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:

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ERRATA.

MPC	Line	
9849	13	For Periodic Comet Shoemaker 1 read Comet Shoemaker (1984s)
10512	-24	For B(1,0) read H
10518	18	For S. Inoda read S. Inoda and T. Urata

* * * * *

DELETED OBSERVATIONS.

The following observations are to be deleted.

Object	Date	UT	R. A. (1950)	Decl.	Reference	N Obs.
1982 GK *	1982 04	01.70764	11 46 41.50	+10 20 19.9	MPC 8694	1 372
1982 GK	1982 04	01.71458	11 46 41.05	+10 20 19.8	MPC 8694	1 372
1982 HK3 *	1982 04	27.96354	12 27 56.73	+11 45 20.6	MPC 8694	2 033
1982 HK3	1982 04	27.98958	12 27 56.15	+11 45 35.7	MPC 8694	2 033

Note 1: redesignation of observations erroneously attributed to (2132) on MPC 6850; the observations are identical with those correctly assigned to 1982 FC on MPC 6851. 2: redesignation of invalid observations that were attributed to (1361) on MPC 7065.

* * * * *

IDENTIFICATION CHANGE.

Continuation to MPC 10457.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1980 BM6 *	1980 01	23.89840	08 21 27.38	+18 23 59.7	1979 YY8	16.0	095

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

006 Fabra Observatory, Barcelona. Observers J. M. Codina and M. Moreno. Reduced by N. Torras.
010 Caussols. 0.90-m Schmidt telescope. Observers C. Pollas, A. Barthelemy and J.-L. Heudier. Reduced by R. Chemin.
012 Royal Observatory, Uccle. Observers H. Debehogne and T. Pauwels.
046 Klet. Observer A. Mrkos.
051 Cape. Observer G. Roberts.
069 Baldone, near Riga. Observer A. Alksnis.
071 Bulgarian National Observatory. Observers V. Ivanova and V. Shkodrov.
083 Golosseevo-Kiev. Observers S. P. Major and S. V. Shatokhina.
085 Kiev. Observers K. E. Smirnova and K. I. Churyumov. From Kiev Komet. Tsirk. No. 348.
094 Crimea-Simeis. Observers L. S. Merezhina, S. V. Fokanov and A. L. Shcherbanovskij.
095 Crimea-Nauchnij. Observers L. G. Karachkina and V. D. D’yakonova. From Kiev Komet. Tsirk. No. 343.
114 Engelhardt Observatory, Zelenchukskaya Station. Observers V. N. Kitkin and I. E. Tselishchev. From Kiev Komet. Tsirk. Nos. 343 and 344.
186 Kitab. Observers E. Mirmakhmudov, E. Pattakhov, E. Khamidov, E. Rakhmatov and U. Lejko.
188 Shokin Majdanak. Observers S. B. Novikov and Yu. A. Shokin.

190 Gissar. Observer S. I. Gerasimenko.
191 Dushanbe. Observers S. I. Gerasimenko, K. I. Churyumov and F. K. Rspaev. In part from Kiev Komet. Tsirk. Nos. 343 and 345.
323 Perth Observatory, Bickley. Observers M. P. Candy, P. Jekabsons, A. John, J. Johnston and G. Kinnear.
413 U.K. Schmidt Telescope Unit, Siding Spring. Observer M. Hartley.
415 Kambah. Observer D. Herald.
420 Sydney. Observer C. S. Bembrick.
552 Osservatorio S. Vittore. Observers G. Sassi and C. Vacchi, measured by Vacchi, V. Goretti and E. Colombini.
675 Palomar. 1.5-m reflector + CCD. Observer J. Gibson.
688 Lowell Observatory. 0.8-m reflector + CCD. Observers B. A. Skiff and C. Gullixson, assisted by L. H. Wasserman.
707 Chamberlin Observatory field station. Observer J. Briggs. Measured by E. Everhart.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
		Periodic Comet Halley					
/1982i	1985	09 21.88644	06 13 02.12	+19 44 47.2			191
/1982i	1985	11 07.28757	04 52 55.37	+22 10 48.2			688
/1982i	1985	11 08.07465	04 48 21.50	+22 12 21.3			010
/1982i	1985	11 09.92951	04 36 42.80	+22 13 59.9			010
/1982i	1985	11 14.94618	03 58 14.10	+21 56 13.5			010
/1982i	1985	11 22.13153	02 45 29.67	+19 47 40.2			688
/1982i	1985	12 05.10530	00 25 22.95	+10 17 38.6			688
/1982i	1985	12 11.75920	23 34 44.01	+05 30 22.3			010
/1982i	1985	12 16.59080	23 07 45.65	+02 48 03.9		1	188
/1982i	1985	12 16.59496	23 07 44.42	+02 47 56.4		1	188
/1982i	1985	12 16.59983	23 07 42.98	+02 47 47.8			188
/1982i	1986	01 10.71215	21 54 29.77	-04 36 12.1			552
/1982i	1986	01 12.70799	21 50 47.25	-04 58 26.3			552
/1982i	1986	01 13.71406	21 48 57.49	-05 09 23.4			552
/1982i	1986	01 14.71267	21 47 09.69	-05 20 11.9			552
/1982i	1986	01 14.72413	21 47 08.48	-05 20 18.2			012
/1982i	1986	01 14.73368	21 47 07.42	-05 20 30.1			012
/1982i	1986	01 16.70781	21 43 37.07	-05 41 37.9			552
/1982i	1986	01 20.72969	21 36 34.59	-06 24 46.6			012
/1982i	1986	03 06.03447	20 17 31.93	-18 13 48.2			186
/1982i	1986	03 06.03586	20 17 31.82	-18 13 48.6			186
/1982i	1986	03 06.03863	20 17 31.53	-18 13 56.0			186
/1982i	1986	03 06.04019	20 17 31.32	-18 13 56.5			186
/1982i	1986	03 07.02170	20 15 39.62	-18 38 28.1		2	190
/1982i	1986	03 07.02865	20 15 38.90	-18 38 41.7		2	190
/1982i	1986	03 07.03349	20 15 38.14	-18 38 46.3			186
/1982i	1986	03 07.03423	20 15 38.09	-18 38 46.5		2	190
/1982i	1986	03 07.03487	20 15 37.98	-18 38 49.9			186
/1982i	1986	03 07.03626	20 15 38.00	-18 38 50.8			186
/1982i	1986	03 07.03799	20 15 37.72	-18 38 55.2			186
/1982i	1986	03 07.03938	20 15 37.54	-18 38 56.9			186
/1982i	1986	03 07.04076	20 15 37.37	-18 38 59.7			186
/1982i	1986	03 08.03042	20 13 41.94	-19 04 28.3			186
/1982i	1986	03 08.03215	20 13 41.75	-19 04 32.1			186
/1982i	1986	03 08.03475	20 13 41.45	-19 04 37.3			186
/1982i	1986	03 08.03683	20 13 41.20	-19 04 38.3			186
/1982i	1986	03 11.75568	20 05 51.11	-20 49 39.3			415
/1982i	1986	03 11.75691	20 05 50.92	-20 49 39.3			415

/1982i	1986	03	12.75066	20	03	33.03	-21	20	31.8	415
/1982i	1986	03	12.75102	20	03	33.08	-21	20	32.9	415
/1982i	1986	03	14.75420	19	58	33.81	-22	27	08.4	420
/1982i	1986	03	15.14656	19	57	31.41	-22	41	02.6	071
/1982i	1986	03	18.14698	19	48	43.14	-24	35	38.7	071
/1982i	1986	03	19.03331	19	45	45.93	-25	13	02.4	186
/1982i	1986	03	19.03469	19	45	45.74	-25	13	05.7	186
/1982i	1986	03	19.03538	19	45	45.62	-25	13	07.0	186
/1982i	1986	03	19.03619	19	45	45.44	-25	13	09.3	186
/1982i	1986	03	21.71929	19	35	33.60	-27	17	45.9	415
/1982i	1986	03	21.71990	19	35	33.47	-27	17	47.8	415
/1982i	1986	03	22.20382	19	33	28.26	-27	42	34.7	006
/1982i	1986	03	22.20764	19	33	27.23	-27	42	47.4	006
/1982i	1986	03	22.21111	19	33	26.15	-27	42	58.0	006
/1982i	1986	03	22.21354	19	33	25.61	-27	43	04.7	006
/1982i	1986	03	23.99032	19	24	59.42	-29	19	24.0	186
/1982i	1986	03	23.99240	19	24	58.56	-29	19	33.1	186
/1982i	1986	03	23.99430	19	24	58.07	-29	19	38.7	186
/1982i	1986	03	24.12332	19	24	18.10	-29	26	46.4	051
/1982i	1986	03	24.14416	19	24	11.58	-29	27	58.3	051
/1982i	1986	03	24.19856	19	23	54.42	-29	31	20.5	006
/1982i	1986	03	24.20134	19	23	53.63	-29	31	30.0	006
/1982i	1986	03	24.20412	19	23	52.66	-29	31	39.5	006
/1982i	1986	03	29.13582	18	50	36.10	-34	58	33.1	051
/1982i	1986	03	29.14693	18	50	30.29	-34	59	23.1	051
/1982i	1986	04	04.14277	17	35	28.70	-43	05	55.7	051
/1982i	1986	04	04.14763	17	35	23.59	-43	06	19.6	051
/1982i	1986	04	08.82749	15	52	39.51	-47	20	48.3	051
/1982i	1986	04	08.83860	15	52	22.20	-47	20	59.9	051
/1982i	1986	04	08.84624	15	52	10.44	-47	21	08.5	051

Periodic Comet Faye

/1984 XI	1984	12	22.93368	09	20	41.34	+01	38	33.5	114
/1984 XI	1984	12	24.94162	09	19	58.99	+01	35	50.7	114
/1984 XI	1984	12	25.93292	09	19	34.68	+01	34	54.7	114

Periodic Comet Giacobini-Zinner

/1984e	1985	04	28.01724	19	48	18.47	+17	28	45.3	114
/1984e	1985	05	13.97472	20	15	58.23	+24	17	42.0	114
/1984e	1985	05	14.93542	20	17	41.42	+24	44	18.9	114
/1984e	1985	05	19.93428	20	26	47.28	+27	05	50.8	069
/1984e	1985	05	20.87995	20	28	32.22	+27	33	18.3	191
/1984e	1985	05	21.87587	20	30	23.61	+28	02	20.7	191
/1984e	1985	05	27.89379	20	41	54.11	+31	01	52.7	191
/1984e	1985	05	27.95134	20	42	00.81	+31	03	36.4	095
/1984e	1985	05	27.95828	20	42	01.81	+31	03	49.4	095
/1984e	1985	05	28.00446	20	42	06.94	+31	05	13.2	095
/1984e	1985	05	28.00862	20	42	07.56	+31	05	20.6	095
/1984e	1985	06	17.89989	21	28	48.13	+42	07	48.3	114
/1984e	1985	06	18.99810	21	31	42.10	+42	43	24.4	046
/1984e	1985	06	24.89328	21	48	27.63	+45	53	35.4	114
/1984e	1985	07	07.85968	22	35	21.03	+52	32	48.3	114
/1984e	1985	07	07.86755	22	35	23.25	+52	33	02.1	114
/1984e	1985	07	18.97604	23	32	57.10	+57	16	00.4	094
/1984e	1985	07	21.00953	23	45	52.45	+57	56	17.4	085
/1984e	1985	07	21.82122	23	51	15.88	+58	10	57.3	114
/1984e	1985	07	21.82654	23	51	17.92	+58	11	02.3	114
/1984e	1985	07	21.83889	23	51	22.81	+58	11	16.1	114

/1984e	1985	07	22.98509	23	59	11.93	+58	30	31.6		085
/1984e	1985	07	23.01400	23	59	23.96	+58	30	59.4		085
/1984e	1985	07	25.93298	00	20	32.70	+59	11	09.6		085
/1984e	1985	07	25.95584	00	20	42.91	+59	11	25.9		085
/1984e	1985	07	25.97522	00	20	51.63	+59	11	40.6		085
/1984e	1985	07	25.98492	00	20	55.87	+59	11	47.5		085
/1984e	1985	07	26.85289	00	27	33.47	+59	20	59.1		114
/1984e	1985	07	26.86133	00	27	37.47	+59	21	05.1		114
/1984e	1985	07	26.88169	00	27	46.88	+59	21	17.6		114
/1984e	1985	07	29.01258	00	44	36.72	+59	37	59.1		114
/1984e	1985	07	29.02161	00	44	40.58	+59	38	02.6		114
/1984e	1985	07	30.02340	00	52	52.93	+59	42	45.0		114
/1984e	1985	08	01.97118	01	17	51.80	+59	43	50.9		094
/1984e	1985	08	07.03794	02	02	42.93	+58	55	29.4		083
/1984e	1985	08	08.03854	02	11	41.91	+58	37	43.9		094
/1984e	1985	08	13.89479	03	03	04.58	+55	54	31.5		094
/1984e	1985	08	14.90868	03	11	36.50	+55	15	53.3		094
/1984e	1985	08	16.92035	03	28	03.82	+53	50	19.6		114
/1984e	1985	08	16.92230	03	28	04.05	+53	50	18.6		114
/1984e	1985	08	17.83562	03	35	18.75	+53	07	26.6		114
/1984e	1985	08	17.84086	03	35	21.13	+53	07	14.3		114
/1984e	1985	08	17.85056	03	35	25.61	+53	06	46.1		114
/1984e	1985	08	17.86168	03	35	30.73	+53	06	16.2		114
/1984e	1985	08	18.88745	03	43	27.86	+52	15	25.0		114
/1984e	1985	08	27.02375	04	39	16.62	+43	55	25.7		114
/1984e	1985	08	27.96424	04	44	54.50	+42	47	57.7		094
/1984e	1985	08	28.00208	04	45	07.59	+42	45	14.2		114
/1984e	1985	08	28.94167	04	50	34.71	+41	36	09.2		114
/1984e	1985	08	28.94907	04	50	37.12	+41	35	37.7		114
/1984e	1985	08	29.93067	04	56	08.55	+40	21	48.4		114
/1984e	1985	08	29.93940	04	56	11.64	+40	21	08.4		114
/1984e	1985	09	07.02088	05	35	40.07	+29	27	55.4		069
/1984e	1985	10	19.09916	07	16	16.13	-18	09	39.7		114
/1984e	1985	10	23.03018	07	19	43.55	-20	56	35.8		114
/1984e	1985	10	26.01988	07	21	46.23	-22	53	58.8		114
/1984e	1986	03	06.51806	06	17	46.72	-15	51	52.5		323
			Comet Shoemaker (1984f)								
/1984f	1986	03	11.50694	05	12	05.78	-38	20	28.1		323
/1984f	1986	03	13.50486	05	11	10.32	-37	29	02.4		323
			Comet Hartley-Good (1985l)								
/1985l	1986	03	04.44653	12	45	33.17	-22	22	00.5		707
/1985l	1986	03	06.77778	12	31	36.98	-23	03	47.0		323
/1985l	1986	03	19.73542	11	22	52.78	-24	34	44.2		323
			Comet Thiele (1985m)								
/1985m	1986	04	13.34727	20	12	05.43	+11	52	25.7	17T	801
			Periodic Comet Shoemaker 3								
/1986a	1986	04	04.10494	09	42	07.76	+23	21	32.1		801
/1986a	1986	04	14.14886	09	50	39.30	+22	14	48.6	7	801
			Comet Shoemaker (1986b)								
/1986b	1986	03	22.36875	11	26	24.85	+27	36	17.2		675
/1986b	1986	03	22.37500	11	26	23.85	+27	36	20.5		675
/1986b	1986	04	04.15344	10	53	25.39	+29	02	49.4		801
/1986b	1986	04	12.22877	10	35	00.08	+29	25	07.2		801

Periodic Comet Hartley 2

/1986c	1986	03	15.59361	11	22	52.78	-07	27	45.7	17.5	T	413
/1986c	1986	03	17.67951	11	20	54.53	-07	11	14.2			413
/1986c	1986	03	20.60691	11	18	13.08	-06	47	55.4			413
/1986c	1986	04	04.12772	11	06	40.96	-04	55	12.8		3	801
/1986c	1986	04	05.16007	11	06	00.40	-04	47	36.4		4	801
/1986c	1986	04	05.20583	11	05	58.52	-04	47	15.6	18	T	675
/1986c	1986	04	05.21069	11	05	58.31	-04	47	13.0			675
/1986c	1986	04	05.21750	11	05	58.06	-04	47	10.3			675
/1986c	1986	04	08.15569	11	04	08.69	-04	26	09.1			675
/1986c	1986	04	08.16097	11	04	08.49	-04	26	06.7			675
/1986c	1986	04	08.17083	11	04	08.14	-04	26	02.6			675

Note 1: correction to MPC 10345. 2: comet bright, difficult to measure.
3: inkdot measured. 4: very weak image. 7 = 3 + 4.

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OBSERVATIONS MADE AT CAUSSOLS.

Plates taken by A. Barthelemy, J.-L. Heudier, T. Laverge and A. Robin, reduced by R. Chemin. Contact: J.-L. Heudier, CERGA, Avenue Copernic, F-06130 Grasse, France.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
16		1985 12	13.94722	04 42 24.05	+17 31 05.8		010
16		1985 12	13.97850	04 42 22.91	+17 31 03.0		010
65		1985 12	13.94722	04 39 00.28	+17 22 08.9		010
65		1985 12	13.97850	04 38 59.10	+17 22 04.7		010
154		1986 03	17.06805	14 24 56.35	-06 41 56.3		010
154		1986 03	17.10972	14 24 55.43	-06 42 00.2		010
197		1985 12	20.03872	06 33 35.56	+26 09 16.9		010
197		1985 12	20.07413	06 33 33.77	+26 09 22.2		010
246		1985 12	17.99307	06 43 43.29	+02 04 51.7		010
246		1985 12	18.07641	06 43 38.81	+02 04 52.9		010
258		1985 12	17.99307	06 54 02.21	+01 42 12.1		010
258		1985 12	18.07641	06 53 58.20	+01 42 00.3		010
282		1986 03	16.08750	13 32 01.89	+01 46 50.9		010
282		1986 03	16.12950	13 32 00.61	+01 47 11.1		010
307		1986 03	17.06805	14 21 53.79	-05 35 26.1		010
307		1986 03	17.10972	14 21 52.57	-05 35 18.2		010
974		1985 12	20.03872	06 26 58.05	+24 20 11.5		010
974		1985 12	20.07413	06 26 55.62	+24 20 17.1		010
2060		1985 12	13.94722	04 40 13.64	+17 02 35.2		010
2060		1985 12	13.96805	04 40 12.87	+17 02 29.8		010
2114		1985 12	20.03872	06 24 32.20	+24 06 34.1		010
2114		1985 12	20.07413	06 24 31.05	+24 06 35.0		010
2155		1985 12	20.03872	06 22 25.56	+26 31 40.5		010
2155		1985 12	20.07413	06 22 23.80	+26 31 43.3		010
2487		1985 12	20.03872	06 26 06.45	+28 16 34.2		010
2487		1985 12	20.07413	06 26 04.43	+28 16 34.2		010
3148		1985 12	20.03872	06 20 25.05	+24 32 03.9	17.5	010
3148		1985 12	20.07413	06 20 23.85	+24 32 06.1		010
1985 YV	*	1985 12	20.03872	06 25 05.49	+28 17 02.6		010
1985 YV		1985 12	20.07413	06 25 03.61	+28 17 07.6		010
1986 AW2		1986 03	07.90000	09 11 02.00	+23 29 28.5	15.0	010
1986 AW2		1986 03	07.92777	09 11 01.37	+23 29 43.9		010
1986 EK	*	1986 03	07.90000	09 11 02.72	+23 13 16.6	16.5	010
1986 EK		1986 03	07.92777	09 11 01.33	+23 12 50.9		010
1986 FB	*	1986 03	16.10972	13 51 06.03	+01 40 19.2	17	010
1986 FB		1986 03	16.12950	13 51 05.73	+01 40 44.6		010

OBSERVATIONS MADE AT KLET BY A. MRKOS.

Plates with the 0.6-m Maksutov reflector. Contact: A. Mrkos, Department of Astronomy and Astrophysics, Charles University, Svedska 8, C-15000 Prague 5, Czechoslovakia.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1981 UN		1986 02	07.98822	10 03 46.57	+08 35 10.4	17.0	046
1981 UN		1986 02	08.00280	10 03 45.84	+08 35 12.8		046
1986 CJ1	*	1986 02	07.98822	10 05 05.88	+08 32 22.4		046
1986 CJ1		1986 02	08.00280	10 05 05.28	+08 32 21.5		046

OBSERVATIONS MADE AT BRORFELDE BY K. AUGUSTESEN AND P. JENSEN.

Plates taken with the 0.45-m (45/77/150 cm) Schmidt, scanned and measured by P. Jensen. Contact: H. J. Fogh Olsen, Copenhagen University Observatory, Brorfelde, DK-4340 Tollose, Denmark.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
206		1986 04	03.00553	12 48 31.60	-00 31 23.3		054
206		1986 04	05.00079	12 46 55.43	-00 19 23.4		054
251		1986 04	02.94716	12 22 29.97	+06 01 03.5		054
251		1986 04	04.93343	12 21 08.92	+06 13 53.7		054
251		1986 04	04.95009	12 21 08.06	+06 13 59.3		054
251		1986 04	05.90773	12 20 29.61	+06 20 02.6		054
448		1986 04	02.94716	12 30 45.04	+06 38 45.3		054
448		1986 04	04.93343	12 29 11.10	+06 43 27.1		054
448		1986 04	04.95009	12 29 10.17	+06 43 28.1		054
448		1986 04	05.90773	12 28 25.29	+06 45 38.6		054
595		1986 04	03.00553	12 56 27.81	-00 15 32.8		054
595		1986 04	05.00079	12 54 41.76	-00 14 02.6		054
905		1986 04	02.97197	12 54 55.26	-02 03 06.6		054
905		1986 04	02.98586	12 54 54.27	-02 03 01.9		054
1010		1986 04	03.00553	12 48 43.51	+00 54 15.9		054
1010		1986 04	05.00079	12 47 11.36	+01 03 47.9		054
1689		1986 04	02.94716	12 25 14.17	+06 40 26.5		054
1689		1986 04	04.93343	12 23 31.48	+06 51 50.7		054
1689		1986 04	04.95009	12 23 30.44	+06 51 55.8		054
1689		1986 04	05.90773	12 22 41.57	+06 57 15.8		054
1731		1986 04	03.00553	12 52 25.91	+00 05 15.5		054
1731		1986 04	05.00079	12 51 02.92	+00 16 02.8		054
1802		1986 04	02.97718	12 59 13.26	-02 50 03.0		054
1811		1986 04	03.00553	12 47 47.11	+00 08 11.9		054
1811		1986 04	05.00079	12 46 23.83	+00 21 18.4		054
1819		1986 04	05.01745	13 10 13.15	+26 46 34.4		054
1819		1986 04	05.92602	13 09 32.07	+26 52 21.6		054
2116		1986 04	03.00553	12 54 53.02	+00 00 50.1		054
2116		1986 04	05.00079	12 53 17.24	+00 17 25.3		054
1942	EB	1986 04	03.00553	12 54 00.53	+00 03 05.9		054
1942	EB	1986 04	05.00079	12 51 53.89	+00 06 26.8		054
1942	EB	1986 04	10.92891	12 45 45.17	+00 14 15.2		054
1975	EA6	1986 04	02.97197	12 55 11.58	-02 08 26.4		054
1975	EA6	1986 04	02.98586	12 55 10.70	-02 08 21.8		054
1975	EA6	1986 04	03.00553	12 55 09.61	-02 08 10.2		054
1975	EA6	1986 04	04.98412	12 53 23.03	-01 56 39.4		054
1975	EA6	1986 04	05.00079	12 53 22.08	-01 56 33.5		054
1975	EA6	1986 04	10.92891	12 48 02.50	-01 23 02.8		054
1978	OJ	1986 04	03.03366	13 37 15.78	+12 46 26.9		054
1986	EL1	1986 04	03.00553	12 52 56.49	-01 06 13.6	17.0	054
1986	EL1	1986 04	04.98412	12 51 15.69	-00 57 50.1		054
1986	FA	1986 04	03.00553	12 45 50.08	+01 17 50.7	16.6	054
1986	FA	1986 04	05.00079	12 43 47.17	+01 24 07.3		054
1986	GB	* 1986 04	02.94716	12 27 38.06	+06 55 09.0	16.8	054

1986 GB		1986 04 04.93343	12 25 39.59	+07 07 03.7		054
1986 GB		1986 04 04.95009	12 25 38.45	+07 07 09.2		054
1986 GC	*	1986 04 02.94716	12 30 01.91	+07 11 34.8	17.0	054
1986 GC		1986 04 05.90773	12 27 06.51	+07 18 50.2		054
1986 GD	*	1986 04 02.94716	12 31 57.33	+05 48 39.3	17.0	054
1986 GD		1986 04 05.90773	12 29 07.32	+05 49 24.1		054
1986 GE	*	1986 04 02.97197	12 54 28.30	-01 35 11.0	16.5	054
1986 GE		1986 04 02.98586	12 54 27.50	-01 35 04.5		054
1986 GG	*	1986 04 03.00553	12 50 10.73	-00 08 31.9	17.0	054
1986 GG		1986 04 05.00079	12 48 11.78	-00 02 07.7		054
1986 GH	*	1986 04 03.00553	12 52 22.05	+00 05 10.1	17.3	054
1986 GH		1986 04 05.00079	12 50 25.44	+00 19 32.4		054
1986 GJ	*	1986 04 03.00553	12 54 46.26	-00 24 25.1	16.8	054
1986 GJ		1986 04 05.00079	12 53 08.19	-00 20 04.4		054
1986 GN	*	1986 04 03.03366	13 30 46.98	+13 43 33.8	17.0	054

OBSERVATIONS MADE AT THE BULGARIAN NATIONAL OBSERVATORY BY V. IVANOVA AND V. SHKODROV.

Contact: V. Shkodrov, Department of Astronomy, Bulgarian Academy of Sciences, 72 Lenin Boulevard, Sofia 1184, Bulgaria.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1986 DA	1986 04 13.01348		11 39 56.31	+22 18 38.6	071
1986 DA	1986 04 13.02737		11 39 58.99	+22 18 06.5	071
1986 DA	1986 04 13.05145		11 40 03.98	+22 17 01.2	071
1986 DA	1986 04 13.06534		11 40 06.77	+22 16 31.4	071
1986 DA	1986 04 13.95511		11 43 09.77	+21 39 44.6	071
1986 DA	1986 04 13.95975		11 43 11.05	+21 39 29.5	071
1986 DA	1986 04 13.97364		11 43 13.74	+21 38 53.4	071
1986 DA	1986 04 13.97900		11 43 14.76	+21 38 39.3	071
1986 DA	1986 04 13.99289		11 43 17.46	+21 38 04.8	071
1986 DA	1986 04 13.99798		11 43 18.38	+21 37 51.5	071
1986 DA	1986 04 14.01187		11 43 21.21	+21 37 17.2	071
1986 DA	1986 04 14.90730		11 46 27.17	+20 59 15.8	071
1986 DA	1986 04 14.92731		11 46 30.97	+20 58 24.0	071
1986 DA	1986 04 14.98348		11 46 42.07	+20 55 55.5	071
1986 DA	1986 04 15.86891		11 49 46.56	+20 17 28.9	071

OBSERVATIONS MADE AT YATSUGATAKE-KOBUCHIZAWA BY M. INOUE AND O. MURAMATSU.

Films with 0.31-m f/5.6 reflector. Copied from Nihondaira Obs. Circ. No. 1553. Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 ED	1986 04 05.59028		11 31 56.26	+08 23 31.5	16.5	386
1986 EE	1986 03 16.64757		11 48 10.76	+08 17 28.2		386
1986 EE	1986 04 05.59028		11 30 14.07	+08 28 52.1	16.5	386
1986 FA	1986 04 05.65972		12 43 06.66	+01 26 09.5	17	386
1986 FA	1986 04 05.68403		12 43 04.95	+01 26 13.8		386

OBSERVATIONS MADE AT NAGATORO BY N. KAWASATO.

Films taken with a 0.13-m f/6.4 refractor. Contact: N. Kawasato, Stellar House, Nagatoro, Saitama-ken, Japan.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1986 DA	1986 03 31.46806		11 00 05.90	+29 11 58.3	398
1986 DA	1986 03 31.50139		11 00 11.23	+29 11 10.2	398
1986 DA	1986 03 31.54306		11 00 17.72	+29 10 09.7	398

OBSERVATIONS MADE AT THE OSSERVATORIO S. VITTORE.

Plates taken by C. Vacchi and G. Sassi; blinked by Vacchi; measured by Vacchi, V. Goretti and E. Colombini. Reduced by Colombini from least-

squares plate-constants solutions with five or more AGK3 or SAO reference stars. Contact: E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
3106	1986 01	12.93854	05 13 57.90	+11 13 59.3		552
3106	1986 01	12.95937	05 13 57.32	+11 14 10.1		552
1986 DA	1986 03	28.86458	10 52 51.02	+30 10 38.6	14.5	552
1986 DA	1986 03	28.87569	10 52 52.85	+30 10 25.3		552
1986 EB	1986 03	28.83264	09 56 55.13	+12 05 27.2	15.5	552
1986 EB	1986 03	28.85278	09 56 50.58	+12 04 34.9		552
1986 EB	1986 04	02.85347	09 41 08.95	+08 42 11.5	16.0	552
1986 EB	1986 04	02.89097	09 41 02.33	+08 40 43.7		552

OBSERVATIONS MADE AT MAUNA KEA.

Observations made using the encoders at the Infrared Telescope Facility by D. J. Tholen, M. W. Buie and D. M. Griep. SAO reference stars. Contact: D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive, Honolulu, HI 96822, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1986 DA	1986 04	07.38681	11 21 13.55	+25 50 20.2	568
1986 EB	1986 04	07.39653	09 30 33.76	+05 58 01.5	568

OBSERVATIONS MADE AT ELDAGSEN BY W. BONK.

Contact: W. Bonk, Nordstrasse 33, D-3257 Springe 3, Federal Republic of Germany.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
535	1986 03	28.80764	12 21 34.46	+09 42 21.4	573
535	1986 03	28.81944	12 21 33.83	+09 42 24.8	573
535	1986 03	28.82500	12 21 33.53	+09 42 26.5	573
535	1986 03	28.83056	12 21 33.22	+09 42 28.0	573
751	1986 03	28.84028	12 31 20.37	+21 32 35.5	573
751	1986 03	28.84583	12 31 20.02	+21 32 37.0	573
751	1986 03	28.85139	12 31 19.68	+21 32 38.6	573
751	1986 03	28.85764	12 31 19.29	+21 32 40.3	573
751	1986 03	28.86319	12 31 18.95	+21 32 41.9	573

OBSERVATIONS MADE AT VICTORIA BY D. D. BALAM.

Films (Kodak 2415 emulsion) taken with a 0.25-m f/2 Schmidt (Celestron 10). Measurements on single-coordinate engine. Generally 6-8 reference stars from SAO Catalog, least-squares plate-constants solution (Tatum 1982, J. Roy. Astron. Soc. Canada 76, 97). Contact: J. B. Tatum, Dept of Physics, University of Victoria, P.O. Box 1700, Victoria, BC, V8W 2Y2, Canada.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1986 DA	1986 04	10.23201	11 30 35.33	+24 08 05.3	657
1986 DA	1986 04	10.26049	11 30 40.69	+24 07 00.2	657

OBSERVATIONS MADE WITH THE 1.5-m REFLECTOR AND CCD AT PALOMAR BY J. GIBSON.

Coordination with J. G. Williams and with the Minor Planet Center. AGK3 and SAO reference stars, reduction using Palomar Sky Survey prints. Contact: J. Gibson, Jet Propulsion Laboratory, MS 138-307, Pasadena, CA 91109, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1985 WA	1985 12	31.23056	03 45 25.41	+42 12 57.2		675
1985 WA	1985 12	31.23590	03 45 26.17	+42 12 58.2		675
1985 WA	1986 01	02.25000	03 50 36.82	+42 17 49.7		675
1985 WA	1986 01	02.25625	03 50 37.71	+42 17 50.1		675
1985 WA	1986 01	18.28178	04 29 55.50	+41 58 14.3		675
1985 WA	1986 01	18.30208	04 29 58.32	+41 58 09.0		675
1985 WA	1986 01	19.25037	04 32 13.02	+41 54 46.7		675
1985 WA	1986 01	19.25701	04 32 13.93	+41 54 45.1		675
1986 AE	1986 03	04.32847	07 32 57.36	+04 16 31.3		675

1986	AE		1986	03	04.33750	07	32	57.25	+04	16	29.6	675
1986	AE		1986	03	04.34595	07	32	57.10	+04	16	28.3	675
1986	EA	*	1986	03	04.23979	11	42	49.03	+05	49	01.3	18 675
1986	EA		1986	03	04.24729	11	42	48.63	+05	49	05.5	675
1986	EA		1986	03	04.25431	11	42	48.26	+05	49	09.4	675
1986	EA		1986	03	04.26625	11	42	47.66	+05	49	16.1	675
1986	EB		1986	03	21.25229	10	30	08.10	+17	45	05.7	675
1986	EB		1986	03	21.25653	10	30	06.75	+17	44	54.1	675
1986	EB		1986	03	22.39965	10	24	18.91	+16	52	21.2	675
1986	EB		1986	03	22.40521	10	24	17.20	+16	52	05.6	675

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR BY C. T. KOWAL.
Plates scanned and measured by S. J. Bus, with assistance from E. Bowell. Contact: S. J. Bus, Lowell Observatory, 1400 W. Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

Object		Date	UT	R. A. (1950)			Decl.			Obs.
1949	PQ	1978	10 04.41493	01	28	49.82	+07	54	12.1	675
1949	PQ	1978	10 05.31146	01	27	55.49	+07	49	03.2	675
1975	WK1	1978	10 04.35799	00	58	18.90	+09	59	12.7	675
1975	WK1	1978	10 05.25452	00	57	28.15	+09	53	15.2	675
1978	RV5	1978	10 04.35799	01	21	01.50	+10	19	51.9	675
1978	RV5	1978	10 05.25452	01	20	09.71	+10	17	17.0	675
1978	RW16*	1978	09 01.35521	23	02	23.96	+02	07	38.3	675
1978	RW16	1978	09 02.29271	23	01	32.60	+02	03	45.6	675
1978	RX16*	1978	09 01.35521	23	19	36.67	-02	11	45.0	675
1978	RX16	1978	09 02.29271	23	19	01.31	-02	17	49.0	675
1978	RY16*	1978	09 01.41632	23	38	28.46	+05	33	22.4	675
1978	RY16	1978	09 02.34965	23	37	49.42	+05	11	48.1	675
1978	SQ2	1978	09 02.34965	23	47	56.57	+01	01	37.8	675
1978	SS2	1978	09 01.41632	23	42	16.88	+04	48	35.2	675
1978	SS2	1978	09 02.34965	23	41	41.33	+04	42	58.1	675
1978	SO4	1978	10 04.35799	01	20	39.91	+09	11	48.1	675
1978	SO4	1978	10 05.25452	01	20	03.79	+09	09	35.1	675
1978	TM9 *	1978	10 04.35799	01	12	29.44	+05	47	51.3	675
1978	TM9	1978	10 05.25452	01	11	51.00	+05	44	08.9	675
1978	TN9 *	1978	10 04.35799	01	14	59.58	+08	00	54.6	675
1978	TN9	1978	10 05.25452	01	14	02.19	+07	58	54.2	675
1979	SJ11	1979	10 18.36667	01	54	10.25	+17	06	11.9	675
1979	SJ11	1979	10 18.41875	01	54	07.83	+17	05	59.0	675
1979	TW1	1979	10 18.30764	01	45	31.15	+12	41	59.3	675
1979	TW1	1979	10 18.35972	01	45	28.63	+12	41	38.2	675
1979	UC5 *	1979	10 18.36667	01	58	13.53	+15	02	50.8	675
1979	UC5	1979	10 18.41875	01	58	11.05	+15	02	30.2	675
1981	DZ1	1978	10 04.41493	01	30	28.28	+12	23	20.7	675
1981	DZ1	1978	10 05.31146	01	29	54.25	+12	15	34.7	675
1981	ER6	1979	10 18.36667	01	54	13.73	+19	12	04.2	675
1981	ER6	1979	10 18.41875	01	54	10.95	+19	11	50.3	675
1981	EV7	1978	09 01.29688	22	37	50.11	-01	12	10.4	675
1981	EV7	1978	09 02.23507	22	37	04.20	-01	16	38.0	675
1981	EO8	1979	10 18.24931	01	17	35.67	+15	16	41.8	675
1981	EO8	1979	10 18.30139	01	17	32.90	+15	16	26.3	675
1981	EQ9	1978	10 04.38403	01	21	27.46	+09	48	26.4	675
1981	EQ9	1978	10 04.41493	01	21	26.46	+09	48	16.8	675
1981	EQ9	1978	10 05.25452	01	20	51.76	+09	44	00.7	675
1981	EQ9	1978	10 05.31146	01	20	49.49	+09	43	47.5	675
1981	EX10	1978	10 04.35799	01	18	55.11	+09	32	39.8	675
1981	EX10	1978	10 05.25452	01	18	12.96	+09	26	46.6	675
1981	EZ10	1978	09 01.41632	23	39	56.48	+03	18	42.4	675
1981	EZ10	1978	09 02.34965	23	39	15.85	+03	15	03.1	675

1981	ED11	1978	09	01.29688	22	58	24.00	-01	37	40.2	675
1981	ED11	1978	09	02.23507	22	57	25.93	-01	39	15.5	675
1981	EG14	1979	10	18.30764	01	35	48.32	+13	46	55.7	675
1981	EG14	1979	10	18.35972	01	35	45.62	+13	46	30.3	675
1981	ES14	1978	09	01.41632	23	44	33.99	+04	07	57.8	675
1981	ES14	1978	09	02.34965	23	43	48.79	+04	04	52.1	675
1981	ET14	1978	09	01.35521	23	01	48.01	-02	30	20.1	675
1981	ET14	1978	09	02.29271	23	01	07.50	-02	34	15.9	675
1981	EX14	1978	10	04.35799	01	14	23.80	+10	06	26.0	675
1981	EX14	1978	10	05.25452	01	13	43.34	+09	59	58.9	675
1981	EJ15	1979	10	18.30764	01	43	45.30	+14	53	05.3	675
1981	EJ15	1979	10	18.35972	01	43	42.45	+14	52	50.6	675
1981	ER17	1978	09	01.29688	22	50	25.54	-01	32	38.7	675
1981	ER17	1978	09	02.23507	22	49	45.26	-01	37	46.9	675
1981	EV18	1978	10	04.41493	01	34	56.44	+10	32	51.5	675
1981	EV18	1978	10	05.31146	01	34	18.32	+10	28	09.4	675
1981	EO19	1978	09	01.29688	22	54	39.45	-02	14	13.5	675
1981	EO19	1978	09	02.23507	22	53	59.67	-02	20	39.8	675
1981	EV19	1978	09	01.41632	23	47	12.38	+00	49	38.5	675
1981	EV19	1978	09	02.34965	23	46	39.05	+00	44	53.2	675
1981	EV20	1979	10	18.24931	01	13	27.15	+16	15	04.2	675
1981	EV20	1979	10	18.30139	01	13	23.82	+16	14	54.6	675
1981	EA22	1978	09	01.29688	22	37	07.81	-04	19	58.7	675
1981	EA22	1978	09	02.23507	22	36	26.40	-04	28	53.7	675
1981	EJ22	1978	09	01.27083	22	44	54.14	-02	01	49.6	675
1981	EJ22	1978	09	02.23507	22	44	09.86	-02	10	44.2	675
1981	EG24	1978	10	04.35799	01	04	25.56	+09	25	35.7	675
1981	EG24	1978	10	05.25452	01	03	40.50	+09	21	16.2	675
1981	EP25	1978	09	01.35521	23	14	06.22	-02	44	08.5	675
1981	EP25	1978	09	02.29271	23	13	24.25	-02	48	38.5	675
1981	EN26	1978	09	01.41632	23	34	35.23	+00	56	53.9	675
1981	EN26	1978	09	02.34965	23	33	56.64	+00	51	09.6	675
1981	EG27	1978	10	04.35799	01	09	37.60	+10	36	07.3	675
1981	EG27	1978	10	05.25452	01	08	56.02	+10	32	19.0	675
1981	EV27	1978	09	01.35521	23	10	27.45	-03	10	29.0	675
1981	EV27	1978	09	02.29271	23	09	46.13	-03	16	40.4	675
1981	EP28	1978	10	04.35799	01	05	13.82	+08	15	05.6	675
1981	EP28	1978	10	05.25452	01	04	31.64	+08	10	40.4	675
1981	EV28	1978	10	04.41493	01	33	08.43	+12	40	37.1	675
1981	EV28	1978	10	05.31146	01	32	31.48	+12	33	58.5	675
1981	EC29	1978	09	01.29688	22	54	59.35	-02	19	30.9	675
1981	EC29	1978	09	02.23507	22	54	12.37	-02	23	35.9	675
1981	ET29	1978	10	04.35799	00	57	11.24	+09	43	29.9	675
1981	ET29	1978	10	05.25452	00	56	33.45	+09	38	51.5	675
1981	EO32	1978	09	01.35521	23	10	51.53	+01	04	12.4	675
1981	EO32	1978	09	02.29271	23	10	06.52	+01	00	20.0	675
1981	EZ32	1978	09	01.35521	23	11	53.78	+01	54	05.2	675
1981	EZ32	1978	09	02.29271	23	11	15.58	+01	47	49.7	675
1981	EZ33	1978	09	01.41632	23	37	13.44	+04	02	21.2	675
1981	EZ33	1978	09	02.34965	23	36	36.54	+03	59	11.3	675
1981	ED34	1979	10	18.24931	00	57	44.19	+10	44	02.2	675
1981	ED34	1979	10	18.30139	00	57	41.67	+10	43	48.1	675
1981	EG36	1978	10	04.35799	01	15	24.36	+04	30	08.2	675
1981	EG36	1978	10	05.25452	01	14	47.04	+04	24	47.3	675
1981	EW36	1978	09	01.35521	23	07	39.61	+02	27	56.4	675
1981	EW36	1978	09	02.29271	23	06	54.28	+02	24	49.7	675
1981	EP38	1978	10	04.41493	01	31	14.01	+07	41	49.7	675
1981	EP38	1978	10	05.31146	01	30	38.55	+07	34	53.2	675
1981	EO40	1978	09	01.29688	22	44	44.54	-01	41	33.1	675

1981	EO40	1978	09	02.23507	22	44	07.06	-01	53	45.2	675
1981	EY40	1978	09	01.29688	22	59	36.12	-04	25	33.4	675
1981	EY40	1978	09	02.23507	22	58	50.10	-04	30	37.0	675
1981	EL41	1978	10	04.35799	01	00	02.48	+09	38	25.3	675
1981	EL41	1978	10	05.25452	00	59	17.10	+09	36	32.4	675
1981	EF42	1978	10	04.35799	01	17	06.50	+07	01	19.1	675
1981	EF42	1978	10	05.25452	01	16	22.24	+06	57	14.4	675
1981	ER43	1978	09	01.35521	23	22	00.70	-02	38	25.7	675
1981	ER43	1978	09	02.29271	23	21	19.37	-02	42	33.5	675
1981	EM45	1978	09	01.41632	23	34	42.72	+03	06	55.2	675
1981	EM45	1978	09	02.34965	23	33	53.54	+03	07	04.9	675
1981	EY45	1978	09	01.41632	23	30	04.84	+00	19	43.1	675
1981	EY45	1978	09	02.34965	23	29	24.92	+00	17	05.8	675
1982	TQ	1978	09	01.29688	22	42	49.42	+00	54	58.4	675
1982	TQ	1978	09	02.23507	22	42	04.54	+00	49	15.6	675
1984	CD1	1978	10	04.41493	01	44	32.04	+08	26	00.5	675
1984	CD1	1978	10	05.31146	01	43	44.17	+08	22	04.8	675
1984	HX	1978	09	01.29688	22	59	56.21	+00	30	39.8	675
1984	HX	1978	09	01.35521	22	59	52.80	+00	30	30.9	675
1984	HX	1978	09	02.23507	22	59	00.70	+00	28	03.7	675
1984	HX	1978	09	02.29271	22	58	57.41	+00	27	55.3	675
1985	RP	1978	09	01.29688	22	58	24.48	-04	45	17.5	675
1985	RP	1978	09	02.23507	22	57	45.20	-04	56	24.9	675
4016	P-L	1979	10	18.36667	01	46	18.23	+17	06	00.1	675
4016	P-L	1979	10	18.41875	01	46	15.55	+17	05	50.8	675
4237	P-L	1978	10	04.41493	01	32	09.77	+12	27	12.9	675
4237	P-L	1978	10	05.31146	01	31	21.15	+12	23	24.1	675

OBSERVATIONS MADE WITH THE 1.2-M SCHMIDT AT PALOMAR.

Plates taken by J. Schombert, scanned by E. Helin, measured by M. Rudnyk. Contact: E. Helin, Jet Propulsion Laboratory, MS 183-501, Pasadena, CA 91109, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
1985 QR1	1985	08 16.30486	21 30 45.70	-01 56 02.1		675
1985 QR1	1985	08 16.35694	21 30 43.18	-01 56 14.9		675
1985 QS1	1985	08 16.30486	21 31 31.76	-01 48 27.5		675
1985 QS1	1985	08 16.35694	21 31 28.90	-01 48 29.2		675
1985 QT1	1985	08 16.30486	21 32 29.85	-00 43 12.2		675
1985 QT1	1985	08 16.35694	21 32 27.62	-00 43 27.0		675
1985 QU1	1985	08 16.30486	21 32 51.20	+00 03 51.2		675
1985 QW1	1985	08 16.30486	21 36 09.21	-00 40 16.4		675
1985 QW1	1985	08 16.35694	21 36 06.48	-00 40 30.0		675
1985 QX1	1985	08 16.30486	21 36 08.56	-02 23 28.6		675
1985 QX1	1985	08 16.35694	21 36 06.54	-02 23 46.0		675
1985 QY1	1985	08 16.30486	21 36 49.81	-00 48 39.0		675
1985 QY1	1985	08 16.35694	21 36 47.31	-00 48 58.8		675
1985 QZ1	1985	08 16.30486	21 37 04.33	-02 33 28.9		675
1985 QZ1	1985	08 16.35694	21 37 02.26	-02 33 32.3		675
1985 QA2	1985	08 16.30486	21 38 12.17	-01 28 36.5		675
1985 QA2	1985	08 16.35694	21 38 09.78	-01 28 58.9		675
1985 QB2	1985	08 16.30486	21 38 32.07	-02 16 12.9		675
1985 QB2	1985	08 16.35694	21 38 29.59	-02 16 16.5		675
1985 QC2	1985	08 16.30486	21 38 45.06	-03 00 31.1		675
1985 QC2	1985	08 16.35694	21 38 42.68	-03 00 57.9		675
1985 QE2	1985	08 16.30486	21 40 34.97	-01 43 54.9		675
1985 QE2	1985	08 16.35694	21 40 32.32	-01 44 06.0		675
1985 QK2	1985	08 16.30486	21 42 00.30	-00 57 35.8		675
1985 QK2	1985	08 16.35694	21 41 57.77	-00 57 50.8		675
1985 QM2	1985	08 16.30486	21 43 21.71	-01 35 32.2		675

1985 QM2	1985 08 16.35694	21 43 18.85	-01 35 39.9					675
1986 CH1 *	1986 02 10.35347	12 03 08.5	+24 25 16.4			17	1	675

Note 1: plate taken by J. Mould.

OBSERVATIONS MADE WITH THE 0.46-m SCHMIDT AT PALOMAR.

Films taken in the course of the International Near-Earth Asteroid Survey (INAS) by S. Singer-Brewster and M. Rudnyk. Contact: E. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 CH1	1986 02	10.43680	12 03 06.58	+24 26 07.2		675
1986 GF *	1986 04	08.32569	12 51 48.50	-13 59 18.6	16.5	675
1986 GF	1986 04	08.35347	12 51 47.29	-13 58 38.9		675
1986 GF	1986 04	09.32847	12 51 09.77	-13 34 45.8		675
1986 GF	1986 04	09.35260	12 51 08.67	-13 34 08.7		675

OBSERVATIONS MADE AT PALOMAR BY C. S. SHOEMAKER AND E. M. SHOEMAKER.

Four-minute exposures with the 0.46-m Schmidt telescope. Film pairs scanned by C. Shoemaker with a stereomicroscope, measured by her with a Mann comparator at the U.S. Geological Survey. Reference stars from the SAO Catalog. Contact: C. S. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1025	1986 03	07.25434	08 00 37.58	+O3 03 47.2	17	675
1025	1986 03	07.33940	08 00 37.56	+03 05 52.9		675
1025	1986 03	08.25469	08 00 38.94	+03 28 24.3		675
1025	1986 03	08.32760	08 00 38.99	+03 30 11.7		675
3388	1986 03	06.49149	13 46 33.75	+35 31 13.0	17	675
3388	1986 03	06.52188	13 46 33.02	+35 31 38.9		675
1986 EL *	1986 03	07.26927	08 41 33.53	-03 39 26.8	17	675
1986 EL	1986 03	07.34358	08 41 33.60	-03 37 36.7		675
1986 EL	1986 03	08.26476	08 41 37.84	-03 15 01.0		675
1986 EL	1986 03	08.33247	08 41 37.98	-03 13 22.9		675
1986 EM *	1986 03	03.27986	09 55 38.24	+11 07 58.0		675
1986 EM	1986 03	07.35052	09 49 33.83	+10 41 13.9		675
1986 EN *	1986 03	03.27986	10 03 59.85	+11 54 06.6	17.5	675
1986 EN	1986 03	07.35052	10 01 07.60	+13 21 57.3		675
1986 EO *	1986 03	05.41979	12 52 29.35	+24 31 59.3	16	675
1986 EO	1986 03	05.45208	12 52 27.95	+24 32 17.3		675

OBSERVATIONS MADE WITH THE 0.33-m PHOTOGRAPHIC TELESCOPE AT THE LOWELL OBSERVATORY'S ANDERSON MESA STATION.

Observations made B. A. Skiff, measured by Skiff using a PDS scanning microdensitometer. See also MPC 9533. Contact: E. Bowell, Lowell Observatory, 1400 W. Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Daily mot.	Mag.	N Obs.
54	1986 03	05.17851	09 31 28.07	+09 48 39.5			688
54	1986 03	05.24457	09 31 24.75	+09 48 46.7			688
56	1986 04	09.26310	12 48 33.24	-04 42 53.3			688
56	1986 04	09.33135	12 48 29.66	-04 42 17.5			688
103	1986 03	05.17851	09 55 04.32	+15 02 17.9			688
103	1986 03	05.24457	09 55 01.19	+15 02 39.5			688
109	1986 03	05.28919	11 47 19.00	+04 02 50.3			688
109	1986 03	05.36267	11 47 14.69	+04 03 06.1			688
112	1986 03	05.17851	09 36 20.37	+13 49 02.5			688
112	1986 03	05.24457	09 36 16.99	+13 49 15.5			688
134	1986 03	05.26703	11 19 39.96	+03 52 16.2			688
134	1986 03	05.34086	11 19 35.22	+03 52 22.8			688
149	1986 03	05.26703	11 03 04.28	+06 15 00.8			688
149	1986 03	05.34086	11 02 59.64	+06 15 32.0			688
161	1986 03	05.31492	13 14 57.85	-04 46 49.1			688

161	1986	03	05.38906	13	14	55.29	-04	46	46.6	688
161	1986	04	09.26310	12	43	38.79	-03	33	44.2	688
161	1986	04	09.33135	12	43	34.35	-03	33	34.1	688
184	1986	03	05.26703	11	24	09.03	+03	20	37.1	688
184	1986	03	05.34086	11	24	05.60	+03	20	55.9	688
204	1986	03	05.13071	07	28	37.21	+11	02	46.2	688
204	1986	03	05.19709	07	28	36.35	+11	03	01.9	688
206	1986	03	05.31492	13	08	01.28	-03	17	59.7	688
206	1986	03	05.38906	13	07	59.13	-03	17	39.1	688
206	1986	04	09.26310	12	43	31.94	+00	05	26.7	688
206	1986	04	09.33135	12	43	28.61	+00	05	49.9	688
217	1986	03	05.31492	13	11	25.01	-01	04	06.2	688
217	1986	03	05.38906	13	11	23.01	-01	03	38.3	688
217	1986	04	09.26310	12	48	23.95	+03	09	38.1	688
217	1986	04	09.33135	12	48	20.69	+03	10	06.4	688
308	1986	03	05.13071	07	20	20.54	+17	21	17.9	688
308	1986	03	05.19709	07	20	20.21	+17	21	27.5	688
318	1986	03	05.15292	09	18	31.70	+11	35	03.5	688
318	1986	03	05.21912	09	18	29.48	+11	35	28.4	688
331	1986	03	05.26703	11	14	16.31	+10	35	04.3	688
331	1986	03	05.34086	11	14	12.69	+10	35	21.2	688
337	1986	04	09.19602	12	25	33.63	-07	16	08.2	688
337	1986	04	09.24054	12	25	30.89	-07	16	00.2	688
474	1986	03	05.31492	13	02	11.76	-01	07	08.3	688
474	1986	03	05.38906	13	02	09.45	-01	06	37.9	688
542	1986	03	05.26703	11	05	50.19	+09	27	41.4	688
542	1986	03	05.34086	11	05	46.82	+09	28	14.6	688
554	1986	04	09.19602	12	13	59.08	-06	33	17.4	688
554	1986	04	09.24054	12	13	56.66	-06	33	02.4	688
595	1986	03	05.31492	13	17	58.56	-00	39	12.4	688
595	1986	03	05.38906	13	17	56.10	-00	39	10.2	688
595	1986	04	09.26310	12	50	55.18	-00	11	28.0	688
595	1986	04	09.33135	12	50	51.48	-00	11	26.0	688
658	1986	04	09.26310	12	38	05.03	-05	02	20.3	688
673	1986	03	05.15292	09	03	21.83	+12	24	14.6	688
673	1986	03	05.21912	09	03	19.42	+12	24	29.0	688
723	1986	03	05.28919	11	49	26.22	+02	26	15.2	688
723	1986	03	05.36267	11	49	23.06	+02	26	41.3	688
736	1986	03	05.31492	13	00	16.34	-00	58	50.3	688
736	1986	03	05.38906	13	00	13.68	-00	58	24.0	688
809	1986	03	05.15292	09	05	10.79	+14	50	55.7	688
809	1986	03	05.21912	09	05	07.93	+14	51	17.8	688
824	1986	03	05.36267	11	46	33.79	+07	57	37.4	688
905	1986	03	05.31492	13	19	40.69	-04	01	07.0	688
905	1986	03	05.38906	13	19	38.06	-04	00	55.5	688
905	1986	04	09.26310	12	48	22.15	-01	34	54.0	688
905	1986	04	09.33135	12	48	17.75	-01	34	36.3	688
915	1986	03	05.28919	11	47	02.82	+04	41	17.7	688
915	1986	03	05.36267	11	46	58.10	+04	41	36.9	688
916	1986	03	05.15292	09	25	42.02	+15	41	12.3	688
916	1986	03	05.21912	09	25	38.28	+15	41	13.3	688
939	1986	03	05.17851	09	48	51.45	+12	49	27.3	688
939	1986	03	05.24457	09	48	47.53	+12	49	44.1	688
954	1986	03	05.28919	11	36	03.74	+02	48	16.4	688
954	1986	03	05.36267	11	36	00.66	+02	48	37.9	688
987	1986	03	05.17851	09	51	31.41	+11	18	17.8	688
987	1986	03	05.24457	09	51	28.52	+11	18	26.9	688
991	1986	03	05.17851	09	39	30.81	+16	59	39.5	688
991	1986	03	05.24457	09	39	28.14	+16	59	51.9	688

1008	1986	03	05.31492	12	56	35.49	-02	32	19.1			688
1008	1986	03	05.38906	12	56	32.92	-02	32	09.1			688
1008	1986	04	09.26310	12	30	39.95	-00	58	34.5			688
1008	1986	04	09.33135	12	30	36.64	-00	58	24.0			688
1010	1986	03	05.31492	13	07	52.22	-01	23	55.5			688
1010	1986	03	05.38906	13	07	49.91	-01	23	36.8			688
1010	1986	04	09.26310	12	43	55.97	+01	23	23.0			688
1010	1986	04	09.33135	12	43	52.79	+01	23	40.8			688
1079	1986	03	05.26703	11	14	12.38	+04	20	49.6			688
1079	1986	03	05.34086	11	14	08.69	+04	21	10.6			688
1120	1986	03	05.26703	11	11	09.42	+06	09	15.3			688
1120	1986	03	05.34086	11	11	04.99	+06	09	49.5			688
1124	1986	03	05.28919	11	36	12.35	+09	40	07.7			688
1124	1986	03	05.36267	11	36	08.59	+09	40	23.9			688
1199	1986	03	05.13071	07	23	47.65	+10	59	26.0			688
1199	1986	03	05.19709	07	23	47.24	+10	59	35.8			688
1229	1986	03	05.17851	09	38	05.14	+13	02	24.0	17.2		688
1229	1986	03	05.24457	09	38	02.37	+13	02	38.8			688
1273	1986	03	05.15292	09	20	58.47	+11	01	10.1			688
1273	1986	03	05.21912	09	20	55.26	+11	01	21.1			688
1331	1986	03	05.26703	11	25	11.89	+07	08	53.7	16.2		688
1352	1986	03	05.17851	09	36	27.79	+10	46	04.1			688
1352	1986	03	05.24457	09	36	24.98	+10	46	24.0			688
1380	1986	03	05.28919	11	32	52.39	+06	15	37.6			688
1380	1986	03	05.36267	11	32	48.62	+06	15	47.3			688
1486	1986	03	05.28919	11	39	27.14	+02	11	07.9		1	688
1486	1986	03	05.36267	11	39	22.92	+02	11	35.5			688
1493	1986	03	05.26703	11	17	30.45	+03	20	09.6		1	688
1493	1986	03	05.34086	11	17	26.06	+03	20	31.1			688
1496	1986	03	05.17851	09	39	04.28	+11	25	55.8			688
1496	1986	03	05.24457	09	39	00.22	+11	26	13.7			688
1503	1986	03	05.15292	09	09	19.99	+12	22	59.7			688
1503	1986	03	05.21912	09	09	16.83	+12	22	52.7			688
1519	1986	03	05.31492	13	11	48.53	-05	57	08.4		1	688
1519	1986	03	05.38906	13	11	45.70	-05	57	02.0			688
1519	1986	04	09.26310	12	47	29.48	-04	38	31.2			688
1519	1986	04	09.33135	12	47	26.26	-04	38	18.7			688
1617	1986	03	05.17851	09	49	24.21	+12	04	24.3			688
1617	1986	03	05.24457	09	49	21.70	+12	04	56.1			688
1671	1986	04	09.26310	12	48	48.43	-03	16	43.3	17.0		688
1671	1986	04	09.33135	12	48	44.74	-03	16	19.4			688
1692	1986	04	09.19602	12	25	46.31	-03	21	55.2			688
1692	1986	04	09.24054	12	25	44.20	-03	21	39.4			688
1731	1986	03	05.31492	13	09	28.34	-02	26	24.9	16.5		688
1731	1986	03	05.38906	13	09	26.35	-02	26	05.7			688
1731	1986	04	09.26310	12	48	06.26	+00	38	29.3			688
1731	1986	04	09.33135	12	48	03.37	+00	38	49.9			688
1781	1986	03	05.31492	13	04	13.33	+00	39	31.1		3	688
1781	1986	03	05.38906	13	04	10.11	+00	39	51.0			688
1781	1986	04	09.26310	12	33	17.33	+03	01	44.5			688
1781	1986	04	09.33135	12	33	13.33	+03	01	57.0			688
1802	1986	03	05.31492	13	17	35.21	-05	13	31.1		3	688
1802	1986	03	05.38906	13	17	33.26	-05	13	12.0			688
1802	1986	04	09.26310	12	54	16.19	-02	15	30.7		1	688
1802	1986	04	09.33135	12	54	12.75	-02	15	08.7			688
1811	1986	03	05.31492	13	04	42.65	-02	53	58.8	16.5		688
1811	1986	03	05.38906	13	04	40.65	-02	53	35.6			688
1811	1986	04	09.26310	12	43	27.23	+00	48	38.6			688
1811	1986	04	09.33135	12	43	24.34	+00	49	03.2			688

1814	1986	03	05.31492	13	06	14.86	-04	44	58.1		1	688
1814	1986	03	05.38906	13	06	11.62	-04	44	47.4			688
1814	1986	04	09.19602	12	33	12.89	-02	34	23.3		1	688
1814	1986	04	09.24054	12	33	09.90	-02	34	14.1			688
1814	1986	04	09.26310	12	33	08.52	-02	34	06.4			688
1814	1986	04	09.33135	12	33	04.49	-02	33	52.0			688
1818	1986	04	09.19602	12	08	32.39	-05	39	22.8			688
1821	1986	03	05.26703	11	04	41.87	+03	08	32.1			688
1827	1986	03	05.13071	07	12	34.36	+15	46	47.9			688
1827	1986	03	05.19709	07	12	35.44	+15	46	55.3			688
1857	1986	03	05.13071	07	07	12.07	+16	15	30.0			688
1857	1986	03	05.19709	07	07	13.29	+16	15	35.8			688
1945	1986	03	05.36267	11	40	51.33	+05	16	50.6		3	688
1975	1986	03	05.26703	11	11	36.84	+04	29	23.0			688
1975	1986	03	05.34086	11	11	33.40	+04	29	51.7			688
2016	1986	04	09.19602	12	18	11.06	-01	45	43.2			688
2016	1986	04	09.24054	12	18	09.21	-01	45	33.3			688
2116	1986	03	05.31492	13	13	27.86	-03	46	14.3			688
2116	1986	03	05.38906	13	13	25.98	-03	45	46.3			688
2116	1986	04	09.26310	12	49	53.25	+00	51	59.6			688
2116	1986	04	09.33135	12	49	50.01	+00	52	28.7			688
2125	1986	03	05.26703	11	10	13.02	+03	58	31.9	17.2	3	688
2125	1986	03	05.34086	11	10	09.39	+03	58	50.6			688
2156	1986	03	05.26703	11	10	30.23	+10	23	49.5			688
2156	1986	03	05.34086	11	10	25.07	+10	24	12.3			688
2182	1986	03	05.36267	11	49	25.10	+04	22	17.3			688
2216	1986	03	05.31492	13	14	45.95	+00	16	43.6			688
2216	1986	03	05.38906	13	14	44.19	+00	17	14.1			688
2264	1986	03	05.17851	09	54	54.84	+12	28	18.1			688
2264	1986	03	05.24457	09	54	51.92	+12	28	33.5			688
2280	1986	03	05.31492	13	06	25.95	-01	09	45.7	17.5		688
2286	1986	03	05.31492	13	00	33.07	-04	30	26.7	17.0		688
2286	1986	03	05.38906	13	00	30.38	-04	30	11.8			688
2324	1986	03	05.26703	11	22	30.21	+03	44	41.5	16.5		688
2324	1986	03	05.34086	11	22	26.78	+03	45	02.0			688
2449	1986	03	05.31492	13	05	24.73	-05	40	10.8			688
2449	1986	03	05.38906	13	05	23.70	-05	38	38.1			688
2457	1986	03	05.26703	11	07	58.02	+10	03	53.0			688
2457	1986	03	05.34086	11	07	54.16	+10	04	27.9			688
2516	1986	03	05.15292	09	12	42.35	+17	00	20.8			688
2516	1986	03	05.21912	09	12	39.80	+17	00	33.5			688
2561	1986	03	05.28919	11	31	12.46	+03	21	03.8	16.5		688
2626	1986	04	09.19602	12	19	20.26	-02	42	33.5			688
2626	1986	04	09.24054	12	19	18.09	-02	42	21.0			688
2627	1986	03	05.17851	09	39	53.44	+16	27	48.7			688
2627	1986	03	05.24457	09	39	50.85	+16	28	02.4			688
2712	1986	03	05.26703	11	23	12.15	+03	54	01.7			688
2712	1986	03	05.34086	11	23	07.57	+03	54	30.9			688
2724	1986	03	05.26703	11	19	27.33	+05	49	35.1			688
2724	1986	03	05.34086	11	19	23.96	+05	50	01.6			688
2726	1986	03	05.15292	09	14	00.15	+17	15	19.8			688
2726	1986	03	05.21912	09	13	57.59	+17	15	28.4			688
2747	1986	04	09.19602	12	19	06.09	-06	00	46.5			688
2747	1986	04	09.24054	12	19	04.05	-06	00	39.8			688
2939	1986	03	05.26703	11	22	00.98	+04	30	10.8			688
2939	1986	03	05.34086	11	21	56.39	+04	30	25.6		1	688
2953	1986	03	05.17851	09	33	32.57	+12	50	48.5			688
2953	1986	03	05.24457	09	33	29.67	+12	51	03.1			688

2956		1986	03	05.17851	09	40	45.03	+16	45	35.5			688
2956		1986	03	05.24457	09	40	41.98	+16	45	52.5			688
2958		1986	03	05.26703	11	12	57.70	+03	46	24.6	17.2		688
2959		1986	03	05.17851	09	51	44.81	+16	28	17.0			688
2959		1986	03	05.24457	09	51	42.44	+16	28	30.0			688
3028		1986	04	09.26310	12	52	50.12	-04	02	47.8	16.2		688
3028		1986	04	09.33135	12	52	47.09	-04	02	16.7			688
3138		1986	03	05.13071	07	06	41.75	+15	38	31.8			688
3138		1986	03	05.19709	07	06	42.63	+15	38	40.6			688
3208		1986	03	05.28919	11	45	45.75	+03	47	26.3			688
3208		1986	03	05.36267	11	45	42.55	+03	47	49.6			688
3308		1986	03	05.11586	07	25	01.47	-00	23	36.0			688
1928	SL	1986	03	05.17851	09	39	33.93	+12	13	32.0	17.2		688
1928	SL	1986	03	05.24457	09	39	31.53	+12	13	45.0		1	688
1942	EB	1986	03	05.31492	13	18	55.69	-00	50	54.1	17.0		688
1942	EB	1986	03	05.38906	13	18	53.08	-00	50	48.5			688
1942	EB	1986	04	09.26310	12	47	26.79	+00	12	27.1	16.8		688
1942	EB	1986	04	09.33135	12	47	22.70	+00	12	30.8		1	688
1975	ES	1986	04	09.19602	12	23	57.12	-06	23	23.0	16.2		688
1975	ES	1986	04	09.24054	12	23	54.88	-06	23	04.9			688
1975	EA6	1986	03	05.31492	13	13	38.61	-04	30	37.0	17.0		688
1975	EA6	1986	03	05.38906	13	13	37.24	-04	30	24.5			688
1975	EA6	1986	04	09.26310	12	49	31.68	-01	32	11.0	16.8		688
1981	JA	1986	03	05.34086	11	08	35.59	+06	31	24.4	16.8		688
1981	UN	1986	03	05.17851	09	38	40.44	+10	49	30.7	17.5		688
1981	UN	1986	03	05.24457	09	38	37.28	+10	49	47.3			688
1982	CD	1986	03	05.15292	09	24	10.29	+14	54	49.1	17.5		688
1982	CD	1986	03	05.21912	09	24	07.37	+14	55	14.7			688
1984	SV	1986	03	05.36267	11	29	01.85	+02	22	35.4			688
1986	AG1	1986	03	05.13071	07	23	12.42	+13	26	55.4	17.0		688
1986	AG1	1986	03	05.19709	07	23	11.91	+13	26	24.3			688
1986	DA	1986	03	06.19438	10	11	18.88	+32	52	36.6			688
1986	DA	1986	03	06.22273	10	11	20.18	+32	52	44.5			688
1986	DA	1986	04	06.18576	11	17	24.25	+26	29	54.9			688
1986	DA	1986	04	06.22292	11	17	30.62	+26	28	45.9			688
1986	EP *	1986	03	05.15292	09	06	39.12	+17	14	14.6	17.2	4	688
1986	EP	1986	03	05.21912	09	06	36.41	+17	14	20.7		1	688
1986	EQ *	1986	03	05.26703	11	03	12.93	+09	31	53.5	17.0	4	688
1986	EQ	1986	03	05.34086	11	03	09.45	+09	32	06.1			688
1986	ER *	1986	03	05.26703	11	04	01.54	+09	38	01.3	16.8	4	688
1986	ER	1986	03	05.34086	11	03	57.86	+09	38	22.5			688
1986	ES *	1986	03	05.26703	11	05	10.26	+10	09	03.8	17.0	4	688
1986	ES	1986	03	05.34086	11	05	06.53	+10	09	29.1			688
1986	ET *	1986	03	05.26703	11	06	31.01	+06	28	16.1	16.8	5	688
1986	ET	1986	03	05.34086	11	06	26.34	+06	28	28.0			688
1986	EU *	1986	03	05.26703	11	08	48.47	+07	51	14.8	16.2	4	688
1986	EU	1986	03	05.34086	11	08	44.90	+07	51	34.4			688
1986	EV *	1986	03	05.26703	11	13	22.14	+07	01	00.9	17.5	4	688
1986	EV	1986	03	05.34086	11	13	17.12	+07	01	18.9		1	688
1986	EW *	1986	03	05.26703	11	16	21.06	+09	07	13.3	16.8	4	688
1986	EW	1986	03	05.34086	11	16	17.55	+09	07	55.0			688
1986	EX *	1986	03	05.26703	11	20	14.72	+09	23	05.8	17.2	4	688
1986	EX	1986	03	05.34086	11	20	11.15	+09	23	23.8			688
1986	EY *	1986	03	05.26703	11	21	31.75	+05	19	54.5	17.0	4	688
1986	EY	1986	03	05.34086	11	21	28.39	+05	20	35.5			688
1986	EZ *	1986	03	05.26703	11	26	01.46	+06	12	01.3	17.0	4	688
1986	EZ	1986	03	05.34086	11	25	56.54	+06	12	03.2			688
1986	EA1 *	1986	03	05.28919	11	33	12.69	+08	04	56.3	16.5	4	688

1986 EA1		1986	03	05.36267	11	33	07.71	+08	04	58.8			688
1986 EB1	*	1986	03	05.28919	11	33	46.49	+09	57	28.6		16.8	4 688
1986 EB1		1986	03	05.36267	11	33	42.12	+09	58	06.3			688
1986 EC1	*	1986	03	05.28919	11	34	15.16	+05	26	38.3			4 688
1986 EC1		1986	03	05.36267	11	34	11.70	+05	27	01.5			688
1986 ED1	*	1986	03	05.28919	11	38	40.71	+06	09	51.3		17.0	4 688
1986 ED1		1986	03	05.36267	11	38	37.54	+06	10	11.8			688
1986 EE1	*	1986	03	05.28919	11	38	56.03	+04	51	43.3		17.2	4 688
1986 EE1		1986	03	05.36267	11	38	52.03	+04	52	09.1			688
1986 EF1	*	1986	03	05.28919	11	39	04.63	+07	57	34.5		17.0	4 688
1986 EF1		1986	03	05.36267	11	39	00.96	+07	58	13.9			688
1986 EG1	*	1986	03	05.28919	11	43	55.99	+02	39	40.7		17.2	4 688
1986 EG1		1986	03	05.36267	11	43	52.70	+02	40	02.3			688
1986 EH1	*	1986	03	05.28919	11	50	59.49	+04	26	06.0		17.0	4 688
1986 EH1		1986	03	05.36267	11	50	55.79	+04	26	39.6			688
1986 EJ1	*	1986	03	05.31492	13	00	44.34	-02	03	16.4		17.0	4 688
1986 EJ1		1986	03	05.38906	13	00	41.19	-02	03	26.4			688
1986 EJ1		1986	04	09.19602	12	25	25.27	-03	07	28.4		16.5	688
1986 EJ1		1986	04	09.24054	12	25	22.27	-03	07	33.5			688
1986 EK1	*	1986	03	05.31492	13	12	41.17	-04	44	30.4		17.0	4 688
1986 EK1		1986	03	05.38906	13	12	36.23	-04	45	10.8			688
1986 EK1		1986	04	09.19602	12	22	09.72	-08	59	22.9		16.8	1 688
1986 EK1		1986	04	09.24054	12	22	05.49	-08	59	38.0			1 688
1986 EL1	*	1986	03	05.31492	13	13	29.54	-03	00	24.0		17.2	4 688
1986 EL1		1986	03	05.38906	13	13	27.20	-03	00	09.4			688
1986 EL1		1986	04	09.26310	12	47	38.48	-00	40	22.4		17.2	688
1986 EL1		1986	04	09.33135	12	47	35.12	-00	40	05.8			688
1986 EM1	*	1986	03	05.31492	13	13	52.21	-05	18	56.5		17.5	4 688
1986 EM1		1986	03	05.38906	13	13	49.86	-05	18	48.3			1 688
1986 EN1	*	1986	03	05.36267	11	40	45.44	+05	05	38.8	1.0- 5+	16.5	4 688
1986 GE		1986	03	05.31492	13	12	05.75	-04	44	31.2		17.2	688
1986 GE		1986	03	05.38906	13	12	04.47	-04	44	11.9			688
1986 GE		1986	04	09.26310	12	49	09.91	-00	49	11.5		16.5	688
1986 GE		1986	04	09.33135	12	49	06.26	-00	48	43.4			688
1986 GG		1986	03	05.31492	13	13	41.51	-01	38	48.7		17.5	688
1986 GG		1986	03	05.38906	13	13	38.86	-01	38	39.2			688
1986 GG		1986	04	09.26310	12	43	59.58	+00	10	40.6		17.0	688
1986 GG		1986	04	09.33135	12	43	55.31	+00	10	52.0			688
1986 GH		1986	04	09.26310	12	46	18.99	+00	48	56.2		17.2	1 688
1986 GH		1986	04	09.33135	12	46	15.30	+00	49	21.1			1 688
1986 GJ		1986	03	05.31492	13	14	43.32	-01	27	15.5		17.0	688
1986 GJ		1986	03	05.38906	13	14	41.12	-01	27	08.7			688
1986 GK	*	1986	04	09.19602	12	14	49.70	-07	07	14.0		17.2	5 688
1986 GK		1986	04	09.24054	12	14	47.32	-07	07	02.3			688
1986 GL	*	1986	04	09.19602	12	22	13.16	-07	46	43.7		17.5	4 688
1986 GL		1986	04	09.24054	12	22	11.21	-07	46	26.9			1 688
1986 GM	*	1986	04	09.19602	12	24	50.53	-05	29	59.6		16.8	4 688
1986 GM		1986	04	09.24054	12	24	48.62	-05	29	36.2			688

Note 1: right ascension uncertain. 2: declination uncertain. 3 = 1 + 2.
4: discoverer E. Bowell. 5 = 1 + 4.

OBSERVATIONS MADE AT THE LINCOLN LABORATORY ETS, NEW MEXICO.
Contact: L. G. Taff, Lincoln Laboratory, 244 Wood Street, Lexington, MA 02173, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
292	1986 04	13.22316	10 19 47.1	+28 59 12	704
292	1986 04	13.26295	10 19 46.5	+28 58 55	704
292	1986 04	13.30567	10 19 46.1	+28 58 32	704

OBSERVATIONS MADE AT THE GOETHE LINK OBSERVATORY.

Plates measured and reduced at Indiana University under the direction of D. Owings in response to requests from the Minor Planet Center. Contact: F. K. Edmondson, Swain Hall West 319A, Indiana University, Bloomington, IN 47401, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	N	Obs.
1957 JB	1957 05	02.15660	12 52 24.35	+06 35 15.1		760
1957 JB	1957 05	02.19825	12 52 23.02	+06 35 20.6		760
1957 JM	1957 05	04.17500	14 15 18.94	-06 33 53.1		760
1957 JM	1957 05	04.20972	14 15 16.99	-06 33 33.4		760
1957 OF	1957 07	24.29155	19 35 53.78	-23 53 36.3		760
1957 QF	1957 08	30.13707	23 01 33.00	-12 20 53.0		760
1957 SE	1957 09	24.30973	00 24 05.15	-10 58 32.8		760
1957 SE	1957 09	24.35493	00 24 02.85	-10 58 44.5		760
1957 TL	1957 10	05.38535	02 48 46.07	+11 59 10.3	1	760
1957 TL	1957 10	05.42610	02 48 44.54	+11 59 05.9	1	760
1957 WO	1957 11	26.19448	03 54 41.90	+28 59 21.9		760
1957 WO	1957 11	26.23754	03 54 39.09	+28 59 23.3		760
1957 WT	1957 11	26.28788	04 14 46.19	+24 44 36.6		760
1957 WT	1957 11	26.32816	04 14 44.60	+24 44 32.4		760
1957 WU	1957 11	26.28788	04 14 50.39	+22 09 41.5		760
1957 WU	1957 11	26.32816	04 14 47.68	+22 09 31.8		760
1957 WW	1957 11	26.28788	04 13 44.74	+23 21 32.6		760
1957 WW	1957 11	26.32816	04 13 41.70	+23 21 24.2		760
1957 WX	1957 11	26.28788	04 12 24.85	+24 30 37.0		760
1957 WX	1957 11	26.32816	04 12 22.14	+24 30 22.5		760
1957 WY	1957 11	26.28788	04 09 55.69	+21 21 39.0	2	760
1957 WY	1957 11	26.32816	04 09 53.22	+21 21 15.2	2	760
1957 WZ	1957 11	26.28788	04 08 13.02	+21 20 04.7		760
1957 WZ	1957 11	26.32816	04 08 10.81	+21 19 55.1		760
1957 WA1	1957 11	26.28788	04 03 39.30	+26 17 35.8		760
1957 WA1	1957 11	26.32816	04 03 36.76	+26 17 24.3		760
1957 WD1	1957 11	26.28788	04 00 26.78	+20 43 40.4		760
1957 WD1	1957 11	26.32816	04 00 23.97	+20 43 37.0		760
1957 YN	1957 12	27.23729	03 49 59.44	+26 44 58.7		760
1961 TX	1961 10	10.14583	00 10 52.85	+06 37 20.6		760
1961 TX	1961 10	10.19340	00 10 51.09	+06 37 08.4		760
1962 WT1	1962 11	30.17910	04 39 19.83	+18 33 25.0		760
1962 WT1	1962 11	30.22424	04 39 17.14	+18 33 21.5		760
1964 CA	1964 02	15.10349	08 51 17.33	+27 44 48.0		760

Note 1: sign of declination wrong for approximate position on MPC 1737. 2: error of 1 degree in declination for approximate position on MPC 1776.

OBSERVATIONS MADE AT OAK RIDGE OBSERVATORY BY R. E. McCROSKY, C.-Y. SHAO AND G. SCHWARTZ.

Plates with the 1.5-m reflector, reduced using the Astrographic Catalogue. Coordination and verification by, and assistance with identifications from, C. M. Bardwell. Contact: R. E. McCrosky, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
345	1986 04	05.18284	11 09 13.22	-04 01 44.5			801
3361	1986 04	12.36612	19 45 21.16	-10 20 12.3		1	801
3361	1986 04	13.36815	19 33 11.18	-10 17 09.1		2	801
1956 SC	1986 04	05.22986	11 37 27.32	-01 45 20.6			801
1975 AM	1986 04	05.25228	11 38 28.20	+19 02 11.5			801
1975 EA6	1986 04	05.27143	12 53 07.40	-01 54 57.8			801
1977 QK2	1986 02	13.32612	11 48 40.28	-04 20 57.4			801
1977 QK2	1986 04	05.18284	11 08 06.14	-04 03 20.4			801
1978 OJ	1986 03	12.38445	13 50 27.60	+09 59 04.0			801

1978	OJ		1986	04	05.30910	13	35	27.10	+13	01	32.6	801
1981	JA		1986	02	09.34755	11	23	59.56	+04	38	49.4	801
1981	SF2		1985	11	16.19295	02	27	54.01	+07	46	58.0	801
1981	SF2		1986	01	11.05868	02	21	32.58	+10	17	47.5	801
1981	SS5		1985	12	13.28145	04	23	05.47	+26	57	34.7	801
1981	UN		1986	04	13.08574	09	26	25.84	+12	27	09.7	801
1981	WB1		1986	02	13.34321	12	01	45.12	-04	35	29.8	801
1981	WB1		1986	04	05.20998	11	21	53.42	+01	56	51.2	801
1981	XJ2		1986	02	09.01890	07	06	10.50	+27	27	15.0	801
1984	SV		1986	02	09.37601	11	48	35.36	+01	32	16.5 3	801
1985	TB		1986	04	14.18641	10	06	43.03	+37	42	58.5	801
1985	XA		1986	02	03.97393	04	07	32.91	+32	13	22.7	801
1986	CF1	*	1986	02	04.23391	08	56	41.47	+12	17	18.9 17.0	801
1986	CG1	*	1986	02	04.23391	08	56	47.91	+12	11	09.5 17.5	801
1986	DA		1986	04	04.02970	11	10	40.44	+27	36	15.4	801
1986	DA		1986	04	05.13756	11	14	04.93	+27	02	58.0	801
1986	DA		1986	04	12.21584	11	37	14.30	+22	51	02.5	801
1986	DA		1986	04	14.16261	11	43	53.69	+21	30	58.6	801
1986	EB		1986	04	04.09051	09	37	56.60	+07	55	38.4	801

Note 1: weak, trailed image. 2: weak image. 3: poor reference stars.

OBSERVATIONS MADE AT THE EL LEONCITO STATION OF THE FELIX AGUILAR OBSERVATORY BY C. E. LOPEZ AND J. G. SANGUIN.

Assistance from M. R. Cesco, H. Mira, G. Sanchez and J. Vicentela.

Contact: C. E. Lopez, Felix Aguilar Observatory, Benavidez 8175 (Oeste), AR-5407 Marquesado, San Juan, Argentina.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
70	1984 07	20.13885	18 57 09.74	-41 43 32.4	808
70	1984 07	20.16933	18 57 07.88	-41 43 38.5	808
71	1984 07	20.13885	19 05 08.41	-41 02 33.4	808
71	1984 07	20.16933	19 05 06.04	-41 02 14.9	808
117	1984 07	20.13885	19 07 27.02	-42 01 17.7	808
117	1984 07	20.16933	19 07 25.14	-42 01 13.2	808
129	1985 01	18.26868	10 36 25.85	+11 15 29.7	808
290	1984 07	27.15437	20 41 40.23	-50 52 02.2	808
290	1984 07	27.20285	20 41 35.80	-50 52 05.7	808
290	1984 07	30.15379	20 37 07.51	-50 54 38.1	808
290	1984 07	30.20227	20 37 02.75	-50 54 40.6	808
378	1984 06	06.14403	16 25 51.43	-18 25 41.6	808
378	1984 06	06.17035	16 25 49.80	-18 25 35.6	808
426	1984 05	05.13999	14 12 03.62	-45 40 21.7	808
426	1984 05	05.16630	14 12 01.86	-45 40 14.2	808
426	1984 06	03.01198	13 50 11.46	-41 56 28.2	808
426	1984 06	03.04453	13 50 10.75	-41 56 10.9	808
501	1984 07	23.14244	19 05 02.11	-52 07 59.4	808
501	1984 07	23.17567	19 04 59.59	-52 07 50.8	808
501	1984 07	27.08580	19 00 38.52	-51 49 01.3	808
501	1984 07	27.11629	19 00 36.46	-51 48 52.0	808
501	1984 07	30.08869	18 57 33.09	-51 31 56.6	808
501	1984 07	30.11917	18 57 31.21	-51 31 46.1	808
562	1984 05	03.21125	15 03 09.38	-09 43 18.0	808
562	1984 05	03.24172	15 03 07.80	-09 43 16.1	808
599	1985 06	17.27567	19 33 32.33	-45 48 17.9	808
599	1985 06	17.29299	19 33 31.64	-45 48 30.0	808
599	1985 06	18.26082	19 32 57.33	-46 01 00.6	808
599	1985 06	18.28297	19 32 56.44	-46 01 17.7	808
599	1985 06	26.22513	19 26 53.64	-47 38 45.9	808
599	1985 06	26.24799	19 26 52.34	-47 39 01.7	808
599	1985 07	15.13516	19 05 53.00	-50 23 29.5	808

599	1985	07	15.15801	19	05	51.27	-50	23	37.0	808
657	1985	06	13.24573	17	53	16.88	-32	26	26.3	808
657	1985	06	13.26305	17	53	15.68	-32	26	22.8	808
657	1985	06	26.16003	17	39	24.00	-31	32	26.5	808
657	1985	06	26.19119	17	39	22.03	-31	32	26.7	808
665	1985	03	21.09592	10	53	27.26	-11	59	03.8	808
665	1985	03	21.13817	10	53	25.11	-11	58	55.4	808
710	1984	06	06.14403	16	30	18.59	-19	13	18.7	808
710	1984	06	06.17035	16	30	17.29	-19	13	16.9	808
760	1984	05	03.15930	14	05	12.59	-32	25	18.1	808
760	1984	05	03.18562	14	05	11.08	-32	25	14.0	808
760	1984	05	30.05234	13	47	00.23	-30	21	04.6	808
760	1984	05	30.08281	13	46	59.51	-30	20	55.7	808
914	1984	05	30.05234	13	45	15.02	-31	27	36.8	808
914	1984	05	30.08281	13	45	14.33	-31	26	29.1	808
921	1985	02	23.21124	10	12	23.29	-07	42	33.2	808
921	1985	02	23.23825	10	12	22.09	-07	42	23.4	808
938	1985	01	18.26868	10	34	09.04	+10	44	20.8	808
938	1985	02	16.16006	10	16	37.47	+12	44	06.6	808
938	1985	02	16.22585	10	16	34.46	+12	44	24.0	808
1006	1984	08	26.15037	21	26	48.31	-04	57	11.6	808
1006	1984	08	26.18846	21	26	46.20	-04	57	09.5	808
1047	1984	07	25.13696	20	21	24.66	-27	24	11.1	808
1047	1984	07	25.17160	20	21	22.29	-27	24	25.9	808
1047	1984	07	29.22162	20	16	59.18	-27	50	37.8	808
1047	1984	07	29.25626	20	16	56.77	-27	50	50.0	808
1065	1984	08	26.06241	20	53	33.41	-19	52	20.0	808
1065	1984	08	26.09046	20	53	32.26	-19	52	03.2	808
1187	1984	07	23.20511	20	21	07.29	-27	30	42.1	808
1187	1984	07	23.23628	20	21	05.19	-27	30	41.8	808
1187	1984	07	25.13696	20	18	59.61	-27	30	29.8	808
1187	1984	07	25.17160	20	18	57.24	-27	30	30.0	808
1187	1984	07	29.22162	20	14	27.40	-27	28	42.0	808
1187	1984	07	29.25626	20	14	25.02	-27	28	39.7	808
1224	1985	02	23.27565	11	52	36.86	-12	11	43.7	808
1224	1985	02	23.30682	11	52	35.33	-12	11	39.6	808
1224	1985	02	24.27568	11	51	49.59	-12	09	09.8	808
1224	1985	02	24.30685	11	51	48.03	-12	09	05.4	808
1224	1985	03	19.12285	11	30	48.25	-10	15	38.9	808
1224	1985	03	19.15402	11	30	46.42	-10	15	26.3	808
1260	1985	06	26.16003	17	35	03.64	-31	09	50.1	808
1260	1985	06	26.19119	17	35	01.68	-31	09	43.0	808
1310	1985	06	17.18530	17	48	56.70	-53	29	23.7	808
1310	1985	06	17.20746	17	48	54.60	-53	29	23.5	808
1310	1985	06	19.17982	17	45	53.03	-53	29	25.8	808
1310	1985	06	19.20268	17	45	50.84	-53	29	25.2	808
1310	1985	06	25.18423	17	36	43.71	-53	22	49.1	808
1310	1985	06	25.21193	17	36	41.21	-53	22	45.8	808
1342	1984	07	23.08322	18	26	12.98	-39	53	31.5	808
1342	1984	07	23.11440	18	26	10.98	-39	53	07.5	808
1481	1985	01	18.26868	10	45	49.51	+10	10	05.1	808
1547	1985	02	17.09569	10	01	57.23	-02	12	27.5	808
1547	1985	02	17.12616	10	01	55.24	-02	12	26.7	808
1547	1985	02	22.19875	09	56	38.73	-02	07	41.3	808
1547	1985	02	22.22366	09	56	37.18	-02	07	39.4	808
1547	1985	02	24.20782	09	54	36.78	-02	04	38.9	808
1547	1985	02	24.23898	09	54	34.79	-02	04	36.1	808
1723	1984	06	03.11967	15	28	05.05	-02	22	30.7	808

1723	1984	06	03.15292	15	28	03.63	-02	22	29.9	808
1754	1984	07	20.07791	17	40	39.92	-07	58	13.5	808
1754	1984	07	20.11115	17	40	39.15	-07	58	20.8	808
1779	1985	04	18.12057	12	52	33.12	-07	11	03.5	808
1779	1985	04	18.15453	12	52	31.10	-07	10	49.7	808
1779	1985	04	22.12282	12	48	56.34	-06	45	55.8	808
1779	1985	04	22.14568	12	48	55.04	-06	45	48.3	808
1910	1985	02	26.19405	10	37	37.46	-02	25	52.9	808
1943	1985	02	22.33308	13	46	39.04	-41	03	27.2	808
1943	1985	02	22.36287	13	46	46.41	-41	04	27.9	808
1943	1985	02	24.34390	13	55	35.29	-42	11	19.3	808
1943	1985	02	24.37160	13	55	42.56	-42	12	15.3	808
2000	1985	06	13.19068	17	34	56.56	-39	56	06.5	808
2000	1985	06	13.21561	17	34	54.66	-39	55	57.3	808
2000	1985	06	18.15208	17	28	27.25	-39	29	23.8	808
2000	1985	06	18.17426	17	28	25.49	-39	29	16.1	808
2124	1984	04	30.24886	15	52	37.64	-22	06	57.5	808
2124	1984	04	30.28696	15	52	35.86	-22	07	00.7	808
2223	1985	06	13.13389	17	01	29.17	-10	43	07.9	808
2223	1985	06	13.15882	17	01	28.37	-10	43	04.1	808
2256	1985	02	16.16006	10	11	15.68	+11	35	59.1	808
2256	1985	02	16.22585	10	11	12.51	+11	36	18.4	808
2311	1985	04	22.19691	13	54	52.22	-04	14	13.6	808
2311	1985	04	22.21977	13	54	51.31	-04	14	08.0	808
2311	1985	04	24.16791	13	53	36.41	-04	05	41.8	808
2311	1985	04	24.18938	13	53	35.57	-04	05	34.9	808
2311	1985	04	25.13402	13	52	59.41	-04	01	35.0	808
2311	1985	04	25.15826	13	52	58.50	-04	01	28.7	808
2390	1984	07	23.20511	20	22	15.22	-27	35	15.2	808
2390	1984	07	23.23628	20	22	13.15	-27	35	11.3	808
2390	1984	07	25.13696	20	20	10.11	-27	30	58.9	808
2390	1984	07	25.17160	20	20	07.74	-27	30	54.2	808
2390	1984	07	29.22162	20	15	45.03	-27	20	20.7	808
2390	1984	07	29.25626	20	15	42.71	-27	20	14.5	808
2420	1985	02	16.06413	08	19	18.19	-02	53	47.9	808
2420	1985	02	16.10568	08	19	16.45	-02	53	26.3	808
2490	1985	04	22.07156	12	42	56.22	-09	18	27.8	808
2490	1985	04	22.09373	12	42	55.37	-09	18	15.8	808
2531	1984	05	05.07974	13	10	55.77	+09	28	59.0	808
2531	1984	05	05.11298	13	10	54.60	+09	28	58.1	808
2733	1985	04	25.19150	13	54	15.62	+07	31	15.6	808
2733	1985	04	25.21436	13	54	14.34	+07	31	19.6	808
3127	1985	07	21.00728	18	50	36.90	-23	37	59.9	808
3127	1985	07	21.04190	18	50	35.02	-23	37	55.7	808
3224	1985	04	25.24622	15	16	06.79	-18	36	56.6	808
3224	1985	04	25.26906	15	16	05.78	-18	36	49.5	808
3224	1985	06	13.03312	14	44	28.69	-14	32	58.1	808
3224	1985	06	13.05528	14	44	28.35	-14	32	54.4	808
3224	1985	07	14.97864	14	51	22.02	-14	20	41.1	808
3224	1985	07	15.01396	14	51	23.21	-14	20	44.9	808
3224	1985	07	19.02036	14	54	05.00	-14	28	57.0	808
3224	1985	07	19.05568	14	54	06.51	-14	29	02.4	808
3333	1985	07	15.18918	20	16	56.59	-00	12	54.8	808
3333	1985	07	15.22450	20	16	54.99	-00	12	50.6	808
3357	1985	07	20.02177	18	43	36.17	-12	23	45.1	808
3357	1985	07	20.06956	18	43	34.13	-12	23	58.4	808
3385	1985	07	21.08276	18	58	43.61	-09	59	06.7	808
3385	1985	07	21.12778	18	58	41.07	-09	59	16.7	808

OBSERVATIONS MADE AT SHIZUOKA BY M. KIZAWA.

Films taken with 0.31-m reflector, measured by T. Urata. From Nihondaira Obs. Circ. No. 1553. Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 DA		1986 03	20.58444	10 33 04.67	+32 17 24.5	14	883
1986 DA		1986 03	20.62420	10 33 08.95	+32 16 58.0		883
1986 DA		1986 04	02.61524	11 06 20.79	+28 16 25.8	14	883
1986 DA		1986 04	02.61815	11 06 21.35	+28 16 21.5		883

OBSERVATIONS MADE AT KARASUYAMA BY S. INODA.

Films with 0.31-m f/5.6 reflector, measured by T. Urata, using reference stars from AGK3 and SAO Catalog. Copied from Nihondaira Obs. Circ. No. 1553. Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1010		1986 04	02.66056	12 48 59.57	+00 52 36.4	16	889
1010		1986 04	02.68313	12 48 58.33	+00 52 42.8		889
1986 FA		1986 04	02.66056	12 46 11.06	+01 16 46.1	16.5	889
1986 FA		1986 04	02.68313	12 46 09.54	+01 16 50.1		889
1986 FA		1986 04	07.57999	12 41 09.81	+01 31 39.0	16.5	889
1986 FA		1986 04	07.60464	12 41 08.24	+01 31 42.6		889
1986 GA	*	1986 04	07.64041	14 01 25.19	-10 06 00.5	17	889
1986 GA		1986 04	07.65985	14 01 24.46	-10 05 53.7		889

* * * * *

ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are a = A. Lowe, B = C. M. Bardwell, b = F. N. Bowman, c = N. S. Chernykh, I = H. Oishi, M = B. G. Marsden, N = S. Nakano, s = C. S. Shoemaker, U = T. Urata. For further information see MPC 10375.

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1969 TL6	13.1	691026	355.18	4.32	40.12	10.94	0.2309	2.7291	21	3	1	I
1978 RK	13.0	780929	347.03	17.20	1.58	17.73	0.1705	3.1499	34	3	1	N
1978 SS2	12.0	780909	63.57	71.19	198.92	8.86	0.1687	3.1122	37	5		M
1978 SP6	13.0	780929	357.66	336.41	49.33	1.48	0.1661	3.1991	10	3	1	N
1978 TE	13.0	780929	336.55	316.76	83.32	11.49	0.2314	3.0910	32	3	1	N
1979 FD3	14.5	790417	336.17	98.41	126.41	2.95	0.1229	2.2359	53	4	1	N
1979 QZ9	14.0	790924	16.92	29.77	309.93	3.25	0.1785	2.2518	33	3	1	N
1979 SN	13.0	790924	271.07	114.94	344.56	12.52	0.0992	2.8047	10	8	1	N
1979 TW1	13.5	791014	197.38	338.68	213.33	10.41	0.0977	2.6767	9	5	1	M
1979 TS2	13.0	791123	343.51	230.37	189.88	4.64	0.1112	2.6551	39	3	1	N
1979 TT2	14.0	791123	27.07	315.54	41.83	3.70	0.2651	2.5576	39	3	1	N
1979 TV2	14.0	791123	21.66	179.69	194.94	2.37	0.1424	2.3476	39	3	1	N
1979 WY3	13.0	791213	5.56	341.30	89.47	9.91	0.1445	2.7668	32	3	1	N
1981 SC7	13.6	811023	359.24	344.57	40.08	8.67	0.2438	2.5315	58	5	1	I
1984 HZ1	11.5	840430	248.62	116.63	222.33	5.30	0.1366	3.0301	8	8	1	M
1985 QU1	14.0	850803	334.29	99.97	269.80	10.18	0.3093	3.4014	7	5		M
1985 QW1	14.5	850803	289.48	177.90	224.74	7.28	0.1017	2.3379	7	6		M
1985 QY1	13.0	850803	299.52	202.56	192.83	10.07	0.1299	2.6130	7	6		M
1985 QZ1	14.0	850803	87.80	269.13	292.58	13.81	0.3090	2.8504	7	5		M
1985 QA2	14.0	850803	352.00	142.34	188.59	9.86	0.1242	2.6908	7	6		M
1985 QB2	13.0	850803	32.38	0.61	278.73	9.63	0.1451	3.0154	7	6		M
1985 QE2	16.0	850803	310.40	158.86	229.38	6.12	0.1798	2.3869	7	6		M
1985 QK2	14.5	850803	2.61	103.37	214.98	7.22	0.0627	2.4281	7	6		M
1985 XA	13.0	851221	325.47	37.20	80.48	24.89	0.0497	1.9047	52	9		B

1985 YP	14.5	860110	63.52	110.00	276.02	16.43	0.1482	1.7250	49	6	1	b
1986 AE	13.5	860130	44.59	109.86	290.48	29.04	0.3785	2.7381	53	0		M
1986 AH	14.5	860110	80.54	263.51	124.84	24.02	0.1167	1.9290	29	9	1	M
1986 AG1	13.0	860130	81.36	97.20	300.38	20.81	0.0362	1.9626	53	0		M
1986 AP1	12.0	860110	256.04	295.76	315.41	15.21	0.2083	2.8085	6	6	3	M
1986 ED	13.5	860331	335.77	172.30	44.54	3.76	0.2017	2.3669	29	7		U
1986 EL1	12.0	860311	189.20	311.87	48.92	4.74	0.1011	2.7363	35	6		M
1986 GG	13.0	860311	232.76	281.80	35.40	7.25	0.0436	2.4412	35	6		M
1986 GH	13.0	860331	97.39	308.13	136.13	3.50	0.0873	2.1877	6	4		M

Note 1: double designations 1969 TL6 = 1969 UJ2 (I, JAM 1997; N); 1978 RK = 1978 SK1 (N); 1978 SP6 = 1978 TX2 (c, N); 1978 TE = 1978 VD (N); 1979 FD3 = 1979 HE2 = 1979 KY (N); 1979 QZ9 = 1979 SH2 (N); 1979 SN = 1979 SG (N); 1979 TW1 = 1979 UU1 (I, JAM 1789); 1979 TS2 = 1979 WJ1 (N); 1979 TT2 = 1979 WQ1 (N); 1979 TV2 = 1979 WX1 (N); 1979 WY3 = 1979 XW1 (N); 1981 SC7 = 1981 WG7 (I, JAM 1997); 1984 HZ1 = 1984 JN1 (a, b); 1985 YP = 1986 AF = 1986 CF (b); 1986 AF = 1986 CF (s); 1986 AH = 1986 AR1 (b); 1986 AP1 = 1986 AM2 (b). 2: e assumed. 3 = 1 + 2.

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

The identifications are by B. G. Marsden unless otherwise stated. The 1978-1979 observations of the 1981 UCAS objects were found by S. J. Bus.

Periodic Comet Hartley 2 (1986c)

T 1985 June 4.75490 ET

q	0.9586436	(1950.0)	P	Q
n	0.15871156	Peri.	174.69604	+0.75217440	-0.64868502
a	3.3785500	Node	226.44981	+0.59852231	+0.74613331
e	0.7162559	Incl.	9.20479	+0.27568952	+0.14997607
P	6.21				

From 9 observations 1986 Mar. 15-Apr. 8.

(3415)* 1928 SL = 1967 RL = 1983 RV

Discovered 1928 Sept. 22 by K. Reinmuth at Heidelberg.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	101.80546	(1950.0)	P	Q
n	0.12469272	Peri.	137.85557	+0.85069017	-0.52517666
a	3.9680333	Node	253.83797	+0.47573463	+0.78754211
e	0.2489188	Incl.	1.35481	+0.22361305	+0.32243898
P	7.90	H	10.5	G	0.25

Residuals in seconds of arc

280922	024	2.6-	2.2+	830906	046	0.1-	1.1-	860204	801	1.2-	0.1+
281007	024	0.3+	3.7+	830907	046	0.2-	2.4-	860209	801	2.0-	0.1-
281015	024	0.7-	2.0+	830907	046	0.8-	3.6-	860215	046	1.3+	1.8-
670909	095	0.2+	0.7-	830908	046	1.1+	2.3-	860215	046	2.0+	1.2-
830904	688	2.0+	0.2-	830908	046	0.4+	2.6-	860305	688	0.7-	3.3-
830904	688	2.5+	0.4-	850314	675	0.0	0.8-	860305	688	2.4-	2.1-
830905	046	0.6+	0.5-	850317	675	0.0	0.5-				

(3416)* 1931 VP = 1984 UB

Discovered 1931 Nov. 8 by K. Reinmuth at Heidelberg.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	265.88513	(1950.0)	P	Q
n	0.37110543	Peri.	293.44240	+0.65856202	+0.74203599
a	1.9178053	Node	19.47580	-0.47668053	+0.54009714
e	0.2071143	Incl.	22.05884	-0.58229867	+0.39708648
P	2.66	H	15.0	G	0.25

Residuals in seconds of arc

311108	024	3.8-	0.8+	841018	071	1.7-	2.0+	841024	071	5.1-	2.3+
311113	024	1.6-	1.7+	841018	071	4.4+	1.9-	841024	071	4.0-	0.9+
311201	024	1.8-	2.0+	841019	071	0.7-	2.3+	841024	071	4.8-	1.5+
311212	024	0.4+	1.0+	841019	071	1.2+	0.4-	841024	071	4.1-	1.4+
841018	071	3.9-	3.5+	841020	071	0.5+	0.3+	841025	675	1.1+	1.3+
841018	071	3.9+	5.7-	841020	071	1.9+	1.0+	841026	675	0.9+	0.8+
841018	071	1.0-	3.3+	841021	071	2.5-	4.2+	841027	675	1.0+	0.2+
841018	071	1.1+	2.5-	841021	071	0.7+	2.6-	841027	675	0.3+	0.8+
841018	071	3.8-	2.2+	841021	071	2.0-	3.3+	841120	801	0.5-	1.6+
841018	071	1.3+	4.6-	841021	071	3.2+	2.3-	841126	801	2.3-	1.8+
841018	071	0.2+	1.4+	841023	071	1.4-	2.1+	841220	801	1.1-	0.5+
841018	071	0.3-	0.3+	841023	071	3.0+	0.7-	860213	801	4.9+	3.5+
841018	071	1.7-	3.6+	841023	071	1.9+	1.7-	860404	801	1.4+	2.5+
841018	071	4.7+	3.0-	841023	071	3.0+	0.4+				

(3417)* 1937 GG = 1952 HB1 = 1971 HL

Discovered 1937 Apr. 1 by K. Reinmuth at Heidelberg. The identification 1937 GG = 1952 HB1 was independently suggested by O. Kippes (MPC 7019).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	24.06973		(1950.0)		P		Q
n	0.26123844	Peri.	110.52698		-0.93624675		+0.32317699
a	2.4235092	Node	88.53102		-0.35115346		-0.84783549
e	0.2258934	Incl.	7.92524		-0.01154403		-0.42039459
P	3.77	H	14.5	G	0.25		

Residuals in seconds of arc

370401	024	3.1-	0.3-	370609	024	4.1+	1.4-	820226	327	0.9+	0.3+
370411	024	3.4+	0.9+	520427	760	0.5-	0.1+	820228	327	0.7+	0.4+
370412	024	3.5-	2.3-	520427	760	2.0-	0.7+	820301	330	2.1-	2.9+
370501	024	(2.2-	5.5-)	710422	095	3.6-	0.5+	830909	801	1.2+	1.4+
370503	024	1.3-	1.8-	820223	327	0.9-	0.1-	860213	801	2.1+	0.9-
370602	024	1.4+	2.4+	820224	327	1.4+	0.1+	860312	801	3.2+	0.9+

(3418)* 1973 QZ1 = 1934 RB1 = 1979 WM7 = 1984 PB = 1984 RJ

Discovered 1973 Aug. 31 by T. M. Smirnova at the Crimean Astrophysical Observatory. The double designation 1984 PB = 1984 RJ is by A. Mrkos.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	93.51315		(1950.0)		P		Q
n	0.17554825	Peri.	276.83420		+0.99927214		-0.01922658
a	3.1589182	Node	84.27119		+0.03082993		+0.91569245
e	0.1838841	Incl.	1.89757		-0.02246564		+0.40141957
P	5.61	H	12.0	G	0.25		

Residuals in seconds of arc

340909	078	1.4+	2.7-	840804	046	0.7+	1.9-	840823	046	0.2-	1.2+
730831	095	2.9-	0.3-	840821	046	0.5-	1.5-	840901	046	0.3-	0.1+
730905	095	1.9-	4.8+	840821	046	0.6-	1.1-	840901	046	0.2-	0.3+
730927	095	0.4+	4.3+	840822	046	0.9+	0.8-	851215	801	0.8+	0.7-
791117	095	0.9+	2.8-	840822	046	2.1+	2.6+	860206	801	0.6-	0.4+
840803	046	0.7+	1.8-	840823	046	0.2-	2.4-				

(3419)* 1981 JZ = 1932 YF = 1941 HP

Discovered 1981 May 8 by L. Brozek at Klet. The 1983 observations were identified by E. Bowell.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	279.69559		(1950.0)		P		Q
n	0.17179806	Peri.	208.09986		-0.07330032		+0.96308588
a	3.2047234	Node	58.78285		-0.84879913		+0.07611510
e	0.0724984	Incl.	17.63044		-0.52360968		-0.25820938
P	5.74	H	12.5	G	0.25		

Residuals in seconds of arc

321223	024	3.2+	1.9-	810531	046	0.9-	0.6-	831104	688	0.6-	0.4+
410423	062	0.5+	2.0-	810531	046	0.4-	0.8+	831104	688	0.5-	0.7-
410427	062	1.2-	1.4+	810601	046	0.6+	0.9-	850319	801	0.1-	1.5-
410430	062	0.5+	2.8+	810601	046	1.6-	1.8-	860204	801	0.4+	0.1+
810508	046	0.9+	0.0	810602	046	0.9+	0.9-	860213	801	0.1-	0.5+
810508	046	0.4+	0.1+	810602	046	0.9+	1.0+	860213	801	0.5-	1.1+
810509	046	1.0-	0.6+	810605	046	1.2-	5.3-	860316	801	1.0+	0.5+
810509	046	0.6-	1.2+	810605	046	0.5+	0.3-				

(3420)* 1984 EB = 1973 DU = 1979 HS5

Discovered 1984 Mar. 1 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The identifications are by M. Kretlow (MPC 8896).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	150.83082		(1950.0)	P	Q
n	0.17967201	Peri.	11.36262	-0.92030213	-0.36612534
a	3.1103966	Node	146.11219	+0.33673968	-0.92070059
e	0.0716462	Incl.	14.31145	+0.19912403	-0.13513942
P	5.49	H	12.0	G 0.25	

Residuals in seconds of arc

730227	029	0.4-	2.2+	840301	688	0.3-	0.0	840329	688	1.1-	1.5-
730227	029	0.7+	0.7+	840306	688	0.3+	0.7-	840331	688	0.3+	0.1+
730309	029	0.3+	1.0+	840306	688	0.6-	0.5-	840331	688	0.5-	1.7-
790428	095	0.9+	3.4+	840309	688	0.5+	1.0-	850521	801	0.3-	0.2-
840301	688	0.3+	1.1-	840309	688	0.6+	1.5-	850619	801	0.0	1.7-

1968 FJ = 1950 HW = 1975 EW3 = 1986 GE

The identifications 1968 FJ = 1950 HW, 1968 FJ = 1975 EW3 and 1968 FJ = 1986 GE are by C. M. Bardwell, T. Urata (NOC 1067) and E. Bowell, respectively.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	8.03675		(1950.0)	P	Q
n	0.27297459	Peri.	55.18170	-0.86566493	+0.50004005
a	2.3535428	Node	154.79502	-0.47583620	-0.80683977
e	0.1349417	Incl.	3.25360	-0.15557681	-0.31459424
P	3.61	H	13.0	G 0.25	

Residuals in seconds of arc

500420	760	0.2-	0.9-	680430	095	3.1-	5.4+	860402	054	1.5-	3.5+
500420	760	3.0-	2.1-	750315	095	1.1-	1.3-	860409	688	0.6-	0.5+
680328	095	0.9+	5.6-	860305	688	1.9+	0.2-	860409	688	1.1-	0.3-
680329	095	3.6+	0.1+	860305	688	2.2+	1.2-				
680424	095	3.0+	1.7-	860402	054	0.4-	3.2+				

1974 OE = 1978 TR6 = 1978 TN9

The identification 1974 OE = 1978 TN9 is by E. Bowell.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	137.91126		(1950.0)	P	Q
n	0.28036184	Peri.	277.99778	+0.39669235	+0.91735145
a	2.3120168	Node	15.50171	-0.78564415	+0.35799316
e	0.1186151	Incl.	7.13332	-0.47476147	+0.17408967
P	3.52	H	14.0	G 0.25	

Residuals in seconds of arc

740716	808	0.5+	1.6-	740720	808	1.0-	0.6+	781004	675	0.3+	0.1+
740716	808	0.3+	1.8-	740720	808	0.3-	0.8+	781005	675	0.1-	1.5-
740717	808	0.1-	0.9-	740818	809	0.1-	1.6-				
740717	808	0.6-	1.6-	781002	095	0.1+	2.1+				

1976 GU3 = 1978 TM9

The identification is by E. Bowell.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	284.40998		(1950.0)		P		Q				
n	0.17323303	Peri.	159.49773		-0.82537091		+0.56384100				
a	3.1870077	Node	54.85775		-0.52280772		-0.74382160				
e	0.1406630	Incl.	2.03863		-0.21315474		-0.35890494				
P	5.69	H	12.0	G	0.25						

Residuals in seconds of arc

760402	095	0.6-	0.3+	760427	808	0.4-	0.7+	760503	808	0.0	0.9+
760405	095	0.6+	0.3-	760430	808	0.7-	1.2-	781004	675	1.0+	1.1+
760423	808	0.7+	0.4-	760430	808	0.2-	0.5-	781005	675	1.0-	1.1-
760423	808	0.2+	0.4-	760502	095	0.3-	0.2-				
760427	808	0.4-	0.6+	760503	808	1.2+	0.3+				

1976 GM7 = 1978 RX16

The identification is by S. J. Bus.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	320.77081		(1950.0)		P		Q				
n	0.16918432	Peri.	335.21243		-0.85684832		-0.51515446				
a	3.2376521	Node	173.66136		+0.49870887		-0.83832652				
e	0.0598246	Incl.	10.78531		+0.13076858		-0.17839427				
P	5.83	H	12.0	G	0.25						

Residuals in seconds of arc

760404	095	0.1-	0.1-	760503	095	0.3-	0.2-	780902	675	0.3-	0.2+
760423	095	0.3+	0.2+	780901	675	0.4+	0.2-				

1978 VZ7 = 1981 EU31

The identification is by S. J. Bus.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	220.07911		(1950.0)		P		Q				
n	0.18097533	Peri.	301.61183		+0.82304372		+0.56792893				
a	3.0954514	Node	23.78477		-0.51460903		+0.75120763				
e	0.2027912	Incl.	1.06097		-0.24036761		+0.33636858				
P	5.45	H	14.5	G	0.25						

Residuals in seconds of arc

781105	675	1.1+	0.0	781130	675	0.1-	0.2-	810315	413	1.3+	0.2-
781106	675	1.0+	0.2-	810213	413	0.1-	0.1+	810315	413	0.3-	0.6+
781107	675	1.0-	0.9+	810302	413	3.0-	0.3-	810501	413	0.4-	0.2-
781108	675	1.1-	0.4-	810306	413	1.1+	0.5+				
781129	675	0.0	0.3-	810311	413	1.3+	0.5-				

1980 DE1 = 1977 TB3 = 1986 GJ

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	58.69486		(1950.0)		P		Q				
n	0.17062065	Peri.	104.05895		-0.72498349		-0.68279385				
a	3.2194562	Node	33.02271		+0.55027190		-0.65321510				
e	0.1084942	Incl.	9.55977		+0.41424604		-0.32726532				
P	5.78	H	12.0	G	0.25						

Residuals in seconds of arc

771007	095	0.2-	0.3+	800222	046	2.4+	0.3-	860305	688	0.6+	0.3-
800221	046	1.0+	0.1+ Y	800223	046	0.9-	0.7+	860305	688	0.8+	0.7-
800221	046	2.9-	0.9- Y	800223	046	0.4+	0.1-	860403	054	1.5-	0.4+
800222	046	1.0+	0.5+	800315	095	1.0-	0.0	860405	054	0.3+	0.8+

1981 DZ1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	354.33016	(1950.0)	P	Q
n	0.17051454	Peri. 306.74867	-0.86235692	-0.47950357
a	3.2207917	Node 205.82036	+0.49381350	-0.86742819
e	0.0730678	Incl. 21.91099	-0.11175318	-0.13283319
P	5.78	H 13.5	G 0.25	

Residuals in seconds of arc

781004	675	0.3+	0.3-	810306	413	1.2-	2.5+	810407	413	1.3-	2.0+
781005	675	0.0	0.7-	810306	413	0.3-	0.0	810407	413	2.6+	2.9-
810204	413	1.0-	0.6-	810308	413	1.4-	1.3+	810408	413	0.5-	1.6+
810208	413	1.3-	0.8+	810308	413	0.2-	0.2-	810409	413	0.7-	1.8+
810228	413	0.5-	0.8+	810312	413	1.3-	1.2+	810409	413	0.5+	0.3+
810228	413	0.5+	0.0	810312	413	0.6+	0.0	810501	413	0.7+	0.1-

1981 EV7
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	270.37424	(1950.0)	P	Q
n	0.21658697	Peri. 69.45379	+0.80594554	+0.58762431
a	2.7460938	Node 254.49108	-0.56707786	+0.73154266
e	0.0494989	Incl. 4.27085	-0.16992497	+0.34574992
P	4.55	H 15.0	G 0.25	

Residuals in seconds of arc

780901	675	0.4-	0.4-	810307	413	2.2-	0.6+	810406	413	3.3-	2.1+
780902	675	0.2+	0.1+	810307	413	0.9+	0.3-	810406	413	0.1-	0.1-
810209	413	2.2+	0.4-	810311	413	1.0+	1.2-	810412	413	3.4-	2.3+
810213	413	1.8+	0.9-	810315	413	1.8-	0.1-	810412	413	2.3+	1.7-
810301	413	0.8-	1.0+	810405	413	0.7-	0.0	810430	413	0.3-	0.8+
810301	413	0.9+	0.4-	810405	413	0.8+	1.6-	810502	413	0.3-	0.3+

1981 EO8 = 1975 XX2 = 1979 WR4

The identification 1981 EO8 = 1975 XX2 is by L. D. Schmadel.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	157.67448	(1950.0)	P	Q
n	0.23038940	Peri. 157.17437	+0.14593709	-0.98715120
a	2.6352910	Node 284.38491	+0.89693022	+0.15977882
e	0.1651296	Incl. 3.85216	+0.41739495	+0.00180050
P	4.28	H 14.0	G 0.25	

Residuals in seconds of arc

751202	095	0.1+	0.8-	810307	413	0.3-	1.0+	810407	413	1.2-	0.4+
791018	675	1.1-	0.5-	810311	413	0.0	0.3+	810407	413	1.5+	1.8-
791018	675	0.9+	1.2+	810311	413	1.2+	0.7-	810412	413	1.0-	1.1+
791117	095	(1.8+	15.6-)	810315	413	0.9+	0.1-	810412	413	2.1-	0.6+
810209	413	0.8+	0.8+	810405	413	1.7-	0.9+	810430	413	0.6-	1.2-
810213	413	1.5+	0.5+	810405	413	0.8+	1.6-	810502	413	0.9+	1.0-
810301	413	1.0-	1.2+	810406	413	1.3-	0.2+				
810301	413	1.0+	0.1-	810406	413	0.3+	0.4-				

1981 EQ9
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	330.72361	(1950.0)	P	Q
n	0.17679882	Peri. 339.89976	-0.98807486	+0.14857043
a	3.1440106	Node 208.73701	-0.12725134	-0.93578055
e	0.1178815	Incl. 4.82422	-0.08669012	-0.31975238
P	5.57	H 14.0	G 0.25	

Residuals in seconds of arc

781004	675	2.3-	0.5-	810307	413	0.3+	0.3+	810406	413	2.2-	0.5+
781004	675	2.3+	0.8-	810307	413	0.2+	0.1+	810406	413	0.2+	0.9-
781005	675	0.6-	1.7-	810311	413	0.1+	0.1+	810407	413	1.3-	0.4-
781005	675	1.7+	2.4+	810311	413	0.9+	0.6-	810407	413	0.0	1.4-
810209	413	0.3+	0.7+	810315	413	0.1-	0.2-	810412	413	1.3-	0.4-
810213	413	1.1+	0.3+	810315	413	0.5+	0.2-	810412	413	0.1+	1.1-
810301	413	0.4-	0.9+	810405	413	1.9-	0.7+	810502	413	0.6+	0.9+
810301	413	1.7+	0.5-	810405	413	0.9+	0.4-	810503	413	0.1-	0.2+

1981 EX10
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	16.65278	(1950.0)	P	Q	
n	0.21738828	Peri. 32.61317	-0.54860431	+0.83450720	
a	2.7393414	Node 204.23428	-0.79135753	-0.53807634	
e	0.2002350	Incl. 7.17867	-0.26978988	-0.11862373	
P	4.53	H 15.5	G 0.25		

Residuals in seconds of arc

781004	675	1.5+	0.4-	810307	413	0.6+	1.1+	810406	413	1.5+	1.6-
781005	675	1.2-	1.4-	810311	413	0.9+	0.5-	810407	413	1.3-	0.4+
810202	413	1.0-	0.1+	810311	413	1.4+	0.5-	810407	413	2.5+	1.0-
810214	413	1.8-	0.2-	810315	413	1.1-	0.5+	810412	413	0.5-	0.0
810301	413	1.6-	1.5+	810315	413	0.9+	0.6+	810502	413	0.9+	0.7-
810301	413	1.1+	0.1+	810405	413	1.1-	0.5-	810503	413	0.7+	0.8-
810307	413	0.4-	0.5+	810406	413	1.4-	0.8+				

1981 EZ10
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	297.72467	(1950.0)	P	Q	
n	0.21217770	Peri. 27.59536	+0.37672276	+0.92461088	
a	2.7840077	Node 264.58120	-0.85993663	+0.32646337	
e	0.0386636	Incl. 3.24451	-0.34436747	+0.19625590	
P	4.65	H 14.0	G 0.25		

Residuals in seconds of arc

780901	675	0.4-	0.0	810307	413	0.5+	1.0+	810406	413	1.4+	0.5-
780902	675	0.4-	0.2+	810311	413	0.0	0.4+	810407	413	1.1-	0.4-
810212	413	1.7-	0.1+	810311	413	0.8+	0.3+	810407	413	0.3+	0.6-
810213	413	0.8-	0.4-	810315	413	0.2+	0.1-	810412	413	0.3+	0.6-
810301	413	1.7-	1.3+	810405	413	1.7-	0.2-	810412	413	0.3+	0.0
810301	413	1.4+	0.9+	810405	413	0.6+	1.0-	810502	413	0.5-	0.1-
810307	413	0.2+	0.7+	810406	413	1.1-	0.4+	810503	413	2.5+	0.4+

1981 ED11
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	66.61453	(1950.0)	P	Q	
n	0.25844328	Peri. 307.98458	+0.02554826	+0.99644334	
a	2.4409567	Node 323.23497	-0.86991982	-0.01741529	
e	0.1981218	Incl. 7.71002	-0.49253100	+0.08244618	
P	3.81	H 17.0	G 0.25		

Residuals in seconds of arc

780901	675	0.9-	0.2-	810301	413	0.0	0.1-	810408	413	3.3-	0.0
780902	675	0.8+	1.0+	810307	413	0.5+	0.6+	810408	413	3.5+	1.0-
810212	413	1.3+	0.3+	810307	413	0.0	0.9+	810409	413	0.1+	0.1-
810214	413	1.2-	0.1+	810315	413	0.7+	1.7+	810409	413	0.1+	0.1+
810301	413	2.5-	0.6+	810407	413	0.4+	1.9-	810429	413	0.4+	0.3+
810301	413	0.3+	0.1+	810407	413	0.0	0.3-				

1981 ES14
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	32.57302	(1950.0)	P	Q
n	0.23703484	Peri. 318.60255	-0.20932678	+0.97571321
a	2.5858031	Node 299.22193	-0.87653027	-0.21648787
e	0.1298454	Incl. 4.24129	-0.43344779	-0.03341748
P	4.16	H 15.0	G 0.25	

Residuals in seconds of arc

780901	675	0.3+	0.8-	810306	413	2.0-	0.3+	810408	413	1.1-	0.0
780902	675	0.1+	0.9-	810308	413	1.2-	0.4+	810408	413	1.5-	0.3-
810212	413	0.6-	0.9-	810308	413	1.2+	0.0	810409	413	0.6-	0.5+
810212	413	0.4-	1.0-	810312	413	0.9-	0.9+	810409	413	1.1+	0.1+
810301	413	0.3+	0.6+	810312	413	0.6+	0.1+	810501	413	0.4+	0.9-
810301	413	1.2+	0.1-	810406	413	0.5+	0.5+	810503	413	0.2+	0.8+
810306	413	1.5-	0.4+	810406	413	3.3+	1.3-	810503	413	0.5+	0.3-

1981 ET14
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	33.85402	(1950.0)	P	Q
n	0.17729232	Peri. 203.83238	-0.35213103	-0.93494205
a	3.1381736	Node 266.80872	+0.86551904	-0.30761771
e	0.1710889	Incl. 2.49363	+0.35620292	-0.17679002
P	5.56	H 14.5	G 0.25	

Residuals in seconds of arc

780901	675	0.3+	0.0	810306	413	0.1-	0.5+	810409	413	1.4-	0.5+
780902	675	0.5-	0.1+	810306	413	4.6-	1.6+	810409	413	0.3-	0.1-
810212	413	0.2+	0.7-	810308	413	0.3+	0.5+	810501	413	1.8-	0.2-
810212	413	1.3-	0.8-	810308	413	2.4+	0.0	810503	413	1.4+	0.6-
810301	413	0.1-	0.1+	810408	413	0.2-	0.1-				
810301	413	4.1+	1.2-	810408	413	1.5+	0.4-				

1981 EX14
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	335.04096	(1950.0)	P	Q
n	0.20910461	Peri. 53.07294	-0.18799670	+0.97989963
a	2.8112179	Node 206.32658	-0.94215844	-0.19911822
e	0.1041540	Incl. 8.65501	-0.27747921	+0.01219197
P	4.71	H 16.0	G 0.25	

Residuals in seconds of arc

781004	675	0.9-	1.1-	810301	413	0.6+	0.5-	810409	413	1.2+	0.5+
781005	675	1.3+	0.9+	810308	413	1.1-	0.3+	810409	413	1.3+	0.0
810209	413	1.7-	0.4-	810308	413	2.3+	0.4-	810501	413	0.4-	1.7-
810212	413	1.3-	0.1-	810312	413	0.0	0.1+	810503	413	0.3-	0.5+
810301	413	0.5-	0.4+	810312	413	1.0-	2.5+				

1981 EJ15 = 1979 TV1
The identification is by A. Lowe.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	250.41788	(1950.0)	P	Q
n	0.25723477	Peri. 136.97775	+0.65552203	-0.75420031
a	2.4485960	Node 272.02484	+0.68198483	+0.61304919
e	0.1709613	Incl. 2.20073	+0.32432631	+0.23527130
P	3.83	H 15.0	G 0.25	

Residuals in seconds of arc

791014 095	0.1-	0.6+	810306 413	2.1-	1.4+	810406 413	1.8+	0.1+
791018 675	0.9-	2.6-	810306 413	1.8+	0.2-	810408 413	1.3-	0.5-
791018 675	0.1+	0.5-	810308 413	0.9-	0.9+	810409 413	1.9-	1.3+
810212 413	0.7+	0.6+	810308 413	1.3+	0.5+	810409 413	1.5+	0.2-
810212 413	0.6-	0.9-	810312 413	3.0-	1.3+	810501 413	0.7-	2.1-
810301 413	2.1-	0.4-	810312 413	1.4+	0.1+	810503 413	1.2+	0.5-

1981 EJ17 = 1976 UE13

The identification is by S. J. Bus.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 278.47889		(1950.0)		P	Q
n 0.30262489	Peri.	277.19764	-0.30409420		-0.95241891
a 2.1971876	Node	190.57535	+0.91232706		-0.28492867
e 0.1129948	Incl.	6.44913	+0.27420076		-0.10823066
P 3.26	H	15.0	G	0.25	

Residuals in seconds of arc

761022 381	0.4+	0.6-	810301 413	1.2+	0.3-	810407 413	0.1+	0.1+
761022 381	0.2-	0.3-	810307 413	0.3+	0.1-	810407 413	1.3+	0.2+
761024 381	0.1-	0.6+	810307 413	0.8+	0.6-	810408 413	1.0-	1.5+
761024 381(19.8-		42.8+)	810311 413	1.1-	0.4+	810411 413	0.5-	0.6+
810212 413	0.3+	0.7+	810311 413	0.5+	1.4-	810411 413	0.7+	0.4-
810213 413	0.2-	0.2-	810315 413	1.1-	0.0	810426 413	0.3-	1.9-
810301 413	1.8-	1.3+	810315 413	1.0+	0.6-	810502 413	0.3-	0.3+

1981 ER17

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 106.06839		(1950.0)		P	Q
n 0.17913948	Peri.	190.74865	+0.78552832		-0.61761694
a 3.1165639	Node	207.50976	+0.57376369		+0.75030768
e 0.1605594	Incl.	4.80112	+0.23181994		+0.23577045
P 5.50	H	13.0	G	0.25	

Residuals in seconds of arc

780901 675	1.3+	0.1+	810307 413	0.6+	0.0	810408 413	1.7-	2.0+
780902 675	1.1+	0.1-	810307 413	1.9+	1.7-	810408 413	1.3+	0.8-
810209 413	1.9-	1.5+	810311 413	0.4+	0.8+	810411 413	2.0-	1.3+
810302 413	0.2-	0.6-	810311 413	0.9+	0.8-	810411 413	0.8+	0.5-
810302 413	2.7+	2.2-	810316 413	2.8+	0.4-	810430 413	0.1-	0.3+
810303 413	0.0	0.4+	810329 413	0.6-	1.3+	810502 413	0.7-	1.1-
810303 413	2.2+	1.3-	810329 413	0.4+	0.2-			

1981 EV18

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 289.74600		(1950.0)		P	Q
n 0.18948886	Peri.	50.99596	-0.21716734		+0.97559897
a 3.0020260	Node	206.51478	-0.91644162		-0.21517842
e 0.0684769	Incl.	4.15249	-0.33611473		-0.04364514
P 5.20	H	15.0	G	0.25	

Residuals in seconds of arc

781004 675	0.2-	0.1+	810307 413	0.2+	1.0-	810329 413	0.9-	0.8+
781005 675	0.5+	0.2+	810307 413	0.9+	0.1-	810329 413	3.4+	1.7-
810209 413	3.1+	1.8+	810307 413	0.4-	1.3-	810408 413	0.3-	0.4+
810213 413	0.6+	0.3-	810311 413	2.1-	0.4-	810408 413	1.1-	0.1-
810301 413	2.3-	1.1+	810311 413	1.3+	0.5-	810411 413	1.4-	1.1+
810302 413	0.6+	0.0	810311 413	0.1+	0.6-	810430 413	0.4+	0.0
810303 413	1.2-	0.8+	810316 413	0.5-	1.0-	810502 413	0.8+	0.9+

1981 EO19
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	94.51100	(1950.0)		P	Q
n	0.19143081	Peri.	259.05460	+0.16948257	-0.98552801
a	2.9816891	Node	181.20161	+0.95317078	+0.16473954
e	0.0731953	Incl.	8.75540	+0.25048177	+0.03994267
P	5.15	H	14.0	G	0.25

Residuals in seconds of arc

780901	675	0.4+	0.1+	810303	413	0.8-	0.9+	810316	413	0.9+	1.9-
780902	675	0.5-	0.1+	810303	413	1.0-	0.5+	810329	413	0.9-	0.4+
810209	413	1.1+	0.1+	810307	413	1.0-	1.1+	810329	413	4.7-	3.6+
810213	413	0.7-	0.3-	810307	413	2.5+	1.5-	810408	413	2.7+	1.9-
810302	413	0.0	2.0+	810311	413	0.9+	1.0-	810411	413	0.1-	0.7-
810302	413	2.3+	2.2-	810316	413	1.6-	1.3+	810502	413	0.4+	0.0

1981 EV19
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	95.28394	(1950.0)		P	Q
n	0.17494497	Peri.	215.46541	+0.72076083	-0.69309281
a	3.1661824	Node	188.43790	+0.65231767	+0.68366152
e	0.1376158	Incl.	4.39030	+0.23448983	+0.22853726
P	5.63	H	14.5	G	0.25

Residuals in seconds of arc

780901	675	0.2+	0.3+	810302	413	3.1+	1.2-	810311	413	1.1+	0.8-
780902	675	0.2-	0.1+	810303	413	2.0+	0.3-	810329	413	0.7-	1.2+
810209	413	0.9-	1.2-	810307	413	0.1-	0.4+	810430	413	0.1+	1.6-
810213	413	0.5+	1.0-	810307	413	1.1-	1.1+	810502	413	0.3-	0.2+
810302	413	2.4-	2.2+	810311	413	1.2-	1.1+				

1981 EV20 = 1977 AN2
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	244.56426	(1950.0)		P	Q
n	0.27463164	Peri.	113.01587	-0.06680523	-0.99705416
a	2.3440662	Node	340.70073	+0.86855506	-0.03952412
e	0.0490998	Incl.	6.54709	+0.49106942	-0.06573320
P	3.59	H	14.0	G	0.25

Residuals in seconds of arc

770113	095	0.4+	0.4+	810303	413	0.3-	0.4+	810406	413	1.6+	0.4-
770120	095	0.5-	0.9-	810307	413	0.4-	0.5+	810407	413	2.0-	0.5+
791018	675	0.9-	0.3-	810307	413	2.3+	0.2-	810407	413	1.1+	0.3-
791018	675	0.4+	1.3+	810311	413	0.6-	0.6+	810410	413	0.1-	1.3+
810209	413	0.1+	1.4-	810311	413	1.2+	0.2+	810410	413	1.7+	0.0
810213	413	0.6-	0.3-	810316	413	1.3-	0.3-	810412	413	1.0-	0.1+
810302	413	1.0-	1.4+	810405	413	1.3-	0.6+	810412	413	2.4+	1.5-
810302	413	0.5-	0.0	810405	413	1.0+	0.5-	810430	413	0.3-	0.0
810303	413	1.1-	0.2+	810406	413	1.2-	0.0	810502	413	1.4+	0.2-

1981 EA22 = 1978 RQ11
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	296.43762	(1950.0)		P	Q
n	0.21792855	Peri.	130.37021	+0.51053386	+0.85902702
a	2.7348121	Node	170.11568	-0.84044192	+0.50780954
e	0.0235303	Incl.	12.71606	-0.18169360	+0.06482318
P	4.52	H	14.0	G	0.25

Residuals in seconds of arc

780901	675	0.6+	0.3+	810302	413	0.8-	0.4-	810311	413	0.0	1.0+
780902	675	0.7-	0.5+	810303	413	2.8+	2.0-	810316	413	1.0-	0.4+
780906	809	0.1+	0.9-	810307	413	0.2-	0.7+	810329	413	0.8+	0.0
810209	413	1.1-	0.1+	810307	413	0.0	0.2+	810502	413	0.3-	0.5-
810213	413	0.0	0.0	810311	413	0.3-	0.4+				

1981 EJ22
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	45.82419		(1950.0)	P	Q
n	0.25821402	Peri.	104.36922	+0.37566248	+0.92665536
a	2.4424014	Node	187.73787	-0.88462526	+0.35414050
e	0.2277220	Incl.	5.83781	-0.27625324	+0.12607280
P	3.82	H	15.0	G 0.25	

Residuals in seconds of arc

780901	675	0.5+	0.8-	810303	413	2.9-	0.7+	810329	413	0.0	1.0+
780902	675	0.2-	0.3-	810303	413	1.9-	0.9+	810408	413	0.8-	1.1+
810209	413	1.7+	2.6-	810307	413	0.1-	0.5+	810408	413	2.9+	1.5-
810212	413	0.2-	1.6-	810307	413	1.7-	2.1+	810411	413	0.3-	0.7+
810213	413	1.1+	0.7-	810311	413	0.0	0.3+	810411	413	1.5+	0.3-
810301	413	4.8+	1.9-	810311	413	0.7+	0.5+	810426	413	0.7+	2.3-
810302	413	1.4-	0.2+	810316	413	2.4-	0.2-	810430	413	2.6-	1.4+
810302	413	0.5+	1.0-	810329	413	0.5+	0.5+	810502	413	0.4-	0.3+

1981 EG24
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	352.65052		(1950.0)	P	Q
n	0.21488163	Peri.	300.05716	-0.29627235	+0.95483728
a	2.7606036	Node	312.69103	-0.86534372	-0.27834623
e	0.1444883	Incl.	1.75800	-0.40423128	-0.10396703
P	4.59	H	15.5	G 0.25	

Residuals in seconds of arc

781004	675	0.1+	0.3+	810307	413	0.1-	0.3-	810329	413	1.0-	2.6+
781005	675	0.2+	0.6-	810311	413	1.1+	0.3-	810502	413	0.7+	0.5-
810213	413	2.3+	0.9-	810316	413	0.4-	1.3-	810503	413	0.6-	1.0-
810307	413	2.6-	0.6+	810316	413	0.7+	0.4+				

1981 EP25
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	51.17079		(1950.0)	P	Q
n	0.20015940	Peri.	273.94970	-0.83995792	-0.54225104
a	2.8943625	Node	233.21457	+0.50760940	-0.77155723
e	0.0942608	Incl.	1.49141	+0.19184209	-0.33266087
P	4.92	H	15.5	G 0.25	

Residuals in seconds of arc

780901	675	1.4+	0.8+	810302	413	2.8-	0.8+	810315	413	0.7-	0.6+
780902	675	0.1-	2.0-	810302	413	1.4+	0.5-	810405	413	1.0+	0.2-
810212	413	1.4-	0.4+	810306	413	0.1+	1.0-	810501	413	0.8+	0.1+
810212	413	0.7-	0.5-	810311	413	0.3+	0.4+	810503	413	0.2+	0.1+
810213	413	0.4-	0.8-	810315	413	1.2-	0.5+				

1981 EN26
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	44.90029		(1950.0)	P	Q
n	0.21230508	Peri.	357.55959	-0.99791451	+0.06275985
a	2.7828940	Node	186.10045	-0.05655324	-0.96278659
e	0.1572637	Incl.	8.16547	-0.03111849	-0.26287484
P	4.64	H	13.5	G 0.25	

Residuals in seconds of arc

780901	675	2.7-	0.0		810306	413	0.7+	0.9-		810406	413	0.5+	0.7-
780902	675	2.4+	1.9+		810311	413	0.6-	0.3-		810407	413	0.3-	1.0+
810212	413	0.4-	1.2+		810315	413	0.4+	0.5-		810407	413	1.7+	1.4-
810212	413	0.8-	1.6+		810315	413	0.7+	0.4-		810410	413	1.6+	0.7-
810302	413	0.8-	1.0+		810405	413	0.8-	0.9+		810501	413	0.4+	0.1-
810306	413	1.6-	0.6+		810406	413	0.6-	0.9+					

1981 EG27

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	332.81901		(1950.0)	P	Q
n	0.19154392	Peri.	266.16114	-0.76141282	+0.64763810
a	2.9805151	Node	314.19975	-0.57781321	-0.69797400
e	0.0573922	Incl.	2.28276	-0.29390885	-0.30560953
P	5.15	H	15.5	G 0.25	

Residuals in seconds of arc

781004	675	0.3+	0.5-		810302	413	0.6+	0.8+		810409	413	0.2+	0.9-
781005	675	0.2+	1.2-		810306	413	1.2-	0.4+		810409	413	1.3+	0.4-
810212	413	1.9-	0.5+		810311	413	1.3-	0.3+		810501	413	1.4+	1.3-
810212	413	0.9-	0.5-		810311	413	0.5+	1.2+		810503	413	1.2+	0.7-
810302	413	0.4+	1.7+		810315	413	2.5-	1.7+					

1981 EV27

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	225.40883		(1950.0)	P	Q
n	0.21120426	Peri.	182.91039	+0.99980386	-0.01962414
a	2.7925554	Node	178.20753	+0.01945349	+0.94783151
e	0.0625696	Incl.	4.89535	+0.00371395	+0.31816714
P	4.67	H	14.5	G 0.25	

Residuals in seconds of arc

780901	675	0.1+	0.2+		810302	413	0.7-	0.2+		810315	413	1.5+	0.7-
780902	675	0.2+	0.4-		810306	413	0.5-	0.5-		810410	413	0.5-	1.3+
810212	413	0.9-	0.8+		810311	413	1.5-	0.2+		810410	413	2.8+	1.2-
810212	413	1.3+	0.6+		810311	413	0.6+	0.7-		810501	413	1.1-	0.8+
810213	413	0.3-	0.7-		810315	413	0.1-	0.5-					

1981 EP28

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	245.85840		(1950.0)	P	Q
n	0.19771747	Peri.	64.03386	+0.76803352	+0.64023055
a	2.9181451	Node	256.15327	-0.59297417	+0.70201418
e	0.0575877	Incl.	0.89372	-0.24188044	+0.31189892
P	4.98	H	14.5	G 0.25	

Residuals in seconds of arc

781004	675	0.1+	0.5-		810306	413	1.5-	1.1+		810315	413	2.3+	1.3-
781005	675	0.2+	0.2-		810306	413	4.5-	2.6+		810405	413	2.2-	0.1+
810212	413	2.3+	0.7+		810311	413	0.7+	1.3-		810405	413	0.5+	1.2-
810212	413	0.7-	0.5+		810311	413	0.3+	0.3+		810410	413	1.9-	0.2-
810213	413	0.9+	1.0-		810315	413	2.6+	1.3-		810501	413	1.4+	0.3+

1981 EV28

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	224.27195		(1950.0)	P	Q
n	0.19122001	Peri.	114.48503	+0.81182806	+0.57696146
a	2.9838801	Node	210.50987	-0.57895916	+0.77546102
e	0.0976716	Incl.	10.17959	-0.07577264	+0.25646769
P	5.15	H	14.5	G 0.25	

Residuals in seconds of arc

781004 675	0.6+	0.3+	810311 413	3.4-	2.6+	810429 413	0.6+	1.8-
781005 675	0.4-	0.6-	810311 413	1.0+	1.0-	810430 413	1.0+	2.4-
810202 413	0.4+	0.7-	810315 413	1.6+	0.4-	810502 413	0.4+	0.1-
810301 413	2.8+	1.3-	810412 413	1.5-	0.8+			
810307 413	0.1+	1.1+	810412 413	3.2-	2.1+			

1981 EC29
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 303.03655		(1950.0)		P	Q
n 0.22679207	Peri.	40.53247	+0.74995149	+0.65981359	
a 2.6630849	Node	278.11686	-0.61851770	+0.67420158	
e 0.1221807	Incl.	2.72720	-0.23453917	+0.33181056	
P 4.35	H	16.0	G	0.25	

Residuals in seconds of arc

780901 675	0.1-	0.4+	810311 413	0.9+	1.6+	810430 413	2.6+	0.3+
780902 675	0.3-	0.5+	810311 413	1.5+	1.4-	810502 413	0.7-	1.6-
810209 413	0.1+	1.2+	810315 413	2.1-	0.4-			
810301 413	0.6+	0.9+	810412 413	2.2-	0.4+			

1981 ET29
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 0.72296		(1950.0)		P	Q
n 0.17192986	Peri.	281.00001	-0.83497775	-0.54729017	
a 3.2030918	Node	225.84864	+0.53090004	-0.77378011	
e 0.0998572	Incl.	4.58218	+0.14476638	-0.31896365	
P 5.73	H	14.5	G	0.25	

Residuals in seconds of arc

781004 675	0.2-	0.3-	810301 413	0.4+	0.6-	810308 413	2.2+	0.1+
781005 675	0.2+	0.6+	810306 413	0.4+	0.3+	810501 413	0.4-	0.1-
810212 413	0.3+	0.0	810306 413	1.6-	0.4-			
810301 413	1.2-	0.1+	810308 413	0.2-	0.3-			

1981 EO32
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 298.45978		(1950.0)		P	Q
n 0.21567817	Peri.	22.93578	+0.45634672	+0.88721676	
a 2.7538025	Node	274.27372	-0.82651432	+0.39444272	
e 0.0357222	Incl.	3.89733	-0.32957813	+0.23929347	
P 4.57	H	16.0	G	0.25	

Residuals in seconds of arc

780901 675	0.0	0.2+	810307 413	1.2+	0.4-	810412 413	3.1+	0.7-
780902 675	0.4+	0.4-	810311 413	0.3-	1.1+	810412 413	2.8-	0.0
810213 413	0.3+	1.0-	810311 413	0.9+	0.2-	810503 413	1.3-	0.3+
810214 413	0.9-	1.1-	810315 413	0.7-	0.5+			

1981 EZ32
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 87.82644		(1950.0)		P	Q
n 0.19280039	Peri.	260.62306	-0.03110018	-0.99893279	
a 2.9675517	Node	191.32830	+0.97163482	-0.02220191	
e 0.0518512	Incl.	10.01123	+0.23443239	-0.04050139	
P 5.11	H	15.0	G	0.25	

Residuals in seconds of arc

780901 675	1.2-	0.7-	810307 413	0.2+	0.6+	810329 413	1.2-	1.3+
780902 675	1.2+	0.6+	810311 413	2.6-	2.5+	810430 413	0.2-	0.1+
810209 413	0.3-	1.1-	810311 413	5.6+	4.1-	810502 413	0.0	0.2+
810301 413	0.7-	1.6+	810315 413	4.3-	0.9+			
810301 413	1.2+	0.1+	810329 413	2.1+	2.3-			

1981 EZ33
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	86.12356	(1950.0)		P	Q
n	0.17623192	Peri.	155.69725	+0.53309342	-0.84319658
a	3.1507494	Node	262.01996	+0.76425806	+0.51516594
e	0.1279988	Incl.	4.02459	+0.36293391	+0.15369967
P	5.59	H	14.5	G 0.25	

Residuals in seconds of arc

780901	675	0.1+	0.0	810301	413	2.3+	0.6-	810315 413 2.3+ 0.7-
780902	675	0.3+	0.6+	810307	413	1.7-	1.5+	810503 413 1.0- 0.3-
810214	413	2.4-	1.2-	810311	413	0.0	0.1+	

1981 ED34 = 1983 VN4
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	256.20323	(1950.0)		P	Q
n	0.25837270	Peri.	94.32179	+0.77064948	-0.63650695
a	2.4414013	Node	305.21334	+0.56858411	+0.70872368
e	0.1975216	Incl.	2.17143	+0.28776986	+0.30425260
P	3.81	H	16.0	G 0.25	

Residuals in seconds of arc

791018	675	1.8-	1.7-	810301	413	0.7+	1.0-	810311 413 0.8+ 0.9-
791018	675	2.6+	0.1-	810301	413	2.7+	0.8-	810315 413 7.0- 2.9+
810212	413	2.1+	1.7-	810311	413	2.0+	0.2-	810502 413 1.0- 0.6+
810213	413	1.6-	0.8-	810311	413	0.6+	0.4+	831108 381 0.2- 1.1+

1981 EB36 = 1977 DN2
The identification is by S. J. Bus.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	179.05109	(1950.0)		P	Q
n	0.25603251	Peri.	108.77997	-0.37663736	-0.92635824
a	2.4562553	Node	3.34794	+0.83526122	-0.34061082
e	0.1661657	Incl.	2.13032	+0.40060328	-0.16076283
P	3.85	H	16.5	G 0.25	

Residuals in seconds of arc

770218	381	2.3+	0.3-	810307	413	1.8-	0.8+	810407 413 0.5- 0.7-
770218	381	1.5-	0.1+	810307	413	0.8+	0.3-	810408 413 0.4- 0.1-
770219	381	0.3+	0.3+	810311	413	2.3-	0.8+	810408 413 2.0+ 0.2+
770219	381	0.9-	0.2+	810311	413	0.4-	0.1-	810411 413 0.9- 0.5+
810202	413	0.5-	0.9-	810316	413	0.0	0.7+	810411 413 1.4+ 0.2+
810213	413	0.8-	1.1-	810316	413	1.4+	0.4+	810430 413 0.8- 0.1-
810303	413	1.1+	0.2+	810329	413	0.1-	0.2+	810502 413 0.4+ 0.4-
810303	413	2.5+	0.1-	810407	413	1.2-	0.8-	

1981 EG36
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	140.95726	(1950.0)		P	Q
n	0.17558929	Peri.	196.09100	+0.98972645	-0.14240713
a	3.1584322	Node	172.06351	+0.13921956	+0.93966373
e	0.0461394	Incl.	5.28525	+0.03254949	+0.31105031
P	5.61	H	13.0	G 0.25	

Residuals in seconds of arc

781004	675	0.3+	0.0	810316	413	2.5-	1.7+	810411 413 1.3- 0.9+
781005	675	0.3-	0.4+	810316	413	4.3+	2.4-	810411 413 0.1+ 0.7-
810202	413	0.4+	0.8-	810329	413	0.9-	0.8+	810502 413 0.1- 0.4+
810307	413	1.3-	0.9+	810329	413	0.1+	0.3-	810503 413 0.5- 0.4+
810311	413	1.0-	1.4+	810407	413	1.1+	0.0	
810311	413	0.6+	0.4-	810408	413	0.7-	0.1-	

1981 EW36
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 238.92955		(1950.0)		P		Q
n 0.21109113	Peri.	60.93606		+0.96916672		+0.22922428
a 2.7935531	Node	285.69088		-0.24580882		+0.87387860
e 0.0596373	Incl.	5.38794		-0.01714322		+0.42871018
P 4.67	H	16.5	G	0.25		

Residuals in seconds of arc

780901 675	1.3-	0.4-	810214 413	0.4+	0.0	810311 413	0.7-	0.1+
780902 675	1.4+	0.8+	810307 413	0.8+	0.8-	810315 413	0.7-	0.4-
810202 413	1.3+	1.3+	810311 413	0.9-	0.8-	810503 413	0.6+	0.5+

1981 EP38
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 177.13130		(1950.0)		P		Q
n 0.18521396	Peri.	167.46419		+0.99915240		-0.00485144
a 3.0480431	Node	193.02289		-0.00464804		+0.97338354
e 0.0661981	Incl.	10.45146		+0.04090090		+0.22913084
P 5.32	H	15.0	G	0.25		

Residuals in seconds of arc

781004 675	1.0-	1.1-	810301 413	0.1-	0.8+	810312 413	1.9-	1.4+
781005 675	0.7+	0.6+	810306 413	1.3-	0.8+	810312 413	1.9+	0.7-
810212 413	0.0	0.3-	810306 413	0.7+	0.5-	810501 413	0.5-	0.5-
810212 413	1.7-	0.7-	810308 413	1.2+	0.0			
810301 413	1.9-	1.2+	810308 413	2.1+	0.7-			

1981 EO40
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 298.72766		(1950.0)		P		Q
n 0.22820357	Peri.	153.94407		+0.83673979		+0.54665888
a 2.6520922	Node	172.66530		-0.53601074		+0.82961915
e 0.1534916	Incl.	14.56403		-0.11206703		+0.11356114
P 4.32	H	15.0	G	0.25		

Residuals in seconds of arc

780901 675	0.5+	0.1-	810302 413	5.7+	4.5-	810311 413	1.2-	0.3-
780902 675	0.5-	0.1+	810303 413	1.9+	3.4-	810426 413	0.9+	1.7-
810213 413	0.5+	0.1-	810306 413	2.9-	2.9+	810501 413	0.3-	1.1+
810302 413	1.8-	3.3+	810311 413	2.4-	2.5+			

1981 EY40
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 316.05446		(1950.0)		P		Q
n 0.22499724	Peri.	83.38479		+0.51482930		+0.85716967
a 2.6772286	Node	217.61273		-0.79561828		+0.47141388
e 0.0682265	Incl.	1.36360		-0.31928410		+0.20743460
P 4.38	H	16.0	G	0.25		

Residuals in seconds of arc

780901 675	0.7+	0.4+	810213 413	0.7+	0.7+	810315 413	6.7-	3.4+
780902 675	0.6-	0.4-	810302 413	1.7+	2.6-	810426 413	2.1+	1.1-
810212 413	1.3+	0.6-	810311 413	2.6+	0.7-	810502 413	1.1-	0.7+

1981 EF42
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 356.96398		(1950.0)		P		Q
n 0.21520462	Peri.	209.70074		-0.32610314		+0.94513434
a 2.7578408	Node	41.27544		-0.86137238		-0.28860539
e 0.1458867	Incl.	1.68847		-0.38947961		-0.15306209
P 4.58	H	15.5	G	0.25		

781004 675 2.4- 0.8- 810302 413 0.9- 0.7+ 810405 413 0.5+ 0.6+
781005 675 2.7+ 1.5+ 810302 413 0.8+ 0.5- 810405 413 2.3+ 0.3+
810209 413 1.2- 0.2+ 810306 413 1.7- 0.8- 810426 413 0.7+ 0.2-
810212 413 1.0+ 0.1+ 810311 413 1.9+ 0.8- 810501 413 1.3- 0.1+
810213 413 1.0- 0.5+ 810315 413 1.1- 0.4+

1981 ER43
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	174.40775	(1950.0)		P	Q
n	0.19771803	Peri.	99.80318	+0.94477342	-0.32733813
a	2.9181396	Node	279.30544	+0.29399452	+0.86798095
e	0.0936408	Incl.	0.92342	+0.14481162	+0.37344186
P	4.98	H	15.5	G 0.25	

Residuals in seconds of arc
780901 675 0.7- 0.2- 810307 413 4.8+ 0.4+ 810426 413 2.1+ 1.7-
780902 675 0.6+ 0.8+ 810311 413 2.7- 1.3+ 810502 413 0.7- 0.1-
810209 413 1.4- 1.6- 810311 413 0.4- 0.1+ 810503 413 1.7- 0.2-
810213 413 1.4+ 0.4+ 810315 413 1.4+ 1.1+
810306 413 1.3- 0.4- 810410 413 1.8- 1.3+

1981 EM45
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	269.74819	(1950.0)		P	Q
n	0.21699182	Peri.	2.39690	+0.89349745	+0.43993774
a	2.7426770	Node	330.96423	-0.41501907	+0.73232997
e	0.0999220	Incl.	10.69766	-0.17152689	+0.51975725
P	4.54	H	15.5	G 0.25	

Residuals in seconds of arc
780901 675 0.1- 0.0 810308 413 2.1- 0.8+ 810409 413 1.2+ 0.0
780902 675 0.2- 1.7+ 810308 413 3.1+ 1.0- 810503 413 1.6- 1.1-
810212 413 1.4+ 0.7- 810312 413 0.4+ 0.3-
810301 413 0.3+ 0.2+ 810409 413 0.8- 0.4+

1981 EY45
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	93.48983	(1950.0)		P	Q
n	0.17632477	Peri.	95.71620	+0.60832255	-0.79211745
a	3.1496433	Node	316.68465	+0.69630363	+0.56281997
e	0.1806743	Incl.	4.17435	+0.38092640	+0.23618556
P	5.59	H	13.5	G 0.25	

Residuals in seconds of arc
780901 675 0.4+ 0.1+ 810301 413 1.8- 0.2- 810308 413 0.5+ 0.7+
780902 675 0.8- 0.8+ 810301 413 3.5+ 0.6- 810501 413 2.7- 0.0
810212 413 0.4+ 0.6+ 810306 413 0.8- 1.2+ 810501 413 1.8+ 1.7-

1981 UN = 1981 XE
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	164.27769	(1950.0)		P	Q
n	0.29511355	Peri.	127.17400	+0.97953427	-0.19916684
a	2.2343137	Node	244.33082	+0.17292170	+0.90663350
e	0.0926146	Incl.	1.84842	+0.10300827	+0.37195197
P	3.34	H	13.5	G 0.25	

Residuals in seconds of arc
811004 095 1.5- 1.8+ 811117 046 0.8+ 0.9- 811202 688 1.6+ 0.3-
811023 095 2.6+ 2.5+ 811123 046 0.7- 0.0 860207 046 0.9- 0.1-
811025 330 2.4+ 3.5+ 811123 046 0.6- 0.7- 860208 046 1.7+ 2.1-
811025 046 3.6- 4.6- 811128 046 0.9- 2.1+ 860305 688 3.7- 2.0+
811025 046 0.4+ 2.0- 811128 046 1.2- 1.7+ 860305 688 1.6+ 1.0-
811117 046 0.1+ 1.9- 811202 688 0.7+ 1.6- 860413 801 2.0+ 2.0+

1982 BU1 = 1969 VA2 = 1986 EH1
The key identification 1982 BU1 = 1986 EH1 is by E. Bowell.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	59.69754	(1950.0)	P	Q
n	0.25828691	Peri. 352.65623	-0.64029288	-0.76719820
a	2.4419418	Node 137.14738	+0.70751113	-0.60822769
e	0.1216118	Incl. 3.18954	+0.29908700	-0.20363202
P	3.82	H 13.5	G 0.25	

Residuals in seconds of arc

691115 095	0.7-	2.3+	820221 688	0.1+	0.7-	820228 688	1.0-	0.6-
820130 688	0.6+	1.1-	820221 688	0.8-	0.3-	860305 688	0.8+	1.6+
820130 688	0.9-	0.4-	820228 688	1.1+	1.1-	860305 688	0.8+	3.0+

1982 HF1 = 1937 JA = 1979 UC5
The identification 1982 HF1 = 1979 UC5 is by E. Bowell.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	330.99389	(1950.0)	P	Q
n	0.21936040	Peri. 7.90261	-0.68005691	+0.72234646
a	2.7228983	Node 219.38373	-0.68298083	-0.68638422
e	0.1495368	Incl. 11.40333	-0.26657043	-0.08421578
P	4.49	H 13.0	G 0.25	

Residuals in seconds of arc

370510 053	(24.6+	2.0-)Y	791018 675	0.9+	0.8+	820516 675	3.0-	3.8+
370511 053	(7.2-	12.6-)Y	820425 688	3.1+	0.0	820517 675	2.1-	1.5+
370516 053	0.1+	0.7+ Y	820425 688	2.8+	3.2-	820526 688	2.0+	1.2-
370517 053	(12.0-	4.3+)Y	820515 675	1.3-	1.3-	820526 688	1.6+	1.7-
791018 675	0.8-	1.2-	820516 675	2.8-	1.0+			

1982 WB = 1978 RW16
The identification is by S. J. Bus.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	352.29362	(1950.0)	P	Q
n	0.27100833	Peri. 160.46260	+0.41020605	-0.90897667
a	2.3649129	Node 265.26163	+0.82648978	+0.40487188
e	0.2064448	Incl. 4.26474	+0.38554590	+0.09919769
P	3.64	H 14.5	G 0.25	

Residuals in seconds of arc

780901 675	0.3-	0.2-	821205 552	1.5+	0.8-	821219 552	1.5-	0.3+
780902 675	0.3+	0.4+	821205 552	1.1+	0.6-	821219 552	3.7-	0.3-
821119 552	2.0-	0.3-	821209 552	0.3-	0.3+	830109 552	1.2+	0.1-
821119 552	0.5-	0.5-	821209 552	2.0+	0.5+	830109 552	0.6-	0.5-
821120 552	1.1+	1.3+	821214 688	2.1+	0.1-	830110 552	0.1-	1.9+
821120 552	0.7+	1.1+	821214 688	0.6-	1.7-	830110 552	1.4-	2.2+
821121 552	1.6-	0.8+	821215 552	1.0+	1.8-			
821121 552	0.9-	1.0+	821215 552	1.9+	0.6-			

1986 EB
Epoch 1986 Mar. 11.0 ET = JDE 2446500.5

M	163.27819	(1950.0)	P	Q
n	1.02579554	Peri. 359.31931	+0.99897901	+0.04311355
a	0.9737082	Node 358.04967	-0.03934625	+0.68351938
e	0.2803874	Incl. 23.36369	-0.02219918	+0.72865800
P	0.96	H 16.0	G 0.25	

From 21 observations 1986 Mar. 4-Apr. 7.

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

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

(3421)* 1975 WK1 = 1953 ED1 = 1978 SK7

Discovered 1975 Nov. 26 at the Purple Mountain Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	46.83296	(1950.0)		P	Q
n	0.29521877	Peri.	204.86571	+0.03368170	-0.99869626
a	2.2337783	Node	243.22398	+0.92395482	+0.04574659
e	0.0925739	Incl.	2.46245	+0.38101579	-0.02264997
P	3.34	H	14.0	G 0.25	

Residuals in seconds of arc

530314	760	2.3-	3.6-		780926	095	(1.7+ | 7.2-)	830109	801	0.0	1.0-
751126	330	1.8+	1.3-		781002	095	0.4+	1.7-	830210	801	0.5+	0.4-
751129	330	0.5-	0.5+		781004	675	1.1+	0.1-	860110	801	0.8-	0.5+
751202	330	0.3+	1.8+		781005	675	1.1+	0.2-	860113	801	0.9-	0.1-
751211	330	0.4+	0.5+		781008	095	1.3-	2.1-	860206	801	1.2-	0.6+
751224	330	0.4+	1.3-		781101	095	0.4+	1.1-				

(3422)* 1978 OJ = 1982 JB5

Discovered 1978 July 28 at the Perth Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	278.84440	(1950.0)		P	Q
n	0.22314624	Peri.	198.82242	+0.63909047	+0.73583385
a	2.6920079	Node	111.56197	-0.67112461	+0.67568490
e	0.1488225	Incl.	13.92792	-0.37570618	+0.04470417
P	4.42	H	12.5	G 0.25	

Residuals in seconds of arc

780710	675	0.1-	5.5-	Y	780806	323	1.3-	0.1-	850218	801	0.8-	2.1+
780711	675	2.4+	0.5-	Y	780806	323	0.2-	0.4+	850326	801	0.3-	0.4-
780713	675	5.2+	3.5+	Y	780811	323	0.7-	1.7+	860312	801	1.4+	0.3-
780728	323	2.7-	1.5-		780811	323	0.4-	3.0+	860403	054	0.5-	0.2+
780728	323	3.5-	2.2-		820515	095	0.8+	0.7+	860405	801	2.5+	0.8+
780731	323	1.8+	1.8+		820523	095	1.2-	0.9+				
780731	323	1.1+	2.6+		820526	095	3.1-	1.3-				

(3423)* 1981 CK = 1976 GA1 = 1979 WG

Discovered 1981 Feb. 9 by L. Brozek at Klet. The identifications are by M. Kretlow (MPC 8895).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	347.71773	(1950.0)		P	Q
n	0.18508716	Peri.	177.08259	-0.89847167	-0.43902184
a	3.0494290	Node	336.87523	+0.40263349	-0.82132284
e	0.1108338	Incl.	0.42459	+0.17502834	-0.36426449
P	5.33	H	12.5	G 0.25	

Residuals in seconds of arc

760401	095	3.3+	1.9-		791125	046	2.3+	0.8+	841023	688	1.3-	5.2-
760402	095	2.9-	3.4-		810203	330	5.0+	0.1-	851217	688	1.5+	1.4+
760404	808	0.1-	0.3-		810209	330	2.2-	1.7-	851218	688	1.1+	0.9+
760404	808	1.9-	0.1-		810209	046	0.1-	0.8+	851218	688	0.4-	1.6+
760404	095	0.5+	1.6-		810209	046	2.0-	0.0	860107	046	0.9-	0.9-
760406	808	0.4-	0.6+		810211	046	0.2-	1.4+	860107	046	0.2+	0.2+
760406	808	0.9-	0.9+		810211	046	0.5-	1.1-	860110	801	0.8-	0.8+
791117	095	1.3-	0.2-		841019	801	0.7+	0.6+	860111	688	0.1-	0.6-
791125	046	1.0-	0.2-		841023	688	3.5+	2.3-	860111	688	0.3-	0.4-

(3424)* 1982 CD = 1972 XR2 = 1984 UO

Discovered 1982 Feb. 14 by L. Brozek at Klet.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	131.33264	(1950.0)		P	Q
n	0.24230600	Peri.	244.84302	+0.82025309	-0.56892182
a	2.5481595	Node	149.72857	+0.55795537	+0.77298424
e	0.0718004	Incl.	6.75215	+0.12597884	+0.28075492
P	4.07	H	13.0	G 0.25	

Residuals in seconds of arc

721202 095	0.2-	0.8+	820221 046	0.1+	0.5-	841120 688	0.7-	0.5+
820214 046	0.3+	0.5-	820221 046	1.4-	0.2+	860209 801	0.4+	2.7+
820214 046	0.5+	0.2-	841023 688	1.4+	0.5-	860214 046	2.5-	0.3+
820216 046	0.0	0.6-	841023 688	0.0	1.2-	860214 046	1.3+	1.6-
820216 046	0.5+	1.6-	841029 688	0.1+	0.9-	860305 688	1.9+	0.8+
820220 046	1.3-	2.0-	841029 688	0.7-	0.4+	860305 688	0.1-	2.8+
820220 046	0.1-	0.6-	841120 688	0.3+	0.3+			

1977 RE2 = 1950 HB = 1950 HA1 = 1979 BY1 = 1983 HZ = 1986 EB1

The double designation 1950 HB = 1950 HA1 is by O. Kippes (MPC 1331).

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	291.52171	(1950.0)		P	Q
n	0.29884449	Peri.	171.18064	+0.24556179	+0.96653634
a	2.2156785	Node	113.00724	-0.89419174	+0.25541110
e	0.1543593	Incl.	4.62430	-0.37432679	+0.02393067
P	3.30	H	13.5	G 0.25	

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

500418 078	(0.03-	0.01+)X	770910 095	0.8-	0.8-	830419 688	0.4-	0.5-
500420 760	(2.6-	8.9+)X	770918 095	1.3-	1.7-	830419 688	0.5-	0.9-
500420 078	(0.04-	0.02+)X	770922 095	1.0+	0.2+	860305 688	0.2+	0.5-
770908 095	1.3+	0.9+	790124 095	0.3-	2.0-	860305 688	0.2-	0.9+

1978 SQ2 = 1955 QZ = 1984 BO

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	70.91067	(1950.0)		P	Q
n	0.25834050	Peri.	303.23909	+0.31075084	+0.94848190
a	2.4416041	Node	344.50084	-0.77685468	+0.21599849
e	0.0678895	Incl.	13.36587	-0.54765932	+0.23179028
P	3.82	H	12.5	G 0.25	

Residuals in seconds of arc

550825 760	1.5+	0.3+	781002 095	1.4+	1.1-	840129 046	0.0	1.1-
550825 760	1.5-	0.6-	781008 095	1.5+	1.3-	840201 046	4.1-	2.4-
550825 760	1.2+	0.6-	840126 046	0.1-	1.9-	840201 046	1.6+	2.0-
780902 675	0.0	1.9+	840126 046	1.0+	0.1-	840204 046	0.5+	0.7+
780926 095	3.2-	2.6+	840129 046	0.3+	1.2-	840204 046	0.2+	0.9+

1979 SJ11 = 1951 RF

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	32.52626	(1950.0)		P	Q
n	0.17927413	Peri.	177.05364	+0.09130007	-0.99352667
a	3.1150032	Node	267.70119	+0.91221610	+0.11066656
e	0.1417902	Incl.	3.87897	+0.39940717	-0.02564491
P	5.50	H	12.5	G 0.25	

Residuals in seconds of arc

510904 024	0.2+	0.5-	791014 095	0.9+	0.7+	791122 095	0.6-	1.5+
510906 024	1.4-	0.0	791018 675	0.0	0.8-			
790924 095	0.8-	1.7+	791018 675	1.3+	0.7+			

1986 DA
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	15.13765	(1950.0)	P	Q
n	0.20909584	Peri. 126.71604	-0.97876048	+0.19353192
a	2.8112909	Node 64.53150	-0.20372367	-0.88133569
e	0.5853244	Incl. 4.29579	-0.02290396	-0.43103688
P	4.71	H 16.0	G 0.25	

From 63 observations 1986 Feb. 5-Apr. 14, mean residual 1".2.

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ORBITAL ELEMENTS BY S. NAKANO, TOKYO.

The identifications are by S. Nakano unless otherwise stated.

(3425)* 1929 BD = 1951 GB = 1971 DJ1 = 1978 PN = 1979 SG1 = 1981 DW3
Discovered 1929 Jan. 29 by K. Reinmuth at Heidelberg.
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	59.85939	(1950.0)	P	Q
n	0.18956716	Peri. 138.58831	+0.33508637	-0.93026218
a	3.0011934	Node 291.34784	+0.81667193	+0.36586214
e	0.0856896	Incl. 9.23234	+0.46985539	+0.02751663
P	5.20	H 11.0	G 0.25	

Residuals in seconds of arc

290129	024	1.1+	3.0+	780808	095	0.9+	1.2+	860105	881	0.8-	0.4+
290204	024	5.0+	2.2+	790928	330	2.1+	1.1-	860111	688	0.2-	1.1-
290207	024	0.1+	1.4+	810223	095	1.4-	1.3+	860111	688	0.4-	1.0-
290216	024	2.2-	2.3+	851218	688	0.7+	0.6-	860112	801	1.2-	0.4-
510412	074	5.7-	1.1+	851218	688	1.2-	0.5+	860114	889	0.8-	0.4+
710218	095	0.3+	4.4-	851220	801	0.8-	0.2-				
710223	095	3.6+	5.2-	860105	881	0.6-	1.8-				

(3426)* 1932 CQ = 1976 SW1
Discovered 1932 Feb. 5 by K. Reinmuth at Heidelberg. The double designation 1932 CQ = 1932 HQ (MPC 9206) is invalid.
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	183.86473	(1950.0)	P	Q
n	0.23258487	Peri. 261.05774	-0.06792952	+0.99747921
a	2.6186759	Node 5.18111	-0.80258080	-0.04241963
e	0.0968918	Incl. 13.12995	-0.59266317	-0.05688409
P	4.24	H 13.0	G 0.25	

Residuals in seconds of arc

320205	024	2.9+	0.9+	760924	095	0.4+	0.4+	860112	801	0.6-	0.0
320211	024	2.4-	1.9-	760928	095	0.7-	0.2-	860113	801	2.1-	0.8-
320301	024	0.4-	1.1+	851116	801	2.2+	0.4+				

(3427)* 1938 AD = 1933 UO1 = 1957 QJ = 1964 TN = 1971 TB2 = 1980 FE12 = 1981 SO3
Discovered 1938 Jan. 6 by G. Kulin at Budapest.
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	100.07361	(1950.0)	P	Q
n	0.28607877	Peri. 75.75697	+0.90169574	-0.43096212
a	2.2811069	Node 309.75929	+0.37711931	+0.82336287
e	0.1342816	Incl. 2.60040	+0.21148480	+0.36924956
P	3.45	H 13.5	G 0.25	

Residuals in seconds of arc

331020	024	3.2-	5.9+		380224	053	(31.9- | 7.1+)X	800323	808	0.5+	1.6+
380106	053	(26.4+	10.0+)X		380227	053	(19.8-	24.5-)X	800323	808	1.9+	2.1+
380122	053	(30.4- | 20.8+)X		570830	760	1.9+	2.5-	800420	808	0.6-	0.5+
380126	053	(38.6+ | 11.9-)X		570830	760	1.0+	0.5+	800420	808	0.7-	0.6+
380128	053	(4.2- | 13.2+)X		641012	760	0.4+	1.6+	810902	095	0.1-	0.1+
380131	053	(44.0+ | 0.8+)X		641012	760	1.6+	2.5-	810925	095	0.3-	0.6-
380220	053	(22.9+ | 22.8-)X		641030	760	0.0	0.9-	851215	801	0.8+	0.8-
380221	053	(16.9- | 22.2+)X		641030	760	0.5+	3.1+	860112	801	1.8+	1.6-
380223	053	(7.9+ | 7.4+)X		711012	095	5.4-	1.2-	860204	801	0.3+	0.4-

(3428)* 1952 JH = 1952 KB = 1972 YQ1 = 1978 JH2 = 1980 TD15 = 1982 FR1

Discovered 1952 May 1 at the Goethe Link Observatory. The double designation 1952 JH = 1952 KB is by O. Kippes (MPC 1968).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	355.52051	(1950.0)	P	Q	
n	0.22652084	Peri.	302.10015	-0.98454998	-0.12816051
a	2.6652049	Node	230.82006	+0.15910454	-0.93931602
e	0.1635635	Incl.	8.85432	-0.07312374	-0.31821425
P	4.35	H	12.5	G	0.25

Residuals in seconds of arc

520501	760	0.5-	2.8+		721230	095	1.0-	0.2+	851220	801	0.4+	0.4+
520501	760	3.4-	1.1-		780506	095	1.1-	0.7-	860113	801	0.8-	0.1+
520517	078	1.4-	0.6-		801015	095	0.6-	0.7-	860203	054	0.7+	0.3+
520517	078	0.2+	2.6+		801017	095	0.8+	0.4+	860205	054	(10.1- | 4.5+)
520524	711	(0.7+ | 14.1-)Y		820326	046	1.5+	0.9-	860207	054	0.3+	0.5+
520525	711	5.3+	1.9- Y		820326	046	0.9-	0.6-				

(3429)* 1974 SU1 = 1978 YT1 = 1981 OM

Discovered 1974 Sept. 19 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	113.09878	(1950.0)	P	Q	
n	0.27553781	Peri.	162.27251	+0.95372923	+0.30066685
a	2.3389194	Node	180.22990	-0.27857687	+0.88354222
e	0.1896760	Incl.	1.32909	-0.11311717	+0.35909968
P	3.58	H	14.0	G	0.25

Residuals in seconds of arc

740919	095	0.1+	1.1-		781222	095	0.5+	2.3+	810806	033	0.7+	0.5+
740921	095	0.6-	0.7-		781231	095	0.7-	1.6+	810807	033	0.3+	0.3+
740923	095	2.2+	0.6+		810730	033	1.1-	0.4+	851116	801	0.7+	0.3+
741009	095	1.2-	0.0		810730	033	0.6-	1.1+	851215	801	0.4-	2.3-

(3430)* 1980 TF4 = 1974 HY1 = 1976 YS7

Discovered 1980 Oct. 9 by C. Shoemaker at Palomar. The identifications were found in collaboration with K. Hurukawa and also independently by L. D. Schmadel (MPC 7614 and unpublished).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	130.64007	(1950.0)	P	Q	
n	0.21514276	Peri.	275.53203	+0.74879071	+0.66069769
a	2.7583639	Node	43.12991	-0.57337127	+0.68567780
e	0.0975310	Incl.	4.43202	-0.33250242	+0.30549018
P	4.58	H	12.5	G	0.25

Residuals in seconds of arc

740424	805	2.6-	4.2-		800907	095	0.9+	0.4-	801010	675	0.8-	0.2-
740425	805	0.6+	0.1+		800909	095	1.8+	1.0-	851116	801	0.6-	1.1-
761218	095	0.4-	0.4-		801007	675	0.9-	0.2+	851216	801	0.3-	0.3+
761220	095	0.5+	1.2-		801008	675	0.1+	0.1-	860113	801	1.2+	0.6+
761227	801	0.1+	0.3+		801009	675	0.5+	1.5-				

(3431)* 1984 QC = 1951 PL = 1962 PD = 1962 QM = 1970 AO = 1973 SD2
Discovered 1984 Aug. 24 by T. Seki at Geisei.
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	119.39435	(1950.0)	P	Q
n	0.18099605	Peri. 31.50089	+0.95124890	+0.26519784
a	3.0952090	Node 312.26003	-0.30817189	+0.79661032
e	0.0399332	Incl. 12.28434	-0.01247439	+0.54321461
P	5.45	H 10.5	G 0.25	

Residuals in seconds of arc

510805	711	0.0	3.0-	Y	840824	372	1.0-	0.4+	840926	372	0.2- 0.5+
620801	760	1.9-	0.7+		840828	372	1.3-	1.3+	840926	372	0.5+ 1.5+
620801	760	0.8-	2.0-		840902	372	(6.1+	0.9+)	850913	801	0.8- 0.1+
620827	024	2.3+	0.7+		840902	372	(4.6+	0.0)	851016	801	1.6- 1.1-
700104	095	0.5+	0.3+		840904	372	0.2-	0.9-	851114	801	1.4- 0.2+
730922	095	2.7+	2.0+		840904	372	0.2-	0.3-	860203	372	0.4- 1.5-
730924	095	0.9+	0.7+		840916	372	0.2+	0.4-	860203	372	1.7+ 0.7-
810130	095	1.9+	0.4+		840916	372	1.0-	0.7-			

1970 WC = 1972 GK1 = 1977 RO6
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	314.21595	(1950.0)	P	Q
n	0.27105487	Peri. 208.32280	-0.93421477	+0.35660729
a	2.3646422	Node 352.55375	-0.31345074	-0.83219060
e	0.0181514	Incl. 3.80625	-0.17026862	-0.42460576
P	3.64	H 13.0	G 0.25	

Residuals in seconds of arc

701124	029	0.2-	0.6+		701221	029	0.2-	0.1+	720410	805	0.1- 0.4+
701124	029	0.6+	0.7-		701221	029	0.4-	0.3+	720410	805	0.5- 0.2-
701221	029	0.2+	0.2+		720409	805	1.0+	0.8+	770911	095	0.0 0.9+
701221	029	0.0	0.4-		720409	805	0.1+	0.1-	770918	095	0.5- 0.0

1978 PV2 = 1978 RY2 = 1978 SE2
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	145.63648	(1950.0)	P	Q
n	0.30096427	Peri. 4.76829	+0.80405057	+0.59136139
a	2.2052581	Node 318.77349	-0.54851695	+0.69781531
e	0.2676836	Incl. 5.36312	-0.22941628	+0.40416023
P	3.27	H 14.0	G 0.25	

From 4 observations 1978 Aug. 8-Oct. 12, mean residual 0".6.

1978 SC6 = 1978 WL14 = 1980 GK1 = 1983 GD
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	80.49776	(1950.0)	P	Q
n	0.30296923	Peri. 46.95745	+0.14941434	-0.98870687
a	2.1955225	Node 34.45458	+0.90108282	+0.13133221
e	0.0506974	Incl. 1.17279	+0.40709348	+0.07218438
P	3.25	H 14.0	G 0.25	

780928	095	0.0	0.8-		800414	805	1.1+	1.7+	830402	675	0.3- 0.3-
781004	095	0.3+	0.4+		800415	805	1.0-	0.0	830403	675	0.1+ 0.2-
781120	801	0.5-	0.7+		800416	805	0.2+	1.1-			

1979 GE = 1985 JT1
The double designation 1971 SS1 = 1979 GE (JAM 1507) is invalid.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	91.50566	(1950.0)	P	Q
n	0.17689170	Peri. 142.63934	-0.88216359	+0.47035128
a	3.1429100	Node 65.43357	-0.43808485	-0.80119079
e	0.1063328	Incl. 1.48708	-0.17282669	-0.36994998
P	5.57	H 13.0	G 0.25	

Residuals in seconds of arc

790331 095	0.4+	0.7+	850511 675	0.1+	0.0	850515 675	0.9+	0.3+
790401 809	0.5-	0.6-	850514 675	0.1-	0.2-			
790402 809	0.1+	0.1-	850514 675	1.0-	0.0			

1979 KH = 1979 KC1 = 1969 TP6 = 1982 FY1 = 1983 RV1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	330.83923	(1950.0)		P	Q
n	0.27441561	Peri.	97.01898	+0.23246972	+0.97251465
a	2.3452963	Node	186.46861	-0.93206082	+0.21889399
e	0.1121411	Incl.	6.70642	-0.27788570	+0.07937685
P	3.59	H	13.5	G 0.25	

Residuals in seconds of arc

691015 095	0.2+	1.0-	820323 675	1.4-	0.5+	830906 688	0.8+	0.7+
790519 809	0.3+	0.3-	820324 675	(53.4-	77.0+)	830912 688	0.3+	0.6+
790520 809	0.1-	0.0	830902 688	0.8-	0.3-	830912 688	0.9-	1.8-
790523 801	0.2-	0.3-	830902 688	0.1+	1.3-			
820323 675	1.1+	1.5-	830906 688	0.6+	1.7+			

1979 QL8 = 1979 SR3 = 1968 QL
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	338.67891	(1950.0)		P	Q
n	0.27051481	Peri.	63.13329	+0.60163046	+0.79813313
a	2.3677884	Node	243.88998	-0.74489496	+0.54613219
e	0.1788410	Incl.	2.04255	-0.28839606	+0.25440741
P	3.64	H	14.5	G 0.25	

Residuals in seconds of arc

680826 095	0.1-	1.2-	790820 095	1.5-	2.2+	790924 095	0.2-	0.4-
680831 095	0.5+	0.2+	790828 095	1.2+	0.7-			

1979 XG = 1979 YY8 = 1980 BR5 = 1925 TC = 1930 DT = 1935 SL1
= 1950 AA = 1962 XB1 = 1975 RO1 = 1978 NL3 = 1982 VS1
= 1982 XS4
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	37.23375	(1950.0)		P	Q
n	0.29475058	Peri.	269.41112	+0.81264416	-0.58023874
a	2.2361476	Node	126.05490	+0.55775244	+0.74747690
e	0.1625349	Incl.	3.84070	+0.16888366	+0.32342121
P	3.34	H	13.0	G 0.25	

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

250925 094	0.9-	0.7-	621203 760	(29.9-	14.1-)X	791216 688	2.3+	2.1-
251010 024	1.1+	0.1-	750905 095	1.5+	2.8-	791224 095	3.4-	2.0-
300228 024	(0.02-	0.04-)X	750906 095	0.8+	1.7-	800123 095	1.6-	2.0-
350929 078	(19.8+	34.5-)X	780711 095	0.5-	0.5-	821115 704	0.9-	2.7+
500115 760	(11.4+	13.8-)X	791214 688	1.8+	0.1-	821206 330	1.0-	1.4+
500116 760	(53.8-	68.7+)X	791216 688	0.6+	1.4-			

1979 YM8 = 1980 AD = 1940 WQ = 1955 YD = 1971 BF3 = 1974 XP
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	200.22213	(1950.0)		P	Q
n	0.20471017	Peri.	83.15090	+0.96608326	-0.13926901
a	2.8513069	Node	284.68385	+0.03034717	+0.89749665
e	0.1822701	Incl.	12.99103	+0.25644138	+0.41845419
P	4.81	H	12.0	G 0.25	

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

401121 119	(0.08-	0.08+)X	741214 095	0.8+	1.8+	800117 330	1.8-	0.1+
551220 024	0.1+	0.4+	791223 095	1.2+	1.9-			
710127 805	0.6+	0.8+	800114 330	0.6-	0.8-			

1979 YN8 = 1980 AE = 1933 XB = 1955 QQ = 1965 YM = 1969 RF2
= 1974 VM2 = 1985 DF1

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	207.47956	(1950.0)	P	Q
n	0.21459763	Peri. 117.90662	+0.88375019	-0.44819778
a	2.7630387	Node 268.99466	+0.36791031	+0.84315062
e	0.1658411	Incl. 7.73394	+0.28918439	+0.29701142
P	4.59	H 11.5	G 0.25	

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

331215	024	1.0- 0.0	741115	095	1.3- 0.6-	850225	688	0.7- 0.3+
550823	760	(0.04+ 0.01+)X	791223	095	0.2- 1.3-	850318	688	2.2+ 0.1+
651230	330	1.2+ 0.8+	800114	330	1.2- 0.4-	850318	688	0.8- 0.3+
660116	330	2.5+ 0.4+	800117	330	0.9- 0.6+			
690910	095	0.5- 1.3+	850225	688	1.0+ 0.9+			

1979 YV8 = 1980 BJ3 = 1952 BH = 1969 BC = 1975 ES5 = 1978 SQ5
= 1981 JJ = 1981 JW2

The double designation 1981 JJ = 1981 JW2 was found by E. Bowell and by C. Shoemaker (MPC 6815).

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	44.26014	(1950.0)	P	Q
n	0.17592314	Peri. 92.21942	-0.64973384	-0.75992979
a	3.1544351	Node 38.32354	+0.68480736	-0.59587116
e	0.1442191	Incl. 1.73540	+0.32997700	-0.25970036
P	5.60	H 12.5	G 0.25	

Residuals in seconds of arc

520128	711	0.9- 1.5-	781007	095	1.0+ 1.2+	810505	675	3.5- 2.9+
520130	760	1.7- 1.7+	791224	095	2.0- 0.9+	810506	675	0.8- 0.2+
520130	760	(2.3- 19.6+)	800117	330	0.5+ 0.5+	810506	675	0.4+ 0.6-
690120	095	1.9+ 4.4-	800123	095	2.0- 2.0+	810506	675	2.5- 4.2+
750315	095	3.1+ 0.8+	810503	688	0.2+ 1.6-	810510	675	2.1- 1.5+
750317	095	4.3+ 0.6-	810503	688	0.2- 1.9-	810511	675	3.6+ 2.9+
780927	095	0.7+ 1.8+	810505	675	0.4+ 3.7-			
781003	095	0.4- 0.2+	810505	675	0.5- 1.5-			

1981 EL41

The 1978 observations were identified by S. J. Bus.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	342.95463	(1950.0)	P	Q
n	0.18313592	Peri. 183.86396	-0.99081619	+0.13465646
a	3.0710571	Node 3.93869	-0.11876297	-0.82322480
e	0.0136472	Incl. 10.30225	-0.06464230	-0.55151479
P	5.38	H 15.5	G 0.25	

Residuals in seconds of arc

781004	675	0.9+ 0.1-	810302	413	2.2+ 0.6-	810426	413	1.7+ 0.1+
781005	675	0.8- 0.1-	810306	413	1.5- 0.2-	810501	413	1.0+ 1.2+
810209	413	0.1+ 0.4+	810311	413	3.0- 0.2+	810503	413	2.2- 1.5-
810212	413	0.8- 0.0	810311	413	1.0+ 0.5+			
810213	413	1.4+ 0.2-	810315	413	(8.7- 1.5+)			

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ORBITAL ELEMENTS BY H. OISHI, NIIZA, JAPAN.

The following orbital elements are taken in part from NOC 1996. The identifications are by H. Oishi unless otherwise stated.

(3432)* 1986 EE = 1930 FC = 1958 FK = 1958 GN = 1969 EL1 = 1975 FA = 1982 SK1

Discovered 1986 Mar. 7 by M. Inoue, O. Muramatsu and T. Urata at Yatsugatake-Kobuchizawa. The double designation 1958 FK = 1958 GN is by R. Mitrinovic (MPC 1898). The identifications 1986 EE = 1958 FK = 1969 EL1 = 1975 FA = 1982 SK1 were found independently by T. Urata.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 325.42203		(1950.0)	P	Q
n 0.17450387	Peri.	239.80792	-0.31278256	+0.94855115
a 3.1715094	Node	12.26560	-0.77225780	-0.22382872
e 0.2534103	Incl.	13.38268	-0.55297827	-0.22394512
P 5.65	H 11.5	G 0.25		

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

300324	094(78.1+	17.0+)X	820917	046	2.1-	0.4-	860316	386 0.7- 1.1+
580324	024	0.1+ 1.0-	820917	046	3.5+	1.6+	860316	386 0.1+ 2.0-
580408	760(0.05-	0.02+)X	820917	046	1.0-	0.9-	860317	889 0.7- 1.3-
690313	095	0.6- 0.9+	820917	046	1.9-	1.1-	860317	889 2.7- 1.3-
750316	095	0.3- 0.1-	820918	046	0.7-	0.1-	860405	386 3.0+ 2.0+
750318	095	0.3- 0.1-	820918	046	(3.5+	6.0+)	860405	386 2.6- 2.1+
820916	046	0.7+ 0.1+	860307	386	0.2+	1.5-		
820916	046	2.2+ 0.0	860307	386	3.9+	0.4+		

1979 OB9 = 1982 JC2 = 1983 VH7

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 274.80314		(1950.0)	P	Q
n 0.27826140	Peri.	173.15664	+0.90397533	-0.42504864
a 2.3236369	Node	212.12519	+0.38801975	+0.86115242
e 0.1791492	Incl.	5.01657	+0.17963650	+0.27883717
P 3.54	H 14.2	G 0.25		

Residuals in seconds of arc

790724	413	0.2- 0.2-	820516	675	0.8-	0.8-	831107	688 1.2+ 0.6+
790726	675	0.9+ 0.3+	820517	675	0.0	0.0	831107	688 0.1+ 0.1+
790728	413	0.7- 0.2-	831104	688	0.0	0.6-		
820515	675	0.8+ 1.2+	831104	688	1.3-	0.1+		

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ORBITAL ELEMENTS BY T. URATA, SHIMIZU, JAPAN.

The following orbital elements are copied from NOC 1555.

1986 FA = 1939 FV = 1976 GA3 = 1976 JF

The identifications are by T. Urata.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 9.06034		(1950.0)	P	Q
n 0.29398582	Peri.	161.39021	-0.88658385	+0.45808356
a 2.2400239	Node	46.04894	-0.43490389	-0.77816383
e 0.0912350	Incl.	5.12043	-0.15756801	-0.42967489
P 3.35	H 14.0	G 0.25		

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

390318	062	0.4+ 0.5-	760405	095	0.6-	1.3-	860402	889 0.5- 2.0+
390322	062	0.4+ 2.1+	760501	095	(0.01-	0.06-)	860405	386 0.1- 0.9+
760401	095	(9.8+ 4.0+)	760502	095	0.3+	0.6-	860405	386 2.5- 0.9+
760401	095	3.5- 0.3-	860316	386	0.8-	2.9-	860407	889 1.2+ 0.1-
760402	095	2.1+ 0.6+	860316	386	0.4+	3.3-	860407	889 1.2+ 0.5-
760404	095	1.2+ 0.3+	860402	889	0.6+	2.4+		

ORBITAL ELEMENTS BY T. KOBAYASHI, TOKYO.

1974 SB3 = 1954 QF = 1984 SG5

The identifications are by T. Kobayashi.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	179.49578	(1950)		P	Q
n	0.29689463	Peri.	136.66067	+0.89937840	-0.43087797
a	2.2253645	Node	248.99801	+0.37634798	+0.84912740
e	0.1683149	Incl.	4.54082	+0.22244258	+0.30549440
P	3.32	H	14.0	G 0.25	

Residuals in seconds of arc

540831	024	0.6+	0.9-	741010	095	2.9+	7.5+	841025	675	1.4-	1.9-
740920	095	3.6-	0.9-	840927	675	1.4+	0.9-	841026	675	1.1-	1.9-
740922	095	1.8-	2.3-	840927	675	3.0+	0.9+				

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ORBITAL ELEMENTS BY K. HURUKAWA, TOKYO ASTRONOMICAL OBSERVATORY.

1985 TT = 1977 RC6

The identification was found independently by K. Hurukawa and L. D. Schmadel.

Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	75.59179	(1950.0)		P	Q
n	0.12439486	Peri.	117.78510	+0.59391005	+0.80430372
a	3.9743729	Node	188.72629	-0.77537958	+0.56588155
e	0.2841022	Incl.	7.24801	-0.21460977	+0.18131077
P	7.92	H	11.1	G 0.25	

Residuals in seconds of arc

770909	095	0.1-	0.1+	851015	688	0.2-	0.5-	851107	688	0.1+	0.1+
770918	095	0.0	0.0	851020	688	0.5+	1.0+	851107	688	0.2+	1.5-
851015	688	0.8-	0.3-	851020	688	0.5+	0.7+	860109	801	0.2-	0.5+

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ORBITAL ELEMENTS BY W. LANDGRAF, UNIVERSITY OF GOTTINGEN.

Periodic Comet Halley (1982i)

Epoch 1986 Feb. 19.0 ET = JDE 2446480.5

T 1986 Feb. 9.45891 ET

q	0.58710224	(1950.0)		P	Q
n	0.01297082	Peri.	111.84644	+0.55439752	-0.79089423
a	17.9400782	Node	58.14353	-0.83064915	-0.50652071
e	0.96727426	Incl.	162.23934	-0.05162735	-0.34339931
P	75.99				

From 2791 selected earth-based observations 1835-1986 Mar. 21 and data from Vega 1 and 2, mean error 1".1. Nongravitational parameters A1 = +0.100, A2 = +0.01556; because of high accuracy of Vega data, an attempt was made to eliminate light-shift effects from the recent earth-based data.

* * * * *

EPHEMERIDES.

Periodic Comet Hartley 2 (1986c) Elements MPC 10610

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1986	04 20	10 58.58	-03 10.7	2.644	3.450	137.2	11.4	18.0
1986	04 30	10 56.14	-02 20.5					
1986	05 10	10 55.66	-01 43.7	3.005	3.578	117.0	14.6	18.4

1986 05 20	10 56.95	-01 19.9					
1986 05 30	10 59.77	-01 08.4	3.410	3.702	98.7	15.7	18.8
1986 06 09	11 03.91	-01 08.0					
1986 06 19	11 09.15	-01 17.4	3.829	3.821	81.9	15.3	19.2
1986 06 29	11 15.29	-01 35.3					
1986 07 09	11 22.18	-02 00.6	4.234	3.935	66.2	13.7	19.6
1986 07 19	11 29.66	-02 32.3					
1986 07 29	11 37.62	-03 09.2	4.603	4.045	51.2	11.3	19.9
1986 08 08	11 45.95	-03 50.6					
1986 08 18	11 54.57	-04 35.6	4.919	4.151	36.6	8.4	20.1

(3199) Nefertiti a,e,i = 1.57, 0.28, 33 Elements MPC 9427

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	21 52.87	-49 10.7	1.608	1.731	79.3	34.8	18.8
1986 04 30	22 21.93	-47 52.6					
1986 05 10	22 49.00	-46 24.4	1.397	1.662	85.7	37.3	18.5
1986 05 20	23 13.96	-44 48.1					
1986 05 30	23 36.78	-43 05.1	1.182	1.587	92.3	39.7	18.1
1986 06 09	23 57.36	-41 16.1					
1986 06 19	00 15.51	-39 20.2	0.962	1.508	99.4	41.7	17.6
1986 06 29	00 31.01	-37 13.9					
1986 07 09	00 43.40	-34 51.1	0.739	1.427	107.7	42.7	16.9
1986 07 19	00 51.91	-31 58.9					
1986 07 29	00 55.38	-28 12.8	0.520	1.347	119.2	41.1	16.0
1986 08 03	00 54.62	-25 46.4					
1986 08 08	00 51.71	-22 46.1	0.416	1.309	127.3	38.0	15.3
1986 08 13	00 46.17	-18 58.3					
1986 08 18	00 37.40	-14 05.1	0.323	1.272	138.5	31.8	14.6
1986 08 23	00 24.64	-07 44.7					
1986 08 28	00 06.97	+00 22.0	0.252	1.238	152.2	22.4	13.7
1986 09 02	23 43.54	+10 14.1					
1986 09 07	23 13.90	+21 05.6	0.221	1.207	152.2	22.9	13.4
1986 09 12	22 38.74	+31 26.1					
1986 09 17	22 00.24	+39 51.5	0.241	1.181	132.2	39.1	14.0
1986 09 22	21 21.72	+45 52.0					
1986 09 27	20 46.47	+49 46.3	0.296	1.159	114.9	51.7	14.7
1986 10 02	20 16.52	+52 11.0					
1986 10 07	19 52.44	+53 39.7	0.365	1.142	103.7	58.2	15.3
1986 10 12	19 33.77	+54 36.4					
1986 10 17	19 19.62	+55 16.1	0.434	1.132	96.6	61.0	15.7
1986 10 27	19 01.65	+56 16.4					
1986 11 06	18 53.64	+57 18.1	0.552	1.131	89.5	61.3	16.3
1986 11 16	18 52.73	+58 38.5					
1986 11 26	18 57.63	+60 26.5	0.626	1.155	88.5	58.7	16.5
1986 12 06	19 08.54	+62 50.2					
1986 12 16	19 26.82	+65 57.4	0.657	1.201	91.9	55.0	16.6
1986 12 26	19 56.69	+69 50.6					
1987 01 05	20 49.5	+74 19.9	0.660	1.265	98.7	50.2	16.6
1987 01 15	22 34.5	+78 24.9					
1987 01 25	01 31.0	+78 56.3	0.672	1.339	106.3	44.9	16.6
1987 02 04	03 50.7	+74 01.6					
1987 02 14	05 03.94	+66 31.7	0.735	1.419	110.0	40.8	16.8
1987 02 24	05 47.47	+58 32.8					
1987 03 06	06 18.52	+50 58.8	0.875	1.500	106.7	39.3	17.3
1987 03 16	06 43.61	+44 11.6					
1987 03 26	07 05.48	+38 15.3	1.083	1.579	98.7	38.6	17.8
1987 04 05	07 25.52	+33 05.5					

1987 04 15	07 44.41	+28 34.7	1.334	1.654	88.9	37.3	18.4
1987 04 25	08 02.52	+24 34.7					
1987 05 05	08 20.13	+20 58.5	1.605	1.724	79.0	35.0	18.8

Periodic Comet Encke — Elements MPC 10520

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1986 07 09	00 19.42	+06 19.0	3.391	3.690	99.0	15.8	20.5
1986 07 19	00 19.18	+06 38.1					
1986 07 29	00 17.06	+06 47.0	3.019	3.614	118.4	14.3	20.1
1986 08 08	00 12.89	+06 43.8					
1986 08 18	00 06.55	+06 27.2	2.695	3.530	139.9	10.6	19.7
1986 08 28	23 58.12	+05 56.3					
1986 09 07	23 47.85	+05 11.2	2.461	3.439	163.2	4.9	19.3
1986 09 17	23 36.30	+04 14.0					
1986 09 27	23 24.23	+03 08.5	2.352	3.339	168.1	3.6	19.1
1986 10 07	23 12.53	+01 59.9					
1986 10 17	23 02.07	+00 54.0	2.373	3.230	143.7	10.5	19.2
1986 10 27	22 53.52	-00 04.0					
1986 11 06	22 47.30	-00 50.6	2.497	3.113	119.9	16.0	19.4
1986 11 16	22 43.59	-01 23.5					
1986 11 26	22 42.33	-01 42.1	2.676	2.985	98.5	19.1	19.6
1986 12 06	22 43.39	-01 46.4					
1986 12 16	22 46.55	-01 37.1	2.861	2.847	79.3	19.9	19.7
1986 12 26	22 51.57	-01 15.0					
1987 01 05	22 58.23	-00 41.0	3.015	2.698	62.1	18.8	19.6
1987 01 15	23 06.35	+00 04.0					
1987 01 25	23 15.75	+00 59.2	3.111	2.536	46.5	16.4	19.5
1987 02 04	23 26.33	+02 04.1					
1987 02 14	23 37.98	+03 17.9	3.133	2.359	32.4	13.0	19.2

(3362) Khufu — a,e,i = 0.99, 0.47, 10 — Elements MPC 10379

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 07 09	04 04.26	+33 15.0	0.335	0.800	42.0	121.8	20.0
1986 07 14	03 46.30	+30 43.8					
1986 07 19	03 32.08	+28 04.1	0.327	0.890	58.4	103.3	18.9
1986 07 24	03 20.61	+25 21.1					
1986 07 29	03 10.88	+22 35.8	0.319	0.975	73.7	88.0	18.3
1986 08 03	03 01.93	+19 45.9					
1986 08 08	02 52.96	+16 47.8	0.308	1.054	88.9	74.1	17.9
1986 08 13	02 43.29	+13 37.7					
1986 08 18	02 32.39	+10 12.2	0.294	1.126	105.2	60.2	17.5
1986 08 23	02 19.83	+06 29.7					
1986 08 28	02 05.33	+02 30.6	0.284	1.190	123.3	45.2	17.2
1986 09 02	01 48.79	-01 40.3					
1986 09 07	01 30.46	-05 53.5	0.286	1.247	142.5	29.5	16.9
1986 09 12	01 10.94	-09 55.5					
1986 09 17	00 51.09	-13 32.7	0.309	1.297	158.4	16.6	16.8
1986 09 22	00 31.88	-16 34.9					
1986 09 27	00 14.17	-18 57.7	0.354	1.340	159.8	15.0	17.1
1986 10 02	23 58.59	-20 41.6					
1986 10 07	23 45.54	-21 50.6	0.419	1.376	149.1	21.9	17.7
1986 10 12	23 35.12	-22 30.5					
1986 10 17	23 27.22	-22 47.2	0.499	1.405	137.3	28.8	18.3
1986 10 22	23 21.61	-22 45.9					
1986 10 27	23 18.03	-22 30.8	0.589	1.427	126.7	33.9	18.9
1986 11 01	23 16.21	-22 05.0					
1986 11 06	23 15.94	-21 30.6	0.686	1.442	117.4	37.6	19.3
1986 11 11	23 16.99	-20 49.6					
1986 11 16	23 19.16	-20 03.3	0.786	1.451	109.2	40.1	19.7

1986 11 21	23 22.28	-19 12.8					
1986 11 26	23 26.23	-18 18.7	0.886	1.453	101.7	41.7	20.0
1986 12 01	23 30.89	-17 21.5					
1986 12 06	23 36.18	-16 21.7	0.983	1.449	94.8	42.7	20.2
1986 12 11	23 42.02	-15 19.5					
1986 12 16	23 48.34	-14 15.3	1.077	1.438	88.4	43.2	20.4

Periodic Comet Comas Sola Elements MPC 10521

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1986 07 29	00 59.73	-08 40.3	3.086	3.620	114.0	14.8	20.5
1986 08 08	01 00.96	-09 03.5					
1986 08 18	01 00.40	-09 36.5	2.749	3.511	132.4	12.3	20.2
1986 08 28	00 57.95	-10 17.8					
1986 09 07	00 53.59	-11 04.9	2.481	3.401	151.4	8.1	19.8
1986 09 17	00 47.47	-11 53.6					
1986 09 27	00 39.98	-12 38.9	2.312	3.289	164.4	4.7	19.5
1986 10 07	00 31.70	-13 15.2					
1986 10 17	00 23.39	-13 37.7	2.256	3.175	152.9	8.2	19.3
1986 10 27	00 15.84	-13 42.9					
1986 11 06	00 09.73	-13 29.4	2.302	3.061	132.5	13.8	19.2
1986 11 16	00 05.59	-12 57.3					
1986 11 26	00 03.69	-12 08.2	2.422	2.946	112.5	18.0	19.1
1986 12 06	00 04.11	-11 04.0					
1986 12 16	00 06.81	-09 46.8	2.580	2.830	94.4	20.3	19.1
1986 12 26	00 11.62	-08 18.7					
1987 01 05	00 18.36	-06 41.1	2.742	2.715	78.1	20.8	19.0
1987 01 15	00 26.85	-04 55.4					
1987 01 25	00 36.89	-03 03.1	2.886	2.600	63.5	19.8	19.0
1987 02 04	00 48.35	-01 04.8					
1987 02 14	01 01.09	+00 58.1	2.998	2.488	50.4	17.8	18.8
1987 02 24	01 15.03	+03 04.9					
1987 03 06	01 30.09	+05 14.6	3.072	2.378	38.6	15.1	18.7

1979 YM8 a,e,i = 2.85, 0.18, 13 Elements MPC 10631

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	11 54.79	-19 06.6	2.450	3.367	151.5	8.2	17.1
1986 04 30	11 49.56	-18 02.3					
1986 05 10	11 46.26	-17 01.3	2.594	3.363	132.8	12.7	17.4
1986 05 20	11 45.05	-16 08.1					
1986 05 30	11 45.85	-15 25.6	2.810	3.356	114.3	16.0	17.6
1986 06 09	11 48.56	-14 55.2					
1986 06 19	11 52.98	-14 37.6	3.066	3.348	97.2	17.5	17.9

1974 SB3 a,e,i = 2.23, 0.17, 5 Elements MPC 10634

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	11 59.20	-06 23.4	1.652	2.586	152.6	10.3	17.7
1986 04 30	11 53.68	-05 22.2					
1986 05 10	11 50.74	-04 35.4	1.817	2.594	131.0	17.1	18.2
1986 05 20	11 50.44	-04 05.6					
1986 05 30	11 52.62	-03 52.8	2.043	2.598	112.0	21.2	18.5
1986 06 09	11 57.01	-03 56.1					
1986 06 19	12 03.34	-04 14.0	2.298	2.600	95.5	22.9	18.8

1986 FA a,e,i = 2.24, 0.09, 5 Elements MPC 10633

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	12 29.64	+01 53.9	1.077	2.038	156.5	11.3	16.3
1986 04 30	12 22.88	+01 51.0					
1986 05 10	12 19.19	+01 28.0	1.191	2.036	135.2	20.5	16.8
1986 05 20	12 18.82	+00 45.8					

1986 05 30	12 21.62	-00 13.1	1.362	2.036	117.2	26.3	17.3
1986 06 09	12 27.25	-01 26.1					
1986 06 19	12 35.35	-02 50.7	1.564	2.039	102.3	29.1	17.6

1968 FJ a,e,i = 2.35, 0.13, 3 Elements MPC 10612

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	12 40.84	+00 18.5	1.068	2.040	159.7	9.8	15.3
1986 04 30	12 35.07	+01 01.6					
1986 05 10	12 32.05	+01 21.1	1.170	2.036	138.1	19.3	15.7
1986 05 20	12 32.12	+01 16.3					
1986 05 30	12 35.22	+00 49.1	1.332	2.036	119.9	25.6	16.2
1986 06 09	12 41.07	+00 02.6					
1986 06 19	12 49.36	-00 59.9	1.529	2.040	104.8	28.8	16.6

1980 DE1 a,e,i = 3.22, 0.11, 10 Elements MPC 10613

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	12 41.40	+00 04.4	2.048	3.011	159.9	6.6	16.4
1986 04 30	12 34.98	+00 09.3					
1986 05 10	12 30.31	+00 02.8	2.200	3.030	138.3	12.8	16.8
1986 05 20	12 27.69	-00 15.6					
1986 05 30	12 27.17	-00 45.4	2.429	3.049	118.7	17.0	17.1
1986 06 09	12 28.68	-01 25.7					
1986 06 19	12 32.06	-02 15.3	2.702	3.068	101.3	19.0	17.4

1981 EZ10 a,e,i = 2.78, 0.04, 3 Elements MPC 10615

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	14 05.40	-16 57.9	1.760	2.760	172.9	2.6	17.7
1986 04 30	13 57.03	-16 06.6					
1986 05 10	13 49.23	-15 13.0	1.775	2.752	161.8	6.6	17.9
1986 05 20	13 42.89	-14 23.2					
1986 05 30	13 38.60	-13 42.4	1.890	2.745	139.9	13.8	18.3
1986 06 09	13 36.66	-13 13.6					
1986 06 19	13 37.14	-12 58.7	2.081	2.737	120.3	18.7	18.6
1986 06 29	13 39.94	-12 57.6					
1986 07 09	13 44.86	-13 09.3	2.315	2.730	103.0	21.3	18.9

1979 YN8 a,e,i = 2.76, 0.17, 8 Elements MPC 10632

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	14 25.38	-23 37.3	2.230	3.210	164.7	4.7	16.1
1986 04 30	14 16.88	-22 49.2					
1986 05 10	14 08.53	-21 52.7	2.214	3.203	166.1	4.3	16.1
1986 05 20	14 01.14	-20 52.8					
1986 05 30	13 55.36	-19 55.1	2.308	3.194	145.3	10.4	16.4
1986 06 09	13 51.56	-19 04.0					
1986 06 19	13 49.93	-18 23.0	2.491	3.183	124.9	15.2	16.7
1986 06 29	13 50.46	-17 53.7					
1986 07 09	13 53.03	-17 36.4	2.729	3.170	106.4	17.9	17.0

1981 EA22 a,e,i = 2.73, 0.02, 13 Elements MPC 10618

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	15 15.92	-02 17.5	1.770	2.721	156.5	8.5	17.9
1986 04 30	15 08.86	-01 01.0					
1986 05 10	15 01.00	+00 04.5	1.736	2.717	162.6	6.4	17.8
1986 05 20	14 53.27	+00 53.1					
1986 05 30	14 46.56	+01 21.5	1.806	2.712	146.9	11.8	18.1
1986 06 09	14 41.53	+01 28.8					
1986 06 19	14 38.61	+01 15.9	1.960	2.707	128.1	17.2	18.4
1986 06 29	14 37.98	+00 45.7					
1986 07 09	14 39.62	+00 01.3	2.170	2.703	110.7	20.6	18.7

1986 07 19	14 43.42	-00 54.4					
1986 07 29	14 49.18	-01 58.1	2.410	2.699	95.2	22.0	19.0
1986 08 08	14 56.70	-03 07.5					
1986 08 18	15 05.79	-04 20.2	2.657	2.695	81.2	21.8	19.2

1981 EN26 a,e,i = 2.78, 0.16, 8 Elements MPC 10619

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	15 53.80	-11 28.1	1.518	2.436	149.3	12.2	17.0
1986 04 30	15 47.93	-10 22.8					
1986 05 10	15 40.41	-09 19.7	1.463	2.460	168.1	4.8	16.6
1986 05 20	15 32.27	-08 24.6					
1986 05 30	15 24.61	-07 42.7	1.509	2.486	160.0	8.0	16.9
1986 06 09	15 18.37	-07 17.2					
1986 06 19	15 14.22	-07 09.3	1.649	2.513	140.0	15.1	17.3
1986 06 29	15 12.50	-07 18.1					
1986 07 09	15 13.26	-07 41.5	1.859	2.542	121.5	19.9	17.7
1986 07 19	15 16.41	-08 16.7					
1986 07 29	15 21.75	-09 00.8	2.114	2.573	105.1	22.4	18.1
1986 08 08	15 29.03	-09 51.1					
1986 08 18	15 38.02	-10 45.1	2.390	2.604	90.5	22.9	18.4

1979 KH a,e,i = 2.35, 0.11, 7 Elements MPC 10631

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	16 06.35	-13 09.1	1.270	2.178	146.2	14.9	16.4
1986 04 30	16 01.34	-12 01.8					
1986 05 10	15 53.83	-10 52.2	1.164	2.158	166.4	6.3	15.9
1986 05 20	15 44.90	-09 47.2					
1986 05 30	15 35.91	-08 54.0	1.150	2.140	162.8	8.1	16.0
1986 06 09	15 28.17	-08 18.3					
1986 06 19	15 22.77	-08 03.2	1.227	2.124	142.3	17.0	16.4
1986 06 29	15 20.30	-08 08.9					
1986 07 09	15 20.96	-08 33.2	1.370	2.110	123.6	23.7	16.8
1986 07 19	15 24.70	-09 12.9					
1986 07 29	15 31.24	-10 04.1	1.554	2.099	107.7	27.4	17.1
1986 08 08	15 40.31	-11 03.1					
1986 08 18	15 51.62	-12 06.6	1.759	2.090	94.1	28.9	17.4
1986 08 28	16 04.86	-13 11.5					
1986 09 07	16 19.82	-14 15.1	1.970	2.085	82.1	28.6	17.7

1981 EX10 a,e,i = 2.74, 0.20, 7 Elements MPC 10615

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	17 36.44	-16 40.8	1.461	2.193	124.5	22.2	19.0
1986 04 30	17 38.51	-15 45.9					
1986 05 10	17 37.35	-14 48.9	1.306	2.199	143.2	16.0	18.6
1986 05 20	17 33.16	-13 53.1					
1986 05 30	17 26.57	-13 02.3	1.222	2.210	162.8	7.8	18.1
1986 06 09	17 18.53	-12 20.6					
1986 06 19	17 10.31	-11 51.4	1.228	2.226	165.6	6.5	18.1
1986 06 29	17 03.15	-11 36.9					
1986 07 09	16 58.03	-11 37.4	1.325	2.246	146.9	14.3	18.6
1986 07 19	16 55.59	-11 51.6					
1986 07 29	16 56.04	-12 16.7	1.497	2.271	128.3	20.5	19.1
1986 08 08	16 59.34	-12 49.7					
1986 08 18	17 05.28	-13 27.4	1.720	2.299	111.9	24.1	19.5
1986 08 28	17 13.56	-14 06.8					
1986 09 07	17 23.88	-14 45.3	1.973	2.330	97.5	25.4	19.8
1986 09 17	17 35.96	-15 20.6					
1986 09 27	17 49.50	-15 50.9	2.240	2.363	84.4	25.0	20.1

1979 QL8 a,e,i = 2.37, 0.18, 2 Elements MPC 10631

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	18 52.80	-22 23.1	1.538	2.067	106.9	27.7	18.1
1986	04 30	19 03.04	-21 56.0					
1986	05 10	19 10.61	-21 29.1	1.311	2.037	122.2	24.8	17.6
1986	05 20	19 15.10	-21 04.7					
1986	05 30	19 16.20	-20 44.4	1.124	2.009	140.0	18.9	17.1
1986	06 09	19 13.75	-20 29.5					
1986	06 19	19 08.00	-20 20.0	0.998	1.986	160.9	9.6	16.5
1986	06 29	18 59.77	-20 15.0					
1986	07 09	18 50.33	-20 13.1	0.953	1.968	175.0	2.6	16.1
1986	07 19	18 41.37	-20 13.0					
1986	07 29	18 34.47	-20 14.0	0.996	1.955	152.9	13.7	16.6
1986	08 08	18 30.71	-20 15.8					
1986	08 18	18 30.66	-20 18.0	1.111	1.947	132.9	22.4	17.1
1986	08 28	18 34.34	-20 19.5					
1986	09 07	18 41.47	-20 18.7	1.277	1.944	116.1	27.7	17.6
1986	09 17	18 51.66	-20 13.7					
1986	09 27	19 04.40	-20 02.7	1.474	1.947	102.0	30.2	17.9

1979 OB9 a,e,i = 2.32, 0.18, 5 Elements MPC 10633

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 15.12	-17 32.8	2.077	2.476	101.1	23.5	18.7
1986	04 30	19 22.09	-16 51.0					
1986	05 10	19 26.72	-16 10.5	1.803	2.440	117.5	21.5	18.3
1986	05 20	19 28.70	-15 33.2					
1986	05 30	19 27.82	-15 01.1	1.567	2.402	136.1	17.0	17.9
1986	06 09	19 23.95	-14 36.0					
1986	06 19	19 17.26	-14 19.5	1.395	2.363	156.8	9.8	17.3
1986	06 29	19 08.31	-14 12.1					
1986	07 09	18 58.03	-14 13.8	1.313	2.323	171.3	3.8	16.9
1986	07 19	18 47.71	-14 23.8					
1986	07 29	18 38.68	-14 40.6	1.330	2.282	153.1	11.6	17.2
1986	08 08	18 32.01	-15 02.3					
1986	08 18	18 28.44	-15 27.1	1.432	2.241	132.2	19.6	17.6
1986	08 28	18 28.23	-15 52.9					
1986	09 07	18 31.33	-16 17.7	1.591	2.200	113.8	24.8	17.9
1986	09 17	18 37.56	-16 39.4					
1986	09 27	18 46.56	-16 56.1	1.778	2.160	98.1	27.4	18.2

1982 RR a,e,i = 2.59, 0.30, 14 Elements MPC 7446

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 10	20 23.82	-01 55.0	1.813	2.227	-1.53	-1.2	18.2
1986	05 20	20 33.18	-00 27.8					
1986	05 30	20 40.70	+00 55.1	1.546	2.161	-1.85	-1.6	17.7
1986	06 09	20 46.09	+02 09.4					
1986	06 19	20 49.06	+03 09.6	1.311	2.097	-2.26	-2.4	17.2
1986	06 29	20 49.42	+03 49.4					
1986	07 09	20 47.10	+04 01.7	1.123	2.037	-2.72	-3.7	16.7
1986	07 19	20 42.34	+03 39.5					
1986	07 29	20 35.83	+02 39.3	1.002	1.981	-3.06	-5.2	16.2
1986	08 08	20 28.62	+01 01.3					
1986	08 18	20 22.12	-01 07.1	0.963	1.931	-3.08	-5.4	16.1
1986	08 28	20 17.65	-03 33.7					
1986	09 07	20 16.22	-06 04.6	1.005	1.888	-2.81	-3.8	16.4
1986	09 17	20 18.44	-08 26.9					
1986	09 27	20 24.37	-10 31.5	1.112	1.853	-2.49	-1.8	16.7
1986	10 07	20 33.80	-12 13.0					
1986	10 17	20 46.36	-13 28.5	1.261	1.827	-2.21	-0.6	17.1

1981 QG a,e,i = 3.06, 0.19, 1 Elements MPC 7766

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 10	20 47.50	-19 10.8	2.245	2.609	-1.05	-4.8	17.8
1986	05 20	20 55.38	-18 42.0					
1986	05 30	21 01.24	-18 20.4	1.981	2.583	-1.19	-5.8	17.4
1986	06 09	21 04.81	-18 07.7					
1986	06 19	21 05.89	-18 05.1	1.753	2.559	-1.38	-6.8	17.0
1986	06 29	21 04.38	-18 12.8					
1986	07 09	21 00.33	-18 30.1	1.586	2.538	-1.56	-7.5	16.6
1986	07 19	20 54.12	-18 54.3					
1986	07 29	20 46.45	-19 21.8	1.506	2.520	-1.67	-7.5	16.1
1986	08 08	20 38.28	-19 48.3					
1986	08 18	20 30.72	-20 09.7	1.528	2.506	-1.64	-6.7	16.4
1986	08 28	20 24.80	-20 23.4					
1986	09 07	20 21.23	-20 28.0	1.643	2.495	-1.50	-5.8	16.8
1986	09 17	20 20.41	-20 23.3					
1986	09 27	20 22.42	-20 09.5	1.829	2.487	-1.31	-5.1	17.2
1986	10 07	20 27.09	-19 46.9					
1986	10 17	20 34.18	-19 15.7	2.057	2.483	-1.14	-4.8	17.5

1981 ES14 a,e,i = 2.59, 0.13, 4 Elements MPC 10616

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	21 06.71	-17 35.7	1.970	2.285	94.6	26.1	19.3
1986	05 20	21 16.27	-16 40.3					
1986	05 30	21 23.58	-15 51.7	1.754	2.300	109.5	24.5	19.0
1986	06 09	21 28.35	-15 12.0					
1986	06 19	21 30.33	-14 43.2	1.562	2.318	126.7	20.6	18.7
1986	06 29	21 29.36	-14 26.3					
1986	07 09	21 25.44	-14 21.8	1.419	2.338	146.8	13.8	18.3
1986	07 19	21 18.87	-14 28.2					
1986	07 29	21 10.37	-14 42.7	1.354	2.359	169.4	4.5	17.9
1986	08 08	21 00.95	-15 01.4					
1986	08 18	20 51.87	-15 19.9	1.386	2.382	166.7	5.6	18.0
1986	08 28	20 44.30	-15 34.6					
1986	09 07	20 39.08	-15 43.0	1.515	2.407	144.4	14.1	18.5
1986	09 17	20 36.71	-15 43.8					
1986	09 27	20 37.24	-15 36.4	1.720	2.433	124.5	19.8	19.0
1986	10 07	20 40.54	-15 20.8					
1986	10 17	20 46.31	-14 56.6	1.974	2.460	107.1	22.8	19.4

1981 SN1 a,e,i = 3.05, 0.32, 2 Elements MPC 9950

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 10	20 57.90	-15 36.2	2.337	2.642	-1.05	-3.9	18.4
1986	05 20	21 06.56	-14 59.5					
1986	05 30	21 13.55	-14 29.3	2.028	2.577	-1.23	-5.0	18.0
1986	06 09	21 18.61	-14 07.7					
1986	06 19	21 21.46	-13 57.0	1.750	2.512	-1.46	-6.2	17.5
1986	06 29	21 21.91	-13 58.9					
1986	07 09	21 19.81	-14 14.3	1.527	2.450	-1.71	-7.2	17.0
1986	07 19	21 15.26	-14 42.9					
1986	07 29	21 08.68	-15 22.1	1.383	2.389	-1.91	-7.7	16.4
1986	08 08	21 00.82	-16 07.9					
1986	08 18	20 52.77	-16 54.5	1.336	2.332	-1.95	-7.1	16.4
1986	08 28	20 45.74	-17 36.4					
1986	09 07	20 40.77	-18 09.3	1.383	2.279	-1.83	-6.1	16.7
1986	09 17	20 38.61	-18 30.6					
1986	09 27	20 39.60	-18 38.9	1.505	2.230	-1.63	-5.2	17.1
1986	10 07	20 43.75	-18 33.9					
1986	10 17	20 50.85	-18 15.6	1.672	2.186	-1.44	-4.9	17.4

1981 SQ1 a,e,i = 3.09, 0.20, 3 Elements MPC 10026

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 30	21 30.25	-11 55.6	2.162	2.639	106.7	21.6	17.1
1986 06 09	21 35.62	-11 24.5					
1986 06 19	21 38.86	-11 04.2	1.906	2.609	123.6	18.9	16.7
1986 06 29	21 39.82	-10 56.4					
1986 07 09	21 38.36	-11 02.3	1.698	2.581	142.7	13.8	16.3
1986 07 19	21 34.58	-11 22.1					
1986 07 29	21 28.82	-11 54.3	1.565	2.556	164.1	6.2	15.8
1986 08 08	21 21.71	-12 35.6					
1986 08 18	21 14.16	-13 21.2	1.528	2.534	172.2	3.1	15.6
1986 08 28	21 07.20	-14 05.8					
1986 09 07	21 01.76	-14 44.7	1.592	2.515	149.9	11.6	16.0
1986 09 17	20 58.57	-15 14.4					
1986 09 27	20 58.00	-15 32.9	1.741	2.500	129.4	18.1	16.4
1986 10 07	21 00.13	-15 39.4					
1986 10 17	21 04.87	-15 33.5	1.947	2.488	111.3	21.9	16.8
1986 10 27	21 11.94	-15 15.6					
1986 11 06	21 21.05	-14 46.1	2.184	2.480	95.3	23.5	17.0

1982 UT6 a,e,i = 2.84, 0.09, 2 Elements MPC 9032

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 30	21 39.71	-15 47.3	2.201	2.662	105.8	21.5	17.9
1986 06 09	21 44.74	-15 25.3					
1986 06 19	21 47.54	-15 14.0	1.956	2.650	123.0	18.8	17.6
1986 06 29	21 47.92	-15 14.4					
1986 07 09	21 45.78	-15 26.8	1.758	2.638	142.5	13.6	17.2
1986 07 19	21 41.21	-15 50.0					
1986 07 29	21 34.57	-16 21.1	1.635	2.627	164.3	6.0	16.7
1986 08 08	21 26.51	-16 55.9					
1986 08 18	21 17.98	-17 29.6	1.612	2.618	172.1	3.1	16.5
1986 08 28	21 10.04	-17 57.4					
1986 09 07	21 03.63	-18 16.3	1.692	2.610	149.4	11.3	17.0
1986 09 17	20 59.48	-18 24.3					
1986 09 27	20 57.95	-18 21.3	1.857	2.604	128.6	17.5	17.4
1986 10 07	20 59.11	-18 07.4					
1986 10 17	21 02.85	-17 43.2	2.080	2.598	110.2	21.1	17.7
1986 10 27	21 08.89	-17 09.2					
1986 11 06	21 16.95	-16 26.1	2.333	2.595	93.8	22.4	18.0

1982 UH7 a,e,i = 2.88, 0.08, 2 Elements MPC 10038

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 30	21 40.12	-12 08.1	2.338	2.771	104.5	20.7	17.0
1986 06 09	21 44.81	-11 43.4					
1986 06 19	21 47.40	-11 29.8	2.082	2.756	121.7	18.3	16.6
1986 06 29	21 47.75	-11 28.6					
1986 07 09	21 45.75	-11 40.7	1.873	2.741	141.2	13.4	16.2
1986 07 19	21 41.48	-12 05.8					
1986 07 29	21 35.29	-12 41.8	1.740	2.727	163.0	6.2	15.8
1986 08 08	21 27.73	-13 25.6					
1986 08 18	21 19.68	-14 12.2	1.705	2.714	173.5	2.4	15.6
1986 08 28	21 12.09	-14 56.6					
1986 09 07	21 05.85	-15 34.7	1.777	2.701	150.7	10.5	16.0
1986 09 17	21 01.68	-16 03.3					
1986 09 27	20 59.95	-16 21.0	1.937	2.689	129.6	16.7	16.4
1986 10 07	21 00.80	-16 27.2					
1986 10 17	21 04.15	-16 21.8	2.157	2.679	110.9	20.3	16.7
1986 10 27	21 09.78	-16 05.4					
1986 11 06	21 17.43	-15 38.4	2.407	2.669	94.2	21.7	17.0

1978 UF a,e,i = 2.61, 0.17, 12 Elements MPC 8907

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	21 27.26	+01 21.0	1.708	2.169	102.7	27.1	17.4
1986	06 09	21 34.84	+02 49.6					
1986	06 19	21 40.12	+04 06.1	1.504	2.162	116.8	24.8	17.1
1986	06 29	21 42.88	+05 06.0					
1986	07 09	21 42.94	+05 44.0	1.334	2.160	133.0	20.1	16.7
1986	07 19	21 40.33	+05 54.8					
1986	07 29	21 35.41	+05 34.7	1.219	2.162	150.6	13.3	16.3
1986	08 08	21 28.84	+04 42.5					
1986	08 18	21 21.66	+03 21.4	1.183	2.168	162.1	8.2	16.0
1986	08 28	21 15.08	+01 39.3					
1986	09 07	21 10.17	-00 13.0	1.237	2.179	152.0	12.5	16.3
1986	09 17	21 07.76	-02 04.3					
1986	09 27	21 08.23	-03 45.6	1.375	2.194	134.0	19.2	16.8
1986	10 07	21 11.62	-05 10.8					
1986	10 17	21 17.76	-06 16.6	1.577	2.212	116.7	23.7	17.2
1986	10 27	21 26.29	-07 02.1					
1986	11 06	21 36.86	-07 27.8	1.818	2.234	101.2	25.8	17.6

(3420) 1984 EB a,e,i = 3.11, 0.07, 14 Elements MPC 10612

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	21 50.14	-08 07.0	2.958	3.302	100.8	17.5	17.8
1986	06 09	21 53.48	-08 02.7					
1986	06 19	21 55.04	-08 10.3	2.697	3.308	118.8	15.6	17.5
1986	06 29	21 54.73	-08 30.9					
1986	07 09	21 52.52	-09 05.0	2.482	3.314	138.7	11.7	17.2
1986	07 19	21 48.52	-09 52.1					
1986	07 29	21 42.99	-10 50.5	2.344	3.319	160.5	5.8	16.9
1986	08 08	21 36.37	-11 56.9					
1986	08 18	21 29.27	-13 06.8	2.313	3.323	175.8	1.3	16.6
1986	08 28	21 22.40	-14 15.5					
1986	09 07	21 16.41	-15 18.6	2.396	3.327	153.2	7.8	17.0
1986	09 17	21 11.88	-16 12.7					
1986	09 27	21 09.18	-16 55.9	2.579	3.330	131.6	13.0	17.3
1986	10 07	21 08.50	-17 27.3					
1986	10 17	21 09.88	-17 46.9	2.831	3.332	111.8	16.1	17.6
1986	10 27	21 13.20	-17 55.2					
1986	11 06	21 18.30	-17 52.9	3.119	3.333	93.7	17.3	17.9

1985 HD1 a,e,i = 2.73, 0.15, 4 Elements MPC 10150

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 30	21 41.26	-12 23.6	2.061	2.512	-1.15	-4.6	16.5
1986	06 09	21 47.74	-11 58.6					
1986	06 19	21 52.09	-11 45.8	1.807	2.485	-1.34	-5.6	16.2
1986	06 29	21 54.09	-11 47.2					
1986	07 09	21 53.55	-12 04.2	1.595	2.459	-1.55	-6.6	15.7
1986	07 19	21 50.44	-12 37.0					
1986	07 29	21 45.00	-13 23.6	1.452	2.435	-1.75	-7.3	15.2
1986	08 08	21 37.77	-14 19.9					
1986	08 18	21 29.67	-15 19.8	1.402	2.413	-1.82	-7.1	14.8
1986	08 28	21 21.83	-16 16.4					
1986	09 07	21 15.33	-17 04.1	1.453	2.393	-1.73	-6.1	15.3
1986	09 17	21 11.09	-17 38.6					
1986	09 27	21 09.60	-17 58.2	1.590	2.375	-1.54	-5.1	15.7
1986	10 07	21 11.02	-18 02.8					
1986	10 17	21 15.27	-17 52.6	1.786	2.360	-1.34	-4.5	16.1
1986	10 27	21 22.07	-17 28.7					
1986	11 06	21 31.09	-16 51.9	2.012	2.348	-1.18	-4.3	16.4

1981 EH3 a,e,i = 2.43, 0.12, 7 Elements MPC 10380

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	21 42.88	-08 17.5	1.812	2.261	102.6	26.0	19.1
1986	06 09	21 50.00	-06 53.5					
1986	06 19	21 54.81	-05 36.4	1.575	2.238	117.8	23.7	18.7
1986	06 29	21 57.05	-04 29.0					
1986	07 09	21 56.46	-03 34.4	1.374	2.216	135.4	18.8	18.3
1986	07 19	21 52.98	-02 55.7					
1986	07 29	21 46.84	-02 35.2	1.234	2.197	155.0	11.3	17.8
1986	08 08	21 38.61	-02 34.1					
1986	08 18	21 29.37	-02 50.8	1.178	2.179	168.6	5.3	17.4
1986	08 28	21 20.42	-03 21.1					
1986	09 07	21 13.02	-03 59.1	1.216	2.165	153.4	12.0	17.7
1986	09 17	21 08.23	-04 37.9					
1986	09 27	21 06.56	-05 11.9	1.337	2.152	133.4	19.8	18.2
1986	10 07	21 08.15	-05 37.0					
1986	10 17	21 12.86	-05 50.2	1.515	2.143	115.6	24.8	18.6
1986	10 27	21 20.34	-05 50.3					
1986	11 06	21 30.20	-05 36.7	1.726	2.137	100.2	27.2	18.9

(3374) 1980 KO a,e,i = 2.95, 0.01, 3 Elements MPC 10394

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	21 52.95	-15 43.0	2.551	2.946	102.8	19.6	18.1
1986	06 09	21 57.41	-15 33.8					
1986	06 19	21 59.83	-15 35.8	2.303	2.948	120.3	17.3	17.9
1986	06 29	22 00.07	-15 49.7					
1986	07 09	21 58.06	-16 15.1	2.100	2.951	139.9	12.8	17.5
1986	07 19	21 53.85	-16 50.7					
1986	07 29	21 47.74	-17 33.3	1.973	2.953	161.4	6.3	17.2
1986	08 08	21 40.25	-18 18.7					
1986	08 18	21 32.15	-19 02.1	1.948	2.956	173.5	2.2	16.9
1986	08 28	21 24.32	-19 38.9					
1986	09 07	21 17.59	-20 05.9	2.032	2.958	151.8	9.3	17.3
1986	09 17	21 12.65	-20 21.1					
1986	09 27	21 09.90	-20 24.4	2.209	2.961	130.6	14.9	17.7
1986	10 07	21 09.51	-20 16.3					
1986	10 17	21 11.47	-19 57.6	2.450	2.963	111.4	18.2	18.0
1986	10 27	21 15.58	-19 29.3					
1986	11 06	21 21.63	-18 52.2	2.724	2.965	94.1	19.5	18.3

1979 GE a,e,i = 3.14, 0.11, 1 Elements MPC 10630

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	21 56.92	-14 05.9	2.807	3.166	101.3	18.3	18.6
1986	06 09	22 00.57	-13 52.7					
1986	06 19	22 02.30	-13 49.9	2.566	3.187	119.1	16.2	18.3
1986	06 29	22 02.01	-13 57.9					
1986	07 09	21 59.65	-14 16.6	2.370	3.207	138.9	12.0	18.0
1986	07 19	21 55.34	-14 44.9					
1986	07 29	21 49.36	-15 20.2	2.251	3.226	160.7	6.0	17.7
1986	08 08	21 42.19	-15 59.4					
1986	08 18	21 34.52	-16 38.3	2.235	3.246	175.7	1.3	17.5
1986	08 28	21 27.08	-17 13.1					
1986	09 07	21 20.60	-17 40.9	2.332	3.264	153.4	7.9	17.9
1986	09 17	21 15.66	-17 59.6					
1986	09 27	21 12.65	-18 08.5	2.526	3.283	132.0	13.1	18.3
1986	10 07	21 11.71	-18 07.6					
1986	10 17	21 12.87	-17 57.3	2.790	3.300	112.4	16.2	18.6
1986	10 27	21 15.99	-17 38.2					
1986	11 06	21 20.89	-17 11.1	3.089	3.317	94.5	17.3	18.9

1981 RV3 a,e,i = 3.11, 0.17, 2 Elements MPC 10037

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	21 47.69	-13 29.1	2.158	2.586	103.2	22.4	16.2
1986	06 09	21 53.81	-13 05.1					
1986	06 19	21 57.73	-12 53.1	1.937	2.597	119.9	19.8	15.9
1986	06 29	21 59.29	-12 54.3					
1986	07 09	21 58.38	-13 09.3	1.757	2.610	138.9	14.8	15.5
1986	07 19	21 55.05	-13 37.4					
1986	07 29	21 49.63	-14 16.1	1.648	2.626	160.3	7.5	15.2
1986	08 08	21 42.67	-15 01.2					
1986	08 18	21 35.05	-15 47.3	1.634	2.645	176.4	1.4	14.8
1986	08 28	21 27.74	-16 29.1					
1986	09 07	21 21.66	-17 02.4	1.724	2.666	153.9	9.6	15.4
1986	09 17	21 17.53	-17 24.4					
1986	09 27	21 15.75	-17 34.0	1.905	2.689	132.9	15.9	15.8
1986	10 07	21 16.46	-17 31.3					
1986	10 17	21 19.57	-17 16.8	2.150	2.714	114.1	19.6	16.2
1986	10 27	21 24.87	-16 51.5					
1986	11 06	21 32.07	-16 16.1	2.433	2.741	97.3	21.0	16.5

1984 YV a,e,i = 1.92, 0.08, 21 Elements MPC 9690

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 30	22 06.50	-01 36.9	1.708	2.056	-1.04	-12.5	17.4
1986	06 09	22 12.98	+01 12.9					
1986	06 19	22 16.89	+04 03.6	1.497	2.062	-1.28	-13.6	17.0
1986	06 29	22 17.89	+06 52.5					
1986	07 09	22 15.59	+09 35.1	1.315	2.066	-1.62	-15.0	16.7
1986	07 19	22 09.77	+12 04.6					
1986	07 29	22 00.52	+14 12.5	1.185	2.069	-2.00	-17.0	16.3
1986	08 08	21 48.42	+15 49.0					
1986	08 18	21 34.69	+16 46.2	1.131	2.069	-2.25	-19.5	16.1
1986	08 28	21 21.02	+17 02.1					
1986	09 07	21 09.10	+16 40.9	1.163	2.067	-2.17	-20.7	16.2
1986	09 17	21 00.32	+15 52.7					
1986	09 27	20 55.37	+14 50.0	1.272	2.062	-1.85	-19.6	16.5
1986	10 07	20 54.40	+13 43.5					
1986	10 17	20 57.20	+12 42.3	1.433	2.056	-1.50	-17.1	16.9
1986	10 27	21 03.31	+11 51.7					
1986	11 06	21 12.28	+11 15.0	1.622	2.048	-1.25	-14.4	17.2

1981 EB23 a,e,i = 2.44, 0.21, 3 Elements MPC 9752

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	21 36.59	-18 05.8	1.553	2.091	107.2	27.6	17.4
1986	06 09	21 46.44	-17 33.6					
1986	06 19	21 53.96	-17 12.5	1.323	2.052	122.1	24.8	17.0
1986	06 29	21 58.78	-17 04.6					
1986	07 09	22 00.54	-17 11.3	1.133	2.018	139.6	19.1	16.4
1986	07 19	21 59.02	-17 32.4					
1986	07 29	21 54.35	-18 04.8	1.003	1.987	159.9	10.1	15.9
1986	08 08	21 47.05	-18 42.8					
1986	08 18	21 38.30	-19 18.3	0.953	1.962	173.8	3.2	15.4
1986	08 28	21 29.67	-19 43.3					
1986	09 07	21 22.72	-19 52.5	0.991	1.943	153.0	13.6	15.9
1986	09 17	21 18.70	-19 43.5					
1986	09 27	21 18.19	-19 16.9	1.103	1.930	132.8	22.4	16.4
1986	10 07	21 21.29	-18 34.3					
1986	10 17	21 27.74	-17 37.2	1.267	1.923	115.8	27.8	16.8
1986	10 27	21 37.06	-16 27.2					
1986	11 06	21 48.78	-15 05.4	1.462	1.924	101.5	30.3	17.2

1985 CL a,e,i = 1.93, 0.10, 19 Elements MPC 10376

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 30	22 15.80	-34 55.1	1.564	2.056	-1.06	-16.4	18.1
1986	06 09	22 25.82	-35 00.6					
1986	06 19	22 32.69	-35 19.0	1.354	2.037	-1.28	-20.2	17.7
1986	06 29	22 35.84	-35 49.8					
1986	07 09	22 34.61	-36 30.3	1.174	2.016	-1.61	-23.7	17.3
1986	07 19	22 28.49	-37 12.9					
1986	07 29	22 17.45	-37 45.9	1.049	1.993	-1.99	-24.9	16.8
1986	08 08	22 02.25	-37 54.4					
1986	08 18	21 44.82	-37 24.5	1.001	1.970	-2.18	-22.4	16.6
1986	08 28	21 27.80	-36 10.8					
1986	09 07	21 13.65	-34 18.0	1.044	1.945	-1.99	-18.5	16.9
1986	09 17	21 03.96	-31 57.3					
1986	09 27	20 59.19	-29 21.3	1.162	1.920	-1.60	-16.2	17.3
1986	10 07	20 59.06	-26 39.3					
1986	10 17	21 02.96	-23 56.3	1.329	1.895	-1.26	-15.3	17.7
1986	10 27	21 10.15	-21 14.6					
1986	11 06	21 19.99	-18 34.1	1.521	1.870	-1.05	-14.8	18.0

1981 JQ a,e,i = 2.53, 0.16, 6 Elements MPC 10544

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	22 10.23	-18 32.7	2.562	2.912	99.8	20.1	18.2
1986	06 09	22 14.89	-18 29.6					
1986	06 19	22 17.48	-18 38.4	2.312	2.920	117.2	18.0	18.0
1986	06 29	22 17.79	-18 59.3					
1986	07 09	22 15.69	-19 31.9	2.102	2.926	136.6	13.8	17.6
1986	07 19	22 11.15	-20 13.9					
1986	07 29	22 04.42	-21 01.6	1.965	2.929	157.7	7.6	17.3
1986	08 08	21 55.96	-21 50.0					
1986	08 18	21 46.54	-22 33.2	1.927	2.931	170.9	3.1	17.0
1986	08 28	21 37.13	-23 06.3					
1986	09 07	21 28.67	-23 25.9	2.000	2.930	152.3	9.2	17.4
1986	09 17	21 21.99	-23 30.9					
1986	09 27	21 17.61	-23 21.9	2.169	2.927	131.1	14.9	17.7
1986	10 07	21 15.75	-23 00.4					
1986	10 17	21 16.42	-22 28.1	2.403	2.922	111.7	18.5	18.1
1986	10 27	21 19.43	-21 46.6					
1986	11 06	21 24.54	-20 57.1	2.671	2.915	94.1	19.8	18.3

(3263) 1932 CN a,e,i = 2.41, 0.07, 8 Elements MPC 9757

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	22 03.46	-18 54.0	2.141	2.544	101.4	23.0	17.6
1986	06 09	22 10.43	-19 00.2					
1986	06 19	22 15.23	-19 20.9	1.894	2.534	117.9	20.8	17.3
1986	06 29	22 17.61	-19 57.2					
1986	07 09	22 17.30	-20 48.8	1.687	2.524	136.5	16.1	16.9
1986	07 19	22 14.17	-21 53.7					
1986	07 29	22 08.35	-23 07.0	1.547	2.512	156.7	9.2	16.5
1986	08 08	22 00.29	-24 21.5					
1986	08 18	21 50.84	-25 28.4	1.501	2.500	167.9	4.9	16.2
1986	08 28	21 41.20	-26 20.1					
1986	09 07	21 32.57	-26 51.6	1.557	2.487	151.0	11.3	16.6
1986	09 17	21 26.05	-27 01.3					
1986	09 27	21 22.27	-26 50.6	1.701	2.473	130.6	17.9	16.9
1986	10 07	21 21.51	-26 22.4					
1986	10 17	21 23.72	-25 39.3	1.904	2.459	112.1	22.1	17.3
1986	10 27	21 28.62	-24 44.0					
1986	11 06	21 35.89	-23 38.3	2.137	2.444	95.7	23.8	17.6

1981 SW6 a,e,i = 3.15, 0.05, 9 Elements MPC 10027

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 30	22 03.16	-04 59.9	2.847	3.132	96.7	18.8	17.0
1986 06 09	22 07.90	-04 28.9					
1986 06 19	22 10.92	-04 08.3	2.573	3.121	113.6	17.4	16.7
1986 06 29	22 12.10	-03 59.6					
1986 07 09	22 11.32	-04 04.7	2.334	3.111	132.3	14.0	16.4
1986 07 19	22 08.61	-04 24.5					
1986 07 29	22 04.12	-04 58.8	2.162	3.101	153.1	8.5	16.0
1986 08 08	21 58.21	-05 46.3					
1986 08 18	21 51.42	-06 43.8	2.084	3.091	173.2	2.2	15.7
1986 08 28	21 44.46	-07 47.0					
1986 09 07	21 38.08	-08 50.7	2.116	3.082	159.7	6.5	15.9
1986 09 17	21 32.96	-09 50.1					
1986 09 27	21 29.61	-10 41.4	2.253	3.072	138.1	12.6	16.3
1986 10 07	21 28.32	-11 22.0					
1986 10 17	21 29.21	-11 50.5	2.466	3.063	118.0	16.7	16.6
1986 10 27	21 32.21	-12 06.6					
1986 11 06	21 37.16	-12 10.5	2.725	3.054	99.8	18.7	16.8

1984 CO1 a,e,i = 3.00, 0.10, 9 Elements MPC 8795

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 30	22 10.02	-17 37.0	2.592	2.935	99.5	19.9	16.8
1986 06 09	22 15.24	-17 08.8					
1986 06 19	22 18.49	-16 49.7	2.318	2.916	116.4	18.2	16.5
1986 06 29	22 19.58	-16 40.2					
1986 07 09	22 18.35	-16 40.3	2.084	2.896	135.3	14.3	16.1
1986 07 19	22 14.76	-16 49.2					
1986 07 29	22 08.97	-17 04.5	1.918	2.877	156.4	8.1	15.7
1986 08 08	22 01.39	-17 22.9					
1986 08 18	21 52.72	-17 40.4	1.848	2.858	175.5	1.6	15.3
1986 08 28	21 43.86	-17 52.7					
1986 09 07	21 35.75	-17 56.8	1.887	2.840	156.6	8.1	15.6
1986 09 17	21 29.25	-17 50.9					
1986 09 27	21 24.93	-17 34.6	2.024	2.823	134.9	14.6	16.0
1986 10 07	21 23.09	-17 08.3					
1986 10 17	21 23.79	-16 32.6	2.232	2.806	115.3	18.7	16.3
1986 10 27	21 26.86	-15 48.4					
1986 11 06	21 32.10	-14 56.4	2.478	2.790	97.8	20.6	16.6

1976 YU5 a,e,i = 2.33, 0.14, 5 Elements MPC 10032

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 30	21 54.47	-08 15.4	1.604	2.040	99.9	29.3	17.0
1986 06 09	22 04.53	-06 40.2					
1986 06 19	22 12.38	-05 12.0	1.390	2.024	113.7	27.4	16.6
1986 06 29	22 17.68	-03 53.6					
1986 07 09	22 20.11	-02 48.8	1.204	2.013	129.8	22.8	16.2
1986 07 19	22 19.43	-02 01.2					
1986 07 29	22 15.65	-01 34.0	1.067	2.006	148.8	15.2	15.7
1986 08 08	22 09.11	-01 29.3					
1986 08 18	22 00.72	-01 46.5	1.001	2.002	167.8	6.1	15.2
1986 08 28	21 51.79	-02 21.2					
1986 09 07	21 43.79	-03 06.5	1.023	2.003	160.8	9.5	15.4
1986 09 17	21 38.04	-03 53.8					
1986 09 27	21 35.37	-04 35.4	1.130	2.008	140.6	18.5	15.9
1986 10 07	21 36.08	-05 06.2					
1986 10 17	21 40.11	-05 22.7	1.300	2.017	122.3	24.7	16.4
1986 10 27	21 47.09	-05 23.6					
1986 11 06	21 56.61	-05 08.7	1.510	2.029	106.6	27.9	16.8

(3275) 1982 HE1 a,e,i = 2.33, 0.18, 9 Elements MPC 9763

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	22 10.41	-22 29.9	1.625	2.074	101.1	28.7	17.3
1986	06 09	22 20.36	-22 33.2					
1986	06 19	22 27.56	-22 52.4	1.456	2.111	116.1	25.6	17.0
1986	06 29	22 31.68	-23 28.3					
1986	07 09	22 32.38	-24 20.1	1.318	2.150	133.7	20.0	16.6
1986	07 19	22 29.49	-25 23.8					
1986	07 29	22 23.20	-26 32.3	1.237	2.190	152.9	12.2	16.3
1986	08 08	22 14.10	-27 35.7					
1986	08 18	22 03.39	-28 23.8	1.239	2.231	164.5	7.0	16.2
1986	08 28	21 52.60	-28 48.7					
1986	09 07	21 43.22	-28 47.8	1.336	2.272	151.3	12.3	16.6
1986	09 17	21 36.40	-28 22.3					
1986	09 27	21 32.73	-27 36.7	1.517	2.313	132.2	18.7	17.1
1986	10 07	21 32.28	-26 35.6					
1986	10 17	21 34.87	-25 22.8	1.758	2.354	114.5	22.7	17.5
1986	10 27	21 40.06	-24 01.4					
1986	11 06	21 47.46	-22 33.3	2.035	2.393	98.6	24.2	17.9

1981 EB17 a,e,i = 2.49, 0.05, 3 Elements MPC 7768

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	22 15.05	-12 59.4	2.159	2.491	96.8	23.8	19.3
1986	06 09	22 22.02	-12 18.0					
1986	06 19	22 26.86	-11 47.4	1.927	2.502	112.8	22.0	19.0
1986	06 29	22 29.31	-11 29.2					
1986	07 09	22 29.16	-11 24.6	1.724	2.513	131.2	17.7	18.7
1986	07 19	22 26.30	-11 33.9					
1986	07 29	22 20.86	-11 55.7	1.580	2.524	152.4	10.8	18.3
1986	08 08	22 13.23	-12 27.2					
1986	08 18	22 04.17	-13 03.5	1.524	2.535	175.6	1.7	17.8
1986	08 28	21 54.73	-13 39.0					
1986	09 07	21 46.03	-14 08.8	1.573	2.545	160.4	7.6	18.2
1986	09 17	21 39.08	-14 28.7					
1986	09 27	21 34.54	-14 37.0	1.719	2.554	138.1	15.2	18.6
1986	10 07	21 32.73	-14 33.0					
1986	10 17	21 33.67	-14 17.0	1.936	2.563	118.3	20.0	19.1
1986	10 27	21 37.16	-13 49.7					
1986	11 06	21 42.93	-13 12.0	2.195	2.572	100.8	22.2	19.4

(3179) 1962 FA a,e,i = 3.10, 0.16, 2 Elements MPC 9415

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	22 16.85	-09 16.5	3.157	3.400	95.1	17.3	18.5
1986	06 09	22 21.14	-08 50.3					
1986	06 19	22 23.81	-08 33.3	2.857	3.377	112.3	16.2	18.2
1986	06 29	22 24.74	-08 26.5					
1986	07 09	22 23.80	-08 30.9	2.592	3.353	131.4	13.2	17.9
1986	07 19	22 20.97	-08 46.7					
1986	07 29	22 16.37	-09 13.3	2.394	3.327	152.4	8.1	17.5
1986	08 08	22 10.26	-09 49.0					
1986	08 18	22 03.14	-10 30.9	2.292	3.301	174.9	1.5	17.1
1986	08 28	21 55.63	-11 15.2					
1986	09 07	21 48.45	-11 57.8	2.302	3.274	161.6	5.6	17.3
1986	09 17	21 42.31	-12 35.0					
1986	09 27	21 37.74	-13 04.2	2.420	3.246	139.3	11.6	17.6
1986	10 07	21 35.10	-13 23.5					
1986	10 17	21 34.59	-13 32.3	2.617	3.217	118.7	15.8	17.9
1986	10 27	21 36.18	-13 30.4					
1986	11 06	21 39.77	-13 18.1	2.862	3.188	100.0	17.8	18.1

1981 QG1 a,e,i = 2.97, 0.31, 18 Elements MPC 10041

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	22 06.37	+02 06.4	2.689	2.929	93.3	20.2	18.4
1986	06 09	22 12.44	+02 53.7					
1986	06 19	22 16.94	+03 31.3	2.370	2.866	109.0	19.6	18.0
1986	06 29	22 19.68	+03 56.5					
1986	07 09	22 20.46	+04 06.0	2.077	2.802	126.3	17.0	17.6
1986	07 19	22 19.15	+03 56.2					
1986	07 29	22 15.76	+03 24.5	1.839	2.737	145.6	12.1	17.1
1986	08 08	22 10.47	+02 28.9					
1986	08 18	22 03.76	+01 10.1	1.683	2.673	164.8	5.7	16.7
1986	08 28	21 56.35	-00 28.1					
1986	09 07	21 49.13	-02 19.1	1.631	2.608	162.0	6.9	16.6
1986	09 17	21 43.06	-04 14.0					
1986	09 27	21 38.91	-06 04.1	1.683	2.544	141.3	14.3	16.9
1986	10 07	21 37.23	-07 42.4					
1986	10 17	21 38.27	-09 04.1	1.817	2.481	120.9	20.2	17.2
1986	10 27	21 42.02	-10 06.8					
1986	11 06	21 48.33	-10 50.0	1.998	2.419	102.8	23.5	17.4

1981 VW1 a,e,i = 3.10, 0.18, 2 Elements MPC 8895

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	22 03.90	-10 52.3	2.257	2.609	98.6	22.6	16.8
1986	06 09	22 11.38	-10 14.6					
1986	06 19	22 16.98	-09 47.5	2.001	2.591	114.4	20.9	16.5
1986	06 29	22 20.48	-09 32.9					
1986	07 09	22 21.67	-09 32.5	1.780	2.576	132.3	17.0	16.1
1986	07 19	22 20.46	-09 47.0					
1986	07 29	22 16.95	-10 15.8	1.618	2.563	152.7	10.5	15.7
1986	08 08	22 11.43	-10 56.6					
1986	08 18	22 04.56	-11 45.1	1.543	2.553	175.2	1.9	15.2
1986	08 28	21 57.22	-12 35.4					
1986	09 07	21 50.41	-13 21.7	1.571	2.547	161.7	7.2	15.5
1986	09 17	21 45.07	-13 58.8					
1986	09 27	21 41.87	-14 23.6	1.694	2.544	139.8	14.7	15.9
1986	10 07	21 41.17	-14 34.5					
1986	10 17	21 43.06	-14 31.1	1.891	2.544	120.3	19.8	16.3
1986	10 27	21 47.41	-14 14.0					
1986	11 06	21 53.98	-13 44.2	2.132	2.547	103.2	22.3	16.6

1985 FD3 a,e,i = 2.61, 0.13, 29 Elements MPC 9750

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 30	22 46.66	-30 07.9	2.074	2.403	-0.48	-14.8	17.5
1986	06 09	22 53.03	-29 27.0					
1986	06 19	22 56.60	-28 56.2	1.865	2.429	-0.56	-16.7	17.2
1986	06 29	22 57.04	-28 34.5					
1986	07 09	22 54.04	-28 20.0	1.681	2.455	-0.68	-18.5	16.9
1986	07 19	22 47.46	-28 08.6					
1986	07 29	22 37.50	-27 54.2	1.554	2.483	-0.82	-19.5	16.6
1986	08 08	22 24.75	-27 30.3					
1986	08 18	22 10.41	-26 50.5	1.518	2.511	-0.91	-18.9	16.3
1986	08 28	21 56.00	-25 52.0					
1986	09 07	21 43.01	-24 36.0	1.594	2.539	-0.89	-17.0	16.6
1986	09 17	21 32.63	-23 06.3					
1986	09 27	21 25.46	-21 28.3	1.772	2.568	-0.79	-14.7	17.1
1986	10 07	21 21.61	-19 46.2					
1986	10 17	21 20.91	-18 02.7	2.024	2.596	-0.68	-12.8	17.5
1986	10 27	21 22.96	-16 19.3					
1986	11 06	21 27.38	-14 36.1	2.316	2.624	-0.59	-11.3	17.9

1981 ET16 a,e,i = 2.57, 0.20, 13 Elements MPC 10384

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 30		21 56.76	+03 42.1	1.716	2.068	95.0	29.2	18.4
1986 06 09		22 06.96	+05 18.3					
1986 06 19		22 15.05	+06 42.4	1.529	2.080	108.0	27.7	18.1
1986 06 29		22 20.78	+07 50.4					
1986 07 09		22 23.88	+08 37.4	1.361	2.097	123.1	23.9	17.8
1986 07 19		22 24.19	+08 58.1					
1986 07 29		22 21.78	+08 47.8	1.233	2.119	140.8	17.6	17.4
1986 08 08		22 16.96	+08 03.5					
1986 08 18		22 10.48	+06 45.7	1.170	2.146	158.9	9.8	17.1
1986 08 28		22 03.42	+05 00.2					
1986 09 07		21 56.96	+02 57.2	1.196	2.176	161.8	8.3	17.1
1986 09 17		21 52.21	+00 49.7					
1986 09 27		21 49.89	-01 10.3	1.315	2.210	144.6	15.3	17.6
1986 10 07		21 50.34	-02 54.1					
1986 10 17		21 53.60	-04 16.7	1.512	2.246	125.8	21.1	18.1
1986 10 27		21 59.40	-05 16.4					
1986 11 06		22 07.44	-05 53.6	1.762	2.285	108.9	24.2	18.5

1979 HP a,e,i = 3.13, 0.12, 2 Elements MPC 8675

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 30		22 25.55	-10 37.9	3.220	3.436	93.6	17.1	18.0
1986 06 09		22 29.89	-10 19.1					
1986 06 19		22 32.60	-10 10.0	2.951	3.447	110.9	16.0	17.8
1986 06 29		22 33.57	-10 11.5					
1986 07 09		22 32.69	-10 24.0	2.713	3.456	130.0	13.0	17.5
1986 07 19		22 29.96	-10 47.5					
1986 07 29		22 25.51	-11 20.6	2.541	3.465	151.1	8.1	17.2
1986 08 08		22 19.60	-12 01.1					
1986 08 18		22 12.70	-12 45.7	2.465	3.473	173.5	1.9	16.9
1986 08 28		22 05.40	-13 30.3					
1986 09 07		21 58.37	-14 11.4	2.503	3.479	163.1	4.8	17.1
1986 09 17		21 52.25	-14 45.4					
1986 09 27		21 47.55	-15 10.3	2.650	3.485	140.9	10.5	17.4
1986 10 07		21 44.62	-15 24.9					
1986 10 17		21 43.62	-15 28.8	2.881	3.489	120.1	14.3	17.7
1986 10 27		21 44.56	-15 22.6					
1986 11 06		21 47.35	-15 06.7	3.162	3.493	101.2	16.2	18.0

1982 TX a,e,i = 2.58, 0.43, 16 Elements MPC 7663

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986 05 30		21 56.96	+06 49.3	2.055	2.350	-1.30	-4.8	19.4
1986 06 09		22 05.91	+08 54.5					
1986 06 19		22 13.45	+10 59.6	1.742	2.250	-1.62	-5.8	19.0
1986 06 29		22 19.33	+13 02.0					
1986 07 09		22 23.20	+14 58.0	1.456	2.148	-2.06	-7.4	18.5
1986 07 19		22 24.75	+16 42.3					
1986 07 29		22 23.72	+18 08.0	1.210	2.046	-2.61	-10.0	17.9
1986 08 08		22 19.96	+19 06.2					
1986 08 18		22 13.72	+19 27.0	1.019	1.945	-3.19	-14.1	17.3
1986 08 28		22 05.72	+19 02.0					
1986 09 07		21 57.19	+17 46.3	0.898	1.846	-3.49	-18.2	16.8
1986 09 17		21 49.82	+15 43.3					
1986 09 27		21 45.17	+13 05.1	0.851	1.753	-3.31	-18.6	16.8
1986 10 07		21 44.41	+10 08.6					
1986 10 17		21 48.19	+07 12.6	0.869	1.667	-2.90	-14.4	16.9
1986 10 27		21 56.53	+04 31.8					
1986 11 06		22 09.12	+02 16.2	0.931	1.592	-2.61	-8.7	17.1

1982 UH2 a,e,i = 2.85, 0.01, 1 Elements MPC 8794

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	22 26.63	-10 31.8	2.602	2.846	93.3	20.8	17.2
1986	06 09	22 33.04	-09 53.6					
1986	06 19	22 37.65	-09 25.3	2.343	2.847	109.5	19.7	17.0
1986	06 29	22 40.28	-09 08.2					
1986	07 09	22 40.73	-09 03.7	2.111	2.849	127.7	16.4	16.7
1986	07 19	22 38.92	-09 12.2					
1986	07 29	22 34.89	-09 33.1	1.936	2.850	148.3	10.8	16.3
1986	08 08	22 28.89	-10 04.7					
1986	08 18	22 21.44	-10 43.3	1.847	2.852	171.0	3.2	15.9
1986	08 28	22 13.29	-11 24.5					
1986	09 07	22 05.33	-12 03.4	1.866	2.853	165.5	5.1	16.0
1986	09 17	21 58.44	-12 35.5					
1986	09 27	21 53.31	-12 57.6	1.990	2.854	142.9	12.2	16.4
1986	10 07	21 50.37	-13 08.2					
1986	10 17	21 49.83	-13 06.7	2.195	2.855	122.4	17.1	16.8
1986	10 27	21 51.63	-12 53.5					
1986	11 06	21 55.61	-12 29.0	2.451	2.857	104.0	19.7	17.1

6519 P-L a,e,i = 3.04, 0.18, 3 Elements MPC 9302

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 46.96	-11 38.6	3.085	3.536	108.2	15.8	19.1
1986	06 29	22 48.41	-11 38.1					
1986	07 09	22 48.07	-11 48.0	2.814	3.521	127.0	13.3	18.9
1986	07 19	22 45.87	-12 08.2					
1986	07 29	22 41.86	-12 37.5	2.604	3.504	147.7	8.9	18.5
1986	08 08	22 36.22	-13 14.0					
1986	08 18	22 29.32	-13 54.4	2.486	3.486	169.5	3.0	18.2
1986	08 28	22 21.73	-14 34.8					
1986	09 07	22 14.08	-15 11.4	2.481	3.467	165.8	4.1	18.2
1986	09 17	22 07.09	-15 40.6					
1986	09 27	22 01.34	-16 00.1	2.587	3.446	143.6	9.9	18.5
1986	10 07	21 57.28	-16 08.9					
1986	10 17	21 55.18	-16 06.4	2.783	3.423	122.5	14.2	18.8
1986	10 27	21 55.10	-15 53.4					
1986	11 06	21 56.99	-15 30.3	3.032	3.399	103.2	16.5	19.0
1986	11 16	22 00.72	-14 58.1					
1986	11 26	22 06.09	-14 17.6	3.303	3.374	85.6	17.0	19.2

1981 WC a,e,i = 3.07, 0.34, 10 Elements MPC 9951

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	06 19	22 27.14	-22 12.2	1.744	2.373	-1.52	-8.9	17.0
1986	06 29	22 34.01	-22 42.4					
1986	07 09	22 38.52	-23 28.4	1.503	2.312	-1.82	-11.1	16.6
1986	07 19	22 40.35	-24 29.2					
1986	07 29	22 39.33	-25 41.0	1.321	2.255	-2.15	-12.7	16.0
1986	08 08	22 35.45	-26 57.3					
1986	08 18	22 29.17	-28 08.2	1.216	2.202	-2.42	-12.8	15.6
1986	08 28	22 21.44	-29 02.9					
1986	09 07	22 13.53	-29 32.4	1.202	2.156	-2.46	-11.0	15.7
1986	09 17	22 06.90	-29 31.7					
1986	09 27	22 02.68	-29 00.8	1.270	2.116	-2.26	-9.1	16.0
1986	10 07	22 01.57	-28 02.9					
1986	10 17	22 03.78	-26 42.6	1.401	2.084	-1.94	-8.3	16.3
1986	10 27	22 09.12	-25 04.2					
1986	11 06	22 17.26	-23 11.4	1.572	2.060	-1.66	-8.4	16.6
1986	11 16	22 27.75	-21 06.8					
1986	11 26	22 40.17	-18 52.7	1.765	2.045	-1.44	-8.8	16.9

1976 YP1 a,e,i = 3.10, 0.18, 2 Elements MPC 9962

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 43.32	-09 46.8	2.537	3.015	108.3	18.7	17.8
1986	06 29	22 46.45	-09 30.5					
1986	07 09	22 47.61	-09 25.7	2.263	2.979	126.3	16.0	17.4
1986	07 19	22 46.66	-09 33.0					
1986	07 29	22 43.60	-09 52.3	2.043	2.943	146.4	11.0	17.0
1986	08 08	22 38.53	-10 22.1					
1986	08 18	22 31.85	-10 59.5	1.908	2.908	168.6	3.9	16.5
1986	08 28	22 24.19	-11 40.2					
1986	09 07	22 16.35	-12 19.3	1.880	2.873	167.9	4.2	16.5
1986	09 17	22 09.23	-12 52.2					
1986	09 27	22 03.60	-13 15.3	1.957	2.838	145.2	11.6	16.8
1986	10 07	22 00.01	-13 26.5					
1986	10 17	21 58.80	-13 24.8	2.119	2.805	124.3	17.1	17.2
1986	10 27	22 00.01	-13 10.4					
1986	11 06	22 03.54	-12 43.8	2.335	2.772	105.7	20.1	17.4
1986	11 16	22 09.21	-12 05.8					
1986	11 26	22 16.74	-11 17.3	2.573	2.741	89.1	21.1	17.7

1981 CB1 a,e,i = 2.31, 0.15, 6 Elements MPC 8683

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 50.48	-14 52.9	2.071	2.580	108.5	21.9	18.6
1986	06 29	22 54.51	-14 52.7					
1986	07 09	22 56.13	-15 06.9	1.826	2.561	126.1	18.7	18.2
1986	07 19	22 55.11	-15 35.6					
1986	07 29	22 51.33	-16 17.1	1.632	2.540	146.2	12.8	17.8
1986	08 08	22 44.88	-17 08.2					
1986	08 18	22 36.21	-18 02.6	1.519	2.516	167.1	5.1	17.3
1986	08 28	22 26.19	-18 53.0					
1986	09 07	22 15.94	-19 32.4	1.509	2.491	163.2	6.7	17.3
1986	09 17	22 06.73	-19 55.3					
1986	09 27	21 59.58	-19 59.7	1.600	2.464	141.4	14.7	17.7
1986	10 07	21 55.16	-19 45.8					
1986	10 17	21 53.77	-19 15.3	1.768	2.436	121.0	20.5	18.1
1986	10 27	21 55.33	-18 30.5					
1986	11 06	21 59.61	-17 33.3	1.979	2.406	103.1	23.7	18.4
1986	11 16	22 06.30	-16 25.3					
1986	11 26	22 15.02	-15 07.8	2.207	2.375	87.3	24.5	18.6

1981 TH4 a,e,i = 3.20, 0.22, 6 Elements MPC 10296

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 49.59	-08 27.9	2.823	3.259	106.4	17.4	17.6
1986	06 29	22 52.01	-08 02.0					
1986	07 09	22 52.58	-07 45.9	2.530	3.217	124.5	15.1	17.3
1986	07 19	22 51.18	-07 40.2					
1986	07 29	22 47.79	-07 44.8	2.291	3.175	144.7	10.7	16.9
1986	08 08	22 42.52	-07 59.2					
1986	08 18	22 35.71	-08 21.4	2.138	3.132	166.8	4.2	16.5
1986	08 28	22 27.93	-08 48.2					
1986	09 07	22 19.88	-09 16.1	2.092	3.089	169.8	3.3	16.3
1986	09 17	22 12.38	-09 41.0					
1986	09 27	22 06.18	-09 59.7	2.156	3.045	146.9	10.4	16.7
1986	10 07	22 01.81	-10 09.7					
1986	10 17	21 59.63	-10 09.6	2.310	3.002	125.6	15.7	17.0
1986	10 27	21 59.75	-09 58.8					
1986	11 06	22 02.11	-09 37.4	2.522	2.959	106.4	18.7	17.2
1986	11 16	22 06.57	-09 05.5					
1986	11 26	22 12.89	-08 23.7	2.757	2.916	89.2	19.8	17.4

2093 P-L a,e,i = 3.03, 0.05, 9 Elements MPC 9298

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 48.49	+02 56.5	2.508	2.897	102.1	20.1	18.6
1986	06 29	22 52.10	+03 43.2					
1986	07 09	22 53.76	+04 17.5	2.269	2.903	119.1	17.8	18.3
1986	07 19	22 53.37	+04 37.0					
1986	07 29	22 50.91	+04 39.8	2.074	2.909	138.0	13.5	18.0
1986	08 08	22 46.53	+04 24.5					
1986	08 18	22 40.60	+03 51.2	1.952	2.916	158.1	7.4	17.6
1986	08 28	22 33.70	+03 01.9					
1986	09 07	22 26.57	+02 00.6	1.930	2.924	168.2	4.0	17.5
1986	09 17	22 20.04	+00 53.0					
1986	09 27	22 14.82	-00 14.6	2.015	2.932	150.8	9.6	17.8
1986	10 07	22 11.44	-01 16.8					
1986	10 17	22 10.19	-02 09.0	2.195	2.940	130.4	15.0	18.2
1986	10 27	22 11.16	-02 48.8					
1986	11 06	22 14.26	-03 14.9	2.440	2.949	111.4	18.2	18.5
1986	11 16	22 19.33	-03 26.9					
1986	11 26	22 26.13	-03 25.5	2.719	2.958	94.1	19.4	18.8

1985 FU1 a,e,i = 2.34, 0.11, 4 Elements MPC 9767

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 55.80	-07 19.7	1.985	2.447	104.5	23.7	17.9
1986	06 29	23 00.68	-07 07.0					
1986	07 09	23 03.18	-07 10.6	1.774	2.467	121.9	20.5	17.6
1986	07 19	23 03.09	-07 32.0					
1986	07 29	23 00.33	-08 11.1	1.606	2.485	141.9	14.6	17.2
1986	08 08	22 55.00	-09 06.3					
1986	08 18	22 47.53	-10 13.2	1.512	2.503	164.7	6.1	16.8
1986	08 28	22 38.72	-11 25.1					
1986	09 07	22 29.58	-12 34.4	1.519	2.519	170.4	3.8	16.7
1986	09 17	22 21.27	-13 33.6					
1986	09 27	22 14.73	-14 17.7	1.632	2.533	147.2	12.4	17.2
1986	10 07	22 10.61	-14 44.3					
1986	10 17	22 09.20	-14 53.2	1.828	2.546	126.1	18.4	17.7
1986	10 27	22 10.47	-14 45.4					
1986	11 06	22 14.23	-14 22.7	2.078	2.557	107.5	21.7	18.1
1986	11 16	22 20.21	-13 46.6					
1986	11 26	22 28.06	-12 58.8	2.352	2.567	91.0	22.6	18.4

1964 TN2 a,e,i = 3.17, 0.10, 8 Elements MPC 10294

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 53.11	+01 32.6	2.492	2.874	101.6	20.3	16.7
1986	06 29	22 56.94	+02 36.2					
1986	07 09	22 58.83	+03 29.5	2.246	2.871	118.3	18.2	16.4
1986	07 19	22 58.63	+04 10.4					
1986	07 29	22 56.33	+04 36.8	2.043	2.869	136.9	14.0	16.0
1986	08 08	22 52.00	+04 46.9					
1986	08 18	22 46.00	+04 40.1	1.912	2.869	156.6	8.1	15.7
1986	08 28	22 38.89	+04 17.3					
1986	09 07	22 31.42	+03 41.2	1.877	2.870	167.7	4.3	15.5
1986	09 17	22 24.46	+02 56.4					
1986	09 27	22 18.77	+02 08.6	1.950	2.873	151.9	9.5	15.8
1986	10 07	22 14.92	+01 22.9					
1986	10 17	22 13.27	+00 44.0	2.115	2.876	131.7	15.0	16.2
1986	10 27	22 13.91	+00 15.1					
1986	11 06	22 16.78	-00 02.0	2.347	2.881	112.9	18.5	16.5
1986	11 16	22 21.71	-00 06.5					
1986	11 26	22 28.46	+00 01.5	2.615	2.888	95.9	19.9	16.8

1976 SE1 a,e,i = 2.24, 0.10, 3 Elements MPC 9416

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 45.15	-04 18.1	1.588	2.106	105.8	27.7	17.7
1986	06 29	22 52.87	-03 25.7					
1986	07 09	22 58.24	-02 48.3	1.371	2.088	121.2	24.6	17.3
1986	07 19	23 00.91	-02 29.5					
1986	07 29	23 00.64	-02 31.8	1.192	2.072	139.6	18.5	16.8
1986	08 08	22 57.34	-02 57.1					
1986	08 18	22 51.29	-03 44.4	1.074	2.058	161.3	9.1	16.3
1986	08 28	22 43.28	-04 49.1					
1986	09 07	22 34.49	-06 03.4	1.042	2.046	173.8	3.1	15.9
1986	09 17	22 26.40	-07 16.6					
1986	09 27	22 20.32	-08 19.3	1.103	2.037	150.7	13.9	16.5
1986	10 07	22 17.15	-09 04.9					
1986	10 17	22 17.30	-09 30.0	1.241	2.030	129.9	22.1	16.9
1986	10 27	22 20.71	-09 34.1					
1986	11 06	22 27.11	-09 18.1	1.430	2.026	112.3	26.9	17.4
1986	11 16	22 36.11	-08 43.6					
1986	11 26	22 47.25	-07 52.8	1.647	2.025	97.3	28.9	17.7

1941 HJ a,e,i = 2.69, 0.15, 11 Elements MPC 9760

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 58.79	-01 57.1	2.303	2.699	101.7	21.6	17.4
1986	06 29	23 03.18	-01 46.9					
1986	07 09	23 05.48	-01 52.7	2.086	2.731	119.2	19.0	17.1
1986	07 19	23 05.52	-02 16.4					
1986	07 29	23 03.30	-02 58.4	1.911	2.761	139.2	13.9	16.8
1986	08 08	22 58.91	-03 58.1					
1986	08 18	22 52.72	-05 12.6	1.812	2.791	161.7	6.5	16.5
1986	08 28	22 45.36	-06 36.5					
1986	09 07	22 37.62	-08 03.2	1.815	2.820	174.3	2.0	16.3
1986	09 17	22 30.42	-09 25.1					
1986	09 27	22 24.54	-10 36.1	1.929	2.848	150.9	9.8	16.8
1986	10 07	22 20.55	-11 32.3					
1986	10 17	22 18.79	-12 11.6	2.138	2.874	129.3	15.6	17.2
1986	10 27	22 19.32	-12 34.0					
1986	11 06	22 22.05	-12 40.3	2.408	2.900	109.9	18.7	17.6
1986	11 16	22 26.78	-12 32.0					
1986	11 26	22 33.25	-12 10.7	2.709	2.924	92.5	19.7	17.9

4657 P-L a,e,i = 3.02, 0.10, 1 Elements MPC 9301

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 58.66	-07 01.0	2.481	2.896	103.8	19.9	18.8
1986	06 29	23 03.03	-06 37.9					
1986	07 09	23 05.47	-06 26.9	2.219	2.879	121.0	17.6	18.4
1986	07 19	23 05.82	-06 29.3					
1986	07 29	23 04.00	-06 45.3	2.003	2.861	140.6	13.0	18.1
1986	08 08	23 00.06	-07 14.3					
1986	08 18	22 54.29	-07 54.1	1.863	2.845	162.4	6.2	17.6
1986	08 28	22 47.22	-08 40.8					
1986	09 07	22 39.59	-09 29.3	1.825	2.829	174.2	2.1	17.4
1986	09 17	22 32.31	-10 14.1					
1986	09 27	22 26.20	-10 50.4	1.894	2.814	151.2	9.9	17.8
1986	10 07	22 21.91	-11 14.9					
1986	10 17	22 19.86	-11 25.7	2.055	2.800	129.8	15.9	18.2
1986	10 27	22 20.17	-11 22.7					
1986	11 06	22 22.80	-11 06.1	2.278	2.787	110.7	19.4	18.5
1986	11 16	22 27.59	-10 36.9					
1986	11 26	22 34.29	-09 56.1	2.533	2.775	93.6	20.8	18.7

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 02.57	-01 39.4	2.449	2.821	100.8	20.7	17.1
1986	06 29	23 06.85	-00 33.1					
1986	07 09	23 09.19	+00 24.5	2.183	2.800	117.4	18.8	16.8
1986	07 19	23 09.39	+01 11.6					
1986	07 29	23 07.35	+01 46.3	1.959	2.781	136.1	14.7	16.4
1986	08 08	23 03.08	+02 07.2					
1986	08 18	22 56.85	+02 13.5	1.804	2.762	156.5	8.4	16.0
1986	08 28	22 49.20	+02 05.7					
1986	09 07	22 40.87	+01 46.1	1.745	2.744	170.6	3.5	15.7
1986	09 17	22 32.82	+01 18.5					
1986	09 27	22 25.94	+00 48.0	1.793	2.728	153.7	9.4	16.0
1986	10 07	22 20.96	+00 19.5					
1986	10 17	22 18.33	-00 02.7	1.935	2.713	132.8	15.6	16.4
1986	10 27	22 18.21	-00 15.5					
1986	11 06	22 20.56	-00 17.2	2.143	2.700	113.8	19.6	16.7
1986	11 16	22 25.20	-00 06.8					
1986	11 26	22 31.88	+00 15.5	2.387	2.688	96.7	21.4	17.0

1981 EY27 a,e,i = 2.53, 0.18, 12 Elements MPC 10290

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	06 19	23 02.65	-20 30.8	1.514	2.063	-1.38	-16.2	17.6
1986	06 29	23 10.74	-19 58.2					
1986	07 09	23 15.89	-19 37.4	1.332	2.068	-1.61	-19.1	17.2
1986	07 19	23 17.73	-19 28.2					
1986	07 29	23 16.02	-19 28.4	1.189	2.078	-1.90	-21.7	16.8
1986	08 08	23 10.74	-19 33.9					
1986	08 18	23 02.36	-19 37.9	1.110	2.092	-2.14	-22.6	16.4
1986	08 28	22 51.92	-19 32.9					
1986	09 07	22 40.87	-19 12.9	1.118	2.111	-2.17	-21.1	16.3
1986	09 17	22 30.88	-18 34.6					
1986	09 27	22 23.24	-17 38.9	1.220	2.134	-1.95	-18.2	16.8
1986	10 07	22 18.71	-16 28.5					
1986	10 17	22 17.54	-15 06.7	1.401	2.161	-1.63	-15.5	17.3
1986	10 27	22 19.54	-13 36.4					
1986	11 06	22 24.36	-11 59.7	1.635	2.191	-1.34	-13.4	17.8
1986	11 16	22 31.57	-10 17.5					
1986	11 26	22 40.73	-08 30.9	1.899	2.224	-1.13	-11.8	18.2

(3316) 1984 CN1 a,e,i = 3.13, 0.09, 8 Elements MPC 10035

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 07.68	+01 58.2	3.025	3.325	98.1	17.6	17.3
1986	06 29	23 10.89	+02 29.0					
1986	07 09	23 12.41	+02 48.5	2.768	3.336	115.6	16.0	17.1
1986	07 19	23 12.13	+02 55.2					
1986	07 29	23 10.03	+02 48.1	2.551	3.347	135.0	12.4	16.8
1986	08 08	23 06.19	+02 26.3					
1986	08 18	23 00.86	+01 50.4	2.406	3.356	156.0	7.0	16.5
1986	08 28	22 54.49	+01 02.5					
1986	09 07	22 47.64	+00 05.6	2.363	3.365	172.8	2.1	16.2
1986	09 17	22 40.96	-00 55.5					
1986	09 27	22 35.12	-01 56.1	2.434	3.373	155.7	7.0	16.5
1986	10 07	22 30.61	-02 51.5					
1986	10 17	22 27.84	-03 38.2	2.609	3.381	134.2	12.2	16.9
1986	10 27	22 26.95	-04 13.9					
1986	11 06	22 27.98	-04 37.5	2.859	3.387	114.1	15.5	17.2
1986	11 16	22 30.86	-04 48.7					
1986	11 26	22 35.42	-04 47.9	3.149	3.393	95.7	16.8	17.4

1982 TC2 a,e,i = 2.75, 0.20, 9 Elements MPC 9029

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 07.71	+04 38.2	2.783	3.077	97.0	19.1	18.0
1986	06 29	23 11.58	+05 30.8					
1986	07 09	23 13.70	+06 13.5	2.492	3.047	113.8	17.8	17.7
1986	07 19	23 13.90	+06 43.9					
1986	07 29	23 12.07	+06 59.9	2.236	3.015	132.3	14.4	17.4
1986	08 08	23 08.20	+06 59.3					
1986	08 18	23 02.49	+06 40.6	2.047	2.981	152.4	9.1	17.0
1986	08 28	22 55.36	+06 04.2					
1986	09 07	22 47.44	+05 11.9	1.953	2.946	168.0	4.1	16.6
1986	09 17	22 39.57	+04 08.3					
1986	09 27	22 32.57	+02 59.4	1.968	2.909	155.3	8.3	16.8
1986	10 07	22 27.15	+01 51.3					
1986	10 17	22 23.84	+00 49.9	2.085	2.871	134.3	14.4	17.1
1986	10 27	22 22.87	-00 00.5					
1986	11 06	22 24.28	-00 37.5	2.273	2.832	114.5	18.6	17.4
1986	11 16	22 27.97	-00 59.7					
1986	11 26	22 33.72	-01 07.2	2.500	2.792	96.7	20.6	17.6

1981 SW7 a,e,i = 3.09, 0.19, 5 Elements MPC 10027

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 02.52	-03 19.0	2.161	2.564	101.4	22.9	16.9
1986	06 29	23 08.62	-02 13.3					
1986	07 09	23 12.72	-01 17.4	1.911	2.544	117.3	20.8	16.5
1986	07 19	23 14.61	-00 33.3					
1986	07 29	23 14.12	-00 02.7	1.700	2.527	135.5	16.4	16.1
1986	08 08	23 11.20	+00 12.7					
1986	08 18	23 06.08	+00 12.7	1.554	2.513	156.0	9.4	15.7
1986	08 28	22 59.26	-00 01.8					
1986	09 07	22 51.54	-00 27.6	1.498	2.502	173.7	2.5	15.3
1986	09 17	22 43.94	+01 00.0					
1986	09 27	22 37.47	-01 33.0	1.545	2.496	156.4	9.3	15.7
1986	10 07	22 32.94	-02 01.5					
1986	10 17	22 30.87	-02 20.7	1.683	2.493	135.3	16.3	16.1
1986	10 27	22 31.44	-02 28.3					
1986	11 06	22 34.57	-02 22.8	1.888	2.493	116.4	20.9	16.5
1986	11 16	22 40.09	-02 03.8					
1986	11 26	22 47.68	-01 32.1	2.133	2.497	99.8	22.9	16.8

1965 UZ a,e,i = 2.63, 0.01, 3 Elements MPC 10536

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 10.59	-05 16.7	2.221	2.603	100.4	22.6	17.8
1986	06 29	23 16.05	-04 33.3					
1986	07 09	23 19.43	-04 01.8	1.980	2.603	116.9	20.4	17.4
1986	07 19	23 20.51	-03 43.9					
1986	07 29	23 19.15	-03 40.6	1.776	2.603	135.9	15.7	17.1
1986	08 08	23 15.32	-03 52.3					
1986	08 18	23 09.25	-04 17.6	1.639	2.604	157.6	8.5	16.7
1986	08 28	23 01.50	-04 53.6					
1986	09 07	22 52.87	-05 35.7	1.597	2.605	178.1	0.7	16.2
1986	09 17	22 44.40	-06 17.8					
1986	09 27	22 37.09	-06 54.4	1.662	2.605	155.1	9.3	16.7
1986	10 07	22 31.71	-07 21.0					
1986	10 17	22 28.78	-07 34.9	1.820	2.606	133.3	16.2	17.1
1986	10 27	22 28.45	-07 35.1					
1986	11 06	22 30.65	-07 21.4	2.044	2.608	113.8	20.4	17.5
1986	11 16	22 35.19	-06 54.6					
1986	11 26	22 41.78	-06 15.6	2.303	2.609	96.7	22.1	17.8

1981 EG14 a,e,i = 2.36, 0.10, 6 Elements MPC 8676

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 08.12	+02 21.7	1.963	2.331	97.9	25.6	17.8
1986	06 29	23 15.66	+03 35.4					
1986	07 09	23 21.25	+04 37.9	1.714	2.308	112.8	24.0	17.5
1986	07 19	23 24.58	+05 26.3					
1986	07 29	23 25.39	+05 57.1	1.495	2.285	130.1	19.9	17.0
1986	08 08	23 23.49	+06 07.0					
1986	08 18	23 18.94	+05 53.2	1.329	2.262	150.0	12.9	16.6
1986	08 28	23 12.14	+05 15.1					
1986	09 07	23 03.85	+04 14.8	1.243	2.241	169.2	4.8	16.1
1986	09 17	22 55.25	+02 58.6					
1986	09 27	22 47.61	+01 36.0	1.255	2.220	159.1	9.3	16.3
1986	10 07	22 41.99	+00 16.6					
1986	10 17	22 39.17	-00 50.8	1.359	2.201	137.7	17.7	16.7
1986	10 27	22 39.43	-01 40.9					
1986	11 06	22 42.72	-02 11.4	1.529	2.182	118.4	23.5	17.1
1986	11 16	22 48.82	-02 21.5					
1986	11 26	22 57.35	-02 12.4	1.737	2.166	101.8	26.5	17.4

A919 SD a,e,i = 2.24, 0.20, 4 Elements MPC 9583

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	22 57.21	-07 13.3	1.267	1.808	104.2	33.0	16.0
1986	06 29	23 08.77	-05 30.9					
1986	07 09	23 17.85	-03 58.0	1.091	1.800	117.2	30.1	15.6
1986	07 19	23 24.01	-02 37.9					
1986	07 29	23 26.87	-01 33.5	0.944	1.799	133.3	24.3	15.1
1986	08 08	23 26.12	-00 48.0					
1986	08 18	23 21.80	-00 23.2	0.844	1.805	153.0	14.8	14.6
1986	08 28	23 14.53	-00 18.7					
1986	09 07	23 05.48	-00 31.3	0.813	1.819	173.9	3.4	14.1
1986	09 17	22 56.40	-00 54.0					
1986	09 27	22 48.96	-01 18.1	0.866	1.838	159.3	11.1	14.6
1986	10 07	22 44.42	-01 36.0					
1986	10 17	22 43.40	-01 41.6	0.997	1.864	138.5	20.7	15.2
1986	10 27	22 45.93	-01 32.4					
1986	11 06	22 51.68	-01 07.5	1.184	1.895	120.9	26.7	15.8
1986	11 16	23 00.22	-00 27.3					
1986	11 26	23 11.02	+00 26.8	1.410	1.930	105.9	29.4	16.3

1983 WL a,e,i = 2.33, 0.09, 10 Elements MPC 10039

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 20.07	-17 32.7	2.017	2.451	102.8	23.9	18.0
1986	06 29	23 27.55	-17 46.6					
1986	07 09	23 32.88	-18 17.2	1.777	2.434	118.6	21.5	17.6
1986	07 19	23 35.71	-19 04.7					
1986	07 29	23 35.77	-20 08.0	1.577	2.416	136.3	16.9	17.2
1986	08 08	23 32.85	-21 23.4					
1986	08 18	23 27.01	-22 44.0	1.444	2.397	154.4	10.5	16.8
1986	08 28	23 18.73	-24 00.4					
1986	09 07	23 08.88	-25 02.1	1.400	2.377	161.3	7.8	16.6
1986	09 17	22 58.75	-25 40.3					
1986	09 27	22 49.70	-25 50.1	1.455	2.357	146.5	13.6	16.9
1986	10 07	22 42.82	-25 31.5					
1986	10 17	22 38.83	-24 47.3	1.592	2.336	127.5	19.8	17.2
1986	10 27	22 37.95	-23 42.1					
1986	11 06	22 40.08	-22 20.3	1.784	2.316	109.8	23.8	17.6
1986	11 16	22 44.95	-20 45.4					
1986	11 26	22 52.17	-19 00.4	2.003	2.295	94.1	25.4	17.8

1978 UH2 a,e,i = 2.60, 0.15, 13 Elements MPC 7599

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 04.08	+09 55.5	1.911	2.251	95.6	26.7	17.7
1986	06 29	23 12.80	+11 35.6					
1986	07 09	23 19.67	+13 04.9	1.682	2.233	109.2	25.5	17.4
1986	07 19	23 24.38	+14 19.3					
1986	07 29	23 26.69	+15 14.8	1.478	2.219	124.6	22.1	17.0
1986	08 08	23 26.38	+15 46.1					
1986	08 18	23 23.50	+15 48.0	1.319	2.208	142.2	16.3	16.6
1986	08 28	23 18.39	+15 17.0					
1986	09 07	23 11.75	+14 12.3	1.229	2.201	159.1	9.4	16.2
1986	09 17	23 04.67	+12 38.3					
1986	09 27	22 58.36	+10 44.4	1.230	2.197	159.5	9.2	16.2
1986	10 07	22 53.88	+08 43.1					
1986	10 17	22 51.99	+06 47.2	1.323	2.197	142.2	16.1	16.6
1986	10 27	22 52.99	+05 06.5					
1986	11 06	22 56.87	+03 46.7	1.492	2.201	123.6	22.0	17.0
1986	11 16	23 03.40	+02 50.6					
1986	11 26	23 12.24	+02 17.7	1.710	2.209	106.9	25.3	17.4

1971 UJ a,e,i = 3.95, 0.20, 4 Elements MPC 10536

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 22.29	-07 28.2	2.963	3.272	98.5	17.9	17.8
1986	06 29	23 27.14	-07 02.0					
1986	07 09	23 30.38	-06 45.8	2.681	3.250	115.4	16.4	17.5
1986	07 19	23 31.85	-06 40.4					
1986	07 29	23 31.46	-06 45.9	2.438	3.229	134.2	13.0	17.1
1986	08 08	23 29.18	-07 01.9					
1986	08 18	23 25.16	-07 26.8	2.265	3.211	155.0	7.7	16.8
1986	08 28	23 19.71	-07 57.9					
1986	09 07	23 13.34	-08 31.7	2.189	3.195	176.0	1.3	16.4
1986	09 17	23 06.71	-09 03.8					
1986	09 27	23 00.54	-09 30.1	2.223	3.181	159.4	6.4	16.7
1986	10 07	22 55.47	-09 47.5					
1986	10 17	22 52.02	-09 53.7	2.360	3.169	137.7	12.2	17.0
1986	10 27	22 50.48	-09 47.9					
1986	11 06	22 50.96	-09 30.1	2.574	3.159	117.7	16.1	17.3
1986	11 16	22 53.43	-09 00.8					
1986	11 26	22 57.76	-08 20.9	2.834	3.152	99.5	18.0	17.6

(3257) 1982 GG a,e,i = 2.25, 0.17, 6 Elements MPC 9688

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 12.48	-13 15.0	1.358	1.869	102.9	32.0	16.7
1986	06 29	23 24.14	-12 27.4					
1986	07 09	23 33.23	-11 54.3	1.187	1.877	116.6	29.0	16.4
1986	07 19	23 39.31	-11 37.8					
1986	07 29	23 42.00	-11 38.3	1.044	1.890	133.2	23.1	15.9
1986	08 08	23 40.98	-11 55.0					
1986	08 18	23 36.29	-12 23.9	0.949	1.908	153.2	13.8	15.5
1986	08 28	23 28.50	-12 57.7					
1986	09 07	23 18.75	-13 27.6	0.928	1.931	171.5	4.4	15.1
1986	09 17	23 08.70	-13 44.2					
1986	09 27	23 00.02	-13 41.9	0.996	1.958	156.9	11.6	15.6
1986	10 07	22 53.98	-13 18.9					
1986	10 17	22 51.26	-12 36.2	1.145	1.989	136.3	20.3	16.2
1986	10 27	22 51.93	-11 36.8					
1986	11 06	22 55.75	-10 23.5	1.353	2.022	118.4	25.5	16.7
1986	11 16	23 02.31	-08 58.9					
1986	11 26	23 11.13	-07 25.1	1.598	2.058	103.0	27.9	17.2

(3281) 1938 DZ a,e,i = 2.35, 0.10, 6 Elements MPC 9824

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 34.54	-05 32.4	2.044	2.360	95.0	25.4	16.9
1986	06 29	23 41.73	-04 35.2					
1986	07 09	23 46.78	-03 49.9	1.826	2.381	110.5	23.6	16.7
1986	07 19	23 49.40	-03 17.9					
1986	07 29	23 49.34	-03 00.4	1.633	2.402	128.7	19.3	16.3
1986	08 08	23 46.43	-02 58.3					
1986	08 18	23 40.76	-03 10.8	1.493	2.423	149.9	12.1	15.9
1986	08 28	23 32.74	-03 35.6					
1986	09 07	23 23.13	-04 08.5	1.439	2.443	173.7	2.6	15.5
1986	09 17	23 13.05	-04 43.6					
1986	09 27	23 03.72	-05 14.8	1.489	2.462	161.9	7.3	15.8
1986	10 07	22 56.15	-05 36.9					
1986	10 17	22 51.09	-05 46.6	1.639	2.479	139.1	15.3	16.3
1986	10 27	22 48.83	-05 42.5					
1986	11 06	22 49.36	-05 24.5	1.861	2.496	118.9	20.4	16.7
1986	11 16	22 52.49	-04 53.2					
1986	11 26	22 57.90	-04 09.8	2.126	2.511	101.2	22.7	17.1

(3286) 1980 BV a,e,i = 2.64, 0.10, 13 Elements MPC 9828

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 33.12	-13 42.2	2.518	2.850	98.4	20.6	18.2
1986	06 29	23 39.26	-14 04.9					
1986	07 09	23 43.52	-14 43.5	2.279	2.862	115.1	18.8	17.9
1986	07 19	23 45.68	-15 38.0					
1986	07 29	23 45.56	-16 47.5	2.078	2.873	133.5	14.8	17.6
1986	08 08	23 43.08	-18 09.1					
1986	08 18	23 38.33	-19 37.6	1.947	2.883	152.5	9.3	17.3
1986	08 28	23 31.67	-21 05.8					
1986	09 07	23 23.71	-22 25.8	1.912	2.891	163.0	5.9	17.1
1986	09 17	23 15.32	-23 29.9					
1986	09 27	23 07.44	-24 13.0	1.985	2.898	150.2	9.9	17.4
1986	10 07	23 00.91	-24 32.8					
1986	10 17	22 56.37	-24 29.8	2.152	2.904	130.8	15.1	17.7
1986	10 27	22 54.13	-24 06.7					
1986	11 06	22 54.27	-23 26.3	2.385	2.908	112.1	18.4	18.0
1986	11 16	22 56.69	-22 31.9					
1986	11 26	23 01.16	-21 26.3	2.653	2.910	95.0	19.7	18.3

1982 HB2 a,e,i = 2.19, 0.07, 5 Elements MPC 9766

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 33.01	-08 54.0	1.911	2.265	96.6	26.5	18.2
1986	06 29	23 41.18	-08 20.5					
1986	07 09	23 47.19	-08 01.4	1.694	2.279	112.0	24.4	17.9
1986	07 19	23 50.69	-07 58.4					
1986	07 29	23 51.41	-08 12.2	1.503	2.292	130.0	19.8	17.6
1986	08 08	23 49.10	-08 42.5					
1986	08 18	23 43.78	-09 26.9	1.365	2.303	151.0	12.3	17.1
1986	08 28	23 35.84	-10 20.2					
1986	09 07	23 26.06	-11 15.2	1.311	2.313	171.9	3.5	16.7
1986	09 17	23 15.66	-12 03.2					
1986	09 27	23 05.99	-12 37.2	1.360	2.322	158.7	9.0	17.0
1986	10 07	22 58.20	-12 52.8					
1986	10 17	22 53.11	-12 48.6	1.502	2.330	136.6	17.1	17.5
1986	10 27	22 51.03	-12 25.6					
1986	11 06	22 51.93	-11 46.1	1.712	2.336	117.0	22.2	18.0
1986	11 16	22 55.59	-10 52.1					
1986	11 26	23 01.63	-09 45.9	1.959	2.340	99.9	24.6	18.3

1964 UO a,e,i = 3.15, 0.23, 9 Elements MPC 8793

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 17.98	+06 44.8	2.333	2.606	93.8	22.9	17.9
1986	06 29	23 25.54	+08 11.6					
1986	07 09	23 31.48	+09 30.2	2.062	2.570	108.3	22.1	17.6
1986	07 19	23 35.53	+10 38.0					
1986	07 29	23 37.50	+11 32.1	1.818	2.536	124.6	19.2	17.2
1986	08 08	23 37.19	+12 09.1					
1986	08 18	23 34.59	+12 25.6	1.625	2.506	142.7	14.2	16.8
1986	08 28	23 29.93	+12 19.1					
1986	09 07	23 23.72	+11 48.6	1.506	2.479	160.8	7.7	16.3
1986	09 17	23 16.80	+10 56.3					
1986	09 27	23 10.16	+09 48.0	1.482	2.457	162.5	7.0	16.3
1986	10 07	23 04.79	+08 31.4					
1986	10 17	23 01.48	+07 15.6	1.556	2.438	144.6	13.7	16.6
1986	10 27	23 00.69	+06 08.3					
1986	11 06	23 02.57	+05 14.8	1.710	2.423	125.4	19.5	17.0
1986	11 16	23 07.06	+04 38.4					
1986	11 26	23 13.91	+04 20.0	1.918	2.413	108.0	22.9	17.3

(3224) 1977 RL6 a,e,i = 2.79, 0.16, 4 Elements MPC 9475

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 35.73	+02 14.7	2.592	2.810	91.6	21.2	16.6
1986	06 29	23 41.41	+03 03.7					
1986	07 09	23 45.27	+03 41.5	2.362	2.843	107.8	19.9	16.4
1986	07 19	23 47.12	+04 06.0					
1986	07 29	23 46.81	+04 15.9	2.156	2.876	126.2	16.5	16.1
1986	08 08	23 44.30	+04 09.8					
1986	08 18	23 39.71	+03 47.4	2.006	2.907	147.0	10.9	15.8
1986	08 28	23 33.37	+03 09.6					
1986	09 07	23 25.86	+02 19.2	1.942	2.938	169.0	3.7	15.5
1986	09 17	23 17.95	+01 21.0					
1986	09 27	23 10.48	+00 20.7	1.989	2.968	164.8	5.1	15.6
1986	10 07	23 04.20	-00 36.0					
1986	10 17	22 59.70	-01 24.0	2.143	2.996	142.5	11.7	16.1
1986	10 27	22 57.30	-02 00.1					
1986	11 06	22 57.09	-02 22.7	2.382	3.023	121.7	16.2	16.5
1986	11 16	22 59.01	-02 31.3					
1986	11 26	23 02.88	-02 26.5	2.672	3.049	103.0	18.4	16.8

1964 TR1 a,e,i = 3.13, 0.18, 3 Elements MPC 10391

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 27.92	-05 50.5	2.247	2.570	96.6	23.1	16.8
1986	06 29	23 35.66	-05 16.2					
1986	07 09	23 41.54	-04 54.7	2.015	2.577	112.2	21.4	16.5
1986	07 19	23 45.32	-04 47.7					
1986	07 29	23 46.81	-04 55.8	1.814	2.587	130.0	17.5	16.2
1986	08 08	23 45.88	-05 19.3					
1986	08 18	23 42.61	-05 56.7	1.671	2.600	150.4	11.1	15.8
1986	08 28	23 37.32	-06 44.3					
1986	09 07	23 30.58	-07 37.2	1.613	2.615	172.2	3.0	15.4
1986	09 17	23 23.27	-08 28.8					
1986	09 27	23 16.34	-09 12.6	1.659	2.634	162.8	6.5	15.6
1986	10 07	23 10.67	-09 43.8					
1986	10 17	23 06.92	-09 59.3	1.805	2.655	140.9	13.7	16.1
1986	10 27	23 05.45	-09 58.4					
1986	11 06	23 06.36	-09 41.6	2.028	2.678	121.1	18.5	16.5
1986	11 16	23 09.54	-09 10.1					
1986	11 26	23 14.78	-08 25.9	2.299	2.703	103.4	20.8	16.9

1981 RU2 a,e,i = 2.99, 0.11, 9 Elements MPC 10026

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	06 19	23 36.92	+06 51.8	2.609	2.792	89.5	21.3	17.3
1986	06 29	23 43.72	+08 16.2					
1986	07 09	23 48.92	+09 33.5	2.338	2.773	104.5	20.8	17.1
1986	07 19	23 52.28	+10 41.5					
1986	07 29	23 53.61	+11 37.9	2.089	2.755	121.2	18.4	16.7
1986	08 08	23 52.72	+12 20.2					
1986	08 18	23 49.60	+12 45.5	1.887	2.739	139.8	13.8	16.4
1986	08 28	23 44.42	+12 51.6					
1986	09 07	23 37.60	+12 37.3	1.760	2.724	158.7	7.7	16.0
1986	09 17	23 29.89	+12 03.9					
1986	09 27	23 22.18	+11 15.3	1.731	2.710	164.2	5.8	15.9
1986	10 07	23 15.40	+10 17.3					
1986	10 17	23 10.37	+09 17.3	1.807	2.697	146.9	11.6	16.2
1986	10 27	23 07.58	+08 22.1					
1986	11 06	23 07.27	+07 36.8	1.969	2.686	127.1	17.1	16.5
1986	11 16	23 09.46	+07 04.9					
1986	11 26	23 13.97	+06 47.8	2.190	2.677	108.9	20.4	16.8

1982 HJ a,e,i = 2.26, 0.18, 8 Elements MPC 7011

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	07 09	23 59.29	-12 01.0	1.443	2.037	-1.43	-12.3	17.1
1986	07 19	00 05.04	-12 11.6					
1986	07 29	00 07.67	-12 40.6	1.297	2.076	-1.65	-14.5	16.8
1986	08 08	00 06.88	-13 26.4					
1986	08 18	00 02.61	-14 24.4	1.196	2.117	-1.91	-16.3	16.5
1986	08 28	23 55.24	-15 27.0					
1986	09 07	23 45.58	-16 24.3	1.170	2.159	-2.08	-16.3	16.2
1986	09 17	23 34.97	-17 06.0					
1986	09 27	23 24.91	-17 25.3	1.239	2.201	-2.00	-14.4	16.4
1986	10 07	23 16.71	-17 19.6					
1986	10 17	23 11.25	-16 49.9	1.399	2.243	-1.73	-11.8	17.0
1986	10 27	23 08.86	-16 00.0					
1986	11 06	23 09.50	-14 53.7	1.627	2.284	-1.43	-9.8	17.5
1986	11 16	23 12.89	-13 34.7					
1986	11 26	23 18.64	-12 06.0	1.898	2.324	-1.18	-8.5	17.9
1986	12 06	23 26.36	-10 29.6					
1986	12 16	23 35.71	-08 47.4	2.187	2.363	-0.99	-7.5	18.3

(3249) 1977 DT4 a,e,i = 2.35, 0.25, 3 Elements MPC 9680

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	23 39.03	-07 19.8	1.327	1.969	113.6	28.2	17.0
1986	07 19	23 47.97	-06 53.7					
1986	07 29	23 54.55	-06 44.6	1.114	1.921	128.8	24.3	16.4
1986	08 08	23 58.29	-06 54.5					
1986	08 18	23 58.85	-07 23.3	0.946	1.877	146.9	17.1	15.8
1986	08 28	23 56.15	-08 08.3					
1986	09 07	23 50.48	-09 03.3	0.844	1.840	167.1	7.0	15.2
1986	09 17	23 42.85	-09 57.7					
1986	09 27	23 34.77	-10 39.8	0.822	1.809	165.0	8.2	15.2
1986	10 07	23 27.91	-11 00.2					
1986	10 17	23 23.72	-10 53.3	0.881	1.786	144.1	19.1	15.6
1986	10 27	23 22.99	-10 18.8					
1986	11 06	23 25.91	-09 19.2	1.001	1.772	125.6	27.1	16.1
1986	11 16	23 32.30	-07 57.9					
1986	11 26	23 41.70	-06 19.1	1.163	1.767	110.3	31.6	16.6
1986	12 06	23 53.64	-04 26.3					
1986	12 16	00 07.67	-02 22.4	1.349	1.771	97.6	33.4	16.9

1979 FU2 a,e,i = 3.13, 0.08, 14 Elements MPC 8908

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 08.32	-17 08.6	2.503	3.010	110.2	18.5	16.7
1986	07 19	00 11.08	-17 31.5					
1986	07 29	00 11.67	-18 05.6	2.296	3.025	127.6	15.4	16.5
1986	08 08	00 09.95	-18 48.7					
1986	08 18	00 05.96	-19 36.8	2.147	3.040	146.0	10.7	16.2
1986	08 28	23 59.94	-20 24.6					
1986	09 07	23 52.35	-21 05.9	2.087	3.056	160.6	6.3	15.9
1986	09 17	23 43.92	-21 34.8					
1986	09 27	23 35.51	-21 46.7	2.131	3.071	155.4	7.8	16.1
1986	10 07	23 27.96	-21 39.6					
1986	10 17	23 21.98	-21 13.5	2.278	3.087	137.5	12.6	16.4
1986	10 27	23 18.00	-20 30.2					
1986	11 06	23 16.22	-19 32.4	2.505	3.103	118.5	16.3	16.7
1986	11 16	23 16.63	-18 22.9					
1986	11 26	23 19.08	-17 04.2	2.781	3.119	100.7	18.1	17.0
1986	12 06	23 23.37	-15 38.4					
1986	12 16	23 29.27	-14 07.0	3.078	3.135	84.2	18.2	17.2

(3326) 1985 FL a,e,i = 2.37, 0.17, 3 Elements MPC 10163

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 02.24	-02 28.5	1.521	2.055	106.5	28.3	16.6
1986	07 19	00 08.63	-01 41.3					
1986	07 29	00 12.21	-01 10.4	1.354	2.086	122.7	24.2	16.2
1986	08 08	00 12.68	-00 57.2					
1986	08 18	00 09.90	-01 02.2	1.225	2.119	142.4	17.0	15.9
1986	08 28	00 04.07	-01 23.6					
1986	09 07	23 55.78	-01 57.9	1.165	2.154	165.3	6.8	15.4
1986	09 17	23 46.15	-02 38.5					
1986	09 27	23 36.53	-03 17.6	1.197	2.192	170.2	4.5	15.4
1986	10 07	23 28.27	-03 48.3					
1986	10 17	23 22.39	-04 05.2	1.327	2.230	146.9	14.1	16.1
1986	10 27	23 19.41	-04 06.0					
1986	11 06	23 19.43	-03 50.3	1.536	2.269	126.4	20.6	16.6
1986	11 16	23 22.29	-03 19.1					
1986	11 26	23 27.62	-02 34.1	1.795	2.308	108.6	23.9	17.1
1986	12 06	23 35.09	-01 37.1					
1986	12 16	23 44.32	-00 29.8	2.081	2.348	93.0	24.7	17.5

1978 SL7 a,e,i = 2.57, 0.14, 8 Elements MPC 8675

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 16.87	-01 56.3	2.502	2.903	102.9	20.0	18.2
1986	07 19	00 20.03	-01 29.0					
1986	07 29	00 21.16	-01 13.2	2.242	2.895	120.7	17.6	17.9
1986	08 08	00 20.05	-01 09.5					
1986	08 18	00 16.61	-01 18.1	2.028	2.885	140.9	12.8	17.5
1986	08 28	00 10.94	-01 37.8					
1986	09 07	00 03.36	-02 06.3	1.893	2.874	163.5	5.7	17.1
1986	09 17	23 54.49	-02 40.0					
1986	09 27	23 45.20	-03 13.9	1.864	2.860	172.1	2.8	16.9
1986	10 07	23 36.42	-03 43.1					
1986	10 17	23 29.03	-04 03.2	1.948	2.845	148.5	10.6	17.3
1986	10 27	23 23.66	-04 11.4					
1986	11 06	23 20.66	-04 06.5	2.123	2.828	126.6	16.3	17.7
1986	11 16	23 20.13	-03 48.0					
1986	11 26	23 21.97	-03 16.8	2.357	2.810	107.1	19.6	18.0
1986	12 06	23 25.97	-02 33.8					
1986	12 16	23 31.91	-01 40.2	2.616	2.790	89.7	20.7	18.2

1981 EV20 a,e,i = 2.34, 0.05, 7 Elements MPC 10618

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 11.97	+00 58.4	1.946	2.388	102.9	24.5	18.3
1986	07 19	00 17.25	+01 57.2					
1986	07 29	00 20.25	+02 44.5	1.709	2.378	119.4	21.8	18.0
1986	08 08	00 20.64	+03 18.5					
1986	08 18	00 18.20	+03 37.7	1.511	2.367	138.6	16.4	17.5
1986	08 28	00 12.96	+03 41.3					
1986	09 07	00 05.19	+03 29.7	1.381	2.357	160.8	8.1	17.1
1986	09 17	23 55.67	+03 05.4					
1986	09 27	23 45.52	+02 33.4	1.347	2.346	173.4	2.8	16.8
1986	10 07	23 36.01	+01 59.8					
1986	10 17	23 28.34	+01 31.6	1.417	2.335	150.2	12.2	17.2
1986	10 27	23 23.29	+01 13.7					
1986	11 06	23 21.24	+01 09.6	1.572	2.324	128.6	19.5	17.7
1986	11 16	23 22.24	+01 20.7					
1986	11 26	23 26.05	+01 46.8	1.782	2.313	109.9	23.7	18.1
1986	12 06	23 32.36	+02 27.1					
1986	12 16	23 40.83	+03 20.4	2.019	2.302	93.7	25.3	18.4

1984 CR a,e,i = 2.43, 0.18, 3 Elements MPC 9024

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 11.27	-02 54.3	1.867	2.340	104.5	24.9	17.7
1986	07 19	00 18.27	-02 20.3					
1986	07 29	00 23.20	-01 59.9	1.611	2.299	120.5	22.4	17.3
1986	08 08	00 25.68	-01 54.8					
1986	08 18	00 25.41	-02 05.9	1.394	2.259	139.1	17.1	16.8
1986	08 28	00 22.26	-02 32.4					
1986	09 07	00 16.33	-03 12.3	1.243	2.219	160.6	8.7	16.2
1986	09 17	00 08.22	-03 59.9					
1986	09 27	23 58.95	-04 47.9	1.183	2.181	173.2	3.1	15.8
1986	10 07	23 49.84	-05 27.9					
1986	10 17	23 42.26	-05 52.6	1.221	2.145	150.6	13.2	16.3
1986	10 27	23 37.22	-05 57.8					
1986	11 06	23 35.29	-05 42.1	1.340	2.112	129.2	21.3	16.7
1986	11 16	23 36.62	-05 06.1					
1986	11 26	23 41.03	-04 12.0	1.512	2.081	111.1	26.3	17.0
1986	12 06	23 48.20	-03 02.0					
1986	12 16	23 57.78	-01 38.4	1.709	2.054	95.6	28.5	17.3

1981 EG5 a,e,i = 2.41, 0.13, 9 Elements MPC 10289

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	07 09	00 16.51	+05 17.0	1.675	2.106	-1.29	-11.7	17.8
1986	07 19	00 24.13	+07 03.1					
1986	07 29	00 29.40	+08 39.9	1.473	2.111	-1.51	-12.9	17.5
1986	08 08	00 31.92	+10 04.9					
1986	08 18	00 31.38	+11 14.9	1.302	2.119	-1.79	-14.6	17.1
1986	08 28	00 27.67	+12 06.9					
1986	09 07	00 20.95	+12 37.4	1.186	2.130	-2.07	-16.7	16.7
1986	09 17	00 11.95	+12 44.9					
1986	09 27	00 01.86	+12 30.9	1.153	2.144	-2.18	-18.2	16.3
1986	10 07	23 52.12	+12 00.5					
1986	10 17	23 44.16	+11 22.1	1.215	2.161	-2.03	-17.9	16.7
1986	10 27	23 38.94	+10 44.7					
1986	11 06	23 36.95	+10 15.4	1.365	2.180	-1.74	-15.9	17.2
1986	11 16	23 38.22	+09 59.3					
1986	11 26	23 42.48	+09 58.3	1.576	2.202	-1.45	-13.4	17.7
1986	12 06	23 49.38	+10 12.8					
1986	12 16	23 58.52	+10 41.9	1.823	2.225	-1.23	-11.1	18.1

(3293) 4650 P-L a,e,i = 2.40, 0.14, 2 Elements MPC 9953

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 28.34	+01 54.7	2.207	2.567	98.7	23.0	18.6
1986	07 19	00 33.38	+02 29.3					
1986	07 29	00 36.27	+02 50.5	1.984	2.591	115.6	20.7	18.4
1986	08 08	00 36.74	+02 57.0					
1986	08 18	00 34.65	+02 47.9	1.796	2.613	135.2	15.8	18.0
1986	08 28	00 30.02	+02 23.5					
1986	09 07	00 23.12	+01 45.5	1.674	2.634	157.6	8.4	17.6
1986	09 17	00 14.56	+00 57.6					
1986	09 27	00 05.23	+00 05.3	1.651	2.653	178.1	0.7	17.2
1986	10 07	23 56.18	-00 44.9					
1986	10 17	23 48.41	-01 26.8	1.739	2.670	153.9	9.4	17.8
1986	10 27	23 42.66	-01 56.1					
1986	11 06	23 39.33	-02 10.2	1.923	2.686	131.6	16.0	18.2
1986	11 16	23 38.58	-02 08.6					
1986	11 26	23 40.28	-01 51.9	2.171	2.699	111.8	19.8	18.6
1986	12 06	23 44.22	-01 21.4					
1986	12 16	23 50.14	-00 38.7	2.453	2.710	94.3	21.2	18.9

1975 VY5 a,e,i = 3.20, 0.12, 24 Elements MPC 10165

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 37.94	-21 22.2	3.125	3.526	104.9	16.2	17.5
1986	07 19	00 40.51	-21 46.9					
1986	07 29	00 41.20	-22 21.2	2.877	3.516	121.5	14.3	17.2
1986	08 08	00 39.83	-23 03.1					
1986	08 18	00 36.34	-23 49.0	2.682	3.505	138.6	11.0	17.0
1986	08 28	00 30.82	-24 34.3					
1986	09 07	00 23.54	-25 13.6	2.568	3.493	152.5	7.7	16.7
1986	09 17	00 15.00	-25 40.9					
1986	09 27	00 05.90	-25 51.5	2.558	3.481	152.9	7.5	16.7
1986	10 07	23 57.01	-25 42.7					
1986	10 17	23 49.09	-25 13.6	2.655	3.467	138.7	10.9	16.9
1986	10 27	23 42.74	-24 25.7					
1986	11 06	23 38.32	-23 21.6	2.840	3.452	120.6	14.3	17.2
1986	11 16	23 35.99	-22 04.4					
1986	11 26	23 35.73	-20 37.2	3.084	3.437	102.6	16.3	17.4
1986	12 06	23 37.42	-19 02.4					
1986	12 16	23 40.86	-17 22.1	3.354	3.421	85.5	16.7	17.6

1977 QC4 a,e,i = 2.68, 0.18, 14 Elements MPC 9584

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 08.65	-01 38.0	1.741	2.228	104.7	26.2	16.5
1986	07 19	00 16.95	-02 01.4					
1986	07 29	00 23.02	-02 47.3	1.548	2.244	120.8	22.9	16.2
1986	08 08	00 26.55	-03 57.1					
1986	08 18	00 27.33	-05 29.9	1.397	2.264	139.6	16.9	15.8
1986	08 28	00 25.36	-07 21.4					
1986	09 07	00 20.92	-09 24.3	1.316	2.288	159.6	8.8	15.4
1986	09 17	00 14.66	-11 27.3					
1986	09 27	00 07.59	-13 17.9	1.331	2.315	165.4	6.2	15.4
1986	10 07	00 00.82	-14 45.8					
1986	10 17	23 55.44	-15 44.3	1.444	2.344	147.0	13.4	15.8
1986	10 27	23 52.17	-16 12.3					
1986	11 06	23 51.39	-16 11.5	1.639	2.375	127.4	19.4	16.3
1986	11 16	23 53.18	-15 45.8					
1986	11 26	23 57.35	-14 59.8	1.888	2.409	109.8	22.7	16.7
1986	12 06	00 03.65	-13 57.4					
1986	12 16	00 11.78	-12 42.2	2.165	2.444	94.2	23.7	17.1

(3313) 1980 DG a,e,i = 2.66, 0.13, 11 Elements MPC 10034

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 26.20	+16 17.8	2.362	2.626	93.4	22.7	17.4
1986	07 19	00 31.52	+17 43.6					
1986	07 29	00 34.80	+18 58.9	2.144	2.653	108.9	21.2	17.2
1986	08 08	00 35.79	+20 01.0					
1986	08 18	00 34.31	+20 46.7	1.953	2.681	126.4	17.7	16.9
1986	08 28	00 30.38	+21 12.7					
1986	09 07	00 24.20	+21 15.8	1.817	2.708	145.4	12.2	16.6
1986	09 17	00 16.34	+20 54.5					
1986	09 27	00 07.63	+20 09.8	1.767	2.734	161.0	6.8	16.4
1986	10 07	23 59.08	+19 06.0					
1986	10 17	23 51.69	+17 50.4	1.820	2.760	155.8	8.5	16.5
1986	10 27	23 46.21	+16 31.6					
1986	11 06	23 43.09	+15 17.3	1.975	2.784	137.1	14.0	16.9
1986	11 16	23 42.50	+14 13.8					
1986	11 26	23 44.37	+13 24.7	2.206	2.808	118.0	18.1	17.3
1986	12 06	23 48.47	+12 51.5					
1986	12 16	23 54.57	+12 34.5	2.483	2.831	100.4	20.0	17.6

1978 SA3 a,e,i = 4.01, 0.21, 4 Elements MPC 7453

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 22.19	+03 14.6	2.914	3.243	99.6	18.0	16.7
1986	07 19	00 26.44	+03 53.7					
1986	07 29	00 29.05	+04 23.2	2.637	3.223	116.7	16.3	16.4
1986	08 08	00 29.85	+04 42.0					
1986	08 18	00 28.76	+04 49.3	2.402	3.206	135.7	12.7	16.1
1986	08 28	00 25.82	+04 45.1					
1986	09 07	00 21.22	+04 30.0	2.239	3.190	156.8	7.1	15.7
1986	09 17	00 15.36	+04 05.8					
1986	09 27	00 08.83	+03 35.5	2.176	3.177	177.6	0.8	15.3
1986	10 07	00 02.30	+03 03.0					
1986	10 17	23 56.51	+02 32.8	2.224	3.167	157.2	7.0	15.7
1986	10 27	23 52.04	+02 08.8					
1986	11 06	23 49.33	+01 53.9	2.375	3.159	135.5	12.7	16.0
1986	11 16	23 48.60	+01 50.2					
1986	11 26	23 49.89	+01 58.4	2.599	3.153	115.5	16.4	16.3
1986	12 06	23 53.12	+02 18.3					
1986	12 16	23 58.15	+02 49.4	2.867	3.150	97.5	18.0	16.6

1978 SE1 a,e,i = 2.53, 0.20, 8 Elements MPC 7367

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 07.21	-09 29.1	1.511	2.064	107.9	27.9	17.6
1986	07 19	00 16.97	-09 25.3					
1986	07 29	00 24.41	-09 39.2	1.312	2.047	122.6	24.7	17.2
1986	08 08	00 29.10	-10 11.7					
1986	08 18	00 30.71	-11 01.1	1.154	2.035	139.8	18.7	16.7
1986	08 28	00 29.08	-12 03.3					
1986	09 07	00 24.37	-13 10.7	1.058	2.028	158.1	10.7	16.3
1986	09 17	00 17.29	-14 12.5					
1986	09 27	00 09.02	-14 57.6	1.045	2.027	163.8	7.9	16.1
1986	10 07	00 00.99	-15 17.4					
1986	10 17	23 54.63	-15 07.4	1.121	2.032	147.3	15.4	16.5
1986	10 27	23 50.87	-14 28.7					
1986	11 06	23 50.16	-13 25.0	1.270	2.042	128.7	22.3	17.0
1986	11 16	23 52.56	-12 00.8					
1986	11 26	23 57.77	-10 21.1	1.472	2.058	112.1	26.4	17.5
1986	12 06	00 05.44	-08 29.7					
1986	12 16	00 15.21	-06 29.6	1.705	2.078	97.6	28.0	17.8

1984 CN a,e,i = 2.79, 0.09, 8 Elements MPC 8684

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 33.52	-05 43.9	2.243	2.626	100.5	22.4	16.8
1986	07 19	00 39.15	-05 24.6					
1986	07 29	00 42.67	-05 18.2	2.022	2.642	117.0	20.0	16.5
1986	08 08	00 43.85	-05 24.8					
1986	08 18	00 42.50	-05 43.7	1.837	2.660	135.9	15.3	16.2
1986	08 28	00 38.64	-06 12.6					
1986	09 07	00 32.50	-06 48.0	1.721	2.677	156.9	8.5	15.8
1986	09 17	00 24.61	-07 24.7					
1986	09 27	00 15.83	-07 56.7	1.702	2.696	170.8	3.4	15.6
1986	10 07	00 07.11	-08 18.7					
1986	10 17	23 59.46	-08 26.4	1.791	2.715	152.7	9.7	16.0
1986	10 27	23 53.64	-08 18.3					
1986	11 06	23 50.09	-07 54.3	1.974	2.734	131.5	15.8	16.4
1986	11 16	23 48.99	-07 15.6					
1986	11 26	23 50.28	-06 24.1	2.224	2.753	112.2	19.4	16.8
1986	12 06	23 53.77	-05 21.7					
1986	12 16	23 59.21	-04 10.2	2.509	2.773	94.9	20.7	17.1

1982 UG6 a,e,i = 2.60, 0.24, 2 Elements MPC 10375

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	07 09	00 21.94	+00 22.2	2.013	2.420	-1.16	-8.0	17.9
1986	07 19	00 29.64	+01 06.3					
1986	07 29	00 35.53	+01 38.4	1.737	2.368	-1.38	-9.4	17.5
1986	08 08	00 39.25	+01 56.5					
1986	08 18	00 40.49	+01 59.2	1.496	2.318	-1.65	-11.2	17.0
1986	08 28	00 39.02	+01 45.7					
1986	09 07	00 34.80	+01 16.4	1.315	2.269	-1.92	-13.1	16.5
1986	09 17	00 28.17	+00 34.2					
1986	09 27	00 19.89	-00 15.5	1.220	2.222	-2.08	-14.1	15.8
1986	10 07	00 11.10	-01 05.2					
1986	10 17	00 03.14	-01 46.4	1.225	2.178	-2.02	-13.6	16.2
1986	10 27	23 57.17	-02 12.5					
1986	11 06	23 54.00	-02 19.4	1.318	2.136	-1.79	-12.1	16.6
1986	11 16	23 53.99	-02 05.5					
1986	11 26	23 57.13	-01 31.7	1.472	2.099	-1.54	-10.6	17.0
1986	12 06	00 03.19	-00 39.8					
1986	12 16	00 11.86	+00 28.0	1.659	2.066	-1.36	-9.4	17.3

1933 FE1 a,e,i = 2.29, 0.22, 2 Elements MPC 9765

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 40.60	+07 02.6	2.314	2.591	93.9	23.1	18.9
1986	07 19	00 46.00	+07 46.3					
1986	07 29	00 49.32	+08 17.3	2.090	2.624	110.5	21.2	18.6
1986	08 08	00 50.32	+08 33.8					
1986	08 18	00 48.79	+08 34.2	1.892	2.655	129.6	17.1	18.3
1986	08 28	00 44.72	+08 17.6					
1986	09 07	00 38.26	+07 43.8	1.753	2.683	151.6	10.3	17.9
1986	09 17	00 29.93	+06 54.8					
1986	09 27	00 20.53	+05 54.9	1.707	2.707	174.8	1.9	17.5
1986	10 07	00 11.07	+04 50.1					
1986	10 17	00 02.57	+03 47.7	1.775	2.729	159.0	7.5	17.9
1986	10 27	23 55.87	+02 54.0					
1986	11 06	23 51.47	+02 13.6	1.945	2.747	136.1	14.5	18.4
1986	11 16	23 49.61	+01 48.9					
1986	11 26	23 50.23	+01 40.5	2.190	2.762	115.5	18.8	18.8
1986	12 06	23 53.16	+01 47.6					
1986	12 16	23 58.15	+02 08.9	2.473	2.774	97.2	20.6	19.1

(3268) 1981 DD a,e,i = 2.35, 0.13, 6 Elements MPC 9758

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 25.39	+10 00.5	1.754	2.120	96.2	28.5	17.5
1986	07 19	00 34.36	+11 10.0					
1986	07 29	00 41.15	+12 04.3	1.560	2.142	110.7	26.3	17.2
1986	08 08	00 45.40	+12 40.5					
1986	08 18	00 46.79	+12 55.6	1.389	2.165	128.1	21.6	16.8
1986	08 28	00 45.18	+12 46.9					
1986	09 07	00 40.65	+12 12.5	1.266	2.191	148.7	13.8	16.4
1986	09 17	00 33.72	+11 13.2					
1986	09 27	00 25.34	+09 53.8	1.222	2.217	170.7	4.2	16.0
1986	10 07	00 16.75	+08 22.7					
1986	10 17	00 09.26	+06 51.0	1.278	2.245	161.3	8.2	16.3
1986	10 27	00 03.88	+05 29.1					
1986	11 06	00 01.20	+04 24.4	1.429	2.273	139.1	16.6	16.8
1986	11 16	00 01.43	+03 41.0					
1986	11 26	00 04.43	+03 19.4	1.651	2.302	119.4	21.9	17.3
1986	12 06	00 09.91	+03 18.2					
1986	12 16	00 17.56	+03 35.3	1.915	2.331	102.2	24.4	17.7

(3357) 1984 FT a,e,i = 3.03, 0.05, 11 Elements MPC 10307

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 39.60	-01 26.1	2.848	3.146	97.4	18.7	17.1
1986	07 19	00 44.61	-01 34.1					
1986	07 29	00 47.93	-01 55.7	2.591	3.152	114.7	17.0	16.9
1986	08 08	00 49.39	-02 31.4					
1986	08 18	00 48.86	-03 20.8	2.372	3.159	133.8	13.4	16.6
1986	08 28	00 46.36	-04 22.2					
1986	09 07	00 42.00	-05 32.6	2.225	3.164	154.5	7.9	16.2
1986	09 17	00 36.15	-06 47.1					
1986	09 27	00 29.36	-07 59.9	2.178	3.170	169.7	3.2	16.0
1986	10 07	00 22.32	-09 04.9					
1986	10 17	00 15.79	-09 56.6	2.245	3.174	154.6	7.7	16.2
1986	10 27	00 10.41	-10 31.9					
1986	11 06	00 06.67	-10 49.3	2.414	3.178	133.5	13.1	16.6
1986	11 16	00 04.87	-10 48.9					
1986	11 26	00 05.07	-10 32.5	2.655	3.182	113.6	16.5	16.9
1986	12 06	00 07.22	-10 01.8					
1986	12 16	00 11.20	-09 19.0	2.935	3.184	95.5	17.9	17.2

1982 MH a,e,i = 2.26, 0.07, 4 Elements MPC 8538

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 35.86	-01 01.8	1.931	2.306	98.2	25.9	18.8
1986	07 19	00 44.00	-00 24.7					
1986	07 29	00 50.14	-00 01.1	1.689	2.291	113.5	24.0	18.4
1986	08 08	00 53.91	+00 07.3					
1986	08 18	00 54.97	-00 00.4	1.476	2.276	131.4	19.5	18.0
1986	08 28	00 53.09	-00 24.2					
1986	09 07	00 48.24	-01 02.6	1.319	2.261	152.3	11.9	17.5
1986	09 17	00 40.76	-01 51.3					
1986	09 27	00 31.47	-02 43.8	1.246	2.245	173.6	2.9	17.0
1986	10 07	00 21.55	-03 32.0					
1986	10 17	00 12.40	-04 07.8	1.275	2.230	157.8	9.7	17.3
1986	10 27	00 05.21	-04 25.6					
1986	11 06	00 00.77	-04 23.1	1.396	2.215	135.5	18.3	17.8
1986	11 16	23 59.45	-03 59.9					
1986	11 26	00 01.19	-03 18.2	1.581	2.200	116.0	23.8	18.2
1986	12 06	00 05.77	-02 20.2					
1986	12 16	00 12.86	-01 08.3	1.800	2.186	99.3	26.4	18.5

2103 P-L a,e,i = 2.66, 0.14, 3 Elements MPC 9298

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 44.80	+07 19.9	2.691	2.923	92.8	20.3	19.4
1986	07 19	00 50.02	+07 55.4					
1986	07 29	00 53.45	+08 19.5	2.441	2.940	109.6	19.0	19.1
1986	08 08	00 54.87	+08 30.6					
1986	08 18	00 54.13	+08 27.5	2.218	2.956	128.5	15.5	18.8
1986	08 28	00 51.20	+08 09.5					
1986	09 07	00 46.17	+07 36.6	2.055	2.970	149.9	9.8	18.5
1986	09 17	00 39.43	+06 50.5					
1986	09 27	00 31.59	+05 54.6	1.986	2.983	173.1	2.3	18.1
1986	10 07	00 23.42	+04 53.9					
1986	10 17	00 15.80	+03 54.4	2.029	2.994	162.2	5.8	18.3
1986	10 27	00 09.47	+03 01.7					
1986	11 06	00 04.99	+02 20.2	2.181	3.003	139.3	12.4	18.7
1986	11 16	00 02.66	+01 52.8					
1986	11 26	00 02.55	+01 40.3	2.414	3.011	118.3	16.8	19.1
1986	12 06	00 04.59	+01 42.4					
1986	12 16	00 08.60	+01 58.2	2.693	3.017	99.5	18.8	19.4

(3282) 1949 DA a,e,i = 2.19, 0.04, 3 Elements MPC 9824

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 40.82	+04 12.0	1.952	2.278	95.0	26.4	17.3
1986	07 19	00 49.38	+04 52.9					
1986	07 29	00 55.96	+05 19.4	1.722	2.280	110.2	24.7	17.0
1986	08 08	01 00.23	+05 29.3					
1986	08 18	01 01.84	+05 20.8	1.515	2.282	128.0	20.5	16.6
1986	08 28	01 00.56	+04 53.0					
1986	09 07	00 56.35	+04 05.7	1.358	2.282	149.0	13.2	16.1
1986	09 17	00 49.50	+03 01.9					
1986	09 27	00 40.76	+01 47.3	1.284	2.282	172.6	3.2	15.6
1986	10 07	00 31.24	+00 30.3					
1986	10 17	00 22.28	-00 39.2	1.312	2.280	161.8	7.8	15.9
1986	10 27	00 15.04	-01 33.4					
1986	11 06	00 10.35	-02 07.2	1.437	2.278	138.7	16.7	16.4
1986	11 16	00 08.61	-02 18.8					
1986	11 26	00 09.83	-02 09.0	1.632	2.274	118.4	22.4	16.8
1986	12 06	00 13.80	-01 40.1					
1986	12 16	00 20.23	-00 54.6	1.866	2.270	101.1	25.2	17.2

1985 GE1 a,e,i = 2.29, 0.12, 6 Elements MPC 10039

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	07 09	00 46.52	+09 58.2	2.234	2.477	91.4	24.2	17.7
1986	07 19	00 53.79	+10 49.4					
1986	07 29	00 59.15	+11 28.0	2.002	2.495	107.0	22.9	17.5
1986	08 08	01 02.27	+11 51.9					
1986	08 18	01 02.90	+11 59.0	1.790	2.511	125.0	19.3	17.1
1986	08 28	01 00.89	+11 47.3					
1986	09 07	00 56.23	+11 15.6	1.626	2.526	146.0	12.9	16.7
1986	09 17	00 49.28	+10 24.2					
1986	09 27	00 40.72	+09 16.4	1.546	2.538	169.1	4.3	16.3
1986	10 07	00 31.53	+07 57.9					
1986	10 17	00 22.84	+06 37.1	1.574	2.548	164.6	6.0	16.4
1986	10 27	00 15.68	+05 22.5					
1986	11 06	00 10.75	+04 20.9	1.706	2.556	141.3	14.0	16.9
1986	11 16	00 08.43	+03 36.7					
1986	11 26	00 08.78	+03 11.5	1.918	2.563	120.3	19.4	17.3
1986	12 06	00 11.65	+03 04.9					
1986	12 16	00 16.80	+03 15.5	2.176	2.567	101.9	22.0	17.7