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Brian G. Marsden, Director Conrad M. Bardwell, Associate Director

EDITORIAL NOTICE.

The next MPCs will be published on or about 1989 July 18. No MPCs will be issued in June.

* * * * *

ERRATA.

MPC	Line	
13807	-7, -5	For J. Sugie read A. Sugie
14081	25	For J. Sugie read A. Sugie
14122	2, 4	For J. Sugie read A. Sugie
14179	-7	For J. Sugie read A. Sugie
14271	-28	For J. Sugie read A. Sugie
14360	-23	The orbit computer should read Marsden
14479	22	For 1987 WO2 read 1987 WO3
14517	-31 to -23	The ephemeris magnitudes should be increased by 12.7.

* * * * *

CORRECTED OBSERVATION.

The following observation corrects that previously published.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Obs.
1986 EO	1988 11	12.17222	02 19 42.44	-06 19 07.6	MPC14419	293

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 14383.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1978 GG5 *	1978 04	11.78545	11 38 34.83	+24 50 25.3	1978 EA7	17.5	095
1981 GU1 *	1981 04	09.97690	12 25 38.23	-01 48 52.6	1981 GC1		046
1981 GU1	1981 04	09.99108	12 25 37.66	-01 48 49.5	1981 GC1		046
1982 QU3 *	1982 08	26.14304	22 42 18.39	-10 08 16.7	1982 QW	18.5	801

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

046 Klet. Observers A. Mrkos and Z. Vavrova.
372 Geisei. Observer T. Seki. From Orient. Astron. Assoc. Comet Bull.
400 Kitami. 0.20-m f/4.8 reflector. Observer A. Takahashi. Measured by K. Watanabe.
403 Kani. Observer Y. Mizuno. Measured by T. Furuta.
413 Siding Spring. Measured by R. H. McNaught.
474 Mount John University Observatory. 0.6-m reflector. Observers A. C. Gilmore and P. M. Kilmartin.
568 Mauna Kea. 2.24-m reflector. Observers M. J. S. Belton, E. M. Alvarez and K. J. Meech. Measured by T. Thompson and M. J. S. Belton.
657 University of Victoria. Observers D. D. Balam and J. B. Tatum.
675 Palomar. 0.46-m Schmidt. Observers E. Helin and B. Roman.
686 University of Arizona's Mt. Lemmon station. 1.52-m reflector. Observers D. Levy and W. Wisniewski. Measured by T. Thompson and M. J. S. Belton.
693 University of Arizona's Catalina station. 1.54-m reflector. Observers U. Fink, A. Tyler, M. DiSanti, K. Wells and C. Grillmair. Measured by T. Thompson and M. J. S. Belton.
695 Kitt Peak. 2.1-m reflector. Observers M. J. S. Belton, P. A. Wehinger and E. M. Alvarez. Measured by T. Thompson and M. J. S. Belton.
801 Oak Ridge Observatory. Observers R. E. McCrosky and C.-Y. Shao.
809 European Southern Observatory. Observers K. Jockers and H. Rauer. Measured by V. Ivanova.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
		Periodic Comet Schwassmann-Wachmann 1					
/1974 II	1988	10 09.15694	21 49 39.02	-08 53 15.4			809
/1974 II	1988	10 10.15278	21 49 28.86	-08 53 59.7			809
		Comet Bowell (1982 I)					
/1982 I	1983	10 08.48657	21 52 37.50	-14 07 44.2			413
		Periodic Comet Gunn					
/1982 X	1989	04 12.64572	15 16 41.15	-10 16 18.5			403
/1982 X	1989	04 28.32160	15 06 48.94	-10 17 09.1			657
/1982 X	1989	04 28.37229	15 06 46.42	-10 17 10.2			657
/1982 X	1989	04 30.34861	15 05 15.73	-10 17 37.0			657
		Periodic Comet Halley					
/1986 III	1987	03 02.24160	10 30 47.26	-13 28 24.4			693
/1986 III	1987	03 03.44879	10 29 27.93	-13 20 17.3			695
/1986 III	1987	03 08.32358	10 24 15.22	-12 46 26.4			693
/1986 III	1987	03 20.20652	10 12 34.93	-11 19 24.3			693
/1986 III	1987	03 24.26528	10 09 00.26	-10 49 09.3			693
/1986 III	1987	04 18.23826	09 52 34.31	-07 54 59.9			686
/1986 III	1987	05 05.20201	09 46 57.31	-06 21 05.8			686
/1986 III	1988	02 10.34567	10 04 18.57	-09 33 39.3			568
/1986 III	1988	03 18.47681	09 43 04.94	-07 19 07.2			568
/1986 III	1988	03 22.35561	09 41 15.74	-07 03 14.9			568
		Periodic Comet Parker-Hartley					
/1987 XXXVI	1989	03 08.64444	10 37 01.39	+01 25 18.5	16.5T		372
/1987 XXXVI	1989	03 08.65764	10 37 00.80	+01 25 24.7			372
/1987 XXXVI	1989	03 11.60278	10 35 17.49	+01 37 23.0	17 T		372
/1987 XXXVI	1989	03 11.61597	10 35 16.87	+01 37 25.4			372
/1987 XXXVI	1989	03 26.83160	10 27 30.99	+02 37 15.1	17.2T		046
/1987 XXXVI	1989	03 26.84572	10 27 30.21	+02 37 18.4			046

Periodic Comet Tempel 2

/1987g	1988	10	10.01528	18	53	24.42	-30	35	20.3	809

Comet Furuyama (1987f1)

/1987f1	1988	08	12.41117	14	49	19.64	-75	33	55.4	16.8N	474
/1987f1	1988	08	12.42066	14	49	21.40	-75	33	33.3		474

Comet Jensen-Shoemaker (1987g1)

/1987g1	1988	08	12.67378	04	50	46.82	-33	08	48.7	19.3N	474
/1987g1	1988	08	12.71672	04	50	48.60	-33	09	36.5		474

Comet Shoemaker-Holt-Rodriquez (1988h)

/1988h	1989	04	04.62243	21	38	25.07	-40	41	08.6	13.9T	474
/1988h	1989	04	04.62856	21	38	25.83	-40	41	15.0		474
/1988h	1989	04	18.80396	22	05	49.77	-45	42	56.9		413

Comet Machholz (1988j)

/1988j	1988	08	12.74647	05	21	30.76	+00	08	01.7		474
/1988j	1988	08	12.75550	05	21	34.55	+00	07	59.2		474

Periodic Comet Kopff

/1988k	1989	03	08.67187	11	35	15.52	+08	25	26.0	18.5T	372
/1988k	1989	03	08.68576	11	35	15.03	+08	25	32.6	18.5T	372

Comet Yanaka (1988r)

/1988r	1989	02	08.44028	08	39	00.69	-39	33	51.0	16.3N	474
/1988r	1989	02	08.44549	08	38	58.13	-39	33	39.9		474
/1988r	1989	02	13.49109	08	07	57.29	-36	30	28.4	16.0N	474
/1988r	1989	02	13.50081	08	07	54.29	-36	30	08.0		474
/1988r	1989	02	14.44560	08	03	30.35	-35	57	23.7	16.6N	474
/1988r	1989	02	14.45255	08	03	28.18	-35	57	09.4		474
/1988r	1989	02	26.50486	07	29	53.88	-30	06	35.7	16.8T	372

Comet Yanaka (1989a)

/1989a	1989	03	01.78056	15	12	54.0	+33	40	51	15 T	372

Periodic Comet Helin-Roman-Crockett

/1989b	1989	04	03.02006	08	03	19.54	+23	43	07.8		801
/1989b	1989	04	05.16007	08	04	07.64	+23	40	11.7	17.3T	675
/1989b	1989	04	07.14583	08	04	56.95	+23	37	14.0		675
/1989b	1989	04	08.15122	08	05	23.58	+23	35	39.1		675

Comet Shoemaker (1989f)

/1989f	1989	02	14.71354	08	53	37.61	+52	38	28.6	16 T	372

Periodic Comet Shoemaker-Holt 2

/1989j	1989	03	11.57778	10	43	53.36	+32	03	00.7	14 T	372
/1989j	1989	03	11.58924	10	43	52.92	+32	03	03.5		372
/1989j	1989	03	14.64410	10	41	56.18	+32	11	49.0	14 T	372
/1989j	1989	03	26.48715	10	35	42.62	+32	23	26.5	15 T	400
/1989j	1989	03	26.50104	10	35	42.43	+32	23	23.8		400
/1989j	1989	03	26.80139	10	35	34.93	+32	23	16.1		046
/1989j	1989	03	26.81296	10	35	34.54	+32	23	16.5		046
/1989j	1989	03	27.60069	10	35	15.20	+32	22	45.6	15 T	400
/1989j	1989	03	27.80347	10	35	10.51	+32	22	37.2		046
/1989j	1989	03	27.81493	10	35	10.22	+32	22	37.3		046
/1989j	1989	03	30.82789	10	34	04.10	+32	19	16.3		046
/1989j	1989	03	30.84566	10	34	03.96	+32	19	16.3		046
/1989j	1989	03	30.85978	10	34	03.51	+32	19	14.0		046

/1989j	1989 04 03.06812	10 33 05.98	+32 13 31.8			801
/1989j	1989 04 07.81302	10 32 05.43	+32 01 08.0		1	046
/1989j	1989 04 07.82152	10 32 05.38	+32 01 08.1			046
/1989j	1989 04 09.84036	10 31 48.79	+31 54 33.5			046
/1989j	1989 04 09.84892	10 31 48.78	+31 54 31.0			046

Note 1: involved with star.

* * * * *

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.

017 Hoher List
M. Geffert, Observatorium Hoher List, D-5568 Daun, Federal Republic of Germany
Observers M. Geffert, M. Hoffmann, E. Pendl
Measurers M. Geffert, A. Karafistan, M. Petr, T. Schilling, J. H. Schmidt, A. Theissen
0.3-m f/1.5 reflector and (1) 0.3-m f/5.1 refractor
AGK3

8		1989	02	14.91007	11	26	22.29	+11	36	45.4	1 017
8		1989	02	14.91736	11	26	21.93	+11	36	49.2	1 017
8		1989	02	14.92431	11	26	21.60	+11	36	52.6	1 017
8		1989	02	14.93819	11	26	20.93	+11	36	59.7	1 017
102		1980	05	09.97986	15	24	37.62	-15	46	36.5	017
102		1980	05	10.00625	15	24	36.20	-15	46	28.6	017
102		1980	05	11.00833	15	23	42.05	-15	41	27.7	017
102		1980	05	11.98264	15	22	49.17	-15	36	36.9	017
311		1986	09	30.96042	01	15	39.49	+03	10	43.3	017
311		1986	09	30.99236	01	15	38.07	+03	10	34.2	017
311		1986	10	01.98507	01	14	52.79	+03	06	02.3	017
433		1975	02	09.84670	07	36	27.45	+05	10	51.6	1 017
433		1975	02	09.84878	07	36	27.45	+05	10	44.8	1 017
433		1975	02	09.85087	07	36	27.44	+05	10	37.7	1 017
433		1975	02	09.85295	07	36	27.45	+05	10	30.6	1 017
433		1975	02	09.85503	07	36	27.45	+05	10	23.6	1 017
433		1975	02	09.85712	07	36	27.45	+05	10	16.6	1 017
433		1975	02	09.85920	07	36	27.45	+05	10	09.5	1 017
433		1975	02	09.86198	07	36	27.44	+05	10	00.1	1 017
433		1975	02	09.86406	07	36	27.43	+05	09	53.2	1 017
433		1975	02	09.86615	07	36	27.44	+05	09	46.0	1 017
433		1988	09	08.01563	01	20	19.01	+31	19	59.5	1 017
433		1988	09	08.01979	01	20	18.90	+31	20	04.2	1 017
433		1988	09	08.02604	01	20	18.75	+31	20	11.4	1 017
433		1988	09	08.04688	01	20	18.24	+31	20	35.1	1 017
433		1988	09	09.02778	01	19	57.17	+31	38	56.5	1 017
433		1988	09	09.02986	01	19	57.12	+31	38	58.8	1 017
433		1988	09	09.03194	01	19	57.06	+31	39	01.1	1 017
433		1988	09	09.03403	01	19	57.00	+31	39	03.4	1 017
433		1988	09	09.03611	01	19	56.94	+31	39	05.7	1 017
433		1988	09	09.03819	01	19	56.88	+31	39	08.2	1 017
433		1988	09	09.04028	01	19	56.83	+31	39	10.4	1 017
433		1988	09	09.04236	01	19	56.77	+31	39	13.1	1 017
433		1988	09	09.04444	01	19	56.71	+31	39	15.2	1 017
433		1988	09	09.04653	01	19	56.67	+31	39	17.5	1 017
718		1986	09	30.96042	01	11	14.04	+03	27	16.8	017
718		1986	09	30.99236	01	11	12.52	+03	27	10.8	017
771		1980	05	09.97986	15	29	58.21	-13	20	12.9	017
771		1980	05	10.00625	15	29	56.92	-13	20	02.4	017
771		1980	05	11.00833	15	29	04.99	-13	13	09.9	017
771		1980	05	11.98264	15	28	14.35	-13	06	30.0	017
1024		1980	05	09.97986	15	20	59.19	-15	06	42.7	017
1024		1980	05	10.00625	15	20	57.66	-15	06	43.7	017
1024		1980	05	11.00833	15	20	00.87	-15	06	47.0	017
1024		1980	05	11.98264	15	19	05.54	-15	06	53.6	017
1171		1986	09	30.96042	01	16	39.46	+03	01	28.6	017
1171		1986	09	30.99236	01	16	38.17	+03	01	17.9	017
1171		1986	10	01.98507	01	15	57.77	+02	56	14.5	017
1685		1988	07	19.98229	22	58	25.95	+21	18	00.5	017
1685		1988	07	19.98715	22	58	27.22	+21	18	31.7	017
1685		1988	07	19.99479	22	58	29.15	+21	19	18.1	017
1687		1980	05	09.97986	15	22	30.06	-16	02	25.9	017
1687		1980	05	10.00625	15	22	28.84	-16	02	22.0	017
1687		1980	05	11.00833	15	21	42.86	-15	59	43.8	017
1687		1980	05	11.98264	15	20	57.78	-15	57	16.2	017
1980		1988	07	19.94132	16	12	23.11	+14	49	13.4	017
1980		1988	07	19.95521	16	12	22.78	+14	49	30.6	017
2162		1980	05	09.97986	15	25	52.45	-13	36	34.1	017
2162		1980	05	10.00625	15	25	50.67	-13	36	26.0	017

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2219       1980 05 09.97986  15 29 13.01  -15 07 39.9                    017
2219       1980 05 10.00625  15 29 11.78  -15 07 38.0                    017
2219       1980 05 11.98264  15 27 36.34  -15 04 43.1                    017
```

033 Tautenburg
S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg,
Democratic Republic of Germany
Observer F. Borngen
1.3-m Schmidt telescope
SAOC

```
1977 EV    1989 03 05.81424  08 39 15.60  +18 09 19.5           17.2     033
1977 EV    1989 03 05.91736  08 39 11.43  +18 08 55.0                    033
1978 TT2   1989 01 09.73681  02 36 38.29  +15 52 48.6           18.2     033
1978 TT2   1989 01 09.81007  02 36 39.31  +15 52 55.7                    033
1980 GF    1981 07 30.97622  21 47 27.96  -12 57 05.9           19.0     033
1980 GF    1981 07 30.99149  21 47 27.19  -12 57 11.3                    033
1981 OO    1981 08 06.99271  21 35 19.66  -12 37 13.4           19.1     033
1981 OO    1981 08 07.02049  21 35 17.80  -12 37 14.7                    033
1981 OS  * 1981 07 30.97622  21 46 29.23  -12 55 42.7           19.4     033
1981 OS    1981 07 30.99149  21 46 28.50  -12 55 50.8                    033
1981 PW    1981 08 06.99271  21 36 11.85  -12 38 02.4           19.6  V  033
1981 PW  * 1981 08 07.02049  21 36 09.82  -12 38 08.9                    033
1986 PB5   1989 03 05.81424  08 34 39.84  +18 57 28.7           18.6     033
1986 PB5   1989 03 05.91736  08 34 36.71  +18 57 43.2                    033
1987 WQ1   1989 02 04.09236  12 45 04.61  -00 53 22.6                 M  033
1987 WQ1   1989 02 04.14653  12 45 04.41  -00 53 17.3           19.1     033
1987 WQ1   1989 03 06.02153  12 35 38.81  +00 40 51.3           18.7     033
1987 WQ1   1989 03 06.07153  12 35 36.97  +00 41 05.3                    033
1988 VY1   1989 01 09.73681  02 37 02.38  +15 53 49.1           16.8     033
1988 VY1   1989 01 09.81007  02 37 03.86  +15 53 45.7                    033
1989 AG    1989 02 01.81806  07 36 56.11  +31 09 18.5                    033
1989 AG    1989 02 01.86840  07 36 53.46  +31 09 37.7                    033
1989 AG    1989 02 02.87813  07 36 02.58  +31 15 46.7                    033
1989 AG    1989 02 02.93229  07 35 59.81  +31 16 06.1           16.9     033
1989 AQ3 * 1989 01 09.99201  09 18 53.66  +39 58 55.9                    033
1989 AQ3   1989 01 10.07326  09 18 49.56  +39 59 33.7                    033
1989 AQ3   1989 01 14.12639  09 15 18.71  +40 30 07.2           18.1     033
1989 AQ3   1989 01 14.15694  09 15 17.07  +40 30 20.4                    033
1989 BR    1989 03 05.81424  08 36 00.38  +19 19 47.9           17.9     033
1989 BR    1989 03 05.91736  08 35 57.58  +19 19 37.5                    033
1989 BN1   1989 03 05.81424  08 32 18.95  +17 23 44.3           17.4  E  033
1989 BN1   1989 03 05.91736  08 32 17.39  +17 24 14.5                    033
1989 BR1   1989 03 05.81424  08 35 17.04  +19 14 50.9           18.1     033
1989 BR1   1989 03 05.91736  08 35 13.89  +19 15 01.3                    033
1989 BS1   1989 03 05.81424  08 43 46.08  +19 00 34.8           18.5     033
1989 BS1   1989 03 05.91736  08 43 42.85  +19 00 37.4                    033
1989 CA4   1989 03 05.81424  08 45 21.99  +18 25 55.8           17.7     033
1989 CA4   1989 03 05.91736  08 45 19.37  +18 26 33.3                    033
1989 CJ4 * 1989 02 01.81806  07 35 45.20  +32 44 59.8                    033
1989 CJ4   1989 02 01.86840  07 35 42.56  +32 45 07.9                 V  033
1989 CJ4   1989 02 02.87813  07 34 53.19  +32 47 37.9                    033
1989 CJ4   1989 02 02.93229  07 34 50.62  +32 47 45.8           18.5     033
1989 CK4 * 1989 02 01.81806  07 38 19.99  +32 28 06.1                    033
1989 CK4   1989 02 01.86840  07 38 16.96  +32 27 56.3                 V  033
1989 CK4   1989 02 02.87813  07 37 18.74  +32 24 13.9                    033
1989 CK4   1989 02 02.93229  07 37 15.60  +32 24 02.8           18.4     033
1989 CL4 * 1989 02 01.81806  07 39 50.89  +30 15 36.0                 U  033
1989 CL4   1989 02 02.87813  07 38 42.16  +30 16 32.1                    033
1989 CL4   1989 02 02.93229  07 38 38.88  +30 16 35.8           19.3     033
```

1989	CM4	*	1989	02	01.81806	07	42	16.10	+30	43	52.0	033
1989	CM4		1989	02	01.86840	07	42	13.08	+30	43	52.1	V 033
1989	CM4		1989	02	02.87813	07	41	14.35	+30	44	23.2	033
1989	CM4		1989	02	02.93229	07	41	11.25	+30	44	24.5	18.3 033
314			1989	01	11.16806	11	01	59.72	+01	18	06.7	15.8 033
314			1989	01	11.18819	11	01	59.52	+01	18	08.7	033
578			1989	02	01.81806	07	34	52.51	+30	21	34.7	033
578			1989	02	01.86840	07	34	49.77	+30	21	37.0	033
578			1989	02	02.87813	07	33	56.66	+30	22	18.9	033
578			1989	02	02.93229	07	33	53.78	+30	22	21.2	15.5 033
1032			1989	02	01.81806	07	41	03.79	+30	12	31.6	033
1032			1989	02	01.86840	07	41	01.28	+30	12	38.7	033
1032			1989	02	02.87813	07	40	12.80	+30	14	51.7	033
1032			1989	02	02.93229	07	40	10.19	+30	14	58.6	16.2 033
1698			1989	01	09.73681	02	30	09.14	+15	45	46.5	16.4 033
1698			1989	01	09.81007	02	30	10.08	+15	45	51.6	033
2024			1989	02	01.81806	07	34	30.58	+30	55	35.8	033
2024			1989	02	01.86840	07	34	27.57	+30	55	42.6	033
2024			1989	02	02.87813	07	33	29.43	+30	57	43.1	033
2024			1989	02	02.93229	07	33	26.27	+30	57	49.3	17.8 033
2331			1989	01	11.16806	10	56	21.90	+00	47	50.9	14.9 033
2331			1989	01	11.18819	10	56	22.18	+00	47	44.3	033
2456			1989	02	01.81806	07	36	09.29	+30	52	15.4	033
2456			1989	02	01.86840	07	36	07.49	+30	52	13.2	033
2456			1989	02	02.87813	07	35	32.30	+30	51	13.3	033
2456			1989	02	02.93229	07	35	30.39	+30	51	10.3	17.3 033
2540			1989	03	05.81424	08	36	45.43	+17	10	22.7	17.1 E 033
2540			1989	03	05.91736	08	36	42.70	+17	10	38.8	033
2943			1989	01	11.16806	11	00	48.84	+01	21	31.1	18.3 033
2943			1989	01	11.18819	11	00	48.47	+01	21	24.7	033
3247			1989	01	09.73681	02	33	10.57	+16	34	55.8	18.0 033
3247			1989	01	09.81007	02	33	11.75	+16	35	04.8	033
3766			1989	03	05.81424	08	37	12.13	+18	56	51.0	16.7 033
3766			1989	03	05.91736	08	37	09.69	+18	57	02.3	033

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0.6-m Maksutov reflector

1978	JT1		1989	03	26.90017	12	26	26.77	-01	13	19.0	16.7 046
1978	JT1		1989	03	26.91424	12	26	26.44	-01	13	16.9	046
1978	JT1		1989	03	27.89948	12	25	41.69	-01	08	49.1	046
1978	JT1		1989	03	27.91354	12	25	41.18	-01	08	46.1	046
1978	JT1		1989	03	28.90382	12	24	56.10	-01	04	20.7	046
1978	JT1		1989	03	28.91806	12	24	55.58	-01	04	15.7	046
1981	UJ4		1989	03	26.90017	12	26	31.05	-01	41	49.3	046
1981	UJ4		1989	03	26.91424	12	26	30.20	-01	41	45.7	046
1981	UJ4		1989	03	27.89948	12	25	29.33	-01	36	46.5	046
1981	UJ4		1989	03	27.91354	12	25	28.41	-01	36	43.4	046
1981	UJ4		1989	03	28.90382	12	24	27.09	-01	31	45.6	046
1981	UJ4		1989	03	28.91806	12	24	26.16	-01	31	40.6	046
1982	DD2		1989	03	28.96742	12	53	55.38	-02	16	41.4	046
1982	DD2		1989	03	28.98015	12	53	54.54	-02	16	33.3	046
1982	DD2		1989	03	30.95584	12	52	09.64	-01	59	15.7	046
1982	DD2		1989	03	30.97008	12	52	08.74	-01	59	09.8	046
1984	YU1		1989	03	05.96691	11	19	29.36	+07	31	37.8	16.0 046
1984	YU1		1989	03	05.98433	11	19	28.18	+07	31	42.0	046
1984	YU1		1989	03	06.86204	11	18	35.74	+07	35	54.0	046

1984	YU1		1989	03	06.87697	11	18	34.94	+07	35	58.1		046
1984	YU1		1989	03	07.88424	11	17	34.12	+07	40	43.0		046
1984	YU1		1989	03	07.89836	11	17	33.29	+07	40	47.2		046
1986	QX3		1989	03	26.86632	12	10	48.02	+04	52	06.5	16.7	046
1986	QX3		1989	03	26.88073	12	10	47.25	+04	52	09.8		046
1986	QX3		1989	03	27.86649	12	09	53.84	+04	58	36.9		046
1986	QX3		1989	03	27.88067	12	09	52.88	+04	58	41.9		046
1986	QX3		1989	03	28.86748	12	08	59.69	+05	04	59.4		046
1986	QX3		1989	03	28.88160	12	08	58.91	+05	05	03.9		046
1986	QX3		1989	03	30.88079	12	07	11.10	+05	17	33.9		046
1986	QX3		1989	03	30.89497	12	07	10.67	+05	17	36.7		046
1988	TH3	*	1988	10	14.92705	01	25	04.69	+09	10	26.8	16.7	046
1988	TH3		1988	10	14.93978	01	25	04.11	+09	10	20.2		046
1988	TH3		1988	10	16.97873	01	23	17.68	+08	48	58.8	16.9	046
1988	TH3		1988	10	16.99146	01	23	17.07	+08	48	55.0		046
1988	UU	*	1988	10	18.90882	01	39	42.25	+07	10	18.0	16.8	046
1988	UU		1988	10	18.92155	01	39	41.62	+07	10	08.6		046
1988	UU		1988	11	05.82847	01	26	55.52	+03	50	49.4	16.9	046
1988	UU		1988	11	05.84120	01	26	54.86	+03	50	43.3		046
1988	VS7	*	1988	11	05.89039	02	35	11.54	+08	58	26.4	17.0	046
1988	VS7		1988	11	05.90312	02	35	10.64	+08	58	35.1		046
1988	VS7		1988	11	10.88495	02	30	47.33	+08	21	06.0	17.1	046
1988	VS7		1988	11	10.89769	02	30	46.59	+08	21	01.9		046
1989	EG		1989	03	26.83160	10	22	56.80	+03	20	38.8	16.2	046
1989	EG		1989	03	26.84572	10	22	56.27	+03	20	42.2		046
1989	EG		1989	03	27.83333	10	22	25.00	+03	24	58.1		046
1989	EG		1989	03	27.84740	10	22	24.29	+03	25	00.9		046
1989	EG		1989	03	28.82679	10	21	54.81	+03	29	08.7		046
1989	EG		1989	03	28.84097	10	21	54.32	+03	29	12.0		046
1989	EQ		1989	03	26.83160	10	28	37.24	+02	32	35.1		046
1989	EQ		1989	03	26.84572	10	28	36.71	+02	32	38.2		046
1989	EQ		1989	03	27.83333	10	28	03.33	+02	35	14.0		046
1989	EQ		1989	03	27.84740	10	28	02.80	+02	35	17.5	U	046
1989	EQ		1989	03	28.82679	10	27	30.55	+02	37	49.2		046
1989	EQ		1989	03	28.84097	10	27	30.14	+02	37	51.6		046
1989	FD		1989	03	26.90017	12	29	27.43	+00	35	34.0	15.6	046
1989	FD		1989	03	26.91424	12	29	26.82	+00	35	44.3		046
1989	FD		1989	03	27.89948	12	28	49.93	+00	46	14.3		046
1989	FD		1989	03	27.91354	12	28	49.47	+00	46	22.7		046
1989	FD		1989	03	28.90382	12	28	11.98	+00	56	55.2		046
1989	FD		1989	03	28.91806	12	28	11.37	+00	57	04.4		046
1989	FN	*	1989	03	26.86632	12	03	37.20	+02	47	55.3	16.6	046
1989	FN		1989	03	26.88073	12	03	36.47	+02	47	58.3		046
1989	FN		1989	03	27.86649	12	02	53.06	+02	52	41.6		046
1989	FN		1989	03	27.88067	12	02	52.38	+02	52	46.5		046
1989	FN		1989	03	28.86748	12	02	08.96	+02	57	26.0		046
1989	FN		1989	03	28.88160	12	02	08.32	+02	57	30.2		046
1989	FN		1989	03	30.88079	12	00	41.47	+03	06	39.3	F	046
1989	FN		1989	03	30.89497	12	00	40.67	+03	06	50.0	F	046
1989	FO	*	1989	03	26.86632	12	10	06.55	+04	54	07.4	16.4	046
1989	FO		1989	03	26.88073	12	10	05.83	+04	54	12.3		046
1989	FO		1989	03	27.86649	12	09	12.44	+05	00	26.8		046
1989	FO		1989	03	27.88067	12	09	11.44	+05	00	33.7		046
1989	FO		1989	03	28.86748	12	08	18.31	+05	06	43.5		046
1989	FO		1989	03	28.88160	12	08	17.62	+05	06	48.2		046
1989	FO		1989	03	30.88079	12	06	30.32	+05	18	59.6		046
1989	FO		1989	03	30.89497	12	06	29.71	+05	19	05.0		046
1989	FQ	*	1989	03	26.90017	12	30	18.01	+00	10	22.6	16.7	046
1989	FQ		1989	03	26.91424	12	30	17.10	+00	10	26.4		046

1989	FQ		1989	03	27.89948	12	29	18.07	+00	14	47.2		046
1989	FQ		1989	03	27.91354	12	29	17.15	+00	14	51.4		046
1989	FQ		1989	03	28.90382	12	28	17.36	+00	19	13.4		046
1989	FQ		1989	03	28.91806	12	28	16.61	+00	19	17.2		046
1989	FR	*	1989	03	26.90017	12	30	23.78	+00	33	03.7	16.8	046
1989	FR		1989	03	26.91424	12	30	22.86	+00	33	01.9		046
1989	FR		1989	03	27.89948	12	29	22.10	+00	30	15.0		046
1989	FR		1989	03	27.91354	12	29	21.10	+00	30	12.0		046
1989	FR		1989	03	28.90382	12	28	19.98	+00	27	24.2		046
1989	FR		1989	03	28.91806	12	28	19.12	+00	27	22.1		046
1989	FS	*	1989	03	27.89948	12	30	32.83	+00	16	47.4	17.0	f 046
1989	FS		1989	03	27.91354	12	30	32.49	+00	16	54.6		046
1989	FS		1989	03	28.90382	12	29	52.92	+00	29	10.7		f 046
1989	FS		1989	03	28.91806	12	29	51.98	+00	29	20.4		046
1989	FT	*	1989	03	28.93663	12	57	20.19	+06	05	26.6	16.8	046
1989	FT		1989	03	28.94936	12	57	19.51	+06	05	30.7		046
1989	FT		1989	03	30.98987	12	55	23.53	+06	15	27.4		046
1989	FT		1989	03	31.00399	12	55	22.70	+06	15	31.0		046
1989	FU	*	1989	03	28.96742	12	53	55.53	-01	37	44.1	16.6	046
1989	FU		1989	03	28.98015	12	53	54.84	-01	37	44.0		046
1989	FU		1989	03	30.95584	12	51	57.79	-01	35	48.9		046
1989	FU		1989	03	30.97008	12	51	57.16	-01	35	48.7		046
1989	FV	*	1989	03	28.96742	12	55	55.21	-00	48	32.1	17.0	046
1989	FV		1989	03	28.98015	12	55	54.77	-00	48	27.6		046
1989	FV		1989	03	30.95584	12	54	23.78	-00	34	13.4		f 046
1989	FV		1989	03	30.97008	12	54	22.66	-00	34	04.9		f 046
50			1989	03	26.90017	12	25	42.65	-01	47	25.3		046
50			1989	03	26.91424	12	25	41.93	-01	47	19.9		046
50			1989	03	27.89948	12	24	54.45	-01	41	38.0		046
50			1989	03	27.91354	12	24	53.69	-01	41	32.7		046
50			1989	03	28.90382	12	24	05.81	-01	35	48.9		046
50			1989	03	28.91806	12	24	05.14	-01	35	44.3		046
160			1989	03	26.90017	12	26	40.19	-02	40	58.9		046
160			1989	03	26.91424	12	26	39.48	-02	40	55.9		046
160			1989	03	27.89948	12	25	48.42	-02	36	45.8		046
160			1989	03	27.91354	12	25	47.62	-02	36	43.1		046
160			1989	03	28.90382	12	24	56.18	-02	32	32.8		046
160			1989	03	28.91806	12	24	55.50	-02	32	29.1		046
181			1989	03	30.92263	12	36	01.41	+16	16	51.0		046
181			1989	03	30.93669	12	36	00.87	+16	16	58.3		046
196			1989	03	28.93663	12	54	54.32	+04	20	59.8		046
196			1989	03	28.94936	12	54	53.72	+04	21	03.0		046
196			1989	03	30.98987	12	53	20.54	+04	29	26.7		046
196			1989	03	31.00399	12	53	19.90	+04	29	29.4		046
341			1989	03	26.86632	12	14	42.59	+02	47	59.3		046
341			1989	03	26.88073	12	14	41.66	+02	48	03.6		046
341			1989	03	27.86649	12	13	37.91	+02	52	41.5		046
341			1989	03	27.88067	12	13	36.97	+02	52	45.7		046
341			1989	03	28.86748	12	12	33.11	+02	57	20.6		046
341			1989	03	28.88160	12	12	32.28	+02	57	23.7		046
341			1989	03	30.88079	12	10	23.27	+03	06	31.2		046
341			1989	03	30.89497	12	10	22.41	+03	06	35.0		046
549			1989	03	26.83160	10	24	11.47	+04	14	18.9		046
549			1989	03	26.84572	10	24	11.07	+04	14	20.9		046
549			1989	03	27.83333	10	23	42.93	+04	17	41.6		046
549			1989	03	27.84740	10	23	42.16	+04	17	44.8		046
549			1989	03	28.82679	10	23	15.41	+04	20	58.1		046
549			1989	03	28.84097	10	23	15.00	+04	21	01.1		046
689			1989	03	28.96742	12	55	54.31	-02	05	04.5	16.2	046

689	1989	03	28.98015	12	55	53.55	-02	04	58.1		046
689	1989	03	30.95584	12	54	07.28	-01	50	00.8		046
689	1989	03	30.97008	12	54	06.41	-01	49	54.8		046
697	1989	03	28.96742	12	49	24.99	-03	35	25.2		046
697	1989	03	28.98015	12	49	24.34	-03	35	23.6		046
710	1989	03	28.96742	12	50	31.51	-03	07	51.6		046
710	1989	03	28.98015	12	50	30.91	-03	07	46.8		046
710	1989	03	30.95584	12	49	03.67	-02	57	33.7		046
710	1989	03	30.97008	12	49	03.09	-02	57	30.0		046
1190	1989	03	26.90017	12	21	17.99	-00	17	33.4		046
1190	1989	03	26.91424	12	21	17.12	-00	17	28.8		046
1190	1989	03	27.89948	12	20	20.50	-00	12	38.8		046
1190	1989	03	27.91354	12	20	19.74	-00	12	34.6		046
1190	1989	03	28.90382	12	19	22.96	-00	07	51.2		046
1190	1989	03	28.91806	12	19	22.14	-00	07	46.9		046
1269	1989	03	26.90017	12	29	26.46	+00	06	53.0		046
1269	1989	03	26.91424	12	29	25.97	+00	06	56.4		046
1269	1989	03	27.89948	12	28	49.02	+00	11	20.0		046
1269	1989	03	27.91354	12	28	48.52	+00	11	24.3		046
1269	1989	03	28.90382	12	28	11.09	+00	15	49.7		046
1269	1989	03	28.91806	12	28	10.58	+00	15	53.2		046
1501	1989	03	26.90017	12	28	32.29	-01	01	15.2		046
1501	1989	03	26.91424	12	28	31.29	-01	01	11.3		046
1501	1989	03	27.89948	12	27	36.93	-00	57	15.5		046
1501	1989	03	27.91354	12	27	36.07	-00	57	11.9		046
1501	1989	03	28.90382	12	26	41.32	-00	53	15.5		046
1501	1989	03	28.91806	12	26	40.50	-00	53	12.0		046
1545	1989	03	28.90382	12	26	26.04	+01	15	58.3	15.0	046
1545	1989	03	28.91806	12	26	25.35	+01	16	01.6		046
1564	1989	03	26.90017	12	33	30.61	-00	56	49.0		046
1564	1989	03	26.91424	12	33	30.03	-00	56	43.9		046
1564	1989	03	27.89948	12	32	50.00	-00	50	14.4		046
1564	1989	03	27.91354	12	32	49.40	-00	50	08.7		046
1564	1989	03	28.90382	12	32	08.98	-00	43	36.6		046
1564	1989	03	28.91806	12	32	08.37	-00	43	29.5		046
1570	1989	03	26.90017	12	21	14.85	-02	29	19.6		046
1570	1989	03	26.91424	12	21	14.05	-02	29	14.6		046
1570	1989	03	27.89948	12	20	27.69	-02	23	40.5		046
1570	1989	03	27.91354	12	20	26.80	-02	23	37.2		046
1570	1989	03	28.90382	12	19	40.24	-02	18	01.0		046
1570	1989	03	28.91806	12	19	39.59	-02	17	56.8		046
1590	1989	03	26.83160	10	27	37.47	+03	04	14.3		046
1590	1989	03	26.84572	10	27	36.73	+03	04	21.3		046
1590	1989	03	27.83333	10	26	56.35	+03	11	01.5		046
1590	1989	03	27.84740	10	26	55.65	+03	11	07.1		046
1590	1989	03	28.82679	10	26	16.80	+03	17	38.4		046
1590	1989	03	28.84097	10	26	16.21	+03	17	44.6		046
1683	1989	03	26.83160	10	32	47.84	+02	13	51.7		046
1683	1989	03	26.84572	10	32	47.26	+02	13	53.3		046
1683	1989	03	27.83333	10	32	04.56	+02	16	12.4		046
1683	1989	03	27.84740	10	32	04.12	+02	16	14.5		046
1683	1989	03	28.82679	10	31	22.96	+02	18	28.6		046
1683	1989	03	28.84097	10	31	22.33	+02	18	31.3		046
1812	1989	03	26.90017	12	32	41.41	-00	59	50.4		046
1812	1989	03	26.91424	12	32	40.75	-00	59	44.0		046
1812	1989	03	27.89948	12	31	58.96	-00	52	11.0		046
1812	1989	03	27.91354	12	31	58.40	-00	52	04.9		046
1812	1989	03	28.90382	12	31	16.31	-00	44	29.9		046
1812	1989	03	28.91806	12	31	16.06	-00	44	22.4		046

1874	1989	03	28.96742	12	47	59.08	-01	29	20.6		046
1874	1989	03	28.98015	12	47	58.59	-01	29	16.5		046
1874	1989	03	30.95584	12	46	37.60	-01	19	15.5		046
1874	1989	03	30.97008	12	46	37.18	-01	19	11.1		046
1939	1989	03	26.90017	12	34	20.89	-02	53	21.8		046
1939	1989	03	26.91424	12	34	20.27	-02	53	18.9		046
1939	1989	03	27.89948	12	33	35.52	-02	48	48.0		046
1939	1989	03	27.91354	12	33	34.88	-02	48	45.3		046
1939	1989	03	28.90382	12	32	49.72	-02	44	08.6		046
1939	1989	03	28.91806	12	32	49.08	-02	44	04.3		046
1952	1989	03	30.92263	12	33	43.50	+17	29	43.2		046
1952	1989	03	30.93669	12	33	42.97	+17	29	45.8		046
2160	1989	03	26.90017	12	33	03.79	+00	03	33.9		046
2160	1989	03	26.91424	12	33	02.96	+00	03	40.5		046
2160	1989	03	27.89948	12	32	17.82	+00	09	02.5		046
2160	1989	03	27.91354	12	32	17.17	+00	09	07.8		046
2160	1989	03	28.90382	12	31	31.27	+00	14	33.3		046
2160	1989	03	28.91806	12	31	30.53	+00	14	39.6		046
2413	1989	03	26.86632	12	03	02.02	+03	58	30.8		046
2413	1989	03	26.88073	12	03	01.40	+03	58	36.1		046
2413	1989	03	27.86649	12	02	20.25	+04	05	40.7		046
2413	1989	03	27.88067	12	02	19.62	+04	05	47.7		046
2413	1989	03	28.86748	12	01	38.64	+04	12	47.6		046
2413	1989	03	28.88160	12	01	37.99	+04	12	54.2		046
2413	1989	03	30.88079	12	00	15.55	+04	26	50.2		046
2413	1989	03	30.89497	12	00	15.04	+04	26	55.3		046
2506	1989	03	30.95584	12	48	05.13	-03	32	20.2		046
2506	1989	03	30.97008	12	48	04.40	-03	32	14.4		046
2584	1989	03	26.90017	12	26	14.92	-00	53	56.5		046
2584	1989	03	26.91424	12	26	13.98	-00	53	52.3		046
2584	1989	03	27.89948	12	25	15.23	-00	48	03.7		046
2584	1989	03	27.91354	12	25	14.40	-00	48	00.7		046
2584	1989	03	28.90382	12	24	14.86	-00	42	11.4		046
2584	1989	03	28.91806	12	24	14.09	-00	42	07.8		046
2752	1989	03	26.90017	12	21	31.31	-02	26	47.7	I	046
2752	1989	03	26.91424	12	21	30.54	-02	26	40.6		046
2752	1989	03	27.89948	12	20	49.25	-02	19	44.2		046
2752	1989	03	27.91354	12	20	48.50	-02	19	38.2		046
2752	1989	03	28.90382	12	20	06.94	-02	12	41.3		046
2752	1989	03	28.91806	12	20	06.32	-02	12	34.2		046
2991	1989	03	28.93663	13	00	15.82	+03	15	15.6		046
2991	1989	03	28.94936	13	00	15.13	+03	15	20.7		046
3303	1989	03	26.86632	12	12	10.29	+02	02	23.2		046
3303	1989	03	26.88073	12	12	09.59	+02	02	25.5		046
3303	1989	03	27.86649	12	11	22.53	+02	06	56.4		046
3303	1989	03	27.88067	12	11	21.84	+02	06	59.2		046
3303	1989	03	28.86748	12	10	34.70	+02	11	28.0		046
3303	1989	03	28.88160	12	10	34.02	+02	11	31.2		046
3303	1989	03	30.88079	12	08	59.11	+02	20	26.8		046
3303	1989	03	30.89497	12	08	58.41	+02	20	32.2		046
3448	1989	03	28.96742	12	50	04.15	-01	50	02.9		046
3448	1989	03	28.98015	12	50	03.45	-01	49	58.9		046
3448	1989	03	30.95584	12	48	01.21	-01	39	29.0		046
3448	1989	03	30.97008	12	48	00.17	-01	39	23.8		046
4064	1989	01	30.92361	09	31	36.54	+20	18	06.0		046
4064	1989	01	30.93652	09	31	35.68	+20	18	05.1		046
4064	1989	01	31.92297	09	30	32.71	+20	20	12.6		046
4064	1989	01	31.93576	09	30	31.84	+20	20	12.7		046

4064		1989 02 01.87708	09 29 31.63	+20 22 10.6					046
4064		1989 02 01.88987	09 29 30.67	+20 22 13.2					046

049 Kvistaberg
C.-I. Lagerkvist, Astronomiska Observatoriet, Box 515,
S-75120 Uppsala, Sweden
Observers C.-I. Lagerkvist, T. Oja
AGK3

1982	SK8	1989 02 13.08002	09 29 26.8	+12 52 58				16.5	049
1982	SK8	1989 02 13.09941	09 29 25.9	+12 53 07					049
1987	QG2	1989 02 13.08002	09 38 13.44	+15 01 27.9				16.5	049
1987	QG2	1989 02 13.09941	09 38 12.15	+15 01 31.5					049
1989	CH4	1989 02 13.08002	09 38 15.05	+14 26 58.8				16.5	049
1989	CH4	1989 02 13.09941	09 38 13.75	+14 27 04.6					049

054 Brorfelde
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DK-4340 Tollose, Denmark
Observers K. Augustesen, P. Jensen
Measurer P. Jensen
0.45-m Schmidt
Observations in part in association with INAS

1986	RF		1989 03 11.96734	11 07 36.54	-02 36 35.8			16.8	054
1986	RF		1989 03 11.97949	11 07 35.95	-02 36 30.2				054
1988	VP2		1988 12 01.96652	03 19 37.10	+29 11 00.3			16.8	054
1988	XR2	*	1988 12 01.94973	03 20 12.31	+15 44 35.3			17.5	054
1988	XR2		1988 12 07.77787	03 15 51.01	+15 09 53.1			17.5	054
1988	XR2		1988 12 07.79523	03 15 50.31	+15 09 45.7				054
1989	GK		1989 04 29.93620	14 12 26.51	+08 19 29.5			15.8	054
1989	GK		1989 04 29.95356	14 12 25.50	+08 19 29.5				054
1989	GK		1989 04 30.93205	14 11 30.67	+08 20 10.1				054
1989	HA	*	1989 04 27.98601	15 25 58.36	+08 19 50.7			16.5	054
1989	HA		1989 04 28.00337	15 25 57.62	+08 19 58.0				054
1989	HA		1989 04 30.95375	15 23 49.16	+08 41 46.7				054
1069			1989 04 29.93620	14 13 12.76	+07 15 08.9				054
1069			1989 04 29.95356	14 13 11.95	+07 15 12.1				054
1069			1989 04 30.93205	14 12 30.32	+07 19 06.8				054

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

1988	RR		1988 10 16.85589	23 23 06.12	-04 41 44.9				071
1988	RR		1988 10 16.90190	23 23 04.86	-04 41 48.6				071
1988	RQ8		1988 11 11.79886	00 25 58.44	+00 59 35.9				071
1988	RQ8		1988 11 11.85298	00 25 57.99	+00 59 47.5				071
1988	RR8		1988 10 17.89171	00 46 16.46	+04 21 31.5				071
1988	RR8		1988 10 17.94021	00 46 14.06	+04 21 06.2				071
1988	TH1		1988 11 12.84714	00 37 57.56	-01 39 48.1				071
1988	TH1		1988 11 12.89482	00 37 56.85	-01 39 52.8				071
1988	TE3		1988 11 12.84714	00 35 21.40	-00 10 43.0				071
1988	TE3		1988 11 12.89482	00 35 20.45	-00 10 52.3				071
1988	TE3		1988 11 12.94186	00 35 19.54	-00 11 04.9				071
1988	TF3		1988 11 11.79886	00 36 57.20	+01 54 19.0				071
1988	TF3		1988 11 11.83440	00 36 56.59	+01 54 16.2				071
1988	TF3		1988 11 11.85298	00 36 56.22	+01 54 13.5				071
1988	TF3		1988 11 11.87259	00 36 55.81	+01 54 13.9				071
1988	TF3		1988 11 12.84714	00 36 40.41	+01 52 38.3				071
1988	TF3		1988 11 12.89482	00 36 39.61	+01 52 33.1				071

1988	VB	1988	11	13.93156	02	32	48.52	+15	35	57.6	071
1988	VB	1988	11	13.97809	02	32	45.84	+15	36	00.6	071
1988	VM2	1988	11	12.08029	03	47	42.98	+20	15	51.5	071
1988	VM2	1988	11	12.15170	03	47	38.52	+20	16	42.8	071
1988	VB5	1988	11	13.95864	02	52	20.13	+12	34	45.4	071
1988	VB5	1988	11	13.99597	02	52	18.19	+12	34	18.9	071
1988	VR5	1988	11	12.97549	02	50	37.46	+13	05	59.0	071
1988	VR5	1988	11	13.02080	02	50	35.20	+13	05	29.8	071
1988	YB	1989	01	11.05361	07	43	02.52	+23	19	58.3	071
1988	YB	1989	01	11.10875	07	42	59.71	+23	20	07.7	071
57		1988	11	11.83440	00	48	24.48	+02	51	25.9	071
57		1988	11	11.87259	00	48	23.72	+02	51	10.4	071
57		1988	11	11.91004	00	48	22.96	+02	50	57.1	071
57		1988	11	11.96559	00	48	21.95	+02	50	33.6	071
202		1989	01	10.98572	06	52	07.76	+15	47	49.6	071
204		1988	11	13.82844	00	41	55.83	+04	42	21.2	071
204		1988	11	13.90413	00	41	54.30	+04	42	00.5	071
275		1989	01	11.03103	07	37	25.32	+18	35	45.0	071
275		1989	01	11.07859	07	37	22.59	+18	35	56.8	071
284		1989	01	10.83080	04	48	30.61	+16	18	17.9	071
284		1989	01	10.87044	04	48	29.20	+16	18	16.0	071
468		1989	01	10.72802	01	50	50.59	+11	39	49.4	071
468		1989	01	10.77235	01	50	52.47	+11	40	03.2	071
512		1989	01	11.05361	07	41	25.31	+22	50	17.4	071
512		1989	01	11.10875	07	41	21.05	+22	50	42.4	071
774		1989	01	15.00024	05	50	30.67	+20	15	21.9	071
774		1989	01	15.01889	05	50	29.94	+20	15	21.9	071
777		1989	01	11.03103	07	27	50.16	+19	41	20.0	071
777		1989	01	11.07859	07	27	47.48	+19	41	14.5	071
813		1988	11	12.97549	03	06	56.42	+17	07	43.3	071
813		1988	11	13.02080	03	06	53.10	+17	07	40.2	071
814		1989	01	10.75256	03	36	03.00	+11	29	19.9	071
814		1989	01	10.79183	03	36	03.10	+11	29	48.9	071
815		1989	01	10.72802	02	08	11.24	+12	47	06.0	071
815		1989	01	10.77235	02	08	12.56	+12	47	26.8	071
846		1988	11	13.11113	03	51	18.14	+20	20	43.7	071
891		1989	01	15.00024	06	03	44.82	+21	03	17.0	071
891		1989	01	15.01899	06	03	44.00	+21	03	22.4	071
912		1988	11	12.84714	00	42	00.44	-01	51	12.7	071
912		1988	11	12.89482	00	41	58.93	-01	51	06.0	071
912		1988	11	12.94186	00	41	57.29	-01	51	00.3	071
912		1988	11	13.80917	00	41	29.32	-01	48	29.7	071
912		1988	11	13.85540	00	41	27.74	-01	48	23.0	071
1491		1989	01	11.05361	07	42	38.79	+23	33	54.2	071
1491		1989	01	11.10875	07	42	35.74	+23	33	57.4	071
1633		1988	11	11.91004	00	53	59.63	+01	58	30.1	071
1633		1988	11	11.96559	00	53	57.98	+01	58	22.1	071
1644		1989	01	10.98572	07	00	24.68	+19	02	19.3	071
1689		1989	01	10.88914	06	02	44.27	+18	53	10.8	071
1689		1989	01	10.90707	06	02	43.40	+18	53	14.4	071
1689		1989	01	15.00024	05	59	27.62	+19	11	22.8	071
1689		1989	01	15.01899	05	59	26.76	+19	11	27.1	071
1778		1988	11	12.84714	00	46	03.37	+01	27	34.6	071
1778		1988	11	12.89482	00	46	02.20	+01	27	28.2	071
1778		1988	11	12.94186	00	46	01.08	+01	27	23.9	071
1784		1988	11	12.97549	02	54	50.31	+14	50	39.8	071
1784		1988	11	13.02080	02	54	47.54	+14	50	28.9	071
1802		1988	11	12.84714	00	39	37.33	+00	39	39.9	071
1802		1988	11	12.89482	00	39	36.31	+00	39	36.1	071

1802	1988	11	12.94186	00	39	35.34	+00	39	30.8	071
1802	1988	11	13.80917	00	39	18.76	+00	38	13.1	071
1802	1988	11	13.85540	00	39	17.84	+00	38	09.8	071
1854	1988	11	11.83440	00	44	57.69	+02	25	46.8	071
1854	1988	11	11.87259	00	44	56.69	+02	25	39.1	071
1854	1988	11	11.91004	00	44	55.85	+02	25	30.3	071
1854	1988	11	11.96559	00	44	54.54	+02	25	18.7	071
1854	1988	11	12.84714	00	44	34.96	+02	21	54.3	071
1854	1988	11	12.89482	00	44	33.85	+02	21	43.9	071
1854	1988	11	12.94186	00	44	32.70	+02	21	31.7	071
1854	1988	11	13.80917	00	44	14.99	+02	18	23.1	071
1854	1988	11	13.85540	00	44	13.94	+02	18	13.1	071
2068	1989	01	10.75256	03	25	16.58	+11	10	01.0	071
2068	1989	01	10.79183	03	25	16.63	+11	10	17.8	071
2123	1988	11	13.93156	02	20	51.61	+15	43	16.9	071
2123	1988	11	13.97809	02	20	49.31	+15	43	05.1	071
2158	1988	11	12.08029	04	05	01.50	+19	02	40.5	071
2158	1988	11	12.15170	04	04	58.04	+19	02	31.0	071
2162	1989	01	15.00024	05	55	17.43	+20	51	08.1	071
2162	1989	01	15.01899	05	55	16.83	+20	51	09.2	071
2172	1988	11	11.83440	00	49	31.31	+00	38	33.1	071
2172	1988	11	11.87259	00	49	30.37	+00	38	31.3	071
2172	1988	11	11.91004	00	49	29.59	+00	38	30.8	071
2172	1988	11	11.96559	00	49	28.25	+00	38	30.3	071
2172	1988	11	12.84714	00	49	08.28	+00	38	13.8	071
2172	1988	11	12.89482	00	49	07.22	+00	38	13.5	071
2172	1988	11	12.94186	00	49	06.10	+00	38	11.2	071
2172	1988	11	13.80917	00	48	47.87	+00	38	04.0	071
2172	1988	11	13.85540	00	48	46.70	+00	38	04.0	071
2217	1988	11	11.79886	00	31	33.11	+00	17	23.7	071
2217	1988	11	11.85298	00	31	32.19	+00	17	18.6	071
2270	1988	11	11.83440	00	42	59.36	+02	06	05.8	071
2270	1988	11	11.87259	00	42	58.32	+02	06	03.0	071
2270	1988	11	11.91004	00	42	57.38	+02	06	00.0	071
2270	1988	11	11.96559	00	42	56.14	+02	05	54.3	071
2354	1989	01	10.88914	05	59	13.98	+18	32	18.9	071
2354	1989	01	10.90707	05	59	13.12	+18	32	19.7	071
2354	1989	01	15.00024	05	56	03.80	+18	36	52.8	071
2354	1989	01	15.01899	05	56	03.01	+18	36	54.2	071
2369	1989	01	11.05361	07	40	38.24	+25	03	59.9	071
2369	1989	01	11.10875	07	40	34.56	+25	04	13.3	071
2535	1989	01	10.96263	07	06	42.31	+16	38	11.2	071
2535	1989	01	11.00916	07	06	38.88	+16	38	19.6	071
2715	1989	01	10.81124	04	27	58.44	+13	17	06.9	071
2715	1989	01	10.85198	04	27	57.59	+13	17	09.0	071
2749	1988	11	13.82844	00	48	20.52	+05	27	17.1	071
2749	1988	11	13.90413	00	48	18.84	+05	27	07.2	071
2856	1988	11	13.82844	00	36	43.93	+05	30	10.1	071
2856	1988	11	13.90413	00	36	41.99	+05	30	09.4	071
2950	1989	01	10.88914	05	57	51.56	+19	34	18.0	071
2950	1989	01	10.90707	05	57	50.65	+19	34	23.7	071
2950	1989	01	15.00024	05	55	00.36	+20	00	23.2	071
2950	1989	01	15.01899	05	54	59.68	+20	00	30.6	071
2951	1988	11	11.83440	00	33	17.35	+01	33	03.2	071
2951	1988	11	11.87259	00	33	16.21	+01	33	05.2	071
2951	1988	11	12.84714	00	32	48.97	+01	34	00.8	071
2951	1988	11	12.89482	00	32	47.58	+01	34	04.6	071
2951	1988	11	13.80917	00	32	22.91	+01	35	04.9	071
2951	1988	11	13.85540	00	32	21.74	+01	35	04.8	071

3054		1988	11	11.91004	00	54	23.02	+02	56	14.0	071
3054		1988	11	11.96559	00	54	21.80	+02	56	08.3	071
3318		1989	01	10.88914	05	58	10.44	+19	42	46.8	071
3318		1989	01	10.90707	05	58	09.60	+19	42	50.1	071
3318		1989	01	15.00024	05	55	01.96	+19	58	48.7	071
3318		1989	01	15.01899	05	55	01.05	+19	58	53.0	071
3461		1988	11	11.83440	00	32	43.63	+00	25	03.7	071
3461		1988	11	11.87259	00	32	42.98	+00	25	07.3	071
3899		1988	11	13.95864	02	52	28.82	+13	50	03.5	071
3899		1988	11	13.99597	02	52	26.93	+13	49	56.8	071
3993		1988	11	13.95864	02	56	16.06	+14	42	39.4	071
3993		1988	11	13.99597	02	56	13.71	+14	42	26.5	071
3996		1988	11	13.04649	03	38	32.49	+17	10	23.2	071
3996		1988	11	13.13110	03	38	26.93	+17	10	06.8	071

220 Kavalur
R. Rajamohan, Indian Institute of Astrophysics, Bangalore 560034, India
0.45-m f/3 Schmidt
SAOC

4056		1989	02	06.68264	09	33	59.99	+13	29	20.1	15.9	220
4056		1989	02	06.83542	09	33	52.16	+13	31	01.4		220
4056		1989	02	07.68681	09	33	10.78	+13	40	23.8		220

293 Burlington remote site
T. Handley, 13 Linden Avenue, Burlington, NJ 08016, U.S.A.
0.20-m f/4.0 astrograph
SAOC

1984	SW3	1989	01	14.38819	07	09	06.71	+24	01	22.4	293
1984	SW3	1989	01	14.40069	07	09	05.77	+24	01	20.6	293
2707		1989	01	14.38819	07	11	39.13	+24	26	59.6	293
2707		1989	01	14.40069	07	11	38.56	+24	27	04.4	293

303 Merida
M. Geffert, Observatorium Hoher List, D-5568 Daun, Federal Republic of Germany
Observers E. H. Geyer, M. Hoffmann
Measurers M. Geffert, M. Petr
1.0-m f/3 Schmidt
AGK3

40		1989	02	05.29410	12	24	24.90	+03	55	20.0	303
40		1989	02	05.30799	12	24	24.81	+03	55	23.2	303
40		1989	02	05.32882	12	24	24.67	+03	55	27.4	303
40		1989	02	06.30799	12	24	18.79	+03	58	59.1	303
40		1989	02	06.32188	12	24	18.67	+03	59	02.3	303
40		1989	02	06.34410	12	24	18.47	+03	59	07.3	303
40		1989	02	10.29688	12	23	36.76	+04	15	10.2	303
40		1989	02	10.31076	12	23	36.52	+04	15	14.1	303
40		1989	02	10.33160	12	23	36.18	+04	15	19.3	303
55		1989	02	05.29410	12	23	04.23	+00	52	16.6	303
55		1989	02	05.30799	12	23	04.00	+00	52	17.8	303
55		1989	02	05.32882	12	23	03.66	+00	52	18.9	303
55		1989	02	06.30799	12	22	47.76	+00	53	16.7	303
55		1989	02	06.32188	12	22	47.50	+00	53	17.4	303
55		1989	02	06.34410	12	22	47.13	+00	53	19.0	303
55		1989	02	10.29688	12	21	29.68	+00	58	23.9	303
55		1989	02	10.31076	12	21	29.35	+00	58	25.4	303
55		1989	02	10.33160	12	21	28.86	+00	58	27.3	303
55		1989	02	12.31632	12	20	42.15	+01	01	41.9	303
55		1989	02	12.34410	12	20	41.42	+01	01	44.6	303

55	1989	02	12.35104	12	20	41.21	+01	01	45.5	303
55	1989	02	13.31771	12	20	16.62	+01	03	30.3	303
55	1989	02	13.33854	12	20	16.06	+01	03	32.4	303
55	1989	02	13.35243	12	20	15.69	+01	03	33.6	303
194	1989	02	05.29410	12	27	00.22	+02	50	25.3	303
194	1989	02	05.30799	12	27	00.13	+02	50	30.9	303
194	1989	02	05.32882	12	26	59.96	+02	50	39.1	303
194	1989	02	06.30799	12	26	52.60	+02	57	16.1	303
194	1989	02	06.32188	12	26	52.47	+02	57	22.1	303
194	1989	02	06.34410	12	26	52.26	+02	57	30.4	303
194	1989	02	12.31632	12	25	39.79	+03	41	29.8	303
194	1989	02	12.34410	12	25	39.30	+03	41	43.3	303
194	1989	02	12.35104	12	25	39.17	+03	41	46.4	303
194	1989	02	13.31771	12	25	23.11	+03	49	26.7	303
194	1989	02	13.33854	12	25	22.74	+03	49	36.9	303
194	1989	02	13.35243	12	25	22.46	+03	49	43.4	303
210	1989	02	05.29410	12	27	46.42	+02	09	51.9	303
210	1989	02	05.30799	12	27	46.26	+02	09	53.5	303
210	1989	02	05.32882	12	27	45.99	+02	09	55.5	303
210	1989	02	06.30799	12	27	33.87	+02	11	34.6	303
210	1989	02	06.32188	12	27	33.67	+02	11	36.3	303
210	1989	02	06.34410	12	27	33.35	+02	11	38.2	303
210	1989	02	10.29688	12	26	29.99	+02	19	37.6	303
210	1989	02	10.31076	12	26	29.70	+02	19	39.5	303
210	1989	02	10.33160	12	26	29.26	+02	19	42.3	303
210	1989	02	12.31632	12	25	48.90	+02	24	28.1	303
210	1989	02	12.34410	12	25	48.23	+02	24	32.0	303
210	1989	02	12.35104	12	25	48.06	+02	24	33.0	303
210	1989	02	13.31771	12	25	26.41	+02	27	02.8	303
210	1989	02	13.33854	12	25	25.89	+02	27	05.9	303
210	1989	02	13.35243	12	25	25.55	+02	27	07.8	303
383	1989	02	05.29410	12	28	00.25	+00	36	04.7	303
383	1989	02	05.30799	12	28	00.07	+00	36	06.6	303
383	1989	02	05.32882	12	27	59.81	+00	36	09.0	303
383	1989	02	06.30799	12	27	48.18	+00	38	24.2	303
383	1989	02	06.32188	12	27	47.98	+00	38	26.8	303
383	1989	02	06.34410	12	27	47.70	+00	38	29.2	303
383	1989	02	10.29688	12	26	48.88	+00	48	45.8	303
383	1989	02	10.31076	12	26	48.62	+00	48	48.1	303
383	1989	02	10.33160	12	26	48.25	+00	48	51.9	303
383	1989	02	12.31632	12	26	11.72	+00	54	42.0	303
383	1989	02	12.34410	12	26	11.12	+00	54	47.0	303
383	1989	02	12.35104	12	26	10.99	+00	54	48.4	303
383	1989	02	13.31771	12	25	51.56	+00	57	48.9	303
383	1989	02	13.33854	12	25	51.11	+00	57	52.7	303
383	1989	02	13.35243	12	25	50.81	+00	57	55.1	303
825	1989	02	05.29410	12	28	54.62	+02	08	08.1	303
825	1989	02	05.30799	12	28	54.73	+02	08	09.8	303
825	1989	02	05.32882	12	28	54.85	+02	08	12.5	303
825	1989	02	06.30799	12	29	02.40	+02	10	24.8	303
825	1989	02	06.32188	12	29	02.47	+02	10	27.1	303
825	1989	02	06.34410	12	29	02.56	+02	10	29.7	303
825	1989	02	10.29688	12	29	13.80	+02	21	29.4	303
825	1989	02	10.31076	12	29	13.76	+02	21	32.3	303
825	1989	02	10.33160	12	29	13.67	+02	21	36.5	303
825	1989	02	12.31632	12	29	07.55	+02	28	21.1	303
825	1989	02	12.34410	12	29	07.33	+02	28	26.7	303
825	1989	02	12.35104	12	29	07.29	+02	28	28.4	303
825	1989	02	13.31771	12	29	01.51	+02	32	03.0	303

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 825       1989 02 13.33854  12 29 01.31  +02 32 07.8                      303
 825       1989 02 13.35243  12 29 01.15  +02 32 10.5                      303
2634       1989 02 05.29410  12 27 29.13  +02 37 22.4                      303
2634       1989 02 05.30799  12 27 29.02  +02 37 25.0                      303
2634       1989 02 05.32882  12 27 28.89  +02 37 29.2                      303
2634       1989 02 06.30799  12 27 22.44  +02 40 47.3                      303
2634       1989 02 06.32188  12 27 22.33  +02 40 50.1                      303
2634       1989 02 06.34410  12 27 22.13  +02 40 54.7                      303
2634       1989 02 10.29688  12 26 44.31  +02 55 29.3                      303
2634       1989 02 10.31076  12 26 44.12  +02 55 32.3                      303
2634       1989 02 10.33160  12 26 43.86  +02 55 37.0                      303
2634       1989 02 12.31632  12 26 17.90  +03 03 38.1                      303
2634       1989 02 12.34410  12 26 17.48  +03 03 44.7                      303
2634       1989 02 12.35104  12 26 17.37  +03 03 46.7                      303
2634       1989 02 13.31771  12 26 03.10  +03 07 50.8                      303
2634       1989 02 13.33854  12 26 02.75  +03 07 56.0                      303
2634       1989 02 13.35243  12 26 02.51  +03 07 58.8                      303
2678       1989 02 05.29410  12 21 20.67  +03 14 18.5                      303
2678       1989 02 05.30799  12 21 20.56  +03 14 19.8                      303
2678       1989 02 05.32882  12 21 20.43  +03 14 22.4                      303
2678       1989 02 06.30799  12 21 14.95  +03 16 21.2                      303
2678       1989 02 06.32188  12 21 14.83  +03 16 22.8                      303
2678       1989 02 06.34410  12 21 14.60  +03 16 25.5                      303
2678       1989 02 12.31632  12 19 58.75  +03 32 24.0                      303
2678       1989 02 12.34410  12 19 58.14  +03 32 29.2                      303
2678       1989 02 12.35104  12 19 58.02  +03 32 30.2                      303
2678       1989 02 13.31771  12 19 39.11  +03 35 40.7                      303
2678       1989 02 13.33854  12 19 38.63  +03 35 45.0                      303
2678       1989 02 13.35243  12 19 38.30  +03 35 47.8                      303

323 Perth
M. P. Candy, Perth Observatory, Bickley, WA 6076, Australia
0.3-m astrograph
1989 JD  * 1989 05 02.76944  15 34 40.98  -15 14 11.2           16.5    323
1989 JD    1989 05 05.70035  15 31 35.24  -15 29 37.6                   323
1989 JD    1989 05 08.63472  15 28 22.26  -15 45 05.2                   323

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
1988 XQ2   1988 12 28.49722  04 50 09.40  +21 16 45.2             16      364
1988 XQ2   1988 12 28.50764  04 50 08.53  +21 16 46.4                     364
  87       1989 04 10.56701  13 49 02.91  +00 53 45.8                     364
  87       1989 04 10.58785  13 49 02.02  +00 53 50.3                     364
 228       1989 03 10.63715  12 05 00.59  -03 38 08.7                     364
 228       1989 03 10.65799  12 04 59.29  -03 38 01.1                     364
 572       1989 03 10.63715  12 01 21.92  -05 16 54.3                     364
 572       1989 03 10.65799  12 01 20.88  -05 16 43.5                     364
1158       1989 03 10.57257  11 51 51.37  -04 20 23.3                     364
1158       1989 03 10.59340  11 51 50.14  -04 20 20.2                     364
1228       1989 03 10.63715  12 05 21.83  -04 55 44.7                     364
1228       1989 03 10.65799  12 05 20.83  -04 55 39.5                     364
1307       1989 02 04.62222  09 23 29.56  +07 36 40.7                     364
1307       1989 02 04.63958  09 23 28.39  +07 36 46.3                     364
2346       1989 02 06.61458  09 24 26.25  +05 42 03.8                     364
2346       1989 02 06.62500  09 24 25.33  +05 42 05.9                     364
```

2533		1989	03	08.61597	12	05	24.22	-01	34	41.5	364
2533		1989	03	08.63333	12	05	23.52	-01	34	35.8	364
2776		1989	03	08.56666	11	55	42.31	-01	56	48.3	364
2776		1989	03	08.59097	11	55	41.22	-01	56	35.8	364
2776		1989	03	14.58924	11	51	02.80	-01	03	50.3	364
2776		1989	03	14.61007	11	51	01.82	-01	03	38.0	364
2983		1989	03	10.57257	11	46	03.45	-05	03	19.9	364
2983		1989	03	10.59340	11	46	02.53	-05	03	11.4	364
3787		1989	03	10.63715	12	02	36.00	-03	25	05.2	364
3787		1989	03	10.65799	12	02	35.08	-03	24	52.9	364

372 Geisei
T. Seki, Kamimachi 2-9-35, Kochi, Japan
0.60-m reflector

1987	YK		1989	03	05.75625	13	04	41.99	-00	27	24.6	18	372
1987	YK		1989	03	05.76875	13	04	41.67	-00	27	21.3		372
1987	YK		1989	03	08.75521	13	02	52.54	-00	14	05.3	18	372
1987	YK		1989	03	08.76875	13	02	51.90	-00	13	59.7		372
1988	CE		1989	03	29.65660	14	31	53.36	-25	43	40.7	17.5	372
1988	CE		1989	03	29.67014	14	31	52.87	-25	43	42.5		372
1988	CE		1989	04	04.71458	14	27	58.37	-25	53	21.3	17	372
1988	CE		1989	04	04.72743	14	27	57.57	-25	53	22.4		372
1989	CF		1989	03	08.60486	09	55	03.93	+23	14	08.9	17	372
1989	CV		1989	03	06.55174	08	11	08.25	+26	37	26.4	18.5	372
1989	CN1		1989	03	08.61736	09	41	46.09	+19	21	04.0	18	372
1989	CN1		1989	03	08.62882	09	41	45.63	+19	21	04.3		372
1989	CX1		1989	03	08.61736	09	42	15.55	+19	06	46.8	18.5	372
1989	CX1		1989	03	08.62882	09	42	14.97	+19	06	49.8		372
1989	EG1		1989	03	15.73403	12	04	51.95	+03	15	50.8	17	372
1989	EG1		1989	03	15.74618	12	04	51.35	+03	15	56.2		372
1989	ET1		1989	03	29.58003	11	21	40.00	+12	04	19.7	17	372
1989	ET1		1989	03	29.59236	11	21	39.18	+12	04	19.7		372
1989	EU1		1989	04	11.59983	11	12	26.94	+12	48	20.7	17	372
1989	EU1		1989	04	11.61111	11	12	26.71	+12	48	21.3		372
1989	EK2		1989	04	11.62292	12	32	06.3	+01	29	50	18	372
1989	EK2		1989	04	11.63333	12	32	05.9	+01	29	53		372
1989	EK2		1989	04	12.67292	12	31	06.4	+01	32	07	18	372
1989	EK2		1989	04	12.68507	12	31	05.7	+01	32	10		372
1989	FB		1989	04	11.66562	12	39	24.23	+02	07	54.1	16.5	372
1989	FB		1989	04	11.67535	12	39	22.14	+02	07	48.1		372
1989	FK	*	1989	03	29.60642	12	45	36.03	+00	45	16.4		372
1989	FK		1989	03	29.61771	12	45	35.22	+00	45	21.4		372
1989	FK		1989	04	04.68941	12	39	46.62	+01	12	30.9		372
1989	FK		1989	04	04.70104	12	39	45.90	+01	12	33.9		372
1989	FK		1989	04	11.62292	12	33	25.04	+01	39	05.0	17	372
1989	FK		1989	04	11.63333	12	33	24.58	+01	39	08.6		372
1989	FK		1989	04	12.67292	12	32	30.29	+01	42	28.4	17.5	372
1989	FK		1989	04	12.68507	12	32	29.56	+01	42	32.5		372
1989	FL	*	1989	03	29.65600	14	31	05.72	-25	36	39.6	18	372
1989	FL		1989	03	29.67014	14	31	05.29	-25	36	41.7		372
1989	FL		1989	04	04.71458	14	27	31.12	-26	00	14.2	18	372
1989	FL		1989	04	04.72743	14	27	30.62	-26	00	16.2		372
1989	FL		1989	04	11.70139	14	22	12.59	-26	18	34.5	18	372
1989	FL		1989	04	11.71267	14	22	11.95	-26	18	35.6		372
1989	GF5	*	1989	04	11.62292	12	31	23.3	+01	42	16	18	372
1989	GF5		1989	04	11.63333	12	31	23.0	+01	42	19		372
1989	GF5		1989	04	12.67292	12	30	36.6	+01	49	42	18	372
1989	GF5		1989	04	12.68507	12	30	36.0	+01	49	47		372

11	1989 05 01.78888	22 17 53.64	-10 46 29.2		12		372
11	1989 05 01.79618	22 17 54.33	-10 46 25.2				372
1748	1989 05 03.77812	22 15 17.72	-11 16 39.4		18		372
1748	1989 05 03.78854	22 15 18.36	-11 16 34.8				372
1748	1989 05 09.78663	22 21 55.57	-10 44 04.8		18		372

374 Minami-Oda
T. Nomura, 1-8, Yamate 1 Chome, Tarumi-Ku, Kobe 655, Japan
Observer T. Nomura
Measurer K. Kawanishi
0.25-m f/3.4 Schmidt camera
AGK3

1989 EV	1989 03 29.61285	11 58 03.88	+12 21 03.2		16.5		374
1989 EV	1989 03 29.63368	11 58 02.27	+12 21 03.7				374
1989 EW	1989 03 29.61285	11 59 07.23	+12 41 10.5		16.0		374
1989 EW	1989 03 29.63368	11 59 05.81	+12 41 12.1				374

381 Kiso
T. Nakamura, National Astronomical Observatory, Mitaka, Tokyo 181, Japan
Observer T. Nakamura
1.05-m Schmidt

908	1989 02 27.41333	03 49 58.54	+20 36 33.1				381
908	1989 03 01.42574	03 52 54.60	+20 55 05.8				381
976	1989 02 27.41333	03 46 17.00	+18 27 06.4				381
976	1989 03 01.42574	03 47 56.96	+18 30 35.5				381

385 Nihondaira Observatory, Oohira Station
M. Kizawa, 1458-10, Minami Numagami, Shizuoka 420, Japan
Observers W. Kakei, M. Kizawa, T. Urata
Measurer M. Kizawa

1989 GK	1989 04 29.52060	14 12 50.02	+08 19 11.9		15.5		385
1989 GK	1989 04 29.55035	14 12 48.30	+08 19 11.8				385
1989 GK	1989 05 02.54306	14 10 00.92	+08 20 50.9				385
1989 GK	1989 05 02.60069	14 09 57.43	+08 20 51.5				385
1989 GK	1989 05 09.56840	14 03 45.69	+08 16 50.3				385
1989 GK	1989 05 09.58715	14 03 44.66	+08 16 48.9				385

391 Sendai Observatory, Ayashi Station
M. Koishikawa, Sendai Municipal Observatory, 1-1 Sakuragaoka-koen,
Sendai 980, Japan
0.20-m reflector

1964 TA2	1988 10 13.62847	00 11 29.68	+08 35 38.2				391
1964 TA2	1988 10 15.61424	00 09 51.30	+08 30 35.0				391
1964 TA2	1988 10 19.64271	00 06 50.94	+08 20 49.2				391
1987 SJ3	1989 04 04.68750	12 37 54.53	-01 25 38.0				391
1987 SJ3	1989 04 04.70833	12 37 52.80	-01 25 44.6				391
1989 FJ *	1989 03 30.65972	12 10 21.49	+06 23 29.0		16.5		391
1989 FJ	1989 03 30.68056	12 10 20.27	+06 23 30.0		16.5		391
1989 FJ	1989 03 31.73785	12 09 24.87	+06 25 32.0				391
1989 FJ	1989 03 31.75868	12 09 24.10	+06 25 34.9				391
1989 FJ	1989 04 02.64236	12 07 47.08	+06 28 47.9				391
1989 FJ	1989 04 02.66319	12 07 45.97	+06 28 48.5				391
1989 FJ	1989 04 04.64722	12 06 05.69	+06 31 38.8		15.5		391
1989 FJ	1989 04 04.66806	12 06 04.61	+06 31 40.0		15.5		391
1989 FJ	1989 04 05.60590	12 05 18.34	+06 32 48.6				391
1989 FJ	1989 04 05.63021	12 05 17.06	+06 32 50.7				391
1989 FJ	1989 04 06.58681	12 04 30.87	+06 33 50.2				391
1989 FJ	1989 04 06.60764	12 04 29.67	+06 33 53.3				391

1989	FJ		1989	04	13.57292	11	59	19.74	+06	36	42.1	391
1989	FJ		1989	04	13.60764	11	59	18.10	+06	36	42.9	391
1989	FJ		1989	04	28.52083	11	51	52.54	+06	15	03.3	391
1989	FJ		1989	04	28.54167	11	51	52.06	+06	15	00.5	391
1989	FJ		1989	04	29.53194	11	51	34.71	+06	12	14.5	391
1989	FJ		1989	04	29.55278	11	51	34.27	+06	12	11.8	391
1989	GC	*	1989	04	04.64722	12	08	01.78	+06	52	46.3	16 391
1989	GC		1989	04	04.66806	12	08	00.99	+06	52	58.8	16 391
1989	GC		1989	04	05.64757	12	07	21.51	+07	02	11.3	391
1989	GC		1989	04	05.67188	12	07	20.47	+07	02	24.4	391
1989	GC		1989	04	06.62847	12	06	42.98	+07	11	07.9	391
1989	GC		1989	04	06.64931	12	06	42.03	+07	11	19.7	391
1989	GD		1989	04	02.64236	12	11	00.14	+06	34	17.0	391
1989	GD		1989	04	02.66319	12	10	58.83	+06	34	17.4	391
1989	GD	*	1989	04	04.64722	12	09	02.45	+06	35	01.2	15.5 391
1989	GD		1989	04	04.66806	12	09	01.26	+06	35	02.9	15.5 391
1989	GD		1989	04	05.60590	12	08	07.74	+06	35	09.4	391
1989	GD		1989	04	05.63021	12	08	06.29	+06	35	07.5	391
1989	GD		1989	04	06.58681	12	07	12.67	+06	35	02.2	391
1989	GD		1989	04	06.60764	12	07	11.27	+06	35	02.9	391
1989	GD		1989	04	13.57118	12	01	15.55	+06	28	31.7	391
1989	GD		1989	04	13.57292	12	01	15.63	+06	28	37.8	391
1989	GD		1989	04	13.60764	12	01	14.09	+06	28	32.1	391
1989	GD		1989	04	13.60938	12	01	13.79	+06	28	31.7	391
1989	GD		1989	04	13.71806	12	01	08.91	+06	28	18.3	391
1989	GD		1989	04	28.52083	11	53	14.24	+05	40	03.1	391
1989	GD		1989	04	28.54167	11	53	13.75	+05	39	56.8	391
1989	GD		1989	04	29.53194	11	52	57.57	+05	35	08.5	391
1989	GD		1989	04	29.55278	11	52	57.21	+05	35	03.5	391
55			1989	03	29.62708	11	47	20.36	+03	27	07.0	391
55			1989	03	29.64792	11	47	19.27	+03	27	11.1	391
1546			1989	04	02.68403	13	10	27.65	-04	58	42.0	E 391
1546			1989	04	02.70486	13	10	26.50	-04	58	27.8	E 391
2678			1989	03	30.61806	11	42	23.53	+07	17	15.6	I 391
2678			1989	03	30.63889	11	42	22.29	+07	17	22.1	391
2704			1989	04	02.60069	11	34	32.20	-00	48	59.6	391
2704			1989	04	02.62153	11	34	31.18	-00	48	49.9	391
3331			1989	03	29.62708	11	45	17.20	+03	06	13.3	391
3331			1989	03	29.64792	11	45	16.08	+03	06	25.3	391
3389			1989	03	30.61806	11	42	04.89	+07	28	14.0	391
3389			1989	03	30.63889	11	42	03.91	+07	28	19.9	p 391

399 Kushiro
H. Kaneda, 12-7-2, 1 Chome, Ishiyama 1 Jo, Minami-Ku,
Sapporo 005, Japan
Observer S. Ueda
Measurer H. Kaneda
0.16-m f/3.8 Wright-Schmidt camera
AGK3, SAOC

1987	UU1		1987	10	18.57963	01	29	58.42	+14	37	14.2	16 399
1987	UU1		1987	10	18.59491	01	29	57.37	+14	37	09.5	399
1987	UU1		1987	10	18.61528	01	29	56.33	+14	37	06.0	399
1987	UX1		1987	11	28.63970	01	57	37.49	+16	09	09.5	16 399
1987	UX1		1987	11	28.65486	01	57	37.09	+16	09	02.5	399
1987	UD4		1987	10	31.76134	01	57	12.95	+16	12	27.5	16.5 399
1987	UD4		1987	10	31.77639	01	57	12.02	+16	12	24.3	399
1987	UD4		1987	10	31.79097	01	57	11.29	+16	12	21.7	399
1987	VD		1987	12	12.50602	02	34	13.14	+21	03	03.3	16.5 399
1987	VD		1987	12	12.52575	02	34	12.98	+21	02	56.5	399

1987	VD		1987	12	12.54653	02	34	12.88	+21	02	48.7		399
1987	VE1		1989	04	28.54167	10	13	16.47	+03	02	45.9	16.5	399
1987	VE1		1989	04	28.55625	10	13	16.95	+03	02	45.4		399
1987	VE1		1989	04	28.57153	10	13	17.36	+03	02	47.2		399
1987	WA5	*	1987	11	17.50278	02	19	55.98	+24	29	56.1	14	399
1987	WA5		1987	11	17.51794	02	19	55.23	+24	29	56.5		399
1987	WA5		1987	11	17.53044	02	19	54.61	+24	29	57.4		399
1987	WA5		1987	11	17.54792	02	19	53.64	+24	29	57.9		399
1987	WB5	*	1987	11	17.50278	02	22	06.10	+25	06	05.5	16.5	399
1987	WB5		1987	11	17.51794	02	22	05.20	+25	06	04.8		399
1987	WB5		1987	11	17.53044	02	22	04.37	+25	06	05.1		399
1987	WB5		1987	11	17.54792	02	22	03.40	+25	06	04.9		399
1988	BW		1988	01	24.59537	09	50	10.58	+15	31	43.6	16.5	399
1988	BW		1988	01	24.61060	09	50	09.82	+15	31	42.6		399
1988	BW		1988	01	24.62795	09	50	09.06	+15	31	40.5		399
1988	BW		1988	02	18.66913	09	23	31.90	+15	03	38.9	16.5	399
1988	BW		1988	02	18.68484	09	23	31.06	+15	03	37.9		399
1988	BW		1988	02	18.70185	09	23	30.01	+15	03	35.5		399
1988	BW		1988	02	19.68155	09	22	28.42	+15	02	11.9	16.5	399
1988	BW		1988	02	19.69838	09	22	27.40	+15	02	08.9		399
1988	BW		1988	02	19.71406	09	22	26.40	+15	02	07.8		399
1988	BZ1		1988	02	19.68155	09	21	18.43	+14	40	33.3	16.5	399
1988	BZ1		1988	02	19.69838	09	21	17.69	+14	40	35.2		399
1988	BM3		1988	02	23.63547	09	00	52.95	+15	30	56.1	16.5	399
1988	BM3		1988	02	23.65301	09	00	52.02	+15	30	58.2		399
1988	BM3		1988	02	23.67274	09	00	51.14	+15	30	58.2		399
1988	BP5	*	1988	01	24.59537	09	49	02.41	+14	53	23.3	16.5	399
1988	BP5		1988	01	24.61060	09	49	01.94	+14	53	28.2		399
1988	BP5		1988	01	24.62795	09	49	01.27	+14	53	35.8		399
1988	BP5		1988	01	25.70642	09	48	21.87	+15	01	53.8	16.5	399
1988	BP5		1988	01	25.72222	09	48	21.24	+15	02	01.0		399
1988	BP5		1988	01	25.74097	09	48	20.64	+15	02	09.6		399
1988	CO		1988	02	08.50926	09	41	23.32	+20	25	46.0	16.5	399
1988	CO		1988	02	08.52616	09	41	22.36	+20	25	51.2		399
1988	CO		1988	02	08.54167	09	41	21.37	+20	25	55.6		399
1988	CT5		1988	02	07.43785	09	33	19.17	+14	15	48.0	16.5	399
1988	CT5		1988	02	07.45434	09	33	18.26	+14	15	52.1		399
1988	CT5		1988	02	08.44826	09	32	17.24	+14	17	10.1	16.5	399
1988	CT5		1988	02	08.46771	09	32	15.93	+14	17	13.6		399
1988	CT5		1988	02	08.48559	09	32	14.80	+14	17	14.5		399
1988	CU7		1988	02	15.59595	09	33	47.67	+21	10	47.9	16.5	399
1988	CU7		1988	02	15.61273	09	33	46.57	+21	10	49.9		399
1988	CU7		1988	02	15.64444	09	33	44.42	+21	10	55.6		399
1988	CU7		1988	02	19.61736	09	29	22.02	+21	19	56.2	16.5	399
1988	CU7		1988	02	19.63414	09	29	20.83	+21	19	58.6		399
1988	CU7		1988	02	19.65405	09	29	19.30	+21	20	01.4		399
1989	CH4	*	1989	02	07.57361	09	43	50.85	+14	05	59.6	16.5	399
1989	CH4		1989	02	07.58854	09	43	49.97	+14	06	03.8		399
1989	CH4		1989	02	07.60521	09	43	48.81	+14	06	07.9		399
1989	EC2		1989	03	12.55770	11	18	12.26	+09	45	58.8	16.5	399
1989	EC2		1989	03	12.57234	11	18	11.35	+09	46	02.8		399
1989	EC2		1989	03	12.64861	11	18	07.85	+09	46	17.2		399
1989	EC2		1989	03	12.66319	11	18	06.96	+09	46	21.5		399
1989	EC2		1989	03	12.68183	11	18	06.05	+09	46	24.7		399
1989	EL2		1989	04	04.58611	11	02	30.43	+10	01	30.3	16.5	399
1989	EL2		1989	04	04.60069	11	02	29.81	+10	01	29.0		399
1989	EL2		1989	04	04.61690	11	02	29.00	+10	01	31.2		399
1989	EL2		1989	04	06.51944	11	01	10.53	+10	02	29.3	16.5	399
1989	EL2		1989	04	06.53403	11	01	09.89	+10	02	28.9		399

1989	EL2		1989	04	06.54965	11	01	09.25	+10 02 29.7	399
1989	GE	*	1989	04	06.57361	13	24	57.57	+00 44 42.5	16 399
1989	GE		1989	04	06.58819	13	24	56.50	+00 44 44.3	399
1989	GE		1989	04	06.60451	13	24	55.47	+00 44 46.2	399
1989	GE		1989	04	09.60278	13	21	45.25	+00 50 36.4	16 399
1989	GE		1989	04	09.61736	13	21	44.19	+00 50 37.7	399
1989	GE		1989	04	09.64167	13	21	42.80	+00 50 40.5	399

400 Kitami
K. Watanabe, 13-23-202, 4 Chome, Atsubetsu cyuo 3 jo, Shiroishi-ku, Sapporo 004, Japan
Observers K. Endate, T. Fujii, A. Takahashi
Measurer K. Watanabe
0.16-m f/3.3 reflector, 0.20-m f/4.8 reflector and 0.20-m f/4.0 reflector
AGK3, SAOC

1978	VY14		1989	03	30.58403	13	32	04.73	-05 12 38.8	16.5 400
1978	VY14		1989	03	30.59931	13	32	04.21	-05 12 36.5	400
1978	VY14		1989	03	30.61181	13	32	03.29	-05 12 33.5	400
1978	VY14		1989	04	06.53750	13	26	16.70	-04 42 11.3	16.5 400
1978	VY14		1989	04	06.55417	13	26	15.90	-04 42 07.5	400
1978	VY14		1989	04	06.56667	13	26	15.12	-04 42 03.7	400
1986	JG		1989	04	06.49236	12	15	35.22	-03 34 19.2	15.0 400
1986	JG		1989	04	06.51667	12	15	33.76	-03 34 11.6	400
1986	JG		1989	04	06.58264	12	15	29.59	-03 33 44.9	400
1986	JG		1989	04	06.60000	12	15	28.65	-03 33 39.9	400
1986	JG		1989	04	12.58924	12	09	50.47	-02 58 33.9	16.0 400
1986	JG		1989	04	28.50069	11	58	46.24	-01 46 04.0	15.5 400
1986	JG		1989	04	28.52847	11	58	45.39	-01 45 58.2	400
1987	WQ		1987	11	22.50486	02	25	41.61	+22 54 36.1	16.0 400
1987	WQ		1987	11	22.53264	02	25	40.09	+22 54 41.5	400
1987	WQ		1987	11	22.56042	02	25	38.66	+22 54 47.9	400
1987	WR		1989	04	12.71910	14	58	49.59	-19 10 13.2	16.5 400
1987	WR		1989	04	12.73438	14	58	48.73	-19 10 14.4	400
1988	BU		1989	03	30.58403	13	34	59.59	-05 08 22.3	16.5 400
1988	BU		1989	03	30.61181	13	34	58.49	-05 08 14.5	400
1988	BU		1989	04	06.61875	13	30	02.25	-04 37 48.9	16.5 400
1988	BU		1989	04	06.63819	13	30	01.39	-04 37 43.2	400
1988	BU		1989	04	06.65174	13	30	00.95	-04 37 38.4	400
1988	BU		1989	04	12.65417	13	25	37.36	-04 11 53.5	16.5 400
1988	BU		1989	04	12.67222	13	25	36.54	-04 11 47.3	400
1988	XT2	*	1988	12	11.53924	05	15	23.36	+25 58 55.9	16.5 400
1988	XT2		1988	12	11.56146	05	15	21.73	+25 58 54.1	400
1988	XT2		1988	12	11.57674	05	15	20.60	+25 58 55.0	400
1989	EM2		1989	04	06.49236	12	15	53.91	-04 26 39.3	16.0 400
1989	EM2		1989	04	06.51667	12	15	52.30	-04 26 36.0	400
1989	EM2		1989	04	06.58264	12	15	48.25	-04 26 24.0	400
1989	EM2		1989	04	06.60000	12	15	47.17	-04 26 21.8	400
1989	EM2		1989	04	12.61771	12	10	10.09	-04 12 41.0	16.5 400
1989	EM2		1989	04	12.63194	12	10	09.37	-04 12 39.6	400
1989	EN2		1989	04	06.49236	12	17	22.90	-03 33 03.5	16.5 400
1989	EN2		1989	04	06.51667	12	17	21.49	-03 32 54.6	400
1989	EN2		1989	04	06.58264	12	17	16.91	-03 32 30.5	400
1989	EN2		1989	04	06.60000	12	17	15.86	-03 32 23.2	400
1989	EN2		1989	04	12.58924	12	11	27.46	-03 00 38.2	16.5 400
1989	EN2		1989	04	12.60174	12	11	26.18	-03 00 31.7	400
1989	EN2		1989	04	28.50069	12	00	02.46	-01 56 59.4	16.5 400
1989	EN2		1989	04	28.52847	12	00	01.50	-01 56 57.1	400
1989	FD	*	1989	03	26.50799	12	29	42.71	+00 31 27.3	16.0 400

1989	FD		1989	03	26.52882	12	29	41.70	+00	31	38.0		400
1989	FD		1989	03	26.54965	12	29	40.98	+00	31	54.2		400
1989	FD		1989	03	30.49410	12	27	12.68	+01	13	42.6	16.0	400
1989	FD		1989	03	30.51493	12	27	11.91	+01	13	56.6		400
1989	FD		1989	03	30.52604	12	27	11.34	+01	14	02.8		400
1989	FE	*	1989	03	27.50868	12	43	47.31	-00	12	06.6	16.0	400
1989	FE		1989	03	27.53003	12	43	45.73	-00	12	11.6		400
1989	FE		1989	03	27.54687	12	43	44.83	-00	12	08.7		400
1989	FE		1989	03	30.54271	12	40	39.78	-00	13	57.8	16.0	400
1989	FE		1989	03	30.56354	12	40	38.74	-00	13	59.9		400
1989	FE		1989	03	30.57465	12	40	37.71	-00	14	01.9		400
1989	FE		1989	04	06.54965	12	33	18.01	-00	20	45.8	16.0	400
1989	FE		1989	04	06.56701	12	33	16.92	-00	20	47.7		400
1989	FH	*	1989	03	30.58403	13	33	01.38	-04	33	19.0	16.5	400
1989	FH		1989	03	30.59931	13	33	00.75	-04	33	16.1		400
1989	FH		1989	03	30.61181	13	33	00.06	-04	33	09.9		400
1989	FH		1989	04	06.53750	13	26	52.01	-03	58	27.0	16.0	400
1989	FH		1989	04	06.55417	13	26	50.92	-03	58	23.1		400
1989	FH		1989	04	06.56667	13	26	50.13	-03	58	19.4		400
1989	FH		1989	04	12.68819	13	21	00.36	-03	28	15.0	16.5	400
1989	FH		1989	04	12.70104	13	20	59.88	-03	28	08.7		400
1989	FH		1989	04	28.55139	13	06	50.37	-02	27	40.0	16.0	400
1989	FH		1989	04	28.57153	13	06	49.45	-02	27	36.1		400
1989	FH		1989	04	28.58403	13	06	48.79	-02	27	36.1		400
1989	GB	*	1989	04	02.57604	13	38	20.45	-00	11	04.9	16.5	400
1989	GB		1989	04	02.61424	13	38	17.74	-00	11	05.3		400
1989	GB		1989	04	06.59097	13	34	00.27	-00	12	09.1	16.5	400
1989	GB		1989	04	06.60903	13	33	58.92	-00	12	06.7		400
1989	GB		1989	04	06.62326	13	33	58.01	-00	12	06.8		400
1989	GB		1989	04	12.68924	13	27	08.02	-00	16	16.9	16.5	400
1989	GB		1989	04	12.70660	13	27	06.84	-00	16	16.2		400
1989	GF		1989	04	02.57604	13	39	51.81	-00	28	33.4	16.5	400
1989	GF		1989	04	02.59687	13	39	50.63	-00	28	27.7		400
1989	GF		1989	04	02.61424	13	39	49.33	-00	28	21.6		400
1989	GF	*	1989	04	06.59097	13	36	11.37	-00	10	11.8	16.0	400
1989	GF		1989	04	06.60903	13	36	10.34	-00	10	06.2		400
1989	GF		1989	04	06.62326	13	36	09.39	-00	10	02.9		400
1989	GF		1989	04	12.68924	13	30	22.78	+00	15	27.2	16.5	400
1989	GF		1989	04	12.70660	13	30	21.87	+00	15	30.1		400
1989	GF		1989	04	12.72257	13	30	20.48	+00	15	29.6		400
1989	GF		1989	04	12.73993	13	30	19.41	+00	15	30.2		400
1989	GN		1989	04	06.51979	14	09	49.12	-01	13	05.6	16.0	400
1989	GN		1989	04	06.54062	14	09	48.17	-01	12	52.3		400
1989	GN		1989	04	06.56146	14	09	47.40	-01	12	38.9		400
1989	JJ	*	1989	05	05.57014	16	02	04.08	-08	04	22.9	16.5	400
1989	JJ		1989	05	05.61597	16	02	01.57	-08	04	10.3		400
1989	JJ		1989	05	08.56424	15	59	16.41	-07	53	31.7	16.5	400
1989	JJ		1989	05	08.58507	15	59	14.82	-07	53	31.3		400
1989	JJ		1989	05	08.60590	15	59	13.80	-07	53	27.2		400
274			1989	04	12.68819	13	23	09.24	-02	44	18.4	13.0	400
274			1989	04	12.70104	13	23	08.55	-02	44	14.9		400
311			1989	04	12.68819	13	17	17.52	-03	31	44.3	14.0	400
311			1989	04	12.70104	13	17	16.81	-03	31	41.1		400
311			1989	04	28.55139	13	05	15.74	-02	32	52.0	14.0	400
311			1989	04	28.57153	13	05	14.88	-02	32	47.7		400
311			1989	04	28.58403	13	05	14.35	-02	32	46.3		400
342			1989	04	12.71910	15	00	10.66	-19	46	03.4	14.0	400
342			1989	04	12.73438	15	00	10.04	-19	45	59.3		400
864			1989	04	12.62743	13	14	09.41	-02	04	35.9	16.0	400

864		1989 04 12.66493	13 14 07.22	-02 04 17.7					400
1035		1989 04 12.61771	12 09 07.41	-04 36 25.7			15.5		400
1035		1989 04 12.63194	12 09 06.72	-04 36 24.6					400
1095		1989 04 12.62743	13 17 32.25	-02 08 47.3			14.5		400
1095		1989 04 12.66493	13 17 30.57	-02 08 30.7					400
1171		1989 04 28.55139	13 04 20.15	-02 29 59.7			15.0		400
1171		1989 04 28.57153	13 04 19.36	-02 29 56.0					400
1171		1989 04 28.58403	13 04 18.87	-02 29 53.0					400
1269		1989 03 30.49410	12 27 11.55	+00 22 58.8			13.5		400
1269		1989 03 30.51493	12 27 10.72	+00 23 01.4					400
1269		1989 03 30.52604	12 27 10.40	+00 23 05.4					400
1545		1989 03 30.49410	12 25 05.63	+01 22 15.7			14.0		400
1545		1989 03 30.51493	12 25 04.61	+01 22 20.2					400
1545		1989 03 30.52604	12 25 04.03	+01 22 24.1					400
3840		1989 03 30.54271	12 43 48.62	-00 20 30.8			15.0		400
3840		1989 03 30.56354	12 43 47.32	-00 20 28.3					400
3840		1989 03 30.57465	12 43 46.46	-00 20 24.3					400

401 Oosato
Y. Yamagishi, 884-1, Tudashinden, Oosato, Saitama 360-01, Japan
Observers Y. Yamagishi, S. Hayakawa
Measurer S. Hayakawa
0.20-m f/4.8 reflector

1988 VT7	*	1988 11 10.58264	04 04 13.77	+21 12 47.3			16.0		401
1988 VT7		1988 11 10.60556	04 04 12.81	+21 12 44.3			16.0		401
1988 VT7		1988 11 11.66115	04 03 19.25	+21 09 03.3			16.0		401
1988 VT7		1988 11 11.68194	04 03 17.41	+21 08 59.7			16.0		401

402 Dynic Astronomical Observatory
A. Sugie, Dynic Astronomical Observatoty, Taga 270, Taga-Cho, Inukami-Gun, Shiga-Ken, 522-03, Japan
0.60-m f/5.0 reflector
SAOC

1989 EF		1989 04 06.62569	13 20 52.58	+03 40 24.0			15.0		402
1989 EF		1989 04 06.63264	13 20 52.30	+03 40 28.9			15.0		402
1989 EF		1989 04 08.74861	13 19 19.87	+04 04 14.9			15.5		402
1989 EF		1989 04 08.75556	13 19 19.45	+04 04 18.6			15.5		402
1989 EF		1989 04 09.58194	13 18 44.58	+04 13 27.6			15.5		402
1989 EF		1989 04 09.58889	13 18 44.29	+04 13 32.1			15.5		402
1989 EF1		1989 03 11.65764	11 46 57.42	+05 14 29.9			16.5		402
1989 EF1		1989 03 11.66458	11 46 56.82	+05 14 31.9			16.5		402
1989 EF1		1989 03 11.73194	11 46 52.59	+05 14 52.0			16.5		402
1989 FM	*	1989 03 30.49132	10 29 19.01	+19 07 41.9			17.5		402
1989 FM		1989 03 30.51632	10 29 18.14	+19 07 40.2			17.5		402
1989 FM		1989 04 01.60590	10 28 23.61	+19 06 12.7			17.5		402
1989 FM		1989 04 01.61632	10 28 23.09	+19 06 12.3			17.5		402
1989 GG	*	1989 04 06.64236	13 24 28.09	+01 45 18.9			17.5		402
1989 GG		1989 04 06.64931	13 24 27.65	+01 45 21.1			17.5		402
1989 GG		1989 04 08.79722	13 22 39.21	+01 50 47.4			17.5		402
1989 GG		1989 04 09.61597	13 21 58.22	+01 52 44.3			17.5		402
1989 GG		1989 04 09.62292	13 21 57.91	+01 52 46.3			17.5		402

413 Siding Spring
R. H. McNaught, Siding Spring Observatory, Coonabarabran, N.S.W. 2357, Australia
Observers M. Hartley, R. H. McNaught, K. S. Russell
Measurer R. H. McNaught
1.2-m Schmidt and (1) Uppsala Southern Schmidt

1938	DK1		1986	08	01.61675	22	29	37.26	-07	35	29.1	16.5	413
1938	DK1		1986	08	01.66536	22	29	35.74	-07	35	47.8		413
1976	QN		1988	04	20.49211	11	49	50.68	+01	06	13.5	17	413
1976	QN		1988	04	20.55808	11	49	47.99	+01	06	29.3		413
1981	EZ2		1982	08	21.46179	20	53	40.09	-03	23	55.4	17	413
1981	EZ2		1982	08	21.50346	20	53	38.16	-03	24	10.3	b	413
1981	EZ2		1989	03	07.55749	10	48	02.09	-05	20	06.0	17	413
1981	EZ2		1989	03	07.60957	10	47	59.46	-05	19	41.8		413
1981	EZ17		1982	08	21.46179	21	09	03.59	-03	00	24.8		413
1981	EZ17		1982	08	21.50346	21	09	01.77	-03	00	47.0		413
1982	QV3	*	1982	08	21.46179	21	07	18.84	-03	23	49.8	16	413
1982	QV3		1982	08	21.50346	21	07	16.65	-03	25	04.7	b	413
1982	QW3	*	1982	08	21.46179	21	08	41.10	-02	58	00.4	18	413
1982	QW3		1982	08	21.50346	21	08	39.28	-02	58	21.7	b	413
1982	UF4		1975	01	23.73095	11	46	55.90	+01	38	05.7		413
1985	PE		1985	09	08.48878	21	47	27.28	-12	28	01.8	16.5	413
1985	PE		1985	09	08.54087	21	47	25.46	-12	28	27.4		413
1986	JZ		1979	11	16.42025	23	56	19.88	-34	11	51.4		413
1986	JZ		1979	11	16.46192	23	56	19.96	-34	11	15.1		413
1986	OH	*	1986	07	27.66572	22	27	31.56	-07	18	16.2	17.5	413
1986	OH		1986	07	27.72822	22	27	30.22	-07	18	36.0		413
1986	OH		1986	08	01.61675	22	25	40.43	-07	48	38.8		413
1986	OH		1986	08	01.66536	22	25	39.26	-07	48	54.9		413
1986	OJ	*	1986	07	27.66572	22	27	41.82	-07	16	10.3	17.5	413
1986	OJ		1986	08	01.61675	22	25	10.67	-07	34	45.5		413
1986	OJ		1986	08	01.66536	22	25	09.20	-07	34	55.7		413
1986	OK	*	1986	07	27.66572	22	28	14.22	-08	45	09.2	16	413
1986	OK		1986	07	27.72822	22	28	13.88	-08	45	57.8		413
1986	OK		1986	08	01.61675	22	27	46.62	-09	56	35.8		413
1986	OK		1986	08	01.66536	22	27	45.94	-09	57	17.7		413
1986	OL	*	1986	07	27.66572	22	28	32.74	-07	05	40.0	17.5	p 413
1986	OL		1986	07	27.72822	22	28	30.87	-07	05	37.1	p	413
1986	OL		1986	08	01.61675	22	26	03.23	-07	05	16.0		413
1986	OL		1986	08	01.66536	22	26	01.56	-07	05	16.4		413
1986	OM	*	1986	07	27.66572	22	29	09.75	-07	47	25.7	18	F 413
1986	OM		1986	07	27.72822	22	29	07.44	-07	47	27.5	F	413
1986	OM		1986	08	01.61675	22	25	49.91	-07	51	58.5		413
1986	OM		1986	08	01.66536	22	25	47.94	-07	52	00.9		413
1986	ON	*	1986	07	27.66572	22	29	44.59	-10	56	40.9	17	p 413
1986	ON		1986	07	27.72822	22	29	43.07	-10	56	40.9		413
1986	ON		1986	08	01.61675	22	27	31.36	-10	58	29.7		413
1986	ON		1986	08	01.66536	22	27	29.84	-10	58	30.7		413
1986	OO	*	1986	07	27.66572	22	30	08.34	-08	35	18.6	17.5	413
1986	OO		1986	07	27.72822	22	30	06.25	-08	35	26.4		413
1986	OO		1986	08	01.61675	22	27	09.00	-08	47	51.8		413
1986	OO		1986	08	01.66536	22	27	07.17	-08	47	59.1		413
1986	OP	*	1986	07	27.66572	22	31	45.15	-09	06	02.4	17.5	413
1986	OP		1986	07	27.72822	22	31	43.25	-09	06	19.7		413
1986	OP		1986	08	01.61675	22	29	21.04	-09	31	17.7		413
1986	OP		1986	08	01.66536	22	29	19.54	-09	31	31.2		413
1986	OQ	*	1986	07	27.66572	22	32	21.82	-10	26	09.5	17.5	F 413
1986	OQ		1986	07	27.72822	22	32	20.08	-10	26	10.2	F	413
1986	OQ		1986	08	01.61675	22	29	49.48	-10	31	02.7		413
1986	OQ		1986	08	01.66536	22	29	47.90	-10	31	04.8		413
1986	OR	*	1986	07	27.66572	22	33	25.50	-12	15	49.9	18	F 413
1986	OR		1986	07	27.72822	22	33	23.96	-12	15	54.6	F	413
1986	OR		1986	08	01.61675	22	31	10.63	-12	24	52.8		413
1986	OR		1986	08	01.66536	22	31	09.17	-12	24	57.1		413
1986	OS	*	1986	07	27.66572	22	34	10.72	-09	24	15.0	17.5	413

1986	OS		1986	07	27.72822	22	34	08.69	-09	24	13.7		413
1986	OS		1986	08	01.61675	22	31	22.32	-09	24	36.5		413
1986	OS		1986	08	01.66536	22	31	20.60	-09	24	35.6		413
1986	OT	*	1986	07	27.66572	22	34	34.81	-10	37	10.4	17.5	413
1986	OT		1986	07	27.72822	22	34	32.84	-10	37	14.1		413
1986	OT		1986	08	01.61675	22	31	38.65	-10	45	13.8		413
1986	OT		1986	08	01.66536	22	31	36.88	-10	45	17.9		413
1986	OU	*	1986	07	27.66572	22	35	15.18	-11	01	02.4	17	413
1986	OU		1986	07	27.72822	22	35	12.98	-11	01	09.6		413
1986	OU		1986	08	01.61675	22	32	35.55	-11	12	11.9		413
1986	OU		1986	08	01.66536	22	32	33.87	-11	12	17.8		413
1986	OV	*	1986	07	27.66572	22	35	30.54	-07	47	36.1	17.5	413
1986	OV		1986	07	27.72822	22	35	28.01	-07	47	38.3		413
1986	OV		1986	08	01.61675	22	32	02.72	-07	55	10.3		413
1986	OV		1986	08	01.66536	22	32	00.70	-07	55	14.4		413
1986	PC5	*	1986	08	01.61675	22	26	00.38	-08	57	07.5	16.5	413
1986	PC5		1986	08	01.66536	22	25	59.85	-08	57	45.2		413
1986	QS1		1986	07	27.66572	22	27	01.10	-10	58	23.1	16.5	413
1986	QS1		1986	07	27.72822	22	26	59.79	-10	58	43.7		413
1986	QS1		1986	08	01.61675	22	25	06.97	-11	32	07.0		413
1986	QS1		1986	08	01.66536	22	25	05.57	-11	32	26.0		413
1986	QP2		1986	07	27.66572	22	28	28.71	-10	35	27.0	17.5	413
1986	QP2		1986	07	27.72822	22	28	27.25	-10	35	36.8	I	413
1986	QP2		1986	08	01.61675	22	26	19.39	-10	54	11.3		413
1986	QP2		1986	08	01.66536	22	26	17.90	-10	54	20.6		413
1986	QQ2		1986	07	27.66572	22	34	23.84	-10	58	30.6		413
1986	QQ2		1986	07	27.72822	22	34	22.11	-10	58	54.1		413
1986	QQ2		1986	08	01.61675	22	32	03.63	-11	34	06.8		413
1986	QQ2		1986	08	01.66536	22	32	02.15	-11	34	26.6		413
1986	QR2		1986	08	01.61675	22	24	28.44	-08	06	13.2	16.5	413
1986	QR2		1986	08	01.66536	22	24	27.91	-08	06	45.2		413
1986	VD		1985	09	06.43191	20	20	01.45	-08	27	18.2		413
1986	VD		1985	09	06.48747	20	20	00.43	-08	27	25.2		413
1986	VD		1989	04	14.78799	13	43	44.36	-22	19	06.3	1	413
1986	VD		1989	04	15.73189	13	43	00.24	-22	13	58.6	1	413
1986	VD		1989	04	28.48584	13	33	11.69	-20	55	33.3	1	413
1986	VD		1989	04	29.52106	13	32	26.37	-20	48	39.5	1	413
1988	EY1		1988	04	20.49211	11	57	12.62	-00	41	43.0	17.5	413
1988	EY1		1988	04	20.55808	11	57	09.82	-00	41	47.8		413
1988	EB2		1988	04	20.49211	11	56	56.77	+01	56	07.6	17.5	413
1988	EB2		1988	04	20.55808	11	56	54.67	+01	56	29.3		413
1988	HR	*	1988	04	20.49211	11	48	10.53	+01	05	22.4	17	413
1988	HR		1988	04	20.55808	11	48	08.76	+01	05	47.0		413
1988	HS	*	1988	04	20.49211	11	49	31.79	+00	16	51.0	17.5	413
1988	HS		1988	04	20.55808	11	49	31.18	+00	17	16.0		413
1988	HT	*	1988	04	20.49211	11	55	46.84	+00	56	42.6	18 I	413
1988	HT		1988	04	20.55808	11	55	45.28	+00	57	02.8		413
1988	VP4		1989	04	14.80348	18	03	26.92	-70	15	05.9	14 p	413
1988	VP4		1989	04	15.76258	17	52	13.32	-69	44	20.4		413
1988	VP4		1989	04	15.76605	17	52	10.67	-69	44	14.9		413
1988	VP4		1989	04	16.79086	17	40	50.57	-69	08	58.6		413
1988	VP4		1989	04	16.79225	17	40	49.67	-69	08	55.7		413
1989	AR3	*	1989	01	04.62750	08	44	19.59	+18	47	47.8	17.5	413
1989	AR3		1989	01	04.67958	08	44	17.24	+18	47	59.7		413
1989	AR3		1989	01	10.61840	08	39	25.62	+19	15	37.2		413
1989	AR3		1989	01	10.67396	08	39	22.80	+19	15	51.3		413
1989	AS3	*	1989	01	04.62750	08	44	25.70	+15	02	43.6	17.5	413
1989	AS3		1989	01	04.67958	08	44	23.31	+15	03	03.7		413
1989	AS3		1989	01	10.61840	08	39	43.85	+15	47	18.2		413

1989	AS3		1989	01	10.67396	08	39	40.73	+15	47	42.5		413
1989	AT3	*	1989	01	04.62750	08	44	35.98	+15	48	51.1	17.5	413
1989	AT3		1989	01	04.67958	08	44	33.81	+15	48	58.5		413
1989	AT3		1989	01	10.61840	08	40	08.35	+16	12	07.3		413
1989	AT3		1989	01	10.67396	08	40	05.95	+16	12	19.4		413
1989	AU3	*	1989	01	04.62750	08	46	20.63	+16	56	07.8	18	p 413
1989	AU3		1989	01	04.67958	08	46	18.16	+16	56	05.0		413
1989	AU3		1989	01	10.61840	08	41	21.18	+16	54	02.5		413
1989	AU3		1989	01	10.67396	08	41	18.19	+16	54	01.7		413
1989	AV3	*	1989	01	04.62750	08	46	22.97	+19	50	10.6	18	413
1989	AV3		1989	01	04.67958	08	46	21.13	+19	50	18.6		413
1989	AV3		1989	01	10.61840	08	42	13.65	+20	10	26.7	p	413
1989	AV3		1989	01	10.67396	08	42	11.31	+20	10	35.4	p	413
1989	AW3	*	1989	01	04.62750	08	46	36.83	+18	59	06.6	18	413
1989	AW3		1989	01	04.67958	08	46	34.71	+18	59	18.1		413
1989	AW3		1989	01	10.61840	08	42	37.50	+19	25	14.1		413
1989	AW3		1989	01	10.67396	08	42	35.08	+19	25	17.4		413
1989	AX3	*	1989	01	04.62750	08	47	06.46	+16	57	22.5	18	413
1989	AX3		1989	01	04.67958	08	47	04.07	+16	57	37.7		413
1989	AX3		1989	01	10.61840	08	42	45.95	+17	25	36.1		413
1989	AX3		1989	01	10.67396	08	42	43.22	+17	25	50.8		413
1989	AY3	*	1989	01	04.62750	08	47	23.48	+19	12	06.1	18.5	F 413
1989	AY3		1989	01	04.67958	08	47	21.96	+19	12	10.5		F 413
1989	AY3		1989	01	10.61840	08	43	37.17	+19	14	33.0		V 413
1989	AY3		1989	01	10.67396	08	43	34.88	+19	14	41.4		V 413
1989	AZ3	*	1989	01	04.62750	08	47	27.60	+19	15	20.9	18	413
1989	AZ3		1989	01	04.67958	08	47	25.47	+19	15	28.4		413
1989	AZ3		1989	01	10.61840	08	42	54.48	+19	32	14.5	p	413
1989	AZ3		1989	01	10.67396	08	42	52.07	+19	32	21.7	F	413
1989	AA4	*	1989	01	04.62750	08	47	31.65	+16	39	14.9	18	413
1989	AA4		1989	01	04.67958	08	47	29.70	+16	39	19.4		413
1989	AA4		1989	01	10.61840	08	43	08.38	+16	48	18.4		413
1989	AA4		1989	01	10.67396	08	43	05.78	+16	48	20.6		413
1989	AB4	*	1989	01	04.62750	08	47	45.76	+14	27	20.9	17.5	413
1989	AB4		1989	01	04.67958	08	47	43.54	+14	27	29.7		413
1989	AB4		1989	01	10.61840	08	43	33.54	+14	48	40.5	I	413
1989	AB4		1989	01	10.67396	08	43	31.08	+14	48	49.8		413
1989	AC4	*	1989	01	04.62750	08	47	55.28	+18	25	47.1	17.5	413
1989	AC4		1989	01	04.67958	08	47	53.14	+18	25	56.6		413
1989	AC4		1989	01	10.61840	08	43	37.56	+18	47	55.3		413
1989	AC4		1989	01	10.67396	08	43	35.07	+18	48	06.6		413
1989	AD4	*	1989	01	04.62750	08	48	19.19	+17	36	11.3	18	V 413
1989	AD4		1989	01	04.67958	08	48	15.42	+17	36	35.0	I	413
1989	AD4		1989	01	10.61840	08	43	47.16	+18	06	25.9		413
1989	AD4		1989	01	10.67396	08	43	44.68	+18	06	43.8		413
1989	AE4	*	1989	01	04.62750	08	48	25.67	+19	16	55.5	18.5	V 413
1989	AE4		1989	01	04.67958	08	48	23.13	+19	17	12.2	V	413
1989	AE4		1989	01	10.61840	08	44	23.73	+19	36	12.2		413
1989	AE4		1989	01	10.67396	08	44	21.97	+19	36	24.2	I	413
1989	AF4	*	1989	01	04.62750	08	48	40.97	+15	04	43.8	17.5	413
1989	AF4		1989	01	04.67958	08	48	38.89	+15	04	56.3		413
1989	AF4		1989	01	10.61840	08	44	20.11	+15	35	43.6		413
1989	AF4		1989	01	10.67396	08	44	17.38	+15	35	58.8		413
1989	AG4	*	1989	01	04.62750	08	49	06.76	+18	08	01.0	18	413
1989	AG4		1989	01	04.67958	08	49	04.50	+18	08	15.5		413
1989	AG4		1989	01	10.61840	08	44	06.49	+18	43	19.1		413
1989	AG4		1989	01	10.67396	08	44	03.38	+18	43	38.9		413
1989	AH4	*	1989	01	04.62750	08	49	47.67	+17	20	41.0	18	413
1989	AH4		1989	01	04.67958	08	49	45.48	+17	20	51.2		413

1989	AH4		1989	01	10.61840	08	45	27.96	+17	43	23.9		413
1989	AH4		1989	01	10.67396	08	45	25.45	+17	43	35.8		413
1989	AJ4	*	1989	01	04.62750	08	50	05.03	+20	27	02.2	17.5	413
1989	AJ4		1989	01	04.67958	08	50	02.73	+20	27	11.7		413
1989	AJ4		1989	01	10.61840	08	45	29.16	+20	46	03.8		413
1989	AJ4		1989	01	10.67396	08	45	26.54	+20	46	13.8		413
1989	AK4	*	1989	01	04.62750	08	50	33.64	+18	01	59.6	18	413
1989	AK4		1989	01	04.67958	08	50	31.39	+18	01	53.8		413
1989	AK4		1989	01	10.61840	08	45	36.64	+17	53	37.0		413
1989	AK4		1989	01	10.67396	08	45	33.85	+17	53	31.9		413
1989	AL4	*	1989	01	04.62750	08	50	45.29	+16	12	09.0	18 F	413
1989	AL4		1989	01	04.67958	08	50	43.21	+16	12	16.3	F	413
1989	AL4		1989	01	10.61840	08	46	43.19	+16	27	35.4		413
1989	AL4		1989	01	10.67396	08	46	40.94	+16	27	43.0		413
1989	AM4	*	1989	01	04.62750	08	50	48.75	+15	24	38.2	18 p	413
1989	AM4		1989	01	10.61840	08	46	27.29	+15	41	45.4		413
1989	AM4		1989	01	10.67396	08	46	24.69	+15	41	53.3		413
1989	AN4	*	1989	01	04.62750	08	51	04.51	+16	30	50.6	18	413
1989	AN4		1989	01	04.67958	08	51	02.27	+16	31	02.3		413
1989	AN4		1989	01	10.61840	08	48	19.27	+16	33	58.0		413
1989	AN4		1989	01	10.67396	08	48	17.63	+16	33	59.7		413
1989	AO4	*	1989	01	04.62750	08	51	37.83	+19	15	26.5	17.5	413
1989	AO4		1989	01	04.67958	08	51	35.93	+19	15	35.5		413
1989	AO4		1989	01	10.61840	08	47	29.07	+19	35	34.1		413
1989	AO4		1989	01	10.67396	08	47	26.79	+19	35	42.6		413
1989	AP4	*	1989	01	04.62750	08	53	02.32	+18	55	23.1	18.5	413
1989	AP4		1989	01	04.67958	08	52	59.84	+18	55	28.4		413
1989	AP4		1989	01	10.61840	08	47	24.76	+19	23	16.9		413
1989	AP4		1989	01	10.67396	08	47	22.22	+19	23	34.7		413
1989	AQ4	*	1989	01	04.62750	08	53	13.95	+19	12	25.6	17.5	413
1989	AQ4		1989	01	04.67958	08	53	11.38	+19	12	29.3		413
1989	AQ4		1989	01	10.61840	08	47	44.40	+19	21	15.6		413
1989	AQ4		1989	01	10.67396	08	47	41.00	+19	21	19.4		413
1989	AR4	*	1989	01	04.62750	08	53	37.86	+18	19	05.3	18.5 F	413
1989	AR4		1989	01	04.67958	08	53	35.89	+18	19	12.3	F	413
1989	AR4		1989	01	10.61840	08	49	21.96	+18	34	57.2	I	413
1989	AR4		1989	01	10.67396	08	49	19.54	+18	35	04.5		413
1989	AS4	*	1989	01	04.62750	08	54	07.94	+17	23	20.6	18	413
1989	AS4		1989	01	04.67958	08	54	05.62	+17	23	37.8		413
1989	AS4		1989	01	10.61840	08	49	22.75	+17	53	12.4		413
1989	AS4		1989	01	10.67396	08	49	19.21	+17	53	23.1		413
1989	AT4	*	1989	01	04.62750	08	54	36.59	+15	13	16.2	18 V	413
1989	AT4		1989	01	04.67958	08	54	34.68	+15	13	20.8	V	413
1989	AT4		1989	01	10.61840	08	50	50.26	+15	27	41.2		413
1989	AT4		1989	01	10.67396	08	50	48.10	+15	27	47.6		413
1989	AU4	*	1989	01	04.62750	08	54	44.01	+14	52	44.5	18 V	413
1989	AU4		1989	01	04.67958	08	54	41.56	+14	52	59.4	V	413
1989	AU4		1989	01	10.61840	08	49	38.54	+15	28	19.6		413
1989	AU4		1989	01	10.67396	08	49	35.52	+15	28	38.3		413
1989	AV4	*	1989	01	04.62750	08	55	11.59	+17	45	38.6	18.5	413
1989	AV4		1989	01	04.67958	08	55	09.25	+17	45	43.0	I	413
1989	AV4		1989	01	10.61840	08	50	40.88	+18	11	32.7		413
1989	AV4		1989	01	10.67396	08	50	37.77	+18	11	55.1		413
1989	AW4	*	1989	01	04.62750	08	55	17.90	+17	34	36.6	18.5 F	413
1989	AW4		1989	01	04.67958	08	55	15.00	+17	34	45.3	F	413
1989	AW4		1989	01	10.61840	08	50	56.93	+17	54	13.6	F	413
1989	AW4		1989	01	10.67396	08	50	53.69	+17	54	23.9	F	413
1989	AX4	*	1989	01	04.62750	08	55	19.31	+17	34	45.8	17.5	413
1989	AX4		1989	01	04.67958	08	55	17.37	+17	34	59.0		413

1989	AX4		1989	01	10.61840	08	51	10.72	+18	03	08.6		413
1989	AX4		1989	01	10.67396	08	51	08.23	+18	03	23.6		413
1989	AY4	*	1989	01	04.62750	08	55	22.98	+18	12	18.7	18.5	413
1989	AY4		1989	01	04.67958	08	55	20.74	+18	12	19.7		413
1989	AY4		1989	01	10.61840	08	50	51.79	+18	13	35.3		413
1989	AY4		1989	01	10.67396	08	50	49.86	+18	13	35.2		413
1989	AZ4	*	1989	01	04.62750	08	55	35.22	+17	31	47.3	18	I 413
1989	AZ4		1989	01	04.67958	08	55	32.74	+17	32	06.1		413
1989	AZ4		1989	01	10.61840	08	50	28.12	+17	55	50.5		413
1989	AZ4		1989	01	10.67396	08	50	25.14	+17	55	56.7		413
1989	AA5	*	1989	01	04.62750	08	55	41.72	+19	26	30.3	17.5	413
1989	AA5		1989	01	04.67958	08	55	39.52	+19	26	49.9		413
1989	AA5		1989	01	10.61840	08	50	59.34	+20	08	34.3		413
1989	AA5		1989	01	10.67396	08	50	56.59	+20	08	57.1		413
1989	AB5	*	1989	01	04.62750	08	56	07.60	+15	42	46.2	17.5	413
1989	AB5		1989	01	04.67958	08	56	05.19	+15	42	46.2		413
1989	AB5		1989	01	10.61840	08	51	32.92	+15	45	21.8		413
1989	AB5		1989	01	10.67396	08	51	30.45	+15	45	22.2		413
1989	AC5	*	1989	01	04.62750	08	56	14.50	+14	36	57.9	18	413
1989	AC5		1989	01	04.67958	08	56	12.50	+14	37	14.1		413
1989	AC5		1989	01	10.61840	08	52	42.93	+15	09	03.9		413
1989	AC5		1989	01	10.67396	08	52	40.71	+15	09	20.9		413
1989	AD5	*	1989	01	04.62750	08	56	17.54	+17	46	11.0	18.5	413
1989	AD5		1989	01	04.67958	08	56	16.28	+17	46	11.6		413
1989	AD5		1989	01	10.61840	08	53	22.11	+17	52	15.6		413
1989	AD5		1989	01	10.67396	08	53	20.73	+17	52	20.3		413
1989	AE5	*	1989	01	04.62750	08	56	30.74	+14	40	17.0	18	413
1989	AE5		1989	01	04.67958	08	56	28.67	+14	40	34.5		413
1989	AE5		1989	01	10.61840	08	52	15.53	+15	19	58.0		413
1989	AE5		1989	01	10.67396	08	52	12.95	+15	20	17.0		413
1989	AF5	*	1989	01	04.62750	08	56	40.20	+17	08	21.8	18	413
1989	AF5		1989	01	04.67958	08	56	38.17	+17	08	21.5		413
1989	AF5		1989	01	10.61840	08	52	16.43	+17	09	56.2		413
1989	AF5		1989	01	10.67396	08	52	13.82	+17	09	56.8		413
1989	AG5	*	1989	01	04.62750	08	57	35.64	+18	50	24.1	18.5	p 413
1989	AG5		1989	01	04.67958	08	57	34.01	+18	50	38.7		p 413
1989	AG5		1989	01	10.61840	08	53	39.30	+19	25	56.7		413
1989	AG5		1989	01	10.67396	08	53	36.87	+19	26	18.5		413
1989	AH5	*	1989	01	04.62750	08	57	37.87	+16	32	47.4	18	I 413
1989	AH5		1989	01	04.67958	08	57	35.29	+16	32	54.8		413
1989	AH5		1989	01	10.61840	08	52	39.87	+16	48	24.7		413
1989	AH5		1989	01	10.67396	08	52	36.97	+16	48	33.7		413
1989	AJ5	*	1989	01	04.62750	08	58	15.55	+15	50	53.4	18	413
1989	AJ5		1989	01	04.67958	08	58	13.77	+15	51	10.6		413
1989	AJ5		1989	01	10.61840	08	54	21.66	+16	31	04.1		413
1989	AJ5		1989	01	10.67396	08	54	19.05	+16	31	25.6		413
1989	AK5	*	1989	01	04.62750	08	58	57.21	+18	57	48.7	17.5	413
1989	AK5		1989	01	04.67958	08	58	55.33	+18	58	02.8		413
1989	AK5		1989	01	10.61840	08	55	05.40	+19	27	20.2		413
1989	AK5		1989	01	10.67396	08	55	02.98	+19	27	36.7		413
1989	AL5	*	1989	01	04.62750	08	59	13.05	+19	00	51.1	18	413
1989	AL5		1989	01	04.67958	08	59	11.11	+19	00	59.4		413
1989	AL5		1989	01	10.61840	08	55	20.97	+19	18	02.7		413
1989	AL5		1989	01	10.67396	08	55	18.70	+19	18	13.6		p 413
1989	AM5	*	1989	01	04.62750	09	00	16.42	+16	42	10.7	18	F 413
1989	AM5		1989	01	04.67958	09	00	14.41	+16	42	13.5		F 413
1989	AM5		1989	01	10.61840	08	56	27.77	+16	48	55.2		413
1989	AM5		1989	01	10.67396	08	56	25.42	+16	48	58.8		413
1989	AN5	*	1989	01	04.62750	09	00	22.09	+15	39	33.1	18	F 413

1989	AN5		1989	01	04.67958	09	00	20.24	+15	39	48.2		F 413
1989	AN5		1989	01	10.61840	08	56	37.87	+16	12	54.9		413
1989	AN5		1989	01	10.67396	08	56	35.64	+16	13	11.6		413
1989	AO5	*	1989	01	04.62750	09	00	23.91	+16	16	26.9	18.5	F 413
1989	AO5		1989	01	04.67958	09	00	22.05	+16	16	42.0		F 413
1989	AO5		1989	01	10.61840	08	56	49.95	+16	49	25.4		413
1989	AO5		1989	01	10.67396	08	56	47.75	+16	49	41.9		413
1989	AP5	*	1989	01	04.62750	09	00	37.90	+16	14	45.7	18	413
1989	AP5		1989	01	04.67958	09	00	35.87	+16	15	08.0		413
1989	AP5		1989	01	10.61840	08	56	27.70	+17	00	34.4		413
1989	AP5		1989	01	10.67396	08	56	24.71	+17	01	07.8		413
1989	AQ5	*	1989	01	04.62750	09	00	53.45	+15	03	01.7	18	F 413
1989	AQ5		1989	01	04.67958	09	00	50.94	+15	03	06.7		F 413
1989	AQ5		1989	01	10.61840	08	55	39.88	+15	14	48.4		413
1989	AQ5		1989	01	10.67396	08	55	36.92	+15	14	53.5		413
1989	AR5	*	1989	01	04.62750	09	01	55.00	+16	36	48.8	18.5	413
1989	AR5		1989	01	04.67958	09	01	52.73	+16	37	03.5		413
1989	AR5		1989	01	10.61840	08	57	43.72	+17	04	38.0		413
1989	AR5		1989	01	10.67396	08	57	41.18	+17	04	52.5		413
1989	AS5	*	1989	01	04.62750	09	02	27.30	+17	29	50.0	18	413
1989	AS5		1989	01	04.67958	09	02	24.95	+17	29	52.2		413
1989	AS5		1989	01	10.61840	08	57	30.82	+17	35	56.8		413
1989	AS5		1989	01	10.67396	08	57	28.12	+17	36	00.5		413
1989	AT5	*	1989	01	04.62750	09	02	52.34	+15	58	57.4	18	F 413
1989	AT5		1989	01	04.67958	09	02	50.04	+15	58	58.8		F 413
1989	AT5		1989	01	10.61840	08	57	58.09	+16	01	15.5		413
1989	AT5		1989	01	10.67396	08	57	55.01	+16	01	18.1		413
1989	AU5	*	1989	01	04.62750	09	03	28.25	+19	46	04.2	17.5	413
1989	AU5		1989	01	04.67958	09	03	26.29	+19	46	17.6		413
1989	AU5		1989	01	10.61840	08	59	19.88	+20	10	50.3		413
1989	AU5		1989	01	10.67396	08	59	17.39	+20	11	04.3		413
1989	AV5	*	1989	01	04.62750	09	03	42.29	+19	40	00.6	18.5	413
1989	AV5		1989	01	04.67958	09	03	40.51	+19	40	13.5		413
1989	AV5		1989	01	10.61840	08	59	29.19	+20	11	06.2		413
1989	AV5		1989	01	10.67396	08	59	25.87	+20	11	30.2		413
1989	AW5	*	1989	01	04.62750	09	04	20.54	+19	04	01.0	17.5	413
1989	AW5		1989	01	04.67958	09	04	18.65	+19	04	16.0		413
1989	AW5		1989	01	10.61840	09	00	18.72	+19	32	29.8		413
1989	AW5		1989	01	10.67396	09	00	16.37	+19	32	45.1		413
1989	AX5	*	1989	01	04.62750	09	05	31.13	+20	26	59.3	17.5	413
1989	AX5		1989	01	04.67958	09	05	28.84	+20	27	10.0		413
1989	AX5		1989	01	10.61840	09	00	07.46	+20	48	49.7		413
1989	AX5		1989	01	10.67396	09	00	04.24	+20	49	03.4		413
1989	AY5	*	1989	01	04.62750	09	05	58.79	+20	01	31.0	18	413
1989	AY5		1989	01	04.67958	09	05	56.85	+20	01	42.2		413
1989	AY5		1989	01	10.61840	09	01	44.06	+20	25	00.7		413
1989	AY5		1989	01	10.67396	09	01	41.78	+20	25	14.9		413
1989	AZ5	*	1989	01	04.62750	09	06	19.36	+18	10	17.3	18	413
1989	AZ5		1989	01	04.67958	09	06	17.87	+18	10	32.8		413
1989	AZ5		1989	01	10.61840	09	02	53.14	+18	44	36.5		413
1989	AZ5		1989	01	10.67396	09	02	50.93	+18	44	56.6		413
1989	BY		1979	08	15.37433	16	32	10.08	-20	54	37.0		413
1989	BY		1979	08	15.41947	16	32	10.96	-20	54	43.2		413
1989	BA1		1989	01	09.44072	03	31	15.52	+11	01	31.0	17.5	413
1989	BA1		1989	01	09.51016	03	31	15.71	+11	00	42.2		413
1989	DA		1989	03	09.56319	10	36	54.29	+11	17	56.9	14	1 413
1989	DA		1989	03	09.56528	10	36	54.90	+11	17	39.8		1 413
1989	DA		1989	03	09.56738	10	36	55.63	+11	17	21.0		1 413
1989	EG		1989	04	29.44865	10	23	52.02	+04	20	01.7		1 413

1989	EP2		1989	03	07.55749	10	32	57.06	-03	09	44.2	17.5	413
1989	EP2		1989	03	07.60957	10	32	54.39	-03	09	32.7		413
1989	FC		1989	04	27.45987	12	06	09.52	+12	53	37.1		413
1989	FC		1989	04	28.48483	12	06	39.97	+12	44	06.6		413
1989	GM5	*	1989	04	14.78799	13	39	49.25	-22	18	59.6	16.5	1 413
1989	GM5		1989	04	15.73189	13	39	11.48	-22	24	02.1		1 413
1989	GN5	*	1989	04	14.78799	13	44	14.92	-22	17	03.4	16.5	1 413
1989	GN5		1989	04	15.73189	13	43	12.96	-22	14	48.1		1 413
1989	GN5		1989	04	28.48584	13	29	35.46	-21	30	57.7		1 413
1989	GN5		1989	04	29.52106	13	28	33.48	-21	26	34.0		1 413
4068	P-L		1986	07	27.66572	22	30	42.46	-11	19	59.7	18	F 413
4068	P-L		1986	07	27.72822	22	30	40.86	-11	20	02.7		F 413
4068	P-L		1986	08	01.61675	22	27	41.85	-11	30	32.3		413
4068	P-L		1986	08	01.66536	22	27	39.87	-11	30	38.4		413
19			1988	04	20.49211	12	05	41.55	-01	27	53.1		413
19			1988	04	20.55808	12	05	38.91	-01	27	33.9		413
102			1988	04	20.49211	11	59	14.85	-02	43	56.8		413
102			1988	04	20.55808	11	59	12.44	-02	43	36.5		413
114			1985	09	08.48878	21	59	38.46	-10	54	26.3		413
114			1985	09	08.54087	21	59	36.13	-10	54	42.3		413
289			1988	04	20.49211	11	54	33.79	+01	29	16.8		413
289			1988	04	20.55808	11	54	31.72	+01	29	34.8		413
495			1988	09	08.56625	23	34	07.09	-01	32	10.4		413
495			1988	09	08.61916	23	34	04.51	-01	32	29.4		413
560			1979	08	15.37433	16	36	23.78	-19	04	03.0		413
560			1979	08	15.41947	16	36	24.48	-19	04	12.6		413
574			1986	08	01.61675	22	23	05.23	-12	58	36.6		413
574			1986	08	01.66536	22	23	03.00	-12	58	39.7		413
880			1979	08	15.37433	16	36	49.41	-19	25	09.3		413
880			1979	08	15.41947	16	36	50.28	-19	25	02.5		413
1046			1988	04	20.49211	11	54	15.72	+01	07	31.5		413
1046			1988	04	20.55808	11	54	13.45	+01	07	36.2		413
1156			1979	08	15.37433	16	39	47.26	-22	19	17.0		413
1226			1988	04	20.49211	12	09	53.70	-00	03	17.1	r	413
1226			1988	04	20.55808	12	09	50.75	-00	03	20.6	r	413
1235			1988	04	20.49211	11	57	26.11	-00	52	07.5	16	413
1235			1988	04	20.55808	11	57	21.13	-00	52	33.3		413
1305			1986	07	27.66572	22	33	01.73	-12	38	25.2		413
1305			1986	07	27.72822	22	32	59.68	-12	38	37.4		413
1305			1986	08	01.61675	22	30	22.12	-12	57	22.4		413
1305			1986	08	01.66536	22	30	20.43	-12	57	32.7		413
1345			1989	05	03.65186	16	35	26.13	-07	56	55.7		413
1345			1989	05	03.69353	16	35	24.80	-07	56	49.7		413
1673			1979	08	15.37433	16	26	15.26	-18	19	54.8		413
1673			1979	08	15.41947	16	26	15.79	-18	19	57.9		413
1721			1989	03	07.55749	10	48	39.80	-04	47	23.0		413
1721			1989	03	07.60957	10	48	37.16	-04	47	19.3		413
1809			1979	08	15.37433	16	26	38.38	-20	59	32.0		413
1809			1979	08	15.41947	16	26	39.69	-20	59	38.1		413
1919			1989	03	29.64633	12	46	24.32	-17	26	59.3	E	413
2010			1988	04	20.49211	11	48	25.56	+01	27	03.9		413
2010			1988	04	20.55808	11	48	23.56	+01	27	14.7		413
2093			1985	09	08.48878	21	57	54.70	-12	44	05.6		413
2093			1985	09	08.54087	21	57	52.48	-12	44	29.7		413
2533			1986	07	27.66572	22	34	19.09	-07	03	04.9		413
2533			1986	07	27.72822	22	34	17.49	-07	03	12.3		413
2533			1986	08	01.61675	22	32	00.14	-07	16	06.1		413
2533			1986	08	01.66536	22	31	58.70	-07	16	12.9		413
2587			1989	01	10.61840	09	00	10.13	+19	21	37.0		413

2587		1989	01	10.67396	09	00	07.94	+19	21	49.9	413
2629		1989	04	28.47027	12	55	05.25	-71	08	54.7	1 413
2629		1989	04	29.48472	12	49	59.21	-71	28	13.2	1 413
2629		1989	04	29.49722	12	49	55.16	-71	28	26.3	1 413
3124		1985	09	08.48878	21	55	41.68	-11	28	28.4	17 413
3124		1985	09	08.54087	21	55	39.60	-11	28	48.0	413
3175		1988	04	20.49211	11	49	00.94	+00	50	55.1	413
3175		1988	04	20.55808	11	48	58.60	+00	51	10.6	413
3198		1989	05	03.65186	16	32	16.17	-07	33	25.4	413
3198		1989	05	03.69353	16	32	13.54	-07	33	32.1	413
3218		1979	08	15.37433	16	22	34.15	-18	22	17.2	413
3218		1979	08	15.41947	16	22	35.02	-18	22	23.9	413
3218		1984	08	21.64424	23	48	06.05	+00	14	35.5	413
3218		1984	08	21.68591	23	48	04.84	+00	14	27.1	413
3218		1988	09	08.56625	23	34	25.11	-01	34	33.0	413
3255		1989	04	29.44539	10	48	49.40	-07	36	44.4	413
3410		1974	07	22.60062	20	45	12.21	-22	50	40.2	413
3410		1974	07	22.63188	20	45	10.22	-22	50	45.6	413
3410		1974	07	23.61729	20	44	06.43	-22	53	22.8	413
3410		1974	07	23.64854	20	44	04.38	-22	53	27.6	413
3410		1974	08	11.51139	20	23	31.01	-23	29	34.6	413
3410		1974	08	11.53917	20	23	29.33	-23	29	36.7	413
3410		1977	07	13.44231	16	26	56.23	-28	54	33.6	413
3410		1977	07	13.49440	16	26	55.01	-28	54	22.4	413
3410		1988	09	08.56625	23	43	24.64	+00	06	32.3	413
3487		1989	03	07.55749	10	51	22.13	-02	34	50.9	413
3487		1989	03	07.60957	10	51	19.55	-02	34	26.2	413
3845		1988	04	20.49211	11	51	47.70	+00	29	54.8	413
3845		1988	04	20.55808	11	51	45.98	+00	30	10.7	413
3864		1988	04	20.49211	12	03	44.56	+00	48	22.1	413
3864		1988	04	20.55808	12	03	41.99	+00	48	33.9	413
3881		1988	04	20.49211	12	06	46.49	+01	53	25.3	413
3881		1988	04	20.55808	12	06	43.94	+01	53	34.8	413
3884		1988	04	20.49211	11	58	21.43	+00	10	11.8	413
3884		1988	04	20.55808	11	58	19.51	+00	10	22.5	413

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

1976	YD2	1989	04	05.52761	13	53	13.83	-25	09	07.6	17.6 474
1976	YD2	1989	04	05.54060	13	53	13.21	-25	09	05.7	474
1976	YD2	1989	04	06.57568	13	52	26.65	-25	06	23.1	17.8 474
1976	YD2	1989	04	06.59547	13	52	25.53	-25	06	19.5	474
1981	JS1	1988	07	14.45688	14	48	48.90	-23	49	17.5	18.4 474
1981	JS1	1988	07	14.47916	14	48	49.84	-23	49	15.5	474
1981	QC	1988	08	12.61337	23	11	30.31	-54	36	45.6	17.8 474
1981	QC	1988	08	12.62691	23	11	29.50	-54	36	55.8	474
1983	AJ	1989	04	03.65634	14	19	01.88	-44	02	35.4	17.5 474
1983	AJ	1989	04	03.67810	14	19	00.35	-44	02	40.5	474
1983	AJ	1989	04	06.62672	14	15	46.99	-44	11	46.8	17.9 474
1983	AJ	1989	04	06.64848	14	15	45.50	-44	11	50.0	474
1983	AF2	1989	04	03.70287	14	46	00.22	-52	24	08.4	17.8 474
1983	AF2	1989	04	03.72451	14	45	58.78	-52	24	20.1	474
1983	AF2	1989	04	06.67985	14	42	45.33	-52	48	03.6	17.7 474
1983	AF2	1989	04	06.69817	14	42	43.91	-52	48	11.3	474
1983	PB	1989	04	01.49662	12	53	22.39	+04	14	41.5	19.1 474

1983	PB		1989	04	01.53910	12	53	19.68	+04	14	55.5		474
1983	PB		1989	04	03.52856	12	51	13.63	+04	26	18.7	19.0	474
1983	PB		1989	04	03.57463	12	51	10.50	+04	26	34.5		474
1983	PB		1989	04	04.53950	12	50	09.03	+04	31	56.5	19.1	474
1983	PB		1989	04	04.58377	12	50	06.28	+04	32	10.5		474
1986	GU		1988	09	16.60527	02	04	21.09	-34	02	35.0	18.5	474
1986	GU		1988	09	16.62712	02	04	20.22	-34	02	44.7		474
1986	JA1		1989	02	14.47569	09	39	18.82	-26	23	33.4	17.6	474
1986	JA1		1989	02	14.49340	09	39	17.76	-26	23	31.0		474
1986	VD		1989	04	05.48985	13	50	46.88	-23	02	50.8	17.7	474
1986	VD		1989	04	05.50866	13	50	46.12	-23	02	45.6		474
1986	VD		1989	04	06.46457	13	50	04.53	-22	58	53.1	16.9	474
1986	VD		1989	04	06.48622	13	50	03.52	-22	58	47.8		474
1986	YA		1989	04	03.40333	12	11	35.25	-24	23	46.1	17.1	474
1986	YA		1989	04	03.42139	12	11	34.40	-24	23	40.0		474
1986	YA		1989	04	04.46676	12	10	47.79	-24	17	30.0	17	474
1986	YA		1989	04	04.48505	12	10	47.03	-24	17	23.8		474
1987	MO		1989	02	08.51354	10	21	13.95	-22	30	45.4	17.0	474
1987	MO		1989	02	08.53958	10	21	12.01	-22	30	57.2		474
1987	MO		1989	02	12.61366	10	16	07.07	-22	57	10.3	17.3	474
1987	MO		1989	02	12.63368	10	16	05.27	-22	57	17.5		474
1988	BE		1989	02	13.63762	15	10	37.98	-33	23	18.0	18.7	474
1988	BE		1989	02	13.66296	15	10	39.07	-33	23	29.9		474
1988	BE		1989	04	05.60565	15	13	39.27	-37	53	46.0	17.9	474
1988	BE		1989	04	05.62365	15	13	38.60	-37	53	49.0		474
1988	BL2		1989	04	03.52856	12	49	57.19	+04	10	46.4	17.5	474
1988	BL2		1989	04	03.57463	12	49	54.38	+04	10	48.3		474
1988	CE		1989	04	05.56919	14	27	20.89	-25	54	06.5	17.9	474
1988	CE		1989	04	05.58360	14	27	20.24	-25	54	07.5		474
1988	CE		1989	04	06.53240	14	26	37.83	-25	54	56.8	17.7	474
1988	CE		1989	04	06.55045	14	26	36.95	-25	54	57.8		474
1988	GB		1988	07	14.35653	13	13	09.93	-47	43	11.4	19.0	474
1988	GB		1988	07	14.40520	13	13	19.14	-47	43	55.9		474
1988	VP4		1989	03	31.50769	21	43	37.72	-70	43	58.2	16.8	474
1988	VP4		1989	03	31.52049	21	43	27.62	-70	44	21.3		474
1988	VP4		1989	04	01.33829	21	30	37.80	-71	10	26.3	16.4	474
1988	VP4		1989	04	01.34766	21	30	29.20	-71	10	42.5		474
1988	VP4		1989	04	04.39384	20	40	44.60	-72	15	06.2	16.0	474
1988	VP4		1989	04	04.40391	20	40	34.63	-72	15	14.5		474
1989	AC		1989	02	08.40880	06	34	12.06	+23	11	44.4	17.1	474
1989	AC		1989	02	08.41806	06	34	13.37	+23	11	43.2		474
1989	AC		1989	02	13.45069	06	45	09.82	+23	05	23.2		474
1989	AC		1989	02	13.47321	06	45	12.74	+23	05	16.1		474
1989	FL		1989	04	05.56919	14	26	55.97	-26	02	50.9	17.3	474
1989	FL		1989	04	05.58360	14	26	55.30	-26	02	53.7		474
1989	FL		1989	04	06.53240	14	26	15.03	-26	05	47.8	17.1	474
1989	FL		1989	04	06.55045	14	26	14.18	-26	05	50.8		474
1989	FL		1989	04	12.56221	14	21	29.06	-26	20	00.6	17.4	474
1989	GO5	*	1989	04	01.49662	12	52	36.98	+04	06	24.7	18.8	474
1989	GO5		1989	04	01.53910	12	52	34.63	+04	06	41.3		474
1989	GO5		1989	04	03.52856	12	50	42.65	+04	18	58.0	18.9	474
1989	GO5		1989	04	03.57463	12	50	39.88	+04	19	14.3		474
1989	GO5		1989	04	04.53950	12	49	45.66	+04	25	04.5	19.0	474
1989	GO5		1989	04	04.58377	12	49	43.27	+04	25	20.3		474
1989	GP5	*	1989	04	01.49662	12	53	49.57	+04	15	50.1	18.7	474
1989	GP5		1989	04	01.53910	12	53	47.65	+04	16	10.9		474
1989	GP5		1989	04	03.52856	12	52	19.16	+04	32	13.9	18.3	474
1989	GP5		1989	04	03.57463	12	52	16.96	+04	32	34.4		474
1989	GP5		1989	04	04.53950	12	51	34.06	+04	40	10.2	18	474

```
1989 GP5   1989 04 04.58377  12 51 32.24  +04 40 30.9                  474
1989 GQ5 * 1989 04 03.52856  12 51 14.88  +04 20 11.7          18.8    474
1989 GQ5   1989 04 03.57463  12 51 11.97  +04 20 12.5                  474
1989 GQ5   1989 04 04.53950  12 50 21.97  +04 30 41.7          19.2    474
1989 GQ5   1989 04 04.58377  12 50 19.69  +04 31 02.7                  474
1989 GR5 * 1989 04 05.48985  13 49 51.08  -23 08 29.4          18.3    474
1989 GR5   1989 04 05.50866  13 49 50.09  -23 08 27.6                  474
1989 GR5   1989 04 06.46457  13 48 55.26  -23 07 07.2          18.5    474
1989 GR5   1989 04 06.48622  13 48 54.05  -23 07 04.6                  474
3524 P-L   1988 08 12.45006  17 44 41.02  -40 40 26.5          18.5    474
3524 P-L   1988 08 12.47344  17 44 41.04  -40 40 13.5                  474
1685       1989 02 08.57483  13 10 22.15  -25 22 49.5          16.4    474
1685       1989 02 08.58854  13 10 21.78  -25 22 58.0                  474
1685       1989 02 13.52708  13 07 23.01  -26 02 56.1                  474
1685       1989 02 13.54039  13 07 22.31  -26 03 02.7              F   474
3554       1989 04 06.72163  16 56 55.28  -65 50 46.8          16.7    474
3554       1989 04 06.72997  16 56 57.13  -65 51 26.4                  474
```

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
0.45-m f/5 reflector and (1) 0.25-m f/2.5 Schmidt

```
1989 AC    1989 01 09.92361  04 28 23.77  +20 35 53.5                  552
4063       1989 04 06.82292  08 47 29.32  +27 24 23.7          17.0    552
4063       1989 04 06.89514  08 47 29.60  +27 24 22.5                  552
```

568 Mauna Kea Observatory
D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive,
Honolulu, HI 96822, U.S.A.
Observers D. J. Tholen, D. P. Cruikshank, W. K. Hartmann, C. Kaminski
IRTF telescope encoders
SAOC

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1989 DA    1989 04 04.40069  11 38 45.91  -11 36 55.4          17.1V   568
1989 FB    1989 04 17.31068  12 15 30.11  +00 32 23.5                  568
```

587 Sormano
P. Sicoli, Via Valli 9, I-22040 Garnagnate Monastero (Como), Italy
Observers P. Sicoli, E. Colzani, A. Testa, M. Cavagna, G. Ventre,
C. Gualdoni
0.5-m f/8 reflector
SAOC

```
1989 AC    1989 01 31.85069  06 15 08.50  +23 14 08.9                  587
1989 AC    1989 01 31.86806  06 15 11.29  +23 14 10.1                  587
 194       1989 03 09.89903  12 12 33.24  +07 42 32.9                  587
 356       1989 01 31.92083  07 21 34.53  +34 08 46.2                  587
 356       1989 01 31.92500  07 21 34.32  +34 08 45.4                  587
 356       1989 03 09.85833  07 17 05.88  +30 30 31.8                  587
```

588 Eremo di Tizzano
F. Muzzi, Osservatorio G. Horn d'Arturo, Eremo di Tizzano, Casalecchio
di Reno, Bologna, Italy
Observers F. Muzzi, Mengoli
Long. and Parallax 11.25, -305, -297 (see MPC 11200)
0.35-m reflector

```
1989 AC    1989 01 08.97639  04 19 58.33  +20 11 40.2                  588
1989 AC    1989 01 09.96389  04 28 44.41  +20 36 52.9                  588
```

657 Victoria, Climenhaga Observatory
J. B. Tatum, Dept. of Physics, University of Victoria, P.O. Box 1700, Victoria, BC V8W 2Y2, Canada
Observers J. B. Tatum, D. D. Balam

49	1989 04 24.23819	06 11 53.89	+23 08 29.5			657
163	1989 04 28.32160	15 07 20.10	-10 15 20.2			657
163	1989 04 28.37229	15 07 17.20	-10 15 03.9			657
433	1988 11 26.28056	23 47 13.03	+31 04 12.5			657
651	1989 04 11.36847	14 40 39.40	-15 07 29.2			657
1376	1988 09 08.27611	23 27 34.62	-04 13 16.2			657
1376	1988 09 08.35389	23 27 30.99	-04 13 57.0			657
1376	1988 09 13.27090	23 23 49.92	-04 57 27.8			657
1376	1988 09 13.34590	23 23 46.30	-04 58 07.9			657
1438	1988 08 11.32646	23 04 33.53	-02 27 35.5			657
1438	1988 08 11.37437	23 04 32.19	-02 27 40.7			657
1731	1988 09 08.27611	23 27 04.13	-06 15 33.6			657
1731	1988 09 08.35389	23 27 00.87	-06 16 04.2			657
1938	1988 08 11.32646	23 13 43.66	-03 14 03.4			657
1938	1988 08 11.37437	23 13 41.62	-03 14 17.3			657
1938	1988 08 21.33889	23 06 07.53	-04 17 26.5			657
1938	1988 08 21.39653	23 06 04.54	-04 17 52.0			657
2110	1988 09 08.27611	23 27 12.83	-04 49 12.8			657
2110	1988 09 08.35389	23 27 08.98	-04 49 41.9			657
2110	1988 09 13.27090	23 23 03.07	-05 21 13.0			657
2110	1988 09 13.34590	23 22 59.00	-05 21 41.5			657
2545	1988 09 08.24833	23 59 03.84	+06 20 25.3			657
2545	1988 09 08.32333	23 58 59.55	+06 20 20.7			657
2545	1988 09 13.30771	23 54 10.32	+06 11 54.9			657
2545	1988 09 13.37715	23 54 05.97	+06 11 45.7			657
2599	1988 09 08.27611	23 30 26.81	-06 00 43.4			657
2599	1988 09 08.35389	23 30 21.17	-06 00 27.8			657
2599	1988 09 13.27090	23 24 32.19	-05 43 19.7			657
2599	1988 09 13.34590	23 24 26.76	-05 43 04.5			657
2834	1988 09 13.30771	00 00 07.11	+05 35 09.9			657
2834	1988 09 13.37715	00 00 03.56	+05 34 42.2			657
3107	1988 08 11.32646	23 14 09.07	-01 37 38.6			657
3107	1988 08 11.37437	23 14 07.93	-01 37 37.6			657

675 Palomar
E. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A. (2)
C. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A. (3)
C. J. van Houten, Sterrewacht Leiden, Postbus 9513, NL-2300 RA Leiden, The Netherlands (4)
Observers T. Gehrels (4, L), E. Helin (2, S), H. E. Holt (3, S), D. Mendenhall (2, L), J. Mueller (2, L), B. Roman (2, S), D. Tracy (2, S)
Measurers R. Bambery (2), E. Majkowski (2), B. Roman (2, 3), D. Tracy (2), C. J. van Houten (4), I. van Houten-Groeneveld (4)
1.2-m (L) and 0.46-m (S) Schmidt telescopes

1982 SU	1989 04 05.46753	15 24 01.32	+04 02 40.5	16.2	2	675
1982 SU	1989 04 05.50260	15 24 00.72	+04 03 37.2		2	675
1982 SU	1989 04 07.40000	15 23 30.20	+04 55 49.9	15.5	2	675
1982 SU	1989 04 07.42309	15 23 29.64	+04 56 28.0		2	675
1982 SU	1989 04 29.35729	15 09 06.72	+14 16 32.9	15.0	2	675
1982 SU	1989 04 29.38151	15 09 05.23	+14 17 06.5		2	675
1983 CK1	1989 04 06.21528	12 39 40.42	-00 19 42.6	17.0	2	675
1983 CK1	1989 04 06.24566	12 39 39.03	-00 19 35.4		2	675
1983 CK1	1989 04 08.23958	12 38 11.46	-00 10 26.1		2	675
1983 CK1	1989 04 08.26493	12 38 10.14	-00 10 19.6		2	675

1985	XB	1989	04	05.46181	15	10	59.90	+34	12	43.9	16.5 2 675
1985	XB	1989	04	05.49653	15	10	56.52	+34	12	34.2	2 675
1985	XB	1989	04	07.39444	15	07	54.09	+34	03	36.6	2 675
1985	XB	1989	04	07.41771	15	07	51.59	+34	03	29.4	2 675
1989	CC1	1989	04	05.21476	10	25	57.74	+20	43	08.6	17.3 2 675
1989	CC1	1989	04	07.16406	10	25	37.26	+20	57	01.7	2 675
1989	CC1	1989	04	07.18924	10	25	36.83	+20	57	11.8	2 675
1989	CH1	1989	04	29.17274	11	02	29.93	+25	03	26.9	16.5 2 675
1989	CH1	1989	04	29.20191	11	02	30.03	+25	03	18.5	2 675
1989	CH1	1989	05	01.16528	11	02	49.04	+24	55	27.1	2 675
1989	CH1	1989	05	01.23542	11	02	49.71	+24	55	09.4	2 675
1989	CJ1	1989	04	05.22865	10	48	07.78	+34	04	42.1	17.0 2 675
1989	CJ1	1989	04	05.25313	10	48	07.63	+34	04	53.2	2 675
1989	CE2	1989	04	05.16753	09	02	56.45	+03	00	10.4	17.2 2 675
1989	CE2	1989	04	05.19983	09	02	56.37	+03	00	01.5	2 675
1989	CE2	1989	04	07.15174	09	03	04.91	+02	50	52.4	2 675
1989	CE2	1989	04	07.17656	09	03	04.93	+02	50	44.6	2 675
1989	EB	1989	04	05.24097	11	29	04.62	+25	17	02.3	15.8 2 675
1989	EB	1989	04	05.26545	11	29	03.01	+25	16	54.7	2 675
1989	EB	1989	04	07.22483	11	27	01.43	+25	06	28.5	2 675
1989	EB	1989	04	07.25469	11	26	59.52	+25	06	17.9	2 675
1989	EC	1989	04	05.21962	10	32	19.89	-06	40	22.1	16.0 2 675
1989	EC	1989	04	05.24444	10	32	18.20	-06	40	30.2	2 675
1989	EC	1989	04	07.16806	10	30	25.93	-06	49	42.4	2 675
1989	EC	1989	04	07.19306	10	30	24.66	-06	49	50.3	2 675
1989	EC	1989	04	29.15833	10	21	30.34	-08	29	50.0	16.0 2 675
1989	EC	1989	04	29.18872	10	21	30.52	-08	29	58.1	2 675
1989	EC	1989	05	01.15885	10	21	44.19	-08	39	22.4	2 675
1989	EC	1989	05	01.18594	10	21	44.33	-08	39	29.5	2 675
1989	ED	1989	04	05.24097	11	20	33.41	+26	04	23.3	16.5 2 675
1989	ED	1989	04	05.26545	11	20	32.15	+26	04	19.7	2 675
1989	ED	1989	04	07.22483	11	18	59.78	+25	57	58.6	2 675
1989	ED	1989	04	07.25469	11	18	58.25	+25	57	52.8	2 675
1989	EE	1989	04	05.23472	10	57	18.15	+15	37	22.9	17.0 2 675
1989	EE	1989	04	05.25903	10	57	17.71	+15	37	37.9	2 675
1989	EE	1989	04	07.21719	10	56	50.52	+16	00	18.9	2 675
1989	EE	1989	04	07.24740	10	56	50.07	+16	00	41.4	2 675
1989	EF	1989	04	05.33837	13	21	48.08	+03	25	36.3	16.0 2 675
1989	EF	1989	04	05.36302	13	21	46.88	+03	25	53.7	2 675
1989	EF	1989	04	06.31493	13	21	06.19	+03	36	47.7	2 675
1989	EF	1989	04	06.34080	13	21	05.01	+03	37	05.4	2 675
1989	EK	1989	04	06.19653	11	26	11.67	-00	36	44.9	16.7 2 675
1989	EK	1989	04	06.23003	11	26	10.40	-00	36	30.1	2 675
1989	EK	1989	04	08.17760	11	24	56.72	-00	22	12.0	2 675
1989	EK	1989	04	08.21181	11	24	55.54	-00	22	00.1	2 675
1989	EL	1989	04	05.27257	11	30	17.13	-05	56	02.8	16.7 2 675
1989	EL	1989	04	05.30139	11	30	15.98	-05	55	49.4	2 675
1989	EL	1989	04	07.23316	11	29	06.92	-05	40	59.8	2 675
1989	EL	1989	04	07.26215	11	29	05.79	-05	40	46.5	2 675
1989	EM	1989	04	06.19653	11	36	40.88	-00	02	47.9	16.7 2 675
1989	EM	1989	04	06.23003	11	36	39.43	-00	02	39.2	2 675
1989	EM	1989	04	08.18281	11	35	13.37	+00	06	56.9	2 675
1989	EM	1989	04	08.21181	11	35	12.11	+00	07	03.1	2 675
1989	ES	1989	04	06.16285	11	26	01.52	+06	09	47.9	16.5 2 675
1989	ES	1989	04	06.18976	11	26	00.70	+06	09	59.6	2 675
1989	ES	1989	04	08.17483	11	25	04.74	+06	25	10.1	2 675
1989	ES	1989	04	08.20451	11	25	03.97	+06	25	23.0	2 675
1989	EL1	1989	04	06.22222	12	18	14.25	+06	14	21.2	15.0 2 675
1989	EL1	1989	04	06.25382	12	18	13.12	+06	14	45.7	2 675

1989	EL1		1989	04	08.23333	12	17	03.48	+06	38	56.3		2 675
1989	EL1		1989	04	08.25851	12	17	02.59	+06	39	13.5		2 675
1989	FB		1989	04	08.23924	12	54	11.27	+02	59	22.1	16.5	2 675
1989	FB		1989	04	08.26493	12	54	04.44	+02	59	00.2		2 675
1989	FC		1989	04	08.21892	12	03	56.44	+15	29	55.2	16.8	2 675
1989	FC		1989	04	08.24601	12	03	54.80	+15	29	44.0		2 675
1989	FC		1989	04	29.28912	12	07	04.65	+12	35	56.2	20.5	2 675
1989	GH	*	1989	04	05.44375	14	18	27.61	+06	13	29.1	16.5	2 675
1989	GH		1989	04	05.47882	14	18	26.23	+06	13	47.9		2 675
1989	GH		1989	04	07.34063	14	17	18.57	+06	30	40.5		2 675
1989	GH		1989	04	07.36944	14	17	17.36	+06	30	56.0		2 675
1989	GH		1989	04	30.28021	14	00	21.80	+09	06	13.8	16.5	2 675
1989	GH		1989	04	30.30295	14	00	20.69	+09	06	18.0		2 675
1989	GH		1989	05	02.32205	13	58	50.62	+09	13	35.9		2 675
1989	GH		1989	05	02.34896	13	58	49.41	+09	13	41.7		2 675
1989	GJ	*	1989	04	05.44375	14	20	17.15	+07	39	18.7	16.7	2 675
1989	GJ		1989	04	05.47882	14	20	15.78	+07	39	40.7		2 675
1989	GJ		1989	04	07.34063	14	19	06.33	+07	57	41.3		2 675
1989	GJ		1989	04	07.36944	14	19	05.17	+07	57	58.3		2 675
1989	GK	*	1989	04	05.44375	14	34	13.42	+07	03	48.3	15.5	2 675
1989	GK		1989	04	05.47882	14	34	11.76	+07	03	57.9		2 675
1989	GK		1989	04	07.34063	14	32	46.64	+07	12	55.1		2 675
1989	GK		1989	04	07.36944	14	32	45.18	+07	13	03.2		2 675
1989	GK		1989	04	30.28021	14	12	07.29	+08	19	43.4	15.5	2 675
1989	GK		1989	04	30.30295	14	12	05.89	+08	19	44.4		2 675
1989	GK		1989	05	02.32205	14	10	13.36	+08	20	43.3		2 675
1989	GK		1989	05	02.34896	14	10	11.86	+08	20	45.3		2 675
1989	GL		1989	03	05.46181	12	58	37.40	+11	18	08.0	17.0	2 675
1989	GL		1989	03	05.49010	12	58	35.36	+11	17	55.1		2 675
1989	GL		1989	03	06.44427	12	57	31.92	+11	11	10.0		2 675
1989	GL	*	1989	04	06.22222	12	11	52.20	+05	58	34.2	16.2	2 675
1989	GL		1989	04	06.25382	12	11	49.23	+05	58	08.3		2 675
1989	GL		1989	04	08.23333	12	08	55.85	+05	32	05.6		2 675
1989	GL		1989	04	08.25851	12	08	53.70	+05	31	45.8		2 675
1989	GM	*	1989	04	06.36580	14	14	09.45	+18	19	58.8	17.0	2 675
1989	GM		1989	04	06.38906	14	14	08.34	+18	20	10.1		2 675
1989	GM		1989	04	08.27813	14	12	47.01	+18	35	02.7		2 675
1989	GM		1989	04	08.30816	14	12	45.61	+18	35	22.1		2 675
1989	GM		1989	04	30.27413	13	54	32.41	+20	08	19.7	17.0	2 675
1989	GM		1989	04	30.29705	13	54	31.20	+20	08	19.9		2 675
1989	GM		1989	05	02.21163	13	52	57.13	+20	08	19.7		2 675
1989	GM		1989	05	02.23368	13	52	56.05	+20	08	18.2		2 675
1989	GN	*	1989	04	07.34705	14	09	13.39	-01	04	26.7	16.0	2 675
1989	GN		1989	04	07.37552	14	09	12.08	-01	04	09.9		2 675
1989	GN		1989	04	08.28733	14	08	32.15	-00	54	42.6		2 675
1989	GN		1989	04	08.31424	14	08	30.93	-00	54	24.2		2 675
1989	GN		1989	04	30.26163	13	50	47.18	+02	23	16.5	16.0	2 675
1989	GN		1989	04	30.28611	13	50	45.89	+02	23	28.0		2 675
1989	GN		1989	05	02.20625	13	49	17.80	+02	36	16.6		2 675
1989	GN		1989	05	02.22830	13	49	16.78	+02	36	25.3		2 675
1989	GO	*	1989	04	07.35365	14	15	55.83	-09	46	14.7	16.0	2 675
1989	GO		1989	04	07.38177	14	15	54.29	-09	46	09.6		2 675
1989	GO		1989	04	08.29410	14	15	10.70	-09	43	18.8		2 675
1989	GO		1989	04	08.32118	14	15	09.30	-09	43	14.3		2 675
1989	GP	*	1989	04	07.35365	14	23	04.59	-08	57	24.2	16.7	2 675
1989	GP		1989	04	07.38177	14	23	03.45	-08	57	16.0		2 675
1989	GP		1989	04	08.29410	14	22	27.99	-08	52	17.1		2 675
1989	GP		1989	04	08.32118	14	22	26.82	-08	52	08.4		2 675
1989	GQ	*	1989	04	07.35365	14	23	50.53	-10	01	12.7	17.0	2 675

1989	GQ		1989	04	07.38177	14	23	49.46	-10	01	02.9	2 675
1989	GQ		1989	04	08.29410	14	23	14.46	-09	55	56.2	2 675
1989	GQ		1989	04	08.32118	14	23	13.25	-09	55	46.8	2 675
1989	GR	*	1989	04	06.14878	11	06	22.71	+25	42	17.3	16.5 2 675
1989	GR		1989	04	06.17708	11	06	21.53	+25	42	15.6	2 675
1989	GR		1989	04	08.16753	11	05	27.34	+25	43	41.3	2 675
1989	GR		1989	04	08.19757	11	05	26.65	+25	43	44.6	2 675
1989	GS	*	1989	04	07.43490	16	11	44.86	+01	20	47.3	17.2 2 675
1989	GS		1989	04	07.46406	16	11	44.45	+01	20	58.8	2 675
1989	GS		1989	04	08.40885	16	11	30.89	+01	27	31.5	2 675
1989	GS		1989	04	08.43472	16	11	30.51	+01	27	42.7	2 675
1989	GS		1989	04	29.40694	16	01	01.66	+03	41	05.6	16.7 2 675
1989	GS		1989	04	29.43247	16	01	00.65	+03	41	13.1	2 675
1989	GS		1989	05	03.40885	15	58	01.19	+04	01	25.6	2 675
1989	GS		1989	05	03.45069	15	57	59.25	+04	01	37.5	2 675
1989	GT	*	1989	04	07.43490	16	18	08.90	+02	57	09.2	17.0 2 675
1989	GT		1989	04	07.46406	16	18	08.44	+02	57	22.7	2 675
1989	GT		1989	04	08.40885	16	17	53.68	+03	05	10.7	2 675
1989	GT		1989	04	08.43472	16	17	53.32	+03	05	23.5	2 675
1989	GT		1989	04	29.40694	16	07	02.90	+05	44	58.6	16.5 2 675
1989	GT		1989	04	29.43247	16	07	01.83	+05	45	07.1	2 675
1989	GT		1989	05	03.40885	16	03	59.87	+06	09	38.8	2 675
1989	GT		1989	05	03.45069	16	03	57.90	+06	09	53.7	2 675
1989	GQ3	*	1989	04	05.33837	13	17	18.91	+03	36	15.9	16.5 2 675
1989	GQ3		1989	04	05.36302	13	17	17.50	+03	36	43.0	2 675
1989	GQ3		1989	04	06.31493	13	16	29.18	+03	53	59.8	2 675
1989	GQ3		1989	04	06.34080	13	16	27.70	+03	54	27.5	2 675
1989	GG5	*	1989	04	06.20486	12	19	25.46	-03	42	07.5	16.8 2 675
1989	GG5		1989	04	06.23819	12	19	24.05	-03	41	57.5	2 675
1989	GG5		1989	04	08.22708	12	18	04.69	-03	37	09.5	2 675
1989	GG5		1989	04	08.25226	12	18	03.67	-03	37	08.1	2 675
1989	GH5	*	1989	04	06.21528	12	38	41.89	-00	05	40.3	16.0 2 675
1989	GH5		1989	04	06.24566	12	38	40.02	-00	05	32.2	2 675
1989	GH5		1989	04	08.23958	12	36	40.09	+00	00	39.0	2 675
1989	GJ5	*	1989	04	06.21528	12	39	08.26	-00	14	24.1	16.7 2 675
1989	GJ5		1989	04	06.24566	12	39	06.61	-00	14	10.6	2 675
1989	GJ5		1989	04	08.23958	12	37	16.54	+00	00	41.2	2 675
1989	GJ5		1989	04	08.26493	12	37	15.09	+00	00	52.2	2 675
1989	GK5	*	1989	04	05.33837	13	20	46.17	+03	23	26.7	17.0 2 675
1989	GK5		1989	04	05.36302	13	20	44.53	+03	23	34.4	2 675
1989	GK5		1989	04	06.31493	13	19	47.40	+03	28	39.5	2 675
1989	GK5		1989	04	06.34080	13	19	45.78	+03	28	47.8	2 675
1989	GL5	*	1989	04	05.33837	13	21	01.03	+03	29	01.7	16.7 2 675
1989	GL5		1989	04	05.36302	13	20	59.83	+03	29	08.5	2 675
1989	GL5		1989	04	06.31493	13	20	18.07	+03	33	25.9	2 675
1989	GL5		1989	04	06.34080	13	20	16.93	+03	33	32.4	2 675
1989	HC	*	1989	04	30.33281	14	25	29.19	+12	00	26.0	17.2 2 675
1989	HC		1989	04	30.36493	14	25	27.38	+12	00	25.7	2 675
1989	HC		1989	05	04.28073	14	22	10.80	+11	57	10.4	2 675
1989	HC		1989	05	04.30486	14	22	09.54	+11	57	07.5	2 675
1989	HD	*	1989	04	29.40694	16	01	12.22	+03	47	25.2	16.7 2 675
1989	HD		1989	04	29.43247	16	01	11.24	+03	47	37.0	2 675
1989	HD		1989	05	03.40885	15	58	39.53	+04	14	34.0	2 675
1989	HD		1989	05	03.45069	15	58	37.78	+04	14	50.5	2 675
1989	JA		1989	04	06.37153	14	46	43.42	+18	07	51.9	17.5 2 675
1989	JA		1989	04	06.39462	14	46	42.80	+18	08	08.4	2 675
1989	JA		1989	04	08.32917	14	45	51.03	+18	30	53.8	17.2 2 675
1989	JA		1989	04	08.35816	14	45	49.94	+18	31	13.7	2 675
1989	JA	*	1989	05	01.29983	14	11	50.75	+21	31	11.7	16.0 2 675

1989	JA		1989	05	01.32587	14	11	45.80	+21	31	11.8		2 675
1989	JA		1989	05	03.26389	14	06	08.40	+21	28	43.8		2 675
1989	JA		1989	05	03.28594	14	06	04.11	+21	28	42.2		2 675
1989	JA		1989	05	04.22899	14	03	06.97	+21	25	36.5		2 675
1989	JA		1989	05	04.25087	14	03	02.39	+21	25	30.5		2 675
1989	JA		1989	05	08.25608	13	48	40.35	+20	55	28.8	15.7	3 675
1989	JA		1989	05	08.28507	13	48	33.00	+20	55	08.1		3 675
1989	JB	*	1989	05	03.40208	15	53	37.50	+16	02	41.7	17.2	2 675
1989	JB		1989	05	03.43090	15	53	35.24	+16	02	20.3		2 675
1989	JB		1989	05	04.36372	15	52	24.58	+15	51	01.9		2 675
1989	JB		1989	05	04.38507	15	52	22.87	+15	50	46.9		2 675
1989	JC	*	1989	05	02.15347	12	52	47.41	-21	45	33.3	16.2	2 675
1989	JC		1989	05	02.30000	12	52	42.39	-21	42	09.4		2 675
1989	JC		1989	05	04.17431	12	51	50.16	-20	58	59.0		2 675
1989	JC		1989	05	04.19931	12	51	49.49	-20	58	24.9		2 675
1989	JE	*	1989	05	02.36858	15	02	14.09	-21	38	05.1	16.7	2 675
1989	JE		1989	05	02.38993	15	02	12.59	-21	38	07.9		2 675
1989	JE		1989	05	04.32274	15	00	02.00	-21	43	45.7		2 675
1989	JE		1989	05	04.34601	15	00	00.34	-21	43	48.9		2 675
1989	JF	*	1989	05	02.36858	15	07	44.67	-24	28	24.6	16.0	2 675
1989	JF		1989	05	02.38993	15	07	43.26	-24	28	23.6		2 675
1989	JF		1989	05	04.32274	15	05	40.88	-24	27	50.2		2 675
1989	JF		1989	05	04.34601	15	05	39.32	-24	27	49.8		2 675
1989	JG	*	1989	05	02.41858	16	04	37.11	-08	03	01.2	16.5	2 675
1989	JG		1989	05	02.44427	16	04	35.86	-08	02	58.3		2 675
1989	JG		1989	05	04.37448	16	02	58.80	-07	59	38.3		2 675
1989	JG		1989	05	04.39566	16	02	57.59	-07	59	35.9		2 675
1989	JH	*	1989	05	02.41858	16	17	39.42	-09	32	50.7	16.5	2 675
1989	JH		1989	05	02.44427	16	17	38.34	-09	32	54.8		2 675
1989	JH		1989	05	04.37448	16	16	19.96	-09	37	29.2		2 675
1989	JH		1989	05	04.39566	16	16	19.05	-09	37	33.2		2 675
2550	P-L	*	1960	09	24.46184	00	43	12.40	+01	17	06.8	18.2	4 675
2550	P-L		1960	09	26.37988	00	41	18.06	+01	06	35.6		4 675
2550	P-L		1960	09	28.43822	00	39	14.01	+00	55	22.4		4 675
2550	P-L		1960	10	17.31529	00	21	34.50	-00	32	25.3		4 675
2550	P-L		1960	10	22.26809	00	17	57.08	-00	47	27.3		4 675
2550	P-L		1960	10	25.30351	00	16	02.58	-00	54	28.6		4 675
2550	P-L		1960	10	26.35766	00	15	26.29	-00	56	30.7		4 675
2566	P-L	*	1960	09	24.46184	00	42	40.87	+04	48	25.8	18.4	4 675
2566	P-L		1960	09	26.37988	00	41	06.78	+04	35	59.6		4 675
2566	P-L		1960	09	28.43822	00	39	22.85	+04	22	18.6		4 675
2566	P-L		1960	09	29.39514	00	38	34.02	+04	15	51.6		4 675
2566	P-L		1960	10	17.31529	00	23	26.26	+02	14	53.2		4 675
2566	P-L		1960	10	22.26809	00	19	54.38	+01	45	43.4		4 675
2566	P-L		1960	10	25.30351	00	18	00.43	+01	29	41.9		4 675
2566	P-L		1960	10	26.35766	00	17	23.99	+01	24	30.9		4 675
2572	P-L	*	1960	09	24.46184	00	49	03.27	+05	08	56.2	18.7	4 675
2572	P-L		1960	09	26.37988	00	47	12.35	+05	00	03.6		4 675
2572	P-L		1960	09	28.43822	00	45	10.24	+04	50	14.3		4 675
2572	P-L		1960	09	29.39514	00	44	12.78	+04	45	35.7		4 675
2572	P-L		1960	10	17.31529	00	26	19.07	+03	17	43.7		4 675
2572	P-L		1960	10	22.26809	00	21	58.85	+02	56	38.8		4 675
2572	P-L		1960	10	25.30351	00	19	34.53	+02	45	09.7		4 675
2572	P-L		1960	10	26.35766	00	18	47.42	+02	41	28.3		4 675
2604	P-L	*	1960	09	24.46184	00	40	00.62	+04	13	57.0	18.9	4 675
2604	P-L		1960	09	26.37988	00	38	07.72	+04	04	20.2		4 675
2604	P-L		1960	09	28.43822	00	36	05.23	+03	53	52.8		4 675
2604	P-L		1960	10	17.31529	00	18	17.44	+02	21	45.7		4 675
2604	P-L		1960	10	22.22293	00	14	26.06	+02	02	00.7		4 675

2604	P-L		1960	10	22.26809	00	14	23.79	+02	01	51.0		4 675
2604	P-L		1960	10	24.35836	00	12	54.27	+01	54	20.2		4 675
2604	P-L		1960	10	25.30351	00	12	15.83	+01	51	08.3		4 675
2604	P-L		1960	10	26.32573	00	11	35.47	+01	47	46.7		4 675
2604	P-L		1960	10	26.35766	00	11	34.20	+01	47	40.4		4 675
2777	P-L	*	1960	09	24.46184	01	01	05.83	+03	51	51.9	18.6	4 675
2777	P-L		1960	09	26.37988	00	59	25.60	+03	38	50.8		4 675
2777	P-L		1960	09	28.43822	00	57	35.49	+03	24	44.0		4 675
2777	P-L		1960	09	29.39514	00	56	43.87	+03	18	09.0		4 675
2777	P-L		1960	10	25.30351	00	34	35.86	+00	38	10.7		4 675
2777	P-L		1960	10	26.35766	00	33	52.78	+00	33	20.2		4 675
3005	P-L	*	1960	09	24.36250	00	02	34.14	+15	21	04.3	19.2	4 675
3005	P-L		1960	09	24.47431	00	02	28.72	+15	20	34.2		4 675
3005	P-L		1960	09	25.36042	00	01	47.05	+15	16	33.8		4 675
3005	P-L		1960	09	26.29514	00	01	03.06	+15	12	13.5		4 675
3005	P-L		1960	09	26.40208	00	00	58.00	+15	11	43.1		4 675
3005	P-L		1960	09	27.44444	00	00	08.92	+15	06	42.0		4 675
3005	P-L		1960	09	28.40764	23	59	24.09	+15	02	01.0		4 675
3005	P-L		1960	09	29.34722	23	58	40.37	+14	57	18.5		4 675
3074	P-L	*	1960	09	25.22986	00	23	13.20	+12	07	22.9	18.0	4 675
3074	P-L		1960	09	27.27569	00	21	43.64	+11	54	14.3		4 675
3074	P-L		1960	09	28.34722	00	20	56.51	+11	47	13.2		4 675
3074	P-L		1960	09	29.47153	00	20	07.00	+11	39	43.3		4 675
3109	P-L	*	1960	09	24.36250	00	07	27.96	+18	31	25.6	19.1	4 675
3109	P-L		1960	09	25.36042	00	06	37.98	+18	27	43.2		4 675
3109	P-L		1960	09	25.46250	00	06	32.72	+18	27	18.9		4 675
3109	P-L		1960	09	26.40208	00	05	45.92	+18	23	41.6		4 675
3109	P-L		1960	09	28.40764	00	04	05.91	+18	15	24.0		4 675
3557	P-L	*	1960	10	22.12083	00	28	12.54	+11	18	04.0	18.2	4 675
3557	P-L		1960	10	24.30972	00	26	22.16	+11	05	39.4		4 675
3557	P-L		1960	10	26.37951	00	24	44.31	+10	54	05.0		4 675
4116	P-L	*	1960	09	24.37573	00	16	45.76	+03	58	42.0	16.5	4 675
4116	P-L		1960	09	24.41183	00	16	44.02	+03	58	27.6		4 675
4116	P-L		1960	09	25.42780	00	15	56.76	+03	52	04.9		4 675
4116	P-L		1960	09	26.30558	00	15	16.53	+03	46	34.6		4 675
4116	P-L		1960	09	26.31530	00	15	16.09	+03	46	29.3		4 675
4116	P-L		1960	09	27.40836	00	14	25.16	+03	39	34.8		4 675
4116	P-L		1960	09	28.39725	00	13	39.77	+03	33	19.1		4 675
4116	P-L		1960	10	17.27085	00	02	08.35	+01	47	45.6		4 675
4116	P-L		1960	10	22.22293	00	00	39.25	+01	29	24.7		4 675
4116	P-L		1960	10	24.35836	00	00	15.61	+01	23	10.6		4 675
4116	P-L		1960	10	26.32573	00	00	02.78	+01	18	23.1		4 675
4276	P-L	*	1960	09	24.37573	00	33	50.90	+05	32	26.1	19.2	4 675
4276	P-L		1960	09	25.42780	00	32	42.16	+05	28	11.5		4 675
4276	P-L		1960	09	26.30558	00	31	45.10	+05	24	35.2		4 675
4276	P-L		1960	09	28.36808	00	29	29.70	+05	15	59.3		4 675
4276	P-L		1960	10	17.27085	00	10	22.81	+03	57	57.2		4 675
4276	P-L		1960	10	22.22293	00	06	24.88	+03	41	11.9		4 675
4314	P-L	*	1960	09	24.37573	00	32	34.40	+07	14	05.1	17.1	4 675
4314	P-L		1960	09	25.42780	00	31	41.02	+07	16	16.6		4 675
4314	P-L		1960	09	26.30558	00	30	56.56	+07	18	00.8		4 675
4314	P-L		1960	09	28.36808	00	29	09.43	+07	21	47.9		4 675
4314	P-L		1960	10	17.30420	00	13	47.17	+07	44	17.5		4 675
4641	P-L	*	1960	09	24.41183	00	28	12.48	-01	58	48.5	18.8	4 675
4641	P-L		1960	09	26.31530	00	26	41.46	-02	10	58.8		4 675
4641	P-L		1960	09	27.40836	00	25	48.70	-02	17	54.7		4 675
4641	P-L		1960	10	17.28198	00	10	48.35	-04	06	53.8		4 675
4641	P-L		1960	10	22.23406	00	07	47.01	-04	26	15.1		4 675
4641	P-L		1960	10	25.25350	00	06	09.67	-04	36	06.0		4 675

4641	P-L		1960	10	26.31531	00	05	37.95	-04	39	10.6	4 675
4848	P-L	*	1960	09	24.41183	00	32	28.04	+02	26	36.4	19.5 4 675
4848	P-L		1960	09	26.31530	00	30	44.60	+02	13	04.8	4 675
4848	P-L		1960	09	27.40836	00	29	44.73	+02	05	19.4	4 675
4848	P-L		1960	09	28.39725	00	28	50.52	+01	58	15.9	4 675
4848	P-L		1960	10	22.23406	00	09	33.44	-00	30	16.7	4 675
4848	P-L		1960	10	26.31531	00	07	14.31	-00	48	07.0	4 675
6214	P-L	*	1960	09	24.33613	23	58	48.52	+05	16	20.2	18.8 4 675
6214	P-L		1960	09	25.32502	23	57	55.66	+05	08	48.2	4 675
6214	P-L		1960	09	26.27573	23	57	04.80	+05	01	30.2	4 675
6214	P-L		1960	09	28.32780	23	55	15.44	+04	45	33.7	4 675
6214	P-L		1960	10	22.15559	23	38	13.96	+01	49	48.1	4 675
6214	P-L		1960	10	24.18787	23	37	21.77	+01	37	42.0	4 675
6214	P-L		1960	10	26.26113	23	36	35.80	+01	26	02.8	4 675
6242	P-L	*	1960	09	24.33613	00	01	06.21	+06	11	13.6	18.6 4 675
6242	P-L		1960	09	25.32502	00	00	15.18	+06	03	57.3	4 675
6242	P-L		1960	09	26.27573	23	59	26.20	+05	56	53.8	4 675
6242	P-L		1960	09	28.32780	23	57	40.89	+05	41	30.9	4 675
6242	P-L		1960	10	22.15559	23	40	50.00	+02	49	25.2	4 675
6242	P-L		1960	10	24.18787	23	39	53.25	+02	37	02.7	4 675
6242	P-L		1960	10	26.26113	23	39	01.45	+02	25	02.5	4 675
7072	P-L		1960	09	25.22986	00	26	32.50	+11	10	42.7	4 675
7072	P-L		1960	09	27.27569	00	24	43.14	+10	29	46.2	4 675
7072	P-L	*	1960	10	17.27085	00	08	04.80	+03	30	56.3	18.3 4 675
7072	P-L		1960	10	22.22293	00	05	03.06	+01	54	07.4	4 675
7072	P-L		1960	10	24.35836	00	03	56.95	+01	14	35.0	4 675
7072	P-L		1960	10	26.32573	00	03	03.83	+00	39	24.0	4 675
9508	P-L	*	1960	10	17.22501	23	26	11.66	-07	01	32.2	19.4 4 675
9508	P-L		1960	10	22.16324	23	24	06.76	-07	11	45.8	4 675
9508	P-L		1960	10	24.23753	23	23	21.56	-07	15	10.9	4 675
9508	P-L		1960	10	26.27157	23	22	41.43	-07	18	00.5	4 675
9511	P-L	*	1960	10	17.22501	23	26	16.31	-04	04	14.1	19.0 4 675
9511	P-L		1960	10	22.16324	23	24	22.43	-04	16	55.2	4 675
9511	P-L		1960	10	24.23753	23	23	42.93	-04	21	19.8	4 675
9511	P-L		1960	10	26.27157	23	23	09.09	-04	25	06.3	4 675
9519	P-L	*	1960	10	17.22501	23	28	02.61	-07	05	20.7	19.6 4 675
9519	P-L		1960	10	22.16324	23	25	55.16	-07	05	42.3	4 675
9519	P-L		1960	10	24.23753	23	25	12.16	-07	04	42.4	4 675
9519	P-L		1960	10	26.27157	23	24	36.37	-07	03	04.9	4 675
9535	P-L	*	1960	10	17.22501	23	30	38.91	-05	59	55.2	19.6 4 675
9535	P-L		1960	10	22.16324	23	28	54.78	-06	20	09.0	4 675
9535	P-L		1960	10	24.23753	23	28	21.42	-06	27	11.7	4 675
9535	P-L		1960	10	26.27157	23	27	54.91	-06	33	19.0	4 675
9546	P-L		1960	09	24.35002	23	48	05.22	-05	34	31.3	4 675
9546	P-L	*	1960	10	17.22501	23	33	46.90	-06	57	29.9	18.1 4 675
9546	P-L		1960	10	22.16324	23	31	36.28	-07	07	43.9	4 675
9546	P-L		1960	10	24.23753	23	30	49.11	-07	11	05.6	4 675
9546	P-L		1960	10	26.27157	23	30	07.36	-07	13	48.5	4 675
2158	T-3		1977	10	07.25868	01	04	59.73	+10	26	23.5	4 675
2158	T-3		1977	10	11.27743	01	00	50.59	+10	00	27.4	4 675
2158	T-3		1977	10	11.34375	01	00	46.27	+10	00	03.2	4 675
2158	T-3		1977	10	12.27587	00	59	49.07	+09	53	55.9	4 675
2158	T-3		1977	10	12.34271	00	59	44.80	+09	53	28.4	4 675
2158	T-3	*	1977	10	16.26233	00	55	48.22	+09	27	30.9	17.6 4 675
2158	T-3		1977	10	16.32795	00	55	44.19	+09	27	05.7	4 675
2158	T-3		1977	10	17.26458	00	54	49.23	+09	20	55.3	4 675
2158	T-3		1977	10	17.33177	00	54	45.07	+09	20	29.9	4 675
2158	T-3		1977	10	21.40868	00	50	54.54	+08	53	55.7	4 675
2158	T-3		1977	10	21.46910	00	50	51.16	+08	53	32.4	4 675

2158	T-3		1977	10	22.41528	00	50	00.22	+08	47	32.5		4 675
2158	T-3		1977	10	22.46962	00	49	57.23	+08	47	13.4		4 675
2318	T-3		1977	10	07.25868	01	16	44.70	+10	14	08.2		4 675
2318	T-3		1977	10	11.27743	01	13	24.71	+09	51	15.9		4 675
2318	T-3		1977	10	11.34375	01	13	21.34	+09	50	52.8		4 675
2318	T-3		1977	10	12.27587	01	12	34.88	+09	45	29.1		4 675
2318	T-3		1977	10	12.34271	01	12	31.46	+09	45	05.5		4 675
2318	T-3	*	1977	10	16.26233	01	09	17.10	+09	22	16.0	18.7	4 675
2318	T-3		1977	10	16.27309	01	09	16.38	+09	22	15.3		4 675
2318	T-3		1977	10	16.32795	01	09	13.69	+09	21	52.8		4 675
2318	T-3		1977	10	16.33872	01	09	13.08	+09	21	51.5		4 675
2318	T-3		1977	10	17.26458	01	08	27.73	+09	16	27.2		4 675
2318	T-3		1977	10	17.27552	01	08	27.05	+09	16	24.1		4 675
2318	T-3		1977	10	17.33177	01	08	24.23	+09	16	03.9		4 675
2318	T-3		1977	10	17.34236	01	08	23.79	+09	15	59.2		4 675
2318	T-3		1977	10	21.39792	01	05	07.91	+08	52	30.2		4 675
2318	T-3		1977	10	21.40868	01	05	07.59	+08	52	25.5		4 675
2318	T-3		1977	10	21.45799	01	05	05.02	+08	52	10.0		4 675
2318	T-3		1977	10	21.46910	01	05	04.74	+08	52	04.8		4 675
2318	T-3		1977	10	22.39844	01	04	20.97	+08	46	46.9		4 675
2318	T-3		1977	10	22.41528	01	04	20.11	+08	46	38.5		4 675
2318	T-3		1977	10	22.45920	01	04	18.03	+08	46	23.3		4 675
2318	T-3		1977	10	22.46962	01	04	17.56	+08	46	19.9		4 675
3439	T-3		1977	10	07.27031	01	14	10.62	+07	44	41.9		4 675
3439	T-3		1977	10	11.28819	01	10	47.23	+07	22	17.9		4 675
3439	T-3		1977	10	11.35642	01	10	43.62	+07	21	55.7		4 675
3439	T-3		1977	10	12.28681	01	09	56.38	+07	16	40.1		4 675
3439	T-3		1977	10	12.35347	01	09	52.91	+07	16	17.9		4 675
3439	T-3	*	1977	10	16.27309	01	06	33.53	+06	54	09.7	18.3	4 675
3439	T-3		1977	10	16.33872	01	06	30.11	+06	53	49.2		4 675
3439	T-3		1977	10	17.27552	01	05	42.89	+06	48	33.2		4 675
3439	T-3		1977	10	17.34236	01	05	39.47	+06	48	09.5		4 675
3439	T-3		1977	10	21.39792	01	02	18.08	+06	25	43.4		4 675
3439	T-3		1977	10	21.45799	01	02	15.02	+06	25	21.7		4 675
3439	T-3		1977	10	22.39844	01	01	29.65	+06	20	15.4		4 675
3439	T-3		1977	10	22.45920	01	01	26.77	+06	19	55.1		4 675

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

1989	FC		1989	04	29.14184	12	07	01.53	+12	37	17.9		688
1989	FC		1989	04	29.14821	12	07	01.71	+12	37	14.5		688
1989	FC		1989	04	29.15456	12	07	01.86	+12	37	10.9		688

695 Kitt Peak
M. J. S. Belton, Kitt Peak National Observatory, P.O. Box 26732,
Tucson, AZ 85726, U.S.A.
Observer W. Romanishin
Measurer T. Thompson
2.1-m reflector

1989	FC		1989	05	02.26521	12	08	48.18	+12	07	20.6		695
1989	FC		1989	05	02.27275	12	08	48.36	+12	07	16.5		695

801 Oak Ridge
R. E. McCrosky, Harvard-Smithsonian Center for Astrophysics,
60 Garden Street, Cambridge, MA 02138, U.S.A.

Observers D. Kubacek, R. E. McCrosky, C.-Y. Shao
1.5-m reflector

1981	RD2	1989	03	10.07695	08	06	23.82	+09	12	33.1	801
1981	UJ4	1989	03	11.32928	12	41	22.91	-02	55	01.9	801
1982	TH3	1989	02	09.08801	06	14	15.45	+27	21	08.2	801
1982	TH3	1989	03	08.03651	06	17	19.24	+25	53	34.0	801
1988	BF	1989	04	02.28390	13	31	08.56	+06	47	09.6	801
1989	BQ	1989	04	03.04162	08	42	53.69	+24	34	14.3	801
1989	FB	1989	04	10.24147	12	45	33.49	+02	29	57.5	801
1989	FB	1989	05	05.05934	11	17	15.52	-05	01	45.0	I 801
1989	FB	1989	05	08.09949	11	10	46.75	-05	58	25.3	W 801
1989	JA	1989	05	07.17095	13	52	51.55	+21	06	26.1	801
1989	JA	1989	05	08.11974	13	49	13.04	+20	56	56.0	801
1989	JA	1989	05	09.15631	13	45	00.34	+20	44	16.8	801
243		1989	03	10.41675	17	04	14.79	-24	02	58.0	801
243		1989	03	11.40268	17	05	01.29	-24	04	19.1	801
243		1989	04	07.35199	17	18	32.01	-24	30	07.4	801
243		1989	04	10.34846	17	19	00.72	-24	31	46.5	801

809 European Southern Observatory
E. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium
Observers E. Elst, G. Pizarro, O. Pizarro
Measurer E. Elst
Reductions E. Elst, P. Van den Eijnde
GPO 0.4-m astrograph and Danish 1.5-m reflector

1940	RG	1989	03	02.10521	08	48	10.70	+09	45	54.3	18.0 809
1940	RG	1989	03	02.12257	08	48	09.97	+09	45	59.0	809
1940	RG	1989	03	02.13993	08	48	09.11	+09	46	03.8	809
1940	RG	1989	03	03.07049	08	47	29.17	+09	50	16.3	809
1940	RG	1989	03	03.08785	08	47	28.42	+09	50	20.7	809
1940	RG	1989	03	03.10521	08	47	27.69	+09	50	24.8	809
1978	SZ6	1989	04	02.16319	13	03	43.63	-11	40	04.8	17.0 809
1978	SZ6	1989	04	02.17361	13	03	43.01	-11	40	01.9	809
1978	SZ6	1989	04	02.18750	13	03	42.27	-11	39	58.7	809
1978	SZ6	1989	04	04.16597	13	01	57.35	-11	30	53.5	809
1978	SZ6	1989	04	04.17639	13	01	56.81	-11	30	51.7	809
1980	OE	1989	04	09.22986	12	46	47.27	-07	27	19.1	17.6 809
1980	OE	1989	04	09.24028	12	46	46.70	-07	27	15.1	809
1980	OE	1989	04	09.25069	12	46	46.06	-07	27	11.2	809
1980	OE	1989	04	10.20633	12	45	46.06	-07	20	58.4	17.4 809
1980	OE	1989	04	10.21806	12	45	45.34	-07	20	53.1	809
1980	RS2	1989	04	02.16319	12	58	06.73	-11	45	29.8	17.7 809
1980	RS2	1989	04	02.17361	12	58	06.09	-11	45	26.2	809
1980	RS2	1989	04	02.18750	12	58	05.24	-11	45	20.5	809
1980	RS2	1989	04	08.16042	12	52	16.23	-11	05	33.1	17.6 809
1980	RS2	1989	04	08.17083	12	52	15.68	-11	05	29.1	809
1980	RS2	1989	04	08.18125	12	52	15.06	-11	05	25.3	809
1980	RS2	1989	04	11.14514	12	49	23.35	-10	44	51.4	809
1980	RS2	1989	04	11.15556	12	49	22.78	-10	44	47.1	809
1980	RS2	1989	04	11.16597	12	49	22.16	-10	44	43.3	809
1981	EG11	1989	03	02.15868	08	59	30.32	+06	53	36.4	18.8 809
1981	EG11	1989	03	02.17604	08	59	29.85	+06	53	43.0	809
1981	EG11	1989	03	02.19340	08	59	29.31	+06	53	49.7	809
1981	EG11	1989	03	03.12396	08	59	07.31	+07	00	02.8	809
1981	EG11	1989	03	03.14132	08	59	06.83	+07	00	09.4	809
1981	EG11	1989	03	03.15868	08	59	06.39	+07	00	15.9	809
1981	EZ17	1989	03	03.12396	08	59	00.75	+05	10	32.6	809
1981	EZ17	1989	03	03.14132	08	59	00.08	+05	10	44.7	809

1981	EZ17	1989	03	03.15868	08	58	59.45	+05	10	54.9	809
1981	EO34	1989	02	04.18681	08	59	13.89	+06	57	20.3	19.0 809
1981	EO34	1989	02	04.19931	08	59	13.29	+06	57	25.2	809
1981	EO34	1989	02	04.21181	08	59	12.57	+06	57	30.0	809
1981	EO34	1989	03	02.10521	08	39	31.66	+09	44	34.2	19.0 809
1981	EO34	1989	03	02.12257	08	39	31.07	+09	44	40.1	809
1981	EO34	1989	03	02.13993	08	39	30.46	+09	44	46.0	809
1981	EO34	1989	03	03.07049	08	39	00.38	+09	50	29.7	809
1981	EO34	1989	03	03.08785	08	38	59.79	+09	50	35.3	809
1981	EO34	1989	03	03.10521	08	38	59.14	+09	50	42.3	809
1983	NT	1989	04	10.14028	12	23	14.32	-10	54	56.2	16.0 809
1983	NT	1989	04	10.15069	12	23	13.74	-10	54	53.5	809
1983	NT	1989	04	10.16111	12	23	13.10	-10	54	50.9	809
1983	NT	1989	04	11.11944	12	22	19.33	-10	50	45.5	809
1983	NT	1989	04	11.12986	12	22	18.74	-10	50	43.1	809
1983	PW	1989	04	02.28542	13	31	05.34	-12	11	11.7	16.7 809
1983	PW	1989	04	02.29583	13	31	04.79	-12	11	08.3	809
1983	PW	1989	04	02.30625	13	31	04.19	-12	11	04.2	809
1983	PW	1989	04	05.27187	13	28	17.66	-11	50	45.3	809
1983	PW	1989	04	05.28194	13	28	17.14	-11	50	41.4	809
1983	PW	1989	04	06.23472	13	27	22.53	-11	43	59.8	809
1983	PW	1989	04	06.24514	13	27	21.93	-11	43	55.5	809
1983	PW	1989	04	06.25556	13	27	21.35	-11	43	51.3	809
1983	PW	1989	04	07.15069	13	26	29.13	-11	37	26.3	809
1983	PW	1989	04	07.16111	13	26	28.53	-11	37	21.8	809
1983	PW	1989	04	07.17188	13	26	27.94	-11	37	17.4	809
1983	RL4	1989	03	02.10521	08	42	47.49	+06	41	17.6	18.5 809
1983	RL4	1989	03	02.12257	08	42	46.88	+06	41	28.0	809
1983	RL4	1989	03	02.13993	08	42	46.30	+06	41	37.4	809
1983	RL4	1989	03	03.07049	08	42	17.41	+06	50	31.1	809
1983	RL4	1989	03	03.08785	08	42	16.81	+06	50	40.3	809
1983	RL4	1989	03	03.10521	08	42	16.22	+06	50	50.9	809
1986	TJ4	1989	04	03.24375	13	34	41.27	-14	40	38.6	19.5 809
1986	TJ4	1989	04	03.25417	13	34	40.73	-14	40	35.6	809
1986	TJ4	1989	04	03.26458	13	34	40.25	-14	40	33.0	809
1986	TJ4	1989	04	05.22917	13	33	04.87	-14	31	14.1	809
1986	TJ4	1989	04	05.23958	13	33	04.40	-14	31	12.3	809
1986	TJ4	1989	04	05.25000	13	33	03.83	-14	31	08.7	809
1987	SN3	1989	03	02.10521	08	51	19.96	+08	36	27.9	18.0 809
1987	SN3	1989	03	03.07049	08	50	41.75	+08	42	23.1	809
1987	SN3	1989	03	03.08785	08	50	41.02	+08	42	29.7	809
1987	SN3	1989	03	03.10521	08	50	40.35	+08	42	35.8	809
1987	SN3	1989	03	03.12396	08	50	39.63	+08	42	41.8	809
1987	SN3	1989	03	03.14132	08	50	38.90	+08	42	47.8	809
1987	SN3	1989	03	03.15868	08	50	38.17	+08	42	53.5	809
1987	UK	1989	04	03.24375	13	50	22.31	-13	17	23.7	18.3 809
1987	UK	1989	04	03.25417	13	50	21.72	-13	17	19.2	809
1987	UK	1989	04	03.26458	13	50	21.19	-13	17	15.9	809
1987	UK	1989	04	05.22917	13	48	33.95	-13	04	19.6	809
1987	UK	1989	04	05.23958	13	48	33.31	-13	04	15.4	809
1987	UK	1989	04	05.25000	13	48	32.69	-13	04	11.6	809
1987	UQ1	1989	04	02.28542	13	26	42.31	-12	56	26.2	17.8 809
1987	UQ1	1989	04	02.29583	13	26	41.68	-12	56	22.5	809
1987	UQ1	1989	04	02.30625	13	26	41.18	-12	56	20.5	809
1987	UQ1	1989	04	06.23472	13	22	57.38	-12	38	11.3	809
1987	UQ1	1989	04	06.24514	13	22	56.78	-12	38	08.3	809
1987	UQ1	1989	04	06.25556	13	22	56.23	-12	38	05.7	809
1987	UQ1	1989	04	07.15069	13	22	04.63	-12	33	42.9	809
1987	UQ1	1989	04	07.16111	13	22	04.07	-12	33	41.3	809

1987	UQ1	1989	04	07.17188	13	22	03.55	-12	33	39.6	809
1988	CN2	1989	04	06.33472	14	19	39.18	-13	10	44.1	18.0 809
1988	CN2	1989	04	06.34514	14	19	38.83	-13	10	41.9	809
1988	CN2	1989	04	06.35556	14	19	38.51	-13	10	40.1	809
1988	CN2	1989	04	07.30833	14	19	00.53	-13	07	12.1	18.2 809
1988	CN2	1989	04	07.31875	14	19	00.19	-13	07	09.6	809
1988	CN2	1989	04	07.32917	14	18	59.81	-13	07	07.9	809
1989	CO2	1989	03	02.10521	08	42	17.37	+05	43	13.0	18.3 809
1989	CO2	1989	03	02.12257	08	42	16.75	+05	43	15.0	809
1989	CO2	1989	03	02.13993	08	42	16.16	+05	43	17.4	809
1989	CO2	1989	03	03.07049	08	41	44.81	+05	45	51.6	809
1989	CO2	1989	03	03.08785	08	41	44.18	+05	45	54.7	809
1989	CO2	1989	03	03.10521	08	41	43.58	+05	45	56.3	809
1989	CP2	1989	03	02.10521	08	39	13.04	+08	03	52.4	17.8 809
1989	CP2	1989	03	02.12257	08	39	12.25	+08	03	55.3	809
1989	CP2	1989	03	02.13993	08	39	11.50	+08	03	57.9	809
1989	CP2	1989	03	03.07049	08	38	34.19	+08	06	31.1	809
1989	CP2	1989	03	03.08785	08	38	33.43	+08	06	33.1	809
1989	CP2	1989	03	03.10521	08	38	32.69	+08	06	35.5	809
1989	CQ2	1989	03	02.10521	08	46	56.66	+06	28	56.5	19.0 809
1989	CQ2	1989	03	02.12257	08	46	56.09	+06	29	02.5	809
1989	CQ2	1989	03	02.13993	08	46	55.57	+06	29	07.8	809
1989	CQ2	1989	03	03.07049	08	46	30.28	+06	34	06.9	809
1989	CQ2	1989	03	03.08785	08	46	29.83	+06	34	12.0	809
1989	CQ2	1989	03	03.10521	08	46	29.29	+06	34	17.5	809
1989	CR2	1989	03	02.10521	08	43	59.68	+05	21	48.1	18.6 809
1989	CR2	1989	03	02.12257	08	43	59.02	+05	21	50.9	809
1989	CR2	1989	03	02.13993	08	43	58.33	+05	21	54.6	809
1989	CR2	1989	03	03.07049	08	43	27.25	+05	25	35.8	809
1989	CR2	1989	03	03.08785	08	43	26.60	+05	25	39.5	809
1989	CR2	1989	03	03.10521	08	43	25.98	+05	25	42.0	809
1989	CS2	1989	03	02.10521	08	41	14.66	+09	17	34.0	18.2 809
1989	CS2	1989	03	02.12257	08	41	13.96	+09	17	39.9	809
1989	CS2	1989	03	02.13993	08	41	13.34	+09	17	46.0	809
1989	CS2	1989	03	03.07049	08	40	40.54	+09	23	39.1	809
1989	CS2	1989	03	03.08785	08	40	39.88	+09	23	45.7	809
1989	CS2	1989	03	03.10521	08	40	39.33	+09	23	51.1	809
1989	CT2	1989	03	02.10521	08	41	02.18	+09	13	28.3	18.2 809
1989	CT2	1989	03	02.12257	08	41	01.50	+09	13	33.2	809
1989	CT2	1989	03	02.13993	08	41	00.83	+09	13	37.6	809
1989	CT2	1989	03	03.07049	08	40	25.60	+09	18	11.0	809
1989	CT2	1989	03	03.08785	08	40	24.91	+09	18	15.5	809
1989	CT2	1989	03	03.10521	08	40	24.21	+09	18	20.5	809
1989	CU2	1989	03	02.10521	08	45	30.80	+05	54	38.2	18.8 809
1989	CU2	1989	03	02.12257	08	45	30.26	+05	54	44.2	809
1989	CU2	1989	03	02.13993	08	45	29.70	+05	54	51.3	809
1989	CU2	1989	03	03.07049	08	45	03.13	+06	01	13.4	809
1989	CU2	1989	03	03.08785	08	45	02.58	+06	01	19.5	809
1989	CU2	1989	03	03.10521	08	45	02.08	+06	01	25.5	809
1989	CV2	1989	03	02.10521	08	41	09.99	+07	24	38.3	18.0 809
1989	CV2	1989	03	02.12257	08	41	09.26	+07	24	37.5	809
1989	CV2	1989	03	02.13993	08	41	08.58	+07	24	37.0	809
1989	CV2	1989	03	03.07049	08	40	35.83	+07	24	20.1	809
1989	CV2	1989	03	03.08785	08	40	35.10	+07	24	19.8	809
1989	CV2	1989	03	03.10521	08	40	34.48	+07	24	19.0	809
1989	CW2	1989	03	02.10521	08	45	15.97	+06	17	39.6	18.2 809
1989	CW2	1989	03	02.12257	08	45	15.34	+06	17	43.3	809
1989	CW2	1989	03	02.13993	08	45	14.58	+06	17	46.7	809
1989	CW2	1989	03	03.07049	08	44	42.98	+06	20	59.7	809

1989	CW2	1989	03	03.08785	08	44	42.35	+06	21	03.4	809
1989	CW2	1989	03	03.10521	08	44	41.70	+06	21	06.5	809
1989	CX2	1989	03	02.10521	08	46	34.08	+08	41	38.0	18.6 809
1989	CX2	1989	03	02.12257	08	46	33.43	+08	41	41.3	809
1989	CX2	1989	03	02.13993	08	46	32.80	+08	41	43.9	809
1989	CX2	1989	03	03.07049	08	46	01.58	+08	44	08.0	809
1989	CX2	1989	03	03.08785	08	46	00.96	+08	44	09.6	809
1989	CX2	1989	03	03.10521	08	46	00.35	+08	44	12.5	809
1989	CY2	1989	03	02.10521	08	44	48.44	+09	06	40.7	18.6 809
1989	CY2	1989	03	02.12257	08	44	47.85	+09	06	45.9	809
1989	CY2	1989	03	02.13993	08	44	47.27	+09	06	51.6	809
1989	CY2	1989	03	03.07049	08	44	19.93	+09	11	57.3	809
1989	CY2	1989	03	03.08785	08	44	19.37	+09	12	02.9	809
1989	CY2	1989	03	03.10521	08	44	18.89	+09	12	07.5	809
1989	CA3	1989	03	02.10521	08	51	11.23	+05	37	28.1	20.0 809
1989	CA3	1989	03	02.12257	08	51	10.57	+05	37	30.8	809
1989	CA3	1989	03	02.13993	08	51	09.90	+05	37	34.1	809
1989	CA3	1989	03	03.07049	08	50	39.23	+05	40	35.0	809
1989	CA3	1989	03	03.08785	08	50	38.55	+05	40	37.3	809
1989	CA3	1989	03	03.10521	08	50	38.00	+05	40	40.3	809
1989	CB3	1989	03	02.10521	08	48	15.07	+08	45	51.1	18.0 809
1989	CB3	1989	03	02.12257	08	48	14.42	+08	45	53.9	809
1989	CB3	1989	03	02.13993	08	48	13.79	+08	45	57.0	809
1989	CB3	1989	03	03.07049	08	47	43.81	+08	48	50.5	809
1989	CB3	1989	03	03.08785	08	47	43.23	+08	48	53.8	809
1989	CB3	1989	03	03.10521	08	47	42.55	+08	48	56.7	809
1989	CC3	1989	03	02.10521	08	50	47.20	+06	00	01.5	19.3 809
1989	CC3	1989	03	02.12257	08	50	46.51	+06	00	03.5	809
1989	CC3	1989	03	02.13993	08	50	45.85	+06	00	05.3	809
1989	CC3	1989	03	03.07049	08	50	12.03	+06	02	05.5	809
1989	CC3	1989	03	03.08785	08	50	11.31	+06	02	06.1	809
1989	CC3	1989	03	03.10521	08	50	10.81	+06	02	09.6	809
1989	CD3	1989	03	02.10521	08	48	48.86	+06	50	37.9	18.7 809
1989	CD3	1989	03	02.12257	08	48	48.17	+06	50	38.3	809
1989	CD3	1989	03	02.13993	08	48	47.40	+06	50	39.0	809
1989	CD3	1989	03	03.07049	08	48	13.62	+06	51	13.3	809
1989	CD3	1989	03	03.08785	08	48	13.00	+06	51	14.4	809
1989	CD3	1989	03	03.10521	08	48	12.28	+06	51	15.7	809
1989	CF3	1989	03	02.10521	08	49	12.34	+06	32	13.0	18.7 809
1989	CF3	1989	03	02.12257	08	49	11.55	+06	32	17.8	809
1989	CF3	1989	03	02.13993	08	49	10.79	+06	32	22.9	809
1989	CF3	1989	03	03.07049	08	48	35.75	+06	36	57.8	809
1989	CF3	1989	03	03.08785	08	48	35.01	+06	37	04.1	809
1989	CF3	1989	03	03.10521	08	48	34.34	+06	37	08.6	809
1989	CH3	1989	03	02.10521	08	54	13.17	+07	05	32.7	18.8 809
1989	CH3	1989	03	02.12257	08	54	12.57	+07	05	36.3	809
1989	CH3	1989	03	02.13993	08	54	11.94	+07	05	39.8	809
1989	CH3	1989	03	02.15868	08	54	11.19	+07	05	43.9	19.0 809
1989	CH3	1989	03	02.17604	08	54	10.60	+07	05	46.5	809
1989	CH3	1989	03	02.19340	08	54	10.00	+07	05	48.3	809
1989	CH3	1989	03	03.07049	08	53	41.77	+07	08	41.2	809
1989	CH3	1989	03	03.08785	08	53	41.22	+07	08	44.0	809
1989	CH3	1989	03	03.10521	08	53	40.60	+07	08	47.3	809
1989	CH3	1989	03	03.12396	08	53	39.87	+07	08	51.7	809
1989	CH3	1989	03	03.14132	08	53	39.30	+07	08	55.4	809
1989	CH3	1989	03	03.15868	08	53	38.70	+07	08	58.2	809
1989	CJ3	1989	03	02.15868	09	02	21.94	+06	32	07.8	18.6 809
1989	CJ3	1989	03	02.17604	09	02	21.50	+06	32	10.7	809
1989	CJ3	1989	03	02.19340	09	02	21.01	+06	32	12.8	809

1989	CJ3		1989	03	03.12396	09	01	57.96	+06	34	40.6	809
1989	CJ3		1989	03	03.14132	09	01	57.49	+06	34	43.7	809
1989	CJ3		1989	03	03.15868	09	01	57.01	+06	34	46.1	809
1989	CL3		1989	03	02.10521	08	55	02.15	+07	10	43.9	17.8 809
1989	CL3		1989	03	02.12257	08	55	01.48	+07	10	48.9	809
1989	CL3		1989	03	02.13993	08	55	00.79	+07	10	53.0	809
1989	CL3		1989	03	02.15868	08	55	00.03	+07	10	58.2	17.9 809
1989	CL3		1989	03	02.17604	08	54	59.33	+07	11	02.3	809
1989	CL3		1989	03	02.19340	08	54	58.69	+07	11	07.2	809
1989	CL3		1989	03	03.07049	08	54	27.60	+07	14	58.4	809
1989	CL3		1989	03	03.08785	08	54	26.94	+07	15	02.4	809
1989	CL3		1989	03	03.10521	08	54	26.29	+07	15	06.6	809
1989	CL3		1989	03	03.12396	08	54	25.58	+07	15	11.5	809
1989	CL3		1989	03	03.14132	08	54	24.89	+07	15	15.7	809
1989	CL3		1989	03	03.15868	08	54	24.27	+07	15	20.2	809
1989	CO3		1989	03	02.10521	08	54	15.52	+08	22	13.6	17.8 809
1989	CO3		1989	03	02.12257	08	54	14.82	+08	22	20.5	809
1989	CO3		1989	03	02.13993	08	54	14.17	+08	22	26.9	809
1989	CO3		1989	03	02.15868	08	54	13.29	+08	22	34.1	18.5 809
1989	CO3		1989	03	02.17604	08	54	12.59	+08	22	40.7	809
1989	CO3		1989	03	02.19340	08	54	11.97	+08	22	47.9	809
1989	CO3		1989	03	03.07049	08	53	41.61	+08	28	20.5	809
1989	CO3		1989	03	03.08785	08	53	40.95	+08	28	26.9	809
1989	CO3		1989	03	03.10521	08	53	40.32	+08	28	33.3	809
1989	CO3		1989	03	03.12396	08	53	39.45	+08	28	41.1	809
1989	CO3		1989	03	03.14132	08	53	38.79	+08	28	47.2	809
1989	CO3		1989	03	03.15868	08	53	38.21	+08	28	53.3	809
1989	ER2	*	1989	03	02.10521	08	34	59.42	+08	14	49.1	19.3 809
1989	ER2		1989	03	02.12257	08	34	58.97	+08	14	50.4	809
1989	ER2		1989	03	02.13993	08	34	58.51	+08	14	52.9	809
1989	ER2		1989	03	03.07049	08	34	38.35	+08	17	08.8	809
1989	ER2		1989	03	03.08785	08	34	37.89	+08	17	12.0	809
1989	ER2		1989	03	03.10521	08	34	37.49	+08	17	14.1	809
1989	ES2	*	1989	03	02.10521	08	35	29.69	+07	51	40.2	18.0 809
1989	ES2		1989	03	02.12257	08	35	29.14	+07	51	44.3	809
1989	ES2		1989	03	02.13993	08	35	28.59	+07	51	49.2	809
1989	ES2		1989	03	03.07049	08	35	04.62	+07	56	08.5	809
1989	ES2		1989	03	03.08785	08	35	04.11	+07	56	12.9	809
1989	ES2		1989	03	03.10521	08	35	03.60	+07	56	17.0	809
1989	ET2	*	1989	03	02.10521	08	35	49.33	+07	26	11.2	17.7 809
1989	ET2		1989	03	02.12257	08	35	48.85	+07	26	20.0	809
1989	ET2		1989	03	02.13993	08	35	48.41	+07	26	29.4	809
1989	ET2		1989	03	03.07049	08	35	28.19	+07	34	51.7	809
1989	ET2		1989	03	03.08785	08	35	27.73	+07	35	00.1	809
1989	ET2		1989	03	03.10521	08	35	27.32	+07	35	09.1	809
1989	EU2	*	1989	03	02.10521	08	36	31.33	+05	35	35.7	18.2 809
1989	EU2		1989	03	02.12257	08	36	30.64	+05	35	41.2	809
1989	EU2		1989	03	02.13993	08	36	29.94	+05	35	46.3	809
1989	EU2		1989	03	03.07049	08	35	57.73	+05	40	27.7	809
1989	EU2		1989	03	03.08785	08	35	57.04	+05	40	31.8	809
1989	EU2		1989	03	03.10521	08	35	56.38	+05	40	37.0	809
1989	EV2		1989	02	04.18681	08	57	57.07	+06	41	44.7	19.6 809
1989	EV2		1989	02	04.19931	08	57	56.25	+06	41	46.7	809
1989	EV2		1989	02	04.21181	08	57	55.48	+06	41	49.1	809
1989	EV2	*	1989	03	02.10521	08	36	33.71	+08	27	00.3	19.5 809
1989	EV2		1989	03	02.12257	08	36	33.17	+08	27	04.3	809
1989	EV2		1989	03	02.13993	08	36	32.61	+08	27	08.2	809
1989	EV2		1989	03	03.07049	08	36	04.99	+08	31	02.5	809
1989	EV2		1989	03	03.08785	08	36	04.39	+08	31	06.6	809

1989	EV2		1989	03	03.10521	08	36	03.77	+08	31	10.7		809
1989	EW2	*	1989	03	02.10521	08	36	39.07	+08	31	19.2	19.4	809
1989	EW2		1989	03	02.12257	08	36	38.64	+08	31	20.0		809
1989	EW2		1989	03	02.13993	08	36	38.27	+08	31	20.9		809
1989	EW2		1989	03	03.07049	08	36	16.33	+08	32	26.0		809
1989	EW2		1989	03	03.08785	08	36	15.96	+08	32	27.4		809
1989	EW2		1989	03	03.10521	08	36	15.54	+08	32	27.6		809
1989	EX2	*	1989	03	02.10521	08	36	47.10	+06	50	00.9	19.8	809
1989	EX2		1989	03	02.12257	08	36	46.29	+06	50	08.5		809
1989	EX2		1989	03	02.13993	08	36	45.45	+06	50	16.9		809
1989	EX2		1989	03	03.07049	08	36	12.30	+06	56	23.5		809
1989	EX2		1989	03	03.08785	08	36	11.59	+06	56	30.1		809
1989	EX2		1989	03	03.10521	08	36	10.96	+06	56	37.0		809
1989	EY2		1989	02	04.18681	09	00	33.70	+07	40	15.6	18.0	809
1989	EY2		1989	02	04.19931	09	00	32.88	+07	40	18.2		809
1989	EY2		1989	02	04.21181	09	00	32.11	+07	40	21.5		809
1989	EY2	*	1989	03	02.10521	08	37	11.00	+09	30	14.8	18.5	809
1989	EY2		1989	03	02.12257	08	37	10.19	+09	30	18.9		809
1989	EY2		1989	03	02.13993	08	37	09.54	+09	30	22.8		809
1989	EY2		1989	03	03.07049	08	36	33.77	+09	34	16.1		809
1989	EY2		1989	03	03.08785	08	36	33.08	+09	34	19.8		809
1989	EY2		1989	03	03.10521	08	36	32.33	+09	34	23.8		809
1989	EZ2		1989	02	04.18681	09	01	27.08	+07	29	07.7	19.2	809
1989	EZ2		1989	02	04.19931	09	01	26.17	+07	29	08.7		809
1989	EZ2		1989	02	04.21181	09	01	25.31	+07	29	09.7		809
1989	EZ2	*	1989	03	02.10521	08	38	05.79	+08	23	25.5	18.2	809
1989	EZ2		1989	03	02.12257	08	38	05.03	+08	23	28.1		809
1989	EZ2		1989	03	02.13993	08	38	04.40	+08	23	30.6		809
1989	EZ2		1989	03	03.07049	08	37	33.12	+08	25	47.1		809
1989	EZ2		1989	03	03.08785	08	37	32.49	+08	25	49.3		809
1989	EZ2		1989	03	03.10521	08	37	31.84	+08	25	51.2		809
1989	EA3	*	1989	03	02.10521	08	38	52.99	+09	25	32.3	18.7	809
1989	EA3		1989	03	02.12257	08	38	52.51	+09	25	36.6		809
1989	EA3		1989	03	02.13993	08	38	52.12	+09	25	41.9		809
1989	EA3		1989	03	03.07049	08	38	33.71	+09	30	11.1		809
1989	EA3		1989	03	03.08785	08	38	33.30	+09	30	15.9		809
1989	EA3		1989	03	03.10521	08	38	32.88	+09	30	21.0		809
1989	EB3	*	1989	03	02.10521	08	39	46.35	+08	30	31.5	18.6	809
1989	EB3		1989	03	02.12257	08	39	45.91	+08	30	32.8		809
1989	EB3		1989	03	02.13993	08	39	45.43	+08	30	34.1		809
1989	EB3		1989	03	03.07049	08	39	23.73	+08	31	47.5		809
1989	EB3		1989	03	03.08785	08	39	23.25	+08	31	48.0		809
1989	EB3		1989	03	03.10521	08	39	22.83	+08	31	49.2		809
1989	EC3		1989	02	04.18681	08	58	22.79	+05	19	48.1	17.7	809
1989	EC3		1989	02	04.19931	08	58	22.11	+05	19	53.3		809
1989	EC3		1989	02	04.21181	08	58	21.47	+05	19	58.2		809
1989	EC3	*	1989	03	02.10521	08	40	00.82	+08	42	12.6	17.7	809
1989	EC3		1989	03	02.12257	08	40	00.34	+08	42	20.1		809
1989	EC3		1989	03	02.13993	08	39	59.83	+08	42	28.1		809
1989	EC3		1989	03	03.07049	08	39	36.76	+08	49	33.7		809
1989	EC3		1989	03	03.08785	08	39	36.27	+08	49	41.4		809
1989	EC3		1989	03	03.10521	08	39	35.78	+08	49	48.9		809
1989	ED3		1989	02	04.18681	09	00	05.14	+04	37	17.9	20.0	809
1989	ED3		1989	02	04.19931	09	00	04.42	+04	37	21.3		809
1989	ED3		1989	02	04.21181	09	00	03.79	+04	37	22.2		809
1989	ED3	*	1989	03	02.10521	08	40	12.25	+07	09	45.4	19.0	809
1989	ED3		1989	03	02.12257	08	40	11.72	+07	09	51.7		809
1989	ED3		1989	03	02.13993	08	40	11.21	+07	09	58.0		809
1989	ED3		1989	03	03.07049	08	39	44.81	+07	16	03.1		809

1989	ED3		1989	03	03.08785	08	39	44.36	+07	16	08.9		809
1989	ED3		1989	03	03.10521	08	39	43.76	+07	16	15.6		809
1989	EE3		1989	02	04.18681	08	56	43.21	+05	29	08.3	19.2	809
1989	EE3		1989	02	04.19931	08	56	42.53	+05	29	15.7		809
1989	EE3		1989	02	04.21181	08	56	41.94	+05	29	22.6		809
1989	EE3	*	1989	03	02.10521	08	40	29.91	+09	38	07.4	19.2	809
1989	EE3		1989	03	02.12257	08	40	29.43	+09	38	16.4		809
1989	EE3		1989	03	02.13993	08	40	28.99	+09	38	25.0		809
1989	EE3		1989	03	03.07049	08	40	06.74	+09	47	01.3		809
1989	EE3		1989	03	03.08785	08	40	06.23	+09	47	13.3		809
1989	EE3		1989	03	03.10521	08	40	05.71	+09	47	23.9		809
1989	EF3	*	1989	03	02.10521	08	40	38.84	+09	15	16.5	19.6	809
1989	EF3		1989	03	02.12257	08	40	38.18	+09	15	19.7		809
1989	EF3		1989	03	02.13993	08	40	37.54	+09	15	22.4		809
1989	EF3		1989	03	03.07049	08	40	06.93	+09	17	35.1		809
1989	EF3		1989	03	03.08785	08	40	06.34	+09	17	38.5		809
1989	EF3		1989	03	03.10521	08	40	05.63	+09	17	39.6		809
1989	EG3	*	1989	03	02.10521	08	41	35.10	+10	24	19.4	18.3	809
1989	EG3		1989	03	02.12257	08	41	34.40	+10	24	22.4		809
1989	EG3		1989	03	02.13993	08	41	33.70	+10	24	25.0		809
1989	EG3		1989	03	03.07049	08	41	00.50	+10	27	18.8		809
1989	EG3		1989	03	03.08785	08	40	59.85	+10	27	21.7		809
1989	EG3		1989	03	03.10521	08	40	59.22	+10	27	24.4		809
1989	EH3	*	1989	03	02.10521	08	42	17.97	+09	25	43.3	19.7	809
1989	EH3		1989	03	02.12257	08	42	17.31	+09	25	46.3		809
1989	EH3		1989	03	02.13993	08	42	16.69	+09	25	48.0		809
1989	EH3		1989	03	03.07049	08	41	44.33	+09	27	45.5		809
1989	EH3		1989	03	03.08785	08	41	43.76	+09	27	47.4		809
1989	EH3		1989	03	03.10521	08	41	43.14	+09	27	50.0		809
1989	EJ3	*	1989	03	02.10521	08	42	40.00	+07	59	24.4	19.5	809
1989	EJ3		1989	03	02.12257	08	42	39.17	+07	59	28.0		809
1989	EJ3		1989	03	02.13993	08	42	38.56	+07	59	32.1		809
1989	EJ3		1989	03	03.07049	08	42	12.96	+07	58	49.1		809
1989	EJ3		1989	03	03.08785	08	42	12.25	+07	58	51.8		809
1989	EJ3		1989	03	03.10521	08	42	11.67	+07	58	54.6		809
1989	EK3	*	1989	03	02.10521	08	47	49.15	+09	40	50.0	19.5	809
1989	EK3		1989	03	02.12257	08	47	48.51	+09	40	48.7		809
1989	EK3		1989	03	02.13993	08	47	47.90	+09	40	47.8		809
1989	EK3		1989	03	03.07049	08	47	14.43	+09	40	02.7		809
1989	EK3		1989	03	03.08785	08	47	13.81	+09	40	01.6		809
1989	EK3		1989	03	03.10521	08	47	13.17	+09	40	01.2		809
1989	EL3	*	1989	03	02.10521	08	48	52.20	+09	00	24.4	20.5	809
1989	EL3		1989	03	02.12257	08	48	51.50	+09	00	28.4		809
1989	EL3		1989	03	02.13993	08	48	50.68	+09	00	33.4		809
1989	EL3		1989	03	03.07049	08	48	17.79	+09	04	25.1		809
1989	EL3		1989	03	03.08785	08	48	17.17	+09	04	30.5		809
1989	EL3		1989	03	03.10521	08	48	16.54	+09	04	34.5		809
1989	EM3	*	1989	03	02.10521	08	49	21.25	+08	39	47.6	20.5	809
1989	EM3		1989	03	02.12257	08	49	20.62	+08	39	52.9		809
1989	EM3		1989	03	02.13993	08	49	19.95	+08	39	58.1		809
1989	EM3		1989	03	03.07049	08	48	46.35	+08	44	48.1		809
1989	EM3		1989	03	03.08785	08	48	45.80	+08	44	53.8		809
1989	EM3		1989	03	03.10521	08	48	45.02	+08	44	59.8		809
1989	EN3	*	1989	03	02.10521	08	49	49.30	+06	32	24.5	18.6	809
1989	EN3		1989	03	02.12257	08	49	48.69	+06	32	34.3		809
1989	EN3		1989	03	02.13993	08	49	48.21	+06	32	43.5		809
1989	EN3		1989	03	03.07049	08	49	22.25	+06	41	37.4		809
1989	EN3		1989	03	03.08785	08	49	21.72	+06	41	46.6		809
1989	EN3		1989	03	03.10521	08	49	21.18	+06	41	56.3		809

1989	EO3	*	1989	03	02.10521	08	50	50.31	+09	24	49.8	19.6	809
1989	EO3		1989	03	02.12257	08	50	49.72	+09	24	58.6		809
1989	EO3		1989	03	02.13993	08	50	49.19	+09	25	08.7		809
1989	EO3		1989	03	02.15868	08	50	48.70	+09	25	16.4	19.0	809
1989	EO3		1989	03	02.17604	08	50	48.03	+09	25	28.0		809
1989	EO3		1989	03	02.19340	08	50	47.55	+09	25	36.7		809
1989	EO3		1989	03	03.07049	08	50	21.51	+09	33	48.4		809
1989	EO3		1989	03	03.08785	08	50	20.95	+09	33	58.4		809
1989	EO3		1989	03	03.10521	08	50	20.41	+09	34	07.6		809
1989	EP3	*	1989	03	02.10521	08	52	10.64	+09	42	20.7	19.8	809
1989	EP3		1989	03	02.12257	08	52	10.20	+09	42	26.3		809
1989	EP3		1989	03	02.13993	08	52	09.76	+09	42	31.7		809
1989	EP3		1989	03	03.07049	08	51	48.72	+09	47	15.1		809
1989	EP3		1989	03	03.08785	08	51	48.23	+09	47	21.3		809
1989	EP3		1989	03	03.10521	08	51	47.93	+09	47	26.2		809
1989	EQ3	*	1989	03	02.10521	08	54	12.33	+06	21	02.7	17.8	809
1989	EQ3		1989	03	02.12257	08	54	11.69	+06	21	19.5		809
1989	EQ3		1989	03	02.13993	08	54	11.08	+06	21	35.7		809
1989	EQ3		1989	03	02.15868	08	54	10.58	+06	21	50.6	18.0	809
1989	EQ3		1989	03	02.17604	08	54	09.94	+06	22	06.1		809
1989	EQ3		1989	03	02.19340	08	54	09.33	+06	22	21.7		809
1989	EQ3		1989	03	03.07049	08	53	42.14	+06	35	48.4		809
1989	EQ3		1989	03	03.08785	08	53	41.60	+06	36	03.9		809
1989	EQ3		1989	03	03.10521	08	53	41.02	+06	36	19.2		809
1989	EQ3		1989	03	03.12396	08	53	40.34	+06	36	37.3		809
1989	EQ3		1989	03	03.14132	08	53	39.76	+06	36	52.6		809
1989	EQ3		1989	03	03.15868	08	53	39.19	+06	37	08.5		809
1989	ER3	*	1989	03	02.15868	08	55	46.20	+06	16	11.0	19.8	809
1989	ER3		1989	03	02.17604	08	55	45.45	+06	16	21.0		809
1989	ER3		1989	03	02.19340	08	55	44.82	+06	16	31.3		809
1989	ER3		1989	03	03.12396	08	55	13.51	+06	25	39.8		809
1989	ER3		1989	03	03.14132	08	55	12.88	+06	25	49.3		809
1989	ER3		1989	03	03.15868	08	55	12.29	+06	25	58.0		809
1989	ES3	*	1989	03	02.15868	08	55	52.36	+08	26	30.2	18.7	809
1989	ES3		1989	03	02.17604	08	55	51.68	+08	26	30.6		809
1989	ES3		1989	03	02.19340	08	55	51.06	+08	26	32.2		809
1989	ES3		1989	03	03.07049	08	55	18.66	+08	27	37.0		809
1989	ES3		1989	03	03.08785	08	55	17.99	+08	27	38.2		809
1989	ES3		1989	03	03.10521	08	55	17.31	+08	27	40.2		809
1989	ES3		1989	03	03.12396	08	55	16.61	+08	27	41.4		809
1989	ES3		1989	03	03.14132	08	55	15.94	+08	27	42.8		809
1989	ES3		1989	03	03.15868	08	55	15.30	+08	27	44.2		809
1989	ET3	*	1989	03	02.15868	08	58	28.24	+10	14	48.4	18.7	809
1989	ET3		1989	03	02.17604	08	58	27.47	+10	14	51.5		809
1989	ET3		1989	03	02.19340	08	58	26.70	+10	14	56.1		809
1989	ET3		1989	03	03.12396	08	57	51.12	+10	18	08.8		809
1989	ET3		1989	03	03.14132	08	57	50.34	+10	18	13.6		809
1989	ET3		1989	03	03.15868	08	57	49.71	+10	18	16.3		809
1989	EU3	*	1989	03	02.15868	08	58	43.81	+07	17	22.3	19.0	809
1989	EU3		1989	03	02.17604	08	58	43.07	+07	17	28.9		809
1989	EU3		1989	03	02.19340	08	58	42.45	+07	17	35.6		809
1989	EU3		1989	03	03.12396	08	58	11.10	+07	23	30.0		809
1989	EU3		1989	03	03.14132	08	58	10.45	+07	23	36.7		809
1989	EU3		1989	03	03.15868	08	58	09.88	+07	23	42.2		809
1989	EV3	*	1989	03	02.15868	08	58	52.59	+08	24	55.3	19.8	809
1989	EV3		1989	03	02.17604	08	58	51.73	+08	25	01.1		809
1989	EV3		1989	03	02.19340	08	58	51.18	+08	25	04.1		809
1989	EV3		1989	03	03.12396	08	58	16.36	+08	29	34.9		809
1989	EV3		1989	03	03.14132	08	58	15.62	+08	29	39.2		809

1989	EV3		1989	03	03.15868	08	58	14.94	+08	29	42.2		809
1989	EW3	*	1989	03	02.15868	08	59	40.46	+05	58	26.8	19.8	809
1989	EW3		1989	03	02.17604	08	59	39.65	+05	58	31.8		809
1989	EW3		1989	03	02.19340	08	59	38.99	+05	58	37.0		809
1989	EW3		1989	03	03.12396	08	59	01.11	+06	04	19.3		809
1989	EW3		1989	03	03.14132	08	59	00.37	+06	04	25.2		809
1989	EW3		1989	03	03.15868	08	58	59.61	+06	04	32.6		809
1989	EX3	*	1989	03	02.15868	09	00	31.94	+09	03	55.2	19.6	809
1989	EX3		1989	03	02.17604	09	00	31.06	+09	04	00.7		809
1989	EX3		1989	03	02.19340	09	00	30.23	+09	04	07.2		809
1989	EX3		1989	03	03.12396	08	59	50.80	+09	08	49.6		809
1989	EX3		1989	03	03.14132	08	59	50.18	+09	08	55.2		809
1989	EX3		1989	03	03.15868	08	59	49.39	+09	08	59.6		809
1989	EY3	*	1989	03	02.15868	09	00	53.17	+09	12	37.3	18.6	809
1989	EY3		1989	03	02.17604	09	00	52.46	+09	12	47.0		809
1989	EY3		1989	03	02.19340	09	00	51.79	+09	12	54.5		809
1989	EY3		1989	03	03.12396	09	00	16.09	+09	20	35.2		809
1989	EY3		1989	03	03.14132	09	00	15.35	+09	20	43.9		809
1989	EY3		1989	03	03.15868	09	00	14.68	+09	20	53.0		809
1989	EZ3	*	1989	03	02.15868	09	01	18.05	+06	41	37.5	17.9	809
1989	EZ3		1989	03	02.17604	09	01	17.39	+06	41	44.4		809
1989	EZ3		1989	03	02.19340	09	01	16.72	+06	41	52.1		809
1989	EZ3		1989	03	03.12396	09	00	46.45	+06	48	19.7		809
1989	EZ3		1989	03	03.14132	09	00	45.78	+06	48	26.9		809
1989	EZ3		1989	03	03.15868	09	00	45.18	+06	48	34.3		809
1989	EA4	*	1989	03	02.15868	09	01	22.26	+05	09	39.0	18.5	809
1989	EA4		1989	03	02.17604	09	01	21.50	+05	09	44.7		809
1989	EA4		1989	03	02.19340	09	01	20.83	+05	09	50.5		809
1989	EA4		1989	03	03.12396	09	00	45.78	+05	15	05.3		809
1989	EA4		1989	03	03.14132	09	00	45.13	+05	15	10.1		809
1989	EA4		1989	03	03.15868	09	00	44.46	+05	15	15.3		809
1989	EB4	*	1989	03	02.15868	09	02	14.68	+08	34	00.3	20.2	809
1989	EB4		1989	03	02.17604	09	02	14.00	+08	34	07.9		809
1989	EB4		1989	03	02.19340	09	02	13.17	+08	34	16.0		809
1989	EB4		1989	03	03.12396	09	01	58.42	+08	36	47.9	20.0	809
1989	EB4		1989	03	03.14132	09	01	58.12	+08	36	53.6		809
1989	EB4		1989	03	03.15868	09	01	57.83	+08	36	57.0		809
1989	EC4	*	1989	03	02.15868	09	02	24.62	+06	48	56.0	18.5	809
1989	EC4		1989	03	02.17604	09	02	23.74	+06	49	01.9		809
1989	EC4		1989	03	02.19340	09	02	22.89	+06	49	08.2		809
1989	EC4		1989	03	03.12396	09	01	42.56	+06	54	27.5		809
1989	EC4		1989	03	03.14132	09	01	41.84	+06	54	32.3		809
1989	EC4		1989	03	03.15868	09	01	40.99	+06	54	38.8		809
1989	ED4	*	1989	03	02.15868	09	02	51.39	+10	18	38.2	18.4	809
1989	ED4		1989	03	02.17604	09	02	50.73	+10	18	43.6		809
1989	ED4		1989	03	02.19340	09	02	50.00	+10	18	49.3		809
1989	ED4		1989	03	03.12396	09	02	15.94	+10	23	40.2		809
1989	ED4		1989	03	03.14132	09	02	15.26	+10	23	45.7		809
1989	ED4		1989	03	03.15868	09	02	14.63	+10	23	50.5		809
1989	EE4	*	1989	03	02.15868	09	02	51.62	+08	22	02.1	18.5	809
1989	EE4		1989	03	02.17604	09	02	50.75	+08	22	01.4		809
1989	EE4		1989	03	02.19340	09	02	49.93	+08	22	01.3		809
1989	EE4		1989	03	03.12396	09	02	09.34	+08	21	46.1		809
1989	EE4		1989	03	03.14132	09	02	08.56	+08	21	46.0		809
1989	EE4		1989	03	03.15868	09	02	07.83	+08	21	45.7		809
1989	EF4	*	1989	03	02.15868	09	03	08.79	+07	24	13.0	18.5	809
1989	EF4		1989	03	02.17604	09	03	08.06	+07	24	18.5		809
1989	EF4		1989	03	02.19340	09	03	07.38	+07	24	24.3		809
1989	EF4		1989	03	03.12396	09	02	32.37	+07	29	48.4		809

1989	EF4		1989	03	03.14132	09	02	31.69	+07	29	53.5		809
1989	EF4		1989	03	03.15868	09	02	30.96	+07	29	59.9		809
1989	EG4	*	1989	03	02.15868	09	03	27.66	+07	14	37.5	17.5	809
1989	EG4		1989	03	02.17604	09	03	27.63	+07	14	25.0		809
1989	EG4		1989	03	02.19340	09	03	26.41	+07	14	13.9		809
1989	EG4		1989	03	03.12396	09	02	23.68	+07	03	16.2		809
1989	EG4		1989	03	03.14132	09	02	22.46	+07	03	04.1		809
1989	EG4		1989	03	03.15868	09	02	21.26	+07	02	52.9		809
1989	EH4	*	1989	03	02.15868	09	03	35.93	+07	57	18.2	17.9	809
1989	EH4		1989	03	02.17604	09	03	35.20	+07	57	18.8		809
1989	EH4		1989	03	02.19340	09	03	34.40	+07	57	20.0		809
1989	EH4		1989	03	03.12396	09	02	55.74	+07	58	25.7		809
1989	EH4		1989	03	03.14132	09	02	55.02	+07	58	27.1		809
1989	EH4		1989	03	03.15868	09	02	54.22	+07	58	28.4		809
1989	EJ4	*	1989	03	02.15868	09	03	56.87	+08	08	33.4	18.6	809
1989	EJ4		1989	03	02.17604	09	03	55.99	+08	08	36.4		809
1989	EJ4		1989	03	02.19340	09	03	55.28	+08	08	39.5		809
1989	EJ4		1989	03	03.12396	09	03	15.12	+08	11	38.3		809
1989	EJ4		1989	03	03.14132	09	03	14.28	+08	11	41.0		809
1989	EJ4		1989	03	03.15868	09	03	13.51	+08	11	45.0		809
1989	EK4	*	1989	03	02.15868	09	03	58.38	+08	06	58.4	18.4	809
1989	EK4		1989	03	02.17604	09	03	57.65	+08	07	00.2		809
1989	EK4		1989	03	02.19340	09	03	56.94	+08	07	02.9		809
1989	EK4		1989	03	03.12396	09	03	20.98	+08	09	04.7		809
1989	EK4		1989	03	03.14132	09	03	20.29	+08	09	06.8		809
1989	EK4		1989	03	03.15868	09	03	19.57	+08	09	09.8		809
1989	EL4	*	1989	03	02.15868	09	04	42.12	+09	38	30.3	18.9	809
1989	EL4		1989	03	02.17604	09	04	41.50	+09	38	39.8		809
1989	EL4		1989	03	02.19340	09	04	40.90	+09	38	49.7		809
1989	EL4		1989	03	03.12396	09	03	17.64	+09	42	30.5		809
1989	EL4		1989	03	03.14132	09	03	16.93	+09	42	36.7		809
1989	EL4		1989	03	03.15868	09	03	16.29	+09	42	42.6		809
1989	EM4	*	1989	03	02.15868	09	04	47.66	+05	59	27.5	20.0	809
1989	EM4		1989	03	02.17604	09	04	47.01	+05	59	33.8		809
1989	EM4		1989	03	02.19340	09	04	46.26	+05	59	39.5		809
1989	EM4		1989	03	03.12396	09	04	15.23	+06	05	38.6		809
1989	EM4		1989	03	03.14132	09	04	14.59	+06	05	44.8		809
1989	EM4		1989	03	03.15868	09	04	13.99	+06	05	52.0		809
1989	EN4	*	1989	03	02.15868	09	06	08.14	+09	00	42.3	20.0	809
1989	EN4		1989	03	02.17604	09	06	07.62	+09	00	43.6		809
1989	EN4		1989	03	02.19340	09	06	07.11	+09	00	45.8		809
1989	EN4		1989	03	03.12396	09	05	42.09	+09	02	13.6		809
1989	EN4		1989	03	03.14132	09	05	41.59	+09	02	15.9		809
1989	EN4		1989	03	03.15868	09	05	41.10	+09	02	17.4		809
1989	EO4	*	1989	03	02.15868	09	06	58.66	+08	02	40.0	19.0	809
1989	EO4		1989	03	02.17604	09	06	57.91	+08	02	45.1		809
1989	EO4		1989	03	02.19340	09	06	57.23	+08	02	50.4		809
1989	EO4		1989	03	03.12396	09	06	21.86	+08	07	22.7		809
1989	EO4		1989	03	03.14132	09	06	21.20	+08	07	26.5		809
1989	EO4		1989	03	03.15868	09	06	20.46	+08	07	32.4		809
1989	EP4	*	1989	03	02.15868	09	07	38.23	+07	55	37.4	18.7	809
1989	EP4		1989	03	02.17604	09	07	37.39	+07	55	44.8		809
1989	EP4		1989	03	02.19340	09	07	36.68	+07	55	51.5		809
1989	EP4		1989	03	03.12396	09	07	00.41	+08	02	06.8		809
1989	EP4		1989	03	03.14132	09	06	59.68	+08	02	13.8		809
1989	EP4		1989	03	03.15868	09	06	58.88	+08	02	21.1		809
1989	EQ4	*	1989	03	02.15868	09	08	29.20	+10	11	45.1	18.5	809
1989	EQ4		1989	03	02.17604	09	08	28.31	+10	11	49.0		809
1989	EQ4		1989	03	02.19340	09	08	27.33	+10	11	52.7		809

1989	EQ4		1989	03	03.12396	09	07	41.59	+10	15	28.3		809
1989	EQ4		1989	03	03.14132	09	07	40.68	+10	15	32.8		809
1989	EQ4		1989	03	03.15868	09	07	39.78	+10	15	38.2		809
1989	ER4	*	1989	03	02.15868	09	08	40.83	+07	35	49.4	18.8	809
1989	ER4		1989	03	02.17604	09	08	40.05	+07	35	54.6		809
1989	ER4		1989	03	02.19340	09	08	39.28	+07	36	00.2		809
1989	ER4		1989	03	03.12396	09	08	00.51	+07	40	46.2		809
1989	ER4		1989	03	03.14132	09	07	59.76	+07	40	51.5		809
1989	ER4		1989	03	03.15868	09	07	59.00	+07	40	56.5		809
1989	ES4	*	1989	03	02.15868	09	08	53.61	+07	25	56.5	18.6	809
1989	ES4		1989	03	02.17604	09	08	52.82	+07	26	01.6		809
1989	ES4		1989	03	02.19340	09	08	52.14	+07	26	04.9		809
1989	ES4		1989	03	03.12396	09	08	17.97	+07	29	43.3		809
1989	ES4		1989	03	03.14132	09	08	17.33	+07	29	46.5		809
1989	ES4		1989	03	03.15868	09	08	16.64	+07	29	50.3		809
1989	ET4	*	1989	03	02.15868	09	09	10.30	+05	57	37.5	17.8	809
1989	ET4		1989	03	02.17604	09	09	09.54	+05	57	47.4		809
1989	ET4		1989	03	02.19340	09	09	08.82	+05	57	56.9		809
1989	ET4		1989	03	03.12396	09	08	32.18	+06	06	34.7		809
1989	ET4		1989	03	03.14132	09	08	31.39	+06	06	44.7		809
1989	ET4		1989	03	03.15868	09	08	30.68	+06	06	54.3		809
1989	EU4	*	1989	03	02.15868	09	09	28.26	+09	20	27.5	19.5	809
1989	EU4		1989	03	02.17604	09	09	27.28	+09	20	33.1		809
1989	EU4		1989	03	02.19340	09	09	26.56	+09	20	36.6		809
1989	EU4		1989	03	03.12396	09	08	45.49	+09	24	20.0		809
1989	EU4		1989	03	03.14132	09	08	44.68	+09	24	24.8		809
1989	EU4		1989	03	03.15868	09	08	43.99	+09	24	29.3		809
1989	EV4	*	1989	03	02.15868	09	09	41.02	+07	11	30.3	18.3	809
1989	EV4		1989	03	02.17604	09	09	40.28	+07	11	37.9		809
1989	EV4		1989	03	02.19340	09	09	39.53	+07	11	45.4		809
1989	EV4		1989	03	03.12396	09	09	03.63	+07	18	27.6		809
1989	EV4		1989	03	03.14132	09	09	02.90	+07	18	35.4		809
1989	EV4		1989	03	03.15868	09	09	02.22	+07	18	42.6		809
1989	EW4	*	1989	03	02.15868	09	11	19.57	+08	09	46.2	18.5	809
1989	EW4		1989	03	02.17604	09	11	18.71	+08	09	48.2		809
1989	EW4		1989	03	02.19340	09	11	18.04	+08	09	49.7		809
1989	EW4		1989	03	03.12396	09	10	40.29	+08	11	24.2		809
1989	EW4		1989	03	03.14132	09	10	39.56	+08	11	26.2		809
1989	EW4		1989	03	03.15868	09	10	38.76	+08	11	28.8		809
1989	GA		1989	04	03.24375	13	40	49.71	-15	05	08.3	17.0	809
1989	GA		1989	04	03.25417	13	40	49.06	-15	05	07.3		809
1989	GA		1989	04	03.26458	13	40	48.36	-15	05	05.4		809
1989	GA		1989	04	05.22917	13	38	51.37	-14	59	42.0		809
1989	GA		1989	04	05.23958	13	38	50.68	-14	59	40.0		809
1989	GA		1989	04	05.25000	13	38	50.01	-14	59	38.6		809
1989	GU	*	1989	04	01.19514	12	56	09.72	-08	34	38.0	16.8	809
1989	GU		1989	04	01.20694	12	56	09.06	-08	34	34.0		809
1989	GU		1989	04	01.21806	12	56	08.47	-08	34	30.3		809
1989	GU		1989	04	02.12917	12	55	17.57	-08	29	14.5		809
1989	GU		1989	04	02.14097	12	55	16.92	-08	29	10.9		809
1989	GU		1989	04	02.15139	12	55	16.33	-08	29	07.5		809
1989	GU		1989	04	03.29375	12	54	11.11	-08	22	24.3		809
1989	GU		1989	04	03.30417	12	54	10.56	-08	22	20.5		809
1989	GU		1989	04	05.16944	12	52	24.49	-08	11	11.6		809
1989	GU		1989	04	05.17986	12	52	23.89	-08	11	08.1		809
1989	GU		1989	04	05.19028	12	52	23.16	-08	11	03.2		809
1989	GU		1989	04	09.22986	12	48	30.72	-07	46	05.0	16.2	809
1989	GU		1989	04	09.24028	12	48	30.17	-07	46	00.8		809
1989	GU		1989	04	09.25069	12	48	29.59	-07	45	56.5		809

1989	GU		1989	04	10.20633	12	47	34.72	-07	39	56.5	16.9	809
1989	GU		1989	04	10.21806	12	47	34.05	-07	39	51.4		809
1989	GV	*	1989	04	01.19514	12	58	12.65	-09	27	46.4	18.0	809
1989	GV		1989	04	01.20694	12	58	12.01	-09	27	42.6		809
1989	GV		1989	04	01.21806	12	58	11.44	-09	27	37.1		809
1989	GV		1989	04	02.12917	12	57	26.10	-09	21	52.6		809
1989	GV		1989	04	02.14097	12	57	25.49	-09	21	47.9		809
1989	GV		1989	04	02.15139	12	57	24.93	-09	21	43.0		809
1989	GV		1989	04	03.29375	12	56	28.00	-09	14	31.3		809
1989	GV		1989	04	03.30417	12	56	27.60	-09	14	28.0		809
1989	GW	*	1989	04	01.19514	12	59	26.47	-08	39	23.2	17.5	809
1989	GW		1989	04	01.20694	12	59	25.89	-08	39	05.5		809
1989	GW		1989	04	01.21806	12	59	25.34	-08	38	49.1		809
1989	GW		1989	04	02.12917	12	58	41.55	-08	16	07.6		809
1989	GW		1989	04	02.14097	12	58	41.03	-08	15	53.2		809
1989	GW		1989	04	02.15139	12	58	40.45	-08	15	36.0		809
1989	GW		1989	04	03.29375	12	57	44.43	-07	47	05.4		809
1989	GW		1989	04	03.30417	12	57	43.99	-07	46	50.7		809
1989	GW		1989	04	05.16944	12	56	13.67	-07	00	08.8		809
1989	GW		1989	04	05.17986	12	56	13.09	-06	59	53.6		809
1989	GW		1989	04	05.19028	12	56	12.62	-06	59	38.7		809
1989	GW		1989	04	06.15251	12	55	25.96	-06	35	29.7		809
1989	GW		1989	04	06.16319	12	55	25.45	-06	35	15.3		809
1989	GW		1989	04	06.17361	12	55	24.94	-06	34	59.1		809
1989	GW		1989	04	07.18681	12	54	35.77	-06	09	37.9		809
1989	GW		1989	04	07.19757	12	54	35.25	-06	09	21.4		809
1989	GW		1989	04	07.20764	12	54	34.75	-06	09	07.0		809
1989	GW		1989	04	08.20000	12	53	46.94	-05	44	18.6		809
1989	GW		1989	04	08.21111	12	53	46.44	-05	44	01.6		809
1989	GW		1989	04	08.22153	12	53	45.94	-05	43	47.1		809
1989	GW		1989	04	09.19653	12	52	59.46	-05	19	31.3		809
1989	GW		1989	04	09.20833	12	52	58.91	-05	19	13.2		809
1989	GW		1989	04	09.21875	12	52	58.50	-05	18	58.1		809
1989	GW		1989	04	11.22708	12	51	24.33	-04	29	21.2		809
1989	GW		1989	04	11.23750	12	51	23.94	-04	29	05.7		809
1989	GW		1989	04	11.24861	12	51	23.42	-04	28	48.9		809
1989	GX	*	1989	04	05.16944	12	54	39.84	-06	28	35.1	18.2	809
1989	GX		1989	04	05.17986	12	54	39.32	-06	28	32.6		809
1989	GX		1989	04	05.19028	12	54	38.79	-06	28	27.4		809
1989	GX		1989	04	06.15251	12	53	45.07	-06	22	00.6		809
1989	GX		1989	04	06.16319	12	53	44.41	-06	21	55.5		809
1989	GX		1989	04	06.17361	12	53	43.83	-06	21	51.5		809
1989	GX		1989	04	07.18681	12	52	47.02	-06	14	59.7		809
1989	GX		1989	04	07.19757	12	52	46.45	-06	14	54.7		809
1989	GX		1989	04	07.20764	12	52	45.83	-06	14	49.9		809
1989	GX		1989	04	08.20000	12	51	50.23	-06	08	06.1		809
1989	GX		1989	04	08.21111	12	51	49.72	-06	08	02.0		809
1989	GX		1989	04	08.22153	12	51	49.03	-06	07	56.5		809
1989	GY	*	1989	04	06.15251	12	58	28.49	-06	29	59.7	18.0	809
1989	GY		1989	04	06.16319	12	58	27.81	-06	29	55.9		809
1989	GY		1989	04	06.17361	12	58	27.29	-06	29	51.9		809
1989	GY		1989	04	07.18681	12	57	32.48	-06	23	26.5		809
1989	GY		1989	04	07.19757	12	57	31.87	-06	23	22.4		809
1989	GY		1989	04	07.20764	12	57	31.39	-06	23	18.6		809
1989	GY		1989	04	08.20000	12	56	37.57	-06	16	59.0		809
1989	GY		1989	04	08.21111	12	56	37.02	-06	16	56.2		809
1989	GY		1989	04	08.22153	12	56	36.38	-06	16	51.9		809
1989	GY		1989	04	09.19653	12	55	43.76	-06	10	39.7		809
1989	GY		1989	04	09.20833	12	55	43.28	-06	10	36.5		809

1989	GY		1989	04	09.21875	12	55	42.75	-06	10	31.8		809
1989	GZ	*	1989	04	03.24375	13	33	14.37	-13	10	33.2	19.4	809
1989	GZ		1989	04	03.25417	13	33	13.94	-13	10	30.3		809
1989	GZ		1989	04	03.26458	13	33	13.37	-13	10	27.6		809
1989	GZ		1989	04	05.22917	13	31	38.06	-13	01	26.0		809
1989	GZ		1989	04	05.23958	13	31	37.52	-13	01	23.6		809
1989	GZ		1989	04	05.25000	13	31	37.01	-13	01	20.0		809
1989	GA1	*	1989	04	03.24375	13	33	33.52	-13	29	09.5	19.7	809
1989	GA1		1989	04	03.25417	13	33	33.03	-13	29	06.8		809
1989	GA1		1989	04	03.26458	13	33	32.52	-13	29	05.3		809
1989	GA1		1989	04	05.22917	13	32	02.50	-13	21	12.1		809
1989	GA1		1989	04	05.23958	13	32	01.97	-13	21	10.1		809
1989	GA1		1989	04	05.25000	13	32	01.45	-13	21	07.4		809
1989	GB1	*	1989	04	03.24375	13	33	43.83	-12	46	20.6	18.0	809
1989	GB1		1989	04	03.25417	13	33	43.35	-12	46	16.8		809
1989	GB1		1989	04	03.26458	13	33	42.92	-12	46	14.0		809
1989	GB1		1989	04	05.22917	13	32	21.21	-12	35	56.9		809
1989	GB1		1989	04	05.23958	13	32	20.73	-12	35	53.1		809
1989	GB1		1989	04	05.25000	13	32	20.30	-12	35	50.3		809
1989	GC1	*	1989	04	03.24375	13	34	14.57	-14	45	06.4	19.7	809
1989	GC1		1989	04	03.25417	13	34	14.01	-14	45	04.4		809
1989	GC1		1989	04	03.26458	13	34	13.42	-14	45	01.5		809
1989	GC1		1989	04	05.22917	13	32	29.40	-14	36	33.4		809
1989	GC1		1989	04	05.23958	13	32	28.82	-14	36	31.1		809
1989	GC1		1989	04	05.25000	13	32	28.18	-14	36	27.1		809
1989	GD1	*	1989	04	03.24375	13	34	16.95	-14	09	08.9	19.0	809
1989	GD1		1989	04	03.25417	13	34	16.38	-14	09	07.0		809
1989	GD1		1989	04	03.26458	13	34	15.80	-14	09	05.1		809
1989	GD1		1989	04	05.22917	13	32	26.92	-14	04	01.3		809
1989	GD1		1989	04	05.23958	13	32	26.24	-14	03	59.9		809
1989	GD1		1989	04	05.25000	13	32	25.67	-14	03	58.3		809
1989	GF1	*	1989	04	03.24375	13	34	51.95	-14	52	20.3	18.2	809
1989	GF1		1989	04	03.25417	13	34	51.31	-14	52	18.4		809
1989	GF1		1989	04	03.26458	13	34	50.67	-14	52	16.1		809
1989	GF1		1989	04	05.22917	13	32	54.92	-14	45	49.0		809
1989	GF1		1989	04	05.23958	13	32	54.24	-14	45	47.0		809
1989	GF1		1989	04	05.25000	13	32	53.57	-14	45	44.6		809
1989	GG1	*	1989	04	03.24375	13	35	09.68	-12	52	44.6	18.3	809
1989	GG1		1989	04	03.25417	13	35	09.00	-12	52	44.4		809
1989	GG1		1989	04	03.26458	13	35	08.34	-12	52	42.8		809
1989	GG1		1989	04	05.22917	13	33	04.16	-12	50	13.2		809
1989	GG1		1989	04	05.23958	13	33	03.45	-12	50	12.7		809
1989	GG1		1989	04	05.25000	13	33	02.74	-12	50	11.3		809
1989	GH1	*	1989	04	03.24375	13	35	10.56	-12	40	55.7	20.0	809
1989	GH1		1989	04	03.25417	13	35	09.88	-12	40	53.6		809
1989	GH1		1989	04	03.26458	13	35	09.20	-12	40	51.1		809
1989	GH1		1989	04	05.22917	13	33	11.96	-12	33	53.8		809
1989	GH1		1989	04	05.23958	13	33	11.34	-12	33	51.4		809
1989	GH1		1989	04	05.25000	13	33	10.68	-12	33	50.2		809
1989	GJ1	*	1989	04	03.24375	13	35	55.86	-16	09	04.0	19.6	809
1989	GJ1		1989	04	03.25417	13	35	55.39	-16	09	01.7		809
1989	GJ1		1989	04	03.26458	13	35	54.85	-16	08	59.7		809
1989	GJ1		1989	04	05.22917	13	34	19.62	-16	00	21.5		809
1989	GJ1		1989	04	05.23958	13	34	19.00	-16	00	17.7		809
1989	GJ1		1989	04	05.25000	13	34	18.46	-16	00	15.1		809
1989	GK1	*	1989	04	03.24375	13	35	58.55	-15	04	06.0	19.0	809
1989	GK1		1989	04	03.25417	13	35	57.97	-15	04	05.7		809
1989	GK1		1989	04	03.26458	13	35	57.45	-15	04	04.8		809
1989	GK1		1989	04	05.22917	13	34	23.25	-15	01	10.5		809

1989	GK1		1989	04	05.23958	13	34	22.70	-15	01	09.7		809
1989	GK1		1989	04	05.25000	13	34	22.18	-15	01	09.2		809
1989	GL1	*	1989	04	03.24375	13	36	27.79	-14	54	02.3	17.2	809
1989	GL1		1989	04	03.25417	13	36	27.21	-14	54	00.3		809
1989	GL1		1989	04	03.26458	13	36	26.58	-14	53	58.0		809
1989	GL1		1989	04	05.22917	13	34	38.84	-14	46	33.5		809
1989	GL1		1989	04	05.23958	13	34	38.17	-14	46	30.8		809
1989	GL1		1989	04	05.25000	13	34	37.56	-14	46	29.4		809
1989	GM1	*	1989	04	03.24375	13	36	33.51	-15	16	10.2	19.8	809
1989	GM1		1989	04	03.25417	13	36	32.96	-15	16	05.6		809
1989	GM1		1989	04	03.26458	13	36	32.45	-15	16	00.1		809
1989	GM1		1989	04	05.22917	13	35	00.78	-15	02	15.0		809
1989	GM1		1989	04	05.23958	13	35	00.27	-15	02	10.7		809
1989	GM1		1989	04	05.25000	13	34	59.79	-15	02	07.8		809
1989	GN1	*	1989	04	03.24375	13	36	56.40	-17	03	15.5	18.8	809
1989	GN1		1989	04	03.25417	13	36	55.67	-17	03	14.4		809
1989	GN1		1989	04	03.26458	13	36	55.04	-17	03	14.6		809
1989	GN1		1989	04	05.22917	13	35	01.09	-17	01	52.5		809
1989	GN1		1989	04	05.23958	13	35	00.43	-17	01	52.6		809
1989	GN1		1989	04	05.25000	13	34	59.84	-17	01	52.1		809
1989	GO1	*	1989	04	03.24375	13	37	07.76	-12	17	41.1	19.3	809
1989	GO1		1989	04	03.25417	13	37	07.14	-12	17	37.0		809
1989	GO1		1989	04	03.26458	13	37	06.58	-12	17	33.9		809
1989	GO1		1989	04	05.22917	13	35	21.18	-12	06	52.9		809
1989	GO1		1989	04	05.23958	13	35	20.57	-12	06	49.9		809
1989	GO1		1989	04	05.25000	13	35	20.03	-12	06	46.3		809
1989	GP1	*	1989	04	03.24375	13	37	18.07	-12	27	32.5	20.5	809
1989	GP1		1989	04	03.25417	13	37	17.58	-12	27	29.0		809
1989	GP1		1989	04	03.26458	13	37	17.00	-12	27	27.0		809
1989	GP1		1989	04	05.22917	13	35	46.59	-12	21	52.9		809
1989	GP1		1989	04	05.23958	13	35	46.06	-12	21	51.6		809
1989	GP1		1989	04	05.25000	13	35	45.48	-12	21	48.7		809
1989	GQ1	*	1989	04	03.24375	13	37	27.72	-12	49	38.2	19.7	809
1989	GQ1		1989	04	03.25417	13	37	27.13	-12	49	34.4		809
1989	GQ1		1989	04	03.26458	13	37	26.56	-12	49	32.2		809
1989	GQ1		1989	04	05.22917	13	35	42.47	-12	39	13.1		809
1989	GQ1		1989	04	05.23958	13	35	41.86	-12	39	10.0		809
1989	GQ1		1989	04	05.25000	13	35	41.19	-12	39	04.9		809
1989	GR1	*	1989	04	03.24375	13	37	41.54	-15	43	15.5	19.2	809
1989	GR1		1989	04	03.25417	13	37	41.00	-15	43	09.9		809
1989	GR1		1989	04	03.26458	13	37	40.45	-15	43	03.7		809
1989	GR1		1989	04	05.22917	13	36	11.03	-15	25	49.7		809
1989	GR1		1989	04	05.23958	13	36	10.55	-15	25	45.3		809
1989	GR1		1989	04	05.25000	13	36	10.09	-15	25	39.8		809
1989	GS1	*	1989	04	03.24375	13	38	05.88	-16	31	30.8	19.7	809
1989	GS1		1989	04	03.25417	13	38	05.24	-16	31	33.0		809
1989	GS1		1989	04	03.26458	13	38	04.56	-16	31	34.8		809
1989	GS1		1989	04	05.22917	13	36	03.31	-16	36	49.2		809
1989	GS1		1989	04	05.23958	13	36	02.71	-16	36	51.6		809
1989	GS1		1989	04	05.25000	13	36	01.97	-16	36	53.2		809
1989	GT1	*	1989	04	03.24375	13	39	02.39	-15	02	58.8	18.0	809
1989	GT1		1989	04	03.25417	13	39	01.99	-15	02	54.2		809
1989	GT1		1989	04	03.26458	13	39	01.57	-15	02	49.8		809
1989	GT1		1989	04	05.22917	13	37	44.90	-14	48	01.8		809
1989	GT1		1989	04	05.23958	13	37	44.42	-14	47	57.7		809
1989	GT1		1989	04	05.25000	13	37	44.01	-14	47	53.0		809
1989	GU1	*	1989	04	03.24375	13	39	18.40	-14	15	49.1	21.0	809
1989	GU1		1989	04	03.25417	13	39	17.86	-14	15	46.2		809
1989	GU1		1989	04	03.26458	13	39	17.17	-14	15	41.8		809

1989	GU1		1989	04	05.22917	13	37	27.54	-14	04	38.0		809
1989	GU1		1989	04	05.23958	13	37	26.92	-14	04	34.0		809
1989	GU1		1989	04	05.25000	13	37	26.36	-14	04	30.9		809
1989	GV1	*	1989	04	03.24375	13	39	29.10	-16	15	29.8	18.3	809
1989	GV1		1989	04	03.25417	13	39	28.44	-16	15	29.1		809
1989	GV1		1989	04	03.26458	13	39	27.84	-16	15	28.0		809
1989	GV1		1989	04	05.22917	13	37	34.59	-16	11	50.0		809
1989	GV1		1989	04	05.23958	13	37	33.94	-16	11	49.0		809
1989	GV1		1989	04	05.25000	13	37	33.32	-16	11	48.0		809
1989	GW1	*	1989	04	03.24375	13	39	29.95	-12	52	00.6	20.0	809
1989	GW1		1989	04	03.25417	13	39	29.29	-12	51	57.9		809
1989	GW1		1989	04	03.26458	13	39	28.65	-12	51	56.7		809
1989	GW1		1989	04	05.22917	13	37	31.10	-12	45	10.8		809
1989	GW1		1989	04	05.23958	13	37	30.50	-12	45	09.1		809
1989	GW1		1989	04	05.25000	13	37	29.85	-12	45	06.9		809
1989	GX1	*	1989	04	03.24375	13	41	13.97	-15	41	10.4	18.7	809
1989	GX1		1989	04	03.25417	13	41	13.34	-15	41	11.0		809
1989	GX1		1989	04	03.26458	13	41	12.72	-15	41	11.7		809
1989	GX1		1989	04	05.22917	13	39	23.80	-15	42	25.5		809
1989	GX1		1989	04	05.23958	13	39	23.12	-15	42	25.6		809
1989	GX1		1989	04	05.25000	13	39	22.45	-15	42	25.7		809
1989	GY1	*	1989	04	03.24375	13	41	20.14	-16	05	30.5	20.5	809
1989	GY1		1989	04	03.25417	13	41	19.61	-16	05	28.7		809
1989	GY1		1989	04	03.26458	13	41	19.07	-16	05	27.9		809
1989	GY1		1989	04	05.22917	13	39	40.96	-16	01	31.3		809
1989	GY1		1989	04	05.23958	13	39	40.49	-16	01	30.6		809
1989	GY1		1989	04	05.25000	13	39	39.94	-16	01	30.1		809
1989	GZ1	*	1989	04	03.24375	13	41	41.17	-13	32	25.3	20.0	809
1989	GZ1		1989	04	03.25417	13	41	40.57	-13	32	21.3		809
1989	GZ1		1989	04	03.26458	13	41	40.05	-13	32	18.5		809
1989	GZ1		1989	04	05.22917	13	39	56.64	-13	22	08.9		809
1989	GZ1		1989	04	05.23958	13	39	56.09	-13	22	05.6		809
1989	GZ1		1989	04	05.25000	13	39	55.52	-13	22	01.9		809
1989	GA2	*	1989	04	03.24375	13	41	45.37	-15	13	55.2	18.5	809
1989	GA2		1989	04	03.25417	13	41	44.88	-15	13	50.6		809
1989	GA2		1989	04	03.26458	13	41	44.33	-15	13	46.3		809
1989	GA2		1989	04	05.22917	13	40	08.49	-14	59	06.9		809
1989	GA2		1989	04	05.23958	13	40	07.90	-14	59	02.3		809
1989	GA2		1989	04	05.25000	13	40	07.40	-14	58	58.0		809
1989	GB2	*	1989	04	03.24375	13	41	45.38	-15	34	42.2	18.8	809
1989	GB2		1989	04	03.25417	13	41	44.73	-15	34	40.1		809
1989	GB2		1989	04	03.26458	13	41	44.09	-15	34	38.6		809
1989	GB2		1989	04	05.22917	13	39	47.21	-15	28	31.9		809
1989	GB2		1989	04	05.23958	13	39	46.50	-15	28	29.2		809
1989	GB2		1989	04	05.25000	13	39	45.90	-15	28	27.3		809
1989	GC2	*	1989	04	03.24375	13	41	48.31	-12	42	32.4	18.0	809
1989	GC2		1989	04	03.25417	13	41	47.74	-12	42	29.9		809
1989	GC2		1989	04	03.26458	13	41	47.27	-12	42	27.6		809
1989	GC2		1989	04	05.22917	13	40	13.43	-12	33	18.2		809
1989	GC2		1989	04	05.23958	13	40	12.90	-12	33	14.9		809
1989	GC2		1989	04	05.25000	13	40	12.38	-12	33	12.3		809
1989	GD2	*	1989	04	03.24375	13	42	05.02	-13	56	34.1	17.8	809
1989	GD2		1989	04	03.25417	13	42	04.40	-13	56	32.3		809
1989	GD2		1989	04	03.26458	13	42	03.78	-13	56	30.5		809
1989	GD2		1989	04	05.22917	13	40	18.35	-13	49	44.1		809
1989	GD2		1989	04	05.23958	13	40	17.70	-13	49	42.3		809
1989	GD2		1989	04	05.25000	13	40	17.09	-13	49	40.1		809
1989	GE2	*	1989	04	03.24375	13	42	06.45	-12	57	35.7	19.5	809
1989	GE2		1989	04	03.25417	13	42	05.71	-12	57	35.4		809

1989	GE2		1989	04	03.26458	13	42	05.08	-12	57	32.5		809
1989	GE2		1989	04	05.22917	13	40	03.04	-12	52	40.2		809
1989	GE2		1989	04	05.23958	13	40	02.38	-12	52	39.1		809
1989	GE2		1989	04	05.25000	13	40	01.69	-12	52	36.4		809
1989	GF2	*	1989	04	03.24375	13	42	21.53	-15	56	45.3	19.8	809
1989	GF2		1989	04	03.25417	13	42	21.18	-15	56	42.8		809
1989	GF2		1989	04	03.26458	13	42	20.70	-15	56	40.5		809
1989	GF2		1989	04	05.22917	13	41	02.09	-15	39	33.4		809
1989	GF2		1989	04	05.23958	13	41	01.54	-15	39	27.5		809
1989	GF2		1989	04	05.25000	13	41	01.15	-15	39	21.9		809
1989	GG2	*	1989	04	03.24375	13	42	31.04	-13	45	59.7	18.5	809
1989	GG2		1989	04	03.25417	13	42	30.52	-13	45	57.5		809
1989	GG2		1989	04	03.26458	13	42	29.96	-13	45	55.7		809
1989	GG2		1989	04	05.22917	13	40	49.90	-13	38	53.1		809
1989	GG2		1989	04	05.23958	13	40	49.33	-13	38	50.9		809
1989	GG2		1989	04	05.25000	13	40	48.73	-13	38	48.7		809
1989	GH2	*	1989	04	03.24375	13	43	27.22	-12	40	33.6	19.0	809
1989	GH2		1989	04	03.25417	13	43	26.77	-12	40	30.4		809
1989	GH2		1989	04	03.26458	13	43	26.33	-12	40	28.5		809
1989	GH2		1989	04	05.22917	13	41	45.02	-12	34	01.6		809
1989	GH2		1989	04	05.23958	13	41	44.33	-12	33	58.8		809
1989	GH2		1989	04	05.25000	13	41	43.76	-12	33	56.4		809
1989	GJ2	*	1989	04	03.24375	13	44	13.73	-16	07	05.1	18.7	809
1989	GJ2		1989	04	03.25417	13	44	13.21	-16	07	00.6		809
1989	GJ2		1989	04	03.26458	13	44	12.65	-16	06	57.1		809
1989	GJ2		1989	04	05.22917	13	42	32.58	-15	54	09.0		809
1989	GJ2		1989	04	05.23958	13	42	32.02	-15	54	05.2		809
1989	GJ2		1989	04	05.25000	13	42	31.49	-15	54	01.7		809
1989	GK2	*	1989	04	03.24375	13	44	40.21	-13	17	12.3	19.6	809
1989	GK2		1989	04	03.25417	13	44	39.69	-13	17	11.2		809
1989	GK2		1989	04	03.26458	13	44	39.12	-13	17	09.6		809
1989	GK2		1989	04	05.22917	13	42	57.53	-13	13	25.9		809
1989	GK2		1989	04	05.23958	13	42	56.97	-13	13	24.9		809
1989	GK2		1989	04	05.25000	13	42	56.39	-13	13	23.2		809
1989	GL2	*	1989	04	03.24375	13	45	12.08	-16	34	03.5	20.0	809
1989	GL2		1989	04	03.25417	13	45	11.61	-16	34	00.3		809
1989	GL2		1989	04	03.26458	13	45	11.25	-16	33	57.2		809
1989	GL2		1989	04	05.22917	13	43	24.21	-16	14	06.2		809
1989	GL2		1989	04	05.23958	13	43	23.63	-16	14	02.9		809
1989	GL2		1989	04	05.25000	13	43	23.14	-16	14	00.0		809
1989	GM2	*	1989	04	03.24375	13	45	29.21	-13	34	02.0	18.3	809
1989	GM2		1989	04	03.25417	13	45	28.74	-13	33	57.4		809
1989	GM2		1989	04	03.26458	13	45	28.28	-13	33	53.8		809
1989	GM2		1989	04	05.22917	13	44	02.06	-13	20	11.7		809
1989	GM2		1989	04	05.23958	13	44	01.55	-13	20	07.1		809
1989	GM2		1989	04	05.25000	13	44	01.12	-13	20	02.8		809
1989	GN2	*	1989	04	03.24375	13	47	09.76	-15	53	18.9	19.8	809
1989	GN2		1989	04	03.25417	13	47	09.32	-15	53	15.1		809
1989	GN2		1989	04	03.26458	13	47	08.84	-15	53	11.6		809
1989	GN2		1989	04	05.22917	13	45	50.26	-15	40	24.6		809
1989	GN2		1989	04	05.23958	13	45	49.80	-15	40	20.3		809
1989	GN2		1989	04	05.25000	13	45	49.28	-15	40	16.1		809
1989	GO2	*	1989	04	03.24375	13	47	23.07	-17	17	13.7	19.5	809
1989	GO2		1989	04	03.25417	13	47	22.57	-17	17	11.6		809
1989	GO2		1989	04	03.26458	13	47	22.12	-17	17	08.7		809
1989	GO2		1989	04	05.22917	13	45	49.76	-17	08	34.0		809
1989	GO2		1989	04	05.23958	13	45	49.22	-17	08	30.5		809
1989	GO2		1989	04	05.25000	13	45	48.64	-17	08	27.6		809
1989	GP2	*	1989	04	03.24375	13	47	45.78	-15	20	44.3	19.5	809

1989	GP2		1989	04	03.25417	13	47	45.34	-15	20	40.6		809
1989	GP2		1989	04	03.26458	13	47	44.92	-15	20	36.8		809
1989	GP2		1989	04	05.22917	13	46	27.43	-15	08	01.2		809
1989	GP2		1989	04	05.23958	13	46	26.96	-15	07	56.6		809
1989	GP2		1989	04	05.25000	13	46	26.57	-15	07	53.4		809
1989	GQ2	*	1989	04	03.24375	13	47	55.72	-15	51	20.7	17.9	809
1989	GQ2		1989	04	03.25417	13	47	55.22	-15	51	19.2		809
1989	GQ2		1989	04	03.26458	13	47	54.72	-15	51	17.1		809
1989	GQ2		1989	04	05.22917	13	46	21.56	-15	45	27.0		809
1989	GQ2		1989	04	05.23958	13	46	21.01	-15	45	25.0		809
1989	GQ2		1989	04	05.25000	13	46	20.46	-15	45	22.4		809
1989	GR2	*	1989	04	03.24375	13	48	09.99	-13	04	28.7	19.0	809
1989	GR2		1989	04	03.25417	13	48	09.52	-13	04	24.1		809
1989	GR2		1989	04	03.26458	13	48	09.06	-13	04	21.3		809
1989	GR2		1989	04	05.22917	13	46	43.95	-12	56	35.9		809
1989	GR2		1989	04	05.23958	13	46	43.38	-12	56	33.5		809
1989	GR2		1989	04	05.25000	13	46	42.75	-12	56	29.6		809
1989	GS2	*	1989	04	03.24375	13	48	14.30	-16	38	14.3	18.2	809
1989	GS2		1989	04	03.25417	13	48	13.81	-16	38	10.6		809
1989	GS2		1989	04	03.26458	13	48	13.41	-16	38	07.7		809
1989	GS2		1989	04	05.22917	13	46	57.14	-16	27	04.1		809
1989	GS2		1989	04	05.23958	13	46	56.67	-16	27	00.4		809
1989	GS2		1989	04	05.25000	13	46	56.25	-16	26	57.2		809
1989	GT2	*	1989	04	03.24375	13	48	36.47	-16	40	33.1	19.8	809
1989	GT2		1989	04	03.25417	13	48	35.95	-16	40	30.3		809
1989	GT2		1989	04	03.26458	13	48	35.49	-16	40	28.3		809
1989	GT2		1989	04	05.22917	13	47	05.58	-16	32	31.9		809
1989	GT2		1989	04	05.23958	13	47	05.01	-16	32	28.7		809
1989	GT2		1989	04	05.25000	13	47	04.38	-16	32	25.7		809
1989	GU2	*	1989	04	03.24375	13	49	27.24	-14	18	54.2	19.5	809
1989	GU2		1989	04	03.25417	13	49	26.66	-14	18	52.7		809
1989	GU2		1989	04	03.26458	13	49	26.02	-14	18	51.5		809
1989	GU2		1989	04	05.22917	13	47	35.31	-14	14	54.3		809
1989	GU2		1989	04	05.23958	13	47	34.64	-14	14	53.1		809
1989	GU2		1989	04	05.25000	13	47	34.02	-14	14	51.4		809
1989	GV2	*	1989	04	03.24375	13	49	36.33	-17	17	36.2	18.2	809
1989	GV2		1989	04	03.25417	13	49	35.83	-17	17	32.4		809
1989	GV2		1989	04	03.26458	13	49	35.26	-17	17	27.8		809
1989	GV2		1989	04	05.22917	13	48	02.53	-17	03	41.5		809
1989	GV2		1989	04	05.23958	13	48	02.01	-17	03	36.3		809
1989	GV2		1989	04	05.25000	13	48	01.49	-17	03	32.7		809
1989	GW2	*	1989	04	03.24375	13	49	37.94	-13	43	59.2	21.0	809
1989	GW2		1989	04	03.25417	13	49	37.24	-13	43	57.7		809
1989	GW2		1989	04	03.26458	13	49	36.72	-13	43	54.9		809
1989	GW2		1989	04	05.22917	13	47	45.52	-13	36	54.3		809
1989	GW2		1989	04	05.23958	13	47	44.93	-13	36	51.3		809
1989	GW2		1989	04	05.25000	13	47	44.21	-13	36	49.3		809
1989	GX2	*	1989	04	03.24375	13	50	25.15	-13	13	23.1	18.2	809
1989	GX2		1989	04	03.25417	13	50	24.54	-13	13	18.5		809
1989	GX2		1989	04	03.26458	13	50	23.99	-13	13	14.7		809
1989	GX2		1989	04	05.22917	13	48	40.26	-13	00	18.7		809
1989	GX2		1989	04	05.23958	13	48	39.71	-13	00	15.1		809
1989	GX2		1989	04	05.25000	13	48	39.08	-13	00	11.1		809
1989	GY2	*	1989	04	03.24375	13	50	31.34	-15	21	01.1	18.2	809
1989	GY2		1989	04	03.25417	13	50	30.96	-15	20	57.9		809
1989	GY2		1989	04	03.26458	13	50	30.52	-15	20	54.8		809
1989	GY2		1989	04	05.22917	13	49	14.41	-15	10	20.7		809
1989	GY2		1989	04	05.23958	13	49	14.03	-15	10	17.5		809
1989	GY2		1989	04	05.25000	13	49	13.54	-15	10	13.4		809

1989	GZ2	*	1989	04	03.24375	13	51	15.79	-17	00	48.3	18.5	809
1989	GZ2		1989	04	03.25417	13	51	15.19	-17	00	45.3		809
1989	GZ2		1989	04	03.26458	13	51	14.56	-17	00	43.1		809
1989	GZ2		1989	04	05.22917	13	49	23.32	-16	51	52.2		809
1989	GZ2		1989	04	05.23958	13	49	22.66	-16	51	49.5		809
1989	GZ2		1989	04	05.25000	13	49	22.03	-16	51	47.1		809
1989	GA3	*	1989	04	03.24375	13	51	30.49	-12	45	39.3	18.0	809
1989	GA3		1989	04	03.25417	13	51	30.01	-12	45	36.5		809
1989	GA3		1989	04	03.26458	13	51	29.46	-12	45	33.1		809
1989	GA3		1989	04	05.22917	13	49	52.77	-12	35	05.0		809
1989	GA3		1989	04	05.23958	13	49	52.23	-12	35	02.0		809
1989	GA3		1989	04	05.25000	13	49	51.64	-12	34	58.2		809
1989	GB3	*	1989	04	03.24375	13	51	32.82	-14	45	02.4	17.5	809
1989	GB3		1989	04	03.25417	13	51	32.28	-14	45	03.1		809
1989	GB3		1989	04	03.26458	13	51	31.73	-14	45	03.0		809
1989	GB3		1989	04	05.22917	13	49	54.32	-14	44	01.6		809
1989	GB3		1989	04	05.23958	13	49	53.77	-14	44	02.0		809
1989	GB3		1989	04	05.25000	13	49	53.21	-14	44	01.2		809
1989	GC3	*	1989	04	03.24375	13	52	20.95	-13	56	12.6	18.5	809
1989	GC3		1989	04	03.25417	13	52	20.38	-13	56	12.3		809
1989	GC3		1989	04	03.26458	13	52	19.83	-13	56	12.2		809
1989	GC3		1989	04	05.22917	13	50	35.49	-13	55	15.2		809
1989	GC3		1989	04	05.23958	13	50	34.89	-13	55	15.0		809
1989	GC3		1989	04	05.25000	13	50	34.26	-13	55	14.0		809
1989	GD3	*	1989	04	03.24375	13	52	21.61	-16	41	52.7	18.3	809
1989	GD3		1989	04	03.25417	13	52	21.19	-16	41	47.5		809
1989	GD3		1989	04	03.26458	13	52	20.77	-16	41	40.8		809
1989	GD3		1989	04	05.22917	13	51	04.92	-16	22	50.5		809
1989	GD3		1989	04	05.23958	13	51	04.52	-16	22	45.2		809
1989	GD3		1989	04	05.25000	13	51	04.07	-16	22	39.4		809
1989	GE3	*	1989	04	03.24375	13	52	27.55	-15	12	52.1	21.0	809
1989	GE3		1989	04	03.25417	13	52	26.70	-15	12	48.9		809
1989	GE3		1989	04	03.26458	13	52	25.91	-15	12	45.2		809
1989	GE3		1989	04	05.22917	13	50	58.11	-15	06	57.8		809
1989	GE3		1989	04	05.23958	13	50	57.67	-15	06	56.3		809
1989	GE3		1989	04	05.25000	13	50	57.26	-15	06	53.9		809
1989	GF3	*	1989	04	03.24375	13	53	07.41	-14	26	30.5	18.7	809
1989	GF3		1989	04	03.25417	13	53	06.93	-14	26	27.6		809
1989	GF3		1989	04	03.26458	13	53	06.47	-14	26	23.1		809
1989	GF3		1989	04	05.22917	13	51	45.74	-14	14	49.1		809
1989	GF3		1989	04	05.23958	13	51	45.17	-14	14	46.3		809
1989	GF3		1989	04	05.25000	13	51	44.74	-14	14	42.2		809
1989	GG3	*	1989	04	03.24375	13	53	21.64	-14	24	07.3	19.5	809
1989	GG3		1989	04	03.25417	13	53	21.23	-14	24	02.6		809
1989	GG3		1989	04	03.26458	13	53	20.84	-14	23	57.4		809
1989	GG3		1989	04	05.22917	13	52	03.58	-14	09	07.9		809
1989	GG3		1989	04	05.23958	13	52	03.13	-14	09	02.8		809
1989	GG3		1989	04	05.25000	13	52	02.67	-14	08	57.4		809
1989	GH3	*	1989	04	02.16319	12	59	35.61	-11	59	53.0	17.9	809
1989	GH3		1989	04	02.17361	12	59	35.06	-11	59	46.5		809
1989	GH3		1989	04	02.18750	12	59	34.43	-11	59	39.4		809
1989	GH3		1989	04	04.16597	12	57	52.64	-11	45	34.4		809
1989	GH3		1989	04	04.17639	12	57	52.01	-11	45	28.4		809
1989	GJ3	*	1989	04	02.28542	13	28	40.63	-12	55	56.1	18.0	809
1989	GJ3		1989	04	02.29583	13	28	39.99	-12	55	54.0		809
1989	GJ3		1989	04	02.30625	13	28	39.39	-12	55	50.8		809
1989	GJ3		1989	04	07.15069	13	24	05.80	-12	38	55.7		809
1989	GJ3		1989	04	07.16111	13	24	04.88	-12	38	48.0		809
1989	GJ3		1989	04	07.17188	13	24	04.04	-12	38	39.1		809

1989	GK3	*	1989	04	02.28542	13	30	42.43	-12	44	11.7	18.0	809
1989	GK3		1989	04	02.29583	13	30	41.80	-12	44	07.1		809
1989	GK3		1989	04	02.30625	13	30	41.21	-12	44	02.3		809
1989	GK3		1989	04	07.15069	13	25	27.26	-12	02	42.3		809
1989	GK3		1989	04	07.16111	13	25	26.51	-12	02	32.9		809
1989	GK3		1989	04	07.17188	13	25	25.65	-12	02	24.3		809
1989	GL3	*	1989	04	03.22986	12	55	00.63	-02	54	06.4	18.0	809
1989	GL3		1989	04	03.24028	12	55	00.13	-02	54	07.4		809
1989	GL3		1989	04	03.25069	12	54	59.45	-02	54	09.5		809
1989	GL3		1989	04	06.18958	12	51	36.39	-03	03	14.5		809
1989	GL3		1989	04	06.20000	12	51	35.64	-03	03	16.3		809
1989	GL3		1989	04	06.21111	12	51	35.05	-03	03	18.0		809
1989	GM3	*	1989	04	03.22986	12	55	18.11	-03	57	10.9	17.3	809
1989	GM3		1989	04	03.24028	12	55	17.60	-03	57	08.0		809
1989	GM3		1989	04	03.25069	12	55	17.15	-03	57	05.2		809
1989	GM3		1989	04	05.21181	12	53	47.08	-03	48	42.2		809
1989	GM3		1989	04	05.22708	12	53	46.38	-03	48	38.0		809
1989	GM3		1989	04	05.23750	12	53	45.91	-03	48	36.1		809
1989	GN3	*	1989	04	03.22986	12	55	32.70	-03	38	50.7	17.5	809
1989	GN3		1989	04	03.24028	12	55	32.23	-03	38	44.2		809
1989	GN3		1989	04	03.25069	12	55	31.83	-03	38	39.0		809
1989	GN3		1989	04	05.21181	12	54	12.42	-03	21	52.0		809
1989	GN3		1989	04	05.22708	12	54	11.82	-03	21	43.8		809
1989	GN3		1989	04	05.23750	12	54	11.37	-03	21	38.5		809
1989	GN3		1989	04	06.18958	12	53	32.86	-03	13	31.9		809
1989	GN3		1989	04	06.20000	12	53	32.46	-03	13	26.1		809
1989	GN3		1989	04	06.21111	12	53	32.06	-03	13	20.7		809
1989	GO3	*	1989	04	03.22986	12	57	22.64	-02	35	18.8	17.8	809
1989	GO3		1989	04	03.24028	12	57	22.06	-02	35	13.4		809
1989	GO3		1989	04	03.25069	12	57	21.48	-02	35	08.1		809
1989	GO3		1989	04	06.18958	12	54	36.84	-02	11	42.6		809
1989	GO3		1989	04	06.20000	12	54	36.28	-02	11	37.3		809
1989	GO3		1989	04	06.21111	12	54	35.59	-02	11	32.3		809
1989	GP3	*	1989	04	03.22986	12	59	13.58	-02	29	44.6	17.7	809
1989	GP3		1989	04	03.24028	12	59	13.10	-02	29	40.2		809
1989	GP3		1989	04	03.25069	12	59	12.44	-02	29	35.0		809
1989	GP3		1989	04	06.18958	12	56	31.06	-02	06	52.6		809
1989	GP3		1989	04	06.20000	12	56	30.51	-02	06	48.2		809
1989	GP3		1989	04	06.21111	12	56	29.90	-02	06	41.7		809
1989	GR3	*	1989	04	01.15972	12	30	31.18	-10	04	15.6	17.9	809
1989	GR3		1989	04	01.17014	12	30	30.58	-10	04	11.3		809
1989	GR3		1989	04	01.18056	12	30	29.98	-10	04	07.1		809
1989	GR3		1989	04	04.09236	12	27	51.63	-09	45	27.3		809
1989	GR3		1989	04	04.10278	12	27	51.11	-09	45	23.5		809
1989	GR3		1989	04	08.07917	12	24	16.30	-09	18	46.7		809
1989	GR3		1989	04	08.08958	12	24	15.74	-09	18	43.2		809
1989	GR3		1989	04	08.10000	12	24	15.13	-09	18	39.5		809
1989	GS3	*	1989	04	02.25347	13	27	13.47	-09	50	58.7	17.5	809
1989	GS3		1989	04	02.26389	13	27	13.02	-09	50	55.0		809
1989	GS3		1989	04	02.27431	13	27	12.48	-09	50	51.9		809
1989	GS3		1989	04	05.24931	13	24	33.72	-09	35	19.4	18.0	809
1989	GS3		1989	04	05.25972	13	24	33.18	-09	35	16.1		809
1989	GS3		1989	04	11.26111	13	18	55.35	-09	01	31.6	17.0	809
1989	GS3		1989	04	11.27187	13	18	54.73	-09	01	28.0		809
1989	GS3		1989	04	11.28264	13	18	54.11	-09	01	24.0		809
1989	GT3	*	1989	04	02.25347	13	28	09.90	-10	43	53.7	17.8	809
1989	GT3		1989	04	02.26389	13	28	09.36	-10	43	50.4		809
1989	GT3		1989	04	02.27431	13	28	08.84	-10	43	47.2		809
1989	GT3		1989	04	05.24931	13	25	19.14	-10	27	09.2	18.1	809

1989	GT3		1989	04	05.25972	13	25	18.77	-10	27	06.0		809
1989	GT3		1989	04	11.26111	13	19	23.93	-09	51	27.0	17.8	809
1989	GT3		1989	04	11.27187	13	19	23.29	-09	51	22.2		809
1989	GT3		1989	04	11.28264	13	19	22.70	-09	51	19.1		809
1989	GU3	*	1989	04	04.09236	12	29	54.28	-10	14	43.5	18.0	809
1989	GU3		1989	04	04.10278	12	29	53.64	-10	14	39.4		809
1989	GU3		1989	04	10.14028	12	24	34.73	-09	34	36.5		809
1989	GU3		1989	04	10.15069	12	24	34.27	-09	34	32.0		809
1989	GU3		1989	04	10.16111	12	24	33.80	-09	34	27.7		809
1989	GU3		1989	04	11.11944	12	23	44.99	-09	28	00.5		809
1989	GU3		1989	04	11.12986	12	23	44.42	-09	27	55.3		809
1989	GV3	*	1989	04	04.24792	13	16	21.50	-06	42	49.6	18.0	809
1989	GV3		1989	04	04.25833	13	16	20.90	-06	42	40.8		809
1989	GV3		1989	04	04.26875	13	16	20.41	-06	42	32.8		809
1989	GV3		1989	04	06.29722	13	14	34.11	-06	16	25.5	18.2	809
1989	GV3		1989	04	06.30764	13	14	33.63	-06	16	18.4		809
1989	GV3		1989	04	06.31806	13	14	33.29	-06	16	10.9		809
1989	GV3		1989	04	08.31111	13	12	48.73	-05	50	31.9	18.2	809
1989	GV3		1989	04	08.32153	13	12	48.25	-05	50	24.0		809
1989	GV3		1989	04	08.33194	13	12	47.71	-05	50	16.5		809
1989	GW3	*	1989	04	09.22986	12	45	07.14	-07	34	20.0	17.3	809
1989	GW3		1989	04	09.24028	12	45	06.62	-07	34	19.7		809
1989	GW3		1989	04	09.25069	12	45	06.04	-07	34	18.9		809
1989	GW3		1989	04	10.20633	12	44	10.38	-07	33	38.5	17.0	809
1989	GW3		1989	04	10.21806	12	44	09.73	-07	33	37.6		809
1989	GX3	*	1989	04	09.22986	12	45	32.84	-07	09	30.2	17.6	809
1989	GX3		1989	04	09.24028	12	45	32.27	-07	09	27.6		809
1989	GX3		1989	04	09.25069	12	45	31.59	-07	09	25.2		809
1989	GX3		1989	04	10.20633	12	44	32.75	-07	06	10.6	17.5	809
1989	GX3		1989	04	10.21806	12	44	31.95	-07	06	07.4		809
1989	GY3	*	1989	04	10.14028	12	21	01.71	-09	37	25.8	18.0	809
1989	GY3		1989	04	10.15069	12	21	01.23	-09	37	20.0		809
1989	GY3		1989	04	10.16111	12	21	00.72	-09	37	13.3		809
1989	GY3		1989	04	11.11944	12	20	15.35	-09	28	06.7		809
1989	GY3		1989	04	11.12986	12	20	14.81	-09	28	00.6		809
1989	GZ3	*	1989	04	10.14028	12	22	25.62	-09	55	32.2	17.8	809
1989	GZ3		1989	04	10.15069	12	22	25.13	-09	55	25.3		809
1989	GZ3		1989	04	10.16111	12	22	24.71	-09	55	19.0		809
1989	GZ3		1989	04	11.11944	12	21	43.65	-09	45	36.5		809
1989	GZ3		1989	04	11.12986	12	21	43.23	-09	45	30.0		809
1989	GA4	*	1989	04	03.07049	12	26	51.78	-05	33	04.0	18.0	809
1989	GA4		1989	04	03.08403	12	26	51.15	-05	33	00.1		809
1989	GA4		1989	04	03.09444	12	26	50.53	-05	32	55.6		809
1989	GA4		1989	04	07.10521	12	23	28.82	-05	09	31.4		809
1989	GA4		1989	04	07.11528	12	23	28.29	-05	09	28.1		809
1989	GA4		1989	04	07.12639	12	23	27.62	-05	09	24.7		809
1989	GB4	*	1989	04	03.07049	12	27	24.58	-04	07	14.3	17.7	809
1989	GB4		1989	04	03.08403	12	27	23.92	-04	07	10.4		809
1989	GB4		1989	04	03.09444	12	27	23.38	-04	07	07.3		809
1989	GB4		1989	04	07.10521	12	24	12.41	-03	47	55.9		809
1989	GB4		1989	04	07.11528	12	24	11.99	-03	47	52.2		809
1989	GB4		1989	04	07.12639	12	24	11.55	-03	47	49.3		809
1989	GC4	*	1989	04	03.07049	12	29	50.93	-05	02	21.1	17.8	809
1989	GC4		1989	04	03.08403	12	29	50.29	-05	02	17.3		809
1989	GC4		1989	04	03.09444	12	29	49.80	-05	02	14.2		809
1989	GC4		1989	04	07.10521	12	26	43.29	-04	41	48.9		809
1989	GC4		1989	04	07.11528	12	26	42.81	-04	41	45.4		809
1989	GC4		1989	04	07.12639	12	26	42.26	-04	41	42.0		809
1989	GD4	*	1989	04	03.07049	12	29	55.85	-03	59	10.3	17.7	809

1989	GD4		1989	04	03.08403	12	29	55.28	-03	59	05.1		809
1989	GD4		1989	04	03.09444	12	29	54.94	-03	59	01.6		809
1989	GD4		1989	04	07.10521	12	27	02.00	-03	35	08.8		809
1989	GD4		1989	04	07.11528	12	27	01.62	-03	35	03.3		809
1989	GD4		1989	04	07.12639	12	27	01.20	-03	34	59.4		809
1989	GE4	*	1989	04	03.07049	12	30	10.85	-05	08	19.2	17.9	809
1989	GE4		1989	04	03.08403	12	30	10.26	-05	08	15.4		809
1989	GE4		1989	04	03.09444	12	30	09.59	-05	08	13.5		809
1989	GE4		1989	04	07.10521	12	27	11.49	-04	41	57.7		809
1989	GE4		1989	04	07.11528	12	27	11.06	-04	41	54.6		809
1989	GE4		1989	04	07.12639	12	27	10.75	-04	41	52.2		809
1989	GF4	*	1989	04	03.10556	12	28	19.95	-08	03	40.9	17.6	809
1989	GF4		1989	04	03.11736	12	28	19.41	-08	03	36.4		809
1989	GF4		1989	04	03.12778	12	28	18.89	-08	03	31.3		809
1989	GF4		1989	04	05.07153	12	26	45.36	-07	49	37.2		809
1989	GF4		1989	04	05.08194	12	26	44.83	-07	49	34.0		809
1989	GF4		1989	04	06.06250	12	25	57.76	-07	42	29.1		809
1989	GF4		1989	04	06.07292	12	25	57.31	-07	42	25.4		809
1989	GF4		1989	04	06.08339	12	25	56.77	-07	42	20.3		809
1989	GG4	*	1989	04	03.10556	12	28	48.06	-07	03	27.5	17.0	809
1989	GG4		1989	04	03.11736	12	28	47.56	-07	03	22.1		809
1989	GG4		1989	04	03.12778	12	28	46.98	-07	03	16.0		809
1989	GG4		1989	04	05.07153	12	27	10.61	-06	46	26.1		809
1989	GG4		1989	04	05.08194	12	27	10.08	-06	46	21.8		809
1989	GG4		1989	04	06.06250	12	26	22.09	-06	37	51.8		809
1989	GG4		1989	04	06.07292	12	26	21.60	-06	37	46.8		809
1989	GG4		1989	04	06.08339	12	26	21.10	-06	37	41.4		809
1989	GG4		1989	04	09.11667	12	23	56.09	-06	11	32.6		809
1989	GG4		1989	04	09.12708	12	23	55.57	-06	11	27.5		809
1989	GG4		1989	04	09.13750	12	23	55.06	-06	11	22.2		809
1989	GH4	*	1989	04	03.10556	12	32	04.51	-06	45	54.0	18.0	809
1989	GH4		1989	04	03.11736	12	32	04.07	-06	45	51.1		809
1989	GH4		1989	04	03.12778	12	32	03.27	-06	45	48.9		809
1989	GH4		1989	04	05.07153	12	30	05.52	-06	37	55.1		809
1989	GH4		1989	04	05.08194	12	30	04.97	-06	37	52.9		809
1989	GH4		1989	04	06.06250	12	29	05.94	-06	33	52.7		809
1989	GH4		1989	04	06.07292	12	29	05.32	-06	33	50.4		809
1989	GH4		1989	04	06.08339	12	29	04.80	-06	33	48.0		809
1989	GH4		1989	04	09.11667	12	26	05.21	-06	21	25.7	18.5	809
1989	GH4		1989	04	09.12708	12	26	04.45	-06	21	23.8		809
1989	GH4		1989	04	09.13750	12	26	03.74	-06	21	22.4		809
1989	GJ4	*	1989	04	03.13958	12	42	18.91	-09	31	24.3	16.9	809
1989	GJ4		1989	04	03.15000	12	42	18.40	-09	31	19.5		809
1989	GJ4		1989	04	03.16042	12	42	17.86	-09	31	15.6		809
1989	GJ4		1989	04	05.12569	12	40	39.46	-09	17	37.5		809
1989	GJ4		1989	04	05.13611	12	40	38.99	-09	17	32.9		809
1989	GK4	*	1989	04	03.13958	12	42	33.39	-09	31	33.6	17.1	809
1989	GK4		1989	04	03.15000	12	42	32.68	-09	31	31.0		809
1989	GK4		1989	04	03.16042	12	42	32.05	-09	31	28.6		809
1989	GK4		1989	04	05.12569	12	40	32.91	-09	23	36.5		809
1989	GK4		1989	04	05.13611	12	40	32.22	-09	23	34.2		809
1989	GL4	*	1989	04	03.13958	12	43	04.61	-09	33	16.0	17.2	809
1989	GL4		1989	04	03.15000	12	43	04.19	-09	33	07.5		809
1989	GL4		1989	04	03.16042	12	43	03.73	-09	33	00.2		809
1989	GL4		1989	04	05.12569	12	41	36.48	-09	08	24.6		809
1989	GL4		1989	04	05.13611	12	41	36.00	-09	08	16.5		809
1989	GM4	*	1989	04	03.13958	12	44	00.45	-08	19	20.0	17.8	809
1989	GM4		1989	04	03.15000	12	43	59.79	-08	19	16.9		809
1989	GM4		1989	04	03.16042	12	43	59.13	-08	19	13.4		809

1989	GM4		1989	04	03.17153	12	43	58.22	-08	19	08.7	18.0	809
1989	GM4		1989	04	03.18264	12	43	57.50	-08	19	04.1		809
1989	GM4		1989	04	03.19306	12	43	56.92	-08	19	01.4		809
1989	GM4		1989	04	05.12569	12	41	58.72	-08	06	52.0		809
1989	GM4		1989	04	05.13611	12	41	58.08	-08	06	46.8		809
1989	GM4		1989	04	05.14722	12	41	57.32	-08	06	43.0		809
1989	GM4		1989	04	05.15764	12	41	56.65	-08	06	38.1		809
1989	GN4	*	1989	04	03.13958	12	45	49.01	-09	27	59.5	17.8	809
1989	GN4		1989	04	03.15000	12	45	48.46	-09	27	56.1		809
1989	GN4		1989	04	03.16042	12	45	47.93	-09	27	51.9		809
1989	GN4		1989	04	05.12569	12	44	07.70	-09	15	55.5		809
1989	GN4		1989	04	05.13611	12	44	07.12	-09	15	50.1		809
1989	GO4	*	1989	04	03.13958	12	46	53.96	-08	15	28.0	17.7	809
1989	GO4		1989	04	03.15000	12	46	53.41	-08	15	24.5		809
1989	GO4		1989	04	03.16042	12	46	52.85	-08	15	21.0		809
1989	GO4		1989	04	03.17153	12	46	51.67	-08	15	18.7	17.0	809
1989	GO4		1989	04	03.18264	12	46	51.04	-08	15	16.1		809
1989	GO4		1989	04	03.19306	12	46	50.47	-08	15	12.7		809
1989	GO4		1989	04	05.12569	12	45	05.11	-08	05	05.8		809
1989	GO4		1989	04	05.13611	12	45	04.54	-08	05	02.3		809
1989	GO4		1989	04	05.14722	12	45	03.89	-08	04	58.9		809
1989	GO4		1989	04	05.15764	12	45	03.31	-08	04	55.8		809
1989	GO4		1989	04	10.20633	12	40	32.51	-07	38	07.0	17.3	809
1989	GO4		1989	04	10.21806	12	40	31.88	-07	38	02.6		809
1989	GP4	*	1989	04	03.17153	12	44	30.82	-06	58	05.6	17.8	809
1989	GP4		1989	04	03.18264	12	44	30.25	-06	57	59.4		809
1989	GP4		1989	04	03.19306	12	44	29.69	-06	57	53.9		809
1989	GP4		1989	04	05.14722	12	42	48.65	-06	39	35.8		809
1989	GP4		1989	04	05.15764	12	42	48.01	-06	39	28.7		809
1989	GQ4	*	1989	04	03.26111	13	27	24.96	-07	12	21.5	17.9	809
1989	GQ4		1989	04	03.27153	13	27	24.50	-07	12	17.2		809
1989	GQ4		1989	04	03.28194	13	27	24.03	-07	12	11.9		809
1989	GQ4		1989	04	05.29306	13	25	44.15	-06	54	19.3		809
1989	GQ4		1989	04	05.30417	13	25	43.52	-06	54	12.4		809
1989	GQ4		1989	04	05.31458	13	25	43.04	-06	54	05.9		809
1989	GR4	*	1989	04	03.26111	13	29	21.10	-07	35	29.5	17.1	809
1989	GR4		1989	04	03.27153	13	29	20.58	-07	35	25.5		809
1989	GR4		1989	04	03.28194	13	29	20.08	-07	35	20.2		809
1989	GR4		1989	04	05.29306	13	27	32.93	-07	19	11.3		809
1989	GR4		1989	04	05.30417	13	27	32.30	-07	19	05.0		809
1989	GR4		1989	04	05.31458	13	27	31.84	-07	19	01.4		809
1989	GS4	*	1989	04	03.26111	13	31	11.24	-07	51	56.0	18.2	809
1989	GS4		1989	04	03.27153	13	31	10.39	-07	51	50.3		809
1989	GS4		1989	04	03.28194	13	31	10.28	-07	51	47.1		809
1989	GS4		1989	04	05.29306	13	29	37.38	-07	40	24.8		809
1989	GS4		1989	04	05.30417	13	29	36.87	-07	40	21.0		809
1989	GS4		1989	04	05.31458	13	29	36.38	-07	40	17.4		809
1989	GT4	*	1989	04	03.26111	13	31	31.54	-08	24	33.1	18.1	809
1989	GT4		1989	04	03.27153	13	31	30.97	-08	24	28.9		809
1989	GT4		1989	04	03.28194	13	31	30.24	-08	24	24.1		809
1989	GT4		1989	04	05.29306	13	29	41.40	-08	10	04.8		809
1989	GT4		1989	04	05.30417	13	29	40.83	-08	09	60.0		809
1989	GT4		1989	04	05.31458	13	29	40.24	-08	09	55.2		809
1989	GU4	*	1989	04	05.07153	12	30	56.85	-07	05	03.6		809
1989	GU4		1989	04	05.08194	12	30	56.40	-07	04	58.5		809
1989	GU4		1989	04	06.06250	12	30	05.66	-06	55	07.2	17.0	809
1989	GU4		1989	04	06.07292	12	30	05.06	-06	55	01.9		809
1989	GU4		1989	04	06.08339	12	30	04.59	-06	54	56.3		809
1989	GU4		1989	04	09.11667	12	27	30.00	-06	24	30.4		809

1989	GU4		1989	04	09.12708	12	27	29.45	-06	24	23.7		809
1989	GU4		1989	04	09.13750	12	27	28.96	-06	24	18.3		809
1989	GV4	*	1989	04	05.07153	12	31	25.82	-06	43	15.0		809
1989	GV4		1989	04	05.08194	12	31	25.34	-06	43	11.2		809
1989	GV4		1989	04	06.06250	12	30	39.21	-06	36	26.2	16.8	809
1989	GV4		1989	04	06.07292	12	30	38.70	-06	36	22.5		809
1989	GV4		1989	04	06.08339	12	30	38.21	-06	36	18.0		809
1989	GV4		1989	04	09.11667	12	28	17.73	-06	15	24.3		809
1989	GV4		1989	04	09.12708	12	28	17.23	-06	15	20.1		809
1989	GV4		1989	04	09.13750	12	28	16.72	-06	15	15.6		809
1989	GW4	*	1989	04	06.06250	12	29	28.23	-05	46	08.7	18.0	809
1989	GW4		1989	04	06.07292	12	29	27.57	-05	46	08.1		809
1989	GW4		1989	04	06.08339	12	29	26.84	-05	46	05.2		809
1989	GW4		1989	04	09.11667	12	26	13.52	-05	32	15.6		809
1989	GW4		1989	04	09.12708	12	26	12.93	-05	32	14.0		809
1989	GW4		1989	04	09.13750	12	26	12.28	-05	32	11.1		809
1989	GX4	*	1989	04	08.16042	12	50	03.07	-11	24	22.3	17.7	809
1989	GX4		1989	04	08.17083	12	50	02.65	-11	24	19.6		809
1989	GX4		1989	04	08.18125	12	50	02.07	-11	24	16.2		809
1989	GX4		1989	04	11.14514	12	47	36.06	-11	07	58.7		809
1989	GX4		1989	04	11.15556	12	47	35.52	-11	07	54.8		809
1989	GX4		1989	04	11.16597	12	47	35.05	-11	07	52.2		809
1989	GY4	*	1989	04	08.16042	12	50	20.36	-10	05	00.6	17.8	809
1989	GY4		1989	04	08.17083	12	50	19.64	-10	05	00.2		809
1989	GY4		1989	04	08.18125	12	50	18.93	-10	04	58.7		809
1989	GY4		1989	04	11.14514	12	47	03.71	-09	57	24.7		809
1989	GY4		1989	04	11.15556	12	47	03.01	-09	57	23.0		809
1989	GY4		1989	04	11.16597	12	47	02.34	-09	57	21.7		809
1989	GZ4	*	1989	04	08.16042	12	51	23.23	-10	38	58.7	18.0	809
1989	GZ4		1989	04	08.17083	12	51	22.53	-10	38	54.5		809
1989	GZ4		1989	04	08.18125	12	51	22.11	-10	38	49.9		809
1989	GZ4		1989	04	11.14514	12	49	00.33	-10	19	19.8		809
1989	GZ4		1989	04	11.15556	12	48	59.91	-10	19	16.3		809
1989	GZ4		1989	04	11.16597	12	48	59.38	-10	19	11.4		809
1989	GA5	*	1989	04	08.16042	12	54	42.28	-11	00	06.3		809
1989	GA5		1989	04	08.17083	12	54	41.80	-10	59	59.9		809
1989	GA5		1989	04	08.18125	12	54	41.29	-10	59	54.3		809
1989	GA5		1989	04	11.14514	12	52	19.07	-10	29	31.7		809
1989	GA5		1989	04	11.15556	12	52	18.56	-10	29	24.9		809
1989	GA5		1989	04	11.16597	12	52	18.06	-10	29	19.9		809
1989	GB5	*	1989	04	04.27986	14	02	29.84	-09	31	21.8	18.0	809
1989	GB5		1989	04	04.29167	14	02	29.44	-09	31	19.2		809
1989	GB5		1989	04	04.30208	14	02	28.93	-09	31	16.8		809
1989	GB5		1989	04	05.32986	14	01	46.72	-09	27	35.6		809
1989	GB5		1989	04	05.34097	14	01	46.31	-09	27	32.4		809
1989	GB5		1989	04	05.35139	14	01	45.90	-09	27	30.2		809
1989	GC5	*	1989	04	04.27986	14	02	41.08	-09	30	38.1	18.2	809
1989	GC5		1989	04	04.29167	14	02	40.72	-09	30	36.8		809
1989	GC5		1989	04	04.30208	14	02	40.25	-09	30	35.4		809
1989	GC5		1989	04	05.32986	14	01	22.22	-09	26	18.4		809
1989	GC5		1989	04	05.34097	14	01	21.90	-09	26	18.4		809
1989	GC5		1989	04	05.35139	14	01	21.44	-09	26	16.8		809
1989	GD5	*	1989	04	04.27986	14	02	59.16	-08	30	44.7	18.0	809
1989	GD5		1989	04	04.29167	14	02	58.60	-08	30	44.7		809
1989	GD5		1989	04	04.30208	14	02	58.05	-08	30	44.8		809
1989	GD5		1989	04	05.32986	14	02	00.63	-08	31	00.5		809
1989	GD5		1989	04	05.34097	14	01	59.99	-08	31	00.2		809
1989	GD5		1989	04	05.35139	14	01	59.41	-08	30	59.1		809
1989	GE5	*	1989	04	06.33472	14	22	28.76	-12	58	31.8	17.6	809

1989	GE5	1989	04	06.34514	14	22	28.37	-12	58	27.2	809
1989	GE5	1989	04	06.35556	14	22	27.95	-12	58	21.5	809
1989	GE5	1989	04	07.30833	14	21	47.88	-12	50	33.8	809
1989	GE5	1989	04	07.31875	14	21	47.47	-12	50	28.5	809
1989	GE5	1989	04	07.32917	14	21	47.02	-12	50	22.8	809
2093	P-L	1989	03	02.10521	08	49	02.59	+05	19	48.2	18.5 809
2093	P-L	1989	03	02.12257	08	49	01.94	+05	19	54.0	809
2093	P-L	1989	03	02.13993	08	49	01.35	+05	19	59.1	809
2093	P-L	1989	03	03.07049	08	48	31.02	+05	24	46.4	809
2093	P-L	1989	03	03.08785	08	48	30.43	+05	24	51.9	809
2093	P-L	1989	03	03.10521	08	48	29.80	+05	24	57.1	809
7		1989	03	02.15868	09	01	37.20	+08	15	05.5	8.0 809
7		1989	03	02.17604	09	01	36.38	+08	15	10.2	809
7		1989	03	02.19340	09	01	35.54	+08	15	13.7	809
7		1989	03	03.12396	09	00	58.50	+08	19	09.6	809
7		1989	03	03.14132	09	00	57.70	+08	19	14.3	809
7		1989	03	03.15868	09	00	56.91	+08	19	19.2	809
153		1989	03	02.10521	08	54	28.20	+07	06	27.8	12.0 809
153		1989	03	02.12257	08	54	27.59	+07	06	30.9	809
153		1989	03	02.13993	08	54	27.06	+07	06	34.8	809
153		1989	03	02.15868	08	54	26.51	+07	06	38.6	12.0 809
153		1989	03	02.17604	08	54	25.93	+07	06	41.7	809
153		1989	03	02.19340	08	54	25.34	+07	06	45.2	809
153		1989	03	03.07049	08	54	00.33	+07	09	41.6	809
153		1989	03	03.08785	08	53	59.74	+07	09	45.7	809
153		1989	03	03.10521	08	53	59.15	+07	09	49.5	809
153		1989	03	03.12396	08	53	58.61	+07	09	53.3	809
153		1989	03	03.14132	08	53	58.04	+07	09	56.6	809
153		1989	03	03.15868	08	53	57.46	+07	10	00.4	809
271		1989	04	09.22986	12	44	40.04	-08	19	27.5	14.5 809
271		1989	04	09.24028	12	44	39.60	-08	19	24.2	809
271		1989	04	09.25069	12	44	39.19	-08	19	21.5	809
271		1989	04	10.20633	12	43	55.29	-08	15	19.6	14.5 809
271		1989	04	10.21806	12	43	54.73	-08	15	15.7	809
489		1989	03	02.10521	08	36	20.51	+09	42	00.5	12.0 809
489		1989	03	02.12257	08	36	19.89	+09	42	07.1	809
489		1989	03	02.13993	08	36	19.33	+09	42	14.5	809
489		1989	03	03.07049	08	35	54.68	+09	48	28.9	809
489		1989	03	03.08785	08	35	54.16	+09	48	35.6	809
489		1989	03	03.10521	08	35	53.61	+09	48	42.9	809
703		1989	04	03.07049	12	30	27.82	-05	02	10.9	16.9 809
703		1989	04	03.08403	12	30	26.96	-05	02	04.9	809
703		1989	04	03.09444	12	30	26.41	-05	02	00.6	809
703		1989	04	07.10521	12	26	32.97	-04	32	28.4	809
703		1989	04	07.11528	12	26	32.37	-04	32	24.0	809
703		1989	04	07.12639	12	26	31.76	-04	32	19.5	809
707		1989	04	10.14028	12	21	52.59	-10	14	49.2	16.0 809
707		1989	04	10.15069	12	21	52.02	-10	14	45.1	809
707		1989	04	10.16111	12	21	51.41	-10	14	40.4	809
707		1989	04	11.11944	12	20	56.91	-10	08	04.4	809
707		1989	04	11.12986	12	20	56.32	-10	08	00.1	809
737		1989	03	02.10521	08	37	13.57	+05	56	22.6	13.0 809
737		1989	03	02.12257	08	37	12.84	+05	56	29.6	809
737		1989	03	02.13993	08	37	12.14	+05	56	35.8	809
737		1989	03	03.07049	08	36	40.43	+06	02	44.9	809
737		1989	03	03.08785	08	36	39.72	+06	02	50.9	809
737		1989	03	03.10521	08	36	39.06	+06	02	57.7	809
761		1989	04	11.26111	13	19	41.33	-08	15	43.6	16.0 809
761		1989	04	11.27187	13	19	40.79	-08	15	41.0	809

761	1989	04	11.28264	13	19	40.25	-08	15	37.9		809
836	1989	03	02.15868	09	07	10.25	+09	52	12.2	17.7	809
836	1989	03	02.17604	09	07	09.42	+09	52	18.4		809
836	1989	03	02.19340	09	07	08.59	+09	52	25.4		809
836	1989	03	03.12396	09	06	27.77	+09	58	17.1		809
836	1989	03	03.14132	09	06	26.98	+09	58	23.4		809
836	1989	03	03.15868	09	06	26.19	+09	58	29.9		809
1061	1989	04	04.27986	14	04	04.57	-09	24	45.1	17.7	809
1061	1989	04	04.29167	14	04	04.19	-09	24	43.0		809
1061	1989	04	04.30208	14	04	03.85	-09	24	40.9		809
1061	1989	04	05.32986	14	03	23.43	-09	20	55.2		809
1061	1989	04	05.34097	14	03	22.96	-09	20	53.0		809
1061	1989	04	05.35139	14	03	22.59	-09	20	50.2		809
1136	1989	04	03.10556	12	29	03.59	-07	39	02.1	16.1	809
1136	1989	04	03.11736	12	29	03.02	-07	38	56.3		809
1136	1989	04	03.12778	12	29	02.52	-07	38	51.8		809
1136	1989	04	05.07153	12	27	27.79	-07	24	32.2		809
1136	1989	04	05.08194	12	27	27.29	-07	24	28.3		809
1136	1989	04	06.06250	12	26	39.82	-07	17	12.7		809
1136	1989	04	06.07292	12	26	39.35	-07	17	08.6		809
1136	1989	04	06.08339	12	26	38.82	-07	17	03.7		809
1136	1989	04	09.11667	12	24	14.23	-06	54	36.2		809
1136	1989	04	09.12708	12	24	13.69	-06	54	31.2		809
1136	1989	04	09.13750	12	24	13.19	-06	54	26.8		809
1176	1989	03	02.15868	09	03	28.92	+08	03	45.5	16.8	809
1176	1989	03	02.17604	09	03	28.22	+08	03	48.1		809
1176	1989	03	02.19340	09	03	27.46	+08	03	51.4		809
1176	1989	03	03.12396	09	02	51.72	+08	06	47.8		809
1176	1989	03	03.14132	09	02	51.00	+08	06	51.2		809
1176	1989	03	03.15868	09	02	50.30	+08	06	54.1		809
1307	1989	03	02.15868	09	00	11.98	+09	46	21.9	16.8	809
1307	1989	03	02.17604	09	00	11.23	+09	46	26.9		809
1307	1989	03	02.19340	09	00	10.49	+09	46	32.3		809
1307	1989	03	03.12396	08	59	35.37	+09	51	04.5		809
1307	1989	03	03.14132	08	59	34.67	+09	51	09.1		809
1307	1989	03	03.15868	08	59	33.96	+09	51	14.4		809
1317	1989	04	08.16042	12	48	30.14	-10	05	17.8	16.5	809
1317	1989	04	08.17083	12	48	29.60	-10	05	17.1		809
1317	1989	04	08.18125	12	48	29.08	-10	05	15.6		809
1317	1989	04	11.14514	12	46	03.51	-09	59	51.5		809
1317	1989	04	11.15556	12	46	03.00	-09	59	50.7		809
1317	1989	04	11.16597	12	46	02.48	-09	59	49.7		809
1400	1989	04	08.16042	12	49	28.29	-11	14	17.9	16.7	809
1400	1989	04	08.17083	12	49	27.87	-11	14	13.3		809
1400	1989	04	08.18125	12	49	27.40	-11	14	08.4		809
1400	1989	04	11.14514	12	47	21.76	-10	50	33.5		809
1400	1989	04	11.15556	12	47	21.32	-10	50	28.8		809
1400	1989	04	11.16597	12	47	20.89	-10	50	24.1		809
1606	1989	04	04.27986	14	02	29.41	-09	11	20.6	16.8	809
1606	1989	04	04.29167	14	02	28.96	-09	11	16.0		809
1606	1989	04	04.30208	14	02	28.58	-09	11	11.7		809
1606	1989	04	05.32986	14	01	43.74	-09	04	27.6		809
1606	1989	04	05.34097	14	01	43.28	-09	04	21.7		809
1606	1989	04	05.35139	14	01	42.83	-09	04	17.2		809
1705	1989	04	04.27986	13	59	57.74	-08	34	09.9	17.7	809
1705	1989	04	04.29167	13	59	57.25	-08	34	04.9		809
1705	1989	04	04.30208	13	59	56.72	-08	33	59.2		809
1705	1989	04	05.32986	13	59	06.59	-08	26	03.3		809
1705	1989	04	05.34097	13	59	06.11	-08	25	57.4		809

1705	1989	04	05.35139	13	59	05.60	-08	25	51.9	809
1923	1989	04	03.24375	13	46	20.15	-15	27	31.0	18.0 809
1923	1989	04	03.25417	13	46	19.58	-15	27	29.8	809
1923	1989	04	03.26458	13	46	18.97	-15	27	28.9	809
1923	1989	04	05.22917	13	44	30.88	-15	22	39.0	809
1923	1989	04	05.23958	13	44	30.26	-15	22	37.4	809
1923	1989	04	05.25000	13	44	29.61	-15	22	35.1	809
2231	1989	04	02.20694	12	59	08.00	-13	32	27.0	18.0 809
2231	1989	04	02.22917	12	59	06.88	-13	32	22.5	809
2231	1989	04	02.23993	12	59	06.46	-13	32	18.9	809
2231	1989	04	04.11736	12	57	29.42	-13	25	51.0	809
2231	1989	04	04.12778	12	57	28.96	-13	25	47.8	809
2231	1989	04	04.13819	12	57	28.51	-13	25	45.5	809
2231	1989	04	10.22778	12	52	11.82	-13	03	08.1	809
2231	1989	04	10.23819	12	52	11.21	-13	03	05.2	809
2231	1989	04	10.25000	12	52	10.61	-13	03	01.9	809
2257	1989	04	03.24375	13	43	32.10	-14	42	47.7	18.6 809
2257	1989	04	03.25417	13	43	31.56	-14	42	44.2	809
2257	1989	04	03.26458	13	43	31.00	-14	42	40.3	809
2257	1989	04	05.22917	13	41	53.65	-14	32	13.5	809
2257	1989	04	05.23958	13	41	53.14	-14	32	10.5	809
2257	1989	04	05.25000	13	41	52.59	-14	32	07.5	809
2346	1989	03	02.15868	09	02	54.29	+07	32	51.2	17.0 809
2346	1989	03	02.17604	09	02	53.47	+07	32	55.6	809
2346	1989	03	02.19340	09	02	52.68	+07	33	00.7	809
2346	1989	03	03.12396	09	02	12.24	+07	37	28.6	809
2346	1989	03	03.14132	09	02	11.44	+07	37	33.5	809
2346	1989	03	03.15868	09	02	10.67	+07	37	38.0	809
2407	1989	04	03.24375	13	42	29.54	-13	06	00.5	17.0 809
2407	1989	04	03.25417	13	42	29.07	-13	05	58.1	809
2407	1989	04	03.26458	13	42	28.55	-13	05	56.3	809
2407	1989	04	05.22917	13	41	00.52	-12	58	59.1	809
2407	1989	04	05.23958	13	40	59.98	-12	58	56.9	809
2407	1989	04	05.25000	13	40	59.48	-12	58	54.8	809
2623	1989	04	03.17153	12	43	12.01	-07	27	51.5	17.4 809
2623	1989	04	03.18264	12	43	11.45	-07	27	48.0	809
2623	1989	04	03.19306	12	43	10.72	-07	27	44.8	809
2623	1989	04	05.14722	12	41	12.70	-07	17	40.6	809
2623	1989	04	05.15764	12	41	12.04	-07	17	37.2	809
2653	1989	04	03.26111	13	27	16.33	-08	25	28.2	16.0 809
2653	1989	04	03.27153	13	27	15.86	-08	25	23.9	809
2653	1989	04	03.28194	13	27	15.30	-08	25	18.8	809
2653	1989	04	05.29306	13	25	35.50	-08	09	58.3	809
2653	1989	04	05.30417	13	25	34.95	-08	09	53.4	809
2653	1989	04	05.31458	13	25	34.45	-08	09	48.5	809
2708	1989	04	04.27986	14	02	22.85	-08	19	07.0	17.9 809
2708	1989	04	04.29167	14	02	22.48	-08	19	04.1	809
2708	1989	04	04.30208	14	02	22.06	-08	19	01.2	809
2944	1989	03	03.07049	08	49	46.71	+05	15	22.8	18.0 809
2944	1989	03	03.08785	08	49	46.04	+05	15	29.1	809
2944	1989	03	03.10521	08	49	45.34	+05	15	35.1	809
3018	1989	04	02.16319	12	59	10.91	-11	04	32.2	16.7 809
3018	1989	04	02.17361	12	59	10.33	-11	04	28.0	809
3018	1989	04	02.18750	12	59	09.60	-11	04	22.1	809
3018	1989	04	04.16597	12	57	20.11	-10	49	59.0	809
3018	1989	04	04.17639	12	57	19.55	-10	49	54.5	809
3018	1989	04	08.16042	12	53	36.90	-10	19	50.4	809
3018	1989	04	08.17083	12	53	36.31	-10	19	45.6	809
3018	1989	04	08.18125	12	53	35.73	-10	19	41.3	809

3018	1989	04	11.14514	12	50	49.80	-09	56	31.9	809
3018	1989	04	11.15556	12	50	49.20	-09	56	26.9	809
3018	1989	04	11.16597	12	50	48.65	-09	56	22.6	809
3099	1989	04	04.27986	13	58	45.91	-08	25	39.1	15.8 809
3099	1989	04	04.29167	13	58	45.26	-08	25	41.3	809
3099	1989	04	04.30208	13	58	44.70	-08	25	42.7	809
3099	1989	04	05.32986	13	57	45.46	-08	28	49.1	809
3099	1989	04	05.34097	13	57	44.81	-08	28	50.0	809
3099	1989	04	05.35139	13	57	44.17	-08	28	51.1	809
3202	1989	04	03.13958	12	43	11.70	-08	03	13.3	17.0 809
3202	1989	04	03.15000	12	43	11.36	-08	03	09.2	809
3202	1989	04	03.16042	12	43	10.95	-08	03	05.8	809
3202	1989	04	03.17153	12	43	10.37	-08	03	00.8	16.6 809
3202	1989	04	03.18264	12	43	10.00	-08	02	56.9	809
3202	1989	04	03.19306	12	43	09.64	-08	02	53.5	809
3202	1989	04	05.12569	12	42	01.95	-07	51	25.9	809
3202	1989	04	05.13611	12	42	01.57	-07	51	21.9	809
3202	1989	04	05.14722	12	42	01.15	-07	51	18.6	809
3202	1989	04	05.15764	12	42	00.75	-07	51	15.2	809
3202	1989	04	10.20633	12	39	06.42	-07	21	12.5	17.5 809
3202	1989	04	10.21806	12	39	05.92	-07	21	07.0	809
3224	1989	03	02.15868	09	09	35.20	+09	29	27.1	16.7 809
3224	1989	03	02.17604	09	09	34.41	+09	29	31.2	809
3224	1989	03	02.19340	09	09	33.65	+09	29	36.2	809
3224	1989	03	03.12396	09	08	54.84	+09	33	52.2	809
3224	1989	03	03.14132	09	08	54.10	+09	33	56.7	809
3224	1989	03	03.15868	09	08	53.34	+09	34	00.9	809
3233	1989	04	03.17153	12	42	43.95	-07	29	46.7	16.5 809
3233	1989	04	03.18264	12	42	43.25	-07	29	43.6	809
3233	1989	04	03.19306	12	42	42.60	-07	29	40.5	809
3233	1989	04	05.14722	12	40	41.12	-07	19	54.4	809
3233	1989	04	05.15764	12	40	40.44	-07	19	52.3	809
3244	1989	04	03.13958	12	41	24.70	-08	43	52.0	18.0 809
3244	1989	04	03.15000	12	41	24.05	-08	43	48.1	809
3244	1989	04	03.16042	12	41	23.50	-08	43	45.8	809
3244	1989	04	05.12569	12	39	23.56	-08	33	13.0	809
3244	1989	04	05.13611	12	39	22.91	-08	33	09.8	809
3250	1989	02	07.18333	09	12	45.31	+02	55	14.1	809
3250	1989	02	07.19583	09	12	44.72	+02	55	17.5	809
3250	1989	02	07.20833	09	12	44.09	+02	55	20.9	809
3250	1989	03	03.12396	08	56	02.48	+05	05	47.5	809
3250	1989	03	03.14132	08	56	01.88	+05	05	53.0	809
3250	1989	03	03.15868	08	56	01.23	+05	05	58.7	809
3299	1989	04	02.20694	12	59	17.16	-15	15	26.3	17.5 809
3299	1989	04	02.22917	12	59	15.88	-15	15	16.4	809
3299	1989	04	02.23993	12	59	15.42	-15	15	12.3	809
3299	1989	04	04.11736	12	57	30.47	-15	01	46.2	809
3299	1989	04	04.12778	12	57	29.89	-15	01	41.8	809
3299	1989	04	04.13819	12	57	29.30	-15	01	37.3	809
3299	1989	04	10.22778	12	51	49.03	-14	14	43.7	809
3299	1989	04	10.23819	12	51	48.43	-14	14	38.0	809
3299	1989	04	10.25000	12	51	47.81	-14	14	32.2	809
3501	1989	03	02.15868	09	06	51.35	+09	21	45.8	17.5 809
3501	1989	03	02.17604	09	06	50.62	+09	21	49.7	809
3501	1989	03	02.19340	09	06	49.93	+09	21	53.6	809
3501	1989	03	03.12396	09	06	14.15	+09	25	24.2	809
3501	1989	03	03.14132	09	06	13.45	+09	25	28.8	809
3501	1989	03	03.15868	09	06	12.76	+09	25	33.0	809
3503	1989	03	02.10521	08	48	56.79	+05	17	06.6	18.7 809

3503	1989	03	02.12257	08	48	56.18	+05	17	13.5	809
3503	1989	03	02.13993	08	48	55.51	+05	17	19.6	809
3503	1989	03	03.07049	08	48	21.31	+05	23	52.2	809
3503	1989	03	03.08785	08	48	20.63	+05	23	58.2	809
3503	1989	03	03.10521	08	48	19.99	+05	24	04.5	809
3509	1989	04	03.24375	13	43	50.46	-16	10	50.0	18.0 809
3509	1989	04	03.25417	13	43	49.93	-16	10	45.4	809
3509	1989	04	03.26458	13	43	49.43	-16	10	41.0	809
3509	1989	04	05.22917	13	42	19.77	-15	56	29.0	809
3509	1989	04	05.23958	13	42	19.24	-15	56	24.1	809
3509	1989	04	05.25000	13	42	18.75	-15	56	20.0	809
3542	1989	03	02.15868	08	56	24.31	+07	47	00.6	18.9 809
3542	1989	03	02.17604	08	56	23.71	+07	47	03.5	809
3542	1989	03	02.19340	08	56	23.02	+07	47	07.2	809
3542	1989	03	03.12396	08	55	50.56	+07	49	56.6	809
3542	1989	03	03.14132	08	55	49.95	+07	49	58.8	809
3542	1989	03	03.15868	08	55	49.32	+07	50	02.0	809
3571	1989	03	02.15868	08	57	59.85	+07	16	39.7	18.0 809
3571	1989	03	02.17604	08	57	59.27	+07	16	42.0	809
3571	1989	03	02.19340	08	57	58.79	+07	16	45.1	809
3571	1989	03	03.12396	08	57	30.91	+07	19	33.0	809
3571	1989	03	03.14132	08	57	30.34	+07	19	36.3	809
3571	1989	03	03.15868	08	57	29.79	+07	19	39.5	809
3625	1989	04	03.10556	12	27	36.61	-07	10	51.4	16.5 809
3625	1989	04	03.11736	12	27	36.11	-07	10	46.3	809
3625	1989	04	03.12778	12	27	35.65	-07	10	43.1	809
3625	1989	04	05.07153	12	26	11.16	-06	59	24.1	809
3625	1989	04	05.08194	12	26	10.68	-06	59	21.4	809
3625	1989	04	06.06250	12	25	28.32	-06	53	38.1	809
3625	1989	04	06.07292	12	25	27.86	-06	53	34.8	809
3625	1989	04	06.08339	12	25	27.43	-06	53	31.5	809
3625	1989	04	09.11667	12	23	18.38	-06	35	48.7	809
3625	1989	04	09.12708	12	23	17.95	-06	35	45.3	809
3625	1989	04	09.13750	12	23	17.55	-06	35	41.5	809
3719	1989	04	03.10556	12	29	35.90	-07	49	19.1	17.9 809
3719	1989	04	03.11736	12	29	35.30	-07	49	15.1	809
3719	1989	04	03.12778	12	29	34.74	-07	49	11.9	809
3856	1989	04	05.16944	12	54	37.11	-06	54	29.7	809
3856	1989	04	05.17986	12	54	36.61	-06	54	27.8	809
3856	1989	04	05.19028	12	54	36.07	-06	54	24.2	809
3856	1989	04	06.15251	12	53	49.57	-06	49	57.5	809
3856	1989	04	06.16319	12	53	49.03	-06	49	54.4	809
3856	1989	04	06.17361	12	53	48.55	-06	49	51.5	809
3856	1989	04	07.18681	12	52	59.46	-06	45	09.7	809
3856	1989	04	07.19757	12	52	58.94	-06	45	06.6	809
3856	1989	04	07.20764	12	52	58.47	-06	45	03.9	809
3856	1989	04	08.20000	12	52	10.60	-06	40	28.1	809
3856	1989	04	08.21111	12	52	10.07	-06	40	25.2	809
3856	1989	04	08.22153	12	52	09.55	-06	40	22.4	809
3856	1989	04	09.19653	12	51	22.71	-06	35	50.6	809
3856	1989	04	09.20833	12	51	22.16	-06	35	47.7	809
3856	1989	04	09.21875	12	51	21.79	-06	35	43.9	809
3866	1989	04	03.07049	12	26	43.49	-05	48	52.7	17.8 809
3866	1989	04	03.08403	12	26	42.93	-05	48	48.7	809
3866	1989	04	03.09444	12	26	42.43	-05	48	43.6	809
4014	1989	04	03.24375	13	42	45.45	-12	10	08.7	18.9 809
4014	1989	04	03.25417	13	42	45.01	-12	10	06.4	809
4014	1989	04	03.26458	13	42	44.60	-12	10	04.1	809

4014		1989	04	05.22917	13	41	27.60	-12 02 54.5		809
4014		1989	04	05.23958	13	41	27.19	-12 02 52.0		809
4014		1989	04	05.25000	13	41	26.75	-12 02 50.0		809
4060		1989	03	02.10521	08	55	38.42	+07 22 26.6	17.7	809
4060		1989	03	02.12257	08	55	38.00	+07 22 32.2		809
4060		1989	03	02.13993	08	55	37.56	+07 22 37.8		809
4060		1989	03	02.15868	08	55	37.12	+07 22 43.2	17.2	809
4060		1989	03	02.17604	08	55	36.68	+07 22 48.0		809
4060		1989	03	02.19340	08	55	36.25	+07 22 52.8		809
4060		1989	03	03.07049	08	55	16.53	+07 27 13.7		809
4060		1989	03	03.08785	08	55	16.08	+07 27 19.1		809
4060		1989	03	03.10521	08	55	15.64	+07 27 23.9		809
4060		1989	03	03.12396	08	55	15.22	+07 27 30.1		809
4060		1989	03	03.14132	08	55	14.81	+07 27 35.0		809
4060		1989	03	03.15868	08	55	14.38	+07 27 39.9		809

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T. Furuta, Mitsuike 17-2, Kakiya-Cho, Tokai, Aichi-Ken 477, Japan
Observers M. Iwamoto
Measurer T. Furuta
0.25-m Wright-Schmidt

1988	XU1		1989	01	01.47040	04	52	51.3	+22 01 13		872
1988	XU1		1989	01	01.48672	04	52	50.89	+22 01 16.2		872
1988	XQ2	*	1988	12	13.55307	05	05	07.19	+20 25 04.0	16.0	872
1988	XQ2		1988	12	13.57205	05	05	05.93	+20 25 08.5		872
1988	XT2		1988	12	12.52824	05	14	13.44	+25 59 51.2	16.0	872
1988	XT2		1988	12	12.55387	05	14	11.46	+25 59 50.0		872
1988	XT2		1988	12	12.56988	05	14	10.37	+25 59 51.0		872
1989	BG		1989	02	04.51408	08	57	30.93	+21 15 35.9	16.0	872
1989	BG		1989	02	04.52928	08	57	29.91	+21 15 35.6		872
1989	BZ		1989	02	03.50689	08	40	48.72	+25 40 16.6	16.5	872
1989	BZ		1989	02	03.51921	08	40	48.19	+25 40 14.5		872
3739			1989	01	29.54988	09	07	59.98	+19 04 18.9		872
3739			1989	02	04.55017	09	01	26.83	+19 43 20.9		872
3739			1989	02	05.51236	09	00	23.52	+19 49 26.3		872
3739			1989	02	10.59248	08	54	50.62	+20 20 34.4		872
3739			1989	02	10.60712	08	54	49.76	+20 20 37.7		872
4038			1989	02	07.51418	09	12	24.14	+19 22 05.1	16.5	872
4038			1989	02	07.52920	09	12	22.85	+19 22 08.0		872
4056			1989	02	10.54071	09	30	49.18	+14 11 47.9	15.5	872
4056			1989	02	10.55576	09	30	48.34	+14 11 57.2		872

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N. Kawasato, 3-51, Hana-Koganei, Kodaira, Tokyo 187, Japan
Observer T. Hioki
Measurers N. Kawasato, T. Hioki
0.30-m f/3.8 hyperboloid astrocamera

1988	BF		1989	04	01.61249	13	31	38.90	+06 44 06.8		877
1988	BF		1989	04	01.71805	13	31	33.96	+06 44 35.8		877
1988	BF		1989	04	01.78020	13	31	30.87	+06 44 51.1		877
1988	XD2		1988	11	12.71137	04	14	26.65	+19 02 15.1		877
1988	XD2		1988	11	12.72734	04	14	25.61	+19 02 16.6		877
1988	XS2		1988	12	11.58194	03	48	26.31	+17 39 07.0	17	877
1988	XS2		1988	12	11.59896	03	48	25.35	+17 39 04.9		877
1988	XS2	*	1988	12	14.57847	03	46	01.4	+17 26 46	17	877
1988	XS2		1988	12	14.59618	03	46	00.7	+17 26 45		877
1989	EX		1989	04	01.73229	13	35	02.76	+09 50 46.6		877
1989	EX		1989	04	01.76701	13	35	01.24	+09 51 06.7		877

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T. Furuta, Mitsuike 17-2, Kakiya-Cho, Tokai, Aichi-Ken 477, Japan
Observer K. Suzuki
Measurer T. Furuta
0.31-m f/5.7 reflector

1989 AU		1989 01 28.52569	07 00 19.18	+26 27 47.3				881
1989 AU		1989 01 28.54097	07 00 18.31	+26 27 50.4				881
1989 DB		1989 03 05.59201	10 37 27.48	+14 29 39.2				881
1989 DB		1989 03 05.61424	10 37 26.26	+14 29 42.0				881
1989 DB		1989 03 09.53681	10 33 45.73	+14 42 48.6				881
1989 DB		1989 03 09.55000	10 33 45.05	+14 42 51.0				881
1989 DB		1989 03 10.56389	10 32 49.86	+14 45 47.8				881
1989 DB		1989 03 10.57847	10 32 49.03	+14 45 50.1				881
1989 EH1		1989 03 15.60208	11 09 48.5	+05 48 08				881
1989 EH1		1989 03 15.62778	11 09 47.02	+05 48 19.1				881
1989 EH1		1989 03 29.54444	11 00 05.40	+07 14 11.6				881
1989 EH1		1989 03 29.55903	11 00 04.73	+07 14 16.3				881
1989 EJ1		1989 03 15.60208	11 10 13.5	+05 54 57				881
1989 EJ1		1989 03 29.54444	10 58 28.20	+07 48 27.3				881
1989 EJ1		1989 03 29.55903	10 58 27.40	+07 48 33.1				881
1989 FG	*	1989 03 29.58893	12 18 54.03	+03 17 41.2			16.0	881
1989 FG		1989 03 29.60382	12 18 53.28	+03 17 46.3				881
1989 FG		1989 04 01.57535	12 16 13.63	+03 29 39.1				881
1989 FG		1989 04 01.59896	12 16 12.10	+03 29 44.0				881
1989 FG		1989 04 09.58368	12 09 29.56	+03 56 25.7				881
1989 FG		1989 04 12.58472	12 07 13.22	+04 04 03.3				881
1989 FG		1989 04 12.59931	12 07 12.55	+04 04 05.0				881

883 Shizuoka
M. Kizawa, 1458-10, Minami Numagami, Shizuoka 420, Japan
Observer M. Kizawa
0.31-m f/6.4 reflector

1989 GK		1989 05 01.72295	14 10 46.44	+08 20 33.3				883
1989 GK		1989 05 01.75781	14 10 44.25	+08 20 36.1				883
1989 GK		1989 05 01.76984	14 10 43.69	+08 20 37.9				883

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

1978 PG3		1989 03 29.57639	11 45 34.21	-08 09 21.0			16.5	888
1978 PG3		1989 03 29.60972	11 45 32.27	-08 09 14.3				888
1978 PG3		1989 04 01.55625	11 42 50.70	-07 58 59.3			17.0	888
1978 PG3		1989 04 01.58125	11 42 49.26	-07 58 53.9				888
1983 WA		1989 03 29.55139	10 03 25.68	-01 16 57.3			17.0	888
1983 WA		1989 03 29.58472	10 03 25.25	-01 16 42.7				888
1983 WA		1989 04 01.53958	10 03 00.54	-00 58 14.5			17.0	888
1983 WA		1989 04 01.56458	10 03 00.30	-00 58 05.9				888
1989 BQ		1989 04 01.45764	08 42 40.13	+24 32 17.4			17.0	888
1989 BQ		1989 04 01.49097	08 42 40.40	+24 32 19.7				888
1590		1989 04 01.46597	10 24 06.32	+03 40 57.5			15.0	888
1590		1989 04 01.49931	10 24 05.09	+03 41 10.2				888

896 Yatsugatake South Base Observatory
O. Muramatsu, 119-1, 2-8 Sakurazutsumi, Musashino, Tokyo 180, Japan
Observers M. Inoue, R. Kushida, Y. Kushida, O. Muramatsu, C. Murotani
Measurer O. Muramatsu
0.20-m f/4.0, 0.20-m f/4.8 and 0.16-m f/4.8 reflectors

1989 FF	*	1989 03 29.57749	13 29 30.5	-16 33 03			16.8	W	896
1989 FF		1989 03 29.61048	13 29 28.7	-16 33 02				W	896
1989 FF		1989 04 01.63681	13 26 38.2	-16 25 32				W	896
1989 FF		1989 04 03.69311	13 24 36.93	-16 19 26.6					896
1989 FF		1989 04 13.69792	13 14 03.9	-15 39 24				i	896
1989 GA	*	1989 04 01.69826	13 42 19.4	-15 09 13			16.5	N	896
1989 GA		1989 04 05.66875	13 38 24.69	-14 58 30.5			16.5		896
1989 GA		1989 04 08.75278	13 35 14.3	-14 48 46				p	896
1989 GA		1989 04 12.69653	13 31 04.9	-14 34 35			17.0	i	896
1989 GA		1989 04 29.58276	13 14 14.96	-13 23 23.6			17.0	R	896
1989 GA		1989 04 29.61192	13 14 12.93	-13 23 17.8				R	896
1619		1989 04 28.59630	15 19 14.9	-15 40 10			16.2	N	896
1619		1989 04 29.66366	15 18 10.0	-15 38 01				N	896
2058		1989 05 09.65139	15 05 01.39	-14 20 14.0			16.0		896
2149		1989 04 01.63611	11 54 47.5	+12 18 00				t	896
2149		1989 04 01.66389	11 54 46.07	+12 18 08.7					896
3575		1989 05 09.69861	15 11 29.12	-12 34 32.3			16.5		896

897 YGCO Chiyoda Station
T. Kojima, 45 Shimonakamori, Chiyoda-cyo, Ora-Gun, Gunma-ken, 370-07 Japan
Observer T. Kojima
0.25-m f/3.4 Wright-Schmidt camera

1989 DB		1989 03 08.62708	10 34 35.63	+14 40 00.7			16.5		897
1989 DB		1989 03 08.66840	10 34 33.18	+14 40 08.8					897
1989 EG		1989 03 08.60203	10 37 27.37	+01 48 54.1			16		897
1989 EG		1989 03 08.64375	10 37 24.75	+01 49 07.0					897

* * * * *

ORBITAL ELEMENTS.

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The name of the orbit computer is shown on the line giving T for a comet and Epoch for a displayed minor-planet orbit; for many of the minor planets (O-C) residuals are shown in full (in R.A. and Decl.); observations are identified by date and observatory code, X referring to an approximate and Y to a semiaccurate position. For displayed minor planets "Id." shows those involved in establishing the identifications (generally with the principal contributors first), "k" indicating key identifications and "d" (only) double (or multiple) designations; no identifier is shown if only the orbit computer is involved and the results were not previously published. J-P indicates that only the perturbations by the outer planets were considered, and a and n are then related by a gravitational constant augmented by the masses of the inner planets. For the one-opposition orbits, equinox 1950.0 is used, and the columns headed Arc and O show 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 multiple) designations, E means that the value of the eccentricity was assumed, F means both; the double designations are listed at the end; the codes for the orbit computers (column C) are as listed above.

Periodic Comet Shoemaker-Holt 1 (1987z)
Epoch 1988 June 8.0 ET = JDE 2447320.5

T 1988 May 21.35882 ET				Nakano
q 3.0530214		(1950.0)	P	Q
n 0.10315656	Peri.	210.41333	+0.43542588	-0.89922586
a 4.5026842	Node	213.82635	+0.84048056	+0.42294701
e 0.3219552	Incl.	4.36750	+0.32248524	+0.11184222
P 9.55				

From 65 observations 1987 Sept. 24-1989 Feb. 6, mean residual 1".2.

Periodic Comet Shoemaker-Holt 2 (1989j)

T 1988 Aug. 7.58578 ET				Marsden
q 2.6454884		(1950.0)	P	Q
n 0.12301201	Peri.	5.92064	-0.25411591	-0.91926100
a 4.0040950	Node	99.08722	+0.87435742	-0.35122252
e 0.3393043	Incl.	17.72575	+0.41342981	+0.17776940
P 8.01				

From 35 observations 1989 Mar. 4-Apr. 9.

Periodic Comet Chernykh (1978 IV)
Epoch 1992 Jan. 19.0 ET = JDE 2448640.5

T 1992 Jan. 27.82173 ET				Nakano
q 2.3563219		(1950.0)	P	Q
n 0.07055527	Peri.	263.19695	+0.83621260	-0.54415888
a 5.8002907	Node	129.74580	+0.53161236	+0.77382838
e 0.5937580	Incl.	5.08240	+0.13467289	+0.32416161
P 13.97				

From 226 observations 1977 Aug. 19-1978 Sept. 3, mean residual 1".2.

Periodic Comet Giacobini-Zinner
Epoch 1992 Apr. 8.0 ET = JDE 2448720.5

T 1992 Apr. 13.22790 ET				Yeomans
q 1.0340027		(1950.0)	P	Q
n 0.14905892	Peri.	172.52103	+0.98714699	-0.08760246
a 3.5228764	Node	194.68221	+0.10509427	+0.98593169
e 0.7064891	Incl.	31.82796	+0.12039936	-0.14235348
P 6.61				

From 1145 observations 1972-1987, mean residual 1".1. Nongravitational parameters A1 = +0.32, A2 = -0.0599.

Periodic Comet Tsuchinshan 2
Epoch 1992 May 18.0 ET = JDE 2448760.5

T 1992 May 20.09355 ET				Nakano
q 1.7821573		(1950.0)	P	Q
n 0.14453419	Peri.	203.16068	-0.65024622	-0.75150251
a 3.5960219	Node	287.59374	+0.71401896	-0.55439512
e 0.5044087	Incl.	6.71506	+0.25953184	-0.35761714
P 6.82				

From 39 observations 1965-1985, mean residual 1".1. Nongravitational parameters A1 = -0.86, A2 = -0.0038.

Periodic Comet Kowal 1 (1977 III)
Epoch 1992 June 27.0 ET = JDE 2448800.5

T 1992 June 12.88138 ET				Nakano
q 4.6733559		(1950.0)	P	Q
n 0.06535104	Peri.	181.28765	-0.87169733	+0.48874204
a 6.1042792	Node	28.05944	-0.44890364	-0.76716849
e 0.2344131	Incl.	4.35351	-0.19654336	-0.41543197
P 15.08				

From 7 observations 1977 Apr. 24-June 17, mean residual 0".3.

Periodic Comet Grigg-Skjellerup
Epoch 1992 Aug. 6.0 ET = JDE 2448840.5

T 1992 July 22.13796 ET				Nakano
q 0.9946894		(1950.0)	P	Q
n 0.19321928	Peri.	359.27608	-0.84844491	+0.49238558
a 2.9632554	Node	212.63149	-0.48375644	-0.87024756
e 0.6643254	Incl.	21.10416	-0.21475786	+0.01502078
P 5.10				

From 118 observations 1961-1987, mean residual 1".1. Nongravitational parameters A1 = 0.00, A2 = -0.0011.

Periodic Comet Smirnova-Chernykh
Epoch 1992 Aug. 6.0 ET = JDE 2448840.5

T 1992 Aug. 5.93495 ET				Nakano
q 3.5721440		(1950.0)	P	Q
n 0.11494607	Peri.	88.93837	-0.96283779	-0.24558275
a 4.1892855	Node	76.83822	+0.17810312	-0.89018977
e 0.1473143	Incl.	6.62823	+0.20303364	-0.38373334
P 8.57				

From 139 observations 1975-1987, mean residual 1".2.

Periodic Comet Shoemaker 2 (1984 XVIII)
Epoch 1992 Aug. 6.0 ET = JDE 2448840.5

T 1992 Aug. 6.87542 ET				Nakano
q 1.3270989		(1950.0)	P	Q
n 0.12520294	Peri.	317.62673	+0.93829499	-0.17215169
a 3.9572459	Node	54.74889	+0.32005998	+0.76081349
e 0.6646408	Incl.	21.54886	-0.13101190	+0.62572089
P 7.87				

From 8 observations 1984 Nov. 18-Dec. 20, mean residual 1".3.

Periodic Comet du Toit-Hartley
Epoch 1992 Sept. 15.0 ET = JDE 2448880.5
T 1992 Aug. 27.61480 ET Forti

q	1.1971614	(1950.0)	P	Q
n	0.18920428	Peri.	251.56516	-0.93795436	+0.34443476
a	3.0050295	Node	308.56230	-0.29563842	-0.85472176
e	0.6016141	Incl.	2.93806	-0.18121685	-0.38834961
P	5.21				

From 78 observations 1945-1987, mean residual 2".0. Nongravitational parameters A1 = +0.57, A2 = +0.0030.

Periodic Comet Wolf
Epoch 1992 Sept. 15.0 ET = JDE 2448880.5
T 1992 Aug. 28.12899 ET Nakano

q	2.4277044	(1950.0)	P	Q
n	0.11940689	Peri.	162.29228	+0.98134373	-0.05712253
a	4.0842888	Node	203.44050	+0.06468531	+0.99727512
e	0.4055992	Incl.	27.48339	+0.18105327	-0.04668360
P	8.25				

From 50 observations 1950-1964, mean residual 0".9.

Periodic Comet Daniel
Epoch 1992 Sept. 15.0 ET = JDE 2448880.5
T 1992 Sept. 1.67095 ET Nakano

q	1.6494513	(1950.0)	P	Q
n	0.13952887	Peri.	10.99168	+0.19543985	-0.92704761
a	3.6815158	Node	68.37000	+0.87161468	+0.01463525
e	0.5519641	Incl.	20.13398	+0.44954545	+0.37465789
P	7.06				

From 18 observations 1964-1986, mean residual 1".2. Nongravitational parameters A1 = +0.29, A2 = +0.0703.

Periodic Comet Schuster (1978 I)
Epoch 1992 Sept. 15.0 ET = JDE 2448880.5
T 1992 Sept. 6.38807 ET Nakano

q	1.5392363	(1950.0)	P	Q
n	0.13573235	Peri.	355.71827	+0.69570979	-0.66831682
a	3.7498493	Node	49.91892	+0.66881785	+0.46893574
e	0.5895205	Incl.	20.13032	+0.26205072	+0.57745295
P	7.26				

From 36 observations 1977 Sept. 5-1978 Jan. 8, mean residual 0".8.

Periodic Comet Giclas
Epoch 1992 Sept. 15.0 ET = JDE 2448880.5
T 1992 Sept. 13.09190 ET Nakano

q	1.8467947	(1950.0)	P	Q
n	0.14168241	Peri.	276.44052	+0.87292218	-0.47344854
a	3.6441151	Node	111.87256	+0.48253259	+0.80233221
e	0.4932117	Incl.	7.28646	+0.07189695	+0.36346872
P	6.96				

From 81 observations 1978-1986, mean residual 1".2.

Periodic Comet Singer Brewster (1986 XI)
Epoch 1992 Oct. 25.0 ET = JDE 2448920.5
T 1992 Oct. 28.15265 ET Nakano

		(1950.0)	P	Q
q	2.0267137			
n	0.15327563	Peri.	46.67380	-0.52326658	+0.85153077
a	3.4579653	Node	191.90425	-0.82076860	-0.51401574
e	0.4138999	Incl.	9.19905	-0.22919640	-0.10335941
P	6.43				

From 45 observations 1986 May 3-Sept. 6, mean residual 1".2.

Periodic Comet Gale
Epoch 1992 Dec. 4.0 ET = JDE 2448960.5
T 1992 Dec. 18.23157 ET Marsden

		(1950.0)	P	Q
q	1.2138685			
n	0.08765707	Peri.	215.40598	+0.07310278	+0.98439132
a	5.0189332	Node	59.28691	-0.86668781	+0.14212817
e	0.7581421	Incl.	10.73178	-0.49346552	-0.10379452
P	11.24				

From 47 observations 1927-1938; residuals up to 20".

One-opposition minor planets

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1985 PE	13.0	850912	337.88	213.71	155.25	11.67	0.2278	3.1774	38	0		N
1986 QS1	13.5	860818	333.73	229.54	133.31	5.59	0.1501	2.3186	46	0		N
1986 QP2	13.0	860729	2.00	192.48	128.05	2.33	0.1870	3.1591	36	0		N
1986 QR2	13.5	860907	349.10	212.41	145.14	13.09	0.2970	2.6231	42	0		N
1987 VD	13.0	871121	43.01	66.50	277.54	5.15	0.2530	2.2545	27	0		N
1987 WQ	12.5	871121	6.20	8.64	30.00	11.13	0.2875	2.6540	9	9		N
1988 BW	13.0	880229	33.90	139.76	322.15	11.81	0.1349	2.6326	26	0		N
1988 BM3	13.5	880209	330.46	242.96	297.28	1.64	0.1845	2.3230	37	0		N
1988 CT5	14.0	880209	341.31	206.77	318.02	5.73	0.1416	2.5388	10	0		N
1988 EY1	13.0	880409	35.55	136.73	8.88	12.77	0.0994	2.6907	39	5		N
1988 EB2	13.5	880320	101.03	244.46	181.91	6.02	0.1460	2.3247	39	9		M
1988 RQ8		881026	38.67	288.40	37.37	4.93	0.1801	2.2263	60	8		N
1988 TH1	10.5	881026	29.78	169.98	171.55	10.79	0.0529	5.2101	36	6		N
1988 VP2	13.5	881115	54.13	345.24	2.33	6.86	0.1437	2.3461	20	3		N
1988 VR5	15.0	881115	18.40	164.61	217.35	9.02	0.1723	2.3402	9	8	E	N
1988 XU1	12.0	881205	312.16	56.02	85.74	8.31	0.1697	3.1479	20	6		N
1988 YB	12.0	890114	358.60	45.18	69.81	1.86	0.1512	3.2235	36	0		N
1989 BG	13.0	890203	251.05	278.11	329.86	7.55	0.0660	2.2899	34	0		N
1989 BQ	9.9	890223	10.20	353.01	124.93	19.63	0.2532	5.1729	62	0		N
1989 BR	14.0	890203	355.97	169.28	328.60	4.68	0.0903	2.2604	35	8		G
1989 BZ	12.0	890203	289.42	237.93	329.41	12.47	0.0746	2.6292	8	8		N
1989 BR1	12.0	890203	291.99	209.05	18.92	0.47	0.2416	3.4108	35	0		G
1989 BS1	14.0	890203	59.93	87.96	335.84	2.39	0.0997	2.3134	35	8		G
1989 CF	13.0	890223	343.30	42.68	127.83	13.82	0.1061	2.6235	34	0		N
1989 CV	11.5	890223	259.51	211.00	25.71	5.39	0.0744	3.9626	30	8		N
1989 CC1	13.0	890223	45.71	271.02	154.00	28.86	0.4197	2.7822	55	0		B
1989 CJ1	13.5	890223	169.49	208.89	140.74	27.56	0.0719	1.9109	53	8		B
1989 CX1	14.7	890223	16.06	358.22	123.72	6.07	0.2373	2.8673	29	0		N
1989 CE2	13.5	890223	124.07	59.79	319.60	20.36	0.0716	1.8621	55	0		B
1989 CO2	13.0	890203	298.36	296.42	268.64	10.59	0.0686	3.0688	27	0		N
1989 CP2	13.0	890203	269.60	332.94	272.59	8.67	0.1737	2.5651	27	0		N
1989 CQ2	13.0	890203	70.31	226.38	188.80	10.89	0.0906	3.5576	27	0		N
1989 CR2	13.0	890203	214.27	38.81	247.13	9.13	0.0629	2.9725	27	0		N
1989 CT2	13.5	890203	202.04	73.14	224.49	5.80	0.1110	2.3737	27	0		N
1989 CU2	14.5	890203	21.61	269.19	200.57	8.85	0.0956	2.7516	27	0		N
1989 CV2	14.0	890203	3.29	199.06	292.25	12.30	0.1405	2.6878	27	0		N
1989 CW2	12.5	890203	204.40	38.39	256.68	9.02	0.0675	3.0005	27	0		N

1989	CX2	13.0	890203	97.58	111.81	272.90	8.66	0.1262	3.0586	27	0	N
1989	CY2	15.0	890203	45.92	217.17	219.86	5.16	0.1360	2.3208	27	0	N
1989	CA3	15.0	890203	334.84	273.27	258.69	8.45	0.1609	3.1633	27	0	N
1989	CB3	14.5	890203	12.91	215.47	264.05	5.46	0.1215	2.3018	27	0	N
1989	CC3	13.5	890203	96.03	89.92	286.13	14.19	0.2438	3.1181	27	0	N
1989	CD3	14.5	890203	354.92	215.28	288.52	11.06	0.1483	2.7937	27	0	N
1989	CF3	15.0	890203	308.84	309.38	242.69	6.50	0.0426	2.3356	27	0	N
1989	CH3	14.5	890203	34.51	183.35	263.86	7.10	0.1951	2.8047	27	0	N
1989	CA4	13.0	890203	60.02	274.00	140.72	11.78	0.1789	2.6660	31	8	G
1989	DB	13.5	890315	345.76	148.69	34.89	3.34	0.1681	2.3759	12	0	N
1989	EC	13.0	890315	85.44	97.97	340.40	22.69	0.0748	1.8714	58	0	B
1989	EE	12.5	890315	27.01	316.15	163.42	29.74	0.2937	3.2234	34	6	M
1989	EL	13.5	890315	31.19	252.84	243.23	5.43	0.1441	2.4249	33	6	B
1989	EM	13.5	890315	317.89	301.46	293.26	1.33	0.1719	2.3704	34	0	B
1989	EQ	12.0	890315	68.21	126.78	313.07	7.98	0.1499	3.0227	24	8	G
1989	ES	11.0	890315	46.74	308.07	172.78	16.87	0.0732	3.1863	38	6	B
1989	EX	12.5	890404	357.91	63.92	135.15	11.84	0.1272	2.5577	24	9	N
1989	EF1	14.5	890315	318.05	223.37	24.49	3.05	0.3146	2.2015	9	8 E	N
1989	EG1	14.5	890315	9.64	6.69	158.61	5.53	0.0973	2.2335	9	8	N
1989	EH1	13.0	890315	343.07	24.81	166.02	3.73	0.1164	2.7419	19	8	N
1989	EJ1	13.5	890315	296.10	78.72	166.40	4.27	0.1038	2.1648	19	7	N
1989	ET1	13.5	890315	37.18	89.54	36.77	6.19	0.1048	2.2899	18	6	N
1989	EU1	14.0	890315	328.07	73.64	137.86	5.42	0.1112	2.1460	32	5	N
1989	EC2	12.0	890315	320.31	194.18	23.62	5.49	0.1159	3.1511	7	0	N
1989	EL2	13.0	890404	300.37	223.82	23.83	4.49	0.1044	2.1889	25	0	N
1989	EM2	13.0	890404	335.22	222.09	357.85	6.20	0.1023	2.3716	31	0	N
1989	EN2	13.5	890404	304.13	283.13	342.19	1.62	0.1839	2.1836	47	0	N
1989	EP2	14.0	890315	336.52	283.72	275.89	7.15	0.1818	2.7754	3	6	N
1989	EV2	15.5	890223	28.55	222.97	244.83	5.95	0.0750	2.3656	27	9	N
1989	EZ2	14.5	890223	335.92	261.29	270.37	6.84	0.1085	2.3149	27	9	N
1989	EC3	13.5	890223	31.61	276.20	184.10	8.61	0.1236	2.5709	27	9	N
1989	ED3	15.5	890223	331.97	339.84	209.43	6.71	0.2622	2.6506	27	9	N
1989	EE3	14.5	890223	15.15	318.37	160.29	16.53	0.1290	3.1081	27	9	N
1989	FE	14.0	890404	342.11	196.61	23.39	6.95	0.2280	2.2673	10	7	N
1989	FG	12.5	890404	50.07	72.23	52.72	3.87	0.1208	2.5579	14	7	N
1989	FH	13.0	890404	346.50	132.51	81.96	2.73	0.0991	2.2477	29	0	N
1989	FL	13.5	890404	355.79	231.70	345.25	9.03	0.1611	2.7517	14	0	N
1989	FN	11.5	890315	97.42	336.96	101.64	2.03	0.0307	3.1050	4	8 E	G
1989	FQ	14.5	890315	350.62	155.07	38.14	3.00	0.0913	2.1983	2	6 E	G
1989	FR	13.5	890315	359.19	170.71	13.16	16.75	0.2509	3.2005	2	6 E	G
1989	GB	13.0	890404	353.67	164.96	40.18	13.82	0.0596	2.3998	10	7	N
1989	GD	12.5	890424	4.48	150.13	38.05	6.71	0.1373	2.2810	27	0	N
1989	GF	13.0	890404	61.45	49.28	80.01	6.04	0.0769	2.4019	10	0	N
1989	GH	12.5	890404	346.61	83.62	137.92	12.01	0.1431	2.6685	27	8	B
1989	GL	14.0	890315	3.86	156.07	16.71	21.30	0.1902	2.2718	34	7	B
1989	GM	13.0	890404	318.00	141.18	115.27	17.88	0.1604	2.6648	26	8	B
1989	GN	12.5	890404	40.44	349.72	167.27	10.44	0.0808	2.3846	26	0	B
1989	GV	13.0	890315	176.08	157.13	217.74	5.25	0.1969	2.5840	2	8 E	M
1989	GX	16.0	890404	359.65	345.60	209.35	1.16	0.0916	2.2002	3	0 E	M
1989	GN3	14.0	890404	6.04	0.02	184.87	8.14	0.1927	3.0293	3	9 E	N
1989	GR3	14.0	890404	303.86	25.45	254.06	4.10	0.2831	2.6513	7	8	N
1989	GS3	15.0	890404	337.37	318.73	268.48	0.33	0.1216	2.1618	7	8 E	N
1989	GT3	14.5	890404	182.16	111.35	266.03	0.85	0.0259	2.2187	9	8 E	N
1989	GU3	14.0	890404	281.70	22.48	259.66	4.13	0.1035	2.4777	7	7	N
1989	GV3	14.5	890404	93.71	243.94	195.27	17.56	0.2281	2.3570	4	9 E	N
1989	GF4	14.5	890404	359.14	320.03	232.36	3.86	0.1258	2.5684	3	8 E	G
1989	GG4	14.0	890404	38.05	296.91	211.16	5.92	0.0649	2.4319	6	0	G
1989	GH4	14.0	890404	165.92	26.37	355.35	7.03	0.1584	2.3336	6	0	G
1989	GO4	14.5	890404	15.19	226.77	306.57	1.63	0.1438	2.3449	7	0	G

1989 GU4	13.0	890404	212.42	144.23	202.36	11.42	0.1454	2.3323	4 8	G
1989 GN5	13.5	890424	84.36	133.15	340.44	8.24	0.1191	2.3489	15 4	m
1989 GO5	14.5	890315	149.31	277.34	110.82	5.85	0.2103	2.3251	3 6 E	B
1989 GP5	14.5	890315	39.17	334.94	154.90	9.46	0.2007	2.8807	3 6	B
1989 JD	14.5	890424	21.26	130.98	58.51	9.86	0.2357	2.3435	6 3	M

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

(3542) 1964 TN2	Obs. 22	M 202.13804	Peri. 68.87756
H 11.6 G 0.25	Opp. 4	n 0.17491142	Node 265.68265
rms res. 1".37 (M-P)	1964-1989	e 0.0951797	Incl. 8.09919

(4066)* 1940 RG = 1930 UC1 = 1987 QD7

Discovered 1940 Sept. 7 by H. Alikoski at Turku.

Id. P. Wild (k, MPC 12442), B. G. Marsden (MPC 12442)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M 231.34747	(1950.0)	P	Q
n 0.29361895	Peri. 88.43976	+0.85615415	+0.51043971
a 2.2418850	Node 240.86041	-0.50307174	+0.78791688
e 0.2235937	Incl. 5.27633	-0.11797837	+0.34443910
P 3.36	H 13.5	G 0.25	

Residuals in seconds of arc

301015	690	4.4-	4.3-	870830	071	0.9-	0.1-	890204	809	1.2+	0.1-
301017	690	3.9+	3.5+	870830	026	0.4-	0.5-	890207	809	0.3-	1.5+
301019	690	0.5+	0.1-	870903	026	0.1+	0.3-	890207	809	0.2+	1.1+
400907	062	2.5-	1.3-	870913	026	0.7+	2.8-	890207	809	0.8+	1.6+
400908	062	3.2+	1.7+	870915	026	1.7-	0.7-	890302	809	0.3-	0.3-
400930	062	0.7-	0.5+	870917	026	1.2+	0.4+	890302	809	0.6+	0.4-
870821	026	0.7+	0.0	870920	026	0.3-	0.3-	890302	809	0.5-	0.3-
870828	026	2.6+	0.4+	870930	026	0.6-	1.1-	890303	809	0.1+	0.6+
870829	026	0.5-	0.9-	890204	809	1.2-	0.9-	890303	809	0.4+	0.4+
870830	071	1.8-	7.6+	890204	809	0.6-	0.1-	890303	809	0.9+	0.2-

(4067)* 1966 TP = 1938 DT1 = 1985 FF1 = 1987 RE

Discovered 1966 Oct. 11 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. S. Nakano (MPC 12447)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 119.77639	(1950.0)	P	Q
n 0.23147490	Peri. 88.57113	+0.54131507	-0.83883822
a 2.6270406	Node 328.43815	+0.72090468	+0.49833511
e 0.1862708	Incl. 6.32815	+0.43275216	+0.21911770
P 4.26	H 13.1	G 0.25	

Residuals in seconds of arc

380223	024	0.2-	2.6+	870826	809	1.2+	0.2-	890205	049	0.8-	0.4+
661011	095	3.5+	0.5+	870826	809	0.9+	0.2-	890207	046	(6.6-	0.6-)
661013	095	2.4+	0.1-	870826	809	0.9+	0.0	890207	046	(6.2-	1.5-)
661017	095	3.3-	0.7+	870901	046	0.7+	0.1-	890209	801	1.9+	0.7-
661019	012	1.9-	0.8+	870901	046	0.4+	1.2-	890213	049	2.9-	0.6-
661020	095	(0.7+	5.7+)	870919	071	3.1-	0.6+	890213	049	1.5-	0.4-
830917	095	1.5+	0.4-	870919	071	(14.3-	0.3-)	890310	801	1.3+	2.2+
850322	688	0.7+	1.5-	870919	071	2.2-	1.7-				
850322	688	3.0+	2.1-	890205	049	2.7-	2.0-				

(4068)* 1973 SW = 1979 HA2 = 1987 WR3

Discovered 1973 Sept. 19 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. C. M. Bardwell (MPC 12958)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	0.66495	(1950.0)		P	Q
n	0.08176808	Peri.	312.64994	-0.64362313	-0.76521102
a	5.2571073	Node	177.29255	+0.76016890	-0.64131458
e	0.0791399	Incl.	17.48210	+0.08883977	-0.05628233
P	12.05	H	9.5	G 0.25	

Residuals in seconds of arc

730919	675	0.5+	0.3-	731004	675	0.8-	0.5+	880120	675	0.4-	1.0-
730920	675	0.1+	0.3-	731005	675	1.0-	0.6+	880121	675	0.5-	0.6+
730924	675	0.3+	0.6-	790420	095	0.0	0.5-	890110	675	1.4+	0.6-
730925	675	0.4+	0.1-	871128	675	0.3+	0.8-	890111	675	1.6-	0.6-
730929	675	0.2+	0.2-	871128	675	1.1+	0.3+	890202	801	0.4+	0.6+
730930	675	0.4+	0.3+	880119	675	0.5-	0.2+	890208	801	0.3-	1.1+

(4069)* 1978 VL7 = 1981 UG15 = 1986 CR1

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

Id. B. G. Marsden (MPC 10941)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	327.78332	(1950.0)		P	Q
n	0.30803557	Peri.	6.10726	-0.47945563	+0.87700808
a	2.1713782	Node	235.24702	-0.80671516	-0.45450209
e	0.0742631	Incl.	2.18263	-0.34544601	-0.15583543
P	3.20	H	14.1	G 0.25	

Residuals in seconds of arc

781105	675	1.6-	0.5+	860210	809	0.3-	0.2-	860215	809	0.0	0.5+
781106	675	0.4-	0.7-	860210	809	0.3+	0.3-	860215	809	0.1+	0.6+
781107	675	0.5-	1.0+	860210	809	0.4+	0.5-	860217	809	0.7-	0.3+
781108	675	1.2-	0.1+	860212	809	0.1-	0.3-	860217	809	0.5-	0.4+
781129	675	1.2-	0.5-	860212	809	0.0	0.5-	860217	809	0.3-	0.3+
781130	675	1.4+	0.6+	860212	809	0.1+	0.6-	870825	801	1.7-	1.0+
811023	095	4.5+	0.6-	860213	809	0.5-	0.2+	890103	675	1.3+	1.7-
860205	809	0.6+	0.1-	860213	809	0.0	0.1+	890103	675	0.7-	0.4+
860205	809	0.8+	0.1-	860213	809	0.1+	0.2+	890104	413	0.5-	1.5+
860205	809	0.9+	0.0	860214	809	0.2-	0.1-	890104	413	1.6-	0.1+
860206	809	0.3+	0.1-	860214	809	0.0	0.0	890110	413	0.6+	0.3+
860206	809	0.8+	0.1-	860214	809	0.2+	0.0	890110	413	(0.8+	2.5-)
860206	809	1.2+	0.1-	860214	809	0.0	0.5+	890211	675	0.4-	0.1+
860207	809	1.1-	0.5-	860214	809	0.1+	0.4+	890211	675	0.6+	0.0
860207	809	0.8-	0.5-	860214	809	0.3+	0.4+				
860207	809	0.2-	0.6-	860215	809	0.2-	0.4+				

(4070)* 1980 RS2 = 1953 TX = 1953 VO

Discovered 1980 Sept. 8 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. S. Nakano (MPC 11853), O. Kippes (d, NAZ 12, 23)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	232.28442	(1950.0)		P	Q
n	0.29177311	Peri.	123.27113	+0.95900673	-0.27628963
a	2.2513303	Node	252.83579	+0.23308013	+0.89549484
e	0.1669773	Incl.	3.78118	+0.16118236	+0.34893126
P	3.38	H	13.4	G 0.25	

Residuals in seconds of arc

531007	760	3.4-	2.3+		871124	688	0.2-	0.7-		890408	809	1.4+	1.0+
531007	760	2.6-	1.3+		871124	688	1.4+	0.6+		890408	809	1.5+	0.5+
531102	760	4.6+	1.3+		871222	801	1.7-	0.9+		890411	809	0.5-	1.4+
800908	095	1.6+	1.0+		890402	809	0.2+	0.6+		890411	809	0.3+	1.4+
801008	095	0.5-	1.2+		890402	809	0.0	0.2+		890411	809	0.2+	0.8+
801012	095	1.0-	1.2-		890402	809	0.2-	0.6+					
870924	801	0.4-	0.1+		890408	809	0.2+	1.3+					

(4071)* 1981 RD2 = 1976 YL = 1987 SF1

Discovered 1981 Sept. 7 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. E. Bowell (k, MPC 12444), B. G. Marsden (MPC 12444)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	114.89864		(1950.0)	P	Q
n	0.17331090	Peri.	129.08374	+0.79176717	-0.58010671
a	3.1860466	Node	267.19824	+0.48440542	+0.78707066
e	0.1742195	Incl.	11.03977	+0.37209695	+0.20975218
P	5.69	H	12.2	G 0.25	

Residuals in seconds of arc

761216	095	3.7-	1.2-		830202	095	0.4-	0.7+		871026	688	1.3-	0.5+
761218	095	1.0+	0.4+		870919	688	0.3+	0.5+		871026	688	0.8+	0.1+
810907	095	0.1-	0.7+		870919	688	0.9+	0.3+		890112	413	5.0-	0.2+
810927	095	0.7+	0.1+		870929	688	0.3+	1.8+		890112	413	1.2+	1.4+
811003	095	0.5+	1.0-		870929	688	0.1-	0.0		890310	801	1.2+	0.1-
830106	095	1.9+	0.3-		871020	688	0.1+	1.6-					
830112	095	3.6+	1.4-		871020	688	1.8-	0.6-					

(4072)* 1981 UJ4 = 1972 YW = 1975 XS5 = 1983 JO = 1984 UU2 = 1984 WK1 = 1987 SL6

Discovered 1981 Oct. 30 by H. Kosai and K. Hurukawa at the Kiso Station of the Tokyo Astronomical Observatory.

Id. S. Nakano (MPC 13604)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	93.63800		(1950.0)	P	Q
n	0.31369872	Peri.	126.19863	-0.83968984	-0.54289923
a	2.1451659	Node	20.93038	+0.48534112	-0.76133132
e	0.0638741	Incl.	2.16069	+0.24364929	-0.35445035
P	3.14	H	13.4	G 0.25	

Residuals in seconds of arc

721230	095	1.5-	0.2+		830506	688	0.4+	0.9-		890326	046	1.6-	1.4-
730103	095	2.7-	0.6-		841026	688	1.4+	1.1+		890326	046	0.8-	2.1-
751204	095	3.1+	1.9+		841026	688	1.3+	2.4-		890327	046	0.1-	0.4-
811022	095	(7.1+	2.7-)		841120	688	0.3+	2.5-		890327	046	0.4-	1.5-
811024	095	(5.2+	3.7-)		841120	688	0.4+	1.5-		890328	046	1.5-	2.0-
811030	381	0.9+	0.5+		870921	046	0.2-	4.0-		890328	046	1.8-	1.3-
811030	381	1.7+	0.0		870921	046	0.9-	3.7-					
830506	688	1.0+	1.9-		890311	801	2.1+	1.1+					

(4073)* 1981 UE10 = 1953 VU2 = 1986 PA1

Discovered 1981 Oct. 23 at the Purple Mountain Observatory.

Id. E. Bowell (k, MPC 11237), B. G. Marsden (MPC 11237)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	181.74744		(1950.0)	P	Q
n	0.17495264	Peri.	193.58783	+0.92339009	+0.38327155
a	3.1660836	Node	143.85249	-0.34870872	+0.86073027
e	0.1814079	Incl.	2.06931	-0.16047729	+0.33503183
P	5.63	H	11.8	G 0.25	

Residuals in seconds of arc

531109	024	0.0	0.7-		860802	688	0.4+	0.4-		871126	046	1.1+	0.8-
810925	095	0.8-	0.8+		860902	801	0.8-	0.4+		890104	413	0.2-	0.5+
811007	095	0.0	1.5+		860907	801	0.3-	0.3-		890104	413	1.4+	0.7-
811023	330	1.8+	0.1+		871124	688	0.6-	0.6-		890110	413	1.1-	1.4+
811028	330	1.0-	0.2-		871124	688	1.4-	0.2+		890110	413	0.5+	0.3-
860802	688	0.5+	0.2-		871126	046	0.6+	0.6-					

(4074)* 1981 UN11 = 1984 FH = 1986 TA3 = 1989 EH2

Discovered 1981 Oct. 22 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. A. Lowe (k), C. M. Bardwell

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	319.90788		(1950.0)		P		Q	
n	0.18761160	Peri.	66.12202		-0.26239221		+0.96460803	
a	3.0220125	Node	188.78792		-0.93578165		-0.26096797	
e	0.0427709	Incl.	9.83986		-0.23550590		-0.03777653	
P	5.25	H	11.9	G	0.25			

Residuals in seconds of arc

811022	095	2.3-	1.7+		840403	688	1.1-	1.5-		861005	046	0.8+	2.4-
811024	095	3.2+	0.1+		840504	688	0.3+	0.1+		890306	046	0.1+	0.8+
811028	095	1.2-	0.4-		840504	688	1.4+	0.5-		890306	046	0.6+	1.3-
840331	688	1.6+	1.2-		861004	046	2.2-	1.8-		890307	046	1.3-	0.1-
840331	688	0.3+	1.4-		861004	046	2.9+	0.7-		890307	046	0.3+	0.7-
840403	688	3.6-	0.7-		861005	046	0.3+	3.1-					

(4075)* 1982 TL1 = 1953 FP

Discovered 1982 Oct. 14 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. W. Landgraf (MPC 9032), S. Nakano (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	70.90158		(1950.0)		P		Q	
n	0.18738539	Peri.	71.07466		+0.14167478		-0.98958449	
a	3.0244441	Node	10.87542		+0.84968128		+0.10834217	
e	0.0465779	Incl.	7.77077		+0.50790746		+0.09478666	
P	5.26	H	12.3	G	0.25			

Residuals in seconds of arc

530316	024	2.1-	0.5+		821112	095	0.7+	0.7-		870921	071	0.2+	1.7-
530320	024	1.0+	2.3-		850425	688	0.6-	1.1-		870921	071	1.1+	1.0-
821014	095	0.7-	0.3-		850425	688	0.2+	0.8+		871123	801	2.9-	0.3+
821020	095	1.1+	0.2+		870920	071	0.7+	0.4-		890111	801	0.1-	0.6+
821022	095	0.1+	1.6-		870920	071	1.8+	2.0+		890208	801	0.3+	0.5+
821024	095	1.4-	1.5-		870921	071	1.4-	0.7+					
821108	095	1.1+	1.4+		870921	071	0.2+	0.6+					

(4076)* 1982 UF4 = 1960 BF = 1968 UY = 1973 YB1 = 1977 RL8 = 1984 AF = 1987 US1

Discovered 1982 Oct. 19 at Tautenburg.

Id. D. W. E. Green (MPC 13595, unpublished)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Green

M	123.60710		(1950.0)		P		Q	
n	0.20484099	Peri.	60.75166		+0.67692114		-0.73603519	
a	2.8500872	Node	346.64042		+0.66679246		+0.61635566	
e	0.0713522	Incl.	1.35772		+0.31171395		+0.27992482	
P	4.81	H	12.0	G	0.25			

Residuals in seconds of arc

600122	760	1.2+	0.2-		820920	095	1.8+	0.6+		890110	413	1.5+	1.3+
600122	760	0.5-	1.1-		820926	095	0.3-	0.1+		890112	413	0.4-	1.0-
681022	095	0.7+	0.4+		821019	033	1.5-	1.8-		890112	413	3.0+	0.6-
681026	095	1.4-	2.1+		821019	033	2.0-	2.0-		890113	413	0.4-	0.8-
731220	095	0.9-	2.3-		821022	095	(4.1-	1.1+)		890113	413	1.1+	0.8+
750123	413	0.3+	0.3+		840111	372	(68.4-	6.1+)		890115	413	2.6-	0.9+
770908	675	1.0-	0.2-		840111	372	(67.6-	10.3+)		890204	887	1.0-	0.0
770909	675	0.6-	0.2+		871028	372	0.5-	0.4-		890204	887	1.3-	0.3-
820916	095	0.8+	1.1+		871028	372	1.0+	1.5+					
820918	095	2.7+	0.2+		890110	413	0.1-	0.9+					

(4077)* 1982 XV1 = 1982 VK11 = 1935 YJ = 1951 YS1 = 1971 TD = 1977 XC

Discovered 1982 Dec. 13 by H. Kosai and K. Hurukawa at the Kiso Station of the Tokyo Astronomical Observatory.

Id. J.-x. Zhang (d, MPC 10387), B. G. Marsden (MPC 10387)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	198.77706	(1950.0)	P	Q	
n	0.18817010	Peri.	243.81773	+0.67989196	+0.70921229
a	3.0160298	Node	70.33890	-0.58202430	+0.67656287
e	0.0926079	Incl.	11.41984	-0.44608816	+0.19819335
P	5.24	H	11.4	G 0.25	

Residuals in seconds of arc

351221	754	1.7+	2.8-		821117	330	1.9-	0.4+		821214	381	0.6-	0.7-
351221	754	0.9+	2.9-		821206	330	0.0	0.0		871023	293	1.7+	1.2+
511227	711	(4.3-	11.4+)Y		821212	330	1.0-	2.6+		871023	293	0.8-	0.2-
711010	808	0.0	1.1-		821213	381	0.7-	0.4+		890111	801	0.5-	0.8+
771208	330	0.1-	0.4+		821213	381	0.4+	0.7+		890208	801	0.5+	0.8+
821110	330	0.1+	0.2+		821214	381	0.6+	0.3+					

(4078)* 1983 AC = 1949 QH2 = 1976 UY3 = 1987 YX

Discovered 1983 Jan. 9 by B. A. Skiff at the Anderson Mesa Station of the Lowell Observatory.

Id. A. Lowe (k, MPC 12964), B. G. Marsden (MPC 12964)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	251.13302	(1950.0)	P	Q	
n	0.18838060	Peri.	226.29755	+0.61874925	+0.75965118
a	3.0137827	Node	83.01103	-0.65018714	+0.63822529
e	0.1110865	Incl.	11.63622	-0.44091501	+0.12489419
P	5.23	H	11.2	G 0.25	

Residuals in seconds of arc

490822	078	(10.9-	1.9-)Y		830116	688	2.2+	0.7-		880115	688	0.1+	1.0-
761027	095	0.7-	1.1+		830202	095	3.5-	1.6-		880115	688	2.5+	0.7-
830109	688	1.7+	1.2-		871223	688	1.6-	2.1+		890209	801	0.1-	2.0+
830109	688	0.1+	0.3-		871223	688	1.3-	1.1+		890307	801	0.9+	0.4+

(4079)* 1983 CS = 1978 GY1 = 1981 UW14 = 1984 HX1

Discovered 1983 Feb. 15 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. A. Lowe (k, MPC 10957), C. M. Bardwell (MPC 13312)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	63.10796	(1950.0)	P	Q	
n	0.17243785	Peri.	53.28137	-0.61314230	-0.78892799
a	3.1967915	Node	74.58546	+0.71065247	-0.57329913
e	0.1017480	Incl.	2.41430	+0.34500664	-0.22118032
P	5.72	H	12.1	G 0.25	

Residuals in seconds of arc

750930	675	0.3-	0.2-		811023	095	3.0+	1.7-		840423	809	0.6+	0.3-
751001	675	0.2+	0.7-		830215	688	0.1-	0.1+		840424	809	0.3-	1.6-
751002	675	0.4+	0.7+		830215	688	1.0+	0.8-		840424	809	0.0	0.8-
751015	675	2.1-	1.1-		830219	688	0.2-	0.5+		890306	391	0.4-	0.0
751016	675	0.5+	0.9-		830219	688	0.2-	0.6-		890306	391	2.2-	0.6-
780407	095	(1.9-	11.2+)		840423	809	0.7-	1.3-		890311	801	1.0+	1.2+

(4080)* 1983 PW = 1941 ST1 = 1964 WO1

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

Id. B. G. Marsden (MPC 11154)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	320.74799	(1950.0)	P	Q	
n	0.30339745	Peri. 95.33107	+0.73069197	+0.68128122	
a	2.1934518	Node 221.73572	-0.64965669	+0.67400926	
e	0.2107722	Incl. 3.79875	-0.20984620	+0.28560009	
P	3.25	H 13.3	G 0.25		

Residuals in seconds of arc

410930	062	1.8-	1.3+		830911	095	0.5+	1.1+		890405	809	4.1-	4.8+
410930	062	0.7+	1.0+		860610	688	4.1+	0.4-		890405	809	2.9-	4.4+
641130	330	1.3+	1.2-		860610	688	1.5-	0.2+		890406	809	1.3+	0.5+
830804	095	0.8-	0.4+		860908	801	0.4+	0.4+		890406	809	1.7+	0.3+
830806	095	1.1+	1.8-		880111	033	0.1+	0.8-		890406	809	2.5+	0.0
830901	095	1.3-	2.2-		880111	033	0.1+	0.4-		890407	809	0.4-	2.5-
830905	095	1.8-	0.4-		890402	809	1.0-	0.2+		890407	809	0.1+	2.5-
830908	095	2.0-	1.0+		890402	809	0.4-	0.5-		890407	809	1.1+	2.8-
830908	095	4.1+	0.5-		890402	809	0.5-	0.6-					

(4081)* 1983 RC2 = 1953 JN = 1961 TB1 = 1978 EJ8 = 1979 OV13 = 1979 QT7

Discovered 1983 Sept. 14 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. S. Nakano (MPC 14018)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	278.90564	(1950.0)	P	Q	
n	0.26869853	Peri. 49.50024	+0.54315092	+0.83909459	
a	2.3784418	Node 253.42273	-0.77950892	+0.49059983	
e	0.0937482	Incl. 1.80102	-0.31201430	+0.23501506	
P	3.67	H 12.6	G 0.25		

Residuals in seconds of arc

530514	839	0.1+	0.2-		790826	095	0.5-	1.4-		830914	688	0.1+	1.5-
530514	839	1.1+	1.3-		830903	095	3.0+	1.1+		830914	688	0.2+	1.9-
611010	760	1.7-	0.8+		830904	688	1.3+	1.4-		890211	675	0.8+	0.7-
611010	760	0.2+	0.4+		830904	688	2.2-	2.4-		890211	675	0.8-	2.9-
780305	095	2.5-	1.3-		830910	095	1.9+	0.7+		890212	675	0.6-	1.0-
790719	095	1.2-	0.5+		830913	095	0.0	0.2+		890310	801	0.5+	1.0+

(4082)* 1984 SW3 = 1947 UF = 1969 PE

Discovered 1984 Sept. 27 by C. S. Shoemaker at Palomar.

Id. C. M. Bardwell (MPC 9356), K. Hurukawa (ibid.), W. Landgraf

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	118.19769	(1950.0)	P	Q	
n	0.26674427	Peri. 99.26331	+0.82133638	-0.54977664	
a	2.3900445	Node 294.22965	+0.43554032	+0.77663638	
e	0.2564495	Incl. 9.60514	+0.36838998	+0.30754120	
P	3.69	H 12.9	G 0.25		

Residuals in seconds of arc

471021	062	0.3-	0.6-		841121	675	0.7-	0.9+		890104	399	0.1+	0.4+
471021	062	0.7+	0.9-		841124	675	0.8+	0.5+		890104	399	0.1-	0.3+
690811	095	0.7+	3.9+		870621	675	(0.7-	6.1+)		890104	399	2.2-	1.6+
690821	095	1.5-	0.5+		870622	675	1.7-	0.5+		890106	399	0.8-	0.4+
840927	675	0.4+	0.4+		870623	675	0.6+	0.8+		890106	399	0.5-	0.7+
840928	675	0.7+	1.0-		890103	897	0.6+	1.2+		890114	293	0.6+	2.5-
841023	675	0.3-	0.1+		890103	897	3.0+	0.9+		890114	293	0.0	0.7-
841026	675	1.1-	1.7-		890104	399	1.3+	1.4+					

(4083)* 1985 CV = 1983 RZ3

Discovered 1985 Feb. 12 by C. S. Shoemaker at Palomar.

Id. S. Nakano (MPC 11854)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	113.65424		(1950.0)	P	Q
n	0.23550546	Peri.	269.02569	+0.59850028	-0.79001703
a	2.5969807	Node	143.13772	+0.79446670	+0.56395531
e	0.1953181	Incl.	12.80244	+0.10305377	+0.24047349
P	4.19	H	13.0	G 0.25	

Residuals in seconds of arc

830902	688	1.2+	1.2-		850220	809	0.0	0.6-		850227	809	0.3+	0.1+
830902	688	0.9+	1.6-		850220	809	0.5+	0.7-		850227	809	0.0	0.1-
830904	095	(1.2-	4.6-)		850220	675	1.0+	1.2+		850227	809	0.1-	0.2-
830906	688	1.0-	2.1+		850220	046	0.2-	1.1-		850228	809	1.0-	0.3+
830906	688	1.0-	1.4+		850220	046	0.9-	0.5-		850228	809	0.9-	0.3+
830906	095	0.3-	1.4+		850221	809	0.2-	0.1+		850228	809	0.3-	0.1+
850212	675	1.1+	0.9+		850221	809	0.2-	0.2+		850228	809	0.1-	0.2+
850214	809	0.2-	0.6+		850221	809	0.4-	0.1+		850228	809	0.0	0.3+
850214	809	0.0	0.4+		850222	675	1.6+	0.9+		870728	801	1.0+	0.8-
850214	809	0.2-	0.5+		850224	809	0.3-	0.3-		870822	046	(4.3-	1.4-)
850216	809	0.1-	1.0+		850224	809	0.3-	0.2-		870822	046	2.2-	0.5-
850216	809	0.1+	1.1+		850224	809	0.1-	0.2-		870824	801	1.3+	1.0-
850216	809	0.5+	1.0+		850224	809	0.0	0.1+		890126	046	0.5+	0.4-
850216	675	0.9+	1.1+		850224	809	0.0	0.2+		890126	046	0.1+	0.3-
850216	046	(2.5-	0.5+)		850224	809	0.1+	0.0		890127	046	0.8+	0.7-
850216	046	(2.7-	2.1-)		850225	809	0.1-	0.6-		890127	046	0.9+	0.5-
850217	809	0.8+	0.7+		850225	809	0.1-	0.6-		890128	046	0.5-	0.3+
850217	809	0.6+	0.7+		850225	809	0.1+	0.7-		890128	046	0.4+	0.0
850217	809	0.8+	0.7+		850226	809	0.2+	0.7-		890203	046	2.1-	2.4-
850218	809	0.7-	0.1-		850226	809	0.3+	0.9-		890203	046	1.8-	1.7-
850218	809	0.6-	0.0		850226	809	0.7+	0.9-		890204	801	0.3-	2.0+
850218	809	0.4-	0.2+		850226	809	0.6-	0.1+		890207	046	0.3+	0.1-
850219	809	0.2-	0.6-		850226	809	0.4-	0.2-		890207	046	0.5+	0.8-
850219	809	0.1-	0.6-		850226	809	0.3-	0.5-		890208	046	0.2+	0.2+
850219	809	0.0	0.6-		850227	809	0.1-	0.6+		890208	046	1.2+	0.0
850220	809	0.1-	0.7-		850227	809	0.2-	0.0		890311	801	0.6-	2.1+

(4084)* 1985 GM = 1957 UE = 1964 BH = 1972 TB7 = 1989 AJ1

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

Id. L. D. Schmadel (MPC 14193), S. Nakano (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	239.04187		(1950.0)	P	Q
n	0.19869661	Peri.	207.63984	+0.42275086	+0.90451125
a	2.9085447	Node	87.41470	-0.82072503	+0.40834947
e	0.0143555	Incl.	3.21613	-0.38430734	+0.12292319
P	4.96	H	11.8	G 0.25	

Residuals in seconds of arc

571025	024	1.3-	1.6+		881229	413	(5.8-	1.0+)	890125	046	(3.3+ 0.4+)
640121	760	0.1+	1.1-		881229	413	0.3-	0.5+	890125	046	1.2+ 0.4-
721006	095	2.6+	4.2-		890104	413	(4.0-	1.6-)	890126	046	0.2- 0.6-
850414	688	0.8+	0.3+		890104	413	1.5-	2.6-	890126	046	0.3+ 0.7-
850414	688	0.3-	0.3-		890113	400	(2.7-	9.5+)	890127	046	0.1- 1.0-
850423	688	0.4+	1.0-		890113	400	(1.7-	6.9+)	890127	046	0.2+ 0.5-
850423	688	1.4+	1.5-		890113	400	(2.5-	6.4+)	890131	046	0.1- 1.0+
850515	688	2.7-	0.3-		890115	400	1.6+	0.9+	890201	046	1.6- 1.1+
850515	688	0.7-	0.3-		890115	400	1.6+	0.7+	890201	046	1.8- 2.5+

(4085)* 1985 JR = 1981 JY = 1982 XK

Discovered 1985 May 13 by C. S. Shoemaker at Palomar.

Id. S. Nakano (MPC 11425)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	33.38882	(1950.0)	P	Q
n	0.23437042	Peri. 134.43481	-0.90228260	+0.36600880
a	2.6053587	Node 68.26354	-0.43112699	-0.77078024
e	0.1100718	Incl. 14.20015	+0.00395186	-0.52147424
P	4.21	H 12.0	G 0.25	

Residuals in seconds of arc

810505	688	0.4-	1.9+		821205	675	0.1-	0.2-	871117	801	(22.6+ 31.9-)
810505	688	0.4+	0.9+		850513	675	0.4+	2.7-	890209	801	0.2+ 2.2-
810605	688	0.6-	0.0		850515	675	1.7-	0.2+	890308	675	0.9+ 2.8+
810605	688	0.5+	0.7-		850524	675	0.3-	0.4+	890309	675	0.0 0.5-
810605	688	1.3+	0.6-		850524	675	0.7-	0.5+			

(4086)* 1985 VK2 = 1951 XE1

Discovered 1985 Nov. 9 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. C. M. Bardwell (MPC 12317)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	114.26396	(1950.0)	P	Q
n	0.08365315	Peri. 356.34466	+0.63082856	-0.71502147
a	5.1778308	Node 54.27049	+0.72094457	+0.39654820
e	0.1229023	Incl. 21.78934	+0.28686975	+0.57575500
P	11.78	H 9.0	G 0.25	

Residuals in seconds of arc

511205	711	0.0	3.0-	Y	871222	801	1.5+	0.3-	880316	801	0.8+ 0.1+
511223	711	0.1-	2.8+	Y	871224	801	1.2-	0.1-	880420	801	0.4- 0.9+
851109	095	0.5-	0.3+		880123	801	2.5-	2.7+	890209	801	0.1- 1.0+
851111	095	0.9+	0.6+		880124	675	0.6-	1.5-	890310	801	0.9+ 0.2+
851120	095	1.1-	0.0		880124	675	0.6-	2.2-			
871119	801	1.9+	0.6-		880217	801	0.9+	0.3+			

(4087)* 1986 EM1 = 1951 KV = 1970 GT = 1974 TT = 1974 UP = 1983 JT

Discovered 1986 Mar. 5 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. S. Nakano (MPC 10840), B. G. Marsden (d, MPC 9041)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	267.13036	(1950.0)	P	Q
n	0.30696813	Peri. 303.16958	+0.84205789	+0.53845314
a	2.1764090	Node 24.29759	-0.46561637	+0.75532770
e	0.1178810	Incl. 4.42249	-0.27228645	+0.37356163
P	3.21	H 13.2	G 0.25	

Residuals in seconds of arc

510527	711	0.5-	5.6+	Y	860306	809	0.3-	0.6+	860410	054	1.5+	0.6-
700410	805	0.6+	0.3-		860307	809	2.0-	0.2+	871021	399	0.7+	0.4+
700410	805	1.0+	0.5+		860307	809	1.0-	0.2+	871021	399	0.2-	0.5+
700410	805	0.7+	0.1+		860310	809	0.5-	0.5-	871021	399	0.2+	1.1-
741010	808	0.7+	0.6+		860310	809	0.7-	1.0+	871023	293	3.3-	1.7-
741010	808	0.8+	0.5+		860317	809	1.2-	0.2+	871023	293	(4.6- | 0.5+)
741019	808	1.0+	0.0		860317	809	2.0-	0.3+	890305	046	2.9-	1.8+
741019	808	0.9+	0.1-		860401	046	(5.9- | 0.1-)	890305	046	0.8+	0.5-
830507	688	0.7-	1.2+		860402	046	1.3+	0.9-	890306	046	1.4+	0.3+
830507	688	1.1+	1.7-		860402	046	1.2-	1.8-	890306	046	1.6+	2.1-
830515	688	1.2-	2.9-		860402	046	0.6-	1.5-	890307	046	3.3+	0.7+
830515	688	0.1+	2.2-		860402	054	(8.7+ | 2.0-)	890307	046	2.5+	0.9-
860305	688	0.6-	1.1+		860404	054	0.6-	0.5-	890312	399	1.2-	1.2+
860305	688	1.9+	0.0		860409	046	0.6-	0.4+	890312	399	0.2-	1.0+
860306	809	0.5-	0.2-		860409	046	0.7+	0.1+	890312	399	0.9-	0.3+

(4088)* 1986 GG = 1972 VC = 1980 XG1 = 1984 YG2

Discovered 1986 Apr. 3 by P. Jensen at Brorfelde.

Id. T. Kobayashi (MPC 14023)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	208.33631	(1950.0)	P	Q	
n	0.25789178	Peri.	282.83962	+0.73673690	+0.67213818
a	2.4444306	Node	35.01003	-0.55966943	+0.66741097
e	0.0579136	Incl.	7.39243	-0.37945866	+0.32061327
P	3.82	H	12.6	G 0.25	

Residuals in seconds of arc

721108	095	0.5+	1.7-		860305	688	2.1-	0.5-	860409	688	0.0	1.4-
801212	330	1.5+	2.4+		860403	054	0.7+	1.4+	860410	054	0.1-	0.8-
841223	095	2.5-	2.0-		860405	054	1.6-	1.3+	890110	054	0.0	0.4+
860305	688	0.6+	0.2+		860409	688	1.9+	1.1-	890205	054	1.2+	0.0

(4089)* 1986 JG = 1974 WO = 1976 GH4 = 1977 TR7 = 1982 AM

Discovered 1986 May 2 in the course of the International Near-Earth Asteroid Survey.

Id. S. Nakano (MPC 10944)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	342.52151	(1950.0)	P	Q	
n	0.30503946	Peri.	320.69397	+0.11986443	+0.99269449
a	2.1855733	Node	316.18528	-0.90572853	+0.10365420
e	0.1327774	Incl.	1.14134	-0.40655670	+0.06175322
P	3.23	H	13.0	G 0.25	

Residuals in seconds of arc

741118	095	1.3-	0.2-		860608	675	0.6+	1.1+	890312	400	(4.5+ | 0.4-)
760402	095	2.3-	5.0-		860609	675	0.5-	0.6+	890326	400	0.0	2.9+
771010	095	2.9+	1.2+		860609	675	1.6-	0.0	890326	400	0.7-	2.6+
820115	046	2.2+	0.1+		871119	054	0.4-	1.0+	890326	400	2.6-	3.0+
820115	046	1.0-	1.2+		871119	054	(3.6- | 4.0+)	890327	400	0.7+	0.6+
820116	046	(4.2- | 1.9+)		871121	801	0.3+	2.4+	890327	400	2.5+	1.7+
820116	046	1.5-	0.1+		871121	552	0.5+	2.7-	890406	400	0.9+	1.9-
820118	046	1.0-	0.7+		871121	552	1.9-	1.3-	890406	400	1.3+	3.1-
820118	046	1.4-	1.1+		890304	675	0.4-	0.4-	890406	400	0.5-	0.3-
820119	095	2.4+	1.2+		890305	675	0.9-	2.0-	890406	400	1.4+	1.6-
860502	675	0.6-	1.4+		890305	675	0.9-	1.2-	890412	400	(5.2+ | 1.5-)
860502	675	0.9+	0.4-		890312	400	(4.0+ | 0.3-)	890428	400	1.6+	0.8-
860503	675	0.8-	1.4+		890312	400	(3.5+ | 1.1-)	890428	400	1.5+	0.4-

(4090)* 1986 RH1 = 1931 FF = 1971 KB = 1982 KX = 1988 AR3 = 1989 GU
Discovered 1986 Sept. 2 by A. Mrkos at Klet.
Id. S. Nakano, E. Goffin
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 356.38616	(1950.0)	P	Q
n 0.27243562	Peri. 3.54187	-0.00669279	+0.99970954
a 2.3566411	Node 266.07561	-0.91798590	-0.01532409
e 0.2114394	Incl. 1.32978	-0.39655655	+0.01860128
P 3.62	H 13.4	G 0.25	

Residuals in seconds of arc

310320 754	2.3+	1.2+	860905 046	0.6+	1.8-	890402 809	1.1+	0.2-
310326 754	0.4+	0.3-	860905 046	0.0	1.1-	890403 809	2.6-	0.8+
710516 095	5.7-	1.4+	860905 046	0.1+	1.9-	890403 809	1.7-	0.9+
710524 095	0.5+	0.3-	860908 046	1.0-	1.3-	890405 809	0.7-	1.2-
820525 704	0.4-	2.2+	860908 046	1.7+	1.0-	890405 809	0.3-	1.5-
820526 704	1.3+	1.0+	880112 033	1.0-	0.2-	890405 809	1.8-	0.4-
860831 010(22.2-	15.1-)		880112 033	1.0-	0.2-	890409 809	0.2+	1.7-
860831 010(24.5-	14.0-)		890401 809	0.2+	0.0	890409 809	1.3+	1.5-
860831 010(19.8-	12.5-)		890401 809	0.7+	0.0	890409 809	2.0+	1.1-
860902 046	0.6-	2.5+	890401 809	1.6+	0.1-	890410 809	0.5-	1.6-
860903 046	1.8+	3.7+	890402 809	0.0	0.5+	890410 809	0.1+	1.0-
860905 046	0.1+	2.7-	890402 809	0.7+	0.0			

(4091)* 1986 TL2 = 1957 UM1 = 1978 GW2 = 1981 UQ18
Discovered 1986 Oct. 7 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Id. S. Nakano (MPC 11427)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 311.92762	(1950.0)	P	Q
n 0.17345338	Peri. 200.83349	-0.34330514	+0.92531713
a 3.1843017	Node 49.46207	-0.82891741	-0.21788387
e 0.1125343	Incl. 12.23283	-0.44163051	-0.31034631
P 5.68	H 10.9	G 0.25	

Residuals in seconds of arc

571026 839	0.3-	2.0-	861007 688	1.7-	1.6-	861202 688	0.8-	1.0+
571028 839	1.0+	0.2+	861007 688	1.3+	0.4+	861202 688	0.1-	0.6+
780411 095	0.0	0.8-	861105 688	0.2-	1.4+	890209 801	0.5+	0.5-
811025 095	0.6+	1.0-	861105 688	0.5+	0.0	890310 801	1.1-	0.6+

(4092)* 1986 TJ4 = 1956 RG = 1973 QG1
Discovered 1986 Oct. 8 by P. Jensen at Brorfelde.
Id. C. M. Bardwell (MPC 11345)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M 255.97914	(1950.0)	P	Q
n 0.23101641	Peri. 107.57398	+0.99746268	-0.02382704
a 2.6305153	Node 253.83193	-0.00338974	+0.92536359
e 0.2536395	Incl. 4.00526	+0.07111051	+0.37833121
P 4.27	H 13.4	G 0.25	

Residuals in seconds of arc

560905 760	1.7+	0.0	861011 054	0.0	0.6-	890403 809	1.0-	0.0
560905 760	3.1-	0.3-	861029 054	0.0	0.1+	890403 809	0.4-	0.3-
730829 095	0.4+	0.2-	861031 054	0.2-	1.0+	890405 809	0.4+	1.1+
730902 095	0.3-	0.5-	861104 054	0.2+	0.2+	890405 809	1.3+	0.1-
861008 054	0.4-	0.1+	890403 809	0.6-	0.1-	890405 809	0.6+	0.5+

(4093)* 1986 VD = 1981 UG9 = 1981 UG21

Discovered 1986 Nov. 4 by R. H. McNaught at Siding Spring.

Id. C. M. Bardwell (MPC 13467)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M 121.09057		(1950.0)	P	Q
n 0.18791282	Peri.	216.63382	-0.44304936	-0.88210541
a 3.0187822	Node	260.16454	+0.85621305	-0.36345223
e 0.0264250	Incl.	9.34496	+0.26571879	-0.29965400
P 5.25	H	12.0	G 0.25	

Residuals in seconds of arc

790626	413	0.2+	0.6+	861104	010	1.5-	0.1+	861202	413	0.9+	0.3-
790626	413	1.4+	0.4+	861104	010	0.3+	0.8+	861203	413	0.3+	1.1-
790629	413	0.9-	0.7-	861104	010	1.9+	0.6+	861203	413	0.4+	0.7-
790629	413	1.6+	0.2+	861104	413	1.0+	2.4+	890405	474	1.4-	0.1+
790814	413	1.4-	0.0	861104	413	0.7+	1.6-	890405	474	0.3-	0.8+
790815	413	0.9+	0.6+	861105	413	1.3-	0.0	890406	474	0.8-	0.3-
790815	413	1.0-	0.7-	861105	413	0.7+	2.0-	890406	474	1.3-	0.3-
811024	095	(2.1+	5.2+)	861105	010	(18.0-	1.6-)	890414	413	0.5+	1.2-
811030	381	0.4-	0.0	861105	010	(8.5-	0.9-)	890415	413	2.1+	0.7-
811030	381	0.9-	0.2-	861108	413	0.5+	0.4-	890428	413	0.0	0.7-
850906	413	2.7-	1.5-	861109	413	0.8-	0.9-	890429	413	0.2-	1.9-
850906	413	1.8+	0.0	861202	413	0.1-	0.3-				

(4094)* 1987 QC = 1948 RC1 = 1958 VW = 1982 OJ

Discovered 1987 Aug. 26 by M. Kizawa and K. Kakei at Shizuoka.

Id. T. Urata (NOC 1665), S. Nakano (MPC 12448)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 141.65020		(1950.0)	P	Q
n 0.20249485	Peri.	104.82306	+0.99931168	+0.01483045
a 2.8720592	Node	254.33599	-0.02689916	+0.92089337
e 0.3368724	Incl.	2.02381	+0.02554606	+0.38953236
P 4.87	H	13.2	G 0.25	

Residuals in seconds of arc

480901	094	(31.2+	1.2+)X	870828	809	1.7-	0.7+	870831	809	1.0+	0.8+
581111	760	0.0	1.4-	870828	809	1.4-	0.8+	870901	883	0.2+	0.6+
581111	760	0.5+	0.2-	870828	883	(1.7-	4.5+)	870901	883	0.6-	1.2-
820717	688	0.5+	0.7-	870828	883	(0.7+	2.5+)	870901	883	(5.1+	0.1+)
820717	688	0.3-	0.9-	870828	883	(1.3+	3.5+)	870904	809	0.4+	0.2+
820817	688	0.1+	0.8-	870829	809	1.2+	0.7-	870904	809	0.4+	0.6-
820817	688	0.1+	0.4+	870829	809	1.0+	0.0	871018	881	0.4-	1.2+
870826	883	(5.6-	1.8-)	870829	809	1.1+	0.2-	871018	881	1.3-	1.3+
870826	883	(2.0+	4.3-)	870830	809	0.1-	0.4+	890104	413	2.0-	0.6+
870826	883	(5.0+	5.3-)	870830	809	0.1-	1.0+	890104	413	0.8-	0.5+
870827	809	0.2+	0.6-	870830	809	1.2-	0.1+	890110	413	1.8+	0.4+
870827	809	0.5-	0.3-	870830	809	0.4-	1.3-	890110	413	0.8+	2.1-
870827	809	0.4-	0.3-	870830	809	0.6+	0.7-				
870828	809	(2.3-	0.1+)	870831	809	0.9+	0.8+				

(4095)* 1987 SG = 1950 TS1 = 1953 RH1 = 1972 YL1 = 1973 AW2 = 1977 HY = 1981 UW17 = 1981 WM2

Discovered 1987 Sept. 16 by T. Seki at Geisei.

Id. T. Kobayashi (MPC 12455; d, unpublished), C. M. Bardwell (d, MPC 6840)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 250.29649		(1950.0)	P	Q
n 0.31927829	Peri.	89.05557	+0.96293444	+0.26637156
a 2.1201006	Node	255.49505	-0.26162282	+0.88400243
e 0.1182282	Incl.	2.51410	-0.06565634	+0.38416911
P 3.09	H	14.1	G 0.25	

Residuals in seconds of arc

501013	024	1.6-	1.9-		811128	046	0.7-	0.0		871017	372	0.0	0.1+
530907	024	2.1+	1.1+		811128	046	1.1-	0.5+		871017	372	0.5-	0.3+
721230	095	1.9+	0.6-		870916	372	1.1-	1.7+	Y	890210	372	1.4+	0.1-
730102	095	2.2-	0.7+		870917	372	0.1+	0.7-	Y	890210	372	0.4-	0.3+
770424	675	0.6-	0.2-		870918	372	1.8-	0.8+	Y	890301	372	1.0-	1.4+
770425	675	0.5-	0.2-		870926	372	(1.1-	7.6+)		890301	372	2.1+	0.7+
811024	095	2.9+	1.9-		871002	372	1.0+	1.3+					

(4096)* 1987 VC = 1976 JY = 1982 SY6

Discovered 1987 Nov. 15 by S. Ueda and H. Kaneda at Kushiro.

Id. C. M. Bardwell (MPC 13590)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	213.02395	(1950.0)	P	Q
n	0.20950912	Peri. 303.73772	+0.78775967	+0.61393581
a	2.8075926	Node 18.54800	-0.49997391	+0.68485460
e	0.1532918	Incl. 9.07538	-0.35980660	+0.39250095
P	4.70	H 12.1	G 0.25	

Residuals in seconds of arc

760502	095	0.2+	0.3+		871122	399	1.4+	0.0		890129	399	1.2+	0.9+
820916	095	0.6-	1.1-		871122	399	0.6+	0.7-		890129	399	0.9-	1.7-
820919	095	1.5+	0.2+		871128	399	1.6-	2.2+		890130	399	0.7-	0.5+
820921	095	1.0-	1.2+		871128	399	2.0-	0.6+		890130	399	1.7+	1.7+
871115	399	1.9-	0.2-		871212	399	1.7-	0.1-		890130	399	0.6-	0.7-
871115	399	0.0	0.5+		871212	399	0.3-	0.8-		890207	399	1.1-	0.7+
871115	399	1.4+	0.7-		871212	399	0.9+	0.4-		890207	399	0.4+	0.8-
871122	399	2.9+	0.3-		890129	399	0.8+	0.5-		890207	399	0.8-	0.1-

(4097)* 1987 WW = 1949 GN = 1976 JV3

Discovered 1987 Nov. 18 by T. Seki at Geisei.

Id. T. Kobayashi (MPC 12801)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	260.32025	(1950.0)	P	Q
n	0.29418266	Peri. 321.43493	+0.94530823	+0.32534937
a	2.2390202	Node 19.61648	-0.27944652	+0.84456385
e	0.1422184	Incl. 3.96953	-0.16823195	+0.42527601
P	3.35	H 13.6	G 0.25	

Residuals in seconds of arc

490404	760	0.5-	0.1-		871118	372	0.7-	1.5+		890213	372	(4.2+	0.9+)
490404	760	0.5+	0.1+		871123	372	1.5+	0.4-		890306	372	0.8+	1.5+
760503	809	0.0	0.1-		871123	372	0.2-	0.2-		890306	372	0.5+	0.8-
871027	372	0.5+	0.2+		871129	372	1.6-	2.1-		890308	372	2.1-	1.1-
871027	372	(3.8-	0.3-)		871129	372	1.8+	0.2-		890308	372	0.3-	0.2+
871118	372	1.2-	1.0+		890213	372	1.3+	0.4+					

(4098)* 1987 WQ1 = 1987 YB1 = 1958 XZ = 1977 DP1 = 1981 WM8

Discovered 1987 Nov. 26 by F. Borngen at Tautenburg.

Id. D. W. E. Green (d, MPC 13052), S. Nakano (MPC 13052)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Schmadel

M	106.85632	(1950.0)	P	Q
n	0.17044315	Peri. 354.95828	-0.07574141	-0.99583246
a	3.2216845	Node 99.37894	+0.91659266	-0.08959309
e	0.1344195	Incl. 2.95155	+0.39258266	+0.01705275
P	5.78	H 13.0	G 0.25	

Residuals in seconds of arc

581203	024	0.8-	0.9+		811125	095	1.5+	0.3+		880111	033	0.1-	0.5-
770218	381	0.4+	0.1+		871126	033	0.2-	0.3-		890204	033	0.4+	0.9-
770218	381	0.7+	0.7+		871126	033	0.3-	0.8-		890204	033	1.4-	0.1-
770219	381	0.4+	1.2+		871222	033	0.4-	0.7-		890306	033	0.1-	0.7-
770219	381	0.4+	0.7+		880111	033	0.2-	0.4-		890306	033	0.5-	0.4-

(4099)* 1988 AB5 = 1951 CS = 1980 DC4 = 1989 GS

Discovered 1988 Jan. 13 by H. Debehogne at the European Southern Observatory.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	186.32454	(1950.0)	P	Q	
n	0.23887370	Peri.	300.97588	+0.21086762	-0.95912858
a	2.5725105	Node	135.54599	+0.96332054	+0.17111999
e	0.0766119	Incl.	15.63095	+0.16597707	+0.22536707
P	4.13	H	12.5	G 0.25	

Residuals in seconds of arc

510207	012	0.1-	1.5-		880117	809	0.1-	0.3+		880128	809	0.4+	0.1+
800220	095	0.5+	2.0+		880119	809	1.3-	0.1+		880128	809	0.4+	0.5-
880113	809	0.8+	0.2+		880119	809	1.1-	0.1+		880129	809	1.1+	1.1-
880113	809	1.2+	0.2+		880119	809	0.7-	0.1-		880130	809	1.9+	1.0-
880113	809	1.3+	0.3+		880121	809	1.2-	0.3+		890407	675	1.3-	0.5+
880114	809	0.5+	0.2+		880121	809	0.8-	0.7+		890407	675	0.8-	0.1-
880114	809	0.8+	0.1+		880123	809	1.2-	0.3+		890408	675	2.8-	0.1+
880114	809	1.0+	0.0		880123	809	1.3-	0.2+		890408	675	2.1-	0.5+
880115	809	0.4+	0.0		880125	809	0.9-	0.1-		890429	675	1.2+	0.7-
880115	809	0.9+	0.1+		880125	809	0.5-	0.2-		890429	675	3.2+	1.4-
880115	809	0.3+	0.0		880126	809	0.4-	0.1-		890503	675	0.2+	0.3+
880117	809	0.3-	0.3+		880126	809	0.7-	0.3-		890503	675	1.5+	0.3+
880117	809	0.2-	0.3+		880127	809	0.3-	0.7-					

(4100)* 1988 BF = 1929 XK = 1957 EN = 1979 HU6

Discovered 1988 Jan. 16 by T. Hioki and N. Kawasato at Okutama.

Id. S. Nakano (MPC 12945)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	193.01681	(1950.0)	P	Q	
n	0.18868234	Peri.	303.76607	+0.81819470	-0.54167919
a	3.0105688	Node	89.74503	+0.57032479	+0.72227772
e	0.1066766	Incl.	11.11169	+0.07271226	+0.42999832
P	5.22	H	11.2	G 0.25	

Residuals in seconds of arc

291128	690	(5.9+ | 3.1-)		880116	877	(1.2+ | 4.0+)		880219	877	0.6+	2.1+
291203	690	0.2+	3.4-		880116	877	2.1+	2.5+		880219	877	2.8+	1.2+
291204	690	2.4+	1.3-		880120	877	2.3-	0.5+	Y	890308	877	0.1+	2.4-
570305	760	0.5-	0.5+		880123	801	2.6-	0.9+		890308	877	0.2+	2.9-
570305	760	0.9-	1.2+		880124	877	2.1-	0.0	Y	890401	877	(6.6+	0.2-)
790430	095	2.2-	1.5+		880124	877	(4.0-	0.0	)Y	890401	877	(4.6+	0.1-)
830314	095	0.2+	1.6-		880210	877	0.7+	0.3+		890401	877	0.6+	1.7-
871224	010	1.3-	1.1-		880210	877	1.1+	0.4-		890402	801	0.5+	0.2-
871224	010	0.4+	0.0		880210	877	0.4-	0.3-					
871224	010	0.1-	1.3+		880213	877	0.4+	1.1-					

(4101)* 1988 CE = 1966 CO = 1975 EG2 = 1981 RD3 = 1984 FY1

Discovered 1988 Feb. 8 by T. Seki at Geisei.

Id. T. Kobayashi (MPC 12951)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 308.49066	(1950.0)		P	Q
n 0.22235493	Peri.	338.72059	+0.73814163	+0.67238624
a 2.6983910	Node	338.72291	-0.59491835	+0.61016670
e 0.1139442	Incl.	8.74476	-0.31814948	+0.41903860
P 4.43	H 12.6		G 0.25	

Residuals in seconds of arc

660214 330	0.2-	0.6-		880215 372	0.5+	0.6-		890329 372	0.3-	1.5-
750308 095	1.0-	0.0		880215 372	0.3+	0.8+		890404 372	3.1+	0.6-
810902 095	0.8+	1.1-		880217 372	0.4-	0.1+		890404 372	0.1+	0.9-
840330 095	1.1+	0.3-		880217 372	0.3-	0.1+		890405 474	0.7-	1.3+
840403 095	0.6-	2.3-		880219 372	(5.2-	0.7-)		890405 474	0.6-	1.2+
880208 372	0.4-	1.2+		880219 372	0.6+	0.5+		890406 474	0.5-	1.5+
880208 372	0.4-	0.9-		890329 372	0.3-	1.4-		890406 474	0.9-	1.4+

(4102)* 1988 TE3 = 1933 FO = 1949 GD = 1970 GZ1 = 1980 FS9 = 1983 UE1

Discovered 1988 Oct. 15 by V. Shkodrov at Rozhen.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 346.33002	(1950.0)		P	Q
n 0.18779748	Peri.	278.66225	-0.23187298	-0.97264585
a 3.0200181	Node	184.81325	+0.94503504	-0.22184240
e 0.0726089	Incl.	9.57938	+0.23052918	-0.06889126
P 5.25	H 11.5		G 0.25	

Residuals in seconds of arc

330322 024	2.1+	3.0+		700412 805	0.8+	1.0-		881017 071	0.1+	0.7+
330324 024	2.2-	3.0+		800316 095	2.2-	3.6-		881017 071	0.6-	1.4+
330328 024	4.2+	3.1+		831030 675	0.2-	1.7-		881112 071	1.2+	1.5+
490404 760	1.4-	0.9+		831104 675	0.7+	1.7-		881112 071	0.3-	2.2+
490404 760	2.4-	0.2+		881015 071	0.6-	1.3+		881112 071	1.5-	0.6-
700412 805	1.6+	0.0		881015 071	0.3-	1.1+				
700412 805	0.8+	0.5-		881016 071	0.3+	1.3+				

(4103)* 1989 EB = A905 GB = 1949 GG = 1978 EA7 = 1978 GE2 = 1985 CB1

Discovered 1989 Mar. 4 by E. Helin at Palomar.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M 227.67617	(1950.0)		P	Q
n 0.26835102	Peri.	328.31591	+0.96585190	+0.19076261
a 2.3804947	Node	22.76589	+0.00068416	+0.67481240
e 0.1920818	Incl.	26.94157	-0.25909388	+0.71290803
P 3.67	H 11.4		G 0.25	

Residuals in seconds of arc

050406 024	3.5+	2.7+		850214 675	0.2-	1.1+		890405 675	1.0+	0.9-
490404 760	2.4-	1.8-		850222 675	2.2+	1.3+		890405 675	0.8+	1.0-
490404 760	0.1-	0.5-		890304 675	2.1-	0.3-		890407 675	0.5+	0.0
780306 095	2.7-	0.3-		890305 675	0.9-	0.5-		890407 675	0.1-	0.7-
780411 095	0.7+	3.0+		890306 675	0.0	1.2-				

(4104)* 1989 ED = 1953 JC = 1957 KK = 1977 FO3 = 1987 YR3 = 1988 AG2

Discovered 1989 Mar. 5 by E. Helin at Palomar.

Id. C. M. Bardwell, D. W. E. Green (d)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M 291.25285	(1950.0)		P	Q
n 0.24286483	Peri.	243.11260	+0.39191091	+0.89532301
a 2.5442491	Node	51.58897	-0.71872841	+0.44157889
e 0.1045692	Incl.	15.67195	-0.57431290	+0.05835070
P 4.06	H 12.4		G 0.25	

Residuals in seconds of arc

530507	760	1.3+	0.8+		770320	033	3.2-	0.6+		890306	675	2.3+	1.7-
530507	760	0.9+	1.7+		871220	010	0.7-	1.6+		890405	675	0.4-	1.3+
530509	760	(0.5+	17.6+)		871220	010	1.5-	2.0+		890405	675	0.7-	2.0+
530509	760	(0.9+	6.9+)		880111	033	0.3-	0.6+		890407	675	0.3-	0.3-
570525	839	0.5+	0.6+		880111	033	0.2-	0.9+		890407	675	1.7-	0.1+
770320	033	0.8-	0.2+		890304	675	0.2-	1.3-					
770320	033	0.9-	0.9+		890305	675	2.1+	0.4-					

(4105)* 1989 EK = 1927 HB = 1936 KC = 1958 GJ = 1977 RF6 = 1982 VS10
= 1982 XQ4 = 1985 JC2

Discovered 1989 Mar. 5 by E. Helin at Palomar.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	336.33733		(1950.0)		P		Q	
n	0.22185310	Peri.	61.85411		-0.07395514		+0.99623644	
a	2.7024586	Node	204.03219		-0.94945086		-0.08420451	
e	0.1921305	Incl.	6.37316		-0.30507984		+0.02055607	
P	4.44	H	12.3	G	0.25			

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

270430	029(0.04- | 0.01+)Y		821214	381	0.5-	1.3+		890306	675	1.5+	0.6-
360518	024	0.5-	0.9+	821214	381	0.7-	1.5+		890406	675	0.6-	0.4-
580408	760	1.9-	1.4+	850513	675	1.8-	0.5+		890406	675	0.7+	0.5-
580408	760	0.5-	0.7+	850514	675	0.5+	0.8+		890408	675	2.9-	2.0+
770909	095	1.2+	0.2-	850515	675	0.4+	0.7-		890408	675	0.9-	0.9-
821112	095	0.7-	0.1-	890305	675	3.8+	2.6-					

(4106)* 1989 EW = 1930 KA = 1930 KQ = 1970 AR = 1971 KC = 1980 EW1

Discovered 1989 Mar. 6 by T. Nomura and K. Kawanishi at Minami-Oda.

Id. S. Nakano, C. M. Bardwell (d, MPC 5677)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	1.32305		(1950.0)		P		Q	
n	0.21610545	Peri.	189.93933		-0.58249204		+0.80406696	
a	2.7501659	Node	44.55840		-0.73358643		-0.45693494	
e	0.1837942	Incl.	9.77116		-0.35007711		-0.38037716	
P	4.56	H	12.0	G	0.25			

Residuals in seconds of arc

300517	078	0.9-	1.3+	710516	095	0.0	3.5+		890314	871	1.4-	0.5+
300517	078	0.4-	2.0-	710524	095	1.2+	0.6+		890314	871	1.7+	2.0+
300525	690	2.3+	0.1+	800315	095	2.5+	1.1+		890315	871	(6.3- | 0.4+)
300527	690	0.9+	1.9-	890306	374	0.7+	1.5+		890315	871	1.7+	0.2+
300528	078(12.2+	0.9+)		890306	374	3.0+	0.0		890317	896(21.9+	5.3-)	
300529	690	3.8-	1.1-	890310	374	1.7+	2.9+		890329	374	0.9-	4.2-
300531	690	0.0	0.6-	890310	374	0.1-	0.6-		890329	374	4.0-	4.2-
700104	095	0.0	1.6-	890311	896	3.9-	0.0	Y				

(4107)* 1989 GT = 1960 HA = 1970 SC = 1978 PY3 = 1978 QN = 1986 PK
= 1988 CM = 1988 EP2

Discovered 1989 Apr. 7 by E. Helin at Palomar.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	147.61015		(1950.0)		P		Q	
n	0.24134472	Peri.	312.89759		-0.21781436		-0.96326873	
a	2.5549212	Node	148.64143		+0.96010385		-0.24039430	
e	0.2018634	Incl.	17.56728		+0.17537818		+0.11968265	
P	4.08	H	11.8	G	0.25			

Residuals in seconds of arc

600419	760	0.6+	1.7+		860813	881	1.8+	0.4-		890407	675	0.2-	0.9-
600419	760	0.3+	0.1-		860813	881	0.5+	0.1-		890408	675	2.2-	2.4-
700927	095	(2.4-	6.7+)		880211	675	0.6+	0.2+		890408	675	0.6-	2.4-
780809	095	1.7-	0.1+		880211	675	0.5-	0.8-		890429	675	1.2+	0.9+
780831	095	1.5-	1.7+		880315	675	0.0	0.6+		890429	675	2.6+	0.5-
860805	887	0.6+	0.3-		880315	675	(0.1+	10.2+)		890503	675	1.7-	1.9+
860805	887	0.8+	0.5-		890407	675	0.5-	0.2+		890503	675	0.5-	2.2+

(4108)* 3439 T-3 = 1975 EQ4 = 1979 BA2 = 1984 HW1 = 1988 FA3

Discovered 1977 Oct. 16 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. K. Ichikawa (k), H. Oishi

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5			Ichikawa
M 134.83300	(1950.0)	P	Q
n 0.22955470	Peri. 338.59324	-0.99337897	-0.11470022
a 2.6416702	Node 194.82484	+0.10873781	-0.92051654
e 0.1285236	Incl. 1.45282	+0.03707171	-0.37348784
P 4.29	H 13.8	G 0.25	

Residuals in seconds of arc

750315	095	0.1-	1.2-		771017	675	0.1+	2.1-		880317	809	0.0	1.6-
771007	675	0.7-	2.7-		771021	675	0.3-	0.9+		880317	809	0.3-	0.7-
771011	675	0.5+	1.0-		771021	675	1.4-	1.0-		880318	809	0.1-	1.0-
771011	675	0.1+	0.1-		771022	675	1.6+	0.4-		880318	809	0.1+	0.8-
771012	675	1.2+	1.1-		771022	675	3.2+	0.9-		880323	809	0.4-	1.7-
771012	675	1.7+	0.8-		790124	095	0.1-	1.9+		880323	809	0.8-	1.1-
771016	675	0.1-	2.2-		840428	691	0.5-	1.0-		880326	809	1.0-	0.5-
771016	675	0.1-	0.6-		840428	691	0.6-	1.1-		880326	809	0.4-	0.8-
771017	675	0.6-	0.9-		840428	691	0.1-	1.1-					

1933 OB = 1975 VC2 = 1986 NH = 1989 GY

Id. L. D. Schmadel, C. M. Bardwell

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5	(J-P)		Bardwell
M 262.54958	(1950.0)	P	Q
n 0.25957928	Peri. 150.35137	+0.98492453	+0.17247173
a 2.4338300	Node 199.73034	-0.16545079	+0.91677540
e 0.1857291	Incl. 2.25963	-0.05049462	+0.36024487
P 3.80	H 13.5	G 0.25	

Residuals in seconds of arc

330724	024	1.0-	1.6+		890406	809	1.3+	1.9+		890408	809	0.2-	0.3+
330727	024	1.5-	2.4+		890406	809	0.0	1.6+		890408	809	1.0-	0.6+
330825	024	0.0	2.8+		890406	809	1.0+	1.7+		890409	809	1.7-	0.5+
330827	024	0.5-	2.9+		890407	809	0.7+	1.0+		890409	809	0.9+	0.8-
751102	095	1.4-	3.6+		890407	809	0.6+	1.0+		890409	809	1.7+	0.1-
860707	010	2.9-	5.8-		890407	809	1.8+	0.9+					
860708	010	4.3+	2.3-		890408	809	1.2-	1.8+					

1954 UO2 = 1974 HA2 = 1988 TF3

Id. H. Oishi, S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5	(J-P)		Nakano
M 35.29400	(1950.0)	P	Q
n 0.17311924	Peri. 255.50648	+0.60203297	-0.79837656
a 3.1884040	Node 157.46418	+0.74435063	+0.55558787
e 0.1825068	Incl. 1.83840	+0.28896097	+0.23220030
P 5.69	H 12.5	G 0.25	

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

541028	760	0.6+	0.1-	740424	805	1.9-	4.3-	881111	071	0.1+	1.3-
541028	760	2.4+	0.8+	740425	805	0.5+	0.9+	881111	071	0.4-	2.0-
541116	760	1.2-	0.6+	881015	071	2.2+	0.1-	881111	071	1.2-	0.4+
541116	760	1.7-	1.5-	881015	071	0.4+	1.1+	881112	071	0.1+	0.8+
541117	760	0.2+	0.2-	881016	071	(0.05+	0.04-)	881112	071	0.0	0.1+
541117	760	0.2-	0.1+	881111	071	0.4-	2.2-				

1971 TF = 1986 PA5

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 258.29742		(1950.0)		P	Q
n	0.25919344	Peri.	35.50468	+0.91522792	-0.40286727
a	2.4362399	Node	348.24589	+0.36067748	+0.82736619
e	0.1768881	Incl.	2.10175	+0.17963743	+0.39136063
P	3.80	H	13.5	G 0.25	

Residuals in seconds of arc

711010	095	1.9+	2.5-	711021	095	0.1+	0.5-	860831	095	0.7-	0.6-
711011	095	3.2-	2.5+	860808	095	0.3-	0.2+	860908	095	0.1+	0.1-

1977 DL3 = 1972 XZ = 1979 SO8 = 1988 FP

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 218.26308		(1950.0)		P	Q
n	0.27041120	Peri.	72.41747	+0.24356977	-0.96987066
a	2.3683884	Node	3.49661	+0.85606627	+0.21257685
e	0.2084046	Incl.	4.67079	+0.45587751	+0.11900410
P	3.64	H	14.5	G 0.25	

Residuals in seconds of arc

721202	095	0.0	0.5+	770312	381	0.2+	0.2-	880317	033	0.3+	0.5+
770218	381	2.8-	1.2-	770312	381	0.7+	0.3-	880318	033	0.8-	0.5+
770218	381	0.9-	0.4-	770315	381	0.1+	1.2-	880318	033	1.4+	0.5+
770219	381	0.5+	0.5+	770315	381	1.3+	0.1-				
770219	381	0.4+	1.1+	790924	095	0.1+	0.2-				

1977 EG5 = 1953 VT = 1953 VV3 = 1975 XD6 = 1982 QN1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 316.23039		(1950.0)		P	Q
n	0.27035892	Peri.	183.41106	+0.99156811	-0.12908383
a	2.3686937	Node	184.05893	+0.12237598	+0.96170738
e	0.2489559	Incl.	9.27164	+0.04262405	+0.24177732
P	3.65	H	13.0	G 0.25	

Residuals in seconds of arc

531103	760	1.6+	0.6-	770312	381	0.7+	1.2+	820818	809	0.4+	0.1-
531103	760	0.5-	0.4+	770314	381	0.4+	1.2+	820818	809	0.1+	0.1+
531110	760	0.7-	2.0-	770314	381	1.6+	0.6-	820820	809	0.7-	3.5+
531110	760	0.4+	2.1-	770315	381	0.2+	0.5+	820820	809	0.3-	2.9+
751206	809	0.3-	1.6+	770315	381	1.4-	0.8+	820820	809	0.3+	2.8-
751206	809	0.2+	1.3+	820816	809	0.1-	1.2-	820821	809	(1.3-	7.0+)
751207	809	0.5-	0.8+	820816	809	0.3-	0.9-	820821	809	(1.0-	10.1+)
751207	809	0.6-	1.8+	820816	809	0.0	0.7-	820821	809	1.5-	3.8+
770312	381	0.1-	1.0+	820818	809	0.9+	0.2+				

1978 VY14 = 1986 QJ3

Id. E. Bowell (MPC 12696)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5			(J-P)	Nakano	
M 104.67637		(1950.0)		P	Q
n	0.22873520	Peri.	66.61101	-0.68448301	-0.72696301
a	2.6479813	Node	66.70229	+0.64513918	-0.63903844
e	0.0204872	Incl.	3.42329	+0.33952681	-0.25130591
P	4.31	H	13.0	G 0.25	

Residuals in seconds of arc

781028	675	0.7+	0.0	860901	809	0.1+	0.4-	860909	809	0.8- 0.8-
781029	675	0.9+	0.2+	860901	809	0.5+	0.3-	860909	809	0.8- 0.9-
781101	095	1.7-	0.1+	860901	809	0.7+	0.2-	860909	809	0.8- 1.0-
860829	809	1.9-	0.3+	860904	809	1.0+	0.5+	890330	400	2.0+ 1.2-
860829	809	1.9-	0.3+	860904	809	1.3+	0.2+	890330	400	(5.5+ 2.9-)
860829	809	1.7-	0.2+	860904	809	1.6+	0.2-	890330	400	1.0+ 3.1-
860831	809	0.6-	0.2+	860906	809	1.6+	0.6+	890406	400	1.3- 1.7+
860831	809	0.8-	0.1+	860906	809	1.5+	0.5+	890406	400	0.1+ 1.1+
860831	809	0.7-	0.2+	860906	809	1.7+	0.4+	890406	400	1.6- 1.6+

1980 FJ1 = 1976 SD10 = 1988 RN7

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5					Kobayashi
M 74.70132		(1950.0)		P	Q
n 0.16919749	Peri.	342.51447		+0.90690230	+0.41962130
a 3.2374776	Node	352.34083		-0.34435628	+0.68616517
e 0.1415238	Incl.	16.57857		-0.24278998	+0.59421825
P 5.83	H	12.0	G	0.25	

Residuals in seconds of arc

760916	808	0.9+	0.2-	800316	809	0.1-	0.2-	880909	026	0.0 0.1+
760916	808	0.4+	0.8+	800317	809	0.3+	0.2-	880910	026	2.2+ 2.4+
760917	808	0.1-	0.4-	800317	809	0.4-	0.3+	880912	809	0.7- 0.5+
760917	808	1.0-	0.2-	800317	809	0.0	0.5-	880912	809	0.3- 0.1-
800316	809	0.3-	0.6+	800317	809	0.4+	0.1+	880912	809	0.3- 0.6-
800316	809	0.3-	0.4+	800323	809	0.5+	0.1+			
800316	809	0.4+	0.1-	880908	026	0.0	0.6-			

1980 TB12 = 1980 VM = 1972 HM1 = 1989 GY2

Id. T. Furuta (d, JAM 1953), C. M. Bardwell

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)			Bardwell
M 259.43406		(1950.0)		P	Q
n 0.17465600	Peri.	118.76208		+0.93664607	+0.33353322
a 3.1696738	Node	222.00615		-0.35027614	+0.89262983
e 0.0393181	Incl.	9.20080		+0.00087169	+0.30326156
P 5.64	H	12.0	G	0.25	

Residuals in seconds of arc

720419	805	0.2+	2.0+	801109	688	1.3+	2.6-	890403	809	0.9- 0.4-
720419	805	0.6+	1.2+	801109	688	1.6+	1.9+	890405	809	0.5+ 1.0-
801010	095	0.8-	0.9+	890403	809	1.0-	0.0	890405	809	1.1+ 1.3-
801017	095	2.1-	0.4-	890403	809	0.5-	0.2-	890405	809	0.2+ 0.6-

1981 EG1 = 1981 EU1 = 1981 GC1 = 1989 CT1

Id. L. D. Schmadel (d, MPC 7767), T. Kobayashi

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5					Kobayashi
M 310.89276		(1950.0)		P	Q
n 0.23325031	Peri.	227.13394		-0.36361122	+0.93125996
a 2.6136929	Node	21.57715		-0.83512111	-0.31479937
e 0.0697633	Incl.	3.62881		-0.41274643	-0.18345639
P 4.23	H	13.5	G	0.25	

Residuals in seconds of arc

810301	809	0.1+	0.4-	810307	809	1.9-	0.5-	810310	809	1.2- 0.5-
810301	809	0.1+	0.3-	810308	809	0.3-	0.3+	810311	809	1.5- 1.5+
810301	809	0.2+	0.5-	810308	809	0.1-	0.3-	810311	809	1.6- 1.4+
810305	809	0.4-	0.1+	810308	809	0.2-	0.7-	810311	809	1.8- 1.1+
810305	809	0.5-	0.3+	810309	809	0.3-	0.5-	810314	809	0.0 1.6+
810305	809	0.8-	0.5+	810309	809	0.2+	0.8-	810314	809	0.4+ 1.3+
810307	809	2.0-	0.1+	810309	809	0.3+	1.2-	810314	809	0.9+ 1.1+
810307	809	1.9-	0.2-	810310	809	2.2-	0.4-	810315	809	0.1- 0.3-

810315	809	0.0	0.6-	810402	046	3.2+	0.2+	890214	888	3.0-	0.1+
810315	809	0.2+	0.6-	810403	046	6.0+	1.7+	890227	888	0.1+	1.8-
810316	809	0.5-	0.5-	890210	888	3.7+	2.9+	890227	888	1.1-	2.0-
810316	809	0.3+	0.7-	890210	888	2.1+	2.7+				
810316	809	0.8+	0.8-	890214	888	2.2-	1.1-				

1981 EZ2

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 19.16429		(1950.0)		P	Q
n 0.24424959	Peri.	345.18614		-0.91240690	+0.39838237
a 2.5346287	Node	218.71912		-0.35857885	-0.88860979
e 0.1019945	Incl.	8.62787		-0.19731916	-0.22729747
P 4.04	H	13.0	G	0.25	

Residuals in seconds of arc

810202	413	0.2+	0.9-	810312	413	1.6+	0.3-	810412	413	0.6-	1.3+
810214	413	0.1-	1.0-	810405	413	1.2-	0.8+	810412	413	0.1+	0.5-
810302	413	0.5-	0.4+	810405	413	0.3-	1.3-	810429	413	1.3+	0.9-
810302	413	0.3+	0.2-	810406	413	1.1-	1.1+	820821	413	0.6-	0.1+
810307	413	0.4-	0.9+	810406	413	0.6-	0.0	820821	413	0.7+	0.3-
810307	413	0.8+	0.1-	810407	413	0.0	0.5+	890307	413	0.8-	0.1-
810310	413	0.7-	1.5+	810407	413	0.2+	0.6-	890307	413	0.5+	0.7-
810310	413	1.1+	0.3-	810410	413	1.2-	1.3+				
810312	413	0.2+	0.9+	810410	413	1.2+	2.5-				

1982 CE = 1989 CZ3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 36.95416		(1950.0)		P	Q
n 0.27795285	Peri.	13.39567		-0.98879040	-0.14767377
a 2.3253516	Node	158.07547		+0.13096427	-0.92869943
e 0.1230714	Incl.	3.38481		+0.07170701	-0.34016146
P 3.55	H	14.0	G	0.25	

Residuals in seconds of arc

820214	046	2.6+	1.8-	820220	046	3.2-	0.6+	890203	046	2.7+	1.0+
820214	046	2.9-	0.6-	820221	046	2.2+	0.5+	890203	046	3.3+	1.6-
820216	046	1.6+	1.0+	820221	046	0.6+	0.8+	890207	046	0.7-	0.3+
820216	046	1.2+	0.7-	890202	046	2.5-	1.6+	890207	046	0.8+	3.0-
820220	046	0.4+	0.5-	890202	046	1.9-	1.3+				

1982 FA = 1989 EO2

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 60.14449		(1950.0)		P	Q
n 0.28857567	Peri.	93.05738		-0.98847067	-0.14886839
a 2.2679296	Node	78.38247		+0.12527362	-0.90661411
e 0.1462719	Incl.	1.61695		+0.08504263	-0.39482789
P 3.42	H	14.0	G	0.25	

Residuals in seconds of arc

820323	686	(0.3+	9.5+)Y	820413	675	0.7+	3.5+	890329	402	1.7+	0.3-
820324	686	0.1+	0.4+ Y	890315	402	1.3-	1.4-	890329	402	1.6+	0.8+
820325	686	0.7-	3.0- Y	890315	402	0.5-	1.7-	890330	402	2.5+	0.3-
820401	675	2.2+	1.8+	890315	402	0.0	1.9-	890330	402	1.0-	1.5+

1983 RC = 1989 ET4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 162.61229		(1950.0)		P	Q
n 0.23740208	Peri.	198.20802		+0.99337978	-0.08121284
a 2.5831358	Node	165.70006		+0.08796564	+0.99263362
e 0.3170567	Incl.	19.20434		-0.07388276	+0.08990539
P 4.15	H	12.5	G	0.25	

Residuals in seconds of arc

830905	675	0.4-	0.3+	830912	688	0.6-	0.6+	890302 809	0.9- 0.3+
830906	675	0.1+	0.9+	830912	688	0.6+	2.5-	890303 809	1.6+ 0.7-
830908	675	0.0	0.9+	831009	675	0.1-	0.2+	890303 809	0.3+ 0.4-
830909	675	0.0	1.4+	831009	675	0.6+	0.9+	890303 809	0.3+ 0.4-
830911	688	0.1+	1.5-	890302	809	0.4-	0.3+		
830911	688	0.2-	1.3-	890302	809	0.9-	0.5+		

1983 RX = 1982 DK2 = 1989 FF

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 335.33635		(1950.0)		P	Q
n 0.29857203	Peri.	338.96507		+0.47365259	+0.87931014
a 2.2170262	Node	319.26240		-0.79673939	+0.40377711
e 0.1702190	Incl.	4.36490		-0.37531263	+0.25254253
P 3.30	H	13.5	G	0.25	

Residuals in seconds of arc

820221	046	2.3-	0.4-	830907	046	4.5+	2.1+	890329 896	0.5+	1.2+ Y
820221	046	2.2+	0.0	830908	046	2.7-	2.7-	890401 896	3.0-	1.0+ Y
830807	095	2.1-	0.3+	830908	046	2.6-	1.8-	890403 896	2.0+	0.5-
830907	046	2.7+	1.9+	890329	896	0.4-	4.4+ Y	890413 896	0.7+	5.9- Y

1984 JA2 = 1981 XB1 = 1989 GG

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 322.97382		(1950.0)		P	Q
n 0.18782331	Peri.	219.54487		+0.06761992	+0.98578547
a 3.0197472	Node	54.86614		-0.86108045	+0.13552627
e 0.0598008	Incl.	10.83981		-0.50395238	-0.09929566
P 5.25	H	12.5	G	0.25	

Residuals in seconds of arc

811204	511	0.5-	0.2+	840525	095	0.3-	0.0	890409 402	1.0-	0.5-
811204	511	0.4+	0.0	890406	402	2.8+	1.2-	890409 402	0.2-	0.5+
840502	095	0.2+	0.0	890406	402	1.6+	0.1-			
840505	095	0.4+	0.5+	890408	402	3.3-	1.1+			

1984 UK1 = 1988 XS2

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 36.10107		(1950.0)		P	Q
n 0.26028129	Peri.	251.26885		-0.47655965	-0.87781493
a 2.4294518	Node	227.29018		+0.82929680	-0.43062874
e 0.1257026	Incl.	3.76806		+0.29181796	-0.20976140
P 3.79	H	13.5	G	0.25	

Residuals in seconds of arc

841026	688	0.3-	1.6-	841029	046	1.7+	1.3+	881211 877	0.2-	2.7-
841026	688	2.8+	0.2-	841029	046	1.1+	0.7-	881211 877	1.1-	0.3-
841028	046	3.1-	0.6-	841030	046	2.0-	0.9+	881214 877	0.5-	0.2- Y
841028	046	0.2+	1.0+	841030	046	0.5-	0.2+	881214 877	1.8+	3.1+ Y

1985 CJ1 = 1989 FK

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 111.51516		(1950.0)		P	Q
n 0.26238202	Peri.	53.74393		-0.38241499	-0.92216430
a 2.4164621	Node	58.83808		+0.82444340	-0.36891544
e 0.1273534	Incl.	3.89099		+0.41719523	-0.11625145
P 3.76	H	13.5	G	0.25	

Residuals in seconds of arc

850215 046	1.2+	0.2-	850220 046	1.1+	0.4-	890411 372	1.4-	1.7+
850215 046	1.7-	0.1+	890329 372	0.8+	0.1+	890411 372	0.3+	3.2+
850216 046	0.2-	0.4+	890329 372	1.2-	2.0+	890412 372	0.1-	2.5-
850216 046	0.6-	0.1-	890404 372	1.7+	1.9-	890412 372	1.2-	0.7-
850220 046	0.1+	0.2+	890404 372	1.2+	1.9-			

1985 FH = 1989 GC

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M 39.71287		(1950.0)	P	Q
n 0.25307678	Peri.	31.77015	-0.96803389	+0.24580368
a 2.4753430	Node	162.25256	-0.25039261	-0.93545730
e 0.1384150	Incl.	9.42364	-0.01462658	-0.25396888
P 3.89	H	13.5	G 0.25	

Residuals in seconds of arc

850217 809	0.5-	0.2+	850222 809	0.7-	0.4+	850320 046	1.7-	0.5+
850217 809	0.1-	0.2+	850223 809	0.1+	1.2+	850320 046	3.0-	1.2+
850217 809	0.2+	0.1+	850223 809	0.2+	1.2+	850321 688	(0.2+	4.9-)
850218 809	1.2-	0.5-	850223 809	0.4+	1.2+	850321 688	1.5-	0.6-
850218 809	0.8-	0.3-	850224 809	0.1+	0.6+	850324 046	1.2+	0.3+
850218 809	0.4-	0.3-	850224 809	0.5+	0.5+	850325 046	2.5+	2.5-
850219 809	0.8+	1.7-	850224 809	0.6+	0.8+	850325 046	1.5-	1.0-
850219 809	0.9+	1.6-	850226 809	1.2+	0.3+	850326 046	2.3+	1.2+
850219 809	1.2+	1.7-	850226 809	1.5+	0.2+	850326 046	(4.0+	0.7+)
850220 809	0.3-	0.5+	850226 809	1.6+	0.1+	890404 391	2.4-	2.7-
850220 809	0.2-	0.5+	850227 809	1.1+	0.4-	890404 391	0.8-	2.0-
850220 809	0.1-	0.2+	850227 809	1.0+	0.4-	890405 391	0.5-	1.3+
850221 809	0.7-	0.5-	850227 809	1.1+	0.4-	890405 391	0.7-	1.0+
850221 809	0.7-	0.6-	850228 809	0.8-	0.1-	890406 391	2.8+	0.9+
850221 809	0.8-	0.4-	850228 809	0.5-	0.0	890406 391	1.5+	1.4+
850222 809	0.8-	0.3+	850315 046	0.1-	0.2+			
850222 809	0.8-	0.4+	850315 046	1.4-	0.6+			

1985 HL = 1989 FD

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 44.94371		(1950.0)	P	Q
n 0.24060221	Peri.	14.57143	-0.99290042	+0.11781353
a 2.5601749	Node	172.13944	-0.11756115	-0.95096746
e 0.2512905	Incl.	6.88430	-0.01811454	-0.28597353
P 4.10	H	14.0	G 0.25	

Residuals in seconds of arc

850418 046	0.1-	2.4+	890326 400	(11.6+	2.9+)	890328 046	3.4-	0.5-
850419 046	0.3-	2.8+	890326 400	(8.9+	0.2+)	890328 046	4.0-	0.3-
850419 046	0.5-	1.1+	890326 400	(10.5+	3.0+)	890330 400	0.5-	1.1+
850419 046	0.1+	0.1-	890326 046	3.1+	1.6-	890330 400	0.4+	2.0+
850420 046	0.1-	0.7-	890326 046	2.3+	0.3-	890330 400	1.4-	1.3+
850420 046	0.4+	0.2+	890327 046	0.9+	1.2-			
850511 675	0.9+	4.7-	890327 046	2.4+	1.8-			

1985 KA

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M 12.16764		(1950.0)	P	Q
n 0.27166406	Peri.	79.94179	+0.79432053	+0.49340178
a 2.3611011	Node	249.69047	-0.58860894	+0.76942675
e 0.2927509	Incl.	22.20419	+0.15031439	+0.40563181
P 3.63	H	13.5	G 0.25	

From 18 observations 1985 May 18-Aug. 14, mean residual 1".3.

1985 TB
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	326.30525	(1950.0)	P	Q
n	0.23874088	Peri. 67.00770	+0.03283243	-0.98331478
a	2.5734645	Node 23.36136	+0.66872820	-0.11143256
e	0.5684536	Incl. 26.82248	+0.74278168	+0.14378748
P	4.13	H 15.5	G 0.25	

From 31 observations 1985 Oct. 14-1986 June 7, mean residual 0".9.

1986 AE
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	337.26599	(1950.0)	P	Q
n	0.21853729	Peri. 110.06897	+0.65042028	-0.60876154
a	2.7297258	Node 290.40203	+0.37669815	+0.77785244
e	0.3765449	Incl. 28.99122	+0.65958469	+0.15606075
P	4.51	H 13.5	G 0.25	

From 13 observations 1986 Jan. 10-Apr. 8, mean residual 0".6.

1986 EZ4 = 1974 YS
Id. T. Kobayashi (MPC 12581)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	30.03084	(1950.0)	P	Q
n	0.27806239	Peri. 128.56173	-0.67007594	-0.74229200
a	2.3247409	Node 3.51159	+0.67634739	-0.61104629
e	0.1848042	Incl. 0.84301	+0.30586343	-0.27500002
P	3.54	H 14.0	G 0.25	

Residuals in seconds of arc

741216	552	0.6+	1.8+	860305	809	0.8+	0.2-	860310	413	0.6-	1.6+
741216	552	0.9-	1.4+	860305	809	0.7+	0.4-	860310	413	0.4-	0.8+
741217	552	2.5+	1.0-	860309	413	1.7-	0.4+	860314	809	0.5+	1.6-
741217	552	1.8-	1.2-	860309	413	(4.6+	0.2-)	860314	809	0.3-	0.2-
860304	809	0.5+	0.6+	860310	809	0.7+	1.0-	881201	054	0.4+	1.1-
860304	809	0.5-	0.0	860310	809	1.1+	0.8-				

1986 GU
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	336.18853	(1950.0)	P	Q
n	0.22982206	Peri. 58.43648	-0.63718051	-0.57368081
a	2.6396210	Node 81.06681	+0.40138444	-0.81708581
e	0.2672335	Incl. 31.39906	+0.65794493	-0.05710614
P	4.29	H 12.0	G 0.25	

Residuals in seconds of arc

860404	675	0.3-	0.0	860610	675	0.4+	0.7-	860815	675	0.0	0.2+
860404	675	0.5+	0.6+	860610	675	0.5+	0.8-	860816	675	0.6+	0.4-
860505	675	2.0-	0.9+	860718	675	0.1-	1.1+	860816	675	0.4+	0.5-
860508	675	0.3-	0.6-	860718	675	0.1-	0.3+	880916	474	0.0	0.9-
860509	675	0.9-	0.0	860719	675	0.0	0.3+	880916	474	0.3+	0.3+
860609	675	0.7+	0.3-	860719	675	0.2-	0.3+				
860609	675	0.5+	0.1-	860815	675	0.1+	0.2+				

1986 PW4 = 1981 TV3 = 1989 AL4
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	223.32364	(1950.0)	P	Q
n	0.18100892	Peri. 116.89155	+0.60852246	+0.79352790
a	3.0950685	Node 190.59362	-0.73502440	+0.56187624
e	0.1681327	Incl. 1.16156	-0.29906445	+0.23368475
P	5.45	H 12.5	G 0.25	

Residuals in seconds of arc

811007 095	0.1+	0.4-	860831 095	0.6-	0.6+	890104 413	0.1-	0.1-
860806 095	1.2+	0.4-	860908 095	0.1+	0.7+	890110 413	1.6-	0.9+
860808 095	0.9-	0.4-	890104 413	0.6+	0.1+	890110 413	1.2+	0.6-

1986 PX4 = 1988 DP2

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 280.92463		(1950.0)	P	Q	
n 0.25790729	Peri.	312.54370	+0.94386738	+0.33018736	
a 2.4443326	Node	28.18009	-0.29683475	+0.86046813	
e 0.2136111	Incl.	1.15533	-0.14492581	+0.38803466	
P 3.82	H 13.5		G 0.25		

Residuals in seconds of arc

860808 095	0.2+	0.6+	880221 809	0.7+	0.6+	880223 809	0.2+	1.5-
860813 095	0.3+	0.6-	880221 809	0.0	0.1-	880223 809	(4.5+	2.0-)
860830 095	0.2+	0.2+	880221 809	0.6-	0.9+	880223 809	(7.7+	2.1-)

1986 QX3 = 1977 DE2

Id. T. Kobayashi (MPC 12207)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M 329.72734		(1950.0)	P	Q	
n 0.25288784	Peri.	163.36214	+0.14978345	+0.98711124	
a 2.4765757	Node	115.22308	-0.91403675	+0.15997737	
e 0.1574577	Incl.	3.57177	-0.37696384	+0.00431799	
P 3.90	H 13.5		G 0.25		

Residuals in seconds of arc

770218 381	0.9+	0.3-	860903 809	1.0-	0.2-	860907 809	0.8+	0.5+
770218 381	0.1-	0.8+	860903 809	0.8-	0.3-	860907 809	1.1+	0.7+
770219 381	0.2+	0.5+	860904 809	0.1-	0.1+	860907 809	1.1+	0.7+
770219 381	0.5-	0.6+	860904 809	0.1+	0.0	860909 809	0.8+	0.3-
860831 809	0.1+	0.3+	860904 809	0.2+	0.0	860909 809	1.0+	0.3-
860831 809	0.0	0.3+	860904 809	1.1-	0.2+	860909 809	1.2+	0.2-
860831 809	0.1+	0.2+	860904 809	1.0-	0.2+	860911 809	1.7+	1.0-
860901 809	0.9-	0.5+	860904 809	0.8-	0.2+	860911 809	1.5+	1.0-
860901 809	0.9-	0.2+	860905 809	0.3-	0.0	860911 809	1.7+	1.0-
860901 809	0.7-	0.3+	860905 809	0.3-	0.1-	890326 046	0.2-	0.2-
860901 809	0.4-	0.4+	860905 809	0.4-	0.2-	890326 046	0.3+	2.6-
860901 809	0.4-	0.3+	860905 809	0.1-	0.2+	890327 046	0.6+	1.7+
860901 809	0.3-	0.2+	860905 809	0.0	0.2+	890327 046	2.0-	1.2+
860902 809	0.3-	0.1-	860905 809	0.1-	0.2+	890328 046	1.1+	0.4+
860902 809	0.4-	0.1-	860906 809	0.0	0.3+	890328 046	1.2+	0.5-
860902 809	0.4-	0.1-	860906 809	0.1+	0.1+	890330 046	1.0-	0.1+
860903 809	1.0-	0.2-	860906 809	0.0	0.1+	890330 046	(4.2+	2.4-)

1986 VT = 1975 VY2 = 1989 EE2

Id. T. Kobayashi (MPC 13153), S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M 251.95249		(1950.0)	P	Q	
n 0.18084023	Peri.	129.06684	+0.81373211	+0.58121064	
a 3.0969930	Node	195.40028	-0.53982689	+0.75198368	
e 0.1686739	Incl.	1.26257	-0.21546920	+0.31098993	
P 5.45	H 11.5		G 0.25		

Residuals in seconds of arc

751102 095	0.8-	1.0-	861107 046	0.8-	1.7+	890306 046	0.7+	0.5+
751107 095	2.0+	2.4-	861107 046	1.0-	0.6+	890306 046	0.7-	0.7-
861103 046	1.0-	0.8+	861109 046	1.5+	0.2+	890307 046	(4.5+	0.9-)
861103 046	0.4+	0.4-	861109 046	0.0	0.1+	890307 046	0.2-	0.4-

1987 DD
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell
M 279.14305 (1950.0) P Q
n 0.23076144 Peri. 0.01523 +0.09335334 -0.86380889
a 2.6324525 Node 84.63024 +0.91337795 -0.12361185
e 0.1025829 Incl. 29.82005 +0.39626489 +0.48842022
P 4.27 H 12.5 G 0.25
From 10 observations 1987 Feb. 25-May 9, mean residual 0".6.

1987 QW7 = 1980 WP2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 161.51456 (1950.0) P Q
n 0.25920041 Peri. 143.48451 +0.98860344 -0.14845402
a 2.4361962 Node 225.07338 +0.12840536 +0.91818579
e 0.1871985 Incl. 2.02296 +0.07858308 +0.36728227
P 3.80 H 14.0 G 0.25
Residuals in seconds of arc
801130 095 0.5+ 0.9- 870822 809 1.4- 1.3+ 870827 809 1.3- 0.3-
801210 095 0.4- 0.8+ 870822 809 0.6- 1.5+ 870827 809 1.2- 0.4-
870821 809 0.7+ 1.5- 870825 809 0.7+ 1.2+ 870827 809 0.4+ 0.2+
870821 809 0.1- 1.2- 870825 809 0.2+ 0.8+
870821 809 0.6+ 2.0- 870825 809 0.9+ 0.3+

1987 SO = 1989 AQ5
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 234.23696 (1950.0) P Q
n 0.28383168 Peri. 27.95150 +0.72876611 +0.67966172
a 2.2931353 Node 288.97635 -0.64353292 +0.63814847
e 0.2751359 Incl. 5.06125 -0.23401994 +0.36169944
P 3.47 H 14.0 G 0.25
Residuals in seconds of arc
870919 688 0.3+ 0.6- 871016 688 1.1- 1.2- 890104 413 1.1+ 0.3+
870919 688 1.6- 0.2- 871025 054 0.3- 0.7- 890110 413 2.0- 0.6+
870926 688 1.5+ 0.9+ 871026 688 0.1+ 0.8+ 890110 413 1.3+ 1.6-
870926 688 0.4+ 0.6+ 871026 688 0.7+ 0.8+
871016 688 0.0 0.4- 890104 413 0.4- 0.8+

1987 SS9 = 1989 AC4
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 103.41120 (1950.0) P Q
n 0.17472980 Peri. 290.72263 +0.72235835 -0.69022859
a 3.1687812 Node 112.95272 +0.65026815 +0.65722672
e 0.1950384 Incl. 2.62822 +0.23526528 +0.30271692
P 5.64 H 13.5 G 0.25
Residuals in seconds of arc
870919 071 0.7+ 3.1- 870930 033 0.2+ 0.0 890104 413 0.1+ 0.4-
870919 071 1.8+ 3.1+ 870930 033 0.5- 0.4- 890110 413 1.0- 0.3+
870920 071 0.9- 1.9- 871001 033 0.5+ 0.0 890110 413 1.1+ 1.2-
870921 071 1.8- 2.3+ 890104 413 0.3- 1.2+

1987 YK = 1980 BT
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 232.00398 (1950.0) P Q
n 0.23787337 Peri. 298.41600 +0.99447509 -0.07067914
a 2.5797176 Node 65.72747 +0.09728691 +0.89826715
e 0.2050400 Incl. 4.88403 -0.03942786 +0.43372870
P 4.14 H 13.0 G 0.25

Residuals in seconds of arc

800123 095	0.5-	1.5-	871225 372	1.8-	0.0	880122 511	2.3-	1.3-
871219 372	1.8-	0.2+	871227 372	5.1+	1.8-	880122 511	1.1-	0.2-
871219 372	0.2+	4.0+	871227 372	4.3+	1.4-	880122 511	1.1-	0.8-
871221 372	0.5-	1.1-	880113 372	2.4+	2.7-	890305 372	1.3+	1.1-
871221 372	3.1+	1.1-	880113 372	0.2+	1.5-	890305 372	3.3+	1.1-
871223 372	6.0-	1.7+	880121 511	3.1-	3.4+	890308 372	1.3-	0.5+
871223 372	1.9+	0.3+	880121 511	0.2-	1.7+	890308 372	2.9-	2.4+
871225 372	3.5-	0.3+	880121 511	4.1+	1.4+			

1988 AA5 = 1982 SN12 = 1982 SR12
Id. H. Oishi, N. S. Chernykh (d)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Oishi	
M 163.42924		(1950.0)		P	Q
n 0.21109669	Peri.	207.14161		+0.77123995	-0.63606142
a 2.7935040	Node	192.45173		+0.60287594	+0.74239328
e 0.2851955	Incl.	6.60346		+0.20427809	+0.21042361
P 4.67	H	13.6	G	0.25	

Residuals in seconds of arc

820919 095	0.4+	0.7-	880114 809	0.2-	0.1-	880120 809	0.5-	0.2-
820919 095	(1.1-	7.0-)	880114 809	0.1-	0.4-	880121 809	0.2-	0.1-
820924 095	1.2-	2.1+	880116 809	0.2+	0.4+	880121 809	0.2-	0.1+
820927 095	0.8+	1.4-	880116 809	0.2+	0.5+	880123 809	0.1+	0.1-
880113 809	0.2-	0.1+	880116 809	0.4+	0.1+	880123 809	0.6-	0.1+
880113 809	0.6+	0.1+	880118 809	0.3-	0.2-	880125 809	0.1-	0.4+
880113 809	1.1+	0.2+	880118 809	0.3-	0.1+	880126 809	0.3+	0.3-
880114 809	0.4-	0.2-	880120 809	0.7-	0.2-	880128 809	1.0+	0.2-

1988 CU7 = 1988 EG2 = 1961 TO = 1986 SG
Id. H. Kaneda (d), S. Nakano (d), T. Kobayashi

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 8.72274		(1950.0)		P	Q
n 0.27567360	Peri.	300.41710		+0.47489518	+0.88003317
a 2.3381513	Node	357.92286		-0.76451999	+0.41028818
e 0.0443513	Incl.	6.37123		-0.43587125	+0.23917612
P 3.58	H	13.0	G	0.25	

Residuals in seconds of arc

611007 760	0.1-	0.7-	880211 399	2.2+	0.3-	880219 399	2.9+	1.2-
611007 760	0.1-	1.1+	880211 399	0.8+	0.9+	880219 399	2.0+	0.8-
860930 046	1.7-	2.0-	880215 399	1.9-	0.1+	880219 399	0.8-	0.3-
860930 046	2.1+	1.4+	880215 399	1.1-	0.5-	880312 054	0.8-	0.3-
880211 399	0.3-	1.5+	880215 399	0.7-	0.5+	880312 054	2.7-	0.0

1988 GB

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Bardwell	
M 169.45456		(1950.0)		P	Q
n 0.35520062	Peri.	222.28700		-0.45885795	+0.88039317
a 1.9746353	Node	21.27912		-0.70087146	-0.27576158
e 0.3330446	Incl.	19.27896		-0.54610309	-0.38582823
P 2.77	H	16.5	G	0.25	

From 21 observations 1988 Mar. 19-July 14, mean residual 1".1.

1988 RR = 1971 TQ = 1978 TA9 = 1978 VU15 = 1980 FZ7

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 117.74476		(1950.0)		P	Q
n 0.28740883	Peri.	324.58709		+0.95932695	+0.28216086
a 2.2740683	Node	19.02945		-0.25238753	+0.87119903
e 0.1073936	Incl.	1.54262		-0.12646080	+0.40174307
P 3.43	H	14.0	G	0.25	

Residuals in seconds of arc

711010	095	0.7+	1.5-	880913	399	0.9+	0.0	880917	399	3.1-	0.4+
781009	095	0.9-	1.0+	880913	399	3.4+	0.7+	880917	399	0.0	0.9-
781101	095	0.6+	0.2-	880913	399	1.7+	0.7-	881016	071	0.5-	1.1+
800323	809	0.2-	0.4-	880917	399	1.3+	0.6+	881016	071	1.3-	0.7+
880818	511	2.3-	0.1-	880917	399	0.6+	0.5-				
880818	511	0.4-	0.1-	880917	399	1.3-	0.7-				

1988 VP4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Bardwell	
M 64.54042		(1950.0)		P	Q
n	0.28949573	Peri.	215.53472	-0.72745932	-0.65708603
a	2.2631219	Node	282.12727	+0.66694255	-0.60948328
e	0.6527981	Incl.	11.65966	+0.16121589	-0.44358548
P	3.40	H	15.5	G 0.25	

From 23 observations 1988 Sept. 13-1989 Apr. 16, mean residual 1".0.

1989 BN1 = 1971 UO2 = 1975 TB7 = 1985 DG3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P)				Nakano	
M 85.22739		(1950.0)		P	Q
n	0.23994391	Peri.	303.80304	-0.06405850	-0.99629439
a	2.5648606	Node	149.71346	+0.94905839	-0.07859953
e	0.1716533	Incl.	6.53456	+0.30852014	+0.03492289
P	4.11	H	13.5	G 0.25	

Residuals in seconds of arc

711021	805	1.3+	1.4+	890129	046	2.3+	1.0+	890201	046	3.2-	0.5+
711021	805	0.5+	0.7-	890129	046	2.6+	0.1-	890201	046	3.9-	0.5-
711021	095	1.8-	0.9-	890130	046	0.1-	0.5-	890305	033	0.1+	0.7-
751010	033	0.3+	0.5-	890130	046	0.9+	1.8+	890305	033	0.3+	0.5-
850220	675	0.1-	0.0	890131	046	1.1+	0.1-				
850222	675	0.1-	1.2-	890131	046	0.0	0.3-				

1989 CH1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Bardwell	
M 65.03563		(1950.0)		P	Q
n	0.23442753	Peri.	23.48502	-0.83299910	-0.50489624
a	2.6049355	Node	124.24904	+0.45423061	-0.85756712
e	0.0473494	Incl.	15.88578	+0.31589088	-0.09827724
P	4.20	H	12.0	G 0.25	

From 9 observations 1989 Feb. 6-May 1, mean residual 0".5.

1989 CS2 = 1987 SU5

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P)				Nakano	
M 319.53730		(1950.0)		P	Q
n	0.27553120	Peri.	50.99238	-0.36300448	+0.93113348
a	2.3389614	Node	197.81818	-0.88624529	-0.35658720
e	0.0651249	Incl.	6.54948	-0.28774472	-0.07639378
P	3.58	H	14.5	G 0.25	

Residuals in seconds of arc

870929	054	0.2+	0.5-	890204	809	1.1-	0.4+	890302	809	0.6-	0.4+
870930	054	0.6-	0.1+	890207	809	(3.9+	0.2-)	890302	809	0.1+	0.1-
870930	054	0.4+	0.4+	890207	809	2.4+	0.3-	890303	809	0.2-	0.0
890204	809	0.9-	0.0	890207	809	1.7+	0.5-	890303	809	0.5-	0.0
890204	809	1.7-	0.2+	890302	809	0.1-	1.1+	890303	809	0.8+	1.2-

1989 CJ3 = 1986 WJ1 = 1987 WD2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 88.92967 (1950.0) P Q
n 0.08449802 Peri. 180.49079 +0.43775097 -0.88968737
a 5.1432689 Node 243.55389 +0.82535718 +0.45487193
e 0.0543641 Incl. 8.33120 +0.35659447 +0.03934357
P 11.66 H 10.5 G 0.25
Residuals in seconds of arc

861125 046	0.7+	0.1+	871126 033	0.2-	0.7-	890302 809	0.1-	0.7-
861125 046	0.4+	0.4-	890204 809	0.4+	0.3-	890302 809	0.0	0.6-
861126 046	0.9+	0.2-	890204 809	1.1+	0.5+	890302 809	0.6-	1.2-
861126 046	0.6-	0.3+	890204 809	0.3+	0.1+	890303 809	0.2+	0.6-
861128 046	0.3-	1.0+	890207 809	0.2-	1.6+	890303 809	0.2-	0.3-
861128 046	1.1-	0.2+	890207 809	0.1-	1.9+	890303 809	0.8-	0.6-
871126 033	0.2-	1.0-	890207 809	0.4+	1.2+			

1989 CL3 = 1973 TT = 1978 WF2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 133.31319 (1950.0) P Q
n 0.21000594 Peri. 147.38121 +0.87239389 -0.47751774
a 2.8031685 Node 241.48482 +0.41908802 +0.84066064
e 0.2291816 Incl. 6.82561 +0.25158326 +0.25547310
P 4.69 H 13.0 G 0.25
Residuals in seconds of arc

731001 095	0.2+	0.7-	890207 809	1.9+	0.3+	890302 809	1.5-	0.6-
781129 675	0.6-	0.5-	890207 809	0.8+	0.6+	890303 809	0.1+	0.8+
781130 675	0.6+	0.6+	890302 809	0.1+	0.8-	890303 809	0.2-	0.2+
890204 809	1.4+	0.6+	890302 809	0.0	0.3-	890303 809	0.4-	0.1-
890204 809	1.0+	1.1+	890302 809	0.5-	0.8-	890303 809	0.7-	0.1-
890204 809	1.3+	0.5+	890302 809	1.2-	0.5-	890303 809	1.5-	0.5-
890207 809	1.7+	0.3+	890302 809	1.8-	1.0-	890303 809	1.2-	0.5-

1989 CO3 = 1969 TX = 1980 TR7
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 137.60277 (1950.0) P Q
n 0.26904452 Peri. 201.98912 +0.68702799 -0.72524994
a 2.3764070 Node 204.68661 +0.68159243 +0.66457756
e 0.1531174 Incl. 6.15468 +0.25184182 +0.17985883
P 3.66 H 14.5 G 0.25
Residuals in seconds of arc

691007 095	0.5-	1.3+	890207 809	0.3+	0.9+	890302 809	1.6-	0.7+
691016 095	0.5-	2.2+	890207 809	0.2+	0.5+	890303 809	1.9+	0.0
801010 095	1.0+	3.4-	890302 809	1.1+	0.0	890303 809	1.6+	0.2-
890204 809	0.9-	0.4-	890302 809	0.6+	0.2+	890303 809	1.6+	0.4-
890204 809	0.9-	0.4-	890302 809	0.8+	0.0	890303 809	1.1-	0.3+
890204 809	1.1+	0.7-	890302 809	1.6-	0.0	890303 809	1.4-	0.1-
890207 809	1.1+	0.2+	890302 809	2.2-	0.0	890303 809	0.6-	0.6-

1989 EF = 1978 TW6 = 1978 VG14
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 51.39947 (1950.0) P Q
n 0.23019212 Peri. 15.15590 -0.99561110 +0.08213287
a 2.6367965 Node 169.25145 -0.08860601 -0.98156047
e 0.1058718 Incl. 13.91931 +0.03012481 -0.17260715
P 4.28 H 12.0 G 0.25

Residuals in seconds of arc

781002	095	1.3+	3.0+	890405	675	1.2+	0.1-	890408	402	(10.5-	0.0)
781101	095	1.4-	1.9-	890406	675	0.8+	1.8-	890408	402	(12.1-	0.9-)
890304	675	(7.3+	2.8-)	890406	675	0.6+	1.8-	890409	402	1.0-	0.6+
890305	675	0.8+	0.1-	890406	402	2.3-	2.0+	890409	402	0.6-	0.5+
890405	675	2.6+	0.4-	890406	402	1.8-	2.1+				

1989 EL1 = 1976 HF

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	23.26903		(1950.0)	P	Q
n	0.22676718	Peri.	45.35243	-0.80369125	+0.59395591
a	2.6632797	Node	170.87867	-0.58969962	-0.78691518
e	0.2271092	Incl.	13.12987	-0.07959104	-0.16727489
P	4.35	H	12.5	G 0.25	

Residuals in seconds of arc

760423	095	0.6-	0.6-	890305	675	0.3-	0.0	890406	675	1.1+	1.1+
760503	095	0.5+	0.2+	890306	675	0.5+	1.0-	890408	675	1.1-	0.4+
890305	675	0.4+	0.3+	890406	675	0.1-	0.2+	890408	675	0.5-	0.6-

1989 EK2 = 1985 HR = 1986 SV

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	330.40255		(1950.0)	P	Q
n	0.24090010	Peri.	251.37047	+0.24013271	+0.96786600
a	2.5580690	Node	32.81300	-0.83057070	+0.24465292
e	0.1810833	Incl.	7.91737	-0.50248243	+0.05814081
P	4.09	H	13.0	G 0.25	

Residuals in seconds of arc

850421	046	0.1-	0.8+	861003	046	0.3+	1.4-	890411	372	2.0-	0.3+	Y
850421	046	0.1+	1.0-	861003	046	2.4-	2.9-	890411	372	1.2+	1.9+	Y
860930	046	3.5-	1.6+	890305	372	0.3-	1.2-	890412	372	1.2-	0.7-	Y
860930	046	1.0-	1.9+	890305	372	0.9+	0.1-	890412	372	1.0-	0.7+	Y
861001	046	2.3+	0.2-	890308	372	0.1-	1.2-					
861001	046	4.1+	1.3+	890308	372	3.1+	0.6+					

1989 EY2 = 1980 TY4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	250.30072		(1950.0)	P	Q
n	0.28186903	Peri.	67.99845	+0.67665361	+0.73030078
a	2.3037677	Node	244.93666	-0.70794647	+0.61027613
e	0.1359108	Incl.	5.94440	-0.20236523	+0.30695897
P	3.50	H	13.5	G 0.25	

Residuals in seconds of arc

801008	675	0.1-	0.1-	890204	809	0.2-	0.3-	890302	809	0.0	0.0
801009	675	0.5-	1.4-	890204	809	0.3+	0.2+	890303	809	0.4+	0.2+
801010	675	0.6+	1.5+	890302	809	0.5+	0.7+	890303	809	0.4+	0.4-
890204	809	0.0	0.1-	890302	809	0.9-	0.4+	890303	809	0.5-	0.7-

1989 FB

Epoch 1989 Apr. 4.0 ET = JDE 2447620.5 Bardwell

M	206.54346		(1950.0)	P	Q
n	0.92631496	Peri.	333.60753	+0.99332887	+0.06156382
a	1.0422301	Node	23.48555	+0.00811659	+0.80614242
e	0.2506324	Incl.	14.16260	-0.11502986	+0.58851023
P	1.06	H	17.0	G 0.25	

From 11 observations 1989 Mar. 31-May 8.

1989 FC
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden
M 248.63651 (1950.0) P Q
n 0.95324229 Peri. 254.96369 +0.26159973 -0.96517643
a 1.0225091 Node 179.87083 +0.91513168 +0.24797213
e 0.3570535 Incl. 4.91140 +0.30675656 +0.08333236
P 1.03 H 21.0 G 0.25
From 15 observations 1989 Mar. 31-May 2, mean residual 0".5.

1989 FJ = 1970 AK = 1980 KW = 1982 UA5
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 55.39240 (1950.0) P Q
n 0.21411578 Peri. 123.08292 -0.94865936 -0.30688656
a 2.7671825 Node 39.19838 +0.23442539 -0.84473587
e 0.1427899 Incl. 6.96053 +0.21234443 -0.43845405
P 4.60 H 12.0 G 0.25
Residuals in seconds of arc
700104 095 0.1+ 0.7- 890402 391 2.3+ 1.6+ 890406 391 1.8- 2.0+
800517 095 0.2- 0.2+ 890402 391 2.2+ 0.3+ 890413 391 1.4- 1.1-
821020 033 0.1- 0.1+ 890404 391 0.0 0.6+ 890413 391 (3.9- 0.1+)
890330 391 (8.4- 0.9+) 890404 391 0.1- 0.3+ 890428 391 0.5+ 2.5-
890330 391 (9.6- 0.5-) 890405 391 1.4- 0.9+ 890428 391 0.4- 1.9-
890331 391 (6.5- 0.8+) 890405 391 2.1- 1.3+ 890429 391 2.3+ 2.5-
890331 391 1.4- 1.5+ 890406 391 0.5+ 0.1+ 890429 391 1.5+ 1.6-

1989 FO = 1949 OM = 1979 QQ7 = 1981 AX1 = 1987 WX = 1987 WN4
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano
M 274.11405 (1950.0) P Q
n 0.26477837 Peri. 204.74326 +0.77792085 +0.62584749
a 2.4018601 Node 116.39465 -0.56553862 +0.73629705
e 0.0375515 Incl. 3.59463 -0.27387079 +0.25725779
P 3.72 H 13.0 G 0.25
Residuals in seconds of arc (or two decimals in units of degrees)
490728 024 0.1- 1.2- 871118 372 0.5+ 1.7- 890327 046 2.1- 0.4-
490730 024(0.08+ 0.06-) 871126 046 3.6- 0.4- 890328 046 0.2- 0.6-
790820 095 1.7+ 1.5- 871126 046 3.3+ 1.7+ 890328 046 1.2+ 1.1-
810108 381 1.8+ 1.0+ 890326 046 0.4- 0.5- 890330 046 2.8- 0.1-
810108 381 0.4- 1.2+ 890326 046 0.8+ 1.2- 890330 046 0.3- 0.2+
871118 372 0.3- 4.6- 890327 046 1.1+ 1.9-

1989 GA = 1938 DB = 1982 DC3 = 1982 DM6 = 1987 UV2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 117.87437 (1950.0) P Q
n 0.29162409 Peri. 137.38623 -0.57008919 -0.82142549
a 2.2521016 Node 347.34233 +0.73260640 -0.49939462
e 0.1074225 Incl. 4.20759 +0.37186849 -0.27543634
P 3.38 H 13.5 G 0.25
Residuals in seconds of arc (or two decimals in units of degrees)
380222 012 2.3- 3.7+ 871021 657 2.0+ 5.3- 890405 809 1.5- 1.3-
380225 012(33.8- 63.4-) 890401 896 (2.6+ 9.9-)Y 890405 896 0.7- 1.0+
380303 012 2.7+ 3.0- 890403 809 0.4- 1.2- 890408 896 2.1+ 0.7+ Y
380307 012(0.47+ 0.00-) 890403 809 0.5- 1.8- 890412 896 (4.0- 4.4+)Y
820222 704 0.3- 0.1- 890403 809 1.4- 1.5- 890429 896 (6.1+ 1.6-)
820227 010 0.3+ 1.3- 890405 809 0.9- 1.0- 890429 896 0.2- 3.3-
871021 657 2.8+ 4.8- 890405 809 1.3- 0.8-

1989 GK = 1937 NT = 1938 WH = 1940 GM = 1957 LO = 1977 LN
Id. B. G. Marsden, H. Oishi
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden

M	203.26183	(1950.0)	P	Q
n	0.24198345	Peri. 312.33240	+0.70150963	-0.66289427
a	2.5504284	Node 91.00999	+0.70624146	+0.59748330
e	0.0727746	Incl. 15.16980	+0.09543189	+0.45120383
P	4.07	H 11.0	G 0.25	

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

370714	078	(2.3+ 9.7-)X	890405	675	0.3+ 0.4-	890430	054	0.7- 0.3+
381123	020	(44.6+ 14.8+)X	890405	675	0.2- 1.0-	890501	883	1.1+ 1.0-
381125	020	3.3- 0.3-	890407	675	1.4+ 0.0	890501	883	2.1- 1.1+
381216	029	(0.06- 0.03+)X	890407	675	0.5+ 0.1-	890501	883	0.3- 2.7+
381221	020	3.6+ 0.3-	890429	385	0.4- 2.5+	890502	675	1.6+ 3.3-
400409	062	0.6+ 1.1+	890429	385	0.4- 0.8+	890502	675	2.2+ 1.7-
400410	062	0.1- 0.0	890429	054	0.6- 0.5+	890502	385	3.0- 1.2+
570607	081	(0.17+ 0.02+)X	890429	054	0.8- 0.3-	890502	385	(6.0- 1.1+)
770609	808	0.7- 0.4-	890430	675	0.4+ 2.7-	890509	385	1.2+ 1.8+
770609	808	0.0 0.9-	890430	675	0.9- 2.7-	890509	385	0.6+ 1.9+

1989 JA
Epoch 1989 Apr. 4.0 ET = JDE 2447620.5 Marsden

M	320.17131	(1950.0)	P	Q
n	0.41795019	Peri. 231.63110	+0.36143595	+0.90348288
a	1.7716844	Node 61.05258	-0.75205349	+0.42855464
e	0.4849069	Incl. 15.26545	-0.55116205	+0.00772037
P	2.36	H 16.5	G 0.25	

From 15 observations 1989 Apr. 6-May 9.

2550 P-L = 1978 WT11
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	165.45471	(1950.0)	P	Q
n	0.28139754	Peri. 226.98625	+0.24040619	+0.97017173
a	2.3063357	Node 56.94929	-0.87936175	+0.23127676
e	0.2049243	Incl. 2.13130	-0.41100825	+0.07264903
P	3.50	H 15.5	G 0.25	

Residuals in seconds of arc

600924	675	0.3- 0.3-	601017	675	0.7- 0.0	601026	675	0.6+ 0.0
600926	675	0.1- 0.0	601022	675	0.6- 0.5-	781129	675	0.5+ 0.2-
600928	675	0.6+ 0.9+	601025	675	0.7+ 0.0	781130	675	0.5- 0.3+

2566 P-L = 1981 EF41
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	175.58587	(1950.0)	P	Q
n	0.25851090	Peri. 239.05667	+0.35777445	-0.93378938
a	2.4405262	Node 189.98504	+0.86790874	+0.33485207
e	0.1839528	Incl. 1.95096	+0.34457490	+0.12614077
P	3.81	H 15.5	G 0.25	

Residuals in seconds of arc

600924	675	0.3- 0.3-	601022	675	0.5+ 0.4+	810306	413	2.0+ 0.4-
600926	675	0.1+ 0.4-	601025	675	0.2+ 0.4-	810311	413	1.3- 0.5+
600928	675	0.0 0.4-	601026	675	0.2- 0.2-	810315	413	0.3+ 0.3+
600929	675	0.7+ 0.0	810302	413	1.8- 0.2-			
601017	675	0.4+ 1.5+	810302	413	1.1+ 0.8-			

2572 P-L = 1972 GR1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Oishi
M 137.17072 (1950.0) P Q
n 0.29436467 Peri. 113.16040 -0.53379852 -0.84557920
a 2.2381016 Node 9.11288 +0.75766591 -0.48215700
e 0.1002845 Incl. 2.68304 +0.37550168 -0.22917341
P 3.35 H 15.2 G 0.25
Residuals in seconds of arc

600924	675	0.7-	0.1-	601017	675	0.3-	0.2+	720409 805	0.9-	0.4+
600926	675	0.3+	0.0	601022	675	1.1+	0.5+	720409 805	1.2+	0.4-
600928	675	0.6+	0.2-	601025	675	0.1+	0.2-	720410 805	(3.8-	1.1+)
600929	675	0.3-	0.0	601026	675	0.8-	0.3-	720410 805	0.4-	0.2-

2604 P-L = 1984 GB
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 168.65443 (1950.0) P Q
n 0.27680651 Peri. 226.17047 -0.59109802 +0.80656926
a 2.3317672 Node 7.60409 -0.72396255 -0.52668609
e 0.1912117 Incl. 3.03761 -0.35564219 -0.26841721
P 3.56 H 14.5 G 0.25
Residuals in seconds of arc

600924	675	1.1+	0.5-	601024	675	0.4+	0.1-	840403 688	1.6-	1.9-
600926	675	0.5+	0.2+	601025	675	0.7+	0.9+	840404 071	1.3+	0.9+
600928	675	1.8-	0.3+	601026	675	0.2+	0.2-	840404 071	0.6-	0.4+
601017	675	0.3-	0.2+	601026	675	0.3+	0.3-	840405 071	0.0	0.2-
601022	675	1.4+	1.2-	840327 801		0.6+	0.6-			
601022	675	1.5-	0.8-	840403 688		(4.4-	1.1-)			

2777 P-L = 1989 GQ
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 9.19634 (1950.0) P Q
n 0.26410198 Peri. 100.05249 -0.18879404 +0.98184738
a 2.4059641 Node 159.03838 -0.91973121 -0.17028099
e 0.1687923 Incl. 2.92187 -0.34416757 -0.08354707
P 3.73 H 14.0 G 0.25
Residuals in seconds of arc

600924	675	0.4+	0.1-	601025	675	0.6+	0.4-	890408 675	0.4+	0.5-
600926	675	0.3+	0.0	601026	675	0.4-	0.4+	890408 675	0.8-	0.2-
600928	675	0.6-	0.1-	890407	675	0.3-	0.1+			
600929	675	0.2-	0.2+	890407	675	0.8+	0.5+			

3005 P-L = 1989 EH3
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 278.20951 (1950.0) P Q
n 0.18797740 Peri. 348.64150 -0.03041734 +0.98658198
a 3.0180968 Node 279.46720 -0.90379814 -0.09568529
e 0.0663137 Incl. 9.35918 -0.42687668 +0.13228875
P 5.24 H 14.0 G 0.25
Residuals in seconds of arc

600924	675	0.6+	0.4-	600927	675	1.0-	1.4-	890302 809	0.1+	0.1+
600924	675	0.5+	0.1-	600928	675	0.9+	0.7+	890303 809	0.5-	0.1-
600925	675	0.2+	0.1+	600929	675	0.9-	0.2+	890303 809	0.2+	0.4-
600926	675	1.1-	0.5+	890302	809	0.1+	0.2-	890303 809	0.2+	0.0
600926	675	0.8+	0.4+	890302	809	0.2-	0.6+			

3074 P-L = 1981 UM2 = 1988 CD7
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 58.56236 (1950.0) P Q
n 0.19237239 Peri. 321.26704 -0.98550447 +0.12142372
a 2.9719458 Node 226.14868 -0.08291446 -0.95401876
e 0.0492952 Incl. 9.45621 -0.14800718 -0.27405199
P 5.12 H 13.0 G 0.25
Residuals in seconds of arc

600925	675	0.0	0.7+	600929	675	0.3-	0.0	880210 220	0.8+ 0.1- Y
600927	675	0.2+	0.8-	811030	381	0.1+	0.3+	880211 220	0.7- 0.1+ Y
600928	675	0.0	0.1+	811030	381	0.0	0.2-		

3109 P-L = 1988 DU1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 305.26251 (1950.0) P Q
n 0.19487374 Peri. 33.36124 +0.78866624 +0.58856320
a 2.9464597 Node 289.57555 -0.59725118 +0.66478057
e 0.0528695 Incl. 10.87492 -0.14593350 +0.46006538
P 5.06 H 14.0 G 0.25
Residuals in seconds of arc

600924	675	0.4+	0.6+	880216	809	0.8+	0.2-	880221 809	0.1- 0.4-
600925	675	0.7-	0.3-	880216	809	0.4-	0.4+	880223 809	0.0 0.6+
600925	675	0.9-	0.9-	880216	809	0.2-	0.3-	880223 809	0.3- 0.5+
600926	675	0.5+	0.5+	880221	809	0.3+	0.8+	880223 809	0.8- 0.4-
600928	675	0.2+	0.0	880221	809	0.1+	0.3-		

3557 P-L = 1989 BM1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 94.27501 (1950.0) P Q
n 0.28793688 Peri. 148.28530 -0.18022053 -0.98178855
a 2.2712827 Node 312.02275 +0.88465018 -0.13507244
e 0.1117608 Incl. 4.64025 +0.43001700 -0.13359144
P 3.42 H 14.0 G 0.25
Residuals in seconds of arc

601022	675	0.5-	0.7+	890129	046	2.3-	1.1-	890130 046	0.1+ 0.6+
601024	675	0.2-	0.0	890129	046	0.3+	0.6-	890201 046	(4.9+ 0.4-)
601026	675	0.5+	0.9-	890130	046	0.4-	1.6+	890201 046	1.8+ 0.3-

4116 P-L = 1986 RL1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 343.32913 (1950.0) P Q
n 0.30254797 Peri. 108.86408 +0.90765000 +0.41946222
a 2.1975557 Node 226.33843 -0.39242745 +0.83545687
e 0.2430112 Incl. 1.18260 -0.14890322 +0.35505390
P 3.26 H 15.0 G 0.25
Residuals in seconds of arc

600924	675	1.1-	1.1+	601017	675	0.0	0.0	860905 046	0.0 0.9+
600924	675	0.1+	0.3+	601022	675	0.2-	0.1-	860905 046	0.9+ 1.1+
600925	675	0.3-	0.6-	601024	675	0.1+	0.2-	860905 046	0.6- 1.1+
600926	675	0.4-	0.7+	601026	675	0.1-	0.1+	860905 046	0.7- 1.4+
600926	675	0.4+	0.9-	860831	010	0.1+	3.2-	860908 046	0.3- 0.4-
600927	675	0.6+	0.5-	860831	010	(6.9+	0.6-)	860908 046	0.5+ 1.0-
600928	675	1.0+	0.2-	860903	046	(3.1+	8.0+)		

4276 P-L = 1989 GX1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 19.32992 (1950.0) P Q
n 0.29851229 Peri. 254.58418 -0.34103330 +0.94002043
a 2.2173220 Node 355.45447 -0.82142688 -0.30192422
e 0.1839747 Incl. 5.50875 -0.45711505 -0.15875566
P 3.30 H 16.0 G 0.25
Residuals in seconds of arc

600924	675	0.3+	0.3-	601017	675	0.5- 0.3+	890403 809	0.3- 0.3-
600925	675	0.5-	0.4+	601022	675	0.4+ 0.3-	890405 809	0.6+ 0.0
600926	675	0.6+	0.2-	890403	809	0.4+ 0.0	890405 809	0.1- 0.1+
600928	675	0.3-	0.1+	890403	809	0.0 0.1-	890405 809	0.7- 0.3+

4314 P-L = 1978 SU6
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 159.53312 (1950.0) P Q
n 0.21973403 Peri. 22.84273 +0.96742873 -0.25255399
a 2.7198054 Node 351.72921 +0.20973518 +0.83786378
e 0.3174100 Incl. 6.89386 +0.14174910 +0.48394294
P 4.49 H 14.5 G 0.25
Residuals in seconds of arc

600924	675	1.1-	0.3+	600928	675	0.1- 0.2-	781008 095	0.6- 0.2+
600925	675	0.2-	0.3+	601017	675	0.3- 0.0		
600926	675	0.6+	0.1-	780926	095	0.9+ 1.1-		

4641 P-L = 1982 QW = 1982 QZ = 1989 AT3
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 300.62918 (1950.0) P Q
n 0.22144974 Peri. 103.60943 -0.43668188 +0.89834233
a 2.7057446 Node 140.38684 -0.85164696 -0.39567404
e 0.0465420 Incl. 4.30427 -0.28983855 -0.19084841
P 4.45 H 14.0 G 0.25
Residuals in seconds of arc

600924	675	0.1+	0.9-	601025	675	0.8- 0.4-	890104 413	1.1+ 1.2-
600926	675	0.6+	0.7-	601026	675	0.9- 0.4+	890110 413	3.1- 0.4+
600927	675	0.9+	0.5-	820822	801	1.8- 3.0-	890110 413	2.0+ 1.3-
601017	675	0.9+	0.6+	820826	801	1.4+ 4.3+		
601022	675	0.5-	0.5+	890104	413	0.1+ 2.7+		

4848 P-L = 1981 EG43
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 49.09563 (1950.0) P Q
n 0.26778054 Peri. 83.33164 -0.23822002 +0.97119361
a 2.3838744 Node 172.87877 -0.90862889 -0.22073932
e 0.1498657 Incl. 2.70366 -0.34299383 -0.08976149
P 3.68 H 15.5 G 0.25
Residuals in seconds of arc

600924	675	0.3+	0.7-	601022	675	0.9- 0.1-	810307 413	0.5- 0.5+
600926	675	0.2-	0.4-	601026	675	0.9+ 0.1+	810311 413	1.2- 1.1+
600927	675	0.9+	1.2+	810303	413	0.9- 0.7+	810311 413	2.1+ 1.7-
600928	675	0.6-	0.1-	810303	413	1.2+ 0.9-		

6214 P-L = 1982 VW7
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 291.26833 (1950.0) P Q
n 0.27220917 Peri. 226.06742 +0.04419016 -0.99776715
a 2.3579480 Node 221.47815 +0.93684348 +0.05879647
e 0.1146304 Incl. 4.33629 +0.34694600 -0.03168100
P 3.62 H 15.0 G 0.25

Residuals in seconds of arc

600924 675	0.4-	0.2+	600928 675	0.4-	0.8-	601026 675	0.5+	0.3-
600925 675	1.2+	0.1-	601022 675	0.4-	0.0	821109 095	0.6-	0.9+
600926 675	0.3-	0.0	601024 675	0.2-	1.2+	821114 095	0.6+	1.0-

6242 P-L = 1989 EF4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	48.78593	(1950.0)	P	Q	
n	0.25617735	Peri.	292.97637	-0.89073840	-0.45020433
a	2.4553294	Node	220.34246	+0.44429249	-0.83345912
e	0.0756309	Incl.	5.53673	+0.09586078	-0.32040903
P	3.85	H	14.5	G 0.25	

Residuals in seconds of arc

600924 675	0.1-	0.1-	601024 675	0.2+	0.2-	890303 809	0.6+	0.9+
600925 675	0.3+	0.3+	601026 675	0.0	0.7+	890303 809	0.7+	0.0
600926 675	0.5-	0.0	890302 809	0.4-	0.0	890303 809	0.0	0.4+
600928 675	0.1+	0.3-	890302 809	0.7-	0.5-			
601022 675	0.0	0.4-	890302 809	0.2-	0.7-			

7072 P-L = 1989 GW

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	117.52616	(1950.0)	P	Q	
n	0.36225776	Peri.	298.57549	-0.68867427	-0.71793675
a	1.9489061	Node	196.28325	+0.72435367	-0.68744618
e	0.0777820	Incl.	21.21483	-0.03224146	-0.10947404
P	2.72	H	15.5	G 0.25	

Residuals in seconds of arc

600925 675	0.5-	0.3-	890402 809	0.1-	1.0+	890407 809	0.5+	1.0-
600927 675	1.6+	0.9+	890403 809	1.1-	1.1+	890408 809	1.6-	0.3+
601017 675	0.3-	0.1-	890403 809	0.4+	0.1+	890408 809	0.5-	0.7+
601022 675	0.4-	0.5-	890405 809	0.0	0.1+	890408 809	0.1+	0.4-
601024 675	0.6-	2.1+	890405 809	0.5-	0.4-	890409 809	1.6-	0.6-
601026 675	0.1+	0.4-	890405 809	0.6+	1.1-	890409 809	0.8-	0.1-
890401 809	0.1-	0.1-	890406 809	0.1-	1.1+	890409 809	1.0+	0.6-
890401 809	0.4+	0.0	890406 809	0.6+	0.5-	890411 809	0.9-	0.1+
890401 809	0.8+	0.1-	890406 809	1.1+	0.0	890411 809	1.0+	0.3+
890402 809	0.9-	2.5+	890407 809	0.4-	0.6-	890411 809	1.5+	0.7+
890402 809	0.5+	0.7-	890407 809	0.2+	0.3-			

9508 P-L = 1986 ED1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	212.46084	(1950.0)	P	Q	
n	0.17491564	Peri.	94.88532	-0.98119065	+0.18859488
a	3.1665301	Node	95.98972	-0.18942886	-0.89956425
e	0.1374790	Incl.	2.37383	-0.03717015	-0.39397478
P	5.63	H	13.0	G 0.25	

Residuals in seconds of arc

601017 675	0.5+	0.6+	601026 675	0.2-	0.8+	860312 809	0.5-	0.1+
601022 675	1.0-	0.8-	860305 688	0.6-	1.2+			
601024 675	0.7+	0.6-	860305 688	0.9+	1.2-			

9511 P-L = 1978 VK11

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	146.13897	(1950.0)	P	Q	
n	0.17565778	Peri.	99.19897	-0.17889128	+0.98385640
a	3.1576049	Node	160.49373	-0.90835922	-0.16322712
e	0.1347984	Incl.	0.84925	-0.37799661	-0.07337227
P	5.61	H	13.0	G 0.25	

Residuals in seconds of arc

601017	675	0.2+	0.3-	601026	675	0.3-	0.2+	781107	675	0.4-	1.0+
601022	675	0.3-	0.2+	781105	675	0.3-	0.5-				
601024	675	0.8+	0.1+	781106	675	0.8+	0.5-				

9519 P-L = 1978 NL7

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	140.90614		(1950.0)	P	Q
n	0.21401392	Peri.	291.06130	+0.77244683	+0.63379432
a	2.7680549	Node	29.65201	-0.54813274	+0.69745766
e	0.0713682	Incl.	4.68186	-0.32074352	+0.33445114
P	4.61	H	15.0	G 0.25	

Residuals in seconds of arc

601017	675	0.6+	0.2+	601026	675	0.2+	0.2+	780713	675	0.6+	2.3- Y
601022	675	0.6-	0.5-	780710	675	1.4-	0.1+ Y				
601024	675	0.2-	0.1+	780711	675	0.8+	2.2+ Y				

9535 P-L = 1978 RC10

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	136.91792		(1950.0)	P	Q
n	0.21766677	Peri.	199.15748	+0.99302202	-0.11541473
a	2.7369990	Node	167.39659	+0.11739546	+0.94793585
e	0.0718551	Incl.	6.37340	+0.01120575	+0.29681151
P	4.53	H	15.0	G 0.25	

Residuals in seconds of arc

601017	675	0.7+	0.1-	780902	809	0.4+	0.3-	780906	809	0.0	0.8+
601022	675	1.3-	1.2-	780902	809	0.5+	0.1-	780910	809	0.4+	0.3+
601024	675	0.2+	0.9+	780902	809	0.1-	1.2-	780910	809	0.8+	1.0+
601026	675	0.9+	0.4+	780902	809	0.8-	0.0				

9546 P-L = 1976 PG = 1982 SR5

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	218.28426		(1950.0)	P	Q
n	0.17786905	Peri.	123.00437	-0.72478826	+0.68725487
a	3.1313801	Node	100.46050	-0.64743626	-0.65527064
e	0.1068378	Incl.	2.83324	-0.23560191	-0.31353012
P	5.54	H	11.5	G 0.25	

Residuals in seconds of arc

600924	675	0.9+	0.1+	601024	675	0.3+	0.7-	820916	095	0.1+	0.2-
601017	675	0.1+	0.6+	601026	675	0.5+	0.1+				
601022	675	1.8-	0.1+	760801	095	0.0	0.1+				

2158 T-3 = 1986 LN1 = 1989 GM4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	341.33950		(1950.0)	P	Q
n	0.30655455	Peri.	358.25359	+0.20584181	+0.97813044
a	2.1783705	Node	283.62437	-0.89741767	+0.17652439
e	0.1286589	Incl.	1.75906	-0.39021876	+0.10999992
P	3.22	H	14.5	G 0.25	

Residuals in seconds of arc

771007	675	1.4+	1.6-	771021	675	0.7+	0.6-	890403	809	1.3+	0.6-
771011	675	0.6+	1.1-	771021	675	0.5+	0.4-	890403	809	1.4+	1.0-
771011	675	0.2-	0.8+	771022	675	0.5-	0.9+	890403	809	1.6-	0.4-
771012	675	0.4-	1.2+	771022	675	0.9-	2.8+	890403	809	1.7-	0.1+
771012	675	0.3-	0.2+	860601	805	0.7-	1.8+	890403	809	0.4-	1.1-
771016	675	0.1-	1.8-	860601	805	0.5-	1.1+	890405	809	0.0	0.3-
771016	675	0.3+	0.9-	860601	805	0.4+	0.6-	890405	809	0.4+	1.0+
771017	675	0.1-	0.3-	860601	805	0.9+	2.1-	890405	809	0.3-	0.6+
771017	675	1.0-	0.9+	890403	809	1.2+	0.1+	890405	809	0.4-	1.5+

2318 T-3 = 1982 VZ3 = 1989 GV4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5	(J-P)		Nakano
M 12.75721	(1950.0)	P	Q
n 0.22079104	Peri. 10.32103	-0.58668569	+0.80890494
a 2.7111234	Node 223.77031	-0.74685256	-0.55878357
e 0.2258834	Incl. 3.18010	-0.31306733	-0.18284888
P 4.46	H 13.5	G 0.25	

Residuals in seconds of arc

771007	675	0.1+	0.2-	771017	675	1.1-	0.2+	821114	381	0.3+	0.1+
771011	675	0.6-	0.5+	771017	675	0.2+	0.8-	890405	809	0.2-	0.0
771011	675	0.1-	0.4+	771021	675	1.9-	0.8+	890405	809	0.3+	0.4-
771012	675	0.7-	0.2-	771021	675	1.1+	0.2-	890406	809	0.1-	0.4+
771012	675	0.6-	0.6-	771021	675	1.7-	1.5+	890406	809	0.1-	0.2-
771016	675	1.9+	1.8-	771021	675	2.0+	0.1+	890406	809	0.3+	0.1+
771016	675	0.7-	1.3+	771022	675	1.1+	1.8+	890409	809	0.1-	0.1-
771016	675	0.7+	2.0-	771022	675	0.3+	0.8-	890409	809	0.1-	0.2-
771016	675	0.3-	0.4+	771022	675	0.5+	0.8-	890409	809	0.2-	0.1+
771017	675	0.5+	0.0	771022	675	0.8+	0.6-				
771017	675	1.4-	0.7+	821114	381	0.3-	0.1-				

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NEW NAMES OF MINOR PLANETS.

(3477) Kazbegi = 1979 KH

Discovered 1979 May 19 by R. M. West at the European Southern Observatory.

Named for one of the highest mountains in Georgia, Kazbegi (also known as Mkinvartsveri), in the Caucasian range. At its foot, on the banks of the wild river Tergi, is situated the village of Kazbegi (formerly Stepantsminda), whence the ancient church of Sameba is seen against the backdrop of eternal snows. The high mountains, the clear skies and the turbulent streams of this beautiful region have been a rich source of inspiration to many poets. It is the home of the Mokheve people, whose ways of life were described by the famous Georgian writer Alexandre Kazbegi (1848-1893), who was born in the village of Stepantsminda into the Chopikachvili family, of which the discoverer’s wife is also a member.

(3484) Neugebauer = 1978 NE

Discovered 1978 July 10 by E. F. Helin and E. M. Shoemaker at Palomar.

Named in honor of the Neugebauers, prominent family of physicists and mathematicians who have each made significant contributions in their chosen fields. Gerry Neugebauer is chairman of the division of physics, mathematics and astronomy, California Instititute of Technology, and director of Palomar Observatory; Marcia Neugebauer is project scientist for the Comet Rendezvous Asteroid Flyby mission at the Jet Propulsion Laboratory; and Otto E. Neugebauer, now on the faculty of the Institute for Advanced Study, Princeton, is professor emeritus, Brown University, and celebrates his ninetieth birthday on 1989 May 26.

(3641) Williams Bay = A922 WC

Discovered 1922 Nov. 24 by G. Van Biesbroeck at Williams Bay.

Named for the village where the Yerkes Observatory is situated and where this minor planet was discovered. Name proposed by Micheline Wilson, daughter of the discoverer.

(3752) Camillo = 1985 PA
Discovered 1985 Aug. 15 by E. F. Helin and A. M. Barucci at Caussols.
Named for the young son of Turno, king of the earliest Romans. The name also honors the son of the second discoverer.

(3850) Peltier = 1986 TK2
Discovered 1986 Oct. 7 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in memory of Leslie C. Peltier (1900-1980), one of this century's most highly respected American amateur astronomers. Between 1925 and 1954 he independently discovered 12 comets (of which 10 bear his name), Nova Herculis 1963, and several other novae. Over a span of 62 years he made 132 123 observations of variable stars. In 1965 he published his autobiography, "Starlight Nights", a moving account of a man who loved the sky. Name suggested by D. Levy and J. Mattei. Citation provided by Levy.

(3853) Haas = 1981 WG1
Discovered 1981 Nov. 24 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of Walter H. Haas of Las Cruces, New Mexico, founder and director, from 1947 until 1985, of the Association of Lunar and Planetary Observers. His leadership resulted in the evolution of A.L.P.O. into a respected organization dedicated to observing solar-system objects. Through the example set by his meticulous observations and his correspondence with members around the world he is responsible for launching the careers of many solar-system students. Name suggested and citation provided by D. Levy.

(3904) Honda = 1988 DQ
Discovered 1988 Feb. 22 by R. H. McNaught at Siding Spring.
Named in honor of Minoru Honda for his outstanding achievement in the discovery of 12 comets and 12 novae. The comet discoveries were made visually over the period 1940 to 1968, the latter year adding three discoveries. Honda's emphasis then turned to photographic nova searching, with his first two discoveries coming in 1970. The first, FH Ser, displayed a pronounced minimum during its fade, and multifrequency observations made of this object make it a benchmark in nova studies. Although he was chronologically not the first discoverer of the bright nova V1500 Cyg in 1975, it was his observation that was first disseminated to the astronomical community. These discoveries acted as a major influence in the development of the discoverer's astronomical interests. Citation prepared by the discoverer, with assistance from Charles Morgan.

(3935) Toatenmongakkai = 1987 PB
Discovered 1987 Aug. 14 by T. Seki at Geisei.
Named in honor of the Oriental Astronomical Association, founded in 1920 by Issei Yamamoto, then professor at the Astronomical Institute at Kyoto Imperial University. The O.A.A. is mainly composed of amateur astronomers in Japan. The discoverer joined the O.A.A. in 1947 and has served as director of the Comet Section since 1970.

(3944) Halliday = 1981 WP1
Discovered 1981 Nov. 24 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Named in honor of Ian Halliday, an astronomer at the Herzberg Institute of Astrophysics, National Research Council of Canada. Halliday has achieved international recognition in three major areas of research in meteoritics: spectroscopy, dynamics and meteorite recovery. He was the first to identify the auroral green line in the spectra of meteors; he planned and directed a large Canadian camera network called the Meteorite Observation and Recovery

Project (MORP) and together with his staff determined the definitive photographic orbits of 360 fireballs; and while leading a search party Halliday found the first and largest piece of the Innisfree meteorite, one of only three meteorites recovered entirely on the basis of network photography. Halliday was able to identify six photographic trails with the corresponding six largest Innisfree fragments discovered in the fall area --a unique achievement. He has also used MORP data on Geminids to study the minor planet (3200) Phaethon. Name suggested by C. J. Cunningham; citation prepared by Cunningham and P. M. Millman.

(3951) Zichichi = 1986 CK1

Discovered 1986 Feb. 13 at the Osservatorio San Vittore.

Named in honor of Antonino Zichichi, former president of the European Society of Physics and one of the protagonists of CERN. In 1963 he established and since then has directed the Centro Interdisciplinare Ettore Maiorana at Erice, Sicily.

(3975) Verdi = 1982 UR3

Discovered 1982 Oct. 19 by F. Borngen at Tautenburg.

Named for the Italian composer Giuseppe Verdi (1813-1901), renowned the world over for his brilliant operas.

(3992) Wagner = 1987 SA7

Discovered 1987 Sept. 29 by F. Borngen at Tautenburg.

Named for the composer Richard Wagner (1813-1883), the founder of modern music-drama, known for both the music and the texts of his operas.

(3997) Taga = 1988 XP1

Discovered 1988 Dec. 6 by A. Sugie at the Dynic Astronomical Observatory.

Named for the town in which the Dynic Observatory is located. Known for its ancient shrine, Taga is located 10 km east of Lake Biwa, the largest lake in Japan, and is surrounded by the Suzuka mountain range.

(4003) Schumann = 1964 ED

Discovered 1964 Mar. 8 by F. Borngen at Tautenburg.

Named for the famous romanticist Robert Schumann (1810-1856), born in Zwickau, not far from Tautenburg, and known for his song creations, piano compositions, chamber music and cello concerti.

(4033) Yatsugatake = 1986 FA

Discovered 1986 Mar. 16 by M. Inoue and O. Muramatsu at Kobuchizawa.

Named for a mountain in central Japan, famous for its scenic beauty. The Kobuchizawa observing station stands at the foot of this mountain.

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EPHEMERIDES.

Periodic Comet Shoemaker-Holt 2 (1989j) Elements MPC 14592

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1989	05 14	10 40.12	+28 36.7	2.816	3.114	97.5	18.8	14.7
1989	05 24	10 46.47	+27 17.9					
1989	06 03	10 54.12	+25 53.5	3.127	3.171	83.2	18.5	15.0
1989	06 13	11 02.85	+24 24.8					
1989	06 23	11 12.44	+22 53.2	3.435	3.230	69.9	17.2	15.3
1989	07 03	11 22.74	+21 19.3					
1989	07 13	11 33.59	+19 44.1	3.726	3.290	57.3	15.1	15.5
1989	07 23	11 44.88	+18 08.2					

1989 08 02	11 56.51	+16 32.3	3.986	3.351	45.3	12.4	15.8
1989 08 12	12 08.42	+14 57.0					
1989 08 22	12 20.52	+13 23.0	4.206	3.412	33.8	9.5	15.9

1989 FB a,e,i = 1.04, 0.25, 14 Elements MPC 14624

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 05 14		11 01.02	-07 46.3	0.344	1.202	116.1	49.0	16.7
1989 05 24		10 51.54	-10 45.1					
1989 06 03		10 48.70	-13 41.1	0.407	1.137	96.8	62.4	17.3
1989 06 13		10 50.46	-16 38.3					
1989 06 23		10 55.05	-19 38.3	0.448	1.059	82.9	72.3	17.7
1989 07 03		11 01.15	-22 39.7					
1989 07 13		11 07.54	-25 39.6	0.449	0.973	71.6	82.4	17.9
1989 07 23		11 12.73	-28 29.2					
1989 08 02		11 14.92	-30 50.8	0.404	0.888	60.5	96.2	18.0
1989 08 12		11 11.76	-32 11.7					
1989 08 22		11 00.70	-31 27.0	0.324	0.819	45.7	117.8	18.6

1989 JA a,e,i = 1.77, 0.48, 15 Elements MPC 14626

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 05 14		13 22.05	+19 08.9	0.165	1.129	132.4	41.4	14.3
1989 05 24		12 09.72	+10 43.3					
1989 06 03		10 05.18	-08 51.0	0.089	1.011	85.1	89.9	14.2
1989 06 13		07 37.44	-26 25.7					
1989 06 23		06 01.36	-30 16.1	0.156	0.932	53.7	118.5	16.9
1989 07 03		05 13.68	-28 43.8					
1989 07 13		04 51.34	-25 50.7	0.276	0.914	60.8	103.9	17.1
1989 07 23		04 42.10	-22 42.1					
1989 08 02		04 39.67	-19 43.4	0.382	0.963	71.3	86.7	17.2
1989 08 12		04 40.04	-17 04.5					
1989 08 22		04 40.56	-14 47.0	0.449	1.063	84.0	71.2	17.2
1989 09 01		04 39.14	-12 49.8					
1989 09 11		04 33.87	-11 06.7	0.475	1.192	100.9	56.0	17.1

1988 VP4 a,e,i = 2.26, 0.65, 12 Elements MPC 14622

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 05 14		15 19.49	-48 25.7	0.435	1.404	150.0	21.1	15.3
1989 05 24		15 04.76	-41 40.7					
1989 06 03		14 58.34	-36 18.1	0.623	1.597	153.6	16.4	16.3
1989 06 13		14 57.52	-32 14.8					
1989 06 23		15 00.63	-29 18.3	0.886	1.781	138.7	22.1	17.4
1989 07 03		15 06.52	-27 13.7					
1989 07 13		15 14.52	-25 48.4	1.208	1.955	122.8	25.9	18.4
1989 07 23		15 24.11	-24 52.0					
1989 08 02		15 34.92	-24 16.2	1.572	2.119	108.0	27.1	19.2
1989 08 12		15 46.74	-23 55.3					
1989 08 22		15 59.34	-23 44.3	1.962	2.272	94.2	26.4	19.8
1989 09 01		16 12.60	-23 39.9					
1989 09 11		16 26.39	-23 39.3	2.360	2.416	81.0	24.3	20.3

(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
1989 05 14		00 01.06	-04 36.2	1.657	1.347	54.3	37.6	18.1
1989 05 24		00 22.87	-03 53.3					
1989 06 03		00 44.04	-03 20.6	1.561	1.429	63.3	39.4	18.1
1989 06 13		01 04.62	-03 00.8					
1989 06 23		01 24.70	-02 56.4	1.419	1.482	72.9	40.9	18.0
1989 07 03		01 44.31	-03 10.7					
1989 07 13		02 03.44	-03 47.4	1.246	1.508	82.9	42.0	17.8

1989 07 23	02 22.04	-04 50.9						
1989 08 02	02 40.03	-06 26.5	1.055	1.508	93.5	42.2	17.5	
1989 08 12	02 57.24	-08 40.9						
1989 08 22	03 13.48	-11 41.3	0.862	1.480	104.1	41.5	17.0	
1989 09 01	03 28.40	-15 36.6						
1989 09 11	03 41.52	-20 35.6	0.684	1.425	113.5	40.4	16.4	
1989 09 16	03 47.21	-23 31.0						
1989 09 21	03 52.20	-26 44.7	0.607	1.387	116.7	40.3	16.0	
1989 09 26	03 56.32	-30 16.6						
1989 10 01	03 59.39	-34 06.2	0.541	1.342	117.9	41.3	15.7	
1989 10 06	04 01.18	-38 11.7						
1989 10 11	04 01.42	-42 30.8	0.486	1.289	116.2	44.0	15.5	
1989 10 16	03 59.75	-47 00.3						
1989 10 21	03 55.62	-51 36.7	0.443	1.229	111.5	48.9	15.3	
1989 10 26	03 48.22	-56 15.3						
1989 10 31	03 36.36	-60 51.0	0.410	1.161	103.7	56.2	15.2	
1989 11 05	03 18.15	-65 18.1						
1989 11 10	02 50.46	-69 29.6	0.384	1.084	93.6	65.7	15.2	
1989 11 15	02 07.7	-73 14.5						
1989 11 20	01 01.4	-76 09.9	0.361	1.000	81.4	77.7	15.3	
1989 11 25	23 26.5	-77 30.4						
1989 11 30	21 41.3	-76 25.1	0.341	0.908	66.8	93.1	15.5	
1989 12 05	20 16.4	-72 48.6						
1989 12 10	19 18.26	-67 10.6	0.327	0.808	49.0	113.2	16.3	
1989 12 15	18 39.30	-59 58.1						
1989 12 20	18 13.02	-51 38.4	0.338	0.706	28.6	138.1	18.5	

1985 TB a,e,i = 2.57, 0.57, 27 Elements MPC 14618

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989 06 23	00 21.05	-26 05.3	2.255	2.577	-0.84	-11.6	20.3	
1989 07 03	00 29.91	-26 10.7						
1989 07 13	00 37.12	-26 30.9	1.908	2.452	-1.07	-14.3	19.8	
1989 07 23	00 42.24	-27 06.5						
1989 08 02	00 44.70	-27 57.6	1.589	2.322	-1.38	-17.3	19.2	
1989 08 12	00 43.80	-29 02.1						
1989 08 22	00 38.83	-30 14.5	1.317	2.186	-1.77	-20.0	18.6	
1989 09 01	00 29.13	-31 24.8						
1989 09 11	00 14.53	-32 16.9	1.115	2.046	-2.04	-20.9	18.0	
1989 09 21	23 55.81	-32 30.6						
1989 10 01	23 34.90	-31 48.3	1.002	1.901	-1.91	-19.7	17.7	
1989 10 11	23 14.67	-30 00.9						
1989 10 21	22 57.80	-27 13.4	0.976	1.753	-1.35	-19.7	17.7	
1989 10 31	22 45.93	-23 39.2						
1989 11 10	22 39.56	-19 33.3	1.010	1.605	-0.80	-22.6	17.9	
1989 11 20	22 38.35	-15 07.5						
1989 11 30	22 41.65	-10 27.9	1.066	1.462	-0.49	-26.7	17.9	
1989 12 10	22 48.81	-05 37.3						
1989 12 20	22 59.23	-00 36.2	1.115	1.329	-0.37	-30.9	17.9	
1989 12 30	23 12.58	+04 36.3						
1990 01 09	23 28.69	+10 00.9	1.142	1.218	-0.35	-35.0	17.9	
1990 01 19	23 47.63	+15 37.3						
1990 01 29	00 09.77	+21 24.3	1.143	1.140	-0.36	-38.7	17.8	
1990 02 08	00 35.85	+27 18.1						
1990 02 18	01 06.99	+33 10.8	1.126	1.111	-0.40	-41.2	17.7	
1990 02 28	01 44.84	+38 48.8						
1990 03 10	02 31.22	+43 49.4	1.113	1.134	-0.62	-38.7	17.7	
1990 03 20	03 27.27	+47 39.8						
1990 03 30	04 31.60	+49 42.9	1.136	1.207	-1.95	-24.2	17.9	

4116 P-L a,e,i = 2.20, 0.24, 1 Elements MPC 14628

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	17 33.74	-22 28.3	1.103	2.035	148.7	15.0	17.5
1989	05 24	17 27.67	-22 13.3					
1989	06 03	17 18.57	-21 54.6	0.969	1.977	171.4	4.4	16.8
1989	06 13	17 07.64	-21 32.6					
1989	06 23	16 56.64	-21 09.4	0.923	1.921	164.2	8.3	16.7
1989	07 03	16 47.36	-20 48.7					
1989	07 13	16 41.28	-20 34.6	0.961	1.867	141.5	19.8	17.1
1989	07 23	16 39.23	-20 29.7					
1989	08 02	16 41.42	-20 34.5	1.058	1.817	122.5	28.1	17.5

1977 EG5 a,e,i = 2.37, 0.25, 9 Elements MPC 14613

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 12.53	-09 43.4	1.585	2.428	137.6	16.3	16.7
1989	05 24	18 08.23	-08 49.1					
1989	06 03	18 01.26	-08 02.2	1.410	2.374	156.1	10.0	16.2
1989	06 13	17 52.21	-07 27.3					
1989	06 23	17 42.07	-07 07.8	1.327	2.317	162.8	7.4	15.9
1989	07 03	17 32.08	-07 06.1					
1989	07 13	17 23.48	-07 22.5	1.339	2.260	146.9	14.2	16.1
1989	07 23	17 17.29	-07 55.2					
1989	08 02	17 14.12	-08 41.0	1.431	2.203	127.7	21.4	16.4

1988 CU7 a,e,i = 2.34, 0.04, 6 Elements MPC 14621

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 19.85	-32 55.1	1.346	2.245	143.5	15.6	16.2
1989	06 13	19 13.52	-33 32.0					
1989	06 23	19 04.17	-34 01.1	1.248	2.241	163.2	7.6	15.7
1989	07 03	18 52.93	-34 16.2					
1989	07 13	18 41.43	-34 13.4	1.242	2.238	164.2	7.1	15.7
1989	07 23	18 31.40	-33 53.1					
1989	08 02	18 24.14	-33 19.1	1.329	2.236	144.7	15.2	16.1
1989	08 12	18 20.42	-32 36.6					
1989	08 22	18 20.45	-31 50.0	1.489	2.235	125.6	21.6	16.5

4848 P-L a,e,i = 2.38, 0.15, 3 Elements MPC 14629

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 10.84	-15 39.8	1.240	2.048	130.3	22.2	18.5
1989	06 13	20 10.32	-15 30.7					
1989	06 23	20 06.49	-15 35.6	1.118	2.063	150.2	14.2	18.0
1989	07 03	19 59.74	-15 54.0					
1989	07 13	19 51.01	-16 23.3	1.070	2.082	172.0	3.9	17.6
1989	07 23	19 41.67	-16 59.0					
1989	08 02	19 33.19	-17 36.6	1.113	2.104	162.6	8.3	17.9
1989	08 12	19 26.86	-18 11.8					
1989	08 22	19 23.53	-18 42.0	1.243	2.129	141.3	17.3	18.4

(4108) 3439 T-3 a,e,i = 2.64, 0.13, 1 Elements MPC 14612

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 23	20 54.74	-15 18.3	1.954	2.803	139.1	13.7	18.2
1989	07 03	20 49.51	-15 35.9					
1989	07 13	20 42.28	-16 02.1	1.844	2.825	161.2	6.7	17.8
1989	07 23	20 33.69	-16 34.1					
1989	08 02	20 24.62	-17 08.3	1.834	2.846	174.8	1.9	17.6
1989	08 12	20 16.02	-17 41.0					
1989	08 22	20 08.81	-18 09.4	1.932	2.865	152.0	9.5	18.1
1989	09 01	20 03.61	-18 31.8					
1989	09 11	20 00.82	-18 47.1	2.124	2.883	130.7	15.3	18.5

1977 KL1 a,e,i = 3.14, 0.05, 12 Elements MPC 12324

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 23	21 23.37	-29 58.5	2.430	3.233	135.4	12.8	16.7
1989	07 03	21 19.94	-30 58.5					
1989	07 13	21 14.37	-31 59.9	2.297	3.242	154.1	7.9	16.4
1989	07 23	21 07.07	-32 57.3					
1989	08 02	20 58.68	-33 45.2	2.263	3.250	164.0	4.9	16.3
1989	08 12	20 50.05	-34 19.1					
1989	08 22	20 42.10	-34 36.7	2.336	3.258	151.1	8.6	16.5
1989	09 01	20 35.60	-34 37.9					
1989	09 11	20 31.14	-34 24.1	2.505	3.265	132.0	13.2	16.8

1986 TJ2 a,e,i = 2.27, 0.14, 6 Elements MPC 11432

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	06 23	21 41.57	-14 11.8	1.691	2.451	-1.36	-4.6	17.4
1989	07 03	21 40.55	-14 45.0					
1989	07 13	21 36.70	-15 35.0	1.501	2.427	-1.58	-5.3	17.0
1989	07 23	21 30.22	-16 39.3					
1989	08 02	21 21.62	-17 52.8	1.393	2.401	-1.74	-5.4	16.4
1989	08 12	21 11.84	-19 08.1					
1989	08 22	21 02.15	-20 17.2	1.387	2.374	-1.75	-4.4	16.5
1989	09 01	20 53.78	-21 14.0					
1989	09 11	20 47.81	-21 54.8	1.479	2.346	-1.61	-3.2	17.0

1985 KA a,e,i = 2.36, 0.29, 22 Elements MPC 14617

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	07 13	21 38.55	+26 30.0	0.914	1.689	-4.05	-16.7	15.6
1989	07 23	21 35.96	+30 25.0					
1989	08 02	21 30.40	+33 30.8	0.850	1.673	-5.02	-20.4	15.4
1989	08 12	21 22.83	+35 33.3					
1989	08 22	21 14.86	+36 25.7	0.828	1.670	-5.63	-26.6	15.3
1989	09 01	21 08.31	+36 08.1					
1989	09 11	21 04.88	+34 49.2	0.845	1.679	-5.38	-30.8	15.3
1989	09 21	21 05.57	+32 44.3					
1989	10 01	21 10.62	+30 09.9	0.904	1.700	-4.46	-29.4	15.5

1986 AE a,e,i = 2.73, 0.38, 29 Elements MPC 14618

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	07 13	22 07.11	+12 17.0	1.419	2.195	-1.72	-20.2	16.9
1989	07 23	22 00.99	+15 42.0					
1989	08 02	21 51.45	+18 57.0	1.234	2.113	-2.21	-24.7	16.4
1989	08 12	21 38.91	+21 49.1					
1989	08 22	21 24.46	+24 05.9	1.134	2.033	-2.63	-29.6	16.1
1989	09 01	21 09.72	+25 38.5					
1989	09 11	20 56.66	+26 26.2	1.118	1.958	-2.71	-32.9	16.1
1989	09 21	20 46.93	+26 36.2					
1989	10 01	20 41.54	+26 19.9	1.165	1.889	-2.45	-33.0	16.3

1988 JN a,e,i = 3.23, 0.12, 23 Elements MPC 13435

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	07 13	22 03.87	-04 49.6	2.176	3.012	-1.04	+1.2	16.8
1989	07 23	22 00.19	-06 02.4					
1989	08 02	21 54.89	-07 31.1	2.059	3.033	-1.12	+1.1	16.4
1989	08 12	21 48.50	-09 11.2					
1989	08 22	21 41.69	-10 56.3	2.046	3.055	-1.15	+1.1	16.2
1989	09 01	21 35.22	-12 39.6					
1989	09 11	21 29.81	-14 14.6	2.149	3.077	-1.11	+1.2	16.6
1989	09 21	21 26.03	-15 36.7					
1989	10 01	21 24.22	-16 43.4	2.351	3.100	-1.02	+1.3	17.0

1987 CJ a,e,i = 3.01, 0.05, 10 Elements MPC 13312

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	07 13	22 30.82	-06 07.8	2.377	3.158	-0.87	-2.4	17.1
1989	07 23	22 27.99	-06 43.9					
1989	08 02	22 23.37	-07 33.5	2.212	3.157	-0.95	-2.7	16.7
1989	08 12	22 17.32	-08 34.1					
1989	08 22	22 10.38	-09 41.4	2.146	3.156	-0.99	-2.7	16.3
1989	09 01	22 03.25	-10 50.4					
1989	09 11	21 56.68	-11 55.7	2.192	3.155	-0.97	-2.4	16.6
1989	09 21	21 51.34	-12 52.8					
1989	10 01	21 47.71	-13 38.7	2.343	3.152	-0.90	-2.0	17.0

1988 JV a,e,i = 2.62, 0.15, 15 Elements MPC 13582

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	07 13	22 44.74	-25 20.4	1.761	2.580	-1.42	-5.9	15.6
1989	07 23	22 43.48	-26 59.5					
1989	08 02	22 39.46	-28 46.7	1.607	2.547	-1.63	-6.3	15.2
1989	08 12	22 32.93	-30 32.8					
1989	08 22	22 24.58	-32 07.0	1.543	2.515	-1.77	-5.5	14.9
1989	09 01	22 15.43	-33 19.5					
1989	09 11	22 06.75	-34 03.4	1.579	2.483	-1.76	-3.9	15.1
1989	09 21	21 59.77	-34 16.7					
1989	10 01	21 55.33	-34 01.4	1.697	2.452	-1.61	-2.7	15.4

1985 RZ4 a,e,i = 2.68, 0.17, 13 Elements MPC 11830

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	07 13	23 00.54	-19 00.2	1.433	2.228	130.1	20.4	15.9
1989	07 23	22 58.88	-18 47.7					
1989	08 02	22 53.93	-18 41.1	1.291	2.227	149.7	13.3	15.5
1989	08 12	22 46.03	-18 35.4					
1989	08 22	22 36.04	-18 24.7	1.228	2.231	169.6	4.7	15.0
1989	09 01	22 25.21	-18 04.1					
1989	09 11	22 15.02	-17 30.1	1.263	2.238	160.7	8.6	15.3
1989	09 21	22 06.79	-16 42.3					
1989	10 01	22 01.37	-15 42.3	1.392	2.249	139.6	16.8	15.8

1973 QD2 a,e,i = 3.07, 0.27, 2 Elements MPC 14464

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	07 13	22 48.74	-10 15.0	1.454	2.250	130.3	20.2	15.6
1989	07 23	22 49.27	-10 31.2					
1989	08 02	22 47.06	-11 03.1	1.324	2.261	150.0	13.0	15.1
1989	08 12	22 42.40	-11 47.4					
1989	08 22	22 35.99	-12 37.9	1.273	2.279	171.7	3.7	14.7
1989	09 01	22 28.80	-13 27.6					
1989	09 11	22 22.01	-14 08.9	1.317	2.302	164.0	6.9	15.0
1989	09 21	22 16.70	-14 36.6					
1989	10 01	22 13.61	-14 47.8	1.454	2.330	142.6	15.1	15.5

1972 TE a,e,i = 2.64, 0.27, 4 Elements MPC 14342

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	07 13	22 44.60	-00 42.4	1.364	2.139	127.4	22.2	17.3
1989	07 23	22 46.13	-00 09.6					
1989	08 02	22 44.91	+00 02.9	1.175	2.093	145.7	15.8	16.7
1989	08 12	22 41.03	-00 07.4					
1989	08 22	22 34.99	-00 40.3	1.055	2.051	166.0	6.9	16.1
1989	09 01	22 27.68	-01 32.5					
1989	09 11	22 20.40	-02 36.7	1.023	2.015	166.3	6.8	16.0
1989	09 21	22 14.53	-03 43.3					
1989	10 01	22 11.15	-04 43.1	1.078	1.985	145.3	16.7	16.4

1981 JX1 a,e,i = 2.35, 0.02, 4 Elements MPC 11618

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	07 13	22 59.44	-12 43.0	1.563	2.337	128.6	19.9	18.2
1989	07 23	22 58.22	-13 05.4					
1989	08 02	22 54.05	-13 41.6	1.411	2.341	149.0	12.9	17.8
1989	08 12	22 47.21	-14 27.6					
1989	08 22	22 38.37	-15 16.8	1.341	2.345	170.6	4.0	17.3
1989	09 01	22 28.59	-16 01.9					
1989	09 11	22 19.15	-16 35.8	1.371	2.349	162.0	7.6	17.5
1989	09 21	22 11.30	-16 53.7					
1989	10 01	22 05.89	-16 54.1	1.496	2.353	140.0	15.9	18.0

1988 BK3 a,e,i = 2.25, 0.15, 5 Elements MPC 13468

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	07 13	22 59.77	+00 59.8	1.397	2.131	123.2	23.5	17.3
1989	07 23	22 59.25	+01 12.1					
1989	08 02	22 55.71	+01 00.8	1.266	2.165	142.9	16.4	17.0
1989	08 12	22 49.42	+00 25.1					
1989	08 22	22 41.12	-00 32.1	1.206	2.198	164.9	6.9	16.6
1989	09 01	22 31.87	-01 44.9					
1989	09 11	22 23.01	-03 04.2	1.239	2.232	167.0	5.8	16.6
1989	09 21	22 15.76	-04 20.3					
1989	10 01	22 10.97	-05 25.7	1.370	2.265	145.1	14.6	17.2

1985 SX2 a,e,i = 2.62, 0.14, 4 Elements MPC 14194

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	07 13	22 59.90	-06 16.0	1.753	2.493	126.3	19.2	18.1
1989	07 23	22 59.29	-06 03.2					
1989	08 02	22 56.08	-06 04.7	1.555	2.464	146.2	13.3	17.6
1989	08 12	22 50.39	-06 20.1					
1989	08 22	22 42.72	-06 46.6	1.436	2.436	168.7	4.7	17.1
1989	09 01	22 33.87	-07 20.1					
1989	09 11	22 24.98	-07 54.8	1.416	2.409	167.3	5.3	17.0
1989	09 21	22 17.20	-08 24.8					
1989	10 01	22 11.47	-08 45.6	1.497	2.383	144.4	14.2	17.5

1971 UK a,e,i = 2.37, 0.17, 5 Elements MPC 10938

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	07 13	22 51.82	+02 03.9	1.226	1.987	124.5	24.9	16.9
1989	07 23	22 53.77	+02 48.1					
1989	08 02	22 52.70	+03 08.4	1.074	1.978	142.4	18.3	16.5
1989	08 12	22 48.70	+03 01.7					
1989	08 22	22 42.37	+02 27.5	0.986	1.973	162.4	8.9	16.0
1989	09 01	22 34.69	+01 29.4					
1989	09 11	22 27.08	+00 15.3	0.980	1.974	167.0	6.6	15.9
1989	09 21	22 20.96	-01 03.4					
1989	10 01	22 17.38	-02 16.2	1.062	1.980	147.3	15.9	16.4

1981 EW45 a,e,i = 3.24, 0.11, 5 Elements MPC 12715

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	07 13	22 56.69	-01 20.1	2.258	2.960	125.0	16.3	18.4
1989	07 23	22 55.84	-01 18.6					
1989	08 02	22 52.98	-01 32.0	2.059	2.948	144.8	11.4	18.0
1989	08 12	22 48.30	-02 00.2					
1989	08 22	22 42.23	-02 41.1	1.944	2.936	166.3	4.7	17.6
1989	09 01	22 35.37	-03 31.5					
1989	09 11	22 28.51	-04 26.3	1.932	2.926	168.5	3.9	17.6
1989	09 21	22 22.44	-05 20.0					
1989	10 01	22 17.83	-06 07.9	2.028	2.917	146.6	10.9	18.0

1976 SG2 a,e,i = 2.21, 0.13, 6 Elements MPC 11434

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	07 13	22 57.70	-00 23.9	1.468	2.207	124.3	22.3	17.5
1989	07 23	22 58.40	-00 17.3					
1989	08 02	22 56.26	-00 33.5	1.276	2.178	143.6	16.0	17.0
1989	08 12	22 51.31	-01 14.0					
1989	08 22	22 44.02	-02 17.2	1.154	2.149	165.7	6.7	16.4
1989	09 01	22 35.27	-03 38.2					
1989	09 11	22 26.33	-05 07.8	1.125	2.120	167.9	5.7	16.3
1989	09 21	22 18.62	-06 35.2					
1989	10 01	22 13.25	-07 50.9	1.190	2.091	145.1	15.9	16.7

1981 ER10 a,e,i = 2.28, 0.15, 2 Elements MPC 10769

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	07 13	22 55.46	-03 17.5	1.203	1.981	126.1	24.5	18.4
1989	07 23	22 57.26	-02 44.0					
1989	08 02	22 55.89	-02 30.9	1.046	1.963	144.7	17.4	17.9
1989	08 12	22 51.42	-02 39.6					
1989	08 22	22 44.40	-03 08.5	0.953	1.950	166.2	7.1	17.3
1989	09 01	22 35.87	-03 53.1					
1989	09 11	22 27.33	-04 45.1	0.946	1.942	168.2	6.1	17.2
1989	09 21	22 20.33	-05 35.1					
1989	10 01	22 16.00	-06 15.0	1.025	1.938	146.1	16.7	17.8

1981 ER17 a,e,i = 3.12, 0.16, 5 Elements MPC 10617

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	22 54.47	-00 47.9	1.962	2.848	144.1	12.0	17.4
1989	08 12	22 49.85	-01 13.3					
1989	08 22	22 43.69	-01 52.9	1.829	2.819	165.5	5.2	16.9
1989	09 01	22 36.61	-02 43.7					
1989	09 11	22 29.43	-03 40.6	1.798	2.792	168.6	4.1	16.8
1989	09 21	22 23.02	-04 37.7					
1989	10 01	22 18.12	-05 29.5	1.873	2.766	146.8	11.4	17.2
1989	10 11	22 15.29	-06 11.3					
1989	10 21	22 14.80	-06 40.5	2.034	2.741	126.1	17.1	17.5

1978 QP1 a,e,i = 3.13, 0.17, 2 Elements MPC 14344

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	22 57.32	-08 43.5	1.692	2.602	146.9	12.3	15.9
1989	08 12	22 52.68	-09 25.6					
1989	08 22	22 46.39	-10 15.8	1.612	2.612	169.0	4.3	15.5
1989	09 01	22 39.19	-11 08.5					
1989	09 11	22 32.04	-11 57.3	1.634	2.626	167.3	4.8	15.5
1989	09 21	22 25.88	-12 36.5					
1989	10 01	22 21.46	-13 02.6	1.758	2.642	145.1	12.5	16.0
1989	10 11	22 19.28	-13 13.7					
1989	10 21	22 19.51	-13 09.6	1.963	2.661	124.9	17.9	16.4

4031 P-L a,e,i = 2.37, 0.18, 5 Elements MPC 8909

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 09.78	-07 01.2	1.450	2.344	143.4	15.0	18.4
1989	08 12	23 04.28	-07 14.0					
1989	08 22	22 56.30	-07 38.1	1.308	2.303	165.9	6.1	17.8
1989	09 01	22 46.59	-08 09.2					
1989	09 11	22 36.34	-08 40.9	1.263	2.261	169.7	4.5	17.6
1989	09 21	22 26.92	-09 06.9					
1989	10 01	22 19.53	-09 22.1	1.317	2.220	146.1	14.6	18.0
1989	10 11	22 15.05	-09 23.3					
1989	10 21	22 13.83	-09 09.2	1.449	2.179	125.0	22.0	18.4

1985 TN3 a,e,i = 2.62, 0.18, 15 Elements MPC 14350

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 08 02	23 21.16	-11 12.3	1.265	2.157	142.0	16.8	16.0
1989 08 12	23 14.78	-10 36.4					
1989 08 22	23 05.64	-10 04.3	1.171	2.162	164.3	7.3	15.5
1989 09 01	22 54.74	-09 33.0					
1989 09 11	22 43.51	-08 59.1	1.171	2.171	171.2	4.1	15.3
1989 09 21	22 33.48	-08 20.1					
1989 10 01	22 25.84	-07 35.1	1.269	2.184	148.1	14.0	15.9
1989 10 11	22 21.32	-06 43.3					
1989 10 21	22 20.13	-05 44.8	1.448	2.202	127.6	21.0	16.4

1969 QR a,e,i = 2.22, 0.14, 7 Elements MPC 12958

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 08 02	23 18.04	+09 33.7	1.119	1.961	133.5	22.0	17.1
1989 08 12	23 14.50	+09 53.1					
1989 08 22	23 08.18	+09 40.5	1.030	1.984	152.7	13.5	16.7
1989 09 01	22 59.92	+08 55.6					
1989 09 11	22 51.08	+07 43.7	1.017	2.009	166.1	6.9	16.5
1989 09 21	22 43.16	+06 15.4					
1989 10 01	22 37.38	+04 43.0	1.094	2.036	152.7	13.0	16.9
1989 10 11	22 34.58	+03 18.3					
1989 10 21	22 35.02	+02 09.5	1.252	2.066	133.3	20.5	17.5

1988 EC a,e,i = 1.93, 0.10, 19 Elements MPC 13469

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989 08 02	23 41.29	-09 57.9	0.906	1.787	-2.26	-35.0	15.5
1989 08 12	23 33.66	-08 07.8					
1989 08 22	23 21.46	-06 14.7	0.787	1.771	-2.82	-39.6	14.8
1989 09 01	23 05.70	-04 20.1					
1989 09 11	22 48.50	-02 27.0	0.754	1.758	-3.02	-41.1	14.4
1989 09 21	22 32.50	-00 39.7					
1989 10 01	22 19.93	+00 58.8	0.816	1.748	-2.67	-38.6	15.1
1989 10 11	22 12.11	+02 29.2					
1989 10 21	22 09.30	+03 54.4	0.949	1.743	-2.13	-33.7	15.7

1972 TW3 a,e,i = 2.64, 0.26, 4 Elements MPC 14471

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 08 02	23 17.58	-08 32.3	1.208	2.103	142.1	17.2	16.8
1989 08 12	23 14.69	-08 36.4					
1989 08 22	23 09.01	-08 51.3	1.074	2.064	163.2	8.1	16.2
1989 09 01	23 01.19	-09 12.4					
1989 09 11	22 52.43	-09 32.8	1.027	2.029	172.8	3.6	15.9
1989 09 21	22 44.21	-09 45.6					
1989 10 01	22 37.89	-09 45.5	1.070	2.001	150.1	14.4	16.4
1989 10 11	22 34.50	-09 29.2					
1989 10 21	22 34.48	-08 56.1	1.188	1.979	129.9	22.7	16.8

1979 KQ a,e,i = 2.68, 0.12, 5 Elements MPC 13151

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 08 02	23 17.35	-01 14.4	1.506	2.369	139.3	16.2	17.5
1989 08 12	23 14.02	-01 52.2					
1989 08 22	23 08.51	-02 48.2	1.396	2.375	161.1	7.9	17.1
1989 09 01	23 01.47	-03 57.5					
1989 09 11	22 53.88	-05 12.9	1.380	2.384	174.8	2.2	16.8
1989 09 21	22 46.87	-06 25.6					
1989 10 01	22 41.39	-07 28.2	1.465	2.394	151.8	11.4	17.3
1989 10 11	22 38.19	-08 15.0					
1989 10 21	22 37.60	-08 43.6	1.637	2.407	130.7	18.3	17.8

1984 HR1 a,e,i = 2.60, 0.15, 5 Elements MPC 10763

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 24.95	-11 43.4	1.513	2.391	141.2	15.4	17.0
1989	08 12	23 19.91	-12 20.2					
1989	08 22	23 12.56	-13 03.2	1.436	2.421	162.8	7.1	16.7
1989	09 01	23 03.68	-13 45.8					
1989	09 11	22 54.40	-14 20.9	1.455	2.452	169.3	4.4	16.6
1989	09 21	22 45.92	-14 42.9					
1989	10 01	22 39.19	-14 49.0	1.576	2.483	148.1	12.3	17.1
1989	10 11	22 34.91	-14 38.2					
1989	10 21	22 33.34	-14 11.7	1.782	2.515	127.5	18.3	17.6

(3861) A910 FA a,e,i = 2.56, 0.19, 6 Elements MPC 13444

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 23.28	+01 23.9	2.165	2.986	136.8	13.5	17.0
1989	08 12	23 18.45	+00 53.0					
1989	08 22	23 11.90	+00 07.4	2.034	3.000	158.8	7.0	16.7
1989	09 01	23 04.15	-00 50.2					
1989	09 11	22 55.93	-01 55.0	2.007	3.011	174.5	1.8	16.4
1989	09 21	22 48.09	-03 01.0					
1989	10 01	22 41.38	-04 02.7	2.094	3.019	152.8	8.7	16.8
1989	10 11	22 36.43	-04 55.1					
1989	10 21	22 33.58	-05 35.2	2.279	3.026	130.8	14.4	17.2

1980 TE4 a,e,i = 2.76, 0.25, 2 Elements MPC 13056

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 20.96	-06 35.0	1.189	2.076	140.6	18.1	16.3
1989	08 12	23 17.94	-06 46.3					
1989	08 22	23 12.28	-07 10.7	1.108	2.093	162.0	8.6	15.8
1989	09 01	23 04.80	-07 43.1					
1989	09 11	22 56.72	-08 16.0	1.113	2.117	174.4	2.7	15.6
1989	09 21	22 49.42	-08 42.2					
1989	10 01	22 44.01	-08 56.5	1.211	2.146	151.8	12.7	16.2
1989	10 11	22 41.25	-08 55.6					
1989	10 21	22 41.42	-08 38.9	1.389	2.181	131.6	20.0	16.8

(3831) Pettengill a,e,i = 2.17, 0.20, 5 Elements MPC 13155

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 20.69	-03 42.5	0.883	1.781	139.6	21.7	15.3
1989	08 12	23 18.76	-04 42.4					
1989	08 22	23 13.66	-06 05.4	0.820	1.808	161.3	10.3	14.8
1989	09 01	23 06.31	-07 41.9					
1989	09 11	22 58.25	-09 17.8	0.835	1.840	174.0	3.3	14.6
1989	09 21	22 51.14	-10 39.1					
1989	10 01	22 46.31	-11 36.9	0.936	1.876	151.2	14.9	15.4
1989	10 11	22 44.58	-12 07.0					
1989	10 21	22 46.14	-12 09.9	1.108	1.916	131.2	23.0	16.0

1986 WE a,e,i = 2.44, 0.19, 6 Elements MPC 11512

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 27.52	-11 37.7	2.027	2.884	140.6	12.9	17.5
1989	08 12	23 22.66	-12 38.2					
1989	08 22	23 15.80	-13 46.0	1.893	2.872	161.9	6.3	17.1
1989	09 01	23 07.46	-14 55.1					
1989	09 11	22 58.47	-15 58.5	1.865	2.857	168.2	4.1	17.0
1989	09 21	22 49.79	-16 49.8					
1989	10 01	22 42.30	-17 24.9	1.946	2.840	147.2	11.0	17.3
1989	10 11	22 36.74	-17 41.8					
1989	10 21	22 33.53	-17 40.6	2.118	2.821	126.0	16.6	17.7

1978 NU3 a,e,i = 2.36, 0.22, 6 Elements MPC 11835

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 17.66	-07 02.8	0.938	1.844	141.6	20.0	16.6
1989	08 12	23 16.78	-08 17.2					
1989	08 22	23 12.90	-09 50.8	0.863	1.853	162.5	9.5	16.1
1989	09 01	23 06.83	-11 32.9					
1989	09 11	22 59.92	-13 08.9	0.868	1.869	170.9	4.9	15.9
1989	09 21	22 53.74	-14 25.7					
1989	10 01	22 49.57	-15 15.0	0.958	1.892	149.9	15.4	16.5
1989	10 11	22 48.29	-15 33.9					
1989	10 21	22 50.17	-15 23.9	1.118	1.921	130.6	23.2	17.1

(3751) Kiang a,e,i = 3.14, 0.11, 13 Elements MPC 12783

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 25.88	+14 52.9	2.196	2.940	128.8	15.6	16.5
1989	08 12	23 21.81	+15 25.5					
1989	08 22	23 15.95	+15 38.0	2.059	2.958	146.8	10.8	16.2
1989	09 01	23 08.80	+15 29.0					
1989	09 11	23 01.08	+14 59.6	2.012	2.977	159.9	6.7	16.0
1989	09 21	22 53.62	+14 13.3					
1989	10 01	22 47.20	+13 15.5	2.069	2.997	153.3	8.6	16.2
1989	10 11	22 42.47	+12 12.9					
1989	10 21	22 39.82	+11 12.0	2.224	3.018	135.7	13.3	16.5

1980 FO3 a,e,i = 3.39, 0.17, 10 Elements MPC 12000

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 32.07	-08 19.6	2.071	2.911	138.6	13.3	15.6
1989	08 12	23 28.12	-08 23.6					
1989	08 22	23 22.23	-08 34.4	1.920	2.891	160.0	6.9	15.2
1989	09 01	23 14.85	-08 48.9					
1989	09 11	23 06.72	-09 03.1	1.869	2.873	175.4	1.6	14.8
1989	09 21	22 58.73	-09 12.8					
1989	10 01	22 51.72	-09 14.8	1.927	2.858	153.4	9.0	15.2
1989	10 11	22 46.43	-09 06.8					
1989	10 21	22 43.29	-08 47.6	2.081	2.844	132.0	15.1	15.6

1981 EC16 a,e,i = 2.36, 0.21, 4 Elements MPC 7768

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 38.19	+03 30.6	1.324	2.144	132.5	20.4	17.1
1989	08 12	23 34.25	+03 32.4					
1989	08 22	23 27.57	+03 12.0	1.237	2.190	153.8	11.8	16.7
1989	09 01	23 18.88	+02 31.6					
1989	09 11	23 09.35	+01 36.8	1.234	2.237	173.4	3.0	16.4
1989	09 21	23 00.30	+00 35.9					
1989	10 01	22 52.91	-00 22.6	1.332	2.285	156.4	10.1	16.9
1989	10 11	22 48.02	-01 11.4					
1989	10 21	22 45.99	-01 45.8	1.519	2.332	135.0	17.6	17.5

1983 CE a,e,i = 2.65, 0.11, 14 Elements MPC 14189

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 35.31	-14 50.1	2.058	2.905	139.4	13.1	17.1
1989	08 12	23 31.52	-16 17.0					
1989	08 22	23 25.73	-17 49.3	1.947	2.914	159.0	7.2	16.7
1989	09 01	23 18.44	-19 19.9					
1989	09 11	23 10.38	-20 40.5	1.940	2.921	164.2	5.4	16.7
1989	09 21	23 02.48	-21 44.6					
1989	10 01	22 55.57	-22 28.0	2.041	2.927	146.3	10.9	17.0
1989	10 11	22 50.39	-22 49.3					
1989	10 21	22 47.36	-22 49.5	2.232	2.932	126.2	15.9	17.3

1977 EO1 a,e,i = 3.04, 0.16, 3 Elements MPC 9476

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 35.65	-06 44.4	2.258	3.081	137.3	12.9	17.8
1989	08 12	23 31.52	-07 17.2					
1989	08 22	23 25.65	-07 58.3	2.146	3.111	159.0	6.7	17.5
1989	09 01	23 18.52	-08 43.9					
1989	09 11	23 10.81	-09 29.2	2.137	3.141	175.3	1.5	17.2
1989	09 21	23 03.29	-10 09.2					
1989	10 01	22 56.69	-10 40.1	2.240	3.170	153.8	8.0	17.7
1989	10 11	22 51.61	-10 59.3					
1989	10 21	22 48.43	-11 05.6	2.443	3.198	132.2	13.3	18.0

1984 UG a,e,i = 3.16, 0.12, 3 Elements MPC 11857

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 36.73	-06 23.9	1.984	2.812	136.9	14.3	15.9
1989	08 12	23 33.57	-06 52.1					
1989	08 22	23 28.45	-07 30.3	1.858	2.823	158.2	7.6	15.6
1989	09 01	23 21.82	-08 14.5					
1989	09 11	23 14.41	-08 59.3	1.830	2.835	175.9	1.5	15.2
1989	09 21	23 07.09	-09 39.2					
1989	10 01	23 00.69	-10 09.6	1.909	2.848	155.0	8.6	15.7
1989	10 11	22 55.90	-10 27.2					
1989	10 21	22 53.18	-10 30.6	2.085	2.863	133.5	14.6	16.1

(3815) Konig a,e,i = 2.57, 0.10, 9 Elements MPC 13046

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 38.75	+05 23.7	1.960	2.740	131.5	16.1	16.5
1989	08 12	23 35.37	+04 58.6					
1989	08 22	23 29.95	+04 14.4	1.817	2.755	152.7	9.7	16.2
1989	09 01	23 22.93	+03 12.8					
1989	09 11	23 15.05	+01 58.4	1.767	2.769	173.2	2.5	15.8
1989	09 21	23 07.21	+00 37.8					
1989	10 01	23 00.28	-00 41.8	1.828	2.782	158.1	7.7	16.1
1989	10 11	22 55.02	-01 53.4					
1989	10 21	22 51.89	-02 52.0	1.990	2.794	136.0	14.3	16.5

4020 P-L a,e,i = 2.37, 0.07, 2 Elements MPC 11338

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 39.53	+00 57.5	1.448	2.268	133.4	19.0	17.6
1989	08 12	23 37.23	+00 46.2					
1989	08 22	23 32.25	+00 14.7	1.300	2.255	154.4	11.2	17.1
1989	09 01	23 25.03	-00 34.8					
1989	09 11	23 16.47	-01 37.0	1.237	2.243	176.7	1.5	16.6
1989	09 21	23 07.79	-02 43.8					
1989	10 01	23 00.22	-03 46.5	1.274	2.232	157.4	9.9	17.0
1989	10 11	22 54.83	-04 37.2					
1989	10 21	22 52.26	-05 11.0	1.401	2.222	135.4	18.3	17.5

1988 GS a,e,i = 2.46, 0.09, 8 Elements MPC 13598

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 47.87	-11 01.1	1.647	2.476	135.6	16.7	17.3
1989	08 12	23 43.56	-11 28.6					
1989	08 22	23 36.68	-12 03.5	1.532	2.494	156.9	9.2	16.9
1989	09 01	23 27.78	-12 40.4					
1989	09 11	23 17.84	-13 12.3	1.512	2.512	171.6	3.3	16.7
1989	09 21	23 08.03	-13 33.4					
1989	10 01	22 59.46	-13 39.5	1.597	2.530	152.8	10.4	17.1
1989	10 11	22 53.03	-13 29.2					
1989	10 21	22 49.23	-13 02.8	1.775	2.546	131.5	17.0	17.6

6034 P-L a,e,i = 2.58, 0.23, 8 Elements MPC 10310

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 33.61	+06 48.1	1.174	2.000	131.9	22.2	16.8
1989	08 12	23 33.92	+06 40.9					
1989	08 22	23 31.47	+06 04.0	1.051	1.999	151.3	14.1	16.3
1989	09 01	23 26.67	+04 57.9					
1989	09 11	23 20.47	+03 28.2	1.003	2.004	171.5	4.2	15.8
1989	09 21	23 14.14	+01 45.7					
1989	10 01	23 08.94	+00 02.9	1.044	2.016	160.4	9.6	16.2
1989	10 11	23 05.96	-01 27.7					
1989	10 21	23 05.78	-02 37.7	1.172	2.034	139.4	18.6	16.7

(3876) Quaide a,e,i = 3.02, 0.08, 11 Elements MPC 13462

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 45.20	-15 56.4	2.013	2.843	137.3	14.0	16.1
1989	08 12	23 42.46	-17 08.6					
1989	08 22	23 37.63	-18 25.4	1.901	2.856	156.1	8.3	15.8
1989	09 01	23 31.14	-19 40.1					
1989	09 11	23 23.69	-20 45.0	1.888	2.869	164.0	5.6	15.7
1989	09 21	23 16.17	-21 33.7					
1989	10 01	23 09.46	-22 02.3	1.979	2.882	148.8	10.4	16.0
1989	10 11	23 04.29	-22 09.2					
1989	10 21	23 01.17	-21 55.5	2.161	2.897	129.3	15.4	16.3

1964 VE a,e,i = 2.34, 0.28, 25 Elements MPC 7459

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 31.56	+31 43.8	1.302	1.975	116.4	27.4	17.6
1989	08 12	23 33.57	+32 46.6					
1989	08 22	23 32.85	+33 09.8	1.103	1.916	129.9	23.9	17.1
1989	09 01	23 29.51	+32 41.5					
1989	09 11	23 24.19	+31 10.3	0.950	1.860	143.9	18.6	16.6
1989	09 21	23 18.14	+28 30.7					
1989	10 01	23 12.86	+24 46.8	0.865	1.810	151.8	15.2	16.2
1989	10 11	23 09.89	+20 16.5					
1989	10 21	23 10.26	+15 28.0	0.866	1.767	143.1	19.8	16.3

1985 UT3 a,e,i = 2.62, 0.16, 13 Elements MPC 14021

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 43.07	+11 08.9	1.784	2.533	127.6	18.5	16.1
1989	08 12	23 41.66	+11 00.8					
1989	08 22	23 37.95	+10 27.8	1.588	2.499	147.2	12.7	15.7
1989	09 01	23 32.22	+09 28.7					
1989	09 11	23 25.13	+08 05.3	1.474	2.465	166.8	5.4	15.2
1989	09 21	23 17.59	+06 23.5					
1989	10 01	23 10.65	+04 32.2	1.464	2.432	161.0	7.7	15.2
1989	10 11	23 05.32	+02 42.3					
1989	10 21	23 02.29	+01 03.4	1.553	2.400	139.7	15.6	15.6

(3909) 1988 JD1 a,e,i = 2.61, 0.12, 13 Elements MPC 13679

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 47.78	+14 42.6	1.914	2.627	124.6	18.5	16.6
1989	08 12	23 45.26	+14 45.1					
1989	08 22	23 40.53	+14 23.6	1.766	2.652	144.0	13.0	16.3
1989	09 01	23 33.99	+13 37.1					
1989	09 11	23 26.35	+12 27.4	1.699	2.676	162.4	6.5	16.0
1989	09 21	23 18.54	+10 59.8					
1989	10 01	23 11.47	+09 21.9	1.737	2.700	160.2	7.2	16.1
1989	10 11	23 05.99	+07 43.0					
1989	10 21	23 02.65	+06 11.5	1.878	2.723	140.8	13.4	16.5

1978 RK1 a,e,i = 3.13, 0.17, 3 Elements MPC 11050

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 46.12	-05 16.6	1.814	2.626	134.3	16.1	17.2
1989	08 12	23 44.37	-05 43.2					
1989	08 22	23 40.39	-06 22.2	1.663	2.615	155.1	9.4	16.7
1989	09 01	23 34.56	-07 10.1					
1989	09 11	23 27.53	-08 01.0	1.603	2.608	175.5	1.7	16.3
1989	09 21	23 20.24	-08 48.4					
1989	10 01	23 13.62	-09 26.5	1.648	2.603	158.0	8.3	16.7
1989	10 11	23 08.54	-09 50.5					
1989	10 21	23 05.58	-09 58.3	1.788	2.602	136.5	15.3	17.1

1988 ER1 a,e,i = 2.35, 0.10, 7 Elements MPC 13161

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 59.26	-09 28.3	1.443	2.257	132.5	19.4	16.9
1989	08 12	23 56.26	-09 51.7					
1989	08 22	23 50.29	-10 25.5	1.327	2.277	153.4	11.5	16.5
1989	09 01	23 41.83	-11 04.1					
1989	09 11	23 31.84	-11 40.0	1.297	2.298	172.0	3.5	16.2
1989	09 21	23 21.63	-12 05.7					
1989	10 01	23 12.49	-12 16.1	1.368	2.320	156.2	10.0	16.6
1989	10 11	23 05.53	-12 08.5					
1989	10 21	23 01.35	-11 43.2	1.531	2.341	134.7	17.6	17.1

1978 SS2 a,e,i = 3.12, 0.17, 9 Elements MPC 13463

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 53.12	+06 30.3	2.187	2.921	127.8	15.9	16.8
1989	08 12	23 50.92	+06 11.3					
1989	08 22	23 46.80	+05 35.0	2.044	2.954	148.5	10.3	16.5
1989	09 01	23 41.10	+04 42.8					
1989	09 11	23 34.40	+03 37.9	1.990	2.987	170.2	3.3	16.2
1989	09 21	23 27.46	+02 25.9					
1989	10 01	23 21.03	+01 12.8	2.047	3.020	163.5	5.4	16.3
1989	10 11	23 15.81	+00 05.0					
1989	10 21	23 12.32	-00 52.6	2.211	3.053	141.5	11.7	16.8

4028 P-L a,e,i = 2.58, 0.18, 7 Elements MPC 12797

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 51.90	+07 02.1	1.741	2.496	127.8	18.7	18.0
1989	08 12	23 50.86	+07 00.3					
1989	08 22	23 47.39	+06 37.1	1.541	2.457	147.8	12.7	17.5
1989	09 01	23 41.71	+05 51.8					
1989	09 11	23 34.40	+04 46.3	1.423	2.419	169.2	4.5	17.0
1989	09 21	23 26.40	+03 26.4					
1989	10 01	23 18.77	+02 00.0	1.406	2.382	163.0	7.0	17.1
1989	10 11	23 12.62	+00 36.7					
1989	10 21	23 08.76	-00 35.1	1.488	2.345	140.8	15.6	17.5

1978 SP6 a,e,i = 3.18, 0.17, 2 Elements MPC 12131

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 53.79	-02 49.4	2.255	3.026	131.7	14.5	17.4
1989	08 12	23 51.65	-03 06.9					
1989	08 22	23 47.54	-03 36.0	2.059	2.993	152.6	9.0	17.0
1989	09 01	23 41.70	-04 14.7					
1989	09 11	23 34.66	-04 59.1	1.956	2.960	175.0	1.7	16.5
1989	09 21	23 27.16	-05 44.1					
1989	10 01	23 19.99	-06 24.6	1.963	2.928	161.0	6.4	16.7
1989	10 11	23 13.96	-06 56.0					
1989	10 21	23 09.69	-07 14.9	2.074	2.896	138.6	13.1	17.1

1987 DW6 a,e,i = 3.15, 0.15, 2 Elements MPC 13313

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 08 02	23 58.03	-01 28.0	2.751	3.493	130.2	12.8	17.6
1989 08 12	23 55.00	-01 47.8					
1989 08 22	23 50.32	-02 17.6	2.589	3.510	151.4	7.9	17.3
1989 09 01	23 44.29	-02 55.3					
1989 09 11	23 37.37	-03 37.8	2.524	3.527	174.2	1.6	16.9
1989 09 21	23 30.17	-04 21.0					
1989 10 01	23 23.33	-05 00.9	2.575	3.542	162.3	4.9	17.2
1989 10 11	23 17.44	-05 33.9					
1989 10 21	23 12.97	-05 57.4	2.737	3.557	139.8	10.4	17.5

1976 WD a,e,i = 2.26, 0.07, 9 Elements MPC 11504

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 08 02	23 58.44	+14 03.4	1.382	2.112	122.8	23.8	16.3
1989 08 12	23 57.83	+15 02.0					
1989 08 22	23 54.21	+15 35.6	1.232	2.114	140.8	17.6	15.9
1989 09 01	23 47.81	+15 39.7					
1989 09 11	23 39.37	+15 12.2	1.147	2.118	159.0	9.8	15.5
1989 09 21	23 30.13	+14 15.7					
1989 10 01	23 21.46	+12 57.5	1.152	2.124	161.0	8.8	15.5
1989 10 11	23 14.73	+11 29.3					
1989 10 21	23 10.83	+10 03.1	1.248	2.131	143.2	16.2	15.9

(3834) 1980 JE a,e,i = 2.55, 0.19, 14 Elements MPC 13166

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 08 02	00 09.70	-20 36.5	1.851	2.641	132.1	16.6	17.5
1989 08 12	00 06.08	-21 41.8					
1989 08 22	23 59.81	-22 48.4	1.755	2.679	150.0	10.9	17.3
1989 09 01	23 51.36	-23 48.5					
1989 09 11	23 41.55	-24 33.5	1.751	2.716	159.3	7.5	17.2
1989 09 21	23 31.47	-24 57.1					
1989 10 01	23 22.20	-24 56.4	1.850	2.752	148.1	11.1	17.4
1989 10 11	23 14.69	-24 31.5					
1989 10 21	23 09.52	-23 45.5	2.042	2.785	129.8	15.9	17.8

2546 P-L a,e,i = 2.59, 0.09, 15 Elements MPC 12689

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 08 02	23 56.01	+07 58.1	1.861	2.596	126.5	18.3	18.7
1989 08 12	23 55.11	+07 25.9					
1989 08 22	23 51.92	+06 30.0	1.668	2.575	147.0	12.4	18.3
1989 09 01	23 46.67	+05 10.7					
1989 09 11	23 39.91	+03 31.6	1.559	2.555	169.5	4.1	17.8
1989 09 21	23 32.50	+01 39.8					
1989 10 01	23 25.39	-00 15.2	1.556	2.535	164.4	6.1	17.9
1989 10 11	23 19.57	-02 03.1					
1989 10 21	23 15.77	-03 35.7	1.659	2.515	141.4	14.3	18.3

1975 XP3 a,e,i = 2.35, 0.13, 3 Elements MPC 7606

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 08 02	00 01.67	-01 55.0	1.503	2.287	129.5	20.0	17.6
1989 08 12	00 00.59	-01 55.8					
1989 08 22	23 56.62	-02 12.6	1.324	2.257	149.9	13.0	17.0
1989 09 01	23 49.97	-02 43.9					
1989 09 11	23 41.27	-03 25.2	1.226	2.229	173.2	3.1	16.5
1989 09 21	23 31.63	-04 09.6					
1989 10 01	23 22.39	-04 49.7	1.227	2.201	162.2	8.0	16.7
1989 10 11	23 14.84	-05 18.3					
1989 10 21	23 09.94	-05 30.7	1.321	2.175	139.3	17.4	17.1

1984 VA a,e,i = 3.07, 0.28, 2 Elements MPC 9361

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	00 00.16	-03 13.2	2.040	2.806	130.3	16.0	18.1
1989	08 12	23 58.82	-03 28.8					
1989	08 22	23 55.26	-03 57.3	1.822	2.750	150.8	10.3	17.6
1989	09 01	23 49.64	-04 36.7					
1989	09 11	23 42.44	-05 23.0	1.692	2.694	173.1	2.6	17.0
1989	09 21	23 34.45	-06 10.6					
1989	10 01	23 26.57	-06 53.3	1.668	2.639	162.1	6.7	17.2
1989	10 11	23 19.80	-07 25.5					
1989	10 21	23 14.92	-07 43.3	1.746	2.585	139.5	14.5	17.5

1981 ED37 a,e,i = 2.32, 0.22, 4 Elements MPC 13311

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	00 02.68	-06 25.4	0.996	1.828	130.8	24.8	18.3
1989	08 12	00 03.47	-06 22.4					
1989	08 22	00 00.57	-06 35.2	0.896	1.844	150.3	15.8	17.8
1989	09 01	23 54.34	-06 59.5					
1989	09 11	23 45.77	-07 27.5	0.865	1.867	171.9	4.4	17.4
1989	09 21	23 36.45	-07 50.1					
1989	10 01	23 28.02	-07 59.9	0.919	1.896	161.8	9.5	17.8
1989	10 11	23 21.94	-07 51.9					
1989	10 21	23 19.02	-07 24.9	1.054	1.930	140.6	19.1	18.4

(3717) 1964 CG a,e,i = 3.15, 0.18, 3 Elements MPC 12577

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	00 06.97	-02 26.6	2.990	3.707	128.5	12.4	18.1
1989	08 12	00 04.45	-02 51.9					
1989	08 22	00 00.32	-03 26.6	2.795	3.702	149.5	8.0	17.8
1989	09 01	23 54.81	-04 08.7					
1989	09 11	23 48.30	-04 55.2	2.696	3.695	171.6	2.3	17.4
1989	09 21	23 41.33	-05 42.0					
1989	10 01	23 34.48	-06 25.4	2.714	3.687	164.0	4.3	17.5
1989	10 11	23 28.35	-07 01.5					
1989	10 21	23 23.43	-07 27.7	2.845	3.677	141.5	9.7	17.9

1973 QG2 a,e,i = 3.05, 0.20, 3 Elements MPC 10829

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	00 06.25	-03 21.0	1.756	2.521	128.9	18.2	16.6
1989	08 12	00 05.99	-03 30.0					
1989	08 22	00 03.28	-03 52.7	1.580	2.501	148.9	12.1	16.1
1989	09 01	23 58.30	-04 26.5					
1989	09 11	23 51.57	-05 07.2	1.486	2.485	170.8	3.7	15.6
1989	09 21	23 43.97	-05 48.5					
1989	10 01	23 36.49	-06 24.0	1.493	2.472	164.4	6.2	15.8
1989	10 11	23 30.19	-06 48.1					
1989	10 21	23 25.86	-06 57.0	1.599	2.463	142.3	14.3	16.2

1952 QX a,e,i = 2.24, 0.17, 5 Elements MPC 11629

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	00 02.25	-07 14.5	1.105	1.931	131.2	23.3	16.1
1989	08 12	00 04.50	-07 57.7					
1989	08 22	00 03.44	-09 00.9	0.962	1.906	150.0	15.4	15.6
1989	09 01	23 59.16	-10 18.5					
1989	09 11	23 52.27	-11 40.3	0.889	1.886	168.5	6.1	15.0
1989	09 21	23 44.03	-12 52.9					
1989	10 01	23 36.01	-13 44.3	0.902	1.872	159.2	11.0	15.2
1989	10 11	23 29.79	-14 06.3					
1989	10 21	23 26.50	-13 56.7	0.994	1.862	138.8	20.6	15.7

1981 JS1 a,e,i = 2.31, 0.12, 5 Elements MPC 13447

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	00 16.15	+05 01.8	1.886	2.587	123.4	19.1	18.3
1989	08 12	00 14.12	+05 18.0					
1989	08 22	00 09.50	+05 18.2	1.702	2.588	143.9	13.3	17.9
1989	09 01	00 02.49	+05 01.8					
1989	09 11	23 53.64	+04 30.5	1.598	2.587	166.5	5.2	17.5
1989	09 21	23 43.84	+03 48.2					
1989	10 01	23 34.18	+03 00.5	1.599	2.584	166.9	5.0	17.5
1989	10 11	23 25.74	+02 14.0					
1989	10 21	23 19.39	+01 35.0	1.706	2.578	143.9	13.1	17.9

1980 EB a,e,i = 2.45, 0.09, 2 Elements MPC 12714

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	00 15.38	+00 46.0	1.868	2.590	125.3	18.6	18.3
1989	08 12	00 13.60	+00 39.0					
1989	08 22	00 09.30	+00 16.6	1.704	2.605	146.1	12.5	17.9
1989	09 01	00 02.71	-00 19.6					
1989	09 11	23 54.43	-01 05.9	1.623	2.619	169.4	4.1	17.5
1989	09 21	23 45.33	-01 56.7					
1989	10 01	23 36.44	-02 45.7	1.648	2.631	166.3	5.2	17.6
1989	10 11	23 28.78	-03 26.7					
1989	10 21	23 23.12	-03 55.2	1.779	2.642	143.0	13.1	18.0

1976 GU3 a,e,i = 3.19, 0.14, 2 Elements MPC 10613

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	00 11.51	-01 18.6	2.758	3.464	127.0	13.5	17.6
1989	08 12	00 09.17	-01 37.9					
1989	08 22	00 05.11	-02 07.5	2.585	3.483	147.9	8.9	17.3
1989	09 01	23 59.56	-02 45.3					
1989	09 11	23 52.93	-03 28.3	2.505	3.501	170.4	2.8	17.0
1989	09 21	23 45.80	-04 12.4					
1989	10 01	23 38.81	-04 53.6	2.539	3.518	165.8	4.0	17.1
1989	10 11	23 32.58	-05 28.0					
1989	10 21	23 27.64	-05 52.8	2.687	3.534	143.2	9.7	17.4

1982 SG12 a,e,i = 2.31, 0.12, 6 Elements MPC 13686

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	00 06.43	+04 42.1	1.469	2.220	125.7	21.8	18.0
1989	08 12	00 07.22	+04 29.5					
1989	08 22	00 05.21	+03 53.1	1.284	2.194	145.5	15.1	17.5
1989	09 01	00 00.49	+02 52.6					
1989	09 11	23 53.57	+01 31.2	1.173	2.169	168.4	5.4	16.9
1989	09 21	23 45.41	-00 03.4					
1989	10 01	23 37.24	-01 40.7	1.158	2.145	166.8	6.1	16.9
1989	10 11	23 30.39	-03 09.0					
1989	10 21	23 25.91	-04 19.0	1.239	2.123	143.5	16.2	17.4

1979 OB a,e,i = 2.22, 0.28, 6 Elements MPC 7020

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	23 52.39	+05 36.9	0.760	1.602	128.4	29.8	16.6
1989	08 12	23 57.79	+05 28.8					
1989	08 22	23 59.49	+04 43.3	0.679	1.621	146.3	20.3	16.1
1989	09 01	23 57.66	+03 22.0					
1989	09 11	23 53.15	+01 33.6	0.652	1.651	168.4	7.0	15.6
1989	09 21	23 47.45	-00 26.2					
1989	10 01	23 42.22	-02 19.1	0.700	1.692	167.8	7.2	15.8
1989	10 11	23 38.96	-03 49.3					
1989	10 21	23 38.56	-04 48.1	0.824	1.741	146.1	18.6	16.6

1982 TF2 a,e,i = 2.35, 0.17, 2 Elements MPC 11053

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 02	00 06.74	+02 48.5	1.165	1.947	126.5	24.8	16.8
1989	08 12	00 08.55	+03 17.1					
1989	08 22	00 07.13	+03 24.7	1.023	1.942	145.3	17.3	16.3
1989	09 01	00 02.57	+03 10.4					
1989	09 11	23 55.51	+02 36.7	0.947	1.942	167.4	6.5	15.8
1989	09 21	23 47.14	+01 49.9					
1989	10 01	23 38.93	+00 58.8	0.957	1.947	167.9	6.2	15.8
1989	10 11	23 32.40	+00 13.4					
1989	10 21	23 28.61	-00 18.2	1.054	1.958	145.6	16.7	16.4

1987 CG a,e,i = 2.88, 0.03, 2 Elements MPC 11981

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	08 02	00 14.08	+00 49.3	2.153	2.865	-0.93	-6.6	16.2
1989	08 12	00 12.60	+00 42.4					
1989	08 22	00 08.93	+00 22.1	1.975	2.871	-1.04	-7.3	15.9
1989	09 01	00 03.30	-00 10.4					
1989	09 11	23 56.18	-00 51.9	1.882	2.877	-1.11	-7.8	15.5
1989	09 21	23 48.31	-01 37.7					
1989	10 01	23 40.51	-02 22.6	1.897	2.883	-1.11	-7.7	15.5
1989	10 11	23 33.66	-03 01.2					
1989	10 21	23 28.45	-03 29.2	2.021	2.888	-1.02	-7.1	16.0

1981 EN12 a,e,i = 2.30, 0.13, 3 Elements MPC 10770

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 13.00	+05 49.4	1.579	2.462	142.8	14.4	18.7
1989	09 01	00 06.49	+05 14.7					
1989	09 11	23 58.11	+04 23.3	1.496	2.484	165.8	5.7	18.3
1989	09 21	23 48.78	+03 20.5					
1989	10 01	23 39.62	+02 13.4	1.516	2.505	168.2	4.7	18.3
1989	10 11	23 31.72	+01 10.0					
1989	10 21	23 25.94	+00 17.2	1.641	2.523	145.1	13.0	18.8
1989	10 31	23 22.72	-00 20.7					
1989	11 10	23 22.23	-00 41.6	1.850	2.539	124.0	18.9	19.2

1978 RJ2 a,e,i = 2.38, 0.21, 1 Elements MPC 13156

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 07.52	+01 46.2	1.066	1.986	145.9	16.6	16.9
1989	09 01	00 03.34	+01 33.8					
1989	09 11	23 56.53	+01 04.2	0.957	1.953	168.0	6.2	16.3
1989	09 21	23 48.13	+00 23.1					
1989	10 01	23 39.56	-00 21.6	0.933	1.924	167.8	6.3	16.2
1989	10 11	23 32.44	-01 00.0					
1989	10 21	23 28.01	-01 24.2	0.997	1.901	145.0	17.5	16.7
1989	10 31	23 26.96	-01 29.6					
1989	11 10	23 29.48	-01 14.1	1.128	1.884	125.5	25.3	17.2

1981 EG36 a,e,i = 3.16, 0.05, 5 Elements MPC 10622

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 06.88	+00 51.7	2.123	3.018	146.4	10.7	17.6
1989	09 01	00 02.12	+00 04.0					
1989	09 11	23 56.00	-00 53.2	2.021	3.015	169.0	3.7	17.2
1989	09 21	23 49.17	-01 55.1					
1989	10 01	23 42.36	-02 55.9	2.028	3.013	167.5	4.1	17.3
1989	10 11	23 36.36	-03 50.0					
1989	10 21	23 31.80	-04 32.9	2.144	3.012	144.7	11.0	17.7
1989	10 31	23 29.10	-05 01.8					
1989	11 10	23 28.49	-05 15.3	2.348	3.011	123.7	15.9	18.0

1964 TG2 a,e,i = 2.60, 0.16, 3 Elements MPC 10391

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 10.26	+02 30.3	1.443	2.344	145.0	14.3	16.9
1989	09 01	00 05.13	+02 14.0					
1989	09 11	23 57.85	+01 43.3	1.322	2.315	167.4	5.5	16.3
1989	09 21	23 49.30	+01 02.8					
1989	10 01	23 40.62	+00 18.7	1.299	2.289	168.2	5.1	16.2
1989	10 11	23 33.05	-00 21.2					
1989	10 21	23 27.62	-00 50.6	1.375	2.265	145.1	14.6	16.7
1989	10 31	23 24.96	-01 05.1					
1989	11 10	23 25.31	-01 02.5	1.528	2.243	124.6	21.3	17.1

1986 WL1 a,e,i = 2.29, 0.06, 6 Elements MPC 11640

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 20.77	-07 01.9	1.382	2.288	145.4	14.5	16.7
1989	09 01	00 14.66	-07 42.6					
1989	09 11	00 06.14	-08 27.7	1.284	2.275	166.7	5.8	16.2
1989	09 21	23 56.18	-09 09.4					
1989	10 01	23 46.06	-09 40.1	1.284	2.263	163.9	7.0	16.3
1989	10 11	23 37.14	-09 53.5					
1989	10 21	23 30.51	-09 46.9	1.381	2.250	141.9	15.8	16.7
1989	10 31	23 26.79	-09 20.3					
1989	11 10	23 26.20	-08 35.2	1.553	2.238	121.7	22.1	17.1

1985 KC a,e,i = 2.20, 0.03, 6 Elements MPC 10042

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 22.98	+03 39.3	1.288	2.173	141.6	16.8	17.5
1989	09 01	00 16.69	+03 37.9					
1989	09 11	00 07.84	+03 20.7	1.193	2.180	164.4	7.1	17.0
1989	09 21	23 57.48	+02 51.7					
1989	10 01	23 46.96	+02 17.0	1.194	2.187	170.1	4.5	16.9
1989	10 11	23 37.75	+01 44.5					
1989	10 21	23 30.97	+01 20.7	1.293	2.194	146.6	14.5	17.5
1989	10 31	23 27.25	+01 10.0					
1989	11 10	23 26.79	+01 15.1	1.470	2.201	125.7	21.4	18.0

1981 ER14 a,e,i = 2.34, 0.22, 9 Elements MPC 10821

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 24.73	+10 17.4	1.052	1.927	138.1	20.5	16.4
1989	09 01	00 18.44	+11 09.1					
1989	09 11	00 09.30	+11 35.4	0.994	1.966	158.7	10.7	16.0
1989	09 21	23 58.60	+11 37.0					
1989	10 01	23 47.98	+11 18.1	1.020	2.009	167.2	6.3	16.0
1989	10 11	23 39.05	+10 47.4					
1989	10 21	23 33.00	+10 14.8	1.138	2.055	148.7	14.6	16.6
1989	10 31	23 30.32	+09 48.2					
1989	11 10	23 31.09	+09 33.3	1.332	2.103	129.2	21.4	17.2

1982 WB a,e,i = 2.36, 0.21, 4 Elements MPC 10625

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 16.66	+09 37.6	1.277	2.153	140.1	17.5	17.5
1989	09 01	00 12.56	+09 40.3					
1989	09 11	00 05.83	+09 19.3	1.131	2.108	160.9	9.0	16.9
1989	09 21	23 57.28	+08 36.1					
1989	10 01	23 48.12	+07 35.7	1.072	2.065	169.3	5.2	16.6
1989	10 11	23 39.86	+06 27.4					
1989	10 21	23 33.84	+05 22.0	1.109	2.024	148.3	15.0	17.0
1989	10 31	23 30.90	+04 28.6					
1989	11 10	23 31.47	+03 53.8	1.221	1.987	127.7	23.2	17.4

4059 T-3 a,e,i = 2.55, 0.07, 4 Elements MPC 12702

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 26.43	-03 48.3	1.686	2.569	143.3	13.6	16.9
1989	09 01	00 20.94	-04 31.8					
1989	09 11	00 13.44	-05 22.0	1.597	2.584	165.4	5.6	16.5
1989	09 21	00 04.74	-06 12.7					
1989	10 01	23 55.85	-06 57.1	1.611	2.598	167.5	4.8	16.5
1989	10 11	23 47.81	-07 29.4					
1989	10 21	23 41.53	-07 45.7	1.731	2.612	145.3	12.5	16.9
1989	10 31	23 37.53	-07 44.8					
1989	11 10	23 36.10	-07 26.9	1.935	2.625	124.4	18.1	17.4

1981 EX6 a,e,i = 3.21, 0.16, 17 Elements MPC 8676

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 28.68	+09 47.2	1.869	2.703	137.5	14.6	17.2
1989	09 01	00 22.93	+10 33.0					
1989	09 11	00 15.15	+11 04.7	1.745	2.705	158.1	8.0	16.9
1989	09 21	00 06.03	+11 22.2					
1989	10 01	23 56.51	+11 26.9	1.722	2.710	168.6	4.2	16.7
1989	10 11	23 47.66	+11 22.3					
1989	10 21	23 40.40	+11 13.5	1.806	2.718	150.6	10.4	17.0
1989	10 31	23 35.38	+11 05.3					
1989	11 10	23 32.95	+11 02.3	1.984	2.728	130.0	16.1	17.4

6575 P-L a,e,i = 3.22, 0.13, 5 Elements MPC 12583

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 26.24	-00 44.7	2.457	3.317	142.5	10.7	17.1
1989	09 01	00 21.52	-01 10.1					
1989	09 11	00 15.31	-01 42.7	2.312	3.293	164.6	4.7	16.8
1989	09 21	00 08.10	-02 18.8					
1989	10 01	00 00.55	-02 54.4	2.276	3.269	171.3	2.7	16.6
1989	10 11	23 53.39	-03 25.1					
1989	10 21	23 47.30	-03 47.4	2.354	3.245	148.5	9.2	17.0
1989	10 31	23 42.79	-03 58.8					
1989	11 10	23 40.21	-03 57.7	2.527	3.220	126.9	14.2	17.3

7607 P-L a,e,i = 2.36, 0.21, 3 Elements MPC 8386

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 30.21	-02 31.8	1.366	2.251	142.1	16.0	18.7
1989	09 01	00 26.47	-03 20.8					
1989	09 11	00 20.03	-04 22.8	1.220	2.204	163.7	7.4	18.1
1989	09 21	00 11.61	-05 30.7					
1989	10 01	00 02.27	-06 35.1	1.167	2.158	168.8	5.2	17.9
1989	10 11	23 53.44	-07 26.4					
1989	10 21	23 46.42	-07 57.2	1.212	2.113	146.2	15.2	18.3
1989	10 31	23 42.14	-08 04.1					
1989	11 10	23 41.11	-07 46.5	1.332	2.070	125.4	23.0	18.7

1979 SL11 a,e,i = 2.98, 0.29, 17 Elements MPC 9417

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 40.74	-15 08.6	1.448	2.325	141.3	15.8	15.9
1989	09 01	00 33.77	-15 20.2					
1989	09 11	00 24.42	-15 25.4	1.406	2.376	159.9	8.4	15.6
1989	09 21	00 13.77	-15 17.6					
1989	10 01	00 03.09	-14 52.7	1.461	2.430	161.3	7.6	15.7
1989	10 11	23 53.65	-14 09.2					
1989	10 21	23 46.39	-13 08.5	1.617	2.487	143.2	13.9	16.2
1989	10 31	23 41.80	-11 53.9					
1989	11 10	23 40.01	-10 28.4	1.857	2.545	123.9	18.8	16.7

9515 P-L a,e,i = 2.58, 0.09, 4 Elements MPC 13154

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 33.26	-01 49.1	1.516	2.390	141.1	15.4	18.0
1989	09 01	00 29.12	-02 21.1					
1989	09 11	00 22.59	-03 03.2	1.396	2.377	163.0	7.1	17.6
1989	09 21	00 14.39	-03 49.6					
1989	10 01	00 05.55	-04 33.2	1.372	2.366	170.9	3.8	17.4
1989	10 11	23 57.29	-05 07.0					
1989	10 21	23 50.69	-05 25.5	1.449	2.356	148.5	12.8	17.8
1989	10 31	23 46.50	-05 26.1					
1989	11 10	23 45.10	-05 08.2	1.611	2.348	127.5	19.6	18.3

1986 EE5 a,e,i = 3.13, 0.16, 1 Elements MPC 12455

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 31.22	+02 40.9	2.546	3.384	140.1	11.1	17.8
1989	09 01	00 26.96	+02 09.6					
1989	09 11	00 21.20	+01 28.7	2.385	3.358	162.2	5.3	17.4
1989	09 21	00 14.39	+00 41.3					
1989	10 01	00 07.13	-00 08.4	2.333	3.331	174.3	1.7	17.1
1989	10 11	00 00.14	-00 55.8					
1989	10 21	23 54.07	-01 36.4	2.397	3.303	151.0	8.4	17.5
1989	10 31	23 49.46	-02 06.8					
1989	11 10	23 46.69	-02 24.7	2.559	3.274	129.0	13.6	17.8

1979 QM1 a,e,i = 2.87, 0.12, 1 Elements MPC 11996

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 33.80	+04 10.2	1.694	2.544	138.9	15.1	16.9
1989	09 01	00 30.07	+03 43.2					
1989	09 11	00 24.25	+03 02.1	1.581	2.554	160.9	7.4	16.5
1989	09 21	00 17.01	+02 11.0					
1989	10 01	00 09.24	+01 15.8	1.566	2.566	175.4	1.8	16.2
1989	10 11	00 01.96	+00 23.7					
1989	10 21	23 56.10	-00 19.2	1.658	2.579	152.0	10.5	16.7
1989	10 31	23 52.30	-00 48.5					
1989	11 10	23 50.93	-01 01.5	1.839	2.594	130.5	16.9	17.2

1988 FJ a,e,i = 1.95, 0.08, 19 Elements MPC 13171

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 54.35	-00 31.9	1.252	2.098	135.7	19.7	17.0
1989	09 01	00 46.89	+00 11.4					
1989	09 11	00 35.76	+00 47.8	1.118	2.089	159.0	10.0	16.4
1989	09 21	00 21.84	+01 19.2					
1989	10 01	00 06.64	+01 47.9	1.080	2.079	174.9	2.5	16.0
1989	10 11	23 52.13	+02 17.3					
1989	10 21	23 40.07	+02 50.8	1.147	2.066	149.2	14.3	16.6
1989	10 31	23 31.58	+03 31.1					
1989	11 10	23 27.13	+04 20.3	1.299	2.052	126.8	22.7	17.1

6214 P-L a,e,i = 2.36, 0.11, 4 Elements MPC 14629

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 37.77	+09 24.0	1.507	2.340	135.7	17.6	18.5
1989	09 01	00 34.45	+09 04.9					
1989	09 11	00 28.57	+08 24.1	1.353	2.314	157.3	9.7	18.0
1989	09 21	00 20.74	+07 23.9					
1989	10 01	00 11.92	+06 09.6	1.289	2.288	175.1	2.1	17.6
1989	10 11	00 03.38	+04 50.1					
1989	10 21	23 56.33	+03 35.2	1.329	2.263	153.3	11.4	18.0
1989	10 31	23 51.68	+02 33.3					
1989	11 10	23 49.95	+01 50.0	1.457	2.238	131.4	19.4	18.4

1980 VX1 a,e,i = 2.79, 0.21, 7 Elements MPC 11747

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 42.26	+03 56.0	1.819	2.651	137.1	15.1	17.4
1989	09 01	00 38.22	+03 57.8					
1989	09 11	00 31.85	+03 47.6	1.643	2.607	158.9	8.0	17.0
1989	09 21	00 23.68	+03 27.8					
1989	10 01	00 14.50	+03 01.8	1.564	2.564	177.0	1.2	16.5
1989	10 11	00 05.41	+02 35.1					
1989	10 21	23 57.48	+02 13.1	1.593	2.522	153.2	10.3	16.9
1989	10 31	23 51.59	+02 00.4					
1989	11 10	23 48.31	+02 00.7	1.715	2.480	131.0	17.5	17.3

A909 TF a,e,i = 2.61, 0.17, 13 Elements MPC 14340

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 50.26	-02 17.3	1.601	2.442	137.2	16.3	15.7
1989	09 01	00 44.42	-02 16.9					
1989	09 11	00 36.11	-02 23.5	1.511	2.479	159.5	8.2	15.4
1989	09 21	00 26.12	-02 32.7					
1989	10 01	00 15.54	-02 40.1	1.519	2.516	173.8	2.5	15.1
1989	10 11	00 05.58	-02 41.0					
1989	10 21	23 57.30	-02 32.1	1.635	2.554	151.3	10.8	15.7
1989	10 31	23 51.40	-02 11.7					
1989	11 10	23 48.22	-01 39.4	1.845	2.591	129.6	17.1	16.2

1987 DD a,e,i = 2.63, 0.10, 30 Elements MPC 14620

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	08 22	00 52.78	-42 51.8	1.875	2.660	-1.64	-9.9	16.8
1989	09 01	00 47.69	-44 47.1					
1989	09 11	00 39.53	-46 18.7	1.832	2.639	-1.80	-9.1	16.7
1989	09 21	00 29.16	-47 16.1					
1989	10 01	00 17.87	-47 32.5	1.863	2.617	-1.79	-7.3	16.7
1989	10 11	00 07.19	-47 05.7					
1989	10 21	23 58.48	-45 58.8	1.960	2.595	-1.60	-5.6	16.9
1989	10 31	23 52.56	-44 17.9					
1989	11 10	23 49.80	-42 10.2	2.108	2.573	-1.35	-4.9	17.1

(3822) Segovia a,e,i = 2.27, 0.12, 3 Elements MPC 13055

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 56.34	+07 35.0	1.486	2.293	132.4	19.0	17.0
1989	09 01	00 52.35	+07 27.3					
1989	09 11	00 45.58	+07 01.6	1.370	2.319	154.4	10.8	16.6
1989	09 21	00 36.71	+06 20.7					
1989	10 01	00 26.75	+05 29.5	1.344	2.345	177.4	1.1	16.1
1989	10 11	00 17.02	+04 35.7					
1989	10 21	00 08.74	+03 47.1	1.423	2.369	156.4	9.7	16.7
1989	10 31	00 02.78	+03 09.9					
1989	11 10	23 59.65	+02 48.5	1.596	2.393	134.0	17.3	17.2

(3851) Alhambra a,e,i = 2.17, 0.06, 5 Elements MPC 13299

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 57.88	+07 48.8	1.343	2.155	132.0	20.4	17.0
1989	09 01	00 55.04	+08 04.6					
1989	09 11	00 49.03	+08 02.4	1.193	2.140	153.2	12.3	16.5
1989	09 21	00 40.37	+07 43.2					
1989	10 01	00 30.03	+07 09.9	1.126	2.125	175.6	2.1	15.9
1989	10 11	00 19.48	+06 29.3					
1989	10 21	00 10.25	+05 49.6	1.158	2.111	157.3	10.5	16.3
1989	10 31	00 03.55	+05 18.6					
1989	11 10	00 00.10	+05 02.3	1.279	2.098	134.8	19.6	16.8

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 54.88	+03 19.8	0.918	1.779	134.4	24.0	16.8
1989	09 01	00 54.23	+04 02.9					
1989	09 11	00 49.82	+04 30.6	0.820	1.782	154.5	14.1	16.2
1989	09 21	00 42.31	+04 44.4					
1989	10 01	00 32.95	+04 47.9	0.793	1.793	177.5	1.4	15.6
1989	10 11	00 23.57	+04 47.4					
1989	10 21	00 15.98	+04 50.2	0.850	1.813	158.4	11.7	16.3
1989	10 31	00 11.41	+05 02.0					
1989	11 10	00 10.48	+05 26.8	0.985	1.840	137.4	21.4	16.9

1984 HC2 a,e,i = 2.37, 0.06, 5 Elements MPC 13297

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 00.20	-00 57.0	1.518	2.341	134.4	18.0	16.6
1989	09 01	00 57.99	-01 46.2					
1989	09 11	00 53.02	-02 48.8	1.373	2.327	155.4	10.4	16.1
1989	09 21	00 45.76	-03 58.8					
1989	10 01	00 37.04	-05 08.1	1.318	2.313	171.6	3.6	15.7
1989	10 11	00 28.05	-06 07.4					
1989	10 21	00 20.05	-06 48.9	1.364	2.299	153.6	11.1	16.1
1989	10 31	00 14.05	-07 08.3					
1989	11 10	00 10.73	-07 04.2	1.501	2.286	132.2	18.7	16.5

1988 JW a,e,i = 2.62, 0.30, 14 Elements MPC 13451

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 05.58	-12 35.4	1.884	2.698	135.2	15.3	17.8
1989	09 01	01 01.36	-14 03.1					
1989	09 11	00 54.85	-15 30.8	1.822	2.758	153.2	9.5	17.6
1989	09 21	00 46.68	-16 50.0					
1989	10 01	00 37.68	-17 52.7	1.858	2.815	159.1	7.3	17.6
1989	10 11	00 28.85	-18 33.1					
1989	10 21	00 21.11	-18 48.7	1.999	2.871	144.9	11.5	17.9
1989	10 31	00 15.15	-18 40.1					
1989	11 10	00 11.38	-18 10.0	2.230	2.924	126.0	15.9	18.3

1981 SC7 a,e,i = 2.53, 0.24, 9 Elements MPC 10836

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 59.62	-06 11.5	1.131	1.986	135.8	20.8	16.2
1989	09 01	00 58.70	-06 16.4					
1989	09 11	00 54.36	-06 27.1	0.999	1.959	155.2	12.5	15.6
1989	09 21	00 47.07	-06 36.9					
1989	10 01	00 37.83	-06 38.2	0.944	1.938	170.1	5.1	15.2
1989	10 11	00 28.19	-06 23.6					
1989	10 21	00 19.84	-05 48.7	0.979	1.925	154.2	13.0	15.5
1989	10 31	00 14.05	-04 52.8					
1989	11 10	00 11.62	-03 37.4	1.094	1.919	134.0	21.8	16.0

1986 WB1 a,e,i = 2.24, 0.12, 4 Elements MPC 12001

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 03.91	+12 12.5	1.638	2.405	128.8	19.1	17.8
1989	09 01	01 01.53	+12 10.4					
1989	09 11	00 56.36	+11 47.9	1.460	2.384	149.7	12.3	17.4
1989	09 21	00 48.79	+11 05.0					
1989	10 01	00 39.58	+10 04.4	1.366	2.362	172.1	3.3	16.8
1989	10 11	00 29.89	+08 52.2					
1989	10 21	00 21.00	+07 37.3	1.377	2.338	160.2	8.3	17.0
1989	10 31	00 14.03	+06 28.9					
1989	11 10	00 09.75	+05 34.5	1.486	2.313	137.3	16.9	17.5

1987 BB2 a,e,i = 2.30, 0.18, 2 Elements MPC 12207

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 02.01	+09 17.8	1.515	2.304	130.4	19.5	18.1
1989	09 01	01 00.45	+09 12.3					
1989	09 11	00 56.00	+08 46.9	1.327	2.262	151.3	12.3	17.5
1989	09 21	00 48.97	+08 02.3					
1989	10 01	00 40.09	+07 01.6	1.221	2.220	174.7	2.4	16.9
1989	10 11	00 30.53	+05 51.9					
1989	10 21	00 21.71	+04 42.7	1.216	2.178	159.7	9.1	17.2
1989	10 31	00 14.85	+03 43.2					
1989	11 10	00 10.85	+03 00.9	1.305	2.136	136.6	18.6	17.6

1981 DG3 a,e,i = 3.20, 0.09, 15 Elements MPC 11837

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 05.54	+20 38.0	2.748	3.422	124.3	14.1	17.1
1989	09 01	01 01.80	+21 13.3					
1989	09 11	00 56.20	+21 34.2	2.568	3.432	143.7	10.0	16.8
1989	09 21	00 49.10	+21 39.5					
1989	10 01	00 41.02	+21 28.8	2.479	3.442	161.1	5.4	16.5
1989	10 11	00 32.68	+21 03.8					
1989	10 21	00 24.85	+20 27.9	2.502	3.451	159.3	5.9	16.6
1989	10 31	00 18.20	+19 45.9					
1989	11 10	00 13.26	+19 03.0	2.634	3.459	140.8	10.4	16.9

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 02.95	+06 06.8	1.825	2.608	131.5	16.9	17.2
1989	09 01	01 01.02	+05 59.2					
1989	09 11	00 56.72	+05 37.7	1.662	2.596	152.5	10.3	16.8
1989	09 21	00 50.43	+05 04.4					
1989	10 01	00 42.82	+04 23.0	1.587	2.587	175.7	1.7	16.3
1989	10 11	00 34.84	+03 39.1					
1989	10 21	00 27.52	+02 59.2	1.620	2.579	160.5	7.4	16.6
1989	10 31	00 21.74	+02 28.6					
1989	11 10	00 18.17	+02 11.6	1.751	2.574	138.0	14.9	17.0

1981 EE37 a,e,i = 2.28, 0.18, 5 Elements MPC 9752

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 06.96	+03 12.2	1.041	1.872	131.6	23.8	16.1
1989	09 01	01 06.20	+03 29.5					
1989	09 11	01 01.77	+03 30.9	0.937	1.886	152.0	14.5	15.7
1989	09 21	00 54.23	+03 19.5					
1989	10 01	00 44.68	+03 00.2	0.905	1.905	175.5	2.4	15.1
1989	10 11	00 34.77	+02 40.8					
1989	10 21	00 26.23	+02 28.8	0.963	1.929	160.0	10.2	15.6
1989	10 31	00 20.32	+02 29.8					
1989	11 10	00 17.76	+02 47.1	1.105	1.958	138.2	19.7	16.2

1984 FM a,e,i = 2.35, 0.23, 24 Elements MPC 11623

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 22.08	-11 21.1	2.126	2.893	131.1	15.3	18.7
1989	09 01	01 16.72	-11 50.0					
1989	09 11	01 08.80	-12 20.2	1.964	2.885	150.9	9.8	18.3
1989	09 21	00 58.75	-12 45.8					
1989	10 01	00 47.32	-13 00.9	1.900	2.874	163.3	5.7	18.1
1989	10 11	00 35.52	-13 00.2					
1989	10 21	00 24.48	-12 40.8	1.952	2.859	150.2	10.0	18.3
1989	10 31	00 15.10	-12 02.7					
1989	11 10	00 08.06	-11 07.3	2.108	2.842	129.5	15.6	18.6

1981 EA7 a,e,i = 2.26, 0.22, 6 Elements MPC 10380

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	00 59.02	+17 29.7	0.970	1.775	127.2	27.0	17.2
1989	09 01	01 00.95	+18 35.7					
1989	09 11	00 59.28	+19 12.7	0.852	1.772	144.8	19.1	16.7
1989	09 21	00 54.33	+19 16.1					
1989	10 01	00 47.02	+18 44.2	0.795	1.778	163.4	9.3	16.3
1989	10 11	00 38.96	+17 41.8					
1989	10 21	00 31.98	+16 20.8	0.817	1.791	162.4	9.7	16.4
1989	10 31	00 27.54	+14 56.0					
1989	11 10	00 26.55	+13 41.5	0.918	1.812	143.3	19.0	17.0

1979 YV8 a,e,i = 3.15, 0.14, 2 Elements MPC 10632

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 07.82	+05 52.4	2.624	3.370	130.4	13.2	17.9
1989	09 01	01 05.09	+05 35.7					
1989	09 11	01 00.56	+05 08.6	2.425	3.346	151.7	8.2	17.5
1989	09 21	00 54.52	+04 32.8					
1989	10 01	00 47.45	+03 51.2	2.324	3.322	174.7	1.6	17.1
1989	10 11	00 39.99	+03 07.8					
1989	10 21	00 32.88	+02 27.3	2.338	3.297	161.5	5.5	17.3
1989	10 31	00 26.77	+01 53.6					
1989	11 10	00 22.22	+01 30.1	2.461	3.271	138.7	11.5	17.6

1964 YJ a,e,i = 3.01, 0.04, 11 Elements MPC 13480

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 10.42	-07 20.9	2.354	3.136	133.4	13.6	16.6
1989	09 01	01 07.95	-08 23.8					
1989	09 11	01 03.53	-09 32.3	2.208	3.136	152.6	8.5	16.3
1989	09 21	00 57.51	-10 40.7					
1989	10 01	00 50.41	-11 42.9	2.160	3.135	164.3	5.0	16.1
1989	10 11	00 42.98	-12 33.0					
1989	10 21	00 35.98	-13 06.3	2.222	3.134	151.6	8.7	16.3
1989	10 31	00 30.12	-13 20.5					
1989	11 10	00 25.92	-13 15.2	2.384	3.132	131.8	13.6	16.7

(3836) 1979 SR9 a,e,i = 2.24, 0.15, 2 Elements MPC 13168

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 16.79	+04 39.7	1.329	2.115	128.8	21.9	17.0
1989	09 01	01 14.95	+04 18.8					
1989	09 11	01 09.87	+03 40.6	1.217	2.148	150.0	13.6	16.6
1989	09 21	01 02.08	+02 49.4					
1989	10 01	00 52.51	+01 51.5	1.185	2.182	173.4	3.0	16.1
1989	10 11	00 42.52	+00 55.6					
1989	10 21	00 33.53	+00 10.2	1.253	2.216	160.5	8.6	16.5
1989	10 31	00 26.65	-00 18.8					
1989	11 10	00 22.58	-00 28.2	1.415	2.250	137.9	17.2	17.1

1976 QE1 a,e,i = 3.39, 0.20, 18 Elements MPC 11638

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 15.58	+17 03.2	3.178	3.836	124.0	12.6	17.1
1989	09 01	01 11.87	+17 28.5					
1989	09 11	01 06.52	+17 42.6	2.997	3.860	144.4	8.7	16.8
1989	09 21	00 59.82	+17 45.0					
1989	10 01	00 52.21	+17 36.0	2.909	3.882	164.0	4.1	16.6
1989	10 11	00 44.28	+17 17.2					
1989	10 21	00 36.66	+16 51.2	2.939	3.903	163.3	4.2	16.6
1989	10 31	00 29.92	+16 21.7					
1989	11 10	00 24.54	+15 52.5	3.084	3.922	143.2	8.7	16.9

1978 TP6 a,e,i = 3.12, 0.20, 4 Elements MPC 12325

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 12.54	+11 10.3	2.308	3.030	127.3	15.4	17.7
1989	09 01	01 10.51	+11 18.8					
1989	09 11	01 06.36	+11 14.3	2.089	2.990	147.9	10.3	17.3
1989	09 21	01 00.35	+10 56.9					
1989	10 01	00 52.94	+10 28.0	1.960	2.951	170.0	3.4	16.8
1989	10 11	00 44.88	+09 50.6					
1989	10 21	00 37.05	+09 09.5	1.940	2.912	164.4	5.3	16.8
1989	10 31	00 30.28	+08 29.9					
1989	11 10	00 25.29	+07 57.1	2.029	2.873	141.7	12.3	17.2

1988 EN a,e,i = 2.43, 0.23, 5 Elements MPC 13153

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 20.36	+05 16.4	1.663	2.418	127.7	19.3	17.4
1989	09 01	01 17.99	+04 32.1					
1989	09 11	01 12.92	+03 31.9	1.550	2.470	149.3	12.0	17.1
1989	09 21	01 05.63	+02 20.4					
1989	10 01	00 56.88	+01 03.9	1.524	2.519	172.2	3.1	16.7
1989	10 11	00 47.76	-00 09.4					
1989	10 21	00 39.39	-01 11.8	1.606	2.568	160.9	7.3	17.0
1989	10 31	00 32.65	-01 57.7					
1989	11 10	00 28.18	-02 24.1	1.791	2.614	138.3	14.6	17.6

1931 TR1 a,e,i = 2.58, 0.16, 13 Elements MPC 13305

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 14.88	+14 52.3	1.700	2.428	125.2	19.9	16.5
1989	09 01	01 13.78	+14 15.6					
1989	09 11	01 10.06	+13 15.6	1.561	2.461	146.1	13.2	16.1
1989	09 21	01 04.14	+11 54.0					
1989	10 01	00 56.72	+10 15.3	1.504	2.495	169.5	4.2	15.7
1989	10 11	00 48.80	+08 27.7					
1989	10 21	00 41.48	+06 41.3	1.555	2.529	165.0	5.8	15.9
1989	10 31	00 35.66	+05 05.4					
1989	11 10	00 32.00	+03 47.4	1.711	2.564	141.8	13.8	16.4

1981 EY35 a,e,i = 2.28, 0.14, 4 Elements MPC 10542

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 25.84	+09 13.0	1.737	2.461	125.1	19.7	18.5
1989	09 01	01 23.37	+09 15.0					
1989	09 11	01 18.08	+09 01.2	1.584	2.485	146.3	13.0	18.1
1989	09 21	01 10.32	+08 32.8					
1989	10 01	01 00.80	+07 52.6	1.515	2.508	170.1	3.9	17.7
1989	10 11	00 50.59	+07 05.7					
1989	10 21	00 40.90	+06 18.9	1.554	2.528	164.8	5.9	17.9
1989	10 31	00 32.79	+05 38.6					
1989	11 10	00 27.04	+05 10.1	1.698	2.546	141.2	14.1	18.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 19.54	+13 15.3	2.377	3.069	124.9	15.7	17.1
1989	09 01	01 17.55	+13 25.8					
1989	09 11	01 13.43	+13 22.8	2.167	3.049	145.3	10.8	16.7
1989	09 21	01 07.44	+13 06.1					
1989	10 01	01 00.03	+12 36.8	2.045	3.029	167.2	4.2	16.3
1989	10 11	00 51.93	+11 57.6					
1989	10 21	00 43.99	+11 12.9	2.032	3.008	166.2	4.5	16.3
1989	10 31	00 37.02	+10 28.1					
1989	11 10	00 31.73	+09 48.5	2.131	2.987	143.7	11.3	16.6

(3883) 1972 RQ a,e,i = 2.61, 0.12, 13 Elements MPC 13473

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 13.57	+04 05.4	1.512	2.295	129.7	19.8	15.7
1989	09 01	01 13.95	+02 47.3					
1989	09 11	01 11.61	+01 08.7	1.371	2.300	150.2	12.6	15.2
1989	09 21	01 06.88	-00 44.3					
1989	10 01	01 00.40	-02 42.6	1.316	2.308	169.9	4.4	14.9
1989	10 11	00 53.19	-04 34.4					
1989	10 21	00 46.41	-06 08.5	1.363	2.319	158.7	9.0	15.1
1989	10 31	00 41.06	-07 17.4					
1989	11 10	00 37.91	-07 57.4	1.505	2.332	137.3	16.7	15.6

1987 FF1 a,e,i = 2.59, 0.14, 14 Elements MPC 12002

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 21.72	-13 30.6	1.795	2.578	131.4	17.1	17.1
1989	09 01	01 20.46	-14 51.1					
1989	09 11	01 16.51	-16 16.4	1.637	2.548	148.0	12.1	16.7
1989	09 21	01 10.13	-17 38.0					
1989	10 01	01 01.92	-18 46.3	1.567	2.518	156.7	9.1	16.5
1989	10 11	00 52.85	-19 31.7					
1989	10 21	00 44.07	-19 48.4	1.594	2.488	146.8	12.7	16.6
1989	10 31	00 36.67	-19 34.2					
1989	11 10	00 31.46	-18 50.9	1.709	2.458	129.2	18.2	16.9

1981 EH26 a,e,i = 3.08, 0.28, 2 Elements MPC 8288

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 11.92	+04 52.2	1.473	2.259	129.8	20.1	16.5
1989	09 01	01 12.97	+04 38.8					
1989	09 11	01 11.30	+04 09.2	1.314	2.241	149.5	13.2	16.0
1989	09 21	01 07.15	+03 26.1					
1989	10 01	01 01.11	+02 34.5	1.234	2.229	171.4	3.9	15.5
1989	10 11	00 54.16	+01 41.9					
1989	10 21	00 47.52	+00 56.4	1.251	2.224	163.8	7.2	15.7
1989	10 31	00 42.27	+00 25.0					
1989	11 10	00 39.28	+00 12.2	1.361	2.226	141.9	15.9	16.2

(3857) Cellino a,e,i = 2.39, 0.16, 3 Elements MPC 13308

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 28.67	+06 07.3	1.935	2.653	125.5	18.1	17.9
1989	09 01	01 26.28	+05 51.0					
1989	09 11	01 21.32	+05 21.3	1.777	2.677	146.8	11.9	17.5
1989	09 21	01 14.12	+04 40.4					
1989	10 01	01 05.30	+03 52.1	1.705	2.698	170.3	3.6	17.1
1989	10 11	00 55.77	+03 02.1					
1989	10 21	00 46.60	+02 16.5	1.744	2.716	164.4	5.7	17.3
1989	10 31	00 38.73	+01 40.7					
1989	11 10	00 32.90	+01 18.8	1.891	2.733	141.0	13.2	17.7

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 18.86	+07 46.8	3.755	4.441	127.2	10.5	18.7
1989	09 01	01 16.61	+07 28.7					
1989	09 11	01 13.05	+07 02.6	3.554	4.442	148.2	6.9	18.4
1989	09 21	01 08.41	+06 29.9					
1989	10 01	01 03.00	+05 52.3	3.451	4.442	170.4	2.1	18.1
1989	10 11	00 57.22	+05 12.6					
1989	10 21	00 51.53	+04 33.7	3.467	4.441	166.6	3.0	18.2
1989	10 31	00 46.37	+03 58.4					
1989	11 10	00 42.13	+03 29.4	3.601	4.440	144.0	7.5	18.5

1981 EB1 a,e,i = 3.16, 0.08, 3 Elements MPC 12790

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	08 22	01 23.59	+05 58.4	2.656	3.361	126.7	14.0	18.5
1989	09 01	01 21.53	+05 35.9					
1989	09 11	01 17.64	+05 02.9	2.475	3.369	147.7	9.2	18.1
1989	09 21	01 12.16	+04 21.5					
1989	10 01	01 05.53	+03 34.6	2.386	3.377	170.3	2.9	17.8
1989	10 11	00 58.35	+02 46.5					
1989	10 21	00 51.32	+02 01.6	2.412	3.384	165.2	4.3	17.9
1989	10 31	00 45.09	+01 24.0					
1989	11 10	00 40.23	+00 57.0	2.551	3.391	142.5	10.2	18.3

1983 RO3 a,e,i = 3.15, 0.19, 2 Elements MPC 10038

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 22.99	+06 38.6	1.774	2.669	146.0	12.2	16.5
1989	09 21	01 18.26	+06 10.0					
1989	10 01	01 11.75	+05 32.3	1.656	2.645	168.4	4.4	16.0
1989	10 11	01 04.22	+04 50.1					
1989	10 21	00 56.63	+04 09.2	1.642	2.623	167.5	4.7	16.0
1989	10 31	00 49.94	+03 35.3					
1989	11 10	00 44.99	+03 13.4	1.733	2.603	144.6	12.7	16.4
1989	11 20	00 42.31	+03 06.4					
1989	11 30	00 42.12	+03 15.2	1.906	2.587	123.7	18.5	16.8

(3902) 1986 AL a,e,i = 3.21, 0.08, 16 Elements MPC 13601

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 30.10	+31 33.4	2.511	3.264	131.4	13.4	16.6
1989	09 21	01 24.48	+31 51.1					
1989	10 01	01 17.26	+31 48.1	2.382	3.279	148.7	9.1	16.4
1989	10 11	01 09.10	+31 23.4					
1989	10 21	01 00.85	+30 38.9	2.350	3.293	157.8	6.6	16.3
1989	10 31	00 53.36	+29 38.8					
1989	11 10	00 47.36	+28 29.4	2.427	3.307	147.8	9.2	16.5
1989	11 20	00 43.37	+27 17.8					
1989	11 30	00 41.60	+26 10.2	2.601	3.321	129.9	13.2	16.8

1978 UU1 a,e,i = 2.39, 0.23, 3 Elements MPC 12203

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 30.19	+04 00.0	0.938	1.855	145.0	18.1	16.0
1989	09 21	01 27.35	+03 11.5					
1989	10 01	01 21.61	+02 12.1	0.868	1.856	166.2	7.4	15.5
1989	10 11	01 14.11	+01 11.9					
1989	10 21	01 06.43	+00 21.9	0.881	1.864	166.9	7.0	15.5
1989	10 31	01 00.11	-00 08.6					
1989	11 10	00 56.39	-00 14.4	0.979	1.880	145.4	17.4	16.1
1989	11 20	00 55.85	+00 05.2					
1989	11 30	00 58.58	+00 47.8	1.144	1.903	126.4	24.6	16.7

1973 ST1 a,e,i = 3.95, 0.13, 3 Elements MPC 12940

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 32.25	+07 12.5	3.608	4.459	143.6	7.7	18.5
1989	09 21	01 28.05	+06 41.1					
1989	10 01	01 22.91	+06 04.8	3.478	4.455	165.6	3.2	18.2
1989	10 11	01 17.20	+05 26.1					
1989	10 21	01 11.37	+04 47.7	3.465	4.450	170.9	2.0	18.2
1989	10 31	01 05.86	+04 12.4					
1989	11 10	01 01.10	+03 42.9	3.571	4.445	148.4	6.7	18.4
1989	11 20	00 57.43	+03 21.3					
1989	11 30	00 55.07	+03 08.8	3.779	4.439	126.6	10.3	18.7

1985 CL a,e,i = 1.93, 0.10, 19 Elements MPC 14335

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 56.53	+22 12.3	0.969	1.806	132.1	24.5	15.6
1989	09 21	01 49.63	+25 09.8					
1989	10 01	01 37.69	+27 52.2	0.849	1.787	149.8	16.4	15.1
1989	10 11	01 21.56	+30 04.3					
1989	10 21	01 03.39	+31 33.6	0.810	1.770	157.2	12.6	14.8
1989	10 31	00 46.17	+32 16.7					
1989	11 10	00 32.76	+32 23.5	0.858	1.757	143.8	19.5	15.2
1989	11 20	00 24.79	+32 11.0					
1989	11 30	00 22.64	+31 54.4	0.972	1.747	126.3	27.1	15.6

1980 GF a,e,i = 2.41, 0.08, 2 Elements MPC 11852

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 41.65	+08 20.5	1.727	2.589	141.1	14.1	17.5
1989	09 21	01 36.32	+07 39.4					
1989	10 01	01 28.86	+06 46.8	1.609	2.586	164.0	6.1	17.0
1989	10 11	01 20.02	+05 47.6					
1989	10 21	01 10.85	+04 48.4	1.595	2.583	170.8	3.5	16.9
1989	10 31	01 02.42	+03 56.0					
1989	11 10	00 55.71	+03 16.5	1.690	2.578	147.0	12.1	17.3
1989	11 20	00 51.34	+02 53.4					
1989	11 30	00 49.59	+02 48.2	1.873	2.571	125.3	18.3	17.7

1982 SQ2 a,e,i = 2.30, 0.17, 6 Elements MPC 13311

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 41.09	+11 29.6	1.113	1.993	140.1	18.9	17.1
1989	09 21	01 37.25	+10 26.7					
1989	10 01	01 30.63	+09 04.0	1.044	2.023	162.9	8.4	16.6
1989	10 11	01 22.31	+07 30.1					
1989	10 21	01 13.77	+05 56.3	1.065	2.056	172.1	3.8	16.5
1989	10 31	01 06.40	+04 34.4					
1989	11 10	01 01.36	+03 33.3	1.183	2.092	148.4	14.4	17.2
1989	11 20	00 59.23	+02 57.2					
1989	11 30	01 00.13	+02 46.1	1.378	2.129	127.6	21.5	17.8

1979 XQ a,e,i = 2.26, 0.13, 4 Elements MPC 13589

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 43.86	+07 29.4	1.083	1.968	140.8	18.9	16.0
1989	09 21	01 39.51	+07 20.6					
1989	10 01	01 32.05	+06 59.0	0.994	1.973	163.2	8.4	15.5
1989	10 11	01 22.56	+06 29.9					
1989	10 21	01 12.57	+06 00.5	0.992	1.982	171.9	4.1	15.3
1989	10 31	01 03.72	+05 38.4					
1989	11 10	00 57.37	+05 30.2	1.083	1.995	148.3	15.1	15.9
1989	11 20	00 54.28	+05 39.3					
1989	11 30	00 54.63	+06 06.2	1.250	2.011	127.7	22.8	16.5

1981 EJ17 a,e,i = 2.20, 0.11, 6 Elements MPC 10617

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 41.45	+10 33.7	1.331	2.202	140.4	17.0	18.1
1989	09 21	01 37.50	+09 33.3					
1989	10 01	01 30.82	+08 13.2	1.198	2.175	163.2	7.7	17.6
1989	10 11	01 22.24	+06 39.6					
1989	10 21	01 13.01	+05 02.5	1.160	2.149	171.4	4.0	17.3
1989	10 31	01 04.52	+03 33.3					
1989	11 10	00 58.06	+02 22.3	1.222	2.123	147.1	14.7	17.8
1989	11 20	00 54.45	+01 35.7					
1989	11 30	00 54.04	+01 15.3	1.363	2.097	125.6	22.5	18.2

1978 TV8 a,e,i = 3.16, 0.18, 2 Elements MPC 12695

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 40.49	+09 33.9	1.996	2.849	140.9	12.9	16.9
1989	09 21	01 36.34	+09 13.3					
1989	10 01	01 30.28	+08 42.2	1.845	2.818	163.1	5.9	16.5
1989	10 11	01 22.92	+08 03.9					
1989	10 21	01 15.08	+07 22.8	1.798	2.788	173.1	2.5	16.2
1989	10 31	01 07.69	+06 44.2					
1989	11 10	01 01.61	+06 13.5	1.861	2.760	149.6	10.5	16.6
1989	11 20	00 57.50	+05 54.6					
1989	11 30	00 55.72	+05 49.7	2.015	2.734	127.9	16.5	17.0

1975 YE a,e,i = 2.88, 0.23, 14 Elements MPC 11346

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 37.04	+07 57.1	1.636	2.509	142.3	14.2	16.3
1989	09 21	01 34.16	+06 30.4					
1989	10 01	01 29.14	+04 47.2	1.486	2.464	164.3	6.3	15.7
1989	10 11	01 22.64	+02 54.6					
1989	10 21	01 15.57	+01 02.6	1.437	2.422	168.8	4.6	15.6
1989	10 31	01 08.99	-00 38.5					
1989	11 10	01 03.91	-01 59.6	1.495	2.382	146.1	13.4	15.9
1989	11 20	01 01.05	-02 55.5					
1989	11 30	01 00.78	-03 24.9	1.636	2.344	124.9	20.2	16.3

1981 ET13 a,e,i = 2.28, 0.22, 4 Elements MPC 10538

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 51.19	+17 49.7	1.874	2.684	135.2	15.3	18.7
1989	09 21	01 45.16	+17 34.7					
1989	10 01	01 36.92	+17 02.4	1.755	2.708	157.7	8.1	18.4
1989	10 11	01 27.24	+16 14.3					
1989	10 21	01 17.16	+15 15.0	1.738	2.728	172.6	2.7	18.1
1989	10 31	01 07.77	+14 10.9					
1989	11 10	01 00.06	+13 09.4	1.836	2.746	151.3	10.0	18.6
1989	11 20	00 54.65	+12 16.9					
1989	11 30	00 51.84	+11 37.8	2.030	2.760	129.0	16.1	19.0

1981 EG44 a,e,i = 3.07, 0.06, 10 Elements MPC 9964

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 48.10	+12 19.1	2.257	3.081	138.2	12.6	18.4
1989	09 21	01 43.11	+12 21.4					
1989	10 01	01 36.28	+12 13.8	2.109	3.070	160.4	6.3	18.0
1989	10 11	01 28.17	+11 57.8					
1989	10 21	01 19.58	+11 36.3	2.067	3.059	174.8	1.7	17.7
1989	10 31	01 11.35	+11 13.1					
1989	11 10	01 04.31	+10 52.5	2.140	3.048	151.7	8.8	18.1
1989	11 20	00 59.09	+10 38.4					
1989	11 30	00 56.04	+10 33.6	2.312	3.038	129.6	14.5	18.4

1979 UQ a,e,i = 2.24, 0.17, 3 Elements MPC 13165

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 43.53	+15 21.3	0.980	1.855	138.0	21.3	16.2
1989	09 21	01 41.61	+15 12.4					
1989	10 01	01 36.38	+14 38.0	0.879	1.849	159.2	11.1	15.7
1989	10 11	01 28.74	+13 41.3					
1989	10 21	01 20.24	+12 30.2	0.856	1.850	174.7	2.9	15.3
1989	10 31	01 12.58	+11 16.3					
1989	11 10	01 07.30	+10 12.3	0.922	1.856	152.3	14.4	15.9
1989	11 20	01 05.30	+09 27.1					
1989	11 30	01 06.85	+09 05.1	1.062	1.869	131.6	23.2	16.5

3524 P-L a,e,i = 2.57, 0.04, 14 Elements MPC 9299

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 54.99	+23 40.0	1.877	2.654	131.6	16.5	17.3
1989	09 21	01 49.26	+24 26.2					
1989	10 01	01 40.99	+24 54.3	1.736	2.660	151.6	10.3	16.9
1989	10 11	01 30.89	+25 01.8					
1989	10 21	01 20.04	+24 49.0	1.691	2.665	164.8	5.6	16.7
1989	10 31	01 09.66	+24 19.5					
1989	11 10	01 00.92	+23 39.6	1.756	2.669	151.7	10.1	16.9
1989	11 20	00 54.65	+22 57.4					
1989	11 30	00 51.25	+22 19.7	1.916	2.673	131.5	16.0	17.3

(3901) 1958 GQ a,e,i = 2.63, 0.28, 13 Elements MPC 13600

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 56.32	+15 27.5	2.273	3.070	135.1	13.4	17.0
1989	09 21	01 49.96	+15 32.7					
1989	10 01	01 41.71	+15 26.0	2.159	3.109	157.6	7.0	16.7
1989	10 11	01 32.21	+15 08.4					
1989	10 21	01 22.33	+14 42.7	2.153	3.144	173.9	1.9	16.5
1989	10 31	01 12.96	+14 12.7					
1989	11 10	01 04.94	+13 43.2	2.266	3.178	152.5	8.3	16.9
1989	11 20	00 58.83	+13 18.7					
1989	11 30	00 54.96	+13 02.3	2.482	3.208	130.2	13.6	17.3

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 57.19	+03 17.1	1.361	2.218	138.6	17.5	17.7
1989	09 21	01 51.85	+02 28.8					
1989	10 01	01 43.75	+01 33.3	1.279	2.248	160.7	8.5	17.3
1989	10 11	01 33.84	+00 37.9					
1989	10 21	01 23.41	-00 09.3	1.293	2.278	168.6	4.9	17.2
1989	10 31	01 13.83	-00 41.4					
1989	11 10	01 06.26	-00 53.9	1.410	2.306	147.2	13.5	17.7
1989	11 20	01 01.42	-00 45.7					
1989	11 30	00 59.54	-00 18.1	1.610	2.332	126.1	20.0	18.3

1984 YV a,e,i = 1.92, 0.08, 21 Elements MPC 11151

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 59.58	+47 22.0	1.346	2.008	116.4	26.7	16.7
1989	09 21	01 56.07	+49 09.2					
1989	10 01	01 47.89	+50 20.1	1.200	1.993	129.5	22.8	16.3
1989	10 11	01 35.72	+50 41.6					
1989	10 21	01 21.43	+50 04.1	1.106	1.976	140.2	18.8	16.0
1989	10 31	01 07.68	+48 25.5					
1989	11 10	00 57.08	+45 55.7	1.083	1.958	141.6	18.3	16.0
1989	11 20	00 51.23	+42 53.8					
1989	11 30	00 50.51	+39 41.5	1.137	1.940	131.9	22.2	16.2

1973 SZ3 a,e,i = 2.17, 0.13, 2 Elements MPC 11517

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 52.30	+09 42.8	1.064	1.934	138.1	20.3	17.0
1989	09 21	01 49.47	+09 39.0					
1989	10 01	01 43.21	+09 19.5	0.945	1.917	159.9	10.3	16.4
1989	10 11	01 34.33	+08 47.9					
1989	10 21	01 24.26	+08 10.9	0.909	1.903	175.5	2.4	15.9
1989	10 31	01 14.75	+07 36.9					
1989	11 10	01 07.46	+07 14.8	0.964	1.893	151.3	14.5	16.5
1989	11 20	01 03.45	+07 10.3					
1989	11 30	01 03.15	+07 25.7	1.095	1.888	130.2	23.5	17.1

1981 EB28 a,e,i = 2.29, 0.16, 2 Elements MPC 8288

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 57.08	+09 09.8	1.637	2.472	137.2	16.1	18.3
1989	09 21	01 51.81	+08 28.2					
1989	10 01	01 44.13	+07 34.6	1.537	2.501	160.1	7.8	17.9
1989	10 11	01 34.82	+06 33.9					
1989	10 21	01 25.00	+05 32.8	1.537	2.529	173.8	2.4	17.7
1989	10 31	01 15.82	+04 38.4					
1989	11 10	01 08.31	+03 56.9	1.647	2.554	150.1	11.1	18.2
1989	11 20	01 03.15	+03 32.1					
1989	11 30	01 00.66	+03 25.1	1.849	2.577	128.0	17.5	18.7

1981 EY26 a,e,i = 3.18, 0.10, 5 Elements MPC 11046

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 52.37	+16 12.1	2.583	3.378	135.7	12.0	16.3
1989	09 21	01 47.74	+16 05.8					
1989	10 01	01 41.50	+15 48.2	2.445	3.392	157.5	6.5	16.0
1989	10 11	01 34.15	+15 20.5					
1989	10 21	01 26.36	+14 45.5	2.413	3.405	174.5	1.6	15.8
1989	10 31	01 18.87	+14 06.9					
1989	11 10	01 12.36	+13 28.9	2.499	3.418	154.3	7.2	16.1
1989	11 20	01 07.38	+12 55.9					
1989	11 30	01 04.26	+12 30.9	2.689	3.430	132.2	12.3	16.5

1987 EP a,e,i = 2.63, 0.15, 15 Elements MPC 13302

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	02 04.02	+27 54.0	1.523	2.282	127.7	20.4	15.6
1989	09 21	01 59.71	+29 20.1					
1989	10 01	01 52.18	+30 24.4	1.400	2.298	145.8	14.2	15.2
1989	10 11	01 42.12	+31 01.3					
1989	10 21	01 30.79	+31 08.3	1.359	2.317	159.2	8.8	15.0
1989	10 31	01 19.74	+30 47.3					
1989	11 10	01 10.54	+30 05.8	1.416	2.337	152.1	11.4	15.2
1989	11 20	01 04.26	+29 14.2					
1989	11 30	01 01.41	+28 22.7	1.563	2.361	134.4	17.4	15.6

4271 T-3 a,e,i = 5.23, 0.11, 9 Elements MPC 14028

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 50.43	+03 09.4	3.816	4.636	140.3	8.0	16.7
1989	09 21	01 47.04	+02 48.1					
1989	10 01	01 42.64	+02 24.3	3.678	4.636	161.0	4.0	16.5
1989	10 11	01 37.54	+02 00.2					
1989	10 21	01 32.14	+01 38.1	3.651	4.637	171.0	1.9	16.3
1989	10 31	01 26.85	+01 20.4					
1989	11 10	01 22.09	+01 09.0	3.744	4.639	151.6	5.8	16.6
1989	11 20	01 18.21	+01 05.3					
1989	11 30	01 15.46	+01 10.1	3.941	4.641	130.4	9.3	16.9

1935 SA2 a,e,i = 2.25, 0.17, 6 Elements MPC 14182

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 59.37	+11 40.8	1.055	1.910	135.8	21.5	15.9
1989	09 21	01 56.91	+12 18.6					
1989	10 01	01 50.80	+12 42.7	0.932	1.894	157.0	11.9	15.4
1989	10 11	01 41.74	+12 53.2					
1989	10 21	01 31.13	+12 52.8	0.888	1.883	176.7	1.8	14.8
1989	10 31	01 20.79	+12 46.5					
1989	11 10	01 12.55	+12 41.8	0.936	1.877	154.1	13.3	15.4
1989	11 20	01 07.65	+12 45.5					
1989	11 30	01 06.62	+13 02.0	1.061	1.877	132.9	22.6	15.9

(3873) 1984 WB a,e,i = 1.89, 0.13, 23 Elements MPC 13461

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	02 06.11	+42 41.2	1.390	2.071	118.7	25.3	16.4
1989	09 21	02 03.44	+43 10.2					
1989	10 01	01 56.69	+42 59.8	1.212	2.048	135.2	20.2	16.0
1989	10 11	01 46.51	+41 58.9					
1989	10 21	01 34.44	+40 01.1	1.096	2.022	150.4	14.1	15.5
1989	10 31	01 22.55	+37 08.6					
1989	11 10	01 12.95	+33 35.9	1.069	1.994	151.1	13.9	15.4
1989	11 20	01 07.02	+29 46.4					
1989	11 30	01 05.29	+26 03.8	1.137	1.964	135.1	20.8	15.7

1984 EN1 a,e,i = 2.33, 0.12, 2 Elements MPC 13448

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	02 08.29	+10 51.9	1.726	2.531	134.0	16.6	18.0
1989	09 21	02 04.05	+10 18.3					
1989	10 01	01 57.28	+09 31.6	1.598	2.548	156.5	9.0	17.6
1989	10 11	01 48.62	+08 35.7					
1989	10 21	01 39.04	+07 36.1	1.568	2.563	177.2	1.1	17.2
1989	10 31	01 29.67	+06 39.5					
1989	11 10	01 21.62	+05 52.8	1.649	2.576	153.9	9.7	17.7
1989	11 20	01 15.68	+05 20.6					
1989	11 30	01 12.31	+05 05.4	1.827	2.587	131.4	16.6	18.2

1971 QP a,e,i = 2.33, 0.20, 2 Elements MPC 8907

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	02 04.49	+16 01.6	1.084	1.918	133.1	22.5	16.5
1989	09 21	02 02.54	+15 51.2					
1989	10 01	01 57.15	+15 18.1	0.996	1.948	154.5	12.8	16.1
1989	10 11	01 49.14	+14 25.1					
1989	10 21	01 39.95	+13 19.1	0.988	1.983	177.1	1.5	15.6
1989	10 31	01 31.18	+12 09.8					
1989	11 10	01 24.33	+11 08.2	1.074	2.021	156.5	11.3	16.3
1989	11 20	01 20.35	+10 22.6					
1989	11 30	01 19.61	+09 57.0	1.245	2.063	134.9	19.8	16.9

5191 T-3 a,e,i = 5.24, 0.13, 13 Elements MPC 14029

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	01 56.85	-02 02.6	4.098	4.907	139.4	7.7	17.5
1989	09 21	01 53.90	-02 44.7					
1989	10 01	01 50.01	-03 27.4	3.982	4.926	158.2	4.3	17.3
1989	10 11	01 45.44	-04 08.0					
1989	10 21	01 40.55	-04 43.8	3.977	4.944	164.9	3.0	17.2
1989	10 31	01 35.71	-05 12.4					
1989	11 10	01 31.31	-05 32.0	4.089	4.963	148.9	5.9	17.4
1989	11 20	01 27.66	-05 41.4					
1989	11 30	01 25.01	-05 40.6	4.304	4.983	128.9	8.9	17.7

1978 XQ a,e,i = 3.19, 0.14, 1 Elements MPC 12131

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	09 11	02 04.36	+12 16.5	2.664	3.445	134.5	12.0	17.5
1989	09 21	02 00.74	+11 54.5					
1989	10 01	01 55.43	+11 23.0	2.484	3.425	156.4	6.7	17.1
1989	10 11	01 48.81	+10 43.9					
1989	10 21	01 41.47	+10 00.4	2.409	3.404	179.5	0.1	16.6
1989	10 31	01 34.10	+09 16.2					
1989	11 10	01 27.41	+08 35.7	2.452	3.383	156.4	6.7	17.0
1989	11 20	01 22.00	+08 02.6					
1989	11 30	01 18.30	+07 39.9	2.602	3.360	133.8	12.2	17.4