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

Minor Planet Center
Smithsonian Astrophysical Observatory
Cambridge, MA 02138, U.S.A.
Telephone 617-495-7244/7440/7444 (for emergency use only)
TWX 710-320-6842 ASTROGRAM CAM EASYLINK 62794505
MARSDEN@CFA.BITNET BRIAN@CFAPS1.SPAN MARSDEN@CFAPS2.SPAN
Brian G. Marsden, Director Conrad M. Bardwell, Associate Director

EDITORIAL NOTICE.

A year ago (cf. MPC 12851) we introduced a policy of delaying action--for at least four to six months--on new discoveries of minor planets observed on a single night. This was in anticipation that there might be independent discoveries and more complete coverage by other observers unable to reduce their data immediately. It is gratifying to note that the fraction of "one-night stands" reported during the last part of 1988 was only half that reported during the same months of 1987 and 1986. Sometimes, of course, bad weather or unavailability of the telescope make follow-up impossible. In the interest of efficiency, however, we urge observers NOT TO REPORT data from one night if data from a second night will be forthcoming. From our point of view, maximum efficiency is achieved when all the observations of a new discovery at a particular opposition are reported together. In the case of an object fainter than about mag 18, an identification or independent discovery is unlikely, and the observer should be prepared to make observations over several months and report them in this fashion. On the other hand, it is a waste of effort to make extensive observational coverage of a brighter object that could have been readily identified if it had been reported. To report at one time all the observations of a discovery during one dark of the moon is a reasonable compromise that may allow the Minor Planet Center to inform the observer by electronic mail whether further observations are desirable.

As has been indicated, however, the Minor Planet Center is prepared to receive accurate positions of a new object on TWO nights (preferably with TWO positions on each of those nights) and will then assign credit for the discovery. This permits the representation of the observations by an appropriate Vaisala (perihelion) orbit. It is helpful if the observer can provide at that time final values for ALL the observations he or she would eventually plan to report of the object on those two nights, and some estimate of the object’s magnitude should be considered mandatory. It is also helpful if all of the new objects observed in a particular field are reported at once. If the observer chooses to pursue a new object on further nights at the same dark run, he should aim at making the span covered by the observations as long as possible, and ALL these other observations should generally be reported in JUST ONE ADDITIONAL COMMUNICATION. Repeated redeterminations of general orbits for the object are thereby avoided. The span should be at least five and most preferably ten days or more, and it is convenient if these later observations are again made on two nights, in order to verify that the same object is observed. If the minor planet is a fast-moving one in the vicinity of the earth, the parallax afforded by observations made at different times of the night can be very useful in the orbit-determination process, and the follow-up observations might usefully be reported as soon as they become available. Observers are advised always

to check that their discoveries are in fact included in the MPCs: it has recently happened that we delayed discovery reports because the communication of a second-night observation was lost or because a gross error on the second night suggested that a different object had been measured.

If identifications exist, ten-day arcs are frequently sufficient for establishing them, and ideally the Minor Planet Center can advise observers of them before the following dark run. Observations of an object with a rather weak identification are highly desirable at a neighboring dark run, however, and experienced observers may in any case wish to defer their third and fourth nights of observations until a second dark run, at which point it is virtually assured that any potential identification will be found. Extension of observations to three or more dark runs tends to useful if (and only if) no identification is found, the improved orbit determination then facilitating direct searches for observations at other oppositions.

Most new objects are found in the course of astrometry on known objects. There is particular interest in observations of the unnumbered minor planets from previous oppositions for which ephemerides are included in these Circulars. Such observations should be made and reported in much the same manner as those of new discoveries. Even if an ephemeris is substantially in error, observations on two nights at each of two dark runs will generally be more than sufficient, but we note that a single observation during a single dark run is always open to question.

If it is at all possible, observations should be communicated by electronic mail, CBAT/MPC Computer Service, telex, MS-DOS 5.25-inch diskette or 9-track magnetic tape. The following rendition of the first observation on MPC 14292 shows the 80-column format used by the Minor Planet Center:

```
Col.
5      13  16            31  34       44 46       56          68       78
|       |  |             |  |         | |        |          |         |
4379T-3 *4 1977 10 16.28368  01 36 05.55 +02 18 09.5          17.5      675
```

The "4" in column 14 is the note; see also the list of possibilities on MPC 14235-14236. In the case of a new object yet to receive an MPC designation, a five-character code is given in columns 5-9. A code of this type, usually beginning with letters and ending with numerals, is used by many observers for temporary designations for their discoveries; a combination of letters and numerals is particularly useful if it is desirable to distinguish discoveries by different individuals participating in the same program. In the case of a numbered minor planet, the number is given (without leading zeros) in columns 1-4. In the case of a comet, the designation is given in columns 6-13. As an example, P/Halley = 1986 III = 1982i would be denoted as 1986032i, with blanks if the Roman numeral (or letter designation) is not available; in addition, a special code is used for short-period comets in columns 1-5, and this is available from the Minor Planet Center on request. Observers are not obliged to use the above format; we do request, however, that they consistently ADHERE TO THE SAME FORMAT and REFRAIN FROM INCLUDING TABS in preparing their computer files.

The amount of data processed by the Minor Planet Center is nowadays enormous, and it may become necessary to limit the size of the MPCs. Beginning with this batch, we are reluctantly reducing the standard opposition ephemerides from 17 dates to 9 dates. The quality of most of the contributions to the MPCs is also nowadays most impressive. There is, however, still a particular need for observations of faint comets. All observers should also be aware that by far the most prevalent gross error in a reported observation is an INCORRECT TIME OR DATE.

ERRATA.

MPC Line [this header line has been missing from the MPCs since last May]
14208 1 For 1987 WM read 1987 WB

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N	Obs.
1978 VK9		1988 12	07.08756	02 34 54.28	+16 16 21.7	MPC14128			801
1982 OX		1982 07	17.37141	15 10 10.23	-12 47 18.7	MPC13124		1	413
1982 OX	*	1982 07	17.41308	15 10 11.53	-12 47 25.5	MPC13124	18	1	413
1988 VZ		1988 11	14.53678	02 29 32.55	+16 50 53.2	MPC14143		2	872
1988 XU1		1988 12	12.61007	05 10 09.07	+21 27 24.3	MPC14144			872

Note 1: these observations were originally reversed. 2: time originally erroneously given as 0.05 day later.

* * * * *

DELETED OBSERVATIONS.

The following observations are to be deleted.

Object	Date	UT	R. A. (1950)	Decl.	Reference	Obs.
1988 XG2	1989 01	12.56875	07 42 40.24	+15 10 18.0	MPC14145	875
1988 XG2	1989 01	12.59549	07 42 38.46	+15 10 16.5	MPC14145	875

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 14074.

Object		Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
1971 SF4	*	1971 09	26.88487	22 58 37.66	+05 06 54.9	1971 QN1	16.5	095
1978 YC2	*	1978 12	28.68453	04 11 17.00	+30 40 57.3	1978 YN	17.0	095
1983 RH9	*	1983 09	11.88046	22 20 12.13	+03 53 41.3	1983 RP5	17.5	095
1987 VE1	*	1987 11	14.43692	01 04 03.3	+12 24 22	1987 UU1	16	399
1987 VE1		1987 11	14.45208	01 04 02.8	+12 24 15	1987 UU1		399
1987 VE1		1987 11	14.46806	01 04 02.3	+12 24 10	1987 UU1		399
1988 XP2	*	1988 12	13.89030	03 40 24.47	+18 13 16.0	1988 XW		010
1989 AK2	*	1989 01	09.55000	07 29 48.27	+21 46 09.5	1989 AC1	16.5	400
1989 AK2		1989 01	09.56458	07 29 47.20	+21 46 13.9	1989 AC1		400

* * * * *

IDENTIFICATIONS.

The following list of identifications with numbered minor planets is by G. Williams and continues that on MPC 12924.

1941 JB = (1644) 1942 PL = (1978) 1958 PE = (1670)
1963 VP = (2300)

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

010 Caussols. 0.9-m Schmidt. Observers J. D. Mulholland and A. Maury. Measured by R. Chemin.
091 Aurec-sur-Loire. Observer R. Chanal.
372 Geisei. Observer T. Seki. From Orient. Astron. Assoc. Comet Bull.
391 Sendai Observatory, Ayashi Station. 0.20-m reflector. Observer M. Koishikawa. Measured by S. Kasahira, M. Koishikawa and T. Yusa.
399 Kushiro. Observer S. Ueda. Measured by H. Kaneda.
400 Kitami. Observer K. Endate. 0.2-m reflector. Measured by K. Watanabe.
403 Kani. Observer Y. Muzino.
405 Kamihoriguchi. O.30-m f/3.8 reflector. Observers H. Shimoda and K. Kanai. Measured by K. Kanai.
413 Siding Spring. U.K. Schmidt and Uppsala Southern Schmidt. Observers M. Hartley and R. H. McNaught. Measured by R. H. McNaught.
474 Mount John University Observatory. 0.6-m reflector. Observers A. C. Gilmore and P. M. Kilmartin.
503 Cambridge. Observer J. D. Shanklin.
657 Victoria. Observers D. D. Balam and J. D. Tatum.
675 Palomar. 1.5-m reflector + CCD and 0.46-m Schmidt. Observers R. Crockett, J. Gibson, E. Helin, B. Roman, C. S. Shoemaker, E. M. Shoemaker and N. G. Thomas.
801 Oak Ridge Observatory. Observers R. E. McCrosky and C.-Y. Shao.
887 Ojima. 0.30-m f/5.8 reflector. Observers T. Niijima and K. Kanai. Measured by K. Kanai.
892 YGCO Nagano Station. 0.25-m f/4.0 reflector. Observer S. Hayakawa.
897 YGCO Chiyoda Observatory. 0.25-m f/3.4 Wright-Schmidt camera. Observer T. Kojima.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N Obs.
		Periodic Comet Gunn				
/1982 X	1989	01 05.83218	14 24 21.96	-06 22 32.4	16 T	897
/1982 X	1989	01 05.85417	14 24 23.76	-06 22 42.8		897
/1982 X	1989	02 13.76319	15 04 46.47	-09 10 39.7	15.5T	897
/1982 X	1989	02 13.80347	15 04 48.31	-09 10 46.3		897
		Periodic Comet Shoemaker-Holt				
/1987z	1988	12 19.77604	07 44 54.37	+15 23 11.7	18 T	372
/1987z	1988	12 19.81215	07 44 53.13	+15 23 11.3		372
/1987z	1989	01 06.55938	07 33 29.60	+15 35 46.1		897
/1987z	1989	01 06.59826	07 33 27.70	+15 35 47.0	16 T	897
/1987z	1989	01 28.52708	07 18 32.96	+16 09 35.3	16 T	897
/1987z	1989	01 28.57280	07 18 30.99	+16 09 45.4		897
/1987z	1989	02 01.55625	07 16 16.80	+16 16 44.5	16.5T	897
/1987z	1989	02 01.59514	07 16 15.48	+16 16 50.9		897
/1987z	1989	02 02.54757	07 15 45.25	+16 18 29.6	17 T	887
/1987z	1989	02 02.55868	07 15 44.85	+16 18 31.1		887
/1987z	1989	02 02.57222	07 15 44.40	+16 18 32.0		887
/1987z	1989	02 06.52535	07 13 48.70	+16 25 34.0	16.5T	897
/1987z	1989	02 06.55532	07 13 48.05	+16 25 34.3		897
		Comet Shoemaker-Holt-Rodriquez (1988h)				
/1988h	1988	07 16.99444	19 40 20.63	+14 38 09.1		091
/1988h	1988	07 18.98611	19 38 01.92	+14 16 29.6		091

Comet Yanaka (1988r)

/1988r	1989	01	02.85625	16	15	09.27	-02	15	41.1			403
/1988r	1989	01	02.86458	16	15	06.68	-02	16	09.2			403
/1988r	1989	01	04.87356	16	03	43.91	-04	29	18.8			403
/1988r	1989	01	05.21354	16	01	41.78	-04	54	00.8			010
/1988r	1989	01	05.84884	15	57	48.67	-05	41	58.9	10	T	897
/1988r	1989	01	05.86707	15	57	41.65	-05	43	22.2			897
/1988r	1989	01	05.86910	15	57	40.6	-05	43	38			403
/1988r	1989	01	14.82587	14	42	51.89	-21	17	57.0			405
/1988r	1989	01	14.82951	14	42	49.74	-21	18	21.6			405
/1988r	1989	01	14.83247	14	42	47.59	-21	18	43.9			405
/1988r	1989	01	16.84427	14	18	20.70	-25	43	31.5			405
/1988r	1989	01	16.84826	14	18	17.45	-25	44	03.8			405
/1988r	1989	01	29.46389	10	39	29.99	-43	31	25.9	12	T	474
/1988r	1989	01	29.46881	10	39	24.95	-43	31	28.1			474

Comet Yanaka (1989a)

/1989a	1989	01	05.17361	13	51	53.84	+10	26	41.8			010
/1989a	1989	01	05.84236	13	53	13.53	+10	39	54.6	12	T	897
/1989a	1989	01	05.86192	13	53	15.86	+10	40	19.9			897
/1989a	1989	01	05.87222	13	53	17.2	+10	40	36			403
/1989a	1989	01	27.70972	14	33	02.97	+18	57	38.6			887
/1989a	1989	01	29.81736	14	36	25.63	+19	51	23.5			391
/1989a	1989	01	29.83056	14	36	27.01	+19	51	43.5			391
/1989a	1989	01	30.86111	14	38	03.93	+20	18	11.1			391
/1989a	1989	02	01.72963	14	40	56.48	+21	06	49.9			887
/1989a	1989	02	01.73912	14	40	57.27	+21	07	04.4			887
/1989a	1989	02	01.75671	14	40	58.55	+21	07	30.0			887
/1989a	1989	02	04.80590	14	45	29.45	+22	27	54.9	12	T	405
/1989a	1989	02	04.80729	14	45	29.71	+22	27	53.1	14	T	897
/1989a	1989	02	04.82257	14	45	30.88	+22	28	20.1			405
/1989a	1989	02	04.84653	14	45	32.97	+22	28	58.8			897
/1989a	1989	02	07.48826	14	49	16.18	+23	39	30.1			657
/1989a	1989	02	07.55840	14	49	21.94	+23	41	22.4			657
/1989a	1989	02	09.43016	14	51	53.58	+24	31	46.7			801
/1989a	1989	02	14.83090	14	58	39.30	+26	58	23.2			391
/1989a	1989	02	14.84306	14	58	40.13	+26	58	45.2			391

Periodic Comet Helin-Roman-Crockett

/1989b	1989	01	27.60231	08	20	33.13	+22	44	49.5			887
/1989b	1989	01	27.61076	08	20	32.64	+22	44	49.4			887
/1989b	1989	01	27.62141	08	20	32.26	+22	44	49.8			887
/1989b	1989	01	27.63087	08	20	31.87	+22	44	52.5			887
/1989b	1989	01	28.56944	08	19	51.23	+22	47	47.7			405
/1989b	1989	01	28.57917	08	19	50.41	+22	47	48.9			405
/1989b	1989	01	28.58715	08	19	50.24	+22	47	50.0			405
/1989b	1989	01	29.51181	08	19	10.72	+22	50	41.5	15	T	400
/1989b	1989	01	29.52639	08	19	10.24	+22	50	41.9			400
/1989b	1989	01	29.53889	08	19	09.76	+22	50	43.1			400
/1989b	1989	01	29.54392	08	19	09.44	+22	50	41.4	15	T	405
/1989b	1989	01	29.59861	08	19	07.18	+22	50	54.9			405
/1989b	1989	01	30.54514	08	18	26.60	+22	53	44.4			400
/1989b	1989	01	30.56042	08	18	25.91	+22	53	46.3			400
/1989b	1989	02	01.70156	08	16	55.11	+22	59	57.4	14.5	T	405
/1989b	1989	02	01.71146	08	16	54.82	+23	00	00.7			405
/1989b	1989	02	03.51601	08	15	40.15	+23	05	06.4			400
/1989b	1989	02	03.53128	08	15	39.54	+23	05	08.8			400
/1989b	1989	02	04.20491	08	15	11.49	+23	06	55.0			801

/1989b	1989	02	06.27160	08	13	48.27	+23	12	19.3			657
/1989b	1989	02	06.31257	08	13	46.84	+23	12	29.5			657
/1989b	1989	02	06.41528	08	13	42.25	+23	12	46.2	14.2	T	675
/1989b	1989	02	06.44838	08	13	40.94	+23	12	49.3			675
/1989b	1989	02	06.54039	08	13	37.48	+23	13	02.5	16	T	897
/1989b	1989	02	06.57083	08	13	36.16	+23	13	07.8			897
/1989b	1989	02	07.32368	08	13	06.56	+23	15	00.8			657
/1989b	1989	02	08.23268	08	12	31.33	+23	17	16.2			801
/1989b	1989	02	11.22760	08	10	39.10	+23	24	16.1	14.0	T	675
/1989b	1989	02	11.26493	08	10	37.68	+23	24	20.3			675

Periodic Comet Bradfield 2

/1989c	1989	02	05.44181	00	11	08.61	-36	07	55.0		1	413
/1989c	1989	02	12.41030	00	29	29.70	-32	11	02.1			474
/1989c	1989	02	12.42951	00	29	31.77	-32	10	16.1			474
/1989c	1989	02	13.40486	00	31	50.64	-31	39	37.7			474
/1989c	1989	03	01.41111	01	03	15.18	-24	28	02.2	16	T	413
/1989c	1989	03	02.41354	01	04	55.23	-24	05	01.9			413

Comet Shoemaker (1989e)

/1989e	1989	01	27.64630	09	51	44.98	+28	49	09.2	14	T	887
/1989e	1989	01	27.65463	09	51	44.02	+28	49	30.9			887
/1989e	1989	01	27.66285	09	51	43.18	+28	49	50.9			887
/1989e	1989	01	28.61076	09	50	00.35	+29	30	24.7	13	T	405
/1989e	1989	01	28.61910	09	49	58.82	+29	30	44.3			405
/1989e	1989	01	28.62778	09	49	58.45	+29	31	05.6			405
/1989e	1989	01	29.50625	09	48	20.99	+30	08	44.4			892
/1989e	1989	01	29.51667	09	48	19.71	+30	09	12.5			892
/1989e	1989	01	29.53472	09	48	17.59	+30	10	00.5			892
/1989e	1989	01	29.61976	09	48	08.09	+30	13	38.5	13	T	399
/1989e	1989	01	29.62731	09	48	07.12	+30	13	58.8			399
/1989e	1989	01	29.63576	09	48	06.18	+30	14	20.9			399
/1989e	1989	01	29.63611	09	48	06.01	+30	14	18.4	13.5	T	405
/1989e	1989	01	29.68368	09	48	00.85	+30	16	17.8			391
/1989e	1989	01	29.69965	09	47	58.92	+30	17	04.7			391
/1989e	1989	01	29.95008	09	47	30.79	+30	27	43.2			503
/1989e	1989	01	31.38368	09	44	45.08	+31	28	54.7			675
/1989e	1989	02	02.32986	09	40	51.86	+32	51	22.9	13.2	T	675
/1989e	1989	02	02.58125	09	40	21.01	+33	02	00.8			892
/1989e	1989	02	02.58819	09	40	20.19	+33	02	13.6			892
/1989e	1989	02	04.83299	09	35	38.20	+34	35	53.4			391
/1989e	1989	02	05.69375	09	33	46.59	+35	11	25.2			391
/1989e	1989	02	06.28167	09	32	30.08	+35	35	24.2			657
/1989e	1989	02	06.32229	09	32	25.15	+35	37	08.2			657
/1989e	1989	02	06.53889	09	31	57.42	+35	45	59.7			892
/1989e	1989	02	06.55208	09	31	55.70	+35	46	33.7			892
/1989e	1989	02	06.58125	09	31	50.63	+35	47	45.2	14	T	897
/1989e	1989	02	06.59514	09	31	48.54	+35	48	19.0			897
/1989e	1989	02	06.70382	09	31	34.22	+35	52	43.2			391
/1989e	1989	02	07.23236	09	30	24.13	+36	14	07.8			657
/1989e	1989	02	07.30910	09	30	13.78	+36	17	10.4			657
/1989e	1989	02	07.74375	09	29	15.40	+36	34	40.0			391
/1989e	1989	02	07.75903	09	29	13.26	+36	35	17.4			391
/1989e	1989	02	08.33365	09	27	55.78	+36	58	15.5			801
/1989e	1989	02	10.32431	09	23	22.33	+38	16	27.4			657
/1989e	1989	02	13.75972	09	15	15.15	+40	25	37.9			391
/1989e	1989	02	26.45833	08	44	05.68	+47	06	37.7			892
/1989e	1989	02	26.48403	08	44	01.52	+47	07	17.0			892

Comet Shoemaker (1989f)

/1989f	1989	01	29.61111	09	00	30.08	+51	44	57.1		887
/1989f	1989	01	30.37100	09	00	08.35	+51	49	48.1	16.3T	675
/1989f	1989	01	31.35868	08	59	40.33	+51	55	48.9		675
/1989f	1989	01	31.39965	08	59	39.09	+51	56	03.2		675
/1989f	1989	02	01.60972	08	59	04.94	+52	02	50.6	15.5T	405
/1989f	1989	02	01.61701	08	59	04.73	+52	02	53.7		405
/1989f	1989	02	01.70243	08	59	02.11	+52	03	21.7	16.5T	887
/1989f	1989	02	02.58785	08	58	37.22	+52	07	51.2		887
/1989f	1989	02	02.59896	08	58	37.08	+52	07	57.1		887
/1989f	1989	02	02.61076	08	58	36.76	+52	08	00.1		887

Periodic Comet Pons-Winnecke

/1989g	1989	01	17.47341	12	29	03.37	+25	59	38.8	20.5N	2 675
/1989g	1989	01	17.47904	12	29	03.59	+25	59	42.2		675
/1989g	1989	01	17.49624	12	29	04.31	+25	59	52.4		675
/1989g	1989	01	17.50073	12	29	04.49	+25	59	55.0		675
/1989g	1989	01	18.45535	12	29	45.01	+26	09	34.4		2 675
/1989g	1989	01	18.46061	12	29	45.20	+26	09	37.8		675
/1989g	1989	01	18.46679	12	29	45.49	+26	09	41.6		675
/1989g	1989	01	18.47119	12	29	45.62	+26	09	44.5		675

Periodic Comet Clark

/1989h	1989	01	02.54520	11	31	29.33	+15	38	34.4	20 T	3 675
/1989h	1989	01	02.54984	11	31	29.42	+15	38	35.0		675
/1989h	1989	01	02.55384	11	31	29.50	+15	38	35.5		675
/1989h	1989	01	02.55812	11	31	29.57	+15	38	36.1		675
/1989h	1989	01	17.43984	11	33	52.39	+16	26	39.4	19 T	4 675
/1989h	1989	01	17.44553	11	33	52.38	+16	26	41.0		675
/1989h	1989	01	17.45216	11	33	52.34	+16	26	42.8		675
/1989h	1989	01	18.49492	11	33	51.07	+16	31	18.1	19 T	4 675
/1989h	1989	01	18.50016	11	33	51.04	+16	31	19.4		675
/1989h	1989	01	18.50530	11	33	51.01	+16	31	20.6		675

Note 1: faint tail 3′ long in p.a. 185 . 2: stellar appearance. 3: coma extended in p.a. 290 . 4: condensed, 5" coma; 10" tail near p.a. 290 .

* * * * *

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.
006 Barcelona							
J. M. Codina, Fabra Observatory, E-08022 Barcelona, Spain							
Observers J. M. Codina, J. Nunez, N. Torras							
0.38-m f/11 Mailhat astrograph							
AGK3, SAOC							
	1	1983 11 24.74861	21 44 45.08	-24 31 35.9			006
	1	1983 11 24.75972	21 44 45.70	-24 31 31.1			006
	1	1983 11 25.74375	21 45 40.87	-24 24 27.1			006
	1	1983 11 29.77500	21 49 34.25	-23 54 56.7			006
	1	1983 11 29.78333	21 49 34.73	-23 54 53.0			006
	1	1983 12 14.79792	22 05 37.11	-21 57 40.8			006
	1	1983 12 14.80556	22 05 37.63	-21 57 37.0			006
	2	1983 07 04.93750	18 48 24.94	+22 29 07.9			006
	2	1983 07 04.94653	18 48 24.48	+22 29 06.3			006
	2	1983 07 04.95313	18 48 24.13	+22 29 05.0			006
	2	1983 07 06.86389	18 46 48.74	+22 22 46.6			006
	2	1983 07 06.87326	18 46 48.28	+22 22 44.6			006
	2	1983 08 17.86111	18 21 24.62	+16 32 13.0			006
	2	1983 08 17.86771	18 21 24.52	+16 32 08.4			006
	2	1983 08 29.85417	18 19 54.63	+14 09 56.1			006
	2	1983 08 29.86076	18 19 54.62	+14 09 51.4			006
	2	1983 09 13.91250	18 22 08.70	+11 10 19.8			006
	2	1983 09 13.91944	18 22 08.81	+11 10 14.9			006
	2	1983 09 30.83819	18 29 38.99	+08 02 28.7			006
	2	1983 09 30.84722	18 29 39.31	+08 02 22.9			006
	2	1983 11 03.78542	18 57 10.40	+03 09 21.1			006
	2	1983 11 03.79514	18 57 11.00	+03 09 17.3			006
	3	1983 11 29.80243	01 55 29.78	-07 37 06.7			006
	3	1983 11 29.81076	01 55 29.71	-07 37 06.3			006
	3	1983 11 29.81771	01 55 29.66	-07 37 06.1			006
	3	1983 11 30.80035	01 55 25.01	-07 36 07.9			006
	3	1983 11 30.81076	01 55 24.96	-07 36 07.2			006
	3	1983 12 07.75243	01 55 42.19	-07 19 57.9			006
	3	1983 12 07.76076	01 55 42.26	-07 19 56.3			006
	3	1983 12 16.83438	01 58 18.27	-06 36 53.8			006
	3	1983 12 16.84201	01 58 18.44	-06 36 51.0			006
	3	1983 12 16.84896	01 58 18.59	-06 36 48.1			006
	3	1983 12 27.96424	02 04 45.56	-05 17 08.1			006

3		1983	12	27.97049	02	04	45.84	-05 17 05.1	006
3		1983	12	27.97604	02	04	46.07	-05 17 02.2	006
4		1983	12	21.88472	05	10	03.45	+18 46 14.3	006
4		1983	12	21.89167	05	10	03.00	+18 46 15.0	006
4		1983	12	21.89722	05	10	02.62	+18 46 15.7	006
4		1983	12	28.89115	05	02	51.02	+18 58 23.9	006
4		1983	12	28.89965	05	02	50.49	+18 58 24.9	006
4		1983	12	28.90660	05	02	50.08	+18 58 25.6	006
5		1983	03	21.87743	10	31	11.55	+13 38 51.0	006
5		1983	03	21.88438	10	31	11.32	+13 38 53.2	006
5		1983	03	30.84583	10	27	40.36	+14 15 59.0	006
5		1983	03	30.85278	10	27	40.26	+14 16 00.2	006
5		1983	03	30.85764	10	27	40.15	+14 16 01.1	006
5		1983	04	08.90972	10	26	27.82	+14 34 28.5	006
5		1983	04	08.91563	10	26	27.80	+14 34 28.8	006
5		1983	04	11.80764	10	26	36.03	+14 36 24.6	006
5		1983	04	11.81250	10	26	36.07	+14 36 24.4	006
5		1983	04	11.81875	10	26	36.06	+14 36 24.5	006
5		1983	04	29.84931	10	32	51.18	+14 09 06.0	006
5		1983	04	29.85764	10	32	51.45	+14 09 04.4	006
5		1983	05	17.87569	10	46	55.53	+12 45 40.4	006
5		1983	05	17.88403	10	46	55.99	+12 45 37.3	006
6		1983	06	28.92778	17	29	20.32	-04 14 18.0	006
6		1983	06	28.93542	17	29	19.88	-04 14 20.2	006
6		1983	07	05.94201	17	22	54.58	-04 51 02.8	006
6		1983	07	05.95035	17	22	54.13	-04 51 05.8	006
6		1983	07	21.93786	17	11	44.47	-06 43 02.0	006
6		1983	07	21.94619	17	11	44.21	-06 43 06.0	006
6		1983	08	29.90208	17	14	11.16	-12 25 42.0	006
6		1983	08	29.91042	17	14	11.45	-12 25 46.2	006
6		1983	09	06.86806	17	19	53.15	-13 34 17.3	006
6		1983	09	06.87500	17	19	53.51	-13 34 20.8	006
7		1983	07	08.87708	17	04	02.23	-21 38 50.6	006
7		1983	07	08.88750	17	04	01.71	-21 38 48.8	006
7		1983	09	06.83194	17	04	48.49	-20 39 57.6	006
7		1983	09	06.84167	17	04	48.93	-20 39 57.7	006
8		1983	06	07.88264	14	21	30.57	-05 56 45.1	006
8		1983	06	07.89306	14	21	30.24	-05 56 45.9	006
9		1983	01	03.81250	00	47	56.36	+01 48 32.0	006
9		1983	01	03.81944	00	47	56.81	+01 48 36.3	006
10		1983	05	24.84097	13	08	16.64	-12 45 48.4	006
10		1983	05	24.84864	13	08	16.55	-12 45 46.9	006
11		1983	01	10.87639	04	59	38.98	+18 28 36.3	006
11		1983	01	10.88403	04	59	38.69	+18 28 37.2	006
11		1983	01	17.80729	04	56	05.69	+18 40 41.4	006
11		1983	01	17.81528	04	56	05.49	+18 40 42.4	006
11		1983	02	02.80721	04	53	26.44	+19 16 31.0	006
11		1983	02	02.81346	04	53	26.45	+19 16 31.9	006
11		1983	02	28.81285	05	04	28.78	+20 29 35.3	006
11		1983	03	07.84514	05	10	10.93	+20 49 54.0	006
11		1983	03	07.85625	05	10	11.50	+20 49 55.8	006
11		1983	04	05.81875	05	42	33.53	+22 00 47.6	006
11		1983	04	05.82986	05	42	34.40	+22 00 48.9	006
14		1983	01	31.81875	03	26	48.35	+16 34 50.8	006
14		1983	01	31.82778	03	26	48.59	+16 34 53.6	006
15		1983	04	21.90451	11	23	54.61	-13 24 57.5	006
15		1983	04	21.91146	11	23	54.41	-13 24 55.0	006
15		1983	04	21.91667	11	23	54.25	-13 24 53.3	006

```
 15       1983 05 03.85000  11 19 56.96  -12 19 46.3                    006
 15       1983 05 03.85833  11 19 56.86  -12 19 43.9                    006
 18       1983 04 21.87778  10 23 50.10  +15 06 37.3                    006
 18       1983 04 21.88542  10 23 50.09  +15 06 37.6                    006
 18       1983 04 29.82500  10 24 43.39  +15 08 42.7                    006
 18       1983 04 29.83403  10 24 43.48  +15 08 42.6                    006
 18       1983 05 17.84514  10 31 52.03  +14 38 26.3                    006
 18       1983 05 17.85556  10 31 52.37  +14 38 24.5                    006
 19       1983 01 10.84097  01 28 11.30  +08 32 16.2                    006
 19       1983 01 10.85069  01 28 12.03  +08 32 20.4                    006
 20       1983 11 24.80069  01 03 39.89  +06 35 43.4                    006
 20       1983 11 24.80903  01 03 39.76  +06 35 42.5                    006
 20       1983 11 24.81597  01 03 39.65  +06 35 42.0                    006
 22       1983 05 03.87500  11 25 06.80  +21 05 54.9                    006
 22       1983 05 03.88333  11 25 06.72  +21 05 52.2                    006
 25       1983 06 03.85764  12 32 28.96  -04 08 22.5                    006
 25       1983 06 03.86736  12 32 29.13  -04 08 17.9                    006
 25       1983 06 03.87569  12 32 29.28  -04 08 13.9                    006
 31       1983 12 06.80556  01 13 06.63  +14 03 47.6                    006
 39       1983 12 29.78889  04 39 34.65  +06 38 58.7                    006
 39       1983 12 29.79861  04 39 34.26  +06 39 00.4                    006
 40       1983 09 13.84028  19 16 03.63  -25 59 26.6                    006
 40       1983 09 13.85590  19 16 04.06  -25 59 25.8                    006
 44       1983 12 05.80278  01 45 04.95  +04 43 38.0                    006
 44       1983 12 05.81319  01 45 04.81  +04 43 38.7                    006
 52       1983 03 11.79444  07 45 13.09  +21 42 00.5                    006
 52       1983 03 11.80417  07 45 13.12  +21 42 01.7                    006
 71       1983 03 18.79861  08 34 24.50  +13 05 30.4                    006
 71       1983 03 18.80868  08 34 24.23  +13 05 27.3                    006
115       1983 03 09.81111  08 24 35.52  +15 06 30.9                    006
115       1983 03 09.82292  08 24 35.31  +15 06 29.4                    006
145       1983 01 24.87500  06 53 35.42  +34 53 11.0                    006
145       1983 01 24.88194  06 53 35.05  +34 53 12.9                    006
148       1983 01 25.89861  07 15 02.91  +01 41 32.3                    006
148       1983 01 25.90938  07 15 02.37  +01 41 41.0                    006
148       1983 03 07.89444  07 02 20.69  +10 39 42.3                    006
148       1983 03 07.90556  07 02 20.83  +10 39 49.7                    006
344       1983 05 24.88889  13 05 10.20  +00 18 51.2                    006
344       1983 05 24.89861  13 05 09.84  +00 18 45.2                    006
349       1983 02 04.90694  04 05 41.25  +28 56 35.3                    006
349       1983 02 04.91215  04 05 41.38  +28 56 35.1                    006
349       1983 02 04.92274  04 05 41.66  +28 56 35.1                    006
532       1983 07 11.92640  18 00 56.38  -18 41 56.1                    006
532       1983 07 11.93646  18 00 55.87  -18 42 00.0                    006
532       1983 07 11.94479  18 00 55.44  -18 42 03.3                    006

010 Caussols
A. Maury, CERGA Caussols, F-06460 Saint Vallier de Thiey, France
Observers A. Maury, C. Pollas
Measurer R. Chemin
0.9-m Schmidt telescope
1989 BA1 * 1989 01 25.82222  03 36 18.70  +08 30 04.6          17.5    010
1989 BA1   1989 01 25.87222  03 36 20.32  +08 29 43.0                  010
1989 BA1   1989 01 31.81597  03 39 51.96  +07 52 27.1                  010
1989 BA1   1989 01 31.84375  03 39 52.93  +07 52 19.0                  010
1989 BA1   1989 01 31.85764  03 39 53.48  +07 52 14.9                  010
1989 BA1   1989 02 06.80069  03 44 12.02  +07 22 31.8                  010
1989 BA1   1989 02 06.84942  03 44 13.68  +07 22 24.1                  010
```

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

1976 GQ6		1988 09 09.00382	01 08 21.91	-00 16 05.0		17.0	033
1976 GQ6		1988 09 09.06076	01 08 20.34	-00 16 28.7			033
1988 JZ1	*	1988 05 12.87986	12 41 54.56	+29 19 50.4		19.0	033
1988 JZ1		1988 05 12.90556	12 41 54.31	+29 19 46.0			033
1988 JA2	*	1988 05 12.93125	15 01 00.61	-17 59 36.6		16.5	033
1988 JA2		1988 05 12.98681	15 00 57.26	-17 59 17.9			033
1988 JB2	*	1988 05 12.93125	15 03 58.08	-15 45 59.0		17.9	033
1988 JB2		1988 05 12.98681	15 03 55.21	-15 45 49.8			033
1988 JC2	*	1988 05 12.93125	15 05 33.75	-15 54 08.6		17.7	033
1988 JC2		1988 05 12.98681	15 05 30.97	-15 54 00.5			033
1988 PE4	*	1988 08 14.01007	23 53 03.33	-03 32 06.1		19.8	033
1988 PE4		1988 08 14.04479	23 53 02.89	-03 32 15.9			033
1988 PF4	*	1988 08 15.86215	21 29 54.95	+14 08 24.4		18.0	033
1988 PF4		1988 08 15.89479	21 29 53.31	+14 08 22.9			033
1988 RX7	*	1988 09 10.00903	01 12 07.22	+00 51 28.2		18.8	033
1988 RY7	*	1988 09 10.87465	21 39 24.45	+07 17 14.5		17.7	033
1988 RY7		1988 09 10.90729	21 39 22.97	+07 17 03.2			033
1988 RZ7	*	1988 09 10.87465	21 39 26.61	+08 01 56.4		18.1	033
1988 RZ7		1988 09 10.90729	21 39 25.54	+08 01 35.8			033
1988 RA8	*	1988 09 10.87465	21 40 23.50	+07 24 21.5		18.0	033
1988 RA8		1988 09 10.90729	21 40 22.00	+07 24 16.9			033
1988 RB8	*	1988 09 10.87465	21 46 42.50	+05 55 55.4		17.5	033
1988 RB8		1988 09 10.90729	21 46 41.62	+05 55 32.7			033
1988 RC8	*	1988 09 10.87465	21 46 44.83	+07 13 47.7		17.0	033
1988 RC8		1988 09 10.90729	21 46 43.53	+07 13 37.6			033
1988 RD8	*	1988 09 11.05521	01 09 04.34	+31 45 25.7		17.5	033
1988 RD8		1988 09 11.10313	01 09 03.16	+31 45 42.1			033
1988 VB		1988 11 04.86667	02 41 48.03	+15 24 32.8		17.2	033
1988 VB		1988 11 04.92326	02 41 44.43	+15 24 37.0			033
1988 VJ		1988 11 04.86667	02 42 21.93	+16 24 28.3		17.5	033
1988 VJ		1988 11 04.92326	02 42 18.30	+16 24 02.0			033
1988 VW		1988 11 04.86667	02 31 34.10	+15 51 15.4		18.2	033
1988 VW		1988 11 04.92326	02 31 31.26	+15 51 02.6			033
1988 VZ		1988 11 04.86667	02 38 18.51	+16 54 47.8		17.3	033
1988 VZ		1988 11 04.92326	02 38 15.24	+16 54 46.6			033
1988 VR1		1988 11 03.98715	03 19 09.59	+13 21 35.3			033
1988 VR1		1988 11 05.97917	03 17 35.00	+13 06 44.9		16.6	033
1988 VR1		1988 11 06.01181	03 17 33.38	+13 06 30.8			033
1988 VS1		1988 11 03.98715	03 22 20.15	+12 51 32.0			033
1988 VS1		1988 11 05.97917	03 20 11.03	+12 46 10.8		16.8	033
1988 VS1		1988 11 06.01181	03 20 08.89	+12 46 05.5			033
1988 VZ1		1988 11 04.86667	02 33 19.65	+15 16 03.8		17.9	033
1988 VZ1		1988 11 04.92326	02 33 16.85	+15 15 50.6			033
1988 VK5		1988 11 04.86667	02 35 16.80	+15 25 37.0		19.3	033
1988 VK5		1988 11 04.92326	02 35 13.61	+15 25 35.9			033
1988 VL7	*	1988 11 03.98715	03 16 12.22	+11 35 56.0			033
1988 VL7		1988 11 05.97917	03 14 39.33	+11 24 42.7		17.8	033
1988 VL7		1988 11 06.01181	03 14 37.80	+11 24 31.6			033
1988 VM7	*	1988 11 03.98715	03 16 29.61	+10 57 08.8			033
1988 VM7		1988 11 05.97917	03 14 43.36	+10 40 24.5		16.9	033
1988 VM7		1988 11 06.01181	03 14 41.56	+10 40 08.5			033
1988 VN7	*	1988 11 03.98715	03 18 14.55	+13 28 05.1			033
1988 VN7		1988 11 05.97917	03 16 03.35	+13 32 52.4		19.0	033

1988	VN7		1988	11	06.01181	03	16	01.24	+13	32	55.6		033
1988	VO7	*	1988	11	03.98715	03	20	17.71	+11	48	57.8		033
1988	VO7		1988	11	05.97917	03	18	38.14	+11	25	59.0	18.7	033
1988	VO7		1988	11	06.01181	03	18	36.38	+11	25	34.6		033
1988	VP7	*	1988	11	03.98715	03	23	10.88	+12	06	12.7		033
1988	VP7		1988	11	05.97917	03	21	02.57	+12	05	57.7	18.1	033
1988	VP7		1988	11	06.01181	03	21	00.42	+12	05	57.1		033
1988	VQ7	*	1988	11	03.98715	03	24	43.97	+12	03	03.8		033
1988	VQ7		1988	11	05.97917	03	22	52.92	+12	00	50.5	18.8	033
1988	VQ7		1988	11	06.01181	03	22	51.08	+12	00	48.3		033
1988	VR7	*	1988	11	03.98715	03	25	10.10	+12	13	09.9		033
1988	VR7		1988	11	05.97917	03	23	07.18	+12	05	59.4	18.9	033
1988	VR7		1988	11	06.01181	03	23	05.02	+12	05	52.0		033
54			1988	11	03.82813	02	02	21.45	+32	00	34.6	12.7	033
54			1988	11	03.88021	02	02	18.29	+32	00	17.4		033
168			1988	11	03.85451	01	09	26.01	+07	32	56.4		033
168			1988	11	03.91285	01	09	23.99	+07	32	39.8	14.3	033
168			1988	11	04.89132	01	08	51.96	+07	28	06.5		033
470			1988	11	04.80694	01	03	49.52	+00	23	31.9		033
470			1988	11	04.83993	01	03	48.18	+00	23	22.0	15.2	033
535			1988	11	03.98715	03	21	24.46	+11	38	35.3		033
535			1988	11	05.97917	03	19	30.01	+11	34	39.4	14.1	033
535			1988	11	06.01181	03	19	28.05	+11	34	35.9		033
585			1988	12	07.95208	06	52	22.83	+10	01	13.8		033
585			1988	12	07.99583	06	52	21.03	+10	01	07.2	14.4	033
982			1988	11	03.82813	01	59	46.41	+32	38	54.8	16.1	033
982			1988	11	03.88021	01	59	43.62	+32	38	37.8		033
1174			1988	11	05.92188	03	39	39.57	+32	10	38.2	16.9	033
1174			1988	11	05.95521	03	39	37.62	+32	10	39.6		033
1247			1988	11	03.85451	01	14	50.52	+06	01	15.3		033
1247			1988	11	03.91285	01	14	48.33	+06	01	01.8	16.0	033
1247			1988	11	04.89132	01	14	12.89	+05	57	23.5		033
1319			1988	11	04.86667	02	33	37.83	+17	23	07.6	16.7	033
1319			1988	11	04.92326	02	33	35.08	+17	22	53.5		033
1774			1988	11	05.02361	07	30	49.59	+19	29	55.3		033
1774			1988	11	05.07847	07	30	50.83	+19	29	50.1	17.6	033
1774			1988	11	06.08681	07	31	13.53	+19	28	16.3		033
1872			1988	11	04.80694	01	01	29.71	+02	34	51.8		033
1872			1988	11	04.83993	01	01	29.09	+02	34	45.9	18.8	033
1898			1988	11	05.02361	07	19	50.73	+20	55	54.3		033
1898			1988	11	05.07847	07	19	51.66	+20	55	52.3	17.3	033
1898			1988	11	06.08681	07	20	08.75	+20	54	59.7		033
1898			1988	12	07.97465	07	14	45.70	+20	56	39.4	17.4	033
1898			1988	12	08.01701	07	14	44.15	+20	56	42.1		033
2153			1988	11	04.86667	02	33	27.52	+14	50	54.2	16.5	033
2153			1988	11	04.92326	02	33	24.61	+14	50	43.0		033
2372			1988	11	04.80694	01	06	17.06	+02	38	17.9		033
2372			1988	11	04.83993	01	06	15.86	+02	38	13.4	16.8	033
2494			1988	11	05.92188	03	35	12.84	+32	41	48.6	15.7	033
2494			1988	11	05.95521	03	35	11.10	+32	41	41.5		033
2724			1988	11	04.80694	01	04	18.11	+01	57	01.8		033
2724			1988	11	04.83993	01	04	16.92	+01	56	55.0	17.6	033
2774			1988	11	05.92188	03	33	43.31	+30	43	18.9	16.1	033
2774			1988	11	05.95521	03	33	41.60	+30	43	13.0		033
3243			1988	11	05.92188	03	30	55.32	+31	22	41.3	18.6	033
3243			1988	11	05.95521	03	30	53.51	+31	22	39.3		033
3394			1988	11	03.98715	03	21	57.10	+11	28	29.1		033
3394			1988	11	05.97917	03	20	01.35	+11	14	32.4	17.7	033
3394			1988	11	06.01181	03	19	59.36	+11	14	19.0		033

3943		1988 11 03.96389	04	21	24.70	+30	50	39.0		033
3943		1988 11 04.01250	04	21	21.92	+30	50	48.7	17.6	033
3943		1988 11 04.97917	04	20	27.44	+30	53	52.2		033

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

1969	TB6	1988 12 29.81510	05	52	17.59	+21	39	24.2		046
1969	TB6	1988 12 29.82917	05	52	16.84	+21	39	24.9		046
1969	TB6	1988 12 30.81157	05	51	21.24	+21	38	52.2		046
1969	TB6	1988 12 30.82569	05	51	20.63	+21	38	53.0		046
1972	YR	1989 01 09.95432	07	59	02.14	+20	38	05.7		046
1972	YR	1989 01 09.96705	07	59	01.26	+20	38	06.5		046
1980	SJ	1988 12 30.84988	06	09	33.32	+17	20	00.3	16.5	046
1980	SJ	1988 12 30.86400	06	09	32.46	+17	19	58.5		046
1981	EZ47	1989 01 09.89147	07	40	12.31	+25	04	37.6		046
1981	EZ47	1989 01 09.90420	07	40	11.00	+25	04	44.9		046
1981	UN	1988 12 30.88501	06	44	10.83	+21	07	30.5		046
1981	UN	1988 12 30.89983	06	44	09.66	+21	07	31.9		046
1981	UN	1989 01 02.89459	06	40	36.90	+21	08	46.8		046
1981	UN	1989 01 02.90872	06	40	35.95	+21	08	48.3		046
1981	UN	1989 01 03.85299	06	39	29.29	+21	09	12.5		046
1981	UN	1989 01 03.86711	06	39	28.63	+21	09	12.7		046
1981	WU	1989 01 03.88597	07	04	19.38	+18	34	31.6		046
1981	WU	1989 01 03.90009	07	04	18.41	+18	34	34.0		046
1981	WU	1989 01 04.84801	07	03	13.54	+18	37	49.9		046
1981	WU	1989 01 04.86219	07	03	12.54	+18	37	53.2		046
1982	BJ	1989 01 11.92705	08	13	06.67	+19	23	17.5		046
1982	BJ	1989 01 11.93984	08	13	05.82	+19	23	33.4		046
1982	DN	1989 01 04.84801	06	57	53.92	+19	44	50.4		046
1982	DN	1989 01 04.86219	06	57	52.98	+19	44	51.5		046
1982	KC1	1988 12 30.84988	06	08	16.54	+16	04	22.5	16.4	046
1982	KC1	1988 12 30.86400	06	08	15.70	+16	04	22.4		046
1982	KC1	1989 01 02.85929	06	05	14.34	+16	03	29.6		046
1982	KC1	1989 01 02.87341	06	05	13.33	+16	03	33.0		046
1982	KC1	1989 01 03.81994	06	04	16.89	+16	03	19.7		046
1982	KC1	1989 01 03.83406	06	04	16.05	+16	03	19.4		046
1982	UV1	1988 12 30.81157	05	52	16.08	+21	51	21.0		046
1982	UV1	1988 12 30.82569	05	52	15.23	+21	51	22.1		046
1982	VK12	1989 01 03.92336	07	45	11.52	+21	43	08.2		046
1982	VK12	1989 01 03.93771	07	45	10.62	+21	43	08.4		046
1982	VK12	1989 01 04.91543	07	44	20.94	+21	46	03.8		046
1982	VK12	1989 01 04.92949	07	44	20.18	+21	46	07.2		046
1982	VK12	1989 01 09.89147	07	40	01.36	+22	00	52.2		046
1982	VK12	1989 01 09.90420	07	40	00.57	+22	00	55.0		046
1982	VK12	1989 01 12.92144	07	37	19.82	+22	09	44.7		046
1982	VK12	1989 01 12.93417	07	37	19.26	+22	09	46.6		046
1987	SB5	1989 01 03.78667	04	46	03.73	+17	06	40.3		046
1987	SB5	1989 01 03.80079	04	46	03.21	+17	06	38.9		046
1988	GM1 *	1988 04 10.88288	12	38	59.48	+08	14	17.3	17.0	046
1988	GM1	1988 04 10.89694	12	38	58.66	+08	14	23.9		046
1988	GN1 *	1988 04 10.91639	13	05	49.70	-06	07	57.4	16.9	046
1988	GN1	1988 04 10.93057	13	05	48.83	-06	07	49.1		046
1988	GO1 *	1988 04 10.91639	13	17	31.98	-07	58	06.8		046
1988	GO1	1988 04 10.93057	13	17	31.09	-07	58	07.5		046
1988	GP1 *	1988 04 11.84150	12	19	35.48	+19	30	23.5		046
1988	GP1	1988 04 11.85562	12	19	34.56	+19	30	20.7		046

1988	HK	*	1988	04	17.88189	12	52	09.06	-05	06	08.9	16.1	046
1988	HK		1988	04	17.89612	12	52	08.02	-05	06	07.1		046
1988	HL	*	1988	04	18.92072	13	22	00.40	-08	33	09.4		046
1988	HL		1988	04	18.93316	13	21	59.65	-08	33	02.4		046
1988	JD2	*	1988	05	07.91484	14	38	03.63	-15	34	15.0	16.5	046
1988	JD2		1988	05	07.92907	14	38	02.93	-15	34	09.9		046
1988	JE2	*	1988	05	12.94157	15	26	03.40	-15	23	08.7	16.4	046
1988	JE2		1988	05	12.95581	15	26	02.62	-15	23	01.1		046
1988	JF2	*	1988	05	12.95581	15	20	49.38	-15	04	40.9		046
1988	LT	*	1988	06	14.92222	15	54	30.42	-20	51	32.4	16.9	046
1988	LT		1988	06	14.93634	15	54	29.81	-20	51	21.5		046
1988	LU	*	1988	06	14.92222	16	01	49.05	-21	32	36.1		046
1988	LU		1988	06	14.93634	16	01	48.08	-21	32	30.7		046
1988	NC1	*	1988	07	10.95000	20	01	03.80	-02	01	56.6	16.2	046
1988	NC1		1988	07	10.96493	20	01	02.94	-02	02	00.0		046
1988	ND1	*	1988	07	14.92529	19	51	17.62	-15	59	23.4	15.3	046
1988	ND1		1988	07	14.93941	19	51	16.79	-15	59	23.1		046
1988	NE1	*	1988	07	14.92529	19	53	23.05	-16	30	01.5	16.0	046
1988	NE1		1988	07	14.93941	19	53	22.30	-16	30	03.8		046
1988	NF1	*	1988	07	14.95990	20	02	13.09	-15	33	02.9	17.0	046
1988	NF1		1988	07	14.97399	20	02	12.06	-15	33	00.5		046
1988	NG1	*	1988	07	14.95990	20	07	25.89	-16	00	10.3	16.0	046
1988	NG1		1988	07	14.97399	20	07	25.31	-16	00	14.4		046
1988	OP	*	1988	07	23.02257	20	18	58.76	-15	42	20.5	16.9	046
1988	OP		1988	07	23.03542	20	18	58.06	-15	42	20.5		046
1988	OQ	*	1988	07	23.02257	20	28	24.54	-14	25	26.1		046
1988	OQ		1988	07	23.03542	20	28	23.99	-14	25	28.3		046
1988	OR	*	1988	07	24.00694	20	38	08.38	-10	06	59.3	17.0	046
1988	OR		1988	07	24.01979	20	38	07.53	-10	06	58.9		046
1988	OS	*	1988	07	24.00694	20	42	13.38	-12	08	31.2	16.7	046
1988	OT	*	1988	07	24.00694	20	43	12.28	-11	43	05.4	16.9	046
1988	OT		1988	07	24.01979	20	43	11.28	-11	43	02.5		046
1988	PX3	*	1988	08	07.94722	21	19	52.05	-16	04	23.6	16.5	046
1988	PX3		1988	08	07.96181	21	19	51.47	-16	04	24.4		046
1988	PY3	*	1988	08	07.98750	21	29	44.84	-03	44	15.2	16.6	046
1988	PY3		1988	08	08.00208	21	29	44.07	-03	44	15.7		046
1988	PZ3	*	1988	08	13.87292	21	00	44.58	-08	15	37.1		046
1988	PZ3		1988	08	13.88854	21	00	43.81	-08	15	36.1		046
1988	PA4	*	1988	08	13.96389	21	26	25.60	-02	08	31.4	16.7	046
1988	PA4		1988	08	13.97847	21	26	24.88	-02	08	40.7		046
1988	PB4	*	1988	08	13.96389	21	36	10.31	-03	53	24.3	16.6	046
1988	PB4		1988	08	13.97847	21	36	09.31	-03	53	22.4		046
1988	PC4	*	1988	08	15.89757	21	07	32.50	-16	43	07.5		046
1988	PC4		1988	08	15.91181	21	07	31.82	-16	43	09.8		046
1988	PD4	*	1988	08	15.89757	21	14	30.70	-13	57	27.6	16.7	046
1988	PD4		1988	08	15.91181	21	14	30.01	-13	57	26.2		046
1988	RS7	*	1988	09	08.96157	22	54	54.66	-09	54	32.4	17.1	046
1988	RS7		1988	09	08.97569	22	54	53.82	-09	54	36.2		046
1988	RT7	*	1988	09	09.01007	23	54	04.07	+07	29	58.5	17.0	046
1988	RT7		1988	09	09.02434	23	54	03.02	+07	30	07.9		046
1988	RU7	*	1988	09	09.01007	23	58	37.54	+06	50	08.2	16.8	046
1988	RU7		1988	09	09.02431	23	58	36.64	+06	50	11.1		046
1988	RV7	*	1988	09	10.90608	22	16	57.36	-15	55	39.4	17.0	046
1988	RV7		1988	09	10.92031	22	16	56.66	-15	55	36.9		046
1988	RW7	*	1988	09	10.94728	22	42	51.80	-07	25	34.9	17.0	046
1988	RW7		1988	09	10.96134	22	42	51.09	-07	25	40.6		046
1988	TS1		1988	11	11.85231	02	30	42.82	+12	43	27.3		046
1988	VA		1988	11	04.88796	02	28	37.68	+13	38	22.9		046
1988	VZ1		1988	11	11.86505	02	27	41.85	+14	49	24.1		046

1988	VK3		1988	11	04.88796	02	34	28.24	+14	02	41.5		046
1988	VC5		1988	11	04.80480	02	08	02.19	+13	57	23.0		046
1988	VH5		1988	11	11.85231	02	26	23.01	+13	57	45.7		046
1988	VR5		1988	11	04.93831	02	57	30.13	+14	35	42.1		046
1988	VR5		1988	11	04.94931	02	57	29.57	+14	35	37.1		046
1988	VH7		1988	11	11.85231	02	29	36.24	+13	21	43.8		046
1988	YB		1989	01	03.92336	07	49	07.81	+23	00	05.6	16.7	046
1988	YB		1989	01	03.93771	07	49	07.24	+23	00	08.4		046
1988	YB		1989	01	04.91543	07	48	18.79	+23	02	54.2		046
1988	YB		1989	01	09.89147	07	44	04.05	+23	16	45.3		046
1988	YB		1989	01	09.90420	07	44	03.30	+23	16	47.2		046
1988	YB		1989	01	12.92144	07	41	24.45	+23	24	51.0		046
1988	YB		1989	01	12.93417	07	41	23.67	+23	24	51.9		046
1988	YC	*	1988	12	29.81510	06	01	01.73	+20	51	01.7		046
1988	YC		1988	12	29.82917	06	01	00.73	+20	51	03.3		046
1988	YC		1988	12	30.81157	05	59	52.97	+20	52	27.9		046
1988	YC		1988	12	30.82569	05	59	51.98	+20	52	28.8		046
1988	YD	*	1988	12	30.77135	04	53	08.26	+17	33	22.0		046
1988	YD		1988	12	30.78547	04	53	07.65	+17	33	24.1	16.4	046
1988	YD		1989	01	03.78667	04	50	39.69	+17	44	00.8		046
1988	YD		1989	01	03.80079	04	50	39.05	+17	44	05.8		046
1988	YD		1989	01	04.78208	04	50	06.18	+17	46	49.4		046
1988	YD		1989	01	04.79622	04	50	05.88	+17	46	52.1		046
1988	YE	*	1988	12	30.88501	06	45	10.81	+21	32	01.5	16.4	046
1988	YE		1988	12	30.89983	06	45	09.87	+21	32	05.4		046
1988	YE		1989	01	02.89459	06	41	47.44	+21	39	37.9		046
1988	YE		1989	01	02.90872	06	41	46.49	+21	39	40.4		046
1988	YE		1989	01	03.85299	06	40	43.16	+21	42	01.7		046
1988	YE		1989	01	03.86711	06	40	42.20	+21	42	03.5		046
1988	YF	*	1988	12	30.88501	06	46	40.95	+22	15	21.0	16.5	046
1988	YF		1988	12	30.89983	06	46	40.24	+22	15	23.7		046
1988	YF		1989	01	02.89459	06	43	23.97	+22	25	08.4		046
1988	YF		1989	01	02.90872	06	43	22.76	+22	25	11.9		046
1988	YF		1989	01	03.85299	06	42	21.52	+22	28	12.8		046
1988	YF		1989	01	03.86711	06	42	20.74	+22	28	15.8		046
1989	AF1		1989	01	04.84801	07	09	55.02	+19	36	13.3	16.4	046
1989	AF1		1989	01	04.86219	07	09	54.26	+19	36	17.2		046
1989	AY1	*	1989	01	02.85929	06	06	35.12	+17	26	31.5		046
1989	AY1		1989	01	02.87341	06	06	34.32	+17	26	36.3		046
1989	AY1		1989	01	03.81994	06	05	39.52	+17	31	53.5		046
1989	AY1		1989	01	03.83406	06	05	38.61	+17	31	58.5		046
1989	AZ1	*	1989	01	03.88597	07	03	05.49	+19	32	02.8	16.2	046
1989	AZ1		1989	01	03.90009	07	03	04.60	+19	32	08.3		046
1989	AZ1		1989	01	04.84801	07	02	04.24	+19	38	52.5		046
1989	AZ1		1989	01	04.86219	07	02	03.25	+19	38	58.9		046
1989	AZ1		1989	01	09.82747	06	56	48.56	+20	13	53.5		046
1989	AZ1		1989	01	09.84159	06	56	47.75	+20	13	58.8		046
1989	AA2	*	1989	01	03.92336	07	46	41.93	+21	33	59.7	16.6	046
1989	AA2		1989	01	03.93771	07	46	40.37	+21	33	59.8		046
1989	AA2		1989	01	04.91543	07	45	47.77	+21	33	56.3		046
1989	AA2		1989	01	04.92949	07	45	47.03	+21	33	55.2		046
1989	AA2		1989	01	09.89147	07	41	10.92	+21	33	19.1		046
1989	AA2		1989	01	09.90420	07	41	10.24	+21	33	19.6		046
1989	AA2		1989	01	12.92144	07	38	18.42	+21	32	48.3		046
1989	AA2		1989	01	12.93417	07	38	17.87	+21	32	49.3		046
1989	AB2	*	1989	01	03.95796	08	02	33.39	+17	18	33.1	16.6	046
1989	AB2		1989	01	03.97480	08	02	32.60	+17	18	35.6		046
1989	AB2		1989	01	04.94778	08	01	35.38	+17	19	54.1		046
1989	AB2		1989	01	04.96190	08	01	34.47	+17	19	55.0		046

1989	AB2		1989	01	09.92156	07	56	27.64	+17	27	33.7	F 046
1989	AB2		1989	01	09.93596	07	56	26.64	+17	27	36.1	046
1989	AC2	*	1989	01	04.88007	07	28	05.76	+21	24	40.1	16.7 046
1989	AC2		1989	01	04.89413	07	28	05.06	+21	24	42.2	046
1989	AC2		1989	01	09.85976	07	22	51.40	+21	34	08.1	046
1989	AC2		1989	01	09.87388	07	22	50.65	+21	34	09.0	046
1989	AC2		1989	01	11.86594	07	20	44.21	+21	37	51.6	046
1989	AC2		1989	01	11.87867	07	20	43.21	+21	37	55.3	046
1989	AD2	*	1989	01	04.88007	07	28	58.26	+21	22	41.4	16.8 046
1989	AD2		1989	01	04.89413	07	28	57.50	+21	22	45.3	046
1989	AD2		1989	01	09.85976	07	23	22.57	+21	43	34.2	046
1989	AD2		1989	01	09.87388	07	23	21.54	+21	43	39.2	046
1989	AD2		1989	01	11.86594	07	21	05.65	+21	51	56.0	046
1989	AD2		1989	01	11.87867	07	21	04.72	+21	52	02.2	046
1989	AE2	*	1989	01	04.88007	07	34	53.10	+21	24	48.0	16.6 046
1989	AE2		1989	01	04.89413	07	34	52.32	+21	24	51.6	046
1989	AE2		1989	01	09.85976	07	29	27.57	+21	47	32.9	046
1989	AE2		1989	01	09.87388	07	29	26.71	+21	47	37.4	046
1989	AE2		1989	01	11.86594	07	27	16.10	+21	56	30.4	046
1989	AE2		1989	01	11.87867	07	27	15.22	+21	56	32.9	046
1989	AF2	*	1989	01	09.89147	07	38	03.98	+24	58	19.4	17.0 046
1989	AF2		1989	01	09.90420	07	38	03.03	+24	58	19.6	046
1989	AF2		1989	01	12.92144	07	36	07.56	+25	22	55.9	F 046
1989	AF2		1989	01	12.93417	07	36	07.00	+25	23	04.6	046
1989	AG2	*	1989	01	09.89147	07	47	37.90	+22	40	56.3	16.9 046
1989	AG2		1989	01	09.90420	07	47	37.12	+22	41	01.3	046
1989	AG2		1989	01	12.92144	07	45	55.86	+23	04	55.8	046
1989	AG2		1989	01	12.93417	07	45	55.22	+23	04	59.2	046
1989	AH2	*	1989	01	09.95432	08	07	32.42	+21	37	49.4	16.9 046
1989	AH2		1989	01	09.96705	08	07	31.60	+21	37	53.4	046
1989	AH2		1989	01	11.92705	08	05	24.22	+21	48	11.2	046
1989	AH2		1989	01	11.93984	08	05	23.59	+21	48	13.6	046
1989	AJ2	*	1989	01	11.89672	07	42	20.31	+18	08	11.9	16.7 046
1989	AJ2		1989	01	11.90946	07	42	19.55	+18	08	13.1	046
1989	AJ2		1989	01	12.95089	07	41	12.38	+18	09	23.6	046
1989	AJ2		1989	01	12.96223	07	41	11.36	+18	09	24.9	046
53			1989	01	03.95796	08	05	11.01	+15	19	27.6	046
53			1989	01	03.97480	08	05	10.18	+15	19	32.3	046
53			1989	01	04.94778	08	04	23.94	+15	24	06.8	046
53			1989	01	04.96190	08	04	23.25	+15	24	11.1	046
53			1989	01	09.92156	08	00	12.43	+15	49	10.7	046
53			1989	01	09.93596	08	00	11.66	+15	49	17.9	046
140			1989	01	09.89147	07	45	20.35	+21	43	12.7	046
140			1989	01	09.90420	07	45	19.60	+21	43	15.2	046
140			1989	01	12.92144	07	42	29.01	+21	52	23.0	046
140			1989	01	12.93417	07	42	28.31	+21	52	25.3	046
213			1989	01	04.88007	07	29	03.10	+19	37	53.3	046
213			1989	01	04.89413	07	29	02.39	+19	37	56.0	046
213			1989	01	09.85976	07	24	24.31	+19	55	34.2	046
213			1989	01	09.87388	07	24	23.54	+19	55	37.4	046
275			1989	01	11.89672	07	36	36.42	+18	39	17.0	046
275			1989	01	11.90946	07	36	35.71	+18	39	20.5	046
275			1989	01	12.95089	07	35	35.96	+18	43	38.7	046
275			1989	01	12.96223	07	35	35.17	+18	43	41.5	046
277			1988	11	05.95312	02	49	10.13	+16	30	21.1	17.0 046
512			1989	01	03.92336	07	50	08.33	+21	57	49.2	046
512			1989	01	03.93771	07	50	07.23	+21	57	55.1	046
512			1989	01	04.91543	07	48	57.21	+22	05	12.5	046
512			1989	01	04.92949	07	48	56.15	+22	05	18.8	046

512	1989	01	09.89147	07	42	52.23	+22	41	52.4	046
512	1989	01	09.90420	07	42	51.25	+22	41	57.8	046
512	1989	01	12.92144	07	39	06.48	+23	03	31.8	046
512	1989	01	12.93417	07	39	05.47	+23	03	39.3	046
555	1988	12	30.77135	04	43	56.77	+19	15	50.0	046
555	1988	12	30.78547	04	43	56.16	+19	15	49.7	046
555	1989	01	02.78597	04	42	03.99	+19	16	05.2	046
555	1989	01	02.80079	04	42	03.41	+19	16	05.7	046
555	1989	01	03.78667	04	41	29.41	+19	16	16.2	046
555	1989	01	03.80079	04	41	28.82	+19	16	17.9	046
774	1988	12	29.81510	06	03	15.04	+20	27	01.1	046
774	1988	12	29.82917	06	03	14.31	+20	27	00.6	046
774	1988	12	30.81157	06	02	23.80	+20	26	13.4	046
774	1988	12	30.82569	06	02	23.09	+20	26	12.5	046
777	1989	01	04.88007	07	33	30.54	+19	52	23.3	046
777	1989	01	04.89413	07	33	29.77	+19	52	22.0	046
777	1989	01	09.85976	07	28	55.69	+19	43	28.5	046
777	1989	01	09.87388	07	28	54.87	+19	43	27.4	046
777	1989	01	11.86594	07	27	03.60	+19	39	52.5	046
777	1989	01	11.87867	07	27	02.85	+19	39	51.9	046
794	1989	01	02.85929	06	05	52.09	+16	54	34.5	046
794	1989	01	02.87341	06	05	51.47	+16	54	34.5	046
794	1989	01	03.81994	06	05	07.32	+16	55	21.0	046
794	1989	01	03.83406	06	05	06.58	+16	55	22.2	046
861	1988	12	29.84734	06	21	10.46	+19	39	58.0	046
861	1988	12	29.86146	06	21	09.78	+19	40	00.9	046
939	1989	01	03.92336	07	47	41.19	+23	42	31.3	046
939	1989	01	03.93771	07	47	40.21	+23	42	33.0	046
939	1989	01	04.91543	07	46	32.00	+23	44	46.7	046
939	1989	01	04.92949	07	46	30.97	+23	44	48.7	046
939	1989	01	09.89147	07	40	37.00	+23	55	27.9	046
939	1989	01	09.90420	07	40	36.03	+23	55	29.2	046
939	1989	01	12.92144	07	36	57.36	+24	01	20.8	046
939	1989	01	12.93417	07	36	56.37	+24	01	21.9	046
1150	1989	01	03.95796	08	03	00.97	+16	23	11.9	046
1150	1989	01	03.97480	08	02	59.94	+16	23	15.4	046
1150	1989	01	04.94778	08	01	55.80	+16	25	53.6	046
1150	1989	01	04.96190	08	01	54.93	+16	25	57.8	046
1150	1989	01	09.92156	07	56	16.29	+16	40	25.4	046
1150	1989	01	09.93596	07	56	15.14	+16	40	29.8	046
1220	1989	01	09.95432	08	06	44.15	+21	06	03.2	046
1220	1989	01	09.96705	08	06	43.52	+21	06	07.7	046
1220	1989	01	11.92705	08	05	03.40	+21	18	57.3	046
1220	1989	01	11.93984	08	05	02.78	+21	19	00.1	046
1245	1989	01	04.81491	05	26	51.44	+19	26	33.0	046
1245	1989	01	04.82903	05	26	50.79	+19	26	33.1	046
1256	1988	12	29.81510	05	53	47.72	+20	24	52.2	046
1256	1988	12	29.82917	05	53	47.04	+20	24	51.2	046
1256	1988	12	30.81157	05	53	05.24	+20	24	19.0	046
1256	1988	12	30.82569	05	53	04.64	+20	24	18.9	046
1277	1988	12	30.81157	05	51	25.89	+19	20	03.0	046
1277	1988	12	30.82569	05	51	24.84	+19	20	03.6	046
1335	1988	12	30.77135	04	49	31.88	+17	51	42.2	046
1335	1988	12	30.78547	04	49	31.26	+17	51	42.4	046
1335	1989	01	02.78597	04	47	27.04	+17	52	35.2	046
1335	1989	01	02.80079	04	47	26.42	+17	52	36.2	046
1335	1989	01	03.78667	04	46	49.71	+17	53	00.5	046
1335	1989	01	03.80079	04	46	49.10	+17	53	03.7	046
1491	1989	01	03.92336	07	48	58.41	+23	27	07.7	046

1491	1989	01	03.93771	07	48	57.67	+23	27	08.5	046
1491	1989	01	04.91543	07	48	07.18	+23	28	08.3	046
1491	1989	01	04.92949	07	48	06.43	+23	28	09.0	046
1491	1989	01	09.89147	07	43	42.36	+23	32	51.4	046
1491	1989	01	09.90420	07	43	41.61	+23	32	51.7	046
1491	1989	01	12.92144	07	40	56.80	+23	35	22.8	046
1491	1989	01	12.93417	07	40	56.11	+23	35	22.8	046
1496	1989	01	09.95432	08	11	43.57	+19	49	52.9	E 046
1496	1989	01	09.96705	08	11	42.59	+19	49	54.3	E 046
1496	1989	01	11.92705	08	09	30.61	+19	54	47.5	046
1496	1989	01	11.93984	08	09	29.71	+19	54	49.7	046
1644	1989	01	03.88597	07	07	54.94	+19	20	56.6	046
1644	1989	01	03.90009	07	07	54.02	+19	20	54.0	046
1644	1989	01	04.84801	07	06	53.88	+19	18	20.5	046
1644	1989	01	04.86219	07	06	52.99	+19	18	17.9	046
1644	1989	01	09.82747	07	01	37.66	+19	05	14.7	046
1644	1989	01	09.84159	07	01	36.78	+19	05	12.7	046
1645	1989	01	09.89147	07	45	56.45	+20	31	58.2	046
1645	1989	01	09.90420	07	45	55.74	+20	31	59.9	046
1689	1989	01	03.81994	06	09	20.24	+18	21	46.7	046
1689	1989	01	03.83406	06	09	19.45	+18	21	50.3	046
1693	1989	01	02.82434	05	12	51.27	+27	44	56.5	046
1693	1989	01	02.83846	05	12	50.52	+27	44	58.3	046
1762	1989	01	04.88007	07	29	51.75	+19	03	55.3	046
1762	1989	01	04.89413	07	29	51.21	+19	03	56.6	046
1762	1989	01	09.85976	07	25	14.21	+19	15	51.6	046
1762	1989	01	09.87388	07	25	13.46	+19	15	53.1	046
1762	1989	01	11.86594	07	23	21.49	+19	20	45.8	046
1762	1989	01	11.87867	07	23	20.77	+19	20	48.0	046
1774	1989	01	03.88597	07	07	57.85	+19	46	57.5	046
1774	1989	01	03.90009	07	07	57.05	+19	46	58.7	046
1774	1989	01	04.84801	07	07	03.52	+19	48	38.5	046
1774	1989	01	04.86219	07	07	02.86	+19	48	40.3	046
1774	1989	01	09.82747	07	02	21.68	+19	57	27.5	046
1774	1989	01	09.84159	07	02	20.93	+19	57	28.6	046
1817	1988	12	30.77135	04	47	15.09	+17	38	36.5	046
1817	1988	12	30.78547	04	47	14.25	+17	38	42.8	046
1817	1989	01	02.78597	04	44	11.98	+17	59	36.0	046
1817	1989	01	02.80079	04	44	10.97	+17	59	43.5	046
1817	1989	01	03.78667	04	43	14.22	+18	06	33.5	046
1817	1989	01	03.80079	04	43	13.14	+18	06	41.8	046
2026	1989	01	09.95432	07	57	31.21	+22	02	33.5	046
2026	1989	01	09.96705	07	57	30.40	+22	02	35.6	046
2230	1989	01	04.81491	05	20	59.94	+19	36	47.6	046
2230	1989	01	04.82903	05	20	59.21	+19	36	48.8	046
2267	1989	01	11.92705	08	11	28.67	+21	44	18.8	046
2267	1989	01	11.93984	08	11	27.98	+21	44	19.8	046
2295	1989	01	09.95432	08	11	14.53	+21	09	12.4	046
2295	1989	01	09.96705	08	11	13.80	+21	09	14.0	046
2295	1989	01	11.92705	08	09	26.30	+21	13	18.2	046
2295	1989	01	11.93984	08	09	25.60	+21	13	20.1	046
2354	1989	01	03.81994	06	05	23.65	+18	25	25.2	046
2354	1989	01	03.83406	06	05	22.82	+18	25	25.2	046
2369	1989	01	03.92336	07	47	28.70	+24	43	29.1	046
2369	1989	01	03.93771	07	47	28.01	+24	43	32.1	046
2369	1989	01	04.91543	07	46	33.29	+24	46	30.3	046
2369	1989	01	04.92949	07	46	32.49	+24	46	30.6	046
2369	1989	01	12.92144	07	38	48.32	+25	08	55.4	M 046
2369	1989	01	12.93417	07	38	47.56	+25	08	56.9	046

2505		1989	01	11.92705	08	13	03.65	+22	26	33.3	046
2505		1989	01	11.93984	08	13	03.04	+22	26	34.8	046
2767		1989	01	02.82434	05	07	11.60	+28	11	58.8	046
2767		1989	01	02.83846	05	07	10.84	+28	11	57.4	046
2950		1989	01	03.81994	06	03	43.58	+18	48	19.6	046
2950		1989	01	03.83406	06	03	42.83	+18	48	25.3	046
3095		1989	01	09.89147	07	47	32.16	+21	07	49.0	046
3095		1989	01	09.90420	07	47	31.50	+21	07	51.2	046
3095		1989	01	12.92144	07	45	04.19	+21	11	55.9	046
3095		1989	01	12.93417	07	45	03.69	+21	11	55.1	046
3280		1989	01	09.95432	08	03	59.96	+21	37	35.0	046
3280		1989	01	09.96705	08	03	59.25	+21	37	35.0	046
3470		1989	01	04.81491	05	18	46.42	+20	47	07.0	046
3470		1989	01	04.82903	05	18	45.70	+20	47	06.7	046
3698		1989	01	09.92156	07	59	43.54	+18	52	42.5	046
3698		1989	01	09.93596	07	59	42.58	+18	52	48.2	046
3701		1988	12	30.77135	04	43	17.26	+18	01	00.2	046
3701		1988	12	30.78547	04	43	16.60	+18	01	02.1	046
3701		1989	01	02.78597	04	41	21.38	+18	05	21.8	046
3701		1989	01	02.80079	04	41	20.78	+18	05	24.0	046
3701		1989	01	03.78667	04	40	46.07	+18	06	54.4	046
3701		1989	01	03.80079	04	40	45.48	+18	06	56.9	046
3707		1989	01	03.95796	08	09	30.93	+15	14	10.2	046
3707		1989	01	03.97480	08	09	29.89	+15	14	07.5	046
3707		1989	01	04.94778	08	08	30.75	+15	10	14.5	046
3707		1989	01	04.96190	08	08	29.96	+15	10	12.0	046
3713		1988	12	30.88501	06	47	14.22	+20	31	29.2	046
3713		1988	12	30.89983	06	47	13.44	+20	31	34.6	046
3975		1989	01	03.88597	07	02	02.61	+20	41	41.8	046
3975		1989	01	03.90009	07	02	01.83	+20	41	41.6	046
3975		1989	01	04.84801	07	01	08.18	+20	42	55.0	046
3975		1989	01	04.86219	07	01	07.41	+20	42	56.2	046
3975		1989	01	09.82747	06	56	25.87	+20	49	27.4	046
3975		1989	01	09.84159	06	56	25.11	+20	49	27.5	046

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

1966	TP		1989	02	05.94193	09	58	12.19	+13	28	00.0		049
1966	TP		1989	02	05.96478	09	58	10.93	+13	28	05.8		049
1966	TP		1989	02	13.11257	09	50	55.66	+13	45	54.9	16	049
1966	TP		1989	02	13.13203	09	50	54.55	+13	45	57.9		049
1989	CW		1989	02	05.94193	09	51	49.69	+12	58	55.6		049
1989	CW		1989	02	05.96478	09	51	48.27	+12	59	03.7		049
1989	CW		1989	02	13.08002	09	44	23.68	+13	33	53.5	16	049
1989	CW		1989	02	13.09941	09	44	22.43	+13	34	03.2		049
1989	CW		1989	02	13.11257	09	44	21.64	+13	34	03.1	16	049
1989	CW		1989	02	13.13203	09	44	20.42	+13	34	10.2		049
1989	CF2	*	1989	02	05.94193	09	56	37.15	+11	34	59.3		049
1989	CF2		1989	02	05.96478	09	56	35.74	+11	35	08.6		049
1989	CF2		1989	02	13.11257	09	49	01.5	+11	47	25	16.5	049
1989	CF2		1989	02	13.13203	09	49	00.4	+11	47	35		049
133			1989	01	10.13823	09	58	11.80	+12	49	42.2		049
133			1989	01	10.15623	09	58	11.31	+12	49	40.9		049
133			1989	01	10.96200	09	57	48.90	+12	50	17.3		049
133			1989	01	10.98416	09	57	48.37	+12	50	18.9		049
133			1989	02	13.08002	09	33	31.29	+13	50	56.8		049

133		1989	02	13.09941	09	33	30.20	+13	50	59.6	049
379		1989	02	05.94193	09	56	10.77	+11	27	18.3	049
379		1989	02	05.96478	09	56	09.78	+11	27	26.4	049
379		1989	02	13.11257	09	50	46.92	+11	57	39.2	049
379		1989	02	13.13203	09	50	46.03	+11	57	45.9	049
400		1989	02	13.08002	09	39	30.82	+15	13	07.3	049
400		1989	02	13.09941	09	39	29.81	+15	13	08.7	049
557		1989	01	16.11354	09	39	14.69	+12	36	24.2	049
557		1989	01	16.13293	09	39	13.88	+12	36	27.0	049
588		1989	01	16.11354	09	37	51.05	+13	57	57.3	049
588		1989	01	16.13293	09	37	50.58	+13	57	58.3	049
632		1989	02	05.94193	09	58	31.21	+14	25	48.2	049
632		1989	02	05.96478	09	58	30.04	+14	25	54.6	049
632		1989	02	13.11257	09	51	51.28	+14	56	49.5	049
632		1989	02	13.13203	09	51	50.40	+14	56	49.9	049
1104		1989	01	10.13823	09	52	04.03	+13	17	54.7	049
1104		1989	01	10.15623	09	52	03.41	+13	18	01.2	049
1104		1989	01	10.96200	09	51	36.24	+13	23	17.3	049
1104		1989	01	10.98416	09	51	35.36	+13	23	28.1	049
1104		1989	01	16.11354	09	48	13.55	+13	59	10.9	049
1289		1989	01	16.11354	09	34	51.39	+12	18	28.0	049
1289		1989	01	16.13293	09	34	50.61	+12	18	32.3	049
1486		1989	02	13.08002	09	36	21.79	+14	17	44.3	049
1486		1989	02	13.09941	09	36	20.55	+14	17	50.4	049
1492		1989	01	16.11354	09	38	06.53	+12	46	29.1	049
1492		1989	01	16.13293	09	38	05.80	+12	46	38.0	049
1804		1989	01	16.11354	09	39	44.50	+15	26	08.4	049
1804		1989	01	16.13293	09	39	43.65	+15	26	10.6	049
2169		1989	02	05.94193	10	01	21.91	+14	31	05.2	049
2169		1989	02	05.96478	10	01	20.76	+14	31	12.2	049
2448		1989	01	16.11354	09	40	17.22	+14	56	52.2	049
2448		1989	01	16.13293	09	40	16.58	+14	57	03.7	049
2534		1989	01	10.13823	09	50	10.79	+12	29	41.9	16.5 049
2534		1989	01	10.15623	09	50	10.25	+12	29	43.5	049
2534		1989	01	10.96200	09	49	46.34	+12	31	49.9	049
2534		1989	01	10.98416	09	49	45.56	+12	31	55.2	049
2534		1989	01	16.11354	09	46	56.03	+12	46	46.5	049
2534		1989	01	16.13293	09	46	55.43	+12	46	50.7	049
2811		1989	01	10.13823	09	50	19.80	+13	35	46.8	16.0 049
2811		1989	01	10.15623	09	50	19.15	+13	35	48.6	049
2811		1989	01	16.11354	09	47	07.27	+13	51	02.0	049
2811		1989	01	16.13293	09	47	06.56	+13	51	05.5	049
2996		1989	02	13.08002	09	37	38.53	+15	22	12.3	049
2996		1989	02	13.09941	09	37	37.57	+15	22	17.0	049
3005		1989	02	05.94193	09	49	57.24	+10	44	34.9	049
3005		1989	02	05.96478	09	49	55.99	+10	44	43.0	16 049
3005		1989	02	13.11257	09	42	52.2	+11	26	23	16.5 049
3005		1989	02	13.13203	09	42	51.7	+11	26	25	049
3765		1989	02	05.94193	09	57	02.82	+10	54	09.4	049
3765		1989	02	05.96478	09	57	01.53	+10	54	20.0	049

054 Brorfelde
H. G. Fogh Olsen, Copenhagen University Observatory, Brorfelde,
DK-4340 Tollose, Denmark
Observers K. Augustesen, P. Jensen
Measurer P. Jensen
0.45-m Schmidt

1953	TV	1989	01	10.86177	05	37	24.98	+12	40	42.2	054
1953	TV	1989	01	10.87913	05	37	24.17	+12	40	42.1	054

1971	BK		1989	01	10.86177	05	38	28.52	+14	36	02.4	15.5	054
1971	BK		1989	01	10.87913	05	38	27.67	+14	36	04.9		054
1986	EZ4		1988	12	01.93197	03	05	23.14	+18	43	03.2	17.2	054
1986	GG		1989	01	10.96207	06	34	03.86	+34	10	24.0		054
1986	GG		1989	02	05.89141	06	12	58.26	+33	42	54.3	17.0	054
1987	RT		1988	12	01.98735	05	49	58.30	+24	08	21.5	17.0	054
1988	GT1	*	1988	04	09.90440	12	24	23.14	+03	20	29.9	17.5	054
1988	GT1		1988	04	09.92176	12	24	22.37	+03	20	44.2		054
1988	GU1	*	1988	04	09.91134	12	13	51.79	+01	28	48.0	18 p	054
1988	GV1	*	1988	04	09.91134	12	19	54.88	+03	05	35.9	18 p	054
1988	GW1	*	1988	04	09.91134	12	20	10.65	+00	45	16.5	18 p	054
1988	GX1	*	1988	04	09.91134	12	20	39.79	+03	13	14.8	17.5	054
1988	GY1	*	1988	04	09.91134	12	21	22.78	+02	40	42.7	17.5	054
1988	GZ1	*	1988	04	09.91134	12	22	03.50	+02	31	18.1	18 p	054
1988	GA2	*	1988	04	09.91134	12	24	05.75	+01	19	15.8	17.5	054
1988	GB2	*	1988	04	09.91134	12	29	38.35	+02	02	23.6	17.5	054
1988	GC2	*	1988	04	13.89575	11	33	47.78	-07	42	51.5	17.5	054
1988	GD2	*	1988	04	13.89575	11	46	48.33	-04	33	52.2	16.0	054
1988	GE2	*	1988	04	13.89575	11	47	48.63	-05	44	05.0	17.5	054
1988	GF2	*	1988	04	13.89575	11	48	16.78	-05	41	51.8	17.5	054
1988	GG2	*	1988	04	13.89575	11	49	13.40	-07	00	07.2	17.5	054
1988	GH2	*	1988	04	13.93343	12	06	08.15	+00	00	53.0	18 v	054
1988	GJ2	*	1988	04	13.93343	12	06	17.81	+01	32	03.5	17.5	054
1988	GK2	*	1988	04	13.93343	12	08	13.20	-00	35	52.7	17.5	054
1988	GL2	*	1988	04	13.93343	12	12	32.72	-00	42	34.3	18 v	054
1988	GM2	*	1988	04	14.85634	12	15	15.78	+02	21	41.2	17.5	054
1988	GN2	*	1988	04	15.88881	10	44	30.88	+05	20	41.0	17.5	054
1988	GO2	*	1988	04	15.93916	12	29	51.43	+03	04	40.8	17.5	054
1988	GO2		1988	04	15.96167	12	29	50.54	+03	04	44.7		054
1988	GP2	*	1988	04	15.93916	12	30	57.85	+04	08	45.0	17.5	054
1988	GQ2	*	1988	04	15.93916	12	31	38.91	+04	03	36.7	17.5	054
1988	GR2	*	1988	04	15.93916	12	31	46.08	+03	55	51.8	17.5	054
1988	GR2		1988	04	15.96167	12	31	45.10	+03	56	00.8		054
1988	GS2	*	1988	04	15.96167	12	24	30.98	-00	12	55.2	18 v	054
1988	GT2	*	1988	04	15.96167	12	37	46.14	+00	59	30.2	17.5	054
1988	GU2	*	1988	04	15.96167	12	37	51.06	+01	01	09.7	16.5	054
1988	RP7	*	1988	09	08.92338	23	16	54.09	+07	53	15.5	18	054
1988	RQ7	*	1988	09	08.92338	23	25	40.48	+08	20	17.8	18	054
1988	RR7	*	1988	09	08.92338	23	28	58.52	+08	57	52.5	17.5	054
1988	ST	*	1988	09	16.88620	23	09	11.61	+18	12	03.5	17.5	054
1988	SU	*	1988	09	16.90495	23	16	12.53	+08	49	52.9		054
1988	SV	*	1988	09	16.90495	23	19	24.67	+09	59	35.7	17.5	054
1988	SW	*	1988	09	16.90495	23	29	04.13	+10	31	40.7	16.5	054
1988	SX	*	1988	09	16.90495	23	32	18.83	+09	01	33.9	17.5	054
1988	SY	*	1988	09	16.90495	23	32	20.95	+07	33	17.1	16.5	054
1988	SZ	*	1988	09	16.92370	00	00	53.72	+11	40	38.2	17.5	054
1988	SA1	*	1988	09	16.92370	00	04	01.17	+10	11	06.5	16.5	054
1988	SB1	*	1988	09	16.92370	23	58	38.56	+10	51	47.6	17.5	054
1988	SC1	*	1988	09	20.90320	23	12	53.26	+08	23	58.1	17.0	054
1988	VS		1988	12	01.94973	03	20	49.88	+16	39	55.6	16.5	054
1988	VZ3		1988	12	07.81016	03	09	52.96	+23	50	06.3	17.0	054
1988	XQ1		1988	12	07.77787	03	10	58.39	+15	52	50.1	17.0	054
1988	XQ1		1988	12	07.79523	03	10	57.67	+15	52	47.7		054
1988	XR1		1988	12	07.77787	03	13	21.00	+13	14	33.9	17.0	054
1988	XR1		1988	12	07.79523	03	13	20.18	+13	14	35.1		054
272			1988	12	01.93197	03	01	48.54	+19	28	04.9		054
1179			1988	12	01.96652	03	21	02.70	+28	56	51.4	18 V	054
1489			1989	01	10.89117	05	29	32.72	+20	11	27.0		054
1489			1989	01	10.90332	05	29	32.20	+20	11	28.1		054

1497		1988	12	01.98735	05	35	44.61	+24	21	07.1	054
1889		1988	12	01.93197	03	10	18.95	+18	04	24.7	054
1889		1988	12	01.94973	03	10	18.07	+18	04	25.7	054
2464		1988	12	01.93197	03	11	52.92	+18	57	20.1	054
2464		1988	12	01.94973	03	11	52.15	+18	57	16.9	054
2774		1988	12	01.96652	03	11	40.46	+28	33	19.4	054
2807		1988	12	01.96652	03	25	38.64	+26	00	32.8	054
2926		1988	12	01.94973	03	20	49.59	+16	36	53.6	17.0 054
3192		1988	12	01.98735	05	38	19.69	+25	15	53.9	054
3231		1989	01	10.91715	06	24	45.18	+30	38	32.8	054
3231		1989	01	10.92931	06	24	44.40	+30	38	31.0	054
3956		1988	11	07.94818	03	30	21.99	+23	11	01.9	054
3956		1988	12	01.93197	03	07	25.72	+20	08	21.6	054
3996		1988	12	07.77787	03	13	03.16	+16	01	12.6	17.0 054
3996		1988	12	07.79523	03	13	02.25	+16	01	10.0	054

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

1969	TD5		1988	10	17.89171	00	45	42.68	+01	32	16.2	071
1969	TD5		1988	10	17.94021	00	45	40.07	+01	32	03.7	071
1971	SN2		1988	10	15.85618	00	08	16.53	-02	57	40.3	071
1975	VN2		1988	10	15.03158	02	26	11.79	+13	19	28.5	071
1975	VN2		1988	10	15.07458	02	26	09.07	+13	19	35.9	071
1975	VN2		1988	10	15.11324	02	26	06.76	+13	19	41.4	071
1975	VN2		1988	10	15.95062	02	25	17.30	+13	21	59.9	071
1975	VN2		1988	10	17.03604	02	24	11.32	+13	24	56.7	071
1977	RR7		1988	10	15.88309	00	45	22.22	+02	48	57.3	071
1977	RR7		1988	10	15.92886	00	45	19.71	+02	48	56.8	071
1977	RR7		1988	10	16.96648	00	44	28.08	+02	47	44.0	071
1977	RR7		1988	10	17.89171	00	43	42.72	+02	46	44.2	071
1977	RR7		1988	10	17.94021	00	43	40.35	+02	46	40.2	071
1984	AR		1988	10	18.04802	03	26	50.45	+19	21	09.0	071
1984	AR		1988	10	18.12151	03	26	47.76	+19	21	00.8	071
1985	UT4		1988	10	14.90910	23	10	47.86	-06	35	49.2	071
1985	UT4		1988	10	15.75942	23	10	36.62	-06	38	06.3	071
1985	UT4		1988	10	15.78506	23	10	36.51	-06	38	09.6	071
1985	UT4		1988	10	15.80705	23	10	35.94	-06	38	14.6	071
1985	UT4		1988	10	15.83187	23	10	35.56	-06	38	16.7	071
1988	LP	*	1988	06	11.90241	15	43	30.02	+03	22	53.3	071
1988	LP		1988	06	11.94184	15	43	32.21	+03	22	16.2	071
1988	NB1	*	1988	07	13.88890	17	53	04.68	-12	47	51.4	071
1988	NB1		1988	07	13.91892	17	53	03.88	-12	47	44.7	071
1988	RE8	*	1988	09	10.02430	01	32	45.13	+07	27	54.9	071
1988	RE8		1988	09	10.06694	01	32	44.16	+07	27	52.1	071
1988	RF8	*	1988	09	10.02430	01	33	43.89	+09	11	45.1	071
1988	RF8		1988	09	10.04815	01	33	43.14	+09	11	22.3	071
1988	RF8		1988	09	10.06694	01	33	42.79	+09	11	06.5	071
1988	RG8	*	1988	09	11.84773	22	43	15.28	-08	06	17.7	071
1988	RG8		1988	09	11.88750	22	43	15.28	-08	06	04.6	071
1988	RH8	*	1988	09	11.91089	23	21	37.26	-02	25	27.6	071
1988	RH8		1988	09	11.95190	23	21	35.05	-02	25	30.6	071
1988	RJ8	*	1988	09	11.91089	23	21	53.17	-01	35	19.0	071
1988	RJ8		1988	09	11.95190	23	21	51.15	-01	35	43.2	071
1988	RK8	*	1988	09	11.91089	23	30	17.43	-02	32	52.4	071
1988	RK8		1988	09	11.95190	23	30	15.19	-02	33	10.7	071
1988	RL8	*	1988	09	11.92986	00	03	01.17	+01	04	15.1	071
1988	RL8		1988	09	11.96991	00	02	59.10	+01	04	03.4	071

1988	RM8	*	1988	09	11.92986	00	12	24.68	-01	15	51.3	071
1988	RM8		1988	09	11.96991	00	12	22.72	-01	15	53.2	071
1988	RN8	*	1988	09	11.92986	23	57	58.93	+00	30	48.3	071
1988	RN8		1988	09	11.96991	23	57	57.50	+00	30	31.8	071
1988	RO8	*	1988	09	12.00949	01	06	29.11	+04	10	46.8	071
1988	RO8		1988	09	12.05522	01	06	27.40	+04	10	50.3	071
1988	RP8	*	1988	09	12.00949	01	11	57.74	+00	53	03.2	071
1988	RP8		1988	09	12.05522	01	11	56.64	+00	52	41.1	071
1988	RQ8	*	1988	09	12.00949	01	12	34.46	+01	34	12.4	071
1988	RQ8		1988	09	12.05522	01	12	32.65	+01	34	09.3	071
1988	RQ8		1988	10	15.88309	00	40	52.34	+00	25	03.2	071
1988	RQ8		1988	10	15.92886	00	40	49.62	+00	25	02.6	071
1988	RQ8		1988	10	17.89171	00	39	02.42	+00	23	22.3	071
1988	RQ8		1988	10	17.94021	00	38	59.74	+00	23	23.3	071
1988	RR8	*	1988	09	12.03155	01	13	53.18	+09	05	39.8	071
1988	RR8		1988	09	12.07707	01	13	51.88	+09	05	25.9	071
1988	RS8	*	1988	09	12.92426	00	03	38.12	-00	06	58.0	071
1988	RS8		1988	09	12.94428	00	03	34.91	-00	07	09.7	071
1988	RT8	*	1988	09	12.92426	23	48	48.46	+01	40	45.8	071
1988	RT8		1988	09	12.94428	23	48	47.53	+01	40	41.4	071
1988	TC3	*	1988	10	15.88309	00	41	15.40	+04	16	48.7	071
1988	TC3		1988	10	16.96648	00	40	32.84	+04	03	23.8	071
1988	TD3	*	1988	10	15.88309	00	48	36.80	+01	28	17.9	071
1988	TD3		1988	10	15.92886	00	48	34.35	+01	28	00.6	071
1988	TD3		1988	10	17.89171	00	46	49.81	+01	16	02.6	071
1988	TD3		1988	10	17.94021	00	46	47.11	+01	15	47.7	071
1988	TE3	*	1988	10	15.88309	00	49	51.65	+02	25	33.9	071
1988	TE3		1988	10	15.92886	00	49	49.71	+02	25	14.0	071
1988	TE3		1988	10	16.96648	00	49	06.93	+02	17	49.8	071
1988	TE3		1988	10	17.89171	00	48	29.25	+02	11	17.0	071
1988	TE3		1988	10	17.94021	00	48	27.17	+02	10	57.3	071
1988	TF3	*	1988	10	15.88309	00	51	23.39	+03	31	25.1	071
1988	TF3		1988	10	15.92886	00	51	21.23	+03	31	12.5	071
1988	TF3		1988	10	16.96648	00	50	48.16	+03	23	35.2	071
1988	TG3	*	1988	10	15.88309	00	53	52.94	+01	19	20.3	071
1988	TG3		1988	10	15.92886	00	53	51.18	+01	19	10.0	071
1988	TG3		1988	10	16.96648	00	53	20.15	+01	18	42.6	071
1989	AC		1989	02	04.78715	06	25	33.89	+23	13	52.0	14.5 071
1989	AC		1989	02	04.83773	06	25	41.06	+23	13	50.9	071
1989	AC		1989	02	05.73767	06	27	54.85	+23	13	23.0	071
1989	AC		1989	02	05.79926	06	28	03.18	+23	13	21.5	071
1989	AC		1989	02	05.97130	06	28	27.12	+23	13	12.2	071
1989	AC		1989	02	06.75738	06	30	21.57	+23	12	42.6	071
1989	AC		1989	02	06.80145	06	30	27.54	+23	12	40.0	071
37			1988	09	11.84773	22	56	32.32	-08	52	53.2	071
37			1988	09	11.88750	22	56	30.09	-08	53	03.9	071
122			1988	10	15.85618	00	11	58.38	+00	51	08.1	071
122			1988	10	15.91000	00	11	56.36	+00	50	53.7	071
122			1988	10	16.98905	00	11	17.14	+00	46	15.4	071
180			1988	09	11.84773	22	40	26.11	-07	42	08.4	071
180			1988	09	11.88750	22	40	24.28	-07	42	17.4	071
184			1988	09	10.89780	22	12	02.22	-11	01	21.1	071
223			1988	09	12.92426	00	09	09.98	-01	22	09.6	071
223			1988	09	12.94428	00	09	09.31	-01	22	15.5	071
223			1988	09	14.00376	00	08	23.88	-01	26	58.7	071
223			1988	09	14.02512	00	08	22.93	-01	27	04.3	071
240			1988	07	12.97575	19	40	56.07	-21	16	57.6	071
240			1988	07	13.02506	19	40	53.27	-21	17	05.8	071
240			1988	07	13.94138	19	40	00.95	-21	19	47.9	071

240	1988	07	13.98617	19	39	58.32	-21	19	54.8	071
253	1988	09	10.85729	21	40	08.94	-08	25	39.3	071
253	1988	09	10.87725	21	40	08.52	-08	25	48.8	071
253	1988	09	11.82662	21	39	50.86	-08	33	51.6	071
253	1988	09	11.86866	21	39	49.99	-08	34	12.1	071
292	1988	10	15.03158	02	41	42.56	+11	23	42.2	071
292	1988	10	15.07458	02	41	39.91	+11	23	44.4	071
292	1988	10	15.11324	02	41	37.68	+11	23	47.8	071
292	1988	10	15.95062	02	40	49.03	+11	24	54.8	071
300	1988	09	10.02430	01	26	55.31	+08	32	50.1	071
300	1988	09	10.06694	01	26	54.05	+08	32	46.8	071
300	1988	09	12.03155	01	26	04.42	+08	28	00.8	071
300	1988	09	12.07707	01	26	03.21	+08	27	54.1	071
309	1988	10	15.85618	23	55	14.99	+00	49	30.0	071
309	1988	10	15.91000	23	55	12.80	+00	49	21.8	071
331	1988	07	14.99449	22	19	16.83	-19	00	55.6	071
331	1988	07	15.03624	22	19	16.08	-19	01	02.8	071
331	1988	07	15.05213	22	19	15.72	-19	01	06.5	071
331	1988	08	16.92308	21	58	19.59	-20	57	44.6	071
331	1988	08	16.97985	21	58	16.56	-20	57	55.7	071
358	1988	09	10.85729	21	36	04.37	-12	17	22.2	071
358	1988	09	10.87725	21	36	03.57	-12	17	27.2	071
358	1988	09	11.82662	21	35	28.96	-12	21	43.9	071
358	1988	09	11.86866	21	35	27.53	-12	21	55.8	071
449	1988	07	16.97505	21	29	27.02	-18	13	52.9	071
449	1988	07	17.02678	21	29	24.71	-18	14	07.4	071
453	1988	08	16.92308	21	54	34.97	-20	54	37.2	071
453	1988	08	16.97985	21	54	31.00	-20	54	48.0	071
495	1988	09	11.91089	23	31	23.28	-01	54	20.0	071
495	1988	09	11.95190	23	31	21.24	-01	54	34.5	071
495	1988	10	14.84021	23	08	54.36	-05	07	30.0	071
495	1988	10	14.88630	23	08	53.29	-05	07	37.7	071
495	1988	10	15.75942	23	08	35.90	-05	10	47.8	071
495	1988	10	15.80705	23	08	34.87	-05	10	57.8	071
495	1988	10	17.80028	23	07	59.68	-05	17	33.2	071
495	1988	10	17.83882	23	07	58.95	-05	17	40.4	071
533	1988	09	11.92986	00	09	23.62	+01	23	46.8	071
533	1988	09	11.96991	00	09	21.96	+01	23	32.3	071
533	1988	09	12.92426	00	08	43.16	+01	17	31.5	071
533	1988	09	12.94428	00	08	42.48	+01	17	22.4	071
533	1988	09	14.00376	00	07	58.81	+01	10	37.5	071
533	1988	09	14.02512	00	07	57.90	+01	10	27.8	071
940	1988	08	16.00983	23	23	33.62	-14	16	05.0	071
940	1988	08	16.03466	23	23	33.51	-14	16	09.8	071
940	1988	08	16.05479	23	23	32.17	-14	16	19.1	071
950	1988	10	15.75942	23	15	18.57	-03	48	56.3	071
950	1988	10	15.80705	23	15	17.31	-03	49	27.3	071
950	1988	10	16.78847	23	14	50.86	-03	59	56.9	071
950	1988	10	16.83581	23	14	49.66	-04	00	27.7	071
950	1988	10	16.85589	23	14	49.13	-04	00	43.8	071
950	1988	10	16.90190	23	14	47.93	-04	01	09.6	071
950	1988	10	17.80028	23	14	25.38	-04	10	33.6	071
950	1988	10	17.83882	23	14	24.27	-04	11	00.2	071
954	1988	09	11.92986	00	11	05.65	+00	43	28.1	071
954	1988	09	11.96991	00	11	03.99	+00	43	15.8	071
954	1988	09	14.00376	00	09	38.76	+00	33	06.2	071
954	1988	09	14.02512	00	09	37.80	+00	32	58.7	071
1076	1988	09	11.84773	22	39	38.08	-10	21	36.2	071
1076	1988	09	11.88750	22	39	35.95	-10	21	54.4	071

1079		1988	09	11.84773	22	39	31.96	-08 03 32.1	071
1079		1988	09	11.88750	22	39	30.15	-08 03 41.8	071
1091		1988	09	11.91089	23	31	44.26	-04 49 49.9	071
1091		1988	09	11.95190	23	31	42.57	-04 49 58.5	071
1091		1988	10	14.86330	23	11	59.42	-06 49 29.2	071
1091		1988	10	14.90910	23	11	58.12	-06 49 33.9	071
1091		1988	10	15.75942	23	11	37.39	-06 51 26.1	071
1091		1988	10	15.78506	23	11	36.76	-06 51 29.9	071
1091		1988	10	15.80705	23	11	36.15	-06 51 32.9	071
1091		1988	10	15.83187	23	11	35.58	-06 51 35.7	071
1091		1988	10	16.85589	23	11	11.49	-06 53 44.6	071
1091		1988	10	16.90190	23	11	10.27	-06 53 51.4	071
1146		1988	08	15.85474	20	39	18.02	+10 32 44.3	071
1146		1988	08	15.87405	20	39	17.26	+10 32 35.8	071
1167		1988	10	15.05236	03	25	47.47	+18 42 08.0	071
1167		1988	10	15.09472	03	25	45.88	+18 41 59.9	071
1167		1988	10	17.10398	03	24	42.69	+18 35 46.2	071
1167		1988	10	18.04802	03	24	11.93	+18 32 43.4	071
1167		1988	10	18.12151	03	24	09.35	+18 32 29.2	071
1225		1988	09	10.02430	01	28	03.02	+08 52 23.3	071
1225		1988	09	10.04815	01	28	02.16	+08 52 21.5	071
1225		1988	09	10.06694	01	28	01.64	+08 52 21.1	071
1295		1988	10	14.84021	23	22	35.51	-03 34 02.0	071
1295		1988	10	14.88630	23	22	34.06	-03 34 12.7	071
1295		1988	10	15.75942	23	22	10.62	-03 37 21.1	071
1295		1988	10	15.80705	23	22	09.40	-03 37 31.1	071
1323		1988	10	15.05236	03	27	30.05	+18 37 21.7	071
1323		1988	10	15.09472	03	27	28.20	+18 37 24.0	071
1323		1988	10	17.10398	03	26	10.06	+18 40 22.9	071
1323		1988	10	18.04802	03	25	32.12	+18 41 41.4	071
1323		1988	10	18.12151	03	25	28.99	+18 41 47.3	071
1352		1988	09	10.85729	21	38	21.37	-10 42 34.1	071
1352		1988	09	10.87725	21	38	20.57	-10 42 38.6	071
1352		1988	09	11.82662	21	37	46.83	-10 47 14.9	071
1352		1988	09	11.86866	21	37	45.44	-10 47 27.9	071
1376		1988	09	11.91089	23	24	51.12	-04 45 27.7	071
1376		1988	09	11.95190	23	24	49.11	-04 45 47.3	071
1389		1988	09	11.84773	22	53	08.55	-06 31 35.7	071
1389		1988	09	11.88750	22	53	06.72	-06 31 45.9	071
1451		1988	09	11.91089	23	23	38.45	-03 02 34.2	071
1451		1988	09	11.95190	23	23	36.10	-03 02 55.4	071
1458		1988	10	14.93176	22	46	06.84	-05 52 57.1	071
1458		1988	10	14.98118	22	46	06.46	-05 53 16.7	071
1469		1988	10	16.78847	23	08	06.03	-01 52 36.1	071
1469		1988	10	16.83581	23	08	05.22	-01 52 57.5	071
1512		1988	10	14.86330	23	09	18.81	-07 56 45.4	071
1512		1988	10	14.90910	23	09	17.70	-07 56 48.8	071
1512		1988	10	16.76660	23	08	35.21	-07 58 17.3	071
1512		1988	10	16.80780	23	08	34.25	-07 58 20.6	071
1512		1988	10	17.80028	23	08	12.74	-07 59 02.2	071
1512		1988	10	17.83882	23	08	11.88	-07 59 04.0	071
1519		1988	09	12.00949	01	02	55.05	+02 21 53.7	071
1519		1988	09	12.05522	01	02	53.21	+02 21 58.1	071
1618		1988	10	15.03158	02	38	46.74	+10 46 30.8	071
1618		1988	10	15.07458	02	38	44.73	+10 46 20.3	071
1618		1988	10	15.11324	02	38	43.02	+10 46 12.8	071
1618		1988	10	15.95062	02	38	06.22	+10 43 07.7	071
1624		1988	10	15.05236	03	32	18.76	+16 18 24.4	071
1624		1988	10	17.10398	03	31	15.91	+16 13 31.9	071

1624	1988	10	18.04802	03	30	45.61	+16	11	16.5	071
1624	1988	10	18.12151	03	30	43.05	+16	11	05.4	071
1633	1988	09	10.02430	01	32	59.41	+06	00	17.5	071
1633	1988	09	10.04815	01	32	58.82	+06	00	14.1	071
1633	1988	09	10.06694	01	32	58.29	+06	00	12.6	071
1664	1988	10	17.94021	00	46	38.65	+00	02	18.6	071
1671	1988	10	14.84021	23	12	18.11	-05	42	16.1	071
1671	1988	10	14.86330	23	12	17.42	-05	42	21.2	071
1671	1988	10	14.88630	23	12	16.77	-05	42	29.7	071
1671	1988	10	14.90910	23	12	16.12	-05	42	36.5	071
1671	1988	10	15.75942	23	11	55.47	-05	46	47.6	071
1671	1988	10	15.78506	23	11	54.96	-05	46	55.6	071
1671	1988	10	15.80705	23	11	54.27	-05	47	02.1	071
1671	1988	10	15.83187	23	11	53.60	-05	47	08.1	071
1671	1988	10	16.76660	23	11	32.45	-05	51	34.4	071
1671	1988	10	16.80780	23	11	31.34	-05	51	44.5	071
1671	1988	10	16.85589	23	11	30.11	-05	51	57.9	071
1671	1988	10	16.90190	23	11	29.23	-05	52	11.0	071
1671	1988	10	17.80028	23	11	10.46	-05	56	12.6	071
1671	1988	10	17.83882	23	11	09.58	-05	56	22.7	071
1731	1988	10	14.86330	23	06	02.09	-09	28	23.5	071
1731	1988	10	14.90910	23	06	01.08	-09	28	29.3	071
1731	1988	10	15.78506	23	05	45.33	-09	30	57.7	071
1731	1988	10	15.83187	23	05	44.53	-09	31	05.9	071
1734	1988	10	14.84021	23	24	11.78	-04	27	04.3	071
1734	1988	10	14.88630	23	24	10.95	-04	27	22.5	071
1734	1988	10	15.75942	23	23	59.56	-04	33	28.6	071
1734	1988	10	15.80705	23	23	58.84	-04	33	46.6	071
1734	1988	10	16.85589	23	23	46.53	-04	40	52.1	071
1742	1988	09	12.92426	00	06	30.82	-01	07	44.5	071
1742	1988	09	12.94428	00	06	30.11	-01	07	52.5	071
1768	1988	10	15.85618	23	56	41.39	-00	35	32.2	071
1768	1988	10	15.91000	23	56	39.02	-00	35	37.4	071
1795	1988	09	10.02430	01	29	39.58	+09	34	31.8	071
1795	1988	09	10.04815	01	29	38.92	+09	34	25.3	071
1802	1988	10	15.88309	00	56	15.12	+02	20	53.5	071
1802	1988	10	15.92886	00	56	12.92	+02	20	39.2	071
1811	1988	09	12.00949	01	12	46.40	+03	06	36.5	071
1811	1988	09	12.05522	01	12	45.10	+03	06	19.2	071
1824	1988	09	11.92986	00	04	14.79	-00	33	16.6	071
1824	1988	09	11.96991	00	04	12.95	-00	33	26.6	071
1824	1988	09	12.92426	00	03	29.55	-00	37	37.9	071
1824	1988	09	12.94428	00	03	28.75	-00	37	43.3	071
1824	1988	09	14.00376	00	02	39.54	-00	42	24.5	071
1824	1988	09	14.02512	00	02	38.51	-00	42	29.8	071
1899	1988	10	15.03158	02	37	17.80	+11	16	32.4	071
1899	1988	10	15.07458	02	37	14.59	+11	16	26.9	071
1899	1988	10	15.11324	02	37	12.75	+11	16	22.1	071
1938	1988	09	11.84773	22	46	11.44	-07	00	14.6	071
1938	1988	09	11.88750	22	46	09.36	-07	00	28.0	071
2067	1988	09	10.02430	01	29	44.18	+06	25	59.8	071
2067	1988	09	10.04815	01	29	43.77	+06	25	55.2	071
2067	1988	09	10.06694	01	29	43.31	+06	25	52.9	071
2193	1988	10	17.03604	02	24	53.72	+13	27	56.7	071
2217	1988	09	12.00949	01	08	57.27	+04	18	13.4	071
2217	1988	09	12.05522	01	08	55.64	+04	18	01.6	071
2217	1988	10	17.89171	00	44	10.81	+01	28	14.0	071
2217	1988	10	17.94021	00	44	08.81	+01	28	00.8	071
2238	1988	09	11.91089	23	34	51.73	-04	18	29.5	071

2238		1988	09	11.95190	23	34	49.76	-04 18 35.1	071
2238		1988	10	14.86330	23	13	57.31	-06 10 01.1	071
2238		1988	10	14.90910	23	13	56.18	-06 10 03.6	071
2238		1988	10	15.78506	23	13	37.57	-06 11 20.8	071
2238		1988	10	15.83187	23	13	36.55	-06 11 23.5	071
2238		1988	10	16.85589	23	13	16.36	-06 12 45.1	071
2238		1988	10	16.90190	23	13	15.31	-06 12 46.9	071
2284		1988	09	12.00949	01	02	51.78	+00 48 47.4	071
2284		1988	09	12.05522	01	02	50.06	+00 48 29.6	071
2312		1988	10	15.03158	02	30	06.73	+11 12 53.7	071
2312		1988	10	15.07458	02	30	04.97	+11 12 50.1	071
2312		1988	10	15.11324	02	30	03.61	+11 12 42.7	071
2312		1988	10	15.95062	02	29	32.51	+11 10 50.2	071
2317		1988	09	11.92986	23	56	39.63	+01 26 16.2	071
2317		1988	09	11.96991	23	56	37.89	+01 25 59.0	071
2317		1988	09	12.92426	23	55	55.95	+01 18 57.8	071
2317		1988	09	12.94428	23	55	55.08	+01 18 49.3	071
2324		1988	09	12.03155	01	24	18.24	+09 19 57.6	071
2324		1988	09	12.07707	01	24	16.81	+09 19 49.9	071
2351		1988	09	11.91089	23	33	20.79	-00 26 12.7	071
2360		1988	09	12.00949	01	06	52.96	+03 34 44.7	071
2360		1988	09	12.05522	01	06	51.52	+03 34 39.8	071
2360		1988	10	15.88309	00	40	50.38	+01 49 00.4	071
2360		1988	10	15.92886	00	40	47.83	+01 48 53.9	071
2360		1988	10	17.89171	00	39	12.49	+01 43 39.0	071
2360		1988	10	17.94021	00	39	10.03	+01 43 29.2	071
2375		1988	07	14.93124	18	58	03.55	-21 13 46.9	071
2375		1988	07	14.97192	18	58	01.60	-21 14 02.2	071
2501		1988	10	15.75942	23	14	42.62	-05 54 57.5	071
2501		1988	10	15.80705	23	14	41.10	-05 55 01.0	071
2501		1988	10	17.80028	23	13	44.36	-05 57 53.5	071
2501		1988	10	17.83882	23	13	43.21	-05 57 55.6	071
2586		1988	09	11.92986	00	00	04.21	-01 16 36.2	071
2586		1988	09	11.96991	00	00	02.15	-01 16 54.8	071
2586		1988	09	14.00376	23	58	23.64	-01 33 27.9	071
2586		1988	09	14.02512	23	58	22.55	-01 33 38.5	071
2674		1988	10	15.75942	23	16	27.81	-04 28 06.8	071
2674		1988	10	15.80705	23	16	26.97	-04 28 14.1	071
2674		1988	10	16.85589	23	16	07.30	-04 30 31.1	071
2674		1988	10	16.90190	23	16	06.24	-04 30 38.5	071
2757		1988	10	15.85618	00	08	19.67	+00 53 46.4	071
2833		1988	09	11.92986	00	00	27.57	+00 48 35.0	071
2833		1988	09	11.96991	00	00	25.75	+00 48 25.1	071
2833		1988	09	12.92426	23	59	41.75	+00 44 12.2	071
2833		1988	09	12.94428	23	59	40.91	+00 44 06.8	071
2833		1988	09	14.00376	23	58	51.38	+00 39 21.6	071
2833		1988	09	14.02512	23	58	50.32	+00 39 17.1	071
2833		1988	10	17.86799	23	34	45.78	-01 43 29.9	071
2833		1988	10	17.91243	23	34	44.70	-01 43 36.2	071
2856		1988	09	10.02430	01	23	08.36	+07 10 49.0	071
2856		1988	09	10.04815	01	23	07.46	+07 10 50.2	071
2856		1988	09	10.06694	01	23	06.83	+07 10 50.5	071
2859		1988	09	12.92426	00	04	13.38	-00 49 37.1	071
2859		1988	09	12.94428	00	04	12.48	-00 49 46.6	071
2881		1988	09	11.92986	00	06	59.15	+00 10 45.3	071
2881		1988	09	11.96991	00	06	57.07	+00 10 27.4	071
2881		1988	09	12.92426	00	06	07.72	+00 03 06.3	071
2881		1988	09	12.94428	00	06	06.75	+00 02 56.2	071
2890		1988	09	10.89780	22	31	22.14	-12 56 03.6	071

2890		1988 09 10.93711	22	31	19.56	-12	56	06.1	071
2890		1988 09 11.98970	22	30	13.78	-12	57	02.9	071
2931		1988 10 15.75942	23	25	00.30	-05	14	26.3	071
2931		1988 10 15.80705	23	24	58.92	-05	14	32.8	071
2951		1988 10 17.89171	00	50	17.32	+01	40	19.2	071
2951		1988 10 17.94021	00	50	14.88	+01	40	15.9	071
2958		1988 09 11.92986	23	57	50.48	+01	13	00.9	071
2958		1988 09 11.96991	23	57	48.49	+01	12	48.4	071
3028		1988 10 15.85618	00	03	26.44	+00	50	36.8	071
3028		1988 10 15.91000	00	03	24.49	+00	50	14.8	071
3028		1988 10 16.98905	00	02	47.90	+00	43	11.5	071
3054		1988 09 10.02430	01	32	42.47	+07	19	44.6	071
3054		1988 09 10.04815	01	32	41.94	+07	19	39.7	071
3054		1988 09 10.06694	01	32	41.38	+07	19	36.0	071
3223		1988 09 10.85729	21	39	47.77	-09	37	19.8	071
3223		1988 09 10.87725	21	39	46.93	-09	37	27.8	071
3223		1988 09 11.82662	21	39	10.75	-09	44	19.4	071
3223		1988 09 11.86866	21	39	09.24	-09	44	38.7	071
3241		1988 10 17.80028	23	14	48.96	-06	51	51.1	071
3241		1988 10 17.83882	23	14	47.75	-06	51	57.8	071
3427		1988 10 16.78847	23	03	17.29	-01	56	40.2	071
3427		1988 10 16.83581	23	03	16.49	-01	56	46.7	071
3444		1988 09 10.89780	22	17	45.34	-11	27	12.2	071
3444		1988 09 10.93711	22	17	42.99	-11	27	15.9	071
3444		1988 09 11.98970	22	16	41.81	-11	29	12.8	071
3461		1988 10 15.88309	00	49	26.13	+00	55	12.3	071
3461		1988 10 15.92886	00	49	23.55	+00	55	03.4	071
3461		1988 10 16.96648	00	48	27.50	+00	51	36.5	071
3461		1988 10 17.89171	00	47	38.56	+00	48	39.2	071
3461		1988 10 17.94021	00	47	35.86	+00	48	29.7	071
3910		1988 10 14.86330	23	10	45.17	-06	22	32.4	071
3910		1988 10 14.90910	23	10	43.55	-06	22	28.8	071
3910		1988 10 15.75942	23	10	19.27	-06	22	05.4	071
3910		1988 10 15.78506	23	10	18.45	-06	22	05.2	071
3910		1988 10 15.80705	23	10	17.82	-06	22	03.5	071
3910		1988 10 15.83187	23	10	17.04	-06	22	01.6	071
3910		1988 10 16.76660	23	09	51.46	-06	21	30.6	071
3910		1988 10 16.80780	23	09	50.26	-06	21	27.9	071
3910		1988 10 17.80028	23	09	24.53	-06	20	47.1	071
3910		1988 10 17.83882	23	09	23.37	-06	20	45.1	071
3912		1988 10 15.80705	23	11	49.92	-06	56	46.2	071
3925		1988 09 11.84773	22	53	43.48	-07	33	40.2	071
3925		1988 09 11.88750	22	53	41.85	-07	34	05.4	071
3972		1988 09 12.00949	01	07	44.21	+04	05	36.6	071
3972		1988 09 12.05522	01	07	42.98	+04	05	18.0	071
3981		1988 10 18.04802	03	40	27.82	+17	24	29.4	071
3981		1988 10 18.12151	03	40	25.55	+17	24	24.8	071

091 Aurec-sur-Loire
R. Chanal, Observatore de Nurol, F-43110 Aurec-sur-Loire, France
0.41-m reflector

1985	DO2	1988 09 05.95486	00	16	46.72	-04	06	49.0	091
1985	DO2	1988 09 07.99305	00	19	13.38	-07	00	11.1	091
1989	AC	1989 01 25.81319	05	56	10.64	+23	07	02.6	091
1989	AC	1989 01 26.90833	05	59	56.77	+23	09	18.1	091
1989	AC	1989 01 27.90139	06	03	14.17	+23	10	49.4	091
754		1988 07 16.96806	19	36	34.53	+10	50	07.9	091
754		1988 07 18.95555	19	35	04.40	+10	41	22.6	091
754		1988 07 20.97569	19	33	33.37	+10	31	34.2	091

754	1988	08	06.96250	19	21	55.67	+08	35	39.4	091
1019	1988	07	16.93403	19	27	07.65	+09	30	06.6	091
1019	1988	07	18.93403	19	25	01.42	+08	41	24.6	091
1222	1988	07	10.92361	18	23	19.48	-01	01	20.1	091
1222	1988	07	10.94444	18	23	18.53	-01	01	06.6	091
1222	1988	07	16.90417	18	18	33.78	-00	20	15.0	091
1222	1988	07	18.90625	18	17	07.33	-00	08	53.9	091
3199	1988	09	08.07639	00	49	23.64	+48	37	26.6	091

190 Gissar
G. R. Kastel', Institute for Theoretical Astronomy, Naberezhnaya Kutuzova 10, 191187 Leningrad, U.S.S.R.
Observer S. I. Gerasimenko

369	1985	09	10.93264	06	04	19.13	+17	52	34.4	16.5	190
369	1985	09	12.94543	06	06	47.78	+17	54	52.4		190
369	1985	09	14.90069	06	09	09.84	+17	57	02.6		190
369	1985	09	14.95547	06	09	13.04	+17	57	07.4		190
369	1985	09	15.92569	06	10	22.24	+17	58	11.7		190
369	1985	09	15.96528	06	10	24.82	+17	58	13.7		190
369	1985	09	16.92319	06	11	32.23	+17	59	12.5		190
369	1985	09	17.94059	06	12	42.34	+18	00	19.1		190
369	1985	09	17.97392	06	12	44.44	+18	00	21.0		190
369	1985	09	19.91898	06	14	56.54	+18	02	19.8		190
369	1985	09	19.96186	06	14	59.04	+18	02	24.5		190
369	1985	09	20.90341	06	16	01.62	+18	03	20.8		190
369	1985	09	20.97841	06	16	06.41	+18	03	26.9		190
369	1985	09	22.89757	06	18	11.26	+18	05	21.2		190
369	1985	09	22.97118	06	18	15.54	+18	05	26.1		190
369	1985	09	23.91189	06	19	15.49	+18	06	23.9		190
369	1985	09	24.96284	06	20	20.66	+18	07	28.4		190
445	1987	02	24.82637	10	28	02.29	-14	24	32.4		190
445	1987	02	26.79926	10	26	25.95	-14	21	43.7		190
445	1987	02	27.80552	10	25	36.84	-14	20	02.6		190
445	1987	03	23.73610	10	07	59.50	-13	03	19.1		190
451	1985	09	14.90069	06	04	11.74	+18	28	53.0		190
451	1985	09	14.95547	06	04	15.01	+18	29	00.1		190
451	1985	09	15.92569	06	05	14.52	+18	30	37.0		190
451	1985	09	15.96528	06	05	16.85	+18	30	42.5		190
451	1985	09	16.92319	06	06	14.79	+18	32	16.5		190
451	1985	09	16.96539	06	06	17.33	+18	32	19.8		190
451	1985	09	17.97392	06	07	17.19	+18	34	03.3		190
451	1985	09	19.91898	06	09	10.66	+18	37	16.1		190
451	1985	09	19.96186	06	09	13.26	+18	37	19.8		190
451	1985	09	20.90341	06	10	06.60	+18	38	44.5		190
451	1985	09	20.97841	06	10	10.86	+18	39	03.0		190
451	1985	09	22.89757	06	11	57.68	+18	42	14.4		190
451	1985	09	22.97118	06	12	01.50	+18	42	21.2		190
451	1985	09	23.91189	06	12	52.42	+18	43	56.3		190
451	1985	09	24.96284	06	13	48.26	+18	45	43.0		190
510	1987	03	23.76907	13	14	42.56	-10	28	28.8		190
510	1987	03	23.78676	13	14	42.13	-10	28	24.7		190
656	1987	02	26.82530	10	07	07.57	+11	08	35.2		190
656	1987	02	27.77082	10	06	24.00	+11	12	46.8		190
811	1987	02	26.82530	10	14	31.36	+12	46	44.0		190
811	1987	02	27.77082	10	13	45.58	+12	51	42.8		190
917	1987	02	26.82530	10	06	35.76	+13	17	29.0		190
917	1987	02	27.77082	10	05	39.09	+13	21	01.4		190
1003	1987	02	26.82530	09	58	50.04	+12	57	01.2		190
1003	1987	02	27.77082	09	58	07.49	+13	01	22.4		190

1027	1987 02 26.77254	09 59 07.98	+14 04 42.3				190
1027	1987 02 26.82530	09 59 05.34	+14 04 55.1				190
1027	1987 02 27.77082	09 58 21.34	+14 08 28.4				190
1685	1988 07 11.87216	22 29 38.62	+09 29 26.4				190
1685	1988 07 11.89299	22 29 42.05	+09 30 56.2				190

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

1975 VP	1988 12 10.17431	03 35 02.47	+12 37 00.4				293
751	1988 12 10.17431	03 36 20.53	+12 41 31.6				293
3972	1988 10 15.14722	00 44 10.36	-00 38 26.3				293
3972	1988 10 15.16250	00 44 09.52	-00 38 33.2				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

49	1989 01 03.55417	04 43 33.97	+24 08 01.8				364
49	1989 01 03.57153	04 43 33.39	+24 07 59.1				364
149	1989 01 09.63889	09 17 02.87	+14 49 16.6				364
149	1989 01 09.65625	09 17 02.20	+14 49 21.3				364
248	1989 01 09.60069	08 46 40.18	+12 29 27.7				364
248	1989 01 09.61806	08 46 39.28	+12 29 28.8				364
555	1989 01 01.49167	04 42 50.63	+19 15 58.5				364
555	1989 01 01.50903	04 42 50.00	+19 15 58.4				364
569	1988 12 11.52639	05 08 19.41	+24 31 26.1				364
569	1988 12 11.54375	05 08 18.27	+24 31 23.9				364
569	1989 01 03.55417	04 48 52.19	+23 43 49.4				364
569	1989 01 03.57153	04 48 51.52	+23 43 47.6				364
861	1988 12 03.62639	06 42 02.89	+18 47 42.5				364
861	1988 12 03.64375	06 42 02.23	+18 47 45.0				364
897	1988 12 11.49097	05 11 10.39	+22 24 22.3				364
897	1988 12 11.50833	05 11 09.38	+22 24 19.4				364
897	1988 12 18.57847	05 03 44.31	+21 41 48.7				364
897	1988 12 18.59583	05 03 43.32	+21 41 41.9				364
897	1989 01 01.49167	04 51 05.51	+20 21 35.0				364
897	1989 01 01.50903	04 51 04.74	+20 21 29.8				364
942	1989 01 03.58958	04 46 53.83	+25 53 47.6				364
942	1989 01 03.60694	04 46 53.18	+25 53 49.3				364
1044	1988 12 11.59792	07 07 25.98	+26 18 48.5				364
1044	1988 12 11.61528	07 07 25.17	+26 18 50.2				364
1058	1989 01 09.60069	08 41 38.21	+12 21 34.6				364
1058	1989 01 09.61806	08 41 37.17	+12 21 37.3				364
1123	1989 01 03.55417	04 51 43.23	+24 19 38.9				364
1123	1989 01 03.57153	04 51 42.49	+24 19 41.3				364
1300	1989 01 01.64583	04 20 17.00	+20 21 53.8				364
1300	1989 01 01.66319	04 20 16.07	+20 21 56.8				364
1300	1989 01 04.53264	04 18 38.23	+20 27 45.8				364
1300	1989 01 04.55000	04 18 37.63	+20 27 49.5				364
1311	1988 12 28.53194	04 29 55.22	+20 35 56.5			16	364
1311	1988 12 28.54931	04 29 54.47	+20 35 54.8				364
1311	1989 01 01.60555	04 27 10.48	+20 25 56.0				364
1311	1989 01 01.62292	04 27 09.79	+20 25 53.5				364
1311	1989 01 04.46181	04 25 33.31	+20 19 42.9				364
1311	1989 01 04.47917	04 25 32.71	+20 19 40.1				364
1487	1989 01 01.60555	04 23 18.14	+20 24 21.8				364

1487		1989	01	01.62292	04	23	17.46	+20	24	20.5	364
1644		1989	01	04.57500	07	07	11.19	+19	19	06.3	364
1644		1989	01	04.59236	07	07	10.03	+19	19	04.1	364
1653		1988	12	11.59792	07	12	37.98	+26	15	39.3	364
1653		1988	12	11.61528	07	12	37.01	+26	15	39.4	364
1774		1989	01	04.57500	07	07	19.07	+19	48	11.6	364
1774		1989	01	04.59236	07	07	18.07	+19	48	14.2	364
2144		1988	12	13.50972	05	31	01.85	+19	36	50.1	364
2144		1988	12	13.52708	05	31	01.01	+19	36	52.5	364
2162		1988	12	03.62639	06	37	41.23	+19	17	04.9	364
2162		1988	12	03.64375	06	37	40.30	+19	17	07.3	364
2719		1988	12	28.53194	04	28	52.31	+20	58	14.4	364
2719		1988	12	28.54931	04	28	51.61	+20	58	10.7	364
2719		1989	01	04.46181	04	25	09.28	+20	54	19.6	364
2719		1989	01	04.47917	04	25	08.85	+20	54	18.9	364
3277		1988	12	28.53194	04	30	05.19	+20	36	20.9	364
3277		1988	12	28.54931	04	30	04.52	+20	36	23.0	364

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

1949	PV		1989	02	11.63507	08	13	07.61	+19	43	22.6	18.5	372
1949	PV		1989	02	11.64896	08	13	06.90	+19	43	28.8		372
1987	OM		1989	02	04.65833	10	18	29.39	+17	37	40.5	18.5	372
1987	OM		1989	02	04.67361	10	18	28.77	+17	37	48.2		372
1987	OM		1989	02	13.68056	10	09	35.25	+18	48	49.4	18	372
1987	OM		1989	02	13.69271	10	09	34.41	+18	48	56.0		372
1987	OM		1989	02	14.75521	10	08	28.3	+18	57	04		372
1987	SG		1989	02	10.77604	11	34	09.04	-01	34	12.7	18	372
1987	SG		1989	02	10.78993	11	34	08.36	-01	34	09.9		372
1987	WW		1989	02	13.77604	12	25	18.35	+00	20	32.7	18	372
1987	WW		1989	02	13.79062	12	25	18.16	+00	20	35.2		372
1987	XC		1989	02	13.72951	10	34	59.08	+34	27	45.6	20	372
1988	GG1	*	1988	04	08.64583	13	19	35.57	-12	33	30.7	17	372
1988	GG1		1988	04	08.65903	13	19	34.74	-12	33	23.2		372
1988	GH1	*	1988	04	09.57396	09	26	35.22	+19	10	28.3	18	372
1988	GH1		1988	04	09.58785	09	26	35.61	+19	10	28.9		372
1988	GJ1	*	1988	04	10.73056	15	29	19.84	-26	26	06.6	18	372
1988	GJ1		1988	04	10.74028	15	29	19.60	-26	26	04.2		372
1988	HJ	*	1988	04	25.76111	15	43	52.18	+04	18	14.2	18	372
1988	HJ		1988	04	25.77222	15	43	51.54	+04	18	18.9		372
1988	XL1		1989	01	04.57708	04	21	48.97	+15	06	09.8	18	372
1988	XL1		1989	01	04.59166	04	21	48.29	+15	06	10.3		372
1988	XM1		1988	12	13.64861	04	35	35.09	+14	30	14.6	17	372
1988	XM1		1988	12	15.68437	04	33	48.91	+14	28	04.4	17	372
1988	XM1		1988	12	16.67326	04	32	58.52	+14	27	09.9	16.5	372
1988	XM1		1988	12	27.44444	04	24	48.62	+14	22	54.5	17	372
1988	XM1		1988	12	27.45868	04	24	48.13	+14	22	56.5		372
1989	AG1		1989	02	02.68333	07	56	49.27	+15	50	54.1	16	372
1989	AG1		1989	02	02.69444	07	56	48.63	+15	50	54.7		372
1989	CF	*	1989	02	02.71389	10	21	00.17	+17	10	38.9	16.5	372
1989	CF		1989	02	03.66320	10	20	24.15	+17	21	46.6	16.5	372
1989	CF		1989	02	04.65833	10	19	44.57	+17	33	32.9	16.5	372
1989	CF		1989	02	04.67361	10	19	43.99	+17	33	47.9		372
1989	CF		1989	02	06.61076	10	18	24.01	+17	56	51.1	17	372
1989	CF		1989	02	06.61910	10	18	23.72	+17	56	58.0		372
1989	CF		1989	02	11.76111	10	14	34.02	+18	58	22.7	17	372
1989	CF		1989	02	11.77222	10	14	33.43	+18	58	32.4		372
1989	CF		1989	02	14.72743	10	12	13.02	+19	33	31.8	17	372

1989 CF		1989	02	14.73837	10	12	12.59	+19	33	40.2	372
1989 CJ		1989	02	02.74097	10	02	08.20	+15	17	32.9	17 372
1989 CJ	*	1989	02	03.63368	10	01	29.59	+15	22	50.7	17 372
1989 CJ		1989	02	03.64549	10	01	28.60	+15	22	52.6	372
1989 CJ		1989	02	04.63055	10	00	45.76	+15	28	42.5	17 372
1989 CJ		1989	02	04.64444	10	00	45.07	+15	28	47.6	372
1989 CQ	*	1989	02	02.66042	07	36	21.76	+28	22	02.1	19 372
1989 CQ		1989	02	02.67153	07	36	21.15	+28	22	02.1	372
1989 CQ		1989	02	04.57379	07	34	32.87	+28	24	13.9	19 372
1989 CQ		1989	02	06.56823	07	32	45.64	+28	25	50.2	19.5 372
1989 CQ		1989	02	10.61597	07	29	30.80	+28	27	14.7	19 372
1989 CR	*	1989	02	02.66042	07	37	55.20	+28	14	09.3	17.5 372
1989 CR		1989	02	02.67153	07	37	54.50	+28	14	16.5	372
1989 CR		1989	02	06.58715	07	33	53.66	+28	54	21.1	18 372
1989 CR		1989	02	06.59896	07	33	52.85	+28	54	29.3	372
1989 CR		1989	02	09.56423	07	31	02.82	+29	23	00.1	18.5 372
1989 CR		1989	02	10.59062	07	30	06.98	+29	32	29.0	19 372
1989 CR		1989	02	10.60174	07	30	06.56	+29	32	33.0	17 372
1989 CV	*	1989	02	04.60035	08	27	33.98	+26	18	48.8	18.5 372
1989 CV		1989	02	04.61701	08	27	33.10	+26	18	50.8	372
1989 CV		1989	02	10.63924	08	23	24.18	+26	28	15.3	18.5 372
1989 CV		1989	02	10.65104	08	23	23.62	+26	28	14.2	372
1989 CV		1989	02	11.66736	08	22	43.26	+26	29	34.4	18.5 372
1989 CV		1989	02	13.70764	08	21	24.21	+26	31	56.0	17 372
1989 CW	*	1989	02	04.68889	09	53	04.26	+12	52	58.6	18 372
1989 CW		1989	02	04.70069	09	53	03.98	+12	53	02.5	372
1989 CW		1989	02	10.67049	09	46	56.4	+13	22	03	17 372
1989 CW		1989	02	11.73715	09	45	48.96	+13	27	19.0	16.5 372
1989 CW		1989	02	11.74896	09	45	48.17	+13	27	22.4	372
1989 CW		1989	02	13.63472	09	43	48.63	+13	36	40.5	16.5 372
1989 CW		1989	02	13.64722	09	43	47.53	+13	36	44.7	372
1989 CW		1989	02	14.68611	09	42	41.23	+13	41	50.7	16.5 372
1989 CW		1989	02	14.69861	09	42	40.57	+13	41	54.0	372
1989 CM1		1989	02	13.68056	10	07	32.48	+18	57	15.9	17 372
1989 CM1		1989	02	13.69271	10	07	31.58	+18	57	17.8	372
1989 CM1		1989	02	14.75521	10	06	26.71	+19	01	19.4	17 372
1989 CP1	*	1989	02	03.75868	11	18	53.37	+21	25	52.4	17 372
1989 CP1		1989	02	03.76979	11	18	53.24	+21	25	55.6	372
1989 CP1		1989	02	04.74688	11	18	18.37	+21	30	30.7	17 372
1989 CP1		1989	02	04.75868	11	18	18.22	+21	30	33.9	372
1989 CV1	*	1989	02	11.76111	10	15	02.27	+19	01	50.6	18 372
1989 CV1		1989	02	11.77222	10	15	01.70	+19	01	56.5	372
1989 CV1		1989	02	14.72743	10	12	15.90	+19	25	44.6	18 372
1989 CV1		1989	02	14.73837	10	12	15.21	+19	25	51.2	372
1989 CW1	*	1989	02	13.63472	09	40	45.81	+13	39	23.0	18 372
1989 CW1		1989	02	13.64722	09	40	45.13	+13	39	25.5	372
1989 CW1		1989	02	14.68611	09	40	10.43	+13	41	16.3	17.5 372
1989 CW1		1989	02	14.69861	09	40	10.00	+13	41	19.7	372
1989 CX1	*	1989	02	13.65694	09	58	14.16	+16	40	08.5	18 372
1989 CX1		1989	02	13.67014	09	58	13.62	+16	40	15.3	372
1989 CX1		1989	02	14.77170	09	57	21.76	+16	48	48.1	18 372
1989 CX1		1989	02	26.57813	09	48	25.98	+18	12	39.4	18 372
1989 CX1		1989	02	26.58993	09	48	25.47	+18	12	45.0	372
1908		1989	02	02.63472	08	20	19.22	+26	23	34.6	15.5 372
1908		1989	02	02.64618	08	20	18.63	+26	23	37.3	372

381 Kiso
H. Kosai, Tokyo Astronomical Observatory, Mitaka, Tokyo 181, Japan
Observers Y. Taniguchi, H. Hata

Measurer H. Kosai
1.05-m Schmidt
AGK3, SAOC, global solutions

570	1988 12 30.5240	00 04 33.4	+01 19 38		16.5		381
570	1988 12 30.5359	00 04 34.0	+01 19 43				381
570	1989 01 02.5240	00 07 07.9	+01 34 40				381
570	1989 01 02.5350	00 07 08.3	+01 34 42				381
1240	1988 12 30.5519	00 35 03.0	+15 50 26		17		381
1240	1988 12 30.5632	00 35 03.7	+15 50 28				381
1240	1989 01 02.5520	00 38 05.6	+15 59 54				381
1240	1989 01 02.5615	00 38 06.2	+15 59 55				381

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

1989 CS	* 1989 02 05.60799	10 19 58.01	+22 09 11.7		15.5		385
1989 CS	1989 02 05.64132	10 19 56.02	+22 09 15.0				385
1989 CS	1989 02 07.56719	10 17 52.90	+22 11 02.3				385
1989 CS	1989 02 07.57656	10 17 52.29	+22 11 03.3				385
1989 CS	1989 02 07.58611	10 17 51.76	+22 11 04.1				385
1989 CS	1989 02 13.69306	10 11 02.22	+22 14 04.4		16.5		385
1989 CS	1989 02 13.71250	10 11 01.20	+22 14 02.5				385
718	1989 02 05.60799	10 17 06.31	+21 41 07.2				385
718	1989 02 05.64132	10 17 05.01	+21 41 14.5				385
718	1989 02 07.56719	10 15 32.68	+21 50 35.0				385
718	1989 02 07.57656	10 15 32.19	+21 50 38.8				385
718	1989 02 07.58611	10 15 31.70	+21 50 41.9				385
718	1989 02 11.63542	10 12 08.58	+22 09 40.7				385
718	1989 02 11.65660	10 12 07.17	+22 09 44.5				385
718	1989 02 13.69306	10 10 21.01	+22 18 49.3				385
718	1989 02 13.71250	10 10 20.11	+22 18 52.6				385
1175	1988 12 08.49549	02 55 12.74	+17 23 08.0		16		385
1175	1988 12 08.51840	02 55 11.91	+17 22 59.0				385
2526	1988 12 08.54340	05 23 33.87	+27 57 08.4				385
2526	1988 12 08.57188	05 23 32.18	+27 57 06.9				385
2645	1989 02 05.60799	10 19 40.93	+21 45 49.3				385
2645	1989 02 05.64132	10 19 38.95	+21 45 47.4				385
2645	1989 02 07.56719	10 17 23.24	+21 47 04.0				385
2645	1989 02 07.57656	10 17 22.60	+21 47 06.4				385
2645	1989 02 07.58611	10 17 21.83	+21 47 07.1				385
2645	1989 02 11.63542	10 12 26.85	+21 48 31.4				385
2645	1989 02 11.65660	10 12 25.31	+21 48 31.4				385
2645	1989 02 13.69306	10 09 53.62	+21 48 25.5				385
2645	1989 02 13.71250	10 09 52.11	+21 48 23.7				385
3133	1989 02 07.56719	10 19 36.49	+22 17 49.1				385
3133	1989 02 07.57656	10 19 35.97	+22 17 53.0				385
3133	1989 02 07.58611	10 19 35.37	+22 17 56.9				385
3133	1989 02 13.69306	10 12 33.79	+22 51 40.0				385
3133	1989 02 13.71250	10 12 32.51	+22 51 43.2				385

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

1988 WG	1988 12 30.52604	04 26 40.85	+29 33 25.3		14.5	r	386
1988 WG	1988 12 30.53715	04 26 40.32	+29 33 23.5			r	386

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

1988	VU1		1988	12	11.58264	03	56	12.82	+21 39 01.0		391
1988	VU1		1988	12	12.55556	03	55	25.49	+21 34 16.5		391
1988	VU1		1988	12	12.57639	03	55	24.39	+21 34 11.7		391
1988	VU1		1988	12	14.63542	03	53	47.80	+21 24 10.8		391
1988	VU1		1988	12	14.65625	03	53	47.07	+21 24 06.5		391
1989	CL1	*	1989	02	06.76840	10	44	36.64	+11 41 59.4	16.5	391
1989	CL1		1989	02	07.69861	10	44	02.90	+11 46 12.1	17.0	391
1989	CL1		1989	02	07.71944	10	44	02.03	+11 46 17.4	17.0 p	391
1989	CL1		1989	03	01.66042	10	27	45.14	+13 30 58.1	16	391
1989	CL1		1989	03	01.68194	10	27	43.95	+13 31 05.5	16	391
559			1989	01	05.62222	06	46	09.70	+20 38 48.2		391
559			1989	01	05.64306	06	46	08.44	+20 38 52.7		391
706			1989	01	29.76771	10	34	32.91	+07 27 54.9		391
706			1989	01	29.78854	10	34	32.18	+07 27 54.5		391
718			1989	02	13.67431	10	10	22.23	+22 18 47.0		391
718			1989	02	13.69514	10	10	21.10	+22 18 51.9		391
1577			1989	01	05.62222	06	44	49.81	+20 06 54.7		391
1577			1989	01	05.64306	06	44	48.28	+20 07 00.7		391
1644			1989	01	05.66944	07	06	01.25	+19 16 14.0		391
1644			1989	01	05.69028	07	05	59.83	+19 16 09.8		391
1719			1989	01	29.76771	10	34	31.19	+06 55 09.7		391
1719			1989	01	29.78854	10	34	30.17	+06 55 07.6		391
1774			1989	01	05.66944	07	06	17.05	+19 50 04.8		391
1774			1989	01	05.69028	07	06	15.61	+19 50 08.8		391
2149			1989	02	14.80694	12	29	38.29	+08 29 34.2		391
2149			1989	02	14.81042	12	29	38.20	+08 29 37.4		391
2334			1989	02	06.76840	10	43	55.81	+11 42 51.5		391
2334			1989	02	07.69861	10	43	14.58	+11 49 41.9		391
2334			1989	02	07.71944	10	43	13.60	+11 49 51.8		391
2587			1989	02	01.66111	08	43	13.46	+20 41 08.7		391
2587			1989	02	01.68194	08	43	12.47	+20 41 11.7		391
2645			1989	01	29.72604	10	27	09.66	+21 38 43.4		391
2645			1989	01	29.74340	10	27	08.53	+21 38 44.6		391
3119			1989	02	01.66111	08	44	32.07	+20 40 56.6		391
3119			1989	02	01.68194	08	44	30.93	+20 41 03.3		391
3133			1989	01	29.72604	10	28	40.28	+21 22 41.4		391
3133			1989	01	29.74340	10	28	39.13	+21 22 47.3		391
3133			1989	02	13.67431	10	12	35.28	+22 51 34.4		391
3133			1989	02	13.69514	10	12	33.64	+22 51 40.4		391
3994			1988	12	30.50903	03	44	59.12	+21 58 42.3		391
3994			1988	12	30.52986	03	44	58.65	+21 58 42.2		391

399 Kushiro
H. Kaneda, 12-7-2, 1 Chome, Ishiyama 1 Jo, Minami-Ku,
Sapporo 005, Japan
Observers S. Ueda, M. Matsuyama
Measurers H. Kaneda, K. Watanabe
0.16-m f/3.8 Wright-Schmidt camera, 0.20-m f/4.0 reflector
AGK3, SAOC

1961	CR		1989	02	04.55694	09	34	38.26	+14 56 22.2	16.5	399
1961	CR		1989	02	04.57292	09	34	37.26	+14 56 29.0		399
1961	CR		1989	02	04.59028	09	34	36.42	+14 56 37.0		399
1961	CR		1989	02	04.60521	09	34	35.23	+14 56 41.6		399
1961	CR		1989	02	05.52813	09	33	41.33	+15 03 31.0	16.5	399

1961	CR		1989	02	05.54340	09	33	40.47	+15	03	36.7		399
1961	CR		1989	02	05.56094	09	33	39.40	+15	03	42.8		399
1961	CR		1989	02	11.70347	09	27	31.30	+15	48	49.8	16.5	399
1961	CR		1989	02	11.71806	09	27	30.24	+15	48	56.2		399
1961	CR		1989	02	11.73513	09	27	29.21	+15	49	01.8		399
1981	VC1		1989	01	30.48056	07	33	05.40	+26	29	53.2	16.5	399
1981	VC1		1989	01	30.49514	07	33	04.30	+26	29	55.2		399
1981	VC1		1989	01	30.51088	07	33	03.46	+26	29	55.9		399
1981	VC1		1989	01	30.52512	07	33	02.30	+26	29	56.2		399
1985	FZ1		1989	02	11.70347	09	29	50.99	+14	24	32.2	15.5	399
1985	FZ1		1989	02	11.71806	09	29	50.16	+14	24	40.7		399
1985	FZ1		1989	02	11.73513	09	29	49.41	+14	24	53.4		399
1987	RT		1988	12	11.61458	05	41	33.00	+24	06	43.6	16	399
1987	RT		1988	12	11.62917	05	41	32.11	+24	06	45.1		399
1987	RT		1988	12	11.64792	05	41	30.99	+24	06	43.8		399
1987	RT		1988	12	11.66250	05	41	30.21	+24	06	44.2		399
1987	SN1		1989	01	29.47535	07	01	00.60	+25	38	06.4	16.5	399
1987	SN1		1989	01	29.49097	07	00	59.85	+25	38	07.7		399
1987	SN1		1989	01	29.52361	07	00	58.15	+25	38	09.5		399
1987	SN1		1989	01	29.53819	07	00	57.41	+25	38	11.0		399
1987	SX1		1987	09	27.50718	00	38	07.77	+05	34	41.0	15.5	399
1987	SX1		1987	09	27.52188	00	38	06.94	+05	34	36.9		399
1987	SX1		1987	09	27.53866	00	38	05.99	+05	34	33.2		399
1987	SM13	*	1987	09	23.54722	01	05	39.50	-03	32	38.3	16	399
1987	SM13		1987	09	23.56250	01	05	38.76	-03	32	44.5		399
1987	SM13		1987	09	23.57986	01	05	37.65	-03	32	49.2		399
1987	SM13		1987	10	25.53698	00	35	06.29	-04	46	16.5	15.5	399
1987	SM13		1987	10	25.55226	00	35	05.46	-04	46	16.1		399
1987	SM13		1987	10	25.57014	00	35	04.66	-04	46	14.8		399
1987	TE		1987	10	03.69549	01	17	48.91	+01	39	19.3	16	399
1987	TE		1987	10	03.71094	01	17	48.20	+01	39	15.1		399
1987	TE		1987	10	03.73056	01	17	47.14	+01	39	09.4		399
1987	TJ	*	1987	10	03.69549	01	19	36.38	+01	08	47.1	16.5	399
1987	TJ		1987	10	03.71094	01	19	35.51	+01	08	37.6		399
1987	TJ		1987	10	03.73056	01	19	34.84	+01	08	28.5		399
1987	UJ		1987	11	15.47743	01	44	22.53	+15	02	27.0	16.5	399
1987	UJ		1987	11	15.49236	01	44	22.10	+15	02	24.7		399
1987	UJ		1987	11	17.59387	01	43	01.79	+14	54	16.4	16.5	399
1987	UJ		1987	11	17.60914	01	43	01.02	+14	54	14.4		399
1987	UJ		1987	11	17.62500	01	43	00.45	+14	54	09.3		399
1987	UA1		1987	10	31.72743	01	51	28.55	+19	37	38.7	16	399
1987	UA1		1987	10	31.74213	01	51	27.79	+19	37	26.2		399
1987	UA1		1987	11	15.47743	01	41	32.15	+16	30	33.9	16	399
1987	UA1		1987	11	15.49236	01	41	31.65	+16	30	24.3		399
1987	UA1		1987	11	15.50880	01	41	31.27	+16	30	13.5		399
1987	UN1		1987	10	25.60046	02	07	14.56	+18	47	34.8	16.5	399
1987	UN1		1987	10	25.61638	02	07	13.76	+18	47	26.4		399
1987	UN1		1987	10	25.63542	02	07	12.95	+18	47	11.9		399
1987	UO1		1987	10	25.60046	02	11	47.35	+19	23	46.2	16.5	399
1987	UO1		1987	10	25.61638	02	11	46.42	+19	23	42.0		399
1987	UO1		1987	10	25.63542	02	11	45.23	+19	23	36.0		399
1987	UX3	*	1987	10	18.57963	01	34	52.90	+16	11	38.6	16.5	399
1987	UX3		1987	10	18.59491	01	34	51.59	+16	11	28.8		399
1987	UX3		1987	10	18.61528	01	34	49.69	+16	11	17.1		399
1987	UY3	*	1987	10	21.50556	01	32	05.99	+11	24	55.3	16.5	399
1987	UY3		1987	10	21.52222	01	32	05.08	+11	24	48.0		399
1987	UY3		1987	10	21.53889	01	32	03.98	+11	24	46.5		399
1987	UZ3	*	1987	10	21.50556	01	43	51.86	+10	46	04.8	16.5	399

1987	UZ3		1987	10	21.52222	01	43	51.13	+10	46	00.9		399
1987	UZ3		1987	10	21.53889	01	43	50.33	+10	45	56.6		399
1987	UA4	*	1987	10	21.50556	01	44	20.79	+10	43	53.3	16.5	399
1987	UA4		1987	10	21.52222	01	44	19.94	+10	43	47.6		399
1987	UA4		1987	10	21.53889	01	44	19.14	+10	43	43.0		399
1987	UB4	*	1987	10	25.60046	02	04	26.53	+19	47	20.1	16.5	399
1987	UB4		1987	10	25.61638	02	04	25.62	+19	47	12.4		399
1987	UB4		1987	10	25.63542	02	04	24.34	+19	47	04.8		399
1987	UC4	*	1987	10	25.60046	02	10	52.95	+20	27	45.7	16.5	399
1987	UC4		1987	10	25.61638	02	10	51.88	+20	27	45.5		399
1987	UC4		1987	10	25.63542	02	10	50.43	+20	27	46.2		399
1987	UD4	*	1987	10	25.65560	02	03	28.08	+16	29	43.2	17	399
1987	UD4		1987	10	25.67297	02	03	27.09	+16	29	41.7		399
1987	UD4		1987	10	25.68964	02	03	25.85	+16	29	38.8		399
1987	UE4	*	1987	10	25.60046	02	12	05.59	+20	08	13.4	16.5	399
1987	UE4		1987	10	25.61638	02	12	04.55	+20	08	08.8		399
1987	UE4		1987	10	25.63542	02	12	03.07	+20	08	06.9		399
1987	UE4		1987	10	28.52512	02	08	52.42	+20	00	47.5	16.5	399
1987	UE4		1987	10	28.54051	02	08	51.45	+20	00	45.0		399
1987	UE4		1987	10	28.55706	02	08	50.27	+20	00	41.2		399
1987	UF4	*	1987	10	28.52512	02	11	51.35	+17	51	05.4	16.5	399
1987	UF4		1987	10	28.54051	02	11	50.39	+17	51	02.9		399
1987	UF4		1987	10	28.55706	02	11	49.11	+17	51	04.9		399
1987	UG4	*	1987	10	28.58290	02	42	50.71	+21	41	11.2	16	399
1987	UG4		1987	10	28.59902	02	42	49.79	+21	41	04.4		399
1987	UG4		1987	10	28.61481	02	42	48.89	+21	40	57.0		399
1987	UH4	*	1987	10	28.58290	02	47	59.46	+24	04	03.8	16.5	399
1987	UH4		1987	10	28.59902	02	47	58.13	+24	03	57.6		399
1987	UH4		1987	10	28.61481	02	47	57.11	+24	03	55.1		399
1987	UJ4	*	1987	10	28.58290	02	49	54.17	+22	24	39.9	16.5	399
1987	UJ4		1987	10	28.59902	02	49	53.31	+22	24	41.6		399
1987	UJ4		1987	10	28.61481	02	49	52.22	+22	24	38.8		399
1987	UK4	*	1987	10	28.58290	02	50	49.18	+21	54	39.0	16.5	399
1987	UK4		1987	10	28.59902	02	50	48.09	+21	54	31.1		399
1987	UK4		1987	10	28.61481	02	50	47.16	+21	54	26.7		399
1987	UL4	*	1987	10	28.58290	02	57	59.79	+22	24	30.9	16.5	399
1987	UL4		1987	10	28.59902	02	57	59.05	+22	24	25.7		399
1987	UL4		1987	10	28.61481	02	57	58.10	+22	24	18.3		399
1987	VB		1987	11	28.60356	01	00	05.67	+11	16	10.0	16.5	399
1987	VB		1987	11	28.61944	01	00	05.58	+11	16	06.9		399
1987	VC		1989	01	29.55903	09	00	02.84	+29	47	51.1	17	399
1987	VC		1989	01	29.57361	09	00	01.99	+29	47	55.2		399
1987	VC		1989	01	29.60556	08	59	59.89	+29	47	58.5		399
1987	VC		1989	01	30.60417	08	59	00.74	+29	51	01.0	17	399
1987	VC		1989	01	30.61875	08	59	00.04	+29	51	04.8		399
1987	VC		1989	01	30.63611	08	58	58.81	+29	51	05.4		399
1987	VC		1989	02	07.51215	08	51	13.43	+30	10	12.8	17	399
1987	VC		1989	02	07.53090	08	51	12.43	+30	10	13.5		399
1987	VC		1989	02	07.54826	08	51	11.30	+30	10	16.2		399
1987	VE1		1987	11	15.60428	01	03	28.30	+12	16	45.1	16	399
1987	VE1		1987	11	15.61930	01	03	27.89	+12	16	40.4		399
1987	VE1		1987	11	15.63438	01	03	27.34	+12	16	34.3		399
1987	VE1		1987	11	20.57917	01	01	24.02	+11	46	43.4	16	399
1987	VE1		1987	11	20.58710	01	01	23.85	+11	46	39.5	16	399
1987	VE1		1987	11	20.59502	01	01	23.68	+11	46	35.6		399
1987	VE1		1987	11	20.60237	01	01	23.47	+11	46	32.7		399
1987	VE1		1987	11	20.60972	01	01	23.25	+11	46	29.7		399
1987	VE1		1987	11	28.60356	00	59	31.05	+11	06	32.0	16.5	399
1987	VE1		1987	11	28.61944	00	59	30.91	+11	06	27.4		399

1987	VE1		1989	02	26.52500	10	34	41.72	-01	58	07.8	15	399
1987	VE1		1989	02	26.53958	10	34	40.94	-01	58	02.8		399
1987	VE1		1989	02	26.55556	10	34	40.01	-01	57	58.0		399
1987	VE1		1989	02	26.57049	10	34	39.08	-01	57	52.9		399
1987	VF1	*	1987	11	15.47743	01	41	58.47	+16	13	41.5	16.5	399
1987	VF1		1987	11	15.49236	01	41	57.76	+16	13	35.9		399
1987	VF1		1987	11	15.50880	01	41	57.13	+16	13	32.0		399
1987	VF1		1987	11	17.59387	01	40	41.61	+16	01	56.3	17	399
1987	VF1		1987	11	17.60914	01	40	40.96	+16	01	50.9		399
1987	VF1		1987	11	17.62500	01	40	40.39	+16	01	46.5		399
1987	WD		1987	11	22.61852	02	12	50.51	+22	24	21.2	16.5	399
1987	WD		1987	11	22.63426	02	12	49.78	+22	24	17.4		399
1987	WD		1987	11	28.67517	02	08	08.71	+22	09	20.0	16.5	399
1987	WD		1987	11	28.69190	02	08	08.03	+22	09	19.5		399
1987	WD		1987	12	09.37569	02	02	44.63	+21	47	13.6	16.5	399
1987	WD		1987	12	09.39826	02	02	44.26	+21	47	11.8		399
1987	WD		1987	12	09.41551	02	02	43.85	+21	47	10.2		399
1988	XA		1989	01	04.51668	04	28	32.06	+18	00	51.1	16	399
1988	XA		1989	01	04.53565	04	28	31.55	+18	00	48.8		399
1988	XA		1989	01	04.55741	04	28	30.99	+18	00	43.4		399
1988	XT		1988	12	11.54387	05	11	10.55	+22	42	23.0	16.5	399
1988	XT		1988	12	11.55833	05	11	09.52	+22	42	21.4		399
1988	XT		1988	12	11.57361	05	11	08.48	+22	42	20.8		399
1988	XT		1988	12	11.58819	05	11	07.26	+22	42	19.9		399
1988	XO2	*	1988	12	02.58403	05	12	56.54	+21	07	06.2	16.5	399
1988	XO2		1988	12	02.59826	05	12	55.82	+21	07	05.9		399
1988	XO2		1988	12	02.61319	05	12	54.86	+21	07	06.4		399
1988	XO2		1988	12	02.62778	05	12	54.09	+21	07	07.9		399
1989	AU		1989	01	29.47535	06	59	33.74	+26	30	18.7	16.5	399
1989	AU		1989	01	29.49097	06	59	32.98	+26	30	21.2		399
1989	AU		1989	01	29.52361	06	59	31.38	+26	30	26.1		399
1989	AU		1989	01	29.53819	06	59	30.57	+26	30	27.8		399
1989	AK1		1989	01	30.48056	07	30	45.32	+24	25	19.6	17	399
1989	AK1		1989	01	30.49514	07	30	44.66	+24	25	18.1		399
1989	AK1		1989	01	30.51088	07	30	43.84	+24	25	16.7		399
1989	AK1		1989	01	30.52512	07	30	42.93	+24	25	14.2		399
1989	AN1		1989	01	13.70149	07	33	28.44	+24	54	41.2	16.5	399
1989	AN1		1989	01	13.71597	07	33	27.66	+24	54	43.7		399
1989	AN1		1989	01	13.73270	07	33	26.50	+24	54	49.1		399
1989	BC	*	1989	01	29.55903	09	07	44.52	+28	05	37.6	16	399
1989	BC		1989	01	29.57361	09	07	43.59	+28	05	48.0		399
1989	BC		1989	01	29.59097	09	07	42.55	+28	05	56.4		399
1989	BC		1989	01	29.60556	09	07	41.84	+28	06	02.8		399
1989	BC		1989	01	30.60417	09	06	46.39	+28	15	01.6	16	399
1989	BC		1989	01	30.61875	09	06	45.47	+28	15	10.5		399
1989	BC		1989	01	30.63611	09	06	44.50	+28	15	17.9		399
1989	BC		1989	02	07.51215	08	59	19.88	+29	21	02.0	16.5	399
1989	BC		1989	02	07.53090	08	59	18.70	+29	21	11.7		399
1989	BC		1989	02	07.54826	08	59	17.68	+29	21	18.4		399
1989	BD	*	1989	01	29.55903	09	10	23.82	+29	43	44.1	15.5	399
1989	BD		1989	01	29.57361	09	10	22.87	+29	43	47.4		399
1989	BD		1989	01	29.59097	09	10	21.83	+29	43	52.8		399
1989	BD		1989	01	29.60556	09	10	20.82	+29	43	55.4		399
1989	BD		1989	01	30.60417	09	09	19.49	+29	47	13.2	15.5	399
1989	BD		1989	01	30.61875	09	09	18.67	+29	47	17.1		399
1989	BD		1989	01	30.63611	09	09	17.34	+29	47	20.2		399
1989	BD		1989	02	07.51215	09	01	08.30	+30	06	49.3	16	399
1989	BD		1989	02	07.53090	09	01	06.98	+30	06	54.0		399
1989	BD		1989	02	07.54826	09	01	05.87	+30	06	52.4		399

1989	CG	*	1989	02	03.56181	09	13	04.85	+14	05	57.0	16	399
1989	CG		1989	02	03.57639	09	13	04.10	+14	06	03.9		399
1989	CG		1989	02	03.59306	09	13	03.30	+14	06	11.5		399
1989	CG		1989	02	03.60966	09	13	02.53	+14	06	17.3		399
1989	CG		1989	02	04.50243	09	12	21.32	+14	12	37.8	16.5	399
1989	CG		1989	02	04.52083	09	12	20.40	+14	12	44.1		399
1989	CG		1989	02	04.53542	09	12	19.69	+14	12	52.0		399
1989	CH	*	1989	02	03.56181	09	15	24.94	+15	30	41.5	15.5	399
1989	CH		1989	02	03.57639	09	15	24.12	+15	30	52.8		399
1989	CH		1989	02	03.59306	09	15	23.34	+15	31	06.1		399
1989	CH		1989	02	03.60966	09	15	22.51	+15	31	19.2		399
1989	CH		1989	02	04.50243	09	14	41.23	+15	42	52.8	15.5	399
1989	CH		1989	02	04.52083	09	14	40.50	+15	43	07.3		399
1989	CH		1989	02	04.53542	09	14	39.75	+15	43	18.9		399
1989	CH		1989	02	11.64236	09	09	08.33	+17	15	23.1	15.5	399
1989	CH		1989	02	11.65764	09	09	07.76	+17	15	33.0		399
1989	CH		1989	02	11.67520	09	09	06.76	+17	15	47.0		399
1989	CL	*	1989	02	03.56181	09	17	42.12	+15	40	21.7	16.5	399
1989	CL		1989	02	03.57639	09	17	41.33	+15	40	28.2		399
1989	CL		1989	02	03.59306	09	17	40.65	+15	40	32.8		399
1989	CL		1989	02	03.60966	09	17	39.67	+15	40	36.9		399
1989	CL		1989	02	04.50243	09	16	55.83	+15	44	58.5	16.5	399
1989	CL		1989	02	04.52083	09	16	54.98	+15	45	03.5		399
1989	CL		1989	02	04.53542	09	16	54.00	+15	45	07.0		399
1989	CL		1989	02	11.64236	09	11	06.45	+16	19	05.9	16	399
1989	CL		1989	02	11.65764	09	11	05.43	+16	19	12.4		399
1989	CL		1989	02	11.67520	09	11	04.62	+16	19	14.0		399
1989	CM	*	1989	02	04.55694	09	26	14.03	+15	55	58.5	17	399
1989	CM		1989	02	04.57292	09	26	13.21	+15	56	01.0		399
1989	CM		1989	02	04.59028	09	26	12.36	+15	56	06.0		399
1989	CM		1989	02	04.60512	09	26	11.35	+15	56	10.8		399
1989	CM		1989	02	05.52813	09	25	25.17	+15	59	51.1	17	399
1989	CM		1989	02	05.54340	09	25	24.02	+15	59	52.6		399
1989	CM		1989	02	05.56094	09	25	23.21	+15	59	54.2		399
1989	CM		1989	02	11.64236	09	20	14.49	+16	23	21.0	17	399
1989	CM		1989	02	11.65764	09	20	13.71	+16	23	24.9		399
1989	CM		1989	02	11.67520	09	20	12.78	+16	23	31.0		399
1989	CN	*	1989	02	04.55694	09	26	42.03	+14	34	00.5	17	399
1989	CN		1989	02	04.57292	09	26	40.83	+14	34	05.8		399
1989	CN		1989	02	04.59028	09	26	39.90	+14	34	12.0		399
1989	CN		1989	02	04.60521	09	26	38.94	+14	34	19.3		399
1989	CN		1989	02	05.52813	09	25	39.43	+14	39	32.5	16.5	399
1989	CN		1989	02	05.54340	09	25	38.47	+14	39	38.6		399
1989	CN		1989	02	05.56094	09	25	37.45	+14	39	43.6		399
1989	CN		1989	02	11.64236	09	19	04.00	+15	14	01.3	17	399
1989	CN		1989	02	11.65764	09	19	03.09	+15	14	07.5		399
1989	CN		1989	02	11.67520	09	19	01.83	+15	14	13.6		399
1989	CP		1989	02	04.62778	09	44	15.97	+15	56	11.0	16.5	399
1989	CP		1989	02	04.64549	09	44	14.74	+15	56	15.3		399
1989	CP		1989	02	04.66181	09	44	13.81	+15	56	20.2		399
1989	CP		1989	02	04.67642	09	44	12.95	+15	56	24.3		399
1989	CP		1989	02	07.57361	09	41	20.35	+16	07	13.7	16	399
1989	CP		1989	02	07.58854	09	41	19.45	+16	07	17.5		399
1989	CP		1989	02	07.60521	09	41	18.40	+16	07	21.0		399
1989	CP		1989	02	11.70347	09	37	09.81	+16	22	15.6	16.5	399
1989	CP		1989	02	11.71806	09	37	08.90	+16	22	16.7		399
1989	CP		1989	02	11.73513	09	37	07.82	+16	22	20.4		399
1989	CU	*	1989	02	04.62778	09	47	45.75	+14	42	17.2	16.5	399
1989	CU		1989	02	04.64549	09	47	44.78	+14	42	18.9		399

1989	CU		1989	02	04.66181	09	47	43.54	+14	42	23.1		399
1989	CU		1989	02	04.67642	09	47	42.53	+14	42	25.4		399
1989	CU		1989	02	05.58194	09	46	42.39	+14	44	31.8	16.5	399
1989	CU		1989	02	07.57361	09	44	28.30	+14	49	08.3	16.5	399
1989	CU		1989	02	07.58854	09	44	27.05	+14	49	11.1		399
1989	CU		1989	02	07.60521	09	44	25.90	+14	49	13.6		399
1989	CU		1989	02	11.70347	09	39	47.12	+14	58	30.4	16.5	399
1989	CU		1989	02	11.71806	09	39	45.96	+14	58	31.5		399
1989	CU		1989	02	11.73513	09	39	45.03	+14	58	32.8		399
1989	CX	*	1989	02	07.63750	09	55	23.65	+19	24	06.2	16	399
1989	CX		1989	02	07.65208	09	55	21.61	+19	23	52.9		399
1989	CX		1989	02	07.66910	09	55	19.87	+19	23	40.4		399
1989	CX		1989	02	10.71551	09	49	48.97	+18	38	10.5	15.5	399
1989	CX		1989	02	10.73339	09	49	46.79	+18	37	55.0		399
1989	CX		1989	02	27.52726	09	21	57.02	+14	14	20.6	16	399
1989	CX		1989	02	27.54253	09	21	55.74	+14	14	05.9		399
1989	CX		1989	02	27.56505	09	21	53.09	+14	13	43.8		399
1989	CB1		1989	02	04.55694	09	29	40.73	+15	31	43.8	16.5	399
1989	CB1		1989	02	04.57292	09	29	39.81	+15	31	49.3		399
1989	CB1		1989	02	04.59028	09	29	38.61	+15	31	58.7		399
1989	CB1		1989	02	04.60521	09	29	37.54	+15	32	07.4		399
1989	CB1		1989	02	05.52813	09	28	39.53	+15	39	03.4	16.5	399
1989	CB1		1989	02	05.54340	09	28	38.53	+15	39	10.5		399
1989	CB1		1989	02	05.56094	09	28	37.38	+15	39	16.4		399
1989	CB1		1989	02	11.64236	09	22	07.23	+16	25	11.2	16.5	399
1989	CB1		1989	02	11.65764	09	22	06.02	+16	25	18.9		399
1989	CB1		1989	02	11.67520	09	22	05.02	+16	25	24.9		399
1989	CN1	*	1989	02	10.71551	10	05	32.90	+18	16	52.9	16.5	399
1989	CN1		1989	02	10.73339	10	05	31.94	+18	16	57.2		399
1989	CN1		1989	02	10.75069	10	05	30.75	+18	17	02.8		399
897			1988	12	07.55851	05	15	22.59	+22	47	52.0	14	399
897			1988	12	07.57303	05	15	21.67	+22	47	47.7		399
897			1988	12	07.58912	05	15	20.58	+22	47	42.9		399
897			1988	12	07.60347	05	15	19.66	+22	47	37.7		399
1123			1988	12	07.55851	05	19	44.38	+22	45	36.3	13	399
1123			1988	12	07.57303	05	19	43.31	+22	45	40.0		399
1123			1988	12	07.58912	05	19	42.09	+22	45	45.1		399
1123			1988	12	07.60347	05	19	40.96	+22	45	48.3		399
1848			1989	01	04.57778	07	10	55.39	+24	00	34.0	15.5	399
1848			1989	01	04.59236	07	10	54.51	+24	00	35.0		399
1848			1989	01	04.60764	07	10	53.56	+24	00	37.0		399
1848			1989	01	04.62396	07	10	52.68	+24	00	38.5		399
2003			1989	01	04.57778	07	11	01.41	+24	22	32.2	15	399
2003			1989	01	04.59236	07	11	00.51	+24	22	33.6		399
2003			1989	01	04.60764	07	10	59.61	+24	22	35.0		399
2003			1989	01	04.62396	07	10	58.68	+24	22	37.3		399
2707			1989	01	04.65104	07	20	26.13	+24	03	43.1	15.5	399
2707			1989	01	04.66545	07	20	25.18	+24	03	46.3		399
2707			1989	01	04.68090	07	20	24.30	+24	03	49.5		399
2707			1989	01	04.69549	07	20	23.58	+24	03	50.7		399
2712			1989	02	03.56181	09	15	07.59	+15	02	22.8	15.5	399
2712			1989	02	03.57639	09	15	06.61	+15	02	27.9		399
2712			1989	02	03.59306	09	15	05.57	+15	02	33.6		399
2712			1989	02	03.60966	09	15	04.37	+15	02	39.7		399
2882			1988	12	07.55851	05	20	39.97	+23	28	34.0	16	399
2882			1988	12	07.57303	05	20	39.23	+23	28	34.0		399
2882			1988	12	07.58912	05	20	38.20	+23	28	33.4		399
2882			1988	12	07.60347	05	20	37.40	+23	28	32.3		399
2996			1989	02	11.70347	09	38	54.41	+15	17	39.2	15.5	399

2996		1989	02	11.71806	09	38	53.54	+15	17	42.7		399
2996		1989	02	11.73513	09	38	52.59	+15	17	45.5		399
3277		1988	12	02.51829	04	52	14.92	+19	31	11.7	14	399
3277		1988	12	02.53333	04	52	14.15	+19	31	12.5		399
3277		1988	12	02.55006	04	52	13.03	+19	31	15.3		399
3277		1988	12	02.56484	04	52	12.19	+19	31	17.2		399
3277		1988	12	07.48681	04	47	26.99	+19	43	12.7	14.5	399
3277		1988	12	07.50139	04	47	26.03	+19	43	15.5		399
3277		1988	12	07.51609	04	47	25.23	+19	43	17.8		399
3277		1988	12	07.53056	04	47	24.36	+19	43	18.6		399
3278		1988	12	07.48681	04	36	16.52	+20	23	32.8	15.5	399
3278		1988	12	07.50139	04	36	15.72	+20	23	33.4		399
3278		1988	12	07.51609	04	36	14.96	+20	23	33.0		399
3278		1988	12	07.53056	04	36	14.12	+20	23	34.3		399
4000		1989	01	29.47535	07	05	36.39	+24	24	27.6	16	399
4000		1989	01	29.49097	07	05	35.63	+24	24	27.4		399
4000		1989	01	29.52361	07	05	34.09	+24	24	26.3		399
4000		1989	01	29.53819	07	05	33.10	+24	24	26.0		399

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

1952	HJ2		1989	02	07.52743	09	13	20.24	+17	33	38.6	16.5	400
1952	HJ2		1989	02	07.54479	09	13	18.83	+17	33	43.4		400
1952	HJ2		1989	02	07.56215	09	13	18.42	+17	33	45.0		400
1980	BM		1989	02	12.63824	10	04	19.90	+16	46	43.3	16.0	400
1980	BM		1989	02	12.65074	10	04	19.17	+16	46	50.6		400
1980	BM		1989	02	12.66671	10	04	18.18	+16	46	57.4		400
1988	HH	*	1988	04	16.59861	13	51	53.56	-04	52	48.0	16	400
1988	HH		1988	04	16.62986	13	51	52.86	-04	52	53.2		400
1988	RO7	*	1988	09	07.54063	23	16	03.79	+08	57	52.1	16.0	400
1988	RO7		1988	09	07.55729	23	16	02.36	+08	58	02.2		400
1988	RO7		1988	09	07.56944	23	16	01.25	+08	58	09.2		400
1988	XR		1988	12	16.66042	05	02	04.75	+21	55	07.4	16.5	400
1988	XR		1988	12	16.67569	05	02	03.79	+21	55	03.4		400
1988	XT		1988	12	27.50493	04	53	52.57	+22	10	23.7	16.5	400
1988	XT		1988	12	27.51951	04	53	51.61	+22	10	19.2		400
1988	XO2		1988	12	16.66042	04	59	33.21	+21	07	23.8	16.0	400
1988	XO2		1988	12	16.67569	04	59	32.22	+21	07	20.0		400
1989	AE1		1989	01	25.47439	07	31	36.77	+28	56	54.2	15.0	400
1989	AE1		1989	01	25.48411	07	31	36.33	+28	56	58.2		400
1989	AE1		1989	01	25.49175	07	31	35.79	+28	57	01.1		400
1989	AE1		1989	01	29.42083	07	27	49.73	+29	18	11.9	15.0	400
1989	AE1		1989	01	29.43368	07	27	49.07	+29	18	16.4		400
1989	AE1		1989	01	29.44444	07	27	48.40	+29	18	20.1		400
1989	AE1		1989	01	30.48194	07	26	52.48	+29	23	22.2	15.0	400
1989	AE1		1989	01	30.49653	07	26	51.70	+29	23	25.9		400
1989	AL1		1989	01	29.46528	08	03	21.53	+26	11	04.9	16.5	400
1989	AL1		1989	01	29.48056	08	03	20.57	+26	11	10.8		400
1989	AL1		1989	01	29.49375	08	03	20.12	+26	11	14.2		400
1989	AL1		1989	01	30.63750	08	02	09.67	+26	18	24.0	16.0	400
1989	AL1		1989	01	30.65208	08	02	07.93	+26	18	24.0		400
1989	AL1		1989	02	07.48056	07	54	47.87	+27	01	12.0	16.5	400
1989	AL1		1989	02	07.49583	07	54	46.79	+27	01	20.4		400
1989	AS1		1989	01	29.46528	08	01	29.29	+25	49	05.2	16.0	400

1989	AS1		1989	01	29.48056	08	01	28.02	+25	49	03.8		400
1989	AS1		1989	01	29.49375	08	01	27.10	+25	49	10.4		400
1989	AS1		1989	01	30.51528	08	00	20.64	+25	52	15.0	16.5	400
1989	AS1		1989	01	30.52986	08	00	19.27	+25	52	16.0		400
1989	AS1		1989	01	30.63750	08	00	12.46	+25	52	35.6	16.5	400
1989	AS1		1989	01	30.65208	08	00	11.49	+25	52	38.8		400
1989	AS1		1989	02	07.48056	07	52	23.37	+26	10	53.0	16.5	400
1989	AS1		1989	02	07.49583	07	52	22.48	+26	10	54.8		400
1989	AT1		1989	01	30.51528	08	04	13.11	+25	45	39.3	16.5	400
1989	AT1		1989	01	30.52986	08	04	12.05	+25	45	44.3		400
1989	AT1		1989	01	30.63750	08	04	05.54	+25	46	08.2	16.0	400
1989	AT1		1989	01	30.65208	08	04	04.79	+25	46	11.0		400
1989	AW1	*	1989	01	13.66250	08	39	21.01	+21	42	13.7	16.5	400
1989	AW1		1989	01	13.68056	08	39	19.79	+21	42	16.1		400
1989	AW1		1989	01	13.69375	08	39	18.85	+21	42	24.3		400
1989	AW1		1989	01	29.51181	08	21	31.32	+23	07	54.0	16.5	400
1989	AW1		1989	01	29.52639	08	21	30.53	+23	07	57.6		400
1989	AW1		1989	01	29.53889	08	21	29.51	+23	08	03.4		400
1989	AW1		1989	01	30.54514	08	20	22.09	+23	12	44.6	16.5	400
1989	AW1		1989	01	30.56042	08	20	21.12	+23	12	47.8		400
1989	AW1		1989	02	03.51601	08	16	02.40	+23	30	27.3	16.0	400
1989	AW1		1989	02	03.53128	08	16	01.53	+23	30	33.8		400
1989	AX1		1989	01	13.62396	08	45	41.99	+27	54	49.5	16.0	400
1989	AX1		1989	01	13.64063	08	45	40.72	+27	54	52.0		400
1989	AX1	*	1989	01	15.74306	08	43	08.52	+28	01	50.3	16.0	400
1989	AX1		1989	01	15.75903	08	43	07.19	+28	01	51.7		400
1989	AX1		1989	01	15.77049	08	43	06.56	+28	01	53.1		400
1989	BB	*	1989	01	29.46528	08	04	51.96	+26	12	13.6	15.5	400
1989	BB		1989	01	29.48056	08	04	50.78	+26	12	09.4		400
1989	BB		1989	01	29.49375	08	04	49.98	+26	12	06.4		400
1989	BB		1989	01	30.51528	08	03	39.74	+26	07	55.3	15.5	400
1989	BB		1989	01	30.52986	08	03	38.81	+26	07	51.2		400
1989	BB		1989	01	30.63750	08	03	31.18	+26	07	27.6	15.5	400
1989	BB		1989	01	30.65208	08	03	30.07	+26	07	23.5		400
1989	BB		1989	02	07.48056	07	55	20.48	+25	30	44.1	16	400
1989	BB		1989	02	07.49583	07	55	19.62	+25	30	37.5		400
1989	BB		1989	02	23.45530	07	44	56.23	+23	57	07.0	15.5	400
1989	BB		1989	02	23.47127	07	44	55.85	+23	56	59.8		400
1989	BB		1989	02	23.48134	07	44	55.66	+23	56	55.6		400
1989	BM	*	1989	01	29.42083	07	26	34.23	+30	52	11.3	16.5	400
1989	BM		1989	01	29.43368	07	26	32.86	+30	52	09.8		400
1989	BM		1989	01	30.48194	07	25	38.66	+30	49	46.9	16.0	400
1989	BM		1989	01	30.49653	07	25	37.58	+30	49	44.6		400
1989	BY	*	1989	01	30.49653	08	37	13.56	+21	08	26.6	15	400
1989	BY		1989	01	30.52049	08	37	12.05	+21	08	33.2		400
1989	BY		1989	01	30.55486	08	37	09.88	+21	08	47.4		400
1989	BY		1989	02	03.51910	08	33	16.13	+21	30	23.0	15.5	400
1989	BY		1989	02	03.53993	08	33	15.04	+21	30	27.1		400
1989	BY		1989	02	07.46910	08	29	35.46	+21	50	06.6	15.5	400
1989	BY		1989	02	07.48993	08	29	34.25	+21	50	10.5		400
1989	BY		1989	02	07.50174	08	29	33.64	+21	50	15.0		400
1989	BZ	*	1989	01	30.57222	08	45	19.09	+25	43	47.5	16.5	400
1989	BZ		1989	01	30.59514	08	45	17.27	+25	43	44.8		400
1989	BZ		1989	01	30.61111	08	45	16.13	+25	43	44.7		400
1989	BZ		1989	02	07.51701	08	36	19.53	+25	34	41.1	16.5	400
1989	BZ		1989	02	07.52882	08	36	18.61	+25	34	38.3		400
1989	BZ		1989	02	07.54965	08	36	17.13	+25	34	36.1		400
1989	CF		1989	02	07.60903	10	17	41.57	+18	08	46.9	16.5	400

1989	CF		1989	02	07.62500	10	17	40.86	+18	08	59.7		400
1989	CF		1989	02	07.63750	10	17	40.14	+18	09	08.1		400
1989	CF		1989	02	12.68963	10	13	50.76	+19	09	27.1	16.0	400
1989	CF		1989	02	12.70491	10	13	50.01	+19	09	37.0		400
1989	CF		1989	02	12.71741	10	13	49.33	+19	09	46.6		400
1989	CB1	*	1989	02	07.57743	09	26	29.32	+15	54	33.3	16.5	400
1989	CB1		1989	02	07.59479	09	26	27.99	+15	54	42.1		400
1989	CB1		1989	02	07.61215	09	26	26.92	+15	54	49.4		400
1989	CB1		1989	02	10.57813	09	23	16.17	+16	17	15.8	16.5	400
1989	CB1		1989	02	10.59549	09	23	14.99	+16	17	17.6		400
1989	CB1		1989	02	10.60937	09	23	13.85	+16	17	27.9		400
1989	CM1	*	1989	02	07.56042	10	13	33.39	+18	32	38.0	16.0	400
1989	CM1		1989	02	07.57639	10	13	32.36	+18	32	44.1		400
1989	CM1		1989	02	07.58889	10	13	31.53	+18	32	45.5		400
1989	CM1		1989	02	12.63824	10	08	35.56	+18	53	10.9	15.5	400
1989	CM1		1989	02	12.65074	10	08	34.78	+18	53	13.7		400
1989	CM1		1989	02	12.66671	10	08	33.78	+18	53	17.6		400
1989	CN1		1989	02	12.63824	10	03	38.48	+18	24	41.8	16.0	400
1989	CN1		1989	02	12.65074	10	03	37.80	+18	24	46.3		400
1989	CN1		1989	02	12.66671	10	03	36.69	+18	24	47.7		400
1989	CO1		1989	02	07.60903	10	19	37.52	+17	06	47.0	16.5	400
1989	CO1		1989	02	07.62500	10	19	36.77	+17	06	50.8		400
1989	CO1		1989	02	07.63750	10	19	35.88	+17	06	56.6		400
1989	CO1	*	1989	02	12.68963	10	15	12.47	+17	33	12.1	16.5	400
1989	CO1		1989	02	12.70491	10	15	11.54	+17	33	19.4		400
1989	CV1		1989	02	12.68963	10	14	11.10	+19	09	26.1	16.5	400
1989	CV1		1989	02	12.70491	10	14	10.16	+19	09	33.9		400
1989	CV1		1989	02	12.71741	10	14	09.28	+19	09	39.8		400
111			1988	12	11.49062	04	42	16.40	+28	42	05.9	12.0	400
111			1988	12	11.50799	04	42	15.40	+28	42	02.1		400
111			1988	12	11.52257	04	42	14.41	+28	41	58.2		400
212			1988	12	11.49062	04	40	42.31	+27	53	36.7	13.0	400
212			1988	12	11.50799	04	40	41.50	+27	53	35.8		400
212			1988	12	11.52257	04	40	40.91	+27	53	29.0		400
555			1988	12	16.58264	04	54	56.68	+19	19	58.3	14	400
555			1988	12	16.59236	04	54	56.13	+19	19	57.8		400
730			1989	02	07.56528	09	22	23.14	+21	02	52.3	16	400
730			1989	02	07.58819	09	22	21.40	+21	02	59.7		400
730			1989	02	07.60764	09	22	20.10	+21	03	10.4		400
745			1989	02	07.60903	10	18	46.01	+17	58	56.5	14.5	400
745			1989	02	07.62500	10	18	45.32	+17	59	03.8		400
745			1989	02	07.63750	10	18	44.70	+17	59	09.6		400
760			1989	02	07.51701	08	36	53.69	+26	13	41.9	12.0	400
760			1989	02	07.52882	08	36	53.02	+26	13	41.0		400
760			1989	02	07.54965	08	36	51.72	+26	13	37.8		400
897			1988	12	11.60000	05	11	03.04	+22	23	47.5	13.5	400
897			1988	12	11.61458	05	11	02.12	+22	23	41.7		400
1157			1989	01	29.42083	07	26	49.42	+30	36	41.4	15.0	400
1157			1989	01	29.43368	07	26	48.83	+30	36	39.6		400
1157			1989	01	29.44444	07	26	48.34	+30	36	40.0		400
1157			1989	01	30.48194	07	25	57.53	+30	35	52.1	15.0	400
1157			1989	01	30.49653	07	25	56.80	+30	35	52.1		400
1305			1989	01	13.55833	08	19	00.02	+22	32	25.9	15	400
1305			1989	01	13.57917	08	18	59.00	+22	32	31.7		400
1305			1989	01	13.59444	08	18	58.07	+22	32	34.3		400
1305			1989	01	15.65347	08	17	10.67	+22	39	28.2	14.5	400
1305			1989	01	15.66736	08	17	09.92	+22	39	30.2		400
1305			1989	01	15.68264	08	17	09.08	+22	39	33.0		400

1305		1989	01	29.46528	08	04	48.63	+23	21	57.9	14.5	400
1305		1989	01	29.48056	08	04	47.89	+23	22	00.8		400
1305		1989	01	29.49375	08	04	47.10	+23	22	02.9		400
1305		1989	02	23.45530	07	47	16.17	+24	05	18.7	14.5	400
1305		1989	02	23.47127	07	47	15.75	+24	05	21.0		400
1305		1989	02	23.48134	07	47	15.36	+24	05	20.6		400
1471		1989	01	29.42083	07	27	34.55	+31	23	36.9	14.0	400
1471		1989	01	29.43368	07	27	33.65	+31	23	33.3		400
1471		1989	01	29.44444	07	27	33.01	+31	23	30.1		400
1471		1989	01	30.48194	07	26	31.66	+31	18	19.1	14.0	400
1471		1989	01	30.49653	07	26	30.75	+31	18	14.8		400
1770		1989	01	29.42083	07	28	16.40	+30	46	56.4	15.5	400
1770		1989	01	29.43368	07	28	15.59	+30	46	56.0		400
1770		1989	01	29.44444	07	28	14.90	+30	46	58.5		400
1770		1989	01	30.48194	07	27	14.96	+30	46	54.0	15.5	400
1770		1989	01	30.49653	07	27	14.23	+30	46	54.3		400
2076		1989	01	04.61111	07	54	46.64	+26	44	43.6	16.5	400
2076		1989	01	04.62639	07	54	45.42	+26	44	46.2		400
2076		1989	01	04.63958	07	54	44.68	+26	44	46.5		400
3221		1989	02	03.51601	08	16	11.68	+24	15	02.0	16.5	400
3221		1989	02	03.53128	08	16	10.96	+24	15	04.9		400
3702		1989	02	23.45530	07	47	23.06	+24	29	13.1	15.5	400
3702		1989	02	23.47127	07	47	22.65	+24	29	19.9		400
3702		1989	02	23.48134	07	47	22.41	+24	29	21.6		400
3738		1989	01	15.69722	07	48	01.04	+22	57	13.1	16.5	400
3738		1989	01	15.71458	07	47	59.68	+22	57	18.1		400
3738		1989	01	15.72778	07	47	58.71	+22	57	18.7		400

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

1989 AB1		1989	02	02.57187	05	52	34.44	+23	46	31.6	18.0	402
1989 AB1		1989	02	05.44653	05	52	08.10	+23	46	44.8	18.0	402
1989 AF1		1989	02	05.46424	06	40	58.80	+21	57	58.3	17.5	402
1989 AF1		1989	02	05.49549	06	40	57.90	+21	58	03.7	17.5	402
1989 DC	*	1989	02	27.57674	10	49	34.82	+18	19	21.8	16.5	402
1989 DC		1989	02	27.60388	10	49	32.90	+18	19	27.4	16.5	402
1989 DC		1989	03	01.52049	10	47	28.99	+18	25	34.8	16.5	402
1989 DC		1989	03	02.55037	10	46	21.97	+18	28	40.6	17.0	402
1989 DC		1989	03	02.55731	10	46	21.58	+18	28	42.9	17.0	402
1989 DC		1989	03	02.58862	10	46	19.49	+18	28	46.5	17.0	402
1989 EA	*	1989	03	01.63264	10	54	45.91	+19	03	56.6	17.5	402
1989 EA		1989	03	01.63958	10	54	45.52	+19	04	02.1	17.5	402
1989 EA		1989	03	02.52607	10	53	52.94	+19	09	08.0	17.5	402
1989 EA		1989	03	02.57537	10	53	49.82	+19	09	25.8	17.5	402
3220		1989	02	14.72292	11	01	54.73	+16	13	48.9	16.0	402
3220		1989	02	14.74375	11	01	53.73	+16	13	56.5	16.0	402
3220		1989	02	26.59626	10	48	46.57	+17	09	41.9	15.5	402
3220		1989	02	26.61536	10	48	45.21	+17	09	47.1	15.5	402

403 Kani
T. Furuta, Mitsuike 17-2, Kakiya-Cho, Tokai, Aichi-Ken 477, Japan
Observers Y. Mizuno, M. Ogawa
Measurer T. Furuta

1989 AC		1989	01	12.50402	04	48	50.30	+21	27	59.5		403
1989 AC		1989	01	12.51493	04	48	54.80	+21	28	12.3		403

413 Siding Spring
R. H. McNaught, Siding Spring Observatory, Coonabarabran, N.S.W. 2357, Australia
Observers M. Hartley, M. R. S. Hawkins, P. McKenzie, R. H. McNaught, Q. A. Parker, K. S. Russell, J. D. Waldron, F. G. Watson
Measurer R. H. McNaught
1.2-m Schmidt

1949	PV		1988	12	29.62380	08	55	21.28	+15	45	55.2	17	413
1949	PV		1989	01	04.62750	08	50	58.55	+16	13	22.9		413
1949	PV		1989	01	10.61840	08	45	45.93	+16	44	32.3		413
1949	PV		1989	01	10.67396	08	45	42.90	+16	44	47.7		413
1950	JB		1989	01	10.61840	09	04	25.15	+19	57	57.2	16	413
1950	JB		1989	01	10.67396	09	04	22.72	+19	58	28.3		413
1950	JB		1989	01	12.54958	09	02	58.74	+20	16	17.0		413
1950	JB		1989	01	12.63292	09	02	55.41	+20	17	07.5		413
1953	UD		1989	01	11.61878	08	50	12.23	-02	11	27.4		413
1953	UD		1989	01	11.67434	08	50	09.50	-02	11	25.1		413
1975	LY		1975	06	01.55494	16	16	13.34	-41	03	17.4	17	413
1975	LY		1975	06	01.57814	16	16	11.73	-41	03	08.4		413
1975	LY		1975	06	03.51900	16	14	02.46	-40	51	02.2		413
1975	LY		1975	06	03.54678	16	14	00.58	-40	50	51.8		413
1975	LD1	*	1975	06	01.55494	16	13	29.68	-40	01	37.1	18.5 F	413
1975	LD1		1975	06	01.57814	16	13	27.87	-40	01	40.6	F	413
1975	LD1		1975	06	03.51900	16	10	58.03	-40	06	42.8		413
1975	LD1		1975	06	03.54678	16	10	55.98	-40	06	47.2	p	413
1975	LE1	*	1975	06	01.55494	16	15	48.10	-41	52	02.8	18	413
1975	LE1		1975	06	01.57814	16	15	46.30	-41	52	02.1		413
1975	LE1		1975	06	03.51900	16	13	16.21	-41	51	05.4		413
1975	LE1		1975	06	03.54678	16	13	14.02	-41	51	03.9		413
1975	LF1	*	1975	06	01.55494	16	15	49.78	-42	39	05.7	17.5	413
1975	LF1		1975	06	01.57814	16	15	48.23	-42	39	08.0		413
1975	LF1		1975	06	03.51900	16	13	35.16	-42	42	08.0		413
1975	LF1		1975	06	03.54678	16	13	33.26	-42	42	10.4		413
1975	LG1	*	1975	06	01.55494	16	15	50.86	-41	17	44.3	18	413
1975	LG1		1975	06	01.57814	16	15	49.46	-41	17	39.2		413
1975	LG1		1975	06	03.51900	16	13	57.40	-41	10	49.6		413
1975	LG1		1975	06	03.54678	16	13	55.83	-41	10	43.7		413
1975	LH1	*	1975	06	01.55494	16	17	44.52	-38	02	25.8	18	413
1975	LH1		1975	06	01.57814	16	17	43.16	-38	02	24.5		413
1975	LH1		1975	06	03.51900	16	15	49.54	-38	00	52.5		413
1975	LH1		1975	06	03.54678	16	15	47.99	-38	00	50.7		413
1975	LJ1	*	1975	06	01.55494	16	18	49.91	-40	21	31.3	17.5	413
1975	LJ1		1975	06	01.57814	16	18	48.60	-40	21	20.7		413
1975	LJ1		1975	06	03.51900	16	17	06.55	-40	06	20.2		413
1975	LJ1		1975	06	03.54678	16	17	05.07	-40	06	07.2		413
1975	LK1	*	1975	06	01.55494	16	20	48.83	-38	38	11.3	17.5	413
1975	LK1		1975	06	01.57814	16	20	47.15	-38	38	12.1		413
1975	LK1		1975	06	03.51900	16	18	26.36	-38	39	18.2		413
1975	LK1		1975	06	03.54678	16	18	24.35	-38	39	18.6		413
1977	BY		1979	11	10.5125	00	42	53.56	-18	32	57.3	T	413
1977	BY		1983	11	05.66078	05	06	35.94	-17	51	10.4	E	413
1977	BY		1983	11	05.70244	05	06	34.87	-17	51	48.1	E	413
1978	VL7		1989	01	04.62750	08	45	37.40	+14	35	11.1	17	413
1978	VL7		1989	01	04.67958	08	45	34.68	+14	35	15.3		413
1978	VL7		1989	01	10.61840	08	40	18.89	+14	47	58.7		413
1978	VL7		1989	01	10.67396	08	40	15.56	+14	48	04.2		413
1979	FL4	*	1979	03	26.75933	16	19	01.15	-18	35	56.3	19 p	413
1979	VA		1979	08	11.39011	16	35	20.97	-17	59	49.2		413
1979	VA		1979	08	11.43525	16	35	19.99	-17	59	34.6		413

1979	VA		1979	08	14.38065	16	34	43.66	-17	38	23.7		413
1979	VA		1979	08	14.42579	16	34	42.95	-17	38	07.7		413
1979	VA		1989	02	06.52840	09	08	00.47	+13	18	14.5	20	413
1979	VA		1989	02	06.58049	09	07	56.72	+13	18	28.7		413
1979	XA2	*	1979	12	10.50987	04	05	16.69	-23	20	26.8	17	413
1979	XA2		1979	12	10.55501	04	05	14.30	-23	19	58.7		413
1981	DE2		1986	03	16.46684	10	41	42.52	+01	50	51.4		413
1981	DE2		1986	03	16.52934	10	41	39.36	+01	51	01.8		413
1981	EP15		1986	10	04.46763	22	28	33.57	-01	18	18.6	18.5 F	413
1981	EP15		1986	10	04.49888	22	28	32.68	-01	18	24.7	F	413
1981	EP15		1988	02	18.61153	11	19	08.08	-02	20	54.0	19 V	413
1981	EP15		1988	02	18.68097	11	19	04.19	-02	20	39.4	V	413
1981	EK25		1985	03	03.73203	13	50	51.52	-14	10	45.3	19	413
1981	EK25		1985	06	08.42630	12	57	21.60	-09	11	17.0	18	413
1981	EX28		1982	11	04.43089	22	40	09.89	+00	10	44.8	19	413
1981	EX28		1988	02	20.60191	10	40	55.66	+00	55	10.7	18.5 F	413
1981	EX28		1988	02	20.66788	10	40	51.83	+00	55	20.3	F	413
1981	EX28		1988	03	13.50167	10	18	49.18	+02	13	41.5	18.5 F	413
1981	EX28		1988	03	13.58500	10	18	44.33	+02	14	02.6	F	413
1981	EK34		1982	07	27.78125	00	08	36.56	+00	45	49.5		413
1981	EK34		1982	11	05.43162	23	14	16.85	-04	34	41.6	19	413
1981	EX38		1985	03	23.56515	12	07	47.00	-13	30	25.9	18.5 F	413
1981	EX38		1985	03	23.62765	12	07	43.58	-13	30	06.9	F	413
1981	ER40		1985	06	08.42630	13	09	34.37	-09	33	32.0	20 V	413
1981	JE3		1989	01	04.62750	08	50	52.50	+15	30	37.3	17	413
1981	JE3		1989	01	04.67958	08	50	50.31	+15	30	44.7		413
1981	JE3		1989	01	10.61840	08	46	27.61	+15	46	14.7		413
1981	JE3		1989	01	10.67396	08	46	24.78	+15	46	23.4		413
1981	RD2		1989	01	12.65241	08	44	16.64	+07	53	37.4		413
1981	RD2		1989	01	12.70796	08	44	14.34	+07	53	37.1		413
1981	UE10		1989	01	04.62750	08	57	30.77	+16	17	08.8	17	413
1981	UE10		1989	01	04.67958	08	57	28.92	+16	17	16.3		413
1981	UE10		1989	01	10.61840	08	53	37.22	+16	34	43.5		413
1981	UE10		1989	01	10.67396	08	53	34.97	+16	34	52.1		413
1982	OE1	*	1982	07	27.78125	00	03	31.70	+00	29	02.6		413
1982	ST6		1989	01	04.62750	08	45	35.24	+19	04	03.2	17	413
1982	ST6		1989	01	04.67958	08	45	33.07	+19	04	10.4		413
1982	ST6		1989	01	10.61840	08	40	59.76	+19	20	35.9		413
1982	ST6		1989	01	10.67396	08	40	57.30	+19	20	42.3		413
1982	TA		1982	07	20.78194	01	00	34.53	+00	20	24.4	19	413
1982	TA		1982	07	20.82361	01	00	35.71	+00	20	31.6	p	413
1982	TA		1982	10	22.48711	23	01	41.44	-01	50	38.9		413
1982	TA		1982	10	22.49058	23	01	40.45	-01	50	39.9		413
1982	UQ3		1982	07	27.76042	00	07	21.47	+00	02	22.9	18	413
1982	UQ3		1982	07	27.80208	00	07	22.40	+00	02	31.0		413
1982	UQ3		1982	11	05.41079	23	29	46.82	-02	57	08.3		413
1982	UQ3		1982	11	05.45245	23	29	47.15	-02	57	03.7		413
1982	UQ3		1988	04	20.49211	12	02	01.18	-00	22	41.3	18 F	413
1982	UQ3		1988	04	20.55808	12	01	58.61	-00	22	26.1	F	413
1982	UF4		1989	01	10.61840	09	02	56.87	+18	15	31.8	16.5	413
1982	UF4		1989	01	10.67396	09	02	54.42	+18	15	42.2		413
1982	UF4		1989	01	12.54958	09	01	29.54	+18	21	23.6	F	413
1982	UF4		1989	01	12.63292	09	01	25.78	+18	21	39.8	F	413
1982	UF4		1989	01	13.64171	09	00	38.24	+18	24	48.8		413
1982	UF4		1989	01	13.73546	09	00	33.74	+18	25	08.0		413
1982	UF4		1989	01	15.59470	08	59	03.88	+18	31	03.4		413
1982	VK12		1987	10	22.45579	00	01	02.65	-03	37	54.4		413
1982	VK12		1987	10	22.52176	00	01	00.57	-03	38	04.2		413
1983	AG2		1985	09	08.48878	21	50	34.93	-09	57	11.9	17	413

1983	AG2		1985	09	08.54087	21	50	30.54	-09	57	00.3		413
1984	KH1	*	1984	05	22.59804	17	22	02.50	-18	05	17.5	16.5	413
1984	KH1		1984	05	22.66054	17	21	59.92	-18	05	27.2		413
1984	KH1		1984	05	22.67458	17	21	59.12	-18	05	30.5		413
1984	MW	*	1984	06	23.38740	13	34	16.20	-29	44	38.7	18	413
1984	MW		1984	06	23.44990	13	34	16.92	-29	44	24.4		413
1984	UY4	*	1984	10	16.47646	00	40	08.00	+07	58	26.6	16	413
1984	UY4		1984	10	16.51812	00	40	05.83	+07	58	12.4		413
1985	DO2		1985	02	26.53021	10	43	39.94	+04	05	44.6		413
1985	DO2		1985	02	26.61354	10	43	34.24	+04	07	05.2	p	413
1985	DO2		1985	02	27.60435	10	42	26.41	+04	23	45.3		413
1985	DO2		1985	02	27.67380	10	42	21.68	+04	24	50.3		413
1985	RB1		1978	03	14.71319	15	11	02.54	-38	36	41.5	17	413
1985	RB1		1978	03	14.77569	15	11	03.98	-38	37	07.6		413
1985	RS6	*	1985	09	08.55873	22	50	50.80	-14	46	38.8	17	413
1985	RS6		1985	09	08.61081	22	51	03.23	-14	49	58.8		413
1985	WA		1985	10	14.48711	00	20	13.00	-27	52	24.3		413
1985	WA		1985	10	14.52877	00	20	15.55	-27	50	19.0		413
1986	VD		1979	06	26.53576	16	17	33.55	-22	37	44.2		413
1986	VD		1979	06	26.57743	16	17	32.07	-22	37	33.7		413
1986	VD		1979	06	29.52552	16	15	50.83	-22	25	22.0		413
1986	VD		1979	06	29.56719	16	15	49.59	-22	25	10.8		413
1986	VD		1979	08	14.40422	16	14	17.71	-20	34	54.7	18 G	413
1986	VD		1979	08	15.37433	16	14	45.36	-20	34	16.3	17.5	413
1986	VD		1979	08	15.41947	16	14	46.47	-20	34	15.9		413
1987	QC		1989	01	04.62750	08	52	40.94	+15	20	10.0	17	413
1987	QC		1989	01	04.67958	08	52	38.58	+15	20	17.5		413
1987	QC		1989	01	10.61840	08	47	51.93	+15	35	49.9		413
1987	QC		1989	01	10.67396	08	47	48.96	+15	35	56.7		413
1987	SD4		1989	01	04.62750	08	55	17.80	+15	05	42.3	17.5	413
1987	SD4		1989	01	04.67958	08	55	15.35	+15	05	43.7		413
1987	SD4		1989	01	10.61840	08	50	01.80	+15	12	22.3		413
1987	SD4		1989	01	10.67396	08	49	58.47	+15	12	26.0		413
1987	UM4	*	1987	10	22.45579	00	01	28.89	-03	03	47.4	18	413
1987	UM4		1987	10	22.52176	00	01	26.96	-03	05	01.9		413
1988	BH5		1984	04	22.48118	11	41	37.89	-17	48	52.5	17.5	413
1988	BH5		1984	04	22.52285	11	41	36.99	-17	48	31.7		413
1988	BH5		1984	05	31.37125	11	50	04.49	-13	24	43.4	18	413
1988	BH5		1984	05	31.41292	11	50	06.09	-13	24	34.7		413
1988	BK5		1977	04	11.53442	12	45	24.53	-31	54	22.8	18	413
1988	BK5		1977	04	11.58998	12	45	21.73	-31	54	10.3		413
1988	BK5		1985	07	24.65400	22	33	29.53	+02	01	21.0	18	413
1988	BK5		1985	07	24.70609	22	33	27.85	+02	01	30.9		413
1988	BK5		1985	07	24.72516	22	33	27.24	+02	01	33.2		413
1988	BK5		1985	07	24.76683	22	33	26.23	+02	01	42.3		413
1988	BM5		1981	07	10.75105	23	10	55.82	+06	08	31.8		413
1988	BM5		1985	07	24.65400	22	28	06.43	+02	07	53.4		413
1988	BM5		1985	07	24.70609	22	28	04.48	+02	08	09.8		413
1988	BM5		1985	07	24.72516	22	28	03.67	+02	08	15.3		413
1988	BM5		1985	07	24.76683	22	28	02.40	+02	08	28.0		413
1988	BM5		1985	09	06.50255	21	48	58.69	+02	50	11.8	18	413
1988	BM5		1985	09	06.56157	21	48	55.65	+02	50	02.7		413
1988	DO		1978	07	06.43726	15	09	17.67	-27	12	49.4	19	413
1988	DO		1978	07	06.48587	15	09	17.94	-27	12	35.9	p	413
1988	DG5	*	1988	02	18.61153	11	16	28.53	-00	20	50.1	18	413
1988	DG5		1988	02	18.68097	11	16	24.75	-00	20	28.5		413
1988	DH5	*	1988	02	18.61153	11	16	33.36	+01	10	22.5	17.5	413
1988	DH5		1988	02	18.68097	11	16	30.66	+01	11	06.7		413
1988	DJ5	*	1988	02	18.61153	11	18	08.22	+01	53	42.8	18	413

1988	DJ5		1988	02	18.68097	11	18	05.13	+01	54	01.1		413
1988	DK5	*	1988	02	20.60191	10	37	47.78	+01	36	37.9	16	413
1988	DK5		1988	02	20.66788	10	37	43.52	+01	36	48.0		413
1988	FK3	*	1988	03	16.49486	10	11	05.11	-14	14	52.9	17.5	413
1988	FK3		1988	03	16.56431	10	11	02.17	-14	14	37.8	p	413
1988	GQ1	*	1988	04	12.54375	12	33	36.24	-12	46	40.8	18	413
1988	GQ1		1988	04	12.61319	12	33	32.62	-12	46	08.2		413
1988	GR1	*	1988	04	12.54375	12	35	47.74	-11	49	44.6	17	413
1988	GR1		1988	04	12.61319	12	35	44.87	-11	49	00.9		413
1988	GS1	*	1988	04	12.54375	12	45	35.24	-13	20	18.3	18	413
1988	GS1		1988	04	12.61319	12	45	31.74	-13	20	02.4		413
1988	HN	*	1988	04	19.47545	11	21	38.84	-15	49	43.0	16	413
1988	HN		1988	04	19.54490	11	21	36.74	-15	49	11.1	p	413
1988	HO	*	1988	04	19.47545	11	25	21.76	-15	14	45.9	17	413
1988	HO		1988	04	19.54490	11	25	20.01	-15	14	17.2	p	413
1988	HP	*	1988	04	19.47545	11	29	42.22	-13	32	54.7	17	413
1988	HP		1988	04	19.54490	11	29	40.45	-13	32	32.9		413
1988	HQ	*	1988	04	20.49211	11	48	09.24	-01	20	53.6	17.5	413
1988	HQ		1988	04	20.55808	11	48	06.65	-01	20	35.8		413
1988	JG1	*	1988	05	11.37103	10	27	27.75	+04	48	59.5	18	413
1988	JG1		1988	05	11.45436	10	27	31.15	+04	48	57.4		413
1988	JH1	*	1988	05	11.37103	10	28	49.45	+04	42	20.0	17.5	413
1988	JH1		1988	05	11.45436	10	28	53.06	+04	42	00.9		413
1988	JJ1	*	1988	05	11.37103	10	30	43.67	+04	05	33.8	18.5	413
1988	JJ1		1988	05	11.45436	10	30	45.65	+04	05	39.1		413
1988	JK1	*	1988	05	11.37103	10	32	03.20	+04	08	12.4	18	413
1988	JK1		1988	05	11.45436	10	32	05.30	+04	08	08.0		413
1988	JL1	*	1988	05	11.37103	10	33	30.94	+03	58	01.2	18 F	413
1988	JL1		1988	05	11.45436	10	33	35.16	+03	58	10.0	V	413
1988	JM1	*	1988	05	11.37103	10	33	46.75	+06	33	31.8	18.5	413
1988	JM1		1988	05	11.45436	10	33	48.32	+06	33	21.0		413
1988	JN1	*	1988	05	11.37103	10	34	31.65	+06	16	04.8	18	413
1988	JN1		1988	05	11.45436	10	34	34.36	+06	15	56.3		413
1988	JO1	*	1988	05	11.37103	10	35	45.18	+02	39	26.9	17.5	413
1988	JO1		1988	05	11.45436	10	35	47.63	+02	39	41.0	I	413
1988	JP1	*	1988	05	11.37103	10	36	31.72	+06	05	23.3	18	413
1988	JP1		1988	05	11.45436	10	36	33.95	+06	06	21.6		413
1988	JQ1	*	1988	05	11.37103	10	36	42.06	+06	46	17.6	18.5 F	413
1988	JQ1		1988	05	11.45436	10	36	45.62	+06	45	58.5	F	413
1988	JR1	*	1988	05	11.37103	10	39	11.95	+06	24	40.4	18	413
1988	JR1		1988	05	11.45436	10	39	15.82	+06	24	18.8		413
1988	JS1	*	1988	05	11.37103	10	39	35.79	+05	31	40.6	18	413
1988	JS1		1988	05	11.45436	10	39	38.22	+05	31	34.1		413
1988	JT1	*	1988	05	11.37103	10	39	43.74	+05	49	12.6	18	413
1988	JT1		1988	05	11.45436	10	39	46.68	+05	48	54.6		413
1988	JU1	*	1988	05	11.37103	10	40	49.86	+02	20	58.9	17.5	413
1988	JU1		1988	05	11.45436	10	40	52.68	+02	20	55.8		413
1988	JV1	*	1988	05	11.37103	10	42	41.38	+06	21	08.0	17.5	413
1988	JV1		1988	05	11.45436	10	42	43.44	+06	20	46.4		413
1988	JW1	*	1988	05	11.37103	10	44	56.03	+04	58	21.4	18	413
1988	JW1		1988	05	11.45436	10	44	57.62	+04	58	08.3		413
1988	JX1	*	1988	05	11.37103	10	47	21.91	+07	00	41.2	18	413
1988	JX1		1988	05	11.45436	10	47	24.47	+07	00	17.8		413
1988	JY1	*	1988	05	11.37103	10	50	46.94	+03	03	55.3	17.5	413
1988	JY1		1988	05	11.45436	10	50	47.94	+03	04	12.6		413
1988	NZ	*	1988	07	11.36240	10	55	45.73	-04	12	59.9	18	413
1988	NA1	*	1988	07	11.36240	11	03	19.67	-03	05	01.5	18	413
1988	PL		1988	10	11.54684	21	47	52.24	-11	13	46.1	V	413
1988	PJ1		1984	06	08.78811	23	41	55.41	+02	18	04.3	19	413

1988	PJ1		1984	06	08.80895	23	41	56.67	+02	18	20.8		413
1988	PY2	*	1988	08	04.36819	15	39	33.24	-13	30	51.0	17.5	413
1988	PY2		1988	08	04.42028	15	39	34.96	-13	30	55.9		413
1988	PZ2	*	1988	08	04.36819	15	39	59.89	-12	21	11.2	17.5	413
1988	PZ2		1988	08	04.42028	15	40	01.33	-12	21	13.3		413
1988	PA3	*	1988	08	04.36819	15	40	11.57	-12	16	41.7	17.5	413
1988	PA3		1988	08	04.42028	15	40	13.06	-12	17	10.5		413
1988	PB3	*	1988	08	04.36819	15	40	27.99	-15	17	18.3	18.0	413
1988	PB3		1988	08	04.42028	15	40	30.43	-15	17	27.2		413
1988	PC3	*	1988	08	04.36819	15	41	45.46	-15	36	44.8	17.5	413
1988	PC3		1988	08	04.42028	15	41	46.46	-15	36	48.0		413
1988	PD3	*	1988	08	04.36819	15	45	15.27	-15	32	06.7	18.0	413
1988	PD3		1988	08	04.42028	15	45	16.18	-15	32	21.2		413
1988	PE3	*	1988	08	04.36819	15	46	05.93	-15	17	02.4	17.5	413
1988	PE3		1988	08	04.42028	15	46	07.72	-15	17	13.9		413
1988	PF3	*	1988	08	04.36819	15	46	52.79	-14	34	27.3	18.0	413
1988	PF3		1988	08	04.42028	15	46	54.09	-14	34	40.4		413
1988	PG3	*	1988	08	04.36819	15	46	57.27	-13	09	22.4	17.5	413
1988	PG3		1988	08	04.42028	15	46	58.58	-13	09	34.1		413
1988	PH3	*	1988	08	04.36819	15	47	04.36	-14	34	03.5	18.5	413
1988	PH3		1988	08	04.42028	15	47	04.99	-14	33	58.4		413
1988	PJ3	*	1988	08	04.36819	15	48	09.29	-13	36	04.4	17.0	413
1988	PJ3		1988	08	04.42028	15	48	11.51	-13	36	16.0		413
1988	PK3	*	1988	08	04.36819	15	50	17.33	-14	32	14.1	18.0	413
1988	PK3		1988	08	04.42028	15	50	18.84	-14	32	26.2		413
1988	PL3	*	1988	08	11.59492	22	09	30.52	-02	50	36.6	18	413
1988	PL3		1988	08	11.65395	22	09	26.94	-02	50	20.9		413
1988	PM3	*	1988	08	11.59492	22	10	41.00	-05	07	44.6	18	413
1988	PM3		1988	08	11.65395	22	10	37.78	-05	08	03.2		413
1988	PN3	*	1988	08	11.59492	22	14	32.00	-04	20	59.1	18.5	413
1988	PN3		1988	08	11.65395	22	14	29.16	-04	20	39.4		413
1988	PO3	*	1988	08	11.59492	22	17	18.58	-05	24	24.0	18	413
1988	PO3		1988	08	11.65395	22	17	16.30	-05	24	10.0		413
1988	PP3	*	1988	08	11.59492	22	19	33.58	-04	28	51.7	18	413
1988	PP3		1988	08	11.65395	22	19	30.92	-04	29	07.9		413
1988	PQ3	*	1988	08	11.59492	22	25	47.35	-05	55	50.5	18	413
1988	PQ3		1988	08	11.65395	22	25	43.76	-05	55	39.8		413
1988	PR3	*	1988	08	11.59492	22	32	31.14	-05	09	44.2	17.5	413
1988	PR3		1988	08	11.65395	22	32	28.50	-05	09	33.7		413
1988	PS3	*	1988	08	10.61566	22	33	51.14	-03	02	20.6	18.5	413
1988	PS3		1988	08	10.67122	22	33	48.22	-03	02	24.4	F	413
1988	PT3	*	1988	08	11.59492	22	22	53.83	-02	58	42.0	17.5	413
1988	PT3		1988	08	11.65395	22	22	50.63	-02	58	44.0		413
1988	PU3	*	1988	08	13.65556	22	11	00.61	-09	12	56.2	17 1	413
1988	QL1	*	1988	08	19.66655	22	15	16.68	-03	19	24.1	18 1	413
1988	QM1	*	1988	08	20.72571	22	28	55.76	-02	26	43.0	17 1	413
1988	QM1		1988	08	20.73612	22	28	55.36	-02	26	48.1	1	413
1989	AC		1989	02	01.47718	06	16	52.89	+23	14	45.3	p	413
1989	AC		1989	02	01.48032	06	16	53.38	+23	14	44.8		413
1989	AC		1989	02	01.48316	06	16	53.82	+23	14	44.9		413
1989	AJ1		1988	12	29.62380	08	49	43.77	+20	15	51.0		413
1989	AJ1		1988	12	29.70713	08	49	41.24	+20	16	08.3		413
1989	AJ1		1989	01	04.62750	08	46	00.48	+20	38	13.3	17	413
1989	AJ1		1989	01	04.67958	08	45	58.44	+20	38	24.5		413
1989	AP2	*	1989	01	11.61878	08	32	06.08	+02	25	31.1	17.5V	413
1989	AP2		1989	01	11.67434	08	32	02.83	+02	25	10.5		413
1989	AP2		1989	01	12.65241	08	31	06.41	+02	19	11.2		413
1989	AP2		1989	01	12.70796	08	31	03.10	+02	18	51.2		413
1989	AQ2	*	1989	01	11.61878	08	32	54.32	+03	02	53.6	17 V	413

1989	AQ2		1989	01	11.67434	08	32	51.50	+03	03	08.2		p 413
1989	AQ2		1989	01	12.65241	08	32	02.34	+03	07	24.5		413
1989	AQ2		1989	01	12.70796	08	31	59.53	+03	07	39.3		413
1989	AR2	*	1989	01	11.61878	08	33	36.78	+02	50	44.0	18.5V	F 413
1989	AR2		1989	01	11.67434	08	33	34.46	+02	51	04.3		V 413
1989	AR2		1989	01	12.65241	08	32	50.39	+02	57	25.9		V 413
1989	AR2		1989	01	12.70796	08	32	47.71	+02	57	48.9		V 413
1989	AS2	*	1989	01	11.61878	08	39	34.14	+01	53	23.1	18 V	413
1989	AS2		1989	01	11.67434	08	39	31.02	+01	53	14.7		p 413
1989	AS2		1989	01	12.65241	08	38	35.07	+01	50	39.2		F 413
1989	AS2		1989	01	12.70796	08	38	32.21	+01	50	32.1		I 413
1989	AT2	*	1989	01	11.61878	08	39	48.72	+01	54	48.8	18.5V	413
1989	AT2		1989	01	11.67434	08	39	46.32	+01	54	54.6		p 413
1989	AT2		1989	01	12.65241	08	39	01.35	+01	56	41.1		V 413
1989	AT2		1989	01	12.70796	08	38	59.10	+01	56	47.8		V 413
1989	AU2	*	1989	01	11.61878	08	41	53.22	+02	31	22.4	18.5V	F 413
1989	AU2		1989	01	11.67434	08	41	50.39	+02	31	14.7		V 413
1989	AU2		1989	01	12.65241	08	40	57.62	+02	28	47.6		V 413
1989	AU2		1989	01	12.70796	08	40	54.38	+02	28	41.2		V 413
1989	AW2		1988	12	29.62380	08	44	31.58	+19	35	13.2		413
1989	AW2		1988	12	29.70713	08	44	28.69	+19	35	17.4		413
1989	AW2	*	1989	01	04.62750	08	40	36.58	+19	42	47.3	17 V	413
1989	AW2		1989	01	04.67958	08	40	34.31	+19	42	50.6		413
1989	AX2		1988	12	29.62380	08	46	38.71	+14	40	21.9		413
1989	AX2		1988	12	29.70713	08	46	35.45	+14	40	11.7		413
1989	AX2	*	1989	01	04.62750	08	42	30.24	+14	31	38.2	15.5V	413
1989	AX2		1989	01	04.67958	08	42	27.66	+14	31	33.6		413
1989	AX2		1989	01	06.62273	08	40	52.61	+14	29	39.8		413
1989	AX2		1989	01	06.69912	08	40	48.55	+14	29	33.5		413
1989	AY2		1988	12	29.62380	08	50	07.84	+16	44	03.4		413
1989	AY2		1988	12	29.70713	08	50	04.64	+16	44	09.0		413
1989	AY2	*	1989	01	04.62750	08	46	03.18	+16	53	59.5	16.5V	413
1989	AY2		1989	01	04.67958	08	46	00.87	+16	54	03.3		413
1989	AY2		1989	01	10.61840	08	41	17.72	+17	06	18.2		413
1989	AY2		1989	01	10.67396	08	41	14.80	+17	06	24.5		413
1989	AZ2	*	1989	01	04.62750	08	46	56.88	+15	36	48.1	17 V	413
1989	AZ2		1989	01	04.67958	08	46	54.55	+15	36	54.8		413
1989	AZ2		1989	01	10.61840	08	42	36.76	+15	54	33.9		413
1989	AZ2		1989	01	10.67396	08	42	34.17	+15	54	41.7		413
1989	AA3		1988	12	29.62380	08	52	46.18	+18	04	49.5		F 413
1989	AA3	*	1989	01	04.62750	08	47	36.96	+18	03	26.9	17 V	413
1989	AA3		1989	01	04.67958	08	47	33.97	+18	03	25.6		413
1989	AA3		1989	01	10.61840	08	41	30.92	+18	04	17.5		413
1989	AA3		1989	01	10.67396	08	41	27.22	+18	04	17.0		413
1989	AB3	*	1989	01	04.62750	08	49	48.89	+20	03	08.4	17 V	413
1989	AB3		1989	01	04.67958	08	49	47.04	+20	03	26.4		413
1989	AB3		1989	01	10.61840	08	45	41.95	+20	43	16.8		413
1989	AB3		1989	01	10.67396	08	45	39.48	+20	43	38.4		413
1989	AC3	*	1989	01	04.62750	08	50	26.69	+17	51	15.4	17 V	413
1989	AC3		1989	01	04.67958	08	50	24.13	+17	52	08.0		413
1989	AC3		1989	01	10.61840	08	45	30.06	+19	40	09.9		413
1989	AC3		1989	01	10.67396	08	45	26.86	+19	41	11.3		413
1989	AD3		1988	12	29.62380	08	54	33.27	+17	51	39.0		413
1989	AD3		1988	12	29.70713	08	54	30.60	+17	51	47.5		413
1989	AD3	*	1989	01	04.62750	08	50	50.36	+18	04	54.4	17 V	413
1989	AD3		1989	01	04.67958	08	50	48.19	+18	05	01.4		413
1989	AD3		1989	01	10.61840	08	46	23.95	+18	20	31.5		413
1989	AD3		1989	01	10.67396	08	46	21.24	+18	20	39.1		413
1989	AD3		1989	01	12.54958	08	44	50.28	+18	25	56.8		413

```
1989 AD3    1989 01 12.63292  08 44 46.42  +18 26 06.6                    413
1989 AD3    1989 01 13.64171  08 43 55.77  +18 29 01.4                 F  413
1989 AE3    1988 12 29.62380  08 56 03.48  +17 54 57.8                 F  413
1989 AE3    1988 12 29.70713  08 56 00.83  +17 55 16.5                 F  413
1989 AE3  * 1989 01 04.62750  08 52 46.10  +18 14 56.0           17    V  413
1989 AE3    1989 01 04.67958  08 52 44.18  +18 15 05.9                    413
1989 AE3    1989 01 06.62273  08 51 30.18  +18 22 10.0                    413
1989 AE3    1989 01 06.69912  08 51 27.27  +18 22 27.1                    413
1989 AE3    1989 01 10.61840  08 48 44.26  +18 37 29.5                    413
1989 AE3    1989 01 10.67396  08 48 41.83  +18 37 41.1                    413
1989 AF3    1988 12 29.62380  08 55 48.72  +18 22 51.3                    413
1989 AF3    1988 12 29.70713  08 55 47.30  +18 23 22.9                    413
1989 AF3  * 1989 01 04.62750  08 53 43.38  +19 07 45.3           16    V  413
1989 AF3    1989 01 04.67958  08 53 41.80  +19 08 09.0                    413
1989 AF3    1989 01 06.69912  08 52 42.26  +19 24 47.6                    413
1989 AF3    1989 01 10.61840  08 50 23.55  +19 59 00.1                    413
1989 AF3    1989 01 10.67396  08 50 21.40  +19 59 26.2                    413
1989 AG3    1988 12 29.62380  08 58 16.93  +20 25 10.4                    413
1989 AG3    1988 12 29.70713  08 58 14.62  +20 25 23.3                    413
1989 AG3  * 1989 01 04.62750  08 54 40.60  +20 43 32.5         16.5V      413
1989 AG3    1989 01 04.67958  08 54 38.58  +20 43 42.6                    413
1989 AH3  * 1989 01 04.62750  08 55 33.02  +18 38 09.3           17    V  413
1989 AH3    1989 01 04.67958  08 55 31.24  +18 38 30.7                    413
1989 AH3    1989 01 10.61840  08 51 53.26  +19 23 15.2                    413
1989 AH3    1989 01 10.67396  08 51 50.91  +19 23 41.4                    413
1989 AH3    1989 01 13.64171  08 49 48.59  +19 46 52.9                 V  413
1989 AH3    1989 01 13.73546  08 49 45.22  +19 47 33.1                 V  413
1989 AJ3  * 1989 01 04.62750  08 57 14.97  +20 09 09.4           17    V  413
1989 AJ3    1989 01 04.67958  08 57 13.25  +20 09 19.8                    413
1989 AJ3    1989 01 10.61840  08 53 22.11  +20 29 44.4                    413
1989 AJ3    1989 01 10.67396  08 53 19.97  +20 29 56.1                    413
1989 AK3  * 1989 01 04.62750  08 57 46.48  +19 01 28.2           17    V  413
1989 AK3    1989 01 04.67958  08 57 44.29  +19 01 32.9                    413
1989 AK3    1989 01 10.61840  08 53 14.75  +19 10 53.3                    413
1989 AK3    1989 01 10.67396  08 53 12.17  +19 10 56.7                    413
1989 AK3    1989 01 13.64171  08 50 43.66  +19 16 03.6                 V  413
1989 AK3    1989 01 13.73546  08 50 38.81  +19 16 13.9                 V  413
1989 AK3    1989 01 15.59470  08 49 02.16  +19 19 31.5                    413
1989 AK3    1989 01 15.65845  08 48 58.85  +19 19 38.1                    413
1989 AL3    1988 12 29.62380  09 01 37.99  +15 27 25.5                    413
1989 AL3    1988 12 29.70713  09 01 35.93  +15 27 45.7                    413
1989 AL3  * 1989 01 04.62750  08 58 34.02  +15 57 43.4         16.5V      413
1989 AL3    1989 01 04.67958  08 58 32.02  +15 57 59.2                    413
1989 AL3    1989 01 10.61840  08 54 21.32  +16 33 58.2                    413
1989 AL3    1989 01 10.67396  08 54 18.63  +16 34 17.6                    413
1989 AL3    1989 01 13.64171  08 51 51.24  +16 54 03.5                    413
1989 AL3    1989 01 15.65845  08 50 04.26  +17 08 03.8                    413
1989 AM3    1988 12 29.62380  09 02 36.25  +16 51 21.2                 F  413
1989 AM3    1988 12 29.70713  09 02 33.40  +16 51 02.9                 F  413
1989 AM3  * 1989 01 04.62750  08 58 43.83  +16 32 18.9           17    V  413
1989 AM3    1989 01 04.67958  08 58 41.43  +16 32 10.0                    413
1989 AM3    1989 01 10.61840  08 53 50.86  +16 15 42.2                    413
1989 AM3    1989 01 15.59470  08 49 09.94  +16 03 24.2                 F  413
1989 AM3    1989 01 15.65845  08 49 06.02  +16 03 13.8                 F  413
1989 AN3  * 1989 01 04.62750  08 59 46.27  +17 28 41.8         16.5V      413
1989 AN3    1989 01 04.67958  08 59 44.09  +17 29 00.0                    413
1989 AN3    1989 01 10.61840  08 55 06.50  +18 08 44.0                    413
1989 AN3    1989 01 10.67396  08 55 03.50  +18 09 06.1                    413
1989 AN3    1989 01 13.64171  08 52 23.96  +18 30 14.2                 F  413
```

1989	AN3		1989	01	15.59470	08	50	32.74	+18	44	29.2		413
1989	AN3		1989	01	15.65845	08	50	29.13	+18	44	55.3		413
1989	AO3		1988	12	29.62380	09	03	58.55	+19	28	18.2		413
1989	AO3		1988	12	29.70713	09	03	55.94	+19	28	25.6		413
1989	AO3	*	1989	01	04.62750	09	00	18.66	+19	34	57.0	17 V	413
1989	AO3		1989	01	04.67958	09	00	16.65	+19	35	01.5		413
1989	AO3		1989	01	10.61840	08	55	56.29	+19	43	13.6		413
1989	AO3		1989	01	10.67396	08	55	53.76	+19	43	18.9		413
1989	AP3	*	1989	01	10.61840	08	49	16.32	+14	52	52.4	16.5V	413
1989	AP3		1989	01	10.67396	08	49	13.42	+14	53	09.0		413
1989	AP3		1989	01	12.54958	08	47	39.60	+15	03	53.2		413
1989	AP3		1989	01	12.63292	08	47	34.99	+15	04	18.9		413
1989	BY		1988	12	29.62380	09	02	46.46	+18	06	37.8	F	413
1989	BY		1988	12	29.70713	09	02	44.43	+18	07	00.2		413
1989	BY		1989	01	04.62750	08	59	53.43	+18	35	09.2	15.5	413
1989	BY		1989	01	04.67958	08	59	51.55	+18	35	24.6		413
1989	BY		1989	01	06.62273	08	58	39.67	+18	45	44.2		413
1989	BY		1989	01	06.69912	08	58	36.52	+18	46	09.9		413
1989	BY		1989	01	10.61840	08	55	49.60	+19	08	17.7		413
1989	BY		1989	01	10.67396	08	55	46.96	+19	08	36.4		413
1989	BY		1989	01	12.63292	08	54	13.85	+19	20	12.2		413
1989	BY		1989	01	13.64171	08	53	23.55	+19	26	14.8		413
1989	BY		1989	01	13.73546	08	53	18.70	+19	26	48.4		413
1989	BY		1989	01	15.59470	08	51	42.58	+19	38	09.5		413
1989	CK		1989	01	04.62750	08	54	32.94	+14	41	52.0	16.5	413
1989	CK		1989	01	04.67958	08	54	30.64	+14	42	02.7		413
1989	CK		1989	01	06.69912	08	53	02.86	+14	50	00.0	V	413
1989	CK		1989	01	10.61840	08	49	53.77	+15	07	03.0		413
1989	CK		1989	01	10.67396	08	49	50.92	+15	07	15.5		413
1989	CK		1989	01	12.63292	08	48	07.51	+15	16	30.3	V	413
1989	CK		1989	01	13.64171	08	47	12.51	+15	21	28.3		413
1989	CK		1989	01	13.73546	08	47	06.99	+15	21	57.8		413
1989	CK		1989	01	15.59470	08	45	22.32	+15	31	21.1		413
1989	CT		1988	12	29.62380	08	55	24.09	+16	05	28.2		413
1989	CT		1989	01	04.62750	08	51	38.05	+16	14	43.4	16.5	413
1989	CT		1989	01	04.67958	08	51	35.59	+16	14	48.7		413
1989	CT		1989	01	06.62273	08	50	09.73	+16	18	39.0		413
1989	CT		1989	01	06.69912	08	50	06.01	+16	18	47.9		413
1989	CT		1989	01	10.61840	08	46	54.89	+16	27	37.7		413
1989	CT		1989	01	10.67396	08	46	51.90	+16	27	44.7		413
1989	CT		1989	01	12.54958	08	45	12.81	+16	32	28.6		413
1989	CT		1989	01	12.63292	08	45	08.43	+16	32	36.0	p	413
62			1989	01	10.61840	09	05	13.40	+16	43	51.6		413
62			1989	01	12.54958	09	03	51.67	+16	51	01.5		413
62			1989	01	12.63292	09	03	48.13	+16	51	21.4		413
62			1989	01	13.64171	09	03	04.01	+16	55	11.1		413
62			1989	01	13.73546	09	02	59.58	+16	55	35.4		413
62			1989	01	15.59470	09	01	36.16	+17	02	48.1		413
62			1989	01	15.65845	09	01	33.19	+17	03	02.9		413
393			1989	01	11.61878	08	47	27.40	-02	28	51.3		413
393			1989	01	11.67434	08	47	24.96	-02	28	49.0		413
482			1987	10	22.45579	00	02	14.57	-03	21	39.3		413
482			1987	10	22.52176	00	02	12.74	-03	22	03.5		413
530			1989	01	04.62750	09	04	11.82	+16	16	10.4		413
530			1989	01	04.67958	09	04	10.02	+16	16	22.4		413
530			1989	01	06.62273	09	03	02.37	+16	23	56.4		413
530			1989	01	06.69912	09	02	59.61	+16	24	15.2		413
530			1989	01	10.61840	09	00	33.36	+16	40	08.3		413
530			1989	01	10.67396	09	00	31.13	+16	40	21.6		413

530	1989	01	12.54958	08	59	17.00	+16	48	15.0			413
530	1989	01	12.63292	08	59	13.79	+16	48	36.0			413
530	1989	01	13.64171	08	58	32.68	+16	52	53.9			413
530	1989	01	15.59470	08	57	11.83	+17	01	22.7			413
724	1984	10	16.47646	00	40	40.15	+07	13	17.5	15.5		413
724	1984	10	16.51812	00	40	38.61	+07	12	40.0			413
791	1988	12	29.62380	08	50	11.21	+14	49	41.3			413
791	1988	12	29.70713	08	50	08.26	+14	50	02.9			413
791	1989	01	04.62750	08	46	41.07	+15	19	12.4			413
791	1989	01	04.67958	08	46	38.98	+15	19	26.2			413
791	1989	01	06.62273	08	45	24.22	+15	29	36.8			413
791	1989	01	06.69912	08	45	21.02	+15	29	59.4			413
791	1989	01	10.67396	08	42	38.34	+15	51	34.6			413
822	1985	09	08.48878	21	47	19.13	-12	17	23.2	16.5		413
822	1985	09	08.54087	21	47	16.35	-12	17	38.7			413
1050	1975	06	01.55494	16	16	50.58	-40	12	29.4	17		413
1050	1975	06	01.57814	16	16	49.00	-40	12	25.7			413
1050	1975	06	03.51900	16	14	36.72	-40	07	55.8			413
1128	1989	01	04.62750	09	03	47.60	+18	10	03.7			413
1128	1989	01	04.67958	09	03	45.72	+18	10	13.8			413
1128	1989	01	06.62273	09	02	30.35	+18	16	21.1			413
1128	1989	01	06.69912	09	02	27.31	+18	16	36.5			413
1128	1989	01	10.61840	08	59	41.08	+18	29	43.5			413
1128	1989	01	10.67396	08	59	38.52	+18	29	54.9			413
1128	1989	01	12.63292	08	58	09.04	+18	36	48.0			413
1128	1989	01	13.64171	08	57	21.41	+18	40	23.4			413
1128	1989	01	13.73546	08	57	16.89	+18	40	44.6			413
1128	1989	01	15.59470	08	55	46.77	+18	47	29.3			413
1382	1985	06	08.40546	13	09	43.20	-09	36	30.5	16		413
1382	1985	06	08.44713	13	09	44.04	-09	36	36.1			413
1398	1988	12	29.62380	08	53	54.47	+15	59	29.7			413
1398	1988	12	29.70713	08	53	51.28	+15	59	25.5			413
1398	1989	01	04.62750	08	49	56.22	+15	56	21.9			413
1398	1989	01	04.67958	08	49	53.91	+15	56	19.5			413
1398	1989	01	06.62273	08	48	28.65	+15	55	47.2			413
1398	1989	01	06.69912	08	48	25.07	+15	55	45.6			413
1398	1989	01	10.61840	08	45	22.85	+15	55	13.0			413
1398	1989	01	10.67396	08	45	20.17	+15	55	11.1			413
1398	1989	01	12.54958	08	43	48.73	+15	55	11.6			413
1398	1989	01	12.63292	08	43	44.49	+15	55	09.8			413
1398	1989	01	13.64171	08	42	54.16	+15	55	12.8			413
1398	1989	01	13.73546	08	42	49.32	+15	55	12.2			413
1509	1975	04	04.48131	10	14	49.80	-37	28	44.0			413
1509	1975	04	04.50909	10	14	48.59	-37	28	27.2			413
1509	1975	04	05.43944	10	14	10.76	-37	18	14.4		E	413
1509	1975	04	05.48111	10	14	09.04	-37	17	48.2		E	413
1509	1975	05	10.37262	10	22	14.83	-29	58	25.7			413
1509	1975	05	10.41428	10	22	17.16	-29	57	58.7			413
1509	1983	05	08.67300	18	57	47.58	-42	12	59.5			413
1509	1983	05	08.73550	18	57	47.53	-42	12	43.8			413
1509	1983	05	08.75405	18	57	47.59	-42	12	38.0			413
1509	1985	02	28.41878	07	42	48.19	-05	05	47.7			413
1509	1985	02	28.48128	07	42	45.96	-05	05	52.4			413
1509	1985	02	28.49566	07	42	45.36	-05	05	55.0		I	413
1901	1974	06	18.64014	19	33	39.51	-26	53	13.2			413
1901	1974	06	18.67486	19	33	38.14	-26	53	31.1			413
1901	1974	07	23.53626	19	04	14.32	-31	23	04.5			413
1901	1974	07	23.56751	19	04	12.79	-31	23	16.0			413
1901	1981	10	18.59000	01	16	27.99	-27	19	02.4			413

1901	1986	07	26.55764	20	51	56.87	-36	20	14.7		413
1901	1986	07	26.64097	20	51	52.65	-36	20	57.3		413
1932	1984	04	25.59836	15	05	02.31	-15	29	18.4		413
1932	1984	04	25.64002	15	05	00.06	-15	29	06.4		413
1932	1985	06	27.78372	22	31	32.53	-07	13	35.7		413
1932	1985	09	08.48878	21	47	26.06	-11	30	18.1	F	413
1932	1985	09	08.54087	21	47	23.62	-11	30	33.1		413
2048	1979	12	10.50987	04	07	17.77	-21	49	00.1	E	413
2048	1979	12	10.55501	04	07	15.07	-21	48	47.7	E	413
2049	1979	12	27.69274	09	18	21.98	-21	57	08.8	F	413
2049	1979	12	27.73441	09	18	21.07	-21	57	30.6	F	413
2064	1988	12	29.62380	08	49	06.30	+18	08	59.0	16.5	413
2064	1988	12	29.70713	08	49	02.44	+18	09	06.4		413
2064	1989	01	04.62750	08	43	50.49	+18	21	02.6		413
2064	1989	01	04.67958	08	43	47.51	+18	21	07.5		413
2575	1988	12	29.62380	08	56	40.04	+20	23	16.2		413
2575	1988	12	29.70713	08	56	36.91	+20	23	24.7		413
2575	1989	01	04.62750	08	52	13.66	+20	34	39.3		413
2575	1989	01	04.67958	08	52	11.22	+20	34	45.6		413
2575	1989	01	06.62273	08	50	30.97	+20	38	55.7		413
2575	1989	01	06.69912	08	50	26.98	+20	39	05.2		413
2575	1989	01	10.61840	08	46	45.84	+20	48	00.6		413
2575	1989	01	10.67396	08	46	42.66	+20	48	06.7		413
2587	1989	01	04.62750	09	03	53.18	+19	01	27.8		413
2587	1989	01	04.67958	09	03	51.46	+19	01	38.2		413
2587	1989	01	10.61840	09	00	10.09	+19	21	37.8		413
2587	1989	01	10.67396	09	00	07.98	+19	21	49.1		413
2587	1989	01	12.54958	08	58	51.30	+19	28	26.2		413
2587	1989	01	12.63292	08	58	48.00	+19	28	46.4		413
2738	1988	12	29.70713	09	05	55.24	+16	18	18.0		413
2738	1989	01	04.62750	09	02	50.62	+16	28	29.9		413
2738	1989	01	04.67958	09	02	48.68	+16	28	35.9		413
2738	1989	01	06.62273	09	01	36.15	+16	32	43.3		413
2738	1989	01	10.61840	08	58	50.41	+16	42	17.6		413
2738	1989	01	10.67396	08	58	47.94	+16	42	25.3		413
2738	1989	01	12.63292	08	57	19.01	+16	47	34.2		413
2738	1989	01	13.64171	08	56	31.40	+16	50	18.4		413
2738	1989	01	13.73546	08	56	26.76	+16	50	36.0		413
2738	1989	01	15.59470	08	54	56.17	+16	55	52.5		413
2738	1989	01	15.65845	08	54	53.22	+16	56	02.2		413
2848	1988	12	29.62380	08	52	17.65	+18	24	26.6		413
2848	1988	12	29.70713	08	52	14.62	+18	24	37.4		413
2848	1989	01	04.62750	08	48	30.45	+18	39	06.6		413
2848	1989	01	04.67958	08	48	28.33	+18	39	13.3		413
2848	1989	01	06.62273	08	47	06.32	+18	44	26.2		413
2848	1989	01	06.69912	08	47	03.07	+18	44	37.5		413
2848	1989	01	10.61840	08	44	06.40	+18	55	35.8		413
2848	1989	01	10.67396	08	44	03.88	+18	55	44.0		413
2848	1989	01	12.54958	08	42	35.09	+19	01	10.8		413
2848	1989	01	12.63292	08	42	31.10	+19	01	21.9		413
3119	1989	01	04.62750	09	06	03.75	+18	13	40.8		413
3119	1989	01	06.62273	09	04	56.06	+18	23	08.9		413
3119	1989	01	06.69912	09	04	53.34	+18	23	33.6		413
3119	1989	01	10.61840	09	02	24.48	+18	43	11.6		413
3119	1989	01	10.67396	09	02	22.30	+18	43	28.6		413
3119	1989	01	12.54958	09	01	04.23	+18	53	14.5		413
3119	1989	01	12.63292	09	01	00.68	+18	53	43.3		413
3119	1989	01	13.64171	09	00	17.05	+18	58	59.8		413
3119	1989	01	13.73546	09	00	12.88	+18	59	30.5		413

3119		1989	01	15.59470	08	58	49.81	+19	09	28.8	413
3325		1984	04	25.59836	15	05	29.36	-16	15	39.6	16.5 413
3325		1984	04	25.64002	15	05	27.20	-16	15	44.0	413
3561		1989	01	04.62750	08	50	52.80	+19	10	10.3	413
3561		1989	01	04.67958	08	50	51.07	+19	10	21.1	413
3561		1989	01	10.61840	08	47	36.97	+19	31	36.6	413
3561		1989	01	10.67396	08	47	35.26	+19	31	45.9	413
3691		1975	06	09.80010	22	47	18.66	-62	15	10.1	16 413
3691		1975	06	09.80010	22	47	18.66	-62	15	10.1	16 413
3691		1982	07	01.36630	12	37	41.19	-62	23	53.8	413
3691		1982	07	01.36630	12	37	41.19	-62	23	53.8	413
3691		1982	07	01.40796	12	37	51.64	-62	23	49.2	p 413
3691		1982	07	01.40796	12	37	51.64	-62	23	49.2	413
3753		1979	11	17.42234	23	55	22.96	-56	15	47.9	16 413
3753		1979	11	17.42234	23	55	22.96	-56	15	47.9	413
3753		1979	11	17.46748	23	55	13.18	-56	15	23.4	413
3753		1979	11	17.46748	23	55	13.18	-56	15	23.4	413
3805		1988	12	29.62380	09	04	43.25	+20	22	08.6	F 413
3805		1988	12	29.70713	09	04	39.70	+20	22	10.8	F 413
3805		1989	01	04.62750	09	00	06.67	+20	21	56.4	413
3805		1989	01	10.61840	08	54	42.16	+20	22	53.0	413
3805		1989	01	10.67396	08	54	39.09	+20	22	53.8	413
3805		1989	01	13.64171	08	51	43.77	+20	23	32.6	I 413

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

504		1988	12	06.82718	03	26	13.85	+03	26	27.4	494
504		1988	12	06.87534	03	26	11.56	+03	26	42.9	494
1645		1989	02	01.89010	07	26	22.00	+21	12	28.3	16 494
3698		1989	01	04.96904	08	04	59.98	+18	32	19.8	494
3698		1989	01	10.94756	07	58	36.14	+18	57	05.8	494
3698		1989	01	10.97729	07	58	34.13	+18	57	13.2	494

503 Cambridge
J. D. Shanklin, 11 City Road, Cambridge, CB1 1DP, England
Observer J. D. Shanklin
0.44-m Schmidt

1989 AC		1989	01	26.85730	05	59	47.02	+23	09	06.9	503

511 Haute Provence
E. W. Elst, Royal Observatory, B-1180 Brussels, Belgium
Observers E. W. Elst, G. Sause
Measurer E. W. Elst
0.6-m Schmidt

1988 PV3	*	1988	08	12.95208	22	53	32.94	-01	00	06.8	18.0 511
1988 PV3		1988	08	12.96944	22	53	32.10	-01	00	10.5	511
1988 PW3	*	1988	08	15.83715	16	44	02.31	-25	11	37.6	17.0 511
1988 PW3		1988	08	15.85451	16	44	02.89	-25	11	42.0	511
1988 PW3		1988	08	16.85417	16	44	35.51	-25	14	47.4	17.0 511
1988 QE1	*	1988	08	18.01597	22	35	37.77	-00	31	35.1	17.5 511
1988 QE1		1988	08	18.03819	22	35	36.51	-00	31	35.0	17.5 511
1988 QE1		1988	08	18.06111	22	35	35.59	-00	31	36.2	511
1988 QF1	*	1988	08	18.01597	22	44	51.11	-02	34	17.1	17.5 511
1988 QF1		1988	08	18.03819	22	44	49.79	-02	34	11.4	17.5 511
1988 QF1		1988	08	18.06111	22	44	48.74	-02	34	01.6	511
1988 QG1	*	1988	08	18.09306	00	01	23.56	-01	31	36.1	511
1988 QG1		1988	08	18.12083	00	01	22.92	-01	31	45.0	18.0 511
1988 QH1	*	1988	08	18.09306	00	03	38.52	+00	40	14.0	511

1988	QH1		1988	08	18.12083	00	03	39.34	+00	40	08.0	17.0		511
1988	QJ1	*	1988	08	18.99931	22	42	42.83	-08	21	03.9	17.6		511
1988	QJ1		1988	08	19.02014	22	42	41.90	-08	21	11.8			511
1988	QJ1		1988	08	19.04722	22	42	40.73	-08	21	18.3	17.5		511
1988	QK1	*	1988	08	18.99931	22	44	47.87	-07	04	59.9	18.5		511
1988	QK1		1988	08	19.02014	22	44	47.08	-07	05	11.7			511
1988	QK1		1988	08	19.04722	22	44	45.87	-07	05	32.8	18.0		511
1988	RX8	*	1988	09	12.98542	23	32	36.86	-05	45	33.4	18.0		511
1988	RX8		1988	09	13.00521	23	32	36.23	-05	45	40.5			511
1988	RX8		1988	09	13.02257	23	32	35.63	-05	45	45.4			511
1988	RY8	*	1988	09	12.98542	23	33	38.86	-05	09	57.6	17.5		511
1988	RY8		1988	09	13.00521	23	33	37.76	-05	10	10.0			511
1988	RY8		1988	09	13.02257	23	33	37.06	-05	10	16.5			511
1988	RZ8	*	1988	09	12.98542	23	35	09.34	-04	55	11.9	18.0	M	511
1988	RZ8		1988	09	13.00521	23	35	08.56	-04	55	13.8		M	511
1988	RZ8		1988	09	13.02257	23	35	08.12	-04	55	17.5		M	511
1988	RA9	*	1988	09	12.98542	23	37	23.80	-05	02	11.4	18.0	M	511
1988	RA9		1988	09	13.00521	23	37	23.04	-05	02	16.2		M	511
1988	RA9		1988	09	13.02257	23	37	22.57	-05	02	19.9		M	511
1988	RB9	*	1988	09	12.98542	23	37	42.02	-04	23	16.2	18.0	M	511
1988	RB9		1988	09	13.00521	23	37	41.10	-04	23	18.9		M	511
1988	RB9		1988	09	13.02257	23	37	40.22	-04	23	23.3		M	511
1988	RC9	*	1988	09	15.01111	23	35	10.26	-05	02	57.6	17.8		511
1988	RC9		1988	09	15.03125	23	35	09.61	-05	03	07.8			511
1988	RC9		1988	09	15.05208	23	35	08.85	-05	03	18.9			511
1988	SD1	*	1988	09	17.94861	22	30	17.93	-04	48	06.0	17.5		511
1988	SD1		1988	09	17.96944	22	30	17.64	-04	48	02.0			511
122			1988	09	15.07778	00	32	51.26	+03	18	24.8	13.0		511
122			1988	09	15.09687	00	32	50.60	+03	18	21.4			511
122			1988	09	15.11597	00	32	49.94	+03	18	15.9			511
309			1988	09	15.07778	00	20	49.32	+02	42	22.1	15.0		511
309			1988	09	15.09687	00	20	48.46	+02	42	19.3			511
309			1988	09	15.11597	00	20	47.54	+02	42	15.7			511
399			1988	08	13.11215	00	04	11.23	+01	35	02.9	16.5		511
399			1988	08	13.13021	00	04	10.76	+01	35	03.6			511
586			1988	08	18.99931	22	43	05.25	-05	42	13.4	14.0		511
586			1988	08	19.02014	22	43	04.33	-05	42	19.7			511
586			1988	08	19.04722	22	43	03.27	-05	42	26.7	14.0		511
1377			1988	08	16.03333	22	07	25.13	-00	40	52.9	17.0		511
1377			1988	08	16.05833	22	07	23.88	-00	40	59.6			511
1377			1988	08	16.07986	22	07	22.70	-00	41	06.9	17.0		511
1559			1988	09	15.07778	00	25	10.72	+05	48	03.6	17.0		511
1559			1988	09	15.09687	00	25	09.86	+05	47	59.0			511
1559			1988	09	15.11597	00	25	08.94	+05	47	56.6			511
2357			1988	08	13.11215	00	07	38.59	+01	04	07.4	17.0		511
2357			1988	08	13.13021	00	07	38.39	+01	04	05.4			511
2757			1988	09	15.07778	00	30	41.98	+03	09	50.2	16.9		511
2757			1988	09	15.09687	00	30	41.33	+03	09	47.6			511
2757			1988	09	15.11597	00	30	40.60	+03	09	42.1			511
3028			1988	09	15.07778	00	23	57.75	+04	29	52.8	16.5		511
3028			1988	09	15.09687	00	23	57.09	+04	29	45.9			511
3028			1988	09	15.11597	00	23	56.44	+04	29	39.1			511
3936			1988	08	16.03333	22	06	03.15	-00	42	00.7	16.9		511
3936			1988	08	16.05833	22	06	01.89	-00	42	06.6			511
3936			1988	08	16.07986	22	06	00.73	-00	42	12.3	16.9		511

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

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

1977	QH4		1989	01	28.92431	09	16	07.80	+21	35	56.9	17.0	552
1977	QH4		1989	01	28.95000	09	16	05.81	+21	36	04.2		552
1977	QH4		1989	01	29.93542	09	14	56.17	+21	38	42.5	17.0	552
1977	QH4		1989	01	29.96042	09	14	54.28	+21	38	45.3		552
1977	QH4		1989	01	30.92847	09	13	45.67	+21	41	21.4	17.0	552
1977	QH4		1989	01	30.95347	09	13	43.74	+21	41	24.9		552
1977	QH4		1989	02	01.92361	09	11	22.78	+21	46	49.9	17.0	552
1977	QH4		1989	02	01.95000	09	11	20.87	+21	46	24.4		552
1988	XT		1988	12	11.93194	05	10	42.84	+22	41	40.3	16.8	552
1988	XT		1988	12	11.95764	05	10	41.66	+22	41	37.6	16.8	552
1988	XT		1988	12	13.92639	05	08	24.79	+22	37	47.8	16.8	552
1988	XT		1988	12	13.94444	05	08	23.43	+22	37	45.8	16.8	552
1989	BE	*	1989	01	28.92431	09	12	59.94	+23	27	52.1	17.0	552
1989	BE		1989	01	28.95000	09	12	58.74	+23	27	56.9	17.0	552
1989	BE		1989	01	29.93542	09	12	10.47	+23	30	44.0	17.0	552
1989	BE		1989	01	29.96042	09	12	09.25	+23	30	48.0	17.0	552
1989	BE		1989	01	30.92847	09	11	21.87	+23	33	27.9	17.0	552
1989	BE		1989	01	30.95347	09	11	20.58	+23	33	32.8	17.0	552
1989	BE		1989	02	01.92361	09	09	43.21	+23	38	45.7	17.0	552
1989	BE		1989	02	01.95000	09	09	41.92	+23	38	52.1	17.0	552
1989	BF	*	1989	01	28.92431	09	14	01.79	+22	20	31.0	17.0	552
1989	BF		1989	01	28.95000	09	13	59.83	+22	20	32.5	17.0	552
1989	BF		1989	01	29.93542	09	12	47.48	+22	22	04.0	17.0	552
1989	BF		1989	01	29.96042	09	12	45.43	+22	22	04.1	17.0	552
1989	BF		1989	01	30.92847	09	11	34.06	+22	23	31.3	17.0	552
1989	BF		1989	01	30.95347	09	11	32.19	+22	23	32.2	17.0	552
1989	BF		1989	02	01.92361	09	09	06.08	+22	26	06.7	17.0	552
1989	BF		1989	02	01.95000	09	09	04.07	+22	26	10.5	17.0	552
1989	BG	*	1989	01	29.93542	09	04	08.50	+21	08	10.7	17.0	552
1989	BG		1989	01	29.96042	09	04	06.72	+21	08	13.4	17.0	552
1989	BG		1989	01	30.92847	09	02	58.11	+21	09	41.6	17.0	552
1989	BG		1989	01	30.95347	09	02	56.27	+21	09	42.7	17.0	552
1989	BG		1989	02	01.92361	09	00	35.90	+21	12	28.8	17.0	552
1989	BG		1989	02	01.95000	09	00	33.98	+21	12	32.1	17.0	552
1989	BH	*	1989	01	29.93542	09	11	40.25	+24	14	51.1	15.6	552
1989	BH		1989	01	30.92847	09	10	47.03	+24	26	43.2	15.6	552
1989	BH		1989	01	30.95347	09	10	45.53	+24	27	02.4	15.6	552
1989	BH		1989	02	01.92361	09	08	58.35	+24	50	21.3	15.7	552
1989	BH		1989	02	01.95000	09	08	56.81	+24	50	39.5	15.7	552
1989	BH		1989	02	02.93750	09	08	02.19	+25	02	12.1	15.7	552
1989	BH		1989	02	02.94931	09	08	01.48	+25	02	20.0	15.7	552
1989	BO	*	1989	01	30.92847	09	08	31.18	+24	34	28.2	15.7	552
1989	BO		1989	01	30.95347	09	08	29.88	+24	34	37.8	15.7	552
1989	BO		1989	02	01.92361	09	06	49.66	+24	47	27.0	15.8	552
1989	BO		1989	02	01.95000	09	06	48.36	+24	47	38.6	15.8	552
1989	BO		1989	02	02.93750	09	05	57.77	+24	53	57.0	15.8	552
1989	BO		1989	02	02.94931	09	05	57.26	+24	54	02.1	15.8	552
203			1988	11	06.92778	03	07	43.07	+22	14	32.9	12.5	552
203			1988	11	06.95347	03	07	41.46	+22	14	29.2	12.5	552
897			1988	12	09.91319	05	12	51.45	+22	33	54.8	14.0	552
897			1988	12	09.93958	05	12	49.72	+22	33	44.7	14.0	552
897			1988	12	10.90000	05	11	48.09	+22	28	00.1	14.0	552
897			1988	12	10.92083	05	11	46.82	+22	27	53.1	14.0	552
897			1988	12	11.93194	05	10	41.35	+22	21	46.4	14.1	552
897			1988	12	11.95764	05	10	40.12	+22	21	40.0	14.1	552
897			1988	12	13.92639	05	08	34.72	+22	09	49.3	14.1	552
897			1988	12	13.94444	05	08	33.62	+22	09	43.8	14.1	552

967	1989	01	28.92431	09	09	33.35	+23	15	53.4	16.8	552
967	1989	01	28.95000	09	09	31.66	+23	16	02.6		552
967	1989	01	29.93542	09	08	26.47	+23	22	14.3	16.8	552
967	1989	01	29.96042	09	08	24.79	+23	22	24.1		552
967	1989	01	30.92847	09	07	20.49	+23	28	23.1	16.8	552
967	1989	01	30.95347	09	07	18.70	+23	28	31.6		552
967	1989	02	01.92361	09	05	06.76	+23	40	26.3	16.8	552
967	1989	02	01.95000	09	05	04.93	+23	40	36.7		552
990	1989	02	02.93750	09	09	00.01	+25	30	21.0	16.5	552
990	1989	02	02.94931	09	08	59.32	+25	30	23.4		552
1081	1989	01	29.93542	09	03	22.44	+23	12	55.2	16.7	552
1081	1989	01	29.96042	09	03	21.03	+23	12	59.1		552
1081	1989	01	30.92847	09	02	29.29	+23	16	19.1	16.7	552
1081	1989	01	30.95347	09	02	27.90	+23	16	23.5		552
1081	1989	02	01.92361	09	00	42.16	+23	22	58.1	16.8	552
1081	1989	02	01.95000	09	00	40.71	+23	23	06.3		552
1123	1988	12	09.91319	05	16	55.28	+22	55	07.8	13.5	552
1123	1988	12	09.93958	05	16	53.36	+22	55	14.0	13.5	552
1175	1988	11	06.92778	03	17	23.77	+21	17	32.0	15.0	552
1175	1988	11	06.95347	03	17	22.51	+21	17	21.1	15.0	552
1264	1988	11	06.92778	03	09	52.09	+21	51	27.3	14.2	552
1264	1988	11	06.95347	03	09	50.75	+21	51	14.5	14.2	552
1323	1988	11	06.92778	03	09	11.47	+18	59	52.1	15.2	552
1323	1988	11	06.95347	03	09	10.06	+18	59	52.1	15.2	552
1396	1989	01	29.93542	09	00	59.53	+22	49	22.5	15.8	552
1396	1989	01	29.96042	09	00	57.74	+22	49	28.7		552
1396	1989	01	30.92847	08	59	49.85	+22	53	03.9	15.8	552
1396	1989	01	30.95347	08	59	48.12	+22	53	08.4		552
1396	1989	02	01.92361	08	57	29.12	+23	00	13.7	15.8	552
1396	1989	02	01.95000	08	57	27.22	+23	00	19.9		552
2268	1989	01	28.92431	09	12	37.70	+19	45	05.8	16.5	552
2268	1989	01	28.95000	09	12	36.28	+19	45	12.5		552
2313	1988	12	09.91319	05	11	42.76	+21	29	20.9	16.2	552
2313	1988	12	09.93958	05	11	40.94	+21	29	18.8	16.2	552
2504	1989	01	28.92431	09	04	21.83	+22	38	50.5	16.2	552
2504	1989	01	28.95000	09	04	20.26	+22	38	54.9		552
2504	1989	01	29.93542	09	03	23.29	+22	42	09.8	16.2	552
2504	1989	01	29.96042	09	03	21.68	+22	42	15.2		552
2504	1989	01	30.92847	09	02	25.47	+22	45	24.9	16.2	552
2504	1989	01	30.95347	09	02	23.93	+22	45	28.6		552
2504	1989	02	01.92361	09	00	28.68	+22	51	39.9	16.3	552
2504	1989	02	01.95000	09	00	27.11	+22	51	45.3		552
2899	1988	11	06.95347	03	11	08.38	+20	44	01.1	16.0	552
3374	1989	01	28.92431	09	07	08.84	+20	29	42.6	17.5	552
3374	1989	01	28.95000	09	07	07.25	+20	29	56.5		552
3951	1988	10	31.86667	00	19	48.93	+12	13	58.3	16.0	552
3951	1988	10	31.88542	00	19	48.37	+12	13	52.0	16.0	552
3951	1988	12	07.73333	00	27	01.16	+09	48	07.1	16.8	552
3951	1988	12	07.75556	00	27	02.16	+09	48	07.4	16.8	552

567 Osservatorio Chaonis
J. M. Baur, Via Zara 20, I-33083 Chions, Italy
Observers J. M. Baur, G. Carniel
Measurer J. M. Baur
0.6-m f/3 Wright reflector
AGK3

1987 WA	1989	01	14.03472	11	16	45.61	+13	08	39.6	18.5	567
1987 WA	1989	01	14.06528	11	16	45.34	+13	08	45.7		567
1987 WA	1989	01	14.08681	11	16	45.17	+13	08	50.1		567

1987	WA		1989	02	01.05486	11	10	43.51	+14	28	27.2		567
1987	WA		1989	02	01.06875	11	10	43.05	+14	28	31.8		567
1987	WA		1989	02	27.90417	10	50	08.09	+16	58	37.7	18.3	567
1987	WA		1989	02	27.92917	10	50	06.73	+16	58	45.1		567
1987	WA		1989	02	27.95069	10	50	05.53	+16	58	51.8		567
1987	WA		1989	02	27.97222	10	50	04.36	+16	58	58.2		567
1989	CK	*	1989	02	01.93403	08	27	10.04	+17	08	22.9	17.8	567
1989	CK		1989	02	01.95347	08	27	08.82	+17	08	29.5		567
1989	CK		1989	02	08.89653	08	19	59.95	+17	47	17.8		567
1989	CK		1989	02	08.91042	08	19	59.09	+17	47	21.7		567
1989	CK		1989	02	09.87014	08	19	03.29	+17	52	30.8		567
1989	CK		1989	02	09.88750	08	19	02.23	+17	52	35.3		567
1989	CK		1989	02	10.90868	08	18	03.90	+17	58	01.2	17.8	567
1989	CK		1989	02	10.92257	08	18	03.05	+17	58	04.9		567
1989	CK		1989	02	27.80764	08	05	55.79	+19	12	56.4		567
1989	CK		1989	02	27.82778	08	05	55.20	+19	12	59.6		567
1989	CT	*	1989	02	08.89653	08	17	15.46	+17	53	22.1	16.6	567
1989	CT		1989	02	08.91042	08	17	14.70	+17	53	25.4		567
1989	CT		1989	02	09.90139	08	16	17.27	+17	56	09.2		567
1989	CT		1989	02	09.91875	08	16	16.31	+17	56	12.7		567
1989	CT		1989	02	27.84167	08	02	55.41	+18	34	06.7	16.9	567
1989	CT		1989	02	27.85555	08	02	54.88	+18	34	07.9		567
2459			1989	01	02.96528	09	31	47.67	+00	38	44.8		567
2459			1989	01	03.00695	09	31	46.66	+00	38	39.9		567
2459			1989	01	03.04861	09	31	45.67	+00	38	37.4		567
2459			1989	01	04.02083	09	31	23.23	+00	37	14.9	16.5	567
2459			1989	01	04.03472	09	31	22.86	+00	37	14.5		567
3896			1988	12	18.03125	09	37	12.87	+01	37	52.7	16.8	567
3896			1988	12	18.05903	09	37	12.87	+01	37	45.3		567
3896			1988	12	18.10069	09	37	12.86	+01	37	34.1		567
3896			1988	12	18.12153	09	37	12.79	+01	37	28.4		567
3896			1989	01	02.96528	09	34	21.63	+00	42	06.3		567
3896			1989	01	03.00695	09	34	20.63	+00	42	00.3		567
3896			1989	01	03.04861	09	34	19.76	+00	41	54.4		567
3896			1989	01	04.02083	09	33	58.07	+00	39	43.1		567
3896			1989	01	04.03472	09	33	57.75	+00	39	41.6		567
3896			1989	01	08.00694	09	32	16.44	+00	32	18.9		567
3896			1989	01	08.03125	09	32	15.70	+00	32	16.7		567
3896			1989	01	29.92986	09	17	57.62	+00	39	33.4		567
3896			1989	01	29.94722	09	17	56.81	+00	39	35.2		567
3975			1989	01	03.91667	07	02	00.58	+20	41	43.9	15.8	567
3975			1989	01	03.93056	07	01	59.73	+20	41	45.4		567

568 Mauna Kea Observatory
D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive, Honolulu, HI 96822, U.S.A.
Observers E. Bus, D. P. Cruikshank, W. Golish, D. M. Griep, W. K. Hartmann, L. Lebofsky, D. J. Tholen
IRTF and 2.24-m telescope encoders

1989	AC		1989	02	03.29444	06	21	45.15	+23	14	27.2		568
1989	AC		1989	02	03.30556	06	21	46.67	+23	14	25.8		568
1989	DA		1989	03	06.28542	10	13	27.2	+20	18	43		568

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

111			1988	12	07.75859	04	46	16.32	+28	55	33.5		573
111			1988	12	07.77746	04	46	15.08	+28	55	29.9		573
164			1989	01	03.77277	05	57	48.22	+37	01	45.3		573
164			1989	01	03.78347	05	57	47.35	+37	01	50.3		573

198		1989	01	11.76056	06	20	16.32	+19	54	49.7	573
198		1989	01	11.76970	06	20	15.76	+19	54	48.3	573
203		1988	11	03.81762	03	10	39.47	+22	22	58.1	573
203		1988	11	03.82688	03	10	38.95	+22	22	56.8	573
387		1989	01	26.81415	08	59	07.70	+18	15	55.6	573
387		1989	01	26.82132	08	59	07.33	+18	15	59.0	573
415		1989	01	25.76542	08	09	09.61	+18	59	01.0	573
415		1989	01	25.77178	08	09	09.26	+18	59	04.1	573
430		1988	12	07.73359	03	58	49.45	+21	02	51.5	573
430		1988	12	07.75112	03	58	48.67	+21	02	38.4	573
524		1989	01	03.74574	05	37	26.26	+34	26	23.3	573
524		1989	01	03.75616	05	37	25.65	+34	26	20.4	573
692		1988	12	29.70801	06	21	09.14	+45	43	29.0	573
692		1988	12	29.71704	06	21	08.46	+45	43	33.3	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

1950	JB	1989	02	07.20111	08	39	20.64	+24	20	53.8		657
1950	JB	1989	02	07.28896	08	39	15.72	+24	21	41.5		657
1950	JB	1989	02	08.24549	08	38	21.45	+24	29	48.6		657
1985	GX	1989	02	07.35042	10	12	43.07	+03	45	48.9		657
1985	GX	1989	02	07.38236	10	12	41.66	+03	46	06.6	V	657
1987	YT1	1989	02	08.34347	09	05	51.40	+05	35	53.8	N	657
1987	YT1	1989	02	08.38028	09	05	50.03	+05	36	02.1	N	657
18		1988	09	12.23437	22	44	18.26	-13	40	35.9		657
43		1988	07	30.24167	16	05	54.66	-20	00	46.4		657
66		1988	10	10.37812	02	24	33.46	+16	27	27.6		657
66		1988	10	10.42465	02	24	31.29	+16	27	25.6		657
97		1988	10	11.17014	22	22	01.17	-13	41	34.2		657
153		1989	02	08.34347	09	07	02.67	+05	56	04.4		657
153		1989	02	08.38028	09	07	01.23	+05	56	09.6		657
184		1988	08	22.34583	22	26	03.14	-09	46	55.0		657
195		1988	07	24.43125	23	13	51.97	-11	00	23.0		657
195		1988	08	21.37292	22	58	15.41	-12	17	43.8		657
195		1988	08	22.38889	22	57	27.23	-12	21	10.3		657
195		1988	08	23.34451	22	56	41.23	-12	24	23.3		657
195		1988	08	23.38062	22	56	39.53	-12	24	32.4		657
195		1988	10	11.17014	22	22	22.84	-13	46	08.2		657
317		1988	09	13.31604	00	19	36.22	+00	28	38.1		657
317		1988	09	13.39729	00	19	32.15	+00	28	06.5		657
399		1988	09	08.26014	23	47	14.01	+01	17	53.1		657
399		1988	09	08.33167	23	47	10.44	+01	17	46.0		657
399		1988	09	13.29243	23	43	05.31	+01	08	41.0		657
399		1988	09	13.36812	23	43	01.48	+01	08	31.6		657
626		1988	12	16.40382	02	48	34.18	+62	28	37.0		657
626		1988	12	26.17049	02	46	51.40	+60	20	08.4		657
626		1988	12	26.21979	02	46	51.65	+60	19	28.3		657
659		1989	02	06.27160	08	12	19.03	+24	03	42.8		657
659		1989	02	06.31257	08	12	17.70	+24	03	45.6		657
659		1989	02	07.24243	08	11	49.26	+24	04	44.1		657
659		1989	02	07.32368	08	11	46.78	+24	04	50.0		657
723		1988	08	20.33542	22	19	06.16	-08	47	24.2		657
758		1988	07	24.43125	23	16	58.60	-10	37	13.3		657
1383		1988	08	22.34583	22	26	41.93	-09	41	30.1		657
1467		1988	08	20.33542	22	17	04.66	-07	30	26.7		657
1639		1988	09	08.22889	23	35	44.37	+04	37	38.0		657
1639		1988	09	08.30250	23	35	40.27	+04	37	32.6		657

1734		1988 09 08.26014	23	43	32.15	+01	17	22.3	657
1734		1988 09 08.33167	23	43	29.52	+01	16	42.0	657
1975		1988 09 08.29417	00	19	37.43	+00	45	28.1	657
1975		1988 09 08.37056	00	19	34.67	+00	44	53.8	657
1975		1988 09 13.31604	00	16	27.53	+00	08	12.9	657
1975		1988 09 13.31604	00	16	27.53	+00	08	12.9	657
1975		1988 09 13.39729	00	16	24.37	+00	07	36.3	657
1975		1988 09 13.39729	00	16	24.37	+00	07	36.3	657
2041		1988 09 13.28271	23	56	13.96	-03	47	57.3	657
2041		1988 09 13.35424	23	56	10.85	-03	48	20.0	657
2890		1988 08 22.38889	22	52	12.92	-12	19	48.9	657
2890		1988 08 23.34451	22	51	15.98	-12	22	04.0	657
2890		1988 08 23.38062	22	51	13.65	-12	22	06.3	657
3453		1988 09 08.24000	23	20	18.32	+02	04	29.6	657
3453		1988 09 08.31465	23	20	13.82	+02	04	09.6	657
3932		1988 07 20.38896	23	55	54.32	+04	30	27.1	657
3932		1988 07 20.42924	23	55	54.74	+04	30	51.8	657

675 Palomar
J. Gibson, OAO Corporation and Jet Propulsion Laboratory, MS 238-332, Pasadena, CA 91109, U.S.A. (1)
E. Helin, MS 183-501, Jet Propulsion Laboratory, Pasadena, CA 91109, U.S.A. (2)
C. Shoemaker, P.O. Box 984, Flagstaff, AZ 86002, U.S.A. (3)
C. J. van Houten, Sterrewacht Leiden, Postbus 9513, NL-2300 RA Leiden, The Netherlands (4)
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A. (6)
J. Mueller, Palomar Observatory, Palomar Mountain, CA 92060, U.S.A. (7)
Observers C. Brewer (7, L), R. Crockett (2, S), T. Gehrels (4, L), J. Gibson (1, C), E. Helin (2, S), C. Kowal (6, L), E. Majkowski (2, S), P. Moniot (7, L) J. Mueller (7, L), J. Phinney (7, L), B. Roman (2, S), C. Shoemaker (3, S), E. Shoemaker (3, S), N. G. Thomas (3, S), D. Tracy (2, S)
Measurers S. J. Bus (6), J. Gibson (1), E. Majkowski (2), J. Mueller (7), T. Rodriquez (3), B. Roman (2), 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

1978	VL7	1989 02 11.28229	08	06	07.72	+16	32	30.7	17.0	2	675
1978	VL7	1989 02 11.32257	08	06	05.42	+16	32	38.4		2	675
1979	VA	1988 12 20.52003	09	53	44.82	+10	21	54.5	20.5	1	675
1979	VA	1988 12 20.53411	09	53	44.45	+10	21	55.3		1	675
1979	VA	1988 12 20.54341	09	53	44.21	+10	21	55.7		1	675
1979	VA	1988 12 24.44260	09	51	54.55	+10	26	04.5		1	675
1979	VA	1988 12 24.46197	09	51	54.01	+10	26	05.1		1	675
1979	VA	1988 12 24.57035	09	51	50.42	+10	26	14.0		1	675
1981	EP15	1984 01 08.29375	07	13	46.40	+22	33	43.3	18.0	6	675
1981	EP15	1984 01 08.34583	07	13	42.79	+22	33	38.8		6	675
1981	EK25	1984 01 08.29375	07	15	37.79	+23	24	58.7	19.5	6	675
1981	EK25	1984 01 08.34583	07	15	34.50	+23	25	01.7		6	675
1981	EX28	1984 01 08.29375	07	08	23.35	+24	34	49.0	18.8	6	675
1981	EX28	1984 01 08.34583	07	08	19.80	+24	34	45.3		6	675
1981	EK34	1978 07 09.41528	21	23	37.79	-16	16	09.4		6	675
1981	EK34	1978 07 09.45694	21	23	36.71	-16	16	13.7		6	675
1981	EX38	1983 12 30.36042	06	56	52.92	+21	03	39.7	20.2	6	675
1981	EX38	1983 12 30.41250	06	56	49.58	+21	03	38.7		6	675
1981	ER40	1977 02 13.42639	10	16	19.22	+09	58	10.0		6	675
1981	ER40	1977 02 13.47847	10	16	16.03	+09	58	24.8		6	675
1981	QB	1988 12 20.54823	11	45	33.56	-05	33	15.3	20.0V	1	675
1981	QB	1988 12 20.56321	11	45	34.33	-05	33	07.4		1	675

1981	QB		1988	12	24.52922	11	48	54.25	-04	59	42.8		1 675
1981	QB		1988	12	24.53446	11	48	54.53	-04	59	40.1		1 675
1981	QB		1988	12	24.53914	11	48	54.74	-04	59	37.8		1 675
1981	QB		1988	12	24.54322	11	48	54.94	-04	59	34.8		1 675
1983	RC2		1989	02	11.49045	10	44	56.27	+04	53	21.9	15.8	2 675
1983	RC2		1989	02	11.51823	10	44	54.74	+04	53	27.0		2 675
1983	RC2		1989	02	12.45174	10	44	07.82	+04	57	39.0		2 675
1985	GX		1989	02	11.43229	10	09	53.73	+04	31	28.4	15.0	2 675
1985	GX		1989	02	11.46615	10	09	52.22	+04	31	51.4		2 675
1985	GX		1989	02	12.43767	10	09	10.63	+04	43	06.5		2 675
1986	JZ		1989	01	11.45954	09	40	41.14	+42	58	17.5	18.3	3 675
1986	JZ		1989	01	11.50052	09	40	39.16	+42	58	54.5		3 675
1986	JZ		1989	02	02.28871	09	17	36.25	+47	43	19.1	18.2	3 675
1986	JZ		1989	02	02.32170	09	17	33.55	+47	43	36.6		3 675
1986	PA		1988	07	06.32054	16	18	11.45	+04	22	50.3		1 675
1986	PA		1988	07	06.32947	16	18	10.73	+04	22	41.2		1 675
1986	PA		1988	07	07.34538	16	16	56.17	+04	05	47.0		1 675
1986	PA		1988	07	07.35006	16	16	55.83	+04	05	42.8		1 675
1986	PA		1988	07	07.35653	16	16	55.34	+04	05	35.4		1 675
1987	MO		1989	02	11.41458	10	17	38.79	-22	50	24.6	17.0	2 675
1987	MO		1989	02	12.42257	10	16	21.45	-22	56	17.6		2 675
1987	SY		1988	12	20.40902	10	45	46.24	+10	29	58.0		1 675
1987	SY		1988	12	24.52094	10	55	54.90	+09	13	48.0		1 675
1988	GK1	*	1988	04	10.23837	11	20	25.45	-00	44	36.3	17.5	2 675
1988	GK1		1988	04	10.25868	11	20	24.63	-00	44	29.0		2 675
1988	GL1	*	1988	04	10.29149	12	58	00.41	-11	51	00.4	16.0	2 675
1988	GL1		1988	04	10.31302	12	57	59.49	-11	50	43.8		2 675
1988	JM2	*	1988	05	13.25469	13	43	01.06	+20	12	52.3	17.5	3 675
1988	JM2		1988	05	13.29896	13	42	59.78	+20	12	58.7		3 675
1988	JN2	*	1988	05	13.31111	15	19	24.70	+12	46	34.9	17.7	3 675
1988	JN2		1988	05	13.36215	15	19	22.39	+12	47	34.5		3 675
1988	JO2	*	1988	05	13.32256	15	40	35.52	+10	10	28.6	17.6	3 675
1988	JO2		1988	05	13.41857	15	40	31.36	+10	10	59.2		3 675
1988	JP2	*	1988	05	14.42622	18	06	52.08	-07	42	46.6	17.7	3 675
1988	JP2		1988	05	14.46059	18	06	51.44	-07	42	31.8		3 675
1988	LQ	*	1988	06	13.32257	17	39	45.74	-08	54	33.6	17.0	3 675
1988	LQ		1988	06	13.35191	17	39	44.06	-08	54	22.7		3 675
1988	LR	*	1988	06	13.32257	17	44	56.88	-07	45	12.3	17.3	3 675
1988	LR		1988	06	13.35191	17	44	55.12	-07	45	17.9		3 675
1988	LS	*	1988	06	13.33137	17	48	40.83	-04	25	32.6	17.5	3 675
1988	LS		1988	06	13.35816	17	48	39.26	-04	25	34.2		3 675
1988	ON	*	1988	07	17.35243	19	59	31.15	-22	55	57.7		3 675
1988	ON		1988	07	17.38628	19	59	28.97	-22	55	54.7		3 675
1988	OO	*	1988	07	19.26076	20	16	56.43	-03	22	05.6	17.2	3 675
1988	OO		1988	07	19.29792	20	16	52.82	-03	21	17.2		3 675
1988	PG4	*	1988	08	14.25625	21	17	28.34	+15	45	17.5	17	3 675
1988	PG4		1988	08	14.28940	21	17	26.87	+15	45	10.2		3 675
1988	PH4	*	1988	08	14.29705	21	31	47.45	+03	50	35.8	17.7	3 675
1988	PH4		1988	08	14.35486	21	31	47.79	+03	49	56.6		3 675
1988	PJ4	*	1988	08	14.41979	22	32	11.51	+08	56	29.0	17.5	3 675
1988	PJ4		1988	08	14.46545	22	32	10.11	+08	56	35.9		3 675
1988	QB1	*	1988	08	16.44409	23	02	14.53	-00	00	52.7	17.5	3 675
1988	QB1		1988	08	16.48350	23	02	13.24	-00	00	44.5		3 675
1988	QC1	*	1988	08	16.44409	23	23	33.22	+01	22	18.9	17.5	3 675
1988	QC1		1988	08	16.48350	23	23	32.42	+01	22	10.4		3 675
1988	QD1	*	1988	08	18.27326	21	39	20.05	+22	56	35.0	15.5	3 675
1988	QD1		1988	08	18.30555	21	39	18.72	+22	56	37.8		3 675
1988	RC7		1988	09	05.25642	23	13	43.55	-00	15	23.1	15.0	2 675
1988	RC7		1988	09	07.27986	23	12	27.44	-00	42	34.1		2 675

1988	RU8	*	1988	09	12.42951	00	57	22.28	+07	03	01.8	17	3 675
1988	RU8		1988	09	12.46024	00	57	21.44	+07	02	58.1		3 675
1988	RV8	*	1988	09	14.27690	22	43	03.67	+12	32	38.0	17.5	3 675
1988	RV8		1988	09	14.30920	22	43	03.81	+12	32	28.6		3 675
1988	RW8	*	1988	09	14.27690	22	43	03.76	+12	32	38.6	17.5	3 675
1988	RW8		1988	09	14.30920	22	43	03.82	+12	32	29.4		3 675
1988	XO1		1989	02	07.14670	05	43	40.68	+04	44	22.8	16.8	2 675
1988	XO1		1989	02	07.18108	05	43	40.85	+04	44	38.8		2 675
1989	AA		1989	02	11.14028	06	29	35.38	+02	26	35.4	17.5	2 675
1989	AA		1989	02	11.17465	06	29	34.40	+02	26	36.4		2 675
1989	AC		1988	07	17.35243	19	46	22.42	-20	58	22.3	17	3 675
1989	AC		1988	07	17.38628	19	46	19.05	-20	58	30.4		3 675
1989	AF		1989	01	03.39896	07	38	49.59	+27	07	01.5	16.0	2 675
1989	AF		1989	01	05.44297	07	36	35.31	+27	16	32.2		2 675
1989	AM		1989	02	07.13872	03	42	53.66	+28	12	00.1		2 675
1989	AM		1989	02	07.17274	03	42	55.54	+28	12	18.9		2 675
1989	AM		1989	02	09.17899	03	44	40.47	+28	33	39.0		2 675
1989	AN		1989	02	07.24132	06	40	48.64	+27	21	29.5	17.0	2 675
1989	AN		1989	02	07.28038	06	40	47.51	+27	21	23.7		2 675
1989	AZ		1989	01	30.31805	08	27	22.70	+03	25	50.9	18.2	3 675
1989	AZ		1989	01	31.36719	08	25	28.04	+03	09	21.1		3 675
1989	AZ		1989	02	02.30555	08	22	19.15	+02	43	01.7	18.5	3 675
1989	AR1		1989	01	31.35069	08	37	30.28	+30	58	14.4	17.5	3 675
1989	AR1		1989	01	31.39166	08	37	28.62	+30	58	18.2		3 675
1989	AU1		1989	01	09.33715	07	48	10.63	+15	39	20.8	17.7	3 675
1989	AU1		1989	01	11.36788	07	47	01.38	+15	41	02.3		3 675
1989	AU1		1989	01	11.40243	07	47	00.13	+15	41	06.4		3 675
1989	AU1		1989	02	01.23923	07	35	23.76	+16	02	50.7		3 675
1989	AU1		1989	02	01.28402	07	35	22.38	+16	02	55.5		3 675
1989	AL2	*	1989	01	08.47864	09	20	28.47	+36	32	45.1	17.5	3 675
1989	AL2		1989	01	11.45138	09	19	02.96	+36	52	25.7		3 675
1989	AM2	*	1989	01	11.45954	09	43	58.17	+43	58	36.9	17	3 675
1989	AM2		1989	01	11.50052	09	43	57.05	+43	58	54.2		3 675
1989	AM2		1989	02	02.28871	09	30	44.53	+46	03	15.6		3 675
1989	AM2		1989	02	02.32170	09	30	43.27	+46	03	24.3		3 675
1989	AN2	*	1989	01	09.36145	08	25	48.41	+10	47	58.6	17.3	3 675
1989	AN2		1989	01	09.39531	08	25	47.38	+10	48	03.2		3 675
1989	AN2		1989	02	01.31024	08	13	47.27	+11	43	14.6	17.5	3 675
1989	AN2		1989	02	02.24791	08	13	18.40	+11	45	50.4		3 675
1989	AO2	*	1989	01	09.36145	08	11	35.43	+12	18	09.6	17.6	3 675
1989	AO2		1989	01	11.36788	08	10	32.71	+12	20	41.9		3 675
1989	AO2		1989	01	30.29253	08	00	26.92	+12	51	23.4	17.9	3 675
1989	AO2		1989	01	30.34409	08	00	25.44	+12	51	27.7		3 675
1989	AV2	*	1989	01	11.36788	08	01	36.57	+15	04	56.9	17.5	3 675
1989	AV2		1989	01	11.40243	08	01	35.25	+15	04	58.3		3 675
1989	AV2		1989	01	30.29253	07	50	20.87	+14	58	27.7		3 675
1989	AV2		1989	01	30.34409	07	50	19.14	+14	58	24.5		3 675
1989	BW		1989	01	09.46909	09	53	56.73	+33	00	10.7	17	3 675
1989	BW	*	1989	01	31.38368	09	43	01.94	+34	45	23.3	17	3 675
1989	BW		1989	02	02.32986	09	41	52.17	+34	53	17.8		3 675
1989	BX		1989	01	08.43263	08	56	52.53	+26	46	43.5	18	3 675
1989	BX		1989	01	08.46944	08	56	51.41	+26	46	46.5		3 675
1989	BX	*	1989	01	31.35069	08	43	24.69	+27	22	18.8	17.8	3 675
1989	BX		1989	02	02.31354	08	42	12.36	+27	24	18.8		3 675
1989	BB1	*	1989	01	30.27291	08	08	56.27	+35	54	07.9	18.5	3 675
1989	BB1		1989	01	30.32604	08	08	54.31	+35	54	13.2		3 675
1989	BB1		1989	02	02.22135	08	07	10.17	+35	59	17.6		3 675
1989	CY		1989	02	11.40347	09	42	20.40	+12	55	34.5	16.2	2 675
1989	CY		1989	02	12.35920	09	40	53.10	+12	50	40.5		2 675

1989	CZ	*	1989	02	06.41528	08	19	53.80	+25	12	18.1	15.5	2 675
1989	CZ		1989	02	11.26493	08	15	04.60	+25	18	38.3		2 675
1989	CA1	*	1989	02	11.47569	10	21	26.44	+13	55	50.7	16.5	2 675
1989	CA1		1989	02	12.44462	10	20	42.89	+14	07	33.1		2 675
1989	CC1	*	1989	02	11.49045	11	02	09.45	+06	58	32.6	15.8	2 675
1989	CC1		1989	02	11.51823	11	02	07.99	+06	59	04.1		2 675
1989	CC1		1989	02	12.45174	11	01	25.51	+07	17	49.2		2 675
1989	CD1	*	1989	02	06.44792	08	23	18.72	+23	39	55.9	16.5	2 675
1989	CD1		1989	02	11.22760	08	20	35.39	+23	46	46.7		2 675
1989	CD1		1989	02	11.26493	08	20	33.35	+23	46	59.1		2 675
1989	CE1	*	1989	02	06.47708	11	00	23.03	-04	43	38.6	15.0	2 675
1989	CE1		1989	02	06.51701	11	00	21.37	-04	43	39.4		2 675
1989	CE1		1989	02	12.50851	10	55	58.06	-04	40	12.2		2 675
1989	CF1	*	1989	02	11.36163	09	27	05.18	+21	19	37.6	16.5	2 675
1989	CF1		1989	02	11.38976	09	27	03.23	+21	19	35.6		2 675
1989	CF1		1989	02	12.40781	09	25	53.50	+21	18	15.2		2 675
1989	CG1	*	1989	02	06.47708	10	59	35.44	-06	10	16.2	15.8	2 675
1989	CG1		1989	02	06.51701	10	59	33.59	-06	10	29.5		2 675
1989	CG1		1989	02	12.50851	10	54	40.38	-06	35	54.8		2 675
1989	CH1	*	1989	02	06.49705	11	44	37.76	+16	34	42.0	16.0	2 675
1989	CH1		1989	02	12.49462	11	42	30.26	+17	46	36.0		2 675
1989	CH1		1989	02	12.51580	11	42	29.60	+17	46	51.8		2 675
1989	CJ1	*	1989	02	11.48351	11	32	44.28	+17	39	43.1	16.8	2 675
1989	CJ1		1989	02	11.51128	11	32	43.42	+17	40	23.1		2 675
1989	CJ1		1989	02	12.47274	11	32	10.02	+18	04	37.4		2 675
1989	CK1		1989	01	11.45138	09	34	55.23	+33	49	13.2	17	3 675
1989	CK1		1989	01	11.49201	09	34	54.12	+33	49	27.4		3 675
1989	CK1	*	1989	02	02.29704	09	22	50.34	+35	42	52.0	17	3 675
1989	CK1		1989	02	02.32986	09	22	49.02	+35	42	58.5		3 675
1989	CQ1		1989	01	11.48350	08	56	51.28	+23	23	47.9	17	3 675
1989	CQ1		1989	01	14.48871	08	55	07.99	+23	26	49.5		3 675
1989	CQ1		1989	01	14.52065	08	55	06.74	+23	26	52.0		3 675
1989	CQ1	*	1989	02	02.28072	08	43	27.68	+23	41	43.5	18	3 675
1989	CQ1		1989	02	02.31354	08	43	26.38	+23	41	45.4		3 675
1989	CA2	*	1989	02	06.41528	08	06	44.21	+22	44	23.0	17.0	2 675
1989	CA2		1989	02	06.44792	08	06	42.48	+22	44	29.0		2 675
1989	CA2		1989	02	11.22760	08	03	09.07	+23	00	45.5		2 675
1989	CA2		1989	02	11.26493	08	03	07.32	+23	00	53.6		2 675
1989	CB2	*	1989	02	11.42326	11	25	14.28	+08	53	50.2	17.0	2 675
1989	CB2		1989	02	11.45781	11	25	13.00	+08	54	10.0		2 675
1989	CB2		1989	02	12.46597	11	24	33.40	+09	04	03.4		2 675
1989	CC2	*	1989	02	06.43281	08	08	53.75	+08	28	51.2	17.0	2 675
1989	CC2		1989	02	10.24583	08	05	48.32	+09	03	58.5		2 675
1989	CE2	*	1989	02	11.43229	09	57	38.60	+07	47	53.0	16.0	2 675
1989	CE2		1989	02	11.46615	09	57	35.08	+07	47	38.4		2 675
1989	CE2		1989	03	01.23611	09	28	15.08	+05	53	15.8	16.8	2 675
1989	CE2		1989	03	01.26806	09	28	12.26	+05	53	15.1		2 675
1989	DA	*	1989	02	27.22222	08	27	21.82	+46	55	32.0	17	7 675
1989	DA		1989	02	28.17708	08	48	47.91	+43	18	07.1		7 675
1989	DA		1989	03	01.22587	09	09	05.56	+39	08	15.4	15.5	2 675
1989	DA		1989	03	01.25868	09	09	38.22	+39	00	24.5		2 675
6045	P-L	*	1960	09	24.33613	00	00	25.65	+05	10	29.0	17.5	4 675
6045	P-L		1960	09	25.32502	23	59	39.46	+05	02	40.9		4 675
6045	P-L		1960	09	26.27573	23	58	55.06	+04	55	06.1		4 675
6045	P-L		1960	09	28.32780	23	57	19.22	+04	38	34.8		4 675
6045	P-L		1960	10	17.21390	23	44	20.78	+02	07	58.4		4 675
6045	P-L		1960	10	22.15559	23	41	53.92	+01	33	00.0		4 675
6045	P-L		1960	10	24.18787	23	41	02.98	+01	19	34.6		4 675
6045	P-L		1960	10	26.26113	23	40	17.00	+01	06	32.1		4 675

```
4379 T-3 * 1977 10 16.28368  01 36 05.55  +02 18 09.5           17.5  4 675
4379 T-3   1977 10 16.34931  01 36 01.73  +02 17 40.1                 4 675
4379 T-3   1977 10 17.28628  01 35 08.93  +02 10 31.9                 4 675
4379 T-3   1977 10 17.35313  01 35 04.99  +02 10 01.1                 4 675
4379 T-3   1977 10 21.38698  01 31 16.56  +01 40 16.7                 4 675
4379 T-3   1977 10 21.44705  01 31 13.05  +01 39 51.2                 4 675
4379 T-3   1977 10 22.38542  01 30 20.27  +01 33 11.6                 4 675
4379 T-3   1977 10 22.44878  01 30 16.72  +01 32 46.2                 4 675
 910       1989 01 05.51424  09 16 16.74  +28 53 57.5           15.5  2 675
 910       1989 01 07.48212  09 15 02.18  +29 05 05.7                 2 675
1349       1988 12 06.23559  02 57 13.14  +30 14 17.1           15.0  2 675
1349       1988 12 07.31875  02 56 29.05  +30 08 27.4                 2 675
2013       1988 11 08.09479  22 19 01.07  -21 37 10.7           16.0  3 675
2013       1988 11 08.13108  22 19 04.05  -21 36 45.7                 3 675
2276       1988 09 05.25642  23 19 05.60  -00 45 59.7           15.2  2 675
```

688 Lowell Observatory, Anderson Mesa Station
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road,
Flagstaff, AZ 86001, U.S.A.
Observers A. Cummings, B. A. Skiff, N. G. Thomas, K. W. Zeigler
Measurer K. W. Zeigler
0.33-m photographic telescope
PDS scanning microdensitometer
AGK3 and Perth 70 secondary nets, global solutions
See also MPC 9533

```
1988 JH2 * 1988 05 13.16736  13 25 36.40  +11 55 13.5           16.8    688
1988 JH2   1988 05 13.29722  13 25 33.41  +11 56 26.2                   688
1988 JJ2 * 1988 05 13.21603  14 28 50.12  -03 51 23.4           16.5    688
1988 JJ2   1988 05 13.33194  14 28 43.46  -03 51 08.2                   688
1988 JK2 * 1988 05 14.22361  14 47 45.65  -15 05 18.1           16.5    688
1988 JK2   1988 05 14.35903  14 47 39.38  -15 03 17.5                   688
1988 JL2 * 1988 05 15.22361  14 30 22.08  +05 16 41.1           16.8    688
1988 JL2   1988 05 15.33333  14 30 16.16  +05 16 34.0                   688
3081       1982 10 09.13264  23 27 30.97  -10 45 16.2           17.2    688
3081       1982 10 09.19861  23 27 28.26  -10 45 11.4                   688
```

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

```
1940 WA    1989 01 04.25136  06 00 39.21  +14 54 51.6                   801
1940 WA    1989 02 08.05133  05 43 29.74  +13 21 56.9                   801
1966 TP    1989 02 09.31809  09 54 48.46  +13 36 29.6                   801
1973 SW    1989 02 02.17202  06 46 48.20  +03 04 24.7                   801
1973 SW    1989 02 08.12488  06 44 41.02  +03 26 11.2                   801
1977 QJ2   1986 11 28.34851  06 09 32.26  +30 05 44.8                   801
1977 QJ2   1988 03 18.30055  11 30 58.60  -02 30 57.0                 i 801
1977 QW2   1988 09 13.13474  21 59 08.88  -06 38 24.1                 i 801
1978 VL7   1987 08 25.31011  23 15 52.83  -00 36 59.5                   801
1981 UN    1987 06 25.21684  18 27 34.44  -21 35 19.1                   801
1981 WU    1986 02 09.32196  11 04 58.73  +06 38 47.2                   801
1981 WU    1987 06 25.19604  17 29 50.31  -18 37 14.6                   801
1981 WU    1989 02 09.06041  06 35 12.09  +20 32 58.4                   801
1982 BJ    1989 02 02.21822  07 50 52.28  +27 32 03.0                   801
1982 BJ    1989 02 08.21011  07 45 18.82  +29 34 22.4                   801
1982 TL1   1989 01 11.35442  07 03 09.68  +34 22 56.2                   801
1982 TL1   1989 02 08.15177  06 41 13.85  +33 47 35.9                   801
```

1982	UV1		1987	08	25.25098	22	25	07.68	-13	13	54.6	801
1982	XV		1988	08	10.29951	22	31	01.31	-10	58	42.7	U 801
1982	XV1		1989	01	11.37529	07	18	09.72	+32	20	13.7	801
1982	XV1		1989	02	08.17387	06	55	12.70	+33	13	19.0	801
1984	EO1		1988	04	19.17612	11	29	17.08	-01	25	18.3	801
1985	FZ1		1988	12	07.44276	09	45	01.69	+07	36	07.1	801
1985	FZ1		1989	02	09.26520	09	31	52.10	+13	57	45.3	801
1985	JR		1987	11	17.25037	04	48	16.19	+21	45	44.0	801
1985	JR		1989	02	09.41221	13	35	54.60	+10	21	57.3	801
1985	PG1		1987	01	30.16235	06	24	34.83	+09	23	23.2	801
1985	TQ		1989	02	08.36114	09	48	04.09	+16	37	23.5	801
1985	TQ		1989	02	09.28943	09	47	33.83	+16	39	51.9	801
1986	WD		1988	01	23.17984	07	02	23.04	+10	07	57.4	801
1986	WD		1989	02	09.22571	09	25	24.18	-00	38	19.7	801
1988	HM	*	1988	04	18.22538	13	14	24.87	+04	23	01.6	17.8 801
1988	JG2	*	1988	05	13.18666	13	45	34.46	+06	08	08.4	17 801
1988	RA		1989	02	01.99130	01	02	47.38	+44	17	09.9	801
1988	WC		1989	02	01.97100	03	40	50.51	-04	43	00.7	801
1988	XX1		1989	02	02.08327	05	30	53.02	+43	38	21.4	801
1989	AC		1989	02	02.14934	06	18	42.37	+23	14	23.1	801
1989	AC		1989	02	08.10082	06	33	29.64	+23	11	37.1	801
1989	DA		1989	03	03.06040	09	37	57.89	+31	48	52.3	801
1989	DA		1989	03	04.06918	09	50	49.02	+27	57	58.4	801
722			1988	12	13.14394	03	30	06.67	+22	27	14.1	801
951			1988	09	12.03769	18	10	41.19	-19	28	42.4	801
951			1988	12	04.95606	20	31	07.47	-15	30	31.2	B 801
951			1988	12	06.95203	20	35	24.03	-15	15	45.1	801
1698			1988	12	07.08756	02	35	22.06	+16	07	36.8	801
1698			1988	12	10.06458	02	33	53.34	+16	01	10.3	801
3938			1988	08	09.16362	19	26	04.48	-19	54	00.6	i 801
3943			1988	11	08.35756	04	17	01.88	+31	03	06.0	801
3943			1988	11	10.30977	04	14	54.39	+31	07	20.0	801
3960			1988	09	12.38352	02	37	37.76	-06	20	17.7	801

806 Cerro Calan
H. Wroblewski, Departamento de Astronomia, Universidad de Chile,
Casilla 36-D, Santiago, Chile
Observers H. Wroblewski, C. Torres
Normal Gautier astrograph
AGK3, SAOC

1	1983	10	18.06442	21	21	14.44	-28	13	59.3	806
1	1983	10	18.07134	21	21	14.51	-28	13	57.4	806
1	1983	10	18.07827	21	21	14.66	-28	13	55.2	806
2	1983	07	26.16010	18	32	01.37	+20	24	57.4	806
2	1983	07	26.17396	18	32	00.84	+20	24	51.2	806
2	1983	08	02.14169	18	27	46.35	+19	21	35.4	806
2	1983	08	02.14861	18	27	46.11	+19	21	32.3	806
2	1983	08	02.15554	18	27	45.82	+19	21	28.2	806
3	1983	10	18.18492	02	17	12.86	-02	43	17.2	806
3	1983	10	18.19254	02	17	12.56	-02	43	22.7	806
3	1983	10	18.20016	02	17	12.29	-02	43	28.7	806
6	1983	07	19.12382	17	13	15.59	-06	20	54.9	806
6	1983	07	19.13074	17	13	15.32	-06	20	58.3	806
6	1983	07	19.13767	17	13	15.08	-06	21	01.4	806
6	1983	09	03.03021	17	16	56.49	-13	01	30.2	806
6	1983	09	03.03715	17	16	56.80	-13	01	33.3	806
6	1983	09	03.04410	17	16	57.05	-13	01	36.7	806
7	1983	05	31.19251	17	42	40.67	-23	19	28.1	806
7	1983	05	31.19944	17	42	40.29	-23	19	27.9	806

7		1983	05	31.20636	17	42	39.99	-23 19 26.7	806
7		1983	07	16.02882	16	58	58.20	-21 21 08.7	806
7		1983	07	16.03575	16	58	57.92	-21 21 08.2	806
7		1983	07	16.04267	16	58	57.64	-21 21 07.2	806
7		1983	09	03.00382	17	01	59.11	-20 38 22.3	806
7		1983	09	03.01076	17	01	59.41	-20 38 22.5	806
7		1983	09	03.01771	17	01	59.71	-20 38 22.4	806
18		1983	04	19.10937	10	23	53.17	+15 03 27.4	806
18		1983	04	19.11632	10	23	53.12	+15 03 27.9	806
25		1983	04	19.14132	12	45	35.10	-14 05 56.9	806
25		1983	04	19.14826	12	45	34.70	-14 05 51.0	806
25		1983	04	19.15521	12	45	34.39	-14 05 44.8	806
25		1983	05	10.13143	12	32	40.77	-08 42 08.9	806
25		1983	05	10.13835	12	32	40.66	-08 42 03.3	806
25		1983	05	10.14528	12	32	40.49	-08 41 57.7	806
532		1983	07	19.15083	17	55	28.19	-19 28 21.2	806
532		1983	07	19.15775	17	55	27.88	-19 28 22.9	806
532		1983	07	19.16468	17	55	27.56	-19 28 25.2	806
532		1983	07	26.12964	17	51	14.96	-20 11 49.6	806
532		1983	07	26.13656	17	51	14.76	-20 11 51.5	806
532		1983	07	26.14349	17	51	14.49	-20 11 54.3	806
704		1983	04	19.17396	13	24	17.36	-33 15 59.9	806
704		1983	04	19.18090	13	24	16.97	-33 15 58.5	806
704		1983	04	19.18785	13	24	16.62	-33 15 55.9	806
704		1983	05	10.16398	13	08	39.26	-30 59 24.2	806
704		1983	05	10.17090	13	08	39.11	-30 59 21.7	806
704		1983	05	10.17784	13	08	38.80	-30 59 18.0	806

809 European Southern Observatory
W. Ferreri, Osservatorio Astronomico, I-10025 Pino Torinese, Italy (1)
W. Landgraf, University Observatory, Geissmarlandstrasse 11, D-3400, Gottingen, Federal Republic of Germany (2)
H. Debehogne, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium (3)
E. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium (4)
Observers H. Debehogne, E. W. Elst, W. Ferreri, W. Landgraf
Measurers H. Debehogne, G. De Sanctis, E. W. Elst, W. Landgraf
GPO 0.4-m astrograph

1977	QJ2	1988	03	17.06424	11	32	08.26	-02 36 14.4	1 809
1977	QJ2	1988	03	17.08507	11	32	06.92	-02 36 09.1	1 809
1977	QJ2	1988	03	18.07049	11	31	11.61	-02 31 53.1	1 809
1977	QJ2	1988	03	18.09132	11	31	10.52	-02 31 47.6	1 809
1977	QJ2	1988	03	23.13924	11	26	30.18	-02 09 23.3	1 809
1977	QJ2	1988	03	23.16354	11	26	28.65	-02 09 17.3	1 809
1977	QJ2	1988	03	23.18142	11	26	27.93	-02 09 12.2	1 809
1977	QJ2	1988	03	24.10451	11	25	37.77	-02 05 02.7	1 809
1977	QJ2	1988	03	24.12465	11	25	36.62	-02 04 57.1	1 809
1979	XK	1988	03	19.28437	13	56	32.20	-10 23 54.8	1 809
1979	XK	1988	03	19.30243	13	56	31.58	-10 23 51.5	1 809
1979	XK	1988	03	19.31215	13	56	31.30	-10 23 50.1	1 809
1979	XK	1988	03	20.30799	13	55	59.77	-10 20 34.5	1 809
1979	XK	1988	03	20.33090	13	55	58.89	-10 20 29.4	1 809
1981	EN12	1988	03	20.14826	12	19	20.85	-07 09 23.7	1 809
1981	EN12	1988	03	20.17118	12	19	19.46	-07 09 16.1	1 809
1981	EN12	1988	03	25.18438	12	14	49.66	-06 37 58.8	1 809
1981	EN12	1988	03	25.21146	12	14	48.26	-06 37 49.2	1 809
1981	EN12	1988	03	26.25104	12	13	51.54	-06 30 59.5	1 809

1981	EN12	1988	03	26.27257	12	13	50.26	-06	30	50.0	1 809
1981	ET24	1988	03	22.26215	12	03	17.22	-00	03	32.8	1 809
1981	ET24	1988	03	22.27118	12	03	16.74	-00	03	26.5	1 809
1981	ET24	1988	03	22.29132	12	03	15.52	-00	03	13.6	1 809
1981	EY35	1988	03	19.25312	13	23	21.65	-10	04	18.1	1 809
1981	EY35	1988	03	19.27465	13	23	20.75	-10	04	17.4	1 809
1981	EY35	1988	03	20.25868	13	22	40.42	-10	03	35.0	1 809
1981	EY35	1988	03	20.28160	13	22	39.41	-10	03	33.3	1 809
1981	EY35	1988	03	20.29375	13	22	38.87	-10	03	32.5	1 809
1981	EY35	1988	03	25.28993	13	18	49.79	-09	57	40.8	1 809
1981	EY35	1988	03	25.31354	13	18	48.50	-09	57	38.0	1 809
1981	EY35	1988	03	26.31285	13	17	58.31	-09	56	02.3	1 809
1981	EY35	1988	03	26.33368	13	17	57.22	-09	55	59.8	1 809
1984	EO1	1988	03	15.21146	11	59	29.04	-03	17	38.1	1 809
1984	EO1	1988	03	15.23368	11	59	27.66	-03	17	33.1	1 809
1984	EO1	1988	03	16.17396	11	58	32.75	-03	14	34.4	1 809
1984	EO1	1988	03	16.20174	11	58	30.96	-03	14	29.7	1 809
1984	EO1	1988	03	21.13437	11	53	37.94	-02	57	54.3	1 809
1984	EO1	1988	03	21.16285	11	53	36.08	-02	57	47.7	1 809
1984	EO1	1988	03	22.21771	11	52	33.03	-02	54	06.7	1 809
1984	EO1	1988	03	22.23854	11	52	31.73	-02	54	01.8	1 809
1984	EO1	1988	03	22.24757	11	52	31.20	-02	54	00.3	1 809
1985	KC	1988	03	19.19062	12	41	04.32	-08	47	32.2	1 809
1985	KC	1988	03	19.21354	12	41	02.80	-08	47	28.0	1 809
1985	KC	1988	03	20.18368	12	40	04.52	-08	45	11.0	1 809
1985	KC	1988	03	20.21215	12	40	02.83	-08	45	05.3	1 809
1985	KC	1988	03	25.22118	12	34	50.00	-08	31	16.8	1 809
1985	KC	1988	03	25.25035	12	34	47.94	-08	31	10.6	1 809
1985	KC	1988	03	26.28229	12	33	41.87	-08	27	58.1	1 809
1985	KC	1988	03	26.30313	12	33	40.35	-08	27	53.0	1 809
1985	PG1	1988	03	15.17951	11	46	50.61	-02	24	13.7	1 809
1985	PG1	1988	03	15.20104	11	46	49.63	-02	24	04.6	1 809
1985	PG1	1988	03	16.13993	11	46	09.53	-02	17	31.5	1 809
1985	PG1	1988	03	16.16215	11	46	08.69	-02	17	21.6	1 809
1985	PG1	1988	03	21.08229	11	42	39.24	-01	42	37.2	1 809
1985	PG1	1988	03	21.10868	11	42	38.15	-01	42	25.5	1 809
1985	PG1	1988	03	21.12083	11	42	37.73	-01	42	21.2	1 809
1988	EA	1988	03	24.24236	12	17	41.90	-02	53	24.6	1 809
1988	EA	1988	03	24.26389	12	17	39.31	-02	53	38.3	1 809
1988	EA	1988	03	25.09722	12	16	03.95	-03	02	33.6	1 809
1988	EA	1988	03	25.11667	12	16	01.52	-03	02	45.4	1 809
1988	EG	1988	03	22.18646	10	58	49.82	+05	00	45.1	1 809
1988	EG	1988	03	22.20660	10	58	48.47	+05	01	10.8	1 809
1988	EG	1988	03	25.15451	10	57	18.40	+05	57	58.9	1 809
1988	EG	1988	03	25.17674	10	57	17.58	+05	58	21.8	1 809
1988	EG	1988	03	26.15972	10	56	56.75	+06	14	02.0	1 809
1988	EG	1988	03	26.18125	10	56	56.02	+06	14	19.6	1 809
1988	EU	1988	03	23.22396	11	53	23.46	+05	07	35.5	1 809
1988	EU	1988	03	23.25590	11	53	21.88	+05	07	41.1	1 809
1988	EU	1988	03	24.21458	11	52	38.74	+05	11	06.6	1 809
1988	EU	1988	03	24.23368	11	52	37.67	+05	11	11.7	1 809
1988	EO1	1988	03	19.22326	13	12	16.60	-06	60	05.1	1 809
1988	EO1	1988	03	19.24410	13	12	15.75	-06	59	59.2	1 809
1988	EO1	1988	03	20.22257	13	11	40.38	-06	56	43.5	1 809
1988	EO1	1988	03	20.24896	13	11	39.38	-06	56	36.4	1 809
1988	EO1	1988	03	25.26007	13	08	24.54	-06	38	28.9	1 809
1988	EO1	1988	03	25.28090	13	08	23.68	-06	38	23.1	1 809
1988	EB2	1988	03	25.12431	12	17	04.26	-01	22	35.0	1 809

1988	EB2		1988	03	25.14444	12	17	03.10	-01	22	23.7	1 809
1988	EB2		1988	03	26.22049	12	16	04.68	-01	13	01.0	1 809
1988	EB2		1988	03	26.23993	12	16	03.68	-01	12	51.6	1 809
1988	EQ2	*	1988	03	15.11146	10	24	48.93	+07	16	37.0	1 809
1988	EQ2		1988	03	15.12674	10	24	47.87	+07	16	43.4	1 809
1988	ER2	*	1988	03	15.32326	13	54	09.95	-14	43	10.4	1 809
1988	ER2		1988	03	15.33854	13	54	09.57	-14	43	08.9	1 809
1988	ER2		1988	03	16.27604	13	53	49.84	-14	41	46.6	1 809
1988	ER2		1988	03	16.29410	13	53	49.45	-14	41	44.0	1 809
1988	ER2		1988	03	21.24549	13	51	35.64	-14	31	17.7	1 809
1988	ER2		1988	03	21.26910	13	51	34.82	-14	31	12.2	1 809
1988	ER2		1988	03	21.28160	13	51	34.46	-14	31	10.4	1 809
1988	ER2		1988	03	22.32951	13	50	59.98	-14	28	19.7	1 809
1988	ER2		1988	03	22.34826	13	50	59.31	-14	28	16.4	1 809
1988	FM1		1988	03	17.02604	10	54	59.28	+01	17	08.0	1 809
1988	FM1		1988	03	17.05104	10	54	58.13	+01	17	12.4	1 809
1988	FM1		1988	03	18.03785	10	54	11.46	+01	19	58.6	1 809
1988	FM1		1988	03	18.06076	10	54	10.34	+01	20	02.3	1 809
1988	FM1		1988	03	20.04618	10	52	38.33	+01	25	34.1	1 809
1988	FM1		1988	03	20.07049	10	52	37.19	+01	25	38.7	1 809
1988	FM1		1988	03	23.10451	10	50	21.80	+01	33	53.0	1 809
1988	FM1		1988	03	23.12813	10	50	20.76	+01	33	56.8	1 809
1988	FF2		1988	03	19.12813	12	17	31.18	-01	06	16.9	1 809
1988	FF2		1988	03	19.15174	12	17	30.07	-01	06	03.9	1 809
1988	FF2		1988	03	20.11563	12	16	46.26	-00	56	54.9	1 809
1988	FF2		1988	03	20.13854	12	16	45.10	-00	56	41.4	1 809
1988	FS2		1988	03	15.24410	12	10	07.87	-00	17	34.1	1 809
1988	FS2		1988	03	15.28090	12	10	05.72	-00	17	25.3	1 809
1988	FS2		1988	03	16.21493	12	09	15.47	-00	13	33.3	1 809
1988	FS2		1988	03	16.23507	12	09	14.27	-00	13	28.0	1 809
1988	FS2		1988	03	22.26215	12	03	38.35	+00	12	10.1	1 809
1988	FS2		1988	03	22.27118	12	03	37.76	+00	12	12.8	1 809
1988	FS2		1988	03	22.29132	12	03	36.57	+00	12	18.4	1 809
1988	FW2	*	1988	03	17.06424	11	34	50.84	-02	27	27.6	1 809
1988	FW2		1988	03	17.08507	11	34	49.81	-02	27	17.1	1 809
1988	FW2		1988	03	18.07049	11	33	58.81	-02	18	17.6	1 809
1988	FW2		1988	03	18.09132	11	33	57.65	-02	18	05.3	1 809
1988	FW2		1988	03	23.13924	11	29	41.97	-01	31	37.9	1 809
1988	FW2		1988	03	23.16354	11	29	40.80	-01	31	25.8	1 809
1988	FW2		1988	03	23.18142	11	29	39.86	-01	31	16.3	1 809
1988	FW2		1988	03	24.10451	11	28	54.89	-01	22	47.4	1 809
1988	FW2		1988	03	24.12465	11	28	53.96	-01	22	36.7	1 809
1988	FX2	*	1988	03	17.13368	12	04	42.39	+03	23	08.4	1 809
1988	FX2		1988	03	17.17326	12	04	40.09	+03	23	14.3	1 809
1988	FX2		1988	03	17.18681	12	04	39.36	+03	23	16.1	1 809
1988	FX2		1988	03	18.13229	12	03	46.92	+03	25	30.5	1 809
1988	FX2		1988	03	18.15451	12	03	45.56	+03	25	32.7	1 809
1988	FX2		1988	03	23.22396	11	59	01.62	+03	36	59.9	1 809
1988	FX2		1988	03	23.25590	11	58	59.86	+03	37	05.0	1 809
1988	FX2		1988	03	24.21458	11	58	06.64	+03	39	05.7	1 809
1988	FX2		1988	03	24.23368	11	58	05.43	+03	39	09.3	1 809
1988	FY2	*	1988	03	17.20382	12	10	19.00	-02	38	48.5	1 809
1988	FY2		1988	03	17.22535	12	10	17.71	-02	38	41.6	1 809
1988	FZ2	*	1988	03	17.20382	12	14	04.07	-02	35	44.3	1 809
1988	FZ2		1988	03	17.22535	12	14	02.84	-02	35	40.8	1 809
1988	FZ2		1988	03	26.19201	12	07	55.32	-01	26	26.1	1 809
1988	FZ2		1988	03	26.21076	12	07	54.42	-01	26	13.8	1 809
1988	FA3	*	1988	03	17.20382	12	14	35.27	-02	15	05.9	1 809
1988	FA3		1988	03	17.22535	12	14	34.17	-02	14	57.3	1 809

1988	FA3		1988	03	18.16424	12	13	49.27	-02	09	21.0	1 809
1988	FA3		1988	03	18.18854	12	13	48.06	-02	09	12.0	1 809
1988	FA3		1988	03	23.26493	12	09	39.63	-01	38	12.6	1 809
1988	FA3		1988	03	23.29201	12	09	38.21	-01	38	02.0	1 809
1988	FA3		1988	03	26.19201	12	07	15.88	-01	20	07.1	1 809
1988	FA3		1988	03	26.21076	12	07	14.96	-01	20	00.5	1 809
1988	FB3	*	1988	03	19.09965	10	19	02.70	+07	16	00.9	1 809
1988	FB3		1988	03	19.11840	10	19	01.93	+07	16	05.6	1 809
1988	FC3	*	1988	03	19.12813	12	19	55.79	-02	06	16.1	1 809
1988	FC3		1988	03	19.15174	12	19	54.32	-02	06	07.2	1 809
1988	FC3		1988	03	20.11563	12	18	56.57	-01	59	57.9	1 809
1988	FC3		1988	03	20.13854	12	18	55.10	-01	59	48.1	1 809
1988	FC3		1988	03	25.12431	12	13	49.16	-01	27	10.8	1 809
1988	FC3		1988	03	25.14444	12	13	47.81	-01	27	02.5	1 809
1988	FC3		1988	03	26.22049	12	12	40.83	-01	19	55.4	1 809
1988	FC3		1988	03	26.23993	12	12	39.53	-01	19	46.4	1 809
1988	FD3	*	1988	03	19.16076	12	21	51.62	-07	35	08.7	1 809
1988	FD3		1988	03	19.18160	12	21	50.25	-07	35	03.6	1 809
1988	FD3		1988	03	20.14826	12	20	51.88	-07	32	02.1	1 809
1988	FD3		1988	03	20.17118	12	20	50.50	-07	31	56.7	1 809
1988	FD3		1988	03	25.18438	12	15	39.12	-07	14	14.9	1 809
1988	FD3		1988	03	25.21146	12	15	37.68	-07	14	09.7	1 809
1988	FD3		1988	03	26.25104	12	14	32.22	-07	10	08.5	1 809
1988	FD3		1988	03	26.27257	12	14	30.82	-07	10	03.4	1 809
1988	FE3	*	1988	03	19.25313	13	20	11.45	-10	33	37.0	1 809
1988	FE3		1988	03	19.27465	13	20	10.56	-10	33	32.3	1 809
1988	FE3		1988	03	20.25868	13	19	34.29	-10	29	58.4	1 809
1988	FE3		1988	03	20.28160	13	19	33.32	-10	29	51.7	1 809
1988	FE3		1988	03	20.29375	13	19	32.88	-10	29	50.5	1 809
1988	FE3		1988	03	25.28993	13	16	12.59	-10	09	44.7	1 809
1988	FE3		1988	03	25.31354	13	16	11.47	-10	09	38.1	1 809
1988	FE3		1988	03	26.31285	13	15	28.66	-10	05	14.7	1 809
1988	FE3		1988	03	26.33368	13	15	27.69	-10	05	09.3	1 809
1988	FF3	*	1988	03	19.28438	13	52	03.38	-11	19	18.2	1 809
1988	FF3		1988	03	19.30243	13	52	02.84	-11	19	15.2	1 809
1988	FF3		1988	03	19.31215	13	52	02.59	-11	19	14.1	1 809
1988	FF3		1988	03	20.30799	13	51	34.30	-11	17	09.5	1 809
1988	FF3		1988	03	20.33090	13	51	33.59	-11	17	05.9	1 809
1988	FF3		1988	03	25.32326	13	48	54.31	-11	05	03.4	1 809
1988	FF3		1988	03	25.34410	13	48	53.54	-11	04	59.6	1 809
1988	FG3	*	1988	03	21.08229	11	45	41.88	-01	59	49.6	1 809
1988	FG3		1988	03	21.10868	11	45	40.68	-01	59	30.7	1 809
1988	FG3		1988	03	21.12083	11	45	40.11	-01	59	21.1	1 809
1988	FG3		1988	03	22.15660	11	44	52.99	-01	46	27.5	1 809
1988	FG3		1988	03	22.17743	11	44	51.91	-01	46	10.2	1 809
1988	FH3	*	1988	03	23.22396	11	58	10.95	+04	25	00.9	1 809
1988	FH3		1988	03	23.25590	11	58	09.57	+04	25	15.8	1 809
1988	FH3		1988	03	24.21458	11	57	24.10	+04	30	00.9	1 809
1988	FH3		1988	03	24.23368	11	57	23.09	+04	30	07.5	1 809
1988	FJ3	*	1988	03	25.28993	13	15	51.69	-09	56	02.3	1 809
1988	FJ3		1988	03	25.31354	13	15	50.46	-09	55	59.5	1 809
1988	FJ3		1988	03	26.31285	13	15	02.54	-09	54	36.8	1 809
1988	FJ3		1988	03	26.33368	13	15	01.39	-09	54	34.1	1 809
1988	GZ		1988	03	23.30139	12	41	48.29	-01	07	39.4	1 809
1988	GZ		1988	03	23.31875	12	41	47.37	-01	07	36.7	1 809
1988	GZ		1988	03	24.27361	12	41	03.34	-01	04	09.5	1 809
1988	GZ		1988	03	24.29375	12	41	02.35	-01	04	05.7	1 809
1988	HC		1988	03	17.23646	12	25	48.25	-04	06	54.1	1 809
1988	HC		1988	03	17.25521	12	25	47.11	-04	06	53.3	1 809

1988	HC		1988	03	18.19757	12	24	51.70	-04	07	15.8	1 809
1988	HC		1988	03	18.21979	12	24	50.35	-04	07	15.7	1 809
1988	HC		1988	03	24.24236	12	18	43.46	-04	08	19.4	1 809
1988	HC		1988	03	24.26389	12	18	42.04	-04	08	18.7	1 809
1988	HC		1988	03	25.09722	12	17	50.62	-04	08	21.0	1 809
1988	HC		1988	03	25.11667	12	17	49.39	-04	08	20.1	1 809
1988	JQ2		1988	05	15.24132	14	35	47.49	-09	50	37.3	2 809
1988	JQ2	*	1988	05	15.24618	14	35	47.37	-09	50	37.0	17.2 2 809
1988	JQ2		1988	05	15.25104	14	35	47.29	-09	50	33.9	2 809
1988	JR2		1988	05	15.24132	14	38	06.25	-08	19	32.3	2 809
1988	JR2	*	1988	05	15.24618	14	38	06.27	-08	19	31.2	16.8 2 809
1988	JR2		1988	05	15.25104	14	38	06.14	-08	19	31.7	2 809
1988	JS2	*	1988	05	15.41493	00	45	53.73	-08	35	02.0	2 809
1988	JS2		1988	05	15.41979	00	45	54.07	-08	34	58.0	2 809
1988	JS2		1988	05	15.42465	00	45	54.23	-08	34	52.5	2 809
1988	KC1	*	1988	05	16.25660	14	36	41.93	-09	38	19.2	17.5 2 809
1988	KD1		1988	05	16.25174	14	37	44.03	-09	35	41.3	2 809
1988	KD1	*	1988	05	16.25660	14	37	43.77	-09	35	39.7	2 809
1988	KD1		1988	05	16.26148	14	37	43.71	-09	35	39.5	2 809
1988	KE1		1988	05	16.25174	14	37	51.81	-08	49	01.3	16.5 2 809
1988	KE1	*	1988	05	16.25660	14	37	51.64	-08	48	59.3	2 809
1988	KE1		1988	05	16.26148	14	37	51.46	-08	48	55.2	2 809
1988	KF1		1988	05	16.25174	14	38	02.65	-09	50	24.2	17.2 2 809
1988	KF1	*	1988	05	16.25660	14	38	02.51	-09	50	23.6	2 809
1988	KF1		1988	05	16.26148	14	38	02.22	-09	50	22.9	2 809
1988	KG1		1988	05	16.25174	14	39	06.53	-08	50	23.5	17.0 2 809
1988	KG1	*	1988	05	16.25660	14	39	06.44	-08	50	23.3	2 809
1988	KG1		1988	05	16.26148	14	39	06.29	-08	50	22.6	2 809
1988	KH1		1988	05	16.25174	14	42	10.22	-09	20	37.7	17.5 2 809
1988	KH1	*	1988	05	16.25660	14	42	10.14	-09	20	40.2	2 809
1988	KH1		1988	05	16.26148	14	42	09.97	-09	20	41.4	2 809
1988	KJ1		1988	05	17.12708	14	36	04.37	-09	49	36.8	2 809
1988	KJ1	*	1988	05	17.13750	14	36	03.97	-09	49	36.8	2 809
1988	KK1		1988	05	18.27813	14	33	57.94	-11	02	41.4	15.2 2 809
1988	KK1	*	1988	05	18.28299	14	33	57.66	-11	02	41.1	2 809
1988	KK1		1988	05	18.28785	14	33	57.48	-11	02	40.5	2 809
1988	KL1		1988	05	18.27813	14	33	59.92	-09	30	08.8	16 2 809
1988	KL1	*	1988	05	18.28299	14	33	59.49	-09	30	10.1	2 809
1988	KL1		1988	05	18.28785	14	33	59.19	-09	30	12.2	2 809
1988	KM1		1988	05	23.16181	14	34	28.81	-09	39	14.4	2 809
1988	KM1	*	1988	05	23.16736	14	34	28.60	-09	39	14.2	17.5 2 809
1988	KN1		1988	05	23.16181	14	36	15.72	-08	17	52.2	2 809
1988	KN1	*	1988	05	23.16736	14	36	15.65	-08	17	50.6	17.4 2 809
1988	KN1		1988	05	23.17292	14	36	15.56	-08	17	50.1	2 809
1988	KO1	*	1988	05	23.16736	14	37	03.81	-09	31	02.2	15.9 2 809
1988	KP1	*	1988	05	23.18889	14	30	24.46	-11	01	54.9	16.7 2 809
1988	KQ1		1988	05	24.16007	14	35	45.41	-09	07	52.7	2 809
1988	KQ1	*	1988	05	24.16493	14	35	44.90	-09	07	55.8	16.5 2 809
1988	KQ1		1988	05	24.16979	14	35	44.76	-09	07	56.3	2 809
1988	KR1		1988	05	24.16007	14	39	31.23	-09	11	10.5	2 809
1988	KR1	*	1988	05	24.16493	14	39	31.05	-09	11	08.0	15.2 2 809
1988	KR1		1988	05	24.16979	14	39	30.85	-09	11	06.2	2 809
1988	RD7	*	1988	09	01.08646	22	49	06.18	-05	04	05.0	3 809
1988	RD7		1988	09	01.09271	22	49	05.77	-05	04	06.3	3 809
1988	RD7		1988	09	01.09896	22	49	05.37	-05	04	07.7	3 809
1988	RE7	*	1988	09	01.15382	23	25	10.14	-02	17	21.5	16.9 3 809
1988	RE7		1988	09	01.16007	23	25	09.82	-02	17	24.2	3 809
1988	RE7		1988	09	01.16632	23	25	09.51	-02	17	26.9	3 809
1988	RF7	*	1988	09	02.06493	22	45	42.02	-21	07	08.9	15.0 3 809

1988	RF7		1988	09	02.07118	22	45	41.79	-21	07	11.7	3 809
1988	RF7		1988	09	02.07743	22	45	41.56	-21	07	14.2	3 809
1988	RG7	*	1988	09	02.10104	22	17	53.55	-14	54	57.9	17.6 3 809
1988	RG7		1988	09	02.10729	22	17	53.22	-14	54	58.2	3 809
1988	RG7		1988	09	02.11354	22	17	52.92	-14	54	58.5	3 809
1988	RH7	*	1988	09	02.10104	22	19	29.56	-14	04	36.4	17.5 3 809
1988	RH7		1988	09	02.10729	22	19	29.28	-14	04	38.1	3 809
1988	RH7		1988	09	02.11354	22	19	28.88	-14	04	40.1	3 809
1988	RJ7	*	1988	09	02.10104	22	22	07.70	-15	15	45.5	17.6 3 809
1988	RJ7		1988	09	02.10729	22	22	07.45	-15	15	47.2	3 809
1988	RJ7		1988	09	02.11354	22	22	07.16	-15	15	48.6	3 809
1988	RK7	*	1988	09	02.17049	22	53	23.42	-10	51	10.0	17.0 3 809
1988	RK7		1988	09	02.17674	22	53	23.07	-10	51	12.9	3 809
1988	RK7		1988	09	02.18299	22	53	22.73	-10	51	15.8	3 809
1988	RL7	*	1988	09	05.21215	22	23	49.96	-21	29	50.8	3 809
1988	RL7		1988	09	05.21840	22	23	49.74	-21	29	53.6	3 809
1988	RL7		1988	09	05.22465	22	23	49.52	-21	29	56.5	3 809
1988	RM7	*	1988	09	09.12813	22	35	36.68	-07	11	53.1	16.9 3 809
1988	RM7		1988	09	09.13438	22	35	36.42	-07	11	54.6	3 809
1988	RM7		1988	09	09.14063	22	35	36.18	-07	11	56.2	3 809
1988	RN7	*	1988	09	12.35035	23	17	17.54	-06	43	28.3	16.2 3 809
1988	RN7		1988	09	12.35660	23	17	17.21	-06	43	28.6	3 809
1988	RN7		1988	09	12.36285	23	17	16.85	-06	43	28.9	3 809
65			1988	03	17.26771	12	44	27.14	-01	57	05.9	1 809
65			1988	03	17.28854	12	44	26.23	-01	56	59.5	1 809
65			1988	03	18.22882	12	43	51.47	-01	52	18.5	1 809
65			1988	03	18.25174	12	43	50.65	-01	52	10.8	1 809
65			1988	03	23.30139	12	40	37.89	-01	26	23.8	1 809
65			1988	03	23.31875	12	40	37.17	-01	26	18.3	1 809
65			1988	03	24.27361	12	39	59.53	-01	21	21.4	1 809
65			1988	03	24.29375	12	39	58.71	-01	21	15.4	1 809
78			1988	09	06.35590	23	11	31.55	-01	53	41.2	3 809
78			1988	09	06.36215	23	11	31.21	-01	53	42.3	3 809
78			1988	09	06.36840	23	11	30.87	-01	53	43.4	3 809
78			1988	09	10.35035	23	07	50.36	-02	06	22.4	3 809
78			1988	09	10.35660	23	07	49.91	-02	06	23.3	3 809
78			1988	09	10.36285	23	07	49.56	-02	06	24.2	3 809
78			1988	09	18.26736	23	00	34.29	-02	32	25.8	3 809
78			1988	09	18.27292	23	00	33.95	-02	32	26.8	3 809
78			1988	09	18.27847	23	00	33.61	-02	32	28.0	3 809
82			1987	08	21.31667	22	55	43.81	-10	07	05.7	12.0 4 809
82			1987	08	21.32708	22	55	43.43	-10	07	07.5	4 809
97			1988	09	01.13021	22	46	08.35	-07	45	07.1	3 809
97			1988	09	01.13646	22	46	08.05	-07	45	11.0	3 809
97			1988	09	01.14271	22	46	07.76	-07	45	15.0	3 809
97			1988	09	03.20660	22	44	30.06	-08	06	54.1	3 809
97			1988	09	03.21285	22	44	29.76	-08	06	57.8	3 809
97			1988	09	03.21910	22	44	29.44	-08	07	01.6	3 809
111			1987	08	25.26042	21	23	38.11	-12	49	23.8	11.0 4 809
111			1987	08	25.27083	21	23	37.50	-12	49	25.7	4 809
111			1987	08	25.28125	21	23	36.93	-12	49	27.2	4 809
111			1987	08	26.24583	21	22	46.36	-12	52	10.0	11.0 4 809
111			1987	08	26.25851	21	22	45.68	-12	52	12.0	4 809
111			1987	08	26.27014	21	22	45.03	-12	52	13.7	4 809
144			1988	09	02.06493	22	20	29.49	-19	56	12.4	3 809
144			1988	09	02.07118	22	20	29.18	-19	56	14.2	3 809
144			1988	09	02.07743	22	20	28.87	-19	56	16.4	3 809
144			1988	09	05.21215	22	17	56.86	-20	09	37.9	3 809
144			1988	09	05.21840	22	17	56.55	-20	09	39.5	3 809

144	1988	09	05.22465	22	17	56.24	-20	09	41.3		3 809
161	1987	08	26.35208	00	54	09.80	-01	05	58.8	9.0	4 809
161	1987	08	26.37361	00	54	09.29	-01	05	57.5		4 809
161	1987	08	26.39514	00	54	08.75	-01	05	56.4		4 809
161	1987	09	02.34444	00	50	38.77	-01	03	42.6	9.0	4 809
161	1987	09	02.35486	00	50	38.36	-01	03	42.6		4 809
161	1987	09	02.36528	00	50	37.92	-01	03	42.6		4 809
161	1987	09	03.38819	00	49	59.32	-01	03	48.0	10.0	4 809
161	1987	09	03.39861	00	49	58.77	-01	03	48.7		4 809
161	1987	09	04.32292	00	49	22.33	-01	03	57.5	10.0	4 809
161	1987	09	04.33333	00	49	21.85	-01	03	57.3		4 809
161	1987	09	04.34375	00	49	21.41	-01	03	57.1		4 809
167	1987	08	27.26458	22	54	40.05	-06	29	37.0	11.0	4 809
167	1987	08	27.27986	22	54	39.36	-06	29	42.2		4 809
167	1987	08	27.29028	22	54	38.85	-06	29	45.6		4 809
167	1987	08	30.32014	22	52	20.61	-06	46	22.0	11.0	4 809
167	1987	08	30.33056	22	52	20.06	-06	46	25.7		4 809
167	1987	08	30.34097	22	52	19.58	-06	46	28.9		4 809
167	1987	09	03.26806	22	49	17.10	-07	08	21.6	11.0	4 809
167	1987	09	03.28646	22	49	16.32	-07	08	27.2	11.0	4 809
176	1988	03	19.28437	13	55	05.54	-10	41	13.3		1 809
176	1988	03	19.30243	13	55	05.02	-10	41	05.6		1 809
176	1988	03	19.31215	13	55	04.83	-10	41	03.3		1 809
176	1988	03	20.30799	13	54	37.63	-10	34	19.0		1 809
176	1988	03	20.33090	13	54	36.95	-10	34	09.4		1 809
180	1988	09	01.13021	22	49	15.88	-06	50	52.6		3 809
180	1988	09	01.13646	22	49	15.56	-06	50	54.5		3 809
180	1988	09	01.14271	22	49	15.26	-06	50	56.4		3 809
180	1988	09	03.20660	22	47	32.77	-07	00	50.0		3 809
180	1988	09	03.21285	22	47	32.47	-07	00	51.8		3 809
180	1988	09	03.21910	22	47	32.17	-07	00	53.7		3 809
195	1988	09	10.10833	22	41	43.49	-13	19	20.1		3 809
195	1988	09	10.11632	22	41	43.09	-13	19	20.8		3 809
195	1988	09	10.12431	22	41	42.70	-13	19	21.7		3 809
217	1987	08	25.32847	22	54	28.27	-04	46	36.7	10.0	4 809
217	1987	08	25.33889	22	54	27.92	-04	46	45.0		4 809
217	1987	08	25.34931	22	54	27.62	-04	46	52.4		4 809
217	1987	08	30.32014	22	51	52.38	-05	46	55.8	10.0	4 809
217	1987	08	30.33056	22	51	52.00	-05	47	04.0		4 809
217	1987	08	30.34097	22	51	51.62	-05	47	11.6		4 809
217	1987	09	03.26806	22	49	43.38	-06	35	29.8	10.0	4 809
217	1987	09	03.28646	22	49	42.74	-06	35	43.7	10.0	4 809
243	1988	03	22.18646	10	56	42.16	+05	56	59.5		1 809
243	1988	03	22.20660	10	56	41.22	+05	57	04.4		1 809
243	1988	03	25.15451	10	54	37.98	+06	09	03.4		1 809
243	1988	03	25.17674	10	54	37.04	+06	09	08.9		1 809
243	1988	03	26.15972	10	53	57.61	+06	12	57.4		1 809
243	1988	03	26.18125	10	53	56.72	+06	13	02.7		1 809
289	1988	03	20.11563	12	15	32.23	-01	30	35.2		1 809
289	1988	03	20.13854	12	15	31.18	-01	30	27.0		1 809
289	1988	03	26.22049	12	11	02.11	-00	52	26.6		1 809
289	1988	03	26.23993	12	11	01.24	-00	52	18.2		1 809
295	1988	08	31.99618	20	56	16.73	-14	17	09.9		3 809
295	1988	09	01.00243	20	56	16.44	-14	17	11.2		3 809
295	1988	09	01.00868	20	56	16.18	-14	17	12.0		3 809
295	1988	09	03.01562	20	54	56.44	-14	22	35.0		3 809
295	1988	09	03.02188	20	54	56.20	-14	22	36.1		3 809
295	1988	09	03.02812	20	54	55.94	-14	22	36.9		3 809
355	1988	09	01.04201	22	09	09.57	-13	47	11.0		3 809

355	1988	09	01.04826	22	09	09.23	-13	47	12.5		3 809
355	1988	09	01.05451	22	09	08.88	-13	47	13.6		3 809
355	1988	09	03.08368	22	07	17.06	-13	53	49.5		3 809
355	1988	09	03.08993	22	07	16.72	-13	53	50.6		3 809
355	1988	09	03.09618	22	07	16.38	-13	53	51.5		3 809
355	1988	09	06.08785	22	04	35.34	-14	02	57.7		3 809
355	1988	09	06.09410	22	04	35.02	-14	02	58.7		3 809
355	1988	09	06.10035	22	04	34.70	-14	02	59.6		3 809
381	1988	09	05.09896	22	00	07.47	-20	47	22.3		3 809
381	1988	09	05.10521	22	00	07.20	-20	47	24.4		3 809
381	1988	09	05.11146	22	00	06.93	-20	47	26.3		3 809
385	1987	08	24.34653	22	55	46.30	-09	30	33.9	12.0	4 809
385	1987	08	24.35625	22	55	45.75	-09	30	35.6		4 809
385	1987	08	24.36667	22	55	45.16	-09	30	37.1		4 809
406	1988	03	19.16076	12	25	34.42	-07	41	48.1		1 809
406	1988	03	19.18160	12	25	33.43	-07	41	42.7		1 809
406	1988	03	20.14826	12	24	49.05	-07	37	54.2		1 809
406	1988	03	20.17118	12	24	47.98	-07	37	48.3		1 809
406	1988	03	25.18438	12	20	53.84	-07	17	03.1		1 809
406	1988	03	25.21146	12	20	52.79	-07	16	56.9		1 809
406	1988	03	26.25104	12	20	03.90	-07	12	28.5		1 809
406	1988	03	26.27257	12	20	02.85	-07	12	21.8		1 809
499	1987	09	04.19653	22	42	00.03	-05	13	13.3	16.5	4 809
499	1987	09	04.20694	22	41	59.62	-05	13	14.7		4 809
514	1988	09	06.12604	22	06	43.69	-05	53	53.9		3 809
514	1988	09	06.13229	22	06	43.39	-05	53	55.6		3 809
514	1988	09	06.13854	22	06	43.13	-05	53	57.1		3 809
514	1988	09	08.10035	22	05	19.29	-06	01	52.3		3 809
514	1988	09	08.10660	22	05	19.02	-06	01	53.5		3 809
514	1988	09	08.11285	22	05	18.78	-06	01	55.8		3 809
574	1988	03	25.18438	12	21	34.49	-07	25	31.9		1 809
574	1988	03	25.21146	12	21	32.85	-07	25	23.5		1 809
574	1988	03	26.25104	12	20	26.28	-07	20	23.6		1 809
574	1988	03	26.27257	12	20	24.85	-07	20	17.3		1 809
711	1988	03	25.15451	11	02	34.12	+07	00	39.9		1 809
711	1988	03	25.17674	11	02	32.77	+07	00	43.8		1 809
711	1988	03	26.15972	11	01	34.90	+07	03	50.2		1 809
711	1988	03	26.18125	11	01	33.59	+07	03	54.3		1 809
723	1988	09	03.16215	22	08	54.15	-10	07	23.6		3 809
723	1988	09	03.16840	22	08	53.88	-10	07	25.5		3 809
723	1988	09	03.17465	22	08	53.63	-10	07	27.8		3 809
723	1988	09	05.33229	22	07	21.25	-10	19	41.9		3 809
723	1988	09	05.33854	22	07	21.00	-10	19	44.0		3 809
723	1988	09	05.34479	22	07	20.75	-10	19	46.1		3 809
827	1988	09	08.27188	22	59	43.82	-05	23	08.3		3 809
827	1988	09	08.27813	22	59	43.51	-05	23	11.3		3 809
827	1988	09	08.28438	22	59	43.21	-05	23	14.4		3 809
827	1988	09	09.27812	22	58	54.77	-05	31	22.6		3 809
827	1988	09	09.28437	22	58	54.47	-05	31	25.6		3 809
827	1988	09	09.29062	22	58	54.16	-05	31	28.7		3 809
875	1987	08	20.25139	21	32	53.34	+06	58	21.8	16.7	4 809
875	1987	08	20.26181	21	32	52.92	+06	58	15.2		4 809
875	1987	08	20.27222	21	32	52.47	+06	58	09.2		4 809
875	1987	08	21.17257	21	32	13.85	+06	48	58.9	16.0	4 809
875	1987	08	21.18333	21	32	13.41	+06	48	52.7		4 809
875	1987	08	21.19444	21	32	12.93	+06	48	45.3		4 809
875	1987	08	29.14792	21	26	49.16	+05	19	52.0	16.0	4 809
875	1987	08	29.15972	21	26	48.68	+05	19	45.0		4 809
875	1987	08	29.17014	21	26	48.34	+05	19	37.8		4 809

875	1987	08	31.15903	21	25	35.00	+04	55	36.8		16.0	4 809
875	1987	08	31.16944	21	25	34.55	+04	55	29.2			4 809
903	1988	09	01.13021	22	47	05.05	-07	47	27.6			3 809
903	1988	09	01.13646	22	47	04.80	-07	47	30.3			3 809
903	1988	09	01.14271	22	47	04.55	-07	47	33.0			3 809
903	1988	09	03.20660	22	45	42.38	-08	02	39.5			3 809
903	1988	09	03.21285	22	45	42.12	-08	02	42.2			3 809
903	1988	09	03.21910	22	45	41.88	-08	02	44.9			3 809
1049	1988	03	17.09618	11	50	24.07	-05	29	00.3			1 809
1049	1988	03	17.12396	11	50	22.62	-05	28	57.0			1 809
1049	1988	03	18.10104	11	49	33.41	-05	26	58.8			1 809
1049	1988	03	18.12118	11	49	32.39	-05	26	56.2			1 809
1049	1988	03	23.19271	11	45	17.49	-05	15	56.2			1 809
1049	1988	03	23.21424	11	45	16.39	-05	15	53.3			1 809
1049	1988	03	24.16562	11	44	29.10	-05	13	43.0			1 809
1049	1988	03	24.18924	11	44	27.91	-05	13	39.1			1 809
1049	1988	03	24.19965	11	44	27.36	-05	13	37.7			1 809
1053	1988	09	02.06493	22	18	49.94	-20	43	34.5			3 809
1053	1988	09	02.07118	22	18	49.59	-20	43	35.1			3 809
1053	1988	09	02.07743	22	18	49.21	-20	43	35.8			3 809
1076	1988	09	02.17049	22	48	07.42	-09	17	24.5			3 809
1076	1988	09	02.17674	22	48	07.08	-09	17	27.0			3 809
1076	1988	09	02.18299	22	48	06.75	-09	17	29.5			3 809
1076	1988	09	07.31354	22	43	34.50	-09	52	04.0			3 809
1076	1988	09	07.31979	22	43	34.20	-09	52	06.2			3 809
1076	1988	09	07.32604	22	43	33.88	-09	52	08.4			3 809
1079	1988	09	01.13021	22	48	03.85	-07	16	13.7			3 809
1079	1988	09	01.13646	22	48	03.55	-07	16	15.4			3 809
1079	1988	09	01.14271	22	48	03.26	-07	16	16.8			3 809
1079	1988	09	03.20660	22	46	23.75	-07	25	29.4			3 809
1079	1988	09	03.21285	22	46	23.45	-07	25	31.2			3 809
1079	1988	09	03.21910	22	46	23.14	-07	25	32.9			3 809
1079	1988	09	09.12812	22	41	39.72	-07	51	44.3			3 809
1079	1988	09	09.13437	22	41	39.43	-07	51	46.0			3 809
1079	1988	09	09.14062	22	41	39.14	-07	51	47.8			3 809
1109	1988	09	06.12604	22	10	23.61	-05	11	53.2			3 809
1109	1988	09	06.13229	22	10	23.34	-05	11	54.6			3 809
1109	1988	09	06.13854	22	10	23.07	-05	11	56.9			3 809
1109	1988	09	08.10035	22	09	02.35	-05	19	46.6			3 809
1109	1988	09	08.10660	22	09	02.11	-05	19	47.9			3 809
1109	1988	09	08.11285	22	09	01.87	-05	19	49.5			3 809
1130	1988	03	17.20382	12	12	06.98	-03	29	51.6			1 809
1130	1988	03	17.22535	12	12	05.73	-03	29	42.4			1 809
1130	1988	03	18.16424	12	11	11.97	-03	23	23.8			1 809
1130	1988	03	18.18854	12	11	10.53	-03	23	13.3			1 809
1130	1988	03	23.26493	12	06	13.56	-02	48	02.7			1 809
1130	1988	03	23.29201	12	06	11.88	-02	47	50.1			1 809
1130	1988	03	26.19201	12	03	21.05	-02	27	15.0			1 809
1130	1988	03	26.21076	12	03	19.96	-02	27	06.5			1 809
1172	1987	08	20.25139	21	33	43.25	+07	40	06.7		16.5	4 809
1172	1987	08	20.26181	21	33	42.91	+07	40	05.2			4 809
1172	1987	08	20.27222	21	33	42.60	+07	40	04.2			4 809
1172	1987	08	21.17257	21	33	14.77	+07	37	56.4		16.0	4 809
1172	1987	08	21.18333	21	33	14.43	+07	37	55.1			4 809
1172	1987	08	21.19444	21	33	14.08	+07	37	53.4			4 809
1172	1987	08	30.13698	21	28	44.96	+07	12	44.6		16.0	4 809
1172	1987	08	30.14653	21	28	44.62	+07	12	43.1			4 809
1172	1987	08	30.15764	21	28	44.31	+07	12	41.1			4 809
1173	1987	08	24.31042	22	06	51.25	-04	31	40.7		16.8	4 809

1173	1987	08	24.32361	22	06	50.94	-04	31	41.9		4	809
1173	1987	08	24.33403	22	06	50.70	-04	31	43.9		4	809
1200	1988	03	15.17951	11	49	38.68	-02	25	37.0		1	809
1200	1988	03	15.20104	11	49	37.65	-02	25	28.8		1	809
1200	1988	03	16.13993	11	48	56.27	-02	19	50.3		1	809
1200	1988	03	16.16215	11	48	55.28	-02	19	42.0		1	809
1200	1988	03	21.08229	11	45	17.00	-01	49	27.0		1	809
1200	1988	03	21.10868	11	45	15.83	-01	49	17.4		1	809
1200	1988	03	21.12083	11	45	15.26	-01	49	12.3		1	809
1200	1988	03	22.15660	11	44	29.40	-01	42	45.8		1	809
1200	1988	03	22.17743	11	44	28.43	-01	42	38.0		1	809
1338	1988	09	03.18646	22	46	48.36	-05	13	33.4		3	809
1338	1988	09	03.19271	22	46	47.96	-05	13	34.6		3	809
1338	1988	09	03.19896	22	46	47.55	-05	13	35.6		3	809
1438	1988	09	02.14965	22	51	06.24	-03	44	30.0		3	809
1438	1988	09	02.15590	22	51	05.97	-03	44	31.6		3	809
1438	1988	09	02.16215	22	51	05.71	-03	44	33.4		3	809
1438	1988	09	05.28993	22	48	49.50	-03	59	01.1		3	809
1438	1988	09	05.29618	22	48	49.24	-03	59	02.9		3	809
1438	1988	09	05.30243	22	48	48.98	-03	59	04.5		3	809
1438	1988	09	06.30590	22	48	05.26	-04	03	48.4		3	809
1438	1988	09	06.31215	22	48	05.00	-04	03	50.1		3	809
1438	1988	09	06.31840	22	48	04.74	-04	03	51.7		3	809
1465	1987	08	25.32847	22	53	08.91	-04	53	28.0	17.5	4	809
1465	1987	08	25.33889	22	53	08.53	-04	53	31.8		4	809
1465	1987	08	25.34931	22	53	08.08	-04	53	36.0		4	809
1465	1987	08	30.32014	22	49	39.57	-05	27	13.1	17.5	4	809
1465	1987	08	30.33056	22	49	39.22	-05	27	16.6		4	809
1465	1987	08	30.34097	22	49	38.78	-05	27	20.5		4	809
1465	1987	09	03.26806	22	46	51.37	-05	54	21.6	17.5	4	809
1492	1987	08	26.35208	00	56	55.52	-00	27	38.8	17.6	4	809
1492	1987	08	26.37361	00	56	55.15	-00	27	46.6		4	809
1492	1987	08	26.39514	00	56	54.70	-00	27	55.1		4	809
1492	1987	08	29.35069	00	55	49.18	-00	47	09.3	17.8	4	809
1492	1987	08	29.36111	00	55	48.97	-00	47	13.7		4	809
1492	1987	08	29.37153	00	55	48.70	-00	47	17.4		4	809
1492	1987	09	02.34444	00	53	57.12	-01	15	17.5	17.0	4	809
1492	1987	09	02.35486	00	53	56.85	-01	15	21.9		4	809
1492	1987	09	02.36528	00	53	56.47	-01	15	27.3		4	809
1492	1987	09	04.32292	00	52	52.22	-01	30	04.4	17.5	4	809
1492	1987	09	04.33333	00	52	51.88	-01	30	08.8		4	809
1492	1987	09	04.34375	00	52	51.60	-01	30	12.7		4	809
1496	1987	09	04.19653	22	45	12.06	-03	47	47.1	16.0	4	809
1496	1987	09	04.20694	22	45	11.41	-03	47	49.5		4	809
1536	1988	09	01.15382	23	21	14.84	-02	12	22.7		3	809
1536	1988	09	01.16007	23	21	14.58	-02	12	25.1		3	809
1536	1988	09	01.16632	23	21	14.32	-02	12	27.3		3	809
1536	1988	09	03.23646	23	19	44.19	-02	24	32.1		3	809
1536	1988	09	03.24271	23	19	43.94	-02	24	34.1		3	809
1536	1988	09	03.24896	23	19	43.67	-02	24	36.3		3	809
1536	1988	09	06.35590	23	17	21.97	-02	43	42.4		3	809
1536	1988	09	06.36215	23	17	21.66	-02	43	45.0		3	809
1536	1988	09	06.36840	23	17	21.40	-02	43	47.4		3	809
1536	1988	09	07.37951	23	16	34.00	-02	50	14.4		3	809
1536	1988	09	08.37396	23	15	47.11	-02	56	39.4		3	809
1536	1988	09	08.38021	23	15	46.85	-02	56	41.9		3	809
1536	1988	09	08.38646	23	15	46.57	-02	56	44.3		3	809
1536	1988	09	20.30660	23	06	30.42	-04	15	13.3		3	809
1536	1988	09	20.31146	23	06	30.21	-04	15	15.7		3	809

1536	1988	09	20.31632	23	06	29.99	-04	15	18.1		3 809
1621	1988	03	19.28437	13	55	11.72	-10	16	50.7		1 809
1621	1988	03	19.30243	13	55	11.00	-10	16	44.7		1 809
1621	1988	03	19.31215	13	55	10.67	-10	16	42.1		1 809
1621	1988	03	20.30799	13	54	34.18	-10	11	36.2		1 809
1621	1988	03	20.33090	13	54	33.29	-10	11	28.9		1 809
1623	1987	08	24.34653	22	55	38.12	-09	32	59.6	16.8	4 809
1623	1987	08	24.35625	22	55	37.70	-09	33	03.2		4 809
1623	1987	08	24.36667	22	55	37.22	-09	33	06.7		4 809
1633	1987	09	01.30903	21	28	43.17	-16	48	18.1	16.5	4 809
1633	1987	09	01.31944	21	28	42.71	-16	48	18.6		4 809
1704	1988	09	01.08646	22	45	14.11	-06	08	10.4		3 809
1704	1988	09	01.09271	22	45	13.75	-06	08	12.5		3 809
1704	1988	09	01.09896	22	45	13.39	-06	08	14.7		3 809
1704	1988	09	03.18646	22	43	09.88	-06	20	34.4		3 809
1704	1988	09	03.19271	22	43	09.48	-06	20	36.5		3 809
1704	1988	09	03.19896	22	43	09.12	-06	20	38.5		3 809
1704	1988	09	09.12812	22	37	22.89	-06	55	30.3		3 809
1704	1988	09	09.13437	22	37	22.54	-06	55	32.2		3 809
1704	1988	09	09.14062	22	37	22.20	-06	55	34.5		3 809
1704	1988	09	12.29097	22	34	24.30	-07	13	36.3		3 809
1704	1988	09	12.29653	22	34	24.00	-07	13	38.3		3 809
1704	1988	09	12.30208	22	34	23.70	-07	13	40.4		3 809
1797	1988	03	17.26771	12	48	41.43	-02	49	13.1		1 809
1797	1988	03	17.28854	12	48	40.24	-02	49	07.3		1 809
1797	1988	03	18.22882	12	47	49.16	-02	44	52.1		1 809
1797	1988	03	18.25174	12	47	47.80	-02	44	45.7		1 809
1797	1988	03	23.30139	12	42	59.14	-02	20	58.6		1 809
1797	1988	03	23.31875	12	42	58.12	-02	20	53.8		1 809
1797	1988	03	24.27361	12	42	01.65	-02	16	15.7		1 809
1797	1988	03	24.29375	12	42	00.39	-02	16	10.3		1 809
1851	1988	09	01.04201	22	05	30.84	-14	01	01.4		3 809
1851	1988	09	01.04826	22	05	30.54	-14	01	02.6		3 809
1851	1988	09	01.05451	22	05	30.27	-14	01	04.0		3 809
1851	1988	09	03.06076	22	03	59.45	-14	07	58.5		3 809
1851	1988	09	03.06701	22	03	59.19	-14	07	59.8		3 809
1851	1988	09	03.07326	22	03	58.90	-14	08	01.0		3 809
1907	1988	09	03.25660	23	20	25.51	-05	36	20.6		3 809
1907	1988	09	03.26285	23	20	25.23	-05	36	23.0		3 809
1907	1988	09	03.26910	23	20	24.83	-05	36	25.4		3 809
1907	1988	09	06.38785	23	17	49.90	-05	57	03.1		3 809
1907	1988	09	06.39410	23	17	49.59	-05	57	05.8		3 809
1907	1988	09	06.40035	23	17	49.28	-05	57	08.2		3 809
1907	1988	09	12.35035	23	12	49.00	-06	36	28.9		3 809
1907	1988	09	12.35660	23	12	48.68	-06	36	31.1		3 809
1907	1988	09	12.36285	23	12	48.38	-06	36	33.5		3 809
1909	1987	08	31.23889	21	53	38.38	-09	39	48.4	17.0	4 809
1909	1987	08	31.24931	21	53	37.82	-09	39	51.7		4 809
1918	1988	03	24.24236	12	20	44.22	-04	38	45.4		1 809
1918	1988	03	24.26389	12	20	43.25	-04	38	37.3		1 809
1918	1988	03	25.09722	12	20	09.36	-04	33	00.8		1 809
1918	1988	03	25.11667	12	20	08.48	-04	32	52.6		1 809
1930	1988	09	03.01562	20	54	53.43	-15	32	08.4		3 809
1930	1988	09	03.02187	20	54	53.18	-15	32	07.2		3 809
1930	1988	09	03.02812	20	54	52.93	-15	32	06.1		3 809
1996	1988	03	17.20382	12	14	12.53	-01	52	41.9		1 809
1996	1988	03	17.22535	12	14	11.27	-01	52	39.7		1 809
1996	1988	03	18.16424	12	13	14.90	-01	51	03.0		1 809
1996	1988	03	18.18854	12	13	13.36	-01	51	00.1		1 809

1996	1988	03	23.26493	12	08	04.03	-01	41	55.8		1 809
1996	1988	03	23.29201	12	08	02.31	-01	41	52.8		1 809
1996	1988	03	26.19201	12	05	05.09	-01	36	32.2		1 809
1996	1988	03	26.21076	12	05	03.90	-01	36	29.6		1 809
2002	1988	09	02.14965	22	51	44.92	-02	44	53.5		3 809
2002	1988	09	02.15590	22	51	44.61	-02	44	57.2		3 809
2002	1988	09	02.16215	22	51	44.29	-02	45	00.2		3 809
2002	1988	09	05.28993	22	49	07.67	-03	13	15.5		3 809
2002	1988	09	05.29618	22	49	07.38	-03	13	18.7		3 809
2002	1988	09	05.30243	22	49	07.09	-03	13	22.1		3 809
2002	1988	09	06.30590	22	48	17.05	-03	22	30.6		3 809
2002	1988	09	06.31215	22	48	16.74	-03	22	34.1		3 809
2002	1988	09	06.31840	22	48	16.42	-03	22	37.8		3 809
2010	1988	03	15.24410	12	12	49.21	-00	51	53.9		1 809
2010	1988	03	15.28090	12	12	47.53	-00	51	44.7		1 809
2010	1988	03	16.21493	12	12	06.59	-00	47	45.9		1 809
2010	1988	03	16.23507	12	12	05.60	-00	47	40.5		1 809
2039	1988	09	07.31354	22	43	02.87	-11	32	13.4		3 809
2039	1988	09	07.31979	22	43	02.61	-11	32	15.2		3 809
2039	1988	09	07.32604	22	43	02.36	-11	32	17.0		3 809
2039	1988	09	07.33368	22	43	02.06	-11	32	19.0		3 809
2039	1988	09	07.33993	22	43	01.80	-11	32	20.6		3 809
2039	1988	09	07.34618	22	43	01.54	-11	32	22.3		3 809
2057	1988	09	03.25660	23	21	31.61	-05	25	21.4		3 809
2057	1988	09	03.26285	23	21	31.35	-05	25	23.0		3 809
2057	1988	09	03.26910	23	21	31.09	-05	25	24.5		3 809
2057	1988	09	06.38785	23	19	10.87	-05	38	33.7		3 809
2057	1988	09	06.39410	23	19	10.60	-05	38	35.3		3 809
2057	1988	09	06.40035	23	19	10.33	-05	38	36.8		3 809
2057	1988	09	12.35035	23	14	34.30	-06	04	07.0		3 809
2057	1988	09	12.35660	23	14	34.00	-06	04	08.6		3 809
2057	1988	09	12.36285	23	14	33.71	-06	04	10.2		3 809
2094	1987	09	04.17292	21	22	53.20	-08	54	47.3	17.3	4 809
2094	1987	09	04.18333	21	22	52.61	-08	54	49.7		4 809
2109	1988	03	17.13368	11	59	28.12	+03	29	59.7		1 809
2109	1988	03	17.17326	11	59	26.23	+03	30	16.9		1 809
2109	1988	03	17.18681	11	59	25.55	+03	30	22.8		1 809
2109	1988	03	18.13229	11	58	41.72	+03	36	48.3		1 809
2109	1988	03	18.15451	11	58	40.66	+03	36	57.8		1 809
2109	1988	03	23.22396	11	54	44.08	+04	11	05.7		1 809
2109	1988	03	23.25590	11	54	42.51	+04	11	18.4		1 809
2109	1988	03	24.21146	11	53	58.15	+04	17	37.8		1 809
2109	1988	03	24.23368	11	53	57.11	+04	17	46.7		1 809
2179	1987	09	02.30417	00	51	10.68	+01	29	20.2	17.0	4 809
2179	1987	09	02.31979	00	51	10.17	+01	29	19.3		4 809
2179	1987	09	02.33542	00	51	09.72	+01	29	19.1		4 809
2181	1987	08	26.35208	00	55	23.64	-00	26	25.9	17.2	4 809
2181	1987	08	26.37361	00	55	23.09	-00	26	27.2		4 809
2181	1987	08	26.39514	00	55	22.51	-00	26	27.8		4 809
2181	1987	09	02.34444	00	51	42.71	-00	31	56.6	17.7	4 809
2181	1987	09	02.35486	00	51	42.37	-00	31	57.2		4 809
2181	1987	09	02.36528	00	51	41.99	-00	31	57.5		4 809
2181	1987	09	03.38819	00	51	03.84	-00	33	07.4	17.0	4 809
2181	1987	09	03.39861	00	51	03.46	-00	33	07.7		4 809
2207	1987	08	22.05625	20	13	25.34	-15	27	12.5	16.5	4 809
2207	1987	08	22.06667	20	13	25.06	-15	27	13.8		4 809
2207	1987	08	25.08750	20	12	13.61	-15	34	20.8	16.5	4 809
2207	1987	08	25.09861	20	12	13.33	-15	34	22.4		4 809
2207	1987	08	25.11007	20	12	13.11	-15	34	23.8		4 809

2207	1987	08	26.13681	20	11	49.85	-15	36	47.1	17.0	4 809
2207	1987	08	26.15208	20	11	49.53	-15	36	49.1	17.0	4 809
2223	1987	08	29.14792	21	29	27.85	+05	11	17.4	17.0	4 809
2223	1987	08	29.15972	21	29	27.54	+05	11	15.5		4 809
2223	1987	08	29.17014	21	29	27.30	+05	11	14.2		4 809
2223	1987	08	31.15903	21	28	33.56	+05	03	48.9	16.8	4 809
2223	1987	08	31.16944	21	28	33.29	+05	03	46.4		4 809
2226	1988	03	19.22326	13	09	14.81	-05	18	32.2		1 809
2226	1988	03	19.24410	13	09	13.86	-05	18	26.8		1 809
2226	1988	03	20.22257	13	08	32.96	-05	14	35.3		1 809
2226	1988	03	20.24896	13	08	31.77	-05	14	28.9		1 809
2226	1988	03	25.26007	13	04	51.92	-04	53	53.4		1 809
2226	1988	03	25.28090	13	04	50.93	-04	53	47.8		1 809
2256	1987	09	03.17500	21	40	40.63	-14	21	19.2	17.2	4 809
2256	1987	09	03.18542	21	40	40.17	-14	21	21.0		4 809
2256	1987	09	03.19583	21	40	39.78	-14	21	22.7		4 809
2256	1987	09	04.09792	21	40	04.71	-14	24	25.6	17.5	4 809
2256	1987	09	04.10833	21	40	04.25	-14	24	27.9		4 809
2342	1988	03	19.12812	12	18	08.06	-02	03	10.2		1 809
2342	1988	03	19.15174	12	18	07.02	-02	03	03.3		1 809
2342	1988	03	20.11563	12	17	26.43	-01	58	36.4		1 809
2342	1988	03	20.13854	12	17	25.53	-01	58	30.3		1 809
2342	1988	03	25.12431	12	13	53.67	-01	35	16.4		1 809
2342	1988	03	25.14444	12	13	52.79	-01	35	10.2		1 809
2342	1988	03	26.22049	12	13	06.98	-01	30	09.4		1 809
2342	1988	03	26.23993	12	13	06.10	-01	30	03.3		1 809
2357	1987	08	24.22569	21	41	19.53	-11	53	37.6	17.0	4 809
2357	1987	08	24.23611	21	41	19.29	-11	53	39.9		4 809
2357	1987	09	03.22083	21	36	35.37	-12	21	08.4	17.0	4 809
2357	1987	09	03.23611	21	36	34.88	-12	21	10.0		4 809
2442	1987	08	30.09653	21	29	35.64	-08	10	01.3	16.9	4 809
2442	1987	08	30.10694	21	29	35.16	-08	10	05.3		4 809
2442	1987	08	30.11736	21	29	34.67	-08	10	09.7		4 809
2442	1987	09	04.17292	21	26	08.46	-08	46	20.9	17.5	4 809
2442	1987	09	04.18333	21	26	07.98	-08	46	24.8		4 809
2464	1987	09	01.30903	21	29	05.34	-15	43	58.5	17.4	4 809
2464	1987	09	01.31944	21	29	04.98	-15	43	58.4		4 809
2472	1988	09	03.25660	23	17	47.27	-04	23	08.9		3 809
2472	1988	09	03.26285	23	17	46.90	-04	23	10.3		3 809
2472	1988	09	03.26910	23	17	46.55	-04	23	11.9		3 809
2540	1987	08	25.26042	21	23	04.92	-13	50	28.1	17.0	4 809
2540	1987	08	25.27083	21	23	04.36	-13	50	31.7		4 809
2540	1987	08	25.28125	21	23	03.73	-13	50	34.4		4 809
2540	1987	08	26.24583	21	22	09.25	-13	55	36.4	17.0	4 809
2540	1987	08	26.25851	21	22	08.56	-13	55	39.9		4 809
2540	1987	08	26.27014	21	22	07.85	-13	55	43.4		4 809
2674	1987	08	25.26042	21	24	11.83	-13	46	16.9	17.2	4 809
2674	1987	08	25.27083	21	24	11.52	-13	46	18.1		4 809
2674	1987	08	25.28125	21	24	11.19	-13	46	20.0		4 809
2674	1987	08	26.24583	21	23	43.56	-13	48	45.3	17.5	4 809
2674	1987	08	26.25851	21	23	43.26	-13	48	47.3		4 809
2674	1987	08	26.27014	21	23	42.88	-13	48	48.6		4 809
2676	1988	03	21.20799	12	56	51.93	-13	48	07.8		1 809
2676	1988	03	21.23438	12	56	50.52	-13	48	01.5		1 809
2676	1988	03	22.30174	12	55	55.39	-13	44	00.9		1 809
2676	1988	03	22.31840	12	55	54.52	-13	43	57.0		1 809
2751	1988	09	08.27188	22	59	15.92	-03	46	15.1		3 809
2751	1988	09	08.27813	22	59	15.57	-03	46	17.2		3 809
2751	1988	09	08.28438	22	59	15.22	-03	46	19.6		3 809

2751	1988	09	09.27812	22	58	19.59	-03	52	11.1		3 809
2751	1988	09	09.28437	22	58	19.24	-03	52	13.3		3 809
2751	1988	09	09.29062	22	58	18.86	-03	52	15.6		3 809
2764	1988	03	15.21146	11	58	33.61	-03	52	12.0		1 809
2764	1988	03	15.23368	11	58	32.27	-03	52	04.9		1 809
2764	1988	03	16.17396	11	57	39.07	-03	46	59.2		1 809
2764	1988	03	16.20174	11	57	37.42	-03	46	49.9		1 809
2764	1988	03	21.13437	11	52	54.38	-03	18	50.7		1 809
2764	1988	03	21.16285	11	52	52.63	-03	18	39.9		1 809
2764	1988	03	22.21771	11	51	51.91	-03	12	28.9		1 809
2764	1988	03	22.23854	11	51	50.66	-03	12	21.2		1 809
2764	1988	03	22.24757	11	51	50.12	-03	12	18.5		1 809
2928	1988	08	31.99618	20	57	13.28	-14	44	36.5		3 809
2928	1988	09	01.00243	20	57	13.00	-14	44	36.9		3 809
2928	1988	09	01.00868	20	57	12.75	-14	44	37.3		3 809
2928	1988	09	03.01562	20	55	54.68	-14	46	01.5		3 809
2928	1988	09	03.02187	20	55	54.45	-14	46	01.8		3 809
2928	1988	09	03.02812	20	55	54.20	-14	46	02.1		3 809
2953	1988	09	08.27188	22	58	18.95	-04	46	33.3		3 809
2953	1988	09	08.27813	22	58	18.66	-04	46	34.9		3 809
2953	1988	09	08.28438	22	58	18.37	-04	46	36.7		3 809
2953	1988	09	09.27812	22	57	30.90	-04	51	35.3		3 809
2953	1988	09	09.28437	22	57	30.60	-04	51	37.1		3 809
2953	1988	09	09.29062	22	57	30.31	-04	51	39.1		3 809
2973	1988	09	06.06701	21	58	24.82	-12	30	30.7		3 809
2973	1988	09	06.07326	21	58	24.49	-12	30	32.0		3 809
2973	1988	09	06.07951	21	58	24.19	-12	30	33.1		3 809
2973	1988	09	08.02049	21	56	43.83	-12	37	57.9		3 809
2973	1988	09	08.02674	21	56	43.54	-12	37	59.3		3 809
2973	1988	09	08.03299	21	56	43.23	-12	38	00.9		3 809
3053	1988	09	01.06285	22	10	29.45	-16	56	40.1		3 809
3053	1988	09	01.06910	22	10	29.09	-16	56	40.2		3 809
3053	1988	09	01.07535	22	10	28.76	-16	56	40.4		3 809
3059	1988	03	25.26007	13	08	59.03	-06	27	50.5		1 809
3059	1988	03	25.28090	13	08	57.91	-06	27	42.5		1 809
3125	1988	09	01.06285	22	06	05.71	-17	38	57.0		3 809
3125	1988	09	01.06910	22	06	05.42	-17	38	59.6		3 809
3125	1988	09	01.07535	22	06	05.12	-17	39	02.3		3 809
3125	1988	09	03.11875	22	04	25.80	-17	53	34.7		3 809
3125	1988	09	03.12500	22	04	25.53	-17	53	37.4		3 809
3125	1988	09	03.13090	22	04	25.24	-17	53	39.7		3 809
3161	1988	09	06.38785	23	23	14.74	-06	01	45.4	16.0	3 809
3161	1988	09	06.39410	23	23	14.33	-06	01	45.7		3 809
3161	1988	09	06.40035	23	23	13.92	-06	01	45.9		3 809
3161	1988	09	12.35035	23	16	44.66	-06	04	28.6		3 809
3161	1988	09	12.35660	23	16	44.26	-06	04	29.0		3 809
3161	1988	09	12.36285	23	16	43.86	-06	04	29.3		3 809
3175	1988	03	26.19201	12	09	03.16	-01	25	53.7		1 809
3175	1988	03	26.21076	12	09	02.04	-01	25	46.7		1 809
3190	1988	09	02.04271	22	00	40.83	-20	01	07.9		3 809
3190	1988	09	02.04896	22	00	40.52	-20	01	08.0		3 809
3190	1988	09	02.05521	22	00	40.21	-20	01	08.0		3 809
3190	1988	09	05.09896	21	58	04.89	-20	00	45.7		3 809
3190	1988	09	05.10521	21	58	04.56	-20	00	45.6		3 809
3190	1988	09	05.11146	21	58	04.25	-20	00	45.5		3 809
3190	1988	09	07.15382	21	56	23.60	-19	59	50.4		3 809
3190	1988	09	07.16007	21	56	23.30	-19	59	50.0		3 809
3190	1988	09	07.16632	21	56	23.00	-19	59	49.8		3 809
3195	1988	09	08.27188	22	59	34.11	-05	03	35.5		3 809

3195	1988	09	08.27813	22	59	33.82	-05	03	37.3		3 809
3195	1988	09	08.28438	22	59	33.53	-05	03	39.0		3 809
3195	1988	09	09.27812	22	58	46.82	-05	08	23.5		3 809
3195	1988	09	09.28437	22	58	46.52	-05	08	25.7		3 809
3195	1988	09	09.29062	22	58	46.23	-05	08	27.7		3 809
3248	1988	03	15.32326	13	52	25.85	-13	57	21.5		1 809
3248	1988	03	15.33854	13	52	25.38	-13	57	21.9		1 809
3248	1988	03	16.27604	13	51	57.57	-13	57	35.3		1 809
3248	1988	03	16.29410	13	51	57.06	-13	57	34.9		1 809
3248	1988	03	21.24549	13	49	14.12	-13	57	21.2		1 809
3248	1988	03	21.26910	13	49	13.22	-13	57	20.8		1 809
3248	1988	03	21.28160	13	49	12.77	-13	57	20.6		1 809
3248	1988	03	22.32951	13	48	34.98	-13	57	01.0		1 809
3248	1988	03	22.34826	13	48	34.25	-13	57	00.3		1 809
3321	1987	08	25.32847	22	54	18.38	-05	33	20.0	16.5	4 809
3321	1987	08	25.33889	22	54	18.00	-05	33	25.5		4 809
3321	1987	08	25.34931	22	54	17.59	-05	33	31.6		4 809
3321	1987	08	27.26458	22	53	04.49	-05	51	45.8	16.5	4 809
3321	1987	08	27.27986	22	53	03.84	-05	51	55.1		4 809
3321	1987	08	27.29028	22	53	03.46	-05	52	00.6		4 809
3321	1987	08	30.32014	22	51	02.58	-06	21	39.4	17.0	4 809
3321	1987	08	30.33056	22	51	02.17	-06	21	45.3		4 809
3321	1987	08	30.34097	22	51	01.75	-06	21	51.7		4 809
3321	1987	09	03.26806	22	48	19.75	-07	01	15.0	17.0	4 809
3321	1987	09	03.28646	22	48	18.92	-07	01	25.6	16.8	4 809
3381	1987	08	24.31042	22	02	02.35	-03	57	34.5	17.2	4 809
3381	1987	08	24.32361	22	02	01.84	-03	57	37.1		4 809
3381	1987	08	24.33403	22	02	01.26	-03	57	39.8		4 809
3393	1987	08	31.26389	21	54	06.06	-11	05	31.2	17.0	4 809
3393	1987	08	31.27431	21	54	05.57	-11	05	36.1		4 809
3408	1988	09	03.06076	22	00	52.78	-14	39	32.7		3 809
3408	1988	09	03.06701	22	00	52.52	-14	39	35.1		3 809
3408	1988	09	03.07326	22	00	52.29	-14	39	37.3		3 809
3412	1988	09	02.14965	22	53	05.62	-03	45	07.3		3 809
3412	1988	09	02.15590	22	53	05.24	-03	45	08.9		3 809
3412	1988	09	02.16215	22	53	04.87	-03	45	10.8		3 809
3438	1988	03	15.24410	12	10	09.07	-00	10	04.9		1 809
3438	1988	03	15.28090	12	10	07.14	-00	09	59.3		1 809
3438	1988	03	16.21493	12	09	21.84	-00	07	51.2		1 809
3438	1988	03	16.23507	12	09	20.92	-00	07	47.6		1 809
3438	1988	03	21.17257	12	05	17.97	+00	03	45.3		1 809
3438	1988	03	21.19826	12	05	16.65	+00	03	49.6		1 809
3438	1988	03	22.26215	12	04	23.88	+00	06	19.4		1 809
3438	1988	03	22.27118	12	04	23.44	+00	06	20.5		1 809
3438	1988	03	22.29132	12	04	22.37	+00	06	24.4		1 809
3449	1988	09	05.31076	22	50	16.68	-10	44	54.2		3 809
3449	1988	09	05.31701	22	50	16.40	-10	44	56.0		3 809
3449	1988	09	05.32326	22	50	16.15	-10	44	58.1		3 809
3449	1988	09	07.33368	22	48	43.10	-10	54	28.5		3 809
3449	1988	09	07.33993	22	48	42.82	-10	54	30.3		3 809
3449	1988	09	07.34618	22	48	42.54	-10	54	32.0		3 809
3449	1988	09	10.13299	22	46	34.17	-11	07	24.0		3 809
3449	1988	09	10.13924	22	46	33.87	-11	07	25.7		3 809
3449	1988	09	10.14549	22	46	33.58	-11	07	27.4		3 809
3463	1988	09	08.29271	23	01	58.50	-11	11	14.3		3 809
3463	1988	09	08.29896	23	01	58.14	-11	11	16.2		3 809
3463	1988	09	08.30521	23	01	57.78	-11	11	18.0		3 809
3463	1988	09	09.15035	23	01	10.56	-11	15	39.3		3 809
3463	1988	09	09.15660	23	01	10.21	-11	15	41.1		3 809

3463	1988	09	09.16285	23	01	09.86	-11	15	43.0		3 809
3463	1988	09	18.10347	22	52	56.79	-11	57	48.7		3 809
3463	1988	09	18.10903	22	52	56.49	-11	57	50.0		3 809
3463	1988	09	18.11458	22	52	56.20	-11	57	51.5		3 809
3470	1987	09	04.19653	22	44	49.05	-03	37	51.2	17.2	4 809
3470	1987	09	04.20694	22	44	48.50	-03	37	55.1		4 809
3486	1988	03	17.18681	12	02	28.60	+04	04	25.1		1 809
3486	1988	03	18.13229	12	01	33.85	+04	09	29.1		1 809
3486	1988	03	18.15451	12	01	32.58	+04	09	34.6		1 809
3486	1988	03	23.22396	11	56	39.44	+04	35	48.2		1 809
3486	1988	03	23.25590	11	56	37.63	+04	35	57.4		1 809
3547	1988	03	18.10104	11	52	44.99	-06	16	04.0		1 809
3547	1988	03	18.12118	11	52	43.84	-06	15	57.4		1 809
3547	1988	03	23.19271	11	48	07.48	-05	46	54.9		1 809
3547	1988	03	23.21424	11	48	06.31	-05	46	47.0		1 809
3547	1988	03	24.16562	11	47	15.15	-05	41	09.9		1 809
3547	1988	03	24.18924	11	47	13.81	-05	41	00.9		1 809
3547	1988	03	24.19965	11	47	13.30	-05	40	57.4		1 809
3560	1988	03	15.11146	10	22	19.26	+06	21	20.9		1 809
3560	1988	03	15.12674	10	22	18.31	+06	21	23.2		1 809
3560	1988	03	16.07535	10	21	37.41	+06	23	41.6		1 809
3560	1988	03	16.09549	10	21	36.47	+06	23	44.6		1 809
3560	1988	03	19.09965	10	19	30.66	+06	30	45.5		1 809
3560	1988	03	19.11840	10	19	29.84	+06	30	48.6		1 809
3560	1988	03	22.08229	10	17	33.82	+06	37	14.2		1 809
3560	1988	03	22.10938	10	17	32.74	+06	37	18.1		1 809
3574	1988	03	20.14826	12	20	09.58	-07	11	39.3		1 809
3574	1988	03	20.17118	12	20	08.11	-07	11	30.5		1 809
3574	1988	03	25.18438	12	15	42.12	-06	38	20.3		1 809
3574	1988	03	25.21146	12	15	40.98	-06	38	09.4		1 809
3574	1988	03	26.25104	12	14	45.41	-06	31	05.0		1 809
3574	1988	03	26.27257	12	14	44.25	-06	30	55.6		1 809
3576	1988	03	19.28437	13	54	01.01	-11	14	36.4		1 809
3576	1988	03	19.30243	13	54	00.17	-11	14	35.7		1 809
3576	1988	03	19.31215	13	53	59.71	-11	14	36.3		1 809
3576	1988	03	20.30799	13	53	16.06	-11	14	24.2		1 809
3576	1988	03	20.33090	13	53	14.95	-11	14	24.1		1 809
3576	1988	03	25.32326	13	49	15.06	-11	11	49.4		1 809
3576	1988	03	25.34410	13	49	13.92	-11	11	48.2		1 809
3577	1988	03	17.02604	10	57	37.86	+01	27	53.9		1 809
3577	1988	03	17.05104	10	57	36.92	+01	27	60.0		1 809
3577	1988	03	18.03785	10	57	00.67	+01	31	48.8		1 809
3577	1988	03	18.06076	10	56	59.81	+01	31	53.9		1 809
3577	1988	03	20.04618	10	55	48.35	+01	39	31.2		1 809
3577	1988	03	20.07049	10	55	47.48	+01	39	37.0		1 809
3577	1988	03	23.10451	10	54	02.49	+01	51	03.4		1 809
3577	1988	03	23.12812	10	54	01.65	+01	51	08.7		1 809
3580	1988	03	17.23646	12	22	27.99	-04	06	09.5		1 809
3580	1988	03	17.25521	12	22	27.03	-04	06	05.3		1 809
3580	1988	03	18.19757	12	21	42.00	-04	03	31.2		1 809
3580	1988	03	18.21979	12	21	40.84	-04	03	26.7		1 809
3580	1988	03	24.24236	12	16	43.66	-03	45	35.0		1 809
3580	1988	03	24.26389	12	16	42.53	-03	45	30.1		1 809
3580	1988	03	25.09722	12	16	01.28	-03	42	54.7		1 809
3580	1988	03	25.11667	12	16	00.24	-03	42	50.0		1 809
3617	1988	03	17.26771	12	46	49.45	-02	57	48.9		1 809
3617	1988	03	17.28854	12	46	49.17	-02	57	34.0		1 809
3617	1988	03	18.22882	12	46	14.94	-02	46	16.4		1 809
3617	1988	03	18.25174	12	46	14.03	-02	45	59.7		1 809

3617	1988	03	23.30139	12	42	58.00	-01	43	55.4		1 809
3617	1988	03	23.31875	12	42	57.28	-01	43	42.1		1 809
3617	1988	03	24.27361	12	42	18.46	-01	31	45.6		1 809
3617	1988	03	24.29375	12	42	17.62	-01	31	31.2		1 809
3706	1987	09	01.30903	21	32	45.93	-15	51	30.8	17.5	4 809
3706	1987	09	01.31944	21	32	45.32	-15	51	32.8		4 809
3727	1987	08	26.24583	21	18	53.24	-12	42	10.7	17.0	4 809
3727	1987	08	26.25851	21	18	52.76	-12	42	14.3		4 809
3727	1987	08	26.27014	21	18	52.33	-12	42	17.0		4 809
3732	1987	09	04.19653	22	49	05.14	-04	35	13.1	17.5	4 809
3732	1987	09	04.20694	22	49	04.50	-04	35	16.7		4 809
3735	1987	08	28.18403	21	58	28.47	-08	21	59.1	17.4	4 809
3735	1987	08	28.19722	21	58	27.88	-08	22	02.0		4 809
3735	1987	08	28.20764	21	58	27.42	-08	22	03.5		4 809
3735	1987	08	29.24028	21	57	40.90	-08	25	28.1	17.7	4 809
3735	1987	08	29.25139	21	57	40.42	-08	25	29.4		4 809
3735	1987	08	29.26181	21	57	39.91	-08	25	31.8		4 809
3735	1987	08	30.29792	21	56	53.19	-08	28	54.1	17.4	4 809
3735	1987	08	30.30764	21	56	52.75	-08	28	55.7	17.2	4 809
3735	1987	08	31.23889	21	56	11.19	-08	31	56.7	17.5	4 809
3735	1987	08	31.24931	21	56	10.73	-08	31	58.1		4 809
3743	1987	08	25.32847	22	53	54.06	-05	52	29.7	17.6	4 809
3743	1987	08	25.33889	22	53	53.51	-05	52	35.0		4 809
3743	1987	08	25.34931	22	53	52.86	-05	52	39.3		4 809
3743	1987	08	27.26458	22	52	05.58	-06	07	26.3	17.0	4 809
3743	1987	08	27.27986	22	52	04.73	-06	07	34.1		4 809
3743	1987	08	27.29028	22	52	04.11	-06	07	37.9		4 809
3743	1987	08	30.32014	22	49	11.07	-06	31	20.6	17.5	4 809
3743	1987	08	30.33056	22	49	10.49	-06	31	24.9		4 809
3743	1987	08	30.34097	22	49	09.90	-06	31	29.9		4 809
3743	1987	09	03.26806	22	45	23.86	-07	02	27.1	17.5	4 809
3743	1987	09	03.28646	22	45	22.70	-07	02	35.4	17.0	4 809
3799	1988	03	15.14618	11	20	21.17	+04	48	34.6		1 809
3799	1988	03	15.16840	11	20	20.15	+04	48	41.3		1 809
3799	1988	03	16.10590	11	19	37.83	+04	53	33.8		1 809
3799	1988	03	16.12743	11	19	36.85	+04	53	40.5		1 809
3799	1988	03	20.07396	11	16	40.46	+05	13	54.5		1 809
3799	1988	03	20.10451	11	16	39.37	+05	14	02.8		1 809
3799	1988	03	22.11354	11	15	11.53	+05	24	04.3		1 809
3799	1988	03	22.14688	11	15	10.31	+05	24	13.5		1 809
3814	1988	09	03.25660	23	22	53.45	-05	00	30.3		3 809
3814	1988	09	03.26285	23	22	53.15	-05	00	32.2		3 809
3814	1988	09	03.26910	23	22	52.87	-05	00	34.1		3 809
3814	1988	09	06.38785	23	20	40.62	-05	15	45.4		3 809
3814	1988	09	06.39410	23	20	40.30	-05	15	47.3		3 809
3814	1988	09	06.40035	23	20	40.04	-05	15	49.2		3 809
3814	1988	09	12.35035	23	16	23.88	-05	44	56.7		3 809
3814	1988	09	12.35660	23	16	23.63	-05	44	58.5		3 809
3814	1988	09	12.36285	23	16	23.39	-05	45	00.3		3 809
3821	1988	03	15.14618	11	23	02.02	+04	44	48.6		1 809
3821	1988	03	15.16840	11	23	01.04	+04	44	55.3		1 809
3821	1988	03	16.10590	11	22	19.54	+04	49	22.7		1 809
3821	1988	03	16.12743	11	22	18.57	+04	49	28.1		1 809
3821	1988	03	20.07396	11	19	26.94	+05	07	49.8		1 809
3821	1988	03	20.10451	11	19	25.86	+05	07	56.8		1 809
3821	1988	03	22.11354	11	18	00.99	+05	16	58.6		1 809
3821	1988	03	22.14688	11	17	59.74	+05	17	05.0		1 809
3843	1988	03	19.22326	13	09	43.20	-05	59	24.0		1 809

3843	1988	03	19.24410	13	09	42.49	-05	59	20.0		1 809
3843	1988	03	20.22257	13	09	10.76	-05	56	32.2		1 809
3843	1988	03	20.24896	13	09	09.95	-05	56	27.8		1 809
3843	1988	03	25.26007	13	06	21.39	-05	41	31.4		1 809
3843	1988	03	25.28090	13	06	20.62	-05	41	27.2		1 809
3845	1988	03	17.20382	12	12	18.77	-02	34	43.5		1 809
3845	1988	03	17.22535	12	12	17.93	-02	34	36.0		1 809
3845	1988	03	18.16424	12	11	40.19	-02	29	09.8		1 809
3845	1988	03	18.18854	12	11	39.14	-02	29	01.3		1 809
3845	1988	03	23.26493	12	08	12.81	-01	59	17.8		1 809
3845	1988	03	23.29201	12	08	11.65	-01	59	07.6		1 809
3845	1988	03	26.19201	12	06	14.30	-01	42	04.6		1 809
3845	1988	03	26.21076	12	06	13.58	-01	41	57.9		1 809
3849	1988	03	19.28437	13	57	07.04	-10	45	39.6		1 809
3849	1988	03	19.30243	13	57	06.46	-10	45	38.6		1 809
3849	1988	03	19.31215	13	57	06.13	-10	45	38.4		1 809
3849	1988	03	20.30799	13	56	29.93	-10	44	32.6		1 809
3849	1988	03	20.33090	13	56	29.04	-10	44	30.8		1 809
3849	1988	03	25.32326	13	53	05.50	-10	37	20.0		1 809
3849	1988	03	25.34410	13	53	04.52	-10	37	17.6		1 809
3884	1988	03	19.12812	12	20	30.65	-02	00	05.1		1 809
3884	1988	03	19.15174	12	20	29.54	-01	59	59.3		1 809
3884	1988	03	20.11563	12	19	45.67	-01	55	39.1		1 809
3884	1988	03	20.13854	12	19	44.58	-01	55	32.7		1 809
3884	1988	03	25.12431	12	15	55.18	-01	32	52.1		1 809
3884	1988	03	25.14444	12	15	54.20	-01	32	46.3		1 809
3884	1988	03	26.22049	12	15	04.52	-01	27	52.1		1 809
3884	1988	03	26.23993	12	15	03.62	-01	27	46.8		1 809
3905	1988	09	02.10104	22	21	11.37	-14	05	34.4		3 809
3905	1988	09	02.10729	22	21	10.93	-14	05	34.1		3 809
3905	1988	09	02.11354	22	21	10.50	-14	05	33.9		3 809
3905	1988	09	05.23229	22	17	37.42	-14	04	40.2		3 809
3905	1988	09	05.23854	22	17	36.96	-14	04	39.8		3 809
3905	1988	09	05.24479	22	17	36.50	-14	04	39.5		3 809
3931	1988	03	17.30174	13	44	18.03	-15	42	39.9		1 809
3931	1988	03	17.32535	13	44	17.18	-15	42	38.7		1 809
3931	1988	03	17.33854	13	44	16.59	-15	42	38.3		1 809
3931	1988	03	18.26146	13	43	43.22	-15	41	58.2		1 809
3931	1988	03	18.28437	13	43	42.31	-15	41	57.0		1 809
3931	1988	03	23.33090	13	40	14.88	-15	35	32.6		1 809
3931	1988	03	23.35243	13	40	13.92	-15	35	29.6		1 809
3931	1988	03	24.30451	13	39	30.90	-15	33	47.3		1 809
3931	1988	03	24.32604	13	39	29.76	-15	33	44.0		1 809
3937	1988	09	08.29271	22	57	37.92	-10	17	23.4	16.5	3 809
3937	1988	09	08.29896	22	57	37.62	-10	17	24.2		3 809
3937	1988	09	08.30521	22	57	37.31	-10	17	25.0		3 809
3937	1988	09	09.15035	22	56	55.60	-10	19	27.9		3 809
3937	1988	09	09.15660	22	56	55.29	-10	19	28.8		3 809
3937	1988	09	09.16285	22	56	54.98	-10	19	29.6		3 809
3937	1988	09	18.10347	22	49	44.34	-10	38	32.7		3 809
3937	1988	09	18.10903	22	49	44.09	-10	38	33.5		3 809
3937	1988	09	18.11458	22	49	43.84	-10	38	34.2		3 809
3937	1988	09	19.26389	22	48	50.79	-10	40	34.6		3 809
3937	1988	09	19.26944	22	48	50.54	-10	40	34.4		3 809
3937	1988	09	19.27500	22	48	50.29	-10	40	36.1		3 809
3937	1988	09	20.25313	22	48	06.02	-10	42	14.3		3 809
3937	1988	09	20.25799	22	48	05.80	-10	42	15.3		3 809
3937	1988	09	20.26285	22	48	05.58	-10	42	15.8		3 809

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

1175		1988 12 11.54305	02	53	46.68	+17	03	20.7	15.0	871
1175		1988 12 11.55902	02	53	46.14	+17	03	17.7	15.0	871

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

1972 YR		1989 01 05.63657	08	03	29.53	+20	31	22.5		872
1972 YR		1989 01 05.65333	08	03	28.37	+20	31	23.9		872
1983 RY4		1989 01 01.47047	04	51	21.76	+21	45	54.8		872
1983 RY4		1989 01 01.48672	04	51	21.09	+21	45	49.9		872
1986 QL		1989 02 07.56302	09	38	30.55	+12	19	43.7		872
1986 QL		1989 02 10.55576	09	35	56.54	+12	32	05.9	16.0	872
1986 QL		1989 02 10.57075	09	35	55.74	+12	32	10.0		872
1986 QL		1989 02 14.77219	09	32	18.9	+12	49	33		872
1986 QL		1989 02 14.78692	09	32	17.8	+12	49	36		872
1988 XU		1988 12 06.59375	05	24	51.31	+25	04	32.9		872
1988 XU		1988 12 12.52824	05	17	52.74	+25	12	42.8		872
1988 XU		1988 12 12.56988	05	17	49.87	+25	12	43.2		872
1989 BQ	*	1989 01 29.54988	09	03	34.69	+20	07	08.9	15.5	872
1989 BQ		1989 01 29.56406	09	03	34.23	+20	07	13.5		872
1989 BQ		1989 02 04.51408	09	00	03.40	+20	45	42.1		872
1989 BQ		1989 02 04.52928	09	00	02.74	+20	45	46.4		872
1989 BQ		1989 02 05.51236	08	59	27.87	+20	51	58.6		872
1989 BQ		1989 02 05.52769	08	59	27.54	+20	52	06.6		872
1989 BR	*	1989 01 29.54988	09	08	13.93	+19	13	12.1	16.0	872
1989 BR		1989 01 29.56406	09	08	12.91	+19	13	13.2		872
1989 BR		1989 02 04.55017	09	01	24.18	+19	22	45.6		872
1989 BR		1989 02 04.56609	09	01	22.95	+19	22	48.6		872
1989 BS	*	1989 01 29.54988	09	12	08.58	+19	07	07.2	16.0	872
1989 BS		1989 01 29.56406	09	12	07.70	+19	07	10.0		872
1989 BS		1989 02 04.55017	09	06	18.70	+19	28	48.9		872
1989 BS		1989 02 04.56609	09	06	17.73	+19	28	54.4		872
1989 BS		1989 02 05.51236	09	05	22.57	+19	32	06.3		872
1989 BS		1989 02 05.52769	09	05	21.68	+19	32	10.3		872
1989 BS		1989 02 10.67581	09	00	27.11	+19	48	27.7		872
1989 BS		1989 02 10.69167	09	00	26.21	+19	48	32.9		872
1989 BT	*	1989 01 29.63339	09	09	07.08	+11	56	31.5	16.0	872
1989 BT		1989 01 29.64826	09	09	06.13	+11	56	32.9		872
1989 BT		1989 02 04.59158	09	03	36.69	+12	12	24.4		872
1989 BT		1989 02 04.60939	09	03	35.61	+12	12	24.7		872
1989 BT		1989 02 05.54870	09	02	43.73	+12	15	01.9		872
1989 BT		1989 02 05.56360	09	02	42.86	+12	15	06.3		872
1989 CY1	*	1989 02 10.54071	09	31	15.56	+12	43	58.6	15.5	872
1989 CY1		1989 02 10.57075	09	31	13.87	+12	44	10.2		872
1989 CY1		1989 02 14.77219	09	27	06.82	+13	10	18.0		872
1989 CY1		1989 02 14.78692	09	27	05.90	+13	10	21.9		872
1989 CZ1	*	1989 02 10.54071	09	31	38.07	+12	40	52.0	16.0	872
1989 CZ1		1989 02 10.57075	09	31	36.46	+12	41	03.5		872
1989 CZ1		1989 02 14.77219	09	28	00.14	+13	01	01.9		872
1989 CZ1		1989 02 14.78692	09	27	59.61	+13	01	03.2		872
1989 CD2	*	1989 02 05.51236	09	07	18.23	+19	32	57.1	15.5	872
1989 CD2		1989 02 05.52769	09	07	16.98	+19	32	55.0		872
1989 CD2		1989 02 10.67581	09	01	12.3	+19	22	27		872
1989 CD2		1989 02 10.69167	09	01	11.09	+19	22	28.5		872

125		1988	01	20.57474	08	16	58.37	+14	28	08.2	872
125		1988	01	20.59933	08	16	56.97	+14	28	13.6	872
141		1988	02	21.52824	09	01	44.34	+16	38	50.3	872
159		1987	04	23.54774	13	24	59.89	+00	11	39.4	872
159		1987	04	23.58686	13	24	58.22	+00	11	50.5	872
245		1987	12	16.49138	04	24	57.66	+23	31	59.7	872
245		1987	12	16.50828	04	24	56.71	+23	32	00.3	872
367		1987	12	16.47992	04	37	47.40	+21	29	55.6	872
367		1987	12	16.51858	04	37	44.77	+21	29	55.1	872
412		1988	01	20.54688	07	57	53.16	+25	04	44.4	872
465		1988	01	20.51383	07	47	18.76	+21	38	24.5	872
465		1988	01	20.53319	07	47	17.51	+21	38	27.0	872
609		1988	11	13.54444	03	54	01.24	+14	25	11.0	872
609		1988	11	13.56181	03	54	00.29	+14	25	07.3	872
815		1988	11	02.62141	02	38	33.37	+08	27	44.5	872
815		1988	11	02.63738	02	38	32.39	+08	27	46.2	872
897		1988	12	12.59468	05	09	59.50	+22	17	50.9	872
897		1988	12	12.61007	05	09	58.42	+22	17	46.0	872
921		1988	11	10.57911	04	05	45.87	+08	29	17.5	872
921		1988	11	10.59803	04	05	44.94	+08	29	11.0	872
1123		1988	12	12.59468	05	13	41.53	+23	05	42.9	872
1123		1988	12	12.61007	05	13	40.52	+23	05	45.9	872
1311		1988	12	12.49010	04	44	36.66	+21	24	03.9	872
1311		1988	12	12.50938	04	44	35.45	+21	24	00.8	872
1319		1988	11	13.50515	02	26	49.88	+16	46	03.3	872
1319		1988	11	13.52442	02	26	49.05	+16	45	56.0	872
1319		1988	11	14.52135	02	26	03.57	+16	41	38.9	872
1319		1988	11	14.53678	02	26	02.84	+16	41	37.7	872
1523		1988	12	07.51962	04	39	36.41	+31	11	16.7	872
1523		1988	12	07.53142	04	39	35.62	+31	11	19.7	872
1589		1988	11	13.54444	03	49	06.65	+14	30	11.9	872
1589		1988	11	13.56181	03	49	05.41	+14	30	10.2	872
1832		1989	02	04.59158	09	03	49.2	+12	02	59	872
1832		1989	02	04.60939	09	03	48.42	+12	02	56.4	872
1849		1988	11	02.57998	02	34	43.47	+12	08	24.1	872
1849		1988	11	02.60810	02	34	41.84	+12	08	23.2	872
2111		1988	02	21.49696	09	08	16.49	+09	27	30.0	872
2111		1988	02	21.54097	09	08	14.53	+09	27	49.3	872
2118		1988	01	13.53061	07	12	27.69	+30	34	34.2	872
2118		1988	01	13.55998	07	12	25.47	+30	34	32.0	872
2123		1988	11	13.50515	02	21	12.28	+15	45	02.6	872
2123		1988	11	13.52442	02	21	11.29	+15	44	56.4	872
2123		1988	11	14.52135	02	20	23.83	+15	40	51.2	872
2123		1988	11	14.53678	02	20	22.92	+15	40	46.9	872
2516		1988	11	02.57998	02	31	43.17	+12	36	32.4	872
2516		1988	11	02.60810	02	31	41.24	+12	36	25.1	872
2719		1988	12	12.49010	04	43	29.77	+21	18	54.0	872
2719		1988	12	12.50938	04	43	28.37	+21	18	51.7	872
2882		1988	12	12.59468	05	16	09.57	+23	23	54.1	872
2882		1988	12	12.61007	05	16	08.59	+23	23	54.0	872
3985		1989	01	01.48672	04	54	14.36	+22	13	12.6	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

1988	WC		1989	01	27.42986	03	32	29.86	-04	06	56.5	16	875
1989	BP	*	1989	01	16.74097	08	25	50.72	+10	55	07.0	16.5	875

1989	BP		1989	01	16.75486	08	25	49.88	+10	55	10.5		875
1989	BP		1989	01	16.77431	08	25	48.55	+10	55	10.6		875
1989	BP		1989	02	02.52025	08	07	56.51	+11	29	02.9	17	875
1989	BP		1989	02	02.53958	08	07	55.03	+11	29	06.1		875
1989	CA	*	1989	02	02.55706	09	05	32.68	+13	04	57.2	16.5	875
1989	CA		1989	02	02.57778	09	05	31.41	+13	05	04.6		875
1989	CA		1989	02	04.66319	09	03	26.15	+13	14	42.6	16.5	875
1989	CA		1989	02	04.67025	09	03	25.69	+13	14	42.8		875
1989	CA		1989	02	10.68194	08	57	34.03	+13	42	37.0	16.5	875
1989	CA		1989	02	10.69931	08	57	32.92	+13	42	43.5		875
1989	CB	*	1989	02	02.55706	09	15	15.25	+12	10	52.3	17	875
1989	CB		1989	02	02.57778	09	15	14.10	+12	11	00.7		875
1989	CB		1989	02	04.61331	09	13	17.61	+12	27	29.5	17	875
1989	CB		1989	02	04.63194	09	13	16.50	+12	27	39.1		875
1989	CB		1989	02	10.70972	09	07	28.43	+13	17	44.9	17	875
1989	CB		1989	02	10.72708	09	07	27.47	+13	17	52.9		875
1989	CB		1989	02	27.54965	08	53	59.11	+15	27	41.5	17.5	875
1989	CB		1989	02	27.56736	08	53	58.59	+15	27	48.6		875
1989	CC	*	1989	02	02.59456	09	17	56.20	+19	10	22.7	17	875
1989	CC		1989	02	02.61458	09	17	54.83	+19	10	25.9		875
1989	CC		1989	02	04.57581	09	15	42.49	+19	15	20.4	17	875
1989	CC		1989	02	04.59444	09	15	41.27	+19	15	21.9		875
1989	CC		1989	02	10.76198	09	08	46.85	+19	28	44.5	17.5	875
1989	CC		1989	02	13.59583	09	05	43.15	+19	33	51.1	17.5	875
1989	CC		1989	02	13.60289	09	05	42.96	+19	33	50.8		875
1989	CD	*	1989	02	02.59456	09	20	28.56	+17	42	47.2	16.5	875
1989	CD		1989	02	02.61458	09	20	27.26	+17	42	55.7		875
1989	CD		1989	02	05.55422	09	17	27.18	+17	59	32.3	16	875
1989	CD		1989	02	05.57569	09	17	25.81	+17	59	40.1		875
1989	CD		1989	02	10.77153	09	12	09.37	+18	27	34.6	16.5	875
1989	CD		1989	02	10.78819	09	12	08.24	+18	27	41.4		875
1989	CE	*	1989	02	02.59456	09	23	05.79	+19	22	38.6	17.5	875
1989	CE		1989	02	02.61458	09	23	04.28	+19	22	44.4		875
1989	CE		1989	02	04.57581	09	20	46.09	+19	28	25.4	17.5	875
1989	CE		1989	02	04.59444	09	20	44.90	+19	28	28.7		875
1989	CO	*	1989	02	05.59248	09	36	40.68	+16	26	57.2	17	875
1989	CO		1989	02	05.61389	09	36	39.39	+16	27	06.7		875
1989	CO		1989	02	07.63194	09	34	38.77	+16	41	41.1	17	875
1989	CO		1989	02	07.65075	09	34	37.68	+16	41	48.5		875
1989	CO		1989	02	13.67095	09	28	30.16	+17	25	20.9	17	875
1989	CP	*	1989	02	05.59248	09	43	18.93	+15	59	51.2	17	875
1989	CP		1989	02	05.61389	09	43	17.67	+15	59	55.3		875
1989	CP		1989	02	07.60220	09	41	18.67	+16	07	21.2	16.5	875
1989	CP		1989	02	07.62083	09	41	17.50	+16	07	25.7		875
1989	CP		1989	02	13.67095	09	35	11.07	+16	29	06.4	16.5	875
1989	CW		1989	02	06.57159	09	51	11.63	+13	02	01.8	17.5	875
1989	CW		1989	02	06.59931	09	51	09.84	+13	02	11.1		875
1989	CW		1989	02	10.65359	09	46	57.61	+13	21	59.5	17	875
1989	CW		1989	02	10.67083	09	46	56.26	+13	22	06.5		875
1989	CW		1989	02	13.61319	09	43	49.74	+13	36	35.7	17	875
1989	CW		1989	02	13.62986	09	43	48.74	+13	36	38.8		875
1989	CY		1989	02	06.57159	09	49	48.24	+13	20	22.0	16	875
1989	CY		1989	02	06.59931	09	49	45.44	+13	20	11.8		875
1989	CY	*	1989	02	10.65359	09	43	29.47	+12	59	24.5	16	875
1989	CY		1989	02	10.67083	09	43	27.85	+12	59	19.5		875
1989	CY		1989	02	13.61319	09	38	59.19	+12	44	21.9	15.5	875
1989	CY		1989	02	13.62986	09	38	57.59	+12	44	16.1		875
1989	CC1		1989	02	26.56181	10	49	29.91	+12	00	37.2	17	875
1989	CC1		1989	02	26.58264	10	49	28.81	+12	01	02.9		875

1989	CC1		1989	02	26.58970	10	49	28.30	+12	01	08.0		875
1989	CC1		1989	03	01.56528	10	46	50.86	+12	58	08.8	17	875
1989	CC1		1989	03	01.57234	10	46	50.64	+12	58	17.0		875
1955			1989	01	04.61875	07	49	56.45	+20	10	39.4	16	875
1955			1989	01	04.65069	07	49	54.67	+20	10	47.5		875
3666			1989	01	04.56667	07	19	39.10	+21	22	28.9	15.5	875
3666			1989	01	04.58889	07	19	37.94	+21	22	32.5		875
3666			1989	01	06.58264	07	17	51.91	+21	27	17.3	15.5	875
3666			1989	01	06.60278	07	17	50.84	+21	27	18.7		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	VP7		1988	11	05.59271	03	21	27.4	+12	06	01	16.5	877
1988	VP7		1988	11	05.61007	03	21	26.2	+12	05	59		877
1988	YB		1989	02	04.55851	07	23	09.72	+24	11	12.3		877
1988	YB		1989	02	04.59722	07	23	08.06	+24	11	13.8		877
1989	BN	*	1989	01	31.65274	09	33	10.26	+20	22	39.6	17	877
1989	BN		1989	01	31.67604	09	33	08.91	+20	22	49.5		877
1989	BN		1989	02	03.80318	09	29	47.37	+20	40	55.5		877
1989	BN		1989	02	03.82708	09	29	45.93	+20	41	03.8		877
1989	BN		1989	02	04.61441	09	28	54.91	+20	45	33.2		877
1989	BN		1989	02	04.67257	09	28	50.81	+20	45	52.3		877
1989	BN		1989	02	04.79560	09	28	42.60	+20	46	31.0		877
2126	P-L		1989	01	31.65274	09	30	50.4	+20	19	57	17	877
2126	P-L		1989	01	31.67604	09	30	48.6	+20	19	58		877
1712			1988	12	06.54896	03	44	01.1	+17	35	53	16	877
1712			1988	12	06.56632	03	44	00.2	+17	35	44		877
1712			1988	12	07.58264	03	43	18.3	+17	30	04		877
1712			1988	12	07.60590	03	43	17.4	+17	29	56		877
2158			1988	12	06.54896	03	44	46.40	+17	57	40.1	17	877
2158			1988	12	06.56632	03	44	45.34	+17	57	36.9		877
2158			1988	12	07.58264	03	44	01.01	+17	55	11.3		877
2158			1988	12	07.60590	03	43	59.99	+17	55	09.6		877
3507			1988	12	06.54896	03	46	50.12	+17	58	20.9	16.5	877
3507			1988	12	06.56632	03	46	49.10	+17	58	19.1		877
3507			1988	12	07.58264	03	46	04.99	+17	56	41.3		877
3507			1988	12	07.60590	03	46	03.93	+17	56	40.9		877

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

1986	WD		1989	01	28.60208	09	31	14.06	-01	00	23.5		881
1986	WD		1989	01	28.61875	09	31	13.56	-01	00	21.1		881
1986	WD		1989	02	06.63403	09	26	43.30	-00	44	06.5		881
1986	WD		1989	02	06.64792	09	26	42.82	-00	44	05.5		881
1987	SB2		1989	02	06.53403	08	37	22.76	+39	19	10.5		881
1987	SB2		1989	02	06.54792	08	37	21.91	+39	19	08.9		881
1988	VH		1988	12	02.56771	02	53	39.70	+18	56	34.0		881
1988	VH		1988	12	02.57882	02	53	39.02	+18	56	26.8		881
1988	XU		1988	12	07.57431	05	23	42.50	+25	06	04.1		881
1989	AC		1989	01	12.53125	04	49	01.7	+21	28	25		881
1989	AC		1989	01	12.53472	04	49	03.2	+21	28	31		881
1989	BQ		1989	02	06.56875	08	58	50.65	+20	58	39.3		881
1989	BQ		1989	02	06.58264	08	58	50.24	+20	58	42.7		881

1989	DB	*	1989	02	26.52257	10	44	17.99	+14 00 43.9	16.0	881
1989	DB		1989	02	26.54618	10	44	16.55	+14 00 48.8		881
1989	DB		1989	02	27.56357	10	43	17.59	+14 05 18.5		881
1989	DB		1989	02	27.59618	10	43	15.72	+14 05 25.7		881
499			1988	11	01.56563	03	09	30.60	+19 13 09.1		881
499			1988	11	01.58924	03	09	29.79	+19 13 04.1		881
3724			1988	12	07.59826	05	51	04.25	+24 47 35.3	15.5	881
3724			1988	12	07.61910	05	51	02.88	+24 47 28.4		881
3724			1988	12	08.60139	05	50	04.26	+24 43 56.0		881
3724			1988	12	08.61528	05	50	03.43	+24 43 52.6		881
3724			1988	12	10.58090	05	48	04.00	+24 36 33.1		881
3724			1988	12	10.60174	05	48	02.76	+24 36 27.3		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

1949	PV		1989	02	01.65088	08	22	55.69	+18 51 11.4	18	887
1949	PV		1989	02	01.66782	08	22	54.32	+18 51 19.0		887
1949	PV		1989	02	01.68368	08	22	53.39	+18 51 19.0	18	887
1949	PV		1989	02	04.66403	08	19	49.57	+19 07 41.3	18	887
1949	PV		1989	02	04.68630	08	19	48.17	+19 07 53.7		887
1950	JB		1989	02	04.60093	08	41	50.30	+23 58 11.5	15.5	887
1950	JB		1989	02	04.62014	08	41	49.28	+23 58 21.7		887
1950	JB		1989	02	04.63206	08	41	48.33	+23 58 28.5		887
1982	UF4		1989	02	04.59063	08	41	07.07	+19 35 23.2	16	887
1982	UF4		1989	02	04.61007	08	41	05.96	+19 35 26.3		887

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

1950	JB		1989	01	28.60903	08	48	39.52	+22 53 17.0	16.5	888
1950	JB		1989	01	28.64236	08	48	37.51	+22 53 36.2		888
1950	JB		1989	01	29.67847	08	47	36.99	+23 03 28.8	16.0	888
1950	JB		1989	01	29.71111	08	47	34.99	+23 03 47.3		888
1969	GD		1988	12	28.50278	02	41	09.58	+19 19 26.5	16.0	888
1969	GD		1988	12	28.53403	02	41	10.15	+19 19 14.5		888
1969	GD		1989	01	01.45000	02	42	37.23	+18 55 28.6	16.5	888
1969	GD		1989	01	01.48125	02	42	37.90	+18 55 17.7		888
1969	GD		1989	01	03.47778	02	43	32.78	+18 44 29.9	16.0	888
1969	GD		1989	01	03.50972	02	43	33.63	+18 44 19.5		888
1972	TC2		1989	01	28.52847	07	56	53.78	+28 34 18.4	17.5	888
1972	TC2		1989	01	28.56181	07	56	51.63	+28 34 25.3		888
1973	SM		1989	01	28.53681	08	06	00.49	+17 39 25.2	17.5	888
1973	SM		1989	01	28.57014	08	05	59.27	+17 39 29.3		888
1973	SM		1989	01	29.65417	08	05	24.07	+17 41 23.6	17.5	888
1973	SM		1989	01	29.68681	08	05	22.98	+17 41 26.9		888
1976	EB		1989	01	01.49375	03	25	05.61	+28 23 43.9	16.5	888
1976	EB		1989	01	01.52639	03	25	05.39	+28 23 35.4		888
1978	PG3		1989	02	05.77708	12	22	54.55	-08 12 27.8	18.0	888
1978	PG3		1989	02	05.80903	12	22	54.17	-08 12 35.5		888
1981	SW6		1989	01	29.75208	09	11	23.71	+07 52 26.6	17.5	888
1981	SW6		1989	01	29.77708	09	11	22.60	+07 52 34.2		888
1981	SW6		1989	02	05.63681	09	06	10.84	+08 28 36.2	17.5	888
1981	SW6		1989	02	05.67014	09	06	09.24	+08 28 47.1		888
1981	TO3		1989	01	29.66181	08	22	38.83	+21 00 57.6	18.0	888
1981	TO3		1989	01	29.69444	08	22	37.18	+21 01 03.4		888

1981	TO3		1989	02	03.62500	08	18	37.59	+21	15	10.7	18.0	888
1981	TO3		1989	02	03.65764	08	18	36.06	+21	15	15.1		888
1983	RX2		1989	02	10.63333	08	51	59.75	+26	15	45.1	17.5	888
1983	RX2		1989	02	10.66597	08	51	57.58	+26	15	54.1		888
1983	RX2		1989	02	13.67569	08	48	59.65	+26	26	52.7	17.5	888
1983	RX2		1989	02	13.70972	08	48	57.67	+26	26	59.5		888
1983	WA		1989	02	05.69861	10	36	58.80	-05	51	28.5	17.5	888
1983	WA		1989	02	05.73194	10	36	57.40	-05	51	27.1		888
1986	FA		1989	01	28.60069	08	42	38.34	+27	41	05.0	17.5	888
1986	FA		1989	01	28.63403	08	42	35.92	+27	41	13.1		888
1986	FA		1989	01	29.67014	08	41	22.07	+27	46	01.2	17.5	888
1986	FA		1989	01	29.70278	08	41	19.65	+27	46	09.1		888
1986	FA		1989	02	03.63264	08	35	31.96	+28	06	46.6	17.5	888
1986	FA		1989	02	03.66597	08	35	29.48	+28	06	54.0		888
1986	FA		1989	02	05.62014	08	33	14.18	+28	13	47.3	17.5	888
1986	FA		1989	02	05.65347	08	33	11.76	+28	13	52.8		888
1986	FA		1989	02	07.62986	08	30	57.73	+28	20	02.2	17.5	888
1986	FA		1989	02	07.66319	08	30	55.31	+28	20	07.5		888
1986	FA		1989	02	10.62500	08	27	41.57	+28	27	45.2	17.5	888
1986	FA		1989	02	10.65833	08	27	39.38	+28	27	50.2		888
1988	VD7		1989	01	05.55556	03	32	53.65	+19	50	45.1	17.5	888
1988	VD7		1989	01	05.58889	03	32	53.49	+19	50	49.8		888
1988	WG		1988	12	15.66597	04	41	00.03	+28	37	20.4	15.5	888
1988	WG		1988	12	15.69931	04	40	57.63	+28	37	28.8		888
1988	XD2		1989	01	03.48611	03	30	59.43	+19	44	33.8	17.5	888
1988	XD2		1989	01	03.51806	03	30	58.62	+19	44	36.6		888
1988	XD2		1989	01	28.45000	03	29	47.33	+20	42	47.8	17.5	888
1988	XD2		1989	01	28.48194	03	29	47.88	+20	42	52.9		888
1988	XG2		1989	01	27.52222	07	28	51.48	+15	02	10.6	17.0	888
1988	XG2		1989	01	27.55625	07	28	49.64	+15	02	10.8		888
1988	XG2		1989	01	29.59514	07	27	09.85	+15	01	45.3	17.0	888
1988	XG2		1989	01	29.62431	07	27	08.39	+15	01	45.2		888
1989	AC		1989	01	27.51389	06	01	58.09	+23	10	20.4	14.0	888
1989	AC		1989	01	27.54792	06	02	04.50	+23	10	23.1		888
1989	AC		1989	01	29.58889	06	08	31.15	+23	12	49.3	14.5	888
1989	AC		1989	01	29.61806	06	08	36.25	+23	12	50.2		888
1989	AC		1989	02	03.54201	06	22	23.04	+23	14	19.1	15.0	888
1989	AC		1989	02	03.57118	06	22	27.31	+23	14	18.5		888
1989	AC		1989	02	11.59722	06	41	14.95	+23	07	38.9	15.5	888
1989	AC		1989	02	11.63056	06	41	19.07	+23	07	36.0		888
1989	AU1		1989	01	27.52986	07	37	52.64	+15	57	31.9	17.5	888
1989	AU1		1989	01	27.56389	07	37	51.63	+15	57	35.1		888
1989	AU1		1989	01	29.60347	07	36	45.99	+15	59	51.7	17.5	888
1989	AU1		1989	01	29.63194	07	36	45.04	+15	59	54.1		888
1989	AU1		1989	02	03.54861	07	34	14.03	+16	05	32.0	17.5	888
1989	AU1		1989	02	03.57778	07	34	13.13	+16	05	34.0		888
1989	AU1		1989	02	05.54306	07	33	15.99	+16	07	49.3	17.5	888
1989	AU1		1989	02	05.57500	07	33	15.04	+16	07	51.8		888
1989	AU1		1989	02	07.61319	07	32	17.90	+16	10	11.9	17.5	888
1989	AU1		1989	02	07.64653	07	32	16.93	+16	10	14.3		888
1989	AU1		1989	02	10.60764	07	30	58.52	+16	13	36.7	18.0	888
1989	AU1		1989	02	10.64167	07	30	57.55	+16	13	39.5		888
1989	BJ	*	1989	01	28.53681	08	06	54.78	+17	45	27.9	17.5	888
1989	BJ		1989	01	28.57014	08	06	52.87	+17	45	32.3		888
1989	BJ		1989	01	29.65417	08	05	53.44	+17	48	01.9	17.5	888
1989	BJ		1989	01	29.68681	08	05	51.61	+17	48	06.7		888
1989	BJ		1989	02	03.61736	08	01	30.60	+17	59	08.4	17.5	888
1989	BJ		1989	02	03.64931	08	01	28.86	+17	59	12.6		888

1989	BJ		1989	02	05.61181	07	59	50.20	+18	03	24.0	17.5	888
1989	BJ		1989	02	05.64514	07	59	48.50	+18	03	27.2		888
1989	BJ		1989	02	07.62153	07	58	12.64	+18	07	33.6	17.5	888
1989	BJ		1989	02	07.65486	07	58	10.93	+18	07	37.4		888
1989	BJ		1989	02	10.61667	07	55	55.04	+18	13	27.1	17.5	888
1989	BJ		1989	02	10.65000	07	55	53.49	+18	13	30.3		888
1989	BK	*	1989	01	28.60069	08	41	25.29	+27	24	08.5	17.0	888
1989	BK		1989	01	28.63403	08	41	23.00	+27	24	24.6		888
1989	BK		1989	01	29.67014	08	40	16.36	+27	31	52.6	16.5	888
1989	BK		1989	01	29.70278	08	40	14.18	+27	32	06.3		888
1989	BK		1989	02	03.63264	08	35	05.71	+28	04	42.7	17.0	888
1989	BK		1989	02	03.66597	08	35	03.52	+28	04	54.8		888
1989	BK		1989	02	05.62014	08	33	06.54	+28	16	19.1	17.0	888
1989	BK		1989	02	05.65347	08	33	04.48	+28	16	30.1		888
1989	BK		1989	02	07.62986	08	31	10.29	+28	27	05.4	16.5	888
1989	BK		1989	02	07.66319	08	31	08.23	+28	27	15.4		888
1989	BK		1989	02	10.62500	08	28	26.63	+28	41	20.3	16.5	888
1989	BK		1989	02	10.65833	08	28	24.73	+28	41	29.2		888
1989	BL	*	1989	01	28.61736	09	00	30.36	+25	53	42.8	17.5	888
1989	BL		1989	01	28.65069	09	00	29.10	+25	53	50.8		888
1989	BL		1989	01	29.73542	08	59	51.29	+25	57	09.4	17.0	888
1989	BL		1989	01	29.76042	08	59	50.38	+25	57	14.3		888
1989	BL		1989	02	03.64097	08	56	58.41	+26	11	46.5	17.5	888
1989	BL		1989	02	03.67306	08	56	57.23	+26	11	52.3		888
1989	BL		1989	02	05.62847	08	55	48.47	+26	17	18.8	17.0	888
1989	BL		1989	02	05.66181	08	55	47.23	+26	17	24.4		888
1989	BL		1989	02	07.63819	08	54	38.08	+26	22	40.8	17.0	888
1989	BL		1989	02	07.67083	08	54	36.96	+26	22	45.6		888
1989	BL		1989	02	10.63333	08	52	54.75	+26	30	09.8	17.5	888
1989	BL		1989	02	10.66597	08	52	53.60	+26	30	14.1		888
1989	BL		1989	02	13.67569	08	51	11.62	+26	37	05.8	17	888
1989	BL		1989	02	13.70972	08	51	10.54	+26	37	11.8		888
1989	BN		1989	02	05.69028	09	27	43.48	+20	51	30.2	17	888
1989	BN		1989	02	05.72361	09	27	40.98	+20	51	41.8		888
1989	BN		1989	02	07.69167	09	25	31.82	+21	02	35.9	17.5	888
1989	BN		1989	02	07.72431	09	25	29.59	+21	02	46.3		888
1989	BN		1989	02	10.68958	09	22	13.47	+21	18	21.5	17.5	888
1989	BN		1989	02	10.72292	09	22	11.23	+21	18	31.1		888
1989	BN		1989	02	13.69236	09	18	56.39	+21	33	07.4	17.0	888
1989	BN		1989	02	13.72639	09	18	54.15	+21	33	16.4		888
1989	BN		1989	02	14.68958	09	17	51.31	+21	37	42.7	18	888
1989	BN		1989	02	14.69792	09	17	51.18	+21	37	49.1	17.5	888
1989	BN		1989	02	14.72361	09	17	49.20	+21	37	51.6	18	888
1989	BN		1989	02	14.73194	09	17	48.95	+21	37	58.3	17.5	888
1989	CR1	*	1989	02	05.68194	09	06	16.96	+03	14	19.9	18.0	888
1989	CR1		1989	02	05.71528	09	06	14.73	+03	14	21.4		888
1989	CR1		1989	02	07.68333	09	04	06.73	+03	17	03.2	17.5	888
1989	CR1		1989	02	07.71597	09	04	04.55	+03	17	05.3		888
1989	CR1		1989	02	10.68125	09	00	52.43	+03	22	20.8	18.0	888
1989	CR1		1989	02	10.71458	09	00	50.22	+03	22	24.3		888
1989	CR1		1989	02	13.68403	08	57	41.21	+03	29	00.1	18.0	888
1989	CR1		1989	02	13.71806	08	57	39.04	+03	29	04.6		888
1989	CS1	*	1989	02	05.76875	11	37	01.25	+03	18	07.6	17.5	888
1989	CS1		1989	02	05.80069	11	37	00.16	+03	18	01.5		888
1989	CS1		1989	02	10.70556	11	34	01.21	+03	06	00.6	17.5	888
1989	CS1		1989	02	10.73889	11	33	59.75	+03	05	55.9		888
1989	CS1		1989	02	13.74722	11	31	50.39	+02	59	53.4	17.5	888
1989	CS1		1989	02	13.77917	11	31	48.86	+02	59	49.9		888

1989	CT1	*	1989	02	10.68958	09	19	31.63	+21	01	36.3	18	888
1989	CT1		1989	02	10.72292	09	19	29.49	+21	01	43.2		888
1989	CT1		1989	02	14.68958	09	15	36.32	+21	15	18.1	18.0	888
1989	CT1		1989	02	14.72361	09	15	34.24	+21	15	25.6		888
1989	CU1	*	1989	02	10.69792	11	22	43.40	+11	20	12.0	18.0	888
1989	CU1		1989	02	10.73125	11	22	42.23	+11	20	28.3		888
1989	CU1		1989	02	13.70069	11	20	56.88	+11	46	23.5	18.5	888
1989	CU1		1989	02	13.73472	11	20	55.47	+11	46	41.5		888
2093	P-L		1989	02	05.68194	09	06	19.83	+03	22	05.6	18.0	888
2093	P-L		1989	02	05.71528	09	06	18.10	+03	22	12.9		888
2126	P-L		1989	02	05.69028	09	25	21.21	+20	29	36.2	17.5	888
2126	P-L		1989	02	05.72361	09	25	18.94	+20	29	39.2		888
2126	P-L		1989	02	14.68958	09	15	32.33	+20	41	54.8	18	888
2126	P-L		1989	02	14.72361	09	15	30.02	+20	41	52.9		888
2820	P-L		1989	01	28.54514	08	03	49.88	+30	06	05.8	17.5	888
2820	P-L		1989	01	28.57847	08	03	47.39	+30	06	11.7		888
2820	P-L		1989	02	03.56456	07	57	13.48	+30	11	15.3	17.5	888
2820	P-L		1989	02	03.59444	07	57	11.58	+30	11	15.4		888
6627	P-L		1989	01	28.52014	07	31	53.76	+17	45	58.5	17.5	888
6627	P-L		1989	01	28.55347	07	31	52.25	+17	46	04.0		888
314			1989	02	05.70694	10	53	02.17	+02	46	34.5	16.5	888
314			1989	02	05.74028	10	53	01.04	+02	46	44.2		888
730			1989	02	05.69028	09	24	24.39	+20	48	57.7	17.5	888
730			1989	02	05.72361	09	24	22.11	+20	49	12.4		888
730			1989	02	14.68958	09	14	37.28	+21	51	33.7	17	888
730			1989	02	14.72361	09	14	34.99	+21	51	47.7		888
1175			1988	12	01.63194	02	59	04.36	+18	10	53.1	16.0	888
1175			1988	12	01.65555	02	59	03.46	+18	10	43.5		888
1348			1989	02	13.76319	12	07	15.71	+09	54	07.6	16	888
1348			1989	02	13.79514	12	07	14.87	+09	54	18.1		888
1348			1989	02	14.71458	12	06	51.39	+09	59	44.3	15.0	888
1348			1989	02	14.74861	12	06	50.44	+09	59	56.5		888
2575			1989	02	03.62500	08	19	20.50	+21	38	06.2	17	888
2575			1989	02	03.65764	08	19	18.13	+21	38	07.9		888
2633			1989	01	28.60903	08	47	29.20	+22	46	43.8	17.0	888
2633			1989	01	28.64236	08	47	26.85	+22	46	53.3		888
2633			1989	01	29.67847	08	46	15.89	+22	51	52.8	17.0	888
2633			1989	01	29.71111	08	46	13.58	+22	52	02.2		888
2719			1989	01	01.59028	04	26	27.84	+20	55	29.1	16.5	888
2719			1989	01	01.62361	04	26	26.66	+20	55	25.8		888
2829			1989	01	29.61181	07	52	23.04	+29	28	25.7	17	888
2829			1989	01	29.64028	07	52	21.44	+29	28	25.3		888
3276			1989	01	28.47361	04	19	50.25	+22	23	18.0	17.0	888
3276			1989	01	28.50556	04	19	50.79	+22	23	21.4		888
3916			1988	12	07.69028	06	25	44.35	+25	55	52.5	17.0	888
3916			1988	12	07.72431	06	25	42.81	+25	55	56.0		888
3916			1988	12	10.69375	06	23	24.40	+25	59	27.7	17.5	888
3916			1988	12	10.72639	06	23	22.77	+25	59	29.9		888
3967			1989	01	28.52847	07	55	10.93	+29	11	30.6	17	888
3967			1989	01	28.56181	07	55	09.18	+29	11	44.0		888
3967			1989	01	29.61181	07	54	15.50	+29	18	27.4	16.0	888
3967			1989	01	29.64028	07	54	13.97	+29	18	38.7		888
3967			1989	02	03.55694	07	50	13.74	+29	47	50.6	17.0	888
3967			1989	02	03.58611	07	50	12.29	+29	48	00.4		888
3978			1989	01	03.55903	03	52	14.80	+16	53	06.4	17	888
3978			1989	01	03.59167	03	52	13.97	+16	52	58.1		888

894 Kiyosato
S. Miyasaka, 3-8-501, 4 Chome, Nagayama, Tama, Tokyo 206, Japan

Observer S. Miyasaka
Measurers S. Miyasaka, T. Takahata
0.25-m f/4.8 reflector

1972 YR		1989 01 29.49496	07 38 50.86	+21 04 02.8						894
1972 YR		1989 01 29.53345	07 38 48.63	+21 04 03.5						894
1972 YR		1989 01 29.56167	07 38 47.15	+21 04 04.1					F	894
1981 QN		1988 11 10.72152	03 21 03.96	+23 01 00.4						894
1981 QN		1988 11 11.61086	03 20 08.86	+22 54 28.9						894
1981 QN		1988 11 12.57014	03 19 09.21	+22 47 20.4						894
1981 QN		1988 11 12.59931	03 19 07.23	+22 47 05.7						894
1985 GX		1989 02 03.70804	10 15 02.48	+03 07 47.5						894
1985 GX		1989 02 03.75234	10 15 00.63	+03 08 10.9						894
3985		1988 12 11.56698	05 14 04.38	+21 09 30.0						894
3985		1988 12 11.60294	05 14 02.17	+21 09 33.8						894
3987		1988 12 03.53891	03 28 58.38	+20 41 59.7						894
3987		1988 12 03.58264	03 28 55.85	+20 41 53.7					I	894

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

1969 TN4		1988 12 28.46563	04 32 56.01	+21 53 49.6					t	896
3724		1988 12 28.44826	05 30 05.17	+23 24 25.7					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

1984 SW3		1989 01 03.53056	07 22 45.68	+24 48 28.4				16		897
1984 SW3		1989 01 03.56875	07 22 42.82	+24 48 19.1						897
1989 AD		1989 01 28.50938	05 23 23.65	+33 23 20.3				16.5		897
1989 AD		1989 01 28.54450	05 23 23.97	+33 23 08.8						897
1989 BU	*	1989 01 28.52708	07 13 20.85	+15 52 08.4				16.5		897
1989 BU		1989 01 28.57280	07 13 18.83	+15 52 25.2						897
1989 BU		1989 02 06.52535	07 08 10.80	+16 43 20.3				16.5		897
1989 BU		1989 02 06.55532	07 08 09.84	+16 43 29.0						897
1989 BV	*	1989 01 28.52708	07 21 42.96	+16 41 40.6				16		897
1989 BV		1989 01 28.57280	07 21 40.38	+16 41 33.5						897
1989 BV		1989 02 01.55625	07 18 25.91	+16 31 35.2				17		897
1989 BV		1989 02 01.59514	07 18 24.21	+16 31 30.9						897
219		1988 12 30.37182	22 11 58.99	-07 26 49.1				14		897
219		1988 12 30.39988	22 12 02.68	-07 26 34.6						897
433		1988 12 10.42708	00 02 39.26	+28 11 41.3				12		897
433		1988 12 10.46111	00 02 42.26	+28 11 19.7						897
1212		1989 02 13.76319	15 06 19.63	-09 57 20.8				16		897
1212		1989 02 13.80347	15 06 20.77	-09 57 21.0						897
1848		1989 01 12.51470	07 03 17.57	+24 10 08.6				16		897
1848		1989 01 12.55417	07 03 15.27	+24 10 13.0						897
1882		1988 12 10.48738	02 29 51.90	+07 59 09.0				16.5		897
1882		1988 12 10.55932	02 29 50.35	+07 58 57.7						897
2209		1988 12 17.73061	05 16 29.25	+19 13 19.3				15		897
2209		1988 12 17.75764	05 16 27.69	+19 13 18.5						897
2797		1989 01 01.47292	06 28 58.31	+36 51 11.0				16		897
2797		1989 01 01.52153	06 28 56.09	+36 51 19.2						897
2797		1989 01 03.45440	06 27 31.88	+36 56 29.2				16		897
2797		1989 01 03.49549	06 27 29.95	+36 56 35.9						897
2797		1989 01 12.50579	06 21 07.96	+37 16 24.3				16		897
2797		1989 01 12.54659	06 21 06.36	+37 16 29.1						897

3025	1988	12	10.42708	23	59	40.35	+27 46 23.6	16	897
3025	1988	12	10.46111	23	59	41.35	+27 46 14.3		897
3025	1988	12	16.47280	00	03	20.98	+27 14 52.1	16	897
3025	1988	12	16.56007	00	03	24.50	+27 14 26.8		897
3155	1989	01	12.50579	06	19	01.44	+35 43 11.5	16	897
3155	1989	01	12.54659	06	18	58.60	+35 43 10.0		897
3691	1989	02	03.70347	10	57	21.93	+33 00 36.5	16	897
3691	1989	02	03.74375	10	57	18.06	+33 00 28.5		897
3691	1989	02	07.55058	10	51	00.95	+32 45 18.0		897
3691	1989	02	07.59444	10	50	55.99	+32 45 05.4		897
3709	1989	02	03.59028	08	35	36.90	-01 55 41.6	16.5	897
3709	1989	02	03.62917	08	35	35.72	-01 55 32.7		897
3956	1988	11	14.61887	03	23	24.96	+22 21 59.3	16	897
3956	1988	11	14.65781	03	23	22.34	+22 21 42.2		897
3995	1989	01	25.39757	04	06	47.38	+17 21 43.9	17.5	897
3995	1989	01	25.43970	04	06	47.66	+17 21 56.6	17.5	897
3998	1989	01	24.44288	06	08	36.49	+35 42 07.7	16	897
3998	1989	01	24.46001	06	08	35.87	+35 42 02.1		897
3999	1989	01	16.72222	06	53	45.30	+23 31 33.1	16	897
3999	1989	01	16.74647	06	53	43.79	+23 31 31.6		897

* * * * *

ORBITAL ELEMENTS.

Orbital elements have been computed by the following contributors:

C. M. Bardwell, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A. (B)
D. W. E. Green, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A. (G)
K. Ichikawa, 45 Shiromae Kamiwada-cho, Okazaki-shi, Aichi, 444-02 Japan
T. Kobayashi, 1717-2 Shimo-Koizumi, Oizumi-machi, Ora-gun, Gunma-ken, 370-05 Japan
B. G. Marsden, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A. (M)
R. H. McNaught, Siding Spring Observatory, Coonabarabran, N.S.W. 2357, Australia (m)
S. Nakano, Harvard-Smithsonian Center for Astrophysics, 60 Garden Street, Cambridge, MA 02138, U.S.A. (N)
H. Oishi, 5-3-14 Ikeda, Niiza, Saitama 352, Japan
J. E. Rogers, P.O. Box 4273, Point Mugu, CA 93042, U.S.A.

The name of the orbit computer is shown on the line giving T for a comet and Epoch for a displayed minor-planet orbit; for many of the minor planets (O-C) residuals are shown in full (in R.A. and Decl.); observations are identified by date and observatory code, X referring to an approximate and Y to a semiaccurate position. For displayed minor planets "Id." shows those involved in establishing the identifications (generally with the principal contributors first), "k" indicating key identifications and "d" (only) double (or multiple) designations; no identifier is shown if only the orbit computer is involved and the results were not previously published. J-P indicates that only the perturbations by the outer planets were considered, and a and n are then related by a gravitational constant augmented by the masses of the inner planets. For the one-opposition orbits, equinox 1950.0 is used, and the columns headed Arc and O show the time span in days covered by the observations and the number of observations utilized in the computation (0 = 10 or more). In the note column N, D means that there are double (or multiple) designations, E means that the value of the eccen-

tricity was assumed, F means both; the double designations are listed at the end; the codes for the orbit computers (column C) are as listed above.

Periodic Comet Helin-Roman-Crockett (1989b)

T 1988 Sept. 9.93191 ET				Marsden
q 3.4722149		(1950.0)	P	Q
n 0.12139294	Peri.	9.56932	-0.19047993	-0.97890313
a 4.0396193	Node	91.43803	+0.89567730	-0.20412496
e 0.1404599	Incl.	4.24124	+0.40184522	-0.00903657
P 8.12				

From 41 observations 1989 Jan. 3-Feb. 11.

Comet Yanaka (1989a)

T 1988 Oct. 31.85816 ET				Marsden
q 1.8951837		(1950.0)	P	Q
	Peri.	351.58574	-0.87079734	-0.37557582
	Node	156.40272	+0.48446548	-0.76536738
e 1.0	Incl.	52.42429	+0.08369701	+0.52264288

From 54 observations 1989 Jan. 2-Feb. 14.

Comet Shoemaker (1989f)

T 1988 Nov. 2.00644 ET				Marsden
q 2.2049533		(1950.0)	P	Q
	Peri.	18.73120	-0.01119237	-0.91070177
	Node	73.62918	+0.85358773	-0.22378550
e 1.0	Incl.	25.49045	+0.52082887	+0.34719207

From 17 observations 1989 Jan. 11-Feb. 2.

Periodic Comet Bradfield 2 (1989c)

T 1988 Dec. 5.24372 ET				Marsden
q 0.4202712		(1950.0)	P	Q
n 0.01203986	Peri.	194.73170	-0.84169621	+0.27944682
a 18.8533484	Node	27.73756	-0.33746560	+0.39569908
e 0.9777084	Incl.	83.06172	-0.42150263	-0.87483239
P 81.86				

From 16 observations 1989 Jan. 7-Mar. 1.

Comet Yanaka (1988r)

T 1988 Dec. 11.65302 ET				Marsden
q 0.4278182		(1950.0)	P	Q
	Peri.	88.12719	+0.25380521	-0.69699075
	Node	314.82252	-0.18686834	+0.64496978
e 1.0	Incl.	71.00275	+0.94903274	+0.31339731

From 33 observations 1989 Jan. 1-29.

Comet Shoemaker (1989e)

T 1989 Feb. 26.00527 ET				Nakano
q 2.6409504		(1950.0)	P	Q
	Peri.	19.08455	-0.65901152	+0.31195659
	Node	136.45127	+0.49315539	-0.50781741
e 1.0	Incl.	96.61253	+0.56789222	+0.80299723

From 41 observations 1989 Jan. 13-Feb. 26.

One-opposition minor planets

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1975 LY	13.0	750528	42.68	256.58	304.54	14.25	0.0488	2.6020	9	8		G
1987 UA1	13.0	871101	27.36	123.15	235.39	11.32	0.1411	2.3597	28	0		N
1987 UN1	13.0	871101	357.05	172.10	227.63	12.91	0.1647	2.6957	20	0		N
1987 VB	13.0	871121	350.87	125.82	283.44	2.90	0.1340	2.2233	14	9		N

1987	WD	12.0	871121	68.40	307.37	13.22	8.97	0.1602	2.4028	22	9		N
1988	EA	15.0	880320	3.68	175.37	3.23	23.58	0.0345	1.9002	32	0		M
1988	EB2	13.5	880320	94.88	250.02	181.84	5.82	0.1470	2.3277	13	7		M
1988	ER2		880229	18.54	269.22	256.37	1.82	0.1181	2.2906	7	9		M
1988	FM1	12.5	880229	108.33	79.50	327.19	9.97	0.1010	3.0335	34	0		M
1988	FS2		880229	358.20	165.16	9.16	1.81	0.1632	2.2318	7	9		M
1988	FW2		880320	83.41	242.94	198.37	7.10	0.1004	2.3777	7	9		M
1988	FX2		880320	52.00	114.77	11.29	10.20	0.0091	2.7771	7	9		M
1988	FA3		880320	6.91	334.74	196.79	1.16	0.1733	2.5386	9	8		M
1988	FC3		880320	250.37	310.35	10.08	0.23	0.3041	2.2241	7	8		M
1988	FD3		880320	326.49	254.21	328.30	4.34	0.0774	2.1965	7	8		M
1988	FE3		880320	21.63	270.91	251.42	1.39	0.1721	2.8613	7	9		M
1988	FF3		880320	299.88	258.28	23.86	1.74	0.2000	3.1321	6	7		M
1988	GZ		880320	277.02	254.30	29.81	5.56	0.1240	3.1038	24	6		M
1988	RC7	13.0	880827	334.13	205.37	176.71	10.81	0.2197	2.3955	15	8		B
1988	RQ8		880916	27.00	288.60	37.12	5.01	0.1782	2.2357	36	6		G
1988	TE3		881006	357.44	195.67	181.55	6.33	0.1438	2.8988	2	5	E	G
1988	VZ	12.0	881115	35.19	314.21	37.20	9.70	0.2189	3.1952	31	0		G
1988	VS1	14.0	881115	43.04	246.83	101.77	3.22	0.2004	2.2008	32	8		G
1988	XU	13.5	881205	41.61	316.31	63.07	3.74	0.1854	2.3523	6	8	E	N
1988	XO1	12.0	881225	8.72	249.63	189.76	12.72	0.1831	2.7479	62	6		B
1988	XQ1	12.5	881205	311.68	39.11	83.89	2.88	0.1709	3.0627	8	7		N
1988	XR1	14.0	881225	0.20	344.83	81.96	7.15	0.1113	2.3646	9	8		N
1988	XX1	13.5	881225	57.30	349.81	24.90	14.45	0.1885	2.5828	57	5		B
1988	XG2	13.0	890114	20.92	178.68	264.29	7.10	0.1960	2.8005	45	0		N
1988	YB	12.5	890114	358.88	44.31	70.26	1.89	0.1443	3.2259	36	0		M
1988	YD	12.0	881225	1.84	328.32	110.51	6.91	0.1920	3.1710	5	6	E	M
1988	YE	13.5	881225	42.29	282.96	121.53	2.18	0.1271	2.3234	4	6		G
1988	YF	14.5	881225	353.75	357.36	108.72	2.33	0.1583	2.2368	4	5	E	G
1989	AA	14.5	890114	323.44	249.11	264.00	18.09	0.0831	1.9297	40	6		M
1989	AM	12.5	890114	91.94	265.11	76.34	26.29	0.0777	1.9350	37	5		B
1989	AB1	14.0	890203	27.16	359.31	76.53	0.43	0.0677	2.3408	34	5	E	N
1989	AE1	11.5	890203	55.33	302.26	92.95	9.66	0.2638	2.4177	26	0		N
1989	AF1	14.0	890114	66.25	264.17	123.51	4.82	0.1288	2.1853	32	0		N
1989	AJ1	12.0	881225	240.03	158.55	89.22	3.40	0.0974	2.8836	17	9		M
1989	AL1	13.0	890203	12.11	12.31	98.02	7.46	0.0708	2.3466	25	9		N
1989	AS1	13.5	890203	335.78	101.66	51.75	2.90	0.0917	2.2449	25	0		N
1989	AU1	10.0	890114	356.49	231.81	247.53	5.86	0.0871	5.2954	40	0		B
1989	AA2	13.0	881225	3.85	168.57	292.66	4.72	0.1977	3.0056	9	7		G
1989	AB2	13.0	881225	286.48	304.44	248.31	2.57	0.0872	2.3181	6	6		G
1989	AC2	13.5	881225	9.01	199.64	253.55	0.49	0.1010	2.4926	7	6	E	G
1989	AD2	14.5	881225	344.88	8.58	113.07	2.50	0.0942	2.1914	7	6	E	G
1989	AE2	12.0	881225	114.19	217.11	110.43	7.65	0.2903	2.4208	7	7	F	G
1989	AN2	10.0	890114	57.44	243.44	170.34	8.97	0.1114	5.2880	24	4	E	B
1989	AX2	13.0	890104	311.20	261.40	275.29	5.24	0.1108	2.2519	8	6		m
1989	AY2	12.0	890104	173.83	19.50	286.60	2.91	0.0897	2.6952	12	6		m
1989	AD3	12.5	890104	199.58	328.74	313.79	1.23	0.0223	2.8175	15	9		m
1989	AF3	14.0	890104	344.62	29.30	110.25	6.76	0.1863	2.3245	12	7		m
1989	AH3	12.0	881225	33.31	322.06	119.49	16.10	0.0823	3.2273	9	6	E	M
1989	AK3	12.5	890104	114.11	48.00	314.05	6.01	0.0608	2.8566	11	8		m
1989	AL3	14.0	890104	19.07	329.74	126.56	5.03	0.0881	2.2575	17	8		m
1989	AM3	14.0	890104	1.58	179.60	298.69	10.84	0.1308	2.6387	17	7		m
1989	AN3	14.0	890104	53.87	293.03	117.09	5.27	0.1492	2.2789	11	7		m
1989	AO3	12.0	881225	75.62	78.61	317.07	7.00	0.0842	3.0315	12	6		M
1989	BB	12.0	890203	355.18	169.71	321.68	9.33	0.1577	2.4033	25	0		N
1989	BC	12.0	890203	305.58	90.97	101.26	14.15	0.0588	2.7258	9	0		N
1989	BD	12.5	890203	357.39	110.09	24.93	7.64	0.1483	2.7015	9	0		N
1989	BE	11.0	890114	165.11	322.57	358.27	7.21	0.1747	3.2200	4	8	E	M
1989	BF	14.0	890114	107.64	31.28	334.19	9.33	0.1431	2.2575	4	8		M

1989 BG	12.5	890114	205.18	331.21	323.01	13.54	0.3058	2.2831	3	6		M
1989 BH	13.0	890114	327.20	63.51	110.11	11.00	0.1917	2.4495	4	7		M
1989 BK	13.0	890203	48.31	312.49	93.40	8.87	0.3176	2.5800	13	0		N
1989 BN	13.5	890203	176.44	257.64	61.74	3.50	0.1155	2.2404	14	0		N
1989 BO	11.0	890114	247.31	141.83	103.71	11.14	0.0366	3.0155	3	6		M
1989 BQ	9.0	890203	359.69	7.37	125.80	22.53	0.1787	5.0277	8	8	E	N
1989 BT	12.0	890203	35.80	173.80	271.29	3.81	0.1707	2.8056	7	6		N
1989 BW	9.5	890114	63.48	344.59	71.77	17.72	0.1348	5.1287	24	3		B
1989 CD	13.5	890203	41.68	340.64	98.78	1.85	0.1610	2.3559	8	6		N
1989 CF	13.5	890203	338.36	43.74	127.38	13.41	0.1123	2.6080	12	0		N
1989 CH	13.0	890203	351.27	12.81	136.36	10.81	0.2241	2.5035	8	0	E	N
1989 CL	13.5	890203	11.01	337.71	137.32	1.34	0.2830	2.7586	8	0	E	N
1989 CM	13.0	890203	7.00	96.66	30.17	0.51	0.1774	3.0399	7	0	E	N
1989 CN	13.0	890203	161.20	182.35	147.85	1.66	0.2056	2.1970	7	0	E	N
1989 CO	13.5	891110	358.20	114.92	123.83	4.63	0.2092	2.3956	8	5	E	N
1989 CP	13.5	890203	22.62	116.10	351.64	2.17	0.1565	2.4152	9	0		N
1989 CQ	15.5	890203	312.35	141.15	41.27	3.81	0.1419	2.3449	8	5		N
1989 CR	12.5	890203	284.04	114.88	110.53	24.21	0.2489	2.5346	8	7		N
1989 CV	12.0	890203	262.45	206.52	25.73	5.39	0.0814	3.9746	9	6	E	M
1989 CW	13.5	890203	284.72	259.86	322.52	0.80	0.0561	2.2485	10	0		M
1989 CX	13.5	890203	15.64	145.62	327.74	23.59	0.2243	2.2946	20	7		N
1989 CB1	13.5	890203	281.24	98.58	132.34	3.94	0.1303	2.1794	7	0		N
1989 CC1	13.5	890223	45.73	270.81	154.06	29.22	0.4208	2.7947	18	8		N
1989 CM1	13.0	890223	283.27	230.63	9.65	6.11	0.1337	2.5365	7	9		N
1989 CR1	14.5	890203	302.17	310.37	261.55	8.47	0.1625	2.3272	8	8		N
1989 CS1	13.5	890203	4.59	171.32	341.09	12.97	0.1110	2.6834	8	6		N
1989 CV1	15.5	890223	28.56	14.55	95.17	4.83	0.1754	2.2575	3	7	E	N
1989 CX1	14.5	890223	17.14	356.19	123.94	6.16	0.2381	2.8816	13	5		N
1989 DC	13.5	890223	288.08	218.86	21.20	8.39	0.1086	2.4117	3	6		N

1989 AE2 = 1989 AK2 (D. W. E. Green)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

(3374) 1980 KO	Obs. 38	M 307.41353	Peri.	158.67177	
H 12.9 G 0.25	Opp. 5	n 0.19481109	Node	75.03451	
rms res. 1".06 (M-P)	1980-1989	e 0.0155169	Incl.	3.02905	

(4001)* 1949 PV = 1949 QD1 = 1982 BU9 = 1987 OE

Discovered 1949 Aug. 2 by K. Reinmuth at Heidelberg.

Id. O. Kippes (d, NAZ 12, 22), T. Kobayashi (MPC 12454)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M 211.63235	(1950.0)	P	Q	
n 0.28509232	Peri. 203.53978	+0.89589628	+0.43828720	
a 2.2863657	Node 130.26298	-0.39096562	+0.85544566	
e 0.1730349	Incl. 5.46116	-0.21098754	+0.27589321	
P 3.46	H 13.7	G 0.25		

Residuals in seconds of arc

490802	024	3.7-	3.4+	870727	675	1.7-	0.2-	890201	887	(0.4-	4.7-)
490820	690	0.2-	3.2-	881229	413	2.1+	0.6+	890204	887	(4.1+	4.1-)
490824	690	0.5+	1.0-	890104	413	0.3+	1.0+	890204	887	(4.0+	1.2+)
490826	690	2.2+	0.9+	890110	413	1.8-	1.8+	890211	372	0.0	2.7-
820119	095	0.6-	1.1-	890110	413	0.8+	1.0-	890211	372	0.9+	0.5-
820120	095	1.5-	2.6+	890201	887	2.3+	1.4-				
870726	675	1.8+	0.1-	890201	887	1.7-	0.6+				

(4002)* 1950 JB = 1950 JL = 1950 LO = 1984 YU5 = 1985 BW

Discovered 1950 May 14 by K. Reinmuth at Heidelberg.

Id. B. Potter (d, MPC 491), O. Kippes (d, MPC 1452), H. Oishi (JAM 2079), S. Nakano (MPC 11999)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 247.38365	(1950.0)	P	Q
n 0.24699717	Peri. 185.61910	+0.53079864	+0.81668093
a 2.5157920	Node 116.63358	-0.76732295	+0.57655762
e 0.0282464	Incl. 14.67548	-0.35981704	-0.02477028
P 3.99	H 11.9	G 0.25	

Residuals in seconds of arc

500508	760	2.5+	1.0-	881111	801	0.2+	0.1-	890128	888	(4.0-	1.6+)
500508	760	1.0+	0.8-	881112	801	1.0+	1.0+	890129	888	1.5-	0.1+
500513	012	0.5-	0.1-	881205	801	0.5-	1.4+	890129	888	1.8-	0.1+
500514	024	0.4-	3.3+	881207	801	(3.2+	0.7+)	890204	887	0.7+	0.4-
500607	760	2.5-	2.2-	890105	888	0.7-	2.3-	890204	887	2.5+	0.5-
500607	760	0.2+	1.8+	890105	888	0.7-	2.6-	890204	887	0.7-	0.0
841228	095	0.3-	0.0	890110	413	2.1-	0.1+	890207	657	0.9-	0.9-
850118	046	0.1-	1.3+	890110	413	0.7-	0.2-	890207	657	2.0+	1.3+
850118	046	1.5+	0.4+	890112	413	(6.7-	1.3-)	890208	657	0.1+	1.4+
871019	474	1.2-	0.1-	890112	413	2.5+	1.0+				
871019	474	0.7+	1.1+	890128	888	(4.0-	1.6+)				

(4003)* 1964 ED = 1933 FG1 = 1967 RK1 = 1968 UL3 = 1974 SE2 = 1978 GM4 = 1980 RH2 = 1980 TP6 = 1981 WV8

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

Id. S. Nakano, N. S. Chernykh (d, MPC 13683)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M 215.37640	(1950.0)	P	Q
n 0.15539890	Peri. 98.93281	+0.33842201	+0.94084803
a 3.4263950	Node 190.89190	-0.89415204	+0.31602928
e 0.0820528	Incl. 5.03963	-0.29319391	+0.12219031
P 6.34	H 10.8	G 0.25	

Residuals in seconds of arc

330325	024	0.5+	2.6-	640311	033	0.6-	0.1+	780411	095	0.9+	0.8-
640308	033	0.6-	0.2+	640311	033	0.3-	0.0	780505	095	0.6+	1.3-
640308	033	0.5-	0.2-	640311	033	0.3-	0.6+	800907	095	0.3-	1.0+
640308	033	0.4-	0.7-	640311	033	0.5-	0.6+	800908	095	(3.7+	6.6-)
640308	033	0.1+	0.1+	640312	033	0.3-	0.8-	801008	095	3.2-	0.6-
640309	033	0.7-	0.5+	670911	095	1.6-	1.0-	811125	095	2.2+	0.8-
640309	033	0.9-	0.5+	681026	095	1.4+	3.3-	881206	801	0.5-	1.0+
640309	033	0.2-	0.1+	740919	095	1.1+	2.8+	881210	801	0.3+	2.2+
640309	033	0.1-	0.5+	740922	095	3.9+	3.3-				

(4004)* 1971 SN1 = 1982 SC4

Discovered 1971 Sept. 16 at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (MPC 8785)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Rogers

M 111.48323	(1950.0)	P	Q
n 0.18111701	Peri. 348.98612	+0.98968952	-0.11524264
a 3.0938308	Node. 18.29669	+0.14311783	+0.77225173
e 0.2074021	Incl. 15.71897	+0.00565233	+0.62477708
P 5.44	H 11.9	G 0.25	

Residuals in seconds of arc

710916	095	3.1+	0.7-	820917	095	0.4-	2.3-	821114	095	(3.5-	2.6-)
710923	095	0.5-	1.8+	820920	095	0.7+	0.4-	850325	801	3.2+	3.8+
711011	095	3.7-	0.2+	820922	095	0.9-	2.3+	881207	801	0.4+	0.1-
711020	805	0.1+	2.3+	820926	095	2.5-	1.0+	881210	801	0.2+	1.0-
711020	805	1.6+	1.0+	821109	095	1.8+	0.0	890106	801	0.2+	1.9+
711021	095	0.4-	0.6-	821111	095	0.2+	0.9-				

(4005)* 1972 TC2 = 1972 XE = 1968 TE = 1981 AF4 = 1986 EB5

Discovered 1972 Oct. 8 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (d, MPC 13599), K. Ichikawa (ibid.), H. Oishi (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Ichikawa

M	192.34352		(1950.0)		P		Q					
n	0.25694397	Peri.	265.33921		+0.92798282		+0.35468106					
a	2.4504382	Node	73.85294		-0.27693958		+0.86159101					
e	0.1508946	Incl.	6.83005		-0.24930374		+0.36312845					
P	3.84	H	12.7	G	0.25							

Residuals in seconds of arc

681015	095	2.2-	1.3+	860312	413	2.5-	0.1+	890103	877	0.3-	2.9+	Y
681023	095	2.5+	1.3+	860312	413	1.2+	1.0-	890105	877	0.1+	1.2+	
721008	095	0.4+	2.9-	881215	888	0.5+	1.6-	890105	877	0.8+	0.7+	
721202	095	1.1-	0.1+	881215	888	0.6+	1.9-	890128	888	0.6+	0.9-	
721206	095	0.6+	0.7-	890102	888	0.9+	0.3+	890128	888	0.8+	1.2-	
810108	552	0.3+	1.4-	890102	888	0.4+	0.0					
810108	552	1.2-	0.2+	890103	877	2.2-	2.3+	Y				

(4006)* 1972 YR = 1973 AA1 = 1965 AW = 1969 AS = 1971 OO = 1975 NC1 = 1979 OA14 = 1979 QH10 = 1981 AN1

Discovered 1972 Dec. 29 by T. M. Smirnova at the Crimean Astrophysical Observatory.

Id. C. M. Bardwell (d, MPC 6840), T. Kobayashi (MPC 12324)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	107.06314		(1950.0)		P		Q					
n	0.24698454	Peri.	121.66197		+0.56458937		-0.82450343					
a	2.5158778	Node	293.91791		+0.74251193		+0.52740349					
e	0.1819472	Incl.	2.37331		+0.36043708		+0.20503575					
P	3.99	H	12.7	G	0.25							

Residuals in seconds of arc

650109	330	0.7+	1.6+	750713	095	1.5-	1.4+	890105	872	0.4+	0.3-	
690115	095	0.3+	2.3-	790719	095	1.7+	0.1-	890105	896	0.5-	0.4+	
710726	095	1.5+	4.2-	790826	095	0.6+	1.5+	890105	896	1.4+	1.4+	
721229	095	(0.1-	4.7+)	810108	381	0.5+	1.9-	890109	046	0.2+	0.4+	
730101	095	1.1-	1.1+	810108	381	0.0	1.3-	890109	046	0.5-	0.0	
730102	095	0.9-	2.6-	890103	896	1.9-	1.7+	890129	894	0.1-	1.5+	
730104	095	(0.1-	7.1-)	890103	896	0.3-	2.2+	890129	894	0.6-	0.1-	
750711	095	2.5-	2.2+	890105	872	1.9+	0.1-	890129	894	1.3+	1.1-	

(4007)* 1973 SR = 1977 AK2 = 1986 VH5 = 1989 AR1

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

Id. C. M. Bardwell, T. Kobayashi

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	56.98287		(1950.0)		P		Q					
n	0.08436657	Peri.	77.98827		+0.10531032		-0.99423366					
a	5.1485996	Node	6.07660		+0.82171258		+0.07554425					
e	0.0582057	Incl.	11.01611		+0.56008764		+0.07610845					
P	11.68	H	10.0	G	0.25							

Residuals in seconds of arc

730919	675	0.1+	1.1-	730929	675	0.0	1.0-	770113	095	1.0+	4.4+	
730919	675	0.8-	0.2-	730929	675	0.8-	0.0	861105	688	0.8+	0.8-	
730920	675	0.1-	0.7-	730930	675	0.2-	0.4-	861105	688	0.1+	1.0-	
730920	675	0.2-	1.1+	730930	675	0.0	0.5+	890108	675	0.1+	0.8-	
730924	675	0.2+	0.6-	731004	675	0.5-	0.4+	890110	675	1.2-	0.3-	
730924	675	0.5+	0.9+	731004	675	0.1+	0.3+	890131	675	0.3+	1.4-	
730925	675	0.3+	1.0-	731005	675	0.2+	0.2+	890131	675	0.5-	0.4-	
730925	675	0.9+	1.3+	731005	675	0.6-	1.2+					

(4008)* 1977 BY = 1988 CN

Discovered 1977 Jan. 22 at the El Leoncito Station of the Felix Aguilar Observatory, University of Cuyo.

Id. C. M. Bardwell (MPC 12958)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M 173.67873	(1950.0)	P	Q	
n 0.27179313	Peri. 327.05815	-0.70471759	-0.70263307	
a 2.3603536	Node 166.77978	+0.70758879	-0.70618026	
e 0.2085313	Incl. 25.48083	+0.05187705	+0.08727086	
P 3.63	H 13.3	G 0.25		

Residuals in seconds of arc

770122	808	0.3-	0.1-	831105	413	1.3-	1.0-	880220	413	0.9-	1.0-
770126	808	0.6-	0.6+	831106	413	0.2-	0.7-	880310	675	(7.3-	0.7-)
770210	808	0.5+	1.1+	831106	413	0.1+	0.3+	880315	675	(13.6-	2.0-)
770213	808	0.2+	1.7+	880128	413	0.1-	2.1+	880316	801	0.3+	0.3+
770215	808	0.7+	1.2+	880128	413	0.7-	0.7+	880318	675	1.0-	1.2-
770218	808	0.3-	0.8-	880214	675	3.0+	1.8-	880321	675	0.9-	0.8-
791110	413	1.4+	1.0+	880215	675	0.8+	1.2-	880322	675	0.4-	1.0-
831105	413	0.0	2.2-	880220	413	0.4+	0.9+				

(4009)* 1977 EN1 = 1982 BP3 = 1984 SP5

Discovered 1977 Mar. 13 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (MPC 9593)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M 42.54848	(1950.0)	P	Q	
n 0.17802464	Peri. 181.77636	-0.27766964	+0.95991783	
a 3.1295553	Node 72.10388	-0.88086472	-0.23854203	
e 0.1463327	Incl. 2.29910	-0.38337568	-0.14715795	
P 5.54	H 12.0	G 0.25		

Residuals in seconds of arc

770313	095	0.4+	0.3-	840922	809	0.6+	0.0	840928	809	0.8+	0.2-
770315	381	0.3-	0.0	840922	809	1.1+	0.3+	840928	809	0.7+	0.2-
770315	381	0.6-	0.1+	840922	809	0.5+	0.4+	840929	809	1.4-	1.7+
770322	095	1.0+	2.0-	840922	809	0.5+	0.8+	840929	809	1.3-	1.3+
770325	095	1.4+	0.1-	840923	809	0.2+	0.7+	840929	809	1.3-	1.5+
770410	381	2.1-	0.4-	840923	809	0.3+	0.9+	840930	809	0.4-	0.5-
770410	381	0.7-	1.1+	840923	809	0.3+	1.1+	840930	809	0.5-	0.4-
820120	033	0.5+	1.3+	840924	809	0.6+	0.3+	840930	809	0.4-	0.6-
820120	033	0.8+	1.4+	840924	809	0.6+	0.6+	841001	809	0.5-	0.3-
840918	809	0.9-	0.3-	840924	809	0.6+	0.8+	841001	809	0.5-	0.2+
840918	809	0.4-	0.2-	840926	809	0.3-	0.4+	880316	399	0.8+	0.7-
840918	809	0.6-	0.1-	840926	809	0.1-	0.4+	880317	399	2.3+	1.1+
840921	809	0.1-	0.5+	840926	809	0.0	0.1+	880317	399	0.4+	1.3+
840921	809	0.1-	0.8+	840927	809	0.8-	0.5-	880317	399	1.1+	2.6+
840921	809	0.1-	1.0+	840927	809	0.8-	0.6-	880324	399	0.7+	0.9+
840922	809	0.2+	0.6-	840927	809	1.0-	0.7-	880324	399	0.4-	0.8+
840922	809	0.4+	0.3-	840928	809	0.9+	0.3-	880324	399	1.9-	1.1+

(4010)* 1977 QJ2 = 1985 QA4

Discovered 1977 Aug. 21 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. C. M. Bardwell (MPC 10766)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M 26.80964	(1950.0)	P	Q	
n 0.24236546	Peri. 339.60037	+0.47155623	+0.87959603	
a 2.5477427	Node 318.46748	-0.79532293	+0.39344517	
e 0.1295485	Incl. 5.43606	-0.38091490	+0.26741674	
P 4.07	H 13.1	G 0.25		

Residuals in seconds of arc

770821	095	0.4-	0.8+	850909	809	0.7+	0.3+	850916	809	0.9-	1.1+
770823	095	0.5-	1.0+	850910	809	0.9+	0.3+	850916	809	0.7-	1.0+
770909	095	0.0	0.0	850910	809	1.3+	0.2+	850919	809	0.2+	0.8+
850819	071	0.4+	0.6+	850911	809	0.0	0.1-	850919	809	0.1+	0.8+
850819	071	0.4-	1.1+	850911	809	0.2+	0.1-	850919	809	0.1+	0.7+
850819	071	(2.4+	3.7+)	850911	809	0.3+	0.1-	861128	801	0.1-	0.1-
850820	071	(3.3+	3.1+)	850912	809	0.1+	0.1+	880317	809	0.8+	0.1-
850904	809	0.5-	1.7-	850912	809	0.1+	0.0	880317	809	1.2-	0.2-
850904	809	0.7-	1.6-	850912	809	0.0	0.0	880318	809	0.5-	0.4-
850904	809	0.7-	1.7-	850914	809	0.7-	0.1-	880318	809	1.1+	0.3-
850906	809	0.1-	0.6-	850914	809	0.8-	0.1-	880318	801	(3.5+	1.5+)
850906	809	0.0	0.6-	850914	809	0.7-	0.4-	880323	809	0.2-	0.3+
850906	809	0.3+	0.6-	850915	809	1.0+	0.0	880323	809	(2.6-	0.2-)
850908	809	0.1+	0.4-	850915	809	0.8+	0.1+	880323	809	1.7+	0.0
850908	809	0.3+	0.4-	850915	809	0.6+	0.0	880324	809	0.4-	0.7+
850908	809	0.3+	0.5-	850916	809	1.0-	1.2+	880324	809	0.8-	0.9+

(4011)* 1978 SC6 = 1978 WL14 = 1980 GK1 = 1983 GD

Discovered 1978 Sept. 28 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. S. Nakano (MPC 10630)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	85.15506	(1950.0)	P	Q	
n	0.30308975	Peri.	45.93342	+0.16759990	-0.98578731
a	2.1949361	Node	34.42322	+0.89851280	+0.14791517
e	0.0506571	Incl.	1.17181	+0.40569080	+0.07965224
P	3.25	H	14.0	G 0.25	

Residuals in seconds of arc

770518	675	0.3+	0.9-	800414	805	1.4+	1.9+	881202	400	(0.3-	4.3+)
770519	675	0.8-	0.6-	800415	805	0.8-	0.2+	881202	400	0.1-	0.6+
780928	095	0.2-	1.4-	800416	805	0.5+	0.8-	881207	801	0.1-	0.9-
781004	095	0.3+	0.2-	830402	675	0.7-	1.0-	881210	801	0.2+	0.4+
781120	801	0.4+	0.2+	830403	675	0.4-	0.9-				

(4012)* 1978 VK9 = 1934 TL = 1944 RD = 1951 WC1 = 1977 KB1 = 1981 SN3

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

Id. E. Bowell (k, MPC 8149), C. M. Bardwell (ibid.), S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	116.22416	(1950.0)	P	Q	
n	0.29268834	Peri.	132.99215	+0.95132161	-0.29970588
a	2.2466346	Node	244.56509	+0.25450911	+0.89543583
e	0.1636164	Incl.	4.56388	+0.17381688	+0.32919760
P	3.37	H	13.4	G 0.25	

Residuals in seconds of arc

341007	094	(2.8-	27.3-)X	770519	675	(6.2-	2.1+)	800420	808	1.3-	0.2-
440914	062	1.1-	0.6-	770519	675	1.1+	0.1+	800420	808	0.6-	0.4-
440914	062	0.6+	0.1+	781105	675	0.1-	0.2-	810923	095	0.4-	1.0-
440915	062	0.6+	1.0+	781106	675	0.3-	0.4-	860209	801	1.0+	0.1+
511129	711	(6.7+	1.2-)Y	781107	675	0.8-	0.1-	881207	801	1.0+	0.2+
511129	711	(6.2+	6.6-)Y	781108	675	0.8-	0.4+	890106	801	0.1-	0.9+
770518	675	0.3-	0.3+	781129	675	0.3-	0.4-				
770518	675	0.7+	0.4+	781130	675	0.9+	0.2+				

(4013)* 1979 OM15 = 1935 SC2 = 1974 SD2

Discovered 1979 July 21 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Urata (NOC 1251), S. Nakano (MPC 13051)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano
M 278.85247 (1950.0) P Q
n 0.17714329 Peri. 152.60528 +0.96614529 +0.25799048
a 3.1399272 Node 192.44437 -0.23840153 +0.88969938
e 0.1875066 Incl. 0.54395 -0.09863054 +0.37666422
P 5.56 H 12.1 G 0.25
Residuals in seconds of arc

350928 078	1.1+	2.2-	790721 095	1.0+	0.6+	850915 095	0.3+	0.8+
740919 095	1.7-	3.1+	790730 095	0.1+	1.2+	850920 095	0.6+	0.9-
740922 095	0.5+	0.3+	790820 095	2.7-	0.6-	850922 095	0.9+	0.3-
780509 675	0.1-	1.2+	801130 095	0.4+	1.1+			
780510 675	1.5+	1.1+	801210 095	1.9-	1.4+			

(4014)* 1979 SG10 = 1979 US3 = 1979 VL = 1977 KS1
Discovered 1979 Sept. 28 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Id. S. Nakano (d, MPC 9350), E. Bowell (MPC 10941)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano
M 185.87763 (1950.0) P Q
n 0.15580331 Peri. 131.82960 +0.71532459 -0.69852444
a 3.4204633 Node 272.48914 +0.63521962 +0.66153719
e 0.0470442 Incl. 1.10967 +0.29121602 +0.27282258
P 6.33 H 12.0 G 0.25
Residuals in seconds of arc

770518 675	1.0+	1.8+	791111 095	1.7+	0.4+	861130 801	0.6+	1.3+
770519 675	0.6-	0.6+	791116 095	0.1+	0.8-	870226 801	1.2-	1.8+
790928 095	0.3-	1.5-	850823 095	1.9-	1.4-			
791016 095	1.1-	1.0+	850920 095	1.2+	2.6+			

(4015)* 1979 VA
Discovered 1979 Nov. 15 by E. Helin at Palomar.
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden
M 117.40909 (1950.0) P Q
n 0.22969212 Peri. 91.04650 +0.99856990 -0.02228460
a 2.6406164 Node 270.23165 +0.00112783 +0.91756191
e 0.6227712 Incl. 2.78546 +0.05344985 +0.39696793
P 4.29 H 15.5 G 0.25
Residuals in seconds of arc

790615 413	(12.7+	1.3+)	791117 010	(3.5+	4.6+)	791123 494	1.4+	0.7+
790615 413	0.5-	0.1+	791117 801	1.0+	0.3-	791123 372	0.4+	0.4-
790811 413	0.1-	1.1+	791117 801	0.8+	0.2-	791123 484	(2.8-	3.1-)
790811 413	(2.8+	4.2-)	791117 688	0.2-	1.3-	791124 675	0.9+	0.9+
790814 413	1.1+	2.0+	791117 010	1.2+	0.6+	791124 675	0.3+	0.6+
790814 413	0.7+	1.3-	791118 330	0.8+	0.1-	791128 801	(0.6-	3.2-)
790815 413	0.7-	0.1-	791118 494	0.3-	0.5+	791129 372	0.0	0.8-
790815 413	0.7-	2.3-	791118 330	0.4-	0.3+	791129 372	0.3-	0.5+
791115 675	0.8-	0.5-	791118 494	0.6+	0.7-	791207 688	0.4+	2.2-
791115 675	0.9-	1.3+	791118 323	0.1-	0.1-	791211 801	0.5-	1.9+
791115 675	0.9+	0.5+	791118 494	1.3-	1.1-	791211 043	0.9+	1.6+
791116 675	(3.2+	0.5+)	791119 372	0.6-	0.1+	791212 675	0.5-	1.5+
791116 662	0.1-	1.3+	791119 372	2.2-	1.8+	791214 675	0.1+	1.2+
791116 662	0.8+	1.1+	791121 674	2.0-	0.6+	791215 688	0.8+	2.3-
791116 675	0.7+	0.5-	791122 688	0.0	0.5-	791216 879	0.9+	0.3-
791116 688	1.7+	2.1-	791122 801	(4.3-	1.0+)	791216 879	1.7-	0.1-
791116 801	(3.9+	2.2+)	791122 688	0.0	2.2-	791217 688	0.7+	1.6-
791116 801	1.1-	0.2+	791123 494	(3.8-	1.5+)	791218 801	0.5-	0.1+
791116 675	0.1+	1.2+	791123 484	1.8-	1.6-	791218 688	0.8+	2.9-
791117 010	0.4-	0.7+	791123 372	0.3+	0.5-	791218 043	1.6-	0.7+

791219	688	(0.9-	4.2-)	881220	675	0.4+	0.0	881224	675	0.3+	0.2-
800114	801	0.6+	2.1+	881220	675	0.4+	0.0	890206	413	0.3-	0.2+
800211	801	1.1+	1.2+	881224	675	0.6+	0.2-	890206	413	0.5-	1.1-
881220	675	0.4+	0.2-	881224	675	1.3-	0.8+				

(4016)* 1979 XK = 1979 YC3 = 1949 XM = 1975 TD5 = 1975 VJ7
= 1984 AK1

Discovered 1979 Dec. 15 by H. Debehogne and E. R. Netto at the European Southern Observatory.

Id. E. Bowell (k, MPC 8675), B. G. Marsden (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	184.87183		(1950.0)	P	Q
n	0.26313567	Peri.	35.24603	-0.75052420	-0.66070649
a	2.4118459	Node	103.39442	+0.60306784	-0.69307709
e	0.2243961	Incl.	0.79101	+0.27022695	-0.28828993
P	3.75	H	14.1	G 0.25	

Residuals in seconds of arc

491214	760	0.4+	0.1-	791219	809	0.2-	0.1-	791226	809	1.1+	0.0
491214	760	1.6-	0.1+	791220	809	0.3+	0.2-	791228	809	1.0-	0.1-
751014	095	1.7+	0.9-	791220	809	0.0	0.3+	791228	809	0.4-	0.4-
751106	095	(0.4+	4.5-)	791220	809	0.2-	0.2+	791229	809	0.1+	0.2-
770518	675	1.7+	0.8-	791221	809	1.3-	0.4+	791229	809	0.9+	0.0
770519	675	1.7+	0.7-	791221	809	0.9+	0.2-	840108	688	0.9+	0.8-
791215	809	1.7-	1.2+	791222	809	0.3-	0.3+	840108	688	0.2+	1.1-
791215	809	0.7+	0.3+	791222	809	0.1-	0.4+	840128	688	0.5+	2.0-
791215	809	0.3-	1.1+	791222	809	0.0	0.2+	840128	688	0.0	0.5-
791216	809	0.2-	0.5+	791223	809	0.2+	0.2-	840205	688	0.1+	0.2-
791216	809	0.5+	0.5+	791223	809	0.2-	0.0	840205	688	0.7+	0.6-
791216	809	0.4-	1.0+	791224	809	0.1-	0.2-	840226	095	0.3+	0.1+
791217	809	0.6+	0.0	791224	809	0.9-	0.1+	840305	095	(4.3+	0.3-)
791217	809	0.5-	0.2+	791224	809	0.0	0.2-	840329	688	0.6+	0.5-
791217	809	0.7-	0.7+	791224	095	1.1-	1.0-	880319	809	1.1-	1.6+
791217	809	0.1-	0.2+	791225	809	0.0	0.1+	880319	809	1.2-	1.5+
791217	809	1.9+	0.5-	791225	809	0.3-	0.4+	880319	809	0.6-	1.0+
791217	809	2.5-	2.1-	791225	809	0.3-	0.2-	880320	809	0.6-	0.4+
791219	809	2.2+	0.3+	791226	809	0.8+	0.5+	880320	809	1.6-	0.9+

(4017)* 1980 DL5 = 1980 FX4 = 1965 UJ1

Discovered 1980 Feb. 21 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (d, MPC 9203), T. Kobayashi (MPC 11144)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	299.54846		(1950.0)	P	Q
n	0.23691774	Peri.	312.12085	+0.96128117	+0.27415086
a	2.5866499	Node	31.99715	-0.23470781	+0.86762707
e	0.0999008	Incl.	3.02095	-0.14439788	+0.41480668
P	4.16	H	13.0	G 0.25	

Residuals in seconds of arc

651018	330	1.8+	0.5-	800317	809	0.6+	0.8-	861106	688	1.0+	0.3+
651021	330	1.5-	0.1-	800317	809	0.9+	1.8-	861107	046	2.3-	0.1-
690908	095	1.7+	3.0+	800317	809	0.4+	1.1+	861107	046	2.0-	0.4+
691007	095	2.7-	1.8-	800317	809	0.5-	0.7-	861109	046	1.0-	0.7-
800221	095	0.6+	0.0	861008	801	4.4+	3.7-	861109	046	1.0-	0.3+
800316	809	1.0+	0.3-	861029	801	0.9-	0.7+	861130	801	3.0+	0.7+
800316	809	0.7+	0.3+	861030	801	0.2+	1.3+	861204	688	1.1+	0.2+
800316	809	0.2-	1.4+	861103	046	(7.3+	2.0-)	861204	688	1.4-	0.0
800316	809	0.6-	1.2+	861103	046	(7.5+	1.4-)				
800316	095	2.6-	0.3+	861106	688	0.7-	0.6+				

(4018)* 1980 YM = 1981 AJ1 = 1981 BE = 1978 JP3 = 1979 OH16
Discovered 1980 Dec. 30 by A. Mrkos at Klet.
Id. B. G. Marsden (d, MPC 5892), S. J. Bus (MPC 13165), D. W. E. Green (ibid.), S. Nakano (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5			Green
M 83.41992	(1950.0)	P	Q
n 0.23809707	Peri. 157.18022	+0.65583955	-0.75275339
a 2.5781015	Node 251.78623	+0.68300316	+0.62378912
e 0.1670123	Incl. 3.43372	+0.32152944	+0.21035556
P 4.14	H 13.4	G 0.25	

Residuals in seconds of arc

780509 675	0.1+	0.6-	810108 046	0.3-	0.6+	880910 033	0.4+	1.1+
780510 675	0.2-	0.6+	810109 688	1.0+	1.6-	880910 033	0.2+	0.2-
790731 095	1.0+	3.0-	810109 688	0.5+	2.0-	881113 888	(1.4+	4.1+)
801230 046	0.8-	1.1+	810127 046	2.7-	0.9-	881113 888	(0.7+	2.8+)
801230 046	2.4+	1.8+	810127 046	0.6-	0.3-	881114 888	0.2-	0.5+
810108 046	0.1-	2.1-	880909 033	0.4-	0.4-	881114 888	0.0	0.0

(4019)* 1981 EK14
Discovered 1981 Mar. 1 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5			Green
M 261.71497	(1950.0)	P	Q
n 0.27567334	Peri. 145.24792	+0.67658445	-0.73511485
a 2.3381527	Node 262.13355	+0.66536872	+0.63526732
e 0.1276207	Incl. 2.48159	+0.31546465	+0.23673104
P 3.58	H 14.9	G 0.25	

Residuals in seconds of arc

791018 675	2.2-	1.0-	810308 413	2.1+	0.0	810503 413	0.4-	1.0+
791018 675	2.1+	1.2+	810312 413	1.7-	1.3+	831230 675	2.0-	0.1+
810212 413	0.5+	0.0	810406 413	0.9-	0.2-	831230 675	2.2+	0.1+
810212 413	0.4-	0.2+	810408 413	1.6+	0.4-	880218 413	2.0-	0.7-
810301 413	0.9-	0.2+	810408 413	1.6+	0.9-	880218 413	1.1+	0.5-
810301 413	0.2+	0.1+	810409 413	0.7-	0.4+	880511 413	1.9+	0.3-
810306 413	0.9-	1.1+	810409 413	0.4+	0.2-	880511 413	1.9-	0.7-
810308 413	1.1-	1.3+	810501 413	1.5+	2.0-			

(4020)* 1981 ET38 = 1983 TJ1
Discovered 1981 Mar. 1 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.
Id. B. G. Marsden (MPC 8908)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5			Marsden
M 110.23967	(1950.0)	P	Q
n 0.21319560	Peri. 177.76321	+0.97667782	-0.21059928
a 2.7751336	Node 194.59889	+0.19431723	+0.94982852
e 0.1600002	Incl. 9.54915	+0.09133042	+0.23124386
P 4.62	H 13.1	G 0.25	

Residuals in seconds of arc

810212 413	0.7+	0.5-	810405 413	2.2-	1.0+	831012 688	0.7+	1.7-
810212 413	0.1+	0.4-	810405 413	3.4+	2.1-	831012 688	0.0	0.3-
810301 413	0.3-	0.4-	810410 413	2.0-	0.7+	831015 046	3.5+	1.9+
810301 413	0.1-	0.0	810410 413	0.2+	2.6-	831015 046	1.6+	0.9-
810306 413	1.3-	1.8+	810501 413	1.2-	1.5-	831104 688	0.6-	0.5-
810306 413	1.0+	0.3-	810503 413	1.0+	0.4-	831104 688	1.0-	3.0-
810308 413	0.1+	0.2+	830910 688	0.2-	0.6-	870624 801	0.6+	0.4-
810308 413	0.7+	0.5-	830910 688	1.3-	1.2-	870723 801	0.5-	0.2-
810312 413	1.1-	0.3-	831009 046	0.5+	0.4+	881207 801	1.0+	0.7-
810312 413	0.3-	0.6-	831009 046	2.4-	0.5+	881210 801	1.1-	1.8+

(4021)* 1981 QD2 = 1950 SV = 1957 TE = 1957 UF = 1986 AV

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

Id. E. Bowell (k, MPC 10528), B. G. Marsden (ibid.), S. Kanda (d, MPC 1790)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	99.41636	(1950.0)	P	Q
n	0.28587467	Peri. 326.34136	+0.96276602	-0.26625862
a	2.2821924	Node 49.17201	+0.25964847	+0.86258570
e	0.1704154	Incl. 3.54411	+0.07526134	+0.43017701
P	3.45	H 13.9	G 0.25	

Residuals in seconds of arc

500917	711	(6.5+	10.4+)Y	810926	688	1.1+	0.5-	880910	033	0.6+	0.4-
571001	760	1.4-	1.3+	811004	688	0.1-	0.1-	880912	071	(3.7+	3.5+)
571001	760	0.4+	0.9+	811004	688	0.2+	0.5-	880912	071	(3.8+	4.0+)
571025	024	(5.1-	0.4+)	860111	688	0.7+	0.7-	881013	801	0.1+	1.6+
810830	688	2.1-	0.3-	860111	688	0.7-	0.1-	881015	293	1.6+	1.6-
810830	688	1.8-	0.8+	880909	033	0.1+	0.3-	881015	293	0.4+	2.7-
810926	688	2.8+	0.4+	880909	033	0.0	0.3-	881207	801	2.7-	2.4+

(4022)* 1981 TL4 = 1966 PC = 1984 OJ

Discovered 1981 Oct. 8 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (MPC 11511)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	148.30841	(1950.0)	P	Q
n	0.27204379	Peri. 33.79132	+0.66467864	+0.74194268
a	2.3589035	Node 278.03324	-0.70358668	+0.58202630
e	0.1274244	Incl. 5.09191	-0.25133262	+0.33281595
P	3.62	H 12.9	G 0.25	

Residuals in seconds of arc

660813	095	0.4-	0.8-	840730	046	0.0	0.3+	870502	801	0.2-	1.5+
811008	095	0.5+	0.3+	840730	046	1.1+	0.9+	881112	801	0.6-	1.4-
811022	095	1.7+	1.2+	840731	046	0.0	0.1+	881206	801	1.5-	1.6-
811024	095	0.4-	2.1+	840731	046	0.0	0.5+				

(4023)* 1981 UN = 1981 XE

Discovered 1981 Oct. 25 by L. Brozek at Klet.

Id. B. G. Marsden (d, MPC 6630)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	158.76558	(1950.0)	P	Q
n	0.29527168	Peri. 126.88640	+0.98058233	-0.19393820
a	2.2335114	Node 244.31277	+0.16807753	+0.90755203
e	0.0933630	Incl. 1.84988	+0.10103581	+0.37247455
P	3.34	H 13.5	G 0.25	

Residuals in seconds of arc

811004	095	0.8-	1.8+	811128	046	1.5-	1.2+	870625	801	0.0	1.2-
811023	095	2.9+	2.2+	811128	046	1.9-	0.8+	881230	046	1.1+	0.8-
811025	330	2.7+	3.2+	811202	688	0.1-	2.6-	881230	046	0.1-	0.1+
811025	046	(3.3-	4.9-)	811202	688	0.8+	1.3-	890102	046	1.1-	0.3-
811025	046	0.7+	2.3-	860207	046	2.2-	1.6-	890102	046	0.0	0.8+
811117	046	0.3-	2.7-	860208	046	(0.4+	3.6-)	890103	046	2.2-	2.2+
811117	046	0.4+	1.7-	860305	688	(5.1-	0.5+)	890103	046	2.8+	2.0+
811123	046	1.2-	0.8-	860305	688	0.3+	2.4-				
811123	046	1.1-	1.5-	860413	801	1.0+	0.9+				

(4024)* 1981 WQ = 1931 GJ = 1976 JX1

Discovered 1981 Nov. 24 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. L. D. Schmadel (MPC 10762), B. G. Marsden (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	35.82212	(1950.0)	P	Q
n	0.28603441	Peri. 74.69556	-0.61913505	-0.77762136
a	2.2813427	Node 54.08211	+0.65859578	-0.59008547
e	0.1549064	Incl. 7.76631	+0.42769543	-0.21703492
P	3.45	H 13.0	G 0.25	

Residuals in seconds of arc

310409	690	3.5-	2.7-	811124	688	0.2-	2.3-	881108	401	0.0	1.7+
310410	690	1.8+	2.1-	811124	688	0.7+	2.3-	881108	401	1.8-	0.8+
310411	690	1.8-	1.2-	811202	688	1.5+	2.4-	881111	801	2.1-	0.3-
760502	095	0.1+	1.2+	860306	688	1.2+	1.8+	881111	897	0.4-	0.9+
811004	095	0.9-	0.8-	860306	688	0.9+	1.1+	881111	897	0.5-	0.5-
811007	095	1.4+	3.3+	881105	401	(35.1+	7.4-)	881210	894	1.8+	0.5+
811023	095	1.7+	2.8-	881105	401	(31.9+	7.6-)	881210	894	0.3+	0.8+
811027	095	1.3+	1.1+	881108	801	0.9-	0.5-				

(4025)* 1981 WU = 1974 RO1

Discovered 1981 Nov. 24 by E. Bowell at the Lowell Observatory.

Id. C. M. Bardwell (MPC 9072)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	133.50438	(1950.0)	P	Q
n	0.29176662	Peri. 245.03600	+0.84790940	-0.52930094
a	2.2513636	Node 146.89899	+0.50395025	+0.78727151
e	0.1673171	Incl. 3.13177	+0.16457157	+0.31629746
P	3.38	H 14.1	G 0.25	

Residuals in seconds of arc

740914	095	0.1+	2.4+	811220	688	0.9-	2.8-	840924	688	(0.6-	5.2+)
740914	095	0.4-	0.4-	811220	688	1.1+	1.6-	840924	688	0.2+	1.0+
811024	095	(2.5+	4.0-)	811230	688	(1.1-	4.0-)	860209	801	1.1-	0.4+
811117	046	(3.8-	0.4-)	811230	688	0.2+	0.1-	870625	801	1.2+	1.2-
811117	046	1.2+	0.1+	840801	046	3.0+	1.3-	890103	046	1.3-	1.1+
811118	330	1.4-	1.0+	840801	046	0.4+	0.1+	890103	046	0.9-	0.5+
811124	688	0.1+	1.0-	840802	046	3.0-	1.1-	890104	046	2.1+	0.4+
811124	688	1.1-	1.9-	840802	046	1.2-	1.6+	890104	046	2.1+	0.6+
811202	688	2.4+	2.5+	840803	046	0.5+	0.3+	890209	801	1.3-	0.0
811202	688	0.8-	0.2-	840803	046	0.9-	1.2-				

(4026)* 1982 BU1 = 1969 VA2 = 1986 EH1

Discovered 1982 Jan. 30 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. E. Bowell (k, MPC 10625), B. G. Marsden (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	10.19686	(1950.0)	P	Q
n	0.25828799	Peri. 352.14771	-0.63264549	-0.77351392
a	2.4419302	Node 137.08720	+0.71349225	-0.60118416
e	0.1205969	Incl. 3.19033	+0.30114530	-0.20063354
P	3.82	H 13.4	G 0.25	

Residuals in seconds of arc

691115	095	0.8-	2.5+	860305	688	2.3+	0.5-	881104	046	0.6-	0.3+
820130	688	0.5+	1.3-	860305	688	2.2+	0.9+	881104	046	1.9+	0.7+
820130	688	1.0-	0.6-	860306	809	2.1-	0.6+	881105	046	0.6-	1.7+
820221	688	0.1-	0.8-	860306	809	1.6-	1.4+	881105	046	1.1+	1.0+
820221	688	0.9-	0.4-	860312	809	0.6+	1.5+	881110	046	0.8-	1.4-
820228	688	1.3+	1.3-	860316	809	0.2+	1.3+	881110	046	1.2-	1.8-
820228	688	0.8-	0.8-	860316	809	0.4+	0.8+				

(4027)* 1982 DN = 1957 HL = 1964 FG

Discovered 1982 Feb. 21 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. C. M. Bardwell (MPC 10832), B. G. Marsden (ibid.)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	346.51251	(1950.0)	P	Q
n	0.27190218	Peri. 15.81980	-0.87308406	+0.48751664
a	2.3597225	Node 193.36475	-0.45062207	-0.81246808
e	0.1649491	Incl. 1.78323	-0.18618262	-0.31972354
P	3.62	H 13.6	G 0.25	

Residuals in seconds of arc

570424	076	1.7+	0.1-	820228	688	2.0+	0.7+	860504	688	0.6+	1.8+
570424	076	2.5+	0.8+	820228	688	0.3-	0.8-	860513	688	0.2-	0.8-
640316	760	8.2-	1.0-	820328	688	0.8+	0.6+	860513	688	2.8-	1.4-
820124	688	1.9-	0.0	820328	688	0.8+	1.2+	881207	033	5.1-	1.0+
820124	688	0.8+	0.2+	860501	046	0.3-	0.1+	881208	033	4.0-	1.0+
820130	688	0.8+	0.8-	860501	046	0.2-	0.4+	890104	046	2.8+	2.2+
820130	688	0.4+	1.1-	860502	046	1.6+	0.1-	890104	046	3.5+	1.9+
820221	688	2.5+	2.9-	860502	046	0.7-	1.0+				
820221	688	2.0+	0.6-	860504	688	0.2+	1.5+				

(4028)* 1982 DV2 = 1982 BE12 = 1960 VG = 1964 UJ = 1976 SC2

Discovered 1982 Feb. 18 by L. G. Taff at the Lincoln Laboratory ETS, New Mexico.

Id. T. Furuta (MPC 12585)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Ichikawa

M	0.51988	(1950.0)	P	Q
n	0.24146837	Peri. 265.13863	+0.13115812	-0.99135882
a	2.5540489	Node 177.32163	+0.92780918	+0.12193728
e	0.1503884	Incl. 2.80456	+0.34923870	+0.04836302
P	4.08	H 13.1	G 0.25	

Residuals in seconds of arc

601112	760	0.5-	0.5-	760928	095	2.2+	1.8+	880813	413	0.9+	0.3-
601112	760	0.1-	1.1+	760928	095	1.6-	1.6-	880814	413	1.5+	0.5-
641031	760	0.6+	0.8-	820120	095	1.7+	0.5+	880816	413	0.0	0.7-
641031	760	0.0	0.2-	820218	704	1.9-	0.6-	880819	413	1.4-	0.7-
641106	760	0.3-	0.3+	820220	704	1.7+	2.3-	880820	413	(7.6-	2.7-)
641106	760	0.7+	0.1-	820221	704	(2.9+	7.1-)				
760924	095	1.3-	0.0	820222	704	2.1-	0.2+				

(4029)* 1982 KC1 = 1982 OX = 1974 HS2 = 1975 TQ = 1978 AF = 1978 JJ2 = 1986 JF

Discovered 1982 May 24 by C. S. Shoemaker at Palomar.

Id. C. M. Bardwell (MPC 10767), D. W. E. Green, S. Nakano (d)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Green

M	305.26583	(1950.0)	P	Q
n	0.24577070	Peri. 14.12632	-0.66462444	+0.74526574
a	2.5241547	Node 214.26767	-0.69437152	-0.64247114
e	0.1319691	Incl. 5.44374	-0.27590314	-0.17835306
P	4.01	H 13.0	G 0.25	

Residuals in seconds of arc

740424	805	1.7+	0.7-	820515	675	1.2-	0.0	820524	675	0.6-	0.8-
740425	805	2.1+	0.4+	820516	675	2.7-	0.2+	820717	413	1.0-	0.0
751003	095	0.1+	0.8-	820516	675	(3.1-	2.1+)	820717	413	1.2+	0.7+
780112	809	1.1-	0.2-	820517	675	1.6-	0.4-	860502	675	1.2+	2.6+
780113	809	0.5+	0.9-	820518	675	1.7-	1.1+	860502	675	1.6+	0.3+
780506	095	1.2-	1.1+	820524	675	0.4+	2.3-	860503	675	(8.8-	1.6+)

860504 688 0.3+ 1.8- 860608 688 0.5+ 0.9+ 890102 046 (0.1+ 3.5+)
860504 688 0.3+ 1.2- 860608 688 0.9+ 0.8+ 890102 046 2.2+ 0.1-
860513 688 0.5- 0.1- 881230 046 0.5- 1.1- 890103 046 0.8- 1.2+
860513 688 1.1+ 0.2- 881230 046 0.1+ 0.9- 890103 046 0.6- 1.0+

(4030)* 1984 EO1 = 1970 SO = 1980 DP2 = 1980 ET
Discovered 1984 Mar. 2 by H. Debehogne at the European Southern Observatory.
Id. T. Furuta (JAM 1695), S. Nakano (MPC 9207)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	50.27204		(1950.0)	P	Q
n	0.25557296	Peri.	301.43086	+0.23299168	+0.97184362
a	2.4591940	Node	341.94197	-0.84927625	+0.18573758
e	0.0955732	Incl.	6.50928	-0.47375598	+0.14498806
P	3.86	H	13.2	G 0.25	

Residuals in seconds of arc
700927 095 0.8- 1.1+ 840306 809 0.6- 0.0 840313 809 0.1- 1.5+
701001 095 0.5+ 0.9- 840306 809 0.5- 0.2+ 840313 809 0.1+ 1.2+
800220 095 1.4+ 1.5- 840308 809 0.7- 0.3- 840313 809 0.4- 1.0+
800315 095 2.7+ 1.4- 840308 809 0.5- 0.3- 880315 809 0.1- 0.8-
840302 809 0.1+ 0.9+ 840308 809 0.4- 0.7- 880315 809 0.6- 0.0
840302 809 0.1+ 1.1+ 840309 809 0.1- 0.3- 880316 809 0.8+ 0.2-
840302 809 0.1+ 1.1+ 840309 809 0.0 0.3- 880316 809 0.6- 0.9-
840304 809 0.0 0.0 840309 809 0.2+ 0.5- 880321 809 1.1+ 0.1-
840304 809 0.0 0.0 840310 809 0.3+ 0.1+ 880321 809 0.4- 0.6+
840304 809 0.1+ 0.1- 840310 809 0.0 0.2- 880322 809 0.9+ 0.4-
840305 809 0.7- 0.2- 840310 809 0.4- 0.1+ 880322 809 0.8+ 0.1+
840305 809 0.6- 0.2- 840311 809 0.8- 0.5+ 880322 809 1.2+ 0.3-
840305 809 0.0 0.3- 840311 809 0.7- 0.2+ 880419 801 (5.3+ 0.2+)
840306 809 0.7- 0.0 840311 809 0.3- 0.7+

(4031)* 1985 CL = 1969 EN1
Discovered 1985 Feb. 12 by C. S. Shoemaker at Palomar.
Id. W. Landgraf (MPC 11505), L. D. Schmadel (ibid.)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Rogers

M	322.92015		(1950.0)	P	Q
n	0.36643473	Peri.	69.35683	+0.42301344	-0.90574422
a	1.9340675	Node.	355.35968	+0.66275690	+0.32899722
e	0.1007976	Incl.	18.90485	+0.61791012	+0.26718578
P	2.69	H	13.4	G 0.25	

Residuals in seconds of arc
690313 095 6.9- 9.3- 850320 675 0.3+ 0.0 861031 474 2.6+ 0.3-
850212 675 1.3- 0.6+ 850323 675 1.0+ 1.2+ 880317 675 0.3+ 1.6+
850216 675 0.5- 1.8- 850325 675 1.5+ 0.3+ 880317 675 1.0- 1.4+
850222 675 1.7+ 0.2- 850417 801 2.1+ 1.4+ 880410 293 2.5+ 0.8+
850226 675 0.5- 0.4+ 861007 474 0.9+ 2.3- 880410 293 (7.4+ 4.5+)
850318 675 0.1- 1.7+ 861031 474 0.4+ 2.1-

(4032)* 1985 UT4 = 1972 TD1 = 1975 RO
Discovered 1985 Oct. 22 by L. V. Zhuravleva at the Crimean Astrophysical Observatory.
Id. A. Pavenis (MPC 12326), T. A. Vinogradova (ibid.)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Green

M	100.59019		(1950.0)	P	Q
n	0.30573930	Peri.	206.21104	+0.97445109	-0.22443783
a	2.1822368	Node	166.75041	+0.21204282	+0.90678959
e	0.1419933	Incl.	2.13245	+0.07404666	+0.35687575
P	3.22	H	14.4	G 0.25	

Residuals in seconds of arc

721007	095	1.5+	3.3-		851111	095	0.2-	2.0-		881015	071	2.2-	1.4+
750903	095	1.2+	1.0-		851120	095	0.1+	2.0+		881015	071	2.1+	2.2+
750906	095	0.9-	0.2-		880813	511	1.7+	1.1-		881015	071	1.2-	0.8+
851022	095	0.7+	1.8-		880813	511	0.9+	0.8+		881015	071	1.0-	2.6+
851109	095	0.5-	0.1-		881014	071	(5.1-	3.7-)		881110	801	2.0-	0.4-

(4033)* 1986 FA = 1939 FV = 1976 GA3 = 1976 JF

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

Id. T. Urata (NOC 1555)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	0.14622		(1950.0)	P	Q
n	0.29397133	Peri.	163.06672	-0.87299448	+0.48348136
a	2.2400931	Node	46.02634	-0.45716954	-0.76527714
e	0.0911458	Incl.	5.12108	-0.16993132	-0.42496667
P	3.35	H	13.9	G 0.25	

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

390318	062	0.1-	0.7-		860403	054	2.2+	1.7+		890103	888	0.8-	0.2-
390322	062	0.2+	1.0+		860405	054	0.7-	0.2+		890128	888	1.1+	1.4+
760401	095	(8.5+	2.5+)		860405	386	0.9-	1.0+		890128	888	1.5+	0.1-
760401	095	(4.8-	1.9-)		860405	386	(3.3-	0.9+)		890129	888	(3.8-	3.9-)
760402	095	0.6+	0.8-		860407	889	0.7+	0.2-		890129	888	(4.1-	4.8-)
760404	095	0.7-	0.9-		860407	889	0.6+	0.7-		890203	888	1.0-	1.4-
760405	095	2.7-	2.4-		860409	688	0.6+	0.9+		890203	888	1.8-	1.3-
760501	095	(0.01-	0.06-)		860409	688	1.0+	0.2-		890205	888	0.9-	0.3+
760502	095	1.1+	0.1+		860411	386	(3.5-	0.6+)		890205	888	1.4-	0.7-
860316	386	0.6-	1.4-		860411	386	0.1-	1.7+		890207	888	0.5+	0.8+
860316	386	0.5+	1.9-		881217	888	0.1+	0.5-		890207	888	0.8-	0.5+
860402	889	(0.6-	2.9+)		881217	888	0.0	0.2-		890210	888	1.4+	0.3+
860402	889	1.6-	2.4+		890103	888	0.2+	0.2-		890210	888	1.7+	1.0+

(4034)* 1986 PA

Discovered 1986 Aug. 2 by E. Helin at Palomar.

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	215.53388		(1950.0)	P	Q
n	0.90358485	Peri.	296.38721	-0.07373336	-0.99451154
a	1.0596361	Node	157.46776	+0.97002624	-0.08880116
e	0.4440240	Incl.	11.16943	+0.23154370	+0.05532770
P	1.09	H	18.2	G 0.25	

Residuals in seconds of arc

860802	675	(7.9+	4.5+)		860902	691	0.5-	0.7-		870722	691	0.9-	0.3-
860802	675	0.7+	0.6-		860903	691	1.6+	0.5-		870723	688	0.6+	1.2-
860804	675	1.4-	0.7-		860903	691	1.1+	0.3-		870723	688	0.5+	1.1-
860804	675	(4.5-	2.8-)		860903	691	0.1+	0.8-		870817	691	0.0	0.9+
860805	675	(7.6+	4.2+)		860909	474	0.1-	1.6+		870817	691	0.1-	0.7+
860805	675	(4.1+	3.2+)		860909	474	1.8-	0.4+		880525	675	0.1-	0.4+
860809	675	(3.3+	1.4-)		870523	691	0.7+	0.1-		880525	675	0.3+	0.1+
860809	675	1.3+	0.6+		870523	691	1.1+	0.3-		880525	675	0.7-	0.4+
860810	801	0.8+	0.6+		870523	691	0.8+	0.4-		880526	675	0.7+	0.1+
860815	675	0.6-	0.9+		870524	691	0.8-	0.3+		880526	675	1.1-	0.0
860815	675	1.4-	0.7+		870524	691	0.0	0.3+		880526	675	0.0	0.1+
860816	675	0.6-	0.4+		870524	691	0.9-	0.1+		880706	675	0.4-	0.7+
860816	675	0.8-	0.5+		870623	691	2.0+	0.0		880706	675	0.6-	0.5+
860902	801	(0.1-	2.3+)		870623	691	1.5+	0.5+		880707	675	0.2-	0.7-
860902	691	0.1+	0.6-		870623	691	1.4+	0.5+		880707	675	0.1-	0.2-
860902	691	0.4+	0.9-		870722	691	1.0-	0.3-		880707	675	0.2-	1.1-

(4035)* 1986 WD = 1973 SR4 = 1973 UF6

Discovered 1986 Nov. 22 by K. Suzuki and T. Urata at Toyota.

Id. B. G. Marsden (MPC 11740)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	84.77541	(1950.0)	P	Q	
n	0.08189760	Peri. 198.22356	+0.32710236	-0.92990350	
a	5.2515634	Node 233.02255	+0.89105556	+0.36277295	
e	0.0584157	Incl. 12.15272	+0.31468085	-0.06062404	
P	12.03	H 9.2	G 0.25		

Residuals in seconds of arc

730927	095	0.4+	2.4-		861205	881	1.6+	0.1+	870201	688	1.7+	1.1+
730928	095	2.6+	3.2-		861205	881	1.3+	0.7+	870201	688	1.8+	1.1+
731027	095	0.5-	1.2-		861226	881	2.2-	0.7+	880123	801	0.9+	0.5+
731029	095	1.3-	1.0-		861226	881	1.5+	0.2+	890128	881	2.3-	0.4-
851012	675	1.9+	2.0+		870104	881	2.2-	1.4-	890128	881	2.3-	0.6+
851014	675	0.3+	1.2+		870104	881	0.7-	0.6+	890206	881	0.3+	0.1+
851108	675	0.6-	2.1+		870106	888	0.4-	0.9-	890206	881	0.4-	0.7-
851108	675	2.2-	0.3+		870106	888	1.0+	2.4-	890209	801	3.7+	1.6-
861122	881	1.0-	2.2+	Y	870120	881	1.1+	0.2+				
861122	881	1.2-	1.6-	Y	870120	881	2.6-	1.0+				

(4036)* 1987 DW5 = 1959 EP = 1971 SO3 = 1976 YN4 = 1978 EE3 = 1982 BX8

Discovered 1987 Feb. 21 by H. Debehogne at the European Southern Observatory.

Id. B. G. Marsden (MPC 13306)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Marsden

M	209.25086	(1950.0)	P	Q	
n	0.21057867	Peri. 336.69045	-0.69957382	-0.71388607	
a	2.7980779	Node 157.66212	+0.66774947	-0.66858914	
e	0.1530495	Incl. 4.68374	+0.25437594	-0.20821922	
P	4.68	H 12.5	G 0.25		

Residuals in seconds of arc

590306	690	0.4-	0.3-		870221	809	2.0-	0.7+	870301	809	0.3+	0.1+
590306	690	1.1+	1.2-		870221	809	1.7-	0.8+	870302	809	0.5+	0.1-
590307	690	0.9-	0.8-		870221	809	1.7-	0.9+	870302	809	0.8+	0.1-
590308	690	(32.4+ | 17.9+)		870222	809	1.3-	0.3+	870302	809	0.8+	0.2-
590308	690	0.2-	0.3-		870222	809	1.2-	0.3+	870303	809	0.7+	0.1+
590309	690	0.2+	0.5+		870222	809	1.1-	0.6+	870303	809	0.9+	0.3-
590309	690	(7.6+ | 6.6-)		870223	809	0.8-	0.4-	870303	809	1.1+	0.3-
590310	690	1.5-	0.5-		870223	809	0.5-	0.4-	870304	809	0.3-	0.3+
710926	805	0.1+	1.0+		870223	809	0.5-	0.8-	870304	809	0.1-	0.3+
710927	805	0.5-	1.0+		870225	809	0.2+	0.5-	870304	809	0.3-	0.1+
761218	095	0.3-	1.4-		870225	809	0.3+	0.6-	870305	809	0.2-	0.4+
761220	095	0.3+	0.4-		870225	809	0.1+	0.6-	870305	809	0.2-	0.3+
780306	095	1.8+	0.4+		870227	809	1.2+	0.5-	870305	809	0.1-	0.2+
820119	095	1.9+	0.8+		870227	809	1.0+	0.3-	870306	809	0.1+	0.2+
820123	095	0.5+	1.9+		870227	809	1.1+	0.4-	870306	809	0.1+	0.5+
850921	095	0.0	2.3-		870301	809	0.3+	0.0	870306	809	0.3+	0.2+
851018	095	0.1-	0.6-		870301	809	0.3+	0.2-				

(4037)* 1987 EC = 1976 YF6 = 1978 JL = 1982 BX

Discovered 1987 Mar. 2 by K. Suzuki and T. Urata at Toyota.

Id. T. Kobayashi (MPC 11744)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 260.49204 (1950.0) P Q
n 0.21362765 Peri. 74.82415 +0.03679609 -0.99875713
a 2.7713906 Node 13.20475 +0.85099181 +0.01368016
e 0.1589497 Incl. 8.46315 +0.52388833 +0.04792749
P 4.61 H 12.4 G 0.25
Residuals in seconds of arc

761220	095	3.6-	0.2-	870302	881	1.0-	0.2-	870424	033	0.0	0.4+
780505	095	2.5+	0.1+	870305	881	0.5-	0.1+	870424	033	0.0	0.6+
820118	688	1.3+	1.8-	870305	881	0.9+	1.6+	870427	033	0.7+	0.6+
820118	688	1.6+	1.6-	870320	887	1.7-	1.2+	870427	033	0.3-	0.2+
850921	095	0.9-	0.3+	870320	887	1.2+	0.4+	870429	033	0.6+	0.7+
851018	095	0.3+	3.6+	870424	033	0.2+	0.3+				
870302	881	2.2-	0.7-	870424	033	0.6+	0.9+				

(4038)* 1987 QH2 = 1962 SQ = 1969 TZ2 = 1989 CC
Discovered 1987 Aug. 21 by E. W. Elst at the European Southern Observatory.
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 165.90997 (1950.0) P Q
n 0.27090079 Peri. 45.97439 +0.93875553 -0.34149377
a 2.3655340 Node 333.89122 +0.27857523 +0.83076850
e 0.1305937 Incl. 6.00569 +0.20281492 +0.43955172
P 3.64 H 13.5 G 0.25
Residuals in seconds of arc

620930	033	0.2+	0.1-	870824	809	0.3-	0.9-	870827	809	1.4-	0.1+
620930	033	0.8+	0.5-	870825	809	0.6+	0.9-	870827	809	0.6-	0.3+
620930	033	0.1-	0.2-	870825	809	0.5+	0.9-	870828	809	0.8-	2.6+
691009	095	0.7-	2.0+	870825	809	0.9+	1.0-	870828	809	0.1+	2.8+
691011	095	1.8+	1.8-	870825	809	1.2-	0.5+	870828	809	0.5-	2.6+
691014	095	1.7-	1.0-	870825	809	0.9+	0.8+	890202	875	0.7-	0.2+
870821	809	0.3+	0.1-	870825	809	0.9+	0.7+	890202	875	0.4-	0.4+
870821	809	0.4+	0.2+	870825	809	0.1+	0.5-	890204	875	(1.4+	4.7+)
870821	809	0.8-	0.5+	870825	809	0.7-	0.2-	890204	875	2.5+	3.4+
870822	809	0.5+	0.6+	870826	809	0.4-	0.6-	890210	875	(5.0-	0.2-)
870822	809	0.7+	0.4+	870826	809	0.2-	0.3-	890213	875	1.8-	0.9+
870822	809	0.7+	1.1+	870826	809	0.3-	0.3+	890213	875	2.1+	0.1-
870824	809	0.7+	3.0-	870827	809	1.7-	0.4-				

(4039)* 1987 SH = 1961 VD1 = 1972 RG1 = 1983 RL7
Discovered 1987 Sept. 17 by T. Seki at Geisei.
Id. T. Kobayashi (MPC 14198; unpublished)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 155.83365 (1950.0) P Q
n 0.26240307 Peri. 125.59438 +0.75350067 -0.65157820
a 2.4163329 Node 275.23644 +0.57110421 +0.71474529
e 0.0621792 Incl. 5.04958 +0.32569421 +0.25413582
P 3.76 H 12.9 G 0.25
Residuals in seconds of arc

611110	760	1.9-	0.1-	870919	688	0.7-	0.3+	871017	372	0.1-	0.1+
611110	760	0.5+	0.0	870919	372	1.4-	1.1- Y	871017	372	1.6-	1.7+
720910	095	4.0+	2.5-	870926	688	0.1+	0.8+	890101	372	1.1-	0.0
830911	095	1.4-	0.3+	870926	688	1.5+	0.1+	890103	372	1.7+	0.2-
870917	372	2.4-	1.0+ Y	870926	372	(13.6+	7.3+)	890115	372	0.3+	0.8-
870918	372	0.2+	1.1- Y	871001	372	2.7+	0.7+	890115	372	0.6-	0.7+

(4040)* 1987 SN1 = 1969 OR = 1977 HV = 1979 YY2 = 1981 ER49
Discovered 1987 Sept. 21 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Id. S. Nakano (MPC 12449)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	197.63707	(1950.0)	P	Q
n	0.22577872	Peri. 269.87040	+0.82177285	+0.56881950
a	2.6710420	Node 55.46155	-0.50515903	+0.75459417
e	0.0700586	Incl. 2.34267	-0.26363560	+0.32715748
P	4.37	H 12.6	G 0.25	

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

690717	095	0.9+	1.0-	870923	809	0.2- 1.4+	871001	809 0.6- 0.1+
770424	675	0.3+	0.9+	870923	809	0.2+ 1.6+	871001	809 0.5- 0.1+
770425	675	0.1-	0.7+	870924	809	0.1+ 0.3-	890104	399 1.0+ 0.3-
791224	095	0.6-	4.4-	870924	809	0.1- 0.2-	890104	399 0.7- 0.3+
810308	095	0.7-	0.1-	870924	809	0.1- 0.3-	890104	399 0.3+ 0.9+
870822	033	(0.2-	3.7+)	870926	809	0.5+ 0.1-	890104	399 1.2- 0.1-
870822	033	0.2-	1.4-	870926	809	0.8+ 0.0	890129	399 1.3+ 0.5+
870823	033	0.3-	1.2-	870926	809	1.0+ 0.1+	890129	399 1.5+ 0.8+
870921	688	0.5-	0.9+	870929	688	(2.8+ 0.2+)	890129	399 0.3+ 0.6+
870921	688	(2.9-	0.9-)	870929	688	0.8- 0.1+	890129	399 0.1- 1.3+
870923	809	0.4-	1.4+	871001	809	0.7- 0.1+		

(4041)* 1988 DN1 = 1947 LF = 1952 KP = 1968 KU = 1982 BF = 1983 HC1
Discovered 1988 Feb. 19 by T. Kojima at YGCO Chiyoda Observatory.
Id. T. Kobayashi (MPC 12952)
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	28.30744	(1950.0)	P	Q
n	0.18848616	Peri. 152.50216	-0.26923192	+0.94396463
a	3.0126573	Node 101.36313	-0.91547451	-0.18929804
e	0.0575712	Incl. 11.22851	-0.29903278	-0.27036462
P	5.23	H 11.1	G 0.25	

Residuals in seconds of arc

470614	690	5.4+	0.0	830410	095	0.7- 0.2+	880310	897 0.2+ 0.5+
470615	690	2.3-	2.4-	830412	095	1.0- 0.1+	880310	897 0.8- 0.8+
520520	711	1.6-	6.3+ Y	830418	688	0.8+ 2.2-	880312	372 2.6+ 2.6-
680526	095	2.3-	2.4-	830418	688	2.2- 1.7-	880312	372 1.3+ 1.8-
820116	688	0.1+	0.8-	830501	095	0.2+ 1.1-	880312	897 0.3- 2.2+
820116	688	0.2-	1.3-	880219	897	1.2- 0.9+	880312	897 0.7- 2.0+
830313	095	2.9+	0.5-	880219	897	1.2- 1.4+		

(4042)* 1989 AT1 = 1974 DV = 1980 TO12 = 1984 YK1
Discovered 1989 Jan. 15 by K. Endate and K. Watanabe at Kitami.
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	90.27133	(1950.0)	P	Q
n	0.26153383	Peri. 19.62904	+0.02456590	-0.99805039
a	2.4216839	Node 68.99727	+0.90874995	-0.00162382
e	0.1371639	Incl. 3.52353	+0.41661739	+0.06239215
P	3.77	H 13.5	G 0.25	

Residuals in seconds of arc

740216	095	0.4-	1.5-	890113	400	0.2- 1.6-	890130	400 0.2- 1.5-
801010	095	0.2-	1.1-	890113	400	1.7+ 1.5-	890130	400 2.4- 0.4+
801017	095	1.0+	0.4-	890113	400	(0.3+ 4.9-)	890130	400 (0.7- 2.6+)
841217	095	0.6-	1.2+	890115	400	0.8- 2.8+	890130	400 (1.3+ 2.6+)
841223	095	0.1-	1.3-	890115	400	0.9+ 1.5+		
841227	095	0.1+	1.8+	890115	400	1.2+ 0.2-		

(4043)* 1175 T-3 = 1981 JT1 = 1982 QB

Discovered 1977 Oct. 17 by C. J. van Houten and I. van Houten-Groeneveld on Palomar Schmidt plates taken by T. Gehrels.

Id. S. Nakano (MPC 12701), K. Hurukawa (unpublished)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Nakano

M	113.83561	(1950.0)	P	Q
n	0.17826584	Peri. 15.73267	+0.75283673	+0.65126030
a	3.1267318	Node 303.23297	-0.61549892	+0.64521140
e	0.0829400	Incl. 6.54749	-0.23323365	+0.39945246
P	5.53	H 12.4	G 0.25	

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

771007 675	0.2+	1.5-	771017 675	1.0-	0.2+	820818 046	0.2+	1.6-
771011 675	1.4+	0.8+	771017 675	2.8-	0.8+	820819 046	1.2+	0.3+
771011 675	0.5+	1.0+	771022 675	0.0	1.8-	820819 046	2.1-	0.2+
771012 675	2.0+	0.1+	771022 675	1.2+	1.8-	820821 046	1.7+	0.1-
771012 675	1.0+	1.0+	810509 808	0.1+	0.7-	820821 046	1.3-	1.1-
771016 675	1.3-	0.3+	810509 808	0.2-	0.1-	881007 801	1.0+	0.8+
771016 675	0.8-	0.7+	820818 046	0.0	2.5+	881210 801	1.0-	1.7-

(4044)* 5142 T-3 = 1951 XV = 1979 BW = 1980 DL1

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 12575)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	117.36486	(1950.0)	P	Q
n	0.18584526	Peri. 255.04797	+0.96584256	+0.18146522
a	3.0411305	Node 94.23665	-0.10041188	+0.92017793
e	0.0912751	Incl. 10.68967	-0.23888409	+0.34690482
P	5.30	H 11.7	G 0.25	

Residuals in seconds of arc

511204 711	1.3+	1.7- Y	771016 675	0.2+	0.4-	790124 095	1.0-	0.8+
511205 711	1.4+	5.4- Y	771017 675	1.0+	0.1+	800221 033	0.6+	1.2+
771011 675	1.0-	1.0+	771017 675	0.1-	0.9-	800222 033	0.5+	1.1+
771011 675	0.6-	0.7+	771021 675	2.4-	0.4-	800222 033	0.4+	1.0+
771012 675	1.1+	0.2+	771021 675	1.9-	1.5+	881112 801	0.1-	0.9+
771012 675	0.7+	0.1-	771022 675	0.0	1.8+	881206 801	1.1-	2.5+
771016 675	0.9+	0.3+	771022 675	0.1-	0.3-	890111 801	0.3+	1.8+

A909 TF = 1943 VB = 1981 TO1 = 1985 SD6 = 1988 GK

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	68.74106	(1950.0)	P	Q
n	0.23420465	Peri. 260.88776	+0.09322622	+0.99396160
a	2.6065879	Node 14.83802	-0.80142588	+0.10940359
e	0.1730608	Incl. 13.06090	-0.59078374	+0.00843694
P	4.21	H 12.0	G 0.25	

Residuals in seconds of arc

091005 000	0.7+	0.6-	091012 000	0.2+	0.1+	880415 892	1.6-	0.7-
091005 000	1.6-	1.2-	431103 024	1.9+	2.2-	880419 892	0.0	0.4-
091006 000	0.2+	0.5+	811002 095	0.0	0.3+	880419 892	1.6+	2.1-
091006 000	0.2+	0.5-	850921 095	0.4-	0.9+			
091008 000	1.5+	0.0	880415 892	0.6-	0.3-			

1931 GC = 1983 RW4 = 1986 EK5

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	247.27707	(1950.0)	P	Q
n	0.21476131	Peri. 222.87795	-0.77715957	+0.62921174
a	2.7616292	Node 356.06824	-0.52654116	-0.65951396
e	0.1036946	Incl. 9.02059	-0.34464098	-0.41125895
P	4.59	H 11.5	G 0.25	

Residuals in seconds of arc

310318	024	1.9-	1.2-	830903	095	0.6+	0.4+	860306 809 (4.4+ 1.6+)
310408	024	2.2+	0.8+	830910	095	0.5-	0.5-	860307 809 0.7+ 0.9+
310412	024	1.1+	1.4+	830913	095	(4.8+	2.6+)	860307 809 0.4- 0.3-
310420	024	1.9-	1.7-	860306	809	(5.3+	2.0+)	

1932 HD = 1953 DH = 1985 CK

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5					Kobayashi
M 297.55067		(1950.0)		P	Q
n	0.18408927	Peri.	283.86980	-0.95390557	-0.30005440
a	3.0604391	Node	238.66960	+0.27780563	-0.87578903
e	0.2155106	Incl.	0.37656	+0.11352616	-0.37810175
P	5.35	H	12.5	G 0.25	

Residuals in seconds of arc

320424	024	3.7-	2.1+	850212	046	2.4-	1.5-	850215 046 1.5+ 0.7+
320428	024	3.6+	1.5-	850213	046	1.2-	1.8-	850218 054 0.3+ 1.0-
320505	024	0.0	0.7-	850213	046	0.0	1.2-	850219 054 1.6- 1.7+
530217	012	1.1+	2.0+	850213	054	1.1-	3.2+	
850212	046	3.5-	0.4-	850215	046	2.2+	0.3-	

1935 TG = 1951 WQ1 = 1954 UM = 1973 UZ = 1976 QD2 = 1976 SA7 = 1979 OZ13 = 1979 QA7

Id. T. Kobayashi; 1935 TG = 1949 YE (MPC 2807) is invalid

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5					Kobayashi
M 40.05655		(1950.0)		P	Q
n	0.31183503	Peri.	185.29585	+0.99950973	+0.03121247
a	2.1537045	Node	172.91411	-0.02794031	+0.92473189
e	0.1652132	Incl.	1.14604	-0.01412955	+0.37933721
P	3.16	H	13.5	G 0.25	

Residuals in seconds of arc

350928	078(80.8+	4.9+)	351023	094	0.2+	1.6+	731026 095	1.2- 3.4-
351001	078(79.5+	1.5-)	511129	711	1.9-	3.7+ Y	760828 675	1.3+ 0.0
351002	094(82.7+	15.2-)	511129	711	2.9+	0.2+ Y	760925 095	1.4+ 0.4+
351016	078	0.8- 1.6+	541022	760	0.9-	0.4-	790719 095	0.8- 1.4+
351018	078	0.5- 1.4-	541022	760	1.0+	1.4-	790820 095	0.7- 0.4+

1942 DC = 1974 WJ = 1983 GR1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5					Kobayashi
M 298.48070		(1950.0)		P	Q
n	0.26589252	Peri.	19.85540	-0.88679953	-0.46084251
a	2.3951459	Node	132.65309	+0.41734741	-0.83088986
e	0.1553755	Incl.	2.71176	+0.19851380	-0.31184325
P	3.71	H	13.5	G 0.25	

Residuals in seconds of arc

420217	062	0.2+	0.4+	420313	062	0.6-	1.0+	830411 095 0.3+ 0.2-
420217	062	0.7-	0.3+	741118	095	0.0	0.0	
420219	062	1.2+	1.5-	830409	095	0.2-	0.1-	

1943 DL = 1964 FF = 1987 SD6 = 1989 CS

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P)					Nakano
M 84.88461		(1950.0)		P	Q
n	0.23552568	Peri.	111.46466	-0.26729628	-0.96334395
a	2.5968373	Node	353.90151	+0.78524295	-0.20402575
e	0.1314599	Incl.	12.40837	+0.55852145	-0.17418932
P	4.18	H	12.0	G 0.25	

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

430226	062	0.2-	1.7-	870921	046	1.4-	3.2+	890207 385	0.0	0.0
430226	062	2.7+	2.2-	870921	046	1.6+	3.5-	890207 385	1.5+	0.3+
430301	062	1.2-	0.8+	890205	385	1.1-	0.1-	890213 385	2.9-	1.2+
430312	062	2.4-	1.5+	890205	385	1.4+	1.0+	890213 385	2.1+	0.7-
640316	760(0.06-	0.03+)X		890207	385	0.2-	0.4-			

1943 EN = 1973 FW = 1978 YN = 1983 GM1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M	336.85200	(1950.0)		P	Q
n	0.29674496	Peri.	183.91117	-0.95077507	+0.30859893
a	2.2261127	Node	14.16145	-0.28108105	-0.82056890
e	0.0999274	Incl.	6.61144	-0.13046151	-0.48107524
P	3.32	H	13.0	G 0.25	

Residuals in seconds of arc

430303	062	0.6-	0.9+	430325	062	1.0+	0.0	830409 095	0.2+	0.2+
430307	062	0.3-	0.8-	730326	095	0.3-	0.5+	830411 095	0.3+	0.5-
430309	062	0.0	0.4-	781222	095	0.0	0.1+			

1950 HJ = 1976 FD = 1983 RH9

Id. B. G. Marsden, S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M	156.03885	(1950.0)		P	Q
n	0.18795627	Peri.	354.23319	-0.59066177	+0.79508814
a	3.0183229	Node	239.48379	-0.73376199	-0.60022133
e	0.0615754	Incl.	9.19572	-0.33572610	-0.08700119
P	5.24	H	12.0	G 0.25	

Residuals in seconds of arc

500421	839	1.5-	0.5-	500426	839	0.5-	0.5-	500711 839	4.3-	1.2+
500421	839	0.5-	0.5-	500506	839	1.6+	0.7+	760331 095	1.6-	3.8-
500421	839	0.3+	0.5-	500507	839	1.6+	0.7+	830911 095	1.2+	2.9-
500426	839	0.6-	0.4+	500507	839	1.7+	0.6+			
500426	839	0.4-	0.1-	500605	839	2.4+	0.2+			

1968 OG1 = 1982 FV = 1989 AQ2

C. M. Bardwell, S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Bardwell	
M	359.66532	(1950.0)		P	Q
n	0.26953405	Peri.	44.81810	-0.83893773	+0.54230998
a	2.3735287	Node	167.78231	-0.53990637	-0.81879664
e	0.1789877	Incl.	12.45555	-0.06844418	-0.18833998
P	3.66	H	13.5	G 0.25	

Residuals in seconds of arc

680725	805	1.7+	2.4+	820324	675	0.2+	0.7-	890112 413	0.7-	1.2+
680728	805	0.4+	2.1+	820324	675	0.3+	0.8+	890112 413	1.3+	1.0+
680730	805	0.4+	2.6+	890111	413	0.9-	0.9+			
680822	805	3.2-	2.9-	890111	413	0.1+	1.4+			

1972 TE = 1959 RU = 1985 UU4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M	344.62592	(1950.0)		P	Q
n	0.22978696	Peri.	158.24267	+0.95815389	-0.28231730
a	2.6398898	Node	218.25631	+0.25006260	+0.90593970
e	0.2653745	Incl.	4.38192	+0.13931909	+0.31554745
P	4.29	H	14.0	G 0.25	

Residuals in seconds of arc

590902	024	0.5+	1.9-	721005	095	1.2+	0.2-	721028 095	0.9+	0.3-
721003	095	0.9-	0.3+	721013	095	2.6-	3.7+	851022 095	0.3+	2.8-

1973 SQ1 = 1989 AO2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 160.37034 (1950.0) P Q
n 0.08412575 Peri. 127.22009 +0.93612921 +0.34687035
a 5.1584310 Node 212.59883 -0.34695360 +0.88424137
e 0.0251209 Incl. 6.16087 -0.05731755 +0.31272697
P 11.72 H 10.0 G 0.25
Residuals in seconds of arc
730929 675 0.2+ 0.4+ 731005 675 0.1+ 0.1- 890130 675 1.2- 0.5+
730930 675 0.3- 0.2- 890109 675 1.3+ 1.3+ 890130 675 1.2+ 0.9-
731004 675 0.0 0.1- 890111 675 1.3- 0.8-

1976 VA = 1929 RW = 1952 BZ = 1986 PL2 = 1989 CJ
Id. L. D. Schmadel, S. Nakano
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 199.97211 (1950.0) P Q
n 0.18949752 Peri. 216.52283 +0.95451688 +0.27811812
a 3.0019346 Node 126.98089 -0.23164024 +0.91865509
e 0.1242266 Incl. 7.73097 -0.18772407 +0.28057644
P 5.20 H 11.0 G 0.25
Residuals in seconds of arc
290905 094 (0.2- 18.8+)X 761122 808 0.6+ 0.1- 890202 372 1.1- 0.2-
520125 711 0.0 0.1- Y 761122 808 0.3+ 0.2+ 890203 372 0.1- 0.7+
761111 808 0.2- 0.5+ 860801 675(41.8+ 0.7-) 890203 372 (6.7- 1.6-)
761111 808 0.2- 0.4- 860801 675(43.6+ 1.5+) 890204 372 0.5+ 2.4-
761118 808 0.2+ 0.9- 860802 675 0.0 2.5- 890204 372 0.3- 2.3-
761118 808 0.6- 0.4+ 860802 675 0.9+ 1.2-

1977 EV = 1989 CD2
Id. S. Nakano; 1977 EV = 1975 WK (MPC 1053) is invalid
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 0.41280 (1950.0) P Q
n 0.24179050 Peri. 238.33640 -0.92522770 +0.34405270
a 2.5517851 Node 321.12521 -0.19929347 -0.79941468
e 0.0801757 Incl. 14.76403 -0.32285573 -0.49250777
P 4.08 H 12.0 G 0.25
Residuals in seconds of arc
770313 095 0.0 0.4+ 890205 872 0.0 0.4+ 890210 872 1.8+ 0.3-
770322 095 0.1+ 0.7- 890205 872 1.8- 0.1-
770325 095 0.0 0.3+ 890210 872 (2.8+ 4.0-)Y

1977 QU2 = 1985 RO6
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 333.73731 (1950.0) P Q
n 0.25150157 Peri. 214.65222 +0.57901721 -0.81481577
a 2.4856630 Node 200.01394 +0.76559801 +0.55541141
e 0.1010799 Incl. 4.78287 +0.28035471 +0.16611270
P 3.92 H 13.0 G 0.25
Residuals in seconds of arc
770821 095 0.2+ 0.9+ 770909 095 0.1- 0.7- 850920 095 0.0 1.4-
770823 095 0.0 0.3- 850915 095 0.3- 1.2+ 850922 095 0.3+ 0.5+

1977 QJ3 = 1960 WC = 1989 AW1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 182.71558 (1950.0) P Q
n 0.28753530 Peri. 257.78860 +0.98717480 +0.14135278
a 2.2733969 Node 94.05144 -0.10146782 +0.91437061
e 0.2205549 Incl. 4.26581 -0.12324851 +0.37940186
P 3.43 H 13.0 G 0.25

Residuals in seconds of arc

601117	760	0.0	0.5+	771006	095	1.2+	0.1+	890129	400	0.0 2.1+
601117	760	0.5+	1.5-	890113	400	2.6-	2.9+	890130	400	0.6+ 2.5-
770822	095	0.1-	0.4-	890113	400	3.0-	0.9-	890130	400	1.7+ 3.6-
770824	095	0.3-	1.2+	890113	400	4.0-	2.7+	890203	400	2.3+ 1.1-
770907	095	0.8-	0.5-	890129	400	0.8-	0.6+	890203	400	4.1+ 1.5+
771003	095	0.5-	0.8+	890129	400	2.2+	0.0			

1978 QP1 = 1973 UF2 = 1984 UJ4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 21.60365		(1950.0)		P	Q
n	0.17797459	Peri.	194.28075	+0.69764232	+0.71548470
a	3.1301421	Node	119.97309	-0.65301871	+0.65633140
e	0.1734381	Incl.	2.45497	-0.29472317	+0.23939660
P	5.54	H	12.0	G 0.25	

Residuals in seconds of arc

731026	095	0.3-	0.8+	780905	095	0.4+	2.1+	841020	095	0.1+ 0.8-
780831	095	0.4+	0.4-	780927	095	1.1-	1.9-			

1978 QG2 = 1988 RZ6

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 163.84731		(1950.0)		P	Q
n	0.29523641	Peri.	91.71298	+0.18150427	+0.98334056
a	2.2336894	Node	188.76308	-0.92601975	+0.16752662
e	0.1753441	Incl.	3.71693	-0.33097375	+0.07054199
P	3.34	H	14.0	G 0.25	

Residuals in seconds of arc

780831	095	1.4-	0.6+	880908	809	0.5+	1.6-	880920	809	0.5+ 1.6+
780905	095	0.1+	3.2+	880908	809	1.0+	1.6-	880920	809	0.7- 0.7+
780927	095	0.5+	1.1-	880908	809	1.2+	1.6-	880920	809	1.7- 0.1-

1980 FT3 = 1978 XS = 1981 RE3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 138.26701		(1950.0)		P	Q
n	0.29263103	Peri.	131.62725	+0.95082013	+0.30918444
a	2.2469279	Node	210.37636	-0.29398915	+0.88191954
e	0.1474654	Incl.	2.10826	-0.09752670	+0.35584112
P	3.37	H	14.5	G 0.25	

Residuals in seconds of arc

781203	675	0.5+	0.0	800316	809	0.1-	0.4+	800317	809	0.2- 0.7+
781203	675	0.2-	0.3+	800316	809	0.2+	0.1+	800317	809	0.3+ 0.4+
781205	675	1.8+	0.8+	800316	809	0.2-	0.1+	800317	809	0.3+ 0.3-
781206	675	0.7-	1.0-	800316	809	0.2-	0.7-	800323	809	0.3- 0.8-
781206	675	1.4-	0.1-	800317	809	0.3+	0.2+	810902	095	0.0 0.1+

1980 JC = 1987 SX1 = 1987 ST9

Id. S. Nakano, T. Kobayashi

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P)				Nakano	
M 273.53144		(1950.0)		P	Q
n	0.31225211	Peri.	319.07256	+0.62814293	+0.77806757
a	2.1517905	Node	349.83422	-0.70331286	+0.56396655
e	0.1531523	Incl.	2.23358	-0.33284753	+0.27668139
P	3.16	H	13.5	G 0.25	

Residuals in seconds of arc

800511	046	(0.0	6.2-)Y	800514	046	0.3-	0.0	870927	399	1.5- 0.2-
800511	046	1.0-	2.5- Y	870921	071	0.8-	1.1+	870927	399	0.1+ 0.3-
800513	046	2.2+	0.2-	870921	071	0.1-	0.1-	870927	399	2.0+ 0.6+
800513	046	0.4+	2.7+	870926	688	2.2+	0.1-			
800514	046	1.5-	0.0	870926	688	1.9-	1.0-			

1980 TG4 = 1980 TH15 = 1975 LK1
Id. B. G. Marsden (d, MPC 9203), D. W. E. Green
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Green
M 58.60692 (1950.0) P Q
n 0.23186388 Peri. 332.27604 +0.96806855 +0.24537183
a 2.6241069 Node 13.81220 -0.17107368 +0.79633209
e 0.1705523 Incl. 12.41855 -0.18324049 +0.55285429
P 4.25 H 14.0 G 0.25
Residuals in seconds of arc

750601	413	0.1+	1.2-	750603	413	0.1-	1.0+	801009	675	0.1+	0.3-
750601	413	0.8+	0.8-	801007	675	0.7-	0.6-	801010	675	0.2-	0.5-
750603	413	0.9-	0.7+	801008	675	0.1+	1.2+	801015	095	0.6+	0.1+

1981 EP15
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden
M 262.53350 (1950.0) P Q
n 0.27533449 Peri. 117.15145 +0.70176152 -0.70810904
a 2.3400753 Node 288.04917 +0.62102524 +0.66181988
e 0.1621804 Incl. 4.71664 +0.34908225 +0.24612201
P 3.58 H 15.5 G 0.25
Residuals in seconds of arc

810301	413	2.7-	0.8-	810409	413	1.8+	0.2+	861004	413	0.8-	0.0
810308	413	2.4-	1.3+	810501	413	3.6+	0.9-	861004	413	0.4+	1.0+
810308	413	2.8+	0.2+	810503	413	0.4-	0.3+	880218	413	0.7+	2.0-
810312	413	1.1-	1.6+	840108	675	1.4-	1.2+	880218	413	1.6-	0.1-
810409	413	0.0	0.7+	840108	675	1.5+	0.1-				

1981 EK25
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden
M 353.87504 (1950.0) P Q
n 0.25916753 Peri. 344.51189 +0.39212048 +0.91952469
a 2.4364071 Node 308.56700 -0.84028548 +0.34618973
e 0.1772187 Incl. 1.96105 -0.37438196 +0.18608337
P 3.80 H 14.5 G 0.25
Residuals in seconds of arc

810212	413	0.5-	0.2-	810315	413	0.2+	0.3+	810502	413	0.3+	0.0
810212	413	0.2-	0.4-	810405	413	(6.4+	1.8-)	810503	413	0.3-	0.1-
810302	413	1.6-	0.1+	810406	413	0.6-	0.5+	840108	675	1.5-	0.8+
810302	413	0.3+	1.3-	810406	413	3.4+	2.2-	840108	675	1.6+	0.6-
810306	413	0.2+	1.0+	810410	413	0.7-	2.5+	850303	413	0.7-	0.9-
810311	413	0.4-	0.3+	810410	413	(6.7-	2.2+)	850608	413	0.4+	0.2+

1981 EX28
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden
M 73.39392 (1950.0) P Q
n 0.27708347 Peri. 320.31856 -0.21065039 +0.97268019
a 2.3302178 Node 297.31979 -0.86664103 -0.23199389
e 0.0963460 Incl. 6.30482 -0.45228282 -0.00849034
P 3.56 H 15.0 G 0.25
Residuals in seconds of arc

810202	413	0.8-	0.7+	810311	413	0.6+	0.5-	840108	675	2.0+	0.9-
810214	413	1.0+	0.1-	810315	413	1.6-	0.5+	880220	413	1.9-	0.0
810301	413	1.2+	1.0+	810315	413	0.3+	0.5+	880220	413	2.0+	0.5-
810307	413	0.5-	0.2-	810429	413	0.6-	1.1-	880313	413	0.1-	1.1-
810307	413	2.3+	0.1-	821104	413	0.0	0.1-	880313	413	1.1-	0.4-
810311	413	1.1-	1.1+	840108	675	1.9-	0.9+				

1981 EK34
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden
M 44.82779 (1950.0) P Q
n 0.26503137 Peri. 263.64994 -0.29950153 +0.95409273
a 2.4003361 Node 348.92148 -0.87024952 -0.27422367
e 0.1583853 Incl. 0.72410 -0.39110691 -0.12045098
P 3.72 H 15.0 G 0.25
Residuals in seconds of arc

780709	675	2.5-	1.0-	810303	413	0.9+	1.2-	810316 413 3.7+ 1.8-
780709	675	2.6+	0.6+	810307	413	3.2-	1.1+	810503 413 0.8+ 0.5+
810202	413	0.3+	0.2-	810307	413	0.5+	0.5-	820727 413 0.1+ 0.7-
810302	413	1.3-	0.5+	810311	413	1.4-	1.7+	821105 413 0.4+ 0.4-
810302	413	1.0-	1.3-	810311	413	0.3+	0.1+	

1981 EX38
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden
M 319.98002 (1950.0) P Q
n 0.25276242 Peri. 31.17160 +0.54597719 +0.82827640
a 2.4773949 Node 272.20249 -0.79225512 +0.46152970
e 0.1883633 Incl. 7.24185 -0.27247154 +0.31772401
P 3.90 H 15.0 G 0.25
Residuals in seconds of arc

810202	413	0.3+	0.6-	810307	413	4.0+	1.2-	831230 675 0.8- 0.7-
810302	413	3.1-	1.6+	810310	413	2.4-	1.3+	831230 675 0.8+ 0.4+
810302	413	0.6+	0.0	810310	413	3.2+	0.5-	850323 413 1.9- 0.2-
810307	413	1.7-	0.9+	810429	413	0.3-	0.3-	850323 413 1.3+ 1.0-

1981 ER40
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden
M 93.09808 (1950.0) P Q
n 0.25646302 Peri. 209.22671 -0.94586666 -0.32406118
a 2.4535058 Node 311.85321 +0.30223453 -0.85936802
e 0.1163692 Incl. 1.37747 +0.11828165 -0.39556410
P 3.84 H 16.5 G 0.25
Residuals in seconds of arc

770213	675	1.5+	0.8-	810302	413	2.9+	0.8-	810502 413 0.4+ 0.6+
770213	675	1.5-	1.0+	810302	413	0.9+	1.3-	810503 413 0.3- 0.6+
810209	413	0.3-	0.1+	810311	413	2.6-	0.8+	850608 413 0.3- 0.5-
810213	413	2.0-	0.2+	810315	413	1.1+	0.1+	

1981 QB
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell
M 125.96151 (1950.0) P Q
n 0.29415105 Peri. 248.21550 +0.65874730 -0.70394058
a 2.2391806 Node 153.91485 +0.68326958 +0.70750076
e 0.5179063 Incl. 37.15246 -0.31495187 +0.06253271
P 3.35 H 16.0 G 0.25
Residuals in seconds of arc

810828	675	(0.8-	3.2-)	810901	675	(2.1+	3.3+)	810903 675 (1.2+ 4.7+)
810828	675	2.2-	2.5+	810901	675	(3.0-	6.5-)	810905 474 (9.7- 3.4+)
810829	675	0.2+	0.1-	810902	474	0.3+	2.1-	810905 474 2.8- 1.4-
810829	675	(0.6+	6.8+)	810902	474	(2.6-	5.1-)	810905 801 0.3+ 2.2-
810830	675	1.4-	0.2-	810902	474	0.6-	2.3+	810906 474 (4.2+ 0.4-)
810830	675	0.1-	1.1+	810902	474	0.9-	0.5-	810906 474 (3.7+ 2.4-)
810831	675	1.0+	3.1+	810902	675	(0.5-	3.7+)	810907 801 0.2+ 0.3+
810831	675	(1.1-	3.2-)	810902	474	0.5-	1.3+	810921 474 1.2+ 0.7-
810901	474	0.9+	2.8-	810902	675	1.0+	0.1+	810921 474 0.4+ 2.3-
810901	474	0.5+	0.2-	810903	675	1.3-	2.1-	810923 474 1.5+ 1.9+

810923	474	(2.0+ 7.0+)	811127	474	1.8- 0.5+	820324	801	1.1+ 0.7+
810929	474	2.6+ 1.0-	811226	474	2.3- 1.5-	881220	675	0.6- 0.0
811017	474	1.1+ 0.2+	811226	474	1.9+ 2.9+	881220	675	0.6- 0.9-
811017	474	0.1- 1.5+	820128	474	0.2+ 0.6-	881224	675	0.8+ 0.3-
811028	474	0.5- 0.9+	820128	474	0.2- 0.1-	881224	675	0.7+ 0.6-
811028	474	0.0 0.6+	820226	474	1.3+ 0.8-	881224	675	1.0+ 0.2+
811127	474	1.6+ 0.0	820226	474	0.6+ 1.2-	881224	675	0.1+ 0.2-

1981 QT = 1988 RK4
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	75.58863	(1950.0)	P	Q	
n	0.28289602	Peri. 92.22875	+0.89983715	-0.43559069	
a	2.2981841	Node 293.59488	+0.38930649	+0.82622301	
e	0.1293807	Incl. 1.47158	+0.19680843	+0.35723422	
P	3.48	H 13.5	G 0.25		

Residuals in seconds of arc

810824	046	1.9+ 0.0	810904	046	1.4+ 0.5-	880901	809	0.5- 0.1-
810824	046	1.7- 2.0-	810904	046	1.4- 0.5-	880901	809	0.2- 0.1-
810828	046	0.3- 1.2+	810905	046	0.2- 1.9-	880903	809	0.1- 0.3+
810828	046	0.4- 1.8+	810905	046	1.3+ 1.9-	880903	809	0.2+ 0.4+
810902	095	0.4- 2.9+	880901	809	0.3- 0.3-	880903	809	0.5+ 0.6+

1981 RM3 = 1981 SQ = 1971 TZ1 = 1976 ST9
Id. S. Nakano (d, MPC 10513), T. Kobayashi
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	178.67886	(1950.0)	P	Q	
n	0.19213541	Peri. 195.64079	+0.84047816	-0.54161828	
a	2.9743891	Node 197.18045	+0.50263244	+0.79013996	
e	0.1854738	Incl. 3.04434	+0.20237857	+0.28692940	
P	5.13	H 13.0	G 0.25		

Residuals in seconds of arc

711012	095	0.1+ 0.9-	810925	046	0.5- 1.8-	811005	688	1.5- 4.0-
760929	095	0.9- 3.3+	810925	046	1.6- 1.6-	811005	688	2.7+ 0.6-
810902	095	2.6+ 2.4+	810925	095	1.0- 3.0+			

1981 UT = 1989 AN
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	139.63852	(1950.0)	P	Q	
n	0.29887504	Peri. 42.72337	+0.81484163	-0.57964444	
a	2.2155275	Node 352.69293	+0.51649183	+0.73124566	
e	0.0999103	Incl. 3.03811	+0.26319061	+0.35957213	
P	3.30	H 13.0	G 0.25		

Residuals in seconds of arc

811026	704	1.2- 0.9+	811030	704	0.7+ 0.4+	890107	675	1.4- 1.8-
811026	704	1.4- 2.9+	811031	704	1.2+ 3.3-	890207	675	0.6+ 1.0+
811027	704	0.5+ 0.8-	890103	675	0.9+ 0.9+	890207	675	0.1- 0.1+

1982 FC = 1989 CP1
Id. T. Seki
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	21.89051	(1950.0)	P	Q	
n	0.27778457	Peri. 181.53932	-0.89674854	+0.43560340	
a	2.3262906	Node 24.75228	-0.40398456	-0.73378834	
e	0.1406960	Incl. 10.74342	-0.18066137	-0.52134859	
P	3.55	H 14.0	G 0.25		

Residuals in seconds of arc

820321 372	0.2+	1.0-	820401 372	0.4+	0.6+	890203 372	1.8-	0.3-
820321 372	0.5-	0.8-	820401 372	0.3+	1.6+	890203 372	2.2+	0.2-
820325 372	0.2+	1.1+	820418 372	0.0	1.9-	890204 372	2.4-	0.4+
820325 372	0.5-	0.1-	820418 372	0.7-	0.3+	890204 372	2.0+	0.3+
820328 372	0.7-	0.4-	820422 372	0.1-	0.8-			
820328 372	0.7+	0.1-	820422 372	0.5+	1.4+			

1982 SK8 = 1963 TC = 1968 UN = 1989 CZ1
Id. S. Nakano (MPC 13686; unpublished)

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)	Nakano
M 147.36128	(1950.0)	P	Q
n 0.20663761	Peri. 215.96222	+0.82877398	-0.55958218
a 2.8335486	Node 178.06347	+0.52138716	+0.77141604
e 0.0701848	Incl. 2.05220	+0.20319724	+0.30296050
P 4.77	H 12.5	G 0.25	

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

631013 760(0.05+ 0.01+)X			820919 095	0.0	1.1-	890210 872	3.3+	1.6+
681022 095	3.7+	0.6+	820921 095	1.2-	3.0-	890214 872	3.7-	1.1+
681026 095	3.7-	0.4-	820927 095	0.7+	1.2+	890214 872	0.3-	1.7-
820919 095	0.5+	2.7+	890210 872	0.5+	1.2-			

1982 UJ7 = 1989 AE3

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)	Marsden
M 80.48941	(1950.0)	P	Q
n 0.18108606	Peri. 327.45746	+0.19812022	-0.97929598
a 3.0941895	Node 111.08635	+0.90851739	+0.16755389
e 0.1527533	Incl. 2.55334	+0.36789201	+0.11360050
P 5.44	H 12.5	G 0.25	

Residuals in seconds of arc

821021 095	0.1+	0.6+	881229 413	0.2-	1.4+	890106 413	2.1+	0.0
821023 095	0.5-	0.1+	890104 413	2.3-	1.9+	890110 413	0.1-	0.1-
821112 095	0.3+	0.7-	890104 413	0.9-	0.6+	890110 413	1.3+	1.7-
881229 413	1.4+	2.0-	890106 413	1.2-	0.0			

1983 WH = 1976 UC5 = 1988 JU1
Id. C. M. Bardwell, W. Landgraf, S. Nakano

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)	Nakano
M 227.13446	(1950.0)	P	Q
n 0.28631810	Peri. 209.13322	-0.07050764	-0.99454624
a 2.2798401	Node 245.00121	+0.93079533	-0.03789313
e 0.0829741	Incl. 4.86438	+0.35867637	-0.09716937
P 3.44	H 13.5	G 0.25	

Residuals in seconds of arc

761030 095	0.0	0.3-	831205 688	1.4-	1.7-	840102 688	0.8-	0.1+
831128 688	0.1+	0.9+	831206 688	0.6+	0.5+	840104 688	0.9-	0.6-
831128 688	0.9-	0.6+	831209 688	0.1+	0.3+	840104 688	1.6+	2.4-
831201 688	2.1+	2.6+	831209 688	2.0-	1.9-	880511 413	2.2+	0.6+
831201 688	0.9+	1.3+	831229 688	1.6-	0.2-	880511 413	2.0-	0.1+
831205 688	1.6+	0.3+	831229 688	0.6+	0.3+			

1983 WJ = 1988 XO2
Id. H. Kaneda

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)	Nakano
M 72.11509	(1950.0)	P	Q
n 0.20064465	Peri. 325.04171	+0.47044953	-0.88060122
a 2.8896940	Node 96.83444	+0.82204029	+0.41397388
e 0.0920297	Incl. 3.27566	+0.32082239	+0.23057997
P 4.91	H 12.5	G 0.25	

Residuals in seconds of arc

831128	688	1.5+ 1.1+	831209	688	1.3+ 1.3-	881202	399	0.7- 0.4-
831128	688	3.0+ 0.9-	831209	688	3.4- 1.5-	881202	399	0.3+ 1.1+
831206	688	0.2- 0.1-	840104	688	0.0 0.4+	881216	400	1.0+ 2.2+
831206	688	1.2- 1.2+	840104	688	0.5+ 1.0-	881216	400	0.7- 1.5-
831208	046	1.9- 0.9+	881202	399	0.7- 0.4-			
831208	046	0.6+ 1.0+	881202	399	0.7+ 0.8-			

1984 EA1 = 1989 CG

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 140.48797		(1950.0)		P	Q
n 0.17959997	Peri.	254.08396		+0.79889812	-0.58515109
a 3.1112345	Node	141.42565		+0.60087412	+0.76619851
e 0.0225883	Incl.	12.89407		+0.02668491	+0.26559001
P 5.49	H	11.5	G	0.25	

Residuals in seconds of arc

840309	688	1.6+ 0.6-	840408	688	2.5- 1.0+	890204	399	0.2+ 0.3+
840309	688	0.4+ 0.6+	890203	399	0.8+ 0.3-	890204	399	0.4- 1.3-
840403	688	0.1+ 0.2-	890203	399	0.0 0.4+	890204	399	0.7- 0.4+
840403	688	0.2- 0.1+	890203	399	0.1- 0.9+			
840408	688	0.6+ 0.9-	890203	399	0.2+ 0.4-			

1984 QQ = 1988 VM7

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Green	
M 109.35660		(1950.0)		P	Q
n 0.26388487	Peri.	180.77038		+0.95484284	-0.29471274
a 2.4072836	Node	196.52030		+0.27328485	+0.92093713
e 0.1316332	Incl.	7.61405		+0.11657848	+0.25498862
P 3.74	H	13.0	G	0.25	

Residuals in seconds of arc

840831	046	0.6- 1.4-	840920	046	0.2- 1.6+	841018	071	0.2+ 0.1-
840901	046	0.2- 0.4+	840927	046	1.2+ 2.3-	841018	071	0.9- 1.0-
840901	046	0.0 1.2-	840927	046	(1.6+ 3.8-)	881103	033	0.7+ 0.2-
840902	046	1.3- 1.2-	840929	046	1.7+ 0.7+	881105	033	0.6- 0.3-
840902	046	0.1+ 1.4+	840929	046	1.3+ 0.7-	881106	033	0.3- 0.1+
840902	046	0.9+ 1.2+	840930	046	0.6- 1.3+			
840920	046	2.1- 0.4+	840930	046	(2.5- 3.4-)			

1984 QR = 1971 BV = 1989 CY

Id. S. Nakano, E. Helin

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 120.88723		(1950.0)		P	Q
n 0.27531095	Peri.	88.55329		+0.59947571	-0.77013055
a 2.3402087	Node	321.72254		+0.51958856	+0.58162845
e 0.3123607	Incl.	20.60527		+0.60881573	+0.26192993
P 3.58	H	13.0	G	0.25	

Residuals in seconds of arc

710125	095	2.2+ 2.9+	840920	675	0.9- 1.5+	890210	875	0.3- 0.8-
840828	675	0.3+ 0.9-	840920	675	0.9+ 0.6+	890210	875	0.1- 0.5-
840828	675	(3.5+ 3.7-)	840924	675	0.2- 0.8+	890211	675	0.1- 1.5-
840830	675	(4.1- 1.1-)	840924	675	1.2+ 1.0-	890212	675	(0.7+ 3.6-)
840901	675	0.4- 0.7-	840928	675	0.0 0.1+	890213	875	1.3- 0.5+
840901	675	0.3+ 0.7-	840929	675	1.2+ 0.3+	890213	875	2.0- 0.2-
840902	675	1.3- 0.1-	890206	875	1.2+ 0.0			
840902	675	0.2- 1.6-	890206	875	1.1- 1.7-			

1984 SJ7 = 1989 AA3
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden
M 177.95465 (1950.0) P Q
n 0.29399080 Peri. 67.13507 +0.98619758 -0.11843954
a 2.2399986 Node 299.49384 +0.05348130 +0.88919574
e 0.1221625 Incl. 7.63869 +0.15669740 +0.44193100
P 3.35 H 13.5 G 0.25
Residuals in seconds of arc

840922	054	2.0-	2.4-	840924	071	3.7+	0.3-	890104	413	2.4+	0.5-
840924	071	3.3-	1.0+	840924	054	1.5+	2.9+	890110	413	0.1+	1.0+
840924	071	2.7+	1.0-	881229	413	4.7-	0.9-	890110	413	0.8+	0.4-
840924	071	2.6-	0.1-	890104	413	1.2+	0.8+				

1985 QH5 = 1972 TB11 = 1981 WS8
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 284.55720 (1950.0) P Q
n 0.22481277 Peri. 248.54712 +0.42700834 -0.90424494
a 2.6786876 Node 176.17284 +0.84145677 +0.39645393
e 0.2372329 Incl. 1.91208 +0.33108063 +0.15863594
P 4.38 H 13.5 G 0.25
Residuals in seconds of arc

721005	095	4.2+	1.9-	811125	095	0.5+	1.4+	850915	095	0.4-	0.8+
721013	095	1.8-	1.2-	850823	095	0.9+	0.1-	850920	095	0.5-	2.6+

1985 RS = 1988 HC
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden
M 101.37867 (1950.0) P Q
n 0.22539199 Peri. 217.06358 -0.80453092 +0.59390649
a 2.6741018 Node 359.35811 -0.48512350 -0.65934955
e 0.1392243 Incl. 11.61131 -0.34261522 -0.46101329
P 4.37 H 12.5 G 0.25
Residuals in seconds of arc

850823	095	0.9-	1.3+	880318	809	0.2-	0.5-	880416	046	3.2+	1.3+
850914	688	0.4+	0.9-	880318	809	0.0	0.1+	880417	046	0.7+	0.7+
850914	688	2.3+	1.7-	880324	809	0.5+	0.1-	880417	046	1.4-	0.3+
850918	688	0.8-	0.3-	880324	809	0.0	0.6+	880418	046	1.9-	1.1-
850918	688	0.8-	1.3+	880325	809	0.2-	0.8-	880418	046	0.6-	1.2-
880317	809	0.0	0.7-	880325	809	0.1+	0.1+	880419	046	0.6-	0.2+
880317	809	0.0	0.6+	880416	046	0.3+	0.0	880419	046	0.1-	0.3+

1985 RK5 = 1974 HQ2
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 66.59629 (1950.0) P Q
n 0.27898202 Peri. 234.01805 +0.81736399 +0.57183694
a 2.3196292 Node 91.00241 -0.50339990 +0.76808230
e 0.2459024 Incl. 4.02224 -0.28018683 +0.28818760
P 3.53 H 15.5 G 0.25
Residuals in seconds of arc

740424	805	1.5-	0.7-	850911	095	0.1-	0.3+	850920	095	0.5-	0.5+
740425	805	1.5+	0.7+	850919	095	0.6+	0.9-				

1985 TN3 = 1981 WN7 = 1984 MW
Id. B. G. Marsden, L. D. Schmadel, S. Nakano
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 16.71176 (1950.0) P Q
n 0.23256444 Peri. 340.77984 +0.82696932 +0.55834361
a 2.6188344 Node 344.72678 -0.47733664 +0.63504746
e 0.1767530 Incl. 14.54085 -0.29710517 +0.53382313
P 4.24 H 13.0 G 0.25

Residuals in seconds of arc

811125 095	0.2-	0.4+	850915 675	0.8-	0.1-	851013 675	0.7+	0.7+
840623 413	1.1-	0.4-	850915 675	0.3-	0.3-	851108 675	(7.0-	1.7-)
840623 413	1.1+	0.5+	851011 675	0.0	0.6+	851108 675	0.6+	1.2-

1986 JZ = 1986 LN = 1982 KF4

Id. K. Hurukawa (d, MPC 11035; unpublished); F. N. Bowman (d, ibid.), B. G. Marsden (d, ibid.), C. M. Bardwell, S. Nakano, H. Oishi

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

M 323.42527		(1950.0)	P	Q
n 0.26625492	Peri.	175.94683	-0.22649930	+0.87885852
a 2.3929768	Node	80.57171	-0.90513788	-0.03069563
e 0.2325007	Incl.	25.19103	-0.35975475	-0.47609397
P 3.70	H	13.5	G 0.25	

Residuals in seconds of arc

820521 675	0.1+	1.9+	860606 675	(11.0-	1.3-)	890111 675	0.4+	0.8+
860504 675	0.3+	1.1-	860606 675	(8.8-	0.2-)	890111 675	1.0-	1.6+
860508 675	0.1+	1.5-	860608 675	(16.7+	0.4+)	890202 675	0.5+	1.6+
860509 675	0.1-	0.9-	860610 688	2.2+	0.8+	890202 675	0.5+	1.2-
860510 675	0.9-	0.2-	860610 688	0.9-	2.1-			

1986 TS6 = 1989 BX

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

M 77.69972		(1950.0)	P	Q
n 0.08249418	Peri.	73.83799	+0.48007465	-0.87620947
a 5.2262243	Node	347.21600	+0.71404234	+0.41829542
e 0.0758761	Incl.	11.00824	+0.50958008	+0.23934474
P 11.95	H	10.0	G 0.25	

Residuals in seconds of arc

861005 092	0.1-	0.2-	861010 092	2.1-	0.1+	890108 675	0.3+	0.5-
861005 092	0.7+	0.7-	861010 092	0.9-	0.6-	890131 675	0.5-	0.8-
861009 092	0.0	0.8-	861011 092	0.0	0.2+	890202 675	0.5+	0.2-
861009 092	0.3+	0.2-	861012 092	0.6+	0.4-			
861009 092	0.6+	0.0	890108 675	0.4-	0.6+			

1987 MO

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M 299.45926		(1950.0)	P	Q
n 0.37006989	Peri.	33.47903	+0.59472766	+0.72482689
a 1.9213813	Node	275.52140	-0.79272615	+0.45678510
e 0.1181899	Incl.	20.44840	-0.13373205	+0.51572604
P 2.66	H	14.0	G 0.25	

Residuals in seconds of arc

870628 675	6.6+	4.3+	870823 675	1.2-	1.9-	871119 801	3.3+	0.4+
870630 675	3.0+	2.2+	870823 675	1.2-	1.6-	890211 675	2.8+	2.0+
870726 675	(10.4+	1.3-)	870919 675	6.4-	1.5+	890212 675	0.2+	2.8+
870730 675	(27.7+	1.7-)	870919 675	4.6-	0.3+			

1987 QG2 = 1952 RP = 1952 SQ1 = 1989 CU

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

M 150.28968		(1950.0)	P	Q
n 0.28168653	Peri.	77.49978	+0.70895858	-0.70262007
a 2.3047626	Node	327.07829	+0.59571232	+0.64279551
e 0.1098493	Incl.	6.42841	+0.37749778	+0.30518676
P 3.50	H	13.5	G 0.25	

Residuals in seconds of arc

520914	074	1.1-	0.8-		870825	809	0.5+	1.4+		890204	399	1.1+	0.2+
520916	839	1.0+	0.6-		870825	809	0.0	0.7+		890204	399	0.9+	0.5+
520916	839	0.3+	1.1+		870825	809	0.8-	1.1-		890205	399	1.0+	0.7+
870821	809	0.6+	0.2-		870825	809	0.3-	0.5-		890207	399	0.2+	0.0
870821	809	0.6-	0.2-		870826	809	0.2-	0.0		890207	399	2.9-	0.7+
870821	809	2.0-	0.3-		870826	809	0.1-	0.5+		890207	399	2.7-	0.9+
870824	809	0.4-	0.6-		870826	809	1.4+	0.1+		890211	399	0.2+	0.7+
870824	809	2.5+	0.1-		890204	399	0.6-	0.9-		890211	399	1.9-	0.1-
870825	809	0.8-	0.7+		890204	399	2.9+	1.7-		890211	399	1.9+	0.9-

1987 RD1 = 1979 YL3 = 1989 BS
Id. S. Nakano, T. Furuta, K. Ichikawa

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Ichikawa	
M 88.83259		(1950.0)		P	Q
n 0.22582176	Peri.	74.27517		+0.08960372	-0.99595891
a 2.6707079	Node	10.58960		+0.90059841	+0.07841261
e 0.1789754	Incl.	1.89733		+0.42531597	+0.04378709
P 4.36	H	13.1	G	0.25	

Residuals in seconds of arc

791224	095	0.0	0.4-		870918	809	0.4+	0.2+		870924	809	0.2+	0.6+
870913	809	1.1-	0.9-		870919	809	0.2+	0.2-		890129	872	0.5+	1.9+
870913	809	0.8-	0.6-		870919	809	0.2+	0.2-		890129	872	0.0	1.4+
870913	809	1.2+	0.9-		870919	809	0.2+	0.2-		890204	872	0.3+	0.8-
870916	809	1.3-	0.4-		870923	809	0.4+	1.0+		890204	872	0.3+	1.3+
870916	809	1.2-	0.6-		870923	809	0.3+	1.0+		890205	872	1.1-	0.7-
870916	809	0.8+	0.8-		870923	809	0.3+	1.0+		890205	872	0.6-	0.0
870918	809	0.1-	0.2+		870924	809	0.0	0.3+		890210	872	0.2+	2.6-
870918	809	0.1+	0.2+		870924	809	0.1+	0.4+		890210	872	0.5+	0.1-

1987 RM1 = 1989 CK

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 336.63936		(1950.0)		P	Q
n 0.29398460	Peri.	83.63858		-0.64328915	+0.76483777
a 2.2400302	Node	146.24331		-0.72477797	-0.59375080
e 0.0657797	Incl.	3.57758		-0.24673055	-0.24996635
P 3.35	H	13.5	G	0.25	

Residuals in seconds of arc

870913	809	1.4-	0.2-		870924	809	0.1-	0.5+		890113	413	(2.8-	1.4+)
870913	809	0.0	0.7-		870926	809	(2.3-	0.1+)		890115	413	2.2-	1.3+
870913	809	0.2-	0.9-		870926	809	0.7+	0.4+		890201	567	0.1-	0.2-
870916	809	0.5-	0.0		870926	809	0.7+	0.3+		890201	567	0.8+	0.3-
870916	809	0.3-	0.2+		870928	809	0.7+	0.4+		890208	567	0.1-	0.2+
870916	809	0.2-	0.3+		870928	809	0.9+	0.4+		890208	567	0.3-	0.4-
870917	809	0.4-	0.5-		870928	809	1.1+	0.4+		890209	567	0.3-	0.1-
870917	809	0.3-	0.7-		890104	413	1.3+	0.5+		890209	567	0.6-	1.2-
870917	809	0.1-	0.6-		890104	413	1.2+	0.7-		890210	567	0.7-	0.6+
870918	809	0.3-	0.1+		890106	413	1.4+	0.0		890210	567	1.3-	0.1-
870918	809	0.1-	0.3+		890110	413	0.6-	0.8+		890227	567	0.8+	1.7+
870918	809	0.0	0.1+		890110	413	1.4+	2.0-		890227	567	0.8+	0.6+
870924	809	(2.5- | 0.1+)		890112	413	(3.3- | 2.5-)					
870924	809	0.2-	0.6+		890113	413	1.2-	0.5-					

1987 SY
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5
M 106.99849 (1950.0) P Q
n 0.56938850 Peri. 291.31628 -0.45208028 +0.88907281
a 1.4416625 Node 311.59884 -0.77854433 -0.43265543
e 0.5867961 Incl. 5.51914 -0.43530696 -0.14952863
P 1.73 H 17.5 G 0.25
Residuals in seconds of arc

870925	675	0.6+	0.6-	871116	691	0.2+	0.6+	871227	675	0.6-	0.3+
870926	675	1.9+	0.1+	871116	691	0.2+	0.5+	871227	675	1.4-	0.5-
870930	675	0.2+	0.3-	871116	691	0.5-	0.2+	871227	675	0.4-	0.1+
871001	675	1.6-	0.8+	871117	688	0.1+	0.8-	880108	675	0.9-	0.4+
871001	675	0.5-	0.4+	871117	688	0.1-	0.7-	880108	675	1.0-	0.9+
871002	675	0.2+	0.2-	871221	691	0.0	0.7-	880108	675	1.2-	0.9+
871002	675	0.5-	0.4-	871221	691	0.7+	0.7-	880109	675	0.1-	0.2+
871015	691	0.6+	0.9-	871221	691	2.3+	0.5+	880109	675	0.1-	0.2+
871015	691	0.4+	0.8-	871221	691	0.1+	1.3-	880109	675	0.0	0.4+
871015	691	0.2+	0.9-	871221	691	0.5+	0.1-	880115	688	1.9+	0.3-
871017	675	0.6+	0.1+	871222	691	0.7-	0.7-	880115	688	2.1+	0.7-
871018	675	1.1-	2.1+	871222	691	0.4-	0.8-	881220	675	0.3+	0.1+
871019	801	0.5+	0.8+	871222	691	0.8+	0.4-	881224	675	0.3-	0.1-
871019	675	2.6-	0.6+	871227	675	0.4-	1.1+				

1987 UB1 = 1977 AO1 = 1983 RT5
Id. T. Kobayashi, S. Nakano
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 196.90065 (1950.0) P Q
n 0.25976805 Peri. 354.32564 +0.97991966 -0.19699621
a 2.4326507 Node 17.12977 +0.18680052 +0.85293962
e 0.2403571 Incl. 6.00663 +0.06973542 +0.48341131
P 3.79 H 13.0 G 0.25
Residuals in seconds of arc

770113	095	0.2-	0.9-	871113	399	0.5+	0.3+	871115	400	0.0	2.9+
830902	095	0.1+	0.1+	871113	399	0.2+	1.1+	871115	400	1.8+	2.6+
871025	399	0.3+	0.6-	871114	392	0.3-	1.4-	871115	400	(3.2+	4.6+)
871025	399	0.3+	1.5-	871114	392	0.7+	0.6-	871122	399	0.3-	0.2-
871025	399	0.4-	1.7-	871114	400	2.3-	2.0+	871122	399	0.9+	0.2-
871031	399	0.0	1.2-	871114	400	0.8-	2.2+	871212	399	0.7-	0.6-
871031	399	0.5+	1.9-	871114	400	0.0	2.2+	871212	399	0.5+	0.8-
871031	399	0.1+	0.6-	871115	392	1.6-	1.7-				

1987 VE1 = 1987 UH = 1976 YW3 = 1982 KO
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 52.89822 (1950.0) P Q
n 0.26224824 Peri. 277.25009 -0.95568446 -0.27967858
a 2.4172839 Node 246.54365 +0.29377427 -0.88577973
e 0.0610734 Incl. 5.74995 +0.01907600 -0.37037030
P 3.76 H 12.5 G 0.25
Residuals in seconds of arc

761218	095	0.6-	3.9+	871114	399	0.2+	0.2- Y	871120	399	2.2-	1.2-
820521	688	0.9-	0.5-	871114	399	0.5+	1.0+ Y	871120	399	3.1-	1.7-
820521	688	0.1-	0.2+	871115	399	1.6+	2.2-	871128	399	1.5+	1.3-
820528	688	1.1+	0.7-	871115	399	2.3+	1.1-	871128	399	1.3+	1.8-
820528	688	0.8-	1.0-	871115	399	0.8+	1.3-	890226	399	0.6-	1.1-
871019	887	1.4+	0.3-	871120	399	1.7-	1.5+	890226	399	0.2+	0.7-
871019	887	1.2+	0.1+	871120	399	1.6-	0.3+	890226	399	0.0	0.9-
871114	399	0.4+	0.8+ Y	871120	399	1.5-	0.8-	890226	399	1.1-	0.6-

1987 XD = 1966 WN = 1983 AL4
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 50.36014 (1950.0) P Q
n 0.18736858 Peri. 40.73403 -0.88317860 -0.43299062
a 3.0246310 Node 112.74798 +0.36331826 -0.87467892
e 0.0423744 Incl. 11.27554 +0.29664019 -0.21784377
P 5.26 H 11.0 G 0.25
Residuals in seconds of arc

661123 095	3.4-	13.8+	871217 400	2.1-	2.7-	871221 400	0.6-	0.5-
830106 095	0.3+	2.5+	871217 400	1.9-	2.0-	880110 400	2.0+	0.2-
871214 400	1.5+	1.0-	871217 400	0.1+	1.4-	880110 400	1.1+	2.4-
871214 400	0.5+	2.3-	871221 400	0.9+	1.0-	880110 400	0.3+	1.2-
871214 400	2.2+	0.9-	871221 400	0.1+	0.4-			

1988 AK = 1980 KA1 = 1989 AQ1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Bardwell
M 46.74145 (1950.0) P Q
n 0.08056694 Peri. 6.61831 -0.03920494 -0.92588692
a 5.3092396 Node 86.11414 +0.89859499 -0.19713804
e 0.0635722 Incl. 22.12490 +0.43702404 +0.32228871
P 12.23 H 9.0 G 0.25
Residuals in seconds of arc

800517 095	0.4+	0.7+	880121 511	(4.4-	5.1+)	890110 675	0.7+	0.4+
880115 688	1.0+	0.3-	880122 511	0.3+	0.6+	890111 675	0.1+	0.4+
880115 688	1.1-	0.5-	880122 511	0.9-	1.5+	890130 675	0.1+	1.1-
880121 511	(4.5-	4.7+)	890109 675	1.2-	1.5+	890130 675	0.5+	1.4-

1988 BA2 = 1981 UL16 = 1986 WY3
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 245.45334 (1950.0) P Q
n 0.20294148 Peri. 219.04718 +0.97571963 -0.21831518
a 2.8678496 Node 153.54706 +0.20954057 +0.90707144
e 0.0397329 Incl. 2.26404 +0.06374916 +0.35994428
P 4.86 H 12.0 G 0.25
Residuals in seconds of arc

811024 095	0.3-	0.8+	880126 399	0.4+	1.4-		880214 809	1.0+	1.0-	
861125 010	(11.9-	0.0)	880126 399	0.6+	1.6-		880214 809	1.2+	1.5-	
861125 010	2.0-	0.3-	880126 399	0.9-	1.5-	Y	880214 809	1.2+	1.9-	
861125 010	2.2+	0.4-	880207 399	1.0-	0.0		880216 809	0.0	0.6+	
880122 303	0.3-	0.1-	880207 399	0.4+	2.4+		880216 809	0.2+	0.7+	
880122 303	0.4-	0.2+	880208 399	0.9-	0.8+		880217 809	0.5-	0.2+	
880122 303	0.4-	1.0+	880208 399	1.6-	0.9+		880217 809	1.1+	0.3-	
880123 303	0.5+	0.2+	880211 399	0.4+	1.3+		880218 399	0.2-	0.6-	
880123 303	(6.8+	7.6-)	880211 399	1.0-	0.8+		880218 399	1.4+	1.7+	
880123 303	(6.4+	7.1-)	880213 809	0.6-	1.1-		880218 399	(3.1+	1.3-)	
880125 399	1.3-	1.2+	880213 809	0.5-	1.0-		880219 399	0.2-	0.5+	
880125 399	0.4+	0.8-	880214 809	(10.7-	1.5+)		880219 399	(3.4-	1.9+)	
880125 399	1.0+	0.5+	880214 809	(10.2-	1.4+)					

1988 BH5
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Marsden
M 130.86093 (1950.0) P Q
n 0.23776881 Peri. 267.00975 -0.96873434 -0.14600138
a 2.5804790 Node 264.53328 +0.21320139 -0.90337232
e 0.1163649 Incl. 11.62522 -0.12688164 -0.40323944
P 4.15 H 13.5 G 0.25

Residuals in seconds of arc

840422	413	0.1-	0.9+		880128	413	1.4-	0.5-		880312	413	1.2+	0.2-
840422	413	0.6+	1.5-		880128	413	0.2-	1.3+		880312	413	0.0	0.1-
840531	413	0.6+	0.2+		880223	413	0.1+	0.7-					
840531	413	1.3-	0.4+		880223	413	0.1+	0.4+					

1988 BK5

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

M	160.74421		(1950.0)	P	Q
n	0.17126732	Peri.	141.96133	+0.02718968	-0.96663811
a	3.2113470	Node	305.04512	+0.82380316	+0.16599084
e	0.1387556	Incl.	18.12562	+0.56622352	-0.19508409
P	5.75	H	12.5	G 0.25	

Residuals in seconds of arc

770411	413	0.8-	0.2+		850724	413	1.4-	0.9-		880223	413	0.8-	1.0-
770411	413	0.7+	0.2-		850724	413	3.2+	0.2+		880223	413	0.3-	0.5+
850724	413	0.6-	0.5+		880128	413	0.9-	0.5-		880312	413	0.3+	0.3-
850724	413	1.2-	0.4+		880128	413	1.6+	0.7+		880312	413	0.3+	0.6+

1988 CC = 1981 UD20 = 1983 CV3

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

M	213.71246		(1950.0)	P	Q
n	0.19007984	Peri.	216.94024	+0.90606169	-0.42141236
a	2.9958004	Node	167.80722	+0.41845770	+0.87893173
e	0.1197773	Incl.	10.43699	+0.06281212	+0.22336212
P	5.19	H	11.5	G 0.25	

Residuals in seconds of arc

811027	095	0.2-	1.0+		880215	897	0.5-	1.5+		880310	897	0.0	1.4-
830208	330	1.2+	6.3+		880215	897	2.0-	1.0-		880312	897	0.2+	0.9+
880210	897	(5.1-	0.8+)		880219	897	0.0	1.4-		880312	897	2.5+	1.3-
880210	897	1.6+	2.3-		880219	897	2.4-	1.4-					

1988 DO

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

M	186.42265		(1950.0)	P	Q
n	0.28157765	Peri.	187.99384	-0.59069957	-0.79615983
a	2.3053567	Node	298.30990	+0.74827152	-0.47967400
e	0.1401112	Incl.	8.56789	+0.30193337	-0.36883923
P	3.50	H	14.5	G 0.25	

Residuals in seconds of arc

780706	413	1.0-	0.9+		880222	413	1.4+	0.3+		880412	413	1.0-	0.1-
780706	413	0.9+	1.4-		880223	413	0.6-	0.1-		880414	413	0.1+	0.1+
861004	413	0.3-	0.1-		880223	413	0.6+	0.4+		880420	413	0.3+	1.3+
861004	413	1.0+	1.2-		880225	413	1.3-	0.6-		880420	413	0.4-	0.4+
880219	413	1.9-	0.2+		880225	413	1.1+	0.6-		880420	413	0.6+	0.4-
880219	413	3.4+	1.2-		880310	413	0.8-	0.2-		880420	413	0.2-	1.0-
880222	413	2.6-	0.5+		880310	413	1.0+	0.7-		880420	413	0.6-	0.9+

1988 PJ1 = 1970 EW1

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

M	124.86326		(1950.0)	P	Q
n	0.23516720	Peri.	339.62312	+0.44797458	+0.87706310
a	2.5994756	Node	316.49626	-0.78137011	+0.28980582
e	0.1166301	Incl.	14.59211	-0.43448766	+0.38310954
P	4.19	H	13.5	G 0.25	

Residuals in seconds of arc

700303	805	0.5-	0.1+	880810	413	0.8-	0.4-	880820	413	0.5+	0.2+
700303	805	0.3+	0.2+	880811	413	0.8-	0.5-	880918	413	0.5+	0.4+
700303	805	0.1+	0.3-	880811	413	1.3+	0.1-	881010	413	0.4-	0.7-
840608	413	0.4+	0.5-	880819	413	1.0+	2.0+	881011	413	0.4-	0.0
840608	413	0.1+	0.1-	880819	413	1.3+	0.7-				
880810	413	0.7-	0.0	880820	413	1.7-	0.0				

1988 WB = 1978 SB6 = 1981 RH4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi

M	40.81578		(1950.0)	P	Q
n	0.29983719	Peri.	183.27832	-0.38309461	-0.92330443
a	2.2107810	Node	289.24859	+0.84810241	-0.33985611
e	0.0559928	Incl.	1.65943	+0.36600658	-0.17890433
P	3.29	H	14.0	G 0.25	

Residuals in seconds of arc

780928	095	1.4+	1.4-	881129	385	1.6-	0.1-	881205	385	3.1-	0.6-
781004	095	0.2-	2.1-	881129	385	3.4-	0.9-	881209	372	2.6+	0.1+
810905	095	0.8-	2.0+	881130	372	(5.9+	5.1+)	881209	372	2.5+	0.1+
881127	385	0.4-	0.4+	881130	372	2.0+	1.2+	881211	372	0.3-	1.0+
881127	385	1.0+	0.4+	881205	385	(0.8+	4.1-)	881212	372	0.2+	0.9+

1989 AC = 1934 CT

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Bardwell

M	77.47560		(1950.0)	P	Q
n	0.24800995	Peri.	275.02025	+0.74098965	-0.67148518
a	2.5089383	Node	127.16172	+0.61925240	+0.67955383
e	0.6411408	Incl.	0.46594	+0.25973219	+0.29548984
P	3.97	H	15.3	G 0.25	

Residuals in seconds of arc

340210	012	0.5-	2.9+	890110	978	(5.6+	2.3-)	890116	413	0.6-	0.2-
340214	012	1.4+	0.0	890110	494	0.5+	0.1+	890117	413	0.7+	0.5-
880717	675	0.5+	1.0-	890110	978	(2.8+	2.7+)	890117	413	0.1+	0.1+
880717	675	0.3-	1.8-	890111	657	0.5+	0.7+	890117	413	0.5+	0.1+
890103	675	1.3+	0.3+	890111	978	0.2+	0.9+	890124	385	(3.1+	1.8-)
890103	675	(15.4-	3.8-)	890111	494	0.8-	0.1-	890124	385	0.3+	0.9-
890104	010	0.5-	0.1-	890111	494	0.5-	0.3+	890124	385	1.2-	0.5-
890104	010	0.6+	1.7-	890112	881	(1.1-	2.3-)	890125	091	(2.7-	1.7-)
890104	010	(7.1+	0.1-)	890112	405	(2.2+	1.2+)	890126	010	0.5-	0.6+
890104	010	(6.7+	1.7-)	890112	503	0.4+	0.8-	890126	010	0.9+	0.2+
890106	010	(7.7+	0.4+)	890112	881	0.5-	0.3+	890126	010	1.8+	0.4+
890106	010	(8.1+	2.0+)	890112	413	0.8+	0.4+	890126	010	0.5+	0.2+
890106	801	0.9+	0.4+	890112	406	1.3+	1.0+	890126	503	0.2+	0.1+
890106	801	(3.2+	2.6+)	890112	406	1.0-	0.1+	890126	091	(1.4-	2.9+)
890107	675	(0.4+	4.0+)	890112	405	(7.1-	2.3-)	890127	413	0.5-	0.3-
890107	675	1.1-	0.3+	890112	403	0.8-	0.4-	890127	413	0.0	0.1+
890107	675	0.1-	1.3+	890112	403	2.0-	1.5+	890127	888	0.4-	0.6+
890107	675	(6.6-	0.5+)	890112	405	(1.5+	2.6-)	890127	888	0.2-	0.3+
890108	372	(2.5-	1.8-)	890112	413	1.4+	0.9-	890127	091	(2.9+	0.5-)
890108	372	(2.7-	0.6-)	890113	399	1.2+	1.2-	890127	568	1.1-	1.7-
890108	010	2.1-	0.5+	890113	406	1.9-	0.2+	890127	413	0.1+	0.6+
890108	010	(2.5+	2.7+)	890113	399	0.1-	0.8-	890128	413	0.1-	0.5-
890109	978	0.0	0.4-	890116	888	1.0-	0.1-	890128	413	0.3+	0.4-
890109	978	(2.7+	2.4+)	890116	385	1.6+	0.1+	890129	888	0.2-	0.3-
890109	978	0.6-	0.8-	890116	413	0.2-	0.0	890129	888	0.2-	0.2-
890109	372	1.6+	0.0	890116	413	0.9-	0.3+	890130	413	0.3+	0.1+
890110	978	(5.3+	1.7-)	890116	888	0.0	0.1-	890130	413	0.4+	0.3-
890110	494	0.4-	0.1-	890116	385	0.3-	2.0-	890130	413	0.2+	0.0
890110	801	0.0	0.9+	890116	385	(2.7-	1.2+)	890131	413	0.1+	0.1-

890131 413 0.5+ 0.4- 890203 568 1.1+ 0.3- 890205 071 1.2+ 0.1+
890131 413 0.2- 0.1- 890203 888 0.9- 0.2+ 890206 071 0.1+ 0.3-
890201 413 0.0 0.5+ 890203 888 0.4- 0.1+ 890206 071 0.4- 1.4-
890201 413 0.0 0.5+ 890204 071 (5.0+ 0.2+) 890208 801 0.3+ 0.6+
890201 413 0.1+ 1.0+ 890204 071 (4.9+ 0.3-) 890211 888 0.7- 0.2-
890202 801 0.6+ 0.3- 890205 071 0.2- 0.7- 890211 888 0.5- 0.7-
890203 568 0.5- 1.6- 890205 071 (5.7+ 0.4-)

1989 AU = 1935 YH = 1948 VS = 1948 WS = 1952 OH1 = 1961 TK1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 129.41504 (1950.0) P Q
n 0.22400742 Peri. 268.45101 +0.99023519 -0.03856824
a 2.6851040 Node 93.74533 +0.08801449 +0.91819224
e 0.3101429 Incl. 7.71538 -0.10810971 +0.39425309
P 4.40 H 12.0 G 0.25
Residuals in seconds of arc (or two decimals in units of degrees)
351226 078 4.7+ 2.2+ 890102 881 1.8- 0.8+ 890113 399 1.6- 0.4+
481107 020(0.10+ 0.05+)X 890104 399 0.0 0.0 890113 399 1.2- 1.3-
481127 012 4.2- 6.5- 890104 399 0.3+ 0.3+ 890128 881 1.5+ 0.3-
520724 078 0.8- 4.6- Y 890104 399 0.5- 0.4- 890128 881 0.2+ 0.3+
611011 760 0.8+ 2.7+ 890104 399 0.1+ 0.1- 890129 399 2.4+ 0.2-
611011 760 0.9+ 2.6+ 890106 399 1.0- 0.2- 890129 399 2.5+ 0.2-
890101 881 1.2- 0.2+ 890106 399 0.6+ 0.1+ 890129 399 2.4+ 0.5-
890101 881 2.0- 1.8- 890113 399 0.4- 1.9+ 890129 399 1.1+ 1.1-

1989 AZ
Epoch 1989 Jan. 14.0 ET = JDE 2447540.5 Bardwell
M 26.25179 (1950.0) P Q
n 0.46568918 Peri. 111.49456 +0.66851995 -0.72037237
a 1.6484355 Node 295.17078 +0.58407142 +0.66237627
e 0.4690921 Incl. 11.78092 +0.46037121 +0.20572147
P 2.12 H 19.4 G 0.25
From 9 observations 1989 Jan. 8-Feb. 2.

1989 AG1 = 1966 UU = 1971 OO1
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 Kobayashi
M 164.70638 (1950.0) P Q
n 0.19010373 Peri. 71.46403 +0.97938872 +0.13305370
a 2.9955434 Node 280.67257 -0.18579196 +0.88860027
e 0.1278115 Incl. 8.89613 +0.07924061 +0.43896044
P 5.18 H 11.5 G 0.25
Residuals in seconds of arc
661020 095 0.0 0.2- 890109 372 0.2- 1.2+ 890202 372 0.1+ 0.1-
710729 095 0.1- 0.2+ 890109 372 0.9+ 0.8- 890202 372 1.0- 0.0
890105 372 0.8- 1.1- 890112 372 1.4+ 0.1+
890105 372 0.2+ 0.2- 890115 372 0.7- 1.0+

1989 AK1 = 1971 QN1 = 1982 UD9 = 1982 VV9 = 1987 TC
Id. L. V. Zhuravleva (d), S. Nakano
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano
M 108.39734 (1950.0) P Q
n 0.18935527 Peri. 104.86805 +0.60186772 -0.78744088
a 3.0034378 Node 307.34704 +0.65313982 +0.58120765
e 0.0221442 Incl. 9.63177 +0.45952543 +0.20526695
P 5.21 H 12.0 G 0.25

Residuals in seconds of arc

710830 095	1.4+	2.4-	890113 399	0.3-	0.6-	890115 399	2.0-	0.3-
821021 095	0.6-	0.9-	890113 399	0.0	0.5-	890130 399	1.0-	1.4+
821111 095	1.5-	6.1+	890115 399	3.2+	1.7-	890130 399	0.5+	1.1+
871002 054	1.3+	2.5-	890115 399	2.3+	1.5-	890130 399	0.5+	1.0+
890113 399	0.9-	1.9-	890115 399	2.1-	0.2-	890130 399	1.7-	0.4-

1989 AN1 = 1976 GD6 = 1980 BW5

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 32.84386		(1950.0)		P	Q
n 0.21684903	Peri.	94.51798		-0.76728262	-0.64077079
a 2.7438754	Node	45.63554		+0.57282418	-0.70318918
e 0.0917349	Incl.	2.10596		+0.28835714	-0.30811973
P 4.55	H	12.5	G	0.25	

Residuals in seconds of arc

760402 095	0.1+	0.2+	881231 400	0.4+	1.1-	890106 399	1.0+	0.2+
800123 095	0.2-	0.9-	890106 399	1.1+	1.3+	890113 399	0.6-	1.7-
881231 400	1.5-	1.2+	890106 399	0.5-	2.0+	890113 399	1.0+	1.3-
881231 400	1.4-	2.0-	890106 399	1.2+	0.7+	890113 399	0.7-	1.7+

1989 AZ1 = 1979 UH3 = 1983 NV = 1985 BE

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M 132.80625		(1950.0)		P	Q
n 0.23678811	Peri.	259.53739		+0.95573980	-0.21232276
a 2.5875991	Node	112.47926		+0.26876402	+0.91169225
e 0.2016184	Incl.	12.73342		-0.11969683	+0.35176168
P 4.16	H	12.0	G	0.25	

Residuals in seconds of arc

791025 808	0.3+	1.6+	850116 046	1.3-	0.7+	890104 046	2.4+	0.1+
791025 808	0.7-	1.3+	850118 046	1.4-	0.1-	890104 046	1.4+	0.4+
830713 688	1.5+	2.2-	850118 046	1.1+	0.9+	890109 046	3.5-	1.2-
830713 688	0.8-	4.8-	890103 046	1.2+	1.3-	890109 046	2.3-	1.8-
850116 046	1.3+	2.1-	890103 046	1.7+	1.8-			

1989 BJ = 1978 RR16 = 1978 VN = 1980 BV2

Id. H. Oishi; 1978 VN = 1971 DF1 (MPC 12008) is invalid

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Oishi	
M 155.87758		(1950.0)		P	Q
n 0.21131329	Peri.	101.26294		+0.99224897	-0.11535848
a 2.7915948	Node	265.37343		+0.08801719	+0.91487618
e 0.1141040	Incl.	2.65665		+0.08772096	+0.38690307
P 4.66	H	12.6	G	0.25	

Residuals in seconds of arc

780908 010 (8.2- 41.5-)			890128 888	0.4-	0.5-	890205 888	0.5+	0.3+
780909 010	0.1+	0.1-	890128 888	0.8-	0.8-	890205 888	0.5+	0.7-
781030 010	0.8-	0.3+	890129 888	0.2+	0.8-	890207 888	0.4+	0.7+
781101 010	0.3-	0.2-	890129 888	0.1+	0.4-	890207 888	0.7-	0.5+
781101 010	1.0+	0.3+	890203 888	0.1-	0.3+	890210 888	0.7+	0.4+
800124 095	0.3+	0.6+	890203 888	0.9-	0.4+	890210 888	0.3+	0.0

1989 BL = 1951 YW = 1986 WA9

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Oishi	
M 38.99985		(1950.0)		P	Q
n 0.08233734	Peri.	29.20456		-0.28422337	-0.94775204
a 5.2328591	Node	77.62307		+0.84830020	-0.31899604
e 0.1046846	Incl.	8.52856		+0.44677046	+0.00275561
P 11.97	H	10.0	G	0.25	

Residuals in seconds of arc

511223	711	0.2-	1.8-	Y	890128	888	2.2-	2.5+	890207	888	0.7- 0.6+
511223	711	0.1+	2.1+	Y	890129	888	1.6+	2.1-	890207	888	0.1- 0.4+
861130	381	0.4-	0.2+		890129	888	1.4+	1.7-	890210	888	0.5- 0.7+
861130	381	0.1-	0.0		890203	888	0.9+	0.7-	890210	888	0.6- 0.4+
861201	381	1.0+	0.2+		890203	888	0.7+	0.3-	890213	888	(8.0- 1.0-)
861201	381	0.4-	0.5-		890205	888	0.8+	0.4-	890213	888	(7.0- 0.7+)
890128	888	1.4-	0.8+		890205	888	0.2+	0.2-			

1989 BY = 1978 CP = 1978 EU1 = 1980 TH1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Marsden	
M 94.20941		(1950.0)		P	Q
n	0.26781430	Peri.	342.59178	+0.05303618	-0.99712006
a	2.3836788	Node	104.34199	+0.92267763	+0.02817032
e	0.1784602	Incl.	3.20761	+0.38190727	+0.07041321
P	3.68	H	13.0	G 0.25	

Residuals in seconds of arc

780202	330	0.1+	0.5-		890106	413	0.3+	0.6+	890130	400	1.8+ 1.0+
780305	095	0.4-	0.5-		890110	413	1.3-	0.4+	890130	400	1.4+ 3.3+
801005	809	0.3+	0.7-		890110	413	0.0	0.3-	890203	400	2.1- 1.0-
881229	413	0.5-	0.4+		890112	413	0.2+	0.4+	890203	400	0.2+ 3.6-
881229	413	0.7+	1.2+		890113	413	0.3-	1.0-	890207	400	0.4- 0.4+
890104	413	1.9-	0.3+		890113	413	2.1+	1.0-	890207	400	1.0- 1.8-
890104	413	0.3-	0.6-		890115	413	0.1-	0.1+	890207	400	0.3- 0.7-
890106	413	0.7-	0.2-		890130	400	2.1+	2.7+			

1989 BA1 = 1988 VK6 = 1988 XP2

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Marsden	
M 72.94272		(1950.0)		P	Q
n	0.21379299	Peri.	166.31220	+0.56769402	-0.61791484
a	2.7699616	Node	246.08673	+0.68811612	+0.71888636
e	0.1632584	Incl.	36.51622	+0.45190675	-0.31840801
P	4.61	H	13.0	G 0.25	

From 11 observations 1988 Nov. 3-1989 Feb. 6, mean residual 1".7.

1989 CA = 1980 XV

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5				Kobayashi	
M 106.59461		(1950.0)		P	Q
n	0.25921805	Peri.	218.85973	+0.25724142	-0.96614761
a	2.4360856	Node	216.24596	+0.89464786	+0.24578759
e	0.1600821	Incl.	1.90337	+0.36528353	+0.07840442
P	3.80	H	13.5	G 0.25	

Residuals in seconds of arc

801207	330	0.1-	1.8+		890202	875	1.1+	0.9+	890210	875	0.9+ 1.2-
801210	330	0.1+	1.9-		890204	875	1.0-	1.1+	890210	875	0.4- 0.6+
890202	875	0.8+	0.7-		890204	875	1.3-	0.6-			

1989 CT = 1978 EV2 = 1984 YP4

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Marsden	
M 346.06849		(1950.0)		P	Q
n	0.25995155	Peri.	309.83003	-0.75346688	+0.65680542
a	2.4315058	Node	271.24844	-0.59369392	-0.69920227
e	0.1470383	Incl.	1.71408	-0.28251583	-0.28235230
P	3.79	H	13.0	G 0.25	

Residuals in seconds of arc

780305	095	0.5+	1.1+	890106	413	0.6+	0.2+	890208	567	0.2-	0.4-
841228	095	0.2+	1.2+	890110	413	0.4+	0.7+	890209	567	0.2+	0.6-
881229	413	0.4+	0.2+	890110	413	0.3+	0.4-	890209	567	1.2+	0.0
890104	413	1.5+	0.5+	890112	413	3.9-	2.7+	890227	567	0.3+	0.5-
890104	413	0.3-	0.1-	890112	413	0.4+	3.0-	890227	567	1.1-	0.5-
890106	413	1.4+	0.7+	890208	567	1.3-	1.3-				

1989 CL1 = 1973 FX = 1976 UT7

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M	42.77194	(1950.0)		P	Q
n	0.18259800	Peri.	78.29683	-0.86961669	-0.49242753
a	3.0770856	Node	72.19392	+0.43705069	-0.80149878
e	0.2095309	Incl.	2.15515	+0.22968133	-0.33928576
P	5.40	H	13.0	G 0.25	

Residuals in seconds of arc

730326	095	2.0-	4.4-	761022	381	0.4-	0.8-	890207	391	2.6-	0.2+
761022	381	0.5+	0.5-	761024	381	1.5+	0.2-	890301	391	4.3+	0.8-
761022	381	0.8-	0.9-	890206	391	1.4-	1.6+	890301	391	2.2+	1.0+
761022	381	0.5+	0.8-	890207	391	1.7-	0.6+				

1989 CQ1 = 1977 AP1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M	87.75986	(1950.0)		P	Q
n	0.08597403	Peri.	85.36463	+0.62285116	-0.76840704
a	5.0842323	Node	324.70906	+0.57808885	+0.57863996
e	0.0954327	Incl.	14.74001	+0.52713348	+0.27336132
P	11.46	H	10.0	G 0.25	

Residuals in seconds of arc

770113	095	0.8-	1.4+	890114	675	1.3+	0.8-	890202	675	0.3-	0.6+
770120	095	0.8+	1.4-	890114	675	0.2-	0.1-				
890111	675	1.0-	0.6+	890202	675	0.1+	0.3-				

1989 DA

Epoch 1989 Feb. 23.0 ET = JDE 2447580.5					
M	5.99799	(1950.0)		P	Q
n	0.31311409	Peri.	138.65635	-0.61328232	-0.78958199
a	2.1478353	Node	349.11424	+0.69211945	-0.52432777
e	0.5406386	Incl.	6.41402	+0.38059882	-0.31881134
P	3.15	H	19.5	G 0.25	

From 5 observations 1989 Feb. 27-Mar. 6.

6045 P-L = 1971 CG = 1986 LP = 1988 VR1

Epoch 1989 Oct. 1.0 ET = JDE 2447800.5		(J-P)		Nakano	
M	46.26181	(1950.0)		P	Q
n	0.21392915	Peri.	238.99140	+0.11489647	-0.99199316
a	2.7687916	Node	204.57492	+0.94894276	+0.12521151
e	0.1989014	Incl.	7.24180	+0.29377958	-0.01648189
P	4.61	H	13.0	G 0.25	

Residuals in seconds of arc

600924	675	0.0	0.3-	710201	029	0.4+	1.1+	881107	896	1.3+	2.0+ Y
600925	675	0.8+	0.7+	710202	029	0.1-	0.3+	881108	896	(2.4+	5.4+)Y
600926	675	0.4+	0.4+	860601	010	(18.9+	18.0-)	881108	896	0.6+	3.3+ Y
600928	675	0.1-	0.2+	860601	010	(25.1+	15.5-)	881112	386	0.3+	2.6-
601017	675	0.1-	0.1+	881103	033	0.5-	0.5-	881112	386	0.2+	1.8-
601022	675	0.7-	0.2+	881105	033	0.9-	1.0-	881210	386	1.4-	0.1-
601024	675	0.3-	0.1+	881106	033	0.7-	0.5-	881210	386	1.0-	1.6-
601026	675	0.6-	0.3+	881107	896	2.0+	1.2+ Y				

4379 T-3 = 1989 CB
Epoch 1989 Oct. 1.0 ET = JDE 2447800.5 (J-P) Nakano

M	70.95412	(1950.0)	P	Q
n	0.28614350	Peri. 337.70991	-0.67871665	-0.73325107
a	2.2807674	Node 154.97443	+0.68756955	-0.65409174
e	0.0981993	Incl. 5.57116	+0.25805391	-0.18576023
P	3.44	H 14.0	G 0.25	

Residuals in seconds of arc

771016	675	0.5-	0.5+	771022	675	0.6-	0.2-	890210	875	1.7-	0.8+
771016	675	0.0	1.1+	771022	675	1.2+	1.2+	890210	875	0.8-	0.3+
771017	675	0.1-	0.2-	890202	875	0.1-	0.2+	890227	875	1.1-	0.1+
771017	675	0.2-	0.7-	890202	875	1.1+	1.4-	890227	875	1.4+	0.0
771021	675	0.2+	0.9-	890204	875	0.6+	0.2-				
771021	675	0.0	0.6-	890204	875	0.7+	0.3+				

* * * * *

EPHEMERIDES.

1989 DA a,e,i = 2.15, 0.54, 6 Elements MPC 14360

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	11 01.22	+01 22.3	0.108	1.101	170.9	8.2	15.4
1989	03 20	11 15.14	-04 08.1					
1989	03 25	11 24.87	-07 38.9	0.166	1.159	166.3	11.7	16.5
1989	03 30	11 32.25	-09 57.4					
1989	04 04	11 38.30	-11 30.1	0.234	1.224	161.2	15.3	17.5
1989	04 09	11 43.66	-12 33.4					
1989	04 14	11 48.72	-13 17.6	0.312	1.294	155.6	18.7	18.4
1989	04 19	11 53.70	-13 49.2					
1989	04 24	11 58.72	-14 12.8	0.401	1.366	149.5	21.9	19.1

1987 UB1 a,e,i = 2.43, 0.24, 6 Elements MPC 14353

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	11 17.80	+09 10.1	1.959	2.947	171.7	2.8	17.1
1989	03 25	11 08.65	+09 47.4					
1989	04 04	11 00.85	+10 13.2	2.066	2.966	148.6	10.1	17.5
1989	04 14	10 55.01	+10 25.3					
1989	04 24	10 51.45	+10 23.3	2.267	2.982	126.9	15.6	17.9

1987 XD a,e,i = 3.02, 0.04, 11 Elements MPC 14354

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	11 20.98	+19 16.8	1.935	2.900	162.7	5.9	15.2
1989	03 25	11 13.77	+20 06.7					
1989	04 04	11 07.74	+20 36.3	2.034	2.902	143.8	11.7	15.5
1989	04 14	11 03.51	+20 44.6					
1989	04 24	11 01.43	+20 33.2	2.218	2.905	124.2	16.6	15.8

1981 RM3 a,e,i = 2.97, 0.19, 3 Elements MPC 14347

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	12 31.01	-04 21.6	2.462	3.433	165.0	4.3	18.0
1989	03 25	12 23.79	-03 29.0					
1989	04 04	12 16.45	-02 34.6	2.458	3.450	171.1	2.6	17.9
1989	04 14	12 09.67	-01 43.3					
1989	04 24	12 04.03	-00 59.2	2.570	3.465	148.1	8.8	18.3
1989	05 04	11 59.92	-00 25.1					
1989	05 14	11 57.59	-00 03.0	2.777	3.479	126.8	13.4	18.6

1988 CC a,e,i = 3.00, 0.12, 10 Elements MPC 14355

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	03 15	14 07.49	-04 44.9	2.515	3.354	141.8	10.6	16.7
1989	03 25	14 03.13	-03 45.2					
1989	04 04	13 57.27	-02 40.9	2.385	3.355	163.1	5.0	16.4
1989	04 14	13 50.42	-01 36.3					
1989	04 24	13 43.26	-00 36.7	2.367	3.354	166.9	3.9	16.3
1989	05 04	13 36.45	+00 13.6					
1989	05 14	13 30.61	+00 51.1	2.461	3.352	146.7	9.5	16.6
1989	05 24	13 26.23	+01 14.0					
1989	06 03	13 23.55	+01 21.9	2.647	3.349	126.3	14.1	16.9

1988 BA2 a,e,i = 2.87, 0.04, 2 Elements MPC 14354

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	04 04	15 18.48	-15 16.7	2.114	2.969	142.3	11.9	16.6
1989	04 14	15 13.45	-14 47.6					
1989	04 24	15 06.63	-14 12.4	1.983	2.965	164.7	5.1	16.2
1989	05 04	14 58.68	-13 33.9					
1989	05 14	14 50.43	-12 55.9	1.958	2.960	170.8	3.1	16.1
1989	05 24	14 42.77	-12 22.3					
1989	06 03	14 36.44	-11 56.5	2.043	2.956	148.5	10.3	16.5
1989	06 13	14 31.98	-11 41.3					
1989	06 23	14 29.68	-11 37.6	2.216	2.950	127.8	15.8	16.8

1988 BK5 a,e,i = 3.21, 0.14, 18 Elements MPC 14355

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	04 04	15 31.86	-42 08.9	2.816	3.529	128.7	12.8	18.1
1989	04 14	15 26.30	-42 32.3					
1989	04 24	15 18.75	-42 38.5	2.668	3.546	145.9	9.2	17.9
1989	05 04	15 09.85	-42 25.3					
1989	05 14	15 00.49	-41 52.4	2.613	3.561	156.2	6.6	17.8
1989	05 24	14 51.60	-41 02.2					
1989	06 03	14 44.00	-39 59.1	2.664	3.575	149.5	8.3	17.9
1989	06 13	14 38.29	-38 48.9					
1989	06 23	14 34.81	-37 37.3	2.814	3.589	133.4	11.9	18.2

1981 EK25 a,e,i = 2.44, 0.18, 2 Elements MPC 14345

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	04 04	15 54.13	-23 25.1	1.433	2.232	132.2	19.4	17.9
1989	04 14	15 53.01	-23 33.3					
1989	04 24	15 48.62	-23 29.9	1.251	2.195	152.9	12.0	17.3
1989	05 04	15 41.34	-23 13.8					
1989	05 14	15 32.06	-22 45.3	1.152	2.160	175.0	2.4	16.7
1989	05 24	15 22.19	-22 07.6					
1989	06 03	15 13.22	-21 25.9	1.147	2.127	159.5	9.6	17.0
1989	06 13	15 06.50	-20 47.2					
1989	06 23	15 02.89	-20 17.5	1.229	2.098	138.0	18.9	17.4

1988 ED a,e,i = 2.60, 0.10, 13 Elements MPC 13035

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	05 14	17 56.17	-41 57.7	1.965	2.811	-1.31	-1.8	16.9
1989	05 24	17 48.21	-42 29.0					
1989	06 03	17 37.77	-42 43.8	1.865	2.823	-1.54	-0.8	16.6
1989	06 13	17 25.96	-42 38.1					
1989	06 23	17 14.19	-42 11.0	1.863	2.834	-1.68	+0.6	16.6
1989	07 03	17 03.81	-41 25.6					
1989	07 13	16 55.88	-40 27.5	1.963	2.843	-1.63	+1.5	16.9
1989	07 23	16 50.98	-39 23.5					
1989	08 02	16 49.25	-38 19.0	2.146	2.851	-1.43	+1.6	17.2

1983 RM3 a,e,i = 2.23, 0.14, 7 Elements MPC 12964

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	17 59.48	-32 23.2	1.672	2.545	141.8	14.2	17.9
1989	05 24	17 51.72	-32 32.6					
1989	06 03	17 41.35	-32 31.4	1.561	2.549	163.2	6.6	17.4
1989	06 13	17 29.44	-32 16.6					
1989	06 23	17 17.44	-31 48.0	1.551	2.551	166.7	5.3	17.4
1989	07 03	17 06.73	-31 08.7					
1989	07 13	16 58.45	-30 23.5	1.644	2.550	145.8	12.9	17.8
1989	07 23	16 53.24	-29 37.9					
1989	08 02	16 51.30	-28 55.9	1.819	2.546	125.5	18.9	18.2

1981 PK a,e,i = 2.59, 0.27, 12 Elements MPC 12205

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	17 56.77	-29 32.7	1.660	2.540	142.9	13.9	16.8
1989	05 24	17 50.74	-29 05.1					
1989	06 03	17 42.03	-28 26.7	1.487	2.481	165.0	6.1	16.3
1989	06 13	17 31.51	-27 36.4					
1989	06 23	17 20.47	-26 35.3	1.414	2.420	169.6	4.3	16.0
1989	07 03	17 10.30	-25 27.3					
1989	07 13	17 02.22	-24 18.0	1.443	2.360	146.8	13.6	16.3
1989	07 23	16 57.10	-23 12.9					
1989	08 02	16 55.29	-22 16.1	1.552	2.299	125.9	20.9	16.7

1982 WE a,e,i = 2.62, 0.16, 14 Elements MPC 12949

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	17 59.41	-31 08.8	2.188	3.049	142.1	11.8	17.7
1989	05 24	17 52.27	-31 56.3					
1989	06 03	17 42.99	-32 38.0	2.070	3.054	162.8	5.6	17.4
1989	06 13	17 32.37	-33 10.6					
1989	06 23	17 21.45	-33 31.8	2.060	3.056	166.2	4.5	17.3
1989	07 03	17 11.31	-33 41.7					
1989	07 13	17 02.92	-33 42.4	2.159	3.057	146.3	10.6	17.7
1989	07 23	16 56.93	-33 37.0					
1989	08 02	16 53.65	-33 28.9	2.346	3.055	126.1	15.6	18.0

1941 HC a,e,i = 3.02, 0.05, 11 Elements MPC 13049

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	17 53.22	-11 14.0	2.214	3.079	142.6	11.5	15.8
1989	05 24	17 47.67	-11 07.8					
1989	06 03	17 40.53	-11 09.2	2.106	3.087	162.1	5.8	15.5
1989	06 13	17 32.46	-11 18.9					
1989	06 23	17 24.25	-11 37.0	2.103	3.095	164.8	4.9	15.4
1989	07 03	17 16.69	-12 03.0					
1989	07 13	17 10.48	-12 36.1	2.206	3.103	146.2	10.5	15.8
1989	07 23	17 06.13	-13 14.7					
1989	08 02	17 03.90	-13 57.4	2.397	3.111	126.6	15.2	16.1

(4041) 1988 DN1 a,e,i = 3.01, 0.06, 11 Elements MPC 14339

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	17 53.94	-16 30.8	1.962	2.839	143.5	12.2	15.5
1989	05 24	17 48.45	-16 48.4					
1989	06 03	17 41.08	-17 11.2	1.848	2.840	165.1	5.3	15.1
1989	06 13	17 32.55	-17 38.6					
1989	06 23	17 23.80	-18 09.7	1.837	2.842	169.2	3.8	15.0
1989	07 03	17 15.75	-18 43.5					
1989	07 13	17 09.25	-19 19.4	1.932	2.844	147.8	11.0	15.4
1989	07 23	17 04.90	-19 56.7					
1989	08 02	17 03.00	-20 35.1	2.114	2.848	127.5	16.4	15.8

(3869) 1981 JE a,e,i = 2.45, 0.13, 4 Elements MPC 13453

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	17 57.91	-22 47.1	1.384	2.274	143.1	15.5	16.1
1989	05 24	17 53.02	-22 21.1					
1989	06 03	17 45.39	-21 52.4	1.255	2.250	165.2	6.6	15.6
1989	06 13	17 35.94	-21 21.4					
1989	06 23	17 26.01	-20 49.7	1.218	2.228	170.8	4.2	15.4
1989	07 03	17 17.02	-20 19.9					
1989	07 13	17 10.21	-19 55.2	1.278	2.207	148.1	14.1	15.9
1989	07 23	17 06.39	-19 37.6					
1989	08 02	17 05.88	-19 28.1	1.413	2.189	128.0	21.4	16.3

1981 ET8 a,e,i = 2.40, 0.06, 4 Elements MPC 10769

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	17 59.90	-19 14.9	1.408	2.294	142.5	15.6	17.8
1989	05 24	17 54.32	-18 48.2					
1989	06 03	17 46.19	-18 23.2	1.312	2.305	164.3	6.8	17.3
1989	06 13	17 36.51	-18 01.2					
1989	06 23	17 26.61	-17 43.4	1.309	2.316	169.5	4.6	17.3
1989	07 03	17 17.76	-17 31.5					
1989	07 13	17 11.07	-17 26.8	1.404	2.329	147.8	13.4	17.8
1989	07 23	17 07.21	-17 29.6					
1989	08 02	17 06.40	-17 39.4	1.577	2.341	127.9	20.0	18.2

1979 SU11 a,e,i = 3.14, 0.17, 3 Elements MPC 11739

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 00.33	-22 50.9	2.243	3.107	142.6	11.4	17.3
1989	05 24	17 55.30	-22 56.0					
1989	06 03	17 48.38	-23 00.8	2.085	3.075	164.5	5.1	16.9
1989	06 13	17 40.18	-23 04.5					
1989	06 23	17 31.53	-23 06.8	2.031	3.042	172.5	2.5	16.7
1989	07 03	17 23.31	-23 07.7					
1989	07 13	17 16.37	-23 08.3	2.086	3.009	149.9	9.7	17.0
1989	07 23	17 11.36	-23 09.7					
1989	08 02	17 08.66	-23 12.7	2.231	2.977	129.1	15.3	17.4

(3783) Morris a,e,i = 2.27, 0.17, 6 Elements MPC 12939

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 03.47	-25 19.8	1.164	2.056	141.8	17.7	15.8
1989	05 24	17 59.63	-26 08.5					
1989	06 03	17 52.28	-26 59.2	1.028	2.020	163.2	8.3	15.2
1989	06 13	17 42.24	-27 47.2					
1989	06 23	17 31.05	-28 27.6	0.977	1.987	171.0	4.6	14.9
1989	07 03	17 20.51	-28 57.8					
1989	07 13	17 12.43	-29 18.3	1.015	1.958	149.0	15.5	15.3
1989	07 23	17 08.02	-29 32.1					
1989	08 02	17 07.80	-29 42.3	1.124	1.932	129.1	24.0	15.8

1976 GR2 a,e,i = 2.16, 0.10, 3 Elements MPC 11341

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 05.94	-17 41.0	1.055	1.947	140.9	19.1	16.4
1989	05 24	18 01.69	-17 30.1					
1989	06 03	17 54.13	-17 25.5	0.966	1.956	162.2	9.1	15.9
1989	06 13	17 44.36	-17 27.9					
1989	06 23	17 34.00	-17 37.3	0.959	1.969	170.8	4.7	15.7
1989	07 03	17 24.71	-17 53.4					
1989	07 13	17 17.94	-18 15.9	1.039	1.984	149.6	15.0	16.3
1989	07 23	17 14.56	-18 43.8					
1989	08 02	17 14.80	-19 15.7	1.191	2.001	130.1	22.8	16.8

1979 QZ1 a,e,i = 3.12, 0.14, 1 Elements MPC 11514

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 04.63	-24 11.6	2.712	3.559	141.6	10.2	18.0
1989	05 24	17 59.15	-24 13.6					
1989	06 03	17 52.12	-24 14.1	2.579	3.563	163.6	4.6	17.7
1989	06 13	17 44.08	-24 12.6					
1989	06 23	17 35.75	-24 08.8	2.555	3.566	173.5	1.9	17.5
1989	07 03	17 27.83	-24 03.1					
1989	07 13	17 21.01	-23 56.4	2.644	3.568	151.0	7.9	17.9
1989	07 23	17 15.79	-23 49.9					
1989	08 02	17 12.50	-23 44.7	2.830	3.568	130.0	12.6	18.2

(3864) 1986 XF a,e,i = 2.61, 0.16, 3 Elements MPC 13445

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 08.68	-26 56.7	2.038	2.891	140.6	12.8	17.8
1989	05 24	18 02.94	-27 11.2					
1989	06 03	17 54.91	-27 22.9	1.885	2.869	162.5	6.1	17.4
1989	06 13	17 45.28	-27 29.6					
1989	06 23	17 35.04	-27 30.0	1.835	2.845	172.3	2.8	17.1
1989	07 03	17 25.26	-27 24.3					
1989	07 13	17 16.98	-27 14.1	1.893	2.820	150.1	10.3	17.5
1989	07 23	17 10.97	-27 01.9					
1989	08 02	17 07.64	-26 50.0	2.041	2.794	129.1	16.4	17.9

(3829) 1988 EM a,e,i = 2.79, 0.16, 8 Elements MPC 13150

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 09.63	-13 26.6	2.082	2.923	139.2	13.1	17.0
1989	05 24	18 04.18	-12 58.7					
1989	06 03	17 56.90	-12 36.5	1.981	2.953	159.6	6.9	16.7
1989	06 13	17 48.45	-12 21.4					
1989	06 23	17 39.69	-12 14.3	1.982	2.982	167.4	4.3	16.6
1989	07 03	17 31.48	-12 15.5					
1989	07 13	17 24.59	-12 24.9	2.090	3.010	149.4	9.9	17.0
1989	07 23	17 19.59	-12 41.4					
1989	08 02	17 16.78	-13 03.9	2.289	3.037	129.4	15.0	17.3

1982 UM2 a,e,i = 2.52, 0.14, 2 Elements MPC 11438

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 11.28	-20 13.1	1.950	2.800	139.9	13.5	18.2
1989	05 24	18 05.87	-20 07.4					
1989	06 03	17 58.20	-20 03.2	1.801	2.783	162.0	6.5	17.7
1989	06 13	17 48.94	-20 00.1					
1989	06 23	17 39.04	-19 58.0	1.752	2.764	173.2	2.5	17.5
1989	07 03	17 29.55	-19 57.3					
1989	07 13	17 21.47	-19 58.6	1.812	2.744	150.7	10.4	17.9
1989	07 23	17 15.55	-20 02.8					
1989	08 02	17 12.22	-20 10.5	1.961	2.722	129.6	16.7	18.2

(3798) 2402 T-3 a,e,i = 2.17, 0.08, 2 Elements MPC 12957

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 14.98	-27 01.4	1.192	2.065	139.2	18.7	16.4
1989	05 24	18 10.02	-27 06.4					
1989	06 03	18 01.62	-27 06.8	1.095	2.081	161.1	9.1	15.9
1989	06 13	17 50.85	-26 59.9					
1989	06 23	17 39.35	-26 44.5	1.085	2.097	173.5	3.2	15.7
1989	07 03	17 28.86	-26 22.1					
1989	07 13	17 20.85	-25 56.5	1.167	2.115	151.0	13.5	16.2
1989	07 23	17 16.24	-25 31.8					
1989	08 02	17 15.28	-25 10.8	1.327	2.133	130.7	21.1	16.8

1936 YD a,e,i = 2.74, 0.12, 15 Elements MPC 13155

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 20.59	-23 41.0	2.110	2.940	137.9	13.3	16.6
1989	05 24	18 15.59	-24 27.5					
1989	06 03	18 08.23	-25 16.9	1.947	2.920	159.9	6.9	16.2
1989	06 13	17 59.04	-26 06.3					
1989	06 23	17 48.90	-26 52.4	1.886	2.900	175.1	1.7	15.9
1989	07 03	17 38.82	-27 33.1					
1989	07 13	17 29.86	-28 07.3	1.936	2.879	152.9	9.3	16.3
1989	07 23	17 22.90	-28 35.7					
1989	08 02	17 18.47	-28 59.6	2.082	2.857	131.5	15.4	16.6

1982 WM a,e,i = 2.44, 0.16, 5 Elements MPC 13606

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 20.63	-20 45.0	1.798	2.635	137.7	14.9	17.1
1989	05 24	18 15.94	-20 54.9					
1989	06 03	18 08.63	-21 07.9	1.631	2.606	159.7	7.8	16.6
1989	06 13	17 59.27	-21 22.8					
1989	06 23	17 48.86	-21 38.3	1.561	2.575	176.0	1.6	16.2
1989	07 03	17 38.54	-21 53.3					
1989	07 13	17 29.52	-22 08.0	1.596	2.544	152.9	10.5	16.6
1989	07 23	17 22.77	-22 22.8					
1989	08 02	17 18.85	-22 38.5	1.722	2.511	131.4	17.7	17.0

1988 CO a,e,i = 2.47, 0.01, 4 Elements MPC 12952

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 23.52	-28 31.6	1.599	2.440	137.2	16.4	16.2
1989	05 24	18 19.11	-28 59.4					
1989	06 03	18 11.70	-29 24.6	1.469	2.441	158.5	8.8	15.8
1989	06 13	18 02.04	-29 43.5					
1989	06 23	17 51.33	-29 53.0	1.431	2.443	172.9	2.9	15.5
1989	07 03	17 40.93	-29 52.2					
1989	07 13	17 32.19	-29 42.8	1.494	2.445	153.2	10.8	15.9
1989	07 23	17 26.09	-29 27.9					
1989	08 02	17 23.14	-29 11.0	1.644	2.447	132.5	17.8	16.3

2110 P-L a,e,i = 2.62, 0.15, 2 Elements MPC 12698

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 21.10	-25 17.8	1.559	2.406	137.8	16.4	18.6
1989	05 24	18 17.76	-25 18.7					
1989	06 03	18 11.51	-25 18.3	1.402	2.378	159.2	8.7	18.1
1989	06 13	18 02.97	-25 14.7					
1989	06 23	17 53.24	-25 06.8	1.336	2.352	177.0	1.3	17.6
1989	07 03	17 43.62	-24 54.4					
1989	07 13	17 35.45	-24 39.2	1.369	2.327	154.4	10.9	18.1
1989	07 23	17 29.79	-24 23.5					
1989	08 02	17 27.21	-24 09.5	1.487	2.305	133.4	18.7	18.5

(3810) 1985 DX a,e,i = 2.25, 0.11, 7 Elements MPC 13036

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 27.57	-20 31.1	1.368	2.210	136.1	18.5	16.5
1989	05 24	18 22.91	-19 50.1					
1989	06 03	18 15.17	-19 09.9	1.263	2.235	157.9	9.8	16.1
1989	06 13	18 05.22	-18 31.8					
1989	06 23	17 54.38	-17 57.1	1.247	2.260	174.1	2.7	15.8
1989	07 03	17 44.08	-17 27.9					
1989	07 13	17 35.61	-17 06.2	1.330	2.285	153.4	11.5	16.3
1989	07 23	17 29.87	-16 52.9					
1989	08 02	17 27.24	-16 48.0	1.497	2.309	132.6	18.9	16.8

1983 TN1 a,e,i = 2.24, 0.04, 3 Elements MPC 13170

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 05 14	18 25.97	-21 28.7	1.455	2.296	136.6	17.6	16.4
1989 05 24	18 21.81	-21 10.3					
1989 06 03	18 14.58	-20 52.8	1.315	2.288	158.3	9.4	15.9
1989 06 13	18 04.97	-20 35.8					
1989 06 23	17 54.18	-20 19.4	1.265	2.280	176.1	1.7	15.5
1989 07 03	17 43.60	-20 04.4					
1989 07 13	17 34.65	-19 52.3	1.314	2.271	153.8	11.4	16.0
1989 07 23	17 28.35	-19 44.6					
1989 08 02	17 25.25	-19 42.2	1.448	2.261	132.6	19.3	16.4

1988 BK a,e,i = 2.88, 0.22, 12 Elements MPC 14198

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 05 14	18 24.76	-08 18.1	1.620	2.435	134.3	17.3	16.3
1989 05 24	18 21.00	-08 11.1					
1989 06 03	18 14.82	-08 17.7	1.524	2.474	153.6	10.5	16.0
1989 06 13	18 06.90	-08 39.5					
1989 06 23	17 58.21	-09 16.0	1.517	2.515	165.8	5.7	15.8
1989 07 03	17 49.80	-10 05.2					
1989 07 13	17 42.71	-11 04.0	1.610	2.557	152.9	10.4	16.2
1989 07 23	17 37.67	-12 08.6					
1989 08 02	17 35.11	-13 15.9	1.793	2.601	133.8	16.3	16.6

6053 P-L a,e,i = 2.61, 0.20, 3 Elements MPC 12699

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 05 14	18 22.59	-19 24.6	1.315	2.168	137.2	18.5	17.6
1989 05 24	18 20.85	-18 57.8					
1989 06 03	18 16.03	-18 33.8	1.171	2.144	157.5	10.4	17.1
1989 06 13	18 08.73	-18 13.7					
1989 06 23	18 00.07	-17 58.5	1.110	2.124	174.5	2.7	16.6
1989 07 03	17 51.38	-17 49.0					
1989 07 13	17 44.09	-17 46.2	1.141	2.109	155.5	11.5	17.0
1989 07 23	17 39.34	-17 50.3					
1989 08 02	17 37.74	-18 00.7	1.252	2.099	135.3	19.9	17.5

1981 ET19 a,e,i = 2.41, 0.14, 2 Elements MPC 10822

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 05 14	18 26.70	-20 31.5	1.215	2.067	136.3	19.7	19.4
1989 05 24	18 24.52	-20 30.0					
1989 06 03	18 19.00	-20 33.1	1.100	2.073	157.2	10.9	18.9
1989 06 13	18 10.84	-20 40.1					
1989 06 23	18 01.32	-20 49.7	1.066	2.082	177.3	1.3	18.4
1989 07 03	17 51.93	-21 00.9					
1989 07 13	17 44.19	-21 13.4	1.124	2.095	156.2	11.3	19.0
1989 07 23	17 39.21	-21 27.3					
1989 08 02	17 37.54	-21 42.7	1.263	2.111	135.6	19.6	19.5

(4019) 1981 EK14 a,e,i = 2.34, 0.13, 2 Elements MPC 14331

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989 05 14	18 33.79	-23 15.3	1.757	2.571	134.9	16.2	18.9
1989 05 24	18 29.57	-23 09.6					
1989 06 03	18 22.52	-23 04.2	1.591	2.554	156.7	9.0	18.5
1989 06 13	18 13.20	-22 57.9					
1989 06 23	18 02.59	-22 49.6	1.519	2.535	179.3	0.3	17.9
1989 07 03	17 51.88	-22 39.2					
1989 07 13	17 42.34	-22 27.7	1.552	2.515	155.9	9.5	18.4
1989 07 23	17 35.01	-22 16.6					
1989 08 02	17 30.50	-22 07.8	1.678	2.492	134.0	17.0	18.8

(3853) 1981 WG1 a,e,i = 2.81, 0.13, 9 Elements MPC 13304

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 31.06	-12 55.8	2.375	3.162	134.0	13.3	17.6
1989	05 24	18 26.95	-12 45.5					
1989	06 03	18 20.87	-12 41.7	2.206	3.152	154.5	8.0	17.2
1989	06 13	18 13.27	-12 45.1					
1989	06 23	18 04.80	-12 55.9	2.136	3.141	169.5	3.4	16.9
1989	07 03	17 56.24	-13 13.9					
1989	07 13	17 48.40	-13 38.2	2.176	3.128	155.2	7.8	17.2
1989	07 23	17 41.99	-14 07.7					
1989	08 02	17 37.49	-14 41.2	2.315	3.113	134.7	13.4	17.5

(3989) 1986 RM a,e,i = 2.26, 0.19, 3 Elements MPC 14177

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 36.93	-28 01.9	1.574	2.392	134.3	17.6	18.0
1989	05 24	18 33.51	-28 15.8					
1989	06 03	18 26.75	-28 28.2	1.392	2.353	155.4	10.3	17.5
1989	06 13	18 17.11	-28 35.7					
1989	06 23	18 05.64	-28 34.8	1.298	2.312	174.8	2.3	16.9
1989	07 03	17 53.75	-28 23.8					
1989	07 13	17 43.05	-28 03.7	1.305	2.270	155.8	10.6	17.2
1989	07 23	17 34.90	-27 37.8					
1989	08 02	17 30.11	-27 10.2	1.399	2.227	134.1	19.1	17.6

1983 JQ a,e,i = 3.21, 0.17, 3 Elements MPC 14190

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 29.64	-20 58.0	1.861	2.679	135.7	15.3	16.7
1989	05 24	18 27.01	-21 02.3					
1989	06 03	18 21.96	-21 09.9	1.712	2.673	156.6	8.7	16.3
1989	06 13	18 15.00	-21 19.9					
1989	06 23	18 06.96	-21 31.2	1.655	2.671	178.0	0.8	15.8
1989	07 03	17 58.82	-21 43.0					
1989	07 13	17 51.62	-21 54.8	1.702	2.671	158.0	8.2	16.3
1989	07 23	17 46.21	-22 06.6					
1989	08 02	17 43.15	-22 18.8	1.841	2.674	137.0	15.0	16.7

1985 QN a,e,i = 2.76, 0.14, 2 Elements MPC 10302

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 31.62	-20 46.1	1.709	2.529	135.2	16.4	16.5
1989	05 24	18 28.97	-20 47.6					
1989	06 03	18 23.62	-20 52.7	1.544	2.506	156.2	9.4	16.0
1989	06 13	18 16.06	-21 00.7					
1989	06 23	18 07.15	-21 10.5	1.468	2.484	177.6	1.0	15.4
1989	07 03	17 58.01	-21 21.1					
1989	07 13	17 49.83	-21 32.1	1.494	2.464	157.5	9.1	15.9
1989	07 23	17 43.66	-21 43.6					
1989	08 02	17 40.14	-21 56.0	1.611	2.446	136.2	16.7	16.3

1984 EZ a,e,i = 2.67, 0.12, 13 Elements MPC 10034

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 31.62	-04 15.7	1.577	2.369	131.3	18.7	16.2
1989	05 24	18 28.84	-03 38.7					
1989	06 03	18 23.47	-03 17.5	1.457	2.384	148.8	12.7	15.9
1989	06 13	18 16.09	-03 16.1					
1989	06 23	18 07.62	-03 36.2	1.419	2.400	160.1	8.3	15.7
1989	07 03	17 59.12	-04 17.3					
1989	07 13	17 51.69	-05 16.5	1.476	2.419	151.6	11.5	15.9
1989	07 23	17 46.23	-06 28.8					
1989	08 02	17 43.26	-07 49.1	1.619	2.439	134.4	17.3	16.3

1983 WL a,e,i = 2.33, 0.09, 10 Elements MPC 10039

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 41.73	-27 07.2	1.743	2.544	133.2	16.8	17.5
1989	05 24	18 37.70	-28 00.9					
1989	06 03	18 30.57	-28 57.1	1.592	2.545	154.5	9.9	17.1
1989	06 13	18 20.85	-29 51.2					
1989	06 23	18 09.53	-30 38.0	1.533	2.545	172.7	2.9	16.7
1989	07 03	17 57.89	-31 13.7					
1989	07 13	17 47.35	-31 37.1	1.580	2.542	155.9	9.4	17.1
1989	07 23	17 39.09	-31 49.7					
1989	08 02	17 33.84	-31 54.5	1.721	2.538	134.6	16.5	17.5

1986 TB3 a,e,i = 2.27, 0.18, 5 Elements MPC 11733

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 28.74	-14 00.7	1.073	1.924	134.8	21.9	16.5
1989	05 24	18 28.59	-13 19.7					
1989	06 03	18 24.96	-12 47.8	0.937	1.900	153.6	13.7	15.9
1989	06 13	18 18.32	-12 29.2					
1989	06 23	18 09.80	-12 26.6	0.873	1.881	168.9	6.0	15.5
1989	07 03	18 00.89	-12 40.9					
1989	07 13	17 53.27	-13 11.0	0.892	1.867	156.1	12.7	15.8
1989	07 23	17 48.35	-13 53.6					
1989	08 02	17 46.91	-14 44.6	0.984	1.860	136.9	21.9	16.2

1988 BZ a,e,i = 2.35, 0.17, 24 Elements MPC 13040

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	19 03.01	-54 37.5	1.824	2.539	124.7	19.1	16.7
1989	05 24	18 56.28	-55 35.5					
1989	06 03	18 44.60	-56 15.1	1.715	2.569	139.1	15.0	16.5
1989	06 13	18 28.99	-56 25.8					
1989	06 23	18 11.48	-55 59.9	1.683	2.598	147.4	12.2	16.3
1989	07 03	17 54.56	-54 56.0					
1989	07 13	17 40.47	-53 19.8	1.742	2.624	142.7	13.6	16.5
1989	07 23	17 30.54	-51 22.2					
1989	08 02	17 25.11	-49 14.5	1.889	2.648	129.1	17.3	16.8

(3889) 1972 RT3 a,e,i = 2.68, 0.22, 4 Elements MPC 13478

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 35.02	-20 17.1	1.737	2.548	134.3	16.5	16.9
1989	05 24	18 32.51	-20 21.2					
1989	06 03	18 27.23	-20 29.7	1.543	2.501	155.3	9.7	16.4
1989	06 13	18 19.55	-20 42.2					
1989	06 23	18 10.27	-20 57.3	1.439	2.454	177.1	1.2	15.8
1989	07 03	18 00.48	-21 13.7					
1989	07 13	17 51.46	-21 30.7	1.436	2.408	157.9	9.1	16.1
1989	07 23	17 44.36	-21 47.8					
1989	08 02	17 39.97	-22 05.6	1.524	2.364	136.2	17.3	16.5

1981 RP2 a,e,i = 2.62, 0.18, 12 Elements MPC 13152

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 37.88	-35 15.2	1.350	2.173	133.5	19.7	14.7
1989	05 24	18 35.93	-35 00.8					
1989	06 03	18 30.28	-34 34.6	1.207	2.162	153.2	12.2	14.2
1989	06 13	18 21.60	-33 52.4					
1989	06 23	18 11.22	-32 52.2	1.146	2.155	170.4	4.5	13.8
1989	07 03	18 00.80	-31 35.4					
1989	07 13	17 51.98	-30 07.6	1.179	2.152	157.3	10.5	14.1
1989	07 23	17 46.02	-28 36.6					
1989	08 02	17 43.48	-27 09.1	1.298	2.154	137.0	18.7	14.6

(3760) Poutanen a,e,i = 2.54, 0.18, 11 Elements MPC 12790

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 40.88	-14 09.2	1.458	2.262	132.0	19.4	16.1
1989	05 24	18 37.92	-14 29.2					
1989	06 03	18 31.97	-15 01.2	1.348	2.298	152.9	11.6	15.7
1989	06 13	18 23.62	-15 44.5					
1989	06 23	18 13.91	-16 36.6	1.323	2.335	172.8	3.1	15.3
1989	07 03	18 04.10	-17 33.9					
1989	07 13	17 55.48	-18 33.1	1.398	2.373	158.4	9.1	15.7
1989	07 23	17 49.06	-19 31.3					
1989	08 02	17 45.44	-20 26.6	1.565	2.412	137.4	16.6	16.3

1977 FN1 a,e,i = 3.15, 0.10, 7 Elements MPC 13310

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 41.90	-29 59.3	2.421	3.198	133.1	13.3	17.1
1989	05 24	18 38.10	-30 31.7					
1989	06 03	18 32.06	-31 02.8	2.274	3.216	153.8	8.0	16.8
1989	06 13	18 24.24	-31 29.6					
1989	06 23	18 15.37	-31 49.4	2.225	3.234	171.3	2.7	16.5
1989	07 03	18 06.32	-32 00.7					
1989	07 13	17 58.01	-32 03.3	2.287	3.251	157.9	6.8	16.8
1989	07 23	17 51.22	-31 58.5					
1989	08 02	17 46.49	-31 48.4	2.449	3.268	137.3	12.2	17.2

1988 CK a,e,i = 2.33, 0.13, 9 Elements MPC 13160

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 58.86	-33 41.7	1.865	2.625	129.3	17.3	17.8
1989	05 24	18 55.31	-34 07.0					
1989	06 03	18 48.51	-34 29.0	1.700	2.625	149.6	11.3	17.4
1989	06 13	18 38.89	-34 43.0					
1989	06 23	18 27.40	-34 44.3	1.622	2.624	167.6	4.8	17.0
1989	07 03	18 15.31	-34 30.4					
1989	07 13	18 04.07	-34 01.6	1.649	2.620	158.2	8.3	17.2
1989	07 23	17 54.93	-33 21.4					
1989	08 02	17 48.66	-32 34.9	1.773	2.614	137.6	15.2	17.6

1982 UQ3 a,e,i = 2.42, 0.19, 1 Elements MPC 13594

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 52.64	-24 15.9	1.833	2.607	130.6	17.1	18.2
1989	05 24	18 50.13	-24 24.1					
1989	06 03	18 44.67	-24 34.9	1.631	2.570	151.7	10.8	17.7
1989	06 13	18 36.55	-24 46.4					
1989	06 23	18 26.51	-24 56.0	1.517	2.531	174.7	2.1	17.1
1989	07 03	18 15.61	-25 01.8					
1989	07 13	18 05.17	-25 02.8	1.507	2.491	161.1	7.6	17.4
1989	07 23	17 56.43	-24 59.8					
1989	08 02	17 50.30	-24 54.4	1.594	2.450	138.6	15.9	17.7

(3858) 1986 TG a,e,i = 2.19, 0.24, 8 Elements MPC 13309

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 43.23	-37 03.9	1.043	1.878	132.2	23.5	16.1
1989	05 24	18 45.78	-38 07.7					
1989	06 03	18 43.88	-39 08.4	0.881	1.826	148.9	16.7	15.5
1989	06 13	18 37.53	-39 57.2					
1989	06 23	18 27.64	-40 23.2	0.784	1.779	162.3	10.0	15.0
1989	07 03	18 16.03	-40 17.2					
1989	07 13	18 05.30	-39 36.6	0.762	1.738	155.3	14.2	15.0
1989	07 23	17 57.84	-38 27.1					
1989	08 02	17 55.06	-36 59.4	0.809	1.705	138.0	23.5	15.4

(3852) 1987 DR6 a,e,i = 3.12, 0.18, 1 Elements MPC 13300

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 51.34	-22 36.4	2.464	3.217	130.8	13.8	17.2
1989	05 24	18 48.64	-22 35.9					
1989	06 03	18 43.77	-22 37.5	2.253	3.183	151.8	8.7	16.8
1989	06 13	18 37.01	-22 40.3					
1989	06 23	18 28.95	-22 43.0	2.135	3.148	174.3	1.8	16.3
1989	07 03	18 20.31	-22 44.9					
1989	07 13	18 11.97	-22 45.4	2.127	3.113	162.7	5.6	16.5
1989	07 23	18 04.75	-22 44.7					
1989	08 02	17 59.31	-22 43.4	2.224	3.077	140.7	12.1	16.8

1981 GP a,e,i = 2.35, 0.32, 23 Elements MPC 13167

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	19 17.31	-51 29.8	2.277	2.957	123.4	16.6	18.4
1989	05 24	19 12.14	-53 02.9					
1989	06 03	19 02.79	-54 26.7	2.154	2.988	138.3	13.1	18.2
1989	06 13	18 49.62	-55 32.1					
1989	06 23	18 33.79	-56 10.7	2.114	3.016	146.8	10.6	18.1
1989	07 03	18 17.05	-56 17.4					
1989	07 13	18 01.47	-55 52.4	2.169	3.040	142.6	11.7	18.2
1989	07 23	17 48.76	-55 01.1					
1989	08 02	17 39.87	-53 51.8	2.314	3.060	129.4	14.9	18.5

1986 TL4 a,e,i = 2.40, 0.20, 3 Elements MPC 11436

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	19 00.72	-24 42.8	1.974	2.724	128.8	16.8	18.4
1989	05 24	18 58.21	-25 02.0					
1989	06 03	18 52.83	-25 25.0	1.769	2.695	149.8	10.9	18.0
1989	06 13	18 44.83	-25 49.4					
1989	06 23	18 34.87	-26 12.1	1.652	2.663	172.5	2.8	17.5
1989	07 03	18 23.93	-26 30.4					
1989	07 13	18 13.22	-26 42.4	1.641	2.629	162.6	6.6	17.6
1989	07 23	18 03.98	-26 48.1					
1989	08 02	17 57.11	-26 48.9	1.731	2.592	140.1	14.5	18.0

(3799) 1979 SL9 a,e,i = 3.14, 0.15, 1 Elements MPC 12962

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	18 56.81	-21 01.3	1.917	2.674	129.4	17.0	15.9
1989	05 24	18 55.52	-20 59.5					
1989	06 03	18 51.64	-21 01.9	1.757	2.682	149.8	11.0	15.6
1989	06 13	18 45.54	-21 08.0					
1989	06 23	18 37.87	-21 16.4	1.682	2.692	171.9	3.0	15.2
1989	07 03	18 29.54	-21 25.7					
1989	07 13	18 21.59	-21 35.0	1.710	2.705	164.9	5.6	15.3
1989	07 23	18 14.97	-21 43.8					
1989	08 02	18 10.39	-21 52.0	1.838	2.719	143.2	12.9	15.8

1986 QN3 a,e,i = 2.23, 0.14, 3 Elements MPC 12127

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	19 01.17	-22 48.4	1.505	2.276	128.6	20.3	18.1
1989	05 24	19 00.56	-23 04.7					
1989	06 03	18 56.56	-23 27.6	1.313	2.244	148.9	13.5	17.5
1989	06 13	18 49.32	-23 55.5					
1989	06 23	18 39.50	-24 25.1	1.200	2.211	171.9	3.7	16.9
1989	07 03	18 28.26	-24 52.6					
1989	07 13	18 17.15	-25 15.1	1.183	2.177	163.7	7.5	17.0
1989	07 23	18 07.79	-25 31.4					
1989	08 02	18 01.34	-25 42.5	1.257	2.144	141.1	17.3	17.5

1985 NE a,e,i = 2.54, 0.20, 7 Elements MPC 10530

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	19 01.74	-33 37.7	1.271	2.060	128.7	22.5	16.0
1989	05 24	19 02.63	-34 21.4					
1989	06 03	18 59.50	-35 03.6	1.149	2.076	147.3	15.3	15.6
1989	06 13	18 52.68	-35 38.2					
1989	06 23	18 43.18	-35 58.3	1.099	2.097	164.9	7.3	15.3
1989	07 03	18 32.56	-35 58.9					
1989	07 13	18 22.67	-35 39.2	1.136	2.122	160.4	9.2	15.5
1989	07 23	18 15.12	-35 02.6					
1989	08 02	18 10.87	-34 15.1	1.259	2.151	141.8	17.0	16.0

1981 CB1 a,e,i = 2.31, 0.15, 6 Elements MPC 8683

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	19 13.43	-28 38.0	1.905	2.632	126.2	18.0	18.3
1989	05 24	19 11.17	-29 13.3					
1989	06 03	19 05.78	-29 51.6	1.732	2.640	146.8	12.1	17.9
1989	06 13	18 57.53	-30 29.2					
1989	06 23	18 47.12	-31 01.2	1.643	2.645	167.8	4.6	17.5
1989	07 03	18 35.60	-31 23.4					
1989	07 13	18 24.30	-31 33.6	1.659	2.648	163.1	6.4	17.6
1989	07 23	18 14.51	-31 32.0					
1989	08 02	18 07.18	-31 21.3	1.776	2.648	141.7	13.7	18.1

1987 YJ a,e,i = 2.24, 0.09, 5 Elements MPC 12951

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	19 13.69	-27 52.7	1.622	2.364	126.1	20.2	17.8
1989	05 24	19 11.96	-28 00.9					
1989	06 03	19 06.77	-28 10.4	1.465	2.379	146.7	13.5	17.4
1989	06 13	18 58.44	-28 18.3					
1989	06 23	18 47.80	-28 20.6	1.388	2.393	169.0	4.6	17.0
1989	07 03	18 36.06	-28 14.4					
1989	07 13	18 24.74	-27 58.9	1.410	2.406	164.7	6.4	17.1
1989	07 23	18 15.23	-27 35.8					
1989	08 02	18 08.48	-27 08.1	1.531	2.417	142.6	14.8	17.6

(3796) 1986 XJ a,e,i = 2.70, 0.15, 7 Elements MPC 12957

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	19 07.60	-23 17.3	1.536	2.292	127.1	20.6	15.5
1989	05 24	19 07.75	-22 46.8					
1989	06 03	19 04.69	-22 17.7	1.375	2.293	146.9	14.0	15.1
1989	06 13	18 58.69	-21 49.8					
1989	06 23	18 50.49	-21 22.4	1.292	2.298	169.1	4.8	14.6
1989	07 03	18 41.18	-20 55.6					
1989	07 13	18 32.10	-20 29.7	1.304	2.306	167.2	5.6	14.7
1989	07 23	18 24.52	-20 05.8					
1989	08 02	18 19.36	-19 45.1	1.410	2.317	145.3	14.5	15.2

1979 SV9 a,e,i = 2.30, 0.14, 5 Elements MPC 11639

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	05 14	19 04.42	-14 42.1	1.337	2.102	126.5	22.7	16.7
1989	05 24	19 05.65	-13 56.3					
1989	06 03	19 03.57	-13 17.5	1.162	2.077	145.1	16.2	16.2
1989	06 13	18 58.30	-12 48.9					
1989	06 23	18 50.45	-12 33.0	1.057	2.054	164.5	7.6	15.7
1989	07 03	18 41.06	-12 31.1					
1989	07 13	18 31.60	-12 43.1	1.038	2.034	163.9	7.9	15.6
1989	07 23	18 23.59	-13 07.1					
1989	08 02	18 18.21	-13 40.4	1.106	2.018	144.2	17.1	16.0

1971 OV a,e,i = 2.36, 0.33, 5 Elements MPC 8785

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	18 59.12	-13 57.0	0.945	1.875	146.3	17.5	17.0
1989	06 13	18 56.04	-13 13.9					
1989	06 23	18 49.94	-12 42.1	0.804	1.804	164.7	8.5	16.3
1989	07 03	18 41.69	-12 25.3					
1989	07 13	18 32.85	-12 26.0	0.739	1.739	164.0	9.3	16.1
1989	07 23	18 25.28	-12 43.8					
1989	08 02	18 20.61	-13 16.5	0.749	1.682	144.7	20.4	16.4
1989	08 12	18 20.02	-13 59.9					
1989	08 22	18 23.98	-14 48.2	0.813	1.636	127.0	29.6	16.8

(3871) 1982 DR2 a,e,i = 3.20, 0.08, 16 Elements MPC 13460

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 08.06	-21 28.8	2.542	3.430	146.0	9.5	17.7
1989	06 13	19 01.60	-21 03.6					
1989	06 23	18 53.82	-20 38.9	2.435	3.436	168.2	3.5	17.3
1989	07 03	18 45.36	-20 14.4					
1989	07 13	18 36.96	-19 50.3	2.440	3.442	168.2	3.5	17.3
1989	07 23	18 29.37	-19 27.2					
1989	08 02	18 23.17	-19 05.8	2.557	3.446	146.1	9.4	17.7
1989	08 12	18 18.81	-18 46.6					
1989	08 22	18 16.50	-18 29.8	2.764	3.450	125.4	13.8	18.0

(3881) 1925 VF a,e,i = 2.45, 0.15, 4 Elements MPC 13472

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 11.95	-26 55.7	1.900	2.796	145.6	11.8	17.2
1989	06 13	19 04.77	-27 22.9					
1989	06 23	18 55.50	-27 48.3	1.783	2.784	167.6	4.5	16.7
1989	07 03	18 44.99	-28 08.6					
1989	07 13	18 34.37	-28 21.2	1.772	2.771	166.5	4.9	16.7
1989	07 23	18 24.80	-28 25.5					
1989	08 02	18 17.24	-28 22.8	1.866	2.755	144.4	12.4	17.1
1989	08 12	18 12.34	-28 14.9					
1989	08 22	18 10.37	-28 03.9	2.041	2.737	123.8	17.9	17.5

1969 TC2 a,e,i = 3.02, 0.12, 12 Elements MPC 11746

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 11.54	-36 21.4	2.029	2.916	144.6	11.6	16.5
1989	06 13	19 05.24	-37 18.0					
1989	06 23	18 56.74	-38 07.0	1.911	2.893	161.5	6.4	16.1
1989	07 03	18 46.87	-38 43.2					
1989	07 13	18 36.75	-39 03.1	1.894	2.870	159.8	7.0	16.1
1989	07 23	18 27.61	-39 06.0					
1989	08 02	18 20.47	-38 53.9	1.977	2.847	142.1	12.6	16.4
1989	08 12	18 16.05	-38 30.5					
1989	08 22	18 14.65	-37 59.5	2.140	2.825	123.4	17.4	16.7

1981 EP26 a,e,i = 2.39, 0.09, 6 Elements MPC 13310

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 12.00	-12 16.5	1.367	2.260	142.8	15.7	17.2
1989	06 13	19 06.07	-12 07.9					
1989	06 23	18 57.88	-12 12.7	1.285	2.276	163.0	7.5	16.8
1989	07 03	18 48.40	-12 30.5					
1989	07 13	18 38.91	-12 59.7	1.295	2.294	165.5	6.4	16.8
1989	07 23	18 30.71	-13 37.1					
1989	08 02	18 24.75	-14 19.6	1.401	2.312	145.9	14.3	17.3
1989	08 12	18 21.66	-15 04.2					
1989	08 22	18 21.66	-15 48.0	1.582	2.331	126.6	20.4	17.7

1985 UB5 a,e,i = 3.01, 0.11, 11 Elements MPC 12317

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 12.33	-08 09.6	2.185	3.042	141.1	12.1	16.8
1989	06 13	19 07.06	-07 40.3					
1989	06 23	19 00.22	-07 21.5	2.049	3.020	159.0	6.9	16.4
1989	07 03	18 52.38	-07 14.6					
1989	07 13	18 44.32	-07 19.9	2.015	2.998	162.2	6.0	16.3
1989	07 23	18 36.87	-07 36.4					
1989	08 02	18 30.74	-08 02.3	2.084	2.977	145.6	11.1	16.6
1989	08 12	18 26.50	-08 35.1					
1989	08 22	18 24.49	-09 12.2	2.238	2.955	126.6	16.0	16.9

1981 EK34 a,e,i = 2.40, 0.16, 1 Elements MPC 14346

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 16.90	-23 34.2	1.122	2.034	144.3	16.9	17.6
1989	06 13	19 11.96	-23 45.4					
1989	06 23	19 04.13	-23 58.9	1.045	2.047	166.3	6.8	17.1
1989	07 03	18 54.55	-24 11.2					
1989	07 13	18 44.81	-24 19.6	1.055	2.064	170.1	4.9	17.1
1989	07 23	18 36.56	-24 22.7					
1989	08 02	18 30.97	-24 21.3	1.155	2.085	147.9	15.0	17.6
1989	08 12	18 28.76	-24 16.5					
1989	08 22	18 30.09	-24 09.1	1.325	2.109	128.5	22.0	18.2

1986 WO1 a,e,i = 2.40, 0.22, 2 Elements MPC 11733

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 19.42	-25 48.7	1.623	2.515	143.9	13.8	18.2
1989	06 13	19 13.29	-26 11.3					
1989	06 23	19 04.49	-26 34.3	1.470	2.468	166.0	5.7	17.7
1989	07 03	18 53.84	-26 53.9					
1989	07 13	18 42.56	-27 06.7	1.415	2.420	168.7	4.7	17.5
1989	07 23	18 32.09	-27 11.0					
1989	08 02	18 23.69	-27 07.7	1.461	2.371	146.0	13.9	17.9
1989	08 12	18 18.29	-26 58.6					
1989	08 22	18 16.34	-26 45.9	1.585	2.321	125.2	20.8	18.2

1979 SU9 a,e,i = 3.12, 0.17, 0 Elements MPC 12010

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 17.05	-22 40.4	2.408	3.285	144.1	10.4	17.1
1989	06 13	19 11.55	-22 50.8					
1989	06 23	19 04.39	-23 02.8	2.259	3.255	166.2	4.3	16.7
1989	07 03	18 56.15	-23 14.8					
1989	07 13	18 47.60	-23 25.1	2.217	3.225	170.9	2.9	16.5
1989	07 23	18 39.58	-23 32.9					
1989	08 02	18 32.83	-23 37.8	2.285	3.194	148.4	9.6	16.9
1989	08 12	18 27.96	-23 40.3					
1989	08 22	18 25.33	-23 40.8	2.444	3.163	127.5	14.7	17.2

1984 DN a,e,i = 2.56, 0.22, 8 Elements MPC 13464

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 21.25	-13 04.5	1.893	2.756	141.0	13.4	18.3
1989	06 13	19 14.80	-13 11.8					
1989	06 23	19 06.53	-13 28.9	1.810	2.795	162.2	6.4	17.9
1989	07 03	18 57.18	-13 54.5					
1989	07 13	18 47.74	-14 26.6	1.830	2.833	168.1	4.2	17.9
1989	07 23	18 39.18	-15 02.8					
1989	08 02	18 32.28	-15 41.0	1.957	2.868	147.9	10.8	18.3
1989	08 12	18 27.60	-16 19.1					
1989	08 22	18 25.41	-16 55.7	2.172	2.901	127.5	16.1	18.8

1983 AA3 a,e,i = 2.67, 0.14, 9 Elements MPC 13311

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 25.04	-34 53.2	2.143	3.009	142.2	11.9	17.7
1989	06 13	19 18.12	-35 37.6					
1989	06 23	19 09.04	-36 15.2	2.041	3.020	161.0	6.3	17.4
1989	07 03	18 58.61	-36 41.5					
1989	07 13	18 47.89	-36 53.3	2.044	3.030	162.9	5.7	17.4
1989	07 23	18 38.06	-36 50.2					
1989	08 02	18 30.04	-36 34.1	2.152	3.038	144.8	11.1	17.7
1989	08 12	18 24.51	-36 08.2					
1989	08 22	18 21.77	-35 36.3	2.346	3.044	125.2	15.7	18.0

1979 MJ5 a,e,i = 2.25, 0.07, 4 Elements MPC 13455

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 25.88	-15 30.9	1.524	2.397	140.6	15.6	17.6
1989	06 13	19 19.94	-15 30.2					
1989	06 23	19 11.53	-15 39.0	1.412	2.401	162.4	7.4	17.1
1989	07 03	19 01.49	-15 56.3					
1989	07 13	18 51.01	-16 20.1	1.396	2.404	169.9	4.3	17.0
1989	07 23	18 41.40	-16 47.9					
1989	08 02	18 33.74	-17 17.7	1.481	2.405	148.5	12.8	17.4
1989	08 12	18 28.82	-17 47.6					
1989	08 22	18 26.98	-18 16.4	1.647	2.405	127.9	19.4	17.8

1982 BQ4 a,e,i = 3.02, 0.03, 11 Elements MPC 13157

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 22.51	-25 32.3	2.088	2.963	143.1	11.8	16.6
1989	06 13	19 17.13	-26 21.3					
1989	06 23	19 09.80	-27 11.6	1.975	2.968	164.7	5.2	16.2
1989	07 03	19 01.17	-27 59.5					
1989	07 13	18 52.16	-28 41.4	1.967	2.973	169.7	3.5	16.1
1989	07 23	18 43.77	-29 15.0					
1989	08 02	18 36.86	-29 39.5	2.067	2.978	148.3	10.3	16.5
1989	08 12	18 32.10	-29 55.7					
1989	08 22	18 29.87	-30 05.0	2.254	2.984	127.9	15.5	16.9

1986 RJ a,e,i = 2.17, 0.19, 3 Elements MPC 11241

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 18.93	-21 40.4	0.903	1.822	143.6	19.3	15.4
1989	06 13	19 16.24	-21 17.6					
1989	06 23	19 10.03	-20 58.5	0.794	1.795	164.6	8.7	14.8
1989	07 03	19 01.30	-20 42.2					
1989	07 13	18 51.75	-20 27.8	0.761	1.773	171.7	4.7	14.5
1989	07 23	18 43.37	-20 14.8					
1989	08 02	18 37.80	-20 03.6	0.807	1.759	149.6	17.0	15.0
1989	08 12	18 36.11	-19 54.3					
1989	08 22	18 38.63	-19 46.3	0.915	1.751	130.7	26.0	15.6

1979 MR6 a,e,i = 2.24, 0.13, 4 Elements MPC 12696

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 25.46	-14 53.2	1.100	1.990	140.5	18.9	18.5
1989	06 13	19 20.94	-14 50.4					
1989	06 23	19 13.46	-15 01.5	1.019	2.009	161.6	9.2	18.1
1989	07 03	19 04.03	-15 25.0					
1989	07 13	18 54.15	-15 58.2	1.022	2.031	170.3	4.9	17.9
1989	07 23	18 45.44	-16 37.0					
1989	08 02	18 39.14	-17 17.8	1.114	2.056	149.7	14.4	18.5
1989	08 12	18 36.06	-17 57.7					
1989	08 22	18 36.48	-18 34.2	1.281	2.082	130.2	21.8	19.1

4068 P-L a,e,i = 2.21, 0.07, 3 Elements MPC 12797

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 32.41	-26 32.9	1.387	2.267	141.0	16.4	17.8
1989	06 13	19 26.89	-26 52.2					
1989	06 23	19 18.28	-27 11.6	1.261	2.252	162.9	7.6	17.2
1989	07 03	19 07.45	-27 26.6					
1989	07 13	18 55.79	-27 33.1	1.226	2.236	171.0	4.1	17.0
1989	07 23	18 44.96	-27 29.4					
1989	08 02	18 36.37	-27 16.7	1.289	2.220	148.7	13.7	17.5
1989	08 12	18 31.01	-26 57.4					
1989	08 22	18 29.30	-26 34.4	1.430	2.203	128.2	21.2	17.9

1978 RG1 a,e,i = 3.21, 0.25, 2 Elements MPC 12443

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 24.53	-20 04.1	1.889	2.760	142.0	13.1	17.3
1989	06 13	19 20.48	-20 11.5					
1989	06 23	19 14.30	-20 24.0	1.725	2.715	163.5	6.1	16.8
1989	07 03	19 06.57	-20 40.0					
1989	07 13	18 58.17	-20 57.7	1.659	2.672	173.3	2.6	16.5
1989	07 23	18 50.14	-21 15.1					
1989	08 02	18 43.45	-21 31.0	1.697	2.630	150.9	10.8	16.8
1989	08 12	18 38.92	-21 44.7					
1989	08 22	18 37.04	-21 56.0	1.821	2.592	130.2	17.3	17.2

1981 EN a,e,i = 2.37, 0.16, 10 Elements MPC 10768

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 31.70	-08 28.6	1.692	2.530	136.9	15.9	18.4
1989	06 13	19 25.94	-08 23.0					
1989	06 23	19 18.00	-08 32.4	1.593	2.559	156.9	9.0	18.1
1989	07 03	19 08.63	-08 56.7					
1989	07 13	18 58.84	-09 34.4	1.589	2.587	165.9	5.5	18.0
1989	07 23	18 49.75	-10 22.2					
1989	08 02	18 42.28	-11 16.4	1.689	2.613	149.3	11.4	18.3
1989	08 12	18 37.15	-12 13.1					
1989	08 22	18 34.69	-13 09.1	1.875	2.637	129.5	17.2	18.8

1951 JQ a,e,i = 2.80, 0.13, 8 Elements MPC 11735

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 32.85	-18 27.4	1.573	2.437	139.8	15.6	16.2
1989	06 13	19 28.56	-17 51.1					
1989	06 23	19 21.83	-17 19.6	1.448	2.431	160.8	7.9	15.7
1989	07 03	19 13.39	-16 52.9					
1989	07 13	19 04.30	-16 31.3	1.417	2.428	172.4	3.2	15.5
1989	07 23	18 55.77	-16 14.7					
1989	08 02	18 48.86	-16 02.8	1.486	2.428	151.9	11.4	15.9
1989	08 12	18 44.37	-15 55.2					
1989	08 22	18 42.72	-15 50.9	1.638	2.431	131.6	18.1	16.3

1987 DX5 a,e,i = 3.02, 0.11, 9 Elements MPC 13302

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 35.93	-28 10.3	2.183	3.033	140.3	12.3	16.8
1989	06 13	19 30.73	-28 13.6					
1989	06 23	19 23.43	-28 14.9	2.029	3.011	161.6	6.1	16.3
1989	07 03	19 14.61	-28 11.7					
1989	07 13	19 05.17	-28 02.0	1.978	2.988	172.2	2.6	16.1
1989	07 23	18 56.09	-27 45.1					
1989	08 02	18 48.31	-27 21.6	2.035	2.965	151.3	9.5	16.5
1989	08 12	18 42.57	-26 53.4					
1989	08 22	18 39.29	-26 22.2	2.184	2.942	130.4	15.2	16.8

(3880) 1984 WK a,e,i = 1.95, 0.08, 18 Elements MPC 13472

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 45.90	-23 14.5	0.982	1.862	137.6	21.5	15.8
1989	06 13	19 40.18	-21 08.9					
1989	06 23	19 30.33	-18 52.4	0.858	1.845	159.4	11.2	15.2
1989	07 03	19 17.45	-16 29.2					
1989	07 13	19 03.39	-14 07.4	0.819	1.829	170.4	5.3	14.9
1989	07 23	18 50.39	-11 57.4					
1989	08 02	18 40.26	-10 08.0	0.871	1.815	148.5	17.0	15.4
1989	08 12	18 34.19	-08 42.8					
1989	08 22	18 32.52	-07 40.2	0.993	1.804	128.3	26.1	15.9

(3891) 1981 EY31 a,e,i = 2.40, 0.18, 2 Elements MPC 13479

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 33.78	-21 30.9	1.093	1.982	140.1	19.2	17.5
1989	06 13	19 30.43	-21 25.4					
1989	06 23	19 23.87	-21 25.6	1.006	1.996	161.5	9.3	17.1
1989	07 03	19 15.05	-21 29.1					
1989	07 13	19 05.45	-21 33.4	1.001	2.016	175.0	2.5	16.8
1989	07 23	18 56.75	-21 36.3					
1989	08 02	18 50.31	-21 37.1	1.085	2.040	152.5	13.3	17.4
1989	08 12	18 47.04	-21 35.9					
1989	08 22	18 47.26	-21 32.5	1.244	2.068	132.6	21.1	18.0

1978 SE3 a,e,i = 2.43, 0.11, 3 Elements MPC 10516

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 37.46	-16 55.6	1.328	2.192	138.3	17.9	16.8
1989	06 13	19 34.14	-16 41.1					
1989	06 23	19 27.91	-16 36.0	1.200	2.180	159.2	9.5	16.3
1989	07 03	19 19.49	-16 39.8					
1989	07 13	19 10.03	-16 51.0	1.158	2.171	173.6	3.0	16.0
1989	07 23	19 00.95	-17 07.2					
1989	08 02	18 53.58	-17 26.4	1.210	2.164	153.2	12.2	16.4
1989	08 12	18 48.94	-17 46.4					
1989	08 22	18 47.55	-18 05.7	1.342	2.160	132.8	20.1	16.9

1972 HR a,e,i = 3.11, 0.15, 6 Elements MPC 13690

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 37.34	-27 03.0	1.810	2.667	139.9	14.2	16.1
1989	06 13	19 33.66	-27 44.2					
1989	06 23	19 27.58	-28 27.1	1.681	2.661	160.6	7.3	15.7
1989	07 03	19 19.69	-29 07.6					
1989	07 13	19 10.96	-29 41.2	1.648	2.658	171.5	3.2	15.5
1989	07 23	19 02.54	-30 04.9					
1989	08 02	18 55.48	-30 17.8	1.718	2.657	152.0	10.3	15.9
1989	08 12	18 50.64	-30 20.6					
1989	08 22	18 48.53	-30 15.1	1.875	2.659	131.8	16.5	16.3

1986 VV6 a,e,i = 2.56, 0.20, 5 Elements MPC 13694

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 44.34	-24 24.6	2.229	3.060	138.1	12.8	17.5
1989	06 13	19 39.08	-24 56.9					
1989	06 23	19 31.65	-25 32.1	2.074	3.049	160.0	6.5	17.1
1989	07 03	19 22.57	-26 07.0					
1989	07 13	19 12.65	-26 38.1	2.022	3.035	174.3	1.9	16.8
1989	07 23	19 02.88	-27 02.9					
1989	08 02	18 54.20	-27 20.1	2.082	3.019	152.6	8.9	17.2
1989	08 12	18 47.43	-27 29.9					
1989	08 22	18 43.07	-27 33.4	2.237	3.000	131.1	14.7	17.6

1978 VK3 a,e,i = 2.57, 0.08, 4 Elements MPC 12958

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 44.85	-18 20.2	1.607	2.448	137.0	16.4	18.2
1989	06 13	19 40.48	-18 04.8					
1989	06 23	19 33.55	-17 56.0	1.490	2.463	158.4	8.7	17.8
1989	07 03	19 24.75	-17 52.9					
1989	07 13	19 15.11	-17 53.9	1.465	2.479	175.1	2.0	17.5
1989	07 23	19 05.86	-17 57.6					
1989	08 02	18 58.07	-18 02.6	1.542	2.495	154.3	10.2	18.0
1989	08 12	18 52.61	-18 08.3					
1989	08 22	18 49.94	-18 13.7	1.708	2.512	133.4	17.0	18.5

1987 DC6 a,e,i = 3.14, 0.14, 7 Elements MPC 13307

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 40.70	-13 59.8	2.714	3.522	136.8	11.4	17.5
1989	06 13	19 36.37	-14 03.6					
1989	06 23	19 30.44	-14 14.6	2.551	3.512	157.7	6.3	17.2
1989	07 03	19 23.35	-14 32.1					
1989	07 13	19 15.65	-14 55.0	2.491	3.501	172.5	2.2	16.9
1989	07 23	19 08.04	-15 21.6					
1989	08 02	19 01.17	-15 50.4	2.543	3.488	154.8	7.1	17.2
1989	08 12	18 55.63	-16 19.6					
1989	08 22	18 51.84	-16 48.1	2.697	3.475	133.8	12.1	17.5

1988 BX3 a,e,i = 2.35, 0.07, 6 Elements MPC 13468

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 45.57	-14 33.9	1.382	2.225	135.8	18.5	16.8
1989	06 13	19 41.59	-14 01.0					
1989	06 23	19 34.76	-13 38.6	1.267	2.236	156.5	10.5	16.3
1989	07 03	19 25.79	-13 27.2					
1989	07 13	19 15.83	-13 26.5	1.239	2.249	171.1	4.0	16.0
1989	07 23	19 06.25	-13 34.8					
1989	08 02	18 58.30	-13 50.0	1.307	2.262	153.7	11.5	16.5
1989	08 12	18 52.92	-14 09.7					
1989	08 22	18 50.62	-14 31.2	1.459	2.277	133.5	18.8	17.0

1978 SY6 a,e,i = 2.44, 0.15, 5 Elements MPC 8797

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 42.54	-14 07.6	1.430	2.275	136.4	17.9	17.4
1989	06 13	19 39.42	-13 34.2					
1989	06 23	19 33.48	-13 10.6	1.276	2.245	156.5	10.4	16.9
1989	07 03	19 25.27	-12 58.2					
1989	07 13	19 15.80	-12 57.0	1.208	2.217	170.6	4.3	16.5
1989	07 23	19 06.40	-13 05.9					
1989	08 02	18 58.37	-13 23.1	1.234	2.191	153.6	11.9	16.8
1989	08 12	18 52.83	-13 45.8					
1989	08 22	18 50.43	-14 11.3	1.343	2.166	133.4	19.8	17.2

1986 TX a,e,i = 2.35, 0.07, 3 Elements MPC 12942

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 44.76	-23 19.4	1.336	2.196	137.9	18.0	16.7
1989	06 13	19 41.47	-23 50.2					
1989	06 23	19 35.02	-24 27.4	1.211	2.191	159.2	9.5	16.2
1989	07 03	19 26.08	-25 06.6					
1989	07 13	19 15.84	-25 42.4	1.173	2.188	175.5	2.1	15.8
1989	07 23	19 05.87	-26 10.5					
1989	08 02	18 57.60	-26 28.8	1.230	2.186	153.5	12.0	16.3
1989	08 12	18 52.18	-26 37.5					
1989	08 22	18 50.20	-26 38.0	1.369	2.186	132.8	19.9	16.8

(3826) Handel a,e,i = 2.24, 0.13, 5 Elements MPC 13149

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 51.06	-14 28.7	1.715	2.531	134.5	16.6	17.4
1989	06 13	19 46.25	-14 16.2					
1989	06 23	19 38.86	-14 13.4	1.573	2.534	155.8	9.5	16.9
1989	07 03	19 29.47	-14 20.1					
1989	07 13	19 19.02	-14 34.8	1.524	2.535	172.4	3.0	16.6
1989	07 23	19 08.72	-14 55.4					
1989	08 02	18 59.68	-15 19.6	1.580	2.533	154.4	10.0	17.0
1989	08 12	18 52.85	-15 45.4					
1989	08 22	18 48.79	-16 10.8	1.727	2.528	133.1	17.0	17.4

1985 VE1 a,e,i = 2.86, 0.07, 3 Elements MPC 11639

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 48.10	-18 16.2	1.909	2.733	136.2	14.9	17.3
1989	06 13	19 44.65	-18 23.9					
1989	06 23	19 38.90	-18 39.2	1.754	2.721	157.4	8.2	16.9
1989	07 03	19 31.34	-19 00.4					
1989	07 13	19 22.75	-19 25.2	1.694	2.709	177.3	1.0	16.4
1989	07 23	19 14.15	-19 51.0					
1989	08 02	19 06.54	-20 15.6	1.738	2.699	156.3	8.7	16.9
1989	08 12	19 00.78	-20 37.5					
1989	08 22	18 57.44	-20 55.9	1.876	2.689	135.0	15.4	17.3

1981 EK23 a,e,i = 2.36, 0.18, 3 Elements MPC 10515

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 45.44	-15 45.7	1.133	1.993	136.2	20.6	17.6
1989	06 13	19 44.44	-15 27.4					
1989	06 23	19 40.19	-15 21.6	0.996	1.969	156.0	12.1	17.0
1989	07 03	19 33.17	-15 29.0					
1989	07 13	19 24.50	-15 48.2	0.936	1.949	173.8	3.2	16.5
1989	07 23	19 15.71	-16 15.9					
1989	08 02	19 08.36	-16 48.4	0.961	1.935	156.6	12.0	16.9
1989	08 12	19 03.78	-17 22.0					
1989	08 22	19 02.72	-17 53.2	1.064	1.927	136.4	21.2	17.4

1940 YE a,e,i = 3.18, 0.17, 16 Elements MPC 10401

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 57.69	-34 20.1	2.885	3.678	135.6	11.1	16.2
1989	06 13	19 52.35	-34 36.2					
1989	06 23	19 45.11	-34 48.7	2.739	3.687	155.3	6.6	16.0
1989	07 03	19 36.44	-34 54.4					
1989	07 13	19 27.05	-34 50.7	2.697	3.695	167.1	3.5	15.8
1989	07 23	19 17.75	-34 36.6					
1989	08 02	19 09.31	-34 12.2	2.769	3.702	153.0	7.2	16.0
1989	08 12	19 02.40	-33 39.2					
1989	08 22	18 57.46	-33 00.0	2.942	3.707	133.0	11.5	16.3

1975 TJ6 a,e,i = 2.37, 0.18, 12 Elements MPC 8674

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 56.14	-14 06.2	1.975	2.771	133.2	15.5	17.9
1989	06 13	19 51.99	-14 32.8					
1989	06 23	19 45.43	-15 11.6	1.803	2.757	154.8	9.0	17.5
1989	07 03	19 36.89	-16 01.1					
1989	07 13	19 27.12	-16 58.3	1.727	2.741	175.0	1.8	17.1
1989	07 23	19 17.13	-17 59.0					
1989	08 02	19 07.96	-18 59.3	1.760	2.722	156.7	8.5	17.4
1989	08 12	19 00.57	-19 56.0					
1989	08 22	18 55.62	-20 46.9	1.893	2.701	134.6	15.5	17.8

1986 XH a,e,i = 2.61, 0.12, 12 Elements MPC 12005

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 58.67	-15 44.1	2.129	2.917	133.1	14.7	18.2
1989	06 13	19 54.20	-15 12.3					
1989	06 23	19 47.52	-14 46.3	1.962	2.910	154.2	8.8	17.8
1989	07 03	19 39.07	-14 26.2					
1989	07 13	19 29.60	-14 11.8	1.891	2.901	172.2	2.7	17.4
1989	07 23	19 20.04	-14 02.6					
1989	08 02	19 11.32	-13 57.8	1.930	2.891	156.8	7.9	17.7
1989	08 12	19 04.25	-13 56.5					
1989	08 22	18 59.40	-13 57.7	2.069	2.879	135.6	14.2	18.1

(3846) 1980 TK5 a,e,i = 2.94, 0.09, 9 Elements MPC 13298

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 54.82	-10 04.0	2.344	3.118	132.2	13.9	17.1
1989	06 13	19 50.87	-09 38.7					
1989	06 23	19 45.05	-09 22.8	2.195	3.129	152.1	8.7	16.8
1989	07 03	19 37.78	-09 17.1					
1989	07 13	19 29.70	-09 21.3	2.140	3.140	167.4	4.1	16.6
1989	07 23	19 21.59	-09 34.4					
1989	08 02	19 14.20	-09 54.7	2.195	3.150	156.3	7.4	16.8
1989	08 12	19 08.20	-10 20.0					
1989	08 22	19 04.08	-10 48.0	2.349	3.159	136.4	12.7	17.1

1981 EG28 a,e,i = 2.34, 0.13, 5 Elements MPC 11150

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	19 54.65	-12 57.6	1.370	2.193	133.2	19.7	18.3
1989	06 13	19 52.78	-12 32.7					
1989	06 23	19 47.88	-12 20.7	1.210	2.165	153.0	12.3	17.7
1989	07 03	19 40.38	-12 23.0					
1989	07 13	19 31.17	-12 39.3	1.129	2.139	170.6	4.4	17.3
1989	07 23	19 21.58	-13 07.4					
1989	08 02	19 13.00	-13 43.8	1.142	2.114	157.2	10.7	17.5
1989	08 12	19 06.72	-14 24.6					
1989	08 22	19 03.58	-15 05.7	1.238	2.092	136.6	19.4	17.9

1988 GH a,e,i = 3.06, 0.07, 10 Elements MPC 13154

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 01.46	-33 47.8	2.308	3.107	134.8	13.4	16.5
1989	06 13	19 57.37	-34 32.6					
1989	06 23	19 50.91	-35 15.6	2.175	3.121	154.0	8.2	16.2
1989	07 03	19 42.57	-35 52.0					
1989	07 13	19 33.15	-36 17.4	2.140	3.134	165.6	4.6	16.0
1989	07 23	19 23.65	-36 29.0					
1989	08 02	19 15.06	-36 26.1	2.211	3.147	152.7	8.5	16.2
1989	08 12	19 08.23	-36 10.1					
1989	08 22	19 03.74	-35 43.8	2.378	3.160	133.4	13.4	16.6

(4009) 1977 EN1 a,e,i = 3.13, 0.15, 2 Elements MPC 14327

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 01.56	-22 11.5	1.910	2.713	133.9	15.6	16.3
1989	06 13	19 58.95	-22 30.8					
1989	06 23	19 53.94	-22 55.8	1.774	2.728	154.8	9.1	16.0
1989	07 03	19 46.97	-23 23.9					
1989	07 13	19 38.81	-23 51.7	1.729	2.745	176.6	1.3	15.5
1989	07 23	19 30.46	-24 15.9					
1989	08 02	19 22.89	-24 34.4	1.790	2.763	159.5	7.4	15.9
1989	08 12	19 17.01	-24 46.3					
1989	08 22	19 13.41	-24 51.5	1.946	2.783	138.2	14.0	16.4

1988 CX1 a,e,i = 2.28, 0.10, 3 Elements MPC 13143

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1989	06 03	20 10.69	-21 11.8	1.259	2.076	-1.92	-8.3	16.5
1989	06 13	20 09.03	-21 04.9					
1989	06 23	20 03.87	-21 06.0	1.136	2.090	-2.24	-9.1	16.0
1989	07 03	19 55.71	-21 12.9					
1989	07 13	19 45.61	-21 21.9	1.092	2.107	-2.44	-8.5	15.5
1989	07 23	19 35.09	-21 29.4					
1989	08 02	19 25.70	-21 33.1	1.140	2.125	-2.36	-7.0	16.0
1989	08 12	19 18.77	-21 32.0					
1989	08 22	19 15.09	-21 26.3	1.275	2.144	-2.05	-5.6	16.5

1975 BF a,e,i = 3.16, 0.16, 1 Elements MPC 10756

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 07.20	-18 49.1	2.796	3.555	131.9	12.3	18.1
1989	06 13	20 03.88	-18 56.8					
1989	06 23	19 58.76	-19 10.0	2.600	3.536	153.0	7.5	17.8
1989	07 03	19 52.13	-19 27.5					
1989	07 13	19 44.51	-19 47.5	2.502	3.516	175.3	1.4	17.4
1989	07 23	19 36.53	-20 08.0					
1989	08 02	19 28.89	-20 27.3	2.517	3.494	161.6	5.3	17.6
1989	08 12	19 22.29	-20 44.1					
1989	08 22	19 17.25	-20 57.5	2.639	3.472	139.6	10.9	17.9

1966 PG a,e,i = 2.79, 0.23, 8 Elements MPC 11852

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 06.22	-08 56.3	1.883	2.643	129.2	17.3	16.3
1989	06 13	20 04.43	-08 22.7					
1989	06 23	20 00.22	-08 00.7	1.675	2.595	148.2	11.9	15.8
1989	07 03	19 53.82	-07 52.3					
1989	07 13	19 45.84	-07 58.8	1.550	2.546	165.3	5.8	15.4
1989	07 23	19 37.14	-08 19.4					
1989	08 02	19 28.76	-08 52.2	1.525	2.499	159.1	8.3	15.4
1989	08 12	19 21.75	-09 33.8					
1989	08 22	19 16.95	-10 20.2	1.594	2.453	139.5	15.5	15.7

1985 JK1 a,e,i = 2.40, 0.18, 3 Elements MPC 13153

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 09.71	-18 27.9	1.196	2.015	131.2	22.2	16.9
1989	06 13	20 09.25	-18 46.1					
1989	06 23	20 05.34	-19 17.9	1.086	2.038	151.5	13.7	16.4
1989	07 03	19 58.44	-20 00.6					
1989	07 13	19 49.54	-20 49.0	1.050	2.065	174.6	2.7	15.9
1989	07 23	19 40.12	-21 36.9					
1989	08 02	19 31.67	-22 18.9	1.106	2.095	162.0	8.6	16.3
1989	08 12	19 25.54	-22 51.9					
1989	08 22	19 22.53	-23 14.7	1.248	2.128	140.5	17.6	16.9

1988 BH5 a,e,i = 2.58, 0.12, 12 Elements MPC 14354

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 16.64	-13 36.1	1.926	2.676	128.3	17.3	17.9
1989	06 13	20 13.14	-12 52.7					
1989	06 23	20 07.15	-12 17.5	1.778	2.699	148.8	11.3	17.5
1989	07 03	19 59.09	-11 51.3					
1989	07 13	19 49.70	-11 34.1	1.717	2.720	168.3	4.4	17.2
1989	07 23	19 39.95	-11 25.4					
1989	08 02	19 30.84	-11 24.0	1.762	2.741	160.6	7.1	17.4
1989	08 12	19 23.30	-11 28.2					
1989	08 22	19 17.97	-11 36.0	1.908	2.760	139.9	13.7	17.8

1987 DS a,e,i = 3.11, 0.14, 3 Elements MPC 11830

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 12.43	-19 38.5	2.781	3.529	130.9	12.5	17.3
1989	06 13	20 09.19	-19 52.9					
1989	06 23	20 04.11	-20 12.9	2.601	3.531	152.0	7.8	17.0
1989	07 03	19 57.50	-20 37.0					
1989	07 13	19 49.86	-21 02.9	2.518	3.531	174.5	1.6	16.6
1989	07 23	19 41.85	-21 28.4					
1989	08 02	19 34.16	-21 51.5	2.549	3.530	162.6	4.9	16.8
1989	08 12	19 27.48	-22 10.9					
1989	08 22	19 22.35	-22 25.7	2.687	3.528	140.6	10.5	17.2

(3754) 1931 FM a,e,i = 3.16, 0.11, 8 Elements MPC 12788

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 13.16	-19 25.2	2.527	3.279	130.7	13.6	15.4
1989	06 13	20 10.26	-19 52.8					
1989	06 23	20 05.40	-20 27.3	2.367	3.297	151.8	8.4	15.1
1989	07 03	19 58.88	-21 06.9					
1989	07 13	19 51.26	-21 48.5	2.302	3.315	174.3	1.7	14.7
1989	07 23	19 43.25	-22 29.1					
1989	08 02	19 35.61	-23 05.9	2.349	3.332	162.7	5.2	14.9
1989	08 12	19 29.06	-23 37.2					
1989	08 22	19 24.18	-24 02.0	2.503	3.348	140.8	11.0	15.3

(3953) 1986 VB6 a,e,i = 2.26, 0.19, 5 Elements MPC 14010

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 10.59	-16 13.0	1.351	2.153	130.5	21.0	17.2
1989	06 13	20 10.54	-16 22.7					
1989	06 23	20 07.28	-16 47.6	1.165	2.110	150.4	13.8	16.6
1989	07 03	20 00.94	-17 27.7					
1989	07 13	19 52.14	-18 20.1	1.054	2.067	173.0	3.4	16.0
1989	07 23	19 42.09	-19 19.4					
1989	08 02	19 32.32	-20 19.2	1.036	2.026	162.4	8.7	16.1
1989	08 12	19 24.44	-21 14.0					
1989	08 22	19 19.68	-21 59.9	1.103	1.988	140.1	19.1	16.6

(4008) 1977 BY a,e,i = 2.36, 0.21, 25 Elements MPC 14327

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 17.26	+09 43.7	2.148	2.775	118.2	18.8	18.0
1989	06 13	20 14.07	+10 19.6					
1989	06 23	20 08.62	+10 34.3	1.989	2.795	134.4	15.1	17.8
1989	07 03	20 01.26	+10 23.6					
1989	07 13	19 52.57	+09 44.8	1.900	2.812	147.7	11.1	17.5
1989	07 23	19 43.40	+08 38.5					
1989	08 02	19 34.62	+07 07.8	1.906	2.826	149.3	10.6	17.5
1989	08 12	19 27.11	+05 18.9					
1989	08 22	19 21.51	+03 19.5	2.010	2.837	137.3	14.0	17.8

1979 SK a,e,i = 2.26, 0.20, 3 Elements MPC 11504

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1989	06 03	20 12.03	-21 39.1	1.235	2.052	131.4	21.8	17.9
1989	06 13	20 12.42	-21 25.7					
1989	06 23	20 09.28	-21 19.6	1.058	2.009	151.1	14.2	17.3
1989	07 03	20 02.76	-21 19.4					
1989	07 13	19 53.57	-21 22.0	0.954	1.968	173.7	3.2	16.6
1989	07 23	19 43.10	-21 23.6					
1989	08 02	19 33.05	-21 21.4	0.938	1.930	162.4	9.1	16.8
1989	08 12	19 25.18	-21 13.7					
1989	08 22	19 20.73	-21 00.8	1.003	1.896	140.4	19.9	17.3