taken by T. Gehrels. The key identification 2509 P-L = 1976 QQ1 is by H. Oishi (JAM 489).

Epoch 1981 July 15.0 ET = JDE 2444800.5

M	74.13540		(1950.0)		P		Q
n	0.24542359	Peri.	340.76781		+0.99142606		+0.12951006
a	2.5265342	Node	11.83109		-0.10601658		+0.87493027
e	0.1965413	Incl.	4.85836		-0.07638626		+0.46660922
P	4.02	B(1,0)	14.5				

Residuals in seconds of arc

481009	012	(1.1+	3.6+)	600929	675	0.1+	0.3+	760924	095	0.3-	1.1+
521017	024	0.3-	0.0	601017	675	0.5-	2.1+	760925	095	3.9-	0.6+
521025	760	2.7+	1.4-	601022	675	1.2-	0.9+	760928	095	3.3+	1.8+
521025	760	1.0-	1.2-	601025	675	0.7-	0.2-	760928	095	3.7-	5.4-
600924	675	0.6-	0.3+	601026	675	0.2+	0.4-	800816	801	0.4+	1.0+
600926	675	0.3+	0.8+	720905	095	2.5+	1.0-	800817	801	0.4+	0.0
600928	675	0.1-	0.4+	760826	095	1.0+	0.9-	800919	801	1.7+	1.4+

1964 TC2 = 1953 UO = 1975 TR = 1977 DD4

The key identification 1964 TC2 = 1977 DD4 was found independently by H. Oishi (JAM 735) and E. Bowell.

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

M	208.29666		(1950.0)		P		Q
n	0.26734526	Peri.	16.20898		+0.99683395		-0.07634501
a	2.3864660	Node	348.10329		+0.05555600		+0.86864681
e	0.1278600	Incl.	6.18643		+0.05688243		+0.48951420
P	3.69	B(1,0)	14.5				

Residuals in seconds of arc

531018	760	(34.6+	14.4+)	X	641109	330	0.1-	0.5-	770218	381	1.7+	0.9+
641009	330	0.4+	0.7-		751003	095	1.2-	2.5+	770219	381	0.1-	0.4+
641030	330	0.2-	0.0		770218	381	0.9+	0.2+	770219	381	2.2-	0.8+

1966 BA1 = 1973 TJ = 1977 AK1

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

M	178.89655		(1950.0)		P		Q
n	0.08263937	Peri.	92.12311	+0.49754586			-0.85759024
a	5.2201011	Node	326.98933	+0.66987558			+0.47532491
e	0.0741698	Incl.	13.84144	+0.55110327			+0.19648209
P	11.93	B(1,0)	10.0				

Residuals in seconds of arc

660130	330	1.1+	0.3-	660225	330	2.5+	1.0+	770113	095	0.2-	0.2+
660214	330	0.1-	2.4-	660316	330	2.4-	3.2+	770120	095	0.2+	0.5+
660214	330	1.6-	1.7-	731001	095	0.2+	0.3-				

1975 VW3 = 1952 HG2 = 1980 TA1

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

M	40.32129		(1950.0)		P		Q
n	0.18951523	Peri.	333.50332	+0.86684698			-0.47494528
a	3.0017475	Node	55.67415	+0.48379210			+0.72775538
e	0.0956534	Incl.	10.58258	+0.12050521			+0.49477175
P	5.20	B(1,0)	12.5				

Residuals in seconds of arc

520424	711	0.0	0.1-	Y	751201	095	1.2-	1.3+	801005	046	0.8-	0.5+
751102	095	1.5-	1.1-		751203	095	3.4+	0.5-	801030	046	0.3-	1.1-
751107	095	0.9-	0.9+		801005	046	0.3-	0.7+	801030	046	1.7+	0.8-

4021 P-L = 1977 DZ2

The identification is by E. Bowell.

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

M	109.83976		(1950.0)		P		Q
n	0.25871462	Peri.	100.52477	+0.17943090			-0.98360291
a	2.4392497	Node	339.11211	+0.88144962			+0.16893961
e	0.1604289	Incl.	2.91997	+0.43686509			+0.06312475
P	3.81	B(1,0)	15.1				

Residuals in seconds of arc

600924	675	0.6-	0.1-	601017	675	0.5-	0.2-	770218	381	0.0	0.1+
600925	675	0.5-	0.8-	601022	675	0.3+	0.2+	770218	381	0.3-	0.3-
600926	675	0.1+	0.5-	601024	675	1.1+	0.2+	770219	381	0.5+	1.1-
600928	675	0.0	0.1+	601026	675	1.3+	0.3+	770219	381	0.2+	1.2-

6578 P-L = 1977 DV

The identification is by E. Bowell.

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

M	60.45218		(1950.0)		P		Q
n	0.26348597	Peri.	51.58910	-0.87386082			-0.48344087
a	2.4097126	Node	99.44580	+0.42817755			-0.81545745
e	0.1402419	Incl.	2.99262	+0.23028514			-0.31829869
P	3.74	B(1,0)	14.9				

Residuals in seconds of arc

600924	675	0.0	0.1+	601017	675	1.0+	1.1+	770218	381	0.1-	0.4-
600926	675	0.0	0.1+	601022	675	1.0-	0.2+	770218	381	0.0	1.9-
600927	675	0.3-	1.0-	601024	675	1.0+	0.2-	770219	381	0.3+	0.1-
600928	675	0.9+	0.7+	601026	675	0.5+	0.6+	770219	381	0.1+	0.1-

NEW NAMES OF MINOR PLANETS.

(1952) Hesburgh = 1951 JC

Discovered 1951 May 3 at the Goethe Link Observatory, Indiana University.

Named in honor of the Very Reverend Theodore M. Hesburgh, C.S.C., President of the University of Notre Dame since 1952. Father Hesburgh has an extraordinary record of public service in areas ranging from the humanitarian to the technical and scientific. During his 12 years as a member of the National Science Board he played a very important role in the founding of both the Kitt Peak National Observatory and the Cerro Tololo Interamerican Observatory. His support for CTIO during the 1964 period of inflation in Chile was decisive. Name proposed by F. K. Edmondson.

(2044) Wirt = 1950 VE

Discovered 1950 Nov. 8 by C. A. Wirtanen at the Lick Observatory.

Named in honor of Carl A. Wirtanen, known for his discovery of several comets and minor planets and for his contribution to the Shane-Wirtanen survey of galaxies. He contributed to astrometric and other programs of the Lick Observatory for 33 years, including the proper-motion program with respect to galaxies. Name proposed by A. R. Klemola.

(2246) Bowell = 1979 XH

Discovered 1979 Dec. 14 by E. Bowell at the Lowell Observatory's Anderson Mesa Station.

Named in honor of Edward L. G. Bowell, Lowell Observatory astronomer who has made and who continues to make impressive contributions in many areas of minor-planet astronomy. Following his comprehensive UBV photoelectric photometry of minor planets, he has revived and augmented the Lowell photographic astrometric program and has discovered several new objects. He also does extensive orbital work on minor planets, including the establishment of identifications and the prediction of occultations. Name proposed by B. G. Marsden.

(2287) Kalmykia = 1977 QK3

Discovered 1977 Aug. 22 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named for one of the autonomous republics of the R.S.F.S.R.

(2297) Daghestan = 1978 RE

Discovered 1978 Sept. 1 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Named for one of the autonomous republics of the R.S.F.S.R.

(2329) Orthos = 1976 WA

Discovered 1976 Nov. 19 by H.-E. Schuster at the European Southern Observatory.

Named for Orthos, the two-headed dog from Greek mythology. Together with his master Eurytion, this dog looked after the cattle of Geryones. One of the twelve labors of Heracles was to steal these cattle.

(2335) James = 1974 UB

Discovered 1974 Oct. 17 by E. F. Helin at Palomar.

Named in honor of James G. Williams, celestial mechanic who extended the theory of secular perturbations to orbits of high inclination. This minor planet lies very near one of the secular resonances discovered by Williams, and its argument of perihelion librates around the value of 90 degrees.

EPHEMERIDES.

1979 QE		Elements MPC 5683								
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.		
1980	12 27	05 19.74	+27 10.9	1.966	2.929	165.5	4.8	15.9		
1981	01 06	05 11.61	+26 18.1							
1981	01 16	05 05.64	+25 26.3	2.084	2.925	142.3	11.9	16.2		
1981	01 26	05 02.28	+24 38.8							
1981	02 05	05 01.64	+23 57.8	2.288	2.921	121.0	16.8	16.5		
1981	02 15	05 03.66	+23 23.9							
1981	02 25	05 08.10	+22 56.5	2.543	2.918	102.2	19.4	16.8		
1981	03 07	05 14.68	+22 34.3							
1981	03 17	05 23.11	+22 15.8	2.818	2.915	85.6	19.9	17.0		

(2325) 1979 SP		Elements MPC 5678								
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.		
1980	12 27	07 52.44	+19 27.3	1.959	2.896	158.5	7.1	16.4		
1981	01 06	07 44.30	+19 52.5							
1981	01 16	07 35.48	+20 19.0	1.945	2.927	176.7	1.1	16.1		
1981	01 26	07 27.03	+20 44.0							
1981	02 05	07 19.87	+21 05.6	2.047	2.959	152.9	8.7	16.6		
1981	02 15	07 14.73	+21 22.6							
1981	02 25	07 12.02	+21 34.8	2.248	2.991	130.8	14.5	17.0		
1981	03 07	07 11.82	+21 42.2							
1981	03 17	07 14.08	+21 44.8	2.516	3.023	111.3	17.9	17.3		
1981	03 27	07 18.55	+21 42.7							
1981	04 06	07 24.95	+21 35.6	2.818	3.056	94.0	19.1	17.6		

1979 UD		Elements MPC 5683								
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.		
1980	12 27	08 36.04	+27 32.0	2.487	3.371	149.5	8.5	16.8		
1981	01 06	08 29.39	+28 25.5							
1981	01 16	08 21.33	+29 16.2	2.408	3.379	169.1	3.2	16.5		
1981	01 26	08 12.67	+29 59.4							
1981	02 05	08 04.29	+30 31.9	2.449	3.387	158.8	6.0	16.7		
1981	02 15	07 57.05	+30 52.2							
1981	02 25	07 51.63	+31 00.6	2.600	3.394	137.2	11.4	17.0		
1981	03 07	07 48.41	+30 58.5							
1981	03 17	07 47.57	+30 47.6	2.832	3.401	116.9	15.1	17.3		
1981	03 27	07 49.04	+30 29.7							
1981	04 06	07 52.65	+30 06.0	3.110	3.407	98.6	16.9	17.5		

1978 NC3		Elements MPC 5679								
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.		
1980	12 27	09 30.36	+02 06.8	2.561	3.277	129.7	13.4	17.7		
1981	01 06	09 26.47	+02 05.0							
1981	01 16	09 20.79	+02 18.3	2.399	3.293	150.9	8.4	17.5		
1981	01 26	09 13.80	+02 46.2							
1981	02 05	09 06.12	+03 26.7	2.339	3.308	167.2	3.8	17.3		
1981	02 15	08 58.49	+04 16.5							
1981	02 25	08 51.68	+05 11.3	2.398	3.322	155.1	7.2	17.5		
1981	03 07	08 46.28	+06 06.6							
1981	03 17	08 42.74	+06 58.7	2.563	3.334	134.3	12.3	17.7		
1981	03 27	08 41.26	+07 44.5							
1981	04 06	08 41.84	+08 22.2	2.804	3.346	114.6	15.8	18.0		
1981	04 16	08 44.40	+08 50.8							
1981	04 26	08 48.74	+09 09.8	3.086	3.356	96.8	17.3	18.3		

1978 RT		Elements MPC 5679							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1980 12 27		09 37.63	+21 49.9	2.871	3.633	135.0	11.0	18.8	
1981 01 06		09 33.43	+22 20.7						
1981 01 16		09 27.39	+22 55.7	2.700	3.627	157.2	6.0	18.6	
1981 01 26		09 19.95	+23 31.1						
1981 02 05		09 11.71	+24 03.1	2.641	3.620	172.1	2.1	18.3	
1981 02 15		09 03.43	+24 28.1						
1981 02 25		08 55.87	+24 43.7	2.704	3.612	152.7	7.2	18.6	
1981 03 07		08 49.66	+24 49.2						
1981 03 17		08 45.28	+24 44.6	2.872	3.603	130.9	12.0	18.9	
1981 03 27		08 42.96	+24 30.9						
1981 04 06		08 42.72	+24 09.4	3.111	3.592	110.9	15.1	19.1	
1981 04 16		08 44.50	+23 41.1						
1981 04 26		08 48.09	+23 06.9	3.385	3.580	92.9	16.3	19.3	
1981 05 06		08 53.30	+22 27.3						
1981 05 16		08 59.90	+21 42.9	3.662	3.567	76.6	16.0	19.4	
1981 05 26		09 07.68	+20 54.0						
1981 06 05		09 16.44	+20 00.7	3.920	3.552	61.7	14.6	19.6	

1955 WB		Elements MPC 5678							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1980 12 27		11 25.10	-07 09.4	3.556	3.850	100.0	14.6	17.8	
1981 01 06		11 26.47	-07 40.7						
1981 01 16		11 26.17	-08 01.1	3.263	3.841	119.3	12.9	17.6	
1981 01 26		11 24.18	-08 09.1						
1981 02 05		11 20.55	-08 03.4	3.022	3.831	140.1	9.5	17.3	
1981 02 15		11 15.47	-07 43.5						
1981 02 25		11 09.31	-07 10.0	2.870	3.819	160.9	4.9	17.1	
1981 03 07		11 02.55	-06 24.9						
1981 03 17		10 55.79	-05 31.4	2.833	3.806	165.8	3.7	17.0	
1981 03 27		10 49.60	-04 33.9						
1981 04 06		10 44.49	-03 36.5	2.914	3.791	146.7	8.3	17.2	
1981 04 16		10 40.83	-02 43.5						
1981 04 26		10 38.83	-01 58.0	3.092	3.774	126.2	12.4	17.4	
1981 05 06		10 38.56	-01 21.8						
1981 05 16		10 39.98	-00 56.2	3.333	3.756	107.1	14.9	17.6	
1981 05 26		10 42.98	-00 41.5						
1981 06 05		10 47.41	-00 37.4	3.602	3.737	89.7	15.8	17.8	

4021 P-L		Elements MPC 5687							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1980 12 27		12 01.64	+00 05.5	1.983	2.283	94.6	25.4	19.0	
1981 01 06		12 09.11	-00 53.8						
1981 01 16		12 14.21	-01 39.0	1.770	2.318	111.4	23.3	18.7	
1981 01 26		12 16.64	-02 08.2						
1981 02 05		12 16.14	-02 19.9	1.586	2.354	131.0	18.4	18.4	
1981 02 15		12 12.65	-02 13.2						
1981 02 25		12 06.41	-01 49.2	1.462	2.390	153.7	10.6	18.1	
1981 03 07		11 58.01	-01 10.9						
1981 03 17		11 48.47	-00 23.7	1.431	2.425	177.8	0.9	17.6	
1981 03 27		11 39.03	+00 25.0						
1981 04 06		11 30.82	+01 08.2	1.508	2.461	157.1	9.1	18.2	
1981 04 16		11 24.75	+01 40.4						
1981 04 26		11 21.27	+01 58.3	1.680	2.495	135.0	16.6	18.6	
1981 05 06		11 20.48	+02 00.9						
1981 05 16		11 22.26	+01 48.5	1.917	2.529	116.0	21.1	19.0	
1981 05 26		11 26.33	+01 22.2						
1981 06 05		11 32.38	+00 43.8	2.190	2.562	99.5	23.0	19.4	

1964 TC2		Elements MPC 5686							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1980 12 27		12 23.45	-02 05.6	2.502	2.669	88.8	21.6	19.1	
1981 01 06		12 30.06	-03 03.4						
1981 01 16		12 34.74	-03 50.6	2.236	2.677	105.9	20.7	18.9	
1981 01 26		12 37.22	-04 25.6						
1981 02 05		12 37.24	-04 47.0	1.991	2.684	125.2	17.5	18.5	
1981 02 15		12 34.61	-04 53.7						
1981 02 25		12 29.40	-04 45.4	1.802	2.689	147.2	11.5	18.2	
1981 03 07		12 21.88	-04 22.9						
1981 03 17		12 12.73	-03 49.1	1.703	2.691	171.2	3.3	17.8	
1981 03 27		12 02.91	-03 08.6						
1981 04 06		11 53.45	-02 27.1	1.717	2.692	163.5	6.0	17.9	
1981 04 16		11 45.39	-01 50.8						
1981 04 26		11 39.42	-01 24.1	1.836	2.690	140.5	13.8	18.3	
1981 05 06		11 35.92	-01 10.0						
1981 05 16		11 34.99	-01 09.8	2.033	2.686	120.0	19.0	18.6	
1981 05 26		11 36.51	-01 23.3						
1981 06 05		11 40.24	-01 49.7	2.273	2.680	102.4	21.7	18.9	

(2257) 1939 QB		Elements MPC 5352							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 01 16		13 11.19	-12 09.5	2.846	3.081	94.3	18.6	19.4	
1981 01 26		13 15.34	-12 42.8						
1981 02 05		13 17.55	-13 04.5	2.558	3.077	112.8	17.2	19.2	
1981 02 15		13 17.61	-13 12.9						
1981 02 25		13 15.41	-13 06.7	2.306	3.071	133.3	13.6	18.9	
1981 03 07		13 10.98	-12 44.8						
1981 03 17		13 04.56	-12 07.4	2.127	3.062	155.9	7.6	18.5	
1981 03 27		12 56.69	-11 16.2						
1981 04 06		12 48.07	-10 14.9	2.052	3.050	175.3	1.6	18.1	
1981 04 16		12 39.57	-09 08.8						
1981 04 26		12 32.03	-08 04.3	2.094	3.036	155.0	8.1	18.5	
1981 05 06		12 26.09	-07 06.8						
1981 05 16		12 22.18	-06 20.7	2.237	3.018	132.9	14.2	18.8	
1981 05 26		12 20.47	-05 48.3						
1981 06 05		12 20.95	-05 30.6	2.450	2.997	113.1	18.1	19.0	
1981 06 15		12 23.49	-05 27.2						
1981 06 25		12 27.90	-05 37.1	2.696	2.974	95.7	19.9	19.3	

(2208) 1977 QL3		Elements MPC 5179							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 01 16		13 13.01	-01 33.4	3.304	3.574	97.9	15.8	17.2	
1981 01 26		13 16.55	-01 40.3						
1981 02 05		13 18.40	-01 36.5	3.026	3.580	116.8	14.2	17.0	
1981 02 15		13 18.42	-01 22.1						
1981 02 25		13 16.59	-00 57.8	2.795	3.587	137.4	10.8	16.8	
1981 03 07		13 13.00	-00 25.3						
1981 03 17		13 07.90	+00 13.1	2.646	3.593	159.2	5.6	16.5	
1981 03 27		13 01.70	+00 53.8						
1981 04 06		12 54.94	+01 33.0	2.605	3.599	172.2	2.1	16.3	
1981 04 16		12 48.27	+02 06.7						
1981 04 26		12 42.26	+02 31.9	2.681	3.605	152.7	7.3	16.6	
1981 05 06		12 37.41	+02 46.2						
1981 05 16		12 34.06	+02 48.6	2.857	3.610	131.8	12.0	16.8	
1981 05 26		12 32.37	+02 39.2						
1981 06 05		12 32.38	+02 18.6	3.102	3.616	112.6	15.0	17.1	
1981 06 15		12 34.06	+01 47.9						
1981 06 25		12 37.26	+01 08.2	3.385	3.621	95.2	16.2	17.3	

1978 UV1		Elements MPC 5181							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 01 16		13 18.67	+01 12.2	3.034	3.310	97.6	17.1	17.9	
1981 01 26		13 22.68	+01 04.0						
1981 02 05		13 24.87	+01 06.7	2.744	3.299	116.1	15.6	17.6	
1981 02 15		13 25.07	+01 20.3						
1981 02 25		13 23.18	+01 43.6	2.499	3.287	136.4	12.0	17.3	
1981 03 07		13 19.24	+02 14.9						
1981 03 17		13 13.46	+02 51.2	2.331	3.275	157.8	6.6	17.0	
1981 03 27		13 06.29	+03 28.3						
1981 04 06		12 58.35	+04 01.9	2.271	3.261	169.8	3.1	16.8	
1981 04 16		12 50.38	+04 27.7						
1981 04 26		12 43.12	+04 42.1	2.325	3.246	151.6	8.5	17.1	
1981 05 06		12 37.18	+04 43.5						
1981 05 16		12 32.98	+04 31.0	2.478	3.230	130.7	13.7	17.3	
1981 05 26		12 30.74	+04 05.5						
1981 06 05		12 30.47	+03 27.9	2.697	3.214	111.7	17.1	17.6	
1981 06 15		12 32.13	+02 39.8						
1981 06 25		12 35.54	+01 42.7	2.951	3.196	94.5	18.5	17.8	

1975 VD		Elements MPC 5033							
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation	Mag.		
1981 01 16		13 21.09	-08 23.3	2.616	2.850	-0.67	+5.3	20.8	
1981 01 26		13 26.14	-09 05.4						
1981 02 05		13 29.19	-09 37.0	2.323	2.836	-0.78	+5.9	20.5	
1981 02 15		13 29.96	-09 56.8						
1981 02 25		13 28.24	-10 03.8	2.062	2.819	-0.90	+6.8	20.2	
1981 03 07		13 23.95	-09 57.2						
1981 03 17		13 17.24	-09 36.9	1.868	2.799	-1.01	+7.8	19.8	
1981 03 27		13 08.57	-09 04.5						
1981 04 06		12 58.71	-08 23.2	1.775	2.776	-1.05	+8.3	19.2	
1981 04 16		12 48.68	-07 38.0						
1981 04 26		12 39.51	-06 54.8	1.797	2.749	-0.99	+8.2	19.7	
1981 05 06		12 32.04	-06 18.9						
1981 05 16		12 26.87	-05 54.6	1.919	2.719	-0.88	+7.6	19.9	
1981 05 26		12 24.24	-05 44.0						
1981 06 05		12 24.15	-05 47.9	2.108	2.686	-0.77	+6.7	20.2	
1981 06 15		12 26.46	-06 05.8						
1981 06 25		12 30.94	-06 36.7	2.330	2.650	-0.69	+6.0	20.5	

1978 RH		Elements MPC 5602							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 01 16		13 21.24	-06 16.2	3.505	3.710	94.2	15.3	19.4	
1981 01 26		13 24.30	-06 27.7						
1981 02 05		13 25.69	-06 28.9	3.239	3.742	113.4	14.0	19.2	
1981 02 15		13 25.29	-06 19.5						
1981 02 25		13 23.10	-05 59.7	3.014	3.773	134.4	10.8	19.0	
1981 03 07		13 19.19	-05 30.3						
1981 03 17		13 13.82	-04 53.0	2.867	3.802	156.9	5.9	18.8	
1981 03 27		13 07.39	-04 10.5						
1981 04 06		13 00.40	-03 26.1	2.830	3.830	177.2	0.7	18.4	
1981 04 16		12 53.46	-02 43.5						
1981 04 26		12 47.12	-02 06.2	2.913	3.855	156.3	6.0	18.9	
1981 05 06		12 41.84	-01 37.0						
1981 05 16		12 37.97	-01 17.7	3.102	3.879	134.6	10.7	19.1	
1981 05 26		12 35.67	-01 09.1						
1981 06 05		12 34.98	-01 11.2	3.367	3.901	114.7	13.7	19.4	
1981 06 15		12 35.88	-01 23.4						
1981 06 25		12 38.25	-01 44.8	3.673	3.921	96.6	14.9	19.6	

1964 VM1						Elements MPC		5599
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 01 16		13 17.43	-05 52.2	2.772	3.025	95.3	18.9	18.6
1981 01 26		13 22.32	-06 18.7					
1981 02 05		13 25.29	-06 33.7	2.503	3.034	113.5	17.3	18.3
1981 02 15		13 26.14	-06 36.4					
1981 02 25		13 24.77	-06 26.6	2.272	3.042	133.8	13.6	18.0
1981 03 07		13 21.17	-06 04.8					
1981 03 17		13 15.58	-05 32.5	2.112	3.050	156.2	7.6	17.7
1981 03 27		13 08.49	-04 52.6					
1981 04 06		13 00.55	-04 09.2	2.056	3.056	177.9	0.7	17.2
1981 04 16		12 52.59	-03 27.2					
1981 04 26		12 45.42	-02 51.4	2.114	3.062	156.2	7.6	17.7
1981 05 06		12 39.67	-02 25.3					
1981 05 16		12 35.78	-02 11.4	2.273	3.067	134.4	13.6	18.0
1981 05 26		12 33.97	-02 10.7					
1981 06 05		12 34.22	-02 22.8	2.502	3.072	115.0	17.4	18.3
1981 06 15		12 36.46	-02 47.0					
1981 06 25		12 40.49	-03 21.8	2.769	3.075	97.7	19.1	18.6

1980 CG						Elements MPC		5272
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 01 16		13 22.33	-01 48.1	2.989	3.237	-0.56	+2.4	19.3
1981 01 26		13 26.40	-01 37.5					
1981 02 05		13 28.62	-01 13.4	2.712	3.247	-0.62	+2.7	19.1
1981 02 15		13 28.80	-00 35.6					
1981 02 25		13 26.86	+00 15.2	2.476	3.254	-0.69	+3.1	18.8
1981 03 07		13 22.81	+01 17.0					
1981 03 17		13 16.90	+02 26.4	2.319	3.258	-0.76	+3.4	18.5
1981 03 27		13 09.56	+03 38.3					
1981 04 06		13 01.44	+04 47.2	2.271	3.259	-0.78	+3.4	18.3
1981 04 16		12 53.29	+05 47.1					
1981 04 26		12 45.85	+06 33.7	2.340	3.256	-0.75	+3.1	18.6
1981 05 06		12 39.72	+07 04.2					
1981 05 16		12 35.35	+07 17.9	2.509	3.250	-0.69	+2.7	18.9
1981 05 26		12 32.92	+07 15.3					
1981 06 05		12 32.47	+06 58.2	2.743	3.241	-0.61	+2.4	19.1
1981 06 15		12 33.92	+06 28.2					
1981 06 25		12 37.12	+05 47.6	3.007	3.229	-0.55	+2.2	19.4

6578 P-L						Elements MPC		5687
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 01 16		13 05.04	-03 11.3	1.687	2.083	99.1	27.8	18.3
1981 01 26		13 14.89	-03 50.9					
1981 02 05		13 22.36	-04 14.1	1.478	2.095	115.0	25.3	17.9
1981 02 15		13 27.04	-04 19.3					
1981 02 25		13 28.61	-04 06.1	1.301	2.109	133.7	19.8	17.5
1981 03 07		13 26.89	-03 35.3					
1981 03 17		13 22.03	-02 49.7	1.182	2.127	155.3	11.3	17.2
1981 03 27		13 14.68	-01 55.1					
1981 04 06		13 05.88	-00 59.3	1.149	2.148	174.4	2.6	16.8
1981 04 16		12 57.04	-00 11.3					
1981 04 26		12 49.48	+00 21.6	1.215	2.171	155.5	11.1	17.3
1981 05 06		12 44.16	+00 35.1					
1981 05 16		12 41.64	+00 28.0	1.365	2.196	134.6	19.1	17.7
1981 05 26		12 42.00	+00 01.7					
1981 06 05		12 45.08	-00 41.5	1.574	2.224	116.8	24.0	18.2
1981 06 15		12 50.61	-01 38.7					
1981 06 25		12 58.22	-02 47.2	1.817	2.253	101.5	26.2	18.6

(2185) Guangdong

					Elements MPC				5035
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 01 16		13 26.48	+00 45.3	2.758	3.017	95.6	18.9	18.0	
1981 01 26		13 31.79	+00 34.1						
1981 02 05		13 35.25	+00 34.8	2.462	2.995	113.5	17.6	17.7	
1981 02 15		13 36.59	+00 47.4						
1981 02 25		13 35.64	+01 11.3	2.203	2.971	133.3	14.0	17.4	
1981 03 07		13 32.33	+01 44.8						
1981 03 17		13 26.78	+02 25.0	2.016	2.945	154.5	8.4	17.1	
1981 03 27		13 19.39	+03 07.5						
1981 04 06		13 10.79	+03 47.0	1.929	2.919	169.5	3.6	16.8	
1981 04 16		13 01.86	+04 18.0						
1981 04 26		12 53.51	+04 36.2	1.954	2.890	153.6	8.9	17.0	
1981 05 06		12 46.51	+04 39.0						
1981 05 16		12 41.44	+04 25.4	2.078	2.861	132.6	15.1	17.2	
1981 05 26		12 38.61	+03 56.3						
1981 06 05		12 38.07	+03 13.1	2.269	2.831	113.5	19.2	17.5	
1981 06 15		12 39.76	+02 17.7						
1981 06 25		12 43.48	+01 12.1	2.494	2.799	96.6	21.1	17.7	

(1198) Atlantis

					Elements MPC				5640
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 01 16		13 36.22	-12 57.6	2.738	2.882	88.3	19.9	20.9	
1981 01 26		13 42.51	-13 41.3						
1981 02 05		13 47.03	-14 15.3	2.417	2.847	105.7	19.5	20.6	
1981 02 15		13 49.47	-14 38.0						
1981 02 25		13 49.55	-14 47.8	2.119	2.808	125.1	16.8	20.3	
1981 03 07		13 47.06	-14 43.0						
1981 03 17		13 41.95	-14 22.1	1.877	2.764	146.9	11.3	19.8	
1981 03 27		13 34.46	-13 44.9						
1981 04 06		13 25.14	-12 52.8	1.724	2.716	170.5	3.5	19.3	
1981 04 16		13 14.90	-11 49.7						
1981 04 26		13 04.83	-10 41.9	1.684	2.664	163.4	6.2	19.4	
1981 05 06		12 55.97	-09 36.5						
1981 05 16		12 49.17	-08 40.3	1.751	2.608	140.0	14.4	19.6	
1981 05 26		12 44.91	-07 58.1						
1981 06 05		12 43.37	-07 32.4	1.895	2.547	119.1	20.4	19.9	
1981 06 15		12 44.52	-07 23.8						
1981 06 25		12 48.15	-07 31.6	2.078	2.483	101.1	23.7	20.1	

(2232) 1969 RD2

					Elements MPC				5278
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 01 16		13 28.30	-11 36.9	2.655	2.842	90.6	20.3	18.4	
1981 01 26		13 35.27	-12 17.3						
1981 02 05		13 40.49	-12 46.8	2.355	2.817	107.7	19.5	18.1	
1981 02 15		13 43.68	-13 03.9						
1981 02 25		13 44.61	-13 07.1	2.082	2.790	126.9	16.5	17.7	
1981 03 07		13 43.10	-12 55.3						
1981 03 17		13 39.18	-12 27.8	1.866	2.763	148.3	10.9	17.3	
1981 03 27		13 33.12	-11 45.4						
1981 04 06		13 25.50	-10 50.7	1.741	2.735	171.7	3.0	16.9	
1981 04 16		13 17.15	-09 48.5						
1981 04 26		13 09.06	-08 45.0	1.725	2.706	164.0	5.9	17.0	
1981 05 06		13 02.13	-07 46.9						
1981 05 16		12 57.10	-06 59.7	1.813	2.677	141.2	13.7	17.2	
1981 05 26		12 54.37	-06 27.3						
1981 06 05		12 54.09	-06 10.9	1.977	2.647	121.0	19.2	17.5	
1981 06 15		12 56.22	-06 10.9						
1981 06 25		13 00.58	-06 25.8	2.186	2.617	103.5	22.2	17.8	

(2259) 1971 OG		Elements MPC 5353						
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 05		13 52.17	-17 41.0	1.879	2.314	103.3	24.5	17.8
1981 02 15		13 58.97	-18 43.6					
1981 02 25		14 03.41	-19 34.8	1.607	2.272	120.2	22.1	17.3
1981 03 07		14 05.07	-20 12.0					
1981 03 17		14 03.62	-20 32.2	1.377	2.229	139.4	16.9	16.8
1981 03 27		13 59.03	-20 32.5					
1981 04 06		13 51.59	-20 10.6	1.216	2.186	160.8	8.6	16.3
1981 04 16		13 42.18	-19 26.6					
1981 04 26		13 32.13	-18 24.8	1.147	2.144	169.2	5.1	16.0
1981 05 06		13 22.94	-17 13.4					
1981 05 16		13 15.95	-16 02.8	1.174	2.102	148.2	14.7	16.3
1981 05 26		13 12.02	-15 02.5					
1981 06 05		13 11.50	-14 18.6	1.277	2.062	127.8	22.9	16.6
1981 06 15		13 14.37	-13 54.2					
1981 06 25		13 20.37	-13 49.4	1.426	2.024	110.7	28.0	16.9
1981 07 05		13 29.14	-14 02.6					
1981 07 15		13 40.37	-14 31.2	1.597	1.988	96.5	30.5	17.2

(2263) 1978 UW1		Elements MPC 5354						
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 05		14 10.82	-04 33.1	2.980	3.350	103.5	16.6	17.9
1981 02 15		14 13.28	-04 38.3					
1981 02 25		14 13.78	-04 34.5	2.707	3.347	122.7	14.4	17.6
1981 03 07		14 12.20	-04 22.2					
1981 03 17		14 08.54	-04 02.8	2.490	3.344	143.7	10.2	17.3
1981 03 27		14 03.02	-03 38.4					
1981 04 06		13 55.99	-03 11.7	2.362	3.339	165.2	4.4	17.0
1981 04 16		13 48.04	-02 46.2					
1981 04 26		13 39.88	-02 25.6	2.347	3.334	166.6	4.0	17.0
1981 05 06		13 32.24	-02 12.8					
1981 05 16		13 25.75	-02 10.1	2.444	3.327	145.5	9.9	17.3
1981 05 26		13 20.87	-02 18.8					
1981 06 05		13 17.85	-02 38.8	2.632	3.319	125.0	14.5	17.5
1981 06 15		13 16.80	-03 09.6					
1981 06 25		13 17.66	-03 50.1	2.876	3.310	106.4	17.1	17.8
1981 07 05		13 20.31	-04 39.1					
1981 07 15		13 24.60	-05 35.3	3.146	3.300	89.6	17.9	18.0

2525 P-L		Elements MPC 4932						
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 05		14 14.77	-11 56.5	3.246	3.555	100.2	15.8	18.8
1981 02 15		14 17.67	-12 10.7					
1981 02 25		14 18.78	-12 15.9	2.949	3.541	119.3	14.1	18.5
1981 03 07		14 17.96	-12 11.8					
1981 03 17		14 15.20	-11 58.4	2.703	3.526	140.3	10.4	18.2
1981 03 27		14 10.64	-11 36.4					
1981 04 06		14 04.57	-11 07.2	2.541	3.510	162.8	4.8	17.9
1981 04 16		13 57.50	-10 33.0					
1981 04 26		13 50.06	-09 57.0	2.490	3.492	173.7	1.8	17.7
1981 05 06		13 42.89	-09 22.9					
1981 05 16		13 36.65	-08 54.0	2.555	3.474	151.0	8.1	18.0
1981 05 26		13 31.80	-08 33.1					
1981 06 05		13 28.66	-08 22.1	2.716	3.455	129.8	13.0	18.3
1981 06 15		13 27.38	-08 21.7					
1981 06 25		13 27.95	-08 32.0	2.943	3.435	110.6	16.1	18.5
1981 07 05		13 30.30	-08 52.3					
1981 07 15		13 34.31	-09 21.7	3.201	3.414	93.3	17.3	18.7

1976 JF2		Elements MPC 5356							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 05		14 16.45	-01 48.2	2.963	3.325	102.9	16.8	17.4	
1981 02 15		14 19.61	-01 38.4						
1981 02 25		14 20.85	-01 18.9	2.686	3.315	121.7	14.7	17.1	
1981 03 07		14 20.03	-00 50.4						
1981 03 17		14 17.12	-00 15.1	2.463	3.304	141.9	10.7	16.8	
1981 03 27		14 12.27	+00 24.3						
1981 04 06		14 05.81	+01 04.0	2.327	3.291	161.5	5.5	16.5	
1981 04 16		13 58.29	+01 39.8						
1981 04 26		13 50.39	+02 07.3	2.300	3.278	163.7	4.9	16.5	
1981 05 06		13 42.82	+02 23.3						
1981 05 16		13 36.28	+02 25.7	2.383	3.263	145.0	10.2	16.7	
1981 05 26		13 31.26	+02 13.7						
1981 06 05		13 28.05	+01 48.1	2.556	3.248	125.2	14.8	16.9	
1981 06 15		13 26.81	+01 10.0						
1981 06 25		13 27.49	+00 21.2	2.786	3.232	107.0	17.5	17.2	
1981 07 05		13 30.02	-00 36.4						
1981 07 15		13 34.23	-01 41.3	3.042	3.215	90.4	18.4	17.4	

1978 VB		Elements MPC 4637							
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation	Mag.		
1981 02 05		14 21.41	-23 56.1	3.079	3.309	-0.60	+4.4	18.9	
1981 02 15		14 24.70	-25 01.3						
1981 02 25		14 25.96	-25 59.9	2.797	3.309	-0.68	+4.7	18.7	
1981 03 07		14 24.98	-26 50.5						
1981 03 17		14 21.67	-27 30.7	2.555	3.308	-0.76	+5.2	18.4	
1981 03 27		14 16.12	-27 58.3						
1981 04 06		14 08.61	-28 11.0	2.386	3.305	-0.82	+6.0	18.2	
1981 04 16		13 59.75	-28 07.6						
1981 04 26		13 50.33	-27 48.8	2.320	3.301	-0.83	+6.6	18.0	
1981 05 06		13 41.21	-27 17.1						
1981 05 16		13 33.24	-26 37.0	2.366	3.295	-0.78	+6.8	18.1	
1981 05 26		13 27.03	-25 54.1						
1981 06 05		13 22.94	-25 13.5	2.511	3.287	-0.70	+6.5	18.4	
1981 06 15		13 21.15	-24 39.2						
1981 06 25		13 21.59	-24 13.9	2.726	3.277	-0.62	+5.9	18.6	
1981 07 05		13 24.12	-23 59.0						
1981 07 15		13 28.58	-23 55.0	2.978	3.266	-0.57	+5.3	18.9	

2605 P-L		Elements MPC 5322							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 05		14 16.82	-14 13.9	2.589	2.911	99.0	19.5	19.5	
1981 02 15		14 21.69	-14 49.4						
1981 02 25		14 24.53	-15 15.8	2.282	2.871	117.1	17.9	19.2	
1981 03 07		14 25.06	-15 32.1						
1981 03 17		14 23.11	-15 37.4	2.016	2.829	137.3	13.8	18.8	
1981 03 27		14 18.67	-15 31.2						
1981 04 06		14 11.96	-15 13.3	1.826	2.786	159.7	7.2	18.4	
1981 04 16		14 03.54	-14 45.1						
1981 04 26		13 54.27	-14 09.6	1.737	2.741	175.6	1.6	17.9	
1981 05 06		13 45.15	-13 31.3						
1981 05 16		13 37.17	-12 55.4	1.758	2.696	152.5	10.0	18.3	
1981 05 26		13 31.12	-12 27.1						
1981 06 05		13 27.46	-12 09.7	1.872	2.649	130.9	16.8	18.6	
1981 06 15		13 26.42	-12 05.6						
1981 06 25		13 27.95	-12 15.1	2.046	2.603	111.9	21.2	18.8	
1981 07 05		13 31.89	-12 37.5						
1981 07 15		13 38.05	-13 11.8	2.249	2.555	95.5	23.3	19.0	

1976 WC						Elements MPC 4343			
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.	
1981 02 05		14 19.43	-02 32.3	1.630	2.074	-1.28	-0.4	20.5	
1981 02 15		14 27.12	-00 48.8						
1981 02 25		14 31.73	+01 18.9	1.490	2.157	-1.42	+1.4	20.3	
1981 03 07		14 33.01	+03 47.2						
1981 03 17		14 30.89	+06 29.2	1.397	2.240	-1.60	+3.3	20.1	
1981 03 27		14 25.64	+09 13.9						
1981 04 06		14 17.88	+11 47.9	1.383	2.321	-1.74	+4.3	20.0	
1981 04 16		14 08.63	+13 57.5						
1981 04 26		13 59.15	+15 32.8	1.469	2.399	-1.72	+3.8	20.2	
1981 05 06		13 50.60	+16 29.8						
1981 05 16		13 43.89	+16 49.5	1.646	2.475	-1.54	+2.6	20.6	
1981 05 26		13 39.53	+16 37.2						
1981 06 05		13 37.66	+15 59.2	1.892	2.547	-1.31	+1.7	21.1	
1981 06 15		13 38.21	+15 01.7						
1981 06 25		13 40.96	+13 50.3	2.179	2.616	-1.09	+1.3	21.5	
1981 07 05		13 45.63	+12 29.2						
1981 07 15		13 51.97	+11 01.8	2.484	2.681	-0.92	+1.1	21.8	

1973 SJ4						Elements MPC 5181			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 05		14 24.63	-16 50.7	3.332	3.577	96.3	15.9	19.2	
1981 02 15		14 27.71	-17 06.4						
1981 02 25		14 28.96	-17 13.0	3.035	3.574	115.4	14.5	19.0	
1981 03 07		14 28.27	-17 09.5						
1981 03 17		14 25.58	-16 55.5	2.782	3.567	136.3	11.1	18.7	
1981 03 27		14 21.01	-16 30.7						
1981 04 06		14 14.83	-15 55.8	2.608	3.559	158.7	5.9	18.4	
1981 04 16		14 07.53	-15 12.5						
1981 04 26		13 59.72	-14 23.6	2.543	3.548	176.9	0.9	18.0	
1981 05 06		13 52.08	-13 32.9						
1981 05 16		13 45.27	-12 44.5	2.597	3.535	154.3	7.1	18.5	
1981 05 26		13 39.80	-12 02.4						
1981 06 05		13 36.01	-11 29.1	2.753	3.520	132.6	12.3	18.7	
1981 06 15		13 34.08	-11 06.5						
1981 06 25		13 34.02	-10 55.2	2.980	3.502	112.8	15.5	18.9	
1981 07 05		13 35.76	-10 54.9						
1981 07 15		13 39.19	-11 05.0	3.243	3.482	95.0	16.9	19.2	

(2324) 1978 VS4						Elements MPC 5678			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 05		14 12.90	-13 45.7	2.416	2.764	100.0	20.6	16.8	
1981 02 15		14 19.06	-14 19.1						
1981 02 25		14 23.21	-14 42.0	2.133	2.735	117.5	18.7	16.5	
1981 03 07		14 25.08	-14 53.6						
1981 03 17		14 24.48	-14 53.0	1.892	2.708	137.2	14.5	16.1	
1981 03 27		14 21.43	-14 40.2						
1981 04 06		14 16.15	-14 15.7	1.723	2.682	159.1	7.6	15.7	
1981 04 16		14 09.20	-13 41.4						
1981 04 26		14 01.40	-13 01.2	1.652	2.658	177.5	1.0	15.2	
1981 05 06		13 53.73	-12 20.0						
1981 05 16		13 47.15	-11 43.1	1.688	2.636	154.4	9.5	15.7	
1981 05 26		13 42.40	-11 15.4						
1981 06 05		13 39.93	-11 00.0	1.815	2.617	133.3	16.4	16.0	
1981 06 15		13 39.93	-10 58.3						
1981 06 25		13 42.37	-11 10.4	2.004	2.600	114.9	20.8	16.3	
1981 07 05		13 47.09	-11 35.1						
1981 07 15		13 53.90	-12 11.0	2.228	2.586	98.8	22.9	16.5	

(2216) 1971 LF					Elements MPC 5220			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 05		14 22.51	-05 54.6	2.910	3.235	100.3	17.5	17.8
1981 02 15		14 26.90	-05 35.7					
1981 02 25		14 29.44	-05 04.8	2.627	3.223	118.8	15.6	17.5
1981 03 07		14 29.95	-04 22.4					
1981 03 17		14 28.35	-03 29.7	2.393	3.210	138.8	11.8	17.2
1981 03 27		14 24.75	-02 29.3					
1981 04 06		14 19.40	-01 24.9	2.241	3.196	159.1	6.4	16.9
1981 04 16		14 12.78	-00 21.2					
1981 04 26		14 05.54	+00 36.5	2.196	3.182	166.0	4.4	16.8
1981 05 06		13 58.40	+01 23.4					
1981 05 16		13 52.08	+01 55.8	2.261	3.166	148.3	9.6	17.0
1981 05 26		13 47.14	+02 12.1					
1981 06 05		13 43.94	+02 11.9	2.418	3.151	128.4	14.6	17.2
1981 06 15		13 42.68	+01 56.4					
1981 06 25		13 43.37	+01 27.3	2.636	3.134	110.1	17.7	17.5
1981 07 05		13 45.95	+00 46.8					
1981 07 15		13 50.27	-00 03.2	2.884	3.117	93.6	19.0	17.7

(2237) 1938 TB					Elements MPC 5315			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 05		14 29.71	-12 04.5	3.562	3.805	96.7	14.9	18.5
1981 02 15		14 32.63	-12 11.3					
1981 02 25		14 33.86	-12 09.7	3.268	3.805	115.9	13.5	18.3
1981 03 07		14 33.30	-11 59.5					
1981 03 17		14 30.91	-11 40.8	3.019	3.804	136.7	10.3	18.0
1981 03 27		14 26.81	-11 14.5					
1981 04 06		14 21.24	-10 41.9	2.851	3.801	158.9	5.4	17.8
1981 04 16		14 14.61	-10 05.1					
1981 04 26		14 07.46	-09 27.0	2.792	3.797	176.0	1.1	17.4
1981 05 06		14 00.38	-08 50.6					
1981 05 16		13 53.95	-08 19.2	2.852	3.791	154.6	6.6	17.8
1981 05 26		13 48.64	-07 55.2					
1981 06 05		13 44.78	-07 40.3	3.015	3.783	133.2	11.3	18.0
1981 06 15		13 42.57	-07 35.4					
1981 06 25		13 42.06	-07 40.5	3.251	3.773	113.5	14.3	18.3
1981 07 05		13 43.21	-07 55.0					
1981 07 15		13 45.93	-08 18.2	3.525	3.762	95.6	15.6	18.5

1976 AG					Elements MPC 5602			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 05		14 28.40	-17 49.9	2.576	2.840	95.2	20.2	17.8
1981 02 15		14 34.13	-17 56.1					
1981 02 25		14 37.73	-17 49.2	2.319	2.858	113.2	18.6	17.5
1981 03 07		14 38.98	-17 27.9					
1981 03 17		14 37.75	-16 51.5	2.097	2.875	133.5	14.5	17.2
1981 03 27		14 34.10	-15 59.8					
1981 04 06		14 28.31	-14 54.1	1.947	2.890	156.1	8.1	16.9
1981 04 16		14 20.94	-13 37.4					
1981 04 26		14 12.77	-12 14.7	1.898	2.904	178.9	0.4	16.4
1981 05 06		14 04.70	-10 52.3					
1981 05 16		13 57.60	-09 36.8	1.963	2.916	156.0	8.1	17.0
1981 05 26		13 52.11	-08 33.4					
1981 06 05		13 48.64	-07 45.4	2.128	2.926	134.1	14.4	17.3
1981 06 15		13 47.37	-07 14.0					
1981 06 25		13 48.26	-06 58.8	2.362	2.935	114.7	18.3	17.6
1981 07 05		13 51.18	-06 58.2					
1981 07 15		13 55.96	-07 10.4	2.632	2.942	97.5	20.0	17.9

1977 QV		R. A. (1950)		Decl.	Delta	r	Elements MPC		4927
Date	ET						Variation		Mag.
1981 02 05		14 48.10	-29 36.1		2.907	3.024	-0.72	+6.2	17.2
1981 02 15		14 54.34	-31 23.3						
1981 02 25		14 58.63	-33 08.5		2.639	3.027	-0.85	+6.4	16.9
1981 03 07		15 00.61	-34 50.3						
1981 03 17		14 59.97	-36 26.6		2.398	3.031	-0.99	+6.9	16.7
1981 03 27		14 56.51	-37 53.8						
1981 04 06		14 50.24	-39 07.8		2.213	3.035	-1.12	+7.8	16.4
1981 04 16		14 41.47	-40 03.4						
1981 04 26		14 30.94	-40 36.8		2.113	3.040	-1.18	+9.0	16.2
1981 05 06		14 19.71	-40 46.0						
1981 05 16		14 08.99	-40 32.7		2.113	3.045	-1.13	+9.9	16.2
1981 05 26		13 59.90	-40 02.0						
1981 06 05		13 53.21	-39 20.4		2.211	3.051	-1.00	+10.0	16.4
1981 06 15		13 49.35	-38 35.4						
1981 06 25		13 48.37	-37 52.8		2.388	3.057	-0.88	+9.3	16.7
1981 07 05		13 50.14	-37 16.9						
1981 07 15		13 54.45	-36 50.1		2.616	3.064	-0.79	+8.2	16.9

1928 TK		R. A. (1950)		Decl.	Delta	r	Elements MPC		5417
Date	ET						Elong.	Phase	Mag.
1981 02 05		14 42.53	-15 48.6		2.580	2.803	92.6	20.6	19.3
1981 02 15		14 49.12	-16 15.7						
1981 02 25		14 53.79	-16 33.2		2.272	2.771	110.0	19.6	18.9
1981 03 07		14 56.22	-16 40.2						
1981 03 17		14 56.11	-16 35.9		1.993	2.736	129.4	16.3	18.6
1981 03 27		14 53.32	-16 19.6						
1981 04 06		14 47.87	-15 51.0		1.776	2.697	151.3	10.3	18.1
1981 04 16		14 40.10	-15 10.9						
1981 04 26		14 30.70	-14 21.7		1.652	2.656	175.3	1.8	17.6
1981 05 06		14 20.64	-13 27.8						
1981 05 16		14 11.06	-12 35.0		1.638	2.611	160.2	7.5	17.8
1981 05 26		14 02.96	-11 49.2						
1981 06 05		13 57.09	-11 15.2		1.724	2.564	137.4	15.5	18.1
1981 06 15		13 53.87	-10 55.8						
1981 06 25		13 53.40	-10 52.0		1.881	2.515	117.3	21.1	18.4
1981 07 05		13 55.58	-11 03.2						
1981 07 15		14 00.25	-11 28.0		2.074	2.463	100.0	24.0	18.6

1977 RC7		R. A. (1950)		Decl.	Delta	r	Elements MPC		5322
Date	ET						Elong.	Phase	Mag.
1981 02 05		14 40.06	-13 19.1		2.958	3.181	93.9	18.0	18.3
1981 02 15		14 45.76	-13 37.5						
1981 02 25		14 49.70	-13 46.8		2.654	3.157	111.7	16.9	18.0
1981 03 07		14 51.65	-13 46.8						
1981 03 17		14 51.44	-13 37.2		2.386	3.133	131.3	13.8	17.7
1981 03 27		14 49.06	-13 18.3						
1981 04 06		14 44.60	-12 51.0		2.185	3.109	152.8	8.4	17.3
1981 04 16		14 38.42	-12 16.9						
1981 04 26		14 31.11	-11 38.9		2.081	3.085	175.0	1.6	16.9
1981 05 06		14 23.39	-11 00.6						
1981 05 16		14 16.08	-10 26.1		2.089	3.061	160.4	6.3	17.2
1981 05 26		14 09.91	-09 59.1						
1981 06 05		14 05.41	-09 42.3		2.200	3.037	138.7	12.7	17.4
1981 06 15		14 02.94	-09 37.3						
1981 06 25		14 02.59	-09 44.3		2.387	3.013	119.0	17.2	17.7
1981 07 05		14 04.36	-10 02.8						
1981 07 15		14 08.12	-10 31.6		2.617	2.990	101.5	19.5	17.9

(2228) 1977 OH					Elements MPC 5274			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 05		14 58.66	-14 55.8	3.409	3.535	89.1	16.2	18.3
1981 02 15		15 03.51	-15 09.7					
1981 02 25		15 06.67	-15 15.8	3.133	3.556	107.3	15.4	18.1
1981 03 07		15 07.96	-15 13.9					
1981 03 17		15 07.27	-15 04.0	2.885	3.576	127.3	12.8	17.9
1981 03 27		15 04.62	-14 46.3					
1981 04 06		15 00.13	-14 21.4	2.701	3.595	148.8	8.3	17.6
1981 04 16		14 54.12	-13 50.8					
1981 04 26		14 47.08	-13 16.4	2.614	3.612	171.4	2.4	17.3
1981 05 06		14 39.60	-12 40.8					
1981 05 16		14 32.35	-12 07.3	2.642	3.628	164.8	4.2	17.4
1981 05 26		14 25.93	-11 38.7					
1981 06 05		14 20.80	-11 17.4	2.782	3.642	142.8	9.7	17.7
1981 06 15		14 17.28	-11 05.0					
1981 06 25		14 15.53	-11 02.1	3.008	3.655	122.4	13.6	18.0
1981 07 05		14 15.55	-11 08.5					
1981 07 15		14 17.30	-11 23.8	3.287	3.666	103.9	15.6	18.3

1975 FX					Elements MPC 5177			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 05		14 58.81	-11 36.1	2.934	3.096	90.0	18.6	18.2
1981 02 15		15 04.67	-12 06.0					
1981 02 25		15 08.69	-12 28.7	2.664	3.110	107.6	17.7	18.0
1981 03 07		15 10.64	-12 44.4					
1981 03 17		15 10.34	-12 53.2	2.421	3.123	127.0	14.7	17.7
1981 03 27		15 07.74	-12 55.8					
1981 04 06		15 02.92	-12 52.7	2.240	3.136	148.4	9.6	17.5
1981 04 16		14 56.21	-12 45.0					
1981 04 26		14 48.18	-12 34.7	2.151	3.149	171.1	2.8	17.1
1981 05 06		14 39.55	-12 23.8					
1981 05 16		14 31.16	-12 15.1	2.175	3.161	164.6	4.9	17.3
1981 05 26		14 23.77	-12 11.2					
1981 06 05		14 17.97	-12 14.1	2.307	3.173	142.5	11.2	17.6
1981 06 15		14 14.14	-12 25.1					
1981 06 25		14 12.42	-12 44.8	2.522	3.184	122.3	15.7	17.9
1981 07 05		14 12.80	-13 12.9					
1981 07 15		14 15.19	-13 48.8	2.789	3.194	104.2	18.0	18.2

(2204) 1943 EQ					Elements MPC 5178			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 05		15 04.03	-01 30.8	2.539	2.749	91.6	21.0	17.7
1981 02 15		15 10.39	-00 30.1					
1981 02 25		15 14.57	+00 45.1	2.348	2.828	108.9	19.3	17.6
1981 03 07		15 16.36	+02 13.1					
1981 03 17		15 15.63	+03 51.1	2.189	2.903	127.3	15.8	17.4
1981 03 27		15 12.40	+05 34.4					
1981 04 06		15 06.87	+07 16.9	2.098	2.974	145.1	11.1	17.2
1981 04 16		14 59.51	+08 51.3					
1981 04 26		14 50.99	+10 10.6	2.102	3.042	154.6	8.2	17.2
1981 05 06		14 42.13	+11 09.2					
1981 05 16		14 33.77	+11 43.8	2.213	3.107	146.5	10.4	17.4
1981 05 26		14 26.61	+11 54.3					
1981 06 05		14 21.14	+11 42.7	2.417	3.167	130.1	14.2	17.7
1981 06 15		14 17.62	+11 12.3					
1981 06 25		14 16.12	+10 27.0	2.688	3.224	113.0	16.9	18.1
1981 07 05		14 16.56	+09 30.4					
1981 07 15		14 18.81	+08 25.7	2.996	3.277	96.9	17.9	18.4

1975 FW							Elements MPC		5649
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 25		15 15.06	-13 11.5	2.525	2.954	105.9	18.8	17.3	
1981 03 07		15 18.40	-13 35.0						
1981 03 17		15 19.48	-13 52.2	2.255	2.937	124.6	16.2	17.0	
1981 03 27		15 18.14	-14 03.7						
1981 04 06		15 14.36	-14 09.8	2.039	2.919	145.5	11.2	16.6	
1981 04 16		15 08.33	-14 11.2						
1981 04 26		15 00.54	-14 09.1	1.910	2.902	168.1	4.1	16.2	
1981 05 06		14 51.70	-14 05.3						
1981 05 16		14 42.74	-14 02.2	1.889	2.885	167.9	4.2	16.2	
1981 05 26		14 34.60	-14 02.5						
1981 06 05		14 28.02	-14 08.6	1.975	2.869	145.4	11.6	16.5	
1981 06 15		14 23.57	-14 22.5						
1981 06 25		14 21.48	-14 45.0	2.145	2.853	125.0	17.0	16.8	
1981 07 05		14 21.79	-15 16.3						
1981 07 15		14 24.44	-15 55.8	2.369	2.837	107.0	20.0	17.1	
1981 07 25		14 29.22	-16 42.6						
1981 08 04		14 35.94	-17 35.4	2.616	2.823	91.0	21.1	17.3	

1941 SS							Elements MPC		5417
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 25		15 12.25	-21 45.3	1.918	2.366	104.3	23.9	18.3	
1981 03 07		15 19.18	-22 13.9						
1981 03 17		15 23.61	-22 31.3	1.642	2.322	121.5	21.4	17.9	
1981 03 27		15 25.15	-22 36.0						
1981 04 06		15 23.50	-22 26.1	1.409	2.277	141.3	16.0	17.4	
1981 04 16		15 18.61	-21 59.8						
1981 04 26		15 10.87	-21 16.5	1.247	2.231	163.8	7.2	16.9	
1981 05 06		15 01.11	-20 17.4						
1981 05 16		14 50.69	-19 07.5	1.180	2.184	170.9	4.2	16.6	
1981 05 26		14 41.12	-17 54.7						
1981 06 05		14 33.67	-16 47.7	1.210	2.137	147.5	14.8	16.9	
1981 06 15		14 29.25	-15 54.1						
1981 06 25		14 28.23	-15 18.2	1.317	2.090	126.7	22.9	17.2	
1981 07 05		14 30.58	-15 01.1						
1981 07 15		14 36.13	-15 01.9	1.468	2.044	109.4	28.0	17.5	
1981 07 25		14 44.53	-15 18.1						
1981 08 04		14 55.48	-15 46.5	1.637	2.000	95.0	30.4	17.8	

(2191) Uppsala							Elements MPC		5127
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 25		15 26.17	-23 57.7	2.905	3.237	100.6	17.5	17.7	
1981 03 07		15 29.80	-24 10.1						
1981 03 17		15 31.30	-24 13.6	2.639	3.245	119.3	15.5	17.4	
1981 03 27		15 30.54	-24 07.6						
1981 04 06		15 27.53	-23 51.1	2.422	3.252	139.9	11.4	17.1	
1981 04 16		15 22.45	-23 23.6						
1981 04 26		15 15.74	-22 45.4	2.286	3.258	162.1	5.4	16.9	
1981 05 06		15 08.01	-21 58.0						
1981 05 16		15 00.05	-21 04.5	2.258	3.264	172.9	2.2	16.6	
1981 05 26		14 52.65	-20 09.0						
1981 06 05		14 46.48	-19 15.8	2.343	3.268	151.1	8.6	17.0	
1981 06 15		14 42.03	-18 28.9						
1981 06 25		14 39.57	-17 51.2	2.524	3.272	130.1	13.7	17.3	
1981 07 05		14 39.17	-17 24.1						
1981 07 15		14 40.80	-17 07.9	2.768	3.275	111.1	16.8	17.6	
1981 07 25		14 44.32	-17 02.1						
1981 08 04		14 49.55	-17 05.5	3.046	3.276	94.0	18.0	17.8	

(2182) 1953 FH1					Elements MPC 5034			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 25		15 21.79	-17 34.3	2.356	2.756	103.3	20.5	17.0
1981 03 07		15 27.33	-17 58.2					
1981 03 17		15 30.61	-18 14.2	2.095	2.744	121.1	18.1	16.7
1981 03 27		15 31.43	-18 22.1					
1981 04 06		15 29.67	-18 21.9	1.882	2.734	141.0	13.3	16.4
1981 04 16		15 25.44	-18 13.7					
1981 04 26		15 19.14	-17 58.4	1.747	2.726	163.1	6.2	16.0
1981 05 06		15 11.44	-17 37.3					
1981 05 16		15 03.26	-17 13.5	1.712	2.719	173.7	2.4	15.8
1981 05 26		14 55.62	-16 50.5					
1981 06 05		14 49.37	-16 32.1	1.782	2.715	151.1	10.4	16.2
1981 06 15		14 45.16	-16 21.3					
1981 06 25		14 43.33	-16 20.2	1.940	2.713	130.5	16.5	16.5
1981 07 05		14 43.96	-16 29.2					
1981 07 15		14 46.99	-16 48.2	2.157	2.713	112.4	20.3	16.8
1981 07 25		14 52.24	-17 15.9					
1981 08 04		14 59.48	-17 50.8	2.407	2.715	96.5	21.8	17.1

1966 BA1					Elements MPC 5687			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 25		15 29.06	-33 36.6	5.386	5.599	97.4	10.1	17.6
1981 03 07		15 30.23	-34 08.3					
1981 03 17		15 29.99	-34 35.5	5.091	5.601	116.1	9.2	17.5
1981 03 27		15 28.35	-34 57.3					
1981 04 06		15 25.37	-35 12.5	4.846	5.603	135.4	7.2	17.3
1981 04 16		15 21.22	-35 20.0					
1981 04 26		15 16.14	-35 19.3	4.685	5.604	153.6	4.6	17.2
1981 05 06		15 10.48	-35 10.0					
1981 05 16		15 04.63	-34 52.8	4.630	5.605	163.2	3.0	17.0
1981 05 26		14 59.01	-34 28.7					
1981 06 05		14 53.99	-33 59.8	4.689	5.606	152.1	4.9	17.2
1981 06 15		14 49.88	-33 28.1					
1981 06 25		14 46.91	-32 55.9	4.852	5.607	134.1	7.5	17.3
1981 07 05		14 45.21	-32 25.4					
1981 07 15		14 44.84	-31 58.1	5.093	5.607	115.6	9.4	17.5
1981 07 25		14 45.78	-31 35.3					
1981 08 04		14 47.99	-31 17.7	5.381	5.607	97.7	10.3	17.6

(2209) 1978 US1					Elements MPC 5179			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 25		15 28.86	-16 09.4	2.658	3.023	102.0	18.7	17.5
1981 03 07		15 32.93	-16 12.4					
1981 03 17		15 34.81	-16 07.1	2.397	3.027	120.6	16.4	17.2
1981 03 27		15 34.36	-15 53.6					
1981 04 06		15 31.56	-15 32.2	2.185	3.030	141.2	12.0	16.9
1981 04 16		15 26.54	-15 03.9					
1981 04 26		15 19.74	-14 30.3	2.054	3.033	163.5	5.4	16.6
1981 05 06		15 11.77	-13 54.0					
1981 05 16		15 03.45	-13 18.2	2.030	3.034	171.7	2.8	16.4
1981 05 26		14 55.63	-12 46.7					
1981 06 05		14 49.06	-12 22.7	2.116	3.035	149.6	9.8	16.8
1981 06 15		14 44.28	-12 08.4					
1981 06 25		14 41.59	-12 05.0	2.293	3.035	128.8	15.1	17.1
1981 07 05		14 41.10	-12 12.6					
1981 07 15		14 42.75	-12 30.4	2.530	3.034	110.1	18.3	17.3
1981 07 25		14 46.41	-12 57.0					
1981 08 04		14 51.89	-13 31.0	2.797	3.032	93.5	19.5	17.6

1970 HA		Elements MPC 5276						
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 25		15 24.78	-08 40.4	2.562	2.970	104.6	18.8	17.6
1981 03 07		15 29.58	-08 13.9					
1981 03 17		15 32.30	-07 37.3	2.289	2.947	122.5	16.5	17.3
1981 03 27		15 32.78	-06 51.9					
1981 04 06		15 30.96	-05 59.7	2.070	2.924	141.9	12.2	17.0
1981 04 16		15 26.96	-05 04.0					
1981 04 26		15 21.14	-04 08.9	1.933	2.902	160.6	6.6	16.7
1981 05 06		15 14.09	-03 19.2					
1981 05 16		15 06.58	-02 39.8	1.899	2.881	162.8	5.9	16.6
1981 05 26		14 59.46	-02 14.4					
1981 06 05		14 53.47	-02 05.2	1.968	2.860	145.2	11.7	16.8
1981 06 15		14 49.22	-02 12.9					
1981 06 25		14 47.03	-02 36.3	2.121	2.841	126.1	16.8	17.1
1981 07 05		14 47.04	-03 13.4					
1981 07 15		14 49.24	-04 01.8	2.328	2.823	108.7	19.9	17.3
1981 07 25		14 53.49	-04 59.0					
1981 08 04		14 59.65	-06 02.7	2.563	2.807	93.1	21.2	17.6

(2217) 1971 SK2		Elements MPC 5220						
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 25		15 26.78	-16 11.3	2.636	3.009	102.4	18.7	17.1
1981 03 07		15 31.65	-16 20.2					
1981 03 17		15 34.44	-16 21.0	2.349	2.981	120.6	16.7	16.8
1981 03 27		15 34.97	-16 14.0					
1981 04 06		15 33.16	-15 59.3	2.110	2.953	140.7	12.4	16.5
1981 04 16		15 29.08	-15 37.6					
1981 04 26		15 23.07	-15 10.4	1.950	2.926	162.6	5.9	16.1
1981 05 06		15 15.70	-14 39.7					
1981 05 16		15 07.78	-14 08.7	1.894	2.900	173.0	2.4	15.8
1981 05 26		15 00.19	-13 41.0					
1981 06 05		14 53.73	-13 19.9	1.945	2.875	151.0	9.9	16.2
1981 06 15		14 49.06	-13 08.1					
1981 06 25		14 46.55	-13 07.1	2.087	2.851	130.2	15.8	16.4
1981 07 05		14 46.34	-13 17.2					
1981 07 15		14 48.45	-13 37.8	2.288	2.828	111.8	19.5	16.7
1981 07 25		14 52.73	-14 07.6					
1981 08 04		14 59.01	-14 45.0	2.522	2.807	95.5	21.1	16.9

1977 RZ6		Elements MPC 5277						
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 02 25		15 45.68	-25 42.4	3.102	3.351	95.9	17.1	17.7
1981 03 07		15 50.08	-26 27.2					
1981 03 17		15 52.47	-27 07.9	2.811	3.341	114.0	15.8	17.4
1981 03 27		15 52.68	-27 43.7					
1981 04 06		15 50.56	-28 13.5	2.561	3.331	133.6	12.6	17.1
1981 04 16		15 46.17	-28 35.6					
1981 04 26		15 39.76	-28 48.5	2.384	3.320	154.3	7.5	16.9
1981 05 06		15 31.81	-28 50.8					
1981 05 16		15 23.05	-28 42.4	2.307	3.308	170.1	3.0	16.6
1981 05 26		15 14.33	-28 24.8					
1981 06 05		15 06.46	-28 00.8	2.343	3.296	156.0	7.2	16.8
1981 06 15		15 00.17	-27 34.2					
1981 06 25		14 55.89	-27 08.8	2.479	3.283	135.6	12.5	17.0
1981 07 05		14 53.84	-26 47.8					
1981 07 15		14 54.08	-26 33.4	2.687	3.270	116.5	16.2	17.3
1981 07 25		14 56.50	-26 26.6					
1981 08 04		15 00.95	-26 27.3	2.938	3.256	99.1	17.9	17.5

1976 GC8		Elements MPC 5128							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 25		15 42.52	-19 06.7	2.419	2.740	98.1	21.0	17.8	
1981 03 07		15 48.98	-19 32.7						
1981 03 17		15 53.23	-19 51.8	2.151	2.731	115.5	19.2	17.5	
1981 03 27		15 55.03	-20 04.2						
1981 04 06		15 54.17	-20 09.6	1.921	2.722	135.0	15.1	17.1	
1981 04 16		15 50.63	-20 07.7						
1981 04 26		15 44.65	-19 58.7	1.760	2.714	156.8	8.4	16.8	
1981 05 06		15 36.76	-19 43.1						
1981 05 16		15 27.84	-19 22.3	1.695	2.706	179.5	0.2	16.1	
1981 05 26		15 18.93	-18 59.5						
1981 06 05		15 11.02	-18 37.9	1.738	2.699	156.6	8.6	16.7	
1981 06 15		15 04.97	-18 21.5						
1981 06 25		15 01.28	-18 12.8	1.874	2.692	135.2	15.4	17.1	
1981 07 05		15 00.16	-18 13.5						
1981 07 15		15 01.63	-18 23.9	2.077	2.686	116.2	19.8	17.4	
1981 07 25		15 05.53	-18 43.3						
1981 08 04		15 11.63	-19 10.4	2.317	2.680	99.6	21.9	17.7	

(2230) 1978 UT1		Elements MPC 5274							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 25		15 48.79	-17 22.5	2.751	3.035	97.0	18.9	18.2	
1981 03 07		15 54.06	-17 28.1						
1981 03 17		15 57.25	-17 26.4	2.479	3.037	115.0	17.3	18.0	
1981 03 27		15 58.18	-17 17.6						
1981 04 06		15 56.73	-17 02.0	2.247	3.038	135.0	13.5	17.7	
1981 04 16		15 52.94	-16 40.0						
1981 04 26		15 47.07	-16 12.7	2.088	3.038	156.8	7.5	17.4	
1981 05 06		15 39.62	-15 41.7						
1981 05 16		15 31.32	-15 09.6	2.028	3.038	176.2	1.3	16.9	
1981 05 26		15 23.02	-14 39.4						
1981 06 05		15 15.53	-14 14.2	2.080	3.037	156.2	7.7	17.4	
1981 06 15		15 09.56	-13 56.7						
1981 06 25		15 05.56	-13 48.6	2.231	3.035	134.8	13.7	17.7	
1981 07 05		15 03.73	-13 50.6						
1981 07 15		15 04.14	-14 02.3	2.451	3.032	115.6	17.6	18.0	
1981 07 25		15 06.68	-14 22.9						
1981 08 04		15 11.19	-14 51.0	2.710	3.028	98.3	19.4	18.2	

1978 VJ7		Elements MPC 5518							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 25		15 41.42	-19 17.2	2.405	2.730	98.3	21.0	17.5	
1981 03 07		15 48.51	-19 36.8						
1981 03 17		15 53.46	-19 48.5	2.141	2.722	115.5	19.3	17.2	
1981 03 27		15 56.00	-19 52.5						
1981 04 06		15 55.96	-19 48.5	1.917	2.716	134.7	15.2	16.8	
1981 04 16		15 53.31	-19 36.7						
1981 04 26		15 48.30	-19 17.6	1.761	2.712	156.1	8.6	16.5	
1981 05 06		15 41.41	-18 52.2						
1981 05 16		15 33.48	-18 22.6	1.699	2.710	178.8	0.4	15.9	
1981 05 26		15 25.48	-17 52.2						
1981 06 05		15 18.38	-17 24.7	1.742	2.709	158.0	8.1	16.4	
1981 06 15		15 12.98	-17 03.6						
1981 06 25		15 09.79	-16 51.4	1.880	2.711	136.7	14.9	16.8	
1981 07 05		15 09.04	-16 49.3						
1981 07 15		15 10.75	-16 57.5	2.087	2.715	117.9	19.3	17.1	
1981 07 25		15 14.78	-17 14.8						
1981 08 04		15 20.94	-17 39.8	2.333	2.721	101.3	21.4	17.4	

1978 XC		Elements MPC 5277							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 25		15 52.23	-17 37.2	2.790	3.059	96.2	18.8	19.1	
1981 03 07		15 57.99	-17 28.3						
1981 03 17		16 01.78	-17 10.5	2.488	3.032	114.0	17.4	18.8	
1981 03 27		16 03.38	-16 43.8						
1981 04 06		16 02.64	-16 08.4	2.224	3.004	133.7	13.9	18.4	
1981 04 16		15 59.52	-15 25.0						
1981 04 26		15 54.23	-14 34.9	2.030	2.974	155.1	8.2	18.1	
1981 05 06		15 47.17	-13 40.5						
1981 05 16		15 39.01	-12 45.2	1.936	2.943	173.4	2.3	17.7	
1981 05 26		15 30.62	-11 53.1						
1981 06 05		15 22.85	-11 08.4	1.953	2.911	156.4	8.0	18.0	
1981 06 15		15 16.49	-10 34.5						
1981 06 25		15 12.07	-10 13.4	2.068	2.878	135.0	14.5	18.2	
1981 07 05		15 09.88	-10 05.7						
1981 07 15		15 10.04	-10 10.9	2.251	2.844	115.7	18.8	18.5	
1981 07 25		15 12.48	-10 27.3						
1981 08 04		15 17.04	-10 53.2	2.472	2.809	98.6	20.9	18.7	

(2315) 1980 DZ		Elements MPC 5647							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 25		16 03.05	-23 59.2	3.148	3.339	92.4	17.2	17.5	
1981 03 07		16 07.96	-24 40.3						
1981 03 17		16 10.93	-25 18.2	2.858	3.337	110.4	16.2	17.3	
1981 03 27		16 11.76	-25 52.6						
1981 04 06		16 10.27	-26 22.9	2.602	3.334	130.0	13.3	17.0	
1981 04 16		16 06.45	-26 47.9						
1981 04 26		16 00.47	-27 06.2	2.413	3.330	151.1	8.4	16.7	
1981 05 06		15 52.71	-27 16.3						
1981 05 16		15 43.82	-27 17.8	2.322	3.324	171.0	2.7	16.4	
1981 05 26		15 34.61	-27 11.0						
1981 06 05		15 25.94	-26 58.0	2.344	3.318	160.5	5.9	16.6	
1981 06 15		15 18.57	-26 41.6						
1981 06 25		15 13.07	-26 25.4	2.472	3.310	139.4	11.5	16.8	
1981 07 05		15 09.74	-26 12.1						
1981 07 15		15 08.70	-26 04.1	2.679	3.301	119.6	15.5	17.1	
1981 07 25		15 09.90	-26 02.5						
1981 08 04		15 13.20	-26 07.5	2.932	3.291	101.7	17.6	17.3	

1980 CJ		Elements MPC 5272							
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation	Phase	Mag.	
1981 02 25		15 55.95	-34 52.7	2.825	3.020	-0.93	+1.6	19.1	
1981 03 07		16 03.06	-35 55.8						
1981 03 17		16 07.99	-36 54.5	2.566	3.027	-1.06	+1.3	18.9	
1981 03 27		16 10.45	-37 47.9						
1981 04 06		16 10.21	-38 33.8	2.338	3.035	-1.21	+1.4	18.6	
1981 04 16		16 07.15	-39 09.3						
1981 04 26		16 01.47	-39 30.9	2.168	3.042	-1.34	+2.0	18.4	
1981 05 06		15 53.61	-39 35.4						
1981 05 16		15 44.41	-39 20.4	2.084	3.051	-1.39	+2.9	18.2	
1981 05 26		15 34.93	-38 46.5						
1981 06 05		15 26.23	-37 56.6	2.103	3.059	-1.33	+3.8	18.2	
1981 06 15		15 19.25	-36 56.3						
1981 06 25		15 14.57	-35 51.9	2.221	3.068	-1.20	+4.0	18.5	
1981 07 05		15 12.47	-34 49.1						
1981 07 15		15 12.98	-33 52.1	2.419	3.077	-1.05	+3.6	18.7	
1981 07 25		15 15.94	-33 03.6						
1981 08 04		15 21.12	-32 24.3	2.668	3.087	-0.93	+2.9	19.0	

(2215) 1964 VX2

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Elements MPC	Mag.
1981 02 25		16 12.26	-16 36.2	3.356	3.526	91.7	16.3	5220	18.5
1981 03 07		16 16.44	-16 49.1						
1981 03 17		16 18.82	-16 57.7	3.053	3.520	110.0	15.4		18.3
1981 03 27		16 19.21	-17 02.6						
1981 04 06		16 17.49	-17 04.0	2.783	3.511	130.0	12.6		18.0
1981 04 16		16 13.64	-17 02.2						
1981 04 26		16 07.83	-16 57.6	2.581	3.500	151.8	7.8		17.8
1981 05 06		16 00.37	-16 50.7						
1981 05 16		15 51.83	-16 42.5	2.479	3.487	174.1	1.7		17.3
1981 05 26		15 42.90	-16 34.4						
1981 06 05		15 34.31	-16 28.0	2.494	3.470	161.2	5.4		17.6
1981 06 15		15 26.76	-16 25.1						
1981 06 25		15 20.78	-16 27.2	2.618	3.452	139.1	11.1		17.8
1981 07 05		15 16.69	-16 35.5						
1981 07 15		15 14.67	-16 50.5	2.824	3.431	118.8	15.0		18.1
1981 07 25		15 14.71	-17 12.0						
1981 08 04		15 16.73	-17 39.6	3.075	3.407	100.4	17.0		18.3

1977 ET1

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Elements MPC	Mag.
1981 02 25		15 49.71	-17 13.2	2.024	2.357	96.8	24.7	5600	19.0
1981 03 07		15 59.46	-17 11.4						
1981 03 17		16 07.08	-16 58.1	1.754	2.328	112.8	23.2		18.6
1981 03 27		16 12.21	-16 33.2						
1981 04 06		16 14.49	-15 57.1	1.517	2.300	130.9	19.2		18.2
1981 04 16		16 13.67	-15 10.5						
1981 04 26		16 09.78	-14 15.4	1.337	2.272	151.4	12.3		17.7
1981 05 06		16 03.12	-13 14.6						
1981 05 16		15 54.50	-12 12.9	1.240	2.244	170.9	4.1		17.3
1981 05 26		15 45.09	-11 16.3						
1981 06 05		15 36.21	-10 31.0	1.241	2.217	158.7	9.6		17.4
1981 06 15		15 29.08	-10 01.7						
1981 06 25		15 24.56	-09 50.8	1.331	2.192	137.7	18.2		17.7
1981 07 05		15 23.05	-09 58.1						
1981 07 15		15 24.66	-10 21.6	1.483	2.168	119.2	24.2		18.1
1981 07 25		15 29.24	-10 58.4						
1981 08 04		15 36.52	-11 45.2	1.670	2.146	103.4	27.4		18.4

1928 QB

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Elements MPC	Mag.
1981 02 25		16 13.78	-22 37.3	4.821	4.925	90.3	11.6	5648	18.6
1981 03 07		16 16.43	-22 43.0						
1981 03 17		16 17.66	-22 45.0	4.523	4.943	109.4	10.9		18.5
1981 03 27		16 17.42	-22 43.2						
1981 04 06		16 15.70	-22 37.4	4.261	4.959	129.6	8.9		18.3
1981 04 16		16 12.56	-22 27.5						
1981 04 26		16 08.18	-22 13.6	4.070	4.974	150.9	5.6		18.1
1981 05 06		16 02.82	-21 55.9						
1981 05 16		15 56.83	-21 35.1	3.983	4.988	173.0	1.4		17.8
1981 05 26		15 50.63	-21 12.2						
1981 06 05		15 44.63	-20 48.7	4.014	5.000	164.8	3.1		18.0
1981 06 15		15 39.24	-20 25.9						
1981 06 25		15 34.79	-20 05.5	4.160	5.011	143.3	7.0		18.2
1981 07 05		15 31.49	-19 48.7						
1981 07 15		15 29.50	-19 36.3	4.396	5.021	122.9	9.8		18.4
1981 07 25		15 28.87	-19 28.9						
1981 08 04		15 29.59	-19 26.5	4.691	5.030	103.8	11.3		18.6

1978 GB						Elements MPC 5352			
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.	
1981 02 25		15 53.58	+09 00.1	1.637	2.062	-1.49	+3.4	18.3	
1981 03 07		16 05.22	+11 40.5						
1981 03 17		16 14.37	+14 41.3	1.461	2.057	-1.74	+5.5	18.0	
1981 03 27		16 20.63	+17 56.5						
1981 04 06		16 23.57	+21 17.6	1.330	2.050	-2.05	+7.2	17.7	
1981 04 16		16 22.92	+24 32.2						
1981 04 26		16 18.70	+27 25.7	1.254	2.043	-2.38	+7.1	17.6	
1981 05 06		16 11.30	+29 43.2						
1981 05 16		16 01.68	+31 11.4	1.238	2.035	-2.55	+4.6	17.5	
1981 05 26		15 51.23	+31 42.8						
1981 06 05		15 41.45	+31 16.5	1.277	2.026	-2.41	+1.5	17.6	
1981 06 15		15 33.70	+29 57.6						
1981 06 25		15 28.81	+27 55.8	1.361	2.016	-2.08	+0.0	17.8	
1981 07 05		15 27.12	+25 21.4						
1981 07 15		15 28.68	+22 24.6	1.477	2.005	-1.74	+0.2	18.0	
1981 07 25		15 33.22	+19 14.3						
1981 08 04		15 40.46	+15 57.2	1.617	1.995	-1.48	+1.4	18.2	

1977 QM3						Elements MPC 5518			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 25		16 08.10	-22 14.8	2.777	2.974	91.6	19.4	18.1	
1981 03 07		16 15.32	-22 38.1						
1981 03 17		16 20.61	-22 56.1	2.486	2.959	108.7	18.6	17.9	
1981 03 27		16 23.72	-23 08.8						
1981 04 06		16 24.43	-23 16.0	2.224	2.943	127.5	15.7	17.5	
1981 04 16		16 22.60	-23 17.3						
1981 04 26		16 18.31	-23 12.2	2.021	2.926	148.4	10.4	17.2	
1981 05 06		16 11.84	-23 00.1						
1981 05 16		16 03.79	-22 41.4	1.907	2.910	171.0	3.1	16.8	
1981 05 26		15 55.02	-22 17.4						
1981 06 05		15 46.46	-21 50.4	1.901	2.894	165.3	5.1	16.9	
1981 06 15		15 39.05	-21 23.8						
1981 06 25		15 33.49	-21 01.1	1.998	2.877	143.2	12.2	17.2	
1981 07 05		15 30.22	-20 44.7						
1981 07 15		15 29.43	-20 36.4	2.176	2.861	123.1	17.3	17.5	
1981 07 25		15 31.09	-20 36.5						
1981 08 04		15 35.08	-20 44.6	2.403	2.845	105.3	20.1	17.7	

1978 WH14						Elements MPC 5175			
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.	
1981 02 25		16 20.49	-19 47.3	3.312	3.443	-0.58	+1.6	19.1	
1981 03 07		16 25.84	-19 55.7						
1981 03 17		16 29.38	-19 59.4	3.034	3.460	-0.64	+1.6	18.9	
1981 03 27		16 30.94	-19 58.4						
1981 04 06		16 30.40	-19 53.1	2.784	3.476	-0.70	+1.8	18.6	
1981 04 16		16 27.73	-19 43.4						
1981 04 26		16 23.07	-19 29.7	2.596	3.490	-0.77	+2.1	18.4	
1981 05 06		16 16.71	-19 12.4						
1981 05 16		16 09.17	-18 52.3	2.501	3.502	-0.80	+2.4	18.1	
1981 05 26		16 01.09	-18 31.0						
1981 06 05		15 53.18	-18 10.1	2.520	3.513	-0.79	+2.6	18.2	
1981 06 15		15 46.14	-17 52.0						
1981 06 25		15 40.49	-17 38.4	2.650	3.523	-0.73	+2.6	18.5	
1981 07 05		15 36.58	-17 30.9						
1981 07 15		15 34.62	-17 30.1	2.866	3.531	-0.67	+2.4	18.7	
1981 07 25		15 34.62	-17 36.1						
1981 08 04		15 36.51	-17 48.5	3.137	3.538	-0.60	+2.2	19.0	

1980 CO		Elements MPC 5319							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 02 25		16 18.68	-18 37.0	2.855	3.018	89.8	19.1	18.6	
1981 03 07		16 25.61	-18 48.8						
1981 03 17		16 30.63	-18 55.1	2.586	3.029	107.0	18.3	18.4	
1981 03 27		16 33.50	-18 56.5						
1981 04 06		16 34.03	-18 53.5	2.343	3.040	125.9	15.5	18.1	
1981 04 16		16 32.13	-18 46.2						
1981 04 26		16 27.90	-18 35.2	2.157	3.050	146.9	10.4	17.8	
1981 05 06		16 21.62	-18 21.1						
1981 05 16		16 13.83	-18 04.7	2.060	3.059	169.3	3.5	17.5	
1981 05 26		16 05.31	-17 47.7						
1981 06 05		15 56.91	-17 31.9	2.072	3.068	166.6	4.4	17.6	
1981 06 15		15 49.46	-17 19.7						
1981 06 25		15 43.61	-17 13.0	2.191	3.076	144.6	11.0	17.9	
1981 07 05		15 39.80	-17 13.1						
1981 07 15		15 38.22	-17 20.6	2.394	3.084	124.3	15.8	18.2	
1981 07 25		15 38.88	-17 35.2						
1981 08 04		15 41.68	-17 56.3	2.650	3.091	106.2	18.4	18.5	

1978 UC		Elements MPC 4637							
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation	Mag.		
1981 03 17		16 38.50	-35 25.6	2.649	3.024	-0.91	+1.6	18.4	
1981 03 27		16 42.01	-36 22.4						
1981 04 06		16 42.87	-37 16.2	2.395	3.025	-1.05	+1.6	18.2	
1981 04 16		16 40.83	-38 04.7						
1981 04 26		16 35.86	-38 44.8	2.190	3.025	-1.19	+2.1	17.9	
1981 05 06		16 28.16	-39 12.4						
1981 05 16		16 18.31	-39 23.6	2.066	3.022	-1.28	+3.0	17.6	
1981 05 26		16 07.29	-39 15.9						
1981 06 05		15 56.25	-38 49.6	2.044	3.018	-1.26	+4.0	17.6	
1981 06 15		15 46.39	-38 08.0						
1981 06 25		15 38.63	-37 16.8	2.127	3.011	-1.14	+4.5	17.8	
1981 07 05		15 33.51	-36 22.2						
1981 07 15		15 31.27	-35 29.6	2.295	3.003	-1.00	+4.3	18.1	
1981 07 25		15 31.84	-34 42.9						
1981 08 04		15 35.03	-34 04.0	2.520	2.993	-0.88	+3.6	18.3	
1981 08 14		15 40.59	-33 33.6						
1981 08 24		15 48.23	-33 11.1	2.772	2.981	-0.80	+2.9	18.5	

1977 SS1		Elements MPC 5347							
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation	Mag.		
1981 03 17		16 38.51	-30 40.1	3.201	3.565	-0.64	+3.5	18.1	
1981 03 27		16 40.53	-31 34.9						
1981 04 06		16 40.34	-32 28.5	2.922	3.556	-0.73	+3.8	17.9	
1981 04 16		16 37.81	-33 19.3						
1981 04 26		16 32.96	-34 05.4	2.699	3.545	-0.81	+4.3	17.6	
1981 05 06		16 25.97	-34 44.1						
1981 05 16		16 17.30	-35 12.5	2.565	3.534	-0.85	+4.9	17.4	
1981 05 26		16 07.66	-35 29.1						
1981 06 05		15 57.89	-35 33.3	2.540	3.522	-0.84	+5.5	17.3	
1981 06 15		15 48.89	-35 26.8						
1981 06 25		15 41.40	-35 12.7	2.626	3.509	-0.77	+5.7	17.5	
1981 07 05		15 35.95	-34 54.6						
1981 07 15		15 32.82	-34 36.3	2.801	3.494	-0.69	+5.5	17.8	
1981 07 25		15 32.09	-34 20.6						
1981 08 04		15 33.67	-34 09.4	3.034	3.479	-0.63	+5.0	18.0	
1981 08 14		15 37.43	-34 03.6						
1981 08 24		15 43.16	-34 03.3	3.295	3.463	-0.59	+4.4	18.2	

(2240) Tsai

						Elements MPC 5316			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17		16 35.85	-21 56.5	3.123	3.520	105.3	15.8	18.6	
1981 03 27		16 37.73	-22 01.4						
1981 04 06		16 37.54	-22 02.4	2.870	3.537	124.7	13.4	18.3	
1981 04 16		16 35.22	-21 59.2						
1981 04 26		16 30.90	-21 51.8	2.675	3.553	145.8	9.2	18.1	
1981 05 06		16 24.83	-21 40.2						
1981 05 16		16 17.49	-21 24.6	2.571	3.567	168.4	3.3	17.8	
1981 05 26		16 09.51	-21 06.2						
1981 06 05		16 01.58	-20 46.2	2.580	3.581	168.7	3.2	17.8	
1981 06 15		15 54.39	-20 27.0						
1981 06 25		15 48.50	-20 10.4	2.701	3.592	146.4	9.0	18.1	
1981 07 05		15 44.29	-19 58.3						
1981 07 15		15 41.99	-19 51.9	2.913	3.603	125.8	13.2	18.4	
1981 07 25		15 41.64	-19 51.7						
1981 08 04		15 43.19	-19 57.5	3.183	3.612	107.0	15.6	18.7	
1981 08 14		15 46.54	-20 08.9						
1981 08 24		15 51.51	-20 24.9	3.480	3.620	89.8	16.2	18.9	

(2260) 1975 WM1

						Elements MPC 5353			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17		16 40.82	-13 40.0	5.063	5.409	105.1	10.2	17.4	
1981 03 27		16 41.36	-13 39.6						
1981 04 06		16 40.62	-13 37.8	4.774	5.407	124.7	8.7	17.3	
1981 04 16		16 38.61	-13 35.3						
1981 04 26		16 35.44	-13 32.7	4.550	5.406	145.1	6.1	17.1	
1981 05 06		16 31.26	-13 30.6						
1981 05 16		16 26.34	-13 29.8	4.420	5.404	165.2	2.7	16.8	
1981 05 26		16 20.97	-13 30.8						
1981 06 05		16 15.51	-13 34.3	4.406	5.402	167.9	2.2	16.8	
1981 06 15		16 10.31	-13 40.8						
1981 06 25		16 05.69	-13 50.7	4.507	5.400	148.5	5.6	17.0	
1981 07 05		16 01.92	-14 04.2						
1981 07 15		15 59.20	-14 21.4	4.707	5.398	128.4	8.5	17.2	
1981 07 25		15 57.66	-14 42.2						
1981 08 04		15 57.34	-15 06.2	4.976	5.395	109.2	10.2	17.4	
1981 08 14		15 58.26	-15 33.1						
1981 08 24		16 00.36	-16 02.3	5.280	5.393	91.0	10.8	17.5	

(2321) 1980 DB1

						Elements MPC 5650			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17		16 45.66	-23 51.9	2.833	3.204	102.8	17.6	18.1	
1981 03 27		16 49.02	-24 18.3						
1981 04 06		16 50.16	-24 42.5	2.564	3.203	121.5	15.5	17.8	
1981 04 16		16 48.92	-25 04.2						
1981 04 26		16 45.29	-25 22.7	2.347	3.201	142.0	11.2	17.5	
1981 05 06		16 39.45	-25 36.9						
1981 05 16		16 31.80	-25 45.7	2.214	3.198	164.0	5.0	17.2	
1981 05 26		16 23.03	-25 48.6						
1981 06 05		16 13.96	-25 45.7	2.187	3.194	171.2	2.8	17.1	
1981 06 15		16 05.48	-25 38.7						
1981 06 25		15 58.38	-25 29.9	2.272	3.189	149.4	9.3	17.4	
1981 07 05		15 53.21	-25 21.8						
1981 07 15		15 50.30	-25 16.7	2.448	3.184	128.7	14.4	17.7	
1981 07 25		15 49.74	-25 16.1						
1981 08 04		15 51.48	-25 20.6	2.685	3.178	110.0	17.5	18.0	
1981 08 14		15 55.38	-25 30.3						
1981 08 24		16 01.24	-25 44.5	2.952	3.172	93.1	18.6	18.2	

1978 VQ5		Elements MPC 5318							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17		16 43.39	-20 58.5	2.488	2.891	103.7	19.5	17.2	
1981 03 27		16 47.96	-21 10.8						
1981 04 06		16 50.18	-21 19.5	2.240	2.896	121.9	17.1	17.0	
1981 04 16		16 49.89	-21 24.9						
1981 04 26		16 47.06	-21 27.1	2.041	2.902	142.2	12.3	16.6	
1981 05 06		16 41.86	-21 26.0						
1981 05 16		16 34.73	-21 21.5	1.923	2.909	164.4	5.4	16.3	
1981 05 26		16 26.41	-21 14.1						
1981 06 05		16 17.78	-21 04.9	1.908	2.917	172.4	2.6	16.2	
1981 06 15		16 09.80	-20 55.7						
1981 06 25		16 03.27	-20 48.7	2.000	2.924	150.0	10.0	16.6	
1981 07 05		15 58.76	-20 45.8						
1981 07 15		15 56.60	-20 48.5	2.181	2.933	129.4	15.5	16.9	
1981 07 25		15 56.85	-20 57.1						
1981 08 04		15 59.44	-21 11.5	2.422	2.942	111.0	18.8	17.2	
1981 08 14		16 04.22	-21 30.9						
1981 08 24		16 10.95	-21 54.1	2.694	2.951	94.5	20.0	17.5	

(2243) 1941 SA1		Elements MPC 5319							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17		16 35.33	-25 29.7	1.761	2.235	104.9	25.5	17.6	
1981 03 27		16 43.73	-26 26.8						
1981 04 06		16 49.56	-27 23.3	1.497	2.189	121.2	23.0	17.1	
1981 04 16		16 52.29	-28 19.5						
1981 04 26		16 51.50	-29 14.5	1.274	2.143	139.8	17.7	16.6	
1981 05 06		16 46.91	-30 05.7						
1981 05 16		16 38.69	-30 48.6	1.118	2.098	160.3	9.4	16.1	
1981 05 26		16 27.68	-31 18.2						
1981 06 05		16 15.34	-31 30.8	1.050	2.053	168.1	5.8	15.8	
1981 06 15		16 03.63	-31 26.9						
1981 06 25		15 54.35	-31 11.3	1.072	2.010	148.4	15.4	16.0	
1981 07 05		15 48.73	-30 50.9						
1981 07 15		15 47.39	-30 32.3	1.167	1.969	128.6	23.8	16.4	
1981 07 25		15 50.31	-30 19.5						
1981 08 04		15 57.20	-30 13.7	1.306	1.931	112.0	29.2	16.7	
1981 08 14		16 07.66	-30 14.3						
1981 08 24		16 21.20	-30 19.0	1.467	1.897	98.2	31.8	17.0	

1975 XA3		Elements MPC 5518							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17		16 45.61	-22 46.6	2.041	2.464	103.0	23.2	18.1	
1981 03 27		16 52.15	-23 21.7						
1981 04 06		16 56.16	-23 55.6	1.760	2.423	120.2	20.9	17.7	
1981 04 16		16 57.23	-24 28.6						
1981 04 26		16 55.05	-25 00.5	1.521	2.380	139.9	15.8	17.3	
1981 05 06		16 49.46	-25 29.7						
1981 05 16		16 40.73	-25 54.1	1.353	2.336	162.0	7.7	16.8	
1981 05 26		16 29.61	-26 11.0						
1981 06 05		16 17.37	-26 18.9	1.280	2.289	171.7	3.7	16.4	
1981 06 15		16 05.60	-26 18.7						
1981 06 25		15 55.80	-26 13.9	1.309	2.241	148.9	13.6	16.7	
1981 07 05		15 49.04	-26 08.9						
1981 07 15		15 45.91	-26 07.9	1.417	2.193	127.8	21.5	17.1	
1981 07 25		15 46.51	-26 13.3						
1981 08 04		15 50.66	-26 26.0	1.573	2.144	110.0	26.4	17.3	
1981 08 14		15 58.09	-26 45.3						
1981 08 24		16 08.43	-27 09.4	1.750	2.094	94.9	28.7	17.6	

(2255) 1977 VK1

						Elements MPC		5350
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 03 17		16 53.05	-27 31.3	3.175	3.499	100.7	16.2	18.1
1981 03 27		16 56.04	-28 12.7					
1981 04 06		16 56.92	-28 53.5	2.882	3.484	119.3	14.5	17.8
1981 04 16		16 55.53	-29 33.0					
1981 04 26		16 51.82	-30 09.8	2.640	3.467	139.5	10.9	17.6
1981 05 06		16 45.90	-30 42.2					
1981 05 16		16 38.12	-31 07.8	2.482	3.450	160.2	5.7	17.3
1981 05 26		16 29.07	-31 25.1					
1981 06 05		16 19.53	-31 33.0	2.430	3.431	168.7	3.3	17.1
1981 06 15		16 10.38	-31 32.3					
1981 06 25		16 02.42	-31 25.1	2.492	3.411	150.1	8.5	17.3
1981 07 05		15 56.26	-31 14.4					
1981 07 15		15 52.32	-31 03.3	2.649	3.390	129.7	13.3	17.6
1981 07 25		15 50.73	-30 54.3					
1981 08 04		15 51.49	-30 49.1	2.870	3.368	110.9	16.4	17.8
1981 08 14		15 54.49	-30 48.5					
1981 08 24		15 59.55	-30 52.8	3.123	3.344	93.7	17.6	18.0

(2270) Yazhi

						Elements MPC		5416
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 03 17		16 43.09	-21 13.3	2.349	2.761	103.8	20.5	16.7
1981 03 27		16 48.83	-21 25.8					
1981 04 06		16 52.22	-21 34.4	2.095	2.753	121.4	18.1	16.4
1981 04 16		16 53.05	-21 39.4					
1981 04 26		16 51.25	-21 41.0	1.889	2.746	141.2	13.3	16.1
1981 05 06		16 46.92	-21 39.3					
1981 05 16		16 40.45	-21 34.1	1.759	2.742	163.0	6.2	15.7
1981 05 26		16 32.57	-21 26.0					
1981 06 05		16 24.18	-21 15.8	1.729	2.740	173.9	2.2	15.5
1981 06 15		16 16.32	-21 05.6					
1981 06 25		16 09.89	-20 57.6	1.803	2.740	151.5	10.2	15.9
1981 07 05		16 05.54	-20 53.9					
1981 07 15		16 03.65	-20 55.9	1.965	2.741	131.0	16.2	16.2
1981 07 25		16 04.32	-21 04.1					
1981 08 04		16 07.46	-21 18.3	2.187	2.745	112.8	19.9	16.6
1981 08 14		16 12.93	-21 37.5					
1981 08 24		16 20.48	-22 00.3	2.443	2.751	96.7	21.4	16.8

1978 VG3

						Elements MPC		5418
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 03 17		17 01.81	-22 14.6	3.118	3.423	99.3	16.7	17.5
1981 03 27		17 04.79	-22 44.1					
1981 04 06		17 05.68	-23 13.1	2.850	3.438	118.1	14.9	17.3
1981 04 16		17 04.34	-23 41.6					
1981 04 26		17 00.76	-24 09.1	2.630	3.450	138.7	11.1	17.0
1981 05 06		16 55.04	-24 34.8					
1981 05 16		16 47.53	-24 57.5	2.491	3.462	160.8	5.5	16.8
1981 05 26		16 38.80	-25 16.1					
1981 06 05		16 29.56	-25 30.0	2.460	3.472	174.5	1.6	16.5
1981 06 15		16 20.63	-25 39.7					
1981 06 25		16 12.76	-25 46.5	2.546	3.480	152.7	7.7	16.9
1981 07 05		16 06.53	-25 52.1					
1981 07 15		16 02.31	-25 58.4	2.730	3.487	131.5	12.6	17.2
1981 07 25		16 00.27	-26 06.8					
1981 08 04		16 00.41	-26 18.4	2.982	3.493	112.1	15.6	17.4
1981 08 14		16 02.64	-26 33.5					
1981 08 24		16 06.80	-26 52.0	3.269	3.497	94.5	16.8	17.7

(2282) 1974 FE		Elements MPC 5445						
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 03 17		16 55.48	-20 15.8	1.939	2.342	101.0	24.6	18.4
1981 03 27		17 02.70	-20 00.7					
1981 04 06		17 07.19	-19 38.5	1.709	2.352	118.1	22.0	18.0
1981 04 16		17 08.63	-19 09.9					
1981 04 26		17 06.84	-18 35.8	1.517	2.361	137.7	16.7	17.7
1981 05 06		17 01.83	-17 57.1					
1981 05 16		16 54.01	-17 15.4	1.393	2.368	159.7	8.5	17.3
1981 05 26		16 44.21	-16 33.1					
1981 06 05		16 33.58	-15 53.2	1.363	2.373	172.4	3.2	17.0
1981 06 15		16 23.50	-15 19.8					
1981 06 25		16 15.13	-14 56.0	1.436	2.377	151.0	12.0	17.4
1981 07 05		16 09.30	-14 44.0					
1981 07 15		16 06.44	-14 44.2	1.593	2.379	130.2	19.0	17.8
1981 07 25		16 06.59	-14 55.6					
1981 08 04		16 09.61	-15 16.4	1.804	2.379	112.1	23.3	18.2
1981 08 14		16 15.26	-15 44.2					
1981 08 24		16 23.21	-16 16.7	2.043	2.378	96.4	25.0	18.5

(2233) 1972 XE1		Elements MPC 5278						
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 03 17		16 58.95	-23 42.4	2.089	2.463	99.8	23.5	18.1
1981 03 27		17 06.15	-23 45.4					
1981 04 06		17 10.76	-23 43.0	1.839	2.460	116.9	21.3	17.8
1981 04 16		17 12.45	-23 35.5					
1981 04 26		17 11.01	-23 22.8	1.626	2.455	136.5	16.4	17.4
1981 05 06		17 06.39	-23 04.4					
1981 05 16		16 58.90	-22 40.0	1.480	2.449	158.7	8.6	17.0
1981 05 26		16 49.27	-22 09.7					
1981 06 05		16 38.60	-21 34.9	1.428	2.442	177.3	1.1	16.5
1981 06 15		16 28.23	-20 58.7					
1981 06 25		16 19.41	-20 25.0	1.480	2.433	153.6	10.7	17.0
1981 07 05		16 13.02	-19 57.5					
1981 07 15		16 09.59	-19 39.0	1.620	2.422	132.1	18.1	17.4
1981 07 25		16 09.24	-19 30.3					
1981 08 04		16 11.85	-19 31.0	1.819	2.411	113.5	22.7	17.7
1981 08 14		16 17.19	-19 39.6					
1981 08 24		16 24.94	-19 54.1	2.048	2.398	97.4	24.7	18.0

1968 UP		Elements MPC 5276						
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 03 17		16 58.49	-24 02.6	2.511	2.856	99.9	20.1	17.7
1981 03 27		17 04.41	-24 19.9					
1981 04 06		17 08.07	-24 34.3	2.238	2.842	117.5	18.2	17.4
1981 04 16		17 09.21	-24 46.0					
1981 04 26		17 07.70	-24 54.8	2.006	2.827	137.1	14.0	17.1
1981 05 06		17 03.54	-24 59.9					
1981 05 16		16 57.00	-25 00.3	1.847	2.813	158.7	7.5	16.7
1981 05 26		16 48.71	-24 55.3					
1981 06 05		16 39.51	-24 44.9	1.786	2.799	176.7	1.2	16.3
1981 06 15		16 30.47	-24 30.2					
1981 06 25		16 22.60	-24 13.8	1.832	2.786	154.8	8.9	16.7
1981 07 05		16 16.67	-23 58.5					
1981 07 15		16 13.21	-23 46.8	1.971	2.772	133.7	15.4	17.0
1981 07 25		16 12.40	-23 40.4					
1981 08 04		16 14.24	-23 40.0	2.175	2.759	114.8	19.5	17.3
1981 08 14		16 18.57	-23 45.2					
1981 08 24		16 25.16	-23 55.1	2.415	2.746	98.1	21.4	17.6

1965 WR						Elements MPC 5317			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17	17	17 08.63	-25 56.5	2.737	3.030	97.4	19.0	18.5	
1981 03 27	17	17 13.95	-25 47.2						
1981 04 06	17	17 17.05	-25 32.7	2.443	3.010	115.3	17.5	18.2	
1981 04 16	17	17 17.70	-25 12.6						
1981 04 26	17	17 15.78	-24 46.5	2.189	2.989	135.2	13.7	17.9	
1981 05 06	17	17 11.30	-24 13.9						
1981 05 16	17	17 04.52	-23 34.4	2.007	2.965	157.3	7.6	17.5	
1981 05 26	16	16 56.01	-22 48.4						
1981 06 05	16	16 46.56	-21 57.2	1.925	2.940	179.1	0.3	16.9	
1981 06 15	16	16 37.15	-21 03.9						
1981 06 25	16	16 28.74	-20 11.9	1.956	2.913	155.7	8.3	17.5	
1981 07 05	16	16 22.08	-19 25.0						
1981 07 15	16	16 17.70	-18 46.0	2.085	2.884	133.8	14.7	17.7	
1981 07 25	16	16 15.82	-18 16.5						
1981 08 04	16	16 16.45	-17 56.7	2.282	2.854	114.3	18.9	18.0	
1981 08 14	16	16 19.48	-17 45.7						
1981 08 24	16	16 24.72	-17 42.1	2.514	2.822	97.0	20.8	18.2	

6591 P-L						Elements MPC 4831			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17	17	17 07.81	-28 52.5	5.087	5.306	97.3	10.7	19.9	
1981 03 27	17	17 09.78	-29 10.4						
1981 04 06	17	17 10.33	-29 27.0	4.787	5.308	116.4	9.7	19.7	
1981 04 16	17	17 09.45	-29 41.8						
1981 04 26	17	17 07.17	-29 54.2	4.536	5.309	136.3	7.5	19.6	
1981 05 06	17	17 03.60	-30 03.6						
1981 05 16	16	16 58.96	-30 09.3	4.366	5.310	156.7	4.3	19.4	
1981 05 26	16	16 53.56	-30 10.8						
1981 06 05	16	16 47.76	-30 08.0	4.304	5.312	172.3	1.5	19.1	
1981 06 15	16	16 41.97	-30 01.2						
1981 06 25	16	16 36.62	-29 51.2	4.359	5.313	157.6	4.2	19.4	
1981 07 05	16	16 32.04	-29 39.2						
1981 07 15	16	16 28.53	-29 26.4	4.520	5.314	137.5	7.4	19.6	
1981 07 25	16	16 26.28	-29 14.1						
1981 08 04	16	16 25.39	-29 03.3	4.764	5.316	117.9	9.7	19.7	
1981 08 14	16	16 25.89	-28 54.8						
1981 08 24	16	16 27.75	-28 48.9	5.058	5.317	99.4	10.8	19.9	

(2229) 1977 RO						Elements MPC 5274			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17	17	16 47.22	-32 54.7	1.940	2.346	101.2	24.6	17.9	
1981 03 27	16	16 57.70	-33 15.5						
1981 04 06	17	17 05.81	-33 27.9	1.661	2.292	116.6	23.0	17.4	
1981 04 16	17	17 11.07	-33 30.5						
1981 04 26	17	17 13.12	-33 21.7	1.418	2.240	134.2	18.8	16.9	
1981 05 06	17	17 11.66	-32 58.7						
1981 05 16	17	17 06.80	-32 17.8	1.235	2.190	154.3	11.5	16.4	
1981 05 26	16	16 59.13	-31 16.5						
1981 06 05	16	16 49.74	-29 54.6	1.135	2.145	172.6	3.5	15.9	
1981 06 15	16	16 40.21	-28 15.9						
1981 06 25	16	16 32.12	-26 28.9	1.130	2.104	157.0	10.9	16.1	
1981 07 05	16	16 26.68	-24 43.2						
1981 07 15	16	16 24.63	-23 07.5	1.211	2.068	136.2	19.9	16.5	
1981 07 25	16	16 26.15	-21 46.6						
1981 08 04	16	16 31.07	-20 41.8	1.352	2.038	118.2	26.0	16.8	
1981 08 14	16	16 39.12	-19 52.0						
1981 08 24	16	16 49.87	-19 14.1	1.528	2.014	103.1	29.3	17.1	

(1316) Kasan

					Elements MPC				5176
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17		17 16.36	-21 53.1	2.664	2.940	96.0	19.7	20.4	
1981 03 27		17 21.73	-21 06.2						
1981 04 06		17 24.91	-20 10.1	2.342	2.896	113.9	18.4	20.1	
1981 04 16		17 25.62	-19 04.5						
1981 04 26		17 23.69	-17 49.4	2.059	2.848	133.7	14.8	19.7	
1981 05 06		17 19.06	-16 25.2						
1981 05 16		17 11.90	-14 53.5	1.848	2.797	155.1	8.8	19.3	
1981 05 26		17 02.72	-13 17.4						
1981 06 05		16 52.29	-11 41.3	1.740	2.743	169.2	4.0	18.9	
1981 06 15		16 41.64	-10 11.1						
1981 06 25		16 31.83	-08 52.3	1.746	2.685	151.8	10.3	19.1	
1981 07 05		16 23.76	-07 49.1						
1981 07 15		16 18.09	-07 03.3	1.849	2.624	130.4	17.2	19.3	
1981 07 25		16 15.10	-06 34.6						
1981 08 04		16 14.86	-06 21.3	2.014	2.560	111.1	21.7	19.6	
1981 08 14		16 17.29	-06 20.6						
1981 08 24		16 22.18	-06 29.4	2.204	2.494	94.4	23.8	19.7	

1979 XE

					Elements MPC				5272
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.	
1981 03 17		17 17.64	-12 33.6	2.437	2.731	-0.80	+2.5	19.3	
1981 03 27		17 23.15	-12 10.0						
1981 04 06		17 26.34	-11 42.8	2.191	2.749	-0.90	+2.8	19.0	
1981 04 16		17 26.99	-11 13.8						
1981 04 26		17 24.96	-10 44.8	1.979	2.763	-1.03	+3.2	18.7	
1981 05 06		17 20.26	-10 18.2						
1981 05 16		17 13.14	-09 56.3	1.834	2.774	-1.13	+3.6	18.4	
1981 05 26		17 04.17	-09 41.5						
1981 06 05		16 54.16	-09 35.9	1.784	2.782	-1.17	+3.8	18.2	
1981 06 15		16 44.11	-09 40.8						
1981 06 25		16 35.03	-09 56.7	1.843	2.787	-1.12	+3.8	18.5	
1981 07 05		16 27.69	-10 23.0						
1981 07 15		16 22.66	-10 58.6	1.997	2.789	-1.00	+3.6	18.8	
1981 07 25		16 20.15	-11 41.5						
1981 08 04		16 20.20	-12 29.9	2.217	2.788	-0.88	+3.3	19.1	
1981 08 14		16 22.68	-13 22.1						
1981 08 24		16 27.39	-14 16.1	2.473	2.784	-0.78	+2.9	19.4	

1972 TF2

					Elements MPC				5650
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17		17 12.93	-17 47.5	3.031	3.305	97.1	17.4	17.7	
1981 03 27		17 17.60	-17 22.7						
1981 04 06		17 20.33	-16 53.6	2.742	3.293	115.1	16.0	17.4	
1981 04 16		17 20.93	-16 20.6						
1981 04 26		17 19.37	-15 44.9	2.495	3.281	134.6	12.6	17.2	
1981 05 06		17 15.68	-15 07.4						
1981 05 16		17 10.10	-14 29.6	2.321	3.268	155.4	7.4	16.9	
1981 05 26		17 03.07	-13 53.4						
1981 06 05		16 55.20	-13 20.6	2.248	3.253	170.8	2.9	16.6	
1981 06 15		16 47.24	-12 53.4						
1981 06 25		16 39.94	-12 33.5	2.286	3.238	155.5	7.5	16.8	
1981 07 05		16 33.93	-12 22.1						
1981 07 15		16 29.69	-12 19.5	2.423	3.222	134.9	12.9	17.1	
1981 07 25		16 27.48	-12 25.3						
1981 08 04		16 27.38	-12 38.7	2.632	3.205	115.7	16.6	17.3	
1981 08 14		16 29.39	-12 58.2						
1981 08 24		16 33.35	-13 22.2	2.881	3.188	98.3	18.3	17.5	

1980 CF						Elements MPC		5352
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 03 17		17 10.91	-17 47.8	2.653	2.954	97.6	19.5	17.4
1981 03 27		17 16.70	-17 38.5					
1981 04 06		17 20.34	-17 26.0	2.403	2.968	115.0	17.8	17.2
1981 04 16		17 21.65	-17 11.2					
1981 04 26		17 20.55	-16 55.1	2.192	2.984	134.4	13.9	16.9
1981 05 06		17 17.09	-16 38.7					
1981 05 16		17 11.52	-16 23.1	2.050	2.999	155.5	8.0	16.6
1981 05 26		17 04.37	-16 09.4					
1981 06 05		16 56.32	-15 58.6	2.005	3.016	173.3	2.2	16.3
1981 06 15		16 48.25	-15 52.1					
1981 06 25		16 40.98	-15 51.0	2.070	3.032	157.1	7.5	16.6
1981 07 05		16 35.18	-15 55.8					
1981 07 15		16 31.35	-16 06.9	2.232	3.049	136.4	13.3	17.0
1981 07 25		16 29.71	-16 24.0					
1981 08 04		16 30.32	-16 46.2	2.465	3.066	117.3	17.1	17.3
1981 08 14		16 33.10	-17 12.7					
1981 08 24		16 37.88	-17 41.9	2.741	3.083	100.1	18.8	17.6

1978 SQ						Elements MPC		5279
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 03 17		17 22.72	-23 34.1	2.653	2.904	94.4	20.0	19.9
1981 03 27		17 28.81	-23 55.0					
1981 04 06		17 32.73	-24 15.6	2.366	2.892	111.9	18.7	19.6
1981 04 16		17 34.20	-24 36.2					
1981 04 26		17 32.99	-24 57.0	2.112	2.877	131.3	15.2	19.3
1981 05 06		17 29.00	-25 17.3					
1981 05 16		17 22.33	-25 35.8	1.922	2.860	153.0	9.2	18.9
1981 05 26		17 13.42	-25 50.7					
1981 06 05		17 03.01	-26 00.3	1.827	2.839	175.3	1.7	18.4
1981 06 15		16 52.16	-26 04.1					
1981 06 25		16 41.98	-26 02.8	1.843	2.817	159.3	7.3	18.7
1981 07 05		16 33.47	-25 58.6					
1981 07 15		16 27.37	-25 54.2	1.960	2.791	137.1	14.4	19.0
1981 07 25		16 24.04	-25 52.1					
1981 08 04		16 23.56	-25 53.7	2.148	2.764	117.2	19.1	19.3
1981 08 14		16 25.85	-25 59.8					
1981 08 24		16 30.69	-26 09.9	2.375	2.733	99.7	21.4	19.6

1980 GC						Elements MPC		5409
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1981 03 17		17 20.05	-00 40.4	4.824	5.029	-0.36	+0.4	18.0
1981 03 27		17 22.39	+00 04.8					
1981 04 06		17 23.44	+00 51.8	4.558	5.039	-0.38	+0.4	17.8
1981 04 16		17 23.16	+01 38.8					
1981 04 26		17 21.60	+02 23.9	4.339	5.049	-0.40	+0.5	17.7
1981 05 06		17 18.85	+03 05.0					
1981 05 16		17 15.09	+03 39.8	4.194	5.059	-0.42	+0.5	17.6
1981 05 26		17 10.57	+04 06.5					
1981 06 05		17 05.59	+04 23.4	4.145	5.069	-0.43	+0.5	17.5
1981 06 15		17 00.52	+04 29.5					
1981 06 25		16 55.70	+04 24.6	4.201	5.080	-0.42	+0.4	17.6
1981 07 05		16 51.47	+04 09.1					
1981 07 15		16 48.09	+03 44.2	4.354	5.090	-0.40	+0.4	17.7
1981 07 25		16 45.77	+03 11.3					
1981 08 04		16 44.62	+02 32.2	4.583	5.100	-0.38	+0.4	17.9
1981 08 14		16 44.71	+01 48.5					
1981 08 24		16 46.03	+01 02.0	4.858	5.110	-0.36	+0.3	18.0

(2242) 1936 TG

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	MPC	Mag.
1981 03 17		17 22.79	-25 56.1	2.163	2.447	94.2	23.9	5319	18.7
1981 03 27		17 31.36	-26 15.2						
1981 04 06		17 37.48	-26 32.3	1.917	2.456	110.7	22.4		18.4
1981 04 16		17 40.76	-26 47.9						
1981 04 26		17 40.91	-27 02.1	1.698	2.462	129.4	18.4		18.0
1981 05 06		17 37.72	-27 14.1						
1981 05 16		17 31.26	-27 22.0	1.535	2.467	150.7	11.6		17.7
1981 05 26		17 22.02	-27 23.4						
1981 06 05		17 10.90	-27 16.4	1.458	2.469	173.2	2.8		17.2
1981 06 15		16 59.23	-27 00.6						
1981 06 25		16 48.45	-26 38.0	1.486	2.469	160.7	7.8		17.5
1981 07 05		16 39.72	-26 12.5						
1981 07 15		16 33.89	-25 48.1	1.611	2.466	138.5	15.8		17.9
1981 07 25		16 31.26	-25 28.1						
1981 08 04		16 31.83	-25 14.2	1.804	2.461	119.0	21.1		18.2
1981 08 14		16 35.41	-25 06.6						
1981 08 24		16 41.66	-25 04.6	2.036	2.454	102.0	23.8		18.5

1980 DC

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	MPC	Mag.
1981 03 17		17 17.69	-32 53.6	2.531	2.796	-1.10	+1.1	5347	17.2
1981 03 27		17 26.16	-33 41.1						
1981 04 06		17 32.42	-34 28.1	2.265	2.785	-1.27	+0.6		16.9
1981 04 16		17 36.13	-35 14.5						
1981 04 26		17 37.02	-35 59.4	2.031	2.776	-1.47	+0.5		16.6
1981 05 06		17 34.91	-36 40.5						
1981 05 16		17 29.85	-37 14.5	1.858	2.767	-1.66	+1.0		16.3
1981 05 26		17 22.26	-37 37.2						
1981 06 05		17 12.92	-37 45.1	1.771	2.760	-1.76	+2.1		16.1
1981 06 15		17 02.97	-37 36.3						
1981 06 25		16 53.67	-37 12.0	1.785	2.755	-1.70	+3.2		16.1
1981 07 05		16 46.12	-36 35.7						
1981 07 15		16 41.11	-35 52.8	1.896	2.751	-1.52	+3.6		16.4
1981 07 25		16 39.03	-35 08.2						
1981 08 04		16 39.92	-34 25.7	2.081	2.748	-1.33	+3.2		16.7
1981 08 14		16 43.65	-33 47.3						
1981 08 24		16 49.93	-33 13.8	2.313	2.747	-1.17	+2.3		17.0

1977 QX2

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	MPC	Mag.
1981 03 17		17 35.04	-23 06.8	3.415	3.584	91.6	16.1	5441	18.3
1981 03 27		17 39.75	-23 09.1						
1981 04 06		17 42.62	-23 10.2	3.134	3.596	109.7	15.2		18.1
1981 04 16		17 43.48	-23 10.3						
1981 04 26		17 42.26	-23 09.6	2.885	3.608	129.3	12.5		17.9
1981 05 06		17 38.97	-23 08.0						
1981 05 16		17 33.77	-23 05.1	2.702	3.617	150.6	7.9		17.6
1981 05 26		17 27.01	-23 00.4						
1981 06 05		17 19.19	-22 53.8	2.616	3.626	173.2	1.9		17.3
1981 06 15		17 10.98	-22 45.4						
1981 06 25		17 03.10	-22 36.0	2.645	3.633	164.0	4.4		17.5
1981 07 05		16 56.18	-22 26.7						
1981 07 15		16 50.75	-22 18.8	2.783	3.638	142.0	9.9		17.8
1981 07 25		16 47.13	-22 13.5						
1981 08 04		16 45.50	-22 11.4	3.005	3.642	121.7	13.7		18.0
1981 08 14		16 45.87	-22 12.8						
1981 08 24		16 48.16	-22 17.5	3.279	3.644	103.1	15.7		18.2

(2252) CERGA

						Elements MPC 5349			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17		17 31.16	-27 26.7	2.532	2.757	92.3	21.1	17.7	
1981 03 27		17 39.46	-27 50.1						
1981 04 06		17 45.65	-28 12.6	2.256	2.747	108.8	20.2	17.4	
1981 04 16		17 49.39	-28 34.9						
1981 04 26		17 50.42	-28 56.9	2.008	2.736	127.1	17.0	17.1	
1981 05 06		17 48.54	-29 17.8						
1981 05 16		17 43.74	-29 36.0	1.816	2.724	147.6	11.5	16.7	
1981 05 26		17 36.34	-29 48.8						
1981 06 05		17 26.97	-29 53.9	1.709	2.712	168.8	4.2	16.4	
1981 06 15		17 16.67	-29 49.4						
1981 06 25		17 06.63	-29 36.0	1.707	2.698	164.0	6.0	16.4	
1981 07 05		16 57.99	-29 15.7						
1981 07 15		16 51.64	-28 52.1	1.806	2.685	142.5	13.3	16.7	
1981 07 25		16 48.08	-28 28.8						
1981 08 04		16 47.47	-28 08.4	1.982	2.671	122.7	18.6	17.0	
1981 08 14		16 49.76	-27 52.2						
1981 08 24		16 54.72	-27 40.3	2.206	2.656	105.2	21.6	17.3	

(2256) 4519 P-L

						Elements MPC 5351			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 03 17		17 26.91	-22 49.1	2.615	2.854	93.5	20.4	17.9	
1981 03 27		17 35.11	-22 54.2						
1981 04 06		17 41.39	-22 56.9	2.322	2.825	110.0	19.4	17.6	
1981 04 16		17 45.44	-22 58.0						
1981 04 26		17 47.07	-22 58.1	2.061	2.797	128.2	16.4	17.3	
1981 05 06		17 46.09	-22 57.6						
1981 05 16		17 42.54	-22 56.3	1.857	2.770	148.6	11.0	16.9	
1981 05 26		17 36.68	-22 53.8						
1981 06 05		17 29.05	-22 49.6	1.738	2.745	170.9	3.3	16.5	
1981 06 15		17 20.51	-22 43.7						
1981 06 25		17 12.08	-22 36.6	1.724	2.721	166.0	5.2	16.5	
1981 07 05		17 04.76	-22 29.6						
1981 07 15		16 59.37	-22 24.3	1.810	2.699	144.0	12.8	16.8	
1981 07 25		16 56.43	-22 22.3						
1981 08 04		16 56.17	-22 24.1	1.974	2.679	124.2	18.3	17.1	
1981 08 14		16 58.60	-22 29.9						
1981 08 24		17 03.57	-22 38.9	2.188	2.661	106.7	21.3	17.4	

(2295) 1977 QD1

						Elements MPC 5598			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 04 06		18 01.29	-26 00.6	2.650	3.071	105.4	18.3	18.0	
1981 04 16		18 04.95	-26 05.8						
1981 04 26		18 06.27	-26 10.8	2.380	3.057	123.8	15.9	17.7	
1981 05 06		18 05.10	-26 15.7						
1981 05 16		18 01.43	-26 19.6	2.163	3.041	144.2	11.2	17.3	
1981 05 26		17 55.45	-26 21.3						
1981 06 05		17 47.60	-26 19.6	2.030	3.025	166.3	4.6	17.0	
1981 06 15		17 38.64	-26 13.3						
1981 06 25		17 29.48	-26 02.4	2.003	3.009	169.8	3.4	16.9	
1981 07 05		17 21.05	-25 47.8						
1981 07 15		17 14.22	-25 31.5	2.083	2.992	147.6	10.5	17.2	
1981 07 25		17 09.54	-25 15.6						
1981 08 04		17 07.33	-25 01.8	2.251	2.974	127.0	15.8	17.5	
1981 08 14		17 07.68	-24 51.1						
1981 08 24		17 10.47	-24 43.7	2.476	2.956	108.5	18.9	17.8	
1981 09 03		17 15.55	-24 39.3						
1981 09 13		17 22.70	-24 36.8	2.727	2.937	91.8	20.0	18.0	

1980 DA						Elements MPC 5312			
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.	
1981 04 06		18 05.70	-25 05.2	2.201	2.634	-1.08	-1.2	18.3	
1981 04 16		18 10.56	-24 59.8						
1981 04 26		18 12.75	-24 53.8	1.954	2.633	-1.24	-1.5	18.0	
1981 05 06		18 12.02	-24 47.1						
1981 05 16		18 08.28	-24 39.5	1.754	2.631	-1.42	-1.4	17.6	
1981 05 26		18 01.73	-24 29.9						
1981 06 05		17 52.85	-24 17.2	1.632	2.626	-1.55	-0.9	17.3	
1981 06 15		17 42.55	-24 00.6						
1981 06 25		17 31.99	-23 40.5	1.612	2.620	-1.55	-0.1	17.1	
1981 07 05		17 22.34	-23 18.3						
1981 07 15		17 14.66	-22 56.7	1.697	2.612	-1.42	+0.4	17.5	
1981 07 25		17 09.59	-22 38.0						
1981 08 04		17 07.43	-22 23.7	1.865	2.603	-1.25	+0.5	17.8	
1981 08 14		17 08.20	-22 14.6						
1981 08 24		17 11.72	-22 10.0	2.086	2.591	-1.09	+0.2	18.2	
1981 09 03		17 17.74	-22 08.8						
1981 09 13		17 25.98	-22 09.7	2.332	2.579	-0.97	-0.2	18.4	

1977 RG						Elements MPC 4576			
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.	
1981 04 06		17 56.81	-12 12.1	2.011	2.483	-1.25	+1.1	18.5	
1981 04 16		18 02.66	-11 25.1						
1981 04 26		18 05.97	-10 36.7	1.789	2.483	-1.43	+1.3	18.2	
1981 05 06		18 06.54	-09 49.8						
1981 05 16		18 04.35	-09 07.6	1.615	2.485	-1.62	+1.5	17.9	
1981 05 26		17 59.59	-08 33.6						
1981 06 05		17 52.74	-08 10.9	1.514	2.489	-1.75	+1.7	17.6	
1981 06 15		17 44.61	-08 02.4						
1981 06 25		17 36.23	-08 09.2	1.507	2.495	-1.75	+1.7	17.5	
1981 07 05		17 28.64	-08 31.0						
1981 07 15		17 22.77	-09 05.9	1.596	2.503	-1.62	+1.6	17.8	
1981 07 25		17 19.21	-09 51.1						
1981 08 04		17 18.28	-10 43.2	1.764	2.512	-1.43	+1.5	18.2	
1981 08 14		17 20.05	-11 39.2						
1981 08 24		17 24.36	-12 36.1	1.986	2.524	-1.25	+1.3	18.5	
1981 09 03		17 31.01	-13 31.5						
1981 09 13		17 39.76	-14 23.5	2.239	2.538	-1.11	+1.1	18.8	

(2180) 1940 RJ						Elements MPC 5033			
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 04 06		18 08.77	-19 52.4	2.516	2.918	103.6	19.5	16.8	
1981 04 16		18 13.48	-19 17.1						
1981 04 26		18 15.94	-18 39.5	2.250	2.903	121.3	17.2	16.5	
1981 05 06		18 15.96	-18 00.5						
1981 05 16		18 13.52	-17 21.1	2.033	2.889	141.0	12.7	16.1	
1981 05 26		18 08.77	-16 42.6						
1981 06 05		18 02.09	-16 06.1	1.894	2.876	161.8	6.3	15.8	
1981 06 15		17 54.11	-15 33.1						
1981 06 25		17 45.71	-15 05.3	1.857	2.863	169.5	3.7	15.6	
1981 07 05		17 37.77	-14 43.8						
1981 07 15		17 31.15	-14 29.8	1.926	2.851	149.8	10.3	15.9	
1981 07 25		17 26.48	-14 23.6						
1981 08 04		17 24.11	-14 24.5	2.083	2.839	129.6	16.0	16.2	
1981 08 14		17 24.21	-14 31.7						
1981 08 24		17 26.70	-14 43.5	2.300	2.828	111.3	19.5	16.5	
1981 09 03		17 31.46	-14 58.1						
1981 09 13		17 38.28	-15 13.8	2.547	2.819	95.0	20.8	16.8	

(2227) 1955 RX				Elements MPC				5273
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 04 06		18 19.38	-17 47.9	2.246	2.627	101.0	22.0	19.4
1981 04 16		18 24.53	-17 21.0					
1981 04 26		18 27.19	-16 53.9	1.991	2.625	118.5	19.7	19.0
1981 05 06		18 27.11	-16 28.1					
1981 05 16		18 24.16	-16 04.9	1.777	2.620	138.2	14.9	18.7
1981 05 26		18 18.41	-15 45.7					
1981 06 05		18 10.19	-15 31.3	1.636	2.612	159.8	7.7	18.3
1981 06 15		18 00.24	-15 22.5					
1981 06 25		17 49.57	-15 19.7	1.593	2.601	170.3	3.8	18.1
1981 07 05		17 39.32	-15 23.3					
1981 07 15		17 30.61	-15 33.3	1.656	2.587	150.0	11.3	18.4
1981 07 25		17 24.21	-15 49.2					
1981 08 04		17 20.59	-16 10.4	1.807	2.570	129.0	17.9	18.7
1981 08 14		17 19.91	-16 35.8					
1981 08 24		17 22.05	-17 03.9	2.014	2.550	110.5	21.8	19.1
1981 09 03		17 26.83	-17 33.1					
1981 09 13		17 33.99	-18 01.8	2.248	2.528	94.1	23.4	19.3

(2193) Jackson				Elements MPC				5131
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 04 06		18 16.29	-31 34.5	2.538	2.916	102.0	19.6	16.3
1981 04 16		18 22.03	-32 22.4					
1981 04 26		18 25.37	-33 14.0	2.288	2.917	119.4	17.5	16.0
1981 05 06		18 26.04	-34 08.8					
1981 05 16		18 23.89	-35 04.9	2.085	2.918	138.2	13.3	15.7
1981 05 26		18 18.97	-35 59.3					
1981 06 05		18 11.58	-36 47.7	1.958	2.921	157.3	7.7	15.5
1981 06 15		18 02.42	-37 25.4					
1981 06 25		17 52.49	-37 49.1	1.930	2.924	165.0	5.2	15.3
1981 07 05		17 42.93	-37 57.6					
1981 07 15		17 34.85	-37 52.4	2.006	2.928	149.5	10.1	15.6
1981 07 25		17 29.06	-37 36.8					
1981 08 04		17 26.01	-37 14.8	2.171	2.933	130.4	15.3	15.9
1981 08 14		17 25.87	-36 49.7					
1981 08 24		17 28.52	-36 24.0	2.398	2.938	112.6	18.5	16.2
1981 09 03		17 33.76	-35 58.8					
1981 09 13		17 41.30	-35 34.5	2.659	2.944	96.3	19.9	16.4

1975 VO2				Elements MPC				5598
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 04 06		18 05.04	-24 37.5	1.513	2.012	104.5	28.8	17.4
1981 04 16		18 15.17	-25 06.2					
1981 04 26		18 22.31	-25 37.8	1.320	2.022	120.2	25.5	17.0
1981 05 06		18 25.98	-26 14.1					
1981 05 16		18 25.82	-26 55.2	1.163	2.035	138.7	19.1	16.6
1981 05 26		18 21.74	-27 39.5					
1981 06 05		18 14.07	-28 23.1	1.067	2.051	160.1	9.7	16.2
1981 06 15		18 03.80	-29 00.6					
1981 06 25		17 52.51	-29 27.5	1.056	2.068	172.4	3.7	16.0
1981 07 05		17 41.99	-29 41.9					
1981 07 15		17 33.87	-29 45.5	1.137	2.088	151.6	13.4	16.5
1981 07 25		17 29.17	-29 42.0					
1981 08 04		17 28.24	-29 35.0	1.294	2.109	131.6	21.1	17.0
1981 08 14		17 31.06	-29 26.7					
1981 08 24		17 37.23	-29 18.0	1.503	2.132	114.6	25.5	17.4
1981 09 03		17 46.32	-29 08.5					
1981 09 13		17 57.89	-28 57.2	1.743	2.156	99.8	27.4	17.8

1967 JO		Elements MPC 5279							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 04 06		18 21.39	-27 36.1	2.354	2.726	100.9	21.1	18.0	
1981 04 16		18 27.33	-27 52.3						
1981 04 26		18 30.75	-28 10.4	2.120	2.745	118.3	18.8	17.8	
1981 05 06		18 31.39	-28 30.6						
1981 05 16		18 29.14	-28 52.1	1.928	2.763	137.9	14.2	17.5	
1981 05 26		18 24.10	-29 13.0						
1981 06 05		18 16.61	-29 30.7	1.809	2.781	159.3	7.4	17.2	
1981 06 15		18 07.40	-29 42.4						
1981 06 25		17 57.49	-29 46.0	1.788	2.799	172.8	2.6	16.9	
1981 07 05		17 47.98	-29 41.3						
1981 07 15		17 39.94	-29 29.7	1.873	2.817	153.0	9.4	17.3	
1981 07 25		17 34.13	-29 13.7						
1981 08 04		17 30.96	-28 56.0	2.051	2.834	132.3	15.4	17.7	
1981 08 14		17 30.57	-28 38.7						
1981 08 24		17 32.84	-28 22.8	2.291	2.851	113.6	19.0	18.0	
1981 09 03		17 37.57	-28 08.5						
1981 09 13		17 44.49	-27 55.5	2.567	2.867	96.9	20.4	18.3	

(1037) Davidweilla

(1037) Davidweilla		Elements MPC 5413							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 04 06		18 18.20	-17 56.6	1.990	2.396	101.3	24.2	17.9	
1981 04 16		18 25.93	-17 17.7						
1981 04 26		18 31.29	-16 35.8	1.716	2.356	117.5	22.3	17.5	
1981 05 06		18 33.93	-15 52.7						
1981 05 16		18 33.55	-15 10.3	1.480	2.315	135.8	17.7	17.1	
1981 05 26		18 30.05	-14 30.7						
1981 06 05		18 23.52	-13 56.2	1.306	2.272	156.2	10.4	16.6	
1981 06 15		18 14.54	-13 29.0						
1981 06 25		18 04.09	-13 11.2	1.221	2.228	169.6	4.7	16.2	
1981 07 05		17 53.50	-13 04.2						
1981 07 15		17 44.21	-13 08.6	1.232	2.184	152.3	12.5	16.4	
1981 07 25		17 37.37	-13 23.8						
1981 08 04		17 33.71	-13 48.3	1.325	2.139	131.7	20.7	16.7	
1981 08 14		17 33.57	-14 19.7						
1981 08 24		17 36.87	-14 55.3	1.472	2.095	113.8	26.2	17.0	
1981 09 03		17 43.41	-15 32.1						
1981 09 13		17 52.88	-16 07.6	1.645	2.051	98.5	29.0	17.3	

1978 RS

1978 RS		Elements MPC 5597							
Date	ET	R. A. (1950)	Decl.	Delta	r	Variation	Phase	Mag.	
1981 04 06		18 19.84	-25 28.1	1.915	2.327	-1.43	-1.0	18.8	
1981 04 16		18 28.97	-25 28.4						
1981 04 26		18 35.70	-25 28.8	1.642	2.285	-1.71	-1.8	18.4	
1981 05 06		18 39.61	-25 30.7						
1981 05 16		18 40.30	-25 34.7	1.405	2.241	-2.07	-2.3	17.9	
1981 05 26		18 37.55	-25 40.5						
1981 06 05		18 31.35	-25 46.5	1.229	2.197	-2.42	-1.9	17.4	
1981 06 15		18 22.18	-25 50.2						
1981 06 25		18 11.11	-25 48.8	1.137	2.153	-2.58	-0.6	16.7	
1981 07 05		17 59.64	-25 40.6						
1981 07 15		17 49.50	-25 26.6	1.141	2.109	-2.44	+0.7	17.2	
1981 07 25		17 42.07	-25 09.5						
1981 08 04		17 38.22	-24 52.2	1.228	2.066	-2.12	+1.0	17.5	
1981 08 14		17 38.31	-24 36.9						
1981 08 24		17 42.20	-24 24.1	1.369	2.024	-1.82	+0.5	17.8	
1981 09 03		17 49.60	-24 13.1						
1981 09 13		18 00.11	-24 02.2	1.539	1.984	-1.60	-0.4	18.1	

2580 P-L		Elements MPC 5322							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 04 06		18 30.98	-23 56.9	1.960	2.330	98.6	25.1	19.2	
1981 04 16		18 38.92	-24 03.6						
1981 04 26		18 44.13	-24 13.0	1.753	2.364	115.2	22.7	18.9	
1981 05 06		18 46.27	-24 26.5						
1981 05 16		18 45.13	-24 44.4	1.579	2.397	134.3	17.6	18.6	
1981 05 26		18 40.69	-25 05.9						
1981 06 05		18 33.23	-25 28.8	1.467	2.430	156.2	9.7	18.3	
1981 06 15		18 23.47	-25 50.1						
1981 06 25		18 12.55	-26 06.7	1.446	2.462	177.3	1.1	17.8	
1981 07 05		18 01.80	-26 17.1						
1981 07 15		17 52.56	-26 21.4	1.529	2.493	156.2	9.5	18.4	
1981 07 25		17 45.77	-26 21.4						
1981 08 04		17 41.96	-26 19.1	1.702	2.522	134.8	16.6	18.8	
1981 08 14		17 41.28	-26 16.3						
1981 08 24		17 43.58	-26 13.5	1.940	2.550	116.0	20.9	19.3	
1981 09 03		17 48.59	-26 10.9						
1981 09 13		17 55.98	-26 07.9	2.213	2.577	99.4	22.7	19.6	

(2338) 1977 QA3

(2338) 1977 QA3		Elements MPC 5686							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 04 06		18 30.93	-21 05.3	2.411	2.743	98.5	21.2	17.6	
1981 04 16		18 37.80	-20 59.4						
1981 04 26		18 42.48	-20 55.2	2.146	2.732	115.3	19.4	17.3	
1981 05 06		18 44.70	-20 54.0						
1981 05 16		18 44.29	-20 56.9	1.919	2.723	134.2	15.4	16.9	
1981 05 26		18 41.23	-21 04.0						
1981 06 05		18 35.68	-21 15.1	1.758	2.714	155.4	8.9	16.6	
1981 06 15		18 28.12	-21 29.1						
1981 06 25		18 19.33	-21 44.4	1.689	2.705	177.7	0.8	16.0	
1981 07 05		18 10.31	-21 59.6						
1981 07 15		18 02.14	-22 14.0	1.726	2.698	158.5	7.9	16.5	
1981 07 25		17 55.73	-22 27.5						
1981 08 04		17 51.69	-22 40.2	1.858	2.691	137.0	14.9	16.8	
1981 08 14		17 50.36	-22 52.7						
1981 08 24		17 51.77	-23 04.7	2.059	2.684	117.8	19.5	17.2	
1981 09 03		17 55.82	-23 15.9						
1981 09 13		18 02.28	-23 25.6	2.301	2.679	100.8	21.6	17.4	

(2222) 1977 ST1

(2222) 1977 ST1		Elements MPC 5222							
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.	
1981 04 06		18 45.82	-22 33.1	3.423	3.650	95.1	15.8	18.3	
1981 04 16		18 49.82	-22 31.0						
1981 04 26		18 52.00	-22 31.2	3.126	3.643	113.2	14.7	18.1	
1981 05 06		18 52.22	-22 34.2						
1981 05 16		18 50.40	-22 40.0	2.868	3.634	133.0	11.7	17.9	
1981 05 26		18 46.59	-22 48.5						
1981 06 05		18 40.94	-22 58.8	2.681	3.623	154.4	7.0	17.6	
1981 06 15		18 33.83	-23 09.8						
1981 06 25		18 25.80	-23 20.5	2.595	3.611	177.0	0.8	17.1	
1981 07 05		18 17.51	-23 29.7						
1981 07 15		18 09.69	-23 37.0	2.624	3.597	160.2	5.5	17.5	
1981 07 25		18 02.99	-23 42.5						
1981 08 04		17 57.91	-23 46.7	2.759	3.582	138.4	10.8	17.7	
1981 08 14		17 54.77	-23 50.2						
1981 08 24		17 53.72	-23 53.4	2.973	3.565	118.3	14.5	18.0	
1981 09 03		17 54.77	-23 56.5						
1981 09 13		17 57.81	-23 59.4	3.234	3.547	99.8	16.2	18.2	

(2231) 1941 SG				Elements MPC				5278
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 04 06		18 36.94	-32 30.5	2.462	2.779	97.7	20.9	18.2
1981 04 16		18 45.01	-32 53.6					
1981 04 26		18 50.91	-33 19.5	2.158	2.727	114.0	19.7	17.8
1981 05 06		18 54.26	-33 48.8					
1981 05 16		18 54.74	-34 20.8	1.890	2.675	132.1	16.3	17.4
1981 05 26		18 52.12	-34 53.5					
1981 06 05		18 46.37	-35 23.6	1.684	2.621	151.6	10.6	17.0
1981 06 15		18 37.83	-35 46.0					
1981 06 25		18 27.32	-35 55.7	1.566	2.567	167.1	5.1	16.6
1981 07 05		18 16.04	-35 49.3					
1981 07 15		18 05.46	-35 26.1	1.550	2.513	156.1	9.4	16.7
1981 07 25		17 56.89	-34 49.2					
1981 08 04		17 51.28	-34 03.1	1.626	2.459	136.0	16.6	16.9
1981 08 14		17 49.10	-33 12.8					
1981 08 24		17 50.41	-32 22.1	1.768	2.406	117.3	21.9	17.1
1981 09 03		17 55.02	-31 32.6					
1981 09 13		18 02.61	-30 44.8	1.948	2.354	100.8	24.8	17.4

(2261) 1977 HC				Elements MPC				5354
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 04 06		18 39.71	-06 29.9	1.545	1.915	95.2	31.4	16.8
1981 04 16		18 50.40	-06 50.4					
1981 04 26		18 58.36	-07 22.1	1.374	1.955	109.5	29.0	16.5
1981 05 06		19 03.20	-08 10.0					
1981 05 16		19 04.55	-09 19.2	1.221	2.001	127.1	23.8	16.2
1981 05 26		19 02.23	-10 53.4					
1981 06 05		18 56.24	-12 53.7	1.114	2.049	148.5	15.0	15.8
1981 06 15		18 47.08	-15 16.6					
1981 06 25		18 35.83	-17 53.3	1.089	2.101	172.3	3.7	15.5
1981 07 05		18 23.96	-20 31.5					
1981 07 15		18 13.19	-22 59.7	1.167	2.154	161.0	8.8	15.9
1981 07 25		18 04.89	-25 10.5					
1981 08 04		17 59.91	-27 01.1	1.341	2.208	138.8	17.6	16.5
1981 08 14		17 58.61	-28 32.4					
1981 08 24		18 00.84	-29 46.6	1.585	2.263	119.7	22.8	17.0
1981 09 03		18 06.30	-30 45.8					
1981 09 13		18 14.58	-31 32.0	1.868	2.317	103.3	25.0	17.5

1971 UMI				Elements MPC				5599
Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1981 04 06		18 49.88	-22 56.9	2.452	2.715	94.2	21.6	19.6
1981 04 16		18 57.26	-22 52.8					
1981 04 26		19 02.51	-22 51.3	2.166	2.694	110.9	20.4	19.3
1981 05 06		19 05.33	-22 53.7					
1981 05 16		19 05.45	-23 01.1	1.909	2.670	129.6	17.0	18.9
1981 05 26		19 02.69	-23 13.5					
1981 06 05		18 57.04	-23 30.3	1.711	2.644	150.8	10.8	18.5
1981 06 15		18 48.81	-23 49.6					
1981 06 25		18 38.69	-24 08.7	1.601	2.615	174.0	2.3	18.0
1981 07 05		18 27.70	-24 25.2					
1981 07 15		18 17.10	-24 37.4	1.598	2.583	161.9	7.0	18.2
1981 07 25		18 08.07	-24 45.2					
1981 08 04		18 01.51	-24 49.6	1.694	2.550	139.2	15.1	18.5
1981 08 14		17 57.97	-24 52.0					
1981 08 24		17 57.58	-24 53.3	1.861	2.514	119.1	20.6	18.8
1981 09 03		18 00.27	-24 54.0					
1981 09 13		18 05.80	-24 53.8	2.069	2.476	101.6	23.5	19.1