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

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

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

Contributors of perturbed orbital elements are advised that use of the Epoch 1984 Oct. 27.0 ET (rather than 1983 Sept. 23.0) will become effective with the 1983 Nov. 20 batch of MPCs.

* * * * *

ERRATA.

MPC	Line	
7658	24	For 136.9399 read 136.0399
8033	7	For 1978g read 1978 XVIII
8055	-12	Add The double designation 1978 SH5 = 1978 TZ4 is by N. S. Chernykh (MPC 6287).
8056	3	Add The double designation is by F. N. Bowman (MPC 6099).
8059	-22	Add a reference to MPC 7469.
8063	-24	Add The identifications were independently found by C. M. Bardwell (MPC 6711).

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 8026.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1974 DG2 *	1974 02	18.81472	08 02 28.80	+20 23 46.3	1974 CH	16.5	095
1982 BC8 *	1982 01	26.56524	08 46 43.68	+28 35 10.1	2024	18.0	381
1982 BC8	1982 01	26.59122	08 46 41.64	+28 35 12.4	2024	18.0	381
1982 BC8	1982 01	26.61918	08 46 39.49	+28 35 17.8	2024	18.0	381
1982 BC8	1982 01	26.64315	08 46 37.45	+28 35 19.7	2024	18.0	381
1982 BC8	1982 01	26.66811	08 46 35.76	+28 35 21.9	2024	18.0	381
1983 CG3 *	1983 02	15.25138	07 49 53.93	+32 55 54.8	1983 AR2	17	675

* * * * *

IDENTIFICATIONS.

The following list of identifications with numbered minor planets continues that on MPC 7794.

	Note		Note		Note
1934 XJ = (207)	1	1954 UW1 = (2907)	2	1966 KD = (712)	2
1980 RR4 = (2460)	1	1980 UN = (2427)	1	1980 VZ1 = (2143)	1
1982 BX4 = (2024)	1	1983 CG3 = (1550)	3		

Note 1: identification by E. Bowell. 2: by C. M. Bardwell. 3: by B. G. Marsden.

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

010 Caussols. Observers A. Bijaoui and R. Chemin. Reduced by M. T. Dumoulin and M. Khouchane.
024 Heidelberg. Observers H. Mandel, U. Gorze and G. Klare.
046 Klet. Observer A. Mrkos.
085 Kiev. Observers I. V. Ledovskaya, G. V. Moroz, S. V. Shatokhina, K. I. Churyumov, Major and Izhakevich. From Kiev Komet. Tsirk. No. 304.
086 Odessa. Observers Yu. T. Fedotov, B. A. Murnikov and A. A. Rajkov. Measured and reduced by L. Ya. Skoblikova and G. R. Kastel'. From Kiev Komet. Tsirk. No. 305.
114 Engelhardt Observatory, Zelenchukskaya Station. Observers I. A. Dubyago, V. N. Kitkin, M. I. Kibarina, T. K. Manirov and G. V. Zhukov. From Kiev Komet. Tsirk. Nos. 300 and 303. Long. and Parallax 41.44, -309, -293 (see MPC 7759).
119 Abastumani. Observers G. A. Majsuradze and R. Ya. Inasaridze. Communicated by Yu. V. Batrakov and from Kiev Komet. Tsirk. No. 307.
186 Kitab. Observers E. Rakhmatov and E. P. Mirmakhmudov. From Kiev Komet. Tsirk. No. 304.
323 Perth Observatory, Bickley. Observers J. Johnston and M. P. Candy.
372 Geisei. Observer T. Seki.
413 Siding Spring. 1.2-m U.K. Schmidt Telescope Unit. Observer K. S. Russell.
474 Mt. John University Observatory. Observer A. C. Gilmore. Measured by P. M. Kilmartin (assisted by R. McIntosh and W. M. Kissling).
493 Calar Alto. Observer L. Kohoutek.
657 Climenhaga Observatory. Observers D. D. Balam and J. B. Tatum.
675 Palomar. Observers R. S. Dunbar, J. Gibson, E. Helin, C. Shoemaker and E. Shoemaker. Measured by J. Gibson, C. Shoemaker and S. Swanson.
688 Lowell Observatory, Anderson Mesa Station. Observers B. A. Skiff and E. Bowell. Measured by C. Shoemaker.
695 Kitt Peak. 4-m reflector. Observers M. J. S. Belton, P. A. Wehinger and S. Wyckoff.
707 Chamberlin Observatory, field station. Observer E. Everhart.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao (assisted by C. M. Bardwell, D. W. E. Green and B. G. Marsden).
807 Cerro Tololo. Observer A. Gomez. Measured by C. Torres.
811 Maria Mitchell Observatory. Observer D. Wallentinsen.
890 JCPM Tone Station. Observer S. Furuyama. Measured by N. Ishiyama. From Japan Astron. Circ. No. 386.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
		Periodic Comet Schwassmann-Wachmann 1				
/1974 II	1982	04 16.85353	11 27 27.12	-05 10 51.3		010
/1974 II	1982	04 17.86968	11 27 08.65	-05 08 32.6		010
/1974 II	1982	04 18.87038	11 26 50.51	-05 06 21.8		010
/1974 II	1982	05 19.86950	11 21 59.71	-04 16 43.4		010
/1974 II	1982	05 24.90981	11 22 04.19	-04 13 14.4		010
		Periodic Comet Gunn				
/1976 III	1983	07 12.63878	23 18 33.58	-19 20 09.5		474
/1976 III	1983	07 12.72686	23 18 34.04	-19 20 32.1		474
		Periodic Comet Ashbrook-Jackson				
/1978 XIV	1978	09 16.79631	00 23 39.59	+01 53 58.8		114
/1978 XIV	1978	09 16.81588	00 23 38.60	+01 54 03.8		114

/1978 XIV	1978	09	16.82844	00	23	38.09	+01	54	04.5	114
/1978 XIV	1978	09	19.72091	00	21	15.33	+02	02	44.1	114
/1978 XIV	1978	09	21.74012	00	19	32.35	+02	08	38.5	114
/1978 XIV	1978	09	22.79625	00	18	37.93	+02	11	37.6	114
/1978 XIV	1978	09	28.89418	00	13	19.92	+02	28	18.2	114
/1978 XIV	1978	09	29.92753	00	12	26.18	+02	31	04.1	114
/1978 XIV	1978	10	01.74824	00	10	52.40	+02	35	51.6	114
/1978 XIV	1978	10	02.84076	00	09	56.52	+02	38	45.3	114
/1978 XIV	1978	10	03.87674	00	09	03.94	+02	41	28.4	114
/1978 XIV	1978	10	04.86383	00	08	14.45	+02	44	06.8	114
/1978 XIV	1978	10	05.77506	00	07	29.74	+02	46	31.0	114
/1978 XIV	1978	10	10.03315	00	04	06.97	+02	57	55.6	114

Comet Bowell (1980b)

/1980b	1983	07	10.29365	22	22	10.40	-11	15	45.4	801
/1980b	1983	08	13.95712	22	10	42.97	-12	28	26.9	16.4T 046
/1980b	1983	08	13.97135	22	10	42.55	-12	28	30.5	046
/1980b	1983	08	14.96639	22	10	18.06	-12	30	47.4	046
/1980b	1983	08	14.98052	22	10	17.24	-12	31	00.1	046
/1980b	1983	08	15.98116	22	09	52.27	-12	33	22.6	046
/1980b	1983	08	15.99528	22	09	51.73	-12	33	26.1	046
/1980b	1983	08	16.20588	22	09	46.39	-12	33	58.7	801
/1980b	1983	09	07.21181	22	00	49.01	-13	24	55.3	707

Periodic Comet Tempel 2

/1982d	1983	09	02.37118	03	10	37.64	-02	55	12.5	707
/1982d	1983	09	02.38252	03	10	37.66	-02	55	20.4	801

Periodic Comet Churyumov-Gerasimenko

/1982f	1982	11	23.83396	06	43	54.23	+31	43	04.5	114
/1982f	1982	11	24.83995	06	45	42.26	+32	02	10.1	114
/1982f	1982	11	26.89758	06	49	11.55	+32	40	21.6	114
/1982f	1982	11	28.87946	06	52	18.96	+33	16	23.1	114
/1982f	1982	12	05.83808	07	01	17.46	+35	15	03.9	114
/1982f	1982	12	05.84557	07	01	17.95	+35	15	11.3	114
/1982f	1982	12	06.85202	07	02	19.79	+35	31	09.3	114
/1982f	1982	12	06.85583	07	02	20.24	+35	31	14.2	114
/1982f	1982	12	06.86222	07	02	20.82	+35	31	25.1	114
/1982f	1982	12	11.76572	07	06	27.17	+36	44	03.4	114
/1982f	1982	12	11.77169	07	06	27.36	+36	44	08.9	114
/1982f	1982	12	11.99669	07	06	34.96	+36	47	21.5	114
/1982f	1982	12	19.89551	07	10	06.43	+38	22	44.6	114
/1982f	1983	01	14.94980	07	08	42.06	+39	58	42.8	085
/1982f	1982	11	10.09508	06	13	52.04	+27	12	54.6	085
/1982f	1982	11	10.10172	06	13	52.72	+27	13	01.9	085
/1982f	1982	11	10.16001	06	14	00.84	+27	14	05.1	085
/1982f	1982	12	07.96504	07	03	23.32	+35	48	29.0	085
/1982f	1982	12	07.96844	07	03	23.61	+35	48	30.2	085

Comet Austin (1982g)

/1982g	1982	08	08.42717	07	26	47.01	+07	58	39.6	807
/1982g	1982	08	08.43200	07	26	51.35	+07	59	51.7	807
/1982g	1982	09	04.77049	12	24	11.45	+43	39	27.0	086
/1982g	1982	09	04.78524	12	24	13.82	+43	39	20.6	086
/1982g	1982	09	05.75347	12	26	39.44	+43	26	00.4	086
/1982g	1982	09	05.77662	12	26	42.86	+43	25	38.4	086
/1982g	1982	09	08.76285	12	32	50.27	+42	41	23.6	086
/1982g	1982	09	08.77326	12	32	51.39	+42	41	11.6	086
/1982g	1982	09	17.61498	12	43	57.67	+40	23	42.3	186

/1982g	1982 09 18.61948	12 44 49.30	+40 08 15.0			186
/1982g	1982 09 20.61187	12 46 23.60	+39 38 32.6			186
/1982g	1982 09 21.61604	12 47 07.64	+39 23 39.4			186
/1982g	1982 09 21.75972	12 47 13.26	+39 21 46.9			086
	Periodic Comet Halley					
/1982i	1983 02 13.21068	06 29 44.53	+09 55 52.1			695
/1982i	1983 02 13.27356	06 29 43.20	+09 55 57.5		24.9N	695
	Periodic Comet Tempel 1					
/1982j	1983 06 03.27227	12 39 32.30	+04 58 28.4			657
/1982j	1983 07 08.08926	13 29 30.63	-08 43 50.8			811
/1982j	1983 07 10.08231	13 33 30.32	-09 31 57.2			801
/1982j	1983 07 15.07369	13 43 57.22	-11 31 48.2			801
	Periodic Comet Kopff					
/1982k	1983 06 03.90243	15 27 22.56	-09 16 30.7		10.5T	046
/1982k	1983 06 03.91672	15 27 22.08	-09 16 30.5			046
/1982k	1983 07 08.10138	15 29 37.15	-12 47 08.5			811
/1982k	1983 07 08.87774	15 30 13.17	-12 54 47.1			046
/1982k	1983 07 08.88501	15 30 13.36	-12 54 52.7			046
/1982k	1983 07 09.87240	15 31 01.50	-13 04 45.1			046
/1982k	1983 07 09.87957	15 31 01.86	-13 04 48.3		9.8T	046
/1982k	1983 07 13.08570	15 33 56.03	-13 37 46.7			801
/1982k	1983 07 16.13282	15 37 05.63	-14 10 23.5			801
/1982k	1983 07 29.23499	15 55 00.73	-16 38 16.1			657
/1982k	1983 07 30.23194	15 56 38.70	-16 49 42.6			657
/1982k	1983 07 31.23927	15 58 19.95	-17 01 23.7			657
/1982k	1983 08 04.22865	16 05 21.50	-17 47 06.2			657
/1982k	1983 08 14.04689	16 24 53.70	-19 35 57.2			801
	Periodic Comet Pons-Winnecke					
/1983b	1983 05 22.74447	23 33 56.24	-16 05 13.5			474
/1983b	1983 05 22.76669	23 34 00.12	-16 05 14.5			474
/1983b	1983 09 05.41806	01 47 18.16	-30 36 25.3			707
	Periodic Comet Bowell-Skiff					
/1983c	1983 06 09.08260	10 59 02.06	+04 25 51.8			801
	Comet IRAS-Araki-Alcock (1983d)					
/1983d	1983 05 09.92413	15 34 13.47	+73 25 36.0			119
/1983d	1983 05 09.94572	15 28 59.03	+73 32 00.7			119
/1983d	1983 05 09.97986	15 20 21.40	+73 41 24.4			119
/1983d	1983 07 11.36291	07 19 53.40	-45 05 47.8			474
	Periodic Comet du Toit-Neujmin-Delporte					
/1983g	1983 09 04.32443	00 05 34.54	+02 28 58.0			801
/1983g	1983 09 13.43681	00 00 09.60	+01 29 34.4			707
	Periodic Comet Johnson					
/1983h	1983 07 12.49503	18 19 04.24	-16 53 28.3			474
/1983h	1983 07 12.53867	18 19 02.21	-16 53 48.1			474
/1983h	1983 07 14.19694	18 17 49.21	-17 05 58.2			801
	Periodic Comet Russell 3					
/1983i	1983 07 05.52674	20 26 48.09	-02 10 02.8			474
/1983i	1983 07 05.54861	20 26 47.23	-02 09 57.9			474
/1983i	1983 07 10.24175	20 23 38.59	-01 57 21.6			801
/1983i	1983 07 15.15719	20 20 07.05	-01 47 57.1			801

/1983i	1983	07	17.98628	20	18	00.57	-01	44	21.6	16.0T	046
/1983i	1983	07	18.00046	20	18	00.02	-01	44	20.8		046
/1983i	1983	07	31.89338	20	07	34.25	-01	44	52.2	16.3T	046
/1983i	1983	08	01.28757	20	07	17.08	-01	45	17.8		675
/1983i	1983	08	02.30943	20	06	32.92	-01	46	29.7		675
/1983i	1983	08	08.86713	20	02	03.87	-01	57	10.2		046
/1983i	1983	08	08.88125	20	02	03.31	-01	57	14.8		046
/1983i	1983	08	09.87711	20	01	25.50	-01	59	16.0	16.5T	046
/1983i	1983	08	09.89123	20	01	24.74	-01	59	17.7		046
/1983i	1983	08	14.06531	19	58	54.00	-02	08	57.1		801
/1983i	1983	08	16.07417	19	57	47.27	-02	14	07.1		801
/1983i	1983	09	01.17813	19	51	34.80	-03	03	58.9		707
/1983i	1983	09	04.09914	19	51	01.03	-03	13	54.7		801

Periodic Comet IRAS

/1983j	1983	07	11.76331	01	34	46.30	-17	10	12.8		474
/1983j	1983	07	11.77731	01	34	46.97	-17	09	52.3		474
/1983j	1983	08	11.40972	01	43	45.70	-02	38	02.9		675
/1983j	1983	08	13.41528	01	42	57.98	-01	26	33.5		657
/1983j	1983	08	14.03964	01	42	41.12	-01	03	55.0	12.8T	046
/1983j	1983	08	14.42162	01	42	30.10	-00	49	41.1		657
/1983j	1983	08	15.03891	01	42	10.30	-00	26	56.4		046
/1983j	1983	08	15.05025	01	42	10.24	-00	26	31.1		046
/1983j	1983	08	16.04655	01	41	36.37	+00	10	48.1		046
/1983j	1983	08	16.05234	01	41	36.15	+00	11	01.2		046
/1983j	1983	08	16.46076	01	41	21.50	+00	26	30.4		657
/1983j	1983	08	17.46817	01	40	42.24	+01	05	06.2		657
/1983j	1983	08	20.10295	01	38	42.58	+02	48	50.0		046
/1983j	1983	08	20.10833	01	38	42.41	+02	49	04.5		046
/1983j	1983	08	20.44106	01	38	25.10	+03	02	25.2		657
/1983j	1983	08	21.44709	01	37	31.96	+03	43	12.8		657
/1983j	1983	09	02.31319	01	21	40.53	+12	26	24.0		707
/1983j	1983	09	03.36182	01	19	45.71	+13	15	32.2		801

Comet IRAS (1983k)

/1983k	1983	07	14.34529	11	58	46.41	-47	18	46.4	18 T	413
/1983k	1983	07	14.35918	11	58	46.58	-47	18	23.5		413
/1983k	1983	07	19.38090	12	00	55.99	-44	38	03.4		413
/1983k	1983	08	10.34225	12	13	24.26	-36	10	36.7		474
/1983k	1983	08	10.37237	12	13	25.38	-36	10	07.0		474

Comet Cernis (1983l)

/1983l	1983	07	21.45284	02	42	51.12	+11	15	31.3	9 T	675
/1983l	1983	07	21.47089	02	42	51.05	+11	15	18.4		675
/1983l	1983	07	21.65486	02	42	50.01	+11	13	09.9	14 N	474
/1983l	1983	07	21.67118	02	42	49.99	+11	12	58.0		474
/1983l	1983	07	22.89236	02	42	42.79	+10	58	12.4	12 T	323
/1983l	1983	07	24.76169	02	42	28.47	+10	34	55.1	14 N	474
/1983l	1983	07	24.77141	02	42	28.37	+10	34	47.7		474
/1983l	1983	07	25.77893	02	42	19.12	+10	21	51.5	13 T	372
/1983l	1983	07	26.75648	02	42	08.81	+10	09	10.2		474
/1983l	1983	07	26.76215	02	42	08.76	+10	09	06.0		474
/1983l	1983	08	05.67326	02	39	15.81	+07	45	57.2		890
/1983l	1983	08	05.68819	02	39	15.50	+07	45	44.7		890
/1983l	1983	08	07.98735	02	38	15.70	+07	08	39.9		119
/1983l	1983	08	09.98056	02	37	17.44	+06	35	14.7		119
/1983l	1983	08	10.00625	02	37	16.65	+06	34	48.6		119
/1983l	1983	08	11.42083	02	36	31.68	+06	10	21.2		675
/1983l	1983	08	11.42708	02	36	31.45	+06	10	18.1		675

/1983l	1983	08	13.40590	02 35 22.96	+05 34 56.3				657
/1983l	1983	08	14.09375	02 34 57.64	+05 22 23.3	9.0T			046
/1983l	1983	08	14.10000	02 34 57.07	+05 22 15.5				046
/1983l	1983	08	14.43579	02 34 44.52	+05 16 05.3				657
/1983l	1983	08	15.06432	02 34 20.45	+05 04 24.7				046
/1983l	1983	08	15.06872	02 34 20.26	+05 04 20.1				046
/1983l	1983	08	15.99238	02 33 43.4	+04 46 58				024
/1983l	1983	08	16.06177	02 33 40.68	+04 45 38.1				046
/1983l	1983	08	16.06478	02 33 40.58	+04 45 34.2				046
/1983l	1983	08	16.44792	02 33 25.15	+04 38 19.2				657
/1983l	1983	08	17.45937	02 32 42.18	+04 18 45.0				657
/1983l	1983	08	19.42135	02 31 14.42	+03 39 59.0				657
/1983l	1983	08	20.44903	02 30 25.81	+03 19 11.6				657
/1983l	1983	08	21.42127	02 29 37.99	+02 59 10.5				657
/1983l	1983	08	22.44444	02 28 45.89	+02 37 45.6				657
/1983l	1983	09	01.42743	02 18 34.98	-01 08 57.6				707
/1983l	1983	09	02.37176	02 17 27.07	-01 32 03.9				801
			Periodic Comet Wolf						
/1983m	1983	08	01.23479	18 16 41.11	+14 04 45.2	20	N		675
/1983m	1983	08	03.21257	18 15 45.60	+13 54 31.4				675
			Periodic Comet Crommelin						
/1983n	1983	08	09.00764	20 41 30.3	+23 32 20	20	N		493
/1983n	1983	08	09.03608	20 41 28.2	+23 32 23				493
/1983n	1983	08	10.00347	20 40 14.9	+23 33 35				493
/1983n	1983	08	13.48938	20 35 46.57	+23 35 22.9	20	N		695
			Comet IRAS (1983o)						
/1983o	1983	09	11.35012	12 51 32.09	-47 14 13.1	16	N		474
/1983o	1983	09	11.38067	12 51 35.17	-47 13 38.3				474
			Comet Shoemaker (1983p)						
/1983p	1983	09	07.31388	23 53 13.19	+20 37 55.8				675
/1983p	1983	09	07.33194	23 53 10.88	+20 37 32.2				675
/1983p	1983	09	14.29375	23 38 47.95	+17 55 57.1	12	T		688
/1983p	1983	09	14.26319	23 38 51.90	+17 56 41.6				688
/1983p	1983	09	14.30486	23 38 46.37	+17 55 39.6				675
/1983p	1983	09	14.32569	23 38 43.92	+17 55 12.3				675
/1983p	1983	09	15.24298	23 36 48.96	+17 32 33.2				801
/1983p	1983	09	16.19176	23 34 49.73	+17 08 46.4				801

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OBSERVATIONS MADE AT CAUSSOLS BY E. HELIN, J. CIFFREO AND A. MAURY.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1983 RD	1983 09	13.06042	00 45 59.58	+09 56 54.6	010
1983 RD	1983 09	13.07152	00 46 06.49	+09 56 11.8	010

OBSERVATIONS MADE AT KLET BY A. MRKOS AND Z. VAVROVA.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
65	1983 07	09.97205	20 27 26.69	-15 59 41.1		046
65	1983 07	09.98623	20 27 26.10	-15 59 43.0		046
65	1983 07	14.98854	20 24 04.75	-16 14 11.1		046
65	1983 07	15.00313	20 24 04.17	-16 14 13.8		046
65	1983 07	15.96140	20 23 24.03	-16 17 08.0		046
65	1983 07	15.97552	20 23 23.46	-16 17 10.7		046
65	1983 07	17.95191	20 21 59.46	-16 23 19.1		046
65	1983 07	17.96609	20 21 58.94	-16 23 22.3		046

159		1983	07	17.95191	20	25	54.13	-17	19	39.6		046
159		1983	07	17.96609	20	25	53.51	-17	19	42.2		046
288		1983	08	14.00133	22	37	25.49	-12	15	23.7		046
288		1983	08	14.01551	22	37	24.82	-12	15	27.7		046
288		1983	08	15.00163	22	36	40.00	-12	21	23.0		046
288		1983	08	15.01582	22	36	39.24	-12	21	23.6		046
358		1983	08	09.91634	21	11	03.21	-12	56	56.5		046
358		1983	08	09.93046	21	11	02.48	-12	57	01.0		046
358		1983	08	14.92190	21	06	57.34	-13	19	55.2		046
358		1983	08	14.93970	21	06	56.43	-13	20	01.6		046
358		1983	08	15.94331	21	06	07.58	-13	24	41.7		046
358		1983	08	15.95743	21	06	06.92	-13	24	44.0		046
523		1983	07	09.97205	20	27	44.38	-15	10	07.7		046
523		1983	07	09.98623	20	27	43.69	-15	10	08.3		046
523		1983	07	15.00313	20	23	57.00	-15	17	40.6		046
523		1983	07	15.96140	20	23	12.05	-15	19	15.9		046
523		1983	07	15.97552	20	23	11.29	-15	19	16.1		046
628		1983	07	09.01215	20	02	43.39	-21	00	45.7		046
628		1983	07	09.02633	20	02	42.66	-21	00	52.2		046
834		1983	07	09.97205	20	16	23.77	-13	35	06.7		046
834		1983	07	09.98623	20	16	23.21	-13	35	08.5		046
1079		1983	08	13.95712	22	10	20.93	-11	22	44.2		046
1079		1983	08	13.97135	22	10	20.06	-11	22	48.3		046
1079		1983	08	14.96639	22	09	33.48	-11	26	43.2		046
1079		1983	08	14.98052	22	09	32.66	-11	26	45.8		046
1079		1983	08	15.98116	22	08	45.21	-11	30	48.0		046
1079		1983	08	15.99528	22	08	44.50	-11	30	50.6		046
1079		1983	08	20.03906	22	05	29.11	-11	47	08.9		046
1079		1983	08	20.05324	22	05	28.46	-11	47	12.5		046
1143		1983	08	09.91634	21	11	25.51	-12	14	03.4		046
1143		1983	08	09.93046	21	11	25.24	-12	13	59.1		046
1143		1983	08	14.92190	21	08	59.19	-12	25	20.7		046
1143		1983	08	14.93970	21	08	59.05	-12	25	18.9		046
1143		1983	08	15.94331	21	08	30.02	-12	27	39.8		046
1143		1983	08	15.95743	21	08	29.41	-12	27	40.1		046
1246		1983	07	09.97205	20	20	04.25	-16	49	40.5		046
1246		1983	07	09.98623	20	20	03.36	-16	49	31.6		046
1246		1983	07	14.98854	20	15	01.79	-15	55	55.8		046
1246		1983	07	15.00313	20	15	00.78	-15	55	45.1		046
1246		1983	07	15.96140	20	13	59.79	-15	45	24.5		046
1246		1983	07	15.97552	20	13	58.83	-15	45	15.4		046
1254		1983	07	09.97205	20	21	27.11	-17	33	58.3		046
1254		1983	07	09.98623	20	21	26.35	-17	33	57.9		046
1533		1983	08	16.01519	22	19	33.74	-08	27	17.2		046
1533		1983	08	16.02971	22	19	33.09	-08	27	23.7		046
1533		1983	08	20.07216	22	16	45.28	-08	55	09.6		046
1533		1983	08	20.08646	22	16	44.64	-08	55	16.4		046
2450		1983	08	13.95712	22	07	35.01	-13	28	15.3		046
2450		1983	08	13.97135	22	07	34.41	-13	28	18.8		046
2461		1983	08	14.00133	22	34	01.97	-11	25	26.2		046
2461		1983	08	14.01551	22	34	01.33	-11	25	30.2		046
2461		1983	08	15.00163	22	33	23.54	-11	30	19.5		046
2461		1983	08	15.01582	22	33	22.78	-11	30	25.0		046
1978	TB7	1983	08	14.96639	22	09	05.35	-10	51	08.9		046
1978	TB7	1983	08	14.98052	22	09	04.63	-10	51	14.3		046
1978	TB7	1983	08	15.98116	22	08	25.43	-10	59	39.6		046
1978	TB7	1983	08	15.99528	22	08	24.87	-10	59	46.0		046
1983	NB *	1983	07	09.01215	19	55	03.01	-23	04	40.2	16.8	046
1983	NB	1983	07	09.02633	19	55	02.07	-23	04	38.5		046

1983 NC	*	1983 07 09.97205	20	18	13.34	-16	28	05.4	17.0	046
1983 NC		1983 07 09.98623	20	18	12.72	-16	28	07.7		046
1983 ND	*	1983 07 09.97205	20	18	23.36	-16	40	06.3	16.8	046
1983 ND		1983 07 09.98623	20	18	22.51	-16	40	08.5		046
1983 OA	*	1983 07 18.02118	21	06	18.50	-24	08	54.7	16.5	046
1983 OA		1983 07 18.03530	21	06	17.64	-24	09	00.4		046
1983 OB	*	1983 07 18.02118	21	17	41.60	-21	56	44.2		046
1983 OB		1983 07 18.03530	21	17	40.85	-21	56	46.5		046
1983 PD	*	1983 08 13.95712	22	12	16.12	-11	54	30.3	16.8	046
1983 PD		1983 08 13.97135	22	12	15.69	-11	54	40.0		046
1983 PD		1983 08 14.96639	22	11	41.84	-12	04	19.1		046
1983 PD		1983 08 14.98052	22	11	41.26	-12	04	27.4		046
1983 PD		1983 08 15.98116	22	11	06.53	-12	14	17.0		046
1983 PD		1983 08 15.99528	22	11	06.00	-12	14	26.4		046
1983 PD		1983 08 20.03906	22	08	40.93	-12	54	14.6		046
1983 PD		1983 08 20.05324	22	08	40.33	-12	54	22.8		046
1983 PE	*	1983 08 14.00133	22	31	34.00	-11	34	30.7	16.8	046
1983 PE		1983 08 14.01551	22	31	32.97	-11	34	23.7		046
1983 PF	*	1983 08 14.00133	22	32	44.62	-12	41	59.8	17.0	046
1983 PF		1983 08 14.01551	22	32	43.88	-12	41	59.7		046
1983 PG	*	1983 08 14.96639	22	06	52.40	-13	02	40.0		046
1983 PG		1983 08 14.98052	22	06	51.48	-13	02	39.7		046
1983 PH	*	1983 08 14.98052	22	04	45.42	-12	40	45.5		046
1983 PJ	*	1983 08 15.00163	22	30	04.21	-11	11	13.8	17.0	046
1983 PJ		1983 08 15.01582	22	30	03.24	-11	11	12.4		046
1983 QA	*	1983 08 16.01519	22	18	57.95	-08	28	50.2	16.0	046
1983 QA		1983 08 16.02971	22	18	57.15	-08	28	45.3		046
1983 QA		1983 08 20.07216	22	15	03.66	-08	08	32.9		046
1983 QB	*	1983 08 16.01519	22	26	50.07	-08	58	52.1	17.0	046
1983 QB		1983 08 16.02971	22	26	49.47	-08	58	57.2		046

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

Object	Date	UT	R. A. (1950)	Decl.	N Obs.
1983 PA	1983 09 04.84236		20 50 29.04	+22 54 25.3	1 071
1983 PA	1983 09 04.85625		20 50 28.04	+22 54 30.5	1 071

Note 1: observatory code 071, Long. and Parallax 24.72, -319, -282 (see MPC 7759).

OBSERVATIONS MADE AT KIEV (CODE 085) BY G. V. MOROZ AND SEREDA AND AT THE ENGELHARDT OBSERVATORY'S ZELENCHUKSKAYA STATION (CODE 114) BY M. I. KIBARINA AND S. S. TOKHTAS'EV. FROM KIEV KOMET. TSIRK. NO. 304.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
12	1975 10 02.01087		02 11 50.11	+21 21 44.6	085
12	1975 10 29.88333		01 46 35.34	+17 12 55.0	085
12	1975 11 01.92073		01 43 52.93	+16 41 15.0	085
20	1975 07 11.97497		21 56 50.42	-11 28 01.6	085
20	1975 08 03.96676		21 41 17.66	-12 45 54.2	085
51	1975 05 31.98391		17 40 42.04	-06 17 18.0	085
51	1975 07 06.86200		17 09 01.83	-06 17 13.4	085
65	1975 04 05.86588		11 02 25.96	+07 40 18.4	085
116	1975 03 22.96619		12 10 27.78	+04 46 39.1	085
168	1975 09 28.81708		22 20 26.02	-05 36 01.7	085
204	1982 02 22.80072		09 56 45.31	+01 26 16.8	114
204	1982 02 23.84761		09 55 51.14	+01 33 09.3	114
204	1982 02 26.82789		09 53 19.13	+01 53 09.4	114
233	1982 02 22.80072		09 56 29.94	+00 56 05.6	114
233	1982 02 23.84761		09 55 36.91	+01 02 03.9	114
233	1982 02 26.82789		09 53 08.29	+01 19 35.0	114

336	1982	02	22.80072	09	53	15.79	+02	28	43.1	114
336	1982	02	23.84761	09	52	12.43	+02	34	58.2	114
336	1982	02	26.82789	09	49	15.38	+02	53	20.9	114
433	1975	01	17.93702	07	46	39.19	+32	03	26.6	085
433	1975	02	03.85732	07	36	21.19	+11	20	15.3	085
433	1975	02	17.85292	07	39	53.54	-01	19	03.7	085
433	1975	02	17.87064	07	39	54.03	-01	19	48.0	085
1275	1982	02	22.80072	09	54	55.15	+00	10	33.4	114

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

Object	Date	UT	R. A. (1950)			Decl.			Mag.	Obs.
150	1981	03 02.63403	12	23	19.94	-03	59	13.1	12.5V	413
150	1981	03 02.67917	12	23	18.22	-03	59	01.7		413
150	1981	03 06.60816	12	20	53.47	-03	42	29.8		413
150	1981	03 06.64983	12	20	51.77	-03	42	17.8		413
150	1981	03 11.66134	12	17	31.46	-03	19	14.3		413
150	1981	03 15.69509	12	14	40.78	-02	59	23.6		413
150	1981	03 15.73328	12	14	38.92	-02	59	09.8		413
150	1981	04 05.55430	11	59	28.94	-01	10	18.1		413
150	1981	04 05.58312	11	59	27.74	-01	10	09.8		413
150	1981	04 06.56195	11	58	47.68	-01	05	13.8		413
150	1981	04 06.59668	11	58	46.17	-01	05	03.3		413
150	1981	04 07.56303	11	58	07.21	-01	00	14.4		413
150	1981	04 07.59776	11	58	05.72	-01	00	02.8		413
150	1981	04 10.52714	11	56	11.17	-00	45	48.2		413
150	1981	04 10.56186	11	56	09.75	-00	45	39.0		413
990	1981	03 02.63403	12	20	28.19	-03	21	57.6	15.0V	413
990	1981	03 02.67917	12	20	26.22	-03	21	50.9		413
990	1981	03 06.60816	12	17	27.77	-03	11	34.0		413
990	1981	03 06.64983	12	17	25.84	-03	11	27.3		413
990	1981	03 11.66134	12	13	21.81	-02	56	32.2		413
990	1981	03 11.70301	12	13	19.67	-02	56	23.3		413
990	1981	03 15.69509	12	09	55.81	-02	43	21.2		413
990	1981	03 15.73328	12	09	53.85	-02	43	12.7		413
990	1981	04 05.55430	11	51	54.05	-01	29	26.2		413
990	1981	04 05.58312	11	51	52.87	-01	29	21.8		413
990	1981	04 06.56195	11	51	05.53	-01	26	02.6		413
990	1981	04 06.59668	11	51	03.96	-01	25	56.5		413
990	1981	04 07.56303	11	50	18.02	-01	22	44.2		413
990	1981	04 07.59776	11	50	16.52	-01	22	37.6		413
990	1981	04 10.56186	11	48	00.43	-01	13	07.2		413
991	1981	03 02.63403	12	18	09.32	+00	54	58.4	14.0V	413
991	1981	03 02.67917	12	18	07.70	+00	55	09.0		413
991	1981	03 06.60816	12	15	41.81	+01	11	40.8		413
991	1981	03 06.64983	12	15	40.28	+01	11	52.0		413
991	1981	03 11.70301	12	12	17.49	+01	34	16.9		413
991	1981	03 15.69509	12	09	28.63	+01	52	33.9		413
991	1981	03 15.73328	12	09	27.01	+01	52	44.8		413
991	1981	04 05.55430	11	54	22.86	+03	24	44.8		413
991	1981	04 05.58312	11	54	21.85	+03	24	50.7		413
991	1981	04 06.56195	11	53	41.96	+03	28	38.8		413
991	1981	04 06.59668	11	53	40.59	+03	28	45.9		413
991	1981	04 07.56303	11	53	01.90	+03	32	25.5		413
991	1981	04 07.59776	11	53	00.57	+03	32	33.2		413
991	1981	04 10.56186	11	51	05.93	+03	43	14.9		413

2547		1981	03	02.63403	12	25	25.27	-04	34	20.4	17.0V 413
2547		1981	03	02.67917	12	25	23.28	-04	34	13.9	413
2547		1981	03	06.64983	12	22	11.29	-04	23	55.7	413
2547		1981	03	11.66134	12	17	46.50	-04	08	19.2	413
2547		1981	03	15.69509	12	13	59.76	-03	54	00.5	413
2547		1981	03	15.73328	12	13	57.59	-03	53	50.7	413
2547		1981	04	06.61147	11	52	55.11	-02	24	46.5	413
2547		1981	04	06.64619	11	52	53.54	-02	24	39.4	413
2547		1981	04	08.55338	11	51	14.18	-02	17	14.3	413
2547		1981	04	08.58810	11	51	12.53	-02	17	06.8	413
2547		1981	04	09.50909	11	50	25.88	-02	13	35.4	413
2547		1981	04	09.54382	11	50	24.17	-02	13	28.1	413
1979	SF2	1981	03	02.67917	12	16	51.16	-04	58	59.7	17.5V 413
1979	SF2	1981	03	06.60816	12	13	29.00	-04	43	49.9	413
1979	SF2	1981	03	06.64983	12	13	26.93	-04	43	40.3	413
1979	SF2	1981	03	11.66134	12	08	49.05	-04	21	28.0	413
1979	SF2	1981	03	11.70301	12	08	46.62	-04	21	15.6	413
1979	SF2	1981	03	15.69509	12	04	54.40	-04	01	42.8	413
1979	SF2	1981	03	15.73328	12	04	52.16	-04	01	31.1	413
1979	SF2	1981	04	06.61147	11	44	07.71	-02	05	07.8	413
1979	SF2	1981	04	06.64619	11	44	06.09	-02	04	58.1	413
1979	SF2	1981	04	08.55338	11	42	33.55	-01	55	31.8	413
1979	SF2	1981	04	08.58810	11	42	32.06	-01	55	23.2	413
1979	SF2	1981	04	09.50909	11	41	48.74	-01	50	55.7	413
1979	SF2	1981	04	09.54382	11	41	47.19	-01	50	46.7	413
1981	EW13	1981	03	02.63403	12	16	50.05	-05	07	05.9	17.5V 413
1981	EW13	1981	03	06.60816	12	13	57.58	-04	51	43.2	413
1981	EW13	1981	03	11.66134	12	09	53.57	-04	28	32.8	413
1981	EW13	1981	03	11.70301	12	09	51.36	-04	28	19.9	413
1981	EW13	1981	03	15.69509	12	06	24.40	-04	07	39.7	413
1981	EW13	1981	04	05.55430	11	48	18.68	-02	06	45.5	413
1981	EW13	1981	04	10.52714	11	44	46.47	-01	40	13.6	413
1981	EW13	1981	04	10.56186	11	44	45.11	-01	40	05.2	413
1981	EL24*	1981	03	02.63403	12	06	16.08	-01	52	21.2	18.0V 413
1981	EL24	1981	03	02.67917	12	06	14.35	-01	52	12.1	413
1981	EL24	1981	03	06.60816	12	03	28.98	-01	35	54.9	413
1981	EL24	1981	03	11.66134	11	59	42.48	-01	13	17.1	413
1981	EL24	1981	03	15.69509	11	56	34.43	-00	54	13.1	413
1981	EL24	1981	03	15.73328	11	56	32.78	-00	54	03.8	413
1981	EL24	1981	04	06.56195	11	40	06.38	+00	48	52.2	413
1981	EL24	1981	04	06.59668	11	40	05.10	+00	48	58.9	413
1981	EL24	1981	04	10.56186	11	37	35.45	+01	05	02.0	413
1981	EM24*	1981	03	02.63403	12	06	46.08	-02	26	11.8	19.5V 413
1981	EM24	1981	03	02.67917	12	06	44.24	-02	26	03.5	413
1981	EM24	1981	03	06.60816	12	03	50.16	-02	11	11.4	413
1981	EM24	1981	03	11.70301	11	59	50.46	-01	50	05.5	413
1981	EM24	1981	03	15.69509	11	56	35.13	-01	32	29.6	413
1981	EM24	1981	03	15.73328	11	56	33.10	-01	32	17.4	413
1981	EM24	1981	04	10.56186	11	36	40.16	+00	20	58.5	413
1981	EN24*	1981	03	02.67917	12	07	09.82	-04	09	57.6	18.0V 413
1981	EN24	1981	03	06.60816	12	03	49.39	-03	49	52.6	413
1981	EN24	1981	03	06.64983	12	03	47.34	-03	49	40.9	413
1981	EN24	1981	03	11.66134	11	59	10.58	-03	20	44.8	413
1981	EN24	1981	03	11.70301	11	59	08.30	-03	20	31.4	413
1981	EN24	1981	03	15.69509	11	55	17.78	-02	55	26.6	413
1981	EN24	1981	04	05.45665	11	36	28.07	-00	40	39.3	413
1981	EN24	1981	04	05.49137	11	36	26.42	-00	40	25.9	413
1981	EN24	1981	04	06.46361	11	35	43.29	-00	34	46.0	413
1981	EN24	1981	04	06.49834	11	35	41.81	-00	34	34.3	413

1981	EN24	1981	04	07.46608	11	35	00.09	-00	29	01.9	413
1981	EN24	1981	04	07.50080	11	34	58.81	-00	28	52.2	413
1981	EN24	1981	04	12.62048	11	31	42.41	-00	01	46.9	413
1981	EN24	1981	04	12.65521	11	31	41.32	-00	01	37.0	413
1981	EO24*	1981	03	02.67917	12	07	24.53	+00	21	13.7	18.5V 413
1981	EO24	1981	03	06.60816	12	04	17.48	+00	47	47.5	413
1981	EO24	1981	03	06.64983	12	04	15.51	+00	48	04.6	413
1981	EO24	1981	03	11.66134	11	59	57.27	+01	23	52.9	413
1981	EO24	1981	03	11.70301	11	59	55.22	+01	24	09.0	413
1981	EO24	1981	04	07.51456	11	36	31.42	+04	30	15.6	413
1981	EO24	1981	04	07.54928	11	36	29.96	+04	30	27.3	413
1981	EO24	1981	04	08.50490	11	35	48.68	+04	35	47.2	413
1981	EO24	1981	04	08.53962	11	35	47.24	+04	35	58.6	413
1981	EO24	1981	04	11.56596	11	33	44.15	+04	51	50.8	413
1981	EO24	1981	04	11.60069	11	33	42.63	+04	52	01.6	413
1981	EP24*	1981	03	02.63403	12	07	34.77	-02	08	51.4	18.5V 413
1981	EP24	1981	03	02.67917	12	07	33.08	-02	08	42.3	413
1981	EP24	1981	03	06.60816	12	04	51.65	-01	52	34.7	413
1981	EP24	1981	03	06.64983	12	04	49.85	-01	52	24.3	413
1981	EP24	1981	03	11.66134	12	01	08.94	-01	29	58.3	413
1981	EP24	1981	03	11.70301	12	01	07.01	-01	29	47.2	413
1981	EP24	1981	03	15.69509	11	58	02.99	-01	10	47.3	413
1981	EP24	1981	03	15.73328	11	58	01.37	-01	10	38.2	413
1981	EP24	1981	04	05.55430	11	42	18.60	+00	29	50.6	413
1981	EP24	1981	04	05.58312	11	42	17.52	+00	29	56.6	413
1981	EP24	1981	04	06.56195	11	41	38.46	+00	34	14.7	413
1981	EP24	1981	04	06.59668	11	41	37.01	+00	34	23.7	413
1981	EP24	1981	04	10.52714	11	39	08.96	+00	50	46.0	413
1981	EQ24*	1981	03	02.63403	12	07	44.99	-04	21	18.8	18.0V 413
1981	EQ24	1981	03	02.67917	12	07	43.18	-04	21	04.8	413
1981	EQ24	1981	03	06.60816	12	04	44.13	-03	55	41.3	413
1981	EQ24	1981	03	06.64983	12	04	42.07	-03	55	24.7	413
1981	EQ24	1981	03	11.66134	12	00	27.17	-03	18	47.2	413
1981	EQ24	1981	03	11.70301	12	00	25.07	-03	18	30.2	413
1981	EQ24	1981	03	15.69509	11	56	46.38	-02	46	28.3	413
1981	EQ24	1981	03	15.73328	11	56	44.26	-02	46	10.3	413
1981	EQ24	1981	04	05.55430	11	37	30.08	+00	15	05.3	413
1981	EQ24	1981	04	05.58312	11	37	28.97	+00	15	15.5	413
1981	EQ24	1981	04	07.59776	11	35	52.70	+00	31	53.6	413
1981	EQ24	1981	04	10.56186	11	33	41.87	+00	55	15.7	413
1981	ER24*	1981	03	02.63403	12	08	08.15	-02	36	27.1	19.0V 413
1981	ER24	1981	03	02.67917	12	08	06.10	-02	36	14.8	413
1981	ER24	1981	03	06.60816	12	04	56.57	-02	13	49.4	413
1981	ER24	1981	03	11.70301	12	00	26.38	-01	41	34.7	413
1981	ER24	1981	03	15.73328	11	56	39.02	-01	14	04.1	413
1981	ER24	1981	04	05.55430	11	37	14.36	+01	12	25.1	413
1981	ER24	1981	04	05.58312	11	37	13.45	+01	12	31.4	413
1981	ER24	1981	04	10.56186	11	33	26.64	+01	42	50.0	413
1981	ES24*	1981	03	02.63403	12	08	09.93	-04	33	43.5	19.0V 413
1981	ES24	1981	03	06.60816	12	04	32.25	-04	28	51.5	413
1981	ES24	1981	03	11.66134	11	59	31.16	-04	19	23.4	413
1981	ES24	1981	04	12.62048	11	28	50.35	-02	45	34.7	413
1981	ES24	1981	04	12.65521	11	28	48.92	-02	45	28.5	413
1981	ET24*	1981	03	02.63403	12	08	11.52	-02	17	23.6	17.0V 413
1981	ET24	1981	03	02.67917	12	08	09.80	-02	17	04.9	413
1981	ET24	1981	03	06.60816	12	05	24.29	-01	44	15.0	413
1981	ET24	1981	03	06.64983	12	05	22.50	-01	43	54.7	413
1981	ET24	1981	03	11.66134	12	01	28.43	-00	58	43.7	413
1981	ET24	1981	03	11.70301	12	01	26.32	-00	58	20.2	413

1981	ET24	1981	03	15.69509	11	58	07.44	-00	20	25.4	413
1981	ET24	1981	03	15.73328	11	58	05.61	-00	20	05.6	413
1981	ET24	1981	04	05.55430	11	41	11.07	+02	55	34.0	413
1981	ET24	1981	04	05.58312	11	41	10.17	+02	55	44.4	413
1981	ET24	1981	04	06.56195	11	40	30.07	+03	03	55.0	413
1981	ET24	1981	04	06.59668	11	40	28.65	+03	04	10.0	413
1981	ET24	1981	04	07.56303	11	39	50.63	+03	12	01.9	413
1981	ET24	1981	04	10.52714	11	38	01.73	+03	34	59.4	413
1981	ET24	1981	04	10.56186	11	38	00.49	+03	35	12.6	413
1981	EU24*	1981	03	02.67917	12	08	53.04	-03	17	24.9	18.5V 413
1981	EU24	1981	03	06.60816	12	06	00.40	-03	03	24.9	413
1981	EU24	1981	03	06.64983	12	05	58.46	-03	03	14.7	413
1981	EU24	1981	03	11.66134	12	02	03.82	-02	43	27.9	413
1981	EU24	1981	03	11.70301	12	02	01.86	-02	43	18.6	413
1981	EU24	1981	03	15.69509	11	58	47.01	-02	26	17.4	413
1981	EU24	1981	03	15.73328	11	58	45.27	-02	26	07.6	413
1981	EU24	1981	04	05.55430	11	42	10.25	-00	53	22.4	413
1981	EU24	1981	04	10.56186	11	38	46.74	-00	33	21.8	413
1981	EV24*	1981	03	02.63403	12	09	09.77	-00	36	47.6	19.0V 413
1981	EV24	1981	03	02.67917	12	09	07.56	-00	36	38.9	413
1981	EV24	1981	03	06.60816	12	05	56.19	-00	21	53.7	413
1981	EV24	1981	03	11.70301	12	01	29.57	-00	00	58.4	413
1981	EV24	1981	03	15.69509	11	57	51.57	+00	16	22.8	413
1981	EV24	1981	04	06.56195	11	38	58.62	+01	45	45.8	413
1981	EV24	1981	04	06.59668	11	38	57.24	+01	45	51.8	413
1981	EV24	1981	04	10.56186	11	36	15.07	+01	57	56.4	413
1981	EW24*	1981	03	02.63403	12	09	10.08	-00	06	17.2	17.5V 413
1981	EW24	1981	03	06.60816	12	06	29.98	+00	14	07.9	413
1981	EW24	1981	03	06.64983	12	06	28.31	+00	14	20.9	413
1981	EW24	1981	03	11.66134	12	02	51.88	+00	41	33.7	413
1981	EW24	1981	03	11.70301	12	02	50.18	+00	41	46.2	413
1981	EW24	1981	03	15.73328	11	59	48.41	+01	04	22.6	413
1981	EW24	1981	04	05.55430	11	44	20.12	+02	57	19.4	413
1981	EW24	1981	04	05.58312	11	44	19.11	+02	57	25.7	413
1981	EW24	1981	04	06.56195	11	43	39.96	+03	02	06.8	413
1981	EW24	1981	04	06.59668	11	43	38.59	+03	02	14.9	413
1981	EW24	1981	04	07.56303	11	43	00.89	+03	06	48.3	413
1981	EW24	1981	04	07.59776	11	42	59.81	+03	06	55.0	413
1981	EW24	1981	04	10.52714	11	41	10.27	+03	20	01.5	413
1981	EW24	1981	04	10.56186	11	41	08.96	+03	20	10.0	413
1981	EX24*	1981	03	02.63403	12	09	18.91	-00	00	45.4	19.5V 413
1981	EX24	1981	03	02.67917	12	09	17.26	-00	00	36.0	413
1981	EX24	1981	03	06.60816	12	06	47.86	+00	16	58.8	413
1981	EX24	1981	03	06.64983	12	06	46.63	+00	17	08.4	413
1981	EX24	1981	03	11.66134	12	03	24.59	+00	40	37.4	413
1981	EX24	1981	03	11.70301	12	03	22.70	+00	40	50.2	413
1981	EX24	1981	03	15.69509	12	00	36.04	+01	00	03.0	413
1981	EX24	1981	03	15.73328	12	00	34.55	+01	00	13.9	413
1981	EX24	1981	04	05.55430	11	46	19.74	+02	36	37.7	413
1981	EX24	1981	04	05.58312	11	46	18.67	+02	36	44.6	413
1981	EX24	1981	04	06.56195	11	45	42.54	+02	40	44.9	413
1981	EX24	1981	04	06.59668	11	45	41.39	+02	40	51.2	413
1981	EY24*	1981	03	02.63403	12	09	28.43	-01	17	49.9	14.5V 413
1981	EY24	1981	03	02.67917	12	09	26.39	-01	17	43.8	413
1981	EY24	1981	03	06.60816	12	06	23.58	-01	06	01.3	413
1981	EY24	1981	03	06.64983	12	06	21.55	-01	05	53.0	413
1981	EY24	1981	03	11.66134	12	02	04.44	-00	48	31.5	413
1981	EY24	1981	03	11.70301	12	02	02.16	-00	48	22.8	413
1981	EY24	1981	03	15.69509	11	58	24.80	-00	33	06.8	413

1981	EY24	1981	03	15.73328	11	58	22.75	-00	32	58.6	413
1981	EY24	1981	04	05.55430	11	40	07.95	+00	46	06.8	413
1981	EY24	1981	04	06.56195	11	39	24.20	+00	49	13.7	413
1981	EY24	1981	04	06.59668	11	39	22.74	+00	49	17.8	413
1981	EY24	1981	04	07.56303	11	38	42.11	+00	52	07.8	413
1981	EY24	1981	04	07.59776	11	38	40.66	+00	52	13.2	413
1981	EY24	1981	04	10.52714	11	36	46.29	+01	00	07.1	413
1981	EY24	1981	04	10.56186	11	36	44.99	+01	00	10.4	413
1981	EZ24*	1981	03	02.63403	12	09	29.11	-03	19	55.6	18.0V 413
1981	EZ24	1981	03	02.67917	12	09	27.66	-03	19	34.3	413
1981	EZ24	1981	03	06.60816	12	07	08.67	-02	42	11.1	413
1981	EZ24	1981	03	11.66134	12	03	49.60	-01	50	36.2	413
1981	EZ24	1981	03	11.70301	12	03	47.91	-01	50	11.6	413
1981	EZ24	1981	03	15.69509	12	00	59.10	-01	07	15.3	413
1981	EZ24	1981	03	15.73328	12	00	57.50	-01	06	51.1	413
1981	EZ24	1981	04	05.58312	11	46	08.98	+02	41	59.7	413
1981	EZ24	1981	04	06.56195	11	45	32.55	+02	52	01.7	413
1981	EZ24	1981	04	06.59668	11	45	31.27	+02	52	21.4	413
1981	EZ24	1981	04	07.56303	11	44	56.42	+03	02	04.3	413
1981	EZ24	1981	04	07.59776	11	44	55.23	+03	02	22.1	413
1981	EZ24	1981	04	10.52714	11	43	15.70	+03	30	55.8	413
1981	EZ24	1981	04	10.56186	11	43	14.52	+03	31	11.2	413
1981	EA25*	1981	03	02.63403	12	10	02.29	-00	35	24.9	18.0V 413
1981	EA25	1981	03	02.67917	12	10	00.49	-00	35	20.1	413
1981	EA25	1981	03	06.60816	12	07	07.57	-00	25	56.6	413
1981	EA25	1981	03	06.64983	12	07	05.55	-00	25	50.4	413
1981	EA25	1981	03	11.66134	12	03	11.77	-00	12	38.3	413
1981	EA25	1981	03	11.70301	12	03	09.86	-00	12	31.3	413
1981	EA25	1981	03	15.69509	11	59	56.15	-00	01	19.8	413
1981	EA25	1981	03	15.73328	11	59	54.41	-00	01	13.6	413
1981	EA25	1981	04	05.55430	11	43	14.66	+00	56	28.0	413
1981	EA25	1981	04	05.58312	11	43	13.65	+00	56	30.7	413
1981	EA25	1981	04	06.56195	11	42	30.86	+00	58	51.8	413
1981	EA25	1981	04	06.59668	11	42	29.47	+00	58	55.3	413
1981	EA25	1981	04	10.52714	11	39	45.96	+01	07	38.8	413
1981	EA25	1981	04	10.56186	11	39	44.56	+01	07	41.8	413
1981	EB25*	1981	03	02.63403	12	10	06.12	-01	42	59.5	19.5V 413
1981	EB25	1981	03	02.67917	12	10	04.70	-01	42	45.5	413
1981	EB25	1981	03	06.60816	12	07	40.24	-01	17	10.3	413
1981	EB25	1981	03	11.66134	12	04	20.77	-00	42	27.7	413
1981	EB25	1981	03	15.69509	12	01	33.44	-00	13	38.5	413
1981	EB25	1981	03	15.73328	12	01	31.98	-00	13	24.0	413
1981	EB25	1981	04	05.58312	11	46	56.66	+02	17	16.6	413
1981	EB25	1981	04	06.56195	11	46	18.68	+02	23	57.3	413
1981	EB25	1981	04	06.59668	11	46	17.60	+02	24	08.3	413
1981	EB25	1981	04	10.52714	11	43	52.25	+02	49	58.3	413
1981	EB25	1981	04	10.56186	11	43	50.91	+02	50	11.5	413
1981	EC25*	1981	03	02.63403	12	10	08.40	+00	19	56.4	18.0V 413
1981	EC25	1981	03	02.67917	12	10	05.99	+00	20	08.2	413
1981	EC25	1981	03	06.60816	12	06	31.66	+00	38	28.8	413
1981	EC25	1981	03	06.64983	12	06	29.41	+00	38	40.3	413
1981	EC25	1981	03	11.66134	12	01	34.65	+01	03	52.7	413
1981	EC25	1981	03	11.70301	12	01	32.17	+01	04	05.2	413
1981	EC25	1981	03	15.69509	11	57	25.60	+01	25	05.4	413
1981	EC25	1981	03	15.73328	11	57	23.34	+01	25	15.6	413
1981	EC25	1981	04	07.51456	11	34	30.16	+03	17	10.6	413
1981	EC25	1981	04	07.54928	11	34	28.27	+03	17	18.8	413
1981	EC25	1981	04	08.53962	11	33	37.52	+03	21	10.0	413
1981	EC25	1981	04	11.56596	11	31	09.97	+03	32	02.0	413

1981	EC25	1981	04	11.60069	11	31	08.50	+03	32	10.1	413
1981	ED25*	1981	03	02.63403	12	10	10.06	-04	05	58.5	18.5V 413
1981	ED25	1981	03	02.67917	12	10	08.32	-04	05	45.2	413
1981	ED25	1981	03	06.60816	12	06	57.47	-03	42	13.8	413
1981	ED25	1981	03	06.64983	12	06	55.53	-03	41	59.6	413
1981	ED25	1981	03	11.66134	12	02	31.68	-03	08	55.8	413
1981	ED25	1981	03	15.73328	11	58	45.36	-02	40	03.5	413
1981	ED25	1981	04	05.55430	11	39	21.21	-00	03	18.4	413
1981	ED25	1981	04	06.56195	11	38	30.59	+00	03	56.0	413
1981	ED25	1981	04	06.59668	11	38	29.10	+00	04	07.5	413
1981	ED25	1981	04	10.56186	11	35	20.11	+00	31	36.1	413
1981	EE25*	1981	03	02.63403	12	10	25.44	-01	12	09.8	18.5V 413
1981	EE25	1981	03	02.67917	12	10	23.88	-01	11	56.4	413
1981	EE25	1981	03	06.60816	12	08	01.36	-00	50	16.5	413
1981	EE25	1981	03	06.64983	12	07	59.92	-00	50	02.8	413
1981	EE25	1981	03	11.66134	12	04	46.79	-00	21	06.9	413
1981	EE25	1981	03	15.69509	12	02	05.04	+00	02	55.9	413
1981	EE25	1981	03	15.73328	12	02	03.64	+00	03	09.0	413
1981	EE25	1981	04	05.58312	11	48	12.93	+02	05	57.4	413
1981	EE25	1981	04	06.56195	11	47	37.04	+02	11	20.3	413
1981	EE25	1981	04	06.59668	11	47	35.91	+02	11	28.9	413
1981	EF25*	1981	03	02.63403	12	10	27.42	-00	29	40.9	18.5V 413
1981	EF25	1981	03	02.67917	12	10	25.37	-00	29	28.0	413
1981	EF25	1981	03	06.60816	12	07	13.62	-00	08	23.2	413
1981	EF25	1981	03	11.70301	12	02	44.28	+00	20	57.7	413
1981	EF25	1981	03	15.69509	11	59	03.66	+00	44	53.1	413
1981	EF25	1981	03	15.73328	11	59	01.66	+00	45	05.0	413
1981	EF25	1981	04	06.56195	11	40	08.69	+02	45	16.2	413
1981	EF25	1981	04	06.59668	11	40	07.24	+02	45	23.1	413
1981	EF25	1981	04	10.52714	11	37	31.49	+03	01	25.4	413
1981	EF25	1981	04	10.56186	11	37	30.29	+03	01	30.2	413
1981	EG25*	1981	03	02.63403	12	10	51.88	-03	35	07.9	18.0V 413
1981	EG25	1981	03	02.67917	12	10	49.78	-03	35	12.6	413
1981	EG25	1981	03	06.60816	12	07	38.55	-03	40	35.5	413
1981	EG25	1981	03	06.64983	12	07	36.48	-03	40	37.9	413
1981	EG25	1981	03	11.66134	12	03	01.42	-03	45	04.6	413
1981	EG25	1981	03	11.70301	12	02	59.00	-03	45	06.0	413
1981	EG25	1981	03	15.69509	11	59	00.28	-03	46	52.8	413
1981	EG25	1981	03	15.73328	11	58	58.02	-03	46	53.3	413
1981	EG25	1981	04	06.46361	11	36	07.56	-03	42	04.4	413
1981	EG25	1981	04	06.49834	11	36	05.76	-03	42	03.8	413
1981	EG25	1981	04	07.50080	11	35	08.72	-03	41	47.7	413
1981	EG25	1981	04	10.57562	11	32	21.27	-03	41	13.3	413
1981	EG25	1981	04	12.65521	11	30	35.98	-03	41	07.2	413
1981	EH25*	1981	03	02.67917	12	10	54.44	-01	20	52.0	20.0V 413
1981	EH25	1981	03	06.60816	12	08	24.84	-00	54	11.8	413
1981	EH25	1981	03	11.70301	12	04	48.22	-00	16	52.3	413
1981	EH25	1981	03	15.69509	12	01	46.46	+00	13	51.6	413
1981	EH25	1981	04	05.55430	11	46	02.35	+02	51	39.1	413
1981	EJ25*	1981	03	02.63403	12	11	21.52	-01	48	27.1	19.5V 413
1981	EJ25	1981	03	02.67917	12	11	19.93	-01	48	15.2	413
1981	EJ25	1981	03	06.60816	12	08	46.97	-01	25	40.8	413
1981	EJ25	1981	03	06.64983	12	08	45.35	-01	25	27.7	413
1981	EJ25	1981	03	11.66134	12	05	03.02	-00	53	19.1	413
1981	EJ25	1981	03	11.70301	12	05	00.99	-00	53	01.1	413
1981	EJ25	1981	03	15.73328	12	01	46.24	-00	25	07.3	413
1981	EJ25	1981	04	06.56195	11	43	56.63	+02	09	02.8	413
1981	EJ25	1981	04	06.59668	11	43	54.99	+02	09	15.2	413
1981	EK25*	1981	03	02.63403	12	11	24.91	-03	42	05.7	18.5V 413

1981	EK25	1981	03	02.67917	12	11	22.95	-03	41	57.1	413
1981	EK25	1981	03	06.60816	12	08	19.68	-03	26	16.0	413
1981	EK25	1981	03	11.66134	12	04	01.32	-03	03	14.3	413
1981	EK25	1981	03	15.73328	12	00	19.63	-02	42	43.6	413
1981	EK25	1981	04	05.55430	11	41	07.11	-00	47	51.0	413
1981	EK25	1981	04	06.56195	11	40	16.35	-00	42	30.2	413
1981	EK25	1981	04	06.59668	11	40	14.83	-00	42	22.0	413
1981	EK25	1981	04	10.52714	11	37	08.95	-00	22	24.7	413
1981	EK25	1981	04	10.56186	11	37	06.92	-00	22	14.8	413
1981	EL25*	1981	03	02.67917	12	11	45.24	-03	51	45.4	19.0V 413
1981	EL25	1981	03	06.60816	12	08	57.08	-03	22	32.2	413
1981	EL25	1981	03	11.66134	12	04	59.62	-02	41	40.6	413
1981	EL25	1981	03	11.70301	12	04	57.57	-02	41	21.1	413
1981	EL25	1981	04	05.58312	11	44	39.70	+00	54	33.8	413
1981	EL25	1981	04	06.56195	11	43	58.88	+01	02	19.2	413
1981	EL25	1981	04	06.59668	11	43	57.68	+01	02	33.9	413
1981	EL25	1981	04	10.52714	11	41	27.22	+01	32	06.9	413
1981	EM25*	1981	03	02.63403	12	11	53.62	-01	17	16.8	19.0V 413
1981	EM25	1981	03	02.67917	12	11	51.78	-01	17	00.6	413
1981	EM25	1981	03	06.60816	12	09	11.34	-00	50	08.0	413
1981	EM25	1981	03	06.64983	12	09	09.60	-00	49	51.6	413
1981	EM25	1981	03	11.66134	12	05	19.99	-00	12	39.9	413
1981	EM25	1981	03	11.70301	12	05	18.00	-00	12	20.9	413
1981	EM25	1981	03	15.73328	12	01	59.68	+00	19	09.3	413
1981	EM25	1981	04	05.55430	11	45	12.97	+02	56	37.1	413
1981	EM25	1981	04	05.58312	11	45	11.96	+02	56	46.4	413
1981	EM25	1981	04	06.56195	11	44	32.50	+03	03	01.7	413
1981	EM25	1981	04	06.59668	11	44	31.06	+03	03	13.4	413
1981	EM25	1981	04	10.52714	11	42	06.96	+03	26	32.7	413
1981	EN25*	1981	03	02.63403	12	11	55.41	-01	07	04.9	18.0V 413
1981	EN25	1981	03	02.67917	12	11	53.56	-01	06	47.8	413
1981	EN25	1981	03	06.60816	12	09	08.55	-00	38	33.2	413
1981	EN25	1981	03	11.66134	12	05	10.30	+00	00	42.9	413
1981	EN25	1981	03	11.70301	12	05	08.22	+00	01	02.0	413
1981	EN25	1981	03	15.69509	12	01	46.04	+00	33	39.1	413
1981	EN25	1981	03	15.73328	12	01	44.18	+00	33	56.6	413
1981	EN25	1981	04	05.55430	11	44	36.78	+03	16	07.6	413
1981	EN25	1981	04	05.58312	11	44	36.15	+03	16	13.4	413
1981	EN25	1981	04	06.56195	11	43	56.42	+03	22	34.8	413
1981	EN25	1981	04	06.59668	11	43	55.17	+03	22	45.5	413
1981	EN25	1981	04	10.56186	11	41	29.76	+03	46	20.7	413
1981	EO25*	1981	03	02.63403	12	11	59.21	-04	41	12.5	18.5V 413
1981	EO25	1981	03	06.60816	12	09	49.47	-04	04	59.0	413
1981	EO25	1981	03	06.64983	12	09	48.12	-04	04	37.8	413
1981	EO25	1981	03	15.69509	12	04	20.55	-02	36	05.6	413
1981	EO25	1981	03	15.73328	12	04	19.19	-02	35	43.8	413
1981	EO25	1981	04	10.52714	11	48	47.55	+01	42	32.5	413
1981	EO25	1981	04	10.56186	11	48	46.54	+01	42	49.8	413
1981	EP25*	1981	03	02.63403	12	12	08.76	-03	26	13.1	19.0V 413
1981	EP25	1981	03	02.67917	12	12	07.25	-03	26	03.4	413
1981	EP25	1981	03	06.60816	12	09	31.10	-03	09	12.5	413
1981	EP25	1981	03	11.66134	12	05	52.21	-02	45	02.1	413
1981	EP25	1981	03	15.69509	12	02	47.39	-02	24	13.7	413
1981	EP25	1981	03	15.73328	12	02	45.59	-02	24	01.4	413
1981	EP25	1981	04	05.58312	11	47	00.33	-00	31	39.7	413
1981	EQ25*	1981	03	02.63403	12	12	15.89	-03	09	10.1	17.0V 413
1981	EQ25	1981	03	02.67917	12	12	14.03	-03	08	57.2	413
1981	EQ25	1981	03	06.60816	12	09	22.43	-02	47	24.4	413
1981	EQ25	1981	03	06.64983	12	09	20.53	-02	47	10.6	413

1981	EQ25	1981	03	11.66134	12	05	18.66	-02	16	33.5	413
1981	EQ25	1981	03	11.70301	12	05	16.55	-02	16	18.4	413
1981	EQ25	1981	03	15.73328	12	01	49.96	-01	49	51.2	413
1981	EQ25	1981	04	05.55430	11	44	37.94	+00	28	02.8	413
1981	EQ25	1981	04	05.58312	11	44	36.77	+00	28	11.4	413
1981	EQ25	1981	04	06.56195	11	43	56.54	+00	33	55.3	413
1981	EQ25	1981	04	06.59668	11	43	55.18	+00	34	05.7	413
1981	EQ25	1981	04	07.56303	11	43	16.78	+00	39	36.3	413
1981	EQ25	1981	04	07.59776	11	43	15.52	+00	39	45.8	413
1981	EQ25	1981	04	10.52714	11	41	27.47	+00	55	31.9	413
1981	ER25*	1981	03	02.63403	12	13	08.57	-01	21	36.4	19.5V 413
1981	ER25	1981	03	02.67917	12	13	06.69	-01	21	22.4	413
1981	ER25	1981	03	06.64983	12	10	13.73	-00	56	11.9	413
1981	ER25	1981	03	11.66134	12	06	18.50	-00	22	36.0	413
1981	ER25	1981	03	15.73328	12	02	58.38	+00	05	43.9	413
1981	ER25	1981	04	05.58312	11	46	12.06	+02	26	46.7	413
1981	ER25	1981	04	06.56195	11	45	30.44	+02	32	38.3	413
1981	ER25	1981	04	06.59668	11	45	29.20	+02	32	48.0	413
1981	ES25*	1981	03	02.63403	12	13	24.14	+00	22	36.6	18.5V 413
1981	ES25	1981	03	02.67917	12	13	22.30	+00	22	47.0	413
1981	ES25	1981	03	06.64983	12	10	18.44	+00	40	20.5	413
1981	ES25	1981	03	11.66134	12	06	01.30	+01	04	34.7	413
1981	ES25	1981	03	11.70301	12	05	59.11	+01	04	47.6	413
1981	ES25	1981	03	15.69509	12	02	19.11	+01	25	17.1	413
1981	ES25	1981	03	15.73328	12	02	17.16	+01	25	26.7	413
1981	ES25	1981	04	05.55430	11	42	46.42	+03	08	37.9	413
1981	ES25	1981	04	06.59668	11	41	54.20	+03	12	51.4	413
1981	ES25	1981	04	10.52714	11	38	48.94	+03	27	36.3	413
1981	ET25*	1981	03	02.63403	12	13	31.49	-02	47	40.4	17.5V 413
1981	ET25	1981	03	06.60816	12	10	47.06	-02	19	38.3	413
1981	ET25	1981	03	06.64983	12	10	45.19	-02	19	19.9	413
1981	ET25	1981	03	11.66134	12	06	55.28	-01	40	47.0	413
1981	ET25	1981	03	11.70301	12	06	53.28	-01	40	27.3	413
1981	ET25	1981	03	15.69509	12	03	37.05	-01	07	48.3	413
1981	ET25	1981	03	15.73328	12	03	35.15	-01	07	29.6	413
1981	ET25	1981	04	05.55430	11	46	14.00	+01	47	28.7	413
1981	ET25	1981	04	05.58312	11	46	12.96	+01	47	38.6	413
1981	ET25	1981	04	06.56195	11	45	29.22	+01	55	17.3	413
1981	ET25	1981	04	06.59668	11	45	27.83	+01	55	30.7	413
1981	ET25	1981	04	07.56303	11	44	45.82	+02	02	54.6	413
1981	ET25	1981	04	07.59776	11	44	44.29	+02	03	09.8	413
1981	ET25	1981	04	10.52714	11	42	43.60	+02	24	41.0	413
1981	ET25	1981	04	10.56186	11	42	42.11	+02	24	54.0	413
1981	EU25*	1981	03	02.63403	12	13	32.92	-00	49	02.4	18.5V 413
1981	EU25	1981	03	02.67917	12	13	30.93	-00	48	44.6	413
1981	EU25	1981	03	06.60816	12	10	41.04	-00	22	02.9	413
1981	EU25	1981	03	06.64983	12	10	39.50	-00	21	47.1	413
1981	EU25	1981	03	11.66134	12	06	40.40	+00	14	52.3	413
1981	EU25	1981	03	15.69509	12	03	14.06	+00	45	56.9	413
1981	EU25	1981	03	15.73328	12	03	12.26	+00	46	13.7	413
1981	EU25	1981	04	06.56195	11	44	06.72	+03	34	42.4	413
1981	EU25	1981	04	06.59668	11	44	05.16	+03	34	55.2	413
1981	EU25	1981	04	10.52714	11	41	06.19	+04	01	13.6	413
1981	EU25	1981	04	10.56186	11	41	04.62	+04	01	25.5	413
1981	EV25*	1981	03	02.63403	12	13	33.48	-00	44	06.0	19.0V 413
1981	EV25	1981	03	02.67917	12	13	31.67	-00	43	49.2	413
1981	EV25	1981	03	06.60816	12	10	55.79	-00	17	46.9	413
1981	EV25	1981	03	11.66134	12	07	20.92	+00	17	16.6	413
1981	EV25	1981	03	11.70301	12	07	19.16	+00	17	33.4	413

1981	EV25	1981	04	05.55430	11	48	54.84	+03	11	32.5	413
1981	EV25	1981	04	05.58312	11	48	53.81	+03	11	40.9	413
1981	EV25	1981	04	06.59668	11	48	12.86	+03	18	04.4	413
1981	EW25*	1981	03	02.63403	12	13	38.69	+00	16	55.7	19.5V 413
1981	EW25	1981	03	06.60816	12	09	28.35	+00	11	30.0	413
1981	EW25	1981	03	06.64983	12	09	25.66	+00	11	28.6	413
1981	EW25	1981	03	11.66134	12	03	47.23	+00	06	14.4	413
1981	EW25	1981	03	11.70301	12	03	44.29	+00	06	12.4	413
1981	EW25	1981	03	15.69509	11	59	04.58	+00	02	57.4	413
1981	EW25	1981	03	15.73328	11	59	01.95	+00	02	55.4	413
1981	EW25	1981	04	05.45665	11	36	25.97	-00	13	16.5	413
1981	EW25	1981	04	12.62048	11	30	37.94	-00	23	13.0	413
1981	EW25	1981	04	12.65521	11	30	36.43	-00	23	15.5	413
1981	EX25*	1981	03	02.63403	12	14	10.88	-02	01	19.4	19.0V 413
1981	EX25	1981	03	06.64983	12	11	13.56	-01	35	32.0	413
1981	EX25	1981	03	11.66134	12	07	11.79	-01	00	43.5	413
1981	EX25	1981	03	11.70301	12	07	09.70	-01	00	25.8	413
1981	EX25	1981	03	15.69509	12	03	43.70	-00	31	00.6	413
1981	EX25	1981	03	15.73328	12	03	41.78	-00	30	44.4	413
1981	EX25	1981	04	05.55430	11	45	32.77	+02	04	44.0	413
1981	EX25	1981	04	06.56195	11	44	45.40	+02	11	35.2	413
1981	EX25	1981	04	06.59668	11	44	44.04	+02	11	47.4	413
1981	EX25	1981	04	10.52714	11	41	50.45	+02	37	12.6	413
1981	EX25	1981	04	10.56186	11	41	48.92	+02	37	25.0	413
1981	EY25*	1981	03	02.63403	12	14	33.21	-01	01	56.7	15.5V 413
1981	EY25	1981	03	02.67917	12	14	31.55	-01	01	44.8	413
1981	EY25	1981	03	06.60816	12	11	58.71	-00	42	18.8	413
1981	EY25	1981	03	11.66134	12	08	26.06	-00	15	35.7	413
1981	EY25	1981	03	11.70301	12	08	24.24	-00	15	22.1	413
1981	EY25	1981	03	15.69509	12	05	26.85	+00	06	42.7	413
1981	EY25	1981	03	15.73328	12	05	25.22	+00	06	54.6	413
1981	EY25	1981	04	05.55430	11	49	51.48	+02	01	18.6	413
1981	EY25	1981	04	05.58312	11	49	50.54	+02	01	25.1	413
1981	EY25	1981	04	06.56195	11	49	10.46	+02	06	18.3	413
1981	EY25	1981	04	06.59668	11	49	09.05	+02	06	27.7	413
1981	EY25	1981	04	07.56303	11	48	30.44	+02	11	09.0	413
1981	EY25	1981	04	07.59776	11	48	29.17	+02	11	17.7	413
1981	EY25	1981	04	10.52714	11	46	36.71	+02	24	58.2	413
1981	EY25	1981	04	10.56186	11	46	35.31	+02	25	07.0	413
1981	EZ25*	1981	03	02.63403	12	14	47.83	-04	04	01.1	18.5V 413
1981	EZ25	1981	03	02.67917	12	14	45.92	-04	04	00.0	413
1981	EZ25	1981	03	06.60816	12	11	49.41	-04	01	07.6	413
1981	EZ25	1981	03	06.64983	12	11	47.58	-04	01	05.6	413
1981	EZ25	1981	03	11.66134	12	07	50.12	-03	55	57.7	413
1981	EZ25	1981	03	11.70301	12	07	48.12	-03	55	54.8	413
1981	EZ25	1981	03	15.69509	12	04	32.22	-03	50	50.5	413
1981	EZ25	1981	04	06.61147	11	46	43.92	-03	16	02.8	413
1981	EZ25	1981	04	08.55338	11	45	18.12	-03	13	05.6	413
1981	EZ25	1981	04	08.58810	11	45	16.50	-03	13	02.3	413
1981	EZ25	1981	04	09.50909	11	44	36.70	-03	11	37.5	413
1981	EZ25	1981	04	09.54382	11	44	35.30	-03	11	34.7	413
1981	EA26*	1981	03	02.67917	12	14	56.79	-04	12	55.3	17.5V 413
1981	EA26	1981	03	06.60816	12	12	27.00	-03	54	59.0	413
1981	EA26	1981	03	11.66134	12	08	50.83	-03	28	34.6	413
1981	EA26	1981	03	15.69509	12	05	45.26	-03	05	20.9	413
1981	EA26	1981	04	05.55430	11	49	53.37	-00	57	43.0	413
1981	EA26	1981	04	05.58312	11	49	52.46	-00	57	35.4	413
1981	EA26	1981	04	06.56195	11	49	14.62	-00	52	04.2	413
1981	EA26	1981	04	06.59668	11	49	13.39	-00	51	54.1	413

1981	EA26	1981	04	07.56303	11	48	37.31	-00	46	34.1	413
1981	EA26	1981	04	10.52714	11	46	54.29	-00	31	01.2	413
1981	EA26	1981	04	10.56186	11	46	53.12	-00	30	51.9	413
1981	EB26*	1981	03	02.63403	12	15	03.04	-02	34	19.4	19.0V 413
1981	EB26	1981	03	02.67917	12	15	01.37	-02	34	13.1	413
1981	EB26	1981	03	06.60816	12	12	20.79	-02	22	22.8	413
1981	EB26	1981	03	06.64983	12	12	19.16	-02	22	14.0	413
1981	EB26	1981	03	11.66134	12	08	39.52	-02	05	25.6	413
1981	EB26	1981	03	11.70301	12	08	37.62	-02	05	16.4	413
1981	EB26	1981	03	15.69509	12	05	35.16	-01	50	54.7	413
1981	EB26	1981	03	15.73328	12	05	33.37	-01	50	45.9	413
1981	EB26	1981	04	05.55430	11	49	51.07	-00	33	16.6	413
1981	EC26*	1981	03	02.63403	12	15	04.35	-00	50	33.0	19.0V 413
1981	EC26	1981	03	06.60816	12	12	18.10	-00	35	17.5	413
1981	EC26	1981	03	06.64983	12	12	15.87	-00	35	04.8	413
1981	EC26	1981	03	11.66134	12	08	18.51	-00	13	06.9	413
1981	EC26	1981	03	11.70301	12	08	16.48	-00	12	56.6	413
1981	EC26	1981	03	15.69509	12	04	51.28	+00	06	02.2	413
1981	EC26	1981	03	15.73328	12	04	49.34	+00	06	13.4	413
1981	EC26	1981	04	05.55430	11	46	47.06	+01	44	09.7	413
1981	EC26	1981	04	06.56195	11	46	01.84	+01	48	06.0	413
1981	EC26	1981	04	06.59668	11	46	00.53	+01	48	11.5	413
1981	EC26	1981	04	10.52714	11	43	18.71	+02	01	57.5	413
1981	EC26	1981	04	10.56186	11	43	17.02	+02	02	04.5	413
1981	ED26*	1981	03	02.63403	12	15	06.60	-03	39	36.7	18.0V 413
1981	ED26	1981	03	02.67917	12	15	05.07	-03	39	21.3	413
1981	ED26	1981	03	06.64983	12	12	33.59	-03	10	41.1	413
1981	ED26	1981	03	11.70301	12	08	52.25	-02	29	52.3	413
1981	ED26	1981	03	15.73328	12	05	39.02	-01	54	39.7	413
1981	ED26	1981	04	05.58312	11	48	33.47	+01	16	16.9	413
1981	ED26	1981	04	06.56195	11	47	51.71	+01	24	34.5	413
1981	ED26	1981	04	06.59668	11	47	50.34	+01	24	49.5	413
1981	ED26	1981	04	10.52714	11	45	16.58	+01	56	14.8	413
1981	ED26	1981	04	10.56186	11	45	15.21	+01	56	30.3	413
1981	EE26*	1981	03	02.63403	12	15	17.71	-03	56	10.7	19.0V 413
1981	EE26	1981	03	02.67917	12	15	15.85	-03	55	53.9	413
1981	EE26	1981	03	06.60816	12	12	48.55	-03	30	11.0	413
1981	EE26	1981	03	06.64983	12	12	46.88	-03	29	56.0	413
1981	EE26	1981	03	11.66134	12	09	13.55	-02	53	23.8	413
1981	EE26	1981	03	11.70301	12	09	11.61	-02	53	04.5	413
1981	EE26	1981	03	15.69509	12	06	07.49	-02	21	42.1	413
1981	EE26	1981	03	15.73328	12	06	05.73	-02	21	25.0	413
1981	EE26	1981	04	06.56195	11	49	27.46	+00	34	46.6	413
1981	EE26	1981	04	06.59668	11	49	26.22	+00	34	59.4	413
1981	EE26	1981	04	10.52714	11	47	06.83	+01	02	13.8	413
1981	EF26*	1981	03	02.63403	12	15	23.68	-01	14	06.0	15.5V 413
1981	EF26	1981	03	02.67917	12	15	22.19	-01	13	51.0	413
1981	EF26	1981	03	06.60816	12	13	06.92	-00	49	49.2	413
1981	EF26	1981	03	06.64983	12	13	05.49	-00	49	34.1	413
1981	EF26	1981	03	11.66134	12	09	57.29	-00	17	09.7	413
1981	EF26	1981	03	11.70301	12	09	55.64	-00	16	53.5	413
1981	EF26	1981	03	15.69509	12	07	16.99	+00	09	52.3	413
1981	EF26	1981	03	15.73328	12	07	15.50	+00	10	07.3	413
1981	EF26	1981	04	05.55430	11	53	24.72	+02	27	11.0	413
1981	EF26	1981	04	05.58312	11	53	23.81	+02	27	19.4	413
1981	EF26	1981	04	06.56195	11	52	48.67	+02	33	07.9	413
1981	EF26	1981	04	06.59668	11	52	47.45	+02	33	19.5	413
1981	EF26	1981	04	07.56303	11	52	13.65	+02	38	57.3	413
1981	EF26	1981	04	07.59776	11	52	12.57	+02	39	07.4	413

1981	EF26	1981	04	10.52714	11	50	34.73	+02	55	30.4	413
1981	EF26	1981	04	10.56186	11	50	33.69	+02	55	39.8	413
1981	EG26*	1981	03	02.63403	12	15	33.61	-02	01	13.0	18.0V 413
1981	EG26	1981	03	02.67917	12	15	31.44	-02	01	12.0	413
1981	EG26	1981	03	06.60816	12	12	19.17	-01	59	03.5	413
1981	EG26	1981	03	06.64983	12	12	16.99	-01	59	01.2	413
1981	EG26	1981	03	11.66134	12	07	50.34	-01	54	16.7	413
1981	EG26	1981	03	11.70301	12	07	48.07	-01	54	13.6	413
1981	EG26	1981	03	15.69509	12	04	04.03	-01	49	11.8	413
1981	EG26	1981	04	05.55430	11	44	51.01	-01	18	02.4	413
1981	EG26	1981	04	05.58312	11	44	49.84	-01	18	01.1	413
1981	EG26	1981	04	06.56195	11	44	02.42	-01	16	49.6	413
1981	EG26	1981	04	06.59668	11	44	00.91	-01	16	47.8	413
1981	EG26	1981	04	07.59776	11	43	14.07	-01	15	39.5	413
1981	EG26	1981	04	10.52714	11	41	03.36	-01	12	40.6	413
1981	EH26*	1981	03	02.63403	12	15	45.92	+00	38	38.0	18.5V 413
1981	EH26	1981	03	02.67917	12	15	44.33	+00	38	49.7	413
1981	EH26	1981	03	06.64983	12	13	14.93	+00	57	12.3	413
1981	EH26	1981	03	11.70301	12	09	53.33	+01	21	29.5	413
1981	EH26	1981	03	15.69509	12	07	07.80	+01	41	06.6	413
1981	EH26	1981	03	15.73328	12	07	06.24	+01	41	17.5	413
1981	EH26	1981	04	05.55430	11	52	43.34	+03	19	11.2	413
1981	EH26	1981	04	06.56195	11	52	05.28	+03	23	19.4	413
1981	EH26	1981	04	07.56303	11	51	27.47	+03	27	25.2	413
1981	EH26	1981	04	10.52714	11	49	39.19	+03	39	05.1	413
1981	EJ26*	1981	03	02.63403	12	16	01.97	+00	04	55.3	18.0V 413
1981	EJ26	1981	03	02.67917	12	15	59.70	+00	05	08.8	413
1981	EJ26	1981	03	06.60816	12	12	36.37	+00	26	19.7	413
1981	EJ26	1981	03	06.64983	12	12	34.29	+00	26	32.5	413
1981	EJ26	1981	03	11.66134	12	07	49.56	+00	55	46.9	413
1981	EJ26	1981	03	11.70301	12	07	47.09	+00	56	01.1	413
1981	EJ26	1981	03	15.69509	12	03	45.78	+01	20	26.1	413
1981	EJ26	1981	03	15.73328	12	03	43.65	+01	20	38.4	413
1981	EJ26	1981	04	05.55430	11	42	37.16	+03	22	49.1	413
1981	EJ26	1981	04	05.58312	11	42	35.92	+03	22	55.8	413
1981	EJ26	1981	04	06.56195	11	41	42.65	+03	27	45.6	413
1981	EJ26	1981	04	06.59668	11	41	40.91	+03	27	54.4	413
1981	EJ26	1981	04	10.52714	11	38	20.87	+03	45	45.0	413
1981	EK26*	1981	03	02.67917	12	16	29.95	-00	41	30.8	19.5V 413
1981	EK26	1981	03	06.60816	12	13	49.80	-00	18	20.1	413
1981	EK26	1981	03	11.66134	12	10	01.41	+00	13	47.4	413
1981	EK26	1981	03	11.70301	12	09	59.54	+00	14	02.0	413
1981	EK26	1981	03	15.69509	12	06	45.34	+00	40	49.7	413
1981	EK26	1981	04	06.56195	11	48	35.47	+03	05	51.0	413
1981	EK26	1981	04	06.59668	11	48	33.95	+03	06	02.0	413
1981	EL26*	1981	03	02.67917	12	16	33.76	-01	43	04.7	17.5V 413
1981	EL26	1981	03	06.60816	12	13	09.92	-01	43	09.0	413
1981	EL26	1981	03	11.70301	12	08	12.74	-01	40	51.9	413
1981	EL26	1981	03	15.69509	12	04	00.40	-01	37	34.7	413
1981	EL26	1981	03	15.73328	12	03	58.09	-01	37	32.9	413
1981	EL26	1981	04	05.55430	11	41	11.46	-01	13	39.6	413
1981	EL26	1981	04	05.58312	11	41	10.15	-01	13	38.1	413
1981	EL26	1981	04	06.56195	11	40	12.17	-01	12	47.0	413
1981	EL26	1981	04	06.59668	11	40	10.14	-01	12	46.8	413
1981	EL26	1981	04	07.56303	11	39	14.35	-01	12	00.8	413
1981	EL26	1981	04	10.52714	11	36	32.07	-01	10	12.9	413
1981	EM26*	1981	03	02.63403	12	16	36.69	-00	02	36.4	18.5V 413
1981	EM26	1981	03	02.67917	12	16	35.15	-00	02	30.8	413
1981	EM26	1981	03	06.60816	12	13	56.74	+00	07	46.5	413

1981	EM26	1981	03	11.66134	12	10	17.25	+00	22	17.6	413
1981	EM26	1981	03	11.70301	12	10	15.52	+00	22	24.4	413
1981	EM26	1981	03	15.69509	12	07	12.67	+00	34	33.1	413
1981	EM26	1981	04	05.55430	11	51	05.98	+01	36	24.7	413
1981	EM26	1981	04	05.58312	11	51	05.23	+01	36	25.9	413
1981	EM26	1981	04	06.56195	11	50	23.06	+01	38	55.5	413
1981	EM26	1981	04	06.59668	11	50	21.97	+01	38	57.7	413
1981	EN26*	1981	03	02.63403	12	16	56.66	-04	31	46.7	16.5V 413
1981	EN26	1981	03	06.60816	12	14	49.94	-04	02	14.1	413
1981	EN26	1981	03	06.64983	12	14	48.58	-04	01	56.1	413
1981	EN26	1981	03	11.70301	12	11	44.27	-03	20	33.5	413
1981	EN26	1981	03	15.69509	12	09	05.57	-02	45	33.1	413
1981	EN26	1981	03	15.73328	12	09	03.96	-02	45	12.4	413
1981	EN26	1981	04	05.55430	11	54	51.64	+00	25	58.7	413
1981	EN26	1981	04	06.56195	11	54	15.59	+00	34	38.4	413
1981	EN26	1981	04	06.59668	11	54	14.36	+00	34	54.6	413
1981	EN26	1981	04	07.56303	11	53	40.76	+00	43	07.2	413
1981	EN26	1981	04	07.59776	11	53	39.62	+00	43	22.3	413
1981	EN26	1981	04	10.56186	11	52	02.74	+01	07	38.7	413
1981	EO26*	1981	03	02.63403	12	17	00.77	-03	08	07.0	19.0V 413
1981	EO26	1981	03	02.67917	12	16	58.59	-03	07	54.9	413
1981	EO26	1981	03	06.60816	12	14	21.12	-02	52	13.8	413
1981	EO26	1981	03	06.64983	12	14	19.05	-02	52	00.8	413
1981	EO26	1981	03	11.66134	12	10	40.33	-02	29	47.9	413
1981	EO26	1981	03	15.69509	12	07	34.52	-02	10	37.3	413
1981	EO26	1981	03	15.73328	12	07	32.70	-02	10	25.3	413
1981	EO26	1981	04	05.55430	11	51	26.88	-00	27	11.4	413
1981	EO26	1981	04	05.58312	11	51	26.00	-00	27	05.8	413
1981	EO26	1981	04	06.56195	11	50	44.78	-00	22	33.9	413
1981	EO26	1981	04	06.59668	11	50	43.32	-00	22	25.4	413
1981	EO26	1981	04	10.52714	11	48	07.21	-00	05	03.8	413
1981	EP26*	1981	03	02.63403	12	17	02.22	-01	12	59.7	16.5V 413
1981	EP26	1981	03	06.60816	12	14	32.10	-00	41	12.4	413
1981	EP26	1981	03	06.64983	12	14	30.48	-00	40	52.4	413
1981	EP26	1981	03	11.66134	12	10	55.24	+00	02	23.3	413
1981	EP26	1981	03	11.70301	12	10	53.35	+00	02	45.0	413
1981	EP26	1981	03	15.69509	12	07	46.62	+00	39	01.0	413
1981	EP26	1981	03	15.73328	12	07	44.84	+00	39	20.8	413
1981	EP26	1981	04	05.55430	11	51	04.33	+03	46	00.1	413
1981	EP26	1981	04	05.58312	11	51	03.40	+03	46	09.9	413
1981	EP26	1981	04	06.56195	11	50	21.90	+03	53	55.1	413
1981	EP26	1981	04	06.59668	11	50	20.48	+03	54	09.7	413
1981	EP26	1981	04	07.56303	11	49	40.92	+04	01	34.9	413
1981	EP26	1981	04	07.59776	11	49	39.53	+04	01	50.4	413
1981	EQ26*	1981	03	02.63403	12	17	03.73	-01	01	19.9	17.0V 413
1981	EQ26	1981	03	02.67917	12	17	02.16	-01	01	07.6	413
1981	EQ26	1981	03	06.64983	12	14	27.61	-00	40	34.2	413
1981	EQ26	1981	03	11.66134	12	10	54.67	-00	12	49.5	413
1981	EQ26	1981	03	11.70301	12	10	52.91	-00	12	35.9	413
1981	EQ26	1981	03	15.69509	12	07	53.08	+00	10	31.4	413
1981	EQ26	1981	03	15.73328	12	07	51.41	+00	10	44.5	413
1981	EQ26	1981	04	05.55430	11	52	03.46	+02	09	47.0	413
1981	EQ26	1981	04	05.58312	11	52	02.49	+02	09	53.9	413
1981	EQ26	1981	04	06.56195	11	51	22.13	+02	14	53.3	413
1981	EQ26	1981	04	06.59668	11	51	20.74	+02	15	03.4	413
1981	EQ26	1981	04	07.56303	11	50	41.76	+02	19	53.0	413
1981	EQ26	1981	04	07.59776	11	50	40.61	+02	20	00.4	413
1981	EQ26	1981	04	10.52714	11	48	47.76	+02	33	58.9	413
1981	EQ26	1981	04	10.56186	11	48	46.47	+02	34	06.0	413

1981	ER26*	1981	03	02.63403	12	17	12.95	+00	42	15.1	18.5V 413
1981	ER26	1981	03	02.67917	12	17	10.72	+00	42	19.3	413
1981	ER26	1981	03	06.60816	12	13	48.84	+00	49	32.4	413
1981	ER26	1981	03	06.64983	12	13	46.69	+00	49	38.3	413
1981	ER26	1981	03	11.66134	12	09	02.37	+01	00	29.1	413
1981	ER26	1981	03	11.70301	12	08	59.87	+01	00	35.1	413
1981	ER26	1981	03	15.69509	12	04	58.19	+01	10	04.7	413
1981	ER26	1981	04	05.58312	11	43	47.73	+01	54	50.7	413
1981	ER26	1981	04	06.56195	11	42	55.11	+01	56	13.1	413
1981	ER26	1981	04	06.59668	11	42	53.39	+01	56	13.8	413
1981	ES26*	1981	03	02.63403	12	17	24.23	-04	24	45.1	18.5V 413
1981	ES26	1981	03	02.67917	12	17	22.76	-04	24	34.4	413
1981	ES26	1981	03	06.64983	12	14	45.87	-04	05	05.3	413
1981	ES26	1981	03	11.66134	12	11	02.12	-03	36	48.6	413
1981	ES26	1981	03	15.69509	12	07	46.60	-03	11	39.4	413
1981	ES26	1981	04	05.55430	11	50	26.88	-00	49	45.6	413
1981	ES26	1981	04	05.58312	11	50	25.67	-00	49	38.1	413
1981	ES26	1981	04	06.56195	11	49	42.64	-00	43	17.8	413
1981	ES26	1981	04	06.59668	11	49	41.14	-00	43	05.8	413
1981	ES26	1981	04	10.52714	11	46	59.87	-00	18	52.4	413
1981	ES26	1981	04	10.56186	11	46	58.48	-00	18	41.6	413
1981	ET26*	1981	03	02.67917	12	17	54.04	-02	08	06.4	16.5V 413
1981	ET26	1981	03	06.60816	12	14	43.19	-01	57	01.4	413
1981	ET26	1981	03	06.64983	12	14	41.11	-01	56	53.1	413
1981	ET26	1981	03	11.66134	12	10	06.16	-01	39	45.8	413
1981	ET26	1981	03	15.69509	12	06	05.51	-01	24	02.1	413
1981	ET26	1981	03	15.73328	12	06	03.07	-01	23	51.8	413
1981	ET26	1981	04	05.55430	11	44	17.01	+00	05	15.0	413
1981	ET26	1981	04	05.58312	11	44	15.64	+00	05	20.0	413
1981	ET26	1981	04	06.56195	11	43	19.59	+00	09	07.8	413
1981	ET26	1981	04	06.59668	11	43	17.71	+00	09	14.9	413
1981	ET26	1981	04	07.56303	11	42	23.66	+00	12	53.6	413
1981	ET26	1981	04	07.59776	11	42	22.01	+00	12	59.4	413
1981	ET26	1981	04	10.52714	11	39	46.28	+00	23	20.8	413
1981	ET26	1981	04	10.56186	11	39	44.47	+00	23	26.3	413
1981	EU26*	1981	03	02.67917	12	17	55.51	-01	36	37.6	20.0V 413
1981	EU26	1981	03	06.60816	12	15	37.50	-01	17	20.6	413
1981	EU26	1981	03	06.64983	12	15	35.98	-01	17	07.6	413
1981	EU26	1981	03	11.66134	12	12	26.92	-00	51	06.3	413
1981	EU26	1981	03	11.70301	12	12	25.27	-00	50	52.2	413
1981	EU26	1981	03	15.73328	12	09	46.11	-00	29	09.5	413
1981	EU26	1981	04	05.55430	11	55	48.81	+01	23	43.6	413
1981	EU26	1981	04	06.59668	11	55	09.95	+01	28	55.8	413
1981	EU26	1981	04	10.56186	11	52	46.83	+01	48	11.7	413
1981	EV26*	1981	03	02.63403	12	18	01.07	-03	25	24.0	17.5V 413
1981	EV26	1981	03	02.67917	12	17	59.43	-03	25	14.6	413
1981	EV26	1981	03	06.60816	12	15	24.78	-03	09	56.6	413
1981	EV26	1981	03	06.64983	12	15	23.20	-03	09	46.8	413
1981	EV26	1981	03	11.66134	12	11	49.00	-02	48	09.3	413
1981	EV26	1981	03	11.70301	12	11	47.18	-02	47	57.4	413
1981	EV26	1981	03	15.69509	12	08	46.59	-02	29	22.7	413
1981	EV26	1981	03	15.73328	12	08	44.77	-02	29	11.0	413
1981	EV26	1981	04	05.55430	11	52	49.08	-00	46	54.1	413
1981	EV26	1981	04	05.58312	11	52	48.02	-00	46	48.2	413
1981	EV26	1981	04	06.56195	11	52	06.74	-00	42	14.8	413
1981	EV26	1981	04	06.59668	11	52	05.46	-00	42	07.1	413
1981	EW26*	1981	03	02.67917	12	18	30.04	-01	11	10.0	19.5V 413
1981	EW26	1981	03	06.60816	12	16	17.10	-00	43	01.5	413
1981	EW26	1981	03	06.64983	12	16	15.74	-00	42	43.9	413

1981	EW26	1981	03	11.66134	12	13	10.93	-00	05	01.5		413
1981	EW26	1981	03	15.73328	12	10	31.66	+00	26	36.4		413
1981	EW26	1981	04	05.58312	11	56	37.20	+03	07	16.2		413
1981	EX26*	1981	03	02.63403	12	18	31.66	-04	04	08.6	18.0V	413
1981	EX26	1981	03	06.60816	12	15	47.26	-03	43	05.5		413
1981	EX26	1981	03	06.64983	12	15	45.37	-03	42	51.1		413
1981	EX26	1981	03	11.66134	12	11	50.41	-03	12	31.7		413
1981	EX26	1981	03	11.70301	12	11	48.25	-03	12	15.6		413
1981	EX26	1981	03	15.69509	12	08	23.39	-02	45	31.6		413
1981	EX26	1981	03	15.73328	12	08	21.48	-02	45	16.5		413
1981	EX26	1981	04	05.55430	11	49	16.29	-00	09	42.1		413
1981	EX26	1981	04	05.58312	11	49	14.72	-00	09	28.1		413
1981	EX26	1981	04	06.56195	11	48	24.39	-00	02	17.4		413
1981	EX26	1981	04	06.59668	11	48	22.71	-00	02	03.9		413
1981	EX26	1981	04	07.56303	11	47	34.16	+00	04	55.1		413
1981	EX26	1981	04	10.52714	11	45	11.47	+00	25	42.4		413
1981	EX26	1981	04	10.56186	11	45	09.87	+00	25	54.6		413
1981	EY26*	1981	03	02.63403	12	18	53.50	-04	34	55.0	15.5V	413
1981	EY26	1981	03	02.67917	12	18	51.87	-04	34	50.4		413
1981	EY26	1981	03	06.60816	12	16	20.45	-04	26	24.1		413
1981	EY26	1981	03	06.64983	12	16	18.86	-04	26	18.5		413
1981	EY26	1981	03	11.66134	12	12	47.80	-04	13	19.7		413
1981	EY26	1981	03	11.70301	12	12	45.98	-04	13	12.4		413
1981	EY26	1981	03	15.69509	12	09	47.18	-04	01	23.9		413
1981	EY26	1981	04	06.61147	11	52	57.44	-02	45	54.1		413
1981	EY26	1981	04	06.64619	11	52	56.07	-02	45	48.0		413
1981	EY26	1981	04	08.55338	11	51	36.41	-02	39	24.7		413
1981	EY26	1981	04	08.58810	11	51	35.01	-02	39	18.0		413
1981	EY26	1981	04	09.50909	11	50	57.59	-02	36	14.5		413
1981	EY26	1981	04	09.54382	11	50	56.19	-02	36	08.1		413
1981	EZ26*	1981	03	02.67917	12	18	55.18	-04	39	47.0	18.5V	413
1981	EZ26	1981	03	06.60816	12	16	13.29	-04	24	14.5		413
1981	EZ26	1981	03	06.64983	12	16	11.56	-04	24	04.0		413
1981	EZ26	1981	03	11.70301	12	12	18.49	-04	00	41.1		413
1981	EZ26	1981	03	15.73328	12	08	58.08	-03	39	48.5		413
1981	EZ26	1981	04	05.55430	11	51	25.21	-01	40	40.4		413
1981	EZ26	1981	04	05.58312	11	51	23.75	-01	40	30.2		413
1981	EZ26	1981	04	06.56195	11	50	40.03	-01	35	10.9		413
1981	EZ26	1981	04	06.59668	11	50	38.58	-01	34	59.9		413
1981	EA27*	1981	03	02.67917	12	18	58.57	+00	44	46.9	19.0V	413
1981	EA27	1981	03	06.64983	12	16	20.34	+01	03	30.9		413
1981	EA27	1981	03	11.66134	12	12	44.07	+01	28	14.5		413
1981	EA27	1981	03	11.70301	12	12	42.26	+01	28	28.0		413
1981	EA27	1981	03	15.69509	12	09	40.03	+01	48	47.2		413
1981	EA27	1981	03	15.73328	12	09	38.46	+01	48	57.3		413
1981	EA27	1981	04	05.55430	11	53	57.39	+03	26	24.2		413
1981	EA27	1981	04	05.58312	11	53	56.55	+03	26	28.5		413
1981	EA27	1981	04	06.56195	11	53	17.28	+03	30	13.5		413
1981	EA27	1981	04	10.52714	11	50	48.91	+03	44	02.5		413
1981	EA27	1981	04	10.56186	11	50	47.46	+03	44	10.1		413
1981	EB27*	1981	03	02.63403	12	19	26.32	-00	22	31.6	19.5V	413
1981	EB27	1981	03	02.67917	12	19	24.30	-00	22	13.6		413
1981	EB27	1981	03	06.60816	12	16	45.15	+00	02	42.1		413
1981	EB27	1981	03	11.66134	12	12	58.37	+00	36	53.4		413
1981	EB27	1981	03	11.70301	12	12	56.39	+00	37	11.1		413
1981	EB27	1981	03	15.69509	12	09	44.38	+01	05	17.2		413
1981	EB27	1981	03	15.73328	12	09	42.63	+01	05	32.6		413
1981	EB27	1981	04	05.58312	11	52	49.88	+03	26	06.9		413
1981	EC27*	1981	03	02.63403	12	19	28.79	-00	22	35.8	18.0V	413

1981	EC27	1981	03	06.60816	12	16	44.60	-00	02	34.5	413
1981	EC27	1981	03	11.70301	12	12	56.50	+00	24	40.6	413
1981	EC27	1981	03	15.73328	12	09	45.64	+00	47	04.4	413
1981	EC27	1981	04	05.55430	11	53	08.38	+02	39	38.1	413
1981	EC27	1981	04	06.56195	11	52	24.46	+02	44	25.0	413
1981	EC27	1981	04	06.59668	11	52	23.04	+02	44	33.4	413
1981	EC27	1981	04	10.56186	11	49	38.58	+03	02	16.6	413
1981	ED27*	1981	03	02.63403	12	19	42.13	-01	20	38.2	16.5V 413
1981	ED27	1981	03	02.67917	12	19	40.73	-01	20	20.2	413
1981	ED27	1981	03	06.60816	12	17	29.60	-00	50	59.1	413
1981	ED27	1981	03	06.64983	12	17	28.20	-00	50	40.5	413
1981	ED27	1981	03	11.66134	12	14	22.71	-00	11	01.0	413
1981	ED27	1981	03	11.70301	12	14	21.08	-00	10	41.4	413
1981	ED27	1981	03	15.69509	12	11	42.51	+00	22	08.3	413
1981	ED27	1981	04	05.55430	11	57	24.70	+03	13	07.0	413
1981	ED27	1981	04	05.58312	11	57	23.69	+03	13	18.6	413
1981	ED27	1981	04	06.56195	11	56	46.69	+03	20	39.3	413
1981	ED27	1981	04	06.59668	11	56	45.42	+03	20	53.4	413
1981	ED27	1981	04	07.56303	11	56	09.67	+03	28	02.2	413
1981	ED27	1981	04	07.59776	11	56	08.43	+03	28	16.2	413
1981	ED27	1981	04	10.52714	11	54	24.69	+03	49	09.7	413
1981	ED27	1981	04	10.56186	11	54	23.54	+03	49	23.3	413
1981	EE27*	1981	03	02.63403	12	20	15.15	-03	54	09.3	16.0V 413
1981	EE27	1981	03	02.67917	12	20	13.76	-03	53	42.7	413
1981	EE27	1981	03	06.60816	12	18	08.38	-03	11	49.6	413
1981	EE27	1981	03	06.64983	12	18	06.97	-03	11	23.9	413
1981	EE27	1981	03	11.70301	12	15	01.87	-02	13	42.3	413
1981	EE27	1981	03	15.69509	12	12	22.22	-01	25	55.5	413
1981	EE27	1981	03	15.73328	12	12	20.60	-01	25	28.8	413
1981	EE27	1981	04	05.55430	11	58	03.62	+02	44	17.8	413
1981	EE27	1981	04	05.58312	11	58	02.71	+02	44	32.7	413
1981	EE27	1981	04	06.56195	11	57	27.43	+02	55	16.7	413
1981	EE27	1981	04	06.59668	11	57	26.21	+02	55	36.9	413
1981	EE27	1981	04	07.56303	11	56	52.45	+03	06	00.3	413
1981	EE27	1981	04	07.59776	11	56	51.29	+03	06	21.2	413
1981	EE27	1981	04	10.52714	11	55	15.30	+03	36	37.5	413
1981	EE27	1981	04	10.56186	11	55	14.20	+03	36	56.4	413
1981	EF27*	1981	03	02.67917	12	20	24.73	-03	21	27.4	19.5V 413
1981	EF27	1981	03	06.60816	12	18	00.54	-02	59	13.6	413
1981	EF27	1981	03	06.64983	12	17	58.79	-02	58	56.4	413
1981	EF27	1981	03	11.66134	12	14	30.15	-02	27	20.3	413
1981	EF27	1981	03	11.70301	12	14	28.20	-02	27	03.1	413
1981	EF27	1981	03	15.69509	12	11	27.29	-01	59	50.4	413
1981	EF27	1981	04	05.55430	11	54	55.76	+00	30	41.5	413
1981	EF27	1981	04	05.58312	11	54	54.61	+00	30	50.5	413
1981	EF27	1981	04	06.56195	11	54	12.16	+00	37	30.6	413
1981	EF27	1981	04	06.59668	11	54	10.83	+00	37	42.0	413
1981	EG27*	1981	03	02.63403	12	20	52.51	-04	48	54.0	19.5V 413
1981	EG27	1981	03	02.67917	12	20	50.81	-04	48	47.3	413
1981	EG27	1981	03	06.60816	12	18	20.86	-04	36	46.8	413
1981	EG27	1981	03	11.66134	12	14	48.67	-04	18	47.9	413
1981	EG27	1981	03	11.70301	12	14	46.90	-04	18	37.4	413
1981	EG27	1981	03	15.73328	12	11	45.68	-04	02	33.5	413
1981	EG27	1981	04	09.50909	11	52	55.35	-02	11	53.2	413
1981	EG27	1981	04	09.54382	11	52	53.98	-02	11	43.9	413
1981	EH27*	1981	03	02.63403	12	21	20.37	-01	09	55.5	17.5V 413
1981	EH27	1981	03	02.67917	12	21	18.03	-01	10	01.0	413
1981	EH27	1981	03	06.60816	12	17	40.59	-01	17	17.4	413
1981	EH27	1981	03	06.64983	12	17	38.27	-01	17	19.9	413

1981	EH27	1981	03	11.66134	12	12	33.98	-01	24	52.8	413
1981	EH27	1981	03	11.70301	12	12	31.36	-01	24	55.3	413
1981	EH27	1981	03	15.69509	12	08	13.45	-01	29	50.5	413
1981	EH27	1981	03	15.73328	12	08	11.03	-01	29	52.2	413
1981	EH27	1981	04	05.55430	11	45	38.86	-01	50	04.0	413
1981	EH27	1981	04	05.58312	11	45	37.58	-01	50	06.4	413
1981	EH27	1981	04	06.56195	11	44	40.83	-01	51	12.8	413
1981	EH27	1981	04	06.59668	11	44	39.09	-01	51	15.8	413
1981	EH27	1981	04	10.52714	11	41	05.94	-01	56	13.5	413
1981	EH27	1981	04	10.56186	11	41	04.27	-01	56	17.2	413
1981	EJ27*	1981	03	02.67917	12	21	31.55	-03	45	21.4	19.0V 413
1981	EJ27	1981	03	06.60816	12	18	59.74	-03	31	25.1	413
1981	EJ27	1981	03	06.64983	12	18	58.01	-03	31	16.0	413
1981	EJ27	1981	03	11.70301	12	15	07.79	-03	09	10.6	413
1981	EJ27	1981	03	15.69509	12	11	43.86	-02	48	58.4	413
1981	EJ27	1981	03	15.73328	12	11	41.92	-02	48	46.1	413
1981	EJ27	1981	04	05.55430	11	52	22.00	-00	46	20.9	413
1981	EJ27	1981	04	05.58312	11	52	20.66	-00	46	12.8	413
1981	EJ27	1981	04	06.56195	11	51	30.70	-00	40	40.6	413
1981	EJ27	1981	04	06.59668	11	51	28.88	-00	40	29.6	413
1981	EK27*	1981	03	02.63403	12	21	43.20	-02	40	30.3	18.0V 413
1981	EK27	1981	03	02.67917	12	21	41.13	-02	40	24.5	413
1981	EK27	1981	03	06.60816	12	18	12.84	-02	30	04.7	413
1981	EK27	1981	03	06.64983	12	18	10.78	-02	29	57.9	413
1981	EK27	1981	03	11.66134	12	13	19.16	-02	14	09.5	413
1981	EK27	1981	03	11.70301	12	13	16.63	-02	13	60.0	413
1981	EK27	1981	03	15.69509	12	09	09.73	-01	59	46.9	413
1981	EK27	1981	03	15.73328	12	09	07.35	-01	59	38.0	413
1981	EK27	1981	04	05.55430	11	47	40.66	-00	40	23.0	413
1981	EK27	1981	04	05.58312	11	47	39.40	-00	40	18.2	413
1981	EK27	1981	04	06.56195	11	46	46.02	-00	36	60.0	413
1981	EK27	1981	04	06.59668	11	46	44.37	-00	36	54.6	413
1981	EK27	1981	04	07.56303	11	45	53.01	-00	33	44.7	413
1981	EK27	1981	04	07.59776	11	45	51.43	-00	33	39.9	413
1981	EK27	1981	04	10.52714	11	43	24.04	-00	24	42.3	413
1981	EK27	1981	04	10.56186	11	43	22.60	-00	24	38.8	413
1981	EL27*	1981	03	02.63403	12	21	47.78	-03	20	28.3	19.5V 413
1981	EL27	1981	03	02.67917	12	21	45.73	-03	20	11.2	413
1981	EL27	1981	03	06.60816	12	19	08.07	-02	59	32.1	413
1981	EL27	1981	03	06.64983	12	19	06.56	-02	59	20.8	413
1981	EL27	1981	03	11.66134	12	15	26.25	-02	30	37.3	413
1981	EL27	1981	03	11.70301	12	15	24.43	-02	30	22.8	413
1981	EL27	1981	03	15.69509	12	12	17.94	-02	06	03.8	413
1981	EL27	1981	03	15.73328	12	12	16.24	-02	05	50.1	413
1981	EL27	1981	04	05.58312	11	55	48.09	+00	04	45.3	413
1981	EM27*	1981	03	02.63403	12	21	56.31	+00	24	05.0	18.0V 413
1981	EM27	1981	03	02.67917	12	21	54.78	+00	24	17.8	413
1981	EM27	1981	03	06.60816	12	19	35.42	+00	44	12.8	413
1981	EM27	1981	03	11.66134	12	16	18.06	+01	11	15.8	413
1981	EM27	1981	03	11.70301	12	16	16.48	+01	11	28.3	413
1981	EM27	1981	03	15.69509	12	13	29.84	+01	33	32.8	413
1981	EM27	1981	03	15.73328	12	13	28.37	+01	33	44.5	413
1981	EM27	1981	04	05.55430	11	58	44.78	+03	22	23.4	413
1981	EM27	1981	04	05.58312	11	58	43.87	+03	22	29.5	413
1981	EM27	1981	04	06.56195	11	58	06.26	+03	26	49.1	413
1981	EM27	1981	04	06.59668	11	58	05.05	+03	26	57.5	413
1981	EN27*	1981	03	02.63403	12	22	19.85	-02	03	37.3	15.0V 413
1981	EN27	1981	03	02.67917	12	22	18.05	-02	03	21.8	413
1981	EN27	1981	03	06.60816	12	19	39.63	-01	39	10.0	413

1981	EN27	1981	03	06.64983	12	19	37.84	-01	38	53.8	413
1981	EN27	1981	03	11.66134	12	15	50.04	-01	05	10.9	413
1981	EN27	1981	03	11.70301	12	15	47.97	-01	04	52.8	413
1981	EN27	1981	03	15.69509	12	12	31.81	-00	36	27.0	413
1981	EN27	1981	03	15.73328	12	12	29.82	-00	36	09.9	413
1981	EN27	1981	04	05.55430	11	55	12.61	+01	50	23.2	413
1981	EN27	1981	04	05.58312	11	55	11.57	+01	50	31.8	413
1981	EN27	1981	04	06.56195	11	54	28.93	+01	56	31.3	413
1981	EN27	1981	04	06.59668	11	54	27.45	+01	56	43.1	413
1981	EN27	1981	04	07.56303	11	53	46.62	+02	02	27.4	413
1981	EN27	1981	04	07.59776	11	53	45.27	+02	02	38.5	413
1981	EN27	1981	04	10.52714	11	51	48.83	+02	19	08.4	413
1981	EO27*	1981	03	02.63403	12	22	42.17	-04	59	22.7	18.0V 413
1981	EO27	1981	03	02.67917	12	22	40.31	-04	59	04.6	413
1981	EO27	1981	03	06.60816	12	19	54.08	-04	30	17.0	413
1981	EO27	1981	03	06.64983	12	19	52.34	-04	29	59.2	413
1981	EO27	1981	03	11.66134	12	15	49.95	-03	48	35.6	413
1981	EO27	1981	03	11.70301	12	15	47.76	-03	48	14.3	413
1981	EO27	1981	03	15.69509	12	12	15.55	-03	12	07.0	413
1981	EO27	1981	04	05.55430	11	52	20.43	+00	16	20.2	413
1981	EO27	1981	04	05.58312	11	52	19.13	+00	16	33.5	413
1981	EO27	1981	04	06.56195	11	51	26.66	+00	26	12.1	413
1981	EO27	1981	04	06.59668	11	51	24.96	+00	26	29.4	413
1981	EO27	1981	04	07.56303	11	50	34.33	+00	35	50.5	413
1981	EO27	1981	04	07.59776	11	50	32.51	+00	36	09.2	413
1981	EO27	1981	04	10.56186	11	48	04.00	+01	04	01.9	413
1981	EP27*	1981	03	02.67917	12	23	08.76	-04	48	47.9	18.5V 413
1981	EP27	1981	03	06.60816	12	20	54.75	-04	20	59.3	413
1981	EP27	1981	03	11.66134	12	17	44.68	-03	42	28.7	413
1981	EP27	1981	03	15.69509	12	15	02.22	-03	09	57.8	413
1981	EP27	1981	03	15.73328	12	15	00.61	-03	09	38.8	413
1981	EP27	1981	04	05.58312	12	00	26.90	-00	13	33.4	413
1981	EQ27*	1981	03	02.63403	12	23	09.23	-01	27	36.4	14.5V 413
1981	EQ27	1981	03	02.67917	12	23	07.68	-01	27	22.1	413
1981	EQ27	1981	03	06.60816	12	20	46.08	-01	04	28.7	413
1981	EQ27	1981	03	06.64983	12	20	44.39	-01	04	13.4	413
1981	EQ27	1981	03	11.66134	12	17	16.97	-00	32	12.0	413
1981	EQ27	1981	03	11.70301	12	17	15.06	-00	31	55.3	413
1981	EQ27	1981	03	15.69509	12	14	13.85	-00	04	48.7	413
1981	EQ27	1981	03	15.73328	12	14	12.04	-00	04	32.0	413
1981	EQ27	1981	04	05.55430	11	57	48.06	+02	15	46.5	413
1981	EQ27	1981	04	05.58312	11	57	47.00	+02	15	54.9	413
1981	EQ27	1981	04	06.56195	11	57	05.87	+02	21	38.9	413
1981	EQ27	1981	04	06.59668	11	57	04.41	+02	21	49.8	413
1981	EQ27	1981	04	07.56303	11	56	24.95	+02	27	20.1	413
1981	EQ27	1981	04	07.59776	11	56	23.59	+02	27	30.7	413
1981	EQ27	1981	04	10.52714	11	54	30.86	+02	43	14.8	413
1981	EQ27	1981	04	10.56186	11	54	29.49	+02	43	24.5	413
1981	ER27*	1981	03	02.67917	12	23	11.47	-01	28	27.0	19.0V 413
1981	ER27	1981	03	11.66134	12	15	00.77	-01	02	32.5	413
1981	ER27	1981	03	15.69509	12	10	58.64	-00	49	00.0	413
1981	ER27	1981	03	15.73328	12	10	56.49	-00	48	52.0	413
1981	ER27	1981	04	05.55430	11	49	56.32	+00	22	15.7	413
1981	ER27	1981	04	06.59668	11	48	59.68	+00	25	14.4	413
1981	ES27*	1981	03	02.67917	12	23	17.30	+00	37	23.5	19.0V 413
1981	ES27	1981	03	11.66134	12	15	30.69	+00	36	46.7	413
1981	ES27	1981	03	11.70301	12	15	28.11	+00	36	48.2	413
1981	ES27	1981	03	15.69509	12	11	25.01	+00	38	06.2	413
1981	ES27	1981	03	15.73328	12	11	22.71	+00	38	07.6	413

1981	ES27	1981	04	10.52714	11	44	47.79	+00	37	58.8	413
1981	ET27*	1981	03	02.63403	12	23	19.33	-01	52	45.1	19.5V 413
1981	ET27	1981	03	02.67917	12	23	17.59	-01	52	31.8	413
1981	ET27	1981	03	06.60816	12	20	54.33	-01	33	44.7	413
1981	ET27	1981	03	06.64983	12	20	52.93	-01	33	33.4	413
1981	ET27	1981	03	11.66134	12	17	31.23	-01	07	35.6	413
1981	ET27	1981	03	15.69509	12	14	37.55	-00	45	32.1	413
1981	ET27	1981	03	15.73328	12	14	35.76	-00	45	18.1	413
1981	ET27	1981	04	05.58312	11	59	02.56	+01	10	55.8	413
1981	ET27	1981	04	10.56186	11	55	43.33	+01	35	26.3	413
1981	EU27*	1981	03	02.67917	12	23	44.27	-01	44	26.9	19.0V 413
1981	EU27	1981	03	06.60816	12	21	25.70	-01	12	14.6	413
1981	EU27	1981	03	11.70301	12	17	51.62	-00	25	52.1	413
1981	EU27	1981	03	15.69509	12	14	41.35	+00	13	30.4	413
1981	EU27	1981	03	15.73328	12	14	39.29	+00	13	55.2	413
1981	EU27	1981	04	05.55430	11	56	02.32	+03	51	50.1	413
1981	EV27*	1981	03	02.67917	12	23	54.73	-02	33	43.0	19.0V 413
1981	EV27	1981	03	06.60816	12	21	27.97	-02	11	53.0	413
1981	EV27	1981	03	11.66134	12	18	00.56	-01	41	36.5	413
1981	EV27	1981	03	11.70301	12	17	58.86	-01	41	21.9	413
1981	EV27	1981	03	15.69509	12	15	03.92	-01	16	08.7	413
1981	EV27	1981	03	15.73328	12	15	02.27	-01	15	54.1	413
1981	EV27	1981	04	10.52714	11	55	54.68	+01	27	35.8	413
1981	EV27	1981	04	10.56186	11	55	53.50	+01	27	44.9	413
1981	EW27*	1981	03	02.63403	12	23	57.63	-03	31	17.2	18.5V 413
1981	EW27	1981	03	06.60816	12	21	20.59	-03	04	09.9	413
1981	EW27	1981	03	11.70301	12	17	41.29	-02	27	06.9	413
1981	EW27	1981	03	15.69509	12	14	39.13	-01	56	41.3	413
1981	EW27	1981	03	15.73328	12	14	37.42	-01	56	24.5	413
1981	EW27	1981	04	05.58312	11	58	39.89	+00	42	45.9	413
1981	EW27	1981	04	10.52714	11	55	24.26	+01	16	13.0	413
1981	EX27*	1981	03	02.63403	12	24	25.16	-02	26	27.2	18.5V 413
1981	EX27	1981	03	02.67917	12	24	23.53	-02	26	16.2	413
1981	EX27	1981	03	06.60816	12	22	01.64	-02	09	57.7	413
1981	EX27	1981	03	11.66134	12	18	26.60	-01	45	26.3	413
1981	EX27	1981	03	11.70301	12	18	24.78	-01	45	13.2	413
1981	EX27	1981	03	15.69509	12	15	14.23	-01	23	37.2	413
1981	EX27	1981	03	15.73328	12	15	12.36	-01	23	24.8	413
1981	EX27	1981	04	05.55430	11	57	18.93	+00	37	20.6	413
1981	EX27	1981	04	05.58312	11	57	17.83	+00	37	28.0	413
1981	EX27	1981	04	06.56195	11	56	32.02	+00	42	35.9	413
1981	EX27	1981	04	06.59668	11	56	30.48	+00	42	44.5	413
1981	EX27	1981	04	07.56303	11	55	46.74	+00	47	40.0	413
1981	EX27	1981	04	07.59776	11	55	44.98	+00	47	50.9	413
1981	EX27	1981	04	10.52714	11	53	39.48	+01	01	52.8	413
1981	EX27	1981	04	10.56186	11	53	37.90	+01	02	00.9	413
1981	EY27*	1981	03	02.63403	12	24	54.31	+00	02	49.1	18.0V 413
1981	EY27	1981	03	02.67917	12	24	52.14	+00	02	54.2	413
1981	EY27	1981	03	06.60816	12	21	38.05	+00	09	56.6	413
1981	EY27	1981	03	06.64983	12	21	36.06	+00	10	01.2	413
1981	EY27	1981	03	11.66134	12	17	04.79	+00	20	28.3	413
1981	EY27	1981	03	11.70301	12	17	02.42	+00	20	34.2	413
1981	EY27	1981	03	15.69509	12	13	11.53	+00	29	42.3	413
1981	EY27	1981	03	15.73328	12	13	09.39	+00	29	48.9	413
1981	EY27	1981	04	05.58312	11	52	07.44	+01	16	54.9	413
1981	EY27	1981	04	06.56195	11	51	11.50	+01	18	40.7	413
1981	EY27	1981	04	06.59668	11	51	09.55	+01	18	43.1	413
1981	EY27	1981	04	07.56303	11	50	15.34	+01	20	21.5	413
1981	EY27	1981	04	07.59776	11	50	13.10	+01	20	24.7	413

1981	EY27	1981	04	10.52714	11	47	34.30	+01	24	53.1	413
1981	EY27	1981	04	10.56186	11	47	32.36	+01	24	55.1	413
1981	EZ27*	1981	03	02.63403	12	25	18.97	-00	56	24.7	18.0V 413
1981	EZ27	1981	03	02.67917	12	25	16.84	-00	56	10.5	413
1981	EZ27	1981	03	06.60816	12	22	29.17	-00	37	33.3	413
1981	EZ27	1981	03	11.66134	12	18	28.85	-00	11	19.8	413
1981	EZ27	1981	03	15.69509	12	15	01.18	+00	10	59.5	413
1981	EZ27	1981	03	15.73328	12	14	59.21	+00	11	12.0	413
1981	EZ27	1981	04	05.55430	11	56	08.27	+02	07	29.5	413
1981	EZ27	1981	04	05.58312	11	56	06.63	+02	07	38.6	413
1981	EZ27	1981	04	06.56195	11	55	16.92	+02	12	31.4	413
1981	EZ27	1981	04	06.59668	11	55	15.26	+02	12	40.6	413
1981	EZ27	1981	04	07.56303	11	54	27.19	+02	17	22.2	413
1981	EZ27	1981	04	07.59776	11	54	25.51	+02	17	30.8	413
1981	EZ27	1981	04	10.52714	11	52	05.33	+02	31	02.5	413
1981	EZ27	1981	04	10.56186	11	52	03.84	+02	31	10.3	413
1981	EA28*	1981	03	02.63403	12	26	13.54	-00	43	53.2	18.0V 413
1981	EA28	1981	03	02.67917	12	26	11.38	-00	43	44.6	413
1981	EA28	1981	03	06.60816	12	22	55.88	-00	31	57.4	413
1981	EA28	1981	03	06.64983	12	22	53.74	-00	31	48.7	413
1981	EA28	1981	03	11.66134	12	18	21.49	-00	15	02.4	413
1981	EA28	1981	03	11.70301	12	18	19.08	-00	14	52.7	413
1981	EA28	1981	03	15.69509	12	14	28.34	-00	00	29.8	413
1981	EA28	1981	03	15.73328	12	14	26.11	-00	00	20.4	413
1981	EA28	1981	04	05.58312	11	53	48.19	+01	14	22.0	413
1981	EA28	1981	04	06.56195	11	52	54.24	+01	17	21.7	413
1981	EA28	1981	04	06.59668	11	52	52.40	+01	17	27.1	413
1981	EA28	1981	04	10.52714	11	49	26.66	+01	28	29.6	413
1981	EA28	1981	04	10.56186	11	49	24.99	+01	28	32.6	413
1981	EB28*	1981	03	02.63403	12	26	23.69	-00	23	53.8	17.0V 413
1981	EB28	1981	03	02.67917	12	26	22.12	-00	23	39.3	413
1981	EB28	1981	03	06.60816	12	23	54.92	-00	00	36.3	413
1981	EB28	1981	03	06.64983	12	23	53.26	-00	00	21.0	413
1981	EB28	1981	03	11.66134	12	20	12.50	+00	32	12.6	413
1981	EB28	1981	03	11.70301	12	20	10.45	+00	32	30.5	413
1981	EB28	1981	03	15.69509	12	16	53.41	+01	00	18.6	413
1981	EB28	1981	03	15.73328	12	16	51.37	+01	00	35.8	413
1981	EB28	1981	04	05.55430	11	58	02.28	+03	26	41.7	413
1981	EB28	1981	04	05.58312	11	58	00.91	+03	26	51.3	413
1981	EB28	1981	04	06.56195	11	57	11.56	+03	32	49.2	413
1981	EB28	1981	04	07.56303	11	56	22.18	+03	38	44.6	413
1981	EB28	1981	04	07.59776	11	56	20.71	+03	38	54.6	413
1981	EB28	1981	04	10.52714	11	54	03.12	+03	55	13.5	413
1981	EB28	1981	04	10.56186	11	54	01.50	+03	55	24.1	413
1981	EC28*	1981	03	02.63403	12	26	40.97	-00	20	38.8	19.0V 413
1981	EC28	1981	03	02.67917	12	26	38.92	-00	20	32.0	413
1981	EC28	1981	03	06.60816	12	23	57.67	-00	12	27.4	413
1981	EC28	1981	03	06.64983	12	23	55.98	-00	12	20.8	413
1981	EC28	1981	03	11.66134	12	19	56.05	+00	00	20.5	413
1981	EC28	1981	03	11.70301	12	19	53.91	+00	00	27.6	413
1981	EC28	1981	03	15.69509	12	16	21.72	+00	11	56.5	413
1981	EC28	1981	03	15.73328	12	16	19.74	+00	12	03.6	413
1981	EC28	1981	04	05.55430	11	56	32.96	+01	11	53.5	413
1981	EC28	1981	04	06.56195	11	55	40.77	+01	14	01.8	413
1981	EC28	1981	04	06.59668	11	55	39.04	+01	14	07.1	413
1981	EC28	1981	04	10.52714	11	52	28.04	+01	21	16.8	413
1981	ED28*	1981	03	02.67917	12	26	53.45	-00	58	33.0	19.0V 413
1981	ED28	1981	03	06.60816	12	24	25.56	-00	37	41.3	413
1981	ED28	1981	03	06.64983	12	24	24.08	-00	37	28.6	413

1981	ED28	1981	03	11.66134	12	20	54.29	-00	08	50.1	413
1981	ED28	1981	03	15.69509	12	17	52.24	+00	15	25.0	413
1981	ED28	1981	04	05.55430	12	01	16.62	+02	21	26.8	413
1981	EE28*	1981	03	02.63403	12	26	58.92	-00	47	23.9	18.0V 413
1981	EE28	1981	03	02.67917	12	26	57.25	-00	47	13.4	413
1981	EE28	1981	03	06.60816	12	24	21.59	-00	31	27.1	413
1981	EE28	1981	03	06.64983	12	24	20.01	-00	31	17.5	413
1981	EE28	1981	03	11.70301	12	20	41.31	-00	09	26.0	413
1981	EE28	1981	03	15.69509	12	17	37.38	+00	08	42.8	413
1981	EE28	1981	03	15.73328	12	17	35.67	+00	08	53.2	413
1981	EE28	1981	04	05.55430	12	01	02.19	+01	42	41.9	413
1981	EE28	1981	04	05.58312	12	01	00.93	+01	42	49.7	413
1981	EE28	1981	04	06.56195	12	00	17.21	+01	46	44.6	413
1981	EE28	1981	04	06.59668	12	00	15.83	+01	46	52.0	413
1981	EE28	1981	04	10.52714	11	57	27.76	+02	01	41.2	413
1981	EE28	1981	04	10.56186	11	57	26.41	+02	01	47.7	413
1981	EF28*	1981	03	02.63403	12	27	24.37	+00	18	12.2	17.5V 413
1981	EF28	1981	03	02.67917	12	27	22.65	+00	18	18.2	413
1981	EF28	1981	03	06.60816	12	24	22.63	+00	27	54.8	413
1981	EF28	1981	03	11.66134	12	20	10.66	+00	41	35.1	413
1981	EF28	1981	03	11.70301	12	20	08.53	+00	41	42.9	413
1981	EF28	1981	03	15.73328	12	16	34.42	+00	53	20.4	413
1981	EF28	1981	04	05.55430	11	57	19.93	+01	51	40.1	413
1981	EF28	1981	04	05.58312	11	57	18.41	+01	51	43.7	413
1981	EF28	1981	04	06.56195	11	56	26.82	+01	53	59.8	413
1981	EF28	1981	04	06.59668	11	56	25.21	+01	54	04.1	413
1981	EF28	1981	04	07.56303	11	55	35.09	+01	56	11.8	413
1981	EF28	1981	04	07.59776	11	55	33.65	+01	56	16.2	413
1981	EF28	1981	04	10.52714	11	53	06.71	+02	02	16.2	413
1981	EF28	1981	04	10.56186	11	53	05.03	+02	02	18.6	413
1981	EG28*	1981	03	02.63403	12	27	48.73	-04	47	45.8	18.5V 413
1981	EG28	1981	03	02.67917	12	27	46.78	-04	47	30.4	413
1981	EG28	1981	03	06.60816	12	25	01.70	-04	24	19.0	413
1981	EG28	1981	03	06.64983	12	24	59.87	-04	24	03.1	413
1981	EG28	1981	03	11.70301	12	21	03.60	-03	50	59.7	413
1981	EG28	1981	03	15.69509	12	17	42.43	-03	22	46.4	413
1981	EG28	1981	03	15.73328	12	17	40.54	-03	22	29.7	413
1981	EG28	1981	04	05.55430	11	59	17.23	-00	44	19.4	413
1981	EG28	1981	04	05.58312	11	59	16.04	-00	44	09.3	413
1981	EG28	1981	04	06.56195	11	58	27.46	-00	36	57.9	413
1981	EG28	1981	04	07.56303	11	57	38.77	-00	29	41.9	413
1981	EG28	1981	04	10.52714	11	55	20.12	-00	08	51.2	413
1981	EG28	1981	04	10.56186	11	55	18.63	-00	08	38.3	413
1981	EH28*	1981	03	02.63403	12	28	11.47	-01	01	24.1	19.0V 413
1981	EH28	1981	03	06.60816	12	25	17.82	-00	45	15.7	413
1981	EH28	1981	03	06.64983	12	25	15.94	-00	45	05.8	413
1981	EH28	1981	03	11.66134	12	21	10.78	-00	22	30.0	413
1981	EH28	1981	03	11.70301	12	21	08.62	-00	22	17.6	413
1981	EH28	1981	03	15.69509	12	17	38.05	-00	03	05.3	413
1981	EH28	1981	03	15.73328	12	17	36.04	-00	02	53.4	413
1981	EH28	1981	04	05.55430	11	58	40.30	+01	35	53.5	413
1981	EH28	1981	04	05.58312	11	58	39.00	+01	35	59.8	413
1981	EH28	1981	04	10.56186	11	54	43.70	+01	54	43.7	413
1981	EJ28*	1981	03	02.67917	12	29	16.38	-02	37	59.5	19.5V 413
1981	EJ28	1981	03	06.60816	12	26	16.90	-02	15	36.8	413
1981	EJ28	1981	03	11.66134	12	22	01.26	-01	44	07.6	413
1981	EJ28	1981	03	15.69509	12	18	22.15	-01	17	21.3	413
1981	EJ28	1981	03	15.73328	12	18	20.09	-01	17	05.9	413
1981	EJ28	1981	04	05.55430	11	58	34.21	+01	05	30.4	413

1981	EJ28	1981	04	05.58312	11	58	32.58	+01	05	42.6	413
1981	EJ28	1981	04	06.56195	11	57	40.10	+01	11	56.2	413
1981	EJ28	1981	04	06.59668	11	57	38.51	+01	12	07.1	413
1981	EJ28	1981	04	10.52714	11	54	18.33	+01	35	56.9	413
1981	EK28*	1981	03	06.60816	12	13	58.37	-03	55	45.0	20.0V 413
1981	EK28	1981	03	06.64983	12	13	55.63	-03	55	50.4	413
1981	EK28	1981	03	11.66134	12	08	45.65	-04	05	56.1	413
1981	EK28	1981	03	11.70301	12	08	43.50	-04	05	58.7	413
1981	EK28	1981	03	15.69509	12	04	21.88	-04	12	19.1	413
1981	EK28	1981	04	09.50909	11	38	13.05	-04	33	03.7	413
1981	EK28	1981	04	09.54382	11	38	11.25	-04	33	06.2	413
1981	EL28*	1981	03	06.60816	12	16	19.42	-01	00	22.1	19.0V 413
1981	EL28	1981	03	06.64983	12	16	17.80	-01	00	09.9	413
1981	EL28	1981	03	11.66134	12	12	30.33	-00	32	56.4	413
1981	EL28	1981	03	11.70301	12	12	28.47	-00	32	43.3	413
1981	EL28	1981	03	15.73328	12	09	17.09	-00	10	00.9	413
1981	EL28	1981	04	06.56195	11	52	26.82	+01	47	27.1	413
1981	EL28	1981	04	06.59668	11	52	25.64	+01	47	34.7	413
1981	EL28	1981	04	10.52714	11	49	53.72	+02	04	56.8	413
1981	EL28	1981	04	10.56186	11	49	52.49	+02	05	03.3	413
1981	EM28*	1981	03	06.60816	12	17	17.79	-02	24	38.8	19.0V 413
1981	EM28	1981	03	06.64983	12	17	15.41	-02	24	42.5	413
1981	EM28	1981	03	11.66134	12	12	18.99	-02	35	16.4	413
1981	EM28	1981	03	15.73328	12	08	03.78	-02	42	56.4	413
1981	EM28	1981	04	09.54382	11	41	15.45	-03	22	43.7	413
1981	EN28*	1981	03	06.60816	12	20	55.43	-02	39	17.9	20.0V 413
1981	EN28	1981	03	11.70301	12	16	39.73	-02	29	05.0	413
1981	EN28	1981	03	15.73328	12	12	58.07	-02	19	05.3	413
1981	EN28	1981	04	05.55430	11	52	59.20	-01	18	26.5	413
1981	EO28*	1981	03	06.60816	12	22	07.30	-02	39	55.3	19.0V 413
1981	EO28	1981	03	06.64983	12	22	05.45	-02	39	46.6	413
1981	EO28	1981	03	11.66134	12	18	07.93	-02	24	42.4	413
1981	EO28	1981	03	11.70301	12	18	05.92	-02	24	34.0	413
1981	EO28	1981	03	15.69509	12	14	44.59	-02	11	14.9	413
1981	EO28	1981	03	15.73328	12	14	42.67	-02	11	07.1	413
1981	EO28	1981	04	05.58312	11	56	36.71	-00	55	58.2	413
1981	EO28	1981	04	10.56186	11	52	44.80	-00	40	05.2	413
1981	EP28*	1981	03	06.60816	12	22	45.60	-03	49	47.3	19.0V 413
1981	EP28	1981	03	06.64983	12	22	43.71	-03	49	35.7	413
1981	EP28	1981	03	11.66134	12	19	18.18	-03	28	07.8	413
1981	EP28	1981	03	11.70301	12	19	16.31	-03	27	54.9	413
1981	EP28	1981	03	15.69509	12	16	21.13	-03	09	19.1	413
1981	EP28	1981	03	15.73328	12	16	19.35	-03	09	08.1	413
1981	EP28	1981	04	05.55430	12	00	23.51	-01	23	56.5	413
1981	EP28	1981	04	05.58312	12	00	22.40	-01	23	49.3	413
1981	EP28	1981	04	10.52714	11	56	56.13	-01	00	16.1	413
1981	EQ28*	1981	03	06.60816	12	23	15.14	-00	30	34.8	18.0V 413
1981	EQ28	1981	03	06.64983	12	23	13.46	-00	30	19.6	413
1981	EQ28	1981	03	11.66134	12	19	32.37	-00	00	34.2	413
1981	EQ28	1981	03	11.70301	12	19	30.44	-00	00	17.2	413
1981	EQ28	1981	03	15.69509	12	16	24.34	+00	24	13.4	413
1981	EQ28	1981	03	15.73328	12	16	22.47	+00	24	28.2	413
1981	EQ28	1981	04	05.55430	11	59	57.10	+02	28	33.7	413
1981	EQ28	1981	04	05.58312	11	59	56.01	+02	28	41.8	413
1981	EQ28	1981	04	06.56195	11	59	13.35	+02	33	54.3	413
1981	EQ28	1981	04	06.59668	11	59	11.90	+02	34	03.7	413
1981	EQ28	1981	04	10.52714	11	56	29.11	+02	53	42.8	413
1981	ER28*	1981	03	06.64983	12	25	16.74	-01	27	35.2	19.5V 413
1981	ER28	1981	03	11.66134	12	20	55.11	-01	21	07.2	413

1981 ER28	1981 03 11.70301	12 20 52.69	-01 21 01.2							413
1981 ER28	1981 03 15.69509	12 17 11.24	-01 14 56.5							413
1981 ER28	1981 04 10.52714	11 52 43.88	-00 33 18.2							413
1981 ES28*	1981 03 06.60816	12 27 14.22	-01 36 29.7					18.0V		413
1981 ES28	1981 03 11.66134	12 22 50.35	-01 26 51.6							413
1981 ES28	1981 03 11.70301	12 22 48.05	-01 26 45.7							413
1981 ES28	1981 03 15.69509	12 19 01.35	-01 17 39.4							413
1981 ES28	1981 03 15.73328	12 18 59.14	-01 17 32.8							413
1981 ES28	1981 04 05.55430	11 58 35.90	-00 26 26.9							413
1981 ES28	1981 04 05.58312	11 58 34.59	-00 26 23.7							413
1981 ES28	1981 04 06.56195	11 57 42.97	-00 24 28.4							413
1981 ES28	1981 04 06.59668	11 57 41.23	-00 24 24.7							413
1981 ES28	1981 04 07.56303	11 56 51.69	-00 22 35.6							413
1981 ES28	1981 04 07.59776	11 56 50.09	-00 22 32.1							413
1981 ES28	1981 04 10.52714	11 54 27.60	-00 17 38.4							413
1981 ES28	1981 04 10.56186	11 54 26.00	-00 17 36.4							413

OBSERVATIONS MADE WITH THE 0.6-M F/14 REFLECTOR AT MT. JOHN UNIVERSITY OBSERVATORY BY A. C. GILMORE. MEASURED BY P. M. KILMARTIN (ASSISTED BY R. McINTOSH AND W. M. KISSLING).

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1316	1983 02 15.48962	07 07 31.13	-12 49 07.4			1	474
2201	1983 07 11.53854	15 19 52.22	-21 07 58.5				474
2201	1983 07 11.54774	15 19 55.17	-21 08 09.8				474
1934 CY	1983 07 12.43219	16 46 27.23	-31 09 07.2				474
1934 CY	1983 07 12.45418	16 46 26.47	-31 08 59.6				474
1975 VB9	1983 07 11.71991	21 46 25.34	-30 15 43.5				474
1975 VB9	1983 07 11.74213	21 46 24.60	-30 15 49.2				474
1980 VL1	1983 07 12.37663	12 58 35.77	-19 35 49.0				474
1980 VL1	1983 07 12.39885	12 58 36.74	-19 35 45.6				474
1981 AA	1983 07 11.67049	21 40 59.26	-26 05 17.7				474
1981 AA	1983 07 11.69227	21 40 58.71	-26 05 38.9				474
1981 YH1	1983 07 12.58219	19 12 20.11	-34 21 47.9				474
1981 YH1	1983 07 12.60985	19 12 17.86	-34 21 58.9				474
1983 LB	1983 07 11.49074	15 14 00.21	-56 17 07.7				474
1983 LB	1983 07 11.51273	15 13 56.23	-56 18 31.4				474
1983 LB	1983 08 08.50579	14 27 33.07	-77 16 53.1				474
1983 LB	1983 08 08.55162	14 27 34.64	-77 18 12.2				474
1983 LF	1983 07 28.37535	13 30 25.15	-21 20 29.0				474
1983 LF	1983 07 28.38565	13 30 26.03	-21 20 31.2				474
1983 PB *	1983 08 04.51887	22 02 44.3	-26 03 56			5	474
1983 PB	1983 08 04.56493	22 02 40.9	-26 04 03			5	474
1983 PB	1983 08 08.64167	22 00 09.71	-26 37 20.1				474
1983 PB	1983 08 08.66435	22 00 08.62	-26 37 31.8				474
1983 PB	1983 08 10.60764	21 58 49.27	-26 52 21.5		16.2		474
1983 PB	1983 08 10.62558	21 58 48.44	-26 52 29.2				474
1983 PB	1983 08 13.45590	21 56 46.46	-27 12 35.0				474
1983 PB	1983 08 13.47303	21 56 46.65	-27 12 42.2				474
1983 RD	1983 09 15.58994	01 14 52.93	+06 57 59.4		13	2	474
1983 RD	1983 09 15.60036	01 14 59.86	+06 57 11.3			2	474

Note 1: correction to MPC 8045. 2: 0.25-m f/7 Cook astrograph. 3: images trailed, poor measures, only four stars used in reduction. 5 = 2 + 3.

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

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
4	1982 11 17.81049	21 40 24.99	-21 02 58.0			491
4	1982 11 17.81395	21 40 25.21	-21 02 57.5			491
4	1982 11 17.81742	21 40 25.49	-21 02 55.6			491

4		1982	11	18.81954	21	41	40.16	-20	55	29.0		491
4		1982	11	18.82300	21	41	40.43	-20	55	27.7		491
4		1982	11	18.82646	21	41	40.69	-20	55	26.0		491
39		1982	11	17.79658	20	53	16.34	-16	55	05.7		491
39		1982	11	17.80074	20	53	16.60	-16	55	05.5		491
39		1982	11	17.80489	20	53	16.95	-16	55	04.2		491
39		1982	11	18.80875	20	54	39.72	-16	52	30.5		491
39		1982	11	18.81221	20	54	39.97	-16	52	30.3		491
39		1982	11	18.81567	20	54	40.25	-16	52	30.4		491
210		1982	11	17.89544	23	29	57.70	-05	52	43.1		491
210		1982	11	18.87610	23	30	14.88	-05	47	57.1		491
370		1982	11	17.98305	00	23	35.87	+16	20	53.1		491
370		1982	11	19.87198	00	23	41.22	+16	10	00.0		491
482		1982	11	17.93942	01	02	32.31	-02	50	17.6		491
482		1982	11	18.91904	01	02	14.36	-02	53	08.7		491
503		1982	11	17.89544	23	38	48.22	-08	15	01.8		491
503		1982	11	18.87610	23	38	53.16	-08	11	42.0		491
528		1982	11	17.93942	01	22	18.97	+02	09	29.9		491
528		1982	11	18.91904	01	21	48.86	+02	10	31.2		491
578		1982	11	17.89544	23	34	05.24	-05	26	46.6		491
578		1982	11	18.87610	23	34	21.03	-05	22	05.8		491
657		1982	11	17.98305	00	25	45.47	+18	21	02.3		491
657		1982	11	19.87198	00	25	16.59	+18	10	03.9		491
873		1982	11	17.93942	01	09	01.14	+00	25	32.1		491
873		1982	11	18.91904	01	08	37.21	+00	24	06.7		491
1011		1982	11	17.93942	01	15	03.09	-01	52	58.4		491
1011		1982	11	18.91904	01	14	26.80	-01	54	25.4		491
1048		1982	11	17.93942	01	19	13.95	-01	15	20.2		491
1048		1982	11	18.91904	01	18	38.89	-01	13	09.4		491
1129		1982	11	17.98305	00	32	53.78	+15	19	00.4		491
1186		1982	11	17.89544	23	32	45.60	-11	18	51.0		491
1186		1982	11	18.87610	23	32	56.95	-11	12	03.2		491
1429		1982	11	17.89544	23	26	57.35	-09	49	50.0		491
1429		1982	11	18.87610	23	28	02.06	-09	34	21.9		491
1648		1982	11	17.93942	01	01	56.97	-00	47	29.7		491
1648		1982	11	18.91904	01	01	35.09	-00	47	33.1		491
1776		1982	11	17.93942	01	02	08.01	-00	18	45.2		491
1776		1982	11	18.91904	01	01	49.51	-00	21	14.5		491
2163		1982	11	17.89544	23	28	36.77	-06	50	10.2		491
2193		1982	11	17.89544	23	39	35.94	-09	50	38.5		491
2193		1982	11	18.87610	23	39	37.10	-09	45	54.6		491
2309		1982	11	17.89544	23	46	22.19	-09	58	36.4		491
2309		1982	11	18.87610	23	46	31.37	-09	57	45.6		491
2378		1982	11	17.93942	01	03	38.59	-03	30	52.0		491
2378		1982	11	18.91904	01	03	22.46	-03	34	31.4		491
2434		1982	11	17.89544	23	27	05.93	-10	57	02.0		491
2434		1982	11	18.87610	23	27	16.77	-10	48	20.4		491
2743		1982	11	17.98305	00	29	31.47	+17	29	06.3		491
2743		1982	11	19.87198	00	29	47.64	+17	10	50.7		491
2768		1982	11	17.89544	23	44	46.02	-07	21	21.2		491
2768		1982	11	18.87610	23	45	17.42	-07	11	24.5		491
2774		1982	11	17.98305	00	29	20.73	+16	18	17.6		491
2774		1982	11	19.87198	00	29	06.90	+16	09	10.6		491
2874		1982	11	17.93942	01	01	52.83	-00	09	13.7		491
2874		1982	11	18.91904	01	01	37.89	-00	05	33.9		491
1982	WM *	1982	11	17.89544	23	41	30.81	-09	29	26.3	17	491
1982	WM	1982	11	18.87610	23	42	00.27	-09	22	50.4		491
1982	WN *	1982	11	17.89544	23	49	37.35	-10	41	35.3	17	491
1982	WN	1982	11	18.87610	23	49	37.06	-10	49	22.7		491

OBSERVATIONS MADE AT THE OSSERVATORIO S. VITTORE.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
222	1980 12	06.96944	06 38 17.98	+23 46 36.4	15.5	552
222	1980 12	06.98472	06 38 17.32	+23 46 37.4	15.5	552
222	1980 12	12.96597	06 33 46.20	+23 53 20.7	15.3	552
222	1980 12	12.98194	06 33 45.45	+23 53 21.7	15.3	552
222	1980 12	30.94931	06 18 24.20	+24 10 40.0	14.9	552
222	1980 12	30.98194	06 18 22.46	+24 10 41.8	14.9	552
1575	1980 08	09.97222	21 30 27.23	+21 29 45.2	17.0	552
1575	1980 08	09.98889	21 30 26.24	+21 29 40.4	17.0	552
1575	1980 08	13.95417	21 26 55.07	+21 02 42.1	16.9	552
1575	1980 08	13.96875	21 26 54.37	+21 02 36.0	16.9	552
1588	1982 04	28.85903	13 37 06.37	+06 41 38.2	16.5	552
1588	1982 04	28.90694	13 37 04.13	+06 41 44.4	16.5	552
1409	1982 06	15.89931	16 38 39.08	-11 49 27.1	15.5	552
1409	1982 06	15.93056	16 38 37.53	-11 49 24.5	15.5	552
1685	1980 08	10.05764	01 26 29.35	+67 55 25.2	14.3	552
1685	1980 08	10.07014	01 26 49.22	+67 56 48.4	14.3	552
1982 WA	1982 12	09.87292	04 09 45.58	+22 22 11.0	16.8	552
1982 WA	1982 12	09.89028	04 09 44.61	+22 22 02.2	16.8	552

OBSERVATIONS MADE AT OJAI IN THE SUMMER SCIENCE PROGRAM UNDER THE DIRECTION OF D. A. PIERCE.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
2	1983 06	22.45278	18 58 38.90	+22 44 45.6	669
2	1983 07	02.25278	18 50 39.25	+22 36 14.2	669
2	1983 07	04.33264	18 48 55.10	+22 30 53.9	669
2	1983 07	07.24722	18 46 29.56	+22 21 25.3	669
2	1983 07	08.24931	18 45 39.70	+22 17 33.1	669
2	1983 07	08.32847	18 45 35.65	+22 17 15.8	669
2	1983 07	12.27569	18 42 21.68	+21 59 23.0	669
2	1983 07	13.26181	18 41 34.15	+21 54 15.8	669
2	1983 07	18.28403	18 37 38.57	+21 24 14.0	669
3	1982 06	27.36042	18 04 36.74	-04 51 19.2	669
3	1982 06	28.24444	18 03 50.21	-04 52 12.2	669
3	1982 07	08.39028	17 55 10.63	-05 09 52.3	669
3	1982 07	09.26736	17 54 27.93	-05 12 00.3	669
3	1982 07	16.33194	17 49 03.14	-05 32 34.2	669
3	1982 07	17.37708	17 48 18.52	-05 36 04.9	669
6	1983 06	29.25903	17 29 01.36	-04 15 45.1	669
6	1983 06	30.29375	17 28 02.36	-04 20 44.8	669
6	1983 07	04.26736	17 24 22.92	-04 41 28.4	669
6	1983 07	05.26597	17 23 30.02	-04 47 07.5	669
6	1983 07	08.21181	17 20 59.38	-05 04 43.3	669
6	1983 07	11.24240	17 18 34.46	-05 24 17.4	669
8	1980 07	06.22222	16 13 46.72	-16 25 58.4	669
8	1980 07	11.26181	16 11 19.83	-16 37 02.2	669
8	1980 07	12.26476	16 10 56.15	-16 39 35.9	669
8	1980 07	16.27361	16 09 41.15	-16 50 09.5	669
8	1980 07	21.20312	16 08 50.58	-17 04 56.6	669
14	1980 07	07.22951	14 59 32.21	-12 40 46.0	669
14	1980 07	08.21458	14 59 46.21	-12 47 02.4	669
14	1980 07	11.21181	15 00 39.70	-13 06 33.4	669
14	1980 07	14.19375	15 01 46.82	-13 26 24.1	669
14	1980 07	15.20556	15 02 12.52	-13 33 04.5	669
14	1980 07	19.21701	15 04 09.89	-14 00 42.8	669
18	1981 07	02.45729	22 14 05.08	-04 45 33.9	669
18	1981 07	05.43056	22 15 20.32	-04 48 48.7	669
18	1981 07	06.43914	22 15 42.47	-04 50 27.7	669

18	1981	07	10.38409	22	16	53.79	-04	59	29.2	669
18	1981	07	13.40556	22	17	30.89	-05	09	21.4	669
23	1982	07	07.21319	15	55	30.98	-22	32	24.5	669
23	1982	07	08.21458	15	55	09.11	-22	33	31.2	669
23	1982	07	12.25486	15	53	55.27	-22	38	03.5	669
23	1982	07	16.21647	15	53	07.41	-22	43	10.3	669
23	1982	07	17.25486	15	52	59.27	-22	44	34.9	669
28	1980	07	04.25174	18	02	18.26	-12	50	32.1	669
28	1980	07	09.22500	17	58	17.71	-13	03	44.0	669
28	1980	07	09.34792	17	58	12.34	-13	04	02.8	669
28	1980	07	13.27847	17	55	14.66	-13	15	24.7	669
28	1980	07	14.26528	17	54	32.79	-13	18	33.9	669
32	1982	07	06.33750	20	21	14.67	-10	41	42.4	669
32	1982	07	09.35451	20	18	50.33	-10	44	45.0	669
32	1982	07	10.41667	20	17	57.46	-10	46	08.7	669
32	1982	07	14.43715	20	14	30.72	-10	52	14.4	669
32	1982	07	15.36840	20	13	41.72	-10	53	55.1	669
32	1982	07	19.35417	20	10	06.73	-11	02	06.0	669
42	1982	07	10.26875	17	35	37.36	-26	46	13.0	669
42	1982	07	13.27500	17	33	15.22	-27	01	58.3	669
42	1982	07	17.32882	17	30	29.97	-27	22	06.6	669
42	1982	07	24.22326	17	27	09.96	-27	53	37.7	669
52	1980	07	10.39306	20	57	57.26	-16	29	24.2	669
52	1980	07	11.38854	20	57	20.77	-16	33	28.8	669
52	1980	07	16.33854	20	54	10.46	-16	54	30.5	669
52	1980	07	17.39514	20	53	27.49	-16	59	08.4	669
52	1980	07	21.32917	20	50	41.79	-17	16	53.9	669
59	1980	07	04.30938	18	38	14.08	-10	18	03.8	669
59	1980	07	09.29167	18	33	51.21	-10	29	21.7	669
59	1980	07	10.32500	18	32	57.22	-10	32	02.8	669
59	1980	07	14.32431	18	29	34.41	-10	43	26.1	669
59	1980	07	14.42639	18	29	29.30	-10	43	41.7	669
59	1980	07	19.31875	18	25	36.88	-10	59	34.4	669
85	1981	07	01.23194	16	12	39.18	-05	21	44.0	669
85	1981	07	01.27234	16	12	38.00	-05	21	42.6	669
85	1981	07	05.33889	16	10	56.24	-05	21	10.2	669
85	1981	07	08.26146	16	09	59.28	-05	22	49.1	669
85	1981	07	09.27708	16	09	43.45	-05	23	41.1	669
85	1981	07	16.22569	16	08	38.54	-05	34	36.1	669
105	1981	06	30.44931	21	21	10.33	+16	37	05.1	669
105	1981	07	04.39167	21	20	12.03	+16	50	22.8	669
105	1981	07	07.48206	21	19	07.84	+16	56	50.8	669
105	1981	07	08.43160	21	18	45.16	+16	58	10.4	669
105	1981	07	11.40972	21	17	25.94	+16	59	54.0	669
129	1981	06	28.29144	18	30	52.50	-09	27	33.5	669
129	1981	06	29.37639	18	29	58.17	-09	34	00.2	669
129	1981	07	03.30463	18	26	43.38	-09	58	39.0	669
129	1981	07	04.26563	18	25	56.26	-10	05	00.4	669
129	1981	07	09.34236	18	21	55.03	-10	40	17.6	669
129	1981	07	10.27552	18	21	12.64	-10	47	04.3	669
130	1980	07	15.31319	19	10	02.47	-01	47	10.1	669
130	1980	07	15.37778	19	09	59.62	-01	47	36.1	669
130	1980	07	18.33472	19	07	37.70	-02	09	05.8	669
130	1980	07	19.37604	19	06	48.71	-02	16	59.9	669
130	1980	07	22.27847	19	04	32.71	-02	39	51.4	669
130	1980	07	23.29583	19	03	47.13	-02	48	02.1	669
204	1983	07	04.41458	20	11	36.93	-05	10	42.4	669
204	1983	07	07.35347	20	09	31.93	-05	10	22.8	669
204	1983	07	08.40278	20	08	44.99	-05	10	42.8	669

204		1983	07	12.35694	20	05	41.08	-05	14	01.2	669
204		1983	07	14.36944	20	04	03.53	-05	17	00.7	669
204		1983	07	19.29792	19	59	58.43	-05	27	28.3	669
354		1983	06	29.21910	16	39	24.02	+02	04	25.9	669
354		1983	07	05.21701	16	35	56.26	+01	26	45.6	669
354		1983	07	07.21458	16	34	56.27	+01	13	04.6	669
354		1983	07	09.20799	16	34	01.74	+00	58	55.2	669
354		1983	07	12.23507	16	32	47.99	+00	36	32.1	669
354		1983	07	15.24757	16	31	46.81	+00	13	15.4	669
405		1982	06	25.39792	18	59	23.30	-13	49	08.2	669
405		1982	07	02.34028	18	52	12.20	-13	18	12.4	669
405		1982	07	06.35764	18	48	03.99	-13	02	53.2	669
405		1982	07	11.32396	18	43	07.58	-12	46	34.8	669
405		1982	07	12.36424	18	42	07.60	-12	43	30.9	669
405		1982	07	18.32049	18	36	45.33	-12	28	35.0	669
405		1982	07	20.25243	18	35	09.58	-12	24	35.3	669
405		1982	07	20.33507	18	35	05.47	-12	24	24.6	669
444		1983	06	29.45486	19	02	18.25	-05	37	51.6	669
444		1983	07	01.34306	19	00	44.79	-05	36	54.9	669
444		1983	07	07.39271	18	55	36.31	-05	38	03.6	669
444		1983	07	09.30729	18	53	57.61	-05	39	46.2	669
444		1983	07	14.29167	18	49	42.78	-05	47	06.9	669
584		1981	07	01.39028	20	46	53.51	-13	03	32.1	669
584		1981	07	07.35903	20	43	06.30	-12	25	50.3	669
584		1981	07	08.34688	20	42	22.46	-12	19	49.0	669
584		1981	07	11.33333	20	40	00.07	-12	02	07.0	669

OBSERVATIONS MADE WITH THE 0.46-M SCHMIDT TELESCOPE AT PALOMAR BY C. S. SHOEMAKER AND E. M. SHOEMAKER (ASSISTED BY B. BEHYMER, S. J. BUS, P. KEMPCHINSKY, D. RUDY, S. SALYARDS, P. SHOEMAKER, S. SMREKAR AND D. STEVENSON). MEASURED BY C. SHOEMAKER AND S. SMREKAR.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1245		1982	08 19.36527	22 12 17.66	-10 53 33.9			675
1550		1983	02 10.41736	07 53 40.71	+32 54 18.6			675
1550		1983	02 11.19027	07 53 02.10	+32 54 53.3			675
1550		1983	02 11.28055	07 52 57.28	+32 54 56.1			675
2324		1982	08 19.34166	22 24 27.22	-09 50 45.7	16		675
2324		1982	08 19.36527	22 24 26.17	-09 50 51.4			675
1982 OK		1982	08 19.34166	22 29 54.42	-10 12 01.1	15.5		675
1982 OK		1982	08 19.36527	22 29 53.29	-10 12 14.7			675
1982 PC		1982	08 19.34166	22 10 37.01	-09 24 30.7	16		675
1982 PC		1982	08 19.36527	22 10 35.78	-09 24 42.9			675
1982 QD		1982	08 19.34166	22 27 17.73	-03 47 18.7	16		675
1982 QD		1982	08 19.36527	22 27 16.43	-03 47 19.2			675
1982 QC1	*	1982	08 19.34166	22 15 58.53	-11 17 23.5	17.5	1	675
1982 QC1		1982	08 19.36527	22 15 57.42	-11 17 40.2			675
1982 QD1	*	1982	08 19.34166	22 19 11.05	-08 32 16.1	17	1	675
1982 QD1		1982	08 19.36527	22 19 09.79	-08 32 22.8			675
1982 QE1	*	1982	08 19.34166	22 20 04.73	-11 55 59.0	16.5	1	675
1982 QE1		1982	08 19.36527	22 20 03.13	-11 55 56.8			675
1982 QF1	*	1982	08 19.34166	22 25 16.72	-05 56 39.7	18	1	675
1982 QF1		1982	08 19.36527	22 25 14.55	-05 56 26.3			675
1982 QG1	*	1982	08 19.34166	22 28 42.72	-10 45 45.4	17	1	675
1982 QG1		1982	08 19.36527	22 28 41.90	-10 45 57.9			675
1982 QH1	*	1982	08 19.34166	22 28 53.16	-08 53 00.5	17.5	1	675
1982 QH1		1982	08 19.36527	22 28 51.99	-08 53 10.9			675
1982 QJ1	*	1982	08 19.34166	22 32 45.82	-08 44 47.4	17.5	1	675
1982 QJ1		1982	08 19.36527	22 32 44.37	-08 44 56.1			675
1982 QK1	*	1982	08 19.34166	22 35 35.74	-07 32 48.4	17	1	675

1982 QK1		1982	08	19.36527	22	35	34.47	-07	32	57.6		675
1982 QL1	*	1982	08	19.34166	22	36	55.59	-05	49	20.8	17 1	675
1982 QL1		1982	08	19.36527	22	36	54.97	-05	49	29.0		675
1982 QM1	*	1982	08	19.34166	22	37	12.06	-08	41	10.7	17 1	675
1982 QM1		1982	08	19.36527	22	37	10.65	-08	41	18.1		675
1982 RE2		1982	08	20.34305	22	27	53.05	+09	59	03.4	16	675
1982 RE2		1982	08	20.37986	22	27	52.03	+09	58	35.5		675
1982 RE2		1982	09	14.38333	22	17	09.17	+03	06	09.3		675
1982 RE2		1982	09	14.40486	22	17	08.75	+03	05	46.8		675
1983 AS2		1983	02	11.19027	07	56	34.89	+34	56	03.8		675
1983 AS2		1983	02	11.28055	07	56	30.73	+34	56	08.1		675
1983 AT2		1983	02	11.19027	07	58	13.79	+30	57	29.6		675
1983 AT2		1983	02	11.28055	07	58	08.88	+30	57	22.5		675
1983 CF3		1983	02	10.34722	07	11	59.93	+20	06	25.9	17	675
1983 CF3		1983	02	10.37708	07	11	59.07	+20	06	27.6		675
1983 CF3		1983	02	11.14236	07	11	39.07	+20	07	46.5		675
1983 CF3		1983	02	15.19166	07	10	06.54	+20	14	11.9		675
1983 LK		1983	06	13.29236	17	15	22.53	-24	55	44.9		675
1983 LK	*	1983	06	14.27430	17	14	16.16	-24	52	26.0	17.5 2	675
1983 LK		1983	06	14.29444	17	14	14.82	-24	52	22.0		675
1983 LL		1983	06	10.42292	17	39	15.96	-25	42	52.6	17.5	675
1983 LL		1983	06	13.29236	17	36	18.79	-25	31	26.2		675
1983 LL	*	1983	06	14.27430	17	35	17.59	-25	27	22.2	16.5 2	675
1983 LL		1983	06	14.29444	17	35	16.25	-25	27	17.7		675
1983 LQ	*	1983	06	11.24861	16	19	55.02	-16	47	21.2	16.5 2	675
1983 LQ		1983	06	11.27222	16	19	53.49	-16	47	23.9		675
1983 LQ		1983	06	13.25625	16	17	57.22	-16	51	24.6		675
1983 LQ		1983	06	13.27778	16	17	55.85	-16	51	27.8		675
1983 LQ		1983	06	14.25416	16	17	01.43	-16	53	30.8		675
1983 LR	*	1983	06	14.22500	15	37	02.73	-24	59	52.2	17.5 2	675
1983 LR		1983	06	14.24861	15	37	01.75	-24	59	55.2		675
1983 LS	*	1983	06	14.26458	16	45	04.20	-25	57	43.8	17.5 2	675
1983 LS		1983	06	14.28472	16	45	02.95	-25	57	44.9		675
1983 LT	*	1983	06	14.23333	16	12	48.47	-15	08	36.0	17 2	675
1983 LT		1983	06	14.25416	16	12	46.67	-15	08	38.2		675
1983 RB	*	1983	09	07.15417	22	04	12.22	+00	48	01.1	15.5 1	675
1983 RB		1983	09	07.17430	22	04	14.36	+00	46	32.6		675
1983 RB		1983	09	09.46319	22	08	19.21	-01	52	17.5		675
1983 RB		1983	09	09.46740	22	08	19.62	-01	52	34.3		675
1983 RC	*	1983	09	05.42708	01	02	00.83	-01	39	53.6	15 1	675
1983 RC		1983	09	06.39375	01	02	18.23	-02	01	29.1		675
1983 RC		1983	09	08.41597	01	02	48.58	-02	47	38.6		675
1983 RC		1983	09	09.48542	01	03	01.39	-03	12	31.9		675
1983 RD		1983	09	07.30347	23	45	08.65	+15	16	16.8		675
1983 RD		1983	09	07.31388	23	45	14.40	+15	15	51.0		675
1983 RD		1983	09	07.32291	23	45	19.25	+15	15	27.5		675
1983 RD		1983	09	07.33194	23	45	24.30	+15	15	04.8		675

Note 1: discoverer C. Shoemaker. 2: discoverer S. Smrekar.

OBSERVATIONS MADE WITH THE 0.46-M SCHMIDT AT PALOMAR BY E. HELIN, S. SWANSON AND A. GRAPS. MEASURED BY R. S. DUNBAR.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1983 PA	*	1983	08 08.41563	21 26 36.01	+13 56 04.0	14.5	675
1983 PA		1983	08 08.43993	21 26 34.06	+13 56 40.7		675
1983 PA		1983	08 10.18993	21 24 20.02	+14 41 33.5		675
1983 PA		1983	08 10.34236	21 24 07.20	+14 45 30.7		675
1983 PA		1983	08 11.19236	21 23 00.86	+15 06 49.5		675
1983 PA		1983	08 11.33889	21 22 48.49	+15 10 28.7		675

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

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1475		1982 09	28.41884	04 02 30.13	+18 35 37.7	16	1	675
1475		1982 09	29.40009	04 03 02.11	+18 33 25.8		1	675
2891		1982 09	13.45320	04 14 35.80	+10 55 29.0		1	675
2891		1982 12	06.36113	03 41 59.17	+08 36 21.9		1	675
2891		1982 12	06.44794	03 41 55.40	+08 36 24.1		1	675
1978	PC	1982 09	12.49591	04 39 10.77	+08 13 02.7		1	675
1978	PC	1982 09	14.50910	04 41 23.51	+08 27 06.4		1	675
1978	PC	1983 02	20.23475	04 07 10.27	+42 46 40.6		1	675
1979	YB	1982 09	13.42716	03 54 46.46	+46 38 42.3		1	675
1979	YB	1982 09	17.45217	03 58 41.08	+47 03 54.9		1	675
1981	DK1	1982 09	28.41884	03 56 30.29	+18 47 36.4		1	675
1981	DK1	1982 09	29.40009	03 56 29.69	+18 41 07.6		1	675
1981	EX4	1983 08	31.31114	00 30 39.25	+17 58 09.2		1	675
1981	EX4	1983 09	01.34447	00 30 15.61	+17 52 25.8		1	675
1981	EX4	1983 09	02.28267	00 29 53.23	+17 47 00.4		1	675
1981	QC	1983 04	02.29379	13 02 09.50	+31 23 23.0		1	675
1981	QC	1983 04	03.41045	13 00 47.79	+31 23 50.6		1	675
1982	BB1	1983 05	02.48134	14 29 43.01	+14 26 07.2		1	675
1982	BB1	1983 05	03.15418	14 29 14.16	+14 29 59.0		1	675
1982	SW3 *	1982 09	28.41884	04 02 32.46	+18 45 19.5	16	1	675
1982	SW3	1982 09	29.40009	04 03 19.24	+18 41 16.3		1	675
1982	YA	1983 01	06.23194	05 50 22.41	-04 29 32.7	16.5	2	675
1982	YA	1983 01	06.24236	05 50 22.14	-04 30 05.5		2	675
1983	EA	1983 05	03.33404	10 45 44.67	+07 30 59.6		1	675
1983	EA	1983 05	19.19902	10 51 27.22	+03 15 47.8		1	675
1983	PA	1983 08	30.15975	20 57 07.51	+21 36 41.8		1	675
1983	PA	1983 08	31.32433	20 55 39.76	+21 54 12.4		1	675
1983	PA	1983 08	31.33822	20 55 38.77	+21 54 24.5		1	675
1983	PC *	1983 08	02.27923	20 22 52.93	-17 18 43.1	18	1	675
1983	QC *	1983 08	30.24864	22 33 36.56	-06 40 36.2	17	1	675
1983	QC	1983 09	01.32572	22 34 00.09	-07 11 23.4		1	675
1983	QC	1983 09	02.26670	22 34 11.55	-07 25 31.4		1	675
1983	QC	1983 09	02.44169	22 34 12.49	-07 28 07.8		1	675
1983	QC	1983 09	08.31738	22 35 29.37	-08 57 14.6		3	675
1983	QD *	1983 08	31.31114	00 28 52.67	+17 42 40.1	15.5	1	675
1983	QD	1983 09	01.34447	00 28 17.32	+17 47 07.4		1	675
1983	QD	1983 09	02.28267	00 27 43.91	+17 50 54.3		1	675
1983	RB	1983 09	09.39236	22 08 12.11	-01 47 34.8		4	675
1983	RB	1983 09	14.27986	22 16 23.66	-06 42 36.0		5	675
1983	RB	1983 09	14.30069	22 16 25.42	-06 43 40.9		5	675
1983	RD *	1983 09	12.41944	00 38 45.85	+10 39 47.0	13	5	675
1983	RD	1983 09	12.46111	00 39 12.48	+10 37 04.3		5	675
1983	RD	1983 09	13.25764	00 48 18.22	+09 43 41.3		5	675
1983	RD	1983 09	13.26806	00 48 24.96	+09 42 59.4		5	675
1983	RD	1983 09	13.33542	00 49 08.62	+09 38 26.2		5	675
1983	RD	1983 09	13.35625	00 49 22.06	+09 37 00.6		5	675
1983	RD	1983 09	14.32847	01 00 27.87	+08 28 37.2		5	675
1983	RD	1983 09	14.33889	01 00 34.59	+08 27 51.5		5	675
2630	P-L *	1960 09	24.41183	00 36 08.28	+00 44 26.5	17.4	6	675
2630	P-L	1960 09	24.46184	00 36 05.46	+00 44 13.3		6	675
2630	P-L	1960 09	26.31530	00 34 27.06	+00 37 14.5		6	675
2630	P-L	1960 09	27.40836	00 33 27.52	+00 33 06.7		6	675
2630	P-L	1960 09	28.39725	00 32 33.53	+00 29 21.1		6	675
2630	P-L	1960 10	17.31529	00 15 55.96	-00 30 36.3		6	675
2630	P-L	1960 10	22.26809	00 12 28.06	-00 39 00.7		6	675
2630	P-L	1960 10	25.25350	00 10 41.34	-00 41 57.5		6	675
2630	P-L	1960 10	26.31531	00 10 07.00	-00 42 36.9		6	675

4113	P-L	*	1960	09	24.37573	00 25 15.99	+03	49	04.9	18.4	6	675
4113	P-L		1960	09	24.41183	00 25 14.03	+03	48	52.4		6	675
4113	P-L		1960	09	25.42780	00 24 19.77	+03	42	19.7		6	675
4113	P-L		1960	09	26.30558	00 23 32.98	+03	36	39.0		6	675
4113	P-L		1960	09	26.31530	00 23 32.38	+03	36	35.6		6	675
4113	P-L		1960	09	27.40836	00 22 33.33	+03	29	29.6		6	675
4113	P-L		1960	09	28.39725	00 21 39.95	+03	22	59.2		6	675
4113	P-L		1960	10	17.27085	00 05 33.42	+01	22	34.0		6	675
4113	P-L		1960	10	22.22293	00 02 05.87	+00	55	31.0		6	675
4113	P-L		1960	10	24.35836	00 00 45.42	+00	44	51.4		6	675
6525	P-L	*	1960	09	24.35002	00 10 13.38	-00	13	55.3	17.5	6	675
6525	P-L		1960	09	26.28543	00 08 49.82	-00	23	55.8		6	675
6525	P-L		1960	09	27.34237	00 08 04.12	-00	29	20.3		6	675
6525	P-L		1960	09	28.33822	00 07 21.46	-00	34	26.2		6	675
6525	P-L		1960	10	17.28198	23 55 26.62	-01	57	32.0		6	675
6525	P-L		1960	10	22.23406	23 53 12.02	-02	12	42.2		6	675
6525	P-L		1960	10	25.25350	23 52 04.24	-02	20	14.0		6	675
6525	P-L		1960	10	26.31531	23 51 43.08	-02	22	33.8		6	675

Note 1: observer and measurer J. Gibson. 2: observers E. Helin and R. S. Dunbar, measurer S. Swanson. 3: observer C. Kowal, measurer Gibson. 4: observer E. Shoemaker, measurer C. Shoemaker. 5: observer Dunbar, measurer S. J. Bus. 6: observer T. Gehrels; plates scanned and measured by C. J. van Houten and I. van Houten-Groeneveld.

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

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1983 RB	1983 09	11.24792	22 11 25.29	-03 46 45.6	688
1983 RB	1983 09	11.30069	22 11 30.05	-03 49 59.2	688
1983 RB	1983 09	12.23194	22 13 04.29	-04 46 19.6	688

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

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
624	1983 09	02.22194	22 38 03.98	-10 41 22.6	16.5		801
2403	1983 09	05.27315	22 52 51.04	-01 59 16.1	16.0	1	801
A908 AA	1983 07	14.60893	18 32 24.69	-09 19 06.8			801
1930 YV	1983 07	14.28249	21 50 10.98	-18 11 07.3			801
1930 YV	1983 08	16.13900	21 19 53.61	-20 26 36.0			801
1932 BG	1983 08	14.11007	19 13 41.30	-24 06 16.8			801
1940 YF	1983 04	12.32519	14 31 07.62	-03 48 45.6			801
1942 RN	1983 07	10.13797	17 13 31.27	-08 37 53.1			801
1942 RN	1983 07	16.15154	17 09 57.15	-08 54 15.0		2	801
1955 QP1	1983 09	05.27315	22 52 51.66	-02 03 14.4			801
1965 SB	1982 10	20.02772	22 59 22.45	-08 03 08.5			801
1969 TD2	1983 08	16.23278	22 31 46.80	+06 32 22.3			801
1969 TD2	1983 09	05.22434	22 17 16.40	+04 35 44.9	17.0		801
1974 SP	1983 07	11.28743	20 56 49.36	-05 29 10.6			801
1974 SP	1983 08	14.13256	20 32 42.97	-08 37 32.3			801
1974 SP	1983 09	02.10427	20 22 09.64	-11 03 48.7			801
1974 VQ2	1983 09	03.33532	00 46 31.64	-11 12 30.3			801
1975 BX	1983 07	13.18556	18 47 37.11	-06 23 25.8			801
1975 SF	1983 07	10.16039	17 39 46.49	-16 00 17.9		3	801
1976 GN8	1983 07	14.30797	22 39 14.37	-04 57 35.2			801
1976 GN8	1983 08	14.26382	22 22 22.68	-04 55 55.2			801
1976 GN8	1983 09	02.20304	22 06 57.61	-05 33 55.5			801
1978 PA	1983 07	10.17992	17 45 21.01	-10 19 24.2			801
1978 RY	1983 09	02.24898	22 58 23.19	-14 43 12.6			801

1978	TB7		1983	07	10.31637	22	22	23.23	-07	09	38.9	801
1978	TB7		1983	07	11.30855	22	22	21.61	-07	13	03.7	801
1978	TB7		1983	08	16.18131	22	08	17.73	-11	01	17.2	801
1978	WM14		1983	08	14.24357	22	08	01.21	-03	12	35.7	801
1978	WM14		1983	09	04.22735	21	53	03.34	-04	55	21.9	801
1979	SG9		1983	08	16.16288	22	06	04.93	+02	11	17.8	801
1979	SY9		1983	09	02.30529	00	30	23.20	+02	40	07.4	801
1979	SV11		1983	07	13.26067	21	52	40.91	-11	24	11.1	801
1979	SV11		1983	08	14.19482	21	30	46.63	-13	04	04.8 1	801
1979	SV11		1983	09	02.15254	21	16	01.73	-14	14	18.7	801
1980	TX5		1983	07	10.26504	21	36	17.26	-06	35	28.6	801
1980	TX5		1983	07	14.25363	21	33	58.36	-06	33	53.8 17	801
1980	TX5		1983	08	16.11614	21	04	36.90	-07	47	57.8	801
1981	EJ10		1983	09	03.24331	00	28	35.40	+10	32	50.4	801
1981	EU17		1983	09	05.29811	23	45	11.73	-01	08	07.8	801
1981	JR		1983	07	11.26810	19	15	38.52	+00	24	20.6	801
1981	JR		1983	08	16.08796	18	59	43.69	-00	17	44.2	801
1982	BJ1		1983	07	11.16306	17	57	36.88	-11	36	51.4	801
1982	BK1		1983	07	13.10933	15	44	53.00	-01	04	59.7	801
1983	RE	*	1983	09	04.22735	21	52	57.21	-04	36	26.7 16.5	801
1983	RF	*	1983	09	04.22735	21	53	12.06	-04	58	17.8 18.0	801
3042	P-L		1983	08	14.21900	21	49	56.55	-03	55	39.6	801
6525	P-L		1983	09	02.17534	22	02	52.69	-12	06	33.2	801

Note 1: measurement in one direction only. 2: only three reference stars used. 3: minor planet image on a star.

OBSERVATIONS MADE WITH THE 0.4-M ASTROGRAPH AT THE EUROPEAN SOUTHERN OBSERVATORY BY H. DEBEHOGNE AND R. R. DE F. MOURAO (ASSISTED BY M. FLORES).

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
38	1983 02	12.04779	07 25 45.45	+20 29 38.3		809
38	1983 02	12.05471	07 25 45.22	+20 29 37.6		809
38	1983 02	12.06164	07 25 44.98	+20 29 37.0		809
38	1983 02	14.05000	07 24 43.35	+20 25 41.5		809
38	1983 02	14.05687	07 24 43.16	+20 25 40.8		809
38	1983 02	14.06380	07 24 42.95	+20 25 39.9		809
38	1983 02	16.04240	07 23 49.33	+20 21 39.3		809
38	1983 02	16.04932	07 23 49.16	+20 21 38.8		809
38	1983 02	16.05625	07 23 48.95	+20 21 37.7		809
38	1983 02	18.04733	07 23 02.76	+20 17 30.0		809
38	1983 02	18.05425	07 23 02.58	+20 17 28.9		809
38	1983 02	18.06118	07 23 02.39	+20 17 28.3		809
38	1983 02	20.08134	07 22 23.65	+20 13 11.5		809
38	1983 02	20.08827	07 22 23.48	+20 13 11.1		809
38	1983 02	20.09519	07 22 23.29	+20 13 10.5		809
101	1983 02	12.28741	12 39 13.93	-07 49 16.5		809
101	1983 02	12.29434	12 39 13.80	-07 49 17.2		809
101	1983 02	12.30126	12 39 13.66	-07 49 18.0		809
101	1983 02	16.26540	12 37 53.24	-07 56 34.1		809
101	1983 02	16.27253	12 37 53.04	-07 56 34.5		809
101	1983 02	16.27925	12 37 52.88	-07 56 35.0		809
101	1983 02	18.28002	12 37 03.48	-07 59 26.9		809
101	1983 02	18.28695	12 37 03.25	-07 59 27.1		809
101	1983 02	18.29388	12 37 03.06	-07 59 27.2		809
158	1983 02	14.05000	07 30 46.88	+21 12 36.1		809
158	1983 02	14.05687	07 30 46.65	+21 12 36.5		809
158	1983 02	14.06380	07 30 46.40	+21 12 37.1		809
158	1983 02	16.04240	07 29 43.51	+21 14 34.4		809
158	1983 02	16.04932	07 29 43.34	+21 14 34.7		809
158	1983 02	16.05625	07 29 43.12	+21 14 34.9		809

158	1983	02	18.04733	07	28	45.95	+21	16	20.6	809
158	1983	02	18.05425	07	28	45.74	+21	16	21.2	809
158	1983	02	18.06118	07	28	45.54	+21	16	21.7	809
158	1983	02	20.08134	07	27	54.06	+21	17	51.9	809
158	1983	02	20.08827	07	27	53.87	+21	17	52.4	809
158	1983	02	20.09519	07	27	53.69	+21	17	53.1	809
218	1983	02	10.19938	09	46	32.80	+02	15	19.0	809
218	1983	02	10.20699	09	46	32.46	+02	15	23.2	809
218	1983	02	10.21461	09	46	32.07	+02	15	26.9	809
218	1983	02	12.23280	09	44	54.19	+02	33	45.8	809
218	1983	02	12.23962	09	44	53.84	+02	33	49.5	809
218	1983	02	12.24655	09	44	53.52	+02	33	53.3	809
218	1983	02	14.14970	09	43	20.36	+02	51	42.4	809
218	1983	02	14.15660	09	43	20.06	+02	51	46.1	809
218	1983	02	14.16353	09	43	19.69	+02	51	49.8	809
241	1983	02	15.23905	11	37	36.16	-05	31	00.0	809
241	1983	02	15.24597	11	37	35.93	-05	30	59.3	809
241	1983	02	15.25305	11	37	35.73	-05	30	58.7	809
243	1983	02	10.23193	10	25	15.70	+09	42	06.7	809
243	1983	02	10.23885	10	25	15.37	+09	42	08.8	809
243	1983	02	10.24578	10	25	15.00	+09	42	10.2	809
243	1983	02	14.17322	10	22	05.30	+09	58	45.0	809
243	1983	02	14.18015	10	22	04.97	+09	58	46.6	809
243	1983	02	14.18707	10	22	04.65	+09	58	48.7	809
243	1983	02	18.14359	10	18	46.54	+10	16	02.8	809
243	1983	02	18.15052	10	18	46.16	+10	16	04.5	809
243	1983	02	18.15744	10	18	45.84	+10	16	06.6	809
252	1983	02	10.19938	09	49	03.70	+00	46	12.1	809
252	1983	02	10.20699	09	49	03.38	+00	46	14.4	809
252	1983	02	10.21461	09	49	03.09	+00	46	16.3	809
252	1983	02	12.23280	09	47	34.77	+00	55	47.5	809
252	1983	02	12.23962	09	47	34.47	+00	55	49.6	809
252	1983	02	12.24655	09	47	34.13	+00	55	51.5	809
252	1983	02	16.14143	09	44	43.09	+01	15	21.9	809
252	1983	02	16.14836	09	44	42.77	+01	15	24.4	809
252	1983	02	16.15528	09	44	42.47	+01	15	26.2	809
252	1983	02	18.11866	09	43	16.42	+01	25	46.4	809
252	1983	02	18.12558	09	43	16.07	+01	25	48.6	809
252	1983	02	18.13251	09	43	15.80	+01	25	50.6	809
252	1983	02	20.17414	09	41	46.92	+01	36	53.8	809
252	1983	02	20.18107	09	41	46.63	+01	36	56.1	809
252	1983	02	20.18799	09	41	46.31	+01	36	58.4	809
368	1983	02	10.19938	09	46	54.73	+02	18	01.5	809
368	1983	02	10.20699	09	46	54.37	+02	18	03.1	809
368	1983	02	10.21461	09	46	54.04	+02	18	04.8	809
368	1983	02	12.23280	09	45	23.87	+02	25	38.6	809
368	1983	02	12.23962	09	45	23.53	+02	25	40.3	809
368	1983	02	12.24655	09	45	23.22	+02	25	41.7	809
368	1983	02	16.14143	09	42	28.39	+02	41	11.0	809
368	1983	02	16.14836	09	42	28.06	+02	41	12.8	809
368	1983	02	16.15528	09	42	27.72	+02	41	14.8	809
368	1983	02	18.11866	09	40	59.67	+02	49	26.3	809
368	1983	02	18.12558	09	40	59.34	+02	49	27.9	809
368	1983	02	18.13251	09	40	59.09	+02	49	29.2	809
406	1983	02	12.28741	12	40	04.20	-08	19	32.8	809
406	1983	02	12.29434	12	40	04.06	-08	19	32.8	809
406	1983	02	12.30126	12	40	03.92	-08	19	32.5	809
406	1983	02	16.26540	12	38	52.36	-08	18	27.5	809
406	1983	02	16.27253	12	38	52.23	-08	18	27.3	809

406	1983	02	16.27925	12	38	52.05	-08	18	27.0	809
406	1983	02	18.28002	12	38	09.00	-08	17	09.5	809
406	1983	02	18.28695	12	38	08.81	-08	17	08.8	809
406	1983	02	18.29388	12	38	08.62	-08	17	08.2	809
606	1983	02	10.25824	10	45	48.83	+04	00	30.4	809
606	1983	02	10.26517	10	45	48.52	+04	00	31.6	809
606	1983	02	10.27209	10	45	48.19	+04	00	32.7	809
635	1983	02	12.10596	08	38	17.11	+05	55	34.2	809
635	1983	02	12.11289	08	38	16.81	+05	55	36.7	809
635	1983	02	12.11981	08	38	16.53	+05	55	39.3	809
635	1983	02	18.09444	08	34	14.36	+06	31	38.1	809
635	1983	02	18.10134	08	34	14.08	+06	31	40.8	809
635	1983	02	18.10827	08	34	13.81	+06	31	43.4	809
635	1983	02	20.12636	08	32	58.53	+06	44	03.1	809
635	1983	02	20.13328	08	32	58.29	+06	44	05.5	809
635	1983	02	20.14021	08	32	57.99	+06	44	08.6	809
686	1983	02	12.16275	12	21	02.33	-22	16	18.4	809
686	1983	02	12.16968	12	21	02.17	-22	16	19.0	809
686	1983	02	12.17660	12	21	02.02	-22	16	19.1	809
686	1983	02	14.23971	12	20	19.16	-22	20	22.7	809
686	1983	02	14.24663	12	20	19.01	-22	20	22.6	809
686	1983	02	14.25356	12	20	18.84	-22	20	23.0	809
686	1983	02	16.24185	12	19	32.21	-22	23	28.8	809
686	1983	02	16.24887	12	19	32.02	-22	23	29.0	809
686	1983	02	16.25570	12	19	31.82	-22	23	29.8	809
686	1983	02	18.25509	12	18	39.69	-22	25	47.4	809
686	1983	02	18.26202	12	18	39.51	-22	25	47.4	809
686	1983	02	18.26894	12	18	39.33	-22	25	47.9	809
686	1983	02	20.26348	12	17	42.25	-22	27	16.0	809
686	1983	02	20.27041	12	17	42.02	-22	27	16.4	809
686	1983	02	20.27733	12	17	41.84	-22	27	16.4	809
800	1983	02	10.23193	10	25	11.68	+09	19	12.9	809
800	1983	02	10.23885	10	25	11.28	+09	19	14.8	809
800	1983	02	10.24578	10	25	10.86	+09	19	16.3	809
809	1983	02	12.31858	12	36	17.88	-00	19	12.9	809
809	1983	02	12.32550	12	36	17.75	-00	19	10.6	809
809	1983	02	12.33243	12	36	17.62	-00	19	08.6	809
809	1983	02	18.23051	12	34	24.92	+00	12	19.4	809
809	1983	02	18.23743	12	34	24.76	+00	12	22.4	809
809	1983	02	18.24436	12	34	24.55	+00	12	24.5	809
871	1983	02	10.29149	11	08	41.39	+05	02	14.5	809
871	1983	02	10.30222	11	08	40.96	+05	02	18.9	809
876	1983	02	12.13643	09	06	52.86	+12	34	07.2	809
876	1983	02	12.14336	09	06	52.52	+12	34	09.8	809
876	1983	02	12.15028	09	06	52.23	+12	34	11.8	809
876	1983	02	18.30703	09	02	14.92	+13	13	11.0	809
876	1983	02	18.31396	09	02	14.62	+13	13	13.9	809
876	1983	02	18.32088	09	02	14.32	+13	13	17.0	809
876	1983	02	20.15129	09	00	56.04	+13	24	39.3	809
876	1983	02	20.15821	09	00	55.72	+13	24	41.9	809
901	1983	02	12.13643	09	12	13.04	+11	33	49.3	16.6 809
901	1983	02	12.14336	09	12	12.61	+11	33	51.2	809
901	1983	02	12.15028	09	12	12.20	+11	33	53.1	809
901	1983	02	18.30703	09	05	49.27	+12	00	42.6	809
901	1983	02	18.31396	09	05	48.83	+12	00	44.2	809
901	1983	02	18.32088	09	05	48.43	+12	00	45.8	809
939	1983	02	12.28741	12	44	28.81	-06	41	26.7	809
939	1983	02	12.29434	12	44	28.65	-06	41	26.3	809
939	1983	02	12.30126	12	44	28.50	-06	41	26.0	809

939		1983	02	16.26540	12	43	28.67	-06	40	54.5	809
939		1983	02	16.27253	12	43	28.50	-06	40	54.5	809
939		1983	02	16.27925	12	43	28.34	-06	40	54.5	809
939		1983	02	18.28002	12	42	48.20	-06	39	36.3	809
939		1983	02	18.28695	12	42	48.01	-06	39	36.1	809
939		1983	02	18.29388	12	42	47.83	-06	39	35.9	809
939		1983	02	20.28709	12	42	01.33	-06	37	37.4	809
939		1983	02	20.29401	12	42	01.13	-06	37	36.8	809
939		1983	02	20.30088	12	42	00.98	-06	37	36.4	809
1007		1983	02	12.25971	10	11	28.97	+09	41	37.8	809
1007		1983	02	12.26663	10	11	28.61	+09	41	39.8	809
1007		1983	02	12.27425	10	11	28.16	+09	41	41.5	809
1112		1983	02	12.07341	07	41	00.84	+21	32	27.0	809
1112		1983	02	12.08034	07	41	00.50	+21	32	26.5	809
1112		1983	02	12.08726	07	41	00.21	+21	32	26.2	809
1112		1983	02	14.07418	07	39	42.95	+21	30	24.9	809
1112		1983	02	14.08111	07	39	42.67	+21	30	24.8	809
1112		1983	02	14.08804	07	39	42.38	+21	30	24.8	809
1112		1983	02	16.06525	07	38	30.76	+21	28	14.8	809
1112		1983	02	16.07218	07	38	30.52	+21	28	14.7	809
1112		1983	02	16.07910	07	38	30.29	+21	28	14.2	809
1112		1983	02	18.07087	07	37	23.78	+21	25	54.6	809
1112		1983	02	18.07780	07	37	23.53	+21	25	54.3	809
1112		1983	02	18.08472	07	37	23.30	+21	25	53.7	809
1112		1983	02	20.10420	07	36	21.72	+21	23	21.7	809
1112		1983	02	20.11112	07	36	21.52	+21	23	20.9	809
1112		1983	02	20.11805	07	36	21.27	+21	23	20.6	809
1147		1983	02	12.13643	09	04	42.58	+11	33	01.7	809
1147		1983	02	12.14336	09	04	42.12	+11	33	03.7	809
1147		1983	02	12.15028	09	04	41.73	+11	33	05.4	809
1147		1983	02	14.12547	09	02	35.07	+11	41	09.0	809
1147		1983	02	14.13236	09	02	34.63	+11	41	10.6	809
1147		1983	02	14.13929	09	02	34.20	+11	41	12.3	809
1147		1983	02	16.11719	09	00	29.08	+11	49	18.7	809
1147		1983	02	16.12412	09	00	28.60	+11	49	20.0	809
1147		1983	02	16.13104	09	00	28.16	+11	49	21.6	809
1147		1983	02	18.30703	08	58	13.13	+11	58	13.6	809
1147		1983	02	18.31396	08	58	12.71	+11	58	15.3	809
1147		1983	02	18.32088	08	58	12.26	+11	58	16.9	809
1147		1983	02	20.15129	08	56	21.88	+12	05	41.5	809
1147		1983	02	20.15821	08	56	21.45	+12	05	43.1	809
1256		1983	02	10.31365	11	50	49.03	-04	10	11.0	809
1256		1983	02	10.32057	11	50	48.85	-04	10	10.3	809
1256		1983	02	10.32750	11	50	48.69	-04	10	09.4	809
1291		1983	02	10.19938	09	45	04.67	+00	41	23.1	809
1291		1983	02	10.20699	09	45	04.33	+00	41	25.2	809
1291		1983	02	10.21461	09	45	03.96	+00	41	27.3	809
1291		1983	02	12.23280	09	43	31.23	+00	50	06.7	809
1291		1983	02	12.23962	09	43	30.92	+00	50	08.4	809
1291		1983	02	12.24655	09	43	30.57	+00	50	10.5	809
1291		1983	02	16.14143	09	40	31.14	+01	08	03.0	809
1291		1983	02	16.14836	09	40	30.79	+01	08	04.8	809
1291		1983	02	16.15528	09	40	30.43	+01	08	07.1	809
1291		1983	02	18.11866	09	39	00.30	+01	17	39.4	809
1291		1983	02	18.12558	09	38	59.95	+01	17	41.2	809
1291		1983	02	18.13251	09	38	59.66	+01	17	43.1	809
1291		1983	02	20.17414	09	37	26.56	+01	27	59.0	809
1291		1983	02	20.18107	09	37	26.30	+01	28	00.8	809
1291		1983	02	20.18799	09	37	25.99	+01	28	02.7	809

1368	1983	02	11.32338	14	33	58.86	-15	04	34.9	17.0 809
1368	1983	02	11.33030	14	33	59.14	-15	04	38.2	809
1368	1983	02	11.33723	14	33	59.40	-15	04	41.5	809
1368	1983	02	15.29965	14	36	23.59	-15	35	38.0	809
1368	1983	02	15.31315	14	36	24.07	-15	35	45.2	809
1368	1983	02	17.30149	14	37	28.51	-15	50	58.9	809
1368	1983	02	17.30838	14	37	28.71	-15	51	02.0	809
1368	1983	02	17.31531	14	37	28.90	-15	51	05.1	809
1368	1983	02	19.32024	14	38	28.42	-16	06	14.0	809
1368	1983	02	19.32716	14	38	28.61	-16	06	17.0	809
1368	1983	02	19.33409	14	38	28.81	-16	06	20.1	809
1432	1983	02	14.05000	07	28	48.77	+21	41	50.2	809
1432	1983	02	14.05687	07	28	48.48	+21	41	52.0	809
1432	1983	02	14.06380	07	28	48.19	+21	41	54.0	809
1436	1983	02	12.16275	12	18	57.15	-21	16	17.8	809
1436	1983	02	12.16968	12	18	57.02	-21	16	18.7	809
1436	1983	02	12.17660	12	18	56.90	-21	16	20.0	809
1436	1983	02	14.23971	12	18	20.46	-21	21	57.8	809
1436	1983	02	14.24663	12	18	20.33	-21	21	58.7	809
1436	1983	02	14.25356	12	18	20.19	-21	22	00.3	809
1436	1983	02	16.24185	12	17	40.26	-21	26	41.0	809
1436	1983	02	16.24887	12	17	40.11	-21	26	41.6	809
1436	1983	02	16.25570	12	17	39.95	-21	26	42.7	809
1436	1983	02	18.25509	12	16	54.95	-21	30	40.8	809
1436	1983	02	18.26202	12	16	54.78	-21	30	41.3	809
1436	1983	02	18.26894	12	16	54.63	-21	30	42.4	809
1436	1983	02	20.26348	12	16	05.10	-21	33	52.0	809
1436	1983	02	20.27041	12	16	04.94	-21	33	52.9	809
1436	1983	02	20.27733	12	16	04.77	-21	33	53.0	809
1445	1983	02	18.23051	12	37	27.27	-00	51	20.0	809
1445	1983	02	18.23743	12	37	27.08	-00	51	19.6	809
1445	1983	02	18.24436	12	37	26.89	-00	51	19.3	809
1445	1983	02	20.31485	12	36	39.69	-00	44	52.4	809
1445	1983	02	20.32166	12	36	39.48	-00	44	50.7	809
1445	1983	02	20.32858	12	36	39.27	-00	44	50.2	809
1485	1983	02	12.13643	09	11	45.05	+11	26	32.4	809
1485	1983	02	12.14336	09	11	44.68	+11	26	33.9	809
1485	1983	02	12.15028	09	11	44.30	+11	26	34.7	809
1504	1983	02	13.05198	04	15	48.62	+20	48	29.3	17.0 809
1504	1983	02	13.05890	04	15	48.97	+20	48	32.3	809
1504	1983	02	13.06583	04	15	49.33	+20	48	35.1	809
1504	1983	02	15.04377	04	17	30.39	+21	02	34.8	809
1504	1983	02	15.05067	04	17	30.74	+21	02	38.2	809
1504	1983	02	15.05760	04	17	31.08	+21	02	41.6	809
1504	1983	02	17.06253	04	19	20.24	+21	16	48.2	809
1504	1983	02	17.06945	04	19	20.58	+21	16	51.0	809
1504	1983	02	17.07638	04	19	20.96	+21	16	53.7	809
1555	1983	02	10.25824	10	48	13.30	+04	53	52.5	809
1555	1983	02	10.26517	10	48	12.92	+04	53	53.7	809
1555	1983	02	10.27209	10	48	12.64	+04	53	55.1	809
1571	1983	02	10.19938	09	46	45.32	+00	45	52.1	809
1571	1983	02	10.20699	09	46	44.92	+00	45	52.5	809
1571	1983	02	10.21461	09	46	44.57	+00	45	52.3	809
1571	1983	02	12.23280	09	44	57.77	+00	46	55.8	809
1571	1983	02	12.23962	09	44	57.40	+00	46	55.7	809
1571	1983	02	12.24655	09	44	57.02	+00	46	56.3	809
1571	1983	02	16.14143	09	41	31.03	+00	50	15.2	809
1571	1983	02	16.14836	09	41	30.69	+00	50	15.0	809
1571	1983	02	16.15528	09	41	30.31	+00	50	15.3	809

1571	1983	02	18.11866	09	39	47.13	+00	52	29.9	809
1571	1983	02	18.12558	09	39	46.76	+00	52	30.0	809
1571	1983	02	18.13251	09	39	46.38	+00	52	29.8	809
1571	1983	02	20.17414	09	38	00.09	+00	55	15.8	809
1571	1983	02	20.18107	09	37	59.76	+00	55	15.9	809
1571	1983	02	20.18799	09	37	59.39	+00	55	16.4	809
1576	1983	02	12.07341	07	35	24.77	+20	39	40.0	809
1576	1983	02	12.08034	07	35	24.51	+20	39	41.2	809
1576	1983	02	12.08726	07	35	24.26	+20	39	42.1	809
1576	1983	02	14.07418	07	34	20.09	+20	42	58.8	809
1576	1983	02	14.08111	07	34	19.86	+20	42	59.3	809
1576	1983	02	14.08804	07	34	19.63	+20	43	00.3	809
1576	1983	02	16.06525	07	33	21.55	+20	46	03.2	809
1576	1983	02	16.07218	07	33	21.35	+20	46	04.0	809
1576	1983	02	16.07910	07	33	21.13	+20	46	04.3	809
1576	1983	02	18.07087	07	32	28.49	+20	48	54.9	809
1576	1983	02	18.07780	07	32	28.33	+20	48	55.6	809
1576	1983	02	18.08472	07	32	28.12	+20	48	56.2	809
1576	1983	02	20.10420	07	31	40.81	+20	51	35.2	809
1576	1983	02	20.11112	07	31	40.66	+20	51	35.7	809
1576	1983	02	20.11805	07	31	40.47	+20	51	36.2	809
1581	1983	02	12.31858	12	33	54.20	-00	05	49.2	809
1581	1983	02	12.32550	12	33	54.10	-00	05	48.5	809
1581	1983	02	12.33243	12	33	54.00	-00	05	47.0	809
1581	1983	02	18.23051	12	32	42.34	+00	09	40.8	809
1581	1983	02	18.23743	12	32	42.25	+00	09	41.8	809
1581	1983	02	18.24436	12	32	42.09	+00	09	42.6	809
1727	1983	02	19.23679	13	43	51.20	+18	21	02.4	809
1727	1983	02	19.24475	13	43	51.43	+18	21	13.0	809
1727	1983	02	19.25170	13	43	51.62	+18	21	22.2	809
1746	1983	02	10.31365	11	50	28.43	-04	25	53.0	809
1746	1983	02	10.32057	11	50	28.28	-04	25	53.1	809
1746	1983	02	10.32750	11	50	28.12	-04	25	52.2	809
1760	1983	02	12.10596	08	36	16.53	+05	58	01.7	809
1760	1983	02	12.11289	08	36	16.23	+05	58	02.8	809
1760	1983	02	12.11981	08	36	15.90	+05	58	04.2	809
1760	1983	02	18.09444	08	31	56.12	+06	20	08.8	809
1760	1983	02	18.10134	08	31	55.84	+06	20	10.3	809
1760	1983	02	18.10827	08	31	55.57	+06	20	11.9	809
1760	1983	02	20.12636	08	30	34.37	+06	27	59.8	809
1760	1983	02	20.13328	08	30	34.12	+06	28	01.6	809
1760	1983	02	20.14021	08	30	33.83	+06	28	03.4	809
1807	1983	02	10.31365	11	53	07.25	-04	34	21.0	809
1807	1983	02	10.32057	11	53	07.02	-04	34	19.4	809
1807	1983	02	10.32750	11	53	06.79	-04	34	18.3	809
1829	1983	02	12.04779	07	26	36.74	+19	34	39.7	809
1829	1983	02	12.05471	07	26	36.51	+19	34	39.0	809
1829	1983	02	12.06164	07	26	36.28	+19	34	37.8	809
1829	1983	02	20.08134	07	23	07.40	+19	17	56.8	809
1829	1983	02	20.08827	07	23	07.21	+19	17	56.0	809
1829	1983	02	20.09519	07	23	07.06	+19	17	55.3	809
1894	1983	02	12.25971	10	09	36.94	+10	00	52.4	809
1894	1983	02	12.26663	10	09	36.63	+10	00	54.2	809
1894	1983	02	12.27425	10	09	36.26	+10	00	56.2	809
1911	1983	02	12.04779	07	31	46.18	+21	11	22.4	809
1911	1983	02	12.05471	07	31	45.96	+21	11	22.9	809
1911	1983	02	12.06164	07	31	45.76	+21	11	23.0	809
1911	1983	02	14.05000	07	30	48.67	+21	12	52.9	809
1911	1983	02	14.05687	07	30	48.47	+21	12	52.9	809

1911	1983	02	14.06380	07	30	48.27	+21	12	53.2	809
1911	1983	02	18.04733	07	29	07.62	+21	15	25.2	809
1911	1983	02	18.05425	07	29	07.43	+21	15	25.6	809
1911	1983	02	18.06118	07	29	07.28	+21	15	26.1	809
1911	1983	02	20.08134	07	28	23.61	+21	16	26.0	809
1911	1983	02	20.08827	07	28	23.44	+21	16	26.6	809
1911	1983	02	20.09519	07	28	23.28	+21	16	26.8	809
1971	1983	02	14.07418	07	33	32.89	+21	12	22.5	809
1971	1983	02	14.08111	07	33	32.66	+21	12	22.1	809
1971	1983	02	14.08804	07	33	32.38	+21	12	21.7	809
1971	1983	02	16.06525	07	32	25.38	+21	09	43.4	809
1971	1983	02	16.07218	07	32	25.16	+21	09	42.6	809
1971	1983	02	16.07910	07	32	24.95	+21	09	42.0	809
1971	1983	02	18.07087	07	31	23.19	+21	06	51.6	809
1971	1983	02	18.07780	07	31	22.95	+21	06	51.5	809
1971	1983	02	18.08472	07	31	22.74	+21	06	51.1	809
2020	1983	02	10.23193	10	28	39.13	+10	00	05.6	809
2020	1983	02	10.23885	10	28	38.82	+10	00	09.0	809
2020	1983	02	10.24578	10	28	38.54	+10	00	12.2	809
2020	1983	02	14.17322	10	25	56.39	+10	31	29.2	809
2020	1983	02	14.18015	10	25	56.09	+10	31	32.3	809
2020	1983	02	14.18707	10	25	55.80	+10	31	35.3	809
2020	1983	02	18.14359	10	23	04.74	+11	03	44.0	809
2020	1983	02	18.15052	10	23	04.45	+11	03	47.9	809
2020	1983	02	18.15744	10	23	04.16	+11	03	51.0	809
2020	1983	02	20.23578	10	21	32.23	+11	20	49.5	809
2020	1983	02	20.24271	10	21	31.93	+11	20	53.0	809
2020	1983	02	20.24963	10	21	31.63	+11	20	56.1	809
2111	1983	02	10.25824	10	50	28.85	+04	06	17.1	809
2111	1983	02	10.26517	10	50	28.60	+04	06	19.8	809
2111	1983	02	10.27209	10	50	28.35	+04	06	22.4	809
2147	1983	02	10.23193	10	31	35.38	+10	57	35.4	809
2147	1983	02	10.23885	10	31	35.05	+10	57	38.0	809
2147	1983	02	10.24578	10	31	34.73	+10	57	40.6	809
2147	1983	02	14.17322	10	28	55.95	+11	25	09.8	809
2147	1983	02	14.18015	10	28	55.66	+11	25	12.4	809
2147	1983	02	14.18707	10	28	55.37	+11	25	14.9	809
2284	1983	02	14.17322	10	29	50.54	+10	19	30.5	809
2284	1983	02	14.18015	10	29	50.19	+10	19	33.6	809
2284	1983	02	14.18707	10	29	49.85	+10	19	36.6	809
2284	1983	02	18.14359	10	26	19.74	+10	52	26.9	809
2284	1983	02	18.15052	10	26	19.35	+10	52	30.3	809
2284	1983	02	18.15744	10	26	19.00	+10	52	34.0	809
2284	1983	02	20.23578	10	24	24.77	+11	10	01.2	809
2284	1983	02	20.24271	10	24	24.36	+11	10	04.6	809
2284	1983	02	20.24963	10	24	23.96	+11	10	08.5	809
2363	1983	02	12.16275	12	15	29.09	-22	09	34.3	809
2363	1983	02	12.16968	12	15	28.95	-22	09	33.8	809
2363	1983	02	12.17660	12	15	28.84	-22	09	33.2	809
2363	1983	02	14.23971	12	14	58.06	-22	06	53.9	809
2363	1983	02	14.24663	12	14	57.96	-22	06	52.7	809
2363	1983	02	14.25356	12	14	57.81	-22	06	52.0	809
2363	1983	02	16.24185	12	14	25.56	-22	03	47.4	809
2363	1983	02	16.24887	12	14	25.44	-22	03	46.3	809
2363	1983	02	16.25570	12	14	25.28	-22	03	45.9	809
2363	1983	02	20.26348	12	13	12.36	-21	55	55.0	809
2363	1983	02	20.27041	12	13	12.22	-21	55	54.1	809
2363	1983	02	20.27733	12	13	12.13	-21	55	53.4	809
2380	1983	02	10.29149	11	03	49.57	+05	23	16.0	809

2380	1983	02	10.30222	11	03	49.06	+05	23	18.4	809
2405	1983	02	12.31858	12	39	12.52	-01	51	03.7	809
2405	1983	02	12.32550	12	39	12.43	-01	51	03.1	809
2405	1983	02	12.33243	12	39	12.29	-01	51	02.1	809
2405	1983	02	18.23051	12	37	51.24	-01	35	59.7	809
2405	1983	02	18.23743	12	37	51.14	-01	35	58.0	809
2405	1983	02	18.24436	12	37	51.04	-01	35	56.6	809
2405	1983	02	20.31485	12	37	11.84	-01	29	34.8	809
2405	1983	02	20.32166	12	37	11.70	-01	29	33.8	809
2405	1983	02	20.32858	12	37	11.57	-01	29	32.8	809
2451	1983	02	10.23193	10	30	01.79	+09	38	47.6	809
2451	1983	02	10.23885	10	30	01.40	+09	38	48.7	809
2451	1983	02	10.24578	10	30	01.01	+09	38	50.2	809
2451	1983	02	14.17322	10	26	35.91	+09	49	06.9	809
2451	1983	02	14.18015	10	26	35.51	+09	49	07.9	809
2451	1983	02	14.18707	10	26	35.18	+09	49	08.9	809
2451	1983	02	18.14359	10	23	00.15	+10	00	03.3	809
2451	1983	02	18.15052	10	22	59.79	+10	00	04.4	809
2451	1983	02	18.15744	10	22	59.43	+10	00	05.8	809
2451	1983	02	20.23578	10	21	04.08	+10	05	55.5	809
2451	1983	02	20.24271	10	21	03.67	+10	05	56.3	809
2451	1983	02	20.24963	10	21	03.27	+10	05	57.7	809
2586	1983	02	11.19802	11	27	14.61	+02	47	23.1	809
2586	1983	02	11.20495	11	27	14.35	+02	47	25.4	809
2586	1983	02	11.21188	11	27	14.10	+02	47	27.4	809
2586	1983	02	13.23137	11	26	00.96	+02	58	25.4	809
2586	1983	02	13.23828	11	26	00.73	+02	58	27.6	809
2586	1983	02	13.24520	11	26	00.49	+02	58	30.1	809
2586	1983	02	17.15845	11	23	23.95	+03	21	33.9	809
2586	1983	02	17.16572	11	23	23.67	+03	21	36.6	809
2586	1983	02	17.17195	11	23	23.43	+03	21	38.6	809
2590	1983	02	11.27005	11	41	19.93	-06	37	23.3	809
2590	1983	02	11.27698	11	41	19.72	-06	37	21.9	809
2590	1983	02	11.28390	11	41	19.48	-06	37	21.1	809
2590	1983	02	15.23905	11	39	00.52	-06	26	20.3	809
2590	1983	02	15.24597	11	39	00.29	-06	26	18.4	809
2590	1983	02	15.25305	11	38	59.98	-06	26	17.4	809
2592	1983	02	11.19802	11	25	40.69	+02	16	12.9	16.6 809
2592	1983	02	11.20495	11	25	40.48	+02	16	14.5	809
2592	1983	02	11.21188	11	25	40.28	+02	16	15.9	809
2592	1983	02	13.23137	11	24	39.25	+02	22	50.1	809
2592	1983	02	13.23828	11	24	39.03	+02	22	51.8	809
2592	1983	02	13.24520	11	24	38.78	+02	22	53.3	809
2592	1983	02	17.15845	11	22	28.19	+02	37	04.9	809
2592	1983	02	17.16572	11	22	27.95	+02	37	06.8	809
2592	1983	02	17.17195	11	22	27.73	+02	37	08.5	809
2592	1983	02	19.09862	11	21	17.95	+02	44	47.7	809
2592	1983	02	19.10572	11	21	17.69	+02	44	49.4	809
2592	1983	02	19.11247	11	21	17.42	+02	44	50.8	809
2707	1983	02	11.07267	04	17	54.36	+21	46	43.8	809
2707	1983	02	11.07960	04	17	54.59	+21	46	44.8	809
2707	1983	02	11.08652	04	17	54.89	+21	46	45.1	809
2707	1983	02	15.04377	04	20	28.46	+21	55	19.6	809
2707	1983	02	15.05067	04	20	28.73	+21	55	20.6	809
2707	1983	02	15.05760	04	20	29.00	+21	55	21.6	809
2707	1983	02	17.06253	04	21	54.63	+21	59	54.8	809
2707	1983	02	17.06945	04	21	54.98	+21	59	55.5	809
2707	1983	02	17.07638	04	21	55.30	+21	59	55.7	809
2857	1983	02	20.23578	10	27	55.65	+10	16	55.5	16.1 809

2857		1983	02	20.24271	10	27	55.23	+10	16	59.6	809
2857		1983	02	20.24963	10	27	54.89	+10	17	03.3	809
2864		1983	02	12.07341	07	39	49.54	+20	34	15.0	16.9 809
2864		1983	02	12.08034	07	39	49.32	+20	34	16.3	809
2864		1983	02	12.08726	07	39	49.07	+20	34	17.5	809
2864		1983	02	14.07418	07	38	40.24	+20	40	29.8	809
2864		1983	02	14.08111	07	38	39.99	+20	40	30.9	809
2864		1983	02	14.08804	07	38	39.72	+20	40	32.0	809
2864		1983	02	16.06525	07	37	38.03	+20	46	23.5	809
2864		1983	02	16.07218	07	37	37.82	+20	46	24.3	809
2864		1983	02	16.07910	07	37	37.62	+20	46	25.2	809
2864		1983	02	18.07087	07	36	42.46	+20	51	59.9	809
2864		1983	02	18.07780	07	36	42.25	+20	52	00.9	809
2864		1983	02	18.08472	07	36	42.02	+20	52	01.9	809
2864		1983	02	20.10420	07	35	53.52	+20	57	20.5	809
2864		1983	02	20.11112	07	35	53.35	+20	57	21.6	809
2864		1983	02	20.11805	07	35	53.18	+20	57	22.6	809
2896		1983	02	19.09862	11	17	00.34	+02	44	41.3	17.3 809
2896		1983	02	19.10572	11	16	59.95	+02	44	43.1	809
2896		1983	02	19.11247	11	16	59.54	+02	44	44.7	809
1980	KG	1983	02	11.16755	10	36	31.69	+02	48	27.6	809
1980	KG	1983	02	11.17448	10	36	31.36	+02	48	29.4	809
1980	KG	1983	02	11.18140	10	36	31.04	+02	48	31.3	809
1980	KG	1983	02	13.13718	10	34	50.21	+02	57	39.6	809
1980	KG	1983	02	13.14409	10	34	49.85	+02	57	41.8	809
1980	KG	1983	02	13.15104	10	34	49.49	+02	57	43.6	809
1980	KG	1983	02	15.11993	10	33	03.96	+03	07	36.3	809
1980	KG	1983	02	15.12685	10	33	03.60	+03	07	38.5	809
1980	KG	1983	02	15.13378	10	33	03.25	+03	07	40.6	809
1981	TM	1983	02	10.23193	10	27	44.94	+09	42	59.1	16.8 809
1981	TM	1983	02	10.23885	10	27	44.52	+09	43	03.4	809
1981	TM	1983	02	10.24578	10	27	44.21	+09	43	07.4	809
1981	TM	1983	02	14.17322	10	24	37.62	+10	20	46.6	809
1981	TM	1983	02	14.18015	10	24	37.29	+10	20	50.2	809
1981	TM	1983	02	14.18707	10	24	36.96	+10	20	53.8	809
1981	TM	1983	02	18.14359	10	21	21.07	+10	59	31.3	809
1981	TM	1983	02	18.15052	10	21	20.69	+10	59	35.9	809
1981	TM	1983	02	18.15744	10	21	20.32	+10	59	39.9	809
1983	CQ2	1983	02	14.17322	10	28	28.18	+09	30	30.5	17.2 809
1983	CQ2	1983	02	14.18015	10	28	27.87	+09	30	31.7	809
1983	CQ2	1983	02	14.18707	10	28	27.57	+09	30	32.9	809
1983	CQ2	1983	02	18.14359	10	25	24.18	+09	48	17.2	809
1983	CQ2	1983	02	18.15052	10	25	23.87	+09	48	19.0	809
1983	CQ2	1983	02	18.15744	10	25	23.56	+09	48	20.8	809
1983	CQ2	1983	02	20.23578	10	23	44.87	+09	57	49.4	809
1983	CQ2	1983	02	20.24271	10	23	44.51	+09	57	51.4	809
1983	CQ2	1983	02	20.24963	10	23	44.20	+09	57	53.4	809
1983	CH3 *	1983	02	10.19938	09	48	44.01	+01	36	10.7	16.2 809
1983	CH3	1983	02	10.20699	09	48	43.61	+01	36	11.9	809
1983	CH3	1983	02	10.21461	09	48	43.24	+01	36	12.7	809
1983	CH3	1983	02	12.23280	09	46	54.77	+01	40	12.6	809
1983	CH3	1983	02	12.23962	09	46	54.37	+01	40	13.2	809
1983	CH3	1983	02	12.24655	09	46	54.02	+01	40	14.4	809
1983	CH3	1983	02	16.14143	09	43	22.46	+01	49	28.6	809
1983	CH3	1983	02	16.14836	09	43	22.07	+01	49	29.5	809
1983	CH3	1983	02	16.15528	09	43	21.67	+01	49	30.6	809
1983	CH3	1983	02	18.11866	09	41	34.83	+01	54	51.3	809
1983	CH3	1983	02	18.12558	09	41	34.43	+01	54	52.0	809
1983	CH3	1983	02	18.13251	09	41	34.03	+01	54	53.6	809

1983	CH3		1983	02	20.17414	09	39	43.32	+02	00	52.7		809
1983	CH3		1983	02	20.18107	09	39	42.98	+02	00	54.0		809
1983	CH3		1983	02	20.18799	09	39	42.60	+02	00	54.9		809
1983	CJ3	*	1983	02	10.23193	10	27	05.66	+10	31	48.3	17.2	809
1983	CJ3		1983	02	10.23885	10	27	05.25	+10	31	50.6		809
1983	CJ3		1983	02	10.24578	10	27	04.86	+10	31	52.1		809
1983	CJ3		1983	02	14.17322	10	23	30.93	+10	47	54.9		809
1983	CJ3		1983	02	14.18015	10	23	30.52	+10	47	56.6		809
1983	CJ3		1983	02	14.18707	10	23	30.14	+10	47	58.3		809
1983	CJ3		1983	02	18.14359	10	19	42.14	+11	04	50.3		809
1983	CJ3		1983	02	18.15052	10	19	41.76	+11	04	52.0		809
1983	CJ3		1983	02	18.15744	10	19	41.35	+11	04	53.8		809
1983	CK3	*	1983	02	10.25824	10	46	07.79	+04	16	24.5	16.8	809
1983	CK3		1983	02	10.26517	10	46	07.57	+04	16	26.8		809
1983	CK3		1983	02	10.27209	10	46	07.34	+04	16	29.1		809
1983	CL3	*	1983	02	10.25824	10	49	48.20	+04	37	47.0	16.6	809
1983	CL3		1983	02	10.26517	10	49	47.93	+04	37	48.9		809
1983	CL3		1983	02	10.27209	10	49	47.67	+04	37	50.6		809
1983	CM3	*	1983	02	10.31365	11	51	22.06	-05	07	09.5	17.2	809
1983	CM3		1983	02	10.32057	11	51	21.91	-05	07	09.9		809
1983	CM3		1983	02	10.32750	11	51	21.77	-05	07	10.3		809
1983	CN3	*	1983	02	11.29845	12	32	35.23	+06	05	43.1	16.9	809
1983	CN3		1983	02	11.30399	12	32	35.17	+06	05	47.7		809
1983	CN3		1983	02	11.30956	12	32	35.11	+06	05	52.4		809
1983	CN3		1983	02	13.30199	12	32	12.78	+06	33	42.9		809
1983	CN3		1983	02	13.30892	12	32	12.70	+06	33	48.6		809
1983	CN3		1983	02	13.31584	12	32	12.59	+06	33	54.4		809
1983	CN3		1983	02	19.14918	12	30	28.61	+07	59	31.8		809
1983	CN3		1983	02	19.15576	12	30	28.50	+07	59	37.8		809
1983	CN3		1983	02	19.16303	12	30	28.35	+07	59	44.6		809
1983	CO3	*	1983	02	12.10596	08	37	21.00	+06	03	07.5	17.0	809
1983	CO3		1983	02	12.11289	08	37	20.63	+06	03	07.3		809
1983	CO3		1983	02	12.11981	08	37	20.27	+06	03	07.2		809
1983	CO3		1983	02	18.09444	08	32	24.07	+06	01	09.8		809
1983	CO3		1983	02	18.10134	08	32	23.75	+06	01	10.0		809
1983	CO3		1983	02	18.10827	08	32	23.43	+06	01	09.9		809
1983	CO3		1983	02	20.12636	08	30	52.00	+06	01	03.9		809
1983	CO3		1983	02	20.13328	08	30	51.68	+06	01	03.8		809
1983	CO3		1983	02	20.14021	08	30	51.37	+06	01	03.7		809
1983	CP3	*	1983	02	12.13643	09	06	16.87	+11	59	41.0	16.4	809
1983	CP3		1983	02	12.14336	09	06	16.45	+11	59	43.3		809
1983	CP3		1983	02	12.15028	09	06	16.06	+11	59	45.5		809
1983	CP3		1983	02	18.30703	09	01	01.76	+12	28	41.9		809
1983	CP3		1983	02	18.31396	09	01	01.40	+12	28	43.8		809
1983	CP3		1983	02	18.32088	09	01	01.02	+12	28	45.4		809
1983	CP3		1983	02	20.15129	08	59	36.53	+12	37	12.4		809
1983	CP3		1983	02	20.15821	08	59	36.16	+12	37	14.7		809
1983	CQ3	*	1983	02	12.13643	09	06	29.75	+11	35	21.2	17.5	809
1983	CQ3		1983	02	12.14336	09	06	29.36	+11	35	22.2		809
1983	CQ3		1983	02	12.15028	09	06	28.97	+11	35	23.1		809
1983	CQ3		1983	02	18.30703	09	00	58.86	+11	51	35.7		809
1983	CQ3		1983	02	18.31396	09	00	58.51	+11	51	36.5		809
1983	CQ3		1983	02	18.32088	09	00	58.14	+11	51	37.3		809
1983	CQ3		1983	02	20.15129	08	59	26.08	+11	56	20.6		809
1983	CQ3		1983	02	20.15821	08	59	25.73	+11	56	22.1		809
1983	CR3	*	1983	02	14.12547	08	56	57.11	+12	48	58.1	16.8	809
1983	CR3		1983	02	14.13236	08	56	56.69	+12	49	00.5		809
1983	CR3		1983	02	14.13929	08	56	56.32	+12	49	02.8		809
1983	CR3		1983	02	16.11719	08	55	09.16	+13	00	15.7		809

1983	CR3		1983	02	16.12412	08	55	08.75	+13	00	18.2		809
1983	CR3		1983	02	16.13104	08	55	08.42	+13	00	20.7		809
1983	CS3	*	1983	02	14.12547	08	58	53.91	+12	27	12.4	17.1	809
1983	CS3		1983	02	14.13236	08	58	53.58	+12	27	15.1		809
1983	CS3		1983	02	14.13929	08	58	53.22	+12	27	17.9		809
1983	CS3		1983	02	16.11719	08	57	29.63	+12	41	46.6		809
1983	CS3		1983	02	16.12412	08	57	29.33	+12	41	50.3		809
1983	CS3		1983	02	16.13104	08	57	29.03	+12	41	54.0		809
1983	CT3	*	1983	02	15.23905	11	38	34.25	-05	34	52.9	17.0	809
1983	CT3		1983	02	15.24597	11	38	34.03	-05	34	51.9		809
1983	CT3		1983	02	15.25305	11	38	33.81	-05	34	50.7		809
1983	CT3		1983	02	17.24952	11	37	29.08	-05	29	50.6		809
1983	CT3		1983	02	17.25644	11	37	28.85	-05	29	49.5		809
1983	CT3		1983	02	17.26337	11	37	28.64	-05	29	48.5		809
1983	DS	*	1983	02	16.26540	12	37	21.04	-08	12	01.2	17.3	809
1983	DS		1983	02	16.27253	12	37	20.78	-08	12	00.2		809
1983	DS		1983	02	16.27925	12	37	20.58	-08	11	59.1		809
1983	DT	*	1983	02	18.23051	12	38	22.03	-00	57	54.2	16.7	809
1983	DT		1983	02	18.23743	12	38	21.91	-00	57	54.0		809
1983	DT		1983	02	18.24436	12	38	21.81	-00	57	53.8		809
1983	DT		1983	02	20.31485	12	37	49.79	-00	56	56.3		809
1983	DT		1983	02	20.32166	12	37	49.66	-00	56	55.7		809
1983	DT		1983	02	20.32858	12	37	49.55	-00	56	55.5		809
1983	EB1		1983	02	11.19802	11	28	19.73	+02	46	47.9	16.8	809
1983	EB1		1983	02	11.20495	11	28	19.53	+02	46	50.3		809
1983	EB1		1983	02	11.21188	11	28	19.28	+02	46	51.9		809
1983	EB1		1983	02	13.23137	11	27	16.85	+02	56	40.7		809
1983	EB1		1983	02	13.23828	11	27	16.64	+02	56	42.8		809
1983	EB1		1983	02	13.24520	11	27	16.38	+02	56	44.8		809
1983	EB1		1983	02	17.15845	11	24	57.78	+03	17	54.2		809
1983	EB1		1983	02	17.16572	11	24	57.49	+03	17	56.6		809
1983	EB1		1983	02	17.17195	11	24	57.23	+03	17	59.3		809
1983	EB1		1983	02	19.09862	11	23	40.90	+03	29	19.6		809
1983	EB1		1983	02	19.10572	11	23	40.60	+03	29	22.4		809
1983	EB1		1983	02	19.11247	11	23	40.30	+03	29	25.1		809

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

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
768	1983	04 06.14442	14 46 53.60	-14 58 05.6		809
768	1983	04 06.15135	14 46 53.30	-14 58 05.4		809
768	1983	04 06.15827	14 46 53.02	-14 58 05.1		809
768	1983	04 09.22765	14 44 50.57	-14 57 00.6		809
768	1983	04 09.23458	14 44 50.26	-14 57 00.4		809
768	1983	04 09.24151	14 44 49.98	-14 57 00.2		809
2224	1983	04 06.14442	14 52 20.39	-15 22 20.5		809
2224	1983	04 06.15135	14 52 20.15	-15 22 19.8		809
2224	1983	04 06.15827	14 52 19.92	-15 22 19.2		809
2224	1983	04 09.22765	14 50 32.43	-15 16 20.5		809
2224	1983	04 09.23458	14 50 32.21	-15 16 19.7		809
2224	1983	04 09.24151	14 50 31.98	-15 16 18.9		809
2224	1983	04 10.16813	14 49 57.45	-15 14 21.6		809
2224	1983	04 10.17506	14 49 57.19	-15 14 20.8		809
2224	1983	04 10.18198	14 49 56.93	-15 14 19.9		809
2224	1983	04 11.19944	14 49 17.71	-15 12 05.9		809
2224	1983	04 11.20626	14 49 17.43	-15 12 05.3		809
2224	1983	04 11.21318	14 49 17.14	-15 12 04.6		809
2224	1983	04 15.16175	14 46 34.62	-15 02 41.0		809
2224	1983	04 15.16936	14 46 34.30	-15 02 40.2		809

2224			1983	04	15.17698	14	46	33.98	-15	02	38.8	809
2224			1983	04	18.23529	14	44	18.13	-14	54	41.1	809
2224			1983	04	18.24221	14	44	17.83	-14	54	39.8	809
2224			1983	04	18.24914	14	44	17.52	-14	54	38.6	809
2224			1983	04	20.15502	14	42	49.38	-14	49	23.7	809
2224			1983	04	20.17995	14	42	48.22	-14	49	19.8	809
2224			1983	04	22.06437	14	41	18.57	-14	43	57.5	809
2224			1983	04	22.08584	14	41	17.53	-14	43	53.8	809
2359			1983	04	06.14442	14	50	52.23	-15	29	30.7	809
2359			1983	04	06.15135	14	50	52.01	-15	29	28.8	809
2359			1983	04	06.15827	14	50	51.80	-15	29	27.0	809
2359			1983	04	09.22765	14	49	13.47	-15	14	20.4	809
2359			1983	04	09.23458	14	49	13.24	-15	14	18.4	809
2359			1983	04	09.24151	14	49	13.02	-15	14	16.3	809
2359			1983	04	10.16813	14	48	40.51	-15	09	25.9	809
2359			1983	04	10.17506	14	48	40.24	-15	09	23.9	809
2359			1983	04	10.18198	14	48	40.00	-15	09	22.2	809
2359			1983	04	11.19944	14	48	02.59	-15	03	56.0	809
2359			1983	04	11.20626	14	48	02.35	-15	03	53.7	809
2359			1983	04	11.21318	14	48	02.10	-15	03	51.3	809
2359			1983	04	15.16175	14	45	23.54	-14	41	31.5	809
2359			1983	04	15.16936	14	45	23.23	-14	41	28.7	809
2359			1983	04	15.17698	14	45	22.92	-14	41	25.9	809
2359			1983	04	18.23529	14	43	06.50	-14	22	56.6	809
2359			1983	04	18.24221	14	43	06.19	-14	22	54.2	809
2359			1983	04	18.24914	14	43	05.86	-14	22	51.6	809
2359			1983	04	20.15502	14	41	35.92	-14	10	51.9	809
2359			1983	04	20.17995	14	41	34.74	-14	10	42.7	809
2359			1983	04	22.06437	14	40	02.57	-13	58	32.5	809
2359			1983	04	22.08584	14	40	01.53	-13	58	24.2	809
2590			1983	04	05.12603	10	59	18.36	-01	03	16.1	809
2590			1983	04	05.13296	10	59	18.12	-01	03	13.0	809
2590			1983	04	05.13989	10	59	17.90	-01	03	09.9	809
2590			1983	04	11.02585	10	56	14.60	-00	23	22.2	809
2590			1983	04	11.03346	10	56	14.37	-00	23	19.4	809
2590			1983	04	11.04108	10	56	14.13	-00	23	16.5	809
2590			1983	04	19.03586	10	53	29.66	+00	23	14.8	809
2590			1983	04	19.04487	10	53	29.49	+00	23	17.6	809
2590			1983	04	19.05456	10	53	29.28	+00	23	20.7	809
1983	GQ	*	1983	04	06.14442	14	48	01.79	-15	44	10.3	17.0 809
1983	GQ		1983	04	06.15135	14	48	01.55	-15	44	09.3	809
1983	GQ		1983	04	06.15827	14	48	01.32	-15	44	08.3	809
1983	GQ		1983	04	09.22765	14	46	18.57	-15	36	36.7	809
1983	GQ		1983	04	09.23458	14	46	18.35	-15	36	35.9	809
1983	GQ		1983	04	09.24151	14	46	18.08	-15	36	34.6	809
1983	GQ		1983	04	11.19944	14	45	03.48	-15	31	04.9	809
1983	GQ		1983	04	11.20626	14	45	03.19	-15	31	03.5	809
1983	GQ		1983	04	11.21318	14	45	02.90	-15	31	02.2	809
1983	GQ		1983	04	15.16175	14	42	12.05	-15	18	20.8	809
1983	GQ		1983	04	15.16936	14	42	11.73	-15	18	19.1	809
1983	GQ		1983	04	15.17698	14	42	11.40	-15	18	17.6	809
1983	GQ		1983	04	18.23529	14	39	41.99	-15	07	08.3	809
1983	GQ		1983	04	18.24221	14	39	41.65	-15	07	06.8	809
1983	GQ		1983	04	18.24914	14	39	41.31	-15	07	05.2	809
1983	GQ		1983	04	20.15502	14	38	02.10	-14	59	35.9	809
1983	GQ		1983	04	20.17995	14	38	00.80	-14	59	30.2	809
1983	GQ		1983	04	22.06437	14	36	18.87	-14	51	46.8	809
1983	GQ		1983	04	22.08584	14	36	17.71	-14	51	41.5	809
1983	GR	*	1983	04	11.19944	14	52	45.13	-16	07	49.0	16.9 809

1983 GR	1983 04 11.20626	14 52 44.78	-16 07 48.3		809
1983 GR	1983 04 11.21318	14 52 44.45	-16 07 47.5		809

OBSERVATIONS MADE WITH THE 1.6-M REFLECTOR AT THE OBSERVATORIO ASTROFISICO BRASILEIRO, ITAJUBA, BY R. V. MARTINS, C. H. VEIGA AND D. LAZZARO.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
1983 OC *	1983 07 25.97789		16 11 16.91	-20 59 34.3	17	1 874
1983 OC	1983 07 26.00394		16 11 16.87	-20 59 32.4		1 874
1983 OC	1983 07 26.02589		16 11 16.86	-20 59 30.8		1 874
1983 OC	1983 07 26.05880		16 11 16.87	-20 59 28.7		1 874

Note 1: observatory code 874, Long. and Parallax 314.42, -394, +162 (see MPC 7759).

OBSERVATIONS MADE AT EASTFIELD BY H. B. RIDLEY. MEASURED BY R. MILES. REDUCED BY A. J. HOLLIS.

Object	Date	UT	R. A. (1950)	Decl.	N Obs.
5	1983 03 21.06944		10 31 36.47	+13 34 26.5	1 984
5	1983 04 04.94053		10 26 41.39	+14 28 39.4	1 984
18	1983 03 21.06944		10 36 03.83	+13 00 33.4	1 984
18	1983 04 04.94053		10 27 14.66	+14 24 03.6	1 984

Note 1: observatory code 980, Long. and Parallax 357.26, -269, -329 (see MPC 7759).

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ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are B = C. M. Bardwell, b = F. N. Bowman, E = E. Bowell, f = T. Furuta, g = A. C. Gilmore, I = H. Oishi, M = B. G. Marsden. For further information see MPC 7828.

Planet	B(1,0)	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1978 TH7	13.5	781019	348.74	260.18	146.30	9.69	0.1376	3.0443	30	3		I
1979 RZ	13.0	791014	0.54	131.75	220.49	12.95	0.0982	3.0269	30	3	1	f
1980 TK4	13.0	801008	7.23	192.67	169.57	2.26	0.1003	3.6288	38	7	1	M
1981 EW13	16.5	810317	23.36	241.39	271.09	1.77	0.0785	2.4293	40	0		M
1981 EL24	14.5	810317	132.18	86.97	314.30	1.14	0.0586	2.9158	39	9		M
1981 EM24	16.0	810317	145.67	53.26	333.58	2.84	0.1004	2.7952	39	7		M
1981 EN24	16.5	810317	73.53	197.16	254.32	1.78	0.1144	2.2521	41	0		M
1981 EO24	16.0	810317	195.61	181.80	162.16	3.25	0.0835	2.3202	40	0		M
1981 EP24	15.5	810317	78.51	163.69	295.83	0.96	0.0037	2.9424	39	0		M
1981 EQ24	16.5	810317	282.62	76.67	198.56	4.42	0.1719	2.2122	39	0		M
1981 ER24	17.0	810317	260.84	82.29	205.24	1.78	0.0954	2.2208	39	8		M
1981 ES24	17.5	810317	35.35	163.26	337.20	6.65	0.0376	2.2719	41	5		M
1981 ET24	15.5	810317	340.04	19.72	179.78	6.62	0.0424	2.3034	39	0		M
1981 EU24	15.0	810317	141.31	61.67	329.59	3.26	0.0981	2.8074	39	9		M
1981 EV24	17.0	810317	64.06	101.86	357.86	3.21	0.1279	2.5750	39	8		M
1981 EW24	14.0	810317	185.51	191.63	161.78	2.35	0.0719	2.8913	39	0		M
1981 EX24	15.5	810317	122.77	259.27	144.55	1.26	0.1358	3.2307	35	0		M
1981 EZ24	15.5	810317	311.48	57.74	180.67	12.89	0.1202	2.6609	39	0		M
1981 EB25	15.5	810317	246.29	135.21	178.92	11.64	0.2346	2.9964	39	0		M
1981 EC25	15.5	810317	206.67	331.26	7.00	3.70	0.1748	2.1724	40	0		M
1981 ED25	16.0	810317	228.94	124.46	201.98	4.04	0.2337	2.2530	39	0		M
1981 EF25	17.0	810317	60.59	22.01	77.57	0.34	0.1611	2.4172	39	0		M
1981 EG25	16.0	810317	322.83	262.98	346.88	9.86	0.3449	2.7770	41	0		M
1981 EH25	18.0	810317	353.78	10.99	175.13	4.64	0.1137	2.6040	34	5		M
1981 EJ25	18.0	810317	325.42	45.64	180.42	2.41	0.1702	2.4263	35	9		M
1981 EK25	16.0	810317	264.37	345.55	309.05	1.98	0.1833	2.4424	39	0		M
1981 EL25	17.0	810317	69.01	274.46	187.87	6.21	0.0670	2.3864	39	8		M

1981	EM25	17.5	810317	12.35	349.43	173.26	3.40	0.1083	2.3654	39	0 M
1981	EN25	17.0	810317	21.96	339.10	171.40	3.36	0.1114	2.2736	39	0 M
1981	EO25	15.0	810317	62.33	288.00	183.12	21.48	0.0593	3.2482	39	7 M
1981	EP25	16.5	810317	25.58	274.88	233.42	1.48	0.0973	2.8960	34	7 M
1981	ER25	16.5	810317	119.50	231.96	175.32	4.45	0.1308	2.5769	35	8 M
1981	ES25	16.5	810317	288.05	244.49	22.26	2.13	0.1473	2.3998	39	0 M
1981	ET25	15.0	810317	267.35	100.67	182.33	6.16	0.1014	2.4203	39	0 M
1981	EU25	16.0	810317	267.58	124.04	170.87	4.93	0.2182	2.4372	39	0 M
1981	EV25	15.5	810317	166.73	194.72	173.78	8.91	0.1783	2.7452	35	8 M
1981	EW25	18.0	810317	46.59	112.42	357.28	12.50	0.2162	2.4605	41	0 M
1981	EX25	16.5	810317	241.39	128.78	179.40	4.08	0.1148	2.3738	39	0 M
1981	EY25	12.0	810317	225.08	151.13	167.74	2.21	0.0605	2.9115	39	0 M
1981	EZ25	14.0	810317	147.51	29.70	354.38	20.49	0.1841	3.2134	38	0 M
1981	EA26	16.0	810317	19.00	293.38	218.01	1.99	0.1888	2.6837	39	0 M
1981	EB26	15.5	810317	71.65	102.52	349.11	4.24	0.1462	3.1753	34	9 M
1981	EC26	17.5	810317	347.11	183.40	12.12	1.25	0.1364	2.4233	39	0 M
1981	ED26	16.5	810317	328.31	32.48	185.49	5.12	0.1087	2.2812	39	0 M
1981	EE26	17.5	810317	16.63	327.09	189.78	4.33	0.1430	2.4574	39	0 M
1981	EF26	12.0	810317	36.54	321.23	174.48	6.96	0.0972	3.2209	39	0 M
1981	EG26	16.0	810317	30.67	145.43	354.17	9.28	0.1320	2.7599	39	0 M
1981	EH26	14.0	810317	146.58	245.03	134.87	2.39	0.2656	3.0972	39	0 M
1981	EJ26	16.0	810317	213.13	297.54	34.67	1.56	0.1290	2.1334	39	0 M
1981	EK26	17.0	810317	282.46	107.08	162.96	2.91	0.1181	2.5505	35	7 M
1981	EL26	16.0	810317	307.18	254.89	354.45	8.61	0.1719	2.3251	39	0 M
1981	EM26	15.0	810317	282.33	255.18	6.27	6.98	0.0383	3.1760	35	0 M
1981	EN26	14.5	810317	357.23	357.60	186.14	8.12	0.1597	2.7809	39	0 M
1981	EO26	16.0	810317	95.62	146.47	292.80	0.89	0.0462	2.8861	39	0 M
1981	EP26	15.0	810317	327.32	45.96	171.41	6.19	0.0858	2.3922	36	0 M
1981	EQ26	14.0	810317	69.46	304.35	164.37	2.40	0.0125	2.8523	39	0 M
1981	ER26	16.5	810317	327.29	209.61	4.80	7.38	0.0515	2.3588	35	0 M
1981	ES26	16.5	810317	335.20	0.88	208.86	2.45	0.0972	2.4605	39	0 M
1981	ET26	15.0	810317	288.56	277.68	353.14	3.89	0.1781	2.2328	39	0 M
1981	EU26	15.5	810317	182.59	182.30	176.34	5.50	0.1663	3.1684	39	9 M
1981	EV26	14.0	810317	161.40	88.79	289.46	1.00	0.0229	2.9226	35	0 M
1981	EW26	16.0	810317	204.86	162.28	175.43	12.73	0.0516	3.0811	34	6 M
1981	EX26	16.0	810317	291.10	79.21	198.71	2.99	0.2534	2.4263	39	0 M
1981	EY26	12.0	810317	305.37	265.99	340.34	5.22	0.1052	3.1807	38	0 M
1981	EZ26	16.5	810317	10.36	266.97	260.87	1.44	0.0818	2.5218	35	9 M
1981	EA27	16.0	810317	47.24	24.95	86.51	1.68	0.2067	3.0824	39	0 M
1981	EB27	17.5	810317	50.21	323.78	159.38	3.51	0.0637	2.5556	34	8 M
1981	EC27	15.0	810317	150.12	256.60	128.47	1.44	0.0864	2.7191	39	8 M
1981	ED27	13.5	810317	311.00	60.24	174.57	10.70	0.0622	2.9856	39	0 M
1981	EE27	14.0	810317	22.50	330.98	179.83	13.12	0.1302	2.6151	39	0 M
1981	EF27	17.5	810317	317.85	46.11	185.80	3.90	0.1126	2.6109	35	0 M
1981	EG27	16.5	810317	327.78	262.96	314.33	2.28	0.0591	2.9817	38	8 M
1981	EH27	15.5	810317	13.65	164.83	357.80	13.97	0.1043	2.5581	39	0 M
1981	EJ27	18.0	810317	315.87	320.21	282.46	0.74	0.1979	2.2749	35	0 M
1981	EK27	16.0	810317	103.99	72.86	353.77	5.42	0.0840	2.2279	39	0 M
1981	EL27	16.5	810317	101.08	240.51	188.97	3.06	0.0925	2.7074	34	9 M
1981	EM27	15.0	810317	32.72	357.29	137.60	2.67	0.1665	3.2081	35	0 M
1981	EO27	16.0	810317	266.50	107.95	188.20	6.71	0.2043	2.1482	39	0 M
1981	EP27	15.0	810317	203.86	154.17	185.61	12.77	0.0480	2.9021	34	6 M
1981	EQ27	13.0	810317	6.62	7.44	163.69	2.74	0.1324	2.5556	39	0 M
1981	ER27	16.5	810317	137.53	33.56	1.23	7.26	0.1080	2.3281	35	6 M
1981	ES27	18.0	810317	340.47	200.54	4.93	7.22	0.1531	2.2338	39	6 M
1981	ET27	16.5	810317	294.55	81.87	167.61	2.23	0.0301	2.9478	39	9 M
1981	EU27	17.5	810317	303.00	94.22	171.02	6.17	0.2571	2.2638	34	6 M
1981	EV27	15.5	810317	183.79	179.49	178.26	4.93	0.0640	2.7955	39	8 M
1981	EW27	15.5	810317	83.23	251.63	182.36	7.70	0.2088	2.7675	39	7 M

1981	EX27	17.0	810317	335.29	58.11	155.79	0.30	0.1596	2.3675	39	0		M
1981	EY27	15.0	810317	251.17	302.07	5.27	11.86	0.1866	2.5300	39	0		M
1981	EZ27	15.5	810317	253.95	239.89	59.10	1.19	0.1209	2.4428	39	0		M
1981	EA28	15.0	810317	178.40	354.63	6.91	7.58	0.1362	2.3614	39	0		M
1981	EB28	15.5	810317	308.58	109.45	138.33	2.10	0.1643	2.2911	39	0		M
1981	EC28	17.5	810317	338.17	197.16	12.10	4.21	0.1503	2.3699	39	0		M
1981	ED28	16.0	810317	253.11	143.88	153.17	2.83	0.0868	2.7242	34	6		M
1981	EE28	14.5	810317	150.24	353.96	33.09	2.39	0.0728	2.8441	39	0		M
1981	EF28	14.0	810317	223.52	318.53	9.40	10.54	0.1584	2.6461	39	0		M
1981	EG28	16.0	810317	197.39	156.64	191.44	4.79	0.1315	2.3393	39	0		M
1981	EH28	17.0	810317	64.99	81.89	25.75	2.31	0.0728	2.4497	39	0		M
1981	EJ28	17.0	810317	190.36	185.33	168.68	1.90	0.1894	2.2237	39	0		M
1981	EK28	18.0	810317	23.38	158.96	351.59	14.48	0.1134	2.5753	34	7		M
1981	EL28	16.0	810317	64.21	287.41	157.60	1.34	0.2666	2.9877	35	9		M
1981	EM28	16.0	810317	301.76	269.70	357.76	25.53	0.2555	3.1462	34	5		M
1981	EN28	18.5	810317	342.44	208.07	354.16	4.75	0.1160	2.3877	30	4		M
1981	EO28	16.0	810317	174.48	8.81	357.41	5.84	0.0433	2.7121	35	8		M
1981	EP28	15.5	810317	236.15	54.44	256.54	0.89	0.0579	2.9240	35	9		M
1981	EQ28	14.5	810317	107.34	255.95	157.50	3.42	0.2019	2.7559	35	0		M
1981	ER28	16.5	810317	208.59	335.67	2.57	14.69	0.1129	2.6838	35	5		M
1981	ES28	16.5	810317	34.03	132.44	3.91	5.78	0.1371	2.4124	35	0		M
1983	AR2	14.5	830126	36.31	7.62	40.25	7.63	0.3661	3.1967	2	6	2	M
1983	AS2	13.5	830126	74.91	342.06	56.37	10.36	0.0631	2.9151	36	9		M
1983	AT2	15.0	830126	49.37	45.22	17.92	6.33	0.0963	2.4081	36	9		M
1983	CQ2	14.0	830215	11.69	252.24	244.84	0.04	0.1072	3.0767	6	0	3	B
1983	CF3	13.5	830215	42.62	236.77	182.04	1.71	0.1998	3.0080	5	6	3	M
1983	CJ3	15.5	830215	4.40	161.75	341.91	1.60	0.1333	2.3121	8	9	3	B
1983	CN3	13.5	830215	62.46	281.04	154.56	22.97	0.2841	2.5610	8	9		B
1983	CO3	14.0	830215	351.06	227.07	282.19	13.74	0.1745	3.0873	8	9		B
1983	CQ3	14.0	830215	83.43	107.69	287.24	6.03	0.1783	2.7504	8	8		B
1983	EA	16.0	830327	63.68	87.28	7.93	24.21	0.1341	1.8924	67	7		M
1983	EB1	14.5	830215	18.68	330.11	165.64	2.68	0.1203	2.4313	22	0		B
1983	GQ	15.0	830416	311.15	205.05	72.51	0.35	0.1511	2.2032	16	0		M
1983	LF	12.5	830725	0.25	291.58	301.06	11.33	0.0910	2.6299	51	0		M
1983	LL	15.5	830615	7.04	338.74	275.80	4.90	0.1185	2.3023	4	4	3	M
1983	LQ	15.0	830615	57.49	64.24	101.03	4.78	0.2783	2.1602	3	5	3	M
1983	PA	14.0	830814	339.52	84.44	288.28	20.28	0.3942	2.4189	27	0		M
1983	PB	15.8	830814	6.30	236.08	74.35	6.18	0.2373	2.2312	9	8		g
1983	QC	18.0	830903	354.85	191.34	162.05	7.35	0.4397	2.6387	9	5		M
1983	QD	13.0	830903	24.86	10.22	304.92	9.84	0.2714	2.7630	2	3		M
1983	RC	14.0	830903	355.84	198.22	165.62	19.04	0.3126	2.5626	4	4		M

Note 1: double designations 1979 RZ = 1979 TN (f; JAM 1459); 1980 TK4 = 1980 RQ4 (E); 1980 TK4 = 1980 TN10 (b, MPC 7589). 2: the orbit on MPC 8016 is erroneous; the e-assumed orbit on MPC 7829 is still acceptable. 3: e assumed.

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ORBITAL ELEMENTS BY T. URATA, SHIMIZU, JAPAN.

The following orbital elements are from NOC 1446.

(2910)* 1980 TK13 = 1980 VC2 = 1957 UD = 1979 HL = 1982 HC2

Discovered 1980 Oct. 11 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identification and double designation 1980 TK13 = 1980 VC2 = 1982 HC2 are by T. Furuta (JAM 1444). The identifications 1980 TK13 = 1957 UD = 1979 HL are by T. Urata.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	342.73961		(1950.0)		P		Q				
n	0.30157271	Peri.	325.86644		+0.98501199		-0.16877450				
a	2.2022909	Node	43.89411		+0.16748309		+0.88653048				
e	0.1555832	Incl.	2.94230		+0.04124072		+0.43078868				
P	3.27	B(1,0)	14.5								

Residuals in seconds of arc

571025	024	2.1+	4.4-	801011	095	0.6+	0.0	820423	801	0.3+	1.4-
790419	807	2.0-	0.5-	801015	095	0.5+	0.4+	820424	801	2.5-	2.0-
790426	807	1.1+	0.8-	801017	095	0.9+	0.3-	820430	801	0.4+	0.6-
790426	807	0.0	0.8-	801107	330	1.8-	0.2-				

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ORBITAL ELEMENTS BY W. LANDGRAF, UNIVERSITY OF GOTTINGEN.

The identifications are by W. Landgraf.

Periodic Comet Schwassmann-Wachmann 3
Epoch 1985 Jan. 15.0 ET = JDE 2446080.5
T 1985 Jan. 11.30587 ET

q	0.9364195		(1950.0)		P		Q
n	0.18415042	Peri.	198.76201		-0.04012049		+0.98188747
a	3.0597615	Node	69.28003		-0.88949961		+0.04932194
e	0.6939567	Incl.	11.41846		-0.45517115		-0.18293261
P	5.35						

From 244 observations 1930-1979, mean residual 1".4. Nongravitational parameters A1 = +0.58, A2 = +0.0387, A3 = -0.25.

(993) Moultona
Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	226.41664		(1950.0)		P		Q				
n	0.20366334	Peri.	249.36844		+0.28536620		-0.95841607				
a	2.8610634	Node	184.05271		+0.89039711		+0.26595565				
e	0.0454855	Incl.	1.77119		+0.35462530		+0.10347090				
P	4.84	B(1,0)	13.8								

Residuals in seconds of arc

230113	754	1.3-	1.3+	701125	026	(3.4+	2.2+)	760104	026	1.0-	0.2+
230116	754	0.7+	0.4-	701125	026	0.9+	0.7-	760105	330	0.2+	(2.8+)
230205	754	0.1+	0.6+	701202	020	1.5+	(2.7+)	760110	026	1.2-	0.4-
230216	754	0.4+	1.2-	701202	020	0.5-	(2.7+)	770326	095	0.7+	1.2+
230409	754	(12.0+)	1.3-	720314	095	(12.4+)	0.1-	770327	801	(8.8+)	1.1-
430301	020	(7.7+	4.8-)	720409	095	(4.4+	2.0+)	810109	688	0.3+	0.1-
680428	095	(5.1+)	0.7-	720412	095	(12.0+	9.2+)	810109	688	0.3+	0.7+
680523	095	0.7-	0.6+	751207	026	0.7+	0.3+	810109	688	0.2+	(2.2+)
690813	095	(2.8+)	0.7+	751222	330	(1.8+)	0.4-	820320	809	0.9+	0.4-
690820	026	0.1+	0.7-	751228	026	0.5-	0.5+	820320	809	0.4-	0.3+
690911	026	0.1+	0.0	751229	330	1.0-	(4.8+)	820320	809	0.4-	0.3-

(2911)* 1938 GJ = 1928 DL = 1952 HQ1 = 1952 HZ1 = 1971 HK = 1975 EF2 = 1977 TE6

Discovered 1938 Apr. 8 by H. Alikoski at Turku.
Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	252.61931		(1950.0)		P		Q				
n	0.21082751	Peri.	62.77112		-0.84349932		+0.53019046				
a	2.7958758	Node	149.02342		-0.53268599		-0.80514316				
e	0.0920359	Incl.	9.62596		-0.06895307		-0.26578667				
P	4.67	B(1,0)	13.0								

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

280225 024(0.04- 0.01+)X	380427 062 1.5- 0.7+	710422 095 1.3- 1.0+
280226 024(0.06- 0.04+)X	380428 062 1.2- 0.7+	710522 095 1.5+ 1.2+
380407 062 1.2+ 1.5+	380502 062 1.1- 2.0-	750308 095 0.3+ 2.0+
380408 062 1.9+ 0.6-	520417 094(0.00 0.01-)X	771008 095 0.5- 1.7+
380409 062 0.1- 2.1-	520419 094(0.01+ 0.01-)X	
380427 062 (3.4- 4.4+)	520423 711 3.2+ (4.4-)Y	

(2912)* 1942 DM = 1956 EN = 1973 AJ2 = 1973 CB = 1979 YJ = 1980 BG = 1980 DY5

Discovered 1942 Feb. 18 by L. Oterma at Turku.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

		(1950.0)	P	Q
M 329.97345				
n 0.28459069	Peri.	75.66372	-0.99076377	+0.06183947
a 2.2890517	Node	107.77256	-0.10165379	-0.92771345
e 0.0703438	Incl.	7.28040	+0.08974222	-0.36813533
P 3.46	B(1,0)	13.5		

Residuals in seconds of arc

420218 062 1.4- (2.7+)	560317 024 (4.8-) 2.2+	791228 046 0.4+ 1.4-
420218 062 1.6+ 0.8-	730101 095 1.6+ (3.0+)	800121 046 0.2- 0.2+
420219 062 0.2- 0.3+	730203 095 2.3- (5.6-)	800121 046 1.0+ 1.7+
420219 062 0.1- 0.9-	791224 046 0.2- 0.3+	800122 095 0.6+ 0.1-
420312 062 0.2- 0.5-	791224 046 0.4+ 0.2-	800220 095 0.9- (3.0+)
560310 024 0.6+ (3.1-)	791228 046 0.7- 0.5+	

1940 WL = 1975 BC = 1981 CT

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

		(1950.0)	P	Q
M 283.05570				
n 0.17591682	Peri.	257.40831	+0.98027997	-0.18416954
a 3.1545044	Node	113.16888	+0.19759396	+0.90836840
e 0.1147027	Incl.	4.46950	+0.00279574	+0.37543100
P 5.60	B(1,0)	12.5		

Residuals in seconds of arc

401129 062 1.3+ 1.0-	401227 062 1.7- 1.4+	810208 688 0.2+ 0.5-
401129 062 0.8- 1.1-	750116 330 0.0 1.5-	810208 688 0.1- 0.7+
401204 062 0.9+ 1.1+	750117 095 0.0 1.0+	

1983 CZ2 = 1979 BN1

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

		(1950.0)	P	Q
M 63.05417				
n 0.26313757	Peri.	192.50240	-0.87798105	-0.47296354
a 2.4118344	Node	319.00563	+0.44830086	-0.75828756
e 0.1741944	Incl.	6.46456	+0.16785593	-0.44867078
P 3.75	B(1,0)	15.0		

Residuals in seconds of arc

790124 095 0.0 0.4+	830309 046 0.1+ 0.3+	830312 046 2.0- 0.0
830215 688 0.7- 0.2+	830310 688 2.1+ 0.0	830313 046 2.5+ 1.5+
830215 688 1.1- 1.4-	830310 688 2.2+ 0.6-	830313 046 0.8- 0.8+
830308 046 1.2- 1.0+	830310 046 2.6- 1.9-	830316 688 0.6+ 0.5-
830308 046 1.2+ 1.7+	830310 046 0.7+ 0.2+	830316 688 0.9+ 0.1+
830309 046 0.1+ 2.5-	830312 046 2.1- 0.1+	

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

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

Periodic Comet Russell 3 (1983i)
T 1982 Nov. 22.96922 ET

		(1950.0)	P	Q
q 2.5102421				
n 0.13169054	Peri.	353.38831	-0.47562642	+0.85015259
a 3.8261883	Node	248.00185	-0.79545026	-0.52530768
e 0.3439314	Incl.	14.09983	-0.37555078	+0.03595011
P 7.48				

From 31 observations 1983 June 14-Sept. 4.

Comet IRAS (1983k)
T 1983 May 2.66076 ET

		(1950.0)	P	Q
q 2.4175911				
	Peri.	265.55361	-0.03965861	-0.99400227
	Node	171.09119	-0.43033507	+0.10904238
e 1.0	Incl.	138.84480	-0.90179760	-0.00832118

From 5 observations 1983 July 14-Aug. 10.

Comet Cernis (1983l)
T 1983 July 20.93178 ET

		(1950.0)	P	Q
q 3.3170306				
	Peri.	186.15198	+0.90700795	+0.24390492
	Node	208.87845	+0.41028029	-0.32810189
e 1.0	Incl.	134.69904	+0.09490344	-0.91261138

From 31 observations 1983 July 21-Sept. 2.

Periodic Comet IRAS (1983j)
T 1983 Aug. 23.80206 ET

		(1950.0)	P	Q
q 1.6968456				
n 0.07487427	Peri.	356.89179	+0.99544312	+0.08840474
a 5.5750358	Node	357.16048	-0.06421622	+0.34438395
e 0.6956350	Incl.	46.18067	-0.07049306	+0.93465731
P 13.16				

From 24 observations 1983 June 30-Sept. 3.

Comet Shoemaker (1983p)
T 1983 Nov. 23.01343 ET

		(1950.0)	P	Q
q 3.3468775				
	Peri.	175.84403	+0.97339382	-0.13372026
	Node	163.97540	-0.22482392	-0.40051017
e 1.0	Incl.	137.61900	-0.04425701	-0.90648248

From 8 observations 1983 Sept. 7-16.

Comet IRAS (1983o)
T 1983 Nov. 28.27032 ET

		(1950.0)	P	Q
q 2.2531178				
	Peri.	334.12529	-0.76377009	-0.57023581
	Node	200.60056	-0.33264132	-0.05386456
e 1.0	Incl.	120.72315	-0.55317718	+0.81971319

From 7 observations 1983 July 27-Sept. 11.

(2913)* 1931 TK = 1978 GO3 = 1982 FZ2
Discovered 1931 Oct. 12 by E. Delporte at Uccle.
Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

		(1950.0)	P	Q
M 223.05107				
n 0.22116816	Peri.	21.24340	+0.63156484	-0.76277627
a 2.7080352	Node	30.11421	+0.66541382	+0.44130235
e 0.1974367	Incl.	16.07412	+0.39793252	+0.47267811
P 4.46	B(1,0)	14.0		

Residuals in seconds of arc

311012	012(37.1+ | 25.2+)X	820318	809	0.2-	0.5-	820326	809	1.0+	0.4-
311012	690	0.1-	4.6-	820318	809	0.5-	0.5-	820326	809	0.7+	0.3-
311013	012	1.0+	2.1+	820321	809	1.2+	0.1-	820326	809	1.5+	0.2-
311014	690	2.3-	0.6-	820321	809	1.0+	0.2-	820328	809	0.1-	0.4+
311015	012	4.5+	0.7-	820321	809	0.6+	0.1+	820328	809	0.4-	0.3+
311017	690	3.7-	0.9-	820322	809	0.2-	0.5+	820328	809	1.2-	0.1+
311020	012	2.3+	0.3+	820322	809	0.4-	0.3+	820329	809	1.7-	0.1-
780411	095	0.7+	0.6+	820322	809	0.5-	0.6+	820329	809	1.0-	0.1+
801010	095	1.5-	1.3+	820323	809	0.3-	0.2+	820329	809	0.4-	0.1+
801017	095	1.2-	2.8+	820323	809	0.1-	0.4+				
820318	809	0.2-	0.5-	820323	809	0.3-	0.2-				

(2914)* 1965 SB = 1979 XS1 = 1982 RG

Discovered 1965 Sept. 19 by P. Wild at Zimmerwald. The identifications are by E. Bowell.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	78.05408		(1950.0)	P	Q
n	0.28984090	Peri.	222.35934	+0.87663177	-0.48100837
a	2.2613248	Node	166.37679	+0.45411435	+0.81874074
e	0.1299342	Incl.	2.95763	+0.15905000	+0.31351961
P	3.40	B(1,0)	15.5		

Residuals in seconds of arc

650919	026	1.1-	1.2+	791218	095	1.9-	0.5+	820922	688	0.1+	0.1+
650922	026	0.5-	0.2+	820915	688	0.9-	0.1-	820922	688	0.6+	0.1+
650924	026	2.3-	0.3+	820915	688	0.6+	0.3+	821020	801	0.6-	1.6+
651003	026	5.0+	2.8-	820921	688	1.3+	0.5-	821116	801	0.7-	1.7+
791214	095	2.0+	1.1-	820921	688	0.7-	0.5-				

(2915)* 1977 QY2 = 1981 QP1

Discovered 1977 Aug. 22 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identification was found independently by E. Bowell (MPC 6469).

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	174.13401		(1950.0)	P	Q
n	0.24044589	Peri.	356.04369	+0.97994752	+0.19695161
a	2.5612844	Node	352.39374	-0.17596622	+0.78426039
e	0.1859234	Incl.	13.19511	-0.09348127	+0.58834148
P	4.10	B(1,0)	14.5		

Residuals in seconds of arc

770822	095	0.5-	0.9+	810830	688	2.6+	2.5-	810926	688	0.1-	0.4+
770824	095	0.4+	1.6+	810830	688	0.7+	1.1-	811004	688	1.3+	1.1+
770919	095	0.3-	1.8-	810831	704	0.1+	0.4-	811004	688	2.4-	1.1+
810829	704	1.5-	3.6+	810901	704	0.2+	0.7-	830112	801	0.5-	0.4+
810829	704	1.0-	0.0	810903	704	0.0	1.8-	830120	801	0.5+	0.7-
810830	704	0.4-	1.1+	810926	688	0.9+	1.2-				

(2916)* 1978 PW2 = 1978 RW2 = 1940 AF = 1967 EK = 1977 FC = 1979 YE8 = 1980 BE4

Discovered 1978 Aug. 8 by N. S. Chernykh at the Crimean Astrophysical Observatory. The key identification and double designation 1978 PW2 = 1979 YE8 = 1980 BE4 are by T. Furuta (JAM 1460).

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	321.11146		(1950.0)	P	Q
n	0.29503015	Peri.	244.34673	-0.96440415	+0.26012772
a	2.2347303	Node	310.69262	-0.21451985	-0.87470789
e	0.0981014	Incl.	3.59332	-0.15461524	-0.40892502
P	3.34	B(1,0)	14.5		

Residuals in seconds of arc

400112	053	(35.4+	8.2-)X	780902	809	0.6-	1.0-	780910	809	0.6-	1.3+
670308	095	1.2+	2.5+	780902	809	0.2-	0.6-	780910	809	0.7+	1.0-
770320	801	1.4-	1.1-	780902	809	0.2+	0.2+	780910	809	0.2+	1.0+
770320	485	(7.9+	2.2-)	780902	809	0.7+	0.6-	780910	809	0.3+	0.3-
770320	485	0.6+	0.9-	780903	095	1.1+	1.0+	791223	095	0.1-	2.5+
780808	095	2.4-	1.6+	780906	809	0.4+	0.6-	800122	095	0.3+	2.8-

(2917)* 1980 RR

Discovered 1980 Sept. 2 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	194.20733		(1950.0)	P	Q
n	0.21089899	Peri.	37.23507	+0.89703711	-0.43977839
a	2.7952440	Node	348.60511	+0.33294167	+0.73763452
e	0.1116808	Incl.	12.81173	+0.29064456	+0.51233804
P	4.67	B(1,0)	13.0		

Residuals in seconds of arc

800902	688	0.7+	0.2+	801002	688	0.0	1.1-	830309	688	1.6+	1.2-
800904	688	0.3-	1.1-	811124	688	0.2-	0.8-	830309	688	1.0+	1.8-
800904	095	1.3-	0.7+	811124	688	1.5+	0.2-	830314	801	2.3-	2.9+
800907	688	0.2+	2.0+	811230	801	1.1-	1.5+	830412	801	0.3+	0.8+

(2918)* 1980 TU4 = 1952 WA = 1968 OW = 1974 QQ3 = 1978 GX

Discovered 1980 Oct. 9 by C. S. Shoemaker at Palomar. The identifications 1980 TU4 = 1974 QQ3 and 1980 TU4 = 1978 GX were found by E. Bowell and by L. D. Schmadel (MPC 7601), respectively.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	240.52882		(1950.0)	P	Q
n	0.17504399	Peri.	170.38010	+0.58342269	+0.81176227
a	3.1649820	Node	135.30600	-0.74752120	+0.54908150
e	0.1598246	Incl.	2.09331	-0.31753741	+0.19887564
P	5.63	B(1,0)	13.5		

Residuals in seconds of arc

521116	760	1.7-	1.0+	780407	095	1.7-	3.1-	801010	675	0.1-	0.7+
521116	760	0.7+	1.6-	800909	095	3.7+	3.2+	801010	095	0.3+	3.0-
680725	095	0.0	0.1-	801007	675	1.6-	1.2-	801015	095	0.9+	1.6-
740822	095	1.6+	2.0-	801008	675	0.4-	1.2+				
740826	095	1.2-	1.1-	801009	675	1.0-	1.4+				

(2919)* 1981 EX18 = 1961 UN = 1971 MD = 1977 RW1 = 1978 XP

Discovered 1981 Mar. 2 by S. J. Bus at Siding Spring in the course of the U.K.-Caltech Asteroid Survey.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	79.63798		(1950.0)	P	Q
n	0.17770189	Peri.	113.26524	+0.09398246	+0.99554540
a	3.1333436	Node	162.12264	-0.92210481	+0.08989488
e	0.1479243	Incl.	1.40498	-0.37535317	+0.02843003
P	5.55	B(1,0)	12.5		

Residuals in seconds of arc

611018	760	5.0-	0.2-	810302	413	0.3-	1.0-	810329	413	0.7-	0.2+
611018	760	5.6+	0.7+	810303	413	0.9-	0.0	810329	413	0.0	0.0
710627	095	0.1+	0.4-	810303	413	0.6+	0.6-	810407	413	0.6+	0.5+
710630	095	1.1-	2.0-	810307	413	0.2-	0.0	810408	413	0.9-	0.8+
770908	095	1.2+	0.5+	810307	413	0.6+	1.0-	810408	413	0.3+	0.4-
781203	675	0.7-	0.8-	810311	413	0.2-	0.7+	810411	413	0.5-	0.2-
781205	675	0.1+	0.1-	810311	413	0.6+	0.4-	810411	413	0.7+	0.9-
781206	675	0.3-	1.2-	810316	413	2.1-	1.0+				
781206	675	0.1+	1.2-	810316	413	2.4+	0.9-				

(2920)* 1981 JR

Discovered 1981 May 3 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	231.84790	(1950.0)	P	Q	
n	0.08302277	Peri.	197.88688	+0.38406390	-0.88086097
a	5.2040075	Node	230.50235	+0.88485139	+0.43674423
e	0.0300603	Incl.	21.01543	+0.26369097	-0.18258813
P	11.87	B(1,0)	10.0		

Residuals in seconds of arc

810503	688	0.4+	0.8-	810623	688	0.9+	0.1-	820715 688	0.3+ 1.1+
810503	688	0.0	0.2-	810623	688	1.1-	0.2-	820715 688	0.7- 0.1-
810604	688	0.3+	2.0-	820613	675	0.6-	0.9+	830711 801	0.1+ 0.3-
810604	688	1.0-	1.0-	820613	675	0.2-	0.8+	830816 801	0.5+ 1.1-
810609	688	0.4+	2.1+	820618	688	0.5+	0.8+		
810609	688	0.4+	1.5+	820618	688	0.1-	0.8-		

(2921)* 6525 P-L = 1981 EH18 = 1982 KN2

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels. The identifications 6525 P-L = 1981 EH18 and 6525 P-L = 1982 KN2 are by O. Kippes and by E. Bowell, respectively.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	1.89234	(1950.0)	P	Q	
n	0.16917201	Peri.	185.38260	+0.90318490	+0.42905656
a	3.2378026	Node	149.19936	-0.39286201	+0.83839086
e	0.1627435	Incl.	1.44832	-0.17296379	+0.33617143
P	5.83	B(1,0)	14.5		

Residuals in seconds of arc

600924	675	0.9+	0.6-	601026	675	0.5-	1.4-	810311 413	0.6- 0.4-
600926	675	0.6+	0.5-	810302	413	0.2-	0.1+	810329 413	0.3- 0.5+
600927	675	0.3-	0.7+	810302	413	0.2-	1.8-	810329 413	0.6- 0.1-
600928	675	0.8+	0.3-	810303	413	1.4-	0.1+	820516 675	1.5- 0.9-
601017	675	0.5+	0.2-	810303	413	0.6+	1.8-	820517 675	0.8+ 0.2-
601022	675	0.8+	0.5-	810307	413	1.1-	0.0	820518 675	0.5+ 0.4+
601025	675	0.2-	0.8-	810307	413	1.8+	1.4-	830902 801	0.3+ 0.7-

1950 SJ = 1950 TG1 = 1977 VJ1

The double designation 1950 SJ = 1950 TG1 is by S. Kanda (MPC 1353). The identification was found independently by E. Bowell and W. Landgraf.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	301.64943	(1950.0)	P	Q	
n	0.29262721	Peri.	120.63249	+0.96534277	+0.24239080
a	2.2469519	Node	225.53797	-0.26060338	+0.91530060
e	0.2184689	Incl.	7.79069	+0.01411456	+0.32166988
P	3.37	B(1,0)	15.0		

Residuals in seconds of arc

500919	012	0.5+	0.6+	501013	012	0.4-	3.2-	771101 330	5.7+ 6.6+
500922	012	2.3-	1.1-	501013	024	3.4-	3.2-	771108 330	6.5- 5.8-
501005	012	2.8+	3.8+	501014	012	3.1+	3.6+		

1978 TZ6 = 1975 BR1 = 1979 YR7 = 1980 BB4

The key identification and double designation 1978 TZ6 = 1979 YR7 = 1980 BB4 is by T. Furuta (JAM 1460).

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M 110.79261		(1950.0)	P	Q
n 0.18847551	Peri.	151.84865	-0.29869384	+0.93396572
a 3.0127768	Node	100.21180	-0.90871440	-0.21552771
e 0.0574144	Incl.	11.49875	-0.29158209	-0.28505411
P 5.23	B(1,0)	12.0		

Residuals in seconds of arc

750117 330	0.1+	2.1+	781008 095	0.2+	0.4-	791223 095	0.2+	1.1+
781002 095	0.7+	0.5+	781101 095	0.9-	0.3+	800122 095	0.0	2.1-

1981 DD = 1979 UQ4 = 1979 WZ1

The identification 1981 DD = 1979 WZ1 is by E. Bowell.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M 116.29462		(1950.0)	P	Q
n 0.27412799	Peri.	74.00447	+0.42435041	+0.90254153
a 2.3469364	Node	221.35216	-0.86731051	+0.38192591
e 0.1267018	Incl.	6.35350	-0.26019071	+0.19887530
P 3.60	B(1,0)	14.5		

Residuals in seconds of arc

791017 095	1.1-	0.7-	810302 809	0.4+	0.3-	810306 809	0.5-	0.7-
791116 095	1.3+	0.7-	810302 809	0.5+	0.4-	810307 809	0.5-	0.4-
791122 095	0.1+	0.9+	810303 809	0.3+	0.2+	810307 809	0.4-	0.0
810226 809	0.1+	0.3-	810303 809	0.4+	0.1+	810307 809	0.5-	0.6+
810226 809	0.8+	0.5-	810303 809	0.5+	0.0	810308 809	0.8-	0.3-
810226 809	1.1+	0.3-	810304 809	0.4+	0.3+	810308 809	0.3-	0.3-
810301 809	0.3+	0.3+	810304 809	0.6+	0.0	810308 809	0.3+	0.5-
810301 809	0.5+	0.2+	810304 809	0.8+	0.3-	810309 809	0.4-	0.3-
810301 809	0.8+	0.2+	810306 809	0.1-	0.4+	810309 809	0.3-	0.3-
810302 809	0.1+	0.2-	810306 809	0.3-	0.2-	810309 809	0.7-	0.3-

1981 DK1

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M 153.97986		(1950.0)	P	Q
n 0.27074428	Peri.	94.64162	+0.60182879	+0.79034896
a 2.3664503	Node	213.23197	-0.79024578	+0.56859681
e 0.2989804	Incl.	12.07850	-0.11538506	+0.22813635
P 3.64	B(1,0)	15.0		

Residuals in seconds of arc

810228 413	0.9-	0.6+	810308 413	0.4-	0.7+	810408 413	1.3+	1.5-
810228 413	1.4+	0.7-	810308 413	1.3+	0.6-	820928 675	0.5-	0.2-
810306 413	1.6-	1.5+	810312 413	0.7+	0.2-	820929 675	0.4+	0.0
810306 413	0.0	1.0-	810408 413	1.9-	1.2+			

1981 EX4

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M 33.46656		(1950.0)	P	Q
n 0.18047659	Peri.	114.06607	+0.76060871	+0.62933487
a 3.1011516	Node	207.77321	-0.64641959	+0.75689680
e 0.1314930	Incl.	20.00514	+0.06013400	+0.17619550
P 5.46	B(1,0)	14.0		

Residuals in seconds of arc

810302 413	1.4-	0.8+	810312 413	0.8-	0.5+	810409 413	0.1-	0.7-
810302 413	2.6+	1.3-	810312 413	1.4+	0.4+	810409 413	0.1-	0.7-
810307 413	0.9-	0.6+	810407 413	0.1+	0.6-	830831 675	0.4+	0.7+
810307 413	0.4+	0.9-	810407 413	0.8+	1.0-	830901 675	0.0	0.2-
810310 413	1.8-	0.8+	810408 413	0.6-	2.3+	830902 675	0.3-	0.4-
810310 413	0.6+	0.8-	810408 413	0.0	0.5+			

1981 QC
Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	175.98689	(1950.0)	P	Q
n	0.27546987	Peri. 331.98847	+0.75036678	-0.53138997
a	2.3393039	Node 65.61306	+0.65788344	+0.54246188
e	0.2169727	Incl. 25.57387	+0.06433564	+0.65066105
P	3.58	B(1,0) 14.5		

Residuals in seconds of arc

810827	809(10.4+	3.1+)Y	810901	474	0.5-	0.3+	811020	474	0.0	1.2+
810828	809(22.0-	22.1+)Y	810902	474	0.6+	0.2+	820121	801	0.9-	1.7+
810831	474	0.9- 1.6-	810902	474	0.2-	0.6-	820122	801	1.0+	1.6-
810831	474	1.6- 0.8-	811020	474	1.4+	1.2+	830402	675	0.3+	0.6+
810901	809(39.0-	47.4+)Y	811020	474	1.1+	1.2+	830403	675	0.6+	0.5+
810901	474	0.5- 0.2+	811020	474	0.2-	0.7-				

1981 QM = 1944 RH = 1970 RK
The identification 1981 QM = 1944 RH is by E. Bowell.
Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	207.86563	(1950.0)	P	Q
n	0.26576722	Peri. 120.64553	+0.70334566	+0.71072773
a	2.3959034	Node 194.07491	-0.66918087	+0.65580122
e	0.3311884	Incl. 3.08208	-0.23979542	+0.25454047
P	3.71	B(1,0) 15.0		

Residuals in seconds of arc

440913	062	0.1+ 0.3+	700909	095	0.6-	0.2-	810901	675	0.2+	0.8-
440913	062	0.2+ 0.1+	810828	675	0.1+	3.7+	811025	675	0.3+	0.8-
440914	062	0.2+ 1.7+	810829	675	0.3-	1.2-	811025	675	2.3-	0.7-
440915	062	0.6+ 0.7+	810830	675	0.5+	1.6-	811117	675	2.2+	0.2+
440915	062	0.8- 0.1-	810831	675	0.3+	1.0-	811117	675	1.5+	0.4-

1983 RB
Epoch 1983 Sept. 3.0 ET = JDE 2445580.5

M	16.95246	(1950.0)	P	Q
n	0.29887846	Peri. 114.74519	+0.24597421	+0.96717079
a	2.2155062	Node 168.90942	-0.96509370	+0.25049425
e	0.5054936	Incl. 19.38719	-0.08994901	-0.04281706
P	3.30	B(1,0) 17.0		

From 10 observations 1983 Sept. 7-14.

1983 RD
Epoch 1983 Sept. 3.0 ET = JDE 2445580.5

M	351.82310	(1950.0)	P	Q
n	0.33682420	Peri. 192.97490	+0.99350174	-0.11225993
a	2.0458189	Node 173.38430	+0.11343300	+0.96307747
e	0.4760072	Incl. 9.37229	+0.00934056	+0.24470285
P	2.93	B(1,0) 18.0		

From 16 observations 1983 Sept. 7-15.

2630 P-L = 1979 TP2 = 1979 WB1
The identification 2630 P-L = 1979 WB1 is by E. Bowell.
Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	2.66481	(1950.0)	P	Q
n	0.26097012	Peri. 12.39885	+0.69819028	-0.71529206
a	2.4251748	Node 33.33304	+0.65208565	+0.61821639
e	0.1908019	Incl. 3.10794	+0.29549048	+0.32583087
P	3.78	B(1,0) 16.0		

Residuals in seconds of arc

600924	675	0.6+	0.9+	600928	675	0.3-	0.3+	601026	675	0.6-	1.0-
600924	675	0.3-	1.0-	601017	675	0.7+	0.3-	791014	095	0.4+	0.9+
600926	675	0.8+	0.6+	601022	675	0.4+	0.9-	791116	095	0.6-	0.4-
600927	675	0.2-	1.3+	601025	675	0.9-	0.3-	791122	095	1.1-	0.7+

4113 P-L = 1981 EQ25
Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	278.10644		(1950.0)	P	Q
n	0.26038603	Peri.	284.87242	-0.62282815	-0.78224551
a	2.4288002	Node	203.66615	+0.72991053	-0.57486803
e	0.1411834	Incl.	1.89970	+0.28163046	-0.24003899
P	3.79	B(1,0)	15.5		

Residuals in seconds of arc

600924	675	0.2-	0.5-	601022	675	0.0	0.3-	810315	413	1.1+	0.6+
600924	675	0.2+	0.9+	601024	675	0.0	0.4+	810405	413	0.1+	0.2+
600925	675	0.3-	0.0	810302	413	0.8-	0.1+	810405	413	1.6+	1.3-
600926	675	0.6+	0.2+	810302	413	1.0+	0.9-	810406	413	1.2-	1.4+
600926	675	0.3-	0.6+	810306	413	0.8-	0.0	810406	413	0.6+	0.1-
600927	675	0.4-	2.0+	810306	413	1.1+	0.7-	810407	413	1.9-	1.7+
600928	675	0.0	0.4+	810311	413	0.9-	0.9+	810407	413	0.8+	0.5-
601017	675	1.5-	1.1-	810311	413	0.4+	0.0	810410	413	0.7-	0.6+

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

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

(2922)* 1976 GY1 = 1976 JK = 1954 GE = 1961 AP = 1978 YZ = 1983 CR3

Discovered 1976 Apr. 1 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identification 1976 GY1 = 1978 YZ is by L. D. Schmadel. The double designation 1976 GY1 = 1976 JK is by B. G. Marsden (MPC 4927).

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	34.38242		(1950.0)	P	Q
n	0.26989548	Peri.	344.40560	-0.99030175	-0.13876153
a	2.3714045	Node	187.62823	+0.13237876	-0.92733186
e	0.1449692	Incl.	2.98155	+0.04216988	-0.34756417
P	3.65	B(1,0)	14.5		

Residuals in seconds of arc

540402	760	0.3-	1.2-	760428	808	1.6-	1.7-	830214	809	0.2+	0.3-
540402	760	1.3+	1.9+	760429	808	0.5+	0.3-	830214	809	0.1-	0.3-
610112	760	2.8-	1.1-	760429	808	1.9-	1.1+	830214	809	0.4+	0.4-
610112	760	2.1+	0.6-	760502	808	2.1+	0.5+	830216	809	0.1+	0.5-
760401	095	0.5+	1.3-	760502	808	1.5+	0.9+	830216	809	0.2-	0.4-
760404	095	0.0	1.9-	760502	095	0.3-	0.2-	830216	809	0.7+	0.3-
760425	808	1.5+	0.6+	760503	808	0.2-	0.8-				
760428	808	1.7+	2.9+	781222	095	0.1+	1.2+				

(2923)* 1977 DA = 1977 DF3 = 1958 GG = 1979 SP11 = 1981 EY24

Discovered 1977 Feb. 22 at the Harvard College Observatory's Agassiz Station. The double designation 1977 DA = 1977 DF3 is by H. Oishi (JAM 735). The identification 1977 DA = 1958 GG is by L. D. Schmadel. The identification 1977 DA = 1981 EY24 was found independently by B. G. Marsden.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	249.86128	(1950.0)		P	Q
n	0.25624429	Peri.	169.22840	-0.93678671	-0.34979822
a	2.4548968	Node	350.28382	+0.31716135	-0.83865177
e	0.1316533	Incl.	2.87913	+0.14778136	-0.41749779
P	3.85	B(1,0)	14.0		

Residuals in seconds of arc

580408 760	1.3-	0.6+	770315 381	0.2-	0.1+	810315 413	1.3-	0.2+
580408 760	1.6+	0.0	770315 381	0.2-	0.5-	810315 413	0.8+	0.6-
770218 381	1.0-	0.1+	790924 095	0.7+	1.7-	810405 413	0.7-	0.4+
770218 381	0.7-	0.3+	810302 413	1.0-	0.4-	810406 413	0.4-	2.1+
770219 381	0.6-	0.1+	810302 413	0.0	1.7-	810406 413	1.3+	0.1-
770219 381	1.0-	0.1-	810306 413	1.2-	0.1+	810407 413	0.6-	0.5-
770222 801	4.6+	2.1+	810306 413	0.6+	0.3+	810407 413	0.5+	1.1-
770312 381	0.4+	1.0+	810311 413	0.6-	0.7-	810410 413	0.3-	0.7+
770312 381	0.4-	0.6-	810311 413	0.1+	1.2-	810410 413	0.7+	1.2-

(2924)* 1977 DJ2 = 1955 VL = 1975 VK1 = 1979 QL7 = 1980 WO2 = 1982 DP3

Discovered 1977 Feb. 18 by H. Kosai and K. Hurukawa at the Tokyo Observatory's Kiso Station. The key identification 1977 DJ2 = 1980 WO2 is by E. Bowell.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	332.26423	(1950.0)		P	Q
n	0.20073804	Peri.	192.03841	+0.53745905	+0.84172693
a	2.8887919	Node	110.49236	-0.76904792	+0.51420075
e	0.0497688	Incl.	3.14052	-0.34598131	+0.16460062
P	4.91	B(1,0)	13.0		

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

551110 760	(0.05-	0.03+)X	770312 381	0.1+	0.4-	801210 095	0.7-	2.0+
751102 095	2.2-	3.8-	770312 381	0.2+	1.6-	820220 033	0.6-	0.0
770218 381	0.6+	0.4-	770315 381	0.1+	1.4-	820220 033	0.4-	0.1+
770218 381	0.4+	0.2+	770315 381	0.0	1.3-	820220 033	0.7-	0.2+
770219 381	0.2+	0.6+	790820 095	1.2+	2.2-	820221 033	0.2-	0.1+
770219 381	0.2+	0.4+	801130 095	2.3+	1.7+	820221 033	0.6-	0.1+

(2925)* 1978 VC5 = 1939 GA = 1950 EW = 1976 HX = 1976 JH1 = 1983 CP3

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

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	62.41703	(1950.0)		P	Q
n	0.26727025	Peri.	277.79099	-0.70302666	-0.71078233
a	2.3869077	Node	216.91539	+0.66677541	-0.64740879
e	0.1894495	Incl.	2.22137	+0.24731369	-0.27504606
P	3.69	B(1,0)	15.0		

Residuals in seconds of arc

390411 053	(36.8-	23.4+)X	781105 675	0.3+	0.1+	830212 809	0.1-	0.3+
390413 053	(27.2-	8.1+)X	781106 675	0.7+	0.5+	830218 809	0.3+	0.7-
390419 053	(16.4+	12.8+)X	781107 675	0.4+	1.3+	830218 809	0.1+	0.7-
500315 760	0.3-	0.7-	781108 675	0.3-	0.3+	830218 809	0.4-	0.9-
760423 808	0.5+	0.1-	781129 675	0.9-	0.0	830220 809	0.8+	0.2-
760423 808	0.6+	0.1-	781130 675	1.0-	0.2-	830220 809	0.3+	0.2+
760502 095	2.4+	3.5+	830212 809	0.2+	0.3-			
760502 095	2.2-	0.8+	830212 809	0.2-	0.0			

(2926)* 1980 KG = 1942 FL

Discovered 1980 May 22 by H. Debehogne at the European Southern Observatory.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5

M	334.66693		(1950.0)		P		Q				
n	0.28731414	Peri.	34.46841		-0.25845604		+0.96521410				
a	2.2745634	Node	220.59345		-0.89938213		-0.25535822				
e	0.1189365	Incl.	3.48248		-0.35257944		-0.05615980				
P	3.43	B(1,0)	14.5								

Residuals in seconds of arc

420320	062	0.7-	2.0+	800525	809	0.0	0.5-	800604	809	0.0	0.2-
420320	062	0.1-	0.5-	800526	809	1.1-	0.1+	800604	809	0.3+	0.3-
420321	062	1.4+	2.2+	800526	809	0.4-	0.4-	800611	809	0.1-	0.4+
420322	062	0.1+	1.1-	800526	809	0.4+	0.1-	800611	809	0.4+	0.5+
800522	809	0.9-	0.1+	800526	809	0.1-	0.6-	800611	809	0.8+	0.5+
800522	809	0.7-	0.2-	800531	809	1.6-	0.7-	800612	809	0.8-	1.0-
800522	809	0.8-	0.4+	800531	809	0.5-	0.5-	800612	809	0.4-	1.4-
800523	809	0.1-	0.6+	800531	809	0.2-	1.0-	800612	809	0.5-	1.5-
800523	809	0.1-	0.1+	800601	809	1.0-	0.7-	800613	809	0.4-	0.1-
800523	809	0.2+	0.4+	800601	809	0.5-	0.6-	800613	809	0.2-	0.4+
800524	809	0.7-	0.1-	800602	809	0.4-	0.8-	800613	809	0.3+	0.2+
800524	809	0.1-	0.2-	800603	809	0.8+	1.3-	830118	801	3.2+	0.1-
800524	809	0.6-	0.0	800603	809	0.9+	0.8-	830211	809	1.1-	0.5+
800524	809	0.2+	0.5-	800603	809	1.1+	0.8-	830211	809	0.6-	0.4+
800524	809	0.5+	0.1-	800603	809	0.8-	0.5-	830211	809	0.0	0.4+
800524	809	0.1+	0.1+	800603	809	0.4-	0.4-	830213	809	0.5-	0.7-
800524	809	0.4-	0.4-	800603	809	0.5-	0.5-	830213	809	0.2-	0.5-
800524	809	0.1-	0.2-	800604	809	0.5-	0.6+	830213	809	0.1+	0.8-
800525	809	0.0	0.7+	800604	809	0.4+	0.6+	830215	809	0.6-	0.6-
800525	809	0.4-	0.4+	800604	809	0.6-	0.9+	830215	809	0.2-	0.6-
800525	809	0.4-	0.4-	800604	809	0.3+	0.1+	830215	809	0.5+	0.7-

(2927)* 1981 TM = 1936 OA = 1975 EN2

Discovered 1981 Oct. 5 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory. The key identification 1981 TM = 1975 EN2 is by L. D. Schmadel (MPC 7780).

M	224.38217		(1950.0)		P		Q				
n	0.24471380	Peri.	187.84802		+0.92377966		+0.35420661				
a	2.5314173	Node	150.08450		-0.33355321		+0.93094831				
e	0.1677149	Incl.	16.96189		-0.18807814		+0.08872944				
P	4.03	B(1,0)	13.5								

Residuals in seconds of arc

360716	024	0.3-	0.8-	811124	688	0.6-	0.5+	830214	809	0.3+	1.6-
360723	024	0.4+	1.8-	811124	688	0.7-	0.4-	830215	688	0.8+	0.4-
750308	095	3.9+	9.8+	830210	809	0.5-	1.4-	830215	688	0.1-	1.7-
811005	688	0.5+	0.4+	830210	809	1.8-	1.0-	830218	809	0.2-	1.0-
811005	688	0.9+	0.1+	830210	809	1.4-	1.0-	830218	809	0.6-	0.5-
811102	688	1.4-	0.4-	830214	809	0.2-	0.7-	830218	809	0.7-	0.6-
811102	688	2.5+	0.0	830214	809	0.1+	1.2-				

1949 PP = 1949 QB1 = 1982 JF2

The identification 1949 PP = 1982 JF2 is by E. Bowell. The double designation 1949 PP = 1949 QB1 is by K. Reinmuth (MPC 383). The identifications of 1949 PP with 1952 BZ1, 1955 SX, 1959 GO and 1964 GB (MPC 2807) are invalid.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	357.23582		(1950.0)		P		Q				
n	0.17320577	Peri.	208.09759		+0.91630773		+0.39936426				
a	3.1873421	Node	128.33274		-0.35992330		+0.85387310				
e	0.1291058	Incl.	2.17754		-0.17560000		+0.33377975				
P	5.69	B(1,0)	13.0								

Residuals in seconds of arc

490802	024	0.7+	0.0	490824	690	1.6-	1.0-	820516	675	0.3-	0.0
490820	690	1.8-	1.3-	490826	690	4.8+	1.8-	820517	675	0.8+	1.4-
490821	024	3.2-	1.0+	820515	675	1.2+	0.4+	820518	675	0.1+	0.4+
490822	024	0.7-	0.4+	820516	675	1.9-	0.9-				

1969 DA = 1951 KA1 = 1983 CH3

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	347.60614		(1950.0)	P	Q
n	0.21088419	Peri.	310.14686	-0.75883595	+0.63493977
a	2.7953803	Node	269.77573	-0.54470137	-0.74076196
e	0.1323960	Incl.	8.33624	-0.35702720	-0.21937002
P	4.67	B(1,0)	13.0		

Residuals in seconds of arc

510529	711	1.6+	0.5+ Y	830212	809	0.4-	0.1-	830218	809	0.2+	0.6-
690221	095	0.6-	3.0+	830212	809	0.6-	0.3-	830218	809	0.1+	0.2-
690309	095	2.7+	0.0	830212	809	0.1-	0.0	830220	809	0.4-	0.5-
690311	095	0.4+	2.0-	830216	809	0.1-	0.1-	830220	809	0.3+	0.5-
830210	809	1.4-	0.1+	830216	809	0.1-	0.3-	830220	809	0.4+	0.8-
830210	809	1.1-	0.5+	830216	809	0.2-	0.3-				
830210	809	0.3-	0.4+	830218	809	0.4+	0.2-				

1971 MG = 1980 RV3 = 1981 YQ1

The identification 1971 MG = 1980 RV3 is by E. Bowell.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	249.41089		(1950.0)	P	Q
n	0.22521193	Peri.	59.97135	+0.90826532	+0.35652550
a	2.6755269	Node	278.38679	-0.41746923	+0.80703447
e	0.2065266	Incl.	12.78701	+0.02781290	+0.47072808
P	4.38	B(1,0)	12.5		

Residuals in seconds of arc

710628	095	1.1-	2.0-	710812	095	(16.0+	14.4-)	811223	330	0.7+	1.6+
710630	095	3.3+	1.0+	800906	095	1.0-	0.2-	820116	330	0.3+	0.0
710717	095	0.1+	1.5+	800911	095	1.1+	0.0	820120	330	0.6+	0.9-
710729	095	2.3-	0.4-	811220	330	1.7-	0.8-				

1972 LE = 1979 YA3 = 1983 JJ

The key identification 1972 LE = 1983 JJ is by E. Bowell.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	341.02072		(1950.0)	P	Q
n	0.17783231	Peri.	238.59300	+0.66857715	+0.69630480
a	3.1318176	Node	75.76602	-0.55735873	+0.70162037
e	0.3261133	Incl.	15.62571	-0.49229650	+0.15128938
P	5.54	B(1,0)	13.0		

Residuals in seconds of arc

720514	095	3.0-	3.0-	720613	095	1.3-	0.2-	830515	046	2.0-	1.5-
720518	095	2.7-	2.5+	720616	095	3.2+	1.1+	830516	046	0.2-	2.3+
720608	095	1.6+	1.4-	791224	095	0.2+	0.5-	830516	046	2.0+	3.0+
720609	095	1.5+	0.5-	830515	046	1.4+	0.0				

1978 NN1 = 1983 PD

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	14.87290		(1950.0)	P	Q
n	0.20475394	Peri.	170.34458	+0.68514918	+0.72363475
a	2.8509005	Node	142.82686	-0.67711732	+0.67484471
e	0.2828266	Incl.	7.91523	-0.26848226	+0.14469750
P	4.81	B(1,0)	15.0		

Residuals in seconds of arc

780704	095	1.1+	1.2+	830813	046	0.6+	0.9-	830815	046	0.4- 1.3-
780707	095	0.8-	0.8-	830814	046	1.0+	1.6+	830820	046	0.3+ 0.6-
780708	095	0.2-	0.5-	830814	046	0.1+	1.6+	830820	046	0.5- 0.5-
830813	046	0.7-	0.5+	830815	046	0.3-	0.2-			

1978 RF6 = 1981 EE25

The identification was found independently by B. G. Marsden.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	334.04340	(1950.0)	P	Q
n	0.17977205	Peri. 189.50542	+0.99250593	-0.12203667
a	3.1092487	Node 177.47885	+0.11935509	+0.95719881
e	0.1838530	Incl. 8.16501	+0.02619810	+0.26244521
P	5.48	B(1,0) 14.0		

Residuals in seconds of arc

780913	095	3.3-	0.5+	810302	413	0.8-	1.0-	810315	413	2.0- 0.8+
780927	095	0.8+	0.6+	810302	413	0.3+	2.2-	810315	413	0.8+ 0.1+
781003	095	0.4+	0.7-	810306	413	1.1-	0.3-	810405	413	3.3+ 0.5-
781007	095	1.2+	0.5-	810306	413	1.4+	0.7-	810406	413	1.9- 4.1+
781102	095	0.4+	1.0+	810311	413	0.2-	0.9-	810406	413	0.5+ 1.5+

1978 SR6 = 1981 EA25

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	354.74770	(1950.0)	P	Q
n	0.18982724	Peri. 0.32627	+0.99966495	+0.02530541
a	2.9984574	Node 358.19651	-0.02412162	+0.83451033
e	0.1105529	Incl. 9.95846	-0.00938787	+0.55041088
P	5.19	B(1,0) 14.0		

Residuals in seconds of arc

780926	095	3.2+	0.8+	810306	413	1.0-	0.3-	810405	413	1.7- 0.7+
781002	095	1.5+	0.5+	810306	413	2.2-	0.4-	810405	413	2.6+ 0.7-
781008	095	1.7-	0.0	810311	413	1.0-	0.3-	810406	413	0.9- 0.5+
781101	095	3.1-	1.5-	810311	413	1.0+	0.2-	810406	413	1.3+ 0.8-
810302	413	1.2-	1.5+	810315	413	1.1-	0.4+	810410	413	0.3+ 0.2+
810302	413	1.5+	0.1+	810315	413	1.4+	0.0	810410	413	0.8+ 1.1-

1978 VK9 = 1934 TL = 1944 RD = 1951 WC1

The key identification 1978 VK9 = 1944 RD is by E. Bowell.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	192.70729	(1950.0)	P	Q
n	0.29263315	Peri. 132.92911	+0.95139989	-0.29944776
a	2.2469215	Node 244.61257	+0.25424368	+0.89549112
e	0.1637814	Incl. 4.56461	+0.17377686	+0.32928208
P	3.37	B(1,0) 14.5		

Residuals in seconds of arc

341007	094(45.7-	39.4-)X		511129	711	0.1+	4.6- Y	781107	675	1.2- 0.7-
440914	062	1.4-	0.9-	511129	711	0.6+	0.8+ Y	781108	675	1.2- 0.3-
440914	062	0.3+	0.3-	781105	675	0.4-	0.9-	781129	675	0.7- 0.5-
440915	062	0.3+	0.7+	781106	675	0.6-	1.1-	781130	675	0.5+ 0.1+

1979 MK2 = 1943 GL = 1978 ES

The key identification 1979 MK2 = 1943 GL is by E. Bowell.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	47.02484	(1950.0)	P	Q
n	0.22225685	Peri. 82.97213	-0.91024519	+0.40087001
a	2.6991901	Node 120.61246	-0.41127845	-0.84625385
e	0.2152382	Incl. 6.92160	-0.04799713	-0.35093823
P	4.43	B(1,0) 13.5		

Residuals in seconds of arc

430406	062	0.2-	0.2-		790623	413	1.4-	0.4-		790724	413	0.6+	0.1+
430406	062	0.2-	0.3-		790624	413	0.4-	0.4-		790727	675	2.2+	0.0
430408	062	0.2-	0.3+		790625	413	1.1-	0.7+		790823	675	0.5+	0.5+
780305	095	0.2+	1.6+		790721	095	0.5-	1.2+					

1981 EA8 = 1944 DD = 1948 MG = 1951 JG = 1973 YA4 = 1974 CH

The key identification 1981 EA8 = 1944 DD is by E. Bowell.

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	232.33312	(1950.0)	P	Q
n	0.29398436	Peri. 268.71846	-0.74135870	+0.66970248
a	2.2400314	Node 313.32341	-0.58951599	-0.68078346
e	0.1112572	Incl. 3.42222	-0.32071509	-0.29670266
P	3.35	B(1,0) 14.5		

Residuals in seconds of arc

440221	062	0.4+	2.1-		810301	413	1.7-	0.1-		810406	413	0.9+	0.5-
440221	062	0.5+	0.5+		810301	413	0.7+	1.5-		810407	413	0.3-	1.0+
440221	062	0.9+	0.9+		810307	413	0.9-	1.1-		810407	413	1.4+	0.2-
440221	062	1.6+	0.4+		810307	413	0.5+	1.5-		810410	413	0.5+	1.1+
440228	062	1.2+	2.6+		810311	413	0.5+	1.4-		810410	413	3.1+	1.2-
480630	078	(94.8+	24.7+)X		810315	413	1.4+	2.1-		810412	413	1.6-	1.4+
510508	094	(0.04+	0.01-)X		810405	413	0.7-	1.0-		810412	413	4.2+	1.4-
731226	095	1.1-	3.4-		810405	413	0.0	2.0-					
740214	095	0.2-	0.9-		810406	413	0.4-	0.3+					

1981 EN27 = 1973 AQ1 = 1977 GL

Epoch 1983 Sept. 23.0 ET = JDE 2445600.5 (J-P)

M	279.04055	(1950.0)	P	Q
n	0.25876299	Peri. 316.90904	-0.62051526	-0.78416093
a	2.4389457	Node 171.43594	+0.73202179	-0.58251973
e	0.1243848	Incl. 2.78748	+0.28125596	-0.21392146
P	3.81	B(1,0) 14.5		

Residuals in seconds of arc

730101	095	0.4-	1.3-		810306	413	0.8+	0.2+		810405	413	3.4+	1.6-
770410	381	0.6+	1.0+		810311	413	0.3-	0.1-		810406	413	0.9-	0.3+
770410	381	0.8+	1.9+		810311	413	0.0	0.5+		810406	413	0.4+	0.4-
810302	413	0.6-	0.7+		810315	413	0.2-	1.0-		810407	413	1.8-	0.4-
810302	413	0.4-	0.4+		810315	413	0.0	0.5-		810407	413	0.9+	1.5-
810306	413	0.7-	0.1+		810405	413	1.0-	0.5+		810410	413	0.7-	0.6+

1982 YA

Epoch 1983 Jan. 6.0 ET = JDE 2445340.5

M	9.40843	(1950.0)	P	Q
n	0.18031523	Peri. 143.06280	+0.51458663	-0.65960419
a	3.1029952	Node 269.14487	+0.59533438	+0.73466185
e	0.6408582	Incl. 33.22277	+0.61707178	-0.15872701
P	5.47	B(1,0) 17.5		

From 6 observations 1982 Dec. 21-1983 Jan. 6.

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NEW NAMES OF MINOR PLANETS.

(1717) Arlon = 1954 AC

Discovered 1954 Jan. 8 by S. Arend at Uccle.

Named for the principal town of the province of Belgian Luxembourg, situated on a hill above the headwaters of the Semoise. The Orolaunum of the Romans was a station on the Antoninian way connecting Reims and Trier.

(1887) Virton = 1950 TD
Discovered 1950 Oct. 5 by S. Arend at Uccle.
Named for the capital of the Gaume (or Belgian Lorraine), very close to Roblemont, the discoverer's birthplace.

(1969) Alain = 1935 CG
Discovered 1935 Feb. 3 by S. Arend at Uccle.
Named in honor of Alain Vanheste, husband of Isabelle Dubois, granddaughter of the discoverer.

(2084) Okayama = 1935 CK
Discovered 1935 Feb. 7 by S. Arend at Uccle.
Named for the station of the Tokyo Astronomical Observatory at which the Japanese 1.9-m reflector is located. Name proposed by the discoverer, following a suggestion by K. Tomita, who made an accidental discovery of this object at Okayama as 1965 HA.

(2086) Newell = 1966 BC
Discovered 1966 Jan. 20 at the Goethe Link Observatory, Indiana University.
Named in memory of Homer E. Newell (1915-1983), one of the most important organizers of the U.S. space program. He was a member of the advisory committee that helped to establish the National Aeronautics and Space Administration, and he became one of the original staff members when NASA came into being in 1958. Newell served in a number of leading positions and was Associate Administrator of NASA at the time of his retirement in 1973. Name proposed by F. K. Edmondson.

(2109) d'Hotel = 1950 TH2
Discovered 1950 Oct. 13 by S. Arend at Uccle.
Named in honor of Andre d'Hotel, recipient of the 1974 "Grand Prix de Litterature de l"Academie Francaise" and a friend of the Arend family.

(2151) Hadwiger = 1977 VX
Discovered 1977 Nov. 3 by P. Wild at Zimmerwald.
Named in memory of Hugo Hadwiger (1908-1981), for more than 40 years professor of mathematics at the University of Berne, very popular for the human and historical touch of his lectures, and admired by students and colleagues alike for his refined art of presentation. Known as a "master of beautiful formulae", his course on special functions deservedly drew crowds of students of all ages.

(2152) Hannibal = 1978 WK
Discovered 1978 Nov. 19 by P. Wild at Zimmerwald.
Named for the great Carthaginian general who, on his way to Rome in 217 B.C., crossed the Alps with his army, including some elephants to frighten the enemy. For the Swiss, WK is the abbreviation for "Wiederholungskurs", the yearly repetition of military exercises, and the 1978 WK for a colleague of the discoverer consisted of a large Alpine maneuver called Hannibal.

(2175) Andrea Doria = 1977 TY
Discovered 1977 Oct. 12 by P. Wild at Zimmerwald.
Named for the head of the Genoan family prominent in Schiller's tragedy "Die Verschorung des Fiesco zu Genua". In combination with (2176) Donar, the name suggests the repeated curse of Giannettino Doria (nephew of Andrea) against the Republican conspirators; "Donner und Doria" is now used as an exclamation of dismay. Name proposed by the discoverer, following a suggestion by W. Gurtner.

(2218) Wotho = 1975 AK
Discovered 1975 Jan. 10 by P. Wild at Zimmerwald.
Named for an atoll in the Ralik Chain in the Pacific, perhaps an appropriate variation of (1282) Utopia. Name proposed by the discoverer following a suggestion by R. Siedler, formerly director of the public relations office at the California Institute of Technology.

(2219) Mannucci = 1975 LU
Discovered 1975 June 13 at the El Leoncito Station of the Felix Aguilar Observatory.
Named in memory of Edgardo Mannucci, outstanding precision mechanic, whose work at the Felix Aguilar Observatory benefited astronomy in Argentina for many years. He played an important part in the setting up the meridian circle and Danjon astrolabe and the adaptation of the K-50 geodesic camera for observations of artificial satellites. Chief of precision work in the department of geodesy, topography and cartography of San Juan, and a valued member of the faculty of engineering at the Cuyo National University, he had previously served as assistant chief for the light and buoy workshop in the Argentine Naval Hydrographic Service.

(2229) Mezzarco = 1977 RO
Discovered 1977 Sept. 7 by P. Wild at Zimmerwald.
Italian for "half arch, half vault", the name is that of the house and studio, on Lake Maggiore, of a friend of the discoverer. A painting of hers, "The Separation of the Elements", is from a cycle "Creation". The name is therefore suggested for this planet because (2229) = 3 x (743) Eugenisis.

(2231) Durrell = 1941 SG
Discovered 1941 Sept. 21 by S. Arend at Uccle.
Named in honor of the British writer Lawrence Durrell, author of the Alexandria Quartet ("Justine", "Balthazar", "Mountolive" and "Clea") and a friend of the Arend family.

(2239) Paracelsus = 1978 RC
Discovered 1978 Sept. 13 by P. Wild at Zimmerwald.
Named for the great physician and natural philosopher whose real name was Theophrastus Bombastus von Hohenheim (1493?-1541). Because of his vehement fight against traditions, he was hounded throughout Europe during his lifetime, but with his concept of dosages of medicaments, he clearly set the foundations for modern medicine and pharmacology.

(2262) Mitidika = 1978 RB
Discovered 1978 Sept. 10 by P. Wild at Zimmerwald.
Named for the gypsy girl of great charm and courage, one of the central figures in Clemens Brentano’s novel "Die mehreren Wehmuller und die ungarischen Nationalgesichter".

(2284) San Juan = 1974 TG1
Discovered 1974 Oct. 10 at the El Leoncito Station of the Felix Aguilar Observatory.
Named for the university of which the Felix Aguilar Observatory is a part and for the Argentine state in which it is located.

(2303) Retsina = 1979 FK
Discovered 1979 Mar. 24 by P. Wild at Zimmerwald.
Named on the occasion of the Patras IAU General Assembly in honor of the resined wine of Greece. (2303) = (47) Aglaja x (49) Pales, the product

of one of the three Graces and the goddess of pastures, and a reminder of the discoverer's tour of the Peloponnese with three charming companions.

(2311) El Leoncito = 1974 TA1
Discovered 1974 Oct. 10 at the El Leoncito Station of the Felix Aguilar Observatory.
Named for the observing station at which this minor planet was discovered.

(2435) Horemheb = 4578 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld at Leiden on Palomar Schmidt plates taken by T. Gehrels.
Named for the last pharaoh of the eighteenth dynasty in ancient Egypt. His tomb was recently excavated by a joint British-Dutch expedition.

(2436) Hatshepsut = 6066 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld at Leiden on Palomar Schmidt plates taken by T. Gehrels.
Named for the only female pharaoh to reign over ancient Egypt.

(2462) Nehalennia = 6578 P-L
Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld at Leiden on Palomar Schmidt plates taken by T. Gehrels.
Named for a Roman goddess of fortune, worshiped mainly in the region that is now the Netherlands.

(2705) Wu = 1980 TD4
Discovered 1980 Oct. 9 by C. S. Shoemaker on films taken at Palomar by S. J. Bus.
Named in honor of Sherman S. C. Wu, chief photogrammetrist of the Astrogeology Branch of the U.S. Geological Survey. Wu and his group have published highly detailed topographic maps of selected regions of the moon and of Mars, including Olympus Mons and parts of the Valles Marineris. These maps, obtained by means of analytical photogrammetry, represent the most accurate solutions extant of the morphology of surfaces on extraterrestrial bodies.

(2731) Cucula = 1982 KJ
Discovered 1982 May 21 by P. Wild at Zimmerwald.
After (1775) Zimmerwald, this is the second minor planet to be discovered at Zimmerwald in the month of May, when the call of the cuckoo is continually heard from the large woods nearby.

(2732) Witt = 1926 FG
Discovered 1926 Mar. 19 by M. Wolf at Heidelberg.
Named in memory of Gustav Witt (1866-1946), astronomer at the Berlin Observatory, discoverer of (433) Eros. Following a suggestion by M. Gressmann, of Falkensee, the city to which Witt moved in 1943 and in which he died, this planet was named by B. G. Marsden, who found the identifications involving it.

(2891) McGetchin = 1980 MD
Discovered 1980 June 18 by C. S. Shoemaker on films taken at Palomar by E. F. Helin and S. J. Bus.
Named in memory of Thomas R. McGetchin (1936-1979), geologist and planetary scientist, from 1977 director of the Lunar and Planetary Institute in Houston. A leading investigator of volcanism and tectonics on the earth and other solid bodies in the solar system, he was particularly noted for his work on kimberlite pipes and on the dynamics of volcanoes.

(2906) Caltech = 1983 AE2

Discovered 1983 Jan. 13 by C. S. Shoemaker at Palomar.

Named for the California Institute of Technology, of which the Palomar Observatory is a part. The 0.46-m Schmidt telescope, with which this minor planet was discovered, was the first telescope placed into operation by Caltech on Palomar Mountain. Five Caltech students assisted Caltech staff members C. S. and E. M. Shoemaker in the observations that established the unusual nature of the orbit of this object.

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EPHEMERIDES.

1983 RB a,e,i = 2.22, 0.51, 19 Elements MPC 8144

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 09	23	22 29.37	-13 08.6	0.414	1.390	155.0	17.7	16.2
1983 10	03	22 42.70	-17 37.3					
1983 10	13	22 55.35	-19 56.3	0.627	1.520	137.4	26.4	17.5
1983 10	23	23 07.94	-20 49.1					
1983 11	02	23 20.68	-20 44.7	0.891	1.655	122.8	30.3	18.5
1983 11	12	23 33.74	-20 01.8					
1983 11	22	23 47.16	-18 52.8	1.194	1.790	109.9	31.3	19.4
1983 12	02	00 00.88	-17 26.5					
1983 12	12	00 14.91	-15 48.5	1.523	1.922	97.7	30.5	20.0
1983 12	22	00 29.22	-14 03.3					
1984 01	01	00 43.75	-12 14.1	1.868	2.049	86.0	28.6	20.6

Periodic Comet IRAS (1983j) Elements MPC 8139

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1983 09	23	00 29.35	+28 17.7	0.785	1.729	150.2	16.8	15.9
1983 10	03	23 56.90	+34 10.3					
1983 10	13	23 26.15	+38 04.9	0.891	1.784	141.5	20.4	16.3
1983 10	23	23 01.62	+40 19.4					
1983 11	02	22 45.20	+41 30.2	1.099	1.861	125.6	25.7	16.9
1983 11	12	22 36.71	+42 09.1					
1983 11	22	22 34.93	+42 37.9	1.357	1.957	112.2	27.9	17.6
1983 12	02	22 38.52	+43 08.1					
1983 12	12	22 46.40	+43 45.5	1.635	2.068	101.3	27.8	18.2
1983 12	22	22 57.68	+44 32.8					
1984 01	01	23 11.72	+45 29.9	1.920	2.189	92.1	26.7	18.8
1984 01	11	23 28.11	+46 36.1					
1984 01	21	23 46.50	+47 50.0	2.207	2.318	83.9	25.0	19.4
1984 01	31	00 06.69	+49 09.4					
1984 02	10	00 28.53	+50 32.3	2.494	2.453	76.2	23.0	19.9
1984 02	20	00 51.91	+51 56.3					
1984 03	01	01 16.75	+53 18.9	2.778	2.591	68.8	20.9	20.4

Comet Cernis (1983l) Elements MPC 8139

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1983 09	23	01 45.81	-10 46.1	2.460	3.372	150.8	8.3	10.2
1983 10	03	01 26.48	-15 22.7					
1983 10	13	01 05.90	-19 36.7	2.490	3.410	153.1	7.6	10.3
1983 10	23	00 45.54	-23 10.9					
1983 11	02	00 26.77	-25 57.6	2.730	3.459	130.5	12.6	10.6
1983 11	12	00 10.64	-27 57.9					
1983 11	22	23 57.68	-29 19.0	3.109	3.516	106.3	15.6	10.9
1983 12	02	23 47.94	-30 09.9					
1983 12	12	23 41.24	-30 38.9	3.541	3.582	84.4	15.9	11.3
1983 12	22	23 37.20	-30 52.9					

1984 01 01	23 35.42	-30 57.4	3.961	3.655	65.0	14.1	11.6
1984 01 11	23 35.51	-30 56.3					
1984 01 21	23 37.12	-30 52.8	4.321	3.736	48.1	11.3	11.9
1984 01 31	23 39.94	-30 49.3					
1984 02 10	23 43.71	-30 47.9	4.595	3.824	34.6	8.4	12.1

Comet Elias (1981 XV) Elements MPC 8051

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1983 10 13	11 52.71	+23 29.5	8.355	7.570	36.0	4.4	20.4
1983 10 23	11 56.87	+23 48.5					
1983 11 02	12 00.71	+24 13.8	8.247	7.678	52.2	5.9	20.4
1983 11 12	12 04.12	+24 46.2					
1983 11 22	12 06.99	+25 26.2	8.073	7.787	69.8	6.8	20.4
1983 12 02	12 09.24	+26 13.9					
1983 12 12	12 10.74	+27 09.6	7.864	7.896	88.3	7.2	20.5
1983 12 22	12 11.40	+28 12.9					
1984 01 01	12 11.14	+29 23.0	7.661	8.006	107.1	6.7	20.5
1984 01 11	12 09.89	+30 38.8					
1984 01 21	12 07.61	+31 58.4	7.505	8.116	125.5	5.7	20.5
1984 01 31	12 04.32	+33 19.7					
1984 02 10	12 00.08	+34 40.0	7.438	8.226	140.8	4.3	20.5
1984 02 20	11 55.02	+35 56.6					
1984 03 01	11 49.32	+37 07.0	7.485	8.337	147.4	3.7	20.6
1984 03 11	11 43.23	+38 08.9					
1984 03 21	11 37.02	+39 00.7	7.654	8.448	140.6	4.3	20.7
1984 03 31	11 30.98	+39 41.6					
1984 04 10	11 25.35	+40 11.5	7.931	8.559	126.0	5.4	20.8
1984 04 20	11 20.38	+40 30.9					
1984 04 30	11 16.22	+40 40.9	8.287	8.670	109.1	6.3	21.0
1984 05 10	11 12.98	+40 42.8					
1984 05 20	11 10.71	+40 38.0	8.685	8.781	92.1	6.6	21.1

Periodic Comet Schwassmann-Wachmann 1 Elements MPC 4830

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1983 12 12	14 27.06	-23 19.0	7.018	6.268	37.7	5.5	(19.7)
1983 12 22	14 33.61	-23 58.0					
1984 01 01	14 39.66	-24 35.5	6.783	6.264	54.6	7.4	(19.6)
1984 01 11	14 45.09	-25 11.0					
1984 01 21	14 49.77	-25 44.1	6.491	6.261	72.2	8.6	(19.5)
1984 01 31	14 53.60	-26 14.5					
1984 02 10	14 56.46	-26 41.7	6.169	6.256	90.5	9.1	(19.4)
1984 02 20	14 58.27	-27 05.2					
1984 03 01	14 58.94	-27 24.4	5.849	6.252	109.6	8.6	(19.3)
1984 03 11	14 58.45	-27 38.7					
1984 03 21	14 56.83	-27 47.6	5.568	6.248	129.4	7.1	(19.2)
1984 03 31	14 54.14	-27 50.5					
1984 04 10	14 50.55	-27 47.0	5.360	6.244	149.5	4.7	(19.1)
1984 04 20	14 46.27	-27 37.4					
1984 04 30	14 41.59	-27 21.9	5.254	6.239	166.9	2.1	(19.1)
1984 05 10	14 36.80	-27 01.5					
1984 05 20	14 32.23	-26 37.5	5.265	6.235	161.8	2.9	(19.1)
1984 05 30	14 28.16	-26 11.6					
1984 06 09	14 24.83	-25 45.4	5.389	6.230	143.0	5.6	(19.1)
1984 06 19	14 22.42	-25 20.7					
1984 06 29	14 21.04	-24 58.8	5.605	6.225	123.6	7.8	(19.2)
1984 07 09	14 20.74	-24 40.9					
1984 07 19	14 21.54	-24 27.7	5.881	6.221	104.9	9.1	(19.3)
1984 07 29	14 23.39	-24 19.6					
1984 08 08	14 26.24	-24 16.6	6.186	6.216	87.0	9.4	(19.4)

1984 08 18	14 30.03	-24 18.6					
1984 08 28	14 34.66	-24 25.3	6.486	6.211	69.9	8.8	(19.5)
1984 09 07	14 40.07	-24 36.3					
1984 09 17	14 46.15	-24 51.0	6.754	6.206	53.3	7.5	(19.6)
1984 09 27	14 52.83	-25 09.0					
1984 10 07	15 00.03	-25 29.5	6.967	6.200	37.2	5.6	(19.6)

Periodic Comet Tuttle-Giacobini-Kresak — Elements MPC 7659

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1983 12 12	05 50.82 +08 52.0	1.712	2.669	-1.19	-0.4	21.5
1983 12 22	05 39.06 +08 42.9					
1984 01 01	05 26.67 +08 47.4	1.588	2.524	-1.15	-0.5	21.3
1984 01 11	05 14.97 +09 06.8					
1984 01 21	05 05.25 +09 40.5	1.574	2.373	-1.02	-0.9	21.4
1984 01 31	04 58.41 +10 26.8					
1984 02 10	04 55.01 +11 23.4	1.634	2.218	-0.87	-1.4	21.5
1984 02 20	04 55.24 +12 27.4					
1984 03 01	04 59.02 +13 36.2	1.724	2.059	-0.79	-2.0	21.6
1984 03 11	05 06.19 +14 47.2					
1984 03 21	05 16.53 +15 57.9	1.807	1.897	-0.79	-2.5	21.6
1984 03 31	05 29.84 +17 05.9					
1984 04 10	05 45.97 +18 08.8	1.862	1.735	-0.88	-2.8	21.5
1984 04 20	06 04.78 +19 03.9					
1984 04 30	06 26.18 +19 48.5	1.880	1.575	-1.04	-2.8	21.3
1984 05 10	06 50.12 +20 19.6					
1984 05 20	07 16.51 +20 33.9	1.861	1.423	-1.27	-2.3	21.1
1984 05 30	07 45.29 +20 27.8					
1984 06 09	08 16.34 +19 57.8	1.812	1.289	-1.56	-0.9	20.8
1984 06 19	08 49.47 +19 00.5					
1984 06 29	09 24.47 +17 33.2	1.748	1.187	-1.86	+1.5	20.6
1984 07 09	10 01.05 +15 34.4					
1984 07 19	10 38.85 +13 04.5	1.690	1.130	-2.13	+4.8	20.5
1984 07 29	11 17.52 +10 06.1					
1984 08 08	11 56.70 +06 44.6	1.665	1.131	-2.31	+8.0	20.5
1984 08 18	12 36.01 +03 08.4					
1984 08 28	13 15.17 -00 32.9	1.696	1.190	-2.36	+9.7	20.6

Periodic Comet Neujmin 1 — Elements MPC 7455

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	m2
1984 01 01	15 40.83 -30 21.7	4.052	3.365	40.5	10.9	19.0
1984 01 11	15 55.46 -31 26.4					
1984 01 21	16 10.28 -32 30.2	3.689	3.208	53.8	14.3	18.8
1984 01 31	16 25.25 -33 33.0					
1984 02 10	16 40.26 -34 34.9	3.292	3.049	67.2	17.4	18.5
1984 02 20	16 55.20 -35 36.3					
1984 03 01	17 09.97 -36 37.6	2.879	2.889	80.7	19.8	18.2
1984 03 11	17 24.41 -37 39.4					
1984 03 21	17 38.34 -38 42.5	2.466	2.729	94.3	21.4	17.8
1984 03 31	17 51.56 -39 47.8					
1984 04 10	18 03.79 -40 56.5	2.073	2.568	108.2	21.8	17.3
1984 04 20	18 14.72 -42 09.5					
1984 04 30	18 23.96 -43 27.3	1.715	2.409	122.3	20.7	16.7
1984 05 10	18 31.03 -44 49.9					
1984 05 20	18 35.43 -46 15.5	1.408	2.253	136.5	18.0	16.0
1984 05 30	18 36.63 -47 40.4					
1984 06 09	18 34.27 -48 57.6	1.167	2.102	148.8	14.5	15.4
1984 06 19	18 28.49 -49 57.2					
1984 06 29	18 20.06 -50 27.5	1.000	1.960	152.7	13.8	14.9
1984 07 09	18 10.80 -50 18.3					

1984 07 19	18 03.08	-49 25.4	0.907	1.830	144.2	18.9	14.7
1984 07 29	17 59.11	-47 50.8					
1984 08 08	18 00.40	-45 41.9	0.875	1.719	130.8	26.5	14.7
1984 08 18	18 07.36	-43 07.3					
1984 08 28	18 19.64	-40 13.6	0.890	1.631	118.1	33.1	14.8
1984 09 07	18 36.50	-37 04.9					
1984 09 17	18 56.93	-33 43.4	0.942	1.574	107.9	37.4	15.0
1984 09 27	19 19.93	-30 10.7					
1984 10 07	19 44.65	-26 28.4	1.030	1.553	99.9	39.3	15.2
1984 10 17	20 10.31	-22 39.4					
1984 10 27	20 36.33	-18 46.9	1.158	1.570	93.4	39.2	15.5
1984 11 06	21 02.33	-14 54.3					
1984 11 16	21 27.98	-11 05.0	1.331	1.622	87.5	37.5	15.8
1984 11 26	21 53.14	-07 21.9					
1984 12 06	22 17.73	-03 46.9	1.548	1.706	81.4	34.8	16.2
1984 12 16	22 41.72	-00 21.4					
1984 12 26	23 05.13	+02 53.8	1.806	1.815	74.7	31.5	16.5
1985 01 05	23 28.00	+05 58.4					
1985 01 15	23 50.36	+08 52.2	2.097	1.943	67.4	27.9	16.9
1985 01 25	00 12.27	+11 35.4					
1985 02 04	00 33.78	+14 08.3	2.409	2.084	59.2	24.0	17.2
1985 02 14	00 54.92	+16 30.9					
1985 02 24	01 15.75	+18 43.4	2.730	2.234	50.5	20.0	17.5
1985 03 06	01 36.28	+20 46.2					
1985 03 16	01 56.55	+22 39.4	3.046	2.389	41.2	15.9	17.8
1985 03 26	02 16.56	+24 23.1					
1985 04 05	02 36.31	+25 57.6	3.345	2.548	31.7	11.9	18.0

Periodic Comet Clark — Elements MPC 7658

Date ET	R. A. (1950) Decl.	Delta	r	Variation		Mag.
1984 01 01	14 29.40 -08 19.8	2.348	2.072	-1.19	+9.3	20.5
1984 01 11	14 50.07 -10 07.5					
1984 01 21	15 11.36 -11 51.5	2.049	1.964	-1.46	+10.4	20.0
1984 01 31	15 33.29 -13 31.4					
1984 02 10	15 55.85 -15 06.6	1.760	1.863	-1.81	+11.3	19.4
1984 02 20	16 19.02 -16 37.0					
1984 03 01	16 42.78 -18 02.6	1.492	1.769	-2.26	+11.7	18.8
1984 03 11	17 07.06 -19 23.7					
1984 03 21	17 31.74 -20 41.0	1.252	1.688	-2.86	+11.2	18.3
1984 03 31	17 56.70 -21 55.8					
1984 04 10	18 21.68 -23 09.7	1.045	1.623	-3.60	+9.2	17.7
1984 04 20	18 46.41 -24 25.1					
1984 04 30	19 10.50 -25 44.7	0.877	1.577	-4.50	+4.6	17.2
1984 05 10	19 33.39 -27 11.6					
1984 05 20	19 54.50 -28 48.5	0.748	1.554	-5.56	-3.0	16.8
1984 05 30	20 13.06 -30 37.3					
1984 06 09	20 28.23 -32 37.7	0.662	1.555	-6.72	-11.9	16.5
1984 06 19	20 39.30 -34 45.3					
1984 06 29	20 45.72 -36 51.6	0.624	1.580	-7.70	-17.2	16.5
1984 07 09	20 47.55 -38 43.1					
1984 07 19	20 45.72 -40 04.9	0.642	1.628	-7.83	-15.0	16.7
1984 07 29	20 41.84 -40 46.4					
1984 08 08	20 37.99 -40 43.5	0.723	1.695	-6.79	-10.0	17.1
1984 08 18	20 35.93 -40 00.6					
1984 08 28	20 36.58 -38 46.6	0.868	1.778	-5.25	-7.6	17.7
1984 09 07	20 40.29 -37 10.6					
1984 09 17	20 46.80 -35 20.9	1.071	1.872	-3.87	-7.3	18.4
1984 09 27	20 55.65 -33 22.8					
1984 10 07	21 06.37 -31 19.9	1.326	1.974	-2.84	-7.7	19.1

1984 10 17	21 18.48	-29 14.3						
1984 10 27	21 31.61	-27 07.2	1.621	2.082	-2.12	-7.8	19.7	
1984 11 06	21 45.48	-24 59.3						
1984 11 16	21 59.85	-22 51.2	1.945	2.194	-1.62	-7.6	20.4	

(2910) 1980 TK13 a,e,i = 2.20, 0.16, 3 Elements MPC 8136

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 09 23	22 23.92	-15 24.9	0.932	1.881	152.7	14.1	16.0
1983 10 03	22 19.31	-15 18.9					
1983 10 13	22 18.31	-14 50.5	1.045	1.869	132.3	23.3	16.5
1983 10 23	22 21.01	-14 01.7					
1983 11 02	22 27.07	-12 55.3	1.208	1.862	115.2	28.8	16.9
1983 11 12	22 36.07	-11 33.5					
1983 11 22	22 47.49	-09 58.7	1.401	1.860	100.8	31.4	17.3

1978 SR6 a,e,i = 3.00, 0.11, 10 Elements MPC 8149

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 09 23	23 18.13	-06 22.6	1.677	2.669	168.8	4.2	17.3
1983 10 03	23 10.23	-06 28.3					
1983 10 13	23 04.04	-06 24.4	1.781	2.667	146.0	12.1	17.7
1983 10 23	23 00.15	-06 09.1					
1983 11 02	22 58.77	-05 42.1	1.969	2.667	125.2	17.7	18.0
1983 11 12	22 59.93	-05 03.6					
1983 11 22	23 03.43	-04 14.2	2.212	2.669	106.7	20.8	18.3
1983 12 02	23 09.03	-03 14.9					
1983 12 12	23 16.46	-02 06.8	2.481	2.673	90.2	21.6	18.6

1981 EY26 a,e,i = 3.18, 0.11, 5 Elements MPC 8135

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1983 09 23	00 11.06	+04 18.2	2.300	3.300	-0.81	-6.5	16.3
1983 10 03	00 03.51	+03 41.2					
1983 10 13	23 56.51	+03 04.7	2.356	3.318	-0.79	-6.4	16.6
1983 10 23	23 50.68	+02 32.9					
1983 11 02	23 46.48	+02 09.1	2.521	3.335	-0.73	-6.0	16.9
1983 11 12	23 44.19	+01 55.5					
1983 11 22	23 43.88	+01 53.3	2.768	3.352	-0.65	-5.4	17.2
1983 12 02	23 45.49	+02 02.5					
1983 12 12	23 48.90	+02 22.8	3.063	3.368	-0.58	-4.8	17.5

1981 EX4 a,e,i = 3.10, 0.13, 20 Elements MPC 8143

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 09 23	00 18.39	+14 54.7	1.803	2.780	163.7	5.8	17.6
1983 10 03	00 11.85	+13 03.3					
1983 10 13	00 05.80	+11 03.8	1.826	2.799	164.0	5.6	17.6
1983 10 23	00 01.03	+09 06.1					
1983 11 02	23 58.09	+07 18.6	1.959	2.818	143.4	12.1	18.0
1983 11 12	23 57.28	+05 47.5					
1983 11 22	23 58.67	+04 36.2	2.180	2.839	122.8	17.0	18.4
1983 12 02	00 02.17	+03 45.5					
1983 12 12	00 07.58	+03 14.5	2.458	2.861	104.1	19.5	18.7

1981 EW24 a,e,i = 2.89, 0.07, 2 Elements MPC 8134

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1983 09 23	00 33.31	+01 59.8	1.692	2.687	-1.37	-8.0	17.3
1983 10 03	00 25.70	+01 01.6					
1983 10 13	00 18.28	+00 06.3	1.713	2.690	-1.35	-7.8	17.4
1983 10 23	00 11.99	-00 39.7					
1983 11 02	00 07.49	-01 11.9	1.838	2.695	-1.23	-7.1	17.8
1983 11 12	00 05.24	-01 28.0					

1983 11 22	00 05.38	-01 27.1	2.044	2.701	-1.08	-6.2	18.1
1983 12 02	00 07.84	-01 10.3					
1983 12 12	00 12.45	-00 39.0	2.300	2.708	-0.94	-5.4	18.4

1981 EY25 a,e,i = 2.91, 0.06, 2 Elements MPC 8135

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1983 09 23	01 11.73	+06 06.9	1.835	2.799	-1.22	-6.8	15.7
1983 10 03	01 04.55	+05 13.9					
1983 10 13	00 56.78	+04 18.2	1.813	2.809	-1.24	-7.1	15.4
1983 10 23	00 49.38	+03 26.2					
1983 11 02	00 43.16	+02 43.2	1.902	2.819	-1.16	-6.7	15.9
1983 11 12	00 38.75	+02 13.4					
1983 11 22	00 36.54	+01 59.0	2.087	2.830	-1.03	-5.9	16.2
1983 12 02	00 36.63	+02 00.3					
1983 12 12	00 38.96	+02 16.6	2.337	2.842	-0.91	-5.2	16.5
1983 12 22	00 43.34	+02 46.4					
1984 01 01	00 49.56	+03 27.7	2.620	2.853	-0.80	-4.5	16.8
1984 01 11	00 57.37	+04 18.7					
1984 01 21	01 06.56	+05 17.6	2.908	2.865	-0.73	-4.0	17.1
1984 01 31	01 16.93	+06 22.5					
1984 02 10	01 28.30	+07 31.9	3.183	2.877	-0.67	-3.6	17.2

1978 TZ6 a,e,i = 3.01, 0.06, 11 Elements MPC 8142

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 09 23	01 16.36	-10 03.8	2.130	3.083	157.8	7.1	16.2
1983 10 03	01 09.16	-10 58.3					
1983 10 13	01 01.42	-11 40.8	2.132	3.093	160.9	6.0	16.2
1983 10 23	00 53.96	-12 06.6					
1983 11 02	00 47.52	-12 13.5	2.243	3.102	144.2	10.8	16.5
1983 11 12	00 42.67	-12 01.1					
1983 11 22	00 39.79	-11 31.0	2.443	3.111	124.5	15.2	16.8
1983 12 02	00 38.98	-10 45.4					
1983 12 12	00 40.24	-09 47.1	2.702	3.120	106.0	17.7	17.0
1983 12 22	00 43.42	-08 38.5					
1984 01 01	00 48.33	-07 22.1	2.989	3.129	88.9	18.3	17.3
1984 01 11	00 54.76	-05 59.6					
1984 01 21	01 02.50	-04 32.9	3.275	3.137	73.2	17.5	17.5
1984 01 31	01 11.37	-03 03.3					
1984 02 10	01 21.21	-01 32.0	3.542	3.144	58.7	15.5	17.6

1981 EQ27 a,e,i = 2.56, 0.13, 3 Elements MPC 8135

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1983 09 23	02 50.41	+13 29.0	2.004	2.802	-1.09	-4.6	17.1
1983 10 03	02 46.49	+12 57.4					
1983 10 13	02 40.24	+12 15.7	1.837	2.783	-1.20	-5.3	16.7
1983 10 23	02 32.19	+11 26.8					
1983 11 02	02 23.17	+10 34.9	1.772	2.763	-1.23	-5.7	16.3
1983 11 12	02 14.17	+09 45.4					
1983 11 22	02 06.22	+09 03.8	1.821	2.741	-1.15	-5.5	16.7
1983 12 02	02 00.12	+08 34.6					
1983 12 12	01 56.40	+08 20.3	1.969	2.718	-1.03	-5.0	17.0
1983 12 22	01 55.27	+08 21.5					
1984 01 01	01 56.69	+08 37.6	2.183	2.694	-0.90	-4.4	17.3
1984 01 11	02 00.52	+09 06.8					
1984 01 21	02 06.53	+09 47.2	2.427	2.669	-0.81	-3.9	17.6
1984 01 31	02 14.45	+10 36.3					
1984 02 10	02 24.06	+11 32.2	2.674	2.643	-0.75	-3.4	17.7
1984 02 20	02 35.15	+12 32.8					
1984 03 01	02 47.53	+13 36.1	2.903	2.616	-0.72	-3.0	17.9

4113 P-L a,e,i = 2.43, 0.14, 2 Elements MPC 8145

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	09 23	03 06.01	+17 07.4	1.658	2.429	130.1	18.4	18.9
1983	10 03	03 04.14	+16 50.3					
1983	10 13	02 59.30	+16 19.9	1.473	2.397	151.5	11.4	18.5
1983	10 23	02 51.87	+15 37.3					
1983	11 02	02 42.65	+14 45.6	1.375	2.366	175.6	1.8	17.9
1983	11 12	02 32.83	+13 50.2					
1983	11 22	02 23.79	+12 58.3	1.385	2.335	159.2	8.6	18.2
1983	12 02	02 16.69	+12 16.7					
1983	12 12	02 12.35	+11 50.3	1.492	2.304	136.0	17.3	18.6
1983	12 22	02 11.14	+11 41.4					
1984	01 01	02 13.05	+11 50.0	1.667	2.273	115.8	22.9	18.9
1984	01 11	02 17.91	+12 14.4					
1984	01 21	02 25.41	+12 52.0	1.876	2.244	98.6	25.7	19.2
1984	01 31	02 35.22	+13 39.9					
1984	02 10	02 47.07	+14 35.4	2.094	2.217	83.8	26.3	19.4
1984	02 20	03 00.69	+15 35.5					
1984	03 01	03 15.86	+16 37.7	2.305	2.191	70.9	25.3	19.6

(2923) 1977 DA a,e,i = 2.45, 0.13, 3 Elements MPC 8145

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	09 23	03 26.21	+21 40.6	1.900	2.601	124.2	18.6	17.9
1983	10 03	03 24.77	+21 52.5					
1983	10 13	03 20.37	+21 53.5	1.694	2.576	145.1	12.8	17.5
1983	10 23	03 13.23	+21 42.3					
1983	11 02	03 03.97	+21 18.9	1.570	2.550	168.3	4.5	17.1
1983	11 12	02 53.58	+20 44.8					
1983	11 22	02 43.40	+20 04.5	1.555	2.523	165.4	5.7	17.1
1983	12 02	02 34.65	+19 23.8					
1983	12 12	02 28.30	+18 48.9	1.646	2.495	141.7	14.2	17.4
1983	12 22	02 24.91	+18 24.6					
1984	01 01	02 24.61	+18 13.3	1.818	2.466	120.4	20.1	17.7
1984	01 11	02 27.31	+18 15.7					
1984	01 21	02 32.75	+18 30.9	2.034	2.438	102.0	23.3	18.0
1984	01 31	02 40.63	+18 57.0					
1984	02 10	02 50.65	+19 31.9	2.265	2.408	86.1	24.1	18.2
1984	02 20	03 02.54	+20 13.1					
1984	03 01	03 16.06	+20 58.1	2.489	2.379	72.1	23.3	18.4

1981 EN27 a,e,i = 2.44, 0.12, 3 Elements MPC 8150

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	09 23	03 23.16	+15 49.8	1.695	2.429	126.4	19.4	18.0
1983	10 03	03 22.54	+15 28.9					
1983	10 13	03 18.90	+14 56.3	1.501	2.401	147.2	13.0	17.6
1983	10 23	03 12.47	+14 13.7					
1983	11 02	03 03.89	+13 24.0	1.389	2.374	170.4	4.0	17.1
1983	11 12	02 54.19	+12 32.2					
1983	11 22	02 44.72	+11 44.8	1.383	2.346	163.3	7.0	17.2
1983	12 02	02 36.75	+11 07.9					
1983	12 12	02 31.23	+10 46.3	1.478	2.319	139.9	15.9	17.5
1983	12 22	02 28.72	+10 42.0					
1984	01 01	02 29.33	+10 54.9	1.647	2.293	119.2	22.0	17.9
1984	01 11	02 32.95	+11 23.2					
1984	01 21	02 39.32	+12 04.2	1.857	2.268	101.5	25.2	18.2
1984	01 31	02 48.11	+12 55.1					
1984	02 10	02 59.04	+13 53.0	2.079	2.245	86.4	26.0	18.4
1984	02 20	03 11.82	+14 55.2					
1984	03 01	03 26.22	+15 58.9	2.298	2.223	73.1	25.3	18.6

1981 EF28 a,e,i = 2.65, 0.16, 11 Elements MPC 8136

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1983 09 23	05 25.39	+32 29.2	2.288	2.596	-1.09	-1.9	18.4
1983 10 03	05 32.22	+33 25.4					
1983 10 13	05 36.33	+34 22.2	2.073	2.630	-1.25	-1.5	18.2
1983 10 23	05 37.32	+35 18.8					
1983 11 02	05 34.92	+36 13.2	1.892	2.664	-1.45	-1.5	17.9
1983 11 12	05 29.05	+37 01.4					
1983 11 22	05 20.09	+37 38.4	1.780	2.697	-1.62	-2.4	17.6
1983 12 02	05 08.88	+37 59.1					
1983 12 12	04 56.74	+38 00.3	1.767	2.729	-1.65	-3.7	17.5
1983 12 22	04 45.24	+37 42.8					
1984 01 01	04 35.70	+37 11.0	1.866	2.760	-1.51	-4.6	17.8
1984 01 11	04 29.06	+36 31.3					
1984 01 21	04 25.73	+35 49.9	2.061	2.791	-1.31	-4.6	18.2
1984 01 31	04 25.68	+35 11.2					
1984 02 10	04 28.68	+34 37.8	2.320	2.820	-1.12	-3.8	18.5
1984 02 20	04 34.36	+34 10.5					
1984 03 01	04 42.32	+33 48.6	2.611	2.848	-0.98	-2.9	18.8

2630 P-L a,e,i = 2.43, 0.19, 3 Elements MPC 8144

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 09 23	05 16.27	+24 11.2	1.539	1.963	98.9	30.3	19.1
1983 10 03	05 28.91	+24 43.6					
1983 10 13	05 38.82	+25 13.2	1.347	1.969	113.4	27.7	18.8
1983 10 23	05 45.49	+25 41.9					
1983 11 02	05 48.40	+26 10.5	1.182	1.981	131.1	22.2	18.4
1983 11 12	05 47.15	+26 38.9					
1983 11 22	05 41.83	+27 05.0	1.069	1.998	152.5	13.2	18.0
1983 12 02	05 33.07	+27 25.3					
1983 12 12	05 22.25	+27 36.3	1.037	2.020	174.8	2.5	17.5
1983 12 22	05 11.32	+27 37.0					
1984 01 01	05 02.18	+27 29.5	1.103	2.046	157.4	10.6	18.0
1984 01 11	04 56.22	+27 18.2					
1984 01 21	04 54.14	+27 07.5	1.257	2.077	135.5	19.4	18.5
1984 01 31	04 55.94	+26 59.6					
1984 02 10	05 01.33	+26 55.4	1.473	2.111	116.9	24.6	19.0
1984 02 20	05 09.83	+26 53.9					
1984 03 01	05 20.91	+26 53.4	1.724	2.148	101.1	26.9	19.5

1981 DD a,e,i = 2.35, 0.13, 6 Elements MPC 8143

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 09 23	05 48.08	+20 44.9	2.267	2.506	91.7	23.6	18.8
1983 10 03	05 55.98	+20 19.9					
1983 10 13	06 01.47	+19 51.0	2.031	2.528	108.2	22.0	18.6
1983 10 23	06 04.22	+19 19.4					
1983 11 02	06 03.99	+18 46.1	1.820	2.548	127.4	18.0	18.2
1983 11 12	06 00.61	+18 12.2					
1983 11 22	05 54.23	+17 38.7	1.666	2.567	149.5	11.3	17.9
1983 12 02	05 45.35	+17 06.7					
1983 12 12	05 34.85	+16 37.7	1.605	2.583	171.6	3.2	17.6
1983 12 22	05 24.00	+16 13.4					
1984 01 01	05 14.05	+15 55.6	1.658	2.598	158.5	8.0	17.8
1984 01 11	05 06.10	+15 45.8					
1984 01 21	05 00.84	+15 44.5	1.816	2.611	135.6	15.3	18.2
1984 01 31	04 58.55	+15 51.2					
1984 02 10	04 59.21	+16 04.7	2.045	2.622	115.2	19.9	18.6
1984 02 20	05 02.62	+16 22.9					
1984 03 01	05 08.46	+16 44.0	2.312	2.630	97.4	21.9	18.9

1981 EA8 a,e,i = 2.24, 0.11, 3 Elements MPC 8150

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 11 02	08 10.63	+22 36.1	2.009	2.370	98.6	24.5	18.5
1983 11 12	08 18.40	+22 12.2					
1983 11 22	08 23.60	+21 54.8	1.746	2.348	115.6	22.3	18.1
1983 12 02	08 25.85	+21 45.7					
1983 12 12	08 24.77	+21 46.0	1.518	2.326	135.6	17.2	17.6
1983 12 22	08 20.20	+21 55.2					
1984 01 01	08 12.30	+22 11.0	1.358	2.302	158.8	8.9	17.2
1984 01 11	08 01.76	+22 29.5					
1984 01 21	07 49.88	+22 45.6	1.296	2.278	175.2	2.1	16.7
1984 01 31	07 38.25	+22 55.3					
1984 02 10	07 28.51	+22 57.0	1.342	2.253	150.3	12.5	17.2
1984 02 20	07 21.84	+22 50.8					
1984 03 01	07 18.80	+22 38.1	1.475	2.227	128.0	20.5	17.6
1984 03 11	07 19.49	+22 20.1					
1984 03 21	07 23.63	+21 57.0	1.662	2.201	109.2	25.3	17.9
1984 03 31	07 30.78	+21 28.8					
1984 04 10	07 40.51	+20 54.9	1.871	2.176	93.5	27.4	18.2

(2911) 1938 GJ a,e,i = 2.80, 0.09, 10 Elements MPC 8137

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 11 02	08 15.79	+11 55.8	2.595	2.858	95.0	20.2	17.8
1983 11 12	08 21.58	+11 26.7					
1983 11 22	08 25.32	+11 04.8	2.312	2.840	112.5	18.7	17.5
1983 12 02	08 26.79	+10 52.4					
1983 12 12	08 25.78	+10 51.8	2.064	2.822	132.3	15.0	17.2
1983 12 22	08 22.28	+11 04.8					
1984 01 01	08 16.45	+11 32.0	1.884	2.803	154.4	8.7	16.8
1984 01 11	08 08.77	+12 12.4					
1984 01 21	08 00.03	+13 03.4	1.805	2.784	172.6	2.6	16.4
1984 01 31	07 51.24	+14 00.7					
1984 02 10	07 43.43	+14 59.9	1.842	2.765	154.4	8.9	16.7
1984 02 20	07 37.51	+15 56.6					
1984 03 01	07 34.03	+16 47.9	1.980	2.746	132.2	15.5	17.0
1984 03 11	07 33.27	+17 31.8					
1984 03 21	07 35.23	+18 07.2	2.186	2.727	112.5	19.7	17.3
1984 03 31	07 39.71	+18 33.7					
1984 04 10	07 46.47	+18 50.8	2.426	2.709	95.3	21.6	17.6

1981 DK1 a,e,i = 2.37, 0.30, 12 Elements MPC 8143

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 11 22	09 18.07	+01 44.1	2.786	3.068	97.1	18.6	20.1
1983 12 02	09 20.33	+00 47.7					
1983 12 12	09 20.45	+00 00.1	2.518	3.073	115.5	16.8	19.8
1983 12 22	09 18.30	-00 36.1					
1984 01 01	09 13.86	-00 57.9	2.293	3.074	135.6	12.9	19.5
1984 01 11	09 07.27	-01 03.0					
1984 01 21	08 58.98	-00 49.9	2.149	3.071	155.4	7.7	19.3
1984 01 31	08 49.65	-00 19.1					
1984 02 10	08 40.17	+00 27.3	2.115	3.065	161.2	6.0	19.2
1984 02 20	08 31.44	+01 24.6					
1984 03 01	08 24.26	+02 27.9	2.196	3.055	144.2	10.9	19.4
1984 03 11	08 19.17	+03 31.8					
1984 03 21	08 16.47	+04 31.9	2.371	3.041	123.9	15.8	19.7
1984 03 31	08 16.18	+05 25.2					
1984 04 10	08 18.21	+06 09.7	2.603	3.024	105.1	18.7	19.9
1984 04 20	08 22.34	+06 44.2					
1984 04 30	08 28.31	+07 08.3	2.858	3.002	88.3	19.6	20.1

1979 SN11 a,e,i = 2.30, 0.18, 2 Elements MPC 7356

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		Mag.
1983 11 22	09 58.30	+11 15.5	1.721	1.997	-1.35	+7.5	18.4
1983 12 02	10 09.53	+10 03.2					
1983 12 12	10 18.29	+09 01.9	1.531	2.033	-1.51	+8.7	18.1
1983 12 22	10 24.23	+08 14.8					
1984 01 01	10 27.02	+07 44.9	1.357	2.071	-1.75	+10.2	17.8
1984 01 11	10 26.36	+07 34.9					
1984 01 21	10 22.24	+07 45.5	1.227	2.111	-2.04	+11.6	17.4
1984 01 31	10 14.99	+08 15.5					
1984 02 10	10 05.50	+09 00.2	1.175	2.152	-2.23	+12.1	17.1
1984 02 20	09 55.13	+09 52.2					
1984 03 01	09 45.42	+10 43.3	1.223	2.194	-2.15	+11.2	17.3
1984 03 11	09 37.70	+11 26.2					
1984 03 21	09 32.87	+11 56.5	1.370	2.237	-1.88	+9.5	17.8
1984 03 31	09 31.22	+12 12.3					
1984 04 10	09 32.67	+12 13.5	1.588	2.279	-1.56	+7.9	18.3
1984 04 20	09 36.92	+12 00.8					
1984 04 30	09 43.51	+11 35.3	1.848	2.321	-1.29	+6.8	18.7

(2863) Ben Mayer a,e,i = 3.17, 0.19, 2 Elements MPC 7778

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 11 22	10 21.44	+10 53.3	3.629	3.684	85.4	15.5	19.5
1983 12 02	10 26.11	+10 31.0					
1983 12 12	10 29.25	+10 17.7	3.341	3.700	103.7	15.0	19.3
1983 12 22	10 30.69	+10 14.4					
1984 01 01	10 30.32	+10 22.0	3.077	3.715	123.8	12.7	19.1
1984 01 11	10 28.09	+10 40.5					
1984 01 21	10 24.07	+11 09.1	2.872	3.728	145.9	8.5	18.8
1984 01 31	10 18.50	+11 45.9					
1984 02 10	10 11.75	+12 28.1	2.766	3.740	169.5	2.8	18.5
1984 02 20	10 04.41	+13 12.0					
1984 03 01	09 57.11	+13 53.8	2.780	3.750	166.4	3.6	18.6
1984 03 11	09 50.48	+14 30.2					
1984 03 21	09 45.07	+14 58.6	2.912	3.759	143.4	9.1	18.9
1984 03 31	09 41.24	+15 17.9					
1984 04 10	09 39.20	+15 27.4	3.136	3.766	122.1	13.0	19.2
1984 04 20	09 38.99	+15 27.5					
1984 04 30	09 40.53	+15 18.6	3.415	3.771	103.0	15.1	19.4

1978 TR3 a,e,i = 2.56, 0.11, 15 Elements MPC 7779

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 12 12	10 41.10	+24 52.1	1.938	2.403	106.0	23.2	17.4
1983 12 22	10 46.04	+24 50.9					
1984 01 01	10 47.94	+25 03.0	1.733	2.424	124.0	19.7	17.1
1984 01 11	10 46.50	+25 26.6					
1984 01 21	10 41.62	+25 57.5	1.580	2.446	144.2	13.6	16.7
1984 01 31	10 33.53	+26 28.9					
1984 02 10	10 22.96	+26 52.5	1.509	2.469	162.7	6.8	16.5
1984 02 20	10 11.15	+27 00.3					
1984 03 01	09 59.56	+26 47.5	1.546	2.492	157.9	8.6	16.6
1984 03 11	09 49.60	+26 13.3					
1984 03 21	09 42.27	+25 20.4	1.684	2.515	138.1	15.3	17.0
1984 03 31	09 38.00	+24 13.1					
1984 04 10	09 36.84	+22 55.3	1.899	2.539	118.8	20.2	17.4
1984 04 20	09 38.53	+21 30.4					
1984 04 30	09 42.69	+20 00.3	2.158	2.562	101.8	22.6	17.7
1984 05 10	09 48.93	+18 26.2					
1984 05 20	09 56.86	+16 48.8	2.436	2.586	86.8	23.0	18.0

1981 QJ1 a,e,i = 3.07, 0.12, 20 Elements MPC 7460

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 12 12	10 43.23	+17 41.8	2.557	2.942	103.2	19.0	18.8
1983 12 22	10 45.60	+17 10.3					
1984 01 01	10 45.55	+16 48.4	2.319	2.965	122.4	16.3	18.6
1984 01 11	10 42.92	+16 35.8					
1984 01 21	10 37.75	+16 30.5	2.135	2.989	144.2	11.1	18.3
1984 01 31	10 30.29	+16 30.1					
1984 02 10	10 21.08	+16 30.8	2.041	3.012	167.5	4.1	18.0
1984 02 20	10 10.98	+16 28.6					
1984 03 01	10 00.95	+16 20.5	2.065	3.036	165.9	4.5	18.0
1984 03 11	09 51.98	+16 04.4					
1984 03 21	09 44.83	+15 39.6	2.204	3.059	143.1	11.3	18.4
1984 03 31	09 39.92	+15 06.7					
1984 04 10	09 37.44	+14 26.5	2.431	3.083	122.1	16.0	18.7
1984 04 20	09 37.31	+13 39.7					
1984 04 30	09 39.33	+12 47.2	2.712	3.106	103.5	18.4	19.1
1984 05 10	09 43.25	+11 49.4					
1984 05 20	09 48.79	+10 46.7	3.013	3.129	87.0	18.8	19.3

1979 FJ2 a,e,i = 3.12, 0.16, 3 Elements MPC 6517

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 12 12	10 33.32	+11 15.5	3.183	3.539	103.1	15.7	18.1
1983 12 22	10 35.59	+11 12.5					
1984 01 01	10 36.02	+11 20.8	2.892	3.524	122.9	13.6	17.9
1984 01 11	10 34.49	+11 40.7					
1984 01 21	10 31.02	+12 11.5	2.659	3.508	144.7	9.3	17.6
1984 01 31	10 25.78	+12 51.4					
1984 02 10	10 19.14	+13 37.2	2.520	3.491	167.9	3.4	17.2
1984 02 20	10 11.65	+14 24.8					
1984 03 01	10 04.00	+15 09.9	2.499	3.472	167.2	3.6	17.2
1984 03 11	09 56.93	+15 48.4					
1984 03 21	09 51.08	+16 17.5	2.595	3.452	144.2	9.7	17.5
1984 03 31	09 46.90	+16 35.8					
1984 04 10	09 44.67	+16 42.8	2.782	3.431	122.9	14.2	17.7
1984 04 20	09 44.46	+16 38.8					
1984 04 30	09 46.20	+16 24.8	3.024	3.409	103.9	16.7	17.9
1984 05 10	09 49.76	+16 01.4					
1984 05 20	09 54.92	+15 29.6	3.287	3.386	86.9	17.4	18.1

(2809) 1978 QW2 a,e,i = 2.43, 0.18, 2 Elements MPC 7464

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 12 12	10 41.26	+10 14.7	2.436	2.796	100.9	20.2	19.1
1983 12 22	10 44.74	+09 55.5					
1984 01 01	10 45.92	+09 49.8	2.188	2.812	120.1	17.6	18.9
1984 01 11	10 44.57	+09 58.5					
1984 01 21	10 40.66	+10 21.4	1.987	2.827	141.8	12.4	18.5
1984 01 31	10 34.33	+10 56.8					
1984 02 10	10 26.03	+11 41.1	1.872	2.839	165.9	4.9	18.2
1984 02 20	10 16.56	+12 29.1					
1984 03 01	10 06.89	+13 14.9	1.870	2.848	168.8	3.9	18.2
1984 03 11	09 58.05	+13 53.4					
1984 03 21	09 50.94	+14 21.0	1.982	2.855	144.9	11.6	18.5
1984 03 31	09 46.08	+14 36.0					
1984 04 10	09 43.75	+14 38.1	2.182	2.859	123.4	17.0	18.9
1984 04 20	09 43.92	+14 28.1					
1984 04 30	09 46.40	+14 07.0	2.434	2.861	104.7	19.9	19.2
1984 05 10	09 50.96	+13 35.7					
1984 05 20	09 57.28	+12 55.4	2.706	2.860	88.3	20.7	19.4

(2835) Ryoma a,e,i = 2.75, 0.08, 1 Elements MPC 7612

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 12 12	10 40.41	+09 35.4	2.571	2.921	100.9	19.3	17.9
1983 12 22	10 44.13	+09 14.7					
1984 01 01	10 45.70	+09 06.6	2.314	2.931	119.9	16.9	17.6
1984 01 11	10 44.93	+09 12.3					
1984 01 21	10 41.78	+09 31.7	2.106	2.939	141.3	12.1	17.3
1984 01 31	10 36.39	+10 03.4					
1984 02 10	10 29.16	+10 44.4	1.983	2.947	164.9	5.0	17.0
1984 02 20	10 20.77	+11 30.0					
1984 03 01	10 12.11	+12 14.9	1.971	2.953	170.4	3.2	16.9
1984 03 11	10 04.10	+12 54.1					
1984 03 21	09 57.58	+13 23.8	2.074	2.958	146.8	10.6	17.3
1984 03 31	09 53.08	+13 41.9					
1984 04 10	09 50.89	+13 47.7	2.268	2.963	125.4	16.0	17.6
1984 04 20	09 51.06	+13 41.4					
1984 04 30	09 53.42	+13 23.9	2.517	2.966	106.5	19.0	17.9
1984 05 10	09 57.78	+12 56.2					
1984 05 20	10 03.87	+12 19.1	2.790	2.968	90.0	19.9	18.1

1968 FH a,e,i = 3.13, 0.13, 2 Elements MPC 7666

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 12 12	10 38.19	+10 45.6	2.986	3.330	101.8	16.8	17.9
1983 12 22	10 41.35	+10 36.9					
1984 01 01	10 42.62	+10 39.8	2.692	3.310	121.1	14.7	17.6
1984 01 11	10 41.85	+10 55.2					
1984 01 21	10 39.01	+11 22.5	2.452	3.288	142.5	10.5	17.3
1984 01 31	10 34.23	+12 00.3					
1984 02 10	10 27.83	+12 45.5	2.301	3.266	165.7	4.3	16.9
1984 02 20	10 20.37	+13 33.9					
1984 03 01	10 12.58	+14 20.5	2.264	3.243	169.4	3.2	16.8
1984 03 11	10 05.26	+15 00.9					
1984 03 21	09 59.15	+15 31.7	2.343	3.220	146.3	9.9	17.1
1984 03 31	09 54.76	+15 50.8					
1984 04 10	09 52.43	+15 57.7	2.514	3.196	124.9	14.9	17.4
1984 04 20	09 52.25	+15 52.7					
1984 04 30	09 54.16	+15 36.5	2.743	3.171	105.9	17.8	17.6
1984 05 10	09 58.00	+15 10.1					
1984 05 20	10 03.56	+14 34.4	2.995	3.146	89.1	18.8	17.8

(2817) 1982 UJ a,e,i = 2.36, 0.18, 2 Elements MPC 7467

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983 12 12	10 44.66	+05 26.9	2.365	2.690	98.4	21.2	19.5
1983 12 22	10 48.70	+04 50.5					
1984 01 01	10 50.45	+04 27.4	2.119	2.711	117.0	18.9	19.2
1984 01 11	10 49.67	+04 19.5					
1984 01 21	10 46.30	+04 28.0	1.914	2.728	138.3	13.9	18.9
1984 01 31	10 40.42	+04 52.7					
1984 02 10	10 32.46	+05 32.0	1.788	2.743	162.0	6.4	18.6
1984 02 20	10 23.15	+06 21.6					
1984 03 01	10 13.49	+07 16.1	1.772	2.756	171.8	2.9	18.4
1984 03 11	10 04.53	+08 09.2					
1984 03 21	09 57.22	+08 55.4	1.870	2.766	148.1	11.0	18.8
1984 03 31	09 52.15	+09 31.1					
1984 04 10	09 49.62	+09 54.3	2.059	2.773	126.3	16.9	19.2
1984 04 20	09 49.66	+10 04.4					
1984 04 30	09 52.07	+10 01.9	2.305	2.777	107.4	20.3	19.5
1984 05 10	09 56.62	+09 47.4					
1984 05 20	10 03.00	+09 21.9	2.574	2.779	90.8	21.4	19.8

1979 BA a,e,i = 1.84, 0.20, 47 Elements MPC 5443

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	10 38.63	-16 04.6	1.177	1.549	91.1	39.4	19.2
1983	12 22	10 50.10	-13 50.5					
1984	01 01	10 58.82	-10 30.8	0.977	1.590	108.4	35.9	18.8
1984	01 11	11 04.12	-05 44.5					
1984	01 21	11 05.37	+00 47.8	0.802	1.636	132.4	26.4	18.2
1984	01 31	11 02.00	+09 09.0					
1984	02 10	10 53.84	+18 44.0	0.725	1.685	159.5	11.9	17.7
1984	02 20	10 41.75	+28 13.4					
1984	03 01	10 27.66	+36 14.2	0.801	1.736	151.2	16.0	18.1
1984	03 11	10 14.34	+42 05.5					
1984	03 21	10 04.40	+45 53.5	0.998	1.788	127.5	26.2	18.9
1984	03 31	09 59.25	+48 05.2					
1984	04 10	09 59.26	+49 07.8	1.249	1.840	109.1	31.0	19.5
1984	04 20	10 03.94	+49 22.5					
1984	04 30	10 12.45	+49 03.0	1.512	1.890	95.1	32.1	20.0
1984	05 10	10 23.98	+48 18.1					
1984	05 20	10 37.78	+47 13.7	1.764	1.938	83.9	31.3	20.4

1974 YP a,e,i = 2.59, 0.26, 13 Elements MPC 7606

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 01.75	-05 26.9	2.821	2.990	90.2	19.2	18.6
1983	12 22	11 05.23	-06 45.0					
1984	01 01	11 06.70	-07 54.0	2.577	3.028	107.9	18.0	18.4
1984	01 11	11 05.96	-08 51.5					
1984	01 21	11 02.94	-09 34.7	2.362	3.062	127.5	14.8	18.1
1984	01 31	10 57.71	-10 01.2					
1984	02 10	10 50.54	-10 08.7	2.213	3.094	148.0	9.7	17.9
1984	02 20	10 42.00	-09 56.9					
1984	03 01	10 32.82	-09 27.1	2.165	3.124	162.4	5.5	17.7
1984	03 11	10 23.90	-08 42.9					
1984	03 21	10 16.06	-07 49.9	2.231	3.150	152.9	8.3	17.9
1984	03 31	10 09.92	-06 53.9					
1984	04 10	10 05.88	-06 00.6	2.400	3.174	133.5	13.2	18.2
1984	04 20	10 04.07	-05 14.2					
1984	04 30	10 04.45	-04 37.3	2.643	3.195	114.5	16.7	18.5
1984	05 10	10 06.85	-04 11.7					
1984	05 20	10 11.04	-03 57.7	2.924	3.213	97.3	18.2	18.8

(2815) 1982 RL a,e,i = 2.23, 0.17, 6 Elements MPC 7466

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	10 58.56	+08 58.3	2.196	2.506	96.5	23.0	18.7
1983	12 22	11 04.66	+08 46.6					
1984	01 01	11 08.46	+08 51.4	1.957	2.529	114.5	20.7	18.4
1984	01 11	11 09.68	+09 14.6					
1984	01 21	11 08.10	+09 56.6	1.753	2.549	135.3	15.8	18.1
1984	01 31	11 03.69	+10 56.1					
1984	02 10	10 56.69	+12 09.2	1.622	2.566	158.6	8.0	17.8
1984	02 20	10 47.75	+13 28.8					
1984	03 01	10 37.84	+14 46.6	1.594	2.580	172.7	2.8	17.5
1984	03 11	10 28.16	+15 54.1					
1984	03 21	10 19.86	+16 45.2	1.680	2.592	150.1	11.0	17.9
1984	03 31	10 13.76	+17 17.2					
1984	04 10	10 10.32	+17 29.8	1.859	2.601	128.2	17.6	18.3
1984	04 20	10 09.66	+17 24.7					
1984	04 30	10 11.59	+17 04.2	2.094	2.607	109.3	21.4	18.7
1984	05 10	10 15.88	+16 30.2					
1984	05 20	10 22.17	+15 44.8	2.355	2.610	92.9	22.8	19.0

1975 VD a,e,i = 2.31, 0.23, 5 Elements MPC 7614

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 07.53	+09 45.5	2.490	2.753	94.8	20.9	20.4
1983	12 22	11 12.28	+09 19.8					
1984	01 01	11 14.84	+09 07.2	2.239	2.777	113.2	19.0	20.1
1984	01 11	11 14.95	+09 09.0					
1984	01 21	11 12.45	+09 25.5	2.022	2.797	134.1	14.6	19.8
1984	01 31	11 07.33	+09 55.4					
1984	02 10	10 59.83	+10 36.1	1.877	2.815	157.6	7.7	19.5
1984	02 20	10 50.56	+11 22.7					
1984	03 01	10 40.39	+12 09.2	1.840	2.829	175.4	1.6	19.1
1984	03 11	10 30.37	+12 49.9					
1984	03 21	10 21.55	+13 19.9	1.920	2.839	152.1	9.4	19.6
1984	03 31	10 14.68	+13 36.8					
1984	04 10	10 10.24	+13 39.8	2.100	2.847	129.8	15.7	19.9
1984	04 20	10 08.36	+13 29.5					
1984	04 30	10 08.93	+13 07.1	2.342	2.851	110.2	19.4	20.3
1984	05 10	10 11.76	+12 33.9					
1984	05 20	10 16.55	+11 51.1	2.613	2.852	93.1	20.8	20.5

(2790) 1965 UU1 a,e,i = 2.65, 0.18, 15 Elements MPC 7455

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 04.89	+24 34.4	2.157	2.534	100.8	22.4	16.7
1983	12 22	11 11.74	+25 04.3					
1984	01 01	11 16.01	+25 50.8	1.960	2.573	118.0	19.7	16.5
1984	01 11	11 17.36	+26 52.6					
1984	01 21	11 15.59	+28 05.7	1.807	2.611	136.6	15.0	16.2
1984	01 31	11 10.69	+29 23.6					
1984	02 10	11 02.98	+30 37.3	1.731	2.650	153.4	9.6	16.0
1984	02 20	10 53.27	+31 36.7					
1984	03 01	10 42.67	+32 13.5	1.754	2.688	155.5	8.8	16.1
1984	03 11	10 32.50	+32 23.1					
1984	03 21	10 23.95	+32 05.4	1.880	2.725	140.6	13.4	16.4
1984	03 31	10 17.77	+31 24.0					
1984	04 10	10 14.35	+30 23.4	2.089	2.761	122.6	17.8	16.7
1984	04 20	10 13.69	+29 08.6					
1984	04 30	10 15.54	+27 43.8	2.350	2.796	105.7	20.3	17.1
1984	05 10	10 19.60	+26 11.7					
1984	05 20	10 25.51	+24 34.6	2.637	2.830	90.3	21.0	17.3

1982 RB1 a,e,i = 2.24, 0.19, 8 Elements MPC 7610

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 03.12	-01 02.5	2.315	2.541	91.6	22.8	19.4
1983	12 22	11 09.14	-01 52.3					
1984	01 01	11 13.02	-02 28.8	2.072	2.566	109.0	21.2	19.1
1984	01 11	11 14.47	-02 48.9					
1984	01 21	11 13.31	-02 50.1	1.855	2.588	128.9	17.2	18.8
1984	01 31	11 09.49	-02 30.2					
1984	02 10	11 03.17	-01 48.7	1.698	2.608	151.5	10.4	18.5
1984	02 20	10 54.92	-00 47.4					
1984	03 01	10 45.58	+00 29.0	1.639	2.625	172.7	2.7	18.1
1984	03 11	10 36.24	+01 52.9					
1984	03 21	10 27.98	+03 16.0	1.694	2.638	156.7	8.6	18.4
1984	03 31	10 21.64	+04 30.9					
1984	04 10	10 17.76	+05 32.3	1.850	2.649	134.3	15.7	18.8
1984	04 20	10 16.51	+06 17.6					
1984	04 30	10 17.80	+06 46.1	2.076	2.656	114.4	20.2	19.2
1984	05 10	10 21.43	+06 58.4					
1984	05 20	10 27.10	+06 55.5	2.336	2.660	97.3	22.2	19.5

1978 PU3 a,e,i = 2.33, 0.13, 7 Elements MPC 7773

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 02.69	+02 16.5	2.403	2.643	93.0	21.8	19.9
1983	12 22	11 08.91	+01 40.2					
1984	01 01	11 13.14	+01 17.4	2.132	2.643	110.5	20.4	19.6
1984	01 11	11 15.08	+01 10.8					
1984	01 21	11 14.52	+01 22.6	1.891	2.639	130.6	16.5	19.3
1984	01 31	11 11.37	+01 53.9					
1984	02 10	11 05.75	+02 44.8	1.714	2.634	153.4	9.7	18.9
1984	02 20	10 58.11	+03 52.1					
1984	03 01	10 49.24	+05 10.3	1.636	2.626	177.3	1.0	18.3
1984	03 11	10 40.16	+06 31.9					
1984	03 21	10 31.97	+07 48.5	1.672	2.616	156.6	8.7	18.8
1984	03 31	10 25.57	+08 53.8					
1984	04 10	10 21.57	+09 43.3	1.808	2.604	133.8	16.1	19.1
1984	04 20	10 20.21	+10 15.4					
1984	04 30	10 21.46	+10 30.1	2.012	2.590	114.0	20.8	19.5
1984	05 10	10 25.14	+10 28.5					
1984	05 20	10 30.96	+10 12.1	2.248	2.574	96.9	23.0	19.7

(2818) 2580 P-L a,e,i = 2.38, 0.15, 3 Elements MPC 7467

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	10 46.90	+11 31.0	1.643	2.059	100.1	28.1	18.8
1983	12 22	10 57.50	+10 48.1					
1984	01 01	11 05.80	+10 19.9	1.415	2.044	115.7	25.7	18.4
1984	01 11	11 11.36	+10 09.3					
1984	01 21	11 13.82	+10 18.0	1.221	2.032	134.1	20.3	17.9
1984	01 31	11 12.88	+10 46.2					
1984	02 10	11 08.56	+11 31.3	1.085	2.025	155.7	11.6	17.5
1984	02 20	11 01.41	+12 26.5					
1984	03 01	10 52.47	+13 22.6	1.034	2.022	174.2	2.8	17.1
1984	03 11	10 43.29	+14 09.2					
1984	03 21	10 35.47	+14 38.0	1.079	2.024	154.4	12.3	17.5
1984	03 31	10 30.21	+14 45.2					
1984	04 10	10 28.18	+14 30.4	1.206	2.029	133.4	21.0	17.9
1984	04 20	10 29.51	+13 55.5					
1984	04 30	10 33.92	+13 03.4	1.388	2.039	115.8	26.4	18.4
1984	05 10	10 41.04	+11 56.4					
1984	05 20	10 50.39	+10 37.0	1.600	2.053	101.2	28.9	18.7

1978 QB3 a,e,i = 2.44, 0.20, 5 Elements MPC 7367

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 15.34	+07 08.1	2.588	2.800	92.0	20.6	19.3
1983	12 22	11 20.56	+06 32.3					
1984	01 01	11 23.73	+06 08.8	2.334	2.826	110.0	19.1	19.0
1984	01 11	11 24.60	+05 58.9					
1984	01 21	11 23.00	+06 03.5	2.110	2.849	130.5	15.2	18.7
1984	01 31	11 18.88	+06 22.2					
1984	02 10	11 12.42	+06 53.6	1.952	2.869	153.5	8.8	18.4
1984	02 20	11 04.09	+07 34.1					
1984	03 01	10 54.66	+08 18.9	1.896	2.887	177.9	0.7	17.9
1984	03 11	10 45.08	+09 02.4					
1984	03 21	10 36.35	+09 39.1	1.958	2.901	157.0	7.7	18.4
1984	03 31	10 29.26	+10 05.6					
1984	04 10	10 24.36	+10 19.6	2.125	2.914	134.2	14.3	18.8
1984	04 20	10 21.86	+10 20.7					
1984	04 30	10 21.75	+10 09.4	2.362	2.923	114.2	18.3	19.1
1984	05 10	10 23.87	+09 46.5					
1984	05 20	10 27.96	+09 13.2	2.635	2.930	96.6	20.1	19.4

(2824) Franke a,e,i = 2.33, 0.21, 3 Elements MPC 7603

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 18.25	+03 34.2	2.300	2.500	89.9	23.2	18.8
1983	12 22	11 24.80	+02 39.0					
1984	01 01	11 29.18	+01 56.2	2.070	2.540	107.1	21.7	18.6
1984	01 11	11 31.10	+01 27.8					
1984	01 21	11 30.35	+01 15.6	1.863	2.577	126.9	17.8	18.3
1984	01 31	11 26.83	+01 20.6					
1984	02 10	11 20.66	+01 42.6	1.713	2.612	149.6	11.0	18.0
1984	02 20	11 12.33	+02 19.5					
1984	03 01	11 02.64	+03 06.9	1.657	2.644	173.9	2.3	17.6
1984	03 11	10 52.65	+03 58.9					
1984	03 21	10 43.51	+04 48.5	1.715	2.673	160.2	7.2	18.0
1984	03 31	10 36.11	+05 30.3					
1984	04 10	10 31.07	+06 00.5	1.877	2.700	137.3	14.6	18.4
1984	04 20	10 28.63	+06 17.2					
1984	04 30	10 28.74	+06 20.2	2.113	2.724	117.1	19.2	18.7
1984	05 10	10 31.21	+06 09.9					
1984	05 20	10 35.76	+05 47.4	2.387	2.745	99.7	21.3	19.1

1982 SK a,e,i = 2.24, 0.06, 1 Elements MPC 7470

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 07.67	+04 54.2	1.947	2.225	92.9	26.2	17.8
1983	12 22	11 16.39	+03 50.8					
1984	01 01	11 22.90	+03 00.0	1.716	2.238	109.0	24.6	17.5
1984	01 11	11 26.82	+02 24.6					
1984	01 21	11 27.86	+02 07.0	1.508	2.250	127.9	20.2	17.1
1984	01 31	11 25.80	+02 08.9					
1984	02 10	11 20.64	+02 30.7	1.354	2.263	150.0	12.6	16.7
1984	02 20	11 12.85	+03 10.1					
1984	03 01	11 03.28	+04 02.1	1.287	2.275	174.4	2.4	16.3
1984	03 11	10 53.22	+04 59.1					
1984	03 21	10 44.07	+05 52.6	1.325	2.287	160.1	8.5	16.6
1984	03 31	10 36.96	+06 35.7					
1984	04 10	10 32.63	+07 03.9	1.460	2.299	137.3	17.2	17.0
1984	04 20	10 31.34	+07 15.3					
1984	04 30	10 32.98	+07 10.1	1.660	2.309	117.8	22.7	17.4
1984	05 10	10 37.30	+06 49.3					
1984	05 20	10 43.90	+06 14.3	1.897	2.319	101.4	25.3	17.8

1979 SW11 a,e,i = 2.24, 0.14, 5 Elements MPC 7373

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 02.96	+00 19.9	1.785	2.070	92.2	28.4	18.0
1983	12 22	11 12.69	-00 54.9					
1984	01 01	11 20.12	-01 55.6	1.582	2.100	107.6	26.5	17.7
1984	01 11	11 24.87	-02 38.6					
1984	01 21	11 26.63	-03 00.5	1.398	2.130	125.9	22.0	17.4
1984	01 31	11 25.20	-02 58.2					
1984	02 10	11 20.61	-02 29.9	1.263	2.161	147.5	14.2	17.0
1984	02 20	11 13.36	-01 36.7					
1984	03 01	11 04.36	-00 23.5	1.209	2.193	170.7	4.2	16.7
1984	03 11	10 54.94	+01 01.0					
1984	03 21	10 46.51	+02 25.8	1.258	2.225	161.4	8.2	16.9
1984	03 31	10 40.17	+03 41.2					
1984	04 10	10 36.62	+04 40.5	1.402	2.256	139.0	16.9	17.4
1984	04 20	10 36.08	+05 20.4					
1984	04 30	10 38.39	+05 40.6	1.615	2.287	119.6	22.5	17.9
1984	05 10	10 43.27	+05 42.0					
1984	05 20	10 50.34	+05 26.4	1.867	2.317	103.2	25.2	18.3

1982 XC a,e,i = 3.02, 0.12, 11 Elements MPC 7611

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 18.20	+12 32.7	2.992	3.205	93.4	17.9	17.3
1983	12 22	11 23.67	+12 41.4					
1984	01 01	11 27.38	+13 04.0	2.728	3.223	111.7	16.5	17.1
1984	01 11	11 29.10	+13 41.0					
1984	01 21	11 28.71	+14 32.0	2.501	3.240	131.8	13.1	16.8
1984	01 31	11 26.18	+15 34.7					
1984	02 10	11 21.63	+16 45.6	2.347	3.257	153.0	7.9	16.6
1984	02 20	11 15.42	+17 59.0					
1984	03 01	11 08.11	+19 08.8	2.298	3.272	167.5	3.8	16.4
1984	03 11	11 00.45	+20 08.6					
1984	03 21	10 53.24	+20 53.8	2.365	3.286	153.4	7.8	16.6
1984	03 31	10 47.16	+21 21.9					
1984	04 10	10 42.76	+21 32.4	2.535	3.300	132.9	12.9	16.9
1984	04 20	10 40.31	+21 26.4					
1984	04 30	10 39.89	+21 06.0	2.777	3.312	113.6	16.2	17.2
1984	05 10	10 41.44	+20 33.2					
1984	05 20	10 44.80	+19 50.1	3.056	3.323	96.3	17.6	17.4

(2914) 1965 SB a,e,i = 2.26, 0.13, 3 Elements MPC 8140

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 16.69	+03 18.7	2.135	2.354	90.2	24.7	19.6
1983	12 22	11 24.89	+02 30.9					
1984	01 01	11 30.98	+01 57.0	1.903	2.380	106.7	23.3	19.3
1984	01 11	11 34.65	+01 39.8					
1984	01 21	11 35.61	+01 41.3	1.692	2.405	125.9	19.3	19.0
1984	01 31	11 33.68	+02 02.9					
1984	02 10	11 28.88	+02 44.6	1.534	2.429	148.2	12.4	18.6
1984	02 20	11 21.60	+03 43.4					
1984	03 01	11 12.59	+04 54.0	1.464	2.451	172.9	2.9	18.2
1984	03 11	11 02.95	+06 08.1					
1984	03 21	10 53.93	+07 17.2	1.504	2.471	161.9	7.2	18.5
1984	03 31	10 46.57	+08 14.2					
1984	04 10	10 41.62	+08 54.7	1.647	2.489	138.7	15.4	18.9
1984	04 20	10 39.41	+09 17.0					
1984	04 30	10 39.90	+09 21.6	1.861	2.505	118.6	20.7	19.3
1984	05 10	10 42.93	+09 09.8					
1984	05 20	10 48.18	+08 43.4	2.115	2.519	101.4	23.2	19.7

1972 YX a,e,i = 3.06, 0.21, 5 Elements MPC 7613

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 19.72	+07 37.3	2.530	2.733	91.2	21.1	18.2
1983	12 22	11 26.77	+07 14.4					
1984	01 01	11 31.86	+07 05.4	2.300	2.773	108.5	19.6	18.0
1984	01 11	11 34.76	+07 11.8					
1984	01 21	11 35.30	+07 33.9	2.097	2.814	128.2	16.0	17.7
1984	01 31	11 33.41	+08 11.1					
1984	02 10	11 29.20	+09 01.2	1.957	2.855	150.2	9.9	17.5
1984	02 20	11 23.08	+09 59.8					
1984	03 01	11 15.66	+11 01.1	1.912	2.897	172.1	2.7	17.2
1984	03 11	11 07.79	+11 58.5					
1984	03 21	11 00.40	+12 46.1	1.981	2.939	160.4	6.5	17.5
1984	03 31	10 54.25	+13 20.0					
1984	04 10	10 49.92	+13 38.4	2.155	2.980	138.5	12.9	17.8
1984	04 20	10 47.70	+13 41.1					
1984	04 30	10 47.64	+13 29.3	2.406	3.022	118.7	17.0	18.2
1984	05 10	10 49.64	+13 04.6					
1984	05 20	10 53.50	+12 28.7	2.701	3.063	101.2	18.9	18.5

1978 RO a,e,i = 2.43, 0.08, 5 Elements MPC 7469

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 21.28	+00 38.0	2.358	2.524	88.1	22.9	18.9
1983	12 22	11 29.28	-00 13.8					
1984	01 01	11 35.39	-00 53.2	2.105	2.538	104.6	22.0	18.6
1984	01 11	11 39.33	-01 17.7					
1984	01 21	11 40.84	-01 24.9	1.872	2.550	123.4	18.8	18.3
1984	01 31	11 39.73	-01 12.9					
1984	02 10	11 35.98	-00 41.0	1.689	2.562	145.1	12.7	18.0
1984	02 20	11 29.87	+00 09.8					
1984	03 01	11 21.99	+01 15.8	1.592	2.572	169.0	4.2	17.6
1984	03 11	11 13.25	+02 30.5					
1984	03 21	11 04.75	+03 45.9	1.604	2.581	165.6	5.5	17.7
1984	03 31	10 57.51	+04 54.2					
1984	04 10	10 52.30	+05 49.5	1.723	2.589	142.3	13.7	18.1
1984	04 20	10 49.57	+06 28.3					
1984	04 30	10 49.40	+06 49.7	1.920	2.596	121.8	19.3	18.4
1984	05 10	10 51.71	+06 54.0					
1984	05 20	10 56.24	+06 42.7	2.164	2.602	104.0	22.2	18.8

6091 P-L a,e,i = 2.64, 0.03, 2 Elements MPC 7777

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 25.80	+03 18.5	2.511	2.666	88.1	21.7	19.1
1983	12 22	11 33.34	+02 24.2					
1984	01 01	11 39.06	+01 40.8	2.246	2.672	104.7	20.9	18.9
1984	01 11	11 42.69	+01 10.2					
1984	01 21	11 43.98	+00 54.1	2.003	2.677	123.7	17.8	18.6
1984	01 31	11 42.77	+00 53.8					
1984	02 10	11 39.02	+01 09.6	1.812	2.682	145.2	12.1	18.2
1984	02 20	11 33.00	+01 40.3					
1984	03 01	11 25.24	+02 22.8	1.707	2.687	169.0	4.0	17.8
1984	03 11	11 16.59	+03 11.8					
1984	03 21	11 08.09	+04 01.1	1.713	2.691	166.3	5.0	17.9
1984	03 31	11 00.69	+04 44.6					
1984	04 10	10 55.17	+05 17.6	1.826	2.695	143.2	12.9	18.3
1984	04 20	10 51.99	+05 37.2					
1984	04 30	10 51.28	+05 42.5	2.019	2.699	122.6	18.3	18.6
1984	05 10	10 52.98	+05 33.6					
1984	05 20	10 56.87	+05 11.3	2.261	2.703	104.8	21.2	18.9

1973 ST4 a,e,i = 2.60, 0.20, 5 Elements MPC 7657

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 34.22	-00 51.0	3.037	3.101	84.5	18.4	18.8
1983	12 22	11 40.01	-01 46.6					
1984	01 01	11 44.18	-02 33.5	2.734	3.090	101.9	18.1	18.6
1984	01 11	11 46.49	-03 10.0					
1984	01 21	11 46.75	-03 34.2	2.450	3.077	121.2	15.9	18.3
1984	01 31	11 44.80	-03 44.7					
1984	02 10	11 40.62	-03 40.3	2.217	3.061	142.6	11.3	17.9
1984	02 20	11 34.43	-03 20.9					
1984	03 01	11 26.65	-02 47.8	2.073	3.042	165.5	4.7	17.6
1984	03 11	11 17.96	-02 04.0					
1984	03 21	11 09.25	-01 14.4	2.042	3.022	167.2	4.2	17.5
1984	03 31	11 01.35	-00 24.3					
1984	04 10	10 55.01	+00 20.9	2.125	2.999	144.6	11.2	17.8
1984	04 20	10 50.70	+00 57.2					
1984	04 30	10 48.65	+01 22.1	2.296	2.973	123.5	16.4	18.0
1984	05 10	10 48.88	+01 34.3					
1984	05 20	10 51.27	+01 33.5	2.520	2.946	104.8	19.4	18.3

(2795) 1979 YM a,e,i = 2.30, 0.03, 6 Elements MPC 7457

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1983	12 12	11 15.05	-01 54.6	2.028	2.231	88.5	26.2	17.9
1983	12 22	11 25.01	-03 15.4					
1984	01 01	11 33.09	-04 25.3	1.786	2.232	103.6	25.3	17.6
1984	01 11	11 38.94	-05 21.0					
1984	01 21	11 42.24	-05 59.3	1.561	2.234	121.1	22.2	17.2
1984	01 31	11 42.69	-06 16.7					
1984	02 10	11 40.14	-06 10.0	1.379	2.237	141.4	16.0	16.8
1984	02 20	11 34.79	-05 37.7					
1984	03 01	11 27.19	-04 41.0	1.270	2.240	164.0	7.0	16.4
1984	03 11	11 18.35	-03 24.9					
1984	03 21	11 09.61	-01 58.5	1.261	2.243	167.2	5.7	16.4
1984	03 31	11 02.20	-00 32.3					
1984	04 10	10 57.13	+00 44.0	1.352	2.247	145.0	14.8	16.8
1984	04 20	10 54.92	+01 43.7					
1984	04 30	10 55.67	+02 23.7	1.520	2.252	124.8	21.6	17.2
1984	05 10	10 59.24	+02 43.4					
1984	05 20	11 05.29	+02 43.8	1.734	2.257	107.6	25.3	17.5

2578 P-L a,e,i = 2.68, 0.22, 4 Elements MPC 8018

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 31.44	-00 09.5	1.637	2.126	105.8	26.4	17.8
1984	01 11	11 38.43	-00 50.6					
1984	01 21	11 42.73	-01 12.2	1.446	2.148	123.1	22.6	17.5
1984	01 31	11 44.08	-01 11.7					
1984	02 10	11 42.36	-00 47.8	1.300	2.175	143.6	15.6	17.1
1984	02 20	11 37.85	-00 01.7					
1984	03 01	11 31.16	+01 02.4	1.229	2.206	167.0	5.8	16.8
1984	03 11	11 23.36	+02 16.6					
1984	03 21	11 15.73	+03 31.2	1.256	2.241	168.3	5.2	16.8
1984	03 31	11 09.45	+04 36.8					
1984	04 10	11 05.40	+05 26.7	1.382	2.279	145.5	14.4	17.3
1984	04 20	11 04.01	+05 57.4					
1984	04 30	11 05.32	+06 08.5	1.583	2.320	125.7	20.7	17.8
1984	05 10	11 09.16	+06 01.0					
1984	05 20	11 15.22	+05 36.8	1.834	2.363	108.8	23.9	18.2
1984	05 30	11 23.14	+04 58.3					
1984	06 09	11 32.62	+04 07.7	2.111	2.408	94.2	24.9	18.6

(2866) 1961 TA a,e,i = 2.91, 0.21, 8 Elements MPC 7830

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 50.55	-03 20.5	3.196	3.504	100.1	16.0	18.6
1984	01 11	11 52.21	-03 56.9					
1984	01 21	11 52.02	-04 22.7	2.909	3.502	119.6	14.1	18.4
1984	01 31	11 49.90	-04 36.8					
1984	02 10	11 45.86	-04 38.4	2.675	3.498	141.0	10.2	18.1
1984	02 20	11 40.10	-04 27.4					
1984	03 01	11 32.99	-04 04.8	2.530	3.491	163.4	4.6	17.8
1984	03 11	11 25.09	-03 32.8					
1984	03 21	11 17.10	-02 55.1	2.500	3.483	168.8	3.2	17.7
1984	03 31	11 09.70	-02 15.6					
1984	04 10	11 03.50	-01 38.6	2.589	3.473	147.1	9.0	18.0
1984	04 20	10 58.95	-01 07.6					
1984	04 30	10 56.27	-00 45.1	2.772	3.461	125.9	13.6	18.2
1984	05 10	10 55.53	-00 32.5					
1984	05 20	10 56.66	-00 30.5	3.015	3.447	106.8	16.3	18.5
1984	05 30	10 59.54	-00 39.0					
1984	06 09	11 03.97	-00 57.5	3.284	3.431	89.6	17.2	18.7

(2844) 1981 JP a,e,i = 2.22, 0.17, 3 Elements MPC 7665

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 41.90	+03 33.4	1.953	2.401	104.8	23.3	18.4
1984	01 11	11 47.46	+03 14.1					
1984	01 21	11 50.65	+03 12.1	1.683	2.368	123.1	20.4	18.0
1984	01 31	11 51.12	+03 29.4					
1984	02 10	11 48.65	+04 06.8	1.461	2.333	144.1	14.4	17.5
1984	02 20	11 43.27	+05 03.1					
1984	03 01	11 35.36	+06 13.8	1.318	2.296	167.8	5.2	17.0
1984	03 11	11 25.80	+07 31.3					
1984	03 21	11 15.85	+08 45.5	1.279	2.258	165.9	6.2	16.9
1984	03 31	11 06.88	+09 47.4					
1984	04 10	11 00.06	+10 30.3	1.341	2.219	142.2	16.1	17.2
1984	04 20	10 56.15	+10 51.0					
1984	04 30	10 55.40	+10 49.7	1.476	2.179	121.5	23.2	17.6
1984	05 10	10 57.76	+10 27.8					
1984	05 20	11 02.96	+09 47.7	1.650	2.139	104.4	27.3	17.9
1984	05 30	11 10.62	+08 51.7					
1984	06 09	11 20.42	+07 41.8	1.838	2.100	90.0	28.9	18.1

(2840) Kallavesi a,e,i = 2.40, 0.09, 9 Elements MPC 7664

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 50.34	+12 17.5	2.167	2.617	106.2	21.2	17.8
1984	01 11	11 54.69	+12 29.4					
1984	01 21	11 56.59	+12 57.6	1.923	2.613	124.8	18.0	17.4
1984	01 31	11 55.78	+13 41.4					
1984	02 10	11 52.13	+14 38.1	1.733	2.607	145.6	12.4	17.1
1984	02 20	11 45.82	+15 42.2					
1984	03 01	11 37.36	+16 46.4	1.630	2.599	164.7	5.8	16.7
1984	03 11	11 27.61	+17 42.1					
1984	03 21	11 17.76	+18 21.5	1.636	2.590	158.8	8.0	16.8
1984	03 31	11 08.94	+18 40.2					
1984	04 10	11 02.09	+18 36.6	1.744	2.580	138.3	15.0	17.1
1984	04 20	10 57.79	+18 12.2					
1984	04 30	10 56.21	+17 29.8	1.927	2.568	118.7	20.1	17.4
1984	05 10	10 57.29	+16 32.4					
1984	05 20	11 00.78	+15 23.0	2.151	2.555	101.6	22.8	17.7
1984	05 30	11 06.37	+14 03.7					
1984	06 09	11 13.77	+12 36.2	2.390	2.540	86.6	23.5	18.0

(2848) 1959 VF a,e,i = 3.19, 0.20, 1 Elements MPC 7769

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 51.37	+00 52.5	3.164	3.497	101.6	16.0	18.1
1984	01 11	11 53.30	+00 38.1					
1984	01 21	11 53.39	+00 35.5	2.914	3.528	121.4	13.8	17.9
1984	01 31	11 51.59	+00 45.0					
1984	02 10	11 47.94	+01 06.5	2.719	3.558	143.2	9.6	17.6
1984	02 20	11 42.68	+01 38.4					
1984	03 01	11 36.19	+02 18.2	2.615	3.586	166.5	3.7	17.4
1984	03 11	11 29.03	+03 02.3					
1984	03 21	11 21.83	+03 46.6	2.629	3.613	169.7	2.8	17.3
1984	03 31	11 15.24	+04 27.1					
1984	04 10	11 09.78	+05 00.4	2.760	3.639	146.7	8.7	17.7
1984	04 20	11 05.85	+05 24.1					
1984	04 30	11 03.63	+05 37.3	2.985	3.663	125.5	12.9	18.0
1984	05 10	11 03.17	+05 39.7					
1984	05 20	11 04.42	+05 31.5	3.270	3.685	106.4	15.3	18.3
1984	05 30	11 07.24	+05 13.6					
1984	06 09	11 11.46	+04 46.9	3.581	3.706	89.1	15.9	18.5

1981 JS a,e,i = 2.22, 0.08, 4 Elements MPC 7155

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 36.79	-02 57.4	1.670	2.125	103.4	26.8	17.9
1984	01 11	11 44.06	-04 05.2					
1984	01 21	11 48.86	-04 57.6	1.435	2.107	120.1	23.8	17.5
1984	01 31	11 50.80	-05 30.9					
1984	02 10	11 49.59	-05 41.4	1.239	2.091	139.7	17.8	17.0
1984	02 20	11 45.26	-05 26.8					
1984	03 01	11 38.19	-04 46.8	1.111	2.076	162.0	8.5	16.5
1984	03 11	11 29.31	-03 44.8					
1984	03 21	11 20.04	-02 29.2	1.076	2.063	169.6	5.0	16.3
1984	03 31	11 11.86	-01 10.7					
1984	04 10	11 06.03	-00 00.3	1.136	2.052	147.4	15.3	16.7
1984	04 20	11 03.30	+00 54.0					
1984	04 30	11 03.88	+01 28.1	1.271	2.043	127.0	23.2	17.1
1984	05 10	11 07.65	+01 40.8					
1984	05 20	11 14.26	+01 32.8	1.452	2.036	110.2	27.8	17.5
1984	05 30	11 23.29	+01 06.3					
1984	06 09	11 34.35	+00 23.3	1.655	2.031	96.1	29.8	17.8

(2820) Iisalmi a,e,i = 2.23, 0.16, 3 Elements MPC 7597

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 52.09	-02 24.9	2.110	2.479	100.1	23.0	18.1
1984	01 11	11 56.59	-03 01.9					
1984	01 21	11 58.65	-03 22.8	1.878	2.502	118.6	20.2	17.8
1984	01 31	11 58.02	-03 25.5					
1984	02 10	11 54.59	-03 08.5	1.687	2.523	139.8	14.6	17.5
1984	02 20	11 48.54	-02 31.7					
1984	03 01	11 40.34	-01 37.4	1.575	2.541	163.6	6.3	17.1
1984	03 11	11 30.86	-00 30.6					
1984	03 21	11 21.24	+00 41.2	1.569	2.556	170.2	3.8	17.0
1984	03 31	11 12.57	+01 49.9					
1984	04 10	11 05.81	+02 48.6	1.673	2.569	146.5	12.4	17.5
1984	04 20	11 01.52	+03 32.7					
1984	04 30	10 59.87	+04 00.0	1.863	2.578	125.2	18.6	17.8
1984	05 10	11 00.84	+04 10.3					
1984	05 20	11 04.19	+04 04.6	2.103	2.585	106.9	22.0	18.2
1984	05 30	11 09.61	+03 44.4					
1984	06 09	11 16.83	+03 11.4	2.365	2.590	91.0	23.1	18.5

1980 XE a,e,i = 1.94, 0.03, 19 Elements MPC 7368

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 51.40	-12 59.5	1.547	1.916	95.8	30.7	18.1
1984	01 11	11 58.93	-16 20.6					
1984	01 21	12 03.80	-19 41.4	1.339	1.910	109.7	29.0	17.7
1984	01 31	12 05.44	-22 58.0					
1984	02 10	12 03.26	-26 03.6	1.162	1.904	124.6	25.2	17.3
1984	02 20	11 56.91	-28 48.2					
1984	03 01	11 46.48	-30 59.3	1.039	1.899	138.7	20.2	16.9
1984	03 11	11 32.89	-32 23.7					
1984	03 21	11 18.03	-32 53.7	0.987	1.895	145.7	17.2	16.8
1984	03 31	11 04.21	-32 30.9					
1984	04 10	10 53.58	-31 26.8	1.012	1.891	139.8	20.0	16.9
1984	04 20	10 47.41	-29 59.1					
1984	04 30	10 46.01	-28 24.6	1.102	1.888	127.1	25.2	17.2
1984	05 10	10 49.14	-26 56.2					
1984	05 20	10 56.20	-25 42.3	1.235	1.886	113.8	29.4	17.5
1984	05 30	11 06.54	-24 46.2					
1984	06 09	11 19.61	-24 09.3	1.394	1.885	101.8	31.8	17.8

1972 QM a,e,i = 2.23, 0.17, 3 Elements MPC 7372

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 54.00	+00 09.3	2.026	2.411	100.7	23.6	19.0
1984	01 11	11 58.99	-00 13.4					
1984	01 21	12 01.47	-00 18.4	1.805	2.441	119.2	20.6	18.7
1984	01 31	12 01.19	-00 04.1					
1984	02 10	11 58.03	+00 30.2	1.626	2.469	140.6	14.7	18.4
1984	02 20	11 52.16	+01 23.2					
1984	03 01	11 44.08	+02 30.9	1.525	2.495	164.8	6.0	18.0
1984	03 11	11 34.65	+03 46.6					
1984	03 21	11 25.04	+05 01.7	1.531	2.518	169.8	4.0	18.0
1984	03 31	11 16.40	+06 08.1					
1984	04 10	11 09.66	+06 59.7	1.646	2.539	145.8	12.8	18.4
1984	04 20	11 05.41	+07 33.2					
1984	04 30	11 03.82	+07 48.2	1.845	2.556	124.7	18.9	18.8
1984	05 10	11 04.84	+07 45.6					
1984	05 20	11 08.22	+07 27.0	2.094	2.572	106.5	22.2	19.2
1984	05 30	11 13.66	+06 54.7					
1984	06 09	11 20.88	+06 10.4	2.363	2.584	90.7	23.1	19.5

1982 SL a,e,i = 2.20, 0.20, 3 Elements MPC 7470

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 57.97	-02 34.0	2.191	2.534	98.7	22.6	19.7
1984	01 11	12 02.41	-03 09.5					
1984	01 21	12 04.47	-03 29.4	1.954	2.558	117.2	20.0	19.5
1984	01 31	12 03.89	-03 31.7					
1984	02 10	12 00.56	-03 14.9	1.756	2.579	138.5	14.7	19.1
1984	02 20	11 54.61	-02 39.0					
1984	03 01	11 46.47	-01 45.9	1.635	2.597	162.3	6.7	18.8
1984	03 11	11 36.94	-00 40.4					
1984	03 21	11 27.12	+00 30.5	1.621	2.611	171.7	3.2	18.6
1984	03 31	11 18.11	+01 39.0					
1984	04 10	11 10.85	+02 38.1	1.720	2.622	147.7	11.8	19.0
1984	04 20	11 05.97	+03 23.0					
1984	04 30	11 03.69	+03 51.6	1.906	2.630	126.2	18.0	19.4
1984	05 10	11 04.00	+04 03.4					
1984	05 20	11 06.71	+03 59.4	2.147	2.634	107.5	21.5	19.8
1984	05 30	11 11.53	+03 40.9					
1984	06 09	11 18.18	+03 09.5	2.409	2.635	91.3	22.7	20.0

(2858) 1975 XB a,e,i = 2.27, 0.19, 7 Elements MPC 7775

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	11 54.65	+04 32.4	2.250	2.641	102.3	21.3	19.9
1984	01 11	11 59.60	+04 32.9					
1984	01 21	12 02.34	+04 50.7	1.973	2.619	120.9	18.8	19.5
1984	01 31	12 02.59	+05 27.3					
1984	02 10	12 00.15	+06 22.5	1.744	2.595	142.1	13.5	19.1
1984	02 20	11 55.07	+07 34.0					
1984	03 01	11 47.67	+08 56.7	1.598	2.567	164.9	5.8	18.7
1984	03 11	11 38.65	+10 22.9					
1984	03 21	11 29.07	+11 43.0	1.560	2.537	165.9	5.5	18.6
1984	03 31	11 20.07	+12 49.0					
1984	04 10	11 12.70	+13 35.1	1.629	2.505	143.2	13.8	18.9
1984	04 20	11 07.71	+13 58.8					
1984	04 30	11 05.44	+14 00.9	1.780	2.470	122.3	20.2	19.2
1984	05 10	11 05.94	+13 43.2					
1984	05 20	11 09.05	+13 08.1	1.976	2.433	104.4	23.8	19.5
1984	05 30	11 14.47	+12 18.4					
1984	06 09	11 21.93	+11 15.9	2.186	2.394	89.0	25.1	19.7

1982 SM1 a,e,i = 2.40, 0.19, 2 Elements MPC 7616

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 01 01	12 01.78	-02 38.1	2.016	2.360	97.8	24.4	18.6
1984 01 11	12 07.36	-03 29.7					
1984 01 21	12 10.44	-04 06.0	1.808	2.403	115.6	21.7	18.4
1984 01 31	12 10.76	-04 25.0					
1984 02 10	12 08.18	-04 24.9	1.636	2.446	136.2	16.2	18.1
1984 02 20	12 02.83	-04 05.5					
1984 03 01	11 55.15	-03 28.1	1.534	2.487	159.5	8.0	17.8
1984 03 11	11 45.96	-02 36.8					
1984 03 21	11 36.38	-01 38.2	1.534	2.527	173.8	2.4	17.6
1984 03 31	11 27.57	-00 39.8					
1984 04 10	11 20.50	+00 11.5	1.644	2.565	150.8	11.0	18.1
1984 04 20	11 15.79	+00 50.4					
1984 04 30	11 13.67	+01 14.5	1.843	2.602	129.4	17.4	18.5
1984 05 10	11 14.12	+01 23.0					
1984 05 20	11 16.94	+01 16.4	2.100	2.636	110.9	21.0	18.9
1984 05 30	11 21.80	+00 56.2					
1984 06 09	11 28.45	+00 23.8	2.386	2.669	94.7	22.3	19.2

1981 JD2 a,e,i = 2.28, 0.16, 4 Elements MPC 7613

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 01 01	12 10.50	+03 40.1	2.314	2.642	98.3	21.6	18.9
1984 01 11	12 15.59	+03 19.8					
1984 01 21	12 18.46	+03 14.3	2.054	2.645	116.6	19.4	18.6
1984 01 31	12 18.84	+03 24.5					
1984 02 10	12 16.53	+03 50.6	1.833	2.645	137.4	14.6	18.3
1984 02 20	12 11.54	+04 31.1					
1984 03 01	12 04.15	+05 22.5	1.687	2.643	160.6	7.2	17.9
1984 03 11	11 55.00	+06 19.3					
1984 03 21	11 45.06	+07 14.4	1.648	2.638	171.8	3.1	17.7
1984 03 31	11 35.44	+08 00.8					
1984 04 10	11 27.19	+08 33.2	1.720	2.630	148.9	11.3	18.0
1984 04 20	11 21.08	+08 48.8					
1984 04 30	11 17.51	+08 47.1	1.883	2.619	127.3	17.8	18.4
1984 05 10	11 16.58	+08 28.9					
1984 05 20	11 18.16	+07 55.9	2.101	2.606	108.6	21.6	18.7
1984 05 30	11 22.01	+07 10.0					
1984 06 09	11 27.85	+06 13.0	2.342	2.590	92.3	23.1	18.9

1953 NB a,e,i = 2.76, 0.39, 7 Elements MPC 7015

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984 01 01	12 14.78	+06 13.5	3.500	3.770	98.3	15.0	19.9
1984 01 11	12 17.18	+06 18.8					
1984 01 21	12 17.90	+06 35.8	3.185	3.748	117.9	13.4	19.7
1984 01 31	12 16.79	+07 04.3					
1984 02 10	12 13.80	+07 43.5	2.920	3.723	139.2	10.0	19.4
1984 02 20	12 09.02	+08 31.3					
1984 03 01	12 02.66	+09 24.5	2.743	3.695	161.1	5.0	19.1
1984 03 11	11 55.16	+10 18.8					
1984 03 21	11 47.11	+11 09.5	2.682	3.664	168.3	3.2	18.9
1984 03 31	11 39.16	+11 52.3					
1984 04 10	11 31.95	+12 23.7	2.742	3.629	147.7	8.5	19.2
1984 04 20	11 26.04	+12 41.8					
1984 04 30	11 21.78	+12 46.2	2.901	3.592	126.4	13.0	19.4
1984 05 10	11 19.36	+12 37.4					
1984 05 20	11 18.81	+12 16.4	3.122	3.551	106.9	15.8	19.6
1984 05 30	11 20.05	+11 44.7					
1984 06 09	11 22.96	+11 03.7	3.370	3.507	89.3	16.8	19.7

1981 QM a,e,i = 2.40, 0.33, 3 Elements MPC 8144

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 12.76	-03 09.8	2.735	2.988	95.1	19.1	20.0
1984	01 11	12 17.30	-03 39.5					
1984	01 21	12 19.97	-03 56.6	2.412	2.946	113.5	17.8	19.7
1984	01 31	12 20.52	-03 59.5					
1984	02 10	12 18.73	-03 46.4	2.126	2.901	134.2	14.1	19.3
1984	02 20	12 14.55	-03 16.6					
1984	03 01	12 08.14	-02 30.5	1.913	2.853	157.2	7.7	18.9
1984	03 11	11 59.92	-01 30.6					
1984	03 21	11 50.66	-00 22.0	1.805	2.800	177.6	0.9	18.3
1984	03 31	11 41.28	+00 48.9					
1984	04 10	11 32.79	+01 55.1	1.813	2.744	153.1	9.5	18.7
1984	04 20	11 26.04	+02 50.3					
1984	04 30	11 21.56	+03 30.7	1.920	2.685	130.4	16.6	18.9
1984	05 10	11 19.63	+03 54.3					
1984	05 20	11 20.25	+04 00.8	2.089	2.622	110.6	21.2	19.2
1984	05 30	11 23.27	+03 51.2					
1984	06 09	11 28.48	+03 26.7	2.284	2.556	93.5	23.4	19.4

1981 UW9 a,e,i = 3.43, 0.11, 15 Elements MPC 7839

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 21.25	+09 29.9	3.493	3.760	98.1	15.0	17.9
1984	01 11	12 24.00	+09 25.2					
1984	01 21	12 25.04	+09 30.7	3.216	3.768	117.2	13.4	17.7
1984	01 31	12 24.28	+09 45.8					
1984	02 10	12 21.65	+10 09.1	2.986	3.775	137.8	10.1	17.5
1984	02 20	12 17.27	+10 38.2					
1984	03 01	12 11.37	+11 10.0	2.841	3.782	158.8	5.4	17.2
1984	03 11	12 04.38	+11 40.7					
1984	03 21	11 56.86	+12 06.3	2.808	3.788	167.8	3.2	17.1
1984	03 31	11 49.42	+12 23.5					
1984	04 10	11 42.67	+12 29.9	2.894	3.793	149.7	7.7	17.4
1984	04 20	11 37.10	+12 24.5					
1984	04 30	11 33.05	+12 07.4	3.080	3.797	129.1	11.9	17.6
1984	05 10	11 30.70	+11 39.2					
1984	05 20	11 30.07	+11 01.2	3.334	3.800	109.9	14.5	17.8
1984	05 30	11 31.08	+10 14.7					
1984	06 09	11 33.63	+09 20.8	3.622	3.802	92.4	15.5	18.1

1981 QC1 a,e,i = 2.67, 0.20, 12 Elements MPC 7780

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 17.06	-02 13.6	2.936	3.169	94.5	18.0	19.3
1984	01 11	12 21.69	-02 20.2					
1984	01 21	12 24.55	-02 12.6	2.639	3.158	113.1	16.6	19.0
1984	01 31	12 25.44	-01 49.5					
1984	02 10	12 24.23	-01 10.1	2.379	3.145	133.9	13.1	18.7
1984	02 20	12 20.93	-00 14.8					
1984	03 01	12 15.72	+00 54.4	2.195	3.130	156.8	7.2	18.3
1984	03 11	12 09.01	+02 13.5					
1984	03 21	12 01.42	+03 36.8	2.118	3.113	176.3	1.2	17.9
1984	03 31	11 53.74	+04 57.6					
1984	04 10	11 46.73	+06 09.6	2.160	3.093	154.3	8.1	18.3
1984	04 20	11 41.10	+07 07.9					
1984	04 30	11 37.27	+07 49.8	2.304	3.072	132.1	14.1	18.6
1984	05 10	11 35.49	+08 14.6					
1984	05 20	11 35.82	+08 22.7	2.516	3.048	112.3	17.9	18.8
1984	05 30	11 38.15	+08 15.7					
1984	06 09	11 42.32	+07 55.1	2.761	3.022	94.9	19.6	19.1

1981 SM1 a,e,i = 3.14, 0.19, 2 Elements MPC 7362

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 28.82	-01 36.5	3.465	3.635	92.0	15.7	19.4
1984	01 11	12 32.52	-01 53.9					
1984	01 21	12 34.59	-02 00.6	3.182	3.651	110.9	14.6	19.2
1984	01 31	12 34.92	-01 55.9					
1984	02 10	12 33.42	-01 39.4	2.934	3.664	131.6	11.6	18.9
1984	02 20	12 30.14	-01 11.7					
1984	03 01	12 25.26	-00 34.4	2.760	3.677	154.0	6.8	18.7
1984	03 11	12 19.12	+00 10.1					
1984	03 21	12 12.23	+00 58.1	2.692	3.688	176.9	0.8	18.2
1984	03 31	12 05.19	+01 45.6					
1984	04 10	11 58.61	+02 28.5	2.745	3.697	158.8	5.6	18.6
1984	04 20	11 53.03	+03 03.4					
1984	04 30	11 48.84	+03 28.1	2.907	3.704	136.7	10.8	18.9
1984	05 10	11 46.27	+03 41.5					
1984	05 20	11 45.41	+03 43.3	3.147	3.710	116.5	14.1	19.2
1984	05 30	11 46.23	+03 34.0					
1984	06 09	11 48.63	+03 14.5	3.431	3.715	98.2	15.7	19.4

(2794) 1978 PS3 a,e,i = 2.44, 0.22, 7 Elements MPC 7457

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 33.33	-06 17.1	2.455	2.631	89.2	21.9	18.6
1984	01 11	12 39.17	-07 23.5					
1984	01 21	12 42.90	-08 18.9	2.220	2.672	106.5	20.7	18.3
1984	01 31	12 44.28	-09 01.8					
1984	02 10	12 43.07	-09 30.4	2.008	2.711	126.2	17.1	18.1
1984	02 20	12 39.22	-09 43.2					
1984	03 01	12 32.89	-09 39.4	1.854	2.747	148.3	10.9	17.8
1984	03 11	12 24.54	-09 19.3					
1984	03 21	12 14.98	-08 45.6	1.794	2.782	170.5	3.4	17.5
1984	03 31	12 05.19	-08 02.7					
1984	04 10	11 56.20	-07 16.5	1.847	2.813	160.9	6.7	17.7
1984	04 20	11 48.86	-06 33.3					
1984	04 30	11 43.69	-05 57.8	2.006	2.842	138.8	13.5	18.1
1984	05 10	11 40.96	-05 33.5					
1984	05 20	11 40.63	-05 22.0	2.241	2.869	118.8	18.0	18.5
1984	05 30	11 42.53	-05 23.5					
1984	06 09	11 46.43	-05 37.6	2.518	2.892	101.2	20.1	18.8

(2849) 1976 GN3 a,e,i = 2.57, 0.01, 7 Elements MPC 7770

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 29.04	+04 05.3	2.330	2.595	94.2	22.2	18.1
1984	01 11	12 36.16	+03 34.7					
1984	01 21	12 41.27	+03 17.5	2.070	2.595	111.3	20.7	17.8
1984	01 31	12 44.07	+03 14.5					
1984	02 10	12 44.29	+03 26.1	1.842	2.595	130.7	16.7	17.5
1984	02 20	12 41.81	+03 51.1					
1984	03 01	12 36.71	+04 27.1	1.676	2.595	152.4	10.2	17.1
1984	03 11	12 29.36	+05 09.7					
1984	03 21	12 20.54	+05 52.6	1.605	2.595	172.2	3.0	16.8
1984	03 31	12 11.24	+06 29.3					
1984	04 10	12 02.57	+06 54.1	1.642	2.595	157.1	8.7	17.0
1984	04 20	11 55.49	+07 03.1					
1984	04 30	11 50.62	+06 55.3	1.778	2.594	135.5	15.8	17.4
1984	05 10	11 48.28	+06 30.9					
1984	05 20	11 48.49	+05 51.5	1.982	2.593	116.3	20.5	17.7
1984	05 30	11 51.06	+04 59.3					
1984	06 09	11 55.78	+03 56.0	2.222	2.592	99.6	22.7	18.0

1983 AM a,e,i = 3.01, 0.12, 9 Elements MPC 7781

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 34.45	-11 51.8	3.191	3.284	86.7	17.4	18.5
1984	01 11	12 39.19	-12 55.9					
1984	01 21	12 42.23	-13 51.5	2.913	3.297	104.3	16.8	18.3
1984	01 31	12 43.39	-14 37.3					
1984	02 10	12 42.51	-15 11.2	2.659	3.309	123.7	14.4	18.1
1984	02 20	12 39.56	-15 31.6					
1984	03 01	12 34.68	-15 37.0	2.463	3.320	144.5	10.0	17.8
1984	03 11	12 28.16	-15 26.6					
1984	03 21	12 20.59	-15 01.4	2.359	3.329	164.2	4.7	17.5
1984	03 31	12 12.62	-14 23.8					
1984	04 10	12 05.04	-13 37.8	2.369	3.337	162.3	5.3	17.6
1984	04 20	11 58.54	-12 48.7					
1984	04 30	11 53.60	-12 01.4	2.489	3.344	142.4	10.6	17.8
1984	05 10	11 50.56	-11 20.3					
1984	05 20	11 49.52	-10 48.5	2.695	3.350	122.6	14.7	18.1
1984	05 30	11 50.43	-10 27.5					
1984	06 09	11 53.18	-10 18.3	2.954	3.355	104.5	17.0	18.4

1982 UH a,e,i = 2.38, 0.20, 2 Elements MPC 7470

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 33.81	-06 18.8	2.390	2.569	89.0	22.5	19.5
1984	01 11	12 40.58	-07 11.3					
1984	01 21	12 45.30	-07 51.1	2.153	2.604	106.2	21.3	19.2
1984	01 31	12 47.70	-08 16.5					
1984	02 10	12 47.53	-08 25.6	1.938	2.638	125.7	17.7	18.9
1984	02 20	12 44.70	-08 17.3					
1984	03 01	12 39.32	-07 51.0	1.778	2.669	147.9	11.4	18.6
1984	03 11	12 31.80	-07 08.2					
1984	03 21	12 22.89	-06 12.5	1.709	2.698	171.6	3.1	18.3
1984	03 31	12 13.56	-05 09.7					
1984	04 10	12 04.86	-04 06.8	1.752	2.725	162.6	6.3	18.5
1984	04 20	11 57.70	-03 10.7					
1984	04 30	11 52.65	-02 26.1	1.901	2.748	139.8	13.7	18.9
1984	05 10	11 50.00	-01 56.3					
1984	05 20	11 49.78	-01 42.0	2.126	2.770	119.6	18.5	19.3
1984	05 30	11 51.82	-01 42.9					
1984	06 09	11 55.90	-01 57.8	2.395	2.788	102.0	20.9	19.6

(2852) 1981 QU2 a,e,i = 2.78, 0.09, 2 Elements MPC 7771

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 34.09	-01 58.5	2.840	3.016	90.7	19.0	18.5
1984	01 11	12 39.88	-02 28.2					
1984	01 21	12 43.90	-02 46.0	2.561	3.021	108.5	18.0	18.3
1984	01 31	12 45.94	-02 50.8					
1984	02 10	12 45.81	-02 41.6	2.311	3.024	128.4	14.8	18.0
1984	02 20	12 43.45	-02 18.5					
1984	03 01	12 38.96	-01 42.5	2.125	3.026	150.4	9.3	17.7
1984	03 11	12 32.66	-00 56.2					
1984	03 21	12 25.13	-00 03.8	2.035	3.027	173.8	2.0	17.2
1984	03 31	12 17.12	+00 49.6					
1984	04 10	12 09.47	+01 38.3	2.060	3.027	161.5	6.0	17.5
1984	04 20	12 02.95	+02 17.5					
1984	04 30	11 58.12	+02 44.1	2.192	3.026	139.1	12.6	17.8
1984	05 10	11 55.31	+02 56.5					
1984	05 20	11 54.63	+02 54.4	2.402	3.024	118.9	17.0	18.1
1984	05 30	11 56.01	+02 38.9					
1984	06 09	11 59.32	+02 10.9	2.656	3.020	101.1	19.3	18.4

(2889) 1981 WT1 a,e,i = 3.02, 0.12, 9 Elements MPC 8017

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 36.90	-11 25.1	3.288	3.371	86.3	16.9	18.3
1984	01 11	12 42.18	-12 07.1					
1984	01 21	12 45.90	-12 39.3	2.988	3.365	104.0	16.5	18.1
1984	01 31	12 47.85	-13 00.1					
1984	02 10	12 47.88	-13 07.6	2.710	3.357	123.5	14.2	17.8
1984	02 20	12 45.95	-13 00.5					
1984	03 01	12 42.12	-12 37.9	2.490	3.349	144.8	9.8	17.5
1984	03 11	12 36.66	-11 59.9					
1984	03 21	12 30.05	-11 08.1	2.361	3.339	166.7	3.9	17.2
1984	03 31	12 22.89	-10 06.0					
1984	04 10	12 15.91	-08 58.4	2.347	3.328	165.8	4.2	17.2
1984	04 20	12 09.78	-07 51.0					
1984	04 30	12 05.05	-06 48.9	2.446	3.316	144.1	10.3	17.5
1984	05 10	12 02.06	-05 56.4					
1984	05 20	12 00.99	-05 16.1	2.634	3.302	123.5	14.8	17.7
1984	05 30	12 01.82	-04 49.1					
1984	06 09	12 04.48	-04 35.7	2.876	3.288	105.0	17.4	18.0

1935 TE a,e,i = 2.61, 0.20, 14 Elements MPC 7661

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 01	12 51.86	+08 01.0	2.949	3.118	90.5	18.4	18.2
1984	01 11	12 57.38	+07 52.7					
1984	01 21	13 01.12	+07 57.0	2.670	3.120	108.2	17.4	18.0
1984	01 31	13 02.85	+08 13.7					
1984	02 10	13 02.34	+08 42.4	2.418	3.121	127.7	14.5	17.7
1984	02 20	12 59.51	+09 21.0					
1984	03 01	12 54.39	+10 06.1	2.231	3.119	148.4	9.6	17.4
1984	03 11	12 47.27	+10 53.2					
1984	03 21	12 38.70	+11 36.4	2.141	3.114	165.0	4.8	17.2
1984	03 31	12 29.43	+12 10.0					
1984	04 10	12 20.32	+12 29.6	2.166	3.107	155.8	7.6	17.3
1984	04 20	12 12.22	+12 32.4					
1984	04 30	12 05.75	+12 18.1	2.296	3.098	135.7	13.1	17.6
1984	05 10	12 01.32	+11 47.6					
1984	05 20	11 59.07	+11 03.1	2.503	3.087	116.2	17.1	17.8
1984	05 30	11 58.96	+10 06.8					
1984	06 09	12 00.86	+09 00.6	2.752	3.073	98.6	19.1	18.1

1980 DA a,e,i = 2.39, 0.10, 4 Elements MPC 7233

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	12 56.55	-11 00.2	2.017	2.426	102.3	23.3	18.0
1984	01 31	13 01.20	-11 49.6					
1984	02 10	13 03.28	-12 23.8	1.794	2.448	120.5	20.3	17.7
1984	02 20	13 02.59	-12 40.6					
1984	03 01	12 59.06	-12 38.3	1.616	2.469	141.3	14.5	17.3
1984	03 11	12 52.89	-12 15.7					
1984	03 21	12 44.72	-11 34.4	1.516	2.489	164.0	6.3	17.0
1984	03 31	12 35.49	-10 38.1					
1984	04 10	12 26.35	-09 33.7	1.519	2.508	168.3	4.7	17.0
1984	04 20	12 18.43	-08 29.2					
1984	04 30	12 12.56	-07 32.0	1.627	2.526	146.1	12.9	17.4
1984	05 10	12 09.21	-06 47.6					
1984	05 20	12 08.52	-06 19.1	1.817	2.543	125.6	18.9	17.8
1984	05 30	12 10.35	-06 07.0					
1984	06 09	12 14.50	-06 10.9	2.058	2.559	107.9	22.2	18.1
1984	06 19	12 20.66	-06 29.2					
1984	06 29	12 28.54	-07 00.2	2.322	2.573	92.4	23.3	18.4

(2892) 1983 AX2 a,e,i = 3.15, 0.22, 17 Elements MPC 8023

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 05.36	-19 49.7	3.233	3.490	96.8	16.3	17.1
1984	01 31	13 06.82	-20 57.6					
1984	02 10	13 06.30	-21 56.4	2.985	3.523	115.4	14.7	16.9
1984	02 20	13 03.73	-22 43.8					
1984	03 01	12 59.16	-23 17.7	2.784	3.556	135.1	11.3	16.7
1984	03 11	12 52.79	-23 36.1					
1984	03 21	12 45.10	-23 37.7	2.664	3.586	154.0	7.0	16.5
1984	03 31	12 36.67	-23 23.0					
1984	04 10	12 28.26	-22 53.9	2.652	3.616	161.4	5.1	16.5
1984	04 20	12 20.57	-22 14.6					
1984	04 30	12 14.19	-21 29.8	2.753	3.643	147.6	8.5	16.7
1984	05 10	12 09.52	-20 44.6					
1984	05 20	12 06.77	-20 03.4	2.950	3.670	128.8	12.4	17.0
1984	05 30	12 05.95	-19 29.5					
1984	06 09	12 07.00	-19 04.9	3.213	3.694	110.6	14.9	17.2
1984	06 19	12 09.76	-18 50.6					
1984	06 29	12 14.04	-18 46.8	3.509	3.717	93.8	15.8	17.4

1983 AO a,e,i = 3.01, 0.11, 11 Elements MPC 7781

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 05.43	+06 31.2	2.927	3.345	106.7	16.4	17.3
1984	01 31	13 08.05	+07 00.2					
1984	02 10	13 08.70	+07 41.6	2.674	3.349	125.9	13.8	17.1
1984	02 20	13 07.32	+08 33.7					
1984	03 01	13 03.93	+09 33.5	2.484	3.351	146.0	9.5	16.8
1984	03 11	12 58.73	+10 36.7					
1984	03 21	12 52.14	+11 37.6	2.389	3.353	162.6	5.1	16.6
1984	03 31	12 44.76	+12 30.7					
1984	04 10	12 37.29	+13 11.0	2.406	3.353	157.2	6.6	16.7
1984	04 20	12 30.44	+13 35.1					
1984	04 30	12 24.79	+13 41.8	2.531	3.352	138.4	11.5	16.9
1984	05 10	12 20.77	+13 31.3					
1984	05 20	12 18.58	+13 05.1	2.736	3.349	119.3	15.3	17.2
1984	05 30	12 18.28	+12 25.5					
1984	06 09	12 19.81	+11 34.6	2.989	3.346	101.7	17.3	17.4
1984	06 19	12 23.01	+10 34.5					
1984	06 29	12 27.72	+09 27.1	3.260	3.341	85.7	17.7	17.6

(2874) 1982 TH a,e,i = 2.24, 0.13, 5 Elements MPC 7833

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 10.17	-01 03.7	2.005	2.424	103.0	23.3	19.0
1984	01 31	13 15.19	-01 11.1					
1984	02 10	13 17.64	-01 02.1	1.782	2.446	121.4	20.1	18.7
1984	02 20	13 17.26	-00 36.8					
1984	03 01	13 13.95	+00 03.7	1.605	2.466	142.5	14.2	18.3
1984	03 11	13 07.84	+00 56.4					
1984	03 21	12 59.49	+01 55.7	1.509	2.484	165.1	5.9	18.0
1984	03 31	12 49.78	+02 54.7					
1984	04 10	12 39.86	+03 45.5	1.517	2.500	165.8	5.6	18.0
1984	04 20	12 30.92	+04 21.8					
1984	04 30	12 23.87	+04 39.9	1.630	2.514	143.7	13.7	18.4
1984	05 10	12 19.27	+04 38.9					
1984	05 20	12 17.34	+04 19.6	1.823	2.525	123.4	19.6	18.8
1984	05 30	12 17.99	+03 44.3					
1984	06 09	12 21.02	+02 55.3	2.063	2.534	105.7	22.7	19.1
1984	06 19	12 26.15	+01 54.9					
1984	06 29	12 33.09	+00 45.3	2.323	2.541	90.3	23.6	19.4

1980 OF a,e,i = 3.11, 0.16, 10 Elements MPC 6645

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 09.62	-17 00.5	3.223	3.483	97.0	16.3	19.1
1984	01 31	13 12.25	-17 54.5					
1984	02 10	13 13.04	-18 39.7	2.922	3.464	115.6	14.9	18.9
1984	02 20	13 11.86	-19 14.2					
1984	03 01	13 08.66	-19 36.2	2.665	3.444	135.6	11.6	18.6
1984	03 11	13 03.57	-19 44.1					
1984	03 21	12 56.92	-19 36.9	2.488	3.422	156.0	6.8	18.3
1984	03 31	12 49.23	-19 15.0					
1984	04 10	12 41.20	-18 40.3	2.417	3.400	166.6	3.9	18.1
1984	04 20	12 33.60	-17 56.6					
1984	04 30	12 27.07	-17 08.9	2.460	3.376	150.9	8.4	18.3
1984	05 10	12 22.15	-16 22.1					
1984	05 20	12 19.15	-15 40.8	2.601	3.351	130.8	13.2	18.5
1984	05 30	12 18.18	-15 08.1					
1984	06 09	12 19.22	-14 46.2	2.809	3.325	112.0	16.4	18.7
1984	06 19	12 22.15	-14 35.9					
1984	06 29	12 26.80	-14 37.0	3.052	3.299	94.9	17.9	18.9

6550 P-L a,e,i = 3.54, 0.11, 11 Elements MPC 7777

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 11.11	-06 34.6	3.611	3.915	100.8	14.3	18.6
1984	01 31	13 12.72	-06 58.6					
1984	02 10	13 12.66	-07 13.7	3.324	3.918	120.5	12.5	18.4
1984	02 20	13 10.87	-07 19.8					
1984	03 01	13 07.40	-07 16.8	3.093	3.920	141.8	9.0	18.1
1984	03 11	13 02.41	-07 05.5					
1984	03 21	12 56.23	-06 47.3	2.952	3.921	164.5	3.9	17.8
1984	03 31	12 49.32	-06 24.2					
1984	04 10	12 42.24	-05 59.1	2.926	3.921	172.1	2.0	17.7
1984	04 20	12 35.55	-05 35.2					
1984	04 30	12 29.76	-05 15.1	3.019	3.921	149.5	7.5	18.0
1984	05 10	12 25.26	-05 01.3					
1984	05 20	12 22.29	-04 55.5	3.210	3.919	128.3	11.7	18.3
1984	05 30	12 20.94	-04 58.3					
1984	06 09	12 21.23	-05 10.3	3.467	3.917	109.0	14.2	18.5
1984	06 19	12 23.06	-05 31.0					
1984	06 29	12 26.31	-05 59.8	3.754	3.914	91.5	15.1	18.7

(2821) 1978 SQ a,e,i = 2.44, 0.20, 7 Elements MPC 7597

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	Mag.
1984	01 21	13 17.70	-00 44.8	2.308	2.681	101.4	21.1	19.4
1984	01 31	13 21.70	-00 51.9					
1984	02 10	13 23.31	-00 44.9	2.081	2.715	120.2	18.3	19.2
1984	02 20	13 22.35	-00 24.1					
1984	03 01	13 18.76	+00 09.3	1.902	2.746	141.3	13.0	18.9
1984	03 11	13 12.70	+00 52.4					
1984	03 21	13 04.67	+01 40.7	1.804	2.775	163.8	5.7	18.6
1984	03 31	12 55.41	+02 28.6					
1984	04 10	12 45.92	+03 09.9	1.816	2.802	167.1	4.6	18.6
1984	04 20	12 37.17	+03 39.6					
1984	04 30	12 29.98	+03 54.6	1.938	2.826	145.4	11.7	19.0
1984	05 10	12 24.88	+03 53.6					
1984	05 20	12 22.11	+03 37.2	2.146	2.847	124.8	17.0	19.3
1984	05 30	12 21.66	+03 06.9					
1984	06 09	12 23.39	+02 24.3	2.408	2.866	106.5	19.9	19.7
1984	06 19	12 27.07	+01 31.6					
1984	06 29	12 32.46	+00 30.4	2.692	2.882	90.3	20.7	19.9