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

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

TWX 710-320-6842 ASTROGRAM CAM ** Brian G. Marsden, Director
Telephone 617-495-7244/7440/7444 ** Conrad M. Bardwell, Associate Director

IDENTIFICATION CHANGES.

Continuation to MPC 10330.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1966 VS	* 1966 11	11.89398	02 01 46.92	+22 13 41.6	1966 TK		095
1974 EU	* 1974 03	15.87549	10 36 25.02	+05 52 47.0	1974 EA	16.5	095
1985 QX3	* 1985 08	23.30277	21 35 58.71	-00 19 55.5	1985 QH2		675
1985 QX3	1985 08	23.35486	21 35 56.21	-00 20 19.5	1985 QH2		675
1985 QY3	* 1985 08	23.35486	21 36 05.54	-00 14 05.0	1985 QJ2		675

* * * * *

IDENTIFICATIONS.

The following list of identifications with numbered minor planets continues that on MPC 9981.

	Note		Note
1958 UC = (3312)	1	1982 DR6 = (1155)	2

Note 1: identification by B. G. Marsden. 2: by O. Kippes.

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

006 Fabra Observatory, Barcelona. Observers J. M. Codina and J. Nunez. Reduced by N. Torras and Nunez.
017 Hoher List. 0.30-m f/5 astrograph. Observers E. Elst, M. Geffert, E. H. Geyer and A. Hanel.
022 Pino Torinese. Observers G. Massone (0.38-m photographic refractor) and W. Ferreri (0.20-m astrograph).
024 Heidelberg. Observers H. Mandel, U. Mandel, J. Schiffer and Kiefer. Measured by Mandel, Schiffer, Kiefer and G. Klees. Reduced by Mandel, Schiffer and S. Roser.
040 Dresden. 0.11-m telescope. Observer P. Lipski, measured by W. Landgraf.
045 Vienna. Observer Jackson.
046 Klet. Observer A. Mrkos.
047 Poznan. 0.30-m astrograph. Observers S. Swierkowska and H. H. Hurnik.
051 Cape. Observers J. Churms and G. Roberts.
056 Skalnate Pleso Observatory. 0.3-m f/5 astrograph. Observers G. Cervak and P. Rychtarcik. Measured and reduced by Cervak, Rychtarcik and J. Svoren.
057 Belgrade. Observer V. Protitch-Benishek.
061 Uzhgorod. Observers S. I. Vorinka, I. I. Goroshchak, N. D. Polishchuk,

S. I. Ignatovich and T. Y. Galas.
063 Turku-Tuorla. 0.7-m Schmidt. Observer A. Sillanpaa. Measured by A. Niemi.
071 Bulgarian National Observatory. Observers V. Ivanova and V. Shkodrov.
075 Tartu. Observer H. K. Raudsaar.
084 Pulkovo. Observer S. A. Lepeshnikova.
089 Nikolaev. Observers N. Kalinenkov, G. K. Gorel and V. I. Voronenko.
091 St. Etienne. Observer R. Chanal.
092 Torun-Piwnice. 0.60-m Schmidt telescope. Observers M. Antal, S. Krawczyk and M. Muciek. Measured by Antal.
094 Crimea-Simeis. Observers S. Nagornyuk, L. S. Merezhina, S. V. Fokanov, I. V. Nikolenko and A. L. Shcherbanovskij.
096 Merate. Observer M. Scardia.
098 Asiago Astrophysical Observatory, Cima Ekar. 0.18-m telescope + CCD. Observers M. Scardia, C. Barbieri and Kranjc. Long. and Parallax 11.60, -298, -304 (see MPC 7759).
114 Engelhardt Observatory, Zelenchukskaya Station. Observer I. E. Zelishchev.
119 Abastuman. Observer R. Y. Inasaridze.
123 Byurakan. Observer L. G. Akhverdyan.
129 Ordubad. Observers A. A. Malkov and A. A. Kiselev.
168 Kourovskaya. Observers S. N. Timofeev, A. F. Seleznev, T. I. Levitskaya, S. A. Pyatkes, N. D. Kalinina, N. V. Matkin, E. V. Zvonareva, Blyum, G. M. Sobolenko, A. R. Tearo, O. G. Yuminova, A. P. Ryazanov and Zhukova.
186 Kitab. Observers E. Mirmakhmudov, G. Saidov, E. Khamidov and E. Rakhmatov.
190 Gissar. Observer S. I. Gerasimenko.
192 Tashkent. Observers A. G. Rakhimov, V. Baltabaev and T. Khamidov.
210 Alma-Ata. Observers V. V. Solodovnikov, K. I. Churyumov, H. Mileyev and D. I. Gorodetskij.
219 Japal-Rangapur Observatory. 0.20-m astrograph. Communicated by N. B. Sanwal. Long. and Parallax 78.73, -408, -125 (see MPC 7759).
293 Burlington remote site. Observer T. Handley.
303 Merida. Observers J. Stock, C. Abad, F. Moreno and O. Contreras.
323 Perth Observatory. Observers G. Kinnear, A. John, M. P. Candy, R. Martin, J. Johnston, P. Jekabsons, D. Harwood and P. Birch. Measured by Candy, John, S. Ewing and C. Bowers.
337 Zo-Se. Observer J. L. Zhao.
372 Geisei. Observer T. Seki.
391 Sendai-Ayashi. 0.20-m reflector. Observer M. Koishikawa.
397 Sapporo Science Center. 0.60-m reflector. Observer K. Watanabe.
413 Siding Spring Observatory. Observer K. Russell.
415 Kambah. Observer D. Herald.
420 Sydney. Observer C. S. Bembrick.
474 Mt. John University Observatory. Observers A. C. Gilmore and P. Kilmartin. Measured by Kilmartin.
482 St. Andrews. Observer J. R. Stapleton.
483 Carter Observatory, Black Birch Station. Twin 20-cm astrograph. Observer G. G. Douglass.
491 Yebes. Observers M. de Pascual, J. Martin-Pintado, J. Garcia and C. Cabanas.
493 Calar Alto. 0.8-m Schmidt. Observers L. Kohoutek, U. Haug, R. Pauls and K. Birkle. Measured by Kohoutek, Pauls and G. Klare. Reduced by Kohoutek, S. Roser and U. Bastian.
494 Stakenbridge. Observer B. Manning.
502 Colchester. 0.25-m f/7 reflector. Observer M. J. Hendrie.
503 Cambridge. Observers A. N. Argue and J. D. Shanklin. Measured by Shanklin.

528 Gottingen. 0.25-m refractor. Observer W. Landgraf.
552 Osservatorio S. Vittore. Observers C. Vacchi, G. Sassi and E. Colombini. Measured by V. Goretti.
553 Chorzow. Observers I. Wlodarczyk, Stanek, Kaminski, Sieron, Pawicka, Syroczynski, Szczepanski and Firszt.
561 Piszkesteto. 0.6-m Schmidt. Observer I. Toth.
562 Figl Observatory, Vienna. Observers A. Schnell and H. Stockenhuber.
580 Graz. Observers W. Ornig, C. Ornig and A. Hanslmeier. Long. and Parallax 15.50, -291, -311 (see MPC 7759).
583 Odessa-Mayaki. Observer I. S. Shestaka.
657 Victoria. Observers D. D. Balam and J. B. Tatum.
662 Lick Observatory. Observer B. F. Jones.
675 Palomar. Observers C. Shoemaker, E. Shoemaker and J. Gibson.
688 Lowell Observatory, Anderson Mesa Station. 0.79-m reflector and CCD. Observers S. J. Bus and C. Gullixson. Measured by Bus, with assistance from E. Bowell and L. H. Wasserman.
691 University of Arizona, Kitt Peak. 0.91-m reflector, CCD in scanning mode. Observers T. Gehrels and J. V. Scotti.
695 Kitt Peak. Observers H. A. Bushouse, W. Waller, G. H. Jacoby, E. F. Borra, Beauchemin, J. Burks, V. T. Junkkarinen, S. B. Howell, T. M. Heckman, P. Szkody, M. J. S. Belton, J. Kaluzny, L. E. Goad, J. Gallagher and J. Goad. Reductions by E. Alvarez and Belton.
707 Chamberlin Observatory field station. Observer J. Briggs. Measured by E. Everhart and Briggs.
711 McDonald Observatory. Observer M. L. Frueh. Measured by P. Sada and S. Gonzaga.
792 Quonochontaug. Observer W. S. Penhallow.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao.
805 Cerro El Roble. Observer H. Wroblewski. Communicated by C. Torres.
809 European Southern Observatory, La Silla. Observers R. M. West, L. Louys, H. Debehogne and P. Monderen. Measured by West.
820 Tarija. Observer H. I. Potter.
822 Cordoba. 0.33-m astrograph. Observer Z. M. Pereyra. Measured by B. de Zarate. Reductions by J. Rodriguez.
978 Conder Brow. Observers D. G. Buczynski and J. D. Greenwood. 0.47-m reflector. Communicated by P. Birtwhistle and G. M. Hurst.
984 Eastfield. 0.14-m f/5 astrograph and 0.70-m f/1 Zeiss lens. Observer H. B. Ridley. Measured in part by D. G. Buczynski. Communicated in part by G. M. Hurst.
996 Oxford. Observer G. Waddington.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
		Periodic Comet Halley				
/1982i	1985	08 15.05174	06 00 27.29	+19 06 04.5		094
/1982i	1985	08 19.13403	06 02 38.81	+19 09 45.7		091
/1982i	1985	08 20.11458	06 03 08.90	+19 10 33.6		091
/1982i	1985	08 20.79795	06 03 29.92	+19 11 11.4		413
/1982i	1985	08 21.10360	06 03 39.16	+19 11 24.9		098
/1982i	1985	08 21.10770	06 03 39.32	+19 11 25.2		098
/1982i	1985	08 21.11190	06 03 39.42	+19 11 25.1		098
/1982i	1985	08 22.06750	06 04 08.18	+19 12 15.0		098
/1982i	1985	08 22.07410	06 04 08.36	+19 12 15.2		098
/1982i	1985	08 22.08260	06 04 08.62	+19 12 16.2		098
/1982i	1985	08 22.09130	06 04 08.89	+19 12 16.5		098
/1982i	1985	08 22.09830	06 04 09.07	+19 12 17.0		098
/1982i	1985	08 22.11528	06 04 09.60	+19 12 21.0		091
/1982i	1985	08 23.08279	06 04 37.90	+19 13 10.0		561

/1982i	1985	08	24.08155	06	05	06.90	+19	14	01.0		561
/1982i	1985	08	25.07958	06	05	35.20	+19	14	53.0		561
/1982i	1985	08	26.08207	06	06	03.30	+19	15	43.0		561
/1982i	1985	08	26.78369	06	06	22.17	+19	16	25.6		413
/1982i	1985	09	13.01608	06	12	11.48	+19	33	16.3	13.1T 1	092
/1982i	1985	09	13.09940	06	12	12.51	+19	33	24.4		098
/1982i	1985	09	13.10320	06	12	12.57	+19	33	24.7		098
/1982i	1985	09	13.11800	06	12	12.73	+19	33	25.7		098
/1982i	1985	09	13.12153	06	12	12.75	+19	33	24.3		091
/1982i	1985	09	13.12250	06	12	12.75	+19	33	26.0		098
/1982i	1985	09	13.12780	06	12	12.89	+19	33	26.2		098
/1982i	1985	09	13.5072	06	12	17.12	+19	33	51.9		695
/1982i	1985	09	14.74722	06	12	30.12	+19	35	22.0		413
/1982i	1985	09	17.5008	06	12	51.42	+19	38	44.8		695
/1982i	1985	09	18.01389	06	12	54.26	+19	39	22.5		092
/1982i	1985	09	18.07708	06	12	54.56	+19	39	28.3		092
/1982i	1985	09	18.08958	06	12	54.58	+19	39	29.5		092
/1982i	1985	09	18.09380	06	12	54.59	+19	39	28.9		098
/1982i	1985	09	18.11597	06	12	54.71	+19	39	31.6		092
/1982i	1985	09	19.78288	06	13	00.78	+19	41	50.5		413
/1982i	1985	10	09.85041	06	06	28.78	+20	21	36.7		168
/1982i	1985	10	10.15590	06	06	13.48	+20	22	30.1		493
/1982i	1985	10	12.36111	06	04	11.60	+20	28	56.9		293
/1982i	1985	10	12.37498	06	04	10.77	+20	29	00.0		293
/1982i	1985	10	12.82749	06	03	43.18	+20	30	23.4		168
/1982i	1985	10	12.83166	06	03	42.92	+20	30	22.9		168
/1982i	1985	10	12.91360	06	03	37.86	+20	30	39.8		168
/1982i	1985	10	12.91777	06	03	37.43	+20	30	38.5		168
/1982i	1985	10	13.00388	06	03	31.98	+20	30	55.2		168
/1982i	1985	10	13.00735	06	03	31.88	+20	30	55.5		168
/1982i	1985	10	13.83513	06	02	37.87	+20	33	30.8		168
/1982i	1985	10	13.83866	06	02	37.53	+20	33	29.0		168
/1982i	1985	10	13.92193	06	02	31.97	+20	33	49.0		168
/1982i	1985	10	13.92679	06	02	31.74	+20	33	49.3		168
/1982i	1985	10	14.02054	06	02	25.23	+20	34	08.3		168
/1982i	1985	10	14.02402	06	02	25.01	+20	34	08.5		168
/1982i	1985	10	14.86288	06	01	26.08	+20	36	56.6		168
/1982i	1985	10	14.86638	06	01	26.03	+20	36	54.5		168
/1982i	1985	10	15.04653	06	01	12.69	+20	37	32.3		168
/1982i	1985	10	15.05081	06	01	12.31	+20	37	31.9		168
/1982i	1985	10	17.62640	05	57	44.56	+20	46	39.4		474
/1982i	1985	10	17.63022	05	57	44.25	+20	46	40.6		474
/1982i	1985	10	20.02396	05	53	54.59	+20	55	33.5		092
/1982i	1985	10	20.04722	05	53	52.08	+20	55	39.1		092
/1982i	1985	10	20.08472	05	53	48.07	+20	55	51.1		075
/1982i	1985	10	20.98958	05	52	10.85	+20	59	22.1		075
/1982i	1985	10	21.09549	05	51	58.90	+20	59	49.4		562
/1982i	1985	10	21.11285	05	51	56.88	+20	59	53.6		562
/1982i	1985	10	21.13125	05	51	54.86	+20	59	58.6		562
/1982i	1985	10	21.32720	05	51	32.91	+21	00	52.7		820
/1982i	1985	10	22.01528	05	50	12.86	+21	03	31.8		075
/1982i	1985	10	22.14375	05	49	57.52	+21	04	06.5		017
/1982i	1985	10	22.19132	05	49	51.59	+21	04	17.8		017
/1982i	1985	10	24.02014	05	45	58.04	+21	12	02.4		017
/1982i	1985	10	24.04271	05	45	54.87	+21	12	08.2		092
/1982i	1985	10	24.35068	05	45	12.35	+21	13	35.8		820
/1982i	1985	10	25.18215	05	43	13.67	+21	17	06.5		091
/1982i	1985	10	25.20608	05	43	10.12	+21	17	12.4		017
/1982i	1985	10	26.5122	05	39	50.06	+21	23	06.3		695

/1982i	1985	10	28.13854	05	35	15.91	+21	30	27.7		562
/1982i	1985	10	28.14271	05	35	15.16	+21	30	28.7		562
/1982i	1985	10	28.14826	05	35	14.18	+21	30	30.3		562
/1982i	1985	11	04.08507	05	09	19.74	+22	00	51.3		493
/1982i	1985	11	05.06597	05	04	38.84	+22	04	20.9		045
/1982i	1985	11	07.40590	04	52	14.36	+22	11	06.9		711
/1982i	1985	11	07.43056	04	52	05.79	+22	11	09.4		711
/1982i	1985	11	07.78160	04	50	05.02	+22	11	46.9		168
/1982i	1985	11	07.82465	04	49	49.93	+22	11	51.6		168
/1982i	1985	11	08.00990	04	48	44.69	+22	12	15.4		493
/1982i	1985	11	08.01024	04	48	44.69	+22	12	15.4		493
/1982i	1985	11	08.12396	04	48	03.67	+22	12	27.5		493
/1982i	1985	11	08.91950	04	43	13.32	+22	13	28.7		096
/1982i	1985	11	08.93540	04	43	07.00	+22	13	28.7		096
/1982i	1985	11	08.95240	04	43	00.77	+22	13	30.5		096
/1982i	1985	11	08.97220	04	42	53.34	+22	13	31.5		096
/1982i	1985	11	09.07870	04	42	12.73	+22	13	39.6		493
/1982i	1985	11	09.56252	04	39	07.00	+22	14	08.3		474
/1982i	1985	11	09.56912	04	39	04.43	+22	14	07.9		474
/1982i	1985	11	09.97512	04	36	24.62	+22	14	01.6		493
/1982i	1985	11	10.71667	04	31	22.12	+22	13	35.2		168
/1982i	1985	11	10.71865	04	31	21.30	+22	13	35.7		168
/1982i	1985	11	10.86146	04	30	21.24	+22	13	29.6		168
/1982i	1985	11	10.86276	04	30	20.49	+22	13	29.4		168
/1982i	1985	11	10.86424	04	30	20.01	+22	13	28.9		168
/1982i	1985	11	10.95069	04	29	43.46	+22	13	21.0		168
/1982i	1985	11	11.06111	04	28	56.71	+22	13	17.6		493
/1982i	1985	11	11.07543	04	28	50.22	+22	13	09.5		168
/1982i	1985	11	11.84722	04	23	15.45	+22	11	48.0		094
/1982i	1985	11	11.85017	04	23	13.67	+22	11	47.5		094
/1982i	1985	11	12.01806	04	21	58.57	+22	11	20.0		040
/1982i	1985	11	12.32639	04	19	38.79	+22	10	30.6		707
/1982i	1985	11	12.86563	04	15	28.87	+22	08	33.7		094
/1982i	1985	11	12.87188	04	15	26.18	+22	08	30.1		094
/1982i	1985	11	12.96209	04	14	43.51	+22	08	10.3		493
/1982i	1985	11	12.98322	04	14	33.44	+22	08	05.0		493
/1982i	1985	11	13.59134	04	09	40.25	+22	05	25.5		474
/1982i	1985	11	13.59811	04	09	36.91	+22	05	22.9		474
/1982i	1985	11	13.72584	04	08	33.98	+22	04	40.0		413
/1982i	1985	11	13.78472	04	08	06.38	+22	04	04.7		094
/1982i	1985	11	13.83958	04	07	38.62	+22	03	48.0		094
/1982i	1985	11	14.36996	04	03	11.56	+22	00	33.1		711
/1982i	1985	11	14.74653	03	59	58.15	+21	57	50.0		219
/1982i	1985	11	14.91319	03	58	31.48	+21	56	24.9		580
/1982i	1985	11	14.94792	03	58	13.34	+21	56	12.5		580
/1982i	1985	11	14.97743	03	57	57.80	+21	55	55.2		580
/1982i	1985	11	14.98070	03	57	56.03	+21	55	55.7		096
/1982i	1985	11	14.98980	03	57	51.22	+21	55	52.7		096
/1982i	1985	11	14.99063	03	57	50.76	+21	55	48.0		580
/1982i	1985	11	15.00160	03	57	44.97	+21	55	46.7		096
/1982i	1985	11	15.00868	03	57	41.40	+21	55	42.2		094
/1982i	1985	11	15.01130	03	57	39.83	+21	55	41.7		096
/1982i	1985	11	15.02240	03	57	33.98	+21	55	36.7		096
/1982i	1985	11	15.97674	03	49	00.43	+21	46	43.9		562
/1982i	1985	11	15.98021	03	48	58.53	+21	46	41.8		562
/1982i	1985	11	15.98368	03	48	56.62	+21	46	39.6		562
/1982i	1985	11	15.98715	03	48	54.68	+21	46	37.1		562
/1982i	1985	11	15.99080	03	48	52.65	+21	46	34.7		562
/1982i	1985	11	16.12118	03	47	40.34	+21	45	06.0	6.2T	092

/1982i	1985	11	16.18106	03	47	07.00	+21	44	26.7		092
/1982i	1985	11	16.19410	03	46	59.78	+21	44	18.2		092
/1982i	1985	11	16.20087	03	46	56.00	+21	44	13.8		092
/1982i	1985	11	16.20434	03	46	54.05	+21	44	11.4		092
/1982i	1985	11	16.72387	03	42	03.12	+21	38	10.5		123
/1982i	1985	11	16.90170	03	40	21.00	+21	35	57.7		096
/1982i	1985	11	16.91420	03	40	13.80	+21	35	48.3		096
/1982i	1985	11	16.92810	03	40	05.67	+21	35	38.5		096
/1982i	1985	11	16.93850	03	39	59.72	+21	35	29.8		096
/1982i	1985	11	16.95030	03	39	52.93	+21	35	20.6		096
/1982i	1985	11	17.85990	03	31	00.84	+21	22	26.2		493
/1982i	1985	11	17.88704	03	30	44.56	+21	22	01.4		493
/1982i	1985	11	18.34630	03	26	07.30	+21	14	36.5		695
/1982i	1985	11	18.94375	03	20	01.03	+21	03	56.4		094
/1982i	1985	11	18.95903	03	19	51.15	+21	03	38.5		094
/1982i	1985	11	19.11748	03	18	12.23	+21	00	37.6		493
/1982i	1985	11	19.13139	03	18	03.50	+21	00	21.4		493
/1982i	1985	11	19.74948	03	11	34.80	+20	47	44.6	5.9T	092
/1982i	1985	11	19.75295	03	11	32.68	+20	47	41.1		092
/1982i	1985	11	20.95799	02	58	31.53	+20	19	37.1		094
/1982i	1985	11	20.96910	02	58	24.28	+20	19	21.9		094
/1982i	1985	11	21.71563	02	50	07.98	+19	59	30.4		397
/1982i	1985	11	21.73542	02	49	54.71	+19	58	56.1		397
/1982i	1985	12	02.35826	00	51	28.41	+12	32	00.8		397
/1982i	1985	12	02.52847	00	49	45.88	+12	23	50.6		323
/1982i	1985	12	02.53299	00	49	43.12	+12	23	37.0		323
/1982i	1985	12	02.53576	00	49	41.49	+12	23	26.9		323
/1982i	1985	12	02.70500	00	48	01.11	+12	14	49.0		096
/1982i	1985	12	02.71680	00	47	54.05	+12	14	14.8		096
/1982i	1985	12	02.73000	00	47	46.19	+12	13	35.6		096
/1982i	1985	12	02.74250	00	47	38.69	+12	12	58.2		096
/1982i	1985	12	02.75780	00	47	29.54	+12	12	13.0		096
/1982i	1985	12	02.77030	00	47	22.14	+12	11	35.1		096
/1982i	1985	12	03.34358	00	41	46.48	+11	43	20.2		397
/1982i	1985	12	03.35719	00	41	38.47	+11	42	39.5		397
/1982i	1985	12	04.21875	00	33	27.92	+11	00	28.0		662
/1982i	1985	12	04.53958	00	30	30.18	+10	45	07.6		323
/1982i	1985	12	04.54340	00	30	28.13	+10	44	56.7		323
/1982i	1985	12	04.54618	00	30	26.57	+10	44	48.8		323
/1982i	1985	12	04.81990	00	27	57.07	+10	31	22.5		491
/1982i	1985	12	05.60764	00	20	55.78	+09	53	56.2		323
/1982i	1985	12	05.61528	00	20	51.75	+09	53	34.1		323
/1982i	1985	12	05.62153	00	20	48.46	+09	53	16.4		323
/1982i	1985	12	05.76892	00	19	31.92	+09	46	04.2		553
/1982i	1985	12	05.78953	00	19	21.21	+09	45	04.3		553
/1982i	1985	12	05.81746	00	19	06.57	+09	43	43.3		553
/1982i	1985	12	05.82032	00	19	05.24	+09	43	37.7		553
/1982i	1985	12	05.82450	00	19	03.04	+09	43	27.0		553
/1982i	1985	12	05.82727	00	19	01.71	+09	43	18.2		553
/1982i	1985	12	06.16979	00	16	05.29	+09	27	16.6		662
/1982i	1985	12	06.17396	00	16	03.17	+09	27	05.2		662
/1982i	1985	12	06.36177	00	14	28.33	+09	18	18.5		397
/1982i	1985	12	06.37031	00	14	23.96	+09	17	54.9		397
/1982i	1985	12	06.60955	00	12	22.76	+09	07	07.2		323
/1982i	1985	12	06.61250	00	12	21.26	+09	06	59.3		323
/1982i	1985	12	06.61458	00	12	20.26	+09	06	53.7		323
/1982i	1985	12	06.87053	00	10	13.41	+08	54	56.1		491
/1982i	1985	12	07.1081	00	08	17.25	+08	44	06.7		695
/1982i	1985	12	07.18715	00	07	38.29	+08	40	28.8		707

/1982i	1985	12	07.52569	00	04	55.56	+08	25	30.3		323
/1982i	1985	12	07.52847	00	04	54.26	+08	25	23.0		323
/1982i	1985	12	07.53056	00	04	53.22	+08	25	17.0		323
/1982i	1985	12	07.80799	00	02	42.18	+08	12	40.0		996
/1982i	1985	12	07.87736	00	02	09.11	+08	09	36.9	2	978
/1982i	1985	12	07.88983	00	02	03.50	+08	09	00.0	2	978
/1982i	1985	12	08.09059	00	00	30.02	+08	00	13.3		688
/1982i	1985	12	08.50278	23	57	20.61	+07	42	28.4		323
/1982i	1985	12	08.50451	23	57	19.81	+07	42	23.7		323
/1982i	1985	12	08.50625	23	57	19.06	+07	42	19.2		323
/1982i	1985	12	09.76739	23	48	05.16	+06	48	46.4		168
/1982i	1985	12	09.77370	23	48	02.86	+06	48	34.2		491
/1982i	1985	12	09.82565	23	47	40.61	+06	46	27.3		491
/1982i	1985	12	09.97731	23	46	36.26	+06	40	13.6		491
/1982i	1985	12	10.17396	23	45	14.50	+06	32	17.0		662
/1982i	1985	12	10.17743	23	45	13.06	+06	32	08.5		662
/1982i	1985	12	10.57639	23	42	28.91	+06	16	21.0		323
/1982i	1985	12	10.57847	23	42	28.12	+06	16	16.9		323
/1982i	1985	12	10.58056	23	42	27.29	+06	16	12.4		323
/1982i	1985	12	11.0943	23	39	01.83	+05	55	50.3		695
/1982i	1985	12	11.57431	23	35	54.00	+05	37	35.4		323
/1982i	1985	12	11.57639	23	35	53.27	+05	37	30.7		323
/1982i	1985	12	11.57847	23	35	52.49	+05	37	25.7		323
/1982i	1985	12	11.58194	23	35	51.11	+05	37	17.9		323
/1982i	1985	12	11.58403	23	35	50.34	+05	37	12.9		323
/1982i	1985	12	11.58611	23	35	49.53	+05	37	09.2		323
/1982i	1985	12	11.78715	23	34	32.91	+05	29	16.7		017
/1982i	1985	12	11.79063	23	34	31.38	+05	29	08.1		017
/1982i	1985	12	12.60139	23	29	29.62	+04	59	27.1		323
/1982i	1985	12	12.60347	23	29	28.85	+04	59	22.0		323
/1982i	1985	12	12.60556	23	29	28.06	+04	59	18.7		323
/1982i	1985	12	12.70721	23	28	51.42	+04	55	25.2		123
/1982i	1985	12	12.71970	23	28	47.30	+04	54	57.3		096
/1982i	1985	12	12.72731	23	28	44.33	+04	54	42.5		024
/1982i	1985	12	12.73490	23	28	41.71	+04	54	25.5		096
/1982i	1985	12	12.74250	23	28	38.83	+04	54	07.0		096
/1982i	1985	12	12.75090	23	28	35.93	+04	53	50.5		096
/1982i	1985	12	12.75920	23	28	32.81	+04	53	31.7		096
/1982i	1985	12	12.76823	23	28	29.47	+04	53	13.6		024
/1982i	1985	12	12.81014	23	28	14.40	+04	51	41.3		491
/1982i	1985	12	12.82506	23	28	09.01	+04	51	12.6		493
/1982i	1985	12	12.83438	23	28	05.65	+04	50	49.9		491
/1982i	1985	12	12.93446	23	27	29.68	+04	47	13.5		491
/1982i	1985	12	13.73350	23	22	50.61	+04	19	20.5		096
/1982i	1985	12	13.74530	23	22	46.41	+04	18	55.8		096
/1982i	1985	12	13.75850	23	22	41.84	+04	18	26.7		096
/1982i	1985	12	13.77380	23	22	36.69	+04	17	55.5		096
/1982i	1985	12	13.78910	23	22	31.33	+04	17	26.6		096
/1982i	1985	12	13.89664	23	21	54.62	+04	13	47.0		493
/1982i	1985	12	14.2096	23	20	09.44	+04	03	13.8		695
/1982i	1985	12	14.70570	23	17	26.87	+03	46	47.6		096
/1982i	1985	12	14.76750	23	17	06.71	+03	44	46.9		096
/1982i	1985	12	15.08828	23	15	23.42	+03	34	35.9		820
/1982i	1985	12	15.2098	23	14	45.01	+03	30	34.4		695
/1982i	1985	12	15.71270	23	12	08.97	+03	14	42.9		096
/1982i	1985	12	15.73280	23	12	02.69	+03	14	05.7		096
/1982i	1985	12	15.78897	23	11	45.54	+03	12	22.4		493
/1982i	1985	12	15.79530	23	11	43.45	+03	12	10.3		096
/1982i	1985	12	15.80430	23	11	40.69	+03	11	52.3		096

/1982i	1985	12	16.42604	23	08	33.85	+02	53	00.0	391
/1982i	1985	12	16.51042	23	08	08.98	+02	50	39.6	323
/1982i	1985	12	16.51250	23	08	08.39	+02	50	35.3	323
/1982i	1985	12	16.51458	23	08	07.76	+02	50	32.1	323
/1982i	1985	12	16.72520	23	07	06.44	+02	44	04.8	096
/1982i	1985	12	16.78619	23	06	48.70	+02	42	17.7	493
/1982i	1985	12	16.82153	23	06	38.36	+02	41	14.8	493
/1982i	1985	12	16.84549	23	06	31.35	+02	40	33.0	493
/1982i	1985	12	17.05760	23	05	30.22	+02	34	32.3	820
/1982i	1985	12	17.05922	23	05	29.79	+02	34	29.0	820
/1982i	1985	12	17.78343	23	02	07.33	+02	13	42.7	493
/1982i	1985	12	17.98775	23	01	11.34	+02	08	11.6	820
/1982i	1985	12	17.99435	23	01	09.55	+02	08	00.5	820
/1982i	1985	12	18.08715	23	00	44.56	+02	05	16.4	662
/1982i	1985	12	18.0955	23	00	42.22	+02	05	04.6	695
/1982i	1985	12	18.10104	23	00	40.76	+02	04	53.3	662
/1982i	1985	12	18.11493	23	00	36.99	+02	04	30.2	662
/1982i	1985	12	18.1398	23	00	30.05	+02	03	49.2	695
/1982i	1985	12	18.44063	22	59	09.57	+01	55	36.6	391
/1982i	1985	12	18.71076	22	57	58.81	+01	48	24.0	022
/1982i	1985	12	18.74340	22	57	50.18	+01	47	32.4	022
/1982i	1985	12	18.79726	22	57	36.15	+01	46	01.8	996
/1982i	1985	12	19.0948	22	56	19.17	+01	38	18.1	695
/1982i	1985	12	19.1558	22	56	03.35	+01	36	41.8	695
/1982i	1985	12	19.17083	22	55	59.48	+01	36	19.4	711
/1982i	1985	12	19.42324	22	54	55.49	+01	29	56.9	413
/1982i	1985	12	19.72730	22	53	39.67	+01	22	00.0	096
/1982i	1985	12	19.74050	22	53	36.30	+01	21	37.9	096
/1982i	1985	12	19.74722	22	53	34.74	+01	21	29.6	094
/1982i	1985	12	19.75451	22	53	32.92	+01	21	17.9	094
/1982i	1985	12	19.75780	22	53	31.95	+01	21	12.5	096
/1982i	1985	12	19.80208	22	53	21.00	+01	20	05.9	022
/1982i	1985	12	19.84293	22	53	10.88	+01	19	05.4	493
/1982i	1985	12	19.85000	22	53	09.07	+01	18	53.3	022
/1982i	1985	12	20.02253	22	52	26.75	+01	14	43.5	820
/1982i	1985	12	20.02762	22	52	25.40	+01	14	36.6	820
/1982i	1985	12	20.0704	22	52	15.27	+01	13	24.6	695
/1982i	1985	12	20.51111	22	50	28.78	+01	02	44.4	323
/1982i	1985	12	20.51319	22	50	28.24	+01	02	41.3	323
/1982i	1985	12	20.51528	22	50	27.72	+01	02	38.2	323
/1982i	1985	12	20.79770	22	49	20.99	+00	55	38.5	493
/1982i	1985	12	21.79557	22	45	32.19	+00	32	18.1	493
/1982i	1985	12	21.79781	22	45	31.55	+00	32	15.6	493
/1982i	1985	12	21.79942	22	45	31.26	+00	32	13.8	493
/1982i	1985	12	22.0710	22	44	30.95	+00	26	05.7	695
/1982i	1985	12	22.07387	22	44	30.26	+00	26	01.6	711
/1982i	1985	12	22.10139	22	44	24.10	+00	25	23.2	3 711
/1982i	1985	12	22.87639	22	41	36.45	+00	08	16.2	984
/1982i	1985	12	23.08715	22	40	51.85	+00	03	46.6	711
/1982i	1985	12	23.39132	22	39	48.46	-00	02	41.6	391
/1982i	1985	12	23.42049	22	39	42.37	-00	03	17.6	391
/1982i	1985	12	23.43646	22	39	39.02	-00	03	39.4	391
/1982i	1985	12	23.51389	22	39	23.08	-00	05	07.5	323
/1982i	1985	12	23.51597	22	39	22.71	-00	05	10.0	323
/1982i	1985	12	23.51771	22	39	22.27	-00	05	13.3	323
/1982i	1985	12	23.79936	22	38	24.63	-00	11	02.6	051
/1982i	1985	12	24.37674	22	36	28.94	-00	23	00.5	391
/1982i	1985	12	24.39618	22	36	25.07	-00	23	29.2	391
/1982i	1985	12	24.40521	22	36	23.27	-00	23	34.7	391

/1982i	1985	12	24.52222	22	36	00.12	-00	25	45.2	323
/1982i	1985	12	24.52396	22	35	59.66	-00	25	47.9	323
/1982i	1985	12	24.52569	22	35	59.42	-00	25	49.3	323
/1982i	1985	12	26.52153	22	29	44.35	-01	03	56.2	323
/1982i	1985	12	26.52361	22	29	43.94	-01	03	57.4	323
/1982i	1985	12	26.52569	22	29	43.66	-01	03	59.4	323
/1982i	1985	12	26.79526	22	28	55.40	-01	08	53.5	051
/1982i	1985	12	26.80145	22	28	54.26	-01	08	59.4	051
/1982i	1985	12	28.08646	22	25	12.27	-01	31	41.0	662
/1982i	1985	12	28.08993	22	25	11.69	-01	31	44.9	662
/1982i	1985	12	28.75799	22	23	20.66	-01	42	56.4	984
/1982i	1985	12	28.79387	22	23	14.66	-01	43	23.9	051
/1982i	1985	12	28.79942	22	23	13.71	-01	43	28.6	051
/1982i	1985	12	29.0827	22	22	27.77	-01	48	17.0	695
/1982i	1985	12	29.51736	22	21	17.96	-01	55	12.2	323
/1982i	1985	12	29.51944	22	21	17.64	-01	55	12.9	323
/1982i	1985	12	29.52153	22	21	17.24	-01	55	15.4	323
/1982i	1985	12	29.56659	22	21	10.26	-01	56	07.4	210
/1982i	1985	12	29.57556	22	21	08.79	-01	56	17.3	210
/1982i	1985	12	29.59662	22	21	05.33	-01	56	36.0	210
/1982i	1985	12	29.74340	22	20	42.56	-01	58	56.7	984
/1982i	1985	12	30.0739	22	19	50.37	-02	04	10.1	695
/1982i	1985	12	30.51458	22	18	42.07	-02	10	53.7	323
/1982i	1985	12	30.51667	22	18	41.76	-02	10	54.7	323
/1982i	1985	12	30.51875	22	18	41.46	-02	10	56.9	323
/1982i	1985	12	30.72535	22	18	10.14	-02	14	17.5	017
/1982i	1985	12	30.72743	22	18	09.79	-02	14	18.0	017
/1982i	1985	12	31.36632	22	16	33.68	-02	23	57.0	391
/1982i	1985	12	31.37882	22	16	31.81	-02	24	08.3	391
/1982i	1985	12	31.43507	22	16	23.42	-02	24	58.2	391
/1982i	1985	12	31.51458	22	16	11.63	-02	26	01.2	323
/1982i	1985	12	31.51667	22	16	11.24	-02	26	01.9	323
/1982i	1985	12	31.51875	22	16	10.98	-02	26	02.6	323
/1982i	1985	12	31.67083	22	15	48.98	-02	28	28.1	047
/1982i	1985	12	31.67431	22	15	48.13	-02	28	34.0	047
/1982i	1985	12	31.72778	22	15	40.61	-02	29	20.7	017
/1982i	1985	12	31.74317	22	15	38.17	-02	29	32.7	017
/1982i	1985	12	31.74531	22	15	37.97	-02	29	36.0	017
/1982i	1985	12	31.74797	22	15	37.38	-02	29	39.7	017
/1982i	1985	12	31.79317	22	15	30.62	-02	30	07.5	051
/1982i	1985	12	31.79803	22	15	29.98	-02	30	13.1	051
/1982i	1986	01	01.04323	22	14	54.12	-02	33	48.9	809
/1982i	1986	01	01.04878	22	14	53.39	-02	33	53.4	809
/1982i	1986	01	01.38229	22	14	05.25	-02	38	50.9	391
/1982i	1986	01	01.63475	22	13	29.35	-02	42	27.1	129
/1982i	1986	01	01.69795	22	13	20.35	-02	43	23.5	046
/1982i	1986	01	01.69865	22	13	20.26	-02	43	23.7	046
/1982i	1986	01	01.69934	22	13	20.14	-02	43	24.1	046
/1982i	1986	01	01.70003	22	13	20.04	-02	43	25.4	046
/1982i	1986	01	02.03698	22	12	32.40	-02	48	02.3	809
/1982i	1986	01	02.03981	22	12	31.98	-02	48	04.8	809
/1982i	1986	01	02.36493	22	11	46.67	-02	52	43.6	391
/1982i	1986	01	02.41563	22	11	39.56	-02	53	26.4	391
/1982i	1986	01	02.42813	22	11	37.82	-02	53	35.9	391
/1982i	1986	01	02.52292	22	11	24.80	-02	54	48.4	323
/1982i	1986	01	02.52500	22	11	24.52	-02	54	50.0	323
/1982i	1986	01	02.59880	22	11	14.45	-02	55	58.3	210
/1982i	1986	01	02.61319	22	11	12.14	-02	56	08.6	219
/1982i	1986	01	02.75972	22	10	52.24	-02	58	12.0	006

/1982i	1986	01	02.76632	22	10	51.18	-02	58	19.5	006
/1982i	1986	01	02.77188	22	10	50.53	-02	58	22.4	493
/1982i	1986	01	02.77222	22	10	50.54	-02	58	22.5	006
/1982i	1986	01	02.77269	22	10	50.43	-02	58	22.9	493
/1982i	1986	01	02.77882	22	10	49.55	-02	58	29.6	006
/1982i	1986	01	02.78299	22	10	49.04	-02	58	32.5	006
/1982i	1986	01	02.79063	22	10	47.95	-02	58	38.3	006
/1982i	1986	01	02.79583	22	10	47.18	-02	58	34.4	051
/1982i	1986	01	02.80243	22	10	46.14	-02	58	38.7	051
/1982i	1986	01	03.03838	22	10	14.02	-03	01	53.7	809
/1982i	1986	01	03.04317	22	10	13.37	-03	01	57.6	809
/1982i	1986	01	03.1301	22	10	01.55	-03	03	15.5	695
/1982i	1986	01	03.52292	22	09	08.64	-03	08	25.7	323
/1982i	1986	01	03.52500	22	09	08.38	-03	08	27.1	323
/1982i	1986	01	03.52708	22	09	08.13	-03	08	29.0	323
/1982i	1986	01	03.55641	22	09	04.33	-03	09	00.9	210
/1982i	1986	01	03.74925	22	08	38.81	-03	11	37.3	996
/1982i	1986	01	03.82089	22	08	28.93	-03	12	33.3	493
/1982i	1986	01	04.03593	22	08	00.42	-03	15	15.8	809
/1982i	1986	01	04.03681	22	08	00.34	-03	15	16.9	809
/1982i	1986	01	04.03767	22	08	00.19	-03	15	17.2	809
/1982i	1986	01	04.03872	22	08	00.10	-03	15	18.4	809
/1982i	1986	01	04.04097	22	07	59.77	-03	15	19.9	809
/1982i	1986	01	04.06181	22	07	57.03	-03	15	45.8	707
/1982i	1986	01	04.0782	22	07	54.93	-03	15	56.5	695
/1982i	1986	01	04.52153	22	06	56.74	-03	21	37.8	323
/1982i	1986	01	04.52361	22	06	56.52	-03	21	39.9	323
/1982i	1986	01	04.64751	22	06	40.66	-03	23	23.9	119
/1982i	1986	01	04.66341	22	06	38.27	-03	23	38.3	119
/1982i	1986	01	04.68021	22	06	36.36	-03	23	51.9	047
/1982i	1986	01	04.68455	22	06	35.75	-03	23	53.8	047
/1982i	1986	01	04.72517	22	06	30.58	-03	24	25.9	017
/1982i	1986	01	04.72726	22	06	30.36	-03	24	26.1	017
/1982i	1986	01	04.75012	22	06	27.32	-03	24	44.0	493
/1982i	1986	01	04.75110	22	06	27.19	-03	24	44.5	493
/1982i	1986	01	05.03490	22	05	50.46	-03	28	14.6	809
/1982i	1986	01	05.03576	22	05	50.35	-03	28	15.2	809
/1982i	1986	01	05.03646	22	05	50.28	-03	28	16.0	809
/1982i	1986	01	05.03750	22	05	50.13	-03	28	16.4	809
/1982i	1986	01	05.51407	22	04	49.40	-03	34	21.0	323
/1982i	1986	01	05.51616	22	04	49.23	-03	34	21.9	323
/1982i	1986	01	05.69656	22	04	26.58	-03	36	48.4	046
/1982i	1986	01	05.76979	22	04	17.28	-03	37	45.4	984
/1982i	1986	01	06.05799	22	03	40.91	-03	41	21.1	707
/1982i	1986	01	06.0804	22	03	38.39	-03	41	32.3	695
/1982i	1986	01	06.0844	22	03	37.84	-03	41	35.7	695
/1982i	1986	01	06.63262	22	02	29.97	-03	48	22.2	119
/1982i	1986	01	06.63694	22	02	29.47	-03	48	27.4	123
/1982i	1986	01	06.64266	22	02	28.78	-03	48	31.5	123
/1982i	1986	01	06.64908	22	02	28.03	-03	48	38.0	123
/1982i	1986	01	06.65764	22	02	26.89	-03	48	42.1	119
/1982i	1986	01	06.75282	22	02	15.24	-03	49	51.6	493
/1982i	1986	01	06.75336	22	02	15.16	-03	49	52.1	493
/1982i	1986	01	06.77951	22	02	11.93	-03	50	12.5	4 502
/1982i	1986	01	06.78646	22	02	11.33	-03	50	18.5	502
/1982i	1986	01	06.79738	22	02	10.03	-03	50	26.4	996
/1982i	1986	01	07.51736	22	00	42.12	-03	59	01.9	323
/1982i	1986	01	07.51944	22	00	41.93	-03	59	04.1	323
/1982i	1986	01	07.52153	22	00	41.60	-03	59	04.6	323

/1982i	1986	01	07.63983	22	00	27.56	-04	00	36.0	119
/1982i	1986	01	08.55809	21	58	38.07	-04	11	27.7	210
/1982i	1986	01	08.55887	21	58	38.12	-04	11	28.1	210
/1982i	1986	01	08.55934	21	58	38.26	-04	11	25.7	210
/1982i	1986	01	08.61801	21	58	31.47	-04	12	12.2	129
/1982i	1986	01	08.62075	21	58	31.03	-04	12	12.9	129
/1982i	1986	01	08.96031	21	57	50.79	-04	16	11.7	801
/1982i	1986	01	08.96135	21	57	51.01	-04	16	10.9	801
/1982i	1986	01	08.96255	21	57	50.91	-04	16	09.0	801
/1982i	1986	01	09.57704	21	56	39.41	-04	23	15.7	190
/1982i	1986	01	09.64858	21	56	31.25	-04	24	07.5	089
/1982i	1986	01	09.68970	21	56	26.52	-04	24	36.6	553
/1982i	1986	01	09.69664	21	56	25.74	-04	24	38.5	553
/1982i	1986	01	09.70553	21	56	24.62	-04	24	47.0	553
/1982i	1986	01	09.71169	21	56	23.99	-04	24	55.1	553
/1982i	1986	01	09.78163	21	56	15.85	-04	25	38.1	493
/1982i	1986	01	09.78304	21	56	15.68	-04	25	38.8	493
/1982i	1986	01	09.78635	21	56	15.36	-04	25	41.4	491
/1982i	1986	01	09.81804	21	56	11.76	-04	26	02.5	491
/1982i	1986	01	09.82496	21	56	10.86	-04	26	08.2	491
/1982i	1986	01	10.52535	21	54	50.98	-04	33	57.9	323
/1982i	1986	01	10.56052	21	54	46.86	-04	34	29.3	192
/1982i	1986	01	10.56317	21	54	46.60	-04	34	31.0	192
/1982i	1986	01	10.56404	21	54	46.54	-04	34	31.7	192
/1982i	1986	01	10.56443	21	54	46.37	-04	34	34.5	190
/1982i	1986	01	10.56531	21	54	46.40	-04	34	32.7	192
/1982i	1986	01	10.56658	21	54	46.33	-04	34	33.2	192
/1982i	1986	01	10.56744	21	54	46.05	-04	34	34.7	192
/1982i	1986	01	10.56872	21	54	45.95	-04	34	34.5	190
/1982i	1986	01	10.56912	21	54	45.94	-04	34	35.8	192
/1982i	1986	01	10.57010	21	54	45.91	-04	34	37.6	192
/1982i	1986	01	10.57720	21	54	45.03	-04	34	39.8	192
/1982i	1986	01	10.57881	21	54	44.63	-04	34	41.8	192
/1982i	1986	01	10.60662	21	54	41.58	-04	35	00.6	190
/1982i	1986	01	10.65322	21	54	36.42	-04	35	32.0	089
/1982i	1986	01	10.66019	21	54	35.78	-04	35	37.9	084
/1982i	1986	01	10.66192	21	54	35.54	-04	35	39.8	084
/1982i	1986	01	10.67162	21	54	34.43	-04	35	45.2	084
/1982i	1986	01	10.74149	21	54	26.43	-04	36	32.4	494
/1982i	1986	01	10.74749	21	54	25.75	-04	36	37.1	996
/1982i	1986	01	10.75217	21	54	25.20	-04	36	39.8	494
/1982i	1986	01	10.76860	21	54	23.25	-04	36	50.5	493
/1982i	1986	01	10.76991	21	54	23.13	-04	36	51.2	493
/1982i	1986	01	10.77096	21	54	23.02	-04	36	52.0	493
/1982i	1986	01	10.77315	21	54	22.75	-04	36	53.6	493
/1982i	1986	01	10.77670	21	54	22.45	-04	36	57.9	491
/1982i	1986	01	10.82518	21	54	16.83	-04	37	28.9	491
/1982i	1986	01	11.00924	21	53	56.07	-04	39	27.1	820
/1982i	1986	01	11.07789	21	53	48.33	-04	40	17.1	711
/1982i	1986	01	11.56672	21	52	53.71	-04	45	46.8	190
/1982i	1986	01	11.56829	21	52	53.52	-04	45	48.2	192
/1982i	1986	01	11.56950	21	52	53.41	-04	45	49.2	192
/1982i	1986	01	11.57141	21	52	53.17	-04	45	50.4	192
/1982i	1986	01	11.57331	21	52	52.89	-04	45	51.0	192
/1982i	1986	01	11.57602	21	52	52.44	-04	45	52.1	192
/1982i	1986	01	11.58122	21	52	52.07	-04	45	57.4	192
/1982i	1986	01	11.58278	21	52	52.00	-04	45	57.7	192
/1982i	1986	01	11.58434	21	52	51.72	-04	45	59.7	192
/1982i	1986	01	11.58589	21	52	51.56	-04	46	01.7	192

/1982i	1986	01	11.58711	21	52	51.32	-04	45	59.9	192
/1982i	1986	01	11.60231	21	52	49.61	-04	46	10.5	190
/1982i	1986	01	11.60903	21	52	48.90	-04	46	15.6	190
/1982i	1986	01	11.65338	21	52	44.09	-04	46	45.0	089
/1982i	1986	01	11.66991	21	52	42.20	-04	46	55.9	089
/1982i	1986	01	11.67899	21	52	41.16	-04	47	02.2	089
/1982i	1986	01	11.68795	21	52	40.18	-04	47	06.5	089
/1982i	1986	01	11.69359	21	52	39.66	-04	47	13.9	583
/1982i	1986	01	11.69361	21	52	39.32	-04	47	11.5	094
/1982i	1986	01	11.70628	21	52	38.00	-04	47	20.7	583
/1982i	1986	01	11.74635	21	52	33.70	-04	47	46.8	494
/1982i	1986	01	11.74872	21	52	33.47	-04	47	48.7	996
/1982i	1986	01	11.74948	21	52	33.35	-04	47	48.7	494
/1982i	1986	01	11.82622	21	52	24.67	-04	48	41.2	493
/1982i	1986	01	11.95187	21	52	10.70	-04	50	03.4	801
/1982i	1986	01	11.95264	21	52	10.67	-04	50	03.0	801
/1982i	1986	01	12.06495	21	51	58.19	-04	51	18.6	711
/1982i	1986	01	12.58966	21	51	00.32	-04	57	05.9	210
/1982i	1986	01	12.59058	21	51	00.18	-04	57	07.5	210
/1982i	1986	01	12.59142	21	51	00.00	-04	57	08.1	210
/1982i	1986	01	12.74479	21	50	43.33	-04	58	47.8	984
/1982i	1986	01	12.76447	21	50	41.08	-04	59	01.8	493
/1982i	1986	01	12.76547	21	50	40.96	-04	59	02.3	493
/1982i	1986	01	12.76695	21	50	40.69	-04	59	05.8	996
/1982i	1986	01	12.76817	21	50	40.67	-04	59	04.4	493
/1982i	1986	01	13.0913	21	50	05.29	-05	02	35.4	695
/1982i	1986	01	13.78029	21	48	50.24	-05	10	09.7	491
/1982i	1986	01	14.57355	21	47	24.35	-05	18	41.9	190
/1982i	1986	01	14.58038	21	47	23.86	-05	18	47.0	190
/1982i	1986	01	14.64906	21	47	16.49	-05	19	31.5	089
/1982i	1986	01	14.65806	21	47	15.53	-05	19	37.4	089
/1982i	1986	01	14.66639	21	47	14.55	-05	19	42.8	089
/1982i	1986	01	14.66729	21	47	14.48	-05	19	44.4	089
/1982i	1986	01	14.67455	21	47	14.11	-05	19	48.0	089
/1982i	1986	01	14.67803	21	47	13.23	-05	19	51.3	583
/1982i	1986	01	14.68485	21	47	12.52	-05	19	56.8	089
/1982i	1986	01	14.76744	21	47	03.68	-05	20	47.6	493
/1982i	1986	01	14.76892	21	47	03.52	-05	20	48.8	493
/1982i	1986	01	14.78066	21	47	02.24	-05	20	56.1	491
/1982i	1986	01	14.81044	21	46	59.12	-05	21	18.1	491
/1982i	1986	01	15.05642	21	46	32.72	-05	23	55.0	707
/1982i	1986	01	15.42799	21	45	53.05	-05	27	53.3	337
/1982i	1986	01	15.43015	21	45	52.82	-05	27	54.3	337
/1982i	1986	01	15.43448	21	45	52.37	-05	27	57.0	337
/1982i	1986	01	15.55072	21	45	40.05	-05	29	13.7	210
/1982i	1986	01	15.55138	21	45	39.94	-05	29	15.0	210
/1982i	1986	01	15.55213	21	45	39.80	-05	29	14.1	210
/1982i	1986	01	15.63098	21	45	31.47	-05	30	05.2	114
/1982i	1986	01	15.63693	21	45	30.86	-05	30	07.6	114
/1982i	1986	01	15.63990	21	45	30.49	-05	30	09.7	114
/1982i	1986	01	15.64223	21	45	30.27	-05	30	11.7	114
/1982i	1986	01	15.64443	21	45	30.07	-05	30	13.5	114
/1982i	1986	01	15.64982	21	45	29.50	-05	30	16.4	089
/1982i	1986	01	15.66081	21	45	28.28	-05	30	23.5	089
/1982i	1986	01	15.66973	21	45	27.32	-05	30	31.0	089
/1982i	1986	01	15.70421	21	45	23.75	-05	30	55.9	057
/1982i	1986	01	15.71080	21	45	22.84	-05	30	56.8	057
/1982i	1986	01	15.73681	21	45	19.81	-05	31	14.6	022
/1982i	1986	01	15.73854	21	45	19.65	-05	31	17.3	022

/1982i	1986	01	15.74687	21	45	19.11	-05	31	20.2	022
/1982i	1986	01	15.74965	21	45	18.80	-05	31	22.3	022
/1982i	1986	01	15.75034	21	45	18.91	-05	31	23.3	984
/1982i	1986	01	15.76808	21	45	16.81	-05	31	32.0	493
/1982i	1986	01	15.76910	21	45	16.81	-05	31	35.4	978
/1982i	1986	01	15.76916	21	45	16.75	-05	31	33.9	493
/1982i	1986	01	16.56771	21	43	51.8	-05	40	03.3	219
/1982i	1986	01	16.68935	21	43	39.02	-05	41	24.5	061
/1982i	1986	01	16.69120	21	43	38.82	-05	41	25.9	061
/1982i	1986	01	16.69271	21	43	38.61	-05	41	29.1	061
/1982i	1986	01	16.70093	21	43	37.80	-05	41	32.2	061
/1982i	1986	01	16.70421	21	43	37.30	-05	41	34.2	057
/1982i	1986	01	16.73646	21	43	33.97	-05	41	55.2	022
/1982i	1986	01	16.74687	21	43	32.87	-05	42	03.2	022
/1982i	1986	01	17.56354	21	42	06.58	-05	50	42.7	219
/1982i	1986	01	17.68524	21	41	53.84	-05	52	03.1	061
/1982i	1986	01	17.68698	21	41	53.74	-05	52	06.0	061
/1982i	1986	01	17.68854	21	41	53.63	-05	52	06.6	061
/1982i	1986	01	17.70074	21	41	52.25	-05	52	13.8	057
/1982i	1986	01	17.70890	21	41	51.38	-05	52	19.6	528
/1982i	1986	01	17.70983	21	41	51.34	-05	52	18.7	528
/1982i	1986	01	17.71052	21	41	51.18	-05	52	20.7	528
/1982i	1986	01	17.75087	21	41	46.90	-05	52	45.1	022
/1982i	1986	01	17.75260	21	41	46.54	-05	52	45.6	022
/1982i	1986	01	17.76181	21	41	45.77	-05	52	52.2	006
/1982i	1986	01	17.77500	21	41	44.23	-05	53	02.7	006
/1982i	1986	01	18.09611	21	41	10.58	-05	56	25.2	675
/1982i	1986	01	18.09792	21	41	10.42	-05	56	27.1	675
/1982i	1986	01	18.55785	21	40	22.30	-06	01	25.5	210
/1982i	1986	01	18.56260	21	40	21.63	-06	01	26.7	192
/1982i	1986	01	18.56424	21	40	21.24	-06	01	24.3	219
/1982i	1986	01	18.56450	21	40	21.25	-06	01	28.8	192
/1982i	1986	01	18.56527	21	40	21.31	-06	01	26.4	186
/1982i	1986	01	18.56548	21	40	21.34	-06	01	29.2	192
/1982i	1986	01	18.56640	21	40	21.33	-06	01	31.0	192
/1982i	1986	01	18.56735	21	40	21.13	-06	01	28.8	186
/1982i	1986	01	18.56773	21	40	21.05	-06	01	29.5	192
/1982i	1986	01	18.56839	21	40	20.96	-06	01	31.0	186
/1982i	1986	01	18.57135	21	40	20.62	-06	01	30.7	190
/1982i	1986	01	18.57281	21	40	20.50	-06	01	34.2	192
/1982i	1986	01	18.57373	21	40	20.38	-06	01	33.8	192
/1982i	1986	01	18.57546	21	40	20.03	-06	01	34.7	192
/1982i	1986	01	18.57633	21	40	20.08	-06	01	37.4	192
/1982i	1986	01	18.57760	21	40	20.01	-06	01	35.1	192
/1982i	1986	01	18.58779	21	40	19.05	-06	01	42.1	190
/1982i	1986	01	18.65215	21	40	12.16	-06	02	25.2	089
/1982i	1986	01	18.65976	21	40	11.46	-06	02	28.6	089
/1982i	1986	01	18.66635	21	40	10.73	-06	02	33.9	089
/1982i	1986	01	18.67276	21	40	10.07	-06	02	38.4	089
/1982i	1986	01	18.67319	21	40	10.02	-06	02	38.1	089
/1982i	1986	01	18.68346	21	40	08.84	-06	02	44.3	089
/1982i	1986	01	19.11306	21	39	23.90	-06	07	19.7	675
/1982i	1986	01	19.11812	21	39	23.39	-06	07	22.6	675
/1982i	1986	01	19.43105	21	38	50.60	-06	10	43.6	337
/1982i	1986	01	19.55856	21	38	37.42	-06	12	06.5	210
/1982i	1986	01	19.57471	21	38	35.49	-06	12	18.3	190
/1982i	1986	01	19.57980	21	38	35.02	-06	12	20.9	190
/1982i	1986	01	19.64093	21	38	28.69	-06	13	00.1	114
/1982i	1986	01	19.64428	21	38	28.34	-06	13	01.2	114

/1982i	1986	01	19.64855	21	38	27.88	-06	13	04.9		114
/1982i	1986	01	19.65089	21	38	27.64	-06	13	07.1		114
/1982i	1986	01	19.70203	21	38	22.40	-06	13	36.3		071
/1982i	1986	01	19.74549	21	38	17.71	-06	14	08.2		006
/1982i	1986	01	19.75208	21	38	16.96	-06	14	12.7		006
/1982i	1986	01	19.75625	21	38	16.43	-06	14	15.9		006
/1982i	1986	01	19.75660	21	38	16.68	-06	14	12.1	5	482
/1982i	1986	01	19.75972	21	38	16.23	-06	14	18.6		006
/1982i	1986	01	19.76250	21	38	15.88	-06	14	19.8		006
/1982i	1986	01	19.77495	21	38	14.57	-06	14	25.6		491
/1982i	1986	01	19.78880	21	38	13.06	-06	14	34.7		491
/1982i	1986	01	20.54774	21	36	53.55	-06	22	48.7		210
/1982i	1986	01	20.54855	21	36	53.52	-06	22	49.4		210
/1982i	1986	01	20.54931	21	36	53.35	-06	22	50.2		210
/1982i	1986	01	20.55023	21	36	53.28	-06	22	51.4		210
/1982i	1986	01	20.55139	21	36	53.18	-06	22	50.3		210
/1982i	1986	01	20.56638	21	36	51.85	-06	22	58.2		168
/1982i	1986	01	20.56704	21	36	51.79	-06	22	58.4		168
/1982i	1986	01	20.57957	21	36	50.60	-06	23	06.3		168
/1982i	1986	01	20.58018	21	36	50.34	-06	23	06.6		168
/1982i	1986	01	20.72140	21	36	35.45	-06	24	42.2		096
/1982i	1986	01	20.72830	21	36	34.82	-06	24	46.6		096
/1982i	1986	01	20.72890	21	36	34.63	-06	24	48.1		022
/1982i	1986	01	20.73029	21	36	34.53	-06	24	48.4		022
/1982i	1986	01	21.65346	21	34	58.22	-06	34	43.0		089
/1982i	1986	01	21.65816	21	34	57.70	-06	34	48.0		089
/1982i	1986	01	21.66386	21	34	57.27	-06	34	51.0		089
/1982i	1986	01	21.66569	21	34	56.65	-06	34	55.4		094
/1982i	1986	01	21.66765	21	34	56.80	-06	34	52.3		089
/1982i	1986	01	21.67090	21	34	56.24	-06	34	57.2		094
/1982i	1986	01	21.67303	21	34	56.08	-06	34	59.7		089
/1982i	1986	01	21.69866	21	34	53.41	-06	35	16.4		057
/1982i	1986	01	21.69925	21	34	53.37	-06	35	16.4		553
/1982i	1986	01	21.70498	21	34	52.81	-06	35	17.6		553
/1982i	1986	01	21.70734	21	34	52.43	-06	35	24.8		057
/1982i	1986	01	21.73444	21	34	49.83	-06	35	37.3		503
/1982i	1986	01	22.64519	21	33	14.30	-06	45	37.3		114
/1982i	1986	01	22.64754	21	33	14.07	-06	45	37.1		114
/1982i	1986	01	22.64957	21	33	13.89	-06	45	39.9		114
/1982i	1986	01	22.65177	21	33	13.63	-06	45	41.2		114
/1982i	1986	01	22.65353	21	33	13.51	-06	45	42.9		114
/1982i	1986	01	22.65767	21	33	13.12	-06	45	46.2		094
/1982i	1986	01	22.66260	21	33	12.53	-06	45	47.9		094
/1982i	1986	01	22.71389	21	33	07.26	-06	46	21.8		528
/1982i	1986	01	22.71510	21	33	07.03	-06	46	23.3		528
/1982i	1986	01	22.71654	21	33	06.93	-06	46	23.7		528
/1982i	1986	01	23.09314	21	32	27.49	-06	50	32.6		662
/1982i	1986	01	23.73280	21	31	20.42	-06	57	39.3		503
/1982i	1986	01	24.73433	21	29	35.05	-07	08	49.3	5	503
/1982i	1986	02	15.40573	20	50	12.32	-12	05	56.8		809
/1982i	1986	02	16.40469	20	48	24.77	-12	22	36.2		809
/1982i	1986	02	16.40807	20	48	24.88	-12	22	36.7		809
/1982i	1986	02	17.40098	20	46	38.69	-12	39	20.9	3.5T	809
/1982i	1986	02	17.40116	20	46	38.69	-12	39	20.9		809
/1982i	1986	02	17.40446	20	46	38.30	-12	39	24.8		809
/1982i	1986	02	18.39942	20	44	52.68	-12	56	29.9		809
/1982i	1986	02	18.40220	20	44	52.34	-12	56	33.6		809
/1982i	1986	02	18.87361	20	44	02.79	-13	04	43.6		323
/1982i	1986	02	18.87986	20	44	02.13	-13	04	47.0		323

/1982i	1986	02	19.39514	20	43	07.62	-13	13	54.3			809
/1982i	1986	02	19.39939	20	43	07.39	-13	13	58.5			809
/1982i	1986	02	19.79343	20	42	26.01	-13	20	53.2		6	413
/1982i	1986	02	20.39939	20	41	22.36	-13	31	41.9			809
/1982i	1986	02	20.40286	20	41	22.07	-13	31	44.0			809
/1982i	1986	02	21.39016	20	39	39.17	-13	49	33.8			809
/1982i	1986	02	21.39317	20	39	38.79	-13	49	38.0			809
/1982i	1986	02	21.79333	20	38	57.23	-13	56	56.5		5	413
/1982i	1986	02	22.39664	20	37	54.75	-14	08	03.1			809
/1982i	1986	02	22.40012	20	37	54.43	-14	08	06.3			809
/1982i	1986	02	22.79451	20	37	13.68	-14	15	27.5			413
/1982i	1986	02	22.86985	20	37	05.96	-14	16	59.8			372
/1982i	1986	02	23.39595	20	36	11.56	-14	26	46.7			809
/1982i	1986	02	23.40281	20	36	10.87	-14	26	53.7			809
/1982i	1986	02	23.79031	20	35	30.89	-14	34	13.1			413
/1982i	1986	02	23.80559	20	35	29.42	-14	34	29.4			413
/1982i	1986	02	23.85694	20	35	24.37	-14	35	27.1			323
/1982i	1986	02	23.86458	20	35	23.61	-14	35	41.4			323
/1982i	1986	02	23.87326	20	35	22.49	-14	35	48.1			323
/1982i	1986	02	23.87708	20	35	22.01	-14	35	53.1			323
/1982i	1986	02	24.39456	20	34	28.67	-14	45	45.8			809
/1982i	1986	02	24.39734	20	34	28.37	-14	45	48.9			809
/1982i	1986	02	24.85556	20	33	41.31	-14	54	39.4			323
/1982i	1986	02	24.85833	20	33	40.88	-14	54	43.7			323
/1982i	1986	02	25.39782	20	32	45.49	-15	05	16.2			809
/1982i	1986	02	25.40130	20	32	45.13	-15	05	20.0			809
/1982i	1986	02	25.79170	20	32	05.00	-15	12	59.5			413
/1982i	1986	02	25.80212	20	32	03.93	-15	13	12.2			413
/1982i	1986	02	26.14410	20	31	28.82	-15	19	58.3			051
/1982i	1986	02	26.14934	20	31	28.27	-15	20	05.5			051
/1982i	1986	02	26.37054	20	31	05.48	-15	24	31.2	2.5T	5	822
/1982i	1986	02	26.40379	20	31	02.05	-15	25	10.8			809
/1982i	1986	02	26.79517	20	30	21.67	-15	33	04.1			413
/1982i	1986	02	26.80212	20	30	20.95	-15	33	13.3			413
/1982i	1986	02	26.84722	20	30	16.51	-15	34	05.0			323
/1982i	1986	02	26.85000	20	30	16.20	-15	34	09.7			323
/1982i	1986	02	26.85174	20	30	15.95	-15	34	11.3			323
/1982i	1986	02	26.88264	20	30	12.98	-15	34	49.5			323
/1982i	1986	02	26.88542	20	30	12.43	-15	34	53.7			323
/1982i	1986	02	27.13866	20	29	46.30	-15	40	02.5			051
/1982i	1986	02	27.14332	20	29	45.88	-15	40	07.4			051
/1982i	1986	02	27.40489	20	29	18.81	-15	45	29.2			809
/1982i	1986	02	27.79517	20	28	38.41	-15	53	29.7			413
/1982i	1986	02	27.80559	20	28	37.36	-15	53	43.1			413
/1982i	1986	02	27.83924	20	28	34.10	-15	54	23.4			323
/1982i	1986	02	27.84062	20	28	33.89	-15	54	25.9			323
/1982i	1986	02	27.84201	20	28	33.71	-15	54	27.5			323
/1982i	1986	02	27.88073	20	28	29.64	-15	55	16.6			323
/1982i	1986	02	27.88264	20	28	29.49	-15	55	18.6			323
/1982i	1986	02	27.88432	20	28	29.39	-15	55	27.0			337
/1982i	1986	02	27.88438	20	28	29.32	-15	55	20.0			323
/1982i	1986	02	28.40281	20	27	35.56	-16	06	08.6			809
/1982i	1986	02	28.40350	20	27	35.54	-16	06	09.9			809
/1982i	1986	02	28.40420	20	27	35.44	-16	06	10.1			809
/1982i	1986	02	28.69015	20	27	05.64	-16	12	09.6	7	N	474
/1982i	1986	02	28.70155	20	27	04.40	-16	12	24.4	7	N	474
/1982i	1986	02	28.79378	20	26	54.87	-16	14	23.3			413
/1982i	1986	02	28.83438	20	26	50.86	-16	15	10.4			323
/1982i	1986	02	28.83576	20	26	50.43	-16	15	13.7			323

/1982i	1986	02	28.87847	20	26	46.18	-16	16	07.2			323
/1982i	1986	02	28.88021	20	26	45.90	-16	16	09.2			323
/1982i	1986	02	28.88160	20	26	45.88	-16	16	11.5			323
/1982i	1986	03	01.14358	20	26	18.50	-16	21	47.6			051
/1982i	1986	03	01.14902	20	26	17.90	-16	21	55.3			051
/1982i	1986	03	01.40281	20	25	51.38	-16	27	25.4			809
/1982i	1986	03	01.40350	20	25	51.29	-16	27	26.0			809
/1982i	1986	03	01.40420	20	25	51.22	-16	27	26.2			809
/1982i	1986	03	01.41251	20	25	50.43	-16	27	39.4			303
/1982i	1986	03	01.42259	20	25	49.33	-16	27	53.6			303
/1982i	1986	03	01.67106	20	25	23.26	-16	33	11.0	7	N	474
/1982i	1986	03	01.69582	20	25	20.69	-16	33	43.8	7	N	474
/1982i	1986	03	01.75308	20	25	14.81	-16	34	58.8			415
/1982i	1986	03	01.76358	20	25	13.72	-16	35	12.1			415
/1982i	1986	03	01.77321	20	25	12.80	-16	35	21.3			415
/1982i	1986	03	01.83785	20	25	05.88	-16	36	47.8			323
/1982i	1986	03	01.83924	20	25	05.67	-16	36	50.7			323
/1982i	1986	03	01.84062	20	25	05.52	-16	36	51.9			323
/1982i	1986	03	01.88576	20	25	00.75	-16	37	51.6			323
/1982i	1986	03	01.88715	20	25	00.63	-16	37	52.3			323
/1982i	1986	03	01.88795	20	25	00.61	-16	38	00.1			337
/1982i	1986	03	02.03431	20	24	45.23	-16	41	16.6			186
/1982i	1986	03	02.03604	20	24	44.93	-16	41	18.1			186
/1982i	1986	03	02.03708	20	24	44.82	-16	41	21.2			186
/1982i	1986	03	02.37989	20	24	08.79	-16	48	40.8			809
/1982i	1986	03	02.38060	20	24	08.70	-16	48	41.7			809
/1982i	1986	03	02.38128	20	24	08.59	-16	48	42.4			809
/1982i	1986	03	02.77168	20	23	27.24	-16	57	22.4			413
/1982i	1986	03	02.79795	20	23	24.44	-16	57	58.0			413
/1982i	1986	03	02.89011	20	23	14.57	-17	00	10.2			337
/1982i	1986	03	03.39656	20	22	20.70	-17	11	25.1			809
/1982i	1986	03	03.39725	20	22	20.65	-17	11	25.6			809
/1982i	1986	03	03.39795	20	22	20.61	-17	11	26.7			809
/1982i	1986	03	03.78684	20	21	38.73	-17	20	19.2			413
/1982i	1986	03	03.88888	20	21	27.75	-17	22	46.7			337
/1982i	1986	03	04.13929	20	21	00.77	-17	28	26.2			051
/1982i	1986	03	04.14416	20	21	00.18	-17	28	33.4			051
/1982i	1986	03	04.39586	20	20	32.76	-17	34	25.5			809
/1982i	1986	03	04.39656	20	20	32.68	-17	34	27.1			809
/1982i	1986	03	04.39725	20	20	32.63	-17	34	27.5			809
/1982i	1986	03	04.41877	20	20	30.38	-17	35	01.2			303
/1982i	1986	03	04.42796	20	20	29.37	-17	35	14.0			303
/1982i	1986	03	04.70492	20	19	58.97	-17	41	41.4			483
/1982i	1986	03	04.70580	20	19	58.89	-17	41	39.8	7	N	474
/1982i	1986	03	04.70909	20	19	58.40	-17	41	45.7			483
/1982i	1986	03	04.71256	20	19	58.22	-17	41	50.3			483
/1982i	1986	03	04.71681	20	19	57.68	-17	41	54.7			483
/1982i	1986	03	04.71694	20	19	57.68	-17	41	56.1	7	N	474
/1982i	1986	03	04.72028	20	19	57.23	-17	42	00.3			483
/1982i	1986	03	04.72375	20	19	56.89	-17	42	04.8			483
/1982i	1986	03	04.72708	20	19	56.70	-17	42	09.5			483
/1982i	1986	03	04.79309	20	19	49.41	-17	43	45.1			413
/1982i	1986	03	04.82182	20	19	46.48	-17	44	23.6			323
/1982i	1986	03	04.82321	20	19	46.29	-17	44	25.4			323
/1982i	1986	03	04.86713	20	19	41.57	-17	45	30.3			323
/1982i	1986	03	04.86835	20	19	41.39	-17	45	30.8			323
/1982i	1986	03	04.88085	20	19	39.85	-17	45	57.9			337
/1982i	1986	03	05.12199	20	19	13.35	-17	51	34.2			051
/1982i	1986	03	05.13802	20	19	11.59	-17	51	57.1			051

/1982i	1986	03	05.39517	20	18	43.18	-17	58	06.7			809
/1982i	1986	03	05.39586	20	18	43.11	-17	58	07.6			809
/1982i	1986	03	05.39656	20	18	43.02	-17	58	08.7			809
/1982i	1986	03	05.41634	20	18	41.02	-17	58	44.4			303
/1982i	1986	03	05.79726	20	17	58.35	-18	07	51.4			413
/1982i	1986	03	05.84375	20	17	53.36	-18	08	57.9			323
/1982i	1986	03	05.84479	20	17	53.29	-18	08	59.8			323
/1982i	1986	03	05.85214	20	17	52.37	-18	09	09.8			323
/1982i	1986	03	05.88460	20	17	48.72	-18	10	05.3			337
/1982i	1986	03	06.14502	20	17	19.57	-18	16	20.7			051
/1982i	1986	03	06.14971	20	17	19.00	-18	16	27.7			051
/1982i	1986	03	06.34068	20	16	57.20	-18	21	12.9	2	T	822
/1982i	1986	03	06.35457	20	16	55.83	-18	21	32.2			822
/1982i	1986	03	06.36846	20	16	54.32	-18	21	55.7			822
/1982i	1986	03	06.39378	20	16	51.31	-18	22	32.7			809
/1982i	1986	03	06.39447	20	16	51.18	-18	22	33.8			809
/1982i	1986	03	06.39517	20	16	51.13	-18	22	35.4			809
/1982i	1986	03	06.42382	20	16	47.94	-18	23	21.4			303
/1982i	1986	03	06.70588	20	16	15.66	-18	30	19.7	7	N	474
/1982i	1986	03	06.72202	20	16	13.76	-18	30	44.3	7	N	474
/1982i	1986	03	06.74790	20	16	11.09	-18	31	21.1			415
/1982i	1986	03	06.74887	20	16	11.01	-18	31	25.1			415
/1982i	1986	03	06.76240	20	16	09.35	-18	31	43.0			415
/1982i	1986	03	06.76342	20	16	09.32	-18	31	47.9			415
/1982i	1986	03	06.80799	20	16	04.04	-18	32	55.0			323
/1982i	1986	03	06.80938	20	16	03.94	-18	32	55.6			323
/1982i	1986	03	06.81076	20	16	03.84	-18	32	59.0			323
/1982i	1986	03	06.87257	20	15	56.73	-18	34	32.8			323
/1982i	1986	03	06.87361	20	15	56.57	-18	34	34.8			323
/1982i	1986	03	06.87465	20	15	56.45	-18	34	37.0			323
/1982i	1986	03	06.87992	20	15	55.72	-18	34	51.8			337
/1982i	1986	03	07.13177	20	15	26.89	-18	41	06.7			051
/1982i	1986	03	07.13507	20	15	26.50	-18	41	11.7			051
/1982i	1986	03	07.35143	20	15	01.43	-18	46	42.8			805
/1982i	1986	03	07.35282	20	15	01.31	-18	46	45.6			805
/1982i	1986	03	07.35421	20	15	01.09	-18	46	46.8			805
/1982i	1986	03	07.35560	20	15	00.97	-18	46	50.0			805
/1982i	1986	03	07.35698	20	15	00.82	-18	46	52.3			805
/1982i	1986	03	07.35837	20	15	00.62	-18	46	54.1			805
/1982i	1986	03	07.35976	20	15	00.48	-18	46	55.8			805
/1982i	1986	03	07.36082	20	15	00.34	-18	46	59.4			822
/1982i	1986	03	07.36291	20	15	00.07	-18	47	00.8			822
/1982i	1986	03	07.73991	20	14	15.87	-18	56	45.8	7.0	N	474
/1982i	1986	03	08.36499	20	13	01.97	-19	13	10.9			822
/1982i	1986	03	08.36696	20	13	01.77	-19	13	17.0			822
/1982i	1986	03	08.39885	20	12	58.03	-19	14	10.8			303
/1982i	1986	03	08.73166	20	12	17.69	-19	23	03.3	7	N	474
/1982i	1986	03	08.73247	20	12	17.63	-19	23	04.7	7	N	474
/1982i	1986	03	09.14780	20	11	27.11	-19	34	23.3			051
/1982i	1986	03	09.15249	20	11	26.49	-19	34	31.5			051
/1982i	1986	03	09.37226	20	10	59.45	-19	40	33.7			805
/1982i	1986	03	09.37365	20	10	59.27	-19	40	35.9			805
/1982i	1986	03	09.37504	20	10	59.16	-19	40	38.8			805
/1982i	1986	03	09.37643	20	10	58.97	-19	40	40.7			805
/1982i	1986	03	09.37782	20	10	58.79	-19	40	43.6			805
/1982i	1986	03	09.37921	20	10	58.60	-19	40	45.6			805
/1982i	1986	03	09.38060	20	10	58.44	-19	40	48.2			805
/1982i	1986	03	09.38198	20	10	58.32	-19	40	50.3			805
/1982i	1986	03	09.84416	20	10	00.75	-19	53	43.5			323

/1982i	1986	03	09.84549	20	10	00.60	-19	53	46.7		323
/1982i	1986	03	09.84688	20	10	00.41	-19	53	48.9		323
/1982i	1986	03	09.85104	20	09	59.94	-19	53	55.7		323
/1982i	1986	03	09.85208	20	09	59.78	-19	53	57.9		323
/1982i	1986	03	09.85382	20	09	59.59	-19	54	00.8		323
/1982i	1986	03	09.85868	20	09	58.95	-19	54	08.7		323
/1982i	1986	03	09.86007	20	09	58.76	-19	54	11.0		323
/1982i	1986	03	09.86111	20	09	58.65	-19	54	13.0		323
/1982i	1986	03	09.86562	20	09	58.04	-19	54	20.3		323
/1982i	1986	03	09.86667	20	09	57.93	-19	54	22.6		323
/1982i	1986	03	09.86771	20	09	57.83	-19	54	24.5		323
/1982i	1986	03	10.14554	20	09	22.59	-20	02	16.0		051
/1982i	1986	03	10.34587	20	08	57.10	-20	07	59.2		805
/1982i	1986	03	10.34726	20	08	56.81	-20	08	01.2		805
/1982i	1986	03	10.34865	20	08	56.58	-20	08	03.3		805
/1982i	1986	03	10.35004	20	08	56.43	-20	08	05.6		805
/1982i	1986	03	10.35098	20	08	56.49	-20	08	11.6		822
/1982i	1986	03	10.35143	20	08	56.32	-20	08	08.0		805
/1982i	1986	03	10.35282	20	08	56.14	-20	08	11.3		805
/1982i	1986	03	10.35307	20	08	56.15	-20	08	11.5		822
/1982i	1986	03	10.35421	20	08	56.00	-20	08	13.8		805
/1982i	1986	03	10.35560	20	08	55.84	-20	08	15.8		805
/1982i	1986	03	10.73676	20	08	06.47	-20	19	14.7		415
/1982i	1986	03	10.75186	20	08	04.41	-20	19	47.1	6	415
/1982i	1986	03	10.76704	20	08	02.62	-20	20	11.7		415
/1982i	1986	03	11.14838	20	07	12.58	-20	31	23.5		051
/1982i	1986	03	11.15804	20	07	11.23	-20	31	40.8		051
/1982i	1986	03	11.20972	20	07	04.46	-20	33	22.7		006
/1982i	1986	03	11.21389	20	07	03.74	-20	33	30.9		006
/1982i	1986	03	11.21944	20	07	03.10	-20	33	41.5		006
/1982i	1986	03	12.12332	20	05	00.85	-21	00	53.5		051
/1982i	1986	03	12.15243	20	04	56.69	-21	01	47.3		051
/1982i	1986	03	12.34101	20	04	30.66	-21	07	39.5		805
/1982i	1986	03	12.34240	20	04	30.49	-21	07	41.6		805
/1982i	1986	03	12.34379	20	04	30.26	-21	07	45.7		805
/1982i	1986	03	12.34518	20	04	30.15	-21	07	47.4		805
/1982i	1986	03	12.34657	20	04	29.95	-21	07	49.9		805
/1982i	1986	03	12.34796	20	04	29.74	-21	07	53.4		805
/1982i	1986	03	12.34935	20	04	29.49	-21	07	55.5		805
/1982i	1986	03	12.35073	20	04	29.38	-21	07	58.1		805
/1982i	1986	03	12.41598	20	04	20.44	-21	10	05.0		303
/1982i	1986	03	12.77986	20	03	28.69	-21	21	33.4		420
/1982i	1986	03	13.34657	20	02	07.36	-21	39	41.6		805
/1982i	1986	03	13.34796	20	02	07.16	-21	39	44.3		805
/1982i	1986	03	13.34935	20	02	06.92	-21	39	47.6		805
/1982i	1986	03	13.35073	20	02	06.72	-21	39	50.2		805
/1982i	1986	03	13.35212	20	02	06.55	-21	39	52.6		805
/1982i	1986	03	13.35351	20	02	06.38	-21	39	54.5		805
/1982i	1986	03	13.35490	20	02	06.10	-21	39	58.2		805
/1982i	1986	03	13.35629	20	02	05.93	-21	40	00.0		805
/1982i	1986	03	17.12899	19	51	53.88	-23	54	38.0		051
/1982i	1986	03	17.15243	19	51	49.56	-23	55	33.3		051
/1982i	1986	03	19.12541	19	45	27.08	-25	16	49.7		051
/1982i	1986	03	19.15243	19	45	21.45	-25	18	00.8		051
/1982i	1986	03	21.49957	19	36	28.42	-27	07	03.1		707

Periodic Comet Giacobini-Zinner

/1984e	1985	08	24.05435	04	20	24.62	+47	16	17.0		553
/1984e	1985	08	24.06125	04	20	27.42	+47	15	49.4		553

/1984e	1985	08	25.00742	04	26	39.24	+46	13	50.4		553
/1984e	1985	08	25.02704	04	26	46.74	+46	12	36.3		553
/1984e	1985	08	25.05066	04	26	55.98	+46	11	03.2		553
/1984e	1985	09	10.15434	05	48	28.41	+25	03	27.8		493
/1984e	1985	09	11.14948	05	52	17.27	+23	39	19.4		493
/1984e	1985	09	15.19271	06	06	38.53	+18	00	27.1		493
/1984e	1985	09	16.15035	06	09	47.83	+16	41	24.9		493
/1984e	1985	09	16.15868	06	09	49.43	+16	40	43.6		493
/1984e	1985	09	19.11736	06	19	00.28	+12	41	05.9		552
/1984e	1985	09	21.12245	06	24	47.27	+10	03	23.8		493
/1984e	1985	09	23.17517	06	30	21.34	+07	26	27.1		493
/1984e	1985	09	23.20495	06	30	25.88	+07	24	13.1		493
/1984e	1985	10	12.40382	07	08	21.41	-12	49	12.0		293
/1984e	1985	10	12.40799	07	08	21.77	-12	49	26.6		293
/1984e	1985	11	13.62294	07	23	15.49	-32	18	17.6		474
/1984e	1985	11	13.62919	07	23	15.27	-32	18	27.3	7	474
/1984e	1985	12	05.78680	07	02	26.57	-37	40	58.6		323
/1984e	1985	12	05.82882	07	02	23.03	-37	41	12.1		323
/1984e	1985	12	06.75660	07	01	08.53	-37	46	20.0		323
/1984e	1985	12	09.60153	06	57	12.25	-37	57	40.1		474
/1984e	1985	12	09.61472	06	57	11.13	-37	57	42.3		474
/1984e	1985	12	10.75833	06	55	33.95	-38	00	31.3		323
/1984e	1985	12	11.75799	06	54	08.26	-38	02	05.7		323
/1984e	1985	12	20.75278	06	41	06.72	-37	41	58.7		323
/1984e	1985	12	30.65208	06	27	46.25	-36	15	03.6		323
/1984e	1986	01	03.69028	06	22	59.45	-35	23	07.0		323
/1984e	1986	01	07.62917	06	18	48.86	-34	24	43.2		323
/1984e	1986	01	08.70104	06	17	45.90	-34	07	38.6		323
/1984e	1986	01	10.65312	06	15	57.95	-33	35	27.2		323
/1984e	1986	01	13.77500	06	13	22.27	-32	41	01.6		323
/1984e	1986	01	14.69965	06	12	40.52	-32	24	21.8		323
/1984e	1986	01	15.70243	06	11	57.50	-32	05	56.3		323
/1984e	1986	01	16.70104	06	11	16.64	-31	47	19.9		323
/1984e	1986	01	17.58472	06	10	42.79	-31	30	39.3		323
/1984e	1986	02	04.07992	06	05	20.08	-25	37	28.8		801

Comet Shoemaker (1984f)

/1984f	1985	12	06.80278	10	17	27.71	-57	06	12.7		323
/1984f	1985	12	10.80417	10	06	29.45	-58	18	35.0		323
/1984f	1985	12	11.80868	10	03	28.81	-58	36	05.5		323
/1984f	1985	12	20.79965	09	31	35.62	-60	54	06.6		323
/1984f	1986	01	03.73194	08	25	53.46	-62	38	22.8		323
/1984f	1986	01	15.64167	07	23	48.16	-61	31	18.9		323
/1984f	1986	01	17.64062	07	13	58.52	-61	04	59.2		323
/1984f	1986	01	16.65000	07	18	48.42	-61	18	33.3		323
/1984f	1986	01	14.64167	07	28	49.94	-61	42	56.3		323
/1984f	1986	01	22.68125	06	50	46.78	-59	41	20.5		323
/1984f	1986	01	06.70556	08	10	15.82	-62	36	20.9		323
/1984f	1986	01	07.68542	08	05	05.18	-62	33	34.6		323
/1984f	1986	02	27.51042	05	21	08.87	-43	47	24.5		323

Periodic Comet Gehrels 3

/1984l	1986	01	16.50956	10	52	49.68	+05	38	08.3	19 N	691
/1984l	1986	01	16.52560	10	52	49.46	+05	38	09.9		691

Comet Hartley (1984v)

/1984v	1985	10	17.68126	07	19	09.84	-59	54	33.0		474
/1984v	1985	11	08.60836	07	25	46.84	-67	59	29.0		474
/1984v	1985	11	08.63370	07	25	46.46	-68	00	00.1		474

/1984v	1985	12	05.72049	07	02	17.76	-76	22	12.3	323
/1984v	1985	12	16.67847	06	33	55.90	-78	50	56.7	323
/1984v	1985	12	20.68924	06	19	54.34	-79	34	14.3	323
/1984v	1986	01	06.58750	05	03	39.95	-81	18	16.7	323
/1984v	1986	01	16.57014	04	17	37.72	-81	20	37.9	323
/1984v	1986	01	15.58160	04	21	49.80	-81	21	58.4	323
/1984v	1986	01	03.61007	05	18	12.93	-81	09	29.9	323
/1984v	1986	01	13.70799	04	30	01.55	-81	23	44.0	323
/1984v	1986	01	10.58680	04	44	26.20	-81	23	57.7	323
/1984v	1986	01	14.58056	04	26	13.10	-81	23	04.6	323
/1984v	1986	02	14.56113	03	09	31.08	-79	20	59.8	323

Periodic Comet Ashbrook-Jackson

/1985a	1985	10	18.38618	19	55	58.58	-30	18	09.4	474
/1985a	1985	10	18.40476	19	55	59.87	-30	18	00.1	474

Periodic Comet Giclas

/1985g	1985	10	20.33056	03	26	52.06	+03	53	48.6	707
/1985g	1985	12	02.62014	03	05	21.92	+05	23	17.8	323
/1985g	1985	12	05.65556	03	04	30.54	+05	43	51.5	323
/1985g	1985	12	06.64722	03	04	17.15	+05	50	54.6	323
/1985g	1985	12	10.62431	03	03	39.72	+06	20	40.1	323
/1985g	1985	12	14.11787	03	03	30.14	+06	48	35.4	688
/1985g	1985	12	14.15139	03	03	29.98	+06	48	50.5	688
/1985g	1985	12	15.16458	03	03	31.28	+06	57	15.7	688
/1985g	1985	12	15.17403	03	03	30.83	+06	57	22.2	801
/1985g	1986	01	08.14861	03	12	54.32	+10	41	40.7	688
/1985g	1986	01	09.08785	03	13	35.66	+10	50	58.7	801
/1985g	1986	01	19.21220	03	22	24.42	+12	31	18.5	16.9T 691
/1985g	1986	01	19.22591	03	22	25.22	+12	31	26.3	691
/1985g	1986	01	19.23325	03	22	25.65	+12	31	30.7	691

Periodic Comet Daniel

/1985j	1986	02	11.39417	12	46	27.46	+28	42	25.5	691
/1985j	1986	02	11.40475	12	46	27.11	+28	42	31.4	691
/1985j	1986	02	11.42453	12	46	26.54	+28	42	41.4	691

Comet Hartley-Good (1985l)

/1985l	1985	11	08.69097	18	38	55.15	+08	18	55.0	056
/1985l	1985	11	08.72407	18	38	48.99	+08	19	55.6	056
/1985l	1985	11	11.69931	18	29	55.68	+09	46	20.2	056
/1985l	1985	11	11.72951	18	29	50.57	+09	47	09.6	056
/1985l	1986	01	14.83889	16	01	03.80	+04	10	16.2	323
/1985l	1986	01	15.83750	15	58	59.53	+03	41	45.6	323
/1985l	1986	01	16.26875	15	58	05.00	+03	29	08.5	503
/1985l	1986	01	16.84097	15	56	52.41	+03	12	45.6	323
/1985l	1986	01	20.48125	15	48	51.81	+01	24	00.6	707
/1985l	1986	01	21.81910	15	45	45.96	+00	43	02.8	323
/1985l	1986	01	22.83090	15	43	21.28	+00	11	22.8	323
/1985l	1986	02	06.42579	14	59	50.07	-08	08	49.9	801
/1985l	1986	02	09.44572	14	48	07.41	-10	00	49.6	801
/1985l	1986	03	06.31007	12	34	24.10	-22	56	12.5	707

Comet Thiele (1985m)

/1985m	1985	11	12.31458	23	26	21.87	+34	47	20.3	707
/1985m	1985	11	16.78472	22	38	03.16	+29	18	58.9	056
/1985m	1985	11	16.82639	22	37	41.37	+29	16	03.2	056
/1985m	1985	11	17.90706	22	28	47.57	+28	02	06.0	056
/1985m	1985	11	17.93657	22	28	33.39	+28	00	08.0	056

Periodic Comet Boethin

/1985n	1985	11	09.39484	19	53	08.87	-25	22	48.6			474
/1985n	1985	11	09.40824	19	53	10.71	-25	22	41.0			474
/1985n	1985	12	02.51042	20	53	18.89	-20	28	02.0			323
/1985n	1986	03	01.19760	02	22	55.40	+18	40	25.7			657

Periodic Comet Kojima

/1985o	1986	02	11.30022	07	53	41.45	+20	12	10.1	18.1	T	691
/1985o	1986	02	11.31008	07	53	41.13	+20	12	11.5			691

Periodic Comet Ciffreo

/1985p	1985	12	09.79653	04	11	15.58	+31	17	52.2			046
/1985p	1986	01	03.80139	04	05	02.07	+34	42	05.4			046
/1985p	1986	01	03.81551	04	05	02.50	+34	42	12.1			046
/1985p	1986	01	05.77188	04	05	37.90	+34	52	30.1			046
/1985p	1986	01	05.78721	04	05	38.20	+34	52	34.1			046
/1985p	1986	01	09.13990	04	07	01.32	+35	09	03.6	8		801
/1985p	1986	01	10.16076	04	07	32.36	+35	13	36.8			662
/1985p	1986	01	12.10114	04	08	38.26	+35	22	04.2			801
/1985p	1986	01	12.23231	04	08	43.00	+35	22	38.4	15.2	T	691
/1985p	1986	01	12.24745	04	08	43.51	+35	22	41.6			691
/1985p	1986	01	20.24117	04	14	53.35	+35	52	35.9			691
/1985p	1986	01	20.26005	04	14	54.59	+35	52	41.5			691
/1985p	1986	01	20.27380	04	14	55.43	+35	52	43.6			691
/1985p	1986	02	04.04959	04	32	06.57	+36	31	24.2			801
/1985p	1986	02	09.10277	04	39	24.10	+36	40	19.0	8		801

Periodic Comet Shoemaker 3

/1986a	1986	01	17.70035	09	35	58.92	+21	31	20.2			323
/1986a	1986	01	18.00147	09	35	59.99	+21	33	21.9	13	T	046
/1986a	1986	01	18.01096	09	35	59.98	+21	33	26.7			046
/1986a	1986	01	18.21736	09	36	00.94	+21	35	09.4	15	T	809
/1986a	1986	01	18.47264	09	36	01.44	+21	36	52.8			675
/1986a	1986	01	18.47778	09	36	01.45	+21	36	55.1			675
/1986a	1986	01	19.19618	09	36	04.00	+21	42	22.3	9		809
/1986a	1986	01	19.28299	09	36	03.83	+21	43	01.4	9		809
/1986a	1986	01	20.18646	09	36	05.48	+21	49	42.1			809
/1986a	1986	01	20.26563	09	36	05.25	+21	50	19.1			809
/1986a	1986	01	20.28854	09	36	05.66	+21	50	19.1			675
/1986a	1986	01	20.29722	09	36	05.64	+21	50	23.3			675
/1986a	1986	01	20.40694	09	36	05.32	+21	51	12.5			675
/1986a	1986	01	20.40833	09	36	05.31	+21	51	13.1			675
/1986a	1986	01	20.52792	09	36	04.93	+21	52	05.2			675
/1986a	1986	01	20.52958	09	36	04.92	+21	52	05.9			675
/1986a	1986	01	21.19965	09	36	05.35	+21	57	13.5	9		809
/1986a	1986	01	21.25868	09	36	05.06	+21	57	41.2	9		809
/1986a	1986	01	21.70417	09	36	04.72	+22	00	59.6			323
/1986a	1986	01	21.71875	09	36	04.26	+22	00	55.0	14	T	391
/1986a	1986	01	21.73160	09	36	04.22	+22	01	00.2			391
/1986a	1986	01	21.74653	09	36	04.20	+22	01	07.8			391
/1986a	1986	01	22.26215	09	36	03.42	+22	05	07.2	9		809
/1986a	1986	02	01.18126	09	34	41.12	+23	16	03.3			792
/1986a	1986	02	01.19028	09	34	40.96	+23	16	05.3			792
/1986a	1986	02	01.56181	09	34	36.39	+23	18	33.9			391
/1986a	1986	02	01.63125	09	34	35.13	+23	19	02.8	15.0	T	391
/1986a	1986	02	02.35058	09	34	25.27	+23	23	50.3			675
/1986a	1986	02	02.35972	09	34	25.11	+23	23	53.9			675
/1986a	1986	02	02.58958	09	34	22.08	+23	25	21.8	15	T	391
/1986a	1986	02	02.81944	09	34	18.83	+23	26	48.9			063

/1986a	1986	02	03.78125	09	34	05.27	+23	33	00.2		063
/1986a	1986	02	04.21586	09	33	58.57	+23	35	50.5		801
/1986a	1986	02	04.53194	09	33	54.34	+23	37	45.4	15.5T	391
/1986a	1986	02	04.57569	09	33	53.55	+23	38	06.4		391
/1986a	1986	02	04.68472	09	33	51.38	+23	38	45.6		391
/1986a	1986	02	04.91875	09	33	47.92	+23	40	06.5	13.5T A	978
/1986a	1986	02	05.39392	09	33	40.73	+23	43	09.6		675
/1986a	1986	02	05.66667	09	33	36.52	+23	44	46.6		391
/1986a	1986	02	05.72639	09	33	35.28	+23	45	09.2		391
/1986a	1986	02	07.30659	09	33	10.98	+23	54	32.3		675
/1986a	1986	02	07.71597	09	33	04.20	+23	56	54.2		391
/1986a	1986	02	07.79306	09	33	02.94	+23	57	21.4		391
/1986a	1986	02	09.19486	09	32	41.34	+24	05	05.2		801
/1986a	1986	02	09.65417	09	32	33.71	+24	07	30.9		391
/1986a	1986	02	10.76389	09	32	15.82	+24	13	18.0		391
/1986a	1986	02	11.32950	09	32	07.47	+24	16	10.6	15 T	691
/1986a	1986	02	11.33424	09	32	07.36	+24	16	12.3		691
/1986a	1986	02	12.73646	09	31	45.34	+24	22	52.2		391
/1986a	1986	03	06.27951	09	29	23.99	+25	05	56.4		707
/1986a	1986	03	12.23921	09	30	23.90	+24	57	42.4	8	801

Comet Shoemaker (1986b)

/1986b	1986	03	04.33246	12	14	28.47	+23	47	02.7		675
/1986b	1986	03	08.24895	12	04	24.15	+24	45	37.0		675
/1986b	1986	03	08.46822	12	03	49.50	+24	48	45.5		675
/1986b	1986	03	09.37899	12	01	26.00	+25	01	46.6		675
/1986b	1986	03	12.34192	11	53	33.00	+25	42	16.2		801
/1986b	1986	03	21.34236	11	29	11.13	+27	26	25.4		707

Note 1: correction to MPC 10068. 2: time uncertain. 3: out of focus. 4: correction to MPC 10355. 5: interference from clouds. 6: poor distribution of reference stars. 7: obscured by star trail. 8: inkdot measured. 9: very diffuse, difficult to measure. A: at plate limit.

* * * * *

OBSERVATIONS MADE AT TAUTENBURG BY F. BORNGEN AND R. ZIENER.

Plates taken with the 1.34-m (134/200/400 cm) Schmidt. Assistance from K. Kirsch, Lochno, F. Ludwig, K. H. Mau and Reussner. Reductions by Borngen, using the SAO Catalog. Contact: S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg, Democratic Republic of Germany.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
381	1985	01 18.85069	05 21 53.73	+13 45 34.5	14.9	033
381	1985	01 18.88507	05 21 52.59	+13 45 41.3		033
757	1985	10 22.05347	03 42 46.03	+25 31 23.7	13.9	033
1249	1985	10 22.05347	03 43 36.91	+24 28 10.7	15.3	033
1361	1982	04 27.96354	12 27 56.62	+11 54 20.4	16.3	033
1361	1982	04 27.98958	12 27 55.89	+11 54 28.0		033
1960	1983	04 16.88715	08 36 37.50	+26 53 28.4		033
1960	1983	04 16.90660	08 36 38.15	+26 53 21.1	18.3	033
2071	1985	10 22.05347	03 38 58.75	+25 32 49.2	17.4	033
2387	1974	02 16.80868	03 37 27.10	+24 38 05.8	17.0	033
2387	1974	02 16.88403	03 37 30.91	+24 38 21.1		033
2406	1974	02 16.85104	05 41 14.58	+26 35 31.4	16.9R	033
2473	1985	01 18.78646	03 57 27.55	+12 21 14.3		033
2473	1985	01 18.81771	03 57 28.41	+12 21 22.8	18.1	033
1974 DH2 *	1974	02 16.80868	03 44 27.41	+23 42 42.5	18.0	033
1974 DH2	1974	02 16.88403	03 44 32.50	+23 42 55.5		033
1974 DJ2 *	1974	02 16.85104	05 30 46.54	+28 34 37.3	18.2R	033

1974 DK2	*	1974	02	16.85104	05	31	40.87	+26	29	22.1	16.7R 033
1974 DL2	*	1974	02	16.85104	05	34	14.32	+26	28	49.1	17.0R 033
1974 DM2	*	1974	02	16.85104	05	34	39.69	+26	38	21.7	17.6R 033
1974 DN2	*	1974	02	16.85104	05	35	37.45	+28	35	30.8	18.3R 033
1974 DO2	*	1974	02	16.85104	05	39	51.71	+27	15	04.0	18.0R 033
1974 DP2	*	1974	02	16.85104	05	39	55.37	+27	51	26.8	17.2R 033
1974 DQ2	*	1974	02	16.85104	05	41	12.02	+27	16	53.4	17.8R 033
1975 XH7	*	1975	12	03.92222	01	47	08.78	+28	00	07.6	18.4 033
1975 XH7		1975	12	03.93819	01	47	07.65	+28	00	12.0	033
1975 XJ7	*	1975	12	03.92222	01	50	24.42	+27	58	01.3	18.0 033
1975 XJ7		1975	12	03.93819	01	50	23.94	+27	57	58.4	033
1975 XK7	*	1975	12	03.92222	01	50	36.77	+27	01	40.7	17.0 033
1975 XK7		1975	12	03.93819	01	50	36.77	+27	01	33.9	033
1975 XL7	*	1975	12	03.92222	01	59	56.82	+29	31	48.0	19.5 033
1975 XL7		1975	12	03.93819	01	59	56.24	+29	31	41.0	033
1977 FO3	*	1977	03	20.91458	12	57	28.52	+13	58	56.6	17.4 033
1977 FO3		1977	03	20.94549	12	57	26.71	+13	59	04.0	033
1977 FO3		1977	03	20.97569	12	57	24.79	+13	59	10.3	033
1983 HB2	*	1983	04	16.88715	08	34	34.66	+28	28	02.2	033
1983 HB2		1983	04	16.90660	08	34	35.26	+28	27	51.5	17.8 033
1984 WZ1		1984	12	22.86979	06	00	04.15	+12	37	31.9	19.2 033
1984 WZ1		1984	12	22.89132	06	00	02.86	+12	37	34.4	033
1984 YY5	*	1984	12	22.86979	05	57	36.21	+11	30	21.6	18.9 033
1984 YY5		1984	12	22.89132	05	57	34.95	+11	30	23.4	033
1984 YZ5	*	1984	12	22.86979	05	59	45.50	+12	38	27.7	18.5 033
1984 YZ5		1984	12	22.89132	05	59	44.07	+12	38	25.3	033
1984 YA6	*	1984	12	22.86979	06	01	13.15	+12	36	03.4	18.0 033
1984 YA6		1984	12	22.89132	06	01	11.85	+12	36	24.8	033
1984 YB6	*	1984	12	22.86979	06	01	37.90	+12	23	46.6	19.4 033
1984 YB6		1984	12	22.89132	06	01	36.64	+12	23	40.3	033
1984 YC6	*	1984	12	22.86979	06	01	45.37	+13	03	20.2	19.0 033
1984 YC6		1984	12	22.89132	06	01	43.85	+13	03	23.0	033
1985 UC1	*	1985	10	22.05347	03	36	45.22	+25	25	26.8	19.1 033
1985 UD1	*	1985	10	22.05347	03	37	53.39	+24	11	20.3	18.1 033
1985 UE1	*	1985	10	22.05347	03	38	45.24	+24	47	36.8	18.4 033
1985 UF1	*	1985	10	22.05347	03	39	15.67	+23	53	21.2	19.7 033
1985 UG1	*	1985	10	22.05347	03	39	34.86	+23	13	07.2	19.5 033
1985 UH1	*	1985	10	22.05347	03	41	47.92	+23	31	13.6	19.0 033
1985 UJ1	*	1985	10	22.05347	03	42	03.78	+23	13	09.1	18.0 033
1985 UK1	*	1985	10	22.05347	03	45	25.95	+25	47	18.6	19.4 033
1985 UL1	*	1985	10	22.05347	03	46	27.00	+23	19	20.4	18.2 033
1985 UM1	*	1985	10	22.05347	03	46	36.95	+25	14	41.7	20.0 033
1985 UN1	*	1985	10	22.05347	03	46	50.45	+25	14	43.7	18.6 033
1985 UO1	*	1985	10	22.05347	03	46	56.85	+24	23	41.7	16.8 033
1985 UP1	*	1985	10	22.05347	03	47	00.41	+23	25	39.4	19.7 033
1985 UQ1	*	1985	10	22.05347	03	48	01.53	+23	21	13.9	17.1 033
1985 UR1	*	1985	10	22.05347	03	49	51.05	+24	40	06.6	19.8 033
1985 US1	*	1985	10	22.05347	03	50	29.91	+25	09	45.1	19.2 033
1985 UT1	*	1985	10	22.05347	03	50	48.94	+23	46	25.9	19.3 033

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.
369	1986 01	03.83906	06 02 37.36	+23 49 54.4		046
369	1986 01	03.85330	06 02 36.46	+23 49 58.9		046
987	1986 02	07.98822	10 10 40.18	+10 12 08.6		046
987	1986 02	08.00280	10 10 39.52	+10 12 09.9		046

1067			1986	01	07.84861	06	41	50.24	+25	18	26.8	046
1067			1986	01	07.86302	06	41	49.38	+25	18	23.4	046
1215			1986	02	07.94759	10	05	01.46	+21	02	15.0	046
1215			1986	02	07.96391	10	05	00.60	+21	02	25.0	046
1215			1986	02	15.03822	09	58	44.64	+22	15	40.7	046
1215			1986	02	15.05556	09	58	43.79	+22	15	51.1	046
1352			1986	02	15.00486	09	50	53.58	+09	07	47.1	046
1352			1986	02	15.01898	09	50	52.87	+09	07	51.0	046
1496			1986	02	07.98822	10	05	24.86	+09	27	42.8	046
1496			1986	02	08.00280	10	05	24.04	+09	27	45.5	046
1496			1986	02	15.00486	09	58	02.02	+10	00	06.8	046
1496			1986	02	15.01898	09	58	01.12	+10	00	11.1	046
1617			1986	02	07.98822	10	06	44.51	+08	23	22.8	046
1617			1986	02	08.00280	10	06	43.87	+08	23	29.4	046
1617			1986	02	15.00486	10	01	55.25	+09	25	55.6	046
1617			1986	02	15.01898	10	01	54.68	+09	26	02.5	046
1841			1986	01	07.88750	08	09	33.58	+23	43	42.5	046
1841			1986	01	07.90278	08	09	32.94	+23	43	44.7	046
2296			1986	01	07.84861	06	39	39.70	+24	48	51.6	046
2296			1986	01	07.86302	06	39	38.85	+24	48	53.6	046
2513			1986	01	07.81094	06	05	13.90	+21	32	41.9	046
2513			1986	01	07.82569	06	05	13.07	+21	32	40.5	046
2842			1986	01	03.80139	04	09	20.38	+34	50	31.0	046
2842			1986	01	03.81551	04	09	19.98	+34	50	23.5	046
2842			1986	01	05.77188	04	08	23.28	+34	34	54.4	046
2842			1986	01	05.78721	04	08	22.82	+34	34	46.4	046
3130			1986	01	03.83906	06	09	48.62	+21	52	02.1	046
3130			1986	01	03.85330	06	09	47.95	+21	52	04.3	046
3130			1986	01	07.81094	06	05	45.36	+22	00	35.3	046
3130			1986	01	07.82569	06	05	44.71	+22	00	38.1	046
3247			1986	01	18.00147	09	38	50.71	+21	17	55.8	046
3247			1986	01	18.01096	09	38	50.31	+21	17	58.3	046
1928	SL		1986	02	15.00486	09	50	53.21	+11	14	34.3	16.8 046
1928	SL		1986	02	15.01898	09	50	52.69	+11	14	37.8	046
1981	CK		1986	01	07.84861	06	42	37.06	+23	37	04.3	046
1981	CK		1986	01	07.86302	06	42	36.32	+23	37	06.2	046
1982	CD		1986	02	14.96858	09	38	55.39	+12	51	46.9	046
1982	CD		1986	02	14.98275	09	38	54.87	+12	51	51.2	046
1985	XM	*	1985	12	09.79653	04	08	00.36	+31	36	15.4	16.8 046
1985	XM		1985	12	09.80926	04	07	59.57	+31	36	12.8	046
1985	XN	*	1985	12	09.79653	04	08	28.18	+32	51	07.8	16.6 046
1985	XN		1985	12	09.80926	04	08	27.47	+32	51	01.7	046
1985	XO	*	1985	12	09.79653	04	09	59.21	+31	14	52.3	16.7 046
1985	XO		1985	12	09.80926	04	09	58.30	+31	14	48.0	046
1985	XP	*	1985	12	09.79653	04	12	09.80	+30	49	19.2	16.6 046
1985	XP		1985	12	09.80926	04	12	09.16	+30	49	17.9	046
1986	AM	*	1986	01	07.77292	05	47	48.40	+17	17	45.5	16.7 046
1986	AM		1986	01	07.78819	05	47	47.62	+17	17	49.9	046
1986	AN	*	1986	01	07.88750	08	06	02.01	+24	43	55.6	16.8 046
1986	AN		1986	01	07.90278	08	06	01.12	+24	43	59.9	046
1986	AO	*	1986	01	07.88750	08	13	17.78	+25	29	34.9	16.9 046
1986	AO		1986	01	07.90278	08	13	17.06	+25	29	34.1	046
1986	AP	*	1986	01	07.88750	08	15	01.14	+25	38	17.2	16.8 046
1986	AP		1986	01	07.90278	08	15	00.30	+25	38	16.7	046
1986	CJ	*	1986	02	07.90975	09	41	42.56	+31	31	15.6	15.6 046
1986	CJ		1986	02	07.92433	09	41	41.80	+31	31	20.2	046
1986	CJ		1986	02	14.93185	09	34	41.73	+32	06	00.7	046
1986	CJ		1986	02	14.94618	09	34	41.10	+32	06	03.2	046
1986	CK	*	1986	02	07.90975	09	47	34.53	+30	27	03.2	17.0 046

1986	CK		1986	02	07.92433	09	47	33.89	+30	27	06.6		046
1986	CL	*	1986	02	07.90975	09	49	21.96	+29	20	53.8	16.8	046
1986	CL		1986	02	07.92433	09	49	21.29	+29	20	57.3		046
1986	CL		1986	02	14.93185	09	42	03.26	+29	52	55.3		046
1986	CL		1986	02	14.94618	09	42	02.34	+29	52	59.8		046
1986	CM	*	1986	02	07.94759	10	00	47.00	+21	48	43.4	16.8	046
1986	CM		1986	02	07.96391	10	00	46.34	+21	48	45.9		046
1986	CM		1986	02	15.03822	09	55	04.60	+23	00	56.1		046
1986	CM		1986	02	15.05556	09	55	03.56	+23	00	59.7		046
1986	CN	*	1986	02	07.94759	10	06	25.45	+21	41	20.7	16.6	046
1986	CN		1986	02	07.96391	10	06	24.71	+21	41	28.3		046
1986	CN		1986	02	15.03822	10	00	47.20	+22	31	49.5		046
1986	CN		1986	02	15.05556	10	00	46.12	+22	31	57.4		046
1986	CO	*	1986	02	07.96391	10	09	10.39	+19	28	40.0	16.7	046
1986	CO		1986	02	15.03822	10	04	27.30	+20	18	17.2		046
1986	CO		1986	02	15.05556	10	04	26.50	+20	18	21.9		046
1986	CP	*	1986	02	07.98822	10	01	02.38	+09	37	08.6	16.7	046
1986	CP		1986	02	08.00280	10	01	01.58	+09	37	11.4		046
1986	CP		1986	02	15.00486	09	55	56.65	+10	46	36.8	16.7	046
1986	CP		1986	02	15.01898	09	55	55.56	+10	46	39.2		046
1986	CQ	*	1986	02	14.96858	09	34	42.49	+14	46	33.7	17.0	046
1986	CQ		1986	02	14.98275	09	34	41.91	+14	46	38.2		046
1986	CR	*	1986	02	14.96858	09	35	25.95	+12	33	39.6	16.9	046
1986	CR		1986	02	14.98275	09	35	25.34	+12	33	49.6		046
1986	CS	*	1986	02	14.96858	09	42	23.82	+12	38	20.4	16.8	046
1986	CS		1986	02	14.98275	09	42	23.00	+12	38	21.7		046
1986	CT	*	1986	02	14.96858	09	42	52.01	+14	01	56.2	16.9	046
1986	CT		1986	02	14.98275	09	42	51.49	+14	01	54.2		046
1986	CU	*	1986	02	15.00486	09	51	48.60	+11	23	25.3	17.0	046
1986	CU		1986	02	15.01898	09	51	47.90	+11	23	30.3		046
1986	CV	*	1986	02	15.00486	10	01	27.31	+10	29	42.4	16.6	046

OBSERVATIONS MADE AT BRORFELDE BY K. AUGUSTESEN, P. JENSEN AND H. J. FOGH OLSEN.

Contact: P. Jensen, Copenhagen University Observatory, Brorfelde, DK-4340 Tollose, Denmark.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
24	1986	02 07.99236	09 13 39.66	+17 17 03.1		054
77	1986	02 07.99236	09 24 28.58	+18 04 23.5		054
221	1986	02 03.89063	06 49 24.79	+15 21 19.7		054
512	1986	03 03.91166	09 12 07.83	+24 40 35.6		054
717	1986	02 11.96190	09 18 02.18	+16 47 27.7		054
934	1986	02 11.96190	09 14 49.69	+18 58 21.8		054
1227	1986	02 11.99396	10 40 41.63	+21 04 20.0		054
1252	1986	02 27.85046	09 12 45.69	+20 36 20.6		054
1252	1986	03 03.91166	09 09 44.16	+21 53 42.5		054
1427	1986	02 11.99396	10 38 53.04	+22 05 13.9		054
1523	1986	02 07.98542	09 20 55.82	+17 15 42.1		054
1523	1986	02 08.00278	09 20 54.57	+17 15 47.6		054
1523	1986	02 11.96190	09 16 23.74	+17 21 02.7		054
1562	1986	02 07.98542	09 19 23.84	+17 01 20.5		054
1562	1986	02 08.00278	09 19 22.58	+17 01 32.3		054
1562	1986	02 11.96190	09 15 16.57	+17 32 05.2		054
1953	1986	02 07.99236	09 29 01.58	+18 18 17.8		054
3170	1986	02 11.96190	09 16 39.05	+18 56 17.8		054
3170	1986	02 27.85046	09 04 03.27	+19 40 08.0	17.0	054
3310	1986	02 11.99396	10 42 41.92	+21 35 13.7	16.0	054
3312	1984	10 26.92361	23 33 46.25	+03 55 32.6	16.5	054
3312	1984	10 26.93785	23 33 45.91	+03 55 24.9		054

1934	CY		1986	01	07.94766	05	03	07.43	+31	39	15.4	17.0	054
1952	JH		1986	02	03.94419	07	48	49.22	+06	26	58.8	16.3	054
1952	JH		1986	02	05.95287	07	47	09.49	+06	33	04.9	16.2	054
1952	JH		1986	02	07.93935	07	45	36.91	+06	39	23.5		054
1973	DT		1986	02	05.99662	08	52	18.91	+28	50	36.1	16.5	054
1973	DT		1986	02	07.96319	08	50	30.74	+29	06	42.8		054
1973	DT		1986	02	09.94203	08	48	43.68	+29	22	08.0		054
1984	SM		1984	10	26.92361	23	27	17.11	+07	13	18.5	16.8	054
1984	SO		1984	10	26.92361	23	31	12.86	+05	35	36.9	17.0	054
1984	SQ5		1986	02	27.85046	09	14	08.21	+21	41	49.7	17.0	054
1985	VE		1985	11	15.91259	03	01	49.64	+09	17	45.7		054
1985	VF		1985	11	15.91259	03	02	35.51	+09	15	01.0		054
1985	VH		1985	11	15.91259	03	06	01.35	+09	31	06.2		054
1985	VK		1985	11	15.91259	03	10	53.99	+10	03	29.7		054
1985	VL		1985	11	15.91259	03	11	21.12	+10	02	20.1		054
1985	VM		1985	11	15.91259	03	11	41.81	+10	19	20.1		054
1985	VN		1985	11	15.91259	03	12	52.46	+09	04	30.6		054
1986	AE		1986	02	03.94419	07	53	45.50	+06	26	29.7	17.0	054
1986	AW2		1986	02	07.98542	09	29	42.85	+16	58	34.6		054
1986	AW2		1986	02	08.00278	09	29	41.86	+16	58	53.6		054
1986	AW2		1986	02	11.96190	09	26	34.97	+18	01	18.5	16.0	054
1986	AW2		1986	02	15.95218	09	23	26.68	+19	03	16.8		054
1986	AW2		1986	02	27.85046	09	15	03.66	+21	53	30.6		054
1986	AW2		1986	03	03.91166	09	12	48.96	+22	44	08.8	16.5	054
1986	CZ		1986	02	05.99662	08	41	07.32	+29	22	09.9	17.2	054
1986	CZ		1986	02	07.96319	08	39	00.21	+29	23	01.8		054
1986	CC1	*	1986	02	03.94419	07	43	27.11	+08	15	55.2	17.2	054
1986	CD1	*	1986	02	07.98542	09	19	31.21	+16	22	23.0	17.0	054
1986	CD1		1986	02	11.96190	09	15	41.58	+17	05	05.2		054
1986	CE1	*	1986	02	07.98542	09	20	54.13	+16	09	11.6	16.5	054
1986	CE1		1986	02	08.00278	09	20	53.18	+16	09	23.2		054
1986	CE1		1986	02	11.96190	09	17	44.85	+16	39	03.7	16.8	054
1986	EF	*	1986	03	03.91166	09	11	31.89	+25	41	43.0	17.5	054
1986	EG	*	1986	03	03.91166	09	15	20.32	+22	28	13.0	17.5	054

OBSERVATIONS 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.
2093	1985 08	24.31771	22 09 42.77	-10 28 22.0	293
2093	1985 08	24.32813	22 09 42.07	-10 28 30.0	293
1981 VO	1985 09	14.25486	22 50 31.87	-14 28 51.3	293
1981 VO	1985 09	14.27222	22 50 31.23	-14 28 52.9	293
1983 AG2	1985 08	24.31771	22 12 22.41	-10 50 44.5	293
1983 AG2	1985 08	24.32813	22 12 21.67	-10 50 42.0	293

OBSERVATIONS MADE AT GEISEI BY T. SEKI.
Copied from Nihondaira Obs. Circ. Nos. 1530, 1531 and 1545. Measured by T. Urata. Contact: T. Seki, Kamimachi 2-9-35, Kochi, Japan.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
251	1986 02	16.81076	12 47 12.90	+00 44 02.8	16	372
251	1986 02	16.82604	12 47 12.75	+00 44 08.3		372
1551	1986 01	19.71354	10 15 24.29	+14 06 18.0	16.5	372
1551	1986 01	19.72396	10 15 24.15	+14 06 24.3		372
1984 QC	1986 02	03.43403	04 10 05.63	+32 20 16.2	17	372
1984 QC	1986 02	03.44931	04 10 06.08	+32 20 12.8		372
1985 SB	1985 12	03.45174	00 23 01.39	+08 44 58.2	17.5	372
1985 SB	1985 12	03.46771	00 23 01.68	+08 45 02.3		372
1986 DA	1986 02	28.81701	10 06 31.98	+32 20 34.3		372

1986 DA	1986 02 28.82396	10 06 32.33	+32 20 37.1		372
1986 DA	1986 02 28.83090	10 06 32.49	+32 20 37.6		372

OBSERVATIONS MADE AT UENOHARA (CODE 376) AND AT NAGATORO (CODE 398) BY N. KAWASATO.

Contact: S. Nakano, 3-1-1005, 3 chome, Higashi-Jujo, Kita-Ku, Tokyo 114, Japan.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 DA	1986 02	28.51250	10 06 21.29	+32 18 20.7	14	376
1986 DA	1986 02	28.53125	10 06 21.93	+32 18 30.4		376
1986 DA	1986 03	03.45451	10 08 43.73	+32 38 38.1		398
1986 DA	1986 03	03.49479	10 08 45.45	+32 38 54.1		398
1986 DA	1986 03	03.53646	10 08 47.28	+32 39 12.3		398
1986 DA	1986 03	07.51042	10 12 42.42	+32 57 20.4		398
1986 DA	1986 03	07.58125	10 12 46.06	+32 57 33.0		398
1986 DA	1986 03	12.51806	10 19 01.37	+33 02 07.0		398
1986 DA	1986 03	12.57222	10 19 05.22	+33 02 02.0		398

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

Films measured by M. Inoue and T. Urata. Copied from Nihondaira Obs. Circ. Nos. 1541, 1545, 1549 and 1551. Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
54		1986 01	18.69965	10 10 46.46	+08 39 13.7			386
973		1986 02	16.72049	11 56 58.73	-00 25 30.9			386
1352		1986 01	18.78299	10 10 42.26	+07 07 47.4			386
2535		1986 02	16.72049	11 54 01.43	-00 14 55.6			386
2953		1986 01	18.71701	10 08 32.69	+09 55 05.1			386
1984 SM4		1986 01	11.59549	08 22 16.87	+15 08 27.0	16.5		386
1984 SM4		1986 01	11.63715	08 22 14.68	+15 08 38.7			386
1986 AX2	*	1986 01	11.59549	08 17 46.45	+14 16 41.7	17	1	386
1986 AX2		1986 01	11.61632	08 17 45.23	+14 16 42.3			386
1986 AX2		1986 01	11.63715	08 17 43.62	+14 16 48.8			386
1986 AX2		1986 01	11.65799	08 17 42.73	+14 16 50.0			386
1986 AY2	*	1986 01	11.59549	08 18 10.51	+14 51 56.4	16.5	1	386
1986 DB		1986 03	08.48611	09 04 14.20	+07 22 57.3	16		386
1986 DB		1986 03	08.53819	09 04 12.96	+07 23 26.1			386
1986 ED	*	1986 03	07.71944	11 57 44.24	+06 43 17.3	16.5	1	386
1986 ED		1986 03	07.78472	11 57 40.90	+06 43 39.4			386
1986 ED		1986 03	16.61979	11 49 43.55	+07 24 07.1			386
1986 ED		1986 03	16.67535	11 49 40.28	+07 24 24.7			386
1986 EE	*	1986 03	07.73681	11 56 13.52	+08 02 13.5	16.5	1	386
1986 EE		1986 03	07.80208	11 56 10.32	+08 02 22.5			386
1986 EE		1986 03	16.70312	11 48 07.62	+08 17 30.0			386
1986 FA	*	1986 03	16.73090	13 02 06.73	+00 15 07.6	16.8	2	386
1986 FA		1986 03	16.75868	13 02 05.42	+00 15 13.1			386

Note 1: discovered by M. Inoue, O. Muramatsu and T. Urata. 2: discovered by Inoue and Muramatsu.

OBSERVATION MADE AT THE SENDAI OBSERVATORY'S AYASHI STATION BY M. KOISHIKAWA.

Contact: S. Nakano, 3-1-1005, 3 chome, Higashi-Juju, Kita-Ku, Tokyo 114, Japan.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
3133	1986 02	04.71528	12 23 28.82	+05 49 08.9	17.5	391

OBSERVATIONS MADE AT MOUNT JOHN UNIVERSITY OBSERVATORY.

Plates taken with the 0.6-m f/14 Cassegrain reflector by A. C. Gilmore, measured by P. M. Kilmartin. Computational support from R. McIntosh and W. M. Kissling. Reductions using field plates from the Carter Observatory,

AGK3, SAO Catalog and Cape Photographic Catalogue. Contact: A. C. Gilmore, P.O. Box 57, Lake Tekapo, New Zealand.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
3339	1985 10	18.57154	23 28 55.98	-28 45 56.0			474
3339	1985 10	18.59932	23 28 55.12	-28 45 50.0			474
1964 XA	1985 10	17.48288	22 59 52.20	-25 17 21.9			474
1964 XA	1985 10	17.52605	22 59 50.27	-25 17 03.8			474
1978 PC	1985 10	17.56946	23 42 11.03	-38 49 16.1		1	474
1978 PC	1985 10	17.59990	23 42 08.99	-38 49 05.7		1	474
1978 TU7	1985 11	14.44968	21 35 32.16	-24 48 34.8			474
1984 FO	1985 12	09.51449	03 03 19.75	-10 46 42.2			474
1984 FO	1985 12	09.55037	03 03 18.33	-10 46 39.9			474
1985 NE	1985 10	16.43601	19 39 36.82	-26 23 30.7			474
1985 NE	1985 10	16.46459	19 39 39.20	-26 23 18.7			474
1985 PA	1985 10	18.44249	20 22 24.03	-60 15 56.8			474
1985 PA	1985 10	18.48045	20 22 23.83	-60 16 25.0			474
1985 PA	1985 11	08.46478	20 37 38.15	-63 34 42.9			474
1985 PA	1985 11	08.50419	20 37 41.43	-63 34 58.7			474
1985 VX1*	1985 11	14.44968	21 35 49.56	-24 50 27.9	18		474

Note 1: trailed image.

OBSERVATIONS MADE AT CALAR ALTO BY L. KOHOUTEK AND R. PAULS.

Plates taken with the 0.8-m Schmidt. Contact: L. Kohoutek, Hamburger Sternwarte, D-2050 Hamburg 80, Federal Republic of Germany.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
887	1985 11	18.19653	11 01 29.14	+05 29 37.2	13.5	493
887	1985 11	19.19896	11 05 24.07	+05 18 32.9		493
887	1985 12	12.19306	12 26 37.46	+01 31 07.7		493
887	1985 12	12.21458	12 26 41.46	+01 30 56.9		493
887	1985 12	15.18889	12 35 55.87	+01 07 10.5		493
1757	1985 12	12.19306	12 25 03.07	+01 00 18.7	15	493
1757	1985 12	12.21458	12 25 05.31	+01 00 04.5		493
1757	1985 12	15.18889	12 29 49.60	+00 30 40.5		493

OBSERVATIONS MADE AT VICTORIA BY D. D. BALAM.

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

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1986 EB	1986 03	13.22646	11 17 31.00	+23 37 25.2	657
1986 EB	1986 03	15.25668	11 04 33.17	+22 13 37.5	657

OBSERVATIONS MADE WITH THE 1.2-m SCHMIDT AT PALOMAR BY C. T. KOWAL.

Plates scanned and measured by S. J. Bus, with assistance from E. Bowell. Contact: S. J. Bus, Lowell Observatory, 1400 W. Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
43	1979 11	22.28715	03 09 15.18	+20 45 36.8			675
43	1979 11	24.29201	03 07 07.53	+20 33 45.2			675
43	1979 11	25.30556	03 06 04.55	+20 27 48.1			675
220	1979 11	22.40521	04 35 23.33	+24 59 01.6			675
220	1979 11	24.40590	04 33 01.92	+24 45 57.3			675
220	1979 11	25.42118	04 31 49.77	+24 39 12.6			675
453	1979 11	22.28715	03 12 55.41	+24 38 25.5			675
453	1979 11	24.29201	03 10 33.83	+24 31 58.6			675
453	1979 11	25.30556	03 09 23.51	+24 28 37.1			675
615	1979 11	22.40521	04 33 01.49	+25 18 49.6			675

615		1979	11	24.40590	04	31	00.82	+25	16	09.6			675
615		1979	11	25.42118	04	29	58.99	+25	14	42.1			675
1177		1979	11	22.34688	03	56	19.68	+24	39	34.1			675
1177		1979	11	24.34896	03	54	41.43	+24	27	31.5			675
1177		1979	11	25.36424	03	53	51.58	+24	21	22.8			675
1525		1979	11	22.28715	02	58	51.72	+24	38	35.0			675
1525		1979	11	24.29201	02	57	08.82	+24	24	31.6			675
1525		1979	11	25.30556	02	56	18.71	+24	17	26.2			675
1527		1979	11	22.28715	03	12	50.55	+24	08	59.7			675
1527		1979	11	24.29201	03	10	31.51	+24	03	05.4			675
1527		1979	11	25.30556	03	09	23.03	+24	00	01.2			675
1806		1979	11	22.40521	04	36	34.40	+25	15	38.3			675
1806		1979	11	24.40590	04	34	26.17	+25	07	16.5			675
1806		1979	11	25.42118	04	33	19.85	+25	02	51.4			675
1843		1979	11	22.40521	04	39	22.58	+26	24	05.0			675
1843		1979	11	24.40590	04	37	22.12	+26	16	06.0			675
1843		1979	11	25.42118	04	36	20.38	+26	11	55.7			675
1961		1979	11	22.28715	02	58	32.41	+20	55	05.4			675
1961		1979	11	24.29201	02	56	52.03	+20	51	32.1			675
1961		1979	11	25.30556	02	56	02.35	+20	49	44.0			675
1972		1979	11	22.34688	03	48	50.05	+21	53	28.6			675
1972		1979	11	24.34896	03	46	40.50	+21	52	58.0			675
2165		1979	11	22.34688	04	04	06.65	+21	50	10.0			675
2165		1979	11	24.34896	04	02	19.89	+21	45	51.9			675
2165		1979	11	25.36424	04	01	25.80	+21	43	38.4			675
2212		1979	11	22.28715	02	54	03.23	+23	04	09.2			675
2212		1979	11	24.29201	02	51	51.78	+22	55	31.5			675
2241		1979	11	22.40521	04	37	16.06	+28	26	31.6			675
2241		1979	11	24.40590	04	36	07.57	+28	21	50.9			675
2241		1979	11	25.42118	04	35	32.53	+28	19	25.1			675
2819		1979	11	22.28715	03	13	05.14	+20	31	12.1			675
2819		1979	11	24.29201	03	11	15.44	+20	25	33.8			675
2819		1979	11	25.30556	03	10	21.37	+20	22	44.7			675
3285		1979	11	22.34688	04	01	55.60	+24	12	29.2			675
3285		1979	11	24.34896	04	00	00.85	+23	34	48.2			675
3285		1979	11	25.36424	03	59	02.83	+23	15	33.8			675
1978	PR4	1979	11	22.40521	04	39	25.74	+26	28	52.1			675
1978	PR4	1979	11	24.40590	04	37	05.67	+26	29	03.5			675
1978	PR4	1979	11	25.42118	04	35	53.29	+26	29	00.2			675
1979	VS2	1979	11	22.34688	03	55	25.56	+26	32	11.7	17.0		675
1979	VS2	1979	11	24.34896	03	51	40.84	+26	57	53.2			675
1979	VS2	1979	11	25.36424	03	49	46.82	+27	10	32.4			675
1979	VT2	1979	11	22.34688	04	02	38.99	+25	37	09.1			675
1979	VT2	1979	11	24.34896	04	00	24.05	+25	36	35.8			675
1979	VT2	1979	11	25.36424	03	59	15.12	+25	36	10.4			675
1979	WE8 *	1979	11	22.28715	03	02	15.84	+24	09	03.0		1	675
1979	WE8	1979	11	24.29201	03	00	02.44	+24	08	44.5			675
1979	WE8	1979	11	25.30556	02	58	55.92	+24	08	30.6			675
1979	WF8 *	1979	11	22.28715	03	06	03.26	+24	13	56.0	18.5	3	675
1979	WF8	1979	11	24.29201	03	03	51.34	+24	08	39.0			675
1979	WF8	1979	11	25.30556	03	02	46.93	+24	05	54.2			675
1979	WG8 *	1979	11	22.28715	03	13	02.08	+21	42	58.6	19.0	3	675
1979	WG8	1979	11	24.29201	03	10	54.55	+20	57	16.2			675
1979	WG8	1979	11	25.30556	03	09	52.28	+20	34	20.4			675
1979	WH8 *	1979	11	22.28715	03	14	56.89	+20	37	30.6	17.5	3	675
1979	WH8	1979	11	24.29201	03	13	28.84	+20	33	12.5			675
1979	WH8	1979	11	25.30556	03	12	45.15	+20	31	03.5			675
1979	WJ8 *	1979	11	22.40521	04	31	21.51	+26	04	12.3	18.0	3	675
1979	WJ8	1979	11	24.40590	04	30	10.12	+26	04	25.2			675

1979	WJ8		1979	11	25.42118	04	29	33.70	+26	04	29.5		675
1979	WK8	*	1979	11	22.40521	04	36	21.53	+24	33	39.9	17.5 3	675
1979	WK8		1979	11	24.40590	04	34	09.62	+23	55	40.0		675
1979	WL8	*	1979	11	22.40521	04	40	22.18	+25	53	49.8	18.0 3	675
1979	WL8		1979	11	24.40590	04	38	54.90	+25	53	02.7		675
1979	WL8		1979	11	25.42118	04	38	10.20	+25	52	35.1		675
1979	WM8	*	1979	11	24.40590	04	51	11.78	+27	18	50.9	18.5 2	675
1979	WM8		1979	11	25.42118	04	49	53.64	+27	16	15.6		675
1979	WN8	*	1979	11	24.40590	04	52	57.15	+26	14	31.8	17.5 3	675
1979	WN8		1979	11	25.42118	04	51	42.08	+26	32	52.3		675
1979	XQ		1979	11	22.34688	03	53	22.45	+23	12	07.2		675
1979	XQ		1979	11	24.34896	03	51	01.34	+23	09	26.7		675
1979	XQ		1979	11	25.36424	03	49	50.13	+23	07	58.1		675
1981	DM		1979	11	26.30104	03	34	05.06	+23	34	29.6		675
1981	DM		1979	11	27.35104	03	32	59.13	+23	27	52.3		675
1981	EN2		1979	11	22.40521	04	39	29.07	+24	45	30.3		675
1981	EN2		1979	11	24.40590	04	37	46.42	+24	36	12.9		675
1981	EN2		1979	11	25.42118	04	36	53.47	+24	31	23.4		675
1981	EA5		1979	11	26.30104	03	24	27.00	+23	36	04.9		675
1981	EA5		1979	11	27.35104	03	23	33.25	+23	27	33.7		675
1981	EA7		1979	11	22.40521	04	33	45.96	+27	11	58.9		675
1981	EA7		1979	11	24.40590	04	31	27.13	+26	59	50.3		675
1981	EA7		1979	11	25.42118	04	30	16.19	+26	53	29.0		675
1981	EE9		1979	11	22.40521	04	27	28.95	+27	58	32.8		675
1981	EE9		1979	11	24.40590	04	25	45.93	+27	50	32.5		675
1981	EE9		1979	11	25.42118	04	24	52.99	+27	46	18.3		675
1981	EW9		1979	11	22.37917	04	45	46.11	+29	48	50.4		675
1981	EW9		1979	11	25.42118	04	42	03.10	+29	42	31.0		675
1981	ER11		1979	11	22.31319	03	01	10.61	+20	29	47.5		675
1981	ER11		1979	11	24.29201	02	59	22.11	+20	20	41.0		675
1981	ER11		1979	11	25.30556	02	58	27.53	+20	15	58.7		675
1981	EF12		1979	11	22.26111	03	10	10.75	+22	23	05.9		675
1981	EF12		1979	11	24.29201	03	08	04.09	+22	10	42.0		675
1981	EF12		1979	11	25.30556	03	07	02.42	+22	04	29.1		675
1981	ET13		1979	11	22.28715	03	15	05.06	+23	41	58.3		675
1981	ET13		1979	11	24.29201	03	12	55.90	+23	31	40.0		675
1981	ET13		1979	11	25.30556	03	11	51.59	+23	26	24.7		675
1981	ED14		1979	11	26.30104	03	20	45.55	+24	16	13.2		675
1981	ED14		1979	11	27.35104	03	19	39.39	+24	11	40.0		675
1981	EF14		1979	11	22.28715	03	08	41.14	+19	59	48.6		675
1981	EF14		1979	11	24.29201	03	06	36.28	+19	49	14.6		675
1981	EF14		1979	11	25.30556	03	05	34.46	+19	43	57.2		675
1981	EZ14		1979	11	22.34688	03	49	07.22	+26	57	02.1		675
1981	EZ14		1979	11	24.34896	03	47	16.44	+26	48	28.1		675
1981	EZ14		1979	11	25.36424	03	46	20.29	+26	43	57.3		675
1981	ER15		1979	11	22.34688	03	50	13.95	+22	11	07.4		675
1981	ER15		1979	11	24.34896	03	48	03.63	+22	01	22.3		675
1981	EB17		1979	11	22.34688	03	56	03.22	+25	48	15.8		675
1981	EB17		1979	11	24.34896	03	53	53.59	+25	42	33.3		675
1981	EB17		1979	11	25.36424	03	52	47.83	+25	39	31.1		675
1981	EE18		1979	11	22.34688	03	56	20.33	+27	18	47.4		675
1981	EE18		1979	11	24.34896	03	54	28.50	+27	15	23.6		675
1981	EE18		1979	11	25.36424	03	53	31.65	+27	13	32.8		675
1981	EB21		1979	11	22.34688	04	02	57.97	+23	41	45.7		675
1981	EB21		1979	11	24.34896	04	01	09.99	+23	36	01.3		675
1981	EB21		1979	11	25.36424	04	00	14.99	+23	33	02.4		675
1981	EZ22		1979	11	24.40590	04	50	52.78	+26	39	04.0		675
1981	EZ22		1979	11	25.42118	04	49	38.21	+26	37	45.4		675
1981	EJ23		1979	11	26.30104	03	35	03.15	+25	43	43.0		675

1981 EJ23	1979 11 27.35104	03 34 00.79	+25 40 27.7			675
1981 EB24	1979 11 24.34896	04 05 47.29	+26 25 58.5			675
1981 EB24	1979 11 25.36424	04 04 45.90	+26 24 31.2			675
1981 EC25	1979 11 22.28715	03 17 37.50	+23 50 25.6			675
1981 EC25	1979 11 24.29201	03 15 19.68	+23 43 43.6			675
1981 EC25	1979 11 25.30556	03 14 11.77	+23 40 15.2			675
1981 ET26	1979 11 22.40521	04 36 15.82	+28 05 48.3			675
1981 ET26	1979 11 24.40590	04 33 52.16	+28 02 55.2			675
1981 ET26	1979 11 25.42118	04 32 38.51	+28 01 16.8			675
1981 ET26	1979 11 27.42188	04 30 12.10	+27 57 41.4			675
1981 EO35	1979 11 24.34896	03 40 00.44	+23 56 19.3			675
1981 EO35	1979 11 25.36424	03 38 53.36	+23 49 28.8			675
1981 EY35	1979 11 22.28715	03 00 31.58	+22 07 48.4			675
1981 EY35	1979 11 24.29201	02 58 24.50	+21 59 53.2			675
1981 EY35	1979 11 25.30556	02 57 21.74	+21 55 52.0			675
1981 EE37	1979 11 22.40521	04 44 18.84	+28 20 35.2			675
1981 EE37	1979 11 24.40590	04 41 52.17	+28 20 43.8			675
1981 EE37	1979 11 25.42118	04 40 36.73	+28 20 35.3			675
1981 EP37	1979 11 22.34688	03 57 51.87	+22 15 33.2			675
1981 EP37	1979 11 24.34896	03 55 52.92	+22 07 03.0			675
1981 EP37	1979 11 25.36424	03 54 52.74	+22 02 40.9			675
1981 EU37	1979 11 22.34688	03 42 59.95	+22 38 51.5			675
1981 EU37	1979 11 24.34896	03 41 05.14	+22 28 47.2			675
1981 EU37	1979 11 25.36424	03 40 06.93	+22 23 35.9			675
1981 EE38	1979 11 22.40521	04 29 03.14	+25 08 31.4			675
1981 EE38	1979 11 24.40590	04 27 09.35	+25 04 13.9			675
1981 EE38	1979 11 25.42118	04 26 11.01	+25 01 56.7			675
1981 EM38	1979 11 22.28715	03 15 14.40	+24 39 22.4			675
1981 EM38	1979 11 24.29201	03 13 21.94	+24 30 15.2			675
1981 EM38	1979 11 25.30556	03 12 25.97	+24 25 34.6			675
1981 ES39	1979 11 24.29201	03 18 10.89	+19 51 31.6			675
1981 ES39	1979 11 25.30556	03 17 19.09	+19 47 42.3			675
1981 EV41	1979 11 22.40521	04 39 24.65	+26 16 11.2			675
1981 EV41	1979 11 24.40590	04 37 28.11	+26 12 55.5			675
1981 EV41	1979 11 25.42118	04 36 28.33	+26 11 09.7			675
1981 EO42	1979 11 22.34688	03 44 57.68	+28 00 54.2			675
1981 EO42	1979 11 24.34896	03 42 45.91	+27 57 44.2			675
1981 EO42	1979 11 25.36424	03 41 39.51	+27 55 55.8			675
1981 EV46	1979 11 22.40521	04 32 11.13	+24 09 43.6			675
1981 EV46	1979 11 24.40590	04 29 42.10	+24 04 34.2			675
1981 EV46	1979 11 25.42118	04 28 26.27	+24 01 50.8			675
1981 EF47	1979 11 22.40521	04 42 14.10	+26 39 26.5			675
1981 EF47	1979 11 24.40590	04 40 23.38	+26 38 05.5			675
1981 EF47	1979 11 25.42118	04 39 26.11	+26 37 17.2			675
4260 P-L	1979 11 22.28715	03 06 31.16	+20 20 36.5			675
4260 P-L	1979 11 24.29201	03 04 50.29	+20 10 03.7			675
4260 P-L	1979 11 25.30556	03 04 00.60	+20 04 46.4			675
4805 P-L	1979 11 22.28715	03 12 33.58	+19 56 52.0			675
4805 P-L	1979 11 24.29201	03 10 30.06	+19 49 46.8			675
4805 P-L	1979 11 25.30556	03 09 28.56	+19 46 14.8			675

Note 1: discoverer Bus. 2: discoverer Bowell. 3 = 1 + 2.

OBSERVATIONS MADE WITH THE 1.5-m REFLECTOR AND CCD AT PALOMAR BY J. GIBSON.
Coordination with J. G. Williams and with the Minor Planet Center. AGK3 and SAO reference stars, reduction using Palomar Sky Survey prints. Contact: J. Gibson, Jet Propulsion Laboratory, MS 138-307, Pasadena, CA 91109, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1981 PB	1985 12 20.45875	07 58 12.84	+27 44 26.6			675
1981 PB	1985 12 20.47000	07 58 12.20	+27 44 29.1			675

1981	PB		1985	12	20.47375	07	58	11.98	+27	44	29.6	675
1981	PB		1986	01	18.38278	07	23	38.04	+29	02	19.2	675
1981	PB		1986	01	18.39028	07	23	37.47	+29	02	19.8	675
1981	PB		1986	01	19.33611	07	22	26.38	+29	03	24.6	675
1981	PB		1986	01	19.35000	07	22	25.31	+29	03	25.5	675
1985	JA		1985	07	28.23880	15	32	45.00	+15	37	45.4	675
1985	JA		1985	07	28.24596	15	32	45.49	+15	37	43.3	675
1985	JA		1985	09	07.17530	16	30	39.08	+11	16	03.6	675
1985	JA		1985	09	07.18701	16	30	40.19	+11	15	58.8	675
1985	JA		1985	09	08.15028	16	32	14.02	+11	09	23.6	675
1985	JA		1985	09	08.15887	16	32	14.85	+11	09	20.3	675
1985	PA		1986	03	04.14847	04	13	01.58	-09	34	27.2	675
1985	PA		1986	03	04.16250	04	13	04.80	-09	32	42.7	675
1985	TB		1986	03	04.31042	09	25	14.39	+75	05	40.7	675
1985	TB		1986	03	04.31771	09	25	14.86	+75	05	13.8	675
1985	TB		1986	03	04.32086	09	25	15.05	+75	05	02.5	675
1985	XB		1985	12	20.22139	06	34	02.48	+49	27	26.9	675
1985	XB		1985	12	20.23278	06	34	01.13	+49	27	53.8	675
1985	XB		1986	03	04.20556	05	39	47.52	+64	48	48.6	675
1985	XB		1986	03	04.21458	05	39	48.94	+64	48	46.9	675
1985	XB		1986	03	21.19389	06	34	16.27	+63	26	00.4	675
1985	XB		1986	03	21.20264	06	34	18.12	+63	25	56.2	675
1985	XB		1986	03	22.24850	06	38	05.05	+63	17	48.4	675
1985	XB		1986	03	22.25292	06	38	05.98	+63	17	46.1	675

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

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1090		1986 02	05.48663	10 58 24.52	+07 44 57.8	15.5	675
1090		1986 02	05.50486	10 58 24.23	+07 45 20.8		675
1981	PA	1986 01	12.36284	07 51 33.93	+50 20 54.9	14.5	675
1981	PA	1986 01	12.39531	07 51 29.64	+50 20 06.8		675
1984	FM	1984 05	26.22916	12 31 16.38	-06 42 13.1		675
1984	FM	1984 05	27.17778	12 31 13.70	-06 57 15.7		675
1985	XB	1986 01	12.26285	05 37 30.04	+60 48 01.9		675
1985	XB	1986 02	05.18889	05 01 56.99	+64 37 36.5		675
1986	AA	1986 01	09.40625	08 54 07.86	+14 40 32.5		675
1986	AA	1986 01	10.44861	08 52 32.86	+14 30 51.4		675
1986	AD	1986 01	16.35868	08 18 46.32	+22 32 32.3		675
1986	AD	1986 02	05.28438	07 47 19.09	+17 42 31.5		675
1986	AD	1986 02	06.28385	07 45 56.38	+17 27 25.2		675
1986	AD	1986 02	07.25711	07 44 37.55	+17 12 48.3		675
1986	AE	1986 01	16.46145	08 19 50.05	+09 09 39.1		675
1986	AE	1986 02	04.41770	07 53 11.11	+06 23 15.4		675
1986	AE	1986 02	07.22847	07 49 55.87	+06 04 42.5		675
1986	AE	1986 02	07.26197	07 49 53.64	+06 04 30.3		675
1986	AF	1986 01	16.44166	06 33 25.93	+14 35 01.5		675
1986	AG	1986 01	16.44166	06 45 18.71	+15 19 10.0		675
1986	AG	1986 02	05.28889	06 29 08.31	+12 12 41.9		675
1986	AG	1986 02	06.27881	06 28 45.16	+12 05 53.0		675
1986	AG	1986 02	07.25260	06 28 24.59	+11 59 18.2		675
1986	AH	* 1986 01	09.42048	09 11 43.94	+13 55 07.4	17.5	675
1986	AH	1986 01	16.37170	09 05 36.21	+16 28 04.8		675
1986	AH	1986 02	04.44166	08 43 31.17	+23 46 50.3		675
1986	AH	1986 02	05.41579	08 42 20.67	+24 07 50.3		675
1986	AH	1986 02	07.31354	08 40 05.68	+24 47 47.8		675

1986 AJ	*	1986	01	10.30815	06	24	25.39	+28	01	19.0	17.5 675
1986 AJ		1986	01	16.37777	06	16	37.97	+26	39	22.3	675
1986 AJ		1986	02	05.16354	06	02	53.75	+22	36	23.4	675
1986 AJ		1986	02	05.18324	06	02	53.34	+22	36	11.9	675
1986 AJ		1986	02	06.19861	06	02	41.16	+22	25	24.9	675
1986 AK	*	1986	01	12.31215	08	07	20.85	+63	13	43.8	675
1986 AK		1986	01	12.40138	08	07	14.26	+63	15	31.2	675
1986 AK		1986	02	04.42813	07	38	17.32	+67	31	14.1	675
1986 AK		1986	02	05.24861	07	37	32.78	+67	32	36.1	15 675
1986 AK		1986	02	06.18003	07	36	44.82	+67	33	26.2	675
1986 AK		1986	02	07.17013	07	35	57.27	+67	33	40.0	675
1986 AG1		1986	02	04.41250	07	44	27.04	+18	00	56.1	675
1986 AG1		1986	02	05.30711	07	43	14.52	+17	51	12.0	675
1986 AG1		1986	02	06.28385	07	41	57.12	+17	40	37.5	675
1986 AG1		1986	02	07.25711	07	40	42.30	+17	30	09.8	675
1986 CA	*	1986	02	07.42239	11	02	00.77	+18	59	25.9	17.5 675
1986 CA		1986	02	07.45469	11	01	56.42	+18	58	47.8	675
1986 CB	*	1986	02	05.46397	10	19	18.89	+20	07	23.5	17.5 675
1986 CB		1986	02	05.50034	10	19	16.93	+20	08	13.3	675
1986 CF	*	1986	02	05.26458	06	17	46.27	+10	58	53.9	675
1986 CF		1986	02	05.28889	06	17	45.90	+10	58	46.9	675
1986 DA		1986	02	05.44704	09	55	35.36	+27	53	12.5	675
1986 DA		1986	02	07.36406	09	56	20.40	+28	17	47.2	675
1986 EB	*	1986	03	04.33247	12	16	51.54	+28	18	20.3	14 675
1986 EB		1986	03	05.34444	12	10	11.96	+27	54	39.4	675
1986 EB		1986	03	08.23229	11	50	52.00	+26	34	54.3	675
1986 EB		1986	03	08.45425	11	49	19.36	+26	28	02.7	675
1986 EB		1986	03	09.37899	11	43	05.61	+25	58	26.6	675
1986 EB		1986	03	09.39444	11	42	59.24	+25	57	55.8	675
1986 EC	*	1986	03	06.39670	12	28	01.53	-08	17	46.1	16.5 675
1986 EC		1986	03	06.42152	12	28	00.06	-08	15	45.9	675
1986 EH	*	1986	03	05.37309	12	26	08.60	+01	45	41.4	16 675
1986 EH		1986	03	05.40121	12	26	06.22	+01	45	29.5	675
1986 EH		1986	03	06.39201	12	24	43.84	+01	38	43.9	675
1986 EH		1986	03	06.41753	12	24	41.71	+01	38	31.9	675
1986 EJ	*	1986	03	06.34288	11	21	33.96	-06	12	54.0	16 675
1986 EJ		1986	03	06.37778	11	21	30.46	-06	13	23.0	675
1986 EJ		1986	03	06.40538	11	21	27.57	-06	13	46.2	675

OBSERVATIONS MADE WITH THE 0.46-M SCHMIDT AT PALOMAR.

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

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
1985 XB	*	1985	12 15.44896	06 42 01.87	+46 18 43.7	16.5	675
1985 XB		1985	12 15.47060	06 42 00.16	+46 19 36.8		675
1985 XB		1985	12 17.49132	06 38 48.12	+47 40 22.3		675
1985 XB		1985	12 17.50938	06 38 46.53	+47 41 04.8		675
1985 XB		1985	12 18.32257	06 37 26.65	+48 13 22.5		675
1985 XB		1985	12 18.34757	06 37 23.77	+48 14 23.1		675
1985 XB		1986	01 06.36632	05 53 06.71	+58 42 27.8		675
1985 XB		1986	01 07.21806	05 50 51.22	+59 02 37.9		675
1985 XB		1986	01 07.24479	05 50 46.96	+59 03 13.3		675
1985 XB		1986	01 08.21493	05 48 12.15	+59 25 38.0		675
1985 XB		1986	01 08.32257	05 47 54.20	+59 28 02.9		675
1985 XB		1986	01 08.38337	05 47 44.42	+59 29 22.9		675
1986 CA		1986	02 10.42743	10 55 23.87	+18 04 53.4	17	675
1986 CA		1986	02 10.46250	10 55 19.13	+18 04 16.8		675

1986 CE * 1986 02 10.42743 10 44 03.58 +18 05 06.6 17 1 675
1986 CE 1986 02 10.46250 10 44 01.78 +18 05 24.4 1 675
Note 1: at extreme edge of field.

OBSERVATIONS MADE WITH THE 1.2-M SCHMIDT AT PALOMAR BY E. HELIN.
Plates measured by M. Rudnyk. Contact: E. Helin, Jet Propulsion Laboratory, MS 183-501, Pasadena, CA 91109, U.S.A.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
1189		1985 08	23.30278	21 43 30.58	-00 09 01.8		1	675
1189		1985 08	23.35486	21 43 27.87	-00 09 08.1		1	675
1985 QA1		1985 08	23.30278	21 42 02.01	-02 26 58.4		1	675
1985 QA1		1985 08	23.35486	21 41 59.29	-02 27 18.4		1	675
1985 QB1		1985 08	16.30486	21 49 33.04	-01 38 13.5		2	675
1985 QB1		1985 08	16.35694	21 49 30.69	-01 38 30.9		2	675
1985 QC1		1985 08	16.30486	21 50 36.86	-01 28 25.3		2	675
1985 QC1		1985 08	16.35694	21 50 34.66	-01 28 46.8		2	675
1985 QF1		1985 08	23.30277	21 41 32.81	-00 17 49.2		1	675
1985 QF1		1985 08	23.35486	21 41 29.37	-00 17 54.6		1	675
1985 QT2		1985 08	17.28263	21 44 31.51	+00 51 21.7		2	675
1985 QT2		1985 08	17.34513	21 44 28.48	+00 51 04.5		2	675
1985 QY2		1985 08	23.30278	21 40 14.90	-02 15 10.7		1	675
1985 QY2		1985 08	23.35486	21 40 11.79	-02 15 21.7		1	675
1985 QH3	*	1985 08	23.30278	21 41 14.06	+02 19 22.9		1	675
1985 QH3		1985 08	23.35486	21 41 11.50	+02 18 57.2		1	675
1985 QJ3	*	1985 08	23.30278	21 43 06.30	+01 35 50.7		1	675
1985 QJ3		1985 08	23.35486	21 43 03.95	+01 35 31.6		1	675
1985 QK3	*	1985 08	23.30278	21 44 26.81	+02 44 19.8		1	675
1985 QK3		1985 08	23.35486	21 44 24.24	+02 44 00.6		1	675
1985 QL3	*	1985 08	16.30486	21 51 45.61	+01 19 16.3	18.5	2	675
1985 QL3		1985 08	16.35694	21 51 43.30	+01 18 47.8		2	675
1985 QL3		1985 08	17.28263	21 51 02.36	+01 09 30.4		2	675
1985 QL3		1985 08	17.34513	21 50 59.39	+01 08 55.0		2	675
1985 QL3		1985 08	23.30277	21 46 37.19	+00 05 22.7		1	675
1985 QL3		1985 08	23.35486	21 46 34.89	+00 04 49.0		1	675
1985 QM3	*	1985 08	16.30486	21 43 19.53	+01 11 47.5	19	2	675
1985 QM3		1985 08	16.35694	21 43 16.88	+01 11 28.8		2	675
1985 QN3	*	1985 08	16.30486	21 44 14.84	+01 07 05.6	19	2	675
1985 QN3		1985 08	16.35694	21 44 12.16	+01 06 56.1		2	675
1985 QO3	*	1985 08	17.28263	21 45 43.38	+02 58 34.9	18.5	2	675
1985 QO3		1985 08	17.34513	21 45 40.64	+02 58 07.2		2	675
1985 QP3	*	1985 08	23.30277	21 48 45.58	+00 07 06.5	18.5	1	675
1985 QP3		1985 08	23.35486	21 48 42.49	+00 06 59.9		1	675
1985 QQ3	*	1985 08	23.30277	21 49 04.68	+00 02 25.6	19	1	675
1985 QQ3		1985 08	23.35486	21 49 01.95	+00 02 17.5		1	675
1985 QR3	*	1985 08	23.30277	21 50 00.73	+00 58 02.1	17	1	675
1985 QR3		1985 08	23.35486	21 49 58.26	+00 57 52.9		1	675
1985 QS3	*	1985 08	23.30277	21 50 12.44	-01 03 12.1	19.5	1	675
1985 QS3		1985 08	23.35486	21 50 09.56	-01 03 36.2		1	675
1985 QT3	*	1985 08	23.30277	21 51 08.15	+01 11 55.9	18	1	675
1985 QT3		1985 08	23.35486	21 51 05.75	+01 11 39.5		1	675
1985 QU3	*	1985 08	23.30277	21 51 21.35	-00 56 15.3	18.5	1	675
1985 QU3		1985 08	23.35486	21 51 17.86	-00 56 09.4		1	675
1985 QV3	*	1985 08	23.30277	21 51 24.68	+00 41 35.6	17.5	1	675
1985 QV3		1985 08	23.35489	21 51 21.49	+00 41 34.4		1	675
1985 QW3	*	1985 08	23.30277	21 52 10.61	-00 17 47.0	18	1	675
1985 QW3		1985 08	23.35486	21 52 07.73	-00 17 55.5		1	675
1985 XB		1985 12	18.31435	06 37 27.46	+48 13 02.4			675
1985 XB		1985 12	18.32106	06 37 26.61	+48 13 20.1			675
1985 XB		1985 12	18.32778	06 37 25.54	+48 13 34.3			675

1986 CA		1986 02 07.42222	11 02 00.4	+18 59 25			18			675
1986 CA		1986 02 07.47431	11 01 53.6	+18 58 31						675
1986 CC	*	1986 02 07.49236	11 56 22.89	+22 50 06.3			18			675
1986 CC		1986 02 07.54444	11 56 22.16	+22 50 56.9						675
1986 CC		1986 02 10.33958	11 56 06.02	+23 58 07.2			18.5		3	675
1986 CC		1986 02 10.35347	11 56 05.98	+23 58 17.7					3	675
1986 CD	*	1986 02 07.49236	11 55 28.61	+22 18 00.4						675
1986 CD		1986 02 07.54444	11 55 29.73	+22 17 36.2			18			675
1986 CD		1986 02 10.33958	11 56 29.49	+21 51 53.1					3	675
1986 CD		1986 02 10.35347	11 56 29.63	+21 51 51.1			18		4	675

Note 1: plate taken by R. Windhorst. 2: plate taken by J. Schombert. 3: plate taken by J. Mould; poor image. 4: plate taken by J. Mould; involved with defect.

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

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

Object	Date	UT	R. A. (1950)	Decl.	Daily mot.	Mag.	N	Obs.
18	1986 02 05.12605	06 23 38.77	+13 15 16.6					688
18	1986 02 05.20139	06 23 37.32	+13 15 51.4					688
45	1986 01 12.25810	07 54 56.08	+15 20 19.5					688
45	1986 01 12.32569	07 54 52.30	+15 20 36.6					688
45	1986 01 17.32153	07 50 14.71	+15 41 51.1					688
45	1986 01 17.38611	07 50 11.00	+15 42 07.9					688
45	1986 02 05.17905	07 33 41.29	+17 06 48.4					688
45	1986 02 05.25278	07 33 37.73	+17 07 08.5					688
53	1983 09 10.33750	23 45 13.76	-05 50 24.9					688
53	1983 09 10.37500	23 45 11.95	-05 50 41.9					688
75	1985 12 18.31620	07 39 57.73	+28 33 51.8					688
75	1985 12 18.40347	07 39 52.98	+28 34 06.7					688
75	1986 01 11.21587	07 14 56.21	+29 24 09.3					688
75	1986 01 11.28212	07 14 51.78	+29 24 13.5					688
75	1986 01 12.23594	07 13 48.97	+29 25 10.7					688
75	1986 01 12.30295	07 13 44.51	+29 25 15.1					688
131	1986 01 12.37442	09 33 10.16	+21 58 53.1					688
131	1986 01 12.43234	09 33 07.90	+21 59 14.5					688
159	1985 12 17.33231	07 18 45.93	+17 06 32.7					688
159	1985 12 18.28714	07 18 07.07	+17 08 40.7					688
159	1985 12 18.37431	07 18 03.44	+17 08 51.9					688
162	1983 09 06.26667	23 34 43.72	-09 37 28.8					688
162	1983 09 06.29722	23 34 42.27	-09 37 36.8					688
179	1986 02 05.15266	06 06 55.21	+17 43 24.0					688
179	1986 02 05.22708	06 06 53.65	+17 43 23.2					688
184	1983 11 04.10347	00 41 18.57	+05 41 26.8					688
184	1983 11 04.17292	00 41 16.30	+05 41 13.0					688
203	1983 09 10.33750	23 44 17.68	-01 15 16.5					688
203	1983 09 10.37500	23 44 15.77	-01 15 25.8					688
214	1983 09 10.33750	23 40 31.16	-01 04 26.9					688
214	1983 09 10.37500	23 40 29.19	-01 04 36.5					688
229	1986 01 11.36125	08 52 05.04	+20 28 43.4					688
229	1986 01 11.41368	08 52 02.83	+20 28 52.6					688
246	1986 02 05.12605	06 06 25.85	+05 33 20.4					688
246	1986 02 05.20139	06 06 23.99	+05 33 52.6					688
251	1983 09 10.33750	23 50 54.40	-05 54 49.7					688
251	1983 09 10.37500	23 50 52.94	-05 55 07.2					688
255	1983 09 06.26667	23 34 58.43	-09 30 52.1					688

255	1983	09	06.29722	23	34	56.75	-09	30	58.5			688
263	1986	01	17.34732	08	39	59.12	+16	21	29.8			688
263	1986	01	17.41181	08	39	55.53	+16	21	41.9			688
272	1983	11	04.10347	00	37	45.75	+01	58	05.6			688
272	1983	11	04.17292	00	37	43.35	+01	57	58.6			688
288	1986	02	05.17905	07	43	44.65	+21	33	25.4			688
288	1986	02	05.25278	07	43	40.65	+21	33	43.0			688
308	1986	01	17.38611	07	48	12.28	+14	59	12.3			688
308	1986	02	05.17905	07	32	00.89	+16	00	43.0			688
308	1986	02	05.25278	07	31	57.46	+16	00	58.0			688
309	1986	01	12.37442	09	20	01.45	+19	47	12.6			688
309	1986	01	12.43234	09	19	58.78	+19	47	23.8			688
318	1986	01	12.40355	09	51	36.17	+06	21	06.7	15.2		688
318	1986	01	12.46131	09	51	34.72	+06	21	18.4			688
321	1986	01	11.33542	08	22	21.94	+23	25	33.7			688
321	1986	01	11.38711	08	22	19.12	+23	25	43.5			688
331	1983	09	10.33750	23	47	23.65	-06	38	23.8			688
331	1983	09	10.37500	23	47	21.83	-06	38	31.6			688
355	1986	01	12.23594	07	39	41.42	+28	04	06.8			688
355	1986	01	12.30295	07	39	36.89	+28	04	12.3			688
380	1985	12	18.34531	07	30	33.59	+23	01	51.8			688
380	1985	12	18.43270	07	30	29.30	+23	02	11.6			688
380	1986	01	11.21587	07	07	53.99	+24	31	47.8			688
380	1986	01	11.28212	07	07	49.91	+24	32	01.6			688
404	1986	01	12.28056	08	19	02.72	+29	33	38.4			688
404	1986	01	12.34826	08	18	58.42	+29	34	17.0			688
407	1986	01	12.25810	07	44	52.33	+21	30	26.8			688
407	1986	01	12.32569	07	44	47.92	+21	30	24.8			688
407	1986	01	17.32153	07	39	28.16	+21	28	48.5			688
407	1986	01	17.38611	07	39	23.95	+21	28	46.9			688
407	1986	02	05.17905	07	21	37.38	+21	15	15.6			688
407	1986	02	05.25278	07	21	33.78	+21	15	11.6			688
410	1985	12	17.33231	07	16	56.86	+23	25	38.0			688
410	1985	12	18.28714	07	16	10.53	+23	29	20.1			688
410	1985	12	18.31620	07	16	09.07	+23	29	29.9			688
410	1985	12	18.37431	07	16	06.17	+23	29	40.7			688
410	1985	12	18.40347	07	16	04.60	+23	29	50.8			688
410	1986	01	11.21587	06	53	46.37	+24	59	27.9			688
410	1986	01	11.28212	06	53	42.31	+24	59	41.5			688
428	1986	01	12.37442	09	18	42.05	+26	21	00.3			688
428	1986	01	12.43234	09	18	38.60	+26	21	16.9			688
445	1985	12	18.31620	07	24	30.01	+28	18	49.4			688
445	1985	12	18.40347	07	24	25.08	+28	18	33.9			688
445	1986	01	11.21587	06	59	56.57	+26	52	04.1			688
445	1986	01	11.28212	06	59	52.42	+26	51	47.4			688
495	1986	01	12.40355	09	34	50.38	+11	17	34.9	15.5		688
495	1986	01	12.46131	09	34	47.91	+11	17	46.0			688
518	1986	01	12.40355	09	53	58.14	+03	48	46.7			688
518	1986	01	12.46131	09	53	56.09	+03	48	51.8			688
526	1985	12	17.33231	07	01	04.18	+20	34	35.1			688
526	1985	12	18.28714	07	00	21.01	+20	35	52.7			688
526	1985	12	18.37431	07	00	16.86	+20	36	00.6			688
526	1986	02	05.15266	06	23	09.59	+21	50	50.8			688
526	1986	02	05.22708	06	23	07.80	+21	50	55.5			688
533	1983	11	04.10347	00	27	59.59	+00	11	57.6			688
533	1983	11	04.17292	00	27	57.73	+00	11	40.4			688
652	1985	12	18.31620	07	35	18.38	+28	34	43.7		1	688
652	1985	12	18.40347	07	35	13.89	+28	35	31.8			688
652	1986	01	11.21587	07	10	06.00	+31	52	17.3			688

652	1986	01	11.28212	07	10	00.95	+31	52	43.7		688
673	1986	01	12.40355	09	42	45.26	+09	18	32.7		688
673	1986	01	12.46131	09	42	43.32	+09	18	38.7		688
700	1986	01	12.37442	09	31	06.84	+20	59	26.2		688
700	1986	01	12.43234	09	31	04.76	+20	59	55.1		688
708	1983	11	04.10347	00	29	33.43	+05	26	28.6		688
708	1983	11	04.17292	00	29	30.99	+05	26	16.5		688
727	1986	02	05.17905	07	37	48.45	+16	55	52.8		688
727	1986	02	05.25278	07	37	44.91	+16	56	34.0		688
750	1983	09	06.26667	23	37	38.30	-09	08	37.5		688
750	1983	09	06.29722	23	37	36.65	-09	08	49.2		688
755	1985	12	18.34531	07	20	21.94	+17	48	30.4		688
755	1985	12	18.43270	07	20	18.29	+17	48	35.0		688
800	1986	01	11.36125	09	03	30.45	+19	11	56.1		688
800	1986	01	11.41368	09	03	27.32	+19	12	06.1		688
800	1986	01	17.34732	08	57	25.31	+19	31	00.8		688
800	1986	01	17.41181	08	57	21.03	+19	31	13.2		688
808	1983	11	04.10347	00	40	28.63	+01	37	57.4		688
808	1983	11	04.17292	00	40	26.38	+01	37	38.2		688
809	1986	01	12.40355	09	50	34.85	+09	08	50.6		688
809	1986	01	12.46131	09	50	32.43	+09	09	06.5		688
832	1986	02	05.17905	07	45	47.31	+20	06	59.3		688
832	1986	02	05.25278	07	45	43.55	+20	07	08.7		688
833	1986	01	12.28056	08	24	25.87	+31	38	54.4		688
833	1986	01	12.34826	08	24	21.72	+31	39	02.7		688
882	1986	01	12.40355	09	31	40.67	+07	19	46.3		688
882	1986	01	12.46131	09	31	38.47	+07	19	48.6		688
896	1986	01	11.23792	07	32	36.72	+13	26	23.5		688
896	1986	01	11.30407	07	32	32.09	+13	26	23.0		688
901	1985	12	18.34531	07	38	14.02	+19	50	16.6		688
901	1985	12	18.43270	07	38	08.90	+19	50	18.9		688
928	1985	12	17.22500	04	10	02.63	-01	31	12.3		688
928	1985	12	17.27847	04	10	00.27	-01	31	00.7		688
959	1986	01	12.37442	09	34	13.62	+20	40	45.2		688
959	1986	01	12.43234	09	34	11.51	+20	41	00.3		688
991	1983	11	04.10347	00	29	36.06	+00	51	25.9		688
991	1983	11	04.17292	00	29	34.19	+00	51	18.7		688
993	1986	01	12.25810	07	53	24.19	+18	16	36.7	16.2	688
993	1986	01	12.32569	07	53	20.37	+18	16	47.8		688
993	1986	01	17.32153	07	48	43.35	+18	30	08.3	16.2	688
993	1986	01	17.38611	07	48	39.74	+18	30	18.1		688
993	1986	02	05.17905	07	32	37.56	+19	18	43.5	16.8	688
993	1986	02	05.25278	07	32	34.17	+19	18	55.2		688
998	1986	01	11.33542	08	18	14.29	+20	52	29.4	17.0	688
998	1986	01	11.38711	08	18	11.42	+20	52	27.0		688
1002	1986	01	12.37442	09	17	24.14	+25	25	24.9		688
1002	1986	01	12.43234	09	17	21.24	+25	25	34.5		688
1006	1986	01	11.33542	08	27	54.18	+18	24	28.1		688
1006	1986	01	11.38711	08	27	51.22	+18	24	28.4		688
1008	1983	11	04.10347	00	45	48.17	+05	17	58.4		688
1008	1983	11	04.17292	00	45	45.52	+05	17	55.6		688
1057	1985	12	18.34531	07	41	11.25	+19	08	12.7		688
1057	1985	12	18.43270	07	41	06.97	+19	08	15.2		688
1067	1986	01	11.19375	06	38	28.06	+25	05	33.0		688
1067	1986	01	11.26002	06	38	24.06	+25	05	17.8		688
1076	1986	01	11.33542	08	37	05.13	+16	05	26.2	15.8	688
1076	1986	01	11.38711	08	37	02.43	+16	05	40.6		688
1085	1986	02	05.15266	06	05	49.14	+18	17	01.8		688
1085	1986	02	05.22708	06	05	47.51	+18	17	12.0		688

1086	1986	01	11.33542	08	41	23.46	+20	45	34.1			688
1086	1986	01	11.38711	08	41	20.86	+20	45	37.4			688
1097	1985	12	18.34531	07	24	11.00	+20	56	24.9			688
1110	1986	01	11.23792	07	37	55.22	+14	13	43.1			688
1110	1986	01	11.30407	07	37	50.59	+14	13	49.1			688
1142	1985	12	18.34531	07	23	03.73	+20	20	33.6			688
1142	1985	12	18.43270	07	23	00.06	+20	20	42.1			688
1147	1985	12	17.33231	07	00	01.24	+21	27	11.1		1	688
1147	1985	12	18.28714	06	59	02.55	+21	27	19.5			688
1147	1985	12	18.37431	06	58	56.95	+21	27	20.7			688
1147	1986	02	05.15266	06	11	08.66	+21	24	20.7			688
1147	1986	02	05.22708	06	11	06.15	+21	24	18.6			688
1190	1983	09	10.33750	23	39	20.14	-05	47	48.9			688
1190	1983	09	10.37500	23	39	18.06	-05	48	00.0			688
1214	1986	01	12.40355	09	35	03.65	+07	28	47.3			688
1214	1986	01	12.46131	09	35	01.33	+07	28	45.0			688
1250	1985	12	18.31620	07	38	20.61	+27	35	01.1	15.8		688
1250	1985	12	18.40347	07	38	16.30	+27	34	25.4			688
1252	1986	01	12.40355	09	48	20.78	+05	33	26.3			688
1252	1986	01	12.46131	09	48	19.38	+05	34	14.8			688
1258	1986	01	11.33542	08	41	29.03	+17	38	14.5	16.5		688
1258	1986	01	11.38711	08	41	26.61	+17	38	17.3			688
1263	1983	09	06.26667	23	21	28.97	-11	01	21.2			688
1263	1983	09	06.29722	23	21	27.58	-11	01	51.5			688
1340	1985	12	17.33231	07	13	01.79	+22	55	22.1			688
1347	1986	02	05.12605	06	20	00.55	+07	26	59.6			688
1347	1986	02	05.20139	06	19	59.02	+07	27	10.6			688
1426	1986	01	12.28056	08	18	56.24	+28	19	26.3	16.2		688
1426	1986	01	12.34826	08	18	51.61	+28	19	33.2			688
1431	1986	01	11.33542	08	40	47.89	+19	58	46.0	17.0		688
1431	1986	01	11.38711	08	40	45.15	+19	59	10.3			688
1435	1983	11	04.17292	00	33	59.70	+02	07	43.1	16.8		688
1456	1986	01	12.40355	09	32	39.96	+06	59	01.2	16.8		688
1456	1986	01	12.46131	09	32	37.87	+06	59	01.4			688
1458	1986	02	05.20139	06	16	55.40	+07	05	34.5			688
1472	1986	01	11.19375	06	26	10.50	+30	07	29.6			688
1472	1986	01	11.26002	06	26	05.89	+30	07	32.6			688
1476	1985	12	18.31620	07	37	52.75	+28	59	09.7	17.2		688
1476	1985	12	18.40347	07	37	47.40	+28	59	20.7			688
1476	1986	01	11.21587	07	09	43.28	+29	27	04.3	17.5		688
1482	1985	12	18.31620	07	23	06.97	+24	17	54.3	16.8		688
1482	1985	12	18.40347	07	23	02.79	+24	18	07.7			688
1482	1986	01	11.21587	07	01	21.13	+25	15	39.3	16.5		688
1482	1986	01	11.28212	07	01	17.13	+25	15	47.6			688
1533	1986	01	12.40355	09	36	26.26	+07	47	44.7			688
1533	1986	01	12.46131	09	36	24.50	+07	47	58.7			688
1535	1985	12	18.34531	07	22	07.05	+19	39	03.4			688
1588	1986	01	12.30295	07	22	00.20	+25	14	09.5			688
1608	1986	01	12.37442	09	33	38.74	+19	13	22.7			688
1608	1986	01	12.43234	09	33	35.68	+19	13	37.0			688
1635	1986	02	05.17905	07	42	24.99	+18	58	38.4		1	688
1635	1986	02	05.25278	07	42	21.20	+18	58	49.8			688
1655	1986	01	11.33542	08	29	08.88	+21	17	03.0			688
1655	1986	01	11.38711	08	29	06.22	+21	17	29.9			688
1657	1985	12	18.34531	07	40	15.89	+17	34	40.0	16.2		688
1657	1985	12	18.43270	07	40	12.60	+17	36	14.7		2	688
1657	1986	01	12.23594	07	15	58.00	+26	00	47.8	14.5		688
1665	1986	01	12.23594	07	32	49.70	+29	17	13.1			688
1665	1986	01	12.30295	07	32	45.33	+29	17	56.1			688

1713	1986	01	11.26002	06	32	07.66	+27	15	22.3			688
1745	1985	12	17.33231	07	08	34.58	+24	12	49.2			688
1745	1985	12	18.28714	07	07	47.18	+24	15	23.1			688
1745	1985	12	18.37431	07	07	42.99	+24	15	38.6			688
1745	1986	01	11.26002	06	45	07.02	+25	13	00.9			688
1761	1983	11	04.10347	00	28	38.19	-00	05	06.1		17.0	688
1761	1983	11	04.17292	00	28	35.78	-00	05	16.8			688
1784	1986	02	05.17905	07	42	36.91	+22	23	05.3			688
1784	1986	02	05.25278	07	42	32.40	+22	23	16.5			688
1805	1983	09	10.33750	23	41	49.38	-05	48	07.7			688
1805	1983	09	10.37500	23	41	47.77	-05	48	19.7			688
1807	1986	01	12.40355	09	35	37.74	+08	35	18.3			688
1807	1986	01	12.46131	09	35	34.91	+08	35	26.0			688
1827	1986	01	11.23792	07	36	53.08	+13	48	53.2			688
1827	1986	01	11.30407	07	36	49.24	+13	48	58.3			688
1841	1983	09	10.33750	23	38	43.11	-05	28	22.5			688
1841	1983	09	10.37500	23	38	41.67	-05	28	31.5			688
1857	1986	01	11.23792	07	35	26.31	+14	37	21.4			688
1857	1986	01	11.30407	07	35	21.70	+14	37	25.7			688
1907	1985	12	18.28714	06	55	57.18	+18	38	11.3			688
1907	1986	02	05.15266	06	13	59.24	+20	09	44.8			688
1907	1986	02	05.22708	06	13	57.30	+20	09	53.1			688
1909	1986	01	11.36125	09	00	34.13	+14	06	03.2			688
1909	1986	01	11.41368	09	00	31.45	+14	06	11.8			688
1909	1986	01	17.34732	08	55	26.11	+14	23	00.0			688
1909	1986	01	17.41181	08	55	22.51	+14	23	12.3			688
1962	1986	01	11.38711	08	30	44.25	+21	13	21.1		17.2	688
1968	1985	12	18.31620	07	32	09.18	+25	18	11.1			688
1968	1985	12	18.40347	07	32	04.61	+25	18	30.6			688
1968	1986	01	11.21587	07	09	50.85	+26	35	26.2			688
1968	1986	01	11.28212	07	09	46.98	+26	35	36.0	1		688
1970	1986	01	12.23594	07	27	37.63	+26	28	44.2			688
1970	1986	01	12.30295	07	27	33.13	+26	28	39.4			688
1977	1985	12	18.31620	07	28	59.76	+30	39	16.2		17.0	688
1977	1985	12	18.40347	07	28	55.17	+30	39	25.7			688
1977	1986	01	11.21587	07	05	04.42	+30	58	28.4		16.8	688
1977	1986	01	11.28212	07	04	59.95	+30	58	27.5			688
1978	1985	12	18.40347	07	27	41.77	+27	00	28.0			688
1978	1986	01	11.21587	06	58	58.12	+28	21	10.7			688
1978	1986	01	11.28212	06	58	53.22	+28	21	19.1			688
1984	1986	01	12.40355	09	32	07.83	+09	09	17.6	3		688
1984	1986	01	12.46131	09	32	05.56	+09	09	24.3			688
1986	1986	01	17.34732	08	39	59.63	+17	09	56.0			688
1986	1986	01	17.41181	08	39	56.41	+17	10	11.4			688
2017	1986	01	11.23792	07	38	26.40	+14	51	15.5		17.5	688
2017	1986	01	11.30407	07	38	22.02	+14	51	28.6			688
2017	1986	01	12.25810	07	37	19.32	+14	54	46.9		17.2	688
2017	1986	01	12.32569	07	37	14.55	+14	55	02.3	3		688
2017	1986	01	17.32153	07	31	45.41	+15	12	50.0		17.2	688
2017	1986	01	17.38611	07	31	40.78	+15	13	06.4			688
2064	1986	01	12.40355	09	48	42.80	+11	19	27.4		17.5	688
2064	1986	01	12.46131	09	48	39.87	+11	19	34.9			688
2087	1986	01	12.25810	07	53	46.93	+21	59	00.8			688
2087	1986	01	12.32569	07	53	42.07	+21	59	18.5			688
2087	1986	01	17.32153	07	47	55.70	+22	19	53.4			688
2087	1986	01	17.38611	07	47	51.09	+22	20	08.5			688
2087	1986	02	05.17905	07	28	24.98	+23	20	40.6			688
2087	1986	02	05.25278	07	28	21.10	+23	20	51.7			688
2121	1986	01	12.25810	07	51	36.95	+17	16	41.3			688

2121	1986	01	12.32569	07	51	32.14	+17	16	58.7			688
2121	1986	01	17.32153	07	45	50.83	+17	38	51.6			688
2121	1986	01	17.38611	07	45	46.38	+17	39	09.0			688
2121	1986	02	05.25278	07	25	59.12	+18	59	24.9			688
2132	1986	01	12.23594	07	34	05.10	+26	17	21.5			688
2132	1986	01	12.30295	07	34	00.94	+26	17	37.9			688
2141	1985	12	18.43270	07	22	21.95	+20	33	16.6	17.5		688
2165	1985	12	18.43270	07	28	31.79	+23	18	32.5	16.5		688
2177	1983	11	04.10347	00	42	57.53	+03	22	16.3			688
2177	1983	11	04.17292	00	42	55.44	+03	22	04.8			688
2292	1985	12	17.22500	04	19	38.88	+00	23	33.0			688
2292	1985	12	17.27847	04	19	36.29	+00	23	33.5			688
2296	1985	12	17.33231	06	58	37.84	+24	19	47.9			688
2296	1985	12	18.28714	06	57	53.25	+24	21	15.5			688
2296	1985	12	18.37431	06	57	49.03	+24	21	24.9			688
2296	1986	01	11.19375	06	36	39.37	+24	52	01.7	16.8		688
2296	1986	01	11.26002	06	36	35.97	+24	52	04.2			688
2316	1985	12	18.34531	07	38	31.68	+19	37	08.6			688
2349	1986	02	05.12605	06	16	10.38	+12	36	53.8		3	688
2349	1986	02	05.20139	06	16	08.54	+12	37	25.3			688
2356	1985	12	17.22500	04	11	04.55	+02	07	45.7			688
2356	1985	12	17.27847	04	11	02.48	+02	07	41.1			688
2380	1986	02	05.17905	07	43	33.74	+22	33	27.3	16.8		688
2380	1986	02	05.25278	07	43	29.38	+22	33	31.1			688
2401	1986	01	11.19375	06	46	45.44	+28	34	14.0			688
2401	1986	01	11.26002	06	46	41.32	+28	34	19.9			688
2441	1983	09	10.33750	23	54	03.14	-05	03	57.2	16.5		688
2441	1983	09	10.37500	23	54	01.51	-05	04	15.2			688
2492	1983	09	10.33750	23	41	00.44	-02	44	00.4			688
2492	1983	09	10.37500	23	40	58.71	-02	44	10.8			688
2511	1986	01	12.30295	07	31	49.74	+27	33	11.4			688
2566	1985	12	18.31620	07	36	41.90	+28	11	19.1			688
2566	1985	12	18.40347	07	36	37.71	+28	11	45.2			688
2566	1986	01	11.21587	07	12	30.45	+29	55	33.3			688
2566	1986	01	11.28212	07	12	25.86	+29	55	45.9			688
2614	1986	01	11.36125	09	11	59.84	+20	05	39.6			688
2614	1986	01	11.41368	09	11	57.27	+20	05	58.1			688
2626	1983	09	10.33750	23	42	30.59	-02	03	11.1			688
2626	1983	09	10.37500	23	42	28.83	-02	03	22.5			688
2667	1986	01	11.33542	08	40	44.07	+21	07	19.9			688
2667	1986	01	11.38711	08	40	41.69	+21	07	28.3			688
2677	1986	02	05.12605	06	03	45.26	+09	52	18.7			688
2677	1986	02	05.20139	06	03	43.91	+09	52	34.9			688
2681	1986	01	12.37442	09	29	07.00	+21	05	01.9			688
2681	1986	01	12.43234	09	29	05.08	+21	05	20.1			688
2688	1986	01	12.25810	07	40	32.50	+22	52	28.5	17.2	1	688
2688	1986	01	12.32569	07	40	29.18	+22	52	40.2			688
2713	1986	01	11.36125	08	47	37.88	+19	08	01.9			688
2713	1986	01	11.41368	08	47	35.25	+19	08	11.8			688
2713	1986	01	17.34732	08	42	38.87	+19	26	00.0	16.8		688
2713	1986	01	17.41181	08	42	35.29	+19	26	13.3			688
2715	1983	11	04.10347	00	32	03.88	+03	16	56.2			688
2715	1983	11	04.17292	00	32	02.38	+03	16	33.4			688
2719	1986	01	11.36125	08	57	42.72	+17	07	39.3	16.8		688
2719	1986	01	11.41368	08	57	39.77	+17	07	51.4			688
2719	1986	01	17.34732	08	52	12.84	+17	33	06.4			688
2719	1986	01	17.41181	08	52	08.81	+17	33	24.4			688
2731	1986	01	11.23792	07	18	17.78	+10	16	03.8			688
2731	1986	01	11.30407	07	18	14.73	+10	16	17.3			688

2751	1986	01	11.33542	08	19	22.18	+17	19	52.6	16.8	3	688
2751	1986	01	11.38711	08	19	19.43	+17	19	58.5			688
2814	1986	01	11.36125	08	55	30.29	+15	35	46.3			688
2814	1986	01	11.41368	08	55	27.70	+15	35	57.8			688
2814	1986	01	17.34732	08	50	51.57	+15	57	07.3		3	688
2814	1986	01	17.41181	08	50	48.62	+15	57	20.9			688
2887	1986	01	12.25810	07	51	48.09	+20	23	50.2			688
2887	1986	01	12.32569	07	51	43.35	+20	24	08.1			688
2887	1986	01	17.32153	07	46	05.65	+20	47	15.6			688
2887	1986	01	17.38611	07	46	01.18	+20	47	32.8			688
2887	1986	02	05.17905	07	26	12.53	+22	05	07.1			688
2887	1986	02	05.25278	07	26	08.28	+22	05	21.9			688
2899	1986	01	11.26002	06	46	36.55	+28	16	23.1	17.8		688
2919	1983	11	04.10347	00	39	34.37	+02	58	32.4			688
2919	1983	11	04.17292	00	39	32.26	+02	58	19.4			688
2955	1983	09	06.26667	23	13	45.02	-10	33	11.3			688
2955	1983	09	06.29722	23	13	43.02	-10	33	20.5			688
2963	1983	11	04.10347	00	34	14.86	+01	38	50.3	16.8		688
2963	1983	11	04.17292	00	34	12.78	+01	38	41.8			688
2973	1986	01	11.33542	08	27	22.22	+20	55	07.9	16.2		688
2973	1986	01	11.38711	08	27	19.04	+20	55	16.6			688
2984	1985	12	17.33231	07	14	25.54	+23	49	47.1	17.0		688
2984	1985	12	18.28714	07	13	39.74	+23	53	08.3	16.8		688
2984	1985	12	18.31620	07	13	38.71	+23	53	15.0	16.8		688
2984	1985	12	18.37431	07	13	35.62	+23	53	26.6			688
2984	1985	12	18.40347	07	13	34.15	+23	53	32.6			688
2984	1986	01	11.19375	06	49	36.57	+25	13	45.9	16.5		688
2984	1986	01	11.21587	06	49	34.92	+25	13	48.3	16.2		688
2984	1986	01	11.26002	06	49	32.30	+25	13	56.7			688
2984	1986	01	11.28212	06	49	30.48	+25	13	59.5			688
3034	1985	12	18.31620	07	11	36.73	+30	12	12.3			688
3034	1985	12	18.40347	07	11	30.81	+30	12	25.9			688
3036	1983	11	04.10347	00	44	45.65	+02	36	12.3			688
3036	1983	11	04.17292	00	44	42.49	+02	36	22.6			688
3116	1986	01	11.19375	06	29	27.48	+26	51	22.2	16.8		688
3116	1986	01	11.26002	06	29	22.54	+26	51	33.5			688
3134	1986	01	12.40355	09	34	12.62	+05	20	10.5	16.8		688
3134	1986	01	12.46131	09	34	10.84	+05	20	10.6			688
3138	1986	01	11.23792	07	39	48.96	+13	32	44.7	17.2		688
3138	1986	01	11.30407	07	39	44.48	+13	32	49.4			688
3142	1986	01	12.37442	09	21	29.04	+21	49	31.2			688
3162	1985	12	17.22500	04	04	54.25	-03	03	26.2			688
3162	1985	12	17.27847	04	04	52.26	-03	03	12.7			688
3191	1986	01	11.33542	08	38	44.72	+22	26	36.9			688
3191	1986	01	11.38711	08	38	42.06	+22	26	49.0			688
3207	1983	11	04.10347	00	42	15.53	+02	36	55.0	17.0		688
3207	1983	11	04.17292	00	42	13.28	+02	36	38.0		3	688
3237	1985	12	18.34531	07	20	56.38	+21	48	49.2	16.5		688
3237	1985	12	18.43270	07	20	52.00	+21	48	46.2			688
3261	1985	12	18.34531	07	43	37.14	+18	55	56.2			688
3261	1985	12	18.43270	07	43	33.51	+18	56	08.6			688
3269	1983	09	10.33750	23	35	01.64	-04	28	14.5			688
3269	1983	09	10.37500	23	34	59.10	-04	28	11.1			688
3297	1983	09	06.26667	23	24	46.22	-07	05	16.6			688
3297	1983	09	06.29722	23	24	44.85	-07	05	27.6			688
3312	1986	02	05.20139	05	58	39.43	+11	37	40.7		1	688
3321	1983	09	10.33750	23	47	44.97	-03	44	46.8			688
3321	1983	09	10.37500	23	47	43.49	-03	45	11.0			688
3331	1983	09	10.37500	23	40	51.62	-02	27	51.9			688

1929	BD		1985	12	18.31620	07	17	14.89	+25	04	09.3	15.8	688
1929	BD		1985	12	18.40347	07	17	10.25	+25	04	04.0		688
1929	BD		1986	01	11.21587	06	54	30.68	+24	24	55.5	15.8	688
1929	BD		1986	01	11.28212	06	54	26.71	+24	24	47.4		688
1973	DT		1986	01	12.37442	09	13	27.42	+24	39	49.4	16.5	688
1973	DT		1986	01	12.43234	09	13	25.08	+24	40	25.5		688
1977	SA1		1986	01	12.37442	09	28	14.07	+20	14	57.1	17.5	688
1977	SA1		1986	01	12.43234	09	28	11.44	+20	15	15.9		688
1978	ST6		1985	11	07.22847	23	58	46.60	+06	09	07.3		688
1980	PM		1986	01	11.30407	07	28	29.21	+09	52	52.7	17.2	688
1981	CK		1985	12	17.33231	07	01	52.70	+23	14	14.7	17.2 1	688
1981	CK		1985	12	18.28714	07	01	07.42	+23	15	20.9	17.2	688
1981	CK		1985	12	18.37431	07	01	02.98	+23	15	27.9		688
1981	CK		1986	01	11.19375	06	39	33.53	+23	39	41.2	17.5	688
1981	CK		1986	01	11.26002	06	39	29.82	+23	39	44.5		688
1981	QN		1986	01	12.25810	07	53	46.38	+16	24	55.3	17.5 1	688
1981	QN		1986	01	12.32569	07	53	41.63	+16	25	01.1		688
1981	QN		1986	01	17.32153	07	47	46.11	+16	32	45.5	17.2 1	688
1981	QN		1986	01	17.38611	07	47	41.64	+16	32	51.6		688
1981	WP1		1986	01	12.37442	09	07	31.09	+26	43	12.6	17.5	688
1981	WP1		1986	01	12.43234	09	07	28.21	+26	43	36.8	3	688
1981	XC2		1986	01	12.40355	09	37	31.99	+05	28	21.0	16.8	688
1981	XC2		1986	01	12.46131	09	37	30.01	+05	28	32.0		688
1981	XJ2		1986	01	12.30295	07	30	06.70	+26	46	55.5	16.5	688
1983	CB3		1986	01	12.23594	07	34	34.16	+24	19	22.9	16.8	688
1983	CB3		1986	01	12.30295	07	34	29.12	+24	19	23.6		688
1983	DJ		1986	01	12.28056	08	12	50.46	+30	34	41.4	16.8	688
1983	DJ		1986	01	12.34826	08	12	45.35	+30	34	58.6		688
1983	RA1		1983	09	10.33750	23	47	49.67	-01	43	08.8	17.2	688
1983	RA1		1983	09	10.37500	23	47	47.67	-01	43	20.8	2	688
1983	RY3		1983	09	06.26667	23	14	33.93	-11	37	58.8	17.0 1	688
1983	RY3		1983	09	06.29722	23	14	32.32	-11	38	05.8		688
1983	RZ3		1983	09	06.26667	23	17	16.82	-13	23	28.7	16.8	688
1983	RZ3		1983	09	06.29722	23	17	15.40	-13	23	51.2		688
1983	RA4		1983	09	06.26667	23	19	00.30	-07	57	49.5	17.0	688
1983	RA4		1983	09	06.29722	23	18	58.49	-07	57	45.1		688
1983	RB4		1983	09	06.26667	23	23	19.83	-10	08	39.3	17.0	688
1983	RB4		1983	09	06.29722	23	23	18.29	-10	08	46.2		688
1983	RC4		1983	09	06.26667	23	25	39.71	-09	13	53.2	16.8	688
1983	RC4		1983	09	06.29722	23	25	38.51	-09	14	15.0		688
1983	RN4	*	1983	09	06.26667	23	13	19.80	-10	27	16.9	16.8 4	688
1983	RN4		1983	09	06.29722	23	13	18.08	-10	27	24.5		688
1983	RO4	*	1983	09	10.33750	23	51	42.13	-06	07	25.9	17.2 7	688
1983	RO4		1983	09	10.37500	23	51	40.55	-06	07	38.4	1	688
1983	RP4	*	1983	09	10.33750	23	52	18.47	-06	56	11.7	16.8 7	688
1983	RP4		1983	09	10.37500	23	52	16.69	-06	56	29.7		688
1983	TR2		1983	11	04.10347	00	35	55.80	+03	18	28.0	16.8	688
1983	TR2		1983	11	04.17292	00	35	53.08	+03	18	37.9		688
1984	AB		1985	12	18.28714	07	05	54.51	+21	43	33.3	17.0	688
1984	AB		1986	01	11.19375	06	26	54.70	+29	46	57.2	16.8	688
1985	MF	*	1985	06	22.35625	21	05	27.19	-18	17	48.0	16.5 8	688
1985	MF		1985	06	22.41736	21	05	27.17	-18	17	22.6		688
1985	MG	*	1985	06	22.35625	21	22	47.92	-13	47	03.6	16.0 8	688
1985	MG		1985	06	22.41736	21	22	48.90	-13	47	12.6		688
1985	VE1		1985	10	20.28125	01	25	49.77	+05	12	38.9	17.2	688
1985	VE1		1985	10	20.33264	01	25	47.22	+05	12	20.8		688
1985	VW1	*	1985	11	07.28646	01	40	23.50	+08	32	39.2	17.0 4	688
1985	YA		1986	01	11.19375	06	26	24.97	+23	54	37.9	16.5	688
1985	YA		1986	01	11.26002	06	26	21.01	+23	54	51.7		688

1985	YB		1986	01	11.19375	06	47	23.71	+24	43	28.7	16.2	1 688
1985	YB		1986	01	11.26002	06	47	17.59	+24	42	34.5		688
1985	YE	*	1985	12	17.22500	04	08	34.18	+00	45	11.0	17.0	4 688
1985	YE		1985	12	17.27847	04	08	32.09	+00	45	16.2		688
1985	YF	*	1985	12	17.22500	04	14	04.63	-01	46	16.9	16.8	4 688
1985	YF		1985	12	17.27847	04	14	02.56	-01	46	14.5		688
1985	YG	*	1985	12	17.22500	04	15	26.29	-01	16	49.7	17.2	4 688
1985	YG		1985	12	17.27847	04	15	24.06	-01	16	49.7		688
1985	YH		1985	12	17.33231	06	53	29.78	+22	57	41.9	17.0	1 688
1985	YH	*	1985	12	18.28714	06	52	33.82	+22	53	55.1	16.8	4 688
1985	YH		1985	12	18.37431	06	52	28.18	+22	53	36.2		688
1985	YH		1986	02	05.15266	06	08	22.41	+19	31	49.6	17.2	2 688
1985	YH		1986	02	05.22708	06	08	20.93	+19	31	33.4		688
1985	YJ		1985	12	17.33231	07	06	22.10	+23	57	25.3	17.0	688
1985	YJ	*	1985	12	18.28714	07	05	29.90	+23	57	42.2	17.0	4 688
1985	YJ		1985	12	18.37431	07	05	25.13	+23	57	44.6		688
1985	YK		1985	12	17.33231	07	11	59.98	+18	28	50.8	17.2	688
1985	YK	*	1985	12	18.28714	07	11	23.88	+18	30	01.3	16.8	4 688
1985	YK		1985	12	18.37431	07	11	20.40	+18	30	07.3		688
1985	YL	*	1985	12	18.31620	07	18	52.52	+27	06	02.7	17.0	4 688
1985	YL		1985	12	18.40347	07	18	47.88	+27	06	38.3		688
1985	YL		1986	01	11.21587	06	53	04.27	+29	18	23.8	16.2	688
1985	YL		1986	01	11.28212	06	52	59.38	+29	18	40.6		688
1985	YM	*	1985	12	18.31620	07	19	02.32	+29	18	39.9	17.0	4 688
1985	YM		1985	12	18.40347	07	18	57.27	+29	19	07.7		688
1985	YM		1986	01	11.21587	06	53	26.38	+30	44	48.9	16.8	688
1985	YM		1986	01	11.28212	06	53	22.14	+30	44	57.1		688
1985	YN	*	1985	12	18.31620	07	28	40.58	+24	13	56.6	17.2	4 688
1985	YN		1985	12	18.40347	07	28	35.67	+24	13	28.0		688
1985	YO	*	1985	12	17.25227	06	17	41.32	+50	10	03.7	16.5	4 688
1985	YO		1985	12	17.30556	06	17	37.31	+50	10	10.9		688
1985	YP	*	1985	12	18.34531	07	21	29.26	+22	57	03.9	16.2	4 688
1985	YP		1985	12	18.43270	07	21	20.16	+22	55	27.1		1 688
1985	YQ	*	1985	12	18.34531	07	21	55.92	+18	09	41.2	17.5	9 688
1985	YQ		1985	12	18.43270	07	21	52.33	+18	09	46.2		688
1985	YR	*	1985	12	18.34531	07	22	32.46	+17	25	17.8	17.2	9 688
1985	YR		1985	12	18.43270	07	22	27.75	+17	25	28.6		688
1985	YS	*	1985	12	18.34531	07	23	56.44	+21	16	05.8	17.2	C 688
1985	YS		1985	12	18.43270	07	23	51.15	+21	15	49.3		688
1985	YT	*	1985	12	18.34531	07	25	58.27	+16	15	34.0	17.2	9 688
1985	YT		1985	12	18.43270	07	25	53.78	+16	15	37.1		688
1985	YU	*	1985	12	18.34531	07	27	25.07	+22	06	46.4	16.5	C 688
1985	YU		1985	12	18.43270	07	27	17.59	+22	05	26.7		688
1986	AA		1986	01	17.34722	08	41	41.67	+13	29	37.2	15.0	688
1986	AA		1986	01	17.41181	08	41	35.20	+13	29	03.8		688
1986	AL		1986	01	12.40355	09	35	38.52	+05	59	54.3	17.2	688
1986	AL		1986	01	12.46131	09	35	36.42	+05	59	48.3		688
1986	AT	*	1986	01	11.21587	06	47	21.78	+24	43	15.0	16.5	9 688
1986	AT		1986	01	11.28212	06	47	15.55	+24	42	08.8		688
1986	AU	*	1986	01	11.21587	06	55	06.59	+26	04	21.1	17.2	9 688
1986	AU		1986	01	11.28212	06	55	02.81	+26	04	23.0		688
1986	AV	*	1986	01	11.21587	06	57	15.67	+28	07	21.3	17.2	4 688
1986	AV		1986	01	11.28212	06	57	10.67	+28	07	30.2		688
1986	AW	*	1986	01	11.21587	06	58	28.74	+26	13	47.1	16.8	9 688
1986	AW		1986	01	11.28212	06	58	23.83	+26	14	13.8		688
1986	AX	*	1986	01	11.21587	07	00	27.53	+25	42	23.6	16.5	4 688
1986	AX		1986	01	11.28212	07	00	24.33	+25	42	23.5		688
1986	AY	*	1986	01	11.21587	07	02	53.76	+26	32	41.0	16.8	9 688
1986	AY		1986	01	11.28212	07	02	49.69	+26	33	05.4		688

1986	AZ	*	1986	01	11.21587	07	04	52.14	+24	52	43.9		17.2	9 688
1986	AZ		1986	01	11.28212	07	04	47.98	+24	52	56.9			688
1986	AA1	*	1986	01	11.21587	07	11	45.43	+29	53	24.2		16.8	4 688
1986	AA1		1986	01	11.28212	07	11	40.47	+29	52	49.8			688
1986	AB1	*	1986	01	11.33542	08	19	24.88	+21	55	31.0		16.5	4 688
1986	AB1		1986	01	11.38711	08	19	21.98	+21	55	36.8			688
1986	AC1	*	1986	01	11.33542	08	19	56.84	+19	07	08.7		17.0	4 688
1986	AC1		1986	01	11.38711	08	19	53.51	+19	07	26.3			688
1986	AD1	*	1986	01	11.33542	08	20	11.96	+18	03	28.1		16.5	4 688
1986	AD1		1986	01	11.38711	08	20	09.14	+18	03	45.1			688
1986	AE1	*	1986	01	11.33542	08	22	39.62	+18	38	40.4		16.8	4 688
1986	AE1		1986	01	11.38711	08	22	36.89	+18	39	15.1			688
1986	AF1	*	1986	01	11.33542	08	23	29.13	+16	53	11.0		17.2	4 688
1986	AF1		1986	01	11.38711	08	23	26.51	+16	53	31.8			688
1986	AG1	*	1986	01	11.33542	08	23	30.51	+22	20	44.6		15.8	4 688
1986	AG1		1986	01	11.38711	08	23	25.40	+22	20	12.7			688
1986	AG1		1986	02	05.17905	07	43	25.27	+17	52	32.8		16.2	688
1986	AG1		1986	02	05.25278	07	43	18.93	+17	51	43.2			3 688
1986	AH1	*	1986	01	11.33542	08	37	46.99	+22	35	31.3		17.0	4 688
1986	AH1		1986	01	11.38711	08	37	43.57	+22	35	25.2			688
1986	AJ1	*	1986	01	11.33542	08	41	12.30	+21	12	03.5		17.5	4 688
1986	AJ1		1986	01	11.38711	08	41	09.25	+21	12	04.6			688
1986	AK1	*	1986	01	11.36125	08	46	44.97	+18	52	26.5		17.2	4 688
1986	AK1		1986	01	11.41368	08	46	42.67	+18	52	42.6			688
1986	AK1		1986	01	17.34732	08	42	19.18	+19	22	11.8		17.0	688
1986	AK1		1986	01	17.41181	08	42	16.04	+19	22	31.5			688
1986	AL1	*	1986	01	11.36125	08	50	16.31	+15	50	39.8		17.0	4 688
1986	AL1		1986	01	11.41368	08	50	13.71	+15	51	01.8			688
1986	AL1		1986	01	17.34732	08	45	17.62	+16	32	47.5		17.0	688
1986	AL1		1986	01	17.41181	08	45	13.71	+16	33	18.1			1 688
1986	AM1	*	1986	01	11.36125	08	55	42.10	+15	42	00.2		16.8	4 688
1986	AM1		1986	01	11.41368	08	55	39.35	+15	41	55.9			688
1986	AM1		1986	01	17.34732	08	50	41.02	+15	36	39.4		16.5	688
1986	AM1		1986	01	17.41181	08	50	37.28	+15	36	36.8			688
1986	AN1	*	1986	01	11.36125	08	58	34.13	+20	36	05.3		16.5	4 688
1986	AN1		1986	01	11.41368	08	58	31.40	+20	35	58.4			688
1986	AN1		1986	01	17.34732	08	53	04.42	+20	22	31.7		16.5	688
1986	AN1		1986	01	17.41181	08	53	00.54	+20	22	23.4			688
1986	AO1	*	1986	01	11.36125	09	02	41.12	+21	02	09.7		17.2	5 688
1986	AO1		1986	01	11.41368	09	02	38.22	+21	02	11.2			688
1986	AP1	*	1986	01	11.36125	09	09	36.43	+19	59	46.5		17.5	4 688
1986	AP1		1986	01	11.41368	09	09	33.74	+19	59	46.8			688
1986	AP1		1986	01	17.34732	09	04	18.50	+20	01	09.8		17.2	688
1986	AP1		1986	01	17.41181	09	04	14.89	+20	01	10.7			688
1986	AQ1	*	1986	01	11.36125	09	09	43.68	+18	12	02.2		17.0	4 688
1986	AQ1		1986	01	11.41368	09	09	41.33	+18	12	07.7			688
1986	AQ1		1986	01	17.34732	09	05	11.46	+18	22	18.7		17.0	1 688
1986	AQ1		1986	01	17.41181	09	05	08.23	+18	22	25.9			1 688
1986	AR1	*	1986	01	11.36125	09	10	11.10	+14	36	30.6		17.2	6 688
1986	AR1		1986	01	11.41368	09	10	08.19	+14	37	40.0			2 688
1986	AR1		1986	01	17.34722	09	04	37.49	+16	50	24.0		17.2	688
1986	AR1		1986	01	17.41181	09	04	33.44	+16	51	56.7			3 688
1986	AS1	*	1986	01	12.23594	07	17	16.72	+27	30	20.1		17.2	9 688
1986	AS1		1986	01	12.30295	07	17	11.79	+27	30	28.9			688
1986	AT1	*	1986	01	12.23594	07	22	48.10	+27	45	54.0		16.8	9 688
1986	AT1		1986	01	12.30295	07	22	43.70	+27	46	07.5			1 688
1986	AU1	*	1986	01	12.23594	07	27	48.88	+24	56	36.7	1.0- 2+	16.8	9 688
1986	AV1	*	1986	01	12.23594	07	28	45.11	+27	42	40.2		17.0	9 688
1986	AV1		1986	01	12.30295	07	28	40.44	+27	42	46.6			688

1986	AW1	*	1986	01	12.25810	07	35	12.52	+20	12	05.0		16.5	5 688
1986	AW1		1986	01	12.32569	07	35	07.82	+20	12	44.1			688
1986	AW1		1986	01	17.32153	07	29	47.58	+21	01	52.9		16.8	1 688
1986	AW1		1986	01	17.38611	07	29	43.07	+21	02	34.0			688
1986	AX1	*	1986	01	12.25810	07	39	47.10	+22	51	20.5		17.0	5 688
1986	AX1		1986	01	12.32569	07	39	41.88	+22	51	24.7			688
1986	AY1	*	1986	01	12.25810	07	43	09.71	+22	44	14.6		17.5	9 688
1986	AY1		1986	01	12.32569	07	43	05.93	+22	44	36.6			1 688
1986	AZ1	*	1986	01	12.25810	07	43	29.71	+16	03	46.4		16.8	9 688
1986	AZ1		1986	01	12.32569	07	43	24.81	+16	03	51.1			688
1986	AZ1		1986	01	17.32153	07	37	31.89	+16	10	03.6		16.8	688
1986	AZ1		1986	01	17.38611	07	37	27.19	+16	10	08.7			688
1986	AA2	*	1986	01	12.25810	07	43	42.63	+20	50	56.5		17.5	A 688
1986	AA2		1986	01	12.32569	07	43	38.47	+20	51	14.1			688
1986	AA2		1986	01	17.32153	07	38	48.21	+21	13	52.0		17.5	688
1986	AB2	*	1986	01	12.25810	07	45	55.80	+20	37	54.5		17.2	9 688
1986	AB2		1986	01	12.32569	07	45	51.26	+20	38	00.6			688
1986	AB2		1986	01	17.32153	07	40	57.34	+20	44	27.6		17.8	1 688
1986	AB2		1986	01	17.38611	07	40	53.40	+20	44	31.7			1 688
1986	AC2	*	1986	01	12.25810	07	46	29.01	+18	39	08.4		17.0	9 688
1986	AC2		1986	01	12.32569	07	46	24.83	+18	39	15.8			688
1986	AC2		1986	01	17.32153	07	41	28.82	+18	48	55.1		17.0	688
1986	AC2		1986	01	17.38611	07	41	24.90	+18	49	03.8			688
1986	AD2	*	1986	01	12.25810	07	49	11.01	+21	58	48.8		16.5	4 688
1986	AD2		1986	01	12.32569	07	49	06.03	+21	58	33.6			688
1986	AD2		1986	01	17.32153	07	43	12.96	+21	39	20.1		16.5	688
1986	AD2		1986	01	17.38611	07	43	08.30	+21	39	05.0			688
1986	AE2	*	1986	01	12.25810	07	51	41.31	+22	30	28.9		17.2	4 688
1986	AE2		1986	01	12.32569	07	51	36.71	+22	30	50.7			688
1986	AE2		1986	01	17.32153	07	45	58.76	+22	58	00.7		17.2	688
1986	AE2		1986	01	17.38611	07	45	54.65	+22	58	18.0			688
1986	AF2	*	1986	01	12.25810	07	53	59.72	+22	03	59.4		17.0	9 688
1986	AF2		1986	01	12.32569	07	53	55.00	+22	04	09.8			688
1986	AG2	*	1986	01	12.25810	07	56	00.52	+18	22	15.4		17.2	9 688
1986	AG2		1986	01	12.32569	07	55	55.77	+18	22	18.2			688
1986	AG2		1986	01	17.32153	07	50	13.40	+18	24	48.1		17.2	1 688
1986	AG2		1986	01	17.38611	07	50	08.71	+18	24	51.0			2 688
1986	AH2	*	1986	01	12.25810	08	00	46.22	+17	14	35.3		17.2	9 688
1986	AH2		1986	01	12.32569	08	00	41.45	+17	14	52.1			688
1986	AH2		1986	01	17.38611	07	54	56.24	+17	34	36.2		17.2	688
1986	AJ2	*	1986	01	12.28056	08	03	08.72	+28	32	36.3		16.8	4 688
1986	AJ2		1986	01	12.34826	08	03	03.57	+28	32	32.7			688
1986	AK2	*	1986	01	12.28056	08	14	10.63	+29	47	23.4		17.0	4 688
1986	AK2		1986	01	12.34826	08	14	06.20	+29	47	26.8			688
1986	AL2	*	1986	01	12.28056	08	23	22.56	+27	27	50.1		17.0	4 688
1986	AL2		1986	01	12.34826	08	23	18.73	+27	27	59.2			688
1986	AM2	*	1986	01	12.37442	09	08	45.55	+19	59	59.7		17.2	4 688
1986	AM2		1986	01	12.43234	09	08	42.07	+20	00	02.3			688
1986	AN2	*	1986	01	12.37442	09	09	02.75	+26	14	39.5		17.8	4 688
1986	AN2		1986	01	12.43234	09	08	59.37	+26	14	39.3			1 688
1986	AO2	*	1986	01	12.37442	09	10	00.14	+27	19	03.0		17.0	5 688
1986	AO2		1986	01	12.43234	09	09	56.83	+27	19	12.5			688
1986	AP2	*	1986	01	12.37442	09	13	52.97	+21	54	42.2		17.5	4 688
1986	AP2		1986	01	12.43234	09	13	50.49	+21	54	53.2			1 688
1986	AQ2	*	1986	01	12.37442	09	20	16.06	+23	31	33.7		17.0	4 688
1986	AQ2		1986	01	12.43234	09	20	13.19	+23	31	50.3			688
1986	AR2	*	1986	01	12.37442	09	23	39.26	+19	52	16.1		17.5	4 688
1986	AR2		1986	01	12.43234	09	23	37.75	+19	52	41.2			688
1986	AS2	*	1986	01	12.37442	09	32	18.35	+22	41	01.4		17.0	5 688

1986 AS2		1986 01 12.43234	09 32 14.05	+22 40 39.7					688
1986 AT2	*	1986 01 12.40355	09 33 36.78	+06 53 17.3			16.8	4	688
1986 AT2		1986 01 12.46131	09 33 35.06	+06 53 42.2					688
1986 AU2	*	1986 01 12.40355	09 38 54.31	+07 43 08.5			16.8	4	688
1986 AU2		1986 01 12.46131	09 38 51.73	+07 43 06.2					688
1986 AV2	*	1986 01 12.40355	09 41 06.41	+04 09 25.8			17.0	4	688
1986 AV2		1986 01 12.46131	09 41 04.47	+04 09 21.0					688
1986 AW2	*	1986 01 12.40355	09 44 39.08	+10 46 11.0			16.8	4	688
1986 AW2		1986 01 12.46131	09 44 38.06	+10 46 50.9					688

Note 1: right ascension uncertain. 2: declination uncertain. 3 = 1 + 2. 4: discoverer E. Bowell. 5 = 1 + 4. 6 = 2 + 4. 7: discoverer N. G. Thomas. 8: discoverer S. J. Bus. 9: discoverer I. Horowitz. A = 1 + 9. C = 3 + 9.

OBSERVATIONS MADE AT WITH THE 1.8-M PERKINS REFLECTOR AT THE LOWELL OBSERVATORY'S ANDERSON MESA STATION BY S. J. BUS AND B. A. SKIFF.

CCD images measured by S. J. Bus, D. Dellinger and O. Kuhn. SAO primary reference stars, faint star transfer. Contact: E. Bowell, Lowell Observatory, 1400 W. Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
3138	1984 09	24.16213	22 03 08.72	-04 52 27.8	688
3138	1984 09	24.16574	22 03 08.59	-04 52 29.1	688
3147	1984 09	23.28247	00 43 11.48	+07 37 16.6	688
3147	1984 09	23.28611	00 43 11.26	+07 37 15.4	688
1981 ER21	1986 01	08.28439	08 46 32.88	+13 36 58.8	688
1981 ER21	1986 01	08.28949	08 46 32.66	+13 36 59.8	688
1981 WU	1984 09	24.13854	21 11 42.18	-17 06 26.1	688
1981 WU	1984 09	24.15521	21 11 42.12	-17 06 32.4	688

OBSERVATIONS MADE AT THE LOWELL OBSERVATORY.

Plates with the 0.33-m photographic telescope. Observers H. L. Giclas and R. D. Schaldach. Measured by S. J. Bus using a PDS scanning microdensitometer. SAO reference stars, global solutions. Contact: E. L. G. Bowell, Lowell Observatory, 1400 W. Mars Hill Road, Flagstaff, AZ 86001, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
1949 OH1	1949 07	25.27088	20 21 37.35	-12 38 26.6	690
1949 OH1	1949 07	26.28202	20 20 36.68	-12 37 34.7	690
1949 OH1	1949 07	29.26011	20 17 39.23	-12 35 39.3	690

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

Observations made by T. Gehrels, A. Mikesell, J. V. Scotti and S. Tapia with a CCD in scanning mode. Reductions by Scotti using reference stars from the 1984 SAO 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.
1921	1986 01	11.20458	04 54 49.09	+52 17 10.3	18.5V	691
1921	1986 01	11.22046	04 54 48.54	+52 17 01.3		691
1921	1986 01	13.37270	04 53 44.04	+51 55 27.2		691
1921	1986 01	13.38402	04 53 43.76	+51 55 21.7		691
2059	1986 01	20.37617	10 57 56.00	-06 11 42.6	19.8V	691
2059	1986 01	20.40777	10 57 54.86	-06 11 38.6		691
2059	1986 01	20.41858	10 57 54.53	-06 11 37.4		691
2503	1986 01	19.40319	10 08 02.40	+22 21 27.0	17.8V	691
2503	1986 01	19.42297	10 08 01.30	+22 21 33.1		691
2503	1986 01	19.44008	10 08 00.37	+22 21 37.9		691
2539	1986 01	19.35080	09 57 40.51	+06 23 42.7	17.7V	691
2539	1986 01	19.36182	09 57 40.03	+06 23 44.6		691

2539		1986	01	19.38453	09	57	39.02	+06	23	49.3	691
1981	PB	1986	01	12.19028	07	31	34.02	+28	52	25.3	18.4V 691
1981	PB	1986	01	12.19807	07	31	33.43	+28	52	25.8	691
1981	PB	1986	01	12.20861	07	31	32.56	+28	52	27.8	691
1981	PB	1986	01	13.40707	07	29	59.46	+28	54	44.2	691
1981	PB	1986	01	13.41280	07	29	58.92	+28	54	45.2	691
1981	PB	1986	01	13.42132	07	29	58.36	+28	54	45.7	691
1984	FO	1985	12	14.22933	03	00	39.32	-10	38	54.9	18.3V 691
1984	FO	1985	12	14.24144	03	00	38.95	-10	38	52.5	691
1984	FO	1985	12	14.26093	03	00	38.31	-10	38	49.9	691
1985	RV	1986	01	13.11787	00	49	48.04	+12	27	43.8	20.0V 691
1985	RV	1986	01	13.12272	00	49	48.39	+12	27	44.8	691
1985	RV	1986	01	13.14153	00	49	49.92	+12	27	48.6	691
1985	RW	1986	01	13.07840	23	09	47.51	+07	20	22.7	20.0V 691
1985	RW	1986	01	13.09260	23	09	49.24	+07	20	26.5	691
1985	RW	1986	01	13.10096	23	09	50.25	+07	20	28.7	691
1985	VS	1986	01	13.10972	02	47	45.81	+02	53	13.1	18.8V 691
1985	VS	1986	01	13.14791	02	47	45.79	+02	53	13.3	691
1985	VS	1986	01	13.27593	02	47	46.25	+02	53	14.9	691

OBSERVATIONS MADE AT THE GOETHE LINK OBSERVATORY.

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

Object	Date	UT	R. A. (1950)	Decl.	N	Obs.
3312	1958	10 16.11462	23 48 03.71	+06 07 30.3		760
3312	1958	10 16.15831	23 48 02.69	+06 07 10.4		760
1950 QM	1950	08 17.12749	20 19 21.99	-15 34 28.0		760
1950 QM	1950	08 17.17677	20 19 19.26	-15 34 39.1		760
1957 JA	1957	05 02.15660	13 01 47.60	+04 20 09.2		760
1957 JA	1957	05 02.19825	13 01 46.26	+04 20 23.1		760
1957 JE	1957	05 02.24270	14 26 25.54	-10 30 50.2		760
1957 JE	1957	05 02.28717	14 26 23.46	-10 30 43.6		760
1957 JH	1957	05 02.24270	14 17 56.00	-05 53 06.0		760
1957 JH	1957	05 02.28717	14 17 53.56	-05 53 01.5		760
1957 JN	1957	05 04.17500	14 16 12.73	-05 51 30.8		760
1957 JN	1957	05 04.20972	14 16 10.60	-05 51 28.4		760
1957 KG	1957	05 29.22352	17 19 29.40	-18 22 50.0		760
1957 KG	1957	05 29.26587	17 19 27.58	-18 22 50.6		760
1957 OA	1957	07 20.12568	17 56 56.33	-23 56 18.5		760
1957 OJ	1957	07 26.22214	21 33 51.48	-14 07 12.3		760
1957 OJ	1957	07 26.25060	21 33 50.52	-14 07 18.3		760
1957 QJ	1957	08 30.22795	23 43 04.45	+01 25 50.6		760
1957 QJ	1957	08 30.31618	23 43 00.24	+01 25 40.9		760
1957 SA	1957	09 18.10795	22 55 29.93	-14 05 47.5	1	760
1957 SA	1957	09 18.20042	22 55 25.63	-14 06 08.0	1	760
1957 SC	1957	09 24.26215	01 07 25.11	+32 53 29.2		760
1957 SD	1957	09 24.26215	00 53 55.09	+29 40 08.2		760
1957 TE	1957	10 01.36632	01 27 16.63	+04 35 07.3		760
1957 TE	1957	10 01.40592	01 27 14.67	+04 35 00.0		760
1957 TF	1957	10 02.26346	23 11 05.03	-10 49 04.5		760
1957 TG	1957	10 02.35904	01 06 09.25	+02 01 35.7		760
1957 TJ	1957	10 02.35904	00 55 42.29	+01 37 53.5		760
1957 TJ	1957	10 02.40348	00 55 40.04	+01 37 41.7		760
1957 UE1	1957	10 21.31685	03 48 14.55	+35 03 08.2		760
1957 WE	1957	11 17.12017	01 56 42.72	+06 44 16.5	2	760
1957 WL	1957	11 23.26734	02 43 26.25	+25 08 55.2		760

1957	WL	1957	11	23.31317	02	43	24.11	+25	08	44.7	760
1957	WP	1957	11	26.19448	03	52	39.69	+31	53	17.0	760
1957	WP	1957	11	26.23754	03	52	36.40	+31	53	03.2	760
1957	WR	1957	11	26.19448	03	58	58.20	+30	58	41.7	3 760
1957	WR	1957	11	26.23754	03	58	55.84	+30	58	22.8	3 760
1957	WB1	1957	11	26.32816	04	00	43.74	+22	55	45.1	4 760
1957	WH1	1957	11	27.23335	03	20	27.74	+08	05	10.1	760
1957	WH1	1957	11	27.27710	03	20	25.72	+08	05	09.2	760
1957	WJ1	1957	11	27.23335	03	20	48.67	+04	00	01.3	760
1957	WJ1	1957	11	27.27710	03	20	46.33	+03	59	30.2	760
1957	YQ	1957	12	27.41173	07	33	18.09	+27	45	48.6	760
1957	YQ	1957	12	27.44982	07	33	15.89	+27	45	49.0	760
1958	UB	1958	10	16.11462	23	48	27.46	+06	12	17.7	760
1958	UB	1958	10	16.15831	23	48	26.03	+06	11	57.4	760
1961	VW	1961	11	11.32050	04	28	40.19	+19	51	09.4	760
1961	VW	1961	11	11.36355	04	28	38.10	+19	51	11.5	760

Note 1: approximate position on MPC 1736 erroneous. 2: position on MPC 1775 inferior. 3: likewise MPC 1776. 4: position on MPC 1776 erroneous.

OBSERVATIONS MADE AT QUONOCHONTAUG BY W. S. PENHALLOW.

Plates taken with the 0.24-m Schmidt. Contact: W. S. Penhallow, Physics Department, University of Rhode Island, Kingston, RI 02881, U.S.A.

Object	Date	UT	R. A. (1950)	Decl.	N	Obs.
18	1985 12 22.27219		07 02 20.18	+08 01 36.3		792
18	1985 12 22.27497		07 02 19.98	+08 01 36.7		792
18	1985 12 22.27775		07 02 19.83	+08 01 37.2		792
90	1986 02 16.20210		08 16 42.25	+22 19 01.6		792
90	1986 02 16.20625		08 16 42.09	+22 19 01.7		792
90	1986 02 16.21181		08 16 41.80	+22 19 02.2		792
510	1986 01 02.14484		07 44 35.67	+07 20 52.7	1	792
510	1986 01 02.15109		07 44 35.41	+07 20 51.1	1	792
510	1986 01 02.15595		07 44 35.16	+07 20 51.3	1	792

Note 1: light images.

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.
23	1986 02 06.42579		15 00 16.38	-08 22 47.8			801
381	1986 02 04.29425		10 16 37.13	+17 22 40.8			801
514	1986 02 13.32612		11 48 36.44	-04 29 36.2			801
1852	1986 02 09.39991		12 14 58.99	+14 26 15.1			801
1852	1986 02 13.37556		12 13 43.29	+14 53 45.4			801
1866	1986 01 12.11826		01 32 56.03	+46 08 25.9			801
1866	1986 02 13.13908		02 43 38.22	+53 04 39.0			801
1948	1986 01 12.02955		01 45 58.96	+14 02 36.2	18		801
2060	1986 01 13.15957		04 34 02.08	+16 52 16.0			801
2953	1986 02 04.25232		09 57 20.51	+10 49 39.9	16.5		801
3384	1985 11 16.04916		23 04 52.74	-09 20 30.4			801
A915	TE 1985 12 20.44211		09 50 16.52	+23 52 34.5			801
A915	TE 1986 01 13.27843		09 41 10.62	+25 25 32.6			801
1928	SL 1986 02 04.25232		09 57 51.85	+10 38 48.5			801
1928	SL 1986 02 09.27207		09 54 38.49	+10 55 15.8			801
1929	BD 1986 01 12.22245		06 53 32.32	+24 22 46.9			801
1932	CQ 1985 11 16.17616		02 24 28.73	+28 33 46.3			801

1932	CQ	1986	01	12.07838	02	06	25.10	+26	09	08.5			801
1932	CQ	1986	01	13.08524	02	06	52.95	+26	08	59.1			801
1934	CY	1986	01	13.20890	04	59	48.07	+31	03	37.9			801
1934	CY	1986	02	06.11743	04	56	57.75	+28	34	54.7			801
1937	GG	1986	02	13.42833	14	25	41.06	-02	32	16.9			801
1937	GG	1986	03	12.39842	14	48	17.24	-02	24	51.7			801
1938	AD	1985	12	15.34097	05	47	06.14	+26	51	22.3			801
1938	AD	1986	01	12.16165	05	19	08.15	+25	44	54.1			801
1938	AD	1986	02	04.13648	05	14	56.81	+24	53	36.8			801
1948	WF	1985	08	13.35017	01	26	07.98	-05	12	15.2			801
1948	WF	1985	09	12.31009	01	47	37.44	-09	17	10.4			801
1948	WF	1986	01	09.04387	01	56	21.19	+01	20	06.3			801
1952	JH	1985	12	20.37763	08	25	17.83	+06	58	03.9			801
1952	JH	1986	01	13.23034	08	08	55.49	+05	57	48.5			801
1964	TG2	1986	01	12.02955	01	45	36.77	+14	09	05.1			801
1964	UQ	1985	11	16.07099	01	11	17.05	+17	47	54.8			801
1964	UQ	1986	01	11.99481	01	29	05.51	+13	19	02.2			801
1966	BO	1985	12	16.27900	04	52	17.49	+10	47	24.2			801
1966	BO	1986	01	11.11613	04	31	53.29	+11	33	09.7			801
1969	DA	1986	01	12.97667	00	27	54.77	+10	52	34.7			801
1969	TK	1986	01	11.96682	00	48	23.99	+09	02	15.3			801
1969	TE2	1985	10	17.16349	00	46	50.72	+04	12	39.4		17	801
1969	TE2	1986	01	12.99833	01	03	43.05	+04	41	30.3			801
1973	DT	1984	11	26.02251	23	15	39.33	-21	00	10.5		1	801
1973	DT	1985	12	20.39968	09	20	44.96	+20	56	51.3			801
1973	DT	1986	01	13.24453	09	12	52.53	+24	49	18.6		2	801
1973	QZ1	1985	12	15.28385	05	25	30.15	+23	06	44.7			801
1973	QZ1	1986	02	06.14255	04	59	08.84	+23	02	31.8			801
1973	QB2	1985	12	15.26434	05	14	51.52	+22	52	31.8			801
1973	QB2	1986	01	10.16186	04	55	30.85	+22	47	45.2			801
1973	QB2	1986	01	13.18916	04	54	09.80	+22	47	45.5			801
1973	SW4	1985	12	20.24658	07	46	24.06	+23	37	36.8			801
1973	SW4	1986	01	10.25928	07	24	23.87	+24	04	53.6			801
1973	SW4	1986	02	04.15987	07	00	18.92	+24	07	56.0			801
1975	AM	1986	02	09.39991	12	15	02.91	+14	34	09.7			801
1975	AM	1986	02	13.37556	12	13	35.74	+14	58	14.6			801
1975	WK1	1986	01	10.07215	04	33	17.59	+20	10	08.4			801
1975	WK1	1986	01	13.14191	04	32	30.86	+20	06	07.7			801
1975	WK1	1986	02	06.10008	04	38	50.53	+20	08	10.0			801
1976	SV10	1986	01	13.04170	01	35	46.08	+12	12	21.8			801
1977	QG4	1985	12	16.35139	06	32	35.58	+20	14	02.8			801
1977	QG4	1986	01	12.20567	06	03	09.16	+20	55	10.1			801
1977	SA1	1985	12	20.42051	09	37	10.79	+18	42	59.3			801
1977	SA1	1986	01	13.26209	09	27	33.13	+20	19	39.5			801
1977	SA1	1986	02	04.20229	09	06	01.71	+22	16	37.9			801
1978	SZ7	1985	10	16.40412	03	19	55.45	+25	34	47.4			801
1978	SZ7	1986	01	09.11060	02	28	40.18	+21	33	03.8			801
1978	SZ7	1986	02	06.07609	02	54	53.43	+22	18	02.6			801
1978	TO7	1985	12	15.42694	11	13	13.21	+15	36	53.0			801
1978	TO7	1986	01	13.35500	11	20	46.79	+17	20	57.3			801
1979	SZ9	1985	12	16.33107	05	13	11.65	+23	15	05.1			801
1979	SZ9	1986	01	10.16186	04	54	29.62	+22	49	19.6			801
1979	SZ9	1986	01	13.18916	04	53	01.77	+22	46	51.3			801
1980	TF4	1986	01	13.06479	02	59	41.31	+19	19	06.1			801
1981	CK	1986	01	10.22368	06	40	25.97	+23	38	59.3			801
1981	GX	1986	02	06.02779	04	34	58.51	+08	05	02.6			801
1981	GX	1986	02	13.11474	04	40	46.43	+07	42	35.9			801
1981	JZ	1985	03	19.08010	05	43	30.90	+36	34	57.6			801

1981	JZ		1986	02	04.34994	11	45	33.49	+27	39	33.9		801
1981	JZ		1986	02	13.26928	11	41	00.28	+28	40	23.0		801
1981	JZ		1986	02	13.29659	11	40	59.23	+28	40	34.5		801
1981	JZ		1986	03	16.16286	11	16	30.35	+30	59	56.1		801
1981	PA		1986	01	13.38679	07	49	24.34	+49	55	51.4		801
1981	PA		1986	02	04.09407	07	17	43.55	+39	36	05.2		801
1981	PA		1986	02	10.01123	07	14	21.00	+36	43	23.3		801
1981	SW		1985	11	16.14148	01	53	43.19	+09	34	25.0		801
1981	SW		1986	01	12.05595	01	57	32.81	+09	14	50.5		801
1981	SE1		1985	12	15.32150	06	01	52.67	+16	51	04.7		801
1981	SE1		1986	01	12.18191	05	32	39.56	+17	13	00.6		801
1981	SS5		1985	11	16.37552	04	52	31.62	+28	17	11.1		801
1981	SS5		1986	01	13.10692	04	02	21.03	+24	54	48.8		801
1981	UA10		1985	12	15.30335	05	36	41.33	+18	17	52.8		801
1981	UA10		1986	01	12.13604	05	11	20.78	+19	35	32.5		801
1981	UA10		1986	02	04.11535	05	07	32.54	+20	50	42.2		801
1981	WP1		1986	02	09.17820	08	37	52.25	+29	21	48.0		801
1981	XC2		1986	02	09.23054	09	15	09.74	+08	22	30.8		801
1981	XJ2		1985	12	20.23086	07	51	41.99	+25	17	35.7		801
1981	XJ2		1986	01	10.27382	07	32	18.62	+26	40	17.2		801
1982	CD		1986	02	09.25404	09	44	03.38	+12	09	53.4		801
1983	AU2		1985	11	16.15725	02	22	48.38	+20	14	19.0		801
1983	AU2		1986	01	11.09413	02	22	40.14	+17	57	53.3		801
1983	BA		1985	12	15.22111	03	40	42.18	+30	50	53.6		801
1983	BA		1986	02	05.99239	03	41	23.81	+27	03	58.2		801
1983	CB3		1986	01	12.23614	07	34	33.88	+24	19	20.5		801
1983	CB3		1986	02	04.17680	07	08	42.70	+24	03	22.9		801
1983	DJ		1986	02	09.12234	07	41	49.89	+31	09	35.6		801
1984	AB		1986	01	10.20748	06	28	36.25	+29	28	33.2		801
1984	AB		1986	02	13.16295	05	57	11.31	+36	37	16.1		801
1984	SM4		1986	02	13.18167	07	54	41.86	+17	20	04.4		801
1984	SQ5		1986	01	13.37182	09	53	59.52	+16	18	12.0		801
1984	SQ5		1986	02	04.27733	09	36	58.32	+19	01	49.2		801
1985	PA		1986	03	08.99657	04	31	47.00	+00	27	59.5		801
1985	TQ		1986	01	08.99728	01	00	23.04	+06	41	23.6		801
1985	TT		1986	01	09.01928	01	10	34.68	+04	02	38.2		801
1985	TC1		1986	01	08.97623	01	05	21.90	+08	36	52.4	1	801
1985	TC1		1986	01	13.02262	01	06	25.99	+08	47	30.2		801
1985	VW1		1986	02	06.05569	02	05	11.79	+10	30	44.9		801
1985	WH	*	1985	11	16.32363	04	14	18.46	+32	57	20.3	17	801
1985	XA		1986	01	09.15378	04	09	35.12	+26	41	43.6	3	801
1985	XA		1986	01	10.11711	04	08	51.97	+26	56	04.8		801
1986	AA		1986	02	09.14222	08	08	13.08	+10	47	43.5		801
1986	AQ	*	1986	01	10.22368	06	40	05.94	+23	44	27.0	17	801
1986	AR	*	1986	01	11.18413	04	40	13.45	+12	40	00.7	17.5	801
1986	AS	*	1986	01	12.18191	05	32	27.03	+17	22	56.4	17.5	801
1986	CW	*	1986	02	04.15987	07	00	47.05	+24	05	16.6	16.5	801
1986	CX	*	1986	02	04.32151	10	25	42.39	+14	26	26.9	17	801
1986	CY	*	1986	02	06.35182	10	13	43.35	+28	48	24.8	17.5	801
1986	CZ	*	1986	02	09.17820	08	37	43.28	+29	23	11.4	17.5	801
1986	CA1	*	1986	02	09.29967	10	20	38.57	+11	49	16.4	18.5	801
1986	CB1	*	1986	02	13.18167	07	58	57.92	+17	07	12.7	19	801
1986	DA		1986	03	16.15018	10	24	43.36	+32	50	41.7		801
1986	EB		1986	03	12.35311	11	23	11.68	+24	11	41.3		801
1986	EB		1986	03	12.36071	11	23	08.56	+24	11	22.5		801
1986	EB		1986	03	20.25413	10	35	22.23	+18	30	52.6		801
1986	EB		1986	03	20.27228	10	35	16.42	+18	30	01.5		801

Note 1: weak image. 2: poor image. 3: clouds; very weak image.

OBSERVATIONS MADE AT THE EUROPEAN SOUTHERN OBSERVATORY.

Plates taken by W. Ferreri with the 0.40-m GPO astrograph. Reductions by G. De Sanctis using AGK3 (northern declinations) and SAO (southern declinations) reference stars. Contact: W. Ferreri, Osservatorio Astronomico di Torino, I-10025 Pino Torinese, Italy.

Object	Date	UT	R. A. (1950)	Decl.	Obs.
86	1984 04	25.30868	16 32 04.83	-19 02 47.6	809
86	1984 04	25.32743	16 32 04.22	-19 02 46.6	809
86	1984 04	26.27882	16 31 35.15	-19 01 57.1	809
86	1984 04	26.29896	16 31 34.50	-19 01 56.1	809
86	1984 05	01.32257	16 28 45.16	-18 57 10.4	809
86	1984 05	01.34826	16 28 44.21	-18 57 08.4	809
86	1984 05	02.28785	16 28 09.90	-18 56 10.9	809
86	1984 05	02.31701	16 28 08.78	-18 56 08.9	809
86	1984 05	02.33021	16 28 08.26	-18 56 08.0	809
172	1984 04	25.08785	13 19 18.90	-23 46 12.3	809
172	1984 04	25.09826	13 19 18.23	-23 46 09.9	809
172	1984 04	25.10313	13 19 17.92	-23 46 08.6	809
172	1984 04	25.10799	13 19 17.59	-23 46 07.2	809
182	1984 04	25.20313	15 38 44.05	-16 51 58.2	809
182	1984 04	25.23160	15 38 42.60	-16 51 53.4	809
182	1984 04	26.18507	15 37 55.19	-16 49 06.5	809
182	1984 04	26.20521	15 37 54.17	-16 49 01.9	809
189	1984 04	25.04896	12 34 51.45	-04 23 28.9	809
189	1984 04	25.07604	12 34 50.40	-04 23 18.7	809
189	1984 04	26.02535	12 34 14.62	-04 17 14.6	809
189	1984 04	26.04757	12 34 13.73	-04 17 05.8	809
189	1984 05	01.05035	12 31 23.84	-03 47 18.9	809
189	1984 05	01.07604	12 31 22.98	-03 47 10.0	809
189	1984 05	07.07951	12 28 44.90	-03 16 48.4	809
189	1984 05	07.10621	12 28 44.32	-03 16 40.9	809
271	1984 04	23.09306	13 39 03.29	-14 42 49.4	809
271	1984 04	23.11736	13 39 02.09	-14 42 43.5	809
271	1984 04	24.08160	13 38 16.72	-14 38 51.1	809
271	1984 04	24.10035	13 38 15.84	-14 38 46.3	809
271	1984 04	29.08785	13 34 25.89	-14 18 29.9	809
271	1984 04	29.11146	13 34 24.79	-14 18 24.2	809
515	1984 04	25.20313	15 41 41.40	-17 00 47.2	809
515	1984 04	25.23160	15 41 40.24	-17 00 42.8	809
515	1984 04	26.18507	15 41 02.77	-16 58 26.5	809
515	1984 04	26.20521	15 41 01.98	-16 58 22.6	809
515	1984 05	01.25451	15 37 33.15	-16 45 49.1	809
515	1984 05	01.27882	15 37 32.06	-16 45 45.0	809
561	1984 05	05.05382	13 22 47.48	-06 59 37.5	809
561	1984 05	05.07812	13 22 46.64	-06 59 32.4	809
614	1984 04	25.20313	15 42 47.36	-17 21 02.6	809
614	1984 04	25.23160	15 42 46.09	-17 20 54.4	809
614	1984 04	26.18507	15 42 05.28	-17 16 26.3	809
614	1984 04	26.20521	15 42 04.40	-17 16 19.9	809
857	1984 04	23.16181	13 00 43.72	+02 17 03.8	809
857	1984 04	23.18542	13 00 42.35	+02 17 08.3	809
857	1984 04	24.15590	12 59 48.91	+02 19 58.9	809
857	1984 04	24.17535	12 59 47.79	+02 20 02.2	809
985	1984 04	28.14757	13 49 37.93	-18 05 13.9	809
985	1984 04	28.16979	13 49 36.41	-18 05 05.5	809
985	1984 05	01.11910	13 46 34.32	-17 47 00.9	809
985	1984 05	01.14132	13 46 32.90	-17 46 52.1	809
1189	1984 04	25.24340	15 46 13.86	-29 37 24.5	809
1189	1984 04	25.26424	15 46 12.95	-29 37 21.8	809

1189	1984	04	26.21632	15	45	32.92	-29	35	15.4	809
1189	1984	04	26.23785	15	45	31.95	-29	35	12.3	809
1226	1984	04	23.09306	13	38	50.83	-14	18	21.9	809
1226	1984	04	23.11736	13	38	49.27	-14	18	20.6	809
1226	1984	04	24.08160	13	37	50.51	-14	17	24.5	809
1226	1984	04	24.10035	13	37	49.35	-14	17	22.8	809
1226	1984	04	29.08785	13	32	53.84	-14	12	09.7	809
1226	1984	04	29.11146	13	32	52.43	-14	12	08.3	809
1271	1984	04	23.16181	13	06	07.68	+02	24	48.0	809
1271	1984	04	23.18542	13	06	06.74	+02	24	53.1	809
1271	1984	04	24.15590	13	05	28.96	+02	28	17.3	809
1271	1984	04	24.17535	13	05	28.19	+02	28	21.1	809
1271	1984	04	30.10938	13	01	48.76	+02	46	42.7	809
1271	1984	04	30.13090	13	01	47.99	+02	46	46.6	809
1314	1984	04	28.14757	13	48	12.57	-18	04	12.3	809
1314	1984	04	28.16979	13	48	11.26	-18	04	03.3	809
1314	1984	05	01.11910	13	45	23.57	-17	43	54.0	809
1314	1984	05	01.14132	13	45	22.35	-17	43	45.2	809
1314	1984	05	06.15833	13	40	51.52	-17	09	08.9	809
1314	1984	05	06.17986	13	40	50.42	-17	09	00.2	809
1424	1984	04	25.16910	14	47	41.99	-15	45	25.3	809
1424	1984	04	25.19271	14	47	40.81	-15	45	22.9	809
1424	1984	04	26.09618	14	46	57.29	-15	44	10.2	809
1424	1984	04	26.11910	14	46	56.07	-15	44	08.3	809
1424	1984	05	01.21701	14	42	46.69	-15	36	54.0	809
1424	1984	05	01.24410	14	42	45.30	-15	36	51.3	809
1661	1984	04	25.27396	15	59	09.51	-23	43	30.8	809
1661	1984	04	25.29896	15	59	08.53	-23	43	26.7	809
1661	1984	04	26.24896	15	58	33.21	-23	40	50.5	809
1661	1984	04	26.26840	15	58	32.40	-23	40	46.9	809
1661	1984	05	02.25313	15	54	10.38	-23	21	10.4	809
1661	1984	05	02.27813	15	54	09.05	-23	21	03.8	809
1686	1984	04	30.07812	12	40	28.68	-04	34	44.7	809
1686	1984	04	30.09965	12	40	27.92	-04	34	39.8	809
1686	1984	05	02.01354	12	39	24.48	-04	28	10.0	809
1686	1984	05	02.03507	12	39	23.76	-04	28	05.5	809
1686	1984	05	06.01806	12	37	23.07	-04	15	44.4	809
1686	1984	05	06.04063	12	37	22.37	-04	15	40.3	809
1720	1984	04	29.22951	14	10	48.39	-11	50	04.6	809
1720	1984	04	29.24965	14	10	47.13	-11	49	58.2	809
1720	1984	05	02.11354	14	07	51.93	-11	34	52.2	809
1720	1984	05	02.13438	14	07	50.65	-11	34	45.6	809
1840	1984	04	25.16910	14	46	45.43	-16	07	41.3	809
1840	1984	04	25.19271	14	46	44.24	-16	07	36.2	809
1840	1984	04	26.09618	14	45	59.84	-16	04	57.6	809
1840	1984	04	26.11910	14	45	58.70	-16	04	53.3	809
1840	1984	05	01.21701	14	41	42.55	-15	49	26.3	809
1840	1984	05	01.24410	14	41	41.15	-15	49	20.9	809
2223	1984	04	25.16910	14	45	03.33	-15	27	19.0	809
2223	1984	04	25.19271	14	45	02.61	-15	27	12.8	809
2223	1984	04	26.11910	14	44	35.45	-15	23	24.5	809
2223	1984	05	01.21701	14	42	03.59	-15	02	19.2	809
2223	1984	05	01.24410	14	42	02.74	-15	02	12.1	809
2243	1984	04	25.04896	12	38	08.62	-03	38	11.8	809
2243	1984	04	25.07604	12	38	07.11	-03	38	07.5	809
2243	1984	04	26.02535	12	37	15.98	-03	35	43.4	809
2243	1984	04	26.04757	12	37	14.75	-03	35	39.6	809
2243	1984	05	01.05035	12	33	04.11	-03	24	44.3	809
2243	1984	05	01.07604	12	33	02.87	-03	24	41.3	809

2243	1984	05	07.07951	12	28	51.40	-03 16 08.8	809
2243	1984	05	07.10621	12	28	50.37	-03 16 06.2	809
2278	1984	05	07.29097	17	31	07.24	-24 59 31.9	809
2278	1984	05	07.31389	17	31	06.79	-24 59 36.1	809
2278	1984	05	07.33160	17	31	06.50	-24 59 39.2	809
2322	1984	04	29.22951	14	10	59.32	-11 34 05.3	809
2322	1984	04	29.24965	14	10	58.11	-11 33 57.9	809
2322	1984	05	02.11354	14	08	14.47	-11 16 38.4	809
2322	1984	05	02.13438	14	08	13.22	-11 16 30.6	809
2330	1984	04	27.24688	17	18	54.30	-11 49 29.2	809
2330	1984	04	27.26910	17	18	53.93	-11 49 25.6	809
2330	1984	04	28.25903	17	18	38.34	-11 46 57.8	809
2330	1984	04	28.28542	17	18	37.82	-11 46 53.6	809
2330	1984	05	06.34896	17	15	43.04	-11 27 41.8	809
2330	1984	05	06.37049	17	15	42.41	-11 27 38.2	809
2357	1984	04	29.22951	14	13	30.99	-11 16 57.7	809
2357	1984	04	29.24965	14	13	30.36	-11 16 54.2	809
2357	1984	05	02.11354	14	12	03.91	-11 08 44.1	809
2357	1984	05	02.13438	14	12	03.23	-11 08 40.3	809
2389	1984	04	23.12778	13	52	08.75	-24 01 07.7	809
2389	1984	04	23.15000	13	52	07.26	-24 01 03.4	809
2389	1984	04	24.11979	13	51	03.29	-23 58 14.1	809
2389	1984	04	24.14340	13	51	01.69	-23 58 10.2	809
2413	1984	04	23.16181	13	06	53.52	+01 59 09.7	809
2413	1984	04	23.18542	13	06	52.64	+01 59 16.8	809
2413	1984	04	24.15590	13	06	15.22	+02 04 19.4	809
2413	1984	04	24.17535	13	06	14.41	+02 04 25.6	809
2413	1984	04	30.10938	13	02	38.74	+02 32 26.2	809
2413	1984	04	30.13090	13	02	37.96	+02 32 32.1	809
2609	1984	04	25.24340	15	44	18.29	-30 16 35.2	809
2609	1984	04	25.26424	15	44	17.18	-30 16 34.1	809
2609	1984	04	26.21632	15	43	31.05	-30 15 48.5	809
2609	1984	04	26.23785	15	43	29.88	-30 15 46.6	809
2737	1984	04	23.12778	13	55	31.14	-23 18 52.0	809
2737	1984	04	23.15000	13	55	29.82	-23 18 47.6	809
2737	1984	04	24.11979	13	54	34.96	-23 15 29.5	809
2737	1984	04	24.14340	13	54	33.60	-23 15 24.7	809
2737	1984	04	30.20451	13	48	56.77	-22 52 42.2	809
2737	1984	04	30.22326	13	48	55.69	-22 52 37.3	809
2813	1984	04	25.30868	16	31	56.72	-19 22 24.1	809
2813	1984	04	25.32743	16	31	56.15	-19 22 18.7	809
2813	1984	04	26.27882	16	31	27.20	-19 17 46.8	809
2813	1984	04	26.29896	16	31	26.55	-19 17 41.4	809
2813	1984	05	01.32257	16	28	37.73	-18 53 02.3	809
2813	1984	05	01.34826	16	28	36.79	-18 52 53.7	809
2813	1984	05	02.28785	16	28	02.55	-18 48 09.4	809
2813	1984	05	02.31701	16	28	01.46	-18 48 00.9	809
2813	1984	05	02.33021	16	28	00.92	-18 47 56.7	809
2961	1984	05	01.15174	13	57	19.15	-12 46 04.5	809
2961	1984	05	01.17535	13	57	17.80	-12 45 54.6	809
3114	1984	04	25.30868	16	32	32.50	-18 33 07.4	809
3114	1984	04	25.32743	16	32	32.17	-18 33 04.4	809
3114	1984	04	26.27882	16	32	17.91	-18 30 36.3	809
3114	1984	04	26.29896	16	32	17.52	-18 30 33.2	809
3114	1984	05	01.32257	16	30	30.79	-18 16 35.1	809
3114	1984	05	01.34826	16	30	30.04	-18 16 29.9	809
3114	1984	05	02.28785	16	30	04.79	-18 13 43.6	809
3114	1984	05	02.31701	16	30	03.90	-18 13 38.1	809
3114	1984	05	02.33021	16	30	03.42	-18 13 35.7	809

1982	TC2		1984	04	25.01354	12	42	10.41	-11 31 41.9	809
1982	TC2		1984	04	25.03715	12	42	09.54	-11 31 30.8	809
1984	HE1		1984	04	25.01354	12	41	38.68	-11 09 26.8	809
1984	HE1		1984	04	25.03715	12	41	37.82	-11 09 16.7	809
1984	HG1		1984	04	25.01354	12	45	27.04	-10 47 25.2	809
1984	HG1		1984	04	25.03715	12	45	25.89	-10 47 15.7	809
1984	HC2	*	1984	04	23.16181	13	07	18.40	+01 46 48.4	809
1984	HC2		1984	04	23.18542	13	07	17.07	+01 46 54.3	809
1984	HC2		1984	04	24.15590	13	06	29.25	+01 50 31.8	809
1984	HC2		1984	04	24.17535	13	06	28.18	+01 50 36.7	809
1984	HC2		1984	04	30.10938	13	01	55.28	+02 09 00.7	809
1984	HC2		1984	04	30.13090	13	01	54.34	+02 09 04.0	809
1984	HC2		1984	05	06.05347	12	58	04.30	+02 20 28.0	809
1984	HC2		1984	05	06.08056	12	58	03.35	+02 20 30.1	809
1984	HD2	*	1984	04	24.15590	13	06	09.12	+02 24 30.7	809
1984	HD2		1984	04	24.17535	13	06	08.27	+02 24 37.2	809
1984	HE2	*	1984	04	29.22951	14	08	58.39	-12 26 33.0	809
1984	HE2		1984	04	29.24965	14	08	57.05	-12 26 28.4	809
1984	HE2		1984	05	02.11354	14	06	03.45	-12 15 35.7	809
1984	HE2		1984	05	02.13438	14	06	02.15	-12 15 31.9	809
1984	HF2	*	1984	04	29.22951	14	11	58.29	-10 56 54.8	809
1984	HF2		1984	04	29.24965	14	11	57.32	-10 56 40.8	809
1984	HF2		1984	05	02.11354	14	09	43.44	-10 24 34.3	809
1984	HF2		1984	05	02.13438	14	09	42.39	-10 24 20.3	809
1984	HG2	*	1984	04	30.07813	12	43	23.02	-04 04 14.3	809
1984	HG2		1984	04	30.09965	12	43	22.25	-04 04 09.5	809
1984	HG2		1984	05	02.01354	12	42	18.49	-03 56 35.4	809
1984	HG2		1984	05	02.03507	12	42	17.74	-03 56 29.4	809
1984	JN1	*	1984	05	01.15174	13	55	20.92	-12 58 33.0	809
1984	JN1		1984	05	01.17535	13	55	19.78	-12 58 24.4	809
1984	JN1		1984	05	05.18507	13	52	24.98	-12 36 40.5	809
1984	JN1		1984	05	05.20521	13	52	24.02	-12 36 33.7	809
1984	JO1	*	1984	05	06.01806	12	39	22.30	-03 47 36.7	809
1984	JO1		1984	05	06.04063	12	39	21.51	-03 47 29.4	809

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

Copied from Nihondaira Obs. Circ. Nos. 1531, 1537, 1540 and 1545. Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
809		1986	02 08.55521	09 27 10.65	+12 01 28.9	16	881
809		1986	02 08.57882	09 27 09.61	+12 01 35.2		881
1953		1986	02 15.66806	09 22 38.73	+18 49 16.9	17	881
1953		1986	02 15.72049	09 22 36.27	+18 49 27.2		881
1986	AB	1986	01 17.60521	07 43 26.16	+27 23 04.0	17	881
1986	AB	1986	01 17.62951	07 43 24.26	+27 22 59.5		881
1986	AD1	1986	02 10.56910	07 54 12.72	+20 32 42.4	16.5	881
1986	AD1	1986	02 12.53438	07 52 49.65	+20 40 58.6	16	881
1986	AD1	1986	02 12.56354	07 52 48.56	+20 41 04.8		881
1986	AW2	1986	02 06.53924	09 30 50.35	+16 35 48.3	16	881
1986	AW2	1986	02 06.56285	09 30 49.38	+16 36 08.8		881
1986	AW2	1986	02 15.66806	09 23 39.77	+18 58 56.7	16	881
1986	AW2	1986	02 15.72049	09 23 37.14	+18 59 44.5		881
1986	DB	1986	03 02.53993	09 06 44.84	+06 27 30.8	16	881
1986	DB	1986	03 02.56632	09 06 43.85	+06 27 46.0		881

OBSERVATIONS MADE AT SHIZUOKA BY M. KIZAWA.

Films taken with 0.31-m reflector, measured by T. Urata. From Nihondaira Obs. Circ. Nos. 1535, 1541, 1544 and 1545. Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1986 AW2		1986 02	12.63274	09 26 02.91	+18 11 50.9	15.5	883
1986 AW2		1986 02	12.65088	09 26 02.13	+18 12 08.0		883
1986 AW2		1986 02	12.66020	09 26 01.73	+18 12 17.8		883
1986 AW2		1986 02	12.66794	09 26 01.27	+18 12 23.8		883
1986 DA	*	1986 02	16.53427	09 59 49.97	+30 14 17.3	14.5	883
1986 DA		1986 02	16.57416	09 59 50.51	+30 14 49.3		883
1986 DA		1986 02	17.49792	10 00 14.08	+30 26 00.7	14.5	883
1986 DA		1986 02	17.50856	10 00 14.38	+30 26 09.4		883
1986 DA		1986 02	17.65886	10 00 16.62	+30 27 58.4		883
1986 DA		1986 02	17.68635	10 00 17.11	+30 28 17.6		883
1986 DA		1986 02	19.65958	10 01 09.64	+30 51 27.5	14.5	883
1986 DA		1986 02	19.68620	10 01 09.98	+30 51 43.1		883
1986 DA		1986 02	20.73204	10 01 39.22	+31 03 30.5	14.5	883
1986 DA		1986 02	20.74547	10 01 39.40	+31 03 38.9		883
1986 DA		1986 02	27.60589	10 05 40.92	+32 11 04.8	14.5	883
1986 DA		1986 02	27.66155	10 05 42.70	+32 11 32.2		883
1986 DA		1986 02	28.59131	10 06 23.75	+32 18 58.5	14.5	883
1986 DA		1986 02	28.62809	10 06 24.97	+32 19 15.8		883
1986 DA		1986 03	02.52606	10 07 55.64	+32 32 50.8	14.5	883
1986 DA		1986 03	02.55956	10 07 56.94	+32 33 04.0		883
1986 DA		1986 03	05.62451	10 10 42.87	+32 50 11.5	14.5	883
1986 DA		1986 03	05.68029	10 10 45.53	+32 50 21.8		883
1986 DB		1986 03	02.54939	09 06 44.38	+06 27 38.0	16	883
1986 DB		1986 03	02.58694	09 06 43.25	+06 27 57.5		883

OBSERVATIONS MADE AT KARASUYAMA BY S. INODA.
Films measured by T. Urata. Copied from Nihondaira Obs. Circ. No. 1531, 1537, 1538, 1540, 1545, 1549 and 1551. Contact: T. Urata, Nishitaka-cho 8-23, Shimizu, Shizuoka 424, Japan.

Object		Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
1456		1986 02	09.58565	09 12 18.73	+07 36 00.8	17	889
1456		1986 02	09.62731	09 12 16.89	+07 36 07.0		889
3134		1986 01	14.67250	09 33 00.76	+05 20 55.7		889
1929 BD		1986 01	14.69472	06 51 12.24	+24 17 21.7	15.5	889
1981 XC2		1986 01	14.67250	09 36 16.79	+05 36 36.9	17	889
1981 XC2		1986 01	14.71590	09 36 15.41	+05 36 46.1		889
1986 AB		1986 02	08.56082	07 22 00.05	+26 20 14.5	17.5	889
1986 AB		1986 02	08.60995	07 21 57.75	+26 20 03.8		889
1986 AB		1986 02	09.55440	07 21 16.36	+26 16 39.5	17.5	889
1986 AB		1986 02	09.59606	07 21 14.48	+26 16 29.0		889
1986 AL	*	1986 01	14.67250	09 34 12.82	+05 56 10.7	17.5	889
1986 AL		1986 01	14.71590	09 34 11.22	+05 56 06.7		889
1986 AL		1986 02	08.58565	09 14 41.33	+05 46 41.2	17	889
1986 AL		1986 02	08.65093	09 14 38.14	+05 46 45.5		889
1986 AL		1986 02	09.58565	09 13 50.42	+05 47 22.0	17	889
1986 AL		1986 02	09.62731	09 13 48.28	+05 47 22.1		889
1986 AL		1986 02	16.71870	09 07 51.22	+05 53 46.3	17	889
1986 CG		1986 01	14.67250	09 34 02.18	+06 09 41.0	17.5	889
1986 CG	*	1986 02	08.58565	09 13 35.98	+06 17 41.5	17	889
1986 CG		1986 02	08.65093	09 13 32.34	+06 17 50.4		889
1986 CG		1986 02	09.58565	09 12 41.56	+06 19 51.1		889
1986 CG		1986 02	09.62731	09 12 39.32	+06 19 54.5		889
1986 CG		1986 03	02.55053	08 56 34.34	+07 16 55.8	17.5	889
1986 CG		1986 03	02.57275	08 56 33.49	+07 16 59.9		889
1986 CG		1986 03	17.58002	08 51 23.17	+07 56 38.9	17.8	889
1986 CG		1986 03	17.59287	08 51 23.16	+07 56 42.0		889
1986 CG		1986 03	17.61866	08 51 22.95	+07 56 45.4		889
1986 CH	*	1986 02	08.69363	09 20 41.09	+04 19 07.8	17	889

1986	CH		1986	02	08.72697	09	20	39.35	+04	19	14.2	889
1986	CH		1986	02	16.69639	09	13	51.61	+04	38	07.2	17 889
1986	CH		1986	02	16.74049	09	13	49.33	+04	38	15.8	889
1986	CH		1986	03	02.58387	09	03	26.11	+05	19	35.0	17 889
1986	CH		1986	03	02.60609	09	03	25.19	+05	19	39.8	889
1986	CH		1986	03	12.53419	08	58	01.31	+05	50	32.6	17.3 889
1986	CH		1986	03	12.55502	08	58	00.89	+05	50	36.2	889
1986	DB	*	1986	02	16.69639	09	16	17.84	+04	17	53.0	16 889
1986	DB		1986	02	16.74049	09	16	15.38	+04	18	18.6	889
1986	DB		1986	03	01.54081	09	07	16.71	+06	18	04.8	16 889
1986	DB		1986	03	01.56442	09	07	15.61	+06	18	17.6	889
1986	DB		1986	03	02.53873	09	06	44.54	+06	27	32.4	16 889
1986	DB		1986	03	02.56164	09	06	43.95	+06	27	44.4	889
1986	DB		1986	03	12.56544	09	03	13.03	+07	59	06.0	16.5 889
1986	DB		1986	03	12.58627	09	03	12.95	+07	59	16.5	889
1986	ED		1986	03	17.60606	11	48	47.25	+07	28	24.5	16 889
1986	ED		1986	03	17.63106	11	48	46.01	+07	28	30.3	889
1986	EE		1986	03	17.60606	11	47	17.15	+08	18	49.2	16 889
1986	EE		1986	03	17.63106	11	47	15.57	+08	18	51.3	889

OBSERVATIONS MADE AT SENDAI MUNICIPAL OBSERVATORY BY K. AISAWA.
Contact: S. Nakano, 3-1-1005, 3 chome, Higashi-Juju, Kita-Ku, Tokyo 114, Japan.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	Obs.
3133	1986	02 10.77439	12 21 28.38	+06 08 21.3	17	893
3133	1986	02 10.83194	12 21 26.91	+06 08 33.1		893

* * * * *

ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The orbit computers and authors of double designations are B = C. M. Bardwell, E = E. Bowell, h = K. Hurukawa, I = H. Oishi, M = B. G. Marsden, N = S. Nakano, U = T. Urata. For further information see MPC 10375.

Planet	B(1,0)	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1979 VG	13.6	791014	341.65	20.17	23.86	5.97	0.1113	2.3092	55	5	2	I
1979 VS2	14.5	791123	67.82	288.30	53.43	21.98	0.1066	1.9366	10	4		B
1979 WF8	16.0	791123	49.59	326.71	14.82	5.05	0.2324	2.2134	3	3	1	B
1979 WG8	17.0	791123	68.02	97.80	239.78	22.24	0.0886	1.9633	3	3		B
1979 WJ8	10.0	791123	179.80	195.35	53.39	13.14	0.0874	5.0366	3	3	1	B
1979 WL8	11.0	791123	98.00	260.40	43.36	6.55	0.2650	3.9703	3	3	1	B
1979 XQ	13.5	791123	46.07	326.97	35.48	3.61	0.1288	2.2585	39	7		B
1981 RM3	13.5	811003	337.27	195.18	197.56	2.99	0.1912	2.9628	32	6	2	N
1981 SE9	14.7	811003	21.86	214.41	113.66	3.25	0.2402	2.3508	29	0	2	h
1981 WG9	13.7	811112	24.09	221.35	152.78	2.89	0.1371	2.3793	39	6	2	h
1983 RA1	13.5	830903	303.34	77.19	357.70	2.15	0.2537	2.5269	6	6	1	M
1983 RY3	11.8	830903	120.49	208.80	5.97	11.35	0.0863	3.0257	8	6		E
1983 RA4	14.5	830903	359.08	350.03	355.21	9.09	0.2556	2.6814	8	6		E
1983 RB4	14.7	830903	352.46	306.10	49.48	2.95	0.2190	2.4151	8	6		E
1983 RC4	14.6	830903	19.39	157.39	148.73	8.00	0.3148	2.5288	8	6		E
1984 HG1	15.0	840430	306.95	2.77	267.23	3.26	0.1134	2.2221	7	8		B
1984 HC2		840430	122.94	323.17	112.82	4.96	0.0533	2.3695	13	8		B
1984 SO	12.0	840917	118.41	331.07	254.22	6.10	0.1836	2.4916	32	3		B
1984 WZ1	13.5	841206	84.02	220.55	127.34	12.16	0.1280	3.0661	25	0		M
1985 QA1	13.5	850803	146.78	324.25	206.98	7.66	0.0904	2.4084	7	6		M
1985 QF1	14.0	850803	221.08	179.26	290.58	13.01	0.0890	2.5449	7	6		B
1985 QY2	14.5	850803	278.18	157.66	260.30	6.55	0.1219	2.2613	7	6		M
1985 QL3	15.5	850803	23.74	96.68	188.31	10.06	0.2086	2.4234	7	6		B

1985 SB	13.5	851022	27.68	347.52	352.37	6.18	0.1688	2.4340	74	0	U
1985 TQ	10.0	851111	313.42	56.31	23.81	2.87	0.1187	5.2471	86	7	B
1985 TT	11.0	851111	48.25	117.89	188.72	7.25	0.2830	3.9722	86	7	B
1985 XA	13.0	851221	324.46	38.37	80.49	24.81	0.0507	1.9032	27	8	B
1985 XB	14.5	860130	344.75	69.12	70.81	28.77	0.2250	1.9738	97	0	B
1985 YH	13.5	860110	321.57	238.14	274.95	9.00	0.1517	2.4529	50	5	B
1986 AB	12.5	860130	88.47	55.58	310.56	13.56	0.1929	2.7331	29	8	U
1986 AD	14.5	860110	323.74	229.45	301.79	24.13	0.2232	2.3559	28	6	M
1986 AE	13.5	860110	40.30	109.85	290.48	29.04	0.3779	2.7365	28	7	B
1986 AH	14.5	860110	80.58	263.45	124.85	24.06	0.1168	1.9300	29	5	M
1986 AJ	15.0	860110	69.34	90.98	290.15	16.83	0.1040	1.9540	27	5	B
1986 AK	12.5	860110	340.30	96.61	55.82	21.97	0.3463	2.3491	26	6	M
1986 AD1	11.5	860110	144.73	204.25	126.13	7.63	0.0546	2.8037	32	5	M
1986 AG1	13.0	860110	78.35	92.37	300.36	21.39	0.0422	1.9776	27	8	B
1986 AW2	13.0	860130	337.75	34.87	135.35	17.22	0.2109	2.6322	51	0	B
1986 CG	13.5	860219	21.35	204.41	267.00	6.83	0.1807	2.7927	62	0	U
1986 CH	12.0	860219	323.10	275.28	268.87	8.92	0.0589	2.9963	32	8	U
1986 CZ	14.0	860130	347.58	134.19	8.69	7.11	0.1000	2.5008	3	3	B
1986 ED	13.5	860311	332.98	167.51	45.56	3.58	0.2019	2.3045	10	6	U
1986 EE	11.5	860311	315.38	231.91	13.51	12.29	0.2755	3.1815	10	5	U

Note 1: e assumed. 2: double designations 1979 VG = 1979 SH10 (I, JAM 1989); 1981 RM3 = 1981 SQ (N); 1981 SE9 = 1981 RG (h); 1981 WG9 = 1981 UM15 (h).

* * * * *

ORBITAL ELEMENTS BY L. K. KRISTENSEN, UNIVERSITY OF AARHUS.

1984 SM = 1949 OH1

The identification is by K. W. Fabrin.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	212.06488	(1950.0)	P	Q	
n	0.28360222	Peri.	48.64025	+0.74116168	+0.66349799
a	2.2943674	Node	269.52690	-0.64239294	+0.65672573
e	0.1418815	Incl.	5.86746	-0.19496328	+0.35844348
P	3.48	H	13.1	G 0.25	

Residuals in seconds of arc

490725	690	0.3+	1.3+	490729	690	0.3-	5.4+	840929	054	0.3+	0.2-
490726	690	3.3-	3.7+	840924	054	0.2-	0.9-	841026	054	0.1-	1.2+

* * * * *

ORBITAL ELEMENTS BY K. HURUKAWA, TOKYO ASTRONOMICAL OBSERVATORY.

The identifications are by K. Hurukawa unless otherwise stated.

(3391)* 1977 DD3

Discovered 1977 Feb. 18 by H. Kosai and K. Hurukawa at the Tokyo Astronomical Observatory's Kiso Station.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	339.32824	(1950.0)	P	Q	
n	0.08193771	Peri.	101.61517	+0.12776453	-0.98804390
a	5.2498491	Node	340.40503	+0.77977703	+0.15383166
e	0.0843743	Incl.	14.90935	+0.61288172	+0.01025088
P	12.03	H	10.4	G 0.25	

Residuals in seconds of arc

770218	381	0.0-	0.5+	770315	381	0.6+	0.7-	851109	801	0.9-	0.5-
770218	381	0.8+	0.2-	770410	381	2.7-	0.7-	851115	691	0.7+	0.1-
770219	381	0.2-	0.2+	770410	381	3.0-	0.9+	851115	691	0.7+	0.2-
770219	381	1.0+	0.2+	830831	675	0.5-	0.2-	851117	691	0.1-	0.1-
770312	381	0.6+	0.4+	830901	675	0.5+	0.4-	851117	691	0.0-	0.4-
770312	381	0.8+	0.8-	840821	675	0.9+	0.3-	851216	801	0.7-	0.9+
770315	381	1.0+	0.8-	851108	801	0.1-	0.3+				

(3392)* 1979 YB

Discovered 1979 Dec. 17 by H. Kosai and G. Sasaki at the Tokyo Astronomical Observatory's Kiso Station.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	353.71525		(1950.0)	P	Q
n	0.31491495	Peri.	239.60979	-0.73940799	-0.50686135
a	2.1396391	Node	266.37866	+0.66037312	-0.67416094
e	0.2799808	Incl.	26.36067	-0.13108457	-0.53721373
P	3.13	H	14.3	G 0.25	

Residuals in seconds of arc

791217	381	0.0+	0.2+	800209	801	0.6-	0.1-	821205	675	0.9-	0.8-
791217	381	0.6+	1.5+	800209	381	0.2-	0.3-	821206	675	0.1+	0.2-
791218	381	1.4+	0.7+	800209	381	0.1-	1.1-	821212	381	0.4-	2.4-
791218	381	2.0-	0.8-	800210	381	0.9-	1.1-	821212	381	0.2+	0.8-
791228	801	0.9-	0.3-	820913	675	1.5-	0.5-	821214	381	1.6+	1.2+
791230	381	4.9+	2.6+	820917	675	0.3-	1.2-	821218	801	0.3+	0.1+
791230	381	4.2-	2.6-	821114	381	0.5+	0.1+	830109	801	1.1+	0.4-
800114	381	1.5+	3.1+	821114	381	1.6+	1.6+	830120	801	2.1-	1.5+
800114	381	0.5-	0.2+	821118	801	0.3-	0.2+	851016	801	1.7-	1.3+
800114	381	0.3-	0.9+	821120	381	0.2-	0.6-	851109	801	0.5-	0.1-
800114	381	0.3+	2.1-	821120	372	1.8+	0.8-				

(3393)* 1984 WY1 = 1954 SB1 = 1975 TG3 = 1975 TJ4 = 1975 VC6 = 1979 SP4 = 1982 HZ = 1982 HU1

Discovered 1984 Nov. 28 by M. Antal at Piszkesteto. The double designation 1982 HZ = 1982 HU1 was found by T. Furuta and F. Bowman (MPC 7055). The identifications were found independently by L. D. Schmadel.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	321.81619		(1950.0)	P	Q
n	0.23713525	Peri.	101.53545	-0.20344740	+0.97678777
a	2.5850680	Node	156.40155	-0.95083293	-0.18078178
e	0.0653832	Incl.	9.64090	-0.23350781	-0.11490693
P	4.16	H	12.7	G 0.25	

Residuals in seconds of arc

540927	760	0.0+	0.0+	820428	688	1.9+	2.4-	841203	561	1.5-	1.0-
540927	760	0.4-	0.1+	820428	688	1.6+	2.4-	841203	561	2.5-	0.5+
751003	095	0.3-	2.0-	841128	561	3.3+	0.2+	841203	561	0.7+	0.2-
751013	095	0.3+	0.1+	841128	561	0.9+	0.6+	841203	561	0.0+	0.2+
751105	095	3.4+	3.0-	841130	561	0.7-	0.3-	841204	561	0.2+	0.3-
790924	095	1.2-	1.1+	841130	561	0.8-	0.1-	841204	561	0.3-	0.3-
820419	879	2.5-	1.0-	841201	561	2.4+	0.8+	841204	561	1.8-	0.7-
820419	879	1.8-	1.9+	841201	561	0.8-	0.3+				

1981 DK3 = 1978 NK7

The identification was found independently by L. D. Schmadel.

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

M	234.75568		(1950.0)	P	Q
n	0.22431256	Peri.	64.18982	+0.94534531	-0.28857925
a	2.6826737	Node	312.17412	+0.17335028	+0.83910267
e	0.1903492	Incl.	11.81972	+0.27617373	+0.46111683
P	4.39	H	12.5	G 0.25	

Residuals in seconds of arc

780710	675	3.8+	2.9-	810228	413	1.3-	0.0+	810308	413	0.7+	0.8-
780711	675	1.6-	1.6-	810228	413	2.2+	0.4-	810312	413	0.3-	0.6-
780713	675	1.5-	3.3+	810306	413	2.2-	1.1+	810312	413	1.7+	0.3-
810204	413	0.6-	0.0+	810306	413	0.2+	0.9-	810501	413	0.3+	0.4+
810208	413	0.4+	1.1+	810308	413	1.5-	0.5-	810502	413	0.4+	0.9+

1981 EK23 = 1964 TY = 1974 HU1

The identifications were found independently by L. D. Schmadel.

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

M	39.24868		(1950.0)	P	Q
n	0.27195505	Peri.	128.81689	+0.69125601	+0.72259541
a	2.3594213	Node	184.92030	-0.67840877	+0.64677616
e	0.1851598	Incl.	3.06212	-0.24885068	+0.24400096
P	3.62	H	14.9	G 0.25	

Residuals in seconds of arc

641008	330	0.2+	0.6-	810303	413	0.2-	1.0-	810316	413	2.0+	0.5-
740424	805	1.5-	1.5-	810303	413	2.1+	0.9-	810329	413	1.2-	0.3-
740425	805	1.2+	1.0+	810307	413	1.3-	1.1+	810329	413	0.1-	1.3+
810209	413	0.3-	0.5-	810311	413	0.1+	0.8-	810502	413	2.2+	0.8-
810213	413	0.6-	0.7+	810316	413	3.2-	2.0+	810503	413	1.3+	0.6-

1981 EW32 = 1975 TY5 = 1979 SC11 = 1979 TL2

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

M	231.75213		(1950.0)	P	Q
n	0.24338438	Peri.	187.21353	+0.89755381	-0.43721409
a	2.5406321	Node	199.02971	+0.41272526	+0.87857549
e	0.3135854	Incl.	10.05537	+0.15509680	+0.19222110
P	4.05	H	14.7	G 0.25	

Residuals in seconds of arc

751014	095	0.4-	3.6+	810301	413	0.7-	0.2+	810315	413	1.9-	1.1+
790924	095	0.1-	0.1+	810301	413	3.5+	3.1-	810315	413	1.0+	1.6-
791014	095	0.8+	3.9-	810311	413	0.4-	0.7+	810430	413	1.6-	1.9+
810202	413	0.3-	0.9+	810311	413	0.2-	0.9-				

1981 EY38 = 1978 NB3

The identification was found independently by L. D. Schmadel.

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

M	95.40404		(1950.0)	P	Q
n	0.27959387	Peri.	37.93118	+0.29290476	+0.94365544
a	2.3162485	Node	249.57077	-0.91248717	+0.22776412
e	0.2590427	Incl.	9.45972	-0.28561156	+0.24007899
P	3.53	H	15.0	G 0.25	

Residuals in seconds of arc

780709	095	0.0	0.3-	810302	413	0.5-	1.2+	810312	413	1.5+	1.5-
780711	095	0.0	0.2+	810307	413	0.2-	0.8+	810429	413	0.6-	0.3+
810202	413	0.8+	1.0-	810310	413	0.1+	0.4+				
810209	413	2.4-	0.4+	810310	413	1.0+	0.6-				

1982 VR4 = 1976 SA1
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	276.59488	(1950.0)	P	Q
n	0.18038285	Peri. 199.51023	+0.99868471	+0.04905346
a	3.1022197	Node 157.66225	-0.04025881	+0.93042590
e	0.1840247	Incl. 2.24979	-0.03175018	+0.36318231
P	5.46	H 12.7	G 0.25	

Residuals in seconds of arc

760924	095	2.2-	0.5+	821114	381	0.3+	0.2-	840209	801	0.5+	1.5+
760925	095	1.4+	1.6+	821213	381	0.4+	0.1+	840303	801	0.1+	0.8+
821112	095	0.0+	1.1-	821214	381	0.2-	0.1-				
821114	381	0.0+	0.2+	821214	381	0.2-	0.3-				

* * * * *

ORBITAL ELEMENTS BY H. OISHI, NIIZA, JAPAN.

The following orbital elements are from JAM 1983, 1984, 1988, 1990, 1992 and 1993. The identifications are by H. Oishi unless otherwise stated.

1978 SE3 = 1981 JY2

The identification was found independently by E. Bowell.

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

M	54.19132	(1950.0)	P	Q
n	0.25953469	Peri. 97.56103	+0.60437115	+0.79627214
a	2.4341087	Node 209.67203	-0.75020991	+0.55772661
e	0.1135708	Incl. 3.03329	-0.26818018	+0.23428979
P	3.80	H 13.7	G 0.25	

Residuals in seconds of arc

780926	095	0.0	0.4+	781008	095	0.3-	1.4-	810506	675	2.4-	0.0
781002	095	0.5+	1.2+	810505	675	0.2-	1.1+	810510	675	0.5+	0.7-
781005	095	0.2-	0.3-	810505	675	2.0+	0.5-				

1978 UO2 = 1950 PB = 1956 TC = 1956 UQ = 1982 HT
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

The identifications 1978 UO2 = 1950 PB = 1956 TC were independently found by L. D. Schmadel. The double designation 1956 TC = 1956 UQ was found independently by A. Patry (MPC 2565) and S. Kanda (JAMPC 116).

M	182.98241	(1950.0)	P	Q
n	0.17823107	Peri. 279.67617	+0.72034542	+0.67607293
a	3.1271447	Node 38.04472	-0.49564787	+0.65806483
e	0.2357647	Incl. 14.56780	-0.48521712	+0.33147550
P	5.53	H 11.8	G 0.25	

Residuals in seconds of arc

500810	078	0.1-	0.3+	561029	760	1.0+	2.1-	781030	330	1.2-	0.6+
561005	760	0.3+	1.3+	780927	095	0.3-	0.6+	781102	095	1.6-	4.4+
561005	760	3.9+	3.5-	781003	095	1.8-	1.7+	820418	688	1.6+	1.3+
561029	760	1.8-	0.3-	781007	095	0.6-	0.3+	820418	688	0.7+	1.9+

1979 VN = 1974 QT = 1974 QZ1 = 1974 TE
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	160.88912	(1950.0)	P	Q
n	0.20252847	Peri. 116.49264	+0.86932123	+0.49003623
a	2.8717471	Node 214.27260	-0.48432972	+0.81865385
e	0.3273276	Incl. 6.56494	-0.09851561	+0.29945010
P	4.87	H 13.1	G 0.25	

Residuals in seconds of arc

740820	095	0.2-	0.5+		741009	095	0.0	0.5+		791111	095	1.8+	1.1-
740825	095	0.1+	0.8-		791016	095	0.2-	0.0		791116	095	1.7-	0.9+

1980 TN4 = 1928 DR = 1952 HW2 = 1979 FG4 = 1982 DD
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	47.80019		(1950.0)	P	Q
n	0.29214606	Peri.	166.49341	-0.87935306	+0.47397914
a	2.2494138	Node	41.89828	-0.44296026	-0.77910002
e	0.0817559	Incl.	3.91783	-0.17471236	-0.41030103
P	3.37	H	13.3	G 0.25	

Residuals in seconds of arc

280225	024	0.4+	2.3+		801008	675	0.6-	1.4-		820220	688	1.4-	0.4+
520426	711	1.9-	5.9-	Y	801009	675	1.7+	0.2+		820228	688	1.0+	2.2-
790331	095	1.3+	4.8+		801010	675	0.5-	0.5-		820228	688	0.8-	1.8-
801007	675	0.8+	1.0-		820220	688	0.1+	0.6-					

1983 SC = 1957 WJ = 1977 FH2 = 1979 SX10 = 1979 VC1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	353.59615		(1950.0)	P	Q
n	0.22292952	Peri.	248.09330	-0.72712392	+0.68455867
a	2.6937577	Node	335.01464	-0.57599644	-0.64929952
e	0.0258704	Incl.	7.02710	-0.37352229	-0.33134507
P	4.42	H	12.6	G 0.25	

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

571123	760(0.06+ | 0.01-)X		830928	071	0.1+	0.1+		830930	071	0.3-	0.0
770326	095	0.4-	0.7-		830928	071	1.1+	0.3+		830930	071	0.6-	0.0
790929	095	1.0+	0.2+		830929	071	1.8-	0.3-		830930	071	1.6+	0.3-
791114	095	0.8-	0.5-		830929	071	3.1-	0.1-		830930	071	3.1+	1.4+
830910	071	3.0-	1.3-		830929	071	0.0	0.8+		831005	071	2.6-	0.2-
830911	071	1.2+	0.5-		830929	071	0.5-	0.3-		831005	071	1.2+	0.6+
830911	675(15.5-	3.3-)		830929	071	3.0-	1.7-		831028	071	0.4-	0.5+	
830912	675	2.5+	0.8+		830929	071	1.1+	1.3-		831028	071	3.8+	1.2-
830913	675	2.8+	1.3+		830930	071	0.7+	0.3+		831028	071	2.0-	1.2+
830928	071	2.1-	0.4-		830930	071	3.2+	1.1+					
830928	071	2.3-	0.8-		830930	071	0.3-	1.1-					

1984 QN = 1966 TK = 1970 PC1 = 1980 XT1

The identification 1984 QN = 1980 XT1 was independently suggested by W. Landgraf.

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

M	170.96425		(1950.0)	P	Q
n	0.21408643	Peri.	321.55786	+0.47465614	+0.87869290
a	2.7674353	Node	336.64590	-0.77233991	+0.38801961
e	0.2066996	Incl.	7.39086	-0.42212867	+0.27809991
P	4.60	H	12.5	G 0.25	

Residuals in seconds of arc

661013	095	0.5-	1.6+		840829	046	1.4+	0.8+		840925	688	0.2+	0.1-
700811	095	0.7-	1.4+		840829	046	1.2+	1.6+		840928	688	1.4-	0.0
801210	095	0.1+	0.5-		840831	046	2.2-	0.8-		840928	688	0.8+	0.3+
840828	046	1.6+	0.5-		840831	046	0.6+	0.7-					
840828	046	1.5-	1.8-		840925	688	0.4+	0.8-					

1984 SX = 1952 FX = 1971 BO = 1975 EG3
Epoch 1986 June 19.0 ET = JDE 2446600.5

M 329.87333	(1950.0)	P	Q	
n 0.25736905	Peri. 223.93116	-0.97311533	+0.22914017	
a 2.4477394	Node 329.29282	-0.19672560	-0.87946399	
e 0.1181722	Incl. 2.61143	-0.11977305	-0.41717846	
P 3.83	H 12.7	G 0.25		

Residuals in seconds of arc

520323	711	(12.0-	1.8-)Y	750315	095	0.7-	2.2-	840927	046	4.1+	0.3+
520323	711	0.9-	1.7- Y	750317	095	0.9-	0.5+	840929	046	1.1+	0.6-
710122	095	3.5-	0.4-	840920	046	3.3-	2.1-	840929	046	1.8+	0.1+
710128	095	3.8+	0.8+	840920	046	2.3-	1.4-	840930	046	1.6+	1.2-
750312	095	0.4-	2.1-	840927	046	2.4+	1.4-	840930	046	2.6-	0.3+

* * * * *

ORBITAL ELEMENTS BY T. URATA, SHIMIZU, JAPAN.

The following orbital elements are copied from NOC 1550.

(3394)* 1986 DB = 1958 GS = 1979 FM1 = 1981 WD1

Discovered 1986 Feb. 16 by S. Inoda at Karasuyama. The identifications are by T. Urata.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 18.92305	(1950.0)	P	Q
n 0.27944214	Peri. 334.71916	-0.97247439	-0.23160121
a 2.3170823	Node 191.97378	+0.22919323	-0.93097401
e 0.1980900	Incl. 7.08303	+0.04200020	-0.28222024
P 3.53	H 13.5	G 0.25	

Residuals in seconds of arc

580413	330	0.3-	0.6-	860216	889	0.0	0.8-	860302	881	0.7+	1.1-
580415	330	0.7+	0.8-	860216	889	2.9-	1.5+	860302	883	2.5+	1.4-
790323	095	5.1-	5.9-	860301	889	0.7+	2.7+	860308	888	3.1+	0.7+
790329	095	0.1+	0.8-	860301	889	3.0-	2.0+	860308	888	2.0+	1.1+
811123	046	0.8+	1.2-	860302	889	2.7-	1.1+	860312	889	0.4-	1.3+
811123	046	0.6-	0.0	860302	881	2.0+	1.3-	860312	889	2.5+	1.1+
811124	688	1.1-	1.5-	860302	883	0.1+	0.5+				
811124	688	1.3+	0.9-	860302	889	0.2+	0.1+				

* * * * *

ORBITAL ELEMENTS BY T. KOBAYASHI, TOKYO.

(3395)* 1985 UN = 1938 SR = 1959 CD1 = 1962 WR = 1969 JD = 1971 TS1 = 1975 RT = 1976 YO6 = 1980 TG7 = 1981 YD1

Discovered 1985 Oct. 20 by A. Mrkos at Klet. The identifications are by T. Kobayashi.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 333.67459	(1950.0)	P	Q
n 0.21135689	Peri. 107.02045	-0.36995069	-0.92903344
a 2.7912053	Node 4.70413	+0.82331680	-0.33072030
e 0.0554321	Incl. 4.03760	+0.43044853	-0.16589438
P 4.66	H 12.0	G 0.25	

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

380921	062	0.0	1.1+	750906	095	1.4-	4.1-	851020	046	0.9-	2.5-
590201	690	(1.3+	10.3+)Y	761220	095	(3.8+	9.7-)	851020	046	1.2-	0.7-
590202	690	(4.6-	12.4+)Y	801010	095	1.8+	1.6+	851021	046	1.3+	2.1+
621124	760	(0.04+	0.00) X	801015	095	0.7+	1.6+	851021	046	0.6+	1.5+
690505	095	1.7+	0.2+	811229	704	1.9+	0.1-	851024	046	1.9+	0.1+
690516	095	2.4-	3.1-	811230	704	1.3-	2.0+	851107	688	1.3+	0.8-
711012	095	1.2-	1.0-	811231	704	0.3-	2.7-	851107	688	1.2-	1.2-
750903	095	0.5+	0.2+	820101	704	0.0	0.9-				

* * * * *

ORBITAL ELEMENTS BY S. NAKANO, TOKYO.

The following orbital elements are taken in part from NK 433, 472-477 and 479-490. The identifications are by S. Nakano.

Periodic Comet Howell (1981 X)
Epoch 1987 May 5.0 ET = JDE 2446920.5
T 1987 Apr. 14.75911 ET

			(1950.0)	P	Q
q	1.6123500				
n	0.16609554	Peri.	214.75756	+0.34049264	+0.93555134
a	3.2776612	Node	75.30796	-0.83911469	+0.34738608
e	0.5080791	Incl.	5.56793	-0.42420667	+0.06376982
P	5.93				

From observations 1981 Aug. 29-Nov. 2.

Periodic Comet Jackson-Neujmin
Epoch 1987 May 5.0 ET = JDE 2446920.5
T 1987 May 24.50190 ET

			(1950.0)	P	Q
q	1.4373822				
n	0.11710071	Peri.	196.59625	+0.99750265	-0.00345264
a	4.1377385	Node	163.12377	+0.01561663	+0.98486513
e	0.6526165	Incl.	14.06376	-0.06888096	+0.17328808
P	8.42				

From observations 1970-1978.

Periodic Comet du Toit-Hartley (1982 II)
Epoch 1987 June 14.0 ET = JDE 2446960.5
T 1987 June 14.31818 ET

			(1950.0)	P	Q
q	1.1990702				
n	0.18899206	Peri.	251.65369	-0.93745068	+0.34580296
a	3.0072786	Node	308.55738	-0.29688474	-0.85429118
e	0.6012773	Incl.	2.93807	-0.18178472	-0.38808104
P	5.22				

From observations 1982 Feb. 5-June 23 (principal component).

Periodic Comet Grigg-Skjellerup
Epoch 1987 June 14.0 ET = JDE 2446960.5
T 1987 June 18.04595 ET

			(1950.0)	P	Q
q	0.9933025				
n	0.19328912	Peri.	359.31638	-0.84814246	+0.49291078
a	2.9625415	Node	212.62671	-0.48430355	-0.86994738
e	0.6647127	Incl.	21.10576	-0.21471944	+0.01518280
P	5.10				

From observations 1966-1982. Nongravitational parameters A1 = +0.01, A2 = -0.0011.

Periodic Comet Russell 2 (1980 III)
Epoch 1987 June 14.0 ET = JDE 2446960.5
T 1987 July 1.70682 ET

		(1950.0)	P	Q
q	2.1519537			
n	0.13887340	Peri.	245.50745	+0.32564858	+0.93321890
a	3.6930910	Node	44.41925	-0.76975694	+0.35493386
e	0.4173028	Incl.	12.52965	-0.54902392	+0.05589667
P	7.10				

From observations 1980 Aug. 9-Oct. 6.

Periodic Comet Encke
Epoch 1987 July 24.0 ET = JDE 2447000.5
T 1987 July 17.39768 ET

		(1950.0)	P	Q
q	0.3317338			
n	0.30000210	Peri.	186.26246	-0.94041255	-0.32777730
a	2.2099707	Node	334.03292	+0.32024365	-0.76429197
e	0.8498922	Incl.	11.92549	+0.11431637	-0.55535559
P	3.29				

From observations 1970-1985. Nongravitational parameters A1 = -0.03, A2 = -0.0030.

Periodic Comet Klemola
Epoch 1987 July 24.0 ET = JDE 2447000.5
T 1987 July 22.63860 ET

		(1950.0)	P	Q
q	1.7727568			
n	0.09002433	Peri.	154.54252	+0.86944505	+0.49383211
a	4.9305586	Node	175.78497	-0.47950617	+0.85035352
e	0.6404552	Incl.	10.95631	-0.11890811	+0.18173808
P	10.95				

From observations 1965-1977.

Periodic Comet West-Kohoutek-Ikemura
Epoch 1987 July 24.0 ET = JDE 2447000.5
T 1987 July 27.38691 ET

		(1950.0)	P	Q
q	1.5705679			
n	0.15397530	Peri.	359.83379	+0.11522016	-0.85511355
a	3.4474821	Node	83.52676	+0.91191294	-0.11071747
e	0.5444304	Incl.	30.57850	+0.39387702	+0.50648046
P	6.40				

From observations 1975-1981.

Periodic Comet Comas Sola
Epoch 1987 Sept. 2.0 ET = JDE 2447040.5
T 1987 Aug. 18.67945 ET

		(1950.0)	P	Q
q	1.8302669			
n	0.11231051	Peri.	45.51896	-0.25817403	-0.94624427
a	4.2545710	Node	60.38082	+0.81047681	-0.32190791
e	0.5698117	Incl.	12.95246	+0.52580748	+0.03157657
P	8.78				

From observations 1968-1979. Nongravitational parameters A1 = +0.69, A2 = -0.1550.

Periodic Comet Denning-Fujikawa (1978 XIX)
Epoch 1987 July 24.0 ET = JDE 2447000.5
T 1987 Aug. 3.91353 ET

		(1950.0)	P	Q
q	0.7634095			
n	0.11134532	Peri.	338.42855	+0.96630255	-0.23903404
a	4.2791226	Node	35.83181	+0.25352155	+0.81953136
e	0.8215967	Incl.	9.38982	+0.04456683	+0.52079849
P	8.85				

From observations 1978 Oct. 10-Dec. 29.

Periodic Comet Gehrels 1 (1973 I)
Epoch 1987 Sept. 2.0 ET = JDE 2447040.5
T 1987 Aug. 14.80979 ET

		(1950.0)	P	Q
q	2.9880508			
n	0.06544395	Peri.	28.46344	+0.75180982	-0.65832265
a	6.0985002	Node	12.91895	+0.56885898	+0.61893350
e	0.5100351	Incl.	9.61087	+0.33343883	+0.42840706
P	15.06				

From observations 1972 Oct. 11-1973 Sept. 23

Periodic Comet Schwassmann-Wachmann 2
Epoch 1987 Sept. 2.0 ET = JDE 2447040.5
T 1987 Aug. 30.48447 ET

		(1950.0)	P	Q
q	2.0714325			
n	0.15425372	Peri.	357.88591	-0.55267205	-0.83169773
a	3.4433324	Node	125.66018	+0.76554910	-0.53187987
e	0.3984222	Incl.	3.75579	+0.32937545	-0.15931949
P	6.39				

From observations 1960-1982. Nongravitational parameters A1 = +2.30, A2 = -0.1780.

Periodic Comet Wild 3 (1980 VII)
Epoch 1987 Sept. 2.0 ET = JDE 2447040.5
T 1987 Aug. 31.25614 ET

		(1950.0)	P	Q
q	2.2919479			
n	0.14294999	Peri.	179.56293	-0.31612955	+0.91424200
a	3.6225408	Node	71.99221	-0.87119393	-0.17399116
e	0.3673093	Incl.	15.45476	-0.37561050	-0.36590797
P	6.89				

From observations 1980 Apr. 11-Aug. 11.

Periodic Comet Brooks 2
Epoch 1987 Oct. 12.0 ET = JDE 2447080.5
T 1987 Oct. 16.54212 ET

		(1950.0)	P	Q
q	1.8447780			
n	0.14299255	Peri.	198.14074	+0.96852876	-0.24882128
a	3.6218221	Node	176.24980	+0.23865497	+0.92114006
e	0.4906492	Incl.	5.54972	+0.07068130	+0.29931415
P	6.89				

From observations 1960-1981. Nongravitational parameters A1 = +0.55, A2 = -0.1620.

Periodic Comet Reinmuth 2
Epoch 1987 Oct. 12.0 ET = JDE 2447080.5
T 1987 Oct. 25.69760 ET

q	1.9360192		(1950.0)	P	Q
n	0.14660649	Peri.	45.46311	+0.94343430	+0.31307882
a	3.5620546	Node	296.01030	-0.32807778	+0.83391134
e	0.4564881	Incl.	6.97576	-0.04792375	+0.45450360
P	6.72				

From observations 1960-1981.

Periodic Comet Kohoutek
Epoch 1987 Oct. 12.0 ET = JDE 2447080.5
T 1987 Oct. 29.75749 ET

q	1.7761757		(1950.0)	P	Q
n	0.14824893	Peri.	175.78928	+0.09102989	-0.99049580
a	3.5356967	Node	268.96534	+0.91058870	+0.12470659
e	0.4976448	Incl.	5.91924	+0.40316470	-0.05802019
P	6.65				

From observations 1975-1981.

Periodic Comet Harrington
Epoch 1987 Oct. 12.0 ET = JDE 2447080.5
T 1987 Oct. 31.86259 ET

q	1.5959640		(1950.0)	P	Q
n	0.14407373	Peri.	233.03289	+0.98224335	+0.13358243
a	3.6036797	Node	118.94361	-0.08424226	+0.94143203
e	0.5571294	Incl.	8.65799	-0.16763426	+0.30961504
P	6.84				

From observations 1953-1980. Nongravitational parameters A1 = +0.56, A2 = +0.1118.

Periodic Comet Borrelly
Epoch 1987 Dec. 31.0 ET = JDE 2447160.5
T 1987 Dec. 18.32565 ET

q	1.3567821		(1950.0)	P	Q
n	0.14366330	Peri.	353.32470	+0.35811920	-0.79654069
a	3.6105400	Node	74.74595	+0.87824653	+0.11030107
e	0.6242163	Incl.	30.32441	+0.31691272	+0.59443806
P	6.86				

From observations 1960-1981. Nongravitational parameters A1 = +0.12, A2 = -0.0392.

Periodic Comet Bus (1981 XI)
Epoch 1987 Dec. 31.0 ET = JDE 2447160.5
T 1987 Dec. 21.34285 ET

q	2.1926687		(1950.0)	P	Q
n	0.15066312	Peri.	24.59751	-0.89810414	+0.43978128
a	3.4978249	Node	181.49394	-0.41055333	-0.83936544
e	0.3731337	Incl.	2.57679	-0.15765441	-0.31946530
P	6.54				

From observations 1981 Feb. 9-June 27.

1964 CG = 1975 BL = 1976 JC = 1981 ES49
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	349.05027		(1950.0)	P	Q
n	0.17594593	Peri.	60.35503	-0.94727483	-0.31739428
a	3.1541628	Node	101.11013	+0.27630328	-0.87857612
e	0.1777406	Incl.	2.56688	+0.16225567	-0.35688215
P	5.60	H	12.5	G	0.25

Residuals in seconds of arc

640215	760	0.7-	0.3+	640307	760	1.4-	3.4-	750117	095	0.2+	1.1+
640215	760	0.5-	0.4+	640307	760	0.1+	2.4-	760501	801	0.0	0.1+
640306	760	3.1+	0.6+	640318	760	1.8+	1.5+	810308	095	0.6+	1.3+
640306	760	2.0+	0.4+	640318	760	5.4-	0.2+				

1986 AL = 1934 AB = 1984 WF1 = 1984 YG1
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M 255.38399		(1950.0)	P	Q
n 0.17086353	Peri.	340.27235	+0.07904539	+0.96570977
a 3.2164045	Node	293.60199	-0.87449443	-0.05191485
e 0.0801071	Incl.	15.65674	-0.47855127	+0.25438059
P 5.77	H	11.5	G 0.25	

Residuals in seconds of arc

340107	024	1.6+	2.8+	860112	688	2.9+	1.1-	860209	889	0.5+	0.0
841120	010	1.4+	0.3-	860114	889	3.4-	0.1+	860209	889	1.1+	1.6-
841120	010	0.6-	0.5-	860114	889	1.4-	0.1+	860216	889	0.5-	1.5+
841217	095	0.9-	0.3-	860208	889	2.8-	0.9-				
860112	688	1.7+	1.2-	860208	889	0.6+	0.9+				

* * * * *

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

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

Periodic Comet Ciffreo (1985p)
T 1985 Oct. 30.14777 ET

q 1.7019971		(1950.0)	P	Q
n 0.13672263	Peri.	357.92354	+0.62827026	-0.75659430
a 3.7317205	Node	53.09830	+0.71698885	+0.47265766
e 0.5439109	Incl.	13.09830	+0.30199914	+0.45184046
P 7.21				

From 66 observations 1985 Nov. 8-1986 Feb. 9.

Periodic Comet Shoemaker 3 (1986a)
T 1985 Dec. 18.68404 ET

q 1.7937290		(1950.0)	P	Q
n 0.05858569	Peri.	14.89262	-0.36502171	-0.92438452
a 6.5656090	Node	96.61435	+0.84232377	-0.37859089
e 0.7267993	Incl.	6.40313	+0.39654736	-0.04671400
P 16.82				

From 62 observations 1986 Jan. 10-Mar. 12.

Comet Shoemaker (1986b)
T 1986 Mar. 12.32806 ET

q 3.6072695		(1950.0)	P	Q
	Peri.	123.62104	-0.93915755	+0.13650636
	Node	293.97498	+0.05848885	+0.96779231
e 1.0	Incl.	159.82071	+0.33847031	+0.21152790

From 6 observations 1986 Mar. 4-21.

Periodic Comet Wild 1
Epoch 1986 Oct. 17.0 ET = JDE 2446720.5
T 1986 Oct. 1.15578 ET

q	1.9770292	(1950.0)	P	Q
n	0.07432209	Peri. 167.86375	-0.97034048	-0.24146340
a	5.6026148	Node 358.04572	+0.18336441	-0.70387104
e	0.6471238	Incl. 19.90274	+0.15753362	-0.66802768
P	13.26			

From observations 1960-1973.

Periodic Comet Forbes
Epoch 1987 Jan. 5.0 ET = JDE 2446800.5
T 1987 Jan. 1.64585 ET

q	1.4745594	(1950.0)	P	Q
n	0.15755610	Peri. 262.71884	+0.26812176	+0.96286459
a	3.3950478	Node 22.90979	-0.84863933	+0.25161489
e	0.5656734	Incl. 4.66533	-0.45598466	+0.09788631
P	6.26			

From observations 1961-1980. Nongravitational parameters A1 = +0.53, A2 = -0.0781.

Periodic Comet Reinmuth 1
Epoch 1988 Apr. 29.0 ET = JDE 2447280.5
T 1988 May 9.96986 ET

q	1.8693072	(1950.0)	P	Q
n	0.13511621	Peri. 13.01884	-0.66930825	-0.73262536
a	3.7612403	Node 119.14784	+0.66832480	-0.66635993
e	0.5030078	Incl. 8.13847	+0.32460503	-0.13865257
P	7.29			

From observations 1928-1973. Nongravitational parameters A1 = +0.16, A2 = -0.0275.

(3396)* A915 TE = 1940 TL = 1957 HO = 1971 SL1 = 1973 AJ
Discovered 1915 Oct. 15 by M. Wolf at Heidelberg.
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	150.58482	(1950.0)	P	Q
n	0.15993077	Peri. 312.16925	+0.98063550	+0.17396753
a	3.3613575	Node 38.06965	-0.10680374	+0.86000936
e	0.2081373	Incl. 8.38713	-0.16415531	+0.47970741
P	6.16	H 11.0	G 0.25	

Residuals in seconds of arc

151015	024	4.7+	0.9+	710926	095	1.7+	5.5+	850312	372	0.2+	0.9+
151017	024	4.2-	1.3-	730101	095	1.8-	1.1+	850313	675	0.5-	0.3+
401001	119(25.8-	25.9-)X		730103	095	2.0+	0.9-	850321	372	2.4+	2.0-
570424	760	0.3+	0.2-	841217	095	0.0	1.1+	851220	801	1.1+	0.6-
570424	760	1.3-	0.8-	841223	095	0.5-	1.6-	860113	801	0.7+	0.9+
710916	095	1.2-	5.1-	841227	095	1.8-	1.0-				

(3397)* 1964 XA
Discovered 1964 Dec. 8 by R. A. Burnham and N. G. Thomas at the Lowell Observatory.
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	326.85594	(1950.0)	P	Q
n	0.27374308	Peri. 95.44726	-0.48163885	-0.86151899
a	2.3491313	Node 25.39802	+0.57925026	-0.45051479
e	0.2978148	Incl. 21.99736	+0.65764212	-0.23413982
P	3.60	H 13.5	G 0.25	

Residuals in seconds of arc

641208	690	0.3-	0.6-		820830	675	0.5-	0.3-		840601	474	0.1+	1.6-
641211	690	0.4-	1.1-		821019	801	0.4+	1.2+		850917	474	0.2-	0.1+
650111	690	0.6-	0.2-		821116	801	0.8-	0.7+		850917	474	0.0	0.2+
650224	689	1.7+	1.5+		821216	688	1.2+	1.6-		851017	474	0.7-	0.1+
650224	689	0.1+	1.2+		821216	688	1.6+	1.9-		851017	474	0.4-	0.8-
820829	675	0.5+	1.0+		840601	474	0.1+	1.9-					

(3398)* 1978 PC = 1982 WC

Discovered 1978 Aug. 10 by H.-E. Schuster at the European Southern Observatory. The identification was found independently by C. M. Bardwell.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	345.94363		(1950.0)	P	Q
n	0.28489915	Peri.	42.26212	-0.22473758	-0.90238026
a	2.2873991	Node	63.86109	+0.74790514	-0.40162591
e	0.2365061	Incl.	24.17900	+0.62460461	+0.15622577
P	3.46	H	13.5	G 0.25	

Residuals in seconds of arc

780810	809	0.4+	1.1-		820912	675	0.8+	0.7-		821126	675	2.4+	2.5-
780811	809	0.6+	0.4-		820914	675	0.1+	0.6-		821126	675	0.6+	0.6+
780811	809	0.7+	0.7-		821113	675	1.7-	1.7+		821218	801	0.5-	0.4-
780812	809	0.2-	1.1-		821113	675	0.8-	0.0		830220	675	0.1-	0.7+
780812	809	0.5-	0.0		821114	675	0.7+	0.9-		850813	474	0.7+	0.0
780813	809	0.2-	0.7-		821114	675	0.2+	0.1-		850813	474	0.3-	0.1-
780814	809	0.7-	0.1+		821115	688	0.5-	1.2+		850916	474	1.2-	0.8+
780903	809	0.5+	0.1-		821115	688	1.0+	0.0		850916	474	0.4-	0.8+
780903	809	0.2-	0.5-		821125	675	5.3-	1.5+		851017	474	1.1+	5.0+
780904	809	0.6+	0.1-		821125	675	1.3+	0.1-		851017	474	2.2-	1.6-
780907	809	1.4+	0.4+		821125	675	2.4+	0.3-					
780910	809	0.1-	0.2+		821126	675	0.4+	1.4-					

(3399)* 1979 SZ9 = 1935 QC1 = 1974 XO

Discovered 1979 Sept. 22 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	106.13532		(1950.0)	P	Q
n	0.18068777	Peri.	347.72005	+0.97721461	+0.21225363
a	3.0987286	Node	0.02550	-0.19448592	+0.89541458
e	0.1764427	Incl.	0.16425	-0.08501076	+0.39138362
P	5.45	H	12.5	G 0.25	

Residuals in seconds of arc

350820	078(69.9- | 7.4+)X		791116	095	1.6+	0.9+		840901	046	1.3-	1.6+
350824	078(15.1+ | 15.8+)X		840803	046	1.4-	0.3+		840901	046	0.8-	1.0+
741214	095	0.1+	0.9-	840804	046	1.2-	0.0		851216	801	0.1-	2.4-
790922	095	0.4+	3.4+	840821	046	3.6+	1.2-		860110	801	0.8+	1.2-
790928	095	1.3-	0.5-	840821	046	3.1+	3.4-		860113	801	0.1-	1.4-
791016	095	2.4-	2.4+	840822	046	2.4+	1.3-					
791111	095	0.3-	0.5-	840822	046	2.5-	2.3-					

(3400)* 1981 GX

Discovered 1981 Apr. 2 by A. C. Gilmore and P. M. Kilmartin at Mount John University Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	9.97267		(1950.0)	P	Q
n	0.36614470	Peri.	253.58511	-0.78576720	-0.52186467
a	1.9350887	Node	253.82673	+0.61095217	-0.73858295
e	0.0991268	Incl.	20.22366	-0.09647461	-0.42679326
P	2.69	H	14.5	G 0.25	

Residuals in seconds of arc

810402	474	0.8-	3.7-		810430	474	0.5-	0.8+		840529	474	0.6+	2.2+
810402	474	1.7-	1.8-		810430	474	0.4-	1.4+		840529	474	3.4+	0.2+
810404	474	1.8+	1.6-		810503	474	0.4-	0.9+		840622	474	0.8-	0.4-
810404	474	2.6+	0.5-		810503	474	0.1+	1.3+		840623	474	2.7-	0.8-
810405	474	0.3+	0.4-		820829	675	0.6+	1.5-		840623	474	1.5-	1.0-
810405	474	0.6-	1.0-		820830	675	0.0	1.9-		860206	801	0.2+	1.2+
810412	474	1.5-	1.0+		840526	474	0.0	0.8+		860213	801	1.0+	0.7+
810412	474	0.6-	0.7+		840526	474	0.1-	0.2+					

(3401)* 1981 PA = 1946 DA

Discovered 1981 Aug. 1 at the Harvard College Observatory's Agassiz Station.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	60.29417		(1950.0)	P	Q
n	0.27028415	Peri.	108.30372	+0.29350833	-0.92838931
a	2.3691306	Node	322.11455	+0.67507286	+0.37009986
e	0.3578316	Incl.	21.78650	+0.67685264	+0.03345723
P	3.65	H	13.5	G 0.25	

Residuals in seconds of arc

460219	062	0.8+	0.6+		810822	801	3.1-	0.3-		860108	398	1.0+	1.5+
460219	062	0.7-	1.1+		810829	801	0.6-	0.5+		860112	675	0.8-	0.3-
460223	062	1.3+	0.0		810925	801	1.6-	0.4-		860112	675	0.3-	1.2-
810731	801	0.7+	1.0+		811029	801	2.0+	0.9-		860113	801	1.0-	0.5-
810801	801	0.5+	0.1-		850919	552	0.1+	1.0-		860204	801	0.6-	0.0
810802	801	1.3+	1.1+		850919	552	0.7+	0.6-		860210	801	0.1+	0.9-
810808	801	0.6-	1.4+		860108	398	1.9+	2.1+					

(3402)* 1981 PB

Discovered 1981 Aug. 5 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	212.62856		(1950.0)	P	Q
n	0.31651448	Peri.	302.97492	+0.50949597	+0.86046605
a	2.1324245	Node	357.64714	-0.75853686	+0.44723111
e	0.2783954	Incl.	4.84793	-0.40624585	+0.24409530
P	3.11	H	15.5	G 0.25	

Residuals in seconds of arc

810805	688	0.5+	1.0-		840526	474	0.8+	0.8+		860112	691	0.8+	1.7-
810805	688	0.7+	0.5+		840530	474	2.7-	2.4-		860112	691	0.4+	1.0-
810826	688	1.0-	0.1-		840530	474	2.4-	1.9-		860113	691	1.5+	1.6-
810826	688	0.7-	0.6+		840623	474	0.6+	0.7+		860113	691	0.3+	1.2-
810830	688	1.7+	1.0-		840623	474	0.6+	0.7+		860113	691	1.8+	1.6-
810830	688	1.8+	1.7-		840718	474	0.5+	1.1-		860118	675	0.9-	0.1-
811117	675	0.9-	0.5+		840718	474	0.2+	1.1-		860118	675	0.7-	0.0
811117	675	1.5-	0.1+		851220	675	1.0-	0.2-		860119	675	1.2-	0.2-
811218	675	1.4-	0.0		851220	675	0.7-	0.0		860119	675	1.2-	0.1-
811218	675	1.9-	0.1-		851220	675	0.7-	0.3-					
840526	474	1.8+	0.9+		860112	691	0.5+	1.2-					

(3403)* 1981 SW = 1951 TJ = 1980 FQ5 = 1984 HN1

Discovered 1981 Sept. 25 by L. G. Taff at the Lincoln Laboratory ETS, New Mexico. The key identification 1981 SW = 1984 HN1 is by W. Landgraf (MPC 9958).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 135.64647		(1950.0)		P	Q
n 0.26313641	Peri.	93.81200		+0.46622577	+0.88406559
a 2.4118414	Node	204.06188		-0.84004652	+0.43086205
e 0.1935784	Incl.	4.58344		-0.27740832	+0.18106881
P 3.75	H	13.0	G	0.25	

Residuals in seconds of arc

511003 024	0.3-	0.1-	810929 511	0.6+	0.3-	840501 809	0.6-	0.2-
800323 809	1.2+	0.2+	810929 511	0.2-	1.3-	840501 809	0.5-	0.1-
810902 095	0.8-	2.4-	810929 511	0.6-	1.1-	840505 809	0.1+	0.7-
810925 704	1.0+	2.8+	811005 095	3.0+	0.2-	840505 809	0.4+	0.8-
810925 704	0.5+	2.9+	840427 809	0.1+	0.2+	851116 801	0.3-	0.9-
810927 704	0.1-	1.6+	840427 809	0.3+	0.2-	860112 801	0.4-	0.7-
810928 095	2.0+	1.5+	840428 809	0.8-	0.4+			
810929 704	4.9-	3.1-	840428 809	0.9-	0.3+			

1975 AN = 1975 AX = 1986 AG

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

M 86.17067		(1950.0)		P	Q
n 0.26995519	Peri.	112.39449		+0.79677578	-0.48004233
a 2.3710596	Node	278.06417		+0.32021872	+0.85051079
e 0.3198484	Incl.	21.75824		+0.51245325	+0.21492034
P 3.65	H	14.0	G	0.25	

Residuals in seconds of arc

750104 330	0.2-	0.6-	860110 675	1.2-	0.5-	860206 675	1.2+	2.0+
750113 095	1.2+	6.9+	860116 675	0.1-	1.0-	860207 675	0.3+	0.9+
750116 095	0.7-	5.6-	860205 675	0.3-	2.0-			

1976 SN3 = 1976 UW20 = 1944 QA = 1984 UC = 1985 YK

The double designation 1976 SN3 = 1976 UW20 is by H. Oishi (JAM 1336). The key identification 1976 SN3 = 1985 YK is by E. Bowell.

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

M 37.67419		(1950.0)		P	Q
n 0.12538406	Peri.	284.89009		+0.22810496	-0.97321363
a 3.9534418	Node	151.87467		+0.91502412	+0.20420899
e 0.2228229	Incl.	3.48977		+0.33271456	+0.10561215
P 7.86	H	11.5	G	0.25	

Residuals in seconds of arc

440818 024	4.4-	12.5+	761026 095	3.7+	1.2-	851217 688	0.1+	2.7+
760924 095	1.6-	0.5-	841017 046	1.0+	4.4-	851218 688	0.4+	3.2+
760929 095	0.4+	2.0-	841017 046	0.0	1.1-	851218 688	0.2+	2.5+

1979 FE = 1941 BL = 1986 AW1

The key identification 1979 FE = 1986 AW1 is by E. Bowell.

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

M 108.70795		(1950.0)		P	Q
n 0.26199496	Peri.	279.75183		+0.79170118	-0.56370330
a 2.4188464	Node	114.92673		+0.61074656	+0.73920755
e 0.0879824	Incl.	15.04999		-0.01406661	+0.36852515
P 3.76	H	12.5	G	0.25	

Residuals in seconds of arc

410130 062	2.2+	5.6-	790304 046	1.7+	1.5-	860112 688	3.0+	1.5+
410130 062	2.4-	0.1+	790304 046	0.1-	0.5+	860112 688	0.2+	0.3+
790226 046	2.0+	0.3+	790319 046	1.1-	1.3-	860117 688	0.3+	2.3-
790227 046	0.4+	0.6+	790319 046	2.3+	1.4-	860117 688	3.4-	1.3+
790302 046	0.8-	3.1+	790324 046	2.6-	1.8-			
790302 046	1.2-	3.1+	790324 046	0.9-	1.9-			

1981 EF = 1979 SC7 = 1985 YO

The identification 1981 EF = 1985 YO is by E. Bowell.

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

M	42.45694		(1950.0)	P	Q
n	0.18150043	Peri.	75.16545	+0.26091438	-0.96536082
a	3.0894783	Node	359.69819	+0.74283328	+0.20174358
e	0.2256814	Incl.	16.22381	+0.61654068	+0.16546301
P	5.43	H	12.0	G 0.25	

Residuals in seconds of arc

790923	095	0.6+	0.7-	810325	688	0.4-	0.4-	810330	688	0.2+	0.7-
810309	688	0.4+	0.2+	810325	688	0.4+	0.3+	851217	688	0.3-	0.0
810309	688	0.3+	0.5-	810330	688	1.6-	0.3+	851217	688	0.3+	0.6+

1981 QN = 1978 WW14

The identification is by L. D. Schmadel.

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

M	136.96070		(1950.0)	P	Q
n	0.29273173	Peri.	101.93684	+0.99681773	-0.02503820
a	2.2464170	Node	259.53247	-0.00595112	+0.92336655
e	0.2028929	Incl.	4.41390	+0.07949207	+0.38310221
P	3.37	H	14.0	G 0.25	

Residuals in seconds of arc

781128	330	0.0	1.5+	810906	026	0.3-	1.6-	860112	688	0.9-	0.2-
810827	026	0.6+	0.4+	810921	026	1.8+	0.0	860112	688	2.0+	0.5-
810828	026	1.3-	0.9+	810923	095	0.4+	0.8-	860117	688	2.5-	0.5-
810829	026	0.4-	0.5-	810929	026	0.1+	0.2-	860117	688	0.9+	0.6-
810830	026	2.1-	0.4+	810930	026	1.2+	0.2+				
810905	095	1.1+	0.0	811101	026	0.5-	0.2+				

1981 QD2 = 1950 SV = 1957 TE = 1957 UF = 1986 AV

The identification 1981 QD2 = 1986 AV is by E. Bowell. The double designation 1957 TE = 1957 UF is by S. Kanda (MPC 1790).

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

M	116.51642		(1950.0)	P	Q
n	0.28574991	Peri.	326.32253	+0.96275195	-0.26630462
a	2.2828612	Node	49.19361	+0.25970208	+0.86257294
e	0.1697037	Incl.	3.54505	+0.07525628	+0.43017411
P	3.45	H	14.0	G 0.25	

Residuals in seconds of arc

500917	711	1.4-	4.3+	810830	688	2.8-	2.3-	811004	688	1.3+	0.3-
571001	760	0.0	0.5+	810830	688	2.5-	1.2-	811004	688	1.5+	0.7-
571001	760	1.8+	0.1+	810926	688	3.5+	0.3-	860111	688	0.8+	0.9-
571025	024	3.1-	0.3+	810926	688	1.8+	1.2-	860111	688	0.7-	0.3-

1981 SU2 = 1954 XH = 1986 AX1

The identification 1981 SU2 = 1986 AX1 is by E. Bowell.

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

M	106.53863		(1950.0)	P	Q
n	0.28830157	Peri.	83.95671	+0.80228127	-0.59632506
a	2.2693714	Node	312.64665	+0.53197348	+0.73490703
e	0.1339515	Incl.	2.12117	+0.27083016	+0.32296763
P	3.42	H	14.5	G 0.25	

Residuals in seconds of arc

541204	760	1.6-	0.1-	810929	511	1.4+	0.9+	860112	688	1.2+	0.2-
541204	760	1.2+	2.8+	810929	511	0.0	0.2+	860112	688	1.8-	2.4-
810902	095	1.7-	0.9-	810929	511	0.2-	1.2-				
810928	095	1.9+	0.7-	811005	095	0.9-	0.1-				

1982 BS = 1986 AD2

The identification is by E. Bowell.

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

M 80.40197		(1950.0)	P	Q
n 0.23616243	Peri.	119.07375	+0.55660975	-0.80666683
a 2.5921674	Node	295.75644	+0.66466177	+0.57586897
e 0.1692269	Incl.	12.74414	+0.49840778	+0.13290429
P 4.17	H 13.0		G 0.25	

Residuals in seconds of arc

820124	688	0.9-	0.5-	820221	688	0.6+	0.3-	860117 688 0.7+ 0.8-
820124	688	0.6+	0.3-	820221	688	0.6-	0.5+	860117 688 0.8+ 0.5-
820130	688	0.9+	0.9+	860112	688	0.6-	0.9+	
820130	688	0.6-	0.3-	860112	688	0.9-	0.8+	

1982 BE1 = 1986 AL1

The identification is by E. Bowell.

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

M 72.18186		(1950.0)	P	Q
n 0.24130182	Peri.	302.16344	+0.29067825	-0.95298194
a 2.5552292	Node	130.69197	+0.91146673	+0.24856391
e 0.1893207	Incl.	6.48411	+0.29109201	+0.17332456
P 4.08	H 13.5		G 0.25	

Residuals in seconds of arc

820124	688	0.9-	1.1-	820221	688	0.3+	2.3-	860117 688 1.4+ 2.2-
820124	688	0.6-	0.4+	820221	688	0.4-	3.5+	860117 688 3.5- 0.3+
820130	688	3.9+	1.3-	860111	688	1.4+	0.7+	
820130	688	2.3-	0.6+	860111	688	0.9+	1.5+	

1982 UM7 = 1982 XY3 = 1974 EU = 1985 VW1

The double designation 1982 UM7 = 1982 XY3 is by W. Landgraf (MPC 8892). The identification 1982 UM7 = 1985 VW1 is by E. Bowell.

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

M 234.50347		(1950.0)	P	Q
n 0.30458526	Peri.	31.20445	-0.70936323	+0.70472971
a 2.1877499	Node	193.62672	-0.65720795	-0.66779832
e 0.1036346	Incl.	3.07615	-0.25471851	-0.23958598
P 3.24	H 13.0		G 0.25	

Residuals in seconds of arc

740315	095	0.0	0.0	821112	095	1.6+	0.2+	821214 381 0.6+ 0.9+
821021	095	0.4+	0.2+	821213	381	0.6-	0.0	851107 688 0.1- 0.4+
821023	095	2.7-	1.4-	821214	381	0.4+	0.1+	860206 801 0.1+ 0.5-

1983 TR2 = 1976 GA6 = 1978 RQ16

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

M 216.12538		(1950.0)	P	Q
n 0.18383480	Peri.	299.33905	+0.77038714	+0.63049433
a 3.0632687	Node	22.01342	-0.46118331	+0.65369171
e 0.2122981	Incl.	14.64489	-0.44024267	+0.41852604
P 5.36	H 12.5		G 0.25	

Residuals in seconds of arc

760402	095	4.0+	5.3+	831004	688	0.4-	0.2-	831011 688 2.0- 2.0+
780908	010	0.4-	1.4-	831004	688	0.0	1.1+	831104 688 0.1- 0.1+
780909	010	1.3+	0.2-	831011	688	0.7-	2.2+	831104 688 1.2- 0.4+

1984 FO
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	174.02963		(1950.0)	P	Q
n	0.26621496	Peri.	96.14765	+0.03151616	+0.99902687
a	2.3932162	Node	175.31359	-0.99921332	+0.03223550
e	0.2521069	Incl.	22.18852	-0.02407231	-0.03010292
P	3.70	H	13.0	G 0.25	

Residuals in seconds of arc

840328	675	0.4+	1.2-	840508	675	0.5-	0.1-	840926	801	0.6+	0.9+
840329	675	0.4-	0.3+	840509	675	0.3-	0.4-	851209	474	0.2+	0.3+
840331	675	1.2+	0.4+	840526	675	0.2+	0.0	851209	474	0.5-	0.2+
840331	675	1.5+	1.5+	840527	675	0.7+	0.4+	851214	691	0.1-	0.5-
840427	675	0.7-	0.2+	840529	675	0.9-	0.6-	851214	691	0.2+	0.2+
840429	675	1.1-	0.1+	840731	801	1.5+	0.3-	851214	691	0.1+	0.1+
840429	675	0.4-	0.3-	840828	801	1.0-	0.0				

1984 SH5 = 1979 FJ1 = 1986 AX

The identification 1984 SH5 = 1986 AX is by E. Bowell.

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

M	71.35112		(1950.0)	P	Q
n	0.12556109	Peri.	82.29990	+0.83113191	-0.55227085
a	3.9497250	Node	311.19720	+0.47006725	+0.76016052
e	0.1973859	Incl.	4.95075	+0.29707999	+0.34227604
P	7.85	H	11.0	G 0.25	

Residuals in seconds of arc

790323	095	0.0	0.0	841025	675	0.1+	0.5+	860111	688	0.0	0.1-
840927	675	0.7+	0.2-	841026	675	0.3-	0.7+				
840927	675	0.5-	1.0-	860111	688	0.1-	0.1+				

1985 JA
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	226.95206		(1950.0)	P	Q
n	0.46731488	Peri.	288.86306	-0.79640099	-0.37877879
a	1.6446102	Node	231.98132	+0.42004408	-0.90729655
e	0.3205512	Incl.	36.75829	-0.43509589	-0.18259136
P	2.11	H	16.5	G 0.25	

From 34 observations 1985 May 11-Sept. 8, mean residual 1".1.

1985 NE = 1956 EV

The identification is by W. Landgraf.

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

M	113.54345		(1950.0)	P	Q
n	0.24324131	Peri.	244.91225	-0.45147831	+0.89227478
a	2.5416283	Node	358.23680	-0.77046695	-0.39188114
e	0.1949198	Incl.	6.74314	-0.45005334	-0.22422063
P	4.05	H	13.0	G 0.25	

Residuals in seconds of arc

560309	760	0.1+	0.6+	850719	474	0.8-	2.5-	850917	474	0.3-	0.4-
850710	474	1.4-	2.0-	850720	474	1.4+	1.0-	850917	474	0.7-	0.4+
850710	474	0.1-	1.4+	850720	474	0.4+	1.5-	851016	474	1.1-	0.4+
850715	474	0.9-	0.8+	850813	474	0.2+	0.8-	851016	474	0.2-	1.0+
850718	474	0.6-	0.4-	850813	474	0.1+	0.7-				
850718	474	0.3-	0.3-	850817	474	1.2+	0.8-				

1985 PA
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	78.32990	(1950.0)	P	Q
n	0.58642842	Peri. 312.23115	-0.33997889	-0.82854377
a	1.4135984	Node 147.35129	+0.89913880	-0.14773260
e	0.3025749	Incl. 55.55396	-0.27561525	+0.54008360
P	1.68	H 15.5	G 0.25	

From 28 observations 1985 Aug. 15-1986 Mar. 8, mean residual 1".1.

1985 RV
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	111.14760	(1950.0)	P	Q
n	0.26281446	Peri. 41.44891	+0.50350933	+0.84704153
a	2.4138155	Node 259.43812	-0.83126807	+0.42120793
e	0.2579819	Incl. 9.97543	-0.23552441	+0.32419828
P	3.75	H 15.5	G 0.25	

From 24 observations 1985 Sept. 12-1986 Jan. 13, mean residual 0".9.

1985 RW
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	312.02553	(1950.0)	P	Q
n	0.35844224	Peri. 246.98965	-0.56786368	-0.77174124
a	1.9627160	Node 240.76711	+0.82265763	-0.52042738
e	0.0752247	Incl. 19.14994	+0.02766348	-0.36547339
P	2.75	H 15.5	G 0.25	

From 25 observations 1985 Sept. 13-1986 Jan. 13, mean residual 0".7.

1985 TB
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	40.03800	(1950.0)	P	Q
n	0.23851196	Peri. 66.96791	+0.03304378	-0.98327276
a	2.5751109	Node 23.39052	+0.66885702	-0.11141194
e	0.5674674	Incl. 26.81942	+0.74265631	+0.14409049
P	4.13	H 15.5	G 0.25	

From 23 observations 1985 Oct. 14-1986 Mar. 4, mean residual 1".1.

1985 VS
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	353.94370	(1950.0)	P	Q
n	0.08145677	Peri. 225.08020	+0.32068474	-0.91908356
a	5.2705037	Node 208.68880	+0.94624664	+0.32162693
e	0.0282450	Incl. 28.49340	+0.04217332	-0.22768732
P	12.10	H 11.0	G 0.25	

From 18 observations 1985 Nov. 6-1986 Jan. 13, mean residual 0".9.

* * * * *

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

The identifications are by C. M. Bardwell unless otherwise stated. The 1979 observations of the 1981 UCAS objects were found by S. J. Bus.

(3404)* 1934 CY = 1982 BQ1
Discovered 1934 Feb. 4 by K. Reinmuth at Heidelberg. The identification is by O. Kippes (MPC 6944) and F. Bowman, who found it independently.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 357.20502	(1950.0)	P	Q	
n 0.22609982	Peri. 196.43883	-0.74783341	-0.64729076	
a 2.6685125	Node 302.28195	+0.62703313	-0.61566273	
e 0.1273076	Incl. 10.04851	+0.21811614	-0.44941525	
P 4.36	H 13.0	G 0.25		

Residuals in seconds of arc

340204 024	0.7+	0.2+	820130 688	0.7+	1.5-	820221 046	0.3+	0.9+
340209 024	0.3+	3.3+	820212 046	0.6+	0.2-	820221 046	2.0+	1.4-
340214 024	0.2+	3.1+	820212 046	1.2+	0.6+	830712 474	0.4+	0.1+
340305 024	2.8+	3.1+	820213 046	1.9-	0.2-	830712 474	0.3-	0.5+
820118 688	1.7-	3.2-	820213 046	0.2+	0.6-	860107 054	0.3+	0.3+
820118 688	1.7-	3.2-	820214 046	1.9-	1.3+	860113 801	0.0	0.6+
820130 688	0.2-	1.6-	820214 046	1.1-	1.7+	860206 801	0.6-	0.5+
820130 688	0.9+	0.3-	820216 046	0.2+	0.2-			
820130 688	0.8+	0.0	820216 046	2.7-	0.9-			

(3405)* 1964 UQ = 1950 JJ = 1951 RC1 = 1955 OB = 1981 UH8 = 1984 LE

Discovered 1964 Oct. 30 at the Purple Mountain Observatory. The key identification 1964 UQ = 1984 LE is by E. Bowell (MPC 9160).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 126.29596	(1950.0)	P	Q	
n 0.23388064	Peri. 62.63370	+0.54394145	+0.81474752	
a 2.6089947	Node 241.73644	-0.82765212	+0.48149151	
e 0.1167275	Incl. 13.17711	-0.13827388	+0.32303623	
P 4.21	H 12.5	G 0.25		

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

500513 760	0.1-	1.3+	641111 330	2.1-	0.3-	840525 071	0.5-	0.3-
500513 760	0.4+	3.1-	641127 330	0.5+	2.5-	840525 071	0.6-	0.7+
510901 094	(64.7-	6.9+)X	811022 095	2.8+	0.6+	840525 071	0.5-	0.1+
510902 094	(30.2-	19.6+)X	811024 095	1.1-	3.0+	840601 688	0.2-	1.0-
510907 094	(0.04-	0.00+)X	811024 095	1.6+	0.8-	840601 688	1.0+	2.4-
550718 024	0.1+	1.1+	811030 381	1.1-	0.9-	851116 801	1.7+	0.7-
641030 330	0.2+	0.7-	811030 381	1.5-	1.2-	860111 801	0.1-	1.1-

(3406)* 1969 DA = 1951 KA1 = 1983 CH3

Discovered 1969 Feb. 21 by B. Burnasheva at the Crimean Astrophysical Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 199.14391	(1950.0)	P	Q	
n 0.21107515	Peri. 309.47079	-0.76666306	+0.62547498	
a 2.7936885	Node 269.74094	-0.53550726	-0.74747676	
e 0.1337895	Incl. 8.33413	-0.35420294	-0.22373990	
P 4.67	H 12.0	G 0.25		

Residuals in seconds of arc

510529 711	1.4+	3.2+ Y	830212 809	0.3-	0.5-	830220 809	0.5+	0.6-
690221 095	2.1-	3.4+	830212 809	0.2+	0.2-	830220 809	0.6+	0.9-
690309 095	0.8+	0.8+	830216 809	0.2+	0.3-	840730 552	0.4-	1.5-
690311 095	1.5-	1.3-	830216 809	0.2+	0.5-	840730 552	0.3-	1.5-
811025 095	0.8+	3.7+	830216 809	0.1+	0.4-	851015 688	0.9+	0.2-
830210 809	1.1-	0.1-	830218 809	0.6+	0.3-	851015 688	0.5+	1.6-
830210 809	0.8-	0.3+	830218 809	0.5+	0.7-	860112 801	1.0-	0.1+
830210 809	0.0	0.2+	830218 809	0.3+	0.3-			
830212 809	0.1-	0.2-	830220 809	0.2-	0.6-			

(3407)* 1973 DT = 1973 GW = 1977 BV = 1980 WN

Discovered 1973 Feb. 28 by L. Kohoutek at Bergedorf. The double designation 1973 DT = 1973 GW is by B. G. Marsden (MPC 9077).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 63.46041		(1950.0)	P	Q
n 0.22380119	Peri.	343.68696	+0.05721275	-0.97354417
a 2.6867533	Node	102.62356	+0.93940504	-0.02252244
e 0.1576481	Incl.	13.10289	+0.33800128	+0.22738623
P 4.40	H	13.0	G 0.25	

Residuals in seconds of arc

730228 029	0.9-	0.2-	770120 095	1.6+	0.1+	860113 801	0.5+	1.4+
730228 029	0.2+	0.6-	801130 095	1.4-	2.0-	860113 801	0.5+	1.4+
730309 029	0.4-	0.6-	841126 801	1.3+	1.9+	860205 054	1.4+	1.1-
730401 095	0.8+	0.7+	851220 801	0.1-	0.5+	860207 054	1.5+	2.3-
730404 095	0.6-	0.5+	860112 688	0.5+	0.1-	860209 054	4.2-	2.1+

(3408)* 1977 QG4 = 1977 RS3 = A915 RA = 1981 WS2

Discovered 1977 Aug. 18 by N. S. Chernykh at the Crimean Astrophysical Observatory. The double designation 1977 QG4 = 1977 RS3 is by B. G. Marsden (MPC 9465).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 141.82547		(1950.0)	P	Q
n 0.26975850	Peri.	202.87964	+0.90768509	+0.41802790
a 2.3722072	Node	132.35668	-0.37687098	+0.85065972
e 0.2275452	Incl.	2.86103	-0.18459700	+0.31879573
P 3.65	H	13.5	G 0.25	

Residuals in seconds of arc

150909 024	0.4-	0.8+	770911 808	0.6+	0.5+	811124 033	0.2+	0.7-
770818 095	1.4-	0.6+	770911 808	1.4-	0.1+	811124 033	0.1+	1.1-
770822 808	0.6-	0.2+	770913 808	1.9+	0.5-	851216 801	0.4+	1.1+
770905 808	0.3+	0.6+	770915 808	1.7+	0.4+	860112 801	0.2-	0.8+
770905 808	0.2-	0.5+	770915 808	1.0+	0.0			
770906 095	0.7-	0.2-	770918 808	0.9+	0.3-			

(3409)* 1977 RE6 = 1929 UP = 1948 TW1 = 1958 VU = 1972 TF5 = 1979 BS1 = 1980 GF1 = 1982 VY5 = 1985 GD1

Discovered 1977 Sept. 9 by N. S. Chernykh at the Crimean Astrophysical Observatory. The identifications 1977 RE6 = 1979 BS1 = 1985 GD1 and 1980 GF1 = 1985 GD1 are by A. Lowe and by E. Bowell, respectively.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 282.93671		(1950.0)	P	Q
n 0.20435209	Peri.	169.64868	+0.93450697	-0.35572220
a 2.8546311	Node	211.19826	+0.32479510	+0.86665963
e 0.0839134	Incl.	1.39243	+0.14561893	+0.34980395
P 4.82	H	12.0	G 0.25	

Residuals in seconds of arc

291027 690	0.4+	2.0-	770918 095	0.1-	1.0+	821108 095	1.6-	0.6+
291103 690	(3.0+	12.0+)	770921 095	0.5-	0.5+	821108 095	0.6-	0.4+
481007 094	(77.9-	11.0-)X	790124 095	1.2+	1.4+	850415 688	0.5+	0.7-
581111 760	(52.2-	27.4-)X	800414 805	1.1+	1.6+	850415 688	0.4-	0.3-
721006 095	0.2+	1.2+	800415 805	0.9-	0.4-	850424 688	0.2-	0.8+
770909 095	0.8+	1.2+	800416 805	0.4+	0.4+	850424 688	0.2-	1.0+

(3410)* 1978 SZ7 = 1983 AQ2

Discovered 1978 Sept. 26 by L. Zhuravleva at the Crimean Astrophysical Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M 348.13713		(1950.0)	P	Q
n 0.29010293	Peri.	155.85999	-0.70954528	-0.70405547
a 2.2599629	Node	339.29784	+0.63230787	-0.61786917
e 0.0977280	Incl.	4.73456	+0.31101810	-0.35006225
P 3.40	H	13.5	G 0.25	

Residuals in seconds of arc

780926	095	0.2+	1.1-	830110	675	1.3-	2.9-	830112	675	0.9-	2.0+
781002	095	1.3+	1.6+	830110	675	1.9+	0.8-	851016	801	0.2+	0.8-
781008	095	0.7-	0.1-	830111	675	0.1-	1.6+	860109	801	0.2-	0.9+
781101	095	0.6-	0.9-	830112	675	0.2+	0.8-	860206	801	0.8-	1.7+

(3411)* 1980 LK = 1971 SE3 = 1978 VB16 = 1978 WC15 = 1985 YL

Discovered 1980 June 2 by H. Debehogne at the European Southern Observatory. The identification 1980 LK = 1985 YL was found independently by E. Bowell.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	36.41433		(1950.0)	P	Q
n	0.29339772	Peri.	50.04009	-0.48091680	-0.87237820
a	2.2430118	Node	68.91189	+0.77302686	-0.46904077
e	0.1182442	Incl.	5.38785	+0.41370098	-0.13768452
P	3.36	H	14.5	G 0.25	

Residuals in seconds of arc

710926	805	0.4+	0.1-	800603	809	0.6+	0.2+	800611	809	1.0+	0.3+
710926	805	0.9+	2.2-	800604	809	0.9-	0.1-	800611	809	0.9+	0.6+
781101	095	0.9-	0.9-	800604	809	0.2-	0.1-	800613	809	0.2-	0.9+
781124	049	0.1-	0.2-	800604	809	1.1+	1.1-	800613	809	0.0	0.8+
781124	049	1.4+	1.3-	800605	809	0.1+	0.5-	800613	809	0.3+	0.3+
800602	809	0.9-	1.1-	800605	809	0.0	0.1+	851218	688	0.8+	3.1-
800602	809	0.5+	1.0-	800605	809	0.1+	0.0	851218	688	0.6+	0.2-
800602	809	0.4+	0.2-	800606	809	0.1+	0.1-	860111	688	0.2-	1.4-
800603	809	1.6-	0.4-	800606	809	0.6+	0.7-	860111	688	1.5-	1.4-
800603	809	0.5-	0.2-	800606	809	1.5+	0.3-				

(3412)* 1983 AU2 = 1942 YB = 1977 FF3 = 1978 PA2 = 1978 QE1

Discovered 1983 Jan. 10 by R. Kirk and D. Rudy at Palomar. The key identifications and double designation 1983 AU2 = 1977 FF3 = 1978 PA2 = 1978 QE1 are by W. Landgraf (MPC 8212).

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	49.33149		(1950.0)	P	Q
n	0.29699967	Peri.	117.08463	+0.43171109	-0.90106878
a	2.2248398	Node	307.27868	+0.80809616	+0.40666995
e	0.1035089	Incl.	2.97077	+0.40075695	+0.15064732
P	3.32	H	14.0	G 0.25	

Residuals in seconds of arc

421231	062	0.6+	1.4+	830110	675	1.3-	1.4-	830210	675	2.2-	5.0+
421231	062	1.6-	2.7+	830110	675	0.5+	0.7-	830211	675	0.9-	2.2-
770326	095	2.3+	2.2+	830111	675	0.3-	0.3-	830215	675	2.6-	0.1+
780808	095	1.3+	1.2+	830112	675	0.8+	0.3-	851116	801	1.4+	0.6+
780831	095	3.0-	0.4-	830112	675	2.7+	1.0-	860111	801	0.1+	0.7+

(3413)* 1983 CB3

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

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	297.13394		(1950.0)		P		Q				
n	0.29164626	Peri.	286.54003		-0.59486306		+0.79974113				
a	2.2519830	Node	306.67677		-0.69360420		-0.56157957				
e	0.1277058	Incl.	5.79253		-0.40626489		-0.21223222				
P	3.38	H	13.0	G	0.25						

Residuals in seconds of arc

811002	095	0.3+	0.5+	830312	046	1.3-	0.7+	840928	688	0.2+	3.1-
830215	688	0.7-	3.0-	830312	046	1.1+	1.8-	841121	801	0.1-	0.8-
830215	688	0.0	1.8-	830313	046	0.3-	0.5-	860112	688	0.0	0.9+
830309	046	2.9-	0.9+	830313	046	1.6-	2.8-	860112	801	0.3-	0.9-
830309	046	(5.9-	0.4-)	830405	046	0.1+	0.9-	860112	688	1.1+	0.7+
830310	046	0.7+	2.1+	830405	046	0.2+	0.8-	860204	801	0.1-	1.1+
830310	046	1.3+	1.1+	840928	688	2.8+	2.7-				

(3414)* 1983 DJ = 1973 AV3 = 1978 TZ3

Discovered 1983 Feb. 19 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	72.19147		(1950.0)		P		Q				
n	0.30403626	Peri.	60.77857		+0.08191324		-0.99589777				
a	2.1903783	Node	24.61209		+0.87930899		+0.05405862				
e	0.1011424	Incl.	5.29628		+0.46915448		+0.07256240				
P	3.24	H	13.5	G	0.25						

Residuals in seconds of arc

730102	095	0.1-	4.2+	800415	805	0.3-	1.2+	830316	688	2.1+	0.1-
730104	095	0.9+	3.0+	800416	805	1.7-	0.9+	830316	688	0.4-	0.9-
781003	675	0.8+	0.7-	830219	688	2.1-	2.1-	860112	688	0.2-	1.2-
781004	675	0.5+	0.4-	830219	688	0.3+	1.7-	860112	688	1.2-	1.2-
781004	095	1.2+	1.3-	830309	688	1.6+	2.8-	860209	801	2.3-	0.2-
800414	805	0.2+	2.1+	830309	688	0.4+	1.2-				

1956 SC = 1942 RO = 1970 SQ1 = 1984 SD = 1986 EH

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	47.41741		(1950.0)		P		Q				
n	0.35088866	Peri.	163.00356		-0.95723343		-0.28931429				
a	1.9907795	Node	0.19193		+0.20676067		-0.68694750				
e	0.0289525	Incl.	20.71503		+0.20237140		-0.66663362				
P	2.81	H	13.0	G	0.25						

Residuals in seconds of arc

420908	062	0.7+	1.1+	561001	024	3.0-	2.2-	840924	889	1.5+	0.7+
420911	062	1.0+	0.9+	561010	024	0.5+	0.5+	860305	675	0.3+	0.6-
420911	062	0.1-	0.2-	700930	095	4.4+	3.8-	860305	675	0.5+	1.0-
560929	760	2.7+	1.5-	840924	889	0.2-	0.3+	860306	675	2.1-	0.6+
560929	760	4.2-	1.7+	840924	889	1.2-	0.5+	860306	675	0.7-	0.9-

1963 RH = 1970 OD = 1986 AA

The identification 1963 RH = 1986 AA was found independently by E. Bowell.

Epoch 1986 June 19.0 ET = JDE 2446600.5

M	88.98300		(1950.0)		P		Q				
n	0.27162774	Peri.	97.41452		+0.76840195		-0.55418659				
a	2.3613116	Node	296.76889		+0.34678715		+0.78089331				
e	0.3748297	Incl.	21.00645		+0.53786347		+0.28824097				
P	3.63	H	12.0	G	0.25						

Residuals in seconds of arc

630913	031	5.3+	7.8+		630916	031	0.6-	0.1+		630919	031 (6.7+ 14.5+)
630913	031	3.3+	9.1+		630916	031	1.8+	0.1-		630923	031 (2.7+ 15.2+)
630914	031	2.0+	5.0+		630916	031	3.7+	0.6-		630927	031 (3.0+ 21.1+)
630914	031	0.7-	0.1-		630917	031	2.5+	1.4-		700729	095 0.8- 0.2+
630915	031	0.3+	0.2+		630917	031	2.6+	2.0-		860109	675 1.7+ 0.7+
630915	031	0.7+	2.2+		630917	031	1.3+	4.5-		860109	675(12.3+ 2.9+)
630915	031	1.9+	1.1-		630917	031	3.1+	4.3-		860110	675 1.0- 0.3+
630915	031	(9.1-	0.0)		630917	031	5.1+	3.5+		860110	675 0.7+ 0.1-
630915	031	1.6-	8.7+		630918	031	5.4+	4.3+		860111	688 0.9+ 1.0-
630916	031	1.3-	7.6+		630918	031	2.1+	3.0+		860111	688 2.1+ 0.5-
630916	031	0.6-	5.6+		630918	031	(1.2+	18.8-)		860116	675 0.6- 1.4+
630916	031	4.2-	9.0+		630918	031	3.7+	5.8+		860209	801 0.2+ 0.2-
630916	031	0.9-	7.2+		630918	031	3.9+	5.0+			

1965 UZ = 1969 RH2 = 1980 DR = 1985 JF1

The identification 1980 DR = 1985 JF1 is by A. Lowe.

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

M	1.29532		(1950.0)	P	Q
n	0.23093543	Peri.	359.09751	+0.79526807	+0.60563659
a	2.6311354	Node	323.58213	-0.55591336	+0.71042119
e	0.0107708	Incl.	2.64932	-0.24188642	+0.35847742
P	4.27	H	13.0	G 0.25	

Residuals in seconds of arc

651016	330	0.5-	3.3-		800216	801	0.6+	2.2+		800221	046 1.2- 0.8+
651020	330	1.1-	0.2+		800219	046	0.7+	0.0		800221	046 0.1- 0.4-
651024	330	2.8+	0.4+		800219	046	1.6+	0.6-		850511	675 1.1- 2.7-
690913	095	0.6+	1.4-		800220	095	2.4-	4.1-		850514	675 0.0 1.5-

1971 UJ = 1979 WH8 = 1981 AG3

The identification 1971 UJ = 1979 WH8 is by E. Bowell and S. J. Bus.

The identification 1971 UJ = 1981 AG3 is by L. D. Schmadel.

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

M	333.66322		(1950.0)	P	Q
n	0.12550752	Peri.	345.71898	+0.98440827	-0.17407771
a	3.9508489	Node	24.34963	+0.16678955	+0.87817860
e	0.2041529	Incl.	3.51038	+0.05587139	+0.44553260
P	7.85	H	12.0	G 0.25	

Residuals in seconds of arc

711016	029	0.1+	1.3+		711108	029	1.7+	1.2-		791124	675 1.3+ 1.4-
711017	029	0.2+	0.8-		711110	029	2.2+	1.8-		791125	675 3.1+ 0.1-
711026	029	1.7+	2.1-		711110	029	2.4+	0.9+		810108	381 0.1- 2.5-
711026	029	1.2+	0.9-		711110	029	0.6+	1.4-		810108	381 0.6+ 1.9-
711027	095	3.0+	1.4-		711119	029	0.7+	1.7-			
711030	029	1.3+	0.6-		791122	675	0.6+	0.3-			

1978 SU5 = 1941 CJ = 1952 HZ2 = 1974 QZ = 1985 VU1

The key identification 1978 SU5 = 1985 VU1 is by A. Lowe.

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

M	291.35995		(1950.0)	P	Q
n	0.27989300	Peri.	305.29089	-0.98247810	-0.17181836
a	2.3145979	Node	224.93989	+0.18609593	-0.92566837
e	0.0461855	Incl.	5.86800	-0.01025108	-0.33707050
P	3.52	H	14.5	G 0.25	

Residuals in seconds of arc

410201	062	0.4+	0.1+		740821	095	0.4+	0.9-		781008	095 0.5- 2.4-
410202	062	1.4-	1.6-		780928	095	4.8-	0.8-		851107	688 2.2+ 0.5-
520426	711	1.1-	1.1- Y		781005	095	2.0-	2.0-		851107	688 1.9+ 2.2-

1980 RZ2 = 1980 RX4 = 1933 SY = 1951 CT = 1978 JE1

The key identification 1980 RZ2 = 1951 CT is by H. Oishi (JAM 1988).
The double designation 1980 RZ2 = 1980 RX4 is by B. G. Marsden (MPC 9203).

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

M	12.30954	(1950.0)		P	Q
n	0.18803355	Peri.	55.12409	+0.93125159	-0.35253896
a	3.0174958	Node	325.25643	+0.25860198	+0.81756053
e	0.1138650	Incl.	9.30253	+0.25670117	+0.45531425
P	5.24	H	10.5	G	0.25

Residuals in seconds of arc

330926	094	(18.9+	35.4+)X	780506	095	0.1+	0.2+	800913	330	2.1+	1.9-
510207	012	1.1-	3.4-	800903	330	1.0-	0.9+				
510209	711	1.3+	3.8+ Y	800908	095	1.4-	1.4+				

1981 DM

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

M	108.81501	(1950.0)		P	Q
n	0.27186491	Peri.	339.48002	-0.47331740	+0.87344539
a	2.3599428	Node	262.11917	-0.79121736	-0.47857692
e	0.0836319	Incl.	6.62593	-0.38722826	-0.08976239
P	3.63	H	15.0	G	0.25

Residuals in seconds of arc

791126	675	2.0+	1.4+	810306	413	2.4-	0.5-	810408	413	0.8-	0.7+
791127	675	2.0-	1.2-	810308	413	0.0	0.4-	810408	413	1.6+	1.2-
810209	413	0.4+	1.5-	810308	413	1.4+	1.4-	810409	413	1.7-	0.5+
810209	413	1.7+	1.1+	810312	413	0.3-	0.6+	810409	413	0.2+	0.8-
810228	413	0.5-	0.4+	810312	413	2.3+	0.1+	810503	413	0.2-	1.8-
810228	413	2.5+	0.6-	810407	413	2.1-	1.0+				
810306	413	0.9-	1.1+	810407	413	0.1+	1.1-				

1981 EN2

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

M	43.55737	(1950.0)		P	Q
n	0.18067866	Peri.	208.83044	-0.27855936	-0.94820678
a	3.0988389	Node	257.68939	+0.90838951	-0.20850744
e	0.1400075	Incl.	8.99015	+0.31182235	-0.23964254
P	5.46	H	15.0	G	0.25

Residuals in seconds of arc

791122	675	1.6-	0.7-	810302	413	0.2+	0.1-	810409	413	0.1+	0.5-
791124	675	0.3+	0.1-	810307	413	1.3+	0.7+	810430	413	0.8-	3.1-
791125	675	1.3+	0.3+	810307	413	0.3-	0.0	810502	413	0.1+	0.2-
810202	413	0.9+	0.9+	810312	413	0.7+	0.6-				
810302	413	0.7-	1.5+	810409	413	1.7-	0.7+				

1981 EA5

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

M	156.76044	(1950.0)		P	Q
n	0.21751784	Peri.	167.09191	+0.44196090	-0.88493809
a	2.7382536	Node	256.51988	+0.80897153	+0.46391875
e	0.1582993	Incl.	8.68349	+0.38760241	+0.04079173
P	4.53	H	15.0	G	0.25

Residuals in seconds of arc

791126	675	0.1+	0.6+	810302	413	0.1-	0.4+	810310	413	5.6+	0.8-
791127	675	0.2-	0.5-	810302	413	3.6+	0.1-	810409	413	2.3-	1.3+
810202	413	2.0-	1.3+	810307	413	2.4-	1.6+	810409	413	1.4+	1.4-
810209	413	0.1-	1.2-	810307	413	0.3+	0.7+	810502	413	1.4-	1.7-
810209	413	0.8-	2.3-	810310	413	1.4-	1.9+	810503	413	0.9-	1.3-

1981 EW9
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	109.23474	(1950.0)		P	Q
n	0.29764598	Peri.	336.44497	+0.45056910	+0.89122335
a	2.2216223	Node	320.28081	-0.80554018	+0.38073804
e	0.1706612	Incl.	4.67137	-0.38482789	+0.24649438
P	3.31	H	16.0	G 0.25	

Residuals in seconds of arc

791122	675	0.9+ 1.4+	810307	413	0.0 0.1-	810406	413	2.2- 0.5+
791125	675	1.0- 2.3-	810307	413	4.1- 2.3+	810406	413	0.6- 0.8-
810209	413	3.1+ 1.2-	810311	413	0.4+ 0.1+	810412	413	(9.6- 1.0+)
810213	413	0.5+ 0.1+	810311	413	2.8+ 0.0	810412	413	0.1- 0.2+
810301	413	1.8- 0.9+	810315	413	0.8- 0.1-	810430	413	0.7+ 1.0-
810301	413	0.7- 0.3+	810315	413	1.7+ 0.6-	810502	413	1.4+ 0.9-

1981 ER11
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	118.77063	(1950.0)		P	Q
n	0.23397865	Peri.	213.10419	-0.79646323	-0.60340533
a	2.6082713	Node	289.73209	+0.56345080	-0.71695731
e	0.0664311	Incl.	2.39586	+0.21947556	-0.34910488
P	4.21	H	16.0	G 0.25	

Residuals in seconds of arc

791122	675	0.9- 2.3-	810307	413	0.7+ 0.3-	810406	413	3.3+ 1.5-
791124	675	1.2+ 0.7+	810307	413	0.8+ 0.0	810412	413	0.8- 0.1-
791125	675	0.1+ 0.3-	810311	413	2.1- 1.5+	810412	413	0.8- 0.2-
810209	413	0.4+ 0.0	810315	413	3.1- 0.8+	810430	413	0.0 0.9-
810213	413	1.3+ 0.6+	810406	413	0.1+ 0.1-	810502	413	1.7+ 0.6-

1981 EF12
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	143.43734	(1950.0)		P	Q
n	0.28503216	Peri.	327.60938	-0.57855491	+0.81080828
a	2.2866920	Node	266.89304	-0.72809829	-0.56239919
e	0.1282389	Incl.	5.09518	-0.36762358	-0.16216376
P	3.46	H	16.0	G 0.25	

Residuals in seconds of arc

791122	675	2.5+ 0.4-	810301	413	3.1+ 1.6-	810408	413	1.8+ 2.6-
791124	675	2.4- 0.6+	810306	413	2.2- 0.3+	810409	413	2.1- 0.9+
791125	675	0.3- 1.5+	810306	413	1.8- 0.1-	810409	413	0.3- 0.1+
810209	413	0.6- 0.6-	810308	413	2.1+ 0.5-	810503	413	0.5- 0.3+
810214	413	2.5+ 0.4-	810312	413	1.1- 1.2+			
810301	413	2.4+ 0.7-	810408	413	1.3- 0.3+			

1981 ET13
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	158.44858	(1950.0)		P	Q
n	0.28592615	Peri.	294.99359	-0.68440005	+0.72593824
a	2.2819230	Node	291.64084	-0.63980337	-0.64262080
e	0.2189980	Incl.	4.18905	-0.34964012	-0.24505545
P	3.45	H	14.5	G 0.25	

Residuals in seconds of arc

791122	675	0.3+ 0.8-	810306	413	1.7- 0.1-	810406	413	0.2+ 0.2+
791124	675	0.3- 0.4-	810306	413	0.8+ 0.8-	810408	413	0.6- 0.0
791125	675	0.1+ 1.1+	810308	413	1.0- 0.2-	810408	413	0.9+ 0.9-
810212	413	0.3+ 0.1+	810308	413	0.7+ 0.2+	810409	413	0.6- 0.7+
810212	413	1.7+ 1.2+	810312	413	1.2- 0.3-	810409	413	0.7+ 0.4+
810301	413	0.3- 0.2-	810312	413	0.8+ 1.2-	810501	413	0.1- 0.7-
810301	413	1.5+ 0.6-	810406	413	1.1- 1.3+	810503	413	0.5- 0.2-

1981 ED14
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	128.35433	(1950.0)		P	Q
n	0.27309521	Peri.	260.73582	-0.68224380	+0.73029348
a	2.3528497	Node	326.16044	-0.64378383	-0.62265465
e	0.1447981	Incl.	3.58848	-0.34653395	-0.28102068
P	3.61	H	15.5	G 0.25	

Residuals in seconds of arc

791126	675	1.3-	0.1+	810302	413	0.7+	0.4-	810408	413	1.8-	0.1-
791127	675	1.3+	0.3+	810306	413	0.8-	0.4+	810408	413	1.0+	1.0-
810212	413	0.0	1.3-	810306	413	0.5+	0.1+	810409	413	1.7-	0.7+
810212	413	0.1+	1.8-	810308	413	0.9+	0.1-	810409	413	0.5+	0.1-
810213	413	1.5+	0.3+	810312	413	1.1-	0.5+	810501	413	0.7-	0.0
810301	413	0.6-	0.5+	810312	413	1.6+	0.0	810503	413	0.5-	0.4-
810301	413	1.2+	0.3+	810406	413	0.8-	0.5+				
810302	413	0.0	0.2-	810406	413	1.1+	0.0				

1981 EF14
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	145.61609	(1950.0)		P	Q
n	0.29177546	Peri.	338.87678	-0.41650662	+0.90806880
a	2.2513227	Node	266.48698	-0.82762829	-0.39873772
e	0.1106123	Incl.	2.52481	-0.37623617	-0.12813773
P	3.38	H	16.0	G 0.25	

Residuals in seconds of arc

791122	675	1.6-	1.6-	810306	413	0.7+	0.4+	810408	413	1.0-	0.2-
791124	675	0.1+	0.3-	810306	413	1.7+	0.8-	810409	413	0.9-	0.1-
791125	675	1.4+	2.8+	810308	413	0.3+	0.0	810409	413	0.2+	1.2-
810212	413	1.6+	0.9-	810308	413	1.5+	0.0	810501	413	1.7-	1.2-
810212	413	1.5+	0.7-	810312	413	0.7-	0.2+	810503	413	0.8-	1.1-
810301	413	0.1+	0.1+	810312	413	1.5+	1.0-				
810301	413	1.1+	0.3+	810406	413	2.2-	1.2+				

1981 EZ14
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	104.43498	(1950.0)		P	Q
n	0.19737984	Peri.	139.58860	+0.27950820	-0.95708639
a	2.9214719	Node	294.05614	+0.85783394	+0.28474421
e	0.2069366	Incl.	4.80918	+0.43127265	+0.05391078
P	4.99	H	14.5	G 0.25	

Residuals in seconds of arc

791122	675	1.9-	0.3+	810212	413	3.3+	0.1-	810312	413	2.9-	2.0+
791124	675	1.3+	0.3+	810301	413	0.3+	0.8-	810409	413	0.0	0.7-
791125	675	0.6+	0.1-	810306	413	0.6+	0.7-	810409	413	0.8+	0.0
810209	413	0.1-	0.3+	810308	413	0.6-	0.6-	810501	413	0.0	1.5-
810212	413	0.1-	1.1+	810308	413	0.4+	0.1-	810503	413	0.9-	0.6-
810212	413	1.3+	0.5-	810312	413	1.4-	0.8+				

1981 ER15
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	118.61867	(1950.0)		P	Q
n	0.27443014	Peri.	342.45343	-0.50167904	+0.86222236
a	2.3452134	Node	257.38531	-0.78478845	-0.48764866
e	0.1053385	Incl.	4.10955	-0.36390276	-0.13700873
P	3.59	H	16.0	G 0.25	

Residuals in seconds of arc

791122	675	2.8+	2.4+	810306	413	2.8+	1.0-	810408	413	0.5+	0.1-
791124	675	2.4-	0.7-	810308	413	0.8+	0.5-	810409	413	0.6-	0.1+
810209	413	0.2+	1.1-	810308	413	0.7+	0.1+	810409	413	1.5+	1.0-
810212	413	0.9+	1.1-	810312	413	1.0+	0.1-	810501	413	1.2-	1.1-
810301	413	1.3+	0.7-	810406	413	1.9-	0.6+	810503	413	1.7-	0.7-
810306	413	0.1+	0.3-	810408	413	2.0-	1.4+				

1981 EE18

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

M	29.92367		(1950.0)	P	Q
n	0.17506455	Peri.	106.72145	-0.22424433	-0.97451754
a	3.1647405	Node	356.22413	+0.85936201	-0.19508759
e	0.1686968	Incl.	4.77417	+0.45957742	-0.11070859
P	5.63	H	15.0	G 0.25	

Residuals in seconds of arc

791122	675	0.2-	0.7+	810307	413	1.2-	0.2+	810408	413	0.5-	0.7+
791124	675	0.3+	0.5-	810307	413	1.9+	0.7-	810408	413	2.0+	1.0-
791125	675	0.1-	0.2+	810311	413	3.1-	1.4+	810411	413	1.7-	0.4+
810202	413	0.6+	0.3+	810311	413	1.7+	0.9-	810430	413	0.2+	0.1+
810213	413	0.2+	0.6+	810329	413	0.8-	0.3+	810502	413	0.3+	0.2+
810302	413	0.3-	1.1-	810329	413	0.8+	0.1-				

1981 EB21

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

M	43.22951		(1950.0)	P	Q
n	0.18059987	Peri.	165.44323	-0.22861362	-0.97291313
a	3.0997402	Node	297.76240	+0.88922070	-0.19435108
e	0.1653633	Incl.	2.22085	+0.39626047	-0.12517067
P	5.46	H	15.0	G 0.25	

Residuals in seconds of arc

791122	675	0.8+	0.3+	810303	413	2.1-	0.8+	810315	413	0.3+	0.5-
791124	675	0.1+	0.3-	810307	413	1.0+	0.2-	810316	413	2.4+	0.6-
791125	675	0.9-	0.5+	810307	413	0.4+	1.0-	810407	413	0.8-	0.2-
810209	413	0.3-	0.4-	810307	413	1.1-	0.4+	810412	413	0.4+	0.8-
810213	413	0.5-	0.2-	810311	413	1.9-	0.5+	810412	413	0.5-	0.2-
810301	413	0.0	0.6+	810311	413	1.8+	0.3-	810502	413	0.1-	0.2+
810301	413	2.9+	0.0	810311	413	0.4-	0.4+	810503	413	0.8-	0.9+
810302	413	2.7-	1.4+	810311	413	2.8+	0.8-				
810302	413	0.4-	0.1+	810315	413	0.5-	0.2-				

1981 EZ22

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

M	88.84488		(1950.0)	P	Q
n	0.30099786	Peri.	325.14254	+0.76930849	+0.63886723
a	2.2050984	Node	355.14532	-0.57597221	+0.69109754
e	0.1879120	Incl.	2.45183	-0.27644251	+0.33798351
P	3.27	H	15.5	G 0.25	

Residuals in seconds of arc

791124	675	2.5-	0.9-	810303	413	1.3-	0.6-	810329	413	3.5-	1.7+
791125	675	2.5+	0.3-	810307	413	0.9+	0.3-	810411	413	2.9+	0.6-
810209	413	1.8+	1.2+	810307	413	0.2+	0.3+	810411	413	4.7+	2.3-
810213	413	0.9+	0.6+	810311	413	0.3+	0.8-	810430	413	2.1-	1.2-
810302	413	0.5-	0.6+	810329	413	3.1-	2.2+	810502	413	0.9-	1.4-

1981 EJ23
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	135.65555	(1950.0)		P	Q
n	0.21999773	Peri.	107.62311	-0.08707058	-0.99608085
a	2.7176370	Node	347.34173	+0.88494507	-0.07017106
e	0.0629263	Incl.	4.06788	+0.45748327	-0.05384197
P	4.48	H	14.0	G 0.25	

Residuals in seconds of arc

791126	675	0.7+	1.3+	810303	413	1.4-	1.6+	810329	413	2.4-	0.8+
791127	675	1.0-	0.5+	810307	413	0.6-	0.4+	810408	413	1.4-	1.1+
810202	413	0.7+	1.5-	810307	413	1.7+	0.5-	810408	413	1.5+	0.2-
810213	413	0.3-	0.2+	810311	413	1.1-	0.1+	810430	413	0.8-	0.1+
810213	413	0.2+	0.7-	810311	413	0.8+	0.0	810502	413	0.0	0.5-
810303	413	2.5+	1.3-	810316	413	1.0+	0.2+				

1981 EC25
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	78.31374	(1950.0)		P	Q
n	0.30799659	Peri.	330.95336	+0.92657925	+0.37601807
a	2.1715657	Node	6.97305	-0.33139124	+0.82610065
e	0.1747479	Incl.	3.69767	-0.17785032	+0.41972387
P	3.20	H	14.5	G 0.25	

Residuals in seconds of arc

791122	675	0.1-	0.2-	810306	413	2.2-	0.3+	810407	413	0.3+	0.3-
791124	675	0.0	0.0	810306	413	0.7+	0.3-	810408	413	1.0+	0.8+
791125	675	0.3+	0.1-	810311	413	1.7-	0.5+	810411	413	0.1-	0.5-
810209	413	0.0	0.2+	810311	413	0.2+	0.0	810411	413	3.1+	0.6+
810212	413	1.0-	0.3+	810315	413	1.7-	1.5+	810426	413	0.1+	1.8-
810302	413	1.3+	0.3-	810315	413	1.1+	0.4-	810430	413	2.9-	0.4+
810302	413	1.9+	0.6-	810407	413	0.6+	0.3-	810502	413	0.9-	0.4-

1981 ET26
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	136.11433	(1950.0)		P	Q
n	0.29568064	Peri.	277.62577	+0.01282526	+0.99988454
a	2.2314560	Node	353.09338	-0.88856266	+0.00765877
e	0.1785092	Incl.	3.88600	-0.45857597	+0.01312430
P	3.33	H	14.0	G 0.25	

Residuals in seconds of arc

791122	675	1.7+	0.3+	810306	413	0.7-	0.9-	810406	413	1.2+	0.4-
791124	675	0.1-	0.2-	810306	413	1.9+	0.3-	810407	413	2.4-	1.0+
791125	675	0.3+	0.2+	810311	413	1.9-	1.1-	810407	413	2.9+	0.9-
791127	675	1.7-	0.5+	810315	413	0.3-	0.1-	810410	413	0.0	1.0+
810209	413	0.1-	0.3-	810315	413	0.5-	0.9+	810410	413	0.8+	0.5-
810212	413	0.7+	0.2+	810405	413	1.9-	0.5+	810502	413	1.4-	0.3+
810213	413	0.6-	1.0+	810405	413	3.6+	1.2-	810503	413	1.2-	0.1+
810302	413	0.5+	0.4+	810406	413	1.3-	0.5+				

1981 EO35
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	47.15197	(1950.0)		P	Q
n	0.29218016	Peri.	71.71528	+0.92260628	+0.37522758
a	2.2492433	Node	266.16840	-0.37904022	+0.83881912
e	0.1344495	Incl.	5.14369	-0.07159719	+0.39444485
P	3.37	H	16.5	G 0.25	

Residuals in seconds of arc

791124	675	0.2-	0.3-		810307	413	2.2+	0.3-		810312	413	1.0+	1.4+
791125	675	0.2+	0.1+		810310	413	3.1-	2.0+		810429	413	0.9-	1.2-
810214	413	2.3-	1.2-		810310	413	0.6+	0.4+					
810302	413	1.5+	0.6-		810312	413	0.6+	0.7-					

1981 EY35
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	144.66034		(1950.0)	P	Q
n	0.28590956	Peri.	232.24168	-0.58933930	+0.80788327
a	2.2820113	Node	1.65189	-0.71824598	-0.52284056
e	0.1423498	Incl.	3.88406	-0.36986741	-0.27196025
P	3.45	H	14.5	G 0.25	

Residuals in seconds of arc

791122	675	0.2-	0.7+		810308	095	0.3+	1.0-		810407	413	0.7-	0.8+
791124	675	0.9-	0.0		810311	413	0.3-	0.0		810407	413	0.3-	0.6+
791125	675	0.8+	0.7+		810311	413	1.2+	0.9-		810408	413	1.6-	1.7+
810213	413	0.7+	0.6-		810315	413	1.5-	1.2+		810408	413	0.6+	0.9+
810302	413	1.0-	0.1+		810315	413	2.4+	0.0		810411	413	0.2-	1.0+
810302	413	0.6+	1.0-		810316	413	0.2-	0.1-		810426	413	0.9+	0.6-
810306	413	0.6-	0.3-		810329	413	1.4-	0.0		810502	413	1.5-	0.9-
810306	413	1.5+	0.1-		810329	413	0.1-	0.3+					

1981 EP37
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	224.82508		(1950.0)	P	Q
n	0.23529042	Peri.	131.05731	+0.83160648	-0.55351607
a	2.5985680	Node	262.59801	+0.49483202	+0.77551481
e	0.1337779	Incl.	2.61729	+0.25213477	+0.30363916
P	4.19	H	16.0	G 0.25	

Residuals in seconds of arc

791122	675	0.6-	0.5+		810301	413	0.7+	0.0		810311	413	2.5+	1.1-
791124	675	0.1+	0.0		810301	413	(7.1+	1.0-)		810315	413	1.8+	0.3-
791125	675	0.5+	0.2+		810307	413	(4.7-	1.1+)		810502	413	1.1-	0.5+
810213	413	3.6-	1.9-		810311	413	0.5-	2.6+					

1981 EU37
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	155.05549		(1950.0)	P	Q
n	0.22218462	Peri.	178.71261	+0.17169878	-0.98218124
a	2.6997751	Node	261.39692	+0.90312024	+0.18791644
e	0.0881900	Incl.	4.43261	+0.39356493	-0.00272338
P	4.44	H	16.5	G 0.25	

Residuals in seconds of arc

791122	675	3.4+	2.0+		810301	413	3.0+	0.3+		810412	413	1.4-	0.2+
791124	675	1.3+	0.5+		810301	413	4.6-	1.8+		810503	413	0.6-	1.8-
791125	675	4.8-	1.1-		810311	413	2.3-	0.7+					
810214	413	1.8+	0.8-		810315	413	4.4+	1.6-					

1981 EM38
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	110.14357		(1950.0)	P	Q
n	0.21382179	Peri.	164.74337	-0.31883663	-0.94586325
a	2.7697184	Node	303.81389	+0.86172605	-0.26261020
e	0.1199209	Incl.	4.19045	+0.39467888	-0.19073175
P	4.61	H	16.5	G 0.25	

Residuals in seconds of arc

791122	675	1.2-	0.4-	810306	413	1.0-	0.5+	810409	413	0.3-	0.8+
791124	675	0.4+	0.6-	810306	413	4.9+	2.1-	810409	413	1.3+	0.0
791125	675	0.9+	0.6+	810308	413	1.9-	1.1+	810501	413	0.0	1.6-
810212	413	1.3+	0.1-	810308	413	2.3-	1.7+	810503	413	1.3-	1.4-
810212	413	0.0	0.8-	810312	413	2.5-	0.8+				
810301	413	0.6+	0.3-	810312	413	1.1+	0.6+				

1981 ES39

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

M	67.47574		(1950.0)	P	Q
n	0.18966896	Peri.	175.07018	-0.06795328	-0.99740243
a	3.0001254	Node	278.82483	+0.91448766	-0.05269530
e	0.1745391	Incl.	1.38535	+0.39886674	-0.04910804
P	5.20	H	16.0	G 0.25	

Residuals in seconds of arc

791124	675	0.7-	0.1-	810307	413	2.4-	1.5+	810430	413	2.2-	2.1+
791125	675	0.5+	0.7+	810307	413	0.6+	0.2-	810502	413	0.5-	1.5+
810213	413	1.4-	0.2-	810311	413	0.5-	0.5+	810503	413	0.1+	2.7-
810302	413	1.1-	0.0	810311	413	1.3+	0.4-				
810302	413	4.0+	1.8-	810426	413	2.0+	0.2-				

1981 EV41

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

M	131.74487		(1950.0)	P	Q
n	0.22020878	Peri.	139.67632	-0.28693854	-0.95762798
a	2.7159003	Node	326.97659	+0.86672705	-0.24850263
e	0.0413949	Incl.	2.60798	+0.40798344	-0.14558538
P	4.48	H	15.0	G 0.25	

Residuals in seconds of arc

791122	675	1.4-	0.3+	810213	413	0.3+	0.4-	810315	413	0.8-	1.5+
791124	675	1.3-	0.0	810302	413	1.6+	0.7-	810405	413	0.3-	0.5+
791125	675	3.1+	1.4+	810302	413	1.3+	0.7-	810405	413	(6.7+	1.7-)
810212	413	0.7-	0.2+	810306	413	0.3+	1.0-	810501	413	0.1-	0.1-
810212	413	0.3+	0.5-	810311	413	0.7-	0.5+	810503	413	0.3-	0.2-

1981 EO42

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

M	247.34987		(1950.0)	P	Q
n	0.24480231	Peri.	27.10938	+0.83702430	-0.54707115
a	2.5308121	Node	6.08674	+0.48299171	+0.72999089
e	0.1368450	Incl.	5.50500	+0.25711733	+0.40966628
P	4.03	H	14.0	G 0.25	

Residuals in seconds of arc

791122	675	0.3+	0.0	810311	413	0.5-	0.8-	810407	413	3.2+	0.2-
791124	675	0.1+	0.4+	810311	413	0.1+	0.3-	810410	413	1.6-	1.7+
791125	675	0.5-	0.7+	810315	413	1.6-	0.1+	810410	413	1.1+	0.3+
810209	413	0.6+	0.3+	810315	413	1.0+	0.5-	810426	413	4.0+	1.3-
810212	413	0.0	0.6+	810405	413	1.3-	0.8+	810501	413	1.6-	0.2-
810213	413	0.5+	0.6+	810405	413	3.7+	0.4-	810501	413	3.7-	0.1+
810302	413	1.2-	1.1-	810406	413	1.4-	0.6+	810503	413	2.2-	0.2-
810302	413	0.1+	1.5-	810406	413	1.0+	0.0				
810306	413	0.1-	1.2+	810407	413	0.9-	0.2+				

1981 EV46
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	94.93517	(1950.0)		P	Q
n	0.30623903	Peri.	353.91349	+0.79283592	+0.60933117
a	2.1798665	Node	328.53662	-0.55820449	+0.71865108
e	0.1968964	Incl.	1.23584	-0.24457912	+0.33504648
P	3.22	H	16.0	G 0.25	

Residuals in seconds of arc

791122 675	0.7+	0.6-	810213 413	0.9+	0.1+	810311 413	1.0+	0.4-
791124 675	2.2-	0.5-	810302 413	4.8-	1.6+	810411 413	0.4-	0.2+
791125 675	1.5+	0.9+	810307 413	0.6+	0.2-	810430 413	0.4-	0.3+
810209 413	0.6-	0.4-	810311 413	3.3+	0.7-	810502 413	0.1+	0.5-

1981 EF47
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	72.26439	(1950.0)		P	Q
n	0.19854353	Peri.	112.26457	-0.48503776	-0.87446789
a	2.9100453	Node	6.76179	+0.78004852	-0.43608078
e	0.0808553	Incl.	3.23951	+0.39530074	-0.21246047
P	4.96	H	15.0	G 0.25	

Residuals in seconds of arc

791122 675	4.1-	0.5-	810302 413	1.7+	0.7-	810426 413	1.6-	0.4+
791124 675	1.3+	0.7+	810306 413	0.9+	1.1-	810502 413	2.9-	0.8+
791125 675	3.1+	1.8+	810311 413	0.8-	0.9+			
810213 413	2.4-	0.8+	810405 413	4.5+	0.8-			

1981 GG = 1979 WE8
The identification is by S. J. Bus.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	100.24107	(1950.0)		P	Q
n	0.22901924	Peri.	127.96607	-0.94675102	-0.28818750
a	2.6457914	Node	35.93961	+0.15981738	-0.80772717
e	0.1833502	Incl.	14.15818	+0.27950117	-0.51431973
P	4.30	H	13.5	G 0.25	

Residuals in seconds of arc

791122 675	0.0	0.0	810405 688	1.8+	0.2-	810410 688	0.9-	0.2+
791124 675	0.2+	0.4-	810405 688	1.5-	0.0	810503 688	0.9+	0.9+
791125 675	0.2-	0.4+	810410 688	0.6+	0.1+	810503 688	0.8-	1.0-

1981 JQ = 1979 VT2 = 1985 GN1
The key identification 1981 JQ = 1979 VT2 is by S. J. Bus.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	164.37023	(1950.0)		P	Q
n	0.24465145	Peri.	109.54587	-0.79495022	-0.60396865
a	2.5318524	Node	33.37125	+0.51025162	-0.71665549
e	0.1576379	Incl.	5.97270	+0.32817286	-0.34875031
P	4.03	H	13.0	G 0.25	

Residuals in seconds of arc

791114 095	1.0-	0.3-	810503 688	0.9+	2.0-	810604 688	0.6+	0.2+
791122 675	0.5+	0.6+	810505 675	1.2+	0.2-	850415 688	0.5-	1.3+
791124 675	0.7+	0.6-	810506 675	0.1-	1.2+	850415 688	0.9+	0.7+
791125 675	0.2-	0.8-	810511 675	2.5-	1.5+			
810503 688	0.6-	2.2-	810604 688	0.2-	0.6+			

1985 PE1 = 1979 WM8
The identification is by E. Bowell.
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	107.75850	(1950.0)		P	Q
n	0.30975430	Peri.	8.84594	+0.72963704	+0.68247314
a	2.1633428	Node	308.02526	-0.63067758	+0.64719953
e	0.2374969	Incl.	3.13860	-0.26433988	+0.33965155
P	3.18	H	15.0	G 0.25	

Residuals in seconds of arc

791124	675	0.2-	0.0	850815	688	0.1+	0.1-	850918	688	0.3-	0.3+
791125	675	0.3+	0.3+	850914	688	0.5+	0.0	850918	688	0.9-	0.1+
850815	688	0.4+	0.4+	850914	688	0.9+	0.3-				

1985 TC1 = 1979 HY1 = 1979 HW2 = 1980 JU
Epoch 1986 June 19.0 ET = JDE 2446600.5 (J-P)

M	185.04547	(1950.0)		P	Q
n	0.08181055	Peri.	193.18012	-0.80737468	+0.58054088
a	5.2552984	Node	23.29545	-0.51425357	-0.60472845
e	0.0387778	Incl.	15.46369	-0.28929119	-0.54523003
P	12.05	H	9.0	G 0.25	

Residuals in seconds of arc

790420	095	0.1+	0.5+	851015	688	1.1+	0.1-	851107	688	1.1+	0.8+
790425	095	0.5-	1.0-	851020	688	0.2+	1.0-	860108	801	0.6-	0.8+
800510	095	0.2-	0.4-	851020	688	2.0-	1.0-	860113	801	0.1-	0.3-
851015	688	0.5+	0.2-	851107	688	0.3+	0.4+				

1986 DA
Epoch 1986 June 19.0 ET = JDE 2446600.5

M	15.09493	(1950.0)		P	Q
n	0.20853490	Peri.	126.71612	-0.97873804	+0.19362615
a	2.8163300	Node	64.53707	-0.20383183	-0.88130346
e	0.5860153	Incl.	4.29910	-0.02290069	-0.43106046
P	4.73	H	16.0	G 0.25	

From 33 observations 1986 Feb. 5-Mar. 16, mean residual 1".2.

1986 EB
Epoch 1986 Mar. 11.0 ET = JDE 2446500.5

M	163.28568	(1950.0)		P	Q
n	1.02558506	Peri.	359.31759	+0.99896877	+0.04331694
a	0.9738415	Node	358.03811	-0.03954423	+0.68289344
e	0.2806237	Incl.	23.41216	-0.02230808	+0.72923260
P	0.96	H	16.0	G 0.25	

From 12 observations 1986 Mar. 4-Mar. 20.

* * * * *

NEW NAMES OF MINOR PLANETS.

(2518) Rutllant = 1974 FG
Discovered 1974 Mar. 22 by C. Torres at Cerro El Roble.
Named in memory of Federico Rutllant Alcina (1904-1971), director of the Observatorio Astronomico Nacional of the Universidad de Chile in Santiago from 1950 to 1963, later professor of mathematics at the Universidad Tecnica Federico Santa Maria in Valparaiso. Among his principal contributions to Chilean astronomy were his arrangement for moving the observatory from Lo Espejo to its present location at Cerro Calan, an agreement with the University of Florida that created the Radio Observatorio de Maipu, an agreement with the Universities of Chicago and Texas--and later AURA--that

produced the Cerro Tololo Interamerican Observatory, and an agreement with the U.S.S.R. Academy of Sciences that produced the Estacion Astronomica de Cerro El Roble--where this minor planet was discovered.

(2528) Mohler = 1953 TF1

Discovered 1953 Oct. 8 at the Goethe Link Observatory, Indiana University.

Named in memory of Orren C. Mohler (1908-1985), solar astronomer, director of the McMath-Hulbert Observatory (1962-1979), chairman of the department of astronomy at the University of Michigan (1962-1970), member of the board of directors of the Association of Universities for Research in Astronomy (1962-1974). Mohler pioneered the exploration of the infrared solar spectrum with the lead sulphide infrared detector. His development of the vacuum spectrograph at the McMath-Hulbert Observatory led to the discovery of the "wiggly" solar spectral lines and to an understanding of the role of turbulence in the structure of the solar photosphere. Name proposed by F. K. Edmondson. Citation written by W. A. Hiltner.

(2536) Kozyrev = 1939 PJ

Discovered 1939 Aug. 15 by G. Neujmin at Simeis.

Named in honor of Nikolaj Aleksandrovich Kozyrev (1908-1983), a staff member of the Pulkovo Observatory, distinguished expert on the physics of stars, the moon and the planets, skillful experimenter and observer. He developed a theory on extended atmospheres and found properties of the radiation emitted from them, and he discovered volcanic activity on the moon and the presence of hydrogen in the atmosphere of Mercury.

(2654) Ristenpart = 1968 OG

Discovered 1968 July 18 by C. Torres at Cerro El Roble.

Named in memory of the German astronomer Friedrich Wilhelm Ristenpart (1868-1913), appointed in 1906 as director of the Observatorio Astronomico Nacional in Santiago with the mission to modernize it. He accomplished the move from the downtown site of Quinta Normal to Lo Espejo, about 13 km south of the city. Of the 1260 plates assigned to the Santiago zone of the Astrographic Catalogue, 745 were taken before his untimely death. A series of fifty charts showing southern-hemisphere stars down to tenth magnitude is known as the Carta de Ristenpart.

(2681) Ostrovskij = 1975 VF2

Discovered 1975 Nov. 2 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Named in memory of Nikolaj Alekseevich Ostrovskij (1904-1936), Soviet writer, known for his book "How the steel was tempered".

(2741) Valdivia = 1975 XG

Discovered 1975 Dec. 1 by C. Torres at Cerro El Roble.

Named in memory of the Spanish Captain Pedro de Valdivia (1502-1553), conqueror of Chile, who left Peru accompanied by seven soldiers, one Spanish woman and many Indians, to realize his dreams of being discoverer of new territories and governor of a country, of laying the foundations of new cities, and of mixing the Spanish and native races as the first step for a new identity.

(2860) Pasacentennium = 1978 TA

Discovered 1978 Oct. 8 by E. F. Helin at Palomar.

Named as a celestial tribute to the city of Pasadena, home of Caltech, and a world center for astronomical research, in honor of the Pasadena Centennial, 1886-1986. The name was suggested by city of Pasadena.

(2976) Lautaro = 1974 HR

Discovered 1974 Apr. 22 by C. Torres at Cerro El Roble.

Named in honor of the Chilean Indian Levtraru (1534-1557), modified to Lautaro (Swift Hawk) by the Spanish soldiers during the conquest of Chile. Son of an Indian chief, he was made prisoner by Pedro de Valdivia, who named him his horseboy. In this activity, Lautaro learned a great deal about Spanish soldiers, their horses and military science, knowledge he used together with his own strategies when, at the age of 18, he became by acclamation big chief of all tribes to defend their land against the Spanish soldiers. After Lautaro's death his head was brought to Santiago and exhibited for fifteen days at the center of Plaza de Armas.

(3036) Krat = 1937 TO

Discovered 1937 Oct. 11 by G. Neujmin at Simeis.

Named in memory of Vladimir Alekseevich Krat (1911-1983), corresponding member of the U.S.S.R. Academy of Sciences, a staff member of the Pulkovo Observatory and from 1964 to 1979 its director. His main contributions to astronomy involved solar physics and chromospheric structure, figures of equilibrium of close binaries, classification of eclipsing variables and cosmogony. He initiated and actively participated in the development of the first Soviet stratospheric balloon observatory.

(3039) Yangel = 1978 SP2

Discovered 1978 Sept. 26 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Named in memory of Mikhail Kuz'mich Yangel' (1911-1971), Soviet designer of space-rocket systems.

(3050) Carrera = 1972 NW

Discovered 1972 July 13 by C. Torres at Cerro El Roble.

Named in memory of the brothers Carrera, Javiera (1781-1862), Juan Jose (1782-1818), Jose Miguel (1785-1821) and Luis (1791-1818), active participants in gaining Chile's independence from Spain, in spite of continuous disagreements with Bernardo O'Higgins, the "Father of the Country", and Jose de San Martin, an Argentine general and political liberator of Argentina, Chile and Peru. Jose Miguel Carrera was the first president of Chile. During his government Chile acquired its first political constitution, a law against slavery, a law prohibiting obedience to foreign authorities, a law of civil rights, and the establishment of diplomatic relations with the United States.

(3063) Makhaon = 1983 PV

Discovered 1983 Aug. 4 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Named for the physician to the Greek troops during the Trojan War.

(3068) Khanina = 1982 YJ1

Discovered 1982 Dec. 23 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Named in honor of Frida Borisovna Khanina, specialist on orbit computations, a staff member of the Institute for Theoretical Astronomy from 1946 to 1983. She contributed extensively to nearly forty volumes of Efemeridy Malykh Planet and improved the orbits of many hundreds of minor planets.

(3080) Moisseiev = 1935 TE

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

Named in memory of Nikolaj Dmitrevich Moisseiev [Moiseev] (1902-1955), professor at Moscow University and founder of the Moscow school of celestial

mechanics. He studied the secular and long-period perturbations in the motion of natural celestial bodies, especially minor planets.

(3082) Dzhalil = 1972 KE

Discovered 1972 May 17 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Named in memory of Musa Mustafovich Dzhalil' (1906-1944), outstanding Tatar Soviet poet, author of lyric poetry, poems and opera libretti.

(3086) Kalbaugh = 1980 XE

Discovered 1980 Dec. 4 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Carroll Kalbaugh Liller, father of astronomer William Liller, lover of life and nature, friend of all who come in peace. Named by the discoverer following a suggestion by W. Liller.

(3117) Niepce = 1983 CM1

Discovered 1983 Feb. 11 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory.

Named for the Frenchman Joseph Nicephore Niepce (1765-1833), who made the world's first photograph in 1827 using the bitumen heliographic process. Name suggested by Douglas B. Thomas, brother of the discoverer.

(3119) Dobronravin = 1972 YX

Discovered 1972 Dec. 30 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Named in honor of Petr Pavlovich Dobronravin, well-known Soviet astrophysicist and spectroscopist, who served successively on the staffs of the Leningrad Astronomical Institute, the Leningrad State Optical Institute and the Pulkovo Observatory. As deputy director of the Crimean Astrophysical Observatory during 1952-1969 he made an impressive contribution to the development of that organization, equipping it with powerful optical and radio telescopes.

(3129) Bonestell = 1979 MK2

Discovered 1979 June 25 by E. F. Helin and S. J. Bus at Siding Spring.

Named in honor of Chesley Bonestell, whose art has inspired generations of astronomers, space enthusiasts and artists. Name proposed by the first discoverer, following a suggestion from Ronald Paludan.

(3134) Kostinsky = A921 VA

Discovered 1921 Nov. 5 by S. Belyavskij at Simeis.

Named in honor of Sergej Konstantinovich Kostinsky (1867-1936), one of the founders of astrophotography and photographical astrometry in Russia, a corresponding member of the U.S.S.R. Academy of Sciences and a staff member of the Pulkovo Observatory. He made numerous determinations of stellar parallaxes and proper motions, studied star clusters and nebulae, as well as planets and their satellites.

(3151) Talbot = 1983 HF

Discovered 1983 Apr. 18 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory.

Named for the Englishman William Henry Fox Talbot (1800-1877), who made the first silver nitrate photographic negatives in 1834. With Rawlinson and Hincks he was one of the earliest to decipher the cuniform inscriptions of Nineveh.

(3215) Lapko = 1980 BQ
Discovered 1980 Jan. 23 by L. G. Karachkina at the Crimean Astrophysical Observatory.
Named in honor of Konstantin Kuz'mich Lapko, assistant professor at the Crimean medical institute, a surgeon to whom the discoverer owes her recovery.

(3237) Victorplatt = 1984 SA5
Discovered 1984 Sept. 25 by J. Platt on films taken at Palomar by C. S. Shoemaker and E. M. Shoemaker.
Named in honor of Victor D. Platt, M.D., father of the discoverer.

(3256) Daguerre = 1981 SJ1
Discovered 1981 Sept. 26 by B. A. Skiff and N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory.
Named for the Frenchman Louis Jacques Mande Daguerre (1787-1851), who invented the daguerrotype photographic process in 1835.

(3333) Schaber = 1980 TG5
Discovered 1980 Oct. 9 by C. S. Shoemaker on films taken by S. J. Bus at Palomar.
Named in honor of Gerald G. Schaber, geologist with the U.S. Geological Survey and chief of the branch of astrogeology since 1983. Schaber is specially recognized for his research on the geology of the moon, Mercury, Venus, Mars and the satellite Io and for the application of radar to the investigation of the terrestrial planets. He was a codiscoverer, with J. F. McCauley and C. S. Breed, of the ancient buried river channels of the western desert of Egypt.

(3338) Richter = 1973 UX5
Discovered 1973 Oct. 28 by F. Borngen and K. Kirsch at Tautenburg.
Named in memory of Nikolaus B. Richter (1910-1980), first director of the Tautenburg Observatory (1960-1975), renowned for his experiments with meteorites and his comparative study of terrestrial particles and interplanetary matter. Author of the monograph "Statistik und Physik der Kometen" (1954; English edition published in 1963 under the title "The Nature of Comets"), he served as president of IAU Commission 15 during 1973-1976. He was also interested in the study of blue objects and compact galaxies.

(3344) Modena = 1982 JA
Discovered 1982 May 15 at the Osservatorio S. Vittore.
Named for the city near Bologna, famous for its beautiful bell-tower Ghirlandia, the Romanesque cathedral Duomo, and the military academy that was formerly the royal palace of the Estensi, the dynasty that governed the city until 1859. Modena was the home of the astronomers Montanari (1633-1687), Amici (1786-1863) and Bianchi (1791-1866). It is also the birthplace and residence of Ermes Colombini, an amateur astronomer of the group at the Osservatorio San Vittore in Bologna.

The following seven minor planets are named in memory of the astronauts who perished in the flight of the space shuttle Challenger on 1986 Jan. 28:

(3350) Scobee = 1980 PJ
Discovered 1980 Aug. 8 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in memory of Francis R. Scobee (1939-1986), commander.

(3351) Smith = 1980 RN1
Discovered 1980 Sept. 7 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in memory of Michael J. Smith (1945-1986), pilot.

(3352) McAuliffe = 1981 CW
Discovered 1981 Feb. 6 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory.
Named in memory of S. Christa C. McAuliffe (1948-1986), teacher observer.

(3353) Jarvis = 1981 YC
Discovered 1981 Dec. 20 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in memory of Gregory B. Jarvis (1944-1986), payload specialist.

(3354) McNair = 1984 CW
Discovered 1984 Feb. 8 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in memory of Ronald E. McNair (1950-1986), mission specialist.

(3355) Onizuka = 1984 CC1
Discovered 1984 Feb. 8 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in memory of Ellison S. Onizuka (1946-1986), mission specialist.

(3356) Resnik = 1984 EU
Discovered 1984 Mar. 6 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in memory of Judith A. Resnik (1949-1986), mission specialist.

(3362) Khufu = 1984 QA
Discovered 1984 Aug. 30 by R. S. Dunbar and M. A. Barucci at Palomar.
Named for the Egyptian god-king Khufu, better known by his Greek name of Cheops, a pharoah of the 29th century B.C. and builder of the largest of the great pyramids at Giza, one of the seven wonders of the ancient world.

(3367) Alex = 1983 CA3
Discovered 1983 Feb. 15 by N. G. Thomas at the Anderson Mesa Station of the Lowell Observatory.
Named by the discoverer in honor of his grandson, Alex R. Baltutis.

* * * * *

EPHEMERIDES.

1985 PA a,e,i = 1.41, 0.30, 56 Elements MPC 10531

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	03 11	04 39.41	+04 32.2	0.516	1.035	79.8	70.8	16.4
1986	03 16	04 58.23	+14 07.7					
1986	03 21	05 16.80	+22 35.4	0.579	1.066	80.5	67.1	16.6
1986	03 26	05 35.26	+29 45.9					
1986	03 31	05 53.69	+35 42.2	0.684	1.102	79.5	63.0	16.9
1986	04 05	06 12.21	+40 33.3					
1986	04 10	06 30.91	+44 29.6	0.808	1.143	77.5	58.9	17.2
1986	04 15	06 49.83	+47 40.6					
1986	04 20	07 09.00	+50 14.4	0.938	1.186	75.2	55.0	17.5
1986	04 25	07 28.40	+52 17.2					
1986	04 30	07 48.02	+53 53.9	1.065	1.231	72.8	51.4	17.8

1986 05 05	08 07.81	+55 08.2						
1986 05 10	08 27.73	+56 03.2	1.185	1.276	70.6	48.3	18.0	
1986 05 15	08 47.70	+56 41.1						
1986 05 20	09 07.63	+57 03.8	1.296	1.322	68.6	45.5	18.2	
1986 05 25	09 27.41	+57 12.8						
1986 05 30	09 46.97	+57 09.4	1.396	1.368	67.0	43.0	18.4	
1986 06 04	10 06.24	+56 54.5						
1986 06 09	10 25.16	+56 29.1	1.485	1.412	65.7	40.9	18.5	
1986 06 14	10 43.67	+55 54.0						
1986 06 19	11 01.74	+55 10.0	1.564	1.455	64.7	39.1	18.7	
1986 06 24	11 19.33	+54 17.6						
1986 06 29	11 36.44	+53 17.6	1.633	1.497	63.9	37.6	18.8	
1986 07 04	11 53.07	+52 10.4						
1986 07 09	12 09.25	+50 56.5	1.694	1.536	63.4	36.3	18.9	
1986 07 14	12 24.98	+49 36.6						
1986 07 19	12 40.29	+48 11.1	1.749	1.574	63.0	35.1	19.0	
1986 07 24	12 55.19	+46 40.5						
1986 07 29	13 09.72	+45 05.3	1.799	1.609	62.7	34.1	19.1	
1986 08 08	13 37.80	+41 42.7						
1986 08 18	14 04.77	+38 07.6	1.892	1.673	61.9	32.3	19.2	
1986 08 28	14 30.80	+34 24.2						
1986 09 07	14 56.12	+30 36.5	1.988	1.727	60.3	30.5	19.3	

Periodic Comet Shoemaker 3 (1986a) Elements MPC 10523

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1986 03 11	09 30.13	+25 00.2	1.100	2.002	146.0	16.1	13.7
1986 03 21	09 33.48	+24 31.8					
1986 03 31	09 39.19	+23 45.1	1.324	2.103	129.2	21.6	14.3
1986 04 10	09 46.93	+22 43.7					
1986 04 20	09 56.38	+21 30.8	1.604	2.217	114.4	24.4	15.0
1986 04 30	10 07.12	+20 09.1					
1986 05 10	10 18.84	+18 40.7	1.925	2.340	101.1	25.0	15.6
1986 05 20	10 31.26	+17 07.1					
1986 05 30	10 44.18	+15 29.9	2.273	2.470	88.9	24.2	16.2
1986 06 09	10 57.42	+13 50.0					
1986 06 19	11 10.88	+12 08.3	2.637	2.606	77.1	22.3	16.8
1986 06 29	11 24.45	+10 25.9					
1986 07 09	11 38.08	+08 43.3	3.003	2.744	65.6	19.7	17.3
1986 07 19	11 51.73	+07 01.2					
1986 07 29	12 05.35	+05 20.2	3.359	2.885	54.2	16.6	17.7

1986 DA a,e,i = 2.82, 0.59, 4 Elements MPC 10545

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 03 11	10 16.97	+33 02.7	0.252	1.213	147.3	26.2	14.5
1986 03 21	10 33.99	+32 12.9					
1986 03 31	10 58.78	+29 23.2	0.213	1.170	139.6	33.6	14.2
1986 04 10	11 29.83	+24 17.1					
1986 04 20	12 04.13	+17 09.4	0.209	1.176	141.7	32.0	14.1
1986 04 30	12 38.09	+09 01.7					
1986 05 10	13 09.21	+01 13.2	0.255	1.230	146.1	27.3	14.6
1986 05 20	13 36.86	-05 24.7					
1986 05 30	14 01.36	-10 38.0	0.361	1.324	144.1	26.7	15.5
1986 06 09	14 23.41	-14 36.7					
1986 06 19	14 43.89	-17 38.1	0.524	1.444	137.0	28.7	16.5
1986 06 29	15 03.38	-19 57.2					
1986 07 09	15 22.28	-21 45.3	0.739	1.581	127.7	30.6	17.5
1986 07 19	15 40.95	-23 10.7					
1986 07 29	15 59.52	-24 18.5	1.002	1.726	117.6	31.4	18.4

1986 EB a,e,i = 0.97, 0.28, 23 Elements MPC 10545

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	03 11	11 32.21	+25 02.4	0.261	1.240	158.9	16.7	14.3
1986	03 16	10 59.94	+21 42.0					
1986	03 21	10 31.44	+17 56.9	0.275	1.246	152.2	21.9	14.6
1986	03 26	10 07.94	+14 09.3					
1986	03 31	09 49.53	+10 35.3	0.316	1.247	136.4	33.5	15.2
1986	04 05	09 35.74	+07 22.5					
1986	04 10	09 25.87	+04 32.1	0.372	1.242	122.5	42.9	15.8
1986	04 15	09 19.22	+02 02.0					
1986	04 20	09 15.16	-00 11.1	0.436	1.232	111.3	49.4	16.3
1986	04 25	09 13.15	-02 10.7					
1986	04 30	09 12.77	-03 59.4	0.501	1.217	102.3	54.0	16.7
1986	05 05	09 13.73	-05 40.0					
1986	05 10	09 15.78	-07 14.4	0.562	1.196	94.9	57.2	17.0
1986	05 15	09 18.74	-08 44.4					
1986	05 20	09 22.44	-10 11.3	0.616	1.171	88.5	59.8	17.2
1986	05 25	09 26.75	-11 36.1					
1986	05 30	09 31.57	-12 59.4	0.661	1.140	82.9	61.9	17.4
1986	06 04	09 36.84	-14 21.8					
1986	06 09	09 42.50	-15 43.8	0.694	1.104	78.0	64.0	17.5
1986	06 14	09 48.49	-17 05.9					
1986	06 19	09 54.76	-18 28.0	0.714	1.064	73.6	66.3	17.5
1986	06 24	10 01.26	-19 50.1					
1986	06 29	10 07.96	-21 11.9	0.719	1.020	69.6	69.1	17.5
1986	07 04	10 14.84	-22 33.1					
1986	07 09	10 21.86	-23 53.2	0.708	0.973	65.8	72.5	17.5

Periodic Comet Forbes Elements MPC 10524

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		m2
1986	03 11	11 37.03	+06 27.5	2.021	3.012	-0.87	+6.5	19.5
1986	03 21	11 27.60	+07 18.1					
1986	03 31	11 18.24	+08 03.5	1.946	2.894	-0.84	+6.2	19.5
1986	04 10	11 09.84	+08 38.9					
1986	04 20	11 03.22	+09 00.5	1.977	2.773	-0.76	+5.6	19.6
1986	04 30	10 58.90	+09 06.5					
1986	05 10	10 57.13	+08 56.5	2.079	2.649	-0.68	+5.2	19.8
1986	05 20	10 57.96	+08 31.1					
1986	05 30	11 01.25	+07 51.2	2.214	2.524	-0.62	+5.0	19.9
1986	06 09	11 06.83	+06 58.0					
1986	06 19	11 14.48	+05 52.4	2.348	2.396	-0.60	+5.0	20.0
1986	06 29	11 23.99	+04 35.4					
1986	07 09	11 35.18	+03 07.7	2.462	2.268	-0.62	+5.3	20.0
1986	07 19	11 47.91	+01 30.1					
1986	07 29	12 02.07	-00 16.6	2.546	2.141	-0.67	+5.7	19.9
1986	08 08	12 17.60	-02 11.8					
1986	08 18	12 34.47	-04 14.5	2.594	2.015	-0.75	+6.3	19.7
1986	08 28	12 52.68	-06 23.7					
1986	09 07	13 12.27	-08 38.2	2.609	1.894	-0.86	+6.8	19.5

1983 RD a,e,i = 2.09, 0.49, 10 Elements MPC 8534

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	18 56.03	-09 59.3	1.443	1.955	104.6	29.8	20.4
1986	04 30	19 08.65	-08 23.9					
1986	05 10	19 19.95	-06 36.1	1.137	1.830	116.8	29.5	19.7
1986	05 20	19 29.63	-04 36.7					
1986	05 30	19 37.43	-02 26.8	0.866	1.700	129.3	27.5	18.9
1986	06 09	19 42.96	-00 08.8					
1986	06 19	19 45.85	+02 12.5	0.640	1.567	141.3	23.9	18.0

1986 06 29	19 45.85	+04 30.3					
1986 07 09	19 42.81	+06 33.1	0.463	1.436	149.8	20.8	17.0
1986 07 19	19 37.09	+08 05.0					
1986 07 29	19 29.73	+08 47.7	0.333	1.311	148.5	23.9	16.2
1986 08 08	19 22.46	+08 20.1					
1986 08 18	19 18.00	+06 22.2	0.239	1.201	138.2	34.2	15.6
1986 08 28	19 19.45	+02 34.5					
1986 09 07	19 30.71	-03 33.4	0.168	1.119	127.9	45.3	14.9
1986 09 17	19 57.91	-12 38.8					
1986 09 27	20 50.72	-24 40.5	0.120	1.076	125.0	49.8	14.2
1986 10 07	22 18.90	-36 04.6					
1986 10 17	00 04.80	-40 21.7	0.131	1.081	127.4	47.0	14.3
1986 10 27	01 26.31	-37 42.3					
1986 11 06	02 15.42	-32 26.9	0.200	1.134	131.5	40.9	15.2
1986 11 16	02 44.61	-26 45.0					
1986 11 26	03 03.47	-21 12.9	0.305	1.224	135.6	34.4	16.1
1986 12 06	03 17.41	-15 58.1					
1986 12 16	03 29.52	-11 04.9	0.448	1.338	134.7	31.5	17.1
1986 12 26	03 41.29	-06 37.3					
1987 01 05	03 53.52	-02 36.3	0.636	1.465	128.2	31.9	18.0
1987 01 15	04 06.61	+00 57.4					
1987 01 25	04 20.62	+04 04.4	0.872	1.597	118.6	32.8	18.9
1987 02 04	04 35.55	+06 46.5					
1987 02 14	04 51.32	+09 05.2	1.149	1.729	107.8	32.9	19.7
1987 02 24	05 07.77	+11 02.2					
1987 03 06	05 24.81	+12 39.2	1.458	1.858	96.8	32.0	20.4

Periodic Comet Holmes — Elements MPC 8273

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1986 05 30	01 44.19	+22 41.0		2.969	2.243	36.9	15.8	19.9
1986 06 09	02 03.35	+25 13.8						
1986 06 19	02 22.45	+27 40.0		2.871	2.284	45.9	18.6	19.9
1986 06 29	02 41.40	+29 59.2						
1986 07 09	03 00.10	+32 11.0		2.754	2.334	55.5	21.0	19.9
1986 07 19	03 18.40	+34 15.5						
1986 07 29	03 36.11	+36 12.9		2.619	2.390	65.8	22.8	19.9
1986 08 08	03 53.02	+38 03.5						
1986 08 18	04 08.81	+39 48.0		2.469	2.452	77.2	23.7	19.9
1986 08 28	04 23.17	+41 27.2						
1986 09 07	04 35.69	+43 01.8		2.309	2.518	89.9	23.6	19.8
1986 09 17	04 45.92	+44 32.4						
1986 09 27	04 53.37	+45 58.7		2.152	2.589	104.3	22.0	19.8
1986 10 07	04 57.52	+47 19.7						
1986 10 17	04 57.94	+48 32.5		2.017	2.663	120.4	18.8	19.8
1986 10 27	04 54.40	+49 32.8						
1986 11 06	04 47.04	+50 14.2		1.929	2.740	137.1	14.2	19.8
1986 11 16	04 36.62	+50 30.6						
1986 11 26	04 24.51	+50 17.6		1.919	2.818	150.2	10.0	19.9
1986 12 06	04 12.39	+49 35.0						
1986 12 16	04 01.93	+48 27.8		2.008	2.898	149.3	10.0	20.1
1986 12 26	03 54.27	+47 04.6						
1987 01 05	03 49.94	+45 34.4		2.196	2.979	135.6	13.4	20.4

Periodic Comet Whipple (1985h) — Elements MPC 8274

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1986 05 30	01 54.69	+09 18.1		3.816	3.080	37.9	11.7	20.3
1986 06 09	02 08.79	+10 13.2						
1986 06 19	02 22.56	+11 01.8		3.631	3.078	50.0	14.7	20.2
1986 06 29	02 35.88	+11 43.5						

1986 07 09	02 48.66	+12 17.5	3.411	3.078	62.6	17.1	20.0
1986 07 19	03 00.74	+12 43.4					
1986 07 29	03 11.97	+13 00.6	3.166	3.082	76.0	18.6	19.9
1986 08 08	03 22.17	+13 09.0					
1986 08 18	03 31.12	+13 08.0	2.909	3.089	90.6	19.1	19.7
1986 08 28	03 38.62	+12 57.6					
1986 09 07	03 44.42	+12 37.9	2.656	3.100	106.7	18.1	19.5
1986 09 17	03 48.32	+12 09.0					
1986 09 27	03 50.15	+11 31.8	2.430	3.113	124.8	15.3	19.4
1986 10 07	03 49.80	+10 47.4					
1986 10 17	03 47.35	+09 57.8	2.262	3.129	144.8	10.6	19.2
1986 10 27	03 43.03	+09 05.8					
1986 11 06	03 37.28	+08 14.9	2.182	3.149	164.4	4.8	19.2
1986 11 16	03 30.78	+07 29.2					
1986 11 26	03 24.28	+06 52.5	2.213	3.171	163.2	5.2	19.2
1986 12 06	03 18.51	+06 27.5					
1986 12 16	03 14.10	+06 16.1	2.353	3.195	143.1	10.7	19.4
1986 12 26	03 11.45	+06 18.2					
1987 01 05	03 10.78	+06 32.9	2.582	3.223	122.8	14.9	19.6
1987 01 15	03 12.12	+06 58.5					
1987 01 25	03 15.39	+07 32.8	2.866	3.252	104.3	17.1	19.9
1987 02 04	03 20.44	+08 13.6					
1987 02 14	03 27.08	+08 59.0	3.175	3.284	87.5	17.5	20.2
1987 02 24	03 35.11	+09 46.9					
1987 03 06	03 44.35	+10 35.7	3.484	3.317	72.1	16.5	20.4

Comet Shoemaker (1986b) Elements MPC 10523

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1986 03 11	11 57.14	+25 24.3	2.672	3.607	157.1	6.2	15.7
1986 03 21	11 30.11	+27 23.1					
1986 03 31	11 03.73	+28 42.1	2.781	3.611	140.8	10.1	15.8
1986 04 10	10 39.82	+29 21.5					
1986 04 20	10 19.58	+29 28.1	3.078	3.624	115.4	14.5	16.0
1986 04 30	10 03.39	+29 11.2					
1986 05 10	09 51.05	+28 39.2	3.477	3.646	91.5	16.1	16.3
1986 05 20	09 42.11	+27 58.6					
1986 05 30	09 35.98	+27 13.5	3.896	3.677	70.1	15.0	16.6
1986 06 09	09 32.15	+26 26.6					
1986 06 19	09 30.11	+25 39.4	4.278	3.716	50.5	12.2	16.9
1986 06 29	09 29.47	+24 53.0					
1986 07 09	09 29.88	+24 07.8	4.584	3.763	32.2	8.3	17.1

Periodic Comet Kohoutek Elements MPC 10522

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1986 06 19	21 55.09	-07 19.0	3.305	3.893	118.4	13.3	20.4
1986 06 29	21 53.79	-07 06.8					
1986 07 09	21 50.79	-07 03.5	2.992	3.811	138.2	10.2	20.1
1986 07 19	21 46.15	-07 09.8					
1986 07 29	21 40.06	-07 25.1	2.759	3.726	159.4	5.5	19.7
1986 08 08	21 32.84	-07 48.6					
1986 08 18	21 25.01	-08 18.2	2.633	3.639	172.7	2.0	19.5
1986 08 28	21 17.19	-08 51.3					
1986 09 07	21 10.01	-09 25.0	2.623	3.549	152.7	7.5	19.6
1986 09 17	21 04.07	-09 56.4					
1986 09 27	20 59.82	-10 23.2	2.716	3.458	131.0	12.6	19.7
1986 10 07	20 57.53	-10 43.6					
1986 10 17	20 57.34	-10 56.4	2.879	3.363	110.7	16.1	19.9
1986 10 27	20 59.21	-11 00.8					
1986 11 06	21 03.06	-10 56.5	3.075	3.267	92.2	17.7	20.0

1986 11 16	21 08.72	-10 43.2						
1986 11 26	21 16.00	-10 20.9	3.271	3.169	75.4	17.5	20.1	
1986 12 06	21 24.73	-09 49.8						
1986 12 16	21 34.72	-09 09.7	3.442	3.068	59.9	16.1	20.1	
1986 12 26	21 45.79	-08 21.2						
1987 01 05	21 57.82	-07 24.2	3.570	2.966	45.6	13.7	20.0	
1987 01 15	22 10.66	-06 19.3						
1987 01 25	22 24.22	-05 06.7	3.647	2.863	32.3	10.6	19.9	

Periodic Comet Ashbrook-Jackson (1985a) Elements TITA 18

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1986 06 19	03 03.23	+22 55.9	3.251	2.521	37.4	14.2	18.1
1986 06 29	03 20.54	+24 35.1					
1986 07 09	03 37.45	+26 07.5	3.143	2.578	48.1	17.1	18.1
1986 07 19	03 53.83	+27 33.4					
1986 07 29	04 09.52	+28 53.1	3.004	2.639	59.6	19.4	18.1
1986 08 08	04 24.36	+30 07.6					
1986 08 18	04 38.11	+31 17.4	2.838	2.704	72.1	20.9	18.1
1986 08 28	04 50.55	+32 23.7					
1986 09 07	05 01.40	+33 27.3	2.653	2.772	86.0	21.3	18.0
1986 09 17	05 10.33	+34 29.2					
1986 09 27	05 17.04	+35 30.0	2.464	2.843	101.7	20.2	18.0
1986 10 07	05 21.16	+36 29.6					
1986 10 17	05 22.40	+37 27.1	2.293	2.915	119.5	17.3	17.9
1986 10 27	05 20.58	+38 20.5					
1986 11 06	05 15.69	+39 06.2	2.170	2.989	139.0	12.6	17.9
1986 11 16	05 08.09	+39 40.0					
1986 11 26	04 58.51	+39 58.2	2.129	3.064	157.5	7.1	18.0
1986 12 06	04 48.03	+39 58.3					
1986 12 16	04 37.89	+39 41.2	2.196	3.140	160.2	6.1	18.2
1986 12 26	04 29.21	+39 10.3					
1987 01 05	04 22.80	+38 30.8	2.373	3.216	143.2	10.5	18.4
1987 01 15	04 19.09	+37 48.2					
1987 01 25	04 18.15	+37 07.0	2.641	3.291	123.7	14.4	18.8
1987 02 04	04 19.83	+36 29.9					
1987 02 14	04 23.88	+35 58.3	2.968	3.367	105.4	16.4	19.1
1987 02 24	04 29.96	+35 32.3					
1987 03 06	04 37.80	+35 11.6	3.322	3.442	88.6	16.7	19.5
1987 03 16	04 47.10	+34 55.1					
1987 03 26	04 57.60	+34 41.6	3.676	3.517	73.0	15.7	19.8
1987 04 05	05 09.08	+34 30.2					
1987 04 15	05 21.35	+34 19.6	4.011	3.591	58.6	13.8	20.1
1987 04 25	05 34.24	+34 08.9					
1987 05 05	05 47.59	+33 57.5	4.308	3.664	44.9	11.2	20.3
1987 05 15	06 01.28	+33 44.6					
1987 05 25	06 15.19	+33 29.8	4.557	3.736	31.9	8.2	20.5

1956 SC a,e,i = 1.99, 0.03, 21 Elements MPC 10535

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 03 11	12 17.96	+01 07.3	0.956	1.935	165.7	7.3	14.8
1986 03 21	12 01.76	-00 00.8					
1986 03 31	11 45.36	-01 09.3	0.950	1.937	167.4	6.5	14.8
1986 04 10	11 30.96	-02 18.2					
1986 04 20	11 20.20	-03 28.5	1.043	1.939	142.5	18.4	15.4
1986 04 30	11 13.77	-04 41.5					
1986 05 10	11 11.61	-05 58.2	1.208	1.943	122.1	26.1	15.9
1986 05 20	11 13.34	-07 19.9					
1986 05 30	11 18.37	-08 47.4	1.410	1.948	105.8	30.1	16.3

1983 SC a,e,i = 2.69, 0.03, 7 Elements MPC 10517

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	03 11	13 25.06	-15 52.1	1.767	2.633	143.6	12.9	16.6
1986	03 21	13 18.67	-15 54.1					
1986	03 31	13 10.47	-15 40.2	1.652	2.631	165.2	5.6	16.2
1986	04 10	13 01.33	-15 12.3					
1986	04 20	12 52.36	-14 35.2	1.643	2.628	165.9	5.3	16.2
1986	04 30	12 44.61	-13 55.1					
1986	05 10	12 38.85	-13 18.1	1.737	2.627	144.7	12.8	16.6
1986	05 20	12 35.56	-12 49.5					
1986	05 30	12 34.88	-12 32.6	1.912	2.625	124.8	18.5	16.9
1986	06 09	12 36.72	-12 28.9					
1986	06 19	12 40.90	-12 38.6	2.137	2.625	107.3	21.7	17.3

(3393) 1984 WY1 a,e,i = 2.59, 0.07, 10 Elements MPC 10514

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	03 11	13 28.23	-00 31.2	1.616	2.514	148.1	12.1	16.4
1986	03 21	13 23.29	+00 55.4					
1986	03 31	13 16.50	+02 26.7	1.516	2.502	167.9	4.8	16.0
1986	04 10	13 08.71	+03 54.1					
1986	04 20	13 00.97	+05 08.4	1.522	2.489	159.9	8.0	16.1
1986	04 30	12 54.31	+06 03.0					
1986	05 10	12 49.49	+06 34.3	1.626	2.478	139.0	15.5	16.5
1986	05 20	12 47.02	+06 41.8					
1986	05 30	12 47.04	+06 27.3	1.800	2.467	119.9	20.9	16.8
1986	06 09	12 49.50	+05 53.7					
1986	06 19	12 54.21	+05 04.0	2.015	2.457	103.3	23.7	17.2

1981 DK3 a,e,i = 2.68, 0.19, 12 Elements MPC 10514

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	03 11	15 19.97	-33 03.8	2.617	3.136	112.6	17.0	17.9
1986	03 21	15 19.80	-33 49.7					
1986	03 31	15 17.01	-34 25.5	2.367	3.120	131.5	13.9	17.5
1986	04 10	15 11.63	-34 47.9					
1986	04 20	15 03.96	-34 53.7	2.186	3.101	150.7	9.1	17.2
1986	04 30	14 54.65	-34 40.7					
1986	05 10	14 44.59	-34 08.4	2.101	3.080	162.6	5.6	17.0
1986	05 20	14 34.85	-33 19.6					
1986	05 30	14 26.42	-32 19.4	2.126	3.057	151.8	9.0	17.1
1986	06 09	14 20.01	-31 14.3					
1986	06 19	14 16.08	-30 10.8	2.247	3.032	132.9	14.2	17.4
1986	06 29	14 14.74	-29 14.0					
1986	07 09	14 15.93	-28 27.2	2.438	3.005	114.5	17.9	17.6

1981 EJ23 a,e,i = 2.72, 0.06, 4 Elements MPC 10541

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	03 11	15 20.71	-22 20.9	2.213	2.795	116.0	18.6	18.8
1986	03 21	15 21.24	-22 44.1					
1986	03 31	15 19.11	-22 57.7	2.001	2.806	135.9	14.3	18.5
1986	04 10	15 14.37	-23 00.5					
1986	04 20	15 07.36	-22 51.5	1.861	2.817	157.8	7.7	18.1
1986	04 30	14 58.78	-22 31.2					
1986	05 10	14 49.52	-22 01.4	1.820	2.827	174.2	2.1	17.8
1986	05 20	14 40.64	-21 25.8					
1986	05 30	14 33.07	-20 49.3	1.889	2.836	154.1	9.0	18.2
1986	06 09	14 27.49	-20 16.5					
1986	06 19	14 24.29	-19 51.2	2.052	2.845	133.1	15.1	18.6
1986	06 29	14 23.57	-19 35.9					
1986	07 09	14 25.26	-19 31.2	2.281	2.853	114.2	19.0	18.9

1982 VR4 a,e,i = 3.10, 0.18, 2 Elements MPC 10516

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 03 11	16 50.56	-20 04.8	3.056	3.309	95.9	17.4	18.5
1986 03 21	16 55.73	-20 05.3					
1986 03 31	16 59.01	-20 01.9	2.745	3.277	113.8	16.2	18.2
1986 04 10	17 00.21	-19 55.1					
1986 04 20	16 59.18	-19 45.1	2.472	3.245	133.4	13.0	17.9
1986 04 30	16 55.94	-19 32.3					
1986 05 10	16 50.63	-19 17.0	2.269	3.211	154.7	7.7	17.5
1986 05 20	16 43.63	-18 59.8					
1986 05 30	16 35.58	-18 41.7	2.164	3.176	176.0	1.3	17.0
1986 06 09	16 27.22	-18 24.0					
1986 06 19	16 19.39	-18 08.7	2.172	3.141	159.0	6.7	17.3
1986 06 29	16 12.81	-17 57.7					
1986 07 09	16 08.04	-17 52.4	2.281	3.106	137.3	12.8	17.6
1986 07 19	16 05.43	-17 53.7					
1986 07 29	16 05.10	-18 01.9	2.464	3.070	117.6	17.0	17.9
1986 08 08	16 07.03	-18 16.5					
1986 08 18	16 11.13	-18 36.4	2.689	3.033	100.0	19.2	18.1

1980 TN4 a,e,i = 2.25, 0.08, 4 Elements MPC 10517

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 03 31	17 36.42	-24 40.8	1.592	2.085	104.8	27.6	17.0
1986 04 10	17 45.40	-25 09.3					
1986 04 20	17 51.32	-25 38.1	1.392	2.095	121.1	24.3	16.6
1986 04 30	17 53.78	-26 08.1					
1986 05 10	17 52.48	-26 39.1	1.230	2.107	140.1	17.9	16.2
1986 05 20	17 47.38	-27 09.3					
1986 05 30	17 38.98	-27 35.6	1.133	2.120	162.0	8.5	15.7
1986 06 09	17 28.32	-27 54.2					
1986 06 19	17 16.98	-28 03.0	1.124	2.135	171.9	3.9	15.5
1986 06 29	17 06.70	-28 02.4					
1986 07 09	16 58.89	-27 55.7	1.209	2.151	150.1	13.6	16.1
1986 07 19	16 54.45	-27 46.8					
1986 07 29	16 53.68	-27 39.0	1.371	2.168	130.0	21.0	16.6
1986 08 08	16 56.44	-27 33.9					
1986 08 18	17 02.45	-27 31.7	1.583	2.186	112.9	25.3	17.0
1986 08 28	17 11.27	-27 31.5					
1986 09 07	17 22.48	-27 31.6	1.824	2.204	98.1	26.9	17.4

1981 EO42 a,e,i = 2.53, 0.14, 6 Elements MPC 10543

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 03 31	18 06.26	-29 03.4	2.465	2.786	98.1	20.8	19.1
1986 04 10	18 12.96	-29 27.3					
1986 04 20	18 17.31	-29 52.8	2.186	2.767	115.2	19.2	18.8
1986 04 30	18 19.02	-30 20.2					
1986 05 10	18 17.83	-30 48.9	1.946	2.747	134.2	15.3	18.4
1986 05 20	18 13.64	-31 17.1					
1986 05 30	18 06.63	-31 41.9	1.772	2.725	155.1	9.0	18.0
1986 06 09	17 57.29	-31 59.5					
1986 06 19	17 46.56	-32 06.8	1.692	2.701	171.3	3.3	17.6
1986 06 29	17 35.68	-32 02.5					
1986 07 09	17 25.87	-31 47.5	1.719	2.676	155.2	9.2	17.9
1986 07 19	17 18.22	-31 25.1					
1986 07 29	17 13.38	-30 59.1	1.840	2.651	134.3	15.9	18.2
1986 08 08	17 11.63	-30 32.9					
1986 08 18	17 12.99	-30 08.9	2.026	2.623	115.3	20.4	18.5
1986 08 28	17 17.24	-29 47.7					
1986 09 07	17 24.10	-29 29.4	2.247	2.596	98.5	22.6	18.8

1983 RE a,e,i = 2.19, 0.15, 6 Elements MPC 8271

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	03 31	17 45.99	-29 22.8	1.407	1.893	-2.04	-2.9	17.3
1986	04 10	18 00.44	-29 31.2					
1986	04 20	18 12.19	-29 33.3	1.201	1.877	-2.33	-5.2	16.9
1986	04 30	18 20.72	-29 30.1					
1986	05 10	18 25.47	-29 22.5	1.026	1.865	-2.79	-7.1	16.4
1986	05 20	18 26.04	-29 09.8					
1986	05 30	18 22.41	-28 50.2	0.900	1.858	-3.39	-7.5	15.8
1986	06 09	18 15.05	-28 21.0					
1986	06 19	18 05.24	-27 40.4	0.844	1.857	-3.83	-5.6	15.3
1986	06 29	17 54.88	-26 49.3					
1986	07 09	17 45.91	-25 51.8	0.871	1.861	-3.72	-3.3	15.6
1986	07 19	17 39.93	-24 54.4					
1986	07 29	17 37.77	-24 02.2	0.976	1.870	-3.16	-2.6	16.2
1986	08 08	17 39.57	-23 17.8					
1986	08 18	17 45.13	-22 41.4	1.138	1.884	-2.53	-3.1	16.7
1986	08 28	17 53.95	-22 11.1					
1986	09 07	18 05.51	-21 44.2	1.336	1.903	-2.03	-4.0	17.2

1982 VZ a,e,i = 3.18, 0.19, 2 Elements MPC 9360

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	03 31	18 39.95	-21 47.0	3.599	3.738	90.2	15.5	18.9
1986	04 10	18 44.71	-21 40.5					
1986	04 20	18 47.78	-21 35.4	3.292	3.727	108.0	14.9	18.7
1986	04 30	18 49.02	-21 32.4					
1986	05 10	18 48.30	-21 31.9	3.014	3.714	127.3	12.5	18.4
1986	05 20	18 45.61	-21 34.0					
1986	05 30	18 41.05	-21 38.4	2.799	3.700	148.2	8.3	18.1
1986	06 09	18 34.86	-21 44.5					
1986	06 19	18 27.47	-21 51.5	2.678	3.684	170.5	2.6	17.7
1986	06 29	18 19.46	-21 58.5					
1986	07 09	18 11.51	-22 04.8	2.670	3.667	166.6	3.7	17.8
1986	07 19	18 04.28	-22 10.4					
1986	07 29	17 58.35	-22 15.3	2.774	3.648	144.5	9.3	18.1
1986	08 08	17 54.13	-22 20.1					
1986	08 18	17 51.88	-22 25.0	2.966	3.628	123.9	13.4	18.3
1986	08 28	17 51.66	-22 30.1					
1986	09 07	17 53.46	-22 35.4	3.214	3.607	104.9	15.7	18.6

1981 QE3 a,e,i = 3.14, 0.18, 2 Elements MPC 6879

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	03 31	18 28.71	-23 32.0	2.721	2.946	-0.93	-0.1	17.9
1986	04 10	18 36.67	-23 32.5					
1986	04 20	18 42.76	-23 34.1	2.420	2.912	-1.04	-0.5	17.6
1986	04 30	18 46.74	-23 38.1					
1986	05 10	18 48.37	-23 45.2	2.149	2.878	-1.19	-0.8	17.2
1986	05 20	18 47.49	-23 55.9					
1986	05 30	18 44.10	-24 09.8	1.936	2.845	-1.35	-0.7	16.8
1986	06 09	18 38.39	-24 25.6					
1986	06 19	18 30.85	-24 41.6	1.807	2.813	-1.49	-0.3	16.3
1986	06 29	18 22.29	-24 55.9					
1986	07 09	18 13.64	-25 07.0	1.782	2.782	-1.53	+0.4	16.3
1986	07 19	18 05.97	-25 14.5					
1986	07 29	18 00.12	-25 18.8	1.859	2.753	-1.45	+0.9	16.7
1986	08 08	17 56.68	-25 21.1					
1986	08 18	17 55.96	-25 22.1	2.017	2.725	-1.31	+1.0	17.0
1986	08 28	17 57.99	-25 22.4					
1986	09 07	18 02.64	-25 21.8	2.226	2.699	-1.17	+0.7	17.3

1981 EE27 a,e,i = 2.61, 0.13, 13 Elements MPC 9589

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	03 31	18 36.90	-09 21.3	2.475	2.671	90.1	22.0	18.0
1986	04 10	18 44.42	-08 20.2					
1986	04 20	18 49.83	-07 17.3	2.247	2.698	105.7	21.0	17.8
1986	04 30	18 52.95	-06 14.9					
1986	05 10	18 53.59	-05 15.7	2.041	2.723	122.7	18.2	17.6
1986	05 20	18 51.69	-04 23.0					
1986	05 30	18 47.36	-03 40.3	1.886	2.748	140.9	13.5	17.3
1986	06 09	18 40.88	-03 11.0					
1986	06 19	18 32.84	-02 57.9	1.809	2.771	156.7	8.3	17.0
1986	06 29	18 24.04	-03 02.4					
1986	07 09	18 15.39	-03 24.3	1.830	2.794	156.9	8.2	17.0
1986	07 19	18 07.79	-04 01.5					
1986	07 29	18 01.94	-04 50.4	1.950	2.815	141.3	13.0	17.4
1986	08 08	17 58.28	-05 47.4					
1986	08 18	17 57.05	-06 48.4	2.150	2.835	123.3	17.4	17.7
1986	08 28	17 58.22	-07 50.3					
1986	09 07	18 01.67	-08 50.4	2.402	2.854	106.3	19.8	18.1

(3273) 1975 TS2 a,e,i = 3.39, 0.04, 14 Elements MPC 9762

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	18 51.59	-33 06.0	2.822	3.273	107.9	17.0	17.1
1986	04 30	18 54.73	-33 55.7					
1986	05 10	18 55.50	-34 49.9	2.580	3.277	126.0	14.4	16.8
1986	05 20	18 53.76	-35 46.9					
1986	05 30	18 49.55	-36 43.9	2.398	3.282	145.1	10.2	16.6
1986	06 09	18 43.06	-37 37.3					
1986	06 19	18 34.81	-38 22.5	2.305	3.286	161.8	5.5	16.3
1986	06 29	18 25.59	-38 55.8					
1986	07 09	18 16.33	-39 15.2	2.318	3.291	159.8	6.1	16.3
1986	07 19	18 08.02	-39 20.5					
1986	07 29	18 01.47	-39 13.9	2.435	3.296	142.2	10.9	16.6
1986	08 08	17 57.22	-38 58.2					
1986	08 18	17 55.53	-38 36.6	2.634	3.302	123.5	14.8	16.9
1986	08 28	17 56.43	-38 11.8					
1986	09 07	17 59.80	-37 45.5	2.887	3.308	105.9	17.0	17.2
1986	09 17	18 05.41	-37 18.7					
1986	09 27	18 13.01	-36 51.6	3.166	3.314	89.6	17.6	17.4

1982 KG1 a,e,i = 2.36, 0.12, 4 Elements MPC 9466

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	18 54.51	-20 34.7	2.077	2.549	106.4	22.2	17.6
1986	04 30	18 58.61	-20 32.5					
1986	05 10	18 59.95	-20 35.2	1.857	2.567	124.5	18.9	17.2
1986	05 20	18 58.34	-20 43.8					
1986	05 30	18 53.80	-20 58.3	1.686	2.584	145.2	12.9	16.9
1986	06 09	18 46.55	-21 17.7					
1986	06 19	18 37.21	-21 40.1	1.596	2.598	168.2	4.6	16.4
1986	06 29	18 26.75	-22 03.0					
1986	07 09	18 16.34	-22 24.5	1.609	2.611	167.7	4.7	16.5
1986	07 19	18 07.15	-22 43.6					
1986	07 29	18 00.13	-23 00.3	1.725	2.622	144.9	12.9	16.9
1986	08 08	17 55.83	-23 15.0					
1986	08 18	17 54.47	-23 28.4	1.922	2.631	124.5	18.5	17.4
1986	08 28	17 56.00	-23 40.5					
1986	09 07	18 00.22	-23 51.3	2.169	2.638	106.5	21.5	17.7
1986	09 17	18 06.84	-24 00.0					
1986	09 27	18 15.55	-24 05.9	2.437	2.643	90.5	22.3	18.0

1981 XA a,e,i = 2.01, 0.20, 21 Elements MPC 9466

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 04.22	-24 44.0	1.963	2.419	104.6	23.7	18.9
1986	04 30	19 09.21	-25 51.4					
1986	05 10	19 11.33	-27 12.6	1.717	2.416	122.6	20.6	18.5
1986	05 20	19 10.13	-28 48.5					
1986	05 30	19 05.30	-30 37.2	1.521	2.408	142.9	14.7	18.0
1986	06 09	18 56.71	-32 33.8					
1986	06 19	18 44.75	-34 29.4	1.406	2.397	163.2	7.1	17.6
1986	06 29	18 30.46	-36 13.3					
1986	07 09	18 15.41	-37 36.7	1.397	2.381	160.9	8.0	17.6
1986	07 19	18 01.54	-38 35.4					
1986	07 29	17 50.48	-39 11.2	1.490	2.361	140.2	16.0	18.0
1986	08 08	17 43.25	-39 29.3					
1986	08 18	17 40.28	-39 35.8	1.657	2.338	120.4	21.9	18.4
1986	08 28	17 41.45	-39 35.4					
1986	09 07	17 46.42	-39 30.8	1.862	2.310	103.1	25.1	18.7
1986	09 17	17 54.75	-39 23.4					
1986	09 27	18 05.95	-39 13.0	2.079	2.279	88.2	26.1	18.9

1981 EY17 a,e,i = 2.45, 0.16, 2 Elements MPC 9690

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 01.49	-20 03.2	2.351	2.781	104.7	20.5	19.0
1986	04 30	19 05.64	-19 48.1					
1986	05 10	19 07.36	-19 36.5	2.085	2.763	122.6	17.9	18.6
1986	05 20	19 06.46	-19 29.3					
1986	05 30	19 02.86	-19 27.2	1.866	2.744	142.9	12.9	18.2
1986	06 09	18 56.69	-19 30.0					
1986	06 19	18 48.35	-19 37.1	1.727	2.722	165.2	5.5	17.8
1986	06 29	18 38.62	-19 47.0					
1986	07 09	18 28.47	-19 58.4	1.691	2.698	170.1	3.7	17.6
1986	07 19	18 19.06	-20 10.4					
1986	07 29	18 11.35	-20 22.4	1.761	2.673	147.4	11.8	18.0
1986	08 08	18 06.04	-20 34.5					
1986	08 18	18 03.54	-20 46.8	1.915	2.646	126.5	17.9	18.3
1986	08 28	18 03.92	-20 58.9					
1986	09 07	18 07.07	-21 10.3	2.123	2.617	108.1	21.5	18.6
1986	09 17	18 12.80	-21 20.1					
1986	09 27	18 20.80	-21 27.3	2.354	2.586	91.8	22.8	18.9

1980 TY14 a,e,i = 2.24, 0.15, 6 Elements MPC 10153

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 03.07	-29 38.5	2.039	2.498	105.2	22.8	18.2
1986	04 30	19 09.12	-30 00.8					
1986	05 10	19 12.39	-30 28.5	1.785	2.478	122.5	20.1	17.8
1986	05 20	19 12.50	-31 01.6					
1986	05 30	19 09.24	-31 38.5	1.577	2.456	142.0	14.7	17.4
1986	06 09	19 02.58	-32 15.6					
1986	06 19	18 52.93	-32 47.7	1.443	2.432	162.7	7.2	16.9
1986	06 29	18 41.25	-33 09.0					
1986	07 09	18 28.91	-33 15.5	1.407	2.406	166.0	5.9	16.8
1986	07 19	18 17.55	-33 06.3					
1986	07 29	18 08.53	-32 44.1	1.470	2.378	145.6	14.0	17.1
1986	08 08	18 02.75	-32 13.3					
1986	08 18	18 00.64	-31 38.3	1.611	2.348	125.5	20.6	17.5
1986	08 28	18 02.12	-31 02.2					
1986	09 07	18 06.94	-30 26.4	1.801	2.317	107.8	24.5	17.8
1986	09 17	18 14.72	-29 50.8					
1986	09 27	18 25.04	-29 14.7	2.011	2.284	92.4	26.0	18.1

1985 AF a,e,i = 2.40, 0.20, 6 Elements MPC 9680

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 10.52	-25 08.3	2.205	2.623	103.2	21.9	17.7
1986	04 30	19 14.75	-24 55.0					
1986	05 10	19 16.20	-24 44.9	1.989	2.657	121.3	19.0	17.5
1986	05 20	19 14.70	-24 38.1					
1986	05 30	19 10.24	-24 34.0	1.817	2.688	141.8	13.5	17.1
1986	06 09	19 03.03	-24 31.1					
1986	06 19	18 53.64	-24 27.3	1.724	2.717	164.7	5.7	16.8
1986	06 29	18 42.99	-24 20.8					
1986	07 09	18 32.17	-24 10.6	1.735	2.744	171.3	3.2	16.7
1986	07 19	18 22.37	-23 56.9					
1986	07 29	18 14.51	-23 41.1	1.853	2.769	148.2	11.1	17.2
1986	08 08	18 09.17	-23 24.8					
1986	08 18	18 06.64	-23 09.2	2.059	2.790	127.3	16.8	17.6
1986	08 28	18 06.87	-22 54.9					
1986	09 07	18 09.68	-22 42.0	2.320	2.809	108.7	19.9	17.9
1986	09 17	18 14.83	-22 29.6					
1986	09 27	18 21.99	-22 16.9	2.607	2.826	92.0	20.8	18.2

(3258) 1983 RJ a,e,i = 2.21, 0.20, 8 Elements MPC 9689

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	18 44.80	-27 57.8	1.549	2.105	109.1	26.8	17.1
1986	04 30	18 54.38	-28 42.4					
1986	05 10	19 01.27	-29 35.7	1.307	2.058	124.9	23.7	16.6
1986	05 20	19 04.94	-30 39.2					
1986	05 30	19 04.93	-31 52.5	1.110	2.013	142.9	17.7	16.1
1986	06 09	19 00.92	-33 12.3					
1986	06 19	18 53.08	-34 31.3	0.979	1.969	161.7	9.3	15.5
1986	06 29	18 42.31	-35 39.8					
1986	07 09	18 30.26	-36 28.3	0.931	1.928	163.6	8.5	15.3
1986	07 19	18 19.15	-36 51.9					
1986	07 29	18 11.00	-36 52.0	0.967	1.890	144.8	18.0	15.6
1986	08 08	18 07.11	-36 33.9					
1986	08 18	18 08.02	-36 03.7	1.067	1.856	126.3	26.1	16.0
1986	08 28	18 13.55	-35 25.8					
1986	09 07	18 23.23	-34 41.9	1.206	1.827	110.9	31.0	16.4
1986	09 17	18 36.45	-33 52.2					
1986	09 27	18 52.55	-32 55.5	1.366	1.803	98.0	33.4	16.7

(3240) 1978 VG6 a,e,i = 5.26, 0.13, 2 Elements MPC 9591

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	18 59.91	-23 45.3	4.329	4.698	105.4	11.9	17.7
1986	04 30	19 01.46	-23 42.6					
1986	05 10	19 01.50	-23 41.9	4.040	4.686	124.5	10.2	17.5
1986	05 20	19 00.04	-23 43.1					
1986	05 30	18 57.16	-23 45.8	3.811	4.676	144.7	7.2	17.2
1986	06 09	18 53.03	-23 49.4					
1986	06 19	18 47.94	-23 53.3	3.674	4.666	166.0	3.0	16.9
1986	06 29	18 42.25	-23 56.6					
1986	07 09	18 36.40	-23 58.9	3.647	4.656	172.3	1.7	16.8
1986	07 19	18 30.86	-23 59.8					
1986	07 29	18 26.05	-23 59.3	3.734	4.647	150.9	6.1	17.1
1986	08 08	18 22.32	-23 57.5					
1986	08 18	18 19.93	-23 54.8	3.920	4.639	130.3	9.6	17.4
1986	08 28	18 19.02	-23 51.3					
1986	09 07	18 19.64	-23 47.3	4.175	4.632	110.9	11.7	17.6
1986	09 17	18 21.78	-23 42.7					
1986	09 27	18 25.36	-23 37.3	4.467	4.625	92.7	12.5	17.7

(3209) 1982 BL1 a,e,i = 2.19, 0.05, 5 Elements MPC 9464

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	18 59.91	-17 35.6	1.727	2.208	104.7	26.1	17.5
1986	04 30	19 06.74	-17 18.5					
1986	05 10	19 10.70	-17 06.8	1.519	2.220	121.5	22.8	17.1
1986	05 20	19 11.47	-17 02.9					
1986	05 30	19 08.92	-17 08.6	1.351	2.231	141.0	16.6	16.7
1986	06 09	19 03.10	-17 24.7					
1986	06 19	18 54.53	-17 50.4	1.251	2.243	163.2	7.5	16.2
1986	06 29	18 44.18	-18 23.3					
1986	07 09	18 33.35	-19 00.4	1.244	2.253	170.9	4.1	16.1
1986	07 19	18 23.53	-19 38.6					
1986	07 29	18 15.95	-20 15.8	1.334	2.263	148.5	13.6	16.6
1986	08 08	18 11.39	-20 50.8					
1986	08 18	18 10.18	-21 22.8	1.504	2.272	128.1	20.5	17.1
1986	08 28	18 12.29	-21 51.2					
1986	09 07	18 17.45	-22 15.4	1.724	2.280	110.5	24.5	17.5
1986	09 17	18 25.33	-22 34.5					
1986	09 27	18 35.54	-22 47.4	1.969	2.288	95.1	25.9	17.8

1985 CZ1 a,e,i = 2.34, 0.07, 6 Elements MPC 10309

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 06.69	-27 43.3	2.058	2.503	104.3	22.9	18.5
1986	04 30	19 12.44	-27 39.0					
1986	05 10	19 15.37	-27 37.5	1.821	2.504	121.7	20.1	18.2
1986	05 20	19 15.22	-27 39.0					
1986	05 30	19 11.84	-27 42.6	1.629	2.504	141.6	14.6	17.8
1986	06 09	19 05.34	-27 46.1					
1986	06 19	18 56.21	-27 46.4	1.511	2.502	163.7	6.5	17.3
1986	06 29	18 45.38	-27 40.5					
1986	07 09	18 34.11	-27 26.6	1.491	2.500	170.6	3.8	17.2
1986	07 19	18 23.80	-27 05.0					
1986	07 29	18 15.59	-26 37.8	1.574	2.496	148.3	12.4	17.6
1986	08 08	18 10.24	-26 08.2					
1986	08 18	18 08.08	-25 38.5	1.741	2.490	127.5	18.8	18.0
1986	08 28	18 09.09	-25 10.2					
1986	09 07	18 13.03	-24 43.5	1.960	2.484	109.4	22.5	18.4
1986	09 17	18 19.60	-24 17.8					
1986	09 27	18 28.44	-23 52.0	2.205	2.476	93.4	23.8	18.7

1984 DV a,e,i = 3.00, 0.11, 10 Elements MPC 9360

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 11.86	-31 15.4	2.799	3.186	103.5	17.9	18.1
1986	04 30	19 15.91	-31 23.4					
1986	05 10	19 17.66	-31 34.3	2.522	3.168	121.4	15.8	17.8
1986	05 20	19 16.90	-31 47.5					
1986	05 30	19 13.60	-32 01.5	2.295	3.149	141.0	11.7	17.4
1986	06 09	19 07.86	-32 13.8					
1986	06 19	19 00.05	-32 21.3	2.149	3.129	161.5	5.9	17.0
1986	06 29	18 50.86	-32 21.1					
1986	07 09	18 41.17	-32 11.2	2.105	3.108	168.4	3.8	16.9
1986	07 19	18 31.99	-31 51.5					
1986	07 29	18 24.22	-31 23.3	2.171	3.087	149.2	9.7	17.2
1986	08 08	18 18.55	-30 49.1					
1986	08 18	18 15.38	-30 11.9	2.328	3.066	128.8	14.9	17.5
1986	08 28	18 14.83	-29 33.7					
1986	09 07	18 16.81	-28 55.9	2.547	3.043	110.0	18.1	17.8
1986	09 17	18 21.17	-28 19.0					
1986	09 27	18 27.64	-27 42.7	2.797	3.021	93.0	19.3	18.0

1983 WG a,e,i = 2.80, 0.22, 11 Elements MPC 8540

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 15.82	-25 20.0	3.027	3.382	102.0	16.9	18.8
1986	04 30	19 18.70	-25 42.6					
1986	05 10	19 19.45	-26 10.9	2.764	3.392	120.7	14.8	18.6
1986	05 20	19 17.93	-26 44.7					
1986	05 30	19 14.12	-27 23.0	2.551	3.400	141.1	10.8	18.3
1986	06 09	19 08.14	-28 03.8					
1986	06 19	19 00.35	-28 44.3	2.423	3.406	162.6	5.1	18.0
1986	06 29	18 51.33	-29 21.2					
1986	07 09	18 41.84	-29 51.9	2.403	3.410	170.4	2.9	17.8
1986	07 19	18 32.76	-30 14.8					
1986	07 29	18 24.89	-30 29.7	2.497	3.411	149.5	8.7	18.2
1986	08 08	18 18.83	-30 37.6					
1986	08 18	18 14.99	-30 40.0	2.686	3.411	128.6	13.4	18.5
1986	08 28	18 13.52	-30 38.6					
1986	09 07	18 14.40	-30 34.5	2.938	3.408	109.4	16.2	18.8
1986	09 17	18 17.51	-30 28.6					
1986	09 27	18 22.64	-30 21.2	3.220	3.403	91.8	17.1	19.0

1983 TU a,e,i = 2.26, 0.19, 6 Elements MPC 8380

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	04 20	18 52.07	-27 05.4	1.618	2.146	-1.81	-0.8	17.8
1986	04 30	19 01.78	-27 34.5					
1986	05 10	19 08.89	-28 10.7	1.371	2.101	-2.16	-2.2	17.3
1986	05 20	19 12.91	-28 55.5					
1986	05 30	19 13.44	-29 49.2	1.166	2.057	-2.65	-3.1	16.7
1986	06 09	19 10.15	-30 49.6					
1986	06 19	19 03.18	-31 51.6	1.026	2.015	-3.21	-2.5	16.1
1986	06 29	18 53.29	-32 47.1					
1986	07 09	18 41.90	-33 28.1	0.970	1.975	-3.61	+0.2	15.8
1986	07 19	18 31.01	-33 49.6					
1986	07 29	18 22.56	-33 51.5	1.000	1.938	-3.54	+2.8	16.2
1986	08 08	18 17.88	-33 37.7					
1986	08 18	18 17.64	-33 12.9	1.100	1.905	-3.07	+3.2	16.6
1986	08 28	18 21.80	-32 40.9					
1986	09 07	18 29.99	-32 03.5	1.243	1.876	-2.53	+1.8	17.0
1986	09 17	18 41.70	-31 20.8					
1986	09 27	18 56.30	-30 31.8	1.409	1.853	-2.07	-0.3	17.3

1981 FR a,e,i = 2.62, 0.15, 12 Elements MPC 10290

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	04 20	18 55.59	-07 29.8	1.778	2.248	-1.47	-0.3	17.5
1986	04 30	19 03.31	-06 09.7					
1986	05 10	19 08.51	-04 50.5	1.564	2.236	-1.70	-0.3	17.2
1986	05 20	19 10.95	-03 36.5					
1986	05 30	19 10.51	-02 32.7	1.389	2.227	-1.97	-0.4	16.8
1986	06 09	19 07.23	-01 44.5					
1986	06 19	19 01.48	-01 17.5	1.276	2.222	-2.21	-0.8	16.4
1986	06 29	18 54.00	-01 15.6					
1986	07 09	18 45.82	-01 40.4	1.244	2.221	-2.28	-1.3	16.3
1986	07 19	18 38.16	-02 29.9					
1986	07 29	18 32.14	-03 38.9	1.299	2.223	-2.14	-1.5	16.5
1986	08 08	18 28.55	-05 00.9					
1986	08 18	18 27.88	-06 28.8	1.433	2.229	-1.88	-1.2	16.9
1986	08 28	18 30.22	-07 56.5					
1986	09 07	18 35.43	-09 19.5	1.623	2.239	-1.63	-0.9	17.3
1986	09 17	18 43.29	-10 34.4					
1986	09 27	18 53.44	-11 38.7	1.849	2.252	-1.42	-0.7	17.6

1971 QP1 a,e,i = 3.02, 0.11, 9 Elements MPC 9469

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 16.09	-30 03.5	2.807	3.179	102.5	18.0	18.1
1986 04 30	19 20.41	-30 07.4					
1986 05 10	19 22.48	-30 14.4	2.528	3.160	120.3	16.0	17.8
1986 05 20	19 22.09	-30 24.1					
1986 05 30	19 19.20	-30 35.3	2.297	3.141	139.9	12.0	17.4
1986 06 09	19 13.88	-30 45.9					
1986 06 19	19 06.46	-30 53.2	2.144	3.122	160.8	6.2	17.0
1986 06 29	18 57.58	-30 54.2					
1986 07 09	18 48.07	-30 47.0	2.094	3.102	170.4	3.1	16.8
1986 07 19	18 38.93	-30 30.9					
1986 07 29	18 31.08	-30 06.9	2.154	3.081	150.9	9.2	17.1
1986 08 08	18 25.20	-29 37.2					
1986 08 18	18 21.75	-29 04.2	2.307	3.060	130.3	14.6	17.5
1986 08 28	18 20.88	-28 29.9					
1986 09 07	18 22.55	-27 55.7	2.523	3.039	111.3	18.0	17.7
1986 09 17	18 26.60	-27 21.8					
1986 09 27	18 32.78	-26 48.1	2.773	3.017	94.2	19.3	18.0

1981 DQ3 a,e,i = 2.69, 0.15, 11 Elements MPC 10289

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986 04 20	19 12.26	-33 52.2	1.909	2.358	-1.09	-6.0	17.3
1986 04 30	19 20.19	-34 01.2					
1986 05 10	19 25.04	-34 12.7	1.708	2.379	-1.21	-7.4	17.0
1986 05 20	19 26.49	-34 26.3					
1986 05 30	19 24.38	-34 40.0	1.547	2.403	-1.40	-8.2	16.6
1986 06 09	19 18.79	-34 50.0					
1986 06 19	19 10.24	-34 51.4	1.454	2.428	-1.62	-7.7	16.3
1986 06 29	18 59.75	-34 39.6					
1986 07 09	18 48.68	-34 12.3	1.453	2.456	-1.74	-6.1	16.1
1986 07 19	18 38.54	-33 30.2					
1986 07 29	18 30.56	-32 37.1	1.552	2.484	-1.67	-4.5	16.6
1986 08 08	18 25.49	-31 38.0					
1986 08 18	18 23.64	-30 37.3	1.736	2.514	-1.45	-3.7	17.0
1986 08 28	18 24.92	-29 38.0					
1986 09 07	18 29.04	-28 41.3	1.980	2.545	-1.21	-3.5	17.4
1986 09 17	18 35.67	-27 47.2					
1986 09 27	18 44.40	-26 54.8	2.257	2.576	-1.01	-3.7	17.8

6627 P-L a,e,i = 3.06, 0.10, 3 Elements MPC 8385

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 14.60	-18 40.7	2.884	3.236	101.4	17.7	19.0
1986 04 30	19 18.49	-18 23.3					
1986 05 10	19 20.37	-18 09.4	2.602	3.220	119.4	15.9	18.7
1986 05 20	19 20.09	-17 59.9					
1986 05 30	19 17.63	-17 55.5	2.367	3.203	139.1	12.0	18.3
1986 06 09	19 13.07	-17 56.5					
1986 06 19	19 06.70	-18 02.5	2.209	3.185	160.5	6.1	18.0
1986 06 29	18 59.04	-18 12.6					
1986 07 09	18 50.77	-18 25.8	2.154	3.167	174.0	1.9	17.7
1986 07 19	18 42.73	-18 40.8					
1986 07 29	18 35.68	-18 56.7	2.210	3.149	153.1	8.4	18.0
1986 08 08	18 30.26	-19 12.6					
1986 08 18	18 26.93	-19 28.1	2.361	3.130	132.0	13.9	18.3
1986 08 28	18 25.89	-19 42.6					
1986 09 07	18 27.16	-19 55.8	2.578	3.110	112.8	17.4	18.6
1986 09 17	18 30.68	-20 06.8					
1986 09 27	18 36.24	-20 15.2	2.830	3.090	95.4	18.8	18.9

1979 MR5 a,e,i = 2.32, 0.14, 2 Elements MPC 5847

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 05.59	-22 54.0	1.802	2.266	104.1	25.5	20.1
1986	04 30	19 14.16	-22 33.0					
1986	05 10	19 20.16	-22 14.1	1.552	2.235	120.1	23.0	19.7
1986	05 20	19 23.23	-21 58.9					
1986	05 30	19 23.09	-21 48.5	1.340	2.205	138.6	17.7	19.2
1986	06 09	19 19.59	-21 43.4					
1986	06 19	19 12.92	-21 42.7	1.192	2.175	160.0	9.2	18.6
1986	06 29	19 03.80	-21 44.5					
1986	07 09	18 53.35	-21 46.7	1.131	2.146	176.2	1.8	18.1
1986	07 19	18 43.15	-21 47.4					
1986	07 29	18 34.70	-21 46.3	1.164	2.120	152.9	12.6	18.6
1986	08 08	18 29.13	-21 43.8					
1986	08 18	18 27.10	-21 40.5	1.277	2.095	132.0	21.0	19.0
1986	08 28	18 28.73	-21 36.4					
1986	09 07	18 33.85	-21 30.9	1.443	2.072	114.3	26.3	19.4
1986	09 17	18 42.11	-21 22.6					
1986	09 27	18 53.08	-21 10.0	1.637	2.052	99.3	28.8	19.7

(3270) Dudley a,e,i = 2.15, 0.33, 28 Elements MPC 9759

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 31.84	+04 03.6	2.494	2.741	93.2	21.5	20.1
1986	04 30	19 35.55	+05 04.9					
1986	05 10	19 36.97	+06 01.0	2.277	2.772	108.8	20.2	19.9
1986	05 20	19 35.94	+06 47.7					
1986	05 30	19 32.40	+07 20.9	2.086	2.799	125.5	17.1	19.6
1986	06 09	19 26.40	+07 35.7					
1986	06 19	19 18.25	+07 27.8	1.950	2.820	141.9	12.9	19.4
1986	06 29	19 08.55	+06 54.2					
1986	07 09	18 58.09	+05 54.3	1.902	2.837	151.5	9.9	19.2
1986	07 19	18 47.84	+04 30.4					
1986	07 29	18 38.73	+02 47.9	1.957	2.849	145.1	11.8	19.4
1986	08 08	18 31.47	+00 53.5					
1986	08 18	18 26.56	-01 05.9	2.108	2.856	129.1	16.0	19.7
1986	08 28	18 24.19	-03 04.4					
1986	09 07	18 24.36	-04 57.6	2.330	2.859	111.6	19.1	20.0
1986	09 17	18 26.93	-06 42.7					
1986	09 27	18 31.69	-08 17.8	2.591	2.857	94.9	20.5	20.2

(3264) 1934 AF a,e,i = 3.15, 0.15, 1 Elements MPC 9757

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 26.11	-21 13.2	3.128	3.434	99.1	16.8	18.4
1986	04 30	19 29.57	-21 05.0					
1986	05 10	19 31.06	-21 00.8	2.871	3.454	117.4	15.0	18.2
1986	05 20	19 30.47	-21 01.4					
1986	05 30	19 27.80	-21 06.6	2.658	3.473	137.4	11.4	17.9
1986	06 09	19 23.14	-21 16.0					
1986	06 19	19 16.80	-21 28.6	2.522	3.490	159.1	6.0	17.6
1986	06 29	19 09.25	-21 42.7					
1986	07 09	19 01.12	-21 56.8	2.491	3.507	178.0	0.6	17.3
1986	07 19	18 53.14	-22 09.8					
1986	07 29	18 46.02	-22 20.7	2.573	3.523	155.5	6.9	17.7
1986	08 08	18 40.32	-22 29.3					
1986	08 18	18 36.46	-22 35.7	2.757	3.537	134.1	11.9	18.1
1986	08 28	18 34.62	-22 40.1					
1986	09 07	18 34.87	-22 42.7	3.012	3.550	114.5	15.0	18.4
1986	09 17	18 37.13	-22 43.4					
1986	09 27	18 41.26	-22 42.1	3.308	3.562	96.4	16.2	18.6

1980 TP a,e,i = 2.16, 0.19, 2 Elements MPC 8284

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 02.93	-20 29.0	1.595	2.085	104.4	27.8	18.7
1986	04 30	19 13.37	-20 03.4					
1986	05 10	19 21.40	-19 39.5	1.345	2.040	119.4	25.5	18.2
1986	05 20	19 26.58	-19 20.2					
1986	05 30	19 28.54	-19 07.8	1.131	1.995	136.9	20.3	17.7
1986	06 09	19 26.96	-19 04.3					
1986	06 19	19 21.81	-19 10.6	0.974	1.952	157.5	11.5	17.0
1986	06 29	19 13.61	-19 25.7					
1986	07 09	19 03.41	-19 47.3	0.894	1.910	177.0	1.6	16.3
1986	07 19	18 52.91	-20 12.0					
1986	07 29	18 43.97	-20 36.6	0.901	1.871	155.1	13.2	16.8
1986	08 08	18 38.06	-20 59.5					
1986	08 18	18 36.16	-21 19.4	0.982	1.837	134.1	23.3	17.3
1986	08 28	18 38.51	-21 35.4					
1986	09 07	18 44.94	-21 46.1	1.111	1.806	116.8	29.9	17.7
1986	09 17	18 55.06	-21 49.8					
1986	09 27	19 08.32	-21 44.6	1.268	1.781	102.7	33.3	18.0

1977 RW6 a,e,i = 2.89, 0.08, 2 Elements MPC 9754

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 21.30	-24 20.2	2.484	2.847	100.7	20.3	18.1
1986	04 30	19 27.39	-24 17.9					
1986	05 10	19 31.26	-24 20.1	2.214	2.830	117.8	18.4	17.8
1986	05 20	19 32.68	-24 27.6					
1986	05 30	19 31.52	-24 40.5	1.985	2.813	137.0	14.2	17.4
1986	06 09	19 27.74	-24 58.1					
1986	06 19	19 21.57	-25 18.3	1.827	2.796	158.3	7.7	17.0
1986	06 29	19 13.56	-25 38.5					
1986	07 09	19 04.49	-25 55.7	1.764	2.780	176.4	1.3	16.6
1986	07 19	18 55.43	-26 07.8					
1986	07 29	18 47.41	-26 13.6	1.809	2.764	155.3	8.8	17.0
1986	08 08	18 41.31	-26 13.7					
1986	08 18	18 37.70	-26 09.0	1.946	2.749	134.1	15.3	17.4
1986	08 28	18 36.85	-26 00.8					
1986	09 07	18 38.74	-25 49.7	2.150	2.734	115.1	19.5	17.7
1986	09 17	18 43.25	-25 36.0					
1986	09 27	18 50.09	-25 19.6	2.390	2.720	98.2	21.4	18.0

4069 P-L a,e,i = 3.08, 0.04, 9 Elements MPC 9299

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 28.46	-12 21.7	2.790	3.081	97.1	18.9	19.1
1986	04 30	19 33.20	-11 35.1					
1986	05 10	19 35.95	-10 51.1	2.535	3.089	114.1	17.4	18.9
1986	05 20	19 36.57	-10 11.7					
1986	05 30	19 35.03	-09 38.7	2.318	3.096	132.7	13.9	18.6
1986	06 09	19 31.37	-09 13.8					
1986	06 19	19 25.84	-08 58.7	2.169	3.104	152.2	8.8	18.3
1986	06 29	19 18.90	-08 54.0					
1986	07 09	19 11.15	-08 59.9	2.114	3.112	166.5	4.4	18.0
1986	07 19	19 03.37	-09 15.7					
1986	07 29	18 56.33	-09 39.6	2.166	3.119	155.6	7.7	18.2
1986	08 08	18 50.68	-10 09.4					
1986	08 18	18 46.89	-10 42.7	2.317	3.126	136.1	13.0	18.6
1986	08 28	18 45.24	-11 17.3					
1986	09 07	18 45.78	-11 51.1	2.541	3.133	117.3	16.6	18.9
1986	09 17	18 48.48	-12 22.3					
1986	09 27	18 53.17	-12 49.6	2.808	3.140	99.9	18.3	19.2

(3278) 1984 BT a,e,i = 3.21, 0.04, 10 Elements MPC 9764

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 31.16	-24 30.1	3.008	3.309	98.5	17.5	17.3
1986 04 30	19 35.87	-24 46.0					
1986 05 10	19 38.59	-25 08.1	2.740	3.313	116.3	15.9	17.0
1986 05 20	19 39.16	-25 36.6					
1986 05 30	19 37.50	-26 11.3	2.514	3.317	135.8	12.3	16.8
1986 06 09	19 33.64	-26 50.8					
1986 06 19	19 27.78	-27 32.8	2.362	3.320	156.8	6.9	16.4
1986 06 29	19 20.37	-28 14.1					
1986 07 09	19 12.04	-28 51.5	2.311	3.324	173.6	2.0	16.1
1986 07 19	19 03.61	-29 22.4					
1986 07 29	18 55.91	-29 45.2	2.372	3.326	156.1	7.1	16.4
1986 08 08	18 49.65	-29 59.8					
1986 08 18	18 45.37	-30 07.0	2.534	3.329	135.2	12.4	16.8
1986 08 28	18 43.34	-30 08.2					
1986 09 07	18 43.65	-30 04.6	2.767	3.331	115.7	15.8	17.1
1986 09 17	18 46.25	-29 57.2					
1986 09 27	18 50.94	-29 46.5	3.042	3.332	98.0	17.3	17.3

(3365) 1985 CG2 a,e,i = 2.71, 0.17, 8 Elements MPC 10389

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 13.51	-13 11.7	1.888	2.300	100.9	25.4	16.7
1986 04 30	19 22.47	-12 09.8					
1986 05 10	19 29.13	-11 08.4	1.652	2.281	115.8	23.5	16.4
1986 05 20	19 33.21	-10 10.8					
1986 05 30	19 34.50	-09 20.1	1.452	2.265	132.7	19.2	15.9
1986 06 09	19 32.90	-08 40.2					
1986 06 19	19 28.57	-08 14.4	1.309	2.253	151.3	12.5	15.5
1986 06 29	19 22.04	-08 05.6					
1986 07 09	19 14.12	-08 14.8	1.246	2.245	165.7	6.4	15.2
1986 07 19	19 06.00	-08 41.1					
1986 07 29	18 58.89	-09 21.3	1.275	2.241	156.0	10.6	15.4
1986 08 08	18 53.80	-10 11.1					
1986 08 18	18 51.45	-11 05.4	1.389	2.241	137.3	17.8	15.8
1986 08 28	18 52.12	-11 59.8					
1986 09 07	18 55.79	-12 50.7	1.567	2.245	119.7	22.9	16.2
1986 09 17	19 02.30	-13 35.2					
1986 09 27	19 11.30	-14 11.2	1.786	2.253	104.2	25.6	16.6

1982 XV1 a,e,i = 3.02, 0.09, 11 Elements MPC 10387

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 27.99	-26 09.0	2.478	2.822	99.4	20.6	16.6
1986 04 30	19 35.05	-26 37.5					
1986 05 10	19 39.97	-27 13.9	2.213	2.809	116.2	18.8	16.3
1986 05 20	19 42.49	-27 59.1					
1986 05 30	19 42.41	-28 52.8	1.989	2.798	134.9	14.9	16.0
1986 06 09	19 39.62	-29 53.5					
1986 06 19	19 34.23	-30 57.6	1.834	2.788	155.0	8.9	15.6
1986 06 29	19 26.69	-32 00.3					
1986 07 09	19 17.74	-32 55.8	1.773	2.779	169.4	3.9	15.3
1986 07 19	19 08.45	-33 39.7					
1986 07 29	18 59.96	-34 09.3	1.818	2.771	154.9	8.9	15.5
1986 08 08	18 53.26	-34 24.6					
1986 08 18	18 49.10	-34 27.6	1.955	2.764	134.9	15.0	15.9
1986 08 28	18 47.81	-34 20.7					
1986 09 07	18 49.44	-34 06.4	2.160	2.759	116.3	19.1	16.2
1986 09 17	18 53.86	-33 46.4					
1986 09 27	19 00.78	-33 21.6	2.404	2.755	99.6	21.0	16.5

1981 TO3 a,e,i = 3.20, 0.17, 2 Elements MPC 10028

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 35.88	-21 52.6	2.782	3.070	97.0	19.0	17.7
1986	04 30	19 42.12	-21 42.8					
1986	05 10	19 46.46	-21 37.4	2.484	3.037	113.9	17.7	17.4
1986	05 20	19 48.67	-21 37.6					
1986	05 30	19 48.61	-21 44.1	2.222	3.004	132.7	14.4	17.0
1986	06 09	19 46.20	-21 56.9					
1986	06 19	19 41.54	-22 15.2	2.027	2.971	153.5	8.8	16.6
1986	06 29	19 34.97	-22 37.1					
1986	07 09	19 27.07	-23 00.2	1.924	2.939	175.9	1.4	16.1
1986	07 19	19 18.67	-23 22.0					
1986	07 29	19 10.70	-23 40.3	1.929	2.908	161.0	6.5	16.4
1986	08 08	19 04.04	-23 54.0					
1986	08 18	18 59.40	-24 02.8	2.034	2.877	139.3	13.3	16.7
1986	08 28	18 57.18	-24 06.9					
1986	09 07	18 57.55	-24 06.7	2.213	2.848	119.5	17.9	17.0
1986	09 17	19 00.50	-24 02.4					
1986	09 27	19 05.84	-23 53.9	2.437	2.820	101.9	20.3	17.3

(3265) 1953 VN2 a,e,i = 2.41, 0.14, 7 Elements MPC 9757

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 29.93	-23 49.3	2.078	2.440	98.6	24.0	17.5
1986	04 30	19 39.01	-23 59.6					
1986	05 10	19 45.92	-24 17.2	1.808	2.409	114.5	22.4	17.1
1986	05 20	19 50.30	-24 44.3					
1986	05 30	19 51.85	-25 22.1	1.572	2.377	132.5	18.3	16.7
1986	06 09	19 50.26	-26 10.7					
1986	06 19	19 45.47	-27 07.9	1.395	2.345	152.9	11.4	16.2
1986	06 29	19 37.80	-28 09.1					
1986	07 09	19 27.95	-29 08.1	1.302	2.314	172.2	3.4	15.7
1986	07 19	19 17.20	-29 58.1					
1986	07 29	19 07.07	-30 34.3	1.309	2.283	158.0	9.6	15.9
1986	08 08	18 58.97	-30 55.5					
1986	08 18	18 53.95	-31 02.9	1.405	2.252	136.8	17.9	16.3
1986	08 28	18 52.52	-30 59.1					
1986	09 07	18 54.73	-30 46.4	1.564	2.223	118.0	23.6	16.7
1986	09 17	19 00.39	-30 26.6					
1986	09 27	19 09.08	-30 00.0	1.758	2.195	101.8	26.5	17.0

1979 HF5 a,e,i = 2.24, 0.10, 5 Elements MPC 8287

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 22.18	-15 54.7	1.594	2.016	99.2	29.5	17.2
1986	04 30	19 33.34	-14 59.6					
1986	05 10	19 41.94	-14 06.3	1.392	2.019	113.5	27.3	16.8
1986	05 20	19 47.61	-13 18.2					
1986	05 30	19 50.07	-12 38.7	1.217	2.025	130.2	22.5	16.4
1986	06 09	19 49.10	-12 11.4					
1986	06 19	19 44.76	-11 59.2	1.090	2.033	149.7	14.6	15.9
1986	06 29	19 37.53	-12 03.7					
1986	07 09	19 28.36	-12 24.2	1.037	2.044	169.0	5.5	15.5
1986	07 19	19 18.65	-12 58.3					
1986	07 29	19 09.94	-13 41.4	1.074	2.058	160.1	9.6	15.8
1986	08 08	19 03.49	-14 28.7					
1986	08 18	19 00.17	-15 15.9	1.195	2.073	139.8	18.4	16.3
1986	08 28	19 00.29	-15 59.5					
1986	09 07	19 03.77	-16 36.9	1.379	2.091	121.6	24.2	16.8
1986	09 17	19 10.35	-17 06.4					
1986	09 27	19 19.59	-17 26.4	1.603	2.110	105.9	27.2	17.2

1985 FZ1 a,e,i = 2.64, 0.11, 13 Elements MPC 9966

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 41.97	-10 27.4	2.593	2.838	93.5	20.7	17.7
1986 04 30	19 47.83	-09 57.6					
1986 05 10	19 51.66	-09 33.2	2.344	2.853	110.1	19.4	17.5
1986 05 20	19 53.27	-09 16.6					
1986 05 30	19 52.54	-09 10.0	2.124	2.867	128.5	16.1	17.2
1986 06 09	19 49.44	-09 15.4					
1986 06 19	19 44.11	-09 34.0	1.962	2.879	148.7	10.6	16.8
1986 06 29	19 36.94	-10 06.1					
1986 07 09	19 28.53	-10 50.3	1.889	2.890	167.5	4.4	16.5
1986 07 19	19 19.74	-11 44.3					
1986 07 29	19 11.46	-12 44.2	1.924	2.900	160.2	6.8	16.7
1986 08 08	19 04.51	-13 46.5					
1986 08 18	18 59.55	-14 47.6	2.062	2.908	139.6	13.0	17.1
1986 08 28	18 56.92	-15 45.1					
1986 09 07	18 56.75	-16 37.2	2.279	2.915	119.9	17.4	17.4
1986 09 17	18 59.02	-17 22.8					
1986 09 27	19 03.55	-18 00.9	2.542	2.921	102.0	19.6	17.7

1981 GG a,e,i = 2.65, 0.18, 14 Elements MPC 10544

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 47.51	-34 27.5	2.400	2.704	96.5	21.7	18.5
1986 04 30	19 55.33	-35 15.3					
1986 05 10	20 00.65	-36 11.9	2.187	2.741	112.8	19.8	18.3
1986 05 20	20 03.15	-37 17.2					
1986 05 30	20 02.57	-38 29.4	2.009	2.778	130.6	16.1	18.0
1986 06 09	19 58.73	-39 44.7					
1986 06 19	19 51.74	-40 57.0	1.896	2.813	148.5	10.9	17.7
1986 06 29	19 42.12	-41 59.1					
1986 07 09	19 30.75	-42 43.9	1.872	2.846	159.3	7.3	17.6
1986 07 19	19 18.97	-43 06.7					
1986 07 29	19 08.16	-43 06.7	1.951	2.878	150.4	10.0	17.8
1986 08 08	18 59.46	-42 46.6					
1986 08 18	18 53.65	-42 11.1	2.123	2.909	133.0	14.7	18.2
1986 08 28	18 51.00	-41 25.4					
1986 09 07	18 51.45	-40 33.8	2.362	2.937	115.3	18.1	18.5
1986 09 17	18 54.78	-39 39.0					
1986 09 27	19 00.60	-38 42.7	2.641	2.964	98.8	19.5	18.8

1985 HV1 a,e,i = 3.13, 0.16, 1 Elements MPC 10395

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 48.27	-21 42.2	3.285	3.504	94.1	16.6	18.0
1986 04 30	19 52.62	-21 33.9					
1986 05 10	19 55.13	-21 30.3	3.017	3.521	111.9	15.4	17.8
1986 05 20	19 55.66	-21 32.3					
1986 05 30	19 54.16	-21 39.8	2.783	3.537	131.4	12.4	17.5
1986 06 09	19 50.63	-21 52.5					
1986 06 19	19 45.25	-22 09.3	2.618	3.552	152.7	7.5	17.2
1986 06 29	19 38.38	-22 28.5					
1986 07 09	19 30.53	-22 48.1	2.551	3.565	175.1	1.4	16.9
1986 07 19	19 22.39	-23 06.2					
1986 07 29	19 14.66	-23 21.2	2.598	3.577	162.0	5.0	17.1
1986 08 08	19 08.00	-23 32.3					
1986 08 18	19 02.94	-23 39.6	2.752	3.588	140.1	10.4	17.5
1986 08 28	18 59.79	-23 43.1					
1986 09 07	18 58.69	-23 43.3	2.988	3.597	119.8	14.1	17.8
1986 09 17	18 59.65	-23 40.4					
1986 09 27	19 02.56	-23 34.7	3.273	3.605	101.2	15.8	18.0

1985 GX a,e,i = 2.68, 0.19, 14 Elements MPC 10042

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 47.15	-07 44.0	2.935	3.131	91.8	18.7	18.2
1986	04 30	19 51.93	-07 01.3					
1986	05 10	19 54.84	-06 22.6	2.676	3.145	108.5	17.7	17.9
1986	05 20	19 55.71	-05 50.1					
1986	05 30	19 54.47	-05 26.0	2.444	3.156	126.7	14.9	17.7
1986	06 09	19 51.11	-05 12.4					
1986	06 19	19 45.78	-05 11.3	2.272	3.165	146.0	10.3	17.4
1986	06 29	19 38.82	-05 23.8					
1986	07 09	19 30.78	-05 49.9	2.188	3.173	162.6	5.5	17.1
1986	07 19	19 22.36	-06 28.4					
1986	07 29	19 14.33	-07 16.7	2.212	3.178	158.2	6.8	17.2
1986	08 08	19 07.41	-08 11.8					
1986	08 18	19 02.19	-09 10.2	2.341	3.180	139.6	11.9	17.5
1986	08 28	18 59.00	-10 08.5					
1986	09 07	18 58.02	-11 04.4	2.552	3.181	120.2	15.9	17.8
1986	09 17	18 59.26	-11 55.9					
1986	09 27	19 02.58	-12 41.5	2.813	3.180	102.2	17.9	18.1

1982 UB7 a,e,i = 3.16, 0.04, 15 Elements MPC 9153

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	04 20	19 45.83	-09 10.9	3.080	3.279	-0.61	-2.9	17.3
1986	04 30	19 50.57	-08 04.6					
1986	05 10	19 53.52	-06 59.4	2.809	3.279	-0.67	-3.1	17.1
1986	05 20	19 54.54	-05 57.5					
1986	05 30	19 53.56	-05 00.6	2.571	3.279	-0.76	-3.4	16.8
1986	06 09	19 50.59	-04 11.1					
1986	06 19	19 45.78	-03 31.4	2.394	3.279	-0.83	-3.6	16.5
1986	06 29	19 39.46	-03 03.4					
1986	07 09	19 32.11	-02 48.6	2.305	3.278	-0.88	-3.8	16.3
1986	07 19	19 24.41	-02 47.3					
1986	07 29	19 17.04	-02 58.6	2.322	3.276	-0.87	-3.8	16.4
1986	08 08	19 10.68	-03 20.7					
1986	08 18	19 05.86	-03 50.9	2.440	3.274	-0.81	-3.6	16.6
1986	08 28	19 02.93	-04 25.9					
1986	09 07	19 02.06	-05 02.9	2.638	3.272	-0.73	-3.3	16.9
1986	09 17	19 03.29	-05 39.2					
1986	09 27	19 06.50	-06 12.6	2.886	3.270	-0.66	-2.9	17.2

(3371) 1955 RZ a,e,i = 2.74, 0.01, 10 Elements MPC 10393

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 47.98	-25 04.7	2.428	2.704	94.8	21.7	17.2
1986	04 30	19 55.49	-24 33.5					
1986	05 10	20 00.76	-24 05.0	2.170	2.704	111.1	20.4	16.9
1986	05 20	20 03.53	-23 40.3					
1986	05 30	20 03.64	-23 19.7	1.942	2.703	129.6	16.8	16.6
1986	06 09	20 00.95	-23 03.3					
1986	06 19	19 55.59	-22 50.0	1.773	2.703	150.4	10.7	16.2
1986	06 29	19 47.93	-22 38.1					
1986	07 09	19 38.68	-22 25.7	1.691	2.703	173.2	2.5	15.7
1986	07 19	19 28.83	-22 11.3					
1986	07 29	19 19.50	-21 53.9	1.716	2.704	163.3	6.2	16.0
1986	08 08	19 11.69	-21 33.8					
1986	08 18	19 06.15	-21 11.9	1.841	2.704	141.1	13.6	16.4
1986	08 28	19 03.28	-20 48.9					
1986	09 07	19 03.17	-20 25.3	2.042	2.705	121.2	18.6	16.7
1986	09 17	19 05.74	-20 00.8					
1986	09 27	19 10.73	-19 35.1	2.290	2.706	103.5	21.1	17.1

1981 EB9 a,e,i = 2.61, 0.16, 13 Elements MPC 10289

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986 04	20	19 31.19	-37 23.2	1.807	2.217	-1.32	-7.0	17.6
1986 04	30	19 44.02	-37 47.1					
1986 05	10	19 54.21	-38 15.0	1.585	2.202	-1.44	-9.7	17.2
1986 05	20	20 01.26	-38 47.4					
1986 05	30	20 04.73	-39 23.7	1.396	2.190	-1.66	-12.0	16.8
1986 06	09	20 04.21	-40 00.8					
1986 06	19	19 59.60	-40 33.0	1.258	2.183	-1.98	-12.8	16.4
1986 06	29	19 51.33	-40 52.0					
1986 07	09	19 40.45	-40 49.7	1.195	2.180	-2.30	-11.2	16.1
1986 07	19	19 28.67	-40 20.2					
1986 07	29	19 17.94	-39 23.5	1.220	2.180	-2.36	-8.4	16.2
1986 08	08	19 09.83	-38 04.9					
1986 08	18	19 05.32	-36 32.0	1.331	2.185	-2.10	-6.6	16.6
1986 08	28	19 04.66	-34 52.4					
1986 09	07	19 07.65	-33 11.1	1.507	2.194	-1.72	-6.2	17.1
1986 09	17	19 13.87	-31 30.8					
1986 09	27	19 22.78	-29 52.3	1.726	2.207	-1.38	-6.5	17.4

1977 PE1 a,e,i = 2.78, 0.18, 5 Elements MPC 9476

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04	20	19 39.86	-18 00.6	2.377	2.666	95.4	22.0	18.4
1986 04	30	19 47.89	-17 18.4					
1986 05	10	19 53.94	-16 37.8	2.089	2.628	111.2	21.0	18.1
1986 05	20	19 57.76	-16 00.8					
1986 05	30	19 59.14	-15 29.2	1.831	2.591	128.9	17.7	17.7
1986 06	09	19 57.89	-15 04.4					
1986 06	19	19 54.03	-14 47.8	1.630	2.554	148.8	11.9	17.2
1986 06	29	19 47.81	-14 39.9					
1986 07	09	19 39.78	-14 40.5	1.512	2.518	169.4	4.3	16.7
1986 07	19	19 30.86	-14 48.5					
1986 07	29	19 22.16	-15 01.9	1.493	2.483	163.4	6.7	16.8
1986 08	08	19 14.74	-15 18.9					
1986 08	18	19 09.54	-15 37.3	1.572	2.450	142.1	14.7	17.2
1986 08	28	19 07.09	-15 55.2					
1986 09	07	19 07.60	-16 11.1	1.723	2.419	122.5	20.6	17.5
1986 09	17	19 11.06	-16 23.3					
1986 09	27	19 17.25	-16 30.4	1.920	2.390	105.4	23.8	17.8

1982 TL1 a,e,i = 3.02, 0.05, 8 Elements MPC 9032

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04	20	19 52.44	-29 29.5	2.928	3.170	94.6	18.4	17.8
1986 04	30	19 58.82	-29 39.8					
1986 05	10	20 03.19	-29 56.1	2.655	3.168	111.5	17.2	17.5
1986 05	20	20 05.33	-30 18.8					
1986 05	30	20 05.07	-30 47.4	2.416	3.165	130.1	14.2	17.2
1986 06	09	20 02.32	-31 20.3					
1986 06	19	19 57.16	-31 54.8	2.241	3.162	150.0	9.2	16.9
1986 06	29	19 49.95	-32 27.1					
1986 07	09	19 41.24	-32 53.2	2.158	3.158	167.5	4.0	16.6
1986 07	19	19 31.89	-33 09.3					
1986 07	29	19 22.88	-33 13.7	2.183	3.154	159.4	6.5	16.7
1986 08	08	19 15.10	-33 06.3					
1986 08	18	19 09.29	-32 48.8	2.311	3.149	139.4	12.1	17.0
1986 08	28	19 05.87	-32 23.3					
1986 09	07	19 04.99	-31 52.3	2.517	3.144	119.9	16.1	17.4
1986 09	17	19 06.64	-31 17.5					
1986 09	27	19 10.60	-30 40.0	2.771	3.138	102.1	18.2	17.6

(3318) 1985 HB a,e,i = 3.01, 0.05, 12 Elements MPC 10036

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 50.46	-18 20.6	2.860	3.080	93.0	19.0	17.1
1986 04 30	19 56.59	-18 20.0					
1986 05 10	20 00.84	-18 26.2	2.593	3.088	110.0	17.9	16.8
1986 05 20	20 03.02	-18 40.6					
1986 05 30	20 03.00	-19 04.2	2.356	3.095	128.9	14.8	16.5
1986 06 09	20 00.70	-19 37.2					
1986 06 19	19 56.22	-20 18.8	2.181	3.102	149.8	9.5	16.2
1986 06 29	19 49.85	-21 07.0					
1986 07 09	19 42.11	-21 58.6	2.097	3.108	172.4	2.5	15.8
1986 07 19	19 33.73	-22 50.0					
1986 07 29	19 25.58	-23 37.8	2.124	3.114	164.4	5.0	16.0
1986 08 08	19 18.46	-24 19.6					
1986 08 18	19 13.09	-24 54.0	2.257	3.119	142.2	11.5	16.4
1986 08 28	19 09.89	-25 20.9					
1986 09 07	19 09.05	-25 40.6	2.472	3.124	121.9	15.9	16.7
1986 09 17	19 10.61	-25 53.6					
1986 09 27	19 14.41	-26 00.3	2.738	3.129	103.6	18.1	17.0

(3317) Paris a,e,i = 5.19, 0.13, 28 Elements MPC 10036

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 52.36	-05 39.0	4.424	4.538	90.1	12.8	15.7
1986 04 30	19 55.60	-05 25.6					
1986 05 10	19 57.53	-05 16.8	4.131	4.538	107.5	12.3	15.5
1986 05 20	19 58.08	-05 14.2					
1986 05 30	19 57.24	-05 18.9	3.869	4.540	126.0	10.4	15.3
1986 06 09	19 55.05	-05 32.1					
1986 06 19	19 51.62	-05 54.4	3.670	4.541	145.2	7.3	15.1
1986 06 29	19 47.19	-06 26.1					
1986 07 09	19 42.04	-07 06.7	3.563	4.544	162.7	3.8	14.9
1986 07 19	19 36.56	-07 54.9					
1986 07 29	19 31.16	-08 48.9	3.568	4.547	162.5	3.8	14.9
1986 08 08	19 26.27	-09 46.6					
1986 08 18	19 22.25	-10 45.8	3.687	4.551	144.7	7.4	15.1
1986 08 28	19 19.39	-11 44.2					
1986 09 07	19 17.89	-12 40.3	3.900	4.555	125.1	10.4	15.3
1986 09 17	19 17.85	-13 32.4					
1986 09 27	19 19.29	-14 19.7	4.179	4.561	106.1	12.2	15.5

(3272) 1938 DB1 a,e,i = 2.24, 0.09, 4 Elements MPC 9762

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 04 20	19 52.20	-20 47.9	2.174	2.443	93.0	24.2	17.6
1986 04 30	20 01.10	-20 35.0					
1986 05 10	20 07.82	-20 28.5	1.927	2.448	108.8	23.0	17.3
1986 05 20	20 12.04	-20 30.5					
1986 05 30	20 13.49	-20 42.7	1.704	2.450	126.8	19.3	17.0
1986 06 09	20 11.94	-21 05.9					
1986 06 19	20 07.32	-21 39.5	1.532	2.451	147.5	12.9	16.5
1986 06 29	19 59.88	-22 21.0					
1986 07 09	19 50.24	-23 06.1	1.441	2.450	170.6	3.9	16.1
1986 07 19	19 39.46	-23 49.8					
1986 07 29	19 28.86	-24 27.2	1.453	2.447	164.8	6.2	16.2
1986 08 08	19 19.72	-24 55.8					
1986 08 18	19 13.08	-25 14.8	1.563	2.443	142.1	14.7	16.6
1986 08 28	19 09.50	-25 24.9					
1986 09 07	19 09.16	-25 27.4	1.748	2.436	122.0	20.5	17.0
1986 09 17	19 11.97	-25 23.1					
1986 09 27	19 17.61	-25 12.5	1.976	2.428	104.4	23.6	17.4

(3283) 1979 QA10 a,e,i = 2.40, 0.10, 7 Elements MPC 9825

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	04 20	19 42.51	-29 33.2	1.996	2.337	96.7	25.3	17.4
1986	04 30	19 53.54	-29 37.3					
1986	05 10	20 02.31	-29 46.9	1.743	2.315	111.7	23.9	17.0
1986	05 20	20 08.44	-30 03.5					
1986	05 30	20 11.56	-30 27.9	1.519	2.293	128.7	20.2	16.6
1986	06 09	20 11.30	-30 59.4					
1986	06 19	20 07.52	-31 35.2	1.347	2.273	147.9	13.8	16.1
1986	06 29	20 00.40	-32 10.0					
1986	07 09	19 50.60	-32 37.0	1.252	2.253	166.4	6.1	15.7
1986	07 19	19 39.40	-32 49.7					
1986	07 29	19 28.44	-32 44.1	1.251	2.234	160.6	8.7	15.8
1986	08 08	19 19.28	-32 20.6					
1986	08 18	19 13.14	-31 42.5	1.341	2.217	140.5	16.9	16.2
1986	08 28	19 10.60	-30 54.3					
1986	09 07	19 11.76	-29 59.8	1.498	2.202	121.7	22.9	16.6
1986	09 17	19 16.37	-29 01.3					
1986	09 27	19 24.00	-27 59.8	1.698	2.188	105.4	26.2	16.9

1985 GB a,e,i = 3.24, 0.11, 2 Elements MPC 10039

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 12.56	-22 22.6	2.711	3.174	108.1	17.6	17.5
1986	05 20	20 15.07	-22 24.4					
1986	05 30	20 15.40	-22 33.1	2.483	3.195	126.8	14.7	17.2
1986	06 09	20 13.47	-22 48.6					
1986	06 19	20 09.37	-23 09.6	2.313	3.216	147.3	9.8	16.9
1986	06 29	20 03.38	-23 34.3					
1986	07 09	19 55.97	-23 59.8	2.232	3.236	169.2	3.4	16.6
1986	07 19	19 47.83	-24 23.5					
1986	07 29	19 39.79	-24 42.7	2.259	3.257	167.1	4.0	16.7
1986	08 08	19 32.60	-24 56.2					
1986	08 18	19 26.96	-25 03.3	2.394	3.277	145.3	10.1	17.0
1986	08 28	19 23.30	-25 04.5					
1986	09 07	19 21.84	-25 00.3	2.616	3.297	124.9	14.5	17.4
1986	09 17	19 22.61	-24 51.5					
1986	09 27	19 25.51	-24 38.4	2.894	3.317	106.3	16.9	17.7
1986	10 07	19 30.36	-24 21.3					
1986	10 17	19 36.94	-24 00.2	3.197	3.336	89.2	17.4	17.9

(3332) 1978 NT1 a,e,i = 2.54, 0.09, 15 Elements MPC 10293

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 08.75	-08 48.1	2.234	2.690	105.8	21.2	16.6
1986	05 20	20 12.51	-08 30.3					
1986	05 30	20 13.99	-08 23.5	1.983	2.677	123.2	18.5	16.3
1986	06 09	20 13.01	-08 30.2					
1986	06 19	20 09.53	-08 53.0	1.781	2.662	142.9	13.3	15.9
1986	06 29	20 03.75	-09 32.8					
1986	07 09	19 56.08	-10 29.1	1.656	2.647	163.6	6.2	15.4
1986	07 19	19 47.27	-11 39.2					
1986	07 29	19 38.32	-12 58.5	1.634	2.631	166.3	5.3	15.3
1986	08 08	19 30.24	-14 21.4					
1986	08 18	19 23.96	-15 42.6	1.717	2.615	145.5	12.7	15.7
1986	08 28	19 20.11	-16 58.0					
1986	09 07	19 19.01	-18 05.0	1.884	2.598	125.1	18.5	16.1
1986	09 17	19 20.74	-19 02.0					
1986	09 27	19 25.14	-19 48.3	2.104	2.580	106.9	21.8	16.4
1986	10 07	19 32.00	-20 23.6					
1986	10 17	19 41.03	-20 47.7	2.348	2.562	90.7	22.9	16.7

1941 SW a,e,i = 3.17, 0.29, 8 Elements MPC 10401

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 03.55	-10 10.4	2.182	2.664	107.4	21.2	17.2
1986	05 20	20 08.58	-09 12.5					
1986	05 30	20 11.47	-08 19.2	1.904	2.608	123.8	18.8	16.8
1986	06 09	20 12.02	-07 33.5					
1986	06 19	20 10.16	-06 58.2	1.677	2.554	141.8	14.2	16.4
1986	06 29	20 06.00	-06 36.1					
1986	07 09	19 59.86	-06 29.5	1.523	2.502	159.9	8.0	15.9
1986	07 19	19 52.44	-06 39.2					
1986	07 29	19 44.67	-07 04.4	1.462	2.453	163.8	6.6	15.7
1986	08 08	19 37.58	-07 42.5					
1986	08 18	19 32.16	-08 29.2	1.496	2.408	146.7	13.3	16.0
1986	08 28	19 29.15	-09 19.8					
1986	09 07	19 28.95	-10 10.2	1.610	2.366	127.8	19.7	16.3
1986	09 17	19 31.71	-10 56.4					
1986	09 27	19 37.30	-11 35.6	1.778	2.330	110.8	23.7	16.6
1986	10 07	19 45.51	-12 05.6					
1986	10 17	19 56.05	-12 24.9	1.974	2.298	95.7	25.6	16.8

2630 P-L a,e,i = 2.42, 0.19, 3 Elements MPC 8144

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 17.12	-23 17.9	2.147	2.630	107.3	21.5	19.7
1986	05 20	20 21.99	-23 19.2					
1986	05 30	20 24.40	-23 29.3	1.878	2.595	124.9	18.7	19.3
1986	06 09	20 24.05	-23 48.7					
1986	06 19	20 20.78	-24 17.1	1.658	2.557	144.9	13.2	18.8
1986	06 29	20 14.66	-24 52.0					
1986	07 09	20 06.04	-25 29.5	1.517	2.518	166.7	5.3	18.3
1986	07 19	19 55.77	-26 04.5					
1986	07 29	19 45.02	-26 32.1	1.477	2.477	167.2	5.2	18.2
1986	08 08	19 35.10	-26 49.2					
1986	08 18	19 27.26	-26 55.0	1.537	2.436	144.9	13.8	18.6
1986	08 28	19 22.30	-26 50.3					
1986	09 07	19 20.62	-26 37.1	1.676	2.393	124.3	20.4	18.9
1986	09 17	19 22.28	-26 16.9					
1986	09 27	19 27.05	-25 50.5	1.862	2.351	106.4	24.1	19.2
1986	10 07	19 34.61	-25 18.2					
1986	10 17	19 44.61	-24 39.5	2.067	2.308	90.8	25.6	19.4

1982 TD1 a,e,i = 3.02, 0.04, 10 Elements MPC 8794

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 24.87	-31 59.8	2.527	2.987	107.3	18.8	17.2
1986	05 20	20 28.89	-32 24.4					
1986	05 30	20 30.43	-32 56.3	2.298	2.995	124.9	16.1	17.0
1986	06 09	20 29.32	-33 34.1					
1986	06 19	20 25.51	-34 14.8	2.123	3.004	143.8	11.5	16.6
1986	06 29	20 19.21	-34 54.3					
1986	07 09	20 10.89	-35 27.4	2.031	3.012	161.4	6.2	16.4
1986	07 19	20 01.37	-35 49.0					
1986	07 29	19 51.67	-35 55.9	2.042	3.021	161.1	6.3	16.4
1986	08 08	19 42.85	-35 47.1					
1986	08 18	19 35.82	-35 23.9	2.156	3.029	143.4	11.5	16.7
1986	08 28	19 31.17	-34 49.3					
1986	09 07	19 29.17	-34 06.3	2.354	3.038	124.3	15.9	17.0
1986	09 17	19 29.85	-33 17.6					
1986	09 27	19 33.01	-32 25.2	2.607	3.046	106.4	18.4	17.3
1986	10 07	19 38.41	-31 30.2					
1986	10 17	19 45.75	-30 32.8	2.886	3.054	90.0	19.0	17.6

(3250) 1979 EB a,e,i = 3.01, 0.11, 10 Elements MPC 9680

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05	10	20 19.84	-08 22.0	2.614	3.007	103.0	19.1	16.6
1986 05	20	20 23.48	-07 30.5					
1986 05	30	20 25.11	-06 44.9	2.346	2.986	120.1	17.1	16.3
1986 06	09	20 24.61	-06 07.5					
1986 06	19	20 21.95	-05 40.6	2.124	2.964	138.7	13.1	16.0
1986 06	29	20 17.28	-05 26.0					
1986 07	09	20 10.91	-05 25.3	1.978	2.942	157.4	7.6	15.6
1986 07	19	20 03.42	-05 38.7					
1986 07	29	19 55.56	-06 04.9	1.929	2.921	164.6	5.3	15.4
1986 08	08	19 48.15	-06 41.5					
1986 08	18	19 41.99	-07 25.2	1.985	2.899	148.9	10.4	15.7
1986 08	28	19 37.69	-08 12.1					
1986 09	07	19 35.63	-08 58.7	2.131	2.879	129.5	15.7	16.0
1986 09	17	19 35.97	-09 42.2					
1986 09	27	19 38.68	-10 20.1	2.338	2.858	111.2	19.1	16.3
1986 10	07	19 43.63	-10 50.9					
1986 10	17	19 50.62	-11 13.3	2.579	2.839	94.6	20.5	16.5

1985 FC1 a,e,i = 2.35, 0.12, 4 Elements MPC 9827

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05	10	20 31.31	-23 21.8	2.197	2.633	104.1	21.8	18.0
1986 05	20	20 36.19	-23 15.1					
1986 05	30	20 38.55	-23 16.8	1.951	2.629	121.7	19.2	17.7
1986 06	09	20 38.15	-23 27.5					
1986 06	19	20 34.85	-23 46.7	1.750	2.623	141.6	13.9	17.3
1986 06	29	20 28.72	-24 11.9					
1986 07	09	20 20.13	-24 39.8	1.624	2.615	163.7	6.3	16.9
1986 07	19	20 09.87	-25 05.6					
1986 07	29	19 59.05	-25 25.0	1.599	2.606	170.4	3.7	16.7
1986 08	08	19 48.89	-25 35.1					
1986 08	18	19 40.55	-25 35.1	1.679	2.594	148.1	11.9	17.1
1986 08	28	19 34.81	-25 26.0					
1986 09	07	19 32.06	-25 09.4	1.844	2.581	127.1	18.1	17.5
1986 09	17	19 32.38	-24 46.7					
1986 09	27	19 35.58	-24 18.8	2.064	2.565	108.6	21.7	17.8
1986 10	07	19 41.36	-23 46.1					
1986 10	17	19 49.40	-23 08.5	2.308	2.548	92.2	23.0	18.1

(3389) 1984 DU a,e,i = 2.77, 0.14, 7 Elements MPC 10400

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05	10	20 26.63	-13 24.4	2.604	2.994	102.8	19.2	17.8
1986 05	20	20 30.55	-13 03.8					
1986 05	30	20 32.43	-12 51.3	2.327	2.972	120.4	17.1	17.5
1986 06	09	20 32.11	-12 48.5					
1986 06	19	20 29.52	-12 56.9	2.096	2.948	140.1	12.8	17.1
1986 06	29	20 24.75	-13 16.6					
1986 07	09	20 18.09	-13 47.1	1.942	2.924	161.5	6.3	16.7
1986 07	19	20 10.09	-14 26.5					
1986 07	29	20 01.55	-15 11.7	1.889	2.898	172.3	2.7	16.4
1986 08	08	19 53.33	-15 59.0					
1986 08	18	19 46.35	-16 45.0	1.945	2.872	150.9	9.9	16.8
1986 08	28	19 41.28	-17 27.0					
1986 09	07	19 38.57	-18 03.1	2.092	2.844	129.7	15.8	17.1
1986 09	17	19 38.41	-18 32.2					
1986 09	27	19 40.79	-18 53.7	2.302	2.816	110.7	19.5	17.4
1986 10	07	19 45.54	-19 07.2					
1986 10	17	19 52.47	-19 12.3	2.542	2.788	93.6	20.9	17.7

1985 JF a,e,i = 3.18, 0.09, 17 Elements MPC 10403

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 30.13	+00 48.3	3.054	3.347	97.9	17.4	18.2
1986	05 20	20 32.87	+01 53.8					
1986	05 30	20 33.81	+02 53.0	2.813	3.360	114.3	16.0	17.9
1986	06 09	20 32.87	+03 43.3					
1986	06 19	20 30.08	+04 21.9	2.613	3.372	131.4	13.1	17.7
1986	06 29	20 25.58	+04 46.0					
1986	07 09	20 19.68	+04 53.6	2.481	3.384	147.7	9.2	17.5
1986	07 19	20 12.84	+04 43.4					
1986	07 29	20 05.66	+04 15.8	2.442	3.395	156.0	7.0	17.3
1986	08 08	19 58.78	+03 32.8					
1986	08 18	19 52.83	+02 37.6	2.507	3.405	147.6	9.2	17.5
1986	08 28	19 48.30	+01 34.8					
1986	09 07	19 45.54	+00 28.5	2.667	3.415	131.1	12.8	17.8
1986	09 17	19 44.73	-00 37.2					
1986	09 27	19 45.88	-01 39.0	2.897	3.424	113.6	15.6	18.0
1986	10 07	19 48.91	-02 34.6					
1986	10 17	19 53.70	-03 22.1	3.170	3.432	96.7	16.8	18.3

1981 EM7 a,e,i = 2.59, 0.21, 6 Elements MPC 10289

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 10	20 11.07	-13 42.3	1.553	2.079	-1.66	-6.0	17.6
1986	05 20	20 19.97	-12 27.2					
1986	05 30	20 26.28	-11 16.5	1.348	2.066	-1.96	-7.3	17.2
1986	06 09	20 29.66	-10 13.6					
1986	06 19	20 29.93	-09 22.5	1.183	2.058	-2.31	-8.5	16.8
1986	06 29	20 27.13	-08 46.5					
1986	07 09	20 21.58	-08 28.3	1.078	2.056	-2.63	-9.5	16.3
1986	07 19	20 14.13	-08 29.0					
1986	07 29	20 05.97	-08 46.8	1.055	2.059	-2.71	-9.8	16.1
1986	08 08	19 58.46	-09 18.2					
1986	08 18	19 52.89	-09 57.5	1.119	2.068	-2.50	-9.1	16.5
1986	08 28	19 50.12	-10 39.0					
1986	09 07	19 50.53	-11 17.9	1.260	2.083	-2.14	-7.9	17.0
1986	09 17	19 54.16	-11 50.4					
1986	09 27	20 00.74	-12 13.7	1.456	2.103	-1.80	-6.8	17.5
1986	10 07	20 09.90	-12 26.2					
1986	10 17	20 21.26	-12 26.9	1.688	2.128	-1.52	-6.1	17.9

1984 AP a,e,i = 2.72, 0.12, 13 Elements MPC 9830

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 39.31	-19 41.3	2.667	3.034	101.5	19.0	17.4
1986	05 20	20 42.67	-19 03.3					
1986	05 30	20 43.85	-18 30.4	2.400	3.028	119.4	17.0	17.1
1986	06 09	20 42.69	-18 03.2					
1986	06 19	20 39.12	-17 41.9	2.177	3.021	139.4	12.6	16.7
1986	06 29	20 33.28	-17 26.2					
1986	07 09	20 25.48	-17 15.0	2.032	3.013	161.4	6.2	16.4
1986	07 19	20 16.33	-17 06.9					
1986	07 29	20 06.66	-17 00.4	1.992	3.003	174.2	2.0	16.1
1986	08 08	19 57.38	-16 53.9					
1986	08 18	19 49.38	-16 46.6	2.063	2.992	151.6	9.3	16.5
1986	08 28	19 43.32	-16 37.8					
1986	09 07	19 39.60	-16 27.2	2.229	2.980	130.1	15.0	16.8
1986	09 17	19 38.39	-16 14.4					
1986	09 27	19 39.62	-15 58.9	2.458	2.966	110.8	18.4	17.1
1986	10 07	19 43.15	-15 40.1					
1986	10 17	19 48.73	-15 17.3	2.718	2.951	93.5	19.7	17.4

1983 TH a,e,i = 2.21, 0.17, 8 Elements MPC 8380

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 10	20 22.09	-26 56.6	1.706	2.221	-1.50	-4.4	17.9
1986	05 20	20 31.06	-27 21.3					
1986	05 30	20 37.51	-27 58.5	1.459	2.181	-1.78	-6.3	17.5
1986	06 09	20 41.00	-28 49.7					
1986	06 19	20 41.08	-29 54.6	1.255	2.140	-2.16	-7.8	17.0
1986	06 29	20 37.52	-31 09.8					
1986	07 09	20 30.35	-32 28.5	1.117	2.100	-2.59	-7.9	16.4
1986	07 19	20 20.26	-33 40.3					
1986	07 29	20 08.62	-34 34.5	1.065	2.059	-2.86	-5.6	16.2
1986	08 08	19 57.27	-35 03.5					
1986	08 18	19 48.13	-35 05.2	1.102	2.021	-2.79	-2.8	16.5
1986	08 28	19 42.56	-34 42.9					
1986	09 07	19 41.19	-34 01.6	1.209	1.983	-2.41	-1.7	16.9
1986	09 17	19 44.08	-33 06.4					
1986	09 27	19 50.83	-32 00.4	1.360	1.949	-1.99	-2.3	17.2
1986	10 07	20 00.92	-30 45.2					
1986	10 17	20 13.76	-29 21.3	1.533	1.917	-1.64	-3.6	17.5

(3409) 1977 RE6 a,e,i = 2.85, 0.08, 1 Elements MPC 10533

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 32.71	-17 13.2	2.463	2.855	102.3	20.2	17.1
1986	05 20	20 37.65	-16 48.7					
1986	05 30	20 40.48	-16 31.4	2.197	2.838	119.6	18.1	16.8
1986	06 09	20 41.00	-16 22.8					
1986	06 19	20 39.10	-16 23.6	1.974	2.821	139.0	13.7	16.4
1986	06 29	20 34.86	-16 33.9					
1986	07 09	20 28.53	-16 52.4	1.824	2.804	160.6	6.9	16.0
1986	07 19	20 20.66	-17 17.0					
1986	07 29	20 12.08	-17 44.7	1.773	2.787	175.6	1.6	15.7
1986	08 08	20 03.72	-18 12.1					
1986	08 18	19 56.55	-18 36.5	1.829	2.770	153.2	9.5	16.1
1986	08 28	19 51.32	-18 56.1					
1986	09 07	19 48.51	-19 09.8	1.976	2.754	131.9	15.8	16.4
1986	09 17	19 48.33	-19 17.0					
1986	09 27	19 50.73	-19 17.5	2.187	2.738	112.9	19.7	16.8
1986	10 07	19 55.56	-19 11.0					
1986	10 17	20 02.57	-18 57.3	2.431	2.723	96.0	21.3	17.0

1981 EH23 a,e,i = 2.43, 0.12, 1 Elements MPC 10385

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 36.77	-18 19.4	2.284	2.677	101.7	21.7	19.4
1986	05 20	20 42.02	-17 55.8					
1986	05 30	20 45.00	-17 40.0	2.022	2.664	118.9	19.5	19.0
1986	06 09	20 45.46	-17 33.5					
1986	06 19	20 43.24	-17 37.1	1.802	2.649	138.4	14.8	18.6
1986	06 29	20 38.36	-17 50.5					
1986	07 09	20 31.07	-18 12.1	1.652	2.632	160.4	7.4	18.2
1986	07 19	20 21.98	-18 39.1					
1986	07 29	20 12.02	-19 07.7	1.600	2.614	175.8	1.6	17.8
1986	08 08	20 02.29	-19 34.2					
1986	08 18	19 53.94	-19 55.9	1.655	2.594	152.4	10.4	18.2
1986	08 28	19 47.82	-20 11.2					
1986	09 07	19 44.46	-20 19.5	1.799	2.573	130.8	17.2	18.6
1986	09 17	19 44.05	-20 20.9					
1986	09 27	19 46.50	-20 15.5	2.003	2.551	111.8	21.4	19.0
1986	10 07	19 51.60	-20 03.1					
1986	10 17	19 59.06	-19 43.6	2.236	2.527	95.0	23.1	19.2

1981 EQ27 a,e,i = 2.55, 0.13, 3 Elements MPC 9765

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 10	20 37.78	-15 43.1	2.278	2.659	100.8	21.9	16.8
1986 05 20	20 42.71	-15 18.9					
1986 05 30	20 45.30	-15 03.5	2.054	2.684	118.1	19.5	16.6
1986 06 09	20 45.38	-14 58.7					
1986 06 19	20 42.86	-15 05.2	1.869	2.708	137.7	14.6	16.2
1986 06 29	20 37.85	-15 23.0					
1986 07 09	20 30.67	-15 50.5	1.755	2.732	159.7	7.4	15.9
1986 07 19	20 21.98	-16 25.2					
1986 07 29	20 12.68	-17 03.0	1.740	2.753	175.5	1.7	15.6
1986 08 08	20 03.78	-17 40.4					
1986 08 18	19 56.24	-18 14.1	1.833	2.774	153.1	9.5	16.1
1986 08 28	19 50.78	-18 42.1					
1986 09 07	19 47.80	-19 03.3	2.018	2.793	131.8	15.6	16.5
1986 09 17	19 47.45	-19 17.2					
1986 09 27	19 49.63	-19 23.8	2.268	2.810	112.6	19.2	16.9
1986 10 07	19 54.14	-19 23.1					
1986 10 17	20 00.73	-19 15.1	2.550	2.826	95.5	20.5	17.2

1976 QN1 a,e,i = 2.27, 0.08, 1 Elements MPC 8284

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 10	20 25.60	-17 30.7	1.736	2.211	104.1	26.3	18.0
1986 05 20	20 33.73	-16 57.4					
1986 05 30	20 39.36	-16 32.2	1.505	2.194	119.9	23.6	17.6
1986 06 09	20 42.15	-16 17.7					
1986 06 19	20 41.83	-16 16.1	1.311	2.177	138.3	18.1	17.1
1986 06 29	20 38.33	-16 28.0					
1986 07 09	20 31.83	-16 52.8	1.179	2.162	159.8	9.3	16.6
1986 07 19	20 23.03	-17 27.3					
1986 07 29	20 13.11	-18 06.4	1.134	2.148	176.0	1.9	16.1
1986 08 08	20 03.49	-18 44.9					
1986 08 18	19 55.63	-19 18.3	1.183	2.135	152.9	12.5	16.7
1986 08 28	19 50.60	-19 43.5					
1986 09 07	19 48.96	-19 59.5	1.313	2.123	131.9	20.7	17.1
1986 09 17	19 50.84	-20 05.8					
1986 09 27	19 56.01	-20 02.1	1.497	2.113	114.0	25.7	17.5
1986 10 07	20 04.10	-19 48.3					
1986 10 17	20 14.70	-19 24.1	1.710	2.106	98.7	27.9	17.9

1981 QJ a,e,i = 3.12, 0.19, 1 Elements MPC 7360

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 10	20 38.25	-19 42.2	2.740	3.107	101.7	18.6	18.5
1986 05 20	20 42.98	-19 28.7					
1986 05 30	20 45.76	-19 22.4	2.445	3.069	119.1	16.8	18.2
1986 06 09	20 46.40	-19 24.3					
1986 06 19	20 44.80	-19 34.8	2.195	3.032	138.5	12.8	17.8
1986 06 29	20 40.98	-19 53.1					
1986 07 09	20 35.12	-20 17.6	2.018	2.994	160.0	6.7	17.3
1986 07 19	20 27.69	-20 45.7					
1986 07 29	20 19.40	-21 14.0	1.942	2.956	176.7	1.1	16.9
1986 08 08	20 11.10	-21 39.2					
1986 08 18	20 03.73	-21 58.7	1.974	2.919	154.2	8.7	17.3
1986 08 28	19 58.04	-22 11.2					
1986 09 07	19 54.58	-22 16.3	2.101	2.882	132.7	14.9	17.6
1986 09 17	19 53.65	-22 14.0					
1986 09 27	19 55.27	-22 04.7	2.294	2.846	113.4	18.9	17.9
1986 10 07	19 59.33	-21 48.6					
1986 10 17	20 05.63	-21 25.7	2.522	2.810	96.2	20.6	18.1

1931 TE4 a,e,i = 2.28, 0.25, 3 Elements MPC 9471

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 10	20 23.59	-19 04.4	1.748	2.232	104.9	25.9	18.5
1986 05 20	20 32.54	-18 45.2					
1986 05 30	20 39.30	-18 34.9	1.477	2.173	120.4	23.7	18.0
1986 06 09	20 43.47	-18 36.2					
1986 06 19	20 44.66	-18 51.5	1.244	2.115	138.4	18.6	17.4
1986 06 29	20 42.64	-19 21.9					
1986 07 09	20 37.34	-20 06.6	1.073	2.056	159.4	10.0	16.8
1986 07 19	20 29.20	-21 01.5					
1986 07 29	20 19.23	-21 59.8	0.985	1.999	176.1	2.0	16.2
1986 08 08	20 08.94	-22 53.8					
1986 08 18	20 00.12	-23 36.8	0.987	1.944	152.9	13.7	16.6
1986 08 28	19 54.25	-24 05.4					
1986 09 07	19 52.23	-24 18.7	1.065	1.892	131.8	23.4	17.0
1986 09 17	19 54.42	-24 17.2					
1986 09 27	20 00.63	-24 01.8	1.191	1.844	114.2	29.7	17.3
1986 10 07	20 10.45	-23 32.6					
1986 10 17	20 23.38	-22 49.5	1.340	1.802	99.9	33.0	17.6

1985 GM a,e,i = 2.91, 0.01, 3 Elements MPC 9951

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986 05 10	20 42.40	-19 33.3	2.518	2.882	-0.85	-2.8	17.2
1986 05 20	20 47.80	-19 24.9					
1986 05 30	20 51.11	-19 25.2	2.263	2.881	-0.95	-3.3	16.9
1986 06 09	20 52.13	-19 35.3					
1986 06 19	20 50.74	-19 55.5	2.050	2.880	-1.07	-3.8	16.6
1986 06 29	20 46.98	-20 24.8					
1986 07 09	20 41.08	-21 01.0	1.909	2.880	-1.18	-3.9	16.2
1986 07 19	20 33.52	-21 40.6					
1986 07 29	20 25.09	-22 19.4	1.865	2.879	-1.24	-3.6	15.8
1986 08 08	20 16.69	-22 53.5					
1986 08 18	20 09.28	-23 20.0	1.930	2.879	-1.20	-2.9	16.2
1986 08 28	20 03.64	-23 37.4					
1986 09 07	20 00.28	-23 45.6	2.089	2.879	-1.10	-2.3	16.6
1986 09 17	19 59.44	-23 45.0					
1986 09 27	20 01.12	-23 36.4	2.316	2.879	-0.97	-2.1	17.0
1986 10 07	20 05.18	-23 20.3					
1986 10 17	20 11.37	-22 57.2	2.580	2.879	-0.85	-2.1	17.2

1981 EZ17 a,e,i = 2.57, 0.13, 15 Elements MPC 10289

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986 05 10	20 40.68	-01 58.4	2.134	2.458	-1.04	-0.3	17.6
1986 05 20	20 46.93	-00 54.3					
1986 05 30	20 50.95	+00 00.8	1.927	2.486	-1.16	-0.3	17.3
1986 06 09	20 52.53	+00 43.3					
1986 06 19	20 51.56	+01 09.3	1.749	2.514	-1.32	-0.4	17.0
1986 06 29	20 48.10	+01 15.3					
1986 07 09	20 42.38	+00 58.5	1.625	2.542	-1.47	-0.8	16.7
1986 07 19	20 34.95	+00 17.8					
1986 07 29	20 26.65	-00 45.0	1.586	2.570	-1.53	-1.2	16.5
1986 08 08	20 18.42	-02 05.4					
1986 08 18	20 11.28	-03 36.8	1.646	2.597	-1.47	-1.4	16.7
1986 08 28	20 06.00	-05 11.6					
1986 09 07	20 03.08	-06 43.4	1.802	2.624	-1.32	-1.2	17.1
1986 09 17	20 02.76	-08 07.1					
1986 09 27	20 04.99	-09 19.5	2.031	2.651	-1.15	-0.9	17.5
1986 10 07	20 09.60	-10 19.0					
1986 10 17	20 16.34	-11 04.7	2.304	2.676	-1.00	-0.8	17.9

1977 RG a,e,i = 2.79, 0.11, 9 Elements MPC 9765

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 42.40	-08 37.9	2.198	2.540	97.8	23.2	18.2
1986	05 20	20 49.10	-07 52.8					
1986	05 30	20 53.65	-07 16.5	1.972	2.554	113.7	21.3	17.9
1986	06 09	20 55.86	-06 51.8					
1986	06 19	20 55.57	-06 41.4	1.779	2.570	131.7	17.2	17.6
1986	06 29	20 52.83	-06 47.4					
1986	07 09	20 47.80	-07 10.7	1.645	2.586	151.8	10.7	17.2
1986	07 19	20 40.99	-07 50.9					
1986	07 29	20 33.17	-08 45.1	1.599	2.605	169.7	4.0	16.9
1986	08 08	20 25.26	-09 48.7					
1986	08 18	20 18.26	-10 56.2	1.656	2.624	158.4	8.2	17.2
1986	08 28	20 13.00	-12 02.1					
1986	09 07	20 10.02	-13 02.1	1.809	2.644	137.8	14.8	17.6
1986	09 17	20 09.60	-13 53.3					
1986	09 27	20 11.72	-14 33.8	2.034	2.664	118.7	19.3	18.0
1986	10 07	20 16.25	-15 03.0					
1986	10 17	20 22.94	-15 20.6	2.303	2.686	101.5	21.3	18.4

1981 EP20 a,e,i = 2.37, 0.22, 2 Elements MPC 9751

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 40.46	-21 26.1	1.940	2.360	101.6	24.8	18.8
1986	05 20	20 49.25	-21 06.1					
1986	05 30	20 55.90	-20 54.2	1.663	2.309	117.2	23.0	18.4
1986	06 09	21 00.06	-20 52.4					
1986	06 19	21 01.36	-21 02.3	1.422	2.258	135.1	18.5	17.9
1986	06 29	20 59.55	-21 24.0					
1986	07 09	20 54.55	-21 56.0	1.240	2.207	155.7	10.9	17.3
1986	07 19	20 46.68	-22 34.3					
1986	07 29	20 36.79	-23 12.7	1.142	2.156	175.5	2.1	16.7
1986	08 08	20 26.17	-23 44.6					
1986	08 18	20 16.47	-24 04.7	1.139	2.106	156.3	11.2	17.0
1986	08 28	20 09.13	-24 10.7					
1986	09 07	20 05.13	-24 02.7	1.220	2.058	134.7	20.4	17.4
1986	09 17	20 04.94	-23 42.2					
1986	09 27	20 08.51	-23 10.5	1.358	2.012	116.2	26.6	17.7
1986	10 07	20 15.52	-22 28.5					
1986	10 17	20 25.57	-21 36.3	1.525	1.970	100.7	29.8	18.0

1985 FA a,e,i = 2.29, 0.22, 24 Elements MPC 9766

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	21 08.58	-36 44.7	2.445	2.795	99.5	20.9	18.6
1986	05 20	21 16.30	-38 03.3					
1986	05 30	21 21.75	-39 37.2	2.209	2.797	115.3	19.1	18.3
1986	06 09	21 24.51	-41 25.7					
1986	06 19	21 24.14	-43 25.8	2.018	2.796	131.4	15.8	18.0
1986	06 29	21 20.31	-45 31.6					
1986	07 09	21 12.87	-47 34.4	1.898	2.791	144.8	12.1	17.8
1986	07 19	21 02.11	-49 22.9					
1986	07 29	20 48.95	-50 46.4	1.870	2.783	148.0	11.1	17.7
1986	08 08	20 34.86	-51 37.1					
1986	08 18	20 21.67	-51 52.6	1.936	2.772	138.0	14.2	17.9
1986	08 28	20 10.98	-51 36.0					
1986	09 07	20 03.81	-50 53.5	2.081	2.758	122.6	17.9	18.1
1986	09 17	20 00.59	-49 52.3					
1986	09 27	20 01.18	-48 38.6	2.277	2.740	106.8	20.5	18.4
1986	10 07	20 05.20	-47 16.7					
1986	10 17	20 12.15	-45 49.2	2.498	2.719	91.8	21.5	18.6

1981 EZ2 a,e,i = 2.54, 0.10, 9 Elements MPC 10289

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 10	21 02.15	-07 18.4	2.249	2.509	-0.92	-3.8	17.7
1986	05 20	21 09.21	-06 05.2					
1986	05 30	21 14.16	-04 58.4	2.026	2.531	-1.03	-4.2	17.5
1986	06 09	21 16.80	-04 00.4					
1986	06 19	21 16.95	-03 14.2	1.826	2.553	-1.18	-4.6	17.2
1986	06 29	21 14.56	-02 42.5					
1986	07 09	21 09.71	-02 27.9	1.677	2.574	-1.33	-5.2	16.9
1986	07 19	21 02.78	-02 31.8					
1986	07 29	20 54.45	-02 54.0	1.608	2.596	-1.42	-5.6	16.5
1986	08 08	20 45.59	-03 32.2					
1986	08 18	20 37.27	-04 22.1	1.639	2.616	-1.39	-5.6	16.6
1986	08 28	20 30.40	-05 18.1					
1986	09 07	20 25.66	-06 14.8	1.769	2.636	-1.26	-5.1	17.0
1986	09 17	20 23.45	-07 07.5					
1986	09 27	20 23.86	-07 52.8	1.978	2.655	-1.10	-4.4	17.4
1986	10 07	20 26.79	-08 28.7					
1986	10 17	20 32.03	-08 53.8	2.235	2.673	-0.95	-3.9	17.8

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 59.14	-16 33.8	2.696	2.977	96.1	19.7	17.9
1986	05 20	21 05.60	-16 09.0					
1986	05 30	21 10.30	-15 51.7	2.399	2.941	112.6	18.6	17.6
1986	06 09	21 13.02	-15 43.4					
1986	06 19	21 13.57	-15 45.4	2.136	2.905	130.9	15.3	17.2
1986	06 29	21 11.87	-15 58.1					
1986	07 09	21 07.96	-16 21.1	1.935	2.870	151.4	9.8	16.8
1986	07 19	21 02.09	-16 52.8					
1986	07 29	20 54.80	-17 30.0	1.823	2.835	173.9	2.2	16.3
1986	08 08	20 46.82	-18 08.8					
1986	08 18	20 39.10	-18 45.0	1.817	2.801	163.0	6.1	16.4
1986	08 28	20 32.53	-19 15.3					
1986	09 07	20 27.86	-19 37.3	1.913	2.769	140.9	13.3	16.8
1986	09 17	20 25.57	-19 50.1					
1986	09 27	20 25.85	-19 53.2	2.085	2.738	120.9	18.3	17.1
1986	10 07	20 28.68	-19 46.9					
1986	10 17	20 33.93	-19 31.2	2.303	2.709	103.1	21.0	17.4

1983 WP a,e,i = 2.63, 0.12, 14 Elements MPC 9760

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	21 08.43	-25 02.7	2.605	2.897	96.4	20.3	17.8
1986	05 20	21 15.12	-25 31.2					
1986	05 30	21 19.80	-26 12.0	2.354	2.907	113.2	18.7	17.5
1986	06 09	21 22.23	-27 05.8					
1986	06 19	21 22.17	-28 12.3	2.139	2.915	131.6	15.1	17.2
1986	06 29	21 19.52	-29 28.9					
1986	07 09	21 14.29	-30 51.5	1.990	2.921	151.0	9.7	16.9
1986	07 19	21 06.80	-32 13.5					
1986	07 29	20 57.69	-33 27.6	1.936	2.926	164.3	5.4	16.7
1986	08 08	20 47.89	-34 27.1					
1986	08 18	20 38.49	-35 07.7	1.989	2.930	153.5	8.9	16.9
1986	08 28	20 30.54	-35 28.0					
1986	09 07	20 24.79	-35 29.3	2.139	2.932	134.2	14.3	17.2
1986	09 17	20 21.73	-35 14.5					
1986	09 27	20 21.45	-34 47.0	2.358	2.932	115.4	18.0	17.5
1986	10 07	20 23.84	-34 09.3					
1986	10 17	20 28.68	-33 23.7	2.617	2.931	98.2	19.7	17.8

(3294) 6563 P-L a,e,i = 2.70, 0.07, 7 Elements MPC 9954

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	21 10.02	-24 12.0	2.527	2.814	95.8	20.9	18.0
1986	05 20	21 16.70	-24 04.2					
1986	05 30	21 21.28	-24 05.6	2.280	2.825	112.3	19.4	17.7
1986	06 09	21 23.52	-24 17.0					
1986	06 19	21 23.21	-24 38.2	2.064	2.835	130.9	15.7	17.4
1986	06 29	21 20.29	-25 07.8					
1986	07 09	21 14.83	-25 42.8	1.911	2.844	151.3	9.9	17.0
1986	07 19	21 07.18	-26 19.0					
1986	07 29	20 58.03	-26 50.9	1.848	2.853	169.8	3.6	16.7
1986	08 08	20 48.31	-27 14.0					
1986	08 18	20 39.09	-27 24.8	1.892	2.861	159.0	7.3	16.9
1986	08 28	20 31.34	-27 22.5					
1986	09 07	20 25.77	-27 07.8	2.037	2.867	138.1	13.6	17.3
1986	09 17	20 22.79	-26 42.4					
1986	09 27	20 22.46	-26 08.4	2.257	2.873	118.5	17.9	17.7
1986	10 07	20 24.69	-25 27.5					
1986	10 17	20 29.24	-24 40.5	2.521	2.878	100.7	19.9	18.0

1985 DQ a,e,i = 2.62, 0.14, 14 Elements MPC 9678

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 57.89	-08 58.6	2.066	2.365	94.2	25.2	16.5
1986	05 20	21 06.40	-08 34.8					
1986	05 30	21 12.80	-08 22.9	1.853	2.391	109.6	23.5	16.2
1986	06 09	21 16.83	-08 26.1					
1986	06 19	21 18.29	-08 47.3	1.663	2.419	127.4	19.5	15.9
1986	06 29	21 17.09	-09 28.4					
1986	07 09	21 13.25	-10 29.7	1.525	2.448	148.1	12.7	15.5
1986	07 19	21 07.14	-11 49.1					
1986	07 29	20 59.43	-13 21.4	1.469	2.477	170.9	3.7	15.1
1986	08 08	20 51.05	-14 59.3					
1986	08 18	20 43.14	-16 34.6	1.518	2.507	164.4	6.2	15.3
1986	08 28	20 36.70	-18 00.3					
1986	09 07	20 32.48	-19 12.0	1.666	2.538	142.1	14.1	15.8
1986	09 17	20 30.91	-20 07.4					
1986	09 27	20 32.06	-20 46.6	1.892	2.569	122.1	19.3	16.3
1986	10 07	20 35.82	-21 10.1					
1986	10 17	20 41.93	-21 19.2	2.166	2.600	104.4	21.8	16.7

1983 VG7 a,e,i = 2.27, 0.16, 5 Elements MPC 9825

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 59.41	-22 39.0	2.047	2.400	97.7	24.6	17.9
1986	05 20	21 08.72	-22 30.5					
1986	05 30	21 15.98	-22 32.2	1.778	2.367	113.1	23.2	17.5
1986	06 09	21 20.84	-22 46.3					
1986	06 19	21 22.93	-23 13.9	1.539	2.332	130.7	19.3	17.0
1986	06 29	21 21.99	-23 55.2					
1986	07 09	21 17.81	-24 47.8	1.356	2.297	150.6	12.6	16.5
1986	07 19	21 10.57	-25 46.8					
1986	07 29	21 00.92	-26 44.5	1.254	2.260	169.4	4.7	16.0
1986	08 08	20 49.97	-27 32.5					
1986	08 18	20 39.28	-28 03.7	1.250	2.223	158.6	9.6	16.2
1986	08 28	20 30.37	-28 15.0					
1986	09 07	20 24.38	-28 06.9	1.335	2.186	137.4	18.2	16.6
1986	09 17	20 21.96	-27 41.8					
1986	09 27	20 23.20	-27 02.9	1.484	2.149	118.3	24.2	16.9
1986	10 07	20 27.89	-26 12.5					
1986	10 17	20 35.63	-25 12.0	1.668	2.113	102.0	27.5	17.2

1985 CN1 a,e,i = 2.30, 0.10, 3 Elements MPC 10029

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	21 10.98	-20 00.1	2.155	2.448	94.4	24.3	19.2
1986	05 20	21 19.12	-19 36.2					
1986	05 30	21 25.04	-19 22.0	1.922	2.464	110.2	22.7	18.9
1986	06 09	21 28.47	-19 19.2					
1986	06 19	21 29.12	-19 28.8	1.715	2.478	128.4	18.7	18.6
1986	06 29	21 26.84	-19 50.7					
1986	07 09	21 21.63	-20 23.2	1.562	2.490	149.2	12.1	18.2
1986	07 19	21 13.80	-21 02.6					
1986	07 29	21 04.08	-21 43.4	1.492	2.501	171.5	3.4	17.8
1986	08 08	20 53.50	-22 19.8					
1986	08 18	20 43.37	-22 46.7	1.526	2.510	162.4	7.0	18.0
1986	08 28	20 34.86	-23 01.5					
1986	09 07	20 28.83	-23 03.7	1.659	2.517	140.2	14.9	18.4
1986	09 17	20 25.75	-22 54.3					
1986	09 27	20 25.70	-22 34.7	1.866	2.523	120.2	20.1	18.8
1986	10 07	20 28.50	-22 06.3					
1986	10 17	20 33.87	-21 29.8	2.115	2.527	102.6	22.6	19.2

1981 EF37 a,e,i = 2.55, 0.12, 15 Elements MPC 10290

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 10	21 04.10	-36 03.6	1.842	2.252	-1.12	-10.1	17.1
1986	05 20	21 15.98	-36 17.7					
1986	05 30	21 25.24	-36 41.0	1.631	2.245	-1.24	-12.9	16.8
1986	06 09	21 31.41	-37 14.3					
1986	06 19	21 34.05	-37 56.3	1.450	2.241	-1.44	-15.3	16.4
1986	06 29	21 32.83	-38 43.2					
1986	07 09	21 27.60	-39 28.3	1.323	2.240	-1.70	-16.4	16.1
1986	07 19	21 18.72	-40 01.7					
1986	07 29	21 07.23	-40 13.4	1.270	2.242	-1.91	-15.1	15.8
1986	08 08	20 54.73	-39 55.7					
1986	08 18	20 43.13	-39 06.7	1.308	2.246	-1.93	-12.2	16.0
1986	08 28	20 34.03	-37 50.1					
1986	09 07	20 28.37	-36 13.2	1.430	2.254	-1.71	-10.0	16.4
1986	09 17	20 26.49	-34 23.4					
1986	09 27	20 28.17	-32 26.8	1.618	2.264	-1.41	-8.9	16.8
1986	10 07	20 32.98	-30 27.1					
1986	10 17	20 40.45	-28 26.0	1.848	2.276	-1.16	-8.6	17.1

1983 VM7 a,e,i = 2.26, 0.15, 4 Elements MPC 9752

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 55.34	-20 18.5	1.897	2.269	98.0	26.1	18.0
1986	05 20	21 05.61	-19 59.0					
1986	05 30	21 13.88	-19 49.0	1.637	2.235	112.9	24.7	17.6
1986	06 09	21 19.76	-19 50.9					
1986	06 19	21 22.90	-20 07.1	1.406	2.201	130.0	20.7	17.2
1986	06 29	21 23.00	-20 38.3					
1986	07 09	21 19.82	-21 23.8	1.227	2.167	149.8	13.6	16.6
1986	07 19	21 13.50	-22 19.8					
1986	07 29	21 04.64	-23 19.4	1.125	2.134	170.8	4.4	16.0
1986	08 08	20 54.34	-24 14.3					
1986	08 18	20 44.19	-24 56.4	1.117	2.101	161.4	8.8	16.2
1986	08 28	20 35.77	-25 20.7					
1986	09 07	20 30.27	-25 26.3	1.196	2.070	139.6	18.4	16.6
1986	09 17	20 28.41	-25 14.2					
1986	09 27	20 30.28	-24 46.8	1.339	2.040	120.5	25.0	17.0
1986	10 07	20 35.66	-24 06.1					
1986	10 17	20 44.16	-23 13.2	1.519	2.013	104.4	28.7	17.3

1982 RH a,e,i = 2.62, 0.14, 13 Elements MPC 7446

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 10	20 53.42	-03 47.2	1.955	2.258	-1.28	-0.9	17.3
1986	05 20	21 03.02	-02 40.6					
1986	05 30	21 10.59	-01 42.6	1.738	2.262	-1.45	-1.0	17.0
1986	06 09	21 15.89	-00 56.8					
1986	06 19	21 18.67	-00 27.5	1.543	2.270	-1.67	-1.4	16.7
1986	06 29	21 18.80	-00 18.5					
1986	07 09	21 16.28	-00 33.8	1.391	2.281	-1.91	-2.0	16.3
1986	07 19	21 11.36	-01 15.6					
1986	07 29	21 04.66	-02 23.0	1.310	2.295	-2.08	-2.7	15.9
1986	08 08	20 57.08	-03 52.0					
1986	08 18	20 49.77	-05 34.9	1.321	2.311	-2.06	-2.9	15.9
1986	08 28	20 43.80	-07 22.2					
1986	09 07	20 40.02	-09 05.0	1.429	2.330	-1.87	-2.5	16.3
1986	09 17	20 38.93	-10 36.3					
1986	09 27	20 40.67	-11 52.1	1.617	2.351	-1.62	-1.9	16.8
1986	10 07	20 45.11	-12 50.4					
1986	10 17	20 52.03	-13 30.7	1.857	2.374	-1.39	-1.5	17.2

(3279) 9103 P-L a,e,i = 2.20, 0.17, 3 Elements MPC 9764

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 10	20 46.83	-13 51.7	1.650	2.054	98.2	29.1	17.3
1986	05 20	20 58.71	-12 45.4					
1986	05 30	21 08.66	-11 43.6	1.406	2.015	111.7	27.9	16.9
1986	06 09	21 16.32	-10 49.5					
1986	06 19	21 21.34	-10 06.8	1.189	1.977	127.2	24.2	16.3
1986	06 29	21 23.38	-09 38.9					
1986	07 09	21 22.17	-09 29.5	1.016	1.942	145.7	17.2	15.8
1986	07 19	21 17.77	-09 40.6					
1986	07 29	21 10.66	-10 11.8	0.908	1.910	166.8	7.0	15.1
1986	08 08	21 01.87	-10 59.5					
1986	08 18	20 52.96	-11 56.6	0.882	1.882	166.9	7.0	15.1
1986	08 28	20 45.59	-12 54.5					
1986	09 07	20 41.10	-13 45.8	0.940	1.859	145.2	18.0	15.5
1986	09 17	20 40.29	-14 25.0					
1986	09 27	20 43.36	-14 48.8	1.061	1.840	126.1	26.1	16.0
1986	10 07	20 50.07	-14 56.0					
1986	10 17	21 00.02	-14 46.0	1.224	1.827	110.3	30.8	16.4

1981 EW3 a,e,i = 2.54, 0.16, 7 Elements MPC 10289

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 10	20 59.46	-15 44.1	1.811	2.160	-1.25	-8.7	17.1
1986	05 20	21 10.21	-14 18.3					
1986	05 30	21 18.79	-12 54.9	1.583	2.148	-1.45	-10.3	16.7
1986	06 09	21 24.88	-11 36.3					
1986	06 19	21 28.19	-10 25.2	1.381	2.140	-1.72	-12.0	16.3
1986	06 29	21 28.50	-09 24.0					
1986	07 09	21 25.69	-08 35.4	1.224	2.135	-2.03	-13.5	15.9
1986	07 19	21 19.99	-08 01.2					
1986	07 29	21 12.04	-07 41.9	1.139	2.135	-2.26	-14.6	15.4
1986	08 08	21 02.87	-07 36.8					
1986	08 18	20 53.87	-07 42.9	1.143	2.139	-2.26	-14.4	15.4
1986	08 28	20 46.37	-07 55.7					
1986	09 07	20 41.37	-08 10.9	1.238	2.147	-2.02	-13.1	15.9
1986	09 17	20 39.49	-08 23.9					
1986	09 27	20 40.82	-08 31.6	1.405	2.159	-1.71	-11.4	16.3
1986	10 07	20 45.21	-08 31.6					
1986	10 17	20 52.33	-08 22.1	1.620	2.174	-1.44	-9.9	16.8

1981 SX7 a,e,i = 3.39, 0.04, 5 Elements MPC 10027

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 10	21 20.07	-11 37.9	3.340	3.486	89.8	16.8	17.7
1986 05 20	21 25.06	-10 57.6					
1986 05 30	21 28.48	-10 23.3	3.052	3.480	106.6	16.2	17.5
1986 06 09	21 30.21	-09 56.2					
1986 06 19	21 30.12	-09 37.6	2.790	3.475	125.0	13.9	17.2
1986 06 29	21 28.19	-09 28.2					
1986 07 09	21 24.48	-09 28.5	2.585	3.468	145.2	9.6	16.9
1986 07 19	21 19.20	-09 38.1					
1986 07 29	21 12.74	-09 55.9	2.467	3.462	166.2	4.0	16.6
1986 08 08	21 05.62	-10 19.9					
1986 08 18	20 58.49	-10 47.7	2.459	3.455	168.0	3.5	16.5
1986 08 28	20 52.01	-11 16.2					
1986 09 07	20 46.74	-11 43.0	2.561	3.449	146.8	9.2	16.9
1986 09 17	20 43.13	-12 05.8					
1986 09 27	20 41.42	-12 23.1	2.754	3.442	126.2	13.6	17.2
1986 10 07	20 41.69	-12 33.9					
1986 10 17	20 43.92	-12 37.3	3.007	3.434	107.1	16.1	17.4

1984 WB a,e,i = 1.89, 0.13, 23 Elements MPC 9590

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 30	21 39.33	+10 02.7	1.716	2.089	96.5	28.8	16.9
1986 06 09	21 44.11	+13 08.0					
1986 06 19	21 46.16	+16 08.5	1.539	2.107	109.4	27.1	16.6
1986 06 29	21 45.19	+18 58.9					
1986 07 09	21 40.94	+21 31.3	1.393	2.121	122.6	23.8	16.3
1986 07 19	21 33.45	+23 35.9					
1986 07 29	21 23.18	+25 03.1	1.297	2.132	134.1	20.0	16.1
1986 08 08	21 11.08	+25 44.1					
1986 08 18	20 58.60	+25 35.5	1.268	2.140	139.3	18.0	16.0
1986 08 28	20 47.33	+24 40.6					
1986 09 07	20 38.61	+23 08.7	1.313	2.144	134.6	19.5	16.1
1986 09 17	20 33.32	+21 13.2					
1986 09 27	20 31.74	+19 07.7	1.424	2.145	123.4	23.0	16.4
1986 10 07	20 33.79	+17 03.4					
1986 10 17	20 39.16	+15 08.7	1.583	2.143	110.2	25.9	16.7
1986 10 27	20 47.39	+13 29.1					
1986 11 06	20 58.05	+12 07.3	1.772	2.137	97.2	27.4	17.0

1985 FE a,e,i = 2.80, 0.18, 7 Elements MPC 9766

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986 05 30	21 31.84	-10 01.6	1.929	2.410	105.7	23.9	16.3
1986 06 09	21 36.39	-08 57.7					
1986 06 19	21 38.38	-08 04.0	1.735	2.437	122.6	20.6	16.0
1986 06 29	21 37.72	-07 22.5					
1986 07 09	21 34.37	-06 54.9	1.586	2.466	141.8	14.8	15.7
1986 07 19	21 28.59	-06 42.4					
1986 07 29	21 20.96	-06 44.4	1.510	2.497	162.5	7.0	15.3
1986 08 08	21 12.30	-06 59.1					
1986 08 18	21 03.69	-07 22.9	1.531	2.530	167.9	4.8	15.3
1986 08 28	20 56.18	-07 51.3					
1986 09 07	20 50.58	-08 20.0	1.653	2.564	148.0	12.0	15.8
1986 09 17	20 47.44	-08 45.2					
1986 09 27	20 46.93	-09 04.2	1.858	2.599	128.1	17.7	16.2
1986 10 07	20 48.99	-09 15.2					
1986 10 17	20 53.44	-09 16.9	2.120	2.635	110.1	20.8	16.6
1986 10 27	20 59.97	-09 09.1					
1986 11 06	21 08.28	-08 51.6	2.412	2.671	94.0	21.7	17.0

1985 DX a,e,i = 2.25, 0.11, 7 Elements MPC 9750

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 30	21 38.75	-06 40.7	1.949	2.390	-1.02	-5.7	17.3
1986	06 09	21 43.11	-05 36.2					
1986	06 19	21 44.95	-04 42.4	1.738	2.409	-1.18	-6.3	17.0
1986	06 29	21 44.10	-04 01.9					
1986	07 09	21 40.46	-03 37.4	1.566	2.426	-1.36	-7.2	16.7
1986	07 19	21 34.19	-03 30.9					
1986	07 29	21 25.79	-03 42.6	1.464	2.441	-1.51	-7.9	16.3
1986	08 08	21 16.08	-04 11.3					
1986	08 18	21 06.19	-04 53.0	1.458	2.454	-1.53	-8.0	16.2
1986	08 28	20 57.28	-05 42.1					
1986	09 07	20 50.32	-06 32.9	1.553	2.466	-1.40	-7.4	16.6
1986	09 17	20 45.99	-07 19.9					
1986	09 27	20 44.54	-07 59.3	1.733	2.475	-1.21	-6.4	17.0
1986	10 07	20 45.95	-08 28.7					
1986	10 17	20 50.03	-08 46.8	1.967	2.483	-1.03	-5.5	17.4
1986	10 27	20 56.44	-08 53.0					
1986	11 06	21 04.87	-08 47.2	2.227	2.489	-0.90	-4.9	17.7

1981 EQ19 a,e,i = 2.38, 0.18, 3 Elements MPC 10289

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1986	05 30	21 23.75	-11 33.8	1.725	2.256	-1.42	-6.3	18.0
1986	06 09	21 30.42	-10 48.4					
1986	06 19	21 34.71	-10 13.9	1.479	2.215	-1.70	-7.8	17.5
1986	06 29	21 36.33	-09 53.1					
1986	07 09	21 35.04	-09 48.5	1.276	2.176	-2.04	-9.4	17.0
1986	07 19	21 30.83	-10 01.7					
1986	07 29	21 24.06	-10 31.8	1.142	2.137	-2.33	-10.6	16.4
1986	08 08	21 15.47	-11 15.8					
1986	08 18	21 06.33	-12 07.9	1.096	2.101	-2.41	-10.5	16.2
1986	08 28	20 58.07	-13 00.8					
1986	09 07	20 51.97	-13 48.1	1.143	2.067	-2.23	-9.2	16.6
1986	09 17	20 48.97	-14 24.8					
1986	09 27	20 49.44	-14 48.1	1.264	2.036	-1.93	-7.7	17.0
1986	10 07	20 53.37	-14 56.6					
1986	10 17	21 00.52	-14 49.7	1.431	2.009	-1.66	-6.7	17.4
1986	10 27	21 10.45	-14 27.8					
1986	11 06	21 22.73	-13 51.0	1.622	1.987	-1.46	-6.3	17.7

1979 WX3 a,e,i = 2.43, 0.18, 2 Elements MPC 9682

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1986	05 30	21 28.37	-14 33.4	1.879	2.395	108.0	23.7	17.6
1986	06 09	21 34.36	-14 10.5					
1986	06 19	21 37.99	-13 59.9	1.623	2.355	124.8	20.8	17.2
1986	06 29	21 39.01	-14 03.4					
1986	07 09	21 37.19	-14 22.3	1.413	2.315	144.1	14.9	16.7
1986	07 19	21 32.54	-14 56.1					
1986	07 29	21 25.41	-15 41.9	1.277	2.276	166.3	6.1	16.1
1986	08 08	21 16.53	-16 34.8					
1986	08 18	21 07.10	-17 27.8	1.234	2.237	169.7	4.6	16.0
1986	08 28	20 58.47	-18 14.2					
1986	09 07	20 51.88	-18 49.1	1.288	2.200	146.6	14.6	16.4
1986	09 17	20 48.22	-19 09.9					
1986	09 27	20 47.90	-19 15.8	1.417	2.165	126.1	22.0	16.8
1986	10 07	20 50.91	-19 07.2					
1986	10 17	20 57.05	-18 44.6	1.593	2.131	108.6	26.3	17.1
1986	10 27	21 05.92	-18 08.7					
1986	11 06	21 17.11	-17 20.2	1.791	2.101	93.6	28.1	17.4