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EDITORIAL NOTICE.

Contributors of perturbed orbital elements are advised that use of the Epoch 1989 Oct. 1.0 ET (rather than 1988 Aug. 27.0 ET) will become effective FOLLOWING the 1988 Dec. 23 batch of MPCs.

* * * * *

ERRATA.

13497 - 1 Add B. G. Marsden as an observer.
13500 - 2 Delete note M.

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N	Obs.
1978 NW3 *	1978 07	07.82816	16 48 10.16	-09 07 14.6	MPC 6017	15.0		095
1988 JB	1988 05	10.16794	14 40 02.75	-10 06 56.4	MPC13141		1	809
1988 JB *	1988 05	10.17280	14 40 02.63	-10 06 56.0	MPC13141	17	1	809
1988 JC	1988 05	10.16794	14 40 26.99	-08 27 44.9	MPC13141		1	809
1988 JC *	1988 05	10.17523	14 40 26.79	-08 27 43.1	MPC13141	18	1	809
1988 JC	1988 05	15.24618	14 37 09.64	-08 19 55.8	MPC13141	16.7		809
1988 JD	1988 05	10.16794	14 40 34.31	-09 56 19.5	MPC13141		1	809
1988 JD *	1988 05	10.17523	14 40 34.01	-09 56 18.0	MPC13141	18	1	809
1988 JE	1988 05	10.16794	14 42 59.54	-10 05 21.2	MPC13141		1	809
1988 JE *	1988 05	10.17523	14 42 59.22	-10 05 19.1	MPC13141	17	1	809
1988 KP *	1988 05	16.25660	14 36 38.36	-10 20 10.1	MPC13421	17.4		809
1988 KR	1988 05	17.13750	14 37 55.35	-09 52 18.7	MPC13422			809
1988 KS *	1988 05	17.13750	14 41 12.09	-09 36 31.2	MPC13422	16.6		809
1988 PE1	1988 09	12.98542	23 37 37.12	-05 57 04.4	MPC13658	15.8	2	511
1988 PE1	1988 09	13.00521	23 37 36.46	-05 57 17.5	MPC13658		2	511
1988 PE1	1988 09	13.02257	23 37 35.82	-05 57 30.0	MPC13658		2	511
1988 PE1	1988 09	14.01875	23 36 58.50	-06 10 20.2	MPC13658		2	511
1988 PE1	1988 09	14.03958	23 36 57.89	-06 10 35.0	MPC13658		2	511
1988 PE1	1988 09	15.03125	23 36 20.66	-06 23 16.8	MPC13658		2	511
1988 PE1	1988 09	15.05208	23 36 19.86	-06 23 31.7	MPC13658		2	511
1988 QN *	1988 08	19.67350	22 25 45.77	-03 39 00.7	MPC13532	18	1	413
3132	1988 05	10.16794	14 43 51.32	-09 41 17.3	MPC13141		1	809
3132	1988 05	10.17523	14 43 50.98	-09 41 16.0	MPC13141		1	809

Note 1: also a change in the time. 2: 1988 PE1 = (3918).

DELETED OBSERVATIONS.

The following observations are to be deleted.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Obs.
1988 QH	1988 08	16.74517	22 03 21.63	-07 23 28.2	MPC13532	413
1988 QN	1988 08	19.68044	22 25 45.52	-03 39 02.9	MPC13532	413

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 13635.

Object	Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1937 AD1 *	1937 01	07.98	07 29.7	+25 50	1936 YF	15.2	020
1937 AD1	1937 01	09.85	07 27.7	+26 49	1936 YF	15.2	020
1978 TO9 *	1978 10	08.99478	02 27 56.36	+01 03 14.0	1978 TG7	17.0	095
1981 UH21*	1981 10	27.83126	00 47 11.06	+08 39 04.8	1981 UT1	16.5	095
1987 SL13*	1987 09	26.11979	00 09 22.72	-01 22 23.2	1981 ED2		809
1987 SL13	1987 09	26.12465	00 09 22.47	-01 22 25.0	1981 ED2		809
1987 SL13	1987 09	26.12951	00 09 22.22	-01 22 26.8	1981 ED2		809
1988 FV2 *	1988 03	24.68721	12 09 12.31	+02 34 33.7	1988 FL	16	399
1988 FV2	1988 03	24.71276	12 09 11.07	+02 34 38.4	1988 FL		399
1988 FV2	1988 03	24.72503	12 09 10.38	+02 34 47.6	1988 FL		399
1988 JF1 *	1988 05	15.24618	14 37 06.09	-09 46 10.8	1988 JD	16.9	809

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

046 Klet. Observers A. Mrkos and Z. Vavrova.
056 Skalnate Pleso. 0.3-m f/5 astrograph. Observers G. Cervak, L. Kornos, P. Rychtarcik and J. Svoren.
364 JCPM Kagoshima Station. Observer M. Mukai. Measured by M. Takeishi.
396 Asahikawa. Observer K. Tsuchiya. Measured by M. Takeishi.
413 Siding Spring. Uppsala Southern Schmidt. Observer R. H. McNaught.
503 Cambridge. Observer J. D. Shanklin.
568 Mauna Kea. 2.2-m reflector. Observer K. J. Meech.
801 Oak Ridge Observatory. Observers R. E. McCrosky and C.-Y. Shao.
807 Cerro Tololo. 1.5-m reflector + CCD and Schmidt. Observer K. J. Meech.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
		Periodic Comet Schwassmann-Wachmann 1				
/1974 II	1988 08	20.25205	22 07 57.88	-07 39 49.0	15.3N	807
/1974 II	1988 08	20.25877	22 07 57.70	-07 39 50.1		807
/1974 II	1988 08	20.26308	22 07 57.56	-07 39 50.4		807
/1974 II	1988 09	09.43060	21 58 53.05	-08 14 45.9		568
/1974 II	1988 09	09.44332	21 58 52.70	-08 14 47.1		568
/1974 II	1988 09	09.44689	21 58 52.66	-08 14 47.2		568
/1974 II	1988 09	09.45025	21 58 52.54	-08 14 47.6		568
/1974 II	1988 09	09.45332	21 58 52.45	-08 14 47.8		568
/1974 II	1988 09	11.35735	21 58 04.99	-08 17 56.0		568
/1974 II	1988 09	11.36346	21 58 04.84	-08 17 55.5		568
/1974 II	1988 09	11.36833	21 58 04.72	-08 17 56.1		568
/1974 II	1988 09	11.37308	21 58 04.59	-08 17 56.5		568

/1974 II	1988	09	12.40323	21	57	39.41	-08	19	41.9		568
/1974 II	1988	09	12.40843	21	57	39.30	-08	19	42.3		568
/1974 II	1988	09	12.41307	21	57	39.16	-08	19	42.5		568
/1974 II	1988	10	03.80091	21	50	44.11	-08	48	42.8	17.0T	046
/1974 II	1988	10	03.81498	21	50	44.22	-08	48	43.5		046
/1974 II	1988	10	04.77515	21	50	30.99	-08	49	33.7		046
/1974 II	1988	10	04.78644	21	50	30.75	-08	49	37.4		046
/1974 II	1988	10	09.43010	21	49	36.27	-08	53	28.2	16 T	413
			Comet Cernis (1983 XII)								
/1983 XII	1988	08	20.11554	15	36	20.79	-54	58	53.6	1	807
/1983 XII	1988	08	20.12082	15	36	20.57	-54	58	50.3	1	807
/1983 XII	1988	08	20.15389	15	36	20.65	-54	58	44.3	1	807
			Periodic Comet Encke								
/1984 VI	1988	09	09.32013	21	56	14.64	-13	16	35.8	20.0N 2	568
/1984 VI	1988	09	09.32431	21	56	14.44	-13	16	36.3	2	568
/1984 VI	1988	09	09.33074	21	56	14.02	-13	16	38.2	2	568
/1984 VI	1988	09	09.33951	21	56	13.56	-13	16	39.7	2	568
/1984 VI	1988	09	09.34787	21	56	13.10	-13	16	42.0	2	568
/1984 VI	1988	09	09.35606	21	56	12.69	-13	16	43.2	2	568
/1984 VI	1988	09	11.31950	21	54	19.51	-13	24	40.7	2	568
/1984 VI	1988	09	11.32957	21	54	18.98	-13	24	43.6	2	568
/1984 VI	1988	09	12.35485	21	53	21.22	-13	28	43.5	2	568
/1984 VI	1988	09	12.36193	21	53	20.80	-13	28	45.0	2	568
/1984 VI	1988	09	12.39330	21	53	18.96	-13	28	51.2	2	568
			Periodic Comet Takamizawa								
/1984 VII	1984	08	21.87014	21	06	43.89	-22	56	08.2		056
/1984 VII	1984	08	21.90347	21	06	43.11	-22	56	24.8		056
/1984 VII	1984	08	22.91319	21	06	35.21	-23	04	35.9		056
/1984 VII	1984	08	28.88542	21	06	14.39	-23	46	03.7		056
/1984 VII	1984	08	28.92801	21	06	14.50	-23	46	17.6		056
/1984 VII	1984	08	29.90775	21	06	15.72	-23	51	58.2	3	056
/1984 VII	1984	09	30.81250	21	19	50.56	-24	28	04.5		056
			Comet Shoemaker (1985 XII)								
/1985 XII	1988	08	20.37634	03	53	40.29	+12	28	33.4		807
/1985 XII	1988	08	20.38655	03	53	40.23	+12	28	33.6		807
/1985 XII	1988	09	09.54564	03	50	58.69	+12	30	59.4		568
/1985 XII	1988	09	09.55874	03	50	58.45	+12	30	59.6		568
/1985 XII	1988	09	10.55045	03	50	45.83	+12	30	52.7		568
/1985 XII	1988	09	11.53025	03	50	32.96	+12	30	45.9		568
/1985 XII	1988	09	11.54962	03	50	32.69	+12	30	46.2		568
/1985 XII	1988	09	11.56501	03	50	32.45	+12	30	46.0		568
			Periodic Comet Ciffreo								
/1985 XVI	1985	12	12.88090	04	09	16.86	+31	51	39.4		056
/1985 XVI	1985	12	12.92917	04	09	15.30	+31	52	09.4		056
/1985 XVI	1985	12	13.75903	04	08	46.49	+32	00	46.8		056
/1985 XVI	1985	12	13.83958	04	08	43.66	+32	01	37.3		056
			Periodic Comet Halley								
/1986 III	1986	05	01.83455	10	52	02.35	-17	36	07.5		056
/1986 III	1986	05	01.86736	10	51	56.30	-17	34	27.5		056
/1986 III	1986	05	02.83576	10	49	09.40	-16	47	57.9		056
/1986 III	1986	05	02.87604	10	49	02.80	-16	46	03.9		056
/1986 III	1986	05	03.81562	10	46	35.73	-16	03	56.4		056
/1986 III	1986	05	03.85417	10	46	29.97	-16	02	17.2		056

```
/1986 III  1986 05 04.81701  10 44 13.14  -15 21 57.0                    056
/1986 III  1986 05 04.85660  10 44 07.65  -15 20 21.6                    056
/1986 III  1986 05 05.82535  10 42 02.54  -14 42 28.1                    056
/1986 III  1986 05 05.86389  10 41 57.65  -14 40 58.9                    056
/1986 III  1986 05 06.82118  10 40 05.39  -14 06 00.8                    056
/1986 III  1986 05 06.85833  10 40 01.20  -14 04 41.8                    056
/1986 III  1986 05 07.82361  10 38 18.15  -13 31 36.9                    056
/1986 III  1986 05 07.87292  10 38 12.95  -13 29 59.2                    056
/1986 III  1986 05 10.83333  10 33 51.00  -12 00 58.7                    056
/1986 III  1986 05 10.86771  10 33 48.27  -12 00 01.7                    056
/1986 III  1986 11 30.16875  11 39 58.02  -14 51 12.9                    056
/1986 III  1986 12 04.12465  11 39 31.29  -15 05 52.4                    056
/1986 III  1986 12 04.16123  11 39 30.59  -15 06 07.0                    056
/1986 III  1986 12 06.09630  11 39 12.64  -15 13 04.0                    056
/1986 III  1986 12 06.12257  11 39 12.34  -15 13 09.9                    056
/1986 III  1986 12 06.14896  11 39 11.90  -15 13 21.6                    056
/1986 III  1986 12 08.10012  11 38 50.00  -15 20 05.7                    056
/1986 III  1986 12 08.12257  11 38 49.75  -15 20 10.7                    056
/1986 III  1986 12 08.14479  11 38 49.36  -15 20 12.4                  3 056
/1986 III  1987 02 01.00521  11 03 16.08  -15 55 09.4                    056
/1986 III  1987 02 01.05382  11 03 13.35  -15 55 02.4                    056
/1986 III  1987 02 02.01007  11 02 12.58  -15 52 00.2                    056
/1986 III  1987 02 02.05243  11 02 10.46  -15 51 53.9                    056
/1986 III  1987 02 02.10590  11 02 07.16  -15 51 44.9                    056
/1986 III  1987 02 05.04653  10 58 58.30  -15 41 44.9                    056
/1986 III  1987 02 05.08125  10 58 55.80  -15 41 39.2                    056
/1986 III  1987 02 05.12512  10 58 53.06  -15 41 25.5                    056
/1986 III  1987 02 24.84491  10 36 46.82  -14 03 14.8                    056
/1986 III  1987 02 24.88646  10 36 44.41  -14 02 54.7                    056
/1986 III  1987 02 24.92812  10 36 41.81  -14 02 42.0                    056
/1986 III  1987 02 24.96979  10 36 38.88  -14 02 25.6                    056
/1986 III  1987 02 25.01146  10 36 35.93  -14 02 05.6                    056
/1986 III  1987 03 21.79167  10 11 09.66  -11 07 37.2                  3 056
/1986 III  1987 03 21.88056  10 11 04.63  -11 06 54.0                  3 056
/1986 III  1987 03 22.87014  10 10 12.78  -10 59 36.4                    056
/1986 III  1987 03 22.94861  10 10 08.88  -10 59 05.0                    056

                Comet Shoemaker (1986 XIV)
/1986 XIV  1988 09 09.24932  13 56 25.04  +32 40 45.4                    568
/1986 XIV  1988 09 09.26137  13 56 25.22  +32 40 41.1                    568
/1986 XIV  1988 09 09.26701  13 56 25.29  +32 40 39.8                    568

                Comet Wilson (1986l)
/1986l     1988 09 12.59120  07 46 41.04  +23 56 36.4          17.6N     568
/1986l     1988 09 12.62360  07 46 41.44  +23 56 38.3                    568

                Periodic Comet Grigg-Skjellerup
/1986m     1988 09 11.41142  00 15 37.15  +16 23 57.7          22  N   2 568
/1986m     1988 09 11.42647  00 15 36.42  +16 23 52.4                2 568

                Periodic Comet Wild 3
/1987e     1988 09 11.46059  23 50 32.41  -25 10 13.7          21  N     568

                Periodic Comet Tempel 2
/1987g     1988 05 12.60451  16 02 53.56  +03 19 36.9                    364
/1987g     1988 05 12.62326  16 02 52.57  +03 19 40.4                    364
/1987g     1988 09 09.30192  17 06 23.13  -24 38 16.6          13.6N     568
/1987g     1988 09 09.31119  17 06 24.71  -24 38 26.9                    568
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/1987g	1988	09	11.29403	17	12	27.85	-25	13	10.9	568
/1987g	1988	09	11.30241	17	12	29.36	-25	13	18.3	568
			Comet Shoemaker-Holt-Rodriquez (1988h)							
/1988h	1988	08	16.07957	19	06	17.99	+07	34	51.2	807
/1988h	1988	08	16.08999	19	06	17.40	+07	34	41.8	807
/1988h	1988	08	16.10041	19	06	16.85	+07	34	33.4	807
/1988h	1988	08	16.10666	19	06	16.08	+07	34	22.9	807
/1988h	1988	08	16.11707	19	06	15.68	+07	34	14.2	807
/1988h	1988	08	16.12749	19	06	15.17	+07	34	06.0	807
/1988h	1988	08	17.18156	19	05	11.50	+07	16	23.1	807
/1988h	1988	08	17.18851	19	05	11.16	+07	16	16.7	807
/1988h	1988	08	17.19545	19	05	10.60	+07	16	08.7	807
/1988h	1988	10	12.01248	18	38	53.29	-08	15	36.3 4	801
/1988h	1988	10	12.99060	18	38	58.51	-08	29	46.8	801
/1988h	1988	10	14.76015	18	39	10.75	-08	55	12.6 13.5T	046
/1988h	1988	10	14.76738	18	39	10.76	-08	55	18.1	046
			Periodic Comet Churyumov-Gerasimenko							
/1988i	1988	09	12.31075	19	14	17.98	-30	53	19.2 18.6N	568
/1988i	1988	09	12.33491	19	14	17.69	-30	53	16.5	568
/1988i	1988	09	12.34252	19	14	17.59	-30	53	15.4	568
			Comet Machholz (1988j)							
/1988j	1988	08	20.76111	06	26	58.40	-00	40	40.4	396
/1988j	1988	08	20.77014	06	27	03.27	-00	40	41.3	396

Note 1: comet faint, diffuse and extended; no apparent central condensation. 2: stellar appearance. 3: poor sky. 4: 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.
033 Tautenburg								
S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg, Democratic Republic of Germany								
Observer F. Borngen								
1.3-m Schmidt telescope								
SAOC								
1973 UU5		1988 09	08.05729	01 47 27.51	+10 40 00.1	18.7		033
1973 UU5		1988 09	08.11111	01 47 26.61	+10 39 53.2			033
1973 UU5		1988 09	09.08472	01 47 10.40	+10 37 46.9			033
1973 UU5		1988 09	10.09028	01 46 52.33	+10 35 28.0			033
1973 UU5		1988 09	11.07986	01 46 33.19	+10 33 04.8			033
1974 SX1		1988 09	09.10833	04 09 27.79	+24 34 44.2			033
1974 SX1		1988 09	10.06806	04 10 32.56	+24 41 53.7	18.9		033
1974 SX1		1988 09	10.11250	04 10 35.44	+24 42 13.3			033
1980 YM		1988 09	09.10833	04 05 25.80	+23 22 54.4			033
1980 YM		1988 09	10.06806	04 06 27.87	+23 25 23.7	18.3		033
1980 YM		1988 09	10.11250	04 06 30.64	+23 25 29.3			033
1981 RG1		1988 09	09.10833	04 09 10.08	+24 59 05.3			033
1981 RG1		1988 09	10.06806	04 10 19.03	+25 06 46.8	18.5		033
1981 RG1		1988 09	10.11250	04 10 22.08	+25 07 08.5			033
1988 RV2	*	1988 09	08.05729	01 40 39.41	+10 51 58.5	19.3		033
1988 RV2		1988 09	08.11111	01 40 37.96	+10 52 03.1			033
1988 RW2	*	1988 09	08.05729	01 41 00.35	+09 13 04.5	19.6	E	033
1988 RW2		1988 09	08.11111	01 40 59.17	+09 12 51.2		E	033
1988 RW2		1988 09	09.08472	01 40 37.81	+09 08 54.6			033
1988 RW2		1988 09	10.09028	01 40 14.02	+09 04 39.7			033
1988 RX2	*	1988 09	08.05729	01 42 52.83	+10 05 48.0	18.9		033
1988 RX2		1988 09	08.11111	01 42 52.10	+10 05 43.0			033
1988 RX2		1988 09	09.08472	01 42 39.18	+10 04 13.2			033
1988 RX2		1988 09	10.09028	01 42 24.12	+10 02 29.9			033
1988 RX2		1988 09	11.07986	01 42 07.63	+10 00 39.9			033
1988 RY2	*	1988 09	08.05729	01 43 05.08	+09 37 20.2	19.0		033
1988 RY2		1988 09	08.11111	01 43 04.40	+09 37 05.0			033
1988 RY2		1988 09	09.08472	01 42 51.94	+09 32 31.4			033
1988 RY2		1988 09	10.09028	01 42 37.71	+09 27 39.5			033
1988 RY2		1988 09	11.07986	01 42 22.40	+09 22 43.3			033
1988 RZ2	*	1988 09	08.05729	01 43 26.56	+10 42 25.3	19.5		033
1988 RZ2		1988 09	08.11111	01 43 25.08	+10 42 22.8			033
1988 RZ2		1988 09	09.08472	01 42 58.27	+10 41 41.2			033
1988 RZ2		1988 09	10.09028	01 42 28.98	+10 40 51.2			033
1988 RZ2		1988 09	11.07986	01 41 58.67	+10 39 52.6			033
1988 RA3	*	1988 09	08.05729	01 44 13.11	+09 58 30.8	18.5		033
1988 RA3		1988 09	08.11111	01 44 12.73	+09 58 24.0			033
1988 RA3		1988 09	09.08472	01 44 07.35	+09 56 20.1			033
1988 RA3		1988 09	10.09028	01 43 59.77	+09 53 59.4			033

1988	RA3		1988	09	11.07986	01	43	50.30	+09	51	30.1		033
1988	RC3	*	1988	09	08.05729	01	47	17.44	+10	30	22.7	19.6	033
1988	RC3		1988	09	08.11111	01	47	17.29	+10	30	18.1		033
1988	RC3		1988	09	09.08472	01	47	14.92	+10	28	47.0		033
1988	RC3		1988	09	10.09028	01	47	10.68	+10	27	02.6		033
1988	RC3		1988	09	11.07986	01	47	04.52	+10	25	07.2		033
1988	RD3	*	1988	09	08.05729	01	48	43.66	+11	05	15.0	18.9	033
1988	RD3		1988	09	08.11111	01	48	42.62	+11	05	05.2		033
1988	RD3		1988	09	09.08472	01	48	24.56	+11	02	11.7		033
1988	RD3		1988	09	10.09028	01	48	03.90	+10	58	59.8		033
1988	RD3		1988	09	11.07986	01	47	41.69	+10	55	40.1		033
1988	RE3	*	1988	09	08.05729	01	49	07.91	+10	03	48.1	16.9	033
1988	RE3		1988	09	08.11111	01	49	06.04	+10	04	20.5		033
1988	RE3		1988	09	09.08472	01	48	31.95	+10	14	13.1		033
1988	RE3		1988	09	10.09028	01	47	54.44	+10	24	25.6		033
1988	RE3		1988	09	11.07986	01	47	15.40	+10	34	26.7		033
1988	RF3	*	1988	09	09.10833	04	03	46.80	+25	01	59.4		033
1988	RF3		1988	09	10.06806	04	04	17.38	+25	07	03.5	16.8	033
1988	RF3		1988	09	10.11250	04	04	18.69	+25	07	17.2		033
1988	RG3	*	1988	09	09.10833	04	12	54.21	+25	31	32.4		033
1988	RG3		1988	09	10.06806	04	14	04.79	+25	34	14.5	19.2	033
1988	RG3		1988	09	10.11250	04	14	07.92	+25	34	21.4		033
1988	TN		1988	09	08.05729	01	46	03.13	+10	44	20.6	18.1	033
1988	TN		1988	09	08.11111	01	46	02.15	+10	44	24.1		033
1988	TN		1988	09	09.08472	01	45	45.21	+10	45	25.4		033
1988	TN		1988	09	10.09028	01	45	25.77	+10	46	19.0		033
1988	TN		1988	09	11.07986	01	45	04.87	+10	47	04.7		033
1988	TW		1988	09	08.05729	01	46	51.11	+10	40	55.8	17.5	033
1988	TW		1988	09	08.11111	01	46	50.15	+10	41	06.6		033
1988	TW		1988	09	09.08472	01	46	33.28	+10	44	35.3		033
1988	TW		1988	09	10.09028	01	46	13.56	+10	48	01.9		033
1988	TW		1988	09	11.07986	01	45	51.95	+10	51	16.6		033
1988	TZ		1988	09	08.05729	01	47	20.32	+10	05	10.6	19.2	033
1988	TZ		1988	09	08.11111	01	47	19.75	+10	05	14.4		033
1988	TZ		1988	09	09.08472	01	47	09.99	+10	06	17.7		033
1988	TZ		1988	09	10.09028	01	46	57.88	+10	07	14.1		033
1988	TZ		1988	09	11.07986	01	46	43.96	+10	08	01.0		033
1988	TC1		1988	09	08.05729	01	47	14.06	+10	38	45.1	18.4	033
1988	TC1		1988	09	08.11111	01	47	13.59	+10	38	51.3		033
1988	TC1		1988	09	09.08472	01	47	05.24	+10	40	53.1		033
1988	TC1		1988	09	10.09028	01	46	54.46	+10	42	48.2		033
1988	TC1		1988	09	11.07986	01	46	41.89	+10	44	34.2		033
168			1988	09	08.05729	01	42	11.08	+11	53	57.8	14.2	033
168			1988	09	08.11111	01	42	10.18	+11	53	50.1		033
168			1988	09	09.08472	01	41	54.22	+11	51	27.6		033
168			1988	09	10.09028	01	41	36.54	+11	48	52.9		033
168			1988	09	11.07986	01	41	18.05	+11	46	13.3		033
397			1988	09	09.10833	04	04	21.94	+24	39	48.1		033
397			1988	09	10.06806	04	05	27.61	+24	37	55.9	13.5	033
397			1988	09	10.11250	04	05	30.52	+24	37	50.8		033
802			1988	09	08.05729	01	42	10.78	+11	00	13.4	17.0	033
802			1988	09	08.11111	01	42	09.60	+11	00	15.7		033
802			1988	09	09.08472	01	41	48.80	+11	01	04.2		033
802			1988	09	10.09028	01	41	25.34	+11	01	45.0		033
802			1988	09	11.07986	01	41	00.39	+11	02	16.1		033
1247			1988	09	08.05729	01	50	43.51	+09	58	50.5	16.1	033
1247			1988	09	08.11111	01	50	42.54	+09	58	42.8		033
1247			1988	09	09.08472	01	50	25.69	+09	56	23.4		033
1247			1988	09	10.09028	01	50	06.95	+09	53	51.8		033

1247		1988	09	11.07986	01	49	47.23	+09	51	15.9		033
2819		1988	09	08.05729	01	51	11.71	+10	54	38.9	16.1	033
2819		1988	09	08.11111	01	51	11.28	+10	54	40.9		033
2819		1988	09	09.08472	01	51	04.70	+10	55	18.9		033
2819		1988	09	10.09028	01	50	55.99	+10	55	48.3		033
2819		1988	09	11.07986	01	50	45.61	+10	56	03.6		033
3918		1988	09	07.95556	23	40	36.86	-04	52	35.8	16.1	033
3918		1988	09	08.00417	23	40	35.06	-04	53	13.2		033
3918		1988	09	08.92778	23	40	03.45	-05	04	59.1		033

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Observers A. Mrkos, Z. Vavrova
0.6-m Maksutov reflector

1973	FE1	1988	10	03.87615	00	32	10.44	+07	00	09.6	15.4	046
1973	FE1	1988	10	03.89027	00	32	09.63	+06	59	52.0		046
1973	FE1	1988	10	04.88007	00	31	17.58	+06	38	14.2		046
1973	FE1	1988	10	04.89141	00	31	16.97	+06	38	00.1		046
1973	FE1	1988	10	09.85147	00	27	01.11	+04	49	31.8		046
1973	FE1	1988	10	09.86414	00	27	00.39	+04	49	16.0		046
1973	FE1	1988	10	16.88006	00	21	28.17	+02	19	31.4		046
1973	FE1	1988	10	16.89418	00	21	27.59	+02	19	15.6		046
1973	UU5	1988	10	14.92705	01	25	31.60	+08	11	08.7		046
1973	UU5	1988	10	14.93978	01	25	31.00	+08	11	05.0		046
1973	UU5	1988	10	16.97873	01	23	54.30	+08	00	26.6		046
1973	UU5	1988	10	16.99146	01	23	53.78	+08	00	24.0		046
1983	VV1	1988	10	04.90987	00	55	29.33	+08	25	47.8		046
1983	VV1	1988	10	04.92255	00	55	28.72	+08	25	43.9		046
1983	VV1	1988	10	11.92763	00	50	01.77	+07	57	28.8		046
1983	VV1	1988	10	11.94034	00	50	01.10	+07	57	24.7		046
1983	VV1	1988	10	14.86461	00	47	46.60	+07	45	19.7		046
1983	VV1	1988	10	14.87734	00	47	46.04	+07	45	16.1		046
1983	XU	1988	10	04.94101	01	16	03.79	+04	48	39.8		046
1983	XU	1988	10	04.95374	01	16	03.21	+04	48	36.2		046
1983	XU	1988	10	11.95876	01	10	39.33	+04	18	19.2		046
1983	XU	1988	10	11.97149	01	10	38.67	+04	18	16.5		046
1983	XU	1988	10	14.89574	01	08	21.28	+04	05	47.4		046
1983	XU	1988	10	14.90859	01	08	20.73	+04	05	44.8		046
1985	UL	1988	10	04.80617	22	44	13.57	-01	23	00.9		046
1985	UL	1988	10	04.82023	22	44	13.10	-01	23	03.8		046
1985	UL	1988	10	09.78544	22	41	48.82	-01	50	03.6		046
1985	UL	1988	10	09.80020	22	41	48.36	-01	50	08.7		046
1988	RE	1988	10	14.92705	01	24	14.17	+08	33	51.1	15.5	046
1988	RE	1988	10	14.93978	01	24	13.44	+08	33	10.6		046
1988	RE	1988	10	16.94782	01	22	23.60	+06	43	47.4		046
1988	RE	1988	10	16.96050	01	22	23.04	+06	43	14.5		046
1988	RE	1988	10	16.97873	01	22	21.70	+06	42	10.2		046
1988	RE	1988	10	16.99146	01	22	21.21	+06	41	37.1		046
1988	RE	1988	10	17.87433	01	21	34.92	+05	54	27.3		046
1988	RE	1988	10	17.88150	01	21	34.41	+05	53	58.6		046
1988	RE	1988	10	18.88694	01	20	42.04	+05	01	11.2		046
1988	RE	1988	10	18.89273	01	20	41.70	+05	00	54.6		046
1988	RX2	1988	10	14.92705	01	19	59.79	+07	44	34.2	17.2	046
1988	RX2	1988	10	14.93978	01	19	59.19	+07	44	31.7		046
1988	RA3	1988	10	12.00512	01	25	45.92	+07	19	01.9	16.8	046
1988	RA3	1988	10	14.92705	01	23	20.07	+07	00	56.8		046
1988	RA3	1988	10	14.93978	01	23	19.61	+07	00	52.2		046
1988	RA3	1988	10	16.97873	01	21	38.11	+06	48	26.1		046

1988	RA3		1988	10	16.99146	01	21	37.52	+06	48	23.7		046
1988	RD3		1988	10	14.92705	01	20	47.98	+07	35	01.4	17.3	046
1988	RD3		1988	10	14.93978	01	20	47.10	+07	34	55.2		046
1988	RD3		1988	10	16.97873	01	18	45.29	+07	20	18.5		046
1988	RD3		1988	10	16.99146	01	18	44.31	+07	20	14.8		046
1988	SH		1988	10	09.81981	23	58	10.65	+04	27	37.7	15.7	046
1988	SH		1988	10	09.83249	23	58	09.98	+04	27	36.5		046
1988	SN		1988	10	04.90987	01	01	18.66	+10	02	51.9	16.9	046
1988	SN		1988	10	04.92255	01	01	17.73	+10	02	50.7		046
1988	SN		1988	10	11.92763	00	54	01.80	+09	53	50.7	16.6	046
1988	SN		1988	10	11.94034	00	54	01.07	+09	53	50.9		046
1988	SN		1988	10	14.86461	00	51	00.65	+09	49	12.8		046
1988	SN		1988	10	14.87734	00	50	59.97	+09	49	09.9		046
1988	TA		1988	10	11.99100	01	25	32.40	+06	47	37.2	17.0	046
1988	TA		1988	10	12.00512	01	25	31.65	+06	47	29.6		046
1988	TD		1988	10	04.90987	00	58	39.65	+09	29	46.8	16.5	046
1988	TD		1988	10	04.92255	00	58	38.94	+09	29	41.3		046
1988	TD		1988	10	11.92763	00	52	40.29	+08	51	34.3		046
1988	TD		1988	10	11.94034	00	52	39.71	+08	51	30.5		046
1988	TD		1988	10	14.86461	00	50	14.38	+08	35	09.4		046
1988	TD		1988	10	14.87734	00	50	13.77	+08	35	05.1		046
1988	TE		1988	10	04.90987	00	59	53.27	+08	53	07.9	16.3	046
1988	TE		1988	10	04.92255	00	59	52.65	+08	53	03.2		046
1988	TE		1988	10	11.92763	00	54	12.28	+08	13	57.3		046
1988	TE		1988	10	11.94034	00	54	11.81	+08	13	53.5		046
1988	TE		1988	10	14.86461	00	51	53.85	+07	57	16.1		046
1988	TE		1988	10	14.87734	00	51	53.31	+07	57	11.0		046
1988	TZ		1988	10	14.92705	01	21	59.28	+09	14	20.2	16.8	046
1988	TZ		1988	10	14.93978	01	21	58.61	+09	14	18.1		046
1988	TZ		1988	10	16.97873	01	19	51.49	+09	07	41.8		046
1988	TZ		1988	10	16.99146	01	19	50.92	+09	07	40.3		046
1988	TA1		1988	10	11.99100	01	24	42.26	+09	30	02.4	17.2	046
1988	TA1		1988	10	12.00512	01	24	41.61	+09	29	55.5		046
1988	TA1		1988	10	14.92705	01	22	36.96	+09	06	04.5		046
1988	TA1		1988	10	14.93978	01	22	36.38	+09	05	59.3		046
1988	TM1		1988	10	14.92705	01	27	35.51	+09	51	58.5	16.7	046
1988	TM1		1988	10	14.93978	01	27	34.93	+09	51	53.9		046
1988	TM1		1988	10	16.97873	01	25	51.35	+09	38	40.9		046
1988	TM1		1988	10	16.99146	01	25	50.68	+09	38	38.7		046
1988	TP1		1988	10	04.94101	01	21	38.05	+05	32	16.7	15.9	046
1988	TP1		1988	10	04.95374	01	21	37.43	+05	32	10.5		046
1988	TP1		1988	10	11.95876	01	16	02.76	+04	59	40.3		046
1988	TP1		1988	10	11.97149	01	16	02.10	+04	59	37.1		046
1988	TP1		1988	10	14.89574	01	13	40.29	+04	46	12.8		046
1988	TP1		1988	10	14.90859	01	13	39.70	+04	46	09.6		046
1988	TR1		1988	10	14.89574	01	12	37.63	+05	12	22.3	17.0	046
1988	TR1		1988	10	14.90859	01	12	36.99	+05	12	11.5		046
1988	TB2	*	1988	10	03.87615	00	26	27.75	+06	27	59.7	15.6	046
1988	TB2		1988	10	03.89027	00	26	27.25	+06	27	52.4		046
1988	TB2		1988	10	04.88007	00	25	46.44	+06	18	34.3		046
1988	TB2		1988	10	04.89141	00	25	46.06	+06	18	27.3		046
1988	TB2		1988	10	09.85147	00	22	28.20	+05	31	29.9		046
1988	TB2		1988	10	09.86414	00	22	27.68	+05	31	23.8		046
1988	TC2	*	1988	10	03.87615	00	27	28.59	+06	55	33.0	15.5	046
1988	TC2		1988	10	03.89027	00	27	27.83	+06	55	27.9		046
1988	TC2		1988	10	04.88007	00	26	38.92	+06	50	01.3		046
1988	TC2		1988	10	04.89141	00	26	38.33	+06	49	58.0		046
1988	TC2		1988	10	09.85147	00	22	40.77	+06	22	22.7		046
1988	TC2		1988	10	09.86414	00	22	40.12	+06	22	18.4		046

1988	TD2	*	1988	10	03.87615	00	30	03.71	+06	56	38.4	15.4	046
1988	TD2		1988	10	03.89027	00	30	02.95	+06	56	30.6		046
1988	TD2		1988	10	04.88007	00	29	16.55	+06	47	36.8		046
1988	TD2		1988	10	04.89141	00	29	15.94	+06	47	31.0		046
1988	TD2		1988	10	09.85147	00	25	29.97	+06	02	41.5		046
1988	TD2		1988	10	09.86414	00	25	29.28	+06	02	33.4		046
1988	TE2	*	1988	10	03.87615	00	35	38.49	+05	08	56.3	16.8	046
1988	TE2		1988	10	03.89027	00	35	37.86	+05	08	51.5		046
1988	TE2		1988	10	04.88007	00	34	56.36	+05	01	40.7		046
1988	TE2		1988	10	04.89141	00	34	55.89	+05	01	35.5		046
1988	TE2		1988	10	09.88156	00	31	27.61	+04	25	17.3		046
1988	TE2		1988	10	09.90083	00	31	26.70	+04	25	10.7	V	046
1988	TE2		1988	10	14.83058	00	28	09.79	+03	49	50.7		046
1988	TE2		1988	10	14.84493	00	28	09.15	+03	49	43.7		046
1988	TE2		1988	10	16.88006	00	26	52.26	+03	35	30.0		046
1988	TE2		1988	10	16.89418	00	26	51.79	+03	35	26.1		046
1988	TF2	*	1988	10	03.87615	00	36	01.48	+05	24	54.6	16.7	046
1988	TF2		1988	10	03.89027	00	36	00.65	+05	24	52.1		046
1988	TF2		1988	10	04.88007	00	35	04.11	+05	21	32.3		046
1988	TF2		1988	10	04.89141	00	35	03.55	+05	21	29.4		046
1988	TG2	*	1988	10	03.87615	00	37	17.05	+05	30	22.9	17.1	046
1988	TG2		1988	10	03.89027	00	37	16.12	+05	30	25.6		046
1988	TG2		1988	10	04.88007	00	36	13.61	+05	31	20.5		046
1988	TG2		1988	10	04.89141	00	36	12.86	+05	31	21.3		046
1988	TG2		1988	10	09.88156	00	31	00.07	+05	35	54.2	d	046
1988	TG2		1988	10	09.90083	00	30	59.02	+05	35	56.1		046
1988	TH2	*	1988	10	04.90987	00	50	40.66	+09	06	41.9	16.3	046
1988	TH2		1988	10	04.92255	00	50	39.88	+09	06	33.9		046
1988	TH2		1988	10	11.92763	00	44	17.84	+08	10	00.2		046
1988	TH2		1988	10	11.94034	00	44	17.04	+08	09	53.7		046
1988	TH2		1988	10	14.86461	00	41	44.15	+07	46	14.2		046
1988	TH2		1988	10	14.87734	00	41	43.42	+07	46	08.2		046
1988	TJ2	*	1988	10	04.90987	00	52	08.60	+06	52	31.3	17.3	046
1988	TJ2		1988	10	04.92255	00	52	07.72	+06	52	27.9		046
1988	TJ2		1988	10	11.92763	00	44	27.76	+06	28	50.3		046
1988	TJ2		1988	10	11.94034	00	44	26.83	+06	28	48.8		046
1988	TJ2		1988	10	14.86461	00	41	20.42	+06	18	53.3		046
1988	TJ2		1988	10	14.87734	00	41	19.43	+06	18	50.5		046
1988	TK2	*	1988	10	04.90987	00	56	17.21	+08	44	41.7	17.3	046
1988	TK2		1988	10	04.92255	00	56	16.68	+08	44	35.3		046
1988	TK2		1988	10	11.92763	00	50	35.54	+07	35	04.1		046
1988	TK2		1988	10	11.94034	00	50	34.96	+07	34	59.0		046
1988	TL2	*	1988	10	04.90987	00	59	54.51	+08	38	23.4	17.5	046
1988	TL2		1988	10	04.92255	00	59	53.99	+08	38	21.8		046
1988	TL2		1988	10	11.92763	00	54	36.36	+08	20	17.8		046
1988	TL2		1988	10	11.94034	00	54	35.91	+08	20	20.0		046
1988	TM2	*	1988	10	04.90987	01	00	40.30	+06	56	52.3	16.7	046
1988	TM2		1988	10	04.92255	01	00	39.43	+06	56	44.3		046
1988	TM2		1988	10	11.92763	00	54	33.04	+06	01	32.8		046
1988	TM2		1988	10	11.94034	00	54	32.53	+06	01	25.8		046
1988	TM2		1988	10	14.86461	00	52	01.36	+05	38	16.7		046
1988	TM2		1988	10	14.87734	00	52	00.70	+05	38	10.6		046
1988	TN2	*	1988	10	11.95876	01	04	06.20	+04	46	02.5	15.9	046
1988	TN2		1988	10	11.97149	01	04	05.68	+04	45	51.2		046
1988	TN2		1988	10	14.89574	01	02	05.89	+04	01	49.3		046
1988	TN2		1988	10	14.90859	01	02	05.35	+04	01	37.5		046
1988	TO2	*	1988	10	11.95876	01	11	19.44	+04	17	29.6	16.9	046
1988	TO2		1988	10	11.97149	01	11	18.72	+04	17	28.7		046
1988	TO2		1988	10	14.89574	01	08	11.82	+04	18	15.4		046

1988	TO2		1988	10	14.90859	01	08	11.19	+04	18	15.8		046
1988	TP2	*	1988	10	11.95876	01	11	32.02	+05	11	00.9	17.3	046
1988	TP2		1988	10	11.97149	01	11	31.40	+05	10	56.7		046
1988	TP2		1988	10	14.89574	01	09	06.76	+04	58	05.3		046
1988	TP2		1988	10	14.90859	01	09	06.08	+04	58	06.8		046
1988	TQ2	*	1988	10	11.95876	01	19	26.00	+04	57	42.3	16.4	046
1988	TQ2		1988	10	11.97149	01	19	25.46	+04	57	38.2		046
1988	TQ2		1988	10	14.89574	01	17	13.01	+04	44	19.7		046
1988	TQ2		1988	10	14.90859	01	17	12.54	+04	44	17.2		046
1988	TR2	*	1988	10	11.99100	01	28	05.92	+06	38	32.1	16.7	046
1988	TR2		1988	10	12.00512	01	28	04.91	+06	38	34.5		046
1988	TR2		1988	10	14.92705	01	24	59.85	+06	46	14.5		046
1988	TR2		1988	10	14.93978	01	24	58.89	+06	46	17.6		046
1988	TR2		1988	10	16.97873	01	22	48.09	+06	51	43.3		046
1988	TR2		1988	10	16.99146	01	22	47.26	+06	51	44.4		046
1988	TS2	*	1988	10	11.99100	01	31	44.34	+05	43	37.3	16.6	046
1988	TS2		1988	10	12.00512	01	31	43.59	+05	43	36.2		046
1988	TS2		1988	10	14.92705	01	29	15.10	+05	38	47.0		046
1988	TS2		1988	10	14.93978	01	29	14.27	+05	38	46.7		046
1988	TS2		1988	10	16.97873	01	27	29.42	+05	35	31.0		046
1988	TS2		1988	10	16.99146	01	27	29.06	+05	35	27.5		046
1988	TT2	*	1988	10	11.99100	01	33	00.96	+07	40	08.4	15.6	046
1988	TT2		1988	10	12.00512	01	33	00.14	+07	40	06.2		046
1988	TT2		1988	10	14.92705	01	30	07.33	+07	28	54.8		046
1988	TT2		1988	10	14.93978	01	30	06.60	+07	28	52.5		046
1988	TT2		1988	10	16.97873	01	28	05.97	+07	21	07.9		046
1988	TT2		1988	10	16.99146	01	28	05.32	+07	21	04.4		046
1988	TX2	*	1988	10	14.92705	01	31	42.10	+05	50	06.3	16.1	046
1988	TX2		1988	10	14.93978	01	31	41.36	+05	50	00.1		046
1988	TX2		1988	10	16.94782	01	29	44.71	+05	34	16.5		046
1988	TX2		1988	10	16.96050	01	29	44.14	+05	34	12.0		046
1988	TX2		1988	10	16.97873	01	29	43.28	+05	34	02.9		046
1988	TX2		1988	10	16.99146	01	29	42.48	+05	33	54.6		046
2535	P-L		1988	10	11.95876	01	15	57.67	+04	43	28.3	17.1	046
2535	P-L		1988	10	11.97149	01	15	57.05	+04	43	24.1		046
2535	P-L		1988	10	14.89574	01	13	45.25	+04	29	00.6		046
2535	P-L		1988	10	14.90859	01	13	44.63	+04	28	56.2		046
78			1988	10	04.80617	22	47	15.36	-03	22	13.5		046
78			1988	10	04.82023	22	47	14.76	-03	22	14.9		046
168			1988	10	14.92705	01	22	18.79	+09	17	05.9		046
168			1988	10	14.93978	01	22	18.22	+09	17	01.9		046
168			1988	10	16.97893	01	20	53.29	+09	05	56.2		046
168			1988	10	16.99146	01	20	52.79	+09	05	52.5		046
190			1988	10	18.90882	01	50	52.35	+06	39	17.7		046
190			1988	10	18.92155	01	50	51.85	+06	39	14.4		046
206			1988	10	18.90882	01	42	33.51	+05	01	34.8		046
206			1988	10	18.92155	01	42	32.88	+05	01	28.6		046
262			1988	10	18.90882	01	49	23.48	+08	06	00.8		046
262			1988	10	18.92155	01	49	22.69	+08	06	00.3		046
270			1988	10	03.87615	00	28	29.20	+07	54	53.0		046
270			1988	10	03.89027	00	28	28.47	+07	54	47.2		046
270			1988	10	04.88007	00	27	35.12	+07	47	46.9		046
270			1988	10	04.89141	00	27	34.51	+07	47	43.4		046
270			1988	10	09.85147	00	23	15.32	+07	12	18.5		046
270			1988	10	09.86414	00	23	14.66	+07	12	13.4		046
510			1988	10	03.83946	00	15	29.80	+06	19	19.5		046
510			1988	10	03.85352	00	15	29.20	+06	19	11.0		046
510			1988	10	09.81981	00	11	10.09	+05	19	21.2		046
510			1988	10	09.83249	00	11	09.57	+05	19	14.0		046

510	1988	10	14.79528	00	07	56.78	+04	31	27.9	046
510	1988	10	14.80951	00	07	56.30	+04	31	18.7	046
658	1988	10	03.87615	00	32	09.98	+04	17	51.9	046
658	1988	10	03.89027	00	32	09.24	+04	17	48.2	046
658	1988	10	04.88007	00	31	20.88	+04	13	10.3	046
658	1988	10	04.89141	00	31	20.27	+04	13	06.9	046
658	1988	10	16.88006	00	22	00.63	+03	19	04.9	046
658	1988	10	16.89418	00	21	59.85	+03	19	01.1	046
748	1988	10	03.87615	00	31	25.39	+06	39	53.3	046
748	1988	10	03.89027	00	31	24.85	+06	39	49.5	046
748	1988	10	04.88007	00	30	47.06	+06	35	39.1	046
748	1988	10	04.89141	00	30	46.59	+06	35	36.1	046
748	1988	10	09.85147	00	27	38.58	+06	14	31.7	046
748	1988	10	09.86414	00	27	38.10	+06	14	28.0	046
929	1988	10	04.80617	22	45	24.65	-01	56	03.9	046
929	1988	10	04.82023	22	45	24.22	-01	56	08.6	046
929	1988	10	09.78544	22	43	17.34	-02	24	08.9	046
929	1988	10	09.80020	22	43	17.07	-02	24	13.1	046
1247	1988	10	11.99100	01	31	16.53	+07	45	10.4	046
1247	1988	10	12.00512	01	31	15.90	+07	45	06.1	046
1247	1988	10	14.92705	01	29	02.18	+07	30	46.1	046
1247	1988	10	14.93978	01	29	01.54	+07	30	42.2	046
1247	1988	10	16.97873	01	27	28.02	+07	20	43.2	046
1247	1988	10	16.99146	01	27	27.46	+07	20	39.6	046
1415	1988	10	03.85352	00	15	45.53	+05	42	41.6	046
1415	1988	10	09.81981	00	09	56.36	+05	10	27.2	046
1415	1988	10	09.83249	00	09	55.66	+05	10	23.5	046
1415	1988	10	14.79528	00	05	27.53	+04	44	26.6	046
1415	1988	10	14.80951	00	05	26.78	+04	44	22.5	046
1472	1988	10	18.90882	01	40	14.82	+06	48	04.0	046
1472	1988	10	18.92155	01	40	14.00	+06	48	01.9	046
1559	1988	10	03.83946	00	07	50.66	+04	15	29.9	046
1559	1988	10	03.85352	00	07	49.93	+04	15	27.4	046
1559	1988	10	09.81981	00	02	30.17	+03	44	20.0	046
1559	1988	10	09.83249	00	02	29.50	+03	44	16.0	046
1559	1988	10	14.79528	23	58	23.87	+03	19	34.6	046
1559	1988	10	14.80951	23	58	23.04	+03	19	29.9	046
1633	1988	10	04.94101	01	18	36.33	+04	20	23.2	046
1633	1988	10	04.95374	01	18	35.72	+04	20	19.0	046
1633	1988	10	11.95876	01	13	35.50	+03	48	49.8	046
1633	1988	10	11.97149	01	13	35.33	+03	48	44.1	046
1633	1988	10	14.89574	01	11	28.56	+03	35	45.6	046
1633	1988	10	14.90859	01	11	28.18	+03	35	43.0	046
1696	1988	10	16.97873	01	28	06.79	+09	49	22.2	046
1696	1988	10	16.99146	01	28	05.92	+09	49	22.1	046
1778	1988	10	04.94101	01	10	29.65	+03	44	43.6	046
1778	1988	10	04.95374	01	10	29.10	+03	44	38.9	046
1778	1988	10	11.95876	01	05	22.47	+03	13	04.3	046
1778	1988	10	11.97149	01	05	21.96	+03	13	02.1	046
1778	1988	10	14.89574	01	03	13.98	+03	00	07.5	046
1778	1988	10	14.90859	01	03	13.66	+03	00	07.3	046
1795	1988	10	11.95876	01	07	55.71	+06	01	03.0	046
1795	1988	10	11.97149	01	07	55.14	+06	00	58.8	046
1795	1988	10	14.89574	01	05	36.20	+05	39	27.1	046
1795	1988	10	14.90859	01	05	35.67	+05	39	22.7	046
1854	1988	10	11.95876	01	06	16.01	+05	40	45.0	046
1854	1988	10	11.97149	01	06	15.40	+05	40	39.7	046
1854	1988	10	14.89574	01	03	45.44	+05	18	23.3	046
1854	1988	10	14.90859	01	03	44.89	+05	18	17.5	046

2040	1988	10	18.90882	01	48	58.10	+05	58	42.7	046
2040	1988	10	18.92155	01	48	57.46	+05	58	41.1	046
2067	1988	10	04.94101	01	17	27.58	+04	51	13.2	046
2067	1988	10	04.95374	01	17	27.12	+04	51	08.5	046
2067	1988	10	11.95876	01	13	04.61	+04	20	36.9	046
2067	1988	10	11.97149	01	13	04.18	+04	20	34.6	046
2067	1988	10	14.89574	01	11	12.86	+04	07	55.2	046
2067	1988	10	14.90859	01	11	12.38	+04	07	51.5	046
2071	1988	10	09.78544	22	41	19.11	-02	28	21.6	046
2071	1988	10	09.80020	22	41	18.90	-02	28	23.1	046
2092	1988	10	18.90882	01	41	46.83	+06	53	40.3	046
2092	1988	10	18.92155	01	41	46.36	+06	53	36.8	046
2172	1988	10	04.94101	01	15	55.44	+02	34	18.2	046
2172	1988	10	04.95374	01	15	54.87	+02	34	14.4	046
2172	1988	10	11.95876	01	10	15.71	+02	02	38.6	046
2172	1988	10	11.97149	01	10	15.05	+02	02	35.3	046
2316	1988	10	11.99100	01	36	53.21	+07	22	49.8	046
2316	1988	10	12.00512	01	36	52.38	+07	22	45.8	046
2316	1988	10	14.92705	01	34	08.48	+07	05	15.5	046
2316	1988	10	14.93978	01	34	07.70	+07	05	09.9	046
2316	1988	10	16.97873	01	32	12.73	+06	53	00.9	046
2316	1988	10	16.99146	01	32	12.12	+06	52	56.9	046
2377	1988	10	03.87615	00	38	00.11	+05	43	10.6	046
2377	1988	10	03.89027	00	37	59.32	+05	43	05.9	046
2377	1988	10	04.88007	00	37	12.06	+05	37	56.5	046
2377	1988	10	04.89141	00	37	11.53	+05	37	52.4	046
2377	1988	10	09.88156	00	33	14.75	+05	11	45.8	046
2377	1988	10	09.90083	00	33	13.71	+05	11	41.2	046
2377	1988	10	14.83058	00	29	28.37	+04	46	18.3	046
2377	1988	10	14.84493	00	29	27.96	+04	46	15.2	046
2590	1988	10	09.78544	22	33	39.95	-00	41	24.1	046
2590	1988	10	09.80020	22	33	39.49	-00	41	30.6	046
2611	1988	10	18.90882	01	38	47.32	+06	29	10.7	046
2611	1988	10	18.92155	01	38	46.58	+06	29	07.0	046
2626	1988	10	03.87615	00	39	28.37	+04	53	33.2	046
2626	1988	10	03.89027	00	39	27.57	+04	53	28.8	046
2626	1988	10	04.88007	00	38	39.44	+04	48	48.1	046
2626	1988	10	04.89141	00	38	38.84	+04	48	44.7	046
2626	1988	10	09.88156	00	34	36.52	+04	25	23.0	046
2626	1988	10	09.90083	00	34	35.62	+04	25	15.7	046
2626	1988	10	14.83058	00	30	44.65	+04	02	48.0	046
2626	1988	10	14.84493	00	30	43.67	+04	02	44.7	046
2785	1988	10	04.90987	00	54	30.96	+07	22	42.4	046
2785	1988	10	04.92255	00	54	30.36	+07	22	40.1	046
2785	1988	10	11.92763	00	48	48.20	+06	49	50.6	046
2785	1988	10	11.94034	00	48	47.67	+06	49	46.9	046
2785	1988	10	14.86461	00	46	27.28	+06	35	55.2	046
2785	1988	10	14.87734	00	46	26.62	+06	35	50.2	046
2819	1988	10	11.99100	01	32	38.89	+10	00	26.6	046
2819	1988	10	12.00512	01	32	38.11	+10	00	23.4	046
2819	1988	10	14.92705	01	30	06.84	+09	50	28.8	046
2819	1988	10	14.93978	01	30	06.21	+09	50	25.6	046
2819	1988	10	16.97873	01	28	20.34	+09	43	21.9	046
2819	1988	10	16.99146	01	28	19.74	+09	43	19.0	046
3054	1988	10	04.94101	01	18	28.04	+05	29	32.5	046
3054	1988	10	04.95374	01	18	27.42	+05	29	28.3	046
3054	1988	10	11.95876	01	13	09.41	+04	53	01.3	046
3054	1988	10	11.97149	01	13	08.84	+04	52	57.3	046

3054		1988	10	14.89574	01	10	55.42	+04	38	03.7		046
3054		1988	10	14.90859	01	10	54.87	+04	38	00.3		046
3207		1988	10	11.95876	01	14	34.12	+05	57	56.6		046
3207		1988	10	11.97149	01	14	33.53	+05	57	52.5		046
3207		1988	10	14.89574	01	12	15.24	+05	41	55.5		046
3207		1988	10	14.90859	01	12	14.80	+05	41	52.8		046
3495		1988	10	11.99100	01	37	07.48	+06	32	13.9		046
3495		1988	10	12.00512	01	37	07.06	+06	32	09.9		046

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Observations in part in association with INAS

1974	RG1	1988	11	03.90949	02	23	41.28	+28	25	34.8	16.4	054
1974	RG1	1988	11	03.92685	02	23	40.24	+28	25	31.3		054
1974	RG1	1988	11	07.91503	02	19	41.09	+28	10	32.7	O	054
1974	RG1	1988	11	07.93239	02	19	40.00	+28	10	26.3	O	054
1978	WU14	1988	09	20.89766	23	17	33.04	+08	42	52.9		054
1978	WU14	1988	09	20.91016	23	17	32.53	+08	42	47.0		054
1978	WU14	1988	10	02.81132	23	09	51.11	+07	13	36.1		054
1978	WU14	1988	10	10.89946	23	05	38.90	+06	11	53.8		054
1978	WU14	1988	10	10.91682	23	05	38.39	+06	11	42.8		054
1984	SC5	1988	09	20.89766	23	13	56.26	+09	25	24.1		054
1984	SC5	1988	09	20.91016	23	13	55.46	+09	25	22.3		054
1988	RB	1988	10	02.79384	22	48	59.90	+15	03	23.8		054
1988	RN	1988	09	20.89766	23	20	44.09	+09	35	08.5		054
1988	RN	1988	09	20.91016	23	20	43.43	+09	35	05.1		054
1988	RO	1988	09	20.89766	23	19	58.55	+08	02	30.0		054
1988	RO	1988	09	20.91016	23	19	58.21	+08	02	25.2		054
1988	RB1	1988	09	20.89766	23	13	57.17	+07	32	05.8		054
1988	RB1	1988	09	20.91016	23	13	56.67	+07	32	01.0		054
1988	RD1	1988	09	20.89766	23	19	29.48	+05	40	50.0		054
1988	RD1	1988	09	20.91016	23	19	28.86	+05	40	47.7		054
1988	RE1	1988	09	20.89766	23	22	34.17	+05	25	20.6		054
1988	RE1	1988	09	20.91016	23	22	33.69	+05	25	11.7		054
1988	RM2	1988	09	16.92370	23	51	48.22	+10	54	22.2		054
1988	RN2	1988	09	16.92370	23	52	16.10	+09	16	36.5	17.8	054
1988	RO2	1988	09	16.92370	23	52	04.31	+10	17	35.9		054
1988	RP2	1988	09	16.92370	23	52	35.30	+12	07	46.2		054
1988	RQ2	1988	09	16.92370	23	53	35.74	+12	54	29.6		054
1988	SO	1988	09	09.94037	23	58	52.43	+09	12	21.6	17.5	054
1988	SO *	1988	09	16.92370	23	52	39.17	+09	00	59.9		054
1988	VC *	1988	11	03.90949	02	21	51.03	+28	33	14.8	16.2	054
1988	VC	1988	11	03.92685	02	21	50.02	+28	33	11.0		054
1988	VC	1988	11	04.90704	02	20	54.08	+28	30	23.3		054
1988	VC	1988	11	07.91503	02	18	04.29	+28	20	48.1	O	054
1988	VC	1988	11	07.93239	02	18	03.07	+28	20	43.2	O	054
1988	VD *	1988	11	03.90949	02	27	21.04	+29	08	06.7	17.8	054
1988	VD	1988	11	03.92685	02	27	19.03	+29	08	22.8		054
1988	VD	1988	11	04.90704	02	25	17.19	+29	21	22.6		054
1988	VD	1988	11	07.91503	02	19	01.47	+29	59	13.4		054
1988	VD	1988	11	07.93239	02	18	59.23	+29	59	25.2		054
1988	VD	1988	11	09.93723	02	14	49.26	+30	22	47.1		054
1988	VA1 *	1988	11	03.90949	02	13	34.45	+30	42	00.1	16.0	054
1988	VA1	1988	11	03.92685	02	13	33.59	+30	41	46.8		054
1988	VA1	1988	11	04.90704	02	12	53.08	+30	29	43.0		054

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1988 VA1   1988 11 07.91503  02 10 53.51  +29 51 10.1                    054
1988 VA1   1988 11 07.93239  02 10 52.75  +29 50 55.2                    054
1988 VB1 * 1988 11 03.90949  02 16 00.33  +30 29 59.2           16.5     054
1988 VB1   1988 11 03.92685  02 15 58.99  +30 30 00.1                    054
1988 VB1   1988 11 04.90704  02 14 47.66  +30 30 21.8                    054
1988 VB1   1988 11 07.91503  02 11 12.53  +30 30 02.6                    054
1988 VB1   1988 11 07.93239  02 11 11.19  +30 30 02.3                    054
1988 VC1 * 1988 11 03.90949  02 16 19.58  +29 02 48.0           17.0     054
1988 VC1   1988 11 03.92685  02 16 18.54  +29 02 40.7                    054
1988 VC1   1988 11 04.90704  02 15 24.96  +28 54 08.8                    054
1988 VC1   1988 11 07.91503  02 12 43.36  +28 26 54.7                 O  054
1988 VC1   1988 11 07.93239  02 12 42.32  +28 26 43.5                 O  054
1988 VD1 * 1988 11 03.90949  02 20 17.00  +29 44 15.2           15.5     054
1988 VD1   1988 11 03.92685  02 20 15.87  +29 44 13.4                    054
1988 VD1   1988 11 04.90704  02 19 14.49  +29 42 36.6                    054
1988 VD1   1988 11 07.91503  02 16 08.42  +29 36 41.1                    054
1988 VD1   1988 11 07.93239  02 16 07.33  +29 36 38.1                    054
1988 VD1   1988 11 09.93723  02 14 06.08  +29 31 57.2                    054
1988 VK1 * 1988 11 03.97585  03 34 10.36  +23 42 31.5           18       054
1988 VK1   1988 11 03.98800  03 34 09.80  +23 42 29.1                    054
1988 VK1   1988 11 04.92891  03 33 25.67  +23 39 06.3                    054
1988 VL1 * 1988 11 03.97585  03 34 19.87  +23 37 35.5           15.0     054
1988 VL1   1988 11 03.98800  03 34 19.12  +23 37 30.8                    054
1988 VL1   1988 11 04.92891  03 33 24.15  +23 31 25.9                    054
1988 VM1 * 1988 11 03.97585  03 36 41.08  +23 23 11.0           18       054
1988 VM1   1988 11 03.98800  03 36 40.48  +23 23 02.9                    054
1988 VM1   1988 11 04.92891  03 35 53.49  +23 13 55.8                    054
1231       1988 11 03.90949  02 24 46.28  +30 27 26.7                    054
1231       1988 11 03.92685  02 24 45.21  +30 27 24.2                    054
1231       1988 11 04.90704  02 23 43.55  +30 24 31.3                    054
1231       1988 11 07.91503  02 20 35.89  +30 14 43.7                    054
1231       1988 11 07.93239  02 20 34.81  +30 14 40.0                    054
1231       1988 11 09.93723  02 18 31.85  +30 07 21.9                    054
2159       1988 11 03.97585  03 33 01.02  +23 59 41.3                    054
2159       1988 11 03.98800  03 33 00.29  +23 59 40.0                    054
2159       1988 11 04.92891  03 32 05.34  +23 57 54.8                    054
2686       1988 09 16.92370  23 57 03.06  +10 18 17.9                    054
3178       1988 09 08.94421  00 10 09.40  +10 53 22.7                    054
3178       1988 09 08.96123  00 10 08.60  +10 53 16.4                    054
3178       1988 09 16.92370  00 03 44.76  +10 15 30.1                    054
3428       1988 09 20.89766  23 19 45.43  +07 27 04.6                    054
3428       1988 09 20.91016  23 19 44.88  +07 26 59.5                    054
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091 Aurec-sur-Loire
R. Chanal, Observatore de Nurol, F-43110 Aurec-sur-Loire, France
0.41-m reflector
AGK3, SAOC

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3044       1988 10 12.92947  00 23 50.68  +19 59 59.2           15.7     091
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293 Burlington remote site
T. Handley, 13 Linden Avenue, Burlington, NJ 08016, U.S.A.
0.20-m f/4.0 astrograph
SAOC

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1977 SS2   1988 09 11.18854  22 54 07.94  -07 26 31.9                    293
1977 SS2   1988 09 11.20313  22 54 07.33  -07 26 44.0                    293
3906       1988 09 11.23125  00 06 19.14  -17 53 34.4                    293
```

364 JCPM Kagoshima Station
M. Takeishi, Odori 4, Hamatonbetsu Esashigun, Hokkaido 098-57, Japan

Observer M. Mukai
Measurer M. Takeishi
0.25-m f/4.2 Wright Schmidt telescope

448		1988	09	16.62222	01	14	01.34	-02	55	18.4	364
448		1988	09	16.63750	01	14	00.67	-02	55	20.8	364
698		1988	04	15.54896	13	09	43.09	-00	13	57.0	364
698		1988	04	15.56840	13	09	42.01	-00	13	55.4	364
698		1988	04	25.51979	13	01	09.32	-00	12	15.4	364
698		1988	04	25.53924	13	01	08.49	-00	12	16.3	364
770		1988	06	04.56285	15	17	07.26	-20	15	27.9	364
770		1988	06	04.58160	15	17	06.72	-20	15	26.4	364
1029		1988	06	04.56285	15	19	26.26	-20	16	05.0	364
1029		1988	06	04.58160	15	19	25.40	-20	16	01.3	364
1137		1988	04	25.51979	13	00	19.37	-00	17	26.8	364
1137		1988	04	25.53924	13	00	18.48	-00	17	23.3	364

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

1984 UA		1988	10	06.70868	00	58	23.49	+22	05	58.2	16.5	372
1987 PB		1987	09	01.67361	20	58	40.48	-10	48	41.6		372
1987 PB		1987	09	01.68472	20	58	40.02	-10	48	41.6		372
1987 PB		1987	09	03.68646	20	57	03.50	-10	49	30.7	17	372
1987 PB		1988	10	13.81250	09	15	56.79	+17	03	31.2	18	372
1987 PB		1988	10	18.77969	09	23	27.13	+16	17	19.6	18	372
1987 PB		1988	10	22.83091	09	29	18.21	+15	39	46.1	17.5	372
1988 TS1	*	1988	10	13.62743	02	51	57.53	+14	41	45.3	18	372
1988 TS1		1988	10	13.67292	02	51	55.75	+14	41	36.2		372
1988 TS1		1988	10	18.62812	02	48	57.38	+14	23	49.6	17.5	372
1988 TS1		1988	10	18.75069	02	48	52.00	+14	23	20.4		372
1988 TS1		1988	11	01.51528	02	38	46.13	+13	26	42.7	17.5	372
1988 TS1		1988	11	01.54167	02	38	45.37	+13	26	40.3		372
1988 TY1	*	1988	10	13.74230	02	58	09.79	+15	36	48.1	18.5	372
1988 TY1		1988	10	13.75694	02	58	08.93	+15	36	46.2		372
1988 TY1		1988	10	18.65035	02	54	00.63	+15	19	04.3	18.5	372
1988 TY1		1988	10	18.66250	02	53	59.88	+15	19	03.6		372
1988 TY1		1988	10	19.71319	02	53	01.70	+15	14	55.9	18	372
1988 TY1		1988	10	22.80903	02	50	02.74	+15	02	17.3	17	372
1988 UH	*	1988	10	18.62812	02	46	05.35	+14	36	43.3	18	372
1988 UH		1988	10	18.75069	02	46	00.13	+14	36	13.0		372
1988 UH		1988	10	19.65625	02	45	22.57	+14	32	23.5	18	372
1988 UH		1988	10	22.77674	02	43	08.94	+14	19	03.6	18	372
1988 UH		1988	10	22.78993	02	43	08.17	+14	18	58.9		372
1988 UJ		1988	10	13.62743	02	50	17.89	+14	28	30.4	18.5	372
1988 UJ		1988	10	13.67292	02	50	15.39	+14	28	26.5		372
1988 UJ	*	1988	10	18.62812	02	46	32.26	+14	26	06.2	18	372
1988 UJ		1988	10	18.75069	02	46	26.28	+14	26	00.3		372
1988 UJ		1988	10	19.65625	02	45	43.07	+14	25	24.4	17.5	372
1988 UJ		1988	10	21.74062	02	44	00.58	+14	24	00.7	17.5	372
1988 UJ		1988	10	22.77674	02	43	08.57	+14	23	13.4	17	372
1988 UJ		1988	10	22.78993	02	43	07.92	+14	23	13.8		372
1988 UJ		1988	11	01.57326	02	34	30.7	+14	14	10	16.5	372
1988 UK	*	1988	10	18.62812	02	51	15.9	+14	58	34	18	372
1988 UK		1988	10	19.68611	02	50	40.1	+14	59	57	18	372
1988 UR	*	1988	10	18.58681	02	45	44.77	+14	17	27.1	18	372
1988 UR		1988	10	18.60277	02	45	44.02	+14	17	24.7		372
1988 UR		1988	10	18.62814	02	45	42.60	+14	17	23.6	18	372
1988 UR		1988	10	18.75069	02	45	36.05	+14	17	00.1		372
1988 UR		1988	10	22.77674	02	41	47.81	+14	09	59.2	18	372

1988	UR		1988	10	22.78993	02	41	46.79	+14	09	55.9		372
1988	UR		1988	11	02.65347	02	30	33.54	+13	46	46.2	18	372
1988	UR		1988	11	02.66667	02	30	32.83	+13	46	47.5	18	372
1988	UR		1988	11	03.68229	02	29	27.35	+13	44	28.1	18.5	372
1988	UR		1988	11	03.69583	02	29	27.02	+13	44	27.4		372
1988	VA	*	1988	11	02.65347	02	30	18.4	+14	09	44	15.5	372
1988	VA		1988	11	02.66667	02	30	17.7	+14	09	34		372
1988	VA		1988	11	03.68229	02	29	31.8	+13	55	19	15	372
1988	VA		1988	11	03.69583	02	29	31.1	+13	55	07		372
1988	VB	*	1988	11	01.59410	02	45	07.73	+15	20	12.2	16.5	372
1988	VB		1988	11	01.60799	02	45	06.96	+15	20	12.8		372
1988	VB		1988	11	02.49896	02	44	12.75	+15	21	25.4	16	372
1988	VB		1988	11	02.51215	02	44	12.00	+15	21	28.5		372
1988	VB		1988	11	03.73333	02	42	56.89	+15	23	54.7	15.5	372
1988	VB		1988	11	05.63559	02	41	00.95	+15	25	35.7	15	372
1988	VB		1988	11	06.69514	02	39	56.23	+15	26	55.9	15	372
1988	VX	*	1988	11	02.65347	02	29	16.17	+13	21	36.0	17	372
1988	VX		1988	11	02.66667	02	29	15.59	+13	21	30.3		372
1988	VX		1988	11	03.68229	02	28	31.89	+13	12	20.1	17.5	372
1988	VX		1988	11	03.69583	02	28	31.17	+13	12	15.9		372
1988	VY	*	1988	11	02.65347	02	30	47.61	+13	50	18.5	18	372
1988	VY		1988	11	03.68229	02	29	56.06	+13	45	27.7	18	372
1988	VY		1988	11	03.69583	02	29	55.38	+13	45	24.2		372
1988	VE1	*	1988	11	02.68646	03	24	04.2	+19	28	08	18	372
1988	VE1		1988	11	06.71701	03	20	07.94	+19	25	47.0	18	372
1988	VE1		1988	11	08.55208	03	18	17.96	+19	24	24.9	18	372
1988	VE1		1988	11	08.56597	03	18	17.40	+19	24	24.5	18	372
1988	VE1		1988	11	10.69063	03	16	08.81	+19	22	33.2	17.5	372
1988	VE1		1988	11	10.70174	03	16	08.62	+19	22	36.0		372
1988	VG1	*	1988	11	05.74132	04	00	21.38	+15	55	26.7	17.5	372
1988	VG1		1988	11	06.74687	03	59	37.34	+15	50	19.8	17.5	372
1988	VG1		1988	11	08.63687	03	58	12.72	+15	39	08.3	15.5	372
1988	VG1		1988	11	08.65000	03	58	12.19	+15	39	04.5		372
1988	VG1		1988	11	10.71319	03	56	36.66	+15	26	44.8	16	372
1988	VG1		1988	11	10.72222	03	56	36.11	+15	26	43.2		372
1988	VJ1	*	1988	11	06.70937	03	22	35.55	+19	42	36.5	17.5	372
1988	VJ1		1988	11	06.72535	03	22	34.69	+19	42	30.1		372
1988	VJ1		1988	11	08.55208	03	20	44.69	+19	27	30.9	17	372
1988	VJ1		1988	11	08.56597	03	20	43.83	+19	27	25.6		372
1988	VJ1		1988	11	10.69063	03	18	33.83	+19	09	50.6	16.5	372
1988	VJ1		1988	11	10.70174	03	18	33.04	+19	09	44.9		372
1589			1988	10	22.76389	04	07	16.34	+14	55	32.3	15.5	372
3153			1988	11	02.56806	02	51	57.1	+17	12	11	16	372
3153			1988	11	02.57986	02	51	56.4	+17	12	10		372

385 Nihondaira Observatory, Oohira Station
M. Kizawa, 1458-10, Minami Numagami, Shizuoka 420, Japan
Observers W. Kakkei, M. Kizawa, T. Urata
Measurer M. Kizawa
0.13-m hyperboloid astrocamera

1988	VF1	*	1988	11	03.55694	03	23	49.91	+20	56	03.2	16	385
1988	VF1		1988	11	03.59792	03	23	47.46	+20	55	51.6		385
1988	VF1		1988	11	06.54410	03	20	55.55	+20	36	55.3	16	385
1988	VF1		1988	11	06.62917	03	20	50.11	+20	36	14.0	16	385
1988	VF1		1988	11	07.55417	03	19	54.80	+20	30	08.1	16	385
1988	VF1		1988	11	07.57691	03	19	53.48	+20	30	00.0		385
92			1988	10	15.60833	03	21	02.72	+05	35	05.4		385
92			1988	10	15.64965	03	21	01.22	+05	34	57.5		385

824		1988	10	15.60833	03	21	59.43	+06	34	11.8	385
824		1988	10	15.64965	03	21	57.83	+06	33	59.2	385

386 Yatsugatake-Kobuchizawa
O. Muramatsu, 119-1, 2-8 Sakurazutsumi, Musashino, Tokyo 180, Japan
Observers M. Inoue, O. Muramatsu
Measurer O. Muramatsu
0.31-m reflector

1988	VF2		1988	11	12.76823	03	12	20.62	+22	15	08.9	16.5 s	386

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

1988	TE1	*	1988	10	13.62500	00	11	29.96	+08	35	39.7		391
1988	TE1		1988	10	13.62764	00	11	29.56	+08	35	38.1		391
1988	TE1		1988	10	15.61250	00	09	51.39	+08	30	35.4	15.5	391
1988	TE1		1988	10	15.61597	00	09	51.30	+08	30	35.9		391
1988	TE1		1988	10	16.61597	00	09	03.39	+08	28	08.3	15.5	391
1988	TE1		1988	10	16.64028	00	09	02.61	+08	28	03.9		391
1988	TE1		1988	10	19.59948	00	06	52.65	+08	20	55.2		391
1988	TE1		1988	10	19.64358	00	06	51.11	+08	20	47.8		391
1988	TE1		1988	10	31.51910	00	00	59.94	+07	58	52.5		391
1988	TE1		1988	10	31.53472	00	00	59.53	+07	58	50.0		391
1988	TE1		1988	11	02.51597	00	00	29.84	+07	56	39.6		391
1988	TE1		1988	11	02.53681	00	00	29.37	+07	56	36.8		391
1988	TF1	*	1988	10	13.71875	01	54	10.42	+17	49	08.1		391
1988	TF1		1988	10	13.72222	01	54	10.01	+17	49	09.5		391
1988	TF1		1988	10	15.66875	01	52	32.43	+17	38	44.0	16	391
1988	TF1		1988	10	15.67222	01	52	32.08	+17	38	43.4		391
1988	TF1		1988	10	18.75347	01	49	54.48	+17	21	19.8	16	391
1988	TF1		1988	10	18.75434	01	49	54.53	+17	21	19.1		391
1988	TF1		1988	10	18.75521	01	49	54.58	+17	21	18.3		391
1988	TF1		1988	10	18.78125	01	49	53.31	+17	21	11.6		391
1988	TF1		1988	10	18.78212	01	49	53.34	+17	21	11.7		391
1988	TF1		1988	10	18.78299	01	49	53.37	+17	21	11.7		391
1988	TF1		1988	10	19.66138	01	49	07.70	+17	16	00.7		391
1988	TF1		1988	10	19.71476	01	49	04.83	+17	15	41.6		391
1988	TF1		1988	10	31.61875	01	39	01.12	+16	00	54.9		391
1988	TF1		1988	10	31.69167	01	38	57.36	+16	00	26.6		391
1988	TF1		1988	11	02.64097	01	37	25.02	+15	47	43.3		391
1988	TF1		1988	11	05.62500	01	35	08.81	+15	28	25.7	16	391
1988	TF1		1988	11	06.55903	01	34	28.04	+15	22	26.9		391
1988	TF1		1988	11	06.57986	01	34	27.08	+15	22	16.9		391
1988	TF1		1988	11	08.55833	01	33	03.57	+15	09	42.0		391
1988	TF1		1988	11	08.57917	01	33	02.74	+15	09	33.3		391
1988	UN		1988	11	08.60417	02	26	41.06	+24	00	39.7	14	391
1988	UN		1988	11	08.62500	02	26	39.91	+24	00	41.7		391
1988	UN		1988	11	09.44722	02	25	56.71	+24	02	14.6	14	391
1988	UN		1988	11	09.46667	02	25	55.57	+24	02	17.3		391
1988	UN		1988	11	09.66181	02	25	44.25	+24	02	34.4		391
1988	UN		1988	11	09.68264	02	25	43.13	+24	02	36.2		391
1988	UN		1988	11	10.59264	02	24	55.55	+24	04	08.6	14	391
1988	UN		1988	11	11.65764	02	23	59.77	+24	05	42.7		391
1988	VT1	*	1988	11	08.64931	02	41	11.78	+00	03	04.3	16	391
1988	VT1		1988	11	08.67014	02	41	10.99	+00	02	54.3		391
1988	VT1		1988	11	09.61181	02	40	31.64	-00	03	44.7	16	391
1988	VT1		1988	11	09.63264	02	40	30.81	-00	03	52.4		391
1988	VT1		1988	11	10.65069	02	39	48.39	-00	10	50.3	16	391

1988	VT1		1988	11	11.61736	02	39	08.58	-00	17	11.4		391
1988	VT1		1988	11	11.63889	02	39	07.91	-00	17	19.6		391
1988	VU1	*	1988	11	08.69236	04	26	40.22	+24	11	59.9	16.5	391
1988	VU1		1988	11	08.71319	04	26	39.28	+24	11	55.1		391
1988	VU1		1988	11	09.70417	04	25	50.85	+24	08	17.9	16.5	391
1988	VU1		1988	11	09.72500	04	25	50.02	+24	08	16.7		391
1988	VU1		1988	11	11.67361	04	24	11.45	+24	00	52.6		391
1988	VU1		1988	11	11.69444	04	24	10.38	+24	00	48.5		391
1633			1988	10	10.67986	01	14	30.71	+03	54	36.4		391
1633			1988	10	10.68333	01	14	30.46	+03	54	34.6		391
2067			1988	10	10.67986	01	13	52.96	+04	26	15.1		391
2067			1988	10	10.68333	01	13	52.84	+04	26	14.6		391
2372			1988	10	10.71181	01	24	25.97	+04	11	23.5		391
2372			1988	10	10.71528	01	24	25.83	+04	11	22.7		391
2724			1988	10	10.71181	01	22	16.91	+03	57	14.6		391
2724			1988	10	10.71528	01	22	16.65	+03	57	12.9		391
3054			1988	10	10.67986	01	14	07.86	+04	59	39.5		391
3054			1988	10	10.68333	01	14	07.76	+04	59	40.3		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

1973	FE1		1988	10	15.52888	00	22	28.16	+02	47	44.2	15.5	399
1973	FE1		1988	10	15.54201	00	22	27.44	+02	47	25.7		399
1973	FE1		1988	10	15.55313	00	22	27.06	+02	47	13.5		399
1977	QK1		1988	10	13.52014	01	06	44.35	+09	41	15.6	15	399
1977	QK1		1988	10	13.53889	01	06	43.29	+09	41	11.1		399
1977	QK1		1988	10	13.55799	01	06	42.32	+09	41	06.5		399
1977	QK1		1988	10	15.58831	01	04	59.47	+09	33	50.2	15.5	399
1977	QK1		1988	10	16.64907	01	04	06.56	+09	30	01.5	16	399
1977	QK1		1988	10	16.66591	01	04	05.58	+09	30	00.1		399
1977	QK1		1988	10	18.54074	01	02	34.46	+09	23	12.5	15.5	399
1977	QK1		1988	10	18.55729	01	02	33.54	+09	23	09.4		399
1977	QK1		1988	10	19.58299	01	01	44.61	+09	19	29.5	15.5	399
1977	QK1		1988	10	19.59965	01	01	43.70	+09	19	25.6		399
1977	QK1		1988	10	19.61701	01	01	42.80	+09	19	23.9		399
1981	EO27		1988	10	15.52888	00	15	42.02	+00	31	54.1	16.5	399
1981	EO27		1988	10	15.54201	00	15	41.44	+00	31	46.1		399
1981	EO27		1988	10	15.55313	00	15	41.05	+00	31	41.3		399
1982	FS		1988	10	13.58449	01	34	19.52	+10	55	40.1	16	399
1982	FS		1988	10	13.60179	01	34	18.61	+10	55	40.4		399
1982	FS		1988	10	13.62442	01	34	17.09	+10	55	38.0		399
1982	FS		1988	10	16.59838	01	31	15.46	+10	51	29.0	16	399
1982	FS		1988	10	16.61502	01	31	14.39	+10	51	26.3		399
1982	PL		1988	10	13.64687	03	01	49.99	+18	35	14.1	16.5	399
1982	PL		1988	10	13.66148	03	01	49.53	+18	35	12.7		399
1982	PL		1988	10	13.67792	03	01	48.79	+18	35	08.6		399
1982	PL		1988	11	08.53970	02	40	48.19	+17	24	42.2	15.5	399
1982	PL		1988	11	08.55532	02	40	47.29	+17	24	40.3		399
1982	PL		1988	11	08.57222	02	40	46.34	+17	24	36.4		399
1983	LM		1988	11	02.51562	02	22	37.88	+13	58	19.7	16	399
1983	LM		1988	11	02.52998	02	22	37.05	+13	58	12.7		399
1983	LM		1988	11	02.54769	02	22	36.15	+13	58	03.6		399
1984	SX		1988	10	13.52014	01	06	53.63	+10	32	12.3	16	399
1984	SX		1988	10	13.53889	01	06	52.54	+10	32	08.6		399

1984	SX		1988	10	13.55799	01	06	51.41	+10	32	03.7		399
1984	SX		1988	10	18.54074	01	02	12.87	+10	06	01.5	16.5	399
1984	SX		1988	10	18.55729	01	02	11.88	+10	05	56.3		399
1986	EM2		1988	10	13.64687	02	55	06.00	+20	05	08.2	16.5	399
1986	EM2		1988	10	13.66148	02	55	05.38	+20	05	07.3		399
1988	SN		1988	10	08.57037	00	57	31.24	+09	58	37.5	16	399
1988	SN		1988	10	18.54074	00	47	22.12	+09	43	05.8	16	399
1988	SN		1988	10	18.55729	00	47	21.37	+09	43	04.4		399
1988	TD		1988	10	08.57037	00	55	31.65	+09	10	10.6	16	399
1988	TD		1988	10	19.58299	00	46	33.63	+08	09	16.4	16	399
1988	TD		1988	10	19.59965	00	46	32.94	+08	09	11.8		399
1988	TD		1988	10	19.61701	00	46	32.16	+08	09	06.3		399
1988	TE		1988	10	19.58299	00	48	24.76	+07	31	04.8	16	399
1988	TE		1988	10	19.59965	00	48	24.02	+07	30	59.0		399
1988	TE		1988	10	19.61701	00	48	23.34	+07	30	55.2		399
1988	TG		1988	10	13.52014	01	08	17.33	+11	35	00.2	16	399
1988	TG		1988	10	13.53889	01	08	16.71	+11	34	25.1		399
1988	TG		1988	10	13.55799	01	08	16.23	+11	33	50.5		399
1988	TG		1988	10	15.58831	01	07	20.71	+10	30	13.7	15.5	399
1988	TG		1988	10	16.64907	01	06	52.08	+09	56	52.4	16	399
1988	TG		1988	10	16.66591	01	06	51.52	+09	56	18.2		399
1988	TJ	*	1988	10	03.49265	01	05	57.45	+11	21	26.3	16.5	399
1988	TJ		1988	10	03.50758	01	05	56.44	+11	21	24.3		399
1988	TJ		1988	10	03.53021	01	05	55.18	+11	21	24.7		399
1988	TJ		1988	10	03.54485	01	05	54.32	+11	21	23.6		399
1988	TJ		1988	10	08.57037	01	00	47.47	+11	13	46.5	16.5	399
1988	TJ		1988	10	13.52014	00	55	41.01	+11	03	49.7	16.5	399
1988	TJ		1988	10	13.53889	00	55	40.13	+11	03	48.9		399
1988	TJ		1988	10	13.55799	00	55	38.79	+11	03	45.4		399
1988	TJ		1988	10	16.51736	00	52	39.35	+10	57	03.7	16.5	399
1988	TJ		1988	10	16.53333	00	52	38.20	+10	57	02.2		399
1988	TJ		1988	10	18.54074	00	50	39.36	+10	52	15.9	16.5	399
1988	TJ		1988	10	18.55729	00	50	38.46	+10	52	10.8		399
1988	TK	*	1988	10	03.49265	01	06	38.07	+11	02	31.2	16.5	399
1988	TK		1988	10	03.50758	01	06	37.35	+11	02	27.4		399
1988	TK		1988	10	03.53021	01	06	36.01	+11	02	28.2		399
1988	TK		1988	10	03.54485	01	06	34.93	+11	02	25.5		399
1988	TK		1988	10	13.52014	00	56	40.77	+10	47	33.5	16.5	399
1988	TK		1988	10	13.53889	00	56	39.68	+10	47	32.3		399
1988	TK		1988	10	13.55799	00	56	38.25	+10	47	28.7		399
1988	TK		1988	10	16.51736	00	53	47.10	+10	42	05.6	16.5	399
1988	TK		1988	10	16.53333	00	53	46.08	+10	42	02.4		399
1988	TL	*	1988	10	03.49265	01	09	26.25	+10	19	36.5	16.5	399
1988	TL		1988	10	03.50758	01	09	25.27	+10	19	31.0		399
1988	TL		1988	10	03.53021	01	09	23.82	+10	19	27.2		399
1988	TL		1988	10	03.54485	01	09	22.99	+10	19	21.5		399
1988	TL		1988	10	05.52616	01	07	36.90	+10	09	40.2	16.5	399
1988	TL		1988	10	08.57037	01	04	49.25	+09	53	58.3	16.5	399
1988	TL		1988	10	13.52014	01	00	12.19	+09	26	53.2	16.5	399
1988	TL		1988	10	13.53889	01	00	11.01	+09	26	44.4		399
1988	TL		1988	10	13.55799	01	00	09.75	+09	26	37.8		399
1988	TL		1988	10	16.51736	00	57	24.99	+09	09	54.3	16.5	399
1988	TL		1988	10	16.53333	00	57	24.10	+09	09	46.7		399
1988	TL		1988	10	18.55729	00	55	32.95	+08	58	16.7	16.5	399
1988	TL		1988	10	19.58299	00	54	37.81	+08	52	26.3	16.5	399
1988	TL		1988	10	19.59965	00	54	36.85	+08	52	24.1		399
1988	TL		1988	10	19.61701	00	54	35.89	+08	52	14.0		399
1988	TM	*	1988	10	03.49265	01	13	24.14	+10	42	20.6	16	399
1988	TM		1988	10	03.50758	01	13	23.51	+10	42	13.2		399

1988	TM		1988	10	03.53021	01	13	22.35	+10	42	02.7		399
1988	TM		1988	10	03.54485	01	13	21.61	+10	41	54.9		399
1988	TM		1988	10	05.52616	01	11	32.90	+10	25	14.1	16	399
1988	TM		1988	10	08.57037	01	08	43.85	+09	58	53.3	16	399
1988	TM		1988	10	13.52014	01	04	10.14	+09	15	19.0	16	399
1988	TM		1988	10	13.53889	01	04	09.14	+09	15	09.0		399
1988	TM		1988	10	13.55799	01	04	07.93	+09	14	57.1		399
1988	TM		1988	10	18.54074	00	59	44.78	+08	31	28.2	16.5	399
1988	TM		1988	10	18.55729	00	59	44.12	+08	31	22.1		399
1988	TM		1988	10	19.58299	00	58	52.65	+08	22	37.3	16.5	399
1988	TM		1988	10	19.59965	00	58	51.64	+08	22	27.0		399
1988	TM		1988	10	19.61701	00	58	50.69	+08	22	19.0		399
1988	TN	*	1988	10	05.55069	01	28	05.74	+10	23	54.9	16	399
1988	TN		1988	10	05.56528	01	28	04.82	+10	23	53.2		399
1988	TN		1988	10	05.58229	01	28	04.00	+10	23	49.0		399
1988	TN		1988	10	13.58449	01	20	10.55	+10	02	26.6	16	399
1988	TN		1988	10	13.60179	01	20	09.18	+10	02	22.9		399
1988	TN		1988	10	13.62442	01	20	07.96	+10	02	18.4		399
1988	TN		1988	10	16.59838	01	17	08.04	+09	53	31.3	16	399
1988	TN		1988	10	16.61502	01	17	07.03	+09	53	29.3		399
1988	TN		1988	10	16.64907	01	17	05.14	+09	53	21.9		399
1988	TN		1988	10	16.66591	01	17	03.86	+09	53	19.7		399
1988	TN		1988	10	16.69091	01	17	02.38	+09	53	13.7		399
1988	TN		1988	10	19.67963	01	14	03.46	+09	44	12.8	16	399
1988	TO	*	1988	10	05.60208	01	40	41.49	+10	26	30.2	16	399
1988	TO		1988	10	05.64172	01	40	39.39	+10	26	22.7		399
1988	TO		1988	10	13.58449	01	33	04.80	+10	00	32.4	15.5	399
1988	TO		1988	10	13.60179	01	33	03.79	+10	00	28.4		399
1988	TO		1988	10	13.62442	01	33	02.35	+10	00	23.9		399
1988	TO		1988	10	16.59838	01	30	07.01	+09	49	53.6	15.5	399
1988	TO		1988	10	16.61502	01	30	05.99	+09	49	49.8		399
1988	TS	*	1988	10	13.52014	00	53	26.94	+10	46	11.9	16	399
1988	TS		1988	10	13.53889	00	53	26.33	+10	45	55.7		399
1988	TS		1988	10	13.55799	00	53	25.65	+10	45	35.1		399
1988	TS		1988	10	16.51736	00	51	59.72	+09	59	41.9	16	399
1988	TS		1988	10	16.53333	00	51	59.27	+09	59	23.9		399
1988	TS		1988	10	18.54074	00	51	04.88	+09	28	43.7	16	399
1988	TS		1988	10	18.55729	00	51	04.42	+09	28	31.4		399
1988	TS		1988	10	19.58299	00	50	37.79	+09	13	04.8	16.5	399
1988	TS		1988	10	19.59965	00	50	37.39	+09	12	48.1		399
1988	TS		1988	10	19.61701	00	50	36.86	+09	12	34.2		399
1988	TT		1988	10	03.47326	01	08	33.85	+11	15	50.1	16.5	399
1988	TT		1988	10	03.53021	01	08	30.55	+11	15	48.5		399
1988	TT		1988	10	03.54485	01	08	29.91	+11	15	51.2		399
1988	TT	*	1988	10	13.52014	00	59	26.20	+11	02	02.9	16.5	399
1988	TT		1988	10	13.53889	00	59	25.07	+11	02	01.9		399
1988	TT		1988	10	13.55799	00	59	23.87	+11	01	59.6		399
1988	TT		1988	10	16.51736	00	56	44.43	+10	57	01.1	16.5	399
1988	TT		1988	10	16.53333	00	56	43.72	+10	57	00.3		399
1988	TU	*	1988	10	13.52014	01	10	00.64	+10	12	29.7	16	399
1988	TU		1988	10	13.53889	01	09	59.83	+10	12	22.0		399
1988	TU		1988	10	13.55799	01	09	58.87	+10	12	11.8		399
1988	TU		1988	10	15.58831	01	08	22.59	+09	56	41.1	16	399
1988	TU		1988	10	16.64907	01	07	32.50	+09	48	31.8	16	399
1988	TU		1988	10	16.66591	01	07	31.55	+09	48	24.0		399
1988	TU		1988	10	19.64497	01	05	14.13	+09	25	24.0	16	399
1988	TU		1988	10	19.66157	01	05	13.43	+09	25	16.5		399
1988	TU		1988	10	19.67963	01	05	12.56	+09	25	08.9		399
1988	TU		1988	10	31.45382	00	57	29.64	+07	59	06.4	16.5	399

1988	TU		1988	10	31.47436	00	57	28.84	+07	58	58.1		399
1988	TU		1988	10	31.49242	00	57	28.31	+07	58	49.4		399
1988	TV		1988	10	07.59977	01	15	21.02	+10	24	14.0	16.5	399
1988	TV		1988	10	07.61603	01	15	20.35	+10	24	07.0		399
1988	TV		1988	10	07.63744	01	15	19.01	+10	23	50.9		399
1988	TV	*	1988	10	13.52014	01	10	45.70	+09	26	41.5	16.5	399
1988	TV		1988	10	13.53889	01	10	44.79	+09	26	30.8		399
1988	TV		1988	10	13.55799	01	10	43.98	+09	26	21.0		399
1988	TV		1988	10	16.47992	01	08	28.37	+08	57	21.6	16.5	399
1988	TV		1988	10	16.49589	01	08	27.57	+08	57	12.7		399
1988	TV		1988	10	19.64497	01	06	04.83	+08	26	10.3	16	399
1988	TV		1988	10	19.66157	01	06	04.02	+08	25	58.2		399
1988	TW	*	1988	10	13.58449	01	18	09.54	+11	17	13.2	16	399
1988	TW		1988	10	13.60179	01	18	08.44	+11	17	12.0		399
1988	TW		1988	10	13.62442	01	18	06.80	+11	17	11.9		399
1988	TW		1988	10	16.47992	01	14	58.69	+11	13	39.4	15.5	399
1988	TW		1988	10	16.49589	01	14	57.66	+11	13	39.9		399
1988	TW		1988	10	16.64907	01	14	47.25	+11	13	27.0		399
1988	TW		1988	10	16.66591	01	14	46.00	+11	13	25.7		399
1988	TW		1988	10	16.69091	01	14	44.33	+11	13	23.4		399
1988	TW		1988	10	19.64497	01	11	33.77	+11	09	19.8	16	399
1988	TW		1988	10	19.66157	01	11	32.58	+11	09	18.2		399
1988	TX	*	1988	10	13.58449	01	20	22.47	+09	55	37.8	16.5	399
1988	TX		1988	10	13.60179	01	20	21.73	+09	55	23.9		399
1988	TX		1988	10	13.62442	01	20	20.81	+09	55	09.3		399
1988	TX		1988	10	16.59838	01	18	40.05	+09	20	46.6	16	399
1988	TX		1988	10	16.61502	01	18	39.34	+09	20	34.9		399
1988	TX		1988	10	19.64497	01	17	01.33	+08	46	29.6	16.5	399
1988	TX		1988	10	19.66157	01	17	00.80	+08	46	18.4		399
1988	TX		1988	10	19.67963	01	17	00.17	+08	46	06.8		399
1988	TY	*	1988	10	13.58449	01	22	15.21	+10	08	22.5	16.5	399
1988	TY		1988	10	13.60179	01	22	14.07	+10	08	25.5		399
1988	TY		1988	10	13.62442	01	22	12.76	+10	08	24.1		399
1988	TY		1988	10	16.59838	01	19	24.23	+10	08	56.6	16.5	399
1988	TY		1988	10	16.61502	01	19	23.36	+10	08	56.3		399
1988	TY		1988	10	19.64497	01	16	33.28	+10	09	10.4	16.5	399
1988	TY		1988	10	19.66157	01	16	32.29	+10	09	11.6		399
1988	TY		1988	10	19.67963	01	16	31.10	+10	09	09.0		399
1988	TZ	*	1988	10	13.58449	01	23	22.21	+09	18	37.8	16.5	399
1988	TZ		1988	10	13.60179	01	23	21.31	+09	18	35.5		399
1988	TZ		1988	10	13.62442	01	23	19.91	+09	18	32.0		399
1988	TZ		1988	10	16.59838	01	20	14.76	+09	08	54.8	16.5	399
1988	TZ		1988	10	16.61502	01	20	13.80	+09	08	52.9		399
1988	TZ		1988	10	19.64497	01	17	05.72	+08	58	58.3	16.5	399
1988	TZ		1988	10	19.67963	01	17	03.61	+08	58	48.9		399
1988	TA1		1988	10	05.56526	01	29	07.54	+10	20	56.8	16	399
1988	TA1		1988	10	05.58229	01	29	06.87	+10	20	53.1		399
1988	TA1	*	1988	10	13.58449	01	23	34.30	+09	17	04.8	16	399
1988	TA1		1988	10	13.60179	01	23	33.32	+09	16	56.5		399
1988	TA1		1988	10	13.62442	01	23	32.27	+09	16	45.1		399
1988	TA1		1988	10	16.59838	01	21	25.48	+08	52	25.8	16	399
1988	TA1		1988	10	16.61502	01	21	24.65	+08	52	18.5		399
1988	TA1		1988	10	19.66157	01	19	15.54	+08	27	18.9	16.5	399
1988	TA1		1988	10	19.67963	01	19	14.74	+08	27	09.6		399
1988	TA1		1988	11	02.46204	01	10	19.73	+06	39	31.6	16.5	399
1988	TA1		1988	11	02.47882	01	10	19.26	+06	39	27.2		399
1988	TA1		1988	11	02.49410	01	10	18.82	+06	39	20.4		399
1988	TB1	*	1988	10	13.58449	01	23	40.09	+10	00	04.2	16.5	399
1988	TB1		1988	10	13.60179	01	23	39.43	+09	59	55.6		399

1988	TB1		1988	10	13.62442	01	23	38.19	+09	59	43.8		399
1988	TB1		1988	10	16.59838	01	21	09.85	+09	34	09.5	16	399
1988	TB1		1988	10	16.61502	01	21	09.00	+09	34	01.9		399
1988	TB1		1988	10	19.64497	01	18	39.81	+09	07	59.5	16.5	399
1988	TB1		1988	10	19.66157	01	18	38.92	+09	07	49.0		399
1988	TB1		1988	10	19.67963	01	18	38.10	+09	07	41.5		399
1988	TB1		1988	10	31.45382	01	10	00.85	+07	32	42.9	16.5	399
1988	TB1		1988	10	31.47436	01	10	00.15	+07	32	31.8		399
1988	TB1		1988	10	31.49242	01	09	59.17	+07	32	22.0		399
1988	TC1	*	1988	10	13.58449	01	23	43.62	+10	26	04.5	16	399
1988	TC1		1988	10	13.60179	01	23	42.34	+10	26	00.5		399
1988	TC1		1988	10	13.62442	01	23	41.06	+10	25	57.5		399
1988	TC1		1988	10	16.59838	01	20	37.09	+10	18	38.9	16	399
1988	TC1		1988	10	16.61502	01	20	36.04	+10	18	35.9		399
1988	TC1		1988	10	19.64497	01	17	28.97	+10	10	49.2	16.5	399
1988	TC1		1988	10	19.66157	01	17	27.98	+10	10	48.1		399
1988	TC1		1988	10	19.67963	01	17	26.81	+10	10	44.7		399
1988	TC1		1988	10	31.45382	01	06	16.44	+09	41	35.6	16	399
1988	TC1		1988	10	31.47436	01	06	15.43	+09	41	34.4		399
1988	TC1		1988	10	31.49242	01	06	14.25	+09	41	31.4		399
1988	TD1	*	1988	10	13.58449	01	24	28.45	+10	59	58.8	16.5	399
1988	TD1		1988	10	13.60179	01	24	27.23	+10	59	53.5		399
1988	TD1		1988	10	16.59838	01	21	28.97	+10	46	15.5	16.5	399
1988	TD1		1988	10	16.61502	01	21	27.78	+10	46	09.7		399
1988	TD1		1988	10	19.64497	01	18	30.50	+10	32	13.5	16.5	399
1988	TD1		1988	10	19.66157	01	18	29.55	+10	32	07.1		399
1988	TK1	*	1988	10	13.52014	01	00	58.59	+10	56	12.9	16	399
1988	TK1		1988	10	13.53889	01	00	57.46	+10	56	06.9		399
1988	TK1		1988	10	13.55799	01	00	56.28	+10	55	57.4		399
1988	TK1		1988	10	16.51736	00	58	04.54	+10	38	14.4	16.5	399
1988	TK1		1988	10	16.53333	00	58	03.60	+10	38	10.7		399
1988	TK1		1988	10	16.55041	00	58	02.48	+10	38	03.5		399
1988	TK1		1988	10	18.54074	00	56	08.79	+10	26	06.0	16.5	399
1988	TK1		1988	10	18.55729	00	56	07.87	+10	25	57.0		399
1988	TL1	*	1988	10	13.58449	01	20	38.22	+10	50	15.9	16	399
1988	TL1		1988	10	13.60179	01	20	37.19	+10	50	08.5		399
1988	TL1		1988	10	16.64907	01	18	03.18	+10	22	11.6	16	399
1988	TL1		1988	10	16.66591	01	18	02.25	+10	22	01.9		399
1988	TL1		1988	10	16.69091	01	18	01.14	+10	21	49.9		399
1988	TL1		1988	10	19.64497	01	15	34.04	+09	54	32.4	16	399
1988	TL1		1988	10	19.66157	01	15	33.18	+09	54	23.1		399
1988	TL1		1988	10	19.67963	01	15	32.20	+09	54	11.8		399
1988	TL1		1988	10	31.45382	01	06	50.69	+08	10	00.3	16.5	399
1988	TL1		1988	10	31.47436	01	06	49.95	+08	09	49.8		399
1988	TL1		1988	10	31.49242	01	06	49.26	+08	09	39.3		399
1988	TM1	*	1988	10	13.58449	01	28	43.55	+10	00	37.6	16	399
1988	TM1		1988	10	13.60179	01	28	42.62	+10	00	32.6		399
1988	TM1		1988	10	13.62442	01	28	41.46	+10	00	23.2		399
1988	TM1		1988	10	16.59838	01	26	10.83	+09	41	14.5	16	399
1988	TM1		1988	10	16.61502	01	26	10.02	+09	41	06.5		399
1988	TM1		1988	11	02.46204	01	13	02.63	+07	56	17.7	16	399
1988	TM1		1988	11	02.47882	01	13	01.91	+07	56	14.0		399
1988	TM1		1988	11	02.49410	01	13	01.28	+07	56	08.7		399
1988	TN1		1988	10	05.60208	01	41	47.29	+10	35	06.2	16	399
1988	TN1		1988	10	05.61736	01	41	46.33	+10	35	07.6		399
1988	TN1		1988	10	05.64172	01	41	45.03	+10	35	12.8		399
1988	TN1	*	1988	10	13.58449	01	33	19.04	+10	53	58.3	15.5	399
1988	TN1		1988	10	13.60179	01	33	18.09	+10	54	01.4		399
1988	TN1		1988	10	13.62442	01	33	16.32	+10	54	04.1		399

1988	TN1		1988	10	16.59838	01	29	59.80	+11	00	08.8	15.5	399
1988	TN1		1988	10	16.61502	01	29	58.65	+11	00	11.0		399
1988	TV1		1988	10	03.47326	01	13	16.13	+11	10	50.2	16.5	399
1988	TV1		1988	10	03.49265	01	13	15.32	+11	10	45.2		399
1988	TV1		1988	10	03.50758	01	13	14.67	+11	10	43.1		399
1988	TV1	*	1988	10	13.52014	01	05	49.14	+10	05	40.3	16.5	399
1988	TV1		1988	10	13.53889	01	05	48.37	+10	05	32.8		399
1988	TV1		1988	10	13.55799	01	05	47.25	+10	05	24.8		399
1988	TV1		1988	10	16.64907	01	03	27.00	+09	43	38.4	16.5	399
1988	TV1		1988	10	16.66591	01	03	26.22	+09	43	30.3		399
1988	TV1		1988	10	18.55729	01	02	02.63	+09	30	04.5	16.5	399
1988	TV1		1988	10	19.58299	01	01	18.27	+09	22	47.3	16.5	399
1988	TV1		1988	10	19.59965	01	01	17.37	+09	22	40.1		399
1988	TW1		1988	10	03.53021	01	13	37.50	+11	52	48.9	16.5	399
1988	TW1		1988	10	03.54485	01	13	36.74	+11	52	33.6		399
1988	TW1	*	1988	10	13.52014	01	05	59.62	+09	38	06.2	16.5	399
1988	TW1		1988	10	13.55799	01	05	57.70	+09	37	35.5		399
1988	TW1		1988	10	15.58831	01	04	26.54	+09	10	10.6	16.5	399
1988	TW1		1988	10	16.64907	01	03	39.73	+08	55	59.3	16.5	399
1988	TW1		1988	10	19.59965	01	01	33.21	+08	16	51.3	16.5	399
1988	TW1		1988	10	19.61701	01	01	32.42	+08	16	37.4		399
1988	TX1		1988	10	05.55069	01	23	52.07	+10	30	04.1	16.5	399
1988	TX1		1988	10	05.56528	01	23	51.46	+10	29	57.6		399
1988	TX1	*	1988	10	13.58449	01	18	02.72	+09	31	38.6	16.5	399
1988	TX1		1988	10	13.60179	01	18	01.85	+09	31	31.3		399
1988	TX1		1988	10	13.62442	01	18	01.07	+09	31	20.1		399
1988	TX1		1988	10	16.47992	01	15	55.99	+09	10	11.4	16.5	399
1988	TX1		1988	10	16.49589	01	15	55.25	+09	10	01.9		399
1988	TX1		1988	10	19.64497	01	13	39.00	+08	46	44.7	16.5	399
1988	TX1		1988	10	19.66157	01	13	38.43	+08	46	35.0		399
1988	TY1		1988	11	02.52998	02	38	48.89	+14	14	21.7		399
1988	TY1		1988	11	02.54769	02	38	47.69	+14	14	15.8		399
1988	TY1		1988	11	02.56806	02	38	46.62	+14	14	12.5	16	399
1988	TY1		1988	11	02.58323	02	38	45.53	+14	14	07.9		399
1988	TY1		1988	11	02.60104	02	38	44.40	+14	14	03.5		399
1988	TR2		1988	10	31.45382	01	07	51.12	+07	34	31.6	16.5	399
1988	TR2		1988	10	31.47436	01	07	50.04	+07	34	36.2		399
1988	TR2		1988	10	31.49242	01	07	48.97	+07	34	38.7		399
1988	TR2		1988	11	02.46204	01	05	58.70	+07	41	21.6	16.5	399
1988	TR2		1988	11	02.47882	01	05	57.87	+07	41	25.2		399
1988	TR2		1988	11	02.49410	01	05	56.95	+07	41	27.4		399
1988	UA		1988	10	07.59977	01	19	16.78	+10	15	57.6	16.5	399
1988	UA		1988	10	07.61603	01	19	15.86	+10	15	53.8		399
1988	UA	*	1988	10	16.47992	01	11	48.95	+09	27	22.9	16	399
1988	UA		1988	10	16.49589	01	11	48.14	+09	27	17.3		399
1988	UA		1988	10	16.64907	01	11	39.90	+09	26	23.7		399
1988	UA		1988	10	16.66591	01	11	38.84	+09	26	15.5		399
1988	UA		1988	10	19.64497	01	09	08.76	+09	09	04.5	16.5	399
1988	UA		1988	10	19.66157	01	09	07.99	+09	09	00.2		399
1988	UA		1988	10	19.67963	01	09	07.08	+09	08	54.1		399
1988	UB	*	1988	10	16.47992	01	14	05.38	+10	22	26.3	16	399
1988	UB		1988	10	16.49589	01	14	04.63	+10	22	21.7		399
1988	UB		1988	10	16.64907	01	13	55.26	+10	21	34.3		399
1988	UB		1988	10	16.69091	01	13	52.74	+10	21	18.6		399
1988	UB		1988	10	19.64497	01	11	01.67	+10	05	35.2	16.5	399
1988	UB		1988	10	19.66157	01	11	00.84	+10	05	31.9		399
1988	UB		1988	10	31.45382	01	00	41.41	+09	04	27.8	16.5	399
1988	UB		1988	10	31.47436	01	00	40.55	+09	04	23.2		399
1988	UB		1988	10	31.49242	01	00	39.68	+09	04	14.7		399

1988	UD	*	1988	10	16.47992	01	09	11.43	+09	52	59.8	16.0	399
1988	UD		1988	10	16.49589	01	09	10.45	+09	52	54.2		399
1988	UD		1988	10	19.64497	01	06	08.75	+09	33	32.9	16.5	399
1988	UD		1988	10	19.66157	01	06	07.69	+09	33	25.2		399
1988	UD		1988	10	19.67963	01	06	06.81	+09	33	19.8		399
1988	UE	*	1988	10	16.47992	01	10	12.94	+10	15	03.5	16.5	399
1988	UE		1988	10	16.49589	01	10	11.97	+10	14	57.8		399
1988	UE		1988	10	19.64497	01	07	17.70	+10	00	37.0	16.5	399
1988	UE		1988	10	19.66157	01	07	16.84	+10	00	31.3		399
1988	UE		1988	10	19.67963	01	07	15.88	+10	00	26.5		399
1988	UJ		1988	11	02.51562	02	33	39.53	+14	13	12.2	16	399
1988	UJ		1988	11	02.52998	02	33	38.75	+14	13	09.9		399
1988	UJ		1988	11	02.54769	02	33	37.77	+14	13	10.8		399
1988	VB		1988	11	02.56806	02	44	08.39	+15	21	32.5	15.5	399
1988	VB		1988	11	02.58323	02	44	07.45	+15	21	33.3		399
1988	VB		1988	11	02.60104	02	44	06.20	+15	21	35.8		399
1988	VB		1988	11	08.60498	02	38	00.82	+15	29	18.2	15.5	399
1988	VB		1988	11	08.61979	02	38	00.04	+15	29	19.5		399
1988	VB		1988	11	08.63530	02	37	58.98	+15	29	19.7		399
1988	VG		1988	11	06.41505	02	16	58.69	+14	00	28.8	15.5	399
1988	VG		1988	11	06.42940	02	16	58.09	+14	00	25.4		399
1988	VG		1988	11	06.54306	02	16	52.53	+14	00	02.1		399
1988	VG		1988	11	06.56557	02	16	51.69	+13	59	57.9		399
1988	VG		1988	11	08.48229	02	15	21.46	+13	53	10.2	16	399
1988	VG		1988	11	08.49861	02	15	20.82	+13	53	06.2		399
1988	VG		1988	11	08.51424	02	15	20.13	+13	53	03.6		399
1988	VJ		1988	11	02.56806	02	44	44.42	+16	42	17.4	16	399
1988	VJ		1988	11	02.58323	02	44	43.40	+16	42	10.3		399
1988	VJ		1988	11	02.60104	02	44	42.21	+16	42	01.9		399
1988	VJ		1988	11	08.60498	02	38	33.08	+15	55	33.1	16	399
1988	VJ		1988	11	08.61979	02	38	32.19	+15	55	27.6		399
1988	VJ		1988	11	08.63530	02	38	30.99	+15	55	16.7		399
1988	VU	*	1988	11	02.51562	02	21	23.62	+14	33	32.6	16	399
1988	VU		1988	11	02.52998	02	21	22.89	+14	33	27.9		399
1988	VU		1988	11	02.54769	02	21	22.05	+14	33	24.6		399
1988	VU		1988	11	06.41505	02	18	06.02	+14	21	01.5	16	399
1988	VU		1988	11	06.42940	02	18	05.16	+14	20	58.7		399
1988	VU		1988	11	06.54306	02	17	59.67	+14	20	33.0		399
1988	VU		1988	11	06.56557	02	17	58.79	+14	20	25.6		399
1988	VU		1988	11	08.48229	02	16	22.90	+14	14	21.8	16	399
1988	VU		1988	11	08.49861	02	16	22.07	+14	14	16.7		399
1988	VU		1988	11	08.51424	02	16	21.35	+14	14	14.9		399
1988	VV	*	1988	11	02.51562	02	30	54.46	+15	32	44.3	16.5	399
1988	VV		1988	11	02.52998	02	30	53.66	+15	32	37.1		399
1988	VV		1988	11	02.54769	02	30	52.50	+15	32	28.1		399
1988	VV		1988	11	06.42940	02	27	23.57	+15	02	23.7	16.5	399
1988	VV		1988	11	06.54306	02	27	17.33	+15	01	32.5		399
1988	VV		1988	11	06.56557	02	27	16.11	+15	01	24.8		399
1988	VV		1988	11	08.48229	02	25	35.20	+14	46	36.4	16.5	399
1988	VV		1988	11	08.49861	02	25	34.44	+14	46	30.3		399
1988	VV		1988	11	08.51424	02	25	33.60	+14	46	25.2		399
1988	VW	*	1988	11	02.51562	02	33	27.25	+16	00	35.2	16.5	399
1988	VW		1988	11	02.52998	02	33	26.49	+16	00	31.9		399
1988	VW		1988	11	02.54769	02	33	25.85	+16	00	28.6		399
1988	VW		1988	11	06.41505	02	30	19.85	+15	45	06.2	16.5	399
1988	VW		1988	11	06.42940	02	30	19.04	+15	45	02.1		399
1988	VW		1988	11	06.54306	02	30	13.44	+15	44	36.5		399
1988	VZ		1988	11	02.56806	02	40	27.56	+16	55	27.5	16	399
1988	VZ		1988	11	02.58323	02	40	26.71	+16	55	26.5		399

1988	VZ		1988	11	02.60104	02	40	25.71	+16	55	28.1		399
1988	VN1	*	1988	11	02.51562	02	21	29.03	+16	55	39.2	16.5	399
1988	VN1		1988	11	02.52998	02	21	28.42	+16	55	40.0		399
1988	VN1		1988	11	02.54769	02	21	27.35	+16	55	36.2		399
1988	VN1		1988	11	08.49861	02	15	29.70	+16	43	21.7	16	399
1988	VN1		1988	11	08.51424	02	15	28.64	+16	43	17.3		399
1988	VO1	*	1988	11	02.51562	02	25	35.30	+15	34	19.6	15.5	399
1988	VO1		1988	11	02.52998	02	25	34.22	+15	34	12.5		399
1988	VO1		1988	11	02.54769	02	25	33.29	+15	34	01.7		399
1988	VO1		1988	11	08.49861	02	19	52.06	+14	48	29.0	16.5	399
1988	VO1		1988	11	08.51424	02	19	51.06	+14	48	21.4		399
1988	VQ1		1988	11	02.56806	02	47	56.28	+15	47	39.1	16	399
1988	VQ1		1988	11	02.58323	02	47	55.28	+15	47	38.3		399
1988	VQ1		1988	11	02.60104	02	47	54.09	+15	47	39.4		399
1988	VZ1	*	1988	11	02.51562	02	35	14.43	+15	24	55.2	16.5	399
1988	VZ1		1988	11	02.52998	02	35	13.68	+15	24	53.9		399
1988	VZ1		1988	11	02.54769	02	35	12.65	+15	24	48.1		399
1988	VZ1		1988	11	08.48229	02	30	23.61	+15	02	19.5	16.5	399
1988	VZ1		1988	11	08.49861	02	30	22.88	+15	02	14.2		399
1988	VZ1		1988	11	08.51424	02	30	21.97	+15	02	09.0		399
1988	VA2	*	1988	11	02.56806	02	48	17.61	+16	28	36.1	16.5	399
1988	VA2		1988	11	02.58323	02	48	16.44	+16	28	33.4		399
1988	VA2		1988	11	02.60104	02	48	15.40	+16	28	32.2		399
1988	VA2		1988	11	08.53970	02	41	40.05	+16	17	54.5	16.5	399
1988	VA2		1988	11	08.55532	02	41	38.67	+16	17	52.5		399
1988	VA2		1988	11	08.57222	02	41	37.47	+16	17	49.6		399
1988	VB2	*	1988	11	02.56806	02	48	55.28	+14	37	06.1	15.5	399
1988	VB2		1988	11	02.58323	02	48	54.33	+14	36	59.4		399
1988	VB2		1988	11	02.60104	02	48	53.14	+14	36	50.1		399
1988	VB2		1988	11	08.60498	02	42	43.13	+13	51	42.2	16.5	399
1988	VB2		1988	11	08.61979	02	42	41.99	+13	51	33.4		399
1988	VB2		1988	11	08.63530	02	42	41.13	+13	51	22.7		399
1988	VC2	*	1988	11	02.56806	02	51	53.75	+15	57	53.8	16.5	399
1988	VC2		1988	11	02.58323	02	51	52.93	+15	57	50.6		399
1988	VC2		1988	11	02.60104	02	51	51.83	+15	57	49.6		399
1988	VC2		1988	11	08.60498	02	46	34.32	+15	50	42.4	16.5	399
1988	VC2		1988	11	08.61979	02	46	33.38	+15	50	37.6		399
1988	VC2		1988	11	08.63530	02	46	32.63	+15	50	32.7		399
1988	VD2	*	1988	11	02.56806	02	51	59.66	+14	34	04.4	16.5	399
1988	VD2		1988	11	02.58323	02	51	58.75	+14	34	02.7		399
1988	VD2		1988	11	02.60104	02	51	57.77	+14	34	01.8		399
1988	VD2		1988	11	08.60498	02	45	30.92	+14	21	24.5	16.5	399
1988	VD2		1988	11	08.61979	02	45	29.70	+14	21	21.8		399
1988	VD2		1988	11	08.63530	02	45	28.39	+14	21	19.0		399
122			1988	10	15.52888	00	12	10.72	+00	52	34.1	12.5	399
122			1988	10	15.54201	00	12	10.22	+00	52	29.7		399
122			1988	10	15.55313	00	12	09.81	+00	52	27.1		399
168			1988	10	13.58449	01	23	14.55	+09	24	25.6	12	399
168			1988	10	13.60179	01	23	13.76	+09	24	19.2		399
168			1988	10	13.62442	01	23	12.75	+09	24	11.9		399
168			1988	10	19.64497	01	19	02.76	+08	51	23.7	12	399
168			1988	10	19.66157	01	19	02.04	+08	51	18.4		399
168			1988	10	19.67963	01	19	01.27	+08	51	13.3		399
802			1988	10	16.47992	01	10	02.26	+09	52	31.6	15	399
802			1988	10	16.49589	01	10	01.26	+09	52	28.2		399
802			1988	10	19.64497	01	06	34.85	+09	40	53.5	15	399
802			1988	10	19.66157	01	06	33.95	+09	40	49.9		399
802			1988	10	19.67963	01	06	32.61	+09	40	46.0		399
1014			1988	10	13.52014	00	59	45.79	+09	25	32.8	15.5	399

1014		1988	10	13.53889	00	59	44.82	+09	25	25.3	399
1014		1988	10	13.55799	00	59	43.84	+09	25	18.6	399
1014		1988	10	16.53333	00	57	14.76	+09	08	22.6	16 399
2196		1988	10	19.58299	00	58	47.97	+09	41	28.3	15 399
2196		1988	10	19.59965	00	58	47.46	+09	41	22.8	399
2196		1988	10	19.61701	00	58	46.73	+09	41	16.7	399
2321		1988	11	02.56806	02	50	15.02	+15	46	47.4	16 399
2321		1988	11	02.58323	02	50	14.08	+15	46	45.3	399
2321		1988	11	02.60104	02	50	13.18	+15	46	43.8	399
2862		1988	10	16.47992	01	12	49.79	+10	23	10.8	15 399
2862		1988	10	16.49589	01	12	48.86	+10	23	03.6	399
2862		1988	10	31.45382	00	59	01.17	+08	29	02.9	15.5 399
2862		1988	10	31.47436	00	59	00.15	+08	28	54.0	399
2862		1988	10	31.49242	00	58	59.17	+08	28	45.6	399

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K. Watanabe, 13-23-202, 4 Chome, Atsubetsu cyuo 3 jo, Shiroishi-ku, Sapporo 004, Japan
Observers K. Endate, T. Fujii, M. Yanai
Measurer K. Watanabe
AGK3

1970	WC		1988	10	10.62083	01	41	54.67	+14	09	51.6	16.5 400
1970	WC		1988	10	10.64514	01	41	53.33	+14	09	46.5	400
1970	WC		1988	10	10.66667	01	41	52.29	+14	09	45.2	400
1981	PG		1988	10	10.55764	01	20	18.29	+13	26	26.9	15.0 400
1981	PG		1988	10	10.58194	01	20	16.86	+13	26	15.1	400
1981	PG		1988	10	10.60347	01	20	15.63	+13	26	10.4	400
1981	PG		1988	10	14.61875	01	16	21.33	+12	59	16.4	15 400
1981	PG		1988	10	14.64306	01	16	19.82	+12	59	04.0	400
1981	PG		1988	10	14.66389	01	16	18.46	+12	58	57.5	400
1988	TQ	*	1988	10	13.47083	01	50	26.20	+05	16	49.3	16.0 400
1988	TQ		1988	10	13.49722	01	50	24.61	+05	16	41.3	400
1988	TQ		1988	10	13.52188	01	50	23.65	+05	16	35.5	400
1988	TQ		1988	10	14.63611	01	49	29.09	+05	11	42.6	16.0 400
1988	TQ		1988	10	14.65000	01	49	28.33	+05	11	39.8	400
1988	TQ		1988	10	14.66181	01	49	27.72	+05	11	34.7	400
1988	TQ		1988	10	18.55347	01	46	14.65	+04	54	55.1	16.0 400
1988	TQ		1988	10	18.56736	01	46	13.90	+04	54	50.2	400
1988	TQ		1988	11	01.47782	01	34	58.55	+04	06	12.8	16.0 400
1988	TQ		1988	11	01.49241	01	34	57.96	+04	06	10.6	400
1988	TQ		1988	11	02.55000	01	34	11.42	+04	03	30.8	16.0 400
1988	TQ		1988	11	02.56458	01	34	10.58	+04	03	29.1	400
1988	TR	*	1988	10	13.47083	01	52	51.50	+05	41	11.9	16.0 400
1988	TR		1988	10	13.49722	01	52	49.97	+05	41	01.1	400
1988	TR		1988	10	13.52188	01	52	49.89	+05	40	15.9	16.0 400
1988	TR		1988	10	14.63611	01	51	54.63	+05	34	12.7	16.0 400
1988	TR		1988	10	14.65000	01	51	53.90	+05	34	07.2	400
1988	TR		1988	10	14.66181	01	51	53.39	+05	34	03.8	400
1988	TR		1988	10	18.55347	01	48	38.58	+05	13	18.3	16.0 400
1988	TR		1988	10	18.56736	01	48	37.87	+05	13	13.5	400
1988	TR		1988	11	01.47782	01	37	09.77	+04	07	45.4	16.0 400
1988	TR		1988	11	01.49241	01	37	09.31	+04	07	42.3	400
1988	TR		1988	11	02.55000	01	36	20.59	+04	03	34.2	16.0 400
1988	TR		1988	11	02.56458	01	36	19.92	+04	03	32.3	400
1988	TF1		1988	10	16.53993	01	51	48.25	+17	33	55.5	16.5 400
1988	TF1		1988	10	16.55729	01	51	47.43	+17	33	49.3	400
1988	TF1		1988	10	16.56910	01	51	46.78	+17	33	45.4	400
1988	UC	*	1988	10	16.49514	02	07	00.98	+12	10	21.7	16.0 400
1988	UC		1988	10	16.51042	02	07	00.03	+12	10	16.5	400

1988	UC		1988	10	16.52431	02	06	59.31	+12	10	13.9		400
1988	UC		1988	10	18.64375	02	05	13.19	+12	03	01.0	16.0	400
1988	UC		1988	10	18.65833	02	05	12.54	+12	02	59.9		400
1988	UC		1988	10	18.67083	02	05	11.78	+12	02	55.3		400
1988	UC		1988	11	02.47292	01	52	41.30	+11	10	34.2	16.5	400
1988	UC		1988	11	02.48750	01	52	40.48	+11	10	30.4		400
1988	UC		1988	11	06.40278	01	49	33.67	+10	57	25.5	16.5	400
1988	UC		1988	11	06.41736	01	49	33.02	+10	57	23.6		400
1988	UF	*	1988	10	16.52014	01	58	50.85	+13	37	19.1	16.0	400
1988	UF		1988	10	16.54444	01	58	49.75	+13	37	18.0		400
1988	UF		1988	10	16.56597	01	58	48.30	+13	37	16.7		400
1988	UF		1988	10	18.55694	01	56	58.43	+13	36	09.2	16.0	400
1988	UF		1988	10	18.57500	01	56	57.52	+13	36	09.2		400
1988	UF		1988	10	19.61389	01	55	59.04	+13	35	28.8	16.0	400
1988	UF		1988	11	03.55521	01	42	18.84	+13	22	11.9	16.0	400
1988	UF		1988	11	03.57257	01	42	17.91	+13	22	09.5		400
1988	UF		1988	11	03.58438	01	42	17.06	+13	22	09.7		400
1988	UG		1988	10	16.52014	01	56	08.70	+14	03	11.1	16.0	400
1988	UG		1988	10	16.54444	01	56	07.35	+14	02	59.2		400
1988	UG		1988	10	16.56597	01	56	06.02	+14	02	49.0		400
1988	UG	*	1988	10	16.58576	01	56	04.92	+14	02	42.7	16.5	400
1988	UG		1988	10	16.60243	01	56	04.09	+14	02	31.6		400
1988	UG		1988	10	16.61424	01	56	03.46	+14	02	30.7		400
1988	UG		1988	10	18.55694	01	54	19.51	+13	47	53.9	16.0	400
1988	UG		1988	10	18.57500	01	54	18.46	+13	47	44.4		400
1988	UG		1988	10	19.61389	01	53	22.22	+13	39	46.7	16.5	400
1988	UG		1988	10	19.63611	01	53	21.16	+13	39	37.4		400
1988	UG		1988	11	02.60660	01	40	53.70	+11	49	23.6	16.0	400
1988	UG		1988	11	02.62326	01	40	52.62	+11	49	12.8		400
1988	UG		1988	11	02.63438	01	40	52.00	+11	49	07.5		400
1988	UL		1988	10	16.53993	01	49	24.60	+17	47	35.8	15.0	400
1988	UL		1988	10	16.55729	01	49	23.96	+17	47	23.4		400
1988	UL		1988	10	16.56910	01	49	23.19	+17	47	11.9		400
1988	UL	*	1988	10	19.58368	01	47	00.95	+17	08	19.7	16.0	400
1988	UL		1988	10	19.59896	01	47	00.05	+17	08	10.3		400
1988	UL		1988	10	19.61111	01	46	59.51	+17	07	57.9		400
1988	UM		1988	10	16.53993	01	54	33.38	+18	25	27.4	16.0	400
1988	UM		1988	10	16.55729	01	54	32.31	+18	25	21.2		400
1988	UM		1988	10	16.56910	01	54	31.37	+18	25	20.8		400
1988	UM	*	1988	10	19.58368	01	51	16.25	+18	10	55.5	16.0	400
1988	UM		1988	10	19.59896	01	51	15.50	+18	10	47.9		400
1988	UM		1988	10	19.61111	01	51	14.25	+18	10	47.2		400
1988	UP	*	1988	10	16.61875	02	37	44.13	+12	17	46.6	16.5	400
1988	UP		1988	10	16.63403	02	37	43.52	+12	17	41.6		400
1988	UP		1988	10	16.64931	02	37	42.63	+12	17	40.9		400
1988	UP		1988	11	02.50625	02	24	20.82	+11	19	57.0	16.0	400
1988	UP		1988	11	02.51944	02	24	20.39	+11	19	54.7		400
1988	UP		1988	11	02.53333	02	24	19.55	+11	19	51.3		400
1988	UP		1988	11	08.46319	02	19	35.41	+11	00	29.7	16.0	400
1988	UP		1988	11	08.47778	02	19	34.57	+11	00	27.6		400
1988	UQ	*	1988	10	16.46076	01	25	14.09	+17	20	29.7	16.0	400
1988	UQ		1988	10	16.47743	01	25	13.41	+17	20	21.2		400
1988	UQ		1988	10	16.49028	01	25	12.78	+17	20	17.8		400
1988	UQ		1988	11	01.46181	01	14	27.48	+15	13	02.7	16.0	400
1988	UQ		1988	11	01.48194	01	14	26.63	+15	12	56.6		400
1988	UQ		1988	11	01.49375	01	14	25.92	+15	12	52.0		400
1988	VP1	*	1988	11	02.58542	03	18	33.21	+15	10	06.8	15.5	400
1988	VP1		1988	11	02.61181	03	18	30.91	+15	10	33.0		400
1988	VP1		1988	11	02.62639	03	18	29.15	+15	10	54.4		400

1988	VP1	1988	11	08.49375	03	08	38.87	+16 52 49.8	15.0	400
1988	VP1	1988	11	08.50625	03	08	37.54	+16 53 02.1		400
1988	VP1	1988	11	08.51528	03	08	36.62	+16 53 12.3		400
206		1988	10	13.47083	01	47	01.55	+05 32 03.4	12.0	400
206		1988	10	13.49722	01	47	00.26	+05 31 54.3		400
206		1988	10	13.52188	01	46	59.04	+05 31 46.5		400
206		1988	10	14.63611	01	46	04.69	+05 25 25.7	12.0	400
206		1988	10	14.65000	01	46	03.97	+05 25 22.3		400
206		1988	10	14.66181	01	46	03.35	+05 25 17.6		400
255		1988	10	10.62083	01	43	23.09	+13 45 42.4	14.0	400
255		1988	10	10.64514	01	43	21.77	+13 45 40.9		400
255		1988	10	10.66667	01	43	20.61	+13 45 38.3		400
292		1988	10	16.62049	02	40	09.55	+11 25 49.8	13.5	400
292		1988	10	16.64931	02	40	07.64	+11 25 51.2		400
292		1988	10	16.66528	02	40	06.65	+11 25 54.6		400
461		1988	10	16.55903	02	27	23.07	+12 39 29.3	14.5	400
461		1988	10	16.57361	02	27	22.40	+12 39 27.1		400
461		1988	10	16.58681	02	27	21.78	+12 39 23.4		400
566		1988	10	16.62049	02	37	24.61	+10 00 25.9	12.5	400
566		1988	10	16.64931	02	37	23.30	+10 00 21.0		400
566		1988	10	16.66528	02	37	22.64	+10 00 19.3		400
813		1988	11	02.58403	03	18	56.58	+17 15 22.4	14.0	400
813		1988	11	02.59861	03	18	55.52	+17 15 21.8		400
813		1988	11	02.61181	03	18	54.66	+17 15 21.3		400
1167		1988	11	08.49375	03	09	49.01	+17 11 05.0	14.0	400
1167		1988	11	08.50625	03	09	48.50	+17 11 02.0		400
1167		1988	11	08.51528	03	09	48.14	+17 10 59.9		400
1618		1988	10	16.62049	02	37	36.28	+10 40 41.2	15.5	400
1618		1988	10	16.64931	02	37	34.78	+10 40 31.8		400
1618		1988	10	16.66528	02	37	34.17	+10 40 25.5		400
2315		1988	10	16.58333	02	21	30.89	+14 50 14.1	14.0	400
2315		1988	10	16.60764	02	21	29.69	+14 50 14.3		400
2747		1988	10	10.55764	01	20	25.56	+13 53 30.1	16.0	400
2747		1988	10	10.58194	01	20	24.36	+13 53 26.7		400
2747		1988	10	10.60347	01	20	23.31	+13 53 22.5		400
2747		1988	10	14.61875	01	17	05.66	+13 39 44.5	15.5	400
2747		1988	10	14.66389	01	17	03.48	+13 39 33.5		400
2747		1988	10	16.46146	01	15	35.93	+13 33 11.2	16	400
2747		1988	10	16.48021	01	15	35.08	+13 33 05.8		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
Long. and Parallax 139.42, -345, -250 (see MPC 11200)

1981	WQ	1988	11	05.75556	04	03	32.43	+20 41 19.0	16.0	401
1981	WQ	1988	11	05.77639	04	03	30.96	+20 41 21.3	16.0	401
1981	WQ	1988	11	08.56493	04	00	42.28	+20 47 16.0		401
1981	WQ	1988	11	08.58576	04	00	40.81	+20 47 17.7		401

402 Dynic Astronomical Observatory
J. Sugie, Dynic Astronomical Observatoty, Taga 270, Taga-Cho, Inukami-Gun, Shiga-Ken, 522-03, Japan
Observer J. Sugie
Measurer M. Koishikawa
0.60-m f/5.0 reflector
Long. and Parallax 136.31, -349, -244 (see MPC 11200)
AGK3

1988	UJ		1988	10	19.62329	02	45	44.63	+14	25	29.8	17.0		402
1988	UJ		1988	10	19.70845	02	45	40.38	+14	25	26.7			402
1988	UJ		1988	10	22.74201	02	43	10.50	+14	23	19.1	17.0		402
1988	UJ		1988	10	22.78403	02	43	08.22	+14	23	15.8			402

413 Siding Spring
R. H. McNaught, Siding Spring Observatory, Coonabarabran, N.S.W. 2357, Australia
Observers C. S. Bembrick, J. Byron, R. H. McNaught, Q. A. Parker, J. A. Dawe, M. Hartley, P. McKenzie, K. S. Russell
Measurers C. S. Bembrick, R. H. McNaught
1.2-m Schmidt and (1) Uppsala Southern Schmidt

1968	OC1		1988	05	11.37103	10	42	51.37	+03	29	52.4			413
1968	OC1		1988	05	11.45436	10	42	52.86	+03	29	55.6			413
1976	GM7		1987	01	10.65641	10	30	36.66	+01	50	02.5	17		413
1976	GM7		1987	01	10.73975	10	30	35.94	+01	50	09.2			413
1976	WD		1988	04	12.54375	12	32	51.27	-17	52	23.9			413
1976	WD		1988	04	12.61319	12	32	47.34	-17	51	48.9			413
1978	VQ3		1988	04	12.54375	12	43	45.11	-15	32	02.2			413
1978	VQ3		1988	04	12.61319	12	43	41.65	-15	31	24.6			413
1981	DE2		1988	10	09.40059	21	41	04.79	-09	50	22.2		1	413
1981	DE2		1988	10	09.45962	21	41	04.28	-09	50	21.4		1	413
1981	DE2		1988	10	11.46794	21	40	49.13	-09	49	47.5		V	413
1981	EF12		1988	04	12.54375	12	46	32.27	-15	01	41.6		V	413
1981	EF12		1988	04	12.61319	12	46	28.62	-15	01	14.5		V	413
1981	EK14		1988	02	18.61153	11	10	14.81	+00	59	23.7		F	413
1981	EK14		1988	02	18.68097	11	10	11.27	+00	59	42.8		F	413
1981	EK14		1988	05	11.37103	10	34	30.20	+05	41	07.7		V	413
1981	EK14		1988	05	11.45436	10	34	32.38	+05	40	58.7		V	413
1981	ER14		1988	02	18.61153	11	21	35.88	-00	42	25.7			413
1981	ER14		1988	02	18.68097	11	21	32.17	-00	42	19.0			413
1981	ER14		1988	05	11.37103	10	30	43.38	+02	05	47.3			413
1981	ER14		1988	05	11.45436	10	30	44.50	+02	05	38.7			413
1981	EY14		1988	04	12.54375	12	49	07.01	-12	34	22.2			413
1981	EY14		1988	04	12.61319	12	49	03.04	-12	33	53.6			413
1981	EO27		1987	01	10.65641	10	18	08.97	+02	43	08.8	18		413
1981	EO27		1987	01	10.73975	10	18	07.33	+02	43	12.6			413
1985	RZ4		1988	04	12.54375	12	47	04.87	-14	50	30.4			413
1985	RZ4		1988	04	12.61319	12	47	00.72	-14	50	21.0			413
1986	RM		1988	02	18.61153	11	30	11.69	+01	32	23.3			413
1986	RM		1988	02	18.68097	11	30	08.22	+01	32	39.7			413
1986	RM		1988	05	11.37103	10	43	02.44	+05	31	18.0			413
1986	RM		1988	05	11.45436	10	43	03.77	+05	31	09.5			413
1988	DE5	*	1988	02	23.56544	10	43	17.00	-12	56	44.4	18		413
1988	DE5		1988	02	23.64877	10	43	12.23	-12	55	26.9			413
1988	DE5		1988	03	12.50370	10	26	58.31	-07	17	33.3	18		413
1988	DE5		1988	03	12.57315	10	26	54.67	-07	16	05.3			413
1988	PL		1988	10	09.40059	21	47	01.10	-11	13	34.5	17.5	1	413
1988	PL		1988	10	09.45962	21	47	02.00	-11	13	35.0		1	413
1988	PQ		1988	10	09.40059	21	40	17.10	-09	12	13.1	18.5	1	413
1988	PQ		1988	10	09.45962	21	40	17.70	-09	12	10.3		1	413
1988	PH1		1988	11	09.46501	21	52	37.78	+01	37	21.5		b	413
1988	PR2	*	1988	08	10.61566	22	27	42.66	-02	01	05.9	19	V	413
1988	PR2		1988	08	10.67122	22	27	40.39	-02	01	18.8		V	413
1988	PR2		1988	08	11.59492	22	27	02.51	-02	05	28.2		I	413
1988	PR2		1988	08	11.65395	22	27	00.16	-02	05	43.2		V	413
1988	PS2	*	1988	08	10.61566	22	27	53.10	-01	57	43.2		V	413
1988	PS2		1988	08	10.67122	22	27	51.19	-01	57	57.4		V	413
1988	PS2		1988	08	11.59492	22	27	16.63	-02	02	41.0		V	413

1988	PS2		1988	08	11.65395	22	27	14.45	-02	02	56.8	V	413
1988	PT2	*	1988	08	10.61566	22	29	15.13	-02	48	04.9	18.5	413
1988	PT2		1988	08	10.67122	22	29	12.88	-02	48	07.2		413
1988	PT2		1988	08	11.59492	22	28	33.25	-02	49	19.8		413
1988	PT2		1988	08	11.65395	22	28	30.79	-02	49	23.2		413
1988	PU2	*	1988	08	10.61566	22	30	09.22	-03	10	35.0	18	413
1988	PU2		1988	08	10.67122	22	30	06.68	-03	10	56.3		413
1988	PU2		1988	08	11.59492	22	29	27.67	-03	16	48.3	I	413
1988	PU2		1988	08	11.65395	22	29	25.08	-03	17	10.0		413
1988	PV2	*	1988	08	10.61566	22	30	34.09	-02	23	02.4	18.5	413
1988	PV2		1988	08	10.67122	22	30	31.69	-02	23	12.6		413
1988	PV2		1988	08	11.59492	22	29	52.51	-02	25	59.8	F	413
1988	PV2		1988	08	11.65395	22	29	49.87	-02	26	10.2		413
1988	PV2		1988	08	19.67350	22	23	24.71	-02	58	11.3	F	413
1988	PV2		1988	08	20.73091	22	22	29.68	-03	03	18.4	F	413
1988	PW2	*	1988	08	10.61566	22	30	42.77	-02	21	57.8	18	413
1988	PW2		1988	08	10.67122	22	30	40.67	-02	22	16.1		413
1988	PW2		1988	08	11.59492	22	30	06.64	-02	27	41.2		413
1988	PW2		1988	08	11.65395	22	30	04.47	-02	27	59.6		413
1988	PW2		1988	08	19.67350	22	24	46.95	-03	19	06.2		413
1988	PW2		1988	08	20.73091	22	24	02.99	-03	26	19.5		413
1988	QH		1988	08	20.70603	22	00	26.06	-07	52	01.0	18	413
1988	QN		1988	08	10.61566	22	33	50.97	-03	07	19.5	17.5	413
1988	QN		1988	08	10.67122	22	33	48.15	-03	07	28.0		413
1988	QO		1988	08	11.59492	22	24	41.69	-02	41	39.8	18	413
1988	QO		1988	08	11.65395	22	24	39.12	-02	41	41.8		413
1988	QP		1988	08	10.61566	22	28	28.60	-01	52	32.2	18	413
1988	QP		1988	08	10.67122	22	28	26.20	-01	52	37.4		413
1988	QP		1988	08	11.59492	22	27	47.70	-01	54	01.2		413
1988	QP		1988	08	11.65395	22	27	45.39	-01	54	06.3		413
1988	QQ		1988	08	10.61566	22	31	07.24	-02	34	55.1	18	413
1988	QQ		1988	08	10.67122	22	31	05.28	-02	35	15.3		413
1988	QQ		1988	08	11.59492	22	30	33.53	-02	40	57.8		413
1988	QQ		1988	08	11.65395	22	30	31.41	-02	41	18.3		413
1988	QR		1988	08	10.61566	22	32	04.33	-02	56	19.1	18	413
1988	QR		1988	08	10.67122	22	32	01.94	-02	56	26.3		413
1988	QR		1988	08	11.59492	22	31	23.79	-02	58	27.5		413
1988	QR		1988	08	11.65395	22	31	21.35	-02	58	34.5		413
1988	TJ1		1988	11	03.49161	00	47	17.21	+01	34	17.4	17	413
1988	TJ1		1988	11	03.54369	00	47	23.44	+01	29	51.4	p	413
243			1988	05	11.37103	10	45	45.90	+06	59	40.7		413
243			1988	05	11.45436	10	45	47.34	+06	59	31.6		413
253			1988	10	09.40059	21	43	13.45	-11	17	26.8	1	413
253			1988	10	09.45962	21	43	15.07	-11	17	36.8	1	413
253			1988	10	11.54684	21	44	28.54	-11	23	27.0		413
408			1988	04	12.54375	12	39	07.58	-17	41	50.9		413
408			1988	04	12.61319	12	39	04.55	-17	41	32.2		413
456			1988	04	12.54375	12	40	45.78	-18	06	24.6		413
456			1988	04	12.61319	12	40	42.74	-18	05	37.6		413
473			1988	02	18.61153	11	25	19.14	-00	41	28.1		413
473			1988	02	18.68097	11	25	15.48	-00	41	33.8		413
711			1988	05	11.37103	10	45	07.78	+06	47	11.0		413
711			1988	05	11.45436	10	45	09.14	+06	46	52.8		413
819			1988	04	12.54375	12	51	07.63	-12	51	49.4		413
819			1988	04	12.61319	12	51	03.07	-12	51	31.5		413
922			1988	02	18.61153	11	22	01.51	-03	04	36.3		413
922			1988	02	18.68097	11	21	58.65	-03	04	17.4		413
922			1988	05	11.37103	10	42	50.93	+03	56	28.2		413
922			1988	05	11.45436	10	42	51.76	+03	56	33.9		413

935	1988	05	11.37103	10	36	55.11	+07	17	58.8			413
935	1988	05	11.45436	10	36	57.29	+07	17	40.7			413
979	1988	04	12.54375	12	49	10.69	-13	41	05.8			413
979	1988	04	12.61319	12	49	07.83	-13	40	39.8			413
980	1987	01	10.65641	10	08	31.28	-02	00	57.0			413
980	1987	01	10.73975	10	08	28.63	-02	01	14.2			413
1135	1988	05	11.37103	10	36	56.16	+08	06	41.2			413
1135	1988	05	11.45436	10	36	57.43	+08	06	28.7			413
1151	1987	01	10.65641	10	12	45.70	+01	35	29.6		18	413
1151	1987	01	10.73975	10	12	43.40	+01	35	31.5			413
1292	1988	05	11.37103	10	27	58.03	+06	43	38.0		E	413
1292	1988	05	11.45436	10	28	01.07	+06	43	23.0		E	413
1377	1987	01	10.65641	10	27	49.47	-00	15	00.1		16	413
1377	1987	01	10.73975	10	27	48.84	-00	15	13.4			413
1992	1987	01	10.65641	10	30	05.84	+00	17	45.2		18	413
1992	1987	01	10.73975	10	30	04.82	+00	17	49.4			413
2451	1988	04	12.54375	12	41	50.33	-15	13	30.5			413
2451	1988	04	12.61319	12	41	46.50	-15	13	15.6			413
2559	1988	04	12.54375	12	47	13.23	-11	52	00.7			413
2559	1988	04	12.61319	12	47	09.57	-11	51	46.1			413
2619	1988	05	11.37103	10	44	04.25	+07	24	00.3			413
2619	1988	05	11.45436	10	44	05.61	+07	23	54.2			413
2676	1988	04	12.54375	12	36	12.40	-11	53	24.0			413
2676	1988	04	12.61319	12	36	08.66	-11	52	59.1			413
2702	1988	05	11.37103	10	27	46.96	+07	45	52.0		E	413
2702	1988	05	11.45436	10	27	48.66	+07	45	43.3		E	413
2737	1988	05	11.37103	10	28	21.26	+05	57	15.0		E	413
2737	1988	05	11.45436	10	28	23.46	+05	56	54.2		E	413
2809	1988	05	11.37103	10	50	33.99	+07	09	27.3			413
2809	1988	05	11.45436	10	50	34.77	+07	09	20.0		p	413
2827	1988	04	12.54375	12	38	37.17	-13	19	33.2			413
2827	1988	04	12.61319	12	38	32.76	-13	19	21.7			413
2957	1987	01	10.65641	10	11	32.00	-00	25	20.2		17	413
2957	1987	01	10.73975	10	11	30.16	-00	25	26.9			413
2975	1987	01	10.65641	10	26	50.29	-01	49	39.3		17	413
2975	1987	01	10.73975	10	26	49.73	-01	50	02.2			413
3093	1987	01	10.65641	10	21	13.48	-02	40	14.2		17	413
3093	1987	01	10.73975	10	21	11.33	-02	40	28.2			413
3126	1987	01	10.65641	10	11	55.11	-01	02	12.5		17	413
3126	1987	01	10.73975	10	11	53.37	-01	02	12.1			413
3549	1987	01	10.65641	10	27	29.15	+02	39	25.6		17	413
3549	1987	01	10.73975	10	27	28.37	+02	39	03.5			413
3567	1988	04	12.54375	12	32	17.40	-13	35	26.0		F	413
3567	1988	04	12.61319	12	32	14.26	-13	35	02.2		F	413
3577	1988	02	18.61153	11	15	06.66	-00	08	51.7			413
3577	1988	02	18.68097	11	15	04.22	-00	08	40.0			413
3577	1988	05	11.37103	10	44	49.48	+03	25	37.3			413
3577	1988	05	11.45436	10	44	50.30	+03	25	35.3			413
3618	1988	02	18.61153	11	18	42.33	+01	43	50.6			413
3618	1988	02	18.68097	11	18	39.45	+01	44	05.0			413
3618	1988	05	11.37103	10	41	44.70	+06	09	17.5			413
3618	1988	05	11.45436	10	41	45.21	+06	09	17.2			413
3883	1987	01	10.65641	10	21	02.90	+01	43	54.9		17	413
3883	1987	01	10.73975	10	21	01.46	+01	44	06.7			413

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16	1988	05	07.00486	15	03	59.04	-12	46	48.1			481
16	1988	05	07.03958	15	03	57.33	-12	46	38.9			481

18		1987	05	25.95764	13	23	38.56	+04	52	57.8		481
18		1987	05	26.01319	13	23	36.94	+04	52	56.6		481
27		1988	05	06.99514	14	26	43.02	-12	20	15.7		481
27		1988	05	07.03333	14	26	40.83	-12	20	05.8		481

511 Haute Provence
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Measurer E. W. Elst
0.6-m Schmidt

1986	EN4	1988	09	14.01875	23	34	19.67	-04	57	11.1		511
1986	EN4	1988	09	14.03958	23	34	19.12	-04	57	15.4		511
1986	EN4	1988	09	15.01111	23	33	36.16	-05	01	30.4	17.2	511
1986	EN4	1988	09	15.03125	23	33	35.28	-05	01	35.6		511
1986	EN4	1988	09	15.05208	23	33	34.30	-05	01	39.2		511
1988	PK2	1988	09	14.01875	23	29	32.30	-04	10	36.1		511
1988	PK2	1988	09	14.03958	23	29	31.44	-04	10	40.2		511
1988	PK2	1988	09	15.01111	23	28	47.92	-04	15	18.6	17.0	511
1988	PK2	1988	09	15.03125	23	28	46.88	-04	15	23.9		511
1988	PK2	1988	09	15.05208	23	28	46.03	-04	15	26.7	17	511
1988	PM2	1988	09	15.01111	23	32	36.77	-07	28	29.2	18.0	511
1988	PM2	1988	09	15.03125	23	32	35.96	-07	28	37.4		511
1988	PM2	1988	09	15.05208	23	32	35.02	-07	28	44.1		511
1988	PO2	1988	09	14.01875	23	39	58.61	-06	41	03.6		511
1988	PO2	1988	09	14.03958	23	39	57.23	-06	41	11.7		511
1988	PO2	1988	09	15.01111	23	39	11.81	-06	50	12.3	17.5	511
1988	PO2	1988	09	15.03125	23	39	10.68	-06	50	25.7		511
1988	PO2	1988	09	15.05208	23	39	09.72	-06	50	37.2	17.5	511
1988	RJ	1988	09	12.98542	23	30	28.03	-06	42	22.7	17.8	511
1988	RJ	1988	09	13.00521	23	30	27.71	-06	42	44.1		511
1988	RJ	1988	09	13.02257	23	30	27.19	-06	42	59.7		511
1988	RJ	1988	09	15.01111	23	29	29.10	-07	22	45.3	17.0	511
1988	RJ	1988	09	15.03125	23	29	28.37	-07	23	07.6		511
1988	RJ	1988	09	15.05208	23	29	27.91	-07	23	32.0		511
1988	SA	1988	09	15.01111	23	25	12.75	-07	56	22.3	17.2	511
1988	SA	1988	09	15.03125	23	25	11.48	-07	56	22.5		511
1988	SA	1988	09	15.05208	23	25	10.38	-07	56	20.7		511
1988	SB	1988	09	15.01111	23	26	55.56	-07	29	06.7	17.8	511
1988	SB	1988	09	15.03125	23	26	54.32	-07	29	09.7		511
1988	SB	1988	09	15.05208	23	26	53.04	-07	29	13.2		511
1988	SC	1988	09	12.98542	23	30	40.50	-07	27	08.8	17.5	511
1988	SC	1988	09	13.00521	23	30	39.51	-07	27	07.7		511
1988	SC	1988	09	13.02257	23	30	38.39	-07	27	06.5		511
1988	SC	1988	09	15.01111	23	28	29.39	-07	28	06.4	17.5	511
1988	SC	1988	09	15.03125	23	28	28.21	-07	28	07.3		511
1988	SC	1988	09	15.05208	23	28	26.77	-07	28	06.6		511
1988	SD	1988	09	12.98542	23	30	51.77	-07	33	56.5	17.5	511
1988	SD	1988	09	13.00521	23	30	50.79	-07	33	56.7		511
1988	SD	1988	09	13.02257	23	30	49.77	-07	33	57.7		511
1988	SD	1988	09	15.01111	23	28	50.81	-07	38	19.5	17.0	511
1988	SD	1988	09	15.03125	23	28	49.62	-07	38	22.7		511
1988	SD	1988	09	15.05208	23	28	48.43	-07	38	23.4		511
1091		1988	09	12.98542	23	31	00.38	-04	54	38.7	17.0	511
1091		1988	09	13.00521	23	30	59.64	-04	54	41.5		511
1091		1988	09	13.02257	23	30	59.00	-04	54	44.8		511
1091		1988	09	14.01875	23	30	18.21	-04	59	07.8		511
1091		1988	09	14.03958	23	30	17.44	-04	59	12.0		511
1091		1988	09	15.01111	23	29	37.54	-05	03	28.3	16.8	511
1091		1988	09	15.03125	23	29	36.77	-05	03	32.8		511

1091	1988	09	15.05208	23	29	35.81	-05	03	36.9	511
1512	1988	09	15.01111	23	25	56.05	-06	55	35.2	16.0 511
1512	1988	09	15.03125	23	25	55.11	-06	55	39.4	511
1512	1988	09	15.05208	23	25	54.31	-06	55	40.4	511
2238	1988	09	12.98542	23	34	02.52	-04	23	16.6	17.0 511
2238	1988	09	13.00521	23	34	01.68	-04	23	20.7	511
2238	1988	09	13.02257	23	34	00.90	-04	23	24.0	511
2238	1988	09	14.01875	23	33	15.25	-04	27	54.5	511
2238	1988	09	14.03958	23	33	14.29	-04	27	56.7	511
2238	1988	09	15.01111	23	32	29.85	-04	32	14.5	16.0 511
2238	1988	09	15.03125	23	32	28.94	-04	32	19.7	511
2238	1988	09	15.05208	23	32	27.94	-04	32	25.0	511
2501	1988	09	12.98542	23	41	20.21	-03	55	56.9	17.0 511
2501	1988	09	13.00521	23	41	19.19	-03	56	00.3	511
2501	1988	09	13.02257	23	41	18.11	-03	56	05.1	511
2501	1988	09	14.01875	23	40	19.91	-04	00	56.9	511
2501	1988	09	14.03958	23	40	18.74	-04	01	02.0	511
2501	1988	09	15.01111	23	39	21.79	-04	05	48.9	16.5 511
2501	1988	09	15.03125	23	39	20.66	-04	05	55.4	511
2501	1988	09	15.05208	23	39	19.31	-04	06	00.6	511
3072	1988	09	12.98542	23	30	26.20	-07	03	20.2	17.5 511
3072	1988	09	13.00521	23	30	25.28	-07	03	30.2	511
3072	1988	09	13.02257	23	30	24.37	-07	03	41.4	511
3072	1988	09	14.01875	23	29	33.38	-07	13	20.0	511
3072	1988	09	14.03958	23	29	32.55	-07	13	29.8	511
3072	1988	09	15.01111	23	28	43.07	-07	22	51.1	17.0 511
3072	1988	09	15.03125	23	28	41.97	-07	23	03.4	511
3072	1988	09	15.05208	23	28	40.87	-07	23	14.7	511
3241	1988	09	14.01875	23	36	49.88	-04	26	49.2	511
3241	1988	09	14.03958	23	36	49.12	-04	26	53.5	511
3241	1988	09	15.01111	23	36	04.84	-04	32	04.7	16.5 511
3241	1988	09	15.03125	23	36	03.98	-04	32	10.7	511
3241	1988	09	15.05208	23	36	02.94	-04	32	16.5	511
3292	1988	09	15.01111	23	26	46.87	-05	28	47.8	17.5 511
3292	1988	09	15.03125	23	26	45.90	-05	28	53.7	511
3292	1988	09	15.05208	23	26	45.00	-05	28	58.8	511
3910	1988	09	12.98542	23	35	24.58	-05	43	19.0	16.9 511
3910	1988	09	13.00521	23	35	23.63	-05	43	20.9	511
3910	1988	09	13.02257	23	35	22.77	-05	43	21.0	511
3910	1988	09	14.01875	23	34	27.43	-05	45	44.4	511
3910	1988	09	14.03958	23	34	26.41	-05	45	46.9	511
3910	1988	09	15.01111	23	33	32.75	-05	48	00.9	16.7 511
3910	1988	09	15.03125	23	33	31.62	-05	48	04.3	511
3910	1988	09	15.05208	23	33	30.43	-05	48	05.8	511
3912	1988	09	14.01875	23	37	00.76	-05	00	56.5	511
3912	1988	09	14.03958	23	36	59.84	-05	01	02.3	511
3912	1988	09	15.01111	23	36	04.74	-05	05	55.5	17.0 511
3912	1988	09	15.03125	23	36	03.59	-05	06	01.5	511
3912	1988	09	15.05208	23	36	02.36	-05	06	07.2	511
3917	1988	09	14.01875	23	31	14.28	-05	42	51.3	511
3917	1988	09	14.03958	23	31	13.13	-05	42	59.4	511
3917	1988	09	15.01111	23	30	20.58	-05	49	38.6	17.2 511
3917	1988	09	15.03125	23	30	19.52	-05	49	46.3	511
3917	1988	09	15.05208	23	30	18.36	-05	49	55.3	511
3918	1988	09	15.01111	23	36	21.52	-06	23	00.6	15.5 511

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Measurers C. Vacchi, V. Goretti, E. Colombini
AGK3, SAOC

1971	SP3		1988	11	06.92778	03	07	17.23	+20 21 39.8	16.0	552
1971	SP3		1988	11	06.95347	03	07	15.90	+20 21 34.9		552
1971	SP3		1988	11	07.91806	03	06	25.52	+20 18 41.4		552
1971	SP3		1988	11	07.93611	03	06	24.47	+20 18 39.1		552
1986	CK1		1988	09	10.94375	00	58	13.78	+16 44 39.9	16.4	552
1986	CK1		1988	09	10.96319	00	58	13.11	+16 44 40.2		552
1986	CK1		1988	10	02.92014	00	42	01.97	+15 43 41.3	15.8	552
1986	CK1		1988	10	02.94028	00	42	00.77	+15 43 35.3		552
1986	CK1		1988	10	06.92917	00	38	22.36	+15 19 44.6	15.8	552
1986	CK1		1988	10	06.94653	00	38	21.33	+15 19 38.3		552
1986	CK1		1988	10	16.87778	00	29	34.98	+14 09 05.1	15.8	552
1986	CK1		1988	10	16.90000	00	29	33.83	+14 08 53.8		552
1986	CK1		1988	10	20.86806	00	26	26.70	+13 38 16.1	15.8	552
1986	CK1		1988	10	20.88681	00	26	25.80	+13 38 06.7		552
1988	VY1	*	1988	11	06.92778	03	06	30.28	+20 52 00.4	15.5	552
1988	VY1		1988	11	06.95347	03	06	28.83	+20 51 52.8		552
1988	VY1		1988	11	07.88403	03	05	36.75	+20 46 22.9	15.5	552
1988	VY1		1988	11	07.90278	03	05	35.65	+20 46 16.5		552
1988	VY1		1988	11	07.91806	03	05	34.58	+20 46 12.6		552
1988	VY1		1988	11	07.93611	03	05	33.57	+20 46 05.0		552

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0.6-m f/3 Wright reflector
AGK3

1983	LM		1988	11	10.84097	02	15	42.98	+12 45 15.7	16.7	567
1983	LM		1988	11	10.85486	02	15	42.37	+12 45 09.3		567
1983	LM		1988	11	11.84513	02	14	55.54	+12 36 44.7		567
1983	LM		1988	11	11.85903	02	14	54.93	+12 36 38.3		567
1986	CK1		1988	10	15.89375	00	30	24.13	+14 16 36.1	15.0	567
1986	CK1		1988	10	15.90764	00	30	23.40	+14 16 32.5		567
1988	RN		1988	09	07.98333	23	33	43.81	+09 48 19.6	15.2	567
1988	RN		1988	09	07.99722	23	33	43.04	+09 48 20.5		567
846			1988	11	11.92014	03	52	18.50	+20 23 52.6	14	567
846			1988	11	11.93403	03	52	17.81	+20 23 49.7		567

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Honolulu, HI 96822, U.S.A.
Observers D. J. Tholen, W. K. Hartmann
2.24-m telescope encoders
SAOC

1988	TA		1988	10	15.54541	01	23	00.95	+05 39 30.3	16.9V	568
1988	TA		1988	10	16.54008	01	22	30.48	+05 25 41.7	17.1V	568

573 Eldagsen
W. Bonk, Nordstrasse 33, D-3257 Springe 3, Federal Republic of Germany
AGK3

433			1988	10	02.81038	00	53	49.68	+37 39 54.0		573
433			1988	10	02.81507	00	53	49.16	+37 39 55.4		573
712			1988	08	07.89574	22	35	24.30	+13 00 04.2		573
712			1988	08	07.90141	22	35	24.12	+13 00 03.2		573

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

1953	TC	1988 09 11.47118	02 26 48.69	+15 13 05.5			657
1953	TC	1988 10 10.37812	02 18 51.07	+16 39 01.3			657
1953	TC	1988 10 10.42465	02 18 48.86	+16 39 03.7			657
1955	BG	1988 09 12.37854	02 37 37.79	-06 20 18.6			657
1955	BG	1988 09 12.42854	02 37 38.16	-06 20 32.1			657
1977	SS2	1988 08 11.32646	23 10 52.71	-02 17 38.9			657
1977	SS2	1988 08 11.37437	23 10 51.70	-02 18 02.2			657
1977	SS2	1988 08 21.33889	23 06 33.02	-03 46 36.5			657
1977	SS2	1988 08 21.39653	23 06 31.20	-03 47 11.2			657
1977	SS2	1988 09 12.32715	22 53 25.42	-07 38 52.7			657
1977	SS2	1988 10 11.24037	22 40 52.69	-11 57 20.1			657
1985	DO2	1988 09 14.32958	00 25 33.95	-15 20 02.5			657
1986	CK1	1988 09 12.40146	00 57 29.61	+16 44 34.6			657
1986	CK1	1988 09 14.26917	00 56 28.20	+16 43 40.4			657
1986	CK1	1988 09 14.34069	00 56 25.64	+16 43 37.6			657
1986	CK1	1988 10 11.22049	00 34 28.72	+14 50 53.4			657
1986	CK1	1988 10 11.26944	00 34 25.91	+14 50 33.5			657
1988	NF	1988 10 11.26007	00 01 39.08	+55 37 29.9			657
1389		1988 08 21.33889	23 09 12.93	-04 37 32.8			657
1389		1988 08 21.39653	23 09 10.43	-04 37 52.1			657
3034		1988 09 11.40382	02 10 54.36	+13 38 16.9			657
3034		1988 09 11.44965	02 10 53.79	+13 38 27.1			657
3034		1988 10 10.36250	01 51 34.18	+13 53 11.7			657
3034		1988 10 10.41354	01 51 30.85	+13 53 06.6			657

675 Palomar
J. Gibson, ITT/Federal Electric Corporation and Jet Propulsion Laboratory, MS 238-332, Pasadena, CA 91109, U.S.A. (1)
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C. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A. (3)
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Observers R. Coker (2, S), T. Gehrels (4, L), J. Gibson (1, C), E. Helin (2, S), H. Holt (3, S), E. Majkowski (2, S), C. Mikolajczak (2, S), B. Roman (2, S), C. Shoemaker (3, S), E. Shoemaker (3, S)
Measurers R. Coker (2), J. Gibson (1), E. Majkowski (2), C. Mikolajczak (2), B. Roman (2), T. Rodriquez (3), C. Shoemaker (3), C. J. van Houten (4), I. van Houten-Groeneveld (4)
1.5-m reflector + CCD (C), 1.2-m (L) and 0.46-m (S) Schmidt telescopes

1976	SN3	1987 02 18.35625	11 53 48.44	+02 15 20.1		1	675
1976	SN3	1987 02 18.38139	11 53 47.71	+02 15 26.0		1	675
1976	SN3	1987 02 19.32278	11 53 21.37	+02 19 06.6		1	675
1976	SN3	1987 02 19.38056	11 53 19.67	+02 19 20.3		1	675
1976	SN3	1987 04 14.27347	11 23 26.16	+06 02 49.4		1	675
1976	SN3	1987 04 14.28000	11 23 26.00	+06 02 50.8		1	675
1976	SN3	1987 04 14.28472	11 23 25.89	+06 02 51.2		1	675
1976	SN3	1988 02 06.52222	14 45 05.89	-12 44 03.1		1	675
1976	SN3	1988 02 06.52757	14 45 05.98	-12 44 03.4		1	675
1976	SN3	1988 02 06.53270	14 45 06.11	-12 44 03.6		1	675
1976	SN3	1988 02 06.53944	14 45 06.25	-12 44 04.3		1	675
1976	SN3	1988 02 07.46847	14 45 24.64	-12 44 37.2		1	675
1976	SN3	1988 02 07.47477	14 45 24.73	-12 44 37.5		1	675
1976	SN3	1988 02 07.47990	14 45 24.84	-12 44 37.5		1	675
1976	SN3	1988 02 07.48744	14 45 24.99	-12 44 37.8		1	675
1976	SN3	1988 03 22.45000	14 45 22.32	-12 02 51.9		1	675
1976	SN3	1988 03 22.45610	14 45 22.17	-12 02 51.2		1	675
1976	SN3	1988 03 22.46225	14 45 22.06	-12 02 50.0		1	675
1976	SN3	1988 03 23.42918	14 45 02.76	-12 00 31.7		1	675

1976	SN3		1988	03	23.43711	14	45	02.61	-12	00	30.7		1 675
1976	SN3		1988	05	25.29417	14	11	49.43	-08	59	23.3		1 675
1976	SN3		1988	05	25.30046	14	11	49.24	-08	59	22.6		1 675
1976	SN3		1988	05	25.30874	14	11	49.02	-08	59	21.5		1 675
1976	SN3		1988	05	26.27521	14	11	23.25	-08	57	28.1		1 675
1976	SN3		1988	05	26.28039	14	11	23.10	-08	57	27.6		1 675
1976	SN3		1988	05	26.28569	14	11	22.96	-08	57	27.0		1 675
1981	JD3		1988	10	08.31563	00	49	32.96	+00	15	55.9	16.0	3 675
1981	JD3		1988	10	10.31892	00	47	55.27	-00	00	50.7		3 675
1988	RD		1988	10	08.35407	00	42	58.80	+15	13	45.5	15	3 675
1988	RD		1988	10	11.34271	00	37	44.52	+15	54	48.6		3 675
1988	RH		1988	09	19.26389	23	00	49.88	+00	53	50.2	16.5	2 675
1988	RH		1988	09	19.32639	23	00	43.02	+00	54	39.4		2 675
1988	RU2	*	1988	09	05.18385	20	21	54.24	-03	38	33.4	16.5	2 675
1988	RU2		1988	09	07.17517	20	21	28.94	-03	54	59.6		2 675
1988	TG		1988	10	08.35407	01	10	38.46	+14	13	05.1	16	3 675
1988	TG		1988	10	10.41076	01	09	42.42	+13	11	00.3		3 675
1988	TG		1988	10	13.43975	01	08	18.88	+11	37	32.2		3 675
1988	TH1	*	1988	10	08.31563	00	51	48.83	+00	14	58.4	17.6	3 675
1988	TH1		1988	10	10.31892	00	50	52.06	+00	06	36.5		3 675
1988	TJ1	*	1988	10	12.29201	00	03	05.20	+33	34	03.0	17	3 675
1988	TJ1		1988	10	12.31684	00	03	07.12	+33	32	20.3		3 675
1988	TJ1		1988	10	13.23489	00	04	32.90	+32	29	39.6	17	3 675
1988	TJ1		1988	11	04.24288	00	49	02.59	+00	28	38.6	17.5	3 675
1988	TJ1		1988	11	06.31806	00	53	55.78	-02	23	55.9		3 675
1988	TU1		1988	09	16.46354	01	16	42.84	-13	08	56.3	16.6	3 675
1988	TU1		1988	09	16.49253	01	16	42.18	-13	09	09.2		3 675
1988	TU1	*	1988	10	12.35538	01	04	39.92	-15	16	56.0	17.5	3 675
1988	TU1		1988	10	12.38750	01	04	39.04	-15	17	04.4		3 675
1988	TZ1		1988	09	14.35139	00	02	56.23	+32	55	00.8	17.1	3 675
1988	TZ1		1988	09	14.38542	00	02	54.99	+32	55	01.0		3 675
1988	TZ1	*	1988	10	13.23490	23	46	08.03	+31	49	32.0	17.7	3 675
1988	TZ1		1988	10	13.27170	23	46	06.85	+31	49	23.6		3 675
1988	TU2		1988	09	14.35139	23	40	45.95	+30	08	31.3	16.9	3 675
1988	TU2		1988	09	14.38542	23	40	44.80	+30	08	24.4		3 675
1988	TU2	*	1988	10	12.17725	23	27	03.61	+28	05	42.2	16.8	3 675
1988	TU2		1988	10	12.21003	23	27	02.80	+28	05	31.1		3 675
1988	TV2	*	1988	10	07.36797	02	13	15.90	+23	46	11.8	17.2	3 675
1988	TV2		1988	10	10.43270	02	12	31.24	+23	43	03.5		3 675
1988	TV2		1988	10	11.42917	02	12	13.19	+23	41	25.3		3 675
1988	TW2	*	1988	10	08.39670	00	58	04.17	+40	34	33.9	17.5	3 675
1988	TW2		1988	10	13.46007	00	53	05.34	+39	32	29.4		3 675
4517	P-L	*	1960	09	24.41183	00	27	44.75	+01	29	48.2	16.2	4 675
4517	P-L		1960	09	26.31530	00	25	44.17	+01	28	44.3		4 675
4517	P-L		1960	09	27.40836	00	24	34.24	+01	28	08.4		4 675
4517	P-L		1960	09	28.39725	00	23	31.28	+01	27	34.0		4 675
4517	P-L		1960	10	17.27085	00	05	38.32	+01	25	37.2		4 675
4517	P-L		1960	10	22.22293	00	02	17.77	+01	30	26.0		4 675
4517	P-L		1960	10	24.35836	00	01	05.43	+01	33	27.6		4 675
4517	P-L		1960	10	26.32573	00	00	07.36	+01	36	46.2		4 675
2416	T-3	*	1977	10	16.26233	01	14	09.21	+10	22	34.3	17.3	4 675
2416	T-3		1977	10	16.32795	01	14	05.28	+10	22	10.0		4 675
2416	T-3		1977	10	17.26458	01	13	10.82	+10	16	30.7		4 675
2416	T-3		1977	10	17.33177	01	13	06.71	+10	16	05.7		4 675
2416	T-3		1977	10	21.40868	01	09	11.58	+09	51	06.0		4 675
2416	T-3		1977	10	21.46910	01	09	08.12	+09	50	42.8		4 675
2416	T-3		1977	10	22.41528	01	08	14.43	+09	44	53.2		4 675
2416	T-3		1977	10	22.46962	01	08	11.33	+09	44	33.4		4 675
3107	T-3		1977	10	07.27031	01	29	45.32	+08	31	26.8		4 675

3107	T-3		1977	10	11.28819	01	26	36.33	+08	16	24.1	4 675
3107	T-3		1977	10	11.35642	01	26	32.98	+08	16	09.0	4 675
3107	T-3		1977	10	12.28681	01	25	48.42	+08	12	33.8	4 675
3107	T-3		1977	10	12.35347	01	25	45.15	+08	12	18.7	4 675
3107	T-3	*	1977	10	16.27309	01	22	35.17	+07	57	04.9	16.9 4 675
3107	T-3		1977	10	16.33872	01	22	31.87	+07	56	49.5	4 675
3107	T-3		1977	10	17.27552	01	21	46.31	+07	53	10.4	4 675
3107	T-3		1977	10	17.34236	01	21	42.91	+07	52	54.5	4 675
3107	T-3		1977	10	21.39792	01	18	26.08	+07	37	11.3	4 675
3107	T-3		1977	10	21.45799	01	18	23.23	+07	36	56.0	4 675
3107	T-3		1977	10	22.39844	01	17	38.15	+07	33	19.0	4 675
3107	T-3		1977	10	22.45920	01	17	35.12	+07	33	04.4	4 675

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

1955	SF		1988	09	14.26690	23	51	56.53	+03	03	08.9	T 801
1955	SF		1988	10	13.15551	23	28	15.25	+02	16	48.1	801
1973	FE1		1988	09	12.35854	00	49	09.71	+14	01	02.4	801
1973	FE1		1988	10	07.26243	00	29	12.93	+05	46	09.8	801
1974	RG1		1988	10	14.29504	02	43	37.70	+28	53	55.9	801
1976	GQ6		1987	08	24.05448	17	38	24.08	-11	54	17.8	I 801
1976	GQ6		1988	09	14.33858	01	05	45.49	-00	56	10.8	T 801
1976	GQ6		1988	10	07.28437	00	50	44.77	-03	54	02.5	801
1977	CU		1988	10	13.06334	21	44	17.56	-11	45	24.5	F 801
1977	RH7		1988	10	12.15593	23	38	20.42	-04	24	55.3	801
1977	RO7		1988	09	12.29134	23	30	20.06	-01	19	27.8	801
1977	RO7		1988	10	13.12978	23	10	32.21	-04	53	22.2	801
1978	NN1		1988	09	12.32223	00	44	28.24	-04	32	18.3	w 801
1978	NN1		1988	10	12.19540	00	23	54.60	-08	23	55.7	801
1978	VQ3		1986	10	30.24705	02	56	42.79	+21	16	49.4	801
1981	PG		1985	12	13.31577	05	25	22.78	+23	44	10.1	801
1981	PG		1987	05	02.11702	11	32	15.09	-00	51	18.8	801
1981	PG		1988	09	15.33410	01	39	49.45	+15	13	04.4	w 801
1981	PG		1988	10	06.22193	01	24	28.13	+13	53	23.1	801
1984	JP1		1988	09	11.25907	00	27	48.89	+13	56	14.8	801
1984	JP1		1988	10	07.21135	00	05	08.89	+10	44	29.3	801
1984	SX		1986	04	13.05744	07	21	40.76	+22	49	36.9	801
1984	SX		1988	10	14.27131	01	06	10.64	+10	28	19.4	801
1984	SC5		1988	10	07.16195	22	59	31.12	+08	57	52.0	801
1985	UL		1988	10	07.14158	22	43	00.30	-01	36	02.0	801
1987	DF1		1988	08	10.21871	21	20	08.82	-07	56	21.3	801
1987	DF1		1988	09	12.09496	21	00	02.26	-13	18	52.7	801
1988	NF		1988	10	12.36724	00	02	15.18	+55	12	23.7	801
1988	RE		1988	10	06.19720	01	32	31.85	+16	47	06.4	801
1988	TA		1988	10	14.18826	01	23	53.11	+06	01	17.3	801
1988	TA		1988	10	14.23067	01	23	50.46	+06	00	31.5	801
2527	P-L		1988	09	14.19858	22	33	16.34	+00	37	53.4	T 801
2527	P-L		1988	10	12.12871	22	22	57.49	-04	20	06.5	801
495			1988	10	13.12978	23	09	32.76	-05	00	53.6	801
670			1988	10	13.25182	00	32	25.56	-01	01	40.9	801
951			1988	10	12.03121	18	48	21.64	-19	14	02.2	801
2747			1988	10	06.22193	01	23	55.10	+14	06	54.7	17 801
3907			1988	09	11.17995	21	06	21.43	-03	28	53.7	801
3908			1988	10	07.24229	00	25	58.50	+41	55	30.6	801
3913			1988	09	09.24826	22	26	49.51	-12	04	26.0	801

807 Cerro Tololo
K. J. Meech, Institute for Astronomy, 2680 Woodlawn Drive,
Honolulu, HI 96822, U.S.A.
1.5-m telescope

1988 RH		1988 09 14.21458	23	09	50.44	-00	11	56.3	807
1988 RH		1988 09 15.19167	23	08	05.14	+00	00	50.9	807

809 European Southern Observatory
W. Landgraf, University Observatory, Geissmarlandstrasse 11,
D-3400 Gottingen, Federal Republic of Germany
GPO 0.4-m astrograph

1988 JB		1988 05 10.18252	14	40	02.24	-10	06	52.7		809
1988 JB		1988 05 15.24132	14	36	57.86	-09	55	34.2	16.6	809
1988 JB		1988 05 15.25104	14	36	57.61	-09	55	27.3		809
1988 JC		1988 05 10.18252	14	40	26.58	-08	27	44.7		809
1988 JC		1988 05 15.24132	14	37	09.84	-08	19	54.9	16.7	809
1988 JC		1988 05 15.25104	14	37	09.55	-08	19	56.7		809
1988 JD		1988 05 10.18252	14	40	33.64	-09	56	15.8		809
1988 JE		1988 05 15.24132	14	39	06.13	-09	49	59.6	16.4	809
1988 JE		1988 05 15.25104	14	39	05.71	-09	49	56.6		809
1988 JE		1988 05 16.25174	14	38	20.88	-09	47	09.8	16.9	809
1988 JE		1988 05 16.26148	14	38	20.44	-09	47	07.1		809
1988 JE		1988 05 17.12708	14	37	42.18	-09	44	45.1		809
1988 JE		1988 05 18.27813	14	36	51.55	-09	41	40.2		809
1988 JE		1988 05 18.28299	14	36	51.25	-09	41	40.5		809
1988 JE		1988 05 18.28785	14	36	51.15	-09	41	38.5		809
1988 JE1		1988 05 15.24132	14	36	30.13	-09	19	17.6		809
1988 JE1	*	1988 05 15.24618	14	36	29.95	-09	19	18.5	17.0	809
1988 JE1		1988 05 15.25104	14	36	29.84	-09	19	18.4		809
1988 JE1		1988 05 17.12708	14	35	23.39	-09	19	15.5		809
1988 JE1		1988 05 17.13750	14	35	23.02	-09	19	13.5		809
1988 KN		1988 05 16.25174	14	35	26.45	-09	47	21.0	17.6	809
1988 KN		1988 05 16.26148	14	35	25.67	-09	47	17.4		809
1988 KO		1988 05 16.25174	14	35	33.72	-09	38	06.6	17.2	809
1988 KO		1988 05 16.26148	14	35	33.18	-09	38	01.9		809
1988 KO		1988 05 17.12708	14	34	52.47	-09	35	44.4	15.3	809
1988 KP		1988 05 17.12708	14	35	46.42	-10	13	35.9		809
1988 KQ		1988 05 16.25174	14	38	18.13	-09	33	53.0	17.5	809
1988 KQ		1988 05 16.26148	14	38	16.84	-09	33	47.0		809
1988 KQ		1988 05 17.12708	14	37	39.42	-09	31	08.0		809
1988 KR		1988 05 16.25174	14	38	35.71	-09	54	02.2	17.7	809
1988 KR		1988 05 16.26148	14	38	35.45	-09	54	02.5		809
1988 KR		1988 05 17.12708	14	37	56.08	-09	52	20.7		809
1988 KS		1988 05 16.25174	14	41	47.32	-09	39	36.8	16.6	809
1988 KS		1988 05 16.26148	14	41	46.61	-09	39	40.9		809
1988 KS		1988 05 17.12708	14	41	12.51	-09	36	37.6		809
1988 KV		1988 05 16.25174	14	42	53.55	-09	09	47.9	16.4	809
1988 KV		1988 05 16.26148	14	42	52.95	-09	09	47.2		809
1988 KZ		1988 05 23.16181	14	33	52.02	-09	36	34.8		809
1988 KZ	*	1988 05 23.16736	14	33	51.73	-09	36	35.8	17.5	809
1988 KZ		1988 05 23.17292	14	33	51.40	-09	36	35.2		809
1988 KZ		1988 05 24.18542	14	33	14.57	-09	34	20.1		809
1988 KA1		1988 05 16.25174	14	38	23.32	-09	29	51.3	17.1	809
1988 KA1	*	1988 05 16.25660	14	38	23.01	-09	29	50.0	16.6	809
1988 KA1		1988 05 16.26148	14	38	22.77	-09	29	49.5		809
1988 KA1		1988 05 17.12708	14	37	40.84	-09	27	14.0	16.6	809
1988 KA1		1988 05 17.13750	14	37	40.42	-09	27	11.0		809
1988 KB1		1988 05 16.25174	14	41	52.17	-09	37	06.2		809
1988 KB1	*	1988 05 16.25660	14	41	52.02	-09	37	05.9		809

1988	KB1		1988 05 16.26148	14 41 51.87	-09 37 04.7					809
1988	KB1		1988 05 17.12708	14 41 00.77	-09 35 40.7					809
1988	KB1		1988 05 17.13750	14 41 00.41	-09 35 39.1					809
1725			1988 05 18.27813	14 36 44.76	-10 35 45.1					809
1725			1988 05 18.28299	14 36 44.46	-10 35 44.2					809
1725			1988 05 18.28785	14 36 44.25	-10 35 42.9					809
1866			1988 05 14.41076	02 13 13.31	-09 57 31.0			15		809
1866			1988 05 14.41684	02 13 14.42	-09 57 19.0					809
1866			1988 05 14.42049	02 13 15.55	-09 57 08.5					809
3132			1988 05 15.24132	14 40 06.87	-09 27 10.1			15.3		809
3132			1988 05 15.24618	14 40 06.59	-09 27 10.2					809
3132			1988 05 15.25104	14 40 06.38	-09 27 08.5					809
3132			1988 05 16.25174	14 39 23.16	-09 24 33.2			15.2		809
3132			1988 05 16.25660	14 39 22.96	-09 24 32.3					809
3132			1988 05 16.26148	14 39 22.72	-09 24 31.1					809
3132			1988 05 17.12708	14 38 45.87	-09 22 20.9					809
3132			1988 05 17.13750	14 38 45.43	-09 22 18.9					809

871 Akou
K. Kawanishi, 2045-1, Kariya, Akou, Hyogo-Ken 678-02, Japan
0.20-m f/4.8 reflector

1988	NF		1988 11 02.56528	00 21 10.10	+44 26 14.1				13.0	871
1988	NF		1988 11 02.57917	00 21 10.90	+44 25 43.4				13.0	871
966			1988 11 07.53194	03 15 20.54	+08 41 05.6				14.0	871
966			1988 11 07.54583	03 15 19.65	+08 41 05.1				14.0	871

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

1988	VZ		1988 11 02.56644	02 40 27.63	+16 55 28.1				16.	872
1988	VZ		1988 11 02.59546	02 40 26.11	+16 55 28.0					872
1988	VZ		1988 11 10.52985	02 33 05.09	+16 52 37.1				16.	872
1988	VZ		1988 11 10.54534	02 33 04.22	+16 52 36.8					872

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

1982	PL		1988 11 03.53125	02 45 10.64	+17 41 25.7				15.5	875
1982	PL		1988 11 03.55278	02 45 09.43	+17 41 22.7					875
1988	VJ	*	1988 11 03.53125	02 43 44.32	+16 34 55.9				17	875
1988	VJ		1988 11 03.55278	02 43 42.84	+16 34 45.0					875
1988	VJ		1988 11 06.54236	02 40 38.65	+16 11 30.3				16	875
1988	VJ		1988 11 06.56181	02 40 37.48	+16 11 20.4					875
1988	VJ		1988 11 08.51111	02 38 39.18	+15 56 16.4				16	875
1988	VJ		1988 11 10.48889	02 36 41.37	+15 41 07.4				16.5	875
1988	VJ		1988 11 10.50972	02 36 40.07	+15 40 58.8					875
1988	VJ		1988 11 10.51684	02 36 39.54	+15 40 53.7					875
1988	VO	*	1988 11 03.57222	03 07 29.33	+18 07 42.2				16.5	875
1988	VO		1988 11 03.59375	03 07 26.78	+18 08 11.1					875
1988	VO		1988 11 03.60081	03 07 26.00	+18 08 18.9					875
1988	VO		1988 11 06.58056	03 02 06.55	+19 09 15.2				16.5	875
1988	VO		1988 11 06.60139	03 02 04.14	+19 09 40.0					875
1988	VO		1988 11 08.55069	02 58 30.09	+19 49 12.7				16	875
1988	VO		1988 11 08.57153	02 58 27.59	+19 49 37.2					875
1988	VP	*	1988 11 03.61181	03 43 16.75	+18 21 19.3				16	875

1988 VP 1988 11 03.63264 03 43 15.39 +18 21 23.7 875
1988 VP 1988 11 06.61944 03 40 02.94 +18 31 54.7 16 875
1988 VP 1988 11 06.64028 03 40 01.53 +18 31 59.4 875
1988 VS 1988 11 03.61181 03 40 09.2 +18 26 44 17.5 875
1988 VS 1988 11 03.63264 03 40 08.5 +18 26 41 875
1988 VS * 1988 11 06.61944 03 38 11.65 +18 15 47.1 17 875
1988 VS 1988 11 06.64028 03 38 10.71 +18 15 41.9 875
1988 VS 1988 11 08.58819 03 36 52.30 +18 08 26.6 17 875
1988 VS 1988 11 08.60903 03 36 51.39 +18 08 21.9 875
1988 VH1 * 1988 11 06.58056 03 03 24.23 +19 30 54.3 15 875
1988 VH1 1988 11 06.60139 03 03 23.39 +19 30 44.2 875
1988 VH1 1988 11 08.55069 03 01 59.00 +19 15 42.9 15 875
1988 VH1 1988 11 08.57153 03 01 57.99 +19 15 32.6 875
1988 VQ1 * 1988 11 06.54236 02 43 28.96 +15 46 10.9 17 875
1988 VQ1 1988 11 06.56181 02 43 27.65 +15 46 12.3 875
1988 VQ1 1988 11 10.51684 02 39 01.05 +15 44 27.6 17 875
1988 VX1 1988 11 06.64734 03 34 43.68 +18 12 07.3 17.5 875
1988 VX1 * 1988 11 08.58819 03 32 51.58 +17 59 18.5 17.5 875
1988 VX1 1988 11 08.60903 03 32 50.29 +17 59 09.8 875
1988 VL2 * 1988 11 10.52986 03 43 48.43 +20 24 38.0 17 875
1988 VL2 1988 11 10.55069 03 43 47.31 +20 24 28.0 875
1988 VL2 1988 11 10.55775 03 43 46.83 +20 24 23.7 875
1988 VL2 1988 11 12.59722 03 41 51.46 +20 06 04.7 17 875
1988 VL2 1988 11 12.61806 03 41 49.95 +20 05 52.5 875
1988 VM2 * 1988 11 10.52986 03 49 23.92 +19 59 51.9 15.5 875
1988 VM2 1988 11 10.55069 03 49 22.58 +20 00 04.7 875
1988 VM2 1988 11 12.59722 03 47 09.96 +20 21 16.4 15.5 875
1988 VM2 1988 11 12.61806 03 47 08.58 +20 21 30.9 875

877 Okutama
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 VE2 * 1988 11 07.60313 03 35 08.78 +12 45 21.7 15.5 877
1988 VE2 1988 11 07.66354 03 35 05.62 +12 45 13.4 877
1988 VE2 1988 11 12.65303 03 30 47.68 +12 34 14.1 877
1988 VE2 1988 11 12.66727 03 30 46.83 +12 34 11.3 877
1988 VG2 * 1988 11 08.58889 03 46 09.8 +08 12 01 16 877
1988 VG2 1988 11 08.61146 03 46 08.8 +08 11 43 877
1988 VG2 1988 11 12.59747 03 43 19.56 +07 17 49.9 16 I 877
1988 VG2 1988 11 12.61136 03 43 18.98 +07 17 39.4 I 877
1988 VH2 * 1988 11 08.71979 04 18 53.34 +15 26 11.7 16.5 877
1988 VH2 1988 11 08.73715 04 18 52.28 +15 26 14.8 877
1988 VH2 1988 11 12.62178 04 14 50.40 +15 38 58.1 17 877
1988 VH2 1988 11 12.63567 04 14 49.57 +15 39 02.4 877
1988 VJ2 * 1988 11 07.68021 03 49 35.67 +15 51 57.3 16 877
1988 VJ2 1988 11 07.69757 03 49 35.19 +15 51 50.0 877
1988 VJ2 1988 11 09.66771 03 48 33.16 +15 34 21.2 877
1988 VJ2 1988 11 09.72708 03 48 32.55 +15 34 13.5 877
1988 VJ2 1988 11 12.68619 03 46 49.5 +15 07 33 877
1988 VJ2 1988 11 12.69975 03 46 48.9 +15 07 25 877
1988 VK2 * 1988 11 07.71251 04 03 40.59 +16 04 19.2 877
1988 VK2 1988 11 07.72951 04 03 39.59 +16 04 17.0 877
1988 VK2 1988 11 12.68619 03 58 49.7 +16 07 57 16.5 877
1988 VK2 1988 11 12.69975 03 58 48.8 +16 07 58 877

881 Toyota
M. Kizawa, 1458-10, Minami Numagami, Shizuoka 420, Japan

Observer K. Suzuki
Measurers T. Furuta and M. Kizawa
0.31-m f/5.7 reflector

1984	BL		1988	11	03.56979	03	30	00.9	+16	56	38	15.5	881
1984	BL		1988	11	03.59063	03	29	59.8	+16	56	34		881
1988	TP	*	1988	10	10.59410	02	11	15.18	+14	53	26.3	16	881
1988	TP		1988	10	10.61493	02	11	14.31	+14	53	18.9		881
1988	TP		1988	10	14.52118	02	08	18.41	+14	27	33.2		881
1988	TP		1988	10	14.54444	02	08	17.23	+14	27	23.8		881
1988	TP		1988	10	19.58021	02	04	10.62	+13	51	28.4		881
1988	TP		1988	10	19.60174	02	04	09.45	+13	51	19.6		881
1988	TP		1988	10	29.54618	01	55	40.45	+12	35	45.0	16	881
1988	TP		1988	10	29.56597	01	55	39.43	+12	35	35.3		881
1988	TP		1988	11	07.54931	01	48	34.95	+11	29	02.5		881
1988	TP		1988	11	07.57014	01	48	33.97	+11	28	54.3		881
1988	VH	*	1988	11	03.52813	03	18	27.66	+23	42	43.2	16.5	881
1988	VH		1988	11	03.54896	03	18	26.6	+23	42	35		881
1988	VH		1988	11	07.58715	03	14	39.72	+23	04	21.5	16.5	881
1988	VH		1988	11	07.62188	03	14	37.59	+23	04	01.3		881
938			1988	10	26.53993	02	09	40.37	+08	38	50.3	15	881
938			1988	10	26.54514	02	09	40.27	+08	38	48.6		881
938			1988	10	26.56458	02	09	39.23	+08	38	45.8		881
938			1988	10	29.55556	02	07	17.40	+08	26	56.5		881
938			1988	10	29.57431	02	07	16.49	+08	26	52.6		881
2561			1988	10	29.55556	02	07	56.84	+09	18	22.1	16.5	F 881
2561			1988	10	29.57431	02	07	55.76	+09	18	15.3		881
2899			1988	10	31.55313	03	18	22.36	+20	59	19.8	16.5	881
2899			1988	10	31.57396	03	18	20.93	+20	59	16.6		881
2899			1988	11	01.55486	03	17	16.22	+20	57	12.0	16.5	881
2899			1988	11	01.57743	03	17	14.75	+20	57	10.8		881

887 Ojima
T. Niijima, 86 Horiguchi, Ojima-machi, Nitta-gun, Gunma 370-04, Japan
Observers T. Niijima, K. Kanai
Measurer K. Kanai
0.30-m f/5.8 reflector

1988	US	*	1988	10	31.62465	03	47	49.47	+25	32	48.0	16	887
1988	US		1988	10	31.63940	03	47	48.65	+25	32	45.1		887
1988	US		1988	11	10.60688	03	37	50.25	+24	50	50.5	16	887
1988	US		1988	11	10.62222	03	37	49.19	+24	50	46.8		887

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

1962	OB		1988	11	02.56806	01	05	38.46	+27	31	08.7	16.5	888
1962	OB		1988	11	02.60139	01	05	36.77	+27	30	55.3		888
1969	TP2		1988	10	13.72569	01	07	57.23	+00	04	52.8	17.0	888
1969	TP2		1988	10	13.75833	01	07	55.51	+00	04	42.8		888
1969	TP2		1988	10	15.62986	01	06	22.12	-00	04	19.1		888
1969	TP2		1988	10	15.66181	01	06	20.40	-00	04	28.1		888
1977	QK1		1988	10	13.71736	01	06	33.53	+09	40	39.7	16	888
1977	QK1		1988	10	13.75000	01	06	31.67	+09	40	31.4		888
1977	QK1		1988	10	15.67569	01	04	54.72	+09	33	32.0	16.5	888
1977	QK1		1988	10	15.70833	01	04	53.01	+09	33	25.5		888
1981	JD3		1988	10	13.70903	00	45	14.85	-00	27	40.5	17.0	888
1981	JD3		1988	10	13.74236	00	45	13.25	-00	27	56.0		888
1981	JD3		1988	10	15.60625	00	43	49.74	-00	41	39.1		888
1981	JD3		1988	10	15.63750	00	43	48.23	-00	41	53.1		888

1981	JD3		1988	11	03.52292	00	34	16.98	-02	09	38.2	16.5	888
1981	JD3		1988	11	03.55555	00	34	16.35	-02	09	42.2		888
1981	TQ1		1988	10	15.61389	01	05	23.98	+13	40	37.1		888
1981	TQ1		1988	10	15.64583	01	05	22.00	+13	40	29.0		888
1981	TQ1		1988	11	02.49028	00	49	46.91	+12	19	18.8	17.0	888
1981	TQ1		1988	11	02.52222	00	49	45.44	+12	19	12.5		888
1981	TQ1		1988	11	07.50208	00	46	42.07	+11	58	54.4	17.0	888
1981	TQ1		1988	11	07.57500	00	46	39.74	+11	58	38.7		888
1981	TQ1		1988	11	07.60833	00	46	38.52	+11	58	31.6		888
1984	SX		1988	10	13.71736	01	06	42.13	+10	31	10.8	17.5	888
1984	SX		1988	10	13.75000	01	06	40.28	+10	31	00.4		888
1984	SX		1988	10	15.62222	01	04	55.15	+10	21	20.5		888
1984	SX		1988	10	15.65347	01	04	53.32	+10	21	09.7		888
1984	SX		1988	11	03.53889	00	49	06.04	+08	46	04.4	17.0	888
1988	TA		1988	10	15.69236	01	22	57.46	+05	37	05.3	18.0	888
1988	TA		1988	10	15.72500	01	22	55.69	+05	36	35.3		888
1988	TG		1988	10	13.65208	01	08	13.16	+11	30	55.9	16.5	888
1988	TG		1988	10	13.67639	01	08	12.40	+11	30	09.8		888
1988	TG		1988	10	19.65000	01	05	34.52	+08	22	26.4	16.5	888
1988	TG		1988	10	19.68125	01	05	33.49	+08	21	26.1		888
1988	TG		1988	11	01.54028	01	01	36.76	+01	56	12.2	16.5	888
1988	TG		1988	11	02.49861	01	01	27.83	+01	29	56.8		888
1988	TG		1988	11	02.50625	01	01	27.78	+01	29	44.8		888
1988	TG		1988	11	02.52986	01	01	27.38	+01	29	05.8		888
1988	TG		1988	11	02.53750	01	01	27.44	+01	28	52.8		888
1988	TG		1988	11	07.51806	01	01	04.36	-00	39	35.4	17.0	888
1988	TG		1988	11	07.54931	01	01	04.22	-00	40	21.3		888
1988	TP		1988	11	02.58472	01	52	21.33	+12	05	06.5	16.5	888
1988	TP		1988	11	02.61736	01	52	19.64	+12	04	51.5		888
1988	TV		1988	10	19.65000	01	06	04.35	+08	25	41.8	17.5	888
1988	TV		1988	10	19.68125	01	06	03.01	+08	25	46.7		888
1988	TO1	*	1988	10	09.60347	01	49	55.26	+06	43	03.2	17.5	888
1988	TO1		1988	10	09.63681	01	49	53.79	+06	42	54.9		888
1988	TO1		1988	10	13.66042	01	46	58.10	+06	25	34.4		888
1988	TO1		1988	10	13.68472	01	46	56.94	+06	25	27.9		888
1988	TO1		1988	10	15.70069	01	45	25.33	+06	16	45.5		888
1988	TO1		1988	10	15.73264	01	45	23.85	+06	16	37.9		888
1988	TO1		1988	11	02.57639	01	31	49.27	+05	08	13.9	17.5	888
1988	TO1		1988	11	02.60972	01	31	47.83	+05	08	07.1		888
1988	TO1		1988	11	07.58333	01	28	31.81	+04	54	50.5	17.5	888
1988	TO1		1988	11	07.61667	01	28	30.53	+04	54	45.2		888
1988	TP1	*	1988	10	13.73403	01	14	36.23	+04	51	29.2	17.5	888
1988	TP1		1988	10	13.76667	01	14	34.70	+04	51	20.8		888
1988	TP1		1988	10	15.68403	01	13	02.05	+04	42	42.2		888
1988	TP1		1988	10	15.71667	01	13	00.39	+04	42	33.4		888
1988	TP1		1988	10	19.65764	01	09	52.45	+04	25	11.8	17.5	888
1988	TP1		1988	10	19.68889	01	09	51.05	+04	25	03.7		888
1988	TP1		1988	11	02.51389	01	00	05.90	+03	34	54.7	17.5	888
1988	TP1		1988	11	02.54514	01	00	04.55	+03	34	46.9		888
1988	TP1		1988	11	02.55972	01	00	04.18	+03	34	42.7		888
1988	TP1		1988	11	02.59306	01	00	02.84	+03	34	36.8		888
1988	TP1		1988	11	05.54097	00	58	21.54	+03	26	49.9	17.5	888
1988	TP1		1988	11	05.54861	00	58	21.31	+03	26	49.6		888
1988	TP1		1988	11	05.57292	00	58	20.42	+03	26	43.8		888
1988	TP1		1988	11	05.58056	00	58	20.15	+03	26	44.6		888
1988	TQ1	*	1988	10	15.61389	01	06	24.18	+13	49	32.5	16.5	888
1988	TQ1		1988	10	15.64583	01	06	22.44	+13	49	28.7		888
1988	TQ1		1988	10	19.64167	01	02	23.47	+13	37	00.2		888
1988	TQ1		1988	10	19.67361	01	02	21.58	+13	36	53.6		888

1988	TQ1		1988	11	02.49028	00	50	14.61	+12	49	53.0	17.0	888
1988	TQ1		1988	11	02.52222	00	50	13.04	+12	49	46.7		888
1988	TQ1		1988	11	03.53125	00	49	29.58	+12	46	29.5		888
1988	TQ1		1988	11	03.56389	00	49	28.16	+12	46	22.8		888
1988	TR1	*	1988	10	15.68403	01	12	05.28	+05	01	57.6	17	888
1988	TR1		1988	10	15.71667	01	12	04.01	+05	01	33.0		888
1988	TR1		1988	10	19.65764	01	09	26.58	+04	10	29.5		888
1988	TR1		1988	10	19.68889	01	09	25.51	+04	10	06.4		888
1988	TR1		1988	11	02.49861	01	01	46.66	+01	31	18.7	17.5	888
1988	TR1		1988	11	02.50625	01	01	46.40	+01	31	13.8		888
1988	TR1		1988	11	02.52986	01	01	45.70	+01	31	01.2		888
1988	TR1		1988	11	02.53750	01	01	45.66	+01	30	55.1		888
1988	TR1		1988	11	05.60417	01	00	33.02	+01	01	44.5	17.0	888
1988	TR1		1988	11	05.62778	01	00	32.14	+01	01	26.8		888
1988	VT	*	1988	11	02.49028	00	49	55.62	+13	02	52.4	17.0	888
1988	VT		1988	11	02.52222	00	49	54.46	+13	02	32.6		888
1988	VT		1988	11	03.53125	00	49	25.94	+12	52	33.7		888
1988	VT		1988	11	03.56389	00	49	25.90	+12	52	14.3		888
1988	VT		1988	11	03.60694	00	49	23.75	+12	51	48.8		888
1988	VT		1988	11	05.51111	00	48	33.67	+12	33	15.4	17.5	888
1988	VT		1988	11	05.55694	00	48	32.41	+12	32	48.6		888
1988	VT		1988	11	07.57500	00	47	44.76	+12	13	40.7	17.5	888
1988	VT		1988	11	07.60833	00	47	43.93	+12	13	21.6		888
1988	VV1	*	1988	11	02.56806	01	05	07.68	+27	31	17.7	17.5	888
1988	VV1		1988	11	02.60139	01	05	06.29	+27	31	04.2		888
1988	VV1		1988	11	07.52639	01	01	44.30	+26	55	14.4	17.5	888
1988	VV1		1988	11	07.55764	01	01	43.07	+26	55	00.3		888
1988	VV1		1988	11	10.55625	00	59	56.54	+26	32	48.1		888
1988	VV1		1988	11	10.58889	00	59	55.46	+26	32	34.1		888
1988	VW1	*	1988	11	05.68333	03	00	59.26	+12	38	48.3	17.5	888
1988	VW1		1988	11	05.71667	03	00	57.51	+12	38	40.3		888
1988	VW1		1988	11	06.71736	03	00	06.04	+12	35	04.0	17.0	888
1988	VW1		1988	11	06.74931	03	00	04.35	+12	34	56.9		888
1988	VW1		1988	11	07.60000	02	59	20.70	+12	31	52.4	17.5	888
1988	VW1		1988	11	07.63333	02	59	18.93	+12	31	44.2		888
1988	VW1		1988	11	10.57292	02	56	47.17	+12	21	14.7		888
1988	VW1		1988	11	10.60556	02	56	45.44	+12	21	07.2		888
2535	P-L		1988	10	13.73403	01	14	37.19	+04	34	43.2	17.0	888
2535	P-L		1988	10	13.76667	01	14	35.70	+04	34	32.5		888
2535	P-L		1988	10	15.68403	01	13	09.59	+04	25	14.4		888
2535	P-L		1988	10	15.71667	01	13	08.06	+04	25	05.8		888
2535	P-L		1988	11	05.62014	00	59	34.46	+03	03	16.0	18.0	888
2535	P-L		1988	11	05.65278	00	59	33.49	+03	03	10.3		888
846			1988	11	06.74097	03	56	28.62	+20	36	43.3	15	888
846			1988	11	06.77361	03	56	27.04	+20	36	37.2		888
938			1988	11	05.66806	02	01	50.07	+08	00	55.8	16.0	888
938			1988	11	05.70000	02	01	48.64	+08	00	50.0		888
938			1988	11	07.59167	02	00	26.03	+07	54	36.5		888
938			1988	11	07.62500	02	00	24.53	+07	54	30.4		888
1268			1988	10	13.71736	01	06	56.03	+10	03	54.6	15.5	888
1268			1988	10	13.75000	01	06	54.81	+10	03	47.3		888
1268			1988	10	15.62222	01	05	42.72	+09	57	44.2		888
1268			1988	10	15.65347	01	05	41.49	+09	57	37.5		888
2067			1988	11	05.54097	00	58	40.31	+02	47	08.6	17.5	888
2067			1988	11	05.54861	00	58	40.12	+02	47	07.1		888
2067			1988	11	05.57292	00	58	39.43	+02	47	03.6		888
2067			1988	11	05.58056	00	58	39.06	+02	47	02.8		888
2125			1988	10	13.71736	01	07	57.21	+09	53	59.2	16.5	888
2125			1988	10	13.75000	01	07	55.94	+09	53	47.6		888

3054		1988	11	02.55972	00	58	28.58	+03	19	08.1	17		888
3054		1988	11	02.59306	00	58	27.35	+03	19	01.0			888
3054		1988	11	05.54097	00	56	58.55	+03	10	23.9	17.0		888
3054		1988	11	05.54861	00	56	58.30	+03	10	23.5			888
3054		1988	11	05.57292	00	56	57.48	+03	10	19.9			888
3054		1988	11	05.58056	00	56	57.29	+03	10	17.8			888
3054		1988	11	07.50972	00	56	04.78	+03	05	20.6			888
3054		1988	11	07.54167	00	56	03.83	+03	05	16.3			888

894 Kiyosato
S. Miyasaka, 3-8-501, 4 Chome, Nagayama, Tama, Tokyo 206, Japan
Observers S. Miyasaka, R. Murofushi, K. Ohgoe
Measurer S. Miyasaka
0.25-m f/4.8 reflector

1953	TC	1988	10	09.62541	02	19	24.53	+16	38	20.7			894
1953	TC	1988	10	09.64877	02	19	23.49	+16	38	20.6			894
1953	TC	1988	10	14.67683	02	15	23.88	+16	41	42.9			894
1953	TC	1988	10	15.57655	02	14	37.67	+16	41	53.9			894
1953	TC	1988	11	02.53466	01	57	30.66	+16	27	48.3	14		894
1953	TC	1988	11	02.57766	01	57	28.01	+16	27	43.8			894
1973	FE1	1988	10	14.57760	00	23	11.56	+03	07	50.8			894
1973	FE1	1988	10	14.60123	00	23	10.28	+03	07	17.6		G	894
1988	UO	1988	11	05.67667	02	52	02.76	+20	44	11.5	15.5		894
1988	UO	1988	11	05.71654	02	51	59.99	+20	44	10.5			894
1988	VB	1988	11	05.65948	02	40	59.41	+15	25	37.5			894
1988	VB	1988	11	05.70219	02	40	56.66	+15	25	42.2			894

896 Yatsugatake South Base Observatory
O. Muramatsu, 119-1, 2-8 Sakurazutsumi, Musashino, Tokyo 180, Japan
Observers Y. Kushida, M. Inoue, O. Muramatsu
Measurer O. Muramatsu
0.20-m f/4.8 reflector

1982	PL		1988	11	03.61667	02	45	06.12	+17	41	08.5	16.0	896
1982	PL		1988	11	03.65139	02	45	03.92	+17	41	00.9		896
1982	PL		1988	11	06.74063	02	42	21.3	+17	30	49	16.0	R 896
1982	PL		1988	11	06.76424	02	42	20.1	+17	30	44		R 896
1988	TT1	*	1988	10	13.53542	01	58	54.96	+08	30	06.8	16.8	t 896
1988	TT1		1988	10	13.57569	01	58	52.50	+08	30	12.3		t 896
1988	TT1		1988	10	19.66368	01	52	48.25	+08	37	05.5	16.5	W 896
1988	TT1		1988	10	19.69417	01	52	46.10	+08	37	08.8		W 896
1988	TT1		1988	10	29.43035	01	42	59.44	+08	48	43.4	16.5	W 896
1988	TT1		1988	10	29.45052	01	42	58.14	+08	48	44.7		W 896
1988	TT1		1988	10	31.43472	01	41	01.80	+08	51	14.5	16.5	W 896
1988	TT1		1988	10	31.46325	01	41	00.40	+08	51	18.5		W 896
1988	TT1		1988	11	05.58316	01	36	09.76	+08	58	28.8	16.0	896
1988	TT1		1988	11	05.61036	01	36	08.29	+08	58	31.8		w 896
1988	VR		1988	11	02.53252	02	30	01.80	+09	00	50.9	16.0	t 896
1988	VR		1988	11	02.55862	02	30	00.39	+09	00	55.1		t 896
1988	VR		1988	11	03.54861	02	28	56.6	+09	01	55	16.0	w 896
1988	VR		1988	11	03.57674	02	28	54.6	+09	02	03		w 896
1988	VR	*	1988	11	05.63901	02	26	42.8	+09	04	22	16.0	w 896
1988	VR		1988	11	05.66439	02	26	41.2	+09	04	19		w 896
1988	VR		1988	11	07.49340	02	24	46.16	+09	06	45.5	16.0	t 896
1988	VR		1988	11	07.52153	02	24	44.22	+09	06	50.0		t 896
1988	VZ		1988	11	06.72118	02	36	33.95	+16	54	12.0		w 896
1988	VZ	*	1988	11	07.54479	02	35	49.20	+16	53	53.1	16.0	t 896
1988	VZ		1988	11	07.56979	02	35	47.59	+16	53	52.0		t 896
1988	VR1	*	1988	11	07.64271	03	16	14.4	+12	54	25	16.8	t 896
1988	VR1		1988	11	07.66910	03	16	13.0	+12	54	14		t 896

1988 VR1		1988 11 08.51198	03	15	32.0	+12	48	01		16.8	w	896
1988 VR1		1988 11 08.53889	03	15	30.5	+12	47	47			w	896
1988 VS1	*	1988 11 07.64271	03	18	21.6	+12	41	55		16.0	t	896
1988 VS1		1988 11 07.66910	03	18	20.0	+12	41	52			t	896
1988 VS1		1988 11 08.51198	03	17	24.7	+12	39	40		16.0	w	896
1988 VS1		1988 11 08.53889	03	17	22.8	+12	39	38			w	896
1988 VF2	*	1988 11 07.68993	03	18	29.0	+22	15	19		16.5	t	896
1988 VF2		1988 11 07.71997	03	18	27.0	+22	15	22			D	896
1988 VF2		1988 11 09.71424	03	16	02.3	+22	15	36			t	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

1988 TG1	*	1988 10 14.50764	01	24	52.84	+21	46	34.2	15	897
1988 TG1		1988 10 14.54583	01	24	50.95	+21	46	19.6		897
1988 TG1		1988 10 16.46424	01	23	19.54	+21	35	19.9	16	897
1988 TG1		1988 10 16.53102	01	23	16.30	+21	34	56.6		897
1988 TG1		1988 10 16.55694	01	23	14.89	+21	34	46.5		897
1988 TG1		1988 11 02.46285	01	10	37.78	+19	40	35.0	16	897
1988 TG1		1988 11 02.51076	01	10	35.86	+19	40	14.8		897
1988 UN	*	1988 10 30.52639	02	35	09.48	+23	35	54.5	16	897
1988 UN		1988 10 30.56458	02	35	07.25	+23	36	03.1		897
1988 UN		1988 11 02.48183	02	32	23.74	+23	45	46.5	16	897
1988 UN		1988 11 02.53299	02	32	20.67	+23	45	56.4		897
1988 UO	*	1988 10 31.52569	02	57	33.06	+20	42	56.1	16	897
1988 UO		1988 10 31.56389	02	57	30.47	+20	42	57.0		897
1988 UO		1988 11 02.49097	02	55	27.95	+20	43	42.1	16	897
1988 UO		1988 11 02.54190	02	55	24.64	+20	43	42.6		897
1988 UO		1988 11 07.57106	02	50	00.79	+20	44	02.8	15	897
1988 UO		1988 11 07.60486	02	49	58.40	+20	44	03.6		897
1988 VB		1988 10 31.51042	02	46	13.50	+15	18	41.4	16	897
1988 VB		1988 10 31.54861	02	46	11.17	+15	18	46.0		897
1988 VB		1988 11 03.47957	02	43	13.08	+15	22	45.9	16	897
1988 VB		1988 11 03.51256	02	43	10.95	+15	22	49.0		897
1988 VE	*	1988 11 03.46238	02	04	50.32	+14	06	00.8	16	897
1988 VE		1988 11 03.50521	02	04	47.32	+14	06	05.4		897
1988 VE		1988 11 07.43773	02	00	25.43	+14	14	25.5	16	897
1988 VE		1988 11 07.47558	02	00	22.88	+14	14	30.0		897
1988 VF	*	1988 11 03.46238	02	10	33.23	+13	54	54.3	17	897
1988 VF		1988 11 03.50521	02	10	30.63	+13	55	02.8		897
1988 VF		1988 11 07.43773	02	06	40.41	+14	04	48.3	16	897
1988 VF		1988 11 07.47558	02	06	38.21	+14	04	56.2		897
1988 VG	*	1988 11 03.46238	02	19	20.77	+14	10	57.6	16	897
1988 VG		1988 11 03.50521	02	19	18.80	+14	10	54.0		897
1988 VG		1988 11 07.44572	02	16	10.09	+13	56	51.6	16	897
1988 VG		1988 11 07.48646	02	16	08.02	+13	56	42.7		897
1988 VK	*	1988 11 03.54097	02	47	58.39	+04	13	42.0	17	897
1988 VK		1988 11 03.58056	02	47	55.77	+04	13	33.9		897
1988 VK		1988 11 07.56042	02	43	54.87	+04	05	45.3	17	897
1988 VK		1988 11 07.59722	02	43	52.65	+04	05	43.6		897
1988 VL	*	1988 11 03.54861	02	43	13.68	+05	34	06.6	16	897
1988 VL		1988 11 03.58819	02	43	11.48	+05	33	43.8		897
1988 VL		1988 11 07.51840	02	39	57.54	+04	58	35.3	16	897
1988 VL		1988 11 07.54421	02	39	56.08	+04	58	23.6		897
1988 VM	*	1988 11 03.54861	02	45	13.26	+05	10	01.2	17	897
1988 VM		1988 11 03.58819	02	45	11.17	+05	09	34.7		897
1988 VM		1988 11 07.56042	02	41	53.52	+04	26	15.8	17	897

1988	VM		1988	11	07.59722	02	41	51.65	+04 25 53.2	897
1988	VN	*	1988	11	03.56389	02	44	47.76	+11 16 02.3	17 897
1988	VN		1988	11	03.60347	02	44	45.76	+11 15 55.2	897
1988	VN		1988	11	07.51019	02	41	07.47	+11 03 37.7	17 897
1988	VN		1988	11	07.53495	02	41	05.96	+11 03 33.8	897
1988	VQ	*	1988	11	03.63194	03	07	12.39	+11 53 28.7	16 897
1988	VQ		1988	11	03.68542	03	07	09.35	+11 53 07.9	897
1988	VQ		1988	11	07.58860	03	03	25.67	+11 27 50.1	16 897
1988	VQ		1988	11	07.62986	03	03	23.19	+11 27 34.7	897
546			1988	10	30.52639	02	33	28.04	+23 40 23.1	14 897
546			1988	10	30.56458	02	33	25.29	+23 40 26.4	897
546			1988	11	02.48183	02	30	01.42	+23 43 37.1	897
546			1988	11	02.53299	02	29	57.73	+23 43 40.0	897
1426			1988	11	02.46285	01	10	44.40	+19 27 41.6	16 897
1426			1988	11	02.51076	01	10	41.90	+19 27 27.9	897

975 Valencia
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0.25-m f/15 refractor
SAOC

4			1986	11	18.82567	00	23	33.84	-08 18 02.2	975
4			1986	11	18.83017	00	23	33.48	-08 18 03.1	975
4			1986	11	18.83586	00	23	33.32	-08 17 59.3	975
4			1986	11	18.84029	00	23	33.32	-08 17 57.4	975
4			1986	11	18.84554	00	23	33.31	-08 17 56.8	975
4			1986	11	25.80860	00	23	35.34	-07 47 19.4	975
4			1986	11	25.81291	00	23	35.45	-07 47 16.7	975
4			1986	11	25.81772	00	23	35.43	-07 47 15.8	975
4			1986	11	25.82914	00	23	35.44	-07 47 12.6	975
4			1986	11	25.83355	00	23	35.44	-07 47 11.5	975
4			1986	11	28.78598	00	23	59.22	-07 31 48.7	975
4			1986	11	28.78980	00	23	59.34	-07 31 47.6	975
4			1986	11	28.79443	00	23	59.28	-07 31 45.9	975
4			1986	11	28.80041	00	23	59.33	-07 31 44.1	975
4			1986	11	28.80368	00	23	59.32	-07 31 42.8	975
4			1986	11	28.80780	00	23	59.50	-07 31 42.0	975
4			1986	11	30.77483	00	24	22.89	-07 20 40.1	975
4			1986	11	30.77894	00	24	22.92	-07 20 39.6	975
4			1986	11	30.78308	00	24	22.97	-07 20 37.9	975
4			1986	11	30.78787	00	24	23.03	-07 20 36.7	975
4			1986	11	30.79085	00	24	23.07	-07 20 35.5	975
4			1986	11	30.79467	00	24	23.12	-07 20 34.1	975
4			1986	11	30.80006	00	24	23.17	-07 20 33.2	975
4			1986	11	30.80358	00	24	23.18	-07 20 31.0	975
4			1986	11	30.80690	00	24	23.27	-07 20 30.3	975
4			1986	12	15.78084	00	30	21.10	-05 40 13.5	975
4			1986	12	15.78474	00	30	21.25	-05 40 12.1	975
4			1986	12	15.78860	00	30	21.33	-05 40 09.9	975
4			1986	12	15.79464	00	30	21.64	-05 40 08.3	975
4			1986	12	15.79837	00	30	21.76	-05 40 06.3	975
4			1986	12	15.80200	00	30	21.89	-05 40 04.4	975
4			1986	12	22.79757	00	34	46.35	-04 45 00.4	975
4			1986	12	22.80193	00	34	46.57	-04 44 58.0	975
4			1986	12	22.80596	00	34	46.76	-04 44 56.3	975
4			1986	12	22.81070	00	34	46.89	-04 44 54.1	975
4			1986	12	22.81671	00	34	47.12	-04 44 51.2	975
4			1986	12	22.81996	00	34	47.25	-04 44 49.6	975

4	1986	12	23.78457	00	35	28.16	-04	36	54.0	975
4	1986	12	23.78885	00	35	28.29	-04	36	51.3	975
4	1986	12	23.79368	00	35	28.50	-04	36	49.3	975
4	1986	12	23.79940	00	35	28.78	-04	36	47.1	975
4	1986	12	23.80318	00	35	28.91	-04	36	45.6	975
4	1986	12	23.80676	00	35	29.07	-04	36	43.3	975
4	1986	12	29.79725	00	40	04.89	-03	45	51.8	975
4	1986	12	29.80031	00	40	04.78	-03	45	48.2	975
4	1986	12	29.80672	00	40	05.05	-03	45	43.7	975
4	1986	12	29.80973	00	40	05.19	-03	45	42.9	975
4	1986	12	29.81280	00	40	05.35	-03	45	40.6	975
11	1987	02	06.80488	06	06	30.33	+21	22	52.3	975
11	1987	02	06.80808	06	06	30.34	+21	22	54.7	975
11	1987	02	06.81580	06	06	30.13	+21	22	54.8	975
11	1987	02	06.81927	06	06	29.91	+21	22	55.2	975
11	1987	02	12.80348	06	05	06.55	+21	35	17.4	975
11	1987	02	12.80718	06	05	06.52	+21	35	20.5	975
18	1987	03	30.94051	14	07	10.97	+00	07	06.9	975
18	1987	03	30.94491	14	07	10.82	+00	07	08.9	975
18	1987	03	30.94943	14	07	10.42	+00	07	12.1	975
532	1987	03	30.90933	13	10	12.81	+22	57	52.5	975
532	1987	03	30.91323	13	10	12.56	+22	57	54.9	975
532	1987	03	30.91719	13	10	12.47	+22	57	56.1	975
532	1987	03	30.92240	13	10	12.09	+22	57	59.8	975
532	1987	03	30.92624	13	10	11.93	+22	58	00.5	975
704	1987	03	03.84202	07	51	24.08	+09	00	51.3	975
704	1987	03	03.84670	07	51	24.05	+09	00	55.9	975

983 San Fernando
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Observers L.Quijano, V. Blanco, J. C. Coma, A. Fernandez-Buendia
Measurers M. Esparragosa, P. Rodriguez
Reductions F. Cano, A. Fernandez-Buendia

1	1979	10	24.96406	00	51	47.12	-09	46	46.4	983
1	1979	10	24.96788	00	51	46.93	-09	46	46.8	983
1	1979	10	24.97170	00	51	46.75	-09	46	46.8	983
1	1979	11	12.87934	00	40	12.39	-09	31	41.6	983
1	1979	11	12.88316	00	40	12.28	-09	31	40.8	983
1	1979	11	12.88698	00	40	12.19	-09	31	40.3	983
1	1979	11	20.83941	00	37	30.65	-09	05	45.9	983
1	1979	11	20.84323	00	37	30.58	-09	05	45.1	983
1	1979	11	20.84705	00	37	30.51	-09	05	44.0	983
1	1986	01	18.17674	11	26	38.35	+18	55	23.9	983
1	1986	01	18.18160	11	26	38.35	+18	55	26.0	983
1	1986	01	18.18576	11	26	38.35	+18	55	27.3	983
1	1986	02	06.01979	11	22	28.96	+21	14	14.2	983
1	1986	03	10.96198	10	57	16.14	+24	57	48.9	983
1	1986	03	10.96649	10	57	15.87	+24	57	49.8	983
1	1986	03	10.97101	10	57	15.65	+24	57	51.1	983
1	1986	04	03.92083	10	40	51.42	+25	18	17.0	983
1	1986	04	03.92639	10	40	51.28	+25	18	16.4	983
1	1986	04	03.93125	10	40	51.14	+25	18	15.6	983
2	1979	09	11.91354	20	50	43.75	+06	28	26.1	983
2	1979	09	11.91771	20	50	43.65	+06	28	23.1	983
2	1979	09	11.92188	20	50	43.53	+06	28	20.0	983
2	1979	10	22.87812	20	48	47.50	-01	07	51.3	983
2	1979	10	22.88229	20	48	47.58	-01	07	53.3	983
2	1979	10	22.88646	20	48	47.67	-01	07	55.6	983

2		1979	10	24.84896	20	49	32.33	-01 24 54.6	983
2		1979	10	24.85313	20	49	32.41	-01 24 57.1	983
2		1979	10	24.85729	20	49	32.51	-01 24 59.0	983
2		1980	10	08.02483	02	34	50.36	-17 07 44.6	983
2		1980	10	08.02865	02	34	50.24	-17 07 48.4	983
2		1980	10	08.03247	02	34	50.11	-17 07 52.8	983
2		1980	10	09.05226	02	34	15.61	-17 26 08.8	983
2		1980	10	09.05608	02	34	15.48	-17 26 12.7	983
2		1980	10	09.05990	02	34	15.35	-17 26 17.0	983
2		1980	10	10.02378	02	33	41.61	-17 43 25.6	983
2		1980	10	10.02760	02	33	41.48	-17 43 29.5	983
2		1980	10	10.03142	02	33	41.34	-17 43 33.7	983
2		1980	10	12.02240	02	32	28.18	-18 18 32.9	983
2		1980	10	12.02622	02	32	28.06	-18 18 37.0	983
2		1980	10	12.03003	02	32	27.89	-18 18 41.7	983
2		1980	11	13.96406	02	07	05.49	-25 13 48.6	983
2		1980	11	13.96788	02	07	05.31	-25 13 50.2	983
2		1980	11	13.97170	02	07	05.13	-25 13 51.8	983
2		1980	11	27.89644	01	58	39.19	-26 04 16.3	983
2		1980	11	27.90043	01	58	39.07	-26 04 16.8	983
2		1980	11	27.90443	01	58	38.95	-26 04 16.8	983
2		1980	11	28.90712	01	58	11.89	-26 05 03.7	983
2		1980	11	28.91094	01	58	11.78	-26 05 04.1	983
2		1980	11	28.91476	01	58	11.69	-26 05 04.0	983
2		1980	12	02.90503	01	56	38.39	-26 04 36.5	983
2		1980	12	02.90885	01	56	38.30	-26 04 36.1	983
2		1980	12	02.91267	01	56	38.22	-26 04 36.0	983
2		1980	12	04.87378	01	56	01.32	-26 02 25.4	983
2		1980	12	04.87760	01	56	01.26	-26 02 25.3	983
2		1980	12	04.88142	01	56	01.18	-26 02 24.6	983
2		1980	12	29.83385	01	57	09.31	-24 02 48.0	983
2		1980	12	29.83594	01	57	09.40	-24 02 46.6	983
2		1980	12	29.84358	01	57	09.53	-24 02 43.2	983
2		1986	01	04.97569	05	49	11.38	-32 02 02.5	983
2		1986	01	04.98056	05	49	11.16	-32 02 00.2	983
2		1986	01	04.98542	05	49	10.92	-32 01 58.0	983
2		1986	01	31.91840	05	37	14.63	-25 33 49.9	983
2		1986	01	31.92257	05	37	14.60	-25 33 45.1	983
2		1986	01	31.92674	05	37	14.62	-25 33 40.6	983
3		1980	01	18.98628	07	16	20.32	+02 39 44.4	983
3		1980	01	18.99010	07	16	20.12	+02 39 46.3	983
3		1980	01	18.99392	07	16	19.92	+02 39 48.3	983
3		1980	01	21.96962	07	13	54.41	+03 05 27.6	983
3		1980	01	21.97344	07	13	54.22	+03 05 29.6	983
3		1980	01	21.97726	07	13	54.02	+03 05 31.7	983
3		1980	02	07.94063	07	03	43.69	+05 51 38.3	983
3		1980	02	07.94479	07	03	43.61	+05 51 40.8	983
3		1980	02	07.94896	07	03	43.51	+05 51 43.5	983
3		1980	02	13.92604	07	02	02.15	+06 52 58.2	983
3		1980	02	13.93021	07	02	02.10	+06 53 00.6	983
3		1980	02	13.93438	07	02	02.05	+06 53 03.3	983
3		1980	02	14.93924	07	01	51.54	+07 03 16.1	983
3		1980	02	14.94340	07	01	51.49	+07 03 18.5	983
3		1980	02	14.94757	07	01	51.44	+07 03 21.2	983
3		1980	03	10.85382	07	07	24.19	+10 50 35.2	983
3		1980	03	10.85799	07	07	24.34	+10 50 36.9	983
3		1980	03	10.86215	07	07	24.46	+10 50 39.0	983
3		1980	03	11.83785	07	07	59.00	+10 58 08.6	983
3		1980	03	11.84201	07	07	59.15	+10 58 10.4	983

3	1980	03	11.84618	07	07	59.28	+10	58	12.6	983
3	1980	03	13.83993	07	09	14.24	+11	13	08.0	983
3	1980	03	13.84410	07	09	14.40	+11	13	09.8	983
3	1980	03	13.84826	07	09	14.56	+11	13	11.6	983
3	1980	03	14.86424	07	09	55.00	+11	20	35.2	983
3	1980	03	14.86840	07	09	55.16	+11	20	37.3	983
3	1980	03	14.87257	07	09	55.34	+11	20	39.1	983
3	1986	06	11.97882	16	27	44.73	-03	21	00.6	983
3	1986	06	11.98438	16	27	44.46	-03	21	00.4	983
3	1986	06	11.99063	16	27	44.13	-03	20	59.7	983
3	1986	07	07.93576	16	10	49.70	-03	41	27.8	983
3	1986	07	07.94132	16	10	49.54	-03	41	28.7	983
3	1986	07	07.94826	16	10	49.35	-03	41	29.5	983
4	1979	11	12.97656	02	34	21.31	+04	26	15.1	983
4	1979	11	12.98038	02	34	21.07	+04	26	15.3	983
4	1979	11	12.98420	02	34	20.85	+04	26	14.3	983
4	1979	11	20.96684	02	27	00.99	+04	14	24.1	983
4	1979	11	20.97101	02	27	00.75	+04	14	23.5	983
4	1979	11	20.97483	02	27	00.56	+04	14	23.3	983
4	1979	12	10.89323	02	14	29.23	+04	31	32.0	983
4	1979	12	10.89705	02	14	29.15	+04	31	32.5	983
4	1979	12	10.90087	02	14	29.06	+04	31	33.1	983
4	1979	12	14.87031	02	13	13.63	+04	42	47.4	983
4	1979	12	14.87413	02	13	13.56	+04	42	48.5	983
4	1979	12	14.87795	02	13	13.49	+04	42	49.0	983
4	1980	01	08.82309	02	15	11.27	+06	41	42.2	983
4	1980	01	08.82691	02	15	11.35	+06	41	43.7	983
4	1980	01	08.83073	02	15	11.44	+06	41	45.0	983
4	1980	01	09.81684	02	15	35.65	+06	47	49.2	983
4	1980	01	09.82066	02	15	35.74	+06	47	50.6	983
4	1980	01	09.82448	02	15	35.83	+06	47	52.0	983
4	1986	10	27.93212	00	31	55.03	-08	52	13.8	983
4	1986	10	27.93594	00	31	54.84	-08	52	14.4	983
4	1986	10	27.93976	00	31	54.67	-08	52	14.5	983
4	1986	11	24.87396	00	23	30.56	-07	51	54.7	983
4	1986	11	24.87812	00	23	30.58	-07	51	53.4	983
4	1986	11	24.88229	00	23	30.61	-07	51	52.0	983
5	1986	12	10.19340	09	09	32.67	+12	23	44.5	983
5	1986	12	10.19896	09	09	32.81	+12	23	44.1	983
5	1986	12	10.20451	09	09	32.96	+12	23	43.9	983
6	1979	05	03.11094	16	31	10.85	+00	30	00.7	983
6	1979	05	03.11545	16	31	10.63	+00	30	02.1	983
6	1979	05	03.11997	16	31	10.46	+00	30	03.9	983
6	1979	05	22.00191	16	15	28.76	+01	48	27.2	983
6	1979	05	22.00642	16	15	28.48	+01	48	27.7	983
6	1979	05	22.01510	16	15	27.99	+01	48	29.0	983
6	1979	05	30.99913	16	06	53.14	+02	03	20.9	983
6	1979	05	31.00365	16	06	52.86	+02	03	21.2	983
6	1979	05	31.00816	16	06	52.60	+02	03	21.2	983
6	1979	06	20.94236	15	49	00.54	+01	30	06.5	983
6	1979	06	20.94722	15	49	00.35	+01	30	05.2	983
6	1979	06	20.95208	15	49	00.13	+01	30	04.5	983
6	1980	11	14.03212	03	48	41.34	-09	08	22.0	983
6	1980	11	14.03594	03	48	41.15	-09	08	22.2	983
6	1980	11	14.03976	03	48	40.93	-09	08	22.8	983
6	1980	11	28.95191	03	35	09.71	-08	48	57.4	983
6	1980	11	28.95573	03	35	09.50	-08	48	56.3	983
6	1980	11	28.95955	03	35	09.29	-08	48	55.3	983
6	1980	11	29.92726	03	34	21.32	-08	44	33.4	983

6	1980	11	29.93108	03	34	21.10	-08	44	32.6	983
6	1980	11	29.93490	03	34	20.90	-08	44	31.5	983
6	1980	12	02.95087	03	31	57.92	-08	28	39.5	983
6	1980	12	02.95469	03	31	57.70	-08	28	37.7	983
6	1980	12	02.95851	03	31	57.51	-08	28	36.6	983
6	1980	12	05.97101	03	29	46.14	-08	09	26.1	983
6	1980	12	05.97483	03	29	45.97	-08	09	24.1	983
6	1980	12	05.97865	03	29	45.82	-08	09	23.2	983
6	1980	12	29.87795	03	21	33.98	-04	07	36.5	983
6	1980	12	29.88177	03	21	33.96	-04	07	33.6	983
6	1980	12	29.88559	03	21	33.99	-04	07	30.6	983
6	1986	04	10.06215	13	13	09.63	+12	25	59.0	983
6	1986	04	10.06771	13	13	09.33	+12	26	01.1	983
6	1986	04	10.07326	13	13	09.03	+12	26	03.7	983
6	1986	04	28.98368	12	57	54.35	+13	58	55.2	983
6	1986	04	28.98993	12	57	54.06	+13	58	56.2	983
6	1986	04	28.99549	12	57	53.83	+13	58	57.1	983
7	1979	04	03.11944	16	07	22.70	-24	42	50.5	983
7	1979	04	03.12361	16	07	22.65	-24	42	50.5	983
7	1979	04	03.12847	16	07	22.60	-24	42	50.2	983
7	1979	05	03.06181	15	50	01.65	-23	43	30.0	983
7	1979	05	03.06667	15	50	01.37	-23	43	28.4	983
7	1979	05	03.07153	15	50	01.13	-23	43	27.7	983
7	1979	05	21.95833	15	31	30.31	-22	21	19.5	983
7	1979	05	21.96354	15	31	29.99	-22	21	18.2	983
7	1979	05	21.96875	15	31	29.66	-22	21	16.6	983
7	1979	05	30.95399	15	22	45.67	-21	35	27.9	983
7	1979	05	30.95851	15	22	45.38	-21	35	26.3	983
7	1979	05	30.96302	15	22	45.14	-21	35	24.9	983
7	1979	06	15.90833	15	10	08.19	-20	16	59.9	983
7	1979	06	15.91319	15	10	07.97	-20	16	58.7	983
7	1979	06	15.91806	15	10	07.79	-20	16	57.6	983
7	1979	06	20.89583	15	07	16.77	-19	55	32.7	983
7	1979	06	20.90069	15	07	16.61	-19	55	31.3	983
7	1979	06	20.90556	15	07	16.45	-19	55	30.3	983
7	1980	09	13.06007	23	47	21.91	+10	42	21.7	983
7	1980	09	13.06424	23	47	21.71	+10	42	20.7	983
7	1980	09	13.06840	23	47	21.49	+10	42	19.8	983
7	1980	09	14.03021	23	46	34.85	+10	38	38.5	983
7	1980	09	14.03437	23	46	34.64	+10	38	37.4	983
7	1980	09	14.03854	23	46	34.42	+10	38	36.3	983
7	1980	09	17.00156	23	44	07.16	+10	25	44.8	983
7	1980	09	17.00538	23	44	06.95	+10	25	44.0	983
7	1980	09	17.00920	23	44	06.74	+10	25	42.7	983
7	1980	10	07.95295	23	27	34.32	+08	09	55.3	983
7	1980	10	07.95677	23	27	34.16	+08	09	53.5	983
7	1980	10	07.96059	23	27	33.99	+08	09	51.8	983
7	1980	10	08.96580	23	26	56.79	+08	02	21.6	983
7	1980	10	08.96962	23	26	56.67	+08	02	19.9	983
7	1980	10	08.97344	23	26	56.50	+08	02	18.3	983
7	1980	10	09.97622	23	26	21.05	+07	54	49.8	983
7	1980	10	09.98003	23	26	20.89	+07	54	47.9	983
7	1980	10	09.98385	23	26	20.73	+07	54	45.8	983
7	1980	10	14.93976	23	23	51.48	+07	18	20.2	983
7	1980	10	14.94358	23	23	51.38	+07	18	18.4	983
7	1980	10	14.94740	23	23	51.27	+07	18	16.6	983
7	1980	11	07.87309	23	23	46.58	+05	07	15.8	983
7	1980	11	07.87691	23	23	46.65	+05	07	15.0	983
7	1980	11	07.88073	23	23	46.73	+05	07	14.3	983

7	1980	11	26.83351	23	37	52.18	+04	47	51.8	983
7	1980	11	26.83733	23	37	52.40	+04	47	51.9	983
7	1980	11	26.84115	23	37	52.64	+04	47	52.2	983
7	1980	11	28.83420	23	39	58.81	+04	50	27.4	983
7	1980	11	28.83802	23	39	59.05	+04	50	27.3	983
7	1980	11	28.84219	23	39	59.31	+04	50	28.1	983
7	1980	11	29.83906	23	41	04.84	+04	52	03.5	983
7	1980	11	29.84288	23	41	05.07	+04	52	04.2	983
7	1980	11	29.84670	23	41	05.34	+04	52	04.7	983
7	1980	12	04.79878	23	46	53.31	+05	03	04.1	983
7	1980	12	04.80260	23	46	53.61	+05	03	04.9	983
7	1980	12	04.80642	23	46	53.89	+05	03	05.2	983
7	1986	04	10.08125	13	42	46.36	-17	48	33.5	983
7	1986	04	10.08611	13	42	46.10	-17	48	31.9	983
7	1986	04	10.09097	13	42	45.83	-17	48	30.1	983
7	1986	05	07.94375	13	18	10.34	-14	50	09.7	983
7	1986	05	07.94861	13	18	10.11	-14	50	07.8	983
7	1986	05	07.95347	13	18	09.90	-14	50	05.8	983
8	1986	01	18.22014	13	21	55.33	-01	55	42.3	983
8	1986	01	18.22639	13	21	55.60	-01	55	42.6	983
8	1986	01	18.23264	13	21	55.87	-01	55	43.2	983
8	1986	04	04.01667	13	07	09.82	+03	20	53.1	983
8	1986	04	04.02153	13	07	09.51	+03	20	55.0	983
8	1986	04	04.02639	13	07	09.21	+03	20	56.9	983
8	1986	04	28.94062	12	44	29.95	+05	17	10.2	983
8	1986	04	28.94618	12	44	29.69	+05	17	11.1	983
8	1986	04	28.95174	12	44	29.45	+05	17	11.8	983
9	1986	10	31.05278	04	40	33.34	+20	02	46.0	983
9	1986	10	31.05764	04	40	33.18	+20	02	46.4	983
9	1986	10	31.06250	04	40	33.04	+20	02	47.1	983
9	1986	12	30.87778	03	48	00.71	+21	22	02.2	983
9	1986	12	30.88264	03	48	00.59	+21	22	03.0	983
9	1986	12	30.88750	03	48	00.48	+21	22	03.7	983
10	1986	12	30.97708	05	26	59.25	+24	42	15.5	983
10	1986	12	30.98333	05	26	58.95	+24	42	14.8	983
10	1986	12	30.98958	05	26	58.64	+24	42	14.1	983
11	1979	02	19.82292	03	58	54.33	+17	07	31.6	983
11	1979	02	19.82917	03	58	54.65	+17	07	33.2	983
11	1979	02	19.83472	03	58	54.96	+17	07	34.8	983
11	1979	02	20.81806	03	59	49.17	+17	12	16.3	983
11	1979	02	20.82431	03	59	49.50	+17	12	17.8	983
11	1979	02	20.83056	03	59	49.86	+17	12	19.6	983
11	1980	02	15.06562	11	31	58.14	+07	35	36.2	983
11	1980	02	15.07118	11	31	57.95	+07	35	37.9	983
11	1980	02	15.07689	11	31	57.72	+07	35	40.6	983
11	1980	03	11.97708	11	10	47.69	+10	37	03.8	983
11	1980	03	11.98194	11	10	47.42	+10	37	05.7	983
11	1980	03	11.98681	11	10	47.15	+10	37	07.7	983
11	1980	03	13.98056	11	09	00.36	+10	50	22.4	983
11	1980	03	13.98542	11	09	00.09	+10	50	24.3	983
11	1980	03	13.99028	11	08	59.81	+10	50	26.2	983
11	1980	03	15.02500	11	08	04.76	+10	57	09.4	983
11	1980	03	15.02986	11	08	04.48	+10	57	11.3	983
11	1980	03	15.03472	11	08	04.22	+10	57	12.9	983
11	1980	04	14.91285	10	48	08.28	+13	02	26.9	983
11	1980	04	14.91840	10	48	08.15	+13	02	27.3	983
11	1980	04	14.92396	10	48	08.06	+13	02	27.7	983
11	1980	04	15.91632	10	47	50.42	+13	03	39.7	983
11	1980	04	15.92188	10	47	50.29	+13	03	40.2	983

11	1980	04	15.92743	10	47	50.21	+13	03	40.4	983
11	1980	04	16.91910	10	47	34.13	+13	04	41.5	983
11	1980	04	16.92465	10	47	34.02	+13	04	41.6	983
11	1980	04	16.93021	10	47	33.93	+13	04	41.8	983
11	1980	04	17.89271	10	47	19.87	+13	05	30.9	983
11	1980	04	17.89826	10	47	19.78	+13	05	31.2	983
11	1980	04	17.90382	10	47	19.70	+13	05	31.3	983
11	1980	04	17.91493	10	47	19.51	+13	05	31.8	983
11	1980	04	17.92049	10	47	19.43	+13	05	32.1	983
11	1980	04	17.92604	10	47	19.34	+13	05	32.1	983
11	1986	11	11.20694	07	09	09.81	+18	39	56.5	983
11	1986	11	11.21319	07	09	09.81	+18	39	56.5	983
11	1986	11	11.22049	07	09	09.81	+18	39	56.5	983
11	1986	12	10.11042	06	57	15.14	+19	04	45.3	983
11	1986	12	10.11667	06	57	14.80	+19	04	45.9	983
11	1986	12	10.12292	06	57	14.51	+19	04	46.6	983
11	1986	12	31.01285	06	36	38.10	+19	52	18.5	983
11	1986	12	31.01840	06	36	37.75	+19	52	19.4	983
11	1986	12	31.02396	06	36	37.36	+19	52	20.2	983
12	1986	10	31.08958	05	07	36.29	+21	14	26.0	983
12	1986	10	31.09583	05	07	36.07	+21	14	24.3	983
12	1986	10	31.10208	05	07	35.85	+21	14	22.7	983
12	1986	12	30.92535	04	11	08.75	+16	27	29.3	983
12	1986	12	30.93229	04	11	08.49	+16	27	28.0	983
12	1986	12	30.93924	04	11	08.24	+16	27	27.0	983
13	1986	10	27.91076	23	00	08.02	-24	12	45.0	983
13	1986	10	27.91771	23	00	07.92	-24	12	41.8	983
13	1986	10	27.92465	23	00	07.80	-24	12	37.9	983
13	1986	11	21.84271	23	02	25.22	-20	15	54.3	983
13	1986	11	21.84965	23	02	25.38	-20	15	50.1	983
13	1986	11	21.85677	23	02	25.50	-20	15	45.6	983
14	1986	10	28.02830	03	11	09.53	+07	56	59.4	983
14	1986	10	28.03368	03	11	09.24	+07	56	58.5	983
14	1986	10	28.03924	03	11	08.93	+07	56	57.7	983
14	1986	12	29.87986	02	27	16.41	+08	07	21.4	983
14	1986	12	29.88611	02	27	16.35	+08	07	22.8	983
14	1986	12	29.89236	02	27	16.32	+08	07	24.4	983
16	1986	01	04.93229	04	27	07.10	+17	25	46.1	983
16	1986	01	04.93785	04	27	06.93	+17	25	46.0	983
16	1986	01	04.94410	04	27	06.76	+17	25	46.2	983
16	1986	01	28.85451	04	24	04.21	+17	58	02.6	983
16	1986	01	28.86007	04	24	04.27	+17	58	03.7	983
16	1986	01	28.86562	04	24	04.33	+17	58	04.2	983
17	1986	11	04.16736	06	02	31.26	+17	35	49.2	983
17	1986	11	04.17500	06	02	31.11	+17	35	48.8	983
17	1986	11	04.18264	06	02	30.97	+17	35	48.5	983
17	1986	12	30.95069	05	15	38.45	+17	42	44.5	983
17	1986	12	30.95833	05	15	38.02	+17	42	45.0	983
17	1986	12	30.96597	05	15	37.59	+17	42	45.4	983
18	1979	02	19.84861	05	55	06.15	+14	32	10.1	983
18	1979	02	19.85347	05	55	06.25	+14	32	12.1	983
18	1979	02	19.85833	05	55	06.37	+14	32	14.4	983
18	1979	02	20.84028	05	55	33.26	+14	39	22.3	983
18	1979	02	20.84514	05	55	33.38	+14	39	24.4	983
18	1979	02	20.85000	05	55	33.50	+14	39	26.3	983
18	1979	02	23.82083	05	57	05.08	+15	00	34.7	983
18	1979	02	23.82569	05	57	05.23	+15	00	36.8	983
18	1979	02	23.83056	05	57	05.38	+15	00	39.0	983
18	1979	02	26.82500	05	58	52.71	+15	21	14.4	983

18	1979	02	26.82986	05	58	52.89	+15	21	16.4	983
18	1979	02	26.83507	05	58	53.08	+15	21	18.5	983
18	1979	02	27.82361	05	59	31.78	+15	27	56.6	983
18	1979	02	27.82847	05	59	31.98	+15	27	58.5	983
18	1979	02	27.83333	05	59	32.16	+15	28	00.6	983
18	1980	03	22.08576	13	55	42.96	+00	11	23.5	983
18	1980	03	22.09132	13	55	42.74	+00	11	26.2	983
18	1980	03	22.09687	13	55	42.53	+00	11	29.1	983
18	1980	03	25.14201	13	53	39.66	+00	36	34.3	983
18	1980	03	25.14757	13	53	39.41	+00	36	37.0	983
18	1980	03	25.15313	13	53	39.18	+00	36	40.2	983
18	1980	05	08.92674	13	16	19.78	+05	29	17.5	983
18	1980	05	08.93229	13	16	19.52	+05	29	18.4	983
18	1980	05	08.93785	13	16	19.30	+05	29	19.5	983
18	1980	05	13.93090	13	13	13.71	+05	41	04.9	983
18	1980	05	13.93646	13	13	13.49	+05	41	05.3	983
18	1980	05	13.94201	13	13	13.31	+05	41	05.8	983
18	1980	05	14.93021	13	12	40.25	+05	42	47.8	983
18	1980	05	14.93576	13	12	40.08	+05	42	48.3	983
18	1980	05	14.94132	13	12	39.88	+05	42	48.7	983
18	1980	05	15.96632	13	12	06.87	+05	44	21.3	983
18	1980	05	15.97187	13	12	06.69	+05	44	21.8	983
18	1980	05	15.97743	13	12	06.47	+05	44	22.1	983
18	1980	05	16.95486	13	11	36.41	+05	45	37.9	983
18	1980	05	16.96111	13	11	36.20	+05	45	38.2	983
18	1980	05	16.96736	13	11	36.03	+05	45	38.5	983
18	1980	06	06.93333	13	06	08.57	+05	27	50.4	983
18	1980	06	06.93958	13	06	08.55	+05	27	49.8	983
18	1980	06	09.90486	13	06	11.65	+05	19	06.9	983
18	1980	06	09.91111	13	06	11.66	+05	19	05.9	983
18	1980	06	09.91736	13	06	11.67	+05	19	04.6	983
18	1986	01	31.95417	06	25	12.72	+12	42	00.6	983
18	1986	01	31.95903	06	25	12.57	+12	42	03.0	983
18	1986	01	31.96944	06	25	12.26	+12	42	07.9	983
19	1986	10	31.03194	04	02	20.78	+19	42	54.4	983
19	1986	10	31.03750	04	02	20.53	+19	42	53.2	983
19	1986	10	31.04236	04	02	20.32	+19	42	52.2	983
19	1986	11	24.98472	03	39	46.53	+18	05	42.1	983
19	1986	11	24.98958	03	39	46.25	+18	05	40.9	983
19	1986	11	24.99514	03	39	45.91	+18	05	39.6	983
19	1986	12	29.90451	03	20	03.52	+16	40	41.3	983
19	1986	12	29.91007	03	20	03.50	+16	40	41.3	983
19	1986	12	29.91563	03	20	03.48	+16	40	41.3	983
20	1986	07	07.99826	20	23	45.58	-18	13	19.4	983
20	1986	07	08.00382	20	23	45.28	-18	13	20.1	983
20	1986	07	08.00937	20	23	44.99	-18	13	21.3	983
22	1986	11	04.14931	05	02	02.52	+22	03	46.1	983
22	1986	11	04.15417	05	02	02.35	+22	03	47.3	983
22	1986	11	04.15903	05	02	02.17	+22	03	48.5	983
22	1986	12	30.90660	04	11	10.41	+25	18	27.2	983
22	1986	12	30.91215	04	11	10.21	+25	18	28.0	983
22	1986	12	30.91771	04	11	09.97	+25	18	28.8	983
23	1986	04	10.09861	15	09	43.92	-09	13	33.2	983
23	1986	04	10.10486	15	09	43.65	-09	13	32.6	983
23	1986	04	10.11181	15	09	43.30	-09	13	32.3	983
23	1986	05	07.96076	14	43	28.69	-08	49	51.8	983
23	1986	05	07.96632	14	43	28.35	-08	49	51.9	983
23	1986	05	07.97188	14	43	28.00	-08	49	51.6	983
24	1986	02	05.99653	09	15	20.42	+17	09	39.9	983

24	1986	02	06.00278	09	15	20.08	+17	09	41.2	983
24	1986	02	06.00903	09	15	19.75	+17	09	42.7	983
24	1986	03	10.94167	08	53	11.80	+18	36	18.8	983
24	1986	03	10.94792	08	53	11.67	+18	36	19.1	983
24	1986	03	10.95417	08	53	11.54	+18	36	19.5	983
25	1979	02	24.02535	11	03	40.25	-19	56	39.7	983
25	1979	02	24.03229	11	03	39.92	-19	56	37.6	983
25	1979	02	24.03924	11	03	39.55	-19	56	35.4	983
25	1979	02	28.02118	11	00	15.15	-19	32	29.0	983
25	1979	02	28.02813	11	00	14.77	-19	32	26.0	983
25	1979	03	02.03715	10	58	28.58	-19	18	25.2	983
25	1979	03	02.04410	10	58	28.23	-19	18	21.8	983
25	1979	03	02.05104	10	58	27.81	-19	18	18.7	983
25	1979	03	21.94479	10	41	04.82	-16	00	59.9	983
25	1979	03	21.95174	10	41	04.48	-16	00	54.9	983
25	1979	03	21.95868	10	41	04.13	-16	00	49.9	983
25	1979	04	18.86840	10	26	57.90	-10	04	21.3	983
25	1979	04	18.87535	10	26	57.85	-10	04	16.1	983
25	1979	04	18.88229	10	26	57.71	-10	04	11.6	983
25	1979	04	23.87674	10	26	29.63	-09	04	50.0	983
25	1979	04	23.88368	10	26	29.61	-09	04	45.3	983
25	1979	04	23.89063	10	26	29.55	-09	04	40.4	983
25	1979	04	24.87188	10	26	28.82	-08	53	24.9	983
25	1979	04	24.87882	10	26	28.81	-08	53	20.4	983
25	1979	04	24.88646	10	26	28.80	-08	53	15.1	983
25	1980	09	13.03958	00	12	22.69	+26	24	29.4	983
25	1980	09	13.04444	00	12	22.52	+26	24	25.0	983
25	1980	09	13.04931	00	12	22.30	+26	24	20.7	983
25	1980	09	14.04774	00	11	43.96	+26	09	30.2	983
25	1980	09	14.05226	00	11	43.77	+26	09	26.0	983
25	1980	09	14.05677	00	11	43.60	+26	09	21.9	983
25	1980	09	17.01719	00	09	46.23	+25	22	34.5	983
25	1980	09	17.02170	00	09	46.02	+25	22	29.9	983
25	1980	09	17.02622	00	09	45.85	+25	22	24.9	983
25	1980	10	07.96858	23	56	15.07	+18	24	50.0	983
25	1980	10	07.97309	23	56	14.93	+18	24	44.2	983
25	1980	10	07.97760	23	56	14.78	+18	24	38.1	983
25	1980	10	08.98628	23	55	43.94	+18	02	30.3	983
25	1980	10	08.99080	23	55	43.78	+18	02	24.3	983
25	1980	10	08.99844	23	55	43.55	+18	02	14.1	983
25	1980	10	09.99149	23	55	14.52	+17	40	26.9	983
25	1980	10	09.99601	23	55	14.37	+17	40	21.2	983
25	1980	10	10.00052	23	55	14.26	+17	40	15.1	983
25	1980	10	14.95694	23	53	10.27	+15	52	08.5	983
25	1980	10	14.96181	23	53	10.17	+15	52	02.1	983
25	1980	10	14.96667	23	53	10.04	+15	51	55.9	983
25	1980	11	26.86493	00	03	12.23	+04	52	53.1	983
25	1980	11	26.87118	00	03	12.52	+04	52	50.5	983
25	1980	11	26.87674	00	03	12.75	+04	52	47.9	983
25	1980	11	27.86910	00	03	59.19	+04	45	12.6	983
25	1980	11	27.87465	00	03	59.42	+04	45	10.6	983
25	1980	11	27.88021	00	03	59.69	+04	45	07.7	983
25	1980	11	28.87639	00	04	47.46	+04	37	50.3	983
25	1980	11	28.88264	00	04	47.76	+04	37	47.7	983
25	1980	11	28.88889	00	04	48.05	+04	37	44.7	983
25	1980	11	29.86979	00	05	36.28	+04	30	53.4	983
25	1980	11	29.87639	00	05	36.61	+04	30	50.7	983
25	1980	11	29.88264	00	05	36.90	+04	30	48.0	983
25	1980	12	02.84444	00	08	09.16	+04	11	57.5	983

25	1980	12	02.85069	00	08	09.47	+04	11	55.2	983
25	1980	12	02.85694	00	08	09.81	+04	11	53.2	983
25	1980	12	29.80903	00	37	29.51	+03	07	56.7	983
25	1980	12	29.81528	00	37	29.98	+03	07	57.3	983
25	1980	12	29.82153	00	37	30.44	+03	07	57.3	983
27	1986	10	28.00747	02	44	54.80	+13	18	48.9	983
27	1986	10	28.01198	02	44	54.53	+13	18	47.9	983
27	1986	10	28.01649	02	44	54.26	+13	18	46.7	983
27	1986	12	29.85799	02	14	45.67	+12	09	25.9	983
27	1986	12	29.86354	02	14	45.82	+12	09	27.0	983
27	1986	12	29.86910	02	14	45.97	+12	09	28.1	983
28	1986	10	27.94653	00	50	43.53	-06	44	46.6	983
28	1986	10	27.95278	00	50	43.26	-06	44	48.4	983
28	1986	10	27.95903	00	50	43.00	-06	44	49.3	983
28	1986	11	24.89167	00	39	15.23	-07	20	34.1	983
28	1986	11	24.89931	00	39	15.18	-07	20	33.4	983
28	1986	11	24.90694	00	39	15.10	-07	20	32.7	983
29	1986	10	27.86458	22	09	20.68	-12	07	07.3	983
29	1986	10	27.86944	22	09	20.74	-12	07	05.9	983
29	1986	10	27.87431	22	09	20.81	-12	07	04.8	983
31	1986	05	28.92396	14	49	32.76	-32	26	23.1	983
31	1986	05	28.93125	14	49	32.32	-32	26	22.4	983
31	1986	05	28.93854	14	49	31.90	-32	26	22.0	983
37	1986	01	18.19410	12	13	42.92	+00	17	22.9	983
37	1986	01	18.20104	12	13	43.00	+00	17	22.0	983
37	1986	01	18.20799	12	13	43.08	+00	17	21.0	983
37	1986	03	10.97847	11	51	55.93	+02	02	32.6	983
37	1986	03	10.98472	11	51	55.58	+02	02	34.3	983
37	1986	03	10.99097	11	51	55.23	+02	02	36.0	983
37	1986	04	03.94201	11	31	20.90	+03	46	25.5	983
37	1986	04	03.94896	11	31	20.57	+03	46	26.8	983
37	1986	04	03.95590	11	31	20.25	+03	46	28.3	983
37	1986	04	28.89271	11	19	39.94	+04	32	00.2	983
37	1986	04	28.89965	11	19	39.86	+04	32	00.2	983
37	1986	04	28.90660	11	19	39.79	+04	32	00.4	983
39	1980	01	19.02396	09	08	56.53	+09	13	15.9	983
39	1980	01	19.02951	09	08	56.26	+09	13	17.6	983
39	1980	01	19.03507	09	08	55.99	+09	13	19.4	983
39	1980	01	21.99271	09	06	38.72	+09	29	34.3	983
39	1980	01	21.99826	09	06	38.42	+09	29	36.3	983
39	1980	01	22.00382	09	06	38.17	+09	29	37.9	983
39	1980	02	07.96076	08	52	27.93	+11	16	40.9	983
39	1980	02	07.96632	08	52	27.63	+11	16	43.0	983
39	1980	02	07.97188	08	52	27.35	+11	16	45.4	983
39	1980	02	08.98090	08	51	36.84	+11	23	32.3	983
39	1980	02	08.98646	08	51	36.55	+11	23	34.8	983
39	1980	02	08.99201	08	51	36.28	+11	23	37.0	983
39	1980	02	13.99201	08	47	32.72	+11	57	15.3	983
39	1980	02	13.99757	08	47	32.43	+11	57	17.8	983
39	1980	02	14.00312	08	47	32.18	+11	57	19.9	983
39	1980	02	14.96076	08	46	47.23	+12	03	44.6	983
39	1980	02	14.96632	08	46	46.97	+12	03	46.8	983
39	1980	02	14.97187	08	46	46.71	+12	03	49.1	983
39	1980	03	10.87812	08	32	45.07	+14	32	51.2	983
39	1980	03	10.88368	08	32	44.97	+14	32	52.6	983
39	1980	03	10.88924	08	32	44.86	+14	32	54.0	983
39	1980	03	11.88299	08	32	27.78	+14	37	46.5	983
39	1980	03	11.88854	08	32	27.66	+14	37	47.8	983
39	1980	03	11.89410	08	32	27.58	+14	37	49.6	983

39	1980	03	13.87049	08	31	57.85	+14	47	12.2	983
39	1980	03	13.87604	08	31	57.76	+14	47	13.8	983
39	1980	03	13.88160	08	31	57.69	+14	47	15.4	983
39	1980	03	14.88021	08	31	44.81	+14	51	50.3	983
39	1980	03	14.88576	08	31	44.72	+14	51	51.8	983
39	1980	03	14.89132	08	31	44.66	+14	51	53.4	983
39	1986	05	28.96632	16	13	50.37	-05	08	20.8	983
39	1986	05	28.97187	16	13	50.09	-05	08	20.2	983
39	1986	05	28.97743	16	13	49.79	-05	08	19.5	983
40	1979	03	31.01424	14	13	56.77	-06	22	29.4	983
40	1979	03	31.01979	14	13	56.51	-06	22	27.4	983
40	1979	03	31.02535	14	13	56.25	-06	22	26.1	983
40	1979	04	03.07882	14	11	38.59	-06	07	47.0	983
40	1979	04	03.08437	14	11	38.33	-06	07	45.3	983
40	1979	04	03.08993	14	11	38.06	-06	07	43.6	983
40	1979	04	23.93750	13	52	12.80	-04	25	35.5	983
40	1979	04	23.94306	13	52	12.41	-04	25	34.0	983
40	1979	04	23.94896	13	52	12.07	-04	25	32.5	983
40	1979	04	24.92500	13	51	13.98	-04	21	16.7	983
40	1979	04	24.92986	13	51	13.68	-04	21	15.1	983
40	1979	04	24.93472	13	51	13.39	-04	21	13.9	983
40	1979	05	21.89965	13	29	40.56	-03	16	51.6	983
40	1979	05	21.90521	13	29	40.38	-03	16	51.2	983
40	1979	05	21.91076	13	29	40.22	-03	16	51.2	983
40	1979	06	15.88785	13	25	53.86	-04	10	20.8	983
40	1979	06	15.89340	13	25	53.92	-04	10	22.0	983
40	1979	06	15.89896	13	25	53.99	-04	10	23.3	983
40	1979	06	19.89896	13	26	53.72	-04	28	07.5	983
40	1979	06	19.90451	13	26	53.81	-04	28	09.1	983
40	1979	06	19.91007	13	26	53.93	-04	28	10.9	983
40	1980	09	13.08524	00	34	22.00	-04	45	23.7	983
40	1980	09	13.08976	00	34	21.75	-04	45	25.5	983
40	1980	09	13.09427	00	34	21.55	-04	45	27.3	983
40	1980	09	14.06302	00	33	35.05	-04	51	53.2	983
40	1980	09	14.06753	00	33	34.81	-04	51	54.9	983
40	1980	09	14.07205	00	33	34.59	-04	51	56.8	983
40	1980	09	17.03733	00	31	05.84	-05	11	39.1	983
40	1980	09	17.04184	00	31	05.61	-05	11	41.2	983
40	1980	09	17.04635	00	31	05.36	-05	11	43.1	983
40	1980	10	07.98663	00	11	50.40	-07	11	46.9	983
40	1980	10	07.99115	00	11	50.16	-07	11	48.0	983
40	1980	10	07.99566	00	11	49.91	-07	11	49.3	983
40	1980	10	09.01024	00	10	56.91	-07	15	57.8	983
40	1980	10	09.01476	00	10	56.65	-07	15	59.0	983
40	1980	10	09.01927	00	10	56.43	-07	16	00.2	983
40	1980	10	10.00747	00	10	05.77	-07	19	50.2	983
40	1980	10	10.01198	00	10	05.53	-07	19	51.0	983
40	1980	10	10.01649	00	10	05.28	-07	19	51.9	983
40	1980	10	12.00642	00	08	26.24	-07	26	57.4	983
40	1980	10	12.01094	00	08	26.01	-07	26	58.2	983
40	1980	10	12.01545	00	08	25.78	-07	26	59.0	983
40	1980	10	14.97830	00	06	06.84	-07	35	53.7	983
40	1980	10	14.98281	00	06	06.63	-07	35	54.5	983
40	1980	10	14.98733	00	06	06.41	-07	35	55.1	983
40	1980	11	26.84792	23	59	58.26	-06	02	36.9	983
40	1980	11	26.85278	23	59	58.42	-06	02	35.1	983
40	1980	11	26.85764	23	59	58.55	-06	02	33.0	983
40	1980	11	27.84861	00	00	28.00	-05	56	10.4	983
40	1980	11	27.85347	00	00	28.16	-05	56	08.5	983

40	1980	11	27.85833	00	00	28.29	-05	56	06.7	983
40	1980	11	28.85278	00	00	59.42	-05	49	34.5	983
40	1980	11	28.85764	00	00	59.58	-05	49	32.3	983
40	1980	11	28.86250	00	00	59.72	-05	49	30.4	983
40	1980	11	29.85208	00	01	32.19	-05	42	51.0	983
40	1980	11	29.85694	00	01	32.35	-05	42	49.0	983
40	1980	11	29.86181	00	01	32.49	-05	42	47.0	983
40	1980	12	02.82431	00	03	18.50	-05	22	03.4	983
40	1980	12	02.82917	00	03	18.68	-05	22	01.1	983
40	1980	12	02.83403	00	03	18.86	-05	21	58.9	983
40	1980	12	04.81458	00	04	36.82	-05	07	25.3	983
40	1980	12	04.81944	00	04	36.99	-05	07	23.4	983
40	1980	12	04.82431	00	04	37.22	-05	07	21.2	983
40	1986	05	08.00417	15	29	54.90	-13	42	16.9	983
40	1986	05	08.00972	15	29	54.54	-13	42	16.0	983
40	1986	05	08.01458	15	29	54.24	-13	42	15.3	983
40	1986	05	28.94826	15	08	35.69	-12	58	12.2	983
40	1986	05	28.95382	15	08	35.38	-12	58	11.6	983
40	1986	05	28.95937	15	08	35.05	-12	58	11.2	983
42	1986	09	24.87465	21	10	47.08	-30	53	07.3	983
42	1986	09	24.88021	21	10	47.19	-30	53	05.8	983
42	1986	09	24.88576	21	10	47.28	-30	53	03.8	983
42	1986	10	22.80417	21	33	10.85	-27	07	28.3	983
42	1986	10	22.81736	21	33	11.72	-27	07	20.2	983
42	1986	10	22.82361	21	33	12.17	-27	07	16.3	983
44	1986	07	08.01806	21	04	26.11	-15	59	10.7	983
44	1986	07	08.02431	21	04	25.85	-15	59	12.4	983
44	1986	07	08.03056	21	04	25.64	-15	59	13.8	983
44	1986	09	23.86528	20	12	44.47	-20	38	56.0	983
44	1986	09	23.87153	20	12	44.52	-20	38	56.4	983
44	1986	09	23.87847	20	12	44.51	-20	38	56.6	983
45	1986	02	05.97257	07	33	04.99	+17	10	19.9	983
45	1986	02	05.97951	07	33	04.68	+17	10	21.6	983
45	1986	02	05.98715	07	33	04.29	+17	10	23.5	983
45	1986	03	10.91632	07	21	33.37	+19	09	00.6	983
45	1986	03	10.92326	07	21	33.42	+19	09	01.7	983
45	1986	03	10.93021	07	21	33.43	+19	09	02.8	983
46	1986	10	31.00694	03	43	24.94	+16	37	47.9	983
46	1986	10	31.01319	03	43	24.62	+16	37	46.6	983
46	1986	10	31.01944	03	43	24.31	+16	37	45.0	983
46	1986	12	30.85000	03	03	14.01	+13	59	49.8	983
46	1986	12	30.85764	03	03	14.01	+13	59	50.2	983
46	1986	12	30.86528	03	03	14.03	+13	59	50.7	983
51	1986	06	12.05347	18	25	57.27	-06	18	54.7	983
51	1986	06	12.05972	18	25	56.95	-06	18	54.2	983
51	1986	06	12.06597	18	25	56.59	-06	18	53.8	983
51	1986	07	07.95972	18	01	48.28	-06	45	08.1	983
51	1986	07	07.96597	18	01	47.97	-06	45	09.4	983
51	1986	07	07.97222	18	01	47.62	-06	45	10.5	983
52	1986	10	27.88438	22	53	09.35	-14	23	10.4	983
52	1986	10	27.89132	22	53	09.26	-14	23	10.4	983
52	1986	10	27.89826	22	53	09.21	-14	23	10.1	983
52	1986	11	21.81840	22	56	56.84	-13	37	08.3	983
52	1986	11	21.82535	22	56	57.01	-13	37	07.5	983
52	1986	11	21.83229	22	56	57.15	-13	37	05.7	983
63	1986	01	09.82222	02	53	33.67	+24	28	33.9	983
63	1986	01	09.82986	02	53	33.73	+24	28	32.9	983
63	1986	01	09.83750	02	53	33.79	+24	28	32.1	983
65	1986	12	10.16319	08	54	50.31	+14	46	30.4	983

65	1986	12	10.17083	08	54	50.23	+14	46	30.3	983
65	1986	12	10.17847	08	54	50.18	+14	46	30.7	983
68	1986	04	03.99167	13	03	46.06	-00	37	11.7	983
68	1986	04	03.99931	13	03	45.65	-00	37	10.2	983
68	1986	04	04.00694	13	03	45.26	-00	37	08.3	983
68	1986	05	07.92188	12	38	16.96	+00	44	38.8	983
68	1986	05	07.92882	12	38	16.75	+00	44	39.1	983
68	1986	05	07.93576	12	38	16.51	+00	44	39.2	983
88	1986	09	25.89618	22	00	49.68	-03	48	08.0	983
88	1986	09	25.90174	22	00	49.56	-03	48	09.2	983
88	1986	09	25.90729	22	00	49.41	-03	48	10.1	983
88	1986	10	27.84583	22	02	51.03	-04	39	29.1	983
88	1986	10	27.85208	22	02	51.22	-04	39	28.7	983
88	1986	10	27.85833	22	02	51.37	-04	39	28.5	983
89	1986	01	04.95139	05	41	02.42	+39	32	02.1	983
89	1986	01	04.95833	05	41	01.96	+39	31	58.7	983
89	1986	01	04.96597	05	41	01.44	+39	31	54.9	983
89	1986	01	28.87361	05	24	35.63	+35	52	58.3	983
89	1986	01	28.87986	05	24	35.53	+35	52	55.0	983
89	1986	01	28.88611	05	24	35.41	+35	52	51.4	983
97	1986	03	11.02951	13	30	14.70	+00	04	06.0	983
97	1986	03	11.03646	13	30	14.47	+00	04	09.5	983
97	1986	03	11.04340	13	30	14.24	+00	04	12.9	983
97	1986	04	04.03542	13	13	26.09	+03	23	56.2	983
97	1986	04	04.04306	13	13	25.69	+03	24	00.0	983
97	1986	04	04.05069	13	13	25.31	+03	24	03.7	983
97	1986	04	28.96042	12	54	40.38	+05	59	31.1	983
97	1986	04	28.96806	12	54	40.08	+05	59	33.1	983
97	1986	04	28.97569	12	54	39.75	+05	59	35.3	983
129	1986	06	12.07396	20	12	21.72	-10	02	18.3	983
129	1986	06	12.07951	20	12	21.65	-10	02	19.0	983
129	1986	06	12.08646	20	12	21.55	-10	02	19.9	983
129	1986	07	07.97986	19	59	04.12	-12	12	28.0	983
129	1986	07	07.98472	19	59	03.89	-12	12	30.3	983
129	1986	07	07.98958	19	59	03.67	-12	12	32.1	983
148	1979	02	24.05174	11	36	36.51	+16	24	09.0	983
148	1979	02	24.05868	11	36	36.19	+16	24	14.3	983
148	1979	02	24.06562	11	36	35.95	+16	24	19.6	983
148	1979	02	28.04618	11	33	47.36	+17	13	29.8	983
148	1979	02	28.05312	11	33	47.06	+17	13	35.2	983
148	1979	02	28.06007	11	33	46.76	+17	13	40.3	983
148	1979	03	06.05243	11	29	16.59	+18	25	17.8	983
148	1979	03	06.05937	11	29	16.29	+18	25	22.6	983
148	1979	03	06.06632	11	29	15.94	+18	25	27.5	983
148	1979	03	21.97465	11	17	01.59	+21	09	07.1	983
148	1979	03	21.98160	11	17	01.28	+21	09	10.7	983
148	1979	03	21.98854	11	17	00.96	+21	09	13.9	983
148	1979	03	30.96493	11	10	53.00	+22	17	49.7	983
148	1979	03	30.97187	11	10	52.76	+22	17	52.3	983
148	1979	03	30.98021	11	10	52.43	+22	17	55.6	983
148	1979	04	16.90486	11	02	53.75	+23	34	16.6	983
148	1979	04	16.91250	11	02	53.57	+23	34	17.8	983
148	1979	04	16.92014	11	02	53.44	+23	34	19.1	983
148	1979	04	18.89444	11	02	19.88	+23	38	54.1	983
148	1979	04	18.90208	11	02	19.79	+23	38	54.9	983
148	1979	04	18.90972	11	02	19.64	+23	38	55.9	983
148	1979	04	23.90556	11	01	17.16	+23	46	49.6	983
148	1979	04	23.91319	11	01	17.09	+23	46	50.0	983
148	1979	04	23.92153	11	01	16.98	+23	46	50.5	983

148	1979	04	24.89722	11	01	08.60	+23	47	47.2	983
148	1979	04	24.90486	11	01	08.54	+23	47	47.6	983
148	1979	04	24.91250	11	01	08.44	+23	47	48.0	983
148	1980	03	22.12847	16	27	01.76	+09	06	00.9	983
148	1980	03	22.13611	16	27	01.82	+09	06	04.9	983
148	1980	05	13.98681	16	06	35.83	+15	40	03.8	983
148	1980	05	13.99444	16	06	35.47	+15	40	05.5	983
148	1980	05	14.00208	16	06	35.13	+15	40	06.8	983
148	1980	05	14.99514	16	05	47.50	+15	43	40.7	983
148	1980	05	15.00278	16	05	47.06	+15	43	42.7	983
148	1980	05	15.01111	16	05	46.68	+15	43	44.3	983
148	1980	05	16.00764	16	04	58.48	+15	47	03.7	983
148	1980	05	16.01528	16	04	58.11	+15	47	05.2	983
148	1980	05	16.02292	16	04	57.74	+15	47	06.6	983
148	1980	05	17.00000	16	04	10.22	+15	50	08.6	983
148	1980	05	17.00764	16	04	09.85	+15	50	10.0	983
148	1980	05	17.01528	16	04	09.48	+15	50	11.5	983
148	1980	06	06.96458	15	47	20.50	+15	57	19.3	983
148	1980	06	06.97222	15	47	20.15	+15	57	18.3	983
148	1980	06	06.97986	15	47	19.78	+15	57	17.3	983
148	1980	06	09.93056	15	45	11.60	+15	49	26.0	983
148	1980	06	09.93819	15	45	11.27	+15	49	25.1	983
148	1980	06	09.94583	15	45	10.91	+15	49	23.5	983
148	1980	06	16.94722	15	40	33.83	+15	22	36.5	983
148	1980	06	16.95486	15	40	33.57	+15	22	33.9	983
148	1980	06	16.96250	15	40	33.27	+15	22	31.8	983
148	1986	12	29.80903	01	28	46.11	-21	35	19.0	983
148	1986	12	29.81667	01	28	46.49	-21	35	12.9	983
148	1986	12	29.82431	01	28	46.86	-21	35	07.2	983
196	1986	10	27.98750	02	34	30.86	+08	45	54.1	983
196	1986	10	27.99375	02	34	30.54	+08	45	53.4	983
196	1986	10	28.00000	02	34	30.23	+08	45	52.2	983
196	1986	11	24.93785	02	13	05.37	+07	59	13.9	983
196	1986	11	24.94479	02	13	05.09	+07	59	13.9	983
196	1986	11	24.95174	02	13	04.85	+07	59	13.5	983
196	1986	12	29.83333	02	03	47.20	+08	48	47.8	983
196	1986	12	29.84097	02	03	47.26	+08	48	49.5	983
196	1986	12	29.84861	02	03	47.29	+08	48	50.7	983
216	1986	01	04.88576	03	43	58.51	+06	23	52.5	983
216	1986	01	04.89132	03	43	58.52	+06	23	52.8	983
216	1986	01	04.89688	03	43	58.54	+06	23	52.7	983
216	1986	01	28.83611	03	54	10.83	+07	16	14.6	983
216	1986	01	28.84236	03	54	11.09	+07	16	16.1	983
216	1986	01	28.84861	03	54	11.35	+07	16	17.6	983
337	1986	03	10.99965	12	54	49.76	-08	20	42.8	983
337	1986	03	11.00729	12	54	49.36	-08	20	42.6	983
337	1986	03	11.01424	12	54	49.01	-08	20	42.5	983
337	1986	04	03.96667	12	30	53.60	-07	31	47.3	983
337	1986	04	03.97431	12	30	53.12	-07	31	45.8	983
337	1986	04	03.98194	12	30	52.60	-07	31	44.9	983
337	1986	04	28.91597	12	09	52.07	-06	26	13.2	983
337	1986	04	28.92361	12	09	51.81	-06	26	12.3	983
337	1986	04	28.93125	12	09	51.52	-06	26	11.5	983
349	1986	09	24.89271	21	21	48.50	-26	13	10.3	983
349	1986	09	24.90521	21	21	48.39	-26	13	09.1	983
349	1986	09	24.91076	21	21	48.29	-26	13	08.2	983
349	1986	10	27.82292	21	26	42.11	-23	22	56.7	983
349	1986	10	27.82917	21	26	42.27	-23	22	54.2	983
349	1986	10	27.83542	21	26	42.50	-23	22	51.7	983

354	1986	01	09.84514	03	25	52.33	-04	49	26.7	983
354	1986	01	09.85139	03	25	52.30	-04	49	23.1	983
354	1986	01	09.85764	03	25	52.28	-04	49	19.8	983
354	1986	01	28.81493	03	29	37.26	-01	42	23.9	983
354	1986	01	28.82188	03	29	37.44	-01	42	19.8	983
354	1986	01	28.82882	03	29	37.58	-01	42	15.3	983
389	1979	05	03.08785	16	30	29.94	-30	46	10.1	983
389	1979	05	03.09479	16	30	29.64	-30	46	09.3	983
389	1979	05	03.10174	16	30	29.36	-30	46	08.7	983
389	1979	05	21.97882	16	14	08.29	-29	44	23.1	983
389	1979	05	21.98576	16	14	07.88	-29	44	21.3	983
389	1979	05	21.99271	16	14	07.45	-29	44	19.6	983
389	1979	05	30.97326	16	05	14.80	-28	57	15.8	983
389	1979	05	30.98021	16	05	14.40	-28	57	13.7	983
389	1979	05	30.98715	16	05	13.99	-28	57	11.1	983
389	1979	06	15.92813	15	51	28.82	-27	18	18.3	983
389	1979	06	15.93507	15	51	28.46	-27	18	15.9	983
389	1979	06	15.94201	15	51	28.18	-27	18	13.0	983
389	1979	06	20.92049	15	48	13.65	-26	46	38.1	983
389	1979	06	20.92743	15	48	13.39	-26	46	35.4	983
389	1979	06	20.93438	15	48	13.14	-26	46	32.6	983
389	1980	09	13.98646	23	15	38.35	+08	16	33.1	983
389	1980	09	13.99340	23	15	37.96	+08	16	30.9	983
389	1980	09	14.00035	23	15	37.58	+08	16	28.9	983
389	1980	09	16.97118	23	13	02.57	+08	02	25.6	983
389	1980	09	16.97813	23	13	02.13	+08	02	23.7	983
389	1980	09	16.98507	23	13	01.76	+08	02	21.6	983
389	1980	10	07.92951	22	57	22.44	+06	08	09.3	983
389	1980	10	07.93646	22	57	22.16	+06	08	07.1	983
389	1980	10	07.94340	22	57	21.91	+06	08	05.0	983
389	1980	10	08.94062	22	56	48.16	+06	02	35.0	983
389	1980	10	08.94757	22	56	47.90	+06	02	32.8	983
389	1980	10	08.95451	22	56	47.67	+06	02	30.4	983
389	1980	10	09.95243	22	56	15.21	+05	57	02.6	983
389	1980	10	09.95938	22	56	14.96	+05	57	00.1	983
389	1980	10	09.96701	22	56	14.72	+05	56	57.5	983
389	1980	11	07.85174	22	50	57.31	+03	58	13.4	983
389	1980	11	07.85868	22	50	57.39	+03	58	12.2	983
389	1980	11	07.86563	22	50	57.45	+03	58	10.7	983
389	1980	11	26.80139	22	58	12.30	+03	39	18.6	983
389	1980	11	26.80903	22	58	12.53	+03	39	19.2	983
389	1980	11	26.81667	22	58	12.77	+03	39	19.3	983
389	1980	11	27.79792	22	58	47.41	+03	39	43.5	983
389	1980	11	27.80625	22	58	47.66	+03	39	44.1	983
389	1980	11	27.81389	22	58	47.95	+03	39	44.2	983
389	1980	11	28.80347	22	59	23.98	+03	40	16.6	983
389	1980	11	28.81111	22	59	24.25	+03	40	17.1	983
389	1980	11	28.81875	22	59	24.45	+03	40	17.1	983
389	1980	11	29.80486	23	00	01.46	+03	40	58.4	983
389	1980	11	29.81250	23	00	01.75	+03	40	58.3	983
389	1980	11	29.82014	23	00	02.05	+03	40	58.6	983
451	1986	01	04.99306	05	51	38.42	+25	14	39.6	983
451	1986	01	04.99931	05	51	38.07	+25	14	41.3	983
451	1986	01	05.00625	05	51	37.68	+25	14	43.2	983
471	1986	11	04.21424	06	46	22.08	+21	18	31.9	983
471	1986	11	04.21979	06	46	22.17	+21	18	33.7	983
471	1986	11	04.22535	06	46	22.21	+21	18	35.7	983
471	1986	12	30.99653	06	11	52.19	+28	19	58.6	983
471	1986	12	31.00139	06	11	51.84	+28	20	00.6	983

471	1986	12	31.00625	06	11	51.53	+28	20	02.6	983
480	1980	11	14.05174	04	44	42.68	+17	48	13.1	983
480	1980	11	14.05868	04	44	42.31	+17	48	07.9	983
480	1980	11	14.06562	04	44	41.95	+17	48	03.8	983
480	1980	12	05.98715	04	23	57.03	+13	45	10.3	983
480	1980	12	05.99410	04	23	56.61	+13	45	05.8	983
480	1980	12	06.00104	04	23	56.22	+13	45	01.3	983
480	1980	12	13.96354	04	16	38.87	+12	25	05.2	983
480	1980	12	13.97049	04	16	38.50	+12	25	01.4	983
480	1980	12	13.97743	04	16	38.13	+12	24	57.2	983
480	1980	12	29.89549	04	05	39.68	+10	17	45.1	983
480	1980	12	29.90243	04	05	39.48	+10	17	42.9	983
480	1980	12	29.90937	04	05	39.26	+10	17	40.5	983
511	1986	01	10.93889	06	05	46.31	+19	22	14.0	983
511	1986	01	10.94375	06	05	46.09	+19	22	16.2	983
511	1986	01	10.94861	06	05	45.84	+19	22	18.2	983
532	1979	10	22.84410	21	41	59.86	-29	07	24.2	983
532	1979	10	22.85104	21	41	59.93	-29	07	22.8	983
532	1979	10	22.85799	21	42	00.01	-29	07	21.3	983
532	1979	10	24.86701	21	42	27.04	-29	00	20.4	983
532	1979	10	24.87396	21	42	27.14	-29	00	18.7	983
532	1979	10	24.88090	21	42	27.23	-29	00	17.6	983
532	1979	11	12.82049	21	50	39.06	-27	35	14.4	983
532	1979	11	12.82743	21	50	39.33	-27	35	12.4	983
532	1979	11	12.83438	21	50	39.56	-27	35	10.1	983
532	1979	11	19.78299	21	55	14.38	-26	56	46.2	983
532	1979	11	19.78993	21	55	14.65	-26	56	43.6	983
532	1979	11	19.79688	21	55	14.96	-26	56	41.3	983
532	1979	11	20.80451	21	55	58.58	-26	50	50.6	983
532	1979	11	20.81146	21	55	58.91	-26	50	48.3	983
532	1979	11	20.81840	21	55	59.20	-26	50	45.6	983
532	1980	10	08.05139	02	55	57.63	-06	32	12.7	983
532	1980	10	08.05764	02	55	57.43	-06	32	15.0	983
532	1980	10	08.06389	02	55	57.17	-06	32	17.0	983
532	1980	10	09.08403	02	55	19.52	-06	37	56.9	983
532	1980	10	09.09028	02	55	19.29	-06	37	59.0	983
532	1980	10	09.09653	02	55	19.05	-06	38	01.0	983
532	1980	10	10.04236	02	54	43.21	-06	43	12.6	983
532	1980	10	10.04861	02	54	42.95	-06	43	14.4	983
532	1980	10	10.05486	02	54	42.71	-06	43	16.6	983
532	1980	10	12.03889	02	53	24.35	-06	53	57.8	983
532	1980	10	12.04514	02	53	24.09	-06	53	59.7	983
532	1980	10	12.05139	02	53	23.82	-06	54	01.8	983
532	1980	10	18.05972	02	49	04.21	-07	24	15.6	983
532	1980	10	18.06597	02	49	03.91	-07	24	17.6	983
532	1980	10	18.07222	02	49	03.61	-07	24	19.0	983
532	1980	11	13.97917	02	26	28.33	-08	34	38.1	983
532	1980	11	13.98542	02	26	28.00	-08	34	38.3	983
532	1980	11	13.99167	02	26	27.70	-08	34	38.3	983
532	1980	11	27.92014	02	16	13.69	-08	15	50.0	983
532	1980	11	27.92639	02	16	13.45	-08	15	48.7	983
532	1980	11	27.93264	02	16	13.20	-08	15	47.6	983
532	1980	11	28.92674	02	15	36.09	-08	12	58.7	983
532	1980	11	28.93368	02	15	35.83	-08	12	57.6	983
532	1980	11	28.94062	02	15	35.55	-08	12	56.3	983
532	1980	11	29.90642	02	15	00.53	-08	10	00.2	983
532	1980	11	29.91302	02	15	00.28	-08	09	59.2	983
532	1980	11	29.91962	02	15	00.03	-08	09	57.7	983
532	1980	12	02.92431	02	13	17.71	-07	59	42.9	983

532	1980	12	02.93056	02	13	17.49	-07	59	41.8	983
532	1980	12	02.93681	02	13	17.28	-07	59	40.3	983
532	1980	12	04.89028	02	12	16.39	-07	52	07.4	983
532	1980	12	04.89653	02	12	16.22	-07	52	05.8	983
532	1980	12	04.90278	02	12	16.01	-07	52	04.4	983
532	1980	12	29.85694	02	06	28.44	-05	24	18.0	983
532	1980	12	29.86319	02	06	28.45	-05	24	15.2	983
532	1980	12	29.86944	02	06	28.45	-05	24	12.4	983
532	1986	01	04.90694	03	52	17.75	+06	44	29.3	983
532	1986	01	04.91944	03	52	17.44	+06	44	33.8	983
532	1986	01	04.92569	03	52	17.24	+06	44	35.8	983
568	1979	11	12.94931	02	20	47.18	+27	53	47.7	983
568	1979	11	12.95694	02	20	46.83	+27	53	42.0	983
568	1979	11	12.96458	02	20	46.46	+27	53	36.1	983
568	1979	11	19.96076	02	15	52.13	+26	21	10.5	983
568	1979	11	19.96771	02	15	51.87	+26	21	04.7	983
568	1979	11	19.97465	02	15	51.55	+26	20	58.8	983
568	1979	11	20.93993	02	15	15.46	+26	08	02.5	983
568	1979	11	20.94688	02	15	15.15	+26	07	56.9	983
568	1979	11	20.95382	02	15	14.93	+26	07	51.9	983
568	1979	12	07.85729	02	08	31.40	+22	29	36.1	983
568	1979	12	07.86424	02	08	31.32	+22	29	31.2	983
568	1979	12	07.87118	02	08	31.22	+22	29	26.3	983
568	1979	12	10.86910	02	08	09.93	+21	54	26.6	983
568	1979	12	10.87604	02	08	09.91	+21	54	21.8	983
568	1979	12	10.88368	02	08	09.85	+21	54	16.6	983
568	1979	12	14.84757	02	08	06.11	+21	10	34.2	983
568	1979	12	14.85451	02	08	06.12	+21	10	29.2	983
568	1979	12	14.86146	02	08	06.11	+21	10	25.7	983
568	1980	01	08.84826	02	17	52.06	+17	52	39.4	983
568	1980	01	08.85521	02	17	52.33	+17	52	37.9	983
568	1980	01	08.86335	02	17	52.70	+17	52	35.1	983
568	1980	01	09.83924	02	18	34.85	+17	47	36.6	983
568	1980	01	09.84618	02	18	35.16	+17	47	34.3	983
568	1980	01	09.85312	02	18	35.45	+17	47	32.9	983
704	1979	09	11.86771	20	14	30.68	-03	28	28.6	983
704	1979	09	11.87326	20	14	30.59	-03	28	29.1	983
704	1979	09	11.87882	20	14	30.47	-03	28	29.2	983
704	1979	10	22.82326	20	23	54.39	-03	43	54.0	983
704	1979	10	22.82882	20	23	54.62	-03	43	53.9	983
704	1979	10	22.83437	20	23	54.84	-03	43	53.9	983
704	1980	11	14.07465	04	52	48.15	+37	10	23.5	983
704	1980	11	14.08021	04	52	47.84	+37	10	22.2	983
704	1980	11	14.08611	04	52	47.52	+37	10	20.6	983
704	1980	12	06.01181	04	31	01.21	+34	59	11.0	983
704	1980	12	06.01667	04	31	00.92	+34	59	08.6	983
704	1980	12	06.02153	04	31	00.61	+34	59	06.5	983
704	1980	12	13.99583	04	23	19.71	+33	52	46.7	983
704	1980	12	14.00069	04	23	19.44	+33	52	44.1	983
704	1980	12	14.00556	04	23	19.17	+33	52	41.6	983
704	1980	12	29.92083	04	11	45.05	+31	29	28.7	983
704	1980	12	29.92569	04	11	44.88	+31	29	26.0	983
704	1980	12	29.93056	04	11	44.73	+31	29	23.4	983
704	1986	12	10.13993	08	49	55.78	+11	03	04.4	983
704	1986	12	10.14688	08	49	55.70	+11	03	02.0	983
704	1986	12	10.15382	08	49	55.59	+11	03	00.3	983
704	1986	12	31.03229	08	39	36.60	+09	41	00.7	983
704	1986	12	31.03924	08	39	36.30	+09	40	59.4	983
704	1986	12	31.04618	08	39	35.99	+09	40	58.3	983

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1301       1980 03 12.00243  11 32 54.93  +13 35 58.0                    983
1301       1980 03 12.01076  11 32 54.57  +13 36 09.0                    983
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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 peturbations 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.

Comet IRAS (1983 VI)
Epoch 1983 Apr. 16.0 ET = JDE 2445440.5

T 1983 May 2.70788 ET				Kobayashi
q 2.4179989		(1950.0)	P	Q
z +0.0002399	Peri.	265.58035	-0.04010272	-0.99398552
+/-0.0000226	Node	171.09244	-0.43025612	+0.10922549
e 0.9994198	Incl.	138.84295	-0.90181564	-0.00791005

From 18 observations 1983 July 14-1984 May 6, mean residual 1".4.

Comet Shoemaker (1983 XV)
Epoch 1983 Dec. 12.0 ET = JDE 2445680.5

T 1983 Nov. 23.79309 ET				Kobayashi
q 3.3448880		(1950.0)	P	Q
z -0.0000453	Peri.	176.03678	+0.97296927	-0.13683427
+/-0.0000055	Node	163.98408	-0.22605133	-0.39953316
e 1.0001517	Incl.	137.60364	-0.04723988	-0.90644891

From 92 observations 1983 Sept. 7-1985 May 23, mean residual 1".0.

Comet Shoemaker (1985 XII)
Epoch 1985 Sept. 12.0 ET = JDE 2446320.5
T 1985 Sept. 4.59223 ET Green

q	2.6965094	(1950.0)	P	Q
z	-0.0002670	Peri.	235.46185	-0.65096462	+0.34863362
	+/-0.0000010	Node	48.98519	+0.12297738	+0.92499731
e	1.0007199	Incl.	116.66114	-0.74908052	-0.15111113

From 99 observations 1984 May 27-1988 Sept. 11, mean residual 0".8.

Comet Shoemaker (1986 XIV)
Epoch 1986 Nov. 26.0 ET = JDE 2446760.5
T 1986 Nov. 17.09004 ET Green

q	5.4574912	(1950.0)	P	Q
z	-0.0005283	Peri.	17.00255	-0.23678007	-0.63311278
	+/-0.0000062	Node	267.63303	-0.95492249	+0.01186573
e	1.0028832	Incl.	132.47392	-0.17904814	+0.77396861

From 71 observations 1987 Apr. 25-1988 Sept. 9, mean residual 0".9.

Comet Shoemaker-Holt-Rodriquez (1988h)
Epoch 1989 June 3.0 ET = JDE 2447680.5
T 1989 June 12.45259 ET Marsden

q	2.4738537	(1950.0)	P	Q
z	-0.0002399	Peri.	232.14930	+0.15887949	-0.40289218
	+/-0.0000287	Node	114.55824	-0.24098364	+0.86951006
e	1.0005935	Incl.	97.69352	-0.95743626	-0.28570989

From 85 observations 1988 June 11-Oct. 14, mean residual 0".9.

One-opposition minor planets

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1988 JD	11.0	880519	105.17	347.85	114.13	3.78	0.1769	2.7390	7	8	D	N
1988 PL	14.5	880827	352.97	135.38	205.67	1.97	0.1379	2.1838	59	0		M
1988 PQ	15.0	880827	22.96	0.78	298.59	3.79	0.1599	2.3635	59	9		M
1988 PK2	12.5	880827	167.18	91.47	87.91	0.57	0.0750	3.0309	33	0		M
1988 PM2	14.0	880827	321.22	250.33	141.26	5.11	0.0784	2.7912	33	6		M
1988 PO2	15.0	880827	3.55	190.92	149.26	5.30	0.1480	2.3114	33	8		M
1988 PV2	16.5	880817	342.65	122.19	230.16	3.21	0.1223	2.1707	10	6		m
1988 PW2	14.0	880817	59.14	86.48	176.93	9.92	0.0933	3.0274	10	6		m
1988 QO	16.5	880817	12.82	37.54	270.25	3.55	0.2378	2.2845	9	4		m
1988 QQ	15.0	880817	322.73	210.87	176.03	8.00	0.2143	2.6805	10	6		m
1988 QR	14.5	880817	25.45	25.92	269.19	4.03	0.1840	2.9219	10	6		m
1988 RD	13.0	880916	346.38	23.46	5.23	24.24	0.2301	2.3821	31	5		M
1988 RJ	15.0	880827	16.18	147.79	164.75	14.42	0.2858	2.3610	9	0		M
1988 RO	10.5	880827	347.55	157.19	209.16	15.59	0.0941	5.1909	12	8		M
1988 RD1	12.0	880827	348.11	45.60	318.31	9.75	0.1009	2.9990	13	8		M
1988 RE1	13.5	880827	310.47	212.59	195.14	14.64	0.1083	2.5916	12	6		M
1988 RM2	14.5	880827	341.97	97.51	277.86	5.05	0.1867	2.2506	8	4		M
1988 RN2	13.0	880827	298.96	163.29	263.24	5.74	0.1103	2.7339	8	4		M
1988 RO2	13.0	880827	331.92	72.79	317.64	9.65	0.1255	3.0038	8	4		M
1988 RP2	12.5	880827	197.49	241.78	278.96	7.90	0.0722	2.7135	8	4		M
1988 RQ2	12.0	880827	190.90	216.76	311.07	10.95	0.0854	2.7574	8	4		M
1988 RW2	15.5	880827	179.25	9.40	179.06	3.78	0.1041	2.2057	2	4	E	G
1988 RX2	14.0	880916	8.81	226.40	135.33	0.41	0.1214	2.6792	37	7		G
1988 RY2	14.0	880827	346.16	197.91	189.05	9.18	0.0777	3.0244	3	5		G
1988 RZ2	15.0	880827	111.00	231.53	12.87	5.27	0.1492	2.4518	3	5		G
1988 RA3	14.0	881006	23.45	165.95	174.33	1.84	0.2372	2.5784	39	3		M
1988 RC3	16.0	880827	309.50	255.96	179.39	1.80	0.1894	2.3641	3	5	E	G
1988 RD3	14.0	880916	82.28	86.83	188.80	2.21	0.1310	2.2069	39	9		M
1988 RE3	13.0	880827	313.05	63.21	12.46	26.96	0.2140	2.6063	3	5		G
1988 SA	15.5	880916	29.37	291.12	12.14	4.47	0.2449	2.1783	2	7		M

1988	SB	15.5	880916	337.68	1.11	17.22	3.96	0.1019	2.1805	2	7		M
1988	SC	14.0	880827	286.38	74.78	359.88	13.59	0.1354	2.5620	4	0		M
1988	SD	14.5	880827	34.33	285.89	10.87	6.12	0.1717	2.4622	4	0		M
1988	SN	13.0	881006	355.48	20.65	0.57	6.80	0.1337	2.3813	26	0		M
1988	TE	14.0	880916	4.25	98.47	260.72	1.18	0.2242	2.4070	32	0		M
1988	TG	14.5	881026	351.76	196.69	203.77	25.18	0.2772	2.4461	30	0		N
1988	TJ	14.0	881006	347.59	38.51	353.89	5.66	0.1418	2.3193	15	0		N
1988	TK	12.5	881006	44.25	312.37	2.21	9.23	0.1869	2.7296	13	8		N
1988	TL	13.5	881006	315.10	140.53	296.67	1.51	0.1718	2.4156	16	0		N
1988	TN	13.5	880916	344.86	18.03	12.26	5.29	0.0605	2.4311	42	0		G
1988	TO	13.5	881006	27.72	316.15	19.34	2.34	0.2304	2.3341	11	7		N
1988	TR	12.0	881026	13.50	240.75	130.89	3.42	0.1014	2.6992	20	0		N
1988	TS	14.0	881026	20.83	130.51	208.08	13.15	0.3540	2.8678	6	0		N
1988	TT	12.0	881006	48.23	315.66	4.79	11.64	0.0935	3.0211	13	8		N
1988	TU	14.0	881026	348.95	179.47	223.37	3.00	0.2194	2.3526	18	0		N
1988	TV	13.5	881006	355.82	173.96	208.86	5.49	0.1722	2.3147	12	0		N
1988	TX	15.5	881026	23.36	136.61	206.84	4.58	0.3069	2.1429	6	8	E	N
1988	TY	15.0	881026	1.40	11.84	13.30	4.04	0.2302	2.1523	6	8	E	N
1988	TZ	14.5	880916	314.39	52.18	17.52	3.83	0.1325	2.2779	42	0		G
1988	TA1	11.5	881026	341.15	204.44	203.39	10.06	0.1060	3.0617	28	0		N
1988	TB1	13.5	881026	22.96	146.35	208.40	4.86	0.1514	2.4171	18	0		N
1988	TC1	13.5	880916	327.63	42.50	11.85	4.51	0.1429	2.3081	53	0		G
1988	TL1	13.5	881026	356.98	176.10	213.93	4.86	0.1401	2.2816	18	0		N
1988	TM1	13.5	881006	344.19	189.76	212.37	1.89	0.1773	2.4457	20	0		M
1988	TN1	12.5	881006	12.64	342.00	20.51	13.15	0.1753	2.6809	11	8		N
1988	TP1	13.0	881026	18.16	270.33	89.82	1.86	0.1005	2.9134	32	0		N
1988	TQ1	13.5	881026	326.09	85.70	345.09	5.74	0.1602	2.4684	19	8		N
1988	TR1	13.5	881026	6.12	180.29	194.61	13.40	0.1732	2.6313	22	0		N
1988	TS1	14.0	881026	5.23	216.53	173.37	1.57	0.2323	3.1485	19	6		N
1988	TT1	10.5	881026	83.22	264.28	32.58	23.23	0.0774	3.0967	23	9		N
1988	TV1	14.5	881006	346.13	168.55	230.82	2.48	0.2431	2.3761	16	0		N
1988	TW1	12.5	881006	48.65	98.73	204.04	16.49	0.2459	2.6766	16	8		N
1988	TX1	12.5	881006	26.11	135.56	207.24	6.69	0.1647	3.0302	14	9		N
1988	TB2	13.5	881006	347.13	183.84	208.24	4.64	0.2439	2.3647	6	6		M
1988	TC2	13.5	881006	4.26	84.42	279.72	1.66	0.2005	2.3019	6	6		M
1988	TE2	13.5	881006	337.49	213.78	198.93	4.50	0.2976	3.0853	13	0		M
1988	TG2	13.0	881006	356.82	7.07	7.92	17.77	0.0828	2.8719	6	6		M
1988	TJ2	14.5	881006	25.82	341.09	6.49	5.52	0.0020	2.1734	10	6		M
1988	TM2	14.5	881006	337.38	206.82	198.56	2.46	0.1585	2.1730	10	6		M
1988	TR2	13.0	881006	333.32	39.54	25.88	15.79	0.2741	3.0549	22	0		M
1988	TS2	10.5	881006	237.23	137.72	29.38	19.84	0.3016	3.1119	5	6		M
1988	TT2	11.0	881006	101.87	217.59	33.68	6.24	0.2777	2.5271	5	6		M
1988	UA	15.0	881026	347.18	147.54	259.13	0.82	0.2163	2.1112	12	9	E	N
1988	UC	12.0	881026	42.09	304.04	38.72	2.66	0.0849	2.9206	21	9		N
1988	UF	11.5	881026	23.21	335.29	23.41	9.26	0.1672	3.0036	18	8		N
1988	UH	13.5	881026	330.04	248.49	192.42	2.10	0.1787	3.0420	4	4	E	N
1988	UJ	11.5	881026	340.42	17.22	43.51	9.50	0.0596	3.0545	20	0		N
1988	UO	11.5	881026	41.94	312.74	30.60	9.47	0.1878	2.7237	7	8		N
1988	VC	12.0	881026	347.88	84.28	332.69	8.78	0.1674	2.9620	4	5		M
1988	VD	15.5	881026	308.01	76.72	27.57	23.27	0.1244	1.9511	6	6		M
1988	VO	14.0	881115	356.53	11.60	44.21	25.85	0.2398	2.3524	5	7		N
1988	VR	13.0	881115	2.12	341.35	59.08	8.01	0.1614	2.3924	5	6		N
1988	VS	11.5	881115	5.87	182.31	223.57	5.11	0.1719	3.9866	5	6		N
1988	VT	13.0	881115	39.16	114.01	226.05	12.49	0.1111	2.7637	5	8		N
1988	VV	13.5	881115	17.72	156.75	224.25	4.65	0.1365	2.4006	6	9		N
1988	VZ	13.5	881115	4.71	4.14	33.92	4.83	0.2552	2.6933	8	8		N
1988	VA1	14.0	881026	4.01	122.99	266.48	10.19	0.2701	2.4204	4	5		M
1988	VB1	13.0	881026	25.92	0.13	1.97	13.47	0.1832	2.5534	4	5		M
1988	VC1	13.5	881026	338.48	156.98	268.79	11.24	0.1234	2.6034	4	5		M

1988 VD1	11.0	881026	61.98	326.91	357.52	13.58	0.1345	2.9141	6	6			M
1988 VE1	14.0	881115	50.05	295.95	44.07	6.73	0.2077	2.8522	8	4			N
1988 VF1	13.0	881115	2.17	166.12	242.86	4.46	0.0887	2.2527	4	6	E		N
1988 VG1	11.0	881115	304.12	263.61	217.68	10.13	0.0815	3.0078	5	5			N
1988 VJ1	14.5	881115	35.25	120.54	235.04	4.26	0.2443	2.1925	4	6	E		N
1988 VQ1	14.0	881115	328.15	41.62	43.84	7.10	0.1075	2.3426	8	6	E		N
1988 VT1	13.0	881115	345.36	265.92	168.29	9.65	0.3232	2.9182	3	7			N
1988 VU1	12.5	881115	11.42	151.00	256.85	4.97	0.0776	2.5843	3	6	E		N
1988 VV1	12.5	881115	66.74	354.12	302.83	12.44	0.2592	2.9284	8	6			N
1988 VW1	12.0	881115	213.93	76.82	124.89	3.03	0.1617	2.8227	5	8			N
1988 VF2	13.5	881115	45.89	311.99	31.52	6.48	0.2253	2.3227	5	4			N
1988 VJ2	14.5	881115	359.46	204.63	210.92	5.00	0.3126	2.4053	5	5			N

1988 JD = 1988 KO (S. Nakano)

(3920)* 1948 WF = 1934 NW = 1934 PU = 1975 XC4 = 1978 NE2

Discovered 1948 Nov. 28 by S. Arend at Uccle.

Id. S. Nakano (MPC 9685)

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Nakano

M	319.26515	(1950.0)	P	Q	
n	0.29111780	Peri.	237.15768	+0.98356603	+0.11242750
a	2.2547075	Node	116.03745	-0.06035410	+0.94218501
e	0.2713018	Incl.	9.04616	-0.17016240	+0.31566986
P	3.39	H	13.2	G 0.25	

Residuals in seconds of arc

340712	078	(60.9+	24.9-)	X	751203	095	1.6+	3.1-	851012	293	1.1+	0.1-
340717	078	(3.7+	72.8+)	X	780706	095	(0.4-	8.3+)	851012	293	0.2+	0.5-
340801	078	(19.0-	31.8-)	X	780707	675	0.5-	1.4+	860109	801	1.9-	0.7+
481128	012	0.8+	1.0+		780708	675	0.2+	0.7+	880614	801	0.9-	0.1-
481128	012	(2.3+	8.8+)		780709	675	0.5+	0.3+	880712	675	0.1+	0.6-
481202	012	2.1-	1.3+		850813	801	1.1-	0.1+	880715	675	0.3+	1.3-
481210	012	0.2+	1.4+		850912	801	(4.4+	6.5+)				

(3921)* 1971 OH = 1928 QO = 1954 RM = 1980 WT = 1982 DW4 = 1984 QK1

Discovered 1971 July 19 by B. Burnasheva at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (MPC 12323)

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	309.02420	(1950.0)	P	Q	
n	0.22850844	Peri.	215.40059	+0.97806185	-0.18877262
a	2.6497275	Node	155.03878	+0.20373339	+0.95501526
e	0.2821318	Incl.	12.04867	-0.04344787	+0.22871543
P	4.31	H	12.9	G 0.25	

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

280820	094	(74.0-	13.6-)	X	710719	095	2.7-	3.9+	840827	046	2.6+	0.3-
280823	094	(55.5-	56.1-)	X	710725	095	(6.7-	10.1+)	840827	046	0.2-	2.5-
280907	094	(0.35-	0.49-)	X	710820	095	2.3+	0.3+	880612	801	1.1-	2.1-
280912	024	(0.01+	0.03-)	X	710911	095	(11.4-	7.5+)	880714	801	1.1-	0.4-
280913	094	(0.03+	0.01+)	X	801130	095	1.2-	0.8-				
540906	760	(0.06+	0.01-)	X	820222	010	1.1+	1.1-				

(3922)* 1971 SP3 = 1971 UN4 = 1954 SN = 1962 CU = 1982 RH1

Discovered 1971 Sept. 26 by C. Torres at Cerro El Roble.

Id. B. G. Marsden (k, MPC 9071), S. Nakano

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Marsden

M	16.28733	(1950.0)	P	Q	
n	0.17707985	Peri.	14.08189	+0.99641249	-0.08444144
a	3.1406771	Node	350.75649	+0.07384718	+0.90007785
e	0.1994779	Incl.	2.01187	+0.04133704	+0.42746873
P	5.57	H	12.6	G 0.25	

Residuals in seconds of arc

540923	760	1.3-	2.2-		711021	095	1.0-	0.1-		820919	095	1.0+	0.3+
540923	760	0.8-	2.2-		820914	046	0.4+	0.6-		820921	095	1.4+	2.1+
620210	033	1.0+	0.4+		820914	046	0.5+	2.2-		831230	675	3.6-	1.4-
620210	033	4.8+	0.6-		820915	046	1.4-	0.3+		840108	675	3.9-	1.9+
710926	805	2.6+	1.3+		820915	046	3.1-	0.3-		881106	552	0.8+	0.8+
710927	805	1.5+	1.4+		820916	095	0.8+	2.9+		881106	552	1.5+	0.4+
711020	805	0.4-	1.7+		820916	046	0.5-	0.4-		881107	552	0.6+	1.8-
711020	805	0.4+	1.0+		820916	046	0.9-	0.8-		881107	552	0.5-	0.9-

(3923)* 1976 SN3 = 1976 UW20 = 1984 UC = 1985 YK

Discovered 1976 Sept. 24 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. H. Oishi (d, JAM 1336), E. Bowell (k, MPC 10527), B. G. Marsden (idem.)

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Marsden

			(1950.0)	P	Q
M	137.95348				
n	0.12527522	Peri.	284.68252	+0.23167237	-0.97237060
a	3.9557235	Node	151.87212	+0.91426680	+0.20756264
e	0.2230738	Incl.	3.48941	+0.33233136	+0.10683244
P	7.87	H	11.3	G 0.25	

Residuals in seconds of arc

760924	095	1.1-	0.7-		870226	809	0.1-	0.7-		880207	675	0.2+	0.1+
760929	095	0.8+	1.8-		870226	809	0.1-	0.5-		880207	675	0.3+	0.0
761026	095	1.1+	0.4-		870226	809	0.2-	0.3-		880322	675	1.2-	0.3+
841017	046	1.2+	1.8-		870329	801	0.5-	0.4-		880322	675	1.5-	0.1+
841017	046	0.2+	1.5+		870414	675	0.1+	0.4+		880322	675	1.3-	0.4+
851217	688	0.9-	0.2+		870414	675	0.1+	0.7+		880323	675	1.1-	0.3+
851218	688	0.4-	0.7+		870414	675	0.1+	0.4+		880323	675	0.9-	0.2+
851218	688	0.6-	0.1+		880206	675	0.7+	0.3+		880525	675	0.0	0.2-
870218	675	0.5+	0.6-		880206	675	0.5+	0.2+		880525	675	0.2-	0.3-
870218	675	0.4+	0.5-		880206	675	0.9+	0.2+		880525	675	0.1-	0.2-
870219	675	0.3+	0.6-		880206	675	1.1+	0.2-		880526	675	0.1+	0.2-
870219	675	0.3+	0.6-		880207	675	0.4+	0.0		880526	675	0.0	0.3-
870224	801	1.1+	2.1-		880207	675	0.0	0.1-		880526	675	0.0	0.3-

(3924)* 1977 CU = 1977 EB = 1968 DC = 1973 FC1 = 1975 TG = 1978 LF = 1980 XH3 = 1984 SF5

Discovered 1977 Feb. 11 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. S. Nakano (MPC 13156)

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Nakano

			(1950.0)	P	Q
M	277.86071				
n	0.22234712	Peri.	95.31381	+0.39097371	-0.91871183
a	2.6984542	Node	331.46858	+0.79141052	+0.36648724
e	0.1115785	Incl.	6.70289	+0.46990312	+0.14715867
P	4.43	H	11.9	G 0.25	

Residuals in seconds of arc

680222	095	0.5+	1.8+		770309	095	2.9+	0.8+		841026	675	0.8-	0.3+
730327	095	0.4-	0.1+		770313	095	1.6+	0.0		841026	675	0.8-	0.5-
730402	095	2.4-	2.8+		780601	809	1.5+	1.5-		880808	688	0.7-	0.2-
751003	095	0.2-	1.4+		780602	809	0.1+	1.6-		880808	688	(4.1-	2.0-)
770211	675	(11.9+	1.1-)		801211	095	0.5-	6.2-		880809	801	0.4+	0.2+
770212	675	0.4+	0.7+		840927	675	0.6-	2.1+		881013	801	0.7-	0.3-
770214	675	0.7-	0.8+		840927	675	0.5+	1.2+					

(3925)* 1977 SS2 = 1977 TM6 = 1948 OF = 1965 PA = 1971 ON1 = 1971 PA = 1980 DR5 = 1980 FS10

Discovered 1977 Sept. 19 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. C. M. Bardwell (MPC 12569)
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Rogers

M	337.82626	(1950.0)	P	Q
n	0.17497883	Peri. 209.39110	+0.96992416	-0.23107509
a	3.1657677	Node. 163.43354	+0.24020745	+0.95946839
e	0.1843448	Incl. 15.56209	-0.03933845	+0.16132176
P	5.63	H 11.0	G 0.25	

Residuals in seconds of arc

480731	094	8.0-	5.6+	771016	675	1.1+	0.5+	880821	657	0.2+	0.0
480804	094	4.6+	2.2+	771017	675	1.0+	0.7-	880908	046	(1.7-	3.0-)
480808	094	5.1-	4.2+	771017	675	0.4+	1.2-	880908	046	(1.1-	3.0-)
650802	095	1.8-	0.4-	771021	675	0.5-	2.0+	880909	801	0.4-	2.5+
710729	095	1.2-	5.4-	771021	675	0.1-	0.6-	880909	046	0.5-	2.5-
710801	095	7.7+	3.9+	771022	675	1.0-	0.5-	880909	046	0.7-	2.6-
770919	095	0.8-	2.4+	771022	675	0.5-	0.6-	880910	046	0.6-	1.9-
771008	095	(0.2-	3.9+)	800221	095	1.6+	1.9-	880910	046	(0.6-	2.9-)
771011	675	0.1+	0.8+	800316	095	0.4+	2.3-	880911	293	(1.1+	3.3+)
771011	675	0.8+	0.4-	880811	657	1.1-	1.1-	880911	293	0.5+	0.7+
771012	675	0.6-	0.8-	880811	657	0.4-	1.4-	880912	657	2.0-	1.1-
771012	675	0.7+	1.1-	880813	801	0.4+	0.7+	881011	657	0.4+	0.1+
771016	675	1.6+	0.5-	880821	657	0.2-	1.2+				

(3926)* 1978 VQ3 = 1976 JQ10 = 1982 XC3
Discovered 1978 Nov. 7 by E. Helin and S. J. Bus at Palomar.
Id. K. Hurukawa (MPC 8383, JAM 1849)
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Marsden

M	103.08514	(1950.0)	P	Q
n	0.24148703	Peri. 234.99887	-0.39755673	-0.90734496
a	2.5539174	Node 238.98867	+0.88521376	-0.34005319
e	0.1257988	Incl. 9.17449	+0.24154760	-0.24716178
P	4.08	H 14.2	G 0.25	

Residuals in seconds of arc

760502	809	0.0	0.1+	781129	675	2.2-	1.3-	821214	381	0.6+	0.2+
781105	675	0.3+	1.5+	781130	675	0.5+	0.4-	861030	801	0.5+	0.5-
781106	675	0.3-	0.4+	781130	675	3.0+	1.5+	880412	413	0.1-	0.1-
781107	675	0.2-	0.9+	821213	381	1.8-	1.2-	880412	413	0.0	0.1-
781108	675	0.6-	1.4-	821214	381	0.5+	0.2+				

(3927)* 1981 JA2 = 1985 TD1
Discovered 1981 May 5 by C. Shoemaker at Palomar.
Id. E. Bowell (MPC 10298)
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Green

M	44.39772	(1950.0)	P	Q
n	0.30335194	Peri. 25.39826	+0.18079482	+0.98297100
a	2.1936712	Node 255.03179	-0.90802755	+0.15397832
e	0.1350437	Incl. 1.95056	-0.37788782	+0.10029302
P	3.25	H 14.1	G 0.25	

Residuals in seconds of arc

780705	675	0.6-	0.5-	851020	688	0.1+	1.0-	880909	046	0.6+	0.8+
780706	675	0.2-	0.2-	851020	688	0.7+	0.2+	880909	046	1.7+	0.0
810411	675	0.4-	0.3+	851107	688	0.2+	1.8+	880910	046	1.0+	1.6-
810411	675	0.1+	0.3+	851107	688	(4.3-	0.5-)	880910	046	(3.8+	0.1+)
810505	675	0.2+	2.2-	870228	801	1.1-	0.1+	880912	511	(4.0-	1.8-)
810505	675	1.9-	0.1+	880814	511	0.9-	1.8+	880912	511	1.8-	0.7-
810506	675	0.6-	0.3+	880814	511	0.5-	0.7+	880912	511	0.8+	0.6+
810506	675	2.5+	0.2-	880815	511	1.9-	0.0	880917	511	1.0-	2.2-
810511	675	1.0+	0.5+	880816	511	0.8-	0.2+	880917	511	1.2-	0.6+
851015	688	0.9-	0.1+	880908	046	1.6+	0.5-				
851015	688	1.0+	1.5-	880908	046	2.1+	0.5+				

(3928)* 1981 PG = 1971 OP1 = 1978 TW5 = 1980 FL9
Discovered 1981 Aug. 4 by P. Wild at Zimmerwald.
Id. T. Furuta (k, JAM 943), C. M. Bardwell (MPC 6945)
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Townsend

M	27.51895	(1950.0)	P	Q
n	0.29269044	Peri. 54.06511	+0.79573366	+0.60413687
a	2.2466238	Node. 268.72956	-0.56850644	+0.72074326
e	0.1885625	Incl. 2.45008	-0.20882615	+0.33992321
P	3.37	H 13.3	G 0.25	

Residuals in seconds of arc

710729	095	3.4+	3.8-	810904	688	1.0+	1.2-	851213	801	0.9-	1.0-
781008	095	0.1+	0.6-	810904	688	0.6+	1.2-	870502	801	0.5+	0.3-
800316	095	0.7-	2.5-	810905	026	0.6-	1.1+	880915	801	1.3+	0.3-
810804	026	2.1-	0.3+	810906	026	2.6+	0.4+	881006	801	1.3-	0.1+
810804	026	0.6-	0.3+	810921	026	0.1-	0.7+	881010	400	0.5+	2.3+
810805	026	0.1-	0.8+	810929	026	0.5-	0.1-	881010	400	1.3+	0.1-
810824	046	0.9-	0.2+	810930	026	0.5+	0.1-	881010	400	(2.6+	3.6+)
810824	046	2.6-	0.4-	830114	801	0.5-	0.4-	881014	400	0.3+	0.4+
810826	026	1.8+	1.2+	840503	688	0.8-	0.5-	881014	400	0.2-	2.0-
810830	026	0.2+	0.4-	840503	688	1.3+	0.1-	881014	400	1.7-	0.2+

(3929)* 1981 WG9 = 1981 UM15 = 1977 RH8
Discovered 1981 Nov. 16 at Perth.
Id. K. Hurukawa (d, MPC 10513), E. Bowell (MPC 10942)
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Nakano

M	329.39516	(1950.0)	P	Q
n	0.26837226	Peri. 221.30909	+0.96967073	-0.24331919
a	2.3803691	Node 152.74753	+0.23540104	+0.90427288
e	0.1360894	Incl. 2.89384	+0.06576484	+0.35083662
P	3.67	H 13.5	G 0.25	

Residuals in seconds of arc

770908	675	0.0	0.7+	811027	095	2.7+	3.7+	870502	801	0.2+	0.5+
770908	675	0.2+	0.6-	811116	323	0.9-	0.7-	880809	688	0.1+	0.8+
770909	675	0.3+	0.1-	811117	323	1.3-	0.0	880809	688	2.1+	0.2+
770909	675	0.5-	0.4-	811123	323	0.5-	0.8-	880813	801	1.1-	0.8-
811023	095	2.0+	2.9-	811201	323	2.2-	0.8+	880914	801	1.3-	0.5+

(3930)* 1982 UV10 = 1970 QG = 1983 YA1
Discovered 1982 Oct. 25 by L. V. Zhuravleva at the Crimean Astrophysi-
Observatory.
Id. S. J. Bus (k, MPC 12708), D. W. E. Green (MPC 12708)
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Green

M	117.90080	(1950.0)	P	Q
n	0.17641948	Peri. 248.97859	+0.28852304	+0.95738137
a	3.1485096	Node 37.79895	-0.87020120	+0.26796888
e	0.1454866	Incl. 1.23810	-0.39937993	+0.10776640
P	5.59	H 12.1	G 0.25	

Residuals in seconds of arc

700828	095	0.6+	1.4-	870917	809	0.5-	0.7+	870924	809	0.1-	0.5+
821025	095	0.8-	1.1+	870917	809	0.8+	0.5-	871001	809	0.2-	0.2-
821109	095	0.7-	0.7+	870919	809	0.2-	0.1+	871001	809	0.0	0.2-
821114	095	1.1+	0.8-	870919	809	0.1-	0.0	871001	809	0.1+	0.3-
831230	675	1.5-	1.2-	870919	809	0.0	0.2-	871002	809	0.3+	0.1+
840108	675	1.4+	0.3-	870924	809	0.2-	0.1+	871002	809	0.1+	0.1+
870917	809	0.3-	0.0	870924	809	0.1+	0.2+	871002	809	0.1-	0.1-

(3931)* 1984 EN = 1958 DZ

Discovered 1984 Mar. 1 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. W. Landgraf (MPC 11622)

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Green

M	111.92171	(1950.0)	P	Q
n	0.26589027	Peri. 150.90290	-0.48178229	-0.87558507
a	2.3951594	Node 327.86198	+0.79061006	-0.41701822
e	0.0806032	Incl. 3.79033	+0.37791739	-0.24381673
P	3.71	H 13.6	G 0.25	

Residuals in seconds of arc

580224	760	0.1+	0.5+	840303	809	0.7-	1.3+	840310	809	0.9+	0.8+
580224	760	0.3-	1.0-	840303	809	0.9-	1.2+	840310	809	0.9+	0.8+
840223	809	0.1+	1.2-	840304	809	1.1-	1.7+	840329	688	2.2+	0.7-
840223	809	0.2+	1.1-	840304	809	0.9-	1.8+	840331	688	(0.3+	3.4-)
840223	809	0.1+	0.6-	840304	809	0.5-	1.8+	840331	688	(0.5+	3.0-)
840225	809	0.1+	0.9-	840305	809	0.9-	0.2+	861009	092	1.1-	0.2+
840225	809	0.5+	1.1-	840305	809	0.7-	0.1-	861009	092	0.5+	0.0
840225	809	0.8+	1.1-	840305	809	0.3-	0.2-	861011	092	0.7-	0.8+
840226	809	0.4-	0.7-	840306	809	0.5-	0.1+	861011	092	0.2+	0.0
840226	809	0.1-	0.9-	840306	809	0.1+	0.3+	861012	092	0.8-	0.9+
840226	809	0.5+	0.9-	840306	688	(0.7+	3.9-)	861012	092	1.4+	0.1+
840228	809	0.4+	0.7-	840306	809	0.2+	0.6-	861201	010	(4.1-	1.0-)
840228	809	0.3+	0.2-	840306	688	0.7+	1.9-	861201	010	(6.5-	1.7-)
840228	809	0.9+	0.2-	840308	809	0.5-	0.3+	861201	010	(4.9-	1.4-)
840301	809	1.0-	0.4-	840308	809	0.2+	0.1+	861203	010	(0.8-	3.5+)
840301	809	0.7-	0.3-	840308	809	0.2-	0.3+	861203	010	(2.6+	6.6+)
840301	688	(2.7+	0.6-)	840309	809	0.8-	1.3+	880410	293	1.2+	0.2-
840301	809	0.3-	0.0	840309	809	0.7-	1.0+	880410	293	0.4-	1.6+
840301	688	2.0+	1.8-	840309	809	0.2-	1.1+	880419	801	(4.2+	5.2-)
840303	809	0.4-	1.7+	840310	809	0.8+	0.3+				

(3932)* 1984 SC5 = 1959 PE = 1979 EK = 1982 BN11

Discovered 1984 Sept. 27 by M. Nolan at Palomar.

Id. S. Nakano (MPC 13302)

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Nakano

M	42.66608	(1950.0)	P	Q
n	0.23996881	Peri. 326.68848	+0.36698905	+0.91860868
a	2.5646780	Node 324.21169	-0.78927070	+0.22411358
e	0.1667380	Incl. 14.51321	-0.49231169	+0.32547074
P	4.11	H 12.3	G 0.25	

Residuals in seconds of arc

590810	760	2.0-	1.3+	841022	675	1.8+	0.3-	880909	054	0.7-	1.4-
590810	760	0.7+	0.6+	841023	675	1.2-	0.6-	880916	054	0.5-	0.3+
790305	809	0.3-	0.5-	841024	675	(7.5+	2.9+)	880920	054	0.9+	0.4+
820120	095	1.1+	2.3+	880907	054	1.1-	0.5+	880920	054	0.8+	0.7-
840927	675	0.4-	0.1-	880908	054	0.1-	0.6+	881007	801	0.7-	0.0
840928	675	1.0+	0.7-	880909	054	1.0+	0.9+				

(3933)* 1986 EN4 = 1982 ON = 1983 YW

Discovered 1986 Mar. 12 by R. M. West at the European Southern Observatory.

Id. S. Nakano (MPC 12132)

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Nakano

M	61.73750	(1950.0)	P	Q
n	0.16939195	Peri. 231.40271	+0.09200345	+0.99554233
a	3.2349994	Node 43.89014	-0.90398342	+0.09224656
e	0.1067087	Incl. 1.71567	-0.41755160	+0.01964777
P	5.82	H 12.6	G 0.25	

Residuals in seconds of arc

820725 801	1.0-	0.9-	860307 809	0.3-	0.4-	880907 033	0.2-	0.0
820814 095	1.5+	2.0+	860311 809	0.4-	0.8-	880908 033	1.2+	0.3+
820913 095	1.6-	1.3+	860311 809	0.3+	0.6-	880908 033	0.6-	0.5-
831228 033	0.2-	0.0	860312 809	0.7+	0.4-	880916 511	0.2-	1.9-
831229 033	0.0	0.1+	860316 809	0.5-	0.2-	880916 511	1.7+	1.5-
831229 033	(4.9-	1.0-)	860316 809	0.4+	0.2-	880917 511	0.3-	1.0+
860306 809	0.7-	1.0-	880813 033	1.1+	1.2-	880917 511	1.4-	0.2-
860306 809	0.4-	0.1-	880814 033	1.3+	1.5-			
860307 809	1.2-	0.8-	880814 033	0.7+	1.6-			

(3934)* 1987 DF1 = 1980 TY1 = 1983 FF = 1983 HY1

Discovered 1987 Feb. 23 by P. Jensen at Brorfelde.

Id. S. Nakano (MPC 12002)

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Nakano

M	56.13380	(1950.0)	P	Q
n	0.23593956	Peri. 94.50314	-0.30365851	+0.94871903
a	2.5937943	Node 157.21270	-0.93912732	-0.28247129
e	0.1437189	Incl. 13.11520	-0.16072148	-0.14192314
P	4.18	H 13.1	G 0.25	

Residuals in seconds of arc

801005 809	0.2+	1.1-	870227 809	0.8-	0.5+	870305 809	0.2-	0.1+
830316 688	1.0+	1.6-	870301 809	0.2-	0.4+	870306 809	0.5+	0.2+
830316 688	1.0-	2.6-	870301 809	0.0	0.7+	870306 809	0.7+	0.1+
830416 033	0.5-	0.0	870301 809	0.4+	0.8+	870306 809	0.4+	0.1-
830416 033	0.1-	0.9+	870301 809	0.6-	0.5+	870308 809	0.1+	0.1-
870223 054	1.1+	0.1-	870301 809	0.5-	0.5+	870308 809	0.4+	0.0
870224 809	1.0+	0.6-	870301 809	0.3-	0.9+	870308 809	0.4+	0.1-
870224 809	0.7+	0.6-	870303 809	0.3-	0.6+	870311 809	0.6+	0.2-
870224 809	0.7+	0.1-	870303 809	0.2-	0.3+	870311 809	0.7+	0.6-
870224 054	0.1-	0.8-	870303 809	0.4-	0.4+	870311 809	0.8+	0.6-
870226 809	0.6-	0.0	870304 809	0.4-	0.4-	870330 054	0.5-	1.0+
870226 809	0.3-	0.3+	870304 809	0.4-	0.4-	880810 801	0.1+	1.2+
870226 809	0.2-	0.1+	870304 809	0.2-	0.5-	880912 801	0.3-	0.5+
870227 809	0.5-	0.5+	870305 809	0.4-	0.3+			
870227 809	0.5-	0.6+	870305 809	0.3-	0.2+			

(3935)* 1987 PB = 1939 XK = 1951 WM = 1967 TO = 1971 QU1 = 1979 SC3 = 1983 OJ

Discovered 1987 Aug. 14 by T. Seki at Geisei.

Id. T. Kobayashi (MPC 12203)

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	34.20234	(1950.0)	P	Q
n	0.24333819	Peri. 102.64938	+0.72004143	-0.68153067
a	2.5409485	Node 300.48489	+0.56318069	+0.68388449
e	0.2329589	Incl. 8.71673	+0.40542306	+0.26041879
P	4.05	H 12.5	G 0.25	

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

391214 029	(0.01+	0.03-)X	830813 688	0.4+	1.8-	870901 372	1.0-	0.7-
511125 094	(23.6-	42.7+)X	870814 372	1.0+	0.7-	870901 372	0.6+	0.5-
511127 711	0.8+	1.5- Y	870814 372	1.2+	0.5+	870903 372	0.4-	0.1+
671002 095	1.8-	1.8+	870824 372	0.0	0.5+	870916 372	1.8+	0.5-
710830 095	1.8-	1.4+	870825 372	0.3+	1.9+	870916 372	(4.1+	0.7-)
790923 095	2.4+	0.9+	870829 372	1.4+	0.6-	881013 372	2.1-	0.0
830717 688	0.4-	1.1-	870829 372	0.4-	0.5+	881018 372	1.4-	1.6-
830717 688	0.1-	1.6-	870831 372	2.2-	0.1-	881022 372	1.3+	1.6-
830813 688	0.3+	2.3-	870831 372	0.7-	0.9+			

(3936)* 2321 T-3 = 1972 GY = 1973 TC = 1976 JG1 = 1980 MB = 1981 WA2 = 1984 MT

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

Id. C. M. Bardwell (MPC 12573)

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Townsend

M	43.83591	(1950.0)		P	Q
n	0.26057283	Peri.	36.50538	+0.11541745	+0.98963288
a	2.4276345	Node.	240.26704	-0.93301956	+0.07848569
e	0.1269510	Incl.	5.64886	-0.34081273	+0.12027785
P	3.78	H	13.1	G 0.25	

Residuals in seconds of arc

720412	095	0.1+	2.1-	771021	675	1.8+	1.0-	880809	801	1.5+	0.5+
731001	095	1.8+	0.5-	771022	675	0.1+	0.1-	880812	511	1.7+	0.3+
760502	095	1.3-	1.8+	771022	675	0.9+	0.6-	880812	511	1.1+	0.9-
771007	675	(3.1+	1.0-)	800610	675	1.7+	0.7-	880813	511	1.2+	0.3-
771011	675	0.7+	0.2-	800611	675	0.9-	0.4-	880813	511	1.1+	0.1+
771011	675	1.5-	0.5+	800612	675	0.3-	1.2-	880814	511	2.5-	0.4+
771012	675	1.0-	0.5+	800618	675	0.2+	2.5-	880814	511	1.9-	0.3+
771012	675	1.3-	0.4+	800619	675	2.4+	0.2-	880814	511	2.3-	2.2+
771016	675	0.2-	2.2-	800620	675	1.0+	2.5-	880814	511	(5.6-	0.6+)
771016	675	0.2-	2.8-	811123	046	0.8-	0.0	880817	511	3.0-	0.5+
771017	675	0.6+	0.1+	811123	046	2.4+	1.4+	880817	511	(3.8-	1.0-)
771017	675	1.1-	0.2-	840628	095	2.5-	1.1+	880909	801	2.0+	0.1+
771021	675	1.1+	0.8-								

1929 VS = 1980 TC4

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	49.82646	(1950.0)		P	Q
n	0.27009357	Peri.	349.70442	+0.91490002	-0.40205217
a	2.3702449	Node	34.07429	+0.37479710	+0.81268197
e	0.2326748	Incl.	3.70680	+0.14995029	+0.42178439
P	3.65	H	15.0	G 0.25	

Residuals in seconds of arc

291026	690	1.6+	0.3-	291103	690	1.2-	1.5+	801010	675	0.2-	0.4+
291027	690	0.3-	1.4-	801009	675	0.1+	0.2-				

1964 TA2 = 1971 VP = 1988 TE1

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	7.15846	(1950.0)		P	Q
n	0.28699411	Peri.	4.95744	+0.96232974	+0.26940733
a	2.2762540	Node	339.30077	-0.25286448	+0.83735642
e	0.1643963	Incl.	5.94701	-0.09990505	+0.47566156
P	3.43	H	13.0	G 0.25	

Residuals in seconds of arc

641009	330	0.0	0.3-	881015	391	1.5+	2.7-	881031	391	2.2-	3.8+
641030	330	1.2+	3.2-	881015	391	2.8+	1.7-	881031	391	3.6-	2.4+
641109	330	0.6+	0.4+	881016	391	(6.9-	0.9+)	881102	391	0.4+	2.3+
711111	095	0.4+	1.1-	881016	391	0.7-	0.2+	881102	391	1.7-	0.8+
881013	391	2.8+	0.7-	881019	391	3.4-	1.6+				
881013	391	1.1-	1.9-	881019	391	2.4+	0.6+				

1967 CC = 1973 GL1 = 1976 UT10 = 1982 XE1 = 1984 DC2
Id. A. Lowe (k), S. Nakano
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano

M	289.20590	(1950.0)	P	Q
n	0.17177546	Peri. 92.40126	-0.79230162	-0.60953903
a	3.2050108	Node 50.04399	+0.54491592	-0.72671879
e	0.1317846	Incl. 2.00650	+0.27445361	-0.31676802
P	5.74	H 12.0	G 0.00	

Residuals in seconds of arc

670208	095	0.9+	0.6-	761022	381	0.8+	0.1-	821214	381	0.6-	0.6-
670216	095	0.7-	0.4+	761024	381	1.7+	0.1-	840226	095	0.2+	0.5+
730401	095	1.8-	1.6-	821213	381	1.2-	0.4-	840305	095	1.8+	0.3+
730404	095	0.4-	0.1-	821213	381	0.7-	0.1-				
761022	381	0.4+	0.0	821214	381	0.3-	0.7-				

1967 KB = 1988 TD1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	52.01319	(1950.0)	P	Q
n	0.24215791	Peri. 290.18176	+0.33906694	+0.94076219
a	2.5491983	Node 359.63777	-0.84221601	+0.30339137
e	0.2519852	Incl. 3.02078	-0.41917275	+0.15139412
P	4.07	H 13.0	G 0.25	

Residuals in seconds of arc

670531	808	1.0+	1.2-	881013	399	2.0+	0.5+	881016	399	1.2-	0.4+
670602	808	0.9-	0.2-	881013	399	0.3-	0.2-	881019	399	1.1-	0.4-
670613	808	0.1+	1.3+	881016	399	1.3+	1.6+	881019	399	0.5-	2.1-

1971 QR1 = 1988 VX1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	18.49346	(1950.0)	P	Q
n	0.23501697	Peri. 123.56334	+0.97197280	+0.22867452
a	2.6005781	Node 223.28835	-0.23330891	+0.90971885
e	0.3053560	Incl. 4.56398	-0.02891057	+0.34658273
P	4.19	H 14.0	G 0.25	

Residuals in seconds of arc

710830	095	0.6+	0.6-	710927	095	(1.1-	8.6+)	881108	875	0.7-	0.4+
710916	095	1.4-	0.3+	881106	875	1.1+	1.3-				
710926	095	0.8+	0.4+	881108	875	0.4-	0.8+				

1973 SG4 = 1973 US3 = 1988 RS2
Id. B. G. Marsden (d, MPC 9064), T. Kobayashi
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	325.29560	(1950.0)	P	Q
n	0.26245027	Peri. 219.12069	+0.66826327	-0.74347124
a	2.4160432	Node 189.05099	+0.71723046	+0.65316058
e	0.2329687	Incl. 9.50410	+0.19749601	+0.14363765
P	3.76	H 13.0	G 0.25	

Residuals in seconds of arc

730926	095	0.0	2.5+	731029	095	0.0	0.2+	880907	675	0.9-	0.2+
731002	095	0.0	2.5-	880905	675	0.9+	0.4-				

1975 VN2 = 1988 VE
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	316.85330	(1950.0)	P	Q
n	0.23003606	Peri. 39.96307	+0.29057385	-0.94712136
a	2.6379837	Node 33.79397	+0.80338544	+0.16421715
e	0.1498321	Incl. 14.16552	+0.51974867	+0.27566984
P	4.28	H 12.0	G 0.25	

Residuals in seconds of arc

751102	095	0.5+	0.2-	751128	381	0.1-	0.1+	881107	897	0.2+	0.3+
751107	095	0.7+	0.9-	751128	381	0.2+	0.5-	881107	897	0.1+	0.2-
751109	381	1.5-	0.6+	881103	897	0.5-	0.2+				
751109	381	0.2-	0.4+	881103	897	0.8-	0.9-				

1977 RL = 1988 VP1

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5					Kobayashi
M	309.32696		(1950.0)	P	Q
n	0.27871049	Peri.	52.72705	-0.13477839	-0.94103432
a	2.3211356	Node	48.14764	+0.72478067	-0.30716777
e	0.2890265	Incl.	24.61957	+0.67566838	+0.14178283
P	3.54	H	13.0	G 0.25	

Residuals in seconds of arc

770905	809	(8.8+	4.2+)	771011	809	0.3+	0.1-	881102	400	3.6+	0.1-
770906	809	1.2+	0.6+	771013	809	0.2+	0.0	881102	400	(1.1-	6.4+)
770907	809	0.3+	0.9+	771013	809	1.8-	2.0+	881108	400	1.3-	0.5+
770911	809	1.6-	1.8-	771013	809	2.5+	1.5-	881108	400	1.0-	0.6-
771010	809	0.7-	0.2+	881102	400	0.5-	0.7+	881108	400	0.1-	0.1-

1978 RX1 = 1988 PJ2

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5					Kobayashi
M	350.07533		(1950.0)	P	Q
n	0.29456309	Peri.	221.03042	+0.99847481	+0.02886057
a	2.2370919	Node	137.24513	-0.01056398	+0.93660762
e	0.2062738	Incl.	3.97546	-0.05418907	+0.34918940
P	3.35	H	15.0	G 0.25	

Residuals in seconds of arc

780901	095	1.4+	1.4-	780912	095	1.3+	0.3+	880814	033	0.1+	0.1+
780905	095	(4.5-	2.1+)	880813	033	0.6-	0.1+				
780907	095	2.5-	0.7+	880814	033	0.4+	0.1+				

1978 SH3 = 1988 TD2

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)					Marsden
M	346.78610		(1950.0)	P	Q
n	0.29705425	Peri.	159.67041	+0.97472617	-0.22021361
a	2.2245717	Node	213.12258	+0.19426496	+0.91863667
e	0.1731660	Incl.	3.94718	+0.11031781	+0.32804364
P	3.32	H	14.5	G 0.25	

Residuals in seconds of arc

780926	095	0.8+	1.0+	881003	046	0.6+	1.5-	881009	046	1.7+	2.8+
781002	095	0.5-	0.6-	881003	046	0.2-	1.7-	881009	046	0.3+	1.6+
781005	095	0.9-	0.0	881004	046	0.6-	1.2-				
781008	095	0.1+	0.7+	881004	046	1.3-	0.9-				

1978 SL6 = 1978 UN = 1988 TY1

Id. T. Furuta (d, JAM 1968), T. Kobayashi

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5					Kobayashi
M	33.64123		(1950.0)	P	Q
n	0.29693856	Peri.	239.86398	+0.87622147	+0.48170717
a	2.2251450	Node	91.33588	-0.43718666	+0.80673802
e	0.1547173	Incl.	0.79857	-0.20274062	+0.34224547
P	3.32	H	14.5	G 0.25	

Residuals in seconds of arc

780928	095	0.4-	0.0		881013	372	(3.5-	8.8+)	881102	399	2.2-	1.4-
781004	095	0.3-	0.2+		881018	372	0.8+	0.3+	881102	399	2.1+	0.9+
781026	675	0.1-	0.2-		881018	372	0.0	2.4+	881102	399	1.1+	0.5+
781027	675	1.5+	0.9-		881019	372	0.0	0.2+	881102	399	2.0+	1.0+
781028	688	1.0-	1.3-	Y	881022	372	0.2-	1.0-				
881013	372	(1.6-	7.8+)		881102	399	2.0-	0.4-				

1978 SD7 = 1988 TM

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5					Kobayashi
M 31.78939		(1950.0)		P	Q
n 0.29627085	Peri.	97.23460		+0.68829528	+0.72440827
a 2.2284870	Node	216.35885		-0.68854056	+0.63566410
e 0.2010018	Incl.	3.72352		-0.22838893	+0.26676547
P 3.33	H	14.0	G	0.25	

Residuals in seconds of arc

780926	095	1.2+	1.7+	881003	399	2.0+	1.1-	881018	399	2.8-	1.6-
781002	095	0.4+	0.8+	881005	399	0.1-	1.6+	881018	399	0.5+	0.8+
781008	095	1.1-	3.8-	881008	399	2.0+	0.6+	881019	399	2.2+	0.3+
881003	399	4.3-	1.2-	881013	399	0.3+	2.7+	881019	399	0.1+	1.5-
881003	399	1.2-	1.3-	881013	399	1.3+	2.6+	881019	399	0.5-	0.7-
881003	399	0.6+	0.5-	881013	399	0.4-	0.7+				

1980 FN1 = 1978 SO6 = 1988 RW1

Id. A. Lowe (k), S. Nakano

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)					Nakano
M 315.40068		(1950.0)		P	Q
n 0.29030489	Peri.	312.14784		+0.84544254	-0.53398642
a 2.2589191	Node	80.12933		+0.49269812	+0.77316030
e 0.0200589	Incl.	0.53752		+0.20609579	+0.34217196
P 3.40	H	15.0	G	0.25	

Residuals in seconds of arc

780927	095	0.0	0.0	800316	809	0.5-	0.3+	800317	809	0.4+	0.2-
800316	809	0.3-	0.2+	800317	809	0.6+	0.1-	880907	033	0.2+	0.1+
800316	809	0.1+	0.2-	800317	809	0.0	0.3-	880908	033	0.0	0.2+
800316	809	0.2-	0.1+	800317	809	0.1-	0.1+	880908	033	0.2-	0.3-

1981 EJ40 = 1988 RH

Id. S. J. Bus

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P)					Marsden
M 328.77810		(1950.0)		P	Q
n 0.21265509	Peri.	57.32632		+0.69697703	-0.70482277
a 2.7798395	Node	345.82597		+0.32852160	+0.47757679
e 0.3237063	Incl.	32.64522		+0.63741398	+0.52454292
P 4.63	H	14.0	G	0.25	

Residuals in seconds of arc

810209	413	2.4+	1.8+	810310	413	2.2-	1.0+	880914	807	1.5+	0.4-
810214	413	2.1-	0.2-	810312	413	2.0+	0.4+	880915	807	3.3-	0.3-
810302	413	3.7-	0.8-	810430	413	0.6+	1.3-	880919	675	1.5+	0.7+
810302	413	2.1+	1.2-	810502	413	0.2+	0.2-	880919	675	0.7+	1.2+
810307	413	1.9-	0.5+	880908	675	0.5+	0.1-				
810307	413	2.8+	0.1+	880909	675	1.1-	1.0-				

1981 QE2 = 1981 RS = 1988 OL
Id. E. Bowell (d, MPC 6630), S. Nakano
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano

M	11.70132	(1950.0)	P	Q	
n	0.28278691	Peri.	173.93370	+0.82609964	+0.56006279
a	2.2987798	Node	151.72216	-0.52237527	+0.80258557
e	0.2251560	Incl.	7.56415	-0.21138465	+0.20539248
P	3.49	H	14.5	G 0.25	

Residuals in seconds of arc

810830	688	1.5+	0.3-	810903	704	0.9-	1.6+	811004	688	0.1-	0.6-
810830	688	0.6+	2.0-	810905	095	0.1-	1.2+	880723	033	0.3-	0.0
810902	704	0.4+	1.7-	810926	688	0.9-	1.2-	880723	033	1.5+	0.5-
810902	704	0.4+	0.0	810926	688	0.6+	0.4-	880724	033	1.2-	0.1+
810903	704	2.2-	2.0+	811004	688	0.6+	1.3+	880724	033	0.1-	0.4+

1981 SY1 = 1988 UM
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	64.95252	(1950.0)	P	Q	
n	0.28999190	Peri.	332.51556	+0.36728239	+0.92911792
a	2.2605397	Node	318.99258	-0.84085115	+0.31194928
e	0.1522935	Incl.	3.75191	-0.39758395	+0.19856369
P	3.40	H	13.5	G 0.25	

Residuals in seconds of arc

810902	095	0.0	1.2+	811005	688	1.1+	0.4+	881019	400	1.9-	4.1+
810925	688	1.1+	0.2-	881016	400	1.6+	2.9-	881019	400	2.0+	1.0+
810925	688	2.3-	0.7-	881016	400	2.8+	4.3-	881019	400	4.2-	4.0+
811005	688	1.0+	0.2-	881016	400	0.6+	1.5-				

1981 UM11 = 1981 VT = 1988 TB
Id. T. Furuta (d, JAM 1953), T. Kobayashi
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	344.38990	(1950.0)	P	Q	
n	0.27525980	Peri.	186.30606	+0.98261771	-0.18560359
a	2.3404940	Node	184.39546	+0.17235765	+0.91954513
e	0.1535851	Incl.	2.77240	+0.06895850	+0.34639293
P	3.58	H	14.0	G 0.25	

Residuals in seconds of arc

811022	095	1.0-	2.7+	811105	688	1.1+	1.5-	881003	697	0.1+	1.5+
811024	095	1.5+	1.5+	881003	697	0.1+	1.6+	881003	697	0.6-	0.7+
811105	688	1.8-	2.0-	881003	697	0.2+	1.5+	881007	697	0.7+	6.0-

1982 AF = 1936 YF = 1962 QD = 1973 AP1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	233.69091	(1950.0)	P	Q	
n	0.21912806	Peri.	94.42710	+0.81087915	-0.56288321
a	2.7248173	Node	299.90819	+0.43634191	+0.76385538
e	0.1383666	Incl.	10.64461	+0.38997530	+0.31573320
P	4.50	H	13.0	G 0.25	

Residuals in seconds of arc

361221	020	0.4+	0.6+	730102	095	1.1+	4.6-	820116	046	1.1-	0.4+
361221	020	0.6+	2.9+	730104	095	0.6+	3.5-	820118	046	3.1+	0.0
620829	760	0.6-	0.8+	820115	046	0.5+	0.5-	820118	046	1.3-	1.2+
620829	760	0.8+	1.2-	820115	046	0.8-	1.5-				
730101	095	1.3-	3.8+	820116	046	2.1-	1.1+				

1982 FX3 = 1987 CM
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	6.48057	(1950.0)	P	Q
n	0.17460970	Peri. 227.52065	-0.51034908	+0.85975420
a	3.1702278	Node 11.83625	-0.75904420	-0.43987999
e	0.1148012	Incl. 5.35570	-0.40422237	-0.25947700
P	5.64	H 12.0	G 0.25	

Residuals in seconds of arc

820328 809	0.4+	0.2+	820330 809	0.4-	0.7-	870201 046	0.1+	0.7-
820328 809	0.0	0.4+	820331 809	0.4-	0.1+	870201 046	1.4+	0.4+
820328 809	0.1-	0.1-	820331 809	0.3-	0.0	870202 046	0.0	2.3-
820329 809	0.2-	0.4+	820331 809	0.4-	0.2+	870202 046	1.5-	0.4-
820329 809	0.3+	0.3+	820401 809	0.6+	0.1-	870203 046	0.8+	1.2+
820329 809	0.1+	0.2+	820401 809	0.5+	0.0	870203 046	0.2-	1.3+
820330 809	0.4-	0.5-	820401 809	0.4+	0.2+			
820330 809	0.2-	0.5-	870131 046	0.6-	0.5+			

1982 PR = 1988 VG
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	6.77612	(1950.0)	P	Q
n	0.17772453	Peri. 339.82924	+0.98425861	-0.17647731
a	3.1330774	Node 30.34031	+0.16462006	+0.89584820
e	0.1972788	Incl. 1.08058	+0.06430570	+0.40781340
P	5.55	H 12.0	G 0.25	

Residuals in seconds of arc

820814 095	0.3-	1.7+	881103 897	1.0-	2.2+	881107 897	0.6+	1.6+
820816 095	1.8+	0.1+	881106 399	1.5-	1.2+	881107 897	0.8-	1.1+
820823 095	2.2-	1.9-	881106 399	0.1-	0.7+	881108 399	0.8-	1.9-
820913 095	0.8+	0.1+	881106 399	0.1+	1.3+	881108 399	1.3+	2.5-
881103 897	3.6-	3.2-	881106 399	4.0+	1.8+	881108 399	2.2+	1.9-

1984 HG1 = 1988 QN
Id. S. Nakano, R. H. McNaught
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano

M	50.74889	(1950.0)	P	Q
n	0.29266813	Peri. 3.92386	+0.00854237	+0.99833035
a	2.2467425	Node 266.57200	-0.91895465	-0.01468776
e	0.1324832	Incl. 3.28081	-0.39427068	+0.05586388
P	3.37	H 15.0	G 0.25	

Residuals in seconds of arc

840423 809	0.6-	0.7+	840425 809	0.8-	0.8+	880810 413	2.0-	0.4-
840423 809	0.9+	0.4-	840425 809	0.6-	0.6+	880810 413	0.9-	0.3+
840424 809	1.0-	0.1-	840430 809	1.6+	1.0-	880819 413	1.6+	0.2+
840424 809	0.9-	0.2-	840430 809	1.5+	0.7-	880820 413	1.2+	0.2-

1984 HS1 = 1978 QS2
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	48.00072	(1950.0)	P	Q
n	0.29606676	Peri. 66.99550	+0.27811353	+0.96039605
a	2.2295110	Node 219.16486	-0.89086000	+0.25123973
e	0.1281483	Incl. 1.55119	-0.35919538	+0.12049072
P	3.33	H 14.5	G 0.25	

Residuals in seconds of arc

780831 095	0.8-	0.6-	840429 809	0.0	0.5-	840505 809	0.8+	0.3+
780905 095	0.8+	0.5+	840429 809	1.1-	0.4-	840505 809	0.4+	0.7+
840428 809	0.9+	1.5-	840502 809	0.0	1.4+			
840428 809	0.3-	0.8-	840502 809	0.7-	0.7+			

1984 UX = 1969 AF = 1988 UN
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano
M 348.26718 (1950.0) P Q
n 0.24415103 Peri. 21.89254 +0.85050188 -0.52557156
a 2.5353108 Node 9.89109 +0.46308990 +0.72975228
e 0.3181748 Incl. 6.86097 +0.24938785 +0.43730555
P 4.04 H 13.5 G 0.25
Residuals in seconds of arc

690115	095	0.2+	0.4+	841127	688	1.6+	1.2-	881109	391	0.1+	1.7+
841026	688	2.7+	2.4-	881030	897	0.5-	0.5-	881109	391	0.4-	2.1+
841026	688	(5.8+	3.4-)	881030	897	0.1+	0.6-	881109	391	2.0-	1.2-
841120	675	1.1-	1.0+	881102	897	0.1+	0.2-	881109	391	1.1-	1.2-
841120	688	1.6-	1.9-	881102	897	0.2+	0.3-	881110	391	2.5+	1.8+
841120	688	0.5+	1.5-	881108	391	(7.2-	3.1-)	881111	391	0.6-	2.7+
841121	675	1.0-	1.1+	881108	391	(6.3-	3.3-)				

1986 CQ1 = 1988 UG
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano
M 320.83373 (1950.0) P Q
n 0.27313359 Peri. 195.35416 +0.54143489 -0.83906249
a 2.3526293 Node 221.90265 +0.77946674 +0.52465200
e 0.0768466 Incl. 4.56248 +0.31508708 +0.14392504
P 3.61 H 13.0 G 0.25
Residuals in seconds of arc

860205	809	0.2-	0.5-	860211	809	0.7-	0.1+	860217	809	0.4+	0.3-
860205	809	0.1-	0.7-	860211	809	0.3-	0.1-	860217	809	0.6+	0.3-
860205	809	0.1-	0.7-	860211	809	0.3-	0.1+	860217	809	0.7+	0.2-
860206	809	0.7-	0.4-	860212	809	0.1+	0.3+	881016	400	0.3+	0.8+
860206	809	0.7-	0.2-	860212	809	0.5+	0.3+	881016	400	0.2+	0.4-
860206	809	0.5-	0.2-	860212	809	0.6+	0.1+	881016	400	1.9-	1.1-
860207	809	0.3-	0.2+	860213	809	0.3-	0.2-	881016	400	1.9-	1.4+
860207	809	0.4-	0.3+	860213	809	0.0	0.1-	881016	400	0.6-	2.3-
860207	809	0.1+	0.2+	860213	809	0.1-	0.1-	881016	400	0.2-	2.1+
860208	809	0.4-	0.4-	860214	809	1.2+	0.2+	881018	400	0.8+	0.8+
860208	809	0.1-	0.4-	860214	809	1.3+	0.2+	881018	400	0.3+	0.5-
860208	809	0.0	0.2-	860214	809	1.2+	0.2+	881019	400	2.5+	1.9-
860209	809	0.4-	0.1+	860215	809	0.0	0.1+	881019	400	(5.4+	0.9-)
860209	809	0.3-	0.1+	860215	809	0.1+	0.2+	881102	400	(3.7+	3.6+)
860209	809	0.0	0.1-	860215	809	0.3+	0.2+	881102	400	0.6+	0.6+
860210	809	0.1+	0.8+	860216	809	0.7-	0.2-	881102	400	0.1-	0.5+
860210	809	0.2+	0.8+	860216	809	0.6-	0.2-				
860210	809	0.3+	0.9+	860216	809	0.7-	0.0				

1986 EL1 = 1969 OS = 1979 VX2 = 1979 YS1
Id. K. Hurukawa (k, MPC 10755), N. S. Chernykh (d, idem.), H. Oishi
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Oishi
M 31.66302 (1950.0) P Q
n 0.21795146 Peri. 307.94867 +0.99575703 +0.06718704
a 2.7346204 Node 48.29257 -0.03200643 +0.89352116
e 0.1179244 Incl. 4.83155 -0.08627585 +0.44396603
P 4.52 H 12.0 G 0.25
Residuals in seconds of arc

690717	095	0.0	0.1-	860305	688	0.6+	1.9-	860409	688	2.1-	0.9-
791114	095	1.5+	0.2-	860403	054	0.3+	0.1+	860409	688	0.7+	0.6-
791223	095	1.7-	0.2+	860404	054	1.2-	2.6+	860410	054	0.6+	2.5+
860305	688	1.3+	2.7-	860405	054	0.0	0.6+				

1986 GD = 1988 UR
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano

M	244.95689	(1950.0)	P	Q
n	0.25586581	Peri. 113.68430	-0.92376572	-0.37225998
a	2.4573221	Node 44.60382	+0.28783405	-0.82973283
e	0.1934109	Incl. 7.35435	+0.25260335	-0.41589175
P	3.85	H 14.0	G 0.25	

Residuals in seconds of arc

860402	054	1.6+	0.6-	881018	372	2.1-	0.1+	881022	372	0.2-	0.2+
860404	054	0.6+	0.8+	881018	372	0.0	0.8-	881102	372	1.8-	3.0-
860405	054	1.0+	0.3-	881018	372	0.1+	0.6+	881102	372	0.5+	0.1+
860408	054	3.0-	1.3-	881018	372	(5.3+	10.5-)	881103	372	3.9-	0.2-
860410	054	0.2-	1.3+	881022	372	3.1+	2.0+	881103	372	4.3+	1.0+

1988 FB = 1988 FV2 = 1977 HS
Id. A. Lowe (k), S. Nakano (d)
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano

M	77.67356	(1950.0)	P	Q
n	0.26481322	Peri. 89.40690	-0.69085829	-0.72228769
a	2.4016542	Node 44.34879	+0.64384245	-0.63468031
e	0.1504696	Incl. 2.61266	+0.32890992	-0.27473878
P	3.72	H 13.0	G 0.25	

Residuals in seconds of arc

770424	675	0.5+	0.3-	880317	399	1.8+	1.2+	880324	399	0.9+	2.8-
770425	675	0.5-	0.3+	880317	399	0.5+	1.0+	880324	399	1.3+	3.0+
880316	399	2.9-	1.1-	880317	399	2.0+	0.7+				
880316	399	0.8-	1.4-	880324	399	2.8-	0.5-				

1988 NF = 1975 XG2 = 1978 NW3
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Nakano

M	359.99416	(1950.0)	P	Q
n	0.30244447	Peri. 93.99656	+0.90901499	+0.20328933
a	2.1980570	Node 254.56469	-0.31373875	+0.90842203
e	0.3624510	Incl. 22.17481	+0.27433508	+0.36529832
P	3.26	H 12.0	G 0.25	

Residuals in seconds of arc

751202	095	0.1-	0.6+	880724	675	1.8+	2.8+	880915	801	0.4+	0.9-
780707	095	0.0	0.2+	880724	675	0.3+	1.0+	880915	801	0.1+	1.1-
880712	675	(2.6-	5.2+)	880809	801	0.7+	0.4+	881006	801	1.4-	0.6-
880712	675	(3.2-	3.4+)	880820	675	0.6+	1.7+	881007	568	1.4+	1.8+
880713	675	(0.5-	3.7-)	880820	675	1.4-	0.8-	881010	054	0.7+	0.4-
880713	675	0.4-	1.9-	880903	568	1.4-	0.2+	881010	054	0.3-	0.0
880719	675	0.6-	1.3-	880904	568	0.1+	0.1-	881011	657	0.8-	2.1-
880720	675	0.0	1.2-	880908	657	0.6-	0.0	881012	801	0.4+	0.8-
880720	675	0.2+	2.3+	880908	657	0.3-	0.2-	881102	871	1.4+	1.8+
880720	675	1.6-	1.2-	880912	657	0.8-	1.6-	881102	871	0.4+	1.0+
880720	675	0.3+	0.8+	880912	657	0.7+	0.1-				

1988 PH1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Nakano

M	352.99496	(1950.0)	P	Q
n	0.17206764	Peri. 25.84747	+0.95477255	+0.20333093
a	3.2013752	Node 320.40847	-0.29542764	+0.73127587
e	0.2173728	Incl. 19.90186	+0.03364357	+0.65106999
P	5.73	H 11.5	G 0.25	

From 12 observations 1988 Aug. 11-Nov. 9, mean residual 0".8.

1988 QP = 1984 YY3
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano
M 214.15811 (1950.0) P Q
n 0.18108230 Peri. 190.56597 -0.58608813 -0.79918064
a 3.0942323 Node 295.44261 +0.75371755 -0.47730600
e 0.0904143 Incl. 8.49895 +0.29733913 -0.36536185
P 5.44 H 12.5 G 0.25
Residuals in seconds of arc

841227	095	0.6-	2.3-	880810	413	0.7+	0.1+	880819	413	0.1-	0.6-
841229	095	0.6+	2.4+	880811	413	2.1-	0.8+	880820	413	1.1-	1.8-
880810	413	1.2+	0.3+	880811	413	1.5+	1.2+				

1988 RE
Epoch 1988 Sept. 16.0 ET = JDE 2447420.5 Marsden
M 36.72580 (1950.0) P Q
n 0.40053226 Peri. 105.57535 +0.54011682 +0.81445426
a 1.8226826 Node 201.63207 -0.80167866 +0.57456249
e 0.2524862 Incl. 35.10253 +0.25609596 +0.08088391
P 2.46 H 15.0 G 0.25
From 13 observations 1988 Sept. 11-Oct. 6.

1988 SH = 1979 SZ10 = 1979 VF1 = 1981 EC
Id. S. Nakano, N. S. Chernykh (d)
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano
M 326.35833 (1950.0) P Q
n 0.21427827 Peri. 52.88397 +0.73404983 -0.67864312
a 2.7657834 Node 349.77195 +0.57031281 +0.63586778
e 0.1801144 Incl. 8.02407 +0.36866537 +0.36758086
P 4.60 H 13.0 G 0.25
Residuals in seconds of arc

790929	095	0.1-	0.0	880917	511	0.8-	1.3-	880918	511	2.5+	0.5-
791114	095	0.1-	0.3+	880917	511	1.4-	1.3+	880918	511	2.0+	0.6+
810311	801	1.4-	0.5+	880917	511	0.5-	1.1+	881009	046	0.4+	0.2-
810312	801	1.1+	1.1-	880918	511	2.1-	1.5-	881009	046	0.3+	0.2-

1988 TA
Epoch 1988 Oct. 6.0 ET = JDE 2447440.5 Nakano
M 28.13630 (1950.0) P Q
n 0.52046428 Peri. 104.43420 +0.48563424 +0.87409132
a 1.5306484 Node 194.63539 -0.81799879 +0.44990852
e 0.4741089 Incl. 2.52340 -0.30828129 +0.18315755
P 1.89 H 21.0 G 0.25
From 17 observations 1988 Oct. 5-16.

1988 TP = 1969 TJ = 1971 DH1 = 1984 SF2
Id. B. G. Marsden, H. Oishi
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Marsden
M 352.10336 (1950.0) P Q
n 0.26109994 Peri. 162.72587 +0.93007303 -0.36484138
a 2.4243709 Node 218.75913 +0.32839364 +0.87820656
e 0.1539768 Incl. 3.94478 +0.16468692 +0.30926366
P 3.77 H 13.5 G 0.25

Residuals in seconds of arc

691007	095	1.6+	4.2+	840928	688	0.5+	1.1-	881029	881	0.5-	0.1+
691016	095	3.1-	0.4-	881010	881	0.8-	0.1-	881029	881	0.0	0.5-
710218	095	0.3+	1.7-	881010	881	0.3+	0.3+	881102	888	1.3+	1.3-
710223	095	0.3-	2.0+	881014	881	0.5-	0.1+	881102	888	0.8+	1.6-
840925	688	0.1-	0.8-	881014	881	0.9-	0.1+	881107	881	0.5+	0.1-
840925	688	0.5+	0.4-	881019	881	0.2+	0.2+	881107	881	0.1+	0.5+
840928	688	0.0	0.1-	881019	881	0.1-	0.8+				

1988 TQ = 1962 XT1 = 1975 XR2

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	353.21493	(1950.0)	P	Q	
n	0.22477978	Peri.	276.78670	+0.94986359	-0.30803171
a	2.6789497	Node	101.16439	+0.30409049	+0.87023744
e	0.2015890	Incl.	3.13331	+0.07271957	+0.38445189
P	4.38	H	13.5	G 0.25	

Residuals in seconds of arc

621203	033	1.0-	0.4+	881013	400	1.4+	0.6-	881018	400	0.2-	0.3-
621204	033	1.0+	0.0	881014	400	0.2+	0.3+	881101	400	0.8-	0.2-
751202	095	0.1+	0.7-	881014	400	0.5-	1.2+	881101	400	0.6+	0.1-
881013	400	1.3+	0.2-	881014	400	0.6-	0.8-	881102	400	1.0+	0.1+
881013	400	2.8-	1.3-	881018	400	0.1+	1.1+	881102	400	1.6-	0.5+

1988 TF1 = 1970 ST = 1979 WT4

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

M	25.49568	(1950.0)	P	Q	
n	0.22059807	Peri.	90.84542	+0.97360889	+0.21373583
a	2.7127042	Node	256.81606	-0.22803237	+0.89671814
e	0.0578739	Incl.	4.71406	-0.00932558	+0.38757396
P	4.47	H	12.0	G 0.25	

Residuals in seconds of arc

700927	095	2.0+	0.0	881016	400	0.5+	0.6+	881031	391	2.0-	0.4-
701001	095	1.9-	0.0	881018	391	0.4+	0.6+	881031	391	(3.8-	0.0)
791117	095	0.3+	1.0-	881018	391	1.8+	0.2+	881102	391	0.4+	2.5-
881013	391	2.9+	1.4-	881018	391	3.2+	0.2-	881105	391	2.5-	0.0
881013	391	0.4-	1.2+	881018	391	(4.6+	2.3+)	881106	391	2.0-	1.3+
881015	391	1.4+	0.5+	881018	391	(5.7+	2.7+)	881106	391	2.3-	0.6-
881015	391	1.0-	1.0+	881018	391	(6.7+	3.0+)	881108	391	0.1-	0.4+
881016	400	0.4-	1.0+	881019	391	0.8-	0.4-	881108	391	0.9+	0.4-
881016	400	0.9+	0.5+	881019	391	1.2-	0.5-				

1988 TG1 = 1941 WP = 1962 VH = 1962 WF1 = 1985 DH1

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

M	318.94648	(1950.0)	P	Q	
n	0.18766655	Peri.	157.75512	+0.46170459	-0.87320419
a	3.0214286	Node	264.44642	+0.78836256	+0.48457207
e	0.0795146	Incl.	9.01884	+0.40658744	+0.05200334
P	5.25	H	11.0	G 0.25	

Residuals in seconds of arc

411116	062	0.4+	1.8+	850225	688	0.0	0.4-	881016	897	0.1+	0.4+
411116	062	0.8-	0.4+	850318	688	0.3+	0.5-	881016	897	0.6+	0.4+
621101	760	0.3+	0.6+	850318	688	0.2-	0.4-	881016	897	1.2-	0.6-
621127	760(53.3+	46.8+)X		881014	897	0.4+	0.1-	881102	897	0.1+	0.9-
850225	688	0.9-	0.3-	881014	897	0.2+	2.0-	881102	897	0.6+	0.3-

1988 TJ1
Epoch 1988 Oct. 6.0 ET = JDE 2447440.5 Marsden
M 334.80081 (1950.0) P Q
n 0.61493657 Peri. 192.70808 +0.67916726 -0.71758271
a 1.3695645 Node 214.87649 +0.69479595 +0.69631032
e 0.1682086 Incl. 15.65452 +0.23662295 +0.01506654
P 1.60 H 18.5 G 0.25
From 7 observations 1988 Oct. 12-Nov. 8.

1988 TK1 = 1972 GR = 1977 RN2 = 1981 UK14 = 1981 WG5 = 1985 YJ
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano
M 227.49090 (1950.0) P Q
n 0.27486454 Peri. 215.35449 -0.86074449 -0.50751045
a 2.3427419 Node 294.10123 +0.47638355 -0.77584033
e 0.1203943 Incl. 2.47358 +0.17938126 -0.37483987
P 3.59 H 13.0 G 0.25
Residuals in seconds of arc
720409 095 1.8+ 0.9+ 851218 688 3.2- 0.2- 881016 399 0.7+ 2.5-
770909 095 3.3- 0.5- 851218 688 0.8+ 0.5+ 881016 399 0.8+ 0.4-
811023 095 0.1+ 3.1+ 881013 399 0.0 0.6+ 881016 399 0.7- 1.4-
811124 095 0.7+ 0.3- 881013 399 0.0 1.2+ 881018 399 1.1+ 3.4+
851217 688 0.0 0.7- 881013 399 0.5- 1.5- 881018 399 1.8+ 0.4+

1988 TO1 = 1983 XV
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Oishi
M 332.92858 (1950.0) P Q
n 0.18545753 Peri. 312.05200 +0.57266897 -0.81865105
a 3.0453737 Node 102.96186 +0.76457528 +0.51437702
e 0.2520021 Incl. 2.53696 +0.29576156 +0.25539526
P 5.31 H 13.5 G 0.25
Residuals in seconds of arc
831204 046 (2.8+ 4.0+) 881009 888 1.0+ 1.2+ 881102 888 0.7+ 0.5-
831204 046 1.4- 0.8+ 881009 888 1.1+ 1.4+ 881102 888 1.1+ 1.2-
831205 046 0.9+ 0.6- 881013 888 0.9- 0.6- 881107 888 0.4- 0.8+
831205 046 0.9- 0.5- 881013 888 1.1- 0.8- 881107 888 0.1- 0.1+
831208 046 1.3+ 0.4+ 881015 888 1.0- 0.6-
831208 046 (4.0- 0.7+) 881015 888 0.3- 0.1+

1988 TH2 = 1949 UE = 1949 UM1 = 1969 EM = 1970 PG = 1970 RW
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano
M 67.65245 (1950.0) P Q
n 0.27850468 Peri. 63.47337 +0.22389102 +0.97340979
a 2.3222836 Node 219.56135 -0.91903906 +0.19432056
e 0.1042628 Incl. 4.36163 -0.32440719 +0.12129672
P 3.54 H 12.0 G 0.25
Residuals in seconds of arc
491022 024 2.1- 4.7+ 700901 095 1.6+ 0.2- 881011 046 2.4- 1.0-
491025 024 0.1- 1.7+ 881004 046 3.5+ 0.5- 881014 046 0.3+ 1.3-
690312 095 1.3- 3.7- 881004 046 2.6+ 2.5- 881014 046 0.5- 1.2-
700803 095 1.0- 2.5- 881011 046 0.9- 0.7-

1988 TV2
Epoch 1988 Oct. 6.0 ET = JDE 2447440.5 Marsden
M 340.34070 (1950.0) P Q
n 0.17455866 Peri. 204.67603 -0.09824734 -0.98951891
a 3.1708457 Node 251.10495 +0.93057318 -0.05366260
e 0.5696408 Incl. 6.42235 +0.35267693 -0.13406213
P 5.65 H 15.0 G 0.25
From 3 observations 1988 Oct. 7-11.

1988 UB = 1978 VM2 = 1986 AF2
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano

M	311.75235	(1950.0)	P	Q
n	0.29166927	Peri. 108.23294	+0.36554900	-0.93067841
a	2.2518690	Node 320.31600	+0.84510288	+0.33840603
e	0.1717705	Incl. 1.30542	+0.39009621	+0.13899303
P	3.38	H 14.0	G 0.25	

Residuals in seconds of arc

781030	010	0.8- 0.9-	881016	399	2.7- 0.6-	881019	399	2.2+ 1.6+
781101	010	1.2- 0.6+	881016	399	0.5+ 0.2-	881031	399	1.6- 0.6+
781101	010	2.1+ 0.4-	881016	399	0.3+ 0.9+	881031	399	0.3+ 1.8+
860112	688	0.6- 0.7-	881016	399	0.5+ 1.4-	881031	399	0.4+ 1.6-
860112	688	0.6+ 0.9+	881019	399	0.2- 0.5-			

1988 UP = 1982 RX1
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 (J-P) Nakano

M	32.67207	(1950.0)	P	Q
n	0.17565563	Peri. 250.34546	+0.92999367	+0.36515567
a	3.1576369	Node 88.21900	-0.31947167	+0.85962370
e	0.1634212	Incl. 2.41451	-0.18179558	+0.35736317
P	5.61	H 11.5	G 0.25	

Residuals in seconds of arc

820915	046	(8.3- 5.2-)	820917	046	1.6- 0.4+	881102	400	0.2- 1.1+
820915	046	(6.0- 2.4-)	820917	046	0.3- 0.4-	881102	400	2.3- 0.5+
820915	046	0.3+ 2.7+	881016	400	0.4+ 0.4+	881108	400	2.1+ 0.8-
820915	046	2.7- 1.4-	881016	400	1.5+ 1.6-	881108	400	0.0 0.2-
820916	046	1.8+ 0.6-	881016	400	1.4- 0.7+			
820916	046	2.5+ 0.6-	881102	400	(3.6- 0.7+)			

1988 VB = 1974 VL = 1979 YS9
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	2.75314	(1950.0)	P	Q
n	0.21110372	Peri. 330.52010	+0.96600073	-0.23517788
a	2.7934364	Node 43.51486	+0.25703944	+0.82893588
e	0.2324716	Incl. 8.97341	+0.02780843	+0.50750041
P	4.67	H 12.5	G 0.25	

Residuals in seconds of arc

741112	095	1.1+ 2.0-	881102	372	0.3- 0.1+	881105	894	0.3- 0.9+
741117	095	0.7- 1.0+	881102	399	0.1- 0.3+	881105	894	1.0- 2.6+
791225	095	0.0 0.1+	881102	399	0.2+ 0.1-	881106	372	0.7- 0.1+
881031	897	0.8- 0.6-	881102	399	1.6- 0.9+	881108	399	0.3- 0.4-
881031	897	0.1+ 0.6+	881103	897	1.1+ 0.1+	881108	399	1.8+ 0.2-
881101	372	0.3+ 1.3-	881103	897	0.4+ 0.4+	881108	399	0.5+ 1.1-
881101	372	1.0- 1.9-	881103	372	(0.7- 48.4+)			
881102	372	1.4- 1.8-	881105	372	0.4- 0.6+			

1988 VJ = 1950 QS = 1974 SF2 = 1977 KV1 = 1981 UW13
Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	41.01022	(1950.0)	P	Q
n	0.28727739	Peri. 93.86116	+0.77104790	+0.63403891
a	2.2747574	Node 226.80203	-0.61161156	+0.71160550
e	0.1894687	Incl. 4.64143	-0.17724684	+0.30267518
P	3.43	H 13.5	G 0.25	

Residuals in seconds of arc

500821	760	0.7+	0.7+	881102	399	0.5+	0.9-	881108	875	1.0+	0.1-
500821	760	1.6-	1.9+	881102	399	0.0	1.0-	881108	399	1.4-	0.7+
740920	095	0.2-	1.2-	881102	399	0.6-	1.1-	881108	399	0.9-	2.1+
740922	095	0.5+	1.5-	881103	875	(5.3-	4.2+)	881108	399	(4.2-	1.6-)
770518	675	0.6+	0.0	881103	875	(6.6-	3.2+)	881110	875	1.2+	0.8+
770519	675	0.5-	0.1+	881106	875	1.1-	0.2+	881110	875	0.8+	1.6+
811023	095	1.5+	0.3-	881106	875	0.0	0.7-	881110	875	0.6-	0.3-

4517 P-L = 1981 TZ2 = 1981 UH21 = 1988 TW

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	21.88744		(1950.0)	P	Q
n	0.28236055	Peri.	322.50963	+0.88068407	+0.47331017
a	2.3010888	Node	9.30075	-0.40049967	+0.76574163
e	0.1761594	Incl.	6.86371	-0.25297348	+0.43545063
P	3.49	H	13.5	G 0.25	

Residuals in seconds of arc

600924	675	0.2-	0.9-	811027	095	1.8-	1.0+	881016	399	0.2-	0.4-
600926	675	0.1-	0.8-	880908	033	0.6-	1.0+	881016	399	0.6+	1.3+
600927	675	0.1+	0.7+	880908	033	0.2-	0.0	881016	399	0.8+	0.3+
600928	675	0.3+	0.2-	880909	033	0.5-	0.3-	881016	399	0.8-	0.4+
601017	675	0.6-	0.9-	880910	033	0.3-	0.2-	881016	399	0.5-	0.2+
601022	675	0.6-	0.4+	880911	033	0.4-	0.5+	881019	399	0.5-	2.2-
601024	675	0.2+	0.9+	881013	399	0.3+	0.2-	881019	399	1.9-	2.3-
601026	675	0.6+	0.2+	881013	399	1.7+	0.2-				
811006	095	3.5+	0.5+	881013	399	0.6+	1.3+				

2416 T-3 = 1988 UD

Id. T. Kobayashi

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

M	264.36543		(1950.0)	P	Q
n	0.26876530	Peri.	208.10556	-0.51987006	-0.85387942
a	2.3780525	Node	273.22787	+0.78833519	-0.46828061
e	0.1592896	Incl.	1.43488	+0.32903305	-0.22716338
P	3.67	H	13.0	G 0.25	

Residuals in seconds of arc

771016	675	0.1+	0.4-	771021	675	1.2+	0.2+	881019	399	0.1+	0.4+
771016	675	0.7+	0.9-	771022	675	0.9-	0.8-	881019	399	1.2-	1.1-
771017	675	0.2-	1.1+	771022	675	0.4-	0.3-	881019	399	1.5+	0.2+
771017	675	1.0-	0.6+	881016	399	0.1+	0.1-				
771021	675	0.3+	0.9+	881016	399	0.3-	0.1+				

3107 T-3 = 1972 VZ = 1985 FN2 = 1988 VU

Epoch 1988 Aug. 27.0 ET = JDE 2447400.5 Kobayashi

M	311.73923		(1950.0)	P	Q
n	0.18151041	Peri.	56.12231	+0.03012206	-0.99926754
a	3.0893588	Node	32.17647	+0.90175866	+0.01698151
e	0.1705584	Incl.	2.54019	+0.43118902	+0.03429302
P	5.43	H	12.0	G 0.25	

Residuals in seconds of arc

721109	095	0.2-	1.7+	771017	675	0.4-	0.9-	881102	399	1.3+	0.4-
771007	675	2.6+	0.4-	771021	675	0.2-	0.8+	881106	399	1.1-	2.7+
771011	675	0.4-	0.1-	771021	675	1.4+	0.5-	881106	399	2.9-	2.6+
771011	675	0.0	0.5+	771022	675	1.3+	1.3-	881106	399	2.6+	1.6-
771012	675	0.7-	0.6-	771022	675	0.5+	1.9-	881106	399	(6.7+	4.6-)
771012	675	0.0	0.4-	850324	046	0.7+	3.9-	881108	399	0.1-	0.2-
771016	675	0.0	1.0-	850325	046	3.7-	2.7-	881108	399	0.1-	2.2-
771016	675	0.1+	1.0-	881102	399	0.4-	1.4+	881108	399	1.0+	1.1-
771017	675	0.0	0.7-	881102	399	0.1-	0.5-				

EPHEMERIDES.

1988 TJ1 a,e,i = 1.37, 0.17, 16 Elements MPC 13861

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	01 15.01	-12 24.1	0.196	1.139	136.5	36.7	16.6
1988	11 20	01 27.29	-16 35.7					
1988	11 25	01 39.52	-19 44.7	0.232	1.141	126.8	43.9	17.1
1988	11 30	01 51.59	-22 00.2					
1988	12 05	02 03.47	-23 30.9	0.273	1.146	119.8	48.3	17.6
1988	12 10	02 15.18	-24 24.5					
1988	12 15	02 26.75	-24 47.8	0.319	1.155	114.9	50.6	18.0
1988	12 20	02 38.23	-24 46.4					
1988	12 25	02 49.61	-24 25.1	0.365	1.167	111.4	51.7	18.4
1988	12 30	03 00.93	-23 47.2					
1989	01 04	03 12.22	-22 55.4	0.413	1.183	108.8	51.9	18.7
1989	01 09	03 23.54	-21 51.9					
1989	01 14	03 34.95	-20 39.0	0.461	1.201	106.8	51.7	18.9
1989	01 19	03 46.46	-19 18.6					
1989	01 24	03 58.09	-17 52.5	0.510	1.221	105.1	51.1	19.2
1989	02 03	04 21.74	-14 48.0	0.561	1.243	103.5	50.5	19.4
1989	02 13	04 46.08	-11 35.2					
1989	02 23	05 11.16	-08 24.0	0.671	1.291	100.3	49.0	19.8
1989	03 05	05 36.89	-05 21.9					
1989	03 15	06 03.26	-02 35.1	0.796	1.340	96.3	47.5	20.2
1989	03 25	06 30.12	-00 09.0					
1989	04 04	06 57.29	+01 53.4	0.938	1.390	91.6	46.0	20.6

1988 TV2 a,e,i = 3.17, 0.57, 6 Elements MPC 13861

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	01 52.63	+19 24.1	0.611	1.576	159.4	12.7	15.6
1988	11 25	01 49.67	+17 24.4					
1988	12 05	01 51.17	+15 33.4	0.591	1.482	138.7	26.1	15.8
1988	12 15	01 57.97	+14 05.8					
1988	12 25	02 10.22	+13 09.2	0.618	1.411	122.0	36.2	16.0
1989	01 04	02 27.47	+12 43.5					
1989	01 14	02 49.16	+12 45.0	0.673	1.372	110.4	42.2	16.3

(3908) 1980 PA a,e,i = 1.93, 0.46, 2 Elements MPC 13678

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	06 13.68	+31 16.1	0.127	1.087	138.7	36.9	14.7
1988	11 20	06 16.74	+29 08.8					
1988	11 25	06 17.08	+27 23.1	0.157	1.124	148.4	27.4	15.0
1988	11 30	06 15.50	+25 55.2					
1988	12 05	06 12.64	+24 42.2	0.193	1.168	159.6	17.1	15.3
1988	12 10	06 09.08	+23 42.0					
1988	12 15	06 05.35	+22 52.7	0.238	1.220	171.4	6.9	15.5
1988	12 20	06 01.89	+22 12.9					
1988	12 25	05 58.98	+21 41.4	0.293	1.276	176.4	2.8	15.8
1988	12 30	05 56.79	+21 17.0					
1989	01 04	05 55.45	+20 58.6	0.360	1.335	165.7	10.5	16.7
1989	01 09	05 55.05	+20 45.5					
1989	01 14	05 55.61	+20 36.5	0.441	1.397	155.6	16.9	17.4
1989	01 19	05 57.11	+20 30.8					
1989	01 24	05 59.49	+20 27.5	0.536	1.461	146.3	21.9	18.1
1989	01 29	06 02.67	+20 26.0					
1989	02 03	06 06.58	+20 25.6	0.643	1.524	137.9	25.7	18.7
1989	02 08	06 11.15	+20 25.8					
1989	02 13	06 16.34	+20 26.0	0.762	1.588	130.0	28.4	19.2

1989 02 18	06 22.05	+20 25.9					
1989 02 23	06 28.22	+20 25.1	0.891	1.652	122.8	30.2	19.7
1989 02 28	06 34.79	+20 23.2					
1989 03 05	06 41.70	+20 20.2	1.030	1.714	115.9	31.4	20.1
1989 03 10	06 48.92	+20 15.7					
1989 03 15	06 56.41	+20 09.7	1.177	1.775	109.4	31.9	20.5

Comet Liller (1988a) Elements MPC 13459

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	m1
1988 12 05	14 27.38 -14 58.7	4.471	3.685	33.2	8.4	15.4
1988 12 15	14 33.33 -16 14.9					
1988 12 25	14 38.35 -17 26.2	4.459	3.905	50.3	11.2	15.7
1989 01 04	14 42.28 -18 33.0					
1989 01 14	14 44.95 -19 35.2	4.377	4.120	68.5	12.8	15.9
1989 01 24	14 46.19 -20 32.7					
1989 02 03	14 45.86 -21 25.1	4.250	4.330	88.1	13.1	16.0
1989 02 13	14 43.82 -22 11.9					
1989 02 23	14 39.99 -22 52.1	4.118	4.537	109.0	11.9	16.1
1989 03 05	14 34.39 -23 24.7					
1989 03 15	14 27.14 -23 48.5	4.027	4.740	131.1	9.1	16.3
1989 03 25	14 18.52 -24 02.5					
1989 04 04	14 08.93 -24 06.3	4.026	4.940	153.4	5.2	16.5
1989 04 14	13 58.86 -24 00.4					
1989 04 24	13 48.88 -23 46.1	4.148	5.137	168.3	2.3	16.7
1989 05 04	13 39.50 -23 25.8					
1989 05 14	13 31.13 -23 02.1	4.404	5.331	154.0	4.8	17.0
1989 05 24	13 24.07 -22 37.9					
1989 06 03	13 18.48 -22 15.5	4.776	5.521	133.3	7.7	17.3

Periodic Comet Longmore (1987c1) Elements MPC 11519

Date ET	R. A. (1950) Decl.	Delta	r	Elong.	Phase	m2
1988 12 25	15 51.41 -31 32.7	3.231	2.455	32.2	12.3	18.9
1989 01 04	16 12.19 -33 28.0					
1989 01 14	16 33.16 -35 16.3	3.110	2.483	43.0	15.7	18.9
1989 01 24	16 54.18 -36 57.7					
1989 02 03	17 15.12 -38 32.7	2.962	2.517	54.2	18.5	18.9
1989 02 13	17 35.78 -40 02.1					
1989 02 23	17 55.95 -41 26.9	2.794	2.556	65.9	20.7	18.8
1989 03 05	18 15.40 -42 48.5					
1989 03 15	18 33.86 -44 08.8	2.614	2.599	78.2	22.0	18.7
1989 03 25	18 51.03 -45 29.3					
1989 04 04	19 06.59 -46 52.0	2.431	2.647	91.1	22.2	18.7
1989 04 14	19 20.16 -48 18.6					
1989 04 24	19 31.31 -49 49.9	2.260	2.699	104.9	21.1	18.6
1989 05 04	19 39.58 -51 26.2					
1989 05 14	19 44.44 -53 05.8	2.117	2.754	119.1	18.7	18.5
1989 05 24	19 45.43 -54 45.3					
1989 06 03	19 42.21 -56 19.0	2.024	2.811	132.6	15.4	18.5
1989 06 13	19 34.76 -57 38.8					
1989 06 23	19 23.75 -58 36.3	2.000	2.871	142.1	12.6	18.6
1989 07 03	19 10.48 -59 04.4					
1989 07 13	18 56.85 -58 59.8	2.060	2.933	142.6	12.2	18.7
1989 07 23	18 44.82 -58 24.3					
1989 08 02	18 35.80 -57 23.8	2.203	2.996	133.8	14.2	19.0
1989 08 12	18 30.53 -56 05.4					
1989 08 22	18 29.08 -54 36.7	2.418	3.060	120.6	16.5	19.3
1989 09 01	18 31.11 -53 02.9					
1989 09 11	18 36.16 -51 28.0	2.687	3.124	106.4	18.0	19.6
1989 09 21	18 43.69 -49 54.0					

1989 10 01	18 53.22	-48 21.8	2.989	3.190	92.3	18.3	19.9
1989 10 11	19 04.34	-46 51.6					
1989 10 21	19 16.66	-45 23.2	3.304	3.255	78.5	17.4	20.2
1989 10 31	19 29.91	-43 56.1					
1989 11 10	19 43.83	-42 29.8	3.614	3.320	65.1	15.7	20.5

Periodic Comet Shoemaker-Holt (1987z) Elements MPC 13460

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1989 01 14	07 28.29	+15 45.4	2.337	3.317	173.6	1.9	19.1
1989 01 24	07 21.47	+16 01.5					
1989 02 03	07 15.64	+16 19.0	2.445	3.359	154.0	7.4	19.2
1989 02 13	07 11.39	+16 36.4					
1989 02 23	07 09.07	+16 52.6	2.655	3.403	132.5	12.4	19.4
1989 03 05	07 08.80	+17 06.4					
1989 03 15	07 10.58	+17 17.3	2.937	3.449	113.0	15.4	19.7
1989 03 25	07 14.26	+17 24.4					
1989 04 04	07 19.64	+17 27.3	3.258	3.496	95.4	16.5	20.0
1989 04 14	07 26.50	+17 25.5					
1989 04 24	07 34.61	+17 18.7	3.590	3.545	79.4	16.2	20.3
1989 05 04	07 43.77	+17 06.7					
1989 05 14	07 53.77	+16 49.4	3.911	3.596	64.6	14.7	20.5

Periodic Comet Van Biesbroeck Elements MPC 13042

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1989 01 14	10 48.46	+08 15.7	5.027	5.742	132.9	7.2	21.0
1989 01 24	10 45.65	+08 38.8					
1989 02 03	10 41.85	+09 07.7	4.756	5.665	155.1	4.2	20.8
1989 02 13	10 37.26	+09 41.1					
1989 02 23	10 32.16	+10 16.9	4.599	5.587	177.7	0.4	20.6
1989 03 05	10 26.88	+10 53.2					
1989 03 15	10 21.75	+11 27.7	4.567	5.508	159.2	3.7	20.6
1989 03 25	10 17.14	+11 58.3					
1989 04 04	10 13.31	+12 23.7	4.652	5.428	137.1	7.2	20.7
1989 04 14	10 10.50	+12 42.8					
1989 04 24	10 08.84	+12 54.9	4.823	5.346	116.3	9.7	20.8
1989 05 04	10 08.40	+13 00.0					
1989 05 14	10 09.19	+12 58.0	5.043	5.263	97.0	11.0	20.9
1989 05 24	10 11.15	+12 49.4					
1989 06 03	10 14.21	+12 34.4	5.274	5.178	79.1	11.1	21.0

Comet Furuyama (1987f1) Elements MPC 13459

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1989 01 14	17 55.15	-42 20.9	4.908	4.090	30.4	7.0	16.1
1989 01 24	18 01.56	-41 59.2					
1989 02 03	18 06.88	-41 42.1	4.909	4.274	45.3	9.4	16.3
1989 02 13	18 10.96	-41 29.1					
1989 02 23	18 13.59	-41 20.0	4.824	4.457	62.6	11.4	16.4
1989 03 05	18 14.63	-41 14.2					
1989 03 15	18 13.87	-41 10.9	4.679	4.638	81.5	12.2	16.5
1989 03 25	18 11.16	-41 08.9					
1989 04 04	18 06.37	-41 06.7	4.513	4.818	101.8	11.7	16.6
1989 04 14	17 59.45	-41 02.0					
1989 04 24	17 50.49	-40 52.2	4.373	4.996	123.3	9.7	16.7
1989 05 04	17 39.73	-40 34.7					
1989 05 14	17 27.58	-40 07.2	4.310	5.173	145.2	6.4	16.8
1989 05 24	17 14.63	-39 28.1					
1989 06 03	17 01.55	-38 37.6	4.369	5.348	163.0	3.2	17.0
1989 06 13	16 49.02	-37 37.2					
1989 06 23	16 37.63	-36 29.8	4.570	5.521	157.2	4.1	17.2

1989 07 03	16 27.76	-35 19.0						
1989 07 13	16 19.68	-34 08.2	4.904	5.693	137.4	6.9	17.5	

1988 PH1 a,e,i = 3.20, 0.22, 20 Elements MPC 13858

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1988 11 15	21 56.52	+02 02.7	2.155	2.513	-0.89	-12.4	16.1
1988 11 25	22 05.00	+02 55.0					
1988 12 05	22 15.12	+03 55.6	2.414	2.523	-0.81	-11.0	16.4
1988 12 15	22 26.60	+05 04.4					
1988 12 25	22 39.21	+06 21.1	2.672	2.537	-0.75	-9.9	16.6
1989 01 04	22 52.76	+07 45.1					
1989 01 14	23 07.08	+09 15.7	2.913	2.555	-0.71	-8.9	16.7

1978 RX1 a,e,i = 2.24, 0.21, 4 Elements MPC 13853

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	23 32.25	-09 11.2	1.110	1.796	117.5	29.2	17.6
1988 11 25	23 42.27	-07 51.6					
1988 12 05	23 54.44	-06 16.5	1.312	1.817	103.6	31.8	18.1
1988 12 15	00 08.38	-04 29.2					
1988 12 25	00 23.73	-02 33.1	1.534	1.844	91.6	32.2	18.5
1989 01 04	00 40.20	-00 30.9					
1989 01 14	00 57.61	+01 35.1	1.767	1.877	80.6	31.1	18.8

1981 UM11 a,e,i = 2.34, 0.15, 3 Elements MPC 13855

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	23 41.91	-03 11.1	1.271	1.984	122.3	24.9	17.0
1988 11 25	23 48.40	-02 40.3					
1988 12 05	23 57.40	-01 50.8	1.479	1.992	106.1	28.4	17.5
1988 12 15	00 08.54	-00 45.5					
1988 12 25	00 21.44	+00 32.6	1.708	2.004	92.3	29.4	17.8
1989 01 04	00 35.78	+02 00.7					
1989 01 14	00 51.34	+03 36.2	1.944	2.020	80.0	28.7	18.1
1989 01 24	01 07.91	+05 16.7					
1989 02 03	01 25.32	+06 59.9	2.179	2.040	68.7	26.8	18.3

1973 SG4 a,e,i = 2.42, 0.23, 10 Elements MPC 13852

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	00 12.48	-03 44.0	1.094	1.880	128.9	24.2	15.6
1988 11 25	00 17.74	-03 57.7					
1988 12 05	00 25.95	-03 42.1	1.257	1.864	111.8	29.4	16.0
1988 12 15	00 36.76	-03 01.5					
1988 12 25	00 49.77	-02 00.5	1.446	1.855	97.7	31.7	16.3
1989 01 04	01 04.59	-00 43.6					
1989 01 14	01 20.95	+00 45.2	1.646	1.854	85.7	31.9	16.6
1989 01 24	01 38.59	+02 22.2					
1989 02 03	01 57.30	+04 03.9	1.849	1.861	75.2	30.8	16.9

2416 T-3 a,e,i = 2.38, 0.16, 1 Elements MPC 13863

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	00 46.73	+07 14.3	1.478	2.333	141.2	15.4	16.4
1988 11 25	00 44.05	+06 47.1					
1988 12 05	00 44.41	+06 38.7	1.637	2.297	120.3	21.7	16.8
1988 12 15	00 47.72	+06 49.2					
1988 12 25	00 53.72	+07 17.0	1.838	2.261	102.3	25.1	17.1
1989 01 04	01 02.09	+07 59.7					
1989 01 14	01 12.53	+08 55.1	2.052	2.226	86.9	26.2	17.3
1989 01 24	01 24.78	+10 00.6					
1989 02 03	01 38.58	+11 13.6	2.261	2.192	73.3	25.5	17.5

1975 VN2 a,e,i = 2.64, 0.15, 14 Elements MPC 13852

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	01 52.64	+14 30.8	1.342	2.292	158.8	9.0	15.0
1988 11 25	01 44.38	+14 55.7					
1988 12 05	01 39.15	+15 26.9	1.463	2.276	135.8	17.6	15.4
1988 12 15	01 37.30	+16 06.8					
1988 12 25	01 38.81	+16 56.3	1.652	2.263	116.0	23.0	15.8
1989 01 04	01 43.41	+17 55.0					
1989 01 14	01 50.78	+19 02.0	1.876	2.253	99.1	25.5	16.2
1989 01 24	02 00.57	+20 15.7					
1989 02 03	02 12.46	+21 34.3	2.113	2.246	84.6	25.9	16.4

1977 RL a,e,i = 2.32, 0.29, 25 Elements MPC 13853

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	02 56.79	+18 48.9	0.811	1.798	174.6	3.0	14.1
1988 11 25	02 38.43	+21 45.1					
1988 12 05	02 22.38	+24 29.6	0.836	1.749	147.5	17.6	14.6
1988 12 15	02 10.92	+26 59.4					
1988 12 25	02 05.16	+29 17.5	0.943	1.708	124.9	28.2	15.1
1989 01 04	02 05.20	+31 28.3					
1989 01 14	02 10.68	+33 35.4	1.092	1.677	107.7	34.0	15.6
1989 01 24	02 21.08	+35 40.3					
1989 02 03	02 35.87	+37 42.4	1.254	1.658	94.7	36.3	15.9
1989 02 13	02 54.68	+39 39.6					
1989 02 23	03 17.18	+41 28.5	1.415	1.650	84.7	36.7	16.2
1989 03 05	03 43.06	+43 04.9					
1989 03 15	04 12.04	+44 23.8	1.572	1.655	76.7	35.8	16.4

1971 QR1 a,e,i = 2.60, 0.31, 5 Elements MPC 13852

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	03 26.59	+17 16.8	1.111	2.099	178.0	0.9	16.0
1988 11 25	03 17.38	+16 14.1					
1988 12 05	03 10.04	+15 22.2	1.223	2.163	156.7	10.4	16.7
1988 12 15	03 05.47	+14 46.2					
1988 12 25	03 04.04	+14 28.1	1.425	2.230	134.7	18.3	17.3
1989 01 04	03 05.68	+14 26.7					
1989 01 14	03 10.13	+14 39.8	1.691	2.298	115.9	22.7	17.9
1989 01 24	03 17.03	+15 04.2					
1989 02 03	03 25.97	+15 36.6	1.994	2.366	99.5	24.3	18.4
1989 02 13	03 36.64	+16 14.2					
1989 02 23	03 48.73	+16 54.3	2.313	2.434	84.9	23.9	18.7
1989 03 05	04 02.00	+17 34.6					
1989 03 15	04 16.23	+18 13.4	2.631	2.502	71.6	22.2	19.0

1986 EL1 a,e,i = 2.73, 0.12, 5 Elements MPC 13857

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988 11 15	03 46.93	+21 05.6	1.563	2.548	173.0	2.7	15.3
1988 11 25	03 36.91	+20 53.6					
1988 12 05	03 27.66	+20 39.8	1.614	2.570	162.1	6.8	15.5
1988 12 15	03 20.27	+20 28.1					
1988 12 25	03 15.49	+20 22.1	1.769	2.593	139.0	14.4	16.0
1989 01 04	03 13.62	+20 24.0					
1989 01 14	03 14.65	+20 34.8	2.000	2.616	118.5	19.3	16.5
1989 01 24	03 18.40	+20 53.9					
1989 02 03	03 24.56	+21 20.2	2.275	2.640	100.6	21.5	16.8
1989 02 13	03 32.85	+21 52.0					
1989 02 23	03 42.94	+22 27.4	2.565	2.665	84.8	21.7	17.1
1989 03 05	03 54.58	+23 04.6					
1989 03 15	04 07.55	+23 42.0	2.851	2.689	70.6	20.4	17.3

1967 CC a,e,i = 3.21, 0.13, 2 Elements MPC 13852

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	11 15	05 18.36	+24 09.6	2.111	3.019	151.8	8.9	16.5
1988	11 25	05 11.14	+24 09.1					
1988	12 05	05 02.55	+24 04.8	2.012	2.995	175.4	1.5	16.1
1988	12 15	04 53.51	+23 57.0					
1988	12 25	04 45.08	+23 47.1	2.029	2.972	160.0	6.5	16.3
1989	01 04	04 38.18	+23 37.0					
1989	01 14	04 33.47	+23 29.2	2.153	2.949	137.0	13.2	16.7
1989	01 24	04 31.35	+23 25.3					
1989	02 03	04 31.88	+23 26.1	2.355	2.928	116.3	17.6	17.0
1989	02 13	04 34.99	+23 31.7					
1989	02 23	04 40.48	+23 41.4	2.599	2.908	98.0	19.7	17.3
1989	03 05	04 48.07	+23 53.9					
1989	03 15	04 57.53	+24 07.8	2.855	2.888	81.9	19.9	17.5
1989	03 25	05 08.60	+24 21.7					
1989	04 04	05 21.04	+24 34.0	3.100	2.870	67.5	18.8	17.6
1989	04 14	05 34.66	+24 43.6					
1989	04 24	05 49.26	+24 49.2	3.321	2.854	54.3	16.6	17.7

1929 VS a,e,i = 2.37, 0.23, 4 Elements MPC 13851

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1988	12 05	10 20.71	+15 04.9	1.978	2.372	101.0	24.1	19.3
1988	12 15	10 25.84	+14 53.5					
1988	12 25	10 28.18	+14 57.8	1.783	2.423	119.5	20.7	19.1
1989	01 04	10 27.50	+15 18.7					
1989	01 14	10 23.68	+15 55.1	1.629	2.473	141.0	14.5	18.7
1989	01 24	10 16.93	+16 43.4					
1989	02 03	10 07.80	+17 37.8	1.556	2.521	164.8	5.9	18.4
1989	02 13	09 57.29	+18 30.9					
1989	02 23	09 46.69	+19 15.4	1.592	2.567	167.4	4.8	18.4
1989	03 05	09 37.24	+19 46.2					
1989	03 15	09 29.95	+20 01.4	1.738	2.611	144.3	12.8	18.9
1989	03 25	09 25.38	+20 01.0					
1989	04 04	09 23.66	+19 46.8	1.967	2.652	123.3	18.4	19.4
1989	04 14	09 24.69	+19 20.7					
1989	04 24	09 28.16	+18 44.6	2.246	2.690	105.2	21.2	19.8
1989	05 04	09 33.71	+17 59.8					
1989	05 14	09 41.00	+17 07.4	2.546	2.726	89.2	21.8	20.1

1982 UY6 a,e,i = 2.63, 0.25, 7 Elements MPC 11515

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 39.54	+01 13.8	2.832	3.223	104.6	17.2	19.2
1989	01 24	12 41.65	+01 07.5					
1989	02 03	12 41.73	+01 13.4	2.541	3.202	124.3	14.7	18.9
1989	02 13	12 39.64	+01 31.6					
1989	02 23	12 35.37	+02 01.0	2.308	3.178	146.1	10.0	18.5
1989	03 05	12 29.11	+02 39.6					
1989	03 15	12 21.28	+03 23.6	2.169	3.151	169.0	3.5	18.1
1989	03 25	12 12.56	+04 08.2					
1989	04 04	12 03.74	+04 48.6	2.146	3.122	164.5	4.9	18.1
1989	04 14	11 55.65	+05 19.9					
1989	04 24	11 49.00	+05 39.1	2.236	3.090	141.8	11.6	18.4
1989	05 04	11 44.25	+05 44.6					
1989	05 14	11 41.66	+05 36.0	2.411	3.056	120.9	16.5	18.7
1989	05 24	11 41.25	+05 14.1					
1989	06 03	11 42.92	+04 40.2	2.634	3.019	102.4	19.2	19.0
1989	06 13	11 46.51	+03 55.3					
1989	06 23	11 51.80	+03 01.0	2.873	2.979	86.0	19.9	19.1

1986 QP1 a,e,i = 2.83, 0.07, 3 Elements MPC 12134

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 36.09	-00 43.2	2.502	2.911	104.7	19.1	18.2
1989	01 24	12 39.29	-00 56.3					
1989	02 03	12 40.33	-00 55.8	2.256	2.922	123.9	16.3	17.9
1989	02 13	12 39.05	-00 41.3					
1989	02 23	12 35.48	-00 13.6	2.064	2.933	145.4	11.0	17.5
1989	03 05	12 29.86	+00 25.0					
1989	03 15	12 22.66	+01 10.9	1.963	2.944	168.6	3.8	17.1
1989	03 25	12 14.64	+01 58.9					
1989	04 04	12 06.63	+02 43.6	1.973	2.954	166.4	4.6	17.2
1989	04 14	11 59.48	+03 19.9					
1989	04 24	11 53.87	+03 44.1	2.092	2.964	143.8	11.6	17.6
1989	05 04	11 50.23	+03 54.4					
1989	05 14	11 48.75	+03 50.5	2.296	2.973	123.2	16.5	17.9
1989	05 24	11 49.41	+03 33.0					
1989	06 03	11 52.06	+03 03.2	2.551	2.981	105.1	19.2	18.3
1989	06 13	11 56.53	+02 22.4					
1989	06 23	12 02.59	+01 32.3	2.828	2.988	89.0	19.9	18.5

1986 QX3 a,e,i = 2.48, 0.16, 4 Elements MPC 12207

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 32.20	+00 09.8	2.126	2.576	105.9	21.5	18.6
1989	01 24	12 37.10	-00 00.1					
1989	02 03	12 39.72	+00 06.2	1.853	2.544	124.4	18.6	18.2
1989	02 13	12 39.80	+00 29.8					
1989	02 23	12 37.19	+01 10.2	1.632	2.511	145.4	12.9	17.7
1989	03 05	12 32.00	+02 05.4					
1989	03 15	12 24.65	+03 10.6	1.495	2.477	168.2	4.7	17.2
1989	03 25	12 15.96	+04 18.5					
1989	04 04	12 07.02	+05 20.9	1.464	2.443	164.8	6.2	17.2
1989	04 14	11 58.97	+06 10.4					
1989	04 24	11 52.80	+06 41.4	1.534	2.409	142.1	14.9	17.6
1989	05 04	11 49.10	+06 52.1					
1989	05 14	11 48.17	+06 42.4	1.680	2.374	121.8	21.2	17.9
1989	05 24	11 49.96	+06 13.8					
1989	06 03	11 54.28	+05 28.8	1.869	2.340	104.6	24.8	18.2
1989	06 13	12 00.86	+04 29.6					
1989	06 23	12 09.40	+03 18.3	2.074	2.307	89.9	26.1	18.4

1977 RY6 a,e,i = 2.77, 0.17, 9 Elements MPC 12568

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 43.13	-02 20.1	2.873	3.231	102.4	17.3	19.1
1989	01 24	12 45.19	-02 44.8					
1989	02 03	12 45.22	-02 58.3	2.602	3.235	122.0	15.0	18.9
1989	02 13	12 43.10	-03 00.3					
1989	02 23	12 38.86	-02 50.9	2.385	3.237	143.7	10.4	18.5
1989	03 05	12 32.69	-02 31.4					
1989	03 15	12 25.03	-02 03.8	2.259	3.236	167.3	3.9	18.1
1989	03 25	12 16.52	-01 31.8					
1989	04 04	12 07.94	-00 59.5	2.248	3.234	168.6	3.5	18.1
1989	04 14	12 00.06	-00 31.0					
1989	04 24	11 53.56	-00 10.1	2.352	3.231	145.3	10.2	18.5
1989	05 04	11 48.85	+00 00.9					
1989	05 14	11 46.18	+00 00.8	2.547	3.225	124.2	15.0	18.8
1989	05 24	11 45.58	-00 10.7					
1989	06 03	11 46.95	-00 33.2	2.796	3.217	105.4	17.7	19.1
1989	06 13	11 50.13	-01 05.9					
1989	06 23	11 54.91	-01 47.9	3.068	3.208	88.6	18.5	19.3

1971 SX1 a,e,i = 2.94, 0.03, 2 Elements MPC 11637

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 35.70	-03 48.3	2.647	3.033	103.6	18.4	17.4
1989	01 24	12 38.97	-04 03.8					
1989	02 03	12 40.21	-04 05.7	2.385	3.034	122.7	15.9	17.1
1989	02 13	12 39.27	-03 53.1					
1989	02 23	12 36.17	-03 26.4	2.177	3.035	144.1	11.0	16.7
1989	03 05	12 31.12	-02 46.8					
1989	03 15	12 24.53	-01 57.2	2.057	3.036	167.4	4.1	16.3
1989	03 25	12 17.09	-01 02.3					
1989	04 04	12 09.56	-00 07.5	2.049	3.036	168.6	3.7	16.3
1989	04 14	12 02.76	+00 41.9					
1989	04 24	11 57.37	+01 21.0	2.152	3.036	145.6	10.8	16.7
1989	05 04	11 53.79	+01 47.4					
1989	05 14	11 52.28	+01 59.5	2.342	3.035	124.8	15.9	17.0
1989	05 24	11 52.85	+01 57.4					
1989	06 03	11 55.39	+01 42.1	2.587	3.034	106.4	18.7	17.3
1989	06 13	11 59.74	+01 14.6					
1989	06 23	12 05.68	+00 36.6	2.855	3.032	90.1	19.6	17.6

1986 YA a,e,i = 3.10, 0.18, 17 Elements MPC 11633

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 39.97	-23 08.2	3.436	3.648	94.6	15.6	16.7
1989	01 24	12 42.17	-24 07.5					
1989	02 03	12 42.57	-24 56.9	3.152	3.643	112.4	14.5	16.5
1989	02 13	12 41.04	-25 33.8					
1989	02 23	12 37.61	-25 55.6	2.908	3.637	131.3	11.8	16.3
1989	03 05	12 32.45	-26 00.0					
1989	03 15	12 25.91	-25 45.2	2.738	3.630	149.5	8.0	16.0
1989	03 25	12 18.55	-25 11.2					
1989	04 04	12 11.03	-24 19.9	2.669	3.620	158.8	5.7	15.8
1989	04 14	12 04.04	-23 15.2					
1989	04 24	11 58.20	-22 02.6	2.713	3.609	148.6	8.4	16.0
1989	05 04	11 53.94	-20 48.0					
1989	05 14	11 51.51	-19 36.9	2.855	3.597	130.7	12.3	16.2
1989	05 24	11 51.01	-18 33.5					
1989	06 03	11 52.37	-17 40.6	3.069	3.583	112.6	15.2	16.4
1989	06 13	11 55.48	-16 59.9					
1989	06 23	12 00.17	-16 31.8	3.322	3.568	95.6	16.5	16.6

1987 UG a,e,i = 2.42, 0.21, 2 Elements MPC 12943

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 43.62	-06 05.0	2.390	2.750	100.9	20.6	19.0
1989	01 24	12 47.04	-06 27.6					
1989	02 03	12 48.16	-06 35.4	2.155	2.781	119.9	17.9	18.7
1989	02 13	12 46.80	-06 27.0					
1989	02 23	12 42.95	-06 02.1	1.967	2.810	141.6	12.6	18.4
1989	03 05	12 36.85	-05 21.5					
1989	03 15	12 28.96	-04 27.9	1.862	2.836	165.4	5.1	18.0
1989	03 25	12 20.10	-03 26.3					
1989	04 04	12 11.19	-02 22.8	1.869	2.859	169.8	3.6	17.9
1989	04 14	12 03.16	-01 23.9					
1989	04 24	11 56.77	-00 35.1	1.988	2.879	146.2	11.2	18.4
1989	05 04	11 52.47	+00 00.1					
1989	05 14	11 50.46	+00 20.3	2.196	2.897	125.0	16.6	18.8
1989	05 24	11 50.72	+00 25.2					
1989	06 03	11 53.08	+00 16.0	2.457	2.911	106.5	19.5	19.1
1989	06 13	11 57.33	-00 06.1					
1989	06 23	12 03.23	-00 39.5	2.740	2.923	90.0	20.3	19.4

(3803) 1981 TP1 a,e,i = 3.05, 0.05, 13 Elements MPC 12966

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 34.67	-19 02.5	2.612	2.908	97.5	19.6	16.7
1989	01 24	12 38.91	-20 09.2					
1989	02 03	12 41.10	-21 03.5	2.354	2.909	114.8	17.9	16.4
1989	02 13	12 41.04	-21 42.6					
1989	02 23	12 38.69	-22 03.2	2.137	2.910	133.7	14.2	16.1
1989	03 05	12 34.22	-22 02.8					
1989	03 15	12 28.00	-21 39.4	1.991	2.912	152.9	8.9	15.7
1989	03 25	12 20.75	-20 53.7					
1989	04 04	12 13.28	-19 48.9	1.943	2.914	163.0	5.8	15.6
1989	04 14	12 06.51	-18 31.0					
1989	04 24	12 01.20	-17 07.9	2.002	2.917	150.0	9.9	15.8
1989	05 04	11 57.83	-15 46.9					
1989	05 14	11 56.68	-14 34.4	2.156	2.921	131.0	15.1	16.1
1989	05 24	11 57.77	-13 34.6					
1989	06 03	12 00.98	-12 49.6	2.375	2.925	113.0	18.6	16.4
1989	06 13	12 06.12	-12 20.0					
1989	06 23	12 12.95	-12 05.2	2.631	2.930	96.7	20.2	16.7

1987 WQ1 a,e,i = 3.22, 0.13, 3 Elements MPC 13052

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 40.56	-00 52.5	2.688	3.072	103.6	18.1	18.4
1989	01 24	12 43.83	-01 00.2					
1989	02 03	12 45.07	-00 54.7	2.450	3.097	122.8	15.5	18.1
1989	02 13	12 44.16	-00 35.9					
1989	02 23	12 41.14	-00 04.8	2.267	3.123	144.1	10.7	17.8
1989	03 05	12 36.24	+00 36.3					
1989	03 15	12 29.87	+01 23.9	2.173	3.149	166.8	4.1	17.5
1989	03 25	12 22.70	+02 13.1					
1989	04 04	12 15.46	+02 58.9	2.190	3.175	167.9	3.8	17.5
1989	04 14	12 08.88	+03 36.7					
1989	04 24	12 03.61	+04 03.0	2.319	3.201	145.8	10.2	17.9
1989	05 04	12 00.02	+04 16.3					
1989	05 14	11 58.33	+04 15.9	2.537	3.227	125.2	14.8	18.3
1989	05 24	11 58.58	+04 02.6					
1989	06 03	12 00.65	+03 37.5	2.811	3.252	106.8	17.4	18.6
1989	06 13	12 04.41	+03 02.0					
1989	06 23	12 09.65	+02 17.5	3.110	3.278	90.3	18.1	18.9

1981 UJ4 a,e,i = 2.14, 0.06, 2 Elements MPC 13604

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 36.85	-01 59.0	1.533	2.012	104.0	28.3	17.0
1989	01 24	12 44.87	-02 50.9					
1989	02 03	12 50.17	-03 26.4	1.326	2.016	120.7	24.9	16.6
1989	02 13	12 52.30	-03 43.2					
1989	02 23	12 50.98	-03 40.5	1.158	2.022	140.6	18.1	16.2
1989	03 05	12 46.19	-03 18.7					
1989	03 15	12 38.38	-02 40.5	1.056	2.030	163.9	7.8	15.6
1989	03 25	12 28.63	-01 52.4					
1989	04 04	12 18.42	-01 03.0	1.046	2.040	170.9	4.4	15.5
1989	04 14	12 09.34	-00 21.5					
1989	04 24	12 02.67	+00 04.8	1.131	2.050	147.3	15.4	16.1
1989	05 04	11 59.10	+00 12.4					
1989	05 14	11 58.83	+00 00.3	1.289	2.062	127.1	23.0	16.6
1989	05 24	12 01.70	-00 30.3					
1989	06 03	12 07.31	-01 16.9	1.492	2.075	110.3	27.3	17.0
1989	06 13	12 15.30	-02 17.4					
1989	06 23	12 25.28	-03 29.1	1.718	2.089	96.2	28.9	17.4

1986 JG a,e,i = 2.18, 0.13, 1 Elements MPC 10944

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 37.94	-04 50.1	1.827	2.256	102.6	25.2	17.6
1989	01 24	12 44.77	-05 40.9					
1989	02 03	12 49.24	-06 17.5	1.566	2.227	119.8	22.6	17.2
1989	02 13	12 50.95	-06 37.3					
1989	02 23	12 49.60	-06 38.6	1.346	2.197	139.8	16.9	16.6
1989	03 05	12 45.10	-06 20.1					
1989	03 15	12 37.73	-05 42.6	1.195	2.166	162.9	7.8	16.1
1989	03 25	12 28.33	-04 50.2					
1989	04 04	12 18.15	-03 49.9	1.140	2.135	171.8	3.8	15.7
1989	04 14	12 08.68	-02 51.2					
1989	04 24	12 01.26	-02 03.0	1.183	2.104	147.8	14.8	16.2
1989	05 04	11 56.75	-01 31.5					
1989	05 14	11 55.54	-01 20.0	1.303	2.073	126.9	23.0	16.6
1989	05 24	11 57.61	-01 29.0					
1989	06 03	12 02.67	-01 57.1	1.467	2.044	109.5	27.9	17.0
1989	06 13	12 10.39	-02 42.3					
1989	06 23	12 20.39	-03 42.3	1.651	2.016	95.2	30.1	17.3

1978 JT1 a,e,i = 3.20, 0.17, 2 Elements MPC 11144

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 42.98	-03 02.8	2.845	3.201	102.2	17.5	18.1
1989	01 24	12 46.54	-03 23.0					
1989	02 03	12 48.23	-03 31.5	2.544	3.168	121.1	15.5	17.8
1989	02 13	12 47.88	-03 27.4					
1989	02 23	12 45.46	-03 10.8	2.294	3.134	142.1	11.2	17.4
1989	03 05	12 41.05	-02 42.6					
1989	03 15	12 34.97	-02 04.8	2.129	3.101	164.9	4.8	17.0
1989	03 25	12 27.80	-01 21.3					
1989	04 04	12 20.25	-00 36.6	2.075	3.067	171.1	2.9	16.8
1989	04 14	12 13.11	+00 04.2					
1989	04 24	12 07.12	+00 36.5	2.133	3.034	148.1	10.1	17.1
1989	05 04	12 02.82	+00 57.3					
1989	05 14	12 00.52	+01 04.8	2.281	3.001	127.0	15.6	17.4
1989	05 24	12 00.36	+00 58.5					
1989	06 03	12 02.27	+00 39.1	2.487	2.968	108.4	18.9	17.7
1989	06 13	12 06.12	+00 07.3					
1989	06 23	12 11.74	-00 35.4	2.720	2.936	92.0	20.2	17.9

4343 T-3 a,e,i = 2.79, 0.24, 10 Elements MPC 12703

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 20.42	-06 06.1	1.710	2.197	106.1	25.5	16.9
1989	01 24	12 28.89	-06 24.6					
1989	02 03	12 35.14	-06 21.2	1.473	2.173	123.0	22.4	16.5
1989	02 13	12 38.83	-05 52.7					
1989	02 23	12 39.78	-04 57.5	1.283	2.155	142.7	16.1	16.0
1989	03 05	12 37.99	-03 36.2					
1989	03 15	12 33.83	-01 53.3	1.166	2.143	165.2	6.8	15.4
1989	03 25	12 28.12	+00 01.9					
1989	04 04	12 21.96	+01 57.3	1.144	2.136	169.8	4.8	15.3
1989	04 14	12 16.57	+03 40.0					
1989	04 24	12 12.98	+05 00.0	1.219	2.136	147.3	14.8	15.8
1989	05 04	12 11.82	+05 52.4					
1989	05 14	12 13.36	+06 16.3	1.369	2.141	127.6	22.0	16.3
1989	05 24	12 17.54	+06 13.9					
1989	06 03	12 24.10	+05 48.7	1.568	2.153	111.2	26.1	16.7
1989	06 13	12 32.76	+05 04.2					
1989	06 23	12 43.20	+04 04.4	1.793	2.170	97.3	27.7	17.0

1985 XA a,e,i = 1.90, 0.05, 25 Elements MPC 10609

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	01 14	12 44.13	+34 34.5	1.192	1.820	0.50	+19.6	15.8
1989	01 24	12 56.73	+37 11.8					
1989	02 03	13 05.38	+40 04.5	1.089	1.827	1.44	+24.8	15.6
1989	02 13	13 09.18	+43 01.8					
1989	02 23	13 07.44	+45 47.3	1.035	1.835	2.08	+26.7	15.4
1989	03 05	13 00.00	+48 01.8					
1989	03 15	12 47.72	+49 25.3	1.034	1.844	1.55	+23.0	15.4
1989	03 25	12 32.81	+49 43.5					
1989	04 04	12 18.11	+48 52.6	1.087	1.854	0.14	+16.2	15.6
1989	04 14	12 06.14	+46 58.7					
1989	04 24	11 58.38	+44 14.8	1.186	1.865	-5.37	+11.6	15.8
1989	05 04	11 55.04	+40 55.8					
1989	05 14	11 55.78	+37 13.9	1.323	1.877	-3.92	+10.3	16.2
1989	05 24	11 59.91	+33 19.3					
1989	06 03	12 06.74	+29 18.8	1.488	1.889	-0.54	+10.5	16.5
1989	06 13	12 15.72	+25 17.0					
1989	06 23	12 26.38	+21 17.3	1.671	1.902	-0.53	+11.0	16.7

4081 P-L a,e,i = 2.24, 0.15, 7 Elements MPC 5980

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 46.99	-09 06.5	2.212	2.556	98.9	22.3	19.6
1989	01 24	12 52.19	-09 34.9					
1989	02 03	12 55.12	-09 47.3	1.956	2.560	117.1	20.1	19.3
1989	02 13	12 55.50	-09 41.3					
1989	02 23	12 53.18	-09 15.4	1.740	2.562	137.9	15.0	18.9
1989	03 05	12 48.24	-08 28.8					
1989	03 15	12 41.02	-07 23.0	1.598	2.560	161.3	7.1	18.4
1989	03 25	12 32.31	-06 02.7					
1989	04 04	12 23.09	-04 35.0	1.561	2.557	173.2	2.7	18.2
1989	04 14	12 14.48	-03 08.8					
1989	04 24	12 07.49	-01 52.4	1.634	2.550	149.2	11.6	18.6
1989	05 04	12 02.73	-00 51.9					
1989	05 14	12 00.56	-00 10.3	1.796	2.542	127.6	18.4	19.0
1989	05 24	12 00.98	+00 11.5					
1989	06 03	12 03.84	+00 14.8	2.012	2.530	108.9	22.3	19.4
1989	06 13	12 08.90	+00 01.3					
1989	06 23	12 15.87	-00 26.9	2.252	2.516	92.9	23.8	19.6

(3866) 1988 BH4 a,e,i = 3.13, 0.20, 4 Elements MPC 13446

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 50.79	-08 18.5	3.466	3.738	98.3	15.1	17.9
1989	01 24	12 53.20	-08 37.2					
1989	02 03	12 53.94	-08 45.2	3.164	3.727	117.8	13.5	17.6
1989	02 13	12 52.89	-08 41.6					
1989	02 23	12 50.08	-08 26.0	2.911	3.714	138.9	10.1	17.3
1989	03 05	12 45.62	-07 58.6					
1989	03 15	12 39.80	-07 20.6	2.743	3.700	161.6	4.9	17.0
1989	03 25	12 33.09	-06 34.6					
1989	04 04	12 26.06	-05 44.0	2.688	3.684	174.0	1.6	16.8
1989	04 14	12 19.31	-04 53.0					
1989	04 24	12 13.43	-04 05.8	2.752	3.666	151.4	7.6	17.1
1989	05 04	12 08.85	-03 25.7					
1989	05 14	12 05.87	-02 55.5	2.916	3.647	129.8	12.3	17.4
1989	05 24	12 04.63	-02 36.4					
1989	06 03	12 05.12	-02 28.8	3.148	3.627	110.3	15.2	17.6
1989	06 13	12 07.27	-02 32.5					
1989	06 23	12 10.96	-02 46.8	3.411	3.604	92.7	16.4	17.8

1981 XH2 a,e,i = 3.04, 0.25, 8 Elements MPC 11344

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 01 14	12 52.95	-14 04.5	3.518	3.743	95.6	15.2	18.3
1989 01 24	12 55.19	-14 35.0					
1989 02 03	12 55.72	-14 55.0	3.238	3.758	114.7	13.8	18.1
1989 02 13	12 54.45	-15 03.1					
1989 02 23	12 51.39	-14 58.3	3.001	3.771	135.5	10.6	17.9
1989 03 05	12 46.70	-14 40.0					
1989 03 15	12 40.68	-14 08.2	2.846	3.782	157.2	5.9	17.6
1989 03 25	12 33.81	-13 24.8					
1989 04 04	12 26.65	-12 32.5	2.800	3.791	170.8	2.4	17.4
1989 04 14	12 19.82	-11 35.5					
1989 04 24	12 13.89	-10 38.3	2.874	3.798	153.0	6.9	17.6
1989 05 04	12 09.26	-09 45.0					
1989 05 14	12 06.22	-08 59.1	3.052	3.802	131.9	11.4	17.9
1989 05 24	12 04.87	-08 23.0					
1989 06 03	12 05.21	-07 57.7	3.302	3.805	112.4	14.3	18.2
1989 06 13	12 07.17	-07 43.6					
1989 06 23	12 10.60	-07 40.5	3.588	3.806	94.5	15.4	18.4

1983 CO3 a,e,i = 3.09, 0.16, 14 Elements MPC 11242

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 01 14	12 45.74	-21 20.8	2.387	2.646	94.1	21.8	17.4
1989 01 24	12 51.44	-23 03.3					
1989 02 03	12 54.97	-24 35.6	2.157	2.663	110.2	20.3	17.2
1989 02 13	12 56.06	-25 54.4					
1989 02 23	12 54.56	-26 56.0	1.960	2.682	127.8	16.9	16.9
1989 03 05	12 50.53	-27 36.5					
1989 03 15	12 44.29	-27 52.0	1.824	2.704	145.7	12.0	16.6
1989 03 25	12 36.54	-27 40.5					
1989 04 04	12 28.23	-27 02.9	1.775	2.727	157.7	8.0	16.4
1989 04 14	12 20.42	-26 03.8					
1989 04 24	12 14.07	-24 50.8	1.827	2.752	151.3	10.1	16.6
1989 05 04	12 09.83	-23 32.6					
1989 05 14	12 08.03	-22 17.3	1.972	2.778	134.8	15.0	16.9
1989 05 24	12 08.74	-21 11.0					
1989 06 03	12 11.78	-20 17.5	2.187	2.806	117.7	18.7	17.3
1989 06 13	12 16.95	-19 38.6					
1989 06 23	12 23.97	-19 14.5	2.446	2.835	101.9	20.5	17.6

(3719) Karamzin a,e,i = 2.40, 0.21, 3 Elements MPC 12580

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 01 14	12 56.59	-09 04.2	2.364	2.664	96.7	21.5	18.3
1989 01 24	13 01.06	-09 46.3					
1989 02 03	13 03.25	-10 15.0	2.129	2.698	115.0	19.3	18.1
1989 02 13	13 02.92	-10 28.5					
1989 02 23	12 59.99	-10 25.7	1.932	2.730	135.9	14.6	17.7
1989 03 05	12 54.56	-10 06.0					
1989 03 15	12 47.02	-09 30.1	1.808	2.759	158.9	7.4	17.4
1989 03 25	12 38.11	-08 41.1					
1989 04 04	12 28.75	-07 44.0	1.789	2.786	174.2	2.1	17.1
1989 04 14	12 19.96	-06 45.1					
1989 04 24	12 12.62	-05 51.2	1.884	2.810	151.7	9.8	17.6
1989 05 04	12 07.33	-05 07.2					
1989 05 14	12 04.37	-04 36.5	2.073	2.831	130.1	15.8	18.0
1989 05 24	12 03.80	-04 20.4					
1989 06 03	12 05.47	-04 18.8	2.323	2.850	111.1	19.4	18.4
1989 06 13	12 09.18	-04 30.8					
1989 06 23	12 14.67	-04 55.0	2.603	2.866	94.3	20.7	18.7

1983 NT a,e,i = 2.24, 0.10, 5 Elements MPC 10841

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 41.72	-06 47.0	1.603	2.034	101.0	28.3	16.7
1989	01 24	12 50.28	-08 18.0					
1989	02 03	12 56.34	-09 37.3	1.384	2.030	116.9	25.7	16.3
1989	02 13	12 59.44	-10 42.2					
1989	02 23	12 59.22	-11 30.3	1.199	2.027	135.5	20.0	15.8
1989	03 05	12 55.55	-11 58.7					
1989	03 15	12 48.65	-12 05.4	1.075	2.028	157.1	11.0	15.3
1989	03 25	12 39.42	-11 51.0					
1989	04 04	12 29.20	-11 19.2	1.036	2.031	172.1	3.9	14.9
1989	04 14	12 19.63	-10 37.6					
1989	04 24	12 12.18	-09 56.0	1.092	2.038	152.4	13.2	15.4
1989	05 04	12 07.75	-09 22.5					
1989	05 14	12 06.72	-09 03.0	1.227	2.046	132.1	21.5	15.9
1989	05 24	12 09.01	-09 00.1					
1989	06 03	12 14.29	-09 13.9	1.413	2.057	114.9	26.6	16.4
1989	06 13	12 22.17	-09 43.5					
1989	06 23	12 32.24	-10 26.8	1.629	2.071	100.5	28.9	16.8

(3769) 1967 UV a,e,i = 2.26, 0.11, 5 Elements MPC 12798

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 54.06	+00 05.2	1.756	2.168	100.8	26.5	17.7
1989	01 24	13 01.44	-00 24.4					
1989	02 03	13 06.18	-00 37.5	1.551	2.194	117.9	23.4	17.3
1989	02 13	13 07.92	-00 33.1					
1989	02 23	13 06.44	-00 11.7	1.383	2.220	138.0	17.3	16.9
1989	03 05	13 01.73	+00 24.6					
1989	03 15	12 54.19	+01 11.5	1.283	2.246	160.8	8.4	16.5
1989	03 25	12 44.71	+02 01.9					
1989	04 04	12 34.53	+02 47.9	1.279	2.272	170.9	4.0	16.3
1989	04 14	12 25.02	+03 21.9					
1989	04 24	12 17.38	+03 38.7	1.377	2.298	148.9	13.1	16.9
1989	05 04	12 12.32	+03 36.7					
1989	05 14	12 10.14	+03 16.0	1.557	2.323	128.3	20.0	17.4
1989	05 24	12 10.80	+02 38.7					
1989	06 03	12 14.04	+01 47.2	1.789	2.347	110.6	23.9	17.8
1989	06 13	12 19.55	+00 43.9					
1989	06 23	12 26.99	-00 29.0	2.048	2.371	95.4	25.3	18.2

1975 UE a,e,i = 2.42, 0.21, 2 Elements MPC 13151

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 56.93	-06 21.5	2.510	2.816	97.7	20.3	19.6
1989	01 24	13 01.94	-06 47.8					
1989	02 03	13 04.95	-07 00.9	2.214	2.790	115.9	18.5	19.3
1989	02 13	13 05.68	-06 59.1					
1989	02 23	13 03.95	-06 41.4	1.958	2.761	136.5	14.3	18.9
1989	03 05	12 59.75	-06 07.6					
1989	03 15	12 53.29	-05 18.8	1.776	2.730	159.5	7.3	18.4
1989	03 25	12 45.12	-04 18.6					
1989	04 04	12 36.08	-03 12.5	1.697	2.696	175.8	1.5	18.0
1989	04 14	12 27.17	-02 07.4					
1989	04 24	12 19.40	-01 10.3	1.732	2.660	151.7	10.3	18.4
1989	05 04	12 13.51	-00 26.3					
1989	05 14	12 09.99	+00 01.2	1.859	2.622	129.6	17.3	18.7
1989	05 24	12 09.03	+00 11.1					
1989	06 03	12 10.54	+00 04.1	2.045	2.582	110.5	21.6	19.0
1989	06 13	12 14.39	-00 18.6					
1989	06 23	12 20.31	-00 55.2	2.257	2.540	94.1	23.5	19.3

1983 TD2 a,e,i = 2.47, 0.20, 8 Elements MPC 13301

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 57.80	-07 40.0	2.249	2.562	97.0	22.4	17.7
1989	01 24	13 03.40	-07 56.8					
1989	02 03	13 06.72	-07 57.1	2.026	2.603	115.2	20.0	17.5
1989	02 13	13 07.51	-07 39.3					
1989	02 23	13 05.67	-07 02.9	1.840	2.642	136.0	15.1	17.2
1989	03 05	13 01.29	-06 08.5					
1989	03 15	12 54.73	-04 58.7	1.726	2.680	159.3	7.5	16.8
1989	03 25	12 46.71	-03 39.1					
1989	04 04	12 38.12	-02 16.5	1.717	2.715	175.7	1.6	16.5
1989	04 14	12 29.96	-00 59.0					
1989	04 24	12 23.14	+00 06.6	1.820	2.749	151.9	9.9	17.1
1989	05 04	12 18.25	+00 56.1					
1989	05 14	12 15.61	+01 27.2	2.017	2.780	130.3	16.1	17.5
1989	05 24	12 15.28	+01 40.3					
1989	06 03	12 17.13	+01 36.8	2.275	2.809	111.4	19.6	17.9
1989	06 13	12 20.97	+01 18.5					
1989	06 23	12 26.55	+00 47.6	2.563	2.835	94.8	20.9	18.2

4665 P-L a,e,i = 2.43, 0.13, 4 Elements MPC 12583

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 02.65	-02 54.8	2.427	2.738	97.7	20.9	19.5
1989	01 24	13 07.58	-03 20.4					
1989	02 03	13 10.36	-03 33.0	2.166	2.744	116.0	18.8	19.2
1989	02 13	13 10.74	-03 31.7					
1989	02 23	13 08.57	-03 16.4	1.943	2.748	136.6	14.3	18.8
1989	03 05	13 03.87	-02 48.0					
1989	03 15	12 56.92	-02 08.6	1.796	2.750	159.6	7.2	18.4
1989	03 25	12 48.33	-01 22.7					
1989	04 04	12 38.98	-00 35.6	1.752	2.749	174.4	2.0	18.1
1989	04 14	12 29.87	+00 06.7					
1989	04 24	12 21.98	+00 38.8	1.821	2.747	151.4	10.1	18.6
1989	05 04	12 15.98	+00 57.5					
1989	05 14	12 12.31	+01 01.0	1.984	2.743	129.8	16.5	19.0
1989	05 24	12 11.08	+00 49.4					
1989	06 03	12 12.21	+00 23.7	2.207	2.736	110.8	20.3	19.3
1989	06 13	12 15.51	-00 14.7					
1989	06 23	12 20.74	-01 04.0	2.458	2.728	94.2	21.8	19.6

(3840) 1980 TN4 a,e,i = 2.25, 0.08, 4 Elements MPC 13295

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 48.62	-00 41.6	1.679	2.112	101.8	27.1	17.1
1989	01 24	12 57.31	-01 27.9					
1989	02 03	13 03.61	-01 59.4	1.447	2.100	118.1	24.5	16.7
1989	02 13	13 07.06	-02 14.5					
1989	02 23	13 07.33	-02 12.9	1.251	2.089	137.2	18.8	16.2
1989	03 05	13 04.23	-01 54.8					
1989	03 15	12 57.95	-01 23.1	1.119	2.080	159.5	9.6	15.7
1989	03 25	12 49.24	-00 43.2					
1989	04 04	12 39.29	-00 02.7	1.075	2.073	174.0	2.9	15.3
1989	04 14	12 29.66	+00 29.9					
1989	04 24	12 21.78	+00 47.7	1.128	2.068	151.3	13.5	15.8
1989	05 04	12 16.62	+00 46.9					
1989	05 14	12 14.67	+00 26.4	1.260	2.065	130.5	21.8	16.3
1989	05 24	12 15.95	-00 12.7					
1989	06 03	12 20.19	-01 07.8	1.442	2.065	113.2	26.8	16.7
1989	06 13	12 27.06	-02 16.8					
1989	06 23	12 36.17	-03 37.0	1.651	2.067	98.8	29.1	17.1

1987 SJ3 a,e,i = 1.99, 0.10, 25 Elements MPC 12780

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	01 14	13 22.17	+05 11.3	1.844	2.181	-0.51	+15.2	18.1
1989	01 24	13 28.30	+04 03.1					
1989	02 03	13 31.73	+03 02.9	1.596	2.179	-0.75	+17.7	17.7
1989	02 13	13 31.93	+02 10.2					
1989	02 23	13 28.45	+01 23.8	1.375	2.175	-1.06	+20.6	17.2
1989	03 05	13 20.98	+00 41.9					
1989	03 15	13 09.61	+00 02.3	1.218	2.168	-1.39	+23.2	16.7
1989	03 25	12 55.12	-00 37.8					
1989	04 04	12 38.95	-01 20.8	1.161	2.159	-1.60	+24.4	16.2
1989	04 14	12 23.02	-02 08.8					
1989	04 24	12 09.19	-03 03.4	1.217	2.148	-1.59	+23.3	16.8
1989	05 04	11 58.66	-04 04.9					
1989	05 14	11 52.01	-05 13.8	1.364	2.135	-0.68	+20.9	17.3
1989	05 24	11 49.21	-06 30.1					
1989	06 03	11 49.91	-07 53.7	1.563	2.120	-0.34	+18.3	17.7
1989	06 13	11 53.67	-09 24.4					
1989	06 23	12 00.05	-11 01.8	1.781	2.102	99.27	+16.1	18.0

1983 CK1 a,e,i = 3.13, 0.11, 2 Elements MPC 12964

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	12 54.94	-03 13.1	2.472	2.805	99.4	20.2	18.1
1989	01 24	13 00.47	-03 35.9					
1989	02 03	13 03.98	-03 45.3	2.218	2.811	117.4	18.1	17.8
1989	02 13	13 05.25	-03 40.6					
1989	02 23	13 04.18	-03 21.7	2.008	2.819	137.6	13.7	17.5
1989	03 05	13 00.83	-02 49.9					
1989	03 15	12 55.49	-02 07.6	1.873	2.828	160.0	6.9	17.1
1989	03 25	12 48.72	-01 19.1					
1989	04 04	12 41.30	-00 29.9	1.841	2.839	174.6	1.9	16.8
1989	04 14	12 34.11	+00 14.3					
1989	04 24	12 27.97	+00 48.5	1.920	2.851	152.6	9.3	17.2
1989	05 04	12 23.49	+01 09.4					
1989	05 14	12 21.05	+01 15.5	2.091	2.864	131.6	15.3	17.6
1989	05 24	12 20.76	+01 06.7					
1989	06 03	12 22.58	+00 44.2	2.326	2.878	113.0	18.9	18.0
1989	06 13	12 26.35	+00 09.2					
1989	06 23	12 31.87	-00 36.5	2.595	2.894	96.6	20.4	18.3

3006 T-3 a,e,i = 2.22, 0.12, 7 Elements MPC 13476

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 05.64	-01 32.4	2.097	2.430	97.5	23.7	17.5
1989	01 24	13 11.73	-02 06.6					
1989	02 03	13 15.47	-02 27.3	1.856	2.443	115.1	21.4	17.2
1989	02 13	13 16.52	-02 33.4					
1989	02 23	13 14.64	-02 24.9	1.649	2.455	135.4	16.4	16.8
1989	03 05	13 09.79	-02 02.8					
1989	03 15	13 02.23	-01 29.5	1.512	2.464	158.4	8.5	16.4
1989	03 25	12 52.66	-00 49.7					
1989	04 04	12 42.12	-00 09.6	1.474	2.471	174.4	2.3	16.0
1989	04 14	12 31.83	+00 24.4					
1989	04 24	12 22.99	+00 46.6	1.545	2.476	151.6	11.1	16.5
1989	05 04	12 16.40	+00 53.9					
1989	05 14	12 12.51	+00 45.0	1.706	2.479	129.9	18.2	17.0
1989	05 24	12 11.42	+00 20.4					
1989	06 03	12 12.96	-00 18.3	1.924	2.479	111.2	22.4	17.3
1989	06 13	12 16.88	-01 09.6					
1989	06 23	12 22.88	-02 11.4	2.170	2.477	95.2	24.1	17.6

(3774) Megumi a,e,i = 3.00, 0.06, 9 Elements MPC 12799

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 00.53	-16 31.2	2.635	2.859	92.9	20.1	16.9
1989	01 24	13 06.20	-17 47.4					
1989	02 03	13 09.95	-18 54.5	2.363	2.853	109.9	19.0	16.6
1989	02 13	13 11.51	-19 50.2					
1989	02 23	13 10.71	-20 32.3	2.124	2.848	128.6	15.8	16.3
1989	03 05	13 07.53	-20 58.1					
1989	03 15	13 02.13	-21 05.1	1.947	2.844	148.6	10.5	15.9
1989	03 25	12 55.03	-20 52.3					
1989	04 04	12 46.97	-20 20.6	1.862	2.840	165.0	5.2	15.6
1989	04 14	12 38.88	-19 33.3					
1989	04 24	12 31.73	-18 36.6	1.884	2.837	157.0	8.0	15.7
1989	05 04	12 26.24	-17 37.3					
1989	05 14	12 22.93	-16 42.0	2.006	2.835	137.6	13.9	16.1
1989	05 24	12 21.98	-15 55.8					
1989	06 03	12 23.38	-15 21.7	2.200	2.834	119.0	18.2	16.4
1989	06 13	12 27.00	-15 01.4					
1989	06 23	12 32.60	-14 54.7	2.439	2.834	102.2	20.5	16.7

1976 UB2 a,e,i = 2.90, 0.10, 1 Elements MPC 13480

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 00.93	-07 38.6	2.650	2.926	96.3	19.5	17.8
1989	01 24	13 06.31	-08 16.0					
1989	02 03	13 09.82	-08 41.9	2.359	2.905	114.2	18.0	17.5
1989	02 13	13 11.20	-08 55.0					
1989	02 23	13 10.31	-08 54.1	2.106	2.884	134.2	14.2	17.1
1989	03 05	13 07.12	-08 38.9					
1989	03 15	13 01.83	-08 09.9	1.924	2.864	156.4	8.0	16.7
1989	03 25	12 54.91	-07 29.3					
1989	04 04	12 47.06	-06 40.9	1.843	2.843	178.5	0.5	16.2
1989	04 14	12 39.18	-05 50.2					
1989	04 24	12 32.16	-05 03.1	1.873	2.822	156.1	8.3	16.6
1989	05 04	12 26.71	-04 24.5					
1989	05 14	12 23.33	-03 58.3	2.001	2.802	134.3	15.0	17.0
1989	05 24	12 22.22	-03 46.3					
1989	06 03	12 23.40	-03 48.9	2.196	2.781	115.0	19.3	17.3
1989	06 13	12 26.74	-04 05.5					
1989	06 23	12 32.04	-04 34.8	2.427	2.762	98.2	21.4	17.5

1981 UB1 a,e,i = 3.09, 0.18, 1 Elements MPC 13152

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 07.63	-06 27.0	3.004	3.244	95.2	17.6	18.3
1989	01 24	13 11.64	-06 47.5					
1989	02 03	13 13.80	-06 56.3	2.749	3.276	113.9	16.0	18.0
1989	02 13	13 13.94	-06 52.7					
1989	02 23	13 12.04	-06 36.7	2.535	3.306	134.7	12.3	17.8
1989	03 05	13 08.18	-06 08.8					
1989	03 15	13 02.62	-05 30.7	2.396	3.335	157.3	6.6	17.5
1989	03 25	12 55.84	-04 45.5					
1989	04 04	12 48.48	-03 56.9	2.364	3.363	178.5	0.4	17.1
1989	04 14	12 41.22	-03 09.7					
1989	04 24	12 34.76	-02 28.2	2.449	3.391	155.7	7.0	17.6
1989	05 04	12 29.61	-01 55.8					
1989	05 14	12 26.12	-01 34.6	2.636	3.416	134.0	12.3	17.9
1989	05 24	12 24.46	-01 25.7					
1989	06 03	12 24.62	-01 28.7	2.896	3.441	114.4	15.6	18.2
1989	06 13	12 26.53	-01 43.1					
1989	06 23	12 30.03	-02 07.7	3.194	3.464	96.8	16.9	18.5

1982 DD2 a,e,i = 2.26, 0.11, 5 Elements MPC 11144

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 01 14	12 50.60	-05 49.3	1.653	2.057	99.4	28.2	17.3
1989 01 24	13 00.11	-06 25.8					
1989 02 03	13 07.19	-06 43.3	1.447	2.072	115.5	25.4	16.9
1989 02 13	13 11.41	-06 39.4					
1989 02 23	13 12.46	-06 12.9	1.272	2.090	134.7	19.7	16.5
1989 03 05	13 10.24	-05 23.6					
1989 03 15	13 04.94	-04 14.1	1.157	2.109	157.1	10.6	16.0
1989 03 25	12 57.32	-02 51.1					
1989 04 04	12 48.52	-01 24.0	1.131	2.130	176.0	1.9	15.6
1989 04 14	12 39.95	-00 04.1					
1989 04 24	12 32.92	+00 59.0	1.205	2.153	153.6	12.0	16.2
1989 05 04	12 28.31	+01 39.9					
1989 05 14	12 26.56	+01 56.6	1.361	2.176	132.5	20.0	16.7
1989 05 24	12 27.71	+01 50.4					
1989 06 03	12 31.52	+01 24.2	1.573	2.200	114.7	24.8	17.2
1989 06 13	12 37.71	+00 40.9					
1989 06 23	12 45.91	-00 16.0	1.815	2.224	99.7	26.8	17.6

1980 CG a,e,i = 2.53, 0.29, 10 Elements MPC 11423

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 01 14	13 11.27	-01 03.5	2.974	3.235	96.4	17.6	18.7
1989 01 24	13 15.12	-00 52.5					
1989 02 03	13 17.10	-00 27.7	2.702	3.249	115.4	15.9	18.5
1989 02 13	13 17.02	+00 11.0					
1989 02 23	13 14.81	+01 02.9	2.472	3.260	136.3	12.1	18.2
1989 03 05	13 10.53	+02 05.8					
1989 03 15	13 04.42	+03 16.2	2.323	3.268	158.3	6.5	17.8
1989 03 25	12 56.97	+04 28.8					
1989 04 04	12 48.83	+05 38.0	2.285	3.272	169.0	3.4	17.7
1989 04 14	12 40.74	+06 37.9					
1989 04 24	12 33.46	+07 24.2	2.364	3.273	149.9	8.9	18.0
1989 05 04	12 27.55	+07 54.5					
1989 05 14	12 23.41	+08 07.9	2.542	3.271	128.8	13.9	18.3
1989 05 24	12 21.23	+08 05.3					
1989 06 03	12 21.02	+07 48.3	2.783	3.266	109.6	17.0	18.6
1989 06 13	12 22.67	+07 18.8					
1989 06 23	12 26.04	+06 38.7	3.054	3.258	92.3	18.2	18.8

1988 BL2 a,e,i = 2.93, 0.09, 19 Elements MPC 12962

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 01 14	13 16.92	+03 41.0	2.938	3.207	96.8	17.7	17.2
1989 01 24	13 20.50	+03 20.2					
1989 02 03	13 22.13	+03 09.3	2.659	3.207	115.3	16.1	16.9
1989 02 13	13 21.61	+03 07.9					
1989 02 23	13 18.85	+03 14.9	2.422	3.206	135.8	12.4	16.6
1989 03 05	13 13.88	+03 28.2					
1989 03 15	13 06.92	+03 45.1	2.262	3.204	157.6	6.8	16.2
1989 03 25	12 58.49	+04 01.6					
1989 04 04	12 49.28	+04 14.0	2.211	3.201	170.4	3.0	16.0
1989 04 14	12 40.11	+04 18.6					
1989 04 24	12 31.78	+04 12.7	2.276	3.197	151.6	8.6	16.3
1989 05 04	12 24.93	+03 55.1					
1989 05 14	12 19.99	+03 25.8	2.443	3.192	130.4	14.0	16.7
1989 05 24	12 17.15	+02 45.3					
1989 06 03	12 16.40	+01 54.9	2.677	3.186	111.1	17.3	17.0
1989 06 13	12 17.64	+00 55.7					
1989 06 23	12 20.70	-00 10.8	2.944	3.179	93.9	18.6	17.2

1983 PB a,e,i = 2.21, 0.23, 6 Elements MPC 11237

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 07.45	+00 16.2	2.242	2.567	97.8	22.3	19.7
1989	01 24	13 13.96	+00 01.0					
1989	02 03	13 18.42	+00 00.3	1.949	2.532	115.3	20.6	19.4
1989	02 13	13 20.46	+00 15.2					
1989	02 23	13 19.78	+00 45.7	1.694	2.494	135.0	16.3	18.9
1989	03 05	13 16.21	+01 30.7					
1989	03 15	13 09.81	+02 27.0	1.506	2.452	156.9	9.1	18.4
1989	03 25	13 01.05	+03 28.7					
1989	04 04	12 50.79	+04 28.4	1.417	2.408	170.1	4.1	18.0
1989	04 14	12 40.23	+05 17.6					
1989	04 24	12 30.67	+05 49.4	1.434	2.361	150.4	12.2	18.3
1989	05 04	12 23.13	+06 00.2					
1989	05 14	12 18.29	+05 48.9	1.540	2.312	128.9	19.9	18.6
1989	05 24	12 16.44	+05 16.9					
1989	06 03	12 17.52	+04 26.8	1.699	2.261	110.3	24.9	18.9
1989	06 13	12 21.33	+03 21.1					
1989	06 23	12 27.57	+02 02.5	1.881	2.208	94.5	27.3	19.2

1988 AW1 a,e,i = 2.60, 0.15, 13 Elements MPC 13041

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	01 14	13 11.28	-19 18.8	2.797	2.956	-1.02	+5.0	17.4
1989	01 24	13 16.39	-20 43.8					
1989	02 03	13 19.58	-22 01.8	2.511	2.946	-1.20	+5.3	17.2
1989	02 13	13 20.55	-23 10.7					
1989	02 23	13 19.10	-24 07.9	2.252	2.934	-1.42	+6.0	16.9
1989	03 05	13 15.13	-24 50.3					
1989	03 15	13 08.77	-25 14.3	2.052	2.920	-1.66	+7.0	16.5
1989	03 25	13 00.47	-25 17.5					
1989	04 04	12 50.96	-24 58.9	1.942	2.904	-1.81	+8.0	16.2
1989	04 14	12 41.22	-24 20.4					
1989	04 24	12 32.31	-23 27.1	1.940	2.887	-1.78	+8.6	16.2
1989	05 04	12 25.08	-22 26.0					
1989	05 14	12 20.12	-21 24.4	2.040	2.868	-1.59	+8.3	16.5
1989	05 24	12 17.70	-20 28.9					
1989	06 03	12 17.83	-19 43.9	2.214	2.847	-1.37	+7.5	16.8
1989	06 13	12 20.37	-19 12.0					
1989	06 23	12 25.10	-18 54.1	2.433	2.825	-1.19	+6.5	17.1

1980 OE a,e,i = 2.17, 0.19, 1 Elements MPC 5651

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 04.23	-08 12.0	2.148	2.444	95.3	23.6	18.6
1989	01 24	13 11.48	-09 03.7					
1989	02 03	13 16.69	-09 43.4	1.862	2.414	112.2	22.2	18.2
1989	02 13	13 19.49	-10 08.9					
1989	02 23	13 19.54	-10 18.4	1.607	2.381	131.5	18.1	17.7
1989	03 05	13 16.62	-10 10.2					
1989	03 15	13 10.75	-09 43.3	1.412	2.346	153.8	10.8	17.2
1989	03 25	13 02.37	-08 59.0					
1989	04 04	12 52.34	-08 01.2	1.309	2.308	177.3	1.2	16.5
1989	04 14	12 41.92	-06 56.8					
1989	04 24	12 32.49	-05 54.6	1.311	2.269	156.4	10.2	16.9
1989	05 04	12 25.16	-05 02.7					
1989	05 14	12 20.68	-04 27.0	1.405	2.227	133.8	19.1	17.3
1989	05 24	12 19.34	-04 10.4					
1989	06 03	12 21.06	-04 13.3	1.558	2.185	114.6	25.0	17.7
1989	06 13	12 25.65	-04 34.7					
1989	06 23	12 32.78	-05 12.5	1.738	2.141	98.6	28.0	17.9

1980 RS2 a,e,i = 2.25, 0.17, 4 Elements MPC 11853

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 11.41	-11 53.0	2.374	2.605	92.3	22.2	17.9
1989	01 24	13 17.64	-12 42.9					
1989	02 03	13 21.77	-13 20.7	2.114	2.615	109.7	20.8	17.6
1989	02 13	13 23.50	-13 44.4					
1989	02 23	13 22.58	-13 52.0	1.881	2.623	129.4	17.0	17.3
1989	03 05	13 18.95	-13 42.0					
1989	03 15	13 12.74	-13 13.2	1.709	2.627	151.6	10.4	16.8
1989	03 25	13 04.48	-12 26.8					
1989	04 04	12 55.00	-11 26.2	1.632	2.629	173.8	2.3	16.4
1989	04 14	12 45.38	-10 17.4					
1989	04 24	12 36.72	-09 08.1	1.666	2.627	158.3	8.1	16.7
1989	05 04	12 29.89	-08 05.5					
1989	05 14	12 25.45	-07 15.5	1.801	2.623	135.9	15.5	17.1
1989	05 24	12 23.61	-06 41.2					
1989	06 03	12 24.32	-06 23.6	2.004	2.616	116.2	20.4	17.5
1989	06 13	12 27.41	-06 22.4					
1989	06 23	12 32.62	-06 36.2	2.244	2.606	99.1	22.6	17.8

(3856) 1976 QX a,e,i = 2.88, 0.06, 1 Elements MPC 13308

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 10.56	-07 50.0	2.751	2.986	94.0	19.2	17.5
1989	01 24	13 15.74	-08 25.9					
1989	02 03	13 19.02	-08 50.6	2.482	2.994	112.0	17.8	17.3
1989	02 13	13 20.18	-09 02.8					
1989	02 23	13 19.09	-09 02.0	2.247	3.002	132.1	14.1	16.9
1989	03 05	13 15.76	-08 47.9					
1989	03 15	13 10.38	-08 21.1	2.081	3.009	154.4	8.2	16.6
1989	03 25	13 03.42	-07 43.9					
1989	04 04	12 55.55	-06 59.9	2.015	3.015	177.9	0.7	16.1
1989	04 14	12 47.59	-06 13.7					
1989	04 24	12 40.38	-05 30.8	2.064	3.021	158.2	7.1	16.5
1989	05 04	12 34.59	-04 55.5					
1989	05 14	12 30.67	-04 31.1	2.214	3.026	136.2	13.4	16.9
1989	05 24	12 28.85	-04 19.5					
1989	06 03	12 29.14	-04 20.9	2.438	3.030	116.5	17.4	17.2
1989	06 13	12 31.46	-04 34.9					
1989	06 23	12 35.61	-05 00.6	2.701	3.034	99.2	19.3	17.5

1977 QD3 a,e,i = 2.65, 0.24, 10 Elements MPC 12005

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 17.27	-07 02.3	2.873	3.082	92.8	18.6	19.1
1989	01 24	13 21.97	-07 48.4					
1989	02 03	13 24.85	-08 25.8	2.554	3.048	110.8	17.6	18.8
1989	02 13	13 25.63	-08 53.3					
1989	02 23	13 24.13	-09 10.3	2.269	3.011	130.9	14.4	18.4
1989	03 05	13 20.26	-09 16.1					
1989	03 15	13 14.09	-09 10.4	2.051	2.973	153.3	8.7	17.9
1989	03 25	13 06.04	-08 54.5					
1989	04 04	12 56.73	-08 30.4	1.933	2.932	176.5	1.2	17.4
1989	04 14	12 47.04	-08 01.8					
1989	04 24	12 37.96	-07 33.6	1.931	2.889	158.2	7.4	17.7
1989	05 04	12 30.30	-07 10.2					
1989	05 14	12 24.69	-06 55.5	2.033	2.845	135.6	14.4	18.0
1989	05 24	12 21.45	-06 52.1					
1989	06 03	12 20.65	-07 01.0	2.206	2.798	115.6	19.1	18.3
1989	06 13	12 22.23	-07 22.6					
1989	06 23	12 25.99	-07 56.1	2.416	2.750	98.1	21.5	18.5

(3749) Balam a,e,i = 2.24, 0.11, 5 Elements MPC 12782

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 05.42	-12 38.9	1.808	2.108	93.3	27.8	17.7
1989	01 24	13 14.62	-14 10.7					
1989	02 03	13 21.51	-15 30.6	1.598	2.131	108.8	26.0	17.4
1989	02 13	13 25.62	-16 36.3					
1989	02 23	13 26.62	-17 24.9	1.410	2.155	126.9	21.5	17.0
1989	03 05	13 24.28	-17 53.5					
1989	03 15	13 18.67	-17 58.8	1.273	2.180	147.8	14.1	16.6
1989	03 25	13 10.37	-17 39.6					
1989	04 04	13 00.43	-16 57.5	1.217	2.205	168.2	5.3	16.2
1989	04 14	12 50.28	-15 58.1					
1989	04 24	12 41.38	-14 50.9	1.260	2.231	159.8	9.0	16.5
1989	05 04	12 34.80	-13 45.8					
1989	05 14	12 31.17	-12 50.9	1.394	2.256	138.8	17.1	17.0
1989	05 24	12 30.64	-12 11.7					
1989	06 03	12 33.03	-11 49.9	1.596	2.280	120.1	22.6	17.5
1989	06 13	12 38.03	-11 45.6					
1989	06 23	12 45.28	-11 57.3	1.836	2.304	104.0	25.3	17.9

1978 GJ a,e,i = 2.40, 0.11, 5 Elements MPC 13599

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 00.70	-11 09.7	2.103	2.397	95.0	24.1	17.8
1989	01 24	13 09.03	-12 05.1					
1989	02 03	13 15.41	-12 47.4	1.829	2.372	111.3	22.8	17.4
1989	02 13	13 19.47	-13 14.2					
1989	02 23	13 20.91	-13 23.0	1.586	2.347	130.0	18.8	17.0
1989	03 05	13 19.50	-13 11.6					
1989	03 15	13 15.27	-12 38.4	1.400	2.323	151.4	11.8	16.5
1989	03 25	13 08.62	-11 44.3					
1989	04 04	13 00.35	-10 32.8	1.301	2.298	174.3	2.5	15.9
1989	04 14	12 51.62	-09 11.3					
1989	04 24	12 43.72	-07 49.4	1.304	2.274	159.7	8.8	16.2
1989	05 04	12 37.70	-06 36.4					
1989	05 14	12 34.28	-05 39.6	1.401	2.252	137.4	17.7	16.6
1989	05 24	12 33.77	-05 03.0					
1989	06 03	12 36.13	-04 47.2	1.562	2.230	118.3	23.6	17.0
1989	06 13	12 41.16	-04 51.5					
1989	06 23	12 48.57	-05 13.6	1.759	2.210	102.2	26.7	17.3

1978 SZ6 a,e,i = 2.61, 0.03, 3 Elements MPC 11836

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 11.54	-10 17.2	2.383	2.623	92.9	22.0	17.9
1989	01 24	13 18.31	-11 13.7					
1989	02 03	13 23.07	-11 59.1	2.125	2.629	109.9	20.6	17.6
1989	02 13	13 25.51	-12 31.7					
1989	02 23	13 25.42	-12 50.1	1.896	2.635	129.2	16.9	17.3
1989	03 05	13 22.70	-12 52.9					
1989	03 15	13 17.47	-12 39.3	1.727	2.641	150.9	10.5	16.9
1989	03 25	13 10.20	-12 10.3					
1989	04 04	13 01.65	-11 28.6	1.650	2.646	173.3	2.5	16.4
1989	04 14	12 52.83	-10 39.1					
1989	04 24	12 44.80	-09 48.5	1.683	2.651	160.4	7.3	16.7
1989	05 04	12 38.41	-09 02.8					
1989	05 14	12 34.24	-08 27.4	1.815	2.656	138.4	14.6	17.1
1989	05 24	12 32.55	-08 05.4					
1989	06 03	12 33.32	-07 57.9	2.019	2.661	118.9	19.5	17.5
1989	06 13	12 36.42	-08 04.9					
1989	06 23	12 41.60	-08 25.3	2.264	2.665	101.9	21.9	17.8

1979 MR3 a,e,i = 2.32, 0.14, 8 Elements MPC 12785

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 06.61	+00 17.5	2.124	2.461	98.0	23.3	19.6
1989	01 24	13 14.52	+00 14.0					
1989	02 03	13 20.43	+00 27.3	1.848	2.434	114.9	21.5	19.2
1989	02 13	13 23.97	+00 58.9					
1989	02 23	13 24.85	+01 48.7	1.610	2.405	134.0	17.2	18.7
1989	03 05	13 22.87	+02 55.1					
1989	03 15	13 18.06	+04 14.1	1.438	2.376	154.8	10.3	18.2
1989	03 25	13 10.84	+05 38.5					
1989	04 04	13 02.02	+06 59.1	1.359	2.345	167.3	5.4	17.9
1989	04 14	12 52.73	+08 05.8					
1989	04 24	12 44.25	+08 50.8	1.384	2.314	150.8	12.2	18.2
1989	05 04	12 37.59	+09 10.1					
1989	05 14	12 33.48	+09 03.3	1.494	2.283	130.4	19.7	18.5
1989	05 24	12 32.22	+08 32.6					
1989	06 03	12 33.77	+07 41.4	1.659	2.251	112.4	24.6	18.9
1989	06 13	12 37.96	+06 33.2					
1989	06 23	12 44.51	+05 11.5	1.851	2.220	97.1	27.0	19.1

1986 AH a,e,i = 1.93, 0.12, 24 Elements MPC 13170

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 05.89	+13 42.3	1.621	2.075	102.8	27.5	18.2
1989	01 24	13 16.43	+15 36.7					
1989	02 03	13 24.44	+18 00.0	1.439	2.094	118.2	24.5	17.9
1989	02 13	13 29.40	+20 49.6					
1989	02 23	13 30.89	+23 58.0	1.307	2.111	133.2	20.0	17.6
1989	03 05	13 28.63	+27 12.9					
1989	03 15	13 22.66	+30 16.9	1.247	2.125	142.6	16.5	17.4
1989	03 25	13 13.69	+32 51.0					
1989	04 04	13 02.94	+34 40.0	1.273	2.137	139.8	17.6	17.5
1989	04 14	12 52.07	+35 35.6					
1989	04 24	12 42.70	+35 38.0	1.374	2.145	128.1	21.7	17.8
1989	05 04	12 35.95	+34 54.2					
1989	05 14	12 32.39	+33 33.3	1.528	2.151	114.3	25.4	18.1
1989	05 24	12 32.08	+31 44.9					
1989	06 03	12 34.74	+29 37.1	1.712	2.154	101.3	27.5	18.4
1989	06 13	12 40.00	+27 15.5					
1989	06 23	12 47.46	+24 45.0	1.909	2.153	89.4	28.2	18.7

1986 UA a,e,i = 3.17, 0.19, 2 Elements MPC 11351

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 21.48	-06 50.2	3.545	3.710	91.9	15.4	18.3
1989	01 24	13 25.15	-07 05.9					
1989	02 03	13 27.21	-07 11.5	3.260	3.725	110.7	14.3	18.1
1989	02 13	13 27.53	-07 06.7					
1989	02 23	13 26.04	-06 51.2	3.009	3.737	131.3	11.5	17.9
1989	03 05	13 22.79	-06 25.5					
1989	03 15	13 17.95	-05 50.9	2.832	3.749	153.6	6.8	17.6
1989	03 25	13 11.88	-05 09.7					
1989	04 04	13 05.05	-04 24.9	2.760	3.758	176.2	1.0	17.2
1989	04 14	12 58.05	-03 40.3					
1989	04 24	12 51.47	-02 59.6	2.807	3.767	159.6	5.3	17.5
1989	05 04	12 45.83	-02 26.1					
1989	05 14	12 41.52	-02 02.0	2.964	3.773	137.7	10.4	17.8
1989	05 24	12 38.79	-01 48.7					
1989	06 03	12 37.71	-01 46.4	3.201	3.778	117.5	13.8	18.1
1989	06 13	12 38.29	-01 54.9					
1989	06 23	12 40.42	-02 13.3	3.484	3.781	99.2	15.4	18.3

1986 TD7 a,e,i = 2.66, 0.21, 12 Elements MPC 11733

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 25.01	-01 51.0	2.827	3.040	92.9	18.9	18.5
1989	01 24	13 30.19	-02 21.5					
1989	02 03	13 33.55	-02 42.2	2.518	3.012	110.8	17.8	18.2
1989	02 13	13 34.83	-02 52.3					
1989	02 23	13 33.81	-02 52.1	2.240	2.982	130.7	14.6	17.8
1989	03 05	13 30.40	-02 42.0					
1989	03 15	13 24.65	-02 23.5	2.030	2.950	152.8	8.9	17.4
1989	03 25	13 16.91	-01 59.3					
1989	04 04	13 07.80	-01 33.2	1.919	2.915	174.2	2.0	16.9
1989	04 14	12 58.17	-01 09.6					
1989	04 24	12 48.98	-00 53.0	1.922	2.880	158.0	7.5	17.2
1989	05 04	12 41.08	-00 46.6					
1989	05 14	12 35.12	-00 52.8	2.030	2.842	135.7	14.4	17.5
1989	05 24	12 31.47	-01 12.3					
1989	06 03	12 30.21	-01 44.6	2.209	2.803	115.8	19.0	17.8
1989	06 13	12 31.30	-02 29.0					
1989	06 23	12 34.55	-03 24.0	2.426	2.763	98.3	21.3	18.0

1985 JR a,e,i = 2.61, 0.11, 14 Elements MPC 11425

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 16.79	+09 48.6	1.998	2.361	99.0	24.3	16.4
1989	01 24	13 25.74	+09 49.7					
1989	02 03	13 32.51	+10 06.2	1.760	2.349	114.7	22.4	16.0
1989	02 13	13 36.70	+10 37.3					
1989	02 23	13 37.99	+11 20.6	1.558	2.339	132.1	18.3	15.6
1989	03 05	13 36.17	+12 12.0					
1989	03 15	13 31.27	+13 04.7	1.417	2.332	149.9	12.4	15.2
1989	03 25	13 23.75	+13 49.7					
1989	04 04	13 14.46	+14 18.1	1.363	2.326	159.4	8.7	15.0
1989	04 14	13 04.60	+14 22.3					
1989	04 24	12 55.51	+13 58.6	1.405	2.323	148.5	13.1	15.2
1989	05 04	12 48.23	+13 07.9					
1989	05 14	12 43.49	+11 53.6	1.532	2.322	130.7	19.3	15.6
1989	05 24	12 41.56	+10 20.5					
1989	06 03	12 42.38	+08 33.6	1.720	2.323	113.9	23.5	16.0
1989	06 13	12 45.78	+06 36.8					
1989	06 23	12 51.43	+04 33.3	1.942	2.327	98.9	25.6	16.3

(3779) Kieffer a,e,i = 2.64, 0.11, 14 Elements MPC 12937

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 23.59	+07 13.7	2.082	2.402	96.5	24.0	16.1
1989	01 24	13 31.72	+07 02.1					
1989	02 03	13 37.58	+07 04.5	1.860	2.418	112.7	22.1	15.8
1989	02 13	13 40.83	+07 20.6					
1989	02 23	13 41.19	+07 48.2	1.669	2.435	131.0	17.9	15.5
1989	03 05	13 38.54	+08 23.9					
1989	03 15	13 32.96	+09 02.5	1.539	2.454	150.5	11.5	15.1
1989	03 25	13 24.98	+09 36.6					
1989	04 04	13 15.45	+09 59.1	1.499	2.474	163.4	6.6	14.9
1989	04 14	13 05.50	+10 03.9					
1989	04 24	12 56.34	+09 47.7	1.562	2.495	152.0	10.9	15.2
1989	05 04	12 48.93	+09 10.5					
1989	05 14	12 43.89	+08 14.2	1.717	2.517	133.0	17.1	15.6
1989	05 24	12 41.47	+07 02.4					
1989	06 03	12 41.61	+05 38.6	1.937	2.539	115.1	21.2	16.0
1989	06 13	12 44.14	+04 05.6					
1989	06 23	12 48.78	+02 26.1	2.195	2.562	99.2	23.1	16.3

1978 SS5 a,e,i = 2.58, 0.16, 3 Elements MPC 13674

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 01 14	13 27.18	-09 36.0	2.835	2.993	89.5	19.2	19.5
1989 01 24	13 33.22	-10 06.7					
1989 02 03	13 37.49	-10 26.3	2.545	2.989	107.2	18.4	19.2
1989 02 13	13 39.74	-10 33.4					
1989 02 23	13 39.77	-10 27.2	2.281	2.982	126.9	15.4	18.9
1989 03 05	13 37.48	-10 06.9					
1989 03 15	13 32.94	-09 32.8	2.078	2.974	148.8	10.0	18.5
1989 03 25	13 26.46	-08 46.4					
1989 04 04	13 18.60	-07 51.0	1.968	2.963	172.5	2.5	18.1
1989 04 14	13 10.15	-06 51.3					
1989 04 24	13 01.99	-05 53.3	1.973	2.950	163.3	5.6	18.2
1989 05 04	12 54.93	-05 02.3					
1989 05 14	12 49.61	-04 22.8	2.085	2.935	140.5	12.7	18.6
1989 05 24	12 46.38	-03 57.4					
1989 06 03	12 45.37	-03 46.9	2.276	2.919	120.0	17.5	18.9
1989 06 13	12 46.55	-03 51.0					
1989 06 23	12 49.78	-04 08.6	2.512	2.900	102.1	20.0	19.2

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 01 14	13 16.81	-03 22.5	1.842	2.151	94.2	27.1	17.1
1989 01 24	13 26.98	-03 57.1					
1989 02 03	13 34.94	-04 15.8	1.629	2.173	110.0	25.2	16.8
1989 02 13	13 40.28	-04 17.1					
1989 02 23	13 42.68	-04 00.7	1.441	2.196	128.3	20.7	16.4
1989 03 05	13 41.90	-03 27.2					
1989 03 15	13 37.94	-02 38.9	1.306	2.220	149.4	13.2	16.0
1989 03 25	13 31.23	-01 40.8					
1989 04 04	13 22.60	-00 40.0	1.253	2.246	170.6	4.1	15.6
1989 04 14	13 13.26	+00 15.0					
1989 04 24	13 04.56	+00 56.4	1.302	2.273	160.0	8.7	15.9
1989 05 04	12 57.59	+01 19.1					
1989 05 14	12 53.09	+01 21.1	1.442	2.300	138.6	16.9	16.4
1989 05 24	12 51.36	+01 03.2					
1989 06 03	12 52.36	+00 27.5	1.649	2.327	119.9	22.2	16.9
1989 06 13	12 55.89	-00 23.1					
1989 06 23	13 01.65	-01 25.7	1.896	2.354	103.7	24.8	17.3

1981 QY2 a,e,i = 2.81, 0.19, 4 Elements MPC 12452

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 01 14	13 12.36	-04 43.7	1.987	2.290	94.8	25.3	17.2
1989 01 24	13 22.40	-05 19.2					
1989 02 03	13 30.43	-05 39.4	1.756	2.296	110.5	23.7	16.9
1989 02 13	13 36.10	-05 43.0					
1989 02 23	13 39.11	-05 29.4	1.555	2.306	128.7	19.6	16.5
1989 03 05	13 39.25	-04 58.7					
1989 03 15	13 36.53	-04 12.9	1.408	2.321	149.5	12.6	16.1
1989 03 25	13 31.33	-03 16.1					
1989 04 04	13 24.34	-02 14.5	1.346	2.339	170.9	3.9	15.7
1989 04 14	13 16.60	-01 16.0					
1989 04 24	13 09.29	-00 28.3	1.384	2.360	161.8	7.7	16.0
1989 05 04	13 03.41	+00 03.1					
1989 05 14	12 59.66	+00 15.2	1.516	2.385	140.6	15.6	16.4
1989 05 24	12 58.41	+00 07.8					
1989 06 03	12 59.67	-00 17.5	1.718	2.412	121.8	20.9	16.9
1989 06 13	13 03.30	-00 58.4					
1989 06 23	13 09.06	-01 52.0	1.964	2.442	105.6	23.6	17.3

1987 UQ1 a,e,i = 2.39, 0.15, 3 Elements MPC 12582

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 30.45	-11 20.2	2.325	2.496	88.2	23.2	17.8
1989	01 24	13 38.33	-12 18.9					
1989	02 03	13 44.19	-13 06.6	2.088	2.525	104.7	22.2	17.5
1989	02 13	13 47.69	-13 41.7					
1989	02 23	13 48.56	-14 03.0	1.869	2.553	123.6	18.8	17.2
1989	03 05	13 46.62	-14 09.2					
1989	03 15	13 41.90	-13 59.2	1.700	2.579	145.0	12.8	16.9
1989	03 25	13 34.74	-13 33.2					
1989	04 04	13 25.83	-12 53.4	1.616	2.603	168.5	4.4	16.5
1989	04 14	13 16.17	-12 03.8					
1989	04 24	13 06.90	-11 10.9	1.639	2.626	165.9	5.3	16.6
1989	05 04	12 59.01	-10 21.2					
1989	05 14	12 53.25	-09 40.5	1.768	2.647	143.2	13.2	17.0
1989	05 24	12 49.97	-09 12.6					
1989	06 03	12 49.25	-08 59.2	1.976	2.666	122.9	18.6	17.4
1989	06 13	12 50.97	-09 00.5					
1989	06 23	12 54.89	-09 15.5	2.231	2.683	105.2	21.4	17.8

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 22.86	-10 03.8	2.162	2.381	90.4	24.4	19.3
1989	01 24	13 32.10	-11 14.2					
1989	02 03	13 39.48	-12 14.5	1.905	2.375	106.1	23.5	19.0
1989	02 13	13 44.62	-13 03.3					
1989	02 23	13 47.17	-13 39.1	1.669	2.369	124.0	20.2	18.6
1989	03 05	13 46.87	-14 00.4					
1989	03 15	13 43.58	-14 05.6	1.483	2.365	144.6	14.1	18.1
1989	03 25	13 37.56	-13 54.5					
1989	04 04	13 29.40	-13 28.1	1.375	2.362	167.4	5.3	17.6
1989	04 14	13 20.12	-12 49.8					
1989	04 24	13 10.98	-12 05.8	1.368	2.359	167.0	5.5	17.6
1989	05 04	13 03.18	-11 23.0					
1989	05 14	12 57.63	-10 48.3	1.461	2.358	144.6	14.4	18.1
1989	05 24	12 54.82	-10 26.4					
1989	06 03	12 54.87	-10 19.4	1.628	2.358	124.7	20.7	18.5
1989	06 13	12 57.67	-10 28.0					
1989	06 23	13 02.96	-10 51.0	1.843	2.359	107.7	24.2	18.9

4581 P-L a,e,i = 2.24, 0.13, 3 Elements MPC 12947

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 33.22	-07 06.0	2.293	2.480	89.1	23.4	19.2
1989	01 24	13 41.35	-07 48.7					
1989	02 03	13 47.52	-08 19.2	2.039	2.493	105.6	22.4	19.0
1989	02 13	13 51.37	-08 36.5					
1989	02 23	13 52.61	-08 39.7	1.806	2.503	124.5	19.0	18.6
1989	03 05	13 51.01	-08 28.2					
1989	03 15	13 46.51	-08 02.3	1.623	2.511	146.1	12.7	18.2
1989	03 25	13 39.41	-07 23.8					
1989	04 04	13 30.35	-06 36.4	1.526	2.516	170.0	4.0	17.7
1989	04 14	13 20.31	-05 45.7					
1989	04 24	13 10.49	-04 58.3	1.536	2.520	164.7	6.0	17.9
1989	05 04	13 01.98	-04 20.3					
1989	05 14	12 55.60	-03 56.2	1.649	2.521	141.6	14.4	18.3
1989	05 24	12 51.82	-03 48.3					
1989	06 03	12 50.73	-03 56.7	1.838	2.519	121.3	20.1	18.7
1989	06 13	12 52.24	-04 20.4					
1989	06 23	12 56.10	-04 57.6	2.071	2.516	103.9	23.1	19.0

1983 PW a,e,i = 2.19, 0.21, 4 Elements MPC 11154

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 24.11	-11 46.7	2.282	2.476	89.4	23.4	18.7
1989	01 24	13 32.93	-12 40.3					
1989	02 03	13 40.04	-13 22.9	1.984	2.440	105.5	22.9	18.4
1989	02 13	13 45.05	-13 52.4					
1989	02 23	13 47.60	-14 06.9	1.707	2.402	123.7	20.0	17.9
1989	03 05	13 47.37	-14 04.2					
1989	03 15	13 44.14	-13 42.3	1.478	2.361	144.7	14.1	17.4
1989	03 25	13 38.05	-13 00.5					
1989	04 04	13 29.58	-12 00.1	1.329	2.317	168.3	5.0	16.8
1989	04 14	13 19.69	-10 45.7					
1989	04 24	13 09.68	-09 25.4	1.282	2.271	166.3	6.0	16.7
1989	05 04	13 00.87	-08 08.6					
1989	05 14	12 54.34	-07 04.2	1.335	2.224	142.6	16.0	17.1
1989	05 24	12 50.74	-06 18.2					
1989	06 03	12 50.27	-05 53.2	1.460	2.175	122.0	23.3	17.5
1989	06 13	12 52.88	-05 49.4					
1989	06 23	12 58.30	-06 05.1	1.625	2.125	104.8	27.5	17.8

1988 BF a,e,i = 3.01, 0.11, 11 Elements MPC 12945

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 38.05	+02 23.0	3.105	3.281	91.4	17.4	17.3
1989	01 24	13 43.58	+02 25.3					
1989	02 03	13 47.42	+02 39.3	2.833	3.291	109.1	16.4	17.1
1989	02 13	13 49.36	+03 05.1					
1989	02 23	13 49.26	+03 41.3	2.592	3.300	128.4	13.6	16.8
1989	03 05	13 47.08	+04 26.2					
1989	03 15	13 42.88	+05 16.4	2.418	3.307	148.6	9.0	16.5
1989	03 25	13 36.97	+06 07.7					
1989	04 04	13 29.84	+06 55.0	2.341	3.314	164.2	4.7	16.3
1989	04 14	13 22.14	+07 33.5					
1989	04 24	13 14.59	+07 59.0	2.376	3.320	156.0	7.1	16.4
1989	05 04	13 07.87	+08 09.3					
1989	05 14	13 02.52	+08 03.4	2.515	3.324	136.8	12.0	16.7
1989	05 24	12 58.89	+07 42.2					
1989	06 03	12 57.12	+07 07.2	2.732	3.328	117.8	15.6	17.0
1989	06 13	12 57.24	+06 20.5					
1989	06 23	12 59.16	+05 24.0	2.994	3.330	100.3	17.5	17.3

1988 BU a,e,i = 3.21, 0.14, 3 Elements MPC 13052

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	01 14	13 37.58	-06 37.3	3.122	3.244	88.2	17.6	17.3
1989	01 24	13 43.34	-06 59.8					
1989	02 03	13 47.43	-07 11.8	2.858	3.270	106.0	16.8	17.1
1989	02 13	13 49.63	-07 12.6					
1989	02 23	13 49.82	-07 02.3	2.620	3.296	125.7	14.1	16.9
1989	03 05	13 47.96	-06 41.1					
1989	03 15	13 44.13	-06 10.2	2.442	3.322	147.2	9.3	16.6
1989	03 25	13 38.63	-05 31.8					
1989	04 04	13 31.92	-04 49.1	2.358	3.347	169.6	3.1	16.3
1989	04 14	13 24.64	-04 06.1					
1989	04 24	13 17.50	-03 27.1	2.389	3.371	165.3	4.3	16.4
1989	05 04	13 11.14	-02 55.6					
1989	05 14	13 06.09	-02 34.4	2.530	3.395	143.4	10.2	16.7
1989	05 24	13 02.70	-02 25.0					
1989	06 03	13 01.12	-02 27.6	2.756	3.418	123.1	14.4	17.1
1989	06 13	13 01.36	-02 41.9					
1989	06 23	13 03.34	-03 06.6	3.037	3.440	104.8	16.6	17.4

1983 RO2 a,e,i = 2.24, 0.15, 4 Elements MPC 8382

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 01 14	13 27.93	-06 19.0	2.264	2.478	90.6	23.4	18.7
1989 01 24	13 36.80	-06 49.8					
1989 02 03	13 43.90	-07 07.2	1.981	2.455	106.9	22.6	18.4
1989 02 13	13 48.85	-07 09.4					
1989 02 23	13 51.32	-06 55.4	1.720	2.431	125.4	19.4	18.0
1989 03 05	13 51.03	-06 24.5					
1989 03 15	13 47.82	-05 37.0	1.512	2.404	146.4	13.2	17.5
1989 03 25	13 41.86	-04 35.5					
1989 04 04	13 33.66	-03 24.8	1.386	2.376	169.0	4.6	16.9
1989 04 14	13 24.17	-02 12.3					
1989 04 24	13 14.60	-01 06.7	1.364	2.345	163.2	7.1	17.0
1989 05 04	13 06.17	-00 15.6					
1989 05 14	12 59.85	+00 15.7	1.442	2.314	140.6	16.1	17.4
1989 05 24	12 56.23	+00 25.3					
1989 06 03	12 55.49	+00 13.7	1.590	2.281	120.7	22.5	17.7
1989 06 13	12 57.59	-00 17.0					
1989 06 23	13 02.30	-01 04.3	1.777	2.247	103.7	26.1	18.1

1986 TJ4 a,e,i = 2.63, 0.25, 4 Elements MPC 11345

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 51.19	-15 34.6	2.916	3.270	102.2	17.1	19.2
1989 02 13	13 53.46	-15 55.9					
1989 02 23	13 53.69	-16 06.0	2.627	3.257	121.6	15.0	18.9
1989 03 05	13 51.75	-16 03.7					
1989 03 15	13 47.66	-15 48.0	2.390	3.240	143.0	10.6	18.5
1989 03 25	13 41.63	-15 18.9					
1989 04 04	13 34.10	-14 37.3	2.242	3.221	165.8	4.4	18.1
1989 04 14	13 25.72	-13 46.0					
1989 04 24	13 17.30	-12 49.2	2.207	3.199	168.6	3.6	18.0
1989 05 04	13 09.61	-11 52.1					
1989 05 14	13 03.31	-10 59.9	2.286	3.175	146.0	10.3	18.4
1989 05 24	12 58.88	-10 16.7					
1989 06 03	12 56.52	-09 45.3	2.456	3.148	124.9	15.3	18.7
1989 06 13	12 56.29	-09 26.9					
1989 06 23	12 58.11	-09 21.7	2.681	3.118	106.0	18.3	18.9
1989 07 03	13 01.80	-09 29.0					
1989 07 13	13 07.20	-09 47.5	2.928	3.085	89.2	19.2	19.1

1978 VY14 a,e,i = 2.65, 0.03, 3 Elements MPC 12696

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 47.03	-07 10.7	2.157	2.609	106.1	21.3	18.2
1989 02 13	13 51.27	-07 26.3					
1989 02 23	13 53.09	-07 28.7	1.920	2.614	124.8	18.1	17.8
1989 03 05	13 52.31	-07 17.8					
1989 03 15	13 48.87	-06 54.3	1.735	2.619	145.9	12.3	17.4
1989 03 25	13 43.04	-06 20.3					
1989 04 04	13 35.37	-05 39.4	1.636	2.624	168.8	4.3	17.0
1989 04 14	13 26.71	-04 56.6					
1989 04 24	13 18.13	-04 17.9	1.642	2.629	165.9	5.3	17.1
1989 05 04	13 10.58	-03 48.3					
1989 05 14	13 04.85	-03 31.9	1.752	2.635	143.5	13.2	17.5
1989 05 24	13 01.43	-03 30.3					
1989 06 03	13 00.44	-03 43.8	1.942	2.640	123.5	18.7	17.9
1989 06 13	13 01.86	-04 11.4					
1989 06 23	13 05.51	-04 51.5	2.179	2.646	106.0	21.7	18.2
1989 07 03	13 11.14	-05 42.1					
1989 07 13	13 18.54	-06 41.6	2.438	2.651	90.6	22.5	18.5

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 53.21	-10 37.9	2.279	2.686	103.5	20.9	18.8
1989 02 13	13 56.94	-10 48.7					
1989 02 23	13 58.25	-10 45.5	2.047	2.711	122.5	17.9	18.5
1989 03 05	13 56.98	-10 27.8					
1989 03 15	13 53.12	-09 55.6	1.866	2.734	144.0	12.3	18.2
1989 03 25	13 46.93	-09 10.6					
1989 04 04	13 38.98	-08 16.0	1.769	2.754	167.6	4.5	17.8
1989 04 14	13 30.08	-07 16.7					
1989 04 24	13 21.25	-06 19.0	1.782	2.773	167.7	4.4	17.8
1989 05 04	13 13.40	-05 28.7					
1989 05 14	13 07.29	-04 50.6	1.903	2.790	144.7	12.1	18.3
1989 05 24	13 03.36	-04 27.3					
1989 06 03	13 01.76	-04 19.6	2.108	2.804	124.0	17.4	18.7
1989 06 13	13 02.46	-04 26.9					
1989 06 23	13 05.30	-04 47.7	2.363	2.817	105.9	20.3	19.0
1989 07 03	13 10.06	-05 20.3					
1989 07 13	13 16.51	-06 02.8	2.639	2.827	89.9	21.1	19.3

4171 T-3 a,e,i = 2.22, 0.06, 6 Elements MPC 12703

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 51.42	-04 36.5	1.688	2.176	106.0	25.8	17.9
1989 02 13	13 57.54	-04 57.6					
1989 02 23	14 00.82	-05 04.1	1.480	2.189	123.6	22.1	17.5
1989 03 05	14 00.92	-04 56.3					
1989 03 15	13 57.68	-04 35.2	1.317	2.202	144.3	15.3	17.1
1989 03 25	13 51.29	-04 04.0					
1989 04 04	13 42.37	-03 27.3	1.229	2.215	166.9	5.9	16.6
1989 04 14	13 32.04	-02 51.7					
1989 04 24	13 21.71	-02 24.2	1.241	2.228	165.4	6.5	16.6
1989 05 04	13 12.72	-02 10.2					
1989 05 14	13 06.10	-02 13.2	1.349	2.241	143.2	15.7	17.2
1989 05 24	13 02.38	-02 33.8					
1989 06 03	13 01.66	-03 10.8	1.529	2.254	123.5	22.0	17.6
1989 06 13	13 03.81	-04 02.3					
1989 06 23	13 08.53	-05 05.7	1.754	2.266	106.8	25.4	18.0
1989 07 03	13 15.48	-06 18.7					
1989 07 13	13 24.37	-07 39.2	1.998	2.278	92.3	26.5	18.3

1988 BO2 a,e,i = 2.31, 0.21, 23 Elements MPC 13040

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 05.89	-22 56.4	2.388	2.681	96.3	21.4	17.0
1989 02 13	14 09.69	-24 50.3					
1989 02 23	14 11.01	-26 41.8	2.097	2.652	113.6	20.0	16.6
1989 03 05	14 09.45	-28 29.1					
1989 03 15	14 04.63	-30 08.2	1.848	2.621	132.1	16.4	16.2
1989 03 25	13 56.45	-31 34.0					
1989 04 04	13 45.19	-32 40.1	1.672	2.586	149.9	11.2	15.8
1989 04 14	13 31.67	-33 20.4					
1989 04 24	13 17.26	-33 32.4	1.595	2.549	156.5	9.1	15.6
1989 05 04	13 03.57	-33 18.1					
1989 05 14	12 52.07	-32 44.5	1.622	2.510	143.8	13.8	15.7
1989 05 24	12 43.75	-32 01.7					
1989 06 03	12 39.01	-31 18.9	1.734	2.468	125.8	19.5	16.0
1989 06 13	12 37.88	-30 43.4					
1989 06 23	12 40.10	-30 20.0	1.896	2.424	108.9	23.4	16.3
1989 07 03	12 45.30	-30 10.6					
1989 07 13	12 53.15	-30 15.6	2.079	2.379	94.1	25.2	16.5

1985 RV4 a,e,i = 3.18, 0.20, 0 Elements MPC 11515

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 54.58	-11 47.2	3.321	3.667	102.8	15.2	19.1
1989 02 13	13 56.68	-11 59.3					
1989 02 23	13 56.99	-12 01.6	3.018	3.645	122.4	13.3	18.8
1989 03 05	13 55.43	-11 53.9					
1989 03 15	13 52.03	-11 36.0	2.772	3.622	143.7	9.4	18.5
1989 03 25	13 46.97	-11 08.7					
1989 04 04	13 40.61	-10 33.6	2.617	3.597	166.5	3.7	18.1
1989 04 14	13 33.45	-09 53.2					
1989 04 24	13 26.15	-09 11.1	2.576	3.571	170.1	2.8	18.0
1989 05 04	13 19.33	-08 31.1					
1989 05 14	13 13.56	-07 56.7	2.650	3.543	147.3	8.9	18.3
1989 05 24	13 09.28	-07 31.0					
1989 06 03	13 06.71	-07 15.5	2.817	3.514	126.3	13.5	18.6
1989 06 13	13 05.98	-07 11.2					
1989 06 23	13 07.06	-07 17.8	3.044	3.484	107.3	16.2	18.8
1989 07 03	13 09.84	-07 34.9					
1989 07 13	13 14.21	-08 01.5	3.298	3.453	90.1	17.1	19.0

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 52.63	-18 34.9	1.970	2.362	100.8	24.2	18.3
1989 02 13	13 58.29	-19 42.9					
1989 02 23	14 01.33	-20 38.9	1.744	2.376	118.1	21.5	18.0
1989 03 05	14 01.44	-21 20.6					
1989 03 15	13 58.44	-21 45.1	1.558	2.391	137.9	16.2	17.6
1989 03 25	13 52.49	-21 49.8					
1989 04 04	13 44.10	-21 33.1	1.443	2.405	159.2	8.5	17.2
1989 04 14	13 34.25	-20 55.9					
1989 04 24	13 24.25	-20 02.7	1.425	2.418	167.9	5.0	17.1
1989 05 04	13 15.35	-19 00.8					
1989 05 14	13 08.58	-17 59.0	1.510	2.431	148.6	12.5	17.5
1989 05 24	13 04.55	-17 05.0					
1989 06 03	13 03.41	-16 23.8	1.678	2.442	128.5	19.0	17.9
1989 06 13	13 05.09	-15 58.0					
1989 06 23	13 09.34	-15 48.0	1.900	2.453	110.8	22.8	18.3
1989 07 03	13 15.83	-15 52.7					
1989 07 13	13 24.27	-16 10.5	2.150	2.463	95.4	24.3	18.6

1931 TU1 a,e,i = 2.89, 0.26, 7 Elements MPC 11742

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 49.83	-09 50.6	2.651	3.052	104.6	18.2	17.9
1989 02 13	13 53.67	-09 50.9					
1989 02 23	13 55.51	-09 37.8	2.340	3.002	123.5	15.9	17.5
1989 03 05	13 55.18	-09 10.8					
1989 03 15	13 52.60	-08 29.7	2.085	2.952	144.6	11.3	17.1
1989 03 25	13 47.90	-07 35.8					
1989 04 04	13 41.44	-06 32.0	1.916	2.900	167.2	4.4	16.6
1989 04 14	13 33.83	-05 23.0					
1989 04 24	13 25.92	-04 14.9	1.857	2.847	167.4	4.4	16.5
1989 05 04	13 18.57	-03 13.8					
1989 05 14	13 12.56	-02 25.1	1.907	2.794	144.7	12.1	16.8
1989 05 24	13 08.48	-01 52.4					
1989 06 03	13 06.62	-01 36.9	2.040	2.740	124.0	17.9	17.1
1989 06 13	13 07.10	-01 38.6					
1989 06 23	13 09.85	-01 56.1	2.224	2.685	105.8	21.4	17.3
1989 07 03	13 14.71	-02 27.6					
1989 07 13	13 21.50	-03 11.2	2.427	2.631	90.0	22.7	17.5

1979 SG10 a,e,i = 3.42, 0.05, 1 Elements MPC 10941

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 54.23	-12 59.4	3.211	3.557	102.5	15.7	17.5
1989 02 13	13 56.66	-13 15.7					
1989 02 23	13 57.27	-13 22.1	2.938	3.561	121.8	13.7	17.3
1989 03 05	13 55.99	-13 18.1					
1989 03 15	13 52.84	-13 03.5	2.719	3.564	143.0	9.7	17.0
1989 03 25	13 48.06	-12 39.0					
1989 04 04	13 42.00	-12 06.0	2.590	3.567	165.6	4.0	16.6
1989 04 14	13 35.20	-11 27.2					
1989 04 24	13 28.31	-10 46.1	2.573	3.570	171.0	2.5	16.6
1989 05 04	13 21.93	-10 06.3					
1989 05 14	13 16.63	-09 31.6	2.671	3.572	148.6	8.5	16.9
1989 05 24	13 12.79	-09 04.7					
1989 06 03	13 10.64	-08 47.6	2.862	3.574	127.8	13.0	17.2
1989 06 13	13 10.26	-08 41.0					
1989 06 23	13 11.62	-08 45.1	3.115	3.576	108.9	15.6	17.5
1989 07 03	13 14.61	-08 59.1					
1989 07 13	13 19.11	-09 22.3	3.399	3.577	91.7	16.5	17.7

1979 KO a,e,i = 3.18, 0.19, 19 Elements MPC 13691

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 00.45	+10 47.6	3.221	3.651	108.2	14.9	17.6
1989 02 13	14 02.37	+11 39.8					
1989 02 23	14 02.41	+12 40.7	2.998	3.670	126.2	12.6	17.4
1989 03 05	14 00.53	+13 47.4					
1989 03 15	13 56.79	+14 55.5	2.841	3.687	143.4	9.2	17.1
1989 03 25	13 51.44	+15 59.8					
1989 04 04	13 44.88	+16 55.1	2.779	3.703	153.9	6.8	17.0
1989 04 14	13 37.65	+17 36.4					
1989 04 24	13 30.39	+18 00.2	2.824	3.718	148.3	8.2	17.1
1989 05 04	13 23.69	+18 05.2					
1989 05 14	13 18.07	+17 51.4	2.969	3.731	132.8	11.5	17.3
1989 05 24	13 13.89	+17 20.6					
1989 06 03	13 11.34	+16 35.1	3.190	3.742	115.6	14.2	17.6
1989 06 13	13 10.48	+15 37.7					
1989 06 23	13 11.27	+14 31.0	3.456	3.752	99.0	15.5	17.8
1989 07 03	13 13.60	+13 17.3					
1989 07 13	13 17.34	+11 58.6	3.739	3.760	83.4	15.6	18.0

1987 UK a,e,i = 2.18, 0.14, 4 Elements MPC 12582

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 58.46	-14 45.1	2.044	2.431	100.9	23.5	18.5
1989 02 13	14 03.80	-15 10.7					
1989 02 23	14 06.58	-15 21.4	1.810	2.448	119.0	20.7	18.1
1989 03 05	14 06.53	-15 15.6					
1989 03 15	14 03.50	-14 51.8	1.617	2.462	139.9	15.1	17.7
1989 03 25	13 57.64	-14 09.9					
1989 04 04	13 49.47	-13 11.5	1.499	2.474	163.4	6.6	17.3
1989 04 14	13 39.87	-12 01.0					
1989 04 24	13 30.03	-10 45.4	1.484	2.483	171.5	3.4	17.1
1989 05 04	13 21.12	-09 32.8					
1989 05 14	13 14.12	-08 30.7	1.577	2.490	147.7	12.5	17.6
1989 05 24	13 09.62	-07 44.4					
1989 06 03	13 07.82	-07 16.0	1.753	2.494	126.5	19.1	18.1
1989 06 13	13 08.69	-07 05.9					
1989 06 23	13 12.03	-07 12.7	1.980	2.495	108.4	22.7	18.4
1989 07 03	13 17.55	-07 34.1					
1989 07 13	13 24.99	-08 08.1	2.230	2.493	92.6	24.0	18.7

4017 T-3 a,e,i = 2.19, 0.05, 5 Elements MPC 12702

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 53.53	-06 37.4	1.687	2.161	104.8	26.2	18.4
1989 02 13	14 00.68	-07 13.9					
1989 02 23	14 05.18	-07 37.5	1.455	2.149	121.9	23.0	17.9
1989 03 05	14 06.65	-07 47.6					
1989 03 15	14 04.75	-07 44.2	1.265	2.138	141.9	16.7	17.4
1989 03 25	13 59.50	-07 28.7					
1989 04 04	13 51.33	-07 04.0	1.146	2.127	164.7	7.1	16.9
1989 04 14	13 41.18	-06 34.8					
1989 04 24	13 30.51	-06 07.8	1.120	2.117	169.5	5.0	16.7
1989 05 04	13 20.81	-05 49.4					
1989 05 14	13 13.36	-05 45.0	1.191	2.108	146.4	15.4	17.2
1989 05 24	13 08.94	-05 57.3					
1989 06 03	13 07.80	-06 26.4	1.334	2.100	126.2	22.9	17.7
1989 06 13	13 09.87	-07 11.5					
1989 06 23	13 14.85	-08 10.2	1.523	2.093	109.4	27.3	18.1
1989 07 03	13 22.39	-09 20.1					
1989 07 13	13 32.17	-10 39.0	1.733	2.087	95.2	29.0	18.4

1978 UV a,e,i = 2.67, 0.26, 6 Elements MPC 12949

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 06.78	-08 56.2	2.782	3.123	100.9	18.1	18.5
1989 02 13	14 09.29	-09 08.4					
1989 02 23	14 09.67	-09 10.1	2.540	3.158	120.4	15.7	18.3
1989 03 05	14 07.79	-09 01.2					
1989 03 15	14 03.68	-08 42.3	2.349	3.190	141.9	11.1	18.0
1989 03 25	13 57.55	-08 14.7					
1989 04 04	13 49.86	-07 40.8	2.244	3.220	165.0	4.6	17.6
1989 04 14	13 41.25	-07 04.0					
1989 04 24	13 32.52	-06 28.3	2.252	3.247	170.1	3.1	17.6
1989 05 04	13 24.44	-05 57.7					
1989 05 14	13 17.66	-05 35.5	2.375	3.272	147.3	9.6	18.0
1989 05 24	13 12.65	-05 23.8					
1989 06 03	13 09.59	-05 23.5	2.591	3.294	126.2	14.4	18.4
1989 06 13	13 08.56	-05 34.6					
1989 06 23	13 09.47	-05 56.4	2.865	3.313	107.3	17.0	18.7
1989 07 03	13 12.16	-06 27.7					
1989 07 13	13 16.46	-07 07.3	3.165	3.329	90.3	17.8	18.9

1978 TQ7 a,e,i = 2.58, 0.09, 15 Elements MPC 11344

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	13 48.88	-02 55.8	2.089	2.558	107.1	21.6	16.6
1989 02 13	13 54.80	-02 10.3					
1989 02 23	13 58.45	-01 05.2	1.836	2.539	125.2	18.6	16.2
1989 03 05	13 59.59	+00 19.1					
1989 03 15	13 58.10	+01 59.8	1.641	2.520	144.8	13.1	15.8
1989 03 25	13 54.12	+03 51.2					
1989 04 04	13 48.06	+05 45.1	1.531	2.501	161.8	7.2	15.4
1989 04 14	13 40.67	+07 31.3					
1989 04 24	13 32.95	+08 59.5	1.525	2.483	157.1	9.1	15.4
1989 05 04	13 25.94	+10 02.9					
1989 05 14	13 20.50	+10 37.6	1.616	2.465	138.4	15.8	15.8
1989 05 24	13 17.25	+10 44.2					
1989 06 03	13 16.44	+10 25.5	1.776	2.448	120.1	21.0	16.1
1989 06 13	13 18.10	+09 45.1					
1989 06 23	13 22.09	+08 47.5	1.978	2.432	104.0	23.9	16.4
1989 07 03	13 28.19	+07 36.3					
1989 07 13	13 36.18	+06 14.6	2.195	2.417	89.8	24.9	16.6

1969 OW a,e,i = 2.26, 0.16, 2 Elements MPC 11145

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	13 51.14	-11 06.6	1.874	2.316	103.8	24.4	17.7
1989	02 13	13 58.12	-11 37.5					
1989	02 23	14 02.76	-11 54.0	1.606	2.281	121.1	21.8	17.2
1989	03 05	14 04.67	-11 54.8					
1989	03 15	14 03.55	-11 38.3	1.382	2.244	141.0	16.2	16.7
1989	03 25	13 59.35	-11 04.7					
1989	04 04	13 52.37	-10 15.3	1.228	2.207	163.9	7.2	16.1
1989	04 14	13 43.39	-09 14.5					
1989	04 24	13 33.66	-08 09.8	1.170	2.170	171.3	4.0	15.8
1989	05 04	13 24.57	-07 09.7					
1989	05 14	13 17.39	-06 22.6	1.210	2.133	147.6	14.7	16.3
1989	05 24	13 13.01	-05 54.1					
1989	06 03	13 11.78	-05 46.4	1.325	2.097	126.9	22.8	16.7
1989	06 13	13 13.76	-05 59.5					
1989	06 23	13 18.72	-06 31.3	1.485	2.063	109.7	27.6	17.0
1989	07 03	13 26.34	-07 19.2					
1989	07 13	13 36.34	-08 20.3	1.666	2.030	95.3	29.9	17.3

1986 VD a,e,i = 3.02, 0.03, 9 Elements MPC 13467

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	13 58.26	-22 04.8	2.697	3.002	98.3	19.0	17.4
1989	02 13	14 02.67	-22 49.4					
1989	02 23	14 04.97	-23 22.8	2.436	3.007	116.2	17.2	17.1
1989	03 05	14 04.99	-23 43.3					
1989	03 15	14 02.66	-23 48.6	2.217	3.012	136.0	13.3	16.8
1989	03 25	13 58.14	-23 37.3					
1989	04 04	13 51.82	-23 08.5	2.072	3.017	156.9	7.5	16.5
1989	04 14	13 44.33	-22 23.2					
1989	04 24	13 36.54	-21 24.6	2.029	3.023	169.0	3.6	16.2
1989	05 04	13 29.28	-20 18.1					
1989	05 14	13 23.33	-19 09.8	2.097	3.028	152.2	9.0	16.5
1989	05 24	13 19.23	-18 06.1					
1989	06 03	13 17.25	-17 11.4	2.260	3.033	131.9	14.4	16.9
1989	06 13	13 17.45	-16 29.0					
1989	06 23	13 19.77	-16 00.0	2.489	3.038	113.3	17.9	17.2
1989	07 03	13 24.02	-15 44.4					
1989	07 13	13 30.02	-15 41.4	2.755	3.043	96.5	19.4	17.5

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 05.67	-12 08.5	2.548	2.889	100.1	19.6	19.0
1989	02 13	14 09.74	-12 34.3					
1989	02 23	14 11.65	-12 49.3	2.258	2.869	118.7	17.6	18.7
1989	03 05	14 11.17	-12 52.7					
1989	03 15	14 08.16	-12 43.7	2.014	2.845	139.6	13.1	18.3
1989	03 25	14 02.70	-12 22.6					
1989	04 04	13 55.13	-11 50.2	1.849	2.820	162.7	6.0	17.8
1989	04 14	13 46.09	-11 09.1					
1989	04 24	13 36.51	-10 23.8	1.790	2.791	172.9	2.6	17.5
1989	05 04	13 27.38	-09 39.5					
1989	05 14	13 19.62	-09 01.6	1.843	2.760	149.1	10.8	17.9
1989	05 24	13 13.91	-08 34.5					
1989	06 03	13 10.59	-08 20.5	1.987	2.727	127.6	17.1	18.3
1989	06 13	13 09.79	-08 20.9					
1989	06 23	13 11.43	-08 35.3	2.186	2.691	108.8	21.0	18.6
1989	07 03	13 15.30	-09 02.5					
1989	07 13	13 21.22	-09 41.2	2.409	2.653	92.3	22.5	18.8

1976 YD2 a,e,i = 3.00, 0.05, 9 Elements MPC 13454

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 01.96	-22 58.2	2.861	3.139	97.1	18.2	17.6
1989 02 13	14 06.01	-23 50.4					
1989 02 23	14 08.02	-24 33.3	2.584	3.134	115.1	16.6	17.3
1989 03 05	14 07.81	-25 04.8					
1989 03 15	14 05.29	-25 22.9	2.348	3.128	134.7	13.1	17.0
1989 03 25	14 00.59	-25 25.5					
1989 04 04	13 54.06	-25 11.3	2.186	3.121	155.0	7.8	16.7
1989 04 14	13 46.30	-24 40.1					
1989 04 24	13 38.12	-23 54.3	2.126	3.114	167.1	4.1	16.4
1989 05 04	13 30.39	-22 58.0					
1989 05 14	13 23.89	-21 57.0	2.176	3.107	152.4	8.7	16.7
1989 05 24	13 19.19	-20 57.4					
1989 06 03	13 16.61	-20 04.3	2.322	3.099	132.4	14.0	17.0
1989 06 13	13 16.26	-19 21.3					
1989 06 23	13 18.07	-18 50.4	2.537	3.090	113.8	17.5	17.3
1989 07 03	13 21.88	-18 32.1					
1989 07 13	13 27.52	-18 26.0	2.788	3.081	97.0	19.1	17.5

1985 RY3 a,e,i = 3.15, 0.18, 1 Elements MPC 11509

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 04.71	-11 45.8	3.244	3.558	100.5	15.8	17.9
1989 02 13	14 07.63	-11 56.5					
1989 02 23	14 08.76	-11 57.4	2.939	3.535	119.7	14.1	17.6
1989 03 05	14 07.99	-11 48.1					
1989 03 15	14 05.29	-11 28.6	2.684	3.510	140.7	10.3	17.2
1989 03 25	14 00.79	-10 59.5					
1989 04 04	13 54.81	-10 22.4	2.515	3.485	163.3	4.7	16.9
1989 04 14	13 47.80	-09 39.8					
1989 04 24	13 40.43	-08 55.4	2.457	3.458	173.1	2.0	16.7
1989 05 04	13 33.36	-08 12.9					
1989 05 14	13 27.21	-07 36.3	2.515	3.429	150.3	8.4	17.0
1989 05 24	13 22.47	-07 08.7					
1989 06 03	13 19.46	-06 51.8	2.668	3.400	129.1	13.4	17.3
1989 06 13	13 18.32	-06 46.7					
1989 06 23	13 19.06	-06 53.2	2.886	3.370	109.9	16.5	17.5
1989 07 03	13 21.59	-07 10.5					
1989 07 13	13 25.79	-07 37.7	3.133	3.338	92.6	17.7	17.7

(3785) Kitami a,e,i = 3.21, 0.19, 2 Elements MPC 12947

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 07.14	-11 14.5	3.521	3.819	100.1	14.7	18.6
1989 02 13	14 09.39	-11 20.1					
1989 02 23	14 09.93	-11 16.5	3.235	3.823	119.7	13.0	18.3
1989 03 05	14 08.68	-11 03.5					
1989 03 15	14 05.67	-10 41.3	3.002	3.825	140.8	9.5	18.0
1989 03 25	14 01.06	-10 10.9					
1989 04 04	13 55.16	-09 34.1	2.856	3.825	163.4	4.3	17.7
1989 04 14	13 48.43	-08 53.2					
1989 04 24	13 41.43	-08 11.6	2.824	3.824	172.9	1.9	17.6
1989 05 04	13 34.75	-07 32.6					
1989 05 14	13 28.90	-06 59.4	2.909	3.821	150.4	7.5	17.9
1989 05 24	13 24.32	-06 34.5					
1989 06 03	13 21.26	-06 19.2	3.093	3.817	129.3	11.9	18.2
1989 06 13	13 19.84	-06 14.4					
1989 06 23	13 20.09	-06 19.8	3.344	3.811	109.9	14.5	18.4
1989 07 03	13 21.92	-06 34.7					
1989 07 13	13 25.24	-06 58.4	3.626	3.804	92.3	15.5	18.6

1980 RJ a,e,i = 2.22, 0.14, 7 Elements MPC 12792

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 13.48	-16 04.6	2.168	2.489	97.0	23.1	18.1
1989 02 13	14 19.04	-17 02.2					
1989 02 23	14 22.15	-17 50.1	1.924	2.504	114.7	21.0	17.8
1989 03 05	14 22.48	-18 26.9					
1989 03 15	14 19.78	-18 50.8	1.716	2.517	134.8	16.3	17.4
1989 03 25	14 14.10	-19 00.1					
1989 04 04	14 05.76	-18 53.6	1.576	2.528	157.2	8.8	17.0
1989 04 14	13 55.53	-18 31.6					
1989 04 24	13 44.56	-17 56.8	1.534	2.535	172.9	2.8	16.7
1989 05 04	13 34.11	-17 14.5					
1989 05 14	13 25.32	-16 31.4	1.602	2.541	152.4	10.6	17.1
1989 05 24	13 18.97	-15 54.2					
1989 06 03	13 15.42	-15 27.3	1.760	2.543	131.0	17.5	17.6
1989 06 13	13 14.74	-15 13.6					
1989 06 23	13 16.75	-15 13.8	1.977	2.543	112.3	21.7	17.9
1989 07 03	13 21.17	-15 27.2					
1989 07 13	13 27.73	-15 52.8	2.223	2.541	96.1	23.4	18.2

1977 DS2 a,e,i = 3.15, 0.08, 16 Elements MPC 13463

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 08.78	+02 16.0	3.035	3.410	103.9	16.3	17.8
1989 02 13	14 12.29	+02 59.7					
1989 02 23	14 13.94	+03 55.4	2.778	3.412	122.4	14.2	17.6
1989 03 05	14 13.63	+05 01.2					
1989 03 15	14 11.35	+06 14.1	2.578	3.413	141.4	10.5	17.3
1989 03 25	14 07.26	+07 29.8					
1989 04 04	14 01.66	+08 43.1	2.468	3.413	157.3	6.5	17.1
1989 04 14	13 55.06	+09 48.1					
1989 04 24	13 48.11	+10 39.8	2.467	3.412	156.4	6.8	17.1
1989 05 04	13 41.43	+11 14.5					
1989 05 14	13 35.66	+11 30.4	2.571	3.411	140.4	10.9	17.3
1989 05 24	13 31.26	+11 27.6					
1989 06 03	13 28.50	+11 07.6	2.759	3.409	122.2	14.6	17.6
1989 06 13	13 27.53	+10 32.7					
1989 06 23	13 28.34	+09 45.5	3.000	3.406	104.9	16.8	17.8
1989 07 03	13 30.84	+08 48.4					
1989 07 13	13 34.91	+07 43.7	3.264	3.402	89.0	17.4	18.0

1985 RJ4 a,e,i = 3.11, 0.21, 2 Elements MPC 11511

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 12.78	-12 43.3	3.304	3.582	98.3	15.8	19.1
1989 02 13	14 15.89	-13 01.1					
1989 02 23	14 17.24	-13 10.2	2.991	3.556	117.3	14.3	18.8
1989 03 05	14 16.68	-13 10.0					
1989 03 15	14 14.16	-13 00.2	2.725	3.528	138.1	10.8	18.5
1989 03 25	14 09.78	-12 41.1					
1989 04 04	14 03.79	-12 13.6	2.540	3.499	160.6	5.4	18.1
1989 04 14	13 56.66	-11 39.8					
1989 04 24	13 48.99	-11 02.6	2.465	3.469	176.0	1.2	17.8
1989 05 04	13 41.48	-10 25.4					
1989 05 14	13 34.77	-09 52.1	2.506	3.437	152.9	7.7	18.2
1989 05 24	13 29.42	-09 25.9					
1989 06 03	13 25.76	-09 09.0	2.647	3.403	131.4	12.9	18.4
1989 06 13	13 24.01	-09 02.9					
1989 06 23	13 24.17	-09 07.9	2.855	3.369	111.9	16.3	18.7
1989 07 03	13 26.20	-09 23.3					
1989 07 13	13 29.96	-09 48.7	3.097	3.333	94.4	17.7	18.9

1988 DR4 a,e,i = 3.16, 0.11, 12 Elements MPC 13457

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 13.03	-27 04.0	3.318	3.516	93.3	16.3	18.1
1989 02 13	14 16.77	-27 56.0					
1989 02 23	14 18.63	-28 39.9	3.031	3.512	111.2	15.2	17.9
1989 03 05	14 18.44	-29 14.1					
1989 03 15	14 16.12	-29 36.3	2.780	3.506	130.3	12.5	17.6
1989 03 25	14 11.77	-29 44.4					
1989 04 04	14 05.67	-29 36.6	2.598	3.500	149.9	8.2	17.3
1989 04 14	13 58.31	-29 12.1					
1989 04 24	13 50.40	-28 31.8	2.516	3.493	163.7	4.6	17.1
1989 05 04	13 42.68	-27 38.8					
1989 05 14	13 35.89	-26 37.7	2.545	3.484	154.5	7.2	17.2
1989 05 24	13 30.60	-25 33.9					
1989 06 03	13 27.15	-24 32.6	2.677	3.475	135.6	11.8	17.5
1989 06 13	13 25.72	-23 38.1					
1989 06 23	13 26.32	-22 53.2	2.885	3.465	116.8	15.2	17.7
1989 07 03	13 28.83	-22 19.4					
1989 07 13	13 33.11	-21 57.2	3.138	3.453	99.4	16.9	18.0

1983 AJ a,e,i = 1.94, 0.11, 17 Elements MPC 12570

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 11.54	-33 28.0	1.855	2.120	91.3	27.7	18.1
1989 02 13	14 20.99	-35 45.8					
1989 02 23	14 27.88	-37 56.6	1.643	2.131	105.4	26.6	17.8
1989 03 05	14 31.63	-39 57.7					
1989 03 15	14 31.56	-41 44.2	1.453	2.140	120.8	23.5	17.4
1989 03 25	14 27.27	-43 09.3					
1989 04 04	14 18.72	-44 03.8	1.304	2.145	136.7	18.6	17.1
1989 04 14	14 06.63	-44 17.8					
1989 04 24	13 52.66	-43 45.2	1.224	2.148	148.7	14.1	16.8
1989 05 04	13 38.98	-42 26.9					
1989 05 14	13 27.69	-40 32.6	1.228	2.148	147.2	14.8	16.8
1989 05 24	13 20.19	-38 18.5					
1989 06 03	13 16.93	-36 00.8	1.314	2.145	133.8	19.9	17.1
1989 06 13	13 17.82	-33 52.6					
1989 06 23	13 22.39	-32 02.2	1.464	2.140	118.1	24.8	17.5
1989 07 03	13 30.08	-30 32.5					
1989 07 13	13 40.38	-29 24.0	1.653	2.131	103.4	27.6	17.8

(3763) 1980 TA6 a,e,i = 2.25, 0.10, 7 Elements MPC 12794

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 07.72	-09 56.2	1.594	2.019	100.4	28.7	16.3
1989 02 13	14 17.31	-11 09.7					
1989 02 23	14 24.39	-12 13.8	1.378	2.018	116.0	26.2	15.9
1989 03 05	14 28.48	-13 07.9					
1989 03 15	14 29.11	-13 51.3	1.194	2.019	134.4	20.6	15.4
1989 03 25	14 26.08	-14 23.4					
1989 04 04	14 19.52	-14 43.5	1.068	2.023	156.2	11.5	14.9
1989 04 14	14 10.12	-14 51.8					
1989 04 24	13 59.25	-14 50.5	1.025	2.030	177.5	1.3	14.3
1989 05 04	13 48.54	-14 44.0					
1989 05 14	13 39.60	-14 38.2	1.077	2.040	155.4	11.9	14.9
1989 05 24	13 33.59	-14 39.0					
1989 06 03	13 30.99	-14 50.1	1.211	2.053	134.5	20.7	15.5
1989 06 13	13 31.87	-15 13.5					
1989 06 23	13 35.98	-15 49.1	1.399	2.068	116.9	26.0	15.9
1989 07 03	13 42.91	-16 35.7					
1989 07 13	13 52.31	-17 31.4	1.618	2.085	102.2	28.5	16.3

1985 RS4 a,e,i = 3.16, 0.08, 7 Elements MPC 13449

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 11.32	-08 05.3	2.583	2.922	100.2	19.4	17.2
1989	02 13	14 16.95	-08 03.9					
1989	02 23	14 20.61	-07 49.9	2.314	2.915	118.2	17.4	16.9
1989	03 05	14 22.11	-07 23.3					
1989	03 15	14 21.31	-06 44.8	2.092	2.908	138.1	13.2	16.6
1989	03 25	14 18.29	-05 56.2					
1989	04 04	14 13.31	-05 00.7	1.946	2.903	159.3	7.0	16.2
1989	04 14	14 06.89	-04 02.8					
1989	04 24	13 59.76	-03 07.9	1.902	2.899	170.5	3.3	16.0
1989	05 04	13 52.75	-02 21.3					
1989	05 14	13 46.63	-01 47.5	1.967	2.896	151.5	9.6	16.3
1989	05 24	13 42.05	-01 29.0					
1989	06 03	13 39.38	-01 26.6	2.124	2.894	131.2	15.3	16.7
1989	06 13	13 38.81	-01 39.8					
1989	06 23	13 40.34	-02 07.0	2.343	2.893	112.8	18.9	17.0
1989	07 03	13 43.85	-02 46.0					
1989	07 13	13 49.17	-03 35.0	2.596	2.894	96.5	20.4	17.3

1984 DE a,e,i = 2.66, 0.10, 7 Elements MPC 11346

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 21.74	-21 15.3	2.538	2.777	93.4	20.7	17.6
1989	02 13	14 27.56	-22 15.1					
1989	02 23	14 31.20	-23 06.3	2.287	2.795	110.8	19.3	17.4
1989	03 05	14 32.41	-23 47.3					
1989	03 15	14 30.98	-24 16.2	2.067	2.812	130.1	15.7	17.1
1989	03 25	14 26.92	-24 31.1					
1989	04 04	14 20.47	-24 29.9	1.911	2.828	151.1	9.8	16.7
1989	04 14	14 12.19	-24 11.9					
1989	04 24	14 02.97	-23 38.2	1.849	2.843	169.0	3.9	16.4
1989	05 04	13 53.81	-22 52.5					
1989	05 14	13 45.72	-22 00.4	1.897	2.857	157.4	7.8	16.7
1989	05 24	13 39.47	-21 08.2					
1989	06 03	13 35.50	-20 21.7	2.045	2.870	136.8	14.0	17.0
1989	06 13	13 34.00	-19 44.9					
1989	06 23	13 34.93	-19 20.0	2.264	2.881	117.7	18.2	17.4
1989	07 03	13 38.10	-19 07.6					
1989	07 13	13 43.30	-19 07.4	2.525	2.892	100.7	20.2	17.7

1980 RO2 a,e,i = 2.22, 0.17, 2 Elements MPC 10158

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 23.47	-16 27.0	2.336	2.608	94.6	22.1	18.9
1989	02 13	14 29.81	-17 02.1					
1989	02 23	14 33.95	-17 26.1	2.069	2.608	112.1	20.6	18.6
1989	03 05	14 35.57	-17 37.9					
1989	03 15	14 34.40	-17 36.0	1.832	2.605	132.0	16.5	18.2
1989	03 25	14 30.39	-17 19.4					
1989	04 04	14 23.71	-16 47.7	1.660	2.599	154.4	9.6	17.7
1989	04 14	14 14.92	-16 01.9					
1989	04 24	14 04.94	-15 05.6	1.585	2.590	177.5	1.0	17.2
1989	05 04	13 54.90	-14 04.2					
1989	05 14	13 45.93	-13 04.7	1.619	2.578	156.5	9.0	17.6
1989	05 24	13 38.96	-12 13.6					
1989	06 03	13 34.49	-11 35.6	1.750	2.563	134.2	16.5	18.0
1989	06 13	13 32.75	-11 13.1					
1989	06 23	13 33.69	-11 06.5	1.945	2.545	114.8	21.3	18.4
1989	07 03	13 37.10	-11 15.0					
1989	07 13	13 42.74	-11 36.9	2.174	2.524	98.0	23.5	18.7

1988 CN2 a,e,i = 3.15, 0.13, 1 Elements MPC 13053

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 21.57	-13 41.5	2.810	3.074	96.0	18.6	18.0
1989	02 13	14 26.49	-14 02.8					
1989	02 23	14 29.42	-14 13.8	2.558	3.098	114.2	16.9	17.8
1989	03 05	14 30.21	-14 14.2					
1989	03 15	14 28.75	-14 03.5	2.345	3.123	134.4	13.1	17.5
1989	03 25	14 25.14	-13 42.4					
1989	04 04	14 19.65	-13 11.8	2.205	3.148	156.6	7.2	17.2
1989	04 14	14 12.78	-12 33.9					
1989	04 24	14 05.23	-11 52.1	2.167	3.172	179.2	0.2	16.7
1989	05 04	13 57.76	-11 10.5					
1989	05 14	13 51.11	-10 33.3	2.242	3.197	156.9	7.1	17.2
1989	05 24	13 45.88	-10 03.9					
1989	06 03	13 42.43	-09 44.8	2.418	3.221	135.4	12.8	17.6
1989	06 13	13 40.94	-09 37.2					
1989	06 23	13 41.43	-09 40.9	2.667	3.244	116.0	16.3	18.0
1989	07 03	13 43.78	-09 55.4					
1989	07 13	13 47.85	-10 19.6	2.955	3.267	98.7	17.9	18.2

1987 YB a,e,i = 2.21, 0.17, 6 Elements MPC 12801

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 27.20	-07 10.1	2.220	2.532	96.7	22.7	18.5
1989	02 13	14 33.35	-07 19.4					
1989	02 23	14 37.18	-07 16.3	1.976	2.548	114.3	20.7	18.2
1989	03 05	14 38.39	-07 00.7					
1989	03 15	14 36.74	-06 33.2	1.766	2.562	134.3	16.1	17.8
1989	03 25	14 32.22	-05 55.8					
1989	04 04	14 25.07	-05 11.2	1.625	2.573	156.4	9.0	17.4
1989	04 14	14 15.90	-04 24.3					
1989	04 24	14 05.67	-03 40.7	1.582	2.580	171.1	3.5	17.1
1989	05 04	13 55.49	-03 06.1					
1989	05 14	13 46.47	-02 45.0	1.648	2.585	152.1	10.6	17.5
1989	05 24	13 39.45	-02 40.2					
1989	06 03	13 34.90	-02 51.8	1.807	2.587	130.8	17.3	17.9
1989	06 13	13 32.98	-03 19.1					
1989	06 23	13 33.64	-04 00.0	2.025	2.585	112.1	21.4	18.3
1989	07 03	13 36.66	-04 52.4					
1989	07 13	13 41.80	-05 54.1	2.273	2.581	95.7	23.1	18.6

1986 QY a,e,i = 2.74, 0.15, 5 Elements MPC 12942

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 29.29	-15 23.0	2.709	2.941	93.7	19.5	18.4
1989	02 13	14 34.41	-16 01.4					
1989	02 23	14 37.46	-16 30.9	2.454	2.965	111.7	18.1	18.1
1989	03 05	14 38.22	-16 50.8					
1989	03 15	14 36.54	-17 00.6	2.232	2.987	131.7	14.4	17.8
1989	03 25	14 32.45	-16 59.6					
1989	04 04	14 26.19	-16 47.8	2.078	3.008	153.9	8.4	17.5
1989	04 14	14 18.27	-16 26.1					
1989	04 24	14 09.44	-15 56.9	2.023	3.028	176.4	1.2	17.1
1989	05 04	14 00.59	-15 23.5					
1989	05 14	13 52.58	-14 50.4	2.083	3.046	158.6	7.0	17.5
1989	05 24	13 46.14	-14 21.8					
1989	06 03	13 41.68	-14 01.0	2.244	3.063	136.7	13.1	17.9
1989	06 13	13 39.43	-13 50.2					
1989	06 23	13 39.40	-13 50.4	2.479	3.078	117.0	17.1	18.2
1989	07 03	13 41.45	-14 01.2					
1989	07 13	13 45.43	-14 22.0	2.755	3.091	99.6	18.9	18.5

1988 CE a,e,i = 2.70, 0.11, 9 Elements MPC 12951

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 25.00	-21 03.5	2.582	2.808	92.8	20.5	17.7
1989	02 13	14 31.40	-22 13.1					
1989	02 23	14 35.81	-23 16.2	2.292	2.787	109.7	19.5	17.4
1989	03 05	14 37.92	-24 11.7					
1989	03 15	14 37.45	-24 57.8	2.033	2.764	128.5	16.4	17.0
1989	03 25	14 34.27	-25 32.3					
1989	04 04	14 28.47	-25 52.5	1.836	2.741	148.8	10.9	16.6
1989	04 14	14 20.44	-25 56.1					
1989	04 24	14 11.01	-25 42.7	1.729	2.718	166.8	4.9	16.2
1989	05 04	14 01.21	-25 13.8					
1989	05 14	13 52.17	-24 33.8	1.728	2.694	158.5	7.9	16.3
1989	05 24	13 44.90	-23 49.4					
1989	06 03	13 40.02	-23 06.8	1.826	2.670	138.3	14.6	16.7
1989	06 13	13 37.87	-22 31.5					
1989	06 23	13 38.48	-22 06.9	1.995	2.646	119.3	19.6	17.0
1989	07 03	13 41.69	-21 54.7					
1989	07 13	13 47.29	-21 54.9	2.206	2.622	102.5	22.2	17.3

1987 WE1 a,e,i = 2.23, 0.12, 7 Elements MPC 12688

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 29.53	-13 02.3	2.046	2.338	94.3	24.9	17.4
1989	02 13	14 36.92	-13 57.0					
1989	02 23	14 41.90	-14 42.3	1.817	2.362	111.2	23.0	17.1
1989	03 05	14 44.11	-15 17.6					
1989	03 15	14 43.22	-15 42.2	1.615	2.385	130.6	18.5	16.8
1989	03 25	14 39.12	-15 55.4					
1989	04 04	14 31.97	-15 56.7	1.473	2.407	152.9	10.9	16.3
1989	04 14	14 22.38	-15 46.5					
1989	04 24	14 11.40	-15 27.0	1.422	2.427	176.6	1.4	15.9
1989	05 04	14 00.33	-15 02.2					
1989	05 14	13 50.47	-14 37.6	1.478	2.444	158.0	8.9	16.3
1989	05 24	13 42.83	-14 18.7					
1989	06 03	13 37.96	-14 09.3	1.629	2.460	135.9	16.7	16.8
1989	06 13	13 36.05	-14 11.8					
1989	06 23	13 36.98	-14 26.8	1.845	2.474	116.7	21.5	17.2
1989	07 03	13 40.50	-14 53.6					
1989	07 13	13 46.32	-15 30.8	2.096	2.486	100.2	23.7	17.6

(3778) Regge a,e,i = 2.87, 0.04, 1 Elements MPC 12937

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 26.60	-15 32.3	2.688	2.930	94.2	19.6	17.7
1989	02 13	14 32.38	-16 05.9					
1989	02 23	14 36.16	-16 30.2	2.420	2.937	111.9	18.2	17.5
1989	03 05	14 37.73	-16 44.1					
1989	03 15	14 36.91	-16 47.2	2.186	2.943	131.7	14.6	17.2
1989	03 25	14 33.71	-16 38.9					
1989	04 04	14 28.32	-16 19.4	2.020	2.949	153.6	8.7	16.8
1989	04 14	14 21.19	-15 49.7					
1989	04 24	14 13.06	-15 12.6	1.950	2.955	176.6	1.2	16.4
1989	05 04	14 04.79	-14 31.9					
1989	05 14	13 57.26	-13 52.2	1.992	2.960	159.4	6.9	16.7
1989	05 24	13 51.20	-13 18.1					
1989	06 03	13 47.08	-12 53.0	2.136	2.965	137.6	13.3	17.1
1989	06 13	13 45.17	-12 39.1					
1989	06 23	13 45.48	-12 37.2	2.353	2.969	118.0	17.6	17.4
1989	07 03	13 47.92	-12 46.8					
1989	07 13	13 52.31	-13 07.2	2.611	2.973	100.7	19.6	17.7

1983 AF2 a,e,i = 1.96, 0.14, 22 Elements MPC 12570

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 29.79	-38 30.5	1.994	2.164	86.1	27.0	17.7
1989 02 13	14 40.61	-41 11.1					
1989 02 23	14 49.11	-43 47.8	1.793	2.183	99.3	26.6	17.5
1989 03 05	14 54.61	-46 18.8					
1989 03 15	14 56.32	-48 40.1	1.607	2.199	113.2	24.6	17.2
1989 03 25	14 53.51	-50 45.8					
1989 04 04	14 45.70	-52 26.7	1.457	2.211	127.3	21.1	17.0
1989 04 14	14 33.09	-53 31.3					
1989 04 24	14 17.06	-53 48.9	1.364	2.221	138.7	17.4	16.7
1989 05 04	14 00.02	-53 14.1					
1989 05 14	13 44.78	-51 50.2	1.345	2.227	141.6	16.4	16.7
1989 05 24	13 33.52	-49 49.9					
1989 06 03	13 27.17	-47 30.1	1.405	2.231	133.8	19.1	16.8
1989 06 13	13 25.76	-45 06.7					
1989 06 23	13 28.75	-42 51.9	1.531	2.230	120.9	23.0	17.1
1989 07 03	13 35.43	-40 52.5					
1989 07 13	13 45.14	-39 11.8	1.705	2.227	107.1	25.9	17.4

(3786) 1988 AE a,e,i = 2.55, 0.08, 14 Elements MPC 12947

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 14.61	-28 51.4	2.198	2.445	92.4	23.7	15.9
1989 02 13	14 23.76	-30 08.9					
1989 02 23	14 30.82	-31 16.1	1.940	2.431	107.7	22.8	15.6
1989 03 05	14 35.39	-32 10.6					
1989 03 15	14 37.08	-32 49.1	1.707	2.417	124.8	19.7	15.2
1989 03 25	14 35.69	-33 07.8					
1989 04 04	14 31.26	-33 02.2	1.524	2.404	143.7	14.3	14.8
1989 04 14	14 24.24	-32 28.2					
1989 04 24	14 15.60	-31 24.9	1.419	2.393	161.0	7.9	14.4
1989 05 04	14 06.57	-29 55.4					
1989 05 14	13 58.52	-28 07.6	1.412	2.382	158.8	8.8	14.5
1989 05 24	13 52.57	-26 12.8					
1989 06 03	13 49.33	-24 22.1	1.501	2.373	140.6	15.7	14.8
1989 06 13	13 49.09	-22 44.1					
1989 06 23	13 51.76	-21 23.8	1.663	2.366	122.1	21.3	15.2
1989 07 03	13 57.07	-20 23.0					
1989 07 13	14 04.75	-19 41.0	1.873	2.360	105.7	24.5	15.5

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 11.99	-14 59.9	1.955	2.305	97.7	25.1	18.3
1989 02 13	14 21.33	-15 42.4					
1989 02 23	14 28.53	-16 11.7	1.711	2.296	113.8	23.2	17.9
1989 03 05	14 33.23	-16 26.8					
1989 03 15	14 35.08	-16 26.3	1.500	2.290	132.2	18.8	17.5
1989 03 25	14 33.96	-16 09.5					
1989 04 04	14 29.96	-15 36.7	1.348	2.287	153.5	11.3	17.1
1989 04 14	14 23.56	-14 49.6					
1989 04 24	14 15.71	-13 52.7	1.283	2.287	176.9	1.4	16.5
1989 05 04	14 07.57	-12 52.4					
1989 05 14	14 00.38	-11 56.5	1.316	2.291	159.5	8.9	16.9
1989 05 24	13 55.15	-11 11.8					
1989 06 03	13 52.46	-10 42.6	1.440	2.297	138.1	17.2	17.4
1989 06 13	13 52.54	-10 30.8					
1989 06 23	13 55.35	-10 36.1	1.629	2.307	119.6	22.5	17.8
1989 07 03	14 00.66	-10 56.6					
1989 07 13	14 08.21	-11 30.1	1.856	2.319	103.8	25.2	18.2

1969 TQ1 a,e,i = 3.14, 0.17, 3 Elements MPC 11746

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 34.70	-12 52.9	3.473	3.662	93.2	15.6	19.2
1989	02 13	14 38.44	-13 07.9					
1989	02 23	14 40.49	-13 14.7	3.183	3.669	111.9	14.5	19.0
1989	03 05	14 40.70	-13 13.3					
1989	03 15	14 38.99	-13 03.4	2.931	3.675	132.4	11.5	18.7
1989	03 25	14 35.43	-12 45.6					
1989	04 04	14 30.22	-12 20.6	2.752	3.679	154.4	6.8	18.4
1989	04 14	14 23.71	-11 50.3					
1989	04 24	14 16.45	-11 17.0	2.677	3.682	176.7	0.9	18.0
1989	05 04	14 09.03	-10 43.6					
1989	05 14	14 02.09	-10 13.4	2.720	3.683	159.2	5.6	18.3
1989	05 24	13 56.19	-09 49.1					
1989	06 03	13 51.70	-09 32.9	2.871	3.682	137.5	10.7	18.6
1989	06 13	13 48.88	-09 26.0					
1989	06 23	13 47.82	-09 28.9	3.100	3.680	117.4	14.2	18.9
1989	07 03	13 48.50	-09 41.1					
1989	07 13	13 50.84	-10 02.2	3.374	3.677	99.3	15.8	19.1

1986 YB a,e,i = 3.00, 0.10, 9 Elements MPC 11522

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 31.49	-24 11.2	3.129	3.287	90.4	17.5	17.4
1989	02 13	14 36.74	-24 57.5					
1989	02 23	14 40.13	-25 36.2	2.842	3.285	108.0	16.6	17.1
1989	03 05	14 41.47	-26 05.9					
1989	03 15	14 40.57	-26 25.0	2.583	3.282	127.2	14.0	16.8
1989	03 25	14 37.44	-26 31.7					
1989	04 04	14 32.25	-26 24.5	2.387	3.277	147.8	9.3	16.5
1989	04 14	14 25.37	-26 02.3					
1989	04 24	14 17.47	-25 25.9	2.285	3.272	166.8	4.0	16.2
1989	05 04	14 09.32	-24 37.6					
1989	05 14	14 01.72	-23 41.6	2.295	3.266	160.8	5.8	16.3
1989	05 24	13 55.42	-22 43.1					
1989	06 03	13 50.88	-21 47.4	2.411	3.259	140.6	11.4	16.6
1989	06 13	13 48.39	-20 58.7					
1989	06 23	13 48.05	-20 20.0	2.608	3.251	121.0	15.5	16.9
1989	07 03	13 49.77	-19 52.5					
1989	07 13	13 53.43	-19 36.7	2.856	3.241	103.1	17.8	17.1

1974 SB5 a,e,i = 3.10, 0.17, 2 Elements MPC 10380

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 33.74	-14 08.3	3.239	3.436	93.0	16.6	18.5
1989	02 13	14 38.42	-14 30.7					
1989	02 23	14 41.38	-14 44.9	2.925	3.411	111.3	15.7	18.2
1989	03 05	14 42.45	-14 50.5					
1989	03 15	14 41.47	-14 47.1	2.646	3.386	131.3	12.7	17.9
1989	03 25	14 38.44	-14 34.7					
1989	04 04	14 33.51	-14 13.7	2.437	3.359	153.1	7.7	17.5
1989	04 14	14 27.00	-13 45.2					
1989	04 24	14 19.50	-13 11.7	2.327	3.332	176.2	1.1	17.1
1989	05 04	14 11.66	-12 36.1					
1989	05 14	14 04.24	-12 02.1	2.333	3.303	160.4	5.9	17.3
1989	05 24	13 57.90	-11 33.3					
1989	06 03	13 53.14	-11 12.6	2.445	3.273	138.4	11.9	17.6
1989	06 13	13 50.28	-11 02.0					
1989	06 23	13 49.43	-11 02.3	2.634	3.243	118.4	16.0	17.9
1989	07 03	13 50.58	-11 13.4					
1989	07 13	13 53.64	-11 34.5	2.867	3.211	100.5	18.1	18.1

1988 CR1 a,e,i = 3.11, 0.12, 2 Elements MPC 13053

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 24.76	-11 34.0	2.457	2.740	95.9	21.0	17.5
1989	02 13	14 31.94	-11 59.0					
1989	02 23	14 37.14	-12 13.1	2.192	2.735	113.0	19.4	17.3
1989	03 05	14 40.13	-12 16.2					
1989	03 15	14 40.68	-12 07.9	1.963	2.732	132.2	15.6	16.9
1989	03 25	14 38.75	-11 49.0					
1989	04 04	14 34.47	-11 20.7	1.798	2.731	153.6	9.4	16.5
1989	04 14	14 28.28	-10 45.4					
1989	04 24	14 20.88	-10 06.9	1.728	2.731	175.2	1.8	16.1
1989	05 04	14 13.17	-09 29.8					
1989	05 14	14 06.07	-08 58.7	1.764	2.734	159.5	7.4	16.4
1989	05 24	14 00.41	-08 37.6					
1989	06 03	13 56.71	-08 29.0	1.897	2.738	138.2	14.3	16.8
1989	06 13	13 55.26	-08 33.9					
1989	06 23	13 56.12	-08 51.8	2.102	2.744	119.1	18.9	17.2
1989	07 03	13 59.19	-09 21.4					
1989	07 13	14 04.29	-10 01.2	2.350	2.752	102.4	21.1	17.5

1982 UD7 a,e,i = 2.57, 0.21, 7 Elements MPC 11438

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 31.14	-15 17.0	2.711	2.937	93.3	19.6	18.6
1989	02 13	14 37.41	-15 32.3					
1989	02 23	14 41.82	-15 36.6	2.402	2.906	110.9	18.5	18.3
1989	03 05	14 44.10	-15 28.8					
1989	03 15	14 44.01	-15 08.0	2.125	2.873	130.6	15.2	17.9
1989	03 25	14 41.47	-14 33.8					
1989	04 04	14 36.56	-13 46.6	1.913	2.838	152.5	9.4	17.4
1989	04 14	14 29.63	-12 48.1					
1989	04 24	14 21.35	-11 42.1	1.797	2.801	175.7	1.5	16.9
1989	05 04	14 12.58	-10 33.7					
1989	05 14	14 04.30	-09 29.2	1.793	2.762	159.4	7.4	17.1
1989	05 24	13 57.38	-08 34.3					
1989	06 03	13 52.44	-07 53.1	1.891	2.722	137.0	14.7	17.5
1989	06 13	13 49.85	-07 28.1					
1989	06 23	13 49.71	-07 19.5	2.060	2.680	117.1	19.7	17.8
1989	07 03	13 51.96	-07 26.3					
1989	07 13	13 56.44	-07 47.0	2.266	2.636	99.8	22.3	18.0

1988 CM2 a,e,i = 2.90, 0.04, 3 Elements MPC 13160

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 30.82	-11 54.8	2.625	2.874	94.4	20.0	17.8
1989	02 13	14 37.18	-12 12.4					
1989	02 23	14 41.57	-12 19.4	2.361	2.881	111.9	18.6	17.5
1989	03 05	14 43.77	-12 15.3					
1989	03 15	14 43.60	-12 00.2	2.131	2.888	131.5	14.9	17.2
1989	03 25	14 41.03	-11 34.8					
1989	04 04	14 36.23	-11 00.3	1.967	2.895	153.2	9.0	16.8
1989	04 14	14 29.62	-10 19.2					
1989	04 24	14 21.90	-09 35.4	1.899	2.902	174.7	1.8	16.4
1989	05 04	14 13.90	-08 53.2					
1989	05 14	14 06.49	-08 17.3	1.942	2.909	159.3	7.1	16.7
1989	05 24	14 00.42	-07 51.5					
1989	06 03	13 56.21	-07 38.0	2.085	2.917	137.7	13.5	17.1
1989	06 13	13 54.14	-07 37.7					
1989	06 23	13 54.26	-07 50.4	2.302	2.924	118.3	17.8	17.5
1989	07 03	13 56.49	-08 14.7					
1989	07 13	14 00.67	-08 49.4	2.560	2.931	101.1	19.9	17.8

(3865) 1988 AY4 a,e,i = 2.40, 0.08, 7 Elements MPC 13445

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 16.59	-16 45.3	1.952	2.279	96.1	25.5	17.0
1989	02 13	14 26.39	-17 21.2					
1989	02 23	14 34.10	-17 42.8	1.699	2.264	112.0	23.9	16.6
1989	03 05	14 39.34	-17 48.5					
1989	03 15	14 41.72	-17 36.8	1.476	2.251	130.4	19.7	16.2
1989	03 25	14 41.05	-17 06.3					
1989	04 04	14 37.33	-16 16.9	1.308	2.239	151.6	12.3	15.7
1989	04 14	14 30.98	-15 10.1					
1989	04 24	14 22.88	-13 50.9	1.225	2.229	175.3	2.1	15.1
1989	05 04	14 14.24	-12 26.7					
1989	05 14	14 06.37	-11 07.0	1.242	2.220	160.6	8.7	15.4
1989	05 24	14 00.42	-10 00.3					
1989	06 03	13 57.05	-09 12.3	1.349	2.213	138.5	17.7	15.9
1989	06 13	13 56.60	-08 45.4					
1989	06 23	13 59.05	-08 39.1	1.520	2.208	119.7	23.6	16.3
1989	07 03	14 04.16	-08 51.3					
1989	07 13	14 11.67	-09 19.0	1.729	2.205	103.8	26.6	16.7

1982 SJ1 a,e,i = 2.66, 0.21, 7 Elements MPC 13583

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 38.51	-11 27.0	2.931	3.137	92.7	18.3	19.0
1989	02 13	14 43.60	-11 26.2					
1989	02 23	14 46.79	-11 14.4	2.663	3.156	111.0	17.0	18.8
1989	03 05	14 47.88	-10 51.4					
1989	03 15	14 46.75	-10 17.4	2.429	3.173	131.2	13.6	18.5
1989	03 25	14 43.41	-09 33.6					
1989	04 04	14 38.06	-08 41.6	2.264	3.188	153.1	8.2	18.2
1989	04 14	14 31.10	-07 44.7					
1989	04 24	14 23.16	-06 47.0	2.200	3.200	172.5	2.3	17.9
1989	05 04	14 14.99	-05 53.0					
1989	05 14	14 07.35	-05 07.2	2.252	3.210	157.6	6.9	18.1
1989	05 24	14 00.92	-04 33.0					
1989	06 03	13 56.14	-04 12.2	2.408	3.217	136.2	12.6	18.5
1989	06 13	13 53.30	-04 05.5					
1989	06 23	13 52.47	-04 12.0	2.638	3.222	116.5	16.4	18.8
1989	07 03	13 53.58	-04 30.4					
1989	07 13	13 56.53	-04 59.2	2.909	3.224	98.8	18.2	19.1

(3718) Dunbar a,e,i = 2.63, 0.05, 4 Elements MPC 12578

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 30.30	-11 25.9	2.385	2.654	94.7	21.7	17.8
1989	02 13	14 37.58	-11 55.3					
1989	02 23	14 42.87	-12 14.5	2.112	2.643	111.7	20.4	17.5
1989	03 05	14 45.85	-12 23.1					
1989	03 15	14 46.27	-12 20.9	1.871	2.631	130.8	16.6	17.1
1989	03 25	14 44.00	-12 08.2					
1989	04 04	14 39.13	-11 45.9	1.693	2.620	152.4	10.2	16.7
1989	04 14	14 32.06	-11 16.0					
1989	04 24	14 23.52	-10 42.1	1.606	2.609	174.9	2.0	16.2
1989	05 04	14 14.50	-10 08.4					
1989	05 14	14 06.06	-09 39.9	1.626	2.598	159.9	7.7	16.5
1989	05 24	13 59.16	-09 21.1					
1989	06 03	13 54.43	-09 14.6	1.743	2.587	138.0	15.2	16.9
1989	06 13	13 52.22	-09 21.9					
1989	06 23	13 52.59	-09 42.7	1.930	2.576	118.6	20.3	17.3
1989	07 03	13 55.41	-10 15.8					
1989	07 13	14 00.50	-10 59.7	2.157	2.566	101.8	22.8	17.6

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 31.71	-22 00.8	2.497	2.700	91.0	21.4	20.1
1989 02 13	14 39.07	-22 50.3					
1989 02 23	14 44.43	-23 30.5	2.217	2.690	107.8	20.5	19.8
1989 03 05	14 47.45	-24 00.2					
1989 03 15	14 47.84	-24 17.4	1.963	2.678	126.6	17.3	19.4
1989 03 25	14 45.46	-24 20.1					
1989 04 04	14 40.35	-24 06.2	1.765	2.664	147.6	11.6	19.0
1989 04 14	14 32.90	-23 34.4					
1989 04 24	14 23.87	-22 45.4	1.654	2.648	168.8	4.2	18.5
1989 05 04	14 14.29	-21 42.5					
1989 05 14	14 05.31	-20 31.6	1.651	2.631	162.1	6.8	18.6
1989 05 24	13 57.94	-19 20.4					
1989 06 03	13 52.85	-18 15.9	1.749	2.612	140.4	14.3	19.0
1989 06 13	13 50.42	-17 23.3					
1989 06 23	13 50.69	-16 45.6	1.923	2.592	120.6	19.7	19.4
1989 07 03	13 53.52	-16 23.4					
1989 07 13	13 58.69	-16 16.1	2.140	2.570	103.2	22.6	19.7

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 38.42	-14 52.5	3.458	3.624	91.7	15.8	19.2
1989 02 13	14 42.68	-15 10.3					
1989 02 23	14 45.28	-15 20.0	3.149	3.612	110.2	14.9	19.0
1989 03 05	14 46.04	-15 21.3					
1989 03 15	14 44.86	-15 13.9	2.873	3.598	130.4	12.2	18.7
1989 03 25	14 41.75	-14 57.6					
1989 04 04	14 36.87	-14 33.1	2.668	3.583	152.2	7.5	18.4
1989 04 14	14 30.52	-14 01.5					
1989 04 24	14 23.25	-13 24.9	2.563	3.567	175.3	1.3	18.0
1989 05 04	14 15.66	-12 46.3					
1989 05 14	14 08.43	-12 09.1	2.576	3.548	161.4	5.2	18.2
1989 05 24	14 02.17	-11 36.7					
1989 06 03	13 57.34	-11 11.9	2.697	3.529	139.4	10.8	18.5
1989 06 13	13 54.22	-10 56.4					
1989 06 23	13 52.96	-10 51.2	2.899	3.508	119.1	14.7	18.8
1989 07 03	13 53.55	-10 56.3					
1989 07 13	13 55.92	-11 11.1	3.148	3.485	100.8	16.6	19.0

1986 VG a,e,i = 3.01, 0.07, 10 Elements MPC 12943

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 38.83	-21 31.2	2.916	3.071	89.6	18.7	17.1
1989 02 13	14 44.62	-22 33.5					
1989 02 23	14 48.49	-23 29.6	2.646	3.083	106.9	17.9	16.9
1989 03 05	14 50.21	-24 18.7					
1989 03 15	14 49.55	-24 59.3	2.404	3.095	126.0	15.1	16.6
1989 03 25	14 46.47	-25 29.8					
1989 04 04	14 41.09	-25 48.4	2.223	3.106	146.6	10.2	16.3
1989 04 14	14 33.78	-25 53.4					
1989 04 24	14 25.21	-25 44.7	2.132	3.117	165.9	4.5	16.0
1989 05 04	14 16.21	-25 23.6					
1989 05 14	14 07.72	-24 53.2	2.152	3.128	161.8	5.8	16.0
1989 05 24	14 00.54	-24 18.5					
1989 06 03	13 55.25	-23 44.1	2.277	3.138	141.9	11.5	16.4
1989 06 13	13 52.16	-23 14.4					
1989 06 23	13 51.38	-22 52.5	2.484	3.147	122.4	15.8	16.7
1989 07 03	13 52.82	-22 40.0					
1989 07 13	13 56.33	-22 37.5	2.741	3.156	104.7	18.1	17.0

1979 SX2 a,e,i = 2.37, 0.16, 4 Elements MPC 13464

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 32.64	-18 04.7	2.457	2.679	92.0	21.6	18.0
1989 02 13	14 40.00	-18 40.1					
1989 02 23	14 45.39	-19 05.3	2.169	2.661	109.0	20.6	17.7
1989 03 05	14 48.48	-19 19.0					
1989 03 15	14 48.97	-19 20.0	1.908	2.641	128.2	17.2	17.3
1989 03 25	14 46.70	-19 06.9					
1989 04 04	14 41.72	-18 38.8	1.705	2.618	149.8	11.1	16.9
1989 04 14	14 34.36	-17 55.8					
1989 04 24	14 25.36	-17 00.1	1.592	2.594	173.2	2.6	16.3
1989 05 04	14 15.75	-15 56.1					
1989 05 14	14 06.64	-14 50.3	1.588	2.567	161.9	7.0	16.5
1989 05 24	13 59.10	-13 49.7					
1989 06 03	13 53.82	-13 00.0	1.683	2.539	139.2	15.1	16.9
1989 06 13	13 51.19	-12 25.2					
1989 06 23	13 51.30	-12 06.7	1.851	2.509	119.2	20.7	17.2
1989 07 03	13 54.01	-12 04.0					
1989 07 13	13 59.13	-12 16.0	2.058	2.477	102.0	23.7	17.5

1979 OM15 a,e,i = 3.14, 0.19, 1 Elements MPC 13051

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 38.24	-15 18.1	3.363	3.532	91.6	16.2	18.1
1989 02 13	14 42.97	-15 38.6					
1989 02 23	14 46.03	-15 51.2	3.044	3.507	109.9	15.4	17.9
1989 03 05	14 47.25	-15 55.2					
1989 03 15	14 46.49	-15 50.2	2.759	3.480	129.8	12.7	17.6
1989 03 25	14 43.73	-15 36.1					
1989 04 04	14 39.10	-15 13.2	2.541	3.453	151.5	7.9	17.2
1989 04 14	14 32.89	-14 42.5					
1989 04 24	14 25.65	-14 05.9	2.422	3.424	174.5	1.6	16.8
1989 05 04	14 17.99	-13 26.6					
1989 05 14	14 10.64	-12 47.9	2.418	3.394	162.2	5.2	17.0
1989 05 24	14 04.26	-12 13.8					
1989 06 03	13 59.34	-11 47.0	2.523	3.364	140.0	11.2	17.3
1989 06 13	13 56.22	-11 30.0					
1989 06 23	13 55.05	-11 23.6	2.708	3.332	119.8	15.4	17.5
1989 07 03	13 55.84	-11 28.1					
1989 07 13	13 58.51	-11 42.8	2.940	3.299	101.6	17.6	17.7

1977 UP a,e,i = 2.18, 0.15, 3 Elements MPC 5520

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 35.58	-16 36.6	2.245	2.481	91.8	23.4	19.7
1989 02 13	14 43.60	-17 28.2					
1989 02 23	14 49.56	-18 11.1	1.970	2.468	108.4	22.4	19.4
1989 03 05	14 53.09	-18 44.5					
1989 03 15	14 53.80	-19 07.3	1.720	2.452	127.2	18.9	19.0
1989 03 25	14 51.46	-19 18.1					
1989 04 04	14 46.02	-19 15.6	1.523	2.433	148.6	12.4	18.5
1989 04 14	14 37.78	-18 58.9					
1989 04 24	14 27.55	-18 28.7	1.413	2.412	171.8	3.4	18.0
1989 05 04	14 16.48	-17 48.2					
1989 05 14	14 05.95	-17 03.1	1.407	2.389	162.1	7.5	18.1
1989 05 24	13 57.19	-16 20.2					
1989 06 03	13 51.04	-15 45.8	1.500	2.363	139.4	16.2	18.5
1989 06 13	13 47.94	-15 24.1					
1989 06 23	13 47.94	-15 17.4	1.662	2.336	119.5	22.3	18.9
1989 07 03	13 50.85	-15 25.4					
1989 07 13	13 56.42	-15 47.2	1.861	2.306	102.5	25.5	19.2

1985 XB a,e,i = 1.97, 0.22, 29 Elements MPC 10763

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	02 03	14 59.78	+30 26.6	1.058	1.558	1.98	+37.0	17.0
1989	02 13	15 15.28	+31 10.7					
1989	02 23	15 26.23	+32 03.5	0.981	1.587	2.41	+42.6	16.8
1989	03 05	15 31.99	+32 59.9					
1989	03 15	15 31.91	+33 50.8	0.909	1.625	2.54	+46.3	16.6
1989	03 25	15 25.64	+34 21.8					
1989	04 04	15 13.40	+34 15.0	0.856	1.669	2.04	+45.8	16.4
1989	04 14	14 56.44	+33 10.9					
1989	04 24	14 37.21	+30 56.5	0.848	1.718	0.79	+39.8	16.3
1989	05 04	14 18.61	+27 33.1					
1989	05 14	14 03.09	+23 15.7	0.912	1.771	-0.38	+32.3	16.5
1989	05 24	13 52.00	+18 28.3					
1989	06 03	13 45.55	+13 33.3	1.054	1.827	-1.01	+26.8	17.0
1989	06 13	13 43.40	+08 46.0					
1989	06 23	13 44.93	+04 15.2	1.261	1.883	-1.34	+22.8	17.5
1989	07 03	13 49.49	+00 04.2					
1989	07 13	13 56.57	-03 47.1	1.511	1.939	-1.51	+19.4	18.0

1980 TW5 a,e,i = 3.07, 0.03, 4 Elements MPC 13464

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 36.88	-19 19.7	2.914	3.087	90.7	18.6	17.6
1989	02 13	14 43.23	-19 57.1					
1989	02 23	14 47.77	-20 26.0	2.627	3.081	108.1	17.8	17.4
1989	03 05	14 50.27	-20 45.7					
1989	03 15	14 50.52	-20 55.1	2.369	3.075	127.3	14.9	17.0
1989	03 25	14 48.47	-20 53.3					
1989	04 04	14 44.22	-20 39.6	2.172	3.069	148.4	9.8	16.7
1989	04 14	14 38.09	-20 13.9					
1989	04 24	14 30.70	-19 37.6	2.066	3.062	170.5	3.1	16.3
1989	05 04	14 22.80	-18 53.5					
1989	05 14	14 15.26	-18 05.8	2.071	3.056	164.4	5.1	16.4
1989	05 24	14 08.84	-17 19.4					
1989	06 03	14 04.13	-16 38.6	2.181	3.050	142.6	11.7	16.7
1989	06 13	14 01.48	-16 06.9					
1989	06 23	14 01.01	-15 46.4	2.373	3.044	122.6	16.3	17.1
1989	07 03	14 02.68	-15 37.5					
1989	07 13	14 06.37	-15 40.0	2.616	3.038	104.8	18.9	17.3

1949 QQ1 a,e,i = 2.99, 0.10, 9 Elements MPC 13480

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 42.64	-24 54.0	3.170	3.283	87.7	17.5	17.7
1989	02 13	14 48.37	-25 48.1					
1989	02 23	14 52.29	-26 35.8	2.884	3.284	105.1	16.9	17.5
1989	03 05	14 54.17	-27 16.1					
1989	03 15	14 53.80	-27 47.5	2.623	3.284	124.0	14.5	17.2
1989	03 25	14 51.15	-28 08.1					
1989	04 04	14 46.28	-28 16.0	2.419	3.283	144.2	10.3	16.9
1989	04 14	14 39.54	-28 09.7					
1989	04 24	14 31.52	-27 48.7	2.304	3.281	163.5	5.0	16.6
1989	05 04	14 22.97	-27 14.2					
1989	05 14	14 14.75	-26 29.3	2.299	3.278	162.7	5.2	16.6
1989	05 24	14 07.65	-25 38.9					
1989	06 03	14 02.24	-24 48.0	2.402	3.274	143.6	10.6	16.9
1989	06 13	13 58.89	-24 01.5					
1989	06 23	13 57.74	-23 22.7	2.591	3.269	123.9	15.0	17.2
1989	07 03	13 58.73	-22 53.8					
1989	07 13	14 01.76	-22 35.6	2.834	3.263	105.9	17.4	17.4

(3791) 1981 WV1 a,e,i = 2.88, 0.07, 1 Elements MPC 12955

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 38.42	-16 36.6	2.779	2.968	91.2	19.4	17.9
1989	02 13	14 45.06	-17 12.4					
1989	02 23	14 49.87	-17 39.7	2.489	2.956	108.5	18.5	17.7
1989	03 05	14 52.59	-17 57.8					
1989	03 15	14 52.99	-18 06.0	2.228	2.943	127.7	15.5	17.3
1989	03 25	14 50.98	-18 03.8					
1989	04 04	14 46.64	-17 50.7	2.028	2.930	149.0	10.1	16.9
1989	04 14	14 40.27	-17 27.1					
1989	04 24	14 32.49	-16 54.6	1.918	2.917	171.9	2.8	16.5
1989	05 04	14 24.10	-16 16.3					
1989	05 14	14 16.03	-15 36.4	1.918	2.904	164.2	5.4	16.6
1989	05 24	14 09.12	-14 59.5					
1989	06 03	14 04.01	-14 29.9	2.023	2.890	142.0	12.5	17.0
1989	06 13	14 01.09	-14 10.4					
1989	06 23	14 00.49	-14 02.7	2.207	2.877	121.9	17.4	17.3
1989	07 03	14 02.18	-14 06.8					
1989	07 13	14 06.01	-14 22.2	2.438	2.863	104.2	20.1	17.6

1982 TG1 a,e,i = 2.66, 0.17, 13 Elements MPC 13448

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 42.41	-18 22.9	2.908	3.066	89.7	18.8	18.6
1989	02 13	14 48.48	-18 32.7					
1989	02 23	14 52.65	-18 31.6	2.631	3.078	107.6	17.8	18.4
1989	03 05	14 54.71	-18 18.7					
1989	03 15	14 54.48	-17 53.1	2.382	3.088	127.4	14.8	18.1
1989	03 25	14 51.93	-17 14.5					
1989	04 04	14 47.20	-16 23.2	2.194	3.096	149.3	9.5	17.7
1989	04 14	14 40.65	-15 20.6					
1989	04 24	14 32.90	-14 10.1	2.102	3.102	172.8	2.3	17.3
1989	05 04	14 24.70	-12 56.2					
1989	05 14	14 16.90	-11 44.4	2.125	3.106	163.2	5.4	17.5
1989	05 24	14 10.24	-10 40.1					
1989	06 03	14 05.23	-09 47.3	2.257	3.108	140.6	11.9	17.9
1989	06 13	14 02.22	-09 08.3					
1989	06 23	14 01.31	-08 44.1	2.470	3.108	120.3	16.4	18.2
1989	07 03	14 02.45	-08 33.8					
1989	07 13	14 05.53	-08 36.4	2.729	3.106	102.1	18.7	18.5

1974 SP1 a,e,i = 3.20, 0.15, 2 Elements MPC 13169

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 45.91	-14 55.7	3.457	3.594	90.0	15.9	19.2
1989	02 13	14 50.45	-15 15.6					
1989	02 23	14 53.31	-15 27.8	3.171	3.607	108.3	15.1	19.0
1989	03 05	14 54.33	-15 32.1					
1989	03 15	14 53.41	-15 28.2	2.917	3.618	128.3	12.5	18.8
1989	03 25	14 50.56	-15 16.2					
1989	04 04	14 45.92	-14 56.6	2.728	3.629	150.0	7.9	18.5
1989	04 14	14 39.81	-14 30.4					
1989	04 24	14 32.73	-13 59.7	2.638	3.638	172.9	2.0	18.1
1989	05 04	14 25.28	-13 26.8					
1989	05 14	14 18.11	-12 54.9	2.664	3.646	163.9	4.4	18.3
1989	05 24	14 11.82	-12 27.2					
1989	06 03	14 06.86	-12 06.0	2.800	3.652	141.9	9.9	18.6
1989	06 13	14 03.54	-11 53.2					
1989	06 23	14 01.98	-11 49.6	3.022	3.657	121.5	13.7	18.9
1989	07 03	14 02.21	-11 55.3					
1989	07 13	14 04.15	-12 09.9	3.295	3.662	103.1	15.7	19.2

(3748) Tatum a,e,i = 2.53, 0.16, 6 Elements MPC 12782

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 36.48	-13 02.1	1.977	2.251	92.7	25.9	17.1
1989	02 13	14 45.91	-14 00.3					
1989	02 23	14 53.06	-14 48.8	1.761	2.278	108.6	24.3	16.8
1989	03 05	14 57.56	-15 27.5					
1989	03 15	14 59.04	-15 56.1	1.570	2.308	126.9	20.2	16.5
1989	03 25	14 57.32	-16 14.3					
1989	04 04	14 52.44	-16 21.8	1.429	2.339	148.1	13.1	16.1
1989	04 14	14 44.82	-16 18.8					
1989	04 24	14 35.36	-16 07.1	1.372	2.372	171.7	3.5	15.7
1989	05 04	14 25.24	-15 49.6					
1989	05 14	14 15.78	-15 30.9	1.417	2.405	164.2	6.6	15.9
1989	05 24	14 08.12	-15 16.1					
1989	06 03	14 02.94	-15 09.1	1.558	2.439	141.9	14.9	16.4
1989	06 13	14 00.59	-15 12.6					
1989	06 23	14 01.06	-15 27.2	1.773	2.473	122.5	20.3	16.9
1989	07 03	14 04.13	-15 52.6					
1989	07 13	14 09.55	-16 27.6	2.032	2.507	105.7	23.0	17.3

1979 QK4 a,e,i = 3.23, 0.16, 1 Elements MPC 13151

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 47.54	-16 22.7	3.636	3.754	89.2	15.2	17.9
1989	02 13	14 51.94	-16 43.9					
1989	02 23	14 54.73	-16 58.0	3.333	3.752	107.6	14.6	17.7
1989	03 05	14 55.76	-17 04.4					
1989	03 15	14 54.91	-17 03.0	3.060	3.749	127.5	12.1	17.4
1989	03 25	14 52.19	-16 53.4					
1989	04 04	14 47.72	-16 35.9	2.851	3.745	149.1	7.9	17.1
1989	04 14	14 41.79	-16 11.2					
1989	04 24	14 34.87	-15 40.9	2.741	3.740	171.9	2.2	16.8
1989	05 04	14 27.51	-15 07.2					
1989	05 14	14 20.36	-14 33.2	2.747	3.732	165.0	4.0	16.9
1989	05 24	14 14.01	-14 01.8					
1989	06 03	14 08.91	-13 35.9	2.865	3.724	142.8	9.5	17.2
1989	06 13	14 05.40	-13 17.7					
1989	06 23	14 03.63	-13 08.2	3.070	3.714	122.4	13.4	17.5
1989	07 03	14 03.62	-13 07.9					
1989	07 13	14 05.34	-13 16.7	3.328	3.703	103.7	15.5	17.7

1981 EF2 a,e,i = 2.43, 0.03, 7 Elements MPC 12321

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 03	14 32.55	-22 23.9	2.175	2.399	90.7	24.3	17.6
1989	02 13	14 42.11	-23 38.5					
1989	02 23	14 49.66	-24 45.0	1.919	2.393	106.3	23.4	17.3
1989	03 05	14 54.82	-25 42.3					
1989	03 15	14 57.18	-26 28.5	1.686	2.387	123.8	20.3	16.9
1989	03 25	14 56.46	-27 01.4					
1989	04 04	14 52.57	-27 17.9	1.501	2.381	143.6	14.4	16.5
1989	04 14	14 45.77	-27 15.0					
1989	04 24	14 36.82	-26 51.1	1.393	2.376	163.8	6.8	16.0
1989	05 04	14 26.86	-26 07.4					
1989	05 14	14 17.28	-25 09.0	1.384	2.371	163.8	6.8	16.0
1989	05 24	14 09.38	-24 03.8					
1989	06 03	14 04.02	-23 00.4	1.471	2.367	143.8	14.7	16.4
1989	06 13	14 01.66	-22 05.9					
1989	06 23	14 02.38	-21 24.7	1.634	2.363	124.5	20.8	16.8
1989	07 03	14 05.97	-20 58.5					
1989	07 13	14 12.17	-20 47.2	1.843	2.360	107.7	24.2	17.2

1988 BK4 a,e,i = 3.13, 0.14, 19 Elements MPC 13451

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 46.89	+02 12.7	3.159	3.387	94.8	16.9	18.4
1989 02 13	14 52.12	+02 57.9					
1989 02 23	14 55.60	+03 54.6	2.908	3.407	112.1	15.6	18.2
1989 03 05	14 57.18	+05 01.5					
1989 03 15	14 56.74	+06 16.0	2.699	3.426	130.2	12.8	18.0
1989 03 25	14 54.32	+07 34.5					
1989 04 04	14 50.06	+08 52.1	2.562	3.444	146.9	9.1	17.8
1989 04 14	14 44.30	+10 03.4					
1989 04 24	14 37.55	+11 02.9	2.523	3.461	154.9	7.1	17.7
1989 05 04	14 30.42	+11 46.2					
1989 05 14	14 23.57	+12 10.3	2.590	3.477	146.3	9.3	17.8
1989 05 24	14 17.60	+12 14.5					
1989 06 03	14 12.95	+11 59.9	2.751	3.491	130.1	12.8	18.1
1989 06 13	14 09.91	+11 28.3					
1989 06 23	14 08.62	+10 42.8	2.980	3.505	113.1	15.5	18.3
1989 07 03	14 09.08	+09 46.2					
1989 07 13	14 11.21	+08 41.2	3.247	3.517	96.9	16.7	18.6

3134 T-3 a,e,i = 2.15, 0.20, 4 Elements MPC 12574

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 30.37	-14 18.1	2.031	2.315	93.8	25.1	18.9
1989 02 13	14 40.35	-14 50.2					
1989 02 23	14 48.47	-15 09.9	1.744	2.274	109.5	24.2	18.5
1989 03 05	14 54.33	-15 16.0					
1989 03 15	14 57.48	-15 07.2	1.483	2.232	127.5	20.7	18.0
1989 03 25	14 57.58	-14 42.6					
1989 04 04	14 54.43	-14 01.7	1.273	2.187	148.2	13.9	17.4
1989 04 14	14 48.12	-13 05.6					
1989 04 24	14 39.32	-11 57.8	1.142	2.142	171.4	4.0	16.8
1989 05 04	14 29.10	-10 44.7					
1989 05 14	14 18.95	-09 35.2	1.109	2.095	162.6	8.3	16.8
1989 05 24	14 10.35	-08 38.1					
1989 06 03	14 04.37	-08 00.0	1.166	2.048	139.7	18.7	17.2
1989 06 13	14 01.67	-07 44.2					
1989 06 23	14 02.41	-07 50.6	1.287	2.001	120.2	26.0	17.6
1989 07 03	14 06.42	-08 17.0					
1989 07 13	14 13.47	-09 00.5	1.440	1.955	104.1	30.3	17.9

1987 YH a,e,i = 2.78, 0.20, 8 Elements MPC 12951

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 48.35	-08 55.5	2.785	2.974	91.2	19.4	19.0
1989 02 13	14 54.52	-08 49.4					
1989 02 23	14 58.75	-08 31.9	2.540	3.009	108.9	18.1	18.7
1989 03 05	15 00.83	-08 03.3					
1989 03 15	15 00.61	-07 24.4	2.325	3.044	128.4	14.8	18.5
1989 03 25	14 58.08	-06 36.7					
1989 04 04	14 53.39	-05 42.9	2.174	3.077	149.4	9.5	18.2
1989 04 14	14 46.91	-04 46.4					
1989 04 24	14 39.24	-03 52.0	2.118	3.108	167.7	4.0	17.9
1989 05 04	14 31.13	-03 04.2					
1989 05 14	14 23.38	-02 27.1	2.174	3.137	158.7	6.7	18.1
1989 05 24	14 16.69	-02 03.6					
1989 06 03	14 11.58	-01 54.7	2.334	3.165	138.3	12.3	18.5
1989 06 13	14 08.36	-02 00.4					
1989 06 23	14 07.14	-02 19.3	2.572	3.191	119.0	16.2	18.8
1989 07 03	14 07.88	-02 49.6					
1989 07 13	14 10.48	-03 29.4	2.855	3.215	101.4	18.1	19.1

1985 RZ2 a,e,i = 3.07, 0.17, 3 Elements MPC 11515

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 49.11	-12 31.9	3.399	3.539	90.0	16.2	18.9
1989 02 13	14 54.08	-12 44.6					
1989 02 23	14 57.42	-12 49.1	3.090	3.525	108.1	15.5	18.6
1989 03 05	14 58.94	-12 45.5					
1989 03 15	14 58.51	-12 33.5	2.811	3.510	127.9	12.9	18.3
1989 03 25	14 56.09	-12 13.7					
1989 04 04	14 51.78	-11 46.9	2.596	3.494	149.3	8.4	18.0
1989 04 14	14 45.85	-11 14.6					
1989 04 24	14 38.76	-10 39.3	2.478	3.476	171.3	2.5	17.6
1989 05 04	14 31.13	-10 03.8					
1989 05 14	14 23.63	-09 31.5	2.476	3.457	163.5	4.8	17.7
1989 05 24	14 16.94	-09 05.6					
1989 06 03	14 11.55	-08 48.3	2.582	3.436	141.6	10.6	18.0
1989 06 13	14 07.85	-08 41.3					
1989 06 23	14 06.02	-08 44.9	2.773	3.414	121.3	14.7	18.3
1989 07 03	14 06.09	-08 58.9					
1989 07 13	14 08.01	-09 22.5	3.014	3.391	103.0	17.0	18.5

1988 BW3 a,e,i = 2.36, 0.22, 7 Elements MPC 13468

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 49.00	-16 02.9	2.668	2.827	88.9	20.4	17.8
1989 02 13	14 55.81	-16 15.3					
1989 02 23	15 00.64	-16 16.6	2.401	2.844	106.4	19.5	17.5
1989 03 05	15 03.24	-16 06.2					
1989 03 15	15 03.36	-15 43.5	2.157	2.857	126.0	16.4	17.2
1989 03 25	15 00.92	-15 08.3					
1989 04 04	14 56.00	-14 21.2	1.971	2.867	147.8	10.7	16.9
1989 04 14	14 48.92	-13 23.7					
1989 04 24	14 40.34	-12 19.4	1.876	2.874	171.1	3.1	16.4
1989 05 04	14 31.12	-11 12.9					
1989 05 14	14 22.20	-10 10.1	1.895	2.878	163.6	5.7	16.6
1989 05 24	14 14.48	-09 16.2					
1989 06 03	14 08.59	-08 35.1	2.020	2.879	140.9	12.8	17.0
1989 06 13	14 04.91	-08 09.0					
1989 06 23	14 03.56	-07 58.1	2.225	2.877	120.5	17.7	17.3
1989 07 03	14 04.48	-08 01.4					
1989 07 13	14 07.53	-08 17.4	2.475	2.872	102.5	20.2	17.6

1981 WM4 a,e,i = 2.83, 0.22, 11 Elements MPC 11732

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 49.09	-24 06.3	3.312	3.398	86.6	16.8	18.0
1989 02 13	14 54.83	-24 39.5					
1989 02 23	14 58.83	-25 05.3	3.002	3.383	104.2	16.5	17.8
1989 03 05	15 00.90	-25 22.6					
1989 03 15	15 00.83	-25 30.2	2.714	3.366	123.4	14.3	17.5
1989 03 25	14 58.54	-25 26.4					
1989 04 04	14 54.11	-25 10.1	2.483	3.347	144.4	10.0	17.2
1989 04 14	14 47.81	-24 40.2					
1989 04 24	14 40.15	-23 57.1	2.342	3.326	165.8	4.3	16.8
1989 05 04	14 31.83	-23 02.6					
1989 05 14	14 23.65	-22 00.6	2.313	3.303	166.1	4.2	16.7
1989 05 24	14 16.40	-20 55.9					
1989 06 03	14 10.65	-19 53.5	2.396	3.278	144.8	10.3	17.1
1989 06 13	14 06.82	-18 58.2					
1989 06 23	14 05.10	-18 13.0	2.568	3.250	124.3	15.0	17.3
1989 07 03	14 05.49	-17 39.4					
1989 07 13	14 07.90	-17 18.0	2.795	3.222	105.6	17.7	17.6

1979 SJ a,e,i = 2.33, 0.22, 5 Elements MPC 12143

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 44.93	-18 20.0	2.448	2.626	89.2	22.0	20.0
1989 02 13	14 53.19	-19 18.1					
1989 02 23	14 59.64	-20 09.7	2.144	2.590	105.5	21.6	19.6
1989 03 05	15 03.91	-20 54.4					
1989 03 15	15 05.62	-21 31.1	1.862	2.552	123.8	18.9	19.2
1989 03 25	15 04.46	-21 58.5					
1989 04 04	15 00.26	-22 14.9	1.630	2.511	144.4	13.4	18.7
1989 04 14	14 53.13	-22 18.3					
1989 04 24	14 43.63	-22 07.6	1.479	2.468	166.6	5.4	18.2
1989 05 04	14 32.71	-21 43.2					
1989 05 14	14 21.68	-21 08.4	1.431	2.424	165.8	5.9	18.1
1989 05 24	14 11.89	-20 29.2					
1989 06 03	14 04.39	-19 52.0	1.484	2.377	143.4	14.7	18.5
1989 06 13	13 59.84	-19 23.0					
1989 06 23	13 58.51	-19 06.1	1.614	2.329	123.0	21.5	18.8
1989 07 03	14 00.30	-19 03.0					
1989 07 13	14 05.02	-19 13.7	1.786	2.280	105.6	25.4	19.1

(3827) 1986 VU a,e,i = 2.74, 0.13, 4 Elements MPC 13150

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 49.18	-19 52.5	2.934	3.059	87.8	18.8	17.9
1989 02 13	14 55.79	-20 37.0					
1989 02 23	15 00.62	-21 14.5	2.639	3.048	105.0	18.3	17.7
1989 03 05	15 03.39	-21 44.4					
1989 03 15	15 03.87	-22 05.7	2.367	3.036	124.0	15.8	17.3
1989 03 25	15 01.93	-22 17.4					
1989 04 04	14 57.58	-22 18.2	2.149	3.023	144.9	11.0	17.0
1989 04 14	14 51.08	-22 07.2					
1989 04 24	14 42.96	-21 44.7	2.019	3.008	167.0	4.3	16.6
1989 05 04	14 34.01	-21 12.2					
1989 05 14	14 25.16	-20 33.0	1.999	2.992	166.7	4.5	16.5
1989 05 24	14 17.30	-19 51.7					
1989 06 03	14 11.14	-19 13.2	2.087	2.974	144.8	11.3	16.9
1989 06 13	14 07.15	-18 41.6					
1989 06 23	14 05.52	-18 19.7	2.260	2.955	124.4	16.5	17.2
1989 07 03	14 06.24	-18 08.9					
1989 07 13	14 09.19	-18 09.3	2.485	2.935	106.2	19.4	17.5

(3886) 1981 RU3 a,e,i = 2.77, 0.10, 5 Elements MPC 13476

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 42.58	-14 05.8	2.629	2.823	91.0	20.4	17.5
1989 02 13	14 50.38	-14 23.2					
1989 02 23	14 56.39	-14 29.9	2.336	2.803	107.9	19.6	17.2
1989 03 05	15 00.34	-14 25.2					
1989 03 15	15 01.96	-14 08.8	2.071	2.782	126.7	16.7	16.9
1989 03 25	15 01.12	-13 40.6					
1989 04 04	14 57.81	-13 01.4	1.864	2.761	147.6	11.2	16.5
1989 04 14	14 52.26	-12 12.8					
1989 04 24	14 45.03	-11 18.1	1.744	2.740	169.9	3.7	16.0
1989 05 04	14 36.92	-10 21.9					
1989 05 14	14 28.87	-09 29.7	1.731	2.719	164.5	5.7	16.1
1989 05 24	14 21.82	-08 46.6					
1989 06 03	14 16.48	-08 16.5	1.821	2.698	142.5	13.2	16.4
1989 06 13	14 13.35	-08 01.4					
1989 06 23	14 12.62	-08 01.8	1.989	2.677	122.6	18.7	16.8
1989 07 03	14 14.27	-08 16.5					
1989 07 13	14 18.19	-08 43.9	2.204	2.657	105.1	21.7	17.1

1979 QC1 a,e,i = 2.35, 0.17, 12 Elements MPC 11518

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 54.34	-27 49.6	2.669	2.753	84.4	20.9	18.7
1989 02 13	15 02.47	-29 10.9					
1989 02 23	15 08.71	-30 27.9	2.394	2.750	100.4	20.7	18.5
1989 03 05	15 12.68	-31 39.8					
1989 03 15	15 14.01	-32 44.9	2.134	2.745	118.0	18.7	18.2
1989 03 25	15 12.39	-33 40.7					
1989 04 04	15 07.69	-34 23.5	1.918	2.736	137.0	14.4	17.8
1989 04 14	15 00.04	-34 49.0					
1989 04 24	14 50.04	-34 53.0	1.778	2.725	155.4	8.8	17.5
1989 05 04	14 38.68	-34 33.6					
1989 05 14	14 27.25	-33 52.0	1.738	2.712	160.5	7.2	17.3
1989 05 24	14 17.06	-32 53.8					
1989 06 03	14 09.13	-31 46.8	1.801	2.695	145.0	12.5	17.6
1989 06 13	14 04.05	-30 39.2					
1989 06 23	14 02.03	-29 38.1	1.949	2.677	126.1	17.9	17.9
1989 07 03	14 02.97	-28 47.8					
1989 07 13	14 06.65	-28 10.5	2.151	2.655	108.6	21.3	18.2

1987 WR a,e,i = 2.26, 0.02, 2 Elements MPC 12944

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 03	14 39.22	-17 37.7	2.023	2.261	90.7	25.8	16.8
1989 02 13	14 49.74	-18 27.9					
1989 02 23	14 58.22	-19 07.1	1.781	2.265	106.2	24.8	16.5
1989 03 05	15 04.26	-19 34.5					
1989 03 15	15 07.44	-19 49.1	1.560	2.269	123.9	21.3	16.2
1989 03 25	15 07.47	-19 49.8					
1989 04 04	15 04.23	-19 35.6	1.384	2.274	144.5	14.8	15.7
1989 04 14	14 57.92	-19 05.9					
1989 04 24	14 49.27	-18 22.2	1.285	2.278	167.7	5.4	15.2
1989 05 04	14 39.38	-17 28.1					
1989 05 14	14 29.62	-16 30.0	1.284	2.282	167.6	5.4	15.2
1989 05 24	14 21.35	-15 35.6					
1989 06 03	14 15.47	-14 51.2	1.381	2.286	144.7	14.8	15.7
1989 06 13	14 12.52	-14 21.6					
1989 06 23	14 12.61	-14 08.2	1.552	2.289	124.7	21.4	16.2
1989 07 03	14 15.57	-14 10.8					
1989 07 13	14 21.14	-14 27.7	1.768	2.293	107.7	25.0	16.6

(3802) Dornburg a,e,i = 2.28, 0.16, 4 Elements MPC 12965

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	14 50.66	-11 01.9	1.650	2.197	110.2	25.0	17.3
1989 03 05	14 57.65	-10 59.0					
1989 03 15	15 01.99	-10 41.4	1.405	2.159	127.4	21.4	16.8
1989 03 25	15 03.30	-10 09.5					
1989 04 04	15 01.39	-09 24.4	1.211	2.122	147.3	14.8	16.3
1989 04 14	14 56.30	-08 29.3					
1989 04 24	14 48.62	-07 29.8	1.092	2.086	167.9	5.8	15.7
1989 05 04	14 39.39	-06 33.0					
1989 05 14	14 30.02	-05 47.4	1.067	2.052	162.3	8.6	15.7
1989 05 24	14 21.99	-05 20.0					
1989 06 03	14 16.40	-05 14.6	1.128	2.021	141.1	18.4	16.1
1989 06 13	14 13.94	-05 32.0					
1989 06 23	14 14.81	-06 10.3	1.254	1.992	122.3	25.5	16.5
1989 07 03	14 18.90	-07 06.1					
1989 07 13	14 25.96	-08 15.9	1.416	1.966	106.8	29.7	16.9
1989 07 23	14 35.66	-09 36.0					
1989 08 02	14 47.69	-11 02.8	1.595	1.945	93.7	31.4	17.1

1981 DE a,e,i = 2.39, 0.08, 5 Elements MPC 11147

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 02.02	-21 23.3	2.059	2.500	104.6	22.5	18.5
1989	03 05	15 06.85	-21 43.8					
1989	03 15	15 08.99	-21 51.7	1.828	2.512	122.9	19.4	18.2
1989	03 25	15 08.20	-21 46.0					
1989	04 04	15 04.47	-21 25.2	1.645	2.523	143.8	13.6	17.8
1989	04 14	14 58.04	-20 48.8					
1989	04 24	14 49.59	-19 58.1	1.543	2.532	166.8	5.2	17.3
1989	05 04	14 40.12	-18 56.4					
1989	05 14	14 30.80	-17 49.5	1.544	2.541	168.1	4.7	17.3
1989	05 24	14 22.76	-16 44.6					
1989	06 03	14 16.82	-15 48.0	1.648	2.548	145.3	13.1	17.8
1989	06 13	14 13.44	-15 04.5					
1989	06 23	14 12.77	-14 36.3	1.833	2.555	124.9	19.0	18.2
1989	07 03	14 14.70	-14 23.4					
1989	07 13	14 19.02	-14 24.9	2.067	2.559	107.2	22.3	18.6
1989	07 23	14 25.47	-14 38.8					
1989	08 02	14 33.79	-15 02.7	2.323	2.563	91.7	23.3	18.8

1979 VS2 a,e,i = 1.94, 0.11, 22 Elements MPC 12785

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 17.98	-00 58.4	1.598	2.095	105.8	27.0	17.7
1989	03 05	15 23.21	-01 26.2					
1989	03 15	15 25.25	-01 50.6	1.364	2.079	122.9	23.7	17.2
1989	03 25	15 23.60	-02 14.9					
1989	04 04	15 17.88	-02 43.1	1.171	2.060	143.1	16.9	16.7
1989	04 14	15 08.04	-03 19.7					
1989	04 24	14 54.69	-04 09.0	1.051	2.039	164.9	7.4	16.1
1989	05 04	14 39.14	-05 13.4					
1989	05 14	14 23.30	-06 32.9	1.033	2.017	161.6	9.1	16.1
1989	05 24	14 09.18	-08 05.5					
1989	06 03	13 58.26	-09 47.9	1.113	1.993	139.0	19.5	16.6
1989	06 13	13 51.32	-11 37.5					
1989	06 23	13 48.53	-13 32.2	1.263	1.968	119.0	26.8	17.0
1989	07 03	13 49.59	-15 30.5					
1989	07 13	13 54.16	-17 31.6	1.448	1.942	102.6	30.7	17.4
1989	07 23	14 01.80	-19 34.5					
1989	08 02	14 12.14	-21 38.2	1.643	1.916	89.0	32.0	17.7

1981 TJ a,e,i = 2.79, 0.11, 4 Elements MPC 13598

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 02.84	-19 05.7	2.622	3.034	105.1	18.4	18.3
1989	03 05	15 06.12	-19 15.5					
1989	03 15	15 07.16	-19 15.2	2.349	3.021	124.1	15.8	18.0
1989	03 25	15 05.85	-19 04.1					
1989	04 04	15 02.20	-18 41.9	2.131	3.007	145.2	10.9	17.6
1989	04 14	14 56.42	-18 08.7					
1989	04 24	14 49.05	-17 26.1	2.000	2.992	168.1	4.0	17.2
1989	05 04	14 40.81	-16 36.7					
1989	05 14	14 32.56	-15 44.8	1.979	2.975	168.1	4.0	17.2
1989	05 24	14 25.18	-14 55.3					
1989	06 03	14 19.35	-14 12.6	2.066	2.958	145.4	11.2	17.5
1989	06 13	14 15.54	-13 40.3					
1989	06 23	14 13.99	-13 20.2	2.239	2.940	124.8	16.5	17.9
1989	07 03	14 14.69	-13 12.8					
1989	07 13	14 17.56	-13 17.5	2.464	2.921	106.5	19.5	18.1
1989	07 23	14 22.42	-13 33.1					
1989	08 02	14 29.08	-13 57.8	2.712	2.901	90.3	20.5	18.4

1986 TM a,e,i = 2.87, 0.33, 33 Elements MPC 12960

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 27.00	-39 52.9	3.497	3.700	94.0	15.5	18.8
1989	03 05	15 28.28	-41 29.0					
1989	03 15	15 27.11	-43 01.8	3.244	3.723	111.3	14.4	18.6
1989	03 25	15 23.27	-44 28.6					
1989	04 04	15 16.66	-45 45.3	3.035	3.742	128.7	12.0	18.4
1989	04 14	15 07.40	-46 47.3					
1989	04 24	14 56.01	-47 30.1	2.904	3.760	143.4	9.2	18.2
1989	05 04	14 43.30	-47 50.3					
1989	05 14	14 30.36	-47 47.2	2.872	3.774	148.9	8.0	18.2
1989	05 24	14 18.33	-47 23.1					
1989	06 03	14 08.13	-46 43.0	2.947	3.786	140.6	9.8	18.3
1989	06 13	14 00.36	-45 53.3					
1989	06 23	13 55.32	-45 00.4	3.111	3.795	125.7	12.6	18.5
1989	07 03	13 52.98	-44 09.6					
1989	07 13	13 53.19	-43 24.9	3.339	3.802	109.5	14.6	18.7
1989	07 23	13 55.71	-42 48.9					
1989	08 02	14 00.28	-42 22.6	3.599	3.805	93.9	15.4	18.9

1985 GW a,e,i = 2.47, 0.13, 8 Elements MPC 11154

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 06.29	-07 20.7	1.794	2.292	107.3	24.3	17.6
1989	03 05	15 11.80	-07 10.5					
1989	03 15	15 14.42	-06 48.9	1.601	2.320	125.1	20.5	17.2
1989	03 25	15 13.97	-06 18.1					
1989	04 04	15 10.41	-05 40.7	1.457	2.348	145.1	14.1	16.9
1989	04 14	15 04.05	-05 01.1					
1989	04 24	14 55.59	-04 24.8	1.392	2.377	164.9	6.3	16.5
1989	05 04	14 46.07	-03 57.0					
1989	05 14	14 36.71	-03 42.8	1.426	2.407	161.7	7.6	16.7
1989	05 24	14 28.65	-03 45.0					
1989	06 03	14 22.70	-04 04.1	1.557	2.436	141.8	14.9	17.1
1989	06 13	14 19.31	-04 39.0					
1989	06 23	14 18.61	-05 27.6	1.761	2.466	122.9	20.2	17.6
1989	07 03	14 20.47	-06 26.9					
1989	07 13	14 24.69	-07 34.7	2.012	2.495	106.2	23.0	18.0
1989	07 23	14 30.99	-08 48.3					
1989	08 02	14 39.10	-10 05.7	2.286	2.524	91.4	23.7	18.3

(3887) 1985 QX a,e,i = 3.00, 0.11, 10 Elements MPC 13476

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 05.19	-13 30.9	2.703	3.125	106.1	17.7	17.6
1989	03 05	15 08.66	-13 11.5					
1989	03 15	15 10.04	-12 40.9	2.426	3.106	125.1	15.2	17.3
1989	03 25	15 09.22	-11 59.5					
1989	04 04	15 06.23	-11 08.4	2.206	3.086	145.9	10.5	16.9
1989	04 14	15 01.26	-10 09.6					
1989	04 24	14 54.77	-09 06.7	2.077	3.066	167.1	4.2	16.6
1989	05 04	14 47.40	-08 04.0					
1989	05 14	14 39.92	-07 06.4	2.058	3.045	164.9	5.0	16.6
1989	05 24	14 33.13	-06 18.5					
1989	06 03	14 27.66	-05 43.6	2.146	3.024	143.8	11.4	16.9
1989	06 13	14 23.99	-05 23.4					
1989	06 23	14 22.37	-05 18.2	2.317	3.003	123.7	16.4	17.2
1989	07 03	14 22.84	-05 26.9					
1989	07 13	14 25.37	-05 48.0	2.540	2.981	105.7	19.2	17.5
1989	07 23	14 29.81	-06 19.4					
1989	08 02	14 35.98	-06 59.2	2.785	2.959	89.7	20.1	17.7

1988 BE a,e,i = 2.70, 0.19, 14 Elements MPC 12951

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 16.08	-34 28.9	2.750	3.044	97.7	18.8	17.5
1989 03 05	15 19.68	-35 33.1					
1989 03 15	15 20.76	-36 29.9	2.512	3.070	115.2	17.0	17.2
1989 03 25	15 19.11	-37 16.7					
1989 04 04	15 14.70	-37 50.2	2.315	3.093	133.9	13.5	17.0
1989 04 14	15 07.72	-38 06.7					
1989 04 24	14 58.76	-38 03.0	2.192	3.114	151.8	8.8	16.7
1989 05 04	14 48.67	-37 37.9					
1989 05 14	14 38.52	-36 52.5	2.168	3.134	159.3	6.5	16.6
1989 05 24	14 29.37	-35 51.5					
1989 06 03	14 22.04	-34 41.3	2.251	3.151	147.1	10.1	16.8
1989 06 13	14 17.06	-33 28.9					
1989 06 23	14 14.63	-32 20.5	2.426	3.166	129.1	14.4	17.1
1989 07 03	14 14.69	-31 20.4					
1989 07 13	14 17.11	-30 31.0	2.665	3.180	111.3	17.3	17.4
1989 07 23	14 21.63	-29 53.3					
1989 08 02	14 28.00	-29 27.0	2.939	3.191	94.9	18.5	17.7

1986 TP6 a,e,i = 3.04, 0.07, 9 Elements MPC 11640

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 06.70	-28 44.9	2.471	2.837	101.4	20.0	16.6
1989 03 05	15 11.53	-29 38.8					
1989 03 15	15 13.94	-30 23.9	2.224	2.842	118.9	17.8	16.3
1989 03 25	15 13.73	-30 58.3					
1989 04 04	15 10.84	-31 19.6	2.024	2.848	138.1	13.6	16.0
1989 04 14	15 05.45	-31 25.0					
1989 04 24	14 58.09	-31 12.7	1.899	2.854	157.6	7.7	15.7
1989 05 04	14 49.57	-30 42.4					
1989 05 14	14 40.92	-29 56.2	1.873	2.862	165.3	5.1	15.5
1989 05 24	14 33.17	-28 59.4					
1989 06 03	14 27.15	-27 58.0	1.952	2.871	149.2	10.4	15.8
1989 06 13	14 23.39	-26 58.5					
1989 06 23	14 22.13	-26 05.9	2.121	2.880	129.9	15.7	16.2
1989 07 03	14 23.34	-25 23.5					
1989 07 13	14 26.88	-24 52.7	2.350	2.890	112.1	19.0	16.5
1989 07 23	14 32.54	-24 33.5					
1989 08 02	14 40.06	-24 24.9	2.614	2.901	96.0	20.4	16.8

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 12.66	-19 05.2	2.191	2.598	102.9	21.8	19.2
1989 03 05	15 17.26	-19 25.9					
1989 03 15	15 19.26	-19 36.3	1.959	2.617	121.3	19.0	18.9
1989 03 25	15 18.46	-19 35.9					
1989 04 04	15 14.81	-19 24.0	1.773	2.635	142.1	13.5	18.5
1989 04 14	15 08.51	-19 00.4					
1989 04 24	15 00.15	-18 26.2	1.666	2.651	165.3	5.5	18.1
1989 05 04	14 50.62	-17 43.9					
1989 05 14	14 41.00	-16 57.7	1.664	2.665	170.4	3.6	18.0
1989 05 24	14 32.39	-16 13.2					
1989 06 03	14 25.63	-15 35.4	1.768	2.678	147.3	11.8	18.5
1989 06 13	14 21.25	-15 08.0					
1989 06 23	14 19.45	-14 53.2	1.957	2.689	126.6	17.7	18.9
1989 07 03	14 20.19	-14 51.2					
1989 07 13	14 23.32	-15 01.3	2.199	2.698	108.4	20.9	19.3
1989 07 23	14 28.60	-15 22.1					
1989 08 02	14 35.75	-15 51.7	2.466	2.706	92.4	22.0	19.6

1985 RE4 a,e,i = 3.01, 0.10, 11 Elements MPC 12200

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 08.63	-04 51.3	2.685	3.125	107.3	17.6	16.9
1989 03 05	15 12.00	-04 17.2					
1989 03 15	15 13.28	-03 33.3	2.421	3.108	125.7	15.1	16.6
1989 03 25	15 12.38	-02 41.6					
1989 04 04	15 09.32	-01 44.7	2.217	3.091	145.1	10.7	16.3
1989 04 14	15 04.29	-00 46.5					
1989 04 24	14 57.74	+00 08.0	2.102	3.073	161.6	5.9	16.0
1989 05 04	14 50.29	+00 53.9					
1989 05 14	14 42.69	+01 26.8	2.094	3.054	158.0	7.1	16.0
1989 05 24	14 35.73	+01 43.7					
1989 06 03	14 30.05	+01 43.3	2.187	3.036	140.0	12.4	16.3
1989 06 13	14 26.11	+01 26.0					
1989 06 23	14 24.19	+00 53.5	2.361	3.017	121.3	16.7	16.5
1989 07 03	14 24.33	+00 08.2					
1989 07 13	14 26.50	-00 47.6	2.583	2.998	104.1	19.2	16.8
1989 07 23	14 30.57	-01 51.4					
1989 08 02	14 36.38	-03 01.1	2.826	2.978	88.6	19.9	17.0

1977 TQ6 a,e,i = 2.67, 0.19, 13 Elements MPC 12578

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 16.57	-12 20.8	2.618	3.010	103.7	18.6	18.8
1989 03 05	15 19.71	-12 41.5					
1989 03 15	15 20.61	-12 56.1	2.327	2.982	122.5	16.3	18.5
1989 03 25	15 19.09	-13 04.9					
1989 04 04	15 15.07	-13 08.5	2.087	2.952	143.5	11.6	18.1
1989 04 14	15 08.67	-13 07.6					
1989 04 24	15 00.31	-13 03.3	1.933	2.920	166.3	4.7	17.6
1989 05 04	14 50.69	-12 57.6					
1989 05 14	14 40.72	-12 52.7	1.889	2.887	168.8	3.9	17.5
1989 05 24	14 31.38	-12 51.6					
1989 06 03	14 23.53	-12 56.7	1.954	2.852	146.0	11.5	17.8
1989 06 13	14 17.78	-13 10.1					
1989 06 23	14 14.47	-13 32.9	2.107	2.816	125.0	17.2	18.2
1989 07 03	14 13.67	-14 05.1					
1989 07 13	14 15.32	-14 46.4	2.313	2.778	106.5	20.5	18.4
1989 07 23	14 19.25	-15 35.8					
1989 08 02	14 25.25	-16 32.1	2.540	2.740	90.2	21.7	18.6

1931 TS1 a,e,i = 2.91, 0.09, 2 Elements MPC 12795

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 12.54	-18 47.6	2.761	3.136	103.0	17.9	17.5
1989 03 05	15 15.89	-19 07.5					
1989 03 15	15 17.07	-19 19.4	2.488	3.129	121.9	15.7	17.2
1989 03 25	15 15.96	-19 23.0					
1989 04 04	15 12.55	-19 17.8	2.266	3.121	142.7	11.2	16.9
1989 04 14	15 07.01	-19 03.6					
1989 04 24	14 59.80	-18 41.2	2.129	3.112	165.3	4.7	16.5
1989 05 04	14 51.58	-18 12.1					
1989 05 14	14 43.15	-17 39.3	2.100	3.102	171.0	2.9	16.3
1989 05 24	14 35.39	-17 06.5					
1989 06 03	14 28.98	-16 37.5	2.182	3.092	148.4	9.9	16.7
1989 06 13	14 24.46	-16 15.6					
1989 06 23	14 22.09	-16 02.9	2.354	3.080	127.5	15.2	17.0
1989 07 03	14 21.92	-16 00.4					
1989 07 13	14 23.91	-16 08.0	2.584	3.068	108.9	18.3	17.3
1989 07 23	14 27.91	-16 25.1					
1989 08 02	14 33.72	-16 50.5	2.842	3.055	92.3	19.4	17.6

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 14.68	-18 12.5	2.344	2.737	102.7	20.7	19.1
1989 03 05	15 19.00	-18 16.5					
1989 03 15	15 20.89	-18 09.4	2.080	2.732	121.3	18.1	18.8
1989 03 25	15 20.14	-17 50.7					
1989 04 04	15 16.66	-17 20.0	1.863	2.724	142.3	13.0	18.4
1989 04 14	15 10.61	-16 37.7					
1989 04 24	15 02.49	-15 45.5	1.727	2.713	165.5	5.3	17.9
1989 05 04	14 53.09	-14 46.7					
1989 05 14	14 43.43	-13 46.3	1.699	2.699	169.9	3.8	17.8
1989 05 24	14 34.59	-12 50.3					
1989 06 03	14 27.42	-12 03.7	1.778	2.683	146.5	12.0	18.2
1989 06 13	14 22.53	-11 30.3					
1989 06 23	14 20.19	-11 11.8	1.942	2.664	125.5	18.1	18.6
1989 07 03	14 20.41	-11 08.2					
1989 07 13	14 23.07	-11 18.4	2.158	2.643	107.1	21.6	18.9
1989 07 23	14 27.97	-11 40.4					
1989 08 02	14 34.85	-12 12.2	2.395	2.619	91.1	22.8	19.1

(3825) 1967 UR a,e,i = 2.24, 0.09, 5 Elements MPC 13149

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 02.48	-11 13.2	1.515	2.041	107.3	27.6	16.6
1989 03 05	15 10.74	-11 37.5					
1989 03 15	15 16.13	-11 50.9	1.305	2.034	123.8	24.0	16.2
1989 03 25	15 18.24	-11 54.3					
1989 04 04	15 16.78	-11 48.9	1.139	2.030	143.2	17.1	15.7
1989 04 14	15 11.78	-11 36.6					
1989 04 24	15 03.80	-11 20.6	1.040	2.029	165.3	7.2	15.2
1989 05 04	14 53.92	-11 05.1					
1989 05 14	14 43.66	-10 55.1	1.030	2.030	168.3	5.8	15.1
1989 05 24	14 34.64	-10 55.3					
1989 06 03	14 28.07	-11 08.8	1.111	2.034	146.3	16.1	15.6
1989 06 13	14 24.69	-11 36.9					
1989 06 23	14 24.72	-12 18.9	1.261	2.041	126.9	23.5	16.1
1989 07 03	14 27.99	-13 12.8					
1989 07 13	14 34.23	-14 16.3	1.457	2.050	110.7	27.6	16.6
1989 07 23	14 43.08	-15 26.8					
1989 08 02	14 54.17	-16 41.5	1.677	2.061	96.9	29.3	16.9

1986 PD1 a,e,i = 2.61, 0.20, 16 Elements MPC 13466

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 17.97	-00 23.1	2.693	3.113	105.9	17.8	18.9
1989 03 05	15 20.85	+00 31.3					
1989 03 15	15 21.56	+01 35.4	2.457	3.124	124.0	15.3	18.7
1989 03 25	15 20.00	+02 46.2					
1989 04 04	15 16.23	+04 00.0	2.281	3.133	142.4	11.2	18.4
1989 04 14	15 10.45	+05 11.6					
1989 04 24	15 03.14	+06 15.1	2.193	3.139	156.1	7.5	18.2
1989 05 04	14 54.95	+07 05.2					
1989 05 14	14 46.63	+07 37.3	2.211	3.143	152.6	8.5	18.2
1989 05 24	14 38.97	+07 49.3					
1989 06 03	14 32.59	+07 41.0	2.330	3.144	136.5	12.8	18.5
1989 06 13	14 27.96	+07 14.1					
1989 06 23	14 25.30	+06 31.4	2.525	3.143	118.8	16.5	18.8
1989 07 03	14 24.67	+05 35.9					
1989 07 13	14 26.02	+04 30.6	2.767	3.140	102.0	18.5	19.0
1989 07 23	14 29.21	+03 18.2					
1989 08 02	14 34.06	+02 01.0	3.028	3.134	86.5	18.9	19.2

1988 BB a,e,i = 2.79, 0.17, 7 Elements MPC 12945

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 16.78	-26 33.2	2.428	2.775	99.9	20.6	18.0
1989 03 05	15 21.35	-27 17.3					
1989 03 15	15 23.39	-27 52.5	2.204	2.810	117.9	18.2	17.8
1989 03 25	15 22.72	-28 17.4					
1989 04 04	15 19.30	-28 30.0	2.023	2.845	137.8	13.7	17.5
1989 04 14	15 13.34	-28 28.1					
1989 04 24	15 05.41	-28 10.7	1.918	2.879	158.9	7.2	17.2
1989 05 04	14 56.31	-27 38.0					
1989 05 14	14 47.08	-26 52.7	1.915	2.912	168.5	4.0	17.1
1989 05 24	14 38.73	-25 59.6					
1989 06 03	14 32.06	-25 04.7	2.020	2.944	150.3	9.8	17.4
1989 06 13	14 27.60	-24 13.6					
1989 06 23	14 25.55	-23 30.4	2.216	2.975	130.2	15.1	17.8
1989 07 03	14 25.90	-22 57.5					
1989 07 13	14 28.52	-22 36.0	2.475	3.005	111.8	18.3	18.2
1989 07 23	14 33.17	-22 25.4					
1989 08 02	14 39.61	-22 24.8	2.767	3.034	95.3	19.5	18.5

1975 VK2 a,e,i = 3.00, 0.10, 3 Elements MPC 10761

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 16.21	-15 29.4	2.884	3.253	103.0	17.2	19.2
1989 03 05	15 19.44	-15 37.7					
1989 03 15	15 20.61	-15 38.3	2.603	3.241	122.0	15.1	18.9
1989 03 25	15 19.61	-15 31.2					
1989 04 04	15 16.44	-15 16.7	2.375	3.228	142.8	10.8	18.5
1989 04 14	15 11.24	-14 55.5					
1989 04 24	15 04.43	-14 29.1	2.232	3.215	165.2	4.6	18.1
1989 05 04	14 56.60	-13 59.6					
1989 05 14	14 48.49	-13 30.0	2.199	3.200	170.8	2.9	18.0
1989 05 24	14 40.90	-13 03.7					
1989 06 03	14 34.51	-12 43.6	2.276	3.185	148.4	9.6	18.4
1989 06 13	14 29.83	-12 32.1					
1989 06 23	14 27.15	-12 30.5	2.445	3.169	127.5	14.7	18.7
1989 07 03	14 26.57	-12 39.1					
1989 07 13	14 28.06	-12 57.4	2.673	3.152	108.8	17.8	18.9
1989 07 23	14 31.51	-13 24.6					
1989 08 02	14 36.74	-13 59.2	2.929	3.135	92.1	18.9	19.2

1978 PW3 a,e,i = 2.46, 0.15, 6 Elements MPC 12948

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 07.38	-12 39.1	2.031	2.490	105.8	22.5	18.5
1989 03 05	15 13.58	-12 27.2					
1989 03 15	15 17.39	-12 02.0	1.765	2.457	123.5	19.7	18.1
1989 03 25	15 18.52	-11 23.5					
1989 04 04	15 16.79	-10 32.8	1.547	2.424	143.4	14.2	17.6
1989 04 14	15 12.27	-09 32.0					
1989 04 24	15 05.38	-08 25.7	1.407	2.391	164.4	6.5	17.1
1989 05 04	14 56.89	-07 19.4					
1989 05 14	14 47.90	-06 20.5	1.367	2.359	165.5	6.2	17.0
1989 05 24	14 39.62	-05 35.4					
1989 06 03	14 33.06	-05 08.5	1.424	2.326	144.6	14.6	17.3
1989 06 13	14 28.96	-05 02.1					
1989 06 23	14 27.66	-05 15.4	1.556	2.294	124.9	21.3	17.7
1989 07 03	14 29.19	-05 46.3					
1989 07 13	14 33.45	-06 32.1	1.735	2.264	107.9	25.3	18.0
1989 07 23	14 40.18	-07 29.4					
1989 08 02	14 49.14	-08 35.3	1.933	2.235	93.3	27.0	18.2

1988 CS2 a,e,i = 2.25, 0.17, 4 Elements MPC 13478

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 17.45	-22 59.6	2.219	2.592	100.7	22.0	18.6
1989 03 05	15 22.84	-23 38.2					
1989 03 15	15 25.72	-24 08.4	1.950	2.578	118.6	19.8	18.3
1989 03 25	15 25.77	-24 28.8					
1989 04 04	15 22.80	-24 37.7	1.722	2.560	138.7	14.9	17.9
1989 04 14	15 16.83	-24 33.0					
1989 04 24	15 08.29	-24 13.2	1.568	2.540	160.9	7.5	17.4
1989 05 04	14 58.00	-23 38.3					
1989 05 14	14 47.15	-22 50.9	1.514	2.517	171.0	3.6	17.1
1989 05 24	14 37.06	-21 56.6					
1989 06 03	14 28.82	-21 02.1	1.566	2.492	149.2	12.0	17.5
1989 06 13	14 23.21	-20 14.1					
1989 06 23	14 20.57	-19 37.4	1.704	2.465	128.2	18.9	17.9
1989 07 03	14 20.91	-19 14.3					
1989 07 13	14 24.09	-19 05.3	1.895	2.435	109.8	23.1	18.2
1989 07 23	14 29.82	-19 09.5					
1989 08 02	14 37.82	-19 25.0	2.110	2.404	94.0	24.9	18.4

1938 DK1 a,e,i = 2.61, 0.13, 14 Elements MPC 12948

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 12.81	-03 10.1	2.001	2.473	106.6	22.5	17.4
1989 03 05	15 18.41	-02 07.8					
1989 03 15	15 21.39	-00 51.9	1.805	2.500	123.9	19.3	17.1
1989 03 25	15 21.60	+00 34.3					
1989 04 04	15 19.02	+02 06.0	1.664	2.529	142.1	14.1	16.8
1989 04 14	15 13.91	+03 36.5					
1989 04 24	15 06.84	+04 57.5	1.603	2.557	156.5	9.0	16.6
1989 05 04	14 58.64	+06 01.4					
1989 05 14	14 50.33	+06 42.2	1.640	2.586	153.8	10.0	16.7
1989 05 24	14 42.91	+06 57.0					
1989 06 03	14 37.12	+06 46.6	1.771	2.614	138.0	15.1	17.1
1989 06 13	14 33.47	+06 13.5					
1989 06 23	14 32.15	+05 21.9	1.973	2.642	120.8	19.3	17.4
1989 07 03	14 33.14	+04 16.1					
1989 07 13	14 36.31	+03 00.1	2.221	2.669	104.9	21.6	17.8
1989 07 23	14 41.45	+01 37.1					
1989 08 02	14 48.32	+00 10.0	2.490	2.696	90.4	22.1	18.1

1969 TL1 a,e,i = 3.07, 0.11, 3 Elements MPC 11743

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 02 23	15 13.66	-15 43.8	2.611	3.001	103.5	18.7	17.3
1989 03 05	15 17.95	-15 58.8					
1989 03 15	15 20.10	-16 05.7	2.330	2.979	122.0	16.5	17.0
1989 03 25	15 19.96	-16 04.7					
1989 04 04	15 17.45	-15 55.7	2.100	2.957	142.4	11.9	16.6
1989 04 14	15 12.69	-15 39.4					
1989 04 24	15 06.09	-15 17.0	1.953	2.935	164.7	5.2	16.2
1989 05 04	14 58.28	-14 50.7					
1989 05 14	14 50.08	-14 23.5	1.910	2.913	171.6	2.9	16.0
1989 05 24	14 42.41	-13 59.1					
1989 06 03	14 36.03	-13 41.0	1.975	2.892	149.1	10.4	16.4
1989 06 13	14 31.55	-13 31.7					
1989 06 23	14 29.30	-13 32.8	2.129	2.872	128.4	16.1	16.7
1989 07 03	14 29.35	-13 44.8					
1989 07 13	14 31.70	-14 07.0	2.340	2.853	110.0	19.6	17.0
1989 07 23	14 36.17	-14 38.4					
1989 08 02	14 42.58	-15 17.4	2.580	2.835	93.8	20.9	17.2

(3819) 1983 AR a,e,i = 2.77, 0.14, 11 Elements MPC 13048

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 23.34	-16 00.8	2.807	3.152	101.2	17.9	17.9
1989	03 05	15 26.39	-16 26.6					
1989	03 15	15 27.27	-16 46.6	2.534	3.152	120.1	15.8	17.6
1989	03 25	15 25.83	-17 00.5					
1989	04 04	15 22.04	-17 08.3	2.310	3.151	141.1	11.5	17.2
1989	04 14	15 16.03	-17 10.1					
1989	04 24	15 08.23	-17 06.2	2.169	3.148	163.9	5.1	16.8
1989	05 04	14 59.25	-16 57.8					
1989	05 14	14 49.93	-16 46.7	2.139	3.143	172.4	2.4	16.7
1989	05 24	14 41.15	-16 35.8					
1989	06 03	14 33.65	-16 27.7	2.221	3.137	149.4	9.5	17.1
1989	06 13	14 28.01	-16 25.2					
1989	06 23	14 24.53	-16 30.0	2.397	3.129	128.2	14.8	17.4
1989	07 03	14 23.31	-16 43.0					
1989	07 13	14 24.30	-17 04.4	2.633	3.120	109.3	17.9	17.7
1989	07 23	14 27.36	-17 33.7					
1989	08 02	14 32.31	-18 09.9	2.897	3.109	92.4	19.0	17.9

(3855) Pasasymphonia a,e,i = 2.24, 0.21, 7 Elements MPC 13305

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 16.34	-09 40.8	2.051	2.489	104.4	22.7	17.6
1989	03 05	15 22.16	-09 34.7					
1989	03 15	15 25.56	-09 17.6	1.775	2.451	122.0	20.1	17.2
1989	03 25	15 26.20	-08 50.3					
1989	04 04	15 23.86	-08 14.2	1.544	2.411	141.8	14.9	16.7
1989	04 14	15 18.51	-07 31.8					
1989	04 24	15 10.50	-06 47.1	1.389	2.368	162.6	7.3	16.2
1989	05 04	15 00.59	-06 05.5					
1989	05 14	14 49.91	-05 32.9	1.332	2.324	165.1	6.4	16.0
1989	05 24	14 39.80	-05 14.8					
1989	06 03	14 31.42	-05 14.4	1.375	2.277	144.3	15.1	16.3
1989	06 13	14 25.64	-05 33.0					
1989	06 23	14 22.90	-06 09.7	1.494	2.230	124.2	22.2	16.7
1989	07 03	14 23.25	-07 02.0					
1989	07 13	14 26.59	-08 07.6	1.657	2.181	106.9	26.5	16.9
1989	07 23	14 32.68	-09 23.3					
1989	08 02	14 41.24	-10 46.5	1.837	2.132	92.1	28.4	17.2

1988 BZ1 a,e,i = 3.22, 0.14, 1 Elements MPC 13450

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 20.24	-17 55.5	2.870	3.216	101.5	17.5	17.6
1989	03 05	15 23.71	-18 05.7					
1989	03 15	15 25.07	-18 07.8	2.624	3.242	120.3	15.4	17.4
1989	03 25	15 24.24	-18 01.8					
1989	04 04	15 21.23	-17 47.7	2.429	3.268	141.1	11.1	17.1
1989	04 14	15 16.25	-17 26.0					
1989	04 24	15 09.71	-16 57.9	2.316	3.293	163.6	5.0	16.8
1989	05 04	15 02.23	-16 25.3					
1989	05 14	14 54.53	-15 51.3	2.312	3.318	173.2	2.1	16.6
1989	05 24	14 47.36	-15 19.0					
1989	06 03	14 41.34	-14 51.6	2.421	3.342	150.7	8.5	17.1
1989	06 13	14 36.94	-14 31.5					
1989	06 23	14 34.42	-14 20.5	2.623	3.366	129.8	13.4	17.4
1989	07 03	14 33.86	-14 18.9					
1989	07 13	14 35.22	-14 26.5	2.890	3.389	111.0	16.3	17.7
1989	07 23	14 38.37	-14 42.6					
1989	08 02	14 43.16	-15 06.0	3.189	3.411	93.9	17.3	18.0

(3890) 1976 YU5 a,e,i = 2.33, 0.14, 5 Elements MPC 13479

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 14.65	-22 58.6	2.068	2.462	101.4	23.2	17.8
1989	03 05	15 21.54	-23 32.0					
1989	03 15	15 25.98	-23 55.2	1.797	2.434	118.6	21.0	17.4
1989	03 25	15 27.63	-24 06.9					
1989	04 04	15 26.22	-24 05.3	1.565	2.405	138.1	16.1	16.9
1989	04 14	15 21.69	-23 48.4					
1989	04 24	15 14.40	-23 15.2	1.404	2.375	160.2	8.2	16.4
1989	05 04	15 05.10	-22 25.9					
1989	05 14	14 54.97	-21 23.9	1.337	2.343	173.2	2.9	16.0
1989	05 24	14 45.42	-20 15.8					
1989	06 03	14 37.64	-19 09.4	1.372	2.312	150.9	12.3	16.5
1989	06 13	14 32.52	-18 12.0					
1989	06 23	14 30.48	-17 28.7	1.491	2.280	129.9	20.0	16.8
1989	07 03	14 31.55	-17 01.7					
1989	07 13	14 35.60	-16 51.0	1.663	2.248	111.8	24.8	17.2
1989	07 23	14 42.35	-16 54.9					
1989	08 02	14 51.48	-17 11.1	1.860	2.216	96.4	27.1	17.4

1979 WX3 a,e,i = 2.43, 0.18, 2 Elements MPC 9682

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 30.18	-16 44.3	2.531	2.865	99.4	19.9	18.6
1989	03 05	15 34.84	-16 53.1					
1989	03 15	15 37.25	-16 53.4	2.259	2.861	117.8	17.9	18.3
1989	03 25	15 37.17	-16 45.2					
1989	04 04	15 34.49	-16 28.4	2.029	2.855	138.3	13.5	17.9
1989	04 14	15 29.28	-16 03.4					
1989	04 24	15 21.88	-15 31.4	1.876	2.846	160.9	6.6	17.5
1989	05 04	15 12.94	-14 54.5					
1989	05 14	15 03.34	-14 16.1	1.827	2.834	174.1	2.1	17.2
1989	05 24	14 54.10	-13 40.2					
1989	06 03	14 46.11	-13 10.9	1.889	2.821	151.2	10.0	17.6
1989	06 13	14 40.08	-12 51.4					
1989	06 23	14 36.39	-12 43.5	2.044	2.804	129.7	16.2	18.0
1989	07 03	14 35.17	-12 47.6					
1989	07 13	14 36.39	-13 03.3	2.258	2.786	110.8	19.9	18.3
1989	07 23	14 39.88	-13 29.2					
1989	08 02	14 45.42	-14 03.7	2.500	2.765	94.1	21.5	18.5

1976 GO3 a,e,i = 2.64, 0.09, 2 Elements MPC 12122

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	02 23	15 19.03	-15 36.1	1.975	2.390	102.3	23.9	17.8
1989	03 05	15 26.35	-15 54.1					
1989	03 15	15 31.18	-16 01.8	1.743	2.393	119.4	21.2	17.4
1989	03 25	15 33.23	-15 59.6					
1989	04 04	15 32.30	-15 47.8	1.552	2.397	138.9	15.9	17.0
1989	04 14	15 28.42	-15 27.2					
1989	04 24	15 21.98	-14 59.6	1.431	2.404	160.9	7.9	16.6
1989	05 04	15 13.74	-14 27.7					
1989	05 14	15 04.78	-13 55.6	1.404	2.412	174.1	2.5	16.3
1989	05 24	14 56.32	-13 28.0					
1989	06 03	14 49.40	-13 09.2	1.479	2.422	151.9	11.4	16.8
1989	06 13	14 44.79	-13 02.1					
1989	06 23	14 42.86	-13 08.0	1.639	2.433	131.3	18.3	17.2
1989	07 03	14 43.66	-13 26.4					
1989	07 13	14 47.07	-13 56.2	1.855	2.446	113.5	22.4	17.6
1989	07 23	14 52.87	-14 35.2					
1989	08 02	15 00.76	-15 21.4	2.104	2.460	98.0	24.1	18.0