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

MPC	Line	
11116	- 2	Add Films taken with the 0.4-m Schmidt, measured by U. Hugentobler, J. Utzinger and P. Wild.
11202	-18	Code 292, for 285.13 read 285.11
11347	7	Add The double designation 1957 JH = 1957 JN was found by S. Kanda (MPC 1740).

* * * * *

CRITICAL LIST OF MINOR PLANETS.

The following list, representing the situation after the publication of the Nov. 16 MPCs, updates and is in the same form as that on MPC 10781:

1. Objects observed at only one opposition:
473 719 724 878 1026* 1179*

* These two long-lost minor planets have very recently been found and can be completely removed from the critical list; see IAUC 4278 and 4281, MPC 11388-11389, 11421 and 11428.

2. Objects observed at only two oppositions:
1981 2608 3102 3270 3271 3288 3352 3360

3. Objects accurately observed at only three oppositions:
1009 1538 2059 2061 2062 2076 2101 2135 2148 2198 2202 2212
2229 2260 2272 2327 2340 2373 2444 2552 2596 2629 2671 2695
2703 2706 2765 2800 2876 2895 2904 2915 2935 2937 2948 2964
2966 2968 2977 2986 2994 3004 3013 3017 3018 3022 3025 3037
3040 3041 3043 3044 3046 3057 3073 3075 3079 3080 3086 3087
3101 3103 3119 3122 3144 3160 3161 3169 3198 3199 3204 3206
3211 3212 3217 3218 3225 3245 3252 3254 3255 3273 3274 3284
3287 3289 3307 3309 3336 3343 3344 3353 3361 3362 3374 3383
3392 3398 3401 3402 3410 3416 3426 3446 3468 3473 3476 3480
3489 3496 3512

4. Objects observed at four or more oppositions, last during 1973-1975:
1134 1138 1230 1373 1710 1871 1876 1883

5. Objects observed at four or more oppositions, last during 1976:
879 880 881 1205 1372 1580 1709 1917 1919

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N Obs.
3500	1986 09	29.90497	22 47 19.26	-01 24 14.1	MPC11292		1 054
1986 SY *	1986 09	29.90497	22 57 40.99	-00 58 55.0	MPC11293	16.7	1 054

Note 1: time originally given one hour later.

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 11275.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1949 UM1 *	1949 10	22.87194	23 52 52.66	+02 57 41.8	1949 SA	14.8	024
1954 RS *	1954 09	04.24236	00 22 17.51	+05 08 08.3	1954 QQ		839
1973 UE6 *	1973 10	26.88010	00 43 34.88	+07 14 40.0	1973 SE4		095
1978 GD5 *	1978 04	07.92487	13 03 05.00	-05 53 24.4	1978 EC3	16.5	095
1978 JM3 *	1978 05	05.87200	13 49 12.22	-13 27 32.8	1978 GQ4	16.5	095
1980 BN6 *	1980 01	22.92731	08 30 32.27	+24 36 02.2	1979 YC9	17.0	095
1980 BN6	1980 01	23.89840	08 29 31.38	+24 40 22.2	1979 YC9	16.5	095
1983 VR7 *	1983 11	04.12569	00 59 16.02	+04 01 00.9	1983 TO1	17.2	688
1983 VR7	1983 11	04.19514	00 59 13.23	+04 00 39.5	1983 TO1		688
1986 LR1 *	1986 06	04.18611	13 35 06.24	-08 24 21.8	1986 HH		675
1986 LR1	1986 06	04.22222	13 35 05.78	-08 24 15.4	1986 HH		675
1986 LS1 *	1986 06	04.18611	13 38 20.77	-07 22 07.9	1986 HG		675
1986 LS1	1986 06	04.22222	13 38 20.29	-07 22 00.9	1986 HG		675

* * * * *

ROMAN NUMERAL DESIGNATIONS OF COMETS IN 1985.

The following tabulation continues that on MPC 10330. The designations 1808 III, 1976 XVI and 1983 XX were belatedly given to P/Grigg-Skjellerup, P/Skiff-Kosai and SOLWIND 6, respectively (see IAUC 4234, 4250 and 4229).

Comet	T	Name	Year/letter	Ref.
1985 I	Jan. 2.4	P/Tsuchinshan 1	1984p	MPC 9830
1985 II	Jan. 3.9	Shoemaker	1984s	MPC 9425
1985 III	May 23.9	P/Honda-Mrkos-Pajdusakova	1985c	IAUC 4055
1985 IV	June 3.4	P/Gehrels 3	1984l	NK 458
1985 V	June 5.2	P/Hartley 2	1986c	MPC 11236
1985 VI	June 8.2	P/Maury	1985k	MPC 10377
1985 VII	June 11.6	P/Hartley 1	1985f	MPC 10031
1985 VIII	June 28.7	Machholz	1985e	MPC 9753
1985 IX	July 5.2	P/Russell 1	1985b	IAUC 4053
1985 X	July 21.2	P/Tsuchinshan 2	1985d	MPC 9830
1985 XI	Aug. 4.3	P/Daniel	1985j	IAUC 4092
1985 XII	Sept. 4.6	Shoemaker	1984f	MPC 9426
1985 XIII	Sept. 5.2	P/Giacobini-Zinner	1984e	MPC 9762
1985 XIV	Sept. 28.4	Hartley	1984v	MPC 10298
1985 XV	Oct. 1.2	P/Giclas	1985g	MPC 10156
1985 XVI	Oct. 30.1	P/Ciffreo	1985p	MPC 10817
1985 XVII	Dec. 9.1	Hartley-Good	1985l	MPC 10377
1985 XVIII	Dec. 18.6	P/Shoemaker 3	1986a	MPC 10817
1985 XIX	Dec. 19.2	Thiele	1985m	MPC 10377

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

010 Caussols. 0.9-m Schmidt. Communicated by J.-L. Heudier.
012 Uccle. 0.4-m double astrograph. Observer T. Pauwels.
046 Klet. Observer A. Mrkos.
069 Baldone, near Riga. Observers I. K. Platajs, A. Rydzinskis, I. Pundure, I. I. Urgitis and A. K. Alksnis.
089 Nikolaev. 0.12-m f/17 astrograph. Observers V. I. Voronenko and G. K. Gorel'. From Kiev Komet. Tsirk. No. 355.
091 St. Etienne. 0.41-m reflector. Observer R. Chanal.
102 Zvenigorod. Observer V. P. Osipenko.
114 Engelhardt Observatory, Zelenchukskaya Station. Observers V. N. Kitkin and I. E. Tselishchev. In part from Kiev Komet. Tsirk. No. 355.
293 Burlington remote site. Observer T. Handley.
330 Purple Mountain Observatory. Observer J.-x. Yang. Communicated by J.-x. Zhang.
372 Geisei. 0.60-m reflector. Observer T. Seki. From Orient. Astron. Assoc. Comet Bull. Nos. 288 and 289.
391 Sendai Observatory, Ayashi Station. Observer M. Koishikawa. Measured by T. Tsumagari. From Nihondaira Obs. Circ. No. 1576.
392 JCPM Sapporo Station. 0.25-m reflector. Observer H. Kaneda. From Nihondaira Obs. Circ. No. 1576.
398 Nagatoro. Observer Kawasato. From Nihondaira Obs. Circ. No. 1583.
399 Kushiro. 0.16-m reflector. Observer S. Ueda. Measured by H. Kaneda. From Nihondaira Obs. Circ. Nos. 1576, 1585 and 1587.
494 Stakenbridge. Observer B. Manning.
552 Osservatore S. Vittore. Observers C. Vacchi and G. Sassi. Measured by V. Goretti, C. Vacchi and E. Columbini.
561 Piszkesteto. Observer M. Lovas. Measured by I. Toth.
576 Burwash. 0.57-m reflector. Observer A. Young. Measured by D. L. King at the Royal Greenwich Observatory.
657 Climenhaga Observatory, Victoria. Observers J. B. Tatum and D. D. Balam.
688 Lowell Observatory, Anderson Mesa Station. Observer B. A. Skiff. Measured by B. A. Skiff and E. Bowell.
691 University of Arizona, Kitt Peak. 0.91-m reflector, CCD in scanning mode. Observer J. V. Scotti.
707 Chamberlin Observatory field station. Observer J. Briggs. Measured by J. Briggs and E. Everhart.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao.
881 Toyota. 0.31-m f/7 reflector. Observers K. Suzuki and T. Urata. From Nihondaira Obs. Circ. No. 1583.
887 Ojima. Observers T. Niijima and T. Urata. From Nihondaira Obs. Circ. No. 1583.
892 YGCO Hoshikawa and Nagano stations. Observers H. Mori and S. Hayakawa. Long. and Parallax 139.46, -345, -250 (see MPC 11200). In part from Nihondaira Obs. Circ. Nos. 1582 and 1587.
894 Kiyosato. Observer S. Miyasaka. 0.16-m f/3.3 hyperboloid astro-camera. Long. and Parallax 138.45, -346, -249 (see MPC 11200). From Nihondaira Obs. Circ. No. 1585.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
		Periodic Comet Halley				
/1982i	1985	11 04.84410	05 05 44.33	+22 03 35.0		102
/1982i	1985	11 12.07500	04 21 32.50	+22 11 10.6		102

/1982i	1985	12	09.68212	23	48	41.59	+06	52	20.6		102
/1982i	1986	05	02.83969	10	49	08.79	-16	47	45.4		069
/1982i	1986	05	02.84345	10	49	08.17	-16	47	35.6		069
/1982i	1986	05	04.86136	10	44	06.96	-15	20	10.5		069
/1982i	1986	05	05.84531	10	41	59.98	-14	41	43.4		069
/1982i	1986	05	05.85295	10	41	59.02	-14	41	26.2		069
/1982i	1986	05	06.84406	10	40	02.79	-14	05	11.0		069
/1982i	1986	05	06.85170	10	40	01.92	-14	04	55.1		069
/1982i	1986	05	07.83120	10	38	17.31	-13	31	22.5		069
/1982i	1986	05	07.84381	10	38	15.90	-13	30	58.4		069
/1982i	1986	05	08.84816	10	36	38.14	-12	58	46.6		069
/1982i	1986	05	08.85997	10	36	37.04	-12	58	24.5		069
/1982i	1986	05	08.87906	10	36	35.36	-12	57	47.8		069
/1982i	1986	05	10.85108	10	33	49.84	-12	00	27.5		069
/1982i	1986	05	10.85669	10	33	49.20	-12	00	18.0		069
/1982i	1986	05	10.87266	10	33	48.00	-11	59	52.9		069
/1982i	1986	06	06.77361	10	24	28.95	-05	55	34.3		114
/1982i	1986	06	11.77716	10	25	36.29	-05	32	18.4		114
/1982i	1986	06	11.78203	10	25	36.24	-05	32	15.7		114
/1982i	1986	10	30.83368	11	36	48.1	-12	36	10	16 T	372
/1982i	1986	11	09.87476	11	38	59.89	-13	23	54.4	15 T	330
/1982i	1986	11	30.87608	11	39	53.93	-14	53	54.8	14 T	330
/1982i	1986	12	09.59671	11	38	30.67	-15	25	06.3		657
			Periodic Comet Arend-Rigaux								
/1984 XXI	1984	11	23.06770	08	06	38.11	-01	44	25.0		114
/1984 XXI	1984	11	27.03792	08	14	08.36	-01	18	16.9		114
/1984 XXI	1984	11	30.07546	08	19	36.04	-00	53	08.9		114
/1984 XXI	1984	12	01.07853	08	21	20.99	-00	43	45.3		114
/1984 XXI	1984	12	01.94158	08	22	50.62	-00	35	11.5		114
			Comet Shoemaker (1985 XII)								
/1985 XII	1986	10	31.39966	05	25	37.06	-18	02	36.0		801
			Periodic Comet Ciffreo								
/1985 XVI	1986	01	30.16291	04	25	41.55	+36	20	44.1		707
			Comet Hartley-Good (1985 XVII)								
/1985 XVII	1985	10	30.68168	19	10	53.06	+02	47	50.8		089
/1985 XVII	1985	11	04.66546	18	52	04.18	+06	04	48.1		089
/1985 XVII	1985	11	04.68106	18	52	00.76	+06	05	19.7		089
/1985 XVII	1985	11	04.69628	18	51	57.69	+06	05	52.9		089
/1985 XVII	1985	11	09.65782	18	35	57.81	+08	48	09.0		089
/1985 XVII	1985	11	09.67848	18	35	53.99	+08	48	46.6		089
/1985 XVII	1985	11	09.69923	18	35	50.24	+08	49	23.0		089
/1985 XVII	1985	11	19.64561	18	08	13.98	+12	50	13.1		089
/1985 XVII	1985	11	19.66291	18	08	11.17	+12	50	32.4		089
/1985 XVII	1985	11	20.65170	18	05	36.42	+13	08	48.0		089
/1985 XVII	1985	11	20.66901	18	05	33.66	+13	09	03.0		089
/1985 XVII	1985	11	30.64186	17	40	01.30	+15	13	57.8		089
			Periodic Comet Schwassmann-Wachmann 2								
/1986h	1986	11	26.63875	01	39	12.97	+04	35	31.5	15 T	399
/1986h	1986	11	29.45729	01	37	56.19	+04	32	02.4		399
/1986h	1986	11	29.47639	01	37	55.57	+04	32	00.5		399
			Comet Wilson (1986l)								
/1986l	1986	08	29.87638	21	33	49.83	+21	08	55.2		091
/1986l	1986	08	29.94061	21	33	41.56	+21	07	57.3		091

/1986l	1986	09	04.94791	21	20	45.38	+19	29	41.7		091
/1986l	1986	10	04.88888	20	24	37.71	+09	00	56.6		091
/1986l	1986	10	04.88889	20	24	37.82	+09	00	57.8		046
/1986l	1986	10	24.47373	20	02	23.78	+02	11	22.9		399
/1986l	1986	10	24.48646	20	02	23.20	+02	11	08.1		399
/1986l	1986	10	24.76303	20	02	09.73	+02	05	48.9	9.6T	046
/1986l	1986	10	24.76581	20	02	09.63	+02	05	45.6		046
/1986l	1986	10	25.44248	20	01	37.26	+01	52	51.6		399
/1986l	1986	10	26.10417	20	01	06.35	+01	40	19.7		707
/1986l	1986	10	26.11181	20	01	06.00	+01	40	10.7		707
/1986l	1986	10	27.73941	19	59	53.57	+01	09	42.2		046
/1986l	1986	10	27.74253	19	59	53.46	+01	09	40.2		046
/1986l	1986	10	28.73437	19	59	11.65	+00	51	22.5		046
/1986l	1986	10	28.73750	19	59	11.50	+00	51	18.5		046
/1986l	1986	10	29.05060	19	58	58.64	+00	45	36.5		801
/1986l	1986	10	29.95104	19	58	22.75	+00	29	14.4		801
/1986l	1986	10	30.51719	19	58	00.75	+00	19	01.5		399
/1986l	1986	10	30.84130	19	57	48.52	+00	13	11.9		494
/1986l	1986	10	30.94876	19	57	44.53	+00	11	17.9		801
/1986l	1986	10	31.40868	19	57	27.50	+00	03	05.7		398
/1986l	1986	10	31.41458	19	57	27.31	+00	03	00.6		398
/1986l	1986	10	31.45833	19	57	25.61	+00	02	13.1		398
/1986l	1986	10	31.95205	19	57	07.89	-00	06	30.6		801
/1986l	1986	11	01.13264	19	57	01.10	-00	09	42.0		293
/1986l	1986	11	04.47616	19	55	12.35	-01	07	24.4		399
/1986l	1986	11	05.47188	19	54	43.37	-01	24	08.5		399
/1986l	1986	11	06.48021	19	54	15.75	-01	40	52.2		399
/1986l	1986	11	28.94575	19	50	02.09	-07	02	17.6		801
/1986l	1986	11	29.11951	19	50	02.51	-07	04	26.6		657
/1986l	1986	11	29.37604	19	50	03.45	-07	07	13.9		894
/1986l	1986	11	29.40173	19	50	03.45	-07	07	44.7		894
/1986l	1986	11	30.94832	19	50	08.39	-07	26	42.1		801

Comet Sorrells (1986n)

/1986n	1986	11	02.04826	05	36	20.91	+27	01	02.8		576
/1986n	1986	11	03.78854	05	29	47.40	+27	19	01.3	11.5T	372
/1986n	1986	11	04.71049	05	26	07.70	+27	28	23.0	11.5T	372
/1986n	1986	11	05.97888	05	20	51.19	+27	40	56.8		494
/1986n	1986	11	05.98971	05	20	48.40	+27	41	03.1		494
/1986n	1986	11	07.75833	05	12	59.38	+27	57	51.1	11 T	372
/1986n	1986	11	09.71146	05	03	44.32	+28	15	00.2	10.5T	372
/1986n	1986	11	10.71736	04	58	42.90	+28	23	04.2		391
/1986n	1986	11	10.71944	04	58	42.23	+28	23	06.1		391
/1986n	1986	11	11.57836	04	54	16.70	+28	29	30.0	11 T	392
/1986n	1986	11	11.58258	04	54	15.41	+28	29	32.8		392
/1986n	1986	11	11.68333	04	53	43.55	+28	30	17.2		391
/1986n	1986	11	11.68542	04	53	42.82	+28	30	18.5		391
/1986n	1986	11	11.79931	04	53	06.59	+28	31	06.4		391
/1986n	1986	11	11.80139	04	53	06.17	+28	31	07.7		391
/1986n	1986	11	11.98750	04	52	07.50	+28	32	24.1		576
/1986n	1986	11	13.14514	04	45	52.06	+28	39	59.3		012
/1986n	1986	11	13.60029	04	43	21.13	+28	42	39.2	10 T	392
/1986n	1986	11	13.60891	04	43	18.30	+28	42	41.8		392
/1986n	1986	11	13.77465	04	42	22.31	+28	43	38.1		399
/1986n	1986	11	13.77830	04	42	21.07	+28	43	39.5		399
/1986n	1986	11	22.88021	03	45	24.02	+28	49	34.0		576

/1986n	1986	11	25.87431	03	24	53.69	+28	27	22.3			552
/1986n	1986	11	26.46562	03	20	49.09	+28	21	24.0	10.0	T	892
/1986n	1986	11	26.60168	03	19	52.19	+28	19	57.7			399
/1986n	1986	11	26.60816	03	19	49.51	+28	19	53.4			399
/1986n	1986	11	26.86979	03	18	01.21	+28	17	02.3			552
/1986n	1986	11	26.88279	03	17	56.08	+28	16	53.0			494
/1986n	1986	11	26.90096	03	17	48.34	+28	16	41.0			494
/1986n	1986	11	29.19035	03	02	01.24	+27	47	25.7			657
/1986n	1986	11	29.54676	02	59	34.22	+27	42	14.4			399
/1986n	1986	11	29.55365	02	59	31.30	+27	42	07.8			399
/1986n	1986	11	29.58334	02	59	19.69	+27	41	45.0			894
/1986n	1986	11	29.62744	02	59	01.23	+27	41	05.4			894
/1986n	1986	12	06.18403	02	15	54.88	+25	38	04.3			657

Periodic Comet Urata-Niijima (1986o)

/1986o	1986	11	04.02847	01	52	09.75	+22	16	53.3	16.0	T	561
/1986o	1986	11	04.04097	01	52	08.18	+22	17	29.4			561
/1986o	1986	11	05.87639	01	48	43.95	+23	40	31.0			010
/1986o	1986	11	05.89722	01	48	41.88	+23	41	23.9			010
/1986o	1986	11	07.60347	01	45	31.34	+24	57	17.6	16.5	T	372
/1986o	1986	11	08.59375	01	43	42.24	+25	40	37.4			391
/1986o	1986	11	08.59722	01	43	42.17	+25	40	42.7			391
/1986o	1986	11	08.89951	01	43	08.70	+25	53	51.9	16.0	T	561
/1986o	1986	11	10.00521	01	41	09.20	+26	41	20.6			561
/1986o	1986	11	11.70801	01	38	08.46	+27	53	03.3	16	T	892
/1986o	1986	11	11.72465	01	38	06.66	+27	53	42.2			892
/1986o	1986	11	26.50148	01	17	46.08	+36	42	56.6			887
/1986o	1986	11	26.50764	01	17	45.82	+36	43	08.3			887
/1986o	1986	11	26.53924	01	17	43.86	+36	44	03.2	16	T	881
/1986o	1986	11	26.56979	01	17	42.05	+36	44	58.0			881
/1986o	1986	11	28.78273	01	15	52.75	+37	49	05.8			494
/1986o	1986	11	28.83293	01	15	50.32	+37	50	30.5			494
/1986o	1986	11	28.85774	01	15	49.16	+37	51	13.0			494
/1986o	1986	12	04.30882	01	12	56.07	+40	14	18.6			691

Comet Lovas (1986p)

/1986p	1986	12	02.16564	01	49	05.48	+13	49	49.0	16	T	4	801
/1986p	1986	12	02.19899	01	49	07.31	+13	49	43.8				691
/1986p	1986	12	02.20789	01	49	07.67	+13	49	44.8				691
/1986p	1986	12	02.22567	01	49	08.32	+13	49	45.2				691
/1986p	1986	12	02.60428	01	49	23.1	+13	50	08				892
/1986p	1986	12	03.58472	01	50	05.99	+13	51	38.0	16	T		372
/1986p	1986	12	03.59514	01	50	06.32	+13	51	40.2				372
/1986p	1986	12	04.08229	01	50	28.30	+13	52	23.5	14.5	T	1	688
/1986p	1986	12	04.12302	01	50	30.26	+13	52	23.8			2	688
/1986p	1986	12	04.14331	01	50	31.19	+13	52	35.2				688
/1986p	1986	12	04.22360	01	50	34.19	+13	52	39.4			3	688
/1986p	1986	12	04.26881	01	50	35.90	+13	52	45.4	15	T		691
/1986p	1986	12	04.27226	01	50	35.98	+13	52	45.4				691
/1986p	1986	12	04.28859	01	50	36.77	+13	52	46.4				691
/1986p	1986	12	04.51562	01	50	47.19	+13	53	08.4	14	T		892
/1986p	1986	12	04.55104	01	50	48.76	+13	53	15.1				892
/1986p	1986	12	05.01847	01	51	10.07	+13	53	55.3				801

Note 1: right ascension uncertain. 2: declination uncertain. 3 = 1 + 2.
4: very poor sky.

OBSERVATIONS MADE AT CAUSSOLS.

Plates taken and measured by A. Barthelemy, J. Ciffreo, J.-L. Heudier, T. Laverge and C. Pollas with the 0.9-m Schmidt in association with the International Near-Earth Asteroid Survey (INAS). Contact: J.-L. Heudier, CERGA Caussols, F-06460 Saint Vallier de Thiey, France.

Object	Date	UT	R. A. (1950)	Decl.	N Obs.
38	1986 11	05.87639	01 55 46.27	+23 41 57.8	010
38	1986 11	05.89722	01 55 45.42	+23 41 52.1	010
171	1986 10	27.92361	01 33 49.12	+06 05 35.7	010
171	1986 10	27.94444	01 33 48.51	+06 05 32.4	010
171	1986 10	27.95491	01 33 48.29	+06 05 29.2	010
539	1986 11	04.00069	01 45 38.35	+22 08 12.2	010
539	1986 11	04.02153	01 45 37.46	+22 08 04.4	010
539	1986 11	04.03194	01 45 36.84	+22 07 58.5	010
539	1986 11	05.87639	01 44 14.80	+21 53 31.2	010
539	1986 11	05.89722	01 44 14.67	+21 53 22.7	010
975	1986 10	26.85902	00 02 33.18	-01 36 28.5	010
975	1986 10	26.89027	00 02 32.30	-01 36 32.5	010
978	1986 10	28.81389	22 27 36.68	+09 50 58.1	010
978	1986 10	28.83472	22 27 37.46	+09 50 40.4	010
978	1986 10	28.84514	22 27 37.51	+09 50 39.1	010
978	1986 10	28.84861	22 27 37.77	+09 50 31.9	010
1339	1986 11	04.00069	01 39 22.06	+23 52 31.2	010
1339	1986 11	04.02153	01 39 21.16	+23 52 24.6	010
1339	1986 11	04.03194	01 39 20.50	+23 52 19.3	010
1339	1986 11	05.87639	01 37 55.07	+23 41 18.8	010
1339	1986 11	05.89722	01 37 54.65	+23 41 12.1	010
1463	1986 11	04.00069	01 37 22.61	+21 37 14.9	010
1463	1986 11	04.02153	01 37 21.63	+21 37 10.9	010
1463	1986 11	04.03194	01 37 21.16	+21 37 08.2	010
1463	1986 11	05.87639	01 35 59.05	+21 30 12.3	010
1463	1986 11	05.89722	01 35 57.72	+21 30 06.8	010
1976	1986 10	27.92361	01 36 17.30	+06 21 47.5	010
1976	1986 10	27.94444	01 36 16.29	+06 21 42.9	010
1976	1986 10	27.95491	01 36 15.98	+06 21 39.6	010
2020	1986 11	03.93958	02 12 52.10	-02 30 43.9	010
2020	1986 11	03.96042	02 12 51.70	-02 30 49.1	010
2020	1986 11	03.97083	02 12 51.14	-02 30 51.8	010
2289	1986 10	27.92361	01 26 51.49	+08 05 36.1	010
2289	1986 10	27.94444	01 26 50.70	+08 05 30.8	010
2289	1986 10	27.95491	01 26 50.18	+08 05 26.8	010
2444	1986 10	27.77013	21 33 47.15	+03 33 48.1	010
2444	1986 10	27.79097	21 33 47.67	+03 33 46.8	010
2444	1986 10	28.77013	21 34 10.45	+03 32 00.1	010
2444	1986 10	28.79097	21 34 10.93	+03 31 58.1	010
2506	1986 10	26.85902	00 00 11.55	-01 29 42.7	010
2506	1986 10	26.89027	00 00 12.03	-01 29 48.0	010
2624	1986 10	27.92361	01 36 58.99	+07 13 19.6	010
2624	1986 10	27.94444	01 36 58.86	+07 13 17.6	010
2624	1986 10	27.95491	01 36 57.89	+07 13 14.4	010
2708	1986 10	26.85902	00 08 55.81	-03 23 02.0	010
2708	1986 10	26.89027	00 08 54.50	-03 23 07.9	010
2799	1986 11	04.00069	01 43 38.02	+19 41 46.1	010
2799	1986 11	04.02153	01 43 37.00	+19 41 36.9	010
2799	1986 11	04.03194	01 43 36.58	+19 41 33.0	010
2837	1986 10	27.92361	01 28 20.94	+06 30 13.4	010
2837	1986 10	27.94444	01 28 19.41	+06 30 10.7	010
2837	1986 10	27.95491	01 28 18.84	+06 30 08.7	010
2852	1986 10	27.92361	01 41 57.54	+07 38 23.6	010

2852		1986	10	27.94444	01	41	56.61	+07	38	20.3	010
2852		1986	10	27.95491	01	41	56.22	+07	38	18.4	010
2920		1986	11	04.00069	01	49	01.28	+19	30	09.7	010
2920		1986	11	04.02153	01	49	01.04	+19	30	04.6	010
2920		1986	11	04.03194	01	49	00.72	+19	30	00.7	010
1975	TV2	1986	11	07.89444	01	21	00.83	+01	16	31.4	010
1975	TV2	1986	11	07.93611	01	20	59.00	+01	16	29.2	010
1978	VW6	1986	11	04.00069	01	34	15.92	+21	49	54.7	010
1978	VW6	1986	11	04.02153	01	34	15.05	+21	49	38.9	010
1978	VW6	1986	11	04.03194	01	34	14.68	+21	49	31.6	010
1981	EA9	1986	11	05.87639	01	44	00.73	+24	43	37.1	010
1981	EA9	1986	11	05.89722	01	44	00.26	+24	43	32.4	010
1986	RG1	1986	08	31.93260	22	51	51.40	-05	50	55.5	010
1986	RG1	1986	08	31.95347	22	51	50.79	-05	51	01.4	010
1986	RG1	1986	08	31.96390	22	51	50.70	-05	51	03.3	010
1986	TX	1986	10	27.92361	01	29	30.42	+05	23	34.9	010
1986	TX	1986	10	27.94444	01	29	29.12	+05	23	32.2	010
1986	TX	1986	10	27.95491	01	29	28.94	+05	23	28.3	010
1986	TK2	1986	11	07.89444	01	24	55.72	-01	39	19.4	010
1986	TK2	1986	11	07.93611	01	24	54.33	-01	39	20.2	010
1986	TP2	1986	11	07.89444	01	29	10.33	+01	32	17.8	010
1986	TP2	1986	11	07.93611	01	29	08.51	+01	32	11.1	010
1986	TK4	1986	10	27.92361	01	43	51.53	+08	33	34.6	010
1986	TK4	1986	10	27.94444	01	43	50.21	+08	33	39.2	010
1986	TK4	1986	10	27.95491	01	43	49.33	+08	33	41.8	010
1986	UM1 *	1986	10	26.85902	00	11	07.97	-01	38	01.1	010
1986	UM1	1986	10	26.89027	00	11	07.27	-01	38	03.1	010
1986	UN1 *	1986	10	27.75972	21	28	02.86	+00	45	31.9	010
1986	UN1	1986	10	27.78055	21	28	03.47	+00	45	27.3	010
1986	UN1	1986	10	27.79097	21	28	04.34	+00	45	23.4	010
1986	UN1	1986	10	28.77013	21	28	49.39	+00	42	06.5	010
1986	UO1 *	1986	10	27.92361	01	22	54.41	+06	35	15.8	010
1986	UO1	1986	10	27.94444	01	22	54.29	+06	35	13.1	010
1986	UO1	1986	10	27.95491	01	22	53.93	+06	35	09.8	010
1986	UP1 *	1986	10	27.92361	01	23	51.75	+05	39	55.6	010
1986	UP1	1986	10	27.94444	01	23	51.23	+05	39	54.2	010
1986	UP1	1986	10	27.95491	01	23	50.66	+05	39	53.5	010
1986	UQ1 *	1986	10	27.92361	01	23	58.18	+07	37	00.5	010
1986	UQ1	1986	10	27.94444	01	23	57.74	+07	36	57.2	010
1986	UQ1	1986	10	27.95491	01	23	57.08	+07	36	53.8	010
1986	UR1 *	1986	10	27.92361	01	24	46.58	+06	16	58.7	010
1986	UR1	1986	10	27.95491	01	24	45.28	+06	16	50.1	010
1986	US1 *	1986	10	27.92361	01	25	38.60	+05	33	00.0	010
1986	US1	1986	10	27.95491	01	25	38.12	+05	32	53.4	010
1986	UT1 *	1986	10	27.92361	01	27	39.62	+05	34	18.9	010
1986	UU1 *	1986	10	27.92361	01	28	06.31	+06	24	20.3	010
1986	UU1	1986	10	27.95491	01	28	05.39	+06	24	14.4	010
1986	UV1 *	1986	10	27.92361	01	28	46.74	+06	14	13.7	010
1986	UV1	1986	10	27.94444	01	28	45.82	+06	14	11.7	010
1986	UV1	1986	10	27.95491	01	28	44.99	+06	14	09.6	010
1986	UW1 *	1986	10	27.92361	01	29	47.52	+05	54	28.4	010
1986	UW1	1986	10	27.95491	01	29	46.29	+05	54	20.4	010
1986	UX1 *	1986	10	27.92361	01	30	14.65	+04	55	32.3	010
1986	UX1	1986	10	27.95491	01	30	13.60	+04	55	19.9	010
1986	UY1 *	1986	10	27.92361	01	31	43.55	+04	59	58.1	010
1986	UY1	1986	10	27.94444	01	31	42.77	+04	59	52.9	010
1986	UY1	1986	10	27.95491	01	31	42.55	+04	59	46.4	010
1986	UZ1 *	1986	10	27.92361	01	32	13.72	+06	21	17.1	010
1986	UZ1	1986	10	27.94444	01	32	13.06	+06	21	05.9	010

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1986 UZ1    1986 10 27.95491  01 32 12.80  +06 20 57.4                    010
1986 UA2  * 1986 10 27.92361  01 32 39.47  +05 51 17.2                    010
1986 UA2    1986 10 27.94444  01 32 39.17  +05 51 08.0                    010
1986 UA2    1986 10 27.95491  01 32 38.77  +05 51 02.8                    010
1986 UB2  * 1986 10 27.92361  01 33 05.37  +06 44 33.6                    010
1986 UB2    1986 10 27.94444  01 33 04.45  +06 44 29.6                    010
1986 UB2    1986 10 27.95491  01 33 04.28  +06 44 26.3                    010
1986 UC2  * 1986 10 27.92361  01 33 36.35  +09 51 26.7                    010
1986 UC2    1986 10 27.95491  01 33 34.36  +09 51 14.8                    010
1986 UD2  * 1986 10 27.92361  01 34 01.42  +08 09 57.7                    010
1986 UD2    1986 10 27.94444  01 34 00.49  +08 09 46.6                    010
1986 UD2    1986 10 27.95491  01 33 59.65  +08 09 41.3                    010
1986 UE2  * 1986 10 27.92361  01 34 43.14  +06 05 19.8                    010
1986 UE2    1986 10 27.94444  01 34 42.78  +06 05 14.0                    010
1986 UE2    1986 10 27.95491  01 34 42.13  +06 05 08.7                    010
1986 UF2  * 1986 10 27.92361  01 35 03.79  +08 50 03.5                    010
1986 UF2    1986 10 27.95491  01 35 02.25  +08 50 03.5                    010
1986 UG2  * 1986 10 27.92361  01 35 17.31  +06 55 04.1                    010
1986 UG2    1986 10 27.95491  01 35 16.73  +06 55 00.1                    010
1986 UH2  * 1986 10 27.92361  01 35 30.18  +09 10 47.3                    010
1986 UH2    1986 10 27.95491  01 35 28.38  +09 10 44.6                    010
1986 UJ2  * 1986 10 27.92361  01 35 44.86  +09 58 36.4                    010
1986 UJ2    1986 10 27.95491  01 35 42.65  +09 58 30.5                    010
1986 UK2  * 1986 10 27.92361  01 35 50.19  +05 49 00.7                    010
1986 UK2    1986 10 27.94444  01 35 49.49  +05 48 56.7                    010
1986 UK2    1986 10 27.95491  01 35 48.92  +05 48 55.4                    010
1986 UL2  * 1986 10 27.92361  01 36 24.04  +08 31 57.3                    010
1986 UL2    1986 10 27.95491  01 36 22.85  +08 31 46.2                    010
1986 UM2  * 1986 10 27.92361  01 37 35.77  +06 32 43.0                    010
1986 UM2    1986 10 27.95491  01 37 34.49  +06 32 42.4                    010
1986 UN2  * 1986 10 27.92361  01 37 36.37  +05 26 27.0                    010
1986 UN2    1986 10 27.94444  01 37 36.06  +05 26 18.5                    010
1986 UN2    1986 10 27.95491  01 37 34.88  +05 26 15.8                    010
1986 UO2  * 1986 10 27.92361  01 39 16.18  +09 23 27.0                    010
1986 UO2    1986 10 27.95491  01 39 14.28  +09 23 16.6                    010
1986 UP2  * 1986 10 27.92361  01 39 19.42  +09 59 46.1                    010
1986 UP2    1986 10 27.94444  01 39 18.19  +09 59 38.2                    010
1986 UP2    1986 10 27.95491  01 39 17.66  +09 59 33.6                    010
1986 UQ2  * 1986 10 27.92361  01 39 50.08  +07 06 34.4                    010
1986 UQ2    1986 10 27.94444  01 39 49.46  +07 06 20.6                    010
1986 UQ2    1986 10 27.95491  01 39 48.72  +07 06 16.1                    010
1986 UR2  * 1986 10 27.92361  01 39 59.49  +05 56 33.9                    010
1986 UR2    1986 10 27.94444  01 39 58.48  +05 56 33.3                    010
1986 UR2    1986 10 27.95491  01 39 58.26  +05 56 33.9                    010
1986 US2  * 1986 10 27.92361  01 40 24.55  +06 54 24.0                    010
1986 US2    1986 10 27.94444  01 40 23.14  +06 54 13.5                    010
1986 US2    1986 10 27.95491  01 40 22.39  +06 54 08.3                    010
1986 UT2  * 1986 10 27.92361  01 41 53.73  +07 43 39.5                    010
1986 UT2    1986 10 27.95491  01 41 52.45  +07 43 35.6                    010
1986 UU2  * 1986 10 27.92361  01 42 01.65  +06 08 39.3                    010
1986 UU2    1986 10 27.94444  01 42 00.73  +06 08 33.4                    010
1986 UU2    1986 10 27.95491  01 42 00.20  +06 08 29.5                    010
1986 UV2  * 1986 10 27.92361  01 42 02.18  +08 10 55.7                    010
1986 UV2    1986 10 27.95491  01 42 00.63  +08 10 46.6                    010
1986 UW2  * 1986 10 27.92361  01 42 03.92  +08 55 16.5                    010
1986 UW2    1986 10 27.95491  01 42 02.81  +08 55 10.0                    010
1986 UX2  * 1986 10 27.92361  01 42 16.15  +09 52 26.6                    010
1986 UX2    1986 10 27.95491  01 42 15.53  +09 52 14.2                    010
1986 UY2  * 1986 10 27.92361  01 42 42.54  +09 23 32.4                    010
```

1986	UY2		1986	10	27.94444	01	42	41.39	+09	23	38.4	010
1986	UY2		1986	10	27.95491	01	42	40.73	+09	23	42.3	010
1986	UZ2	*	1986	10	27.92361	01	43	03.20	+06	13	30.0	010
1986	UZ2		1986	10	27.94444	01	43	02.55	+06	13	32.6	010
1986	UZ2		1986	10	27.95491	01	43	01.58	+06	13	35.2	010
1986	UA3	*	1986	10	27.92361	01	43	04.39	+07	02	01.2	010
1986	UA3		1986	10	27.94444	01	43	03.60	+07	01	57.9	010
1986	UA3		1986	10	27.95491	01	43	03.07	+07	01	56.0	010
1986	UB3	*	1986	10	28.77013	21	40	30.62	+03	36	16.8	010
1986	UB3		1986	10	28.79097	21	40	31.76	+03	36	12.9	010
1986	UC3	*	1986	10	28.81389	22	15	52.24	+06	14	26.5	010
1986	UC3		1986	10	28.83472	22	15	52.76	+06	14	17.4	010
1986	UC3		1986	10	28.84514	22	15	53.29	+06	14	12.2	010
1986	UD3	*	1986	10	28.81389	22	21	33.65	+05	56	35.7	010
1986	UD3		1986	10	28.83472	22	21	34.22	+05	56	25.3	010
1986	UD3		1986	10	28.84514	22	21	34.48	+05	56	21.9	010
1986	UE3	*	1986	10	28.81389	22	23	47.94	+07	52	29.3	010
1986	UE3		1986	10	28.83472	22	23	48.56	+07	52	20.8	010
1986	UE3		1986	10	28.84514	22	23	48.82	+07	52	18.8	010
1986	UF3	*	1986	10	28.82430	22	24	28.12	+05	34	22.3	010
1986	UF3		1986	10	28.84514	22	24	28.25	+05	34	19.7	010
1986	VA		1986	11	04.00069	01	44	21.85	+22	52	27.5	010
1986	VA		1986	11	04.02153	01	44	21.09	+22	52	20.3	010
1986	VA		1986	11	04.03194	01	44	20.53	+22	52	15.1	010
1986	VA		1986	11	05.87639	01	42	57.16	+22	39	36.9	010
1986	VA		1986	11	05.89722	01	42	56.70	+22	39	29.0	010
1986	VB		1986	11	05.87639	01	42	49.32	+22	43	16.6	010
1986	VB		1986	11	05.89722	01	42	48.28	+22	43	26.3	010
1986	VC		1986	11	04.00069	01	48	42.31	+21	32	50.8	010
1986	VC		1986	11	04.03194	01	48	40.39	+21	32	48.4	010
1986	VC		1986	11	05.87639	01	46	48.83	+21	29	59.7	010
1986	VC		1986	11	05.89722	01	46	48.18	+21	29	58.3	010
1986	VD		1986	11	04.00069	01	49	01.25	+21	42	22.1	010
1986	VD		1986	11	04.02153	01	49	00.40	+21	42	14.3	010
1986	VD		1986	11	04.03194	01	49	00.02	+21	42	09.8	010
1986	VD		1986	11	05.87639	01	47	35.41	+21	29	28.3	010
1986	VD		1986	11	05.89722	01	47	35.13	+21	29	20.4	010
1986	VE		1986	11	05.87639	01	51	06.42	+22	56	56.3	010
1986	VE		1986	11	05.89722	01	51	05.98	+22	56	41.9	010
1986	VG		1986	11	05.87639	01	50	42.63	+22	44	17.7	010
1986	VG		1986	11	05.89722	01	50	40.41	+22	44	15.2	010
1986	VH1	*	1986	11	03.93958	01	56	01.63	-01	06	50.6	010
1986	VH1		1986	11	03.96042	01	56	00.54	-01	06	52.6	010
1986	VH1		1986	11	03.97083	01	55	59.72	-01	06	54.0	010
1986	VJ1	*	1986	11	03.93958	01	58	49.74	+00	53	19.1	010
1986	VJ1		1986	11	03.96042	01	58	48.65	+00	53	23.1	010
1986	VJ1		1986	11	03.97083	01	58	48.18	+00	53	25.7	010
1986	VK1	*	1986	11	03.93958	01	58	55.12	+00	32	11.7	010
1986	VK1		1986	11	03.97083	01	58	53.43	+00	32	03.7	010
1986	VL1	*	1986	11	03.93958	01	59	10.39	+00	48	32.7	010
1986	VL1		1986	11	03.96042	01	59	09.56	+00	48	32.7	010
1986	VL1		1986	11	03.97083	01	59	08.81	+00	48	33.4	010
1986	VM1	*	1986	11	03.93958	02	00	38.75	+00	57	44.8	010
1986	VM1		1986	11	03.96042	02	00	38.19	+00	57	46.1	010
1986	VN1	*	1986	11	03.93958	02	00	41.08	-01	45	32.6	010
1986	VN1		1986	11	03.96042	02	00	40.04	-01	45	39.2	010
1986	VN1		1986	11	03.97083	02	00	39.82	-01	45	40.5	010
1986	VO1	*	1986	11	03.93958	02	01	00.05	-02	30	54.0	010
1986	VO1		1986	11	03.97083	02	00	59.27	-02	31	03.9	010

1986 VP1 * 1986 11 03.93958 02 01 59.36 +00 47 24.1 010
1986 VP1 1986 11 03.97083 02 01 57.97 +00 47 34.6 010
1986 VQ1 * 1986 11 03.93958 02 02 07.54 +00 32 51.5 010
1986 VQ1 1986 11 03.97083 02 02 06.11 +00 33 02.1 010
1986 VR1 * 1986 11 03.93958 02 02 34.15 +00 28 27.2 010
1986 VR1 1986 11 03.97083 02 02 33.20 +00 28 16.1 010
1986 VS1 * 1986 11 03.93958 02 02 58.66 -01 19 11.3 010
1986 VS1 1986 11 03.96042 02 02 58.36 -01 19 14.0 010
1986 VS1 1986 11 03.97083 02 02 57.53 -01 19 16.7 010
1986 VT1 * 1986 11 03.93958 02 04 16.02 +00 43 50.0 010
1986 VT1 1986 11 03.97083 02 04 14.23 +00 43 50.6 010
1986 VU1 * 1986 11 03.93958 02 04 55.49 +00 52 20.9 010
1986 VU1 1986 11 03.96042 02 04 54.67 +00 52 26.8 010
1986 VU1 1986 11 03.97083 02 04 54.37 +00 52 30.0 010
1986 VV1 * 1986 11 03.93958 02 06 45.31 -01 06 39.4 010
1986 VV1 1986 11 03.97083 02 06 43.44 -01 06 45.4 010
1986 VW1 * 1986 11 03.93958 02 07 45.74 +01 34 36.7 010
1986 VW1 1986 11 03.97083 02 07 44.30 +01 34 32.7 010
1986 VX1 * 1986 11 03.93958 02 07 46.81 +01 04 12.0 010
1986 VX1 1986 11 03.96042 02 07 45.94 +01 04 07.3 010
1986 VX1 1986 11 03.97083 02 07 45.37 +01 04 05.3 010
1986 VY1 * 1986 11 03.93958 02 08 06.94 +00 47 51.3 010
1986 VY1 1986 11 03.96042 02 08 05.94 +00 47 42.7 010
1986 VY1 1986 11 03.97083 02 08 05.50 +00 47 38.8 010
1986 VZ1 * 1986 11 03.93958 02 10 44.24 +00 33 21.5 010
1986 VZ1 1986 11 03.96042 02 10 43.07 +00 33 16.2 010
1986 VZ1 1986 11 03.97083 02 10 42.67 +00 33 12.2 010
1986 VA2 * 1986 11 03.93958 02 11 07.48 +00 37 57.4 010
1986 VA2 1986 11 03.97083 02 11 06.39 +00 38 17.1 010
1986 VB2 * 1986 11 03.93958 02 11 17.14 +01 26 24.5 010
1986 VB2 1986 11 03.96042 02 11 16.01 +01 26 14.0 010
1986 VB2 1986 11 03.97083 02 11 15.62 +01 26 06.8 010
1986 VC2 * 1986 11 03.93958 02 12 29.97 +01 31 32.0 010
1986 VC2 1986 11 03.96042 02 12 28.75 +01 31 29.3 010
1986 VC2 1986 11 03.97083 02 12 28.10 +01 31 28.6 010
1986 VD2 * 1986 11 03.93958 02 12 32.17 +01 11 57.6 010
1986 VD2 1986 11 03.96042 02 12 31.43 +01 11 54.9 010
1986 VD2 1986 11 03.97083 02 12 30.86 +01 11 51.6 010
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1986 VE2 1986 11 03.96042 02 12 31.75 +00 48 32.8 010
1986 VE2 1986 11 03.97083 02 12 30.88 +00 48 32.8 010
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1986 VF2 1986 11 03.97083 02 12 34.39 +00 17 58.3 010
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1986 VG2 1986 11 03.97083 02 13 00.98 +01 09 46.0 010
1986 VH2 * 1986 11 03.93958 02 13 23.00 -02 01 53.8 010
1986 VH2 1986 11 03.97083 02 13 21.61 -02 01 49.9 010
1986 VJ2 * 1986 11 03.93958 02 13 23.82 -02 20 02.2 010
1986 VJ2 1986 11 03.97083 02 13 22.13 -02 20 05.6 010
1986 VK2 * 1986 11 03.93958 02 13 40.55 +00 59 18.4 010
1986 VK2 1986 11 03.96042 02 13 39.46 +00 59 15.3 010
1986 VK2 1986 11 03.97083 02 13 38.81 +00 59 13.3 010
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1986 VL2 1986 11 03.96042 02 14 22.35 +01 36 09.7 010
1986 VL2 1986 11 03.97083 02 14 21.83 +01 36 10.3 010
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1986 VM2 1986 11 03.96042 02 14 42.58 +01 34 08.1 010
1986 VM2 1986 11 03.97083 02 14 42.15 +01 34 06.8 010

1986 VN2 * 1986 11 03.93958 02 15 15.82 +00 03 27.8 010
1986 VN2 1986 11 03.96042 02 15 15.48 +00 03 31.1 010
1986 VN2 1986 11 03.97083 02 15 15.13 +00 03 33.1 010
1986 VO2 * 1986 11 03.96042 01 57 32.36 +00 36 51.8 010
1986 VO2 1986 11 03.97083 01 57 31.84 +00 36 47.2 010
1986 VP2 * 1986 11 04.00069 01 30 12.17 +21 32 38.5 010
1986 VP2 1986 11 04.02153 01 30 11.16 +21 32 29.1 010
1986 VP2 1986 11 04.03194 01 30 10.69 +21 32 25.0 010
1986 VQ2 * 1986 11 04.00069 01 32 57.49 +20 20 08.5 010
1986 VQ2 1986 11 04.02153 01 32 56.76 +20 19 57.9 010
1986 VQ2 1986 11 04.03194 01 32 56.16 +20 19 51.2 010
1986 VR2 * 1986 11 04.00069 01 33 04.21 +21 24 20.2 010
1986 VR2 1986 11 04.02153 01 33 03.37 +21 24 14.1 010
1986 VR2 1986 11 04.03194 01 33 02.72 +21 24 10.7 010
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1986 VS2 1986 11 04.02153 01 34 17.88 +22 51 40.0 010
1986 VS2 1986 11 04.03194 01 34 17.18 +22 51 33.9 010
1986 VT2 * 1986 11 04.00069 01 34 22.44 +18 52 16.5 010
1986 VT2 1986 11 04.02153 01 34 21.53 +18 52 11.2 010
1986 VU2 * 1986 11 04.00069 01 35 49.49 +22 59 31.2 010
1986 VU2 1986 11 04.02153 01 35 48.56 +22 59 20.6 010
1986 VV2 * 1986 11 04.00069 01 35 55.51 +19 34 12.0 010
1986 VV2 1986 11 04.02153 01 35 55.01 +19 34 04.8 010
1986 VV2 1986 11 04.03194 01 35 54.46 +19 33 58.8 010
1986 VW2 * 1986 11 04.00069 01 35 59.94 +18 51 25.3 010
1986 VW2 1986 11 04.02153 01 35 58.80 +18 51 18.6 010
1986 VW2 1986 11 04.03194 01 35 58.29 +18 51 15.3 010
1986 VX2 * 1986 11 04.00069 01 36 38.52 +21 21 11.9 010
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1986 VY2 * 1986 11 04.00069 01 38 15.74 +18 55 48.6 010
1986 VY2 1986 11 04.02153 01 38 14.91 +18 55 43.9 010
1986 VY2 1986 11 04.03194 01 38 14.32 +18 55 41.2 010
1986 VZ2 * 1986 11 04.00069 01 39 12.59 +21 11 12.3 010
1986 VZ2 1986 11 04.02153 01 39 11.62 +21 11 12.8 010
1986 VZ2 1986 11 04.03194 01 39 10.73 +21 11 12.8 010
1986 VZ2 1986 11 05.87639 01 37 10.45 +21 13 30.9 010
1986 VZ2 1986 11 05.89722 01 37 09.99 +21 13 32.1 010
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1986 VA3 1986 11 04.02153 01 39 15.19 +21 08 09.0 010
1986 VA3 1986 11 04.03194 01 39 14.59 +21 08 05.6 010
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1986 VB3 1986 11 04.02153 01 39 51.93 +20 30 10.4 010
1986 VB3 1986 11 04.03194 01 39 51.24 +20 30 07.1 010
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1986 VG3 1986 11 04.03194 01 41 33.38 +18 42 50.8 010
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1986 VH3 1986 11 04.03194 01 43 34.42 +21 05 50.7 010
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1986 VJ3 1986 11 04.02153 01 44 04.09 +21 09 50.2 010
1986 VJ3 1986 11 04.03194 01 44 03.29 +21 09 45.7 010
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1986 VK3 1986 11 04.03194 01 44 21.67 +23 43 47.6 010
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1986 VU3 1986 11 04.03194 01 51 20.63 +21 29 36.6 010
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1986 VU3 1986 11 05.89722 01 49 36.60 +21 23 31.0 010
1986 VV3 * 1986 11 05.87639 01 38 52.54 +24 52 13.2 010
1986 VV3 1986 11 05.89722 01 38 51.87 +24 52 09.1 010
1986 VW3 * 1986 11 05.87639 01 39 36.43 +23 55 35.2 010
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1986 VX3 * 1986 11 05.87639 01 41 30.39 +23 20 05.5 010
1986 VX3 1986 11 05.89722 01 41 29.63 +23 20 00.2 010
1986 VY3 * 1986 11 05.87639 01 45 36.75 +23 45 16.3 010
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1986 VB4 1986 11 05.89722 01 52 36.54 +21 55 35.5 010
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1986 VC4 1986 11 05.89722 01 53 40.54 +23 19 23.3 010
1986 VD4 * 1986 11 05.87639 01 53 44.14 +23 21 05.1 010
1986 VD4 1986 11 05.89722 01 53 43.89 +23 20 52.1 010
1986 VE4 * 1986 11 05.87639 01 53 46.63 +23 37 46.7 010
1986 VE4 1986 11 05.89722 01 53 44.68 +23 37 42.5 010
1986 VF4 * 1986 11 05.87639 01 54 52.35 +23 01 39.6 010

1986	VF4		1986	11	05.89722	01	54	52.15	+23	01	33.0	010
1986	VG4	*	1986	11	07.89444	01	14	00.22	-03	03	26.4	1 010
1986	VG4		1986	11	07.93611	01	13	59.21	-03	03	20.0	1 010
1986	VH4	*	1986	11	07.89444	01	14	13.69	+00	05	43.0	1 010
1986	VH4		1986	11	07.93611	01	14	12.47	+00	05	41.6	1 010
1986	VJ4	*	1986	11	07.89444	01	14	56.33	-02	42	50.4	010
1986	VJ4		1986	11	07.93611	01	14	55.10	-02	42	47.9	010
1986	VK4	*	1986	11	07.89444	01	15	46.89	+00	44	19.3	010
1986	VK4		1986	11	07.93611	01	15	45.67	+00	44	13.3	010
1986	VL4	*	1986	11	07.89444	01	16	02.25	+00	46	25.7	010
1986	VL4		1986	11	07.93611	01	16	01.12	+00	46	31.6	010
1986	VM4	*	1986	11	07.89444	01	16	33.12	+00	03	44.3	010
1986	VM4		1986	11	07.93611	01	16	32.16	+00	03	39.0	010
1986	VN4	*	1986	11	07.89444	01	16	57.01	-02	32	26.3	010
1986	VN4		1986	11	07.93611	01	16	54.91	-02	32	20.6	010
1986	VO4	*	1986	11	07.89444	01	17	49.57	-02	26	21.1	010
1986	VO4		1986	11	07.93611	01	17	48.61	-02	26	20.5	010
1986	VP4	*	1986	11	07.89444	01	17	56.68	+00	22	25.7	010
1986	VP4		1986	11	07.93611	01	17	55.38	+00	22	23.6	010
1986	VQ4	*	1986	11	07.89444	01	18	51.23	-02	07	08.4	010
1986	VQ4		1986	11	07.93611	01	18	50.68	-02	07	41.1	010
1986	VR4	*	1986	11	07.89444	01	20	08.26	-01	21	19.7	010
1986	VR4		1986	11	07.93611	01	20	07.92	-01	21	35.4	010
1986	VS4	*	1986	11	07.89444	01	20	27.99	+00	56	56.0	010
1986	VS4		1986	11	07.93611	01	20	27.47	+00	56	57.3	010
1986	VT4	*	1986	11	07.89444	01	23	12.51	-02	27	47.8	010
1986	VT4		1986	11	07.93611	01	23	11.46	-02	27	52.5	010
1986	VU4	*	1986	11	07.89444	01	24	37.56	-02	00	26.7	010
1986	VU4		1986	11	07.93611	01	24	36.65	-02	00	33.4	010
1986	VW4	*	1986	11	07.89444	01	27	48.91	+00	48	22.8	010
1986	VW4		1986	11	07.93611	01	27	48.17	+00	48	39.2	010
1986	VX4	*	1986	11	07.89444	01	27	53.29	+00	32	09.9	010
1986	VX4		1986	11	07.93611	01	27	51.46	+00	31	56.4	010
1986	VY4	*	1986	11	07.89444	01	28	24.04	-03	04	10.8	1 010
1986	VY4		1986	11	07.93611	01	28	21.98	-03	03	54.7	1 010
1986	VA5	*	1986	11	07.89444	01	29	58.34	-01	55	47.1	010
1986	VA5		1986	11	07.93611	01	29	56.68	-01	55	27.7	010
1986	VB5	*	1986	11	07.89444	01	30	08.81	+01	42	53.6	010
1986	VB5		1986	11	07.93611	01	30	07.29	+01	42	46.3	010
1986	VC5	*	1986	11	07.89444	01	31	40.50	-03	03	14.3	1 010
1986	VC5		1986	11	07.93611	01	31	39.33	-03	03	09.9	1 010
1986	VD5	*	1986	11	07.89444	01	32	11.47	-02	46	06.8	010
1986	VD5		1986	11	07.93611	01	32	09.85	-02	46	04.4	010
1986	XA	*	1986	12	02.88542	03	13	26.54	-01	01	26.6	010
1986	XA		1986	12	02.94792	03	13	21.72	-01	00	27.8	010
1986	XA		1986	12	03.88681	03	12	09.47	-00	44	51.3	010
1986	XA		1986	12	03.95556	03	12	04.82	-00	43	49.3	010

Note 1: at edge of plate.

OBSERVATIONS MADE AT HEIDELBERG (CODE 024), SIDING SPRING (CODE 413), PALOMAR (CODE 675) AND THE EUROPEAN SOUTHERN OBSERVATORY (CODE 809).

Plates measured by R. M. West on the ESO S-3000 measuring engine in connection with the search for (1179) Mally. The Heidelberg reflector plates were taken by M. Wolf. The Siding Spring observation was made with the U.K. Schmidt. The Palomar positions are from the Sky Survey. The ESO positions are from plates taken by G. Pizarro with the 1.0-m Schmidt. Contact: R. M. West, European Southern Observatory, Karl Schwarzschild Strasse 2, D-8046 Garching bei Munchen, Federal Republic of Germany.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
109		1986 03	12.14649	11 40 40.24	+04 27 43.0	14.0	809
824		1986 03	12.14649	11 41 27.11	+08 50 04.0	15.0	809
915		1986 03	12.14649	11 39 45.21	+05 11 17.8	16.0	809
1179		1931 03	19.95117	11 52 18.82	+03 43 50.2		024
1179		1931 03	19.99353	11 52 16.28	+03 43 55.2		024
1179		1931 03	26.99214	11 45 11.99	+03 55 16.8		024
1179		1931 03	27.03311	11 45 09.79	+03 55 20.1		024
1179		1931 04	08.97348	11 33 24.91	+04 04 51.8		024
1179		1931 04	09.01029	11 33 23.13	+04 04 50.3		024
1179		1931 04	20.87384	11 25 44.01	+03 54 46.3		024
1179		1931 04	20.91308	11 25 42.90	+03 54 41.7		024
1179		1931 05	13.89229	11 22 37.95	+02 35 48.9		024
1179		1931 05	13.93882	11 22 38.39	+02 35 35.1		024
1179		1952 01	30.39583	11 00 10.16	+15 30 03.1		675
1179		1952 01	30.39583	11 00 10.16	+15 30 03.1	17.5	675
1179		1952 01	30.42431	11 00 09.15	+15 30 07.9		675
1179		1979 12	13.07519	00 31 33.56	+07 34 46.0	19.0	809
1179		1979 12	15.06558	00 32 04.53	+07 39 09.3		809
1179		1979 12	16.09055	00 32 22.40	+07 41 35.6		809
1179		1983 07	13.78563	00 22 16.21	-02 25 50.8	18.5	413
1179		1986 03	12.14649	11 32 49.37	+07 29 21.4		809
1380		1986 03	12.14649	11 27 01.80	+06 30 27.6	17.0	809
1945		1986 03	12.14649	11 35 12.28	+06 01 57.6	17.5	809
2182		1986 03	12.14649	11 44 24.05	+04 53 50.3	16.5	809
2800		1986 03	12.14649	11 44 31.32	+06 15 21.2	18.0	809
3208		1986 03	12.14649	11 40 49.03	+04 25 51.2	16.5	809
1952	BM2 *	1952 01	30.39583	10 59 04.20	+15 37 31.8	17.0	675
1952	BM2	1952 01	30.42431	10 59 03.55	+15 37 44.6		675
1952	BN2 *	1952 01	30.39583	11 00 52.66	+15 38 11.3	19.0	675
1952	BN2	1952 01	30.42431	11 00 51.66	+15 38 17.1		675
1971	UD1	1986 03	12.14649	11 27 00.99	+06 17 11.3		809
1979	RU	1979 12	13.07519	00 27 58.55	+07 23 43.7	18.0	809
1979	RU	1979 12	15.06558	00 30 10.90	+07 38 41.8		809
1979	RU	1979 12	16.09055	00 31 21.01	+07 46 33.7		809
1979	XZ1 *	1979 12	13.07519	00 32 39.62	+07 37 36.8	18.5	809
1979	XZ1	1979 12	15.06558	00 34 13.95	+07 50 27.2		809
1982	BU1	1986 03	12.14649	11 45 15.56	+05 16 51.9		809
1986	EA	1986 03	12.14649	11 37 19.75	+07 08 40.6	17.5	809
1986	EA1	1986 03	12.14649	11 25 35.19	+08 07 26.7	17.0	809
1986	EC1	1986 03	12.14649	11 28 59.46	+06 05 49.4	18.0	809
1986	ED1	1986 03	12.14649	11 33 38.42	+06 45 30.4	17.5	809
1986	EE1	1986 03	12.14649	11 31 57.60	+05 33 40.5	18.0	809
1986	EF1	1986 03	12.14649	11 32 51.30	+08 55 46.4	18.0	809
1986	EZ2 *	1986 03	12.14649	11 25 08.44	+06 48 50.1	18.5	809
1986	EA3 *	1986 03	12.14649	11 25 15.60	+06 35 56.0	19.0	809
1986	EB3 *	1986 03	12.14649	11 25 18.18	+06 53 17.6	19.0	809
1986	EC3 *	1986 03	12.14649	11 25 50.64	+06 17 48.8	17.5	809
1986	ED3 *	1986 03	12.14649	11 26 01.85	+08 29 07.8	19.5	809
1986	EE3 *	1986 03	12.14649	11 27 01.56	+05 12 51.0	18.0	809
1986	EF3 *	1986 03	12.14649	11 28 05.86	+08 03 19.8	19.0	809
1986	EG3 *	1986 03	12.14649	11 28 31.11	+07 19 33.5	19.5	809
1986	EH3 *	1986 03	12.14649	11 28 50.54	+05 00 16.4	19.0	809
1986	EJ3 *	1986 03	12.14649	11 29 34.52	+05 48 59.5	19.0	809
1986	EK3 *	1986 03	12.14649	11 29 59.52	+08 11 30.5	18.0	809
1986	EL3 *	1986 03	12.14649	11 30 28.49	+08 06 50.0	18.5	809
1986	EM3 *	1986 03	12.14649	11 31 18.86	+04 28 57.9	18.0	809
1986	EN3 *	1986 03	12.14649	11 31 21.08	+07 24 55.8	18.5	809
1986	EO3 *	1986 03	12.14649	11 31 29.56	+04 58 42.7	18.5	809

1986	EP3	*	1986	03	12.14649	11	31	30.87	+04	21	58.1	19.0	809
1986	EQ3	*	1986	03	12.14649	11	32	08.95	+06	38	05.6	19.0	809
1986	ER3	*	1986	03	12.14649	11	32	13.68	+09	22	36.0	19.0	809
1986	ES3	*	1986	03	12.14649	11	32	22.50	+05	37	06.5	17.5	809
1986	ET3	*	1986	03	12.14649	11	32	35.96	+06	17	33.2	18.5	809
1986	EU3	*	1986	03	12.14649	11	32	54.93	+06	22	11.3	18.5	809
1986	EV3	*	1986	03	12.14649	11	33	03.29	+05	40	42.8	18.0	809
1986	EW3	*	1986	03	12.14649	11	33	10.75	+09	00	50.6	17.5	809
1986	EX3	*	1986	03	12.14649	11	33	22.52	+08	48	41.0	18.5	809
1986	EY3	*	1986	03	12.14649	11	34	13.88	+05	37	24.3	17.5	809
1986	EZ3	*	1986	03	12.14649	11	34	48.43	+05	32	59.2	18.5	809
1986	EA4	*	1986	03	12.14649	11	35	00.09	+08	00	22.0	18.0	809
1986	EB4	*	1986	03	12.14649	11	35	05.39	+09	02	06.7	18.5	809
1986	EC4	*	1986	03	12.14649	11	35	12.19	+08	30	55.3	19.0	809
1986	ED4	*	1986	03	12.14649	11	35	23.95	+08	31	24.5	19.0	809
1986	EE4	*	1986	03	12.14649	11	35	35.56	+08	23	34.6	19.0	809
1986	EF4	*	1986	03	12.14649	11	36	20.07	+08	50	11.7	17.5	809
1986	EG4	*	1986	03	12.14649	11	37	02.36	+04	42	20.8	18.0	809
1986	EH4	*	1986	03	12.14649	11	37	42.49	+07	21	27.4	18.0	809
1986	EJ4	*	1986	03	12.14649	11	37	42.70	+06	37	19.4	19.0	809
1986	EK4	*	1986	03	12.14649	11	38	14.11	+05	52	36.7	18.5	809
1986	EL4	*	1986	03	12.14649	11	38	50.04	+07	17	40.5	19.0	809
1986	EM4	*	1986	03	12.14649	11	38	54.09	+07	15	47.0	18.0	809
1986	EN4	*	1986	03	12.14649	11	39	00.82	+04	21	47.9	18.0	809
1986	EO4	*	1986	03	12.14649	11	39	19.06	+08	11	33.2	19.0	809
1986	EP4	*	1986	03	12.14649	11	40	00.59	+04	30	03.3	18.5	809
1986	EQ4	*	1986	03	12.14649	11	40	02.76	+08	26	49.5	18.5	809
1986	ER4	*	1986	03	12.14649	11	40	16.18	+04	29	21.5	19.0	809
1986	ES4	*	1986	03	12.14649	11	40	56.16	+07	34	04.8	18.0	809
1986	ET4	*	1986	03	12.14649	11	41	40.36	+06	56	32.7	18.0	809
1986	EU4	*	1986	03	12.14649	11	44	19.46	+06	55	18.0	18.5	809
1986	EV4	*	1986	03	12.14649	11	44	36.95	+07	56	24.9	19.0	809
1986	EW4	*	1986	03	12.14649	11	44	51.18	+04	13	19.7	18.5	809
1986	EX4	*	1986	03	12.14649	11	45	07.61	+05	47	01.3	18.5	809

OBSERVATIONS MADE AT ZIMMERWALD.

Films taken with the 0.4-m Schmidt, measured by U. Hugentobler and P. Wild. Contact: P. Wild, Astronomisches Institut der Universitat, Sidlerstrasse 5, CH-3012 Berne, Switzerland.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1969 TR1	1986 09	03.03750	00 34 09.14	+03 36 50.9	15.5		026
1969 TR1	1986 09	07.96944	00 32 06.86	+03 37 04.4			026
1969 TR1	1986 09	11.96458	00 29 54.13	+03 33 55.0		1	026
1969 TR1	1986 10	02.03229	00 14 40.26	+02 49 37.4			026
1969 TR1	1986 10	04.03958	00 13 06.79	+02 44 16.6	15.2		026
1986 SD	1986 10	01.95972	00 01 57.8	+02 40 36	16.5		026
1986 SD	1986 10	04.01250	00 00 17.2	+02 32 35			026
1986 TB	1986 09	03.11181	00 37 23.43	-00 27 59.9	15.8		026
1986 TB	1986 09	08.03542	00 32 59.12	+00 13 42.7		2	026
1986 TB	1986 09	29.92326	00 06 31.67	+03 07 46.5			026
1986 TB	1986 10	01.95972	00 03 55.46	+03 22 51.9			026
1986 TB	1986 10	04.01250	00 01 21.31	+03 37 53.6			026
1986 TB	1986 10	06.86111	23 57 55.43	+03 58 26.8			026
1986 TB	1986 10	08.86740	23 55 36.32	+04 12 45.6	15.5		026
1986 TB	1986 10	11.02812	23 53 13.44	+04 28 03.0			026
1986 TG	1986 09	03.03750	00 27 10.33	+04 18 34.0	15.8		026
1986 TG	1986 09	07.96944	00 23 08.18	+04 42 52.3			026
1986 TG	1986 09	11.96458	00 19 20.77	+04 59 18.7	15.5	1	026
1986 TG	1986 09	27.89410	00 02 04.95	+05 39 32.7			026

1986	TG		1986	09	29.92326	23	59	54.17	+05	42	20.9	026
1986	TG		1986	10	01.95972	23	57	46.52	+05	44	49.7	026
1986	TG		1986	10	04.01250	23	55	42.63	+05	47	02.0	026
1986	TG		1986	10	06.86111	23	53	00.98	+05	49	46.7	026
1986	TG		1986	10	08.86740	23	51	14.77	+05	51	33.6	15.5 026
1986	TC1		1986	10	07.04028	01	22	40.49	+01	03	28.6	026
1986	TC1		1986	10	08.92708	01	21	10.42	+00	48	49.5	16.5 026
1986	TC1		1986	10	11.06840	01	19	25.00	+00	32	27.6	026
1986	TW1		1986	10	02.07049	00	56	40.64	-04	48	28.1	15.5 026
1986	TW1		1986	10	04.06042	00	54	38.82	-04	54	17.1	026
1986	TW1		1986	10	06.93375	00	51	42.44	-05	01	36.5	026
1986	TW1		1986	10	08.94514	00	49	39.64	-05	05	53.7	026
1986	TW1		1986	10	11.04826	00	47	33.33	-05	09	30.5	15.8 026
1986	TX1		1986	10	02.07049	01	03	57.8	-06	40	45	026
1986	TX1		1986	10	04.06042	01	01	57.6	-06	40	36	16.8 026
1986	TX1		1986	10	06.93375	00	59	02.0	-06	39	18	026
1986	TT5	*	1986	10	02.07049	00	53	40.17	-08	26	43.6	3 026
1986	TT5		1986	10	04.06042	00	51	59.55	-08	32	12.7	16.2 026
1986	TT5		1986	10	06.93375	00	49	33.01	-08	39	18.5	026

Note 1: time uncertain by +/- 1 min. 2: poor guiding. 3: discoverer Wild.

OBSERVATIONS MADE AT TAUTENBURG.

Plates taken with the 1.34-m (134/200/400 cm) Schmidt by F. Borngen, assisted by C. Hogner and F. Ludwig. Reductions by Borngen. Contact: S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg, Democratic Republic of Germany.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
630		1986	09 10.10069	03 47 00.75	+03 08 47.0	16.5		033
630		1986	09 10.12222	03 47 01.31	+03 08 43.1			033
630		1986	10 10.02465	03 48 20.05	+01 14 54.7	16.4		033
630		1986	10 10.10035	03 48 18.29	+01 14 34.5			033
2773		1986	10 13.09375	06 09 36.10	+20 27 25.7	17.6		033
2773		1986	10 13.14444	06 09 38.90	+20 27 26.3			033
3181		1986	10 13.09375	06 04 02.53	+21 14 44.0	17.9		033
3181		1986	10 13.14444	06 04 04.67	+21 14 36.9			033
1941	UL	1986	10 13.09375	06 10 00.97	+22 38 24.3	17.2		033
1941	UL	1986	10 13.14444	06 10 02.50	+22 38 26.0			033
1986	RD4	* 1986	09 09.08056	04 02 28.68	+34 24 37.6	19.5	1	033
1986	RD4	1986	09 09.10694	04 02 30.97	+34 24 49.9			033
1986	RE4	* 1986	09 09.08056	04 08 35.64	+32 52 46.1	17.4		033
1986	RE4	1986	09 09.10694	04 08 36.76	+32 52 49.1			033
1986	RF4	* 1986	09 10.10069	03 45 38.45	+04 57 14.3	18.8		033
1986	RF4	1986	09 10.12222	03 45 39.02	+04 57 10.6			033
1986	RG4	* 1986	09 10.10069	03 49 41.63	+01 58 47.2	18.5		033
1986	RG4	1986	09 10.12222	03 49 43.54	+01 58 24.9			033
1986	RH4	* 1986	09 10.10069	03 50 17.34	+03 48 55.5	19.8		033
1986	RH4	1986	09 10.12222	03 50 18.04	+03 48 43.2			033
1986	TG6	* 1986	10 10.98958	03 57 05.63	+35 55 43.0	17.9		033
1986	TG6	1986	10 11.06944	03 57 04.63	+35 56 29.0			033
1986	TH6	* 1986	10 13.09375	05 58 11.73	+21 54 29.7	17.0		033
1986	TH6	1986	10 13.14444	05 58 14.17	+21 54 19.0			033
1986	TJ6	* 1986	10 13.09375	06 01 03.30	+20 15 02.6	17.7		033
1986	TJ6	1986	10 13.14444	06 01 04.50	+20 15 05.6			033
1986	TK6	* 1986	10 13.09375	06 07 53.50	+19 41 01.4	19.9		033
1986	TK6	1986	10 13.14444	06 07 55.23	+19 41 00.1			033
1986	UA1	* 1986	10 27.89444	03 46 26.88	+37 33 44.6	19.0		033
1986	UA1	1986	10 27.93819	03 46 25.26	+37 33 35.1			033
1986	UB1	* 1986	10 27.89444	03 58 29.15	+35 39 45.6	18.1		033

1986 UB1 1986 10 27.93819 03 58 26.24 +35 40 12.7 033
Note 1: involved with star.

OBSERVATIONS MADE AT KLET BY A. MRKOS AND Z. VAVROVA.
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.
252	1986 10	09.92674	01 13 30.00	+08 42 41.5		046
252	1986 10	09.94086	01 13 29.45	+08 42 34.9		046
252	1986 10	10.90122	01 12 49.59	+08 35 07.5		046
252	1986 10	10.91534	01 12 49.02	+08 35 01.3		046
311	1986 10	04.99132	01 12 32.26	+02 52 14.0		046
311	1986 10	09.96111	01 08 34.01	+02 29 37.3		046
311	1986 10	09.97523	01 08 33.33	+02 29 33.8		046
311	1986 10	10.93380	01 07 47.02	+02 25 16.9		046
311	1986 10	10.94792	01 07 46.29	+02 25 12.9		046
1068	1986 10	28.85422	02 18 54.53	+22 10 51.5		046
1068	1986 10	28.86840	02 18 53.73	+22 10 47.7		046
1068	1986 11	03.88414	02 13 39.63	+21 46 44.8		046
1068	1986 11	03.89826	02 13 38.92	+21 46 41.9		046
1171	1986 10	09.96111	01 10 14.62	+02 15 28.8		046
1171	1986 10	09.97523	01 10 13.96	+02 15 24.3		046
1171	1986 10	10.93380	01 09 31.46	+02 10 36.7		046
1171	1986 10	10.94792	01 09 30.78	+02 10 32.0		046
1202	1986 10	28.81962	02 14 52.64	+12 14 29.5		046
1202	1986 11	03.91962	02 10 37.20	+11 58 06.5		046
1202	1986 11	03.93374	02 10 36.68	+11 58 03.8		046
1372	1986 10	28.78160	02 39 10.18	+43 34 54.3		046
1372	1986 10	28.79583	02 39 09.18	+43 34 55.5		046
1387	1986 10	09.92674	01 10 28.47	+08 36 41.4		046
1387	1986 10	09.94086	01 10 27.72	+08 36 32.1		046
1387	1986 10	10.90122	01 09 39.80	+08 26 37.0		046
1387	1986 10	10.91534	01 09 39.10	+08 26 27.8		046
1390	1986 10	09.96111	01 10 32.82	+00 30 46.6		046
1390	1986 10	09.97523	01 10 31.98	+00 30 46.4		046
1390	1986 10	10.93380	01 09 42.63	+00 30 30.2		046
1390	1986 10	10.94792	01 09 41.95	+00 30 30.7		046
1673	1986 10	09.92674	01 10 44.42	+08 36 41.9		046
1673	1986 10	09.94086	01 10 43.84	+08 36 37.6		046
1673	1986 10	10.90122	01 10 01.64	+08 30 49.4		046
1673	1986 10	10.91534	01 10 01.02	+08 30 44.5		046
1694	1986 10	09.92674	01 09 59.03	+09 34 04.8		046
1694	1986 10	09.94086	01 09 58.10	+09 34 10.9		046
1793	1986 10	28.81962	02 17 40.21	+14 13 27.3		046
1793	1986 10	28.83374	02 17 39.27	+14 13 22.2		046
1793	1986 11	03.91962	02 11 18.77	+13 36 39.1		046
1793	1986 11	03.93374	02 11 17.93	+13 36 34.1		046
1797	1986 10	28.81962	02 20 00.24	+14 42 18.5		046
1797	1986 10	28.83374	02 19 59.32	+14 42 15.5		046
1797	1986 11	03.91962	02 13 23.30	+14 20 37.8		046
1797	1986 11	03.93374	02 13 22.43	+14 20 35.4		046
1815	1986 10	05.94722	01 09 46.06	+03 04 01.7		046
1815	1986 10	09.96111	01 06 46.58	+02 44 43.3		046
1815	1986 10	09.97523	01 06 45.39	+02 44 38.5		046
1815	1986 10	10.93380	01 06 02.23	+02 40 04.0		046
1815	1986 10	10.94792	01 06 01.49	+02 40 00.5		046
1840	1986 11	03.95503	02 41 22.41	+15 48 40.5		046

1840		1986	11	03.96921	02	41	21.61	+15	48	37.6	046
1875		1986	10	10.90122	01	19	23.18	+06	02	41.4	046
1875		1986	10	10.91534	01	19	22.67	+06	02	34.9	046
2142		1986	11	03.95503	02	37	10.89	+14	27	39.1	046
2142		1986	11	03.96921	02	37	10.22	+14	27	39.0	046
2405		1986	10	09.96111	01	09	29.72	+04	08	54.8	046
2405		1986	10	09.97523	01	09	28.97	+04	08	50.1	046
2405		1986	10	10.93380	01	08	46.94	+04	04	20.6	046
2405		1986	10	10.94792	01	08	46.33	+04	04	16.1	046
2837		1986	10	10.96626	01	42	18.05	+07	35	45.2	046
2837		1986	10	10.98038	01	42	17.37	+07	35	42.0	046
3059		1986	10	09.92674	01	12	07.75	+06	13	59.9	046
3059		1986	10	09.94086	01	12	07.02	+06	13	54.5	046
3059		1986	10	10.90122	01	11	14.81	+06	06	51.5	046
3059		1986	10	10.91534	01	11	14.08	+06	06	45.0	046
3081		1986	11	03.95503	02	33	03.22	+14	30	03.2	046
3081		1986	11	03.96921	02	33	02.41	+14	30	03.1	046
3088		1986	10	09.96111	01	13	09.58	+00	34	07.1	16.6 046
3088		1986	10	09.97523	01	13	08.97	+00	34	00.7	046
3088		1986	10	10.93380	01	12	28.09	+00	27	06.6	046
3088		1986	10	10.94792	01	12	27.58	+00	26	59.0	046
3303		1986	10	03.94210	00	54	50.27	+02	50	53.5	046
3303		1986	10	03.95633	00	54	49.54	+02	50	49.2	046
1986	RA	1986	09	25.83576	22	43	06.05	-08	04	58.4	046
1986	RA	1986	09	25.84063	22	43	07.20	-08	05	16.1	046
1986	RA	1986	09	26.86947	22	47	11.32	-09	08	07.4	046
1986	RA	1986	09	26.87398	22	47	12.23	-09	08	22.4	046
1986	RA	1986	09	30.87031	23	02	32.95	-12	50	25.0	046
1986	RA	1986	10	01.85694	23	06	12.50	-13	39	34.1	046
1986	RA	1986	10	01.86134	23	06	13.39	-13	39	47.8	046
1986	RA	1986	10	02.89375	23	09	59.12	-14	28	47.7	046
1986	RA	1986	10	02.89815	23	10	00.03	-14	29	01.5	046
1986	RA	1986	10	03.88619	23	13	33.01	-15	13	34.3	046
1986	RA	1986	10	03.89071	23	13	33.89	-15	13	46.4	046
1986	RA	1986	10	04.90208	23	17	07.89	-15	57	03.2	046
1986	RA	1986	10	04.90521	23	17	08.53	-15	57	10.1	046
1986	SO	1986	10	03.94210	00	50	58.85	+00	35	12.2	046
1986	SO	1986	10	03.95633	00	50	57.92	+00	35	14.2	046
1986	SP	1986	10	03.94210	00	51	45.10	+02	07	39.1	046
1986	SP	1986	10	03.95633	00	51	44.56	+02	07	30.6	046
1986	SQ	1986	10	03.94210	00	51	40.92	+02	35	03.6	046
1986	SQ	1986	10	03.95633	00	51	40.40	+02	34	58.0	046
1986	SR	1986	10	03.94210	00	51	27.72	+04	25	51.7	046
1986	SR	1986	10	03.95633	00	51	26.72	+04	25	51.9	046
1986	SS	1986	10	03.94210	00	52	05.84	+00	44	17.2	046
1986	SS	1986	10	03.95633	00	52	05.05	+00	44	14.2	046
1986	ST	1986	10	03.94210	00	55	23.29	+01	46	51.4	046
1986	ST	1986	10	03.95633	00	55	22.37	+01	46	47.0	046
1986	SU	1986	10	03.94210	00	55	00.66	+04	13	44.7	046
1986	SU	1986	10	03.95633	00	54	59.82	+04	13	41.3	046
1986	SV	1986	10	03.94210	00	55	31.25	+00	42	35.4	046
1986	SV	1986	10	03.95633	00	55	30.19	+00	42	31.6	046
1986	SW	1986	10	03.94210	00	58	07.40	+00	49	43.7	046
1986	SW	1986	10	03.95633	00	58	06.67	+00	49	42.7	046
1986	TE	1986	09	29.84417	23	52	28.11	+08	42	28.1	046
1986	TE	1986	09	29.85863	23	52	27.42	+08	42	22.5	046
1986	TB1	1986	10	09.96111	01	17	46.27	+02	16	32.4	046
1986	TB1	1986	10	09.97523	01	17	45.16	+02	16	30.4	046
1986	TB1	1986	10	10.93380	01	16	45.14	+02	14	22.7	046

1986	TB1	1986	10	10.94792	01	16	44.46	+02	14	20.6	046
1986	TG3	1986	10	09.92674	01	07	22.67	+06	29	03.8	046
1986	TG3	1986	10	09.94086	01	07	22.09	+06	29	00.9	046
1986	TG3	1986	10	10.90122	01	06	36.11	+06	23	37.4	046
1986	TG3	1986	10	10.91534	01	06	35.59	+06	23	33.9	046
1986	TH3	1986	10	09.96111	01	09	20.36	+04	45	02.7	046
1986	TH3	1986	10	09.97523	01	09	19.82	+04	44	48.4	046
1986	TH3	1986	10	10.93380	01	08	49.58	+04	27	54.2	046
1986	TH3	1986	10	10.94792	01	08	49.14	+04	27	39.0	046
1986	TJ3	1986	10	09.92674	01	09	05.71	+05	55	11.4	046
1986	TJ3	1986	10	09.94086	01	09	04.98	+05	55	05.9	046
1986	TJ3	1986	10	10.90122	01	08	28.06	+05	50	32.5	046
1986	TJ3	1986	10	10.91534	01	08	27.62	+05	50	26.7	046
1986	TK3	1986	10	09.92674	01	09	01.99	+07	32	07.7	046
1986	TK3	1986	10	09.94086	01	09	01.52	+07	32	05.2	046
1986	TK3	1986	10	10.90122	01	08	19.38	+07	27	57.7	046
1986	TK3	1986	10	10.91534	01	08	18.90	+07	27	54.8	046
1986	TL3	1986	10	09.92674	01	12	24.64	+05	16	30.5	046
1986	TL3	1986	10	09.94086	01	12	24.51	+05	16	24.4	046
1986	TL3	1986	10	10.90122	01	11	44.62	+05	09	14.9	046
1986	TL3	1986	10	10.91534	01	11	43.93	+05	09	08.3	046
1986	TM3	1986	10	09.92674	01	11	51.94	+07	27	04.1	046
1986	TM3	1986	10	09.94086	01	11	51.41	+07	26	59.0	046
1986	TM3	1986	10	10.90122	01	11	02.87	+07	20	46.8	046
1986	TM3	1986	10	10.91534	01	11	02.09	+07	20	43.5	046
1986	TO3	1986	10	09.92674	01	13	45.92	+09	33	29.3	046
1986	TO3	1986	10	09.94086	01	13	45.05	+09	33	23.9	046
1986	TO3	1986	10	10.90122	01	12	48.81	+09	28	27.6	046
1986	TO3	1986	10	10.91534	01	12	48.01	+09	28	23.2	046
1986	TP3	1986	10	09.92674	01	14	11.37	+05	29	34.2	046
1986	TP3	1986	10	09.94086	01	14	10.56	+05	29	30.4	046
1986	TP3	1986	10	10.90122	01	13	15.08	+05	25	52.2	046
1986	TP3	1986	10	10.91534	01	13	14.19	+05	25	49.6	046
1986	TQ3	1986	10	09.92674	01	15	34.41	+06	43	39.1	046
1986	TQ3	1986	10	09.94086	01	15	33.59	+06	43	36.8	046
1986	TQ3	1986	10	10.90122	01	14	33.20	+06	41	46.8	046
1986	TQ3	1986	10	10.91534	01	14	32.28	+06	41	45.1	046
1986	TR3	1986	10	04.95521	01	21	16.66	+08	45	24.1	046
1986	TR3	1986	10	09.92674	01	17	25.77	+08	23	29.7	046
1986	TR3	1986	10	09.94086	01	17	25.00	+08	23	28.8	046
1986	TR3	1986	10	10.90122	01	16	40.18	+08	19	06.9	046
1986	TR3	1986	10	10.91534	01	16	39.47	+08	19	03.9	046
1986	TS3	1986	10	09.92674	01	17	24.26	+07	29	09.6	046
1986	TS3	1986	10	09.94086	01	17	23.45	+07	29	07.6	046
1986	TS3	1986	10	10.90122	01	16	27.85	+07	25	21.5	046
1986	TS3	1986	10	10.91534	01	16	27.21	+07	25	19.3	046
1986	TT3	1986	10	09.96111	01	04	01.52	+04	13	01.7	046
1986	TT3	1986	10	09.97523	01	04	00.57	+04	13	04.5	046
1986	TV3	1986	10	09.96111	01	10	53.22	+04	26	15.8	046
1986	TV3	1986	10	09.97523	01	10	52.25	+04	26	13.7	046
1986	TV3	1986	10	10.93380	01	10	00.21	+04	23	24.9	046
1986	TV3	1986	10	10.94792	01	09	59.39	+04	23	21.2	046
1986	TW3	1986	10	09.96111	01	09	56.15	+04	23	08.6	046
1986	TW3	1986	10	09.97523	01	09	55.17	+04	23	10.0	046
1986	TW3	1986	10	10.93380	01	08	51.24	+04	21	48.0	046
1986	TW3	1986	10	10.94792	01	08	50.66	+04	21	46.2	046
1986	TX3	1986	10	09.96111	01	12	20.53	+01	15	39.8	046
1986	TX3	1986	10	09.97523	01	12	19.75	+01	15	36.7	046
1986	TX3	1986	10	10.93380	01	11	27.07	+01	11	11.0	046

1986	TX3		1986	10	10.94792	01	11	26.20	+01	11	06.8	046
1986	TZ3		1986	10	10.93380	01	13	56.18	+02	45	54.7	046
1986	TZ3		1986	10	10.94792	01	13	55.57	+02	45	53.6	046
1986	TB4		1986	10	10.93380	01	15	07.06	+04	00	32.7	046
1986	TB4		1986	10	10.94792	01	15	06.49	+04	00	39.0	046
1986	TC4		1986	10	09.96111	01	17	37.93	+02	29	01.6	046
1986	TC4		1986	10	09.97523	01	17	37.04	+02	29	03.7	046
1986	TB5		1986	10	10.96626	01	33	20.14	+08	52	44.8	16.7 046
1986	TB5		1986	10	10.98038	01	33	19.54	+08	52	41.6	046
1986	TG5		1986	10	10.96626	01	36	57.43	+08	38	29.3	16.5 046
1986	TG5		1986	10	10.98038	01	36	56.67	+08	38	21.4	046
1986	TW5	*	1986	10	09.92674	01	10	07.64	+09	10	43.9	16.8 046
1986	TW5		1986	10	09.94086	01	10	06.93	+09	10	44.6	046
1986	TW5		1986	10	10.90122	01	09	06.37	+09	08	47.2	046
1986	TW5		1986	10	10.91534	01	09	05.30	+09	08	44.2	046
1986	TX5	*	1986	10	09.92674	01	10	29.64	+09	21	30.1	16.8 046
1986	TX5		1986	10	09.94086	01	10	29.12	+09	21	26.9	046
1986	TX5		1986	10	10.90122	01	09	42.16	+09	16	00.4	046
1986	TX5		1986	10	10.91534	01	09	41.41	+09	15	54.8	046
1986	TY5	*	1986	10	09.92674	01	12	28.82	+09	26	16.4	16.8 046
1986	TY5		1986	10	09.94086	01	12	28.18	+09	26	13.8	046
1986	TY5		1986	10	10.90122	01	11	40.02	+09	22	06.9	046
1986	TY5		1986	10	10.91534	01	11	39.57	+09	22	05.8	046
1986	TZ5	*	1986	10	09.92674	01	16	59.73	+05	25	43.8	16.9 046
1986	TZ5		1986	10	09.94086	01	16	59.18	+05	25	49.6	046
1986	TA6	*	1986	10	09.96111	01	09	47.65	+01	19	10.9	17.0 046
1986	TA6		1986	10	09.97523	01	09	46.84	+01	19	12.2	046
1986	TB6	*	1986	10	10.93380	01	18	12.81	+02	02	01.0	16.6 046
1986	TB6		1986	10	10.94792	01	18	12.02	+02	02	02.2	046
1986	TC6	*	1986	10	10.96626	01	33	51.39	+09	53	49.0	16.6 046
1986	TC6		1986	10	10.98038	01	33	50.53	+09	53	52.6	046
1986	TD6	*	1986	10	10.96626	01	36	45.58	+09	38	43.8	16.7 046
1986	TD6		1986	10	10.98038	01	36	45.44	+09	38	40.3	046
1986	TE6	*	1986	10	10.96626	01	40	51.79	+10	46	43.4	16.7 046
1986	TE6		1986	10	10.98038	01	40	51.14	+10	46	42.7	046
1986	TF6	*	1986	10	10.96626	01	46	09.89	+10	51	28.5	16.4 046
1986	TF6		1986	10	10.98038	01	46	09.08	+10	51	27.4	046
1986	UK	*	1986	10	28.81962	02	08	41.64	+14	05	22.2	16.6 046
1986	UK		1986	10	28.83374	02	08	40.51	+14	05	22.4	046
1986	UL	*	1986	10	28.81962	02	10	35.15	+15	29	12.1	16.8 046
1986	UL		1986	10	28.83374	02	10	34.25	+15	29	09.8	046
1986	UM	*	1986	10	28.81962	02	11	05.00	+13	41	19.5	16.8 046
1986	UM		1986	10	28.83374	02	11	04.07	+13	41	15.7	046
1986	UN	*	1986	10	28.81962	02	11	30.38	+13	30	47.2	16.9 046
1986	UN		1986	10	28.83374	02	11	29.50	+13	30	44.2	046
1986	UO	*	1986	10	28.81962	02	12	27.98	+15	17	22.0	16.4 046
1986	UO		1986	10	28.83374	02	12	26.99	+15	17	21.1	046
1986	UP	*	1986	10	28.81962	02	13	37.28	+13	41	49.7	16.6 046
1986	UP		1986	10	28.83374	02	13	36.17	+13	41	52.4	046
1986	UQ	*	1986	10	28.81962	02	16	03.68	+15	10	59.2	16.6 046
1986	UQ		1986	10	28.83374	02	16	02.85	+15	10	52.5	046
1986	UQ		1986	11	03.91962	02	09	42.38	+14	27	36.2	16.6 046
1986	UQ		1986	11	03.93374	02	09	41.54	+14	27	30.3	046
1986	UR	*	1986	10	28.81962	02	18	45.11	+12	19	05.7	16.8 046
1986	UR		1986	10	28.83374	02	18	44.29	+12	19	01.5	046
1986	US	*	1986	10	28.81962	02	19	49.26	+14	54	32.1	16.9 046
1986	US		1986	10	28.83374	02	19	48.56	+14	54	27.4	046
1986	UT	*	1986	10	28.85422	02	17	38.71	+22	06	47.2	046
1986	UT		1986	10	28.86840	02	17	37.92	+22	06	41.6	046

1986	UT		1986	11	03.88414	02	12	59.29	+21	33	10.6		046
1986	UT		1986	11	03.89826	02	12	58.64	+21	33	05.4		046
1986	UU	*	1986	10	28.85422	02	17	44.86	+18	38	04.6	16.0	046
1986	UU		1986	10	28.86840	02	17	44.05	+18	37	54.0		046
1986	UU		1986	11	03.88414	02	12	27.83	+17	30	18.3		046
1986	UU		1986	11	03.89826	02	12	27.09	+17	30	09.5		046
1986	UV	*	1986	10	28.85422	02	18	19.33	+19	58	07.6	16.7	046
1986	UV		1986	10	28.86840	02	18	18.58	+19	58	04.8		046
1986	UV		1986	11	03.88414	02	12	40.94	+19	37	03.7		046
1986	UV		1986	11	03.89826	02	12	40.29	+19	37	01.8		046
1986	UW	*	1986	10	28.85422	02	19	44.02	+20	34	52.8	16.8	046
1986	UW		1986	10	28.86840	02	19	43.11	+20	34	50.4		046
1986	UX	*	1986	10	28.85422	02	24	46.05	+19	35	37.9	17.0	046
1986	UX		1986	10	28.86840	02	24	45.66	+19	35	42.6		046
1986	VJ	*	1986	11	03.88414	02	11	51.84	+19	40	02.3	17.0	046
1986	VJ		1986	11	03.89826	02	11	51.01	+19	39	59.6		046
1986	VK	*	1986	11	03.88414	02	14	28.25	+20	32	44.9	16.5	046
1986	VK		1986	11	03.89826	02	14	27.62	+20	32	25.4		046
1986	VL	*	1986	11	03.88414	02	16	02.38	+20	47	06.0	17.2	046
1986	VL		1986	11	03.89826	02	16	01.41	+20	47	07.0		046
1986	VM	*	1986	11	03.88414	02	18	35.76	+20	41	29.9	16.6	046
1986	VM		1986	11	03.89826	02	18	34.57	+20	41	24.2		046
1986	VN	*	1986	11	03.88414	02	21	59.88	+21	05	46.0	16.8	046
1986	VN		1986	11	03.89826	02	21	58.97	+21	05	44.5		046
1986	VO	*	1986	11	03.95503	02	35	26.28	+18	07	30.6	16.7	046
1986	VO		1986	11	03.96921	02	35	25.43	+18	07	25.4		046
1986	VP	*	1986	11	03.95503	02	35	59.56	+17	39	11.6	16.9	046
1986	VP		1986	11	03.96921	02	35	58.58	+17	39	02.9		046
1986	VQ	*	1986	11	03.95503	02	38	17.90	+14	04	29.0	16.6	046
1986	VQ		1986	11	03.96921	02	38	17.12	+14	04	29.8		046
1986	VR	*	1986	11	03.95503	02	43	47.42	+15	40	01.7	16.7	046
1986	VS	*	1986	11	03.95503	02	44	29.50	+17	28	07.1	16.6	046
1986	VS		1986	11	03.96921	02	44	28.62	+17	28	01.2		046
1986	VT	*	1986	11	03.95503	02	45	30.08	+15	04	45.4	16.7	046
1986	VT		1986	11	03.96921	02	45	29.45	+15	04	40.6		046
1986	VU	*	1986	11	03.99028	02	37	24.34	+22	09	17.2	16.5	046
1986	VU		1986	11	04.00440	02	37	23.60	+22	09	14.4		046
1986	VV	*	1986	11	03.99028	02	40	30.22	+21	41	46.2	16.6	046
1986	VV		1986	11	04.00440	02	40	29.55	+21	41	39.1		046
1986	VW	*	1986	11	03.99028	02	42	59.58	+22	19	40.3	16.5	046
1986	VW		1986	11	04.00440	02	42	58.73	+22	19	39.8		046
1986	VX	*	1986	11	03.99028	02	43	31.95	+22	32	40.1	16.5	046
1986	VX		1986	11	04.00440	02	43	30.98	+22	32	44.2		046
1986	VY	*	1986	11	03.99028	02	45	54.13	+24	14	21.9	16.4	046
1986	VY		1986	11	04.00440	02	45	53.19	+24	14	19.6		046
1986	VZ	*	1986	11	03.99028	02	46	27.81	+21	52	19.0	16.7	046
1986	VZ		1986	11	04.00440	02	46	26.85	+21	52	18.1		046
1986	VA1	*	1986	11	03.99028	02	48	22.27	+22	28	04.0	16.8	046
1986	VA1		1986	11	04.00440	02	48	21.23	+22	27	58.2		046
1986	VB1	*	1986	11	03.99028	02	49	04.43	+22	43	30.2	17.0	046
1986	VB1		1986	11	04.00440	02	49	03.75	+22	43	24.4		046
4601	P-L		1986	10	09.96111	01	07	55.62	+02	52	29.7		046
4601	P-L		1986	10	09.97523	01	07	54.86	+02	52	31.4		046

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

Observations made in part in association with the International Near-Earth Asteroid Survey (INAS). Contact: H. G. Fogh Olsen, Copenhagen University Observatory, Brorfelde, DK-4340 Tollose, Denmark.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
362		1986 10	13.00391	01 56 31.55	+11 46 31.1		054
640		1986 09	29.94627	23 12 20.52	+12 39 35.4		054
1001		1986 10	03.95414	00 51 22.39	+19 37 28.6		054
1139		1986 11	06.89928	01 45 51.31	+06 59 07.6		054
1324		1986 10	01.90843	22 36 06.45	-02 05 59.9		054
1621		1986 10	13.00391	02 09 54.71	+10 19 02.4		054
1621		1986 10	29.91016	01 54 45.38	+08 16 00.8		054
1621		1986 11	02.90947	01 51 09.07	+07 48 25.2		054
1621		1986 11	06.89928	01 47 46.05	+07 22 56.8		054
1721		1986 09	29.94627	23 11 22.86	+11 30 13.1		054
1749		1986 10	29.93343	01 49 21.50	+17 41 29.9		054
2523		1986 10	03.95414	00 52 06.25	+19 37 17.2		054
2717		1986 10	13.00391	02 10 54.47	+08 25 01.7		054
2717		1986 10	29.91016	01 54 50.04	+06 26 24.6		054
2866		1986 10	03.95414	00 56 13.46	+19 06 31.7		054
2920		1986 10	29.93343	01 51 31.62	+19 56 49.4		054
2920		1986 10	29.95079	01 51 30.95	+19 56 43.0		054
3500		1986 10	01.90843	22 46 19.85	-01 28 03.8		054
1964	UP	1986 09	12.94182	22 57 04.83	-01 19 20.5		054
1981	RU2	1986 09	29.94627	23 20 02.88	+10 57 18.7		054
1981	TP1	1986 10	12.95322	00 56 44.13	+21 46 45.0		054
1981	WK2	1986 10	13.00391	02 08 04.68	+10 19 24.9		054
1981	WK2	1986 10	29.91016	01 53 53.55	+09 17 24.2		054
1981	WK2	1986 11	02.90947	01 50 33.64	+09 03 30.6		054
1981	XH2	1986 10	03.95414	00 47 43.11	+17 13 38.4		054
1981	XH2	1986 10	04.96850	00 47 01.38	+17 06 35.0		054
1986	RD	1986 09	12.91890	23 03 15.51	+03 17 20.9		054
1986	RD	1986 09	29.92544	22 53 13.33	+00 55 44.2	17.2	054
1986	RF	1986 09	12.91890	23 11 48.82	+03 18 58.2		054
1986	RF	1986 09	29.92544	23 00 15.06	+00 19 51.4	17.2	054
1986	RJ	1986 09	29.90497	22 55 58.91	-00 48 01.9	16.6	054
1986	RM	1986 10	01.90843	22 46 33.94	-04 09 10.3	16.3	054
1986	RN	1986 09	29.94627	23 16 00.42	+09 53 53.0	17.1	054
1986	RQ	1986 10	04.94836	23 56 50.69	+07 56 46.2		054
1986	RQ	1986 10	08.91502	23 54 26.48	+07 05 35.1	16.5	054
1986	RQ	1986 10	08.93516	23 54 25.80	+07 05 19.6		054
1986	SV1 *	1986 09	29.92544	23 00 41.12	+00 58 19.0	17.2	054
1986	SW1 *	1986 09	29.94627	23 11 41.44	+11 10 52.3	17.2	054
1986	SX1 *	1986 09	29.94627	23 16 09.58	+11 17 43.5	17.2	054
1986	TE	1986 10	08.91502	23 44 52.13	+07 42 09.5		054
1986	TE	1986 10	08.93516	23 44 51.21	+07 42 01.6		054
1986	TF	1986 10	08.91502	23 48 48.82	+05 35 52.6		054
1986	TF	1986 10	08.93516	23 48 48.28	+05 35 48.0		054
1986	TG	1986 10	08.91502	23 51 12.25	+05 51 35.0		054
1986	TG	1986 10	08.93516	23 51 11.12	+05 51 36.6		054
1986	TG	1986 10	31.85348	23 41 06.09	+06 21 45.2		054
1986	TG	1986 11	04.84569	23 41 24.25	+06 31 19.0	17.0	054
1986	TH	1986 10	08.91502	23 56 13.99	+09 04 39.5		054
1986	TH	1986 10	11.93065	23 53 44.41	+08 50 50.1		054
1986	TL	1986 10	08.95530	00 32 31.17	+19 05 04.0		054
1986	TL	1986 10	31.87770	00 17 41.07	+17 05 30.4	16.8	054
1986	TQ	1986 10	11.95079	01 01 33.00	+21 06 35.1		054
1986	TR	1986 10	12.95322	00 53 12.02	+22 32 28.6		054
1986	TS	1986 10	12.95322	00 58 39.64	+25 18 51.2		054
1986	TK4	1986 11	06.89928	01 34 44.23	+09 02 34.0		054
1986	TL4	1986 11	06.89928	01 40 50.94	+07 17 57.8		054
1986	TL6 *	1986 10	13.00391	02 03 29.84	+11 51 46.3	16.7	054
1986	TM6 *	1986 10	13.00391	02 03 55.00	+09 50 01.2	17.2	054

1986	TN6	*	1986 10 08.91502	23	57	38.11	+08	40	19.5	054
1986	TN6		1986 10 11.93065	23	55	45.31	+08	17	57.2	054
1986	UC1	*	1986 10 29.91016	01	54	40.51	+05	32	55.8	16.6 054
1986	UD1	*	1986 10 29.93343	01	52	58.48	+17	46	51.0	17.5 054
1986	UD1		1986 10 29.95079	01	52	57.44	+17	46	46.4	054
1986	UE1	*	1986 10 29.93343	01	55	50.64	+16	56	12.9	16.8 054
1986	UE1		1986 10 29.95079	01	55	49.69	+16	56	04.5	054
1986	UF1	*	1986 10 29.93343	01	55	58.28	+17	35	34.0	17.0 054
1986	UF1		1986 10 29.95079	01	55	57.55	+17	35	24.1	054
1986	UG1	*	1986 10 29.93343	01	58	15.91	+20	11	33.6	17.2 054
1986	UG1		1986 10 29.95079	01	58	14.82	+20	11	29.1	054
1986	UH1	*	1986 10 29.88725	23	47	09.72	+07	38	22.3	16.4 054
1986	UJ1	*	1986 10 29.88725	23	50	35.28	+06	23	58.2	17.2 054
1986	UK1	*	1986 10 31.87770	00	13	50.99	+17	16	55.6	16.7 054
1986	VC1	*	1986 11 06.83418	00	52	03.19	+23	04	21.4	16.6 054
1986	VC1		1986 11 06.85328	00	52	02.40	+23	04	12.7	054
1986	VD1	*	1986 11 06.84112	00	46	51.80	+23	33	14.5	16.8 054
1986	VE1	*	1986 11 06.84112	00	46	55.66	+23	24	25.1	17.0 054
1986	VF1		1986 10 29.91016	01	56	00.27	+06	56	01.6	16.2 054
1986	VF1		1986 11 02.90947	01	52	05.96	+06	59	06.8	054
1986	VF1	*	1986 11 06.89928	01	48	22.35	+07	03	30.6	16.5 054
1986	XB	*	1986 12 06.86763	03	04	01.79	+39	00	17.3	16.8 054
1986	XB		1986 12 06.88499	03	04	00.77	+39	00	13.3	054

OBSERVATIONS MADE AT THE CRIMEAN ASTROPHYSICAL OBSERVATORY BY L. G. KARACHKINA.

Plates taken with the 0.40-m f/4 astrograph. Contact: G. R. Kastel', Institute for Theoretical Astronomy, Naberezhnaya Kutuzova 10, Leningrad 191187, U.S.S.R.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 RB	1986 09	29.72811	21 59 02.75	+05 56 02.7	14.5	095
1986 RB	1986 09	29.85135	21 58 54.72	+05 57 40.0		095
1986 RC2	1986 09	26.74300	22 04 28.06	+03 26 43.5	14.5	095
1986 RC2	1986 09	29.78748	22 04 12.66	+01 51 17.4	14.5	095
1986 RC2	1986 10	03.75724	22 04 23.53	-00 08 20.1	14.5	095

OBSERVATION MADE AT THE BURLINGTON REMOTE SITE BY T. HANDLEY.

Contact: T. Handley, 13 Linden Avenue, Burlington, NJ 08016, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
3414	1986 01	12.37882	08 12 42.80	+30 35 06.0	293

OBSERVATIONS MADE AT GEISEI BY T. SEKI.

Copied from Nihondaira Obs. Circ. Nos. 1570, 1576 and 1585. Contact: T. Seki, Kamimachi 2-9-35, Kochi, Japan.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1226	1986 11	03.64375	02 59 05.22	+24 57 41.6	16.5	372
1226	1986 11	04.68021	02 57 58.21	+24 57 14.7		372
1226	1986 11	07.70486	02 54 39.53	+24 55 18.3		372
1226	1986 11	09.71597	02 52 29.05	+24 53 16.6	17	372
1927	1986 11	07.70486	02 55 50.78	+24 55 22.5	16.5	372
1986 TX	1986 10	30.61111	01 27 03.73	+05 13 43.8	18	372
1986 TX	1986 10	30.62500	01 27 02.89	+05 13 39.6		372
1986 UY *	1986 10	30.63924	02 59 56.35	+25 29 00.9	17	372
1986 UY	1986 10	30.65521	02 59 55.33	+25 28 55.8		372
1986 UY	1986 11	03.64375	02 55 41.25	+25 26 57.3	17	372
1986 UY	1986 11	04.68021	02 54 33.37	+25 25 56.9	17	372
1986 UY	1986 11	07.67986	02 51 15.62	+25 21 28.9	17	372
1986 UY	1986 11	26.55556	02 32 42.96	+24 24 24.2	17	372
1986 UY	1986 11	26.57708	02 32 42.02	+24 24 23.2		372

1986 UZ	*	1986 10 30.63924	03	00	55.47	+24	59	09.1	17	372
1986 UZ		1986 10 30.65521	03	00	54.35	+24	59	08.1		372
1986 UZ		1986 11 02.57951	02	57	38.07	+24	53	41.3	17	372
1986 UZ		1986 11 04.68021	02	55	12.80	+24	48	42.6	17	372
1986 UZ		1986 11 07.70486	02	51	40.65	+24	40	14.3	16.5	372
1986 WJ	*	1986 11 26.59201	02	31	21.02	+23	23	20.2	18	372
1986 WJ		1986 11 26.60521	02	31	20.23	+23	23	24.8		372

OBSERVATIONS MADE AT NAGATORO BY N. KAWASATO.

Films taken with a 0.13-m f/6.4 refractor and a 0.26-m f/7.0 reflector. Copied from Nihondaira Obs. Circ. No. 1583. Contact: N. Kawasato, Stellar House, Nagatoro, Saitama-ken, Japan.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1139	1986 10	31.50486	01 47 22.52	+09 56 29.2	398
1139	1986 10	31.52465	01 47 22.18	+09 55 57.5	398
2617	1986 11	26.51181	03 22 05.16	+11 42 48.5	398
2617	1986 11	26.54688	03 22 03.18	+11 42 58.4	398
2617	1986 11	27.55104	03 21 08.89	+11 46 43.9	398
2617	1986 11	27.57396	03 21 07.68	+11 46 48.3	398

OBSERVATIONS MADE AT YEBES BY M. DE PASCUAL, J. MARTIN-PINTADO, J. GARCIA, C. CABANAS AND F. SANCHEZ.

Contact: M. de Pascual M., Observatorio Astronomico de Madrid, Alfonso XII, 3, Madrid, Spain.

Object	Date	UT	R. A. (1950)	Decl.	N	Obs.
1	1985 01	24.88886	02 45 37.78	+12 23 48.6		491
1	1985 01	24.89579	02 45 38.02	+12 23 50.9		491
1	1985 01	24.90271	02 45 38.19	+12 23 54.4		491
3	1985 03	26.07224	12 24 31.44	+02 51 51.3		491
3	1985 03	26.07917	12 24 31.17	+02 51 55.5		491
3	1985 03	26.08610	12 24 30.78	+02 51 59.0		491
3	1985 03	26.88634	12 23 53.37	+02 59 04.4	1	491
3	1985 03	26.89465	12 23 52.29	+02 59 07.7		491
3	1985 03	26.90296	12 23 51.92	+02 59 13.5		491
3	1985 04	15.94701	12 09 14.32	+05 33 38.4		491
3	1985 04	15.95394	12 09 14.00	+05 33 40.9		491
3	1985 04	15.96087	12 09 13.75	+05 33 43.8		491
3	1985 04	17.12435	12 08 31.38	+05 40 53.2		491
3	1985 04	17.13127	12 08 31.05	+05 40 54.8		491
3	1985 04	17.13820	12 08 30.81	+05 40 58.6		491
4	1985 03	26.15512	14 20 48.42	-01 12 56.2		491
4	1985 03	26.16274	14 20 48.17	-01 12 53.1		491
4	1985 03	26.17047	14 20 47.89	-01 12 50.8		491
4	1985 03	27.17663	14 20 17.82	-01 07 07.4		491
4	1985 03	27.18356	14 20 17.64	-01 07 05.9		491
4	1985 03	27.19186	14 20 17.30	-01 07 03.2		491
4	1985 04	16.10954	14 05 27.12	+00 43 39.4		491
4	1985 04	16.11646	14 05 26.75	+00 43 41.4		491
4	1985 04	16.12339	14 05 26.37	+00 43 42.5		491
4	1985 04	18.06414	14 03 38.93	+00 52 56.2		491
4	1985 04	18.07107	14 03 38.47	+00 52 58.6		491
4	1985 04	18.07799	14 03 38.07	+00 52 58.8	1	491
6	1985 04	15.88815	06 47 23.22	+19 24 05.4		491
6	1985 04	15.89507	06 47 23.82	+19 24 06.3		491
6	1985 04	15.90200	06 47 24.42	+19 24 07.7		491
6	1985 04	16.89183	06 48 47.85	+19 27 03.9		491
6	1985 04	16.89875	06 48 48.44	+19 27 05.6		491
6	1985 04	16.90568	06 48 49.06	+19 27 07.1		491
6	1985 04	17.97930	06 50 20.26	+19 30 10.2		491

6	1985	04	17.98622	06	50	20.74	+19	30	10.6	491
6	1985	04	17.99315	06	50	21.46	+19	30	12.5	491
7	1985	04	15.88815	06	40	11.19	+19	12	18.9	491
7	1985	04	15.89507	06	40	11.89	+19	12	19.1	491
7	1985	04	15.90200	06	40	12.58	+19	12	18.4	491
7	1985	04	15.90685	06	40	12.95	+19	12	16.8	491
7	1985	04	15.91377	06	40	13.66	+19	12	16.1	491
7	1985	04	15.92070	06	40	14.41	+19	12	16.0	491
7	1985	04	16.89183	06	41	56.13	+19	10	30.5	491
7	1985	04	16.89875	06	41	56.37	+19	10	29.2	491
7	1985	04	16.90568	06	41	57.55	+19	10	28.6	491
7	1985	04	17.97930	06	43	50.38	+19	08	25.3	491
7	1985	04	17.98622	06	43	51.05	+19	08	24.1	491
7	1985	04	17.99315	06	43	51.70	+19	08	23.5	491
25	1985	01	24.90918	03	00	24.51	+02	49	22.5	491
25	1985	01	24.91622	03	00	24.78	+02	49	23.5	491
25	1985	01	24.92338	03	00	25.00	+02	49	24.4	491
39	1985	03	26.17855	10	50	55.55	+10	29	15.4	491
39	1985	03	26.18548	10	50	55.27	+10	29	17.7	491
39	1985	03	26.19240	10	50	54.94	+10	29	20.2	491
39	1985	03	27.15609	10	50	19.82	+10	35	08.8	491
39	1985	03	27.16336	10	50	19.52	+10	35	12.1	491
39	1985	03	27.17133	10	50	19.22	+10	35	14.0	491
39	1985	04	15.92728	10	41	56.61	+12	03	34.0	491
39	1985	04	15.93420	10	41	56.55	+12	03	35.5	491
39	1985	04	15.94113	10	41	56.42	+12	03	36.6	491
39	1985	04	16.98584	10	41	42.91	+12	06	32.9	491
39	1985	04	16.99277	10	41	42.83	+12	06	33.4	491
39	1985	04	16.99969	10	41	42.75	+12	06	34.9	491
40	1985	04	15.85317	06	54	12.72	+25	12	04.4	491
40	1985	04	15.86564	06	54	13.90	+25	12	03.2	491
40	1985	04	15.87811	06	54	15.03	+25	12	02.2	491
40	1985	04	16.91970	06	55	49.04	+25	10	18.8	491
40	1985	04	16.92663	06	55	49.70	+25	10	17.4	491
40	1985	04	16.93356	06	55	50.28	+25	10	17.4	491
224	1985	03	26.10617	10	54	31.83	+07	21	40.7	491
224	1985	03	27.11210	10	53	45.94	+07	23	59.8	491
423	1985	04	16.10954	14	02	45.24	-00	34	47.6	491
423	1985	04	16.11646	14	02	44.85	-00	34	45.0	491
423	1985	04	16.12339	14	02	44.59	-00	34	46.1	491
423	1985	04	18.06414	14	01	09.61	-00	30	18.5	491
423	1985	04	18.07107	14	01	09.32	-00	30	17.6	491
423	1985	04	18.07799	14	01	09.05	-00	30	16.9	491
532	1985	01	24.84342	00	15	03.79	-13	52	37.0	1 491
532	1985	01	24.85029	00	15	04.19	-13	52	30.9	491
532	1985	01	24.85716	00	15	04.61	-13	52	27.1	491
609	1985	03	26.10617	10	58	27.14	+07	04	54.6	491
609	1985	03	27.11210	10	57	50.23	+07	09	48.0	491
625	1985	04	16.05229	12	14	15.69	+14	39	58.5	491
625	1985	04	17.04159	12	13	34.20	+14	43	25.0	491
625	1985	04	17.94744	12	12	57.36	+14	46	23.2	491
763	1985	01	24.97218	08	15	16.03	+18	05	37.5	491
781	1985	04	16.09072	13	34	35.23	+16	01	48.2	491
781	1985	04	17.11084	13	33	52.85	+16	07	23.8	491
1547	1985	03	16.03444	09	38	36.35	-01	13	18.0	491
1547	1985	03	27.04944	09	34	16.16	-00	40	39.0	491
3451	1985	04	17.07910	15	31	17.30	+03	53	58.4	491
3451	1985	04	18.09773	15	30	54.16	+03	59	35.1	491

Note 1: difficult to measure.

OBSERVATION MADE AT STAKENBRIDGE BY B. MANNING.

Contact: B. Manning, Moonrakers, Stakenbridge, Churchill, Kidderminster, Worcs. DY10 3LS, England.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 WA		1986 12	01.97808	00 31 00.25	+10 09 30.7	16	494

OBSERVATIONS MADE AT HAUTE PROVENCE BY E. W. ELST.

Contact: E. W. Elst, Royal Observatory, B-1180 Brussels, Belgium.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
2260		1986 10	31.98855	03 51 25.61	+07 50 01.6	17	511
2260		1986 11	01.01701	03 51 24.76	+07 50 01.9		511
1986 UL1	*	1986 10	31.98855	03 51 33.12	+06 52 20.0	17	511
1986 UL1		1986 11	01.01701	03 51 31.80	+06 52 19.6		511
1986 UL1		1986 11	05.00522	03 48 27.84	+06 46 20.8	17	511
1986 UL1		1986 11	05.03229	03 48 26.60	+06 46 19.0		511
1986 VG1	*	1986 11	07.01424	04 08 13.22	+11 19 30.7	17	511
1986 VG1		1986 11	07.03090	04 08 12.63	+11 19 31.0		511

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.
639		1986 09	06.89444	23 25 05.16	+10 13 31.1		552
1061		1986 11	27.93472	04 07 15.28	+19 00 26.4	15.0	552
1061		1986 11	27.98472	04 07 12.50	+19 00 22.9		552
1266		1986 09	06.89444	23 26 54.80	+10 28 59.6		552
1520		1986 07	09.86875	19 11 44.91	-09 09 57.7	15.7	552
1520		1986 07	09.89028	19 11 43.85	-09 09 54.7		552
1727		1986 06	26.88403	18 58 53.31	+01 55 26.9	16.3	552
1727		1986 06	26.90069	18 58 52.37	+01 55 19.5		552
1727		1986 06	26.91528	18 58 50.42	+01 55 07.3		552
1727		1986 06	26.93194	18 58 49.90	+01 54 58.3		552
2223		1986 07	09.91667	19 23 21.65	-03 00 27.8	16.5	552
2223		1986 07	09.93403	19 23 21.08	-03 00 29.2		552
2597		1986 12	04.94028	05 07 00.94	+21 40 11.1	16.3	552
2597		1986 12	04.96944	05 06 59.18	+21 40 01.0		552
3457		1986 12	04.94028	05 03 53.11	+20 41 12.8	16.5	552
3457		1986 12	04.96944	05 03 51.52	+20 41 14.2		552
1969 TR1		1986 11	07.87986	00 03 06.96	+02 29 32.5	17.0	552
1969 TR1		1986 11	07.92639	00 03 07.66	+02 29 42.1		552
1986 TG		1986 11	04.76736	23 41 23.59	+06 31 06.8	16.7	552
1986 TG		1986 11	04.85556	23 41 24.13	+06 31 20.3		552
1986 TG		1986 11	07.86528	23 42 01.72	+06 39 43.9	17.0	552
1986 TG		1986 11	07.90903	23 42 02.23	+06 39 51.8		552
1986 WG	*	1986 11	26.93056	04 08 23.25	+19 18 19.2	16.0	552
1986 WG		1986 11	26.96250	04 08 20.81	+19 17 43.1		552
1986 WG		1986 11	27.93472	04 07 16.32	+18 59 51.5	16.0	552
1986 WG		1986 11	27.98472	04 07 12.88	+18 58 56.7		552
1986 WH	*	1986 11	26.93056	04 17 43.84	+20 43 12.9	16.0	552
1986 WH		1986 11	26.96250	04 17 42.03	+20 43 08.2		552
1986 XC	*	1986 12	04.94028	05 09 16.42	+21 56 37.3	15.7	552
1986 XC		1986 12	04.96944	05 09 14.65	+21 56 26.2		552

OBSERVATIONS MADE AT PISZKESTETO BY M. ANTAL.

Plates taken with the 0.60-m Schmidt, reduced using the SAO Catalog. Contact: M. Antal, Rastislavova 2, C-92101 Piestany, Czechoslovakia.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
2149	1983 12	04.80486	06 20 38.95	+28 09 53.9	17.0		561
2149	1983 12	04.84653	06 20 36.82	+28 10 00.9			561
1983 XJ1 *	1983 12	03.99722	06 18 35.25	+42 54 29.2	16.2	1	561
1983 XJ1	1983 12	04.06181	06 18 30.94	+42 54 35.4		1	561
1983 XK1 *	1983 12	04.03681	06 32 36.53	+35 28 04.6	16.8	1	561
1983 XK1	1983 12	04.10000	06 32 32.65	+35 28 28.2		1	561
1983 XL1 *	1983 12	04.03681	06 33 31.62	+34 36 17.3	16.2	1	561
1983 XL1	1983 12	04.10000	06 33 28.09	+34 36 11.2		1	561
1983 XM1 *	1983 12	04.11944	06 27 37.94	+29 47 24.4	16.6	1	561
1983 XM1	1983 12	04.14931	06 27 36.23	+29 47 24.1	16.4	1	561
1983 XM1	1983 12	04.80486	06 27 01.77	+29 47 13.6		1	561
1983 XM1	1983 12	04.84653	06 26 59.39	+29 47 13.0		1	561
1983 XM1	1983 12	05.79521	06 26 07.83	+29 46 56.7		1	561
1983 XM1	1983 12	05.83681	06 26 05.49	+29 46 56.8		1	561
1983 XN1 *	1983 12	04.11944	06 37 23.40	+32 09 06.9	17.2	1	561
1983 XN1	1983 12	05.79521	06 36 06.31	+32 09 26.7	17.8	1	561
1983 XN1	1983 12	05.83681	06 36 04.21	+32 09 28.1	17.5	1	561
1983 XO1 *	1983 12	04.80486	06 37 23.15	+27 33 59.3	18.5	1	561
1983 XO1	1983 12	04.84653	06 37 20.70	+27 34 01.7		1	561
1983 XP1 *	1983 12	04.82778	06 30 32.17	+24 36 01.2	16.5		561
1983 XP1	1983 12	04.86944	06 30 30.28	+24 36 10.7			561
1983 XQ1 *	1983 12	04.82778	06 32 25.70	+22 46 54.4	17.0		561
1983 XQ1	1983 12	04.86944	06 32 23.81	+22 47 10.0			561
1983 XR1 *	1983 12	05.85833	06 22 54.30	+21 34 29.2	16.3	1	561
1983 XR1	1983 12	05.92153	06 22 51.52	+21 34 12.2		1	561
1983 XS1 *	1983 12	05.85833	06 22 58.38	+19 07 35.0	18.3	2	561
1983 XS1	1983 12	05.92153	06 22 55.43	+19 07 34.6		2	561
1983 XT1 *	1983 12	05.85833	06 29 25.98	+18 05 24.8	17.0	3	561
1983 XT1	1983 12	05.87917	06 29 25.02	+18 05 29.3		3	561
1983 XT1	1983 12	05.92153	06 29 23.07	+18 05 39.7		3	561
1983 XT1	1983 12	05.94236	06 29 22.11	+18 05 44.6		3	561
1983 XU1 *	1983 12	05.87917	06 23 59.02	+14 24 31.8	17.6	1	561
1983 XU1	1983 12	05.94236	06 23 55.86	+14 24 22.9		1	561
1983 XV1 *	1983 12	05.87917	06 24 10.49	+16 15 51.8	17.4		561
1983 XV1	1983 12	05.94236	06 24 07.66	+16 15 51.6			561
1983 XW1 *	1983 12	05.87917	06 36 49.28	+15 55 44.6	17.2	1	561
1983 XW1	1983 12	05.94236	06 36 46.62	+15 55 35.1		1	561
1983 XX1 *	1983 12	05.90069	06 27 35.18	+13 03 21.4	16.2		561
1983 XX1	1983 12	05.96250	06 27 32.46	+13 03 39.4			561
1983 XY1 *	1983 12	05.90069	06 29 52.34	+12 44 31.5	17.2		561
1983 XY1	1983 12	05.96250	06 29 49.32	+12 43 54.3			561
1983 XZ1 *	1983 12	05.90069	06 32 27.56	+12 20 07.5	16.7		561
1983 XZ1	1983 12	05.96250	06 32 24.78	+12 20 12.3			561
1983 XA2 *	1983 12	05.90069	06 35 15.84	+12 45 49.8	18.0	1	561
1983 XA2	1983 12	05.96250	06 35 12.77	+12 45 30.3		1	561

Note 1: at edge of plate. 2: measurement difficult. 3 = 1 + 2.

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.
220	1986 09	25.85972	01 54 25.01	+25 40 33.4	573
220	1986 09	25.87222	01 54 24.55	+25 40 30.7	573
220	1986 09	25.87847	01 54 24.43	+25 40 30.0	573
220	1986 09	30.83403	01 51 34.79	+25 23 57.4	573
220	1986 09	30.84028	01 51 34.61	+25 23 56.2	573
220	1986 09	30.85208	01 51 34.19	+25 23 53.4	573
485	1986 09	25.81875	00 27 21.39	+05 57 26.9	573

485	1986 09 25.83125	00 27 20.86	+05 57 18.5		573
485	1986 09 25.83750	00 27 20.56	+05 57 14.7		573
779	1986 10 29.75972	01 57 52.16	+36 31 46.9		573
779	1986 10 29.77847	01 57 51.51	+36 31 38.4		573
779	1986 10 29.78472	01 57 51.21	+36 31 36.7		573
779	1986 10 30.76389	01 56 52.90	+36 23 16.6		573
779	1986 10 30.77431	01 56 52.31	+36 23 11.2		573
779	1986 10 30.78056	01 56 52.02	+36 23 07.9		573

OBSERVATIONS MADE AT THE CLIMENHAGA OBSERVATORY, VICTORIA, BY D. D. BALAM AND J. B. TATUM.

For details see MPC 10595. 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.
29	1986 08 16.33403	22 51 02.61	-11 34 07.6		657
39	1986 05 29.31118	16 13 32.76	-05 07 33.9		657
40	1986 05 04.29132	15 33 37.34	-13 51 57.0		657
87	1986 11 06.45458	06 33 23.32	+25 51 06.3		657
88	1986 08 16.34444	22 29 29.46	-01 28 18.2		657
156	1986 05 28.35632	16 23 20.42	-19 57 20.1		657
259	1986 05 29.25910	16 35 12.35	-16 31 38.2		657
402	1986 07 07.43333	19 56 46.22	-15 28 09.9		657
715	1986 09 05.42368	01 26 15.03	-06 19 53.4		657
788	1986 05 30.35944	16 32 22.98	-00 43 06.6		657
898	1986 10 02.25146	01 52 29.33	+22 34 53.9		657
921	1986 05 29.31118	16 11 15.39	-04 27 18.3		657
1139	1986 10 02.25146	01 54 12.36	+21 47 01.7		657
1484	1986 11 06.45458	06 32 26.64	+26 41 11.6		657
1629	1986 05 30.35944	16 28 53.02	-02 53 09.6		657
1798	1986 09 04.38340	00 19 03.37	-08 17 03.3		657
2480	1986 11 06.45458	06 37 29.12	+26 04 57.8		657
1936 XA	1986 10 02.25146	02 00 44.75	+21 11 14.6		657
1936 XA	1986 10 02.30007	02 00 43.08	+21 11 05.5		657
1986 TK4	1986 10 02.31743	02 07 27.33	+07 34 44.7		657
1986 TK4	1986 10 02.43201	02 07 22.42	+07 35 08.5		657

OBSERVATIONS MADE AT PALOMAR BY S. J. BUS AND B. A. SKIFF.

Contact: C. S. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1985 JP	1985 05 24.26944	14 28 06.12	-10 18 47.8		675
1985 JP	1985 05 24.29947	14 28 04.93	-10 18 44.8		675
1985 JG1	1985 05 24.31180	14 47 29.50	-14 49 49.0		675
1985 JG1	1985 05 24.33541	14 47 28.36	-14 49 41.3		675
1985 JU1	1985 05 24.26944	14 45 02.25	-09 26 05.7		675
1985 JU1	1985 05 24.29947	14 45 00.60	-09 26 06.7		675
1985 JV1	1985 05 24.31180	14 47 08.76	-12 41 00.1		675
1985 JV1	1985 05 24.33541	14 47 07.46	-12 40 58.9		675
1985 JX1	1985 05 24.26944	14 51 12.41	-09 39 45.4		675
1985 JX1	1985 05 24.29947	14 51 10.87	-09 39 39.7		675

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

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.	N	Obs.
3202	1985 10 11.28455	00 23 44.78	+06 37 44.6			1	675
3202	1985 10 12.28194	00 23 11.71	+06 32 03.0		17.5		675

3202		1985	10	13.24201	00	22	40.10	+06	26	34.9	675
3202		1985	10	14.27934	00	22	06.37	+06	20	40.0	675
1985	SL1 *	1985	09	16.42725	00	31	36.16	+18	03	53.0	675
1985	SL1	1985	09	16.49010	00	31	33.69	+18	03	32.5	675
1985	TD3	1985	09	16.43177	00	08	44.16	+24	59	30.1	675
1985	TD3	1985	09	16.49497	00	08	41.81	+24	58	57.5	675
1985	TD3 *	1985	10	12.22881	23	53	05.25	+19	41	55.6	17 675
1985	TD3	1985	10	12.25781	23	53	04.18	+19	41	28.3	675
1985	TD3	1985	10	12.30572	23	53	02.81	+19	40	46.8	675
1985	TD3	1985	10	14.22881	23	52	06.75	+19	11	57.6	675
1985	TE3	1985	09	16.43628	01	13	33.57	+09	58	48.9	675
1985	TE3	1985	09	16.49983	01	13	32.10	+09	58	32.4	675
1985	TE3 *	1985	10	11.27031	01	02	47.11	+07	54	02.0	17 675
1985	TE3	1985	10	13.26684	01	01	51.06	+07	43	15.7	675
1985	TE3	1985	11	07.21458	00	51	24.21	+05	35	08.0	675
1985	TE3	1985	11	07.25556	00	51	23.45	+05	34	56.5	675
1985	TF3	1985	09	17.44236	01	46	35.43	+16	11	40.6	675
1985	TF3	1985	09	17.46997	01	46	34.84	+16	11	40.6	675
1985	TF3 *	1985	10	12.38003	01	34	36.49	+15	35	44.6	17.5 675
1985	TF3	1985	10	14.37240	01	33	29.35	+15	31	11.5	675
1985	TF3	1985	11	16.22986	01	16	45.60	+14	05	15.6	675
1985	TG3	1985	09	16.42726	00	31	21.90	+17	19	20.3	675
1985	TG3	1985	09	16.49010	00	31	19.85	+17	19	13.8	675
1985	TG3 *	1985	10	11.26579	00	18	30.31	+16	22	58.3	17.5 675
1985	TG3	1985	10	11.29340	00	18	29.72	+16	22	54.6	675
1985	TG3	1985	10	13.26215	00	17	30.22	+16	16	52.1	675
1985	TG3	1985	10	13.29236	00	17	29.41	+16	16	46.5	675
1985	UE	1985	11	07.25556	00	53	13.52	+09	41	05.4	17.7 675
1985	UE	1985	11	08.22917	00	52	58.71	+09	34	55.9	675
1985	VO	1985	10	12.28194	00	23	53.77	+11	56	23.6	17 675
1985	VO	1985	10	12.31042	00	23	52.70	+11	56	21.2	675
1985	VO	1985	10	14.25087	00	22	43.22	+11	53	56.4	675
1985	VO	1985	10	14.27934	00	22	42.13	+11	53	55.2	675

Note 1: weak image.

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 238-332, Pasadena, CA 91109, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1986 EB	1986	06 17.18066	09 52 30.01	-17 58 14.0	675
1986 EB	1986	06 17.18691	09 52 30.49	-17 58 20.0	675
1986 EB	1986	06 17.19005	09 52 30.78	-17 58 23.1	675
1986 EB	1986	06 18.17969	09 53 45.94	-18 14 39.0	675
1986 EB	1986	06 18.18559	09 53 46.37	-18 14 44.8	675

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR.
Plates taken by E. Helin and in the course of the International Near-Earth Asteroid Survey and Palomar Sky Survey II. Measured by S. Singer-Brewster and J. Alu. 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.
283	1985	02 24.36181	10 45 47.22	+00 41 17.1	15	675
283	1985	02 24.40347	10 45 45.42	+00 41 24.8		675
703	1986	06 06.21806	13 34 17.91	-09 09 37.3		675
703	1986	06 06.23889	13 34 17.76	-09 09 34.8		675
854	1985	02 24.36181	10 46 31.58	+02 09 17.0	16.5	675
854	1985	02 24.40347	10 46 29.45	+02 09 34.3		675
854	1985	02 27.38125	10 43 45.77	+02 32 00.4		675

854			1985	02	27.39514	10	43	45.03	+02	32	05.4		675
2275			1985	02	24.36181	10	44	56.81	+01	19	50.4	17.8	675
2275			1985	02	24.40347	10	44	54.71	+01	20	07.0		675
2275			1985	02	27.38125	10	42	07.65	+01	41	49.3		675
2275			1985	02	27.39514	10	42	07.02	+01	41	54.1		675
2339			1986	03	06.19792	08	32	31.05	+24	32	55.6	17.8	675
2339			1986	03	06.25000	08	32	29.87	+24	32	55.5		675
2339			1986	03	08.19306	08	31	32.05	+24	31	40.0		675
2339			1986	03	08.22083	08	31	31.93	+24	31	39.6		675
1985	DL2	*	1985	02	24.36181	10	44	21.12	+03	19	34.5	18.5 1	675
1985	DL2		1985	02	24.40347	10	44	19.21	+03	19	56.9		675
1985	DL2		1985	02	26.39375	10	42	42.04	+03	38	51.5		675
1985	DL2		1985	02	26.40764	10	42	41.82	+03	38	59.0		675
1985	DL2		1985	02	27.38125	10	41	54.81	+03	48	16.9		675
1985	DM2	*	1985	02	24.36181	10	44	50.59	+02	05	06.3	17.2 1	675
1985	DM2		1985	02	24.40347	10	44	48.39	+02	05	10.9		675
1985	DM2		1985	02	27.38125	10	41	58.89	+02	10	52.6		675
1985	DM2		1985	02	27.39514	10	41	58.19	+02	10	53.5		675
1985	DN2	*	1985	02	24.36181	10	45	27.07	+03	06	04.5	19 3	675
1985	DN2		1985	02	24.40347	10	45	25.26	+03	06	14.6	2	675
1985	DN2		1985	02	26.39375	10	43	50.88	+03	16	51.4		675
1985	DN2		1985	02	26.40764	10	43	50.42	+03	16	54.6		675
1985	DN2		1985	02	27.38125	10	43	04.14	+03	22	10.7		675
1985	DN2		1985	02	27.39514	10	43	03.83	+03	22	13.2		675
1985	DO2	*	1985	02	24.36181	10	46	06.31	+03	29	46.8	19 1	675
1985	DO2		1985	02	24.40347	10	46	03.75	+03	30	25.1		675
1985	DO2		1985	02	26.39375	10	43	48.44	+04	03	25.2		675
1985	DO2		1985	02	26.40764	10	43	47.73	+04	03	34.5		675
1985	DO2		1985	02	27.38125	10	42	41.47	+04	19	54.1		675
1985	DO2		1985	02	27.39514	10	42	40.67	+04	20	05.3		675
1985	DP2	*	1985	02	24.36181	10	46	26.67	+01	24	06.2	18.8 1	675
1985	DP2		1985	02	24.40347	10	46	24.73	+01	24	15.4		675
1985	DP2		1985	02	27.38125	10	43	52.33	+01	36	50.1		675
1985	DP2		1985	02	27.39514	10	43	51.72	+01	36	52.6		675
1985	DQ2	*	1985	02	24.36181	10	46	28.64	+01	11	43.9	17.8 1	675
1985	DQ2		1985	02	24.40347	10	46	26.74	+01	12	03.6		675
1985	DQ2		1985	02	27.38125	10	43	55.89	+01	38	25.0		675
1985	DQ2		1985	02	27.39514	10	43	55.26	+01	38	30.8		675
1985	DR2	*	1985	02	24.36181	10	48	01.52	+01	52	33.6	17.8 1	675
1985	DR2		1985	02	24.40347	10	47	59.81	+01	52	52.8		675
1985	DR2		1985	02	27.38125	10	45	44.78	+02	17	41.8		675
1985	DR2		1985	02	27.39514	10	45	44.25	+02	17	47.7		675
1985	DS2	*	1985	02	24.36181	10	44	50.02	+06	07	44.2	19.0 1	675
1985	DS2		1985	02	24.40347	10	44	47.75	+06	07	52.0		675
1985	DS2		1985	02	27.38125	10	41	43.80	+06	18	55.8		675
1985	DS2		1985	02	27.39514	10	41	43.18	+06	18	57.0		675
1985	DT2	*	1985	02	24.36181	10	45	19.09	+05	16	57.8	18.5 1	675
1985	DT2		1985	02	24.40347	10	45	17.34	+05	17	07.0		675
1985	DT2		1985	02	27.38125	10	42	58.61	+05	29	14.9		675
1985	DT2		1985	02	27.39514	10	42	58.09	+05	29	17.0		675
1985	DU2	*	1985	02	24.36181	10	46	04.78	+06	03	14.8	18.8 1	675
1985	DU2		1985	02	24.40347	10	46	02.76	+06	03	28.3		675
1985	DU2		1985	02	27.38125	10	43	23.84	+06	21	38.4		675
1985	DU2		1985	02	27.39514	10	43	23.23	+06	21	41.3		675
1985	DV2	*	1985	02	24.36181	10	46	55.00	+06	02	01.0	17.2 1	675
1985	DV2		1985	02	24.40347	10	46	53.14	+06	02	11.5		675
1985	DV2		1985	02	27.38125	10	44	27.50	+06	17	41.9		675
1985	DV2		1985	02	27.39514	10	44	27.00	+06	17	44.7		675
1985	DW2	*	1985	02	24.36181	10	48	37.73	+06	39	36.8	17.5 1	675

1985	DW2		1985	02	24.40347	10	48	35.58	+06	39	42.4		675
1985	DW2		1985	02	27.38125	10	46	00.19	+06	47	02.5		675
1985	DW2		1985	02	27.39514	10	45	59.45	+06	47	03.5		675
1985	DX2	*	1985	02	24.36181	10	49	46.04	+04	56	35.5	17.0 1	675
1985	DX2		1985	02	24.40347	10	49	44.37	+04	56	53.9		675
1985	DX2		1985	02	27.38125	10	47	36.84	+05	20	57.9		675
1985	DX2		1985	02	27.39514	10	47	36.34	+05	21	02.8		675
1985	DY2	*	1985	02	24.36181	10	49	59.12	+06	01	08.8	18.0 1	675
1985	DY2		1985	02	24.40347	10	49	57.24	+06	01	21.3		675
1985	DY2		1985	02	27.38125	10	47	33.27	+06	17	34.2		675
1985	DY2		1985	02	27.39514	10	47	32.07	+06	17	36.8		675
1985	DZ2	*	1985	02	24.36181	10	50	21.55	+05	41	10.1	18.5 1	675
1985	DZ2		1985	02	24.40347	10	50	19.72	+05	41	29.1		675
1985	DZ2		1985	02	27.38125	10	47	55.98	+06	08	01.5		675
1985	DZ2		1985	02	27.39514	10	47	55.54	+06	08	08.5		675
1985	DA3	*	1985	02	24.36181	10	46	33.41	+05	28	17.5	18.0 1	675
1985	DA3		1985	02	24.40347	10	46	31.27	+05	28	30.4		675
1985	DA3		1985	02	27.38125	10	43	49.93	+05	47	05.3	5	675
1985	DA3		1985	02	27.39514	10	43	49.39	+05	47	08.0	5	675
1985	DB3	*	1985	02	24.36181	10	48	21.47	+06	06	06.5	17.5 1	675
1985	DB3		1985	02	24.40347	10	48	19.01	+06	06	19.8		675
1985	DB3		1985	02	27.38125	10	45	28.39	+06	23	19.8	5	675
1985	DB3		1985	02	27.39514	10	45	27.83	+06	23	22.6	5	675
1985	DC3	*	1985	02	24.36181	10	48	38.41	+06	17	07.0	18.5 1	675
1985	DC3		1985	02	24.40347	10	48	36.00	+06	17	18.2		675
1985	DC3		1985	02	27.38125	10	46	12.39	+06	32	39.3	5	675
1985	DC3		1985	02	27.39514	10	46	11.84	+06	32	43.0	5	675
1985	DD3	*	1985	02	24.36181	10	49	44.51	+06	19	53.1	18.2 1	675
1985	DD3		1985	02	24.40347	10	49	42.19	+06	20	09.0		675
1985	DD3		1985	02	27.38125	10	46	49.18	+06	40	20.4	5	675
1985	DD3		1985	02	27.39514	10	46	48.59	+06	40	24.7	5	675
1985	FF2		1985	02	24.36181	10	47	41.52	+01	05	43.6	18.5	675
1985	FF2		1985	02	24.40347	10	47	39.51	+01	05	47.7		675
1985	FF2		1985	02	27.38125	10	44	55.45	+01	12	10.0		675
1985	FF2		1985	02	27.39514	10	44	54.88	+01	12	11.7		675
1986	CG2	*	1986	02	07.23542	08	52	41.22	+21	46	36.1	17.8 1	675
1986	CG2		1986	02	07.27014	08	52	39.22	+21	46	47.0		675
1986	CH2	*	1986	02	07.23542	08	53	46.07	+21	33	25.2	18.2 1	675
1986	CH2		1986	02	07.27014	08	53	44.73	+21	33	29.6		675
1986	CJ2	*	1986	02	07.23542	08	56	52.22	+20	45	27.4	1	675
1986	CJ2		1986	02	07.27014	08	56	50.39	+20	45	43.0		675
1986	EY2	*	1986	03	06.19792	08	31	09.58	+23	57	27.3	19.8 1	675
1986	EY2		1986	03	06.25000	08	31	07.14	+23	57	19.6		675
1986	JT1	*	1986	05	10.30000	15	19	43.21	+24	33	31.0	17.5 4	675
1986	JT1		1986	05	10.35208	15	19	39.76	+24	33	43.6		675
1986	JU1	*	1986	05	10.30000	15	33	41.77	+26	37	01.8	18.0 4	675
1986	JU1		1986	05	10.35208	15	33	38.25	+26	36	39.4		675
1986	JV1	*	1986	05	10.30000	15	35	24.65	+22	29	47.5	17.5 4	675
1986	JV1		1986	05	10.35208	15	35	22.79	+22	30	57.2		675
1986	LR1		1986	06	06.21806	13	34	41.52	-08	20	16.8	17.0	675
1986	LR1		1986	06	06.23889	13	34	41.38	-08	20	13.9		675
1986	LS1		1986	06	06.21806	13	37	52.39	-07	15	40.1	18.5	675
1986	LS1		1986	06	06.23889	13	37	52.22	-07	15	36.3		675
1986	LT1	*	1986	06	04.18611	13	30	06.71	-08	03	52.3	18.8	675
1986	LT1		1986	06	04.20694	13	30	06.73	-08	03	46.0		675
1986	LT1		1986	06	06.21806	13	30	22.38	-07	53	55.2		675
1986	LT1		1986	06	06.23889	13	30	22.52	-07	53	51.0		675
1986	LU1	*	1986	06	04.18611	13	40	10.28	-09	10	56.2	18.5	675
1986	LU1		1986	06	04.22222	13	40	09.77	-09	10	53.5		675

1986 LU1		1986 06 06.21806	13 39 45.34	-09 10 19.3					675
1986 LU1		1986 06 06.23889	13 39 45.16	-09 10 17.8					675
1986 RB2		1986 09 01.29306	22 50 09.42	+02 18 09.6			17.5		675
1986 RB2		1986 09 01.34514	22 50 06.74	+02 18 06.8					675
1986 RB4	*	1986 09 01.29306	22 46 48.04	-02 41 41.2			20	1	675
1986 RB4		1986 09 01.34514	22 46 47.12	-02 41 55.8					675
1986 RB4		1986 09 06.29931	22 43 16.17	-03 07 37.1					675
1986 RB4		1986 09 06.32014	22 43 15.52	-03 07 41.5					675
1986 RC4	*	1986 09 01.29306	22 47 21.85	-02 23 55.5			18.0	1	675
1986 RC4		1986 09 01.34514	22 47 19.61	-02 24 19.4					675
1986 RC4		1986 09 06.29931	22 43 38.02	-03 03 57.3					675
1986 RC4		1986 09 06.32014	22 43 37.39	-03 04 05.7					675

Note 1: discoverer E. Helin. 2: image possibly diffuse. 3 = 1 + 2. 4: discoverer S. Singer-Brewster. 5: near edge of plate; measurement difficult.

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR.

Plates taken by G. Carlson, N. Reid and J. Mueller in the course of Palomar Sky Survey II, scanned by A. Maury. Contact: A. Maury, Dept. of Astrophysics, California Institute of Technology, Pasadena, CA 91125, U.S.A.

Object		Date	UT	R. A. (1950)	Decl.		Mag.	N	Obs.
1986 WA	*	1986 11 27.15556	00 08 29.4	+13 03 21					675
1986 WA		1986 11 27.19722	00 08 42.6	+13 01 38			16.5		675
1986 WA		1986 11 30.16458	00 23 19.56	+11 07 42.7				2	675
1986 WA		1986 11 30.17500	00 23 22.37	+11 07 18.6				3	675
1986 WA		1986 12 03.11944	00 35 28.4	+09 36 57					675
1986 WA		1986 12 03.16111	00 35 37.7	+09 35 45					675

Note 1: end of trail uncertain; faint star involved. 2: measured by S. Singer-Brewster. 3 = 1 + 2.

OBSERVATIONS MADE AT PALOMAR.

Palomar-Leiden Survey plates taken with the 1.2-m Schmidt by T. Gehrels, scanned and measured by C. J. van Houten and I. van Houten-Groeneveld at Leiden. Computational support from the late P. Herget.

Object		Date	UT	R. A. (1950)	Decl.		Mag.	Obs.
6047 P-L	*	1960 09 24.33613	00 05 09.23	+03 31 57.6			17.6	675
6047 P-L		1960 09 25.32502	00 04 16.08	+03 23 53.4				675
6047 P-L		1960 09 26.27573	00 03 24.88	+03 16 03.2				675
6047 P-L		1960 09 28.32780	00 01 34.75	+02 59 08.5				675
6047 P-L		1960 10 17.21390	23 46 43.35	+00 31 39.0				675
6047 P-L		1960 10 24.18787	23 42 56.19	-00 12 24.3				675
6047 P-L		1960 10 26.26113	23 42 02.78	-00 23 51.6				675
9527 P-L	*	1960 10 17.22501	23 29 27.03	-03 28 56.5			18.0	675
9527 P-L		1960 10 22.16324	23 27 19.29	-03 48 15.4				675
9527 P-L		1960 10 24.23753	23 26 35.12	-03 55 14.8				675
9527 P-L		1960 10 26.27157	23 25 57.48	-04 01 27.7				675

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

Observations made by B. A. Skiff, measured by E. Bowell and B. A. Skiff using a PDS scanning microdensitometer. SAO, AGK3 and Perth 70 secondary nets, global solutions. 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.		Mag.	N	Obs.
27	1986 11 06.24867	02 35 49.79	+12 41 14.4					688
27	1986 11 06.31056	02 35 45.90	+12 40 59.8					688
28	1986 11 05.15381	00 45 44.68	-07 11 37.5					688
28	1986 11 05.22667	00 45 42.21	-07 11 49.1					688
46	1986 11 06.33270	03 37 51.22	+16 10 50.6					688

46	1986	11	06.38924	03	37	47.93	+16	10	36.0			688
67	1986	11	30.10000	00	43	52.74	+03	06	44.0			688
67	1986	11	30.13889	00	43	53.26	+03	06	43.2			688
113	1986	11	30.10000	00	56	48.44	-01	24	45.0			688
113	1986	11	30.13889	00	56	48.19	-01	24	39.5			688
125	1986	11	06.22622	02	20	38.89	+08	17	10.5			688
125	1986	11	06.28793	02	20	35.76	+08	16	52.3			688
152	1986	11	30.10000	00	52	09.83	+02	05	36.1			688
152	1986	11	30.13889	00	52	09.38	+02	05	44.6			688
196	1986	11	06.22622	02	26	54.51	+08	24	45.8			688
196	1986	11	06.28793	02	26	51.43	+08	24	38.5			688
220	1986	11	05.17883	01	23	39.58	+20	04	41.0			688
220	1986	11	05.25226	01	23	36.77	+20	03	52.3			688
311	1986	11	30.10000	00	42	16.10	+00	52	32.1			688
311	1986	11	30.13889	00	42	16.03	+00	52	35.6			688
515	1986	11	30.10000	00	58	19.00	+03	11	39.9			688
588	1986	11	05.29786	02	48	13.60	+29	59	34.1			688
588	1986	11	05.34178	02	48	11.89	+29	59	29.2			688
697	1986	11	05.17883	01	35	33.08	+18	36	57.5			688
697	1986	11	05.25226	01	35	28.67	+18	36	58.0			688
710	1986	11	06.33270	03	27	28.72	+16	20	15.5			688
710	1986	11	06.38924	03	27	26.15	+16	20	05.7			688
715	1986	11	05.15381	00	36	37.87	-06	25	28.4			688
715	1986	11	05.22667	00	36	35.13	-06	25	08.9			688
718	1986	11	30.10000	00	37	20.58	+01	33	39.7			688
718	1986	11	30.13889	00	37	20.22	+01	33	41.9			688
782	1986	11	05.15381	00	49	13.72	-02	41	18.1			688
782	1986	11	05.22667	00	49	10.67	-02	41	19.5			688
782	1986	11	30.10000	00	41	40.11	-01	44	36.7			688
782	1986	11	30.13889	00	41	40.27	-01	44	25.6			688
785	1986	12	02.11564	01	34	04.24	-01	04	35.5			688
785	1986	12	02.17005	01	34	02.77	-01	04	26.1			688
898	1986	11	05.17883	01	22	37.72	+17	30	31.2		16.0	688
898	1986	11	05.25226	01	22	34.50	+17	29	47.8			688
1143	1986	11	06.33270	03	41	53.65	+18	41	12.6			688
1143	1986	11	06.38924	03	41	51.82	+18	41	05.6			688
1153	1986	11	05.17883	01	29	55.24	+15	30	16.0			688
1153	1986	11	05.25226	01	29	51.31	+15	29	44.9			688
1171	1986	11	05.15381	00	52	53.44	+00	34	09.4			688
1171	1986	11	05.22667	00	52	51.17	+00	34	00.4			688
1171	1986	11	30.10000	00	48	09.11	+00	36	38.3			688
1171	1986	11	30.13889	00	48	09.33	+00	36	44.2			688
1209	1986	11	06.33270	03	29	12.58	+12	37	28.2			688
1209	1986	11	06.38924	03	29	09.82	+12	37	19.8			688
1226	1986	11	05.29786	02	57	17.68	+24	56	57.8			688
1226	1986	11	05.34178	02	57	14.69	+24	56	56.7			688
1291	1986	11	06.33270	03	44	47.84	+15	38	37.1			688
1291	1986	11	06.38924	03	44	45.13	+15	38	19.0			688
1343	1986	11	06.24867	02	20	26.28	+13	45	52.3			688
1343	1986	11	06.31056	02	20	22.50	+13	45	42.6			688
1385	1986	11	05.15381	00	49	57.71	-06	25	24.6			688
1385	1986	11	05.22667	00	49	55.37	-06	25	25.2			688
1387	1986	11	30.10000	00	53	50.50	+03	25	09.6			688
1387	1986	11	30.13889	00	53	51.26	+03	25	11.7			688
1390	1986	11	05.15381	00	49	42.84	+00	45	11.1			688
1390	1986	11	05.22667	00	49	39.71	+00	45	19.5		3	688
1390	1986	11	30.10000	00	39	13.73	+01	55	56.3			688
1390	1986	11	30.13889	00	39	13.27	+01	56	05.8			688
1463	1986	11	05.17883	01	36	27.80	+21	32	41.7			688

1463	1986	11	05.25226	01	36	24.23	+21	32	23.9	688
1499	1986	11	05.25226	01	24	45.40	+18	40	25.0	688
1579	1986	11	30.10000	00	40	19.85	+00	16	50.2	688
1579	1986	11	30.13889	00	40	19.80	+00	16	48.6	688
1581	1986	11	06.33270	03	24	42.28	+15	41	47.7	688
1581	1986	11	06.38924	03	24	39.59	+15	41	38.3	688
1686	1986	11	06.24867	02	22	25.54	+14	42	06.5	16.2 688
1686	1986	11	06.31056	02	22	22.50	+14	41	51.8	688
1754	1986	11	06.22622	02	23	17.21	+00	49	17.5	688
1754	1986	11	06.28793	02	23	15.01	+00	49	06.9	688
1815	1986	11	30.10000	00	41	18.34	+00	40	36.1	688
1815	1986	11	30.13889	00	41	18.29	+00	40	38.5	688
1831	1986	11	06.33270	03	37	08.02	+15	54	34.1	688
1831	1986	11	06.38924	03	37	04.26	+15	54	27.3	688
1840	1986	11	06.24867	02	39	21.69	+15	41	20.6	16.5 688
1840	1986	11	06.31056	02	39	18.46	+15	41	09.1	688
1880	1986	11	05.20100	01	40	19.03	+02	17	20.6	688
1880	1986	11	05.27422	01	40	15.50	+02	17	07.0	688
1880	1986	12	02.11564	01	26	45.50	+01	56	07.8	688
1880	1986	12	02.17005	01	26	44.77	+01	56	12.7	688
1927	1986	11	05.29786	02	58	38.49	+24	51	40.1	688
1927	1986	11	05.34178	02	58	35.40	+24	51	45.2	688
1935	1986	11	06.22622	02	18	18.29	+07	21	45.2	688
1935	1986	11	06.28793	02	18	15.66	+07	21	07.7	688
2054	1986	11	05.29786	02	57	20.85	+22	24	50.1	688
2054	1986	11	05.34178	02	57	18.39	+22	24	40.7	688
2065	1986	11	05.29786	03	11	03.37	+30	12	13.1	688
2065	1986	11	05.34178	03	11	00.75	+30	12	10.0	688
2095	1986	11	05.17883	01	28	50.80	+14	35	48.3	688
2095	1986	11	05.25226	01	28	47.03	+14	35	27.9	688
2103	1986	11	05.34178	03	04	04.26	+27	22	08.2	16.8 688
2112	1986	11	06.24867	02	21	22.54	+16	51	28.3	688
2112	1986	11	06.31056	02	21	18.91	+16	51	00.4	688
2129	1986	11	06.24867	02	35	43.37	+11	40	42.7	17.0 688
2129	1986	11	06.31056	02	35	39.01	+11	40	45.3	688
2142	1986	11	06.24867	02	35	24.07	+14	19	11.4	688
2142	1986	11	06.31056	02	35	21.05	+14	18	57.8	688
2154	1986	11	05.29786	03	02	52.64	+26	59	35.8	688
2154	1986	11	05.34178	03	02	49.70	+26	59	32.9	688
2160	1986	11	30.10000	00	57	43.69	+02	03	57.1	17.5 688
2160	1986	11	30.13889	00	57	43.67	+02	04	02.8	688
2405	1986	11	30.10000	00	44	03.14	+01	46	30.6	17.2 688
2405	1986	11	30.13889	00	44	02.97	+01	46	30.3	688
2488	1986	11	30.10000	00	35	58.66	-01	37	43.5	688
2488	1986	11	30.13889	00	35	59.78	-01	37	20.3	688
2521	1986	11	05.17883	01	16	04.59	+19	38	46.0	688
2521	1986	11	05.25226	01	16	01.14	+19	38	17.3	688
2541	1986	11	06.24867	02	37	02.14	+12	17	27.0	688
2541	1986	11	06.31056	02	36	58.79	+12	17	16.3	688
2592	1986	11	06.33270	03	31	32.22	+18	11	39.2	688
2592	1986	11	06.38924	03	31	29.19	+18	11	29.0	688
2634	1986	12	02.11564	01	34	07.31	+01	02	23.5	688
2634	1986	12	02.17005	01	34	06.42	+01	02	24.5	688
2679	1986	11	06.33270	03	49	26.51	+13	04	56.9	16.5 688
2679	1986	11	06.38924	03	49	23.65	+13	04	32.8	688
2730	1986	11	05.29786	02	55	22.04	+23	28	53.0	688
2730	1986	11	05.34178	02	55	19.38	+23	28	46.3	688
2784	1986	12	02.11564	01	29	22.25	-00	41	07.1	688
2784	1986	12	02.17005	01	29	21.42	-00	40	53.8	688

2868		1986	11	05.15381	00	41	18.40	-07	16	39.9			688
2868		1986	11	05.22667	00	41	16.57	-07	16	44.3			688
3057		1986	11	06.22622	02	20	34.29	+06	14	10.2			688
3057		1986	11	06.28793	02	20	30.15	+06	14	01.1			688
3058		1986	11	06.24867	02	30	49.65	+12	59	00.6			688
3058		1986	11	06.31056	02	30	46.28	+12	58	32.5			688
3059		1986	11	30.10000	00	47	44.42	+02	48	08.9			688
3059		1986	11	30.13889	00	47	44.95	+02	48	13.5			688
3081		1986	11	06.24867	02	30	34.92	+14	25	19.5			688
3081		1986	11	06.31056	02	30	30.78	+14	25	12.3			688
3088		1986	11	05.15381	00	56	03.80	-02	02	58.6			688
3088		1986	11	05.22667	00	56	01.34	-02	03	17.2			688
3088		1986	11	30.10000	00	49	06.69	-02	54	53.3			688
3088		1986	11	30.13889	00	49	06.63	-02	54	52.5			688
3253		1986	11	05.15381	00	43	37.03	-03	33	18.0			688
3253		1986	11	05.22667	00	43	34.36	-03	33	06.1			688
3253		1986	11	30.10000	00	39	08.98	-01	26	35.4	17.5		688
3253		1986	11	30.13889	00	39	09.33	-01	26	13.6			688
3333		1986	11	06.33270	03	31	08.85	+18	51	09.5	17.5		688
3333		1986	11	06.38924	03	31	05.82	+18	50	50.3			688
3436		1986	11	06.24867	02	25	45.95	+12	57	14.5			688
3436		1986	11	06.31056	02	25	42.51	+12	56	56.9			688
3508		1986	09	11.30316	23	03	31.95	-10	05	06.4	16.8		688
3508		1986	09	11.37205	23	03	27.97	-10	05	16.8			688
3510		1986	11	05.17883	01	23	49.02	+17	57	50.5	17.0		688
3510		1986	11	05.25226	01	23	45.48	+17	57	21.4			688
1936	UB	1986	12	02.11564	01	29	56.24	-01	27	41.8	16.8		688
1936	UB	1986	12	02.17005	01	29	55.26	-01	27	11.4			688
1936	XA	1986	11	05.17883	01	34	41.50	+17	26	49.5	16.5		688
1936	XA	1986	11	05.25226	01	34	38.05	+17	26	12.9			688
1952	SG	1986	11	05.15381	00	45	38.93	-04	16	41.6	16.5		688
1952	SG	1986	11	05.22667	00	45	37.06	-04	16	38.9			688
1952	SG	1986	11	30.10000	00	46	20.30	-02	44	07.7	17.2		688
1952	SG	1986	11	30.13889	00	46	21.34	-02	43	50.5			688
1975	TV2	1986	11	05.20100	01	23	18.63	+01	18	16.2	17.0		688
1975	TV2	1986	11	05.27422	01	23	14.74	+01	18	12.7			688
1980	DL5	1986	11	06.24867	02	33	09.17	+15	57	40.3	16.8		688
1980	DL5	1986	11	06.31056	02	33	05.53	+15	57	28.2			688
1981	EU35	1986	12	02.11564	01	34	35.04	+03	25	48.4	17.8		688
1981	EU35	1986	12	02.17005	01	34	35.26	+03	25	55.1			688
1982	TW	1986	11	06.33270	03	44	18.13	+17	04	38.4	17.0		688
1982	TW	1986	11	06.38924	03	44	14.60	+17	04	34.2			688
1984	AZ	1986	11	05.20100	01	37	28.56	+01	20	27.5	17.5		688
1984	AZ	1986	11	05.27422	01	37	24.17	+01	20	13.6		1	688
1984	AZ	1986	12	02.11564	01	20	35.79	+01	09	53.3	17.5		688
1984	AZ	1986	12	02.17005	01	20	34.70	+01	10	00.4			688
1984	HZ1	1986	11	06.33270	03	35	27.60	+18	05	26.5	16.8		688
1984	HZ1	1986	11	06.38924	03	35	24.92	+18	05	11.9			688
1985	TC1	1986	11	05.29786	03	11	28.00	+27	02	24.7	17.2		688
1985	TC1	1986	11	05.34178	03	11	26.46	+27	02	22.1			688
1985	TG3	1985	10	15.19931	00	16	33.31	+16	10	43.8	17.5		688
1985	TG3	1985	10	15.26597	00	16	31.20	+16	10	32.1			688
1986	TC1	1986	11	05.15381	01	01	00.14	-01	39	41.0	16.2		688
1986	TC1	1986	11	05.22667	01	00	57.69	-01	39	50.0			688
1986	TJ1	1986	11	05.17883	01	21	43.17	+20	00	47.5	17.0	2	688
1986	TJ1	1986	11	05.25226	01	21	39.67	+20	00	15.2			688
1986	TK1	1986	11	05.17883	01	21	18.82	+17	39	45.7	17.0		688
1986	TK1	1986	11	05.25226	01	21	15.60	+17	39	10.5			688
1986	TL1	1986	11	05.17883	01	32	25.50	+17	45	42.4	16.8		688

1986	TL1		1986	11	05.25226	01	32	21.78	+17	45	10.6		2 688
1986	TM1		1986	11	05.17883	01	39	54.00	+14	59	51.4	16.5	688
1986	TM1		1986	11	05.25226	01	39	50.81	+14	58	59.6		688
1986	TN1		1986	11	05.17883	01	38	12.41	+17	52	23.9	17.2	688
1986	TN1		1986	11	05.25226	01	38	08.73	+17	51	37.3		688
1986	TY1		1986	11	05.15381	00	38	26.21	-01	35	06.1	16.2	688
1986	TY1		1986	11	05.22667	00	38	23.94	-01	34	52.1		688
1986	TY1		1986	11	30.10000	00	34	44.65	+00	24	53.8	17.0	688
1986	TY1		1986	11	30.13889	00	34	45.00	+00	25	07.9		688
1986	TZ1		1986	11	05.15381	00	50	02.14	-05	29	17.3	15.8	688
1986	TZ1		1986	11	05.22667	00	50	00.47	-05	28	55.3		688
1986	TZ1		1986	11	30.10000	00	53	00.59	-02	03	35.0	16.5	688
1986	TZ1		1986	11	30.13889	00	53	01.87	-02	03	07.0		688
1986	TC2		1986	11	05.15381	00	52	03.57	-04	24	59.3	17.0	688
1986	TC2		1986	11	05.22667	00	52	01.01	-04	25	02.1		688
1986	TD2		1986	11	05.15381	00	52	28.14	-04	38	54.9	17.0	1 688
1986	TD2		1986	11	05.22667	00	52	25.55	-04	38	41.8		688
1986	TJ2		1986	11	05.20100	01	25	03.87	-03	53	45.4	16.5	688
1986	TJ2		1986	11	05.27422	01	25	00.40	-03	53	54.4		688
1986	TJ2		1986	12	02.11564	01	14	47.04	-03	03	01.1	17.0	688
1986	TJ2		1986	12	02.17005	01	14	47.06	-03	02	43.4		688
1986	TK2		1986	11	05.20100	01	26	45.69	-01	36	25.7	16.8	688
1986	TK2		1986	11	05.27422	01	26	42.44	-01	36	33.3		688
1986	TK2		1986	12	02.11564	01	18	19.55	-00	43	06.8	17.2	688
1986	TK2		1986	12	02.17005	01	18	19.88	-00	42	49.6		688
1986	TL2		1986	11	05.20100	01	31	41.58	+02	48	47.3	16.8	688
1986	TL2		1986	11	05.27422	01	31	38.36	+02	48	42.5		688
1986	TL2		1986	12	02.11564	01	17	41.97	+03	04	57.9	17.2	688
1986	TL2		1986	12	02.17005	01	17	41.05	+03	05	04.2		688
1986	TM2		1986	11	05.20100	01	32	35.77	+02	58	21.7	17.2	688
1986	TM2		1986	11	05.27422	01	32	32.33	+02	58	07.7		688
1986	TN2		1986	11	05.20100	01	34	31.05	+03	19	15.5	16.8	688
1986	TN2		1986	11	05.27422	01	34	27.83	+03	19	19.7		688
1986	TO2		1986	11	05.20100	01	39	15.73	-04	25	51.3	16.8	688
1986	TO2		1986	11	05.27422	01	39	12.98	-04	26	23.9		688
1986	TP2		1986	11	05.20100	01	31	13.15	+01	42	20.7	16.8	688
1986	TP2		1986	11	05.27422	01	31	09.59	+01	42	02.2		688
1986	TP2		1986	12	02.11564	01	20	23.94	+01	21	10.2	17.2	688
1986	TP2		1986	12	02.17005	01	20	23.94	+01	21	19.1		688
1986	TQ2		1986	11	05.20100	01	39	05.31	+00	22	09.7	16.8	688
1986	TQ2		1986	11	05.27422	01	39	02.24	+00	21	47.0		1 688
1986	TQ2		1986	12	02.11564	01	27	19.51	-00	47	47.0	17.2	688
1986	TQ2		1986	12	02.17005	01	27	18.83	-00	47	48.6		688
1986	TR2		1986	11	05.20100	01	39	35.76	-00	35	52.0	16.5	688
1986	TR2		1986	11	05.27422	01	39	31.95	-00	35	40.8		688
1986	TR2		1986	12	02.11564	01	26	01.70	+01	46	16.7	16.8	688
1986	TR2		1986	12	02.17005	01	26	01.31	+01	46	43.6		688
1986	TO6	*	1986	10	07.31267	01	56	11.92	+03	36	34.3	17.2	4 688
1986	TO6		1986	10	07.36363	01	56	09.76	+03	36	25.4		688
1986	TO6		1986	11	05.20100	01	33	57.92	+02	29	26.9	17.0	688
1986	TO6		1986	11	05.27422	01	33	54.72	+02	29	21.9		688
1986	UA		1986	11	06.24867	02	23	27.65	+11	03	01.3	16.5	688
1986	UA		1986	11	06.31056	02	23	24.64	+11	02	46.8		688
1986	UY		1986	11	05.29786	02	53	53.28	+25	25	05.7	16.8	688
1986	UY		1986	11	05.34178	02	53	50.27	+25	25	02.8		688
1986	VQ		1986	11	06.24867	02	35	51.97	+14	05	09.0	16.8	688
1986	VQ		1986	11	06.31056	02	35	47.69	+14	05	08.7		688
1986	VS		1986	11	06.24867	02	42	15.31	+17	13	20.6	17.0	688
1986	VS		1986	11	06.31056	02	42	11.55	+17	12	56.9		688

1986	VT4		1986	11	05.20100	01	25	01.97	-02	21	59.6	17.0	688
1986	VT4		1986	11	05.27422	01	24	58.81	-02	22	10.4		688
1986	VT4		1986	12	02.11564	01	14	12.89	-02	10	41.7	17.2	688
1986	VT4		1986	12	02.17005	01	14	12.62	-02	10	29.5		688
1986	VE5	*	1986	11	05.15381	00	37	05.02	-01	04	29.5	16.8	4 688
1986	VE5		1986	11	05.22667	00	37	03.18	-01	04	44.7		688
1986	VF5	*	1986	11	05.17883	01	32	42.92	+18	22	08.6	17.2	4 688
1986	VF5		1986	11	05.25226	01	32	39.07	+18	21	57.8		2 688
1986	VG5	*	1986	11	05.20100	01	32	48.12	-04	37	54.5	17.0	4 688
1986	VG5		1986	11	05.27422	01	32	44.26	-04	37	51.6		2 688
1986	VH5	*	1986	11	05.29786	02	52	44.45	+26	03	34.9	17.5	4 688
1986	VH5		1986	11	05.34178	02	52	42.75	+26	03	31.4		688
1986	VJ5	*	1986	11	05.29786	02	53	15.25	+29	02	12.9	17.2	4 688
1986	VJ5		1986	11	05.34178	02	53	11.90	+29	02	10.3		688
1986	VK5	*	1986	11	05.29786	02	54	47.86	+25	11	17.8	17.2	4 688
1986	VK5		1986	11	05.34178	02	54	46.37	+25	11	08.2		688
1986	VL5	*	1986	11	05.29786	02	59	01.41	+22	24	58.6	17.0	4 688
1986	VL5		1986	11	05.34178	02	58	58.25	+22	24	59.2		688
1986	VM5	*	1986	11	05.29786	02	59	42.92	+29	04	41.5	17.0	4 688
1986	VM5		1986	11	05.34178	02	59	40.13	+29	04	39.3		688
1986	VN5	*	1986	11	05.29786	03	01	56.95	+24	17	55.5	17.8	7 688
1986	VN5		1986	11	05.34178	03	01	55.83	+24	17	51.7		688
1986	VO5	*	1986	11	05.29786	03	02	22.00	+25	08	28.6	16.8	4 688
1986	VO5		1986	11	05.34178	03	02	19.09	+25	08	32.8		688
1986	VP5	*	1986	11	05.29786	03	05	21.59	+27	37	00.5	16.8	4 688
1986	VP5		1986	11	05.34178	03	05	20.09	+27	36	43.5		688
1986	VQ5	*	1986	11	05.29786	03	05	48.71	+27	38	30.3	17.2	5 688
1986	VQ5		1986	11	05.34178	03	05	45.68	+27	38	15.6		688
1986	VR5	*	1986	11	05.29786	03	07	20.23	+24	34	54.4	17.5	7 688
1986	VR5		1986	11	05.34178	03	07	17.20	+24	34	36.8		688
1986	VS5	*	1986	11	05.29786	03	12	24.67	+26	07	38.4	16.8	4 688
1986	VS5		1986	11	05.34178	03	12	21.83	+26	07	30.5		688
1986	VT5	*	1986	11	05.29786	03	12	31.99	+23	11	12.4	17.2	4 688
1986	VT5		1986	11	05.34178	03	12	29.04	+23	11	01.1		688
1986	VU5	*	1986	11	05.29786	03	16	38.55	+25	58	51.0	17.2	4 688
1986	VU5		1986	11	05.34178	03	16	35.83	+25	58	39.6		688
1986	VV5	*	1986	11	06.22622	02	14	23.01	+03	11	18.8	16.8	4 688
1986	VV5		1986	11	06.28793	02	14	20.46	+03	10	30.9		688
1986	VW5	*	1986	11	06.22622	02	14	50.56	+06	54	01.5	16.2	4 688
1986	VW5		1986	11	06.28793	02	14	47.17	+06	53	31.9		688
1986	VX5	*	1986	11	06.22622	02	18	24.88	+04	17	54.2	17.5	5 688
1986	VX5		1986	11	06.28793	02	18	21.62	+04	17	43.7		688
1986	VY5	*	1986	11	06.22622	02	21	06.53	+07	44	10.6	17.0	4 688
1986	VY5		1986	11	06.28793	02	21	02.97	+07	43	57.3		688
1986	VZ5	*	1986	11	06.22622	02	22	23.40	+07	01	45.8	16.8	4 688
1986	VZ5		1986	11	06.28793	02	22	19.80	+07	01	48.3		1 688
1986	VA6	*	1986	11	06.22622	02	23	58.28	+06	38	46.3	16.8	4 688
1986	VA6		1986	11	06.28793	02	23	54.40	+06	38	39.2		688
1986	VB6	*	1986	11	06.22622	02	26	50.19	+03	36	13.4	16.5	4 688
1986	VB6		1986	11	06.28793	02	26	46.66	+03	36	02.6		688
1986	VC6	*	1986	11	06.22622	02	27	08.92	+02	07	10.8	17.8	5 688
1986	VC6		1986	11	06.28793	02	27	05.37	+02	07	10.8		688
1986	VD6	*	1986	11	06.22622	02	27	43.45	+07	12	47.8	17.2	4 688
1986	VD6		1986	11	06.28793	02	27	39.29	+07	12	55.7		3 688
1986	VE6	*	1986	11	06.22622	02	31	11.68	+06	26	30.3	16.2	4 688
1986	VE6		1986	11	06.28793	02	31	08.07	+06	26	22.0		688
1986	VF6	*	1986	11	06.22622	02	36	50.71	+06	48	17.3	17.0	4 688
1986	VF6		1986	11	06.28793	02	36	47.96	+06	47	52.0		1 688
1986	VG6	*	1986	11	06.22622	02	37	13.91	+02	37	29.1	15.8	4 688

1986 VG6		1986	11	06.28793	02	37	11.06	+02	36	57.8		688
1986 VH6	*	1986	11	06.22622	02	38	30.81	+03	09	22.2	17.0 4	688
1986 VH6		1986	11	06.28793	02	38	27.54	+03	09	20.6		688
1986 VJ6	*	1986	11	06.24867	02	17	09.81	+16	07	31.2	16.8 4	688
1986 VJ6		1986	11	06.31056	02	17	05.26	+16	07	34.0		688
1986 VK6	*	1986	11	06.24867	02	18	45.50	+16	53	08.3	16.8 4	688
1986 VK6		1986	11	06.31056	02	18	41.26	+16	53	07.8		688
1986 VL6	*	1986	11	06.24867	02	22	51.98	+15	30	48.2	17.8 4	688
1986 VL6		1986	11	06.31056	02	22	48.81	+15	30	29.6		688
1986 VM6	*	1986	11	06.24867	02	23	19.02	+13	55	50.5	16.8 4	688
1986 VM6		1986	11	06.31056	02	23	15.23	+13	55	46.7		688
1986 VN6	*	1986	11	06.24867	02	26	44.65	+17	39	02.3	17.0 4	688
1986 VN6		1986	11	06.31056	02	26	40.35	+17	38	50.9		688
1986 VO6	*	1986	11	06.24867	02	28	56.63	+14	25	32.8	16.8 4	688
1986 VO6		1986	11	06.31056	02	28	53.44	+14	25	20.0		688
1986 VP6	*	1986	11	06.24867	02	31	11.33	+13	00	34.0	17.2 4	688
1986 VP6		1986	11	06.31056	02	31	08.26	+13	00	18.2		688
1986 VQ6	*	1986	11	06.24867	02	35	10.67	+10	58	20.7	17.2 4	688
1986 VQ6		1986	11	06.31056	02	35	07.25	+10	57	45.5		688
1986 VR6	*	1986	11	06.24867	02	35	28.96	+12	25	08.9	17.0 4	688
1986 VR6		1986	11	06.31056	02	35	24.98	+12	25	06.4		688
1986 VS6	*	1986	11	06.24867	02	36	11.97	+11	56	22.5	17.0 4	688
1986 VS6		1986	11	06.31056	02	36	07.87	+11	56	26.6		688
1986 VT6	*	1986	11	06.24867	02	39	26.24	+10	36	11.3	16.8 4	688
1986 VT6		1986	11	06.31056	02	39	20.09	+10	36	43.0		688
1986 VU6	*	1986	11	06.33270	03	24	01.11	+17	32	03.4	17.0 4	688
1986 VU6		1986	11	06.38924	03	23	58.98	+17	31	56.7		688
1986 VV6	*	1986	11	06.33270	03	24	48.47	+13	40	56.1	16.5 4	688
1986 VV6		1986	11	06.38924	03	24	45.08	+13	40	53.9		688
1986 VW6	*	1986	11	06.33270	03	25	46.70	+13	19	41.9	16.8 4	688
1986 VW6		1986	11	06.38924	03	25	43.37	+13	19	31.6		688
1986 VX6	*	1986	11	06.33270	03	33	24.57	+19	48	43.6	17.2 5	688
1986 VX6		1986	11	06.38924	03	33	21.48	+19	48	32.1		688
1986 VY6	*	1986	11	06.33270	03	36	42.06	+19	05	38.8	17.2 4	688
1986 VY6		1986	11	06.38924	03	36	38.64	+19	05	36.7		688
1986 VZ6	*	1986	11	06.33270	03	49	33.62	+19	43	00.0	17.0 4	688
1986 VZ6		1986	11	06.38924	03	49	31.34	+19	42	40.6		688
1986 WA		1986	12	02.13626	00	31	38.89	+10	04	53.3	16 3	688
1986 XD	*	1986	12	02.11564	01	24	40.61	-02	10	45.2	16.5 4	688
1986 XD		1986	12	02.17005	01	24	40.10	-02	10	06.9		688

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

OBSERVATIONS MADE WITH THE SPACEWATCH CAMERA 0.91-m TELESCOPE ON KITT PEAK.

Observations made by J. V. Scotti with a CCD in scanning mode. Reduced by J. V. Scotti using reference stars from the SAO 1984 catalog.
For further details see MPC 9198 and 10373. Contact: T. Gehrels, Space Sciences Building, University of Arizona, Tucson, AZ 85721, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 WA	1986	12 04.15828	00 39 17.97	+09 09 28.6	16.7V	691
1986 WA	1986	12 04.16188	00 39 18.71	+09 09 23.5		691
1986 WA	1986	12 04.18486	00 39 23.52	+09 08 49.0		691

OBSERVATIONS MADE AT GOETHE LINK (CODE 760) AND HARTBEESPOORT (CODE 076).

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.
3479	1958 08	19.14721	21 08 12.83	+00 20 48.7		760
3479	1958 08	19.18968	21 08 10.94	+00 20 32.0		760
1950 TN3	1950 10	13.26189	02 22 12.47	-04 34 40.2		760
1954 UH	1954 10	21.09972	23 02 40.06	-01 05 15.1		760
1957 KL	1957 05	27.93200	16 24 09.49	-17 50 02.5		076
1957 WJ	1957 11	23.26734	02 40 14.79	+26 35 46.9		760
1957 WJ	1957 11	23.31317	02 40 12.22	+26 35 32.9		760
1957 XA	1957 12	14.12767	01 01 54.03	-07 19 06.2		760
1957 XA	1957 12	14.18184	01 01 57.96	-07 18 12.7		760
1957 YG	1957 12	22.23012	06 21 52.27	+24 58 45.6		760
1957 YG	1957 12	22.29226	06 21 48.06	+24 58 30.6		760
1958 DF1	1958 02	24.33679	10 19 49.86	+15 31 43.0		760
1958 DF1	1958 02	24.37917	10 19 48.70	+15 31 19.5		760
1958 GX	1958 04	12.18471	11 48 03.95	+06 24 04.6		760
1958 GX	1958 04	12.21457	11 48 02.37	+06 24 04.8		760
1958 PD	1958 08	10.12501	19 34 09.21	-22 08 24.5		760
1958 PD	1958 08	10.16719	19 34 07.41	-22 08 43.9		760
1958 QC	1958 08	22.31351	23 47 07.23	+10 21 26.5		760
1958 QC	1958 08	22.35633	23 47 06.09	+10 21 40.8		760
1958 RE	1958 09	09.07332	22 08 02.00	-04 34 22.9	1	760
1958 RE	1958 09	09.11626	22 08 00.31	-04 34 33.2	1	760
1958 RF	1958 09	13.23678	22 08 50.48	-18 33 18.2		760
1958 TP	1958 10	13.24166	02 00 42.50	-06 38 00.7		760
1958 TP	1958 10	13.29878	02 00 39.34	-06 38 19.3		760
1958 TQ	1958 10	13.24166	02 00 02.50	-06 25 07.9		760
1958 TQ	1958 10	13.29878	01 59 59.90	-06 25 38.7		760
1958 TR	1958 10	13.24166	01 53 01.49	-09 20 41.1		760
1958 TR	1958 10	13.29878	01 52 57.93	-09 20 41.4		760
1958 TS	1958 10	13.24166	02 08 21.93	-08 38 31.5		760
1958 TS	1958 10	13.29878	02 08 18.71	-08 38 39.5		760
1958 TV	1958 10	15.10280	00 11 13.96	-20 37 54.7		760
1958 TV	1958 10	15.14516	00 11 10.53	-20 37 52.9		760
1958 TX	1958 10	15.34164	03 31 10.34	+37 38 32.7		760
1958 TX	1958 10	15.38400	03 31 08.65	+37 38 23.9		760
1958 TY	1958 10	15.34164	03 10 25.72	+36 35 09.9		760
1958 TY	1958 10	15.38400	03 10 23.52	+36 35 23.9		760
1958 TZ	1958 10	11.28263	01 49 11.57	-02 16 21.9		760
1958 TZ	1958 10	11.34929	01 49 08.66	-02 16 44.8		760
1961 GA	1961 04	14.22431	13 49 22.47	-09 01 06.6		760
1961 GA	1961 04	14.26806	13 49 20.56	-09 00 55.2		760
1962 JL	1962 05	05.29271	16 19 24.07	-04 57 50.4		760
1962 JL	1962 05	05.33646	16 19 22.34	-04 56 57.9		760
1963 UO	1963 10	22.28059	03 30 41.16	+06 26 09.8		760
1963 UO	1963 10	22.32434	03 30 38.77	+06 26 01.3		760

Note 1: the approximate position on MPC 1833 is inferior.

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.
3508	1986 10	06.17463	22 45 05.72	-10 29 28.1			801
1973 SO	1986 10	29.39874	04 08 02.64	+23 43 08.0			801
1973 SO	1986 10	31.37376	04 07 05.03	+23 43 19.5			801
1975 TV2	1986 10	30.16873	01 28 53.21	+01 25 47.5			801
1976 SE1	1986 11	01.02975	22 23 45.96	-09 27 44.2			801

1976	YU5		1986	10	06.01956	21	36	10.28	-05	02	29.1	801
1977	QE1		1986	10	30.37009	04	01	00.53	+14	34	32.1	801
1977	QE1		1986	10	31.32802	04	00	28.74	+14	31	41.0	801
1977	QC4		1986	10	29.09118	23	51	19.56	-16	15	25.3	801
1977	QC4		1986	11	01.15311	23	50	59.18	-16	16	14.1	801
1981	EW3		1986	10	30.96644	21	07	10.16	-07	43	03.2	801
1981	EC20		1986	10	07.25747	01	20	43.52	+10	51	07.7	801
1981	EC20		1986	10	29.14920	01	02	41.57	+08	45	34.4	801
1981	EU35		1986	10	30.17970	01	47	42.30	+04	23	21.2	801
1981	RU2		1986	10	30.11961	23	07	13.62	+08	05	11.9	801
1981	RU2		1986	10	31.06130	23	07	09.97	+08	00	45.9	801
1981	TP1		1986	10	30.14154	00	44	48.34	+19	37	30.5	801
1981	WK2		1986	10	07.34005	02	12	21.86	+10	38	41.0	801
1981	WK2		1986	10	29.22472	01	54	27.33	+09	19	51.2	801
1982	MH		1986	10	08.21168	00	20	27.78	-03	36	30.6	801
1982	MH		1986	11	01.17470	00	02	37.04	-04	26	17.9	801
1982	TX		1986	10	30.00976	21	58	52.60	+03	43	46.8	801
1982	TX		1986	10	31.03922	22	00	06.89	+03	29	27.2	801
1982	VT		1986	10	29.20626	01	50	11.74	+04	50	20.5	801
1983	AS2		1986	10	30.15537	01	19	48.68	-00	36	54.7	801
1983	CX2		1985	08	18.09085	20	38	39.30	-16	28	32.2	801
1983	CX2		1986	10	29.16762	01	21	24.39	+12	26	16.0	801
1983	HO		1986	10	29.28445	02	58	17.48	+03	57	42.3	801
1984	AZ		1986	10	31.19593	01	42	12.35	+01	36	46.4	801
1984	AB1		1985	05	24.23112	15	55	24.24	-14	35	38.3	801
1984	AB1		1986	10	07.38434	03	49	49.07	+12	02	19.4	801
1984	AB1		1986	10	29.32714	03	41	45.20	+11	05	45.3	801
1984	AB1		1986	11	01.29692	03	39	23.29	+10	57	44.0	801
1985	GE1		1986	10	31.14180	00	13	16.43	+04	54	10.6	801
1985	HC		1986	10	29.41585	06	14	29.85	-00	46	49.5	801
1985	HC		1986	10	30.41732	06	14	15.64	-00	59	34.5	801
1985	TQ		1986	10	29.38081	04	04	07.82	+22	47	57.9	801
1985	TQ		1986	10	31.35202	04	03	12.14	+22	46	30.6	801
1985	TC1		1986	10	29.26077	03	15	30.98	+27	04	37.2	801
1985	TC1		1986	10	29.30735	03	15	29.37	+27	04	36.1	801
1986	LA		1986	10	29.06784	22	38	52.63	+10	24	45.7	1 801
1986	RC2		1986	10	30.07756	22	19	59.22	-10	00	15.4	801
1986	TU5	*	1986	10	06.30208	01	50	32.84	+20	54	45.4	17 801
1986	TV5	*	1986	10	08.16101	23	36	13.73	-03	46	36.9	17.5 801
1986	WA		1986	12	02.12008	00	31	34.63	+10	05	19.7	17 801
1986	WA		1986	12	04.98974	00	42	13.75	+08	48	58.0	801
6548	P-L		1986	10	08.39182	03	21	17.56	+13	05	25.9	801
6548	P-L		1986	10	31.25805	03	11	37.98	+11	00	36.9	801

Note 1: weak image.

OBSERVATIONS MADE AT TOYOTA BY K. SUZUKI AND T. URATA.

In part from Nihondaira Obs. Circ. Nos. 1582, 1583 and 1585. Contact: T. Urata, 1-8-303, 1 Chome, Dobayashi, Shimizu, Shizuoka 424, Japan.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1982	QO1	1986 11	30.51632	05 06 15.63	+24 13 50.9	16		881
1982	QO1	1986 11	30.53715	05 06 14.33	+24 13 48.0			881
1982	UD7	1986 11	26.60451	02 16 20.52	+08 43 35.6	16.5		881
1982	UD7	1986 11	26.62326	02 16 20.12	+08 43 30.7			881
1986	WB	* 1986 11	22.54618	04 42 14.7	+22 54 21	16.5	1	881
1986	WB	1986 11	22.56701	04 42 13.2	+22 54 27		1	881
1986	WB	1986 11	29.52257	04 34 13.96	+23 16 52.1	16		881
1986	WB	1986 11	29.55174	04 34 11.95	+23 16 58.7			881
1986	WC	* 1986 11	22.57743	04 46 10.6	+18 18 33	17		881
1986	WC	1986 11	22.59826	04 46 09.2	+18 18 30			881

1986 WC		1986 11 29.53854	04 39 56.91	+17 37 48.5			17		881
1986 WC		1986 11 29.56493	04 39 55.39	+17 37 43.7					881
1986 WD	*	1986 11 22.57743	04 47 26.6	+17 52 26			17		881
1986 WD		1986 11 22.59826	04 47 25.9	+17 52 19					881
1986 WE	*	1986 11 22.58785	04 52 48.2	+16 27 59			16.5		881
1986 WE		1986 11 22.60868	04 52 47.0	+16 28 00					881
1986 WE		1986 11 29.58160	04 45 40.90	+16 31 28.4			16		881
1986 WE		1986 11 29.61215	04 45 38.79	+16 31 29.8					881
1986 WF	*	1986 11 26.60451	02 15 42.07	+08 42 35.3			16.5		881
1986 WF		1986 11 26.62326	02 15 41.24	+08 42 35.4					881
1986 WL	*	1986 11 30.56840	05 07 34.53	+15 25 27.1			16		881
1986 WL		1986 11 30.58924	05 07 33.24	+15 25 22.3					881

Note 1: near edge of film.

OBSERVATIONS MADE AT SHIZUOKA BY H. SHIOZAWA.

Plates taken with a 0.24-m reflector, measured by T. Urata. From Nihondaira Obs. Circ. No. 1587. Contact: T. Urata, 1-8-303, 1 Chome, Dobayashi, Shimizu, Shizuoka 424, Japan.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 VG	1986 11 04.66042		01 51 46.65	+22 47 55.7	16	883
1986 VG	1986 11 04.67558		01 51 45.90	+22 47 54.3		883

OBSERVATIONS MADE AT OJIMA BY T. NIIJIMA AND T. URATA.

From Nihondaira Obs. Circ. Nos. 1576, 1583, 1585 and 1587. Contact: T. Urata, 1-8-303, 1 Chome, Dobayashi, Shimizu, Shizuoka 424, Japan.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1986 UE	1986 11 11.69259		02 24 29.22	+09 54 07.8	15.5		887
1986 UE	1986 11 11.70926		02 24 28.19	+09 54 02.8			887
1986 UF	1986 11 11.69259		02 25 56.08	+10 13 19.1	16.5		887
1986 UF	1986 11 11.70926		02 25 55.44	+10 13 16.0			887
1986 VG	1986 11 11.73258		01 45 45.56	+22 25 33.7	16.5		887
1986 VG	1986 11 11.74080		01 45 45.18	+22 25 31.2			887
1986 VH	1986 11 11.69259		02 24 10.32	+10 24 00.6	17		887
1986 VH	1986 11 11.70926		02 24 09.48	+10 23 57.1			887
1986 WK	1986 11 26.54213		03 43 59.50	+26 21 50.5			887
1986 WK	1986 11 26.57604		03 43 57.36	+26 21 52.9			887
1986 WK	* 1986 11 29.59016		03 40 53.38	+26 23 37.4	16.5		887
1986 WK	1986 11 29.61505		03 40 51.8	+26 23 37		1	887
1986 WK	1986 12 04.54097		03 36 16.84	+26 24 24.0	16		887
1986 WK	1986 12 04.57014		03 36 15.13	+26 24 25.0			887

Note 1: faint image.

* * * * *

ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are B = C. M. Bardwell, E = E. Bowell, G = D. W. E. Green, M = B. G. Marsden, N = S. Nakano, U = T. Urata, w = P. Wild. For further details see MPC 10375.

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1981 WO	12.0	811202	332.53	59.66	23.36	10.44	0.1406	3.0186	40	6	1	N
1983 XM1	11.5	831122	199.46	309.58	300.53	8.09	0.1356	2.5538	2	6	2	G
1985 DL2	15.0	850224	6.39	334.61	175.88	8.10	0.0991	2.4810	3	4	2	M
1985 DN2	15.0	850224	5.08	291.76	220.31	3.05	0.1454	2.9068	3	4	2	M
1985 DO2	15.5	850224	214.65	154.83	164.39	23.00	0.3208	1.8182	3	5	2	M
1985 FF2	13.0	850224	18.32	187.13	307.96	6.74	0.1466	2.7472	28	6		M

1985	JP	13.5	850515	329.14	159.11	106.82	3.11	0.1499	3.1700	39	6	1	N
1985	JG1	13.5	850515	76.35	262.17	223.72	5.63	0.2341	2.4534	13	4		M
1985	JV1	12.0	850515	85.72	68.34	58.65	14.31	0.1346	2.6486	11	4		M
1985	JX1	14.5	850515	323.56	138.32	137.53	3.29	0.1268	2.2146	11	4	2	M
1985	TD3	12.5	850912	336.73	176.93	219.51	23.38	0.2035	3.1366	28	6		M
1985	TE3	9.5	851002	275.13	272.02	199.75	21.60	0.0905	5.1332	52	6		M
1985	TG3	10.0	850912	358.02	64.49	307.72	11.68	0.0622	5.3024	29	8		B
1985	UE	14.0	851022	38.51	68.75	237.75	4.08	0.3765	2.3387	19	6		M
1985	VO	9.5	851022	78.56	282.75	357.37	25.77	0.1357	5.0585	35	6	2	B
1986	RD	13.5	860907	19.69	102.61	212.47	6.83	0.2273	2.7887	21	4		B
1986	RM	14.0	860907	334.53	56.92	326.26	3.22	0.2016	2.2185	26	5		M
1986	RC2	12.0	860927	342.34	185.98	183.66	26.73	0.0841	1.9229	50	0		M
1986	SD	14.0	860927	0.88	27.30	334.22	2.23	0.1972	2.4903	4	7	2	G
1986	SO	15.0	860927	354.86	341.87	33.72	4.80	0.2211	2.2024	3	6	2	M
1986	SP	13.0	860927	0.17	186.94	182.81	12.19	0.1258	2.8585	3	6	2	M
1986	SQ	12.5	860927	0.42	291.53	78.09	1.89	0.1482	3.2270	3	6	2	M
1986	SR	16.5	860927	22.08	299.62	18.35	2.72	0.3757	2.1641	3	6	2	M
1986	SS	14.5	860927	349.61	330.46	53.40	3.11	0.1981	2.3414	3	6		M
1986	ST	13.0	860927	355.16	308.56	67.77	2.78	0.1169	2.8288	3	6	2	M
1986	SU	13.0	860927	175.10	166.36	28.39	3.35	0.1239	2.2238	5	0	2	M
1986	SV	12.0	860927	281.72	101.86	26.32	12.32	0.3497	2.6982	3	6		M
1986	SW	13.5	860927	2.88	290.32	75.84	3.08	0.1177	2.5469	3	6	2	M
1986	TB	14.0	860927	5.76	353.44	0.65	14.64	0.2218	2.3436	58	0		G
1986	TF	11.0	860927	305.54	192.61	241.13	5.44	0.1661	3.9563	9	0	2	M
1986	TG	13.5	860927	24.95	334.75	347.56	7.70	0.2430	2.1889	66	0		M
1986	TH	14.5	860927	347.06	70.20	311.31	5.18	0.1339	2.2818	8	4		M
1986	TL	12.0	860927	29.60	22.25	303.79	9.45	0.2264	3.2088	5	3	2	M
1986	TQ	12.0	860927	39.33	337.95	348.73	16.17	0.1495	3.1523	8	3		M
1986	TR	13.5	860927	17.27	86.84	251.95	9.57	0.3168	2.6644	8	3		M
1986	TS	13.0	860927	346.14	65.39	335.81	13.50	0.2639	2.9647	8	3		M
1986	TB1	13.0	860927	281.69	71.27	38.11	9.11	0.1491	2.4409	7	0		M
1986	TC1	14.0	860927	338.97	260.83	141.61	4.11	0.1820	2.2632	7	5		G
1986	TX1	13.5	860927	339.23	355.91	41.34	13.62	0.1669	2.7353	5	5		G
1986	TR2	13.1	861106	346.83	346.92	66.49	9.80	0.2399	2.7786	56	6		E
1986	TG3	12.5	860927	357.60	193.19	183.58	1.61	0.1140	2.8198	6	8	2	M
1986	TH3	14.0	860927	340.16	215.33	192.07	13.41	0.2850	2.5094	6	8	2	M
1986	TJ3	12.0	860927	357.73	203.85	174.61	2.17	0.2822	3.8666	6	8	2	M
1986	TK3	13.5	860927	358.32	26.85	349.30	0.22	0.2869	3.0764	6	6	2	M
1986	TL3	12.5	860927	22.10	150.23	185.99	6.67	0.2613	3.2394	6	7	2	M
1986	TM3	13.5	860927	355.43	184.18	195.48	2.13	0.1193	2.5526	6	8	2	M
1986	TO3	14.0	860927	357.96	40.41	335.58	1.20	0.0954	2.2080	6	8	2	M
1986	TP3	12.0	860927	281.98	81.99	33.21	5.00	0.1952	2.5654	6	8	2	M
1986	TR3	12.0	860927	358.58	11.87	6.06	0.55	0.0875	3.0102	6	8	2	M
1986	TS3	13.5	860927	359.70	350.32	24.79	3.34	0.0571	2.4285	6	6	2	M
1986	TT3	13.5	860927	0.42	346.00	25.52	8.14	0.1102	2.5267	5	6	2	M
1986	TV3	13.0	860927	358.29	337.22	38.18	4.47	0.1425	2.6748	5	6	2	M
1986	TW3	14.0	860927	358.33	345.08	28.95	6.67	0.0886	2.1920	6	8	2	M
1986	TX3	13.5	860927	355.50	295.31	82.65	3.54	0.1033	2.4453	6	8	2	M
1986	TZ3	13.5	860927	76.53	215.63	55.34	4.40	0.2279	2.3213	6	6		M
1986	TB4	16.0	860927	22.35	271.81	46.19	2.70	0.3914	2.1891	6	6	2	M
1986	TT5	11.5	861007	306.31	25.33	56.52	11.44	0.1819	3.1096	5	3		w
1986	UY	14.5	861106	6.68	44.37	351.67	4.96	0.1655	2.2371	27	9		M
1986	VA	12.5	861017	345.73	135.24	273.33	8.51	0.1001	3.0211	2	9	2	G
1986	VC	12.0	861017	314.06	87.10	5.03	11.23	0.1525	2.7631	2	8		G
1986	VD	15.0	861017	353.16	109.46	290.71	4.56	0.2274	2.3017	2	9	2	G
1986	VG	12.0	861126	315.99	98.65	352.10	9.91	0.0631	3.0039	22	8		U
1986	WK	14.0	861126	24.48	341.69	31.80	6.16	0.3263	2.5773	8	6		U

Note 1: double designations 1981 WO = 1981 UG14 (N); 1985 JP = 1985 GK1 (N).
2: e assumed.

ORBITAL ELEMENTS BY E. GOFFIN, AGFA-GEVAERT N.V., MORTSEL, BELGIUM.

The identifications are by E. Goffin unless otherwise stated.

(217) Eudora
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	3.54108	(1950.0)		P	Q
n	0.20222043	Peri.	154.67209	+0.73792902	+0.67271268
a	2.8746569	Node	162.70376	-0.64596579	+0.72722763
e	0.3042998	Incl.	10.46895	-0.19541996	+0.13637314
P	4.87	H	9.87	G	0.15

From 47 observations at 20 oppositions 1904-1986, mean residual 1".0.

(650) Amalasuntha
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	255.26688	(1950.0)		P	Q
n	0.25572531	Peri.	177.73094	+0.84155751	-0.53956345
a	2.4582171	Node	214.96171	+0.49486494	+0.78906903
e	0.1841925	Incl.	2.55441	+0.21654016	+0.29366876
P	3.85	H	13.03	G	0.15

From 50 observations at 12 oppositions 1907-1986, mean residual 0".9.

(962) Aslog
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	120.22263	(1950.0)		P	Q
n	0.19901599	Peri.	222.42901	+0.99057202	-0.13452922
a	2.9054321	Node	145.27731	+0.13468871	+0.92191232
e	0.0986066	Incl.	2.60255	+0.02502053	+0.36328992
P	4.95	H	11.61	G	0.25

From 54 observations at 16 oppositions 1921-1985, mean residual 1".0.

(1483) Hakoila
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	14.28166	(1950.0)		P	Q
n	0.22010458	Peri.	86.74778	-0.92795259	-0.36518877
a	2.7167520	Node	71.82282	+0.30318804	-0.85583160
e	0.1802228	Incl.	4.49366	+0.21675101	-0.36631876
P	4.48	H	11.70	G	0.15

From 34 observations at 12 oppositions 1938-1985, mean residual 1".1.

(1604) Tombaugh
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	103.53773	(1950.0)		P	Q
n	0.18775433	Peri.	32.91522	+0.94541476	+0.30018394
a	3.0204807	Node	309.08949	-0.32297958	+0.81146198
e	0.1033636	Incl.	9.40311	-0.04330264	+0.50141704
P	5.25	H	10.58	G	0.24

From 73 observations at 19 oppositions 1931-1983, mean residual 0".9.

(1800) Aguilar
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	74.37504	(1950.0)		P	Q
n	0.27241883	Peri.	213.80878	+0.92213478	+0.37767392
a	2.3567380	Node	123.78338	-0.32883867	+0.87935277
e	0.1357710	Incl.	5.78972	-0.20379543	+0.29000193
P	3.62	H	12.7	G	0.25

From 47 observations at 10 oppositions 1950-1986, mean residual 1".0.

(1839) Ragazza
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	123.65861	(1950.0)	P	Q
n	0.21018681	Peri. 349.32402	+0.76320665	-0.63153448
a	2.8015545	Node 50.72810	+0.60505931	+0.62426765
e	0.1657960	Incl. 10.16870	+0.22675723	+0.45984140
P	4.69	H 11.6	G 0.25	

From 33 observations at 8 oppositions 1962-1985, mean residual 0".9.

(1877) Marsden
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	297.77105	(1950.0)	P	Q
n	0.12576521	Peri. 308.60468	+0.52149383	+0.85234990
a	3.9454424	Node 352.51022	-0.65866046	+0.37286094
e	0.2131295	Incl. 17.54365	-0.54241182	+0.36670745
P	7.84	H 11.3	G 0.25	

From 72 observations at 6 oppositions 1950-1981, mean residual 1".0.

(1910) Mikhailov
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	163.49282	(1950.0)	P	Q
n	0.18557573	Peri. 318.26745	-0.93099394	-0.35934122
a	3.0440744	Node 200.93911	+0.36399880	-0.90062862
e	0.0509060	Incl. 10.35218	+0.02748022	-0.24442170
P	5.31	H 10.6	G 0.25	

From 27 observations at 12 oppositions 1916-1985, mean residual 1".2.

(2024) McLaughlin
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	309.54092	(1950.0)	P	Q
n	0.27803109	Peri. 291.09718	+0.99292096	+0.00311071
a	2.3249154	Node 68.88107	+0.04941007	+0.89823961
e	0.1381843	Incl. 7.31275	-0.10801207	+0.43949509
P	3.54	H 13.3	G 0.25	

From 29 observations at 7 oppositions 1938-1984, mean residual 0".8.

(2066) Palala
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	147.25263	(1950.0)	P	Q
n	0.26562890	Peri. 109.83971	-0.68463868	+0.72653298
a	2.3967303	Node 116.81112	-0.69083154	-0.62122185
e	0.1255665	Incl. 3.75682	-0.23242559	-0.29365497
P	3.71	H 13.0	G 0.25	

From 33 observations at 10 oppositions 1931-1983, mean residual 0".9.

(2181) Fogelin
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	227.11221	(1950.0)	P	Q
n	0.23624388	Peri. 116.86834	-0.68534106	-0.72525137
a	2.5915664	Node 16.92377	+0.56192659	-0.58407571
e	0.1197043	Incl. 13.04627	+0.46319125	-0.36450790
P	4.17	H 12.2	G 0.25	

From 34 observations at 6 oppositions 1942-1983, mean residual 1".1.

(2415) 1978 UJ
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	96.68897	(1950.0)	P	Q
n	0.22708180	Peri. 206.70481	+0.43931450	+0.89737784
a	2.6608139	Node 89.37995	-0.81658033	+0.41812879
e	0.0381453	Incl. 2.37412	-0.37443200	+0.14100118
P	4.34	H 12.13	G 0.15	

From 38 observations at 8 oppositions 1958-1985, mean residual 1".0.

(2474) Ruby
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	339.36337	(1950.0)	P	Q
n	0.22410846	Peri. 13.65930	-0.32174516	+0.94034741
a	2.6842969	Node 237.67600	-0.88048545	-0.34009922
e	0.2201605	Incl. 7.51882	-0.34817443	-0.00890306
P	4.40	H 11.8	G 0.25	

From 42 observations at 7 oppositions 1926-1984, mean residual 1".0.

1985 RP2 = 1979 MY
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	102.67102	(1950.0)	P	Q
n	0.18205184	Peri. 227.70792	+0.98812667	-0.15350991
a	3.0832305	Node 141.12121	+0.14376894	+0.90925219
e	0.1875622	Incl. 0.58017	+0.05418652	+0.38690458
P	5.41	H 13.0	G 0.25	

Residuals in seconds of arc

790622	805	1.4-	1.2+	850908	809	1.0+	0.9-	850916	809	0.5-	0.1+
790622	805	0.7+	0.8-	850910	809	0.7-	0.9-	850916	809	0.3-	0.0
790625	805	0.7+	0.3-	850910	809	0.3-	0.9-	850918	809	1.1-	0.3+
850904	809	1.4-	1.0+	850910	809	0.1+	1.0-	850918	809	0.7-	0.3+
850904	809	1.1-	0.9+	850911	809	0.3+	0.8-	850918	809	0.7-	0.3+
850904	809	0.8-	1.1+	850911	809	0.5+	0.8-	850920	809	0.4-	0.1+
850906	809	0.8+	0.1+	850911	809	0.5+	0.8-	850920	809	0.2-	0.2+
850906	809	1.1+	0.2+	850914	809	0.2-	0.2+	850920	809	0.2-	0.2+
850906	809	1.3+	0.1+	850914	809	0.3-	0.2+	850922	809	1.0+	1.3+
850908	809	1.0+	0.9-	850914	809	0.5-	0.1-	850922	809	0.9+	1.2+
850908	809	1.0+	0.9-	850916	809	0.5-	0.1+				

1985 RU2 = 1955 SH = 1955 UU1
The double designation 1955 SH = 1955 UU1 is by O. Kippes (NAZ 13, 3).
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	165.56651	(1950.0)	P	Q
n	0.29400236	Peri. 8.07092	+0.91010396	-0.41417179
a	2.2399355	Node 16.41528	+0.37752415	+0.81567342
e	0.1586612	Incl. 2.66384	+0.17083995	+0.40390419
P	3.35	H 14.3	G 0.25	

Residuals in seconds of arc

550916	760	0.5+	0.8-	850907	809	1.3+	0.4-	850915	809	0.1+	1.0+
550916	760	1.1+	0.3+	850910	809	0.4-	0.2+	850915	809	0.2+	1.0+
550917	760	0.6+	1.8-	850910	809	0.2-	0.2+	850917	809	0.3-	0.1+
550917	760	1.6+	1.8-	850910	809	0.1-	0.2+	850917	809	0.1+	0.0
551020	760	1.3-	1.7+	850911	809	0.3-	0.6-	850917	809	0.0	0.0
551020	760	1.4-	0.5+	850911	809	0.0	0.7-	850919	809	0.6-	0.6+
850905	809	0.7-	0.6-	850911	809	0.4+	0.7-	850919	809	0.3-	0.4+
850905	809	0.4-	0.5-	850914	809	0.8-	0.9+	850919	809	0.2-	0.4+
850905	809	0.2-	0.3-	850914	809	0.9-	0.8+	850920	809	0.4+	0.1-
850907	809	0.9+	0.4-	850914	809	0.8-	0.7+	850920	809	0.4+	0.3-
850907	809	1.1+	0.4-	850915	809	0.1+	1.2+	850920	809	0.3+	0.3-

ORBITAL ELEMENTS BY S. NAKANO, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by S. Nakano unless otherwise stated.

(1026) Ingrid = 1957 UC = 1963 GD = 1981 WL8 = 1986 ES2
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	329.79127	(1950.0)		P	Q
n	0.29119419	Peri.	212.01310	+0.71976844	+0.68819084
a	2.2543132	Node	104.21091	-0.61539586	+0.69334518
e	0.1809121	Incl.	5.40134	-0.32128076	+0.21369564
P	3.38	H	13.4	G 0.25	

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

230814	024	4.4-	0.8+	571020	024	0.3-	0.5-	860306 675 3.3+ 2.9+
230815	024	0.8-	2.6+	630415	760	(0.07-	0.15+)X	860308 675 1.4- 1.7+
230816	024	1.0-	1.3+	811125	095	1.1+	1.5-	860308 675 2.4- 3.2+
230911	024	3.8+	1.7+	860306	675	1.4+	2.2+	

(3517)* 1976 SE1 = 1976 QD1 = 1982 JJ3

Discovered 1976 Sept. 24 by N. S. Chernykh at the Crimean Astrophysical Observatory. The double designation and identification are by H. Oishi (MPC 9416).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	71.00648	(1950.0)		P	Q
n	0.29389082	Peri.	181.85914	+0.98875351	-0.14941481
a	2.2405022	Node	186.74416	+0.13790681	+0.92760597
e	0.0959225	Incl.	3.15263	+0.05786372	+0.34237755
P	3.35	H	14.1	G 0.25	

Residuals in seconds of arc

760826	095	2.2-	1.7+	820516	675	0.9-	0.8+	860904 046 0.8+ 0.9-
760924	095	1.0-	2.9+	820517	675	1.3+	0.2-	860904 046 0.3+ 2.2-
760925	095	(3.0-	19.9-)	820518	675	0.9+	1.5+	860905 046 0.5+ 1.5-
760928	095	1.3+	0.4+	850324	688	2.2+	1.8-	860905 046 0.7- 1.8-
760928	095	0.6-	0.7+	850326	801	2.5-	2.0+	860907 801 2.4+ 1.0+
760929	095	0.1+	0.9+	850422	801	0.3+	0.8-	860908 046 0.8- 0.4+
820515	675	0.1+	0.5+	860831	010	4.1+	3.0-	860908 046 3.7- 1.6+
820516	675	0.9-	0.1-	860831	010	(7.8+	0.2-)	861101 801 1.0- 0.4+

(3518)* 1977 QC4 = 1982 UD3

Discovered 1977 Aug. 18 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identification is by K. Hurukawa (MPC 9584).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	101.56484	(1950.0)		P	Q
n	0.22530448	Peri.	164.60302	+0.67631133	+0.72531825
a	2.6747888	Node	147.63060	-0.69862294	+0.68689920
e	0.1776595	Incl.	13.88941	-0.23351438	+0.04563919
P	4.37	H	12.3	G 0.25	

Residuals in seconds of arc

770818	095	1.8-	0.3+	821019	695	0.3-	1.6+	860901 801 2.5+ 1.0+
770912	808	2.2+	0.6-	821020	695	(0.4+	4.8+)	860904 657 1.2- 1.6-
770914	808	0.0	0.8+	850422	801	1.8+	0.5+	860904 657 0.9- 1.8-
770915	808	0.2-	2.3+	850521	801	0.2-	0.9+	860905 657 (0.1- 4.9-)
770915	808	0.1-	0.3+	850521	688	1.4-	1.3-	861029 801 0.5+ 1.3-
821018	807	0.4-	0.9+	850521	688	0.3-	0.2-	861101 801 0.2+ 0.8-

(3519)* 1984 DO = 1937 QB = 1959 LF = 1962 GF = 1962 GG = 1969 QT = 1969 RN1 = 1978 EC3 = 1978 GH1 = 1978 JQ = 1985 SA1

Discovered 1984 Feb. 23 by H. Debehogne at the European Southern Observatory. The identification 1984 DO = 1937 QB was suggested by Landgraf.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 248.48752		(1950.0)		P	Q
n 0.30827646	Peri.	245.30926	+0.41866056		+0.90811159
a 2.1702469	Node	49.44293	-0.82954050		+0.38578497
e 0.1767098	Incl.	0.56778	-0.36957529		+0.16279834
P 3.20	H 13.6		G 0.25		

Residuals in seconds of arc

370830 094	4.0-	4.2-	840228 809	0.3+	0.8+	840305 809	0.8+	0.4-
370830 020	(14.2+	40.8+)X	840228 809	0.3-	0.6+	840305 809	0.3+	0.0
370831 020	(20.4-	67.9+)X	840228 809	0.2+	0.3+	840305 809	0.5+	0.4-
370902 094	2.0+	3.6+	840228 809	0.2+	0.4+	840305 809	0.5+	0.1-
370908 020	(37.2-	40.6+)X	840229 809	0.5-	0.1+	840306 809	0.4+	1.3-
370909 094	2.4+	2.0-	840229 809	0.5-	0.1+	840306 809	0.4+	1.1-
590604 760	(64.1-	10.8+)X	840229 809	0.4-	0.0	840306 809	0.5+	1.1-
620404 760	1.1-	2.5-	840229 809	0.3+	0.1-	840306 809	0.4+	0.7-
620404 760	1.4-	3.4+	840229 809	0.4+	0.0	840306 809	0.8+	0.9-
620411 839	0.7+	1.1-	840229 809	0.6+	0.1+	840306 809	1.0+	0.9-
620411 839	0.8+	0.2-	840301 809	0.7-	0.3+	840307 809	0.8-	1.1-
690816 805	1.7+	0.3-	840301 809	0.7-	0.6+	840307 809	0.5-	1.0-
690913 095	1.2+	0.6+	840301 809	0.9-	0.5+	840307 809	1.0-	1.0-
780306 095	2.5+	2.0-	840302 809	2.1-	0.1-	840308 809	0.2+	0.3-
780407 095	0.6-	2.6+	840302 809	1.6-	0.3+	840308 809	0.1+	0.3+
780505 095	0.9-	1.6-	840302 809	1.5-	0.2+	840308 809	0.1+	0.3+
840223 809	1.1+	0.9+	840303 809	1.2-	0.3+	840309 809	0.4-	0.2-
840223 809	1.0+	0.8+	840303 809	1.1-	0.3+	840309 809	0.3-	0.3-
840223 809	1.3+	0.6+	840303 809	0.9-	0.1+	840309 809	0.3-	0.6-
840226 809	0.2+	0.0	840304 809	0.3-	0.0	840310 809	0.4+	0.3+
840226 809	0.4+	0.1+	840304 809	0.3-	0.3+	840310 809	0.3+	0.2+
840226 809	0.7+	0.6+	840304 809	0.1-	0.6+	840310 809	0.3+	0.0
840227 809	0.9-	0.5+	840304 809	1.2+	1.9-	840311 809	0.6-	0.0
840227 809	0.6-	0.6+	840304 809	1.2+	1.8-	840311 809	0.6-	0.1+
840227 809	0.5-	0.6+	840304 809	1.4+	1.7-	840311 809	0.6-	0.2+
840228 809	0.1-	0.8+	840305 809	0.6+	1.0-	850917 054	0.8-	1.4-
840228 809	0.2+	0.9+	840305 809	0.5+	0.6-	850922 054	0.6-	0.5-

1936 OH = 1941 KC = 1953 TF = 1957 EK = 1970 WJ = 1980 JG = 1981 TE3 = 1981 WF7

The identifications 1936 OH = 1953 TF = 1957 EK and 1936 OH = 1980 JG were suggested by O. Kippes (MPC 2807) and by F. N. Bowman, respectively.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M 72.04506		(1950.0)		P	Q
n 0.17755340	Peri.	85.32720	+0.35920091		+0.92472675
a 3.1350965	Node	206.82478	-0.92796104		+0.33953782
e 0.2772359	Incl.	16.20247	-0.09931272		+0.17203055
P 5.55	H 11.5		G 0.25		

Residuals in seconds of arc

360725 094	1.1+	1.6+	570305 760	2.5+	0.9-	800517 095	0.0	2.7-
360727 094	3.2+	3.6-	701126 095	0.1+	4.1-	800518 095	3.4+	2.2+
360813 094	2.4-	0.3-	800511 046	1.3-	0.8+	811006 095	2.9+	2.5-
360821 094	2.3+	0.5+	800511 046	1.6-	1.0+	811021 095	3.2+	3.6+
410520 078	(55.3-	67.4-)X	800512 046	1.2-	0.2+	811027 095	2.8+	0.2+
531004 062	5.8-	1.1+	800512 046	1.0-	0.6+	811125 095	1.1-	0.2-
531004 062	5.0-	0.2-	800513 046	0.4-	0.3-			
570305 760	0.6-	2.1-	800513 046	1.0-	1.5-			

1974 SD3 = 1986 RN
The identification was found independently by C. M. Bardwell.
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	25.41806		(1950.0)		P		Q				
n	0.15982000	Peri.	140.93778		+0.90071820		-0.40555583				
a	3.3629171	Node	243.65297		+0.34212358		+0.88308742				
e	0.1022809	Incl.	10.00349		+0.26769045		+0.23596838				
P	6.17	H	11.5	G	0.25						

Residuals in seconds of arc

740920	095	0.8+	0.0	740925	095	0.0	0.8-	860911	054	0.4-	0.9-
740922	095	0.7-	0.8+	860909	054	1.3+	0.8+	860929	054	0.9-	0.1+

1978 SD1 = 1966 UO = 1977 LB1
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	184.64937		(1950.0)		P		Q				
n	0.15888469	Peri.	240.93093		+0.74032191		+0.64555655				
a	3.3761019	Node	78.19724		-0.53066682		+0.73247482				
e	0.1506757	Incl.	11.04705		-0.41269383		+0.21618830				
P	6.20	H	11.0	G	0.25						

Residuals in seconds of arc

661019	095	0.1+	0.1-	770613	675	0.2-	0.2+	781003	095	1.1+	1.3-
770612	675	0.2+	0.3-	780927	095	0.7-	1.3+	781007	095	0.5-	0.1+

1978 UN2 = 1978 WY14 = 1937 WK = 1963 TY = 1967 TJ = 1983 AS
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	112.84315		(1950.0)		P		Q				
n	0.26453296	Peri.	3.29513		+0.50706686		-0.83842593				
a	2.4033501	Node	56.32919		+0.78515286		+0.35369516				
e	0.1495794	Incl.	13.89193		+0.35555336		+0.41465853				
P	3.73	H	13.5	G	0.25						

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

371130	754	0.5+	0.1-	781029	330	1.6-	2.1-	830109	688	1.2+	0.9+
371201	754(56.4-	32.3+)		781101	095	0.5+	0.9-	830109	688	0.7+	0.3-
631014	760(0.05-	0.01-)X		781107	330	2.1-	1.0-	830116	688	0.5+	1.0-
671013	029	1.3-	1.0-	781130	330	3.1+	5.1+	830116	688	0.9+	0.8-
671014	029	0.6-	0.4-	830107	046	1.8-	0.9+				
671014	029	0.3+	0.7+	830107	046	1.0-	0.1-				

1980 CG = 1978 NV1 = 1986 LJ
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	23.74062		(1950.0)		P		Q				
n	0.24510293	Peri.	228.77721		+0.96702717		-0.23531240				
a	2.5287423	Node	144.51336		+0.25315543		+0.92987855				
e	0.2945033	Incl.	9.65880		-0.02776306		+0.28276130				
P	4.02	H	13.0	G	0.25						

Residuals in seconds of arc

780706	095	0.2+	2.9+	800218	801	0.5-	0.1-	860606	675	0.9+	1.2-
800209	801	1.3+	0.3+	800312	801	0.6+	0.2+	860606	675	3.2+	1.1-
800211	801	1.5+	0.7+	860604	675	2.9-	1.3-				
800213	801	2.8-	0.2-	860604	675	1.4-	1.3+				

1980 TK5 = 1955 UD1 = 1978 GH3 = 1978 JM3 = 1983 HH
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	357.08237		(1950.0)		P		Q				
n	0.19583536	Peri.	284.27167		-0.83781931		-0.53519714				
a	2.9368121	Node	223.51295		+0.54151322		-0.78953278				
e	0.0879739	Incl.	9.00853		+0.06944230		-0.30033651				
P	5.03	H	12.0	G	0.25						

Residuals in seconds of arc

551020	760(14.1+	4.3-)X	801009 675	1.1+	0.6-	830418 688	0.5-	0.7-
780411 095	0.7-	2.8+	801010 675	1.5+	0.4+	830418 688	0.1-	1.9-
780505 095	1.2+	0.3-	801010 095	1.3-	0.2+	830506 688	0.2-	0.6-
801008 675	2.3-	2.4-	801015 095	1.1+	2.3+	830506 688	0.2+	0.5+

1982 KB1 = 1983 WM1 = 1983 XF1

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	329.60242	(1950.0)		P	Q
n	0.21350507	Peri.	276.82904	+0.85174706	+0.46754160
a	2.7724568	Node	55.56274	-0.29024367	+0.79681760
e	0.2244335	Incl.	16.66371	-0.43621733	+0.38273564
P	4.62	H	12.5	G 0.25	

Residuals in seconds of arc

820516 675	0.1-	0.2+	820518 675	0.0	0.2+	831126 330	0.3-	0.2-
820516 675	0.1-	0.8+	820524 675	1.2+	1.9-	831208 330	0.2+	0.3+
820517 675	0.8-	0.5+	820524 675	0.1-	0.2+			

1983 AR = 1951 EB1 = 1972 TW = 1986 VF1

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	53.60944	(1950.0)		P	Q
n	0.21360966	Peri.	350.33527	+0.80321045	-0.57935484
a	2.7715517	Node	46.00888	+0.55857257	+0.65166325
e	0.1371565	Incl.	11.10471	+0.20700158	+0.48957428
P	4.61	H	12.5	G 0.25	

Residuals in seconds of arc

510309 760	2.4-	1.8+	830116 688	0.8-	0.1-	830215 688	1.1-	2.1-
510309 760	0.3+	2.9+	830116 688	1.1+	1.3-	861029 054	2.8-	0.5+
721007 095	6.8+	2.1-	830121 688	2.0+	1.0+	861102 054	3.5-	0.8+
830112 688	0.9+	1.0-	830121 688	2.7+	0.6+	861106 054	2.5-	1.2+
830112 688	0.6-	1.3-	830215 688	0.4+	1.8-			

1983 QF = 1948 RN = 1963 FA = 1972 FH = 1976 GL = 1985 GT

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	285.70136	(1950.0)		P	Q
n	0.22820889	Peri.	280.10422	+0.03055867	-0.99589278
a	2.6520510	Node	167.18351	+0.99931015	+0.02864022
e	0.2110034	Incl.	22.59430	+0.02110452	+0.08589123
P	4.32	H	11.5	G 0.25	

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

480907 690	0.6+	0.6+	760401 095	2.8+	2.2+	830916 675	2.1+	0.2-
480908 690	1.0+	0.3-	760404 095	0.6+	0.2+	830917 413	2.7+	1.7+
480909 690	0.0	0.6+	830823 500(35.0-		2.2-)Y	830918 675	3.5+	1.2+
630322 760(0.06-		0.02+)X	830823 500(38.8+		9.0+)Y	850415 688	2.2+	1.1-
720316 095	5.6-	4.5-	830912 500	5.1-	0.4- Y	850415 688	2.5+	1.4-
720321 095	3.2-	2.9+	830913 500	5.4-	6.4- Y	850424 688	0.0	0.6-

1984 FC = 1976 GH = 1980 FA11

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	31.25008	(1950.0)		P	Q
n	0.25319130	Peri.	75.55181	-0.19338422	-0.98015156
a	2.4745965	Node	25.72302	+0.85692153	-0.19040297
e	0.0470872	Incl.	5.77226	+0.47779498	-0.05522335
P	3.89	H	13.0	G 0.25	

Residuals in seconds of arc

760401	095	2.3+	0.3-	840403	688	2.7-	1.9+	840501	809	0.0	0.7+
760404	095	1.7-	2.7+	840403	688	0.6+	2.2-	840504	688	0.5+	1.7-
800316	095	1.7-	4.9-	840427	809	1.0-	0.2+	840504	688	0.1-	1.6-
840330	675	4.4+	0.9+	840427	809	1.8-	0.7+	840504	809	1.0+	0.5-
840331	688	1.7-	0.9+	840428	809	1.1-	0.5+	840505	809	0.7+	1.1-
840331	688	2.2+	1.4+	840428	809	0.4-	0.6+				
840331	675	0.1+	2.2+	840501	809	0.2+	0.4-				

1984 SG1 = 1986 AB2

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	199.44805		(1950.0)	P	Q
n	0.21232619	Peri.	96.20746	+0.91800155	-0.39278311
a	2.7827095	Node	286.93087	+0.33744800	+0.84614548
e	0.0810131	Incl.	3.27923	+0.20833148	+0.36022112
P	4.64	H	13.0	G 0.25	

Residuals in seconds of arc

840925	688	0.1-	0.9+	840929	046	1.1-	1.0+	860112	688	2.2-	1.1-
840925	688	1.0+	0.4-	840929	046	1.9-	2.2+	860112	688	(8.4-	0.5-)
840927	046	1.6+	1.0-	840930	046	0.4+	0.3-	860117	688	1.4+	0.8+
840927	046	2.1+	1.3-	840930	046	2.1-	1.1-	860117	688	0.9+	0.3+

1984 SC2 = 1981 EH49 = 1986 AQ1

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	110.20377		(1950.0)	P	Q
n	0.19274887	Peri.	162.68687	-0.53799402	-0.84128735
a	2.9680806	Node	319.81640	+0.76332132	-0.45958994
e	0.1065509	Incl.	4.70237	+0.35763528	-0.28462728
P	5.11	H	12.0	G 0.25	

Residuals in seconds of arc

810308	095	0.0	0.0	841001	046	0.8-	0.1-	860111	688	1.7-	0.6-
840929	046	0.4+	0.3+	841006	046	0.9-	0.1+	860117	688	1.1+	0.8+
840930	046	0.7+	0.0	841006	046	5.7-	0.0	860117	688	1.5+	1.0+
840930	046	0.6+	0.2-	860111	688	1.0-	1.2-				

1985 CX = 1952 KQ = 1952 LF = 1970 AF = 1978 WJ

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	109.06241		(1950.0)	P	Q
n	0.20458895	Peri.	148.07700	-0.59648038	+0.75295795
a	2.8524331	Node	83.79305	-0.78258588	-0.46868648
e	0.0965160	Incl.	16.23668	-0.17824278	-0.46193864
P	4.82	H	11.5	G 0.25	

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

520520	711(0.06+	0.00+)Y		781124	046	0.9-	0.6+	850212	675	0.0	2.0+
520612	760	0.3-	1.1-	781124	046	0.1-	0.7-	850216	675	1.1+	1.4+
520612	760	0.3-	0.1+	781125	046	0.0	1.4+	850226	675	0.2-	0.3-
700104	095	1.3+	4.4-	781125	046	0.1-	0.5+				

1985 JR = 1981 JY = 1982 XK

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	206.12170		(1950.0)	P	Q
n	0.23422958	Peri.	134.14597	-0.90411395	+0.36151513
a	2.6064081	Node	68.26627	-0.42724194	-0.77296054
e	0.1091566	Incl.	14.19444	+0.00650251	-0.52138165
P	4.21	H	12.0	G 0.25	

Residuals in seconds of arc

810505	688	0.5-	1.5+	810605	688	1.1+	0.5-	850524	675	0.1+	0.5+
810505	688	0.2+	0.5+	821205	675	0.5+	1.0-	850524	675	0.3-	0.6+
810605	688	0.8-	0.2+	850513	675	0.7+	2.8-				
810605	688	0.3+	0.5-	850515	675	1.4-	0.1+				

1985 JY = 1969 TC = 1979 GR = 1979 HN3
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	141.29413		(1950.0)	P	Q
n	0.16764668	Peri.	158.97980	-0.80315925	+0.59396621
a	3.2574189	Node	57.54355	-0.55410172	-0.71621581
e	0.0905233	Incl.	3.14227	-0.21887554	-0.36638649
P	5.88	H	12.5	G 0.25	

Residuals in seconds of arc

691009	323	0.7-	0.4+	790406	808	0.4+	1.3+	850524	675	3.7+	2.6-
691009	323	0.6-	0.4+	790425	095	2.7-	6.5-	850524	675	4.0+	1.2-
691009	323	1.9+	2.1-	850513	675	3.4-	4.4+				
790406	808	0.4+	0.9+	850515	675	2.7-	2.9+				

1985 JU1 = 1976 UW17
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	210.26368		(1950.0)	P	Q
n	0.30245465	Peri.	179.77487	-0.00459920	+0.99605228
a	2.1980120	Node	89.96073	-0.91756579	+0.03104046
e	0.1336258	Incl.	5.08591	-0.39755738	-0.08316463
P	3.26	H	14.5	G 0.25	

Residuals in seconds of arc

761022	381	0.1-	0.2-	761024	381	0.3+	0.3+	850524	675	0.0	0.1+
761022	381	0.0	0.7-	850513	675	0.1-	0.0	850524	675	0.1+	0.0
761024	381	0.3-	0.6+	850515	675	0.0	0.0				

1985 RT2 = 1984 JH
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	161.96633		(1950.0)	P	Q
n	0.19896616	Peri.	198.34282	+0.56441959	+0.82353170
a	2.9059230	Node	106.05588	-0.74974034	+0.54020486
e	0.0582209	Incl.	3.38838	-0.34542721	+0.17313070
P	4.95	H	12.5	G 0.25	

Residuals in seconds of arc

840507	675	0.5-	2.4-	850911	809	0.4+	0.3+	850917	809	0.2+	0.0
840508	675	1.1-	0.3-	850911	809	0.2+	0.3+	850917	809	0.0	0.1-
840509	675	1.6+	2.7+	850911	809	0.4+	0.3+	850917	809	0.2-	0.1+
850905	809	0.6-	0.2+	850912	809	0.2-	0.9-	850919	809	0.1-	0.0
850905	809	0.5-	0.4+	850912	809	0.0	1.1-	850919	809	0.1-	0.1-
850905	809	0.3-	0.5+	850912	809	0.0	1.1-	850919	809	0.0	0.1-
850907	809	0.4+	0.3-	850914	809	0.4-	0.3+	850920	809	0.0	0.2+
850907	809	0.5+	0.2-	850914	809	0.4-	0.2+	850920	809	0.1+	0.1+
850907	809	0.4+	0.2-	850914	809	0.4-	0.1-	850920	809	0.1+	0.0
850910	809	0.3+	0.1+	850915	809	0.3-	0.1-	850921	809	0.1+	0.6+
850910	809	0.4+	0.1+	850915	809	0.3-	0.1-	850921	809	0.0	0.4+
850910	809	0.6+	0.1+	850915	809	0.2-	0.4-	850921	809	0.1-	0.7+

1986 TW1 = 1948 MF = 1968 HJ = 1978 EQ5 = 1979 SU1 = 1983 XY
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	121.41321		(1950.0)	P	Q
n	0.28803642	Peri.	255.58438	+0.74737131	+0.65741280
a	2.2707639	Node	63.21439	-0.56048680	+0.70154769
e	0.1739404	Incl.	6.18306	-0.35677819	+0.27502591
P	3.42	H	13.0	G 0.25	

Residuals in seconds of arc

480630	078(25.2+	5.3+)X	831205	046	1.5+	0.2-	861007 688	2.3+ 0.1-
680422	095	3.4- 0.7-	831208	046	0.2+	0.8+	861007 688	1.5+ 0.6-
680426	095	3.6+ 0.2+	831208	046	3.0-	0.3-	861008 026	2.3- 1.0-
780306	095	0.3- 0.1+	861002	026	3.1-	0.0	861011 026	2.5+ 1.2+
790922	095	0.2- 0.0	861004	026	0.4+	0.3+		
831205	046	1.3+ 0.2-	861006	026	0.8-	0.0		

1986 TZ1 = 1973 SJ5 = 1983 XE1
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	87.52357	(1950.0)	P	Q	
n	0.30267691	Peri.	285.68161	+0.96741683	-0.23525721
a	2.1969359	Node	87.99516	+0.25293134	+0.88131398
e	0.2183538	Incl.	5.37336	+0.01141975	+0.40980449
P	3.26	H	13.5	G 0.25	

Residuals in seconds of arc

730927	095	0.5+ 1.1-	861007	688	0.4-	0.1+	861105 688	0.2+ 0.8-
831201	330	2.2+ 1.5-	861007	688	0.7+	0.5+	861130 688	1.4- 0.5-
831204	330	2.1- 0.6+	861105	688	0.3-	0.0	861130 688	0.1+ 2.7+

1986 TK2 = 1949 PC = 1969 OC1 = 1979 OX13
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	122.06224	(1950.0)	P	Q	
n	0.29517213	Peri.	206.49764	+0.86602061	+0.49413032
a	2.2340181	Node	123.68220	-0.44087462	+0.82674573
e	0.1618187	Incl.	5.27089	-0.23587682	+0.26893629
P	3.34	H	13.5	G 0.25	

Residuals in seconds of arc

490815	078(10.4-	14.3+)Y	861007	688	0.8+	0.6-	861107 010	3.6- 0.5-
690717	095	0.6+ 3.9+	861007	688	0.5+	0.5-	861107 010	1.1+ 0.4+
690808	095	0.9- 2.3-	861105	688	0.7-	1.0+	861202 688	0.0 0.1+
790719	095	0.3+ 1.2-	861105	688	0.6+	0.4-	861202 688	1.3+ 0.9+

1986 TL2 = 1957 UM1 = 1978 GW2 = 1981 UQ18
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	172.82411	(1950.0)	P	Q	
n	0.17342759	Peri.	201.07550	-0.33945635	+0.92673846
a	3.1846237	Node	49.45822	-0.82981062	-0.21444109
e	0.1117600	Incl.	12.23244	-0.44292633	-0.30849771
P	5.68	H	11.0	G 0.25	

Residuals in seconds of arc

571026	839	0.1- 2.1-	861007	688	2.0-	1.7-	861202 688	0.6- 1.1+
571028	839	1.2+ 0.2+	861007	688	1.0+	0.3+	861202 688	0.1+ 0.7+
780411	095	0.4- 0.7-	861105	688	0.2-	1.5+		
811025	095	0.4+ 1.4-	861105	688	0.5+	0.1+		

1986 TP2 = A906 QB
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	151.29473	(1950.0)	P	Q	
n	0.30906142	Peri.	147.11207	+0.47050565	+0.88154163
a	2.1665749	Node	150.90029	-0.82582097	+0.45542040
e	0.1963946	Incl.	4.58108	-0.31087643	+0.12440507
P	3.19	H	13.5	G 0.25	

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

060822	024	5.3+ 6.5+	861007	688	0.6-	1.1-	861107 010	3.2- 0.7-
060828	024	5.8+ 4.8+	861007	688	2.2+	2.4-	861107 010	2.0- 1.1+
060830	045	11.4- 10.6-	861105	688	0.5+	0.8+	861202 688	0.1+ 0.7+
060911	024	(0.13- 0.02-)	861105	688	2.0+	0.0	861202 688	1.2+ 2.1+

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

(1179) Mally
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	65.37239		(1950.0)	P	Q
n	0.23306112	Peri.	232.46556	-0.51105373	+0.85935665
a	2.6151072	Node	6.87372	-0.73289966	-0.42460995
e	0.1756375	Incl.	8.73342	-0.44909038	-0.28497812
P	4.23	H	13.9	G 0.25	

Residuals in seconds of arc

310319	024	2.0+	0.2+	310420	024	1.8-	0.9+	791213	809	0.2+ 0.3-
310319	024	3.7+	0.5+	310420	024	0.5-	0.4+	791215	809	0.2- 1.0-
310326	024	(5.2-	0.6-)	310513	024	2.5-	1.7-	791216	809	0.2+ 1.2-
310327	024	0.6-	0.7-	310513	024	3.8-	1.4-	830713	413	0.2+ 1.3+
310408	024	0.3+	1.2+	520130	675	0.3+	0.4-	860312	809	0.0 0.5+
310409	024	0.8+	0.2-	520130	675	0.2+	0.7-			

1985 RZ = 1943 ER = 1951 RV = 1951 TP = 1975 RH1
The identifications are by L. D. Schmadel.
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	112.72615		(1950.0)	P	Q
n	0.20408498	Peri.	95.47535	+0.37434648	-0.92174265
a	2.8571213	Node	331.86243	+0.74276716	+0.36343951
e	0.3543718	Incl.	12.40011	+0.55512311	+0.13528565
P	4.83	H	13.5	G 0.25	

Residuals in seconds of arc

430307	062	0.5+	0.9-	510906	024	2.0-	1.8+	850917	675	0.5- 0.8-
430307	062	0.6-	0.4+	511004	024	1.4-	1.0-	850917	675	0.4- 0.2-
430307	062	0.7+	1.5+	750903	095	0.7-	0.9+	851012	675	0.3+ 0.5+
510904	024	2.3+	0.5-	750906	095	0.5+	0.3-	851014	675	1.3+ 0.8+
510905	024	0.8-	0.6-	850915	675	1.1-	1.0-			

* * * * *

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

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

Comet Lovas (1986p)
T 1986 Nov. 9.20557 ET

q	1.9901390		(1950.0)	P	Q
		Peri.	129.40996	+0.79952724	-0.59943144
		Node	267.45196	+0.53871321	+0.74359636
e	1.0	Incl.	2.17549	+0.26560171	+0.29622020

From 11 observations 1986 Dec. 2-5.

Periodic Comet Urata-Niijima (1986o)
T 1986 Nov. 22.95633 ET

q	1.4490952		(1950.0)	P	Q
n	0.14888931	Peri.	21.39771	+0.62296745	-0.75262313
a	3.5255513	Node	31.28296	+0.64476577	+0.33968184
e	0.5889735	Incl.	24.24577	+0.44293190	+0.56406975
P	6.62				

From 31 observations 1986 Oct. 29-Dec. 4.

Comet Sorrells (1986n)
T 1987 Mar. 9.66287 ET

q	1.7210415	(1950.0)	P	Q
		Peri. 70.21856	+0.94623299	+0.04887979
		Node 74.08320	-0.04918933	-0.95528133
e	1.0	Incl. 160.57819	+0.31972417	-0.29163050

From 52 observations 1986 Nov. 2-Dec. 6.

Comet Wilson (1986l)
Epoch 1987 May 5.0 ET = JDE 2446920.5
T 1987 Apr. 20.78190 ET

q	1.1996603	(1950.0)	P	Q
z	-0.0003050	Peri. 238.29772	-0.47929090	-0.71644731
	+/-0.0000251	Node 110.95756	-0.50092958	+0.69759058
e	1.0003660	Incl. 147.12234	-0.72065927	-0.00840491

From 100 observations 1986 Aug. 5-Nov. 30, mean residual 0".8.

(2277) Moreau
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	314.50491	(1950.0)	P	Q
n	0.23507166	Peri. 68.25795	-0.97480314	-0.11053187
a	2.6001747	Node 104.97670	+0.03842658	-0.93882539
e	0.1247033	Incl. 11.57027	+0.21973219	-0.32617418
P	4.19	H 12.11	G 0.15	

From 17 observations at 5 oppositions 1950-1984, mean residual 1".8.

(3520)* 1952 SG = 1952 SS = 1969 TF1 = 1979 OG15 = 1982 KJ1

Discovered 1952 Sept. 16 at the Goethe Link Observatory. The identification 1982 KJ1 = 1979 OG15 is by T. Furuta (JAM 1597). The double designation 1952 SG = 1952 SS is by O. Kippes (MPC 936).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	112.58935	(1950.0)	P	Q
n	0.29096786	Peri. 210.90755	+0.89107920	+0.44878123
a	2.2554820	Node 122.27782	-0.39832007	+0.84474450
e	0.1822706	Incl. 4.58778	-0.21752925	+0.29155126
P	3.39	H 14.1	G 0.25	

Residuals in seconds of arc

520916	760	0.3+	0.4-	790730	095	0.9+	2.7-	861007	688	0.7-	1.8-
520916	760	3.5+	0.2+	820515	675	0.2+	1.9-	861007	688	1.5+	1.1-
520920	760	0.8-	2.0+	820516	675	0.8+	1.2-	861105	688	0.2+	1.0-
520920	760	0.3-	1.0+	820516	675	2.9-	0.7-	861105	688	0.6-	1.4-
520925	760	6.2-	2.2-	820517	675	1.5-	0.8-	861130	688	0.9-	1.2-
520925	760	1.6+	0.5+	820518	675	1.1+	2.0-	861130	688	1.6+	1.3+
691008	095	0.8+	1.4+	820524	675	1.3+	3.4+				
790721	095	0.7-	3.0+	820527	675	(2.2-	8.1+)				

(3521)* 1982 MH

Discovered 1982 June 26 by A. C. Gilmore and P. M. Kilmartin at Mount John University Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	6.87774	(1950.0)	P	Q
n	0.28981300	Peri. 33.94478	-0.04120074	-0.99749183
a	2.2614699	Node 58.47881	+0.90100460	-0.06198910
e	0.0667195	Incl. 3.87139	+0.43184860	+0.03416720
P	3.40	H 14.5	G 0.25	

Residuals in seconds of arc

820626	474	0.3-	1.2+	820724	474	3.5+	0.3+	850523	474	1.1+	0.5-
820626	474	0.6-	1.6+	820725	474	0.4-	0.3-	850524	474	0.5-	0.6-
820627	474	0.5-	0.4-	820725	474	0.8-	0.5-	850524	474	0.5-	0.6-
820627	474	0.5+	0.1-	820726	474	1.5-	0.5-	850525	474	0.1-	0.7+
820628	474	0.4+	0.8-	820726	474	0.3-	0.1+	850525	474	0.8-	0.5+
820628	474	1.4+	0.3-	820726	474	0.8-	0.1+	850528	474	0.9-	0.4-
820702	474	0.2-	1.3-	831205	474	0.2+	0.9+	850528	474	0.6+	0.7+
820702	474	0.5-	1.1-	831205	474	0.3+	0.3+	861008	801	1.2-	1.3-
820722	474	0.6-	0.6+	831229	474	0.5+	1.5-	861008	801	1.2-	1.3-
820722	474	0.8-	1.1+	831229	474	0.6-	1.0-	861101	801	2.8+	2.5+
820724	474	1.5+	0.1-	850523	474	0.9+	0.6-				

1965 UA = 1979 RU = 1979 SZ8

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	87.40810		(1950.0)	P	Q
n	0.27998923	Peri.	350.82201	+0.99171812	+0.12840771
a	2.3140676	Node	1.80640	-0.11204122	+0.87476457
e	0.2251689	Incl.	4.68293	-0.06278478	+0.46722415
P	3.52	H	14.5	G 0.25	

Residuals in seconds of arc

651021	012	1.3+	1.3-	651029	012	0.1+	1.3-	791213	809	0.1-	0.6-
651022	012	1.2+	1.1+	790902	095	0.3+	0.6-	791215	809	1.0-	0.4+
651025	012	1.9-	0.2+	790924	095	0.2-	1.4+	791216	809	0.3-	1.6+

1975 TS3 = 1975 UG = 1986 TY1

The double designation 1975 TS3 = 1975 UG is by C. M. Bardwell (MPC 4576). The identification 1975 TS3 = 1986 TY1 is by E. Bowell.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	68.89121		(1950.0)	P	Q
n	0.17775198	Peri.	302.77023	+0.95216369	+0.28431099
a	3.1327611	Node	41.02343	-0.19040884	+0.83872322
e	0.2422493	Incl.	9.82780	-0.23901627	+0.46444657
P	5.54	H	12.0	G 0.25	

Residuals in seconds of arc

751003	095	0.3+	0.3-	751101	095	3.3+	5.0+	861105	688	0.1+	0.2-
751013	095	1.4-	1.5+	751106	095	1.6-	0.6-	861130	688	0.3+	0.2+
751027	026	1.1+	1.4-	861007	688	1.3-	0.0	861130	688	0.3+	0.5-
751028	026	0.5-	1.4-	861007	688	0.3+	0.2-				
751029	026	1.9-	1.6-	861105	688	1.2+	0.5-				

1976 YU5 = 1983 WX

The identification is by A. Lowe (MPC 10032). The identification with 1950 KD (MPC 10032) now seems to be questionable.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	92.70937		(1950.0)	P	Q
n	0.27717673	Peri.	70.89350	+0.86291447	+0.49740149
a	2.3296950	Node	259.19034	-0.49105362	+0.78359002
e	0.1406071	Incl.	5.21480	-0.11935227	+0.37226124
P	3.56	H	13.5	G 0.25	

Residuals in seconds of arc

761218	095	0.4-	0.9-	831129	688	1.7+	0.5-	860805	801	1.2+	0.6-
761220	095	0.3+	1.1-	831201	688	1.5+	0.5+	860901	801	1.8-	0.4+
831129	688	1.3-	1.3+	831201	688	2.1-	0.4+	861006	801	1.0+	0.3-

1979 SA8 = 1976 YZ6 = 1986 VN6

The identifications 1979 SA8 = 1976 YZ6 and 1979 SA8 = 1986 VN6 are by L. D. Schmadel and by E. Bowell, respectively.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	158.54868		(1950.0)		P		Q	
n	0.28867372	Peri.	271.31366		+0.41270768		+0.91010835	
a	2.2674206	Node	23.17157		-0.79368984		+0.37929386	
e	0.2050370	Incl.	5.40772		-0.44691028		+0.16685010	
P	3.41	H	13.0	G	0.25			

Residuals in seconds of arc

761220 095	0.1+	0.6-	791014 095	0.4+	0.1+	861106 688	1.0-	0.6+
790923 095	0.5-	0.2-	791111 095	0.7+	0.8-	861106 688	0.5+	0.7+

1980 PT = 1937 JC = 1978 EJ4 = 1986 TQ2

The key identification 1980 PT = 1986 TQ2 is by E. Bowell.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	139.28298		(1950.0)		P		Q	
n	0.18797926	Peri.	117.33417		+0.32565393		+0.94511972	
a	3.0180768	Node	171.54225		-0.91848057		+0.32286007	
e	0.0922115	Incl.	10.34988		-0.22437235		+0.05010085	
P	5.24	H	11.5	G	0.25			

Residuals in seconds of arc

370501 024	0.3-	1.3-	800814 046	0.6+	0.7+	861007 688	0.4-	1.2-
780306 095	0.2-	1.2-	800814 046	0.6-	0.3-	861007 688	0.3-	1.1-
800805 808	0.7+	1.3+	800815 046	1.8-	0.1+	861105 688	0.6+	0.6+
800805 808	0.0	3.2+	800815 046	0.8-	1.3-	861105 688	1.0-	0.9-
800806 046	0.2+	0.2+	800817 046	0.2+	0.6-	861202 688	0.9+	1.0+
800806 046	0.5+	0.2+	800817 046	2.3-	2.3-	861202 688	0.6+	0.4+
800807 046	0.1+	0.4-	800818 046	1.4+	0.8-			
800807 046	0.2-	0.0	800818 046	2.0+	0.7-			

1982 US6 = 1986 VQ

The identification is by E. Bowell.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	87.52340		(1950.0)		P		Q	
n	0.24419638	Peri.	322.69652		+0.98353414		-0.14974967	
a	2.5349969	Node	46.24427		+0.18014793		+0.85698380	
e	0.1565735	Incl.	8.05185		-0.01439841		+0.49310628	
P	4.04	H	14.0	G	0.25			

Residuals in seconds of arc

821020 095	0.4-	1.2-	861103 046	2.5-	0.3-	861106 688	0.0	0.9-
821025 095	0.4+	1.1+	861103 046	0.2-	0.3+			
821109 095	0.3-	0.3-	861106 688	2.7+	0.4+			

1982 UA7 = 1982 XR2 = 1961 TV1 = 1986 XD

The double designation 1982 UA7 = 1982 XR2 is by T. Kobayashi (MPC 10936). The identification 1982 UA7 = 1986 XD is by E. Bowell.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	71.86954		(1950.0)		P		Q	
n	0.23655550	Peri.	307.28030		+0.94590121		-0.23529073	
a	2.5892951	Node	67.31094		+0.31616076		+0.82311154	
e	0.1889763	Incl.	14.01303		-0.07289226		+0.51684202	
P	4.17	H	13.0	G	0.25			

Residuals in seconds of arc

611015 760(60.1+	0.1+)X		821025 095	0.5-	3.1-	821214 381	1.5-	0.5+
821021 095	0.1-	3.6+	821111 095	3.1+	3.0-	821214 381	0.1-	0.7+
821022 095	0.4-	0.7-	821112 095	1.5-	0.0	861202 688	0.1+	0.7-
821023 095	0.9+	1.8+	821213 381	0.0	0.0	861202 688	0.2-	1.0+

1984 FA = 1951 XO = 1986 VT4

The key identification 1984 FA = 1986 VT4 is by E. Bowell.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	22.63172	(1950.0)		P	Q
n	0.22325716	Peri.	306.87229	+0.31655558	-0.94388744
a	2.6911216	Node	124.41218	+0.90254906	+0.26915823
e	0.1042332	Incl.	6.55479	+0.29188656	+0.19139056
P	4.41	H	12.0	G 0.25	

Residuals in seconds of arc

511204	711	2.7-	1.0-	Y	840425	046	1.3+	0.5-	861107	010	(1.4- 1.0+)
511204	711	2.8+	1.0+	Y	840425	046	1.2+	1.2-	861107	010	(8.4+ 1.0+)
840326	552	1.7+	3.0+		840427	046	4.3-	0.3-	861202	688	0.8- 2.1-
840326	552	4.7+	2.5-		840427	046	4.1-	0.1-	861202	688	0.6- 0.3-
840419	046	0.2+	0.3+		861105	688	0.3+	0.8+			
840419	046	1.1-	0.8+		861105	688	1.1+	0.7+			

1986 TJ2

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	39.62821	(1950.0)		P	Q
n	0.28773932	Peri.	313.50115	+0.24945624	-0.96372623
a	2.2723222	Node	121.82530	+0.91754973	+0.20389379
e	0.1351156	Incl.	6.41189	+0.30963539	+0.17221813
P	3.43	H	13.5	G 0.25	

From 9 observations 1986 Sept. 1-Dec. 2, mean residual 1".0.

1986 WA

Epoch 1986 Nov. 26.0 ET = JDE 2446760.5

M	40.46451	(1950.0)		P	Q
n	0.58678218	Peri.	48.05565	+0.16424221	+0.90607301
a	1.4130302	Node	235.65664	-0.98541688	+0.13288697
e	0.6804336	Incl.	28.18206	-0.04447556	+0.40171227
P	1.68	H	16.0	G 0.25	

From 9 observations 1986 Nov. 30-Dec. 4.

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

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

(3522)* 1941 SW = 1964 UG = 1981 TL2 = 1981 UA20 = 1981 WC6

Discovered 1941 Sept. 21 by Y. Vaisala at Turku. The identifications are by S. Nakano (MPC 10401).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	33.84684	(1950.0)		P	Q
n	0.17484290	Peri.	151.23022	+0.98965657	+0.13334023
a	3.1674083	Node	201.30343	-0.14272064	+0.95246760
e	0.2945437	Incl.	8.37519	+0.01451490	+0.27390846
P	5.64	H	12.3	G 0.25	

Residuals in seconds of arc

410920	062	0.5-	3.3+		411015	062	2.3-	2.5-	811124	095	2.3- 0.7-
410920	012(27.0+	20.8+)X			411016	062	0.1+	0.4+	860603	801	0.7+ 1.4+
410921	062	2.6-	1.8-		641031	760	0.1+	0.4+	860704	801	0.1+ 0.1-
410923	024	4.5+	1.6-		641031	760	0.0	0.6-	860804	801	0.8- 0.9-
410925	062	0.7+	2.4+		811004	095	1.3+	3.0-			
410927	012(25.0-	11.8-)X			811027	095	0.9+	3.8+			

(3523)* 1975 TV2 = 1975 TC7 = 1975 VH9 = 1930 HB = 1952 KO
= 1957 VC = 1968 UX

Discovered 1975 Oct. 3 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 241.61319	(1950.0)		P	Q
n 0.27005745	Peri.	158.96500	-0.82280998	+0.55125155
a 2.3704562	Node	55.24184	-0.54247031	-0.68929408
e 0.1367266	Incl.	9.68567	-0.16943938	-0.47010148
P 3.65	H 12.3		G 0.25	

Residuals in seconds of arc

300421	389	2.8-	1.8+	681026	095	3.5-	1.9-	861007	801	0.2+	2.9+
300423	024	1.9+	0.6-	751003	095	0.0	2.4-	861007	688	1.6+	1.3+
300429	024	4.6+	0.5+	751013	095	0.6-	0.5-	861007	688	0.3+	0.8+
520520	711	5.2-	0.4+ Y	751105	095	0.3-	0.8+	861030	801	0.4-	0.0
520522	711	3.2+	4.3+ Y	751106	095	0.2-	3.4-	861105	688	1.3-	0.4+
571114	330	0.6-	1.9+	751124	033	0.5+	0.5+	861105	688	0.1+	0.5+
571118	330	0.2+	3.3+	751125	033	1.0-	0.9+	861107	010	1.6+	0.7-
571120	330	0.3-	4.9+	850616	474	1.2+	0.3-	861107	010	(6.2+	1.8-)
681022	095	0.7-	1.6-	850616	474	0.4+	0.1+				

(3524)* 1981 EE27

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

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 204.54253	(1950.0)		P	Q
n 0.23307420	Peri.	330.19072	-0.86600210	-0.50003974
a 2.6150094	Node	179.80148	+0.49176601	-0.85195522
e 0.1290094	Incl.	13.08605	+0.09059003	-0.15534660
P 4.23	H 13.4		G 0.25	

Residuals in seconds of arc

810212	413	0.3+	0.4-	810405	413	0.8-	0.7+	850119	688	1.2+	1.1-
810212	413	0.5+	0.1+	810405	413	2.2+	3.4-	850119	688	0.6-	1.3-
810302	413	0.5-	1.4+	810406	413	1.1-	0.7+	850225	688	2.4+	1.5-
810302	413	0.3+	0.2+	810406	413	0.3+	1.6-	850225	688	1.9-	3.0+
810306	413	0.9-	1.6+	810407	413	1.5-	0.7+	850318	688	1.5-	1.8+
810306	413	0.8+	0.2-	810407	413	0.2+	0.5-	850318	688	0.5+	0.2-
810311	413	0.6-	0.1-	810410	413	0.8-	1.4+	860605	801	1.3+	0.1+
810315	413	0.4+	0.1+	810410	413	0.1+	0.5-	860708	801	1.2-	0.3+
810315	413	0.7+	1.1-	810501	413	0.3+	0.0				

(3525)* 1983 CX2 = 1966 BJ = 1975 TC2 = 1975 VO

Discovered 1983 Feb. 15 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 340.09972	(1950.0)		P	Q
n 0.18176046	Peri.	185.82106	-0.27388563	-0.96078224
a 3.0865248	Node	280.08034	+0.88412581	-0.23375545
e 0.0912130	Incl.	2.52684	+0.37856070	-0.14918407
P 5.42	H 11.9		G 0.25	

Residuals in seconds of arc

660116	330	1.2+	3.3+	830215	688	1.6+	0.4-	850818	801	1.3+	0.8+
751003	095	1.1-	2.4-	830310	688	0.4-	1.5-	861007	688	1.0-	1.1+
751101	095	1.1-	1.1+	830310	688	0.4-	1.0-	861007	688	0.2+	0.8-
811023	095	2.2-	1.3-	830314	095	4.2-	3.1+	861008	801	0.6+	0.8-
811025	095	2.7+	1.5-	830316	688	1.0+	0.8-	861029	801	0.8+	0.4+
830215	688	1.0-	0.6+	830316	688	1.8+	1.8-				

(3526)* 1984 CN = 1977 TP3 = 1977 VJ

Discovered 1984 Feb. 5 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 127.46680	(1950.0)		P	Q
n 0.21149872	Peri.	244.58997	+0.28288007	+0.95399163
a 2.7899573	Node	42.24125	-0.81825767	+0.29409206
e 0.0949897	Incl.	8.50232	-0.50043306	+0.05839369
P 4.66	H 12.1		G 0.25	

Residuals in seconds of arc

771010 330	0.8-	1.2-	840205 688	1.6-	0.1+	850524 801	0.4-	0.9-
771103 330	1.0-	0.4+	840205 688	1.4-	1.0-	860908 801	1.5+	3.4+
771111 805	1.3+	1.1+	840226 688	1.0-	1.2-	861006 688	3.1-	1.2-
771112 805	0.3+	0.1-	840226 688	2.0-	0.5-	861007 801	1.2+	1.8-
840128 688	0.3+	1.0-	840226 095	3.9+	1.6+	861007 688	(7.8+	2.2-)
840128 688	1.6+	0.3+	840305 095	0.2-	0.6+	861007 688	1.0+	1.8-

(3527)* 1985 GE1 = 1947 LK = 1978 JS2 = 1979 SA2

Discovered 1985 Apr. 15 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M 234.45270	(1950.0)		P	Q
n 0.28414045	Peri.	354.68988	-0.83389659	+0.54863362
a 2.2914691	Node	218.78118	-0.50275084	-0.80004603
e 0.1216928	Incl.	5.51047	-0.22772367	-0.24274986
P 3.47	H 13.0		G 0.25	

Residuals in seconds of arc

470614 690	0.6+	0.9-	850415 688	0.8+	1.2-	850521 688	0.5-	0.5+
470615 690	0.1-	0.8+	850424 688	0.3-	0.3+	861006 688	0.2+	0.7+
780509 095	0.9+	3.7+	850424 688	0.3+	0.9-	861006 688	0.2+	2.7+
790922 095	1.5-	3.8-	850515 675	0.3-	0.5-	861007 801	1.0+	0.5+
850415 688	0.2+	0.3-	850521 688	0.8-	0.0	861031 801	0.3-	0.9+

1976 SG2 = 1979 OP16 = 1986 VW5

The identification 1976 SG2 = 1979 OP16 is by L. D. Schmadel.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M 61.65123	(1950.0)		P	Q
n 0.30024232	Peri.	234.19851	+0.50424489	-0.86350780
a 2.2087962	Node	185.54575	+0.82075510	+0.48266248
e 0.1260579	Incl.	5.67643	+0.26851101	+0.14625732
P 3.28	H 14.0		G 0.25	

Residuals in seconds of arc

760924 095	2.1-	0.4+	760929 095	2.9-	1.7-	861106 688	0.4-	0.5+
760925 095	0.9+	2.0+	761025 095	1.4+	2.3-	861106 688	0.2+	0.4+
760928 095	3.0+	0.6+	790731 095	0.0	0.1+			

1979 VG = 1979 SH10 = 1972 TK1 = 1986 TQ3

The double designation 1979 VG = 1979 SH10 is by H. Oishi (JAM 1989).

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M 59.79749	(1950.0)		P	Q
n 0.28112407	Peri.	20.29150	+0.71884119	-0.69390983
a 2.3078357	Node	23.81192	+0.62259922	+0.61580483
e 0.1118268	Incl.	5.95842	+0.30925322	+0.37319371
P 3.51	H 13.5		G 0.25	

Residuals in seconds of arc

721007 095	(9.5+	5.3-)	791116 095	2.0-	1.1-	861009 046	2.2+	0.8+
790922 095	1.5+	4.7+	861004 046	(6.3+	1.6+)	861009 046	3.6+	0.1+
790928 095	1.2+	1.0-	861004 046	2.2+	0.5+	861010 046	0.3-	0.7-
791016 095	1.4-	2.8+	861005 046	2.7-	3.0+	861010 046	0.3-	0.8-
791111 095	0.2-	0.6+	861005 046	(4.4-	1.9+)			

1981 JU2 = 1979 YO7 = 1986 VS
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	190.34487	(1950.0)		P	Q
n	0.26115844	Peri.	40.66958	+0.06925288	+0.99529908
a	2.4240089	Node	233.40853	-0.93570946	+0.04127474
e	0.0725622	Incl.	4.83711	-0.34590728	+0.08761355
P	3.77	H	13.0	G 0.25	

Residuals in seconds of arc

791223 095	0.1-	0.4-	810506 675	0.6-	0.2-	861106 688	0.3+	1.2+
810411 675	0.5+	1.4+	810511 675	0.2-	0.0	861106 688	0.1+	1.6+
810411 675	0.5-	0.4-	861103 046	0.1+	2.0-			
810505 675	0.2+	0.8-	861103 046	0.2-	2.5-			

1985 FC = 1975 HD
The identification 1985 FC = 1975 HD is by W. Landgraf.
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	350.04380	(1950.0)		P	Q
n	0.38789018	Peri.	143.18280	-0.91254650	-0.39599112
a	1.8620737	Node	14.56939	+0.20454145	-0.65835668
e	0.0406692	Incl.	23.97737	+0.35414922	-0.64012305
P	2.54	H	15.0	G 0.25	

Residuals in seconds of arc

750420 805	0.6+	1.1+	850416 691	0.5+	2.1+	850515 691	0.3+	0.7-
850320 675	2.0-	1.0-	850416 691	0.6+	2.0+	850518 691	0.9+	0.2-
850324 675	0.3+	0.3-	850416 691	0.5+	2.2+	850518 691	0.8+	0.5-
850325 675	0.0	0.2-	850418 691	0.8+	0.7-	850518 691	0.8+	0.3-
850411 675	0.6+	0.9-	850418 691	0.5+	1.0-	850614 691	1.3+	0.2+
850415 691	0.4+	0.5+	850418 691	0.9+	0.8-	850614 691	1.4+	0.1-
850415 691	0.1+	0.4+	850424 675	2.9-	1.8-	850614 691	1.1+	0.1-
850415 691	0.5+	0.4+	850425 675	2.0-	4.0-	861030 801	1.9-	2.0+
850415 675	0.0	1.5-	850515 691	0.3+	0.9-			
850416 691	0.4+	1.9+	850515 691	0.3+	1.0-			

1985 TQ
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	3.85429	(1950.0)		P	Q
n	0.08186830	Peri.	56.95154	+0.16097216	-0.98675176
a	5.2528265	Node	23.80979	+0.88794714	+0.13584853
e	0.1211925	Incl.	2.87121	+0.43085710	+0.08869123
P	12.04	H	10.0	G 0.25	

Residuals in seconds of arc

851015 688	0.4-	1.2+	851020 688	0.1+	0.9-	860108 801	0.3-	0.5+
851015 688	0.6+	0.0	851107 688	1.5-	0.3-	861029 801	0.2-	0.5+
851020 688	0.6-	0.0	851107 688	1.9+	0.2-	861031 801	0.3+	0.2-

1985 TF3 = 1949 SA = 1973 SU2
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	60.95329	(1950.0)		P	Q
n	0.08344735	Peri.	34.00108	+0.95733321	-0.28725319
a	5.1863506	Node	342.60943	+0.23599191	+0.84020646
e	0.1453284	Incl.	6.06954	+0.16679610	+0.45993338
P	11.81	H	10.0	G 0.25	

Residuals in seconds of arc

490923 024	0.1-	0.3-	850917 675	1.5+	2.2-	851014 675	3.0-	2.1+
730922 095	0.4-	1.5+	850917 675	2.0+	1.3-	851116 675	3.0+	0.4-
730926 095	0.2-	0.5-	851012 675	2.8-	1.0+			

1986 TL4 = 1979 YC9 = 1980 BY5
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	60.32928	(1950.0)	P	Q
n	0.26538868	Peri. 346.49599	+0.67142104	-0.73933168
a	2.3981812	Node 61.30057	+0.68516009	+0.59316858
e	0.1988558	Incl. 3.32130	+0.28239943	+0.31865295
P	3.71	H 14.0	G 0.25	

Residuals in seconds of arc

791224	095	0.2+ 0.2-	861013	054	0.6- 0.7+	861102	054	1.2- 0.7-
800123	095	0.2- 0.3+	861029	054	1.6+ 0.1-	861106	054	0.2+ 0.2+

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ORBITAL ELEMENTS BY D. W. E. GREEN, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

(3528)* 1981 EW3 = 1974 QX

Discovered 1981 Mar. 2 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey. The identification was suggested by L. D. Schmadel and K. Hurukawa (MPC 11042).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	90.11106	(1950.0)	P	Q
n	0.24416932	Peri. 32.76681	+0.62862318	+0.76697080
a	2.5351792	Node 276.51688	-0.73850626	+0.53677417
e	0.1595822	Incl. 7.44848	-0.24380605	+0.35160956
P	4.04	H 13.0	G 0.25	

Residuals in seconds of arc

740821	095	0.9- 2.2+	810310	413	0.2+ 1.8+	810409	413	0.4+ 0.7-
791220	675	1.5- 1.5-	810310	413	1.0+ 1.4+	810429	413	0.0 2.1-
791220	675	0.7+ 0.0	810312	413	0.7- 0.1+	860802	046	0.3+ 1.0-
810202	413	0.2+ 0.4-	810312	413	0.1- 0.7+	860802	046	0.5+ 1.4-
810214	413	1.3+ 2.1-	810407	413	1.5- 0.0	860803	046	1.0- 0.7-
810302	413	0.3- 1.1+	810407	413	0.1- 1.3-	860803	046	0.2- 0.6-
810302	413	1.2+ 0.4+	810408	413	1.2- 0.5+	860908	801	0.5+ 0.5+
810307	413	0.1- 1.7+	810408	413	0.1+ 0.9-	861030	801	1.1+ 2.4+
810307	413	1.8+ 0.5+	810409	413	1.2- 0.2+			

(3529)* 1981 EQ19 = 1979 WZ5

Discovered 1981 Mar. 2 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey. The identification was suggested by L. D. Schmadel and K. Hurukawa (MPC 10822).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	49.92761	(1950.0)	P	Q
n	0.26823948	Peri. 184.09257	+0.95231488	-0.30490433
a	2.3811545	Node 193.67631	+0.28127573	+0.89175663
e	0.1838980	Incl. 2.76114	+0.11823848	+0.33437025
P	3.67	H 14.1	G 0.25	

Residuals in seconds of arc

770213	675	1.1- 1.0+	810307	413	0.7- 0.5+	810411	413	(2.7- 1.0+)
770214	675	1.0+ 1.2+	810307	413	1.8+ 0.7-	810411	413	2.5+ 1.9-
791117	095	0.6+ 1.1-	810311	413	1.3- 0.3+	810430	413	0.2+ 0.6-
810209	413	1.5- 0.5-	810311	413	0.6+ 0.8-	810502	413	1.5+ 1.1-
810213	413	0.5+ 0.1-	810316	413	(3.2+ 0.4+)	810503	413	1.7+ 0.2+
810302	413	0.7- 1.2+	810329	413	1.5- 0.4-	860809	801	1.4+ 0.3-
810302	413	(2.9+ 1.3-)	810408	413	1.2- 0.3+	860902	801	1.7- 0.5+
810303	413	1.4- 0.7+	810408	413	(2.6+ 1.9-)			

(3530)* 1981 EC20 = 1975 XG1

Discovered 1981 Mar. 2 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey. The identification was suggested by L. D. Schmadel (MPC 11149).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	102.59448		(1950.0)	P	Q
n	0.26520552	Peri.	74.75737	+0.92257687	+0.38527560
a	2.3992804	Node	262.57836	-0.36137533	+0.84444972
e	0.2247820	Incl.	1.17663	-0.13512880	+0.37211206
P	3.72	H	13.9	G 0.25	

Residuals in seconds of arc

751201	095	0.7-	2.1+	810303	413	1.5+	1.1-	
780610	675	1.5-	0.5+	810307	413	(3.0-	1.4+)	
780610	675	1.5+	1.2+	810307	413	0.7-	0.5+	
810209	413	0.1+	0.1+	810311	413	1.3-	1.4+	
810213	413	0.2-	0.7+	810316	413	0.9-	0.0	
810302	413	1.3-	1.1+	810329	413	1.4-	1.0+	
810302	413	(3.8+	0.6-)	810329	413	0.9+	0.4-	
810408	413	1.0+	0.1+					
810408	413	1.7+	0.6-					
810430	413	0.1-	0.5-					
810502	413	1.2+	1.2-					
861007	801	0.2-	0.1-					
861029	801	0.1+	0.9+					

(3531)* 1981 FB

Discovered 1981 Mar. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	216.85414		(1950.0)	P	Q
n	0.23196850	Peri.	299.27030	-0.66194724	-0.74791516
a	2.6233126	Node	192.55981	+0.74209346	-0.64464265
e	0.1461107	Incl.	13.15349	+0.10546635	-0.15829961
P	4.25	H	12.9	G 0.25	

Residuals in seconds of arc

810209	413	0.8-	0.1-	810330	688	(2.9+	0.3-)	
810212	413	1.9-	0.2+	810401	688	(3.9+	1.8-)	
810301	413	0.4-	1.1+	810405	688	2.5+	2.1-	
810306	413	0.2-	1.6+	810405	688	1.1+	0.9-	
810306	413	0.8+	0.4+	810409	688	2.0-	1.2-	
810308	413	0.7+	0.9+	810409	688	0.1-	0.7+	
810308	413	0.5+	0.6+	810502	688	1.6-	0.1+	
810330	688	0.8+	0.1-	810502	688	0.0	1.0-	
850119	688	0.3-	1.8-					
850119	688	(2.9+	0.6-)					
850225	688	1.6-	1.8-					
850225	688	1.4+	1.7+					
850318	688	0.3+	0.4+					
850318	688	0.0	0.8+					
860604	801	0.5+	0.5+					
860704	801	0.5-	0.5-					

(3532)* 1983 AS2 = 1981 SD7

Discovered 1983 Jan. 10 by K. Herkenhoff and G. Ojakangas at Palomar. The identification is by B. G. Marsden (MPC 9965).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	41.01517		(1950.0)	P	Q
n	0.19811768	Peri.	341.29089	+0.79039044	-0.59419978
a	2.9142081	Node	56.08047	+0.58245507	+0.65353972
e	0.0559625	Incl.	10.34595	+0.18981315	+0.46884160
P	4.97	H	12.0	G 0.25	

Residuals in seconds of arc

810928	095	0.4+	0.3-	830111	675	0.6-	1.3+	
811006	095	0.5+	1.1-	830112	675	0.5+	1.3+	
811026	095	0.7+	2.4-	830112	675	0.4-	0.9+	
830110	675	0.5-	0.6+	830211	675	1.0-	0.2+	
830110	675	1.1-	1.8+	830211	675	2.0+	1.5+	
830111	675	0.8-	1.4+	830215	675	1.4+	0.8-	
860905	675	(12.3-	1.2-)					
860905	675	1.6-	0.6-					
861004	688	1.4-	0.7+					
861004	688	0.6+	0.3+					
861007	801	2.0+	1.0+					
861030	801	1.6-	2.5+					

ORBITAL ELEMENTS BY H. OISHI, NIIZA, JAPAN.

The following orbital elements are from JAM 2027, 2029 and NOC 1588. The identifications are by H. Oishi.

(3533)* 1986 UE = 1953 VA2 = 1971 FJ = 1976 SZ4 = 1978 GQ3 = 1978 JH3 = 1979 QX7 = 1983 YJ

Discovered 1986 Oct. 30 by K. Suzuki and T. Urata at Toyota.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	51.21369	(1950.0)		P	Q
n	0.29798926	Peri.	236.99474	+0.28053590	-0.95953091
a	2.2199114	Node	196.76523	+0.90650472	+0.27324912
e	0.1165553	Incl.	4.87154	+0.31551356	+0.06808346
P	3.31	H	12.8	G 0.25	

Residuals in seconds of arc

531111	760	2.1+	2.2-	831228	046	1.7-	0.2+	861102	883	2.6-	1.2-
531111	760	0.8-	1.1-	840111	046	0.6+	0.3+	861104	888	0.2+	0.4-
710319	095	1.8-	1.3+	840111	046	1.9+	1.1-	861105	881	0.2-	1.5+
760924	095	1.5-	1.0-	861030	881	1.2+	1.8+	861105	881	0.5-	0.6+
780411	095	0.5+	1.6+	861030	399	0.3+	1.2+	861111	887	1.2-	2.2-
780505	095	0.8+	1.0+	861030	881	2.6+	2.8+	861111	887	2.8-	0.3+
790826	095	0.5+	1.9+	861102	883	0.1+	0.8+				
831228	046	1.2+	1.7+	861102	881	1.0+	0.1-				

1972 RF2 = 1979 SN10 = 1979 UD4

The double designation 1979 SN10 = 1979 UD4 was independently suggested by N. S. Chernykh.

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	111.59532	(1950.0)		P	Q
n	0.28276988	Peri.	147.71089	+0.90148903	+0.43273199
a	2.2988721	Node	186.66208	-0.40996256	+0.84801466
e	0.2474466	Incl.	3.84623	-0.13873801	+0.30596433
P	3.49	H	15.1	G 0.25	

Residuals in seconds of arc

720911	095	0.3-	0.8+	721013	095	0.7-	0.2+	791016	095	0.0	1.1+
721005	095	0.9+	0.7-	790928	095	0.1+	1.3-				

1982 UM2 = 1986 VH

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	59.36530	(1950.0)		P	Q
n	0.24624899	Peri.	248.22565	+0.68608230	-0.72737806
a	2.5208902	Node	158.43245	+0.68124597	+0.63528391
e	0.1379269	Incl.	2.27125	+0.25533312	+0.25949086
P	4.00	H	13.8	G 0.25	

Residuals in seconds of arc

821020	046	2.3+	0.6+	821111	046	1.9+	0.4+	861105	881	0.7+	2.9+
821020	046	0.1-	0.3-	821111	046	1.5+	0.6-	861105	881	0.2-	3.2+
821021	046	0.9+	3.0-	821114	046	1.1-	1.0-	861111	887	1.9-	0.8+
821021	046	1.3+	1.8+	821114	046	1.3-	2.0-	861111	887	1.4-	1.8+
821022	046	1.2-	1.2-	821116	046	2.3+	1.3-				
821022	046	3.8-	1.4-	821116	046	0.1+	1.0-				

1982 UD7 = 1986 UF

Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	102.00140	(1950.0)		P	Q
n	0.23991657	Peri.	138.21187	+0.94834678	+0.31350763
a	2.5650554	Node	203.64967	-0.31355503	+0.90311318
e	0.2138453	Incl.	6.94296	-0.04818320	+0.29342724
P	4.11	H	13.2	G 0.25	

Residuals in seconds of arc

821021	095	0.8-	1.2-	861102	881	2.8+	1.0-	861111	887	0.4-	1.0+
821023	095	0.6-	2.5+	861102	881	0.7+	0.9-	861126	881	1.5-	0.4-
821112	095	1.2+	0.2-	861105	881	1.1-	0.3+	861126	881	0.9+	0.1-
861030	881	2.1+	1.2+	861105	881	2.4-	0.6+				
861030	881	2.1+	1.5+	861111	887	3.1-	3.3-				

6047 P-L = 1978 YB2
Epoch 1987 July 24.0 ET = JDE 2447000.5 (J-P)

M	100.83634		(1950.0)	P	Q
n	0.28152708	Peri.	304.73555	-0.81403500	-0.58001184
a	2.3056327	Node	199.86820	+0.55792624	-0.76625156
e	0.0786870	Incl.	5.15725	+0.16144761	-0.27648656
P	3.50	H	13.8	G 0.25	

Residuals in seconds of arc

600924	675	0.9-	0.7-	601017	675	0.3+	0.0	781229	808	0.2-	0.1-
600925	675	1.0+	0.8+	601024	675	0.4+	0.7-	781231	808	0.3+	0.7-
600926	675	0.6-	0.6-	601026	675	0.6-	0.2+	781231	808	1.0-	0.3+
600928	675	0.5+	1.0+	781229	808	0.8+	0.5+				

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ORBITAL ELEMENTS BY T. KOBAYASHI, TOKYO.

The identifications are by T. Kobayashi.

1929 TK = 1946 UD = 1956 RA = 1973 TV = 1983 PN
The identification 1929 TK = 1946 UD was independently suggested by E. Bowell.
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	345.03337		(1950.0)	P	Q
n	0.29119975	Peri.	106.86313	+0.23911286	-0.97067193
a	2.2542845	Node	329.26834	+0.87122521	+0.22580562
e	0.2368869	Incl.	2.79523	+0.42870932	+0.08250951
P	3.38	H	13.0	G 0.25	

Residuals in seconds of arc

291001	690	0.0	2.5-	461019	062	1.4+	1.4+	560914	024	2.2+	0.9+
291005	690	3.3+	1.4+	461019	062	0.1+	0.5-	731001	095	0.0	1.2-
291011	690	6.2-	1.7+	461022	062	0.5-	2.0-	830813	688	1.5-	0.5+
291012	690	0.8+	0.9+	560909	024	0.5-	0.7+	830813	688	0.9+	1.6-

1929 TQ = 1929 TW = 1971 UG3 = 1980 EN = 1982 SD
The double designation 1929 TQ = 1929 TW is by O. Kippes (MPC 6840).
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	47.69462		(1950.0)	P	Q
n	0.25975113	Peri.	30.19256	+0.45040190	-0.89242817
a	2.4327515	Node	33.05899	+0.80902667	+0.39532182
e	0.1770712	Incl.	2.79999	+0.37764266	+0.21746868
P	3.79	H	13.0	G 0.25	

Residuals in seconds of arc

290929	690	2.4-	2.0-	291012	690	3.0+	3.0+	820922	688	1.4+	1.3-
291001	690	0.2-	2.0+	711029	095	0.4+	2.7-	820922	688	1.2-	0.9-
291005	690	0.1+	3.0+	800315	095	0.1+	0.1+	820922	704	(1.1-	11.7-)
291010	690	3.3-	0.3-	820922	688	0.3-	2.8-	820923	704	3.8+	1.7+
291011	690	(11.1-	2.0+)	820922	688	1.6-	1.0-	820924	704	(10.4-	0.5+)

1981 QZ = 1959 SN = 1973 YD3
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	91.93507	(1950.0)	P	Q	
n	0.22220094	Peri.	107.82611	+0.97901494	-0.16273449
a	2.6996375	Node	261.67526	+0.10545943	+0.91963788
e	0.0811322	Incl.	7.12148	+0.17437908	+0.35746839
P	4.44	H	12.0	G 0.25	

Residuals in seconds of arc

590930	024	0.0	0.0	810904	046	1.7-	3.2-	
731225	095	0.0	0.1-	810904	046	0.6-	1.0-	
810828	046	0.7+	0.8+	810905	095	1.2+	1.8+	
810828	046	1.7+	0.4+	810905	046	0.4+	0.0	
810905	046	0.5-	0.7-					
810906	046	0.5-	0.6+					
810906	046	1.0-	0.7+					
810923	095	0.4+	0.8+					

1981 TW = 1954 RS = 1965 UY = 1978 EX1
Epoch 1987 July 24.0 ET = JDE 2447000.5

M	348.03438	(1950.0)	P	Q	
n	0.18187595	Peri.	100.56656	+0.69525731	-0.71812391
a	3.0852181	Node	305.34172	+0.64406204	+0.64113400
e	0.1085108	Incl.	2.12554	+0.31906325	+0.27063857
P	5.42	H	12.0	G 0.25	

Residuals in seconds of arc

540904	839	0.1+	0.1-	810925	046	1.0+	4.0-	
651016	330	0.0	0.1-	810925	095	0.0	3.4+	
780305	095	0.1+	0.2+	810928	095	2.4-	1.3-	
810902	095	1.7+	3.0+	811005	046	1.7+	0.6+	
810925	046	3.6-	0.7-	811005	688	0.4+	2.8-	
811005	688	0.8-	1.8-					
811005	095	2.0+	1.7+					
811006	046	0.1-	0.1-					
811021	095	1.5+	1.0+					
811022	095	1.6-	1.6+					

1986 UZ = 1950 MC = 1960 RA = 1965 CD = 1973 ST2 = 1973 SE4

The key identifications 1986 UZ = 1950 MC = 1965 CD = 1973 ST2 = 1973 SE4 are by T. Urata (NOC 1577).

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	48.51827	(1950.0)	P	Q	
n	0.30737289	Peri.	96.89438	+0.15256594	-0.98805149
a	2.1744980	Node	344.27912	+0.87184451	+0.14497322
e	0.0637559	Incl.	4.62774	+0.46541464	+0.05231657
P	3.21	H	13.5	G 0.25	

Residuals in seconds of arc

500625	839	1.4-	1.4-	730922	095	3.3-	1.1+	
500713	839	1.7+	1.8-	730926	095	1.2-	0.9+	
600912	024	1.4+	1.6+	861030	372	3.9+	1.7-	
650205	760(58.9+	62.2-)X		861030	372	3.6+	1.1-	
861102	372	0.8+	0.5+					
861103	372(26.6+	0.9+)						
861104	372	0.5-	1.9-					
861107	372	5.0-	0.0					

9527 P-L = 1974 TK1 = 1978 PK2 = 1978 RQ10 = 1979 WZ3 = 1981 GR = 1983 VR7

The identifications were found independently by S. Nakano.

Epoch 1987 July 24.0 ET = JDE 2447000.5

M	210.16824	(1950.0)	P	Q	
n	0.21664330	Peri.	294.14543	-0.41300929	-0.91072677
a	2.7456123	Node	180.24905	+0.85604296	-0.38811150
e	0.0549591	Incl.	3.48310	+0.31082757	-0.14123104
P	4.55	H	12.5	G 0.25	

Residuals in seconds of arc

601017	675	0.9+	0.5-	780910	809	0.1+	1.0-	810405	688	0.8-	2.3-
601022	675	0.4-	1.5-	791117	095	2.2-	0.6-	810407	688	0.8-	0.0
601024	675	1.0+	0.8-	810327	046	1.3+	1.2+	810407	688	2.0+	1.5-
601026	675	0.9+	1.3-	810327	046	1.3-	0.6+	810409	688	0.3-	1.7-
741012	808	0.4-	0.5-	810329	046	1.3-	1.0-	810409	688	1.1+	3.1-
741012	808	0.6+	0.3+	810329	046	0.0	0.9+	831104	688	3.2+	0.6-
780808	095	3.1-	1.9+	810402	046	1.7-	0.1+	831104	688	1.3+	3.0-
780906	809	1.2+	1.9-	810403	046	0.6-	0.9-				
780910	809	0.4-	1.4-	810405	688	0.4-	2.5-				

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NEW NAMES OF MINOR PLANETS.

(2393) Suzuki = 1955 WB

Discovered 1955 Nov. 17 by M. Laugier at Nice.

Named in honor of Keishin Suzuki (1905-), professor of astronomy at Tokyo Gakugei University, an expert on practical astronomy and teaching of astronomy. He played the principal part in first publishing the Japanese Nautical Almanac, when astronomical almanacs could not be imported during the second World War. He has made a great contribution to the teaching and popularization of astronomy in Japan, mainly by writing or translating a great many books and articles over a period of more than fifty years. Name proposed by T. Urata, who found the identifications involving this planet.

(3034) Climenhaga = A917 SE

Discovered 1917 Sept. 24 by M. Wolf at Heidelberg.

Named in honor of John L. Climenhaga, first head of physics at the University of Victoria, on the occasion of his seventieth birthday. Known for his work on the C12/C13 abundance ratio in carbon stars and for studies of line blanketing and microturbulence in late-type stars, he has also long had an interest in cometary spectra. On his retirement in 1982 the University's Observatory was named in his honor, and among the Observatory's activities is the only Canadian program of astrometric observations of comets and minor planets. Following a suggestion from C. E. Spratt, the name was proposed by B. G. Marsden, who found the identifications involving this minor planet.

(3111) Misuzu = 1977 DX8

Discovered 1977 Feb. 19 by H. Kosai and K. Hurukawa at the Tokyo Observatory's Kiso Station.

This planet is being given the former name of Nagano prefecture, where the Kiso Station is located.

(3220) Murayama = 1951 WF

Discovered 1951 Nov. 22 by M. Laugier at Nice.

Named in honor of Sadao Murayama, observer of Mars, authority on meteorites, and director of the earth-science section of the National Science Museum, at Ueno Park, Tokyo. Named by one of his former students, S. Nakano, who found the identifications involving this planet.

(3227) Hasegawa = 1928 DF

Discovered 1928 Feb. 24 by K. Reinmuth at Heidelberg.

Named in honor of Ichiro Hasegawa, editor of the Yamamoto Circulars, well known for his research on the origin of comets and for the computation of their orbits. Author of several books, including some on orbit

determination, he is also the mentor of S. Nakano, who found the identifications involving this planet.

(3249) Musashino = 1977 DT4
Discovered 1977 Feb. 18 by H. Kosai and K. Hurukawa at the Tokyo Observatory's Kiso Station.
Named for the area surrounding Tokyo that includes Mitaka, site of the headquarters of the Tokyo Astronomical Observatory.

(3290) Azabu = 1973 SZ1
Discovered 1973 Sept. 19 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.
Named (see MPC 11161) for the former site of the Tokyo Astronomical Observatory.

(3295) Murakami = 1950 DH
Discovered 1950 Feb. 17 by K. Reinmuth at Heidelberg.
Named in memory of Tadayoshi Murakami (1907-1985), professor of astronomy at the Hiroshima University, president of the Hiroshima Jogakuin College. He studied meteors extensively and encouraged many meteor observers in Japan. He contributed much to the teaching and popularization of astronomy in Japan, not only by lecturing at universities, but also by writing many books and articles over a period of fifty years. His father, Harutaro Murakami, studied lunar theory and is known for his work 'Theory of the Perturbation of the Moon'. Name proposed by T. Urata, who found the identifications involving this planet.

(3319) Kibi = 1977 EJ5
Discovered 1977 Mar. 12 by H. Kosai and K. Hurukawa at the Tokyo Observatory's Kiso Station.
This planet is being given the former name of the area in Okayama where co-discoverer Kosai grew up.

(3320) Namba = 1982 VZ4
Discovered 1977 Nov. 14 by H. Kosai and K. Hurukawa at the Tokyo Observatory's Kiso Station.
This planet is being given the former name of Osaka, where co-discoverer Hurukawa grew up.

(3361) Orpheus = 1982 HR
Discovered 1982 Apr. 24 by C. Torres at Cerro El Roble.
Named for the poet and musician of Greek mythology who almost rescued his wife Eurydice from Hades by charming Pluto and Persephone with his lyre. Name proposed by the discoverer following a suggestion by S. J. Ostro.

(3379) Oishi = 1931 TJ1
Discovered 1931 Oct. 6 by K. Reinmuth at Heidelberg.
Named in honor of Hideo Oishi, orbit computer and identifier of minor planets, editor of the Japan Astronomical Association's Minor Planet Circulars. Name proposed by S. Nakano, who found the identifications involving this planet.

(3383) Koyama = 1951 AB
Discovered 1951 Jan. 9 by K. Reinmuth at Heidelberg.
Named in honor of Hisako Koyama, staff member of the National Science Museum in Tokyo for more than 40 years, internationally known for her solar observations. Name proposed by S. Nakano, who found the identifications involving this planet.

(3391) Sinon = 1977 DD3
Discovered 1977 Feb. 18 by H. Kosai and K. Hurukawa at the Tokyo Observatory's Kiso Station.
Named for an ancient Greek warrior, a hero of the Trojan War.

(3392) Setouchi = 1979 YB
Discovered 1979 Dec. 17 by H. Kosai and G. Sasaki at the Tokyo Observatory's Kiso Station.
Named for a beautiful place around the Seto Inland Sea.

(3396) Muazzez = A915 TE
Discovered 1915 Oct. 15 by M. Wolf at Heidelberg.
Named in honor of Muazzez K. Lohmiller, weekend operator in the Smithsonian Astrophysical Observatory's Computer Center, who has for several years assisted the work of the Minor Planet Center by loading and unloading the magnetic tapes for archiving the Minor Planet Circulars and attending to massive piles of computer printout. Name proposed by B. G. Marsden, who found the identifications involving this minor planet.

(3415) Danby = 1928 SL
Discovered 1928 Sept. 22 by K. Reinmuth at Heidelberg.
Named in honor of John Michael Anthony Danby, celestial mechanician and sometime oboeist in the London Philharmonic Orchestra. An inspiring teacher, at the Yale University Observatory during the Brouwer era and more recently at the North Carolina State University, he is the author of modern texts on celestial mechanics and differential equations. The name also honors his daughter, Dinah, who while a student at Harvard provided occasional volunteer assistance with address labels for the MPCs and IAU Circulars. Name proposed by B. G. Marsden, who found the identifications involving this Hilda-type planet.

(3425) Hurukawa = 1929 BD
Discovered 1929 Jan. 29 by K. Reinmuth at Heidelberg.
Named in honor of Kiichiro Hurukawa, astronomer at the Tokyo Astronomical Observatory, known for his identifications and orbit computations and for his participation in the observational program of minor planets with the Kiso Schmidt. Name proposed by S. Nakano, who found the identifications involving this planet.

(3426) Seki = 1932 CQ
Discovered 1932 Feb. 5 by K. Reinmuth at Heidelberg.
Named in honor of Tsutomu Seki, visual discoverer of six comets between 1961 and 1970. He later undertook an extensive program of photographic astrometric observations and has recovered several returning periodic comets. Editor of the Oriental Astronomical Association's Comet Bulletin, he is also an accomplished performer and teacher of classical guitar. Name proposed by S. Nakano, who found the identifications involving this planet.

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EPHEMERIDES.

1986 WA a,e,i = 1.41, 0.68, 28 Elements MPC 11432

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	12 16	01 12.90	+05 51.4	0.697	1.433	115.8	38.2	17.4
1986	12 26	01 33.49	+04 44.4					
1987	01 05	01 51.06	+04 25.7	1.068	1.614	103.7	36.3	18.5
1987	01 15	02 07.21	+04 35.3					
1987	01 25	02 22.67	+05 01.7	1.454	1.771	91.1	33.8	19.3

1987 02 04	02 37.85	+05 38.1					
1987 02 14	02 52.97	+06 19.8	1.836	1.906	78.7	30.5	19.9

Periodic Comet Urata-Niijima (1986o) Elements MPC 11428

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1986 12 16	01 14.85	+44 23.1	0.670	1.471	124.4	33.5	16.8
1986 12 26	01 24.82	+47 09.0					
1987 01 05	01 41.73	+49 22.8	0.831	1.523	113.9	36.2	17.4
1987 01 15	02 04.70	+51 09.7					
1987 01 25	02 32.64	+52 30.2	1.016	1.601	106.3	36.2	18.1
1987 02 04	03 04.46	+53 22.8					
1987 02 14	03 38.94	+53 46.7	1.226	1.699	99.8	34.9	18.7
1987 02 24	04 14.72	+53 41.1					
1987 03 06	04 50.63	+53 07.3	1.463	1.812	93.2	33.1	19.4

Comet Lovas (1986p) Elements MPC 11428

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1986 12 16	02 00.93	+14 20.3	1.264	2.040	129.9	21.7	15.6
1986 12 26	02 12.10	+14 56.3					
1987 01 05	02 25.15	+15 41.6	1.487	2.106	115.5	24.9	16.1
1987 01 15	02 39.77	+16 33.3					
1987 01 25	02 55.62	+17 28.3	1.759	2.196	102.6	25.9	16.6
1987 02 04	03 12.46	+18 24.0					
1987 02 14	03 30.05	+19 18.1	2.072	2.306	90.7	25.4	17.2

Comet Wilson (1986l) Elements MPC 11429

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1987 02 24	20 30.07	-21 33.7	2.249	1.476	29.9	19.5	8.0
1987 03 06	20 37.26	-24 06.9					
1987 03 16	20 45.28	-27 31.0	1.750	1.323	48.6	34.3	6.9
1987 03 26	20 55.06	-32 21.7					
1987 04 05	21 09.04	-39 51.0	1.164	1.225	68.5	49.4	5.7
1987 04 15	21 36.50	-52 27.6					
1987 04 25	23 34.3	-72 58.9	0.671	1.201	89.2	56.8	4.4
1987 05 05	06 49.59	-64 48.0					
1987 05 15	08 02.66	-38 51.4	0.805	1.258	86.9	53.3	5.0
1987 05 25	08 25.29	-23 34.4					
1987 06 04	08 38.20	-14 57.5	1.382	1.382	68.5	43.1	6.6
1987 06 14	08 47.76	-09 43.7					
1987 06 24	08 55.82	-06 19.7	1.976	1.551	50.9	30.6	7.9
1987 07 04	09 03.11	-04 00.9					
1987 07 14	09 09.90	-02 23.8	2.487	1.749	34.6	19.3	8.9

1985 VO a,e,i = 5.06, 0.14, 26 Elements MPC 11417

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986 11 26	01 51.41	+36 10.1	4.544	5.401	-0.25	-3.5	16.8
1986 12 06	01 46.91	+35 38.5					
1986 12 16	01 43.82	+35 06.2	4.735	5.418	-0.24	-3.5	17.0
1986 12 26	01 42.24	+34 36.0					
1987 01 05	01 42.19	+34 10.1	5.002	5.434	-0.22	-3.3	17.2
1987 01 15	01 43.63	+33 50.2					
1987 01 25	01 46.42	+33 37.2	5.311	5.450	-0.21	-3.1	17.4

1985 TG3 a,e,i = 5.30, 0.06, 12 Elements MPC 11417

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986 11 26	02 40.15	+30 22.1	4.100	5.034	-0.44	-1.9	16.9
1986 12 06	02 35.47	+29 45.9					
1986 12 16	02 31.94	+29 09.2	4.248	5.040	-0.41	-1.9	17.1
1986 12 26	02 29.77	+28 34.6					

1987 01 05	02 29.08	+28 04.2	4.488	5.046	-0.39	-1.8	17.3
1987 01 15	02 29.88	+27 39.5					
1987 01 25	02 32.11	+27 21.4	4.784	5.052	-0.36	-1.7	17.5

1981 QZ a,e,i = 2.70, 0.08, 7 Elements MPC 11440

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	03 01.22	+22 37.7	1.569	2.536	165.4	5.6	15.4
1986 12 06	02 54.02	+21 30.7					
1986 12 16	02 49.26	+20 31.2	1.696	2.549	142.6	13.6	15.9
1986 12 26	02 47.32	+19 43.9					
1987 01 05	02 48.26	+19 11.3	1.904	2.562	121.8	19.0	16.3
1987 01 15	02 51.90	+18 53.4					
1987 01 25	02 57.96	+18 48.7	2.162	2.576	103.5	21.8	16.7
1987 02 04	03 06.15	+18 55.2					
1987 02 14	03 16.15	+19 10.3	2.440	2.592	87.5	22.4	16.9

1985 TE3 a,e,i = 5.13, 0.09, 22 Elements MPC 11417

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986 11 26	03 23.55	+03 11.9	3.918	4.857	-0.47	+0.5	16.2
1986 12 06	03 18.73	+02 42.3					
1986 12 16	03 14.66	+02 22.2	4.040	4.845	-0.45	+0.5	16.4
1986 12 26	03 11.62	+02 12.0					
1987 01 05	03 09.80	+02 11.4	4.256	4.834	-0.42	+0.5	16.6
1987 01 15	03 09.32	+02 19.6					
1987 01 25	03 10.18	+02 35.2	4.529	4.823	-0.40	+0.5	16.8
1987 02 04	03 12.37	+02 57.1					
1987 02 14	03 15.80	+03 23.7	4.824	4.812	-0.37	+0.4	17.0

1985 JU1 a,e,i = 2.20, 0.13, 5 Elements MPC 11426

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	03 24.83	+13 51.0	1.455	2.431	168.5	4.6	17.6
1986 12 06	03 14.73	+13 38.7					
1986 12 16	03 06.97	+13 36.7	1.576	2.447	144.7	13.4	18.1
1986 12 26	03 02.13	+13 46.5					
1987 01 05	03 00.43	+14 08.3	1.781	2.460	123.1	19.6	18.6
1987 01 15	03 01.77	+14 40.8					
1987 01 25	03 05.86	+15 22.2	2.035	2.471	104.4	22.7	19.0
1987 02 04	03 12.40	+16 10.4					
1987 02 14	03 21.04	+17 03.3	2.309	2.480	88.1	23.4	19.3

1985 RT2 a,e,i = 2.91, 0.06, 3 Elements MPC 11426

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	04 16.30	+17 54.2	1.998	2.983	175.8	1.4	16.5
1986 12 06	04 07.25	+17 39.3					
1986 12 16	03 59.04	+17 27.7	2.059	2.993	157.8	7.1	16.9
1986 12 26	03 52.47	+17 21.5					
1987 01 05	03 48.08	+17 22.3	2.226	3.003	135.0	13.4	17.3
1987 01 15	03 46.16	+17 30.9					
1987 01 25	03 46.71	+17 46.9	2.468	3.012	114.5	17.3	17.7
1987 02 04	03 49.62	+18 09.4					
1987 02 14	03 54.67	+18 37.3	2.749	3.020	96.2	19.0	17.9

1985 TF3 a,e,i = 5.19, 0.15, 6 Elements MPC 11435

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	04 37.15	+29 49.2	3.702	4.672	168.2	2.5	16.4
1986 12 06	04 30.70	+29 37.7					
1986 12 16	04 24.49	+29 21.7	3.737	4.691	164.0	3.3	16.5
1986 12 26	04 19.00	+29 02.8					
1987 01 05	04 14.66	+28 42.7	3.889	4.709	142.7	7.3	16.8

1987 01 15	04 11.77	+28 23.5					
1987 01 25	04 10.47	+28 06.6	4.136	4.728	121.7	10.2	17.0
1987 02 04	04 10.80	+27 53.1					
1987 02 14	04 12.73	+27 43.4	4.443	4.747	102.0	11.7	17.2
1987 02 24	04 16.14	+27 37.7					
1987 03 06	04 20.91	+27 35.5	4.772	4.767	83.7	11.9	17.4

1985 RP2 a,e,i = 3.08, 0.19, 1 Elements MPC 11420

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	06 44.70	+22 23.6	2.029	2.876	142.6	12.0	17.5
1986 12 06	06 38.35	+22 29.7					
1986 12 16	06 30.12	+22 36.9	1.948	2.913	166.2	4.6	17.1
1986 12 26	06 20.89	+22 43.5					
1987 01 05	06 11.68	+22 48.7	1.979	2.950	169.1	3.6	17.1
1987 01 15	06 03.56	+22 52.2					
1987 01 25	05 57.33	+22 54.7	2.124	2.988	145.4	10.8	17.6
1987 02 04	05 53.49	+22 56.8					
1987 02 14	05 52.26	+22 59.1	2.360	3.025	124.0	15.7	18.0
1987 02 24	05 53.55	+23 01.8					
1987 03 06	05 57.20	+23 04.5	2.652	3.062	105.0	18.2	18.4
1987 03 16	06 02.95	+23 06.6					
1987 03 26	06 10.48	+23 07.3	2.967	3.099	88.1	18.8	18.7
1987 04 05	06 19.54	+23 05.7					
1987 04 15	06 29.86	+23 01.2	3.280	3.135	72.9	17.8	18.9
1987 04 25	06 41.21	+22 53.0					
1987 05 05	06 53.40	+22 40.5	3.573	3.171	58.8	15.8	19.0

1980 TK5 a,e,i = 2.94, 0.09, 9 Elements MPC 11423

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	06 50.10	+13 40.9	1.958	2.785	139.7	13.3	16.4
1986 12 06	06 44.82	+13 04.0					
1986 12 16	06 37.45	+12 34.1	1.822	2.770	160.8	6.7	16.0
1986 12 26	06 28.77	+12 12.7					
1987 01 05	06 19.73	+12 00.7	1.793	2.756	165.8	5.0	15.8
1987 01 15	06 11.44	+11 58.3					
1987 01 25	06 04.82	+12 04.7	1.874	2.743	145.5	11.7	16.2
1987 02 04	06 00.52	+12 18.6					
1987 02 14	05 58.90	+12 37.9	2.045	2.731	124.8	17.3	16.5
1987 02 24	05 59.97	+13 00.5					
1987 03 06	06 03.63	+13 24.2	2.270	2.720	106.3	20.5	16.8
1987 03 16	06 09.64	+13 46.8					
1987 03 26	06 17.70	+14 06.8	2.519	2.711	90.1	21.6	17.1

1978 SD1 a,e,i = 3.38, 0.15, 11 Elements MPC 11423

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	08 45.27	+25 46.6	3.285	3.820	115.8	13.4	17.2
1986 12 06	08 44.83	+26 21.6					
1986 12 16	08 42.35	+27 03.5	3.056	3.832	136.7	10.2	16.9
1986 12 26	08 37.89	+27 50.3					
1987 01 05	08 31.68	+28 38.7	2.911	3.842	158.4	5.4	16.6
1987 01 15	08 24.20	+29 25.0					
1987 01 25	08 16.07	+30 05.2	2.881	3.851	169.0	2.8	16.5
1987 02 04	08 08.02	+30 36.6					
1987 02 14	08 00.80	+30 57.5	2.972	3.860	150.1	7.3	16.8
1987 02 24	07 55.02	+31 07.9					
1987 03 06	07 51.07	+31 08.7	3.167	3.867	128.8	11.5	17.1
1987 03 16	07 49.19	+31 01.3					
1987 03 26	07 49.37	+30 47.4	3.431	3.873	109.0	14.1	17.3

1987 04 05	07 51.52	+30 28.1					
1987 04 15	07 55.48	+30 04.3	3.727	3.877	91.0	15.0	17.5

(3519) 1984 DO a,e,i = 2.17, 0.18, 1 Elements MPC 11422

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 11 26	08 58.65	+17 47.9	2.028	2.552	110.9	21.2	18.1
1986 12 06	09 00.37	+17 44.1					
1986 12 16	08 59.13	+17 52.7	1.797	2.554	131.1	16.9	17.7
1986 12 26	08 54.80	+18 13.9					
1987 01 05	08 47.47	+18 46.2	1.629	2.552	154.4	9.6	17.2
1987 01 15	08 37.66	+19 25.7					
1987 01 25	08 26.36	+20 07.2	1.562	2.547	179.1	0.3	16.7
1987 02 04	08 14.85	+20 45.4					
1987 02 14	08 04.55	+21 15.8	1.611	2.538	154.6	9.6	17.2
1987 02 24	07 56.57	+21 36.7					
1987 03 06	07 51.59	+21 47.8	1.759	2.527	131.4	17.1	17.6
1987 03 16	07 49.86	+21 49.7					
1987 03 26	07 51.25	+21 43.3	1.970	2.512	111.4	21.7	18.0
1987 04 05	07 55.49	+21 29.3					
1987 04 15	08 02.21	+21 07.9	2.210	2.495	94.3	23.6	18.3

1978 UN2 a,e,i = 2.40, 0.15, 14 Elements MPC 11423

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	10 53.76	+25 48.4	1.731	2.236	107.7	24.8	17.4
1986 12 26	11 00.73	+26 38.9					
1987 01 05	11 04.55	+27 48.1	1.558	2.268	124.8	20.8	17.1
1987 01 15	11 04.85	+29 12.8					
1987 01 25	11 01.46	+30 46.4	1.437	2.301	143.0	14.9	16.8
1987 02 04	10 54.50	+32 18.5					
1987 02 14	10 44.74	+33 36.1	1.398	2.334	155.8	10.0	16.6
1987 02 24	10 33.44	+34 27.7					
1987 03 06	10 22.23	+34 46.2	1.457	2.368	149.9	12.1	16.8
1987 03 16	10 12.69	+34 30.5					
1987 03 26	10 05.88	+33 45.2	1.606	2.401	133.2	17.6	17.2
1987 04 05	10 02.30	+32 36.6					
1987 04 15	10 01.95	+31 11.1	1.821	2.434	116.1	21.7	17.7
1987 04 25	10 04.51	+29 34.1					
1987 05 05	10 09.56	+27 49.1	2.075	2.466	100.5	23.7	18.0

1985 RU2 a,e,i = 2.24, 0.16, 3 Elements MPC 11420

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 12 16	11 15.65	+07 29.0	2.037	2.358	96.3	24.5	18.7
1986 12 26	11 22.07	+06 53.2					
1987 01 05	11 26.03	+06 32.6	1.816	2.390	113.9	22.1	18.4
1987 01 15	11 27.24	+06 28.9					
1987 01 25	11 25.48	+06 42.9	1.626	2.420	134.5	16.9	18.1
1987 02 04	11 20.70	+07 14.1					
1987 02 14	11 13.21	+07 59.2	1.505	2.448	157.9	8.7	17.7
1987 02 24	11 03.72	+08 52.7					
1987 03 06	10 53.30	+09 47.5	1.484	2.474	175.7	1.7	17.3
1987 03 16	10 43.25	+10 35.8					
1987 03 26	10 34.73	+11 11.8	1.574	2.498	151.8	10.9	17.9
1987 04 05	10 28.58	+11 32.3					
1987 04 15	10 25.21	+11 36.5	1.756	2.519	129.8	17.8	18.3
1987 04 25	10 24.66	+11 25.2					
1987 05 05	10 26.74	+10 59.9	1.997	2.538	110.9	21.8	18.8
1987 05 15	10 31.15	+10 22.1					
1987 05 25	10 37.53	+09 33.6	2.265	2.554	94.6	23.3	19.1

1985 RZ a,e,i = 2.86, 0.35, 12 Elements MPC 11428

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 05	13 02.41	-13 07.9	2.825	2.896	84.2	19.7	18.9
1987	01 15	13 07.61	-14 24.4					
1987	01 25	13 10.85	-15 32.0	2.607	2.966	101.6	19.0	18.8
1987	02 04	13 11.88	-16 29.2					
1987	02 14	13 10.56	-17 14.3	2.405	3.034	121.0	16.2	18.6
1987	02 24	13 06.83	-17 45.2					
1987	03 06	13 00.84	-18 00.3	2.257	3.100	142.1	11.3	18.3
1987	03 16	12 53.01	-17 58.5					
1987	03 26	12 43.98	-17 40.5	2.197	3.163	162.6	5.4	18.1
1987	04 05	12 34.58	-17 08.5					
1987	04 15	12 25.71	-16 27.1	2.251	3.224	163.1	5.2	18.2
1987	04 25	12 18.10	-15 41.7					
1987	05 05	12 12.29	-14 57.7	2.417	3.282	143.5	10.5	18.6
1987	05 15	12 08.57	-14 19.7					
1987	05 25	12 06.98	-13 50.7	2.669	3.338	123.6	14.6	19.0
1987	06 04	12 07.43	-13 32.4					
1987	06 14	12 09.74	-13 25.4	2.977	3.391	105.4	16.8	19.3

1984 SG1 a,e,i = 2.78, 0.08, 3 Elements MPC 11425

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	01 25	13 31.41	-13 24.9	2.700	2.998	97.8	19.0	18.4
1987	02 04	13 35.56	-14 02.5					
1987	02 14	13 37.66	-14 28.9	2.431	3.002	116.3	17.2	18.1
1987	02 24	13 37.54	-14 42.8					
1987	03 06	13 35.10	-14 42.9	2.204	3.005	136.8	13.1	17.8
1987	03 16	13 30.47	-14 28.6					
1987	03 26	13 23.97	-14 00.3	2.054	3.007	159.1	6.8	17.4
1987	04 05	13 16.19	-13 19.9					
1987	04 15	13 07.95	-12 31.2	2.009	3.008	174.0	2.0	17.1
1987	04 25	13 00.09	-11 39.1					
1987	05 05	12 53.41	-10 49.4	2.076	3.008	152.6	8.9	17.5
1987	05 15	12 48.49	-10 06.9					
1987	05 25	12 45.65	-09 35.2	2.240	3.007	131.3	14.7	17.9
1987	06 04	12 44.99	-09 16.1					
1987	06 14	12 46.48	-09 10.3	2.469	3.005	112.3	18.2	18.2
1987	06 24	12 49.93	-09 17.2					
1987	07 04	12 55.18	-09 35.9	2.730	3.001	95.4	19.7	18.4

1984 SC2 a,e,i = 2.97, 0.11, 5 Elements MPC 11425

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	02 14	15 20.00	-23 21.8	2.763	2.943	90.5	19.6	17.4
1987	02 24	15 26.71	-24 04.6					
1987	03 06	15 31.38	-24 40.5	2.508	2.964	107.7	18.6	17.2
1987	03 16	15 33.77	-25 09.0					
1987	03 26	15 33.70	-25 29.2	2.279	2.986	126.8	15.5	16.9
1987	04 05	15 31.09	-25 39.7					
1987	04 15	15 26.08	-25 39.5	2.110	3.007	147.7	10.3	16.6
1987	04 25	15 19.10	-25 27.6					
1987	05 05	15 10.80	-25 04.2	2.031	3.027	168.9	3.7	16.2
1987	05 15	15 02.08	-24 31.4					
1987	05 25	14 53.86	-23 52.5	2.062	3.048	163.8	5.3	16.4
1987	06 04	14 46.95	-23 12.0					
1987	06 14	14 41.95	-22 34.6	2.198	3.067	142.6	11.6	16.8
1987	06 24	14 39.15	-22 03.7					
1987	07 04	14 38.64	-21 41.5	2.415	3.087	122.8	16.1	17.1
1987	07 14	14 40.37	-21 29.2					
1987	07 24	14 44.14	-21 26.3	2.683	3.105	105.0	18.4	17.4

6047 P-L a,e,i = 2.31, 0.08, 5 Elements MPC 11439

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 06	15 51.65	-18 30.8	1.763	2.230	104.6	25.5	17.8
1987	03 16	15 58.78	-18 23.8					
1987	03 26	16 03.04	-18 05.0	1.554	2.248	121.9	22.1	17.5
1987	04 05	16 04.10	-17 34.4					
1987	04 15	16 01.84	-16 52.9	1.388	2.265	142.0	15.8	17.0
1987	04 25	15 56.46	-16 02.1					
1987	05 05	15 48.51	-15 04.9	1.295	2.283	164.5	6.8	16.6
1987	05 15	15 39.06	-14 06.1					
1987	05 25	15 29.38	-13 11.4	1.298	2.301	169.0	4.8	16.5
1987	06 04	15 20.78	-12 26.8					
1987	06 14	15 14.28	-11 56.5	1.400	2.319	147.0	13.8	17.0
1987	06 24	15 10.48	-11 42.4					
1987	07 04	15 09.58	-11 44.4	1.578	2.336	127.0	20.3	17.5
1987	07 14	15 11.53	-12 00.8					
1987	07 24	15 16.08	-12 28.9	1.806	2.353	109.8	24.0	17.9
1987	08 03	15 22.96	-13 06.1					
1987	08 13	15 31.89	-13 49.6	2.059	2.370	94.8	25.2	18.3

(1026) Ingrid a,e,i = 2.25, 0.18, 5 Elements MPC 11421

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	17 06.93	-17 09.4	1.636	2.150	106.9	26.3	17.2
1987	04 05	17 15.62	-17 10.0					
1987	04 15	17 21.72	-17 07.9	1.387	2.108	123.0	23.5	16.7
1987	04 25	17 24.81	-17 04.9					
1987	05 05	17 24.50	-17 03.2	1.180	2.067	141.6	17.6	16.1
1987	05 15	17 20.68	-17 04.8					
1987	05 25	17 13.61	-17 11.2	1.038	2.028	162.9	8.4	15.5
1987	06 04	17 04.06	-17 23.4					
1987	06 14	16 53.45	-17 41.9	0.982	1.991	170.8	4.7	15.2
1987	06 24	16 43.43	-18 07.1					
1987	07 04	16 35.58	-18 39.2	1.014	1.957	148.9	15.6	15.6
1987	07 14	16 31.06	-19 18.2					
1987	07 24	16 30.36	-20 03.2	1.118	1.926	128.9	24.2	16.1
1987	08 03	16 33.61	-20 53.1					
1987	08 13	16 40.57	-21 45.4	1.266	1.899	112.4	29.6	16.4
1987	08 23	16 50.86	-22 37.7					
1987	09 02	17 04.12	-23 27.3	1.438	1.878	98.7	32.1	16.8

1966 PM a,e,i = 3.10, 0.13, 2 Elements MPC 11145

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	17 33.44	-23 54.3	2.728	3.069	100.4	18.6	18.0
1987	04 05	17 37.89	-24 03.8					
1987	04 15	17 40.08	-24 12.3	2.487	3.094	118.5	16.6	17.7
1987	04 25	17 39.86	-24 20.0					
1987	05 05	17 37.17	-24 26.6	2.290	3.119	138.7	12.3	17.4
1987	05 15	17 32.20	-24 31.7					
1987	05 25	17 25.30	-24 34.1	2.170	3.143	160.6	6.1	17.1
1987	06 04	17 17.08	-24 33.3					
1987	06 14	17 08.39	-24 29.2	2.154	3.168	176.0	1.3	16.8
1987	06 24	17 00.06	-24 22.4					
1987	07 04	16 52.91	-24 14.4	2.248	3.191	153.7	8.1	17.3
1987	07 14	16 47.54	-24 07.0					
1987	07 24	16 44.30	-24 01.7	2.438	3.215	132.7	13.4	17.7
1987	08 03	16 43.34	-23 59.5					
1987	08 13	16 44.64	-24 00.8	2.696	3.238	113.6	16.7	18.0
1987	08 23	16 48.04	-24 05.4					
1987	09 02	16 53.38	-24 12.7	2.990	3.260	96.3	17.9	18.3

1980 SG a,e,i = 2.45, 0.16, 7 Elements MPC 9296

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	17 35.53	-28 44.0	2.255	2.614	99.6	22.1	18.8
1987	04 05	17 42.84	-29 22.8					
1987	04 15	17 47.76	-30 02.8	1.976	2.584	116.5	20.3	18.4
1987	04 25	17 49.91	-30 44.5					
1987	05 05	17 48.94	-31 27.1	1.736	2.553	135.3	16.1	18.0
1987	05 15	17 44.72	-32 08.3					
1987	05 25	17 37.37	-32 44.6	1.562	2.520	155.8	9.5	17.5
1987	06 04	17 27.44	-33 11.5					
1987	06 14	17 16.03	-33 25.2	1.481	2.487	169.6	4.2	17.2
1987	06 24	17 04.52	-33 24.2					
1987	07 04	16 54.39	-33 10.3	1.502	2.452	153.1	10.8	17.4
1987	07 14	16 46.84	-32 47.8					
1987	07 24	16 42.53	-32 21.8	1.611	2.417	132.6	18.0	17.8
1987	08 03	16 41.75	-31 56.7					
1987	08 13	16 44.41	-31 34.9	1.780	2.382	114.2	22.8	18.1
1987	08 23	16 50.22	-31 17.2					
1987	09 02	16 58.88	-31 03.2	1.980	2.347	98.2	25.2	18.4

1981 EL24 a,e,i = 2.91, 0.06, 1 Elements MPC 11043

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	17 39.60	-24 32.1	2.752	3.069	98.9	18.7	19.0
1987	04 05	17 44.73	-24 37.0					
1987	04 15	17 47.68	-24 40.8	2.478	3.064	116.8	17.0	18.7
1987	04 25	17 48.25	-24 43.6					
1987	05 05	17 46.32	-24 45.3	2.246	3.058	136.6	13.1	18.4
1987	05 15	17 41.97	-24 45.5					
1987	05 25	17 35.48	-24 43.1	2.087	3.051	158.3	7.1	18.0
1987	06 04	17 27.36	-24 37.5					
1987	06 14	17 18.44	-24 28.3	2.028	3.044	178.1	0.6	17.6
1987	06 24	17 09.60	-24 16.1					
1987	07 04	17 01.76	-24 02.3	2.080	3.036	155.7	7.9	18.0
1987	07 14	16 55.66	-23 49.1					
1987	07 24	16 51.74	-23 38.0	2.229	3.027	134.3	13.9	18.3
1987	08 03	16 50.25	-23 30.5					
1987	08 13	16 51.22	-23 27.1	2.446	3.018	115.0	17.7	18.7
1987	08 23	16 54.50	-23 27.5					
1987	09 02	16 59.94	-23 31.1	2.701	3.009	97.8	19.4	18.9

1981 EX13 a,e,i = 2.97, 0.09, 10 Elements MPC 10771

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	17 34.18	-17 16.6	2.496	2.850	100.4	20.1	18.1
1987	04 05	17 40.12	-16 38.9					
1987	04 15	17 43.87	-15 56.3	2.225	2.833	117.6	18.3	17.8
1987	04 25	17 45.25	-15 10.1					
1987	05 05	17 44.13	-14 21.9	1.998	2.817	136.6	14.2	17.5
1987	05 15	17 40.59	-13 33.4					
1987	05 25	17 34.90	-12 46.9	1.843	2.802	156.6	8.3	17.1
1987	06 04	17 27.58	-12 05.1					
1987	06 14	17 19.43	-11 30.7	1.785	2.787	168.2	4.3	16.8
1987	06 24	17 11.36	-11 05.8					
1987	07 04	17 04.26	-10 52.0	1.831	2.773	152.5	9.8	17.1
1987	07 14	16 58.88	-10 49.7					
1987	07 24	16 55.69	-10 58.1	1.968	2.760	132.7	15.7	17.4
1987	08 03	16 54.92	-11 15.7					
1987	08 13	16 56.60	-11 40.4	2.168	2.748	114.5	19.6	17.7
1987	08 23	17 00.62	-12 09.9					
1987	09 02	17 06.81	-12 42.2	2.404	2.737	98.2	21.4	18.0

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 03 26	17 41.81	-32 18.5	2.743	3.047	98.1	18.9	17.5
1987 04 05	17 47.65	-32 26.8					
1987 04 15	17 51.20	-32 32.8	2.443	3.014	115.5	17.5	17.1
1987 04 25	17 52.20	-32 35.8					
1987 05 05	17 50.46	-32 34.5	2.183	2.980	134.8	13.9	16.8
1987 05 15	17 45.99	-32 27.0					
1987 05 25	17 39.03	-32 10.7	1.993	2.946	155.7	8.1	16.3
1987 06 04	17 30.13	-31 43.7					
1987 06 14	17 20.19	-31 05.1	1.901	2.910	172.0	2.8	16.0
1987 06 24	17 10.27	-30 16.0					
1987 07 04	17 01.45	-29 19.6	1.918	2.873	155.4	8.5	16.2
1987 07 14	16 54.60	-28 20.6					
1987 07 24	16 50.24	-27 23.2	2.032	2.836	134.2	14.9	16.5
1987 08 03	16 48.64	-26 30.9					
1987 08 13	16 49.78	-25 45.5	2.216	2.799	115.0	19.2	16.8
1987 08 23	16 53.48	-25 07.3					
1987 09 02	16 59.55	-24 35.8	2.437	2.761	97.8	21.2	17.1

1974 QO2 a,e,i = 2.23, 0.18, 4 Elements MPC 9213

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 03 26	17 16.04	-17 44.5	1.553	2.048	104.7	28.1	18.1
1987 04 05	17 27.00	-17 34.5					
1987 04 15	17 35.52	-17 19.5	1.311	2.007	119.7	25.7	17.6
1987 04 25	17 41.19	-17 01.8					
1987 05 05	17 43.53	-16 43.7	1.107	1.969	137.0	20.4	17.1
1987 05 15	17 42.31	-16 28.0					
1987 05 25	17 37.56	-16 17.1	0.960	1.934	157.1	11.7	16.5
1987 06 04	17 29.80	-16 13.4					
1987 06 14	17 20.23	-16 18.5	0.890	1.902	173.0	3.7	15.9
1987 06 24	17 10.46	-16 33.3					
1987 07 04	17 02.22	-16 58.1	0.905	1.875	154.5	13.5	16.3
1987 07 14	16 56.95	-17 32.3					
1987 07 24	16 55.41	-18 14.3	0.993	1.852	134.4	23.1	16.8
1987 08 03	16 57.88	-19 01.9					
1987 08 13	17 04.22	-19 52.2	1.131	1.835	117.6	29.3	17.2
1987 08 23	17 14.04	-20 42.1					
1987 09 02	17 26.94	-21 28.4	1.298	1.825	103.8	32.5	17.6

1980 TG a,e,i = 2.40, 0.21, 3 Elements MPC 10958

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 03 26	17 14.46	-19 41.5	1.557	2.054	105.0	28.0	17.8
1987 04 05	17 25.88	-19 38.7					
1987 04 15	17 34.90	-19 30.8	1.319	2.015	119.8	25.6	17.4
1987 04 25	17 41.09	-19 19.8					
1987 05 05	17 44.01	-19 07.6	1.119	1.980	137.1	20.3	16.8
1987 05 15	17 43.43	-18 56.2					
1987 05 25	17 39.39	-18 47.3	0.976	1.950	157.2	11.6	16.2
1987 06 04	17 32.42	-18 42.2					
1987 06 14	17 23.69	-18 42.0	0.911	1.925	175.5	2.4	15.7
1987 06 24	17 14.76	-18 47.3					
1987 07 04	17 07.30	-18 59.1	0.931	1.906	156.2	12.4	16.1
1987 07 14	17 02.67	-19 17.9					
1987 07 24	17 01.60	-19 43.2	1.026	1.894	136.1	21.8	16.6
1987 08 03	17 04.35	-20 13.7					
1987 08 13	17 10.77	-20 47.3	1.173	1.888	119.3	27.9	17.0
1987 08 23	17 20.49	-21 21.1					
1987 09 02	17 33.11	-21 52.4	1.354	1.890	105.3	31.0	17.4

1981 VC1 a,e,i = 2.20, 0.16, 3 Elements MPC 10831

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	17 39.32	-24 01.2	1.990	2.361	99.0	24.7	18.4
1987	04 05	17 48.20	-24 17.3					
1987	04 15	17 54.71	-24 33.0	1.718	2.329	115.2	22.9	18.0
1987	04 25	17 58.43	-24 49.4					
1987	05 05	17 58.97	-25 07.3	1.480	2.296	133.7	18.5	17.5
1987	05 15	17 56.08	-25 26.4					
1987	05 25	17 49.76	-25 45.3	1.302	2.261	155.0	10.9	16.9
1987	06 04	17 40.41	-26 01.3					
1987	06 14	17 29.08	-26 11.8	1.210	2.224	176.8	1.4	16.3
1987	06 24	17 17.21	-26 15.2					
1987	07 04	17 06.45	-26 12.4	1.216	2.187	156.8	10.6	16.7
1987	07 14	16 58.24	-26 06.2					
1987	07 24	16 53.44	-26 00.1	1.308	2.149	134.9	19.6	17.1
1987	08 03	16 52.43	-25 56.7					
1987	08 13	16 55.18	-25 57.2	1.459	2.112	116.2	25.5	17.5
1987	08 23	17 01.39	-26 01.3					
1987	09 02	17 10.72	-26 07.6	1.639	2.074	100.4	28.6	17.8

4260 P-L a,e,i = 2.79, 0.13, 4 Elements MPC 9070

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	17 49.20	-24 12.3	2.838	3.116	96.7	18.5	17.9
1987	04 05	17 54.50	-24 08.5					
1987	04 15	17 57.69	-24 03.4	2.551	3.104	114.5	17.1	17.6
1987	04 25	17 58.56	-23 57.3					
1987	05 05	17 56.98	-23 50.1	2.303	3.091	134.2	13.5	17.2
1987	05 15	17 52.96	-23 41.7					
1987	05 25	17 46.72	-23 31.3	2.124	3.076	155.8	7.8	16.9
1987	06 04	17 38.73	-23 18.5					
1987	06 14	17 29.72	-23 03.1	2.045	3.060	178.9	0.4	16.4
1987	06 24	17 20.56	-22 45.7					
1987	07 04	17 12.18	-22 27.6	2.076	3.043	158.0	7.2	16.8
1987	07 14	17 05.37	-22 10.7					
1987	07 24	17 00.66	-21 56.7	2.208	3.024	136.2	13.5	17.1
1987	08 03	16 58.34	-21 46.7					
1987	08 13	16 58.48	-21 41.2	2.412	3.004	116.5	17.6	17.4
1987	08 23	17 01.01	-21 40.0					
1987	09 02	17 05.75	-21 42.2	2.655	2.983	98.9	19.5	17.7

1984 SW3 a,e,i = 2.39, 0.26, 10 Elements MPC 9356

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	17 51.44	-31 14.1	2.556	2.840	96.1	20.4	18.2
1987	04 05	17 58.11	-31 26.9					
1987	04 15	18 02.45	-31 38.6	2.255	2.806	113.2	19.2	17.9
1987	04 25	18 04.13	-31 49.3					
1987	05 05	18 02.85	-31 57.8	1.988	2.769	132.3	15.6	17.5
1987	05 15	17 58.49	-32 02.1					
1987	05 25	17 51.17	-31 59.4	1.786	2.729	153.3	9.6	17.0
1987	06 04	17 41.35	-31 46.4					
1987	06 14	17 29.97	-31 20.9	1.677	2.686	171.8	3.1	16.5
1987	06 24	17 18.25	-30 42.7					
1987	07 04	17 07.51	-29 54.3	1.676	2.640	156.6	8.8	16.8
1987	07 14	16 58.88	-29 00.6					
1987	07 24	16 53.08	-28 06.8	1.773	2.592	134.9	16.1	17.1
1987	08 03	16 50.45	-27 17.0					
1987	08 13	16 51.00	-26 33.8	1.937	2.541	115.3	21.1	17.4
1987	08 23	16 54.52	-25 57.8					
1987	09 02	17 00.76	-25 28.5	2.135	2.488	98.1	23.7	17.6

1981 EH34 a,e,i = 2.91, 0.02, 2 Elements MPC 11044

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 03 26	17 50.49	-25 18.8	2.687	2.969	96.4	19.5	18.9
1987 04 05	17 56.70	-25 26.6					
1987 04 15	18 00.73	-25 34.0	2.419	2.969	113.8	18.0	18.6
1987 04 25	18 02.36	-25 41.3					
1987 05 05	18 01.43	-25 48.6	2.187	2.969	133.1	14.4	18.3
1987 05 15	17 57.93	-25 55.2					
1987 05 25	17 52.07	-25 59.9	2.023	2.969	154.4	8.5	17.9
1987 06 04	17 44.31	-26 01.5					
1987 06 14	17 35.42	-25 58.8	1.954	2.969	176.3	1.3	17.5
1987 06 24	17 26.31	-25 51.7					
1987 07 04	17 17.96	-25 41.1	1.994	2.968	159.4	6.9	17.8
1987 07 14	17 11.22	-25 28.7					
1987 07 24	17 06.64	-25 16.7	2.134	2.967	137.8	13.3	18.2
1987 08 03	17 04.53	-25 06.6					
1987 08 13	17 04.96	-24 59.5	2.347	2.965	118.3	17.5	18.5
1987 08 23	17 07.82	-24 55.5					
1987 09 02	17 12.93	-24 54.1	2.603	2.964	100.8	19.5	18.8

1969 TT1 a,e,i = 2.41, 0.18, 2 Elements MPC 9291

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 03 26	17 51.66	-25 09.7	2.376	2.674	96.2	21.8	18.9
1987 04 05	17 59.26	-25 21.5					
1987 04 15	18 04.66	-25 33.3	2.086	2.644	112.9	20.5	18.6
1987 04 25	18 07.52	-25 45.9					
1987 05 05	18 07.53	-25 59.6	1.829	2.611	131.7	16.8	18.2
1987 05 15	18 04.51	-26 13.9					
1987 05 25	17 58.51	-26 27.4	1.633	2.577	152.9	10.3	17.7
1987 06 04	17 49.88	-26 37.9					
1987 06 14	17 39.45	-26 43.1	1.527	2.541	175.2	1.9	17.1
1987 06 24	17 28.37	-26 41.7					
1987 07 04	17 17.96	-26 34.1	1.526	2.503	159.3	8.2	17.4
1987 07 14	17 09.46	-26 22.7					
1987 07 24	17 03.70	-26 10.4	1.621	2.465	137.2	16.3	17.8
1987 08 03	17 01.12	-25 59.7					
1987 08 13	17 01.82	-25 52.4	1.782	2.425	117.7	21.7	18.1
1987 08 23	17 05.63	-25 48.7					
1987 09 02	17 12.30	-25 47.9	1.979	2.384	100.8	24.6	18.4

1981 WU a,e,i = 2.25, 0.17, 3 Elements MPC 9072

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 03 26	17 53.12	-19 55.1	2.241	2.544	95.9	22.9	18.7
1987 04 05	18 00.96	-19 44.0					
1987 04 15	18 06.55	-19 31.0	1.963	2.522	112.4	21.6	18.4
1987 04 25	18 09.59	-19 17.7					
1987 05 05	18 09.75	-19 05.1	1.716	2.497	131.0	17.7	18.0
1987 05 15	18 06.88	-18 54.3					
1987 05 25	18 01.01	-18 45.9	1.528	2.469	152.2	11.0	17.5
1987 06 04	17 52.50	-18 40.3					
1987 06 14	17 42.17	-18 37.2	1.428	2.440	173.9	2.5	17.0
1987 06 24	17 31.17	-18 37.0					
1987 07 04	17 20.80	-18 40.1	1.430	2.408	159.2	8.6	17.2
1987 07 14	17 12.30	-18 47.2					
1987 07 24	17 06.49	-18 59.2	1.528	2.375	137.1	16.9	17.6
1987 08 03	17 03.84	-19 16.1					
1987 08 13	17 04.44	-19 37.4	1.690	2.340	117.7	22.6	17.9
1987 08 23	17 08.13	-20 02.0					
1987 09 02	17 14.70	-20 28.3	1.889	2.303	100.9	25.5	18.2

1984 SF1 a,e,i = 2.23, 0.18, 3 Elements MPC 9292

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	17 29.35	-26 19.1	1.589	2.033	101.1	28.8	17.7
1987	04 05	17 42.48	-26 32.4					
1987	04 15	17 53.36	-26 40.9	1.345	1.994	115.4	27.0	17.2
1987	04 25	18 01.51	-26 45.8					
1987	05 05	18 06.37	-26 48.0	1.133	1.957	132.0	22.5	16.7
1987	05 15	18 07.55	-26 47.6					
1987	05 25	18 04.85	-26 43.7	0.971	1.923	151.5	14.6	16.1
1987	06 04	17 58.48	-26 34.4					
1987	06 14	17 49.41	-26 17.4	0.880	1.893	173.6	3.4	15.4
1987	06 24	17 39.16	-25 51.9					
1987	07 04	17 29.67	-25 20.0	0.874	1.868	162.0	9.7	15.6
1987	07 14	17 22.72	-24 46.0					
1987	07 24	17 19.41	-24 14.5	0.946	1.848	140.7	20.4	16.1
1987	08 03	17 20.24	-23 48.5					
1987	08 13	17 25.13	-23 28.7	1.075	1.834	122.8	27.7	16.6
1987	08 23	17 33.69	-23 13.7					
1987	09 02	17 45.46	-23 01.0	1.240	1.826	108.2	31.7	17.0

(3449) Abell a,e,i = 3.08, 0.16, 2 Elements MPC 10826

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	18 06.04	-23 12.6	3.346	3.539	92.9	16.3	18.8
1987	04 05	18 10.87	-23 14.3					
1987	04 15	18 13.86	-23 16.3	3.046	3.529	110.8	15.4	18.6
1987	04 25	18 14.85	-23 19.1					
1987	05 05	18 13.72	-23 23.1	2.779	3.517	130.3	12.6	18.3
1987	05 15	18 10.47	-23 27.9					
1987	05 25	18 05.23	-23 33.0	2.579	3.503	151.6	7.9	18.0
1987	06 04	17 58.33	-23 37.6					
1987	06 14	17 50.30	-23 40.8	2.477	3.489	174.1	1.7	17.6
1987	06 24	17 41.83	-23 42.3					
1987	07 04	17 33.66	-23 41.9	2.487	3.472	163.0	4.9	17.7
1987	07 14	17 26.52	-23 40.5					
1987	07 24	17 20.96	-23 38.8	2.606	3.455	141.0	10.7	18.1
1987	08 03	17 17.37	-23 38.1					
1987	08 13	17 15.92	-23 38.9	2.806	3.436	120.7	14.7	18.3
1987	08 23	17 16.64	-23 41.6					
1987	09 02	17 19.44	-23 46.1	3.056	3.416	102.2	16.8	18.6

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	18 09.02	-30 11.4	3.160	3.352	92.3	17.3	17.9
1987	04 05	18 14.86	-30 41.9					
1987	04 15	18 18.68	-31 14.5	2.896	3.370	109.8	16.3	17.7
1987	04 25	18 20.29	-31 49.2					
1987	05 05	18 19.53	-32 25.4	2.664	3.387	128.7	13.4	17.5
1987	05 15	18 16.36	-33 01.5					
1987	05 25	18 10.93	-33 35.2	2.497	3.404	148.9	8.8	17.2
1987	06 04	18 03.56	-34 03.7					
1987	06 14	17 54.90	-34 24.1	2.424	3.421	167.0	3.8	16.9
1987	06 24	17 45.73	-34 34.8					
1987	07 04	17 36.93	-34 35.5	2.461	3.436	160.7	5.6	17.0
1987	07 14	17 29.33	-34 27.4					
1987	07 24	17 23.54	-34 13.0	2.603	3.451	140.9	10.7	17.4
1987	08 03	17 19.96	-33 54.9					
1987	08 13	17 18.73	-33 35.6	2.827	3.465	121.5	14.4	17.7
1987	08 23	17 19.81	-33 16.8					
1987	09 02	17 23.10	-32 59.4	3.102	3.479	103.5	16.4	17.9

(3414) 1983 DJ a,e,i = 2.19, 0.10, 5 Elements MPC 10535

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	18 05.27	-27 26.4	2.127	2.398	93.1	24.5	18.3
1987	04 05	18 14.89	-27 51.7					
1987	04 15	18 22.13	-28 18.6	1.882	2.404	109.0	23.2	18.0
1987	04 25	18 26.61	-28 48.5					
1987	05 05	18 27.94	-29 21.7	1.662	2.409	127.1	19.5	17.7
1987	05 15	18 25.84	-29 57.6					
1987	05 25	18 20.25	-30 33.6	1.494	2.411	147.6	13.0	17.3
1987	06 04	18 11.45	-31 05.7					
1987	06 14	18 00.27	-31 29.1	1.408	2.412	168.6	4.8	16.8
1987	06 24	17 48.00	-31 40.0					
1987	07 04	17 36.21	-31 37.5	1.423	2.410	161.9	7.5	17.0
1987	07 14	17 26.36	-31 24.0					
1987	07 24	17 19.44	-31 03.6	1.534	2.407	140.5	15.6	17.4
1987	08 03	17 15.97	-30 40.8					
1987	08 13	17 16.03	-30 18.8	1.717	2.401	121.0	21.2	17.8
1987	08 23	17 19.37	-29 59.1					
1987	09 02	17 25.68	-29 41.9	1.941	2.393	103.9	24.2	18.1

1977 NN a,e,i = 2.26, 0.18, 5 Elements MPC 9754

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	17 37.45	-29 17.9	1.675	2.082	99.2	28.2	17.8
1987	04 05	17 50.87	-29 44.0					
1987	04 15	18 02.10	-30 06.9	1.426	2.043	113.4	26.8	17.4
1987	04 25	18 10.66	-30 28.0					
1987	05 05	18 15.99	-30 47.8	1.206	2.005	129.6	22.8	16.9
1987	05 15	18 17.64	-31 05.8					
1987	05 25	18 15.32	-31 19.8	1.035	1.971	148.5	15.6	16.3
1987	06 04	18 09.13	-31 25.9					
1987	06 14	17 59.90	-31 19.4	0.933	1.939	168.7	5.9	15.7
1987	06 24	17 49.09	-30 56.9					
1987	07 04	17 38.67	-30 18.9	0.917	1.912	162.9	9.0	15.7
1987	07 14	17 30.58	-29 30.1					
1987	07 24	17 26.07	-28 37.1	0.981	1.889	142.1	19.3	16.2
1987	08 03	17 25.76	-27 45.8					
1987	08 13	17 29.63	-26 59.4	1.106	1.872	123.9	26.7	16.6
1987	08 23	17 37.28	-26 18.2					
1987	09 02	17 48.26	-25 41.0	1.269	1.860	108.9	30.9	17.0

1981 EV26 a,e,i = 2.92, 0.02, 1 Elements MPC 11043

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	18 06.78	-24 05.3	2.747	2.967	92.7	19.6	18.4
1987	04 05	18 13.93	-24 03.8					
1987	04 15	18 19.04	-24 02.0	2.471	2.963	109.6	18.6	18.2
1987	04 25	18 21.89	-24 00.6					
1987	05 05	18 22.28	-24 00.1	2.226	2.959	128.4	15.5	17.8
1987	05 15	18 20.14	-24 00.6					
1987	05 25	18 15.54	-24 01.5	2.039	2.955	149.2	10.1	17.5
1987	06 04	18 08.79	-24 01.9					
1987	06 14	18 00.52	-24 00.6	1.942	2.951	171.8	2.8	17.1
1987	06 24	17 51.56	-23 57.0					
1987	07 04	17 42.86	-23 51.1	1.953	2.947	165.1	5.1	17.2
1987	07 14	17 35.35	-23 43.9					
1987	07 24	17 29.71	-23 36.5	2.067	2.942	143.0	12.0	17.6
1987	08 03	17 26.42	-23 30.4					
1987	08 13	17 25.64	-23 26.4	2.262	2.938	122.9	16.8	17.9
1987	08 23	17 27.36	-23 24.5					
1987	09 02	17 31.44	-23 24.6	2.506	2.933	105.0	19.4	18.2

1982 BS1 a,e,i = 2.45, 0.15, 7 Elements MPC 10832

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 03 26	18 11.92	-15 55.4	2.601	2.808	91.4	20.8	18.7
1987 04 05	18 18.77	-15 31.1					
1987 04 15	18 23.55	-15 05.8	2.337	2.815	108.1	19.8	18.5
1987 04 25	18 26.03	-14 40.9					
1987 05 05	18 25.99	-14 18.1	2.100	2.819	126.6	16.7	18.1
1987 05 15	18 23.36	-13 59.1					
1987 05 25	18 18.22	-13 45.2	1.918	2.822	147.0	11.3	17.8
1987 06 04	18 10.86	-13 37.8					
1987 06 14	18 01.92	-13 37.5	1.823	2.822	167.0	4.6	17.4
1987 06 24	17 52.23	-13 44.6					
1987 07 04	17 42.79	-13 58.9	1.835	2.820	162.2	6.3	17.5
1987 07 14	17 34.54	-14 19.7					
1987 07 24	17 28.21	-14 46.1	1.950	2.816	141.4	13.0	17.9
1987 08 03	17 24.27	-15 17.0					
1987 08 13	17 22.93	-15 51.0	2.144	2.809	121.5	17.9	18.2
1987 08 23	17 24.14	-16 26.7					
1987 09 02	17 27.79	-17 02.7	2.385	2.801	103.7	20.5	18.5

2535 P-L a,e,i = 3.14, 0.16, 2 Elements MPC 9069

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 03 26	18 06.02	-21 21.0	2.930	3.142	92.9	18.5	18.6
1987 04 05	18 12.71	-21 15.2					
1987 04 15	18 17.56	-21 08.9	2.624	3.111	109.9	17.7	18.3
1987 04 25	18 20.34	-21 03.2					
1987 05 05	18 20.86	-20 58.8	2.348	3.080	128.6	14.8	17.9
1987 05 15	18 19.04	-20 56.3					
1987 05 25	18 14.93	-20 55.6	2.134	3.048	149.2	9.8	17.5
1987 06 04	18 08.78	-20 56.6					
1987 06 14	18 01.12	-20 58.7	2.009	3.017	171.3	2.9	17.1
1987 06 24	17 52.68	-21 01.5					
1987 07 04	17 44.33	-21 04.8	1.991	2.986	165.2	5.0	17.1
1987 07 14	17 36.99	-21 08.9					
1987 07 24	17 31.34	-21 14.2	2.078	2.955	143.2	11.9	17.5
1987 08 03	17 27.90	-21 21.3					
1987 08 13	17 26.92	-21 30.3	2.245	2.924	123.1	16.9	17.8
1987 08 23	17 28.43	-21 41.2					
1987 09 02	17 32.34	-21 53.2	2.463	2.895	105.1	19.7	18.0

1981 JA a,e,i = 3.14, 0.12, 2 Elements MPC 10308

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987 03 26	18 06.81	-21 51.3	2.599	2.827	92.7	20.6	17.7
1987 04 05	18 14.61	-21 45.6					
1987 04 15	18 20.32	-21 39.3	2.350	2.843	109.3	19.5	17.5
1987 04 25	18 23.72	-21 33.8					
1987 05 05	18 24.61	-21 29.8	2.129	2.859	127.7	16.2	17.2
1987 05 15	18 22.95	-21 27.8					
1987 05 25	18 18.83	-21 27.9	1.966	2.877	148.3	10.7	16.9
1987 06 04	18 12.59	-21 29.7					
1987 06 14	18 04.84	-21 32.3	1.889	2.896	170.6	3.3	16.5
1987 06 24	17 56.41	-21 35.2					
1987 07 04	17 48.24	-21 38.1	1.919	2.916	166.2	4.8	16.6
1987 07 14	17 41.23	-21 41.3					
1987 07 24	17 36.04	-21 45.3	2.051	2.937	144.3	11.6	17.0
1987 08 03	17 33.10	-21 50.7					
1987 08 13	17 32.59	-21 57.6	2.265	2.958	124.4	16.4	17.4
1987 08 23	17 34.47	-22 05.8					
1987 09 02	17 38.61	-22 14.7	2.532	2.980	106.6	18.9	17.7

1981 EY8 a,e,i = 2.76, 0.24, 6 Elements MPC 9424

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	18 11.81	-28 47.6	2.818	3.017	91.7	19.3	19.0
1987	04 05	18 19.38	-28 53.5					
1987	04 15	18 25.00	-28 59.4	2.501	2.974	108.4	18.7	18.7
1987	04 25	18 28.38	-29 05.8					
1987	05 05	18 29.25	-29 12.7	2.212	2.930	126.8	16.0	18.3
1987	05 15	18 27.43	-29 19.5					
1987	05 25	18 22.89	-29 24.6	1.980	2.885	147.2	11.0	17.9
1987	06 04	18 15.81	-29 25.8					
1987	06 14	18 06.76	-29 20.6	1.835	2.838	168.8	4.0	17.4
1987	06 24	17 56.60	-29 07.4					
1987	07 04	17 46.41	-28 45.7	1.795	2.790	165.0	5.4	17.4
1987	07 14	17 37.36	-28 17.4					
1987	07 24	17 30.32	-27 45.2	1.859	2.741	143.1	12.9	17.7
1987	08 03	17 25.94	-27 12.4					
1987	08 13	17 24.47	-26 41.5	2.004	2.691	122.8	18.5	18.0
1987	08 23	17 25.91	-26 13.9					
1987	09 02	17 30.12	-25 50.0	2.196	2.640	104.8	21.7	18.2

1983 XD a,e,i = 3.10, 0.14, 5 Elements MPC 8465

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	18 11.76	-23 22.1	2.955	3.145	91.6	18.5	17.7
1987	04 05	18 18.70	-23 08.5					
1987	04 15	18 23.76	-22 53.6	2.650	3.117	108.5	17.8	17.4
1987	04 25	18 26.75	-22 38.0					
1987	05 05	18 27.45	-22 22.5	2.374	3.089	127.1	15.1	17.1
1987	05 15	18 25.79	-22 07.2					
1987	05 25	18 21.81	-21 52.2	2.156	3.061	147.7	10.2	16.7
1987	06 04	18 15.74	-21 37.2					
1987	06 14	18 08.10	-21 22.0	2.027	3.032	169.8	3.4	16.2
1987	06 24	17 59.60	-21 06.5					
1987	07 04	17 51.12	-20 51.1	2.005	3.004	166.7	4.5	16.2
1987	07 14	17 43.57	-20 36.9					
1987	07 24	17 37.65	-20 24.7	2.089	2.975	144.6	11.4	16.6
1987	08 03	17 33.89	-20 15.5					
1987	08 13	17 32.54	-20 09.8	2.255	2.947	124.3	16.5	16.9
1987	08 23	17 33.64	-20 07.4					
1987	09 02	17 37.13	-20 07.5	2.474	2.920	106.1	19.4	17.2

(3428) 1952 JH a,e,i = 2.66, 0.16, 9 Elements MPC 10629

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	18 12.13	-20 17.8	2.267	2.499	91.4	23.5	16.9
1987	04 05	18 20.96	-19 37.5					
1987	04 15	18 27.44	-18 53.7	2.045	2.533	107.4	22.2	16.7
1987	04 25	18 31.31	-18 07.8					
1987	05 05	18 32.37	-17 21.2	1.848	2.568	125.5	18.6	16.4
1987	05 15	18 30.55	-16 35.7					
1987	05 25	18 25.96	-15 52.5	1.703	2.603	145.7	12.6	16.1
1987	06 04	18 18.98	-15 13.5					
1987	06 14	18 10.32	-14 40.0	1.640	2.638	166.3	5.2	15.8
1987	06 24	18 00.93	-14 13.6					
1987	07 04	17 51.87	-13 55.3	1.681	2.672	163.9	6.0	15.9
1987	07 14	17 44.14	-13 45.7					
1987	07 24	17 38.43	-13 44.5	1.822	2.707	143.5	12.9	16.3
1987	08 03	17 35.18	-13 50.8					
1987	08 13	17 34.51	-14 03.0	2.041	2.740	124.0	17.9	16.8
1987	08 23	17 36.35	-14 19.3					
1987	09 02	17 40.51	-14 37.9	2.311	2.772	106.5	20.4	17.1

1978 RZ a,e,i = 2.91, 0.08, 3 Elements MPC 11050

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	18 12.75	-21 00.9	2.806	3.000	91.3	19.4	18.5
1987	04 05	18 20.01	-20 55.0					
1987	04 15	18 25.35	-20 49.1	2.519	2.986	108.0	18.6	18.2
1987	04 25	18 28.57	-20 44.2					
1987	05 05	18 29.44	-20 41.4	2.259	2.972	126.5	15.8	17.9
1987	05 15	18 27.86	-20 41.3					
1987	05 25	18 23.86	-20 44.0	2.055	2.957	147.1	10.7	17.5
1987	06 04	18 17.67	-20 49.3					
1987	06 14	18 09.82	-20 56.3	1.938	2.942	169.3	3.7	17.1
1987	06 24	18 01.05	-21 04.3					
1987	07 04	17 52.29	-21 12.7	1.927	2.927	167.0	4.5	17.1
1987	07 14	17 44.48	-21 21.3					
1987	07 24	17 38.36	-21 30.4	2.021	2.911	144.9	11.6	17.5
1987	08 03	17 34.49	-21 40.6					
1987	08 13	17 33.12	-21 52.0	2.198	2.896	124.5	16.8	17.8
1987	08 23	17 34.29	-22 04.4					
1987	09 02	17 37.90	-22 17.5	2.428	2.880	106.4	19.6	18.1

(3411) 1980 LK a,e,i = 2.24, 0.12, 5 Elements MPC 10534

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	18 13.93	-23 22.3	2.155	2.392	91.1	24.6	18.1
1987	04 05	18 23.55	-23 34.8					
1987	04 15	18 30.86	-23 48.9	1.921	2.412	106.9	23.4	17.8
1987	04 25	18 35.52	-24 06.3					
1987	05 05	18 37.18	-24 28.2	1.708	2.431	125.0	19.9	17.5
1987	05 15	18 35.61	-24 54.8					
1987	05 25	18 30.75	-25 25.4	1.543	2.448	145.8	13.5	17.1
1987	06 04	18 22.83	-25 57.3					
1987	06 14	18 12.57	-26 27.3	1.458	2.462	168.7	4.6	16.6
1987	06 24	18 01.08	-26 51.8					
1987	07 04	17 49.74	-27 08.9	1.476	2.475	166.2	5.6	16.7
1987	07 14	17 39.94	-27 18.7					
1987	07 24	17 32.66	-27 23.2	1.594	2.486	143.6	14.0	17.2
1987	08 03	17 28.48	-27 24.8					
1987	08 13	17 27.59	-27 25.5	1.788	2.495	123.5	19.8	17.6
1987	08 23	17 29.81	-27 26.3					
1987	09 02	17 34.91	-27 27.5	2.029	2.501	105.9	22.8	18.0

1981 EM30 a,e,i = 2.76, 0.25, 3 Elements MPC 11150

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	03 26	18 11.85	-20 52.1	2.751	2.951	91.5	19.7	19.4
1987	04 05	18 19.41	-20 43.6					
1987	04 15	18 25.15	-20 34.5	2.432	2.904	108.1	19.2	19.1
1987	04 25	18 28.79	-20 26.0					
1987	05 05	18 30.08	-20 19.2	2.139	2.855	126.4	16.5	18.7
1987	05 15	18 28.85	-20 14.9					
1987	05 25	18 25.03	-20 13.5	1.903	2.805	146.8	11.4	18.3
1987	06 04	18 18.77	-20 14.9					
1987	06 14	18 10.54	-20 18.7	1.750	2.754	169.0	4.0	17.7
1987	06 24	18 01.11	-20 24.0					
1987	07 04	17 51.47	-20 30.4	1.702	2.701	166.7	5.0	17.7
1987	07 14	17 42.73	-20 37.9					
1987	07 24	17 35.80	-20 46.7	1.757	2.649	144.2	13.0	18.0
1987	08 03	17 31.35	-20 57.5					
1987	08 13	17 29.75	-21 10.4	1.892	2.595	123.7	19.0	18.3
1987	08 23	17 31.06	-21 25.2					
1987	09 02	17 35.18	-21 41.1	2.075	2.542	105.7	22.5	18.6

1984 SX a,e,i = 2.45, 0.12, 3 Elements MPC 10518

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	18 27.50	-26 36.5	1.754	2.271	107.8	24.9	16.7
1987	04 25	18 33.71	-26 42.8					
1987	05 05	18 36.74	-26 50.6	1.560	2.294	125.2	21.1	16.4
1987	05 15	18 36.36	-27 00.2					
1987	05 25	18 32.54	-27 10.4	1.413	2.318	145.3	14.4	16.0
1987	06 04	18 25.53	-27 19.0					
1987	06 14	18 16.14	-27 23.0	1.341	2.343	167.7	5.3	15.6
1987	06 24	18 05.53	-27 20.1					
1987	07 04	17 55.14	-27 10.0	1.366	2.369	167.4	5.4	15.6
1987	07 14	17 46.36	-26 54.0					
1987	07 24	17 40.15	-26 35.0	1.488	2.395	145.4	14.0	16.2
1987	08 03	17 37.05	-26 16.0					
1987	08 13	17 37.16	-25 58.6	1.687	2.421	125.6	19.9	16.6
1987	08 23	17 40.30	-25 43.5					
1987	09 02	17 46.17	-25 30.4	1.934	2.447	108.4	23.0	17.0
1987	09 12	17 54.42	-25 18.2					
1987	09 22	18 04.68	-25 05.5	2.206	2.473	93.1	23.9	17.4

1969 TD5 a,e,i = 2.44, 0.13, 3 Elements MPC 11145

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	18 41.57	-24 55.0	2.246	2.680	104.6	21.2	18.8
1987	04 25	18 45.90	-25 05.2					
1987	05 05	18 47.54	-25 19.0	2.015	2.697	122.7	18.3	18.5
1987	05 15	18 46.30	-25 36.7					
1987	05 25	18 42.14	-25 57.2	1.832	2.711	143.2	12.9	18.1
1987	06 04	18 35.23	-26 18.9					
1987	06 14	18 26.12	-26 38.9	1.728	2.724	165.7	5.3	17.7
1987	06 24	18 15.69	-26 54.4					
1987	07 04	18 05.07	-27 03.8	1.729	2.735	169.5	3.9	17.7
1987	07 14	17 55.44	-27 06.9					
1987	07 24	17 47.76	-27 05.0	1.835	2.744	147.0	11.6	18.1
1987	08 03	17 42.67	-27 00.1					
1987	08 13	17 40.45	-26 54.1	2.026	2.751	126.3	17.3	18.5
1987	08 23	17 41.09	-26 48.3					
1987	09 02	17 44.44	-26 43.0	2.271	2.756	108.0	20.4	18.9
1987	09 12	17 50.21	-26 38.1					
1987	09 22	17 58.11	-26 32.7	2.541	2.758	91.6	21.3	19.1

1978 SC6 a,e,i = 2.20, 0.05, 1 Elements MPC 10630

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	18 36.76	-24 07.0	1.824	2.306	105.6	24.8	18.1
1987	04 25	18 43.23	-24 08.2					
1987	05 05	18 46.76	-24 12.3	1.599	2.307	122.8	21.6	17.8
1987	05 15	18 47.05	-24 20.3					
1987	05 25	18 43.91	-24 32.1	1.417	2.307	142.8	15.4	17.3
1987	06 04	18 37.43	-24 46.1					
1987	06 14	18 28.15	-25 00.0	1.308	2.305	165.4	6.4	16.8
1987	06 24	18 17.09	-25 10.7					
1987	07 04	18 05.66	-25 16.2	1.295	2.303	170.1	4.3	16.7
1987	07 14	17 55.41	-25 16.4					
1987	07 24	17 47.53	-25 12.7	1.380	2.300	147.1	13.9	17.2
1987	08 03	17 42.84	-25 07.6					
1987	08 13	17 41.61	-25 02.6	1.542	2.295	126.6	20.8	17.6
1987	08 23	17 43.76	-24 58.5					
1987	09 02	17 49.03	-24 55.2	1.753	2.290	109.0	24.6	18.0
1987	09 12	17 57.06	-24 51.6					
1987	09 22	18 07.45	-24 46.4	1.986	2.283	93.8	26.0	18.3

1981 UN a,e,i = 2.23, 0.09, 2 Elements MPC 10624

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	18 40.67	-22 42.3	1.846	2.312	104.6	24.8	17.7
1987	04 25	18 47.99	-22 25.9					
1987	05 05	18 52.58	-22 10.5	1.601	2.293	121.3	22.1	17.3
1987	05 15	18 54.11	-21 57.7					
1987	05 25	18 52.35	-21 48.1	1.397	2.272	140.6	16.4	16.8
1987	06 04	18 47.25	-21 41.9					
1987	06 14	18 39.20	-21 38.2	1.261	2.252	162.7	7.7	16.2
1987	06 24	18 29.01	-21 35.4					
1987	07 04	18 17.98	-21 32.5	1.218	2.230	172.9	3.2	15.9
1987	07 14	18 07.65	-21 29.1					
1987	07 24	17 59.36	-21 25.9	1.271	2.209	149.7	13.4	16.4
1987	08 03	17 54.08	-21 23.9					
1987	08 13	17 52.29	-21 23.9	1.404	2.188	129.0	21.1	16.8
1987	08 23	17 54.00	-21 25.8					
1987	09 02	17 59.02	-21 28.7	1.586	2.167	111.3	25.7	17.2
1987	09 12	18 07.00	-21 31.0					
1987	09 22	18 17.56	-21 31.0	1.792	2.146	96.1	27.7	17.5

2538 P-L a,e,i = 2.28, 0.06, 8 Elements MPC 11338

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	18 40.31	-30 54.4	1.660	2.152	105.1	26.7	17.7
1987	04 25	18 49.48	-31 43.8					
1987	05 05	18 55.60	-32 39.4	1.458	2.159	121.1	23.6	17.4
1987	05 15	18 58.22	-33 41.3					
1987	05 25	18 56.98	-34 47.6	1.297	2.168	139.3	17.7	17.0
1987	06 04	18 51.74	-35 53.6					
1987	06 14	18 42.93	-36 51.9	1.201	2.178	158.3	9.9	16.6
1987	06 24	18 31.59	-37 34.3					
1987	07 04	18 19.37	-37 54.7	1.193	2.189	163.9	7.4	16.5
1987	07 14	18 08.22	-37 52.0					
1987	07 24	17 59.70	-37 29.8	1.277	2.200	147.0	14.6	16.9
1987	08 03	17 54.82	-36 54.4					
1987	08 13	17 53.91	-36 12.0	1.437	2.213	128.4	21.0	17.3
1987	08 23	17 56.78	-35 27.0					
1987	09 02	18 03.07	-34 41.5	1.646	2.227	111.7	24.9	17.7
1987	09 12	18 12.27	-33 56.0					
1987	09 22	18 23.88	-33 09.8	1.884	2.240	97.0	26.4	18.1

1981 EP27 a,e,i = 2.90, 0.04, 12 Elements MPC 9962

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	18 44.67	-09 00.6	2.504	2.888	102.2	19.8	19.2
1987	04 25	18 49.10	-08 01.9					
1987	05 05	18 51.35	-07 03.9	2.253	2.880	119.0	17.8	18.9
1987	05 15	18 51.29	-06 09.4					
1987	05 25	18 48.92	-05 21.1	2.048	2.873	136.9	13.9	18.5
1987	06 04	18 44.34	-04 42.3					
1987	06 14	18 37.94	-04 16.1	1.917	2.865	154.1	8.9	18.2
1987	06 24	18 30.28	-04 04.6					
1987	07 04	18 22.15	-04 09.3	1.880	2.858	160.2	6.9	18.1
1987	07 14	18 14.44	-04 29.6					
1987	07 24	18 07.91	-05 03.5	1.945	2.851	146.9	11.2	18.3
1987	08 03	18 03.21	-05 48.1					
1987	08 13	18 00.74	-06 39.8	2.096	2.844	128.9	16.1	18.6
1987	08 23	18 00.64	-07 35.2					
1987	09 02	18 02.92	-08 31.3	2.308	2.837	111.5	19.3	18.9
1987	09 12	18 07.45	-09 25.5					
1987	09 22	18 14.02	-10 15.9	2.553	2.831	95.5	20.7	19.2

1982 KB1 a,e,i = 2.77, 0.22, 17 Elements MPC 11424

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	18 42.21	-30 26.9	2.041	2.492	104.7	22.9	17.0
1987	04 25	18 50.50	-31 40.9					
1987	05 05	18 56.45	-33 05.8	1.770	2.447	120.9	20.7	16.6
1987	05 15	18 59.63	-34 42.2					
1987	05 25	18 59.64	-36 29.0	1.548	2.403	138.5	16.2	16.1
1987	06 04	18 56.16	-38 22.3					
1987	06 14	18 49.24	-40 14.7	1.399	2.361	155.4	10.3	15.7
1987	06 24	18 39.40	-41 56.5					
1987	07 04	18 27.82	-43 17.9	1.342	2.321	159.3	8.9	15.5
1987	07 14	18 16.25	-44 12.5					
1987	07 24	18 06.46	-44 39.3	1.379	2.285	144.7	14.9	15.7
1987	08 03	17 59.95	-44 42.1					
1987	08 13	17 57.55	-44 27.2	1.490	2.252	127.2	21.0	16.0
1987	08 23	17 59.42	-44 00.3					
1987	09 02	18 05.40	-43 25.5	1.649	2.222	111.1	25.1	16.3
1987	09 12	18 15.01	-42 45.0					
1987	09 22	18 27.72	-41 59.0	1.835	2.198	97.1	27.0	16.6

(3435) 1981 XC2 a,e,i = 2.32, 0.05, 8 Elements MPC 10754

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	18 51.36	-13 36.4	2.013	2.417	101.2	24.0	17.4
1987	04 25	18 57.77	-12 51.4					
1987	05 05	19 01.63	-12 08.0	1.783	2.422	117.6	21.6	17.1
1987	05 15	19 02.72	-11 29.0					
1987	05 25	19 00.89	-10 56.9	1.591	2.426	136.2	16.8	16.7
1987	06 04	18 56.17	-10 34.6					
1987	06 14	18 48.91	-10 24.4	1.465	2.429	156.2	9.7	16.3
1987	06 24	18 39.81	-10 27.4					
1987	07 04	18 29.89	-10 43.9	1.429	2.431	167.0	5.4	16.1
1987	07 14	18 20.38	-11 12.5					
1987	07 24	18 12.36	-11 50.6	1.494	2.432	150.8	11.8	16.4
1987	08 03	18 06.70	-12 35.3					
1987	08 13	18 03.88	-13 23.5	1.644	2.432	131.0	18.3	16.8
1987	08 23	18 04.04	-14 12.4					
1987	09 02	18 07.09	-14 59.7	1.853	2.431	113.0	22.5	17.2
1987	09 12	18 12.80	-15 43.4					
1987	09 22	18 20.87	-16 21.8	2.093	2.430	97.1	24.2	17.5

(3490) 1984 SV a,e,i = 2.40, 0.12, 6 Elements MPC 11048

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	19 07.58	-29 15.9	2.333	2.682	99.1	21.7	18.2
1987	04 25	19 14.10	-29 26.5					
1987	05 05	19 18.11	-29 41.5	2.079	2.681	116.2	19.7	17.9
1987	05 15	19 19.32	-30 01.0					
1987	05 25	19 17.51	-30 24.3	1.861	2.678	135.4	15.4	17.5
1987	06 04	19 12.60	-30 49.3					
1987	06 14	19 04.85	-31 12.4	1.712	2.674	156.4	8.7	17.1
1987	06 24	18 54.87	-31 29.4					
1987	07 04	18 43.66	-31 36.3	1.658	2.667	171.3	3.3	16.8
1987	07 14	18 32.53	-31 31.2					
1987	07 24	18 22.72	-31 14.8	1.710	2.659	153.7	9.7	17.1
1987	08 03	18 15.25	-30 49.9					
1987	08 13	18 10.72	-30 19.8	1.854	2.649	132.7	16.3	17.5
1987	08 23	18 09.32	-29 47.7					
1987	09 02	18 10.98	-29 15.3	2.063	2.637	113.8	20.5	17.9
1987	09 12	18 15.44	-28 43.5					
1987	09 22	18 22.38	-28 12.0	2.304	2.623	97.0	22.3	18.1

1984 SL3 a,e,i = 2.25, 0.20, 7 Elements MPC 9287

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1987	04 15	18 51.93	-29 39.0	1.782	2.227	-1.58	-1.4	17.7
1987	04 25	19 02.59	-30 10.8					
1987	05 05	19 10.88	-30 48.6	1.519	2.180	-1.87	-2.9	17.3
1987	05 15	19 16.34	-31 34.1					
1987	05 25	19 18.49	-32 27.7	1.293	2.134	-2.27	-4.2	16.8
1987	06 04	19 16.88	-33 27.8					
1987	06 14	19 11.38	-34 29.8	1.126	2.087	-2.79	-4.1	16.2
1987	06 24	19 02.33	-35 26.1					
1987	07 04	18 50.77	-36 07.7	1.038	2.042	-3.26	-1.8	15.8
1987	07 14	18 38.53	-36 27.4					
1987	07 24	18 27.62	-36 23.3	1.041	1.998	-3.36	+1.3	16.0
1987	08 03	18 19.87	-35 58.6					
1987	08 13	18 16.34	-35 19.5	1.119	1.956	-2.99	+2.4	16.3
1987	08 23	18 17.33	-34 31.9					
1987	09 02	18 22.67	-33 39.5	1.249	1.918	-2.46	+1.4	16.7
1987	09 12	18 31.87	-32 43.9					
1987	09 22	18 44.33	-31 44.7	1.407	1.884	-2.00	-0.5	17.0

(3392) Setouchi a,e,i = 2.14, 0.28, 26 Elements MPC 10514

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	19 32.20	-22 26.5	2.002	2.282	92.8	26.0	18.6
1987	04 25	19 38.05	-20 49.9					
1987	05 05	19 40.91	-19 10.3	1.799	2.341	109.7	23.9	18.4
1987	05 15	19 40.56	-17 28.7					
1987	05 25	19 36.84	-15 46.0	1.624	2.396	129.2	19.1	18.1
1987	06 04	19 29.78	-14 04.1					
1987	06 14	19 19.77	-12 25.5	1.510	2.447	150.7	11.7	17.8
1987	06 24	19 07.59	-10 53.4					
1987	07 04	18 54.38	-09 32.2	1.494	2.494	166.5	5.5	17.5
1987	07 14	18 41.53	-08 25.2					
1987	07 24	18 30.24	-07 34.5	1.590	2.538	153.0	10.5	17.9
1987	08 03	18 21.43	-07 00.0					
1987	08 13	18 15.58	-06 39.8	1.782	2.577	132.5	16.9	18.4
1987	08 23	18 12.75	-06 30.7					
1987	09 02	18 12.84	-06 29.4	2.038	2.612	113.7	20.7	18.8
1987	09 12	18 15.55	-06 32.6					
1987	09 22	18 20.54	-06 37.4	2.325	2.643	97.1	22.1	19.2

(3450) 1983 QJ a,e,i = 2.74, 0.07, 6 Elements MPC 10827

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	19 12.83	-24 17.5	2.572	2.879	97.4	20.2	17.8
1987	04 25	19 19.24	-24 27.7					
1987	05 05	19 23.49	-24 43.2	2.301	2.871	114.5	18.6	17.5
1987	05 15	19 25.36	-25 05.1					
1987	05 25	19 24.66	-25 33.5	2.067	2.861	133.6	14.8	17.2
1987	06 04	19 21.29	-26 07.8					
1987	06 14	19 15.43	-26 45.8	1.900	2.851	154.7	8.7	16.8
1987	06 24	19 07.47	-27 24.2					
1987	07 04	18 58.16	-27 59.3	1.827	2.840	174.5	2.0	16.4
1987	07 14	18 48.51	-28 27.9					
1987	07 24	18 39.58	-28 48.1	1.862	2.829	157.9	7.8	16.7
1987	08 03	18 32.35	-29 00.0					
1987	08 13	18 27.50	-29 04.7	1.995	2.817	136.5	14.3	17.1
1987	08 23	18 25.37	-29 03.8					
1987	09 02	18 26.07	-28 58.9	2.198	2.805	117.1	18.7	17.4
1987	09 12	18 29.47	-28 50.7					
1987	09 22	18 35.32	-28 39.7	2.441	2.793	99.8	20.7	17.7

1986 CP1 a,e,i = 2.66, 0.12, 4 Elements MPC 10944

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	19 22.38	-25 43.3	2.402	2.690	95.5	21.8	19.0
1987	04 25	19 29.66	-25 48.1					
1987	05 05	19 34.59	-25 58.2	2.169	2.716	112.2	20.1	18.7
1987	05 15	19 36.94	-26 14.5					
1987	05 25	19 36.53	-26 37.1	1.967	2.740	131.1	16.2	18.4
1987	06 04	19 33.25	-27 04.9					
1987	06 14	19 27.30	-27 35.7	1.826	2.765	152.1	9.9	18.1
1987	06 24	19 19.10	-28 05.8					
1987	07 04	19 09.46	-28 31.4	1.777	2.788	172.6	2.7	17.7
1987	07 14	18 59.43	-28 49.4					
1987	07 24	18 50.13	-28 58.2	1.834	2.811	160.0	7.1	18.0
1987	08 03	18 42.55	-28 58.4					
1987	08 13	18 37.36	-28 51.6	1.991	2.832	138.7	13.7	18.4
1987	08 23	18 34.88	-28 39.7					
1987	09 02	18 35.18	-28 24.4	2.222	2.853	119.1	18.0	18.8
1987	09 12	18 38.10	-28 06.7					
1987	09 22	18 43.37	-27 47.0	2.496	2.872	101.6	20.0	19.2

1964 UC a,e,i = 2.23, 0.19, 3 Elements MPC 9588

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	19 10.84	-26 15.8	1.992	2.353	98.1	25.0	18.4
1987	04 25	19 20.71	-26 14.5					
1987	05 05	19 28.32	-26 16.9	1.716	2.313	113.6	23.5	18.0
1987	05 15	19 33.31	-26 24.6					
1987	05 25	19 35.28	-26 38.8	1.472	2.272	131.3	19.6	17.5
1987	06 04	19 33.87	-26 59.5					
1987	06 14	19 28.97	-27 24.9	1.282	2.229	151.7	12.5	16.9
1987	06 24	19 20.79	-27 51.3					
1987	07 04	19 10.09	-28 13.4	1.173	2.185	172.8	3.4	16.3
1987	07 14	18 58.27	-28 26.4					
1987	07 24	18 46.97	-28 27.4	1.160	2.141	159.6	9.5	16.5
1987	08 03	18 37.86	-28 17.0					
1987	08 13	18 32.10	-27 57.8	1.234	2.098	137.7	19.0	16.9
1987	08 23	18 30.23	-27 33.2					
1987	09 02	18 32.34	-27 05.3	1.370	2.055	118.7	25.5	17.3
1987	09 12	18 38.15	-26 34.9					
1987	09 22	18 47.23	-26 01.8	1.539	2.013	102.7	29.1	17.6

1986 EL1 a,e,i = 2.73, 0.12, 5 Elements MPC 10755

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	19 14.86	-25 38.8	2.386	2.701	97.1	21.6	17.0
1987	04 25	19 22.89	-25 46.4					
1987	05 05	19 28.79	-25 59.1	2.109	2.676	113.5	20.2	16.6
1987	05 15	19 32.27	-26 18.0					
1987	05 25	19 33.08	-26 43.7	1.866	2.651	131.8	16.5	16.2
1987	06 04	19 31.04	-27 15.7					
1987	06 14	19 26.20	-27 51.9	1.685	2.627	152.3	10.4	15.8
1987	06 24	19 18.87	-28 28.9					
1987	07 04	19 09.74	-29 02.2	1.592	2.603	172.2	3.0	15.4
1987	07 14	18 59.92	-29 27.9					
1987	07 24	18 50.59	-29 43.5	1.602	2.580	159.8	7.8	15.6
1987	08 03	18 42.93	-29 48.7					
1987	08 13	18 37.82	-29 44.9	1.708	2.557	138.6	15.2	15.9
1987	08 23	18 35.69	-29 34.3					
1987	09 02	18 36.69	-29 18.8	1.884	2.536	119.4	20.3	16.3
1987	09 12	18 40.68	-28 59.5					
1987	09 22	18 47.38	-28 36.9	2.100	2.515	102.4	22.9	16.6

(3454) Lieske a,e,i = 2.27, 0.16, 5 Elements MPC 10833

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	19 23.19	-16 15.6	2.350	2.618	93.9	22.5	18.7
1987	04 25	19 30.26	-15 35.9					
1987	05 05	19 35.16	-14 58.2	2.084	2.610	110.2	21.3	18.4
1987	05 15	19 37.63	-14 24.6					
1987	05 25	19 37.46	-13 56.8	1.845	2.600	128.5	17.7	18.0
1987	06 04	19 34.49	-13 36.8					
1987	06 14	19 28.82	-13 25.8	1.663	2.587	149.1	11.6	17.6
1987	06 24	19 20.78	-13 24.7					
1987	07 04	19 11.04	-13 33.3	1.567	2.572	169.1	4.3	17.2
1987	07 14	19 00.64	-13 50.3					
1987	07 24	18 50.70	-14 13.8	1.575	2.554	160.4	7.7	17.3
1987	08 03	18 42.34	-14 42.0					
1987	08 13	18 36.36	-15 12.4	1.681	2.534	139.0	15.2	17.7
1987	08 23	18 33.22	-15 43.3					
1987	09 02	18 33.06	-16 13.1	1.859	2.512	119.3	20.5	18.0
1987	09 12	18 35.81	-16 40.2					
1987	09 22	18 41.21	-17 03.3	2.078	2.487	101.9	23.3	18.3

1983 NN a,e,i = 2.54, 0.29, 12 Elements MPC 8271

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1987	04 15	18 58.77	-32 27.7	1.732	2.165	-1.39	-7.8	17.9
1987	04 25	19 11.60	-32 09.8					
1987	05 05	19 22.11	-31 48.1	1.460	2.102	-1.64	-10.7	17.5
1987	05 15	19 29.87	-31 23.1					
1987	05 25	19 34.40	-30 54.6	1.223	2.042	-2.01	-13.7	16.9
1987	06 04	19 35.25	-30 21.3					
1987	06 14	19 32.24	-29 40.7	1.036	1.986	-2.50	-15.9	16.3
1987	06 24	19 25.57	-28 49.0					
1987	07 04	19 16.05	-27 42.8	0.923	1.935	-2.93	-16.1	15.6
1987	07 14	19 05.25	-26 21.2					
1987	07 24	18 55.06	-24 47.2	0.897	1.891	-2.98	-15.0	15.7
1987	08 03	18 47.27	-23 07.6					
1987	08 13	18 43.13	-21 29.5	0.955	1.854	-2.63	-14.1	16.1
1987	08 23	18 43.10	-19 57.9					
1987	09 02	18 47.16	-18 34.6	1.072	1.826	-2.18	-13.8	16.5
1987	09 12	18 54.93	-17 18.6					
1987	09 22	19 05.88	-16 07.6	1.226	1.807	-1.83	-13.7	16.9

1971 SP3 a,e,i = 3.14, 0.20, 2 Elements MPC 9071

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1987	04 15	19 22.12	-24 18.1	2.808	3.069	95.3	19.0	19.0
1987	04 25	19 28.88	-24 10.6					
1987	05 05	19 33.72	-24 06.7	2.502	3.029	112.2	18.0	18.7
1987	05 15	19 36.44	-24 07.2					
1987	05 25	19 36.84	-24 12.7	2.229	2.990	130.7	14.9	18.3
1987	06 04	19 34.80	-24 23.0					
1987	06 14	19 30.38	-24 37.1	2.019	2.951	151.3	9.5	17.9
1987	06 24	19 23.86	-24 53.2					
1987	07 04	19 15.78	-25 08.8	1.900	2.912	173.3	2.3	17.4
1987	07 14	19 06.98	-25 21.3					
1987	07 24	18 58.41	-25 29.0	1.887	2.873	162.9	6.0	17.6
1987	08 03	18 51.03	-25 31.4					
1987	08 13	18 45.64	-25 28.7	1.976	2.836	141.0	13.0	17.9
1987	08 23	18 42.71	-25 22.0					
1987	09 02	18 42.46	-25 12.1	2.141	2.799	121.1	18.0	18.2
1987	09 12	18 44.90	-24 59.5					
1987	09 22	18 49.84	-24 44.2	2.353	2.763	103.4	20.7	18.5