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

ERRATA.

MPC	Line	
12853	-17	For Uppsala Southern Schmidt. Observer R. H. McNaught read 1.2-m U.K. Schmidt telescope. Observers K. S. Russell, M. Hartley and Q. A. Parker. Measured by M. Hartley and R. H. McNaught
13006	20	For /1987A read /1987a1
13006	22 to 29	For /1987B read /1987b1
13006	31 to 32	For /1987D read /1987d1
13006	34 to 35	For /1987F read /1987f1

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N	Obs.
1987 QD	*	1987 08	24.30868	22 18 00.48	+17 09 44.7	MPC12181	16.5	1	675
1987 QD		1987 08	25.31910	22 17 43.04	+16 30 58.2	MPC12181			675
1987 QD		1987 08	26.39549	22 17 23.82	+15 48 58.0	MPC12856			675
1987 QD		1987 08	27.32743	22 17 07.99	+15 12 01.0	MPC12856			675
1987 QD		1987 08	29.42500	22 16 32.05	+13 47 09.5	MPC12856		2	675
1987 QD		1987 08	29.44722	22 16 31.58	+13 46 14.2	MPC12856			675
1988 BN2	*	1988 01	24.34097	08 23 06.09	+52 40 11.1	MPC12910	17.5	3	675
1988 EF	*	1988 03	10.33628	10 34 05.55	-14 29 23.2	MPC12910	16.0		675
1988 EF		1988 03	13.26476	10 32 49.72	-13 11 38.6	MPC12910			675
1988 EJ	*	1988 03	13.33090	13 01 29.26	-06 58 29.1	MPC12910	16.0		675
1988 EJ		1988 03	15.36337	13 00 31.00	-06 33 54.8	MPC12910			675
1988 EL	*	1988 03	14.31858	12 58 55.82	-18 17 35.0	MPC12910	16.0		675
1988 EL		1988 03	15.33646	12 57 29.07	-18 32 31.9	MPC12910			675
1988 EO	*	1988 03	12.31458	11 58 35.67	-19 16 46.3	MPC12910	16.5		675
1988 EO		1988 03	14.33229	11 55 26.99	-19 33 31.9	MPC12910			675
1988 EJ1	*	1988 03	12.30677	11 13 41.37	-02 05 36.4	MPC13020	16.8		675
1988 EJ1		1988 03	15.29826	11 10 57.98	-01 42 07.4	MPC13020			675
1988 EK1	*	1988 03	13.28785	11 07 34.14	+01 22 06.7	MPC13020	16.8		675
1988 EK1		1988 03	15.29427	11 05 41.24	+01 37 58.8	MPC13020			675
1988 EO1	*	1988 03	13.35816	13 15 27.90	-07 17 49.3	MPC13020	17.5		675
1988 EO1		1988 03	15.36337	13 14 26.95	-07 12 12.6	MPC13020			675
1988 GC	*	1988 04	07.27292	13 06 16.07	-00 28 38.3	MPC13020	17.0		675
1988 GC		1988 04	10.43247	13 03 03.84	-00 09 31.0	MPC13020			675
1988 GD	*	1988 04	08.26343	12 46 44.86	+05 14 27.2	MPC13020	17.5	4	675
1988 GD		1988 04	10.42795	12 44 50.19	+05 24 32.4	MPC13020			675
1988 GF	*	1988 04	10.29627	12 50 45.05	-17 03 17.9	MPC13020	16.5		675
1988 GF		1988 04	10.31736	12 50 43.93	-17 03 04.6	MPC13020			675

1988 GF	1988 04 11.36736	12 49 53.13	-16 51 49.4	MPC13020	16.5		675
1988 GF	1988 04 11.40017	12 49 51.55	-16 51 26.4	MPC13020			675

Note 1: time originally erroneously given as 1987 08 24.28229. 2: time originally erroneously given as 1987 08 29.42222. 3: time originally erroneously given as 1988 01 24.34965. 4: time originally erroneously given as 1988 04 08.26319.

* * * * *

DELETED OBSERVATIONS.

The following observations are to be deleted.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Obs.
1941 HC	1941 04 03.94921		13 51 41.14	+05 21 24.7	MPC 7403	062
1941 HC	1941 04 03.98428		13 51 39.53	+05 21 41.9	MPC 7403	062
1941 HD	1941 04 03.94921		13 51 34.98	+05 13 46.8	MPC 7403	062
1941 HD	1941 04 03.98428		13 51 33.60	+05 14 09.8	MPC 7403	062

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 12995.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1951 GO1 *	1951 04 03.90		12 37.1	-03 46	1951 ET1		020
1951 GO1	1951 04 04.31740		12 36 42.1	-03 41 56	1951 ET1	15.9	711
1979 HX6 *	1979 04 24.79465		12 46 57.37	-02 36 24.6	1979 HN1	17.0	095
1979 HX6	1979 04 24.86168		12 46 54.86	-02 35 58.4	1979 HN1	16.8	095

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

006 Fabra Observatory, Barcelona. 0.38-m f/11 Mailhat astrograph. Observer J. M. Codina. Measured by N. Torras.
024 Heidelberg. 0.40-m f/5 Bruce astrograph. Observers H. Mandel, U. Mandel and S. Lindauer.
046 Klet. Observer A. Mrkos.
047 Poznan. 0.30-m f/5 astrograph. Observers D. Matz, R. Ochnik and S. Swierkowska. From Acta Astron.
071 Rozhen. Observers V. G. Ivanova, V. I. Umlensky, T. R. Bonev and V. G. Shkodrov.
091 Aurec-sur-Loire. Observer R. Chanal.
293 Burlington remote site. Observer T. Handley.
372 Geisei. Observer T. Seki.
391 Sendai Observatory, Ayashi Station. Observer M. Koishikawa.
397 Sapporo Science Center. 0.60-m f/3.5 reflector. Observer K. Watanabe.
400 Kitami. Observer K. Endate. Measured by K. Watanabe.
413 Siding Spring. Uppsala Southern Schmidt. Observer R. H. McNaught.
474 Mount John Observatory. Observers A. C. Gilmore and P. M. Kilmartin.
503 Cambridge. Observer J. D. Shanklin.
553 Chorzow. 0.20-m f/5 camera. Observers T. Firszt, M. Szczepanski and I. Wlodarczyk. From Acta Astron.
555 Cracow-Fort Skala. Observers A. Lapeta, M. Kurpinska-Winiarska, M. Kus, W. Waniak, M. Winiarski and S. Zola. From Acta Astron.

657 Victoria. Observers J. B. Tatum and D. D. Balam.
675 Palomar. 0.46-m Schmidt. Observers J. Alu, E. Helin, H. Holt, B. Roman, C. Shoemaker and E. Shoemaker.
691 University of Arizona, Kitt Peak. 0.91-m SPACEWATCH telescope, CCD in scanning mode. Observers T. Gehrels and J. V. Scotti.
801 Oak Ridge Observatory. Observers R. E. McCrosky, G. Schwartz and C.-Y. Shao.
892 YGCO Nagano and Chiyoda Stations. Observers S. Hayakawa and T. Kojima.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
		Periodic Comet Giacobini-Zinner					
/1985 XIII	1985 07	03.86164	22 19 02.51	+50 34 23.4			555
/1985 XIII	1985 07	03.87079	22 19 04.42	+50 34 39.2			555
/1985 XIII	1985 07	05.88329	22 27 02.70	+51 34 59.4			555
/1985 XIII	1985 07	05.90025	22 27 06.96	+51 35 30.9			555
/1985 XIII	1985 07	05.90811	22 27 08.67	+51 35 43.8			555
/1985 XIII	1985 07	05.94249	22 27 17.07	+51 36 46.4			555
/1985 XIII	1985 07	05.99116	22 27 28.92	+51 38 15.0			555
/1985 XIII	1985 07	06.93722	22 31 24.43	+52 06 01.1			555
/1985 XIII	1985 07	06.95113	22 31 27.92	+52 06 26.1			555
/1985 XIII	1985 07	06.96569	22 31 31.49	+52 06 52.8			555
/1985 XIII	1985 07	06.97888	22 31 34.83	+52 07 16.2			555
/1985 XIII	1985 07	06.99225	22 31 38.17	+52 07 40.9			555
/1985 XIII	1985 07	07.00058	22 31 40.27	+52 07 55.4			555
/1985 XIII	1985 07	10.98932	22 49 33.89	+54 00 45.5			555
/1985 XIII	1985 07	11.01346	22 49 40.45	+54 01 25.9			555
/1985 XIII	1985 07	11.02559	22 49 44.05	+54 01 46.5			555
/1985 XIII	1985 07	11.03323	22 49 46.35	+54 01 59.5			555
/1985 XIII	1985 07	11.93701	22 54 09.68	+54 26 19.3			555
/1985 XIII	1985 07	11.95368	22 54 14.31	+54 26 48.5			555
/1985 XIII	1985 07	12.00854	22 54 30.57	+54 28 17.2			555
/1985 XIII	1985 07	12.01618	22 54 32.53	+54 28 29.8			555
/1985 XIII	1985 07	14.88913	23 09 22.39	+55 42 19.8			555
/1985 XIII	1985 07	14.90047	23 09 26.39	+55 42 37.4			555
/1985 XIII	1985 07	14.94122	23 09 39.41	+55 43 37.4			555
/1985 XIII	1985 07	14.95891	23 09 45.14	+55 44 05.4			555
/1985 XIII	1985 07	14.98356	23 09 53.01	+55 44 42.4			555
/1985 XIII	1985 07	14.99780	23 09 57.67	+55 45 03.6			555
/1985 XIII	1985 07	16.85875	23 20 21.79	+56 29 20.1			555
/1985 XIII	1985 07	16.90736	23 20 38.51	+56 30 29.7			555
/1985 XIII	1985 07	16.91998	23 20 42.73	+56 30 47.2			555
/1985 XIII	1985 07	18.85922	23 32 14.67	+57 13 30.8			555
/1985 XIII	1985 07	18.87077	23 32 18.92	+57 13 45.1			555
/1985 XIII	1985 07	18.88231	23 32 23.19	+57 14 01.1			555
/1985 XIII	1985 07	18.92778	23 32 39.79	+57 14 59.6			555
/1985 XIII	1985 07	18.94514	23 32 46.20	+57 15 22.1			555
/1985 XIII	1985 07	19.02680	23 33 15.85	+57 17 07.1			555
/1985 XIII	1985 07	19.92185	23 38 51.82	+57 35 18.5			555
/1985 XIII	1985 07	19.93296	23 38 56.07	+57 35 32.1			555
/1985 XIII	1985 07	19.94589	23 39 00.94	+57 35 48.5			555
/1985 XIII	1985 07	24.91549	00 12 59.27	+58 58 41.4			555
/1985 XIII	1985 07	24.93368	00 13 07.21	+58 58 57.0			555
/1985 XIII	1985 07	24.94478	00 13 12.12	+58 59 04.9			555
/1985 XIII	1985 07	24.95831	00 13 17.99	+58 59 16.4			555
/1985 XIII	1985 07	24.98564	00 13 29.86	+58 59 38.3			555
/1985 XIII	1985 07	26.84401	00 27 29.21	+59 20 50.9			555

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/1985 XIII 1985 07 26.85008  00 27 32.08  +59 20 54.7                    555
/1985 XIII 1985 07 26.85485  00 27 34.24  +59 20 57.7                    555
/1985 XIII 1985 07 26.95565  00 28 20.80  +59 22 00.4                    555
/1985 XIII 1985 07 26.97767  00 28 30.82  +59 22 14.5                    555
/1985 XIII 1985 07 26.99094  00 28 36.90  +59 22 23.3                    555
/1985 XIII 1985 08 01.96158  01 17 46.37  +59 43 46.6                    555
/1985 XIII 1985 08 01.97084  01 17 51.16  +59 43 47.4                    555
/1985 XIII 1985 08 01.98056  01 17 55.99  +59 43 46.9                    555
/1985 XIII 1985 08 02.92866  01 26 11.96  +59 39 42.3                    555
/1985 XIII 1985 08 02.98810  01 26 42.80  +59 39 25.7                    555
/1985 XIII 1985 08 03.00014  01 26 49.12  +59 39 22.4                    555
/1985 XIII 1985 08 03.00645  01 26 52.33  +59 39 19.2                    555
/1985 XIII 1985 08 03.92321  01 34 56.85  +59 33 04.4                    555
/1985 XIII 1985 08 05.85362  01 52 07.31  +59 12 45.7                    555
/1985 XIII 1985 08 05.88852  01 52 26.18  +59 12 19.0                    555
/1985 XIII 1985 08 11.95799  02 46 24.72  +56 59 44.6                    553
/1985 XIII 1985 08 12.96765  02 55 09.58  +56 27 07.1                    555
/1985 XIII 1985 08 13.01140  02 55 31.73  +56 25 41.1                    555
/1985 XIII 1985 08 13.05047  02 55 51.87  +56 24 24.1                    555
/1985 XIII 1985 08 13.06367  02 55 58.48  +56 23 57.5                    555
/1985 XIII 1985 08 13.07148  02 56 02.47  +56 23 40.2                    555
/1985 XIII 1985 08 13.09197  02 56 12.70  +56 22 59.5                    555
/1985 XIII 1985 08 13.95608  03 03 36.10  +55 52 14.2                    553
/1985 XIII 1985 08 13.97743  03 03 46.15  +55 51 30.8                    553
/1985 XIII 1985 08 13.99607  03 03 56.21  +55 50 48.8                    555
/1985 XIII 1985 08 14.00353  03 03 59.76  +55 50 32.5                    555
/1985 XIII 1985 08 14.03184  03 04 14.05  +55 49 32.5                    555
/1985 XIII 1985 08 14.94725  03 11 56.57  +55 14 17.8                    553
/1985 XIII 1985 08 14.97058  03 12 06.06  +55 13 31.7                    553
/1985 XIII 1985 08 15.05266  03 12 47.83  +55 10 15.4                    555
/1985 XIII 1985 08 15.96240  03 20 17.47  +54 32 34.3                    553
/1985 XIII 1985 08 16.00101  03 20 36.91  +54 30 56.8                    555
/1985 XIII 1985 08 22.98597  04 13 12.13  +48 23 39.9                    555
/1985 XIII 1985 08 22.99882  04 13 17.32  +48 22 52.3                    555
/1985 XIII 1985 08 23.00958  04 13 21.83  +48 22 12.8                    555
/1985 XIII 1985 08 23.01549  04 13 24.45  +48 21 50.7                    555
/1985 XIII 1985 08 23.97887  04 19 54.79  +47 21 04.7                    555
/1985 XIII 1985 08 23.99693  04 20 01.92  +47 19 55.9                    555
/1985 XIII 1985 08 24.00804  04 20 06.16  +47 19 15.2                    555
/1985 XIII 1985 08 24.01672  04 20 09.74  +47 18 39.9                    555
/1985 XIII 1985 08 24.02402  04 20 12.68  +47 18 13.9                    555
/1985 XIII 1985 08 24.06152  04 20 27.32  +47 15 50.6                    555
/1985 XIII 1985 08 25.03329  04 26 49.30  +46 12 10.1                    555
/1985 XIII 1985 08 25.06836  04 27 02.58  +46 09 52.8                    555
/1985 XIII 1985 09 03.00230  05 17 18.33  +35 00 52.7                    555
/1985 XIII 1985 09 03.01186  05 17 20.92  +35 00 06.3                    555
/1985 XIII 1985 09 03.03341  05 17 27.13  +34 58 21.3                    555
/1985 XIII 1985 09 19.03474  06 18 45.57  +12 47 38.8                    555
/1985 XIII 1985 09 19.11289  06 18 59.30  +12 41 27.4                    555
/1985 XIII 1985 09 20.02909  06 21 40.61  +11 28 51.2                    555
/1985 XIII 1985 09 20.04124  06 21 42.69  +11 27 52.0                    555
/1985 XIII 1985 09 20.12946  06 21 57.85  +11 20 54.6                    555
/1985 XIII 1985 10 02.11669  06 51 00.10  -02 56 49.7                    555
/1985 XIII 1985 10 02.12653  06 51 01.15  -02 57 27.8                    555

                Comet Hartley-Good (1985 XVII)
/1985 XVII 1985 11 11.70413  18 29 55.19  +09 46 29.8                    553
/1985 XVII 1985 11 11.70876  18 29 54.37  +09 46 32.7                    553
/1985 XVII 1985 11 11.71420  18 29 53.21  +09 46 48.0                    553
```

Periodic Comet Halley

/1986 III	1986	05	01.82837	10	52	03.37	-17	36	23.7	047
/1986 III	1986	05	01.83462	10	52	02.37	-17	36	07.8	047
/1986 III	1986	05	02.84122	10	49	08.36	-16	47	42.2	047

Periodic Comet Schwassmann-Wachmann 2

/1986h	1988	02	23.80902	13	33	17.16	-04	40	22.7	1 892
/1986h	1988	04	13.95330	13	05	16.52	-00	41	47.9	503
/1986h	1988	04	08.33368	13	09	32.29	-01	08	08.2	675
/1986h	1988	04	10.43247	13	07	55.29	-00	57	55.3	675

Comet Wilson (1986l)

/1986l	1986	10	01.83261	20	29	15.24	+10	08	58.2	555
/1986l	1986	10	01.84645	20	29	13.91	+10	08	41.1	555
/1986l	1986	10	01.87846	20	29	10.85	+10	07	56.6	555
/1986l	1986	10	01.90856	20	29	08.03	+10	07	17.8	555
/1986l	1986	10	02.84671	20	27	41.05	+09	46	22.3	555
/1986l	1986	10	10.77929	20	16	35.96	+06	51	52.5	555
/1986l	1986	10	10.81401	20	16	33.31	+06	51	08.5	555
/1986l	1986	10	10.85752	20	16	29.99	+06	50	12.0	555
/1986l	1986	10	10.88585	20	16	27.87	+06	49	35.2	555
/1986l	1986	10	11.81259	20	15	18.60	+06	29	38.2	555
/1986l	1986	10	12.79738	20	14	07.03	+06	08	36.2	555
/1986l	1986	10	12.81821	20	14	05.48	+06	08	08.8	555
/1986l	1986	10	12.85293	20	14	03.03	+06	07	23.5	555
/1986l	1986	10	12.86682	20	14	02.07	+06	07	05.6	555
/1986l	1986	10	13.82465	20	12	54.40	+05	46	46.7	555
/1986l	1986	10	13.83855	20	12	53.45	+05	46	28.2	555
/1986l	1986	10	13.86215	20	12	51.72	+05	45	57.9	555
/1986l	1986	10	13.87534	20	12	50.87	+05	45	42.5	555
/1986l	1986	10	13.88847	20	12	50.13	+05	45	26.0	555
/1986l	1986	10	14.83024	20	11	45.28	+05	25	34.5	555
/1986l	1986	10	15.82056	20	10	39.30	+05	04	49.2	555
/1986l	1986	10	24.81714	20	02	07.10	+02	04	46.3	555
/1986l	1986	10	24.82829	20	02	06.60	+02	04	33.1	555
/1986l	1986	10	24.84223	20	02	05.90	+02	04	19.0	555
/1986l	1986	10	25.76130	20	01	22.24	+01	46	46.6	555
/1986l	1986	10	25.78879	20	01	20.95	+01	46	16.1	555
/1986l	1986	10	25.80129	20	01	20.34	+01	46	01.8	555
/1986l	1986	10	25.81448	20	01	19.74	+01	45	46.4	555
/1986l	1986	10	28.76030	19	59	10.53	+00	50	52.8	555
/1986l	1986	10	28.78646	19	59	09.46	+00	50	24.8	555
/1986l	1986	10	28.80035	19	59	08.87	+00	50	09.3	555
/1986l	1986	10	28.81516	19	59	08.08	+00	49	53.9	555
/1986l	1986	10	28.83472	19	59	07.41	+00	49	30.6	555
/1986l	1986	10	29.73443	19	58	31.24	+00	33	06.7	555
/1986l	1986	10	29.75043	19	58	30.63	+00	32	50.0	555
/1986l	1986	11	08.71736	19	53	20.08	-02	17	15.7	555
/1986l	1986	11	08.73124	19	53	19.74	-02	17	29.4	555
/1986l	1986	11	08.74652	19	53	19.41	-02	17	42.6	555
/1986l	1986	11	08.75902	19	53	19.08	-02	17	55.9	555
/1986l	1986	11	08.77152	19	53	18.82	-02	18	08.0	555
/1986l	1986	11	09.70685	19	52	57.75	-02	33	00.4	555
/1986l	1986	11	09.71796	19	52	57.54	-02	33	12.6	555
/1986l	1986	11	09.72907	19	52	57.33	-02	33	20.4	555
/1986l	1986	11	09.74921	19	52	56.87	-02	33	40.7	555
/1986l	1986	11	09.76032	19	52	56.65	-02	33	51.0	555
/1986l	1986	11	09.78671	19	52	56.01	-02	34	14.8	555
/1986l	1986	11	11.70535	19	52	17.18	-03	04	12.1	555

/1986l	1986	11	11.71438	19	52	17.00	-03	04	20.4		555
/1986l	1986	11	11.72340	19	52	16.84	-03	04	28.2		555
/1986l	1986	11	11.73313	19	52	16.63	-03	04	38.0		555
/1986l	1986	11	11.74620	19	52	16.34	-03	04	49.5		555
/1986l	1986	11	11.76430	19	52	16.05	-03	05	06.7		555
/1986l	1988	04	12.11888	06	47	45.80	+21	27	13.4	18.6N 1	691
/1986l	1988	04	12.12770	06	47	45.80	+21	27	14.8	15.7T 1	691

Periodic Comet Borrelly

/1987p	1988	01	14.82188	02	37	17.29	+31	30	27.6		006
/1987p	1988	01	14.83160	02	37	18.01	+31	30	53.1		006
/1987p	1988	01	21.83056	02	48	06.49	+36	15	41.0		006
/1987p	1988	01	21.84375	02	48	07.81	+36	16	10.9		006
/1987p	1988	03	09.88889	05	04	03.80	+52	43	57.7		091
/1987p	1988	04	07.83706	06	50	24.82	+52	57	55.4		046
/1987p	1988	04	07.84458	06	50	26.52	+52	57	50.6		046
/1987p	1988	04	09.19444	06	55	13.58	+52	50	40.6		657
/1987p	1988	04	10.82137	07	00	56.70	+52	41	17.7		046
/1987p	1988	04	10.82582	07	00	58.13	+52	41	13.8		046
/1987p	1988	04	13.10344	07	08	53.46	+52	26	45.2		801
/1987p	1988	04	13.89670	07	11	37.68	+52	21	18.4		503
/1987p	1988	04	20.08968	07	32	32.28	+51	33	03.6		801
/1987p	1988	05	05.94230	08	21	59.21	+48	50	13.6		503

Periodic Comet Reinmuth 1

/1987r	1988	04	14.06032	06	02	47.34	+23	32	58.7		801

Comet Bradfield (1987s)

/1987s	1987	11	16.70679	18	33	40.21	+07	26	36.9		071
/1987s	1988	01	11.77034	00	32	19.91	+26	03	10.6	2	503
/1987s	1988	01	18.79388	01	07	41.49	+25	34	58.4		071
/1987s	1988	01	21.74693	01	21	02.95	+25	20	17.8	3	503
/1987s	1988	02	15.10313	02	46	00.80	+23	19	28.2		293
/1987s	1988	02	15.10868	02	46	01.63	+23	19	26.1		293

Comet McNaught (1987b1)

/1987b1	1988	04	10.80470	02	17	05.42	+64	48	07.6		046
/1987b1	1988	04	10.80777	02	17	06.40	+64	48	06.2		046
/1987b1	1988	04	12.45771	02	25	30.58	+64	41	09.3		657
/1987b1	1988	04	13.90874	02	32	40.72	+64	34	25.9		503
/1987b1	1988	04	20.34174	03	02	10.09	+63	59	18.9		657

Comet Liller (1988a)

/1988a	1988	04	09.42049	01	02	17.88	+42	43	29.4		892
/1988a	1988	04	20.44113	01	33	02.09	+54	48	34.8		657
/1988a	1988	04	21.45987	01	37	08.43	+55	58	32.7		657
/1988a	1988	04	24.87878	01	53	28.22	+59	55	08.0		503
/1988a	1988	04	26.09340	02	00	28.6	+61	19	17		024
/1988a	1988	05	03.91106	03	10	08.83	+69	54	34.8		503
/1988a	1988	05	05.23690	03	28	19.57	+71	10	10.3		657
/1988a	1988	05	05.93050	03	38	51.27	+71	47	07.5		503
/1988a	1988	05	06.93118	03	55	20.80	+72	36	41.2		503
/1988a	1988	05	08.45902	04	23	37.92	+73	41	57.7		892
/1988a	1988	05	08.47152	04	23	53.10	+73	42	28.3		892
/1988a	1988	05	08.57049	04	25	51.28	+73	46	07.9		397
/1988a	1988	05	08.58044	04	26	03.18	+73	46	29.0		397
/1988a	1988	05	09.47431	04	44	29.37	+74	17	02.7		400
/1988a	1988	05	09.48056	04	44	37.24	+74	17	13.1		400
/1988a	1988	05	11.52604	05	30	52.87	+75	03	27.8		397

/1988a	1988	05	11.53993	05	31	11.15	+75	03	37.5	397
/1988a	1988	05	13.47013	06	17	46.36	+75	13	02.7	892
/1988a	1988	05	13.49027	06	18	15.80	+75	12	58.5	892
			Comet Shoemaker (1988b)							
/1988b	1988	03	18.25902	09	33	06.79	+32	09	49.4	675
/1988b	1988	03	19.16822	09	32	24.91	+32	04	31.3	675
			Periodic Comet Hartley 3							
/1988d	1988	04	12.51984	09	47	16.19	-00	38	53.1	413
/1988d	1988	04	20.39537	09	48	33.71	-00	26	30.5	4 413
/1988d	1988	04	20.47166	09	48	34.64	-00	26	23.1	5 413
/1988d	1988	04	20.53829	09	48	35.69	-00	26	21.4	413
			Comet Levy (1988e)							
/1988e	1988	04	15.79167	22	05	45.32	+29	10	48.2	15 T 372
/1988e	1988	04	20.43097	22	10	30.14	+31	15	47.8	657
/1988e	1988	04	25.75069	22	15	35.55	+33	37	44.5	16 T 372
/1988e	1988	04	25.78299	22	15	36.82	+33	38	35.5	372
/1988e	1988	05	15.30110	22	30	23.22	+42	02	24.8	6 801
			Periodic Comet Finlay							
/1988f	1988	04	21.72515	23	26	21.61	-06	21	31.6	17 N 474
/1988f	1988	04	21.74367	23	26	25.75	-06	21	03.1	474
/1988f	1988	04	22.72156	23	30	06.32	-05	57	01.8	17 N 474
/1988f	1988	04	22.74066	23	30	10.83	-05	56	35.8	474
			Comet Shoemaker-Holt (1988g)							
/1988g	1988	05	13.48263	22	17	14.82	+24	01	06.6	10.5T 675
/1988g	1988	05	14.44878	22	17	39.40	+24	39	49.0	675
/1988g	1988	05	15.41961	22	18	02.52	+25	18	36.1	675
/1988g	1988	05	16.72257	22	18	31.06	+26	10	33.1	14 T 7 391
/1988g	1988	05	16.73472	22	18	31.23	+26	10	56.3	7 391
/1988g	1988	05	16.73958	22	18	31.5	+26	11	07	13 T 892
/1988g	1988	05	16.74427	22	18	31.37	+26	11	19.7	13 T 892
/1988g	1988	05	16.75174	22	18	31.5	+26	11	36	892
/1988g	1988	05	16.76446	22	18	31.84	+26	12	05.8	892

Note 1: time originally erroneously given as one day later (MPC 12856, 13004). 2: correction to MPC 12749. 3: correction to MPC 12861. 4: weak image. 5: involved with star. 6: faint, diffuse image; very difficult to measure. 7: very diffuse.

* * * * *

OBSERVATIONS OF MINOR PLANETS.

The observations are listed separately for each observatory code. Alphabetic note codes shown with some of the observations are defined according to the scheme below. Numerical codes are defined in the headings for the individual observatories.

A earlier approximate position inferior
a sense of motion ambiguous
B black or dark plate

b bad seeing
C correction to earlier position
c crowded star field
D declination uncertain
d diffuse image
E at or near edge of plate
F faint image
G poor guiding
g no guiding
I involved with star
i inkdot measured
M measurement difficult
N near edge of plate, measurement uncertain
O image out of focus
o plate measured in one direction only
P position uncertain
p poor image
R right ascension uncertain
r outside reference star set
S poor sky
s streaked image
T time uncertain
t trailed image
U uncertain image
u unconfirmed image
V very faint image
W weak image
w weak solution

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
010 Caussols							
J.-L. Heudier, CERGA Caussols, F-06460 Saint Vallier de Thiey, France							
Observers R. Chemin, J.-L. Heudier, C. Labeyrie, T. Laverge, C. Pollas V. Shkodrov							
0.9-m Schmidt telescope							
Observations in association with INAS							
1988 AD2	1987 12	20.91181	04 15 25.72	+31 25 57.9			010
1988 AD2	1987 12	20.93264	04 15 24.68	+31 26 00.1			010
1988 AD2	1987 12	20.94306	04 15 23.98	+31 26 02.5			010
1988 AJ2	1987 12	20.91181	04 13 28.35	+31 42 50.6			010
1988 AJ2	1987 12	20.93264	04 13 27.69	+31 42 45.1			010
1988 AJ2	1987 12	20.94306	04 13 27.17	+31 42 42.1			010
1988 AL2	1987 12	20.91181	04 22 14.94	+32 05 25.0			010
1988 AL2	1987 12	20.94306	04 22 13.41	+32 05 24.6			010
1988 AM2	1987 12	20.91181	04 20 46.50	+34 28 56.8			010
1988 AM2	1987 12	20.94306	04 20 44.84	+34 28 45.6			010
1988 AO2	1987 12	20.91181	04 23 44.39	+31 42 29.4			010
1988 AO2	1987 12	20.94306	04 23 42.64	+31 42 26.8			010
1988 AQ2	1987 12	20.91181	04 25 40.74	+32 34 56.6			010
1988 AQ2	1987 12	20.93264	04 25 39.69	+32 34 54.6			010
1988 AQ2	1987 12	20.94306	04 25 38.96	+32 34 52.9			010
033 Tautenburg							
S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg, Democratic Republic of Germany							
Observers F. Borngen, K.-H. Mau							
Measurer F. Borngen							

1.3-m Schmidt telescope
SAOC

1967	DA		1988	03	18.89132	10	47	08.40	+10	58	07.6	17.5	033
1967	DA		1988	03	18.92847	10	47	07.02	+10	58	19.3		033
1978	VK3		1988	03	14.86806	09	39	34.66	+06	30	37.2	V	033
1978	VK3		1988	03	14.91528	09	39	32.77	+06	30	47.1	18.3	033
1985	JG1		1988	03	14.86806	09	32	30.11	+08	05	57.1		033
1985	JG1		1988	03	14.91528	09	32	28.59	+08	06	12.1	16.7	033
1988	CF6		1988	03	14.86806	09	41	39.20	+06	55	12.1		033
1988	CF6		1988	03	14.91528	09	41	37.70	+06	55	23.1	16.8	033
1988	DA		1988	03	17.94931	10	45	25.66	+10	55	30.1		033
1988	DA		1988	03	18.89132	10	44	34.51	+10	56	47.4	17.6	033
1988	DA		1988	03	18.92847	10	44	32.37	+10	56	50.8		033
1988	EM		1988	03	14.86806	09	31	35.45	+07	24	00.8		033
1988	EM		1988	03	14.91528	09	31	34.33	+07	24	20.4	16.5	033
1988	FO		1988	03	17.94931	10	35	35.42	+10	32	30.3		033
1988	FO	*	1988	03	18.89132	10	34	56.77	+10	36	47.8	18.3	033
1988	FO		1988	03	18.92847	10	34	55.18	+10	36	58.2		033
1988	FP		1988	03	17.94931	10	40	42.97	+11	00	31.5	V	033
1988	FP	*	1988	03	18.89132	10	39	54.66	+11	02	22.9	18.2	033
1988	FP		1988	03	18.92847	10	39	52.86	+11	02	27.1		033
1988	FQ		1988	03	17.94931	10	45	52.23	+11	43	19.4		033
1988	FQ	*	1988	03	18.89132	10	45	07.93	+11	44	32.7	18.4	033
1988	FQ		1988	03	18.92847	10	45	06.17	+11	44	36.0		033
1988	FR		1988	03	17.94931	10	46	36.74	+12	26	27.4	V	033
1988	FR	*	1988	03	18.89132	10	45	59.51	+12	32	34.5	18.6	033
1988	FR		1988	03	18.92847	10	45	58.10	+12	32	48.0		033
1988	FS		1988	03	17.94931	10	46	44.71	+13	26	20.7		033
1988	FS	*	1988	03	18.89132	10	46	09.89	+13	33	20.4	18.0	033
1988	FS		1988	03	18.92847	10	46	08.48	+13	33	36.3		033
740			1988	03	18.01563	12	44	19.32	+12	11	18.3	13.1	033
740			1988	03	18.06285	12	44	17.33	+12	11	39.2		033
1105			1988	03	18.01563	12	34	00.00	+11	44	27.9	14.9	033
1105			1988	03	18.06285	12	33	57.92	+11	44	45.6		033
1606			1988	03	14.86806	09	42	45.24	+07	07	34.5		033
1606			1988	03	14.91528	09	42	43.47	+07	07	49.3	17.9	033
3597			1988	03	17.94931	10	43	04.96	+11	43	04.8		033
3597			1988	03	18.89132	10	42	27.63	+11	46	30.9	17.6	033
3597			1988	03	18.92847	10	42	26.21	+11	46	38.3		033
3796			1988	03	14.86806	09	30	55.28	+05	34	17.5	E	033
3796			1988	03	14.91528	09	30	53.41	+05	34	28.2	17.1 E	033

046 Klet
A. Mrkos, Dept. of Astronomy and Astrophysics, Charles University,
Svedska 8, C-15000 Prague 5, Czechoslovakia
Observers A. Mrkos, Z. Vavrova
0.6-m Maksutov reflector

1969	TJ1		1988	04	17.88189	12	54	48.50	-03	16	12.0	16.4	046
1969	TJ1		1988	04	17.89612	12	54	47.82	-03	16	10.4		046
1980	JE		1988	04	07.87988	12	30	54.15	+17	08	40.2		046
1980	JE		1988	04	07.89400	12	30	53.31	+17	08	38.3		046
1980	JE		1988	04	10.84625	12	27	55.15	+17	00	07.9		046
1980	JE		1988	04	10.86037	12	27	54.38	+17	00	05.6		046
1980	JE		1988	04	11.84150	12	26	56.69	+16	56	41.6		046
1980	JE		1988	04	11.85562	12	26	55.84	+16	56	37.7		046
1980	JE		1988	04	12.86292	12	25	57.61	+16	52	47.9		046
1980	JE		1988	04	12.87704	12	25	56.65	+16	52	45.0		046
1980	JE		1988	04	14.84242	12	24	06.22	+16	44	15.7		046
1980	JE		1988	04	14.85671	12	24	05.56	+16	44	11.6		046

1987	DM		1988	04	14.91273	12	54	02.36	-04	36	33.9		046
1987	DM		1988	04	14.92709	12	54	01.92	-04	36	30.4		046
1987	DM		1988	04	15.93524	12	53	26.67	-04	33	31.2		046
1987	DM		1988	04	15.94948	12	53	26.14	-04	33	26.8		046
1987	DM		1988	04	17.88189	12	52	19.23	-04	27	41.3		046
1987	DM		1988	04	17.89612	12	52	18.76	-04	27	39.5		046
1988	EO1		1988	04	14.91273	12	53	14.64	-05	13	30.1	16.7	046
1988	EO1		1988	04	14.92709	12	53	14.10	-05	13	27.0		046
1988	EO1		1988	04	15.93524	12	52	30.68	-05	09	26.4		046
1988	EO1		1988	04	15.94948	12	52	30.02	-05	09	21.8		046
1988	EO1		1988	04	17.88189	12	51	08.73	-05	01	49.9		046
1988	EO1		1988	04	17.89612	12	51	08.20	-05	01	46.7		046
1988	GG		1988	04	17.91557	13	17	43.03	-06	05	52.4	16.0	046
1988	GG		1988	04	17.93015	13	17	41.59	-06	06	06.2		046
1988	GG		1988	04	18.92072	13	16	00.63	-06	21	12.9		046
1988	GG		1988	04	18.93316	13	15	59.62	-06	21	23.9		046
1988	GG		1988	04	19.87494	13	14	24.28	-06	35	47.8		046
1988	GG		1988	04	19.88918	13	14	22.82	-06	36	01.4		046
1988	GH		1988	04	10.91639	13	16	40.71	-07	30	20.8	16.3	046
1988	GH		1988	04	10.93057	13	16	39.84	-07	30	20.9		046
1988	GH		1988	04	14.95104	13	13	10.23	-07	23	40.0		046
1988	GH		1988	04	14.96684	13	13	09.54	-07	23	37.1		046
1988	GH		1988	04	16.95932	13	11	27.03	-07	20	24.1		046
1988	GH		1988	04	16.97355	13	11	26.20	-07	20	21.8		046
1988	GM	*	1988	04	07.94985	14	09	24.90	+06	58	34.8		046
1988	GM		1988	04	07.96432	14	09	24.03	+06	58	38.6		046
1988	GM		1988	04	10.95152	14	06	52.77	+07	08	13.7		046
1988	GM		1988	04	10.96564	14	06	51.96	+07	08	15.9		046
1988	GM		1988	04	11.94683	14	06	00.71	+07	11	07.4		046
1988	GM		1988	04	11.96101	14	05	59.89	+07	11	11.0		046
1988	GN	*	1988	04	10.88288	12	33	55.32	+06	26	55.8	16.6	046
1988	GN		1988	04	10.89694	12	33	54.44	+06	27	01.2		046
1988	GN		1988	04	11.87594	12	33	00.61	+06	32	43.6		046
1988	GN		1988	04	11.89006	12	33	00.09	+06	32	47.4		046
1988	GN		1988	04	14.87622	12	30	20.89	+06	49	08.8		046
1988	GN		1988	04	14.89034	12	30	20.07	+06	49	12.7		046
1988	GO	*	1988	04	10.91639	13	04	32.46	-05	48	57.8	16.8	046
1988	GO		1988	04	10.93057	13	04	31.64	-05	48	55.4		046
1988	GO		1988	04	11.91072	13	03	35.88	-05	48	30.5		046
1988	GO		1988	04	11.92484	13	03	35.10	-05	48	26.9		046
1988	GP	*	1988	04	10.91639	13	07	33.88	-04	58	03.3	16.6	046
1988	GP		1988	04	10.93057	13	07	32.82	-04	57	56.6		046
1988	GP		1988	04	11.91072	13	06	39.08	-04	51	02.8		046
1988	GP		1988	04	11.92484	13	06	38.14	-04	50	57.0		046
1988	GP		1988	04	15.93524	13	03	02.28	-04	23	29.5		046
1988	GP		1988	04	15.94948	13	03	01.18	-04	23	18.2		046
1988	GQ		1988	04	07.87988	12	26	00.06	+19	05	25.9	16.2	046
1988	GQ		1988	04	07.89400	12	25	59.31	+19	05	31.9		046
1988	GQ	*	1988	04	12.86292	12	22	36.37	+19	26	28.7	16.4	046
1988	GQ		1988	04	12.87704	12	22	36.00	+19	26	35.1		046
1988	GQ		1988	04	14.84242	12	21	22.50	+19	32	13.3		046
1988	GQ		1988	04	14.85671	12	21	21.94	+19	32	15.7		046
1988	GS	*	1988	04	14.91273	12	56	37.02	-05	39	48.3	16.8	046
1988	GS		1988	04	14.92709	12	56	35.65	-05	39	45.6	V	046
1988	GS		1988	04	15.93524	12	55	35.19	-05	38	29.8		046
1988	GS		1988	04	15.94948	12	55	34.27	-05	38	30.5	V	046
1988	GS		1988	04	17.88189	12	53	39.67	-05	36	09.5	U	046
1988	GS		1988	04	17.89612	12	53	38.92	-05	36	09.6	U	046
1988	GT	*	1988	04	14.91273	13	01	19.47	-03	43	51.6	16.8	046

1988	GT		1988	04	14.92709	13	01	19.00	-03	43	49.4		046
1988	GT		1988	04	15.93524	13	00	28.60	-03	37	06.1		046
1988	GT		1988	04	15.94948	13	00	27.74	-03	36	57.8		046
1988	GT		1988	04	17.88189	12	58	52.44	-03	24	26.2		046
1988	GT		1988	04	17.89612	12	58	51.37	-03	24	20.6		046
1988	HA		1988	04	14.95104	13	10	55.07	-07	43	54.9	16.2	046
1988	HA		1988	04	14.96684	13	10	53.99	-07	43	47.6		046
1988	HA		1988	04	16.95932	13	09	12.63	-07	32	04.3		046
1988	HA		1988	04	16.97355	13	09	12.02	-07	31	59.4		046
1988	HC	*	1988	04	16.92546	11	56	05.93	-04	08	56.6	16.1	046
1988	HC		1988	04	16.93953	11	56	05.45	-04	08	55.7		046
1988	HC		1988	04	17.84855	11	55	24.28	-04	09	22.0		046
1988	HC		1988	04	17.86279	11	55	23.48	-04	09	22.9		046
1988	HC		1988	04	18.84259	11	54	40.52	-04	09	56.3		046
1988	HC		1988	04	18.85683	11	54	39.97	-04	09	56.9		046
1988	HC		1988	04	19.84179	11	53	58.31	-04	10	32.2		046
1988	HC		1988	04	19.85324	11	53	57.85	-04	10	32.6		046
1988	HD	*	1988	04	17.84855	12	00	46.76	-00	34	44.0	16.8	046
1988	HD		1988	04	17.86279	12	00	45.58	-00	34	48.6		046
1988	HD		1988	04	18.84259	11	59	29.52	-00	41	16.1		046
1988	HD		1988	04	18.85683	11	59	28.43	-00	41	20.5		046
1988	HD		1988	04	19.84179	11	58	13.66	-00	47	58.1		046
1988	HD		1988	04	19.85324	11	58	12.75	-00	48	02.9		046
17			1988	04	10.88288	12	32	24.15	+06	11	56.1		046
17			1988	04	10.89694	12	32	23.39	+06	12	01.6		046
17			1988	04	11.87594	12	31	35.02	+06	17	23.1		046
17			1988	04	11.89006	12	31	34.34	+06	17	27.1		046
17			1988	04	14.87622	12	29	11.38	+06	32	39.9		046
17			1988	04	14.89034	12	29	10.68	+06	32	42.9		046
102			1988	04	16.92546	12	01	25.78	-03	03	39.8		046
102			1988	04	16.93953	12	01	25.24	-03	03	35.6		046
102			1988	04	17.84855	12	00	50.86	-02	58	28.2		046
102			1988	04	17.86279	12	00	50.28	-02	58	23.7		046
102			1988	04	18.84259	12	00	14.02	-02	52	58.0		046
102			1988	04	18.85683	12	00	13.50	-02	52	54.1		046
102			1988	04	19.84179	11	59	38.06	-02	47	32.1		046
102			1988	04	19.85324	11	59	37.65	-02	47	28.3		046
222			1988	04	19.87494	13	10	00.89	-04	23	25.8		046
222			1988	04	19.88918	13	10	00.27	-04	23	22.9		046
319			1988	04	14.91273	12	58	55.10	-03	19	07.1		046
319			1988	04	14.92709	12	58	54.55	-03	19	02.8		046
319			1988	04	15.93524	12	58	17.24	-03	13	35.2		046
319			1988	04	15.94948	12	58	16.72	-03	13	30.3		046
319			1988	04	17.88189	12	57	05.38	-03	03	03.1		046
319			1988	04	17.89612	12	57	04.83	-03	02	59.1		046
386			1988	04	10.88288	12	36	17.41	+08	40	21.4		046
386			1988	04	10.89694	12	36	16.87	+08	40	27.5		046
386			1988	04	11.87594	12	35	37.46	+08	47	40.1		046
386			1988	04	11.89006	12	35	36.87	+08	47	46.5		046
386			1988	04	14.87622	12	33	39.41	+09	08	50.4		046
386			1988	04	14.89034	12	33	38.87	+09	08	55.6		046
471			1988	04	07.87988	12	31	19.98	+18	50	53.1		046
471			1988	04	07.89400	12	31	19.30	+18	50	54.7		046
471			1988	04	10.84625	12	29	01.51	+18	56	08.6		046
471			1988	04	10.86037	12	29	00.92	+18	56	11.0		046
471			1988	04	11.84150	12	28	16.16	+18	57	34.2		046
471			1988	04	11.85562	12	28	15.48	+18	57	35.0		046
471			1988	04	12.86292	12	27	30.15	+18	58	46.3		046
471			1988	04	12.87704	12	27	29.50	+18	58	47.8		046

471	1988	04	14.84242	12	26	03.02	+19	00	32.6	046
471	1988	04	14.85671	12	26	02.39	+19	00	34.2	046
536	1988	04	11.84150	12	27	34.16	+20	14	07.2	046
536	1988	04	11.85562	12	27	33.55	+20	14	06.4	046
536	1988	04	12.86292	12	26	51.21	+20	13	51.9	046
536	1988	04	12.87704	12	26	50.63	+20	13	52.3	046
536	1988	04	14.84242	12	25	29.78	+20	12	53.7	046
536	1988	04	14.85671	12	25	29.24	+20	12	53.9	046
551	1988	04	14.91273	12	57	21.00	-06	16	07.6	046
551	1988	04	14.92709	12	57	20.35	-06	16	03.1	046
551	1988	04	15.93524	12	56	34.94	-06	11	27.0	046
551	1988	04	15.94948	12	56	34.37	-06	11	22.7	046
551	1988	04	17.88189	12	55	08.65	-06	02	41.9	046
551	1988	04	17.89612	12	55	08.07	-06	02	37.9	046
768	1988	04	10.88288	12	41	37.00	+07	20	18.3	046
768	1988	04	10.89694	12	41	36.38	+07	20	19.3	046
768	1988	04	11.87594	12	40	49.93	+07	21	21.0	046
768	1988	04	11.89006	12	40	49.31	+07	21	21.7	046
837	1988	04	16.92546	12	02	40.02	-01	58	35.3	046
837	1988	04	16.93953	12	02	39.47	-01	58	28.6	046
837	1988	04	17.84855	12	02	05.50	-01	51	27.6	046
837	1988	04	17.86279	12	02	05.00	-01	51	22.4	046
837	1988	04	18.84259	12	01	29.52	-01	43	58.2	046
837	1988	04	18.85683	12	01	29.04	-01	43	51.7	046
837	1988	04	19.84179	12	00	54.40	-01	36	34.9	046
837	1988	04	19.85324	12	00	54.06	-01	36	31.4	046
904	1988	04	17.91557	13	22	17.11	-06	14	05.0	046
904	1988	04	17.93015	13	22	16.50	-06	13	57.8	046
904	1988	04	18.92072	13	21	35.80	-06	05	29.9	046
904	1988	04	18.93316	13	21	35.19	-06	05	24.3	046
1042	1988	04	07.87988	12	37	00.77	+18	52	46.6	046
1042	1988	04	07.89400	12	37	00.10	+18	52	46.8	046
1042	1988	04	10.84625	12	34	36.72	+18	52	54.5	046
1042	1988	04	10.86037	12	34	36.28	+18	52	53.0	046
1042	1988	04	10.86037	12	34	36.28	+18	52	53.0	046
1267	1988	04	10.91639	13	04	48.87	-06	00	27.9	046
1267	1988	04	10.93057	13	04	47.88	-06	00	25.6	046
1267	1988	04	11.91072	13	03	49.24	-05	56	46.3	046
1267	1988	04	11.92484	13	03	48.50	-05	56	45.0	046
1267	1988	04	14.91273	13	00	50.32	-05	45	44.6	046
1267	1988	04	14.92709	13	00	49.50	-05	45	41.6	046
1267	1988	04	15.93524	12	59	49.95	-05	42	03.3	046
1267	1988	04	15.94948	12	59	49.20	-05	41	59.7	046
1267	1988	04	17.88189	12	57	56.39	-05	35	12.9	046
1267	1988	04	17.89612	12	57	55.49	-05	35	09.0	046
1363	1988	04	10.91639	13	17	06.36	-08	34	17.7	046
1363	1988	04	10.93057	13	17	05.40	-08	34	15.4	046
1363	1988	04	14.95104	13	13	55.10	-08	13	45.1	046
1363	1988	04	14.96684	13	13	54.37	-08	13	40.2	046
1363	1988	04	16.95932	13	12	20.97	-08	03	32.5	046
1363	1988	04	16.97355	13	12	20.33	-08	03	27.1	046
1363	1988	04	17.91557	13	11	36.62	-07	58	39.0	046
1363	1988	04	17.93015	13	11	35.89	-07	58	34.5	046
1408	1988	04	14.95104	13	23	31.08	-08	25	24.2	046
1408	1988	04	14.96684	13	23	30.45	-08	25	18.9	046
1408	1988	04	17.91557	13	21	26.42	-08	07	04.7	046
1408	1988	04	17.93015	13	21	25.82	-08	06	59.8	046
1408	1988	04	18.92072	13	20	44.88	-08	00	54.1	046
1408	1988	04	18.93316	13	20	44.35	-08	00	50.8	046

1417	1988	04	10.88288	12	36	58.52	+09	34	35.1	046
1417	1988	04	10.89694	12	36	57.89	+09	34	38.8	046
1417	1988	04	11.87594	12	36	13.99	+09	37	48.0	046
1417	1988	04	11.89006	12	36	13.40	+09	37	51.3	046
1417	1988	04	14.87622	12	34	02.45	+09	46	27.0	046
1417	1988	04	14.89034	12	34	01.79	+09	46	29.1	046
1527	1988	04	10.91639	13	07	48.93	-07	49	58.7	046
1527	1988	04	10.93057	13	07	47.94	-07	49	52.9	046
1527	1988	04	11.91072	13	06	43.53	-07	45	53.0	046
1527	1988	04	11.92484	13	06	42.51	-07	45	50.0	046
1550	1988	04	10.88288	12	36	39.58	+07	09	32.0	046
1550	1988	04	10.89694	12	36	38.65	+07	09	35.5	046
1550	1988	04	11.87594	12	35	49.05	+07	12	47.7	046
1550	1988	04	11.89006	12	35	48.23	+07	12	53.5	046
1550	1988	04	14.87622	12	33	20.86	+07	21	54.0	046
1550	1988	04	14.89034	12	33	20.42	+07	21	55.6	046
1786	1988	04	14.91273	12	54	05.10	-06	15	10.1	046
1786	1988	04	14.92709	12	54	04.34	-06	15	07.9	046
1786	1988	04	15.93524	12	53	15.59	-06	12	40.0	046
1786	1988	04	15.94948	12	53	14.98	-06	12	36.2	046
1786	1988	04	17.88189	12	51	42.91	-06	07	57.3	046
1786	1988	04	17.89612	12	51	42.17	-06	07	53.8	046
1793	1988	04	14.95104	13	15	18.33	-09	13	38.9	046
1793	1988	04	14.96684	13	15	17.52	-09	13	31.9	046
1793	1988	04	16.95932	13	13	28.51	-09	00	12.1	046
1793	1988	04	16.97355	13	13	27.77	-09	00	06.2	046
1793	1988	04	17.91557	13	12	37.02	-08	53	49.1	046
1793	1988	04	17.93015	13	12	36.24	-08	53	43.7	046
1918	1988	04	17.84855	12	05	20.17	-01	58	30.3	046
1918	1988	04	17.86279	12	05	19.67	-01	58	25.1	046
2199	1988	04	14.98814	14	26	44.96	+00	15	01.3	046
2199	1988	04	15.00237	14	26	44.38	+00	15	09.7	046
2367	1988	04	10.91639	13	12	31.01	-07	02	48.0	046
2367	1988	04	10.93057	13	12	30.07	-07	02	39.5	046
2367	1988	04	11.91072	13	11	34.01	-06	55	43.9	046
2367	1988	04	11.92484	13	11	33.27	-06	55	39.3	046
2508	1988	04	10.91639	13	05	35.66	-05	31	34.1	046
2508	1988	04	10.93057	13	05	34.80	-05	31	26.5	046
2508	1988	04	11.91072	13	04	42.54	-05	23	12.0	046
2508	1988	04	11.92484	13	04	41.63	-05	23	03.5	046
2508	1988	04	14.91273	13	02	03.07	-04	58	07.4	046
2508	1988	04	14.92709	13	02	02.31	-04	57	59.9	046
2508	1988	04	15.93524	13	01	10.00	-04	49	41.4	046
2508	1988	04	15.94948	13	01	09.31	-04	49	33.0	046
2508	1988	04	17.88189	12	59	29.68	-04	33	48.6	046
2508	1988	04	17.89612	12	59	28.88	-04	33	40.1	046
2529	1988	04	10.91639	13	10	10.67	-08	23	55.9	046
2529	1988	04	10.93057	13	10	10.02	-08	23	47.5	046
2529	1988	04	11.91072	13	09	19.34	-08	16	58.3	046
2529	1988	04	11.92484	13	09	18.77	-08	16	52.5	046
2591	1988	04	14.95104	13	20	52.94	-09	41	18.9	046
2591	1988	04	14.96684	13	20	52.18	-09	41	15.7	046
2591	1988	04	16.95932	13	19	16.01	-09	32	37.3	046
2591	1988	04	16.97355	13	19	15.27	-09	32	33.8	046
2591	1988	04	17.91557	13	18	30.25	-09	28	30.1	046
2591	1988	04	17.93015	13	18	29.54	-09	28	26.2	046
2591	1988	04	18.92072	13	17	42.28	-09	24	09.5	046
2591	1988	04	18.93316	13	17	41.56	-09	24	05.8	046
2700	1988	04	14.91273	12	57	31.39	-04	21	31.3	046

2700		1988	04	14.92709	12	57	30.88	-04	21	27.6	046
2700		1988	04	15.93524	12	56	46.13	-04	16	12.9	046
2700		1988	04	15.94948	12	56	45.48	-04	16	07.2	046
2700		1988	04	17.88189	12	55	20.61	-04	06	14.1	046
2700		1988	04	17.89612	12	55	19.84	-04	06	08.6	046
3057		1988	04	10.88288	12	34	17.57	+09	32	00.0	046
3057		1988	04	10.89694	12	34	16.72	+09	32	01.6	046
3057		1988	04	11.87594	12	33	22.67	+09	33	30.2	046
3057		1988	04	11.89006	12	33	21.86	+09	33	31.9	046
3057		1988	04	14.87622	12	30	41.95	+09	36	31.2	046
3057		1988	04	14.89034	12	30	41.26	+09	36	31.5	046
3168		1988	04	17.88189	12	47	37.29	-03	30	24.7	046
3168		1988	04	17.89612	12	47	36.72	-03	30	24.2	046
3329		1988	04	14.91273	12	50	12.74	-07	09	29.4	046
3329		1988	04	14.92709	12	50	12.05	-07	09	25.9	046
3363		1988	04	14.95104	13	23	05.85	-06	46	20.2	046
3363		1988	04	14.96684	13	23	05.06	-06	46	13.2	046
3363		1988	04	16.95932	13	21	30.02	-06	34	15.5	046
3363		1988	04	16.97355	13	21	29.28	-06	34	09.4	046
3363		1988	04	17.91557	13	20	44.83	-06	28	35.0	046
3363		1988	04	17.93015	13	20	44.19	-06	28	28.8	046
3363		1988	04	18.92072	13	19	57.94	-06	22	37.7	046
3363		1988	04	18.92072	13	19	57.94	-06	22	37.7	046
3363		1988	04	18.93316	13	19	57.39	-06	22	34.2	046
3363		1988	04	18.93316	13	19	57.39	-06	22	34.2	046
3363		1988	04	19.87494	13	19	13.48	-06	17	02.1	046
3363		1988	04	19.88918	13	19	12.74	-06	16	58.1	046
3399		1988	04	16.95932	13	13	33.25	-07	53	03.8	046
3399		1988	04	16.97355	13	13	32.73	-07	52	57.7	046
3550		1988	04	07.94985	14	14	13.91	+06	07	05.5	046
3550		1988	04	07.96432	14	14	13.18	+06	07	08.2	046
3550		1988	04	10.95152	14	11	45.74	+06	16	16.9	046
3550		1988	04	10.96564	14	11	45.11	+06	16	18.6	046
3550		1988	04	11.94683	14	10	55.58	+06	19	06.3	046
3550		1988	04	11.96101	14	10	54.71	+06	19	07.6	046
3580		1988	04	16.92546	11	59	34.64	-02	37	58.0	046
3580		1988	04	16.93953	11	59	34.22	-02	37	56.1	046
3580		1988	04	17.84855	11	59	06.74	-02	36	08.2	046
3580		1988	04	17.86279	11	59	06.30	-02	36	06.8	046
3754		1988	04	14.98814	14	26	17.03	-01	10	27.7	046
3754		1988	04	15.00237	14	26	16.44	-01	10	23.9	046

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Observations in part in association with INAS

1925	VF	1988	03	13.03914	12	40	24.90	-00	44	19.1		054
1925	VF	1988	03	14.98296	12	38	43.54	-00	35	14.2		054
1964	TT2	1988	03	14.98296	12	38	17.37	-01	57	29.3		054
1966	CL	1988	03	12.91484	09	09	11.66	+18	37	50.2	17.5	054
1966	CL	1988	03	12.93220	09	09	11.05	+18	37	52.7		054
1977	EM1	1988	03	13.03914	12	24	59.65	-02	26	43.6		054
1986	TG	1988	02	13.02404	09	38	45.58	+19	43	50.0	17.5 p	054
1986	TG	1988	03	12.92178	09	09	55.95	+20	29	49.2	18 V	054
1986	TG	1988	03	18.92230	09	06	15.73	+20	25	41.3	18 V	054
1986	TK4	1988	03	14.93204	12	04	27.00	+07	27	11.3		054

1986	VB6		1988	03	18.94638	11	57	10.15	+06	44	41.5	17.5	054
1988	CO		1988	03	12.91484	09	12	14.60	+21	40	40.8	17.0	054
1988	CO		1988	03	12.93220	09	12	13.92	+21	40	40.5		054
1988	ET		1988	03	14.93204	11	58	23.43	+05	33	28.6		054
1988	EU		1988	03	14.93204	11	59	42.23	+04	36	04.6		054
1988	EU		1988	03	18.94638	11	56	38.86	+04	51	36.9	17.0	054
1988	EV		1988	03	14.93204	11	59	18.11	+06	27	48.3		054
1988	EW		1988	03	14.93204	12	01	23.42	+04	40	32.4		054
1988	EX		1988	03	14.93204	12	04	24.89	+03	42	15.8		054
1988	EY		1988	03	14.93204	12	04	52.42	+04	54	40.2		054
1988	EY		1988	03	18.94638	12	00	59.26	+05	03	47.8	17.0	054
1988	EZ		1988	03	14.93204	12	05	31.62	+06	22	11.0		054
1988	EA1		1988	03	14.93204	12	08	59.93	+04	29	22.5		054
1988	EA1		1988	03	18.94638	12	06	05.37	+05	19	23.6	17.5	054
1988	EB1		1988	03	14.93204	12	08	42.69	+04	25	36.6		054
1988	EB1		1988	03	18.94638	12	05	06.97	+04	45	09.9	17.0	054
1988	EP1	*	1988	03	13.00616	12	01	51.33	+07	30	08.3	17.2	054
1988	EP1		1988	03	13.01831	12	01	50.45	+07	30	12.6		054
1988	EP1		1988	03	14.93204	12	00	07.21	+07	42	47.5		054
1988	EQ1	*	1988	03	13.00616	12	09	58.41	+07	04	50.7	18 V	054
1988	EQ1		1988	03	13.01831	12	09	58.10	+07	05	03.4		054
1988	EQ1		1988	03	14.93204	12	09	33.06	+07	31	56.5		054
1988	ER1	*	1988	03	13.00616	12	12	46.01	+05	20	54.1	16.5	054
1988	ER1		1988	03	13.01831	12	12	45.20	+05	20	56.3		054
1988	ER1		1988	03	14.93204	12	10	51.66	+05	28	03.5		054
1988	ER1		1988	03	18.94638	12	06	45.77	+05	42	35.4	17.0	054
1988	ES1	*	1988	03	13.00616	12	13	45.47	+05	13	44.6	17.5	054
1988	ES1		1988	03	13.01831	12	13	44.75	+05	13	48.9		054
1988	ES1		1988	03	14.93204	12	12	07.16	+05	25	29.4		054
1988	ET1	*	1988	03	13.00616	12	14	43.45	+06	08	53.5	18 V	054
1988	ET1		1988	03	13.01831	12	14	42.70	+06	08	59.1		054
1988	ET1		1988	03	14.93204	12	12	46.87	+06	12	27.4		054
1988	EU1	*	1988	03	13.00616	12	14	48.44	+05	10	24.9	18 V	054
1988	EU1		1988	03	13.01831	12	14	47.71	+05	10	29.8		054
1988	EU1		1988	03	14.93204	12	13	12.60	+05	22	58.8		054
1988	EV1	*	1988	03	13.00616	12	15	37.60	+06	56	43.5	17.2	054
1988	EV1		1988	03	13.01831	12	15	36.98	+06	56	50.0		054
1988	EV1		1988	03	14.93204	12	14	18.53	+07	12	10.6		054
1988	EW1	*	1988	03	13.00616	12	17	22.13	+05	12	34.7	17.0	054
1988	EW1		1988	03	13.01831	12	17	21.16	+05	12	35.1		054
1988	EW1		1988	03	14.93204	12	15	02.60	+05	12	52.1		054
1988	EW1		1988	03	18.94638	12	10	05.38	+05	12	56.4	17.0	054
1988	EX1	*	1988	03	13.01137	12	08	13.81	+04	38	41.7	18	054
1988	EX1		1988	03	14.93204	12	06	44.54	+04	45	56.1		054
1988	EX1		1988	03	18.94638	12	03	33.08	+05	00	51.5	18 V	054
1988	EY1	*	1988	03	13.03914	12	33	15.38	-00	38	18.1	17.5	054
1988	EY1		1988	03	14.98296	12	31	25.07	-00	37	54.5		054
1988	EZ1	*	1988	03	13.03914	12	37	51.40	-03	43	06.6	17.0	054
1988	EZ1		1988	03	14.98296	12	36	25.52	-03	34	45.2		054
1988	EA2	*	1988	03	13.03914	12	38	06.78	-00	56	35.7	17.0	054
1988	EA2		1988	03	14.98296	12	36	38.31	-00	41	30.0		054
330			1988	03	14.93204	12	00	35.43	+07	07	25.4		054
492			1988	03	18.96339	12	32	12.80	-01	52	08.5		054
492			1988	03	18.97554	12	32	12.13	-01	52	05.0		054
1235			1988	04	13.92822	12	06	12.34	-00	09	25.5	16.5	054
1235			1988	04	13.94037	12	06	11.20	-00	09	31.1		054
1668			1988	03	13.03914	12	37	05.28	-01	08	05.4		054
1668			1988	03	14.98296	12	35	44.85	-00	56	58.5		054
1668			1988	03	18.96339	12	32	53.53	-00	33	40.6		054

1668		1988	03	18.97554	12	32	52.85	-00	33	35.8	054
3440		1988	03	13.03914	12	30	00.32	-00	49	45.7	17.5 054
3440		1988	03	14.98296	12	28	40.26	-00	35	47.2	054
3486		1988	03	14.93204	12	04	38.78	+03	52	05.0	054
3486		1988	03	18.94638	12	00	46.73	+04	13	38.5	054

071 Bulgarian National Observatory
V. G. Shkodrov, Dept. of Astronomy, Bulgarian Academy of Sciences,
72 Lenin Boulevard, BG-1784 Sofia, Bulgaria
Observers V. G. Ivanova, V. I. Umlensky, T. R. Bonev, V. G. Shkodrov

1981	SW7	1986	09	03.90856	22	53	39.13	-00	21	24.6	071
1981	SW7	1986	09	03.91814	22	53	38.54	-00	21	26.6	071
1983	BE	1988	01	18.88009	08	06	38.41	+21	30	01.6	071
1983	BE	1988	01	18.93495	08	06	35.36	+21	30	27.8	071
1983	BE	1988	01	19.02245	08	06	30.61	+21	31	06.4	071
1986	RS5 *	1986	09	03.90856	22	58	14.95	+01	01	11.0	071
1986	RS5	1986	09	03.91981	22	58	14.46	+01	01	08.9	071
1988	BG	1988	01	18.93425	07	52	23.70	+19	24	45.0	071
1988	BG	1988	01	18.96337	07	52	21.55	+19	24	39.7	071
1988	BH	1988	01	18.88009	07	52	40.93	+19	32	45.5	071
1988	BH	1988	01	18.93495	07	52	37.65	+19	32	41.1	071
1988	BH	1988	01	18.96337	07	52	35.01	+19	32	40.3	071
1988	BS	1988	01	18.88009	07	53	21.31	+18	23	24.9	071
1988	BS	1988	01	18.93495	07	53	17.82	+18	23	23.0	071
1988	BS	1988	01	18.96337	07	53	15.70	+18	23	21.2	071
1988	BT	1988	01	18.88009	07	57	01.81	+18	35	00.2	071
1988	BT	1988	01	18.93495	07	56	58.73	+18	35	06.9	071
1988	BT	1988	01	18.96337	07	56	56.13	+18	35	10.4	071
1988	BU	1988	01	18.88009	07	58	13.03	+22	01	10.6	071
1988	BU	1988	01	18.93495	07	58	10.26	+22	01	19.9	071
1988	BU	1988	01	18.96337	07	58	08.62	+22	01	27.5	071
1988	CO1	1988	01	18.88009	07	56	43.63	+19	36	07.8	071
1988	CO1	1988	01	18.93495	07	56	40.12	+19	36	27.1	071
1988	CO1	1988	01	18.96337	07	56	38.14	+19	36	36.8	071
1988	CX1	1988	01	19.00058	08	08	07.94	+19	46	57.4	071
1988	CX1	1988	01	19.02245	08	08	06.74	+19	46	57.5	071
1988	CA2	1988	01	19.00058	08	05	42.05	+19	08	23.8	071
1988	CA2	1988	01	19.02245	08	05	40.70	+19	08	34.7	071
1988	CL2	1988	01	19.00058	08	09	24.57	+19	16	48.3	071
1988	CL2	1988	01	19.02245	08	09	23.33	+19	16	54.7	071
1988	CM2	1988	01	19.00058	08	06	46.91	+18	55	41.6	071
1988	CM2	1988	01	19.02245	08	06	45.79	+18	55	46.7	071
1988	CP2	1988	01	19.00058	08	09	06.61	+19	20	51.7	071
1988	CP2	1988	01	19.02245	08	09	05.50	+19	20	56.3	071
1988	CQ2	1988	01	19.00058	08	08	03.87	+18	46	12.3	071
1988	CQ2	1988	01	19.02245	08	08	02.96	+18	46	18.4	071
129		1987	11	16.84921	01	46	38.89	-06	08	16.2	071
129		1987	11	16.90610	01	46	36.80	-06	08	19.8	071
402		1987	11	16.84921	01	40	53.23	-08	19	57.3	071
435		1986	09	03.85602	21	09	05.46	-19	17	03.4	071
435		1986	09	03.87442	21	09	04.69	-19	17	05.6	071
591		1986	09	03.85602	21	02	28.43	-21	11	52.5	071
591		1986	09	03.87442	21	02	27.45	-21	11	48.4	071
805		1986	09	03.04424	00	44	47.86	-01	14	07.6	071
805		1986	09	03.06265	00	44	47.48	-01	14	16.8	071
850		1988	01	19.00058	08	09	15.12	+19	29	50.8	071
850		1988	01	19.02245	08	09	13.92	+19	29	58.5	071
1181		1986	09	03.90856	22	45	29.78	+02	17	22.2	071
1181		1986	09	03.91981	22	45	29.21	+02	17	19.4	071

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1269       1988 01 19.00058  08 08 19.22  +19 10 34.9                    071
1269       1988 01 19.02245  08 08 18.20  +19 10 38.4                    071
1485       1988 01 19.00058  08 13 00.43  +19 21 20.8                    071
1485       1988 01 19.02245  08 12 59.26  +19 21 21.5                    071
1557       1987 11 16.92311  01 45 00.57  +22 45 46.6                    071
1557       1987 11 16.98391  01 44 56.04  +22 45 26.3                    071
2581       1988 01 18.88009  07 55 27.28  +17 49 16.2                    071
2581       1988 01 18.93495  07 55 23.42  +17 49 21.5                    071
2581       1988 01 18.96337  07 55 21.51  +17 49 24.8                    071
2771       1987 11 15.91609  03 11 37.85  +08 38 13.2                    071
3250       1987 11 15.91609  02 59 33.68  +10 36 29.9                    071
3250       1987 11 15.93650  02 59 32.59  +10 36 22.1                    071

091 Aurec-sur-Loire
R. Chanal, Observatore de Nurol, F-43110 Aurec-sur-Loire, France
0.41-m reflector
AGK3, SAOC
2444       1988 02 14.98958  06 50 28.86  +18 09 08.6                    091
2444       1988 02 15.92708  06 50 11.35  +18 05 23.2                    091
2444       1988 02 16.96528  06 49 54.75  +18 01 23.1                    091

220 Kavalur
R. Rajamohan, Indian Institute of Astrophysics, Bangalore 560034, India
0.45-m f/3 Schmidt
SAOC
1988 DR    1988 03 13.67222  09 04 32.5   +10 10 08                      220

293 Burlington remote site
T. Handley, 13 Linden Avenue, Burlington, NJ 08016, U.S.A.
0.20-m f/4.0 astrograph
SAOC
1929 TK    1988 02 15.21806  09 47 03.83  +13 50 25.8                    293
1981 ET13  1988 04 10.27292  13 58 41.71  -21 55 12.9                    293
1981 ET13  1988 04 10.29167  13 58 40.83  -21 55 10.4                    293
1985 RG4   1988 03 12.21354  10 05 14.79  +09 31 12.0                    293
1985 RG4   1988 03 12.22813  10 05 14.51  +09 31 22.4                    293

364 JCPM Kagoshima Station
M. Takeishi, Odori 4, Hamatonbetsu Esashigun, Hokkaido 098-57, Japan
Observer M. Mukai
Measurer M. Takeishi
0.25-m f/4.2 Wright Schmidt telescope
 964       1988 04 14.57118  13 30 50.49  -07 56 17.6                    364
 964       1988 04 14.58993  13 30 49.52  -07 56 13.1                    364
1005       1988 04 14.52465  11 50 15.84  -08 24 50.4                    364
1005       1988 04 14.54303  11 50 15.03  -08 24 46.7                    364
1005       1988 04 15.59757  11 49 30.71  -08 22 56.4                    364
1005       1988 04 15.61632  11 49 29.95  -08 22 53.6                    364
1099       1988 04 14.57118  13 30 06.37  -09 51 15.9           17       364
1099       1988 04 14.58993  13 30 05.45  -09 51 12.3                    364
1099       1988 04 15.63924  13 29 17.30  -09 48 34.7                    364
1099       1988 04 15.65729  13 29 16.31  -09 48 27.5                    364

372 Geisei
T. Seki, Kamimachi 2-9-35, Kochi, Japan
0.60-m reflector
1066       1988 04 13.60000  11 41 42.32  -00 42 46.2           18       372
1066       1988 04 14.62882  11 40 58.54  -00 38 52.8           18.5     372
```

3822		1988	04	13.60000	11	42	31.69	-00 50 04.1	18	372
3822		1988	04	14.62882	11	41	48.77	-00 46 13.5	18.5	372

392 JCPM Sapporo Station
H. Kaneda, 12-7-2, 1 Chome, Ishiyama 1 Jo, Minami-Ku,
Sapporo 005, Japan
0.25-m reflector

1988 GG		1988	04	17.49097	13	18	26.7	-05 59 23	16	392
1988 GG		1988	04	17.50139	13	18	25.6	-05 59 32		392

399 Kushiro
H. Kaneda, 12-7-2, 1 Chome, Ishiyama 1 Jo, Minami-Ku,
Sapporo 005, Japan
Observer S. Ueda
Measurer H. Kaneda

1941 HC		1988	04	13.51638	11	39	08.94	+15 52 37.3	16	399
1941 HC		1988	04	13.53125	11	39	08.49	+15 52 38.5		399
1941 HC		1988	04	13.54770	11	39	07.85	+15 52 42.0		399
1976 SZ3		1987	10	21.50556	01	38	43.40	+09 49 20.0	16	399
1976 SZ3		1987	10	21.52222	01	38	42.41	+09 49 14.0		399
1976 SZ3		1987	10	21.53889	01	38	41.54	+09 49 10.0		399
1980 DA1		1988	04	11.54618	11	45	23.74	+10 29 26.2	16.5	399
1980 DA1		1988	04	11.56007	11	45	23.24	+10 29 26.9		399
1986 EM1		1987	10	21.50556	01	43	59.41	+11 18 14.4	15.5	399
1986 EM1		1987	10	21.52222	01	43	58.20	+11 18 11.7		399
1986 EM1		1987	10	21.53889	01	43	57.07	+11 18 07.3		399
1988 GG		1988	05	09.47824	12	46	59.54	-11 25 53.7	16.5	399
1988 GG		1988	05	09.49740	12	46	58.46	-11 26 07.0		399
1988 GG		1988	05	09.51464	12	46	57.08	-11 26 26.7		399
1988 HB	*	1988	04	17.63993	14	36	02.26	+05 36 01.8	16	399
1988 HB		1988	04	17.65422	14	36	01.71	+05 36 04.5		399
1988 HB		1988	04	17.67199	14	36	00.82	+05 36 07.9		399
1988 HB		1988	05	05.48628	14	21	57.57	+06 03 37.7	16	399
1988 HB		1988	05	05.50087	14	21	56.82	+06 03 38.2		399
1988 HB		1988	05	05.51701	14	21	56.04	+06 03 37.9		399
1988 HB		1988	05	09.57662	14	18	47.50	+06 02 29.7	16	399
1988 HB		1988	05	09.59132	14	18	46.88	+06 02 28.5		399
1988 HB		1988	05	14.56042	14	15	07.15	+05 56 59.9	16	399
1988 HB		1988	05	14.57535	14	15	06.50	+05 57 00.7		399
1988 HB		1988	05	14.59168	14	15	05.80	+05 56 57.3		399
267		1988	04	07.52141	11	41	57.10	+11 26 24.2	14	399
267		1988	04	07.54010	11	41	56.27	+11 26 26.2		399
267		1988	04	07.56385	11	41	55.22	+11 26 30.2		399
721		1988	04	07.52141	11	44	34.40	+09 22 12.0	15	399
721		1988	04	07.54010	11	44	33.74	+09 22 12.1		399
721		1988	04	07.56385	11	44	32.80	+09 22 15.2		399
721		1988	04	11.54618	11	42	16.66	+09 28 03.0	15.5	399
721		1988	04	11.56007	11	42	16.17	+09 28 02.4		399
821		1987	10	21.50556	01	45	31.92	+11 07 16.0	16	399
821		1987	10	21.52222	01	45	31.05	+11 07 08.2		399
821		1987	10	21.53889	01	45	30.24	+11 07 01.4		399
1190		1987	10	21.50556	01	33	26.90	+09 45 28.2	14	399
1190		1987	10	21.52222	01	33	25.88	+09 45 25.1		399
1190		1987	10	21.53889	01	33	24.81	+09 45 22.1		399

400 Kitami
H. Kaneda, 12-7-2, 1 Chome, Ishiyama 1 Jo, Minami-Ku,
Sapporo 005, Japan
Observers K. Endate, T. Fujii, M. Yanai

Measurer K. Watanabe
0.20-m f/4.8 reflector

1988	GH		1988	05	09.50139	12	55	14.37	-06 57 34.1	16	400
1988	GH		1988	05	09.52569	12	55	13.52	-06 57 33.4		400
1988	GH		1988	05	09.54826	12	55	12.81	-06 57 32.1		400
1988	HF	*	1988	04	16.52153	13	34	19.80	-00 39 10.3	16	400
1988	HF		1988	04	16.54097	13	34	18.50	-00 38 59.4		400
1988	HF		1988	04	16.55556	13	34	18.08	-00 38 53.4		400
1988	HF		1988	05	09.48681	13	19	01.81	+01 34 45.9	15.5	400
1988	HF		1988	05	09.51042	13	19	00.97	+01 34 48.6		400
1988	HF		1988	05	09.52465	13	19	00.67	+01 34 51.5		400
1988	HG	*	1988	04	16.57465	13	52	31.39	-02 12 46.8	16.5	400
1988	HG		1988	04	16.59549	13	52	30.33	-02 12 42.2		400
1988	HG		1988	04	16.60833	13	52	29.34	-02 12 37.6		400
1988	HG		1988	05	09.54167	13	31	39.10	-01 25 30.6	16	400
1988	HG		1988	05	09.56250	13	31	38.16	-01 25 27.6		400
1988	HG		1988	05	09.57708	13	31	37.68	-01 25 30.2		400
1988	JJ		1988	05	11.56215	15	38	27.64	-07 08 27.0	15.5	400
1988	JJ		1988	05	11.58299	15	38	26.37	-07 08 02.3		400
1988	JJ		1988	05	11.60243	15	38	24.96	-07 07 37.6		400
1988	JJ		1988	05	14.62326	15	35	29.17	-06 10 29.0	14.5	400
1988	JJ		1988	05	14.64410	15	35	27.80	-06 10 02.5		400
1988	JJ		1988	05	14.66493	15	35	26.47	-06 09 37.0		400
222			1988	04	08.52919	13	18	40.34	-05 11 06.3	13	400
222			1988	04	08.55766	13	18	38.98	-05 10 59.4		400
1015			1988	04	17.56354	13	55	21.17	+02 19 31.7	13.5	400
1015			1988	04	17.58438	13	55	20.22	+02 19 35.0		400
1015			1988	04	17.60278	13	55	19.38	+02 19 39.1		400
1251			1988	04	16.52153	13	34	32.95	-01 16 02.0	16	400
1251			1988	04	16.54097	13	34	31.92	-01 15 55.3		400
1251			1988	04	16.55556	13	34	31.13	-01 15 50.1		400
1793			1988	05	09.50139	12	57	54.63	-06 55 09.5	13.5	400
1793			1988	05	09.52569	12	57	53.98	-06 55 03.1		400
1793			1988	05	09.54826	12	57	53.44	-06 54 58.3		400
3363			1988	04	17.51319	13	21	04.22	-06 30 52.5	15.5	400
3363			1988	04	17.52778	13	21	03.60	-06 30 49.5		400
3363			1988	04	17.54167	13	21	02.84	-06 30 44.4		400
3562			1988	05	09.48681	13	22	30.15	+00 53 01.7	15.5	400
3562			1988	05	09.51042	13	22	29.31	+00 52 58.7		400
3562			1988	05	09.52465	13	22	28.83	+00 52 59.2		400

413 Siding Spring
R. H. McNaught, Siding Spring Observatory, Coonabarabran, N.S.W. 2357, Australia
Observers C. Bembrick, J. A. Dawe, M. Hartley, M. R. S. Hawkins, R. H. Mcnaught, Q. A. Parker, K. S. Russell, J. D. Waldron, F. G. Watson
Measurers C. Bembrick, R. H. McNaught
1.2-m U.K. Schmidt and (1) Uppsala Southern Schmidt

1968	FJ		1986	04	03.54617	12	53	59.34	-01 30 43.9	16	413
1968	FJ		1986	04	03.60311	12	53	56.32	-01 30 19.8		413
1980	DE1		1986	04	03.54617	12	54	19.73	-00 23 08.8		413
1980	DE1		1986	04	03.60311	12	54	16.97	-00 23 02.0		413
1981	GT1	*	1981	04	08.65729	17	23	01.01	-31 49 14.1	19	413
1981	GT1		1981	04	08.71285	17	23	01.75	-31 49 18.7		413
1981	WM4		1988	02	23.56544	10	41	35.07	-08 04 33.5		413
1981	WM4		1988	02	23.64877	10	41	31.14	-08 04 14.3		413
1982	OV	*	1982	07	17.37141	15	06	56.71	-12 17 59.2	17	413
1982	OV		1982	07	17.41308	15	06	55.73	-12 18 01.9		413
1982	OW	*	1982	07	17.37141	15	07	56.78	-11 39 00.9	17	413

1982	OW		1982	07	17.41308	15	07	55.94	-11	38	47.1		413
1982	OX	*	1982	07	17.37141	15	10	11.53	-12	47	25.5	18	413
1982	OX		1982	07	17.41308	15	10	10.23	-12	47	18.7		413
1984	EZ1	*	1984	03	05.58316	10	51	39.88	-07	50	12.6	18	413
1984	EZ1		1984	03	05.62483	10	51	37.65	-07	50	07.5		413
1984	EZ1		1984	03	07.56247	10	49	56.79	-07	45	46.2		413
1984	EZ1		1984	03	07.60413	10	49	54.65	-07	45	40.7		413
1984	EA2	*	1984	03	05.58316	10	52	17.61	-08	00	40.9	19	413
1984	EA2		1984	03	05.62483	10	52	15.65	-08	00	21.5		413
1984	EA2		1984	03	07.60413	10	50	39.98	-07	43	15.1	F	413
1984	EB2	*	1984	03	05.58316	10	53	05.31	-08	05	36.8	20 F	413
1984	EB2		1984	03	05.62483	10	53	03.73	-08	05	17.2		413
1984	EB2		1984	03	07.56247	10	51	46.91	-07	47	12.8	V	413
1984	EB2		1984	03	07.60413	10	51	45.13	-07	46	49.0	V	413
1984	EC2	*	1984	03	05.58316	10	53	17.21	-06	05	12.9	15	413
1984	EC2		1984	03	05.62483	10	53	15.39	-06	05	02.1		413
1984	ED2	*	1984	03	05.58316	10	53	40.29	-06	24	35.2	19	413
1984	ED2		1984	03	05.62483	10	53	38.03	-06	24	21.9		413
1984	EE2	*	1984	03	07.56247	10	47	12.14	-08	56	41.4	19 F	413
1984	EE2		1984	03	07.60413	10	47	09.83	-08	56	40.5		413
1984	EF2	*	1984	03	07.56247	10	47	58.73	-08	56	56.5	19 F	413
1984	EF2		1984	03	07.60413	10	47	56.73	-08	56	41.4		413
1984	EG2	*	1984	03	07.56247	10	49	08.85	-08	15	58.2	19 F	413
1984	EG2		1984	03	07.60413	10	49	07.08	-08	15	44.2		413
1986	GH2	*	1986	04	03.54617	12	49	54.18	-02	58	13.8	18	413
1986	GH2		1986	04	03.60311	12	49	50.48	-02	57	51.6		413
1986	GJ2	*	1986	04	03.54617	13	07	53.38	+01	48	15.5	19	413
1986	GJ2		1986	04	03.60311	13	07	50.35	+01	48	46.4	F	413
1986	RL		1984	03	05.58316	10	53	23.62	-07	48	17.1	18	413
1986	RL		1984	03	05.62483	10	53	21.72	-07	48	06.9		413
1986	RL		1984	03	07.56247	10	51	52.47	-07	39	24.9		413
1986	RL		1984	03	07.60413	10	51	50.59	-07	39	14.6		413
1987	LA	*	1987	06	02.59142	16	48	15.12	-14	01	04.5	18	413
1987	LA		1987	06	02.64906	16	48	11.64	-14	00	43.9		413
1987	LB	*	1987	06	02.59142	16	56	38.93	-13	37	45.5	18	413
1987	LB		1987	06	02.64906	16	56	35.45	-13	37	55.4		413
1987	LC	*	1987	06	02.59142	16	58	43.52	-14	34	21.2	18	413
1987	LC		1987	06	02.64906	16	58	40.55	-14	34	25.7		413
1987	LD	*	1987	06	02.59142	17	00	01.25	-14	25	15.2	18	413
1987	LD		1987	06	02.64906	16	59	58.14	-14	25	28.2		413
1987	LE	*	1987	06	02.59142	17	08	46.40	-13	24	22.7	18	413
1987	LE		1987	06	02.64906	17	08	43.32	-13	24	08.7		413
1987	LF	*	1987	06	02.59142	17	11	27.93	-13	19	55.3	18	413
1987	LF		1987	06	02.64906	17	11	24.51	-13	19	43.0		413
1988	CP5		1988	03	10.53479	09	59	17.50	+01	05	50.9	1	413
1988	CP5		1988	03	10.54660	09	59	17.26	+01	05	53.3	1	413
1988	DJ		1988	04	12.51984	09	48	33.44	+01	30	28.0	1	413
1988	DJ		1988	04	14.54682	09	48	38.97	+01	37	58.8	1	413
1988	DJ		1988	04	20.39527	09	49	25.58	+01	56	59.0	W	413
1988	DJ		1988	04	20.47166	09	49	26.29	+01	57	12.8	W	413
1988	DJ		1988	04	20.51020	09	49	26.84	+01	57	19.8	1	413
1988	DJ		1988	04	20.53829	09	49	27.12	+01	57	25.8	1	413
1988	DO		1988	04	12.51984	09	49	28.02	+01	29	25.1	1	413
1988	DO		1988	04	14.54682	09	50	04.42	+01	29	44.4	1	413
1988	DO		1988	04	20.39527	09	52	32.62	+01	27	50.9	W	413
1988	DO		1988	04	20.47166	09	52	34.74	+01	27	46.8	W	413
1988	DO		1988	04	20.49957	09	52	35.60	+01	27	44.8	1	413
1988	DO		1988	04	20.52083	09	52	36.16	+01	27	43.3	1	413
1988	DO		1988	04	20.53829	09	52	36.64	+01	27	44.4	1	413

1988	DQ	1984	03	05.58316	10	51	08.63	-07	55	50.3	16	413
1988	DQ	1984	03	05.62483	10	51	05.93	-07	55	48.4		413
1988	DQ	1984	03	07.56247	10	49	02.47	-07	53	41.2		413
1988	DQ	1984	03	07.60413	10	48	59.78	-07	53	38.5		413
1988	DQ	1988	04	12.51984	09	46	33.64	+00	12	14.0	1	413
1988	DQ	1988	04	14.54682	09	46	33.80	+00	12	18.9	1	413
1988	DQ	1988	04	16.54512	09	46	40.83	+00	12	01.1	1	413
1988	DQ	1988	04	20.39527	09	47	12.75	+00	10	29.5		413
1988	DQ	1988	04	20.47166	09	47	13.35	+00	10	27.4		413
1988	DQ	1988	04	20.53829	09	47	14.09	+00	10	24.9	1	413
12		1988	04	12.51984	09	47	03.11	+02	00	49.4	1	413
12		1988	04	14.54682	09	46	56.03	+02	10	44.2	1	413
12		1988	04	16.54512	09	46	55.52	+02	19	57.6	1	413
12		1988	04	20.39527	09	47	12.81	+02	36	11.0		413
12		1988	04	20.47166	09	47	13.23	+02	36	28.2		413
12		1988	04	20.51020	09	47	13.45	+02	36	37.8	1	413
12		1988	04	20.53829	09	47	13.66	+02	36	45.2	1	413
55		1987	11	13.71428	06	41	37.91	+32	51	23.0	1	413
55		1987	11	13.71685	06	41	37.86	+32	51	23.1	1	413
55		1987	11	13.71755	06	41	37.86	+32	51	23.3	1	413
55		1987	11	13.71815	06	41	37.86	+32	51	23.3	1	413
65		1988	04	20.55697	12	22	27.12	+00	48	54.0	1	413
65		1988	04	20.55767	12	22	27.12	+00	48	54.4	1	413
65		1988	04	20.55836	12	22	27.09	+00	48	54.3	1	413
68		1986	04	03.54617	13	04	08.61	-00	38	46.0		413
68		1986	04	03.60311	13	04	05.79	-00	38	34.5		413
121		1988	03	06.78241	18	28	09.49	-24	07	44.3	1	413
121		1988	03	06.78414	18	28	09.58	-24	07	44.6	1	413
139		1988	04	20.56600	12	54	17.36	-13	21	25.7	1	413
139		1988	04	20.56671	12	54	17.32	-13	21	25.7	1	413
139		1988	04	20.56739	12	54	17.28	-13	21	25.5	1	413
206		1986	04	03.54617	12	48	05.52	-00	28	03.2		413
206		1986	04	03.60311	12	48	02.73	-00	27	43.5		413
217		1986	04	03.54617	12	52	49.74	+02	27	57.7		413
217		1986	04	03.60311	12	52	47.18	+02	28	21.7		413
262		1986	04	03.54617	13	05	56.79	-01	53	23.5		413
262		1986	04	03.60311	13	05	53.53	-01	53	11.8		413
480		1987	06	02.59142	17	08	22.72	-12	03	36.5		413
480		1987	06	02.64906	17	08	19.48	-12	03	07.1		413
595		1986	04	03.54617	12	55	59.20	-00	15	02.9		413
595		1986	04	03.60311	12	55	56.17	-00	15	00.8		413
675		1984	03	07.56247	10	47	52.96	-08	19	06.6	13	413
675		1984	03	07.60413	10	47	50.84	-08	18	53.9		413
789		1988	02	23.56544	10	40	16.23	-08	29	03.2		413
789		1988	02	23.64877	10	40	11.98	-08	28	40.1		413
879		1981	04	08.65729	17	19	08.84	-31	33	41.3		413
879		1981	04	08.71285	17	19	09.51	-31	33	41.1		413
905		1986	04	03.54617	12	54	19.33	-02	00	22.1		413
905		1986	04	03.60311	12	54	15.68	-02	00	07.0		413
937		1986	03	15.62643	13	02	00.48	-11	53	45.2		413
937		1986	03	15.67852	13	01	58.05	-11	53	32.9		413
1010		1986	04	03.54617	12	48	18.61	+00	56	56.2		413
1010		1986	04	03.60311	12	48	16.02	+00	57	11.7		413
1026		1987	06	02.59142	17	05	19.35	-17	20	46.5		413
1026		1987	06	02.64906	17	05	15.69	-17	20	50.9		413
1145		1986	03	15.62643	13	06	30.19	-11	26	45.9		413
1145		1986	03	15.67852	13	06	27.84	-11	26	46.3		413
1205		1986	04	03.54617	12	50	19.90	-02	58	33.1		413
1205		1986	04	03.60311	12	50	16.76	-02	58	21.2		413

1438		1986	03	15.62643	13	07	39.44	-09	14	10.9		413
1438		1986	03	15.67852	13	07	37.74	-09	14	01.9		413
1537		1986	03	15.62643	13	09	59.93	-10	36	35.4		413
1537		1986	03	15.67852	13	09	58.17	-10	36	25.6		413
1706		1986	03	15.62643	13	06	35.24	-10	52	37.7		413
1706		1986	03	15.67852	13	06	33.06	-10	52	29.6		413
1710		1986	03	15.62643	13	10	17.53	-11	02	47.5		413
1710		1986	03	15.67852	13	10	14.97	-11	02	44.0		413
1731		1986	04	03.54617	12	52	03.46	+00	08	15.5		413
1731		1986	04	03.60311	12	52	01.05	+00	08	33.2		413
1802		1986	04	03.54617	12	58	46.35	-02	46	48.7		413
1802		1986	04	03.60311	12	58	43.57	-02	46	30.6		413
1883		1982	07	17.37141	15	08	26.21	-12	45	30.6	18	413
1883		1982	07	17.41308	15	08	25.92	-12	45	44.9	p	413
2116		1986	04	03.54617	12	54	27.11	+00	05	26.8		413
2116		1986	04	03.60311	12	54	24.35	+00	05	54.4		413
2359		1987	06	02.59142	17	11	37.96	-16	49	16.4		413
2359		1987	06	02.64906	17	11	34.69	-16	49	04.3		413
2539		1987	06	02.59142	16	49	15.85	-16	47	40.5	V	413
2539		1987	06	02.64906	16	49	12.18	-16	47	31.8		413
2715		1986	03	15.62643	13	06	31.42	-08	47	32.8	19	413
2715		1986	03	15.67852	13	06	29.46	-08	47	17.4		413
2948		1986	03	15.62643	13	00	19.49	-12	43	33.4	p	413
2948		1986	03	15.67852	13	00	17.55	-12	43	14.7		413
3187		1986	03	15.62643	13	02	14.62	-10	46	15.7		413
3187		1986	03	15.67852	13	02	12.14	-10	46	06.8		413
3446		1986	04	03.54617	12	53	26.23	+00	04	11.3	15.5 p	413
3446		1986	04	03.60311	12	53	22.54	+00	04	16.4		413
3450		1986	04	03.54617	13	07	02.38	+01	52	17.5	18	413
3450		1986	04	03.60311	13	06	59.52	+01	52	31.9		413
3466		1986	04	03.54617	12	54	40.72	-02	04	53.4		413
3466		1986	04	03.60311	12	54	37.55	-02	04	34.7		413
3645		1988	04	20.51020	09	46	54.83	+03	53	33.1	1	413
3695		1986	04	03.54617	13	07	25.00	-03	11	27.1	19	413
3695		1986	04	03.60311	13	07	21.91	-03	11	01.6	p	413
3706		1986	04	03.54617	12	51	50.65	+00	09	13.2		413
3706		1986	04	03.60311	12	51	47.24	+00	09	36.7		413
3745		1986	03	15.62643	12	59	24.98	-09	46	28.3	19 p	413
3745		1986	03	15.67852	12	59	22.37	-09	46	24.5	F	413
3753		1985	10	04.73082	03	28	25.63	-39	41	49.2		413
3753		1985	10	04.74471	03	28	24.99	-39	42	29.3		413

474 Mount John
A. C. Gilmore, P.O. Box 57, Lake Tekapo, New Zealand
Observer A. C. Gilmore
Measurer P. M. Kilmartin
0.25-m astrograph (1) and 0.6-m f/14 Cassegrain reflector
AGK3, SAOC, CPZ, field plates from Carter Observatory

1988 HE	*	1988	04	15.59134	13	36	03.51	-31	39	01.8	18	474
1988 HE		1988	04	15.61252	13	36	02.13	-31	38	59.6		474
1988 HE		1988	04	16.45501	13	35	07.23	-31	37	39.5		474
1988 HE		1988	04	16.48024	13	35	05.59	-31	37	37.5		474
1988 HE		1988	04	18.46844	13	32	53.86	-31	33	43.3		474
1988 HE		1988	04	18.49031	13	32	52.39	-31	33	40.5		474
1988 HE		1988	04	21.60929	13	29	25.67	-31	25	24.4		474
1988 HE		1988	04	21.63094	13	29	24.23	-31	25	20.1		474

503 Cambridge
J. D. Shanklin, 11 City Road, Cambridge, CB1 1DP, England

Observer J. D. Shanklin
0.44-m Schmidt

46		1988	04	13.93709	10	16	10.50	+10	00	04.2	503
46		1988	05	06.91139	10	17	56.17	+10	07	23.2	503

552 San Vittore
E. Colombini, Via S. Vittore 44, I-40136 Bologna, Italy
Observers C. Vacchi, G. Sassi
Measurers C. Vacchi, V. Goretti, E. Colombini
AGK3, SAOC

1988 CK		1988	03	09.88264	10	01	45.23	+09	17	54.1	552
1988 CK		1988	03	09.90486	10	01	43.97	+09	17	55.1	552
1988 CK		1988	03	14.91944	09	57	29.27	+09	18	57.4	552
1988 CK		1988	03	14.94236	09	57	28.11	+09	18	56.8	552
1988 CL		1988	03	09.93056	10	05	51.44	+10	27	44.5	552
1988 CL		1988	03	09.95139	10	05	50.27	+10	27	44.8	552
1988 CL		1988	03	17.87118	09	59	43.84	+10	28	39.2	552
1988 DD		1988	03	10.87083	10	23	35.74	+22	36	11.4	552
1988 DD		1988	03	10.89861	10	23	34.63	+22	36	29.5	552
1988 DD		1988	03	14.89097	10	21	13.77	+23	14	51.5	552
1988 DD		1988	03	17.96250	10	19	41.07	+23	40	11.2	552
1988 DE		1988	03	10.91875	10	19	59.29	+16	03	35.9	552
1988 DE		1988	03	10.93681	10	19	58.10	+16	03	32.2	552
1988 DE		1988	03	17.90278	10	13	27.62	+15	43	31.9	552
1988 DE		1988	03	17.92639	10	13	26.39	+15	43	27.1	552
1988 DE		1988	03	20.88958	10	11	02.01	+15	32	52.0	552
1988 DE		1988	03	20.90694	10	11	01.17	+15	32	46.8	552
1988 GE	*	1988	04	14.92708	14	16	49.55	-10	42	20.6	16.0 552
1988 GE		1988	04	14.95764	14	16	47.99	-10	42	01.0	552
1988 GE		1988	04	14.98611	14	16	46.69	-10	41	43.1	552
1988 GE		1988	04	15.93542	14	16	04.64	-10	31	44.2	16 552
1988 GE		1988	04	15.95347	14	16	03.84	-10	31	33.0	552
1988 GE		1988	04	16.95000	14	15	18.86	-10	21	00.7	16.0 552
1988 GE		1988	04	16.96875	14	15	17.97	-10	20	47.1	552
930		1988	03	10.95694	10	02	09.31	+14	15	53.6	15.5 552
930		1988	03	10.98056	10	02	07.88	+14	15	53.4	552
930		1988	03	18.88125	09	54	59.80	+14	10	11.9	15.8 552
930		1988	03	18.91458	09	54	58.14	+14	10	09.9	552
1212		1988	03	18.88125	09	54	36.42	+13	56	09.4	14.5 552
1212		1988	03	18.91458	09	54	35.63	+13	56	16.9	552

553 Chorzow
I. Wlodarczyk, Planetarium and Astronomical Observatory,
PL-41500 Chorzow, Poland
Observers T. Firszt, J. Gasior, M. Szczepanski, I. Wlodarczyk,
A. Gillner, R. Smilowski
0.20-m f/5 Zeiss camera
From Acta Astronomica

1		1984	10	05.03103	03	37	15.59	+09	34	15.9	553
1		1984	10	05.05071	03	37	15.19	+09	34	13.7	553
1		1984	10	05.06765	03	37	14.74	+09	34	13.6	553
1		1984	10	18.94992	03	30	15.68	+09	12	31.6	553
1		1984	10	18.96396	03	30	15.24	+09	12	29.1	553
1		1984	10	18.98425	03	30	14.26	+09	12	28.3	553
1		1986	03	19.84971	10	49	59.42	+25	22	35.9	553
1		1986	03	19.86568	10	49	58.80	+25	22	35.9	553
1		1986	03	19.88721	10	49	57.73	+25	22	39.2	553
1		1986	03	19.90249	10	49	57.04	+25	22	40.4	553
1		1986	05	02.86444	10	39	31.26	+22	56	27.0	553

1	1986	05	02.87795	10	39	31.55	+22	56	22.3	553
1	1986	05	02.88795	10	39	31.66	+22	56	15.6	553
1	1986	05	04.86788	10	40	12.96	+22	41	54.0	553
1	1986	05	04.88490	10	40	13.32	+22	41	45.0	553
1	1986	05	04.90538	10	40	13.71	+22	41	36.0	553
1	1986	05	05.89317	10	40	36.61	+22	34	15.9	553
1	1986	05	05.90532	10	40	36.89	+22	34	13.1	553
1	1986	05	05.91366	10	40	36.92	+22	34	06.6	553
1	1986	05	06.86615	10	41	00.40	+22	26	53.1	553
1	1986	05	06.88733	10	41	00.73	+22	26	44.4	553
1	1986	05	06.90961	10	41	01.26	+22	26	33.6	553
1	1986	05	13.89888	10	44	27.87	+21	30	48.9	553
1	1986	05	13.91363	10	44	28.24	+21	30	43.0	553
1	1986	05	27.85241	10	54	08.71	+19	26	21.3	553
1	1986	05	27.86397	10	54	09.33	+19	26	15.0	553
2	1982	04	16.89575	13	04	01.45	+18	54	40.5	553
2	1982	04	16.91311	13	04	01.33	+18	54	58.3	553
2	1982	04	16.93117	13	04	00.67	+18	55	07.0	553
2	1982	06	11.90203	12	55	21.09	+22	07	45.7	553
2	1984	09	13.87493	22	39	22.33	+00	22	34.2	553
2	1984	09	13.89562	22	39	21.43	+00	22	18.3	553
2	1984	09	13.91642	22	39	20.43	+00	22	01.0	553
2	1984	10	04.93325	22	26	28.35	-04	09	25.4	553
2	1984	10	04.94253	22	26	27.99	-04	09	31.9	553
2	1984	10	04.95509	22	26	27.67	-04	09	41.6	553
2	1984	10	18.83008	22	22	05.94	-06	41	17.0	553
2	1984	10	18.84382	22	22	05.73	-06	41	25.5	553
2	1984	10	18.86484	22	22	05.65	-06	41	37.6	553
3	1983	09	16.00368	02	24	05.67	+04	02	33.6	553
3	1983	09	16.02035	02	24	06.03	+04	02	26.2	553
3	1983	09	16.03285	02	24	06.15	+04	02	11.2	553
3	1983	09	16.03597	02	24	06.30	+04	02	11.7	553
3	1983	10	08.02558	02	22	18.36	-00	27	42.2	553
3	1983	10	08.05856	02	22	17.63	-00	28	14.0	553
3	1983	10	08.08461	02	22	17.51	-00	28	38.4	553
4	1985	05	20.85250	13	37	15.02	+01	36	42.4	553
4	1985	05	20.86153	13	37	14.87	+01	36	41.3	553
4	1985	05	20.87889	13	37	14.19	+01	36	40.1	553
4	1985	06	03.85312	13	33	17.74	+00	41	46.4	553
4	1985	06	03.87176	13	33	17.43	+00	41	38.9	553
4	1986	09	06.97503	01	13	19.55	-04	25	29.9	553
4	1986	09	30.93169	00	55	04.10	-07	10	07.3	553
4	1986	09	30.94571	00	55	03.32	-07	10	13.0	553
4	1986	09	30.96072	00	55	02.50	-07	10	18.0	553
4	1986	09	30.97512	00	55	01.70	-07	10	24.0	553
4	1986	10	02.90762	00	53	13.49	-07	22	10.5	553
4	1986	10	02.91000	00	53	13.40	-07	22	11.2	553
4	1986	10	02.94021	00	53	11.53	-07	22	21.1	553
4	1986	10	02.94125	00	53	11.58	-07	22	21.5	553
4	1986	10	02.98743	00	53	08.90	-07	22	39.3	553
4	1986	10	28.89850	00	31	17.40	-08	52	57.2	553
4	1986	10	28.91238	00	31	16.90	-08	52	58.1	553
4	1986	10	28.92975	00	31	16.15	-08	52	59.1	553
6	1982	04	29.83938	11	37	19.63	+17	54	19.7	553
6	1982	04	29.86646	11	37	19.14	+17	54	18.2	553
6	1984	12	18.06221	06	28	00.29	+04	11	30.0	553
6	1984	12	18.85625	06	27	11.52	+04	15	35.8	553
6	1986	05	06.92101	12	52	51.93	+14	12	55.6	553
6	1986	05	06.94097	12	52	51.27	+14	12	54.0	553

```
   6       1986 05 06.96406  12 52 50.44  +14 12 53.2                    553
   6       1986 05 07.92034  12 52 18.70  +14 13 37.1                    553
   6       1986 05 07.93802  12 52 18.24  +14 13 38.0                    553
   6       1986 05 07.95903  12 52 17.49  +14 13 38.1                    553
   7       1984 12 18.05353  05 22 10.20  +22 19 43.6                    553
   9       1984 04 20.84896  11 41 47.17  +10 14 44.3                    553
   9       1984 04 29.84860  11 38 36.71  +10 01 32.6                    553
   9       1984 04 29.86383  11 38 36.44  +10 01 31.1                    553
   9       1984 04 29.87984  11 38 36.28  +10 01 28.2                    553
  11       1983 01 12.83066  04 58 30.25  +18 31 48.5                    553
  11       1983 01 12.89832  04 58 27.84  +18 31 55.0                    553
  11       1984 04 20.84896  11 55 54.11  +07 19 41.6                    553
  11       1984 04 29.84860  11 51 43.04  +07 37 14.8                    553
  11       1984 04 29.86383  11 51 42.86  +07 37 16.6                    553
  11       1984 04 29.87984  11 51 42.47  +07 37 18.2                    553
  12       1982 11 05.79006  23 55 49.79  +08 25 01.6                    553
  12       1982 11 05.81170  23 55 49.40  +08 24 53.3                    553
  12       1982 11 05.83067  23 55 49.64  +08 24 43.9                    553
  15       1985 11 11.80622  00 51 22.94  +27 22 59.6                    553
  15       1985 11 11.83334  00 51 22.26  +27 22 44.4                    553
  15       1985 11 11.84638  00 51 22.04  +27 22 37.2                    553
  18       1984 07 14.87575  16 13 48.88  -07 00 40.7                    553
  18       1984 07 14.89390  16 13 48.33  -07 00 46.1                    553
  23       1977 03 22.99271  09 48 16.67  +31 13 48.1                    553
  23       1977 04 16.83090  09 54 01.87  +27 49 55.6                    553
  23       1977 04 17.80035  09 54 38.13  +27 40 09.3                    553
  23       1984 10 18.94992  03 17 06.72  +10 28 35.4                    553
  23       1984 10 18.96396  03 17 06.13  +10 28 34.9                    553
  23       1984 10 18.98425  03 17 05.26  +10 28 35.5                    553
  29       1986 09 05.89288  22 32 08.51  -12 35 44.7                    553
  29       1986 09 05.91227  22 32 07.10  -12 35 49.5                    553
  29       1986 09 05.93454  22 32 05.85  -12 35 51.5                    553
  29       1986 09 06.88892  22 31 11.78  -12 38 18.0                    553
  29       1986 09 30.86801  22 12 52.05  -13 06 40.4                    553
  29       1986 09 30.89108  22 12 51.27  -13 06 40.7                    553
  29       1986 10 02.81833  22 11 55.78  -13 05 39.1                    553
  29       1986 10 02.82319  22 11 55.23  -13 05 41.2                    553
  29       1986 10 02.85931  22 11 54.33  -13 05 35.3                    553
  29       1986 10 02.88979  22 11 53.68  -13 05 36.1                    553
  40       1984 12 18.07120  06 42 33.79  +23 04 47.1                    553
  40       1984 12 18.84583  06 41 43.78  +23 07 19.1                    553
  42       1977 03 22.88715  09 11 14.12  +26 49 44.7                    553
  44       1983 09 15.95715  02 37 03.34  +09 49 29.1                    553
  44       1983 09 15.97243  02 37 03.37  +09 49 27.8                    553
  44       1983 09 15.99049  02 37 03.17  +09 49 26.3                    553

568 Mauna Kea Observatory
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2.24-m telescope encoders
AGK3, SAOC
1988 GB    1988 05 09.42208  12 08 23.03  -22 18 23.3          16.7V   568

573 Eldagsen
W. Bonk, Nordstrasse 33, D-3257 Springe 3, Federal Republic of Germany
AGK3
  87       1988 03 18.85610  10 05 24.51  +26 33 11.3                    573
  87       1988 03 18.86091  10 05 24.35  +26 33 13.0                    573
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362		1988	03	18.79974	10	11	05.91	+21	07	56.5	573
362		1988	03	18.80500	10	11	05.73	+21	07	56.8	573
505		1988	03	18.82503	09	44	33.24	+27	39	25.6	573
505		1988	03	18.83047	09	44	33.08	+27	39	25.7	573

657 Victoria, Climenhaga Observatory
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1977 CD		1988	05	07.25799	13	34	54.37	+12	35	25.0	657
1977 CD		1988	05	07.30868	13	34	52.22	+12	35	56.2	657
16		1988	04	12.40181	15	21	31.50	-14	13	54.5	657
16		1988	04	12.43826	15	21	30.23	-14	13	49.0	657
16		1988	04	20.30840	15	16	38.57	-13	47	38.9	657
16		1988	05	08.39965	15	02	51.36	-12	41	43.2	657
211		1988	05	07.27118	15	17	25.97	-21	16	40.9	657
211		1988	05	07.33160	15	17	23.07	-21	16	26.3	657
363		1987	09	28.46632	07	00	04.29	+24	34	25.4	657
764		1987	10	19.30972	01	39	02.24	+23	02	07.1	657
921		1987	10	22.22292	22	58	42.11	+04	12	26.0	657
921		1987	10	26.16875	22	58	17.47	+03	42	38.0	657
1185		1987	09	27.30799	00	28	36.78	-07	45	04.5	657
1185		1987	09	29.30215	00	26	37.19	-07	55	09.2	657
1590		1987	09	27.32431	04	01	43.81	+21	11	16.2	657
3541		1988	04	12.39035	15	29	45.96	-13	06	06.2	657
3541		1988	04	12.43132	15	29	44.90	-13	06	02.3	657
3541		1988	05	07.35521	15	11	26.30	-12	15	20.0	657
3799		1988	03	15.29486	11	20	14.34	+04	49	13.0	657
3799		1988	03	15.34208	11	20	12.15	+04	49	26.6	657

675 Palomar
J. Gibson, ITT/Federal Electric Corporation and Jet Propulsion Laboratory, MS 238-332, Pasadena, CA 91109, U.S.A. (1)
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Measurers J. Alu (2), S. J. Bus (6), J. Gibson (1), E. Majkowski (2), B. Roman (2), T. Rodriquez (3), C. Shoemaker (3), C. J. van Houten (4), I. van Houten-Groeneveld (4)
1.5-m reflector + CCD (C), 1.2-m (L) and 0.46-m (S) Schmidt telescopes

1968 OC1		1978	05	09.27674	14	40	53.87	-15	20	04.3	18.2	6 675
1968 OC1		1978	05	10.31250	14	39	53.20	-15	12	40.5		6 675
1971 SC		1987	03	17.48486	16	07	41.04	-08	35	48.7		1 675
1971 SC		1987	03	17.48889	16	07	41.17	-08	35	47.5		1 675
1971 SC		1987	03	17.49333	16	07	41.34	-08	35	45.6		1 675
1971 SC		1987	04	11.39938	16	14	03.25	-05	15	02.3		1 675
1971 SC		1987	04	11.41722	16	14	03.11	-05	14	51.7		1 675
1971 SC		1987	04	11.42917	16	14	02.97	-05	14	44.8		1 675
1971 SC		1987	04	12.32454	16	13	56.63	-05	05	54.6		1 675
1971 SC		1987	04	12.32917	16	13	56.60	-05	05	51.9		1 675
1971 SC		1987	04	12.33924	16	13	56.46	-05	05	45.1		1 675
1971 SC		1987	04	12.34745	16	13	56.38	-05	05	41.0		1 675

1971	SC		1987	05	07.26069	16	00	44.33	-00	37	54.1		1 675
1971	SC		1987	05	07.26764	16	00	43.94	-00	37	49.5		1 675
1971	SC		1987	05	08.28417	15	59	48.62	-00	26	56.9		1 675
1971	SC		1987	05	08.29444	15	59	48.02	-00	26	50.2		1 675
1971	SC		1987	06	16.31169	15	19	01.17	+03	39	28.9		1 675
1971	SC		1987	06	16.31916	15	19	00.82	+03	39	29.0		1 675
1971	SC		1987	06	17.28657	15	18	14.74	+03	39	30.8		1 675
1971	SC		1987	06	17.29062	15	18	14.56	+03	39	30.8		1 675
1971	SC		1987	06	17.29565	15	18	14.28	+03	39	30.5		1 675
1978	JN3	*	1978	05	09.27674	14	19	03.50	-13	33	45.9	17.0	6 675
1978	JN3		1978	05	10.31250	14	18	11.19	-13	25	57.7		6 675
1978	JO3	*	1978	05	09.27674	14	33	53.33	-15	15	51.8	18.5	6 675
1978	JO3		1978	05	10.31250	14	32	53.60	-15	12	18.0		6 675
1978	JP3	*	1978	05	09.27674	14	35	24.34	-17	45	36.9	18.8	6 675
1978	JP3		1978	05	10.31250	14	34	29.33	-17	40	19.0		6 675
1978	JQ3	*	1978	05	09.27674	14	37	36.13	-15	36	29.1	19.0	6 675
1978	JQ3		1978	05	10.31250	14	36	48.58	-15	31	51.7		6 675
1978	JR3	*	1978	05	09.27674	14	38	01.72	-12	51	26.3	18.0	6 675
1978	JR3		1978	05	10.31250	14	37	21.99	-12	47	55.3		6 675
1978	JS3	*	1978	05	09.27674	14	38	54.68	-17	05	31.7	17.5	6 675
1978	JS3		1978	05	10.31250	14	37	51.19	-16	59	31.4		6 675
1981	EV8		1978	05	09.27674	14	32	32.18	-13	04	42.9	19.0	6 675
1981	EV8		1978	05	10.31250	14	31	31.53	-12	57	25.6		6 675
1981	ER10		1978	05	10.31250	14	43	33.22	-17	48	36.0	18.8	6 675
1981	EB19		1978	05	10.31250	14	43	46.89	-12	59	22.5	18.0	6 675
1981	ED25		1978	05	09.27674	14	38	56.12	-12	34	54.9	17.8	6 675
1981	ED25		1978	05	10.31250	14	37	52.00	-12	27	39.6		6 675
1981	EE37		1978	05	09.27674	14	33	52.08	-18	37	23.9	18.0	6 675
1981	EE37		1978	05	10.31250	14	32	43.20	-18	34	04.3		6 675
1982	SL		1978	05	09.27674	14	41	24.70	-15	10	21.2	19.0	6 675
1982	SL		1978	05	10.31250	14	40	19.72	-15	04	17.8		6 675
1985	RY3		1978	05	09.27674	14	25	34.66	-12	36	12.9	17.8	6 675
1985	RY3		1978	05	10.31250	14	24	47.98	-12	32	13.6		6 675
1986	AH		1987	06	22.44253	20	45	02.91	-06	42	39.4		3 675
1986	AH		1987	06	23.45625	20	44	51.87	-06	54	49.8		3 675
1987	KL		1987	06	20.26875	16	15	52.89	-28	05	50.6		3 675
1987	KL		1987	06	21.28212	16	14	15.07	-28	26	51.1		3 675
1987	KL		1987	06	22.26753	16	12	43.09	-28	46	52.9		3 675
1987	KL		1987	06	23.25885	16	11	12.84	-29	06	37.1		3 675
1987	KE1		1987	06	21.29826	17	12	52.46	+13	00	05.0		3 675
1987	KE1		1987	06	22.27934	17	12	06.09	+12	55	55.1		3 675
1987	KE1		1987	06	23.33681	17	11	16.63	+12	51	06.8		3 675
1987	KF1		1987	06	20.28056	16	59	11.50	+04	22	09.3		3 675
1987	KF1		1987	06	22.30556	16	58	08.30	+04	13	28.3		3 675
1987	KF1		1987	06	23.34271	16	57	37.57	+04	08	18.4		3 675
1987	QD		1987	09	20.27014	22	14	04.47	-01	18	05.9		2 675
1987	QD		1987	09	20.29097	22	14	04.61	-01	18	52.4		2 675
1988	BY		1988	02	16.20764	06	12	04.08	+33	19	42.9	18	3 675
1988	BY		1988	02	17.16016	06	12	06.10	+33	31	48.2		3 675
1988	BY		1988	02	20.21163	06	12	31.66	+34	08	38.5		3 675
1988	BX1		1988	04	12.16215	07	14	39.29	+43	30	45.6		3 675
1988	BX1		1988	04	14.16927	07	15	43.33	+43	25	51.7		3 675
1988	BY1		1988	04	14.16927	07	37	13.98	+43	04	06.9		3 675
1988	BY1		1988	04	14.22013	07	37	15.50	+43	03	52.0		3 675
1988	BK2		1988	02	16.16927	06	45	12.11	+51	27	44.9	17.5	3 675
1988	BK2		1988	02	17.16944	06	44	51.21	+51	23	17.9		3 675
1988	BK2		1988	02	20.22083	06	44	03.01	+51	08	47.1		3 675
1988	BN2		1988	02	17.30972	07	49	08.31	+54	17	53.1		3 675
1988	BN2		1988	02	20.28125	07	46	08.37	+54	13	40.5		3 675

1988	DS1	*	1988	02	17.35885	08	53	11.73	+54	03	02.9	18	3 675
1988	DS1		1988	02	20.28125	08	49	57.18	+53	40	14.6		3 675
1988	EF		1988	03	10.35747	10	34	04.81	-14	28	48.5		2 675
1988	EF		1988	03	12.26788	10	33	14.22	-13	38	11.5		2 675
1988	EF		1988	03	13.23941	10	32	50.48	-13	12	20.4		2 675
1988	EJ		1988	04	07.26476	12	45	50.00	-01	20	25.6	16.0	2 675
1988	EJ		1988	04	07.32431	12	45	47.43	-01	19	34.6		2 675
1988	EL		1988	03	17.43177	12	54	21.77	-19	02	25.0	16.5	3 675
1988	EL		1988	03	17.46302	12	54	18.84	-19	02	50.5		3 675
1988	EL		1988	04	09.27917	12	14	02.29	-22	51	36.5	16.5	2 675
1988	EL		1988	04	09.30052	12	13	59.94	-22	51	44.2		2 675
1988	EO		1988	04	10.20573	11	14	30.74	-21	35	14.9	17.5	2 675
1988	EO		1988	04	10.23021	11	14	29.18	-21	35	12.4		2 675
1988	ED1		1988	04	12.19462	11	30	39.23	+29	29	21.8	17	3 675
1988	ED1		1988	04	14.26094	11	29	29.81	+29	21	28.4		3 675
1988	EJ1		1988	04	10.19497	10	54	15.22	+01	28	27.5	17.5	2 675
1988	EJ1		1988	04	10.22135	10	54	14.82	+01	28	35.8		2 675
1988	EK1		1988	04	10.27830	10	48	35.91	+04	25	01.4		2 675
1988	EK1		1988	04	10.30469	10	48	35.23	+04	25	09.2		2 675
1988	EO1		1988	04	10.29149	12	56	38.46	-05	32	32.3	17.0	2 675
1988	EO1		1988	04	10.31302	12	56	37.48	-05	32	26.0		2 675
1988	FJ		1988	04	12.17865	10	46	27.67	+08	56	46.3		3 675
1988	FJ		1988	04	18.28229	10	43	24.09	+07	35	39.6		3 675
1988	FK		1988	04	12.19462	11	41	19.31	+29	05	18.7		3 675
1988	FK		1988	04	14.26094	11	40	37.93	+29	23	45.0		3 675
1988	FN		1988	04	12.17083	09	46	37.96	-04	53	48.3		3 675
1988	FN		1988	04	18.27465	09	46	46.23	-05	52	27.7		3 675
1988	FT	*	1988	03	18.25902	09	34	03.35	+33	44	57.0	17.5	3 675
1988	FT		1988	03	19.16822	09	33	57.64	+33	45	19.5		3 675
1988	GB		1988	03	19.43159	13	43	18.44	+04	39	39.7	17.5	3 675
1988	GB		1988	03	19.46267	13	43	16.65	+04	39	04.5		3 675
1988	GL	*	1988	04	12.19462	11	28	34.34	+29	42	26.6	17.5	3 675
1988	GL		1988	04	14.26094	11	27	23.52	+29	24	34.8		3 675
1988	JA	*	1988	05	10.26812	14	17	46.17	-12	03	45.1	15.5	3 675
1988	JA		1988	05	11.16614	14	17	09.14	-11	43	55.1		3 675
1988	JA		1988	05	13.34340	14	15	41.32	-10	56	20.8		3 675
1988	JJ	*	1988	05	09.33819	15	40	33.09	-07	50	25.8	16.5	3 675
1988	JJ		1988	05	09.38924	15	40	30.19	-07	49	27.5		3 675
1988	JJ		1988	05	11.35035	15	38	39.62	-07	12	23.9		3 675
1988	JJ		1988	05	13.32899	15	36	45.36	-06	34	53.7	16.5	3 675
1988	JJ		1988	05	17.32865	15	32	48.07	-05	19	38.4	16.0	2 675
1988	JJ		1988	05	17.34670	15	32	46.72	-05	19	06.7		2 675
1988	JK	*	1988	05	09.33819	15	20	23.14	-07	14	23.4	17.5	3 675
1988	JK		1988	05	11.35035	15	18	14.60	-06	38	06.6		3 675
1988	JK		1988	05	13.32899	15	16	07.45	-06	02	54.8		3 675
9515	P-L	*	1960	10	17.22501	23	27	05.62	-08	21	11.3	19.1	4 675
9515	P-L		1960	10	22.16324	23	25	02.33	-08	21	09.7		4 675
9515	P-L		1960	10	24.23753	23	24	22.45	-08	19	47.7		4 675
9515	P-L		1960	10	26.27157	23	23	50.37	-08	17	39.5		4 675
1120	T-3		1977	10	07.24652	01	02	29.04	+20	15	07.0		4 675
1120	T-3		1977	10	11.26632	00	58	58.30	+19	59	36.9		4 675
1120	T-3		1977	10	11.33351	00	58	54.76	+19	59	19.9		4 675
1120	T-3		1977	10	12.26510	00	58	05.76	+19	55	18.1		4 675
1120	T-3		1977	10	12.33125	00	58	02.18	+19	55	00.3		4 675
1120	T-3		1977	10	16.25156	00	54	38.14	+19	36	23.5		4 675
1120	T-3		1977	10	16.31684	00	54	34.58	+19	36	04.2		4 675
1120	T-3	*	1977	10	17.25365	00	53	46.80	+19	31	19.6	17.9	4 675
1120	T-3		1977	10	17.32083	00	53	43.24	+19	30	58.8		4 675

1120	T-3	1977	10	22.42812	00	49	30.98	+19	02	56.8	4 675
1120	T-3	1977	10	22.48003	00	49	28.38	+19	02	36.7	4 675
155		1978	05	09.27674	14	23	26.87	-14	21	47.4	6 675
155		1978	05	10.31250	14	22	30.52	-14	20	05.4	6 675
171		1978	05	09.27674	14	41	23.97	-12	19	33.8	6 675
264		1978	05	09.27674	14	28	34.58	-12	28	47.8	6 675
264		1978	05	10.31250	14	27	39.76	-12	27	13.7	6 675
720		1978	05	09.27674	14	20	36.28	-14	23	32.9	6 675
720		1978	05	10.31250	14	19	46.05	-14	20	09.7	6 675
1029		1978	05	09.27674	14	20	15.32	-14	46	36.5	6 675
1029		1978	05	10.31250	14	19	25.01	-14	43	13.3	6 675
1190		1978	05	09.27674	14	36	20.01	-16	56	27.4	6 675
1190		1978	05	10.31250	14	35	19.41	-16	52	46.0	6 675
1355		1988	05	17.35087	15	12	51.06	-09	49	05.5	2 675
1423		1978	05	09.27674	14	23	06.75	-12	52	05.6	6 675
1423		1978	05	10.31250	14	22	16.19	-12	48	49.1	6 675
2117		1978	05	09.27674	14	38	54.72	-14	13	50.6	6 675
2117		1978	05	10.31250	14	38	01.91	-14	10	45.4	6 675
2592		1978	05	09.27674	14	32	10.02	-14	15	37.2	6 675
2592		1978	05	10.31250	14	31	23.20	-14	11	24.0	6 675
3058		1978	05	09.27674	14	37	33.15	-13	40	27.1	6 675
3058		1978	05	10.31250	14	36	32.23	-13	34	22.8	6 675
3059		1978	05	09.27674	14	43	40.92	-13	02	18.2	6 675
3059		1978	05	10.31250	14	42	39.30	-12	56	59.2	6 675
3228		1978	05	09.27674	14	33	30.97	-18	10	29.0	6 675
3228		1978	05	10.31250	14	32	32.59	-18	05	18.2	6 675
3353		1988	05	19.40347	17	05	51.32	-21	45	13.1	16.0 2 675
3353		1988	05	19.42431	17	05	50.05	-21	44	41.4	2 675
3597		1978	05	09.27674	14	34	11.81	-12	35	56.7	6 675
3597		1978	05	10.31250	14	33	25.87	-12	32	42.7	6 675

688 Lowell Observatory, Anderson Mesa Station
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road,
Flagstaff, AZ 86001, U.S.A.
Observer S. J. Bus
1.8-m reflector + CCD

1988	EG	1988	05	19.20611	11	30	56.75	+05	57	11.4	688
1988	EG	1988	05	19.21441	11	30	57.28	+05	57	08.3	688
1988	EG	1988	05	19.23051	11	30	58.32	+05	57	01.6	688
1988	GB	1988	05	19.14392	11	58	09.93	-27	21	31.2	688
1988	GB	1988	05	19.15081	11	58	09.59	-27	21	43.2	688

690 Lowell Observatory
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road,
Flagstaff, AZ 86001, U.S.A.
Observer C. W. Tombaugh
Measurer B. A. Skiff
0.33-m photographic telescope
PDS scanning microdensitometer
AGK3 and Perth 70 secondary nets, global solutions

1931	VB1	1931	11	04.25694	02	25	58.06	+04	07	20.0	690
1931	VB1	1931	11	06.27465	02	24	13.22	+04	05	18.0	690
1931	VD1	1931	11	04.25694	02	39	56.57	-03	11	23.5	690
1931	VD1	1931	11	06.27465	02	37	55.95	-03	07	48.4	690
1931	VF1	1931	11	04.25694	02	47	28.84	+01	33	03.8	690
1931	VF1	1931	11	06.27465	02	45	41.73	+01	20	08.4	690
1931	VG1	1931	11	04.25694	02	55	55.67	-01	21	37.6	690
1931	VG1	1931	11	06.27465	02	54	03.53	-01	15	17.3	690

1283		1931 11 04.25694	02 44 55.94	+02 52 05.6			690
1283		1931 11 06.27465	02 43 26.12	+02 42 06.2			690
1845		1931 11 04.25694	02 26 55.38	-01 43 38.7			690
1845		1931 11 06.27465	02 25 21.42	-01 51 48.9			690

691 Kitt Peak, Steward Observatory
T. Gehrels, Space Sciences Building, University of Arizona,
Tucson, AZ 85721, U.S.A.
Observers T. Gehrels, J. V. Scotti
0.91-m SPACEWATCH telescope
SAOC 1984
See also MPC 9198, MPC 10373 and Astron. J. 91, 1242, 1986

1985 RV		1988 04 12.25293	12 24 29.99	-19 01 56.7		18.7V	691
1985 RV		1988 04 12.30067	12 24 27.28	-19 01 31.4			691
1985 RV		1988 04 19.23892	12 18 17.26	-17 59 24.5		19.1V	691
1985 RV		1988 04 19.25347	12 18 16.51	-17 59 16.1			691
1985 RV		1988 04 19.26256	12 18 16.03	-17 59 11.2			691
1988 EG		1988 04 19.21043	11 02 53.34	+08 14 30.9			691
1988 EG		1988 04 19.22208	11 02 53.73	+08 14 30.9		19.1V	691
1988 EG		1988 04 19.23277	11 02 54.03	+08 14 29.6			691

760 Goethe Link
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road,
Flagstaff, AZ 86001, U.S.A.
Observer P. R. Davis
Measurer B. A. Skiff
0.25-m refractor
PDS scanning microdensitometer
AGK3 and Perth 70 secondary nets, global solutions

1954 UR2		1954 10 28.27230	02 39 20.75	+15 00 07.2		17.4	760
1954 UR2		1954 10 28.31951	02 39 17.83	+15 00 09.3			760
154		1952 04 28.10590	13 46 08.16	-07 02 58.5		13.0	760
154		1952 04 28.13992	13 46 06.13	-07 03 02.8			760
240		1952 04 28.10590	13 40 04.64	-07 06 32.4		14.0	760
240		1952 04 28.13992	13 40 02.97	-07 06 24.4			760
240		1954 10 28.27230	02 50 40.24	+12 24 54.8		12.4	760
240		1954 10 28.31951	02 50 37.87	+12 24 43.6			760
257		1952 04 28.10590	13 49 59.11	-11 01 28.0		15.4	760
257		1952 04 28.13992	13 49 57.64	-11 01 21.7			760
320		1954 10 28.27230	02 58 27.80	+16 29 04.3		15.8	760
320		1954 10 28.31951	02 58 25.68	+16 28 45.9			760

801 Oak Ridge
R. E. McCrosky, Harvard-Smithsonian Center for Astrophysics,
60 Garden Street, Cambridge, MA 02138, U.S.A.
Observers R. E. McCrosky, G. Schwartz, C.-Y. Shao
1.5-m reflector
AC

1925 VF		1988 03 18.37335	12 35 39.56	-00 19 00.2			801
1925 VF		1988 04 13.16714	12 12 02.05	+01 33 34.5			801
1977 SD3		1988 03 19.17702	12 14 38.64	+00 44 03.1		p	801
1977 SD3		1988 04 13.14238	11 56 39.55	+04 11 38.6			801
1979 SA10		1988 04 18.14867	11 52 48.85	+00 19 49.0			801
1980 JE		1988 04 13.19023	12 25 38.95	+16 51 28.3			801
1980 TK5		1988 04 19.23356	13 25 35.67	-13 31 09.9		p	801
1982 DY1		1988 04 18.17658	11 54 14.12	+05 04 42.7			801
1983 BE		1988 04 18.04047	07 58 44.83	+26 29 15.6			801
1985 VK2		1988 04 20.06977	08 39 33.56	+41 14 57.5			801
1986 RC2		1988 04 14.21696	13 03 33.74	+07 28 14.1			801

1986 TM	1988 04 13.12372	11 56 17.14	+05 40 17.0							w	801
1988 BN	1988 04 14.02782	08 50 30.54	-03 05 59.7								801
1988 BX1	1988 03 17.12842	07 06 30.04	+44 27 50.7								801
1988 BX1	1988 04 13.08119	07 15 07.99	+43 28 32.6								801
1988 BY1	1988 03 17.15385	07 28 48.42	+45 05 23.2								801
1988 BY1	1988 04 13.05297	07 36 39.51	+43 09 13.2								801

809 European Southern Observatory
W. Landgraf, University Observatory, Geissmarlandstrasse 11, D-3400 Gottingen, Federal Republic of Germany (2)
E. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium (4)
Observers E. W. Elst, W. Landgraf, G. Pizarro, O. Pizarro
0.4-m GPO astrograph and 1.0-m Schmidt telescope

1968 OA1	1988 02 23.17708	10 04 41.33	+02 15 37.5						18.8	4	809
1968 OA1	1988 02 23.18750	10 04 40.72	+02 15 42.2							4	809
1968 OA1	1988 02 23.19792	10 04 40.17	+02 15 45.7							4	809
1981 ER5	1988 02 23.17708	10 09 35.43	+01 16 34.1						18.0	4	809
1981 ER5	1988 02 23.18750	10 09 34.83	+01 16 37.4							4	809
1981 ER5	1988 02 23.19792	10 09 34.20	+01 16 40.8							4	809
1981 EZ27	1988 02 21.12535	07 36 36.14	+23 10 37.1						19.5	4	809
1981 EZ27	1988 02 21.14271	07 36 35.53	+23 10 38.1							4	809
1981 EZ27	1988 02 21.16007	07 36 34.87	+23 10 39.4							4	809
1981 JU2	1988 02 23.17708	10 08 24.31	+03 04 00.3						17.0	4	809
1981 JU2	1988 02 23.18750	10 08 23.71	+03 04 04.6							4	809
1981 JU2	1988 02 23.19792	10 08 23.08	+03 04 07.4							4	809
1983 RM3	1988 02 21.12535	07 39 55.21	+22 35 38.9						16.7	4	809
1983 RM3	1988 02 21.14271	07 39 54.77	+22 35 34.0							4	809
1983 RM3	1988 02 21.16007	07 39 54.30	+22 35 30.0							4	809
1985 HG1	1988 02 21.12535	07 47 26.48	+23 36 59.2						16.0	4	809
1985 HG1	1988 02 21.14271	07 47 25.93	+23 37 01.6							4	809
1985 HG1	1988 02 21.16007	07 47 25.36	+23 37 04.4							4	809
1985 QX	1988 02 23.17708	10 00 31.11	+02 37 26.2						18.2	4	809
1985 QX	1988 02 23.18750	10 00 30.62	+02 37 29.9							4	809
1985 QX	1988 02 23.19792	10 00 30.16	+02 37 33.7							4	809
1987 YL1	1987 12 20.15694	05 50 48.29	+05 35 02.2							4	809
1987 YL1	1987 12 20.28333	05 50 41.89	+05 35 16.5							4	809
1987 YL1	1987 12 23.21806	05 48 17.14	+05 41 12.8						18.7	4	809
1987 YP1	1987 12 23.10625	05 54 00.02	+05 34 57.2						19.0	4	809
1987 YP1	1987 12 23.21806	05 53 53.60	+05 34 47.5							4	809
1987 YR1	1987 12 20.15694	05 59 00.12	+06 41 26.3							4	809
1987 YR1	1987 12 20.28333	05 58 52.73	+06 40 36.2							4	809
1987 YR1	1987 12 23.10625	05 56 13.67	+06 23 04.2						18.5	4	809
1987 YR1	1987 12 23.21806	05 56 07.18	+06 22 25.1							4	809
1987 YS1	1987 12 20.15694	06 01 05.02	+03 32 08.3							4	809
1987 YS1	1987 12 20.28333	06 00 57.47	+03 32 31.9							4	809
1987 YS1	1987 12 23.10625	05 58 15.17	+03 42 15.7						17.3	4	809
1987 YS1	1987 12 23.21806	05 58 08.49	+03 42 41.0							4	809
1987 YT1	1987 12 20.15694	06 02 46.86	+03 17 13.0							4	809
1987 YT1	1987 12 20.28333	06 02 42.44	+03 17 15.0							4	809
1987 YT1	1987 12 23.10625	06 01 05.84	+03 18 15.2						17.0	4	809
1987 YT1	1987 12 23.21806	06 01 01.94	+03 18 19.7							4	809
1987 YU1	1987 12 20.15694	06 03 47.72	+04 48 52.5							4	809
1987 YU1	1987 12 20.28333	06 03 43.18	+04 48 34.4							4	809
1987 YU1	1987 12 23.10625	06 02 04.92	+04 42 55.0						17.5	4	809
1987 YU1	1987 12 23.21806	06 02 00.90	+04 42 41.9							4	809
1987 YV1	1987 12 20.15694	06 04 54.06	+06 42 02.6							4	809
1987 YV1	1987 12 20.28333	06 04 46.18	+06 42 46.9							4	809
1987 YV1	1987 12 23.10625	06 01 58.58	+07 00 00.7						18.0	4	809

1987	YV1	1987	12	23.21806	06	01	51.63	+07	00	44.0		4 809
1987	YW1	1987	12	20.15694	06	05	40.86	+04	15	47.5		4 809
1987	YW1	1987	12	20.28333	06	05	34.06	+04	16	03.2		4 809
1987	YW1	1987	12	23.10625	06	03	12.12	+04	22	32.2	19.0	4 809
1987	YW1	1987	12	23.21806	06	03	06.26	+04	22	50.5		4 809
1988	AX1	1988	02	21.12535	07	43	17.88	+20	16	05.1	17.0	4 809
1988	AX1	1988	02	21.14271	07	43	17.26	+20	15	59.5		4 809
1988	AX1	1988	02	21.16007	07	43	16.67	+20	15	54.2		4 809
1988	BU	1988	02	21.12535	07	35	29.57	+23	24	48.4	17.0	4 809
1988	BU	1988	02	21.14271	07	35	29.16	+23	24	49.6		4 809
1988	BU	1988	02	21.16007	07	35	28.72	+23	24	51.1		4 809
1988	CR	1988	02	23.17708	10	09	30.63	+01	31	13.5	17.5	4 809
1988	CR	1988	02	23.18750	10	09	29.97	+01	31	27.3		4 809
1988	CR	1988	02	23.19792	10	09	29.37	+01	31	39.8		4 809
1988	CO1	1988	02	21.12535	07	32	10.01	+22	04	48.5	17.5	4 809
1988	CO1	1988	02	21.14271	07	32	09.69	+22	04	51.9		4 809
1988	CO1	1988	02	21.16007	07	32	09.32	+22	04	54.5		4 809
1988	CP1	1988	02	21.12535	07	32	52.28	+20	57	27.9	18.7	4 809
1988	CP1	1988	02	21.14271	07	32	51.78	+20	57	30.0		4 809
1988	CP1	1988	02	21.16007	07	32	51.26	+20	57	32.3		4 809
1988	CR1	1988	02	21.12535	07	33	42.16	+22	14	40.4	17.2	4 809
1988	CR1	1988	02	21.14271	07	33	41.62	+22	14	41.7		4 809
1988	CR1	1988	02	21.16007	07	33	41.05	+22	14	44.4		4 809
1988	CW1	1988	02	21.12535	07	37	25.44	+21	03	14.7	19.0	4 809
1988	CW1	1988	02	21.14271	07	37	24.85	+21	03	12.7		4 809
1988	CW1	1988	02	21.16007	07	37	24.21	+21	03	10.1		4 809
1988	CX1	1988	02	21.12535	07	36	16.25	+20	37	16.0	17.7	4 809
1988	CX1	1988	02	21.14271	07	36	15.57	+20	37	16.0		4 809
1988	CX1	1988	02	21.16007	07	36	14.82	+20	37	16.7		4 809
1988	CY1	1988	02	21.12535	07	36	26.67	+21	32	49.6	18.0	4 809
1988	CY1	1988	02	21.14271	07	36	26.06	+21	32	51.5		4 809
1988	CY1	1988	02	21.16007	07	36	25.65	+21	32	52.7		4 809
1988	CA2	1988	02	21.12535	07	38	25.87	+22	32	52.4	17.8	4 809
1988	CA2	1988	02	21.14271	07	38	25.38	+22	32	56.7		4 809
1988	CA2	1988	02	21.16007	07	38	24.89	+22	33	00.1		4 809
1988	CC2	1988	02	21.12535	07	38	29.43	+22	18	41.1	17.5	4 809
1988	CC2	1988	02	21.14271	07	38	28.91	+22	18	39.6		4 809
1988	CC2	1988	02	21.16007	07	38	28.41	+22	18	39.1		4 809
1988	CE2	1988	02	21.12535	07	37	38.00	+21	30	08.1	18.4	4 809
1988	CE2	1988	02	21.14271	07	37	37.35	+21	30	06.2		4 809
1988	CE2	1988	02	21.16007	07	37	36.68	+21	30	04.7		4 809
1988	CG2	1988	02	21.12535	07	39	02.41	+22	24	57.9	17.7	4 809
1988	CG2	1988	02	21.14271	07	39	01.90	+22	25	04.6		4 809
1988	CG2	1988	02	21.16007	07	39	01.32	+22	25	12.2		4 809
1988	CH2	1988	02	21.12535	07	39	44.05	+20	33	50.4	17.9	4 809
1988	CH2	1988	02	21.14271	07	39	43.47	+20	33	54.6		4 809
1988	CH2	1988	02	21.16007	07	39	42.89	+20	33	59.1		4 809
1988	CL2	1988	02	21.12535	07	40	58.68	+21	47	13.9	19.2	4 809
1988	CL2	1988	02	21.14271	07	40	58.06	+21	47	17.9		4 809
1988	CL2	1988	02	21.16007	07	40	57.47	+21	47	21.5		4 809
1988	CM2	1988	02	21.12535	07	41	47.16	+20	39	41.2	17.0	4 809
1988	CM2	1988	02	21.14271	07	41	46.60	+20	39	43.3		4 809
1988	CM2	1988	02	21.16007	07	41	46.06	+20	39	45.8		4 809
1988	CN2	1988	02	21.12535	07	42	26.39	+20	24	40.1	17.5	4 809
1988	CN2	1988	02	21.14271	07	42	25.86	+20	24	41.8		4 809
1988	CN2	1988	02	21.16007	07	42	25.35	+20	24	43.4		4 809
1988	CP2	1988	02	21.12535	07	43	23.65	+21	02	06.5	18.2	4 809
1988	CP2	1988	02	21.14271	07	43	23.07	+21	02	08.4		4 809
1988	CP2	1988	02	21.16007	07	43	22.39	+21	02	11.1		4 809

1988	CQ2	1988	02	21.12535	07	45	55.48	+20	49	52.5	18.6	4 809
1988	CQ2	1988	02	21.14271	07	45	55.01	+20	49	55.4		4 809
1988	CQ2	1988	02	21.16007	07	45	54.62	+20	49	58.3		4 809
1988	CR2	1988	02	21.12535	07	44	52.99	+23	34	43.7	19.5	4 809
1988	CR2	1988	02	21.14271	07	44	52.43	+23	34	47.1		4 809
1988	CR2	1988	02	21.16007	07	44	51.81	+23	34	51.3		4 809
1988	CS2	1988	02	21.12535	07	44	53.03	+20	54	50.2	18.0	4 809
1988	CS2	1988	02	21.14271	07	44	52.34	+20	54	50.2		4 809
1988	CS2	1988	02	21.16007	07	44	51.67	+20	54	49.7		4 809
1988	CT2	1988	02	21.12535	07	45	37.35	+21	41	22.4	19.0	4 809
1988	CT2	1988	02	21.14271	07	45	36.74	+21	41	25.8		4 809
1988	CT2	1988	02	21.16007	07	45	36.06	+21	41	28.7		4 809
1988	CV2	1988	02	21.12535	07	48	14.03	+23	34	51.2	18.5	4 809
1988	CV2	1988	02	21.14271	07	48	13.61	+23	34	54.1		4 809
1988	CV2	1988	02	21.16007	07	48	13.08	+23	34	57.5		4 809
1988	CW2	1988	02	21.12535	07	47	50.87	+22	14	06.4	18.0	4 809
1988	CW2	1988	02	21.14271	07	47	50.33	+22	14	06.9		4 809
1988	CW2	1988	02	21.16007	07	47	49.79	+22	14	08.7		4 809
1988	CY2	1988	02	21.12535	07	46	00.57	+22	45	14.3	19.5	4 809
1988	CY2	1988	02	21.14271	07	45	59.85	+22	45	14.3		4 809
1988	CY2	1988	02	21.16007	07	45	59.09	+22	45	13.8		4 809
1988	CM3	1988	02	23.17708	09	54	57.01	+00	55	43.9	18.0	4 809
1988	CM3	1988	02	23.18750	09	54	56.30	+00	55	56.1		4 809
1988	CM3	1988	02	23.19792	09	54	55.67	+00	56	08.8		4 809
1988	CT3	1988	02	23.17708	09	55	29.27	+00	29	30.4	16.9	4 809
1988	CT3	1988	02	23.18750	09	55	28.76	+00	29	34.3		4 809
1988	CT3	1988	02	23.19792	09	55	28.29	+00	29	37.7		4 809
1988	CU3	1988	02	23.17708	09	55	06.05	+01	50	21.9	17.0	4 809
1988	CU3	1988	02	23.18750	09	55	05.50	+01	50	23.5		4 809
1988	CU3	1988	02	23.19792	09	55	04.95	+01	50	24.6		4 809
1988	CV3	1988	02	23.17708	09	56	34.44	-00	19	45.8	18.0	4 809
1988	CV3	1988	02	23.18750	09	56	33.91	-00	19	41.2		4 809
1988	CV3	1988	02	23.19792	09	56	33.46	-00	19	37.3		4 809
1988	CX3	1988	02	23.17708	09	56	13.19	+02	23	12.0	17.0	4 809
1988	CX3	1988	02	23.18750	09	56	12.59	+02	23	15.3		4 809
1988	CX3	1988	02	23.19792	09	56	12.00	+02	23	18.7		4 809
1988	CY3	1988	02	23.17708	09	57	40.90	-00	43	35.1	19.0	4 809
1988	CY3	1988	02	23.18750	09	57	40.33	-00	43	31.1		4 809
1988	CY3	1988	02	23.19792	09	57	39.80	-00	43	27.8		4 809
1988	CZ3	1988	02	23.17708	09	58	34.83	+03	10	51.1	18.8	4 809
1988	CZ3	1988	02	23.18750	09	58	34.36	+03	10	57.3		4 809
1988	CZ3	1988	02	23.19792	09	58	33.77	+03	11	03.4		4 809
1988	CB4	1988	02	23.17708	09	55	58.66	+02	06	29.8	18.0	4 809
1988	CB4	1988	02	23.18750	09	55	57.95	+02	06	31.9		4 809
1988	CB4	1988	02	23.19792	09	55	57.28	+02	06	33.8		4 809
1988	CC4	1988	02	23.17708	09	59	21.12	-00	12	20.6	18.5	4 809
1988	CC4	1988	02	23.18750	09	59	20.59	-00	12	17.4		4 809
1988	CC4	1988	02	23.19792	09	59	20.07	-00	12	14.7		4 809
1988	CD4	1988	02	23.17708	09	59	39.13	-00	14	18.7	17.5	4 809
1988	CD4	1988	02	23.18750	09	59	38.60	-00	14	16.5		4 809
1988	CD4	1988	02	23.19792	09	59	38.09	-00	14	14.5		4 809
1988	CG4	1988	02	23.17708	09	58	41.53	+01	41	36.5	18.5	4 809
1988	CG4	1988	02	23.18750	09	58	40.92	+01	41	39.9		4 809
1988	CG4	1988	02	23.19792	09	58	40.32	+01	41	42.9		4 809
1988	CK4	1988	02	23.17708	10	00	08.12	-00	56	48.6	18.0	4 809
1988	CK4	1988	02	23.18750	10	00	07.48	-00	56	48.0		4 809
1988	CK4	1988	02	23.19792	10	00	06.82	-00	56	46.4		4 809
1988	CL4	1988	02	23.17708	10	01	30.35	-01	27	06.7	17.0	4 809
1988	CL4	1988	02	23.18750	10	01	29.82	-01	27	04.1		4 809

1988	CL4	1988	02	23.19792	10	01	29.28	-01	27	00.9		4 809
1988	CN4	1988	02	23.17708	10	01	41.18	+02	25	51.5	16.7	4 809
1988	CN4	1988	02	23.18750	10	01	40.58	+02	25	55.4		4 809
1988	CN4	1988	02	23.19792	10	01	40.05	+02	25	59.6		4 809
1988	CO4	1988	02	23.17708	10	00	59.78	-00	54	24.3	17.8	4 809
1988	CO4	1988	02	23.18750	10	00	59.09	-00	54	22.8		4 809
1988	CO4	1988	02	23.19792	10	00	58.49	-00	54	20.4		4 809
1988	CQ4	1988	02	23.17708	10	01	50.48	+02	40	08.4	17.7	4 809
1988	CQ4	1988	02	23.18750	10	01	49.85	+02	40	11.5		4 809
1988	CQ4	1988	02	23.19792	10	01	49.24	+02	40	14.8		4 809
1988	CR4	1988	02	23.17708	10	04	44.94	+02	22	17.6	16.8	4 809
1988	CR4	1988	02	23.18750	10	04	44.44	+02	22	25.6		4 809
1988	CR4	1988	02	23.19792	10	04	44.01	+02	22	32.9		4 809
1988	CS4	1988	02	23.17708	10	04	09.30	+00	05	57.9	17.8	4 809
1988	CS4	1988	02	23.18750	10	04	08.82	+00	06	04.3		4 809
1988	CS4	1988	02	23.19792	10	04	08.32	+00	06	11.7		4 809
1988	CT4	1988	02	23.17708	10	04	31.83	+01	19	35.7	17.3	4 809
1988	CT4	1988	02	23.18750	10	04	31.33	+01	19	39.7		4 809
1988	CT4	1988	02	23.19792	10	04	30.83	+01	19	42.7		4 809
1988	CU4	1988	02	23.17708	10	04	33.35	+00	57	22.0	17.4	4 809
1988	CU4	1988	02	23.18750	10	04	32.85	+00	57	25.2		4 809
1988	CU4	1988	02	23.19792	10	04	32.35	+00	57	28.1		4 809
1988	CV4	1988	02	23.17708	10	05	37.26	-01	04	10.6	19.0	4 809
1988	CV4	1988	02	23.18750	10	05	36.83	-01	04	06.5		4 809
1988	CV4	1988	02	23.19792	10	05	36.37	-01	04	02.1		4 809
1988	CW4	1988	02	23.17708	10	04	37.71	+00	42	43.9	17.5	4 809
1988	CW4	1988	02	23.18750	10	04	37.15	+00	42	46.6		4 809
1988	CW4	1988	02	23.19792	10	04	36.57	+00	42	49.4		4 809
1988	CX4	1988	02	23.17708	10	04	52.84	+02	24	47.2	19.5	4 809
1988	CX4	1988	02	23.18750	10	04	52.35	+02	24	51.7		4 809
1988	CX4	1988	02	23.19792	10	04	51.82	+02	24	56.6		4 809
1988	CZ4	1988	02	23.17708	10	04	16.90	+01	11	47.7	18.0	4 809
1988	CZ4	1988	02	23.18750	10	04	16.31	+01	11	52.2		4 809
1988	CZ4	1988	02	23.19792	10	04	15.74	+01	11	56.1		4 809
1988	CD5	1988	02	23.17708	10	06	02.82	-01	35	12.5	19.5	4 809
1988	CD5	1988	02	23.18750	10	06	02.32	-01	35	10.7		4 809
1988	CD5	1988	02	23.19792	10	06	01.84	-01	35	08.6		4 809
1988	CF5	1988	02	23.17708	10	07	41.62	+03	28	27.8	18.2	4 809
1988	CF5	1988	02	23.18750	10	07	41.11	+03	28	32.0		4 809
1988	CF5	1988	02	23.19792	10	07	40.59	+03	28	36.0		4 809
1988	CH5	1988	02	23.17708	10	07	26.22	+02	17	33.6	18.5	4 809
1988	CH5	1988	02	23.18750	10	07	25.64	+02	17	36.3		4 809
1988	CH5	1988	02	23.19792	10	07	24.98	+02	17	38.3		4 809
1988	CJ5	1988	02	23.17708	10	08	51.85	+02	24	23.6	17.0	4 809
1988	CJ5	1988	02	23.18750	10	08	51.32	+02	24	29.1		4 809
1988	CJ5	1988	02	23.19792	10	08	50.80	+02	24	33.9		4 809
1988	CK5	1988	02	23.17708	10	09	15.66	+00	26	57.8	18.8	4 809
1988	CK5	1988	02	23.18750	10	09	15.17	+00	27	00.0		4 809
1988	CK5	1988	02	23.19792	10	09	14.71	+00	27	02.1		4 809
1988	CM5	1988	02	23.17708	10	10	11.44	+00	41	18.6	16.8	4 809
1988	CM5	1988	02	23.18750	10	10	10.93	+00	41	24.7		4 809
1988	CM5	1988	02	23.19792	10	10	10.45	+00	41	30.7		4 809
1988	CN5	1988	02	23.17708	10	11	35.01	+02	39	40.0	17.7	4 809
1988	CN5	1988	02	23.18750	10	11	34.51	+02	39	48.2		4 809
1988	CN5	1988	02	23.19792	10	11	34.05	+02	39	56.5		4 809
1988	CP5	1988	02	23.17708	10	11	30.22	-00	21	11.9	18.3	4 809
1988	CP5	1988	02	23.18750	10	11	29.74	-00	21	09.1		4 809
1988	CP5	1988	02	23.19792	10	11	29.22	-00	21	06.5		4 809
1988	CQ5	1988	02	23.17708	10	10	31.00	+00	30	45.1	17.8	4 809

1988	CQ5		1988	02	23.18750	10	10	30.49	+00	30	48.2		4 809
1988	CQ5		1988	02	23.19792	10	10	29.80	+00	30	51.5		4 809
1988	CR5		1988	02	23.17708	10	09	47.78	+01	18	23.6	17.2	4 809
1988	CR5		1988	02	23.18750	10	09	46.99	+01	18	24.5		4 809
1988	CR5		1988	02	23.19792	10	09	46.27	+01	18	26.1		4 809
1988	CS5		1988	02	23.17708	10	12	25.85	+01	36	52.5	19.0	4 809
1988	CS5		1988	02	23.18750	10	12	25.18	+01	36	54.0		4 809
1988	CS5		1988	02	23.19792	10	12	24.68	+01	36	55.1		4 809
1988	CF7		1988	02	23.17708	09	59	48.32	-00	04	32.0	18.2	4 809
1988	CF7		1988	02	23.18750	09	59	47.80	-00	04	28.6		4 809
1988	CF7		1988	02	23.19792	09	59	47.28	-00	04	25.4		4 809
1988	CG7		1988	02	23.17708	10	07	01.56	-01	21	41.0	19.5	4 809
1988	CG7		1988	02	23.18750	10	07	01.01	-01	21	37.0		4 809
1988	CG7		1988	02	23.19792	10	07	00.46	-01	21	32.7		4 809
1988	CH7		1988	02	23.17708	10	08	29.32	+02	59	16.4	19.5	4 809
1988	CH7		1988	02	23.18750	10	08	28.83	+02	59	18.7		4 809
1988	CH7		1988	02	23.19792	10	08	28.35	+02	59	20.1		4 809
1988	CK7		1988	02	23.17708	10	00	41.58	+00	12	29.0	18.8	4 809
1988	CK7		1988	02	23.18750	10	00	41.04	+00	12	34.2		4 809
1988	CK7		1988	02	23.19792	10	00	40.62	+00	12	37.8		4 809
1988	CL7		1988	02	21.12535	07	36	07.24	+22	00	17.4	19.2	4 809
1988	CL7		1988	02	21.14271	07	36	06.74	+22	00	18.4		4 809
1988	CL7		1988	02	21.16007	07	36	06.24	+22	00	20.2		4 809
1988	CQ7		1988	02	21.12535	07	42	55.62	+23	54	11.9	18.5	4 809
1988	CQ7		1988	02	21.14271	07	42	55.03	+23	54	11.9		4 809
1988	CQ7		1988	02	21.16007	07	42	54.31	+23	54	13.1		4 809
1988	CS7		1988	02	21.12535	07	50	36.31	+20	24	39.3	19.8	4 809
1988	CS7		1988	02	21.14271	07	50	35.78	+20	24	41.1		4 809
1988	CS7		1988	02	21.16007	07	50	35.25	+20	24	44.5		4 809
1988	DM		1988	02	23.17708	10	13	17.22	-00	02	59.6	18.0	4 809
1988	DM		1988	02	23.18750	10	13	16.65	-00	02	56.8		4 809
1988	DM		1988	02	23.19792	10	13	16.08	-00	02	54.2		4 809
1988	DN		1988	02	23.17708	10	13	23.46	-00	24	14.3	17.0	4 809
1988	DN		1988	02	23.18750	10	13	22.91	-00	24	10.0		4 809
1988	DN		1988	02	23.19792	10	13	22.36	-00	24	06.9		4 809
1988	DT1	*	1988	02	16.20278	10	02	50.29	+01	59	42.1	18.0	4 809
1988	DT1		1988	02	16.21319	10	02	49.71	+01	59	43.5		4 809
1988	DT1		1988	02	16.22361	10	02	49.15	+01	59	45.4		4 809
1988	DT1		1988	02	23.17708	09	56	31.70	+02	19	28.9	20.0	4 809
1988	DT1		1988	02	23.18750	09	56	31.14	+02	19	32.2		4 809
1988	DT1		1988	02	23.19792	09	56	30.56	+02	19	34.6		4 809
1988	DU1	*	1988	02	16.20278	10	06	41.27	+00	16	59.9	19.0	4 809
1988	DU1		1988	02	16.21319	10	06	40.64	+00	17	01.7		4 809
1988	DU1		1988	02	16.22361	10	06	40.10	+00	17	02.2		4 809
1988	DU1		1988	02	23.17708	10	00	42.08	+00	32	42.7	18.5	4 809
1988	DU1		1988	02	23.18750	10	00	41.51	+00	32	44.2		4 809
1988	DU1		1988	02	23.19792	10	00	40.93	+00	32	44.9		4 809
1988	DV1	*	1988	02	16.20278	10	08	32.53	-01	23	08.3	19.0	4 809
1988	DV1		1988	02	16.21319	10	08	31.95	-01	23	05.3		4 809
1988	DV1		1988	02	16.22361	10	08	31.36	-01	23	02.4		4 809
1988	DV1		1988	02	23.17708	10	02	11.35	-00	50	11.4	19.0	4 809
1988	DV1		1988	02	23.18750	10	02	10.82	-00	50	08.9		4 809
1988	DV1		1988	02	23.19792	10	02	10.20	-00	50	05.4		4 809
1988	DW1	*	1988	02	16.20278	10	08	32.90	-01	17	36.8	18.0	4 809
1988	DW1		1988	02	16.21319	10	08	32.30	-01	17	37.7		4 809
1988	DW1		1988	02	16.22361	10	08	31.64	-01	17	38.3		4 809
1988	DW1		1988	02	23.17708	10	02	04.02	-01	20	38.2	20.0	4 809
1988	DW1		1988	02	23.18750	10	02	03.27	-01	20	39.3		4 809
1988	DW1		1988	02	23.19792	10	02	02.78	-01	20	39.1		4 809

1988	DX1	*	1988	02	16.20278	10	10	54.97	-00	26	57.6	19.4	4 809
1988	DX1		1988	02	16.21319	10	10	54.42	-00	26	56.4		4 809
1988	DX1		1988	02	16.22361	10	10	53.91	-00	26	54.5		4 809
1988	DX1		1988	02	23.17708	10	04	50.82	-00	04	37.8	20.0	4 809
1988	DX1		1988	02	23.18750	10	04	50.28	-00	04	34.0		4 809
1988	DX1		1988	02	23.19792	10	04	49.79	-00	04	32.4		4 809
1988	DY1	*	1988	02	16.20278	10	11	56.65	+00	49	40.6	19.5	4 809
1988	DY1		1988	02	16.21319	10	11	56.03	+00	49	43.4		4 809
1988	DY1		1988	02	16.22361	10	11	55.40	+00	49	45.9		4 809
1988	DY1		1988	02	23.17708	10	05	12.40	+01	20	37.4	19.5	4 809
1988	DY1		1988	02	23.18750	10	05	11.81	+01	20	40.1		4 809
1988	DY1		1988	02	23.19792	10	05	11.24	+01	20	43.2		4 809
1988	DZ1	*	1988	02	16.20278	10	14	31.54	-01	46	55.5	19.0	4 809
1988	DZ1		1988	02	16.21319	10	14	31.01	-01	46	50.4		4 809
1988	DZ1		1988	02	16.22361	10	14	30.53	-01	46	46.8		4 809
1988	DZ1		1988	02	23.17708	10	08	48.46	-00	51	33.9	19.0	4 809
1988	DZ1		1988	02	23.18750	10	08	47.91	-00	51	28.3		4 809
1988	DZ1		1988	02	23.19792	10	08	47.35	-00	51	22.8		4 809
1988	DA2	*	1988	02	16.20278	10	16	07.32	-00	06	47.1	19.0	4 809
1988	DA2		1988	02	16.21319	10	16	06.82	-00	06	43.6		4 809
1988	DA2		1988	02	16.22361	10	16	06.39	-00	06	40.2		4 809
1988	DA2		1988	02	23.17708	10	10	54.88	+00	34	50.2	19.3	4 809
1988	DA2		1988	02	23.18750	10	10	54.39	+00	34	53.7		4 809
1988	DA2		1988	02	23.19792	10	10	53.95	+00	34	57.3		4 809
1988	DB2	*	1988	02	16.20278	10	19	08.79	+01	05	20.0	18.5	4 809
1988	DB2		1988	02	16.21319	10	19	08.23	+01	05	21.6		4 809
1988	DB2		1988	02	16.22361	10	19	07.72	+01	05	24.5		4 809
1988	DB2		1988	02	23.17708	10	12	35.00	+01	18	45.6	20.0	4 809
1988	DB2		1988	02	23.18750	10	12	34.46	+01	18	48.3		4 809
1988	DB2		1988	02	23.19792	10	12	34.00	+01	18	50.9		4 809
1988	DC2	*	1988	02	17.10556	07	31	53.37	+23	07	34.3	19.0	4 809
1988	DC2		1988	02	17.11597	07	31	52.98	+23	07	37.4		4 809
1988	DC2		1988	02	17.12639	07	31	52.68	+23	07	39.6		4 809
1988	DC2		1988	02	21.12535	07	30	02.10	+23	27	10.2	19.5	4 809
1988	DC2		1988	02	21.14271	07	30	01.79	+23	27	14.1		4 809
1988	DC2		1988	02	21.16007	07	30	01.25	+23	27	18.3		4 809
1988	DD2	*	1988	02	17.10556	07	36	27.39	+19	26	25.0	19.0	4 809
1988	DD2		1988	02	17.11597	07	36	27.04	+19	26	28.7		4 809
1988	DD2		1988	02	17.12639	07	36	26.60	+19	26	32.5		4 809
1988	DD2		1988	02	21.12535	07	34	34.62	+19	51	45.2	19.0	4 809
1988	DD2		1988	02	21.14271	07	34	34.08	+19	51	50.9		4 809
1988	DD2		1988	02	21.16007	07	34	33.56	+19	51	57.2		4 809
1988	DE2	*	1988	02	17.10556	07	41	46.24	+24	38	23.7	17.8	4 809
1988	DE2		1988	02	17.11597	07	41	45.96	+24	38	24.6		4 809
1988	DE2		1988	02	17.12639	07	41	45.66	+24	38	25.6		4 809
1988	DE2		1988	02	21.12535	07	40	02.54	+24	45	15.3	17	4 809
1988	DE2		1988	02	21.14271	07	40	02.07	+24	45	16.7		4 809
1988	DE2		1988	02	21.16007	07	40	01.64	+24	45	17.4		4 809
1988	DF2	*	1988	02	17.10556	07	42	56.96	+24	33	45.5	18.5	4 809
1988	DF2		1988	02	17.11597	07	42	56.62	+24	33	44.5		4 809
1988	DF2		1988	02	17.12639	07	42	56.25	+24	33	45.0		4 809
1988	DF2		1988	02	21.12535	07	40	52.42	+24	31	46.7	18.2	4 809
1988	DF2		1988	02	21.14271	07	40	51.84	+24	31	46.2		4 809
1988	DF2		1988	02	21.16007	07	40	51.33	+24	31	45.9		4 809
1988	DG2	*	1988	02	17.10556	07	43	15.64	+20	06	40.9	18.0	4 809
1988	DG2		1988	02	17.11597	07	43	15.32	+20	06	43.9		4 809
1988	DG2		1988	02	17.12639	07	43	14.92	+20	06	48.2		4 809
1988	DG2		1988	02	21.12535	07	41	38.93	+20	31	15.7	19.5	4 809
1988	DG2		1988	02	21.14271	07	41	38.47	+20	31	22.5		4 809

1988	DG2		1988	02	21.16007	07	41	38.08	+20	31	27.6		4 809
1988	DH2	*	1988	02	17.10556	07	44	37.57	+21	03	47.0	19.5	4 809
1988	DH2		1988	02	17.11597	07	44	37.19	+21	03	48.5		4 809
1988	DH2		1988	02	17.12639	07	44	36.79	+21	03	50.9		4 809
1988	DH2		1988	02	21.12535	07	42	41.45	+21	10	45.1	19.6	4 809
1988	DH2		1988	02	21.14271	07	42	40.94	+21	10	47.5		4 809
1988	DH2		1988	02	21.16007	07	42	40.26	+21	10	51.1		4 809
1988	JB	*	1988	05	10.17766	14	40	02.37	-10	06	50.6	17	2 809
1988	JB		1988	05	10.18738	14	40	02.28	-10	06	51.3		2 809
1988	JB		1988	05	15.24618	14	36	57.84	-09	55	34.3	16.6	2 809
1988	JC	*	1988	05	10.17766	14	40	26.76	-08	27	43.1	18	2 809
1988	JC		1988	05	10.18738	14	40	26.60	-08	27	42.6		2 809
1988	JC		1988	05	15.24618	14	37	09.78	-08	19	48.0	16.7	2 809
1988	JD	*	1988	05	10.17766	14	40	33.95	-09	56	16.3	18	2 809
1988	JD		1988	05	10.18738	14	40	33.63	-09	56	13.9		2 809
1988	JD		1988	05	15.24618	14	37	06.09	-09	46	10.8	16.9	2 809
1988	JE	*	1988	05	10.17766	14	42	59.14	-10	05	18.6	17	2 809
1988	JE		1988	05	10.18252	14	42	59.14	-10	05	16.7		2 809
1988	JE		1988	05	10.18738	14	42	58.94	-10	05	17.0		2 809
1988	JE		1988	05	15.24618	14	39	06.03	-09	50	00.2	16.8	2 809
1988	JF	*	1988	05	14.34549	20	35	28.37	-19	12	43.2	13.8	2 809
1988	JF		1988	05	15.36076	20	36	16.93	-19	14	58.0	13.7	2 809
1988	JF		1988	05	16.32396	20	37	01.48	-19	17	15.2		2 809
1988	JF		1988	05	19.28092	20	39	08.79	-19	25	03.6	14	2 809
1988	JG	*	1988	05	14.34549	20	37	53.38	-19	15	06.9	17.7	2 809
1988	JG		1988	05	16.32396	20	38	39.40	-19	14	09.6	17.2	2 809
1988	KA		1988	05	14.34549	20	37	41.93	-19	21	02.7		2 809
1988	KA		1988	05	15.36076	20	39	15.68	-19	18	23.2	16	2 809
1988	KA		1988	05	16.32396	20	40	43.14	-19	15	52.5		2 809
1988	KA	*	1988	05	18.31250	20	43	40.69	-19	11	02.1	15	2 809
1988	KA		1988	05	19.28576	20	45	05.38	-19	08	43.5		2 809
166			1988	02	21.12535	07	40	47.67	+20	47	47.5	15.0	4 809
166			1988	02	21.14271	07	40	47.08	+20	47	54.3		4 809
166			1988	02	21.16007	07	40	46.54	+20	48	00.1		4 809
271			1988	02	21.12535	07	46	42.78	+23	41	09.6	15.0	4 809
271			1988	02	21.14271	07	46	42.18	+23	41	09.3		4 809
271			1988	02	21.16007	07	46	41.57	+23	41	09.7		4 809
426			1988	02	21.12535	07	45	13.26	+23	28	07.9	14.0	4 809
426			1988	02	21.14271	07	45	12.54	+23	28	00.8		4 809
426			1988	02	21.16007	07	45	11.74	+23	27	54.4		4 809
435			1988	02	21.12535	07	40	05.93	+24	04	56.0	15.5	4 809
435			1988	02	21.14271	07	40	05.26	+24	04	56.2		4 809
435			1988	02	21.16007	07	40	04.68	+24	04	56.1		4 809
500			1988	02	23.17708	10	03	20.50	+01	10	36.4	15.0	4 809
500			1988	02	23.18750	10	03	19.81	+01	10	38.6		4 809
500			1988	02	23.19792	10	03	19.23	+01	10	40.1		4 809
761			1988	02	21.12535	07	46	42.90	+24	10	10.2	16.5	4 809
761			1988	02	21.14271	07	46	42.26	+24	10	10.1		4 809
761			1988	02	21.16007	07	46	41.65	+24	10	11.3		4 809
850			1988	02	21.12535	07	44	02.40	+22	41	16.8	15.5	4 809
850			1988	02	21.14271	07	44	01.78	+22	41	20.8		4 809
850			1988	02	21.16007	07	44	01.15	+22	41	26.6		4 809
1269			1988	02	21.12535	07	47	22.90	+20	31	18.0	15.5	4 809
1269			1988	02	21.14271	07	47	22.30	+20	31	20.3		4 809
1269			1988	02	21.16007	07	47	21.75	+20	31	22.4		4 809
1287			1988	02	23.17708	10	09	46.95	-00	36	02.4	16.8	4 809
1287			1988	02	23.18750	10	09	46.43	-00	35	57.6		4 809
1287			1988	02	23.19792	10	09	45.95	-00	35	54.6		4 809
1358			1988	02	21.12535	07	46	07.23	+24	13	44.5	16.9	4 809

1358		1988	02	21.14271	07	46	06.53	+24	13	45.2	4 809
1358		1988	02	21.16007	07	46	05.86	+24	13	46.0	4 809
1485		1988	02	21.12535	07	46	47.19	+19	32	06.5	17.5 4 809
1485		1988	02	21.14271	07	46	46.51	+19	32	06.6	4 809
1485		1988	02	21.16007	07	46	45.88	+19	32	07.0	4 809
2220		1988	02	21.12535	07	47	54.25	+22	56	15.0	18.2 4 809
2220		1988	02	21.14271	07	47	53.66	+22	56	17.2	4 809
2220		1988	02	21.16007	07	47	53.11	+22	56	18.3	4 809
2274		1988	05	14.34549	20	40	45.99	-20	56	11.9	16 2 809
2682		1988	02	21.12535	07	40	30.30	+21	23	27.6	18.0 4 809
2682		1988	02	21.14271	07	40	29.60	+21	23	31.0	4 809
2682		1988	02	21.16007	07	40	28.88	+21	23	34.5	4 809
2683		1988	05	14.34549	20	40	20.85	-19	51	07.2	15 2 809
2683		1988	05	15.36076	20	40	52.66	-19	49	26.6	2 809
2683		1988	05	16.32396	20	41	21.49	-19	47	48.3	2 809
3132		1988	05	10.17766	14	43	50.98	-09	41	15.0	16.3 2 809
3132		1988	05	10.18252	14	43	50.83	-09	41	13.7	2 809
3132		1988	05	10.18738	14	43	50.67	-09	41	13.3	2 809
3487		1987	12	20.15694	05	53	38.84	+05	28	30.4	4 809
3487		1987	12	20.28333	05	53	31.47	+05	28	22.9	4 809
3487		1987	12	23.10625	05	50	50.51	+05	26	02.9	17.8 4 809
3487		1987	12	23.21806	05	50	43.97	+05	26	00.8	4 809
3498		1988	02	23.17708	10	11	45.81	+00	30	00.5	16.9 4 809
3498		1988	02	23.18750	10	11	45.20	+00	30	04.4	4 809
3498		1988	02	23.19792	10	11	44.56	+00	30	08.6	4 809
3626		1988	02	21.12535	07	38	13.19	+19	40	58.6	18.8 4 809
3626		1988	02	21.14271	07	38	12.62	+19	40	59.3	4 809
3626		1988	02	21.16007	07	38	12.03	+19	41	00.3	4 809
3645		1988	02	23.17708	10	12	47.25	-00	00	49.2	16.7 4 809
3645		1988	02	23.18750	10	12	46.65	-00	00	47.0	4 809
3645		1988	02	23.19792	10	12	46.11	-00	00	44.1	4 809

875 Yorii
M. Arai, 2695, Tomita, Saitama, 369-12 Japan
Observers M. Arai, H. Mori
Measurer H. Mori
0.30-m f/3.8 reflector

1988	EH	1988	04	13.64306	11	17	33.66	+10	03	48.0	17 875
1988	EH	1988	04	13.65764	11	17	33.03	+10	03	53.7	875
1988	EH	1988	04	15.50486	11	16	56.85	+10	21	07.5	16.5 875
1988	EH	1988	04	15.51354	11	16	56.68	+10	21	12.6	875
1988	EH	1988	04	15.53437	11	16	56.28	+10	21	22.2	875
1988	FM	1988	04	09.55046	11	16	40.88	+11	04	06.6	17.5 875
1988	FM	1988	04	09.57188	11	16	39.91	+11	03	59.0	875
1988	FM	1988	04	09.57888	11	16	39.54	+11	03	54.6	875
1988	FM	1988	04	13.64306	11	13	58.57	+10	43	50.1	17.5 875
1988	FM	1988	04	13.65764	11	13	58.05	+10	43	44.7	875

888 Gekko
Y. Oshima, Gekko Observatory, Kan-nami, Shizuoka 419-01, Japan
Observer Y. Oshima
0.5-m f/4 reflector

1987	DM	1988	04	10.56215	12	56	37.00	-04	50	02.9	17.0 888
1987	DM	1988	04	10.58646	12	56	36.05	-04	49	57.8	888
1988	EN	1988	04	10.59861	11	05	35.47	+09	16	38.1	17.0 888
1988	EN	1988	04	10.62014	11	05	34.77	+09	16	44.3	888
104		1988	04	10.59861	11	05	11.70	+08	55	21.7	12.5 888
104		1988	04	10.62014	11	05	11.12	+08	55	23.1	888

3441	1988 04 10.59861	11 05 08.04	+09 16 28.6	17.5	888
3441	1988 04 10.62014	11 05 07.40	+09 16 31.6		888

892 YGCO Chiyoda Station
T. Kobayashi, 1717-2, Shimo-Koizumi, Oizumi-Cho, Ora-Gun,
Gunma-ken, 370-05 Japan
Observer T. Kojima
0.25-m f/3.4 Wright-Schmidt camera

1988 EM	1988 04 09.45416	09 31 21.64	+09 38 27.9	16.5	892
1988 EM	1988 04 09.54247	09 31 23.27	+09 38 47.1		892
1988 GJ *	1988 04 10.60972	13 11 49.07	+02 00 10.7	16	892
1988 GJ	1988 04 10.64861	13 11 46.60	+02 00 25.4		892
1988 GJ	1988 04 15.51944	13 07 11.28	+02 28 08.1	16	892
1988 GJ	1988 04 15.56145	13 07 08.79	+02 28 20.9		892
1988 GJ	1988 04 19.55092	13 03 30.13	+02 47 40.3	16	892
1988 GJ	1988 04 19.62719	13 03 25.83	+02 48 02.4		892
1988 GK *	1988 04 15.54357	13 02 31.59	-09 17 12.8	16	892
1988 GK	1988 04 15.58402	13 02 28.81	-09 17 13.0		892
1988 GK	1988 04 19.55856	12 58 13.71	-09 16 57.6	16	892
1988 GK	1988 04 19.63993	12 58 08.51	-09 16 59.0		892
1988 JH *	1988 05 13.62777	15 55 14.50	+00 11 47.8	16	892
1988 JH	1988 05 13.67222	15 55 12.52	+00 12 13.4		892
1988 JH	1988 05 16.73443	15 53 09.73	+00 40 47.6		892
1988 JH	1988 05 16.75902	15 53 08.85	+00 41 00.5		892

* * * * *

ORBITAL ELEMENTS OF ONE-OPPOSITION MINOR PLANETS.

The columns headed Arc and O give the time span in days covered by the observations and the number of observations utilized in the computation (0 = 10 or more). In the note column N, D means that there are double (or other multiple) designations, E means that the value of the eccentricity was assumed, F means both; the designations are listed at the end.

The orbit computers (column C) are B = C. M. Bardwell, G = D. W. E. Green, M = B. G. Marsden, m = R. H. McNaught, N = S. Nakano.

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1987 KL	15.5	870525	46.25	112.91	73.23	27.20	0.1636	1.8884	25	6		B
1987 KF1	15.5	870525	349.36	101.88	167.00	11.45	0.2922	2.3936	24	5		B
1987 QD	15.0	870902	22.12	119.34	175.07	26.81	0.3162	2.2129	27	8		B
1987 VA1	11.0	871121	147.21	219.07	35.33	17.62	0.2156	2.9379	10	6	F	B
1987 VB1	14.0	871121	15.74	5.66	19.22	6.17	0.2817	2.6883	10	6	D	B
1987 YL1	12.5	871211	140.63	155.66	140.96	15.77	0.1207	3.1061	6	5		G
1987 YR1	14.5	871211	339.45	251.34	225.73	13.77	0.1940	2.7207	6	6		G
1987 YS1	13.5	871211	353.44	305.07	148.77	13.07	0.1202	2.5555	6	6		G
1987 YT1	9.5	871211	43.04	226.38	168.92	16.28	0.1178	5.0501	6	6	E	G
1987 YU1	10.0	871211	44.54	168.41	227.66	21.42	0.1200	5.1488	6	6	E	G
1987 YV1	14.0	871211	30.82	270.58	131.42	14.08	0.1797	2.6133	6	6		G
1987 YW1	13.0	871211	46.42	227.69	152.74	14.26	0.2075	3.2285	6	6		G
1988 BK2	12.5	880120	336.29	83.01	54.67	22.51	0.0590	2.6837	28	5		B
1988 BN2	13.0	880120	267.43	162.26	68.42	25.20	0.1621	2.3521	27	5		B
1988 CR	15.0	880209	103.71	229.46	164.72	22.94	0.0916	1.9405	10	8		G
1988 CO1	13.5	880209	32.84	315.73	125.93	3.98	0.1395	2.3713	34	0		N
1988 CP1	13.0	880209	346.12	2.97	135.46	2.89	0.0799	2.9812	10	8		G
1988 CW1	13.5	880209	355.63	184.55	304.41	8.48	0.1001	2.8286	10	8		G
1988 CX1	13.5	880209	249.92	311.18	293.82	2.60	0.1022	2.2762	33	0		N
1988 CY1	13.5	880209	175.58	163.82	143.08	0.12	0.1392	2.2738	10	8	E	G

1988	CA2	14.0	880209	24.67	333.67	123.77	7.10	0.0580	2.3374	33	0	N
1988	CC2	13.5	880209	63.65	83.88	314.94	4.23	0.1988	2.3771	11	0	G
1988	CE2	14.0	880209	97.28	58.71	306.90	6.66	0.1979	2.2857	10	8	G
1988	CG2	13.0	880209	313.89	63.10	124.98	14.93	0.1851	2.7846	10	8	G
1988	CH2	13.5	880209	100.08	238.08	132.36	7.21	0.1302	2.3151	10	8	G
1988	CL2	14.0	880120	89.98	243.81	124.44	5.54	0.1898	2.4320	33	0	M
1988	CP2	12.5	880120	163.63	184.85	129.28	3.03	0.0597	2.8501	33	0	M
1988	CQ2	14.5	880209	3.19	346.77	133.44	3.23	0.2340	3.0462	33	0	N
1988	CR2	14.0	880209	128.86	237.01	114.30	6.22	0.0575	2.3595	10	8	G
1988	CS2	13.5	880209	106.76	65.94	305.84	3.68	0.0682	2.2573	10	8	G
1988	CT2	14.5	880209	266.22	113.52	121.37	2.84	0.1467	2.5533	10	8	G
1988	CV2	15.0	880209	50.54	301.56	113.93	4.79	0.2030	2.2979	10	8	G
1988	CW2	13.5	880209	23.36	2.58	93.67	1.19	0.1144	2.6672	10	8	G
1988	CY2	14.5	880209	213.20	312.70	324.64	3.48	0.0938	2.3035	10	8	G
1988	CM3	15.0	880209	214.52	132.27	164.66	25.17	0.0879	1.9999	10	0	G
1988	CT3	11.5	880209	215.54	106.68	190.68	12.59	0.0687	3.1336	10	8	G
1988	CU3	12.5	880209	25.87	194.38	283.60	8.86	0.0851	3.0024	10	8	G
1988	CV3	12.5	880209	164.16	150.87	188.75	14.03	0.2124	2.7501	10	8	G
1988	CX3	13.5	880209	33.43	223.72	243.10	5.36	0.1003	2.4239	10	8	G
1988	CY3	13.5	880209	96.20	169.66	224.41	8.64	0.1754	2.7809	10	8	G
1988	CZ3	13.5	880209	109.40	211.27	172.67	15.26	0.1456	2.6377	10	8	G
1988	CB4	14.5	880209	82.57	140.38	275.64	6.47	0.0775	2.1616	10	8	G
1988	CC4	13.5	880209	313.23	316.10	244.05	7.75	0.0439	2.9890	10	8	G
1988	CD4	12.0	880209	150.41	95.12	258.43	8.66	0.1328	3.0213	10	8	G
1988	CG4	14.5	880209	86.41	166.33	240.49	5.96	0.1325	2.3909	10	8	G
1988	CK4	13.0	880209	248.35	347.22	291.44	12.25	0.1672	2.6866	10	8	G
1988	CL4	13.0	880209	23.57	240.91	236.56	7.60	0.1469	2.7741	10	8	G
1988	CN4	13.5	880209	23.89	255.01	219.06	5.39	0.1690	2.5404	10	8	G
1988	CO4	14.0	880209	343.09	261.40	266.35	7.51	0.0552	2.3814	10	8	G
1988	CQ4	13.5	880209	187.81	69.06	253.91	5.57	0.1224	2.3091	10	8	G
1988	CR4	13.5	880209	340.05	5.07	173.21	13.41	0.2122	2.6615	10	8	G
1988	CS4	13.5	880209	270.05	69.30	174.04	18.83	0.0398	2.6628	10	8	G
1988	CT4	12.0	880209	255.10	64.09	197.75	9.43	0.0648	3.0178	10	0	G
1988	CU4	11.5	880209	201.74	78.23	237.64	7.34	0.1916	2.9643	10	8	G
1988	CV4	12.0	880209	187.72	145.44	180.14	19.35	0.2182	3.1434	10	8	G
1988	CW4	12.5	880209	50.09	205.66	249.44	6.92	0.0548	2.9980	10	8	G
1988	CX4	14.5	880209	149.02	167.83	192.18	8.71	0.0031	2.6778	10	8	G
1988	CZ4	14.0	880209	39.16	258.23	207.84	7.06	0.0464	2.4242	10	8	G
1988	CD5	14.0	880209	60.03	176.63	265.68	8.97	0.0857	3.0842	10	8	G
1988	CF5	12.0	880209	107.73	187.01	190.64	8.39	0.2582	2.7348	10	8	G
1988	CH5	14.5	880209	24.38	209.51	269.86	5.41	0.0963	2.4295	10	8	G
1988	CK5	13.0	880209	126.07	96.60	272.20	8.35	0.2209	3.0149	10	8	G
1988	CM5	13.0	880209	343.46	349.27	180.12	13.15	0.0941	2.6734	10	8	G
1988	CN5	14.5	880209	18.82	306.45	172.61	13.09	0.2133	2.6695	10	8	G
1988	CP5	13.0	880209	73.95	181.84	238.45	7.22	0.1513	2.9792	26	0	M
1988	CQ5	14.0	880209	41.28	226.75	235.38	5.53	0.0728	2.2685	10	8	G
1988	CR5	13.5	880209	274.71	324.66	299.69	9.80	0.2541	2.3291	10	8	G
1988	CS5	13.5	880209	87.78	102.69	299.37	9.92	0.1913	2.6417	10	8	G
1988	CF6	14.0	880209	7.32	236.99	259.55	3.66	0.1394	2.3738	33	9	G
1988	CF7	13.0	880209	122.91	138.76	231.20	7.94	0.2047	2.6324	8	7	G
1988	CG7	14.0	880209	82.42	186.24	223.39	8.42	0.1633	2.7767	8	7	G
1988	CH7	13.0	880209	168.18	37.79	303.51	11.26	0.0919	3.0927	8	7	G
1988	CK7	13.0	880209	213.70	117.59	187.23	13.58	0.1661	2.8538	8	7	G
1988	CL7	13.0	880209	350.18	62.77	71.69	0.35	0.1115	3.2268	6	7	E G
1988	CQ7	15.0	880209	308.48	159.26	44.49	1.52	0.2475	2.4732	6	7	G
1988	CS7	15.0	880209	357.58	352.25	137.36	2.75	0.1973	3.0354	6	7	E G
1988	DD	13.5	880229	356.64	29.35	131.59	12.21	0.1721	2.3194	29	0	M
1988	DE	13.0	880229	352.14	172.76	352.34	13.25	0.0979	2.5798	32	0	M
1988	DO	15.0	880229	22.69	188.68	298.28	8.55	0.1391	2.3045	61	0	m

1988 EH	12.0	880409	80.76	254.33	172.64	23.13	0.2835	2.3968	35	0		N
1988 EL	14.5	880320	6.25	191.74	350.12	18.61	0.0471	1.8267	26	6		B
1988 EO	13.0	880320	351.40	210.50	345.05	34.80	0.0402	2.5363	29	4		B
1988 EY	15.0	880229	342.96	169.26	25.90	4.58	0.1930	2.2268	6	4		M
1988 EA1	14.0	880320	312.87	85.08	164.86	12.81	0.2313	2.6187	6	4		N
1988 EJ1	14.0	880320	359.30	309.27	225.04	4.08	0.0876	2.2160	29	4		B
1988 EK1	13.0	880320	73.00	216.88	206.83	3.73	0.2987	2.3711	28	4		B
1988 EW1	13.5	880229	109.36	44.60	10.65	16.62	0.0885	2.2715	6	4		M
1988 EX1	13.5	880229	319.73	192.77	34.43	5.42	0.1486	3.1274	6	3		M
1988 FK	14.0	880320	336.98	51.17	152.16	22.81	0.0745	1.9349	26	4		B
1988 FM	13.5	880320	340.87	182.57	14.74	13.63	0.1136	2.5602	26	9		N
1988 FN	14.5	880320	354.35	204.08	333.42	23.60	0.2415	2.4028	32	5		B
1988 GE	12.5	880409	302.90	83.98	203.23	12.07	0.1908	2.5741	2	7	E	M
1988 GG	13.5	880429	10.46	165.93	26.06	25.63	0.2186	2.3900	28	0		N
1988 GM		880409	308.51	193.09	78.78	13.99	0.1697	2.7603	4	6		G
1988 GP	14.0	880409	357.90	31.83	169.11	2.05	0.0916	2.1988	5	3	E	G
1988 GQ	13.0	880409	345.75	84.78	124.28	12.11	0.1777	2.5069	7	6		N
1988 GS	14.0	880409	340.09	201.59	21.32	6.76	0.1178	2.3571	3	4	E	G
1988 GT	12.0	880409	160.76	211.58	180.13	5.31	0.1656	2.4722	3	5	E	G
1988 HA	13.0	880409	353.30	0.89	207.19	1.09	0.0992	2.4993	8	7	E	G
1988 HC	12.5	880409	5.92	182.84	359.58	11.41	0.1008	2.5326	3	8	E	G
1988 HD	13.0	880409	183.61	354.91	11.47	29.86	0.0634	2.1529	2	5	E	G
1988 HE	14.0	880409	287.23	343.99	318.81	12.75	0.1814	2.5375	6	8		M
1988 JJ	13.0	880429	301.15	109.01	217.99	24.55	0.3311	2.4061	8	0		M
1988 JK	15.0	880429	261.88	127.06	211.89	17.16	0.1349	1.8824	4	3		B
1988 KA	12.0	880429	337.17	215.69	85.61	3.77	0.1995	2.1860	5	5	E	M

1987 VA1 = 1987 WD4 (F. N. Bowman)
1987 VB1 = 1987 WE4 (F. N. Bowman)

* * * * *

ORBITAL ELEMENTS BY L. L. FILENKO, INSTITUTE FOR THEORETICAL ASTRONOMY.

The elements are for Epoch 1988 Aug. 27.0 ET, equinox 1950.0.

(14) Irene	Obs. 638	M 33.39404	Peri.	95.08276
H 6.27 G 0.09	Opp. 35	n 0.23685764	Node	86.21013
rms res. 0".81 (M-P)	1907-1986	e 0.1658470	Incl.	9.11252
(19) Fortuna	Obs. 438	M 184.67493	Peri.	181.89616
H 7.09 G 0.10	Opp. 39	n 0.25821476	Node	210.93562
rms res. 1".23 (M-P)	1902-1987	e 0.1581788	Incl.	1.57429
(59) Elpis	Obs. 205	M 210.23693	Peri.	210.18003
H 7.72 G 0.01	Opp. 37	n 0.22039804	Node	169.72920
rms res. 1".19 (M-P)	1900-1987	e 0.1167501	Incl.	8.64267
(128) Nemesis	Obs. 163	M 173.75664	Peri.	301.73080
H 7.55 G 0.15	Opp. 37	n 0.21606772	Node	76.06140
rms res. 1".55 (M-P)	1904-1987	e 0.1258416	Incl.	6.24566
(521) Brixia	Obs. 113	M 254.40111	Peri.	315.50618
H 8.51 G 0.15	Opp. 30	n 0.21696483	Node	89.49619
rms res. 1".58 (M-P)	1904-1983	e 0.2794092	Incl.	10.57186
(545) Messalina	Obs. 77	M 358.34860	Peri.	321.37939
H 8.70 G 0.15	Opp. 26	n 0.17320182	Node	334.05001
rms res. 1".63 (M-P)	1904-1987	e 0.1821715	Incl.	11.13217

(646) Kastalia	Obs. 35	M 311.01628	Peri. 37.37113
H 13.1 G 0.25	Opp. 9	n 0.27795659	Node 302.49049
rms res. 1".54 (M-P)	1907-1985	e 0.2124171	Incl. 6.90749
(772) Tanete	Obs. 54	M 32.67341	Peri. 143.34987
H 8.32 G 0.15	Opp. 20	n 0.18957164	Node 63.54459
rms res. 1".72 (M-P)	1902-1987	e 0.0962729	Incl. 28.81134
(1401) Lavonne	Obs. 37	M 357.78677	Peri. 70.61491
H 12.29 G 0.25	Opp. 14	n 0.29664114	Node 277.16311
rms res. 1".70 (M-P)	1935-1984	e 0.1791987	Incl. 7.28741
(1410) Margret	Obs. 44	M 22.04740	Peri. 229.83934
H 11.32 G 0.25	Opp. 12	n 0.18780228	Node 170.88625
rms res. 1".65 (M-P)	1937-1986	e 0.1110099	Incl. 10.35196
(1430) Somalia	Obs. 34	M 154.94363	Peri. 351.60654
H 12.1 G 0.25	Opp. 12	n 0.24060693	Node 327.11043
rms res. 2".55 (M-P)	1937-1983	e 0.1977899	Incl. 3.29063
(1432) Ethiopia	Obs. 59	M 304.13376	Peri. 218.13703
H 12.26 G 0.25	Opp. 15	n 0.26800982	Node 122.92683
rms res. 1".58 (M-P)	1937-1984	e 0.2252741	Incl. 8.26760
(1434) Margot	Obs. 47	M 261.15552	Peri. 140.82015
H 10.42 G 0.25	Opp. 13	n 0.18811990	Node 152.36133
rms res. 1".62 (M-P)	1906-1985	e 0.0683444	Incl. 10.82393
(1450) Raimonda	Obs. 70	M 37.83958	Peri. 13.08269
H 11.79 G 0.15	Opp. 15	n 0.23338314	Node 74.47626
rms res. 1".84 (M-P)	1915-1985	e 0.1678858	Incl. 4.85917
(1455) Mitchella	Obs. 28	M 99.87741	Peri. 99.62255
H 13.3 G 0.25	Opp. 9	n 0.29277493	Node 127.95522
rms res. 2".58 (M-P)	1937-1987	e 0.1252976	Incl. 7.75228
(1485) Isa	Obs. 32	M 172.21345	Peri. 42.50314
H 11.4 G 0.25	Opp. 12	n 0.18752602	Node 297.56271
rms res. 1".96 (M-P)	1933-1983	e 0.1177523	Incl. 8.93640
(1486) Marilyn	Obs. 69	M 128.96554	Peri. 349.16956
H 13.47 G 0.25	Opp. 14	n 0.30243247	Node 333.06162
rms res. 1".87 (M-P)	1938-1987	e 0.1249388	Incl. 0.07464
(1487) Boda	Obs. 83	M 228.24317	Peri. 99.78039
H 10.53 G 0.15	Opp. 17	n 0.17541798	Node 97.19087
rms res. 1".60 (M-P)	1929-1987	e 0.1047821	Incl. 2.47016
(1497) Tampere	Obs. 106	M 82.02330	Peri. 29.03556
H 11.8 G 0.25	Opp. 23	n 0.19969066	Node 300.23211
rms res. 1".50 (M-P)	1933-1987	e 0.0809242	Incl. 1.05710
(1506) Xosa	Obs. 39	M 325.60107	Peri. 45.21303
H 12.04 G 0.15	Opp. 9	n 0.23911115	Node 234.34782
rms res. 2".28 (M-P)	1939-1984	e 0.2634811	Incl. 12.55258
(1518) Rovaniemi	Obs. 104	M 340.19238	Peri. 36.64820
H 12.42 G 0.25	Opp. 15	n 0.29680565	Node 27.37803
rms res. 1".62 (M-P)	1928-1983	e 0.1435490	Incl. 6.71502

(1534) Nasi	Obs. 40	M 18.77333	Peri. 41.03755
H 11.88 G 0.15	Opp. 13	n 0.21852884	Node 62.12715
rms res. 2".29 (M-P)	1933-1985	e 0.2505961	Incl. 9.83524
(1552) Bessel	Obs. 50	M 346.64955	Peri. 37.57211
H 11.5 G 0.25	Opp. 14	n 0.18878776	Node 9.98949
rms res. 1".53 (M-P)	1938-1985	e 0.1043182	Incl. 9.86089
(1557) Roehla	Obs. 35	M 90.08171	Peri. 0.61474
H 11.25 G 0.25	Opp. 16	n 0.18896060	Node 355.06003
rms res. 2".25 (M-P)	1903-1985	e 0.1100726	Incl. 10.30872
(1564) Srbija	Obs. 54	M 89.89150	Peri. 225.63115
H 10.87 G 0.15	Opp. 15	n 0.17607029	Node 178.25985
rms res. 2".21 (M-P)	1933-1983	e 0.2126015	Incl. 11.06947
(1575) Winifred	Obs. 76	M 185.64056	Peri. 347.07320
H 12.6 G 0.25	Opp. 13	n 0.26935410	Node 206.39125
rms res. 1".79 (M-P)	1928-1980	e 0.1792165	Incl. 24.80411
(1576) Fabiola	Obs. 140	M 55.05859	Peri. 240.94423
H 11.07 G 0.25	Opp. 22	n 0.17806395	Node 166.94673
rms res. 1".38 (M-P)	1931-1987	e 0.1840264	Incl. 0.94352
(1585) Union	Obs. 81	M 22.66397	Peri. 263.94724
H 10.46 G 0.15	Opp. 17	n 0.19674191	Node 149.96778
rms res. 1".71 (M-P)	1939-1984	e 0.3093875	Incl. 26.18971
(1590) Tsiolkovskaja	Obs. 99	M 205.90388	Peri. 52.19415
H 11.87 G 0.25	Opp. 19	n 0.29607070	Node 226.15704
rms res. 1".83 (M-P)	1907-1987	e 0.1577727	Incl. 4.35281
(1596) Itzigsohn	Obs. 59	M 337.87781	Peri. 160.22179
H 10.7 G 0.25	Opp. 15	n 0.20060814	Node 248.89644
rms res. 1".78 (M-P)	1934-1983	e 0.1305533	Incl. 13.28012
(1612) Hirose	Obs. 38	M 322.87751	Peri. 249.43074
H 11.0 G 0.25	Opp. 13	n 0.18058118	Node 319.13297
rms res. 1".71 (M-P)	1939-1985	e 0.0941732	Incl. 16.84793
(1613) Smiley	Obs. 59	M 80.71481	Peri. 125.39816
H 11.75 G 0.15	Opp. 12	n 0.21763547	Node 320.82288
rms res. 1".71 (M-P)	1929-1986	e 0.2599711	Incl. 7.94284
(1634) Ndola	Obs. 32	M 299.19386	Peri. 190.22158
H 12.94 G 0.25	Opp. 12	n 0.29288265	Node 90.30860
rms res. 1".89 (M-P)	1928-1985	e 0.1625595	Incl. 7.60480
(1906) Naef	Obs. 77	M 118.56338	Peri. 13.88946
H 12.7 G 0.25	Opp. 7	n 0.26965467	Node 354.41054
rms res. 1".09 (M-P)	1972-1985	e 0.1347052	Incl. 6.46674
(2040) Chalonge	Obs. 31	M 274.71157	Peri. 85.22142
H 11.7 G 0.25	Opp. 8	n 0.17989959	Node 39.53876
rms res. 0".82 (M-P)	1972-1985	e 0.1971347	Incl. 14.65780
(2055) Dvorak	Obs. 27	M 7.20802	Peri. 243.65975
H 13.5 G 0.25	Opp. 5	n 0.28074427	Node 340.14368
rms res. 0".78 (M-P)	1974-1981	e 0.3112238	Incl. 21.52277

(2067) Aksnes	Obs. 45	M 299.37694	Peri.	302.28209
H 10.49 G 0.15	Opp. 11	n 0.12540520	Node	150.32736
rms res. 1".13 (M-P)	1936-1984	e 0.1822028	Incl.	3.06559
(2072) Kosmodemyanskaya	Obs. 32	M 270.70234	Peri.	37.26432
H 12.64 G 0.25	Opp. 8	n 0.25696697	Node	25.89711
rms res. 1".53 (M-P)	1962-1983	e 0.1629766	Incl.	4.75932
(2083) Smither	Obs. 27	M 214.79419	Peri.	228.70340
H 13.33 G 0.25	Opp. 7	n 0.38485081	Node	258.65037
rms res. 1".80 (M-P)	1950-1979	e 0.0514492	Incl.	18.45293
(2086) Newell	Obs. 42	M 66.32151	Peri.	295.03610
H 11.9 G 0.25	Opp. 11	n 0.26496711	Node	134.70629
rms res. 2".00 (M-P)	1931-1988	e 0.1124096	Incl.	6.48413
(2099) Opik	Obs. 29	M 40.60701	Peri.	158.75764
H 15.44 G 0.25	Opp. 4	n 0.28191178	Node	218.37686
rms res. 1".68 (M-P)	1956-1984	e 0.3623129	Incl.	26.91782
(2100) Ra-Shalom	Obs. 79	M 227.76393	Peri.	355.92500
H 16.12 G 0.17	Opp. 5	n 1.29844644	Node	170.28192
rms res. 1".39 (M-P)	1975-1987	e 0.4363970	Incl.	15.76119
(2102) Tantalus	Obs. 49	M 198.87062	Peri.	61.62444
H 16.3 G 0.25	Opp. 3	n 0.67269636	Node	93.72000
rms res. 1".65 (M-P)	1975-1979	e 0.2984866	Incl.	64.01292
(2105) Gudy	Obs. 64	M 228.09430	Peri.	155.64807
H 12.4 G 0.25	Opp. 3	n 0.26677762	Node	273.11801
rms res. 1".06 (M-P)	1976-1979	e 0.1498626	Incl.	29.29370
(2130) Evdokiya	Obs. 25	M 69.02066	Peri.	326.75679
H 14.1 G 0.25	Opp. 4	n 0.29129880	Node	349.70728
rms res. 1".30 (M-P)	1974-1981	e 0.1882220	Incl.	5.61234
(2131) Mayall	Obs. 41	M 8.50212	Peri.	38.34273
H 12.97 G 0.40	Opp. 5	n 0.38016577	Node	305.48676
rms res. 1".14 (M-P)	1975-1987	e 0.1106663	Incl.	33.98780
(2138) Swissair	Obs. 34	M 154.21962	Peri.	169.52040
H 11.6 G 0.25	Opp. 9	n 0.22365452	Node	105.23347
rms res. 1".92 (M-P)	1946-1987	e 0.0670677	Incl.	5.92819
(2422) Perovskaya	Obs. 38	M 264.49107	Peri.	52.14003
H 13.6 G 0.25	Opp. 7	n 0.27726845	Node	159.54036
rms res. 1".10 (M-P)	1943-1986	e 0.1972124	Incl.	6.40505

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ORBITAL ELEMENTS BY T. KOBAYASHI, GUNMA, JAPAN.

The identifications are by T. Kobayashi unless otherwise stated.

(3824)* 1929 TK = 1946 UD = 1956 RA = 1973 TV = 1973 UK3 = 1983 PN
Discovered 1929 Oct. 5 by C. W. Tombaugh at the Lowell Observatory. The identification 1929 TK = 1946 UD was independently suggested by E. Bowell (MPC 11439).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 101.47301	(1950.0)	P	Q	
n 0.29117964	Peri. 106.92658	+0.23817322	-0.97090287	
a 2.2543883	Node 329.26035	+0.87144746	+0.22496390	
e 0.2368144	Incl. 2.79479	+0.42878066	+0.08209056	
P 3.38	H 12.9	G 0.25		

Residuals in seconds of arc

291001	690	1.5-	2.9-	731001	095	1.6+	0.1-	880220	894	1.2+	2.0-
291005	690	1.9+	1.1+	731029	095	1.9-	0.3+	880220	894	1.8+	2.3+
291011	690	(7.6-	1.4+)	830813	688	1.5-	0.4+	880222	801	0.9+	0.6-
291012	690	0.6-	0.6+	830813	688	0.9+	1.6-	880223	657	(0.0	6.1-)
461019	062	1.0+	1.7+	880212	894	1.3-	0.4+	880223	657	(2.4-	4.1-)
461019	062	0.3-	0.2-	880212	894	1.1-	1.9-	880312	894	2.3-	0.1-
461022	062	0.9-	1.7-	880213	894	2.4+	1.0-	880312	894	1.6-	0.4-
560909	024	0.9-	0.7+	880213	894	0.7-	2.5+				
560914	024	1.8+	0.9+	880215	293	(2.8+	4.8-)				

(3825)* 1967 UR = A915 GA = 1935 ED = 1952 HJ = 1973 SE5 = 1975 BQ1
= 1980 TN11 = 1983 RD4

Discovered 1967 Oct. 30 by L. Kohoutek at Bergedorf.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 289.36694	(1950.0)	P	Q	
n 0.29385912	Peri. 145.30850	-0.76249014	+0.64117807	
a 2.2406633	Node 74.81065	-0.61205027	-0.67141572	
e 0.0945796	Incl. 5.14832	-0.20976953	-0.37160679	
P 3.35	H 13.1	G 0.25		

Residuals in seconds of arc

150412	029	(61.1+	19.4-)Y	671030	029	0.2+	0.2-	830902	688	0.4+	2.9+
350308	012	(11.7+	26.0+)X	671031	029	0.2-	0.3+	830902	688	2.5-	0.2+
520418	024	0.8-	0.1+	671031	029	0.1+	0.5-	871119	801	1.6-	0.1+
520424	711	0.8+	2.2+ Y	671031	029	1.1-	0.4-	871124	688	0.1-	0.3+
671014	029	0.5+	0.0	730927	095	2.4+	0.1-	880123	801	1.0-	0.2+
671014	029	0.1+	0.2-	750117	330	2.7+	1.7+				
671030	029	0.0	0.5-	801008	095	0.5-	0.4+				

(3826)* 1973 UV5 = 1953 VY3 = 1979 OE2

Discovered 1973 Oct. 27 by F. Borngen at Tautenburg.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 87.79618	(1950.0)	P	Q	
n 0.29400589	Peri. 257.39778	-0.31017547	-0.94978532	
a 2.2399175	Node 210.76988	+0.90048527	-0.27962040	
e 0.1314943	Incl. 4.62137	+0.30482365	-0.14042894	
P 3.35	H 13.4	G 0.25		

Residuals in seconds of arc

531106	760	1.6+	1.2+	731103	033	0.4-	0.3+	880211	033	0.5+	0.1-
531106	760	0.9-	4.2-	790724	675	0.9+	0.0	880219	892	3.4-	0.4-
731027	033	0.5-	0.0	790725	675	0.5-	1.5-	880219	892	0.8-	1.0+
731028	033	0.5+	0.6+	880111	033	0.5+	0.4-	880314	033	0.1+	0.3+
731031	033	0.6-	0.2+	880113	033	0.0	0.2-	880314	033	0.6+	0.2+
731101	033	0.5-	0.9+	880114	033	1.6+	1.0-				
731102	033	0.7+	0.9+	880210	033	1.4+	0.2-				

(3827)* 1986 VU = 1959 XB = 1963 SJ = 1981 SU5 = 1982 YV

Discovered 1986 Nov. 3 by A. Mrkos at Klet.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	172.87676		(1950.0)	P	Q
n	0.21721004	Peri.	31.98039	+0.99498297	-0.09477122
a	2.7408344	Node	333.40168	+0.06985268	+0.88744710
e	0.1276925	Incl.	4.10510	+0.07162044	+0.45106105
P	4.54	H	12.3	G 0.25	

Residuals in seconds of arc

591202	760	3.3+	1.4+	821223	511	0.9+	0.5-	861109	046	0.1+	0.2+
591202	760	3.7-	2.2-	861103	046	0.7-	0.5-	880215	046	0.3+	2.9-
630919	760	1.0-	0.6+	861104	046	0.6+	0.3-	880215	046	1.9-	0.8-
630919	760	1.5+	1.4-	861107	046	0.8-	0.2-	880222	801	1.0+	5.9+
810928	095	0.4-	2.5+	861107	046	0.2+	0.6-				
821222	511	1.6+	0.3+	861109	046	0.6-	1.3+				

(3828)* 1986 WC = 1986 WX1 = 1951 TK = 1977 GZ = 1980 TS14

Discovered 1986 Nov. 22 by K. Suzuki and T. Urata at Toyota. The double designation 1986 WC = 1986 WX1 is by S. Nakano.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	46.50876		(1950.0)	P	Q
n	0.17447845	Peri.	274.86554	-0.72239758	-0.68776610
a	3.1718175	Node	221.70675	+0.66935925	-0.66957392
e	0.0215386	Incl.	6.17375	+0.17349331	-0.28044351
P	5.65	H	11.5	G 0.25	

Residuals in seconds of arc

511003	024	1.7-	6.7+	861201	046	0.1-	0.2-	880213	809	(1.3+	4.5-)
511003	024	0.2+	3.8+	861207	881	1.4+	0.2+	880215	809	(0.9+	5.9-)
511004	024	2.3-	1.2-	861207	881	0.2-	1.6+	880216	809	(4.1+	8.7-)
770410	381	0.4+	0.0	861209	888	2.4+	1.2-	880216	809	(3.7+	9.1-)
770410	381	0.6-	0.3-	861209	888	1.3+	1.1-	880216	809	(3.0+	8.5-)
801015	095	3.2+	6.2-	861226	881	1.6-	0.1-	880219	892	0.4+	1.0+
801017	095	1.1+	4.0-	861226	881	0.2+	0.3+	880219	892	0.6+	1.0+
861122	881	3.0+	1.1+ Y	880111	033	1.0-	0.5-	880221	881	1.8+	1.6+
861122	881	2.5-	2.2+ Y	880113	033	0.5-	0.1-	880221	881	0.9+	0.4+
861129	046	0.7+	0.6-	880114	033	0.1+	0.3-	880312	881	0.5+	0.0
861129	046	0.1+	0.7+	880210	881	0.6+	0.7+	880312	894	1.5+	1.3+
861130	046	2.7-	2.7+	880210	881	0.5-	0.6+	880312	881	0.3+	1.1-
861130	046	2.5-	1.7+	880210	033	1.1-	0.1-	880312	894	(5.4+	0.6-)
861201	046	2.0-	0.6-	880211	033	2.0-	0.2-				

(3829)* 1988 EM = 1951 GO1 = 1958 TD = 1979 HX6 = 1981 SU4 = 1981 UY10 = 1984 KG = 1986 UE2

Discovered 1988 Mar. 10 by T. Kojima at Chiyoda.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	43.23693		(1950.0)	P	Q
n	0.21172851	Peri.	314.29261	-0.80475413	-0.59322202
a	2.7879383	Node	189.39149	+0.57510686	-0.77022959
e	0.1632417	Incl.	7.53950	+0.14704722	-0.23416663
P	4.66	H	12.4	G 0.25	

Residuals in seconds of arc

510403	020(77.2+	32.3-)X		840519	046	1.1+	0.4+	880312	892	2.1-	0.2-
510404	711	1.4-	3.3- Y	840519	046	1.7-	2.4+	880312	892	0.4+	1.0-
581009	024	0.2+	0.1-	861027	010(25.7-	6.4-)		880314	033	0.8+	1.5+
790424	095	1.8+	0.3-	861027	010(16.1-	3.9-)		880314	033	0.8+	1.1+
790424	095	0.1+	0.7-	861027	010(18.2-	5.1-)		880409	892	0.7-	0.0
810925	095	0.3-	1.6+	880310	892	1.3+	0.2-	880409	892	1.8-	2.3+
811022	095	0.1+	0.6-	880310	892	1.0+	0.5+				

1961 CR = 1961 EG = 1979 HK5
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	250.92660	(1950.0)		P	Q
n	0.28227321	Peri.	77.75442	-0.84211768	+0.53679547
a	2.3015634	Node	134.68408	-0.51878467	-0.78007720
e	0.0972293	Incl.	4.18207	-0.14731014	-0.32145013
P	3.49	H	14.0	G 0.25	

Residuals in seconds of arc

610215 033	0.4+	0.4-	610217 033	3.1+	1.7-	790428 095	1.0-	0.2+
610215 033	0.7-	0.4+	610309 033	0.2-	0.6+	790430 095	0.2+	0.4+
610217 033	2.6-	1.3+	790425 095	0.8+	0.7-			

1975 UE = 1986 PB4
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	189.86989	(1950.0)		P	Q
n	0.26131718	Peri.	142.34734	+0.80245267	+0.59671535
a	2.4230223	Node	181.01843	-0.55659009	+0.74806828
e	0.2084541	Incl.	2.26067	-0.21512132	+0.29038704
P	3.77	H	14.5	G 0.25	

Residuals in seconds of arc

751027 026	1.7-	0.1-	860803 046	0.5-	0.8+	860807 046	2.3-	1.5-
751028 026	1.4+	0.0	860803 046	1.0-	0.7-	860809 046	1.7+	0.1-
751029 026	0.2+	0.1+	860805 046	1.5+	1.3+	860809 046	0.7-	1.2-
860802 046	1.2-	0.8-	860805 046	2.9+	2.9+			
860802 046	1.0+	0.4+	860807 046	1.2-	1.0-			

1979 HE5 = 1985 DK = 1988 CT1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	325.61837	(1950.0)		P	Q
n	0.30824195	Peri.	119.73760	-0.67346443	+0.73511675
a	2.1704089	Node	107.71298	-0.70326871	-0.60474320
e	0.0601707	Incl.	4.68319	-0.22772524	-0.30641316
P	3.20	H	14.0	G 0.25	

Residuals in seconds of arc

790425 095	0.4-	0.1+	850220 046	0.9-	0.3+	880215 809	0.5-	0.3+
790428 095	1.9-	0.1+	850220 046	2.5-	1.3+	880217 809	0.7-	0.2+
790430 095	2.4+	0.0	850220 046	0.7-	0.2+	880217 809	0.4+	0.1-
850216 046	2.4+	1.6-	850220 046	1.2-	0.9+	880217 809	0.3-	0.6+
850216 046	2.7+	1.8-	880211 809	1.1+	0.4-			

1979 KQ = 1976 SQ3
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	292.34857	(1950.0)		P	Q
n	0.22448115	Peri.	146.77925	+0.79236560	+0.61000714
a	2.6813250	Node	175.61170	-0.57757055	+0.75379308
e	0.1180331	Incl.	5.19733	-0.19638994	+0.24430980
P	4.39	H	14.0	G 0.25	

Residuals in seconds of arc

760924 095	0.3-	0.3+	790519 809	0.2-	0.9-	790523 809	0.6+	0.1-
760929 095	0.3+	0.4-	790521 809	0.3-	0.2+	790524 809(19.7+		8.8+)
790519 809	0.4-	0.4+	790523 809	0.2+	0.3+			

1979 QK4 = 1974 WT = 1983 HU = 1985 PY1
The double designation 1983 HK = 1983 HU (MPC 8482) is invalid.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	155.06396	(1950.0)		P	Q
n	0.16984628	Peri.	13.06844	+0.88651125	-0.46269246
a	3.2292279	Node	14.49424	+0.42317298	+0.80753004
e	0.1625970	Incl.	0.84109	+0.18714283	+0.36580175
P	5.80	H	11.5	G 0.25	

Residuals in seconds of arc

741118 095	0.4-	1.3+	790826 809	0.3+	0.9-	830416 046	1.3+	0.3-
790823 809	1.1+	0.7-	790826 809	0.1-	0.3-	830416 046	0.1-	3.3+
790823 809	1.1+	0.3-	790830 809	1.1-	1.2-	850814 010	0.2-	2.2+
790826 809	0.4-	0.5+	790830 809	(1.2-	11.2-)	850816 010	1.8-	2.1+

1980 FY = 1978 TS6 = 1983 CE5

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	177.65952	(1950.0)		P	Q
n	0.31008046	Peri.	277.16116	-0.53571790	+0.84413445
a	2.1618213	Node	320.42280	-0.76104980	-0.49349158
e	0.0378747	Incl.	1.89390	-0.36579985	-0.20953063
P	3.18	H	14.0	G 0.25	

Residuals in seconds of arc

781002 095	0.2+	0.4-	800316 809	0.2+	0.3+	800317 809	0.2-	0.1+
800221 095	0.2+	1.0-	800316 809	0.5-	0.4-	800317 809	0.2+	0.3-
800316 809	0.2-	0.4+	800317 809	0.2+	0.4+	800323 809	0.3-	0.2-
800316 809	0.1+	0.2+	800317 809	0.0	0.2-	830214 381	0.2+	0.5+

1980 LY = 1987 UQ2

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	195.51266	(1950.0)		P	Q
n	0.30936051	Peri.	173.70867	+0.07870622	+0.99386995
a	2.1651740	Node	100.78618	-0.91800247	+0.10262257
e	0.1574053	Incl.	4.53313	-0.38868598	-0.04112325
P	3.19	H	15.0	G 0.25	

Residuals in seconds of arc

800610 675	2.0-	0.2-	800619 675	1.4-	0.6-	871027 054	1.3-	0.4-
800612 675	3.6+	1.2+	800620 675	0.0	0.7-	871030 054	0.4+	1.1+
800618 675	0.4-	0.4+	871027 054	0.8+	0.5-			

1981 RP2 = 1934 NO = 1951 OD = 1986 XA3 = 1988 DR1

The identifications were found independently by S. Nakano.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	285.47118	(1950.0)		P	Q
n	0.23245948	Peri.	342.73462	+0.14883033	+0.97008726
a	2.6196174	Node	295.47035	-0.88028768	+0.04162028
e	0.1784391	Incl.	12.26468	-0.45049211	+0.23916198
P	4.24	H	11.5	G 0.25	

Residuals in seconds of arc

340709 078(41.1+	7.9+)X		811003 095	0.3-	1.7+	880217 220	1.1+	0.8- Y
510726 078	2.7+	6.1- Y	861202 010	0.7+	2.7-	880217 220	2.0-	0.6- Y
810907 095	3.0-	2.1+	861203 010	1.6-	1.1-	880218 220	0.0	0.7- Y
810927 095	1.3+	0.1-	861203 010	1.0+	1.8-			

1981 UB1 = 1981 SP5 = 1977 AM = 1983 CP2 = 1986 WD8

The double designation 1981 UB1 = 1981 SP5 is by S. Nakano (MPC 10752).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	70.96880	(1950.0)		P	Q
n	0.18119050	Peri.	279.23438	+0.42479485	-0.90522432
a	3.0929942	Node	145.62140	+0.83792701	+0.38861012
e	0.1768552	Incl.	1.10360	+0.34267720	+0.17190436
P	5.44	H	12.5	G 0.25	

Residuals in seconds of arc

770113 095	0.1-	2.8+	811030 704	2.2+	2.4-	861130 381	0.5+	0.1-
810925 095	1.3-	1.3-	811031 704	(1.3+	5.2-)	861201 381	0.1+	0.4+
811024 095	0.2-	2.0+	830215 688	0.4-	1.0-	861201 381	(4.3-	5.7-)
811028 095	1.3-	1.9+	830215 688	0.7-	2.1-			
811030 704	1.0+	2.2-	861130 381	0.0	1.3-			

1985 JK1 = 1962 CY = 1988 CF2
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 307.19688		(1950.0)		P	Q
n 0.26473895	Peri.	132.73141		-0.37905036	+0.92386571
a 2.4020985	Node	114.92360		-0.86509713	-0.33350552
e 0.1789152	Incl.	3.34086		-0.32852364	-0.18773978
P 3.72	H	14.0	G	0.25	

Residuals in seconds of arc

620210 033	3.6-	0.7-	850524 675	0.7-	1.0+	880217 809	0.5+	1.0+
620210 033	3.1+	2.4-	850524 675	1.3+	0.0	880217 809	0.2+	0.4+
850511 675	0.0	0.5-	880211 809	0.8-	1.7+	880217 809	0.3-	1.2+
850514 675	0.2+	0.3-	880215 809	1.2+	0.8-			

1986 VT = 1975 VY2
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 177.94389		(1950.0)		P	Q
n 0.18092881	Peri.	131.06274		+0.83312916	+0.55304788
a 3.0959759	Node	195.36378		-0.51377450	+0.76998644
e 0.1676898	Incl.	1.25818		-0.20477200	+0.31821207
P 5.45	H	11.5	G	0.25	

Residuals in seconds of arc

751102 095	0.4-	0.7+	861103 046	1.1+	1.3-	861109 046	1.2+	0.0
751107 095	0.4+	0.7-	861107 046	0.8-	1.3+	861109 046	0.3-	0.1-
861103 046	0.3-	0.0	861107 046	1.0-	0.2+			

1988 CK2 = 1986 RN3
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 136.46709		(1950.0)		P	Q
n 0.21524608	Peri.	76.96631		+0.99180655	-0.10187880
a 2.7574812	Node	288.84023		+0.06029045	+0.90520026
e 0.2195645	Incl.	4.67121		+0.11262699	+0.41259327
P 4.58	H	13.5	G	0.25	

Residuals in seconds of arc

860906 071	2.4+	2.1-	860907 071	0.0	1.3+	880217 809	0.2+	0.4+
860906 071	1.1+	0.7+	880211 809	0.9-	1.1-	880217 809	0.2+	0.1+
860907 071	3.3-	0.3+	880215 809	1.8+	0.1+	880217 809	1.2-	0.5+

1988 EN = 1985 PN1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 341.71358		(1950.0)		P	Q
n 0.25989205	Peri.	101.67207		-0.18667506	+0.98184208
a 2.4318721	Node	157.48404		-0.93216034	-0.16617499
e 0.2332377	Incl.	5.05512		-0.31020885	-0.09149866
P 3.79	H	13.5	G	0.25	

Residuals in seconds of arc

850814 010	1.4-	0.8+	880310 888	1.6-	2.9-	880312 888	0.1-	0.8-
850815 010	0.1+	1.0-	880310 888	0.9-	2.5-	880318 875	1.5-	1.6+
850815 010	1.0+	0.5+	880312 875	1.7+	0.3- Y	880322 888	2.5+	1.4+
850815 010	1.3+	0.9-	880312 875	3.1+	0.4- Y	880322 888	2.3+	1.5+
850816 010	1.2-	0.8+	880312 888	2.4-	2.6+	880410 888	0.7-	0.8-
850816 010	0.1+	0.3-	880312 888	2.4-	2.6+	880410 888	0.9-	0.9-
850824 010	(0.3-	38.2+)	880312 888	0.7+	1.1-			

1988 GH = 1972 GH = 1980 XP1
The identification 1988 GH = 1972 GH was found independently by S. Nakano.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	46.73672	(1950.0)		P	Q
n	0.18427414	Peri.	153.23259	-0.99494342	-0.07614026
a	3.0583918	Node	22.68804	+0.02929847	-0.84381014
e	0.0736744	Incl.	9.77707	+0.09606866	-0.53121286
P	5.35	H	11.5	G 0.25	

Residuals in seconds of arc

720414	095	1.7-	2.9-	880414	046	2.1-	1.5-	880416	046	1.3+	0.7-
801210	095	0.2+	0.4-	880414	046	0.1+	0.1-	880509	400	0.1+	0.2-
880408	400	1.2-	0.0	880416	399	0.0	0.9+ Y	880509	400	0.6-	0.2+
880408	400	2.6+	2.2+	880416	399	1.1+	0.5+ Y	880509	400	0.0	1.3+
880410	046	0.0	0.8+	880416	399	0.5-	1.6+ Y				
880410	046	1.6-	0.7-	880416	046	2.5+	1.6-				

9515 P-L = 1985 TY

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	238.66609	(1950.0)		P	Q
n	0.23823960	Peri.	342.28870	+0.82884216	-0.55726897
a	2.5770731	Node	51.68215	+0.52065563	+0.73574288
e	0.0934212	Incl.	3.63326	+0.20478862	+0.38488142
P	4.14	H	14.5	G 0.25	

Residuals in seconds of arc

601017	675	0.1-	0.5+	601026	675	0.0	1.0-	851020	688	0.8-	0.2+
601022	675	0.7-	0.7+	851015	688	0.9+	0.2+	851020	688	4.5+	0.9+
601024	675	0.9+	0.4-	851015	688	4.6-	1.0-				

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ORBITAL ELEMENTS BY H. OISHI, NIIZA, JAPAN.

1983 TS1 = 1978 YC1 = 1986 GS
The identifications are by H. Oishi.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	318.91964	(1950.0)		P	Q
n	0.18306364	Peri.	292.92712	+0.84038078	-0.54051998
a	3.0718655	Node	99.81345	+0.51093214	+0.76544342
e	0.1975268	Incl.	2.32527	+0.18085491	+0.34919124
P	5.38	H	12.4	G 0.25	

Residuals in seconds of arc

781222	095	0.1+	0.4-	831012	688	1.2-	0.9-	831104	688	0.3-	1.7+
831011	688	0.7+	1.4+	831012	688	1.3-	0.7-	860409	688	0.1+	0.1-
831011	688	1.3+	1.9-	831104	688	0.5+	1.2+	860409	688	0.1+	0.7+

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ORBITAL ELEMENTS BY S. NAKANO, SMITHSONIAN ASTROPHYSICAL OBSERVATORY.

The identifications are by S. Nakano unless otherwise stated.

(3830)* 1986 RL = 1980 ND
Discovered 1986 Sept. 11 by P. Jensen at Brorfelde.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	166.62799		(1950.0)	P	Q
n	0.18703326	Peri.	54.96484	+0.66593426	+0.72783767
a	3.0282391	Node	257.66340	-0.72732588	+0.58464852
e	0.1073566	Incl.	9.64401	-0.16591755	+0.35838309
P	5.27	H	11.8	G 0.25	

Residuals in seconds of arc

800711	805	0.8+	0.4-	840307	413	0.4-	0.6+	861005	688	1.3+	1.0+
800712	805	0.3-	0.8+	840307	413	1.0+	0.6-	871120	054	0.0	0.1+
800712	805	0.0	1.2-	860905	688	0.8-	0.8-	871120	054	0.7-	1.0+
800712	805	0.3+	0.4+	860905	688	0.5-	0.1-	871120	054	0.4+	0.1+
800712	805	0.0	0.1+	860911	688	0.7-	0.1+	871222	801	0.0	0.5+
800713	805	0.7-	0.3+	860911	688	0.1-	0.0	871222	801	0.7-	0.0
800713	805	0.2-	0.3-	860911	054	1.1-	0.4+	871222	054	0.1+	0.8-
840305	413	0.6-	1.0+	860911	054	0.8+	0.5+	871224	801	0.1+	0.6-
840305	413	0.6+	0.2+	861005	688	0.8+	0.1+	880111	054	0.8+	0.7-

(3831)* 1986 TP2 = A906 QB = 1954 RT = 1988 DV

Discovered 1986 Oct. 7 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	274.96164		(1950.0)	P	Q
n	0.30894546	Peri.	147.09117	+0.46984089	+0.88189545
a	2.1671128	Node	150.87802	-0.82615011	+0.45479771
e	0.1960180	Incl.	4.57965	-0.31100729	+0.12417511
P	3.19	H	13.4	G 0.25	

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

060822	024	2.2-	9.0+	850222	675	0.8+	2.7+	861202	688	1.3+	0.4-
060828	024	0.3-	6.3+	861007	688	1.6+	1.5+	861202	688	2.3+	1.0+
060830	045	(17.2-	9.2-)	861007	688	(4.5+	0.2+)	880211	809	0.2+	2.7+
060911	024	(0.13-	0.02-)	861105	688	1.2+	0.8+	880211	809	0.2+	2.2+
540904	675	2.3-	2.8-	861105	688	2.8+	0.0	880211	809	0.7+	2.3+
540904	675	3.0-	3.4-	861107	010	2.5-	0.8-	880217	809	0.3+	2.3+
850220	675	1.5+	3.2+	861107	010	1.3-	0.9+	880217	809	0.4+	2.2+

1936 YD = 1931 VD1 = 1981 YA = 1983 CD3 = 1986 YW

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	182.90247		(1950.0)	P	Q
n	0.21673498	Peri.	312.51186	+0.81181432	-0.52174491
a	2.7448434	Node	80.56201	+0.58260374	+0.69366698
e	0.1199192	Incl.	15.41333	+0.03912028	+0.49659678
P	4.55	H	12.0	G 0.25	

Residuals in seconds of arc

311104	690	0.7-	2.7+	370103	020	(11.5+	16.7-)	861230	675	1.8+	1.9+
311106	690	0.1+	0.5+	370105	020	0.1-	2.6-	861230	675	1.5+	1.7+
361220	020	1.7-	1.0-	811218	688	0.8-	1.0-	870101	675	2.7-	2.1+
361220	020	0.0	2.5-	811218	688	0.1-	0.9-	870101	675	(4.7-	1.8+)
361221	020	(4.4-	1.6-)	830211	675	0.5-	1.9+				
361221	020	2.4+	1.7-	830211	675	0.8+	0.6+				

1938 HE = 1942 LL = 1971 SH = 1988 GN

The identification 1938 HE = 1971 SH is by T. Kobayashi (MPC 11856).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	309.90731		(1950.0)	P	Q
n	0.27611625	Peri.	180.28764	+0.52396803	+0.84726449
a	2.3356516	Node	121.31266	-0.78121188	+0.51883995
e	0.1922332	Incl.	5.85685	-0.33936042	+0.11378926
P	3.57	H	12.5	G 0.25	

Residuals in seconds of arc

380419	029	0.1-	0.5-	380426	029	(7.4+	4.9-)Y	710926	805	0.6+	1.3-
380419	029	0.7+	1.5-	380427	029	(7.1+	4.8+)Y	880410	046	0.2-	0.4+
380420	029	0.9+	0.0	380427	029	(8.3+	1.6+)Y	880410	046	1.5-	0.8+
380420	029	0.0	0.2-	420613	078	(71.1-	92.2-)X	880411	046	(6.2-	0.4-)
380421	029	0.3-	0.5+	710925	808	0.2-	0.6+	880411	046	2.2-	1.5-
380423	029	0.3-	2.0+	710925	808	1.2-	0.4-	880414	046	1.8+	1.2-
380423	029	(10.9-	6.5-)Y	710925	808	0.2+	0.2-	880414	046	1.0+	1.7-
380424	029	0.2+	3.2+	710926	805	0.7+	1.3+				

1975 ED = 1982 KD = 1988 BT

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	328.48263		(1950.0)	P	Q
n	0.29850360	Peri.	320.71522	-0.69391198	+0.71901502
a	2.2173650	Node	265.30617	-0.65042115	-0.64899659
e	0.0983265	Incl.	2.22974	-0.30893121	-0.24863795
P	3.30	H	13.0	G 0.25	

Residuals in seconds of arc

750304	095	0.4-	3.1+	880118	071	2.4-	0.9-	880208	399	1.6+	0.4+
750314	095	1.9+	1.4-	880118	071	(10.3+	1.7-)	880208	399	0.8-	0.3-
750317	095	0.1-	1.8+	880118	071	2.6+	1.9-	880208	399	0.3-	0.1+
820521	688	0.0	1.0-	880123	552	0.9-	0.4-				
820521	688	0.6-	1.2-	880123	552	0.7-	1.0-				

1977 CU = 1977 EB = 1968 DC = 1973 FC1 = 1975 TG = 1978 LF = 1980 XH3 = 1984 SF5

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	277.84879		(1950.0)	P	Q
n	0.22235701	Peri.	95.32458	+0.39078885	-0.91879053
a	2.6983795	Node	331.46934	+0.79148362	+0.36632734
e	0.1115749	Incl.	6.70295	+0.46993378	+0.14706541
P	4.43	H	12.0	G 0.25	

Residuals in seconds of arc

680222	095	1.0+	2.0+	770214	675	0.8-	0.7+	840927	675	0.8-	2.2+
730327	095	0.1-	0.1+	770309	095	3.0+	0.7+	840927	675	0.3+	1.3+
730402	095	2.1-	2.8+	770313	095	1.8+	0.1-	841026	675	0.9-	0.4+
751003	095	0.3-	1.2+	780601	809	1.1+	1.3-	841026	675	0.8-	0.4-
770211	675	(11.7+	1.1-)	780602	809	0.3-	1.3-				
770212	675	0.3+	0.6+	801211	095	1.0-	6.4-				

1978 RJ2 = 1978 RN1 = 1978 RR4 = 1980 FP2 = 1980 FX6 = 1987 DL2

The triple designation 1978 RJ2 = 1978 RN1 = 1978 RR4 is by N. S. Chernykh (MPC 5835). The identifications 1978 RJ2 = 1980 FP2 and 1978 RJ2 = 1980 FX6 are by C. M. Bardwell (MPC 6206) and by K. Hurukawa (JAM 1848), respectively.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	231.89874		(1950.0)	P	Q
n	0.26832882	Peri.	66.63615	+0.83222025	-0.55427188
a	2.3806307	Node	327.01961	+0.49891523	+0.75954138
e	0.2138710	Incl.	1.45915	+0.24185337	+0.34041088
P	3.67	H	14.5	G 0.25	

Residuals in seconds of arc

780901	095	0.2+	1.9+	800316	809	0.6-	0.3+	800323	809	0.9+	0.9+
780905	095	0.3+	1.0-	800316	809	0.1+	0.8+	821116	801	1.0+	1.5-
780907	095	0.6-	0.2-	800317	809	0.2-	0.1+	821218	801	1.1-	0.3+
780912	095	0.6-	0.1+	800317	809	0.7+	0.3+	870223	010	2.5+	1.1-
780928	095	0.5+	1.8+	800317	809	0.5+	0.6+	870223	010	0.6+	0.4+
781004	095	0.9-	1.2+	800317	809	0.8+	0.2+	870223	010	2.7-	1.5+
781009	095	0.9-	0.6+	800323	809	0.1-	1.3+				

1981 EX21 = 1987 QP
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	70.24294	(1950.0)	P	Q
n	0.22847465	Peri. 188.01937	+0.99740581	-0.07035577
a	2.6499941	Node 175.92132	+0.07197137	+0.97859255
e	0.1987562	Incl. 12.35785	-0.00133084	+0.19340810
P	4.31	H 13.5	G 0.25	

Residuals in seconds of arc

810209	413	0.1+	1.8-	810307	413	0.5+	0.4+	810411	413	0.2+	0.4+
810209	413	0.6+	1.2-	810311	413	1.0-	0.6+	810411	413	1.7+	0.4-
810213	413	0.1-	0.3+	810311	413	0.6+	0.2-	810426	413	1.7+	1.9-
810302	413	1.6-	1.4+	810316	413	0.2-	0.0	810502	413	0.8-	0.3-
810302	413	(4.0+	2.3-)	810329	413	1.7-	2.2+	870821	033	0.3+	0.1-
810303	413	1.3-	0.7+	810329	413	1.0+	0.4-	870822	033	0.3+	0.3+
810303	413	1.8+	1.2-	810408	413	1.8-	1.4+	870823	033	0.6-	0.3-
810307	413	1.9-	1.5+	810408	413	2.4+	1.9-				

1981 EX43 = 1988 CL5
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	193.84665	(1950.0)	P	Q
n	0.27066916	Peri. 157.42938	+0.99906859	-0.01444392
a	2.3668882	Node 203.50817	+0.00112627	+0.95071998
e	0.1375910	Incl. 5.85078	+0.04313558	+0.30971421
P	3.64	H 14.5	G 0.25	

Residuals in seconds of arc

810212	413	1.5-	0.4+	810311	413	0.9-	1.0+	880213	809	0.5-	1.8+
810212	413	1.0+	0.9+	810315	413	1.1-	1.5+	880215	809	0.1+	0.4-
810214	413	1.7-	0.3-	810410	413	1.7+	0.5+	880216	809	0.2-	0.9-
810306	413	2.1+	0.8+	810410	413	2.2+	1.6-	880216	809	0.0	0.2-
810308	413	3.4-	0.2+	810502	413	0.2+	0.4-	880216	809	0.5+	0.7-
810308	413	1.3+	2.0-	810503	413	0.1+	0.7-				

1982 BQ4 = 1975 VK5 = 1983 HR = 1988 EL1
The key identification 1982 BQ4 = 1988 EL1 and the identification 1982 BQ4 = 1983 HR are by A. Lowe and B. G. Marsden, respectively.
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	0.18494	(1950.0)	P	Q
n	0.18821188	Peri. 137.14482	-0.73939474	+0.64658180
a	3.0155896	Node 84.13063	-0.65742043	-0.63322842
e	0.0300960	Incl. 10.87569	-0.14523702	-0.42538658
P	5.24	H 12.0	G 0.25	

Residuals in seconds of arc

751102	095	0.6-	1.2+	820128	381	1.0+	1.1-	880314	675	1.3+	2.5+
820126	381	1.1-	1.4-	820128	381	0.1-	0.0	880315	675	0.4+	1.2+
820126	381	0.0	0.2+	830418	688	2.1-	3.7-				
820126	381	0.2+	0.0	830418	688	1.1+	1.5+				

1982 SC2 = 1958 DL = 1988 GJ
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	0.87113	(1950.0)	P	Q
n	0.29882561	Peri. 137.29836	-0.35895008	+0.93046783
a	2.2157718	Node 111.54517	-0.87617560	-0.30882164
e	0.1227102	Incl. 4.52483	-0.32166934	-0.19712640
P	3.30	H 13.0	G 0.25	

Residuals in seconds of arc

580218 760	3.0-	1.9-	820921 809	1.2+	0.7+	880410 892	0.4-	0.8+
580218 760	3.1+	2.1+	820921 809	1.3+	0.5+	880415 892	2.0+	0.2+
820918 809	1.4-	0.1-	820925 809	0.0	0.2-	880415 892	1.6+	0.3-
820918 809	1.1-	0.1-	820925 809	0.3-	0.3-	880419 892	2.3-	1.4-
820918 809	0.4-	0.0	820925 809	0.5-	0.5-	880419 892	2.6-	0.5+
820921 809	1.1+	0.4+	880410 892	1.7+	0.3+			

1983 VM7 = 1973 YP1 = 1981 AX2 = 1981 BZ = 1988 BT1

The identification 1983 VM7 = 1973 YP1 is by K. Hurukawa (MPC 9752).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 158.97225		(1950.0)		P	Q
n 0.29078632	Peri.	322.17707	+0.88760082		-0.45687129
a 2.2564252	Node	65.10477	+0.43677943		+0.79444403
e 0.1478466	Incl.	3.70376	+0.14624812		+0.40015912
P 3.39	H	13.5	G	0.25	

Residuals in seconds of arc

731220 095	0.2-	0.8+	831028 330	(12.0+	4.1+)	831104 688	0.5+	1.6-
731221 095	(2.1-	7.8-)	831030 675	1.9-	1.0+	831107 688	1.3+	0.9-
810108 381	0.2-	0.4-	831101 330	2.9-	1.6+	831107 688	0.9+	0.9-
810108 381	0.8-	0.4-	831104 688	2.1+	1.2-	880122 511	1.9+	0.8-
810130 095	0.8+	1.1-	831104 675	0.0	2.0+	880122 511	1.4-	2.3+

1984 BL = 1965 SR = 1971 UF2 = 1976 SS = 1977 VB2 = 1979 FT1

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 334.05618		(1950.0)		P	Q
n 0.17584625	Peri.	350.14608	+0.34883140		-0.93623035
a 3.1553546	Node	79.42854	+0.86271216		+0.30315135
e 0.1838368	Incl.	2.46628	+0.36612071		+0.17768510
P 5.60	H	12.0	G	0.25	

Residuals in seconds of arc

650921 330	0.9-	1.8-	790329 095	0.4+	2.1-	840129 046	0.6-	0.9-
711021 095	0.1+	1.3+	840126 046	3.3+	0.2-	840129 046	1.0-	0.6-
760924 095	1.2+	1.4-	840126 046	4.4+	0.5-	840201 046	0.3-	2.5+
771114 330	1.3+	0.5-	840127 046	3.2-	1.4-	840201 046	0.1-	2.1+
790323 095	0.1+	0.2+	840127 046	4.5-	1.4-			

1984 SM1 = 1955 QF1 = 1978 RX3 = 1978 SK4 = 1987 DK5

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 260.96707		(1950.0)		P	Q
n 0.17142685	Peri.	353.24647	+0.97132001		+0.23561434
a 3.2093544	Node	352.87973	-0.20428471		+0.75807493
e 0.0646598	Incl.	14.95602	-0.12167660		+0.60811864
P 5.75	H	12.0	G	0.25	

Residuals in seconds of arc

550825 760	2.2+	0.6-	840920 046	1.2+	0.8+	840930 046	0.8-	0.2-
550825 760	0.8+	1.4-	840927 046	1.7+	1.6-	870223 010	0.0	0.6-
550825 760	0.5-	1.4-	840927 046	1.7+	1.4-	870223 010	0.8+	0.0
780903 095	2.7-	2.1+	840929 046	0.2-	0.6+	870223 010	0.7-	0.7+
780928 095	0.8-	3.0+	840929 046	1.7-	0.1-			
840920 046	1.1-	0.3+	840930 046	0.3+	0.0			

1984 TB = 1969 TN5 = 1979 SB10

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 265.84316		(1950.0)		P	Q
n 0.19641356	Peri.	15.26482	+0.86666598		-0.49884393
a 2.9310458	Node	14.66437	+0.45488451		+0.78464080
e 0.1232950	Incl.	1.51522	+0.20486619		+0.36809448
P 5.02	H	13.0	G	0.25	

Residuals in seconds of arc

691015	095	0.9-	0.7-		840927	033	0.4-	0.9-		841019	801	0.2+	2.4+
691017	095	1.5+	0.6-		840927	033	0.9-	0.6-		841021	801	0.5-	0.9+
790928	095	0.2+	1.0-		841003	801	0.7+	0.5+					

1985 RL1 = 1970 SP

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	293.43958		(1950.0)	P	Q
n	0.26096885	Peri.	121.62487	+0.89700385	+0.43220066
a	2.4251827	Node	213.03186	-0.44076080	+0.85873829
e	0.1653382	Incl.	9.78744	-0.03337680	+0.27526558
P	3.78	H	13.5	G 0.25	

Residuals in seconds of arc

700927	095	0.5+	0.2+		850910	046	2.0-	0.9-		850913	046	0.2-	0.4-
701001	095	0.4-	0.3-		850910	046	2.0-	1.6-		850913	046	0.2-	0.1-
850909	046	0.0	0.9+		850911	046	1.5+	0.6+		850919	046	1.0+	1.3+
850909	046	0.5+	1.0+		850911	046	2.2+	0.4-		850919	046	0.9-	0.4-

1985 RT2 = 1981 WQ8 = 1983 CM2 = 1988 BX2

The identification 1985 RT2 = 1984 JH (MPC 11426) is invalid.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	217.11819		(1950.0)	P	Q
n	0.19785173	Peri.	225.17281	+0.86972228	+0.49033983
a	2.9168248	Node	105.38846	-0.43477919	+0.81501628
e	0.0608626	Incl.	3.33718	-0.23355987	+0.30873178
P	4.98	H	12.0	G 0.25	

Residuals in seconds of arc

811125	095	0.2-	0.4+		850911	809	0.4-	0.5+		850919	809	1.1+	0.3-
830215	688	0.1+	1.3-		850912	809	0.7-	0.8-		850919	809	1.2+	0.4-
830215	688	1.1-	2.3-		850912	809	0.4-	0.9-		850920	809	1.4+	0.4-
850905	809	1.9-	0.2+		850912	809	0.5-	0.9-		850920	809	1.4+	0.5-
850905	809	1.8-	0.4+		850914	809	0.1-	0.5+		850920	809	1.5+	0.5-
850905	809	1.6-	0.5+		850914	809	0.2-	0.3+		850921	809	1.4+	0.2-
850907	809	1.0-	0.3-		850914	809	0.2-	0.1+		850921	809	1.3+	0.4-
850907	809	0.9-	0.2-		850915	809	0.1+	0.0		850921	809	1.2+	0.1-
850907	809	1.0-	0.2-		850915	809	0.0	0.1+		880119	033	0.5+	0.4+
850910	809	0.7-	0.2+		850915	809	0.2+	0.2-		880120	033	0.2-	0.7+
850910	809	0.5-	0.3+		850917	809	1.0+	0.0		880120	033	0.8-	0.7+
850910	809	0.3-	0.2+		850917	809	0.8+	0.1-		880121	033	0.9+	0.6-
850911	809	0.3-	0.5+		850917	809	0.6+	0.1+					
850911	809	0.5-	0.4+		850919	809	1.2+	0.3-					

1986 RD1 = 1939 PB = 1988 AJ1

The identification 1986 RD1 = 1939 PB is by T. Kobayashi (MPC 11857).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	132.48617		(1950.0)	P	Q
n	0.21057341	Peri.	51.04374	+0.98369323	-0.15237112
a	2.7981301	Node	317.47328	+0.08685601	+0.86768623
e	0.1978317	Incl.	8.12693	+0.15749177	+0.47318459
P	4.68	H	12.5	G 0.25	

Residuals in seconds of arc

390808	020	1.1+	0.1+		860911	046	2.6-	1.2-		880112	046	0.3+	0.7-
390811	020	0.5-	1.3-		860911	046	0.9+	2.2-		880113	046	0.3+	0.7+
390811	020	(2.2+ | 8.2+)		860929	010	(27.4- | 1.8+)		880113	046	2.2+	0.1+
860902	046	0.3-	0.3+		860929	010	(21.0-	3.0+)		880119	046	1.6-	0.4+
860902	046	0.9-	0.1-		880110	046	0.1-	0.5-		880119	046	0.7-	1.1-
860904	046	1.7+	2.5+		880110	046	1.0-	0.7-		880120	046	0.8+	0.1+
860904	046	0.9+	1.5+		880112	046	1.4+	0.2-		880120	046	2.0-	1.3+

1988 CK = 1951 XP = 1970 AY = 1972 TN5 = 1979 QC9
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	104.20021	(1950.0)		P	Q
n	0.27702083	Peri.	119.57101	+0.03219240	-0.99636595
a	2.3305690	Node	328.28756	+0.85720015	+0.06809659
e	0.1265515	Incl.	8.62794	+0.51397622	-0.05116384
P	3.56	H	13.5	G 0.25	

Residuals in seconds of arc

511205	711	(9.2-	11.4-)Y	880214	552	1.7+	0.4-	880222	552	0.7+	0.1-
700105	095	1.6+	3.3+	880214	552	0.3+	1.2-	880222	552	0.5+	0.0
721006	095	0.1-	1.9-	880215	552	0.8+	1.4-	880309	552	0.2-	1.4+
790828	095	2.3+	1.8-	880215	552	0.3+	1.1-	880309	552	0.2-	1.9+
880213	552	1.8-	2.1-	880216	809	2.9-	1.4-	880314	552	0.2-	2.1+
880214	552	0.3+	3.6-	880216	809	2.3-	0.9-	880314	552	0.9-	1.5+

1988 CM2 = 1979 HD3 = 1981 UR19 = 1986 TJ5
The identifications were found independently by T. Kobayashi.
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	39.85327	(1950.0)		P	Q
n	0.19929361	Peri.	347.37649	-0.55233684	-0.83290382
a	2.9027390	Node	136.13802	+0.76906775	-0.52512901
e	0.0357880	Incl.	2.85986	+0.32165014	-0.17467326
P	4.95	H	12.5	G 0.00	

Residuals in seconds of arc

790425	095	0.4+	1.2-	880213	809	1.1-	1.3+	880216	809	1.0-	2.2+
790430	095	1.2-	1.2-	880214	809	1.1-	0.3+	880217	809	0.7+	0.5-
811026	095	1.3-	3.1+	880214	809	0.2-	0.3+	880217	809	0.8+	0.4+
861001	010	6.5-	3.6-	880214	809	0.2+	0.6+	880217	809	0.8+	0.6+
861001	010	8.6+	1.9-	880215	809	0.6+	1.0+	880217	809	1.0+	1.2-
880119	071	2.1-	0.9-	880215	809	1.2+	1.5+	880217	809	0.4+	1.1-
880119	071	0.7-	0.5-	880215	809	0.7+	2.4+	880217	809	0.8-	0.8-
880211	809	0.0	1.9-	880215	809	1.1+	1.4-	880221	809	1.2+	1.9-
880213	809	0.2+	0.4+	880216	809	0.4-	0.2+	880221	809	0.3+	2.0-
880213	809	0.8-	1.1+	880216	809	0.6-	1.1+	880221	809	0.3-	1.8-

1988 CJ5 = 1931 TJ4 = 1952 SQ = 1986 TO2
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	163.50403	(1950.0)		P	Q
n	0.23326001	Peri.	201.74971	+0.94877562	-0.31562473
a	2.6136257	Node	176.55149	+0.31345851	+0.93462866
e	0.1596104	Incl.	13.79916	+0.03960524	+0.16386060
P	4.23	H	12.5	G 0.25	

Residuals in seconds of arc

311006	690	1.8-	4.1-	861007	688	0.0	2.1-	880216	809	0.9+	0.5+
311007	690	0.6-	0.5+	861105	688	0.4-	0.0	880216	809	0.6+	0.2+
311009	690	2.3+	3.3+	861105	688	0.3+	0.7+	880223	809	1.4-	1.8+
520924	760	0.8-	3.2+	880213	809	1.0+	0.5+	880223	809	1.3-	1.8+
520924	760	0.2-	4.2+	880215	809	1.6+	0.9-	880223	809	1.2-	1.1+
861007	688	0.5+	2.2-	880216	809	0.5+	0.0				

1988 EJ = 1954 GD = 1984 JH1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	8.52569	(1950.0)		P	Q
n	0.23224712	Peri.	37.60057	-0.70907728	+0.70406743
a	2.6212141	Node	187.52878	-0.69714020	-0.70822599
e	0.1237752	Incl.	17.18407	-0.10585348	-0.05200972
P	4.24	H	12.5	G 0.25	

Residuals in seconds of arc

540402	760	0.1+	2.0-	840602	688	1.0+	1.0+	880407	675	0.5-	0.9+
540402	760	0.4-	0.8-	840602	688	0.6-	0.8-	880407	675	0.1+	1.9+
840504	688	0.2-	0.1+	880313	675	1.0-	0.6+				
840504	688	0.1-	0.9-	880315	675	1.6+	0.1-				

1988 EU = 1970 BC = 1982 DH3 = 1982 HQ2

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	133.13200		(1950.0)	P	Q
n	0.17273945	Peri.	28.79483	+0.50972927	-0.85905248
a	3.1930758	Node	30.62891	+0.77058790	+0.43160476
e	0.1201203	Incl.	5.28823	+0.38258378	+0.27522021
P	5.71	H	11.5	G 0.25	

Residuals in seconds of arc

700131	095	0.1-	0.9-	820427	033	1.8-	1.3-	880314	054	0.6-	0.6-
820220	033	0.9+	0.8+	820427	033	1.0-	0.8-	880318	054	0.5-	0.2+
820220	033	0.9+	1.0+	880313	054	1.5+	0.1+				
820220	033	1.0+	0.7+	880313	054	0.5-	0.1-				

1988 EB1 = 1986 TH7

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	38.09722		(1950.0)	P	Q
n	0.25987705	Peri.	128.96247	-0.99705323	+0.06286626
a	2.4319705	Node	54.68466	-0.07562653	-0.90161507
e	0.1377563	Incl.	3.08839	+0.01286379	-0.42794636
P	3.79	H	13.5	G 0.25	

Residuals in seconds of arc

861007	675	0.8+	0.9-	861008	675	0.9-	0.8+	880314	054	0.7-	0.0
861007	675	0.1+	0.1+	880313	054	0.4+	0.4+	880318	054	0.2+	0.3-
861008	675	(5.7-	1.2-)	880313	054	0.1+	0.1-				

1988 EO1 = 1957 WB = 1977 KY1 = 1979 UO3

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	21.29380		(1950.0)	P	Q
n	0.17335989	Peri.	167.44547	-0.93340459	+0.35868582
a	3.1854527	Node	33.57947	-0.33074656	-0.84920152
e	0.1745166	Incl.	1.03779	-0.13914950	-0.38755806
P	5.69	H	12.5	G 0.25	

Residuals in seconds of arc

571118	330	0.1+	0.4-	880315	675	0.7+	0.4-	880415	046	0.1-	0.3-
770518	675	0.6+	0.4-	880410	675	0.5-	0.3-	880415	046	0.6-	0.9+
770519	675	0.7-	0.0	880410	675	0.1-	0.6+	880417	046	1.3-	0.3-
791016	095	0.4-	1.0+	880414	046	0.2+	1.1+	880417	046	0.1-	0.4-
880313	675	0.7+	0.7-	880414	046	1.7+	0.7+				

1988 ER1 = 1975 TY4 = 1975 VZ6 = 1978 QQ3 = 1986 WC11

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	327.39966		(1950.0)	P	Q
n	0.27360095	Peri.	239.30489	-0.07131285	+0.99587462
a	2.3499494	Node	26.77894	-0.86720419	-0.03410949
e	0.0953860	Incl.	7.15389	-0.49281982	-0.08408503
P	3.60	H	13.5	G 0.25	

Residuals in seconds of arc

751014	095	0.1+	0.2-	861130	381	0.6-	0.1-	880313	054	0.5+	0.4+
751106	095	0.3+	0.9-	861130	381	0.5-	1.4+	880313	054	0.7-	0.1-
780825	808	1.2-	0.8+	861201	381	1.4+	0.1-	880314	054	0.3-	0.0
780825	808	1.1+	0.6-	861201	381	0.6-	0.1-	880318	054	0.3+	0.6-

1988 HB = 1971 HT = 1979 WS7 = 1981 AN3
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	331.22874	(1950.0)	P	Q
n	0.17343700	Peri. 177.13578	-0.01958484	+0.96320564
a	3.1845085	Node 91.63718	-0.92251012	+0.08595767
e	0.0628231	Incl. 15.55483	-0.38547569	-0.25464913
P	5.68	H 11.0	G 0.25	

Residuals in seconds of arc

710427 095	0.8-	1.6-	880417 399	0.8-	1.1+	880509 399	0.6+	0.0
791117 095	0.1-	0.2+	880417 399	1.8-	1.5+	880509 399	1.6+	0.6-
810108 381	0.1+	0.1-	880505 399	0.4+	0.5-	880514 399	1.2+	0.9-
810108 381	0.1-	0.0	880505 399	0.2-	0.1-	880514 399	1.3+	1.3+
880417 399	2.4-	0.9+	880505 399	0.2-	0.5-	880514 399	1.5+	0.5-

1988 JF = 1944 ME = 1952 BY1 = 1987 DK
Epoch 1988 June 8.0 ET = JDE 2447320.5 (J-P)

M	40.42824	(1950.0)	P	Q
n	0.22477661	Peri. 126.63992	-0.69287117	+0.69614701
a	2.6789802	Node 98.34279	-0.70721895	-0.60527195
e	0.2428776	Incl. 10.94790	-0.14060900	-0.38603784
P	4.38	H 11.0	G 0.25	

Residuals in seconds of arc

440623 078(55.1-	20.9-)X		870223 054	0.9-	0.9+	880516 809	0.6+	0.3-
520129 711 (8.0-	69.4+)Y		870301 054	0.1+	1.1+	880519 809	2.6+	2.2-
520131 711	0.4-	2.8- Y	880514 809	2.9-	1.1+			
870222 054	0.8+	1.0+	880515 809	0.3-	1.2+			

1120 T-3 = 1988 CB2
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	105.19300	(1950.0)	P	Q
n	0.21197941	Peri. 106.18924	+0.71556924	-0.68903869
a	2.7857435	Node 297.52962	+0.58115038	+0.67842876
e	0.1548466	Incl. 7.44037	+0.38758857	+0.25487272
P	4.65	H 14.0	G 0.25	

Residuals in seconds of arc

771007 675	0.9+	1.4-	771016 675	1.0-	0.9-	880215 809	0.5-	1.3-
771011 675	0.3-	0.3+	771017 675	0.1-	1.8+	880217 809	0.5+	0.6+
771011 675	1.8+	0.3+	771017 675	0.2+	1.8+	880217 809	0.6+	0.5+
771012 675	1.0-	0.7+	771022 675	0.7+	0.1-	880217 809	0.2+	0.7+
771012 675	0.4-	0.4+	771022 675	0.6-	1.8-			
771016 675	0.3-	1.3-	880211 809	0.7-	0.5-			

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ORBITAL ELEMENTS BY A. LOWE, CALGARY.

The identifications are by A. Lowe.

1978 GR3 = 1988 CT6
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	346.03804	(1950.0)	P	Q
n	0.18530609	Peri. 25.69468	-0.93852363	+0.34520838
a	3.0470327	Node 174.49852	-0.32043631	-0.86883766
e	0.1144858	Incl. 1.27800	-0.12842884	-0.35489758
P	5.32	H 12.1	G 0.25	

Residuals in seconds of arc

780411 095	0.5-	0.4+	880215 046	0.2+	0.9+	880216 046	0.5+	0.8-
780505 095	0.5+	0.4-	880215 046	0.2+	1.4+	880216 046	0.9-	1.5-

1986 WP8 = 1988 CA6
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	52.70700	(1950.0)	P	Q
n	0.17905676	Peri. 336.91155	-0.61171780	-0.79086809
a	3.1175237	Node 150.79269	+0.73143895	-0.57418705
e	0.1264785	Incl. 2.13022	+0.30132772	-0.21174723
P	5.50	H 12.7	G 0.25	

Residuals in seconds of arc

861130	381	0.3-	0.0	861201	381	0.3-	0.4+	880214	809	1.6+	0.0
861130	381	0.7+	0.1-	880214	809	1.8-	0.8+	880215	809	0.0	1.3-
861201	381	0.1-	0.3-	880214	809	0.3+	0.2-	880215	0.0	0.0	0.7+

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ORBITAL ELEMENTS BY D. D. BALAM, UNIVERSITY OF VICTORIA.

1977 CD = 1978 SH2 = 1986 SZ
The identifications are by S. Nakano (MPC 12320).
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	145.81274	(1950.0)	P	Q
n	0.365821348	Peri. 277.64681	-0.16544067	-0.98613358
a	1.9362327	Node 182.01996	+0.98582218	-0.16498425
e	0.0832780	Incl. 21.70577	+0.02800041	-0.01790955
P	2.69	H 13.5	G 0.25	

Residuals in seconds of arc

770213	808	0.8-	0.3+	780926	095	0.2-	0.1+	880322	675	0.8-	0.3+
770215	808	0.0	0.4+	860929	010	(5.1-	6.1-)	880507	657	0.6+	1.0-
770218	808	0.4-	0.9-	860929	010	0.4+	2.2-	880507	657	0.6-	0.4-
770220	808	0.9+	1.0-	880317	675	0.5+	1.1+				
770220	808	0.0+	1.0-	880322	801	(3.4+	3.2+)				

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ORBITAL ELEMENTS BY J. E. ROGERS, CAMARILLO, CALIFORNIA.

(3832)* 1981 QJ = 1931 VL = 1937 VL = 1976 YW6
Discovered 1981 Aug. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory. The identifications are by L. D. Schmadel (MPC 7360).
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	72.97174	(1950.0)	P	Q
n	0.17840318	Peri. 358.45355	+0.89196916	-0.45201201
a	3.1251269	Node. 28.42443	+0.41496643	+0.81089957
e	0.1896394	Incl. 1.05055	+0.17942655	+0.37165445
P	5.52	H 12.4	G 0.25	

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

311104	024	(0.03+	0.01-)X	810925	688	0.4-	0.5-	830116	688	(2.0+	5.7-)
371103	020	2.8+	3.9+	810925	704	0.5-	2.7+	830118	801	0.3+	0.6-
371103	020	1.9-	1.5-	810925	095	1.4+	1.5+	830120	801	1.6+	1.6-
371112	020	(0.4+	10.7-)	810926	688	0.2-	0.7-	871119	054	0.1-	0.6-
761220	095	1.3-	1.2-	810926	688	0.5+	1.1-	871119	054	0.7-	0.9-
810830	688	0.3-	1.1-	810927	704	(4.2-	4.7+)	871121	801	0.1+	0.1+
810830	688	2.4-	0.7-	810929	704	0.6-	0.5-	871121	552	1.1-	2.0+
810925	688	1.6+	0.8-	811005	688	1.3-	1.9-	871121	552	2.7-	2.6+
810925	688	0.5-	1.3-	811005	688	3.0+	1.5-	871124	688	1.8+	0.1+
810925	688	2.2+	0.8-	811022	095	2.0+	1.7+	871124	688	1.1+	1.5-
810925	704	0.4-	1.3+	830116	688	1.9-	2.8-	880122	801	1.3-	0.6+

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

The identifications are by S. J. Bus unless otherwise stated.

1969 TJ1 = 1969 VB = 1982 YO1 = 1982 YT1 = 1983 AK3

The double designation 1969 TJ1 = 1969 VB and the identifications 1969 TJ1 = 1982 YO1 = 1982 YT1 = 1983 AK3 were found by H. Oishi and by T. Furuta, respectively (MPC 11632).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	164.38746		(1950.0)		P		Q
n	0.23799263	Peri.	34.61553		+0.46188585		-0.88357301
a	2.5788609	Node	28.10905		+0.77218151		+0.35777529
e	0.0369595	Incl.	9.43095		+0.43634525		+0.30215158
P	4.14	H	13.0	G	0.25		

Residuals in seconds of arc

691008	095	(6.8- 1.2+)	691104	095	(5.2- 1.0-)	830109	095	2.1- 0.6+
691013	095	0.2+ 1.3+	821223	095	0.2+ 0.4+	880417	046	1.2- 0.5-
691016	095	0.3+ 2.2-	821224	095	1.8+ 1.1-	880417	046	0.6+ 0.4-

1973 SJ1 = 1978 JR3

The identification is by E. Bowell.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	130.47703		(1950.0)		P		Q
n	0.12475687	Peri.	12.94791		-0.96883468		+0.24770570
a	3.9666810	Node	181.39537		-0.23116268		-0.90573837
e	0.1197774	Incl.	2.63785		-0.08901227		-0.34391845
P	7.90	H	12.0	G	0.25		

Residuals in seconds of arc

730919	675	1.0- 0.4-	730929	675	1.4+ 0.8+	780509	675	0.6+ 0.6-
730920	675	0.3+ 0.1+	730930	675	0.4- 0.4-	780510	675	0.6- 0.6+
730924	675	0.2- 0.4+	731004	675	1.2- 0.5+			
730925	675	0.7+ 0.2-	731005	675	0.4+ 0.9-			

1979 MK7 = 1978 JQ3

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	28.40590		(1950.0)		P		Q
n	0.18153038	Peri.	279.97785		-0.82745646		-0.56040377
a	3.0891384	Node	225.94897		+0.53260630		-0.76320800
e	0.1020820	Incl.	2.83474		+0.17789414		-0.32165381
P	5.43	H	13.5	G	0.25		

Residuals in seconds of arc

780509	675	0.1- 0.2+	790625	413	0.3+ 1.0+	790725	675	0.2- 0.1-
780510	675	0.3+ 0.1+	790629	413	0.1- 0.9+	790823	675	0.7- 0.2-
790623	413	(8.7- 0.5+)	790724	675	(3.6+ 0.7-)			
790624	413	2.3- 0.5+	790724	413	1.9+ 0.5-			

1979 TT2 = 1979 WQ1 = 1978 JO3

The double designation 1979 TT2 = 1979 WQ1 is by S. Nakano (MPC 10610) and C. M. Bardwell, who found it independently.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	71.77831		(1950.0)		P		Q
n	0.23919521	Peri.	315.04223		+0.99742109		+0.05727365
a	2.5702100	Node	41.73157		-0.03234077		+0.89666360
e	0.2670138	Incl.	3.72574		-0.06407212		+0.43899216
P	4.12	H	14.0	G	0.25		

Residuals in seconds of arc

780509	675	0.1+ 0.2+	791014	095	0.0 0.1+	791122	095	0.5+ 0.9+
780510	675	0.1- 0.3-	791116	095	0.4- 1.1-			

1979 UQ = 1978 JS3
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	240.12579	(1950.0)	P	Q
n	0.29389025	Peri. 135.98017	+0.93845574	-0.34266826
a	2.2405095	Node 244.10519	+0.30206568	+0.87509321
e	0.1748739	Incl. 2.76210	+0.16750268	+0.34174601
P	3.35	H 14.0	G 0.25	

Residuals in seconds of arc

780509 675	1.0-	1.2-	791020 046	1.8+	0.8+	791025 046	0.0	1.7+
780510 675	0.7+	0.8-	791020 046	1.9+	0.1-	791025 046	(4.4-	1.1-)
791017 095	0.8-	1.0+	791021 330	0.2+	1.6+	791027 330	0.5-	1.7-
791019 046	0.5-	0.4-	791023 046	0.5+	2.0+	791117 095	0.1+	0.6-
791019 046	0.4-	0.6-	791023 046	0.9+	1.3+			

1980 YM = 1981 AJ1 = 1981 BE = 1978 JP3 = 1979 OH16

The triple designation 1980 YM = 1981 AJ1 = 1981 BE is by B. G. Marsden (MPC 5892). The identification 1980 YM = 1979 OH16 was found by D. W. E. Green and by S. Nakano.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	348.06780	(1950.0)	P	Q
n	0.23796886	Peri. 157.51794	+0.65133150	-0.75665900
a	2.5790326	Node 251.79077	+0.68671899	+0.61968901
e	0.1670951	Incl. 3.43236	+0.32277593	+0.20845308
P	4.14	H 13.5	G 0.25	

Residuals in seconds of arc

780509 675	0.1+	0.6-	801230 046	(2.5+	1.9+)	810109 688	0.8+	1.3-
780510 675	0.1-	0.5+	810108 046	0.2+	1.4-	810127 046	2.0-	0.4+
790731 095	0.0	0.1-	810108 046	0.1+	1.2+	810127 046	0.2+	1.0+
801230 046	0.7-	1.3+	810109 688	1.3+	0.9-			

1981 EV8
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	247.23068	(1950.0)	P	Q
n	0.28430123	Peri. 134.45662	+0.96980836	+0.23851815
a	2.2906097	Node 211.84555	-0.24201015	+0.91563798
e	0.1945103	Incl. 5.52517	-0.03004712	+0.32359880
P	3.47	H 15.5	G 0.25	

Residuals in seconds of arc

780509 675	1.2-	1.0+	810301 413	1.4-	0.6+	810406 413	1.7+	1.5-
780510 675	1.3+	0.9-	810307 413	1.0+	0.0	810412 413	1.8-	1.9+
810209 413	0.7-	0.5+	810311 413	0.2+	1.2-	810412 413	2.0+	1.8-
810213 413	2.0+	0.4-	810315 413	2.0-	0.8+	810430 413	0.7+	1.9+
810301 413	(3.3-	2.6+)	810315 413	0.7-	0.1-	810502 413	0.6-	0.3-

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

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

Comet Levy (1988e)
T 1987 Nov. 30.00247 ET

q	1.1769472	(1950.0)	P	Q
		Peri. 326.68038	+0.02072047	+0.53355362
		Node 288.08335	-0.60585825	-0.66602621
e	1.0	Incl. 62.80368	-0.79530274	+0.52127691

From 15 observations 1988 Mar. 22-May 15.

Comet Shoemaker-Holt (1988g)
T 1988 Feb. 14.11823 ET

		(1950.0)	P	Q
q 1.1848585	Peri.	326.95877	+0.02918322	+0.53287546
	Node	288.36141	-0.60812903	-0.66199423
e 1.0	Incl.	63.00617	-0.79330160	+0.52707436

From 8 observations 1988 May 13-16.

(3833)* 1971 SC = 1984 SC

Discovered 1971 Sept. 27 by J. Gibson and C. U. Cesco at the Yale-Columbia Southern Station, El Leoncito. The identification is by C. M. Bardwell (MPC 9157).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

		(1950.0)	P	Q
M 79.59066	Peri.	173.60461	+0.95836696	+0.28311722
n 0.30307730	Node	169.71733	-0.27031603	+0.94144897
a 2.1949962	Incl.	12.00013	-0.09198925	+0.18308054
e 0.3896239				
P 3.25	H 15.6	G 0.25		

Residuals in seconds of arc

710801 675	0.5+	0.8+	840928 675	0.9+	1.0+	870411 675	0.3-	0.2+
710925 808	1.5-	2.0+	840928 675	0.7-	0.4+	870412 675	0.3-	0.7+
710925 808	0.4-	0.5-	840929 675	1.3+	0.6+	870412 675	0.1-	0.6+
710925 808	0.3-	0.4+	841016 801	0.2-	0.6+	870412 675	0.7-	1.5+
710926 805	0.6-	0.4+	841021 801	1.2-	0.2-	870412 675	0.7-	0.7+
710926 805	0.0	0.2-	841021 568	1.3+	1.7-	870507 675	0.1-	0.0
710927 808	0.3-	0.1-	841022 568	1.2+	2.0-	870507 675	0.1-	0.1+
710927 808	0.0	0.6-	841120 801	1.1-	0.6-	870508 675	0.0	0.4-
710927 808	0.3-	0.5-	850111 675	0.6-	1.1+	870508 675	0.2-	0.3-
710929 808	(0.7+	3.1-)	850111 675	0.5-	1.0+	870616 675	0.2-	0.6-
711002 808	0.5+	1.0+	850111 675	1.2-	1.0+	870616 675	0.3+	0.6-
711009 808	1.6+	1.0-	870317 675	0.2+	1.1-	870617 675	0.3+	0.2-
711009 808	0.2-	0.4+	870317 675	0.2+	1.4-	870617 675	0.6+	0.2-
711010 808	(0.3-	5.2+)	870317 675	0.5+	1.1-	870617 675	0.2+	0.4-
711013 808	1.5+	1.8-	870411 675	0.1+	0.3+			
840926 675	1.1-	0.6-	870411 675	0.2+	0.4+			

(3834)* 1980 JE = 1984 GJ = 1984 HD

Discovered 1980 May 11 by L. Brozek at Klet. The identification 1980 JE = 1984 HD is by F. Bowman, T. Furuta, O. Kippes and W. Landgraf, who found it independently (MPC 9028). The double designation 1984 HD = 1984 GJ was found by F. N. Bowman (MPC 9028) and E. Bowell.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

		(1950.0)	P	Q
M 7.41419	Peri.	171.18322	-0.68595407	+0.69983526
n 0.24138793	Node	55.20924	-0.68149169	-0.52192524
a 2.5546163	Incl.	14.04073	-0.25502174	-0.48767270
e 0.1901997				
P 4.08	H 13.3	G 0.25		

Residuals in seconds of arc

800511 046	0.5+	0.5+	840419 046	2.6+	0.4-	880410 046	0.2-	3.0-
800511 046	1.9+	1.1+	840424 046	2.3-	2.0+	880410 046	1.1+	2.5-
800512 046	0.3+	0.1+	840424 046	1.4-	0.1-	880411 046	0.4+	0.3+
800512 046	0.1+	0.1-	840425 046	1.5-	0.7+	880411 046	0.4+	0.5-
800513 046	0.3+	0.1+	840425 046	2.4-	2.3+	880412 046	0.8+	1.4+
800513 046	1.0+	0.7+	840504 688	0.2+	2.0-	880412 046	1.0-	1.8+
800514 046	2.3-	0.7-	840504 688	0.7+	1.1-	880413 801	(4.2+	0.6+)
800514 046	0.7-	0.8-	880219 801	0.4+	1.7+	880414 046	1.0-	1.2+
840408 688	2.2+	0.7+	880317 801	(7.0+	3.2-)	880414 046	1.2+	1.1+
840408 688	1.7+	1.7-	880407 046	(2.5-	2.4-)			
840419 046	0.1-	1.4-	880407 046	1.8-	2.3-			

1976 YF5 = 1983 VO2 = 1988 CM7

The key identification 1976 YF5 = 1988 CM7 is by A. Lowe.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	152.45966		(1950.0)			P			Q		
n	0.27693437		Peri.	45.89262		+0.92076861			-0.38983656		
a	2.3310540		Node	337.03991		+0.34637333			+0.83416435		
e	0.0374858		Incl.	2.14220		+0.17947334			+0.39012470		
P	3.56		H	13.5		G	0.25				

Residuals in seconds of arc

761218	095	0.6-	0.0	831108	381	0.4-	0.1-	880217	809	0.0	0.1-
761220	095	0.7+	0.1-	880215	809	0.7+	0.2-	880217	809	0.3-	0.2-
831108	381	0.3+	0.2-	880217	809	0.1-	0.1-				

1981 GP = 1983 TL2 = 1988 FA

This orbit replaces that on MPC 13044.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	61.93376		(1950.0)			P			Q		
n	0.27293483		Peri.	103.03246		-0.40160089			-0.91256993		
a	2.3537713		Node	11.58536		+0.61841497			-0.33225931		
e	0.3178412		Incl.	22.55301		+0.67548476			-0.23836920		
P	3.61		H	13.5		G	0.25				

Residuals in seconds of arc

810327	046	0.8-	1.5+	810405	688	1.5+	1.3-	831004	688	2.7+	2.5-	
810327	046	2.6-	1.0+	810407	688	0.1-	0.3+	831004	688	0.4+	0.6-	
810329	046	0.2-	1.2-	810407	688	1.5+	0.3-	880318	675	0.2-	0.1+	
810329	046	0.8-	0.2-	810409	688	1.7+	1.6-	880319	675	0.1+	2.0-	
810402	046	0.9-	1.0-	810409	688	2.0+	0.5-	880319	675	0.5+	3.1+	Y
810403	046	2.0-	0.9-	810409	046	2.5-	1.4+	880321	675	0.0	0.7-	
810405	688	1.1+	0.9-	810409	046	0.8-	0.9+	880322	675	0.3-	0.4-	

1982 UP6 = 1988 JA

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M	6.31622		(1950.0)			P			Q		
n	0.27654732		Peri.	34.93787		-0.27592632			+0.92497335		
a	2.3332286		Node	220.89434		-0.94747341			-0.30749498		
e	0.1622181		Incl.	23.52616		-0.16173685			+0.22331847		
P	3.56		H	13.0		G	0.25				

Residuals in seconds of arc

821020	095	0.1-	3.6+	821109	095	0.3+	0.9+	880511	675	0.8+	0.7-
821025	095	0.2-	4.4-	880510	675	0.4-	0.4+	880513	675	0.4-	0.3+

1988 EG

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	164.20006		(1950.0)			P			Q		
n	0.68931478		Peri.	241.42772		+0.44261024			-0.89671076		
a	1.2691832		Node	182.30592		+0.84247331			+0.41677079		
e	0.4993187		Incl.	3.48752		+0.30713987			+0.14903663		
P	1.43		H	18.0		G	0.25				

From 24 observations 1988 Mar. 12-May 19, mean residual 0".9.

1988 GB

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	27.33524		(1950.0)			P			Q		
n	0.35516376		Peri.	222.24700		-0.45936953			+0.88010949		
a	1.9747720		Node	21.28724		-0.70063498			-0.27602252		
e	0.3336064		Incl.	19.29236		-0.54597643			-0.38628856		
P	2.78		H	16.5		G	0.25				

From 10 observations 1988 Mar. 19-May 19, mean residual 0".7.

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

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

(3835)* 1977 SD3 = 1977 TN6 = 1953 FK = 1980 KN1

Discovered 1977 Sept. 23 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	157.16215	(1950.0)		P	Q
n	0.22546314	Peri.	231.87712	+0.68023597	-0.73275847
a	2.6735338	Node	175.13442	+0.72214135	+0.66561228
e	0.1543144	Incl.	12.63201	+0.12566184	+0.14151087
P	4.37	H	12.2	G 0.25	

Residuals in seconds of arc

530316	024	1.9-	3.1-	771016	675	1.0-	0.8+	771022	675	0.9-	3.8+
530320	024	1.4+	0.5+	771016	675	1.6-	0.4+	771022	675	1.0+	0.7-
770923	095	0.9-	2.6+	771017	675	2.2-	0.2+	771022	675	0.5-	0.6-
771007	675	2.5+	2.7-	771017	675	1.8-	2.1+	771022	675	1.5-	0.2-
771008	095	(4.3-	1.7+)	771021	675	0.4+	0.1+	800517	095	0.1-	1.5-
771011	675	0.3+	1.2-	771021	675	0.3+	0.8-	880319	801	2.0+	1.7-
771012	675	3.1+	3.1-	771021	675	0.2+	0.4+	880413	801	2.0-	2.6+
771012	675	3.6+	3.3-	771021	675	0.7-	0.1-				

(3836)* 1979 SR9 = 1985 JC1 = 1985 JH1

Discovered 1979 Sept. 22 by N. S. Chernykh at the Crimean Astrophysical Observatory. The double designation 1985 JC1 = 1985 JH1 is by F. N. Bowman.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	314.17238	(1950.0)		P	Q
n	0.29431940	Peri.	203.88186	+0.20160013	+0.97885002
a	2.2383266	Node	77.76335	-0.89276918	+0.19824781
e	0.1467710	Incl.	2.03983	-0.40289028	+0.05050197
P	3.35	H	13.8	G 0.25	

Residuals in seconds of arc

790922	095	1.0+	0.3+	850515	675	0.6-	0.6+	861229	801	0.8+	0.9-
790928	095	1.9-	0.9-	850515	675	0.2-	2.1+	880219	801	0.3-	0.7-
791016	095	1.0+	0.0	850515	675	0.2-	0.4-	880318	801	0.2+	0.5+
850511	675	0.4+	1.8-	861201	801	0.6-	1.0+				

(3837)* 1981 JU2 = 1979 YO7 = 1986 VS

Discovered 1981 May 6 by C. S. Shoemaker at Palomar.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M	294.99028	(1950.0)		P	Q
n	0.26103819	Peri.	40.47757	+0.06582034	+0.99553289
a	2.4247484	Node	233.40294	-0.93584596	+0.03805256
e	0.0722951	Incl.	4.83649	-0.34620806	+0.08640754
P	3.78	H	13.0	G 0.25	

Residuals in seconds of arc

791223	095	0.4-	2.6-	861103	046	0.8+	2.2-	880216	809	1.2+	0.5-
810411	675	0.5-	0.3+	861106	688	1.3+	1.4+	880216	809	1.2+	0.6-
810411	675	1.5-	1.6-	861106	688	1.1+	1.9+	880216	809	0.9+	0.7-
810505	675	0.6+	1.2-	861107	046	2.8-	1.5-	880223	809	1.4-	1.0+
810506	675	0.1-	0.5-	861107	046	1.2-	0.2-	880223	809	1.2-	1.8+
810511	675	0.4+	0.1-	880213	809	0.4+	0.8+	880223	809	1.5-	1.1+
861103	046	1.2+	1.8-	880215	809	1.0+	1.0-				

(3838)* 1986 WA

Discovered 1986 Nov. 27 by A. Maury at Palomar.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 18.02032	(1950.0)		P	Q
n 0.53392842	Peri. 49.34886		+0.17069988	+0.89967936
a 1.5048066	Node 235.15383		-0.98506967	+0.14657518
e 0.7013953	Incl. 29.31308		-0.02234485	+0.41120891
P 1.85	H 15.5	G 0.25		

Residuals in seconds of arc

861127	675	(5.5-	0.8+)Y	861231	688	0.2+	0.5-	871221	691	1.2+	0.1-
861127	675	(6.1-	5.1+)Y	870125	691	2.6-	1.2+	871221	691	1.4+	0.1-
861130	675	(4.8+	0.4+)	870125	691	2.8-	1.1+	871222	691	1.5+	0.6+
861130	675	(6.1+	2.2-)	870125	691	2.9-	1.1+	871222	691	1.7+	0.3-
861201	494	1.5-	0.0	870129	691	0.3+	1.0-	880113	688	0.5-	2.1-
861202	801	0.2+	0.5-	870129	691	0.2+	1.1-	880113	688	1.0-	1.7-
861202	688	1.8-	0.7-	870129	691	0.1-	0.9-	880212	691	1.1-	0.9+
861203	675	1.4-	2.9+ Y	870201	688	1.1+	0.4+	880212	691	0.9-	0.8+
861203	675	0.2+	0.7- Y	870201	688	0.4+	0.3+	880213	691	1.3-	0.6+
861204	691	1.3+	0.4-	870228	691	1.3+	0.0	880213	691	0.9-	0.8+
861204	691	1.1+	0.0	870228	691	1.0+	0.0	880213	691	1.1-	0.9+
861204	691	1.1+	0.5+	871119	675	0.0	0.7-	880313	691	0.7+	1.2+
861204	801	1.7+	0.7-	871119	675	0.7+	0.0	880313	691	0.2+	1.1+
861221	675	0.9+	0.0	871119	675	0.3-	1.3-	880315	691	0.4+	0.7-
861221	675	0.8+	0.5-	871119	675	0.3-	0.6-	880315	691	1.0+	0.5-
861231	688	0.5+	0.5-	871221	691	1.1+	0.4+				

1948 AG = 1964 BD = 1988 BY

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 45.96500	(1950.0)		P	Q
n 0.36839445	Peri. 42.97169		-0.80135309	-0.44951946
a 1.9272024	Node 106.25623		+0.37336373	-0.89134045
e 0.0756243	Incl. 24.27444		+0.46736789	-0.05868954
P 2.68	H 15.0	G 0.25		

Residuals in seconds of arc

480114	662	0.6+	0.0	480122	662	0.4+	1.3+	880216	675	0.5+	0.5-
480114	662	0.9+	0.2+	640118	012	(7.0+	8.8-)	880217	675	0.1-	0.2+
480117	662	0.2-	0.1+	880121	675	0.6-	0.5+	880220	675	0.6-	0.1+
480117	662	0.8-	0.4+	880123	675	0.1-	0.7-				
480122	662	0.4+	0.1+	880124	675	0.2+	0.7+				

1955 EH = 1977 CB1 = 1988 CD1

The key identification 1977 CB1 = 1988 CD1 is by A. Lowe.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 111.09619	(1950.0)		P	Q
n 0.26844772	Peri. 277.46352		+0.35741536	-0.93210968
a 2.3799277	Node 151.37645		+0.89779829	+0.32564003
e 0.1520361	Incl. 7.01789		+0.25731786	+0.15852479
P 3.67	H 13.0	G 0.25		

Residuals in seconds of arc

550314	760	0.4+	0.4+	550323	760	0.5-	0.9-	880211	675	0.2-	0.6-
550314	760	0.1-	1.1+	770213	675	0.0	0.4+	880214	675	(16.6-	4.0-)
550323	760	0.5+	0.6-	770214	675	0.1+	0.0				

1974 SP1 = 1977 EV3 = 1980 TV11 = 1986 XJ1 = 1988 CB1

The key identification 1980 TV11 = 1988 CB1 is by A. Lowe.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 115.83825	(1950.0)		P	Q
n 0.17236679	Peri. 355.25528		+0.56520769	-0.82446303
a 3.1976765	Node 60.32535		+0.75790637	+0.50542130
e 0.1464275	Incl. 1.86665		+0.32575789	+0.25457811
P 5.72	H 13.0	G 0.25		

Residuals in seconds of arc

740919 095	0.3+	1.2-	801017 095	2.8-	1.7-	861128 046	4.1+	1.1+
740921 095	0.8+	0.8+	861125 046	1.3-	0.6+	861204 688	0.3+	0.8-
740923 095	2.3+	2.1-	861125 046	2.1-	0.2-	861204 688	0.1-	0.7+
770315 381	0.5-	0.2-	861126 046	2.9-	0.7+	880214 033	1.8-	0.6-
770315 381	0.6+	0.9-	861126 046	1.1+	0.0	880215 033	0.4-	1.2-
801010 095	0.8-	0.9-	861128 046	3.2+	0.4+	880215 033	0.1+	1.0-

1983 TN1 = 1969 OG1 = 1975 EC5 = 1978 EE4 = 1988 CR6

The key identifications 1983 TN1 = 1978 EE4 = 1988 CR6 are by A. Lowe.

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 157.26111		(1950.0)		P	Q
n 0.29474413	Peri.	151.01688	+0.87827105		-0.47577734
a 2.2361758	Node	237.47010	+0.42705376		+0.82536141
e 0.0436620	Incl.	3.24374	+0.21509311		+0.30399748
P 3.34	H	13.0	G	0.25	

Residuals in seconds of arc

690720 074	1.6-	2.0-	750315 095	(4.4-	16.1-)	880215 046	2.3-	1.0-
690720 074	0.1+	2.0-	780306 095	0.3-	1.7-	880215 046	1.5-	2.1-
690720 074	0.4+	1.4-	831012 688	1.6+	1.5-	880216 046	0.5+	1.1-
690720 074	(3.0-	3.3-)	831012 688	1.2+	0.6-	880216 046	1.0+	2.0-
690720 074	1.3+	2.8-	831104 688	0.4+	0.2+			
690720 074	(4.2+	2.7-)	831104 688	1.8-	1.8-			

1985 RV

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 321.32792		(1950.0)		P	Q
n 0.26263865	Peri.	41.45424	+0.50325115		+0.84720507
a 2.4148926	Node	259.41529	-0.83140364		+0.42098608
e 0.2572848	Incl.	9.97320	-0.23559766		+0.32405909
P 3.75	H	15.5	G	0.25	

Residuals in seconds of arc

850912 691	0.3-	0.2-	850920 691	0.2-	0.4+	851014 691	0.4+	0.1-
850912 691	1.0+	0.6-	850920 691	0.0	0.2+	860113 691	0.4+	0.1+
850912 691	0.7+	0.4-	850922 691	(2.1-	0.2-)	860113 691	0.2-	0.1+
850913 691	(3.8+	2.6+)	850922 691	0.5-	0.1+	860113 691	0.0	0.1-
850913 691	0.2+	1.0+	850922 691	0.0	0.1-	880412 691	0.2-	0.4+
850913 691	0.2-	1.3+	851007 691	0.4+	0.1-	880412 691	1.0+	1.3+
850914 691	1.5-	0.5-	851007 691	0.5+	0.3-	880419 691	0.4-	1.0-
850914 691	0.4-	0.6-	851007 691	0.6+	0.7-	880419 691	0.3-	0.7-
850914 691	1.2-	0.4-	851014 691	0.2+	0.3-	880419 691	0.4-	0.9-
850920 691	0.1+	0.5+	851014 691	0.4+	0.1-			

1986 AH = 1986 AR1 = 1978 EW3

The identification 1986 AH = 1978 EW3 is by L. D. Schmadel. The double designation 1986 AH = 1986 AR1 is by F. N. Bowman (MPC 10610).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 73.91024		(1950.0)		P	Q
n 0.36805088	Peri.	263.44033	+0.81022995		-0.48155276
a 1.9284016	Node	124.81714	+0.55016856		+0.82142357
e 0.1168895	Incl.	24.01492	-0.20209401		+0.30556548
P 2.68	H	14.5	G	0.25	

Residuals in seconds of arc

780306 095	0.1+	0.3-	860116 675	0.9-	0.5-	860205 675	1.2-	1.6+
860109 675	1.0+	0.3-	860117 688	0.6-	1.6-	860207 675	0.9+	0.8-
860111 688	0.5+	0.7-	860117 688	1.0+	2.1+	870622 675	0.1+	0.5-
860111 688	1.3-	0.7+	860204 675	0.5+	0.3-	870623 675	0.1-	0.6+

1987 KE1 = 1987 MD = 1956 GE = 1966 EA = 1986 GB2

The double designation 1987 KE1 = 1987 MD is by F. N. Bowman (MPC 12187).

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 354.91270	(1950.0)	P	Q	
n 0.19629657	Peri. 207.75154	+0.97375917	+0.01289346	
a 2.9322044	Node 148.84258	-0.01028009	+0.99986674	
e 0.0689852	Incl. 26.05003	-0.22734862	+0.01001284	
P 5.02	H 11.0	G 0.25		

Residuals in seconds of arc

560412 760	0.2-	3.0-	870531 675	1.0+	0.0	870623 675	0.4+	1.2-
660315 330	0.1+	0.0	870531 675	1.0+	0.7-	870626 675	0.5-	0.8+
860413 071	0.8-	1.2+	870621 675	0.2+	0.2-	870628 675	1.6-	2.0+
860413 071	0.6+	2.3+	870622 675	0.8-	0.0			

1988 BN

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 24.74251	(1950.0)	P	Q
n 0.22672293	Peri. 217.41783	-0.93948532	+0.02053343
a 2.6636209	Node 319.34444	+0.24165730	-0.66783042
e 0.2257300	Incl. 31.66105	-0.24283552	-0.74403018
P 4.35	H 12.5	G 0.25	

From 12 observations 1988 Jan. 19-Apr. 14, mean residual 0".9.

1988 BX1

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 63.54106	(1950.0)	P	Q
n 0.08161427	Peri. 344.87469	+0.42619878	-0.74712596
a 5.2637103	Node 77.49729	+0.87470309	+0.19652509
e 0.0661773	Incl. 31.49645	+0.23075767	+0.63496511
P 12.08	H 9.5	G 0.25	

From 12 observations 1988 Jan. 21-Apr. 14, mean residual 0".9.

1988 BY1

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5

M 66.51216	(1950.0)	P	Q
n 0.08253750	Peri. 9.64223	+0.60985979	-0.75139938
a 5.2243852	Node 43.35616	+0.70043162	+0.36232180
e 0.1345210	Incl. 21.52852	+0.37076487	+0.55147247
P 11.94	H 10.0	G 0.25	

From 10 observations 1988 Jan. 23-Apr. 14, mean residual 0".6.

1988 FJ = 1982 BF3

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)

M 76.74738	(1950.0)	P	Q
n 0.36093158	Peri. 146.17862	-0.85829120	-0.51286778
a 1.9536810	Node 3.12440	+0.37094742	-0.64350503
e 0.0814361	Incl. 18.62027	+0.35459023	-0.56821467
P 2.73	H 14.0	G 0.25	

Residuals in seconds of arc

820118 033	0.0	1.0+	820119 033	0.0	0.9-	880322 675	0.8+	0.5-
820118 033	1.5+	0.7+	880318 675	0.7+	0.7-	880412 675	1.2+	0.8-
820118 033	0.8-	0.4+	880319 675	0.1+	0.5-	880418 675	0.0	0.6-
820119 033	0.1-	0.6-	880321 675	0.3-	0.4-			

NEW NAMES OF MINOR PLANETS.

(2261) Keeler = 1977 HC
Discovered 1977 Apr. 20 by A. R. Klemola at the Lick Observatory.
Named in memory of James E. Keeler (1857-1900), pioneer American astrophysicist and second director of the Lick Observatory. He measured accurately the wavelengths of the chief nebular lines, confirmed spectroscopically the particle nature of Saturn's rings and recognized the spiral "nebulae" as numerous, important constituents of the universe. In 1899 he also discovered photographically with the Crossley reflector the faint minor planet (452) Hamiltonia. Citation prepared by D. E. Osterbrock.

(2448) Sholokhov = 1975 BU
Discovered 1975 Jan. 18 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of Mikhail Aleksandrovich Sholokhov (1905-1984), famous Soviet writer, Nobel prize-winner.

(2457) Rublyov = 1975 TU2
Discovered 1975 Oct. 3 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named for Andrej Rublyov (ca. 1360-ca. 1430), a world-renowned Russian painter who worked on the paintings of some of the cathedrals in Moscow and elsewhere.

(2468) Repin = 1969 TO1
Discovered 1969 Oct. 8 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named in honor of Il'ya Efimovich Repin (1844-1930), famous Russian painter.

(2480) Papanov = 1976 YS1
Discovered 1976 Dec. 16 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of Anatolij Dmitrievich Papanov (1922-1987), talented Soviet actor.

(2540) Blok = 1971 TH2
Discovered 1971 Oct. 13 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named in honor of Aleksandr Aleksandrovich Blok (1880-1921), outstanding Russian poet.

(2583) Fatyanov = 1975 XA3
Discovered 1975 Dec. 3 by T. M. Smirnova at the Crimean Astrophysical Observatory.
Named in memory of Aleksej Ivanovich Fat'yanov (1919-1959), well-known Soviet poet and writer of popular songs.

(2604) Marshak = 1972 LD1
Discovered 1972 June 13 by T. M. Smirnova at the Crimean Astrophysical Observatory.
Named in memory of Samuil Yakovlevich Marshak (1887-1964), famous Soviet poet, writer of classic children's literature. His translations of poems by Robert Burns and of sonnets by Shakespeare won him wide recognition.

(2754) Efimov = 1966 PD
Discovered 1966 Aug. 13 by T. M. Smirnova at the Crimean Astrophysical Observatory.
Named in memory of the aviator Mikhail Nikiforovich Efimov (1881-1919), who was the first to realize steep turns and dives.

(2771) Polzunov = 1978 SP7
Discovered 1978 Sept. 26 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named for Ivan Ivanovich Polzunov (1728-1766), inventor of the first universal steam-engine in Russia.

(2965) Surikov = 1975 BX
Discovered 1975 Jan. 18 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named in memory of Vasilij Ivanovich Surikov (1848-1916), famous Russian painter.

(2990) Trimberger = 1981 EN27
Discovered 1981 Mar. 2 at Siding Spring by S. J. Bus in the course of the U.K. Schmidt-Caltech Asteroid Survey.
Named in honor of Stephen M. Trimberger, who as a Caltech undergraduate participated in the Palomar Planet-Crossing Asteroid Survey. He works in computer software development and has authored two books on computer-aided design for integrated circuits.

(3029) Sanders = 1981 EA8
Discovered 1981 Mar. 1 at Siding Spring by S. J. Bus in the course of the U.K. Schmidt-Caltech Asteroid Survey.
Named in honor of Jeffrey D. Sanders, who participated in the Palomar Planet-Crossing Asteroid Survey as a Caltech undergraduate student.

(3042) Zelinsky = 1981 EF10
Discovered 1981 Mar. 1 at Siding Spring by S. J. Bus in the course of the U.K. Schmidt-Caltech Asteroid Survey.
Named in honor of David S. Zelinsky, now a mathematician at Brown University, Providence, formerly an active participant in the Palomar Planet-Crossing Asteroid Survey while an undergraduate student at Caltech.

(3049) Kuzbass = 1968 FH
Discovered 1968 Mar. 28 by T. M. Smirnova at the Crimean Astrophysical Observatory.
Named for the Kuznetskij coal basin, one of the richest coal deposits in the U.S.S.R. and the world.

(3055) Annapavlova = 1978 TR3
Discovered 1978 Oct. 4 by T. M. Smirnova at the Crimean Astrophysical Observatory.
Named in honor of the renowned ballet-dancer Anna Pavlovna Pavlova (1881-1931).

(3059) Pryor = 1981 EF23
Discovered 1981 Mar. 3 at Siding Spring by S. J. Bus in the course of the U.K. Schmidt-Caltech Asteroid Survey.
Named in honor of Carlton P. Pryor, who participated in the Palomar Planet-Crossing Asteroid Survey while an undergraduate student at Caltech. Until recently an astronomer at Vanderbilt University, he is now a research fellow at Rutgers University.

(3067) Akhmatova = 1982 TE2
Discovered 1982 Oct. 14 by L. G. Karachkina and L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named in honor of Anna Andreevna Akhmatova (1889-1966), outstanding poetess, awarded an honorary doctorate by the University of Oxford.

(3074) Popov = 1979 YE9
Discovered 1979 Dec. 24 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named in memory of Aleksandr Stepanovich Popov (1859-1906), the inventor of radio in Russia.

(3075) Bornmann = 1981 EY15
Discovered 1981 Mar. 1 at Siding Spring by S. J. Bus in the course of the U.K. Schmidt-Caltech Asteroid Survey.
Named in honor of Patricia L. Bornmann, who participated in the Palomar Planet-Crossing Asteroid Survey while an undergraduate student at Caltech and now performs solar research at the National Oceanic and Atmospheric Administration in Boulder.

(3093) Bergholz = 1971 MG
Discovered 1971 June 28 by T. M. Smirnova at the Crimean Astrophysical Observatory.
Named in memory of Ol'ga Fedorovna Bergholz (1910-1975), talented poetess and writer.

(3095) Omarkhayyam = 1980 RT2
Discovered 1980 Sept. 8 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named for great Tadjik and Persian poet, mathematician and philosopher Omar Khayyam Giyasaddin-abu-L' Fatkh ibn Ibragim (ca. 1048-after 1122).

(3108) Lyubov = 1972 QM
Discovered 1972 Aug. 18 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named in memory of Lyubov Petrovna Orlova (1902-1975), outstanding Soviet actress.

(3135) Lauer = 1981 EC9
Discovered 1981 Mar. 1 at Siding Spring by S. J. Bus in the course of the U.K. Schmidt-Caltech Asteroid Survey.
Named in honor of Tod R. Lauer, who participated in the Palomar Planet-Crossing Asteroid Survey while an undergraduate student at Caltech. Now an astronomer at Princeton University, he is engaged in extragalactic studies and is a member of the Space Telescope Wide-Field Camera Team.

(3140) Stellafane = 1983 AO
Discovered 1983 Jan. 9 by B. A. Skiff at the Anderson Mesa Station of the Lowell Observatory.
Named for the regional telescope makers' annual meeting in Vermont that has become recognized worldwide as a preeminent gathering for telescopic design and innovation. The "Shrine to the Stars" has provided a forum to exchange astronomical ideas, to enhance the performance of astronomical instruments and to further good contact between amateurs and professionals. Name suggested and citation provided by P. L. Dombrowski.

(3146) Dato = 1972 KG
Discovered 1972 May 17 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Named in memory of Dato Kratsashvili (1963-1980), gifted Georgian painter.

(3152) Jones = 1983 LF

Discovered 1983 June 7 by A. C. Gilmore and P. M. Kilmartin at the Mount John Observatory.

Named in honor of Albert Francis Arthur Lofley Jones, New Zealand amateur astronomer renowned for the quantity and precision of his visual magnitude estimates of variable stars. His record of some 300 000 variable star observations over nearly 50 years is unrivaled worldwide. He is also a noted observer of comets and the discoverer of comet 1946 VI. He was an independent discoverer of supernova 1987A in the Large Magellanic Cloud.

(3157) Novikov = 1973 SX3

Discovered 1973 Sept. 25 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Named in memory of Aleksej Ivanovich Novikov (1916-1986), Soviet aviator and poet.

(3214) Makarenko = 1978 TZ6

Discovered 1978 Oct. 2 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Named in memory of Anton Semenovich Makarenko (1888-1939), outstanding Soviet teacher and writer.

(3218) Delphine = 6611 P-L

Discovered 1960 Sept. 24 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Named in honor of Delphine Jehoulet Delsemme, wife of astronomer Armand Delsemme of the University of Toledo, Ohio. Before her marriage she contributed to astronomical research by investigating the behavior of the population II Cepheid RU Camelopardalis and as a co-recoverer of periodic comet Honda-Mrkos-Pajdusakova at its first predicted return.

(3231) Mila = 1972 RU2

Discovered 1972 Sept. 4 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Named in memory of the Soviet ice dancer Ludmila Alekseevna Pakhomova (1946-1986).

(3260) Vizbor = 1974 SO2

Discovered 1974 Sept. 20 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Named in memory of Yurij Iosifovich Visbor (1934-1984), well-known journalist, poet, actor, producer and bard.

(3321) Dasha = 1975 TZ2

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

Named in honor of Dar’ya Lavrent’evna Mikhailova, the first Russian army sister of charity during the Crimean War, known as Dasha Sevastopol’skaya.

(3332) Raksha = 1978 NT1

Discovered 1978 July 4 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Named in memory of Yurij Mikhajlovich Raksha (1937-1980), gifted artist well known for his paintings and for his work in film-making.

(3345) Tarkovskij = 1982 YC1
Discovered 1982 Dec. 23 by L. G. Karachkina at the Crimean Astrophysical Observatory.
Named in memory of Andrej Arsen'evich Tarkovskij (1932-1986), Soviet theater and film producer.

(3376) Armandhammer = 1982 UJ8
Discovered 1982 Oct. 21 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named in honor of the American businessman Armand Hammer, a champion of good trade relations between the U.S.A. and the U.S.S.R.

(3384) Daliya = 1974 SB1
Discovered 1974 Sept. 19 by L. I. Chernykh at the Crimean Astrophysical Observatory.
Named for Vladimir Ivanovich Dal' (1801-1872), outstanding lexicologist, ethnographer and writer, compiler of the famous "Explanatory Dictionary of the Living Russian Language".

(3511) Tsvetaeva = 1982 TC2
Discovered 1982 Oct. 14 by L. G. Karachkina and L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named in honor of Marina Ivanovna Tsvetaeva (1892-1941), talented Soviet poetess.

(3620) Platonov = 1981 RU2
Discovered 1981 Sept. 7 by L. G. Karachkina at the Crimean Astrophysical Observatory.
Named in memory of the writer Andrej Platonovich Platonov (1899-1951).

(3622) Ilinsky = 1981 SX7
Discovered 1981 Sept. 29 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named in memory of the actor Igor' Vladimirovich Il'insky (1901-1987).

(3623) Chaplin = 1981 TG2
Discovered 1981 Oct. 4 by L. G. Karachkina at the Crimean Astrophysical Observatory.
Named in memory of the great film actor and producer Charles Spencer Chaplin (1889-1977).

(3624) Mirovnov = 1982 TH2
Discovered 1982 Oct. 14 by L. G. Karachkina and L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named in memory of Soviet actor and producer Andrej Aleksandrovich Mironov (1941-1987).

(3655) Eupraksia = 1978 SA3
Discovered 1978 Sept. 26 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Named for the wife of the thirteenth-century prince Fyodor Ryazansky. She preferred death to being taken prisoner by the Tatar-Mongolians.

(3668) Ilfpetrov = 1982 UM7
Discovered 1982 Oct. 21 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Named for Il'ya Arnol'dovich Feinsilberg (1897-1937) and Eugeny Petrovich Kataev (1903-1942), the authors of the books "Twelve Chairs" and "Golden Calf".

(3675) Kemstach = 1982 YP1

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

Named in memory of Marfa Vladimirovna Kemstach (1888-1971) and Semen Stepanovich Kemstach (1880-1938), grandparents of the discoverer.

(3713) Pieters = 1985 FA2

Discovered 1985 Mar. 22 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Carle M. Pieters, geologist on the faculty of Brown University, Providence. Pieters obtained the first compositionally diagnostic observations of an earth-approaching minor planet when she observed (433) Eros during its 1974-75 apparition. She has extensively studied the surface composition of geological units on the near side of the moon using groundbased reflectance spectroscopy combined with laboratory measurements of returned lunar samples. Pieters has also developed and applied remote sensing techniques for the study of the earth, Mars and Venus using airborne and spacecraft data. Name suggested and citation provided by L. A. McFadden.

(3714) Kenrussell = 1983 TT1

Discovered 1983 Oct. 12 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named for Ken S. Russell, an astronomer at the U.K. Schmidt Telescope Unit, Siding Spring Observatory. For more than a decade, Russell has been concerned with most aspects of the operation of the 1.2-m U.K. Schmidt, including observation, data analysis and computer programming. He has been involved with the so-called ESO/SERC Southern Sky Survey and was instrumental in securing a very fine series of photographic images of P/Halley during its recent apparition. Russell has discovered five comets --four of them periodic--since 1979, and he worked on the observational phase of the U.K. Schmidt-Caltech Asteroid Survey in 1981. Recently, he began a collaboration with the discoverer on a deep astrometric survey of minor planets, bringing to bear his expertise in image recognition to the problem of semiautomatic identification and measurement of minor-planet images. Name endorsed by S. J. Bus and B. G. Marsden.

(3721) Widorn = 1982 TU

Discovered 1982 Oct. 13 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in memory of Thomas R. Widorn, for several decades an astronomer at the Vienna University Observatory. Widorn is best known for his discovery of an inverse relationship between the geometric albedo and the rate of change of the optical polarization with solar phase angle, which led to improved estimates of the diameters of minor planets. Name suggested and citation provided by H. F. Haupt.

(3726) Johnadams = 1981 LJ

Discovered 1981 June 4 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of John B. Adams, geologist at the University of Washington, Seattle. Adams experimentally calibrated the relationship between pyroxene chemistry and the wavelength of the pyroxene band present in the absorption spectra of many minor planets, this band being the most important diagnostic feature for interpreting surface composition. He has

continued to develop remote sensing techniques that have contributed to our understanding of the composition and evolution of the asteroids and planets, including the earth. Name suggested and citation provided by L. A. McFadden.

(3744) Horn-d'Arturo = 1983 VE

Discovered 1983 Nov. 5 at the Osservatorio San Vittore.

Named in memory of Guido Horn-d'Arturo (1879-1967), director of the Bologna Observatory for almost half a century and a talented astronomer far ahead of his time. A pioneer in the design and construction of multiple-mirror telescopes, he designed and utilized the world's first such instrument, a 1.80-m zenith telescope at Bologna. In the 1920s he correctly interpreted the shadow-band phenomenon and attributed an important component of stellar scintillation to currents in the earth's stratosphere. Following a suggestion by Luigi Jacchia, he founded the magazine "Coelum" in 1931.

(3748) Tatum = 1981 JQ

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

Named in honor of Jeremy B. Tatum, professor of astronomy at the University of Victoria, British Columbia. An enthusiastic teacher and expert in molecular spectroscopy, especially of comets and interstellar gas clouds, Tatum was the chief founder and is the driving force behind the Climenhaga Observatory's program of astrometry of minor planets and comets, the only one of its kind in Canada. Name suggested and citation provided by C. Spratt.

(3749) Balam = 1982 BG1

Discovered 1982 Jan. 24 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of David D. Balam, research assistant at the University of Victoria's Climenhaga Observatory. In addition to being the observatory's principal observer, Balam has developed most of the software for the astrometric program on minor planets and comets. Name suggested and citation provided by C. Spratt.

(3766) Junepatterson = 1983 BF

Discovered 1983 Jan. 16 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Names in memory of June C. Patterson (1923-1988) of Sierra Vista, Arizona. She and her husband David were well-known amateur astronomers. Through their volunteer work with astronomy clubs and the Flandrau Planetarium in Tucson, the Pattersons inspired many young people to pursue interests in astronomy. Name proposed by J. V. Scotti and D. H. Levy.

(3780) Maury = 1985 RL

Discovered 1985 Sept. 14 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of Alain Maury, photographic scientist working on the Palomar Sky Survey II at Mount Palomar Observatory. Well known as a discoverer of comets and earth-approaching minor planets, Maury began his professional career in his native France at the CERGA Schmidt telescope. He joined the Palomar team in 1984. Citation provided by D. H. Levy at the request of the discoverer.

(3783) Morris = 1986 TW1

Discovered 1986 Oct. 7 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named for Charles S. Morris, one of the foremost visual observers of comets. In addition to making more than 1200 photometric observations

of more than 90 comets, he made a rare visual recovery of P/Faye in 1983, and he has been most helpful in confirming newly discovered comets at the request of the Central Bureau for Astronomical Telegrams. He has done much analytical work with visual magnitude data and has contributed extensively to the development of the International Comet Quarterly, of which he is associate editor, and its photometric archive. Name suggested and citation prepared by D. W. E. Green and D. H. Levy.

(3784) Chopin = 1986 UL1

Discovered 1986 Oct. 31 by E. W. Elst at Haute Provence.

Named in memory of the great composer and pianist Frederic Chopin (1810-1849).

(3789) Zhongguo = 1928 UF

Discovered 1928 Oct. 25 by Y. C. Chang at the Yerkes Observatory.

This minor planet, originally intended to be (1125) China, was accidentally usurped from that number and name by 1957 UN1, discovered by Y. C. Chang at the Purple Mountain Observatory. It seems therefore particularly appropriate that 1928 UF should receive the Chinese form of the name China. The minor planet is a 2:1 Jupiter librator.

(3801) Thrasymedes = 1985 VS

Discovered 1985 Nov. 6 by SPACEWATCH at Kitt Peak.

Named for the son of Nestor and brother of Antilochus. Thrasymedes commanded a fleet of 15 ships to Troy and was involved in the fight against Memnon during which Antilochus was killed. He later was among the warriors hidden inside the wooden horse. It has been noted that the orbits of (1583) Antilochus and (3801) Thrasymedes are quite similar, suggesting a common origin for these two minor planets.

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EPHEMERIDES.

Comet Shoemaker-Holt (1988g) Elements MPC 13166

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1988 05 19		22 19.24	+27 40.4	1.879	1.856	73.0	31.4	10.6
1988 05 29		22 20.59	+34 04.3					
1988 06 08		22 18.56	+40 04.8	1.928	2.074	83.5	29.1	11.1
1988 06 18		22 12.43	+45 33.7					
1988 06 28		22 01.53	+50 21.8	2.019	2.297	92.3	26.2	11.6
1988 07 08		21 45.50	+54 19.6					
1988 07 18		21 24.67	+57 18.4	2.153	2.520	99.0	23.5	12.2
1988 07 28		21 00.53	+59 12.6					
1988 08 07		20 35.68	+60 02.7	2.329	2.743	103.1	21.1	12.7
1988 08 17		20 12.97	+59 56.0					
1988 08 27		19 54.61	+59 05.0	2.542	2.963	104.6	19.3	13.2
1988 09 06		19 41.51	+57 44.1					
1988 09 16		19 33.61	+56 05.8	2.788	3.181	103.7	17.9	13.8
1988 09 26		19 30.32	+54 20.7					
1988 10 06		19 30.86	+52 36.2	3.064	3.395	100.7	16.8	14.2
1988 10 16		19 34.51	+50 57.7					
1988 10 26		19 40.63	+49 28.8	3.362	3.607	96.1	15.9	14.7

(3753) 1986 TO a,e,i = 1.00, 0.51, 20 Elements MPC 12784

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19		00 11.53	-04 10.5	1.624	1.366	56.9	38.3	18.1
1988 05 29		00 32.95	-03 33.7					

1988 06 08	00 53.75	-03 08.5	1.516	1.442	66.0	40.0	18.1
1988 06 18	01 14.00	-02 57.6					
1988 06 28	01 33.73	-03 04.1	1.367	1.490	75.8	41.4	18.0
1988 07 08	01 52.96	-03 31.3					
1988 07 18	02 11.65	-04 23.6	1.189	1.510	86.1	42.2	17.7
1988 07 28	02 29.71	-05 45.9					
1988 08 07	02 47.03	-07 44.1	0.997	1.504	96.8	42.0	17.3
1988 08 17	03 03.37	-10 25.7					
1988 08 27	03 18.42	-13 58.8	0.807	1.471	107.6	40.9	16.8
1988 09 06	03 31.77	-18 32.0					
1988 09 16	03 42.70	-24 13.6	0.639	1.411	116.4	39.7	16.2
1988 09 26	03 50.25	-31 05.9					
1988 10 06	03 52.93	-39 03.6	0.511	1.322	118.4	41.7	15.6
1988 10 16	03 48.13	-47 46.7					
1988 10 26	03 31.49	-56 38.6	0.431	1.203	108.5	51.6	15.3
1988 10 31	03 16.35	-60 54.2					
1988 11 05	02 54.47	-64 53.9	0.405	1.131	99.5	59.8	15.2
1988 11 10	02 23.36	-68 29.0					
1988 11 15	01 39.9	-71 27.6	0.383	1.052	88.6	70.1	15.3
1988 11 20	00 41.2	-73 32.9					
1988 11 25	23 28.3	-74 21.9	0.362	0.964	75.8	82.9	15.4
1988 11 30	22 09.7	-73 31.6					
1988 12 05	20 58.0	-70 51.8	0.342	0.869	60.4	99.6	15.8
1988 12 10	20 00.04	-66 25.8					
1988 12 15	19 15.70	-60 22.1	0.333	0.768	41.6	121.7	16.9

1988 GB a,e,i = 1.97, 0.33, 19 Elements MPC 13167

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07		14 42.96	-52 04.0	0.816	1.403	99.5	45.5	18.3
1988 08 17		15 27.74	-52 37.5					
1988 08 27		16 13.77	-52 19.0	0.947	1.466	97.0	43.1	18.7
1988 09 06		16 58.83	-51 10.6					
1988 09 16		17 41.34	-49 19.5	1.109	1.541	93.4	40.6	19.1
1988 09 26		18 20.43	-46 55.7					
1988 10 06		18 55.91	-44 09.2	1.306	1.623	88.4	38.0	19.5
1988 10 16		19 28.07	-41 08.3					
1988 10 26		19 57.35	-37 59.6	1.536	1.708	81.9	35.2	19.9

Periodic Comet Shoemaker-Holt (1987z) Elements MPC 12792

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1988 08 07		06 12.94	+20 48.7	3.774	3.084	41.2	12.5	19.8
1988 08 17		06 27.84	+20 31.8					
1988 08 27		06 42.02	+20 09.6	3.593	3.102	53.6	15.2	19.7
1988 09 06		06 55.38	+19 42.7					
1988 09 16		07 07.75	+19 12.2	3.378	3.123	66.9	17.2	19.6
1988 09 26		07 18.97	+18 39.0					
1988 10 06		07 28.90	+18 04.6	3.139	3.148	81.3	18.3	19.5
1988 10 16		07 37.32	+17 30.1					
1988 10 26		07 44.06	+16 57.2	2.891	3.176	97.4	18.1	19.3
1988 11 05		07 48.92	+16 27.2					
1988 11 15		07 51.73	+16 01.7	2.656	3.207	115.3	16.2	19.2
1988 11 25		07 52.35	+15 42.0					
1988 12 05		07 50.79	+15 29.1	2.463	3.241	135.5	12.3	19.1
1988 12 15		07 47.14	+15 23.6					
1988 12 25		07 41.75	+15 25.2	2.348	3.278	157.5	6.6	19.0
1989 01 04		07 35.14	+15 33.2					
1989 01 14		07 28.03	+15 46.0	2.338	3.318	173.6	1.9	19.1

(3553) Mera a,e,i = 1.64, 0.32, 37 Elements MPC 11617

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	02 49.50	+44 12.7	1.582	2.002	98.7	29.9	20.4
1988	09 06	02 56.86	+44 41.8					
1988	09 16	03 00.50	+44 47.1	1.309	1.946	113.8	28.2	19.9
1988	09 26	02 59.57	+44 18.5					
1988	10 06	02 53.42	+43 01.6	1.056	1.883	132.6	23.0	19.3
1988	10 16	02 41.99	+40 36.2					
1988	10 26	02 26.44	+36 42.4	0.862	1.812	154.9	13.5	18.5
1988	11 05	02 09.19	+31 12.8					
1988	11 15	01 53.27	+24 27.6	0.775	1.735	159.0	11.8	18.1
1988	11 25	01 41.27	+17 17.1					
1988	12 05	01 34.40	+10 36.4	0.813	1.652	133.2	25.8	18.5
1988	12 15	01 32.80	+05 00.4					
1988	12 25	01 35.98	+00 38.6	0.933	1.564	109.3	36.4	18.9
1989	01 04	01 43.18	-02 36.5					
1989	01 14	01 53.75	-04 57.2	1.076	1.474	91.3	41.9	19.3

Comet Bradfield (1987s) Elements MPC 12440

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1988	08 27	07 33.57	+12 16.8	4.857	4.150	41.1	9.2	15.6
1988	09 06	07 40.24	+11 24.0					
1988	09 16	07 45.87	+10 30.6	4.824	4.358	57.0	11.2	15.8
1988	09 26	07 50.36	+09 37.2					
1988	10 06	07 53.63	+08 44.6	4.736	4.564	74.1	12.2	16.0
1988	10 16	07 55.59	+07 53.4					
1988	10 26	07 56.14	+07 04.7	4.617	4.765	92.5	12.0	16.1
1988	11 05	07 55.24	+06 19.2					
1988	11 15	07 52.89	+05 38.2	4.503	4.963	112.3	10.6	16.2
1988	11 25	07 49.12	+05 02.7					
1988	12 05	07 44.09	+04 33.6	4.435	5.158	133.1	8.0	16.4
1988	12 15	07 38.00	+04 11.9					
1988	12 25	07 31.18	+03 57.9	4.457	5.351	152.8	4.8	16.5
1989	01 04	07 24.00	+03 51.7					
1989	01 14	07 16.88	+03 52.8	4.598	5.540	161.5	3.2	16.7
1989	01 24	07 10.21	+04 00.4					
1989	02 03	07 04.33	+04 13.1	4.866	5.727	148.0	5.2	17.0
1989	02 13	06 59.48	+04 29.5					
1989	02 23	06 55.83	+04 48.2	5.244	5.911	128.5	7.5	17.3

Comet Wilson (1986l) Elements MPC 12797

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1988	08 27	07 42.32	+23 40.7	6.647	5.911	40.1	6.3	19.8
1988	09 06	07 45.18	+23 49.6					
1988	09 16	07 47.28	+24 00.8	6.554	6.089	58.5	8.1	19.9
1988	09 26	07 48.48	+24 15.0					
1988	10 06	07 48.67	+24 32.4	6.398	6.265	77.9	9.0	20.0
1988	10 16	07 47.74	+24 53.4					
1988	10 26	07 45.58	+25 17.9	6.217	6.439	98.5	8.8	20.1
1988	11 05	07 42.15	+25 45.6					
1988	11 15	07 37.41	+26 16.0	6.055	6.611	120.4	7.4	20.1
1988	11 25	07 31.43	+26 48.1					
1988	12 05	07 24.32	+27 20.5	5.964	6.781	143.5	5.0	20.2
1988	12 15	07 16.32	+27 51.8					
1988	12 25	07 07.72	+28 20.4	5.989	6.950	166.7	1.9	20.3
1989	01 04	06 58.91	+28 45.4					
1989	01 14	06 50.25	+29 05.8	6.158	7.117	166.3	1.9	20.5
1989	01 24	06 42.14	+29 21.4					
1989	02 03	06 34.88	+29 32.6	6.466	7.283	143.6	4.6	20.7

1989 02 13	06 28.70	+29 40.0						
1989 02 23	06 23.73	+29 44.5	6.887	7.447	121.2	6.5	20.9	

1984 TB a,e,i = 2.93, 0.12, 2 Elements MPC 13158

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	18 24.58	-25 17.4	2.250	3.111	142.1	11.5	17.8	
1988 05 29	18 19.11	-25 25.9						
1988 06 08	18 11.72	-25 33.0	2.102	3.091	164.1	5.2	17.4	
1988 06 18	18 03.03	-25 37.5						
1988 06 28	17 53.91	-25 38.2	2.059	3.069	172.3	2.5	17.2	
1988 07 08	17 45.28	-25 35.3						
1988 07 18	17 37.98	-25 29.6	2.125	3.047	149.9	9.6	17.6	
1988 07 28	17 32.68	-25 22.6						
1988 08 07	17 29.76	-25 15.8	2.282	3.024	129.0	15.1	17.9	
1988 08 17	17 29.35	-25 10.2						
1988 08 27	17 31.43	-25 06.2	2.499	3.001	110.1	18.4	18.2	
1988 09 06	17 35.83	-25 03.6						
1988 09 16	17 42.36	-25 01.6	2.746	2.977	93.2	19.7	18.4	

1988 JF a,e,i = 2.68, 0.24, 11 Elements MPC 13162

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 05 19	20 38.95	-19 24.2	1.659	2.226	110.6	25.2	14.9	
1988 05 29	20 44.39	-20 00.0						
1988 06 08	20 46.86	-20 51.8	1.498	2.272	128.3	20.5	14.6	
1988 06 18	20 46.17	-21 59.7						
1988 06 28	20 42.34	-23 20.9	1.390	2.320	148.8	13.1	14.2	
1988 07 08	20 35.74	-24 49.7						
1988 07 18	20 27.13	-26 18.1	1.363	2.370	169.7	4.4	13.9	
1988 07 28	20 17.68	-27 37.3						
1988 08 07	20 08.73	-28 41.0	1.437	2.422	162.0	7.4	14.2	
1988 08 17	20 01.45	-29 26.0						
1988 08 27	19 56.74	-29 52.3	1.605	2.474	141.1	14.9	14.7	
1988 09 06	19 54.98	-30 02.1						
1988 09 16	19 56.21	-29 58.0	1.846	2.526	122.0	19.7	15.2	
1988 09 26	20 00.23	-29 42.5						
1988 10 06	20 06.69	-29 17.4	2.132	2.579	105.0	22.0	15.6	
1988 10 16	20 15.22	-28 43.9						
1988 10 26	20 25.47	-28 02.7	2.441	2.631	89.7	22.2	16.0	

1977 CU a,e,i = 2.70, 0.11, 7 Elements MPC 13156

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 33.54	-11 29.6	2.401	2.782	101.1	21.0	17.0	
1988 06 18	22 38.34	-10 51.0						
1988 06 28	22 41.12	-10 22.2	2.131	2.760	118.1	19.0	16.7	
1988 07 08	22 41.65	-10 04.4						
1988 07 18	22 39.78	-09 58.3	1.902	2.737	137.3	14.6	16.3	
1988 07 28	22 35.49	-10 03.6						
1988 08 07	22 28.99	-10 18.7	1.743	2.714	159.0	7.7	15.9	
1988 08 17	22 20.78	-10 40.9						
1988 08 27	22 11.66	-11 05.9	1.681	2.691	177.5	0.9	15.4	
1988 09 06	22 02.64	-11 29.1						
1988 09 16	21 54.71	-11 46.6	1.727	2.667	153.9	9.5	15.9	
1988 09 26	21 48.73	-11 55.2						
1988 10 06	21 45.19	-11 53.3	1.867	2.644	132.1	16.3	16.2	
1988 10 16	21 44.32	-11 40.4						
1988 10 26	21 46.10	-11 16.3	2.071	2.620	112.7	20.5	16.6	
1988 11 05	21 50.32	-10 41.7						
1988 11 15	21 56.72	-09 56.8	2.308	2.597	95.5	22.3	16.8	

1973 SJ1 a,e,i = 3.97, 0.12, 3 Elements MPC 13164

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 41.83	-06 29.7	3.995	4.246	97.4	13.7	18.8
1988 06 18	22 44.10	-06 14.8					
1988 06 28	22 44.98	-06 08.5	3.722	4.262	115.6	12.4	18.7
1988 07 08	22 44.44	-06 11.1					
1988 07 18	22 42.46	-06 22.9	3.493	4.276	135.3	9.6	18.4
1988 07 28	22 39.13	-06 43.3					
1988 08 07	22 34.65	-07 11.3	3.341	4.291	156.5	5.4	18.2
1988 08 17	22 29.31	-07 45.0					
1988 08 27	22 23.49	-08 22.1	3.295	4.304	178.0	0.5	17.8
1988 09 06	22 17.67	-08 59.6					
1988 09 16	22 12.28	-09 35.0	3.365	4.318	158.7	4.8	18.2
1988 09 26	22 07.76	-10 05.6					
1988 10 06	22 04.41	-10 29.8	3.545	4.330	137.0	9.1	18.5
1988 10 16	22 02.46	-10 46.4					
1988 10 26	22 02.01	-10 54.7	3.807	4.342	116.5	11.8	18.7
1988 11 05	22 03.06	-10 54.6					
1988 11 15	22 05.54	-10 46.4	4.116	4.353	97.3	13.0	18.9

1983 TS1 a,e,i = 3.07, 0.20, 2 Elements MPC 13154

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 08	22 35.32	-10 35.6	2.460	2.826	100.4	20.7	17.5
1988 06 18	22 41.37	-10 10.8					
1988 06 28	22 45.61	-09 57.4	2.176	2.788	116.9	19.0	17.2
1988 07 08	22 47.85	-09 56.8					
1988 07 18	22 47.88	-10 09.9	1.932	2.750	135.5	15.0	16.8
1988 07 28	22 45.64	-10 36.6					
1988 08 07	22 41.24	-11 15.3	1.754	2.714	156.4	8.6	16.3
1988 08 17	22 35.01	-12 02.8					
1988 08 27	22 27.62	-12 53.8	1.670	2.680	176.9	1.2	15.8
1988 09 06	22 19.94	-13 42.3					
1988 09 16	22 12.92	-14 22.7	1.692	2.647	157.0	8.5	16.2
1988 09 26	22 07.47	-14 50.7					
1988 10 06	22 04.19	-15 04.1	1.809	2.615	135.3	15.6	16.5
1988 10 16	22 03.43	-15 02.2					
1988 10 26	22 05.27	-14 45.3	1.993	2.587	115.9	20.2	16.8
1988 11 05	22 09.56	-14 14.5					
1988 11 15	22 16.08	-13 30.9	2.216	2.560	98.7	22.4	17.1

1987 KE1 a,e,i = 2.93, 0.07, 26 Elements MPC 13171

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 06 28	23 59.29	-04 38.2	2.407	2.740	98.0	21.6	16.0
1988 07 08	00 06.68	-05 22.4					
1988 07 18	00 12.37	-06 27.3	2.152	2.736	114.6	19.7	15.7
1988 07 28	00 16.13	-07 54.0					
1988 08 07	00 17.76	-09 42.3	1.938	2.733	133.1	15.7	15.4
1988 08 17	00 17.13	-11 50.0					
1988 08 27	00 14.28	-14 11.6	1.797	2.731	152.1	10.0	15.0
1988 09 06	00 09.48	-16 38.3					
1988 09 16	00 03.26	-18 59.3	1.755	2.730	162.3	6.4	14.8
1988 09 26	23 56.45	-21 03.5					
1988 10 06	23 49.93	-22 42.4	1.823	2.730	149.2	10.8	15.1
1988 10 16	23 44.59	-23 51.3					
1988 10 26	23 41.09	-24 29.5	1.985	2.732	130.0	16.2	15.4
1988 11 05	23 39.81	-24 39.4					
1988 11 15	23 40.88	-24 24.7	2.209	2.734	111.7	19.6	15.8
1988 11 25	23 44.22	-23 49.7					
1988 12 05	23 49.63	-22 58.3	2.465	2.737	95.3	21.0	16.1

(3559) Violaumayer a,e,i = 2.48, 0.22, 4 Elements MPC 11626

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 26.90	+05 21.1	1.509	2.048	106.8	28.4	17.5
1988	07 28	00 35.31	+06 45.9					
1988	08 07	00 41.46	+07 59.4	1.292	2.016	121.5	25.4	17.0
1988	08 17	00 44.92	+08 58.8					
1988	08 27	00 45.33	+09 41.5	1.113	1.989	139.0	19.5	16.5
1988	09 06	00 42.59	+10 04.8					
1988	09 16	00 36.90	+10 07.0	0.994	1.968	159.6	10.3	15.9
1988	09 26	00 29.10	+09 49.2					
1988	10 06	00 20.50	+09 16.2	0.958	1.953	172.4	3.9	15.6
1988	10 16	00 12.65	+08 35.9					
1988	10 26	00 07.02	+07 58.1	1.011	1.945	151.8	14.0	16.1
1988	11 05	00 04.48	+07 31.1					
1988	11 15	00 05.40	+07 20.1	1.141	1.943	131.6	22.4	16.6
1988	11 25	00 09.73	+07 27.6					
1988	12 05	00 17.11	+07 53.2	1.323	1.949	114.4	27.4	17.0
1988	12 15	00 27.13	+08 35.3					
1988	12 25	00 39.39	+09 31.7	1.536	1.961	99.9	29.6	17.4

1981 EO27 a,e,i = 2.14, 0.20, 7 Elements MPC 8288

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 29.73	+08 42.6	1.232	1.785	104.7	33.4	17.9
1988	07 28	00 39.56	+09 23.9					
1988	08 07	00 46.50	+09 40.8	1.090	1.819	119.6	29.0	17.6
1988	08 17	00 50.10	+09 29.6					
1988	08 27	00 50.09	+08 48.3	0.978	1.858	138.4	21.2	17.2
1988	09 06	00 46.55	+07 36.9					
1988	09 16	00 40.01	+05 59.4	0.921	1.901	161.2	9.8	16.8
1988	09 26	00 31.63	+04 06.0					
1988	10 06	00 22.96	+02 10.8	0.949	1.946	173.7	3.2	16.6
1988	10 16	00 15.52	+00 28.2					
1988	10 26	00 10.53	-00 50.7	1.070	1.993	149.8	14.5	17.4
1988	11 05	00 08.55	-01 41.3					
1988	11 15	00 09.69	-02 03.2	1.268	2.041	129.0	22.1	18.0
1988	11 25	00 13.76	-01 59.0					
1988	12 05	00 20.34	-01 32.9	1.516	2.089	111.5	26.0	18.5
1988	12 15	00 29.05	-00 48.8					
1988	12 25	00 39.53	+00 09.4	1.793	2.137	96.3	27.2	19.0

(3690) Larson a,e,i = 2.24, 0.16, 5 Elements MPC 12310

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 43.45	+11 08.0	1.663	2.103	100.7	28.4	17.8
1988	07 28	00 50.27	+12 07.0					
1988	08 07	00 54.49	+12 48.9	1.487	2.141	116.5	25.1	17.5
1988	08 17	00 55.77	+13 10.8					
1988	08 27	00 53.92	+13 10.0	1.341	2.179	135.5	19.0	17.2
1988	09 06	00 49.03	+12 44.7					
1988	09 16	00 41.54	+11 55.0	1.255	2.218	157.6	10.0	16.8
1988	09 26	00 32.40	+10 44.7					
1988	10 06	00 22.90	+09 21.5	1.260	2.256	172.8	3.2	16.5
1988	10 16	00 14.34	+07 55.4					
1988	10 26	00 07.86	+06 37.2	1.369	2.293	151.7	11.8	17.1
1988	11 05	00 04.09	+05 34.2					
1988	11 15	00 03.25	+04 50.8	1.564	2.329	130.2	18.9	17.7
1988	11 25	00 05.26	+04 28.3					
1988	12 05	00 09.82	+04 25.3	1.818	2.364	111.4	22.8	18.1
1988	12 15	00 16.61	+04 40.1					
1988	12 25	00 25.27	+05 10.1	2.102	2.397	95.0	24.1	18.5

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	00 40.94	+11 50.2	2.370	2.750	100.9	21.3	18.0
1988 07 28	00 45.73	+12 21.2					
1988 08 07	00 48.52	+12 37.5	2.139	2.762	117.9	18.9	17.7
1988 08 17	00 49.11	+12 37.2					
1988 08 27	00 47.45	+12 18.6	1.948	2.776	137.3	14.3	17.4
1988 09 06	00 43.65	+11 41.1					
1988 09 16	00 38.04	+10 45.5	1.828	2.790	159.0	7.4	17.0
1988 09 26	00 31.27	+09 35.2					
1988 10 06	00 24.14	+08 15.7	1.809	2.805	173.7	2.2	16.8
1988 10 16	00 17.51	+06 54.3					
1988 10 26	00 12.21	+05 38.5	1.901	2.821	152.5	9.4	17.2
1988 11 05	00 08.78	+04 34.2					
1988 11 15	00 07.51	+03 45.4	2.089	2.837	130.9	15.3	17.6
1988 11 25	00 08.51	+03 13.8					
1988 12 05	00 11.65	+02 59.5	2.344	2.854	111.3	18.8	18.0
1988 12 15	00 16.75	+03 01.2					
1988 12 25	00 23.59	+03 17.3	2.633	2.871	93.8	20.0	18.3

1978 NN1 a,e,i = 2.85, 0.28, 8 Elements MPC 8148

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	00 33.81	+00 09.4	1.557	2.096	107.2	27.6	17.7
1988 07 28	00 42.09	+00 04.9					
1988 08 07	00 47.80	-00 20.5	1.395	2.127	123.2	23.5	17.3
1988 08 17	00 50.64	-01 07.5					
1988 08 27	00 50.49	-02 14.3	1.275	2.163	142.1	16.7	17.0
1988 09 06	00 47.46	-03 36.4					
1988 09 16	00 42.03	-05 06.3	1.225	2.205	162.8	7.8	16.6
1988 09 26	00 35.11	-06 33.7					
1988 10 06	00 27.85	-07 48.3	1.268	2.252	166.5	5.9	16.7
1988 10 16	00 21.41	-08 41.9					
1988 10 26	00 16.77	-09 10.4	1.407	2.303	146.5	13.8	17.2
1988 11 05	00 14.49	-09 13.5					
1988 11 15	00 14.76	-08 53.4	1.626	2.356	126.9	19.6	17.8
1988 11 25	00 17.52	-08 13.4					
1988 12 05	00 22.53	-07 17.5	1.898	2.412	109.5	22.7	18.3
1988 12 15	00 29.49	-06 09.0					
1988 12 25	00 38.12	-04 50.8	2.200	2.470	93.9	23.4	18.6

2574 P-L a,e,i = 3.15, 0.09, 22 Elements MPC 12571

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	01 01.98	-01 41.5	2.884	3.241	101.3	17.9	19.2
1988 07 28	01 04.29	-01 05.2					
1988 08 07	01 04.70	-00 36.8	2.606	3.225	119.3	15.9	18.9
1988 08 17	01 03.02	-00 16.3					
1988 08 27	00 59.18	-00 03.1	2.374	3.210	139.4	11.8	18.5
1988 09 06	00 53.26	+00 03.8					
1988 09 16	00 45.54	+00 06.0	2.223	3.194	161.8	5.6	18.2
1988 09 26	00 36.56	+00 06.1					
1988 10 06	00 27.06	+00 06.9	2.182	3.177	173.3	2.1	17.9
1988 10 16	00 17.88	+00 11.3					
1988 10 26	00 09.82	+00 22.1	2.260	3.161	150.1	9.0	18.3
1988 11 05	00 03.50	+00 41.1					
1988 11 15	23 59.29	+01 09.2	2.437	3.144	128.0	14.4	18.6
1988 11 25	23 57.36	+01 46.9					
1988 12 05	23 57.64	+02 33.9	2.680	3.128	107.9	17.4	18.9
1988 12 15	00 00.02	+03 29.7					
1988 12 25	00 04.27	+04 33.5	2.953	3.111	89.9	18.4	19.1

4636 P-L a,e,i = 3.15, 0.08, 14 Elements MPC 12699

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 57.74	+01 15.8	3.002	3.351	101.2	17.3	19.3
1988	07 28	01 00.20	+01 44.9					
1988	08 07	01 00.87	+02 05.1	2.729	3.344	119.3	15.3	19.0
1988	08 17	00 59.58	+02 16.1					
1988	08 27	00 56.30	+02 18.0	2.502	3.335	139.4	11.4	18.7
1988	09 06	00 51.13	+02 11.8					
1988	09 16	00 44.34	+01 58.8	2.357	3.326	161.7	5.5	18.4
1988	09 26	00 36.42	+01 41.8					
1988	10 06	00 28.06	+01 23.9	2.320	3.316	174.4	1.7	18.1
1988	10 16	00 19.98	+01 08.6					
1988	10 26	00 12.92	+00 59.2	2.401	3.306	151.1	8.4	18.5
1988	11 05	00 07.43	+00 58.3					
1988	11 15	00 03.85	+01 07.2	2.581	3.295	129.0	13.5	18.8
1988	11 25	00 02.36	+01 26.8					
1988	12 05	00 02.92	+01 56.8	2.829	3.284	108.9	16.5	19.1
1988	12 15	00 05.42	+02 36.8					
1988	12 25	00 09.69	+03 25.9	3.108	3.272	90.7	17.5	19.3

6766 P-L a,e,i = 3.14, 0.06, 14 Elements MPC 12700

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 47.30	+04 11.7	2.715	3.099	102.5	18.7	18.0
1988	07 28	00 51.28	+04 00.7					
1988	08 07	00 53.44	+03 35.0	2.470	3.110	120.5	16.3	17.7
1988	08 17	00 53.64	+02 54.0					
1988	08 27	00 51.86	+01 58.2	2.274	3.121	140.6	11.9	17.4
1988	09 06	00 48.21	+00 49.4					
1988	09 16	00 42.98	-00 28.8	2.159	3.132	162.5	5.5	17.0
1988	09 26	00 36.71	-01 51.2					
1988	10 06	00 30.04	-03 11.4	2.152	3.144	171.0	2.8	16.9
1988	10 16	00 23.72	-04 23.4					
1988	10 26	00 18.42	-05 21.9	2.260	3.155	149.2	9.3	17.3
1988	11 05	00 14.66	-06 03.9					
1988	11 15	00 12.74	-06 28.3	2.463	3.166	127.7	14.3	17.7
1988	11 25	00 12.81	-06 35.3					
1988	12 05	00 14.82	-06 26.7	2.729	3.177	108.1	17.1	18.0
1988	12 15	00 18.64	-06 04.0					
1988	12 25	00 24.11	-05 29.6	3.024	3.188	90.5	18.0	18.2

1973 FE1 a,e,i = 1.99, 0.06, 23 Elements MPC 11835

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 36.73	+18 57.6	1.675	2.088	98.8	28.7	16.8
1988	07 28	00 45.10	+19 17.6					
1988	08 07	00 51.19	+19 12.9	1.449	2.081	114.2	26.4	16.4
1988	08 17	00 54.58	+18 37.8					
1988	08 27	00 54.97	+17 26.7	1.248	2.073	133.0	20.9	16.0
1988	09 06	00 52.23	+15 34.7					
1988	09 16	00 46.58	+12 59.9	1.105	2.064	155.9	11.5	15.4
1988	09 26	00 38.79	+09 48.2					
1988	10 06	00 30.07	+06 13.9	1.055	2.054	175.9	2.0	14.9
1988	10 16	00 21.88	+02 38.2					
1988	10 26	00 15.59	-00 37.4	1.115	2.042	151.0	13.6	15.5
1988	11 05	00 12.08	-03 17.8					
1988	11 15	00 11.76	-05 16.7	1.265	2.030	128.0	22.6	16.0
1988	11 25	00 14.63	-06 34.5					
1988	12 05	00 20.39	-07 15.9	1.468	2.017	109.0	27.5	16.4
1988	12 15	00 28.70	-07 26.4					
1988	12 25	00 39.17	-07 11.6	1.691	2.003	93.2	29.3	16.8

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	00 56.63	+02 44.2	2.619	2.984	100.9	19.5	19.3
1988 07 28	01 00.30	+03 04.3					
1988 08 07	01 02.05	+03 12.8	2.357	2.979	118.6	17.4	19.0
1988 08 17	01 01.66	+03 08.9					
1988 08 27	00 59.04	+02 52.6	2.138	2.972	138.6	13.0	18.7
1988 09 06	00 54.26	+02 24.8					
1988 09 16	00 47.57	+01 47.5	1.995	2.963	160.9	6.4	18.3
1988 09 26	00 39.54	+01 04.5					
1988 10 06	00 30.92	+00 20.5	1.957	2.953	174.1	2.0	18.0
1988 10 16	00 22.60	-00 19.1					
1988 10 26	00 15.42	-00 49.7	2.033	2.942	150.9	9.5	18.4
1988 11 05	00 10.02	-01 07.9					
1988 11 15	00 06.79	-01 11.9	2.206	2.929	128.8	15.3	18.8
1988 11 25	00 05.89	-01 01.4					
1988 12 05	00 07.26	-00 37.1	2.442	2.914	108.9	18.7	19.1
1988 12 15	00 10.75	-00 00.3					
1988 12 25	00 16.14	+00 47.6	2.707	2.898	91.1	19.8	19.3

1977 TG7 a,e,i = 3.13, 0.17, 3 Elements MPC 12578

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	00 49.05	+01 51.9	2.563	2.963	103.0	19.5	17.8
1988 07 28	00 53.56	+02 10.6					
1988 08 07	00 56.25	+02 17.7	2.283	2.929	120.3	17.4	17.4
1988 08 17	00 56.89	+02 12.0					
1988 08 27	00 55.37	+01 53.7	2.049	2.895	139.8	13.0	17.0
1988 09 06	00 51.72	+01 23.7					
1988 09 16	00 46.15	+00 44.2	1.891	2.863	161.5	6.4	16.6
1988 09 26	00 39.19	-00 00.9					
1988 10 06	00 31.56	-00 46.4	1.836	2.831	173.3	2.4	16.3
1988 10 16	00 24.14	-01 26.7					
1988 10 26	00 17.80	-01 56.6	1.890	2.800	150.9	10.0	16.7
1988 11 05	00 13.20	-02 12.8					
1988 11 15	00 10.78	-02 13.4	2.037	2.771	129.2	16.1	17.0
1988 11 25	00 10.74	-01 58.2					
1988 12 05	00 13.01	-01 28.1	2.247	2.743	109.8	19.8	17.3
1988 12 15	00 17.48	-00 44.5					
1988 12 25	00 23.92	+00 10.9	2.487	2.717	92.7	21.2	17.6

(3704) 1981 YX1 a,e,i = 2.41, 0.05, 6 Elements MPC 12319

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	00 49.54	+12 01.6	2.012	2.391	98.9	24.8	17.0
1988 07 28	00 55.86	+12 54.9					
1988 08 07	00 59.99	+13 34.0	1.791	2.401	114.9	22.5	16.7
1988 08 17	01 01.62	+13 56.3					
1988 08 27	01 00.55	+13 59.5	1.601	2.412	133.7	17.6	16.3
1988 09 06	00 56.76	+13 41.5					
1988 09 16	00 50.53	+13 01.6	1.474	2.423	155.2	10.0	15.9
1988 09 26	00 42.53	+12 01.7					
1988 10 06	00 33.77	+10 47.1	1.438	2.434	173.4	2.7	15.6
1988 10 16	00 25.40	+09 25.8					
1988 10 26	00 18.54	+08 07.3	1.508	2.444	154.6	10.0	16.0
1988 11 05	00 13.94	+06 59.7					
1988 11 15	00 12.01	+06 08.4	1.673	2.454	132.7	17.2	16.5
1988 11 25	00 12.84	+05 36.2					
1988 12 05	00 16.25	+05 23.3	1.902	2.464	113.3	21.6	16.9
1988 12 15	00 22.00	+05 28.3					
1988 12 25	00 29.77	+05 49.4	2.164	2.473	96.3	23.3	17.2

1976 GO8 a,e,i = 2.40, 0.24, 11 Elements MPC 9593

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 06.75	+08 19.5	2.013	2.355	96.5	25.4	18.9
1988	07 28	01 11.69	+09 33.7					
1988	08 07	01 14.19	+10 37.0	1.823	2.408	113.0	22.8	18.7
1988	08 17	01 13.92	+11 27.5					
1988	08 27	01 10.72	+12 03.5	1.663	2.460	132.4	17.7	18.4
1988	09 06	01 04.65	+12 23.5					
1988	09 16	00 56.05	+12 26.4	1.565	2.510	154.4	10.0	18.0
1988	09 26	00 45.72	+12 13.0					
1988	10 06	00 34.75	+11 46.5	1.564	2.558	172.6	2.9	17.8
1988	10 16	00 24.37	+11 12.3					
1988	10 26	00 15.69	+10 37.1	1.673	2.604	154.3	9.5	18.2
1988	11 05	00 09.43	+10 07.0					
1988	11 15	00 05.92	+09 46.6	1.879	2.648	132.4	16.0	18.7
1988	11 25	00 05.21	+09 38.6					
1988	12 05	00 07.07	+09 43.9	2.151	2.690	112.7	19.7	19.2
1988	12 15	00 11.23	+10 02.1					
1988	12 25	00 17.37	+10 32.4	2.457	2.729	95.3	21.0	19.5

1981 QD2 a,e,i = 2.28, 0.17, 4 Elements MPC 10528

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 39.07	-00 51.0	1.404	1.952	106.4	30.0	17.3
1988	07 28	00 49.03	-00 01.3					
1988	08 07	00 56.65	+00 34.0	1.204	1.930	120.8	26.8	16.9
1988	08 17	01 01.45	+00 53.0					
1988	08 27	01 03.01	+00 55.2	1.038	1.914	138.3	20.6	16.4
1988	09 06	01 01.12	+00 41.1					
1988	09 16	00 55.87	+00 13.7	0.928	1.902	159.2	10.8	15.8
1988	09 26	00 47.99	-00 20.8					
1988	10 06	00 38.78	-00 54.1	0.899	1.896	173.9	3.2	15.4
1988	10 16	00 29.90	-01 17.4					
1988	10 26	00 22.96	-01 23.2	0.958	1.895	152.3	14.1	16.0
1988	11 05	00 19.00	-01 08.4					
1988	11 15	00 18.52	-00 32.4	1.092	1.900	131.7	22.9	16.5
1988	11 25	00 21.51	+00 22.9					
1988	12 05	00 27.63	+01 34.5	1.279	1.910	114.4	28.0	17.0
1988	12 15	00 36.49	+02 59.4					
1988	12 25	00 47.65	+04 34.8	1.495	1.925	99.9	30.2	17.5

1986 CK1 a,e,i = 2.34, 0.17, 5 Elements MPC 10953

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 41.63	+11 39.0	1.734	2.168	100.8	27.4	17.0
1988	07 28	00 50.13	+13 06.8					
1988	08 07	00 56.64	+14 24.2	1.490	2.131	115.3	25.5	16.5
1988	08 17	01 00.74	+15 28.0					
1988	08 27	01 02.04	+16 15.0	1.278	2.095	132.2	20.9	16.0
1988	09 06	01 00.29	+16 41.1					
1988	09 16	00 55.48	+16 42.4	1.119	2.061	151.9	13.3	15.5
1988	09 26	00 48.13	+16 16.9					
1988	10 06	00 39.28	+15 26.1	1.039	2.030	169.4	5.2	15.0
1988	10 16	00 30.37	+14 16.3					
1988	10 26	00 22.98	+12 58.7	1.052	2.002	156.3	11.5	15.2
1988	11 05	00 18.31	+11 45.2					
1988	11 15	00 17.04	+10 45.8	1.149	1.979	135.3	20.6	15.7
1988	11 25	00 19.34	+10 06.5					
1988	12 05	00 24.97	+09 49.3	1.305	1.959	116.9	26.6	16.1
1988	12 15	00 33.60	+09 53.7					
1988	12 25	00 44.81	+10 17.7	1.495	1.945	101.4	29.7	16.5

(3637) 1984 UQ a,e,i = 2.55, 0.13, 14 Elements MPC 11993

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 51.72	+15 54.1	2.105	2.444	96.9	24.4	16.7
1988	07 28	00 58.26	+16 28.3					
1988	08 07	01 02.64	+16 45.7	1.892	2.471	113.0	22.2	16.4
1988	08 17	01 04.57	+16 43.5					
1988	08 27	01 03.91	+16 19.2	1.709	2.498	131.8	17.5	16.1
1988	09 06	01 00.70	+15 30.9					
1988	09 16	00 55.19	+14 18.4	1.586	2.526	153.5	10.2	15.7
1988	09 26	00 48.04	+12 44.7					
1988	10 06	00 40.16	+10 56.4	1.557	2.553	173.8	2.4	15.3
1988	10 16	00 32.60	+09 02.6					
1988	10 26	00 26.34	+07 14.0	1.639	2.580	156.3	8.9	15.8
1988	11 05	00 22.08	+05 39.2					
1988	11 15	00 20.21	+04 23.8	1.820	2.607	134.0	15.8	16.2
1988	11 25	00 20.83	+03 30.3					
1988	12 05	00 23.79	+02 58.3	2.071	2.632	114.1	20.0	16.7
1988	12 15	00 28.90	+02 46.4					
1988	12 25	00 35.88	+02 51.9	2.360	2.657	96.5	21.6	17.0

1979 ML3 a,e,i = 2.59, 0.10, 3 Elements MPC 6305

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 02.50	+09 40.5	2.334	2.656	96.9	22.3	18.4
1988	07 28	01 08.00	+10 18.0					
1988	08 07	01 11.47	+10 42.6	2.103	2.675	113.6	20.3	18.1
1988	08 17	01 12.65	+10 52.6					
1988	08 27	01 11.40	+10 46.8	1.904	2.694	132.8	16.0	17.8
1988	09 06	01 07.72	+10 24.4					
1988	09 16	01 01.82	+09 45.7	1.769	2.712	154.7	9.1	17.4
1988	09 26	00 54.27	+08 53.3					
1988	10 06	00 45.86	+07 51.6	1.731	2.730	177.0	1.1	17.0
1988	10 16	00 37.57	+06 47.0					
1988	10 26	00 30.35	+05 46.6	1.804	2.746	156.9	8.2	17.5
1988	11 05	00 24.94	+04 56.2					
1988	11 15	00 21.78	+04 19.9	1.977	2.761	134.4	14.8	17.9
1988	11 25	00 21.06	+03 59.8					
1988	12 05	00 22.70	+03 55.8	2.221	2.775	114.2	18.9	18.3
1988	12 15	00 26.54	+04 07.2					
1988	12 25	00 32.33	+04 32.4	2.503	2.788	96.3	20.5	18.6

1981 TL4 a,e,i = 2.36, 0.13, 5 Elements MPC 11511

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 54.15	+12 12.0	1.713	2.108	97.8	28.5	16.9
1988	07 28	01 02.58	+13 36.8					
1988	08 07	01 08.70	+14 48.6	1.520	2.126	112.5	26.1	16.6
1988	08 17	01 12.10	+15 44.7					
1988	08 27	01 12.48	+16 22.2	1.354	2.147	130.0	21.1	16.2
1988	09 06	01 09.69	+16 38.0					
1988	09 16	01 03.90	+16 29.5	1.238	2.170	150.5	13.2	15.8
1988	09 26	00 55.78	+15 56.5					
1988	10 06	00 46.45	+15 02.1	1.204	2.195	169.9	4.6	15.5
1988	10 16	00 37.28	+13 53.7					
1988	10 26	00 29.65	+12 41.5	1.269	2.221	157.9	9.7	15.8
1988	11 05	00 24.52	+11 35.5					
1988	11 15	00 22.38	+10 43.2	1.425	2.248	136.6	17.6	16.3
1988	11 25	00 23.31	+10 08.9					
1988	12 05	00 27.09	+09 53.6	1.648	2.277	117.4	22.6	16.8
1988	12 15	00 33.40	+09 56.7					
1988	12 25	00 41.87	+10 16.2	1.910	2.305	100.7	24.8	17.2

2390 T-3 a,e,i = 2.39, 0.07, 8 Elements MPC 12701

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	01 10.34	+04 05.0	2.106	2.452	97.3	24.3	18.6
1988 07 28	01 16.39	+04 54.8					
1988 08 07	01 20.27	+05 33.5	1.879	2.465	113.5	22.2	18.3
1988 08 17	01 21.64	+05 59.9					
1988 08 27	01 20.28	+06 13.3	1.681	2.478	132.5	17.5	17.9
1988 09 06	01 16.09	+06 13.6					
1988 09 16	01 09.24	+06 01.2	1.545	2.491	154.5	10.0	17.5
1988 09 26	01 00.30	+05 38.7					
1988 10 06	00 50.20	+05 10.1	1.502	2.502	178.8	0.5	17.0
1988 10 16	00 40.09	+04 40.7					
1988 10 26	00 31.18	+04 16.6	1.569	2.512	156.6	9.0	17.5
1988 11 05	00 24.37	+04 02.3					
1988 11 15	00 20.21	+04 01.0	1.733	2.521	133.9	16.4	18.0
1988 11 25	00 18.87	+04 14.0					
1988 12 05	00 20.26	+04 40.9	1.964	2.530	114.0	20.9	18.4
1988 12 15	00 24.15	+05 20.9					
1988 12 25	00 30.22	+06 12.5	2.229	2.537	96.5	22.7	18.7

1981 JD3 a,e,i = 2.16, 0.18, 4 Elements MPC 9755

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	00 36.74	+04 38.7	1.227	1.782	104.8	33.5	17.3
1988 07 28	00 49.01	+05 26.6					
1988 08 07	00 58.90	+05 53.9	1.060	1.782	118.3	30.1	16.9
1988 08 17	01 05.89	+05 57.3					
1988 08 27	01 09.50	+05 35.0	0.923	1.788	135.2	23.5	16.5
1988 09 06	01 09.49	+04 46.5					
1988 09 16	01 05.91	+03 34.6	0.835	1.801	156.1	13.1	16.0
1988 09 26	00 59.46	+02 07.1					
1988 10 06	00 51.45	+00 36.1	0.821	1.819	175.5	2.5	15.5
1988 10 16	00 43.54	-00 44.3					
1988 10 26	00 37.36	-01 42.4	0.894	1.843	155.1	13.1	16.2
1988 11 05	00 33.98	-02 12.1					
1988 11 15	00 33.87	-02 12.4	1.042	1.872	134.3	22.2	16.8
1988 11 25	00 37.06	-01 46.0					
1988 12 05	00 43.19	-00 57.4	1.245	1.905	116.9	27.5	17.4
1988 12 15	00 51.88	+00 09.0					
1988 12 25	01 02.69	+01 29.0	1.481	1.941	102.1	29.7	17.8

1976 GQ6 a,e,i = 3.01, 0.09, 11 Elements MPC 12143

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	01 02.72	+03 06.8	2.545	2.891	99.4	20.3	17.2
1988 07 28	01 08.11	+03 00.2					
1988 08 07	01 11.64	+02 38.8	2.308	2.907	116.6	18.2	17.0
1988 08 17	01 13.11	+02 02.0					
1988 08 27	01 12.41	+01 10.4	2.112	2.923	135.9	13.9	16.6
1988 09 06	01 09.59	+00 05.6					
1988 09 16	01 04.83	-01 09.0	1.988	2.940	157.1	7.6	16.3
1988 09 26	00 58.63	-02 27.9					
1988 10 06	00 51.64	-03 44.6	1.965	2.957	171.2	3.0	16.1
1988 10 16	00 44.66	-04 52.5					
1988 10 26	00 38.50	-05 45.9	2.055	2.974	152.8	8.8	16.5
1988 11 05	00 33.79	-06 21.7					
1988 11 15	00 30.95	-06 38.5	2.243	2.992	131.5	14.3	16.8
1988 11 25	00 30.20	-06 36.9					
1988 12 05	00 31.53	-06 18.9	2.499	3.009	111.9	17.7	17.2
1988 12 15	00 34.83	-05 46.6					
1988 12 25	00 39.92	-05 02.3	2.790	3.026	94.2	18.9	17.5

1980 FB a,e,i = 3.20, 0.11, 2 Elements MPC 10830

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 10.92	+06 37.2	3.093	3.358	96.2	17.5	18.4
1988	07 28	01 14.63	+07 00.1					
1988	08 07	01 16.66	+07 12.8	2.837	3.375	113.8	16.0	18.2
1988	08 17	01 16.84	+07 14.7					
1988	08 27	01 15.11	+07 05.4	2.618	3.392	133.4	12.5	17.9
1988	09 06	01 11.53	+06 45.3					
1988	09 16	01 06.29	+06 15.4	2.470	3.408	155.1	7.1	17.6
1988	09 26	00 59.78	+05 38.1					
1988	10 06	00 52.59	+04 56.6	2.424	3.424	178.3	0.5	17.2
1988	10 16	00 45.35	+04 15.0					
1988	10 26	00 38.77	+03 37.5	2.496	3.438	158.1	6.2	17.6
1988	11 05	00 33.41	+03 07.7					
1988	11 15	00 29.67	+02 48.1	2.675	3.452	135.6	11.6	17.9
1988	11 25	00 27.79	+02 40.4					
1988	12 05	00 27.80	+02 44.5	2.933	3.465	114.9	14.9	18.3
1988	12 15	00 29.66	+03 00.2					
1988	12 25	00 33.23	+03 26.5	3.232	3.477	96.1	16.3	18.5

1175 T-3 a,e,i = 3.12, 0.08, 7 Elements MPC 12701

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 06.96	+13 38.0	2.664	2.923	94.4	20.3	17.8
1988	07 28	01 12.10	+14 38.2					
1988	08 07	01 15.40	+15 29.0	2.418	2.934	110.8	18.9	17.6
1988	08 17	01 16.64	+16 08.6					
1988	08 27	01 15.68	+16 35.2	2.202	2.947	129.2	15.4	17.3
1988	09 06	01 12.50	+16 47.4					
1988	09 16	01 07.28	+16 43.7	2.048	2.959	149.7	9.9	17.0
1988	09 26	01 00.45	+16 24.1					
1988	10 06	00 52.70	+15 50.3	1.986	2.973	168.9	3.7	16.7
1988	10 16	00 44.85	+15 06.0					
1988	10 26	00 37.80	+14 16.8	2.034	2.987	159.8	6.6	16.9
1988	11 05	00 32.25	+13 28.4					
1988	11 15	00 28.70	+12 46.1	2.188	3.001	138.6	12.6	17.2
1988	11 25	00 27.38	+12 14.2					
1988	12 05	00 28.32	+11 54.7	2.421	3.016	118.4	16.7	17.6
1988	12 15	00 31.40	+11 48.4					
1988	12 25	00 36.42	+11 55.1	2.700	3.032	100.1	18.6	17.9

1977 RR7 a,e,i = 3.13, 0.09, 12 Elements MPC 12569

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 13.56	+01 55.9	2.603	2.912	97.3	20.3	17.3
1988	07 28	01 18.23	+02 35.7					
1988	08 07	01 20.99	+03 05.9	2.358	2.924	114.2	18.4	17.0
1988	08 17	01 21.63	+03 26.3					
1988	08 27	01 19.99	+03 36.8	2.148	2.936	133.4	14.5	16.7
1988	09 06	01 16.08	+03 38.0					
1988	09 16	01 10.09	+03 31.0	2.007	2.949	155.1	8.3	16.4
1988	09 26	01 02.48	+03 18.5					
1988	10 06	00 53.96	+03 03.5	1.964	2.963	177.2	0.9	16.0
1988	10 16	00 45.37	+02 49.9					
1988	10 26	00 37.61	+02 41.6	2.035	2.977	157.4	7.4	16.4
1988	11 05	00 31.39	+02 41.5					
1988	11 15	00 27.19	+02 51.7	2.209	2.992	135.1	13.5	16.8
1988	11 25	00 25.24	+03 12.9					
1988	12 05	00 25.55	+03 45.1	2.458	3.008	114.8	17.3	17.1
1988	12 15	00 28.00	+04 27.5					
1988	12 25	00 32.39	+05 19.3	2.747	3.024	96.7	18.8	17.4

1983 VV1 a,e,i = 3.10, 0.04, 3 Elements MPC 8540

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	01 09.19	+08 21.0	2.830	3.104	95.9	19.0	17.6
1988 07 28	01 13.88	+08 59.3					
1988 08 07	01 16.83	+09 27.9	2.557	3.096	112.9	17.6	17.3
1988 08 17	01 17.85	+09 45.5					
1988 08 27	01 16.80	+09 51.4	2.319	3.087	131.9	14.1	17.0
1988 09 06	01 13.66	+09 44.9					
1988 09 16	01 08.59	+09 26.3	2.147	3.079	153.3	8.4	16.6
1988 09 26	01 01.97	+08 57.1					
1988 10 06	00 54.42	+08 20.0	2.072	3.070	175.9	1.3	16.2
1988 10 16	00 46.69	+07 39.1					
1988 10 26	00 39.63	+06 59.6	2.111	3.062	159.4	6.5	16.5
1988 11 05	00 33.92	+06 25.9					
1988 11 15	00 30.06	+06 01.8	2.256	3.054	136.9	12.8	16.9
1988 11 25	00 28.35	+05 49.9					
1988 12 05	00 28.82	+05 50.9	2.478	3.046	116.4	16.8	17.2
1988 12 15	00 31.41	+06 04.7					
1988 12 25	00 35.94	+06 30.7	2.742	3.038	97.9	18.7	17.4

1977 SN a,e,i = 2.37, 0.24, 5 Elements MPC 11146

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	01 01.52	-00 12.0	1.450	1.922	100.9	31.3	16.4
1988 07 28	01 11.46	+00 17.3					
1988 08 07	01 18.70	+00 28.6	1.299	1.964	115.6	27.8	16.1
1988 08 17	01 22.83	+00 21.2					
1988 08 27	01 23.53	-00 04.3	1.175	2.009	133.6	21.4	15.8
1988 09 06	01 20.72	-00 45.7					
1988 09 16	01 14.63	-01 38.2	1.104	2.059	154.7	12.0	15.4
1988 09 26	01 06.07	-02 33.9					
1988 10 06	00 56.29	-03 23.9	1.117	2.110	171.3	4.1	15.2
1988 10 16	00 46.75	-03 59.7					
1988 10 26	00 38.84	-04 15.4	1.226	2.163	153.9	11.7	15.7
1988 11 05	00 33.46	-04 09.5					
1988 11 15	00 31.03	-03 42.8	1.421	2.217	133.0	19.0	16.3
1988 11 25	00 31.58	-02 57.9					
1988 12 05	00 34.84	-01 58.3	1.677	2.271	114.6	23.2	16.9
1988 12 15	00 40.49	-00 46.9					
1988 12 25	00 48.17	+00 33.6	1.968	2.325	98.4	24.7	17.3

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	01 04.32	+03 52.4	2.341	2.690	98.7	21.9	17.9
1988 07 28	01 10.64	+04 15.6					
1988 08 07	01 15.07	+04 26.0	2.094	2.686	115.1	20.0	17.6
1988 08 17	01 17.34	+04 22.5					
1988 08 27	01 17.28	+04 04.6	1.882	2.683	133.9	15.7	17.3
1988 09 06	01 14.83	+03 33.1					
1988 09 16	01 10.13	+02 49.7	1.735	2.681	155.2	9.0	16.9
1988 09 26	01 03.63	+01 58.3					
1988 10 06	00 56.05	+01 04.3	1.683	2.681	175.4	1.7	16.5
1988 10 16	00 48.30	+00 14.0					
1988 10 26	00 41.37	-00 26.3	1.740	2.681	156.7	8.4	16.9
1988 11 05	00 36.03	-00 52.4					
1988 11 15	00 32.83	-01 01.9	1.894	2.684	134.7	15.2	17.3
1988 11 25	00 32.02	-00 54.3					
1988 12 05	00 33.59	-00 30.7	2.119	2.687	114.9	19.4	17.6
1988 12 15	00 37.42	+00 07.3					
1988 12 25	00 43.28	+00 57.6	2.381	2.691	97.4	21.2	17.9

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	01 08.15	+03 48.0	2.221	2.566	97.9	23.1	18.7
1988 07 28	01 14.75	+04 22.0					
1988 08 07	01 19.43	+04 44.2	1.952	2.540	114.0	21.4	18.4
1988 08 17	01 21.88	+04 53.0					
1988 08 27	01 21.80	+04 47.9	1.716	2.513	132.6	17.2	18.0
1988 09 06	01 19.05	+04 28.6					
1988 09 16	01 13.65	+03 56.1	1.542	2.485	154.1	10.2	17.5
1988 09 26	01 06.01	+03 13.5					
1988 10 06	00 56.90	+02 25.9	1.458	2.456	176.3	1.5	16.9
1988 10 16	00 47.38	+01 39.7					
1988 10 26	00 38.68	+01 02.1	1.482	2.427	156.9	9.3	17.3
1988 11 05	00 31.82	+00 38.5					
1988 11 15	00 27.51	+00 32.1	1.601	2.398	134.2	17.2	17.7
1988 11 25	00 26.08	+00 43.9					
1988 12 05	00 27.50	+01 13.2	1.787	2.369	114.3	22.3	18.1
1988 12 15	00 31.63	+01 58.2					
1988 12 25	00 38.16	+02 57.0	2.006	2.340	97.0	24.7	18.4

3279 T-3 a,e,i = 3.14, 0.21, 11 Elements MPC 12803

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	01 19.44	+03 26.0	3.398	3.638	95.4	16.1	19.0
1988 07 28	01 22.60	+03 49.3					
1988 08 07	01 24.20	+04 04.2	3.093	3.613	113.1	15.0	18.8
1988 08 17	01 24.07	+04 10.2					
1988 08 27	01 22.10	+04 07.4	2.824	3.588	132.8	11.9	18.5
1988 09 06	01 18.29	+03 56.2					
1988 09 16	01 12.77	+03 37.6	2.627	3.560	154.4	7.0	18.1
1988 09 26	01 05.87	+03 13.7					
1988 10 06	00 58.09	+02 47.3	2.533	3.532	176.2	1.1	17.7
1988 10 16	00 50.06	+02 21.8					
1988 10 26	00 42.49	+02 00.7	2.559	3.501	158.2	6.1	18.0
1988 11 05	00 35.99	+01 47.1					
1988 11 15	00 31.05	+01 43.1	2.694	3.470	135.5	11.5	18.3
1988 11 25	00 27.97	+01 50.0					
1988 12 05	00 26.87	+02 08.0	2.909	3.437	114.5	15.1	18.5
1988 12 15	00 27.72	+02 36.9					
1988 12 25	00 30.42	+03 15.8	3.166	3.402	95.4	16.7	18.7

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 07 18	01 03.00	+13 06.4	2.356	2.654	95.5	22.4	16.9
1988 07 28	01 09.81	+14 04.4					
1988 08 07	01 14.77	+14 51.3	2.114	2.655	111.2	20.9	16.6
1988 08 17	01 17.61	+15 25.0					
1988 08 27	01 18.11	+15 43.7	1.902	2.658	129.1	17.2	16.3
1988 09 06	01 16.23	+15 45.6					
1988 09 16	01 12.05	+15 29.3	1.748	2.663	149.5	11.0	15.9
1988 09 26	01 06.01	+14 55.3					
1988 10 06	00 58.83	+14 06.1	1.680	2.671	170.3	3.6	15.6
1988 10 16	00 51.40	+13 06.4					
1988 10 26	00 44.73	+12 03.2	1.720	2.681	161.5	6.7	15.8
1988 11 05	00 39.62	+11 03.6					
1988 11 15	00 36.65	+10 13.7	1.861	2.693	139.8	13.7	16.2
1988 11 25	00 36.07	+09 37.7					
1988 12 05	00 37.91	+09 17.2	2.080	2.708	119.7	18.4	16.6
1988 12 15	00 42.01	+09 12.6					
1988 12 25	00 48.15	+09 22.9	2.347	2.724	101.8	20.7	16.9

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 10.59	+09 21.9	2.508	2.790	95.2	21.3	19.1
1988	07 28	01 17.20	+09 32.7					
1988	08 07	01 22.03	+09 29.0	2.254	2.792	111.7	19.7	18.9
1988	08 17	01 24.84	+09 09.1					
1988	08 27	01 25.45	+08 32.2	2.031	2.794	130.5	16.0	18.5
1988	09 06	01 23.81	+07 38.1					
1988	09 16	01 20.00	+06 27.9	1.870	2.797	151.9	9.8	18.2
1988	09 26	01 14.40	+05 05.2					
1988	10 06	01 07.63	+03 35.6	1.804	2.800	174.4	2.0	17.7
1988	10 16	01 00.49	+02 06.5					
1988	10 26	00 53.88	+00 45.6	1.850	2.804	159.9	7.0	18.0
1988	11 05	00 48.58	-00 20.8					
1988	11 15	00 45.14	-01 08.8	2.000	2.808	137.3	13.8	18.4
1988	11 25	00 43.89	-01 36.8					
1988	12 05	00 44.88	-01 45.5	2.226	2.813	116.9	18.2	18.8
1988	12 15	00 48.02	-01 36.6					
1988	12 25	00 53.15	-01 12.3	2.495	2.818	98.8	20.2	19.1

(3635) 1981 WO1 a,e,i = 1.79, 0.08, 19 Elements MPC 11993

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 52.30	+28 48.3	1.578	1.896	91.3	32.4	18.3
1988	07 28	01 04.51	+30 50.4					
1988	08 07	01 14.90	+32 39.4	1.372	1.880	102.9	31.7	18.0
1988	08 17	01 22.93	+34 11.3					
1988	08 27	01 28.00	+35 20.8	1.176	1.862	116.6	29.0	17.5
1988	09 06	01 29.56	+36 00.5					
1988	09 16	01 27.17	+36 00.7	1.004	1.843	133.0	23.5	17.0
1988	09 26	01 20.96	+35 10.0					
1988	10 06	01 11.79	+33 19.5	0.882	1.822	150.9	15.5	16.5
1988	10 16	01 01.30	+30 27.3					
1988	10 26	00 51.71	+26 46.0	0.839	1.801	158.3	11.8	16.2
1988	11 05	00 44.85	+22 40.5					
1988	11 15	00 41.87	+18 40.3	0.888	1.779	142.7	19.7	16.6
1988	11 25	00 43.11	+15 09.0					
1988	12 05	00 48.26	+12 18.8	1.013	1.757	123.1	28.0	17.0
1988	12 15	00 56.85	+10 12.7					
1988	12 25	01 08.32	+08 47.3	1.182	1.736	106.2	33.0	17.5

1981 TQ1 a,e,i = 2.34, 0.08, 5 Elements MPC 11747

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 12.57	+09 34.4	1.823	2.159	94.7	28.0	17.5
1988	07 28	01 21.90	+10 57.3					
1988	08 07	01 29.18	+12 10.0	1.608	2.163	109.0	26.3	17.2
1988	08 17	01 34.01	+13 10.8					
1988	08 27	01 36.00	+13 57.7	1.415	2.169	126.0	22.1	16.8
1988	09 06	01 34.88	+14 28.8					
1988	09 16	01 30.52	+14 41.5	1.269	2.177	146.1	14.9	16.3
1988	09 26	01 23.29	+14 35.0					
1988	10 06	01 13.99	+14 10.2	1.198	2.186	168.4	5.3	15.9
1988	10 16	01 03.90	+13 31.0					
1988	10 26	00 54.52	+12 45.2	1.225	2.198	163.9	7.2	16.0
1988	11 05	00 47.13	+12 01.2					
1988	11 15	00 42.59	+11 26.5	1.348	2.210	141.5	16.2	16.5
1988	11 25	00 41.27	+11 06.5					
1988	12 05	00 43.10	+11 03.0	1.544	2.224	121.5	22.2	17.0
1988	12 15	00 47.83	+11 16.2					
1988	12 25	00 55.10	+11 44.7	1.783	2.239	104.3	25.2	17.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 24.80	+10 33.1	2.505	2.728	91.5	21.9	17.8
1988	07 28	01 31.04	+11 20.9					
1988	08 07	01 35.44	+11 58.5	2.248	2.732	107.7	20.7	17.5
1988	08 17	01 37.72	+12 24.7					
1988	08 27	01 37.62	+12 38.0	2.014	2.735	126.2	17.4	17.2
1988	09 06	01 35.02	+12 37.3					
1988	09 16	01 29.94	+12 21.7	1.834	2.735	147.3	11.4	16.8
1988	09 26	01 22.70	+11 51.7					
1988	10 06	01 13.94	+11 09.5	1.743	2.734	170.6	3.4	16.4
1988	10 16	01 04.56	+10 19.3					
1988	10 26	00 55.64	+09 27.3	1.762	2.731	163.9	5.8	16.5
1988	11 05	00 48.11	+08 39.6					
1988	11 15	00 42.69	+08 01.7	1.889	2.726	140.5	13.3	16.9
1988	11 25	00 39.76	+07 37.5					
1988	12 05	00 39.42	+07 28.4	2.096	2.719	119.4	18.4	17.3
1988	12 15	00 41.55	+07 34.4					
1988	12 25	00 45.96	+07 54.8	2.348	2.710	100.8	20.9	17.6

1969 TP2 a,e,i = 2.44, 0.20, 3 Elements MPC 11142

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	00 56.94	+02 20.3	1.625	2.075	101.0	28.7	17.5
1988	07 28	01 07.92	+03 03.5					
1988	08 07	01 17.05	+03 32.3	1.397	2.044	115.0	26.7	17.0
1988	08 17	01 23.89	+03 44.5					
1988	08 27	01 28.00	+03 39.0	1.200	2.016	131.5	22.0	16.6
1988	09 06	01 29.06	+03 15.6					
1988	09 16	01 26.88	+02 35.4	1.053	1.994	151.2	14.1	16.0
1988	09 26	01 21.73	+01 43.2					
1988	10 06	01 14.36	+00 46.1	0.982	1.977	171.7	4.2	15.5
1988	10 16	01 06.03	-00 06.2					
1988	10 26	00 58.30	-00 43.8	1.002	1.965	159.9	10.0	15.7
1988	11 05	00 52.53	-00 59.9					
1988	11 15	00 49.64	-00 51.5	1.106	1.959	138.4	19.6	16.2
1988	11 25	00 50.04	-00 19.1					
1988	12 05	00 53.68	+00 34.4	1.272	1.959	119.9	25.8	16.7
1988	12 15	01 00.30	+01 45.5					
1988	12 25	01 09.52	+03 10.4	1.476	1.966	104.3	29.0	17.1

1983 XU a,e,i = 3.12, 0.17, 2 Elements MPC 12697

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 17.88	+05 36.5	2.622	2.893	95.0	20.5	17.8
1988	07 28	01 24.39	+06 09.0					
1988	08 07	01 29.25	+06 31.2	2.336	2.861	111.1	19.3	17.5
1988	08 17	01 32.22	+06 41.8					
1988	08 27	01 33.05	+06 40.3	2.081	2.831	129.4	16.0	17.1
1988	09 06	01 31.64	+06 26.5					
1988	09 16	01 27.98	+06 00.9	1.885	2.802	150.1	10.3	16.7
1988	09 26	01 22.34	+05 25.6					
1988	10 06	01 15.24	+04 44.1	1.779	2.774	172.6	2.6	16.2
1988	10 16	01 07.47	+04 01.1					
1988	10 26	00 59.97	+03 22.5	1.782	2.747	162.6	6.2	16.4
1988	11 05	00 53.63	+02 53.3					
1988	11 15	00 49.13	+02 37.2	1.890	2.722	140.0	13.5	16.7
1988	11 25	00 46.92	+02 36.4					
1988	12 05	00 47.14	+02 51.1	2.075	2.699	119.4	18.5	17.1
1988	12 15	00 49.75	+03 20.5					
1988	12 25	00 54.59	+04 03.1	2.306	2.678	101.3	21.1	17.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 10.29	+04 04.1	2.059	2.409	97.3	24.7	18.0
1988	07 28	01 19.09	+04 20.9					
1988	08 07	01 26.15	+04 22.4	1.794	2.375	112.6	23.2	17.6
1988	08 17	01 31.11	+04 06.7					
1988	08 27	01 33.63	+03 32.5	1.559	2.341	130.2	19.2	17.2
1988	09 06	01 33.47	+02 39.8					
1988	09 16	01 30.50	+01 30.1	1.380	2.308	150.5	12.4	16.7
1988	09 26	01 24.95	+00 08.0					
1988	10 06	01 17.46	-01 19.1	1.285	2.276	169.9	4.4	16.2
1988	10 16	01 09.00	-02 41.3					
1988	10 26	01 00.87	-03 48.5	1.291	2.245	158.2	9.5	16.4
1988	11 05	00 54.24	-04 33.5					
1988	11 15	00 50.00	-04 52.4	1.391	2.215	136.4	17.9	16.8
1988	11 25	00 48.65	-04 45.0					
1988	12 05	00 50.26	-04 14.0	1.556	2.187	117.0	23.7	17.1
1988	12 15	00 54.72	-03 22.6					
1988	12 25	01 01.76	-02 14.6	1.757	2.162	100.4	26.6	17.5

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 17.78	+06 29.1	2.355	2.639	94.7	22.6	17.8
1988	07 28	01 25.41	+07 03.8					
1988	08 07	01 31.25	+07 26.4	2.115	2.644	110.3	21.1	17.5
1988	08 17	01 35.02	+07 35.9					
1988	08 27	01 36.48	+07 31.5	1.903	2.650	128.3	17.4	17.2
1988	09 06	01 35.54	+07 13.2					
1988	09 16	01 32.21	+06 41.8	1.748	2.660	148.9	11.3	16.8
1988	09 26	01 26.83	+05 59.7					
1988	10 06	01 19.98	+05 11.0	1.679	2.672	171.5	3.2	16.4
1988	10 16	01 12.50	+04 21.3					
1988	10 26	01 05.38	+03 36.8	1.717	2.687	163.9	5.9	16.6
1988	11 05	00 59.49	+03 02.7					
1988	11 15	00 55.47	+02 42.7	1.859	2.703	141.4	13.2	17.1
1988	11 25	00 53.72	+02 38.6					
1988	12 05	00 54.32	+02 50.3	2.080	2.722	121.0	18.1	17.5
1988	12 15	00 57.19	+03 16.7					
1988	12 25	01 02.16	+03 55.8	2.350	2.743	102.9	20.5	17.8

1981 PG a,e,i = 2.25, 0.19, 2 Elements MPC 6945

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 06.88	+10 24.9	1.445	1.847	95.7	33.2	16.9
1988	07 28	01 19.32	+11 56.1					
1988	08 07	01 29.56	+13 13.1	1.278	1.867	108.5	31.0	16.6
1988	08 17	01 37.11	+14 13.6					
1988	08 27	01 41.51	+14 55.3	1.129	1.893	124.4	26.1	16.2
1988	09 06	01 42.37	+15 15.6					
1988	09 16	01 39.54	+15 12.2	1.018	1.924	144.0	17.9	15.8
1988	09 26	01 33.34	+14 44.5					
1988	10 06	01 24.69	+13 54.8	0.972	1.958	166.8	6.7	15.3
1988	10 16	01 15.04	+12 49.9					
1988	10 26	01 06.10	+11 40.4	1.016	1.996	166.7	6.6	15.5
1988	11 05	00 59.28	+10 37.3					
1988	11 15	00 55.47	+09 49.3	1.151	2.037	144.1	16.5	16.1
1988	11 25	00 55.00	+09 21.3					
1988	12 05	00 57.72	+09 14.0	1.358	2.079	124.3	23.1	16.7
1988	12 15	01 03.31	+09 26.1					
1988	12 25	01 11.36	+09 55.1	1.611	2.123	107.3	26.3	17.2

1978 VO8 a,e,i = 3.05, 0.15, 3 Elements MPC 10157

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	07 18	01 32.30	+06 52.3	3.190	3.368	91.2	17.6	19.5
1988	07 28	01 37.37	+07 13.1					
1988	08 07	01 40.93	+07 24.3	2.892	3.349	108.1	16.7	19.2
1988	08 17	01 42.77	+07 25.1					
1988	08 27	01 42.73	+07 15.2	2.622	3.328	126.9	14.0	18.9
1988	09 06	01 40.73	+06 54.3					
1988	09 16	01 36.80	+06 23.3	2.412	3.307	147.9	9.3	18.6
1988	09 26	01 31.17	+05 43.9					
1988	10 06	01 24.27	+04 59.0	2.295	3.285	170.4	2.9	18.1
1988	10 16	01 16.72	+04 12.5					
1988	10 26	01 09.25	+03 29.1	2.292	3.261	164.6	4.6	18.2
1988	11 05	01 02.58	+02 53.1					
1988	11 15	00 57.32	+02 28.0	2.402	3.237	141.7	10.9	18.6
1988	11 25	00 53.89	+02 15.8					
1988	12 05	00 52.48	+02 17.1	2.599	3.212	120.4	15.3	18.8
1988	12 15	00 53.15	+02 31.8					
1988	12 25	00 55.81	+02 58.8	2.846	3.185	101.1	17.6	19.1

1962 OB a,e,i = 2.62, 0.15, 13 Elements MPC 11746

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	01 49.84	+24 17.3	2.179	2.555	99.8	23.0	17.1
1988	08 17	01 53.65	+25 46.2					
1988	08 27	01 54.92	+27 04.6	1.978	2.588	116.2	20.5	16.8
1988	09 06	01 53.40	+28 09.6					
1988	09 16	01 48.98	+28 57.4	1.816	2.621	134.6	15.9	16.5
1988	09 26	01 41.89	+29 23.7					
1988	10 06	01 32.72	+29 25.4	1.724	2.654	153.1	9.8	16.3
1988	10 16	01 22.46	+29 01.8					
1988	10 26	01 12.36	+28 15.9	1.729	2.686	160.5	7.1	16.2
1988	11 05	01 03.58	+27 14.5					
1988	11 15	00 57.04	+26 06.3	1.839	2.717	146.2	11.7	16.5
1988	11 25	00 53.23	+25 00.3					
1988	12 05	00 52.28	+24 02.9	2.039	2.748	127.0	16.6	16.9
1988	12 15	00 54.07	+23 18.5					
1988	12 25	00 58.34	+22 48.8	2.299	2.777	108.8	19.6	17.3
1989	01 04	01 04.76	+22 34.0					
1989	01 14	01 13.02	+22 33.0	2.590	2.805	92.2	20.5	17.6

1973 UU5 a,e,i = 2.93, 0.02, 2 Elements MPC 11856

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	01 44.79	+10 42.4	2.507	2.953	106.0	19.3	18.2
1988	08 17	01 47.96	+10 55.3					
1988	08 27	01 49.06	+10 56.1	2.259	2.948	124.2	16.5	17.9
1988	09 06	01 47.96	+10 44.1					
1988	09 16	01 44.63	+10 19.3	2.064	2.943	144.8	11.3	17.5
1988	09 26	01 39.28	+09 42.7					
1988	10 06	01 32.39	+08 56.7	1.954	2.938	167.7	4.1	17.1
1988	10 16	01 24.63	+08 05.4					
1988	10 26	01 16.88	+07 14.2	1.954	2.934	168.2	4.0	17.1
1988	11 05	01 09.98	+06 28.4					
1988	11 15	01 04.65	+05 52.6	2.064	2.929	144.8	11.2	17.5
1988	11 25	01 01.36	+05 30.3					
1988	12 05	01 00.32	+05 22.5	2.263	2.924	123.4	16.3	17.9
1988	12 15	01 01.54	+05 29.3					
1988	12 25	01 04.91	+05 49.8	2.516	2.919	104.3	19.1	18.2
1989	01 04	01 10.22	+06 22.2					
1989	01 14	01 17.26	+07 05.0	2.790	2.914	87.2	19.7	18.4

1980 RC1 a,e,i = 2.46, 0.20, 3 Elements MPC 10952

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	01 32.14	+14 09.3	1.399	1.961	107.6	29.5	16.8
1988	08 17	01 40.54	+15 20.5					
1988	08 27	01 46.20	+16 15.9	1.222	1.963	122.8	25.6	16.4
1988	09 06	01 48.72	+16 53.1					
1988	09 16	01 47.80	+17 09.2	1.083	1.971	141.3	18.6	16.0
1988	09 26	01 43.56	+17 02.2					
1988	10 06	01 36.60	+16 32.2	1.008	1.985	162.9	8.5	15.5
1988	10 16	01 28.09	+15 42.7					
1988	10 26	01 19.63	+14 42.0	1.019	2.005	169.8	5.0	15.4
1988	11 05	01 12.70	+13 40.3					
1988	11 15	01 08.43	+12 47.8	1.122	2.030	148.0	15.0	16.0
1988	11 25	01 07.38	+12 11.4					
1988	12 05	01 09.57	+11 54.2	1.301	2.059	127.9	22.2	16.6
1988	12 15	01 14.80	+11 56.4					
1988	12 25	01 22.68	+12 16.1	1.531	2.093	110.8	26.1	17.1
1989	01 04	01 32.78	+12 50.4					
1989	01 14	01 44.78	+13 36.4	1.790	2.130	95.9	27.3	17.5

(3712) 1984 YC a,e,i = 2.74, 0.25, 32 Elements MPC 12441

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	01 48.30	+48 16.4	2.597	2.789	90.0	21.3	17.1
1988	08 17	01 54.85	+50 33.9					
1988	08 27	01 59.00	+52 45.1	2.345	2.737	101.8	21.2	16.8
1988	09 06	02 00.17	+54 46.4					
1988	09 16	01 57.72	+56 32.4	2.115	2.683	113.8	20.0	16.5
1988	09 26	01 51.31	+57 55.7					
1988	10 06	01 41.07	+58 47.6	1.924	2.629	125.1	18.1	16.2
1988	10 16	01 27.96	+58 59.2					
1988	10 26	01 13.89	+58 24.7	1.792	2.575	133.0	16.4	16.0
1988	11 05	01 01.15	+57 04.1					
1988	11 15	00 51.69	+55 03.6	1.732	2.520	133.8	16.5	15.9
1988	11 25	00 46.68	+52 35.2					
1988	12 05	00 46.31	+49 52.6	1.751	2.466	126.4	18.8	15.9
1988	12 15	00 50.27	+47 08.2					
1988	12 25	00 57.97	+44 32.4	1.838	2.412	114.0	21.9	16.1
1989	01 04	01 08.76	+42 11.1					
1989	01 14	01 22.09	+40 07.7	1.977	2.360	100.3	24.2	16.2

1986 AK a,e,i = 2.35, 0.34, 22 Elements MPC 12959

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 06.02	-09 16.4	2.464	2.927	107.0	19.3	17.7
1988	08 17	02 08.32	-09 43.8					
1988	08 27	02 08.32	-10 21.8	2.189	2.881	124.2	16.8	17.3
1988	09 06	02 05.75	-11 07.9					
1988	09 16	02 00.46	-11 58.2	1.967	2.832	142.5	12.5	16.9
1988	09 26	01 52.56	-12 46.7					
1988	10 06	01 42.45	-13 26.3	1.831	2.779	156.9	8.1	16.5
1988	10 16	01 30.92	-13 49.5					
1988	10 26	01 19.07	-13 50.1	1.804	2.721	152.0	9.9	16.5
1988	11 05	01 08.05	-13 25.6					
1988	11 15	00 58.86	-12 36.3	1.881	2.660	133.5	15.6	16.7
1988	11 25	00 52.19	-11 25.1					
1988	12 05	00 48.34	-09 56.2	2.036	2.596	113.8	20.3	17.0
1988	12 15	00 47.32	-08 13.6					
1988	12 25	00 48.97	-06 20.6	2.231	2.527	95.8	22.8	17.2
1989	01 04	00 53.02	-04 20.1					
1989	01 14	00 59.20	-02 13.9	2.435	2.456	79.6	23.2	17.4

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	01 41.66	+27 21.8	1.925	2.330	100.2	25.4	16.3
1988 08 17	01 48.57	+29 04.8					
1988 08 27	01 53.07	+30 36.1	1.719	2.331	114.8	23.2	16.0
1988 09 06	01 54.80	+31 52.3					
1988 09 16	01 53.49	+32 48.7	1.548	2.337	131.4	18.8	15.6
1988 09 26	01 49.18	+33 20.0					
1988 10 06	01 42.34	+33 21.6	1.435	2.347	148.6	12.8	15.3
1988 10 16	01 33.87	+32 50.8					
1988 10 26	01 25.13	+31 49.7	1.406	2.360	158.8	8.8	15.1
1988 11 05	01 17.50	+30 25.6					
1988 11 15	01 12.09	+28 49.3	1.473	2.377	149.1	12.3	15.4
1988 11 25	01 09.59	+27 12.8					
1988 12 05	01 10.19	+25 45.5	1.629	2.397	131.3	18.0	15.8
1988 12 15	01 13.77	+24 33.3					
1988 12 25	01 20.03	+23 39.2	1.850	2.421	113.8	21.8	16.2
1989 01 04	01 28.60	+23 03.1					
1989 01 14	01 39.14	+22 43.7	2.110	2.447	97.8	23.5	16.5

1970 WC a,e,i = 2.36, 0.02, 4 Elements MPC 12450

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	01 54.83	+13 00.4	1.966	2.405	102.9	24.3	17.8
1988 08 17	02 00.12	+13 47.6					
1988 08 27	02 02.96	+14 23.3	1.738	2.406	119.8	21.4	17.4
1988 09 06	02 03.06	+14 46.1					
1988 09 16	02 00.20	+14 54.3	1.551	2.406	139.6	15.7	17.0
1988 09 26	01 54.46	+14 47.2					
1988 10 06	01 46.29	+14 24.9	1.434	2.406	162.3	7.3	16.6
1988 10 16	01 36.55	+13 49.7					
1988 10 26	01 26.49	+13 06.6	1.418	2.406	171.7	3.4	16.4
1988 11 05	01 17.38	+12 22.6					
1988 11 15	01 10.32	+11 44.5	1.507	2.405	148.1	12.5	16.8
1988 11 25	01 06.00	+11 18.2					
1988 12 05	01 04.67	+11 06.8	1.683	2.404	126.5	19.2	17.3
1988 12 15	01 06.28	+11 11.3					
1988 12 25	01 10.61	+11 31.1	1.913	2.402	107.7	22.9	17.7
1989 01 04	01 17.33	+12 04.6					
1989 01 14	01 26.13	+12 49.7	2.166	2.401	91.4	24.2	18.0

(3683) Baumann a,e,i = 3.14, 0.11, 16 Elements MPC 12204

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	01 59.32	-07 23.0	2.862	3.321	108.2	16.9	16.7
1988 08 17	02 01.73	-08 05.0					
1988 08 27	02 02.19	-08 56.5	2.648	3.339	125.6	14.2	16.4
1988 09 06	02 00.63	-09 55.2					
1988 09 16	01 57.08	-10 57.3	2.494	3.356	143.5	10.3	16.2
1988 09 26	01 51.75	-11 57.7					
1988 10 06	01 45.05	-12 50.9	2.430	3.372	156.9	6.7	16.0
1988 10 16	01 37.56	-13 31.7					
1988 10 26	01 30.00	-13 55.6	2.473	3.388	152.8	7.7	16.1
1988 11 05	01 23.05	-14 00.5					
1988 11 15	01 17.34	-13 46.1	2.621	3.402	136.0	11.7	16.4
1988 11 25	01 13.27	-13 13.8					
1988 12 05	01 11.07	-12 26.1	2.850	3.416	117.3	14.9	16.7
1988 12 15	01 10.80	-11 25.7					
1988 12 25	01 12.40	-10 15.4	3.128	3.428	99.3	16.4	16.9
1989 01 04	01 15.70	-08 57.9					
1989 01 14	01 20.55	-07 35.0	3.425	3.440	82.6	16.5	17.1

1980 FV1 a,e,i = 3.03, 0.11, 9 Elements MPC 10952

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	01 55.50	+15 44.6	2.324	2.719	101.8	21.4	18.4
1988	08 17	02 00.03	+16 50.3					
1988	08 27	02 02.39	+17 47.9	2.075	2.708	118.6	19.1	18.1
1988	09 06	02 02.34	+18 35.9					
1988	09 16	01 59.71	+19 12.4	1.868	2.699	137.9	14.5	17.7
1988	09 26	01 54.57	+19 35.5					
1988	10 06	01 47.30	+19 44.0	1.735	2.692	158.9	7.7	17.3
1988	10 16	01 38.58	+19 37.7					
1988	10 26	01 29.46	+19 18.9	1.702	2.686	169.8	3.8	17.1
1988	11 05	01 21.01	+18 52.0					
1988	11 15	01 14.21	+18 22.8	1.778	2.682	150.3	10.5	17.5
1988	11 25	01 09.76	+17 57.3					
1988	12 05	01 07.97	+17 40.1	1.946	2.680	129.2	16.5	17.9
1988	12 15	01 08.88	+17 34.1					
1988	12 25	01 12.38	+17 40.4	2.176	2.680	110.3	20.1	18.2
1989	01 04	01 18.18	+17 58.9					
1989	01 14	01 26.03	+18 28.5	2.437	2.682	93.5	21.5	18.5

(3735) 1983 XS a,e,i = 3.10, 0.15, 5 Elements MPC 12705

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 00.40	+18 15.4	3.243	3.558	99.8	16.3	17.7
1988	08 17	02 02.72	+18 45.6					
1988	08 27	02 03.24	+19 06.8	2.966	3.553	117.9	14.5	17.4
1988	09 06	02 01.86	+19 18.0					
1988	09 16	01 58.55	+19 18.0	2.735	3.547	138.1	10.9	17.1
1988	09 26	01 53.46	+19 05.9					
1988	10 06	01 46.93	+18 41.9	2.585	3.540	159.7	5.6	16.8
1988	10 16	01 39.45	+18 07.1					
1988	10 26	01 31.72	+17 24.3	2.545	3.531	171.4	2.4	16.6
1988	11 05	01 24.44	+16 37.3					
1988	11 15	01 18.26	+15 50.7	2.623	3.521	150.9	7.8	16.9
1988	11 25	01 13.67	+15 09.0					
1988	12 05	01 10.96	+14 35.4	2.804	3.509	129.1	12.6	17.2
1988	12 15	01 10.25	+14 12.2					
1988	12 25	01 11.52	+14 00.6	3.053	3.496	108.8	15.4	17.5
1989	01 04	01 14.63	+14 00.3					
1989	01 14	01 19.43	+14 10.9	3.333	3.482	90.4	16.4	17.7

1981 SU2 a,e,i = 2.27, 0.13, 2 Elements MPC 10528

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	01 42.63	+12 52.7	1.485	2.013	105.7	29.0	18.0
1988	08 17	01 51.29	+13 58.8					
1988	08 27	01 57.44	+14 51.8	1.279	1.995	120.9	25.8	17.6
1988	09 06	02 00.63	+15 29.6					
1988	09 16	02 00.45	+15 49.7	1.109	1.982	139.2	19.4	17.1
1988	09 26	01 56.80	+15 50.2					
1988	10 06	01 50.03	+15 30.5	1.000	1.972	161.0	9.5	16.5
1988	10 16	01 41.06	+14 52.5					
1988	10 26	01 31.45	+14 02.5	0.976	1.966	172.8	3.7	16.2
1988	11 05	01 22.89	+13 09.8					
1988	11 15	01 16.79	+12 24.3	1.045	1.964	149.9	14.7	16.8
1988	11 25	01 14.03	+11 53.9					
1988	12 05	01 14.85	+11 42.5	1.190	1.966	129.1	22.9	17.3
1988	12 15	01 19.11	+11 50.8					
1988	12 25	01 26.46	+12 17.3	1.385	1.972	111.6	27.6	17.8
1989	01 04	01 36.45	+12 59.0					
1989	01 14	01 48.70	+13 52.9	1.607	1.982	96.9	29.5	18.2

1982 DK a,e,i = 2.59, 0.26, 12 Elements MPC 10828

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 07.35	-02 00.6	2.846	3.255	104.8	17.5	18.6
1988	08 17	02 09.89	-02 29.0					
1988	08 27	02 10.47	-03 08.3	2.584	3.244	122.7	15.2	18.4
1988	09 06	02 08.96	-03 57.1					
1988	09 16	02 05.30	-04 53.0	2.377	3.230	142.1	11.0	18.0
1988	09 26	01 59.63	-05 52.1					
1988	10 06	01 52.28	-06 49.4	2.256	3.212	159.7	6.2	17.7
1988	10 16	01 43.84	-07 39.2					
1988	10 26	01 35.07	-08 16.1	2.246	3.192	158.5	6.5	17.7
1988	11 05	01 26.77	-08 36.4					
1988	11 15	01 19.68	-08 38.2	2.348	3.169	140.0	11.6	18.0
1988	11 25	01 14.35	-08 21.4					
1988	12 05	01 11.10	-07 47.8	2.536	3.144	119.8	15.8	18.3
1988	12 15	01 10.03	-06 59.8					
1988	12 25	01 11.09	-05 59.7	2.776	3.115	100.9	18.1	18.5
1989	01 04	01 14.13	-04 50.3					
1989	01 14	01 18.96	-03 33.4	3.033	3.084	83.7	18.5	18.7

1971 SX3 a,e,i = 2.61, 0.13, 13 Elements MPC 12007

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	01 54.29	+12 28.7	2.248	2.669	103.2	21.7	17.5
1988	08 17	01 59.83	+12 22.3					
1988	08 27	02 03.30	+11 59.6	1.980	2.641	120.5	19.2	17.1
1988	09 06	02 04.45	+11 19.2					
1988	09 16	02 03.09	+10 20.2	1.757	2.612	140.5	14.2	16.7
1988	09 26	01 59.28	+09 03.8					
1988	10 06	01 53.33	+07 32.9	1.611	2.583	163.0	6.5	16.2
1988	10 16	01 45.88	+05 53.6					
1988	10 26	01 37.87	+04 14.4	1.569	2.555	170.3	3.8	16.0
1988	11 05	01 30.35	+02 44.2					
1988	11 15	01 24.28	+01 30.9	1.638	2.526	147.1	12.3	16.4
1988	11 25	01 20.39	+00 39.3					
1988	12 05	01 19.02	+00 10.8	1.793	2.497	125.4	18.8	16.8
1988	12 15	01 20.29	+00 04.8					
1988	12 25	01 24.08	+00 18.8	2.003	2.469	106.5	22.5	17.1
1989	01 04	01 30.16	+00 49.5					
1989	01 14	01 38.30	+01 34.1	2.234	2.442	90.1	23.8	17.4

1984 YH1 a,e,i = 2.66, 0.06, 3 Elements MPC 12580

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 03.78	+15 42.6	2.161	2.540	99.9	23.2	17.7
1988	08 17	02 10.01	+16 29.3					
1988	08 27	02 14.08	+17 05.0	1.916	2.531	116.3	21.0	17.3
1988	09 06	02 15.69	+17 28.6					
1988	09 16	02 14.59	+17 38.3	1.707	2.523	135.3	16.3	16.9
1988	09 26	02 10.76	+17 32.8					
1988	10 06	02 04.48	+17 11.7	1.565	2.516	157.1	8.9	16.5
1988	10 16	01 56.36	+16 35.9					
1988	10 26	01 47.42	+15 49.3	1.518	2.510	175.3	1.9	16.1
1988	11 05	01 38.83	+14 57.7					
1988	11 15	01 31.70	+14 08.2	1.579	2.505	153.8	10.0	16.6
1988	11 25	01 26.84	+13 27.5					
1988	12 05	01 24.69	+12 59.8	1.734	2.501	131.8	17.1	17.0
1988	12 15	01 25.34	+12 47.5					
1988	12 25	01 28.69	+12 51.0	1.953	2.499	112.3	21.3	17.4
1989	01 04	01 34.47	+13 08.9					
1989	01 14	01 42.40	+13 39.5	2.204	2.497	95.4	23.1	17.7

2548 P-L a,e,i = 3.13, 0.13, 2 Elements MPC 12689

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 14.94	+11 00.2	3.023	3.335	99.0	17.5	18.3
1988	08 17	02 18.26	+11 10.3					
1988	08 27	02 19.74	+11 10.8	2.773	3.355	117.0	15.6	18.1
1988	09 06	02 19.27	+11 01.5					
1988	09 16	02 16.78	+10 42.5	2.567	3.375	137.2	11.7	17.8
1988	09 26	02 12.40	+10 14.6					
1988	10 06	02 06.41	+09 39.5	2.439	3.393	159.4	5.9	17.5
1988	10 16	01 59.30	+08 59.8					
1988	10 26	01 51.72	+08 19.1	2.419	3.411	175.5	1.3	17.2
1988	11 05	01 44.39	+07 41.4					
1988	11 15	01 37.98	+07 10.3	2.517	3.427	152.9	7.6	17.7
1988	11 25	01 33.02	+06 48.8					
1988	12 05	01 29.85	+06 38.5	2.719	3.443	130.7	12.5	18.0
1988	12 15	01 28.61	+06 40.0					
1988	12 25	01 29.32	+06 52.9	2.991	3.458	110.3	15.5	18.3
1989	01 04	01 31.86	+07 16.3					
1989	01 14	01 36.07	+07 48.8	3.297	3.471	91.8	16.5	18.6

(3692) Rickman a,e,i = 2.72, 0.15, 11 Elements MPC 12311

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 17.36	+18 26.2	2.786	3.062	95.9	19.2	18.9
1988	08 17	02 21.80	+18 39.2					
1988	08 27	02 24.27	+18 40.7	2.531	3.076	113.5	17.5	18.7
1988	09 06	02 24.60	+18 29.4					
1988	09 16	02 22.67	+18 04.3	2.311	3.089	133.4	13.7	18.4
1988	09 26	02 18.55	+17 24.8					
1988	10 06	02 12.51	+16 31.5	2.161	3.100	155.8	7.6	18.0
1988	10 16	02 05.05	+15 26.3					
1988	10 26	01 56.95	+14 13.5	2.116	3.109	177.9	0.7	17.6
1988	11 05	01 49.03	+12 58.6					
1988	11 15	01 42.09	+11 47.6	2.189	3.117	155.6	7.5	18.0
1988	11 25	01 36.79	+10 46.1					
1988	12 05	01 33.50	+09 57.7	2.368	3.122	132.8	13.4	18.4
1988	12 15	01 32.40	+09 24.3					
1988	12 25	01 33.48	+09 06.3	2.620	3.126	112.1	16.9	18.8
1989	01 04	01 36.57	+09 02.5					
1989	01 14	01 41.51	+09 11.5	2.909	3.128	93.6	18.3	19.0

1970 OF a,e,i = 2.70, 0.31, 6 Elements MPC 11146

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	01 57.06	+17 45.9	1.388	1.865	100.7	32.3	16.8
1988	08 17	02 08.61	+19 42.0					
1988	08 27	02 17.64	+21 26.7	1.230	1.882	113.9	29.4	16.5
1988	09 06	02 23.63	+22 58.0					
1988	09 16	02 26.06	+24 12.6	1.098	1.908	130.1	23.8	16.1
1988	09 26	02 24.70	+25 06.8					
1988	10 06	02 19.71	+25 36.6	1.015	1.943	149.4	15.2	15.7
1988	10 16	02 11.85	+25 38.7					
1988	10 26	02 02.59	+25 14.1	1.006	1.987	167.0	6.5	15.4
1988	11 05	01 53.66	+24 28.9					
1988	11 15	01 46.66	+23 33.0	1.087	2.037	157.7	10.6	15.8
1988	11 25	01 42.66	+22 37.9					
1988	12 05	01 42.05	+21 52.1	1.254	2.093	138.0	18.4	16.4
1988	12 15	01 44.79	+21 20.6					
1988	12 25	01 50.54	+21 05.1	1.487	2.153	119.9	23.3	17.0
1989	01 04	01 58.85	+21 04.6					
1989	01 14	02 09.31	+21 17.1	1.762	2.216	104.0	25.5	17.5

(3634) 1980 FV a,e,i = 2.25, 0.09, 4 Elements MPC 11992

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 16.58	+16 16.7	1.784	2.155	96.8	27.9	18.0
1988	08 17	02 24.93	+17 25.1					
1988	08 27	02 30.84	+18 23.0	1.582	2.174	112.1	25.5	17.7
1988	09 06	02 33.90	+19 09.1					
1988	09 16	02 33.71	+19 41.6	1.405	2.194	130.4	20.4	17.3
1988	09 26	02 30.09	+19 58.3					
1988	10 06	02 23.22	+19 57.4	1.283	2.215	151.9	12.3	16.9
1988	10 16	02 13.74	+19 37.9					
1988	10 26	02 02.90	+19 02.3	1.246	2.236	173.2	3.0	16.5
1988	11 05	01 52.22	+18 15.9					
1988	11 15	01 43.14	+17 27.0	1.312	2.256	157.1	9.8	16.9
1988	11 25	01 36.77	+16 44.1					
1988	12 05	01 33.61	+16 13.1	1.473	2.277	134.8	17.9	17.4
1988	12 15	01 33.73	+15 57.4					
1988	12 25	01 36.93	+15 57.9	1.698	2.297	115.3	22.8	17.9
1989	01 04	01 42.85	+16 13.3					
1989	01 14	01 51.11	+16 41.6	1.957	2.316	98.4	24.8	18.3

1953 TC a,e,i = 2.47, 0.21, 5 Elements MPC 12939

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 00.71	+11 15.2	1.545	2.019	102.2	29.4	15.6
1988	08 17	02 11.11	+12 33.9					
1988	08 27	02 19.33	+13 43.7	1.329	1.994	116.3	27.0	15.2
1988	09 06	02 24.91	+14 43.8					
1988	09 16	02 27.32	+15 32.9	1.144	1.974	133.3	21.8	14.7
1988	09 26	02 26.25	+16 09.5					
1988	10 06	02 21.66	+16 32.4	1.013	1.960	153.8	13.0	14.2
1988	10 16	02 14.05	+16 40.6					
1988	10 26	02 04.61	+16 35.9	0.960	1.952	175.5	2.3	13.6
1988	11 05	01 55.00	+16 22.6					
1988	11 15	01 46.93	+16 07.4	0.999	1.951	157.8	11.1	14.1
1988	11 25	01 41.77	+15 58.0					
1988	12 05	01 40.15	+15 59.6	1.122	1.956	136.2	20.4	14.6
1988	12 15	01 42.23	+16 15.1					
1988	12 25	01 47.78	+16 44.9	1.305	1.968	118.0	26.2	15.1
1989	01 04	01 56.37	+17 27.1					
1989	01 14	02 07.58	+18 19.7	1.523	1.986	102.7	28.9	15.5

1979 HE3 a,e,i = 2.41, 0.14, 3 Elements MPC 11518

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 27.23	+12 04.5	2.448	2.742	95.8	21.6	19.6
1988	08 17	02 32.84	+12 29.9					
1988	08 27	02 36.42	+12 45.4	2.186	2.739	112.6	19.9	19.3
1988	09 06	02 37.68	+12 50.3					
1988	09 16	02 36.38	+12 44.2	1.956	2.733	132.0	15.9	18.9
1988	09 26	02 32.45	+12 26.9					
1988	10 06	02 26.04	+11 59.2	1.791	2.726	154.2	9.2	18.5
1988	10 16	02 17.61	+11 23.0					
1988	10 26	02 07.99	+10 42.1	1.722	2.716	177.6	0.9	18.0
1988	11 05	01 58.23	+10 01.3					
1988	11 15	01 49.40	+09 26.0	1.768	2.704	156.4	8.4	18.4
1988	11 25	01 42.41	+09 01.1					
1988	12 05	01 37.83	+08 49.4	1.917	2.690	133.3	15.5	18.8
1988	12 15	01 35.90	+08 52.4					
1988	12 25	01 36.63	+09 09.8	2.134	2.674	112.8	19.8	19.2
1989	01 04	01 39.83	+09 40.3					
1989	01 14	01 45.28	+10 22.1	2.385	2.657	94.9	21.6	19.4

2558 P-L a,e,i = 3.13, 0.17, 5 Elements MPC 12690

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 19.09	+13 33.9	2.443	2.760	97.2	21.4	18.1
1988 08 17	02 25.53	+14 20.4					
1988 08 27	02 30.09	+14 58.7	2.171	2.734	113.4	19.8	17.7
1988 09 06	02 32.48	+15 28.2					
1988 09 16	02 32.45	+15 48.2	1.932	2.710	132.0	16.0	17.4
1988 09 26	02 29.88	+15 57.8					
1988 10 06	02 24.90	+15 56.9	1.758	2.688	153.3	9.6	16.9
1988 10 16	02 17.89	+15 45.7					
1988 10 26	02 09.61	+15 26.4	1.676	2.669	176.1	1.5	16.4
1988 11 05	02 01.08	+15 02.3					
1988 11 15	01 53.34	+14 38.2	1.704	2.652	159.0	7.7	16.8
1988 11 25	01 47.33	+14 19.1					
1988 12 05	01 43.67	+14 09.0	1.833	2.637	136.5	14.9	17.1
1988 12 15	01 42.64	+14 10.3					
1988 12 25	01 44.30	+14 24.1	2.035	2.625	116.4	19.6	17.5
1989 01 04	01 48.47	+14 49.9					
1989 01 14	01 54.93	+15 26.5	2.276	2.615	98.9	21.8	17.8

1955 BG a,e,i = 2.64, 0.28, 14 Elements MPC 10402

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 18.83	-04 30.5	2.001	2.434	102.7	24.0	16.4
1988 08 17	02 26.89	-04 44.7					
1988 08 27	02 32.96	-05 11.6	1.730	2.373	117.5	22.2	16.0
1988 09 06	02 36.66	-05 50.4					
1988 09 16	02 37.60	-06 38.8	1.497	2.312	134.0	18.2	15.5
1988 09 26	02 35.51	-07 32.1					
1988 10 06	02 30.36	-08 23.6	1.327	2.252	150.7	12.5	15.0
1988 10 16	02 22.47	-09 04.3					
1988 10 26	02 12.74	-09 24.4	1.241	2.195	158.1	9.7	14.7
1988 11 05	02 02.43	-09 16.4					
1988 11 15	01 52.97	-08 36.2	1.249	2.140	145.6	15.1	14.9
1988 11 25	01 45.68	-07 24.6					
1988 12 05	01 41.34	-05 46.4	1.340	2.088	127.2	22.1	15.2
1988 12 15	01 40.35	-03 47.1					
1988 12 25	01 42.70	-01 32.6	1.485	2.042	109.9	26.9	15.5
1989 01 04	01 48.14	+00 52.1					
1989 01 14	01 56.38	+03 23.1	1.659	2.001	94.9	29.3	15.7

1976 SD3 a,e,i = 3.23, 0.03, 4 Elements MPC 12451

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 28.30	+13 50.1	2.964	3.214	95.0	18.3	17.8
1988 08 17	02 33.11	+14 18.5					
1988 08 27	02 36.16	+14 38.8	2.689	3.209	112.1	17.0	17.6
1988 09 06	02 37.25	+14 50.5					
1988 09 16	02 36.23	+14 53.1	2.448	3.204	131.4	13.6	17.3
1988 09 26	02 33.07	+14 46.4					
1988 10 06	02 27.95	+14 30.8	2.275	3.198	153.1	8.1	16.9
1988 10 16	02 21.24	+14 07.4					
1988 10 26	02 13.56	+13 38.5	2.200	3.193	176.5	1.1	16.5
1988 11 05	02 05.67	+13 07.4					
1988 11 15	01 58.39	+12 37.9	2.242	3.188	159.6	6.2	16.8
1988 11 25	01 52.44	+12 14.1					
1988 12 05	01 48.30	+11 58.9	2.392	3.183	136.9	12.2	17.2
1988 12 15	01 46.26	+11 54.2					
1988 12 25	01 46.41	+12 00.7	2.621	3.179	116.1	16.1	17.5
1989 01 04	01 48.66	+12 18.1					
1989 01 14	01 52.87	+12 45.5	2.893	3.174	97.5	17.9	17.7

1977 DY8 a,e,i = 2.16, 0.06, 3 Elements MPC 12940

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 16.73	+11 51.4	1.625	2.035	98.3	29.5	17.7
1988 08 17	02 26.82	+12 50.9					
1988 08 27	02 34.63	+13 39.3	1.415	2.032	112.8	27.3	17.4
1988 09 06	02 39.69	+14 16.2					
1988 09 16	02 41.50	+14 40.4	1.230	2.031	130.3	22.2	16.9
1988 09 26	02 39.73	+14 51.1					
1988 10 06	02 34.35	+14 47.8	1.096	2.031	151.5	13.6	16.4
1988 10 16	02 25.80	+14 31.2					
1988 10 26	02 15.24	+14 04.2	1.040	2.033	175.9	2.0	15.8
1988 11 05	02 04.26	+13 32.6					
1988 11 15	01 54.60	+13 03.7	1.082	2.037	158.9	10.1	16.3
1988 11 25	01 47.64	+12 44.8					
1988 12 05	01 44.11	+12 40.6	1.214	2.042	136.1	19.5	16.8
1988 12 15	01 44.21	+12 52.9					
1988 12 25	01 47.76	+13 21.4	1.406	2.048	116.9	25.4	17.3
1989 01 04	01 54.36	+14 03.9					
1989 01 14	02 03.62	+14 57.9	1.633	2.057	100.7	28.0	17.7

(3615) Safronov a,e,i = 3.17, 0.12, 2 Elements MPC 11851

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 34.02	+12 56.0	3.262	3.482	93.9	16.9	17.3
1988 08 17	02 38.09	+13 08.1					
1988 08 27	02 40.46	+13 11.6	2.993	3.493	111.6	15.6	17.0
1988 09 06	02 40.99	+13 06.3					
1988 09 16	02 39.58	+12 52.1	2.758	3.504	131.2	12.5	16.8
1988 09 26	02 36.24	+12 29.2					
1988 10 06	02 31.15	+11 58.8	2.593	3.513	153.0	7.4	16.5
1988 10 16	02 24.68	+11 22.5					
1988 10 26	02 17.36	+10 43.1	2.529	3.521	175.5	1.3	16.1
1988 11 05	02 09.87	+10 04.1					
1988 11 15	02 02.90	+09 29.1	2.585	3.529	159.4	5.7	16.4
1988 11 25	01 57.05	+09 01.4					
1988 12 05	01 52.77	+08 43.3	2.752	3.535	136.7	11.0	16.7
1988 12 15	01 50.32	+08 36.2					
1988 12 25	01 49.81	+08 40.2	3.001	3.540	115.7	14.5	17.0
1989 01 04	01 51.17	+08 54.8					
1989 01 14	01 54.31	+09 19.0	3.293	3.544	96.6	16.0	17.3

(3731) 1984 DH1 a,e,i = 3.22, 0.13, 21 Elements MPC 12693

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 33.21	+34 34.0	3.344	3.448	87.3	17.1	16.5
1988 08 17	02 38.81	+35 27.9					
1988 08 27	02 42.62	+36 15.1	3.055	3.427	103.1	16.7	16.3
1988 09 06	02 44.42	+36 53.8					
1988 09 16	02 43.97	+37 21.4	2.786	3.406	120.3	14.8	16.0
1988 09 26	02 41.21	+37 35.1					
1988 10 06	02 36.23	+37 31.5	2.567	3.383	138.8	11.2	15.7
1988 10 16	02 29.37	+37 07.8					
1988 10 26	02 21.29	+36 22.4	2.431	3.360	155.4	7.1	15.4
1988 11 05	02 12.81	+35 16.5					
1988 11 15	02 04.85	+33 53.6	2.403	3.337	157.2	6.6	15.4
1988 11 25	01 58.27	+32 20.1					
1988 12 05	01 53.63	+30 43.5	2.487	3.312	141.1	10.8	15.6
1988 12 15	01 51.27	+29 10.7					
1988 12 25	01 51.29	+27 47.2	2.663	3.288	121.6	14.8	15.8
1989 01 04	01 53.59	+26 36.3					
1989 01 14	01 57.99	+25 39.4	2.899	3.262	102.9	17.1	16.1

1981 WP1 a,e,i = 2.37, 0.15, 8 Elements MPC 6646

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 22.92	+05 05.4	1.589	2.013	98.9	29.8	17.2
1988 08 17	02 33.56	+05 41.6					
1988 08 27	02 41.82	+06 05.9	1.397	2.020	113.1	27.4	16.8
1988 09 06	02 47.27	+06 18.5					
1988 09 16	02 49.46	+06 20.3	1.231	2.031	130.3	22.2	16.4
1988 09 26	02 48.10	+06 13.1					
1988 10 06	02 43.19	+05 59.8	1.115	2.047	150.7	13.8	16.0
1988 10 16	02 35.21	+05 44.7					
1988 10 26	02 25.23	+05 33.4	1.078	2.065	170.9	4.4	15.6
1988 11 05	02 14.76	+05 31.2					
1988 11 15	02 05.38	+05 42.6	1.138	2.088	157.9	10.3	16.0
1988 11 25	01 58.41	+06 09.9					
1988 12 05	01 54.55	+06 52.9	1.287	2.113	136.3	18.8	16.5
1988 12 15	01 54.03	+07 50.0					
1988 12 25	01 56.73	+08 58.9	1.502	2.140	117.4	24.1	17.0
1989 01 04	02 02.30	+10 16.7					
1989 01 14	02 10.37	+11 41.0	1.754	2.170	101.1	26.4	17.5

1983 LM a,e,i = 2.64, 0.17, 13 Elements MPC 12321

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 34.35	+19 56.6	2.316	2.555	91.7	23.4	17.3
1988 08 17	02 42.05	+20 11.7					
1988 08 27	02 47.62	+20 13.6	2.097	2.591	107.8	21.8	17.1
1988 09 06	02 50.78	+20 01.0					
1988 09 16	02 51.28	+19 32.8	1.900	2.626	126.6	17.9	16.8
1988 09 26	02 49.04	+18 48.0					
1988 10 06	02 44.22	+17 46.9	1.759	2.662	148.3	11.4	16.5
1988 10 16	02 37.26	+16 31.3					
1988 10 26	02 28.95	+15 05.4	1.708	2.696	172.5	2.8	16.1
1988 11 05	02 20.31	+13 35.9					
1988 11 15	02 12.36	+12 10.4	1.770	2.730	162.7	6.2	16.3
1988 11 25	02 06.01	+10 56.1					
1988 12 05	02 01.82	+09 57.6	1.941	2.763	139.2	13.5	16.8
1988 12 15	02 00.06	+09 17.4					
1988 12 25	02 00.75	+08 55.5	2.191	2.795	118.3	18.1	17.3
1989 01 04	02 03.71	+08 50.1					
1989 01 14	02 08.73	+08 59.0	2.486	2.825	99.8	20.1	17.6

1974 RG1 a,e,i = 2.76, 0.17, 9 Elements MPC 12004

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 33.68	+22 08.8	2.114	2.362	91.1	25.4	17.5
1988 08 17	02 42.71	+23 37.1					
1988 08 27	02 49.65	+24 58.3	1.902	2.384	105.8	24.1	17.3
1988 09 06	02 54.12	+26 11.3					
1988 09 16	02 55.73	+27 14.3	1.710	2.408	122.8	20.5	17.0
1988 09 26	02 54.20	+28 04.7					
1988 10 06	02 49.54	+28 39.3	1.566	2.435	142.3	14.6	16.6
1988 10 16	02 42.05	+28 54.4					
1988 10 26	02 32.60	+28 48.0	1.499	2.463	161.8	7.2	16.3
1988 11 05	02 22.43	+28 21.0					
1988 11 15	02 12.92	+27 38.1	1.533	2.493	162.1	7.0	16.4
1988 11 25	02 05.32	+26 46.8					
1988 12 05	02 00.41	+25 55.6	1.670	2.525	142.6	13.7	16.8
1988 12 15	01 58.53	+25 11.2					
1988 12 25	01 59.69	+24 38.2	1.888	2.558	122.8	18.9	17.3
1989 01 04	02 03.63	+24 18.2					
1989 01 14	02 10.04	+24 11.2	2.156	2.591	105.0	21.5	17.7

1986 EO a,e,i = 2.55, 0.08, 17 Elements MPC 10768

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 45.83	-02 36.8	2.324	2.626	95.7	22.6	16.9
1988	08 17	02 53.09	-02 45.5					
1988	08 27	02 58.38	-03 05.2	2.072	2.610	110.9	21.2	16.6
1988	09 06	03 01.39	-03 34.9					
1988	09 16	03 01.81	-04 12.5	1.850	2.593	128.0	17.8	16.2
1988	09 26	02 59.44	-04 54.4					
1988	10 06	02 54.29	-05 35.9	1.684	2.576	146.2	12.5	15.8
1988	10 16	02 46.64	-06 10.5					
1988	10 26	02 37.17	-06 31.3	1.605	2.558	159.1	8.0	15.6
1988	11 05	02 26.90	-06 32.5					
1988	11 15	02 17.00	-06 10.5	1.630	2.541	151.0	10.9	15.7
1988	11 25	02 08.56	-05 25.0					
1988	12 05	02 02.39	-04 18.4	1.752	2.523	132.3	16.8	16.0
1988	12 15	01 58.91	-02 54.5					
1988	12 25	01 58.25	-01 17.5	1.944	2.505	113.5	21.1	16.3
1989	01 04	02 00.27	+00 28.7					
1989	01 14	02 04.76	+02 21.2	2.176	2.487	96.5	23.1	16.6

1977 AL1 a,e,i = 2.62, 0.16, 11 Elements MPC 12447

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 40.80	+02 55.7	1.945	2.275	95.3	26.3	16.8
1988	08 17	02 49.81	+03 11.4					
1988	08 27	02 56.58	+03 15.9	1.745	2.298	110.2	24.4	16.5
1988	09 06	03 00.77	+03 09.9					
1988	09 16	03 02.04	+02 54.8	1.569	2.323	127.6	20.1	16.2
1988	09 26	03 00.21	+02 33.2					
1988	10 06	02 55.32	+02 08.8	1.445	2.350	147.5	13.2	15.8
1988	10 16	02 47.75	+01 46.3					
1988	10 26	02 38.36	+01 31.4	1.404	2.380	165.7	5.9	15.5
1988	11 05	02 28.32	+01 28.8					
1988	11 15	02 18.89	+01 42.0	1.466	2.410	157.7	9.0	15.8
1988	11 25	02 11.21	+02 12.3					
1988	12 05	02 06.00	+02 58.5	1.627	2.442	137.1	16.0	16.3
1988	12 15	02 03.61	+03 58.5					
1988	12 25	02 04.04	+05 09.6	1.861	2.475	117.6	20.6	16.7
1989	01 04	02 07.08	+06 29.0					
1989	01 14	02 12.47	+07 54.3	2.138	2.508	100.3	22.7	17.1

1985 BB a,e,i = 2.97, 0.03, 2 Elements MPC 10844

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 07	02 47.42	+14 32.8	2.777	2.962	90.3	20.0	19.5
1988	08 17	02 53.97	+15 01.4					
1988	08 27	02 58.75	+15 21.7	2.516	2.969	106.7	19.0	19.2
1988	09 06	03 01.51	+15 33.4					
1988	09 16	03 02.02	+15 36.0	2.280	2.976	125.3	16.0	18.9
1988	09 26	03 00.17	+15 29.5					
1988	10 06	02 56.00	+15 14.0	2.098	2.982	146.4	10.7	18.6
1988	10 16	02 49.77	+14 50.2					
1988	10 26	02 42.05	+14 20.2	2.006	2.989	169.6	3.4	18.2
1988	11 05	02 33.63	+13 47.1					
1988	11 15	02 25.40	+13 14.6	2.026	2.996	166.0	4.6	18.3
1988	11 25	02 18.25	+12 47.2					
1988	12 05	02 12.85	+12 28.2	2.159	3.002	142.7	11.5	18.7
1988	12 15	02 09.61	+12 19.9					
1988	12 25	02 08.71	+12 23.3	2.377	3.008	121.4	16.2	19.0
1989	01 04	02 10.11	+12 38.2					
1989	01 14	02 13.65	+13 03.4	2.647	3.015	102.3	18.6	19.3

1982 BU1 a,e,i = 2.44, 0.12, 3 Elements MPC 10625

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 39.74	+12 18.1	2.258	2.520	92.8	23.7	18.3
1988 08 17	02 48.39	+12 41.7					
1988 08 27	02 55.23	+12 54.5	1.987	2.494	108.2	22.6	17.9
1988 09 06	02 59.93	+12 55.9					
1988 09 16	03 02.11	+12 45.4	1.740	2.468	125.9	19.3	17.5
1988 09 26	03 01.50	+12 22.8					
1988 10 06	02 58.00	+11 48.9	1.544	2.441	146.6	13.0	17.1
1988 10 16	02 51.76	+11 05.3					
1988 10 26	02 43.39	+10 15.9	1.431	2.415	169.2	4.4	16.5
1988 11 05	02 33.85	+09 25.8					
1988 11 15	02 24.40	+08 41.6	1.423	2.388	163.5	6.8	16.6
1988 11 25	02 16.29	+08 09.4					
1988 12 05	02 10.48	+07 53.4	1.517	2.361	140.3	15.5	17.0
1988 12 15	02 07.51	+07 55.4					
1988 12 25	02 07.58	+08 15.0	1.686	2.335	119.6	21.5	17.4
1989 01 04	02 10.58	+08 50.3					
1989 01 14	02 16.28	+09 38.8	1.898	2.309	101.8	24.6	17.7

1986 EM2 a,e,i = 2.38, 0.16, 2 Elements MPC 12140

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 07	02 32.25	+17 18.6	2.035	2.320	93.0	25.9	18.4
1988 08 17	02 42.44	+18 14.7					
1988 08 27	02 50.88	+19 01.7	1.769	2.285	107.4	25.0	18.0
1988 09 06	02 57.19	+19 38.9					
1988 09 16	03 00.89	+20 04.7	1.525	2.250	124.2	21.7	17.6
1988 09 26	03 01.60	+20 17.8					
1988 10 06	02 59.08	+20 16.5	1.327	2.216	144.1	15.3	17.1
1988 10 16	02 53.35	+19 59.2					
1988 10 26	02 45.01	+19 26.0	1.203	2.183	167.1	5.8	16.5
1988 11 05	02 35.13	+18 39.4					
1988 11 15	02 25.22	+17 45.5	1.177	2.152	167.1	5.9	16.4
1988 11 25	02 16.84	+16 52.6					
1988 12 05	02 11.15	+16 08.8	1.249	2.123	143.4	16.1	16.9
1988 12 15	02 08.81	+15 40.1					
1988 12 25	02 10.02	+15 29.3	1.395	2.097	122.7	23.3	17.3
1989 01 04	02 14.57	+15 36.0					
1989 01 14	02 22.17	+15 58.6	1.585	2.073	105.2	27.2	17.7

1981 EX3 a,e,i = 2.75, 0.10, 8 Elements MPC 10820

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	02 55.29	+21 16.8	2.235	2.691	105.8	21.2	19.3
1988 09 06	02 59.83	+21 29.5					
1988 09 16	03 02.00	+21 29.7	1.981	2.671	123.5	18.3	18.9
1988 09 26	03 01.57	+21 16.1					
1988 10 06	02 58.49	+20 47.5	1.776	2.651	144.1	12.8	18.5
1988 10 16	02 52.93	+20 03.5					
1988 10 26	02 45.47	+19 05.2	1.654	2.632	167.2	4.8	18.1
1988 11 05	02 36.98	+17 56.4					
1988 11 15	02 28.56	+16 43.0	1.638	2.613	167.7	4.6	18.0
1988 11 25	02 21.31	+15 32.5					
1988 12 05	02 16.07	+14 31.5	1.732	2.596	144.1	12.9	18.4
1988 12 15	02 13.35	+13 44.8					
1988 12 25	02 13.36	+13 14.9	1.911	2.578	122.7	18.7	18.8
1989 01 04	02 16.02	+13 01.7					
1989 01 14	02 21.15	+13 04.0	2.139	2.562	104.1	21.9	19.1
1989 01 24	02 28.48	+13 19.4					
1989 02 03	02 37.74	+13 45.3	2.388	2.547	87.8	22.7	19.4

1981 EN26 a,e,i = 2.79, 0.16, 8 Elements MPC 10619

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 03.98	+13 24.2	2.730	3.161	106.0	17.9	19.0
1988	09 06	03 06.65	+13 07.3					
1988	09 16	03 07.23	+12 39.9	2.463	3.146	124.7	15.2	18.7
1988	09 26	03 05.61	+12 02.3					
1988	10 06	03 01.81	+11 15.4	2.252	3.129	145.7	10.4	18.3
1988	10 16	02 56.02	+10 20.9					
1988	10 26	02 48.72	+09 22.3	2.133	3.111	167.8	3.9	17.9
1988	11 05	02 40.59	+08 23.8					
1988	11 15	02 32.46	+07 30.3	2.128	3.091	164.2	5.0	18.0
1988	11 25	02 25.18	+06 46.5					
1988	12 05	02 19.41	+06 15.7	2.236	3.070	141.6	11.5	18.3
1988	12 15	02 15.63	+05 59.7					
1988	12 25	02 14.07	+05 58.6	2.432	3.047	120.2	16.2	18.6
1989	01 04	02 14.76	+06 11.4					
1989	01 14	02 17.59	+06 36.3	2.677	3.023	101.0	18.6	18.9
1989	01 24	02 22.39	+07 11.3					
1989	02 03	02 28.96	+07 54.2	2.938	2.998	83.9	19.1	19.1

1981 EA5 a,e,i = 2.74, 0.16, 9 Elements MPC 10537

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	02 54.10	+25 36.0	1.913	2.378	104.6	24.3	19.3
1988	09 06	03 01.04	+26 15.7					
1988	09 16	03 05.46	+26 42.5	1.677	2.358	121.0	21.4	18.9
1988	09 26	03 07.01	+26 54.1					
1988	10 06	03 05.49	+26 47.9	1.484	2.341	140.1	15.9	18.5
1988	10 16	03 00.98	+26 21.4					
1988	10 26	02 54.03	+25 33.3	1.362	2.326	161.6	7.7	18.0
1988	11 05	02 45.62	+24 25.5					
1988	11 15	02 37.06	+23 03.5	1.337	2.315	169.0	4.7	17.8
1988	11 25	02 29.76	+21 36.5					
1988	12 05	02 24.74	+20 14.2	1.415	2.308	147.5	13.3	18.2
1988	12 15	02 22.62	+19 04.4					
1988	12 25	02 23.62	+18 12.0	1.578	2.304	126.6	20.0	18.7
1989	01 04	02 27.58	+17 38.2					
1989	01 14	02 34.26	+17 22.1	1.795	2.303	108.4	23.9	19.1
1989	01 24	02 43.31	+17 21.1					
1989	02 03	02 54.40	+17 32.2	2.038	2.306	92.7	25.3	19.4

1978 VK9 a,e,i = 2.25, 0.16, 5 Elements MPC 8149

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	02 54.96	+21 41.4	1.336	1.881	105.7	31.1	16.7
1988	09 06	03 05.55	+22 25.2					
1988	09 16	03 13.21	+22 52.7	1.160	1.883	120.6	27.4	16.3
1988	09 26	03 17.41	+23 02.1					
1988	10 06	03 17.75	+22 51.6	1.017	1.890	139.2	20.2	15.8
1988	10 16	03 14.15	+22 19.3					
1988	10 26	03 07.19	+21 25.5	0.933	1.902	161.6	9.5	15.3
1988	11 05	02 58.09	+20 13.9					
1988	11 15	02 48.60	+18 52.7	0.934	1.920	172.6	3.8	15.1
1988	11 25	02 40.59	+17 33.7					
1988	12 05	02 35.36	+16 27.3	1.029	1.941	149.1	15.1	15.7
1988	12 15	02 33.62	+15 40.4					
1988	12 25	02 35.49	+15 15.5	1.199	1.967	128.4	23.1	16.3
1989	01 04	02 40.67	+15 11.0					
1989	01 14	02 48.79	+15 24.0	1.418	1.996	111.2	27.4	16.8
1989	01 24	02 59.39	+15 50.4					
1989	02 03	03 12.05	+16 26.0	1.665	2.028	96.5	28.9	17.3

1984 SB6 a,e,i = 2.44, 0.18, 3 Elements MPC 9826

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 05.30	+13 19.2	1.476	2.001	105.7	29.1	17.4
1988 09 06	03 14.10	+13 41.4					
1988 09 16	03 19.98	+13 51.1	1.299	2.015	121.5	25.2	17.0
1988 09 26	03 22.52	+13 48.9					
1988 10 06	03 21.46	+13 35.6	1.160	2.034	140.7	18.2	16.6
1988 10 16	03 16.84	+13 12.7					
1988 10 26	03 09.24	+12 43.5	1.086	2.058	163.2	8.0	16.1
1988 11 05	02 59.80	+12 12.5					
1988 11 15	02 50.04	+11 45.6	1.103	2.085	170.3	4.6	16.1
1988 11 25	02 41.56	+11 28.7					
1988 12 05	02 35.54	+11 25.7	1.218	2.116	147.4	14.5	16.7
1988 12 15	02 32.65	+11 38.5					
1988 12 25	02 33.07	+12 06.4	1.411	2.150	126.8	21.5	17.2
1989 01 04	02 36.60	+12 47.3					
1989 01 14	02 42.94	+13 38.7	1.654	2.186	109.3	25.1	17.7
1989 01 24	02 51.69	+14 37.5					
1989 02 03	03 02.48	+15 41.1	1.925	2.224	94.1	26.2	18.1

(3727) 1981 PQ a,e,i = 3.34, 0.13, 5 Elements MPC 12692

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 19.14	+13 41.1	2.866	3.237	102.4	17.8	17.1
1988 09 06	03 22.46	+13 33.2					
1988 09 16	03 23.78	+13 16.9	2.631	3.260	120.7	15.4	16.8
1988 09 26	03 22.98	+12 52.6					
1988 10 06	03 20.09	+12 21.2	2.445	3.284	141.2	11.0	16.5
1988 10 16	03 15.27	+11 44.2					
1988 10 26	03 08.93	+11 03.9	2.344	3.308	163.2	5.0	16.2
1988 11 05	03 01.65	+10 23.4					
1988 11 15	02 54.16	+09 46.3	2.355	3.332	169.4	3.1	16.1
1988 11 25	02 47.22	+09 16.1					
1988 12 05	02 41.46	+08 55.4	2.482	3.356	147.6	9.0	16.5
1988 12 15	02 37.37	+08 45.8					
1988 12 25	02 35.21	+08 47.8	2.705	3.379	126.1	13.6	16.9
1989 01 04	02 35.04	+09 00.6					
1989 01 14	02 36.84	+09 23.4	2.990	3.402	106.5	16.1	17.2
1989 01 24	02 40.46	+09 54.3					
1989 02 03	02 45.71	+10 31.9	3.304	3.425	88.7	16.7	17.5

(3807) 1981 SE1 a,e,i = 2.25, 0.17, 4 Elements MPC 12967

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 22.69	+14 38.7	1.805	2.235	101.3	26.3	17.6
1988 09 06	03 29.22	+14 35.4					
1988 09 16	03 32.94	+14 19.7	1.617	2.273	118.3	22.9	17.3
1988 09 26	03 33.51	+13 51.8					
1988 10 06	03 30.80	+13 12.5	1.465	2.310	138.5	16.7	16.9
1988 10 16	03 24.90	+12 23.6					
1988 10 26	03 16.36	+11 28.8	1.383	2.346	161.4	7.8	16.5
1988 11 05	03 06.18	+10 33.1					
1988 11 15	02 55.67	+09 42.9	1.402	2.381	169.6	4.3	16.5
1988 11 25	02 46.19	+09 04.3					
1988 12 05	02 38.80	+08 41.3	1.528	2.414	147.0	12.9	17.0
1988 12 15	02 34.15	+08 35.7					
1988 12 25	02 32.48	+08 47.1	1.740	2.446	125.5	19.1	17.5
1989 01 04	02 33.67	+09 13.3					
1989 01 14	02 37.50	+09 51.8	2.005	2.475	106.8	22.4	17.9
1989 01 24	02 43.66	+10 39.6					
1989 02 03	02 51.80	+11 34.2	2.293	2.502	90.4	23.2	18.3

1971 UQ a,e,i = 2.26, 0.17, 4 Elements MPC 12442

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 08.91	+14 31.4	1.345	1.874	104.6	31.4	18.2
1988	09 06	03 19.16	+15 18.1					
1988	09 16	03 26.46	+15 54.2	1.174	1.885	119.5	27.7	17.8
1988	09 26	03 30.29	+16 19.9					
1988	10 06	03 30.22	+16 35.5	1.036	1.900	138.0	20.6	17.4
1988	10 16	03 26.12	+16 41.0					
1988	10 26	03 18.44	+16 37.2	0.955	1.921	160.6	9.9	16.9
1988	11 05	03 08.32	+16 26.3					
1988	11 15	02 57.47	+16 12.0	0.960	1.947	174.3	2.9	16.6
1988	11 25	02 47.81	+16 00.4					
1988	12 05	02 40.81	+15 56.6	1.059	1.976	150.2	14.3	17.3
1988	12 15	02 37.32	+16 04.6					
1988	12 25	02 37.56	+16 25.8	1.236	2.008	129.3	22.3	17.9
1989	01 04	02 41.30	+16 59.2					
1989	01 14	02 48.16	+17 42.9	1.464	2.043	111.7	26.6	18.4
1989	01 24	02 57.69	+18 34.2					
1989	02 03	03 09.45	+19 30.2	1.721	2.081	96.7	28.1	18.9

1978 TT2 a,e,i = 2.88, 0.02, 3 Elements MPC 13051

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 24.07	+17 38.7	2.570	2.924	100.2	19.9	17.8
1988	09 06	03 28.60	+17 58.8					
1988	09 16	03 30.97	+18 11.4	2.313	2.922	117.9	17.7	17.5
1988	09 26	03 30.96	+18 16.3					
1988	10 06	03 28.46	+18 13.3	2.099	2.921	138.1	13.2	17.1
1988	10 16	03 23.53	+18 02.2					
1988	10 26	03 16.54	+17 43.5	1.962	2.919	160.8	6.4	16.7
1988	11 05	03 08.12	+17 18.9					
1988	11 15	02 59.16	+16 50.9	1.930	2.917	174.9	1.7	16.4
1988	11 25	02 50.68	+16 23.3					
1988	12 05	02 43.56	+16 00.1	2.014	2.914	150.9	9.5	16.9
1988	12 15	02 38.47	+15 44.7					
1988	12 25	02 35.78	+15 39.3	2.195	2.912	128.6	15.3	17.3
1989	01 04	02 35.59	+15 44.6					
1989	01 14	02 37.82	+16 00.6	2.439	2.909	108.8	18.7	17.6
1989	01 24	02 42.29	+16 25.9					
1989	02 03	02 48.75	+16 59.2	2.712	2.906	91.3	19.8	17.9

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 17.76	+19 46.6	2.159	2.554	101.1	22.8	18.2
1988	09 06	03 24.06	+20 20.8					
1988	09 16	03 27.95	+20 46.3	1.943	2.572	118.0	20.2	17.9
1988	09 26	03 29.18	+21 02.5					
1988	10 06	03 27.60	+21 08.8	1.767	2.593	137.5	15.1	17.5
1988	10 16	03 23.28	+21 04.5					
1988	10 26	03 16.65	+20 49.6	1.662	2.617	159.8	7.5	17.2
1988	11 05	03 08.47	+20 25.3					
1988	11 15	02 59.80	+19 54.5	1.657	2.644	175.1	1.8	16.9
1988	11 25	02 51.79	+19 21.7					
1988	12 05	02 45.41	+18 51.9	1.762	2.673	152.0	10.0	17.4
1988	12 15	02 41.32	+18 29.3					
1988	12 25	02 39.84	+18 16.9	1.962	2.704	130.3	16.1	17.9
1989	01 04	02 40.99	+18 15.6					
1989	01 14	02 44.63	+18 25.1	2.225	2.737	111.1	19.6	18.3
1989	01 24	02 50.50	+18 44.3					
1989	02 03	02 58.31	+19 11.3	2.521	2.771	94.1	20.8	18.6

1933 OD a,e,i = 3.10, 0.19, 6 Elements MPC 12796

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 24.84	+15 14.6	2.522	2.885	100.6	20.1	17.2
1988	09 06	03 29.35	+15 07.4					
1988	09 16	03 31.64	+14 50.6	2.305	2.921	118.5	17.6	17.0
1988	09 26	03 31.55	+14 24.6					
1988	10 06	03 29.05	+13 50.0	2.132	2.958	138.8	12.9	16.7
1988	10 16	03 24.28	+13 08.2					
1988	10 26	03 17.68	+12 21.8	2.037	2.995	161.1	6.2	16.3
1988	11 05	03 09.91	+11 34.2					
1988	11 15	03 01.80	+10 49.4	2.051	3.032	171.3	2.8	16.2
1988	11 25	02 54.25	+10 11.8					
1988	12 05	02 48.00	+09 44.6	2.179	3.069	149.5	9.4	16.7
1988	12 15	02 43.61	+09 29.7					
1988	12 25	02 41.36	+09 27.6	2.404	3.105	127.8	14.5	17.1
1989	01 04	02 41.31	+09 37.8					
1989	01 14	02 43.38	+09 58.7	2.692	3.141	108.2	17.3	17.4
1989	01 24	02 47.41	+10 28.5					
1989	02 03	02 53.16	+11 05.3	3.010	3.177	90.6	18.1	17.7

1984 AR a,e,i = 3.13, 0.14, 1 Elements MPC 8535

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 24.42	+18 51.5	2.647	2.990	99.9	19.4	17.9
1988	09 06	03 29.49	+19 13.2					
1988	09 16	03 32.54	+19 27.6	2.365	2.963	117.3	17.6	17.5
1988	09 26	03 33.32	+19 34.4					
1988	10 06	03 31.70	+19 33.1	2.125	2.936	137.0	13.4	17.2
1988	10 16	03 27.66	+19 23.2					
1988	10 26	03 21.48	+19 05.1	1.959	2.910	159.3	6.9	16.7
1988	11 05	03 13.72	+18 39.8					
1988	11 15	03 05.22	+18 09.6	1.897	2.884	176.6	1.2	16.3
1988	11 25	02 56.97	+17 38.2					
1988	12 05	02 49.91	+17 09.7	1.949	2.860	152.6	9.1	16.8
1988	12 15	02 44.78	+16 48.2					
1988	12 25	02 42.04	+16 36.4	2.099	2.836	130.3	15.3	17.1
1989	01 04	02 41.85	+16 35.7					
1989	01 14	02 44.17	+16 46.0	2.314	2.814	110.5	19.1	17.4
1989	01 24	02 48.85	+17 06.5					
1989	02 03	02 55.66	+17 35.6	2.561	2.793	93.0	20.6	17.7

(3546) Atanasoff a,e,i = 2.70, 0.02, 7 Elements MPC 11514

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 30.76	+26 06.7	2.457	2.762	96.6	21.3	17.8
1988	09 06	03 36.57	+26 58.7					
1988	09 16	03 40.10	+27 44.7	2.205	2.762	113.4	19.5	17.5
1988	09 26	03 41.03	+28 23.6					
1988	10 06	03 39.16	+28 53.7	1.987	2.763	132.5	15.5	17.1
1988	10 16	03 34.41	+29 12.3					
1988	10 26	03 27.08	+29 16.9	1.837	2.763	153.6	9.2	16.8
1988	11 05	03 17.84	+29 05.7					
1988	11 15	03 07.68	+28 38.9	1.784	2.762	169.3	3.8	16.5
1988	11 25	02 57.88	+27 59.7					
1988	12 05	02 49.54	+27 13.5	1.844	2.761	153.6	9.1	16.8
1988	12 15	02 43.52	+26 26.9					
1988	12 25	02 40.30	+25 45.7	2.003	2.760	132.0	15.4	17.2
1989	01 04	02 39.97	+25 13.9					
1989	01 14	02 42.41	+24 53.2	2.231	2.758	112.3	19.3	17.5
1989	01 24	02 47.38	+24 44.1					
1989	02 03	02 54.58	+24 45.3	2.493	2.756	94.8	20.9	17.8

1978 RH1 a,e,i = 2.18, 0.11, 3 Elements MPC 13056

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 32.19	+17 15.2	1.921	2.298	98.5	25.8	18.3
1988 09 06	03 39.41	+17 21.6					
1988 09 16	03 44.03	+17 16.8	1.707	2.319	115.1	23.1	18.0
1988 09 26	03 45.66	+17 00.7					
1988 10 06	03 44.07	+16 33.1	1.524	2.339	134.8	17.7	17.6
1988 10 16	03 39.19	+15 54.6					
1988 10 26	03 31.37	+15 06.9	1.406	2.356	157.7	9.2	17.1
1988 11 05	03 21.42	+14 13.3					
1988 11 15	03 10.56	+13 19.0	1.386	2.372	174.5	2.3	16.8
1988 11 25	03 00.22	+12 30.4					
1988 12 05	02 51.66	+11 53.2	1.475	2.386	151.2	11.5	17.3
1988 12 15	02 45.74	+11 31.4					
1988 12 25	02 42.88	+11 26.3	1.655	2.398	128.9	18.6	17.8
1989 01 04	02 43.09	+11 37.0					
1989 01 14	02 46.18	+12 01.7	1.893	2.407	109.5	22.7	18.2
1989 01 24	02 51.83	+12 37.6					
1989 02 03	02 59.71	+13 22.0	2.157	2.415	92.8	24.1	18.6

1981 QN a,e,i = 2.25, 0.20, 4 Elements MPC 10528

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 12.36	+23 24.6	1.308	1.803	101.4	33.3	17.1
1988 09 06	03 25.14	+24 19.0					
1988 09 16	03 35.02	+24 58.2	1.148	1.820	115.3	30.0	16.7
1988 09 26	03 41.40	+25 21.3					
1988 10 06	03 43.76	+25 26.7	1.014	1.844	132.7	23.5	16.3
1988 10 16	03 41.82	+25 12.3					
1988 10 26	03 35.87	+24 36.8	0.928	1.874	154.2	13.3	15.9
1988 11 05	03 26.93	+23 40.7					
1988 11 15	03 16.66	+22 29.1	0.921	1.909	175.8	2.2	15.4
1988 11 25	03 07.09	+21 11.5					
1988 12 05	02 59.88	+19 59.0	1.007	1.947	155.6	12.1	16.1
1988 12 15	02 56.03	+19 00.7					
1988 12 25	02 55.88	+18 21.4	1.176	1.990	134.0	20.8	16.7
1989 01 04	02 59.23	+18 01.6					
1989 01 14	03 05.71	+17 59.3	1.404	2.034	115.8	25.8	17.3
1989 01 24	03 14.86	+18 11.0					
1989 02 03	03 26.20	+18 32.8	1.665	2.081	100.3	27.8	17.8

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 40.87	+20 53.0	2.110	2.427	95.6	24.5	18.4
1988 09 06	03 48.06	+21 47.7					
1988 09 16	03 52.87	+22 37.7	1.868	2.429	111.9	22.6	18.1
1988 09 26	03 54.88	+23 22.8					
1988 10 06	03 53.75	+24 02.2	1.655	2.431	130.9	18.1	17.7
1988 10 16	03 49.24	+24 33.9					
1988 10 26	03 41.50	+24 55.8	1.503	2.431	152.9	10.7	17.3
1988 11 05	03 31.13	+25 05.3					
1988 11 15	03 19.26	+25 01.7	1.444	2.429	173.3	2.7	16.9
1988 11 25	03 07.41	+24 46.8					
1988 12 05	02 57.06	+24 25.4	1.496	2.427	155.3	9.8	17.3
1988 12 15	02 49.35	+24 03.7					
1988 12 25	02 44.93	+23 47.4	1.645	2.423	132.7	17.4	17.7
1989 01 04	02 43.93	+23 40.2					
1989 01 14	02 46.20	+23 43.6	1.859	2.418	112.8	22.0	18.1
1989 01 24	02 51.43	+23 57.5					
1989 02 03	02 59.24	+24 20.6	2.105	2.411	95.7	24.0	18.4

1982 KN1 a,e,i = 2.63, 0.12, 14 Elements MPC 10828

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 43.14	+04 36.7	2.604	2.930	98.5	19.9	17.8
1988 09 06	03 47.87	+04 18.3					
1988 09 16	03 50.53	+03 52.2	2.347	2.924	115.5	18.1	17.5
1988 09 26	03 50.87	+03 19.9					
1988 10 06	03 48.76	+02 43.6	2.129	2.917	134.3	14.2	17.2
1988 10 16	03 44.18	+02 06.4					
1988 10 26	03 37.38	+01 32.5	1.983	2.908	153.7	8.7	16.8
1988 11 05	03 28.89	+01 06.2					
1988 11 15	03 19.49	+00 52.0	1.939	2.898	162.5	5.9	16.7
1988 11 25	03 10.17	+00 53.1					
1988 12 05	03 01.84	+01 10.8	2.007	2.886	147.3	10.6	16.9
1988 12 15	02 55.27	+01 45.0					
1988 12 25	02 50.96	+02 33.8	2.171	2.873	127.0	15.9	17.2
1989 01 04	02 49.10	+03 34.6					
1989 01 14	02 49.71	+04 44.7	2.399	2.858	107.8	19.1	17.5
1989 01 24	02 52.63	+06 01.6					
1989 02 03	02 57.64	+07 22.9	2.656	2.842	90.6	20.3	17.8

1984 BL a,e,i = 3.16, 0.18, 2 Elements MPC 13158

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 29.36	+16 47.4	2.305	2.660	99.2	22.0	16.9
1988 09 06	03 36.45	+17 10.5					
1988 09 16	03 41.45	+17 26.0	2.044	2.640	115.7	20.1	16.5
1988 09 26	03 44.07	+17 33.8					
1988 10 06	03 44.07	+17 34.0	1.821	2.622	134.6	15.8	16.1
1988 10 16	03 41.35	+17 26.8					
1988 10 26	03 36.11	+17 12.9	1.665	2.606	156.3	8.8	15.7
1988 11 05	03 28.89	+16 53.7					
1988 11 15	03 20.53	+16 31.4	1.605	2.594	178.2	0.7	15.2
1988 11 25	03 12.17	+16 09.8					
1988 12 05	03 04.91	+15 52.8	1.654	2.585	155.7	9.0	15.7
1988 12 15	02 59.63	+15 43.9					
1988 12 25	02 56.90	+15 45.4	1.801	2.578	133.5	16.1	16.1
1989 01 04	02 56.92	+15 58.0					
1989 01 14	02 59.68	+16 21.4	2.014	2.576	113.9	20.4	16.5
1989 01 24	03 04.97	+16 54.0					
1989 02 03	03 12.53	+17 33.9	2.265	2.576	96.9	22.3	16.8

1986 EZ4 a,e,i = 2.33, 0.19, 1 Elements MPC 12581

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 28.86	+19 22.2	1.962	2.339	98.7	25.3	19.3
1988 09 06	03 37.54	+19 56.8					
1988 09 16	03 44.06	+20 23.4	1.691	2.297	114.4	23.5	18.9
1988 09 26	03 47.98	+20 41.5					
1988 10 06	03 48.88	+20 50.5	1.452	2.254	132.8	19.0	18.4
1988 10 16	03 46.41	+20 49.3					
1988 10 26	03 40.58	+20 37.0	1.272	2.212	154.6	11.1	17.9
1988 11 05	03 31.85	+20 13.5					
1988 11 15	03 21.24	+19 40.2	1.180	2.169	178.6	0.6	17.1
1988 11 25	03 10.34	+19 01.5					
1988 12 05	03 00.75	+18 23.9	1.192	2.128	155.5	11.1	17.6
1988 12 15	02 53.84	+17 54.1					
1988 12 25	02 50.43	+17 37.5	1.293	2.088	132.6	20.3	18.0
1989 01 04	02 50.75	+17 36.2					
1989 01 14	02 54.70	+17 50.2	1.452	2.050	113.2	26.2	18.4
1989 01 24	03 01.97	+18 17.5					
1989 02 03	03 12.15	+18 55.2	1.638	2.014	97.2	29.0	18.7

1931 TC2 a,e,i = 2.67, 0.25, 8 Elements MPC 12578

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 37.69	+26 18.2	1.840	2.176	95.0	27.6	17.1
1988	09 06	03 46.94	+27 38.8					
1988	09 16	03 53.49	+28 53.0	1.663	2.221	110.2	25.1	16.9
1988	09 26	03 56.89	+29 59.8					
1988	10 06	03 56.77	+30 57.7	1.511	2.269	128.2	20.3	16.6
1988	10 16	03 52.92	+31 43.0					
1988	10 26	03 45.60	+32 11.7	1.412	2.320	148.7	12.9	16.2
1988	11 05	03 35.61	+32 19.9					
1988	11 15	03 24.26	+32 06.1	1.400	2.372	166.2	5.7	16.0
1988	11 25	03 13.23	+31 33.0					
1988	12 05	03 04.00	+30 47.5	1.492	2.426	156.1	9.5	16.3
1988	12 15	02 57.61	+29 58.1					
1988	12 25	02 54.54	+29 12.3	1.680	2.480	135.6	16.1	16.9
1989	01 04	02 54.76	+28 35.2					
1989	01 14	02 58.05	+28 09.1	1.939	2.535	116.4	20.3	17.3
1989	01 24	03 04.01	+27 54.4					
1989	02 03	03 12.24	+27 49.7	2.238	2.589	99.4	22.1	17.8

1936 QV a,e,i = 2.28, 0.11, 3 Elements MPC 10153

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 29.26	+17 57.2	1.625	2.043	99.0	29.2	17.6
1988	09 06	03 39.78	+18 14.8					
1988	09 16	03 47.70	+18 19.9	1.429	2.055	114.0	26.5	17.3
1988	09 26	03 52.56	+18 12.4					
1988	10 06	03 53.97	+17 52.3	1.260	2.069	132.2	21.0	16.9
1988	10 16	03 51.68	+17 20.1					
1988	10 26	03 45.88	+16 37.3	1.146	2.085	154.1	12.0	16.4
1988	11 05	03 37.29	+15 46.7					
1988	11 15	03 27.16	+14 53.6	1.116	2.104	176.1	1.8	16.0
1988	11 25	03 17.13	+14 04.8					
1988	12 05	03 08.73	+13 26.9	1.188	2.125	155.6	11.0	16.5
1988	12 15	03 03.06	+13 04.8					
1988	12 25	03 00.70	+13 00.3	1.348	2.147	133.5	19.4	17.1
1989	01 04	03 01.69	+13 12.5					
1989	01 14	03 05.82	+13 39.2	1.569	2.171	114.6	24.3	17.6
1989	01 24	03 12.73	+14 17.0					
1989	02 03	03 22.03	+15 02.8	1.822	2.195	98.4	26.4	18.0

1986 CL1 a,e,i = 2.60, 0.16, 17 Elements MPC 12318

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 50.18	+34 58.7	2.765	2.951	90.4	20.0	17.9
1988	09 06	03 56.40	+35 39.5					
1988	09 16	04 00.32	+36 14.0	2.515	2.967	106.8	18.9	17.7
1988	09 26	04 01.61	+36 40.7					
1988	10 06	04 00.06	+36 57.1	2.289	2.981	125.3	15.9	17.4
1988	10 16	03 55.57	+37 00.1					
1988	10 26	03 48.38	+36 46.1	2.120	2.993	145.5	10.8	17.1
1988	11 05	03 39.07	+36 12.3					
1988	11 15	03 28.58	+35 17.7	2.043	3.003	162.9	5.5	16.8
1988	11 25	03 18.13	+34 05.0					
1988	12 05	03 08.85	+32 39.9	2.081	3.010	156.5	7.5	17.0
1988	12 15	03 01.64	+31 10.1					
1988	12 25	02 57.03	+29 43.4	2.229	3.016	136.1	13.1	17.3
1989	01 04	02 55.18	+28 25.4					
1989	01 14	02 56.02	+27 19.8	2.458	3.020	115.8	17.0	17.6
1989	01 24	02 59.32	+26 27.8					
1989	02 03	03 04.81	+25 49.0	2.733	3.021	97.3	18.9	17.9

1954 UN2 a,e,i = 2.26, 0.19, 3 Elements MPC 12940

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 12.31	+18 48.1	1.372	1.873	102.6	31.8	17.7
1988	09 06	03 25.44	+19 20.3					
1988	09 16	03 36.19	+19 37.5	1.174	1.855	116.4	29.1	17.3
1988	09 26	03 44.01	+19 39.3					
1988	10 06	03 48.33	+19 25.1	1.007	1.842	133.2	23.3	16.8
1988	10 16	03 48.73	+18 54.7					
1988	10 26	03 45.20	+18 09.2	0.890	1.836	154.0	13.7	16.3
1988	11 05	03 38.36	+17 11.5					
1988	11 15	03 29.47	+16 07.7	0.848	1.836	176.8	1.7	15.7
1988	11 25	03 20.45	+15 06.8					
1988	12 05	03 13.09	+14 17.8	0.896	1.843	157.0	12.1	16.2
1988	12 15	03 08.75	+13 47.6					
1988	12 25	03 08.11	+13 38.7	1.023	1.857	135.4	21.8	16.8
1989	01 04	03 11.21	+13 50.0					
1989	01 14	03 17.76	+14 18.0	1.206	1.876	117.5	27.7	17.4
1989	01 24	03 27.35	+14 58.5					
1989	02 03	03 39.49	+15 46.9	1.423	1.901	102.7	30.4	17.8

(1179) Mally a,e,i = 2.62, 0.17, 9 Elements MPC 11506

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 59.52	+26 15.5	2.876	3.053	90.3	19.3	19.5
1988	09 06	04 05.10	+27 01.7					
1988	09 16	04 08.63	+27 44.4	2.609	3.062	107.3	18.3	19.2
1988	09 26	04 09.82	+28 23.0					
1988	10 06	04 08.45	+28 56.4	2.368	3.069	126.4	15.2	18.9
1988	10 16	04 04.37	+29 22.7					
1988	10 26	03 57.71	+29 39.7	2.188	3.074	147.7	10.0	18.6
1988	11 05	03 48.89	+29 44.9					
1988	11 15	03 38.65	+29 37.1	2.103	3.077	167.9	3.9	18.3
1988	11 25	03 28.06	+29 17.0					
1988	12 05	03 18.18	+28 47.3	2.135	3.078	159.6	6.4	18.4
1988	12 15	03 09.99	+28 12.8					
1988	12 25	03 04.15	+27 38.8	2.278	3.076	137.5	12.5	18.8
1989	01 04	03 00.96	+27 09.6					
1989	01 14	03 00.47	+26 48.0	2.502	3.072	116.7	16.6	19.1
1989	01 24	03 02.55	+26 35.4					
1989	02 03	03 06.94	+26 32.0	2.770	3.066	98.0	18.6	19.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 52.99	+19 03.6	2.197	2.469	93.2	24.1	16.7
1988	09 06	04 01.46	+19 40.3					
1988	09 16	04 07.71	+20 10.9	1.969	2.486	109.0	22.5	16.4
1988	09 26	04 11.41	+20 35.8					
1988	10 06	04 12.24	+20 55.0	1.767	2.504	127.5	18.5	16.1
1988	10 16	04 10.01	+21 08.3					
1988	10 26	04 04.78	+21 15.0	1.620	2.524	148.9	11.7	15.7
1988	11 05	03 56.99	+21 14.8					
1988	11 15	03 47.47	+21 07.9	1.561	2.545	172.9	2.8	15.3
1988	11 25	03 37.44	+20 56.0					
1988	12 05	03 28.17	+20 42.3	1.611	2.567	162.2	6.7	15.5
1988	12 15	03 20.76	+20 30.6					
1988	12 25	03 15.95	+20 24.6	1.766	2.590	139.1	14.4	16.0
1989	01 04	03 14.06	+20 26.5					
1989	01 14	03 15.07	+20 37.1	1.997	2.614	118.6	19.3	16.4
1989	01 24	03 18.81	+20 56.2					
1989	02 03	03 24.96	+21 22.3	2.271	2.638	100.7	21.5	16.8

1985 HV1 a,e,i = 3.14, 0.15, 1 Elements MPC 10395

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 55.89	+19 55.1	2.866	3.079	92.4	19.1	17.5
1988 09 06	04 02.41	+20 14.6					
1988 09 16	04 07.14	+20 28.4	2.568	3.049	109.1	18.2	17.2
1988 09 26	04 09.80	+20 36.5					
1988 10 06	04 10.17	+20 38.7	2.299	3.019	128.0	15.1	16.8
1988 10 16	04 08.10	+20 34.9					
1988 10 26	04 03.64	+20 24.8	2.090	2.989	149.4	9.8	16.4
1988 11 05	03 57.09	+20 08.5					
1988 11 15	03 49.03	+19 47.1	1.975	2.959	172.9	2.4	16.0
1988 11 25	03 40.34	+19 22.4					
1988 12 05	03 32.00	+18 57.4	1.975	2.930	162.8	5.7	16.1
1988 12 15	03 24.93	+18 35.5					
1988 12 25	03 19.86	+18 20.0	2.083	2.902	139.5	12.7	16.5
1989 01 04	03 17.19	+18 13.0					
1989 01 14	03 17.10	+18 15.5	2.273	2.875	118.5	17.5	16.8
1989 01 24	03 19.54	+18 27.4					
1989 02 03	03 24.33	+18 47.5	2.508	2.848	99.9	19.9	17.0

1985 GB a,e,i = 3.25, 0.11, 2 Elements MPC 10039

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	04 02.81	+20 55.3	3.385	3.543	90.6	16.6	18.2
1988 09 06	04 07.71	+21 13.0					
1988 09 16	04 10.90	+21 26.1	3.089	3.533	108.1	15.7	17.9
1988 09 26	04 12.18	+21 34.4					
1988 10 06	04 11.40	+21 37.9	2.823	3.522	127.5	13.0	17.7
1988 10 16	04 08.51	+21 36.0					
1988 10 26	04 03.60	+21 28.6	2.620	3.510	149.2	8.3	17.3
1988 11 05	03 57.00	+21 15.7					
1988 11 15	03 49.23	+20 57.9	2.515	3.498	172.5	2.1	16.9
1988 11 25	03 40.99	+20 36.6					
1988 12 05	03 33.08	+20 14.0	2.529	3.485	163.3	4.7	17.1
1988 12 15	03 26.23	+19 53.0					
1988 12 25	03 21.01	+19 36.2	2.659	3.471	140.1	10.5	17.4
1989 01 04	03 17.77	+19 25.6					
1989 01 14	03 16.68	+19 22.5	2.875	3.456	118.6	14.5	17.7
1989 01 24	03 17.73	+19 27.0					
1989 02 03	03 20.80	+19 38.8	3.140	3.440	99.3	16.4	17.9

1966 TE a,e,i = 1.95, 0.07, 20 Elements MPC 11625

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 58.98	+29 06.3	1.605	1.894	89.8	32.2	18.6
1988 09 06	04 11.92	+31 49.3					
1988 09 16	04 22.75	+34 37.5	1.416	1.909	102.8	30.9	18.3
1988 09 26	04 30.77	+37 31.8					
1988 10 06	04 35.12	+40 31.7	1.246	1.926	117.6	27.4	18.0
1988 10 16	04 34.74	+43 33.3					
1988 10 26	04 28.67	+46 27.9	1.118	1.942	133.7	21.7	17.6
1988 11 05	04 16.42	+49 00.9					
1988 11 15	03 58.67	+50 53.7	1.056	1.959	146.5	16.2	17.3
1988 11 25	03 38.00	+51 51.4					
1988 12 05	03 18.19	+51 51.8	1.079	1.975	146.1	16.2	17.4
1988 12 15	03 02.78	+51 06.1					
1988 12 25	02 53.72	+49 54.3	1.183	1.991	133.3	21.1	17.8
1989 01 04	02 51.19	+48 34.6					
1989 01 14	02 54.55	+47 19.1	1.347	2.006	118.0	25.7	18.2
1989 01 24	03 02.82	+46 13.9					
1989 02 03	03 15.02	+45 20.4	1.546	2.021	103.7	28.3	18.6

1981 WQ a,e,i = 2.28, 0.16, 8 Elements MPC 10762

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 50.13	+16 41.6	1.953	2.267	94.4	26.4	17.3
1988	09 06	04 00.22	+17 26.6					
1988	09 16	04 08.35	+18 07.0	1.688	2.231	109.2	25.2	16.9
1988	09 26	04 14.05	+18 43.6					
1988	10 06	04 16.85	+19 17.2	1.446	2.195	126.7	21.4	16.4
1988	10 16	04 16.26	+19 48.0					
1988	10 26	04 12.03	+20 15.9	1.254	2.160	147.4	14.3	15.9
1988	11 05	04 04.27	+20 40.0					
1988	11 15	03 53.64	+20 59.1	1.142	2.125	171.6	3.9	15.2
1988	11 25	03 41.56	+21 13.0					
1988	12 05	03 29.79	+21 23.0	1.130	2.092	162.7	8.1	15.4
1988	12 15	03 20.09	+21 32.9					
1988	12 25	03 13.76	+21 46.9	1.215	2.060	138.9	18.3	15.8
1989	01 04	03 11.37	+22 08.3					
1989	01 14	03 13.02	+22 38.6	1.367	2.031	118.6	25.2	16.2
1989	01 24	03 18.45	+23 17.5					
1989	02 03	03 27.25	+24 03.2	1.554	2.004	101.8	28.8	16.6

1978 ON a,e,i = 2.75, 0.10, 3 Elements MPC 10951

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 55.73	+21 10.6	2.240	2.492	92.2	23.9	16.2
1988	09 06	04 04.61	+21 49.2					
1988	09 16	04 11.35	+22 21.9	2.006	2.504	107.8	22.5	16.0
1988	09 26	04 15.59	+22 48.7					
1988	10 06	04 17.02	+23 09.7	1.796	2.517	125.9	18.8	15.6
1988	10 16	04 15.38	+23 24.0					
1988	10 26	04 10.71	+23 30.8	1.638	2.531	147.1	12.3	15.2
1988	11 05	04 03.37	+23 29.1					
1988	11 15	03 54.14	+23 18.5	1.566	2.547	170.5	3.7	14.8
1988	11 25	03 44.19	+23 00.6					
1988	12 05	03 34.83	+22 38.4	1.603	2.564	164.0	6.1	15.0
1988	12 15	03 27.20	+22 16.4					
1988	12 25	03 22.13	+21 59.0	1.745	2.583	140.8	13.9	15.5
1989	01 04	03 19.96	+21 49.1					
1989	01 14	03 20.75	+21 48.4	1.965	2.602	120.1	19.1	15.9
1989	01 24	03 24.32	+21 56.7					
1989	02 03	03 30.37	+22 13.0	2.232	2.622	102.1	21.6	16.3

1981 EA26 a,e,i = 2.68, 0.19, 2 Elements MPC 12444

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	08 27	03 57.72	+20 23.6	2.548	2.771	91.9	21.4	19.2
1988	09 06	04 05.64	+20 40.5					
1988	09 16	04 11.70	+20 50.6	2.250	2.733	108.0	20.5	18.8
1988	09 26	04 15.57	+20 53.8					
1988	10 06	04 16.96	+20 49.7	1.979	2.695	126.4	17.4	18.4
1988	10 16	04 15.58	+20 38.1					
1988	10 26	04 11.40	+20 18.7	1.762	2.655	147.6	11.6	18.0
1988	11 05	04 04.64	+19 51.6					
1988	11 15	03 55.90	+19 17.9	1.633	2.615	171.4	3.3	17.4
1988	11 25	03 46.20	+18 40.1					
1988	12 05	03 36.71	+18 02.1	1.615	2.576	163.6	6.2	17.5
1988	12 15	03 28.62	+17 28.7					
1988	12 25	03 22.86	+17 04.1	1.704	2.536	139.8	14.5	17.9
1989	01 04	03 19.93	+16 50.9					
1989	01 14	03 20.00	+16 50.3	1.870	2.496	118.7	20.2	18.2
1989	01 24	03 23.02	+17 01.4					
1989	02 03	03 28.74	+17 22.6	2.078	2.458	100.6	23.2	18.5

5142 T-3 a,e,i = 3.04, 0.09, 11 Elements MPC 12575

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	04 05.34	+11 18.0	2.638	2.855	91.9	20.7	16.8
1988 09 06	04 12.14	+11 23.6					
1988 09 16	04 16.99	+11 23.2	2.392	2.869	108.1	19.4	16.5
1988 09 26	04 19.63	+11 17.8					
1988 10 06	04 19.87	+11 08.6	2.173	2.884	126.7	16.1	16.3
1988 10 16	04 17.57	+10 57.0					
1988 10 26	04 12.84	+10 45.0	2.011	2.899	147.5	10.6	15.9
1988 11 05	04 06.01	+10 34.6					
1988 11 15	03 57.69	+10 28.1	1.941	2.915	167.9	4.1	15.6
1988 11 25	03 48.78	+10 27.9					
1988 12 05	03 40.23	+10 35.8	1.983	2.932	160.7	6.4	15.8
1988 12 15	03 32.93	+10 52.8					
1988 12 25	03 27.56	+11 19.3	2.135	2.949	139.0	12.6	16.2
1989 01 04	03 24.50	+11 54.6					
1989 01 14	03 23.87	+12 37.7	2.369	2.966	118.4	17.0	16.5
1989 01 24	03 25.62	+13 27.1					
1989 02 03	03 29.57	+14 21.1	2.650	2.983	100.0	19.0	16.8

1974 QM2 a,e,i = 2.25, 0.18, 6 Elements MPC 10773

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	04 09.44	+26 34.3	2.218	2.406	88.0	24.8	19.1
1988 09 06	04 18.49	+27 24.9					
1988 09 16	04 25.23	+28 10.9	2.000	2.440	103.6	23.6	18.9
1988 09 26	04 29.25	+28 52.2					
1988 10 06	04 30.16	+29 28.1	1.796	2.472	121.7	20.1	18.6
1988 10 16	04 27.64	+29 56.7					
1988 10 26	04 21.64	+30 15.1	1.638	2.502	142.7	13.9	18.3
1988 11 05	04 12.52	+30 20.1					
1988 11 15	04 01.12	+30 08.7	1.562	2.530	164.9	5.8	17.9
1988 11 25	03 48.82	+29 40.9					
1988 12 05	03 37.14	+29 00.1	1.595	2.555	163.5	6.3	18.0
1988 12 15	03 27.45	+28 12.5					
1988 12 25	03 20.67	+27 25.5	1.736	2.577	141.2	13.8	18.4
1989 01 04	03 17.15	+26 44.8					
1989 01 14	03 16.91	+26 14.0	1.959	2.596	120.2	19.1	18.9
1989 01 24	03 19.70	+25 54.5					
1989 02 03	03 25.14	+25 45.5	2.227	2.613	101.8	21.7	19.2

1974 SR1 a,e,i = 2.27, 0.24, 5 Elements MPC 12004

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	04 05.64	+24 56.5	1.781	2.035	89.2	29.8	17.9
1988 09 06	04 17.15	+25 56.6					
1988 09 16	04 26.06	+26 50.3	1.611	2.091	103.7	27.9	17.7
1988 09 26	04 31.88	+27 37.9					
1988 10 06	04 34.16	+28 19.2	1.453	2.148	121.1	23.5	17.4
1988 10 16	04 32.50	+28 52.7					
1988 10 26	04 26.82	+29 15.6	1.334	2.204	142.0	16.1	17.1
1988 11 05	04 17.55	+29 24.1					
1988 11 15	04 05.71	+29 15.2	1.291	2.260	164.8	6.6	16.8
1988 11 25	03 52.96	+28 49.1					
1988 12 05	03 41.07	+28 10.1	1.350	2.315	164.6	6.5	16.9
1988 12 15	03 31.55	+27 25.2					
1988 12 25	03 25.33	+26 42.5	1.513	2.368	142.2	14.8	17.5
1989 01 04	03 22.66	+26 07.4					
1989 01 14	03 23.44	+25 43.0	1.754	2.419	121.5	20.3	18.0
1989 01 24	03 27.31	+25 29.8					
1989 02 03	03 33.82	+25 26.7	2.042	2.467	103.6	22.8	18.5

1978 TQ8 a,e,i = 2.22, 0.13, 2 Elements MPC 12695

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 45.17	+18 17.1	1.569	1.941	95.2	31.2	17.6
1988 09 06	03 58.52	+18 42.3					
1988 09 16	04 09.59	+18 56.0	1.372	1.945	108.8	29.3	17.3
1988 09 26	04 17.86	+18 58.5					
1988 10 06	04 22.83	+18 50.6	1.196	1.952	125.3	24.7	16.8
1988 10 16	04 24.00	+18 32.8					
1988 10 26	04 21.21	+18 06.2	1.061	1.963	145.6	16.6	16.4
1988 11 05	04 14.71	+17 32.4					
1988 11 15	04 05.37	+16 54.2	0.998	1.978	169.0	5.5	15.9
1988 11 25	03 54.76	+16 16.3					
1988 12 05	03 44.69	+15 44.5	1.029	1.996	164.5	7.6	16.0
1988 12 15	03 36.78	+15 24.0					
1988 12 25	03 32.13	+15 18.4	1.152	2.016	141.4	17.7	16.6
1989 01 04	03 31.12	+15 28.0					
1989 01 14	03 33.71	+15 51.5	1.343	2.039	121.6	24.2	17.2
1989 01 24	03 39.58	+16 25.9					
1989 02 03	03 48.28	+17 07.9	1.575	2.064	105.1	27.5	17.6

1974 SX1 a,e,i = 2.28, 0.16, 6 Elements MPC 11057

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	03 52.67	+22 52.1	1.614	1.941	92.5	31.3	17.9
1988 09 06	04 05.84	+24 11.4					
1988 09 16	04 16.68	+25 25.3	1.430	1.962	106.0	29.5	17.6
1988 09 26	04 24.64	+26 34.4					
1988 10 06	04 29.17	+27 38.9	1.263	1.986	122.3	25.2	17.2
1988 10 16	04 29.70	+28 37.5					
1988 10 26	04 25.95	+29 27.5	1.135	2.014	142.1	17.6	16.8
1988 11 05	04 18.13	+30 04.2					
1988 11 15	04 07.15	+30 22.7	1.076	2.044	163.8	7.7	16.4
1988 11 25	03 54.74	+30 20.7					
1988 12 05	03 42.94	+30 00.6	1.112	2.078	164.2	7.4	16.5
1988 12 15	03 33.59	+29 29.4					
1988 12 25	03 27.88	+28 56.0	1.243	2.112	142.8	16.3	17.1
1989 01 04	03 26.16	+28 27.4					
1989 01 14	03 28.31	+28 07.6	1.448	2.149	123.0	22.6	17.6
1989 01 24	03 33.93	+27 57.7					
1989 02 03	03 42.49	+27 56.7	1.698	2.186	106.0	25.7	18.1

1981 EV27 a,e,i = 2.79, 0.06, 5 Elements MPC 10620

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 08 27	04 03.49	+17 07.9	2.430	2.651	91.2	22.4	19.5
1988 09 06	04 11.86	+17 08.5					
1988 09 16	04 18.22	+17 00.7	2.184	2.660	107.1	21.2	19.2
1988 09 26	04 22.27	+16 45.0					
1988 10 06	04 23.75	+16 21.8	1.963	2.669	125.4	17.8	18.9
1988 10 16	04 22.49	+15 52.0					
1988 10 26	04 18.50	+15 16.7	1.794	2.679	146.3	11.9	18.5
1988 11 05	04 12.12	+14 38.0					
1988 11 15	04 03.97	+13 58.5	1.713	2.690	168.5	4.2	18.1
1988 11 25	03 55.03	+13 22.0					
1988 12 05	03 46.37	+12 52.0	1.742	2.701	163.3	6.0	18.3
1988 12 15	03 39.01	+12 32.1					
1988 12 25	03 33.74	+12 24.1	1.879	2.713	140.8	13.2	18.7
1989 01 04	03 30.97	+12 28.5					
1989 01 14	03 30.82	+12 44.5	2.096	2.725	120.1	18.2	19.1
1989 01 24	03 33.24	+13 10.5					
1989 02 03	03 38.00	+13 44.3	2.360	2.738	101.8	20.6	19.4