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ERRATA.

MPC	Line	
14973	6 to 7	Delete , the first amateur discovery of a supernova
15967	- 3	Add B. A. Skiff (6)
16245	3	For Gareth read Gareth (Graff)

* * * * *

CORRECTED OBSERVATIONS.

The following observations correct those previously published.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Mag.	N	Obs.
1952 BG2		1952 01	30.30968	09 04 29.67	+19 40 55.2	MPC 4731		2	760
1952 BG2		1952 01	30.34719	09 04 27.67	+19 41 03.3	MPC 4731		2	760
1963 TA1		1963 10	18.32294	02 19 35.53	+01 20 01.3	MPC 5776			760
1963 XA	*	1963 12	15.27708	07 44 07.92	+24 04 04.6	MPC 4141		3	760
1963 XA		1963 12	15.32153	07 44 05.99	+24 04 05.1	MPC12775		3	760
1980 YS		1981 01	04.28681	06 07 24.98	+30 44 06.8	MPC 5880		4	675
1984 AN	*	1984 01	08.23889	06 52 48.34	+21 35 03.5	MPC 8519		5	688
1984 AN		1984 01	08.28472	06 52 45.12	+21 35 24.6	MPC 8519		5	688
1989 SG		1989 09	29.56632	23 48 40.9	-00 11 02	MPC15158			403
1989 SG		1989 09	29.58264	23 48 39.7	-00 11 08	MPC15158			403
1989 UT3	*	1989 10	28.68160	03 13 09.0	+16 49 17	MPC15495	16.5		403
1990 AD		1990 01	14.48993	07 34 29.94	+26 49 56.9	MPC15842			886
85		1964 07	16.25	19 41.6	+00 48	MPC 2352		7	760
402		1952 01	30.30968	08 45 21.43	+17 50 14.2	MPC 7826		2	760
402		1952 01	30.34719	08 45 19.32	+17 50 36.2	MPC 7826		2	760
726		1964 07	16.25	20 00.2	+04 52	MPC 2352		1	760
737		1966 10	20.05	02 56.1	+05 16	MPC 2702		8	020
835		1963 12	15.32153	07 36 52.28	+23 56 41.4	MPC 4140		2	760
1566		1968 06	17.11812	14 52 10	+17 37.0	MPC 2914		4	774
1627		1957 08	30.02118	00 29 19.20	-20 19 05.6	MPC 1685	10.8		076
1685		1973 03	01.32778	12 34 18.25	-26 22 24.7	MPC 3602		9	808
1700		1962 11	24.23258	02 30 12.39	+22 38 56.7	MPC 2867			760
1800		1952 01	30.30968	08 58 42.84	+18 17 10.8	MPC 2697		2	760
1800		1952 01	30.34719	08 58 40.42	+18 17 28.7	MPC 2697		2	760
1980		1977 12	18.09688	07 01 07.84	-10 31 35.4	MPC 5251	16	4	026
1980		1977 12	18.13056	07 01 03.11	-10 32 25.6	MPC 5251		4	026
2531		1952 01	30.30968	09 09 09.91	+24 22 01.3	MPC 5888		2	760
2531		1952 01	30.34719	09 09 07.80	+24 22 19.1	MPC 5888		2	760
2584		1952 01	30.30968	08 46 10.30	+20 30 13.9	MPC 3091		2	760
2584		1952 01	30.34719	08 46 07.60	+20 30 24.2	MPC 3091		2	760
3233		1952 01	30.34719	08 45 36.62	+22 22 40.9	MPC 8767		2	760

3293	1953 12 01.17916	02 18 49.58	+15 59 04.0	MPC 6873			760
3293	1953 12 01.22499	02 18 48.19	+15 58 48.9	MPC 6873			760
3344	1987 11 22.26684	03 42 15.35	+14 16 01.6	MPC12664			688
3433	1963 10 17.15631	01 48 10.55	+18 39 51.1	MPC 4355			760
3433	1963 10 17.19967	01 48 08.13	+18 39 47.1	MPC 4355			760
3672	1964 02 15.10349	08 51 16.67	+27 44 47.1	MPC10605			760
3701	1952 01 30.30968	08 45 41.78	+19 49 03.5	MPC 5888		2	760
3701	1952 01 30.34719	08 45 39.50	+19 49 15.0	MPC 5888		2	760
4366	1952 01 30.30968	08 43 19.89	+20 59 14.0	MPC 3958		2	760
4366	1952 01 30.34719	08 43 17.89	+20 59 19.0	MPC 3958		2	760

Note 1: date corrected by -1 day. 2: time slightly changed. 3: 1963 XA = (4000). 4: date corrected by +1 day. 5: 1984 AN = (3286). 6: object originally given as (82). 7 = 1 + 6. 8: object originally given as (736). 9: time originally given as 3 hours earlier.

* * * * *

DELETED OBSERVATIONS.

The following observations are to be deleted.

Object		Date	UT	R. A. (1950)	Decl.	Reference	Obs.
A904 JC	*	1904 05 13.97947	15 53 00.49	-03 59 28.5	MPC16112		024
1952 BF2	*	1952 01 30.34442	08 49.6	+21 20	MPC 1598		760
1955 DP	*	1955 02 18.09	08 06.0	+24 53	MPC 1223		760
1981 YS1		1976 05 29.64486	18 11 39.69	-17 20 05.5	MPC15796		413
1981 YS1		1976 05 29.67264	18 11 38.47	-17 20 03.6	MPC15796		413
1981 YS1		1984 08 02.56884	21 12 21.16	-13 36 31.4	MPC15796		413
1981 YS1		1984 08 02.60356	21 12 19.68	-13 36 39.5	MPC15796		413
1989 YQ6		1989 11 28.65903	05 24 05.15	+13 38 27.6	MPC15793		402
1989 YQ6		1989 11 28.68785	05 24 03.47	+13 38 35.4	MPC15793		402
1036		1972 07 19.46424	02 18 39.71	+38 04 08.7	MPC 3380		675
1139		1953 08 07.90000	18 32 00.05	-00 39 45.7	MPC 3224		020
1139		1953 08 10.90000	18 29 05.46	-00 49 00.3	MPC 3224		020
1685		1968 01 18.73774	23 50 56.08	+00 34 22.6	MPC 3456		020
1685		1968 01 18.74327	23 50 59.14	+00 34 42.9	MPC 3456		020
1685		1968 01 18.74674	23 51 00.03	+00 34 45.4	MPC 3456		020
1916		1953 09 09.35627	23 59 39.39	+09 01 11.6	MPC 994		754
1916		1953 10 09.87412	23 27 12.29	+17 59 33.6	MPC 1033		012
1916		1953 11 06.84488	23 34 24.86	+19 25 35.7	MPC 1033		012
2074		1978 02 16.78977	12 09 26.00	-35 18 39.4	MPC 9934		323

* * * * *

IDENTIFICATION CHANGES.

Continuation to MPC 16111-16113.

Object		Date	UT	R. A. (1950)	Decl.	Old desig.	Mag.	Obs.
A904 JD	*	1904 05 07.93555	12 59 06.96	+30 59 25.8	A904 HA			024
A904 JD		1904 05 11.96139	12 58 18.09	+31 19 07.5	A904 HA			024
1951 WT2	*	1951 11 26.75289	00 26 19.23	+19 58 07.7	1134			012
1958 XC1	*	1958 12 03.86369	03 40 54.47	+20 44 00.4	1580			024
1971 DH2	*	1971 02 25.92292	10 12 21.73	-12 32 54.8	1139		15.5	076
1976 NQ	*	1976 07 01.26766	18 17 29.61	-58 38 33.4	2023			808
1976 NQ		1976 07 01.30714	18 17 25.46	-58 38 34.0	2023			808
1978 XW1	*	1978 12 04.88527	03 13 54.11	+09 06 49.4	1978 WF		17.0	046
1978 XW1		1978 12 04.90072	03 13 53.24	+09 06 41.0	1978 WF			046
1979 YC10	*	1979 12 18.94221	04 57 02.63	+20 00 36.8	1979 XU1		17.0	095

1982 TO3	*	1982	10	11.17986	00 05 06.94	-16 48 24.9	1982 SS	16.5		688
1982 TO3		1982	10	11.24236	00 05 04.61	-16 48 29.5	1982 SS			688
1987 RP6	*	1987	09	02.90625	22 35 14.15	-02 05 50.0	1987 QB1	16.5V		095
1987 RQ6	*	1987	09	02.90625	22 36 29.98	-01 58 26.8	1987 QC1	16.5V		095

* * * * *

IDENTIFICATIONS.

The following list of identifications with numbered minor planets, by G. V. Williams, continues that on MPC 16113-16114.

A900 YB = (1086)	A908 TB = (1052)	A912 HH = (589)
A917 KF = (875)	A918 OA = (633)	A920 EC = (1604)
1929 DD = (257)	1932 EP = (1073)	1947 FO = (66)
1948 PG1 = (469)	1948 RR1 = (608)	1948 RS1 = (1719)
1949 BS = (642)	1949 QL2 = (1275)	1949 UN1 = (1664)
1951 PP = (2203)	1951 VH = (721)	1953 FU1 = (804)
1955 UW1 = (1415)	1958 XC1 = (2248)	

* * * * *

OBSERVATIONS OF COMETS.

Observations are published here for the following observatory codes:

009 Uecht. 0.25-m Schmidt telescope. Observer W. Bruhin. Measured by U. Hugentobler.
026 Zimmerwald. 0.4-m Schmidt telescope. Observers P. Wild and T. Schildknecht. Measured by U. Hugentobler and P. Wild.
046 Klet. Observers A. Mrkos and Z. Vavrova.
061 Uzhgorod. 0.42-m astrograph. Observers I. I. Goroshchak and E. I. Skrip. From Kiev Komet. Tsirk.
086 Odessa. 0.15-m camera. Observers L. Ya. Skoblikova and Yu. M. Gorbanev. From Kiev Komet. Tsirk.
091 Aurec-sur-Loire. 0.41-m reflector. Observer R. Chanal.
136 Engelhardt Observatory, Kasan. Observers I. A. Dubyago, S. S. Tokhtas'ev, L. A. Urasin and S. K. Fomin. From Kiev Komet. Tsirk.
168 Kourovskaya, Uralskij State University. Observers S. I. Timofeev, V. L. Kaizer, N. V. Matkin, G. S. Romashin, A. R. Tearo, G. T. Kaizer, A. F. Seleznev, E. I. Staritsin, S. M. Timirshin and O. G. Yuminova. From Kiev Komet. Tsirk.
372 Geisei. Observer T. Seki. From Orient. Astron. Assoc. Comet Bull.
381 Kiso. 1.05-m Schmidt. Observer S. Okamura.
385 Oohira. 0.31-m f/5.6 reflector. Observers W. Kakei, M. Kizawa and T. Urata. Measured by T. Urata.
391 Sendai Observatory Ayashi Station. 0.30-m f/3.8 hyperboloid astrocamera and 0.20-m reflector. Observer M. Koishikawa.
400 Kitami. 0.20-m f/4.0 hyperboloid astrocamera. Observer K. Endate. Measured by K. Watanabe.
402 Dynic Astronomical Observatory. 0.6-m reflector. Observer A. Sugie.
404 Yamamoto. 0.2-m reflector. Observer S. Otomo. Measured by M. Koishikawa. Communicated by J. Ossaka.
415 Kambah, near Canberra. Observer D. Herald.
480 Cockfield. Observer M. Mobberley. Communicated by G. M. Hurst.
503 Cambridge. Observer J. D. Shanklin.
561 Piszkesteto. Observer M. Lovas. Measured by I. Toth.
568 Mauna Kea. University of Hawaii 2.2-m telescope and Canada-France-Hawaii 3.8-m telescope. Observer K. J. Meech.

587 Sormano. Observers M. Cavagna, P. Sicoli, A. Testa and G. Vospini.
589 Santa Luci Stroncone. Observer A. Vagnozzi.
657 Victoria. Observers J. Tatum and D. Balam.
675 Palomar. 0.46-m Schmidt. Observers E. Helin, K. Lawrence and B. Roman.
685 Williams. 0.4-m reflector. Observer P. E. Roques. Measured by S. J. Bus.
688 Lowell Observatory, Anderson Mesa Station. Observer S. J. Bus.
695 Kitt Peak. 2.1-m and 4.0-m reflectors. Observers K. J. Meech and M. J. S. Belton. Reduction by K. J. Meech.
807 Cerro Tololo. 0.9-m and 1.5-m telescopes. Observer K. J. Meech.
871 Akou. 0.2-m reflector. Observer K. Kawanishi.
892 YGCO Nagano Station. 0.25-m reflector. Observer S. Hayakawa.
897 YGCO Chiyoda Station. 0.25-m f/3.4 Wright-Schmidt camera. Observer T. Kojima.

Object	Date	UT	R. A. (1950)	Decl.	Mag.	N	Obs.
		Periodic Comet Schwassmann-Wachmann 1					
/1974 II	1988	12 09.26455	21 59 07.15	-08 01 40.9			568
/1974 II	1988	12 09.27730	21 59 07.49	-08 01 38.5			568
/1974 II	1988	12 10.26005	21 59 34.56	-07 59 13.1			568
/1974 II	1988	12 10.27630	21 59 34.96	-07 59 10.9			568
/1974 II	1989	06 02.59579	23 53 15.70	+05 26 52.7			568
/1974 II	1989	06 02.61211	23 53 16.11	+05 26 56.1			568
/1974 II	1989	06 03.59583	23 53 40.38	+05 31 01.7			568
/1974 II	1989	06 03.60866	23 53 40.71	+05 31 04.9			568
/1974 II	1989	08 03.45115	00 01 40.79	+08 09 00.6			568
/1974 II	1989	08 03.46034	00 01 40.72	+08 09 01.0			568
/1974 II	1989	12 28.23091	23 34 57.10	+05 28 09.8			568
/1974 II	1989	12 28.23363	23 34 57.18	+05 28 09.6			568
/1974 II	1989	12 28.24478	23 34 57.41	+05 28 10.4			568
		Periodic Comet Gunn					
/1982 X	1989	04 05.37765	15 19 32.75	-10 16 00.0			807
/1982 X	1989	04 05.38736	15 19 32.59	-10 16 00.2			807
/1982 X	1989	08 03.27986	14 52 11.80	-16 51 30.4			568
/1982 X	1989	08 03.29506	14 52 12.57	-16 51 38.3			568
		Comet Cernis (1983 XII)					
/1983 XII	1989	04 06.18646	16 10 38.58	-55 31 09.3		2	807
/1983 XII	1989	04 06.19766	16 10 38.37	-55 31 09.3		2	807
/1983 XII	1989	04 06.21328	16 10 38.11	-55 31 10.1		2	807
/1983 XII	1989	04 06.22397	16 10 37.77	-55 31 10.2		2	807
		Periodic Comet Smirnova-Chernykh					
/1984 V	1988	12 11.22522	23 48 04.08	-08 25 54.0			568
/1984 V	1988	12 11.25027	23 48 04.45	-08 25 49.5			568
/1984 V	1988	12 11.26714	23 48 04.62	-08 25 45.5			568
/1984 V	1989	01 07.08711	23 58 11.78	-06 37 45.3			807
/1984 V	1989	01 07.09551	23 58 12.06	-06 37 42.1			807
/1984 V	1989	12 29.39829	01 58 20.61	+07 30 39.8			568
/1984 V	1989	12 29.40441	01 58 20.59	+07 30 39.9			568
/1984 V	1989	12 29.41377	01 58 20.57	+07 30 40.9			568
		Periodic Comet Neujmin 1					
/1984 XIX	1988	12 09.55627	09 26 12.30	+24 19 37.1			568
/1984 XIX	1988	12 09.56749	09 26 12.23	+24 19 37.6			568
/1984 XIX	1988	12 09.58194	09 26 12.07	+24 19 38.8			568
/1984 XIX	1988	12 09.59984	09 26 11.86	+24 19 39.6			568

/1984 XIX 1989 02 09.32031 09 06 07.30 +25 57 50.1 568
/1984 XIX 1989 02 09.33449 09 06 06.79 +25 57 51.2 568
/1984 XIX 1989 04 06.06504 08 50 05.96 +26 15 41.9 807
/1984 XIX 1989 04 11.23177 08 49 36.44 +26 12 06.8 695
/1984 XIX 1989 04 11.23667 08 49 36.38 +26 12 05.8 695
/1984 XIX 1989 12 27.59258 09 43 34.14 +21 38 40.8 568
/1984 XIX 1989 12 27.62062 09 43 33.79 +21 38 43.1 568

Periodic Comet Arend-Rigaux

/1984 XXI 1989 04 06.38300 19 53 56.04 -16 14 48.8 807
/1984 XXI 1989 06 02.47912 19 55 22.93 -16 21 32.4 568
/1984 XXI 1989 06 02.48987 19 55 22.73 -16 21 31.8 568
/1984 XXI 1989 06 02.50020 19 55 22.47 -16 21 33.6 568
/1984 XXI 1989 06 02.51235 19 55 22.25 -16 21 33.4 568
/1984 XXI 1989 08 01.38699 19 20 39.65 -18 42 57.9 568
/1984 XXI 1989 08 01.39056 19 20 39.56 -18 42 59.1 568
/1984 XXI 1989 08 01.39384 19 20 39.38 -18 42 59.1 568
/1984 XXI 1989 08 01.39715 19 20 39.22 -18 42 59.4 568
/1984 XXI 1989 08 01.40051 19 20 39.11 -18 43 00.0 568
/1984 XXI 1989 08 03.42325 19 19 23.68 -18 48 30.9 568
/1984 XXI 1989 08 03.42782 19 19 23.52 -18 48 32.1 568
/1984 XXI 1989 08 03.43435 19 19 23.25 -18 48 33.3 568
/1984 XXI 1989 08 03.43760 19 19 23.09 -18 48 33.6 568
/1984 XXI 1989 08 03.44090 19 19 23.03 -18 48 33.5 568
/1984 XXI 1989 08 03.44580 19 19 22.83 -18 48 34.5 568

Comet Shoemaker (1985 XII)

/1985 XII 1988 12 09.36632 03 13 09.76 +11 53 46.5 3 568
/1985 XII 1988 12 09.40160 03 13 08.76 +11 53 47.1 3 568
/1985 XII 1988 12 12.40387 03 11 52.53 +11 53 36.5 568
/1985 XII 1988 12 12.41428 03 11 52.24 +11 53 36.1 568
/1985 XII 1988 12 12.42310 03 11 52.04 +11 53 36.4 568
/1985 XII 1988 12 12.43194 03 11 51.79 +11 53 35.9 568
/1985 XII 1989 12 28.42635 02 50 21.75 +17 02 17.7 568

Periodic Comet Halley

/1986 III 1988 12 10.51512 10 05 03.63 -07 41 11.0 568
/1986 III 1988 12 10.53392 10 05 03.41 -07 41 11.2 568
/1986 III 1989 01 07.26539 09 57 29.39 -07 49 19.8 807
/1986 III 1989 01 08.22374 09 57 08.85 -07 48 54.1 807
/1986 III 1989 04 05.13162 09 23 28.80 -04 37 36.0 807
/1986 III 1989 04 09.17989 09 22 33.71 -04 26 21.6 695
/1986 III 1989 04 09.20090 09 22 33.44 -04 26 19.0 695
/1986 III 1989 04 09.22957 09 22 32.97 -04 26 13.7 695
/1986 III 1989 04 09.25156 09 22 32.69 -04 26 10.1 695
/1986 III 1989 04 09.27403 09 22 32.37 -04 26 06.8 695
/1986 III 1989 04 10.19921 09 22 20.84 -04 23 34.3 695
/1986 III 1989 04 10.22583 09 22 20.48 -04 23 30.0 695
/1986 III 1989 04 10.25246 09 22 20.11 -04 23 25.1 695
/1986 III 1989 04 10.27554 09 22 19.86 -04 23 21.1 695

Periodic Comet Machholz

/1986 VIII 1989 06 02.56516 19 32 58.17 -39 11 01.4 568
/1986 VIII 1989 06 03.54264 19 32 59.15 -39 10 55.1 568
/1986 VIII 1989 08 01.35891 18 38 03.69 -41 31 33.2 568

Comet Churyumov-Solodovnikov (1986 IX)

/1986 IX 1989 01 07.29343 11 46 49.01 -73 14 08.6 807
/1986 IX 1989 01 08.28873 11 46 02.21 -73 18 23.8 807

/1986 IX	1989	04	05.28046	09	46	52.75	-71	43	59.7	807
/1986 IX	1989	04	06.11514	09	46	10.31	-71	38	22.9	807
/1986 IX	1989	04	06.12773	09	46	09.82	-71	38	16.5	807
/1986 IX	1989	04	06.14022	09	46	08.95	-71	38	11.0	807
/1986 IX	1989	04	06.15264	09	46	08.60	-71	38	05.8	807
/1986 IX	1989	04	06.16493	09	46	07.83	-71	38	02.6	807
/1986 IX	1989	04	06.17645	09	46	06.96	-71	37	57.3	807

Comet Shoemaker (1986 XIV)

/1986 XIV	1988	12	09.63409	14	24	17.89	+33	26	08.9	568
/1986 XIV	1988	12	10.62010	14	24	31.99	+33	30	44.2	568
/1986 XIV	1988	12	10.63603	14	24	32.21	+33	30	48.5	568
/1986 XIV	1989	06	01.39161	12	55	46.31	+48	22	09.6	568
/1986 XIV	1989	06	01.43388	12	55	44.79	+48	22	02.4	568
/1986 XIV	1989	06	02.40087	12	55	10.41	+48	19	28.9	568
/1986 XIV	1989	06	02.41623	12	55	09.90	+48	19	26.7	568
/1986 XIV	1989	06	02.44299	12	55	08.93	+48	19	21.8	568
/1986 XIV	1989	08	02.28528	12	41	15.30	+44	29	46.9	568
/1986 XIV	1989	08	02.30957	12	41	15.46	+44	29	41.2	568
/1986 XIV	1989	12	28.52993	13	13	54.73	+45	37	57.9	568

Comet Shoemaker (1987 IV)

/1987 IV	1989	01	08.24815	10	00	51.04	+02	06	46.9	807
/1987 IV	1989	01	08.26619	10	00	50.40	+02	06	44.1	807
/1987 IV	1989	01	09.23380	10	00	20.05	+02	04	09.7	807
/1987 IV	1989	01	09.26234	10	00	19.14	+02	04	05.8	807
/1987 IV	1989	01	09.26987	10	00	18.93	+02	04	04.5	807
/1987 IV	1989	12	29.51709	09	46	57.06	-16	13	34.8	568
/1987 IV	1989	12	29.52467	09	46	56.90	-16	13	36.4	568
/1987 IV	1989	12	29.53238	09	46	56.73	-16	13	38.7	568

Comet Torres (1987 V)

/1987 V	1989	12	27.44813	12	11	22.40	+60	50	06.2	568
/1987 V	1989	12	27.50888	12	11	21.84	+60	50	38.4	568
/1987 V	1989	12	27.51308	12	11	21.73	+60	50	40.2	568
/1987 V	1989	12	27.51481	12	11	21.74	+60	50	41.0	568
/1987 V	1989	12	27.51899	12	11	21.74	+60	50	43.0	568

Comet Wilson (1987 VII)

/1987 VII	1988	12	09.49668	07	20	51.34	+27	34	41.8	4	568
/1987 VII	1988	12	09.50081	07	20	51.16	+27	34	43.0		568
/1987 VII	1988	12	09.50521	07	20	50.94	+27	34	43.6		568
/1987 VII	1988	12	09.51050	07	20	50.68	+27	34	44.4		568
/1987 VII	1988	12	09.51590	07	20	50.39	+27	34	45.4		568
/1987 VII	1988	12	09.52242	07	20	50.12	+27	34	46.8		568
/1987 VII	1988	12	11.41454	07	19	18.68	+27	40	41.5		568
/1987 VII	1988	12	11.42505	07	19	18.24	+27	40	43.8		568
/1987 VII	1988	12	11.43780	07	19	17.56	+27	40	46.3		568
/1987 VII	1989	01	07.18931	06	56	08.77	+28	52	20.9	4	807
/1987 VII	1989	01	07.19595	06	56	08.37	+28	52	22.6		807
/1987 VII	1989	01	07.20601	06	56	07.87	+28	52	22.7		807
/1987 VII	1989	01	09.16192	06	54	25.82	+28	56	27.2		807
/1987 VII	1989	01	09.17258	06	54	25.24	+28	56	28.5		807
/1987 VII	1989	01	09.18150	06	54	24.83	+28	56	29.2		807

Periodic Comet Encke

/1987 XIII	1989	06	01.60266	23	49	16.30	+01	01	46.5	568
/1987 XIII	1989	06	01.61390	23	49	16.51	+01	01	48.7	568
/1987 XIII	1989	06	02.54389	23	49	39.00	+01	05	17.9	568

/1987 XIII 1989 06 02.57535 23 49 39.75 +01 05 23.7 568
/1987 XIII 1989 06 02.59171 23 49 40.13 +01 05 27.9 568
/1987 XIII 1989 08 02.46020 23 48 07.39 +02 21 58.2 568
/1987 XIII 1989 08 02.48175 23 48 06.67 +02 21 55.8 568
/1987 XIII 1989 12 27.22372 22 39 51.65 -04 07 08.3 568
/1987 XIII 1989 12 27.22940 22 39 51.81 -04 07 07.3 568
/1987 XIII 1989 12 27.23509 22 39 51.98 -04 07 06.0 568
/1987 XIII 1989 12 27.26958 22 39 53.16 -04 06 59.3 568

Periodic Comet Klemola

/1987 XIV 1988 12 10.43589 06 32 18.23 +09 32 33.4 568
/1987 XIV 1988 12 10.44618 06 32 17.81 +09 32 32.9 568

Periodic Comet Schwassmann-Wachmann 2

/1987 XIX 1989 06 02.37840 17 37 05.54 -19 52 42.5 568
/1987 XIX 1989 06 02.38117 17 37 05.40 -19 52 42.2 568
/1987 XIX 1989 08 02.31576 17 01 05.24 -19 57 20.1 568
/1987 XIX 1989 08 02.33024 17 01 05.05 -19 57 20.5 568
/1987 XIX 1989 08 02.37983 17 01 04.41 -19 57 22.4 568
/1987 XIX 1989 08 02.38723 17 01 04.34 -19 57 23.2 568

Comet Bradfield (1987 XXIX)

/1987 XXIX 1987 11 24.63976 19 13 57.29 +11 48 55.4 168
/1987 XXIX 1987 11 24.64184 19 13 58.05 +11 49 00.8 168
/1987 XXIX 1987 11 24.64387 19 13 58.77 +11 49 03.1 168
/1987 XXIX 1987 12 10.71586 20 54 52.60 +20 22 31.9 168
/1987 XXIX 1987 12 10.71979 20 54 54.70 +20 22 35.4 168
/1987 XXIX 1987 12 12.55023 21 07 54.00 +21 11 54.3 168
/1987 XXIX 1987 12 12.56400 21 07 59.71 +21 12 16.5 168
/1987 XXIX 1988 01 09.64496 00 20 33.28 +26 08 30.0 168
/1987 XXIX 1988 01 09.64601 00 20 33.56 +26 08 29.1 168
/1987 XXIX 1988 01 09.64676 00 20 33.83 +26 08 29.0 168
/1987 XXIX 1988 01 09.64745 00 20 34.14 +26 08 28.9 168
/1987 XXIX 1988 01 10.62169 00 26 01.95 +26 06 16.1 168
/1987 XXIX 1988 01 10.62447 00 26 02.88 +26 06 15.9 168
/1987 XXIX 1988 01 10.62719 00 26 03.31 +26 06 14.9 168
/1987 XXIX 1988 01 13.70318 00 42 35.61 +25 56 45.3 168
/1987 XXIX 1988 01 13.74387 00 42 48.41 +25 56 36.8 168
/1987 XXIX 1988 01 13.84638 00 43 20.40 +25 56 10.9 168
/1987 XXIX 1988 01 15.85318 00 53 31.77 +25 48 13.4 168
/1987 XXIX 1988 01 15.85509 00 53 32.11 +25 48 13.5 168
/1987 XXIX 1988 01 17.62211 01 02 09.51 +25 40 26.5 168
/1987 XXIX 1988 01 17.63449 01 02 13.13 +25 40 24.2 168
/1987 XXIX 1988 01 17.67419 01 02 24.39 +25 40 12.3 168
/1987 XXIX 1988 01 17.82986 01 03 08.83 +25 39 28.7 168
/1987 XXIX 1988 01 22.61892 01 24 49.95 +25 15 45.1 168
/1987 XXIX 1988 01 22.62026 01 24 50.24 +25 15 44.3 168
/1987 XXIX 1988 02 05.67639 02 17 29.47 +24 02 31.0 168
/1987 XXIX 1988 02 05.67969 02 17 30.27 +24 02 28.5 168
/1987 XXIX 1988 02 05.68576 02 17 31.43 +24 02 27.1 168
/1987 XXIX 1988 02 05.69213 02 17 32.55 +24 02 24.8 168
/1987 XXIX 1988 02 10.70938 02 33 15.64 +23 38 38.6 168
/1987 XXIX 1988 02 10.71250 02 33 16.06 +23 38 38.5 168
/1987 XXIX 1988 02 10.71933 02 33 17.31 +23 38 35.2 168
/1987 XXIX 1988 02 25.63692 03 13 34.04 +22 39 42.6 168
/1987 XXIX 1988 02 25.64763 03 13 35.39 +22 39 39.7 168
/1987 XXIX 1988 02 26.63906 03 16 00.04 +22 36 24.3 168
/1987 XXIX 1988 02 26.64549 03 16 00.98 +22 36 16.6 168

Periodic Comet d'Arrest

/1987k	1989	08	02.60257	05	07	23.81	+06	35	44.6	568
/1987k	1989	08	02.60861	05	07	24.57	+06	35	41.3	568
/1987k	1989	08	02.61398	05	07	24.82	+06	35	42.8	568
/1987k	1989	08	02.62095	05	07	25.47	+06	35	42.9	568
/1987k	1989	08	03.60832	05	08	53.12	+06	34	08.5	568
/1987k	1989	08	03.61229	05	08	53.48	+06	34	07.2	568
/1987k	1989	08	03.61825	05	08	53.98	+06	34	07.4	568
/1987k	1989	10	04.52564	06	05	34.08	+02	31	35.1	568
/1987k	1989	12	27.32398	05	14	11.54	+00	16	48.2	568
/1987k	1989	12	27.32920	05	14	11.18	+00	16	50.7	568
/1987k	1989	12	27.33616	05	14	10.86	+00	16	50.7	568
/1987k	1989	12	27.35611	05	14	09.80	+00	16	55.6	568

Comet Jensen-Shoemaker (1988 II)

/1988 II	1989	01	07.10390	04	34	07.42	-60	37	08.5	807
/1988 II	1989	01	07.11253	04	34	07.03	-60	37	07.4	807
/1988 II	1989	01	07.13992	04	34	06.08	-60	36	58.9	807
/1988 II	1989	01	08.14545	04	33	33.23	-60	32	38.8	807
/1988 II	1989	01	08.15205	04	33	33.00	-60	32	37.6	807
/1988 II	1989	01	08.18016	04	33	32.05	-60	32	29.0	807
/1988 II	1989	01	08.18962	04	33	31.77	-60	32	25.8	807
/1988 II	1989	04	05.08321	05	08	20.68	-49	54	01.4	807
/1988 II	1989	04	05.09130	05	08	21.21	-49	53	58.3	807
/1988 II	1989	04	05.10308	05	08	21.93	-49	53	53.5	807

Periodic Comet Tempel 2

/1988 XIV	1988	12	09.25009	22	24	27.21	-22	20	26.0	568
/1988 XIV	1988	12	09.25248	22	24	27.67	-22	20	24.5	568
/1988 XIV	1988	12	09.25487	22	24	28.11	-22	20	22.4	568
/1988 XIV	1988	12	09.25795	22	24	28.54	-22	20	19.2	568
/1988 XIV	1989	12	27.49796	06	07	12.17	+15	50	46.5	568
/1988 XIV	1989	12	27.50123	06	07	11.92	+15	50	46.9	568
/1988 XIV	1989	12	29.44573	06	05	24.22	+15	54	56.4	568
/1988 XIV	1989	12	29.48614	06	05	21.92	+15	55	01.1	568
/1988 XIV	1989	12	29.49375	06	05	21.52	+15	55	02.4	568
/1988 XIV	1989	12	29.50130	06	05	21.14	+15	55	03.1	568

Comet Yanaka (1988 XX)

/1988 XX	1989	06	02.45889	14	40	51.18	+48	24	28.6	568
/1988 XX	1989	06	02.46316	14	40	50.98	+48	24	24.3	568

Periodic Comet Kopff

/1988k	1988	12	10.59098	11	41	17.17	+05	11	34.4	568
/1988k	1988	12	10.60271	11	41	17.71	+05	11	32.6	568
/1988k	1989	02	08.41249	11	52	52.48	+05	42	29.6	568
/1988k	1989	02	10.43948	11	52	05.43	+05	51	39.3	568
/1988k	1989	04	05.16117	11	12	17.79	+11	07	25.8	807
/1988k	1989	04	05.17155	11	12	17.32	+11	07	29.6	807
/1988k	1989	04	06.09155	11	11	37.03	+11	11	35.4	807
/1988k	1989	04	09.13946	11	09	28.67	+11	24	10.2	695
/1988k	1989	04	09.16051	11	09	27.74	+11	24	15.0	695
/1988k	1989	04	10.15868	11	08	47.75	+11	28	05.9	695
/1988k	1989	04	10.16350	11	08	47.58	+11	28	07.3	695
/1988k	1989	04	10.16763	11	08	47.40	+11	28	08.6	695
/1988k	1989	06	02.32657	11	05	35.52	+10	57	53.3	568
/1988k	1989	06	02.35536	11	05	36.49	+10	57	45.3	568
/1988k	1989	08	02.26340	12	10	39.69	+03	02	26.1	568
/1988k	1989	08	02.26682	12	10	40.03	+03	02	24.0	568

/1988k	1989	08	02.26964	12	10	40.25	+03	02	22.7		568
/1988k	1989	08	02.27513	12	10	40.80	+03	02	18.7		568
/1988k	1989	08	02.27793	12	10	41.02	+03	02	17.0		568
/1988k	1989	08	02.27887	12	10	41.07	+03	02	16.4		568

Periodic Comet Brorsen-Metcalf

/1989o	1989	08	03.53080	03	37	53.71	+38	00	59.0		568
/1989o	1989	08	03.53652	03	37	57.72	+38	01	16.4		568
/1989o	1989	08	10.00836	05	01	08.42	+41	37	53.3		086
/1989o	1989	08	12.00208	05	28	08.00	+41	56	14.9		086
/1989o	1989	08	12.02908	05	28	29.68	+41	56	21.4		086
/1989o	1989	08	12.05024	05	28	47.14	+41	56	27.2		086
/1989o	1989	08	13.05006	05	42	12.32	+41	56	14.9		086
/1989o	1989	08	15.01180	06	08	00.38	+41	38	41.8		086
/1989o	1989	08	15.05850	06	08	36.52	+41	38	06.8		086

Periodic Comet Lovas 1

/1989p	1989	12	06.02256	07	12	08.40	+46	34	33.7	14 T	561
/1989p	1990	01	13.45666	06	41	39.48	+43	13	33.0	15 T	897
/1989p	1990	01	21.46458	06	37	19.83	+41	40	49.1	15 T	897
/1989p	1990	01	21.49190	06	37	19.19	+41	40	28.2		897

Comet Okazaki-Levy-Rudenko (1989r)

/1989r	1989	09	03.74600	15	11	43.50	+33	21	11.9		136
/1989r	1989	09	06.73159	15	07	30.22	+33	03	26.0		136
/1989r	1989	09	06.74725	15	07	29.20	+33	03	22.0		136
/1989r	1989	09	07.73611	15	06	08.82	+32	57	29.3		136
/1989r	1989	09	07.74306	15	06	07.94	+32	57	26.9		136
/1989r	1989	09	08.75307	15	04	48.39	+32	51	27.7		136
/1989r	1989	09	08.76290	15	04	47.25	+32	51	23.8		136
/1989r	1989	09	20.75268	14	50	45.85	+31	42	49.8		086
/1989r	1989	09	20.77342	14	50	44.46	+31	42	34.1		086
/1989r	1989	09	27.69487	14	43	35.36	+31	05	05.9		136
/1989r	1989	09	27.74931	14	43	32.53	+31	04	53.4		061
/1989r	1989	09	27.75197	14	43	32.33	+31	04	51.5		061
/1989r	1989	09	27.75428	14	43	32.27	+31	04	49.6		061
/1989r	1989	09	27.75903	14	43	31.83	+31	04	50.8		061
/1989r	1989	09	27.76181	14	43	31.73	+31	04	48.1		061
/1989r	1989	09	28.71667	14	42	33.50	+30	59	39.7		136
/1989r	1989	09	28.76181	14	42	30.85	+30	59	27.4		061
/1989r	1989	09	28.76389	14	42	30.85	+30	59	27.2		061
/1989r	1989	09	28.76551	14	42	30.59	+30	59	26.4		061
/1989r	1989	09	28.76713	14	42	30.33	+30	59	27.2		061
/1989r	1989	09	29.68715	14	41	34.61	+30	54	30.1		136
/1989r	1989	11	11.19804	13	34	30.54	+16	39	33.5		587
/1989r	1989	11	26.19607	12	58	38.59	-15	48	08.2		587
/1989r	1989	11	26.21713	12	58	35.69	-15	52	13.0		587

Periodic Comet Wild 2

/1989t	1988	12	09.29369	00	47	00.14	+01	26	19.2		568
/1989t	1988	12	09.30584	00	47	00.02	+01	26	18.8		568
/1989t	1988	12	09.30637	00	47	00.00	+01	26	18.8		568
/1989t	1988	12	09.31904	00	46	59.94	+01	26	18.8		568
/1989t	1988	12	10.29032	00	46	53.56	+01	26	14.1		568
/1989t	1988	12	10.30319	00	46	53.50	+01	26	15.2		568
/1989t	1988	12	10.30323	00	46	53.44	+01	26	14.6		568
/1989t	1988	12	11.27940	00	46	47.76	+01	26	15.0		568
/1989t	1988	12	11.29108	00	46	47.63	+01	26	15.8		568
/1989t	1989	01	09.07361	00	49	52.15	+02	03	52.3		807

/1989t	1989	10	04.50023	03	51	50.64	+16	02	24.9	568
/1989t	1989	10	04.51255	03	51	50.43	+16	02	23.2	568

Periodic Comet Tuttle-Giacobini-Kresak

/1989b1	1990	01	25.77703	16	04	10.52	-13	53	23.4	14	T	897
/1989b1	1990	01	25.78287	16	04	12.02	-13	53	26.1			897

Comet Austin (1989c1)

/1989c1	1990	01	26.40122	00	36	48.3	-40	04	42	8.5	T		372
/1989c1	1990	01	26.40833	00	36	48.47	-40	04	29.2			5	372
/1989c1	1990	01	29.38142	00	38	56.93	-38	25	24.8				897
/1989c1	1990	03	07.41272	01	19	11.42	-12	57	25.7				415
/1989c1	1990	03	08.40706	01	20	29.87	-12	05	17.7				415
/1989c1	1990	03	09.40565	01	21	49.31	-11	12	02.9				415
/1989c1	1990	03	09.41684	01	21	50.17	-11	11	31.1	6.7	T		372
/1989c1	1990	03	09.42118	01	21	50.49	-11	11	16.9				372
/1989c1	1990	03	19.41675	01	34	55.81	-01	22	12.7	6.0	T		372
/1989c1	1990	04	06.42899	01	44	42.52	+21	38	00.3	4.5	T	6	372
/1989c1	1990	04	24.77176	00	38	34.1	+35	48	13				381
/1989c1	1990	04	24.80903	00	38	23.46	+35	48	38.5				372
/1989c1	1990	04	25.49375	00	34	56.64	+35	53	19.9				675
/1989c1	1990	04	25.76622	00	33	33.9	+35	54	40				381
/1989c1	1990	04	26.47083	00	29	57.87	+35	57	38.9				688
/1989c1	1990	04	26.47986	00	29	55.09	+35	57	39.4				688
/1989c1	1990	04	26.76775	00	28	26.12	+35	58	22.8				381
/1989c1	1990	04	26.76917	00	28	25.71	+35	58	22.8				381
/1989c1	1990	04	26.77066	00	28	25.23	+35	58	23.2				381
/1989c1	1990	04	26.77375	00	28	24.20	+35	58	24.3				381
/1989c1	1990	04	26.77625	00	28	23.44	+35	58	24.8				381
/1989c1	1990	04	26.77750	00	28	23.10	+35	58	24.4				381
/1989c1	1990	04	27.49931	00	24	37.69	+35	59	11.6				675
/1989c1	1990	04	29.10943	00	16	03.44	+35	55	46.0				480
/1989c1	1990	04	29.78070	00	12	23.80	+35	52	18.3	5	T		385
/1989c1	1990	04	29.78151	00	12	23.47	+35	52	19.1				385
/1989c1	1990	04	30.47170	00	08	33.55	+35	47	25.3				657
/1989c1	1990	04	30.80278	00	06	42.19	+35	44	40.4				372
/1989c1	1990	05	01.10420	00	04	59.36	+35	41	47.3				503
/1989c1	1990	05	08.42865	23	17	25.71	+33	07	24.4				657

Periodic Comet Schwassmann-Wachmann 3

/1989d1	1990	03	20.74277	16	41	56.02	-00	28	27.5	12	T	897
/1989d1	1990	03	20.75156	16	41	58.72	-00	28	33.7			897
/1989d1	1990	03	27.45215	17	20	00.60	-01	51	21.6			657
/1989d1	1990	03	27.46674	17	20	05.85	-01	51	33.2			657
/1989d1	1990	04	25.47951	21	06	52.99	-09	15	02.9			675
/1989d1	1990	04	26.47066	21	14	44.54	-09	23	58.3			675

Comet Skorichenko-George (1989e1)

/1989e1	1989	12	27.79028	20	11	02.50	+26	41	42.4			026
/1989e1	1990	02	12.40605	22	20	26.08	+36	14	15.4			897
/1989e1	1990	03	12.43854	00	18	51.92	+41	34	02.3	11	T	372
/1989e1	1990	03	12.44323	00	18	53.33	+41	34	03.7			372
/1989e1	1990	03	12.82770	00	20	41.83	+41	36	33.0			503
/1989e1	1990	03	15.41007	00	32	56.17	+41	51	50.5			897
/1989e1	1990	03	15.41256	00	32	56.89	+41	51	50.4			897
/1989e1	1990	03	15.76979	00	34	39.05	+41	53	37.8			046
/1989e1	1990	03	15.77216	00	34	39.89	+41	53	40.1			046
/1989e1	1990	03	16.77610	00	39	27.39	+41	58	30.9			046
/1989e1	1990	03	16.77853	00	39	28.18	+41	58	31.1			046

/1989e1	1990	03	17.78646	00	44	17.89	+42	02	55.7			046
/1989e1	1990	03	17.78924	00	44	18.84	+42	02	55.2			046
/1989e1	1990	03	19.40758	00	52	06.22	+42	08	54.1			897
/1989e1	1990	03	19.41134	00	52	06.90	+42	08	53.0			897
/1989e1	1990	03	19.41447	00	52	07.73	+42	08	51.9			897
/1989e1	1990	03	27.17299	01	29	37.55	+42	17	59.4		7	657
/1989e1	1990	03	27.20111	01	29	46.02	+42	18	01.0		7	657
/1989e1	1990	03	28.18618	01	34	30.72	+42	16	50.6		7	657
/1989e1	1990	03	28.19174	01	34	32.24	+42	16	50.5		7	657
/1989e1	1990	03	31.81319	01	51	54.33	+42	08	10.3			026
/1989e1	1990	04	04.20660	02	07	59.24	+41	53	42.8		8	657
/1989e1	1990	04	05.18375	02	12	34.56	+41	48	28.4			657
/1989e1	1990	04	05.19347	02	12	37.22	+41	48	24.7			657

Periodic Comet Van Biesbroeck

/1989h1	1989	12	27.56365	12	54	00.98	-02	02	36.7			568
/1989h1	1989	12	27.57126	12	54	01.25	-02	02	37.8			568
/1989h1	1989	12	28.54302	12	54	35.18	-02	04	44.4			568
/1989h1	1989	12	28.55768	12	54	35.18	-02	04	44.4			568

Periodic Comet Wild 4

/1990a	1990	01	27.45625	09	30	43.44	+21	00	33.2	13	T	897
/1990a	1990	01	27.47361	09	30	42.69	+21	00	38.5			897
/1990a	1990	02	12.46157	09	17	04.37	+21	57	07.2	13	T	897
/1990a	1990	02	12.48304	09	17	03.04	+21	57	11.0			897
/1990a	1990	02	23.91458	09	07	17.64	+22	21	49.3			091
/1990a	1990	02	23.93403	09	07	16.64	+22	21	50.4			091
/1990a	1990	02	23.96528	09	07	15.15	+22	21	52.4			091
/1990a	1990	02	24.92569	09	06	30.93	+22	23	03.6			091
/1990a	1990	02	24.99653	09	06	27.47	+22	23	05.8			091
/1990a	1990	02	28.83160	09	03	42.97	+22	26	15.0			589
/1990a	1990	03	13.78819	08	57	23.91	+22	18	11.8			046
/1990a	1990	03	13.79404	08	57	23.97	+22	18	11.4			046
/1990a	1990	03	15.51192	08	56	57.41	+22	15	02.5	13	T	897
/1990a	1990	03	15.53385	08	56	56.95	+22	15	00.6			897
/1990a	1990	03	15.78762	08	56	53.94	+22	14	27.3			046
/1990a	1990	03	15.79201	08	56	53.77	+22	14	26.9			046
/1990a	1990	03	16.79144	08	56	41.77	+22	12	20.9			046
/1990a	1990	03	16.79583	08	56	41.75	+22	12	19.3			046
/1990a	1990	03	16.80694	08	56	41.58	+22	12	19.2	12.8	T	026
/1990a	1990	03	16.85486	08	56	41.01	+22	12	13.3	12.5	T	026
/1990a	1990	03	17.80417	08	56	31.82	+22	10	02.0			046
/1990a	1990	03	17.80868	08	56	31.68	+22	10	02.4			046
/1990a	1990	03	18.78785	08	56	24.04	+22	07	39.6			046
/1990a	1990	03	18.79225	08	56	23.89	+22	07	39.5			046
/1990a	1990	03	19.82431	08	56	17.96	+22	05	00.1			009
/1990a	1990	03	21.51250	08	56	12.98	+22	00	14.6			391
/1990a	1990	03	21.55833	08	56	12.84	+22	00	07.7			391
/1990a	1990	03	24.81250	08	56	20.86	+21	49	47.6	12.5	T	026
/1990a	1990	03	24.92409	08	56	21.39	+21	49	24.8			503
/1990a	1990	03	26.53889	08	56	34.08	+21	43	41.3			391
/1990a	1990	03	26.55278	08	56	34.31	+21	43	38.0			391
/1990a	1990	03	27.31743	08	56	42.25	+21	40	42.6			657
/1990a	1990	03	29.20840	08	57	07.48	+21	33	16.0			657
/1990a	1990	03	29.21986	08	57	07.48	+21	33	16.0			657
/1990a	1990	03	31.83160	08	57	53.91	+21	22	12.3	13	T	026
/1990a	1990	04	01.83299	08	58	15.49	+21	17	43.3			026
/1990a	1990	04	25.18490	09	15	23.33	+18	56	54.3			675
/1990a	1990	04	25.21024	09	15	24.98	+18	56	43.0			675

Comet Cernis-Kiuchi-Nakamura (1990b)

/1990b	1990	03	19.42500	01	20	16.49	+45	46	35.7	8.5T	892
/1990b	1990	03	19.42986	01	20	18.58	+45	46	47.6		404
/1990b	1990	03	19.43264	01	20	19.35	+45	46	52.7		892
/1990b	1990	03	19.44548	01	20	23.86	+45	47	15.7	8.0T	871
/1990b	1990	03	19.45833	01	20	28.76	+45	47	42.3		404
/1990b	1990	03	19.46580	01	20	31.18	+45	47	57.1	8.5T	372
/1990b	1990	03	19.49028	01	20	40.49	+45	48	47.9		404
/1990b	1990	03	21.43420	01	32	48.26	+46	51	39.9	8 T	897
/1990b	1990	03	21.43831	01	32	49.82	+46	51	48.8		897
/1990b	1990	03	21.44062	01	32	50.86	+46	51	52.9	8.5T	402
/1990b	1990	03	21.44757	01	32	53.55	+46	52	06.5		391
/1990b	1990	03	21.44826	01	32	53.65	+46	52	07.8	8.5T	402
/1990b	1990	03	21.44954	01	32	54.26	+46	52	09.9		897
/1990b	1990	03	21.45625	01	32	56.83	+46	52	22.1		391
/1990b	1990	03	21.47986	01	33	05.83	+46	53	07.0	8 T	400
/1990b	1990	03	21.48889	01	33	09.42	+46	53	21.5		400
/1990b	1990	03	23.80179	01	48	34.32	+48	03	19.8		046
/1990b	1990	03	23.80278	01	48	34.72	+48	03	24.4		046
/1990b	1990	03	24.11934	01	50	46.09	+48	12	33.7		685
/1990b	1990	03	24.12427	01	50	48.20	+48	12	42.5		685
/1990b	1990	03	24.12765	01	50	49.58	+48	12	48.2		685
/1990b	1990	03	24.78750	01	55	27.55	+48	31	20.7		046
/1990b	1990	03	24.78860	01	55	28.01	+48	31	22.9		046
/1990b	1990	03	24.83333	01	55	47.20	+48	32	38.7		026
/1990b	1990	03	25.83160	02	02	58.15	+48	59	38.5		480
/1990b	1990	03	26.43345	02	07	23.39	+49	15	18.8		897
/1990b	1990	03	26.44965	02	07	30.66	+49	15	43.0		897
/1990b	1990	03	26.45017	02	07	30.56	+49	15	43.8	8.7T	372
/1990b	1990	03	28.17889	02	20	36.54	+49	57	25.4		657
/1990b	1990	03	28.19972	02	20	46.00	+49	57	51.8		657
/1990b	1990	03	31.82431	02	49	58.38	+51	08	30.3		026
/1990b	1990	04	01.81215	02	58	17.69	+51	23	22.6		026
/1990b	1990	04	02.85492	03	07	13.05	+51	36	36.1		046
/1990b	1990	04	02.85654	03	07	13.85	+51	36	43.5		046
/1990b	1990	04	04.22396	03	19	08.20	+51	50	36.3		657
/1990b	1990	04	05.20250	03	27	45.81	+51	57	52.8		657
/1990b	1990	04	07.20278	03	45	36.93	+52	05	45.7		657

Note 1: also a sunward fan. 2: very crowded field. 3: only two reference stars. 4: secondary nucleus still visible. 5: correction to MPC 15772. 6: 3′ tails in p.a. 20 and 85 . 7: broad (45 angle) tail. 8 = 1 + 7.

* * * * *

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
f involved with emulsion or plate flaw
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 poor distribution of reference stars
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, M. Hernandez, M. Moreno							
0.38-m f/11 Mailhat astrograph							
AGK3, SAOC							
4	1985 07	13.90174	13 52 03.60	-04 40 57.5			006
4	1985 07	13.90868	13 52 03.99	-04 41 01.5			006
4	1985 07	13.91424	13 52 04.32	-04 41 04.7			006
4	1985 08	02.87118	14 14 24.54	-08 07 14.2			006
4	1985 08	02.87778	14 14 25.04	-08 07 18.4			006
4	1985 08	02.88368	14 14 25.47	-08 07 22.1			006
4	1985 08	08.86806	14 22 22.07	-09 10 50.2			006
4	1985 08	08.87431	14 22 22.65	-09 10 54.1			006
4	1985 08	08.88507	14 22 23.54	-09 11 01.1			006
11	1985 07	24.95521	21 58 12.34	-13 58 25.5			006
11	1985 07	24.96215	21 58 12.09	-13 58 28.0			006
11	1985 08	07.03160	21 49 15.45	-15 26 42.7			006
11	1985 08	07.03993	21 49 15.03	-15 26 46.1			006
11	1985 08	07.04618	21 49 14.72	-15 26 49.0			006
11	1985 08	21.86111	21 36 43.14	-17 11 54.1			006
11	1985 08	21.86806	21 36 42.79	-17 11 56.8			006
11	1985 08	26.92049	21 32 34.40	-17 44 11.7			006
11	1985 08	26.92535	21 32 34.17	-17 44 13.3			006
11	1985 08	26.92992	21 32 33.93	-17 44 15.2			006
11	1985 10	15.88785	21 24 54.01	-19 12 15.5			006
11	1985 10	15.90035	21 24 54.43	-19 12 13.5			006
12	1985 07	24.89722	14 42 56.51	-12 15 51.7			006
12	1985 07	24.90903	14 42 57.35	-12 15 53.4			006
15	1985 12	02.80243	00 51 24.96	+24 24 30.2			006
15	1985 12	02.81146	00 51 25.14	+24 24 26.3			006
15	1985 12	02.81667	00 51 25.26	+24 24 24.0			006

16	1985	12	13.94583	04	42	24.32	+17	31	05.9	006
16	1985	12	13.95208	04	42	23.98	+17	31	05.5	006
16	1985	12	13.95694	04	42	23.69	+17	31	05.3	006
43	1985	08	22.95903	21	14	52.78	-09	22	29.3	006
43	1985	08	22.96771	21	14	52.32	-09	22	31.1	006
43	1985	08	22.97500	21	14	51.95	-09	22	32.5	006
115	1985	10	29.79722	22	29	13.30	+07	23	55.9	006
115	1985	10	29.80694	22	29	13.41	+07	23	55.5	006
192	1985	12	23.83333	00	19	16.88	+10	04	43.1	006
192	1985	12	23.83924	00	19	17.41	+10	04	46.4	006
216	1985	11	21.86250	04	05	07.15	+10	13	46.1	006
216	1985	11	21.87083	04	05	06.75	+10	13	41.0	006
532	1985	12	18.86979	04	03	06.38	+05	19	04.6	006
532	1985	12	18.87639	04	03	06.04	+05	19	06.3	006
532	1985	12	18.88160	04	03	05.79	+05	19	07.7	006
532	1985	12	20.90069	04	01	30.42	+05	27	20.8	006
532	1985	12	20.90622	04	01	30.16	+05	27	22.2	006
532	1985	12	20.91111	04	01	29.95	+05	27	23.5	006
532	1985	12	20.91493	04	01	29.78	+05	27	24.4	006
532	1985	12	21.95139	04	00	42.47	+05	31	50.7	006
532	1985	12	21.95799	04	00	42.18	+05	31	52.6	006
532	1985	12	21.96319	04	00	41.93	+05	31	54.0	006
704	1985	12	03.80521	00	55	22.09	+28	57	22.4	006
704	1985	12	03.81181	00	55	22.17	+28	57	19.0	006
704	1985	12	03.81771	00	55	22.21	+28	57	15.6	006

017 Hoher List
E. W. Elst, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium
Observers E. W. Elst, P. Van den Eijnde
Measurer E. W. Elst

135	1989	10	27.87083	02	33	14.81	+18	36	27.5	017
135	1989	10	27.90903	02	33	12.28	+18	36	19.2	11.0 017
162	1989	10	27.88889	02	27	30.58	+14	51	00.2	11.5 017
162	1989	10	27.93472	02	27	28.20	+14	50	52.6	017
184	1989	10	27.88889	02	22	34.30	+15	43	59.7	11.0 017
184	1989	10	27.93472	02	22	32.10	+15	43	46.4	017
215	1990	03	16.97014	11	03	17.47	+07	43	32.8	017
215	1990	03	17.97708	11	02	28.72	+07	47	55.8	16.0 017
215	1990	03	18.01528	11	02	26.89	+07	48	08.2	017
230	1989	10	27.87083	02	24	18.70	+20	59	29.5	017
230	1989	10	27.90903	02	24	16.38	+20	59	07.3	10.0 017
260	1989	10	28.07847	02	59	34.72	+09	02	52.9	017
260	1989	10	28.13542	02	59	32.29	+09	02	37.3	14.0 017
269	1989	10	28.07847	03	00	50.04	+09	13	45.1	017
269	1989	10	28.13542	03	00	47.05	+09	13	25.6	14.0 017
316	1990	03	16.97014	11	17	07.42	+07	19	10.9	017
316	1990	03	17.97708	11	16	23.58	+07	24	02.9	16.2 017
316	1990	03	18.01528	11	16	21.84	+07	24	15.6	017
475	1989	10	27.87083	02	32	29.40	+16	55	58.6	017
475	1989	10	27.88889	02	32	27.40	+16	56	09.4	017
475	1989	10	27.90903	02	32	25.60	+16	56	25.7	14.5 017
475	1989	10	27.93472	02	32	23.05	+16	56	41.2	017
713	1989	10	27.98958	02	47	22.27	+15	36	46.0	017
713	1989	10	28.05069	02	47	19.67	+15	36	22.5	12.0 017
1077	1989	10	28.10764	02	53	41.72	+25	38	57.8	017
1077	1989	10	28.16597	02	53	38.06	+25	38	54.2	15.0 017
1109	1989	10	27.96042	02	51	14.87	+20	44	28.9	15.5 017
1109	1989	10	28.01806	02	51	12.19	+20	44	17.9	017

1204	1989	10	27.87083	02	32	48.37	+17	01	57.7	017
1204	1989	10	27.88889	02	32	46.89	+17	01	52.1	017
1204	1989	10	27.90903	02	32	45.49	+17	01	50.1	15.0 017
1204	1989	10	27.93472	02	32	43.65	+17	01	40.8	017
1245	1990	03	16.97014	11	10	25.47	+06	42	03.1	017
1245	1990	03	17.97708	11	09	39.88	+06	47	28.1	16.7 017
1245	1990	03	18.01528	11	09	38.19	+06	47	40.5	017
1255	1989	10	27.96042	02	56	35.57	+20	27	14.3	14.0 017
1255	1989	10	28.01806	02	56	32.86	+20	26	52.5	017
1454	1989	10	28.10764	02	59	55.02	+24	12	26.6	017
1454	1989	10	28.16597	02	59	51.54	+24	12	19.2	17.0 017
1470	1989	10	27.87083	02	33	08.70	+18	14	41.6	017
1470	1989	10	27.90903	02	33	06.76	+18	14	36.7	16.5 017
1479	1989	10	27.87083	02	37	58.53	+20	17	53.6	017
1479	1989	10	27.90903	02	37	56.15	+20	17	54.0	16.0 017
1561	1989	10	27.88889	02	24	50.12	+15	58	14.2	17.5 017
1561	1989	10	27.93472	02	24	48.10	+15	58	03.1	017
1599	1989	10	27.88889	02	28	33.68	+13	36	49.7	15.0 017
1599	1989	10	27.93472	02	28	31.40	+13	36	44.7	017
1794	1989	10	27.88889	02	24	18.14	+15	43	34.1	17.3 017
1794	1989	10	27.93472	02	24	16.01	+15	43	10.5	017
2012	1989	10	27.87083	02	34	47.35	+19	49	56.2	017
2012	1989	10	27.90903	02	34	44.86	+19	49	41.0	17.0 017
2120	1989	10	27.98958	03	02	35.80	+16	43	25.5	017
2120	1989	10	28.05069	03	02	33.18	+16	42	55.9	16.5 017
2167	1989	10	27.96042	02	59	12.99	+21	46	14.7	17.0 017
2167	1989	10	28.01806	02	59	09.52	+21	45	54.5	017
2177	1989	10	27.88889	02	32	57.68	+14	27	59.9	17.0 017
2177	1989	10	27.93472	02	32	55.21	+14	27	52.0	017
2341	1989	10	27.98958	03	04	55.55	+14	16	04.1	017
2341	1989	10	28.05069	03	04	52.05	+14	16	02.7	16.0 017
2406	1989	10	27.96042	03	06	57.77	+19	56	56.3	16.5 017
2406	1989	10	28.01806	03	06	53.90	+19	56	46.1	017
2509	1989	10	27.96042	02	47	47.86	+20	38	16.2	16.0 017
2509	1989	10	28.01806	02	47	44.03	+20	38	06.1	017
2792	1989	10	28.10764	02	58	18.24	+25	03	11.2	017
2792	1989	10	28.16597	02	58	14.16	+25	03	22.6	16.5 017
2859	1990	03	16.97014	11	11	56.29	+05	59	14.2	017
2859	1990	03	17.97708	11	11	05.58	+06	07	23.5	17.0 017
2859	1990	03	18.01528	11	11	03.63	+06	07	40.2	017
3191	1989	10	27.98958	03	00	41.79	+16	31	23.1	017
3191	1989	10	28.05069	03	00	39.35	+16	31	17.6	17.5 017
3433	1989	10	28.10764	03	03	01.52	+25	48	26.4	017
3433	1989	10	28.16597	03	02	58.38	+25	48	25.6	15.5 017
3489	1989	10	27.87083	02	32	42.89	+19	15	09.6	017
3489	1989	10	27.90903	02	32	39.89	+19	15	10.8	17.0 017
4151	1990	03	16.97014	11	07	52.90	+07	16	02.7	017
4151	1990	03	17.97708	11	07	08.69	+07	20	20.8	17.2 017
4151	1990	03	18.01528	11	07	07.10	+07	20	30.8	017

024 Heidelberg
M. Wolf, Landessternwarte Heidelberg-Konigstuhl, D-6900 Heidelberg 1,
Federal Republic of Germany

1754	1904	05	13.97947	15	53	00.49	-03	59	28.5	13.4 024

033 Tautenburg
S. Marx, Karl Schwarzschild Observatorium, DDR-6901 Tautenburg,
Democratic Republic of Germany
Observers F. Borngen, B. Stecklum

1.3-m Schmidt telescope
SAOC

1973	UJ5		1989	12	25.11528	10	51	35.34	+05	34	47.6	033
1973	UJ5		1989	12	25.14236	10	51	35.68	+05	34	45.3	033
1973	UJ5		1989	12	26.15174	10	51	49.53	+05	33	05.4	18.2 033
1973	UJ5		1989	12	27.15799	10	52	02.06	+05	31	36.5	033
1973	UJ5		1990	02	24.01806	10	28	04.92	+07	59	08.6	17.8 033
1973	UJ5		1990	03	18.99479	10	11	00.97	+09	50	53.5	18.2 033
1981	EP13		1990	01	29.14175	08	36	27.73	+18	49	11.7	033
1981	EP13		1990	01	29.89653	08	35	33.41	+18	50	48.5	18.2 033
1981	QT		1990	02	24.01806	10	30	50.22	+07	34	14.3	18.0 033
1988	RR4		1990	01	29.74618	03	18	46.59	+13	11	06.8	19.7 033
1988	RR4		1990	01	29.79479	03	18	47.63	+13	11	16.4	033
1989	WM2		1989	12	02.99688	04	26	11.38	+16	52	34.6	18.1 033
1989	WM2		1989	12	03.02118	04	26	10.26	+16	52	39.3	033
1990	BY2	*	1990	01	29.14175	08	30	55.58	+18	46	50.0	033
1990	BY2		1990	01	29.89653	08	30	20.51	+18	50	26.2	18.5 033
1990	BZ2	*	1990	01	29.14175	08	32	10.12	+20	42	49.1	V 033
1990	BZ2		1990	01	29.89653	08	31	31.24	+20	45	56.9	18.6 V 033
1990	BA3	*	1990	01	29.14175	08	32	29.64	+20	48	15.6	033
1990	BA3		1990	01	29.89653	08	31	40.67	+20	51	29.4	18.4 033
1990	BB3	*	1990	01	29.14175	08	37	10.12	+20	12	12.8	033
1990	BB3		1990	01	29.89653	08	36	25.81	+20	18	07.4	17.9 033
1990	BC3	*	1990	01	29.14175	08	37	31.81	+21	34	18.1	033
1990	BC3		1990	01	29.89653	08	36	45.01	+21	37	02.1	18.3 033
1990	BD3	*	1990	01	29.14175	08	37	51.63	+20	18	48.7	033
1990	BD3		1990	01	29.89653	08	37	00.68	+20	16	05.8	17.5 033
1990	BE3	*	1990	01	29.14175	08	40	04.70	+18	26	40.2	033
1990	BE3		1990	01	29.89653	08	39	13.42	+18	27	40.2	18.0 033
1990	BF3	*	1990	01	29.14175	08	40	47.77	+18	47	43.2	033
1990	BF3		1990	01	29.89653	08	40	02.70	+18	53	49.1	17.8 033
1990	BG3	*	1990	01	29.14175	08	43	13.00	+18	31	23.2	E 033
1990	BG3		1990	01	29.89653	08	42	22.90	+18	31	53.1	18.2 033
1990	CH		1990	02	24.01806	10	29	24.50	+07	31	06.5	16.9 033
1990	DX1	*	1990	02	23.91528	09	04	36.11	+13	58	57.7	19.0 033
1990	DX1		1990	02	23.97014	09	04	32.92	+13	59	14.5	033
270			1989	12	25.11528	10	49	05.84	+04	33	46.0	033
270			1989	12	25.14236	10	49	06.26	+04	33	40.9	033
270			1989	12	26.15174	10	49	22.22	+04	30	36.0	13 033
270			1989	12	27.15799	10	49	36.56	+04	27	40.8	033
277			1990	02	23.91528	09	10	22.11	+14	32	29.6	15.4 033
277			1990	02	23.97014	09	10	19.61	+14	32	41.6	033
827			1990	02	24.01806	10	26	00.66	+08	00	47.8	17.1 033
1274			1990	01	29.14175	08	35	30.99	+21	27	44.6	033
1274			1990	01	29.89653	08	34	37.06	+21	29	06.6	15.1 033
1692			1990	02	23.91528	09	09	35.17	+13	17	42.8	16.9 033
1692			1990	02	23.97014	09	09	32.62	+13	17	56.8	033
1799			1989	12	25.11528	10	52	12.10	+04	43	37.7	033
1799			1989	12	25.14236	10	52	12.31	+04	43	38.2	033
1799			1989	12	26.15174	10	52	23.19	+04	44	03.1	17.3 033
1799			1989	12	27.15799	10	52	32.78	+04	44	37.2	033
1799			1990	02	24.01806	10	30	27.01	+09	06	55.7	16.7 033
2524			1989	12	25.11528	10	51	31.31	+07	00	23.5	033
2524			1989	12	25.14236	10	51	31.47	+07	00	22.4	033
2524			1989	12	26.15174	10	51	39.09	+06	59	28.9	17.1 033
2524			1989	12	27.15799	10	51	45.57	+06	58	43.4	033
2524			1990	02	24.01806	10	27	24.21	+09	18	44.8	16.8 033
2766			1990	02	24.01806	10	32	14.80	+07	56	10.0	15.7 033
3160			1990	02	23.91528	09	10	29.39	+14	29	29.6	18.5 033

3160		1990	02	23.97014	09	10	26.21	+14	29	38.2		033
3205		1990	01	29.14175	08	35	28.01	+21	13	20.3		033
3205		1990	01	29.89653	08	34	45.39	+21	19	49.3	17.4	033
3474		1990	02	23.91528	09	04	21.57	+12	23	35.5	18.1	033
3474		1990	02	23.97014	09	04	18.81	+12	23	54.9		033
3983		1990	02	23.83889	08	42	08.95	+19	02	14.7		033
3983		1990	02	23.89167	08	42	06.37	+19	02	18.9	14.8V	033
4304		1990	01	29.14175	08	41	43.46	+18	39	21.9		033
4304		1990	01	29.89653	08	40	55.40	+18	41	28.5	18.1	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

1930	XK	1990	03	16.87946	11	20	21.88	+06	49	04.5		046
1930	XK	1990	03	16.89358	11	20	21.15	+06	49	08.1		046
1930	XK	1990	03	18.83374	11	18	24.22	+06	56	11.7		046
1930	XK	1990	03	18.84786	11	18	23.56	+06	56	14.4		046
1930	XK	1990	03	19.88368	11	17	21.69	+06	59	53.8		046
1930	XK	1990	03	19.89792	11	17	20.83	+06	59	57.2		046
1969	TD5	1990	03	17.92703	12	05	08.07	+04	31	17.4	16.6	046
1969	TD5	1990	03	17.94207	12	05	07.11	+04	31	22.7		046
1969	TD5	1990	03	18.90162	12	04	12.76	+04	36	08.6		046
1969	TD5	1990	03	18.91574	12	04	11.98	+04	36	13.4		046
1969	TD5	1990	03	19.91771	12	03	14.86	+04	41	09.7		046
1969	TD5	1990	03	19.93194	12	03	14.13	+04	41	13.0		046
1982	UV1	1990	03	17.84826	10	35	34.53	+12	11	02.2		046
1982	UV1	1990	03	17.86238	10	35	33.76	+12	11	04.3		046
1983	TW1	1990	03	16.87946	11	22	30.43	+08	42	10.7		046
1983	TW1	1990	03	16.89358	11	22	29.82	+08	42	14.6		046
1983	WJ	1990	03	17.92703	12	00	26.62	+05	13	53.5		046
1983	WJ	1990	03	17.94207	12	00	25.85	+05	13	59.3		046
1983	WJ	1990	03	18.86782	11	59	42.30	+05	18	57.7		046
1983	WJ	1990	03	18.88200	11	59	41.66	+05	19	01.8		046
1983	WJ	1990	03	18.90162	11	59	40.49	+05	19	07.3		046
1983	WJ	1990	03	18.91574	11	59	39.66	+05	19	12.7		046
1983	WJ	1990	03	19.91771	11	58	52.26	+05	24	28.4		046
1983	WJ	1990	03	19.93194	11	58	51.59	+05	24	34.9		046
1985	UY4	1990	03	15.87245	10	35	30.24	+10	40	46.1		046
1985	UY4	1990	03	15.88657	10	35	29.68	+10	40	52.8		046
1985	UY4	1990	03	16.84005	10	34	45.97	+10	48	06.3		046
1985	UY4	1990	03	16.85417	10	34	44.98	+10	48	15.4		046
1987	RG6	1990	03	16.91562	11	59	40.34	+05	20	17.4		046
1987	RG6	1990	03	16.93003	11	59	39.57	+05	20	20.4		046
1987	RG6	1990	03	17.89149	11	58	54.39	+05	25	48.0		046
1987	RG6	1990	03	17.90567	11	58	53.53	+05	25	52.7		046
1987	RG6	1990	03	17.92703	11	58	52.72	+05	25	59.3		046
1987	RG6	1990	03	17.94207	11	58	51.89	+05	26	04.7		046
1987	RG6	1990	03	18.86782	11	58	08.41	+05	31	18.2		046
1987	RG6	1990	03	18.88200	11	58	07.84	+05	31	22.5		046
1987	RG6	1990	03	18.90162	11	58	06.83	+05	31	29.4		046
1987	RG6	1990	03	18.91574	11	58	06.01	+05	31	35.2		046
1987	RG6	1990	03	19.91771	11	57	18.70	+05	37	10.6		046
1987	RG6	1990	03	19.93194	11	57	18.04	+05	37	16.3		046
1990	DA	1990	03	13.81047	08	56	42.28	+33	19	33.2		046
1990	DA	1990	03	13.81765	08	56	42.91	+33	19	42.7		046
1990	DA	1990	03	15.80764	08	59	39.02	+33	54	59.7		046
1990	DA	1990	03	15.81620	08	59	39.78	+33	55	09.1		046

1990	DA		1990	03	16.80961	09	01	08.88	+34	11	05.2		046
1990	DA		1990	03	16.81817	09	01	09.73	+34	11	14.2		046
1990	DA		1990	03	17.82083	09	02	40.35	+34	26	13.6		046
1990	DA		1990	03	17.82951	09	02	41.06	+34	26	21.1		046
1990	DA		1990	03	18.80550	09	04	10.32	+34	39	56.3		046
1990	DA		1990	03	18.81406	09	04	11.05	+34	40	02.2		046
1990	DA		1990	03	19.78819	09	05	40.83	+34	52	39.3		046
1990	DA		1990	03	19.79687	09	05	41.57	+34	52	45.8		046
1990	DM1		1990	02	21.91470	09	47	06.84	+12	23	13.6		046
1990	DM1		1990	02	21.92882	09	47	06.18	+12	23	15.5		046
1990	FF		1990	03	16.91562	12	01	28.24	+05	12	42.8	16.4	046
1990	FF		1990	03	16.93003	12	01	27.31	+05	13	07.1		046
1990	FF		1990	03	17.89149	12	00	45.14	+05	34	20.8		046
1990	FF		1990	03	17.90567	12	00	44.41	+05	34	41.5		046
1990	FF		1990	03	17.92703	12	00	43.40	+05	35	10.0		046
1990	FF		1990	03	17.94207	12	00	42.72	+05	35	29.5		046
1990	FF		1990	03	18.90162	12	00	00.20	+05	56	46.6		046
1990	FF		1990	03	18.91574	11	59	59.44	+05	57	08.6		046
1990	FF		1990	03	19.91771	11	59	14.42	+06	19	25.1		046
1990	FF		1990	03	19.93194	11	59	13.88	+06	19	43.8		046
1990	FS		1990	03	15.87245	10	39	16.63	+10	13	28.7	16.6	046
1990	FS		1990	03	15.88657	10	39	15.82	+10	13	34.3		046
1990	FS		1990	03	16.84005	10	38	24.71	+10	21	36.3		046
1990	FS		1990	03	16.85417	10	38	24.08	+10	21	46.2		046
1990	FS		1990	03	17.84826	10	37	31.53	+10	30	05.5		046
1990	FS		1990	03	17.86238	10	37	30.93	+10	30	12.4		046
1990	FW1	*	1990	03	16.91562	12	00	14.76	+04	12	41.7	16.7	046
1990	FW1		1990	03	16.93003	12	00	13.95	+04	12	47.1		046
1990	FW1		1990	03	17.92703	11	59	19.49	+04	18	22.8		046
1990	FW1		1990	03	17.94207	11	59	18.70	+04	18	27.1		046
1990	FW1		1990	03	18.90162	11	58	26.07	+04	23	48.0		046
1990	FW1		1990	03	18.91574	11	58	25.23	+04	23	51.2		046
1990	FW1		1990	03	19.91771	11	57	30.12	+04	29	22.9		046
1990	FW1		1990	03	19.93194	11	57	29.20	+04	29	29.2		046
1990	FX1	*	1990	03	17.92703	12	07	53.59	+05	25	29.4	17.0	046
1990	FX1		1990	03	17.94207	12	07	52.69	+05	25	34.5		046
1990	FX1		1990	03	18.90162	12	06	58.09	+05	29	22.9		046
1990	FX1		1990	03	18.91574	12	06	57.25	+05	29	28.5		046
1990	FX1		1990	03	19.91771	12	05	59.81	+05	33	21.8		046
1990	FX1		1990	03	19.93194	12	05	59.18	+05	33	24.9		046
1990	FY1	*	1990	03	17.92703	12	08	22.93	+06	40	56.3	16.8	046
1990	FY1		1990	03	17.94207	12	08	22.35	+06	40	59.9		046
1990	FY1		1990	03	18.90162	12	07	32.80	+06	45	02.7		046
1990	FY1		1990	03	18.91574	12	07	32.15	+06	45	06.7		046
1990	FY1		1990	03	19.91771	12	06	40.36	+06	49	14.8		046
1990	FY1		1990	03	19.93194	12	06	39.65	+06	49	19.4		046
1990	FZ1	*	1990	03	16.91562	11	50	22.66	+05	20	08.6	16.8 d	046
1990	FZ1		1990	03	16.93003	11	50	21.62	+05	20	18.9		046
1990	FZ1		1990	03	18.86782	11	48	50.70	+05	39	53.5		046
1990	FZ1		1990	03	18.88200	11	48	49.97	+05	40	01.1		046
1990	FA2	*	1990	03	16.91562	12	00	00.97	+05	49	38.2	16.5	046
1990	FA2		1990	03	16.93003	12	00	00.14	+05	49	40.3		046
1990	FA2		1990	03	17.89149	11	59	10.20	+05	51	17.0		046
1990	FA2		1990	03	17.90567	11	59	09.35	+05	51	17.8		046
1990	FA2		1990	03	17.92703	11	59	08.37	+05	51	21.1		046
1990	FA2		1990	03	17.94207	11	59	07.56	+05	51	21.9		046
1990	FA2		1990	03	18.86782	11	58	19.18	+05	52	55.3		046
1990	FA2		1990	03	18.88200	11	58	18.48	+05	52	56.8		046
1990	FA2		1990	03	18.90162	11	58	17.49	+05	52	58.5		046

1990	FA2		1990	03	18.91574	11	58	16.81	+05	52	59.0		046
1990	FA2		1990	03	19.91771	11	57	24.24	+05	54	36.6		046
1990	FA2		1990	03	19.93194	11	57	23.58	+05	54	38.1		046
1990	FB2	*	1990	03	17.92703	12	05	58.36	+03	45	18.1	16.7	046
1990	FB2		1990	03	17.94207	12	05	57.27	+03	45	28.1		046
1990	FB2		1990	03	19.91771	12	04	07.48	+04	01	23.5		046
1990	FB2		1990	03	19.93194	12	04	06.71	+04	01	26.4		046
1990	FC2	*	1990	03	16.87946	11	17	23.49	+07	50	13.1	16.6	046
1990	FC2		1990	03	16.89358	11	17	22.78	+07	50	16.3		046
1990	FC2		1990	03	18.83374	11	15	56.26	+07	58	37.4		046
1990	FC2		1990	03	18.84786	11	15	55.74	+07	58	40.4		046
1990	FC2		1990	03	19.88368	11	15	09.98	+08	03	03.1		046
1990	FC2		1990	03	19.89792	11	15	09.42	+08	03	06.3		046
1990	FD2	*	1990	03	16.91562	11	58	31.90	+06	17	30.1	16.6	046
1990	FD2		1990	03	16.93003	11	58	31.22	+06	17	34.0		046
1990	FD2		1990	03	17.89149	11	57	35.36	+06	21	34.9		046
1990	FD2		1990	03	17.90567	11	57	34.30	+06	21	38.4		046
1990	FD2		1990	03	17.92703	11	57	33.33	+06	21	45.7		046
1990	FD2		1990	03	17.94207	11	57	32.54	+06	21	50.0		046
1990	FE2	*	1990	03	16.91562	12	00	25.79	+07	36	46.6	16.8	046
1990	FE2		1990	03	16.93003	12	00	24.83	+07	36	46.9		046
1990	FE2		1990	03	17.89149	11	59	24.63	+07	38	25.2		046
1990	FE2		1990	03	17.90567	11	59	24.03	+07	38	36.0		046
1990	FF2	*	1990	03	17.92703	12	00	21.25	+05	36	07.5	16.6	046
1990	FF2		1990	03	17.94207	12	00	20.39	+05	36	11.3		046
1990	FF2		1990	03	18.90162	11	59	36.38	+05	40	00.2		046
1990	FF2		1990	03	18.91574	11	59	35.81	+05	40	05.5		046
1990	FG2	*	1990	03	17.92703	12	04	34.96	+04	49	14.4	16.9	046
1990	FG2		1990	03	17.94207	12	04	33.90	+04	49	15.9		046
1990	FG2		1990	03	18.90162	12	03	24.27	+04	49	32.6	d	046
1990	FG2		1990	03	18.91574	12	03	23.12	+04	49	32.0		046
1990	HA	*	1990	04	17.87708	13	09	58.10	+06	58	55.2	13.0	046
1990	HA		1990	04	17.89132	13	10	01.46	+06	58	08.5	13.0	046
1990	HA		1990	04	20.83073	13	20	11.59	+04	45	31.9	14.0	046
1990	HA		1990	04	20.83785	13	20	12.68	+04	45	16.7	14.0	046
1990	HA		1990	04	22.88102	13	25	12.54	+03	37	33.4	14.0	046
1990	HA		1990	04	22.88889	13	25	13.53	+03	37	17.7	14.0	046
1990	HA		1990	04	27.05313	13	32	31.02	+01	54	33.4	15.0	046
1990	HA		1990	04	27.06667	13	32	31.95	+01	54	17.8	15.0	046
68			1990	03	15.83507	10	18	15.38	+21	31	34.1		046
68			1990	03	15.84913	10	18	14.76	+21	31	35.5		046
140			1990	03	18.90162	12	09	37.37	+03	57	57.1		046
140			1990	03	18.91574	12	09	36.57	+03	58	02.4		046
140			1990	03	19.91771	12	08	46.80	+04	03	57.5		046
140			1990	03	19.93194	12	08	46.04	+04	04	02.0		046
316			1990	03	16.87946	11	17	11.63	+07	18	42.1		046
316			1990	03	16.89358	11	17	10.97	+07	18	46.4		046
316			1990	03	18.83374	11	15	46.49	+07	28	13.6		046
316			1990	03	18.84786	11	15	45.94	+07	28	16.9		046
316			1990	03	19.88368	11	15	01.34	+07	33	13.9		046
316			1990	03	19.89792	11	15	00.76	+07	33	17.6		046
530			1990	03	24.87402	11	56	19.26	+09	56	26.2		046
530			1990	03	24.88796	11	56	18.64	+09	56	30.3		046
722			1990	03	19.91771	12	10	13.97	+06	40	45.8		046
722			1990	03	19.93194	12	10	13.00	+06	40	49.7		046
1202			1990	03	17.92703	12	06	36.12	+02	52	34.6		046
1202			1990	03	17.94207	12	06	35.55	+02	52	37.1		046
1202			1990	03	18.90162	12	06	02.35	+02	56	04.5		046
1202			1990	03	18.91574	12	06	01.75	+02	56	07.4		046

1202	1990	03	19.91771	12	05	27.08	+02	59	39.4	046
1202	1990	03	19.93194	12	05	26.39	+02	59	42.2	046
1253	1990	03	16.87946	11	20	18.65	+05	48	32.9	046
1253	1990	03	16.89358	11	20	18.10	+05	48	36.7	046
1253	1990	03	19.88368	11	18	07.97	+06	01	31.5	046
1253	1990	03	19.89792	11	18	07.35	+06	01	37.1	046
1262	1990	03	15.83507	10	10	14.52	+21	57	37.1	046
1262	1990	03	15.84913	10	10	14.07	+21	57	40.7	046
1551	1990	03	16.91562	12	02	34.79	+06	03	04.3	046
1551	1990	03	16.93003	12	02	33.98	+06	03	10.3	046
1551	1990	03	17.89149	12	01	41.54	+06	09	34.5	046
1551	1990	03	17.90567	12	01	40.81	+06	09	39.6	046
1551	1990	03	17.92703	12	01	39.66	+06	09	47.1	046
1551	1990	03	17.94207	12	01	38.74	+06	09	53.2	046
1551	1990	03	18.90162	12	00	46.33	+06	16	14.9	046
1551	1990	03	18.91574	12	00	45.50	+06	16	20.4	046
1551	1990	03	19.91771	11	59	50.40	+06	22	55.5	046
1551	1990	03	19.93194	11	59	49.64	+06	23	00.8	046
1696	1990	03	16.91562	11	51	18.23	+06	23	57.2	046
1696	1990	03	16.93003	11	51	17.34	+06	23	59.7	046
1696	1990	03	17.89149	11	50	16.36	+06	26	32.5	046
1696	1990	03	17.90567	11	50	15.39	+06	26	34.7	046
1696	1990	03	18.86782	11	49	14.59	+06	29	04.1	046
1696	1990	03	18.88200	11	49	13.63	+06	29	06.4	046
1978	1990	03	16.91562	11	56	55.84	+06	54	22.1	046
1978	1990	03	16.93003	11	56	54.91	+06	54	26.6	046
1978	1990	03	17.89149	11	55	55.01	+07	00	15.6	046
1978	1990	03	17.90567	11	55	54.00	+07	00	20.3	046
1978	1990	03	18.86782	11	54	53.80	+07	06	07.5	046
1978	1990	03	18.88200	11	54	52.93	+07	06	12.1	046
2253	1990	03	17.92703	12	06	08.80	+03	13	11.6	046
2253	1990	03	17.94207	12	06	07.95	+03	13	20.1	046
2253	1990	03	18.90162	12	05	13.51	+03	20	36.9	046
2253	1990	03	18.91574	12	05	12.54	+03	20	42.1	046
2253	1990	03	19.91771	12	04	14.82	+03	28	19.9	046
2253	1990	03	19.93194	12	04	13.88	+03	28	25.3	046
2309	1990	03	16.91562	11	48	23.83	+06	42	50.2	046
2309	1990	03	16.93003	11	48	23.24	+06	42	56.9	046
2309	1990	03	17.89149	11	47	42.14	+06	50	20.6	046
2309	1990	03	17.90567	11	47	41.48	+06	50	27.3	046
2309	1990	03	18.86782	11	47	00.63	+06	57	48.2	046
2309	1990	03	18.88200	11	46	59.94	+06	57	54.4	046
2741	1990	03	24.87402	11	58	21.43	+09	29	53.1	046
2741	1990	03	24.88796	11	58	20.85	+09	30	00.4	046
2945	1990	03	16.91562	11	53	02.50	+04	58	19.5	046
2945	1990	03	16.93003	11	53	01.82	+04	58	24.7	046
2945	1990	03	17.89149	11	52	13.85	+05	03	48.5	046
2945	1990	03	17.90567	11	52	13.12	+05	03	53.1	046
2945	1990	03	18.86782	11	51	25.16	+05	09	18.8	046
2945	1990	03	18.88200	11	51	24.29	+05	09	21.9	046
3269	1990	03	15.87245	10	42	58.55	+13	06	39.8	046
3269	1990	03	15.88657	10	42	57.76	+13	06	42.2	046
3269	1990	03	16.84005	10	42	04.81	+13	06	30.8	046
3269	1990	03	16.85417	10	42	03.93	+13	06	31.8	046
3269	1990	03	17.84826	10	41	09.40	+13	06	12.2	046
3269	1990	03	17.86238	10	41	08.51	+13	06	15.2	046
3278	1990	03	15.83507	10	16	44.12	+24	58	35.4	046
3278	1990	03	15.84913	10	16	43.49	+24	58	37.0	046
3359	1990	03	16.91562	12	01	20.39	+04	53	32.7	046

3359	1990	03	16.93003	12	01	19.05	+04	53	37.8	046
3359	1990	03	18.86782	11	59	15.59	+05	01	42.9	046
3359	1990	03	18.88200	11	59	14.80	+05	01	44.0	046
3359	1990	03	18.90162	11	59	13.14	+05	01	48.0	046
3359	1990	03	18.91574	11	59	12.27	+05	01	51.6	046
3359	1990	03	19.91771	11	58	08.08	+05	05	56.8	046
3359	1990	03	19.93194	11	58	07.12	+05	06	01.4	046
3393	1990	03	17.89149	11	53	46.64	+06	34	48.3	046
3393	1990	03	17.90567	11	53	45.88	+06	34	56.9	046
3393	1990	03	18.86782	11	53	00.27	+06	43	54.6	046
3393	1990	03	18.88200	11	52	59.60	+06	44	02.6	046
3672	1990	03	15.87245	10	41	10.78	+14	07	24.4	16.6 046
3672	1990	03	15.88657	10	41	10.08	+14	07	26.4	046
3672	1990	03	16.84005	10	40	13.14	+14	09	09.4	046
3672	1990	03	16.85417	10	40	12.42	+14	09	12.7	046
3672	1990	03	17.84826	10	39	14.34	+14	10	49.4	046
3672	1990	03	17.86238	10	39	13.52	+14	10	50.7	046
3701	1990	03	18.90162	12	10	25.71	+06	08	19.8	046
3701	1990	03	18.91574	12	10	24.95	+06	08	25.9	046
3701	1990	03	19.91771	12	09	36.96	+06	14	25.2	046
3701	1990	03	19.93194	12	09	36.39	+06	14	28.8	046
3726	1990	03	17.92703	12	05	42.17	+04	03	45.6	046
3726	1990	03	17.94207	12	05	41.40	+04	03	50.1	046
3726	1990	03	18.90162	12	04	56.50	+04	09	06.1	046
3726	1990	03	18.91574	12	04	55.87	+04	09	09.5	046
3726	1990	03	19.91771	12	04	08.68	+04	14	38.4	046
3726	1990	03	19.93194	12	04	07.83	+04	14	42.9	046
4137	1990	03	15.87245	10	34	52.56	+09	57	29.8	046
4137	1990	03	15.88657	10	34	51.75	+09	57	32.9	046
4137	1990	03	16.84005	10	34	01.10	+10	00	24.8	046
4137	1990	03	16.85417	10	34	00.15	+10	00	29.7	046
4137	1990	03	17.84826	10	33	08.32	+10	03	25.2	046
4137	1990	03	17.86238	10	33	07.60	+10	03	29.3	046
4258	1990	03	15.87245	10	43	51.69	+14	05	03.9	16.7 046
4258	1990	03	15.88657	10	43	50.95	+14	05	08.4	046
4258	1990	03	16.84005	10	43	08.64	+14	08	28.5	046
4258	1990	03	16.85417	10	43	08.01	+14	08	32.1	046
4258	1990	03	17.84826	10	42	24.66	+14	11	56.9	046
4258	1990	03	17.86238	10	42	23.95	+14	11	59.4	046

054 Brorfelde
P. Jensen, Copenhagen University Observatory, Brorfelde,
DK-4340 Tollose, Denmark
Observers B. Jensen, P. Jensen
Measurer P. Jensen

3713	1990	03	26.86821	11	21	14.54	+19	24	54.6	16.5 054
3713	1990	03	26.88557	11	21	13.73	+19	24	58.3	054
3713	1990	03	27.85849	11	20	33.39	+19	28	33.7	054
3713	1990	03	27.87585	11	20	32.74	+19	28	37.0	054
4424	1990	03	26.86821	11	26	03.47	+18	24	40.6	16.0 054
4424	1990	03	26.88557	11	26	02.66	+18	24	47.7	054
4424	1990	03	27.85849	11	25	24.07	+18	31	42.2	054
4424	1990	03	27.87585	11	25	23.37	+18	31	48.3	054
4453	1990	03	02.91788	09	46	56.31	+14	52	54.8	16.5 054
4453	1990	03	02.93524	09	46	55.36	+14	52	57.7	054
4461	1990	03	26.86821	11	32	08.48	+19	39	30.7	16.0 054
4461	1990	03	26.88557	11	32	07.60	+19	39	37.6	054
4461	1990	03	27.85849	11	31	25.61	+19	45	53.3	054
4461	1990	03	27.87585	11	31	24.83	+19	45	59.4	054

063 Turku-Tuorla
A. Niemi, Turku University Observatory, SF-21500 Piikkio, Finland
Observer A. Sillanpaa
Measurer A. Niemi
0.7-m Schmidt

2195	1989 02 08.83312	09 40 05.15	+19 27 39.0			063
2195	1989 02 08.87737	09 40 02.23	+19 27 56.7			063
2195	1989 02 13.83362	09 34 43.83	+20 02 21.6			063

091 Aurec-sur-Loire
R. Chanal, Observatore de Nurol, F-43110 Aurec-sur-Loire, France
0.41-m reflector
AGK3, SAOC

3398	1989 12 27.00139	05 46 35.04	+49 27 03.8			091
3398	1989 12 27.04861	05 46 29.60	+49 27 58.5			091
3398	1989 12 28.98472	05 43 01.42	+50 03 48.5			091

095 Crimean Astrophysical Observatory
N. S. Chernykh, Crimean Astrophysical Observatory, P.O. Nauchnyj, Crimea 334413, U.S.S.R.
Yu. V. Batrakov, Institute for Theoretical Astronomy, Naberezhnaya Kutuzova 10, Leningrad 191187, U.S.S.R.
Observers N. S. Chernykh, L. I. Chernykh

26	1989 10 24.96875	04 00 37.96	+21 12 32.4			095
26	1989 10 24.98958	04 00 37.02	+21 12 30.7			095
26	1989 10 30.99304	03 56 10.91	+21 06 54.2			095
26	1989 10 31.01388	03 56 09.86	+21 06 52.3			095
70	1989 10 26.96145	03 10 50.30	+16 23 35.9			095
70	1989 10 26.98263	03 10 49.03	+16 23 38.5			095
70	1989 10 30.89583	03 06 45.88	+16 24 30.0			095
70	1989 10 30.92014	03 06 44.26	+16 24 31.0			095
135	1989 10 24.87326	02 36 21.35	+18 48 11.0			095
135	1989 10 24.89236	02 36 20.08	+18 48 05.4			095
135	1989 10 26.86978	02 34 17.19	+18 40 32.1			095
135	1989 10 26.88889	02 34 15.97	+18 40 26.3			095
159	1989 09 08.88872	22 35 14.81	-12 53 26.2			095
162	1989 10 24.87326	02 30 05.66	+14 58 22.0			095
162	1989 10 24.89236	02 30 04.58	+14 58 18.2			095
162	1989 10 26.86978	02 28 23.33	+14 53 33.2			095
162	1989 10 26.88889	02 28 22.31	+14 53 28.6			095
178	1989 10 24.96875	03 50 29.24	+20 01 01.4			095
178	1989 10 24.98958	03 50 28.21	+20 00 58.5			095
178	1989 10 30.99304	03 45 38.02	+19 50 22.2			095
178	1989 10 31.01388	03 45 36.96	+19 50 19.5			095
184	1989 10 24.87326	02 24 54.37	+15 54 58.1			095
184	1989 10 24.89236	02 24 53.41	+15 54 53.1			095
184	1989 10 26.86978	02 23 21.78	+15 47 45.8			095
184	1989 10 26.88889	02 23 20.88	+15 47 39.7			095
188	1989 10 24.77431	00 09 17.77	+15 19 09.0		E	095
188	1989 10 24.79514	00 09 17.11	+15 18 56.4		E	095
188	1989 10 26.77856	00 08 25.82	+14 59 15.4		E	095
188	1989 10 26.79862	00 08 25.33	+14 59 01.9		E	095
197	1989 10 30.89583	03 06 59.81	+08 15 26.0		E	095
197	1989 10 30.92014	03 06 58.35	+08 15 22.5		E	095
197	1989 11 21.85417	02 46 20.89	+08 00 38.0			095
197	1989 11 21.86528	02 46 20.17	+08 00 37.2			095
236	1989 10 25.06595	04 30 28.07	+12 52 23.2			095
236	1989 10 25.08678	04 30 27.56	+12 52 16.7			095
236	1989 10 27.05553	04 29 34.86	+12 41 16.7			095

236	1989	10	27.07636	04	29	34.23	+12	41	10.6		095
260	1989	10	30.89583	02	57	35.06	+08	50	16.0	E	095
260	1989	10	30.92014	02	57	33.61	+08	50	07.4	E	095
260	1989	11	21.85417	02	42	00.13	+07	27	43.3		095
260	1989	11	21.86528	02	41	59.54	+07	27	41.4		095
263	1989	10	24.87326	02	19	18.10	+13	58	00.5	E	095
263	1989	10	24.89236	02	19	17.02	+13	57	54.1	E	095
263	1989	10	26.86978	02	17	38.21	+13	48	32.8	E	095
263	1989	10	26.88889	02	17	37.07	+13	48	24.3	E	095
264	1989	11	21.75693	01	14	07.22	+03	08	52.6	E	095
264	1989	11	21.77777	01	14	06.65	+03	08	57.4	E	095
269	1989	10	26.96145	03	01	49.34	+09	19	27.4	E	095
269	1989	10	26.98263	03	01	48.10	+09	19	17.8	E	095
269	1989	10	30.89583	02	58	18.39	+08	59	34.6	E	095
269	1989	10	30.92014	02	58	16.72	+08	59	24.5	E	095
269	1989	11	21.85417	02	38	52.16	+07	27	59.7	E	095
269	1989	11	21.86528	02	38	51.41	+07	27	56.6	E	095
293	1989	10	24.96875	04	12	01.93	+17	52	59.7	E	095
293	1989	10	24.98958	04	12	01.09	+17	52	54.8	E	095
293	1989	10	25.06595	04	11	57.85	+17	53	13.4		095
293	1989	10	25.08678	04	11	57.09	+17	53	16.3		095
293	1989	10	27.05553	04	10	39.74	+17	57	56.9		095
293	1989	10	27.07636	04	10	38.81	+17	57	58.2		095
301	1989	10	26.96145	03	36	50.64	+11	54	07.7		095
301	1989	10	26.98263	03	36	49.78	+11	54	02.2		095
301	1989	10	30.89583	03	33	48.70	+11	38	53.6		095
301	1989	10	30.92014	03	33	47.48	+11	38	45.9		095
301	1989	11	21.85417	03	14	37.63	+10	21	31.7		095
301	1989	11	21.86528	03	14	36.94	+10	21	28.9		095
308	1989	10	25.06595	04	40	05.55	+16	58	12.1		095
308	1989	10	25.08678	04	40	05.02	+16	58	06.5		095
308	1989	10	27.05553	04	39	12.57	+16	52	18.7		095
308	1989	10	27.07636	04	39	11.87	+16	52	14.4		095
310	1989	10	30.80208	01	33	17.87	+11	27	05.2		095
310	1989	10	30.82293	01	33	16.87	+11	26	58.8		095
310	1989	11	21.75693	01	19	20.73	+09	41	11.8		095
321	1989	10	30.80208	01	40	03.15	+09	39	46.3		095
321	1989	10	30.82293	01	40	02.10	+09	39	42.7		095
321	1989	11	21.75693	01	25	34.58	+08	38	07.6		095
321	1989	11	21.77777	01	25	34.04	+08	38	04.9		095
365	1989	09	04.99178	00	46	12.04	+06	35	36.7	E	095
365	1989	09	08.95833	00	44	42.77	+06	02	24.7		095
365	1989	09	08.98264	00	44	42.15	+06	02	13.2		095
401	1989	09	04.99178	00	56	46.61	+01	19	36.4		095
401	1989	09	08.95833	00	54	44.62	+01	09	06.5		095
401	1989	09	08.98264	00	54	43.66	+01	09	00.5		095
411	1989	09	04.90972	23	30	31.38	-25	00	12.0	E	095
411	1989	09	04.93056	23	30	30.24	-25	00	23.6	E	095
449	1989	10	26.96145	03	19	29.24	+14	51	44.4		095
449	1989	10	26.98263	03	19	28.15	+14	51	41.8		095
449	1989	10	30.89583	03	16	05.14	+14	40	32.6		095
449	1989	10	30.92014	03	16	03.86	+14	40	27.8		095
449	1989	11	21.85417	02	54	38.74	+13	35	27.8		095
449	1989	11	21.86528	02	54	38.06	+13	35	26.5		095
456	1989	09	04.82998	22	00	14.32	+10	12	51.3		095
456	1989	09	04.85069	22	00	13.23	+10	12	40.6		095
459	1989	09	04.99178	01	08	16.59	-01	57	38.1		095
459	1989	09	08.95833	01	06	20.43	-01	57	58.3		095
459	1989	09	08.98264	01	06	19.70	-01	57	55.7		095

463	1989	09	04.90972	00	04	42.37	-23	23	59.3		095
463	1989	09	04.93056	00	04	41.42	-23	23	59.5		095
475	1989	10	24.87326	02	37	05.78	+16	21	27.4		095
475	1989	10	24.89236	02	37	03.97	+16	21	40.2		095
475	1989	10	26.86978	02	34	01.67	+16	44	40.1		095
475	1989	10	26.88889	02	33	59.86	+16	44	51.5		095
488	1989	10	25.06595	04	21	33.35	+13	35	03.5		095
488	1989	10	25.08678	04	21	32.78	+13	35	03.5		095
488	1989	10	27.05553	04	20	31.12	+13	34	11.8		095
488	1989	10	27.07636	04	20	30.46	+13	34	13.3		095
508	1989	09	04.90972	23	33	42.69	-21	16	40.7		095
508	1989	09	04.93056	23	33	41.44	-21	16	45.5		095
586	1989	10	24.96875	04	14	14.43	+20	59	59.9	E	095
586	1989	10	24.98958	04	14	13.95	+20	59	57.8	E	095
586	1989	10	25.06595	04	14	11.24	+20	59	53.5		095
586	1989	10	25.08678	04	14	10.62	+20	59	51.4		095
586	1989	10	27.05553	04	13	09.03	+20	56	11.2		095
586	1989	10	27.07636	04	13	08.43	+20	56	08.2		095
627	1989	10	25.06595	04	18	33.75	+12	00	32.8	E	095
627	1989	10	25.08678	04	18	33.12	+12	00	28.2	E	095
627	1989	10	27.05553	04	17	29.47	+11	54	00.2	E	095
627	1989	10	27.07636	04	17	28.69	+11	53	55.3	E	095
636	1989	10	30.80208	01	42	03.76	+09	39	55.6		095
636	1989	10	30.82293	01	42	02.64	+09	39	54.5		095
636	1989	11	21.75693	01	26	48.86	+09	25	54.3		095
636	1989	11	21.77777	01	26	48.34	+09	25	54.1		095
637	1989	10	26.86978	02	54	01.80	+16	55	55.0		095
637	1989	10	26.88889	02	54	00.94	+16	55	49.9		095
680	1989	10	30.99304	04	01	30.95	+27	55	44.7	E	095
680	1989	10	31.01388	04	01	29.94	+27	55	45.1	E	095
713	1989	10	24.87326	02	49	34.67	+15	56	57.7		095
713	1989	10	24.89236	02	49	33.91	+15	56	48.5		095
713	1989	10	26.86978	02	48	10.46	+15	44	06.2		095
713	1989	10	26.88889	02	48	09.68	+15	43	57.9		095
754	1989	09	04.99178	01	14	13.19	+02	56	38.1		095
754	1989	09	08.95833	01	12	51.79	+02	16	25.9		095
754	1989	09	08.98264	01	12	51.14	+02	16	07.3		095
755	1989	09	04.99178	01	01	20.96	+05	43	09.2		095
755	1989	09	08.95833	00	59	25.98	+05	28	03.1		095
755	1989	09	08.98264	00	59	25.06	+05	27	57.3		095
786	1989	09	04.90972	23	51	37.44	-22	51	30.2		095
786	1989	09	04.93056	23	51	36.41	-22	51	37.2		095
832	1989	10	30.80208	01	51	17.75	+12	34	45.6	E	095
832	1989	10	30.82293	01	51	16.88	+12	34	41.5		095
832	1989	11	21.75693	01	36	40.41	+11	01	45.5		095
832	1989	11	21.77777	01	36	39.79	+11	01	42.7		095
968	1989	10	24.87326	02	31	05.73	+12	21	24.8		095
968	1989	10	24.89236	02	31	04.79	+12	21	15.5		095
968	1989	10	26.86978	02	29	32.10	+12	06	18.3		095
968	1989	10	26.88889	02	29	31.07	+12	06	07.2		095
973	1989	10	24.77431	00	19	41.98	+14	22	45.1		095
973	1989	10	24.79514	00	19	41.03	+14	22	41.6		095
973	1989	10	26.77856	00	18	15.39	+14	18	25.1		095
973	1989	10	26.79862	00	18	14.50	+14	18	21.8		095
991	1989	10	26.96145	03	11	26.56	+16	47	51.7		095
991	1989	10	26.98263	03	11	25.62	+16	47	48.7		095
991	1989	10	30.89583	03	08	20.12	+16	37	17.4		095
991	1989	10	30.92014	03	08	18.94	+16	37	12.1		095
991	1989	11	21.85417	02	50	22.61	+15	33	57.4	E	095

991	1989	11	21.86528	02	50	21.94	+15	33	55.5	E 095
993	1989	10	30.80208	01	40	53.75	+09	09	53.6	095
993	1989	10	30.82293	01	40	52.73	+09	09	46.8	095
993	1989	11	21.75693	01	27	04.79	+07	42	15.3	095
993	1989	11	21.77777	01	27	04.26	+07	42	11.0	095
1012	1989	11	21.75693	01	49	51.39	+07	31	21.5	E 095
1012	1989	11	21.77777	01	49	50.49	+07	31	20.7	E 095
1045	1989	09	04.99178	00	56	58.60	+06	34	12.8	E 095
1045	1989	09	08.95833	00	55	09.76	+06	23	25.2	095
1045	1989	09	08.98264	00	55	08.95	+06	23	22.4	095
1060	1989	11	21.85417	03	05	44.27	+15	12	19.4	E 095
1060	1989	11	21.86528	03	05	43.66	+15	12	13.3	E 095
1085	1989	09	08.88872	22	40	28.90	-12	02	08.9	095
1088	1989	10	30.80208	01	49	56.15	+04	34	43.1	095
1088	1989	10	30.82293	01	49	54.81	+04	34	47.2	095
1088	1989	11	21.75693	01	33	24.49	+06	21	33.9	095
1088	1989	11	21.77777	01	33	24.01	+06	21	41.2	095
1113	1989	10	24.77431	00	18	44.41	+19	45	29.3	095
1113	1989	10	24.79514	00	18	43.44	+19	45	23.4	095
1113	1989	10	26.77856	00	17	19.49	+19	36	57.6	095
1113	1989	10	26.79862	00	17	18.67	+19	36	52.1	095
1121	1989	09	04.99178	00	55	34.73	+06	36	34.5	E 095
1121	1989	09	08.95833	00	53	28.48	+06	38	51.0	095
1121	1989	09	08.98264	00	53	27.57	+06	38	53.0	095
1131	1989	10	26.96145	03	36	39.08	+13	11	26.3	095
1131	1989	10	26.98263	03	36	37.81	+13	11	23.6	095
1131	1989	10	30.89583	03	32	55.33	+13	03	06.8	095
1131	1989	10	30.92014	03	32	53.81	+13	03	02.0	095
1131	1989	11	21.85417	03	09	32.79	+12	30	18.5	095
1146	1989	10	26.96145	03	19	29.82	+13	19	48.8	095
1146	1989	10	26.98263	03	19	28.98	+13	19	41.2	095
1146	1989	10	30.89583	03	16	34.58	+12	52	46.5	095
1146	1989	10	30.92014	03	16	33.54	+12	52	33.9	095
1146	1989	11	21.85417	02	59	35.18	+10	27	50.2	095
1146	1989	11	21.86528	02	59	34.67	+10	27	45.9	095
1152	1989	10	30.99304	03	44	20.89	+27	59	23.8	E 095
1152	1989	10	31.01388	03	44	19.67	+27	59	22.1	E 095
1199	1989	10	24.77431	00	25	29.35	+11	26	39.2	E 095
1199	1989	10	24.79514	00	25	28.60	+11	26	31.6	E 095
1201	1989	10	26.96145	03	26	54.76	+14	24	16.7	095
1201	1989	10	26.98263	03	26	53.87	+14	24	08.6	095
1201	1989	10	30.89583	03	23	53.19	+14	00	22.4	095
1201	1989	10	30.92014	03	23	52.04	+14	00	11.6	095
1201	1989	11	21.85417	03	05	03.89	+11	48	40.3	095
1201	1989	11	21.86528	03	05	03.27	+11	48	36.5	095
1204	1989	10	24.87326	02	36	15.14	+17	14	10.2	095
1204	1989	10	24.89236	02	36	13.76	+17	14	05.6	095
1204	1989	10	26.86978	02	33	57.42	+17	06	09.4	095
1204	1989	10	26.88889	02	33	56.02	+17	06	03.6	095
1206	1989	10	24.77431	00	07	35.09	+17	15	53.3	E 095
1206	1989	10	24.79514	00	07	34.27	+17	15	47.8	E 095
1206	1989	10	26.77856	00	06	17.06	+17	06	51.8	E 095
1206	1989	10	26.79862	00	06	16.11	+17	06	47.0	E 095
1208	1989	10	26.96145	03	09	42.49	+16	13	02.9	095
1208	1989	10	26.98263	03	09	41.74	+16	13	03.5	095
1208	1989	10	30.89583	03	07	05.61	+16	17	32.5	095
1208	1989	10	30.92014	03	07	04.50	+16	17	30.0	095
1402	1989	09	04.82998	21	51	37.48	+11	07	19.1	095
1402	1989	09	04.85069	21	51	36.44	+11	07	12.0	095

1470	1989	10	24.87326	02	35	34.08	+18	23	24.7		095
1470	1989	10	24.89236	02	35	33.20	+18	23	21.2		095
1470	1989	10	26.86978	02	33	57.33	+18	17	42.3		095
1470	1989	10	26.88889	02	33	56.36	+18	17	39.6		095
1479	1989	10	24.87326	02	40	54.48	+20	18	06.9	E	095
1479	1989	10	24.89236	02	40	53.50	+20	18	06.3	E	095
1479	1989	10	26.86978	02	38	58.10	+20	18	08.9	E	095
1479	1989	10	26.88889	02	38	57.05	+20	18	09.6	E	095
1482	1989	10	30.80208	01	50	31.69	+08	18	39.1		095
1482	1989	10	30.82293	01	50	30.68	+08	18	34.8		095
1482	1989	11	21.75693	01	35	26.30	+07	19	34.4		095
1482	1989	11	21.77777	01	35	25.69	+07	19	32.2		095
1506	1989	10	24.77431	00	12	18.51	+14	45	01.7		095
1506	1989	10	24.79514	00	12	17.81	+14	44	50.5		095
1506	1989	10	26.77856	00	11	20.72	+14	23	15.2		095
1506	1989	10	26.79862	00	11	20.24	+14	22	53.5		095
1522	1989	10	24.96875	04	07	54.79	+19	17	36.3		095
1522	1989	10	24.98958	04	07	53.84	+19	17	35.1		095
1527	1989	10	24.96875	04	05	32.25	+25	55	01.4		095
1527	1989	10	24.98958	04	05	31.11	+25	55	04.2		095
1527	1989	10	30.99304	03	59	57.34	+26	02	21.8		095
1527	1989	10	31.01388	03	59	56.08	+26	02	20.1		095
1561	1989	10	24.87326	02	27	07.43	+16	12	06.5		095
1561	1989	10	24.89236	02	27	06.46	+16	11	59.3		095
1561	1989	10	26.86978	02	25	36.72	+16	02	59.6		095
1561	1989	10	26.88889	02	25	35.85	+16	02	52.0		095
1567	1989	09	04.90972	23	55	38.97	-24	21	28.1		095
1567	1989	09	04.93056	23	55	38.01	-24	21	32.8		095
1578	1989	10	24.96875	04	04	53.84	+20	24	26.2		095
1578	1989	10	24.98958	04	04	53.32	+20	24	25.5		095
1578	1989	10	25.06595	04	04	51.11	+20	24	23.7	E	095
1578	1989	10	25.08678	04	04	50.32	+20	24	23.6	E	095
1578	1989	10	27.05553	04	03	55.65	+20	22	11.3	E	095
1578	1989	10	27.07636	04	03	55.03	+20	22	08.8	E	095
1578	1989	10	30.99304	04	01	53.47	+20	17	05.6		095
1578	1989	10	31.01388	04	01	52.75	+20	17	03.4		095
1599	1989	10	24.87326	02	31	07.22	+13	41	59.0		095
1599	1989	10	24.89236	02	31	06.17	+13	41	55.5		095
1599	1989	10	26.86978	02	29	25.93	+13	38	37.3		095
1599	1989	10	26.88889	02	29	24.96	+13	38	34.0		095
1635	1989	10	26.96145	03	10	03.05	+15	55	16.3		095
1635	1989	10	26.98263	03	10	01.98	+15	55	12.3		095
1635	1989	10	30.89583	03	06	50.57	+15	39	43.3		095
1635	1989	10	30.92014	03	06	49.41	+15	39	37.7		095
1635	1989	11	21.85417	02	48	11.70	+14	10	44.7		095
1635	1989	11	21.86528	02	48	11.03	+14	10	39.6		095
1654	1989	10	24.96875	03	37	24.85	+25	51	34.1		095
1654	1989	10	24.98958	03	37	23.85	+25	51	38.1		095
1654	1989	10	30.99304	03	32	26.40	+26	01	01.3		095
1654	1989	10	31.01388	03	32	25.26	+26	01	01.3		095
1680	1989	10	24.87326	02	46	24.91	+11	34	04.5	E	095
1680	1989	10	24.89236	02	46	23.89	+11	34	00.1	E	095
1680	1989	10	26.86978	02	44	42.23	+11	27	14.2		095
1680	1989	10	26.88889	02	44	41.12	+11	27	08.1		095
1748	1989	09	08.88872	22	40	05.64	-11	26	20.0		095
1761	1989	10	24.87326	02	48	37.18	+13	53	56.8		095
1761	1989	10	24.89236	02	48	36.29	+13	53	52.4		095
1761	1989	10	26.86978	02	47	03.17	+13	47	39.2		095
1761	1989	10	26.88889	02	47	02.12	+13	47	34.4		095

1789	1989	09	08.88872	22	33	42.64	-13	06	37.2		095
1794	1989	10	24.87326	02	26	30.70	+16	03	01.0		095
1794	1989	10	24.89236	02	26	29.74	+16	02	51.6		095
1794	1989	10	26.86978	02	25	03.09	+15	50	12.8		095
1794	1989	10	26.88889	02	25	02.19	+15	50	04.0		095
1827	1989	10	24.87326	02	32	18.98	+15	31	01.9		095
1827	1989	10	24.89236	02	32	17.94	+15	30	54.3		095
1827	1989	10	26.86978	02	30	38.81	+15	18	33.6		095
1827	1989	10	26.88889	02	30	37.80	+15	18	24.2		095
1879	1989	10	24.96875	03	37	17.03	+20	54	31.7		095
1879	1989	10	24.98958	03	37	16.04	+20	54	26.7		095
1879	1989	10	30.99304	03	32	55.03	+20	33	55.3		095
1879	1989	10	31.01388	03	32	54.11	+20	33	50.9		095
1890	1989	10	30.89583	03	36	00.55	+13	44	58.3	E	095
1890	1989	10	30.92014	03	35	59.34	+13	44	53.5	E	095
1890	1989	11	21.85417	03	17	11.05	+13	42	40.7	E	095
1890	1989	11	21.86528	03	17	10.47	+13	42	40.1	E	095
1896	1989	09	08.88872	22	15	37.04	-08	53	02.7		095
1903	1989	09	08.88872	22	46	34.58	-15	12	50.5	E	095
1928	1989	10	26.96145	03	30	21.58	+13	14	44.0		095
1928	1989	10	26.98263	03	30	20.53	+13	14	36.1		095
1928	1989	10	30.89583	03	26	57.94	+12	51	50.0		095
1928	1989	10	30.92014	03	26	56.63	+12	51	39.0		095
1928	1989	11	21.85417	03	06	07.40	+10	55	36.9		095
1928	1989	11	21.86528	03	06	06.76	+10	55	33.3		095
1940	1989	10	24.77431	00	41	03.71	+13	53	30.6	E	095
1940	1989	10	24.79514	00	41	02.97	+13	53	21.4	E	095
1940	1989	10	26.77856	00	39	46.17	+13	41	07.7		095
1940	1989	10	26.79862	00	39	45.38	+13	41	00.0		095
1953	1989	09	08.88872	22	16	51.28	-14	41	13.4		095
1960	1989	10	24.87326	02	18	08.33	+17	07	24.3	E	095
1960	1989	10	24.89236	02	18	07.10	+17	07	19.7	E	095
1965	1989	10	24.87326	02	24	43.46	+11	05	29.7	E	095
1965	1989	10	24.89236	02	24	42.16	+11	05	21.7	E	095
1965	1989	10	26.86978	02	22	53.60	+10	57	28.4	E	095
1965	1989	10	26.88889	02	22	52.62	+10	57	22.5	E	095
1982	1989	10	30.80208	01	35	19.23	+07	02	52.2		095
1982	1989	10	30.82293	01	35	17.99	+07	02	53.4		095
1982	1989	11	21.75693	01	20	12.68	+07	36	38.7		095
1982	1989	11	21.77777	01	20	12.33	+07	36	40.3		095
1984	1989	10	26.96145	03	10	22.72	+13	15	13.2		095
1984	1989	10	26.98263	03	10	21.80	+13	15	07.5		095
1984	1989	10	30.89583	03	07	22.09	+12	56	55.5		095
1984	1989	10	30.92014	03	07	20.96	+12	56	46.2		095
1984	1989	11	21.85417	02	49	54.96	+11	20	17.9		095
1984	1989	11	21.86528	02	49	54.37	+11	20	14.9		095
2007	1989	10	24.87326	02	46	38.86	+18	02	55.2		095
2007	1989	10	24.89236	02	46	37.74	+18	02	50.8		095
2007	1989	10	26.86978	02	44	40.29	+17	56	37.6		095
2007	1989	10	26.88889	02	44	39.21	+17	56	33.0		095
2012	1989	10	24.87326	02	37	54.51	+20	06	17.4		095
2012	1989	10	24.89236	02	37	53.29	+20	06	10.8		095
2012	1989	10	26.86978	02	35	50.27	+19	55	34.5		095
2012	1989	10	26.88889	02	35	48.70	+19	55	26.5		095
2081	1989	10	24.87326	02	26	54.00	+11	01	28.4	E	095
2081	1989	10	24.89236	02	26	52.60	+11	01	24.5	E	095
2081	1989	10	26.86978	02	24	52.80	+10	54	16.6	N	095
2081	1989	10	26.88889	02	24	51.38	+10	54	09.6	N	095
2084	1989	10	26.96145	03	33	23.54	+10	30	08.7		095

2084	1989	10	26.98263	03	33	22.54	+10	30	03.0		095
2084	1989	10	30.89583	03	30	16.01	+10	10	00.3		095
2084	1989	10	30.92014	03	30	14.76	+10	09	52.0		095
2084	1989	11	21.85417	03	09	45.92	+08	36	33.5		095
2084	1989	11	21.86528	03	09	45.28	+08	36	31.1		095
2120	1989	10	26.96145	03	03	21.45	+16	51	29.2	E	095
2120	1989	10	26.98263	03	03	20.56	+16	51	24.3	E	095
2120	1989	10	30.89583	03	00	22.99	+16	20	15.4		095
2120	1989	10	30.92014	03	00	21.87	+16	20	04.8		095
2120	1989	11	21.85417	02	43	40.24	+13	24	41.6		095
2120	1989	11	21.86528	02	43	39.58	+13	24	34.0		095
2151	1989	09	04.90972	00	02	54.53	-16	40	57.4		095
2151	1989	09	04.93056	00	02	53.49	-16	41	00.4		095
2177	1989	10	24.87326	02	35	20.23	+14	38	08.5		095
2177	1989	10	24.89236	02	35	19.30	+14	38	04.2		095
2177	1989	10	26.86978	02	33	46.04	+14	31	29.3		095
2177	1989	10	26.88889	02	33	45.14	+14	31	24.9		095
2207	1989	09	04.99178	01	01	53.46	+02	05	31.4		095
2207	1989	09	08.95833	01	00	34.61	+01	52	36.8		095
2207	1989	09	08.98264	01	00	33.93	+01	52	31.5		095
2224	1989	09	08.88872	22	23	30.46	-14	19	39.3		095
2225	1989	09	04.99178	00	53	35.16	+00	32	49.3		095
2225	1989	09	08.95833	00	51	28.96	+00	15	53.5		095
2225	1989	09	08.98264	00	51	28.03	+00	15	46.8		095
2228	1989	10	30.80208	01	36	43.35	+06	54	47.0		095
2228	1989	10	30.82293	01	36	42.42	+06	54	41.4		095
2228	1989	11	21.75693	01	24	04.44	+05	47	07.9		095
2228	1989	11	21.77777	01	24	04.06	+05	47	04.8		095
2237	1989	10	25.06595	04	07	07.54	+17	26	39.5	E	095
2237	1989	10	25.08678	04	07	06.96	+17	26	34.1	E	095
2237	1989	10	27.05553	04	06	05.60	+17	23	05.7		095
2237	1989	10	27.07636	04	06	04.96	+17	23	00.9		095
2259	1989	10	30.99304	04	04	01.40	+26	19	14.7		095
2259	1989	10	31.01388	04	04	00.05	+26	19	10.7		095
2264	1989	10	24.96875	03	56	19.28	+20	27	41.7		095
2264	1989	10	24.98958	03	56	18.27	+20	27	38.4		095
2264	1989	10	30.99304	03	52	13.35	+20	15	20.7		095
2264	1989	10	31.01388	03	52	12.59	+20	15	15.9		095
2341	1989	10	26.96145	03	05	53.14	+14	16	55.6		095
2341	1989	10	26.98263	03	05	51.87	+14	16	56.3		095
2341	1989	10	30.89583	03	02	05.19	+14	13	27.5		095
2341	1989	10	30.92014	03	02	03.73	+14	13	24.1		095
2341	1989	11	21.85417	02	39	34.86	+13	57	09.2	E	095
2341	1989	11	21.86528	02	39	34.12	+13	57	05.0	E	095
2357	1989	11	21.75693	01	39	58.79	+08	30	37.1		095
2357	1989	11	21.77777	01	39	58.22	+08	30	35.2		095
2367	1989	09	08.88872	22	18	38.78	-08	41	45.7		095
2376	1989	10	30.80208	01	57	10.87	+08	57	22.5		095
2376	1989	10	30.82293	01	57	09.86	+08	57	18.0		095
2376	1989	11	21.75693	01	42	37.20	+08	09	28.1		095
2376	1989	11	21.77777	01	42	36.50	+08	09	26.9		095
2385	1989	09	04.99178	01	08	52.43	+03	30	38.6		095
2385	1989	09	08.95833	01	07	45.90	+03	06	04.6		095
2385	1989	09	08.98264	01	07	45.20	+03	05	51.9		095
2401	1989	10	30.80208	02	01	46.56	+10	15	02.2	E	095
2401	1989	10	30.82293	02	01	45.34	+10	14	57.6	E	095
2451	1989	09	08.88872	22	27	06.95	-07	25	20.6		095
2461	1989	09	04.99178	00	48	31.42	+01	28	05.5		095
2461	1989	09	08.95833	00	46	35.60	+01	11	25.0		095

2461	1989	09	08.98264	00	46	34.77	+01	11	17.4		095
2484	1989	10	30.80208	01	55	25.11	+11	21	12.4		095
2484	1989	10	30.82293	01	55	24.10	+11	21	04.2		095
2484	1989	11	21.75693	01	42	49.99	+09	51	10.7		095
2484	1989	11	21.77777	01	42	49.57	+09	51	05.4		095
2509	1989	10	26.86978	02	48	54.50	+20	41	49.6	E	095
2509	1989	10	26.88889	02	48	53.47	+20	41	49.2	E	095
2527	1989	10	26.96145	03	30	23.25	+15	56	03.5		095
2527	1989	10	26.98263	03	30	22.21	+15	55	56.8		095
2527	1989	10	30.89583	03	27	10.34	+15	36	57.8		095
2527	1989	10	30.92014	03	27	09.08	+15	36	50.9		095
2527	1989	11	21.85417	03	06	44.97	+13	49	56.1		095
2527	1989	11	21.86528	03	06	44.43	+13	49	53.8		095
2577	1989	09	04.82998	21	46	12.28	+07	35	43.0		095
2577	1989	09	04.85069	21	46	11.09	+07	35	16.5		095
2603	1989	10	30.80208	01	36	07.63	+09	18	34.8		095
2603	1989	10	30.82293	01	36	06.59	+09	18	29.1		095
2603	1989	11	21.75693	01	21	45.12	+08	20	46.2		095
2603	1989	11	21.77777	01	21	44.58	+08	20	42.3		095
2652	1989	10	26.96145	03	18	25.42	+14	06	35.6		095
2652	1989	10	26.98263	03	18	24.35	+14	06	36.5		095
2652	1989	10	30.89583	03	14	50.49	+14	02	38.2		095
2652	1989	10	30.92014	03	14	49.15	+14	02	34.6		095
2652	1989	11	21.85417	02	53	20.24	+13	42	11.6		095
2652	1989	11	21.86528	02	53	19.57	+13	42	10.0		095
2659	1989	10	26.96145	03	07	31.28	+15	43	18.7		095
2659	1989	10	26.98263	03	07	30.22	+15	43	16.5		095
2659	1989	10	30.89583	03	04	31.84	+15	29	43.0		095
2659	1989	10	30.92014	03	04	30.68	+15	29	37.1		095
2659	1989	11	21.85417	02	46	51.51	+14	10	29.0		095
2659	1989	11	21.86528	02	46	50.84	+14	10	25.0		095
2681	1989	10	26.96145	03	22	25.54	+16	04	56.2		095
2681	1989	10	26.98263	03	22	24.56	+16	04	53.2		095
2681	1989	10	30.89583	03	19	10.47	+15	57	14.2		095
2681	1989	10	30.92014	03	19	09.31	+15	57	10.8		095
2681	1989	11	21.85417	02	58	25.54	+15	08	10.0	E	095
2681	1989	11	21.86528	02	58	24.92	+15	08	08.8	E	095
2713	1989	10	24.96875	03	39	48.91	+21	27	26.1		095
2713	1989	10	24.98958	03	39	48.10	+21	27	23.1		095
2713	1989	10	30.99304	03	35	16.56	+21	15	01.9		095
2713	1989	10	31.01388	03	35	15.70	+21	14	58.9		095
2726	1989	10	24.96875	03	43	45.10	+21	43	30.7		095
2726	1989	10	24.98958	03	43	44.08	+21	43	27.0		095
2726	1989	10	30.99304	03	39	22.38	+21	33	42.6		095
2726	1989	10	31.01388	03	39	21.43	+21	33	39.5		095
2729	1989	10	24.87326	02	41	08.87	+13	25	53.5		095
2729	1989	10	24.89236	02	41	07.86	+13	25	48.2		095
2729	1989	10	26.86978	02	39	26.91	+13	19	43.6		095
2729	1989	10	26.88889	02	39	25.94	+13	19	38.9		095
2750	1989	10	26.96145	03	22	19.31	+18	17	29.8	E	095
2750	1989	10	26.98263	03	22	18.17	+18	17	33.0	E	095
2795	1989	10	30.80208	01	28	37.91	+09	58	01.7		095
2795	1989	10	30.82293	01	28	36.82	+09	57	46.8		095
2861	1989	10	27.05553	04	28	54.22	+17	02	25.8		095
2861	1989	10	27.07636	04	28	53.49	+17	02	19.1		095
2884	1989	09	08.88872	22	09	15.58	-14	14	27.4	E	095
2914	1989	11	21.75693	01	48	07.21	+06	16	41.2		095
2914	1989	11	21.77777	01	48	06.63	+06	16	32.8		095
2978	1989	09	04.99178	00	44	12.88	+05	11	47.6		095

2978	1989	09	08.95833	00	42	11.81	+05	01	33.1			095
2978	1989	09	08.98264	00	42	11.11	+05	01	29.4			095
3010	1989	09	08.88872	22	17	26.59	-12	21	30.4			095
3075	1989	10	24.77431	00	09	49.50	+15	43	30.7			095
3075	1989	10	24.79514	00	09	48.38	+15	43	26.4			095
3170	1989	10	30.80208	01	38	59.72	+10	29	39.7			095
3170	1989	10	30.82293	01	38	58.61	+10	29	34.6			095
3181	1989	10	24.87326	02	25	40.82	+15	05	43.2			095
3181	1989	10	24.89236	02	25	39.66	+15	05	35.4			095
3181	1989	10	26.86978	02	23	41.04	+14	51	53.4			095
3181	1989	10	26.88889	02	23	39.95	+14	51	44.3			095
3194	1989	10	30.89583	03	23	16.51	+13	29	31.6			095
3194	1989	10	30.92014	03	23	15.26	+13	29	30.1			095
3194	1989	11	21.85417	03	03	26.28	+13	22	19.7			095
3194	1989	11	21.86528	03	03	25.70	+13	22	18.8			095
3237	1989	10	24.77431	00	15	53.99	+15	54	30.6			095
3237	1989	10	24.79514	00	15	53.26	+15	54	21.7			095
3237	1989	10	26.77856	00	14	45.17	+15	42	08.5			095
3237	1989	10	26.79862	00	14	44.46	+15	42	00.4			095
3246	1989	09	04.82998	21	45	05.84	+09	08	26.6			095
3246	1989	09	04.85069	21	45	05.28	+09	08	07.9			095
3261	1989	10	30.80208	01	35	31.11	+05	48	59.6			095
3261	1989	10	30.82293	01	35	30.12	+05	48	55.6			095
3261	1989	11	21.75693	01	22	37.16	+04	42	24.7			095
3261	1989	11	21.77777	01	22	36.82	+04	42	19.7			095
3340	1989	09	04.99178	00	58	39.47	-01	20	48.0			095
3340	1989	09	08.95833	00	56	11.94	-01	27	09.8			095
3340	1989	09	08.98264	00	56	10.67	-01	27	07.2			095
3372	1989	09	08.88872	22	16	27.60	-14	38	50.2			095
3379	1989	10	24.87326	02	54	30.53	+11	26	43.3		E	095
3379	1989	10	24.89236	02	54	29.36	+11	26	39.0		E	095
3379	1989	10	26.86978	02	52	45.46	+11	16	19.3		E	095
3379	1989	10	26.88889	02	52	44.52	+11	16	10.5		E	095
3385	1989	10	24.87326	02	35	21.67	+11	08	21.1		N	095
3385	1989	10	24.89236	02	35	20.34	+11	08	09.5		N	095
3385	1989	10	26.86978	02	33	26.22	+10	51	33.3		E	095
3385	1989	10	26.88889	02	33	24.94	+10	51	22.0		E	095
3419	1989	10	26.96145	03	11	39.28	+11	04	30.3			095
3419	1989	10	26.98263	03	11	38.31	+11	04	25.6			095
3419	1989	10	30.89583	03	08	21.56	+11	04	37.5			095
3419	1989	10	30.92014	03	08	20.28	+11	04	35.8			095
3419	1989	11	21.85417	02	49	11.26	+11	12	43.7			095
3419	1989	11	21.86528	02	49	10.61	+11	12	41.1			095
3641	1989	10	24.87326	02	47	06.37	+20	34	24.5		E	095
3641	1989	10	24.89236	02	47	05.54	+20	34	18.4		E	095
3641	1989	10	26.88889	02	45	06.45	+20	37	06.7		E	095
3883	1989	09	04.99178	01	13	19.43	+02	10	01.1			095
3883	1989	09	08.95833	01	12	17.32	+01	30	11.6			095
3883	1989	09	08.98264	01	12	16.85	+01	29	52.1			095
3976	1989	11	21.75693	01	39	36.93	+11	44	56.2		E	095
3976	1989	11	21.77777	01	39	36.32	+11	44	47.9		E	095
4049	1989	09	08.88872	22	23	21.42	-14	01	17.6			095
4192	1989	09	08.88872	22	38	42.80	-07	52	30.6	15.0V		095
4253	1989	09	08.88872	22	45	50.40	-09	06	35.2		E	095
4280	1989	10	30.80208	01	54	28.99	+09	04	36.4	16.3V		095
4280	1989	10	30.82293	01	54	27.80	+09	04	33.0	16.3V		095
4289	1989	11	21.85417	03	16	57.39	+14	07	55.4	15.5V	E	095
4289	1989	11	21.86528	03	16	56.58	+14	07	56.4	15.5V	E	095
4313	1989	10	30.80208	01	42	50.53	+06	54	23.8	15.5V		095

4313	1989	10	30.82293	01	42	49.33	+06	54	21.7	15.5V	095
4313	1989	11	21.75693	01	25	58.90	+06	44	18.1	16.0V	095
4313	1989	11	21.77777	01	25	58.44	+06	44	17.2	16.0V	095
4316	1989	10	24.87326	02	33	12.09	+16	43	00.3		095
4316	1989	10	24.89236	02	33	11.14	+16	42	54.9		095
4322	1989	09	04.99178	01	05	20.89	+03	35	46.9		095
4330	1989	11	21.85417	02	41	27.85	+13	06	58.3		095
4330	1989	11	21.86528	02	41	26.99	+13	06	53.3		095
4348	1989	10	30.80208	01	53	33.87	+13	01	36.3	15.5V	095
4348	1989	10	30.82293	01	53	33.28	+13	01	27.8	15.5V E	095
4348	1989	11	21.75693	01	43	50.93	+11	41	26.6	16.0V E	095
4348	1989	11	21.77777	01	43	50.40	+11	41	21.1	16.0V E	095
4351	1989	10	30.89583	03	10	54.80	+14	10	29.9	15.8V	095
4351	1989	10	30.92014	03	10	53.64	+14	10	22.8	15.8V	095
4351	1989	11	21.85417	02	52	17.94	+12	44	51.7	16.0V	095
4351	1989	11	21.86528	02	52	17.33	+12	44	49.7	16.0V	095
4352	1989	10	26.96145	03	26	39.58	+10	15	43.5	15.0V	095
4352	1989	10	26.98263	03	26	38.65	+10	15	45.8	15.0V	095
4352	1989	10	30.89583	03	23	17.59	+10	22	02.4	15.0V	095
4352	1989	10	30.92014	03	23	16.27	+10	22	02.6	15.0V	095
4352	1989	11	21.85417	03	01	36.06	+11	15	21.7	15.0V	095
4352	1989	11	21.86528	03	01	35.30	+11	15	23.8	15.0V	095
4368	1989	10	26.86978	02	50	38.86	+18	30	26.3	16.0V	095
4368	1989	10	26.88889	02	50	38.10	+18	30	16.9	16.0V	095
4422	1989	11	21.85417	02	42	11.79	+05	52	33.6	15.0V E	095
4422	1989	11	21.86528	02	42	11.21	+05	52	33.1	15.0V E	095

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
From JCPM Hamatonbetsu Station Report

609	1990	01	27.58681	09	05	10.85	+13	16	45.9		364
609	1990	01	27.60417	09	05	09.97	+13	16	49.0		364
1012	1989	11	17.50694	01	52	47.85	+07	35	40.1		364
1012	1989	11	17.52431	01	52	46.93	+07	35	39.0		364
1012	1989	11	19.53542	01	51	20.08	+07	33	15.5		364
1012	1989	11	19.55278	01	51	19.27	+07	33	14.3		364
1559	1990	01	27.51042	08	06	52.01	+22	46	22.3		364
1559	1990	01	27.53125	08	06	50.65	+22	46	24.4		364
1618	1990	01	27.55104	08	27	47.71	+21	01	41.6		364
1618	1990	01	27.56493	08	27	46.99	+21	01	44.4		364
1636	1990	01	27.58681	09	00	37.74	+11	54	45.3		364
1636	1990	01	27.60417	09	00	36.58	+11	54	51.5		364
1749	1990	02	20.54722	10	27	41.78	+10	34	15.5		364
1749	1990	02	20.56458	10	27	41.17	+10	34	16.0		364
1890	1989	11	20.51597	03	18	21.69	+13	42	25.3		364
1890	1989	11	20.53333	03	18	20.76	+13	42	24.5		364
2153	1990	02	20.54722	10	37	06.58	+10	34	32.7		364
2153	1990	02	20.56458	10	37	05.77	+10	34	35.6		364
2825	1990	01	27.55104	08	21	41.98	+22	19	27.9		364
2825	1990	01	27.56493	08	21	41.05	+22	19	32.3		364
3123	1989	10	21.62361	02	18	19.03	+10	01	08.7		364
3123	1989	10	21.64097	02	18	17.97	+10	01	02.7		364
3215	1989	11	19.53542	01	56	07.48	+06	31	51.6	16.5	364
3215	1989	11	19.55278	01	56	06.88	+06	31	47.7		364
3314	1989	11	19.57569	02	03	04.95	+22	58	54.3		364
3314	1989	11	19.59306	02	03	03.96	+22	58	50.4		364

3546		1990	02	20.54722	10	24	52.56	+10	17	12.7	364
3546		1990	02	20.56458	10	24	51.48	+10	17	13.7	364
4289		1989	11	20.51597	03	18	21.33	+14	06	58.3	15 364
4289		1989	11	20.53333	03	18	20.18	+14	06	58.1	364

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

1987	XC		1990	04	18.70295	14	31	43.51	-05	04	10.0	19	372
1987	XC		1990	04	18.71372	14	31	42.97	-05	04	06.7		372
1988	XM1		1990	03	20.67049	12	05	59.39	+01	48	49.9	17.5	372
1988	XM1		1990	03	20.68229	12	05	58.64	+01	48	59.2		372
1988	XM1		1990	04	18.57326	11	46	37.64	+04	35	28.6	18	372
1988	XM1		1990	04	18.58507	11	46	37.35	+04	35	31.5		372
1989	AG1		1990	03	25.67604	12	05	44.79	-14	20	27.5	17	372
1989	AG1		1990	03	25.68646	12	05	44.45	-14	20	23.0		372
1989	AG1		1990	04	17.62083	11	49	34.28	-12	19	42.1	17.5	372
1989	AG1		1990	04	17.63299	11	49	33.67	-12	19	36.7		372
1989	CV		1990	03	25.65382	11	50	55.06	+04	39	57.0	17.5	372
1989	CV		1990	03	25.66458	11	50	54.89	+04	40	02.9		372
1989	CW1		1990	03	25.63194	11	34	10.69	-04	19	21.4	18	372
1989	CW1		1990	03	25.64306	11	34	10.26	-04	19	18.7		372
1990	DV1		1990	03	17.52187	10	46	59.75	+20	55	34.7	16	372
1990	DV1		1990	03	17.53472	10	46	59.14	+20	55	38.4		372
1990	DV1		1990	04	02.64965	10	37	59.13	+21	50	08.4	17	372
1990	DV1		1990	04	02.66007	10	37	58.81	+21	50	10.0		372
1990	FY	*	1990	03	20.67049	12	07	19.96	+02	15	24.2	18	372
1990	FY		1990	03	20.68229	12	07	19.65	+02	15	29.6		372
1990	FY		1990	03	25.70833	12	04	42.19	+02	40	04.3	18	372
1990	FH2	*	1990	03	20.72014	13	29	30.93	-04	11	33.1	17.5	372
1990	FH2		1990	03	20.73194	13	29	30.31	-04	11	30.5		372
1990	FH2		1990	04	02.71910	13	15	29.25	-03	21	41.2	17.5	372
1990	FH2		1990	04	02.73090	13	15	28.48	-03	21	36.4		372
1990	GA	*	1990	04	02.71910	13	18	32.92	-04	01	42.6	17.5	372
1990	GA		1990	04	02.73090	13	18	32.14	-04	01	37.5		372
1990	GA		1990	04	18.64931	13	02	37.19	-03	05	16.2	17.5	372
1990	GA		1990	04	18.66111	13	02	36.35	-03	05	11.4		372
1990	HH	*	1990	04	18.62326	12	59	29.12	-01	47	33.2	18	372
1990	HH		1990	04	18.63507	12	59	28.39	-01	47	30.0		372
1990	HH		1990	04	24.60313	12	54	00.84	-00	40	11.5		372
1990	HH		1990	04	24.61524	12	54	00.28	-00	40	04.6	18	372
1990	HJ	*	1990	04	18.64931	13	00	45.45	-02	39	15.1	17.5	372
1990	HJ		1990	04	18.66111	13	00	45.23	-02	39	10.9		372
1990	HJ		1990	04	24.57708	12	55	51.96	-02	27	04.0		372
1990	HK	*	1990	04	18.67777	14	18	20.15	-07	46	09.0	17	372
1990	HK		1990	04	18.68976	14	18	19.39	-07	46	01.3		372
1990	HK		1990	04	24.62882	14	13	41.47	-06	41	30.0	16.5	372
1990	HK		1990	04	29.68854	14	09	43.36	-05	48	41.8	16.0	372
1990	HK		1990	04	30.64931	14	08	59.26	-05	38	58.9	16.0	372
1990	HL	*	1990	04	18.70295	14	33	33.90	-04	59	20.4	18	372
1990	HL		1990	04	18.71372	14	33	33.39	-04	59	13.5		372
1990	HL		1990	04	24.65382	14	28	08.41	-04	29	14.4	17.5	372
1990	HL		1990	04	29.66354	14	23	17.86	-04	06	25.7	16.5	372
1990	HL		1990	04	29.67483	14	23	17.14	-04	06	21.2	16.5	372
1990	HT	*	1990	04	24.68056	15	52	37.17	-20	10	45.3	18.0	372
1990	HT		1990	04	24.69375	15	52	36.45	-20	10	46.0	18.0	372
1990	HT		1990	04	30.70694	15	45	37.40	-20	24	59.0	17.0	372
1990	HT		1990	04	30.72014	15	45	36.44	-20	24	56.6	17.0	372

374 Minami-Oda
T. Nomura, 1-1-8, Yamate, Tarumi-Ku, Kobe 655, Japan
1990 FF1 * 1990 03 26.73229 13 21 47.87 -08 13 59.8 16.0 374

376 Uenohara
N. Kawasato, 3-51, Hana-Koganei, Kodaira, Tokyo 187, Japan
AGK3, SAOC
1975 VN2 1990 03 19.54757 12 21 22.74 +11 40 49.9 376
1975 VN2 1990 03 19.56771 12 21 21.36 +11 40 53.1 376

385 Nihondaira Observatory Oohira station
T. Urata, 6-1, Muramatsuhara 1 Chome, Shimizu, Shizuoka-Ken 424, Japan
Observers W. Kakei, M. Kizawa, T. Urata
Measurers M. Kizawa, T. Urata
0.31-m f/5.6 reflector
AGK3
1983 GR 1990 03 20.52118 11 47 24.34 +10 05 58.2 16.5 B 385
1983 GR 1990 03 20.54340 11 47 23.00 +10 06 01.7 B 385
1990 FM1 1990 04 23.57882 14 08 44.81 +01 40 34.3 16.5 F 385
1990 FM1 1990 04 23.59826 14 08 43.87 +01 40 38.4 F 385
1990 FM1 1990 04 29.62118 14 03 50.8 +02 01 44 17 V 385
1990 FM1 1990 04 29.63194 14 03 50.1 +02 01 45 V 385
1990 FM1 1990 04 29.64271 14 03 49.7 +02 01 46 V 385
1990 FM1 1990 04 30.56285 14 03 06.3 +02 04 22 16.5 F 385
1990 FM1 1990 04 30.58368 14 03 05.1 +02 04 29 F 385
1990 HA 1990 04 24.50486 13 28 26.56 +02 53 05.3 14 385
1990 HA 1990 04 24.51010 13 28 27.00 +02 52 57.4 385
1990 HM * 1990 04 23.56771 14 07 35.95 +00 17 24.4 16.5 E 385
1990 HM 1990 04 23.58854 14 07 33.47 +00 17 10.7 E 385
1990 HM 1990 04 29.56875 13 57 40.1 -00 47 12 17 V 385
1990 HN * 1990 04 23.57882 14 08 53.48 +02 26 56.8 17 F 385
1990 HN 1990 04 23.59826 14 08 52.07 +02 26 53.1 F 385
1990 HS * 1990 04 29.62118 14 05 19.75 +01 38 40.9 16.5 F 385
1990 HS 1990 04 29.64271 14 05 18.58 +01 38 49.4 F 385
1990 HS 1990 04 30.56285 14 04 22.84 +01 42 50.5 16.5 385
1990 HS 1990 04 30.58368 14 04 21.50 +01 42 53.1 385
728 1990 03 20.52118 11 48 32.09 +10 02 06.9 14 B 385
728 1990 03 20.54340 11 48 30.83 +10 02 13.9 B 385

391 Sendai Observatory, Ayashi Station
M. Koishikawa, Sendai Municipal Observatory, 1-1 Sakuragaoka-koen,
Sendai 980, Japan
Observer M. Koishikawa
0.30-m f/3.8 astrocamera
1990 DX 1990 03 21.61632 11 06 55.82 -00 46 27.0 16 391
1990 DX 1990 03 21.63715 11 06 54.46 -00 46 22.6 391
1990 DX 1990 03 26.57187 11 02 36.74 -00 24 25.0 16 391
1990 DX 1990 03 26.60174 11 02 35.06 -00 24 18.7 391
1990 FB1 * 1990 03 22.75799 13 03 49.62 -04 44 59.2 16 391
1990 FB1 1990 03 22.77535 13 03 48.68 -04 44 58.6 391
1990 FB1 1990 03 26.69965 13 00 07.28 -04 40 15.2 15.5 391
1990 FB1 1990 03 26.72049 13 00 05.98 -04 40 13.2 391

399 Kushiro
H. Kaneda, Taiyo MS 2-H, 2 chome 2-15, kawazoe 8 jo, Minami-ku,
Sapporo 005, Japan
Observers S. Ueda, M. Matsuyama
Measurers H. Kaneda, K. Watanabe

1985	UY4		1990	03	22.51493	10	30	49.41	+11	27	52.4	16.0	399
1985	UY4		1990	03	22.54019	10	30	48.42	+11	28	01.3		399
1985	UY4		1990	03	22.55799	10	30	47.82	+11	28	09.8		399
1985	UY4		1990	03	22.57364	10	30	47.15	+11	28	15.3		399
1987	UW9		1987	10	18.53796	01	29	38.43	+16	07	11.0	16.5	399
1987	UW9		1987	10	18.55324	01	29	37.77	+16	07	02.5		399
1987	UW9		1987	10	18.57361	01	29	36.65	+16	06	47.6		399
1987	UW9	*	1987	10	23.67049	01	25	33.33	+15	09	19.0	16.5	399
1987	UW9		1987	10	23.68634	01	25	32.59	+15	09	09.9		399
1987	UW9		1987	10	23.70139	01	25	31.77	+15	08	57.6		399
1988	EP		1988	04	07.52141	11	51	52.32	+10	48	16.2	15.5	399
1988	EP		1988	04	07.54010	11	51	51.85	+10	48	26.8		399
1988	EP		1988	04	07.56385	11	51	51.15	+10	48	44.0		399
1988	EP		1988	04	11.54618	11	50	30.31	+11	28	49.3	16	399
1988	EP		1988	04	11.56007	11	50	29.95	+11	28	57.6		399
1988	FB		1988	04	16.49896	11	51	15.29	+03	46	40.5	16.5	399
1988	FB		1988	04	16.51655	11	51	14.64	+03	46	43.2		399
1988	FB		1988	04	16.54284	11	51	13.90	+03	46	43.9		399
1988	JX2	*	1988	05	05.54306	14	39	17.25	+05	16	04.8	16.5	399
1988	JX2		1988	05	05.55822	14	39	16.58	+05	16	05.7		399
1988	JX2		1988	05	05.57442	14	39	15.63	+05	16	07.1		399
1988	RR12		1988	09	13.57014	23	51	10.35	-02	48	09.9	15.5	399
1988	RR12		1988	09	13.59493	23	51	09.33	-02	48	28.9		399
1988	RR12		1988	09	13.60937	23	51	08.65	-02	48	41.0		399
1988	TG1		1990	01	25.57917	08	24	45.39	+10	00	51.0	15.5	399
1988	TG1		1990	01	25.59375	08	24	44.53	+10	00	53.0		399
1988	TG1		1990	01	25.60972	08	24	43.69	+10	00	54.6		399
1988	VS		1990	01	23.60903	08	49	20.69	+10	12	10.2	16.5	399
1988	VS		1990	01	23.62384	08	49	20.06	+10	12	11.8		399
1988	VS		1990	01	23.64028	08	49	19.59	+10	12	15.5		399
1988	VS		1990	01	25.62847	08	47	56.57	+10	17	04.6	17	399
1988	VS		1990	01	25.64306	08	47	55.99	+10	17	07.6		399
1988	VS		1990	01	25.65851	08	47	55.34	+10	17	10.2		399
1988	VW2		1988	11	14.54931	02	36	26.69	+17	11	52.2	16.5	399
1988	VW2		1988	11	14.57668	02	36	25.80	+17	11	42.8		399
1988	VW2		1988	11	14.59271	02	36	25.07	+17	11	34.7		399
1988	VA6		1988	11	14.54931	02	42	33.49	+16	00	57.7	17	399
1988	VA6		1988	11	14.57668	02	42	31.97	+16	00	56.0		399
1988	VA6		1988	11	14.59271	02	42	30.73	+16	00	52.7		399
1988	VO8		1988	11	08.53970	02	32	39.02	+17	51	43.7	17	399
1988	VO8		1988	11	08.55532	02	32	38.26	+17	51	44.5		399
1988	VO8		1988	11	08.57222	02	32	37.13	+17	51	41.9		399
1988	VO8		1988	11	11.68032	02	29	46.09	+17	50	09.3	17	399
1988	VO8		1988	11	11.69601	02	29	45.27	+17	50	07.7		399
1988	VO8		1988	11	14.54931	02	27	12.07	+17	48	34.5	17	399
1988	VO8		1988	11	14.57668	02	27	10.75	+17	48	35.2		399
1988	VO8		1988	11	14.59271	02	27	10.03	+17	48	35.1		399
1988	VE11	*	1988	11	08.60498	02	36	43.25	+13	01	40.7	16.5	399
1988	VE11		1988	11	08.61979	02	36	42.56	+13	01	36.9		399
1988	VE11		1988	11	08.63530	02	36	41.70	+13	01	34.1		399
1988	XV1		1989	01	04.44861	04	32	01.49	+26	48	19.8	16.5	399
1988	XV1		1989	01	04.46970	04	32	00.54	+26	48	27.2		399
1988	XV1		1989	01	04.48822	04	31	59.80	+26	48	29.4		399
1988	XY1		1988	12	15.66806	04	47	10.20	+26	18	12.4	16.5	399
1988	XY1		1988	12	15.68218	04	47	09.25	+26	18	09.3		399
1988	XY1		1988	12	15.70747	04	47	07.25	+26	18	04.0		399
1988	XM4		1988	12	15.66806	04	52	14.56	+25	53	17.4	16.5	399
1988	XM4		1988	12	15.68218	04	52	13.75	+25	53	21.4		399
1988	XM4		1988	12	16.62431	04	51	22.37	+25	56	13.4	16.5	399

1988	XM4		1988	12	16.63889	04	51	21.41	+25	56	13.9		399
1988	XM4		1988	12	16.65475	04	51	20.55	+25	56	17.2		399
1989	KD		1988	03	13.56944	11	03	19.33	+18	51	23.1	17	399
1989	KD		1988	03	13.58547	11	03	18.50	+18	51	27.8		399
1989	KD		1988	03	13.61036	11	03	17.24	+18	51	37.9		399
1990	BE2		1990	02	28.49132	08	41	53.79	+23	46	19.0	16.5	399
1990	BE2		1990	02	28.50972	08	41	53.45	+23	46	14.8		399
1990	BE2		1990	03	02.59757	08	40	57.65	+23	40	35.2	16.5	399
1990	BE2		1990	03	02.61840	08	40	57.18	+23	40	32.3		399
1990	BE2		1990	03	02.63646	08	40	56.65	+23	40	28.7		399
1990	BF2		1990	02	28.49132	08	27	29.58	+25	29	48.7	16.5	399
1990	BF2		1990	02	28.50972	08	27	28.96	+25	29	52.9		399
1990	BF2		1990	03	02.59757	08	26	27.27	+25	31	17.7	17	399
1990	BF2		1990	03	02.61840	08	26	26.71	+25	31	19.0		399
1990	BF2		1990	03	02.63646	08	26	26.28	+25	31	17.4		399
1990	FA		1990	03	22.60009	11	35	31.59	+09	35	22.2	16.0	399
1990	FA		1990	03	22.61918	11	35	30.78	+09	35	25.1		399
1990	FS		1990	02	18.64589	11	02	45.56	+06	25	46.0	16.0	399
1990	FS		1990	02	18.66667	11	02	44.89	+06	25	54.9		399
1990	FS	*	1990	03	16.56007	10	38	39.80	+10	19	18.9	16.0	399
1990	FS		1990	03	16.57222	10	38	39.06	+10	19	23.3		399
1990	FS		1990	03	22.51493	10	33	39.22	+11	07	08.6	16.5	399
1990	FS		1990	03	22.54019	10	33	37.80	+11	07	17.7		399
1990	FS		1990	03	22.57364	10	33	36.25	+11	07	32.4		399

400 Kitami
K. Watanabe, 3-8 Mason Hashimoto B-203, atsubetsu cyuo 3 jo 4 chome, Atsubetsu-ku, Sapporo 004, Japan
Observer K. Endate
Measurer K. Watanabe
0.20-m f/4.0 reflector
SAOC

1969	LB		1990	03	18.49306	12	07	40.01	-05	18	54.7	16.5	400
1969	LB		1990	03	18.51250	12	07	39.11	-05	18	50.2		400
1969	LB		1990	03	29.47361	11	59	16.16	-04	35	43.7	17	400
1969	LB		1990	03	29.48924	11	59	15.42	-04	35	41.6		400
1978	RH1		1990	03	18.49306	12	05	43.99	-01	00	11.7	16.0	400
1978	RH1		1990	03	18.51250	12	05	42.81	-01	00	05.1		400
1978	RM2		1990	03	27.54375	13	06	13.57	-06	36	59.2	17	400
1978	RM2		1990	03	27.56111	13	06	12.98	-06	36	51.3		400
1978	RM2		1990	03	29.54722	13	04	43.45	-06	24	04.4	17	400
1978	RM2		1990	03	29.56667	13	04	42.51	-06	23	58.6		400
1982	SG4		1990	03	30.53194	13	06	25.08	-09	44	18.1	16.0	400
1982	SG4		1990	03	30.54861	13	06	24.36	-09	44	11.1		400
1987	WS		1990	03	29.51667	12	33	49.31	+00	11	34.5	16.5	400
1987	WS		1990	03	29.53333	12	33	48.39	+00	11	36.6		400
1988	RP		1990	03	16.60208	10	29	47.02	+05	44	40.9	16.0	400
1988	RP		1990	03	16.61667	10	29	46.15	+05	44	45.2		400
1988	RP		1990	03	27.47188	10	21	16.36	+06	24	54.7	16.0	400
1988	RP		1990	03	27.48785	10	21	15.83	+06	24	57.3		400
1988	RP1		1990	03	17.64167	12	33	37.47	-01	10	31.2	16.5	400
1988	RP1		1990	03	17.65833	12	33	36.20	-01	10	26.6		400
1988	RP1		1990	03	27.50417	12	23	20.21	-00	28	51.9	16.5	400
1988	RP1		1990	03	27.52083	12	23	18.97	-00	28	47.2		400
1988	VK4		1990	03	29.58125	13	19	20.62	-04	53	35.3	16.0	400
1988	VK4		1990	03	29.59861	13	19	19.46	-04	53	35.2		400
1989	AE1		1990	03	27.61528	14	25	52.28	-00	54	29.0	17	400
1989	AE1		1990	03	27.63611	14	25	51.49	-00	54	24.0		400
1989	AE1		1990	03	30.63194	14	23	49.77	-00	39	11.9	16.5	400

1989	AE1		1990	03	30.65486	14	23	48.85	-00	39	04.8		400
1989	AE1		1990	04	19.60347	14	07	05.24	+00	56	27.0	16.5	400
1989	AE1		1990	04	19.62014	14	07	04.37	+00	56	30.4		400
1990	CH		1990	03	16.53681	10	09	05.23	+08	22	51.2	16.5	400
1990	CH		1990	03	16.55417	10	09	04.35	+08	22	54.4		400
1990	DA1		1990	03	21.51458	10	49	40.48	+04	06	55.0	16.5	400
1990	DA1		1990	03	21.53542	10	49	38.86	+04	07	01.6		400
1990	EK		1990	03	21.57292	11	02	32.02	+03	10	17.8	17	400
1990	EK		1990	03	21.59167	11	02	30.99	+03	10	28.7		400
1990	FT	*	1990	03	18.49306	12	07	32.52	-05	44	22.3	16.5	400
1990	FT		1990	03	18.51250	12	07	31.56	-05	44	18.9		400
1990	FT		1990	03	25.47917	12	01	23.84	-05	41	55.7	16.5	400
1990	FT		1990	03	25.49410	12	01	23.05	-05	41	55.4		400
1990	FT		1990	03	29.47361	11	57	54.88	-05	39	38.9	16.5	400
1990	FT		1990	03	29.48924	11	57	54.17	-05	39	38.9		400
1990	FU	*	1990	03	18.49306	12	09	17.25	-05	18	36.4	16.5	400
1990	FU		1990	03	18.51250	12	09	16.50	-05	18	26.0		400
1990	FU		1990	03	25.47917	12	04	18.25	-04	26	26.3	16.5	400
1990	FU		1990	03	25.49410	12	04	17.71	-04	26	21.9		400
1990	FU		1990	03	29.48924	12	01	28.80	-03	55	51.5	16.5	400
1990	FG1	*	1990	03	27.54375	13	03	18.87	-02	40	17.9	16.0	400
1990	FG1		1990	03	27.56111	13	03	17.97	-02	40	10.6		400
1990	FG1		1990	03	29.54722	13	01	28.96	-02	28	10.0	16.0	400
1990	FG1		1990	03	29.56667	13	01	27.81	-02	28	04.0		400
1990	FG1		1990	04	19.47500	12	41	45.03	-00	32	58.4	16.0	400
1990	FG1		1990	04	19.49167	12	41	44.34	-00	32	55.2		400
1990	FG1		1990	04	20.51597	12	40	52.81	-00	28	33.3	16.0	400
1990	FG1		1990	04	20.53264	12	40	51.91	-00	28	30.1		400
1990	FH1	*	1990	03	27.54375	13	05	36.86	-03	42	54.4	16.0	400
1990	FH1		1990	03	27.56111	13	05	36.06	-03	42	48.3		400
1990	FH1		1990	03	29.54722	13	04	12.73	-03	32	49.7	17	400
1990	FH1		1990	03	29.56667	13	04	11.52	-03	32	45.7		400
1990	FH1		1990	04	19.51458	12	48	58.34	-01	50	33.8	16.5	400
1990	FH1		1990	04	19.53125	12	48	57.75	-01	50	27.4		400
1990	FH1		1990	04	20.56736	12	48	16.34	-01	46	04.3	16.0	400
1990	FH1		1990	04	20.58542	12	48	15.55	-01	46	01.5		400
1990	FJ1	*	1990	03	27.54375	13	06	25.47	-07	00	05.5	16.5	400
1990	FJ1		1990	03	27.56111	13	06	24.63	-06	59	59.0		400
1990	FJ1		1990	03	29.54722	13	04	42.24	-06	44	12.9	17	400
1990	FJ1		1990	03	29.56667	13	04	41.29	-06	44	01.5		400
1990	FK1	*	1990	03	27.54375	13	07	42.10	-01	17	05.9	16.0	400
1990	FK1		1990	03	27.56111	13	07	41.38	-01	16	55.6		400
1990	FK1		1990	03	29.54722	13	06	26.71	-00	59	51.8	16.0	400
1990	FK1		1990	03	29.56667	13	06	25.88	-00	59	41.6		400
1990	FK1		1990	04	19.51458	12	52	43.15	+01	51	17.8	16.0	400
1990	FK1		1990	04	19.53125	12	52	42.60	+01	51	25.2		400
1990	FK1		1990	04	20.56736	12	52	04.73	+01	58	48.5	16.0	400
1990	FK1		1990	04	20.58542	12	52	04.08	+01	58	57.9		400
1990	FL1	*	1990	03	27.54375	13	10	21.39	-07	09	23.3	16.0	400
1990	FL1		1990	03	27.56111	13	10	20.46	-07	09	15.2		400
1990	FL1		1990	03	29.54722	13	08	46.91	-06	46	55.8	17	400
1990	FL1		1990	03	29.56667	13	08	45.69	-06	46	48.0		400
1990	FM1	*	1990	03	27.61528	14	27	28.58	-00	46	53.9	16.0	400
1990	FM1		1990	03	27.63611	14	27	27.84	-00	46	48.5		400
1990	FM1		1990	03	30.63194	14	25	59.35	-00	28	34.2	16.0	400
1990	FM1		1990	03	30.65486	14	25	58.67	-00	28	25.1		400
1990	FM1		1990	04	19.60347	14	11	59.57	+01	23	17.3	16.0	400
1990	FM1		1990	04	19.62014	14	11	58.69	+01	23	22.2		400
1990	FN1	*	1990	03	29.61250	13	20	43.23	-08	43	49.0	16.0	400

1990	FN1		1990	03	29.62986	13	20	42.25	-08	43	48.8		400
1990	FN1		1990	03	30.56250	13	19	51.35	-08	42	21.2	16.0	400
1990	FN1		1990	03	30.57917	13	19	50.39	-08	42	20.1		400
1990	FJ2	*	1990	03	29.61250	13	17	49.15	-13	16	51.5	16.5	400
1990	FJ2		1990	03	29.62986	13	17	48.50	-13	16	41.3		400
1990	FJ2		1990	03	30.56250	13	17	07.91	-13	08	03.6	16.0	400
1990	FJ2		1990	03	30.57917	13	17	07.20	-13	07	49.6		400
1990	FJ2		1990	04	19.56458	13	02	19.10	-09	45	01.4	16.0	400
1990	FJ2		1990	04	19.58125	13	02	18.40	-09	44	51.5		400
1990	FJ2		1990	04	25.51667	12	58	25.44	-08	45	01.8	16.5	400
1990	FJ2		1990	04	25.53403	12	58	24.63	-08	44	49.6		400
2538	P-L		1990	04	19.51458	12	47	24.00	-03	20	43.0	16.5	400
2538	P-L		1990	04	19.53125	12	47	22.81	-03	20	44.2		400
3262	T-2		1990	04	19.51458	12	50	02.67	-02	46	32.3	16.5	400
3262	T-2		1990	04	19.53125	12	50	01.62	-02	46	28.1		400
428			1990	03	17.64167	12	33	24.98	-01	05	30.5	15.0	400
428			1990	03	17.65833	12	33	23.85	-01	05	28.8		400
428			1990	03	27.50417	12	23	29.46	-00	23	07.5	15.0	400
428			1990	03	27.52083	12	23	28.27	-00	23	00.7		400
1338			1990	03	21.51458	10	48	08.91	+03	48	16.5	15.5	400
1338			1990	03	21.53542	10	48	07.79	+03	48	22.5		400
1489			1990	03	17.64167	12	33	10.45	-01	35	50.1	15.0	400
1489			1990	03	17.65833	12	33	09.65	-01	35	47.7		400
1489			1990	03	27.50417	12	26	14.29	-00	42	03.4	15.0	400
1489			1990	03	27.52083	12	26	13.54	-00	41	56.9		400
1541			1990	04	19.56458	13	03	23.50	-09	52	21.8	14.5	400
1541			1990	04	19.58125	13	03	22.60	-09	52	18.4		400
1541			1990	04	25.51667	12	58	35.68	-09	32	50.6	15.0	400
1541			1990	04	25.53403	12	58	34.94	-09	32	48.3		400
1762			1990	04	19.51458	12	48	19.97	-03	00	16.6	16.0	400
1762			1990	04	19.53125	12	48	19.24	-03	00	12.0		400
1782			1990	04	19.51458	12	46	59.23	-03	23	28.7	16.0	400
1782			1990	04	19.53125	12	46	58.44	-03	23	22.6		400
2179			1990	03	29.61250	13	18	53.62	-09	02	39.7	15.5	400
2179			1990	03	29.62986	13	18	52.76	-09	02	37.3		400
2179			1990	03	30.56250	13	18	07.14	-09	00	49.3	15.5	400
2179			1990	03	30.57917	13	18	06.34	-09	00	46.4		400
2179			1990	04	25.51667	12	56	40.38	-08	02	29.7	16.0	400
2179			1990	04	25.53403	12	56	39.27	-08	02	28.8		400
2295			1990	03	30.53194	13	03	29.82	-10	15	10.2	16.5	400
2295			1990	03	30.54861	13	03	28.91	-10	15	04.3		400
2313			1990	03	21.57292	11	01	56.68	+03	39	02.7	17	400
2313			1990	03	21.59167	11	01	55.76	+03	39	06.0		400
2561			1990	04	19.51458	12	51	35.95	-03	06	23.4	17.0	400
2561			1990	04	19.53125	12	51	35.09	-03	06	15.3		400
2751			1990	03	21.57292	11	00	23.89	+03	40	18.6	16.0	400
2751			1990	03	21.59167	11	00	22.86	+03	40	22.0		400
3502			1990	04	19.47500	12	43	10.56	-00	20	01.6	16.5	400
3502			1990	04	19.49167	12	43	10.06	-00	19	58.5		400
3502			1990	04	20.51597	12	42	28.42	-00	15	59.7	16.5	400
3502			1990	04	20.53264	12	42	27.78	-00	15	56.8		400

402 Dynic Astronomical Observatory
A. Sugie, Dynic Astronomical Observatoty, Taga 270, Taga-Cho, Inukami-Gun, Shiga-Ken, 522-03, Japan
0.25-m f/3.4 Schmidt
AGK3

1990	EB		1990	03	26.57708	11	08	45.40	+15	26	03.0	17.0	402
1990	EB		1990	03	26.59097	11	08	44.86	+15	26	10.2		402

1990	FC		1990	03	26.60208	11	29	30.93	+18	07	28.4	17.5	402
1990	FC		1990	03	26.61944	11	29	30.62	+18	07	30.6		402
1990	FZ	*	1990	03	21.63056	13	07	33.44	+10	48	00.2	17.5	402
1990	FZ		1990	03	21.65000	13	07	32.68	+10	48	17.2		402
1990	FZ		1990	03	25.69931	13	04	48.36	+11	36	15.2		402
1990	FZ		1990	03	25.71528	13	04	47.56	+11	36	26.5		402
1990	FA1	*	1990	03	22.70208	13	55	09.02	-01	04	18.3	15.5	402
1990	FA1		1990	03	22.71944	13	55	08.66	-01	04	03.8		402
1990	FA1		1990	03	25.63750	13	54	13.79	-00	25	27.8		402
1990	FA1		1990	03	25.65972	13	54	13.33	-00	25	10.4		402
1990	FA1		1990	03	26.75972	13	53	48.92	-00	10	23.9		402
1990	FA1		1990	03	26.77778	13	53	48.46	-00	10	08.2		402
1990	FA1		1990	04	02.69028	13	50	42.05	+01	24	13.4	15.0	402
1990	FA1		1990	04	02.70903	13	50	41.40	+01	24	28.7		402
1990	FC1	*	1990	03	26.69311	12	46	22.12	+19	42	16.8	16.5	402
1990	FC1		1990	03	26.71111	12	46	21.37	+19	42	24.9		402
1990	FC1		1990	04	02.75278	12	41	19.53	+20	28	15.7	16.5	402
1990	FC1		1990	04	02.77014	12	41	18.65	+20	28	19.1		402
1990	FC1		1990	04	24.60139	12	27	17.34	+21	33	36.3	17.0	402
1990	FC1		1990	04	24.62292	12	27	16.78	+21	33	37.3		402
1990	FD1	*	1990	03	26.69311	12	49	05.78	+20	41	45.2	15.5	402
1990	FD1		1990	03	26.71111	12	49	04.89	+20	41	52.0		402
1990	FD1		1990	04	02.75278	12	43	09.59	+21	20	31.0	16.0	402
1990	FD1		1990	04	02.77014	12	43	08.72	+21	20	36.5		402
1990	FD1		1990	04	24.60139	12	27	12.33	+21	36	17.7	16.5	402
1990	FD1		1990	04	24.62292	12	27	11.64	+21	36	14.4		402
1990	HA		1990	04	24.65764	13	28	40.71	+02	49	15.4	14.5	402
1990	HA		1990	04	24.67639	13	28	42.47	+02	48	47.1		402

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

1978	RH1		1990	03	19.58160	12	04	42.64	-00	51	07.8		403
1978	RH1		1990	03	19.59272	12	04	42.03	-00	51	03.2		403
1978	TW2		1990	03	19.58160	12	09	38.0	+01	09	15		403
1978	TW2		1990	03	19.59272	12	09	37.0	+01	09	20		403
1988	XM1		1990	03	19.58160	12	06	49.9	+01	41	18		403
1988	XM1		1990	03	19.59272	12	06	49.1	+01	41	26		403
1990	HD	*	1990	04	18.52153	14	09	11.9	-09	48	52	16.0	403
1990	HD		1990	04	18.53472	14	09	11.29	-09	48	49.4		403
1990	HD		1990	04	23.54167	14	04	32.0	-09	20	39		403
1990	HD		1990	04	23.55556	14	04	31.38	-09	20	35.6		403
1990	HR	*	1990	04	29.60388	15	04	35.6	-13	21	22	16.0	403
1990	HR		1990	04	29.61910	15	04	34.9	-13	21	24		403
1990	HR		1990	04	30.63576	15	03	40.7	-13	22	28		403
1990	HR		1990	04	30.64792	15	03	40.08	-13	22	30.7		403
2230			1990	03	19.58160	12	02	27.0	+01	33	47		403
2230			1990	03	19.59272	12	02	26.4	+01	33	53		403
2354			1990	03	19.58160	12	06	28.25	-00	15	40.5		403
2354			1990	03	19.59272	12	06	27.78	-00	15	36.6		403
3729			1990	03	19.58160	12	08	54.5	+00	36	20		403
3729			1990	03	19.59272	12	08	53.95	+00	36	19.4		403
3734			1990	03	19.58160	12	02	42.52	-00	20	01.5		403
3734			1990	03	19.59272	12	02	41.96	-00	19	58.0		403

406 Bibai
K. Watanabe, 13-23-202, 4 chome, Atsubetsu cyuo 3 jo, Shiroishi-ku,
Sapporo 004, Japan

Observer M. Saito
Measurer K. Watanabe
0.31-m f/6.1 reflector
AGK3, SAOC

1990 CH		1990 02 22.60799	10	30	54.51	+07	27	20.2	16.0	406
1990 CH		1990 02 22.62882	10	30	53.22	+07	27	22.3		406
4437		1990 02 22.53472	08	49	56.57	+09	48	40.2	16.0	406
4437		1990 02 22.55903	08	49	55.36	+09	48	48.3		406

413 Siding Spring
R. D. Wolstencroft, Royal Observatory, Blackford Hill, Edinburgh EH9 3HJ, Scotland
R. H. McNaught, Siding Spring Observatory, Coonabarabran, N.S.W. 2357, Australia
Observers M. R. S. Hawkins, R. H. McNaught, K. S. Russell
Measurers M. R. S. Hawkins. R. H. McNaught, Q. A. Parker
1.2-m U.K. Schmidt Telescope

1973 TP		1988 01 24.71337	10	39	53.64	-09	47	19.4		413
1975 TE7	*	1975 10 06.55307	00	15	55.72	+00	21	34.5	16 V	413
1975 TE7		1975 10 06.60168	00	15	52.41	+00	21	38.5		413
1980 PB3		1980 08 09.5562	21	43	22.17	-43	39	36.8		413
1987 DD		1976 07 02.77641	23	13	45.06	-39	51	39.2	17 V	413
1987 DD		1976 07 02.81808	23	13	46.18	-39	52	14.0		413
1987 DD		1980 05 19.76765	20	49	38.64	-33	04	27.0		413
1987 DD		1980 05 19.81279	20	49	39.90	-33	04	54.2		413
1987 DD		1980 06 11.73117	20	54	28.47	-37	38	29.0		413
1987 DD		1980 06 11.77631	20	54	28.10	-37	39	07.7		413
1987 DD		1989 08 03.69775	00	53	46.65	-38	55	12.2		413
1987 DD		1989 08 03.74637	00	53	47.32	-38	55	47.4		413
1987 DD		1989 08 03.75420	00	53	47.50	-38	55	55.3		413
1987 DD		1989 08 03.79587	00	53	47.87	-38	56	28.4		413
1988 BE5		1988 01 24.71337	10	49	37.06	-11	36	30.6		413
1988 PH1		1981 07 25.36833	13	24	28.95	-31	27	23.6		413
1988 PH1		1981 07 25.39264	13	24	30.10	-31	27	19.8		413
1988 PH1		1981 07 25.40156	13	24	30.68	-31	27	20.2		413
1988 PH1		1981 07 25.42587	13	24	31.55	-31	27	15.5		413
1988 PH1		1986 04 07.48470	11	09	22.67	-13	02	07.1	17.5V	413
1988 PH1		1986 04 07.50150	11	09	22.10	-13	02	03.7	T	413
1989 AO3		1974 06 21.49904	15	38	04.20	-27	56	07.4	17.5V	413
1989 AO3		1985 06 13.58263	14	36	50.28	-24	15	21.9	17.5V	413
1989 AO3		1990 02 24.77552	13	11	06.72	-14	41	43.3	18 V	413
1989 QL		1976 10 24.54017	03	21	28.50	-21	23	32.7		413
1989 QL		1976 10 24.56101	03	21	26.94	-21	23	36.8		413
1989 QL		1979 12 24.52182	06	12	14.58	+16	34	05.8		413
1989 QL		1979 12 24.53223	06	12	13.74	+16	34	17.0		413
1989 QL		1981 07 26.67793	22	37	04.32	-37	01	22.1		413
1989 QL		1981 07 26.69876	22	37	03.93	-37	01	57.8		413
1989 QL		1981 08 07.54641	22	30	03.74	-41	39	53.4		413
1989 QO		1973 07 27.61196	20	36	54.62	-33	31	42.8		413
1989 QO		1973 07 28.58984	20	35	39.80	-33	52	54.7		413
1989 QO		1976 10 23.61400	03	40	46.69	-31	35	56.1		413
1989 QO		1976 10 23.65567	03	40	44.40	-31	36	05.1		413
1989 SA		1976 05 26.70015	19	22	24.28	-27	33	44.5		413
1989 SA		1976 05 26.73487	19	22	23.65	-27	33	57.3		413
1989 WN1		1982 03 06.73374	15	12	18.02	-11	36	48.3		413
1989 WN1		1987 03 11.75752	14	22	21.46	-05	10	27.8		413
1989 WN1		1987 03 12.75649	14	22	04.71	-05	08	34.8		413
1989 WJ2		1989 12 01.48299	01	29	16.45	-28	00	58.7	18 V	413
1989 WJ2		1989 12 01.50382	01	29	16.04	-28	00	50.0		413

1989	YO		1975	07	06.51616	16	42	19.72	-00	57	10.9	17.5V 413
1989	YO		1975	07	06.55089	16	42	18.87	-00	57	15.9	413
1989	YO		1979	07	23.36888	15	31	59.47	-01	31	35.6	18 V 413
1989	YO		1979	07	23.42443	15	31	59.92	-01	31	54.0	413
1989	YO		1983	05	11.54255	14	53	12.96	-00	19	54.5	17.5V 413
1989	YO		1983	05	11.56332	14	53	11.85	-00	19	46.0	413
1989	YO		1987	03	11.73495	14	16	28.09	-06	12	56.1	413
1989	YO		1987	03	11.78009	14	16	27.22	-06	12	33.3	413
1989	YO		1987	03	12.75649	14	16	13.11	-06	05	27.6	413
1989	YO		1987	05	04.51825	13	42	04.45	+01	16	00.4	18.5V 413
1989	YO		1987	05	04.55992	13	42	02.32	+01	16	18.5	413
1989	YP		1979	07	15.39457	14	51	08.62	-00	06	07.2	413
1989	YP		1979	07	16.39601	14	51	14.12	-00	11	31.0	18 V 413
1989	YP		1979	07	18.35521	14	51	28.22	-00	22	18.0	413
1989	YP		1987	03	10.75019	14	07	56.59	+02	56	11.3	18 V 413
879			1988	01	24.71337	10	49	53.91	-10	56	47.5	413
4008			1988	01	24.71337	10	48	27.72	-11	02	12.2	413
4442			1988	01	24.71337	10	48	54.44	-09	50	58.7	413
4456			1974	06	21.42418	14	25	06.99	-37	34	24.2	413
4456			1974	06	21.46585	14	25	05.79	-37	34	11.3	413
4456			1978	07	14.64970	21	18	06.36	-44	47	16.3	413
4456			1978	07	14.71220	21	18	02.74	-44	47	29.4	I 413
4456			1984	05	18.38118	10	08	16.58	+14	21	03.8	F 413
4456			1988	04	14.49112	11	28	47.42	+01	24	24.7	413
4456			1988	04	14.56057	11	28	44.24	+01	24	30.0	413

491 Yebes
J. Martin-Pintado, Centro Astronomico de Yebes, Apartado 148, E-19080 Guadalajara, Spain
Observers J. Martin-Pintado, J. Garcia, F. Sanchez, F. Lahulla

879			1988	02	19.09466	10	30	46.05	-11	19	12.7	491

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

1990	FJ		1990	03	15.90733	11	11	27.68	+10	01	20.8	494
1990	FJ		1990	03	18.01704	11	09	46.78	+10	10	32.7	494
1990	FJ	*	1990	03	24.88026	11	04	35.07	+10	37	18.3	494
1990	FJ		1990	03	24.92234	11	04	33.27	+10	37	26.9	494
1990	FJ		1990	03	25.88268	11	03	52.31	+10	40	44.5	17 494
1990	FJ		1990	03	28.92795	11	01	47.37	+10	50	24.4	494
1990	FJ		1990	04	28.92708	10	51	05.15	+11	11	54.4	494
1990	FJ		1990	04	28.96042	10	51	05.20	+11	11	51.3	494
1732			1990	03	24.88026	11	04	07.53	+09	54	44.0	16 N 494
1732			1990	03	24.92234	11	04	05.95	+09	55	00.0	N 494
1732			1990	03	28.92795	11	01	39.03	+10	17	53.7	494
3596			1990	03	25.88268	11	04	38.66	+11	04	36.9	16.5 494
3596			1990	03	28.92795	11	03	01.33	+11	05	24.3	494

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

1984	HG1		1989	12	29.05625	06	58	26.41	+21	26	09.2	18.0 511
1984	HG1		1989	12	29.07569	06	58	25.16	+21	26	09.8	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
0.45-m f/5 reflector

1990 DD	1990 03 03.87292	10 11 36.72	+09 27 37.4	16.0		552
1990 DD	1990 03 03.90556	10 11 34.44	+09 27 36.6			552

553 Chorzow
I. Wlodarczyk, Planetarium and Astronomical Observatory,
PL-41501 Chorzow 1 s.p.10, Poland
Observers T. Firszt, S. Janta, I. Wlodarczyk

18	1990 02 19.97789	11 21 13.54	+07 40 53.9			553
18	1990 02 19.98287	11 21 13.25	+07 40 53.9			553
18	1990 02 19.99068	11 21 12.86	+07 40 56.4			553
39	1990 03 18.97544	13 16 45.28	+01 04 51.1			553
39	1990 03 18.99801	13 16 44.35	+01 05 00.5			553
39	1990 03 19.02093	13 16 43.51	+01 05 10.7			553
39	1990 03 19.96973	13 16 08.14	+01 12 18.7			553
39	1990 03 19.98397	13 16 07.54	+01 12 24.0			553
39	1990 03 19.99959	13 16 07.19	+01 12 32.7			553

568 Mauna Kea
K. J. Meech, Institute for Astronomy, 2680 Woodlawn Drive,
Honolulu, HI 96822, U.S.A.
D. J. Tholen, Institute for Astronomy, 2680 Woodlawn Drive,
Honolulu, HI 96822, U.S.A.
Observers K. J. Meech, D. J. Tholen, J. Goldader

1989 WM	1990 03 12.36910	09 40 51.89	+21 16 06.1	16.3V		568
1990 DA	1990 03 12.29928	08 54 31.11	+32 49 44.5	15.8V		568
1990 HA	1990 05 02.33324	13 38 50.98	+00 22 26.2	15.3V		568
1990 HA	1990 05 02.34162	13 38 51.38	+00 22 19.0			568
624	1990 02 22.61615	11 52 49.89	-04 52 29.1			568
951	1990 03 12.34800	08 19 01.89	+13 40 12.1	15.5V		568
951	1990 04 14.26597	08 29 43.48	+13 58 18.8			568
2060	1988 12 09.32890	06 19 45.70	+16 33 38.5			568
2060	1988 12 09.33109	06 19 45.74	+16 33 38.5			568
2060	1988 12 09.34420	06 19 45.76	+16 33 38.7			568
2060	1988 12 09.44150	06 19 44.61	+16 33 40.6			568
2060	1988 12 09.44861	06 19 44.47	+16 33 40.3			568
2060	1988 12 09.45069	06 19 44.47	+16 33 40.9			568
2060	1988 12 09.45260	06 19 44.40	+16 33 40.3			568
2060	1988 12 09.46252	06 19 44.25	+16 33 40.5			568
2060	1988 12 10.34362	06 19 30.87	+16 33 33.2			568
2060	1988 12 10.35175	06 19 30.74	+16 33 33.2			568
2060	1988 12 10.36590	06 19 30.51	+16 33 33.0			568
2060	1988 12 10.57946	06 19 27.16	+16 33 31.3			568
2060	1988 12 10.58118	06 19 27.16	+16 33 31.5			568
2060	1988 12 11.31450	06 19 15.94	+16 33 25.5			568
2060	1988 12 11.31853	06 19 15.89	+16 33 25.4			568
2060	1988 12 11.34832	06 19 15.36	+16 33 25.0			568
2060	1988 12 11.46854	06 19 13.60	+16 33 24.4			568
2060	1988 12 11.47572	06 19 13.42	+16 33 24.4			568
2060	1988 12 11.50380	06 19 12.98	+16 33 24.5			568
2060	1988 12 11.50850	06 19 12.94	+16 33 24.4			568
2060	1988 12 11.54941	06 19 12.24	+16 33 23.1			568
2060	1988 12 11.56841	06 19 11.94	+16 33 23.9			568
2060	1988 12 11.58357	06 19 11.72	+16 33 23.8			568
2060	1988 12 11.63263	06 19 10.93	+16 33 22.3			568
2060	1988 12 12.33034	06 19 00.19	+16 33 18.4			568
2060	1988 12 12.36331	06 18 59.71	+16 33 18.1			568

2060 1988 12 12.36478 06 18 59.64 +16 33 17.6 568
2060 1988 12 12.38289 06 18 59.35 +16 33 17.8 568
2060 1988 12 12.39633 06 18 59.17 +16 33 17.5 568
2060 1988 12 12.43802 06 18 58.50 +16 33 17.4 568
2060 1988 12 12.52841 06 18 57.09 +16 33 16.9 568
2060 1988 12 12.53149 06 18 57.00 +16 33 16.8 568
2060 1988 12 12.61028 06 18 55.76 +16 33 16.2 568
2060 1988 12 12.62524 06 18 55.51 +16 33 15.9 568
2060 1988 12 12.64205 06 18 55.26 +16 33 16.2 568
2060 1989 02 09.28000 06 04 59.13 +16 42 58.8 568
2060 1989 02 09.34361 06 04 58.58 +16 43 00.4 568
2060 1989 02 09.35370 06 04 58.48 +16 43 00.7 568
2060 1989 10 02.60837 07 04 34.81 +16 01 18.9 568
2060 1989 10 02.62512 07 04 34.82 +16 01 19.1 568
2060 1989 10 04.53994 07 04 50.16 +15 59 41.6 568
2060 1989 10 04.56236 07 04 50.34 +15 59 41.0 568
2060 1989 10 04.59696 07 04 50.60 +15 59 39.2 568
2060 1989 11 25.44331 07 03 31.00 +15 29 30.9 568
2060 1989 11 25.62501 07 03 29.02 +15 29 28.7 568
2060 1989 11 27.39154 07 03 10.23 +15 29 04.0 568
2060 1989 11 27.44902 07 03 09.56 +15 29 03.0 568
2060 1989 11 29.48663 07 02 46.60 +15 28 39.6 568
2060 1989 11 29.50459 07 02 46.35 +15 28 39.1 568
2060 1989 12 27.42493 06 55 59.22 +15 29 17.3 568
2060 1989 12 27.46148 06 55 58.60 +15 29 17.8 568
2060 1989 12 27.54265 06 55 57.22 +15 29 19.0 568
2060 1989 12 27.55089 06 55 57.10 +15 29 19.2 568
2060 1989 12 27.55323 06 55 57.05 +15 29 19.0 568
2060 1989 12 27.55546 06 55 57.02 +15 29 19.1 568
2060 1989 12 28.56719 06 55 40.11 +15 29 33.2 568
2060 1989 12 28.57235 06 55 40.01 +15 29 32.9 568

573 Eldagsen
W. Bonk, Nordstrasse 33, D-3257 Springe 3, Federal Republic of Germany
AGK3
109 1990 02 21.84372 07 50 54.40 +31 24 51.6 573
109 1990 02 21.84904 07 50 54.28 +31 24 49.9 573
165 1990 02 22.77069 08 20 35.14 +16 52 17.4 573
165 1990 02 22.77572 08 20 34.94 +16 52 17.5 573
172 1989 11 19.79204 03 57 08.19 +37 52 01.2 573
172 1989 11 19.79742 03 57 07.77 +37 52 00.5 573
200 1990 02 21.82612 08 23 50.13 +21 19 21.0 573
200 1990 02 21.83284 08 23 49.85 +21 19 20.7 573
586 1989 11 22.78660 03 52 51.52 +19 44 51.1 573
586 1989 11 22.79233 03 52 51.22 +19 44 50.1 573
593 1990 02 22.78741 09 03 35.99 +43 42 14.6 573
593 1990 02 22.79263 09 03 35.75 +43 42 14.8 573
628 1990 02 23.84375 10 05 40.56 +23 25 29.3 573
628 1990 02 23.85249 10 05 40.08 +23 25 33.2 573
674 1990 03 18.80249 11 39 38.12 +23 54 33.1 573
674 1990 03 18.80810 11 39 37.80 +23 54 33.7 573
914 1989 11 19.81316 04 32 27.72 +29 12 30.8 573
914 1989 11 19.81652 04 32 27.42 +29 12 27.9 573

587 Sormano
P. Sicoli, Via Valli 9, I-22040 Garbagnate Monastero (Como), Italy
Observers M. Cavagna, P. Sicoli, A. Testa, G. Vospini
0.5-m f/8 reflector
4435 1990 01 19.86389 09 03 29.56 +45 09 32.3 p 587

589 Santa Lucia Stroncone
A. Vagnozzi, Santa Lucia 68, I-05039 Stroncone (Terni), Italy
Observers A. Vagnozzi, G. C. Morando, R. Castellani
0.5-m f/7.5 Ritchey-Chretien
SAOC

1988	SO2	1990	02	28.88160	09	20	30.61	+11 01 25.7	589
1988	SO2	1990	02	28.94305	09	20	27.68	+11 01 55.7	589
1988	SO2	1990	02	28.94826	09	20	27.53	+11 01 56.7	589
1988	SO2	1990	02	28.95347	09	20	27.39	+11 01 58.4	589
1989	WM	1990	02	16.88785	09	22	57.44	+25 05 13.0	589
1989	WM	1990	02	16.92951	09	22	58.57	+25 04 56.3	589
1989	WM	1990	02	16.97118	09	22	59.70	+25 04 36.1	589
1989	WM	1990	02	28.85000	09	30	59.12	+23 20 26.7	589
1989	WM	1990	02	28.85521	09	30	59.33	+23 20 24.8	589
1989	WM	1990	02	28.86041	09	30	59.51	+23 20 23.1	589
421		1989	10	02.86632	22	36	03.43	-05 07 51.5	589
421		1989	10	02.97326	22	36	01.38	-05 08 47.4	589
1050		1989	10	22.89792	01	34	30.97	+28 28 37.8	589
1050		1989	10	22.95416	01	34	26.88	+28 28 37.6	589

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

1939	BM	1990	03	27.33757	11	55	09.89	+16 34 51.1	657
1939	BM	1990	03	29.28479	11	53	42.02	+16 44 57.8	657
1939	BM	1990	03	29.30667	11	53	40.97	+16 45 05.4	657
1986	GU	1990	03	27.35632	12	08	07.41	+58 52 15.2	657
1986	GU	1990	03	27.38062	12	08	05.52	+58 52 03.8	657
1986	GU	1990	03	29.29347	12	05	49.82	+58 35 58.4	657
1990	HA	1990	04	30.33646	13	36	42.40	+00 53 50.5	657
1990	HA	1990	04	30.37257	13	36	44.38	+00 53 09.3	657
535		1990	02	23.39590	11	43	01.76	+13 37 16.9	657
744		1989	08	28.41562	23	14	40.20	-08 59 17.6	657
810		1989	08	29.29243	23	29	38.06	-04 24 34.4	657
810		1989	08	30.27785	23	29	00.61	-04 31 40.9	657
810		1989	08	30.35562	23	28	57.29	-04 32 15.0	657
833		1989	08	30.27785	23	25	57.64	-05 59 23.5	657
833		1989	08	30.35562	23	25	53.64	-05 59 32.3	657
834		1989	08	29.32715	23	13	20.98	-02 47 6.5	657
834		1989	08	29.36396	23	13	19.46	-02 47 18.9	657
834		1989	08	30.26396	23	12	41.62	-02 52 28.6	657
834		1989	08	30.34521	23	12	38.02	-02 52 57.1	657
1382		1989	08	29.29243	23	26	16.15	-04 06 29.1	657
1382		1989	08	30.27785	23	25	20.39	-04 11 36.2	657
1382		1989	08	30.35562	23	25	15.69	-04 11 59.7	657
1621		1989	08	28.24757	21	53	40.90	-09 35 50.5	657
1621		1989	08	28.35382	21	53	34.58	-09 36 35.2	657
2312		1990	01	17.19868	07	02	45.61	+27 44 07.2	657
2312		1990	01	17.22785	07	02	44.43	+27 44 09.9	657
3067		1990	01	17.19868	07	00	47.00	+30 32 41.3	657
3067		1990	01	17.22785	07	00	44.83	+30 32 40.4	657
4421		1990	02	23.40701	11	47	58.98	+28 26 13.6	657
4448		1990	03	27.32576	11	49	08.40	+31 18 36.6	657
4448		1990	03	27.36396	11	49	06.31	+31 18 37.0	657
4448		1990	03	29.25979	11	47	22.65	+31 18 55.5	657
4452		1990	02	27.31535	09	06	53.67	+15 49 36.1	657
4452		1990	03	02.31292	09	04	20.72	+15 39 42.4	657
4452		1990	03	02.33444	09	04	19.59	+15 39 38.2	657

4455	1990 02 27.34208	11 02 40.41	-08 44 35.8	657
4455	1990 02 27.39000	11 02 37.98	-08 44 22.0	657

662 Lick
A. R. Klemola, Lick Observatory, University of California, Santa Cruz, CA 95064, U.S.A.
Observers E. A. Harlan, A. R. Klemola
0.5-m double astrograph
AGK3R, Perth 70

4	1988 02 15.28785	07 52 02.62	+25 30 33.6	662
4	1988 02 15.28924	07 52 02.54	+25 30 33.8	662
4	1988 02 15.29062	07 52 02.47	+25 30 34.0	662
4	1988 02 15.29201	07 52 02.41	+25 30 34.6	662
4	1988 02 22.23299	07 47 23.10	+25 52 16.2	662
4	1988 02 22.23438	07 47 23.05	+25 52 16.7	662
4	1988 02 22.23576	07 47 22.99	+25 52 16.6	662
4	1988 02 22.23715	07 47 22.95	+25 52 16.9	662
4	1989 07 08.26632	18 04 58.99	-22 09 55.2	662
4	1989 07 08.26840	18 04 58.88	-22 09 55.8	662
4	1989 07 29.21146	17 51 13.11	-23 40 54.1	662
4	1989 07 29.21354	17 51 13.06	-23 40 54.7	662
4	1989 07 29.21562	17 51 13.01	-23 40 55.1	662
4	1989 07 29.21771	17 51 12.96	-23 40 55.6	662
11	1987 03 28.20556	06 24 26.09	+22 40 21.2	662
11	1987 03 28.21042	06 24 26.36	+22 40 21.4	662
19	1987 02 12.13542	03 48 57.14	+18 27 55.3	662
19	1987 02 12.13750	03 48 57.28	+18 27 55.8	662
19	1987 02 12.13958	03 48 57.43	+18 27 56.3	662
52	1986 07 06.43889	23 36 45.05	-06 49 01.0	662
52	1986 07 06.44236	23 36 45.10	-06 49 01.1	662
52	1986 07 06.44583	23 36 45.15	-06 49 01.3	662
52	1986 07 06.44931	23 36 45.23	-06 49 01.4	662
162	1986 02 28.33507	12 25 03.58	+04 19 57.8	662
162	1986 02 28.33646	12 25 03.51	+04 19 57.8	662
162	1986 02 28.33785	12 25 03.48	+04 19 58.0	662
162	1986 02 28.33924	12 25 03.44	+04 19 58.5	662
197	1986 01 09.17083	06 13 08.27	+27 06 23.1	662
216	1989 07 08.36944	20 26 25.50	+01 39 22.9	662
216	1989 07 08.37222	20 26 25.36	+01 39 23.3	662
216	1989 07 08.37500	20 26 25.24	+01 39 23.4	662
216	1989 07 29.25764	20 09 36.93	+01 35 19.1	662
216	1989 07 29.26042	20 09 36.78	+01 35 18.7	662
216	1989 07 29.26319	20 09 36.63	+01 35 18.3	662
216	1989 07 29.26597	20 09 36.49	+01 35 17.9	662
324	1987 11 19.49792	06 53 21.93	+39 35 30.1	662
324	1987 11 19.50000	06 53 21.89	+39 35 30.2	662
324	1987 11 19.50208	06 53 21.82	+39 35 30.8	662
444	1986 01 26.34479	10 27 53.27	-01 19 13.0	662
444	1986 01 26.34757	10 27 53.19	-01 19 12.5	662
444	1986 01 26.35035	10 27 53.08	-01 19 12.0	662
444	1986 02 04.37951	10 22 13.41	-00 47 17.9	662
444	1986 02 04.38229	10 22 13.29	-00 47 17.4	662
444	1986 02 04.38507	10 22 13.18	-00 47 16.7	662
444	1986 02 04.38785	10 22 13.05	-00 47 15.9	662
2060	1986 12 03.23472	05 12 16.00	+17 17 35.0	662

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)
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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)
9 = 3 + 6
Observers T. Gehrels (4, L), J. Gibson (1, C), E. Helin (2, S), H. E. Holt (3, S), W. Johnson (2, S), K. Lawrence (2, S), D. Levy (3, S), R. Lopes (2, S), J. Mueller (7, L), B. Roman (2, S), C. S. Shoemaker (3, S), E. M. Shoemaker (3, S)
Measurers E. Dyer (3), J. Gibson (1), K. Lawrence (2), J. Mueller (7), B. Roman (2), C. S. Shoemaker (3), C. J. van Houten (4), I. van Houten-Groeneveld (4), A. Wisse (4), K. W. Zeigler (6)
1.5-m reflector + CCD (C), 1.2-m (L) and 0.46-m (S) Schmidt telescopes

1982 JB3	1990	03	23.49115	14	30	30.79	+02	07	59.5	17.0 2 675
1982 JB3	1990	03	23.50885	14	30	30.08	+02	08	03.6	2 675
1982 JB3	1990	03	25.44201	14	29	18.42	+02	15	01.7	2 675
1982 JB3	1990	03	25.46649	14	29	17.41	+02	15	07.4	2 675
1983 AC1	1990	01	27.48125	11	22	11.20	+21	19	05.7	16.8 9 675
1983 AC1	1990	01	27.51424	11	22	11.68	+21	20	04.1	16.8 9 675
1983 AC1	1990	02	20.42378	11	18	35.09	+33	31	07.9	16.3 9 675
1983 AC1	1990	02	20.47969	11	18	33.04	+33	32	43.7	16.3 9 675
1983 AC1	1990	03	22.24340	10	58	28.18	+42	59	31.2	16.0 2 675
1983 AC1	1990	03	22.26979	10	58	27.26	+42	59	45.4	2 675
1983 AC1	1990	03	24.28142	10	57	25.95	+43	15	39.6	2 675
1983 AC1	1990	03	24.32240	10	57	24.45	+43	15	58.3	2 675
1986 EL	1990	03	23.49115	14	21	26.71	+01	17	10.4	16.7 2 675
1986 EL	1990	03	23.50885	14	21	26.09	+01	17	29.7	2 675
1986 EL	1990	03	25.44201	14	20	30.07	+01	51	18.4	2 675
1986 EL	1990	03	25.46649	14	20	29.21	+01	51	44.7	2 675
1987 SB	1989	12	09.33037	07	35	04.00	+23	02	38.8	1 675
1987 SB	1989	12	09.33492	07	35	03.74	+23	02	40.0	1 675
1987 SB	1989	12	09.34025	07	35	03.49	+23	02	40.5	1 675
1987 SB	1989	12	10.35433	07	34	12.50	+23	05	34.7	1 675
1987 SB	1989	12	10.35838	07	34	12.30	+23	05	35.4	1 675
1987 SB	1989	12	10.36308	07	34	12.05	+23	05	36.3	1 675
1987 SB	1989	12	10.36787	07	34	11.78	+23	05	37.1	1 675
1987 UA	1989	06	15.29365	15	20	31.75	+05	42	48.7	1 675
1987 UA	1989	06	15.29876	15	20	31.44	+05	42	50.5	1 675
1987 UA	1989	06	15.30478	15	20	31.10	+05	42	51.3	1 675
1987 UA	1989	06	15.31138	15	20	30.80	+05	42	53.1	1 675
1987 UA	1989	07	15.26184	15	10	22.38	+05	06	51.6	1 675
1987 UA	1989	07	15.26778	15	10	22.47	+05	06	49.0	1 675
1987 UA	1989	07	15.28358	15	10	22.59	+05	06	42.4	1 675
1987 UA	1989	07	15.29326	15	10	22.77	+05	06	40.0	1 675
1988 AK	1990	01	28.46771	11	29	11.83	+30	17	40.8	17.0 9 675
1988 AK	1990	01	28.50521	11	29	11.19	+30	17	53.6	17.0 9 675
1988 AK	1990	02	20.42378	11	20	03.63	+32	21	41.9	16.9 9 675
1988 AK	1990	02	20.47969	11	20	01.87	+32	21	58.4	16.9 9 675
1988 AK	1990	03	26.21597	11	01	56.34	+33	55	23.1	17.0 9 675
1988 BW1	1990	02	21.50607	12	27	36.26	+23	45	05.8	18.1 3 675
1988 BW1	1990	02	24.51406	12	26	23.71	+23	57	04.7	3 675
1988 BW1	1990	03	27.35572	12	10	25.49	+25	24	25.4	17.9 3 675
1988 BW1	1990	03	31.40868	12	08	10.20	+25	28	46.5	3 675
1988 BW1	1990	04	01.33802	12	07	39.55	+25	29	29.8	3 675
1988 MB	1990	03	22.20885	09	35	25.30	-16	47	39.0	17.0 2 675

1988	MB		1990	03	22.23524	09	35	24.16	-16	47	28.1	2 675
1988	MB		1990	03	24.24896	09	34	06.73	-16	34	23.0	2 675
1988	MB		1990	03	24.27483	09	34	05.93	-16	34	13.4	2 675
1988	MF		1990	03	22.22830	09	11	35.83	+48	03	32.1	16.7 2 675
1988	MF		1990	03	24.24115	09	11	47.78	+47	59	24.5	2 675
1988	ND		1990	03	22.31233	13	12	17.43	+32	13	35.2	16.5 2 675
1988	ND		1990	03	22.33594	13	12	16.02	+32	14	00.6	2 675
1988	ND		1990	03	24.36128	13	10	23.80	+32	48	15.3	2 675
1988	ND		1990	03	24.38542	13	10	22.29	+32	48	38.6	2 675
1988	ND		1990	04	25.28490	12	39	45.79	+36	47	32.8	16.5 2 675
1988	ND		1990	04	25.31302	12	39	44.50	+36	47	29.6	2 675
1988	ND		1990	04	28.19983	12	37	48.73	+36	41	37.8	2 675
1988	ND		1990	04	28.22344	12	37	47.78	+36	41	34.2	2 675
1988	VO2		1990	04	26.26840	12	58	32.28	-18	39	18.3	16.7 2 675
1988	VO2		1990	04	28.24948	12	56	54.97	-18	25	48.5	2 675
1988	VO2		1990	04	28.27483	12	56	53.76	-18	25	39.2	2 675
1988	XO1		1990	04	25.42431	13	53	57.43	-04	29	59.4	16.0 2 675
1988	XO1		1990	04	25.44705	13	53	56.36	-04	29	48.7	2 675
1988	XO1		1990	04	28.31302	13	51	44.84	-04	08	51.6	2 675
1988	XO1		1990	04	28.33715	13	51	43.74	-04	08	41.9	2 675
1989	CK1		1990	02	21.50607	12	32	43.53	+22	32	51.8	17.1 3 675
1989	CK1		1990	02	24.51406	12	31	36.50	+22	47	42.6	3 675
1989	CK1		1990	03	27.35572	12	16	04.87	+24	43	31.8	17 3 675
1989	CK1		1990	03	31.40868	12	13	50.85	+24	51	06.0	3 675
1989	CK1		1990	04	01.33802	12	13	20.40	+24	52	34.5	3 675
1989	CJ3		1990	03	30.30590	11	11	43.97	-05	11	07.2	18.3 3 675
1989	CJ3		1990	03	31.33940	11	11	17.84	-05	07	18.6	3 675
1989	CJ3		1990	04	01.27725	11	10	54.78	-05	03	48.2	3 675
1989	EO11		1989	01	09.41906	09	32	32.68	+10	05	12.5	17.8 3 675
1989	EO11		1989	01	09.45225	09	32	31.91	+10	05	21.1	3 675
1989	EO11		1990	03	27.24791	11	30	06.07	+18	39	27.2	17.7 3 675
1989	EO11		1990	03	27.28594	11	30	05.08	+18	39	36.9	3 675
1989	EO11		1990	04	20.25225	11	21	15.92	+19	49	48.9	18.1 3 675
1989	EO11		1990	04	22.22204	11	20	46.04	+19	52	50.3	3 675
1989	FB		1990	02	20.46997	12	53	51.19	+37	59	11.0	3 675
1989	FB		1990	02	24.52257	12	40	19.35	+38	44	51.6	3 675
1989	FB		1990	03	26.21597	10	41	49.83	+33	57	22.5	3 675
1990	BG		1990	03	22.13837	04	05	13.86	+55	05	10.1	16.5 2 675
1990	BG		1990	03	22.16406	04	05	11.47	+55	05	29.9	2 675
1990	BG		1990	03	24.14253	04	02	20.42	+55	31	39.7	2 675
1990	BG		1990	03	24.16580	04	02	18.34	+55	31	57.3	2 675
1990	BW		1988	06	17.39757	18	10	58.68	+07	27	18.9	16.2 2 675
1990	BW		1988	06	17.42431	18	10	56.74	+07	26	57.7	2 675
1990	BW		1988	08	08.18108	17	31	34.36	-10	54	26.3	16.7 2 675
1990	BW		1988	08	08.20182	17	31	34.45	-10	54	54.2	2 675
1990	DA		1990	03	22.19514	09	09	25.05	+35	20	03.1	16.0 2 675
1990	DA		1990	03	22.22205	09	09	27.39	+35	20	19.5	2 675
1990	DA		1990	03	24.20469	09	12	35.52	+35	38	58.0	2 675
1990	DA		1990	03	24.23385	09	12	38.25	+35	39	13.6	2 675
1990	DJ		1990	03	22.15764	08	31	57.48	+21	54	05.2	16.0 2 675
1990	DJ		1990	03	22.18229	08	31	58.11	+21	54	32.2	2 675
1990	DJ		1990	03	24.19740	08	32	59.76	+22	29	18.3	2 675
1990	DJ		1990	03	24.22743	08	33	00.69	+22	29	48.2	2 675
1990	FD	*	1990	03	22.29444	11	53	26.58	-00	14	31.4	15.5 2 675
1990	FD		1990	03	22.31840	11	53	23.77	-00	14	56.3	2 675
1990	FD		1990	03	25.23958	11	48	10.90	-01	03	20.7	2 675
1990	FD		1990	03	25.26684	11	48	07.94	-01	03	47.0	2 675
1990	FD		1990	04	26.17049	11	14	04.23	-08	06	11.1	15.7 2 675
1990	FD		1990	04	26.19583	11	14	03.67	-08	06	28.8	2 675

1990	FD		1990	04	27.16042	11	13	47.60	-08	16	36.8	2 675
1990	FD		1990	04	27.18490	11	13	47.08	-08	16	51.4	2 675
1990	FE	*	1990	03	22.34410	12	08	26.95	-01	02	59.4	17.0 2 675
1990	FE		1990	03	22.37014	12	08	25.38	-01	02	26.3	2 675
1990	FE		1990	03	24.31128	12	06	37.16	-00	22	03.0	2 675
1990	FE		1990	03	24.33854	12	06	35.49	-00	21	28.2	2 675
1990	FF	*	1990	03	23.24306	11	56	42.76	+07	33	23.5	16.5 2 675
1990	FF		1990	03	23.27743	11	56	41.10	+07	34	06.8	2 675
1990	FF		1990	03	25.18802	11	55	13.73	+08	16	19.1	2 675
1990	FF		1990	04	26.17639	11	38	45.30	+17	26	42.1	16.2 2 675
1990	FF		1990	04	26.20226	11	38	45.06	+17	26	58.5	2 675
1990	FF		1990	04	27.17292	11	38	40.04	+17	37	09.1	2 675
1990	FF		1990	04	27.19740	11	38	39.92	+17	37	24.8	2 675
1990	FG	*	1990	03	23.29653	11	58	47.74	-05	41	59.0	16.2 2 675
1990	FG		1990	03	23.32257	11	58	44.69	-05	42	11.8	2 675
1990	FG		1990	03	25.24653	11	55	08.52	-05	57	19.2	2 675
1990	FG		1990	03	25.27309	11	55	05.50	-05	57	31.8	2 675
1990	FG		1990	04	26.17049	11	09	25.21	-09	23	55.2	16.0 2 675
1990	FG		1990	04	26.19583	11	09	23.90	-09	24	04.6	2 675
1990	FG		1990	04	27.16042	11	08	40.42	-09	29	36.4	2 675
1990	FG		1990	04	27.18490	11	08	39.31	-09	29	46.7	2 675
1990	FH	*	1990	03	23.46024	14	13	04.50	+22	44	23.5	16.5 2 675
1990	FH		1990	03	23.48490	14	13	02.89	+22	44	17.9	2 675
1990	FH		1990	03	25.43628	14	10	56.12	+22	37	02.8	2 675
1990	FH		1990	03	25.46024	14	10	54.29	+22	36	56.0	2 675
1990	FH		1990	04	26.31944	13	23	32.47	+16	09	34.9	16.0 2 675
1990	FH		1990	04	26.33270	13	23	31.34	+16	09	19.3	2 675
1990	FH		1990	04	28.21146	13	20	50.90	+15	30	49.6	2 675
1990	FH		1990	04	28.23472	13	20	48.86	+15	30	19.7	2 675
1990	FK	*	1990	03	23.46024	14	03	03.35	+17	36	14.9	16.5 2 675
1990	FK		1990	03	23.48490	14	03	03.03	+17	36	50.0	2 675
1990	FK		1990	03	25.43628	14	02	45.09	+18	22	12.2	2 675
1990	FK		1990	03	25.46024	14	02	44.78	+18	22	45.9	2 675
1990	FK		1990	04	26.29931	13	47	16.10	+27	23	40.2	15.7 2 675
1990	FK		1990	04	26.32535	13	47	15.08	+27	23	53.2	2 675
1990	FK		1990	04	28.34340	13	46	06.86	+27	39	38.6	2 675
1990	FK		1990	04	28.36806	13	46	05.83	+27	39	49.1	2 675
1990	FL	*	1990	03	23.30885	12	36	34.19	+15	41	06.1	16.0 2 675
1990	FL		1990	03	23.33438	12	36	33.19	+15	41	41.4	2 675
1990	FL		1990	03	25.34688	12	35	23.32	+16	29	00.1	2 675
1990	FL		1990	03	25.36840	12	35	22.46	+16	29	29.8	2 675
1990	FL		1990	04	25.27604	12	20	11.97	+24	48	35.2	16.5 2 675
1990	FL		1990	04	25.30608	12	20	11.57	+24	48	48.0	2 675
1990	FL		1990	04	28.19340	12	19	43.01	+25	09	11.0	2 675
1990	FL		1990	04	28.21719	12	19	42.66	+25	09	21.8	2 675
1990	FM	*	1990	03	23.20069	12	09	03.48	+33	40	14.6	17.0 2 675
1990	FM		1990	03	23.22326	12	09	02.11	+33	40	20.0	2 675
1990	FM		1990	03	25.29236	12	07	01.11	+33	47	18.7	2 675
1990	FM		1990	03	25.31701	12	06	59.20	+33	47	19.6	2 675
1990	FM		1990	04	26.18958	11	43	49.47	+31	36	29.1	17.0 2 675
1990	FM		1990	04	26.21476	11	43	48.84	+31	36	14.6	2 675
1990	FM		1990	04	27.16632	11	43	32.54	+31	26	12.8	2 675
1990	FM		1990	04	27.19149	11	43	32.24	+31	25	58.2	2 675
1990	FN	*	1990	03	23.20069	12	13	00.04	+30	33	31.4	16.7 2 675
1990	FN		1990	03	23.22326	12	12	59.27	+30	33	33.9	2 675
1990	FN		1990	03	25.29236	12	11	50.13	+30	37	33.6	2 675
1990	FN		1990	03	25.31701	12	11	49.21	+30	37	33.5	2 675
1990	FO	*	1990	03	23.25660	12	24	29.92	+27	19	18.8	16.0 2 675
1990	FO		1990	03	23.28958	12	24	28.02	+27	19	21.3	2 675

1990	FO		1990	03	25.34149	12	22	31.44	+27	20	16.5	2 675
1990	FO		1990	03	25.36285	12	22	30.31	+27	20	15.6	2 675
1990	FO		1990	04	26.22101	11	57	37.13	+25	09	17.3	16.0 2 675
1990	FO		1990	04	26.24497	11	57	36.31	+25	09	04.7	2 675
1990	FO		1990	04	27.21007	11	57	08.56	+25	01	20.8	2 675
1990	FO		1990	04	27.23385	11	57	07.89	+25	01	09.2	2 675
1990	FP	*	1990	03	23.25660	12	30	27.08	+27	41	13.3	16.0 2 675
1990	FP		1990	03	23.28958	12	30	25.21	+27	41	23.3	2 675
1990	FP		1990	03	25.34149	12	28	32.35	+27	52	02.0	2 675
1990	FP		1990	03	25.36285	12	28	31.15	+27	52	06.9	2 675
1990	FP		1990	04	26.22691	12	04	33.71	+27	08	29.8	16.0 2 675
1990	FP		1990	04	26.25052	12	04	33.09	+27	08	19.2	2 675
1990	FP		1990	04	27.21589	12	04	10.15	+27	01	20.7	2 675
1990	FP		1990	04	27.23993	12	04	09.53	+27	01	09.8	2 675
1990	FQ	*	1990	03	23.31632	12	42	11.29	+23	18	33.9	16.7 2 675
1990	FQ		1990	03	23.34045	12	42	09.86	+23	18	39.7	2 675
1990	FQ		1990	03	25.38594	12	40	16.35	+23	25	33.6	2 675
1990	FQ		1990	03	25.41181	12	40	14.90	+23	25	38.0	2 675
1990	FR	*	1990	03	23.41128	13	37	57.37	+19	47	59.2	16.0 2 675
1990	FR		1990	03	23.43385	13	37	56.74	+19	48	13.1	2 675
1990	FR		1990	03	25.39809	13	37	03.39	+20	07	56.3	2 675
1990	FR		1990	03	25.42413	13	37	02.57	+20	08	11.6	2 675
1990	FR		1990	04	25.35087	13	17	22.12	+21	40	52.1	15.5 2 675
1990	FR		1990	04	25.38837	13	17	20.76	+21	40	40.9	2 675
1990	FR		1990	04	28.20573	13	15	53.55	+21	26	35.2	2 675
1990	FR		1990	04	28.22917	13	15	52.82	+21	26	27.9	2 675
1990	FE1	*	1990	03	22.36372	13	07	42.79	+27	44	50.1	17.0 2 675
1990	FE1		1990	03	22.38854	13	07	41.71	+27	44	59.1	2 675
1990	FE1		1990	03	24.36771	13	06	14.77	+27	56	45.7	2 675
1990	FE1		1990	03	24.39097	13	06	13.88	+27	56	53.7	2 675
1990	FO1	*	1990	03	30.30590	11	15	20.53	-08	08	42.2	17.4 3 675
1990	FO1		1990	03	31.33940	11	14	50.41	-08	06	34.9	3 675
1990	FO1		1990	04	01.27725	11	14	23.69	-08	04	40.8	3 675
1990	FO1		1990	04	22.24878	11	06	16.20	-07	22	28.3	17.5 3 675
1990	FO1		1990	04	22.28090	11	06	15.64	-07	22	25.3	3 675
1990	FP1	*	1990	03	24.41233	13	44	00.01	-14	38	06.5	17.0 2 675
1990	FP1		1990	03	24.43976	13	43	58.71	-14	38	06.8	2 675
1990	FP1		1990	03	25.45347	13	43	13.29	-14	37	54.8	2 675
1990	FP1		1990	04	25.34358	13	14	25.32	-13	35	00.5	17.0 2 675
1990	FP1		1990	04	25.38142	13	14	23.10	-13	34	53.3	2 675
1990	FP1		1990	04	28.26181	13	11	49.60	-13	26	06.5	2 675
1990	FP1		1990	04	28.28802	13	11	48.26	-13	26	01.2	2 675
1990	FQ1	*	1990	03	24.41233	13	46	02.83	-20	00	02.3	17.0 2 675
1990	FQ1		1990	03	24.43976	13	46	01.84	-19	59	44.1	2 675
1990	FQ1		1990	03	25.45347	13	45	28.85	-19	48	45.6	2 675
1990	FQ1		1990	04	25.34358	13	22	15.88	-12	15	11.0	17.0 2 675
1990	FQ1		1990	04	25.38142	13	22	14.02	-12	14	32.3	2 675
1990	FQ1		1990	04	28.26181	13	20	04.42	-11	26	31.1	2 675
1990	FQ1		1990	04	28.28802	13	20	03.22	-11	26	05.5	2 675
1990	FR1		1990	02	21.45277	12	32	59.15	+19	13	11.0	18.2 3 675
1990	FR1		1990	02	22.48576	12	32	33.45	+19	21	54.6	3 675
1990	FR1		1990	02	24.51406	12	31	39.82	+19	39	02.4	3 675
1990	FR1	*	1990	03	27.35572	12	11	27.87	+23	14	44.5	18.1 3 675
1990	FR1		1990	03	31.40868	12	08	29.11	+23	31	24.8	3 675
1990	FR1		1990	04	01.33802	12	07	48.84	+23	34	42.4	3 675
1990	FS1	*	1990	03	23.30885	12	26	07.32	+17	37	22.6	16.5 2 675
1990	FS1		1990	03	23.33438	12	26	06.06	+17	37	35.3	2 675
1990	FS1		1990	03	25.34688	12	24	27.67	+17	53	50.7	2 675
1990	FS1		1990	03	25.36840	12	24	26.52	+17	54	01.8	2 675

1990	FS1		1990	04	26.23299	12	03	27.26	+19	42	49.7	16.5	2 675
1990	FS1		1990	04	26.25660	12	03	26.59	+19	42	48.2		2 675
1990	FS1		1990	04	27.22188	12	03	05.92	+19	41	40.3		2 675
1990	FS1		1990	04	27.24601	12	03	05.28	+19	41	38.9		2 675
1990	FT1	*	1990	03	23.30885	12	40	00.40	+17	53	23.0	17.0	2 675
1990	FT1		1990	03	23.33438	12	39	59.10	+17	53	31.2		2 675
1990	FT1		1990	03	25.34688	12	38	12.21	+18	05	22.1		2 675
1990	FT1		1990	03	25.36840	12	38	10.89	+18	05	29.2		2 675
1990	FU1	*	1990	03	31.42135	13	41	18.81	+38	06	11.1	17.3	3 675
1990	FU1		1990	04	01.42552	13	39	53.89	+38	08	43.5		3 675
1990	FV1	*	1990	03	24.29028	12	52	10.43	+31	16	28.0	16	7 675
1990	FV1		1990	03	24.34236	12	52	02.26	+31	15	14.2		7 675
1990	FV1		1990	03	30.38837	12	36	42.19	+28	32	42.7		7 675
1990	FV1		1990	03	30.40868	12	36	39.21	+28	32	11.8	17	7 675
1990	FV1		1990	04	20.26962	11	56	30.50	+16	44	04.9		9 675
1990	FV1		1990	04	22.18368	11	54	12.99	+15	36	13.4		9 675
1990	HA		1990	04	22.31406	13	23	55.35	+03	55	02.8		9 675
1990	HA		1990	04	22.34558	13	23	59.12	+03	54	03.8		9 675
1990	HA		1990	04	25.37448	13	29	54.33	+02	31	56.0	15.0	2 675
1990	HA		1990	04	25.40139	13	29	57.20	+02	31	08.7		2 675
1990	HA		1990	04	28.29566	13	34	14.24	+01	30	08.0		2 675
1990	HA		1990	04	28.31997	13	34	15.83	+01	29	42.8		2 675
1990	HB	*	1990	04	20.26962	11	48	10.53	+12	44	12.4		9 675
1990	HB		1990	04	22.18368	11	47	25.28	+12	50	38.0		9 675
1990	HC	*	1990	04	20.26962	11	51	58.24	+12	26	06.0		9 675
1990	HC		1990	04	22.18368	11	51	05.70	+12	30	42.7		9 675
1990	HE	*	1990	04	25.41267	13	25	30.82	-01	28	40.9	16.2	2 675
1990	HE		1990	04	25.43576	13	25	28.26	-01	28	55.6		2 675
1990	HE		1990	04	28.30729	13	20	22.77	-02	02	28.9		2 675
1990	HE		1990	04	28.33125	13	20	20.12	-02	02	46.0		2 675
1990	HF	*	1990	04	26.31944	13	25	05.57	+18	04	56.7	16.5	2 675
1990	HF		1990	04	26.33270	13	25	04.45	+18	04	43.7		2 675
1990	HF		1990	04	28.21146	13	22	36.75	+17	29	18.8		2 675
1990	HF		1990	04	28.23472	13	22	34.87	+17	28	49.8		2 675
1990	HG	*	1990	04	26.34670	14	15	19.61	-00	22	28.8	16.5	2 675
1990	HG		1990	04	26.38524	14	15	15.97	-00	22	48.5		2 675
1990	HG		1990	04	28.36163	14	12	24.50	-00	38	59.6		2 675
1990	HG		1990	04	28.38733	14	12	22.15	-00	39	12.2		2 675
1990	HO	*	1990	04	26.33976	13	59	22.94	-11	12	26.0	16.0	2 675
1990	HO		1990	04	26.36701	13	59	20.53	-11	12	39.9		2 675
1990	HO		1990	04	28.35590	13	55	50.87	-11	32	34.9		2 675
1990	HO		1990	04	28.38125	13	55	48.02	-11	32	49.6		2 675
1990	HP	*	1990	04	26.40990	14	40	03.18	-22	47	48.0	16.0	2 675
1990	HP		1990	04	26.43264	14	40	00.63	-22	48	04.8		2 675
1990	HP		1990	04	28.40000	14	36	28.61	-23	13	43.3		2 675
1990	HP		1990	04	28.42448	14	36	25.81	-23	14	03.8		2 675
1990	HQ	*	1990	04	26.23854	12	08	04.76	+19	02	05.4	17.0	2 675
1990	HQ		1990	04	26.26233	12	08	04.40	+19	02	46.6		2 675
1990	HQ		1990	04	27.22778	12	07	51.27	+19	29	58.9		2 675
1990	HQ		1990	04	27.25260	12	07	50.93	+19	30	37.6		2 675
1990	HU	*	1990	04	25.33646	13	04	41.89	-07	54	57.9	17.0	2 675
1990	HU		1990	04	25.37483	13	04	39.65	-07	54	50.9		2 675
1990	HU		1990	04	28.25556	13	01	59.96	-07	45	42.5		2 675
1990	HU		1990	04	28.28194	13	01	58.42	-07	45	36.6		2 675
1990	HV	*	1990	04	26.26840	12	54	31.97	-17	20	36.4	17.0	2 675
1990	HV		1990	04	28.24948	12	52	58.01	-17	07	05.2		2 675
1990	HV		1990	04	28.27483	12	52	56.66	-17	06	54.7		2 675
1990	HW	*	1990	04	26.29931	13	43	14.66	+27	52	19.4	16.2	2 675
1990	HW		1990	04	26.32535	13	43	12.19	+27	52	01.8		2 675

1990	HW		1990	04	28.34340	13	40	18.95	+27	27	15.4		2 675
1990	HW		1990	04	28.36806	13	40	16.90	+27	26	55.6		2 675
1990	HX	*	1990	04	26.27448	13	16	42.30	-04	49	13.8	16.5	2 675
1990	HX		1990	04	26.31285	13	16	40.50	-04	49	05.0		2 675
1990	HX		1990	04	28.30174	13	15	17.15	-04	41	14.4		2 675
1990	HX		1990	04	28.32552	13	15	16.09	-04	41	09.9		2 675
2557	P-L	*	1960	09	24.46184	00	52	19.97	+04	44	53.2	17.9	4 675
2557	P-L		1960	09	26.37988	00	50	22.58	+04	36	53.0		4 675
2557	P-L		1960	09	28.43822	00	48	14.50	+04	28	06.5		4 675
2557	P-L		1960	09	29.39514	00	47	14.66	+04	23	59.1		4 675
2557	P-L		1960	10	17.31529	00	29	06.36	+03	09	05.6		4 675
2557	P-L		1960	10	22.26809	00	24	48.57	+02	52	06.0		4 675
2557	P-L		1960	10	25.30351	00	22	26.09	+02	43	05.3		4 675
2557	P-L		1960	10	26.35766	00	21	39.56	+02	40	13.9		4 675
2647	P-L	*	1960	09	24.46184	00	58	11.96	+05	46	09.9	18.3	4 675
2647	P-L		1960	09	26.37988	00	56	39.44	+05	38	49.2		4 675
2647	P-L		1960	09	28.43822	00	54	55.95	+05	30	26.3		4 675
2647	P-L		1960	09	29.39514	00	54	06.92	+05	26	26.4		4 675
2647	P-L		1960	10	22.26809	00	34	20.11	+03	49	37.0		4 675
2647	P-L		1960	10	22.27920	00	34	19.61	+03	49	36.4		4 675
2647	P-L		1960	10	25.30351	00	32	12.61	+03	39	40.8		4 675
2647	P-L		1960	10	25.37570	00	32	09.62	+03	39	29.0		4 675
2647	P-L		1960	10	26.35766	00	31	31.39	+03	36	33.3		4 675
2647	P-L		1960	10	26.36840	00	31	31.04	+03	36	31.2		4 675
3066	P-L	*	1960	09	25.22986	00	19	16.04	+11	19	27.6	17.7	4 675
3066	P-L		1960	09	27.27569	00	17	44.75	+11	00	23.3		4 675
3066	P-L		1960	09	28.34722	00	16	56.65	+10	50	12.7		4 675
3066	P-L		1960	09	29.47153	00	16	06.21	+10	39	23.8		4 675
4226	P-L	*	1960	09	25.42780	00	24	07.10	+05	35	00.9	19.9	4 675
4226	P-L		1960	09	26.30558	00	23	19.16	+05	29	52.3		4 675
4226	P-L		1960	09	26.32569	00	23	17.97	+05	29	44.4		4 675
4226	P-L		1960	09	28.36808	00	21	25.20	+05	17	33.1		4 675
4226	P-L		1960	09	28.38750	00	21	24.14	+05	17	25.0		4 675
4274	P-L	*	1960	09	24.37573	00	33	12.85	+07	29	45.1	19.9	4 675
4274	P-L		1960	09	25.42780	00	32	13.32	+07	23	47.2		4 675
4274	P-L		1960	09	26.30558	00	31	23.73	+07	18	44.9		4 675
4274	P-L		1960	09	28.36808	00	29	25.55	+07	06	38.6		4 675
4274	P-L		1960	10	22.22293	00	08	26.30	+04	42	03.6		4 675
4594	P-L	*	1960	09	24.41183	00	31	20.22	-01	20	03.7	17.8	4 675
4594	P-L		1960	09	26.31530	00	29	54.66	-01	36	37.3		4 675
4594	P-L		1960	09	27.40836	00	29	05.21	-01	46	03.1		4 675
4594	P-L		1960	09	28.39725	00	28	20.36	-01	54	35.4		4 675
4594	P-L		1960	10	22.23406	00	11	52.69	-04	53	45.9		4 675
4594	P-L		1960	10	25.25350	00	10	15.07	-05	11	01.0		4 675
4594	P-L		1960	10	26.31531	00	09	42.84	-05	16	43.7		4 675
3269	T-2		1973	09	19.21250	00	24	04.24	-01	49	57.7		4 675
3269	T-2		1973	09	19.22500	00	24	03.73	-01	50	06.6		4 675
3269	T-2		1973	09	19.26354	00	24	02.26	-01	50	30.6		4 675
3269	T-2		1973	09	19.27865	00	24	01.70	-01	50	39.9		4 675
3269	T-2		1973	09	20.27795	00	23	25.84	-02	00	52.8		4 675
3269	T-2		1973	09	20.30278	00	23	24.76	-02	01	09.2		4 675
3269	T-2		1973	09	24.37431	00	20	52.61	-02	42	58.4		4 675
3269	T-2		1973	09	24.38750	00	20	52.08	-02	43	02.8		4 675
3269	T-2		1973	09	24.44167	00	20	49.97	-02	43	38.7		4 675
3269	T-2		1973	09	24.45434	00	20	49.29	-02	43	44.4		4 675
3269	T-2		1973	09	25.26875	00	20	18.83	-02	52	09.7		4 675
3269	T-2		1973	09	25.28125	00	20	17.96	-02	52	12.2		4 675
3269	T-2		1973	09	25.33299	00	20	16.19	-02	52	49.4		4 675
3269	T-2		1973	09	25.34601	00	20	15.35	-02	52	53.1		4 675

3269	T-2		1973	09	29.27986	00	17	42.78	-03	32	39.6	4 675
3269	T-2		1973	09	29.29219	00	17	42.48	-03	32	48.4	4 675
3269	T-2		1973	09	29.34375	00	17	40.05	-03	33	18.0	4 675
3269	T-2		1973	09	29.35694	00	17	39.78	-03	33	27.2	4 675
3269	T-2		1973	09	30.23524	00	17	05.68	-03	42	10.6	4 675
3269	T-2	*	1973	09	30.30174	00	17	02.91	-03	42	50.3	17.6 4 675
3269	T-2		1973	10	04.31493	00	14	29.22	-04	21	31.3	4 675
3269	T-2		1973	10	04.32708	00	14	28.71	-04	21	33.9	4 675
3269	T-2		1973	10	04.37674	00	14	26.71	-04	22	07.1	4 675
3269	T-2		1973	10	04.38889	00	14	26.18	-04	22	08.0	4 675
3269	T-2		1973	10	05.34167	00	13	50.42	-04	31	04.3	4 675
3269	T-2		1973	10	05.40347	00	13	48.03	-04	31	38.6	4 675
1182	T-3		1977	10	07.24652	01	09	56.54	+17	52	13.3	4 675
1182	T-3		1977	10	11.26632	01	06	28.60	+17	40	31.8	4 675
1182	T-3		1977	10	11.33351	01	06	24.87	+17	40	20.1	4 675
1182	T-3		1977	10	12.26510	01	05	36.62	+17	37	20.4	4 675
1182	T-3		1977	10	12.33125	01	05	33.08	+17	37	07.2	4 675
1182	T-3		1977	10	16.25156	01	02	10.21	+17	23	32.9	4 675
1182	T-3		1977	10	16.31684	01	02	06.78	+17	23	19.4	4 675
1182	T-3	*	1977	10	17.25365	01	01	18.95	+17	19	53.5	19.3 4 675
1182	T-3		1977	10	17.32083	01	01	15.42	+17	19	38.6	4 675
1182	T-3		1977	10	22.42812	00	57	00.24	+16	59	42.3	4 675
1182	T-3		1977	10	22.48003	00	56	57.70	+16	59	32.6	4 675
1214	T-3		1977	10	16.25156	01	06	33.97	+20	00	43.7	4 675
1214	T-3		1977	10	16.31684	01	06	30.37	+20	00	30.6	4 675
1214	T-3	*	1977	10	17.25365	01	05	41.28	+19	57	26.9	17.1 4 675
1214	T-3		1977	10	17.32083	01	05	37.60	+19	57	11.7	4 675
1214	T-3		1977	10	22.42812	01	01	14.75	+19	38	37.4	4 675
1214	T-3		1977	10	22.48003	01	01	12.12	+19	38	23.9	4 675
3166	T-3		1977	10	07.27031	01	27	30.55	+07	38	35.5	4 675
3166	T-3		1977	10	11.28819	01	23	52.62	+07	12	06.2	4 675
3166	T-3		1977	10	11.35642	01	23	48.78	+07	11	39.7	4 675
3166	T-3		1977	10	12.28681	01	22	57.41	+07	05	24.5	4 675
3166	T-3		1977	10	12.35347	01	22	53.61	+07	04	57.3	4 675
3166	T-3	*	1977	10	16.27309	01	19	14.44	+06	38	34.2	19.3 4 675
3166	T-3		1977	10	16.33872	01	19	10.65	+06	38	07.3	4 675
3166	T-3		1977	10	17.27552	01	18	18.11	+06	31	49.5	4 675
3166	T-3		1977	10	17.34236	01	18	14.32	+06	31	23.6	4 675
3166	T-3		1977	10	21.39792	01	14	28.06	+06	04	19.4	4 675
3166	T-3		1977	10	21.45799	01	14	24.58	+06	03	56.0	4 675
4046	T-3		1977	10	07.28125	01	22	48.66	-01	03	33.2	4 675
4046	T-3		1977	10	11.30000	01	18	50.65	-01	27	57.5	4 675
4046	T-3		1977	10	11.36771	01	18	46.38	-01	28	21.8	4 675
4046	T-3		1977	10	12.29826	01	17	51.33	-01	33	44.2	4 675
4046	T-3		1977	10	12.36441	01	17	47.20	-01	34	06.1	4 675
4046	T-3	*	1977	10	16.28368	01	13	56.02	-01	55	18.2	18.2 4 675
4046	T-3		1977	10	16.34931	01	13	51.99	-01	55	38.9	4 675
4046	T-3		1977	10	17.28628	01	12	57.72	-02	00	21.9	4 675
4046	T-3		1977	10	17.35313	01	12	53.73	-02	00	41.4	4 675
4046	T-3		1977	10	21.38698	01	09	04.99	-02	19	12.5	4 675
4046	T-3		1977	10	21.44705	01	09	01.53	-02	19	28.0	4 675
4046	T-3		1977	10	22.38542	01	08	10.23	-02	23	19.7	4 675
4046	T-3		1977	10	22.44878	01	08	06.56	-02	23	34.8	4 675
5175	T-3	*	1977	10	16.29444	01	41	34.47	-07	57	07.1	19.4 4 675
5175	T-3		1977	10	16.36024	01	41	30.68	-07	57	28.0	4 675
5175	T-3		1977	10	17.29688	01	40	37.68	-08	01	58.5	4 675
5175	T-3		1977	10	17.36372	01	40	33.66	-08	02	18.0	4 675
5175	T-3		1977	10	21.37622	01	36	45.03	-08	19	55.2	4 675

5175	T-3		1977	10	21.43611	01	36	41.59	-08	20	08.6		4 675
5193	T-3	*	1977	10	16.29444	01	44	36.26	-03	46	50.4	18.5	4 675
5193	T-3		1977	10	16.36024	01	44	33.30	-03	47	12.6		4 675
5193	T-3		1977	10	17.29688	01	43	52.32	-03	52	38.1		4 675
5193	T-3		1977	10	17.36372	01	43	49.36	-03	53	01.0		4 675
5193	T-3		1977	10	21.37622	01	40	53.78	-04	15	04.3		4 675
5193	T-3		1977	10	21.43611	01	40	50.95	-04	15	23.1		4 675
5193	T-3		1977	10	22.37274	01	40	10.06	-04	20	15.6		4 675
5193	T-3		1977	10	22.43872	01	40	07.18	-04	20	37.6		4 675
123			1990	03	24.40208	13	20	42.12	-18	13	27.4	15.7	2 675
123			1990	03	24.43333	13	20	40.58	-18	13	23.6		2 675
123			1990	03	25.40503	13	19	54.58	-18	11	07.0		2 675
123			1990	03	25.42986	13	19	53.34	-18	11	03.5		2 675
722			1990	03	22.30087	12	07	40.20	+06	53	07.4	16.5	2 675
722			1990	03	22.32413	12	07	38.61	+06	53	15.1		2 675
722			1990	03	24.30590	12	05	29.35	+07	03	10.0		2 675
722			1990	03	24.33316	12	05	27.44	+07	03	17.0		2 675
1276			1990	03	23.25660	12	20	31.60	+30	20	51.6	15.7	2 675
1276			1990	03	23.28958	12	20	30.03	+30	21	04.1		2 675
1276			1990	03	25.34149	12	18	56.24	+30	32	54.9		2 675
1276			1990	03	25.36285	12	18	55.24	+30	33	03.0		2 675
1318			1990	04	26.17049	11	07	44.05	-09	11	18.4	15.5	2 675
1318			1990	04	26.19583	11	07	42.97	-09	11	35.7		2 675
1318			1990	04	27.16042	11	07	10.28	-09	22	15.7		2 675
1318			1990	04	27.18490	11	07	09.36	-09	22	31.8		2 675

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

1981	EZ23		1990	04	22.36441	16	05	11.90	-19	09	51.6		688
1981	EZ23		1990	04	22.38247	16	05	11.33	-19	09	48.0		688
1983	XF		1990	04	21.37552	16	02	33.87	-18	06	24.6		688
1983	XF		1990	04	21.38947	16	02	33.12	-18	06	23.7		688
1983	XF		1990	04	22.34618	16	01	43.58	-18	05	00.0		688
1983	XF		1990	04	22.35521	16	01	43.10	-18	04	59.4		688
1985	PE1		1990	04	23.14667	07	53	39.30	+20	16	22.8		688
1985	PE1		1990	04	23.16302	07	53	40.12	+20	16	19.9		688
1989	FC		1990	04	22.23386	09	10	56.21	+22	05	07.1		688
1989	FC		1990	04	22.24276	09	10	59.47	+22	04	57.3		688
1989	FC		1990	04	22.24531	09	11	00.62	+22	04	53.9		688
1989	FC		1990	04	22.25596	09	11	04.63	+22	04	41.2		688
1989	FC		1990	04	22.25938	09	11	05.95	+22	04	37.2		688
1989	FC		1990	04	22.26175	09	11	06.86	+22	04	34.5		688
1989	WM		1990	04	22.29306	10	31	48.99	+12	48	28.3		688
1989	WM		1990	04	22.30359	10	31	49.93	+12	48	20.0		688
1990	BA		1990	04	22.27917	10	11	38.26	+06	35	22.0		688
1990	BA		1990	04	22.28854	10	11	39.55	+06	35	15.5		688
3344			1987	11	22.19302	03	42	20.46	+14	16	01.5		688

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

73	1929 09 29.24097	23 42 33.61	-02 30 55.1				690
601	1929 09 29.24097	23 55 45.53	-04 57 10.4				690
601	1929 10 09.25000	23 49 52.66	-06 26 02.3				690
2357	1929 09 29.24097	23 50 39.00	-01 02 00.6				690
2357	1929 10 09.25000	23 46 14.30	-01 33 37.5				690

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

1989 UP	1990 02 21.19476	11 00 59.28	+20 47 32.2				691
1989 UP	1990 02 21.20833	11 00 57.85	+20 47 33.5				691
1989 UP	1990 02 21.24223	11 00 53.74	+20 47 36.6				691
1989 UP	1990 02 21.26718	11 00 50.76	+20 47 38.8		19.3V		691
1989 UP	1990 03 23.23251	10 26 06.01	+18 57 22.9				691
1989 UP	1990 03 23.24167	10 26 05.76	+18 57 19.8				691
1989 UP	1990 03 23.25190	10 26 05.46	+18 57 15.4		21.4V		691

695 Kitt Peak
K. J. Meech, Institute for Astronomy, 2680 Woodlawn Drive, Honolulu, HI 96822, U.S.A.
Observers K. J. Meech, M. J. S. Belton

2060	1989 04 10.14905	06 06 33.73	+17 10 02.4				695

760 Goethe Link
E. Bowell, Lowell Observatory, 1400 West Mars Hill Road, Flagstaff, AZ 86001, U.S.A.
Observers H. L. Cohen, W. E. Crawley, P. R. Davis, D. W. Dawson, H. M. Dyck, F. K. Edmondson, J. D. Fix, R. T. Grenchik, A. M. Heiser, J. E. Michlovic, C. J. Murphy, A. I. Poland, R. L. Pomfrey, D. V. Pytko, S. F. Strother, A. Young, H. S. Yun
Measurer B. A. Skiff
0.25-m refractor
PDS scanning microdensitometer
AGK3 and Perth 70 secondary nets, global solutions

1962 WG	1962 11 24.18882	02 40 20.26	+24 38 14.1			A	760
1962 WG	1962 11 24.23258	02 40 19.02	+24 37 36.3			A	760
1962 WL	1962 11 24.18882	02 22 28.51	+21 17 57.2				760
1962 WL	1962 11 24.23258	02 22 27.05	+21 17 25.0				760
1962 WM	1962 11 24.18882	02 19 10.31	+19 02 04.3				760
1962 WM	1962 11 24.23258	02 19 08.48	+19 01 38.3				760
1962 WO	1962 11 24.18882	02 20 44.18	+24 09 41.6				760
1962 WO	1962 11 24.23258	02 20 43.11	+24 09 30.8				760
1962 WF1	1962 11 27.08502	03 24 32.37	+25 06 16.0				760
1962 WF1	1962 11 27.12946	03 24 30.20	+25 06 00.7				760
1962 YA	1962 12 30.09647	04 32 11.97	+14 20 11.6			A	760
1962 YA	1962 12 30.14750	04 32 10.18	+14 20 12.9			A	760
1963 FE	1963 03 22.28270	13 57 23.63	-01 25 19.8				760
1963 FE	1963 03 22.33270	13 57 22.14	-01 24 50.2			D	760
1963 SA1	1963 09 27.25347	23 55 40.08	-12 08 33.6				760
1963 SA1	1963 09 27.29861	23 55 38.05	-12 08 54.1				760
1963 SB1	1963 09 27.25347	23 54 58.02	-10 06 56.0				760
1963 SB1	1963 09 27.29861	23 54 55.59	-10 07 10.2				760
1963 TV	1963 10 18.32294	02 32 11.34	+00 37 34.8				760
1963 TC1	1963 10 15.10766	00 52 09.49	+04 26 27.1				760

1963	TC1	1963	10	15.15072	00	52	07.73	+04	26	17.1			760
1963	TF1	1963	10	15.10766	00	40	42.33	+09	41	26.2			760
1963	TF1	1963	10	15.15072	00	40	39.87	+09	41	14.1			760
1964	CB	1964	02	15.10349	08	34	09.83	+25	58	34.4			760
1964	CB	1964	02	15.14863	08	34	07.51	+25	58	33.6			760
1964	JB	1964	05	10.25764	15	28	48.69	-12	17	33.1		d	760
1964	JB	1964	05	10.30069	15	28	46.26	-12	17	11.4		d	760
1964	PD	1964	08	12.21389	20	48	16.30	-12	09	49.6			760
1964	PD	1964	08	12.25764	20	48	14.25	-12	10	02.6			760
1964	PH	1964	08	12.21389	20	37	26.80	-11	52	43.1			760
1964	PH	1964	08	12.25764	20	37	24.87	-11	52	40.8			760
1964	PM	1964	08	12.21389	20	25	46.43	-14	13	32.2			760
1964	PM	1964	08	12.25764	20	25	44.58	-14	13	58.3			760
1964	WC	1964	11	29.18145	04	50	24.33	+11	20	39.3			760
1964	WC	1964	11	29.22520	04	50	22.02	+11	20	43.3		P	760
1964	WE	1964	11	29.18145	04	43	24.54	+13	03	37.8			760
1964	WE	1964	11	29.22520	04	43	21.69	+13	03	21.8			760
1964	WF	1964	11	29.18145	04	33	18.63	+11	02	18.0			760
1964	WF	1964	11	29.22520	04	33	15.80	+11	01	59.4			760
1965	WM	1965	11	28.14302	03	49	11.13	-02	58	45.4	15.8		760
1965	WM	1965	11	28.20204	03	49	07.78	-02	58	48.8			760
1966	DE	1966	02	18.18830	08	31	55.40	+17	29	46.1	16.0		760
1966	DE	1966	02	18.23344	08	31	53.18	+17	29	57.6			760
10		1963	10	23.23469	02	33	05.05	+20	07	43.7	11.0		760
10		1963	10	23.27844	02	33	02.97	+20	07	34.6			760
16		1964	08	12.21389	20	31	34.95	-17	13	36.3	10.0		760
16		1964	08	12.25764	20	31	32.94	-17	13	46.1			760
22		1964	05	10.25764	15	41	52.37	-15	23	50.5	11.2		760
22		1964	05	10.30069	15	41	49.93	-15	23	51.7			760
65		1964	08	12.21389	20	32	22.11	-16	32	51.8	11.8		760
65		1964	08	12.25764	20	32	20.36	-16	33	01.0			760
87		1963	03	22.28270	13	57	22.27	+00	26	30.8	13.1		760
87		1963	03	22.33270	13	57	20.79	+00	26	40.2			760
147		1964	08	12.21389	20	37	15.00	-15	58	03.0	13.8		760
147		1964	08	12.25764	20	37	13.03	-15	58	10.4			760
175		1955	02	18.08791	08	02	18.51	+24	40	16.0	15.0	O	760
175		1955	02	18.12749	08	02	17.52	+24	40	22.0		P	760
207		1962	11	27.08502	03	20	59.41	+21	42	20.0	14.0		760
207		1962	11	27.12946	03	20	56.54	+21	42	12.8			760
209		1963	10	23.23469	02	38	32.77	+22	11	06.0	13.2		760
209		1963	10	23.27844	02	38	30.54	+22	11	01.7			760
267		1955	02	18.08791	07	42	43.46	+27	54	30.9	15.9		760
267		1955	02	18.12749	07	42	41.86	+27	54	36.6		D	760
269		1964	11	29.18145	04	44	14.63	+14	16	30.3	14.8		760
269		1964	11	29.22520	04	44	12.08	+14	16	25.5			760
278		1959	12	04.45509	06	47	56.88	+28	30	34.2			760
297		1955	02	18.08791	07	54	33.49	+25	40	26.1	15.8		760
297		1955	02	18.12749	07	54	32.23	+25	40	23.5		P	760
335		1956	03	10.08935	05	10	08.05	+18	49	16.1		P	760
335		1956	03	10.12894	05	10	09.79	+18	49	23.5			760
336		1963	10	15.10766	00	36	27.51	+10	40	16.9	13.1		760
336		1963	10	15.15072	00	36	24.95	+10	39	54.6			760
348		1955	02	18.08791	07	54	41.04	+29	26	17.7	14.3		760
348		1955	02	18.12749	07	54	39.68	+29	26	22.7			760
348		1958	11	06.04580	00	36	02.39	-10	24	21.5	14.4		760
348		1958	11	06.08851	00	36	01.21	-10	24	18.2			760
348		1963	09	25.21181	00	22	34.74	-13	31	09.0	14.7		760
348		1963	09	25.25486	00	22	32.56	-13	31	22.3			760

377	1964	11	29.18145	04	30	48.80	+15	02	46.9	12.5		760
377	1964	11	29.22520	04	30	46.24	+15	02	35.2			760
401	1955	02	18.08791	07	39	08.41	+29	21	03.3	15.8		760
401	1955	02	18.12749	07	39	07.30	+29	21	05.0		R	760
405	1956	03	10.08935	05	14	15.31	+17	14	09.3			760
405	1956	03	10.12894	05	14	17.49	+17	14	09.9			760
417	1964	11	29.18145	04	51	58.37	+14	40	09.2	14.4		760
417	1964	11	29.22520	04	51	55.88	+14	40	02.1			760
479	1956	03	10.08935	05	10	44.57	+17	44	31.9			760
479	1956	03	10.12894	05	10	47.51	+17	44	46.8			760
524	1955	02	18.08791	07	44	56.64	+25	44	09.8	14.3		760
524	1955	02	18.12749	07	44	55.14	+25	44	03.9		P	760
532	1962	12	30.09647	04	23	07.15	+08	43	51.8	11.0		760
532	1962	12	30.14750	04	23	04.88	+08	44	08.0			760
583	1962	11	24.18882	02	18	04.48	+20	19	41.1			760
583	1962	11	24.23258	02	18	02.77	+20	19	26.1			760
615	1955	02	18.08791	07	53	21.40	+24	41	08.2	15.0	O	760
615	1955	02	18.12749	07	53	19.67	+24	41	11.2		P	760
628	1963	10	18.32294	02	22	46.73	-05	25	25.5			760
663	1964	11	29.18145	04	53	32.73	+14	01	53.8	13.9		760
663	1964	11	29.22520	04	53	30.42	+14	01	37.6			760
677	1963	10	23.23469	02	23	20.27	+25	04	21.5	15.1		760
677	1963	10	23.27844	02	23	18.01	+25	04	09.9			760
722	1964	02	15.10349	08	55	44.65	+26	56	26.5	16.1		760
722	1964	02	15.14863	08	55	41.59	+26	56	35.9			760
743	1953	12	01.17916	02	38	19.33	+15	33	14.7	14.4		760
743	1953	12	01.22499	02	38	17.73	+15	32	57.6			760
754	1958	11	06.04580	00	35	47.45	-07	31	21.8	13.9		760
754	1958	11	06.08851	00	35	46.46	-07	31	38.4			760
762	1966	02	18.18830	08	42	44.26	+14	45	32.2			760
762	1966	02	18.23344	08	42	41.98	+14	45	29.2			760
811	1964	08	12.21389	20	37	51.28	-18	34	52.8	15.3		760
811	1964	08	12.25764	20	37	49.22	-18	35	03.6			760
835	1963	12	15.27708	07	36	54.06	+23	56	39.2			760
910	1964	02	15.10349	08	47	39.11	+31	31	45.5	15.6		760
996	1966	02	18.18830	08	39	26.58	+19	01	00.9			760
996	1966	02	18.23344	08	39	24.62	+19	01	06.4			760
1052	1964	05	10.25764	15	27	42.34	-12	53	40.8	16.0		760
1052	1964	05	10.30069	15	27	39.53	-12	53	32.6			760
1181	1964	08	12.21389	20	41	36.61	-10	53	55.1			760
1181	1964	08	12.25764	20	41	34.31	-10	54	02.6			760
1200	1966	02	18.18830	08	28	54.48	+12	41	53.3		D	760
1200	1966	02	18.23344	08	28	52.54	+12	42	07.2			760
1289	1953	12	01.17916	02	25	10.49	+13	01	02.6	16.3		760
1289	1953	12	01.22499	02	25	08.90	+13	00	53.9			760
1339	1964	08	12.21389	20	36	59.72	-13	58	47.9	15.8		760
1339	1964	08	12.25764	20	36	57.57	-13	58	50.5			760
1432	1963	10	18.27850	02	25	04.32	-03	04	00.8			760
1558	1963	10	18.27850	02	33	56.55	-00	59	55.5			760
2352	1953	12	01.17916	02	18	36.69	+15	53	49.5			760
2352	1953	12	01.22499	02	18	35.32	+15	53	30.6			760
2776	1962	12	30.09647	04	23	51.98	+13	39	39.3			760
2776	1962	12	30.14750	04	23	49.76	+13	39	37.8			760
3024	1962	11	24.18882	02	34	03.25	+23	17	34.6		I	760
3233	1952	01	30.30968	08	45	39.23	+22	22	34.8			760
3672	1964	02	15.14863	08	51	13.58	+27	44	48.2			760
3970	1963	10	23.23469	02	29	28.83	+21	54	24.5			760
3970	1963	10	23.27844	02	29	25.69	+21	54	30.3		R	760

3993		1963	10	15.10766	00	40	38.83	+05	22	39.7		760
3993		1963	10	15.15072	00	40	36.63	+05	22	22.9		760
4324		1964	08	12.21389	20	46	55.38	-12	48	41.6		760
4324		1964	08	12.25764	20	46	52.71	-12	48	43.0		760
4324		1966	02	18.18830	08	31	51.41	+13	50	40.5		760
4324		1966	02	18.23344	08	31	49.08	+13	50	44.1		760
4431		1962	12	30.09647	04	15	54.76	+12	36	08.7		760
4431		1962	12	30.14750	04	15	53.13	+12	36	01.6		760

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1.5-m reflector + CCD

1952	HJ2	1990	03	22.40370	15	14	36.27	-17	28	21.2		801
1952	HJ2	1990	03	24.38845	15	14	31.55	-17	28	21.2		801
1978	NU3	1989	09	04.26962	23	04	33.65	-12	05	58.4		801
1985	CP1	1990	03	27.26817	12	50	19.45	-00	16	20.2		801
1985	CP1	1990	03	27.28145	12	50	18.81	-00	16	14.3		801
1987	DD	1987	04	30.14053	10	58	27.76	+46	34	29.6		801
1988	ND	1990	02	21.36377	13	25	10.04	+21	58	21.8		801
1988	ND	1990	02	21.37451	13	25	09.91	+21	58	37.4		801
1988	TK1	1990	03	25.17731	11	52	52.63	-03	58	48.0		801
1988	TK1	1990	03	25.19355	11	52	51.63	-03	58	42.4		801
1988	TK1	1990	03	26.20764	11	51	55.82	-03	53	06.5		801
1989	WM	1990	03	23.14823	09	52	09.64	+19	07	48.5		801
1989	WM	1990	03	23.15893	09	52	10.25	+19	07	40.7		801
1990	HA	1990	04	24.05129	13	27	36.11	+03	04	47.6	14	801
1990	HA	1990	04	24.05776	13	27	36.76	+03	04	37.1		801
1990	HA	1990	04	24.17881	13	27	48.80	+03	01	26.6		801
1990	HA	1990	04	24.18158	13	27	49.08	+03	01	22.1		801

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1.0-m Schmidt

1953	PR	1990	03	02.23889	11	38	52.33	+01	02	53.6	18.7	809
1953	PR	1990	03	02.25208	11	38	51.70	+01	02	57.7		809
1953	PR	1990	03	02.26528	11	38	50.93	+01	03	02.9		809
1953	PR	1990	03	04.22639	11	37	14.36	+01	15	33.6		809
1953	PR	1990	03	04.23958	11	37	13.76	+01	15	37.9		809
1953	PR	1990	03	04.25278	11	37	12.95	+01	15	43.0		809
1975	XJ	1989	11	06.24931	02	48	09.94	+01	38	27.6	18.5	809
1975	XJ	1989	11	06.26250	02	48	09.04	+01	38	23.8		809
1975	XJ	1989	11	06.27569	02	48	08.19	+01	38	19.6		809
1978	VB	1990	03	02.23889	11	36	58.76	+00	33	00.0	17.9	809
1978	VB	1990	03	02.25208	11	36	58.08	+00	33	01.2		809
1978	VB	1990	03	02.26528	11	36	57.36	+00	33	02.0		809
1978	VB	1990	03	04.22639	11	35	14.73	+00	36	43.6		809
1978	VB	1990	03	04.23958	11	35	14.00	+00	36	45.3		809
1978	VB	1990	03	04.25278	11	35	13.26	+00	36	46.8		809
1987	QM	1990	02	24.20556	11	34	00.53	-04	26	28.3	19.0	809
1987	QM	1990	02	24.21875	11	33	59.79	-04	26	28.3		809
1987	QM	1990	02	24.23194	11	33	59.15	-04	26	27.4		809
1987	QQ11	1990	02	24.20556	11	20	22.67	-04	04	53.0		809
1987	QQ11	1990	02	24.21875	11	20	22.00	-04	04	52.8		809
1987	QQ11	1990	02	24.23194	11	20	21.28	-04	04	52.2		809

1987	QQ11		1990	03	02.18750	11	15	26.99	-03	55	46.3	809
1987	QQ11		1990	03	02.20069	11	15	26.29	-03	55	45.9	809
1987	QQ11		1990	03	02.21389	11	15	25.60	-03	55	44.5	809
1987	QQ11		1990	03	04.18056	11	13	45.27	-03	51	52.9	17.9 809
1987	QQ11		1990	03	04.19375	11	13	44.59	-03	51	51.7	809
1987	QQ11		1990	03	04.20694	11	13	43.88	-03	51	49.9	809
1988	TP		1990	03	02.23889	11	25	45.50	-01	27	49.2	18.0 809
1988	TP		1990	03	02.25208	11	25	44.78	-01	27	44.6	809
1988	TP		1990	03	02.26528	11	25	44.04	-01	27	39.8	809
1988	TP		1990	03	04.22639	11	24	00.51	-01	15	34.8	809
1988	TP		1990	03	04.23958	11	23	59.81	-01	15	30.4	809
1988	TP		1990	03	04.25278	11	23	59.06	-01	15	25.8	809
1989	CJ3		1990	02	24.20556	11	27	42.25	-07	02	03.0	809
1989	CJ3		1990	02	24.21875	11	27	41.88	-07	02	01.1	809
1989	CJ3		1990	02	24.23194	11	27	41.49	-07	01	58.8	809
1989	CJ3		1990	03	02.18750	11	24	56.93	-06	46	41.6	809
1989	CJ3		1990	03	02.20069	11	24	56.56	-06	46	39.4	809
1989	CJ3		1990	03	02.21389	11	24	56.15	-06	46	36.9	809
1989	CJ3		1990	03	04.18056	11	24	00.01	-06	41	01.9	18.4 809
1989	CJ3		1990	03	04.19375	11	23	59.63	-06	40	59.0	809
1989	CJ3		1990	03	04.20694	11	23	59.24	-06	40	57.4	809
1990	DX		1990	03	02.23889	11	25	05.28	-02	02	16.2	18.1 809
1990	DX		1990	03	02.25208	11	25	04.53	-02	02	14.5	809
1990	DX		1990	03	02.26528	11	25	03.78	-02	02	12.1	809
1990	DX		1990	03	04.22639	11	23	18.23	-01	56	11.0	809
1990	DX		1990	03	04.23958	11	23	17.42	-01	56	08.8	809
1990	DX		1990	03	04.25278	11	23	16.71	-01	56	06.5	809
1990	EJ		1990	03	02.23889	11	41	53.28	+00	40	13.8	17.7 809
1990	EJ		1990	03	02.25208	11	41	52.64	+00	40	14.9	809
1990	EJ		1990	03	02.26528	11	41	51.95	+00	40	15.8	809
1990	EJ		1990	03	04.22639	11	40	17.81	+00	42	52.3	809
1990	EJ		1990	03	04.23958	11	40	17.14	+00	42	52.9	809
1990	EJ		1990	03	04.25278	11	40	16.45	+00	42	54.3	809
1990	EM	*	1990	03	02.18750	11	07	37.01	-05	22	57.9	809
1990	EM		1990	03	02.20069	11	07	36.58	-05	22	54.6	809
1990	EM		1990	03	02.21389	11	07	36.20	-05	22	52.0	809
1990	EM		1990	03	04.18056	11	06	37.90	-05	16	46.4	19.0 809
1990	EM		1990	03	04.19375	11	06	37.42	-05	16	44.2	809
1990	EM		1990	03	04.20694	11	06	37.09	-05	16	42.1	809
1990	EN	*	1990	03	02.18750	11	08	01.54	-06	09	03.3	809
1990	EN		1990	03	02.20069	11	08	00.78	-06	08	56.5	809
1990	EN		1990	03	02.21389	11	08	00.09	-06	08	51.1	809
1990	EN		1990	03	04.18056	11	06	15.00	-05	53	08.0	18.2 809
1990	EN		1990	03	04.19375	11	06	14.23	-05	53	02.3	809
1990	EN		1990	03	04.20694	11	06	13.45	-05	52	55.9	809
1990	EO		1990	02	24.20556	11	13	33.35	-05	56	51.1	809
1990	EO		1990	02	24.21875	11	13	32.62	-05	56	47.7	809
1990	EO		1990	02	24.23194	11	13	31.87	-05	56	44.8	809
1990	EO	*	1990	03	02.18750	11	08	08.45	-05	28	22.4	809
1990	EO		1990	03	02.20069	11	08	07.64	-05	28	18.1	809
1990	EO		1990	03	02.21389	11	08	06.81	-05	28	14.3	809
1990	EO		1990	03	04.18056	11	06	15.57	-05	17	19.0	18.0 809
1990	EO		1990	03	04.19375	11	06	14.79	-05	17	14.8	809
1990	EO		1990	03	04.20694	11	06	13.99	-05	17	10.6	809
1990	EP	*	1990	03	02.18750	11	08	10.77	-03	09	22.3	809
1990	EP		1990	03	02.20069	11	08	10.30	-03	09	18.8	809
1990	EP		1990	03	02.21389	11	08	09.88	-03	09	16.5	809
1990	EP		1990	03	04.18056	11	07	15.33	-03	01	17.6	18.6 809
1990	EP		1990	03	04.19375	11	07	14.95	-03	01	15.4	809

1990	EP		1990	03	04.20694	11	07	14.54	-03	01	11.7	809
1990	EQ	*	1990	03	02.18750	11	08	20.36	-04	32	20.9	809
1990	EQ		1990	03	02.20069	11	08	19.98	-04	32	19.5	809
1990	EQ		1990	03	02.21389	11	08	19.46	-04	32	18.3	809
1990	EQ		1990	03	04.18056	11	07	12.68	-04	28	56.3	18.7 809
1990	EQ		1990	03	04.19375	11	07	12.21	-04	28	54.1	809
1990	EQ		1990	03	04.20694	11	07	11.70	-04	28	52.7	809
1990	ER		1990	02	24.20556	11	13	31.74	-05	18	37.3	809
1990	ER		1990	02	24.21875	11	13	31.06	-05	18	36.0	809
1990	ER		1990	02	24.23194	11	13	30.36	-05	18	35.6	809
1990	ER	*	1990	03	02.18750	11	08	35.38	-05	09	03.2	809
1990	ER		1990	03	02.20069	11	08	34.69	-05	09	01.2	809
1990	ER		1990	03	02.21389	11	08	33.93	-05	09	00.3	809
1990	ER		1990	03	04.18056	11	06	53.88	-05	04	52.2	18.6 809
1990	ER		1990	03	04.19375	11	06	53.20	-05	04	50.6	809
1990	ER		1990	03	04.20694	11	06	52.52	-05	04	48.9	809
1990	ES	*	1990	03	02.18750	11	08	48.64	-06	20	13.6	809
1990	ES		1990	03	02.20069	11	08	47.75	-06	20	11.0	809
1990	ES		1990	03	02.21389	11	08	46.98	-06	20	09.1	809
1990	ES		1990	03	04.18056	11	06	29.06	-06	17	20.6	20.5 809
1990	ES		1990	03	04.19375	11	06	28.29	-06	17	19.7	809
1990	ES		1990	03	04.20694	11	06	27.25	-06	17	18.5	809
1990	ET	*	1990	03	02.18750	11	08	56.41	-03	30	58.7	809
1990	ET		1990	03	02.20069	11	08	55.73	-03	30	53.8	809
1990	ET		1990	03	02.21389	11	08	55.10	-03	30	49.1	809
1990	ET		1990	03	04.18056	11	07	21.53	-03	17	20.2	18.3 809
1990	ET		1990	03	04.19375	11	07	20.92	-03	17	15.5	809
1990	ET		1990	03	04.20694	11	07	20.30	-03	17	10.2	809
1990	EU		1990	02	24.20556	11	15	05.71	-06	10	28.2	809
1990	EU		1990	02	24.21875	11	15	05.05	-06	10	25.7	809
1990	EU		1990	02	24.23194	11	15	04.27	-06	10	23.6	809
1990	EU	*	1990	03	02.18750	11	09	50.45	-05	51	31.1	809
1990	EU		1990	03	02.20069	11	09	49.72	-05	51	27.7	809
1990	EU		1990	03	02.21389	11	09	48.94	-05	51	25.3	809
1990	EU		1990	03	04.18056	11	08	01.75	-05	43	49.3	19.5 809
1990	EU		1990	03	04.19375	11	08	01.01	-05	43	46.8	809
1990	EU		1990	03	04.20694	11	08	00.18	-05	43	43.0	809
1990	EV	*	1990	03	02.18750	11	10	04.73	-02	52	40.4	809
1990	EV		1990	03	02.20069	11	10	04.08	-02	52	34.5	809
1990	EV		1990	03	02.21389	11	10	03.43	-02	52	29.5	809
1990	EV		1990	03	04.18056	11	08	26.88	-02	37	20.4	19.0 809
1990	EV		1990	03	04.19375	11	08	26.22	-02	37	15.2	809
1990	EV		1990	03	04.20694	11	08	25.57	-02	37	09.3	809
1990	EW		1990	02	24.20556	11	13	55.12	-04	30	28.2	809
1990	EW		1990	02	24.21875	11	13	54.56	-04	30	26.6	809
1990	EW		1990	02	24.23194	11	13	54.02	-04	30	25.3	809
1990	EW	*	1990	03	02.18750	11	10	17.01	-04	19	06.5	809
1990	EW		1990	03	02.20069	11	10	16.45	-04	19	04.4	809
1990	EW		1990	03	02.21389	11	10	15.91	-04	19	02.9	809
1990	EW		1990	03	04.18056	11	09	02.68	-04	14	49.8	18.6 809
1990	EW		1990	03	04.19375	11	09	02.11	-04	14	47.7	809
1990	EW		1990	03	04.20694	11	09	01.62	-04	14	45.2	809
1990	EX	*	1990	03	02.18750	11	10	18.33	-06	02	49.8	809
1990	EX		1990	03	02.20069	11	10	17.94	-06	02	46.8	809
1990	EX		1990	03	02.21389	11	10	17.48	-06	02	44.2	809
1990	EX		1990	03	04.18056	11	09	21.72	-05	55	58.4	18.8 809
1990	EX		1990	03	04.19375	11	09	21.39	-05	55	55.8	809
1990	EX		1990	03	04.20694	11	09	20.98	-05	55	53.5	809
1990	EY	*	1990	03	02.18750	11	10	41.32	-05	15	29.0	809

1990	EY		1990	03	02.20069	11	10	40.94	-05	15	26.5		809
1990	EY		1990	03	02.21389	11	10	40.42	-05	15	24.4		809
1990	EY		1990	03	04.18056	11	09	49.12	-05	13	17.7	20.0	809
1990	EY		1990	03	04.19375	11	09	48.67	-05	13	17.5		809
1990	EY		1990	03	04.20694	11	09	48.25	-05	13	16.3		809
1990	EZ		1990	02	24.20556	11	15	17.29	-06	46	25.7		809
1990	EZ		1990	02	24.21875	11	15	16.68	-06	46	21.0		809
1990	EZ		1990	02	24.23194	11	15	16.02	-06	46	14.5		809
1990	EZ	*	1990	03	02.18750	11	10	51.01	-06	01	40.7		809
1990	EZ		1990	03	02.20069	11	10	50.34	-06	01	34.6		809
1990	EZ		1990	03	02.21389	11	10	49.70	-06	01	29.2		809
1990	EZ		1990	03	04.18056	11	09	18.77	-05	45	17.9	18.6	809
1990	EZ		1990	03	04.19375	11	09	18.11	-05	45	10.8		809
1990	EZ		1990	03	04.20694	11	09	17.50	-05	45	04.6		809
1990	EA1	*	1990	03	02.18750	11	11	23.47	-03	54	20.0		809
1990	EA1		1990	03	02.20069	11	11	22.76	-03	54	17.4		809
1990	EA1		1990	03	02.21389	11	11	22.14	-03	54	16.4		809
1990	EA1		1990	03	04.18056	11	09	48.88	-03	49	29.5	19.6	809
1990	EA1		1990	03	04.19375	11	09	48.29	-03	49	27.5		809
1990	EA1		1990	03	04.20694	11	09	47.60	-03	49	25.5		809
1990	EB1	*	1990	03	02.18750	11	12	05.76	-04	33	19.9		809
1990	EB1		1990	03	02.20069	11	12	05.20	-04	33	16.0		809
1990	EB1		1990	03	02.21389	11	12	04.35	-04	33	12.9		809
1990	EB1		1990	03	04.18056	11	10	12.76	-04	23	06.3	19.2	809
1990	EB1		1990	03	04.19375	11	10	11.92	-04	23	02.3		809
1990	EB1		1990	03	04.20694	11	10	11.29	-04	22	58.1		809
1990	EC1		1990	02	24.20556	11	17	04.30	-07	18	43.5		809
1990	EC1		1990	02	24.21875	11	17	03.62	-07	18	37.5		809
1990	EC1		1990	02	24.23194	11	17	02.96	-07	18	33.2		809
1990	EC1	*	1990	03	02.18750	11	12	36.49	-06	33	28.8		809
1990	EC1		1990	03	02.20069	11	12	35.80	-06	33	22.2		809
1990	EC1		1990	03	02.21389	11	12	35.10	-06	33	15.8		809
1990	EC1		1990	03	04.18056	11	11	02.12	-06	16	26.3	18.8	809
1990	EC1		1990	03	04.19375	11	11	01.50	-06	16	20.4		809
1990	EC1		1990	03	04.20694	11	11	00.87	-06	16	17.1		809
1990	ED1		1990	02	24.20556	11	18	43.17	-04	07	07.1		809
1990	ED1		1990	02	24.21875	11	18	42.54	-04	07	06.1		809
1990	ED1		1990	02	24.23194	11	18	41.82	-04	07	04.8		809
1990	ED1	*	1990	03	02.18750	11	13	38.10	-03	55	38.4		809
1990	ED1		1990	03	02.20069	11	13	37.39	-03	55	35.9		809
1990	ED1		1990	03	02.21389	11	13	36.64	-03	55	34.7		809
1990	ED1		1990	03	04.18056	11	11	52.65	-03	50	38.3	18.1	809
1990	ED1		1990	03	04.19375	11	11	51.92	-03	50	36.3		809
1990	ED1		1990	03	04.20694	11	11	51.15	-03	50	34.2		809
1990	EE1	*	1990	03	02.18750	11	14	01.11	-02	56	33.6		809
1990	EE1		1990	03	02.20069	11	14	00.65	-02	56	31.9		809
1990	EE1		1990	03	02.21389	11	14	00.19	-02	56	31.9		809
1990	EE1		1990	03	04.18056	11	12	58.44	-02	53	00.4	18.5	809
1990	EE1		1990	03	04.19375	11	12	58.03	-02	52	58.5		809
1990	EE1		1990	03	04.20694	11	12	57.58	-02	52	57.1		809
1990	EF1	*	1990	03	02.18750	11	14	57.95	-02	58	43.0		809
1990	EF1		1990	03	02.20069	11	14	57.18	-02	58	39.9		809
1990	EF1		1990	03	02.21389	11	14	56.38	-02	58	36.3		809
1990	EF1		1990	03	04.18056	11	13	04.08	-02	50	38.7	19.0	809
1990	EF1		1990	03	04.19375	11	13	03.27	-02	50	35.1		809
1990	EF1		1990	03	04.20694	11	13	02.51	-02	50	31.9		809
1990	EG1		1990	02	24.20556	11	21	17.18	-03	40	10.2		809
1990	EG1		1990	02	24.21875	11	21	16.34	-03	40	07.7		809
1990	EG1		1990	02	24.23194	11	21	15.58	-03	40	06.2		809

1990	EG1	*	1990	03	02.18750	11	15	18.08	-03	22	41.2	809
1990	EG1		1990	03	02.20069	11	15	17.18	-03	22	38.1	809
1990	EG1		1990	03	02.21389	11	15	16.26	-03	22	35.8	809
1990	EG1		1990	03	04.18056	11	13	14.60	-03	15	31.1	18.8 809
1990	EG1		1990	03	04.19375	11	13	13.72	-03	15	28.4	809
1990	EG1		1990	03	04.20694	11	13	12.92	-03	15	25.6	809
1990	EH1		1990	02	24.20556	11	21	02.75	-03	39	26.0	809
1990	EH1		1990	02	24.21875	11	21	01.98	-03	39	25.7	809
1990	EH1		1990	02	24.23194	11	21	01.25	-03	39	26.1	809
1990	EH1	*	1990	03	02.18750	11	15	35.79	-03	34	11.0	809
1990	EH1		1990	03	02.20069	11	15	35.02	-03	34	10.7	809
1990	EH1		1990	03	02.21389	11	15	34.23	-03	34	09.6	809
1990	EH1		1990	03	04.18056	11	13	41.42	-03	31	18.5	18.3 809
1990	EH1		1990	03	04.19375	11	13	40.51	-03	31	16.7	809
1990	EH1		1990	03	04.20694	11	13	39.73	-03	31	15.0	809
1990	EJ1		1990	02	24.20556	11	20	11.24	-05	11	45.6	809
1990	EJ1		1990	02	24.21875	11	20	10.56	-05	11	41.2	809
1990	EJ1		1990	02	24.23194	11	20	10.08	-05	11	37.8	809
1990	EJ1	*	1990	03	02.18750	11	16	00.36	-04	41	44.4	809
1990	EJ1		1990	03	02.20069	11	15	59.75	-04	41	39.8	809
1990	EJ1		1990	03	02.21389	11	15	59.19	-04	41	36.5	809
1990	EJ1		1990	03	04.18056	11	14	33.59	-04	30	44.5	18.6 809
1990	EJ1		1990	03	04.19375	11	14	32.95	-04	30	39.3	809
1990	EJ1		1990	03	04.20694	11	14	32.33	-04	30	34.6	809
1990	EK1	*	1990	03	02.18750	11	16	15.02	-02	36	31.0	809
1990	EK1		1990	03	02.20069	11	16	14.12	-02	36	30.2	809
1990	EK1		1990	03	02.21389	11	16	13.30	-02	36	30.4	809
1990	EK1		1990	03	04.18056	11	14	07.83	-02	36	14.1	18.6 809
1990	EK1		1990	03	04.19375	11	14	06.90	-02	36	13.1	809
1990	EK1		1990	03	04.20694	11	14	06.02	-02	36	13.3	809
1990	EL1		1990	02	24.20556	11	20	41.76	-06	04	32.8	19.6 809
1990	EL1		1990	02	24.21875	11	20	41.15	-06	04	30.4	809
1990	EL1		1990	02	24.23194	11	20	40.56	-06	04	28.2	809
1990	EL1	*	1990	03	02.18750	11	16	27.44	-05	46	34.2	809
1990	EL1		1990	03	02.20069	11	16	26.86	-05	46	31.5	809
1990	EL1		1990	03	02.21389	11	16	26.26	-05	46	29.1	809
1990	EL1		1990	03	04.18056	11	15	00.07	-05	39	44.5	19.5 809
1990	EL1		1990	03	04.19375	11	14	59.44	-05	39	42.2	809
1990	EL1		1990	03	04.20694	11	14	58.91	-05	39	39.8	809
1990	EM1		1990	02	24.20556	11	23	01.67	-04	14	00.6	809
1990	EM1		1990	02	24.21875	11	23	00.87	-04	13	55.3	809
1990	EM1		1990	02	24.23194	11	23	00.15	-04	13	52.0	809
1990	EM1	*	1990	03	02.18750	11	17	58.63	-03	43	33.1	809
1990	EM1		1990	03	02.20069	11	17	57.88	-03	43	28.0	809
1990	EM1		1990	03	02.21389	11	17	57.21	-03	43	24.2	809
1990	EM1		1990	03	04.18056	11	16	13.24	-03	32	17.2	19.0 809
1990	EM1		1990	03	04.19375	11	16	12.46	-03	32	12.9	809
1990	EM1		1990	03	04.20694	11	16	11.77	-03	32	09.2	809
1990	EN1		1990	02	24.20556	11	22	51.06	-07	36	38.8	809
1990	EN1		1990	02	24.21875	11	22	50.46	-07	36	36.2	809
1990	EN1		1990	02	24.23194	11	22	49.87	-07	36	33.7	809
1990	EN1	*	1990	03	02.18750	11	18	32.79	-07	10	36.0	809
1990	EN1		1990	03	02.20069	11	18	32.13	-07	10	30.9	809
1990	EN1		1990	03	02.21389	11	18	31.46	-07	10	27.8	809
1990	EN1		1990	03	04.18056	11	17	01.63	-07	00	19.9	18.4 809
1990	EN1		1990	03	04.19375	11	17	00.98	-07	00	15.6	809
1990	EN1		1990	03	04.20694	11	17	00.32	-07	00	11.9	809
1990	EO1		1990	02	24.20556	11	24	14.20	-04	53	18.7	809
1990	EO1		1990	02	24.21875	11	24	13.40	-04	53	20.7	809

1990	EO1		1990	02	24.23194	11	24	12.70	-04	53	23.7		809
1990	EO1	*	1990	03	02.18750	11	18	35.79	-05	08	35.9		809
1990	EO1		1990	03	02.20069	11	18	35.02	-05	08	37.0		809
1990	EO1		1990	03	02.21389	11	18	34.07	-05	08	39.2		809
1990	EO1		1990	03	04.18056	11	16	35.79	-05	12	15.6	18.6	809
1990	EO1		1990	03	04.19375	11	16	34.97	-05	12	16.6		809
1990	EO1		1990	03	04.20694	11	16	34.14	-05	12	17.9		809
1990	EP1		1990	02	24.20556	11	23	54.00	-05	20	57.0		809
1990	EP1		1990	02	24.21875	11	23	53.30	-05	20	54.9		809
1990	EP1		1990	02	24.23194	11	23	52.59	-05	20	54.0		809
1990	EP1	*	1990	03	02.18750	11	18	36.39	-05	07	03.5		809
1990	EP1		1990	03	02.20069	11	18	35.71	-05	07	01.0		809
1990	EP1		1990	03	02.21389	11	18	34.89	-05	06	59.6		809
1990	EP1		1990	03	04.18056	11	16	47.05	-05	01	29.9	18.7	809
1990	EP1		1990	03	04.19375	11	16	46.31	-05	01	27.2		809
1990	EP1		1990	03	04.20694	11	16	45.58	-05	01	24.3		809
1990	EQ1	*	1990	03	02.18750	11	18	39.29	-03	53	43.0		809
1990	EQ1		1990	03	02.20069	11	18	38.66	-03	53	40.3		809
1990	EQ1		1990	03	02.21389	11	18	38.03	-03	53	39.1		809
1990	EQ1		1990	03	04.18056	11	17	08.81	-03	48	45.4	19.3	809
1990	EQ1		1990	03	04.19375	11	17	08.18	-03	48	43.9		809
1990	EQ1		1990	03	04.20694	11	17	07.55	-03	48	42.5		809
1990	ER1	*	1990	03	02.18750	11	19	14.19	-02	38	29.5		809
1990	ER1		1990	03	02.20069	11	19	13.51	-02	38	24.7		809
1990	ER1		1990	03	02.21389	11	19	12.76	-02	38	21.2		809
1990	ER1		1990	03	04.18056	11	17	26.02	-02	27	23.4	18.8	809
1990	ER1		1990	03	04.19375	11	17	25.28	-02	27	19.4		809
1990	ER1		1990	03	04.20694	11	17	24.50	-02	27	14.7		809
1990	ES1		1990	02	24.20556	11	24	49.00	-06	16	18.4		809
1990	ES1		1990	02	24.21875	11	24	48.29	-06	16	17.4		809
1990	ES1		1990	02	24.23194	11	24	47.56	-06	16	16.2		809
1990	ES1	*	1990	03	02.18750	11	19	30.35	-06	00	57.5		809
1990	ES1		1990	03	02.20069	11	19	29.54	-06	00	55.2		809
1990	ES1		1990	03	02.21389	11	19	28.86	-06	00	52.9		809
1990	ES1		1990	03	04.18056	11	17	38.71	-05	54	28.8	18.6	809
1990	ES1		1990	03	04.19375	11	17	37.85	-05	54	25.6		809
1990	ES1		1990	03	04.20694	11	17	37.04	-05	54	22.5		809
1990	ET1		1990	02	24.20556	11	25	19.04	-05	34	04.1		809
1990	ET1		1990	02	24.21875	11	25	18.29	-05	34	03.3		809
1990	ET1		1990	02	24.23194	11	25	17.72	-05	34	00.0		809
1990	ET1	*	1990	03	02.18750	11	19	34.08	-05	14	09.0		809
1990	ET1		1990	03	02.20069	11	19	33.29	-05	14	07.1		809
1990	ET1		1990	03	02.21389	11	19	32.39	-05	14	03.9		809
1990	ET1		1990	03	04.18056	11	17	34.12	-05	06	01.0	18.9	809
1990	ET1		1990	03	04.19375	11	17	33.35	-05	05	57.0		809
1990	ET1		1990	03	04.20694	11	17	32.36	-05	05	53.7		809
1990	EU1		1990	02	24.20556	11	24	52.79	-05	14	49.7		809
1990	EU1		1990	02	24.21875	11	24	52.11	-05	14	47.9		809
1990	EU1		1990	02	24.23194	11	24	51.39	-05	14	45.7		809
1990	EU1	*	1990	03	02.18750	11	19	42.37	-04	54	10.8		809
1990	EU1		1990	03	02.20069	11	19	41.53	-04	54	06.8		809
1990	EU1		1990	03	02.21389	11	19	40.72	-04	54	03.8		809
1990	EU1		1990	03	04.18056	11	17	51.21	-04	45	29.7	18.7	809
1990	EU1		1990	03	04.19375	11	17	50.39	-04	45	25.8		809
1990	EU1		1990	03	04.20694	11	17	49.58	-04	45	22.2		809
1990	EV1		1990	02	24.20556	11	23	52.82	-03	52	10.6		809
1990	EV1		1990	02	24.21875	11	23	52.22	-03	52	03.4		809
1990	EV1		1990	02	24.23194	11	23	51.70	-03	51	56.4		809
1990	EV1	*	1990	03	02.18750	11	19	43.02	-02	53	27.0		809

1990	EV1		1990	03	02.20069	11	19	42.42	-02	53	18.9		809
1990	EV1		1990	03	02.21389	11	19	41.81	-02	53	11.0		809
1990	EV1		1990	03	04.18056	11	18	14.04	-02	32	10.4	17.3	809
1990	EV1		1990	03	04.19375	11	18	13.40	-02	32	01.8		809
1990	EV1		1990	03	04.20694	11	18	12.80	-02	31	53.6		809
1990	EW1	*	1990	03	02.18750	11	19	59.23	-03	46	42.1		809
1990	EW1		1990	03	02.20069	11	19	58.86	-03	46	39.6		809
1990	EW1		1990	03	02.21389	11	19	58.34	-03	46	34.1		809
1990	EW1		1990	03	04.18056	11	18	35.01	-03	34	40.6	21.0	809
1990	EW1		1990	03	04.19375	11	18	34.16	-03	34	36.7		809
1990	EW1		1990	03	04.20694	11	18	33.33	-03	34	34.3		809
1990	EX1		1990	02	24.20556	11	23	56.34	-07	59	58.3		809
1990	EX1		1990	02	24.21875	11	23	55.80	-07	59	53.8		809
1990	EX1		1990	02	24.23194	11	23	55.24	-07	59	49.0		809
1990	EX1	*	1990	03	02.18750	11	20	11.21	-07	20	58.5		809
1990	EX1		1990	03	02.20069	11	20	10.68	-07	20	53.4		809
1990	EX1		1990	03	02.21389	11	20	10.09	-07	20	47.5		809
1990	EX1		1990	03	04.18056	11	18	52.36	-07	06	33.6	18.8	809
1990	EX1		1990	03	04.19375	11	18	51.82	-07	06	27.7		809
1990	EX1		1990	03	04.20694	11	18	51.24	-07	06	22.4		809
1990	EY1		1990	02	24.20556	11	23	15.26	-06	06	59.3		809
1990	EY1		1990	02	24.21875	11	23	14.82	-06	06	58.1		809
1990	EY1		1990	02	24.23194	11	23	14.38	-06	06	56.9		809
1990	EY1	*	1990	03	02.18750	11	20	18.24	-05	56	03.9		809
1990	EY1		1990	03	02.20069	11	20	17.82	-05	56	02.2		809
1990	EY1		1990	03	02.21389	11	20	17.40	-05	56	00.6		809
1990	EY1		1990	03	04.18056	11	19	17.44	-05	51	54.4	18.3	809
1990	EY1		1990	03	04.19375	11	19	17.01	-05	51	52.7		809
1990	EY1		1990	03	04.20694	11	19	16.55	-05	51	50.9		809
1990	EZ1	*	1990	03	02.18750	11	20	32.71	-03	37	46.7		809
1990	EZ1		1990	03	02.20069	11	20	32.07	-03	37	42.2		809
1990	EZ1		1990	03	02.21389	11	20	31.30	-03	37	37.2		809
1990	EZ1		1990	03	04.18056	11	18	59.83	-03	25	47.4	19.0	809
1990	EZ1		1990	03	04.19375	11	18	59.10	-03	25	42.1		809
1990	EZ1		1990	03	04.20694	11	18	58.51	-03	25	38.1		809
1990	EA2	*	1990	03	02.18750	11	20	56.31	-03	30	59.5		809
1990	EA2		1990	03	02.20069	11	20	55.67	-03	30	56.6		809
1990	EA2		1990	03	02.21389	11	20	55.02	-03	30	52.0		809
1990	EA2		1990	03	04.18056	11	19	19.68	-03	21	35.6	19.4	809
1990	EA2		1990	03	04.19375	11	19	19.13	-03	21	31.4		809
1990	EA2		1990	03	04.20694	11	19	18.54	-03	21	27.3		809
1990	EB2	*	1990	03	02.18750	11	21	06.00	-02	54	46.1		809
1990	EB2		1990	03	02.20069	11	21	05.17	-02	54	45.5		809
1990	EB2		1990	03	02.21389	11	21	04.31	-02	54	45.3		809
1990	EB2		1990	03	04.18056	11	19	06.33	-02	52	57.2	18.2	809
1990	EB2		1990	03	04.19375	11	19	05.51	-02	52	56.5		809
1990	EB2		1990	03	04.20694	11	19	04.67	-02	52	55.1		809
1990	EC2	*	1990	03	02.18750	11	21	13.84	-07	11	41.3		809
1990	EC2		1990	03	02.20069	11	21	12.89	-07	11	39.0		809
1990	EC2		1990	03	02.21389	11	21	12.09	-07	11	37.8		809
1990	EC2		1990	03	04.18056	11	19	17.23	-07	08	20.4	19.5	809
1990	EC2		1990	03	04.19375	11	19	16.48	-07	08	19.8		809
1990	EC2		1990	03	04.20694	11	19	15.71	-07	08	18.7		809
1990	ED2	*	1990	03	02.18750	11	21	42.07	-03	30	03.6		809
1990	ED2		1990	03	02.20069	11	21	41.70	-03	30	01.2		809
1990	ED2		1990	03	02.21389	11	21	41.25	-03	29	57.8		809
1990	ED2		1990	03	04.18056	11	20	47.03	-03	22	01.2	19.5	809
1990	ED2		1990	03	04.19375	11	20	46.72	-03	21	58.7		809
1990	ED2		1990	03	04.20694	11	20	46.40	-03	21	55.4		809

1990	EE2	*	1990	03	02.18750	11	21	50.32	-06	30	04.5	809
1990	EE2		1990	03	02.20069	11	21	49.71	-06	30	01.8	809
1990	EE2		1990	03	02.21389	11	21	49.17	-06	30	00.6	809
1990	EE2		1990	03	04.18056	11	20	08.76	-06	22	36.3	19.6 809
1990	EE2		1990	03	04.19375	11	20	07.94	-06	22	33.3	809
1990	EE2		1990	03	04.20694	11	20	07.13	-06	22	29.8	809
1990	EF2		1990	02	24.20556	11	28	11.30	-04	12	57.5	809
1990	EF2		1990	02	24.21875	11	28	10.57	-04	12	53.9	809
1990	EF2		1990	02	24.23194	11	28	09.90	-04	12	51.2	809
1990	EF2	*	1990	03	02.18750	11	22	58.74	-03	47	22.8	809
1990	EF2		1990	03	02.20069	11	22	57.95	-03	47	17.7	809
1990	EF2		1990	03	02.21389	11	22	57.20	-03	47	15.4	809
1990	EF2		1990	03	04.18056	11	21	07.18	-03	37	13.2	18.4 809
1990	EF2		1990	03	04.19375	11	21	06.32	-03	37	08.6	809
1990	EF2		1990	03	04.20694	11	21	05.61	-03	37	05.3	809
1990	EG2	*	1990	03	02.18750	11	23	13.00	-07	21	23.3	19.4 809
1990	EG2		1990	03	02.20069	11	23	12.54	-07	21	17.1	809
1990	EG2		1990	03	02.21389	11	23	11.95	-07	21	13.0	809
1990	EG2		1990	03	04.18056	11	21	54.29	-07	08	02.0	19.4 809
1990	EG2		1990	03	04.19375	11	21	53.72	-07	07	56.7	809
1990	EG2		1990	03	04.20694	11	21	53.15	-07	07	51.5	809
1990	EH2		1990	02	24.20556	11	29	16.83	-04	49	12.4	809
1990	EH2		1990	02	24.21875	11	29	16.05	-04	49	11.4	809
1990	EH2		1990	02	24.23194	11	29	15.32	-04	49	10.5	809
1990	EH2	*	1990	03	02.18750	11	23	30.82	-04	39	19.6	809
1990	EH2		1990	03	02.20069	11	23	29.96	-04	39	17.9	809
1990	EH2		1990	03	02.21389	11	23	29.14	-04	39	15.8	809
1990	EH2		1990	03	04.18056	11	21	28.46	-04	34	46.6	18.6 809
1990	EH2		1990	03	04.19375	11	21	27.63	-04	34	44.4	809
1990	EH2		1990	03	04.20694	11	21	26.75	-04	34	43.0	809
1990	EJ2		1990	02	24.20556	11	27	53.08	-07	44	53.0	809
1990	EJ2		1990	02	24.21875	11	27	52.56	-07	44	51.3	809
1990	EJ2		1990	02	24.23194	11	27	52.01	-07	44	48.7	809
1990	EJ2	*	1990	03	02.18750	11	24	07.58	-07	22	38.3	809
1990	EJ2		1990	03	02.20069	11	24	06.96	-07	22	34.4	809
1990	EJ2		1990	03	02.21389	11	24	06.36	-07	22	32.0	809
1990	EJ2		1990	03	04.18056	11	22	49.47	-07	14	20.2	18.6 809
1990	EJ2		1990	03	04.19375	11	22	48.89	-07	14	17.2	809
1990	EJ2		1990	03	04.20694	11	22	48.33	-07	14	14.3	809
1990	EK2		1990	02	24.20556	11	29	12.12	-07	16	10.9	809
1990	EK2		1990	02	24.21875	11	29	11.39	-07	16	09.4	809
1990	EK2		1990	02	24.23194	11	29	10.78	-07	16	07.4	809
1990	EK2	*	1990	03	02.18750	11	24	21.89	-06	58	58.1	809
1990	EK2		1990	03	02.20069	11	24	21.18	-06	58	54.8	809
1990	EK2		1990	03	02.21389	11	24	20.50	-06	58	52.7	809
1990	EK2		1990	03	04.18056	11	22	39.08	-06	51	26.6	18.7 809
1990	EK2		1990	03	04.19375	11	22	38.38	-06	51	23.9	809
1990	EK2		1990	03	04.20694	11	22	37.57	-06	51	20.2	809
1990	EL2		1990	02	24.20556	11	29	29.00	-05	10	50.8	809
1990	EL2		1990	02	24.21875	11	29	28.31	-05	10	46.0	809
1990	EL2		1990	02	24.23194	11	29	27.81	-05	10	42.8	809
1990	EL2	*	1990	03	02.18750	11	24	49.50	-04	34	09.1	809
1990	EL2		1990	03	02.20069	11	24	48.77	-04	34	03.5	809
1990	EL2		1990	03	02.21389	11	24	48.09	-04	33	58.9	809
1990	EL2		1990	03	04.18056	11	23	08.85	-04	20	03.8	18.6 809
1990	EL2		1990	03	04.19375	11	23	08.13	-04	19	57.7	809
1990	EL2		1990	03	04.20694	11	23	07.41	-04	19	52.3	809
1990	EM2	*	1990	03	02.18750	11	25	29.59	-06	15	47.3	809
1990	EM2		1990	03	02.20069	11	25	28.80	-06	15	43.6	809

1990	EM2		1990	03	02.21389	11	25	28.09	-06	15	40.4		809
1990	EM2		1990	03	04.18056	11	23	44.65	-06	06	03.3	20.0	809
1990	EM2		1990	03	04.19375	11	23	43.86	-06	05	57.6		809
1990	EM2		1990	03	04.20694	11	23	43.16	-06	05	54.7		809
1990	EO2	*	1990	03	02.18750	11	26	15.69	-03	08	49.5		809
1990	EO2		1990	03	02.20069	11	26	14.97	-03	08	47.2		809
1990	EO2		1990	03	02.21389	11	26	14.24	-03	08	46.4		809
1990	EO2		1990	03	02.23889	11	26	13.04	-03	08	40.7	18.6	809
1990	EO2		1990	03	02.25208	11	26	12.27	-03	08	38.4		809
1990	EO2		1990	03	02.26528	11	26	11.56	-03	08	36.9		809
1990	EO2		1990	03	04.18056	11	24	29.20	-03	03	49.9	18.6	809
1990	EO2		1990	03	04.19375	11	24	28.52	-03	03	48.1		809
1990	EO2		1990	03	04.20694	11	24	27.77	-03	03	45.5		809
1990	EO2		1990	03	04.22639	11	24	26.81	-03	03	40.2		809
1990	EO2		1990	03	04.23958	11	24	26.10	-03	03	38.2		809
1990	EO2		1990	03	04.25278	11	24	25.35	-03	03	37.0		809
1990	EP2		1990	02	24.20556	11	31	26.65	-07	06	30.7		809
1990	EP2		1990	02	24.21875	11	31	25.95	-07	06	28.4		809
1990	EP2		1990	02	24.23194	11	31	25.31	-07	06	26.1		809
1990	EP2	*	1990	03	02.18750	11	26	49.67	-06	42	17.7		809
1990	EP2		1990	03	02.20069	11	26	48.98	-06	42	14.2		809
1990	EP2		1990	03	02.21389	11	26	48.26	-06	42	10.7		809
1990	EP2		1990	03	04.18056	11	25	10.56	-06	32	25.5	18.7	809
1990	EP2		1990	03	04.19375	11	25	09.89	-06	32	21.4		809
1990	EP2		1990	03	04.20694	11	25	09.18	-06	32	17.4		809
1990	EQ2		1990	02	24.20556	11	32	14.27	-04	08	09.0		809
1990	EQ2		1990	02	24.21875	11	32	13.57	-04	08	05.1		809
1990	EQ2		1990	02	24.23194	11	32	12.87	-04	08	01.6		809
1990	EQ2	*	1990	03	02.18750	11	26	53.31	-03	40	07.0		809
1990	EQ2		1990	03	02.20069	11	26	52.53	-03	40	03.1		809
1990	EQ2		1990	03	02.21389	11	26	51.75	-03	39	59.3		809
1990	EQ2		1990	03	04.18056	11	24	59.71	-03	29	15.5	18.0	809
1990	EQ2		1990	03	04.19375	11	24	58.93	-03	29	11.1		809
1990	EQ2		1990	03	04.20694	11	24	58.11	-03	29	07.4		809
1990	ER2		1990	02	24.20556	11	31	45.53	-04	26	02.4		809
1990	ER2		1990	02	24.21875	11	31	44.86	-04	25	59.5		809
1990	ER2		1990	02	24.23194	11	31	44.24	-04	25	55.9		809
1990	ER2	*	1990	03	02.18750	11	27	05.04	-03	58	11.7		809
1990	ER2		1990	03	02.20069	11	27	04.34	-03	58	08.3		809
1990	ER2		1990	03	02.21389	11	27	03.61	-03	58	03.2		809
1990	ER2		1990	03	04.18056	11	25	25.40	-03	47	33.9	20.0	809
1990	ER2		1990	03	04.19375	11	25	24.79	-03	47	30.4		809
1990	ER2		1990	03	04.20694	11	25	24.23	-03	47	27.5		809
1990	ES2		1990	02	24.20556	11	32	52.41	-05	03	13.5		809
1990	ES2		1990	02	24.21875	11	32	51.72	-05	03	12.8		809
1990	ES2		1990	02	24.23194	11	32	51.08	-05	03	12.3		809
1990	ES2	*	1990	03	02.18750	11	27	57.09	-04	53	49.1		809
1990	ES2		1990	03	02.20069	11	27	56.37	-04	53	46.6		809
1990	ES2		1990	03	02.21389	11	27	55.59	-04	53	44.9		809
1990	ES2		1990	03	04.18056	11	26	11.53	-04	49	04.2	18.5	809
1990	ES2		1990	03	04.19375	11	26	10.76	-04	49	01.9		809
1990	ES2		1990	03	04.20694	11	26	10.01	-04	49	00.4		809
1990	ET2		1990	02	24.20556	11	32	19.35	-05	24	13.7		809
1990	ET2		1990	02	24.21875	11	32	18.80	-05	24	07.7		809
1990	ET2		1990	02	24.23194	11	32	18.31	-05	24	02.2		809
1990	ET2	*	1990	03	02.18750	11	28	17.05	-04	35	52.4		809
1990	ET2		1990	03	02.20069	11	28	16.57	-04	35	46.2		809
1990	ET2		1990	03	02.21389	11	28	15.89	-04	35	39.0		809
1990	ET2		1990	03	04.18056	11	26	50.51	-04	18	14.5	18.4	809

1990	ET2		1990	03	04.19375	11	26	49.89	-04	18	06.8		809
1990	ET2		1990	03	04.20694	11	26	49.25	-04	17	59.6		809
1990	EU2	*	1990	03	02.23889	11	24	55.41	-02	44	49.4	20.0	809
1990	EU2		1990	03	02.25208	11	24	54.82	-02	44	47.0		809
1990	EU2		1990	03	02.26528	11	24	54.17	-02	44	44.4		809
1990	EU2		1990	03	04.18056	11	23	20.05	-02	37	16.1	19.2	809
1990	EU2		1990	03	04.19375	11	23	19.32	-02	37	13.2		809
1990	EU2		1990	03	04.20694	11	23	18.61	-02	37	08.3		809
1990	EU2		1990	03	04.22639	11	23	17.89	-02	37	02.5		809
1990	EU2		1990	03	04.23958	11	23	17.19	-02	36	59.2		809
1990	EU2		1990	03	04.25278	11	23	16.58	-02	36	57.2		809
1990	EV2	*	1990	03	02.23889	11	25	25.88	-02	36	19.3	19.5	809
1990	EV2		1990	03	02.25208	11	25	25.21	-02	36	18.5		809
1990	EV2		1990	03	02.26528	11	25	24.40	-02	36	16.4		809
1990	EV2		1990	03	04.22639	11	23	46.06	-02	32	39.2		809
1990	EV2		1990	03	04.23958	11	23	45.33	-02	32	38.0		809
1990	EV2		1990	03	04.25278	11	23	44.65	-02	32	37.4		809
1990	EW2	*	1990	03	02.23889	11	25	26.78	-01	30	19.6	18.0	809
1990	EW2		1990	03	02.25208	11	25	26.07	-01	30	12.9		809
1990	EW2		1990	03	02.26528	11	25	25.40	-01	30	07.2		809
1990	EW2		1990	03	04.22639	11	23	45.96	-01	14	20.0		809
1990	EW2		1990	03	04.23958	11	23	45.19	-01	14	13.0		809
1990	EW2		1990	03	04.25278	11	23	44.53	-01	14	07.6		809
1990	EX2	*	1990	03	02.23889	11	26	03.90	-01	44	33.2	18.8	809
1990	EX2		1990	03	02.25208	11	26	03.12	-01	44	26.3		809
1990	EX2		1990	03	02.26528	11	26	02.51	-01	44	21.1		809
1990	EX2		1990	03	04.22639	11	24	30.84	-01	29	09.1		809
1990	EX2		1990	03	04.23958	11	24	30.15	-01	29	02.6		809
1990	EX2		1990	03	04.25278	11	24	29.51	-01	28	56.6		809
1990	EY2	*	1990	03	02.23889	11	26	46.93	-02	12	15.9	19.7	809
1990	EY2		1990	03	02.25208	11	26	46.07	-02	12	14.0		809
1990	EY2		1990	03	02.26528	11	26	45.16	-02	12	10.8		809
1990	EY2		1990	03	04.22639	11	24	44.59	-02	05	18.3		809
1990	EY2		1990	03	04.23958	11	24	43.74	-02	05	14.4		809
1990	EY2		1990	03	04.25278	11	24	42.95	-02	05	11.8		809
1990	EZ2	*	1990	03	02.23889	11	26	47.31	+00	06	33.7	18.0	809
1990	EZ2		1990	03	02.25208	11	26	46.84	+00	06	37.6		809
1990	EZ2		1990	03	02.26528	11	26	46.28	+00	06	41.7		809
1990	EZ2		1990	03	04.22639	11	25	29.25	+00	18	10.8		809
1990	EZ2		1990	03	04.23958	11	25	28.73	+00	18	14.7		809
1990	EZ2		1990	03	04.25278	11	25	28.16	+00	18	20.0		809
1990	EA3	*	1990	03	02.23889	11	27	17.21	+00	29	51.4	18.8	809
1990	EA3		1990	03	02.25208	11	27	16.61	+00	29	56.6		809
1990	EA3		1990	03	02.26528	11	27	15.96	+00	30	01.3		809
1990	EA3		1990	03	04.22639	11	25	41.04	+00	43	03.1		809
1990	EA3		1990	03	04.23958	11	25	40.38	+00	43	07.6		809
1990	EA3		1990	03	04.25278	11	25	39.58	+00	43	13.9		809
1990	EB3	*	1990	03	02.23889	11	27	43.90	-01	43	58.4	18.6	809
1990	EB3		1990	03	02.25208	11	27	43.04	-01	43	56.5		809
1990	EB3		1990	03	02.26528	11	27	42.27	-01	43	55.2		809
1990	EB3		1990	03	04.22639	11	25	50.31	-01	39	15.0		809
1990	EB3		1990	03	04.23958	11	25	49.47	-01	39	13.9		809
1990	EB3		1990	03	04.25278	11	25	48.68	-01	39	11.6		809
1990	EC3	*	1990	03	02.23889	11	28	02.43	+00	16	29.4	18.7	809
1990	EC3		1990	03	02.25208	11	28	01.64	+00	16	32.6		809
1990	EC3		1990	03	02.26528	11	28	00.92	+00	16	34.6		809
1990	EC3		1990	03	04.22639	11	26	12.74	+00	24	45.2		809
1990	EC3		1990	03	04.23958	11	26	12.05	+00	24	49.4		809
1990	EC3		1990	03	04.25278	11	26	11.31	+00	24	51.6		809

1990	ED3	*	1990	03	02.23889	11	28	18.35	-02	17	42.9	18.7	809
1990	ED3		1990	03	02.25208	11	28	17.65	-02	17	40.9		809
1990	ED3		1990	03	02.26528	11	28	16.98	-02	17	39.4		809
1990	ED3		1990	03	04.22639	11	26	42.15	-02	12	44.9		809
1990	ED3		1990	03	04.23958	11	26	41.46	-02	12	42.6		809
1990	ED3		1990	03	04.25278	11	26	40.74	-02	12	40.6		809
1990	EE3	*	1990	03	02.23889	11	28	26.54	-02	28	02.5	20.0	809
1990	EE3		1990	03	02.25208	11	28	25.79	-02	27	58.7		809
1990	EE3		1990	03	02.26528	11	28	25.21	-02	27	56.8		809
1990	EE3		1990	03	04.22639	11	26	48.53	-02	20	47.1		809
1990	EE3		1990	03	04.23958	11	26	47.81	-02	20	43.9		809
1990	EE3		1990	03	04.25278	11	26	47.15	-02	20	42.2		809
1990	EF3	*	1990	03	02.23889	11	28	28.20	-00	00	06.1	18.2	809
1990	EF3		1990	03	02.25208	11	28	27.36	-00	00	01.9		809
1990	EF3		1990	03	02.26528	11	28	26.58	+00	00	02.1		809
1990	EF3		1990	03	04.22639	11	26	28.73	+00	10	29.8		809
1990	EF3		1990	03	04.23958	11	26	27.92	+00	10	34.2		809
1990	EF3		1990	03	04.25278	11	26	27.11	+00	10	38.7		809
1990	EG3	*	1990	03	02.23889	11	28	42.22	-01	42	32.2	18.7	809
1990	EG3		1990	03	02.25208	11	28	41.39	-01	42	30.4		809
1990	EG3		1990	03	02.26528	11	28	40.59	-01	42	28.8		809
1990	EG3		1990	03	04.22639	11	26	47.50	-01	36	42.4		809
1990	EG3		1990	03	04.23958	11	26	46.72	-01	36	40.4		809
1990	EG3		1990	03	04.25278	11	26	45.88	-01	36	38.7		809
1990	EH3	*	1990	03	02.23889	11	28	51.11	+00	51	43.2	19.0	809
1990	EH3		1990	03	02.25208	11	28	50.45	+00	51	48.1		809
1990	EH3		1990	03	02.26528	11	28	49.79	+00	51	51.6		809
1990	EH3		1990	03	04.22639	11	27	16.01	+01	01	56.6		809
1990	EH3		1990	03	04.23958	11	27	15.23	+01	02	02.3		809
1990	EH3		1990	03	04.25278	11	27	14.48	+01	02	05.8		809
1990	EJ3	*	1990	03	02.23889	11	29	07.83	-03	30	53.0	19.0	809
1990	EJ3		1990	03	02.25208	11	29	07.07	-03	30	50.1		809
1990	EJ3		1990	03	02.26528	11	29	06.33	-03	30	47.2		809
1990	EJ3		1990	03	04.22639	11	27	15.76	-03	22	53.0		809
1990	EJ3		1990	03	04.23958	11	27	15.15	-03	22	49.2		809
1990	EJ3		1990	03	04.25278	11	27	14.37	-03	22	45.8		809
1990	EK3	*	1990	03	02.23889	11	29	23.59	-03	48	58.9	18.6	809
1990	EK3		1990	03	02.25208	11	29	22.84	-03	48	58.7		809
1990	EK3		1990	03	02.26528	11	29	22.08	-03	48	57.8		809
1990	EK3		1990	03	04.22639	11	27	01.13	-03	38	57.8		809
1990	EK3		1990	03	04.23958	11	27	00.30	-03	38	56.6		809
1990	EK3		1990	03	04.25278	11	26	59.38	-03	38	56.5		809
1990	EL3	*	1990	03	02.23889	11	29	31.04	-00	22	27.1	19.7	809
1990	EL3		1990	03	02.25208	11	29	30.39	-00	22	22.3		809
1990	EL3		1990	03	02.26528	11	29	29.68	-00	22	16.5		809
1990	EL3		1990	03	04.22639	11	27	51.40	-00	05	32.3		809
1990	EL3		1990	03	04.23958	11	27	50.64	-00	05	25.2		809
1990	EL3		1990	03	04.25278	11	27	49.81	-00	05	18.3		809
1990	EM3	*	1990	03	02.23889	11	30	06.23	-01	02	09.0	17.5	809
1990	EM3		1990	03	02.25208	11	30	05.54	-01	02	08.0		809
1990	EM3		1990	03	02.26528	11	30	04.85	-01	02	06.4		809
1990	EM3		1990	03	04.22639	11	28	26.87	-00	58	41.0		809
1990	EM3		1990	03	04.23958	11	28	26.14	-00	58	39.8		809
1990	EM3		1990	03	04.25278	11	28	25.44	-00	58	38.4		809
1990	EN3	*	1990	03	02.23889	11	30	08.60	-03	23	33.8	18.7	809
1990	EN3		1990	03	02.25208	11	30	07.92	-03	23	27.4		809
1990	EN3		1990	03	02.26528	11	30	07.15	-03	23	23.3		809
1990	EN3		1990	03	04.22639	11	28	26.22	-03	09	49.7		809
1990	EN3		1990	03	04.23958	11	28	25.55	-03	09	44.4		809

1990	EN3		1990	03	04.25278	11	28	24.75	-03	09	38.2		809
1990	EO3	*	1990	03	02.23889	11	30	17.55	-03	15	32.6	19.8	809
1990	EO3		1990	03	02.25208	11	30	16.76	-03	15	28.2		809
1990	EO3		1990	03	02.26528	11	30	16.07	-03	15	25.5		809
1990	EO3		1990	03	04.22639	11	28	24.56	-03	03	59.1		809
1990	EO3		1990	03	04.23958	11	28	23.79	-03	03	54.1		809
1990	EO3		1990	03	04.25278	11	28	22.95	-03	03	49.9		809
1990	EP3	*	1990	03	02.23889	11	31	18.74	+00	21	08.8	18.8	809
1990	EP3		1990	03	02.25208	11	31	18.16	+00	21	10.3		809
1990	EP3		1990	03	02.26528	11	31	17.57	+00	21	13.0		809
1990	EP3		1990	03	04.22639	11	29	49.07	+00	26	51.6		809
1990	EP3		1990	03	04.23958	11	29	48.43	+00	26	53.8		809
1990	EP3		1990	03	04.25278	11	29	47.74	+00	26	55.8		809
1990	EQ3	*	1990	03	02.23889	11	31	18.98	+00	25	20.1	18.7	809
1990	EQ3		1990	03	02.25208	11	31	18.32	+00	25	26.0		809
1990	EQ3		1990	03	02.26528	11	31	17.65	+00	25	32.5		809
1990	EQ3		1990	03	04.22639	11	29	38.42	+00	41	22.3		809
1990	EQ3		1990	03	04.23958	11	29	37.70	+00	41	28.5		809
1990	EQ3		1990	03	04.25278	11	29	37.00	+00	41	34.2		809
1990	ER3	*	1990	03	02.23889	11	32	03.60	+00	17	50.7	19.6	809
1990	ER3		1990	03	02.25208	11	32	02.88	+00	17	55.4		809
1990	ER3		1990	03	02.26528	11	32	02.16	+00	17	57.0		809
1990	ER3		1990	03	04.22639	11	30	12.52	+00	26	50.3		809
1990	ER3		1990	03	04.23958	11	30	11.70	+00	26	54.0		809
1990	ER3		1990	03	04.25278	11	30	11.03	+00	26	57.1		809
1990	ES3	*	1990	03	02.23889	11	32	54.64	-00	58	08.0	18.2	809
1990	ES3		1990	03	02.25208	11	32	53.82	-00	58	04.3		809
1990	ES3		1990	03	02.26528	11	32	53.03	-00	58	02.0		809
1990	ES3		1990	03	04.22639	11	30	57.12	-00	50	24.9		809
1990	ES3		1990	03	04.23958	11	30	56.27	-00	50	22.0		809
1990	ES3		1990	03	04.25278	11	30	55.48	-00	50	18.8		809
1990	ET3	*	1990	03	02.23889	11	33	13.49	+00	42	28.9	19.7	809
1990	ET3		1990	03	02.25208	11	33	12.71	+00	42	30.0		809
1990	ET3		1990	03	02.26528	11	33	11.90	+00	42	32.5		809
1990	ET3		1990	03	04.22639	11	31	26.02	+00	45	51.3	19.2	809
1990	ET3		1990	03	04.23958	11	31	25.37	+00	45	52.8		809
1990	ET3		1990	03	04.25278	11	31	24.54	+00	45	54.5		809
1990	EU3	*	1990	03	02.23889	11	33	20.79	-00	16	06.7	19.0	809
1990	EU3		1990	03	02.25208	11	33	20.26	-00	16	02.2		809
1990	EU3		1990	03	02.26528	11	33	19.83	-00	15	56.8		809
1990	EU3		1990	03	04.22639	11	32	02.21	-00	03	15.0		809
1990	EU3		1990	03	04.23958	11	32	01.65	-00	03	09.9		809
1990	EU3		1990	03	04.25278	11	32	01.12	-00	03	05.4		809
1990	EV3	*	1990	03	02.23889	11	34	04.19	-01	42	42.7	18.8	809
1990	EV3		1990	03	02.25208	11	34	03.38	-01	42	39.9		809
1990	EV3		1990	03	02.26528	11	34	02.60	-01	42	37.2		809
1990	EV3		1990	03	04.22639	11	32	09.85	-01	34	50.5		809
1990	EV3		1990	03	04.23958	11	32	09.05	-01	34	47.7		809
1990	EV3		1990	03	04.25278	11	32	08.20	-01	34	44.1		809
1990	EW3	*	1990	03	02.23889	11	34	35.87	-01	44	11.2	18.7	809
1990	EW3		1990	03	02.25208	11	34	35.10	-01	44	10.3		809
1990	EW3		1990	03	02.26528	11	34	34.38	-01	44	09.1		809
1990	EW3		1990	03	04.22639	11	32	47.26	-01	41	13.6		809
1990	EW3		1990	03	04.23958	11	32	46.49	-01	41	11.9		809
1990	EW3		1990	03	04.25278	11	32	45.74	-01	41	11.3		809
1990	EX3	*	1990	03	02.23889	11	34	37.77	-02	06	56.8	18.8	809
1990	EX3		1990	03	02.25208	11	34	37.25	-02	06	43.0		809
1990	EX3		1990	03	02.26528	11	34	36.68	-02	06	28.7		809
1990	EX3		1990	03	04.22639	11	33	26.23	-01	32	26.8	18.5	809

1990	EX3		1990	03	04.23958	11	33	25.69	-01	32	12.0		809
1990	EX3		1990	03	04.25278	11	33	25.18	-01	31	59.7		809
1990	EY3	*	1990	03	02.23889	11	34	43.41	-01	23	30.6	20.5	809
1990	EY3		1990	03	02.25208	11	34	43.01	-01	23	23.7		809
1990	EY3		1990	03	02.26528	11	34	42.54	-01	23	18.5		809
1990	EY3		1990	03	04.22639	11	33	08.01	-01	09	10.0		809
1990	EY3		1990	03	04.23958	11	33	07.30	-01	09	02.9		809
1990	EY3		1990	03	04.25278	11	33	06.64	-01	08	58.7		809
1990	EZ3	*	1990	03	02.23889	11	34	46.45	-02	43	21.7	18.9	809
1990	EZ3		1990	03	02.25208	11	34	45.76	-02	43	17.7		809
1990	EZ3		1990	03	02.26528	11	34	44.94	-02	43	13.2		809
1990	EZ3		1990	03	04.22639	11	33	05.11	-02	31	19.7		809
1990	EZ3		1990	03	04.23958	11	33	04.37	-02	31	14.4		809
1990	EZ3		1990	03	04.25278	11	33	03.63	-02	31	11.1		809
1990	EA4	*	1990	03	02.23889	11	35	27.97	-00	16	10.8	19.5	809
1990	EA4		1990	03	02.25208	11	35	27.33	-00	16	03.3		809
1990	EA4		1990	03	02.26528	11	35	26.81	-00	15	55.5		809
1990	EA4		1990	03	04.22639	11	34	02.28	+00	03	36.7		809
1990	EA4		1990	03	04.23958	11	34	01.67	+00	03	44.9		809
1990	EA4		1990	03	04.25278	11	34	01.04	+00	03	52.5		809
1990	EB4	*	1990	03	02.23889	11	35	53.76	-02	12	48.3	18.0	809
1990	EB4		1990	03	02.25208	11	35	53.25	-02	12	47.4		809
1990	EB4		1990	03	02.26528	11	35	52.75	-02	12	47.5		809
1990	EB4		1990	03	04.22639	11	34	46.61	-02	10	14.2		809
1990	EB4		1990	03	04.23958	11	34	46.06	-02	10	13.2		809
1990	EB4		1990	03	04.25278	11	34	45.51	-02	10	12.3		809
1990	EC4	*	1990	03	02.23889	11	36	14.20	-01	26	13.2	19.2	809
1990	EC4		1990	03	02.25208	11	36	13.57	-01	26	08.7		809
1990	EC4		1990	03	02.26528	11	36	12.84	-01	26	07.2		809
1990	EC4		1990	03	04.22639	11	34	28.62	-01	17	04.1		809
1990	EC4		1990	03	04.23958	11	34	27.90	-01	17	00.8		809
1990	EC4		1990	03	04.25278	11	34	27.16	-01	16	58.1		809
1990	ED4	*	1990	03	02.23889	11	36	37.55	-02	04	12.2	19.4	809
1990	ED4		1990	03	02.25208	11	36	36.90	-02	04	08.5		809
1990	ED4		1990	03	02.26528	11	36	36.00	-02	04	03.0		809
1990	ED4		1990	03	04.22639	11	34	45.87	-01	53	28.8		809
1990	ED4		1990	03	04.23958	11	34	45.04	-01	53	23.7		809
1990	ED4		1990	03	04.25278	11	34	44.28	-01	53	20.7		809
1990	EE4	*	1990	03	02.23889	11	36	51.46	-01	54	23.5	19.6	809
1990	EE4		1990	03	02.25208	11	36	50.84	-01	54	20.3		809
1990	EE4		1990	03	02.26528	11	36	49.97	-01	54	16.3		809
1990	EE4		1990	03	04.22639	11	35	08.17	-01	44	35.7		809
1990	EE4		1990	03	04.23958	11	35	07.41	-01	44	32.0		809
1990	EE4		1990	03	04.25278	11	35	06.55	-01	44	27.0		809
1990	EF4	*	1990	03	02.23889	11	37	11.25	-02	23	53.5	20.0	809
1990	EF4		1990	03	02.25208	11	37	10.62	-02	23	48.9		809
1990	EF4		1990	03	02.26528	11	37	09.94	-02	23	44.3		809
1990	EF4		1990	03	04.22639	11	35	21.30	-02	11	58.2	19.5	809
1990	EF4		1990	03	04.23958	11	35	20.64	-02	11	54.8		809
1990	EF4		1990	03	04.25278	11	35	19.89	-02	11	49.9		809
1990	EG4	*	1990	03	02.23889	11	37	39.20	+00	56	17.0	18.8	809
1990	EG4		1990	03	02.25208	11	37	38.34	+00	56	19.9		809
1990	EG4		1990	03	02.26528	11	37	37.60	+00	56	22.8		809
1990	EG4		1990	03	04.22639	11	35	45.39	+01	04	56.9		809
1990	EG4		1990	03	04.23958	11	35	44.59	+01	05	00.9		809
1990	EG4		1990	03	04.25278	11	35	43.79	+01	05	04.2		809
1990	EH4	*	1990	03	02.23889	11	38	07.02	-01	32	18.4	18.9	809
1990	EH4		1990	03	02.25208	11	38	06.49	-01	32	09.6		809
1990	EH4		1990	03	02.26528	11	38	05.94	-01	32	00.4		809

1990	EH4		1990	03	04.22639	11	36	47.04	-01	08	44.8	18.8	809
1990	EH4		1990	03	04.23958	11	36	46.47	-01	08	35.4		809
1990	EH4		1990	03	04.25278	11	36	45.89	-01	08	26.2		809
1990	EJ4	*	1990	03	02.23889	11	38	13.28	-00	51	47.9	19.0	809
1990	EJ4		1990	03	02.25208	11	38	12.45	-00	51	43.0		809
1990	EJ4		1990	03	02.26528	11	38	11.73	-00	51	39.9		809
1990	EJ4		1990	03	04.22639	11	36	24.43	-00	41	27.8		809
1990	EJ4		1990	03	04.23958	11	36	23.69	-00	41	25.3		809
1990	EJ4		1990	03	04.25278	11	36	22.77	-00	41	21.0		809
1990	EK4	*	1990	03	02.23889	11	38	29.54	-01	19	54.7	19.7	809
1990	EK4		1990	03	02.25208	11	38	29.02	-01	19	48.2		809
1990	EK4		1990	03	02.26528	11	38	28.25	-01	19	42.6		809
1990	EK4		1990	03	04.22639	11	36	57.66	-01	04	18.0		809
1990	EK4		1990	03	04.23958	11	36	57.11	-01	04	11.8		809
1990	EK4		1990	03	04.25278	11	36	56.47	-01	04	05.5		809
1990	EL4	*	1990	03	02.23889	11	38	38.62	-02	32	22.6	18.9	809
1990	EL4		1990	03	02.25208	11	38	37.91	-02	32	21.6		809
1990	EL4		1990	03	02.26528	11	38	37.16	-02	32	19.0		809
1990	EL4		1990	03	04.22639	11	37	18.01	-02	27	35.6		809
1990	EL4		1990	03	04.23958	11	37	17.42	-02	27	34.1		809
1990	EL4		1990	03	04.25278	11	37	16.87	-02	27	34.5		809
1990	EM4	*	1990	03	02.23889	11	39	00.73	-02	35	57.5	19.0	809
1990	EM4		1990	03	02.25208	11	39	00.04	-02	35	55.0		809
1990	EM4		1990	03	02.26528	11	38	59.36	-02	35	53.5		809
1990	EM4		1990	03	04.22639	11	37	25.02	-02	31	48.9		809
1990	EM4		1990	03	04.23958	11	37	24.37	-02	31	48.2		809
1990	EM4		1990	03	04.25278	11	37	23.61	-02	31	46.1		809
1990	EN4	*	1990	03	02.23889	11	39	06.04	-00	50	47.5	18.8	809
1990	EN4		1990	03	02.25208	11	39	05.39	-00	50	46.5		809
1990	EN4		1990	03	02.26528	11	39	04.69	-00	50	44.0		809
1990	EN4		1990	03	04.22639	11	37	30.07	-00	46	18.1		809
1990	EN4		1990	03	04.23958	11	37	29.39	-00	46	15.6		809
1990	EN4		1990	03	04.25278	11	37	28.72	-00	46	14.1		809
1990	EO4	*	1990	03	02.23889	11	40	19.45	+00	27	23.0	19.0	809
1990	EO4		1990	03	02.25208	11	40	18.80	+00	27	28.0		809
1990	EO4		1990	03	02.26528	11	40	18.18	+00	27	32.8		809
1990	EO4		1990	03	04.22639	11	38	45.14	+00	40	27.9		809
1990	EO4		1990	03	04.23958	11	38	44.53	+00	40	33.2		809
1990	EO4		1990	03	04.25278	11	38	43.87	+00	40	36.3		809
1990	EP4	*	1990	03	02.23889	11	40	44.13	-00	39	51.2	19.2	809
1990	EP4		1990	03	02.25208	11	40	43.22	-00	39	49.4		809
1990	EP4		1990	03	02.26528	11	40	42.50	-00	39	47.5		809
1990	EP4		1990	03	04.22639	11	38	48.75	-00	34	55.3		809
1990	EP4		1990	03	04.23958	11	38	47.91	-00	34	53.4		809
1990	EP4		1990	03	04.25278	11	38	47.02	-00	34	50.6		809
1990	EQ4	*	1990	03	02.23889	11	40	52.11	-01	45	16.1	18.7	809
1990	EQ4		1990	03	02.25208	11	40	51.44	-01	45	09.6		809
1990	EQ4		1990	03	02.26528	11	40	50.81	-01	45	04.5		809
1990	EQ4		1990	03	04.22639	11	39	18.14	-01	29	10.6		809
1990	EQ4		1990	03	04.23958	11	39	17.46	-01	29	03.7		809
1990	EQ4		1990	03	04.25278	11	39	16.80	-01	28	57.4		809
1990	ER4	*	1990	03	02.23889	11	41	36.64	-00	08	13.8	18.6	809
1990	ER4		1990	03	02.25208	11	41	36.09	-00	08	08.5		809
1990	ER4		1990	03	02.26528	11	41	35.50	-00	08	03.0		809
1990	ER4		1990	03	04.22639	11	40	17.48	+00	05	22.1		809
1990	ER4		1990	03	04.23958	11	40	16.92	+00	05	27.4		809
1990	ER4		1990	03	04.25278	11	40	16.36	+00	05	32.1		809
1990	ES4	*	1990	03	02.23889	11	41	46.19	-00	48	09.2	18.5	809
1990	ES4		1990	03	02.25208	11	41	45.45	-00	48	04.5		809

1990	ES4		1990	03	02.26528	11	41	44.81	-00	48	01.5	809
1990	ES4		1990	03	04.22639	11	40	08.24	-00	38	32.2	809
1990	ES4		1990	03	04.23958	11	40	07.56	-00	38	28.0	809
1990	ES4		1990	03	04.25278	11	40	06.82	-00	38	24.7	809
1990	EU4	*	1990	03	02.23889	11	42	25.89	+00	18	55.7	18.7 809
1990	EU4		1990	03	02.25208	11	42	25.07	+00	18	59.1	809
1990	EU4		1990	03	02.26528	11	42	24.40	+00	19	00.0	809
1990	EU4		1990	03	04.22639	11	40	35.98	+00	25	04.1	809
1990	EU4		1990	03	04.23958	11	40	35.19	+00	25	06.3	809
1990	EU4		1990	03	04.25278	11	40	34.42	+00	25	08.7	809
1990	EV4	*	1990	03	02.23889	11	42	35.50	+01	00	45.1	18.6 809
1990	EV4		1990	03	02.25208	11	42	34.75	+01	00	50.6	809
1990	EV4		1990	03	02.26528	11	42	34.09	+01	00	55.7	809
1990	EV4		1990	03	04.22639	11	40	59.45	+01	14	25.5	18.4 809
1990	EV4		1990	03	04.23958	11	40	58.81	+01	14	30.9	809
1990	EV4		1990	03	04.25278	11	40	58.10	+01	14	35.8	809
1990	EW4	*	1990	03	02.23889	11	43	26.93	-00	14	17.7	19.0 809
1990	EW4		1990	03	02.25208	11	43	26.26	-00	14	12.9	809
1990	EW4		1990	03	02.26528	11	43	25.61	-00	14	08.8	809
1990	EW4		1990	03	04.22639	11	41	50.87	-00	01	41.7	809
1990	EW4		1990	03	04.23958	11	41	50.20	-00	01	35.9	809
1990	EW4		1990	03	04.25278	11	41	49.52	-00	01	31.1	809
1990	EX4	*	1990	03	02.23889	11	43	40.05	+00	15	46.4	18.3 809
1990	EX4		1990	03	02.25208	11	43	39.41	+00	15	53.6	809
1990	EX4		1990	03	02.26528	11	43	38.74	+00	16	00.6	809
1990	EX4		1990	03	04.22639	11	42	06.61	+00	33	52.7	809
1990	EX4		1990	03	04.23958	11	42	05.95	+00	34	00.7	809
1990	EX4		1990	03	04.25278	11	42	05.31	+00	34	07.4	809
1990	EY4	*	1990	03	02.23889	11	43	53.24	-01	45	48.2	18.5 809
1990	EY4		1990	03	02.25208	11	43	52.39	-01	45	46.6	809
1990	EY4		1990	03	02.26528	11	43	51.58	-01	45	44.6	809
1990	EY4		1990	03	04.22639	11	41	59.95	-01	40	52.6	809
1990	EY4		1990	03	04.23958	11	41	59.15	-01	40	49.9	809
1990	EY4		1990	03	04.25278	11	41	58.34	-01	40	48.6	809
1990	EZ4	*	1990	03	02.23889	11	44	23.22	-00	34	46.5	18.9 809
1990	EZ4		1990	03	02.25208	11	44	22.56	-00	34	43.3	809
1990	EZ4		1990	03	02.26528	11	44	21.92	-00	34	40.4	809
1990	EZ4		1990	03	04.22639	11	42	44.21	-00	26	40.6	809
1990	EZ4		1990	03	04.23958	11	42	43.43	-00	26	37.9	809
1990	EZ4		1990	03	04.25278	11	42	42.78	-00	26	35.3	809
1990	EA5	*	1990	03	02.23889	11	44	50.17	-00	44	21.7	18.7 809
1990	EA5		1990	03	02.25208	11	44	49.53	-00	44	17.9	809
1990	EA5		1990	03	02.26528	11	44	48.90	-00	44	14.7	809
1990	EA5		1990	03	04.22639	11	43	09.62	-00	35	11.5	809
1990	EA5		1990	03	04.23958	11	43	08.92	-00	35	07.6	809
1990	EA5		1990	03	04.25278	11	43	08.21	-00	35	04.4	809
1990	GB	*	1990	04	15.99826	11	12	16.28	+02	44	17.7	18.5 809
1990	GB		1990	04	16.01563	11	12	14.73	+02	43	57.8	809
1990	GB		1990	04	16.03299	11	12	13.33	+02	43	39.4	809
1990	GB		1990	04	16.98715	11	10	56.92	+02	25	40.1	18.5 809
1990	GB		1990	04	17.00451	11	10	55.54	+02	25	21.4	809
1990	GB		1990	04	17.02188	11	10	53.99	+02	24	59.5	809
147			1990	03	02.23889	11	37	19.78	-00	28	59.6	14.0 809
147			1990	03	02.25208	11	37	19.16	-00	28	55.9	809
147			1990	03	02.26528	11	37	18.57	-00	28	52.5	809
147			1990	03	04.22639	11	35	56.48	-00	20	19.5	809
147			1990	03	04.23958	11	35	55.85	-00	20	15.5	809
147			1990	03	04.25278	11	35	55.20	-00	20	11.9	809
901			1990	03	02.23889	11	26	03.37	-02	11	31.7	17.0 809

901	1990	03	02.25208	11	26	02.60	-02	11	27.4		809
901	1990	03	02.26528	11	26	01.82	-02	11	23.6		809
901	1990	03	04.22639	11	24	08.71	-02	00	46.3		809
901	1990	03	04.23958	11	24	07.92	-02	00	42.0		809
901	1990	03	04.25278	11	24	07.11	-02	00	37.8		809
918	1990	03	02.23889	11	33	23.37	-03	46	55.1	17.8	809
918	1990	03	02.25208	11	33	22.67	-03	46	53.6		809
918	1990	03	02.26528	11	33	22.01	-03	46	52.2		809
1075	1989	11	06.24931	02	50	08.28	+00	14	32.0	16.0	809
1075	1989	11	06.26250	02	50	07.51	+00	14	31.5		809
1075	1989	11	06.27569	02	50	06.84	+00	14	30.7		809
1143	1990	03	02.23889	11	30	51.21	-00	04	23.0	17.0	809
1143	1990	03	02.25208	11	30	50.83	-00	04	20.5		809
1143	1990	03	02.26528	11	30	50.38	-00	04	17.8		809
1143	1990	03	04.22639	11	29	54.68	+00	01	54.3		809
1143	1990	03	04.23958	11	29	54.24	+00	01	56.6		809
1143	1990	03	04.25278	11	29	53.83	+00	01	58.9		809
1157	1990	03	04.22639	11	24	01.04	+00	29	48.1		809
1157	1990	03	04.23958	11	24	00.39	+00	29	49.6		809
1157	1990	03	04.25278	11	23	59.73	+00	29	52.0		809
1273	1990	03	02.18750	11	21	43.09	-03	01	43.0		809
1273	1990	03	02.20069	11	21	42.29	-03	01	39.4		809
1273	1990	03	02.21389	11	21	41.60	-03	01	36.6		809
1273	1990	03	04.18056	11	19	51.51	-02	53	19.3	17.9	809
1273	1990	03	04.19375	11	19	50.75	-02	53	16.0		809
1273	1990	03	04.20694	11	19	50.04	-02	53	12.4		809
1823	1990	03	02.23889	11	26	51.82	+00	02	18.0	16.5	809
1823	1990	03	02.25208	11	26	51.00	+00	02	21.8		809
1823	1990	03	02.26528	11	26	50.20	+00	02	24.5		809
1823	1990	03	04.22639	11	24	56.04	+00	10	30.1		809
1823	1990	03	04.23958	11	24	55.18	+00	10	33.2		809
1823	1990	03	04.25278	11	24	54.37	+00	10	36.0		809
1854	1990	03	02.23889	11	45	31.84	-01	18	23.3	17.8	809
1854	1990	03	02.25208	11	45	31.18	-01	18	17.5		809
1854	1990	03	02.26528	11	45	30.51	-01	18	12.1		809
1888	1990	02	24.20556	11	18	52.64	-06	31	45.5		809
1888	1990	02	24.21875	11	18	51.93	-06	31	42.5		809
1888	1990	02	24.23194	11	18	51.25	-06	31	40.4		809
1888	1990	03	02.18750	11	13	56.96	-06	03	55.6		809
1888	1990	03	02.20069	11	13	56.25	-06	03	51.7		809
1888	1990	03	02.21389	11	13	55.52	-06	03	47.6		809
1888	1990	03	04.18056	11	12	14.47	-05	53	05.3	16.0	809
1888	1990	03	04.19375	11	12	13.76	-05	53	01.1		809
1888	1990	03	04.20694	11	12	12.96	-05	52	56.6		809
2119	1990	02	24.20556	11	31	51.02	-03	46	41.4		809
2119	1990	02	24.21875	11	31	50.32	-03	46	38.0		809
2119	1990	02	24.23194	11	31	49.63	-03	46	34.8		809
2119	1990	03	02.18750	11	26	29.65	-03	21	53.4		809
2119	1990	03	02.20069	11	26	28.87	-03	21	49.6		809
2119	1990	03	02.21389	11	26	28.10	-03	21	46.2		809
2119	1990	03	02.23889	11	26	26.77	-03	21	36.4	18.0	809
2119	1990	03	02.25208	11	26	25.98	-03	21	32.2		809
2119	1990	03	02.26528	11	26	25.22	-03	21	29.2		809
2119	1990	03	04.18056	11	24	35.49	-03	12	17.9	17.5	809
2119	1990	03	04.19375	11	24	34.70	-03	12	14.1		809
2119	1990	03	04.20694	11	24	33.90	-03	12	10.1		809
2119	1990	03	04.22639	11	24	32.90	-03	12	02.2		809
2119	1990	03	04.23958	11	24	32.08	-03	11	57.7		809
2119	1990	03	04.25278	11	24	31.26	-03	11	54.0		809

2288		1989	11	06.24931	02	47	09.82	+03	26	48.8	16.8	809
2288		1989	11	06.26250	02	47	09.10	+03	26	48.0		809
2288		1989	11	06.27569	02	47	08.38	+03	26	47.3		809
2829		1990	02	24.20556	11	21	51.60	-04	55	34.8		809
2829		1990	02	24.21875	11	21	50.95	-04	55	34.5		809
2829		1990	02	24.23194	11	21	50.34	-04	55	33.8		809
2829		1990	03	02.18750	11	17	06.38	-04	48	13.4		809
2829		1990	03	02.20069	11	17	05.68	-04	48	11.9		809
2829		1990	03	02.21389	11	17	04.97	-04	48	11.4		809
2829		1990	03	04.18056	11	15	27.82	-04	44	59.0	17.6	809
2829		1990	03	04.19375	11	15	27.07	-04	44	57.8		809
2829		1990	03	04.20694	11	15	26.38	-04	44	56.4		809
3105		1989	11	06.24931	02	59	46.66	+03	54	53.7	17.0	809
3105		1989	11	06.26250	02	59	45.76	+03	54	49.3		809
3105		1989	11	06.27569	02	59	44.99	+03	54	46.5		809
3412		1990	03	02.23889	11	25	07.33	+00	05	39.4	17.4	809
3412		1990	03	02.25208	11	25	06.52	+00	05	42.9		809
3412		1990	03	02.26528	11	25	05.67	+00	05	46.4		809
3412		1990	03	04.22639	11	23	06.70	+00	15	18.9		809
3412		1990	03	04.23958	11	23	05.89	+00	15	22.6		809
3412		1990	03	04.25278	11	23	05.05	+00	15	26.4		809
3444		1990	03	04.22639	11	35	12.42	+01	21	48.9	17.9	809
3444		1990	03	04.23958	11	35	11.62	+01	21	51.9		809
3444		1990	03	04.25278	11	35	10.80	+01	21	54.3		809
3557		1990	03	02.23889	11	35	41.68	+00	31	06.4	18.0	809
3557		1990	03	02.25208	11	35	41.23	+00	31	09.6		809
3557		1990	03	02.26528	11	35	40.74	+00	31	12.9		809
3557		1990	03	04.22639	11	34	36.85	+00	39	29.5		809
3557		1990	03	04.23958	11	34	36.38	+00	39	32.8		809
3557		1990	03	04.25278	11	34	35.91	+00	39	35.5		809
3622		1990	03	02.18750	11	18	28.91	-03	02	06.9		809
3622		1990	03	02.20069	11	18	28.35	-03	02	04.1		809
3622		1990	03	02.21389	11	18	27.76	-03	02	00.7		809
3622		1990	03	04.18056	11	17	06.72	-02	54	04.9	18.0	809
3622		1990	03	04.19375	11	17	06.14	-02	54	02.0		809
3622		1990	03	04.20694	11	17	05.55	-02	53	59.0		809

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

1990	FF1		1990	04	02.62916	13	18	12.04	-08	58	48.0	16.0 E 871

896 Yatsugatake South Base Observatory
O. Muramatsu, 119-1, 2-8 Sakurazutsumi, Musashino, Tokyo 180, Japan
Observers R. Kushida, Y. Kushida, O. Muramatsu
Measurer O. Muramatsu
0.20-m f/4.0 reflector

1988	VR		1990	03	20.54271	12	12	22.63	+10	32	40.6	17.5 896
1988	VR		1990	03	20.57049	12	12	21.29	+10	32	47.0	896
1990	DM		1990	03	18.52674	10	29	12.32	+19	31	34.3	896
1990	DM		1990	03	18.56910	10	29	10.54	+19	31	45.6	896
1990	FW	*	1990	03	19.63264	12	26	47.0	-00	06	50	16.5 b 896
1990	FW		1990	03	20.58715	12	25	56.8	-00	06	21	S 896
1990	FW		1990	03	22.62222	12	24	08.1	-00	05	17	S 896
1990	FW		1990	03	26.58958	12	20	32.0	-00	03	17	D 896
1990	FW		1990	03	26.61944	12	20	30.60	-00	03	16.5	896
1990	FW		1990	04	02.73125	12	14	04.7	-00	00	21	b 896
1990	FX	*	1990	03	19.69097	12	40	17.4	+01	02	45	16.7 b 896

1990 FX		1990 03 20.65799	12 39 25.3	+01 08 56				b	896
1990 FX		1990 03 26.60486	12 33 43.28	+01 47 15.4			16.5		896
1990 FX		1990 03 26.63403	12 33 41.67	+01 47 27.2					896
1990 FX		1990 03 31.75764	12 28 24.8	+02 20 24				b	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

4324		1989 11 20.51944	04 55 46.72	+32 55 07.0			15.5		897
4324		1989 11 20.55069	04 55 44.87	+32 55 00.1					897
4417		1990 01 24.46111	08 07 39.09	+32 05 56.7			16		897
4417		1990 01 24.50486	08 07 36.26	+32 05 58.9					897
4443		1990 01 26.49236	08 24 57.68	+24 04 57.4			16		897
4443		1990 01 26.53194	08 24 54.74	+24 05 00.3					897
4448		1990 03 19.51256	11 56 38.25	+31 03 07.7			15.5		897
4448		1990 03 19.54444	11 56 36.22	+31 03 14.4					897

898 Fujieda
M. Kizawa, 1458-10, Minami Numagami, Shizuoka 420, Japan
Observers H. Shiozawa, M. Kizawa
Measurer M. Kizawa

1990 FV		1990 03 19.58650	12 23 22.0	+00 36 01			16		898
1990 FV	*	1990 03 19.60833	12 23 21.0	+00 36 09			16	E	898
1990 FV		1990 03 23.66422	12 20 05.34	+00 54 59.2			16		898
1990 FV		1990 03 23.69001	12 20 04.11	+00 55 06.9			16		898
1990 FV		1990 03 26.62951	12 17 40.49	+01 08 40.5			16		898
1990 FV		1990 03 26.66052	12 17 38.83	+01 08 49.9			16		898
1990 FV		1990 04 14.53001	12 03 19.59	+02 23 36.9			16.3		898
1990 FV		1990 04 14.57538	12 03 17.78	+02 23 46.3			16.3		898
1990 FV		1990 04 29.55424	11 55 32.01	+02 55 08.7			16.5		898
1990 FV		1990 04 29.58936	11 55 31.15	+02 55 09.4					898
1990 FM1		1990 04 29.66032	14 03 48.89	+02 01 50.2			16.5		898
1990 FM1		1990 04 29.69416	14 03 47.26	+02 01 55.9					898
1990 HM		1990 04 29.62152	13 57 34.6	-00 47 55			16.5	r	898
1990 HM		1990 04 29.63689	13 57 33.1	-00 48 06				r	898
1990 HN		1990 04 29.66032	14 02 40.31	+02 10 05.0			17	F	898
1990 HN		1990 04 29.69416	14 02 38.43	+02 09 53.4				F	898
1990 HS		1990 04 29.66032	14 05 17.57	+01 38 51.2			16.5		898
1990 HS		1990 04 29.69416	14 05 15.39	+01 39 01.4					898
1413		1990 04 14.53001	12 05 50.27	+02 05 39.6			16.5		898
1413		1990 04 14.57538	12 05 48.54	+02 05 56.6			16.5		898

983 San Fernando
L. Quijano, Instituto y Observatorio de Marina, E-11110 San Fernando (Cadiz), Spain
Observers L. Quijano, V. Blanco, F. Cano
Measurers M. Esparragosa, P. Rodriguez
Reductions F. Cano

1		1981 02 03.96406	07 10 29.88	+32 06 48.3					983
1		1981 02 03.96788	07 10 29.70	+32 06 48.7					983
1		1981 02 03.97170	07 10 29.51	+32 06 49.5					983
1		1981 03 02.86476	07 01 54.71	+32 23 44.8					983
1		1981 03 02.86858	07 01 54.71	+32 23 44.8					983
1		1981 03 02.87240	07 01 54.73	+32 23 44.5					983
1		1981 03 03.86059	07 02 02.64	+32 22 56.0					983
1		1981 03 03.86441	07 02 02.68	+32 22 55.7					983
1		1981 03 03.86823	07 02 02.71	+32 22 55.5					983

1	1981	03	04.85885	07	02	12.56	+32	22	02.1	983
1	1981	03	04.86267	07	02	12.59	+32	22	02.1	983
1	1981	03	04.86649	07	02	12.62	+32	22	01.7	983
1	1981	03	05.85920	07	02	24.38	+32	21	03.4	983
1	1981	03	05.86302	07	02	24.42	+32	21	03.2	983
1	1981	03	05.86684	07	02	24.48	+32	21	03.0	983
1	1982	05	18.96128	15	08	20.28	-09	02	50.0	983
1	1982	05	18.96510	15	08	20.07	-09	02	50.6	983
1	1982	05	18.96892	15	08	19.84	-09	02	50.7	983
1	1982	05	26.95920	15	01	26.52	-09	09	32.8	983
1	1982	05	26.96302	15	01	26.32	-09	09	32.9	983
1	1982	05	26.96684	15	01	26.13	-09	09	33.3	983
1	1982	06	11.91580	14	50	49.37	-09	42	37.6	983
1	1982	06	11.91962	14	50	49.24	-09	42	38.2	983
1	1982	06	11.92344	14	50	49.12	-09	42	38.8	983
1	1982	06	12.90503	14	50	20.50	-09	45	33.4	983
1	1982	06	12.90885	14	50	20.40	-09	45	34.2	983
1	1982	06	12.91267	14	50	20.27	-09	45	34.7	983
1	1982	06	17.92517	14	48	15.19	-10	01	54.8	983
1	1982	06	17.92899	14	48	15.12	-10	01	55.5	983
1	1982	06	17.93281	14	48	15.01	-10	01	56.4	983
1	1987	05	28.06840	18	12	21.86	-24	22	03.0	983
1	1987	05	28.07257	18	12	21.68	-24	22	04.3	983
1	1987	05	28.07674	18	12	21.50	-24	22	05.0	983
2	1982	05	11.91997	12	51	39.86	+22	29	55.6	983
2	1982	05	11.92378	12	51	39.80	+22	29	56.5	983
2	1982	05	11.92760	12	51	39.74	+22	29	57.2	983
2	1982	05	18.91198	12	50	35.36	+22	47	27.5	983
2	1982	05	18.91580	12	50	35.35	+22	47	27.9	983
2	1982	05	18.92029	12	50	35.32	+22	47	28.3	983
2	1987	05	27.95799	15	50	13.89	+26	33	56.6	983
2	1987	05	27.96215	15	50	13.67	+26	33	57.2	983
2	1987	05	27.96632	15	50	13.46	+26	33	57.8	983
2	1987	06	16.93854	15	36	06.29	+26	07	22.4	983
2	1987	06	16.94271	15	36	06.13	+26	07	21.1	983
2	1987	06	16.94688	15	36	05.99	+26	07	20.1	983
3	1981	03	12.12917	14	29	34.00	-04	35	34.3	983
3	1981	03	12.13403	14	29	33.92	-04	35	32.3	983
3	1981	03	12.13889	14	29	33.83	-04	35	30.3	983
3	1981	05	23.91250	13	43	06.41	+02	34	51.6	983
3	1981	05	23.91736	13	43	06.24	+02	34	52.1	983
3	1981	05	23.92222	13	43	06.09	+02	34	52.5	983
3	1981	05	26.91111	13	41	47.36	+02	39	25.9	983
3	1981	05	26.91597	13	41	47.24	+02	39	25.9	983
3	1981	05	26.92083	13	41	47.12	+02	39	26.4	983
3	1981	06	01.90625	13	39	39.02	+02	44	08.8	983
3	1981	06	01.91111	13	39	38.94	+02	44	08.8	983
3	1981	06	01.91597	13	39	38.85	+02	44	08.7	983
3	1981	06	02.91042	13	39	21.54	+02	44	22.5	983
3	1981	06	02.91528	13	39	21.44	+02	44	22.4	983
3	1981	06	02.92014	13	39	21.35	+02	44	22.5	983
3	1981	06	03.91319	13	39	05.21	+02	44	26.7	983
3	1981	06	03.91806	13	39	05.13	+02	44	26.6	983
3	1981	06	03.92292	13	39	05.05	+02	44	26.8	983
3	1982	06	17.95833	18	12	50.06	-04	48	22.1	983
3	1982	06	17.96319	18	12	49.80	-04	48	22.3	983
3	1982	06	17.96806	18	12	49.54	-04	48	21.8	983
3	1982	06	21.97014	18	09	21.31	-04	48	08.5	983
3	1982	06	21.97500	18	09	21.05	-04	48	08.6	983

3		1982	06	21.97986	18	09	20.80	-04 48 08.7	983
3		1982	07	12.96024	17	51	33.40	-05 22 02.7	983
3		1982	07	12.96476	17	51	33.20	-05 22 03.3	983
3		1982	07	12.96927	17	51	32.99	-05 22 04.5	983
3		1982	07	14.92552	17	50	04.79	-05 28 01.2	983
3		1982	07	14.93003	17	50	04.58	-05 28 02.1	983
3		1982	07	14.93455	17	50	04.37	-05 28 03.0	983
3		1982	07	21.94670	17	45	16.13	-05 52 46.5	983
3		1982	07	21.95122	17	45	15.95	-05 52 47.2	983
3		1982	07	21.95573	17	45	15.78	-05 52 48.7	983
3		1982	07	22.92552	17	44	39.89	-05 56 36.0	983
3		1982	07	22.93003	17	44	39.73	-05 56 37.3	983
3		1982	07	22.93455	17	44	39.56	-05 56 38.4	983
3		1987	08	24.98854	21	54	50.64	-04 33 13.9	983
3		1987	08	24.99271	21	54	50.41	-04 33 16.2	983
3		1987	08	24.99688	21	54	50.22	-04 33 18.7	983
3		1987	09	21.91076	21	36	11.51	-09 20 49.0	983
3		1987	09	21.91493	21	36	11.41	-09 20 51.5	983
3		1987	09	21.91910	21	36	11.29	-09 20 54.0	983
3		1987	11	12.84792	21	53	15.66	-13 24 25.1	983
3		1987	11	12.85278	21	53	15.95	-13 24 24.9	983
3		1987	11	12.85764	21	53	16.23	-13 24 24.7	983
4		1981	03	03.00295	10	24	16.49	+20 13 53.2	983
4		1981	03	03.00677	10	24	16.24	+20 13 54.3	983
4		1981	03	03.01059	10	24	16.02	+20 13 55.7	983
4		1982	07	27.05590	21	40	03.16	-20 37 02.2	983
4		1982	07	27.06007	21	40	02.94	-20 37 04.5	983
4		1982	07	27.06424	21	40	02.73	-20 37 06.4	983
4		1982	07	28.06701	21	39	15.67	-20 45 32.0	983
4		1982	07	28.07118	21	39	15.45	-20 45 34.4	983
4		1982	07	28.07535	21	39	15.24	-20 45 36.4	983
4		1982	09	21.90469	21	01	05.65	-25 12 26.7	983
4		1982	09	21.90851	21	01	05.61	-25 12 27.0	983
4		1982	09	21.91372	21	01	05.60	-25 12 26.5	983
4		1982	10	06.85642	21	03	46.36	-24 46 13.0	983
4		1982	10	06.86024	21	03	46.43	-24 46 12.4	983
4		1982	10	06.86406	21	03	46.52	-24 46 12.1	983
4		1982	10	07.85573	21	04	11.12	-24 43 15.4	983
4		1982	10	07.85955	21	04	11.23	-24 43 15.0	983
4		1982	10	07.86337	21	04	11.32	-24 43 14.0	983
5		1987	01	03.17014	09	11	47.91	+12 50 50.0	983
5		1987	01	03.17500	09	11	47.81	+12 50 50.9	983
5		1987	01	03.17986	09	11	47.71	+12 50 52.2	983
5		1987	02	25.97917	08	34	38.40	+18 31 16.2	983
5		1987	02	25.98403	08	34	38.25	+18 31 17.7	983
5		1987	02	25.98889	08	34	38.12	+18 31 19.3	983
5		1987	03	20.94514	08	33	08.34	+19 51 51.3	983
5		1987	03	20.95000	08	33	08.41	+19 51 51.7	983
5		1987	03	20.95486	08	33	08.52	+19 51 51.9	983
6		1981	02	03.82465	03	41	07.29	+03 53 26.3	983
6		1981	02	03.82882	03	41	07.53	+03 53 29.3	983
6		1981	02	03.83299	03	41	07.78	+03 53 33.0	983
6		1981	02	05.82188	03	43	07.74	+04 19 48.3	983
6		1981	02	05.82604	03	43	07.99	+04 19 51.6	983
6		1981	02	05.83021	03	43	08.22	+04 19 54.7	983
6		1982	02	28.07031	12	19	49.68	+11 31 44.4	983
6		1982	02	28.07483	12	19	49.50	+11 31 47.1	983
6		1982	02	28.07934	12	19	49.32	+11 31 50.0	983
6		1982	03	03.14080	12	17	43.32	+12 03 11.2	983

6	1982	03	03.14531	12	17	43.11	+12	03	13.8	983
6	1982	03	03.14983	12	17	42.92	+12	03	16.7	983
6	1982	03	21.03733	12	03	12.93	+14	56	33.4	983
6	1982	03	21.04184	12	03	12.70	+14	56	35.9	983
6	1982	03	21.04635	12	03	12.44	+14	56	38.3	983
6	1987	08	24.88733	19	07	43.12	-16	52	59.3	983
6	1987	08	24.89184	19	07	43.03	-16	53	01.9	983
6	1987	08	24.89635	19	07	42.98	-16	53	04.6	983
7	1982	02	28.05590	12	13	38.30	-10	28	16.2	983
7	1982	02	28.06007	12	13	38.10	-10	28	15.3	983
7	1982	02	28.06424	12	13	37.92	-10	28	14.4	983
7	1982	03	03.12483	12	11	13.48	-10	17	16.0	983
7	1982	03	03.12934	12	11	13.25	-10	17	15.0	983
7	1982	03	03.13385	12	11	13.03	-10	17	13.5	983
7	1982	03	21.02257	11	55	02.63	-08	42	17.8	983
7	1982	03	21.02674	11	55	02.39	-08	42	16.2	983
7	1982	03	21.03090	11	55	02.13	-08	42	14.6	983
7	1982	04	19.90469	11	31	54.88	-05	23	03.9	983
7	1982	04	19.90920	11	31	54.72	-05	23	02.2	983
7	1982	04	19.91372	11	31	54.59	-05	23	00.9	983
7	1987	08	24.90677	19	10	59.82	-16	19	57.8	983
7	1987	08	24.91128	19	10	59.69	-16	19	58.0	983
7	1987	08	24.91580	19	10	59.60	-16	19	58.4	983
8	1987	08	24.97326	21	22	25.06	-21	55	03.3	983
8	1987	08	24.97743	21	22	24.81	-21	55	05.3	983
8	1987	08	24.98160	21	22	24.56	-21	55	07.0	983
8	1987	09	21.89497	21	06	02.02	-23	46	02.0	983
8	1987	09	21.89948	21	06	01.96	-23	46	02.3	983
8	1987	09	21.90399	21	06	01.93	-23	46	02.3	983
8	1987	11	12.83125	21	44	27.01	-20	11	09.3	983
8	1987	11	12.83611	21	44	27.39	-20	11	07.1	983
8	1987	11	12.84097	21	44	27.81	-20	11	04.9	983
11	1981	07	04.09410	19	59	19.56	-18	30	15.6	983
11	1981	07	04.09826	19	59	19.34	-18	30	16.9	983
11	1981	07	04.10243	19	59	19.15	-18	30	18.0	983
11	1981	08	22.92743	19	22	13.82	-22	14	50.9	983
11	1981	08	22.93160	19	22	13.76	-22	14	52.0	983
11	1981	08	22.93576	19	22	13.68	-22	14	52.3	983
11	1981	08	24.90382	19	21	50.75	-22	20	25.0	983
11	1981	08	24.90799	19	21	50.69	-22	20	25.8	983
11	1981	08	24.91215	19	21	50.64	-22	20	26.8	983
11	1981	08	29.93299	19	21	27.50	-22	32	55.6	983
11	1981	08	29.93715	19	21	27.47	-22	32	56.0	983
11	1981	08	29.94132	19	21	27.47	-22	32	56.9	983
11	1981	08	31.90729	19	21	32.53	-22	37	10.8	983
11	1981	08	31.91146	19	21	32.54	-22	37	11.2	983
11	1981	08	31.91563	19	21	32.54	-22	37	11.7	983
11	1981	10	30.78889	20	15	30.84	-21	45	11.1	983
11	1981	10	30.79375	20	15	31.26	-21	45	09.8	983
11	1981	10	30.79861	20	15	31.70	-21	45	08.9	983
11	1987	02	25.86806	06	05	47.54	+22	00	07.1	983
11	1987	02	25.87431	06	05	47.62	+22	00	07.7	983
11	1987	02	25.87986	06	05	47.68	+22	00	08.2	983
13	1987	12	24.03160	07	03	25.57	+45	30	19.2	983
13	1987	12	24.03576	07	03	25.24	+45	30	21.3	983
13	1987	12	24.03889	07	03	25.00	+45	30	23.0	983
15	1987	01	03.21146	10	57	49.57	-02	37	00.9	983
15	1987	01	03.21701	10	57	49.55	-02	37	02.5	983
15	1987	01	03.22257	10	57	49.52	-02	37	04.4	983

15	1987	02	25.99583	10	25	21.85	-03	53	15.8	983
15	1987	02	26.00069	10	25	21.58	-03	53	14.9	983
15	1987	02	26.00556	10	25	21.30	-03	53	14.1	983
15	1987	03	23.94427	10	03	59.76	-02	13	55.0	983
15	1987	03	23.94878	10	03	59.58	-02	13	53.7	983
15	1987	03	23.95330	10	03	59.39	-02	13	52.4	983
16	1987	02	05.06736	11	04	44.56	+06	24	46.1	983
16	1987	02	05.07361	11	04	44.34	+06	24	47.9	983
16	1987	02	05.07986	11	04	44.12	+06	24	49.2	983
16	1987	02	26.03507	10	50	17.27	+08	12	13.8	983
16	1987	02	26.04063	10	50	16.99	+08	12	15.6	983
16	1987	02	26.04618	10	50	16.73	+08	12	17.8	983
16	1987	03	23.95868	10	31	24.60	+10	23	25.0	983
16	1987	03	23.96424	10	31	24.38	+10	23	26.4	983
16	1987	03	23.96979	10	31	24.19	+10	23	27.6	983
16	1987	04	24.85694	10	21	45.38	+11	32	07.0	983
16	1987	04	24.86319	10	21	45.37	+11	32	07.0	983
16	1987	04	24.86979	10	21	45.37	+11	32	07.1	983
18	1981	07	04.16007	22	14	49.72	-04	47	08.7	983
18	1981	07	04.16424	22	14	49.81	-04	47	09.3	983
18	1981	07	04.16840	22	14	49.90	-04	47	09.4	983
18	1981	08	31.96632	21	55	38.52	-13	35	48.5	983
18	1981	08	31.97049	21	55	38.33	-13	35	52.2	983
18	1981	08	31.97465	21	55	38.15	-13	35	55.4	983
18	1981	09	01.96424	21	54	56.58	-13	49	03.0	983
18	1981	09	01.96840	21	54	56.39	-13	49	05.9	983
18	1981	09	01.97257	21	54	56.21	-13	49	09.0	983
18	1981	10	30.83846	22	05	30.18	-19	16	34.7	983
18	1981	10	30.84193	22	05	30.42	-19	16	34.2	983
18	1981	10	30.84541	22	05	30.62	-19	16	33.7	983
18	1987	03	04.15417	14	18	40.13	-03	07	54.7	983
18	1987	03	04.16042	14	18	40.08	-03	07	52.1	983
18	1987	03	04.16667	14	18	40.04	-03	07	49.7	983
18	1987	04	01.04965	14	06	21.79	+00	16	07.6	983
18	1987	04	01.05521	14	06	21.54	+00	16	10.4	983
18	1987	04	01.06076	14	06	21.28	+00	16	13.1	983
18	1987	04	29.97951	13	41	03.94	+03	43	53.0	983
18	1987	04	29.98507	13	41	03.65	+03	43	54.6	983
18	1987	04	29.99062	13	41	03.34	+03	43	56.6	983
18	1987	05	19.91563	13	26	32.19	+04	49	21.7	983
18	1987	05	19.92118	13	26	32.01	+04	49	22.2	983
18	1987	05	19.92674	13	26	31.80	+04	49	22.3	983
21	1987	02	05.04167	10	14	10.38	+15	25	54.5	983
21	1987	02	05.04931	10	14	09.94	+15	25	57.3	983
21	1987	02	05.05694	10	14	09.52	+15	25	59.9	983
21	1987	03	03.97361	09	48	54.24	+17	49	06.9	983
21	1987	03	03.98125	09	48	53.82	+17	49	09.0	983
21	1987	03	03.98889	09	48	53.38	+17	49	11.0	983
24	1987	05	19.96181	15	38	24.71	-19	53	59.5	983
24	1987	05	19.96806	15	38	24.41	-19	53	58.9	983
24	1987	05	19.97431	15	38	24.08	-19	53	57.6	983
24	1987	06	16.91701	15	18	51.91	-18	48	19.2	983
24	1987	06	16.92396	15	18	51.69	-18	48	18.9	983
24	1987	06	16.93090	15	18	51.49	-18	48	18.2	983
25	1982	01	21.97326	07	12	32.87	-08	50	02.7	983
25	1982	01	21.98021	07	12	32.50	-08	50	01.2	983
25	1982	01	21.98715	07	12	32.10	-08	49	59.8	983
25	1982	01	22.97292	07	11	37.90	-08	46	33.5	983
25	1982	01	22.98056	07	11	37.46	-08	46	31.6	983

25	1982	01	22.98819	07	11	37.04	-08	46	30.1	983
25	1982	01	23.97986	07	10	43.13	-08	42	50.1	983
25	1982	01	23.98750	07	10	42.69	-08	42	48.4	983
25	1982	01	23.99514	07	10	42.28	-08	42	46.3	983
25	1982	01	25.99167	07	08	56.01	-08	34	42.8	983
25	1982	01	25.99931	07	08	55.63	-08	34	41.2	983
25	1982	01	26.00694	07	08	55.25	-08	34	39.2	983
25	1982	01	26.97882	07	08	04.81	-08	30	24.8	983
25	1982	01	26.98576	07	08	04.46	-08	30	22.9	983
25	1982	01	26.99271	07	08	04.11	-08	30	20.8	983
25	1982	02	19.90521	06	53	04.64	-05	59	41.5	983
25	1982	02	19.91215	06	53	04.47	-05	59	38.6	983
25	1982	02	19.91910	06	53	04.34	-05	59	35.2	983
25	1982	02	20.89965	06	52	44.10	-05	52	09.4	983
25	1982	02	20.90660	06	52	43.96	-05	52	05.8	983
25	1982	02	20.91354	06	52	43.81	-05	52	02.5	983
25	1982	02	22.88750	06	52	07.54	-05	36	56.5	983
25	1982	02	22.89479	06	52	07.39	-05	36	53.0	983
25	1982	02	22.90174	06	52	07.27	-05	36	49.9	983
25	1987	05	27.97292	16	02	31.16	+00	53	52.4	983
25	1987	05	27.97778	16	02	30.91	+00	53	57.6	983
25	1987	05	27.98264	16	02	30.60	+00	54	02.3	983
30	1987	01	03.14931	09	08	20.73	+16	49	56.4	983
30	1987	01	03.15556	09	08	20.48	+16	49	57.0	983
30	1987	01	03.16181	09	08	20.20	+16	49	57.9	983
30	1987	02	25.93750	08	18	36.49	+19	07	56.7	983
30	1987	02	25.94375	08	18	36.25	+19	07	57.1	983
30	1987	02	25.95000	08	18	36.03	+19	07	57.5	983
37	1987	05	27.99062	17	05	40.15	-27	02	00.2	983
37	1987	05	27.99757	17	05	39.74	-27	02	00.1	983
37	1987	05	28.00521	17	05	39.33	-27	01	59.6	983
37	1987	06	16.97049	16	46	13.00	-26	39	43.8	983
37	1987	06	16.97743	16	46	12.58	-26	39	42.9	983
37	1987	06	16.98438	16	46	12.21	-26	39	42.5	983
39	1981	03	12.15174	14	32	23.81	-04	17	58.8	983
39	1981	03	12.15729	14	32	23.73	-04	17	57.2	983
39	1981	03	12.16285	14	32	23.66	-04	17	55.5	983
39	1981	05	26.92743	13	47	04.14	+02	16	10.4	983
39	1981	05	26.93299	13	47	04.02	+02	16	10.6	983
39	1981	05	26.93854	13	47	03.85	+02	16	10.9	983
39	1981	06	01.93160	13	44	53.21	+02	17	20.2	983
39	1981	06	01.93715	13	44	53.12	+02	17	20.0	983
39	1981	06	01.94271	13	44	53.00	+02	17	19.6	983
39	1981	06	02.93854	13	44	35.50	+02	16	55.2	983
39	1981	06	02.94410	13	44	35.39	+02	16	55.1	983
39	1981	06	02.94965	13	44	35.30	+02	16	54.9	983
39	1981	06	03.93299	13	44	19.25	+02	16	21.3	983
39	1981	06	03.93854	13	44	19.13	+02	16	21.1	983
39	1981	06	03.94410	13	44	19.03	+02	16	21.2	983
39	1982	07	21.02135	20	31	47.27	-09	19	24.7	983
39	1982	07	21.02587	20	31	47.06	-09	19	26.4	983
39	1982	07	21.03090	20	31	46.81	-09	19	28.2	983
39	1982	07	22.00851	20	31	01.21	-09	25	03.6	983
39	1982	07	22.01302	20	31	01.01	-09	25	05.3	983
39	1982	07	22.01753	20	31	00.77	-09	25	06.7	983
39	1982	07	22.99080	20	30	14.95	-09	30	47.9	983
39	1982	07	22.99566	20	30	14.71	-09	30	49.5	983
39	1982	07	23.00017	20	30	14.49	-09	30	51.3	983
39	1982	07	27.03976	20	27	00.50	-09	55	39.1	983

39	1982	07	27.04427	20	27	00.26	-09	55	41.1	983
39	1982	07	27.04878	20	27	00.04	-09	55	42.7	983
39	1982	07	28.05052	20	26	11.35	-10	02	07.4	983
39	1982	07	28.05503	20	26	11.13	-10	02	09.5	983
39	1982	07	28.05955	20	26	10.92	-10	02	11.2	983
39	1982	10	06.83403	20	09	29.52	-16	55	14.6	983
39	1982	10	06.83889	20	09	29.69	-16	55	15.4	983
39	1982	10	06.84375	20	09	29.87	-16	55	16.0	983
39	1982	10	07.84097	20	10	08.56	-16	57	45.5	983
39	1982	10	07.84583	20	10	08.74	-16	57	46.5	983
39	1982	10	07.85069	20	10	08.94	-16	57	47.1	983
39	1987	09	03.06944	00	04	18.50	-04	15	53.0	983
39	1987	09	03.07431	00	04	18.34	-04	15	55.7	983
39	1987	09	03.07917	00	04	18.17	-04	15	58.5	983
39	1987	09	21.92760	23	52	02.20	-07	18	31.4	983
39	1987	09	21.93212	23	52	02.01	-07	18	34.3	983
39	1987	09	21.93663	23	52	01.82	-07	18	36.5	983
39	1987	11	12.86458	23	34	56.62	-11	15	33.1	983
39	1987	11	12.86944	23	34	56.70	-11	15	33.0	983
39	1987	11	12.87431	23	34	56.77	-11	15	32.5	983
40	1982	01	23.08576	10	57	33.15	+12	20	35.1	983
40	1982	01	23.09132	10	57	32.99	+12	20	36.9	983
40	1982	01	23.09687	10	57	32.87	+12	20	38.6	983
40	1982	01	24.10104	10	57	09.76	+12	26	03.7	983
40	1982	01	24.10660	10	57	09.64	+12	26	05.6	983
40	1982	01	24.11215	10	57	09.49	+12	26	07.3	983
40	1982	01	26.08785	10	56	18.59	+12	37	15.2	983
40	1982	01	26.09340	10	56	18.42	+12	37	17.3	983
40	1982	01	26.09896	10	56	18.26	+12	37	19.2	983
40	1982	02	20.03889	10	37	06.25	+15	30	26.4	983
40	1982	02	20.04375	10	37	05.96	+15	30	28.4	983
40	1982	02	20.04861	10	37	05.66	+15	30	30.1	983
40	1982	02	23.00764	10	34	08.33	+15	51	33.7	983
40	1982	02	23.01250	10	34	08.02	+15	51	35.7	983
40	1982	02	23.01736	10	34	07.71	+15	51	37.9	983
40	1982	02	26.01389	10	31	05.97	+16	12	10.6	983
40	1982	02	26.01875	10	31	05.68	+16	12	12.5	983
40	1982	02	26.02361	10	31	05.37	+16	12	14.6	983
40	1982	03	18.98611	10	12	03.13	+17	57	52.4	983
40	1982	03	18.99097	10	12	02.91	+17	57	53.1	983
40	1982	03	18.99583	10	12	02.68	+17	57	54.2	983
40	1982	03	20.97986	10	10	40.01	+18	03	32.4	983
40	1982	03	20.98472	10	10	39.81	+18	03	33.2	983
40	1982	03	20.98958	10	10	39.60	+18	03	33.9	983
40	1982	03	22.96806	10	09	23.37	+18	08	21.6	983
40	1982	03	22.97292	10	09	23.17	+18	08	22.6	983
40	1982	03	22.97778	10	09	23.00	+18	08	23.0	983
40	1982	04	19.88438	10	03	47.32	+17	53	53.0	983
40	1982	04	19.88993	10	03	47.38	+17	53	52.3	983
40	1982	04	19.89549	10	03	47.45	+17	53	51.4	983
40	1987	09	03.13507	02	33	33.80	+08	35	07.8	983
40	1987	09	03.14063	02	33	33.90	+08	35	07.5	983
40	1987	09	03.14618	02	33	34.00	+08	35	07.3	983
40	1987	10	01.08403	02	30	27.12	+07	30	20.3	983
40	1987	10	01.08889	02	30	26.93	+07	30	19.0	983
40	1987	10	01.09375	02	30	26.75	+07	30	18.1	983
40	1987	10	28.99010	02	06	09.19	+05	30	01.1	983
40	1987	10	28.99462	02	06	08.92	+05	30	00.2	983
40	1987	10	28.99913	02	06	08.63	+05	29	59.0	983

40	1987	11	12.93264	01	52	04.44	+04	48	09.6	983
40	1987	11	12.93750	01	52	04.19	+04	48	09.1	983
40	1987	11	12.94236	01	52	03.94	+04	48	08.8	983
44	1987	12	23.94705	04	22	44.57	+16	09	28.3	983
44	1987	12	23.95156	04	22	44.34	+16	09	29.0	983
44	1987	12	23.95608	04	22	44.12	+16	09	29.2	983
45	1987	03	04.17847	15	34	08.01	-11	34	34.4	983
45	1987	03	04.18472	15	34	08.22	-11	34	33.9	983
45	1987	03	04.19097	15	34	08.47	-11	34	33.4	983
45	1987	04	30.00035	15	30	00.78	-07	56	14.1	983
45	1987	04	30.00590	15	30	00.51	-07	56	12.4	983
45	1987	04	30.01146	15	30	00.28	-07	56	10.8	983
45	1987	05	19.93785	15	13	42.24	-06	37	16.6	983
45	1987	05	19.94340	15	13	41.95	-06	37	15.5	983
45	1987	05	19.94896	15	13	41.66	-06	37	14.5	983
45	1987	06	16.89306	14	56	43.77	-06	21	03.2	983
45	1987	06	16.89931	14	56	43.61	-06	21	03.4	983
45	1987	06	16.90556	14	56	43.49	-06	21	03.8	983
49	1987	08	24.95035	19	59	44.28	-18	43	05.2	983
49	1987	08	24.95729	19	59	44.03	-18	43	05.6	983
49	1987	08	24.96424	19	59	43.79	-18	43	06.4	983
51	1987	09	03.15382	02	39	23.48	+09	40	23.8	983
51	1987	09	03.16076	02	39	23.58	+09	40	22.3	983
51	1987	09	03.16771	02	39	23.69	+09	40	20.5	983
51	1987	10	29.00694	02	15	10.59	+02	46	12.1	983
51	1987	10	29.01319	02	15	10.24	+02	46	08.9	983
51	1987	10	29.01944	02	15	09.88	+02	46	06.1	983
51	1987	11	12.94931	02	02	14.61	+01	01	59.4	983
51	1987	11	12.95556	02	02	14.30	+01	01	57.0	983
51	1987	11	12.96181	02	02	14.00	+01	01	55.0	983
52	1987	12	23.96215	04	33	07.38	+13	02	14.5	983
52	1987	12	23.96771	04	33	07.15	+13	02	14.9	983
52	1987	12	23.97326	04	33	06.89	+13	02	15.5	983
63	1987	02	26.01458	10	33	30.06	+09	17	34.6	983
63	1987	02	26.02083	10	33	29.65	+09	17	36.1	983
63	1987	02	26.02708	10	33	29.26	+09	17	37.4	983
65	1987	01	03.12639	08	46	20.06	+15	20	44.1	983
65	1987	01	03.13403	08	46	19.77	+15	20	44.9	983
65	1987	01	03.14177	08	46	19.52	+15	20	46.0	983
65	1987	02	25.91042	08	10	19.55	+18	01	42.8	983
65	1987	02	25.91806	08	10	19.32	+18	01	43.7	983
65	1987	02	25.92569	08	10	19.10	+18	01	45.0	983
88	1987	12	23.98194	05	35	30.33	+24	37	47.6	983
88	1987	12	23.98819	05	35	29.97	+24	37	46.8	983
88	1987	12	23.99444	05	35	29.57	+24	37	45.8	983
89	1987	02	05.16597	11	48	00.48	-13	10	15.8	983
89	1987	02	05.17361	11	48	00.22	-13	10	17.7	983
89	1987	02	05.18125	11	47	59.99	-13	10	19.3	983
89	1987	03	04.02674	11	27	39.60	-13	57	08.9	983
89	1987	03	04.03368	11	27	39.19	-13	57	08.6	983
89	1987	03	04.04062	11	27	38.78	-13	57	08.1	983
89	1987	03	31.93090	11	01	16.92	-12	34	31.5	983
89	1987	03	31.93785	11	01	16.54	-12	34	29.6	983
89	1987	03	31.94479	11	01	16.21	-12	34	27.7	983
89	1987	04	24.94896	10	47	37.93	-10	45	55.2	983
89	1987	04	24.95590	10	47	37.81	-10	45	53.4	983
89	1987	04	24.96285	10	47	37.63	-10	45	51.8	983
97	1987	05	28.04306	17	32	52.22	-06	52	36.0	983
97	1987	05	28.05208	17	32	51.80	-06	52	35.1	983

97	1987	05	28.05972	17	32	51.43	-06	52	34.1	983
115	1987	02	05.11563	11	39	45.19	-08	22	25.6	983
115	1987	02	05.12257	11	39	44.94	-08	22	27.2	983
115	1987	02	05.12951	11	39	44.68	-08	22	28.8	983
115	1987	02	26.07899	11	22	40.49	-08	45	01.6	983
115	1987	02	26.08576	11	22	40.04	-08	45	01.5	983
115	1987	02	26.09271	11	22	39.60	-08	45	01.0	983
115	1987	03	31.90799	10	49	29.69	-06	48	11.5	983
115	1987	03	31.91528	10	49	29.35	-06	48	09.6	983
115	1987	03	31.92257	10	49	29.01	-06	48	07.6	983
115	1987	04	24.90174	10	39	01.18	-05	14	04.8	983
115	1987	04	24.90903	10	39	01.12	-05	14	03.5	983
115	1987	04	24.91632	10	39	01.05	-05	14	02.2	983
129	1987	09	03.11146	02	29	30.14	+00	08	12.9	983
129	1987	09	03.11840	02	29	30.11	+00	08	10.9	983
129	1987	09	03.12535	02	29	30.09	+00	08	08.6	983
129	1987	10	01.06285	02	20	19.01	-02	43	09.3	983
129	1987	10	28.96007	01	59	59.46	-05	20	19.8	983
129	1987	10	28.96701	01	59	59.11	-05	20	21.6	983
129	1987	10	28.97396	01	59	58.76	-05	20	23.4	983
129	1987	11	12.90451	01	49	07.21	-06	03	19.0	983
129	1987	11	12.91146	01	49	06.92	-06	03	19.6	983
129	1987	11	12.91840	01	49	06.66	-06	03	20.3	983
148	1981	07	04.12049	21	47	11.08	-03	53	07.1	983
148	1981	07	04.12743	21	47	11.04	-03	53	10.1	983
148	1981	07	04.13437	21	47	10.96	-03	53	12.6	983
148	1981	08	29.94896	21	13	24.06	-15	22	01.8	983
148	1981	08	29.95417	21	13	23.86	-15	22	06.2	983
148	1981	08	31.94826	21	12	02.86	-15	50	06.0	983
148	1981	08	31.95382	21	12	02.68	-15	50	10.1	983
148	1981	08	31.95937	21	12	02.44	-15	50	14.8	983
148	1981	09	01.94201	21	11	23.96	-16	03	50.5	983
148	1981	09	01.94757	21	11	23.74	-16	03	55.1	983
148	1981	09	01.95313	21	11	23.51	-16	03	59.9	983
148	1981	10	30.81042	21	17	34.28	-23	39	19.5	983
148	1981	10	30.81667	21	17	34.58	-23	39	20.3	983
148	1981	10	30.82292	21	17	34.91	-23	39	20.7	983
192	1987	02	05.08958	11	16	05.94	+05	53	14.6	983
192	1987	02	05.09722	11	16	05.62	+05	53	15.8	983
192	1987	02	05.10486	11	16	05.26	+05	53	17.6	983
192	1987	02	26.05451	10	57	36.61	+07	07	00.3	983
192	1987	02	26.06146	10	57	36.20	+07	07	01.7	983
192	1987	02	26.06840	10	57	35.76	+07	07	03.7	983
192	1987	04	24.87882	10	19	47.38	+09	07	55.0	983
192	1987	04	24.88576	10	19	47.36	+09	07	54.4	983
192	1987	04	24.89271	10	19	47.31	+09	07	53.9	983
216	1987	01	03.23125	11	43	09.19	-11	07	55.4	983
216	1987	01	03.23889	11	43	09.31	-11	07	57.4	983
216	1987	01	03.24653	11	43	09.45	-11	07	59.1	983
216	1987	02	05.13958	11	41	06.95	-12	02	30.4	983
216	1987	02	05.14792	11	41	06.72	-12	02	30.0	983
216	1987	02	05.15486	11	41	06.53	-12	02	29.5	983
216	1987	03	04.00208	11	24	26.37	-10	20	20.0	983
216	1987	03	04.00972	11	24	26.05	-10	20	17.3	983
216	1987	03	04.01736	11	24	25.69	-10	20	14.2	983
216	1987	03	31.95313	11	04	01.94	-06	50	07.6	983
216	1987	03	31.96076	11	04	01.64	-06	50	04.0	983
216	1987	03	31.96771	11	04	01.42	-06	50	00.7	983
216	1987	04	24.92535	10	54	42.39	-03	56	28.8	983

216		1987	04	24.93229	10	54	42.33	-03 56 26.2	983
216		1987	04	24.93924	10	54	42.26	-03 56 23.5	983
230		1987	02	25.95833	08	30	43.24	+03 36 43.5	983
230		1987	02	25.96458	08	30	42.99	+03 36 45.3	983
230		1987	02	25.97083	08	30	42.72	+03 36 47.2	983
230		1987	03	20.91493	08	23	18.78	+05 34 17.0	983
230		1987	03	20.92188	08	23	18.77	+05 34 19.1	983
230		1987	03	20.92882	08	23	18.77	+05 34 20.9	983
324		1987	12	24.00625	06	16	52.59	+39 40 08.0	983
324		1987	12	24.01111	06	16	52.18	+39 40 07.0	983
324		1987	12	24.01597	06	16	51.75	+39 40 05.9	983
349		1987	12	23.93125	04	13	11.13	+29 48 36.8	983
349		1987	12	23.93611	04	13	10.89	+29 48 36.4	983
349		1987	12	23.94097	04	13	10.65	+29 48 36.0	983
354		1987	03	04.05122	12	17	14.26	+15 37 19.0	983
354		1987	03	04.05573	12	17	14.10	+15 37 22.6	983
354		1987	03	04.06024	12	17	13.95	+15 37 26.2	983
354		1987	03	31.97639	11	58	19.91	+20 49 09.9	983
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354		1987	03	31.98611	11	58	19.52	+20 49 14.4	983
354		1987	04	24.97083	11	46	55.83	+22 25 34.0	983
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354		1987	04	24.98056	11	46	55.67	+22 25 34.2	983
389		1981	10	31.16354	06	41	54.96	+27 06 18.1	983
389		1981	10	31.17049	06	41	55.03	+27 06 17.4	983
389		1981	10	31.17743	06	41	55.14	+27 06 17.0	983
389		1982	01	21.94792	05	44	28.02	+24 04 13.5	983
389		1982	01	21.95486	05	44	27.75	+24 04 12.3	983
389		1982	01	21.96181	05	44	27.50	+24 04 10.5	983
389		1982	01	22.94340	05	43	52.38	+24 00 50.9	983
389		1982	01	22.95035	05	43	52.12	+24 00 49.3	983
389		1982	01	22.96285	05	43	51.66	+24 00 46.7	983
389		1982	01	23.94618	05	43	18.24	+23 57 27.5	983
389		1982	01	23.95313	05	43	17.99	+23 57 26.2	983
389		1982	01	23.96007	05	43	17.73	+23 57 24.7	983
389		1982	01	25.96632	05	42	15.00	+23 50 43.6	983
389		1982	01	25.97326	05	42	14.80	+23 50 42.3	983
389		1982	01	25.98021	05	42	14.59	+23 50 40.8	983
389		1982	01	26.95313	05	41	46.90	+23 47 28.7	983
389		1982	01	26.96007	05	41	46.70	+23 47 27.3	983
389		1982	01	26.96701	05	41	46.49	+23 47 26.0	983
389		1982	02	19.85625	05	39	47.67	+22 41 16.4	983
389		1982	02	19.86354	05	39	47.78	+22 41 15.1	983
389		1982	02	19.87049	05	39	47.88	+22 41 14.3	983
389		1982	02	20.87396	05	40	05.75	+22 38 59.6	983
389		1982	02	20.88090	05	40	05.87	+22 38 58.7	983
389		1982	02	20.88785	05	40	05.99	+22 38 57.9	983
389		1982	02	22.86354	05	40	46.25	+22 34 42.3	983
389		1982	02	22.87049	05	40	46.40	+22 34 41.5	983
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389		1987	02	05.19097	12	41	00.18	-15 54 06.8	983
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389		1987	02	05.20625	12	41	00.34	-15 54 12.1	983
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389		1987	03	04.08368	12	34	38.18	-17 29 46.8	983
389		1987	04	29.90174	11	53	09.39	-13 11 21.0	983
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423	1987	09	03.08785	02	04	09.89	-00	25	53.6	983
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423	1987	09	03.10313	02	04	09.75	-00	25	56.0	983
423	1987	10	01.03993	01	51	52.01	-01	55	34.1	983
423	1987	10	01.04688	01	51	51.71	-01	55	35.6	983
423	1987	10	01.05382	01	51	51.39	-01	55	37.0	983
423	1987	11	12.88299	01	19	21.20	-03	03	57.7	983
423	1987	11	12.88993	01	19	20.96	-03	03	57.3	983
423	1987	11	12.89688	01	19	20.70	-03	03	56.8	983
423	1987	12	22.83750	01	12	04.42	-00	29	32.7	983
423	1987	12	22.84653	01	12	04.53	-00	29	29.7	983
423	1987	12	22.85417	01	12	04.64	-00	29	26.5	983
451	1987	03	04.09236	12	46	33.07	+18	40	45.2	983
451	1987	03	04.09861	12	46	32.84	+18	40	47.8	983
451	1987	03	04.10486	12	46	32.62	+18	40	50.7	983
451	1987	03	31.99236	12	26	09.59	+21	12	39.9	983
451	1987	03	31.99861	12	26	09.25	+21	12	41.0	983
451	1987	04	01.00486	12	26	08.94	+21	12	42.0	983
451	1987	04	29.92396	12	07	36.32	+21	07	32.7	983
451	1987	04	29.93090	12	07	36.13	+21	07	31.4	983
451	1987	04	29.93785	12	07	35.94	+21	07	30.0	983
471	1987	02	25.84444	05	52	06.68	+31	44	39.0	983
471	1987	02	25.85069	05	52	06.89	+31	44	39.5	983
471	1987	02	25.85694	05	52	07.09	+31	44	39.9	983
480	1981	02	03.84236	04	06	03.14	+08	31	33.5	983
480	1981	02	03.85000	04	06	03.34	+08	31	32.6	983
480	1981	02	03.85764	04	06	03.59	+08	31	33.0	983
480	1981	02	05.84028	04	07	04.75	+08	31	31.8	983
480	1981	02	05.84792	04	07	04.92	+08	31	31.6	983
480	1981	02	05.85556	04	07	05.19	+08	31	32.9	983
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480	1982	02	28.04028	12	10	16.09	-29	47	26.1	983
480	1982	02	28.04792	12	10	15.79	-29	47	25.3	983
480	1982	03	03.09583	12	08	19.54	-29	42	30.5	983
480	1982	03	03.10359	12	08	19.21	-29	42	29.3	983
480	1982	03	03.11123	12	08	18.86	-29	42	28.6	983
480	1982	03	20.99965	11	54	31.08	-28	10	17.1	983
480	1982	03	21.00660	11	54	30.73	-28	10	13.9	983
480	1982	03	21.01354	11	54	30.38	-28	10	10.6	983
480	1987	05	28.01597	17	13	27.18	-12	52	49.1	983
480	1987	05	28.02361	17	13	26.73	-12	52	45.0	983
480	1987	05	28.03125	17	13	26.34	-12	52	41.2	983
480	1987	06	16.99514	16	55	02.06	-10	08	54.3	983
480	1987	06	17.00278	16	55	01.63	-10	08	51.0	983
480	1987	06	17.01042	16	55	01.23	-10	08	47.3	983
511	1987	03	04.13403	13	37	33.83	+12	50	35.8	983
511	1987	03	04.14028	13	37	33.71	+12	50	38.3	983
511	1987	03	04.14653	13	37	33.58	+12	50	41.0	983
511	1987	04	01.02847	13	21	41.77	+15	58	50.6	983
511	1987	04	01.03472	13	21	41.49	+15	58	52.5	983
511	1987	04	01.04097	13	21	41.22	+15	58	54.6	983
511	1987	04	29.95972	13	01	01.65	+17	11	41.4	983
511	1987	04	29.96597	13	01	01.43	+17	11	41.3	983
511	1987	04	29.97222	13	01	01.18	+17	11	41.1	983
511	1987	05	19.89340	12	52	20.73	+16	24	12.2	983
511	1987	05	19.90035	12	52	20.62	+16	24	10.1	983
511	1987	05	19.90729	12	52	20.52	+16	24	08.9	983
532	1982	01	05.12500	09	06	15.67	+23	15	42.4	983
532	1982	01	05.13125	09	06	15.47	+23	15	46.5	983

532	1982	01	05.13750	09	06	15.28	+23	15	50.4	983
532	1982	01	22.02986	08	54	39.55	+26	29	27.5	983
532	1982	01	22.03472	08	54	39.30	+26	29	31.0	983
532	1982	01	22.03958	08	54	39.03	+26	29	34.4	983
532	1982	01	23.00417	08	53	48.99	+26	40	46.5	983
532	1982	01	23.00903	08	53	48.72	+26	40	49.8	983
532	1982	01	23.01389	08	53	48.47	+26	40	53.3	983
532	1982	01	24.01806	08	52	55.41	+26	52	29.4	983
532	1982	01	24.02292	08	52	55.14	+26	52	32.6	983
532	1982	01	24.02778	08	52	54.85	+26	52	35.9	983
532	1982	01	26.01528	08	51	07.88	+27	15	21.0	983
532	1982	01	26.02014	08	51	07.60	+27	15	24.6	983
532	1982	01	26.02500	08	51	07.31	+27	15	27.8	983
532	1982	01	27.00417	08	50	13.73	+27	26	33.0	983
532	1982	01	27.00903	08	50	13.44	+27	26	36.4	983
532	1982	01	27.01389	08	50	13.17	+27	26	39.6	983
532	1982	02	17.95139	08	30	34.92	+30	54	58.3	983
532	1982	02	17.95625	08	30	34.68	+30	55	00.3	983
532	1982	02	17.96111	08	30	34.47	+30	55	02.5	983
532	1982	02	19.97083	08	29	05.05	+31	08	59.4	983
532	1982	02	19.97575	08	29	04.85	+31	09	01.4	983
532	1982	02	19.98056	08	29	04.62	+31	09	03.2	983
532	1982	02	20.98403	08	28	22.12	+31	15	38.9	983
532	1982	02	20.98889	08	28	21.91	+31	15	40.7	983
532	1982	02	20.99375	08	28	21.69	+31	15	42.6	983
532	1982	02	22.94306	08	27	03.61	+31	27	48.8	983
532	1982	02	22.94792	08	27	03.42	+31	27	50.6	983
532	1982	02	22.95278	08	27	03.22	+31	27	52.4	983
532	1982	02	25.94167	08	25	15.41	+31	44	36.6	983
532	1982	02	25.94653	08	25	15.23	+31	44	38.1	983
532	1982	02	25.95139	08	25	15.07	+31	44	39.5	983
532	1982	03	18.91806	08	20	38.13	+32	44	51.8	983
532	1982	03	18.92292	08	20	38.17	+32	44	51.8	983
532	1982	03	18.92778	08	20	38.17	+32	44	52.5	983
532	1982	03	20.91944	08	20	58.06	+32	45	55.8	983
532	1982	03	20.92431	08	20	58.08	+32	45	55.7	983
532	1982	03	20.92917	08	20	58.14	+32	45	55.9	983
532	1987	02	05.21458	13	18	50.42	+14	17	10.4	983
532	1987	02	05.21944	13	18	50.60	+14	17	12.8	983
532	1987	02	05.22431	13	18	50.76	+14	17	15.3	983
532	1987	03	04.11285	13	24	34.97	+18	46	50.0	983
532	1987	03	04.11701	13	24	34.92	+18	46	52.7	983
532	1987	03	04.12118	13	24	34.87	+18	46	55.5	983
532	1987	04	01.01424	13	09	20.45	+23	04	38.8	983
532	1987	04	01.01840	13	09	20.24	+23	04	40.1	983
532	1987	04	01.02257	13	09	20.05	+23	04	41.7	983
532	1987	04	29.94340	12	48	31.29	+23	23	08.0	983
532	1987	04	29.94757	12	48	31.14	+23	23	07.1	983
532	1987	04	29.95174	12	48	31.02	+23	23	05.5	983
582	1982	01	22.09323	10	20	17.06	-03	48	46.3	983
582	1982	01	22.10017	10	20	16.92	-03	48	39.9	983
582	1982	01	23.06285	10	19	57.85	-03	33	14.9	983
582	1982	01	23.06979	10	19	57.68	-03	33	08.4	983
582	1982	01	23.07674	10	19	57.53	-03	33	01.6	983
582	1982	01	24.07326	10	19	36.05	-03	16	37.8	983
582	1982	01	24.08021	10	19	35.88	-03	16	30.4	983
582	1982	01	24.08715	10	19	35.71	-03	16	23.5	983
582	1982	01	26.06076	10	18	48.34	-02	42	33.9	983
582	1982	01	26.06771	10	18	48.18	-02	42	26.9	983

582	1982	01	26.07465	10	18	47.99	-02	42	19.6	983
582	1982	02	20.01424	10	02	31.33	+06	22	37.2	983
582	1982	02	20.02153	10	02	31.00	+06	22	47.8	983
582	1982	02	20.02882	10	02	30.64	+06	22	58.3	983
582	1982	02	22.98611	10	00	16.54	+07	34	41.4	983
582	1982	02	22.99236	10	00	16.24	+07	34	50.3	983
582	1982	02	22.99861	10	00	15.96	+07	34	59.4	983
582	1982	02	25.98420	09	58	03.97	+08	46	52.5	983
582	1982	02	25.99080	09	58	03.66	+08	47	01.6	983
582	1982	02	25.99774	09	58	03.37	+08	47	11.4	983
582	1982	02	27.99826	09	56	37.93	+09	34	45.2	983
582	1982	02	28.00521	09	56	37.60	+09	34	55.4	983
582	1982	02	28.01215	09	56	37.32	+09	35	04.9	983
582	1982	03	18.96076	09	46	55.26	+16	13	24.4	983
582	1982	03	18.96771	09	46	55.13	+16	13	31.5	983
582	1982	03	18.97465	09	46	55.02	+16	13	39.1	983
582	1982	03	20.95799	09	46	25.32	+16	47	58.5	983
582	1982	03	20.96493	09	46	25.23	+16	48	05.5	983
582	1982	03	20.97257	09	46	25.11	+16	48	13.4	983
582	1982	03	22.93646	09	46	02.63	+17	20	37.7	983
582	1982	03	22.94340	09	46	02.51	+17	20	44.1	983
582	1982	03	22.95035	09	46	02.46	+17	20	51.2	983
704	1982	01	23.03646	10	01	44.41	-05	44	14.0	983
704	1982	01	23.04340	10	01	44.11	-05	44	15.0	983
704	1982	01	23.05035	10	01	43.82	-05	44	15.7	983
704	1982	01	24.04132	10	01	03.42	-05	46	19.7	983
704	1982	01	24.04826	10	01	03.11	-05	46	20.6	983
704	1982	01	24.05521	10	01	02.82	-05	46	21.3	983
704	1982	01	26.03646	09	59	39.39	-05	49	58.8	983
704	1982	01	26.04340	09	59	39.09	-05	49	59.4	983
704	1982	01	26.05035	09	59	38.78	-05	50	00.1	983
704	1982	01	27.02674	09	58	56.49	-05	51	32.8	983
704	1982	01	27.03368	09	58	56.19	-05	51	33.7	983
704	1982	01	27.04063	09	58	55.86	-05	51	34.2	983
704	1982	02	19.99167	09	39	24.05	-05	41	26.2	983
704	1982	02	19.99792	09	39	23.73	-05	41	25.5	983
704	1982	02	20.00417	09	39	23.40	-05	41	24.5	983
704	1982	02	21.01042	09	38	33.30	-05	39	09.3	983
704	1982	02	21.01667	09	38	32.98	-05	39	08.6	983
704	1982	02	21.02292	09	38	32.65	-05	39	07.6	983
704	1982	02	22.96458	09	36	56.99	-05	34	25.9	983
704	1982	02	22.97083	09	36	56.67	-05	34	25.1	983
704	1982	02	22.97708	09	36	56.35	-05	34	24.0	983
704	1982	02	25.96319	09	34	32.38	-05	26	22.6	983
704	1982	02	25.96944	09	34	32.07	-05	26	21.5	983
704	1982	02	25.97569	09	34	31.77	-05	26	20.8	983
704	1982	02	27.97708	09	32	57.90	-05	20	27.4	983
704	1982	02	27.98333	09	32	57.60	-05	20	25.9	983
704	1982	02	27.98958	09	32	57.29	-05	20	24.8	983
704	1982	03	18.93819	09	20	51.62	-04	11	50.0	983
704	1982	03	18.94444	09	20	51.45	-04	11	48.5	983
704	1982	03	18.95069	09	20	51.26	-04	11	47.0	983
704	1982	03	20.93681	09	19	56.51	-04	03	58.4	983
704	1982	03	20.94306	09	19	56.35	-04	03	57.0	983
704	1982	03	20.94931	09	19	56.16	-04	03	55.7	983
704	1982	03	22.91389	09	19	06.60	-03	56	13.5	983
704	1982	03	22.92014	09	19	06.43	-03	56	11.9	983
704	1982	03	22.92639	09	19	06.28	-03	56	10.4	983
704	1987	01	03.10347	08	37	20.75	+09	32	16.4	983

704	1987 01 03.10972	08 37 20.44	+09 32 15.5	983
704	1987 01 03.11597	08 37 20.15	+09 32 14.6	983
704	1987 02 25.88819	07 53 54.14	+08 57 14.9	983
704	1987 02 25.89444	07 53 53.96	+08 57 14.8	983
704	1987 02 25.90069	07 53 53.78	+08 57 15.0	983

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

Comet Shoemaker (1985 XII)
Epoch 1985 Sept. 12.0 ET = JDE 2446320.5
T 1985 Sept. 4.59229 ET Green

q	2.6965096	(1950.0)	P	Q
z	-0.0002674	Peri. 235.46185	-0.65096456	+0.34863399
+/-	-0.0000008	Node 48.98517	+0.12297761	+0.92499716
e	1.0007209	Incl. 116.66113	-0.74908053	-0.15111117

From 100 observations 1984 May 27-1989 Dec. 28, mean residual 0".8.

Comet Churyumov-Solodovnikov (1986 IX)
Epoch 1986 May 10.0 ET = JDE 2446560.5
T 1986 May 6.50393 ET Marsden

q	2.6421066	(1950.0)	P	Q
z	+0.0001763	Peri. 157.75009	+0.75696018	-0.01843202
+/-	-0.0000558	Node 133.91723	-0.64669522	-0.16460141
e	0.9995342	Incl. 114.93424	+0.09379008	-0.98618793

From 57 observations 1986 July 15-1989 Apr. 6, mean residual 1".1.

Comet Shoemaker (1986 XIV)
Epoch 1986 Nov. 26.0 ET = JDE 2446760.5
T 1986 Nov. 17.10659 ET Green

q	5.4575480	(1950.0)	P	Q
z	-0.0005201	Peri. 17.00481	-0.23680432	-0.63310422
+/-	-0.0000039	Node 267.63309	-0.95492217	+0.01190311
e	1.0028385	Incl. 132.47396	-0.17901776	+0.77397504

From 82 observations 1987 Apr. 25-1989 Dec. 28, mean residual 0".9.

Comet Shoemaker (1987 IV)
Epoch 1987 Mar. 26.0 ET = JDE 2446880.5
T 1987 Mar. 20.12030 ET Green

q	5.0308257	(1950.0)	P	Q
z	-0.0005007	Peri. 124.22255	-0.37897918	-0.72633329
+/-	-0.0000100	Node 324.46067	+0.07638942	+0.59297742
e	1.0025188	Incl. 80.58015	+0.92224695	-0.34758846

From 56 observations 1988 Jan. 23-1989 Dec. 29, mean residual 1".0.

Comet Torres (1987 V)
Epoch 1987 Mar. 26.0 ET = JDE 2446880.5
T 1987 Apr. 10.27488 ET Green

q	3.6245884	(1950.0)	P	Q
z	-0.0002782	Peri. 329.09171	-0.76463510	-0.61348053
+/-	-0.0000054	Node 193.79059	-0.27486824	+0.03337047
e	1.0010085	Incl. 124.08614	-0.58290704	+0.78900447

From 43 observations 1987 Mar. 28-1989 Dec. 27, mean residual 1".0.

Comet Jensen-Shoemaker (1988 II)
Epoch 1987 Dec. 31.0 ET = JDE 2447160.5
T 1988 Jan. 18.80714 ET Marsden

q	3.3327948	(1950.0)	P	Q
z	-0.0014206	Peri. 194.73857	+0.90387661	-0.30977322
+/-	-0.0000112	Node 197.64645	+0.41856787	+0.49794358
e	1.0047346	Incl. 76.72169	-0.08836294	-0.80999552

From 28 observations 1987 Sept. 24-1989 Apr. 5, mean residual 1".0.

Comet Okazaki-Levy-Rudenko (1989r)
Epoch 1989 Nov. 10.0 ET = JDE 2447840.5
T 1989 Nov. 11.91458 ET Nakano

q	0.6423610	(1950.0)	P	Q
z	-0.0000307	Peri. 150.57043	-0.07430868	-0.03901793
	+/-0.0000320	Node 274.81228	+0.60063889	+0.79590434
e	1.0000197	Incl. 90.14540	+0.79605976	-0.60416378

From 180 observations 1989 Aug. 24-Dec. 24, mean residual 1".21.
Nongravitational parameters A1 = +3.39 +/- 0.32, A2 = +0.6067 +/- 0.1628.

Comet Cernis-Kiuchi-Nakamura (1990b)
T 1990 Mar. 17.32779 ET Nakano

q	1.0682643	(1950.0)	P	Q
		Peri. 100.62398	-0.04100745	-0.98658785
		Node 347.75140	+0.33272870	+0.13561976
e	1.0	Incl. 48.13546	+0.94213057	-0.09083883

From 52 observations 1990 Mar. 17-Apr. 7.

Comet Austin (1989c1)
Epoch 1990 Apr. 19.0 ET = JDE 2448000.5
T 1990 Apr. 9.96736 ET Green

q	0.3497733	(1950.0)	P	Q
z	-0.0006569	Peri. 61.56914	-0.31714250	-0.46160657
	+/-0.0000051	Node 75.22983	+0.22865127	-0.88499868
e	1.0002298	Incl. 58.95552	+0.92040167	+0.06080064

From 59 observations 1989 Dec. 6-1990 May 8, mean residual 0".8.

Comet Skorichenko-George (1989e1)
Epoch 1990 Apr. 19.0 ET = JDE 2448000.5
T 1990 Apr. 11.91207 ET Nakano

q	1.5693546	(1950.0)	P	Q
z	-0.0005571	Peri. 137.82901	+0.21780252	-0.48123032
	+/-0.0001343	Node 279.30260	+0.49191427	+0.80553402
e	1.0008742	Incl. 59.36389	+0.84296050	-0.34573447

From 75 observations 1989 Dec. 20-1990 Apr. 5, mean residual 1".03.

Periodic Comet Wild 4 (1990a)
Epoch 1990 July 8.0 ET = JDE 2448080.5
T 1990 July 2.52882 ET Nakano

q	1.9887348	(1950.0)	P	Q
n	0.16015673	Peri. 170.48742	-0.97821058	+0.20625737
a	3.3581951	Node 21.46010	-0.19448097	-0.87036705
e	0.4077965	Incl. 3.71512	-0.07267195	-0.44712312
P	6.15			

From 127 observations 1990 Jan. 21-Apr. 25, mean residual 0".90.

Periodic Comet Ciffreo (1985 XVI)
Epoch 1993 Jan. 13.0 ET = JDE 2449000.5
T 1993 Jan. 22.47644 ET Nakano

q	1.7087565	(1950.0)	P	Q
n	0.13627248	Peri. 358.01618	+0.62791967	-0.75696370
a	3.7399340	Node 53.03412	+0.71710331	+0.47239137
e	0.5431052	Incl. 13.08539	+0.30245615	+0.45150010
P	7.23			

From 73 observations 1985 Nov. 8-1986 Mar. 15, mean residual 1".13.

Periodic Comet Howell
Epoch 1993 Feb. 22.0 ET = JDE 2449040.5
T 1993 Feb. 26.09601 ET Nakano

		(1950.0)	P	Q
q 1.4091431				
n 0.17664214	Peri.	234.68175	+0.36938360	+0.92704414
a 3.1458632	Node	57.12024	-0.82573113	+0.35921736
e 0.5520647	Incl.	4.39668	-0.42629081	+0.10748048
P 5.58				

From 70 observations 1981-1988, mean residual 1".09.

Periodic Comet Schaumasse
Epoch 1993 Feb. 22.0 ET = JDE 2449040.5
T 1993 Mar. 4.10335 ET Marsden

		(1950.0)	P	Q
q 1.2021659				
n 0.11988760	Peri.	57.45103	-0.72354327	-0.65994159
a 4.0733639	Node	80.38628	+0.54422207	-0.72574075
e 0.7048715	Incl.	11.84555	+0.42462628	-0.19436423
P 8.22				

From 19 observations 1976-1985, mean residual 1".0.

Periodic Comet Forbes
Epoch 1993 Apr. 3.0 ET = JDE 2449080.5
T 1993 Mar. 14.63221 ET Nakano

		(1950.0)	P	Q
q 1.4468438				
n 0.16077705	Peri.	310.55534	+0.24950849	+0.96680398
a 3.3495517	Node	333.73834	-0.84652853	+0.19013217
e 0.5680485	Incl.	7.15298	-0.47024989	+0.17070390
P 6.13				

From 54 observations 1974-1987, mean residual 0".72. Nongravitational parameters A1 = +0.82 +/- 0.04, A2 = -0.0624 +/- 0.0010.

Periodic Comet Holmes
Epoch 1993 Apr. 3.0 ET = JDE 2449080.5
T 1993 Apr. 10.74671 ET Nakano

		(1950.0)	P	Q
q 2.1767564				
n 0.13893417	Peri.	23.23183	+0.97469094	+0.13634667
a 3.6920139	Node	327.33888	-0.21871103	+0.74568001
e 0.4104149	Incl.	19.16459	+0.04629310	+0.65220465
P 7.09				

From 50 observations 1964-1986, mean residual 0".92. Nongravitational parameters A1 = +0.09 +/- 0.07, A2 = +0.0338 +/- 0.0052.

Periodic Comet Vaisala 1
Epoch 1993 May 13.0 ET = JDE 2449120.5
T 1993 Apr. 29.17509 ET Nakano

		(1950.0)	P	Q
q 1.7830241				
n 0.09139382	Peri.	47.36422	-0.98878846	+0.04065654
a 4.8811799	Node	134.39906	-0.07744633	-0.96231644
e 0.6347145	Incl.	11.60120	+0.12766927	-0.26887566
P 10.78				

From 101 observations 1939-1982, mean residual 1".41. Nongravitational parameters A1 = -0.04 +/- 0.04, A2 = -0.0134 +/- 0.0010.

Periodic Comet Lovas 2 (1986 XIII)
Epoch 1993 June 22.0 ET = JDE 2449160.5

T 1993 June 2.40297 ET				Green
q 1.4619923		(1950.0)	P	Q
n 0.14574647	Peri.	71.56151	+0.99479084	+0.09857792
a 3.5760537	Node	282.77492	-0.10065234	+0.90958677
e 0.5911716	Incl.	1.52495	-0.01613366	+0.40365121
P 6.76				

From 18 observations 1986 Dec. 2-1987 Mar. 3, mean residual 0".5.

Periodic Comet Wiseman-Skiff (1986 XV)
Epoch 1993 June 22.0 ET = JDE 2449160.5

T 1993 June 4.39410 ET				Nakano
q 1.5091611		(1950.0)	P	Q
n 0.15103430	Peri.	171.92486	+0.11720657	-0.94281027
a 3.4920919	Node	270.93933	+0.89278263	+0.23765114
e 0.5678347	Incl.	18.18498	+0.43497332	-0.23373218
P 6.53				

From 38 observations 1986 Dec. 28-1987 May 25, mean residual 1".08.

Periodic Comet Slaughter-Burnham
Epoch 1993 June 22.0 ET = JDE 2449160.5

T 1993 June 22.42522 ET				Nakano
q 2.5430578		(1950.0)	P	Q
n 0.08500850	Peri.	44.12054	+0.86552560	-0.49964577
a 5.1226477	Node	345.73798	+0.41123980	+0.74871960
e 0.5035657	Incl.	8.14930	+0.28591477	+0.43562951
P 11.59				

From 27 observations 1958-1981, mean residual 1".17.

Periodic Comet Urata-Niijima (1986 XVI)
Epoch 1993 Aug. 1.0 ET = JDE 2449200.5

T 1993 July 13.33427 ET				Nakano
q 1.4566308		(1950.0)	P	Q
n 0.14834617	Peri.	21.47180	+0.62274727	-0.75299562
a 3.5341514	Node	31.22300	+0.64476895	+0.33998295
e 0.5878414	Incl.	24.20872	+0.44323677	+0.56339079
P 6.64				

From 71 observations 1986 Oct. 4-1987 Mar. 27, mean residual 0".95.

Periodic Comet Ashbrook-Jackson
Epoch 1993 Aug. 1.0 ET = JDE 2449200.5

T 1993 July 14.05169 ET				Nakano
q 2.3162842		(1950.0)	P	Q
n 0.13159865	Peri.	348.68577	+0.98657308	+0.16315085
a 3.8279690	Node	1.97078	-0.12779981	+0.79956582
e 0.3949052	Incl.	12.49443	-0.10168954	+0.57799335
P 7.49				

From 367 observations 1948-1988, mean residual 1".09. Nongravitational parameters A1 = +0.06 +/- 0.04, A2 = -0.0070 +/- 0.0005.

Periodic Comet Gehrels 3
Epoch 1993 Aug. 1.0 ET = JDE 2449200.5
T 1993 July 25.42080 ET Nakano

q	3.4270021	(1950.0)	P	Q
n	0.12158714	Peri. 231.87906	-0.40995389	-0.91194705
a	4.0353166	Node 242.33098	+0.84270750	-0.37154786
e	0.1507477	Incl. 1.10250	+0.34897259	-0.17408264
P	8.11			

From 48 observations 1975-1987, mean residual 0".90.

Periodic Comet Neujmin 3
Epoch 1993 Nov. 29.0 ET = JDE 2449320.5
T 1993 Nov. 13.03804 ET Nakano

q	2.0013035	(1950.0)	P	Q
n	0.09272275	Peri. 146.97199	+0.45058461	+0.89204497
a	4.8344290	Node 149.76647	-0.83338695	+0.43438669
e	0.5860310	Incl. 3.99279	-0.32006201	+0.12475563
P	10.63			

From 43 observations 1929-1972, mean residual 1".12. Nongravitational parameters A1 = +1.61 +/- 0.25, A2 = +0.0316 +/- 0.0106.

Periodic Comet Shajn-Schaldach
Epoch 1993 Nov. 29.0 ET = JDE 2449320.5
T 1993 Nov. 15.98278 ET Nakano

q	2.3445513	(1950.0)	P	Q
n	0.13154816	Peri. 216.54555	+0.92140781	-0.38777428
a	3.8289486	Node 166.20348	+0.37688991	+0.87591291
e	0.3876775	Incl. 6.08366	+0.09466597	+0.28706737
P	7.49			

From 50 observations 1971-1987, mean residual 0".93. Nongravitational parameters A1 = -3.51 +/- 1.41, A2 = -0.0913 +/- 0.0130.

Periodic Comet West-Kohoutek-Ikemura
Epoch 1994 Jan. 8.0 ET = JDE 2449360.5
T 1993 Dec. 25.30696 ET Nakano

q	1.5767930	(1950.0)	P	Q
n	0.15365006	Peri. 359.96105	+0.11411555	-0.85561770
a	3.4523453	Node 83.48093	+0.91158117	-0.11185742
e	0.5432690	Incl. 30.54121	+0.39496508	+0.50537736
P	6.41			

From 45 observations 1974-1988, mean residual 1".18. Nongravitational parameters A1 = +0.42 +/- 0.08, A2 = -0.1225 +/- 0.0077.

One-opposition minor planets

Planet	H	Epoch	M	Peri.	Node	Incl.	e	a	Arc	O	N	C
1979 KM	16.0	790616	20.09	84.94	150.53	6.55	0.2080	2.2345	63	6	D	W
1982 BP2	14.0	820111	69.52	138.79	252.11	2.75	0.1408	2.3758	8	8		M
1988 EP	13.5	880320	346.55	38.27	162.98	10.46	0.2429	2.3626	30	0		N
1988 JE	12.0	880429	295.85	188.07	119.07	3.77	0.1878	3.2002	15	0		M
1988 RR12	13.0	881006	11.15	176.59	169.26	10.99	0.1756	2.4807	21	7		N
1988 VW2	15.0	881115	353.78	170.07	249.86	1.94	0.2886	2.2985	6	6		N
1988 VA6	14.5	881115	24.47	327.27	45.23	2.77	0.1818	2.3120	9	7		N
1988 XV1	11.5	881225	43.14	299.88	72.60	19.62	0.2488	3.1396	24	9		N
1988 XY1	12.5	881225	109.86	18.06	304.70	3.10	0.0729	2.2858	5	9		N
1988 XM4	14.0	881225	4.19	13.58	62.04	5.34	0.2832	2.6091	5	9	E	N
1989 TX6	16.2	891001	10.69	249.63	107.02	3.74	0.2243	2.4462	10	0	D	E
1989 TQ15	14.0	891110	11.62	163.53	203.93	2.37	0.2049	2.4204	47	0	D	N
1989 WJ2	10.0	891110	61.91	214.31	94.49	31.56	0.0489	5.0898	12	6		W
1990 BE2	13.0	900218	19.09	106.02	3.61	4.37	0.1936	2.4068	33	0		N

1990	BF2	13.0	900129	7.78	42.65	78.04	4.15	0.0403	2.2169	40	0	N
1990	DA1	12.5	900310	264.72	308.49	335.81	7.40	0.2037	2.2085	21	7	N
1990	DM1	14.0	900218	328.71	237.86	313.03	1.73	0.1723	2.3080	2	3	W
1990	EB	13.5	900330	339.80	52.07	149.76	12.33	0.1450	2.3827	22	8	N
1990	EJ	11.5	900310	316.79	240.19	346.36	10.58	0.1258	3.1613	3	0	N
1990	EK	13.0	900310	62.24	249.40	184.53	7.19	0.2812	2.5036	19	6	N
1990	EO	14.5	900218	262.91	25.87	243.77	6.02	0.0874	2.2955	8	9	M
1990	ER	13.5	900218	43.96	170.67	306.91	10.07	0.0417	2.9964	8	9	M
1990	EU	15.5	900218	36.21	209.26	275.33	6.56	0.0406	2.5266	8	9	M
1990	EZ	14.5	900218	13.87	306.20	201.88	11.01	0.0496	2.6305	8	9	M
1990	EC1	15.5	900218	316.94	13.06	203.57	10.01	0.1240	2.4448	8	9	M
1990	ED1	14.5	900218	21.13	194.86	300.23	6.69	0.1469	2.7682	8	9	M
1990	EG1	16.0	900218	47.01	155.30	298.65	5.42	0.2128	2.3366	8	9	M
1990	EH1	14.5	900218	304.15	280.29	314.41	8.43	0.1433	2.5919	8	9	M
1990	EJ1	13.5	900218	247.80	65.21	216.56	7.86	0.0374	3.0010	8	9	M
1990	EL1	13.5	900218	186.40	62.66	280.08	7.49	0.1421	3.1288	8	9	M
1990	EM1	14.5	900218	224.20	82.52	231.98	5.49	0.1964	2.4339	8	9	M
1990	EN1	14.5	900218	315.24	355.66	229.69	7.45	0.1667	2.8084	8	9	M
1990	EO1	15.5	900218	338.72	235.70	319.12	9.87	0.1994	2.5202	8	9	M
1990	EP1	13.5	900218	171.48	38.27	314.68	10.70	0.2148	2.5602	8	9	M
1990	ES1	14.5	900218	257.90	353.21	287.75	6.73	0.1239	2.4420	8	9	M
1990	ET1	15.5	900218	66.22	161.53	283.41	5.45	0.1141	2.2599	8	9	M
1990	EU1	16.0	900218	305.99	335.39	257.37	4.44	0.1552	2.2291	8	9	M
1990	EV1	14.5	900218	1.35	331.92	188.22	9.31	0.1305	2.3537	8	9	M
1990	EX1	14.0	900218	5.38	314.88	203.49	12.02	0.1394	3.1429	8	9	M
1990	EY1	10.5	900218	286.79	335.47	298.32	9.59	0.2625	5.2702	8	9	M
1990	EF2	15.5	900218	301.72	340.45	251.00	3.83	0.0967	2.1954	8	9	M
1990	EH2	14.5	900218	264.99	333.46	313.54	8.37	0.2429	2.3460	8	9	M
1990	EJ2	12.5	900218	211.09	95.81	231.11	8.91	0.1746	3.3193	8	9	M
1990	EK2	15.0	900218	13.63	241.18	264.74	5.46	0.1410	2.4636	8	9	M
1990	EL2	15.5	900218	311.94	10.21	212.13	5.80	0.1169	2.2455	8	9	M
1990	EP2	15.5	900218	342.15	306.00	240.54	5.51	0.1025	2.4173	8	9	M
1990	EQ2	15.0	900218	47.73	214.95	253.69	3.56	0.0798	2.1905	8	9	M
1990	ER2	16.0	900218	294.49	4.31	234.44	4.54	0.0728	2.5023	8	9	M
1990	ES2	15.5	900218	5.11	223.77	292.74	4.91	0.1592	2.4321	8	9	M
1990	ET2	14.0	900218	287.85	75.37	188.71	13.85	0.2240	2.7232	8	9	M
1990	FA	12.5	900310	23.02	101.33	36.46	5.30	0.1831	2.5751	6	5	N
1990	FC	15.5	900330	342.08	163.59	54.95	6.71	0.3653	2.4433	5	6	N
1990	FD	13.5	900330	27.66	129.48	359.01	22.56	0.3400	2.3532	36	8	M
1990	FG	13.0	900330	183.49	5.15	356.44	25.84	0.0308	1.9129	35	8	M
1990	FH	13.5	900330	357.35	145.04	50.09	24.46	0.2263	2.3032	36	8	G
1990	FL	13.0	900330	345.21	46.87	161.30	24.16	0.1884	2.3847	36	8	M
1990	FM	13.0	900330	327.77	151.14	81.95	17.96	0.2910	2.7483	35	8	M
1990	FP	12.0	900330	340.83	112.83	92.10	16.30	0.1239	2.5544	35	8	W
1990	FS	12.5	900310	275.89	112.02	156.41	6.19	0.1846	2.2513	32	0	N
1990	FU	12.0	900330	36.58	296.69	200.92	7.58	0.1272	3.0299	11	5	N
1990	FW	11.5	900330	304.19	237.14	8.92	18.47	0.0511	3.2292	14	5	N
1990	FX	14.0	900330	309.82	195.47	75.35	2.71	0.3055	2.2981	12	5	N
1990	FD1	12.0	900330	3.76	75.96	104.30	14.13	0.1153	2.6458	29	6	N
1990	FH1	11.5	900330	332.58	103.52	128.56	2.12	0.1756	3.1410	24	8	N
1990	FK1	11.0	900330	320.79	70.26	175.23	11.82	0.1523	3.1839	24	8	N
1990	FP1	13.0	900330	24.58	174.14	358.95	6.50	0.0522	2.5112	35	7	M
1990	FQ1	13.0	900330	286.48	78.54	212.78	22.56	0.1504	2.4338	35	7	M
1990	FR1	12.5	900310	162.78	264.21	107.10	16.69	0.0235	3.1581	39	6	B
1990	FV1	15.0	900330	26.77	112.20	29.17	24.28	0.2129	1.8263	29	5	W
1990	FW1	14.0	900310	357.97	106.50	70.55	2.04	0.1335	2.3093	3	8	W
1990	FX1	15.0	900310	23.64	85.37	51.78	3.25	0.2238	2.2444	2	6	W
1990	FY1	12.5	900310	54.61	42.48	51.13	5.54	0.2561	2.9855	2	6	W
1990	FA2	12.0	900310	6.15	153.29	14.36	11.52	0.0948	3.1630	3	0	W

1990 FC2 12.0 900310 358.02 103.08 68.09 1.95 0.1354 3.1590 3 6 E W
1990 FJ2 12.5 900419 49.39 290.77 210.43 12.07 0.1193 2.6836 27 6 N
1990 HK 12.5 900419 39.12 327.11 197.03 12.64 0.1123 2.5561 12 5 N
1979 KM = 1979 OG (G. V. Williams)
1989 TX6 = 1989 SU5 (S. Nakano, MPC 15676)
1989 TQ15 = 1989 VU1 (H. Kaneda)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(246) Asporina Obs. 94 M 238.66099 Peri. 96.11092
H 8.74 G 0.40 Opp. 29 n 0.22249061 Node 161.92455
rms res. 1".93 (M-P) 1907-1988 e 0.1064263 Incl. 15.62956

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(247) Eukrate Obs. 81 M 195.13406 Peri. 54.40079
H 8.00 G 0.07 Opp. 24 n 0.21727555 Node 359.85432
rms res. 1".52 (M-P) 1901-1985 e 0.2442830 Incl. 25.01362

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(264) Libussa Obs. 57 M 75.90065 Peri. 340.53920
H 8.40 G 0.25 Opp. 26 n 0.21030583 Node 49.34215
rms res. 2".07 (M-P) 1921-1987 e 0.1352909 Incl. 10.42076

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(269) Justitia Obs. 60 M 190.21512 Peri. 119.90257
H 9.84 G 0.15 Opp. 25 n 0.23275388 Node 156.25200
rms res. 1".02 (M-P) 1924-1989 e 0.2148419 Incl. 5.47169

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(270) Anahita Obs. 148 M 257.15666 Peri. 80.06392
H 8.79 G 0.25 Opp. 31 n 0.30248266 Node 253.97987
rms res. 1".58 (M-P) 1902-1988 e 0.1509955 Incl. 2.36628

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(275) Sapientia Obs. 130 M 96.30058 Peri. 38.24050
H 8.82 G 0.15 Opp. 30 n 0.21333120 Node 133.74607
rms res. 1".47 (M-P) 1904-1989 e 0.1602971 Incl. 4.77066

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(281) Lucretia Obs. 35 M 179.51784 Peri. 16.11770
H 12.08 G 0.40 Opp. 16 n 0.30464001 Node 30.94898
rms res. 1".91 (M-P) 1948-1987 e 0.1322689 Incl. 5.30385

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(286) Iclea Obs. 63 M 208.37107 Peri. 232.46696
H 9.10 G 0.15 Opp. 18 n 0.17271285 Node 148.72172
rms res. 1".80 (M-P) 1910-1986 e 0.0398230 Incl. 17.89232

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(291) Alice Obs. 94 M 198.65957 Peri. 331.22513
H 11.48 G 0.25 Opp. 23 n 0.29750719 Node 161.13852
rms res. 1".30 (M-P) 1913-1987 e 0.0922875 Incl. 1.85575

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(296) Phaetusa Obs. 99 M 8.94435 Peri. 251.97169
H 12.63 G 0.25 Opp. 16 n 0.29622605 Node 121.12424
rms res. 1".09 (M-P) 1930-1988 e 0.1596299 Incl. 1.74925

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(304) Olga Obs. 66 M 98.97512 Peri. 171.48959
H 9.76 G 0.09 Opp. 16 n 0.26430784 Node 158.69853
rms res. 1".52 (M-P) 1903-1980 e 0.2194064 Incl. 15.79980

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(305) Gordonia Obs. 92 M 151.12372 Peri. 254.20060
H 9.02 G 0.25 Opp. 29 n 0.18065172 Node 208.70981
rms res. 1".89 (V-P) 1902-1986 e 0.1890035 Incl. 4.44605

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(314) Rosalia Obs. 68 M 257.15292 Peri. 191.17161
H 9.77 G 0.15 Opp. 20 n 0.17685573 Node 170.07509
rms res. 1".77 (M-P) 1901-1989 e 0.1867399 Incl. 12.57237

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(320) Katharina Obs. 55 M 348.32987 Peri. 146.85222
H 10.63 G 0.25 Opp. 17 n 0.18833098 Node 219.80183
rms res. 1".68 (M-P) 1907-1987 e 0.1111842 Incl. 9.35115

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(325) Heidelberga Obs. 75 M 191.66476 Peri. 68.66345
H 9.00 G 0.25 Opp. 32 n 0.17258024 Node 344.78078
rms res. 2".15 (M-P) 1909-1984 e 0.1766517 Incl. 8.54180

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(326) Tamara Obs. 49 M 280.19454 Peri. 238.56626
H 9.35 G 0.15 Opp. 19 n 0.27929840 Node 31.72056
rms res. 1".47 (M-P) 1900-1985 e 0.1891823 Incl. 23.71738

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(335) Roberta Obs. 119 M 136.35180 Peri. 138.88943
H 8.96 G 0.14 Opp. 34 n 0.25345674 Node 147.96809
rms res. 1".44 (M-P) 1906-1986 e 0.1769382 Incl. 5.09006

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(336) Lacadiera Obs. 96 M 102.71306 Peri. 30.71093
H 9.78 G 0.17 Opp. 30 n 0.29176976 Node 234.62088
rms res. 2".10 (M-P) 1914-1987 e 0.0959853 Incl. 5.65217

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(337) Devosa Obs. 154 M 171.32347 Peri. 98.60452
H 8.76 G 0.25 Opp. 30 n 0.26793112 Node 354.97531
rms res. 0".97 (M-P) 1903-1989 e 0.1381447 Incl. 7.85521

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(343) Ostara Obs. 43 M 63.76574 Peri. 9.05901
H 11.55 G 0.15 Opp. 16 n 0.26308813 Node 38.31631
rms res. 1".53 (M-P) 1918-1988 e 0.2313215 Incl. 3.27562

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(344) Desiderata Obs. 97 M 243.75404 Peri. 236.48897
H 8.11 G 0.17 Opp. 20 n 0.23602984 Node 47.98067
rms res. 1".06 (M-P) 1909-1988 e 0.3176161 Incl. 18.39562

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(347) Pariana Obs. 61 M 335.98086 Peri. 84.69944
H 9.03 G 0.25 Opp. 22 n 0.23310466 Node 85.33244
rms res. 1".55 (M-P) 1943-1983 e 0.1620319 Incl. 11.70802

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(352) Gisela Obs. 98 M 104.04574 Peri. 144.07500
H 10.11 G 0.25 Opp. 25 n 0.30321600 Node 246.82168
rms res. 1".61 (M-P) 1913-1988 e 0.1497836 Incl. 3.37942

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(367) Amicitia Obs. 85 M 262.03598 Peri. 55.19730
H 10.95 G 0.25 Opp. 26 n 0.29814183 Node 83.03707
rms res. 1".48 (M-P) 1906-1987 e 0.0954908 Incl. 2.94424

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(371) Bohemia Obs. 123 M 246.53013 Peri. 342.64185
H 8.79 G 0.25 Opp. 26 n 0.21872674 Node 283.21575
rms res. 1".06 (M-P) 1911-1983 e 0.0610506 Incl. 7.39362

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(374) Burgundia Obs. 106 M 95.78992 Peri. 25.31711
H 8.95 G 0.25 Opp. 29 n 0.21278432 Node 218.73997
rms res. 1".42 (M-P) 1910-1989 e 0.0824010 Incl. 9.00169

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(375) Ursula Obs. 66 M 234.51348 Peri. 347.81989
H 7.43 G 0.23 Opp. 23 n 0.17844644 Node 336.10118
rms res. 1".07 (M-P) 1918-1987 e 0.1043774 Incl. 15.93930

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(376) Geometria Obs. 69 M 107.87657 Peri. 316.11365
H 9.41 G 0.25 Opp. 24 n 0.28480579 Node 301.63295
rms res. 2".08 (M-P) 1900-1983 e 0.1727761 Incl. 5.42821

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(380) Fiducia Obs. 105 M 157.72672 Peri. 239.77007
H 9.43 G 0.15 Opp. 33 n 0.22460454 Node 94.82688
rms res. 1".59 (M-P) 1901-1987 e 0.1138488 Incl. 6.16618

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(383) Janina Obs. 174 M 218.06446 Peri. 317.35924
H 9.98 G 0.24 Opp. 32 n 0.17768590 Node 92.78283
rms res. 1".29 (M-P) 1906-1989 e 0.1767019 Incl. 2.65725

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(389) Industria Obs. 445 M 310.98953 Peri. 263.79515
H 7.88 G 0.25 Opp. 32 n 0.23373252 Node 281.97890
rms res. 0".76 (M-P) 1928-1984 e 0.0641348 Incl. 8.14424

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(398) Admete Obs. 62 M 69.63125 Peri. 158.97615
H 10.46 G 0.15 Opp. 21 n 0.21784905 Node 279.63834
rms res. 1".56 (M-P) 1907-1988 e 0.2270017 Incl. 9.54836

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(406) Erna Obs. 84 M 30.06655 Peri. 35.97521
H 10.38 G 0.15 Opp. 25 n 0.19794655 Node 315.73679
rms res. 1".98 (M-P) 1903-1988 e 0.1796158 Incl. 4.20811

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(407) Arachne Obs. 106 M 136.61460 Peri. 81.64687
H 8.92 G 0.15 Opp. 22 n 0.23180518 Node 294.23787
rms res. 1".37 (M-P) 1942-1986 e 0.0709078 Incl. 7.54055

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(413) Edburga Obs. 55 M 12.57022 Peri. 251.31278
H 10.24 G 0.25 Opp. 14 n 0.23760622 Node 103.94318
rms res. 1".57 (M-P) 1917-1983 e 0.3451814 Incl. 18.76399

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(417) Suevia Obs. 112 M 89.58526 Peri. 347.52396
H 9.31 G 0.25 Opp. 27 n 0.21014357 Node 199.23970
rms res. 1".03 (M-P) 1911-1987 e 0.1328026 Incl. 6.62011

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(419) Aurelia Obs. 165 M 241.21003 Peri. 43.80803
H 8.39 G 0.15 Opp. 32 n 0.23570758 Node 229.03636
rms res. 1".32 (M-P) 1905-1987 e 0.2553022 Incl. 3.93351

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(446) Aeternitas Obs. 67 M 252.62679 Peri. 279.51068
H 8.82 G 0.25 Opp. 27 n 0.21196032 Node 41.76994
rms res. 2".58 (M-P) 1901-1986 e 0.1271908 Incl. 10.61842

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(447) Valentine Obs. 103 M 232.99316 Peri. 313.04915
H 9.25 G 0.15 Opp. 35 n 0.19102636 Node 71.62835
rms res. 1".97 (M-P) 1901-1987 e 0.0440150 Incl. 4.80359

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(477) Italia Obs. 81 M 275.97902 Peri. 322.23937
H 10.25 G 0.25 Opp. 23 n 0.26271697 Node 10.16059
rms res. 1".93 (M-P) 1901-1986 e 0.1905037 Incl. 5.29373

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(480) Hansa Obs. 268 M 94.22245 Peri. 210.66421
H 8.71 G 0.47 Opp. 25 n 0.22935883 Node 236.86579
rms res. 0".77 (M-P) 1901-1987 e 0.0461878 Incl. 21.32117

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(483) Seppina Obs. 65 M 206.89352 Peri. 141.69402
H 8.45 G 0.25 Opp. 27 n 0.15535924 Node 173.85412
rms res. 1".66 (M-P) 1902-1987 e 0.0504939 Incl. 18.66177

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(484) Pittsburghia Obs. 62 M 21.63532 Peri. 188.30890
H 10.09 G 0.15 Opp. 27 n 0.22617818 Node 126.99029
rms res. 2".26 (M-P) 1902-1984 e 0.0570630 Incl. 12.49985

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(491) Carina Obs. 113 M 99.98871 Peri. 241.23497
H 8.81 G 0.15 Opp. 28 n 0.17322387 Node 175.04004
rms res. 1".52 (M-P) 1902-1985 e 0.0898107 Incl. 18.90726

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(493) Griseldis Obs. 61 M 319.98324 Peri. 43.41722
H 10.6 G 0.25 Opp. 10 n 0.17823388 Node 357.28943
rms res. 0".98 (M-P) 1902-1982 e 0.1627293 Incl. 15.21182

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(495) Eulalia Obs. 71 M 164.75890 Peri. 206.32204
H 10.97 G 0.25 Opp. 23 n 0.25133281 Node 186.06342
rms res. 2".51 (M-P) 1902-1988 e 0.1309870 Incl. 2.28625

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(504) Cora Obs. 68 M 199.41599 Peri. 247.42277
H 10.08 G 0.15 Opp. 23 n 0.21975892 Node 104.31736
rms res. 1".49 (M-P) 1909-1988 e 0.2173495 Incl. 12.92303

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(509) Iolanda Obs. 93 M 331.06499 Peri. 151.16018
H 8.51 G 0.25 Opp. 33 n 0.18358637 Node 217.43266
rms res. 3".07 (M-P) 1903-1988 e 0.0918833 Incl. 15.37482

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(510) Mabella Obs. 118 M 232.39601 Peri. 90.02992
H 9.71 G 0.15 Opp. 31 n 0.23386531 Node 202.53283
rms res. 2".02 (M-P) 1903-1988 e 0.1938512 Incl. 9.51400

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(511) Davida Obs. 360 M 314.05437 Peri. 339.18470
H 6.17 G 0.02 Opp. 46 n 0.17439350 Node 107.32088
rms res. 1".14 (M-P) 1907-1988 e 0.1782988 Incl. 15.93976

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(512) Taurinensis Obs. 56 M 290.37550 Peri. 248.55277
H 10.79 G 0.25 Opp. 15 n 0.30425051 Node 106.69613
rms res. 1".49 (M-P) 1909-1989 e 0.2541505 Incl. 8.75780

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(519) Sylvania Obs. 70 M 276.17847 Peri. 301.90712
H 9.24 G 0.25 Opp. 23 n 0.21160441 Node 44.53419
rms res. 1".80 (M-P) 1903-1984 e 0.1859111 Incl. 11.02035

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(520) Franziska Obs. 54 M 242.89397 Peri. 18.03085
H 10.93 G 0.25 Opp. 15 n 0.18890936 Node 34.15018
rms res. 1".44 (M-P) 1903-1986 e 0.1048616 Incl. 10.97641

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(524) Fidelio Obs. 90 M 191.49243 Peri. 78.59463
H 9.81 G 0.15 Opp. 24 n 0.23044038 Node 326.43661
rms res. 1".87 (M-P) 1904-1989 e 0.1291036 Incl. 8.21048

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(526) Jena Obs. 123 M 287.66910 Peri. 1.40404
H 10.36 G 0.25 Opp. 32 n 0.17920196 Node 137.39643
rms res. 1".87 (M-P) 1904-1988 e 0.1397368 Incl. 2.17379

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(527) Euryanthe Obs. 54 M 347.26226 Peri. 202.35345
H 10.31 G 0.15 Opp. 23 n 0.21904102 Node 120.25603
rms res. 2".00 (M-P) 1904-1985 e 0.1515197 Incl. 9.66369

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(546) Herodias Obs. 53 M 97.55081 Peri. 108.35581
H 9.68 G 0.15 Opp. 24 n 0.23528811 Node 21.50841
rms res. 1".63 (M-P) 1919-1988 e 0.1124814 Incl. 14.86717

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(549) Jessonda Obs. 55 M 184.16811 Peri. 156.47927
H 11.04 G 0.25 Opp. 17 n 0.22389493 Node 291.22631
rms res. 1".71 (M-P) 1904-1989 e 0.2574943 Incl. 3.94827

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(556) Phyllis Obs. 100 M 67.53673 Peri. 177.02149
H 9.32 G 0.25 Opp. 27 n 0.25468638 Node 285.61966
rms res. 1".36 (M-P) 1907-1984 e 0.1012760 Incl. 5.22346

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(561) Ingwelde Obs. 73 M 143.53992 Peri. 303.89344
H 11.49 G 0.25 Opp. 15 n 0.17419428 Node 159.98116
rms res. 1".97 (M-P) 1905-1987 e 0.1225749 Incl. 1.51056

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(563) Suleika Obs. 102 M 192.92943 Peri. 335.49721
H 8.61 G 0.25 Opp. 28 n 0.22057132 Node 84.97954
rms res. 1".55 (M-P) 1913-1985 e 0.2359200 Incl. 10.23244

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(567) Eleutheria Obs. 87 M 183.21494 Peri. 138.82285
H 9.33 G 0.15 Opp. 26 n 0.17801925 Node 58.02436
rms res. 1".28 (M-P) 1907-1988 e 0.0976287 Incl. 9.26327

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(568) Cheruskia Obs. 138 M 73.27180 Peri. 173.13156
H 9.40 G 0.15 Opp. 21 n 0.20138750 Node 249.48976
rms res. 1".10 (M-P) 1928-1984 e 0.1684709 Incl. 18.37443

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(571) Dulcinea Obs. 64 M 250.20542 Peri. 26.73988
H 11.69 G 0.25 Opp. 14 n 0.26335896 Node 2.72123
rms res. 1".51 (M-P) 1905-1982 e 0.2409533 Incl. 5.23614

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(572) Rebekka Obs. 80 M 302.51245 Peri. 191.49746
H 10.91 G 0.25 Opp. 19 n 0.26493003 Node 194.12943
rms res. 0".89 (M-P) 1905-1989 e 0.1560726 Incl. 10.55244

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(573) Recha Obs. 67 M 80.72576 Peri. 31.97885
H 9.42 G 0.25 Opp. 21 n 0.18800128 Node 342.61021
rms res. 1".49 (M-P) 1905-1981 e 0.1098755 Incl. 9.82009

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(575) Renate Obs. 58 M 332.21766 Peri. 333.87958
H 11.22 G 0.25 Opp. 17 n 0.24129328 Node 349.34659
rms res. 1".37 (M-P) 1905-1988 e 0.1271252 Incl. 15.04255

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(578) Happelia Obs. 104 M 329.14744 Peri. 260.58405
H 9.51 G 0.15 Opp. 29 n 0.21634317 Node 29.29771
rms res. 1".63 (M-P) 1905-1989 e 0.1957404 Incl. 6.15185

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(582) Olympia Obs. 173 M 51.59202 Peri. 309.34922
H 9.03 G 0.25 Opp. 19 n 0.23369035 Node 155.30495
rms res. 1".07 (M-P) 1906-1987 e 0.2254932 Incl. 29.95609

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(583) Klotilde Obs. 83 M 245.06716 Peri. 255.53048
H 9.16 G 0.15 Opp. 25 n 0.17445351 Node 257.49916
rms res. 1".93 (M-P) 1907-1985 e 0.1604216 Incl. 8.24507

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(589) Croatia Obs. 78 M 232.27779 Peri. 212.60517
H 9.06 G 0.15 Opp. 26 n 0.17772887 Node 177.58252
rms res. 1".46 (M-P) 1906-1987 e 0.0499535 Incl. 10.80833

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(590) Tomyris Obs. 29 M 188.76704 Peri. 335.59168
H 10.14 G 0.43 Opp. 14 n 0.18945468 Node 105.88972
rms res. 2".52 (M-P) 1906-1988 e 0.0744830 Incl. 11.16086

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(593) Titania Obs. 45 M 78.42060 Peri. 29.52528
H 9.33 G 0.07 Opp. 22 n 0.22245453 Node 75.75610
rms res. 1".65 (M-P) 1906-1986 e 0.2170711 Incl. 16.94225

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(598) Octavia Obs. 71 M 307.33661 Peri. 290.15480
H 9.65 G 0.15 Opp. 24 n 0.21461961 Node 91.67841
rms res. 1".23 (M-P) 1907-1985 e 0.2486989 Incl. 12.20370

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(599) Luisa Obs. 83 M 27.48791 Peri. 292.52935
H 8.48 G 0.25 Opp. 23 n 0.21364188 Node 44.30019
rms res. 1".18 (M-P) 1910-1985 e 0.2949217 Incl. 16.63629

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(600) Musa Obs. 64 M 175.20228 Peri. 111.33594
H 10.24 G 0.15 Opp. 24 n 0.22727938 Node 139.00873
rms res. 1".55 (M-P) 1919-1987 e 0.0542093 Incl. 10.21545

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(606) Brangane Obs. 112 M 69.39076 Peri. 57.22271
H 10.40 G 0.15 Opp. 18 n 0.23657562 Node 318.24265
rms res. 1".09 (M-P) 1906-1987 e 0.2168452 Incl. 8.64082

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(609) Fulvia Obs. 92 M 253.60057 Peri. 126.19214
H 10.04 G 0.15 Opp. 27 n 0.18169759 Node 164.99395
rms res. 2".34 (M-P) 1906-1988 e 0.0325872 Incl. 4.17938

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(616) Elly Obs. 32 M 146.63544 Peri. 108.52382
H 10.75 G 0.25 Opp. 10 n 0.24157202 Node 355.80079
rms res. 0".91 (M-P) 1906-1983 e 0.0575996 Incl. 14.97745

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(618) Elfriede Obs. 68 M 311.57981 Peri. 230.81749
H 8.24 G 0.15 Opp. 27 n 0.17325692 Node 110.69370
rms res. 1".74 (M-P) 1906-1988 e 0.0852847 Incl. 17.00991

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(622) Esther Obs. 43 M 145.97050 Peri. 255.49439
H 10.30 G 0.25 Opp. 20 n 0.26279641 Node 141.84567
rms res. 1".15 (M-P) 1911-1984 e 0.2436505 Incl. 8.65113

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(625) Xenia Obs. 66 M 343.15042 Peri. 199.95374
H 10.40 G 0.15 Opp. 20 n 0.22886650 Node 127.24606
rms res. 1".46 (M-P) 1907-1986 e 0.2257990 Incl. 12.05743

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(627) Charis Obs. 99 M 162.77893 Peri. 177.05247
H 10.10 G 0.15 Opp. 20 n 0.19913643 Node 142.15519
rms res. 1".29 (M-P) 1907-1988 e 0.0581288 Incl. 6.47715

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(628) Christine Obs. 111 M 254.14911 Peri. 204.92282
H 9.18 G 0.25 Opp. 22 n 0.23772379 Node 111.62478
rms res. 1".16 (M-P) 1907-1986 e 0.0444193 Incl. 11.51978

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(634) Ute Obs. 61 M 149.74865 Peri. 222.47014
H 9.9 G 0.25 Opp. 19 n 0.18527713 Node 132.95264
rms res. 1".73 (M-P) 1907-1985 e 0.1847918 Incl. 12.29517

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(636) Erika Obs. 60 M 116.75901 Peri. 297.10872
H 9.66 G 0.15 Opp. 19 n 0.19810424 Node 34.59585
rms res. 1".47 (M-P) 1907-1987 e 0.1701784 Incl. 7.90918

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(640) Brambilla Obs. 74 M 338.33124 Peri. 38.55695
H 8.97 G 0.15 Opp. 23 n 0.17544189 Node 234.61778
rms res. 1".60 (M-P) 1907-1988 e 0.0770667 Incl. 13.39276

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(651) Antikleia Obs. 47 M 296.69989 Peri. 350.29135
H 10.02 G 0.03 Opp. 22 n 0.18723551 Node 37.85600
rms res. 2".59 (M-P) 1907-1989 e 0.0951779 Incl. 10.76264

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(652) Jubilatrix Obs. 45 M 155.38847 Peri. 276.77091
H 11.47 G 0.25 Opp. 12 n 0.24142406 Node 85.77275
rms res. 1".76 (M-P) 1909-1986 e 0.1263711 Incl. 15.78094

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(653) Berenike Obs. 59 M 184.25835 Peri. 56.77234
H 9.31 G 0.25 Opp. 26 n 0.18852298 Node 132.74332
rms res. 2".44 (M-P) 1905-1989 e 0.0481617 Incl. 11.29539

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(657) Gunlod Obs. 77 M 171.63079 Peri. 243.70209
H 10.92 G 0.15 Opp. 24 n 0.23380110 Node 297.47747
rms res. 1".66 (M-P) 1908-1989 e 0.1165097 Incl. 10.22638

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(658) Asteria Obs. 97 M 119.38813 Peri. 59.86334
H 10.56 G 0.25 Opp. 29 n 0.20454974 Node 350.80148
rms res. 1".73 (M-P) 1906-1988 e 0.0659756 Incl. 1.50825

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(659) Nestor Obs. 104 M 200.35675 Peri. 338.27690
H 8.80 G 0.15 Opp. 28 n 0.08210437 Node 350.40766
rms res. 1".36 (M-P) 1908-1989 e 0.1111882 Incl. 4.51358

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(661) Cloelia Obs. 81 M 283.80612 Peri. 177.04435
H 9.64 G 0.25 Opp. 24 n 0.18839248 Node 335.64512
rms res. 1".54 (M-P) 1918-1987 e 0.0420911 Incl. 9.25367

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(663) Gerlinde Obs. 56 M 205.48486 Peri. 311.95030
H 9.23 G 0.15 Opp. 20 n 0.18424456 Node 232.49181
rms res. 1".12 (M-P) 1908-1987 e 0.1557954 Incl. 17.85488

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(664) Judith Obs. 56 M 224.57255 Peri. 89.61352
H 9.99 G 0.15 Opp. 20 n 0.17173807 Node 174.64076
rms res. 1".67 (M-P) 1908-1986 e 0.2231798 Incl. 8.53830

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(666) Desdemona Obs. 90 M 204.75779 Peri. 173.56807
H 10.80 G 0.15 Opp. 12 n 0.23626797 Node 215.09008
rms res. 0".81 (M-P) 1908-1983 e 0.2407909 Incl. 7.60762

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(669) Kypria Obs. 57 M 300.31116 Peri. 118.60830
H 10.24 G 0.25 Opp. 19 n 0.18877288 Node 170.40583
rms res. 2".00 (M-P) 1906-1986 e 0.0820288 Incl. 10.78373

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(674) Rachele Obs. 106 M 96.66550 Peri. 40.13989
H 7.43 G 0.25 Opp. 28 n 0.19743010 Node 58.15774
rms res. 1".61 (M-P) 1901-1985 e 0.1959783 Incl. 13.53991

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(675) Ludmilla Obs. 155 M 250.37480 Peri. 150.98619
H 8.05 G 0.25 Opp. 27 n 0.21363162 Node 262.99717
rms res. 1".06 (M-P) 1922-1985 e 0.2016106 Incl. 9.76639

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(680) Genoveva Obs. 86 M 176.57169 Peri. 240.38508
H 9.41 G 0.15 Opp. 18 n 0.17633275 Node 39.73942
rms res. 2".03 (M-P) 1909-1983 e 0.2865528 Incl. 17.77191

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(687) Tinette Obs. 29 M 359.17528 Peri. 51.92264
H 11.72 G 0.15 Opp. 11 n 0.21927890 Node 334.21144
rms res. 1".62 (M-P) 1918-1983 e 0.2697747 Incl. 14.90815

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(688) Melanie Obs. 57 M 139.86937 Peri. 138.62445
H 10.51 G 0.15 Opp. 17 n 0.22217327 Node 170.59986
rms res. 1".87 (M-P) 1913-1983 e 0.1375881 Incl. 10.23330

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(689) Zita Obs. 52 M 8.84780 Peri. 187.70805
H 12.19 G 0.15 Opp. 13 n 0.27966851 Node 167.72322
rms res. 1".67 (M-P) 1941-1989 e 0.2290375 Incl. 5.73935

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(693) Zerbinetta Obs. 46 M 113.21169 Peri. 282.67563
H 9.21 G 0.25 Opp. 20 n 0.19522096 Node 351.58658
rms res. 1".66 (M-P) 1909-1986 e 0.0297517 Incl. 14.19822

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(698) Ernestina Obs. 57 M 239.62562 Peri. 97.76937
H 10.7 G 0.25 Opp. 13 n 0.20293205 Node 40.53787
rms res. 1".38 (M-P) 1910-1988 e 0.1098055 Incl. 11.52677

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(707) Steina Obs. 63 M 358.03990 Peri. 90.05921
H 12.90 G 0.25 Opp. 22 n 0.30616136 Node 281.48702
rms res. 2".03 (M-P) 1910-1989 e 0.1079434 Incl. 4.27193

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(710) Gertrud Obs. 118 M 63.79192 Peri. 103.49317
H 11.14 G 0.15 Opp. 22 n 0.17813335 Node 139.73943
rms res. 1".31 (M-P) 1911-1989 e 0.1366556 Incl. 1.75294

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(711) Marmulla Obs. 36 M 177.33157 Peri. 299.49824
H 12.10 G 0.25 Opp. 15 n 0.29427784 Node 356.72446
rms res. 1".87 (M-P) 1912-1988 e 0.1947595 Incl. 6.08291

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(715) Transvaalia Obs. 73 M 341.80784 Peri. 298.41198
H 9.97 G 0.15 Opp. 21 n 0.21401916 Node 45.81909
rms res. 1".97 (M-P) 1911-1986 e 0.0845031 Incl. 13.81801

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(716) Berkeley Obs. 78 M 41.60989 Peri. 55.28857
H 10.81 G 0.25 Opp. 20 n 0.20890545 Node 145.76374
rms res. 1".63 (M-P) 1906-1987 e 0.0848882 Incl. 8.49367

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(720) Bohlinia Obs. 128 M 265.84915 Peri. 114.80079
H 9.79 G 0.25 Opp. 36 n 0.20104944 Node 35.51571
rms res. 1".58 (M-P) 1901-1984 e 0.0185689 Incl. 2.36146

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(721) Tabora Obs. 68 M 270.10647 Peri. 359.14699
H 9.28 G 0.15 Opp. 21 n 0.14729712 Node 38.73682
rms res. 1".41 (M-P) 1931-1988 e 0.1195523 Incl. 8.33597

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(723) Hammonia Obs. 103 M 78.31366 Peri. 249.87882
H 9.99 G 0.15 Opp. 26 n 0.19017985 Node 163.05792
rms res. 1".59 (M-P) 1903-1988 e 0.0609777 Incl. 4.98794

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(728) Leonisis Obs. 79 M 100.06803 Peri. 54.57033
H 12.7 G 0.25 Opp. 10 n 0.29132363 Node 82.23608
rms res. 1".63 (M-P) 1912-1988 e 0.0877433 Incl. 4.25831

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(733) Mocia Obs. 85 M 14.23369 Peri. 193.93764
H 9.07 G 0.15 Opp. 17 n 0.15778910 Node 340.86088
rms res. 0".93 (M-P) 1909-1987 e 0.0717747 Incl. 20.25917

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(734) Benda Obs. 69 M 309.51470 Peri. 65.58155
H 10.03 G 0.15 Opp. 23 n 0.17596751 Node 2.90755
rms res. 1".54 (M-P) 1920-1988 e 0.0843096 Incl. 5.80861

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(741) Botolphia Obs. 64 M 103.80402 Peri. 62.23713
H 10.39 G 0.15 Opp. 23 n 0.21962571 Node 100.35964
rms res. 1".99 (M-P) 1909-1987 e 0.0670232 Incl. 8.42319

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(744) Aguntina Obs. 54 M 239.61897 Peri. 33.53782
H 10.19 G 0.15 Opp. 18 n 0.17495893 Node 142.22576
rms res. 1".46 (M-P) 1913-1987 e 0.1241622 Incl. 7.71639

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(749) Malzovia Obs. 48 M 2.03475 Peri. 128.41093
H 11.85 G 0.25 Opp. 18 n 0.29327962 Node 109.36621
rms res. 1".47 (M-P) 1913-1987 e 0.1727021 Incl. 5.39350

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(750) Oskar Obs. 68 M 171.04117 Peri. 70.58124
H 12.13 G 0.15 Opp. 18 n 0.25794390 Node 69.48190
rms res. 1".63 (M-P) 1913-1987 e 0.1312525 Incl. 3.94740

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(756) Lilliana Obs. 64 M 96.80832 Peri. 8.03637
H 10.1 G 0.25 Opp. 16 n 0.17229528 Node 207.57744
rms res. 1".56 (M-P) 1931-1986 e 0.1444251 Incl. 20.36621

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(757) Portlandia Obs. 61 M 119.78631 Peri. 43.63033
H 10.36 G 0.25 Opp. 22 n 0.26969249 Node 22.02733
rms res. 1".26 (M-P) 1917-1987 e 0.1087759 Incl. 8.17561

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(758) Mancunia Obs. 146 M 68.93165 Peri. 319.27716
H 8.39 G 0.15 Opp. 35 n 0.17290167 Node 105.77403
rms res. 1".48 (M-P) 1914-1988 e 0.1504461 Incl. 5.60577

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(767) Bondia Obs. 86 M 17.52858 Peri. 262.07543
H 10.41 G 0.15 Opp. 24 n 0.17900432 Node 79.73673
rms res. 1".70 (M-P) 1902-1985 e 0.1839313 Incl. 2.42097

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(769) Tatjana Obs. 53 M 252.45250 Peri. 255.76876
H 8.84 G 0.15 Opp. 24 n 0.17351247 Node 38.15375
rms res. 1".51 (M-P) 1914-1987 e 0.1737952 Incl. 7.34767

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(784) Pickeringia Obs. 43 M 306.13933 Peri. 239.20005
H 9.13 G 0.15 Opp. 19 n 0.17987248 Node 14.52969
rms res. 1".78 (M-P) 1914-1985 e 0.2337672 Incl. 12.25713

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(785) Zwetana Obs. 65 M 182.79424 Peri. 128.97073
H 9.58 G 0.25 Opp. 24 n 0.23904622 Node 71.90065
rms res. 1".87 (M-P) 1930-1986 e 0.2078898 Incl. 12.70600

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(787) Moskva Obs. 86 M 249.77902 Peri. 124.66074
H 10.2 G 0.25 Opp. 28 n 0.24372481 Node 183.67372
rms res. 1".49 (M-P) 1915-1983 e 0.1288565 Incl. 14.84984

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(789) Lena Obs. 45 M 122.49276 Peri. 42.27060
H 11.09 G 0.15 Opp. 14 n 0.22395305 Node 232.36420
rms res. 1".14 (M-P) 1940-1988 e 0.1460313 Incl. 10.78002

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(798) Ruth Obs. 85 M 346.87472 Peri. 51.30238
H 9.64 G 0.24 Opp. 25 n 0.18837917 Node 214.07441
rms res. 1".90 (M-P) 1914-1987 e 0.0407798 Incl. 9.23384

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(799) Gudula Obs. 53 M 6.28079 Peri. 237.67590
H 10.35 G 0.15 Opp. 23 n 0.24334338 Node 164.33132
rms res. 2".09 (M-P) 1907-1989 e 0.0227889 Incl. 5.27679

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(800) Kressmannia Obs. 62 M 343.20712 Peri. 346.95952
H 11.60 G 0.25 Opp. 20 n 0.30359496 Node 324.69886
rms res. 1".68 (M-P) 1912-1986 e 0.2024086 Incl. 4.26274

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(803) Picka Obs. 48 M 263.34298 Peri. 73.03772
H 9.69 G 0.15 Opp. 18 n 0.17228355 Node 250.92585
rms res. 1".11 (M-P) 1915-1989 e 0.0622336 Incl. 8.68174

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(809) Lundia Obs. 79 M 271.66367 Peri. 195.71588
H 12.08 G 0.25 Opp. 17 n 0.28577792 Node 154.10488
rms res. 1".86 (M-P) 1915-1987 e 0.1928973 Incl. 7.14980

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(813) Baumeia Obs. 73 M 255.85664 Peri. 314.95712
H 12.27 G 0.25 Opp. 17 n 0.29732681 Node 51.51196
rms res. 1".80 (M-P) 1907-1988 e 0.0261821 Incl. 6.29456

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(817) Annika Obs. 79 M 27.31429 Peri. 285.16501
H 10.80 G 0.15 Opp. 19 n 0.23645884 Node 125.17771
rms res. 1".21 (M-P) 1916-1989 e 0.1781702 Incl. 11.36409

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(818) Kapteynia Obs. 65 M 188.52622 Peri. 299.35922
H 9.35 G 0.15 Opp. 23 n 0.17495946 Node 70.55929
rms res. 1".37 (M-P) 1916-1985 e 0.0982359 Incl. 15.66742

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(821) Fanny Obs. 67 M 6.64311 Peri. 33.22585
H 11.84 G 0.15 Opp. 16 n 0.21325034 Node 209.42678
rms res. 1".88 (M-P) 1916-1987 e 0.2097868 Incl. 5.38391

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(822) Lalage Obs. 83 M 80.87529 Peri. 246.60065
H 12.18 G 0.15 Opp. 20 n 0.29102123 Node 209.54885
rms res. 1".44 (M-P) 1916-1987 e 0.1551038 Incl. 0.71647

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(823) Sisigambis Obs. 70 M 258.48451 Peri. 218.29517
H 11.46 G 0.25 Opp. 21 n 0.29770983 Node 254.58772
rms res. 2".06 (M-P) 1924-1987 e 0.0899551 Incl. 3.64665

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(831) Stateira Obs. 36 M 156.14708 Peri. 224.44497
H 12.4 G 0.25 Opp. 9 n 0.29962941 Node 177.59979
rms res. 1".99 (M-P) 1916-1987 e 0.1461438 Incl. 4.84075

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(833) Monica Obs. 45 M 44.03359 Peri. 38.53385
H 11.1 G 0.25 Opp. 13 n 0.18858262 Node 352.81276
rms res. 1".10 (M-P) 1924-1989 e 0.1170096 Incl. 9.77759

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(837) Schwarzschilda Obs. 53 M 82.92881 Peri. 172.78105
H 11.9 G 0.25 Opp. 16 n 0.28280038 Node 199.59891
rms res. 1".57 (M-P) 1923-1988 e 0.0405104 Incl. 6.73427

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(840) Zenobia Obs. 40 M 213.81033 Peri. 2.40565
H 9.4 G 0.25 Opp. 13 n 0.17668444 Node 272.99411
rms res. 1".42 (M-P) 1916-1986 e 0.0856476 Incl. 9.92538

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(849) Ara Obs. 77 M 224.82075 Peri. 63.21904
H 8.19 G 0.25 Opp. 32 n 0.17476092 Node 228.09198
rms res. 1".20 (M-P) 1919-1988 e 0.1843909 Incl. 19.44386

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(850) Altona Obs. 81 M 71.95168 Peri. 132.02904
H 9.53 G 0.15 Opp. 17 n 0.18997422 Node 120.98947
rms res. 2".04 (M-P) 1922-1988 e 0.1317163 Incl. 15.50608

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Sumzina
(855) Newcombia Obs. 31 M 159.42730 Peri. 232.93718
H 12.05 G 0.25 Opp. 15 n 0.27181398 Node 16.87023
rms res. 1".67 (M-P) 1916-1989 e 0.1809529 Incl. 10.90186

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(875) Nymphe Obs. 78 M 293.31740 Peri. 116.71014
H 11.75 G 0.25 Opp. 15 n 0.24161500 Node 195.80612
rms res. 1".34 (M-P) 1917-1987 e 0.1493501 Incl. 14.60606

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(897) Lysistrata Obs. 81 M 323.81903 Peri. 22.33657
H 10.40 G 0.25 Opp. 24 n 0.24326662 Node 257.44891
rms res. 1".87 (M-P) 1918-1989 e 0.0933829 Incl. 14.31432

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(898) Hildegard Obs. 68 M 17.82319 Peri. 48.44802
H 12.3 G 0.25 Opp. 11 n 0.21832333 Node 241.66812
rms res. 1".19 (M-P) 1918-1989 e 0.3688920 Incl. 10.15495

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(900) Rosalinde Obs. 24 M 218.53296 Peri. 120.71309
H 11.94 G 0.25 Opp. 14 n 0.25321236 Node 182.09031
rms res. 1".88 (M-P) 1918-1987 e 0.1602919 Incl. 11.56377

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(902) Probitas Obs. 75 M 290.62493 Peri. 27.30880
H 12.4 G 0.25 Opp. 12 n 0.25749135 Node 352.57049
rms res. 0".97 (M-P) 1918-1987 e 0.1777936 Incl. 6.35924

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(904) Rockefellia Obs. 60 M 278.34849 Peri. 255.11539
H 10.2 G 0.25 Opp. 19 n 0.19029272 Node 197.71736
rms res. 1".87 (M-P) 1918-1988 e 0.0865940 Incl. 15.15949

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(905) Universitas Obs. 75 M 312.50492 Peri. 342.52983
H 11.80 G 0.25 Opp. 23 n 0.29875363 Node 36.75696
rms res. 1".94 (M-P) 1918-1989 e 0.1529112 Incl. 5.32193

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(906) Repsolda Obs. 97 M 280.64481 Peri. 293.35518
H 9.98 G 0.15 Opp. 28 n 0.20025930 Node 39.95744
rms res. 1".34 (M-P) 1916-1987 e 0.0858282 Incl. 11.79731

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(907) Rhoda Obs. 32 M 72.67680 Peri. 87.01636
H 9.64 G 0.15 Opp. 15 n 0.21040351 Node 42.82844
rms res. 1".60 (M-P) 1901-1983 e 0.1607606 Incl. 19.58443

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(910) Anneliese Obs. 80 M 15.07891 Peri. 205.98286
H 10.17 G 0.15 Opp. 22 n 0.19723569 Node 49.74738
rms res. 1".43 (M-P) 1919-1989 e 0.1567864 Incl. 9.25590

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(915) Cosette Obs. 46 M 253.92818 Peri. 38.94195
H 11.97 G 0.25 Opp. 14 n 0.29637863 Node 8.89109
rms res. 1".70 (M-P) 1921-1986 e 0.1393694 Incl. 5.54630

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(918) Itha Obs. 61 M 239.77766 Peri. 14.87238
H 10.84 G 0.15 Opp. 21 n 0.20345807 Node 330.24072
rms res. 1".86 (M-P) 1919-1987 e 0.1900135 Incl. 12.08868

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(920) Rogeria Obs. 56 M 176.16461 Peri. 268.27836
H 11.19 G 0.15 Opp. 20 n 0.23197714 Node 192.51635
rms res. 2".17 (M-P) 1919-1987 e 0.1029195 Incl. 11.59955

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(921) Jovita Obs. 43 M 256.67288 Peri. 69.90680
H 10.03 G 0.15 Opp. 16 n 0.17276957 Node 204.71133
rms res. 1".55 (M-P) 1919-1987 e 0.1645452 Incl. 16.29303

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(922) Schlutia Obs. 56 M 62.00309 Peri. 125.71385
H 11.94 G 0.15 Opp. 16 n 0.22354925 Node 204.98097
rms res. 2".33 (M-P) 1906-1988 e 0.1928592 Incl. 7.28768

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(927) Ratisbona Obs. 61 M 74.55548 Peri. 152.72018
H 9.31 G 0.15 Opp. 23 n 0.16935579 Node 7.93775
rms res. 1".91 (M-P) 1924-1984 e 0.0792203 Incl. 14.45525

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(928) Hildrun Obs. 50 M 246.16151 Peri. 25.30383
H 10.10 G 0.15 Opp. 20 n 0.17782433 Node 129.37992
rms res. 1".81 (M-P) 1920-1985 e 0.1514634 Incl. 17.66512

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(929) Algunde Obs. 79 M 311.89997 Peri. 22.59364
H 12.42 G 0.25 Opp. 22 n 0.29427446 Node 230.90127
rms res. 2".13 (M-P) 1920-1988 e 0.1128136 Incl. 3.91104

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(930) Westphalia Obs. 40 M 106.48784 Peri. 328.43479
H 11.4 G 0.25 Opp. 15 n 0.26006342 Node 340.57562
rms res. 1".84 (M-P) 1920-1988 e 0.1438818 Incl. 15.28864

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(932) Hooveria Obs. 92 M 25.39584 Peri. 48.40167
H 10.05 G 0.15 Opp. 19 n 0.26174658 Node 14.77412
rms res. 1".56 (M-P) 1920-1988 e 0.0906882 Incl. 8.12039

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(934) Thuringia Obs. 41 M 97.04026 Peri. 64.08855
H 10.3 G 0.25 Opp. 13 n 0.21626120 Node 325.21070
rms res. 1".28 (M-P) 1934-1986 e 0.2173405 Incl. 14.10502

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(937) Bethgea Obs. 55 M 37.62773 Peri. 71.57379
H 11.70 G 0.25 Opp. 22 n 0.29574299 Node 243.30258
rms res. 3".04 (M-P) 1916-1987 e 0.2179932 Incl. 3.69808

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(939) Isberga Obs. 57 M 318.84631 Peri. 5.50714
H 12.06 G 0.25 Opp. 17 n 0.29265816 Node 326.67026
rms res. 1".56 (M-P) 1920-1989 e 0.1775329 Incl. 2.58670

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(943) Begonia Obs. 53 M 184.04477 Peri. 2.61435
H 9.73 G 0.25 Opp. 21 n 0.17747223 Node 113.70312
rms res. 1".76 (M-P) 1920-1989 e 0.1982883 Incl. 12.02300

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(947) Monterosa Obs. 89 M 191.96516 Peri. 338.08156
H 10.17 G 0.15 Opp. 24 n 0.21616936 Node 48.05849
rms res. 1".92 (M-P) 1906-1986 e 0.2509140 Incl. 6.71228

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(948) Jucunda Obs. 32 M 67.21685 Peri. 161.21107
H 11.42 G 0.15 Opp. 10 n 0.18577317 Node 357.10264
rms res. 2".40 (M-P) 1921-1987 e 0.1528592 Incl. 8.60887

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(955) Alstede Obs. 61 M 236.31013 Peri. 282.19146
H 11.5 G 0.25 Opp. 19 n 0.23581033 Node 351.08076
rms res. 1".85 (M-P) 1921-1988 e 0.2923013 Incl. 10.66026

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(958) Asplinda Obs. 52 M 249.54792 Peri. 95.49707
H 10.73 G 0.15 Opp. 13 n 0.12456306 Node 343.17790
rms res. 1".91 (M-P) 1921-1987 e 0.1896142 Incl. 5.64426

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(964) Subamara Obs. 28 M 333.54088 Peri. 8.75869
H 10.94 G 0.15 Opp. 13 n 0.18461205 Node 30.48497
rms res. 2".33 (M-P) 1905-1988 e 0.1098249 Incl. 9.03930

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(968) Petunia Obs. 66 M 343.94954 Peri. 296.04229
H 10.05 G 0.25 Opp. 23 n 0.20305492 Node 208.67232
rms res. 1".83 (M-P) 1921-1984 e 0.1393097 Incl. 11.55389

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(979) Ilsewa Obs. 100 M 36.15988 Peri. 106.46277
H 10.03 G 0.15 Opp. 17 n 0.17598796 Node 231.37336
rms res. 0".87 (M-P) 1922-1988 e 0.1421637 Incl. 10.03556

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(982) Franklina Obs. 47 M 216.46749 Peri. 351.14555
H 10.27 G 0.15 Opp. 13 n 0.18193302 Node 298.93200
rms res. 1".02 (M-P) 1937-1988 e 0.2255671 Incl. 13.62470

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(990) Yerkes Obs. 102 M 253.52801 Peri. 8.60768
H 11.61 G 0.15 Opp. 17 n 0.22613248 Node 353.73149
rms res. 1".01 (M-P) 1913-1989 e 0.2167023 Incl. 8.78166

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(996) Hilaritas Obs. 65 M 187.14344 Peri. 148.62756
H 11.00 G 0.25 Opp. 20 n 0.18089958 Node 347.62695
rms res. 1".15 (M-P) 1928-1988 e 0.1314174 Incl. 0.66049

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(997) Priska Obs. 40 M 153.52304 Peri. 51.04443
H 11.9 G 0.25 Opp. 8 n 0.22575515 Node 246.94956
rms res. 1".19 (M-P) 1923-1985 e 0.1817283 Incl. 10.49507

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(998) Bodea Obs. 20 M 37.23737 Peri. 69.82209
H 11.0 G 0.25 Opp. 7 n 0.17796142 Node 301.36055
rms res. 1".31 (M-P) 1923-1989 e 0.1981456 Incl. 15.56129

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(999) Zachia Obs. 58 M 318.81772 Peri. 127.78203
H 10.79 G 0.15 Opp. 22 n 0.23339739 Node 214.58930
rms res. 1".48 (M-P) 1923-1989 e 0.2170293 Incl. 9.76672

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1000) Piazzia Obs. 40 M 337.66634 Peri. 281.67732
H 10.2 G 0.25 Opp. 14 n 0.17326567 Node 323.36384
rms res. 1".93 (M-P) 1923-1986 e 0.2473904 Incl. 20.53933

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1001) Gaussia Obs. 70 M 240.61263 Peri. 139.45095
H 9.73 G 0.15 Opp. 22 n 0.17238684 Node 259.14244
rms res. 1".52 (M-P) 1933-1986 e 0.1441045 Incl. 9.34929

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1005) Arago Obs. 36 M 302.31149 Peri. 53.07362
H 9.73 G 0.15 Opp. 13 n 0.17474113 Node 349.14942
rms res. 1".84 (M-P) 1923-1988 e 0.1094432 Incl. 19.16423

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1009) Sirene Obs. 43 M 260.52318 Peri. 184.94814
H 14.1 G 0.25 Opp. 5 n 0.23130535 Node 229.14828
rms res. 1".21 (M-P) 1923-1988 e 0.4540310 Incl. 15.76082

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1010) Marlene Obs. 75 M 142.57493 Peri. 278.17624
H 10.76 G 0.15 Opp. 23 n 0.19656426 Node 98.55105
rms res. 1".43 (M-P) 1903-1986 e 0.1061156 Incl. 3.91154

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1015) Christa Obs. 39 M 331.61745 Peri. 272.54188
H 9.10 G 0.15 Opp. 20 n 0.17143802 Node 120.67609
rms res. 1".18 (M-P) 1924-1988 e 0.0791847 Incl. 9.46359

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1016) Anitra Obs. 81 M 135.44044 Peri. 52.58340
H 12.22 G 0.25 Opp. 16 n 0.29818278 Node 8.42684
rms res. 1".32 (M-P) 1924-1987 e 0.1279633 Incl. 6.03946

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1017) Jacqueline Obs. 39 M 284.44983 Peri. 66.19957
H 11.1 G 0.25 Opp. 18 n 0.23412578 Node 118.60176
rms res. 2".33 (M-P) 1928-1987 e 0.0758133 Incl. 7.94834

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1018) Arnolda Obs. 102 M 339.26888 Peri. 342.64056
H 11.01 G 0.15 Opp. 13 n 0.24356292 Node 359.21855
rms res. 0".59 (M-P) 1924-1985 e 0.2493608 Incl. 7.67295

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1021) Flammario Obs. 75 M 355.73801 Peri. 286.08915
H 8.89 G 0.04 Opp. 22 n 0.21742187 Node 115.36197
rms res. 1".39 (M-P) 1929-1984 e 0.2836910 Incl. 15.83562

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1038) Tuckia Obs. 26 M 194.94674 Peri. 306.78385
H 10.82 G 0.15 Opp. 9 n 0.12541669 Node 57.72746
rms res. 1".03 (M-P) 1924-1986 e 0.2301235 Incl. 9.22724

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1041) Asta Obs. 39 M 217.35117 Peri. 338.92902
H 10.01 G 0.15 Opp. 17 n 0.18324438 Node 59.99546
rms res. 1".41 (M-P) 1906-1987 e 0.1485605 Incl. 13.93969

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1047) Geisha Obs. 73 M 258.75944 Peri. 299.45046
H 12.00 G 0.25 Opp. 20 n 0.29379736 Node 77.87584
rms res. 1".75 (M-P) 1916-1987 e 0.1925457 Incl. 5.66349

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(1054) Forsytia Obs. 37 M 29.87209 Peri. 294.15493
H 10.49 G 0.15 Opp. 20 n 0.19735022 Node 85.75377
rms res. 1".75 (M-P) 1925-1987 e 0.1337783 Incl. 10.86056

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1055) Tynka Obs. 42 M 47.10569 Peri. 175.85320
H 12.10 G 0.25 Opp. 16 n 0.30243965 Node 146.68492
rms res. 1".20 (M-P) 1928-1985 e 0.2081050 Incl. 5.27534

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1181) Lilith Obs. 54 M 292.25807 Peri. 155.01117
H 11.5 G 0.25 Opp. 16 n 0.22646886 Node 260.41464
rms res. 0".96 (M-P) 1950-1988 e 0.1935434 Incl. 5.57617

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1197) Rhodesia Obs. 35 M 108.38085 Peri. 276.93143
H 10.15 G 0.15 Opp. 11 n 0.20142676 Node 255.49515
rms res. 0".89 (M-P) 1942-1986 e 0.2351343 Incl. 12.95243

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1343) Nicole Obs. 64 M 101.81333 Peri. 234.85923
H 11.42 G 0.15 Opp. 21 n 0.23932099 Node 40.81918
rms res. 1".14 (M-P) 1935-1986 e 0.1119915 Incl. 6.02452

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1357) Khama Obs. 30 M 194.26848 Peri. 287.24845
H 11.03 G 0.15 Opp. 8 n 0.17398299 Node 83.37125
rms res. 1".10 (M-P) 1935-1985 e 0.1619345 Incl. 14.00053

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1384) Kniertje Obs. 39 M 244.17731 Peri. 274.74808
H 11.7 G 0.25 Opp. 12 n 0.22481796 Node 152.71552
rms res. 1".07 (M-P) 1934-1986 e 0.1802666 Incl. 11.84529

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1413) Roucarie Obs. 60 M 108.88572 Peri. 292.42372
H 11.41 G 0.25 Opp. 13 n 0.18759738 Node 178.64528
rms res. 1".08 (M-P) 1937-1990 e 0.0607524 Incl. 10.20638

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1415) Malautra Obs. 84 M 21.45616 Peri. 240.17942
H 12.43 G 0.25 Opp. 21 n 0.29722768 Node 328.80308
rms res. 1".28 (M-P) 1905-1990 e 0.0861465 Incl. 3.42580

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1416) Renauxa Obs. 78 M 157.24455 Peri. 61.68820
H 10.47 G 0.25 Opp. 20 n 0.18825630 Node 352.58871
rms res. 0".99 (M-P) 1919-1987 e 0.1105717 Incl. 10.04712

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
(1620) Geographos Obs. 570 M 136.20805 Peri. 276.63413
H 15.82 G 0.25 Opp. 14 n 0.70974247 Node 336.69072
rms res. 0".95 (M-P) 1951-1986 e 0.3355387 Incl. 13.31978

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1674) Groeneveld Obs. 101 M 171.65297 Peri. 350.85089
H 11.05 G 0.15 Opp. 18 n 0.17285839 Node 95.55421
rms res. 0".94 (M-P) 1938-1989 e 0.1364998 Incl. 2.68058

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1736) Floirac Obs. 62 M 309.09354 Peri. 248.58690
H 12.2 G 0.25 Opp. 11 n 0.29620842 Node 159.32850
rms res. 0".83 (M-P) 1957-1988 e 0.1689580 Incl. 4.55145

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1794) Finsen Obs. 23 M 275.88803 Peri. 334.85064
H 11.08 G 0.15 Opp. 9 n 0.17898697 Node 221.17917
rms res. 1".13 (M-P) 1950-1989 e 0.1647975 Incl. 14.55844

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1826) Miller Obs. 33 M 213.88273 Peri. 160.33352
H 11.84 G 0.15 Opp. 10 n 0.18974190 Node 273.99776
rms res. 0".95 (M-P) 1940-1986 e 0.0782865 Incl. 9.20944

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(1836) Komarov Obs. 21 M 72.60557 Peri. 11.40184
H 11.5 G 0.25 Opp. 8 n 0.21219671 Node 272.58572
rms res. 0".97 (M-P) 1952-1988 e 0.1917280 Incl. 7.00808

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1838) Ursa	Obs. 31	M	23.66203	Peri.	80.96795
H 10.8 G 0.25	Opp. 10	n	0.17127967	Node	43.85605
rms res. 0".95 (M-P)	1951-1989	e	0.0283831	Incl.	22.02856
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1893) Jakoba	Obs. 30	M	178.54885	Peri.	242.72989
H 11.3 G 0.25	Opp. 10	n	0.22087621	Node	64.23686
rms res. 1".05 (M-P)	1952-1987	e	0.0524899	Incl.	10.03102
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1897) Hind	Obs. 27	M	235.96535	Peri.	268.60409
H 13.79 G 0.25	Opp. 9	n	0.28580439	Node	63.03070
rms res. 0".88 (M-P)	1957-1988	e	0.1428819	Incl.	4.05552
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1898) Cowell	Obs. 84	M	168.74315	Peri.	233.87919
H 12.2 G 0.25	Opp. 9	n	0.17956216	Node	163.14052
rms res. 0".69 (M-P)	1960-1988	e	0.1737525	Incl.	1.02392
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1899) Crommelin	Obs. 20	M	77.41255	Peri.	127.81156
H 12.7 G 0.25	Opp. 8	n	0.28909654	Node	51.71738
rms res. 1".35 (M-P)	1949-1988	e	0.1057176	Incl.	7.27462
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1911) Schubart	Obs. 58	M	357.09411	Peri.	185.87797
H 10.11 G 0.15	Opp. 14	n	0.12344808	Node	285.19329
rms res. 0".83 (M-P)	1928-1989	e	0.1641787	Incl.	1.65492
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1914) Hartbeespoortdam	Obs. 31	M	95.21214	Peri.	158.40350
H 12.5 G 0.25	Opp. 12	n	0.26437934	Node	120.20214
rms res. 0".97 (M-P)	1930-1988	e	0.1501594	Incl.	5.68717
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1925) Franklin-Adams	Obs. 27	M	280.95775	Peri.	241.83064
H 12.2 G 0.25	Opp. 8	n	0.24177694	Node	113.24552
rms res. 1".16 (M-P)	1934-1987	e	0.1782144	Incl.	7.72138
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1931) 1969 QB	Obs. 28	M	74.98672	Peri.	162.43864
H 13.4 G 0.25	Opp. 6	n	0.24332728	Node	182.11611
rms res. 0".87 (M-P)	1969-1985	e	0.2713139	Incl.	8.19961
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1967) Menzel	Obs. 43	M	170.19571	Peri.	347.06623
H 12.15 G 0.25	Opp. 8	n	0.29541623	Node	57.36870
rms res. 1".02 (M-P)	1905-1987	e	0.1391284	Incl.	3.90080
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(1973) Colocolo	Obs. 32	M	305.65473	Peri.	163.26241
H 11.7 G 0.25	Opp. 8	n	0.17407310	Node	183.09161
rms res. 0".88 (M-P)	1968-1983	e	0.0943201	Incl.	10.62303
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Bowell	
(2021) Poincare	Obs. 22	M	146.68937	Peri.	163.81595
H 13.6 G 0.25	Opp. 8	n	0.28049875	Node	154.55836
rms res. 0".87 (M-P)	1936-1982	e	0.2184690	Incl.	5.48566

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2165) Young Obs. 63 M 359.97002 Peri. 23.61812
H 11.5 G 0.25 Opp. 12 n 0.17718708 Node 18.99414
rms res. 0".93 (M-P) 1929-1989 e 0.1598912 Incl. 0.95151

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2166) Handahl Obs. 28 M 48.87415 Peri. 135.62011
H 14.3 G 0.25 Opp. 6 n 0.27435541 Node 163.51898
rms res. 0".99 (M-P) 1929-1986 e 0.2188239 Incl. 5.12629

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2222) Lermontov Obs. 25 M 106.23254 Peri. 337.64391
H 11.6 G 0.25 Opp. 9 n 0.17991561 Node 94.65037
rms res. 1".06 (M-P) 1933-1987 e 0.1798989 Incl. 2.58370

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2244) Tesla Obs. 26 M 12.33407 Peri. 296.96405
H 12.2 G 0.25 Opp. 8 n 0.20901874 Node 106.30080
rms res. 0".91 (M-P) 1938-1989 e 0.1785455 Incl. 7.82329

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2246) Bowell Obs. 38 M 87.27077 Peri. 27.96601
H 10.71 G 0.15 Opp. 8 n 0.12567028 Node 155.29000
rms res. 0".82 (M-P) 1973-1988 e 0.0967418 Incl. 6.49652

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2365) Interkosmos Obs. 79 M 139.61848 Peri. 209.07702
H 11.96 G 0.15 Opp. 10 n 0.24276779 Node 282.42988
rms res. 0".98 (M-P) 1959-1989 e 0.1155131 Incl. 5.32878

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2408) Astapovich Obs. 19 M 354.89045 Peri. 101.98966
H 12.6 G 0.25 Opp. 6 n 0.23032807 Node 164.28143
rms res. 1".07 (M-P) 1943-1986 e 0.2443969 Incl. 17.67766

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2524) Budovicium Obs. 40 M 270.13803 Peri. 23.26971
H 11.08 G 0.15 Opp. 10 n 0.17925015 Node 278.15107
rms res. 1".27 (M-P) 1948-1987 e 0.1575002 Incl. 0.28918

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2648) Owa Obs. 17 M 332.78607 Peri. 130.95531
H 13.02 G 0.25 Opp. 5 n 0.29199913 Node 279.51879
rms res. 1".25 (M-P) 1926-1988 e 0.1740344 Incl. 4.79452

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2707) Ueferji Obs. 125 M 149.39328 Peri. 344.14868
H 11.6 G 0.25 Opp. 11 n 0.17408204 Node 79.48893
rms res. 0".88 (M-P) 1950-1990 e 0.1414852 Incl. 2.68292

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2747) 1980 DW Obs. 39 M 217.60120 Peri. 301.21314
H 11.5 G 0.25 Opp. 8 n 0.17942065 Node 344.93521
rms res. 1".19 (M-P) 1975-1988 e 0.1138539 Incl. 5.82801

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2779) Mary Obs. 33 M 296.63636 Peri. 122.03081
H 13.53 G 0.25 Opp. 8 n 0.29948622 Node 79.84004
rms res. 1".25 (M-P) 1968-1989 e 0.0628391 Incl. 3.89193

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2850) 1978 TM7 Obs. 24 M 358.27124 Peri. 343.41974
H 12.0 G 0.25 Opp. 5 n 0.25706429 Node 105.63384
rms res. 0".90 (M-P) 1938-1985 e 0.0491537 Incl. 7.85464

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Filenko
(2876) Aeschylus Obs. 24 M 335.08387 Peri. 97.15763
H 12.68 G 0.15 Opp. 4 n 0.23497096 Node 2.49213
rms res. 1".47 (M-P) 1960-1983 e 0.1197472 Incl. 14.86521

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2944) 1935 QF Obs. 23 M 285.40647 Peri. 152.86832
H 12.6 G 0.25 Opp. 7 n 0.22858162 Node 194.47664
rms res. 1".10 (M-P) 1935-1989 e 0.1657740 Incl. 10.66563

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(2990) Trimberger Obs. 29 M 230.83855 Peri. 317.57020
H 13.3 G 0.25 Opp. 4 n 0.25866274 Node 171.37879
rms res. 0".71 (M-P) 1977-1985 e 0.1223565 Incl. 2.79013

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3059) Pryor Obs. 43 M 33.81376 Peri. 241.32018
H 13.63 G 0.25 Opp. 8 n 0.28843123 Node 180.98747
rms res. 0".92 (M-P) 1950-1989 e 0.1291835 Incl. 2.36317

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3068) Khanina Obs. 21 M 80.14901 Peri. 132.49045
H 13.3 G 0.25 Opp. 8 n 0.29603651 Node 21.10047
rms res. 0".95 (M-P) 1955-1988 e 0.1021814 Incl. 6.44214

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3109) 1974 DC Obs. 48 M 9.37137 Peri. 257.48596
H 11.7 G 0.25 Opp. 11 n 0.25672518 Node 22.25116
rms res. 0".71 (M-P) 1924-1987 e 0.0877508 Incl. 7.17815

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3286) Anatoliya Obs. 17 M 144.08155 Peri. 77.92673
H 13.06 G 0.15 Opp. 4 n 0.23028319 Node 107.10189
rms res. 1".06 (M-P) 1978-1985 e 0.1052529 Incl. 13.40550

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3344) Modena Obs. 44 M 45.94454 Peri. 206.29731
H 12.9 G 0.25 Opp. 4 n 0.26249445 Node 77.56237
rms res. 1".09 (M-P) 1982-1987 e 0.1198345 Incl. 9.44567

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3389) Sinzot Obs. 43 M 231.87273 Peri. 267.39940
H 12.6 G 0.25 Opp. 6 n 0.21339382 Node 149.84668
rms res. 0".65 (M-P) 1964-1989 e 0.1377951 Incl. 7.06743

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3631) Sigyn Obs. 41 M 83.13264 Peri. 148.84658
H 10.4 G 0.25 Opp. 9 n 0.18124158 Node 150.78481
rms res. 0".86 (M-P) 1952-1989 e 0.0808824 Incl. 14.39848

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3672) Stevedberg Obs. 16 M 175.48154 Peri. 31.62758
H 13.4 G 0.25 Opp. 5 n 0.30555495 Node 13.76050
rms res. 0".81 (M-P) 1964-1987 e 0.1393625 Incl. 6.29590

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(3970) 1979 ME9 Obs. 40 M 278.23395 Peri. 303.76589
H 12.6 G 0.25 Opp. 5 n 0.24117985 Node 21.42122
rms res. 0".81 (M-P) 1963-1989 e 0.1327306 Incl. 15.17227

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
(4324) 1981 YA1 Obs. 26 M 102.02162 Peri. 108.87170
H 11.3 G 0.25 Opp. 8 n 0.24282764 Node 292.28484
rms res. 1".04 (M-P) 1924-1989 e 0.2013944 Incl. 7.78090

(4462)* 1952 HJ2 = 1952 HC4 = 1952 JQ = 1984 FC2
Discovered 1952 Apr. 24 at the McDonald Observatory.
Id. S. Nakano (MPC 13050)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 7.49543 (1950.0) P Q
n 0.18286384 Peri. 201.99993 -0.17793043 +0.98393118
a 3.0740965 Node 57.75367 -0.90016223 -0.15665269
e 0.1456720 Incl. 1.00533 -0.39755343 -0.08567015
P 5.39 H 11.9 G 0.25
Residuals in seconds of arc

520418	760	0.8+	0.0		890130	046	1.0+	0.2-	890207	400	0.2-	1.8-
520418	760	0.0	0.6+		890130	046	0.3-	1.4-	890309	801	1.0+	2.4+
520424	711	1.7-	2.1-	Y	890131	046	0.7+	0.1+	900221	801	0.7-	0.8+
520514	760	(5.0- | 1.4+)		890131	046	0.2+	0.2-	900221	801	0.6-	1.6+
520514	760	0.4+	0.1+		890202	046	2.8-	0.6+	900226	801	0.0	1.2+
840330	095	3.3+	3.0+		890204	071	(4.6- | 1.9+)	900322	801	0.6+	1.4-
840403	095	1.4-	0.6+		890205	071	(4.4- | 2.8+)	900324	801	0.0	2.5-
890129	046	0.7+	0.9-		890207	400	0.4+	0.3-				
890129	046	1.9-	1.1-		890207	400	(7.1- | 0.5+)				

(4463)* 1954 UO2 = 1974 HA2 = 1988 TF3
Discovered 1954 Oct. 28 at the Goethe Link Observatory.
Id. H. Oishi (MPC 14612), S. Nakano (ibid.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
M 105.01438 (1950.0) P Q
n 0.17347374 Peri. 255.12862 +0.60771876 -0.79405670
a 3.1840525 Node 157.43284 +0.74037686 +0.56088616
e 0.1821959 Incl. 1.84020 +0.28726297 +0.23426625
P 5.68 H 12.7 G 0.25
Residuals in seconds of arc (or two decimals in units of degrees)

541028	760	0.6+	0.1+		760916	413	0.4+	0.7-	881111	071	1.2-	0.7+
541028	760	2.4+	1.0+		881015	071	0.9+	0.1+	881112	071	0.2+	1.2+
541116	760	1.3-	0.6+		881015	071	0.8-	1.3+	881112	071	0.1+	0.4+
541116	760	1.7-	1.4-		881016	071	(0.05+ | 0.04-)	891230	413	0.1-	0.4+
541117	760	0.1+	0.2-		881103	413	0.7+	0.1+	891230	413	0.0	0.2+
541117	760	0.3-	0.2+		881103	413	1.0+	0.1+	891231	413	0.1+	1.3-
740424	805	(2.3- | 5.7-)		881111	071	0.4-	1.8-	891231	413	0.2-	0.4+
740425	805	0.1+	0.5-		881111	071	0.1+	0.9-				
760916	413	0.6-	0.1+		881111	071	0.4-	1.7-				

(4464)* 1966 TE = 1955 SA1 = 1985 TE
Discovered 1966 Oct. 11 by N. S. Chernykh at the Crimean Astrophysical Observatory.
Id. T. Kobayashi (MPC 11625)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	349.15025	(1950.0)	P	Q
n	0.36126901	Peri. 313.91351	+0.81197172	+0.57980800
a	1.9524604	Node 11.23183	-0.38544558	+0.61915535
e	0.0681372	Incl. 20.20259	-0.43833051	+0.52959355
P	2.73	H 13.9	G 0.25	

Residuals in seconds of arc

550918	760	0.3-	1.4+	851011	675	1.0-	1.0+	870331	887	0.6-	0.9+
550918	760	1.6+	2.3-	851011	675	0.6-	0.4-	870404	887	0.2+	0.9-
661011	095	(6.7-	7.5+)	851013	675	1.3+	0.1-	870404	887	2.1+	0.2+
661013	095	(7.2+	5.0-)	870327	688	(4.7-	2.0-)	870427	801	1.4+	1.2+
661017	095	4.6-	2.7+	870327	688	1.2-	1.6-				
661020	095	3.7+	2.6-	870331	887	1.9-	0.1+				

(4465)* 1969 TD5 = 1975 GJ1 = 1982 AC

Discovered 1969 Oct. 14 by B. A. Burnasheva at the Crimean Astrophysical Observatory.

Id. S. Nakano (MPC 11145)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	111.18111	(1950.0)	P	Q
n	0.25897267	Peri. 63.27778	-0.40610282	-0.91274681
a	2.4376242	Node 50.75392	+0.81667261	-0.38431237
e	0.1314755	Incl. 3.28869	+0.41003213	-0.13855420
P	3.81	H 13.5	G 0.25	

Residuals in seconds of arc

691014	095	(7.7+	2.9+)	820116	046	1.1-	0.7+	900317	046	0.7-	0.9+
691015	095	3.9-	1.6-	820116	046	(1.1+	5.7+)	900318	046	0.4-	0.2-
691017	095	2.9+	0.6-	820118	046	0.6-	1.2-	900318	046	0.3+	0.4+
750415	805	0.7+	0.7-	820118	046	0.4+	0.9-	900319	046	1.6-	0.2+
750420	805	0.6+	0.4-	881017	071	0.6-	1.1+	900319	046	0.0	0.7-
820115	046	1.2+	0.5+	881017	071	1.4+	0.5+				
820115	046	1.2+	0.8+	900317	046	0.5+	0.2+				

(4466)* 1971 SX1 = 1972 YQ = 1973 AY = 1979 FT3 = 1980 NM = 1981 TN3 = 1988 AD1

Discovered 1971 Sept. 23 at the Crimean Astrophysical Observatory.

Id. S. Nakano (MPC 11637; unpublished), C. M. Bardwell (d, MPC 6840)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	294.32098	(1950.0)	P	Q
n	0.19532482	Peri. 194.66864	+0.99610822	-0.08792460
a	2.9419216	Node 170.36932	+0.08410799	+0.92742680
e	0.0314785	Incl. 2.10279	+0.02634887	+0.36352276
P	5.05	H 12.1	G 0.25	

Residuals in seconds of arc

710923	095	1.3-	0.3+	800712	805	1.5+	0.5+	811022	095	2.4+	2.4+
711010	095	0.8-	2.3-	800712	805	0.2+	1.6+	811024	095	2.1+	1.3+
711011	095	1.1-	1.5-	800712	805	0.2+	1.5+	861006	095	2.1-	1.3-
721229	095	3.2+	0.2+	800712	805	0.1-	0.2+	861010	095	(0.0	5.5-)
730101	095	0.5-	1.4-	800713	805	0.0	1.2-	861010	095	(29.4+	8.3+)
790331	095	1.0-	0.6-	800713	805	0.3-	0.4-	880111	033	0.6-	1.1+
800711	805	0.7-	1.0-	811007	095	(5.1-	2.0-)	880111	033	0.8-	1.4+

(4467)* 1975 VN2 = 1988 VE

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

Id. T. Kobayashi (MPC 13852)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M 141.19868	(1950.0)	P	Q
n 0.23010262	Peri. 39.66504	+0.29590210	-0.94549179
a 2.6374749	Node 33.76872	+0.80244158	+0.16882527
e 0.1495005	Incl. 14.15913	+0.51819828	+0.27846598
P 4.28	H 11.9	G 0.25	

Residuals in seconds of arc

751102 095	0.2-	1.7+	881015 071	1.4+	0.0	881110 046	0.8+	1.3-
751107 095	0.2+	0.6+	881017 071	2.2+	0.5+	881110 046	1.1+	1.1-
751109 381	1.9-	1.9+	881103 897	0.8-	0.8+	900221 801	0.7+	1.1+
751109 381	0.6-	1.7+	881103 897	1.1-	0.3-	900221 801	0.5+	1.1+
751128 381	0.3-	0.8-	881104 046	0.1+	1.7-	900227 801	0.2+	0.5+
751128 381	0.0	1.3-	881104 046	0.3-	1.9-	900227 801	0.1+	0.6+
860404 095	3.3-	3.0-	881105 046	0.6-	0.9-	900319 376	1.6+	0.6-
881015 071	0.9+	0.7+	881105 046	0.1+	1.2-	900319 376	0.1-	0.0
881015 071	0.7-	1.1+	881107 897	0.2+	0.4+			
881015 071	0.3-	0.4+	881107 897	0.1+	0.2-			

(4468)* 1976 SZ3 = 1974 DF2 = 1978 ED3 = 1979 OL3 = 1980 WR2

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

Id. S. Nakano (MPC 10756)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M 246.71224	(1950.0)	P	Q
n 0.27167553	Peri. 50.14703	-0.15475054	-0.98792231
a 2.3610347	Node 48.75713	+0.90316221	-0.14468930
e 0.1643976	Incl. 0.59895	+0.40043763	-0.05544835
P 3.63	H 13.9	G 0.25	

Residuals in seconds of arc

740216 879	0.8-	1.6+ Y	790724 675	1.0-	2.6+	850222 675	0.0	0.8-
740216 879	0.4-	1.7+ Y	790724 413	1.3-	0.4+	850223 675	0.5+	0.9-
760924 095	0.7+	0.7-	790725 675	0.5+	2.1+	871021 399	1.7-	0.2-
760929 095	2.3+	1.0-	801130 095	3.2+	2.4+	871021 399	1.2-	1.0-
780306 095	0.2+	0.8-	801210 095	2.2-	0.6+	871021 399	1.0+	0.3+

(4469)* 1978 PS4 = 1974 RD = 1981 EP5

Discovered 1978 Aug. 1 at Perth.

Id. S. Nakano (MPC 9473), O. Kippes (unpublished)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M 322.26925	(1950.0)	P	Q
n 0.23856822	Peri. 20.06491	+0.96173425	+0.24720639
a 2.5747060	Node 324.93977	-0.27095852	+0.79425718
e 0.1898671	Incl. 11.86791	-0.04060429	+0.55501759
P 4.13	H 13.9	G 0.25	

Residuals in seconds of arc

740911 095	0.2+	0.2-	810302 413	2.5-	0.0	810408 413	2.3+	0.2+
780801 323	1.8+	0.7-	810307 413	1.8-	0.5+	810409 413	0.7-	0.4-
780801 323	0.5+	0.2+	810307 413	1.3+	0.2+	810409 413	0.5+	0.3-
780806 323	(3.9-	0.8+)	810310 413	1.8-	0.4+	810430 413	0.2-	1.1-
780806 323	2.6-	1.0+	810310 413	1.2+	0.7+	810502 413	0.2+	1.7-
780811 323	(6.0+	3.0-)	810312 413	1.8-	0.9+	890302 413	0.5+	0.4-
810209 413	0.5+	0.5+	810312 413	1.6+	0.6-	890302 413	0.1+	0.2+
810214 413	1.3+	0.2+	810407 413	0.0	0.7+	890304 413	0.4-	0.3+
810301 413	0.6+	0.7-	810407 413	(4.7+	1.7-)			
810301 413	(3.2+	1.2-)	810408 413	0.8-	0.2+			

(4470)* 1978 QP1 = 1973 UF2 = 1979 XU1 = 1984 UJ4

Discovered 1978 Aug. 31 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. T. Kobayashi (MPC 14344), S. Nakano

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	92.45085	(1950.0)	P	Q
n	0.17800724	Peri. 195.02689	+0.70603694	+0.70720149
a	3.1297593	Node 119.90317	-0.64520870	+0.66398330
e	0.1711201	Incl. 2.45420	-0.29192048	+0.24288316
P	5.54	H 12.0	G 0.25	

Residuals in seconds of arc

731026	095	0.3-	0.6+	841020	095	0.3+	0.8-	890929	801	0.8-	0.7-
780831	095	0.4+	1.3+	890806	801	0.7-	1.3+	891029	801	0.5+	0.3-
780905	095	0.7-	2.6+	890826	801	1.2+	0.1+	891030	801	0.3+	0.2-
780927	095	0.1-	2.5-	890928	801	0.1+	0.8-				
791214	095	0.0	0.8+	890929	801	0.1-	0.8-				

(4471)* 1978 VB = 1980 DV2 = 1985 DB4

Discovered 1978 Nov. 8 by P. Wild at Zimmerwald.

Id. S. J. Bus (k, MPC 11836), C. M. Bardwell (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M	181.34997	(1950.0)	P	Q
n	0.20397061	Peri. 42.05997	+0.88342452	-0.46458194
a	2.8581893	Node 345.26678	+0.33982939	+0.72491388
e	0.1619994	Incl. 13.88518	+0.32260984	+0.50858971
P	4.83	H 12.4	G 0.25	

Residuals in seconds of arc

781108	026	0.5-	0.5+	850220	675	1.1-	0.1-	900302	809	0.3+	0.3-
781124	026	0.6+	0.3+	850222	675	2.5-	0.4-	900304	809	1.9+	1.4+
781124	026	1.9-	0.5+	881210	801	0.0	1.0-	900304	809	1.7+	1.6+
781202	026	0.1+	1.4+	881213	801	0.2-	0.0	900304	809	1.4+	1.6+
781202	026	0.0	0.2+	900302	809	0.2+	0.6+				
800220	095	1.2-	3.3-	900302	809	0.5+	0.3+				

(4472)* 1980 TY14 = 1980 VY1 = 1970 WW = 1975 EM3 = 1985 FK

Discovered 1980 Oct. 15 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (d, MPC 9203), T. Furuta (MPC 10153), W. Landgraf (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Oishi

M	351.42090	(1950.0)	P	Q
n	0.29386586	Peri. 42.66071	+0.67694600	-0.73598446
a	2.2406290	Node 4.75647	+0.64490732	+0.58758027
e	0.1462297	Incl. 5.83156	+0.35473744	+0.33626820
P	3.35	H 13.7	G 0.25	

Residuals in seconds of arc

701125	017	2.8-	0.3+	750314	095	1.0+	1.4-	850320	046	(5.6-	1.4-)
701125	017	0.2+	1.1+	801015	095	0.5-	1.0-	850320	046	3.2-	1.6+
701125	017	0.0	0.1+	801017	095	0.0	1.0-	880111	877	2.3+	1.9- Y
701125	017	2.9-	1.2+	801106	330	2.2+	0.8+	880111	877	1.2-	3.5- Y
701126	017	2.2+	2.0+	801110	330	0.4-	1.1-	880112	033	0.1-	0.6-
701126	017	1.1+	0.8+	850315	046	(5.3+	1.9-)	880112	033	0.9-	0.2-
701126	095	(0.1-	6.4-)	850315	046	3.3+	2.3+	880116	801	0.9-	1.6+

(4473)* 1981 DE2 = 1979 YO9 = 1988 PM

Discovered 1981 Feb. 28 by S. J. Bus at Siding Spring in the course of the U.K. Schmidt-Caltech Asteroid Survey.

Id. H. Oishi (JAM 1952), S. Nakano (MPC 13604)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	346.83484	(1950.0)	P	Q
n	0.18773337	Peri. 176.73311	-0.71983548	-0.68694462
a	3.0207056	Node 319.27174	+0.63331852	-0.59113776
e	0.0417373	Incl. 8.79116	+0.28415582	-0.42268575
P	5.25	H 12.5	G 0.25	

Residuals in seconds of arc

791225	095	0.1- 0.4-	810312	413	0.2- 0.1-	860316	413	0.4- 0.9+
810209	413	0.9- 0.7-	810407	413	0.4- 0.7+	880813	413	1.8+ 0.2+
810212	413	1.2- 0.1+	810407	413	2.3+ 0.1-	880814	413	1.3+ 0.5-
810228	413	2.5- 0.5-	810408	413	0.0 0.0	880816	413	1.0- 0.7-
810228	413	0.3+ 0.1+	810408	413	0.6+ 0.3+	880819	413	0.1- 0.6-
810306	413	1.2- 0.2-	810409	413	0.5- 0.1-	880820	413	(3.6- 0.2-)
810306	413	0.5+ 0.8-	810409	413	1.2+ 0.2-	881009	413	1.4- 0.1+
810308	413	1.1- 0.6+	810501	413	2.0+ 0.8-	881009	413	0.0 0.3+
810308	413	0.8+ 0.3+	810503	413	0.6+ 0.0	881011	413	0.9- 1.6+
810312	413	1.3- 0.3-	860316	413	1.4+ 0.7+			

(4474)* 1981 QZ2 = 1982 VK3

Discovered 1981 Aug. 24 by H. Debehogne at the European Southern Observatory.

Id. K. Hurukawa (MPC 8384)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M	247.63298	(1950.0)	P	Q
n	0.17243112	Peri. 158.36680	+0.33505027	+0.94181495
a	3.1968747	Node 131.19798	-0.86957686	+0.32010763
e	0.1565137	Incl. 2.05205	-0.36273599	+0.10254610
P	5.72	H 12.6	G 0.25	

Residuals in seconds of arc

810824	809	1.7+ 0.3-	810828	809	0.4- 0.0	810903	809	0.4- 0.5+
810824	809	1.8+ 1.0-	810828	809	0.9- 0.6-	810905	809	1.4- 0.6+
810824	809	2.1+ 0.2-	810828	809	0.9- 0.1+	810905	809	1.1- 0.3+
810825	809	0.7- 0.9-	810828	809	0.3- 0.0	810905	809	1.3- 0.3-
810825	809	0.6- 1.3-	810828	809	0.5+ 0.3-	810906	809	1.4- 0.1+
810825	809	0.6- 1.3-	810831	809	(0.2- 3.0+)	810906	809	1.0- 0.1-
810825	809	0.9- 0.1+	810831	809	0.3+ 1.2+	810906	809	1.1- 0.5-
810825	809	0.4- 0.0	810831	809	0.4+ 0.3-	810907	809	1.1- 0.1+
810825	809	0.3+ 0.1+	810901	809	0.2- 0.8+	810907	809	0.8- 0.2+
810826	809	1.1+ 0.2+	810901	809	0.0 0.5+	810907	809	1.2- 0.1-
810826	809	0.7+ 0.1+	810901	809	0.1+ 0.4+	810930	413	1.1- 0.5+
810826	809	1.1+ 0.3+	810901	809	0.2- 0.3+	810930	413	0.6+ 0.6-
810826	809	0.3- 1.1-	810901	809	0.1- 0.2+	821114	381	0.1+ 0.5+
810826	809	0.6+ 0.6-	810901	809	0.1+ 0.1-	821114	381	1.8+ 0.8+
810826	809	1.1+ 0.4-	810902	809	0.8+ 0.3-	821213	381	1.1- 0.4-
810827	809	0.9+ 0.4+	810902	809	0.9+ 0.3-	821213	381	0.6- 0.2+
810827	809	0.5+ 0.2+	810902	809	0.7+ 0.0	821214	381	0.2- 0.4+
810827	809	0.6+ 0.1-	810902	809	0.4- 0.1-	821214	381	0.7- 0.5+
810827	809	0.5+ 1.0+	810902	809	0.0 0.1-	881203	888	0.9+ 0.4+
810827	809	0.1+ 0.2+	810902	809	0.0 0.0	881203	888	2.3+ 0.4+
810827	809	0.2+ 0.6+	810903	809	0.1- 0.1-	881206	888	0.7- 1.8-
810828	809	0.1+ 0.1+	810903	809	0.2- 0.0	881206	888	2.1- 1.6-
810828	809	1.5+ 0.3-	810903	809	0.1+ 0.6-	891230	413	0.6+ 0.9+
810828	809	1.3+ 0.4+	810903	809	1.1- 0.7+	891230	413	0.4- 0.4-
810828	809	0.0 0.8+	810903	809	0.7- 0.8+			

(4475)* 1982 UQ5 = 1982 VA6 = 1933 FV = 1977 FT1

Discovered 1982 Oct. 20 by L. G. Karachkina at the Crimean Astrophysical Observatory.

Id. S. Nakano (d, MPC 11332), T. Furuta (MPC 12007), H. Oishi (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M	46.86820	(1950.0)	P	Q
n	0.29147639	Peri. 150.28901	-0.59412708	-0.80422188
a	2.2528579	Node 336.15093	+0.73019552	-0.53115796
e	0.0681067	Incl. 2.19663	+0.33738332	-0.26664280
P	3.38	H 13.6	G 0.25	

Residuals in seconds of arc

330323	024	0.5+ 0.5+	821021	095	0.9- 1.7-	891028	801	0.2+ 0.3-
330327	024	0.3- 0.1+	821108	095	1.0+ 0.8-	891028	801	(4.1+ 1.6-)
770326	095	0.3- 0.6-	821109	095	1.3- 0.0	891202	801	0.1- 0.5+
821020	095	1.1+ 0.1+	821114	095	0.1- 2.8+	891202	801	0.0 0.7-

(4476)* 1983 DE = 1978 YF = 1985 TC3

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

Id. C. M. Bardwell (MPC 11151)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M	90.78964	(1950.0)	P	Q
n	0.26761239	Peri. 344.72912	+0.18800183	-0.98042221
a	2.3848729	Node 94.40825	+0.90711964	+0.15047447
e	0.1893085	Incl. 3.36631	+0.37654917	+0.12700287
P	3.68	H 13.9	G 0.25	

Residuals in seconds of arc

781223	330	0.3+ 0.3+	830316	688	0.7- 0.5-	891225	494	2.2+ 2.0+
830219	688	1.7- 0.6-	851012	026	1.5- 1.0-	891228	494	0.8- 0.6-
830219	688	1.3+ 0.7+	851013	026	0.2- 0.6-	891229	801	0.4- 0.1+
830309	688	0.5+ 0.6-	851014	026	2.0+ 0.3+	891229	801	1.0- 0.1-
830309	688	1.0- 1.1-	870402	801	2.4- 0.5-			
830316	688	(5.2+ 2.5+)	870427	801	3.6+ 1.6+			

(4477)* 1983 SB = 1957 YE = 1973 SE2 = 1976 KR2

Discovered 1983 Sept. 28 at the Bulgarian National Observatory.

Id. S. Nakano (MPC 15883)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M	59.28026	(1950.0)	P	Q
n	0.29794693	Peri. 126.56048	+0.98487151	+0.16962400
a	2.2201217	Node 223.70505	-0.17081238	+0.91586328
e	0.1609033	Incl. 2.93988	-0.02917587	+0.36389855
P	3.31	H 14.4	G 0.25	

Residuals in seconds of arc

571222	330	0.0 1.7-	830928	071	0.2- 0.2-	830930	071	0.3- 0.4-
730922	095	(2.7+ 5.7+)	830929	071	(3.8- 2.6-)	830930	071	1.3+ 0.4-
760529	413	0.3- 0.1+	830929	071	2.4- 1.3-	831005	071	1.7- 0.9-
760529	413	0.4- 0.9+	830929	071	2.8+ 0.8-	831005	071	1.3+ 0.9+
760530	413	0.4- 0.5+	830929	071	1.5+ 0.2+	831109	071	0.7+ 1.0-
760530	413	0.8+ 1.0+	830929	071	(2.1- 2.5-)	831109	071	(3.5+ 5.7+)
830903	095	(0.3- 5.2+)	830929	071	0.0 0.9-	831110	071	0.0 1.7+
830912	675	2.4+ 1.1+	830930	071	1.4- 0.4-	890429	675	0.7+ 1.2-
830913	675	2.3+ 1.5+	830930	071	1.8+ 1.9+	890429	675	0.2+ 2.3-
830928	071	2.5- 1.6-	830930	071	(21.4- 8.3+)	890503	675	1.5- 1.1-
830928	071	1.7- 1.2-	830930	071	1.6- 0.8-	890503	675	0.3- 1.0-
830928	071	(5.9+ 0.7-)	830930	071	1.2- 0.3+			

(4478)* 1984 HG1 = 1951 RN = 1978 TT1 = 1988 QN

Discovered 1984 Apr. 23 by W. Ferreri and V. Zappala at the European Southern Observatory.

Id. S. Nakano (MPC 13856; unpublished), R. H. McNaught (ibid.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	283.64392		(1950.0)		P		Q
n	0.29239348	Peri.	4.61445		+0.02008475		+0.99816710
a	2.2481447	Node	266.54393		-0.91907287		-0.00404458
e	0.1341856	Incl.	3.27865		-0.39357548		+0.06038283
P	3.37	H	14.2	G	0.25		

Residuals in seconds of arc

510904	024	1.1+ 2.2-	880810	413	0.4- 0.2-	880910	809	0.5- 0.2-
781008	095	1.2- 1.6+	880819	413	1.6+ 0.2+	880913	809	0.8- 0.6+
840423	809	0.7- 0.9+	880820	413	1.0+ 0.2-	880913	809	0.7- 0.7+
840423	809	0.8+ 0.2-	880906	809	1.6- 0.4-	880913	809	0.7- 0.6+
840424	809	1.0- 0.2+	880906	809	1.1- 0.6-	880917	809	0.7+ 0.4+
840424	809	0.9- 0.1+	880906	809	0.6- 0.7-	880917	809	0.8+ 0.2+
840425	809	0.8- 1.1+	880908	809	0.8+ 0.7+	880917	809	0.8+ 0.0
840425	809	0.5- 0.9+	880908	809	1.1+ 0.8+	891229	511	0.9- 0.2+
840430	809	1.9+ 0.9-	880908	809	1.2+ 0.7+	891229	511	1.0+ 0.5+
840430	809	1.8+ 0.6-	880910	809	0.3- 0.4+			
880810	413	1.5- 0.8-	880910	809	0.3- 0.0			

(4479)* 1985 CP1 = 1972 HZ = 1987 SW28

Discovered 1985 Feb. 10 by H. Debehogne at the European Southern Observatory.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	29.11650		(1950.0)		P		Q
n	0.21540490	Peri.	55.45413		-0.84292735		+0.53680642
a	2.7561256	Node	156.94772		-0.51894987		-0.79342252
e	0.0981354	Incl.	5.30835		-0.14200185		-0.28691388
P	4.58	H	12.4	G	0.25		

Residuals in seconds of arc

720419	095	0.1- 0.4-	850217	809	0.1+ 0.0	850222	809	0.6- 0.6-
850210	809	0.1+ 1.0+	850217	809	0.6+ 0.0	850222	809	0.6- 0.6-
850210	809	0.6+ 1.0+	850217	809	0.5+ 0.1+	850224	809	0.6+ 0.3-
850210	809	0.9+ 1.0+	850218	809	0.2+ 0.7-	850224	809	0.7+ 0.5-
850211	809	0.6- 0.4-	850218	809	0.2+ 0.6-	850224	809	0.8+ 0.5-
850211	809	0.5- 0.1-	850218	809	0.5+ 0.5-	850225	809	0.1+ 0.0
850211	809	0.0 0.3-	850219	809	0.7- 1.1+	850225	809	0.0 0.4+
850213	809	1.1- 0.6+	850219	809	0.7- 0.5+	850225	809	0.3+ 0.3+
850213	809	0.9- 0.3+	850219	809	0.5- 0.2+	870924	095	0.7+ 1.0+
850213	809	0.9- 0.1-	850220	809	0.2- 0.9+	870927	095	0.7- 1.0-
850215	809	0.6+ 0.6-	850220	809	0.3- 0.7+	900221	801	0.3- 0.2+
850215	809	0.4+ 0.7-	850220	809	0.1- 0.5+	900221	801	0.6- 0.4+
850215	809	0.6+ 0.7-	850221	809	0.4- 0.3+	900226	801	0.1- 0.4+
850216	809	0.3+ 0.3-	850221	809	0.6- 0.1-	900226	801	(2.5- 0.2-)
850216	809	0.8+ 0.6-	850221	809	0.5- 0.4-	900327	801	0.7+ 0.2-
850216	809	1.1+ 0.6-	850222	809	0.6- 0.5-	900327	801	0.4+ 0.1-

(4480)* 1985 QM4 = 1936 VF = 1974 VD1 = 1983 CQ

Discovered 1985 Aug. 24 by N. S. Chernykh at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (MPC 14020), T. A. Vinogradova (unpublished)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden

M	90.77249		(1950.0)		P		Q
n	0.25985271	Peri.	350.03001		+0.76626624		-0.64091332
a	2.4321175	Node	49.92935		+0.59349078		+0.67891168
e	0.1696472	Incl.	3.40532		+0.24618031		+0.35820252
P	3.79	H	13.7	G	0.25		

Residuals in seconds of arc

361109	020	(18.1+ 12.3-)	361116	020	(22.2- 1.9-)	741117	095	0.1- 1.6+
361115	020	(86.8+ 1.4-)	741112	095	0.9- 3.2+	830215	688	1.0+ 0.5+

830215 688 0.9+ 0.6+ 890929 801 1.5- 1.5- 891029 872 (3.5- 0.7-)Y
830219 688 3.2- 0.0 890929 801 0.2- 2.0- 891029 872 1.8+ 0.3+ Y
830219 688 1.1+ 1.4- 891021 364 0.8- 0.8+ 891030 807 0.6+ 0.2-
850813 095 2.4- 3.4+ 891021 364 1.2- 0.2- 891030 872 2.9- 0.3+ Y
850824 095 2.1+ 0.4+ 891026 364 2.1+ 2.1+ 891030 872 2.0- 1.7- Y
850911 095 (5.6- 2.3-) 891026 364 1.8+ 0.2- 891101 807 0.3+ 0.5-
850919 095 1.9- 0.2- 891028 364 2.7+ 1.2- 891119 364 (3.3+ 0.4-)
850920 095 0.7+ 0.4- 891028 364 1.9+ 1.2- 891119 364 0.4- 0.6-

(4481)* 1985 RR = 1953 VL2 = 1977 HO = 1978 TR8
Discovered 1985 Sept. 14 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.
Id. S. Nakano (MPC 10944), L. D. Schmadel (ibid.), S. J. Bus (ibid.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M 159.35442		(1950.0)	P	Q
n 0.27545146	Peri.	264.44927	+0.98872140	+0.14749418
a 2.3394081	Node	87.06710	-0.12502507	+0.90840148
e 0.2448458	Incl.	1.49121	-0.08245436	+0.39121890
P 3.58	H 14.2	G 0.25		

Residuals in seconds of arc
531109 024 0.6+ 0.1- 850822 688 1.1+ 0.4- 851012 688 1.8- 0.4+
770424 675 0.6+ 0.8+ 850822 688 0.7+ 0.9- 851012 688 0.3- 0.2+
770425 675 0.5- 1.1+ 850914 688 1.2+ 0.4+ 900103 511 1.1- 1.1-
781009 095 (4.0- 1.2+) 850914 688 0.2- 0.4- 900103 511 1.0+ 1.0-
781028 675 1.2- 0.9+ 850918 688 0.4+ 0.2+ 900104 511 (3.4- 0.8-)
781029 675 1.1- 1.0+ 850918 688 0.3- 0.1+ 900104 511 1.4+ 0.3+

(4482)* 1986 RB = 1977 DB
Discovered 1986 Sept. 1 by A. Maury at Palomar.
Id. L. D. Schmadel, G. V. Williams
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams

M 41.59673		(1950.0)	P	Q
n 0.27482501	Peri.	36.77513	+0.95817800	-0.21780486
a 2.3429618	Node	333.88167	+0.02323497	+0.70570897
e 0.2577927	Incl.	24.93904	+0.28522806	+0.67419277
P 3.59	H 12.8	G 0.25		

Residuals in seconds of arc
770216 801 1.2- 0.8- 860906 675 0.2- 0.6+ 870202 801 1.0- 0.8-
860809 095 1.0+ 2.9+ 860906 095 (5.2- 1.2+) 880215 801 0.7+ 0.1+
860812 095 (4.6- 5.1+) 860911 688 (6.1+ 2.4-) 880316 801 0.9+ 0.9+
860813 095 0.6- 0.6+ 860911 688 1.7+ 1.1+ 880711 413 0.9+ 0.5-
860829 095 (3.7- 3.7+) 860929 095 0.4+ 1.4- 890509 474 0.8+ 1.0+
860901 675 2.5- 0.8+ 860929 095 1.4- 1.2- 890509 474 0.3- 0.7+
860901 675 0.7+ 0.8- 861003 801 0.1+ 0.1+ 890513 474 (5.8- 0.8+)
860902 675 0.3+ 2.9- 861007 801 0.1- 0.1+ 890513 474 0.2- 0.9+
860902 675 1.1+ 1.4- 861030 801 0.3- 1.0+ 890604 474 0.3- 0.1-
860905 688 (4.6+ 6.3+) 861128 801 1.5- 1.5+ 890604 474 1.0- 1.0-
860905 688 1.4+ 0.5+ 861227 801 0.4- 0.3+
860906 675 1.1- 0.5+ 870129 801 0.5- 0.0

(4483)* 1986 RC2
Discovered 1986 Sept. 9 by L. G. Karachkina at the Crimean Astrophysical Observatory.
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M 176.91522		(1950.0)	P	Q
n 0.36978211	Peri.	185.97498	+0.98669541	-0.16007098
a 1.9223780	Node	183.62649	+0.16146672	+0.98526079
e 0.0837682	Incl.	26.73084	+0.01899101	-0.06031969
P 2.67	H 12.1	G 0.25		

Residuals in seconds of arc

860909	095	(1.6+	7.2-)	861227	801	0.2+	0.3+	880512 688	0.1-	0.6-
860913	095	0.3+	0.3+	880317	801	(3.8+	5.1-)	880512 688	0.9+	0.2+
860914	095	1.4+	0.7+	880317	400	0.2-	2.0+	891028 801	0.3+	0.1-
860916	095	0.5+	1.4+	880317	400	0.3+	0.2+	891028 801	0.4+	0.1-
860926	095	2.0-	0.2+	880318	675	0.6-	0.7-	891030 801	0.3+	0.2+
860929	095	0.2-	0.5-	880318	675	1.8-	0.3+	891030 801	0.2+	0.1-
861003	801	1.4+	1.1+	880322	675	1.2-	0.9-	891122 474	0.5-	0.5+
861003	095	1.0-	1.2-	880410	897	0.3-	0.8-	891122 474	0.8-	0.5+
861007	801	0.3+	0.6-	880410	897	1.2+	0.8-			
861030	801	1.3-	1.3-	880414	801	1.8+	1.8+			

(4484)* 1987 DD = 1964 VN2

Discovered 1987 Feb. 25 by P. Jensen at Brorfelde.

Id. G. V. Williams (MPC 16025), R. H. McNaught (1976 obs.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams

M	11.44455	(1950.0)	P	Q
n	0.23062885	Peri. 0.05215	+0.09281785	-0.86390495
a	2.6334614	Node 84.62902	+0.91329632	-0.12415392
e	0.1028354	Incl. 29.81568	+0.39657871	+0.48811273
P	4.27	H 12.3	G 0.25	

Residuals in seconds of arc

641111	330	0.0	0.3-	870301	054	(9.1+	6.5-)	890701 474	0.4+	1.4-
760702	413	0.1-	1.2+	870301	054	(8.0+	4.8-)	890701 474	0.4-	1.0-
760702	413	0.4+	0.3-	870317	675	0.2-	0.4-	890728 474	1.2-	1.1+
800519	413	0.4+	0.7-	870317	675	0.9-	0.5-	890728 474	0.8-	1.0+
800519	413	0.3+	0.5-	870430	801	0.0	0.7+	890803 413	0.8+	1.0-
800611	413	0.4-	1.7+	870508	675	0.4+	1.3-	890803 413	1.0+	1.2+
800611	413	0.3-	0.2-	870508	675	0.2+	1.1-	890803 413	1.9+	0.7-
870225	054	0.2-	0.4-	870509	675	0.7+	1.2-	890803 413	0.2-	2.0-
870225	054	1.4-	1.5+	870509	675	0.7+	1.3-	891104 474	1.0+	0.1-
870227	054	1.0+	0.4+	890629	474	1.2-	0.2-	891104 474	0.6+	0.1+
870227	054	0.2+	0.9+	890629	474	0.9-	0.3-			

(4485)* 1987 QQ11 = 1969 EN = 1971 QJ2 = 1974 CP = 1984 BE1

Discovered 1987 Aug. 27 by L. I. Chernykh at the Crimean Astrophysical Observatory.

Id. B. G. Marsden (MPC 15247)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden

M	115.09227	(1950.0)	P	Q
n	0.18898505	Peri. 135.76082	-0.04100331	-0.99168270
a	3.0073530	Node 316.15602	+0.86081824	+0.02692824
e	0.0728125	Incl. 10.14408	+0.50725801	-0.12585822
P	5.22	H 12.0	G 0.25	

Residuals in seconds of arc

690312	095	0.4-	1.4-	870902	095	1.2-	0.7+	900302 809	0.5+	0.3+
710819	808	0.4+	0.3+	870916	095	0.7-	0.5-	900302 809	0.5+	0.2+
740214	095	0.5-	0.0	870920	095	0.1+	0.2-	900304 809	0.4-	0.2-
740218	095	0.6-	0.3+	900224	809	0.4+	0.5+	900304 809	0.2-	0.6-
840124	381	0.7+	0.2+	900224	809	0.2+	0.2-	900304 809	0.3-	0.5-
840124	381	0.1+	0.0	900224	809	0.8-	0.5-			
870827	095	1.8+	1.3-	900302	809	0.6+	1.4+			

(4486)* 1987 SB = 1974 DN1

Discovered 1987 Sept. 22 by E. W. Elst, V. Shkodrov and V. Ivanova at the Bulgarian National Observatory.

Id. G. V. Williams (MPC 16233)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams

M 14.98487	(1950.0)	P	Q	
n 0.30219406	Peri. 168.39927	-0.33576929	+0.94048034	
a 2.1992711	Node 81.96437	-0.86836089	-0.28746447	
e 0.6619580	Incl. 3.03898	-0.36497720	-0.18127576	
P 3.26	H 15.4	G 0.25		

Residuals in seconds of arc

740216	095	0.4+	1.3+	871019	801	0.2-	2.5+	880114	688	0.3+	0.7+
870920	675	(3.4+	1.6+)	871019	675	0.0	0.6+	880115	688	0.5+	0.5+
870920	675	(4.7+	0.8+)	871022	413	1.5+	0.5-	880115	688	0.5+	0.3+
870922	071	0.6+	1.0-	871022	413	1.7+	0.0	891209	675	0.4+	0.6-
870923	071	2.0+	0.8-	871117	809	0.7-	0.3-	891209	675	0.0	0.2-
870923	071	(3.9-	2.8+)	871119	688	0.1+	0.6-	891209	675	0.3+	0.7-
870923	071	0.8-	0.6+	871119	688	0.1+	0.8-	891210	675	0.1-	0.4-
870924	071	(4.1-	0.3-)	871221	688	1.0-	0.1+	891210	675	0.1+	0.4-
870925	071	1.5-	2.4-	871221	688	0.1+	0.2+	891210	675	0.0	0.4-
870927	675	0.1-	0.0	871223	691	0.5-	0.5-	891210	675	0.2-	0.4-
870930	675	0.8-	1.0+	871223	691	0.2-	0.1+	900125	688	0.2-	0.3-
871017	675	1.0-	0.8+	871223	691	0.7-	0.1-	900125	688	0.4-	0.1+
871018	675	1.0-	1.6+	880114	688	0.3+	0.7+	900125	688	0.2-	0.4+

(4487)* 1987 UA

Discovered 1987 Oct. 17 by C. S. Shoemaker at Palomar.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M 126.97555	(1950.0)	P	Q	
n 0.43299209	Peri. 173.65097	+0.97953351	-0.18234426	
a 1.7304115	Node 197.56765	+0.17000197	+0.97619439	
e 0.2966097	Incl. 16.40266	+0.10776566	+0.11745249	
P 2.28	H 17.7	G 0.25		

Residuals in seconds of arc

870924	675	0.3+	1.3+	871118	474	0.2+	0.6+	890615	675	0.6+	0.5-
870924	675	1.3+	1.1+	871119	474	(3.6-	0.3-)	890615	675	0.3+	0.0
871017	675	0.8+	0.2-	871119	474	1.1+	1.0-	890615	675	0.2+	0.7-
871019	657	2.0-	2.5-	871222	691	1.7+	0.7-	890615	675	1.3+	0.5-
871019	675	0.1+	1.7-	871222	691	2.0+	0.6-	890715	675	0.5-	0.8+
871021	675	0.5-	0.6+	871222	691	0.8+	0.7-	890715	675	0.3-	0.2+
871116	691	0.7-	0.6+	880112	688	0.7+	1.5+	890715	675	1.4-	1.1-
871116	691	0.3-	0.8+	880121	691	0.9-	0.1-	890715	675	0.5-	0.2-
871116	691	0.6-	1.1+	880121	691	0.6-	0.6-				
871118	474	0.8-	1.1+	880121	691	2.6-	0.5-				

(4488)* 1987 UK = 1932 RF = 1974 SV2

Discovered 1987 Oct. 21 by K. Suzuki and T. Urata at Toyota.

Id. T. Kobayashi (MPC 12582)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M 333.37197	(1950.0)	P	Q	
n 0.30603691	Peri. 183.91133	+0.74494744	-0.66548954	
a 2.1808218	Node 217.94447	+0.61408442	+0.71137107	
e 0.1437676	Incl. 4.35176	+0.26067918	+0.22599749	
P 3.22	H 13.9	G 0.25		

Residuals in seconds of arc

320908	024	0.4+	0.8-	871022	095	0.7-	2.1-	871121	095	0.4+	1.2-
740920	095	0.5+	0.8+	871027	881	0.3+	1.3-	890403	809	0.6-	1.3-
740922	095	0.8-	0.7-	871027	881	0.0	0.8-	890403	809	0.7-	0.8-
870925	095	(8.2+	0.6-)	871027	095	(0.5+	2.9-)	890403	809	0.1+	1.6-
871021	881	(3.4+	1.6+)	871116	881	0.1-	1.6+	890405	809	0.5-	0.5+
871021	881	1.1+	0.3-	871116	881	0.1+	0.8+	890405	809	1.1-	0.5+

890405 809 1.3- 0.1+ 890408 809 1.0+ 0.7- 890410 809 0.6- 0.3-
890408 809 0.9+ 0.8- 890410 809 0.1+ 0.2+
890408 809 0.8+ 0.3- 890410 809 0.4+ 0.3-

(4489)* 1988 AK = 1980 KA1 = 1989 AQ1

Discovered 1988 Jan. 15 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Id. C. M. Bardwell (MPC 14354)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell

M	78.84238	(1950.0)	P	Q
n	0.08059125	Peri. 6.83067	-0.04261508	-0.92573461
a	5.3081612	Node 86.11294	+0.89785875	-0.20045121
e	0.0629530	Incl. 22.12518	+0.43821641	+0.32067856
P	12.23	H 9.0	G 0.25	

Residuals in seconds of arc

800517 095 0.8- 1.3- 890109 675 1.0- 0.2- 900128 675 1.0- 0.2+
880115 688 1.1+ 0.6- 890110 675 0.9+ 1.4- 900128 675 1.2- 0.1+
880115 688 1.0- 0.8- 890111 675 0.2+ 1.4- 900220 675 0.1+ 0.4-
880121 511 (4.3- 4.4+) 891229 801 0.1- 0.7+ 900220 675 0.2- 0.4+
880121 511 (4.2- 4.8+) 891229 801 0.1+ 0.4+ 900227 801 0.9+ 1.0+
880122 511 0.5+ 0.4+ 900128 801 0.5+ 0.4+ 900227 801 0.7+ 0.8+
880122 511 0.7- 1.3+ 900128 801 0.5+ 0.7+ 900326 675 0.8+ 1.4-

(4490)* 1988 ND

Discovered 1988 July 14 by E. F. Helin and B. Roman at Palomar.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bardwell

M	219.34334	(1950.0)	P	Q
n	0.36733308	Peri. 267.70491	+0.67023154	-0.67186470
a	1.9309129	Node 134.28005	+0.72337976	+0.68634528
e	0.0922180	Incl. 26.12581	-0.16586563	+0.27843848
P	2.68	H 12.9	G 0.25	

Residuals in seconds of arc

850619 675 2.5- 0.2- 880905 675 0.1+ 0.7+ 900228 675 1.3- 0.2+
850619 675 2.1+ 1.5+ 880907 675 0.9+ 0.1+ 900228 675 0.5- 0.8+
870303 675 0.9- 1.1+ 900123 801 1.1+ 0.5- 900322 675 1.3+ 0.5+
870303 675 0.0 3.2+ 900123 801 0.7+ 0.9- 900322 675 0.5+ 1.1+
880714 675 1.3+ 0.8- 900128 801 0.1- 0.8- 900324 675 1.5+ 0.4+
880715 675 0.8- 0.4+ 900128 801 0.5- 0.7- 900324 675 0.7+ 0.1-
880809 675 0.8+ 0.3+ 900221 801 0.1+ 0.0 900425 675 0.5+ 0.7+
880811 675 (7.0+ 1.3+) 900221 801 2.1- 1.3+ 900425 675 0.4+ 0.2-
880815 675 0.1- 0.4+ 900226 675 0.3- 0.9- 900428 675 0.6+ 0.8-
880817 675 1.7- 0.3+ 900226 675 2.8- 0.3- 900428 675 0.6+ 0.7-

(4491)* 1988 RP = 1980 BQ3 = 1985 VJ1

Discovered 1988 Sept. 7 by K. Endate and K. Watanabe at Kitami.

Id. T. Kobayashi (MPC 13692)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	210.26399	(1950.0)	P	Q
n	0.30762770	Peri. 71.31737	+0.90879595	-0.41461523
a	2.1732970	Node 313.14750	+0.35457876	+0.82648845
e	0.0292675	Incl. 3.67264	+0.21991777	+0.38080318
P	3.20	H 12.9	G 0.25	

Residuals in seconds of arc

800122 095 0.2+ 0.2- 880912 400 0.6+ 0.2- 881002 400 1.7- 1.0+
851107 688 2.4- 1.9- 880912 400 (0.1- 3.7+) 881002 400 1.1- 0.3+
851107 688 3.0+ 0.7- 880912 400 0.5+ 1.5+ 881004 400 2.7- 0.4-
880907 400 2.0+ 1.5+ 880913 400 1.5- 2.5+ 881004 400 0.4- 1.1+
880907 400 0.8+ 0.4- 880913 400 0.3+ 1.6+ 900127 801 0.4- 0.9-
880907 400 1.7+ 0.1+ 880917 095 2.7- 0.5+ 900221 801 0.4- 0.1+

900221 801 0.3- 0.2- 900302 400 0.2- 1.3+ 900316 400 (0.7- 4.0-)
900228 400 0.3- 2.9+ 900302 400 1.7+ 1.8+ 900327 400 0.6+ 0.2+
900228 400 0.9+ 2.5+ 900316 400 (0.1- 4.7-) 900327 400 2.2+ 0.1-

(4492)* 1988 SH = 1979 SZ10 = 1979 VF1 = 1981 EC
Discovered 1988 Sept. 17 by E. W. Elst at Haute Provence.
Id. S. Nakano (MPC 13859), N. S. Chernykh (d, ibid.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
M 138.11625 (1950.0) P Q
n 0.21436335 Peri. 52.54173 +0.73902446 -0.67321512
a 2.7650460 Node 349.69142 +0.56553863 +0.64012145
e 0.1806323 Incl. 8.02594 +0.36607227 +0.37017014
P 4.60 H 13.0 G 0.25
Residuals in seconds of arc
790929 095 0.6- 0.4- 880917 511 0.7- 1.9- 881009 046 0.1+ 0.2+
791114 095 0.1- 1.6+ 880917 511 1.3- 0.7+ 900221 046 0.4- 0.5-
810311 801 1.2- 0.8+ 880917 511 0.4- 0.6+ 900221 046 1.0- 0.4-
810312 801 1.3+ 0.8- 880918 511 (1.9- 2.1-) 900222 046 0.8+ 0.4-
880915 511 (1.0- 2.7-) 880918 511 (2.6+ 1.0-) 900222 046 0.5- 0.3-
880915 511 1.3+ 1.8- 880918 511 2.1+ 0.1+
880915 511 (3.4+ 1.3-) 881009 046 0.2+ 0.1+

(4493)* 1988 TG1 = 1941 WP = 1962 VH = 1962 WF1 = 1985 DH1
Discovered 1988 Oct. 14 by T. Kojima at the YGCO Chiyoda Station.
Id. S. Nakano (MPC 13860)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 110.81665 (1950.0) P Q
n 0.18777014 Peri. 155.81537 +0.49154869 -0.85674979
a 3.0203112 Node 264.40975 +0.77121042 +0.51150443
e 0.0801789 Incl. 9.02247 +0.40449274 +0.06590152
P 5.25 H 10.9 G 0.25
Residuals in seconds of arc
411116 062 0.1+ 0.5+ 881014 897 0.4+ 1.7- 900123 220 (2.3+ 3.4-)
411116 062 1.1- 0.8- 881016 897 0.3+ 0.8+ 900124 220 (2.4+ 4.1-)
621101 760 0.2+ 0.2+ 881016 897 0.8+ 0.7+ 900125 399 0.8+ 1.6-
621127 760 0.0 0.3+ 881016 897 1.0- 0.3- 900125 399 0.1- 0.4-
621127 760 1.6+ 1.6+ 881102 897 0.1+ 0.6- 900125 399 0.4+ 0.3+
850225 688 0.9- 0.5- 881102 897 0.7+ 0.0 900126 220 (3.5+ 4.3-)
850225 688 0.0 0.6- 891229 801 0.5+ 0.6+ 900126 220 (4.1+ 4.7-)
850318 688 0.1+ 0.7- 891229 801 0.0 0.5+ 900128 801 0.4+ 0.5+
850318 688 0.4- 0.6- 900123 399 0.5- 1.1+ 900128 801 0.3+ 0.7+
880915 095 0.7- 1.5- 900123 399 0.9- 0.7- 900130 220 (2.2- 3.5-)
880915 095 1.2- 0.7- 900123 399 0.6- 0.0 900130 220 (0.5+ 3.6-)
881014 897 0.6+ 0.2+ 900123 220 (3.1+ 3.3-)

(4494)* 1988 TK1 = 1972 GR = 1977 RN2 = 1981 UK14 = 1981 WG5 = 1985 YJ
Discovered 1988 Oct. 13 by S. Ueda and H. Kaneda at Kushiro.
Id. S. Nakano (MPC 13861)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 87.39190 (1950.0) P Q
n 0.27478871 Peri. 215.27871 -0.85958713 -0.50946508
a 2.3431681 Node 294.04677 +0.47816545 -0.77475669
e 0.1194244 Incl. 2.47510 +0.18018814 -0.37442944
P 3.59 H 13.2 G 0.25
Residuals in seconds of arc
720409 095 1.4+ 0.7+ 830410 095 0.5- 0.5- 881003 399 (4.2+ 0.6+)
770909 095 1.6- 0.3+ 851217 688 0.6+ 0.6- 881003 399 (4.1+ 0.3-)
811023 095 0.9- 2.9+ 851218 688 2.6- 0.0 881003 399 0.2+ 1.2+
811124 095 0.8- 0.7- 851218 688 1.4+ 0.6+ 881003 399 1.5+ 0.7-

881008	399	(3.3+	2.1+)	881016	399	0.3-	1.2-	900318	399	0.0	0.4-
881013	399	0.4+	0.8+	881018	399	(1.4+	3.6+)	900318	399	0.3+	0.9-
881013	399	0.4+	1.5+	881018	399	2.1+	0.6+	900325	801	0.2-	0.4-
881013	399	0.0	1.3-	881019	399	(0.1-	3.7-)	900325	801	1.1-	0.1-
881015	399	0.6-	0.7-	881019	399	1.8-	1.3-	900326	801	0.5-	0.0
881016	399	1.1+	2.3-	881019	399	(0.8-	3.0-)				
881016	399	1.2+	0.2-	900318	399	0.4+	0.2+				

(4495)* 1988 VS = 1972 TG3 = 1980 UO

Discovered 1988 Nov. 6 by M. Arai and H. Mori at Yorii.

Id. T. Kobayashi (MPC 14025)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	73.66444	(1950.0)	P	Q
n	0.12699521	Peri. 215.20365	+0.19382978	-0.97898293
a	3.9199256	Node 223.71815	+0.91977758	+0.20383319
e	0.1590771	Incl. 5.26539	+0.34123192	+0.00666657
P	7.76	H 11.4	G 0.25	

Residuals in seconds of arc

721005	095	0.9+	2.6+	881110	897	0.1-	0.2-	900121	875	0.7+	0.7+
721013	095	(2.0-	4.3+)	881111	888	0.7-	0.7+	900123	399	1.4-	0.3-
801017	095	3.0-	0.8-	881111	888	1.6+	0.6+	900123	399	1.4-	0.8-
870923	095	0.2-	0.4+	881112	888	0.2+	0.5+	900123	399	2.0+	0.6+
881103	875	0.2+	1.1- Y	881112	888	0.3-	0.2+	900125	399	0.9-	1.1-
881103	875	2.0+	0.3+ Y	881112	875	1.4-	0.9+	900125	399	0.3-	0.2-
881106	875	0.3+	1.0-	881112	875	0.4-	1.2+	900125	399	0.1-	0.1+
881106	875	0.8-	1.6-	881114	888	0.7-	0.8-	900217	875	1.5+	1.4+
881108	875	0.6+	1.3-	881114	888	0.2-	0.8-	900217	875	0.1-	0.7+
881108	875	0.2+	1.4-	881201	054	0.1+	1.1+				
881110	897	1.4+	0.7+	900121	875	0.4+	0.6+				

(4496)* 1988 XM1 = 1976 GY6 = 1985 DH3

Discovered 1988 Dec. 9 by T. Seki at Geisei.

Id. T. Kobayashi (MPC 14203)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	97.62772	(1950.0)	P	Q
n	0.20894530	Peri. 322.67990	-0.58042255	-0.81393912
a	2.8126411	Node 162.75622	+0.76578139	-0.55591436
e	0.0551580	Incl. 4.79012	+0.27692695	-0.16870783
P	4.72	H 12.7	G 0.25	

Residuals in seconds of arc

760404	095	0.0	0.2-	881213	372	2.4-	0.5-	900319	403	(3.9+	5.0-)Y
850220	675	0.1-	0.0	881214	372	0.3+	0.5-	900319	403	0.2-	1.6- Y
850222	675	0.2+	0.6+	881215	372	0.4+	2.8-	900320	372	(4.1+	4.4-)
881209	372	0.6-	2.4+	881216	372	2.9+	2.7-	900320	372	1.4+	0.1+
881209	372	1.4-	1.3+	881227	372	0.2+	0.7+	900418	372	1.1-	0.5+
881212	372	0.8-	0.7-	881227	372	1.5+	2.5+	900418	372	0.3-	0.7+

(4497)* 1989 AE1 = 1931 VG1 = 1967 GB1

Discovered 1989 Jan. 4 by K. Endate and K. Watanabe at Kitami.

Id. H. Kaneda (MPC 15562)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	222.26102	(1950.0)	P	Q
n	0.26066149	Peri. 301.51942	+0.81097344	-0.56018572
a	2.4270840	Node 93.07085	+0.57758569	+0.72045937
e	0.2677131	Incl. 9.73572	+0.09336414	+0.40881567
P	3.78	H 12.0	G 0.25	

Residuals in seconds of arc

311104	690	1.1-	0.5-	670411	033	(5.2-	0.0)	890104	400	0.8-	0.4+
311106	690	1.2+	0.6+	670411	033	0.0	0.5-	890104	400	0.3-	1.0+

890104 400 0.6- 2.2+ 890129 400 0.6+ 0.4- 900327 400 0.5+ 1.5+
890106 400 1.5+ 1.5- 890129 400 1.4+ 0.1+ 900330 400 0.3+ 0.8-
890106 400 0.4+ 0.1- 890129 400 0.6+ 0.5+ 900330 400 1.4+ 0.7-
890125 400 1.2- 0.4- 890130 400 1.5- 0.9- 900419 400 1.4- 0.6-
890125 400 1.0+ 0.1+ 890130 400 1.2- 1.4- 900419 400 0.3- 1.3-
890125 400 0.2+ 0.3+ 900327 400 0.2- 2.8+

(4498)* 1989 AG1 = 1966 UU = 1971 OO1

Discovered 1989 Jan. 5 by T. Seki at Geisei.

Id. T. Kobayashi (MPC 14357)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M 240.90863		(1950.0)	P	Q
n 0.19003336	Peri.	71.31495	+0.97904312	+0.13557494
a 2.9962829	Node	280.67411	-0.18807896	+0.88811728
e 0.1276629	Incl.	8.89609	+0.07810812	+0.43916640
P 5.19	H	11.3	G 0.25	

Residuals in seconds of arc

661020 095 0.4- 1.7- 890105 372 0.3+ 0.6- 890202 372 1.1- 0.7-
710729 095 1.5+ 0.4+ 890109 372 0.1- 0.8+ 900325 372 1.1- 0.5+
870923 095 0.7- 1.0+ 890109 372 1.0+ 0.7+ 900325 372 1.3+ 2.2+
870925 095 0.5- 0.8+ 890112 372 1.4+ 0.4- 900417 372 (3.4+ 0.2-)
871025 095 0.6- 2.5+ 890115 372 0.7- 0.5+ 900417 372 0.8+ 1.1+
890105 372 0.7- 1.5- 890202 372 0.0 0.8-

(4499)* 1989 AO3 = 1931 WA = 1987 SR26

Discovered 1989 Jan. 4 by R. H. McNaught at Siding Spring.

Id. T. Kobayashi (MPC 15893)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M 173.77647		(1950.0)	P	Q
n 0.17516875	Peri.	89.94763	+0.66952446	-0.73879492
a 3.1634790	Node	317.68089	+0.62788321	+0.61824701
e 0.1740719	Incl.	6.56171	+0.39686229	+0.26824001
P 5.63	H	12.3	G 0.25	

Residuals in seconds of arc

311212 024 0.1+ 0.3- 881229 413 1.4+ 1.7+ 890111 033 0.3+ 1.3+
740621 413 1.1- 0.4- 890104 413 1.5- 1.0- 890202 033 0.2+ 0.4+
850613 413 0.6+ 0.9- 890104 413 1.0+ 0.5- 900224 413 0.3+ 0.2+
870926 095 0.2+ 0.4- 890110 413 1.1- 1.0-
881229 413 2.1- 0.9- 890110 413 1.3+ 0.6-

(4500)* 1989 CL = 1931 TE1 = 1954 XG = 1965 WT = 1981 QK1 = 1981 QY1 = 1987 TF

Discovered 1989 Feb. 3 by S. Ueda and H. Kaneda at Kushiro.

Id. D. W. E. Green (MPC 15251)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 153.15409		(1950.0)	P	Q
n 0.17601718	Peri.	302.30407	+0.18566780	-0.98199788
a 3.1533052	Node	136.95223	+0.91774101	+0.16066452
e 0.1818437	Incl.	2.91815	+0.35111095	+0.09933318
P 5.60	H	11.7	G 0.25	

Residuals in seconds of arc

311006 024 2.1- 0.2+ 870918 095 0.3- 0.7+ 890131 046 1.1- 1.3+
311012 024 (8.3+ 10.8+) 870921 095 0.3- 1.4+ 890131 046 0.7+ 0.8-
311016 024(11.8- 7.6-) 871014 046 1.4- 1.1- 890202 046 1.8- 0.1+
541201 024 (5.9+ 2.0+) 871014 046 1.1- 2.3- 890202 046 2.7- 2.3-
651126 330 2.7+ 2.7+ 890129 046 0.3- 1.0+ 890203 399 (0.1- 3.1-)
810826 801(14.8+ 8.7+) 890129 046 1.2+ 0.4- 890203 399 0.9- 0.9-
810830 688 2.5+ 1.3- 890130 046(10.9- 1.9+) 890203 399 1.5+ 1.2-
810830 688 1.8+ 2.2- 890130 046 0.4- 0.2+ 890203 399 0.4- 1.9-

```
890204 399  0.6-  0.7-    890210 809  0.7+  0.2-    890213 809  0.2+  0.8+
890204 399  0.6+  1.1-    890210 809  1.2+  0.1-    890213 809  0.3+  0.5+
890204 399  2.9-  1.9-    890211 809  0.2-  0.8+    890214 809  0.8-  0.6-
890204 220 (2.2-  4.5-)   890211 809  0.1-  0.8+    890214 809  0.6-  0.2-
890204 071  1.4-  1.3+    890211 809  0.0   0.8+    890225 809  1.9+  0.7+
890205 071  2.3-  2.6+    890211 809  0.3-  0.4-    890225 809  1.6+  0.9+
890205 220  1.9-  2.8-    890211 809  0.1-  0.7-    890225 809  1.8+  1.0+
890205 220  2.2-  3.0-    890211 809  0.1+  0.7-    890303 809  0.7+  0.0
890208 809  0.3+  0.2+    890211 399 (3.5+  1.2+)   890303 809  0.6+  0.2+
890208 809  0.4+  0.3+    890211 399 (0.3-  3.5+)   890303 809  0.7+  0.1+
890208 809  0.5+  0.3+    890211 399  0.5+  0.2+    890303 809  0.3+  0.3+
890209 809  0.7+  0.6+    890212 809  0.1-  0.6-    890303 809  0.3+  0.5+
890209 809  0.9+  0.6+    890212 809  0.1-  0.4-    890303 809  0.1+  0.6+
890209 809  0.6+  0.8+    890212 809  0.4+  0.7-
890210 809  0.3+  0.2-    890213 809  0.1+  0.8+
```

(4501)* 1989 CJ3 = 1986 WJ1 = 1987 WD2

Discovered 1989 Feb. 4 by E. W. Elst at the European Southern Observatory.

Id. S. Nakano (MPC 14623)

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Epoch 1990 Nov. 5.0 ET = JDE 2448200.5                  Nakano
M 122.53466              (1950.0)           P              Q
n   0.08444768     Peri.  180.70639     +0.43429388     -0.89137954
a   5.1453022      Node   243.56065     +0.82710992     +0.45166497
e   0.0539255      Incl.    8.33093     +0.35676043     +0.03796412
P  11.67           H   10.4           G   0.25
```

Residuals in seconds of arc

```
861125 046  0.8+  0.0    890207 809  0.1+  1.7+    900224 809  0.0   1.2-
861125 046  0.4+  0.6-    890207 809 (0.2+  2.1+)   900302 809  0.5+  0.2-
861126 046  0.9+  0.4-    890207 809  0.8+  1.3+    900302 809  0.7+  0.2-
861126 046  0.6-  0.1+    890302 809  0.3-  0.4-    900302 809  0.3+  0.1+
861128 046  0.3-  0.8+    890302 809  0.2-  0.2-    900304 809  1.1-  0.7+
861128 046  1.1-  0.0     890302 809  0.8-  0.9-    900304 809  1.0-  1.3+
871126 033  0.4-  0.7-    890303 809  0.1+  0.3-    900304 809  1.0-  0.6+
871126 033  0.4-  0.4-    890303 809  0.4-  0.1+    900330 675  1.1+  0.7+
890204 809  0.8+  0.1-    890303 809  1.0-  0.3-    900331 675  1.2-  0.9-
890204 809  1.5+  0.6+    900224 809  0.5+  1.7-    900401 675  0.1-  1.0+
890204 809  0.7+  0.3+    900224 809  0.4+  1.7-
```

(4502)* 1989 KG = 1941 CA = 1963 FE = 1965 UW1 = 1967 GU = 1969 UA2 = 1976 GO6 = 1980 DQ5 = 1980 FP10

Discovered 1989 May 29 by H. E. Holt at Palomar.

Id. B. G. Marsden (MPC 15070), N. S. Chernykh (d, ibid.)

```
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5                  Bowell
M 198.13752              (1950.0)           P              Q
n   0.22930238     Peri.  334.64450     -0.81125738     -0.58313889
a   2.6436077      Node   169.36631     +0.56799909     -0.80327390
e   0.0954872      Incl.   13.33162     +0.13870290     -0.12124389
P   4.30           H   11.8           G   0.25
```

Residuals in seconds of arc

```
410201 062  0.3+  0.9+    760403 095  0.4-  0.8-    890601 675  0.4+  0.5+
410201 062  0.8-  0.3-    760407 095  2.0+  0.6-    890602 675  1.0-  0.6-
630322 760  0.4+  1.8+    800221 095  1.9+  0.5-    890602 675  0.3-  1.4-
630322 760  0.2+  0.5+    800316 095  1.7-  2.4-    890729 675 (0.7+  4.1-)
651020 330  0.2-  0.9-    890529 675  0.7+  0.7+    890729 675 (0.8+  4.4-)
670411 026  0.2-  0.0  Y  890529 675  0.3-  1.2+
691017 095  0.9+  1.1-    890530 675  1.8-  0.9-
```

(4503)* 1989 WM = 1980 YS

Discovered 1989 Nov. 28 by C. S. Shoemaker at Palomar.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams

M	63.87386	(1950.0)	P	Q
n	0.21982613	Peri. 72.56842	-0.51080911	-0.85905613
a	2.7190457	Node 48.19612	+0.77089226	-0.47475518
e	0.5175684	Incl. 2.54616	+0.38052486	-0.19138986
P	4.48	H 15.5	G 0.25	

Residuals in seconds of arc

801230	688	1.1+	0.4-	891227	801	0.6+	0.3-	900222	565	1.0+	0.7+
801230	688	1.1+	0.7-	891229	801	0.2-	0.0	900222	565	0.7+	1.2+
810104	675	0.2+	0.6+	891229	801	0.8-	0.1-	900226	801	0.0	0.2+
810224	675	0.9-	2.2-	900117	657	0.9+	1.1-	900226	801	1.3-	1.6+
810224	675	2.5-	1.7-	900117	657	1.0+	0.1-	900228	565	(3.7-	0.8+)
891128	675	0.4+	0.9-	900118	657	0.5+	2.1-	900228	565	0.7-	2.1+
891128	675	0.6-	1.8-	900118	657	2.0+	1.3-	900301	565	0.2+	0.1+
891201	801	0.6-	0.5+	900121	402	1.4+	1.0+	900301	565	2.6-	1.6-
891201	801	0.7+	0.0	900121	402	1.6+	0.7+	900302	657	1.0+	1.8-
891201	691	0.9-	0.5-	900123	801	0.5-	0.7+	900302	657	1.6-	2.9-
891201	801	0.2-	0.7+	900123	801	0.5-	0.8+	900216	589	0.2-	0.6+
891201	801	0.3-	0.7+	900128	801	0.2+	0.8+	900216	589	1.0-	2.0+
891201	693	0.7-	0.4+	900128	801	0.2-	0.9+	900216	589	1.8-	0.4+
891201	693	1.0-	0.0	900220	046	1.0+	0.0	900228	589	0.1+	1.5-
891202	801	0.6-	1.2+	900220	046	0.1-	0.3+	900228	589	0.2+	0.4-
891202	801	1.0-	1.0+	900221	801	0.4-	0.2+	900228	589	0.1-	1.0+
891205	691	0.2-	0.1+	900221	801	0.2-	0.8+	900312	568	0.6-	0.5+
891205	691	0.0	0.1+	900221	046	1.4+	1.2-	900323	801	1.1+	0.4+
891205	691	0.2-	0.1+	900221	046	0.6+	0.1+	900323	801	0.2+	0.5+
891205	691	0.4-	0.3+	900222	046	0.9+	0.7-	900422	688	0.6-	0.8+
891227	801	0.1-	0.2+	900222	046	0.6+	1.2-	900422	688	0.2+	0.6+

(4504)* 1989 YO = 1976 SE4

Discovered 1989 Dec. 21 by R. H. McNaught at Siding Spring.

Id. B. G. Marsden (MPC 16031)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams

M	99.44048	(1950.0)	P	Q
n	0.23506462	Peri. 227.00767	+0.67723369	-0.73576606
a	2.6002266	Node 180.37694	+0.72726573	+0.66975268
e	0.1345057	Incl. 14.81608	+0.11153064	+0.10039749
P	4.19	H 13.3	G 0.25	

Residuals in seconds of arc

750706	413	0.6-	1.6+	830511	413	0.2-	0.5+	891221	413	1.6-	0.3+
750706	413	(5.4+	2.0+)	870311	413	0.4+	2.0-	891226	413	1.1+	0.4-
760924	095	0.8-	0.8-	870311	413	2.2-	1.2+	891226	413	0.7+	0.5-
760929	095	0.9+	2.1-	870312	413	0.3-	1.3-	900103	413	0.1-	0.3-
790723	413	1.1+	0.4-	870504	413	2.1+	1.7-	900103	413	0.1+	0.7-
790723	413	0.9+	2.6-	870504	413	2.3-	0.4+				
830511	413	0.7+	0.4-	891221	413	0.2+	0.1+				

(4505)* 1990 DV1 = 1943 ET = 1973 YC4 = 1976 NO = 1978 YG = 1982 SS

Discovered 1990 Feb. 20 by T. Seki at Geisei.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano

M	74.33098	(1950.0)	P	Q
n	0.18870166	Peri. 10.68521	-0.63342103	-0.75262968
a	3.0103632	Node 118.87437	+0.69391282	-0.65529914
e	0.0474855	Incl. 11.84827	+0.34243657	-0.06427759
P	5.22	H 11.2	G 0.25	

Residuals in seconds of arc

430309	062	0.0	0.4+	820922	688	0.2+	1.1-	900304	372	(1.5- 14.8+)
430309	062	1.1+	0.2+	820922	688	0.7-	1.5-	900317	372	1.0- 1.8-
430310	062	0.9-	0.7+	900220	372	2.5+	0.6-	900317	372	1.8- 2.1-
731226	095	1.1-	0.6+	900220	372	1.8+	0.6+	900402	372	0.7- 1.1+
760705	808	0.1+	0.2-	900227	372	2.0-	0.1-	900402	372	1.4- 1.6+
760705	808	1.0+	1.1+	900227	372	1.5+	2.4-			
781224	330	1.6+	1.4+	900303	372	0.4-	0.1+			

(4506)* 1990 FJ = 1980 DM2 = 1983 WE = 1987 RV2 = 1987 SF16

Discovered 1990 Mar. 24 by B. G. W. Manning at Stakenbridge.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams

M	337.33318		(1950.0)	P	Q
n	0.20144922	Peri.	176.04407	-0.50760088	+0.86030921
a	2.8819890	Node	63.44610	-0.79189205	-0.44434697
e	0.0133717	Incl.	3.01213	-0.33948244	-0.24984762
P	4.89	H	12.0	G 0.25	

Residuals in seconds of arc

800220	095	0.4+	1.0+	831209	688	1.5-	0.3-	900324	494	1.3+ 0.1+
831128	688	2.0+	0.9-	831209	688	0.5+	0.9-	900325	494	1.7+ 0.3-
831128	688	0.3-	2.6-	870901	095	0.0	0.5-	900328	494	1.2+ 0.7-
831201	688	(4.2+	0.4-)	870925	095	0.2+	0.1+	900428	494	1.4- 0.2-
831201	688	2.2-	1.5+	900315	494	2.3-	0.4-	900428	494	0.4- 0.1-
831206	688	0.9-	0.9+	900318	494	1.4-	0.2-			
831206	688	2.5+	1.9+	900324	494	0.4+	0.4+			

(4507)* 1990 FV = 1932 HG = 1970 EQ3 = 1975 EX = 1976 KG1 = 1977 QM = 1985 FV = 1987 RL5 = 1987 SW

Discovered 1990 Mar. 19 by H. Shiozawa and M. Kizawa at Fujieda.

Id. T. Urata, S. Nakano (d)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Urata

M	96.83134		(1950.0)	P	Q
n	0.20288037	Peri.	84.57563	-0.66625847	-0.74493473
a	2.8684197	Node	47.26440	+0.66436503	-0.61379614
e	0.0083421	Incl.	2.67139	+0.33870158	-0.26139347
P	4.86	H	11.8	G 0.25	

Residuals in seconds of arc

320424	024	1.4-	0.6-	870904	095	1.2+	1.2+	900326	898	0.6+ 0.2-
700307	095	1.5-	0.2-	870919	688	2.3-	1.6-	900326	898	0.8- 0.7+
750306	095	1.0+	0.4-	870919	688	0.5+	1.6+	900414	898	1.4- 0.1-
760529	095	3.4+	0.6-	900319	898	2.8-	0.8+	900414	898	0.7- 1.0+
770818	095	0.6+	0.1+	900319	898	1.7-	2.7+	900429	898	0.8+ 0.1+
850321	688	0.6+	0.8-	900323	898	0.2+	0.1+	900429	898	0.2+ 1.4-
850321	688	2.7+	0.2-	900323	898	1.2+	0.6+			

(4508)* 1990 FG1 = 1951 GD = 1980 DM3 = 1981 QA2 = 1983 AM1

Discovered 1990 Mar. 27 by K. Endate and K. Watanabe at Kitami.

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	25.47903		(1950.0)	P	Q
n	0.30289436	Peri.	147.35976	-0.50164072	+0.86438523
a	2.1958800	Node	92.51026	-0.80089303	-0.44894783
e	0.0842075	Incl.	1.98276	-0.32699687	-0.22645977
P	3.25	H	13.5	G 0.25	

Residuals in seconds of arc

510403	839	1.2-	1.0-	510414	839	0.2+	0.2-	810830	688	(0.4+ 23.9+)
510403	839	0.6-	0.7-	510414	839	0.0	0.3-	830112	046	0.1- 0.2+
510403	839	0.0	0.4-	800220	095	0.3+	1.1-	830112	046	0.4- 0.5-
510414	839	0.3+	0.2-	810830	688	0.8+	1.7-	900327	400	0.6- 1.4-

900327 400 0.6+ 0.3- 900419 400 0.5- 1.1+ 900420 400 0.8- 1.0+
900329 400 (8.8+ 3.3+) 900419 400 2.3+ 0.1-
900329 400 (8.6+ 2.3+) 900420 400 0.3- 2.0+

1972 TF = 1962 WW = 1989 SH11
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 113.90842 (1950.0) P Q
n 0.28921276 Peri. 189.23429 +0.99016376 -0.13990363
a 2.2645978 Node 178.80429 +0.13286030 +0.93650773
e 0.1878975 Incl. 4.51135 +0.04386182 +0.32152799
P 3.41 H 14.6 G 0.25
Residuals in seconds of arc (or two decimals in units of degrees)
621126 760(0.18+ 0.02+)X 890929 809 0.3+ 1.2+ 891001 809 0.5- 0.6+
721003 095 0.4- 0.6+ 890929 809 0.6+ 1.2+ 891002 809 0.6- 1.3-
721005 095 0.0 2.6- 890930 809 0.3- 0.3- 891002 809 0.1+ 1.3-
721013 095 0.6+ 2.0+ 890930 809 0.1+ 0.0 891002 809 0.7+ 1.3-
721028 095 0.2- 0.1- 890930 809 0.5+ 0.1-
890929 809 0.5- 1.2+ 891001 809 0.6- 0.1+

1973 SR1 = 1951 YL = 1977 AD2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 64.58486 (1950.0) P Q
n 0.08299231 Peri. 64.88948 -0.24154537 -0.96528791
a 5.2052805 Node 39.50619 +0.82448476 -0.25815290
e 0.0440600 Incl. 8.98685 +0.51174282 -0.03970293
P 11.88 H 10.5 G 0.25
Residuals in seconds of arc
511222 711 0.0 0.3- Y 730925 675 0.4- 0.7+ 731004 675 0.5+ 0.8-
730920 675 0.3+ 1.1+ 730929 675 0.9- 0.5+ 731004 675 0.7- 0.7-
730924 675 0.1+ 0.4+ 730929 675 0.1- 0.3+ 731005 675 0.8- 0.4-
730924 675 1.0+ 0.9+ 730930 675 0.8+ 0.7- 731005 675 0.2- 0.7-
730925 675 0.3+ 0.8- 730930 675 0.0 0.4+ 770113 095 0.0 0.3+

1975 VV2 = 1980 PD3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 302.23477 (1950.0) P Q
n 0.18033480 Peri. 293.83543 +0.87503029 +0.44635951
a 3.1027708 Node 40.36811 -0.26667427 +0.76744138
e 0.1876011 Incl. 16.80976 -0.40398864 +0.46021399
P 5.47 H 13.5 G 0.25
Residuals in seconds of arc
751029 033 1.4- 0.3- 751102 095 0.7+ 0.3- 800817 413 1.5- 1.2-
751030 033 0.9+ 0.4- 800815 413 3.0+ 0.4+ 800818 413 0.4+ 1.1+
751031 033 0.2- 1.0+ 800816 413 1.2- 0.5- 800822 413 0.6- 0.2+

1977 PO1 = 1986 XN3 = 1990 EW
Id. C. M. Bardwell, S. Nakano
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Bardwell
M 256.51902 (1950.0) P Q
n 0.12557804 Peri. 2.70594 +0.75947758 +0.63114563
a 3.9493695 Node 316.78876 -0.60106476 +0.58812519
e 0.2394683 Incl. 13.31057 -0.24882716 +0.50573112
P 7.85 H 10.5 G 0.25
Residuals in seconds of arc
770814 095 0.6- 0.7- 861204 010 0.6- 0.5+ 900302 809 0.5- 1.3+
770821 095 0.0 0.6+ 900224 809 3.5+ 1.8- 900302 809 1.1- 1.1+
770909 095 0.2+ 0.7+ 900224 809 2.4+ 1.5- 900304 809 1.2- 0.3+
861204 010 1.3+ 0.7+ 900224 809 1.5+ 1.6- 900304 809 2.2- 0.7+
861204 010 0.6- 0.8- 900302 809 0.4+ 0.8+ 900304 809 2.0- 1.4+

1977 RK = 1990 HM
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Urata

M	97.73308	(1950.0)	P	Q
n	0.36149870	Peri. 134.21433	-0.96421739	-0.02905665
a	1.9516372	Node 46.11465	-0.14109559	-0.78526890
e	0.0499140	Incl. 21.44600	+0.22444791	-0.61847268
P	2.73	H 14.0	G 0.25	

Residuals in seconds of arc

770905	809	1.1-	1.0+	771010	809	0.7+	0.4-	900429	385	(2.3+	6.4+)Y
770906	809	1.2-	0.5+	771010	809	1.5+	0.5-	900429	898	0.1-	0.7- Y
770907	809	2.3-	0.9-	771011	809	0.8+	0.5+	900429	898	0.7+	1.2- Y
770911	809	1.0+	1.0-	900423	385	1.0-	1.5+				
771009	809	1.1+	0.3+	900423	385	(5.9-	0.5+)				

1978 ST7 = 1982 YZ4 = 1990 BE
Id. H. Kaneda; 1990 BE = 1978 RG13 = 1985 TE2 (MPC 16031) is invalid
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	95.91506	(1950.0)	P	Q
n	0.28195017	Peri. 136.77381	-0.14682402	-0.98726647
a	2.3033210	Node 321.54929	+0.87855706	-0.10171935
e	0.1263010	Incl. 5.64970	+0.45451095	-0.12230329
P	3.50	H 13.8	G 0.25	

Residuals in seconds of arc

780926	095	0.4-	1.1+	900121	403	2.6-	0.2+ Y	900126	403	1.1+	1.8+
781002	095	1.0+	0.8-	900121	403	0.6+	2.0- Y	900126	403	1.3+	0.3-
781008	095	0.6-	0.3-	900123	403	0.2-	0.5-				
821224	095	0.0	0.0	900123	403	0.2-	1.0+				

1978 VF6 = 1989 YL7
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M	50.12730	(1950.0)	P	Q
n	0.27453991	Peri. 250.53856	-0.82064270	-0.56496480
a	2.3445836	Node 254.97322	+0.55192447	-0.74472832
e	0.0975308	Incl. 5.09630	+0.14807076	-0.35523867
P	3.59	H 16.0	G 0.25	

Residuals in seconds of arc

781105	675	1.0+	0.1-	781108	675	1.4-	1.0-	891226	033	0.6-	0.5-
781106	675	1.2-	0.0	781129	675	1.0+	0.5+	891226	033	0.4-	0.8+
781107	675	1.5+	1.1+	781130	675	0.9-	0.5-	891226	033	1.0+	0.3-

1978 VR8 = 1990 HX
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams

M	88.96977	(1950.0)	P	Q
n	0.28166704	Peri. 15.79743	-0.89750919	-0.44060902
a	2.3048689	Node 138.04416	+0.40153541	-0.83379520
e	0.2295234	Incl. 1.58262	+0.18233641	-0.33263982
P	3.50	H 15.5	G 0.25	

Residuals in seconds of arc

781105	675	2.2+	0.4+	781129	675	0.4-	0.0	900428	675	0.5+	0.1+
781106	675	1.1-	0.8-	781130	675	0.6+	0.4+	900428	675	0.2+	0.7-
781107	675	0.6-	0.2-	900426	675	0.3-	0.6+				
781108	675	0.7-	0.0	900426	675	0.4-	0.1-				

1980 PV1 = 1975 QB = 1979 HC1 = 1985 SD3 = 1988 FR3 = 1988 GW2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 156.38228		(1950.0)	P	Q
n 0.21191492	Peri.	310.77718	-0.53355776	+0.83820230
a 2.7863031	Node	286.63396	-0.73612560	-0.52593546
e 0.1829793	Incl.	6.76336	-0.41645554	-0.14425258
P 4.65	H 13.3	G 0.25		

Residuals in seconds of arc

750816	805	0.9+	2.2+	800807	809	0.5+	1.3-	880320	808	2.3-	0.6-
790426	805	0.0	0.1+	800809	809	0.7-	1.7-	880320	808	1.4-	0.9+
790426	805	0.4-	0.2+	800810	809	0.6-	0.9-	880409	808	0.7+	1.5-
800806	809	0.0	2.3-	850919	095	1.4+	1.4+	880409	808	2.2+	1.5-

1980 PB3 = 1990 FO
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden

M 39.32736		(1950.0)	P	Q
n 0.16817786	Peri.	118.52715	-0.94578108	-0.13969350
a 3.2505564	Node	54.94133	-0.05159545	-0.82671058
e 0.1304817	Incl.	20.99122	+0.32068060	-0.54500949
P 5.86	H 11.0	G 0.25		

Residuals in seconds of arc

800808	413	(1.3+	7.8+)	800818	413	0.0	0.1+	900426	675	0.7+	0.1+
800809	413	0.8-	0.6-	800822	413	2.0-	0.1-	900426	675	0.3-	1.0-
800811	413	2.3+	0.8+	900323	675	0.1-	0.9-	900427	675	0.1+	0.3+
800815	413	0.6+	0.2-	900323	675	0.2+	0.0	900427	675	0.6+	0.3+
800816	413	0.9-	0.1-	900325	675	1.3-	1.1+				
800817	413	0.9+	0.2+	900325	675	0.3+	0.1+				

1981 DQ = 1979 YR6 = 1987 UW9
Id. H. Oishi (JAM 1952), H. Kaneda
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 244.28237		(1950.0)	P	Q
n 0.23808564	Peri.	187.76598	+0.65739415	-0.73788041
a 2.5781841	Node	221.31664	+0.70318356	+0.67361759
e 0.0656987	Incl.	13.38689	+0.27086125	+0.04209332
P 4.14	H 13.0	G 0.25		

Residuals in seconds of arc

791223	095	0.0	0.2+	810312	413	0.5-	0.5+	810503	413	1.2-	2.0-
810204	413	0.8-	0.1-	810312	413	1.1+	0.5-	871018	399	1.1-	0.4-
810209	413	0.2-	0.4-	810407	413	0.4-	2.4+	871018	399	0.4+	1.3+
810228	413	0.8-	1.0+	810407	413	1.2+	0.3+	871018	399	1.1-	0.1-
810228	413	1.0+	0.3-	810408	413	0.4-	1.9+	871023	399	0.8+	0.9-
810306	413	0.2+	0.5-	810408	413	1.3+	0.1+	871023	399	1.2+	0.9+
810306	413	0.5+	2.9-	810409	413	1.0-	0.5+	871023	399	0.1-	1.0-
810308	413	0.7-	1.2+	810409	413	0.3-	0.7-				
810308	413	0.7+	0.4-	810501	413	0.1-	0.5-				

1981 EU8 = 1985 BV = 1990 EO2
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M 166.35191		(1950.0)	P	Q
n 0.21749544	Peri.	80.23582	+0.72112959	-0.68585544
a 2.7384416	Node	322.96037	+0.55470295	+0.65621381
e 0.1411905	Incl.	9.34860	+0.41506235	+0.31462000
P 4.53	H 13.5	G 0.25		

Residuals in seconds of arc

810209	413	1.0+	1.0+	810301	413	2.6+	0.6+	810315	413	0.2-	0.3+
810213	413	0.2+	1.2+	810307	413	0.0	0.7+	810315	413	0.5+	0.8+
810214	413	0.1-	1.9+	810311	413	0.1+	0.7+	810405	413	1.6-	0.5+
810301	413	0.1+	2.1+	810311	413	0.5+	0.3-	810405	413	0.8+	0.9-

810406	413	0.4-	0.2+		850118	046	0.4-	2.6-		900302	809	0.3+	0.0
810406	413	1.5+	1.2-		850118	046	0.8+	3.3+		900304	809	1.7-	2.0-
810407	413	0.9-	0.7+		900302	809	1.6-	1.3-		900304	809	0.9-	2.2-
810407	413	2.0+	0.7-		900302	809	1.6-	0.9-		900304	809	1.2-	1.7-
810410	413	0.2+	0.5+		900302	809	1.7-	2.0-		900304	809	0.5+	0.6+
810412	413	1.2-	0.9+		900302	809	0.8+	0.0		900304	809	0.9+	0.5+
810429	413	0.0	0.2-		900302	809	0.1+	0.4+		900304	809	0.6+	0.4-

1981 EL10 = 1990 EE3

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Nakano	
M 291.04066		(1950.0)		P	Q
n 0.21743169	Peri.	0.76614		+0.52684860	+0.84691753
a 2.7389768	Node	301.02936		-0.78022929	+0.44836760
e 0.1061696	Incl.	4.80926		-0.33715399	+0.28582720
P 4.53	H	15.0	G	0.25	

Residuals in seconds of arc

810212	413	3.1+	0.3+		810315	413	0.5-	0.4+		810429	413	1.0-	2.5-
810213	413	0.7-	0.4+		810315	413	1.0-	1.3+		900302	809	0.8-	0.4-
810214	413	0.2-	0.9-		810405	413	0.9-	0.1-		900302	809	2.0-	0.6+
810301	413	1.3-	2.3+		810406	413	1.2-	0.0		900302	809	0.7-	0.3-
810301	413	1.4+	1.2+		810406	413	1.6+	0.7-		900304	809	0.7+	1.3-
810307	413	1.0+	0.3+		810407	413	1.8-	0.6+		900304	809	0.1+	1.1-
810307	413	0.3+	0.4+		810407	413	1.9+	0.2+		900304	809	0.4+	2.3-
810311	413	0.1-	1.8+		810412	413	0.4-	0.0					
810311	413	2.7+	0.1-		810412	413	0.6-	0.3-					

1981 EW38 = 1969 TF7 = 1990 EU2

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Nakano	
M 1.18312		(1950.0)		P	Q
n 0.21608220	Peri.	305.52757		-0.68465544	+0.72546070
a 2.7503687	Node	281.10201		-0.64331633	-0.64686286
e 0.0602985	Incl.	4.11306		-0.34262375	-0.23510680
P 4.56	H	15.0	G	0.25	

Residuals in seconds of arc

691008	033	0.3+	0.4+		810312	413	(3.6+	1.1-)		900302	809	0.9+	0.3-
691008	033	0.7-	0.3+		810312	413	1.6-	0.7+		900304	809	(3.5-	2.4-)
810209	413	0.1+	0.4-		810409	413	0.8-	0.6+		900304	809	(4.3-	2.7-)
810212	413	0.3-	0.7+		810409	413	1.7+	0.4-		900304	809	(4.7-	0.9-)
810301	413	0.4-	0.1+		810501	413	1.3+	0.4-		900304	809	0.5-	0.2+
810308	413	0.5+	0.7-		900302	809	0.4-	0.7+		900304	809	0.9-	0.3+
810308	413	0.3-	0.5+		900302	809	0.7+	0.1+		900304	809	0.2+	0.9-

1981 EQ42 = 1976 MA = 1978 VM3 = 1978 WJ9

Id. H. Kaneda; 1982 BP2 = 1976 MA (MPC 12308) is invalid; 1982 BP2 = 1984 QQ1 is therefore suspect and the orbit must be abandoned; a new preliminary orbit for 1982 BP2 is given on MPC 16381

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 171.70235		(1950.0)		P	Q
n 0.17133955	Peri.	68.59835		+0.06802480	+0.99767679
a 3.2104381	Node	205.30305		-0.91848335	+0.06117873
e 0.1751407	Incl.	0.49514		-0.38956509	+0.02996964
P 5.75	H	12.9	G	0.25	

Residuals in seconds of arc

760620	095	0.1+	0.4-		781129	675	(4.3+	2.2+)		810311	413	0.8-	0.2+
781105	675	0.3+	0.2-		781130	675	0.8-	0.6-		810311	413	0.5-	0.7+
781106	675	0.5-	0.0		810302	413	0.6-	0.3-		810315	413	0.6-	0.1-
781107	675	1.7-	1.1-		810302	413	1.1+	1.3-		810315	413	1.5+	0.3+
781108	675	1.2+	0.2+		810306	413	1.4-	0.5+					
781129	675	1.7+	1.2+		810306	413	1.7+	0.2-					

1981 KJ = 1975 HB = 1988 VO8
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 217.54978 (1950.0) P Q
n 0.17774709 Peri. 262.54538 +0.44954919 +0.88021032
a 3.1328186 Node 35.46739 -0.68062574 +0.44781323
e 0.1450365 Incl. 15.19698 -0.57849298 +0.15714041
P 5.55 H 12.5 G 0.25
Residuals in seconds of arc

750420	805	0.0	0.0	881104	033	0.5+	0.1-	881111	399	1.5+	1.1-
810528	809	0.4-	0.1-	881104	033	0.8-	0.5+	881114	399	(3.3-	1.2-)
810528	809	0.0	0.3-	881108	399	1.1-	0.3-	881114	399	1.0-	0.4+
810603	809	0.1+	0.0	881108	399	0.7+	1.0+	881114	399	1.1+	0.9+
810604	809	0.4+	0.1+	881108	399	1.7-	1.2-				
810609	809	0.1-	0.2+	881111	399	0.8+	0.1-				

1982 UT6 = 1977 UF1 = 1980 GW
Id. T. Furuta (MPC 9032), W. Landgraf (ibid.), H. Oishi
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Oishi
M 294.64506 (1950.0) P Q
n 0.20599368 Peri. 348.62448 +0.97186270 +0.23554534
a 2.8394506 Node 357.75080 -0.21376251 +0.87993774
e 0.0868804 Incl. 1.66073 -0.09893680 +0.41258692
P 4.78 H 13.1 G 0.25
Residuals in seconds of arc

770919	095	0.7+	0.1+	800414	805	0.0	0.2+	821025	095	1.7+	0.9+
771007	095	0.2+	1.7+	800415	805	0.1-	0.7+	821109	095	0.3-	0.2-
771013	095	(3.9+	1.4-)	800416	805	0.7+	0.6+	821114	095	2.6-	1.2-
771017	095	1.4-	0.4-	821020	095	1.4+	0.4+				

1983 CM = 1953 GA1 = 1970 JM = 1990 FB1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 38.26140 (1950.0) P Q
n 0.29319474 Peri. 208.36978 -0.68951863 +0.72355205
a 2.2440514 Node 18.10104 -0.64334243 -0.59145251
e 0.1439564 Incl. 5.94779 -0.33267789 -0.35588813
P 3.36 H 13.5 G 0.25
Residuals in seconds of arc

530405	760	2.0+	2.8+	830211	688	0.4+	1.3-	830219	688	0.5-	0.6-
530405	760	(14.6-	16.2-)	830211	688	2.0-	1.1-	900322	391	1.3+	1.1+
700503	805	1.1-	2.8-	830215	688	0.2+	1.3-	900322	391	1.8+	0.5+
700503	805	1.0-	2.5-	830215	688	1.4-	1.9-	900326	391	0.7+	2.2+
700503	805	0.9-	2.1-	830219	688	0.0	0.7-	900326	391	0.4+	2.5+

1984 DC1 = 1957 TO = 1968 UQ1 = 1979 YH8 = 1982 PG1
Id. T. Furuta (MPC 9825), H. Oishi
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Oishi
M 38.57701 (1950.0) P Q
n 0.27401483 Peri. 251.90988 +0.57511097 -0.81800077
a 2.3475825 Node 162.96883 +0.76408020 +0.53227712
e 0.2089019 Incl. 2.16215 +0.29228210 +0.21807291
P 3.60 H 13.7 G 0.25
Residuals in seconds of arc

571002	024	0.4+	1.0-	840227	809	1.0+	0.5-	840304	809	0.9-	1.4+
681023	095	0.6-	0.2+	840228	809	0.1-	0.2+	840304	809	0.4-	1.0+
681026	095	0.8+	1.3-	840228	809	0.2+	0.2+	840304	809	0.1+	1.1+
791223	095	(29.5+	0.8-)	840228	809	0.3+	0.3+	840305	809	0.9+	0.5+
820815	095	0.9+	2.5-	840303	809	0.8-	1.0+	840305	809	0.8+	0.5+
840227	809	0.7+	0.6-	840303	809	0.6-	0.6+	840305	809	1.1+	0.5+
840227	809	0.9+	0.6-	840303	809	0.6-	0.4+	840306	809	0.1+	0.7+

840306 809 0.4+ 0.8+ 840309 809 0.5- 0.5- 840313 809 1.4- 0.5-
840306 809 0.6+ 0.6+ 840310 809 0.7- 0.9- 840313 809 1.3- 0.5-
840308 809 0.2- 0.1+ 840310 809 0.6- 1.1- 840313 809 1.3- 0.2-
840308 809 0.1+ 0.1- 840310 809 0.5- 0.9- 840314 809 0.0 0.9-
840308 809 0.2+ 0.1- 840311 809 0.8+ 1.9- 840314 809 0.3+ 0.5-
840309 809 1.1- 0.1- 840311 809 0.5+ 1.7- 840314 809 0.5+ 0.7-
840309 809 0.8- 0.3- 840311 809 0.7+ 1.8-

1985 XS = 1974 OF1 = 1974 PH = 1979 OF15
Id. H. Kaneda, B. G. Marsden (d)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 121.67317 (1950.0) P Q
n 0.20439900 Peri. 148.04290 +0.66910026 +0.74307530
a 2.8541943 Node 163.94414 -0.69062346 +0.62767073
e 0.0762731 Incl. 2.48623 -0.27448875 +0.23209601
P 4.82 H 13.3 G 0.25
Residuals in seconds of arc
740719 808 0.1+ 0.2+ 740815 808 0.3+ 0.1+ 851217 010 1.7- 0.5-
740719 808 0.1+ 0.1- 790721 095 0.0 0.1- 851217 010 2.7+ 2.1+
740815 808 0.4- 0.1- 851213 010 2.5- 1.5+ 851219 010 1.5+ 3.1-

1986 EN = 1990 FK
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams
M 52.02334 (1950.0) P Q
n 0.26036392 Peri. 49.64503 -0.88261118 +0.43923938
a 2.4289377 Node 154.98955 -0.45069698 -0.89195639
e 0.2138465 Incl. 23.34423 +0.13367770 -0.10715670
P 3.79 H 13.5 G 0.25
Residuals in seconds of arc
860303 675 0.8+ 1.0- 900323 675 0.3- 0.3+ 900426 675 1.5+ 0.9-
860307 675 1.0- 1.1+ 900323 675 1.2- 1.0+ 900426 675 1.1+ 1.0-
860403 675 0.3- 0.8- 900325 675 0.7- 0.5+ 900428 675 1.0+ 0.2-
860404 675 0.6+ 0.4- 900325 675 0.3- 1.1+ 900428 675 0.8- 0.2-

1986 LB = 1933 FR = 1977 FP1 = 1987 QC12 = 1987 RP6 = 1990 FB
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 59.46314 (1950.0) P Q
n 0.22512419 Peri. 359.48375 -0.99842064 -0.05511709
a 2.6762167 Node 177.28405 +0.05232999 -0.98284205
e 0.0974347 Incl. 13.27205 +0.02044022 -0.17602162
P 4.38 H 12.3 G 0.25
Residuals in seconds of arc
330322 024 (3.3- 5.5+) 860604 675 0.2+ 1.5- 900318 400 0.5- 1.7+
330323 024 (1.7+ 6.9+) 860604 675 1.4- 1.1+ 900318 400 1.2- 0.1-
330327 024 0.1+ 1.3+ 860608 675 1.0+ 0.3+ 900321 400 1.0+ 0.4+
770326 095 0.3- 2.8- 860608 675 1.9+ 0.3+ 900321 400 0.9+ 1.0-
860603 675 0.9- 0.5- 870827 095 0.2+ 1.3-
860603 675 0.8- 1.3+ 870902 095 0.3- 1.6+

1986 PT4 = 1986 RW4 = 1951 JD = 1984 DJ2 = 1990 HB
Id. C. M. Bardwell (d, MPC 12118), S. Nakano (d, ibid.), E. W. Elst (d, ibid.), H. E. Holt, G. V. Williams
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams
M 330.13019 (1950.0) P Q
n 0.17595598 Peri. 106.89298 -0.20000391 +0.97291547
a 3.1540426 Node 150.78746 -0.96480437 -0.17494727
e 0.0777373 Incl. 13.73816 -0.17073654 -0.15109247
P 5.60 H 12.0 G 0.25

Residuals in seconds of arc

510508 760	0.1+	0.7+	860905 809	0.3+	0.8-	860908 071	1.7+	1.3-
510508 760	0.0	0.6-	860906 809	0.4-	0.3+	860908 071	(2.0-	3.3-)
840226 095	1.1-	6.0-	860906 809	0.2-	0.1+	860910 809	0.1+	0.1+
860806 071	(10.4+	4.0-)	860906 809	0.1-	0.0	860910 809	0.2+	0.1+
860806 071	(10.8+	3.5-)	860907 809	0.2+	0.7-	860912 809	0.8-	0.1+
860808 071	0.8-	2.9+	860907 809	0.1+	0.8-	860910 809	0.4+	0.0
860809 071	(6.3+	2.5-)	860907 809	0.2+	0.5-	860912 809	0.7-	0.0
860809 071	(4.2+	0.5+)	860908 809	0.1+	0.8-	860912 809	0.8-	0.0
860812 095	2.4-	1.0+	860908 809	0.2+	0.7-	900420 675	0.4+	0.3-
860905 809	0.2+	0.8-	860908 809	0.3+	0.8-	900422 675	0.1-	0.3-
860905 809	0.5+	0.8-	860908 071	2.2+	2.9-			

1986 QS3 = 1989 AH7

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda
M 333.81500		(1950.0)	P	Q
n 0.18889283	Peri.	151.09668	+0.37376044	+0.91919021
a 3.0083318	Node	140.48686	-0.88404088	+0.39351240
e 0.0692598	Incl.	11.24442	-0.28066859	-0.01540647
P 5.22	H	12.7	G 0.25	

Residuals in seconds of arc

860829 809	0.3-	0.3+	860901 809	0.1-	0.4-	860904 809	0.3+	0.1-
860829 809	0.0	0.2+	860901 809	0.0	0.4-	860904 809	0.2+	0.3+
860829 809	0.1-	0.1-	860901 809	0.2+	0.3-	860904 809	0.2+	0.5+
860831 809	0.4+	0.1+	860902 809	0.6-	0.3-	890110 033	0.2-	0.1+
860831 809	0.5+	0.2+	860902 809	0.6-	0.2-	890111 033	0.0	0.1-
860831 809	0.4+	0.2+	860902 809	0.5-	0.2-	890112 033	0.2+	0.1+

1986 RB5 = 1949 OQ

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda
M 87.97553		(1950.0)	P	Q
n 0.29345915	Peri.	209.68119	+0.88006847	+0.46742759
a 2.2426988	Node	122.21789	-0.41385102	+0.84137140
e 0.1787050	Incl.	5.67173	-0.23282359	+0.27130356
P 3.36	H	13.5	G 0.25	

Residuals in seconds of arc

490728 024	0.8-	5.2+	860905 809	0.6+	0.3+	860909 095	(0.7+	10.9+)
490730 024	0.8+	5.7-	860905 809	0.5+	0.3+	860910 809	0.4-	0.2+
860811 095	0.7-	1.6+	860905 809	0.9+	0.6+	860910 809	0.4-	0.2+
860901 809	0.2+	0.7-	860906 809	0.2-	0.8-	860910 809	0.5-	0.2+
860901 809	0.5+	0.6-	860906 809	0.1-	0.9-	860912 809	0.3-	0.9+
860901 809	1.1+	0.6-	860906 809	0.2-	0.7-	860912 809	0.2-	0.8+
860903 809	0.4-	0.2+	860908 809	0.5-	0.5-	860912 809	0.0	0.8+
860903 809	0.1-	0.2+	860908 809	0.1-	0.5-			
860903 809	0.1+	0.2+	860908 809	0.1-	0.5-			

1987 OR = 1990 FF

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P)				Nakano
M 12.53219		(1950.0)	P	Q
n 0.27993505	Peri.	82.23282	-0.27351677	+0.95981199
a 2.3143661	Node	171.10427	-0.96161852	-0.27434748
e 0.2181689	Incl.	23.97920	+0.02187225	-0.05911344
P 3.52	H	13.5	G 0.25	

Residuals in seconds of arc

870727 511	0.7+	1.2+	870819 809	0.1+	1.9+	870831 809	0.1-	1.0-
870727 511	0.5-	1.4-	870819 809	(0.1+	3.2+)	870831 809	0.1-	1.3-
870728 511	0.9+	1.2-	870830 809	0.0	0.0	870831 809	0.2+	0.4-
870728 511	(2.8+	0.9-)	870830 809	0.0	0.7+	900316 046	2.5+	0.5-
870819 809	1.2-	0.4+	870830 809	0.1-	0.7+	900316 046	(1.6-	4.6+)

900317 046 0.4+ 0.8- 900318 046 0.5+ 1.0+ 900325 675 0.7- 0.9+
900317 046 0.7- 0.9+ 900319 046 1.6+ 0.5- 900426 675 1.2- 0.3+
900317 046 0.9- 1.0+ 900319 046 (3.6+ 0.9-) 900426 675 1.3- 0.1+
900317 046 0.7- 0.4+ 900323 675 0.9- 0.6+ 900427 675 0.4- 0.0
900318 046 2.0+ 2.2- 900323 675 0.8- 1.8- 900427 675 0.3+ 0.6+

1987 QT1 = 1990 EY4
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 357.22906 (1950.0) P Q
n 0.28151410 Peri. 298.15686 -0.02412392 +0.99859629
a 2.3057036 Node 330.34700 -0.88049012 -0.04356145
e 0.2248118 Incl. 5.46913 -0.47345031 +0.03013066
P 3.50 H 14.5 G 0.25
Residuals in seconds of arc
870818 809 2.0- 0.1+ 870821 809 1.6+ 0.5- 900302 809 1.9+ 0.3-
870818 809 0.2- 0.7- 870821 809 2.2+ 0.2+ 900302 809 0.6+ 0.6-
870819 809 0.4- 1.5+ 870822 809 1.4- 0.9- 900302 809 0.0 0.5-
870819 809 0.4- 1.5+ 870822 809 1.0- 0.5- 900304 809 0.8- 0.2+
870819 809 0.1+ 0.9+ 870824 809 0.6- 0.3- 900304 809 0.8- 0.9+
870821 809 1.1+ 0.6- 870824 809 1.2+ 0.8- 900304 809 1.0- 0.1+

1987 QY10 = 1990 HC
Id. H. E. Holt
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Bowell
M 198.84943 (1950.0) P Q
n 0.19064645 Peri. 239.89248 +0.93420502 -0.33340410
a 2.9898557 Node 139.20421 +0.35556121 +0.89907796
e 0.1222444 Incl. 11.19915 -0.02893448 +0.28372616
P 5.17 H 11.2 G 0.25
Residuals in seconds of arc
870827 095 0.8+ 0.7+ 870903 095 0.6- 0.9+ 900420 675 0.1+ 1.0+
870902 095 0.4- 1.7- 870922 095 0.3+ 0.0 900422 675 0.1- 1.0-

1987 UV1 = 1976 YN5 = 1983 RD3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 321.30237 (1950.0) P Q
n 0.26282713 Peri. 23.75978 +0.99166469 +0.12777517
a 2.4137331 Node 328.88512 -0.12275266 +0.89783986
e 0.1416520 Incl. 1.83778 -0.03915251 +0.42137525
P 3.75 H 14.0 G 0.25
Residuals in seconds of arc
761218 095 0.2- 1.3+ 871025 399 0.2- 1.7- Y 871027 881 2.4+ 1.7+
830903 071 0.9- 1.1- 871025 399 0.6+ 2.8- Y 871031 399 0.4- 1.3- Y
830903 071 0.5+ 0.7+ 871025 399 2.2+ 2.1- Y 871031 399 1.9- 2.6+ Y
830911 095 0.1- 1.6+ 871027 881 2.2- 1.8+

1987 YU1 = 1986 WW8
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 126.07161 (1950.0) P Q
n 0.08361599 Peri. 177.37458 +0.71380780 -0.64919270
a 5.1793649 Node 226.89625 +0.63578298 +0.75800364
e 0.1217575 Incl. 21.09078 +0.29369785 -0.06308186
P 11.79 H 10.5 G 0.25
Residuals in seconds of arc
861130 381 0.8- 0.4- 871217 809 0.5- 0.5- 871223 809 0.6+ 0.1+
861130 381 1.9+ 1.8+ 871217 809 0.9+ 1.2+ 871223 809 0.3+ 0.3-
861201 381 1.0- 0.9- 871220 809 0.4- 0.7+
861201 381 0.1- 0.5- 871220 809 0.9- 1.1-

1988 AE5 = 1981 XE2 = 1983 CT5
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 58.90417 (1950.0) P Q
n 0.18625571 Peri. 108.80492 -0.25907178 +0.96058029
a 3.0366610 Node 145.66917 -0.93974399 -0.22657799
e 0.0322423 Incl. 10.29938 -0.22307633 -0.16108361
P 5.29 H 12.5 G 0.25
Residuals in seconds of arc

811202	511	1.1+	0.6-	880115	809	0.7-	0.3+	880121	809	0.0	0.1+
811203	511	0.2-	0.1+	880115	809	0.2-	0.3+	880123	809	0.3-	0.0
811203	511	0.9-	0.8+	880115	809	0.2-	0.2+	880123	809	0.4+	0.1-
830214	381	0.1+	0.5+	880117	809	0.4-	0.5+	880125	809	0.4-	0.3+
880114	809	0.3-	0.3+	880117	809	0.3-	0.0	880125	809	0.1+	0.4-
880114	809	0.1-	0.2+	880117	809	0.3-	0.2-	880126	809	0.4+	0.0
880114	809	0.0	0.1+	880117	809	0.0	0.3-	880126	809	0.3+	0.0
880114	809	0.3-	0.0	880117	809	0.2-	0.6-	880127	809	0.5+	0.1-
880114	809	0.2-	0.0	880117	809	0.2-	0.7-	880128	809	0.7+	0.1+
880114	809	0.1+	0.0	880119	809	0.1-	0.1+	880128	809	0.7+	0.2-
880115	809	0.3-	0.1-	880119	809	0.0	0.4+	880129	809	0.8+	0.2-
880115	809	0.4-	0.2-	880119	809	0.2+	0.1+	880130	809	1.0+	0.5-
880115	809	0.2-	0.2-	880121	809	0.2-	0.2+				

1988 BW1
Id. C. S. Shoemaker (1990 obs.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Bardwell
M 295.91189 (1950.0) P Q
n 0.08128466 Peri. 202.11034 -0.18838445 +0.92934656
a 5.2779407 Node 58.37693 -0.83591620 +0.01798279
e 0.0480743 Incl. 21.89467 -0.51551470 -0.36877037
P 12.13 H 10.0 G 0.25
Residuals in seconds of arc

880121	675	1.2+	0.5-	880220	675	1.0-	0.3-	900327	675	0.6+	2.1+
880123	675	0.3-	0.7+	880317	675	0.9-	0.6+	900331	675	0.9+	0.4+
880124	675	0.1+	0.8+	880318	675	0.4-	0.3-	900401	675	0.3+	0.2+
880216	675	0.5+	0.1+	900221	675	1.3-	1.5-				
880217	675	0.7+	0.7-	900224	675	0.8-	1.3-				

1988 CT5 = 1973 QK1 = 1980 FB10
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 58.51282 (1950.0) P Q
n 0.23806640 Peri. 0.58986 +0.76245335 +0.62925076
a 2.5783229 Node 319.10713 -0.59456025 +0.58946255
e 0.1749985 Incl. 13.30825 -0.25527047 +0.50653469
P 4.14 H 12.5 G 0.25
Residuals in seconds of arc

730829	095	1.0-	3.6+	880212	809	0.6-	0.2+	880216	809	1.2+	0.7+
730902	095	1.0+	3.1-	880213	809	(9.7-	0.7-)	880217	809	0.5-	1.8-
800316	095	0.1-	0.3-	880213	809	(9.7-	0.4-)	880217	809	0.7+	1.3-
880207	399	2.3-	1.5-	880214	809	2.6-	0.3-	880218	399	0.1-	0.5+
880207	399	0.6-	1.2+	880214	809	3.0-	1.0-	880218	399	1.0+	0.3-
880208	399	2.2+	0.9-	880214	809	0.2+	0.0	880218	399	1.1+	0.1+
880208	399	0.9+	1.0+	880214	809	1.4+	1.0-	880219	399	1.6-	1.0+
880208	399	0.7+	0.4+	880214	809	0.7+	1.1-	880219	399	0.8+	0.8+
880212	809	1.5-	1.2+	880216	809	0.7+	0.8+	880219	399	2.1+	1.8+

1988 PH1
Id. R. H. McNaught (1981 and 1986 obs.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams

M	129.80768	(1950.0)		P	Q
n	0.17170421	Peri.	26.40643	+0.95588101	+0.19644794
a	3.2058909	Node	320.24435	-0.29111350	+0.73296410
e	0.2199767	Incl.	19.96908	+0.03929907	+0.65128475
P	5.74	H	11.0	G 0.25	

Residuals in seconds of arc

810725	413	0.6- 1.2-	880809	095	(3.7- 3.8+)	880903	675	0.6+ 0.9-
810725	413	0.2- 0.3+	880809	095	1.9- 0.3+	880906	675	0.1- 1.8-
810725	413	2.0+ 0.9-	880811	413	1.1- 0.1-	880918	413	0.4- 0.6+
810725	413	1.3- 1.5+	880811	413	0.7+ 0.1-	881010	413	0.2+ 0.0
860407	413	0.5- 0.3+	880819	413	1.1- 1.4+	881011	413	0.1+ 0.0
860407	413	0.8+ 0.1+	880819	413	1.4+ 1.2-	881109	413	0.3- 0.8+
880808	095	0.6+ 0.8+	880820	413	1.1- 0.6+			
880809	095	1.2+ 0.8+	880820	413	1.0+ 0.5-			

1988 RD = 1990 FG2
Id. G. V. Williams, S. Nakano
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams

M	195.29492	(1950.0)		P	Q
n	0.26757285	Peri.	23.23483	+0.88238380	-0.46904186
a	2.3851126	Node	5.21795	+0.34066948	+0.58201138
e	0.2305602	Incl.	24.28092	+0.32456607	+0.66427591
P	3.68	H	13.0	G 0.25	

Residuals in seconds of arc

880910	071	2.3+ 1.4-	880913	071	0.4+ 0.2-	900317	046	1.1- 0.2+
880910	071	1.0- 0.6+	880917	399	0.7+ 0.0	900318	046	(4.4+ 1.7+)
880910	071	2.2- 1.4+	881008	675	0.5+ 0.4+	900318	046	2.9+ 0.9+
880912	071	(3.1- 3.9+)	881011	675	0.8- 0.4-			
880912	071	0.1+ 0.3-	900317	046	1.9- 1.1-			

1988 RD3 = 1978 TK = 1990 DX1
Id. F. Borngen, B. G. Marsden
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Marsden

M	312.48397	(1950.0)		P	Q
n	0.29940296	Peri.	89.37722	+0.13969488	+0.99017774
a	2.2129224	Node	188.65939	-0.92302631	+0.12810428
e	0.1376301	Incl.	2.19923	-0.35847981	+0.05601190
P	3.29	H	14.5	G 0.25	

Residuals in seconds of arc

781004	095	0.4- 1.0+	880911	033	0.1+ 0.6-	881103	033	0.6+ 1.4-
880908	033	0.1- 0.5-	881014	046	1.9+ 1.9+	881103	033	1.4+ 1.7-
880908	033	0.1- 1.0-	881014	046	0.5+ 1.2+	900223	033	0.2+ 0.2+
880909	033	0.1+ 0.3-	881016	046	0.5- 0.0	900223	033	0.1- 0.1-
880910	033	0.1+ 0.7-	881016	046	3.5- 1.8+			

1988 RR4 = 1982 BY2 = 1982 BJ10
Id. S. Nakano (MPC 14952)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano

M	285.44876	(1950.0)		P	Q
n	0.22569269	Peri.	61.97113	-0.79254348	+0.60899883
a	2.6717260	Node	155.50522	-0.58278722	-0.74117130
e	0.1534346	Incl.	4.36384	-0.17953797	-0.28246331
P	4.37	H	13.0	G 0.25	

Residuals in seconds of arc

820119	095	1.7+ 2.3-	880901	809	0.0 0.8-	880903	809	1.2- 0.4-
820120	095	1.2+ 0.5+	880901	809	0.0 0.9-	880903	809	0.9- 0.4-
820127	046	1.1- 2.3+	880901	809	0.1+ 1.0-	880906	809	0.7- 0.9-
820127	046	2.1- 2.3-	880903	809	1.5- 0.2-	880906	809	0.6- 0.9-

880908 809 0.7- 0.3- 880915 809 0.5+ 0.6+ 881004 807 0.5+ 0.7-
880908 809 0.1- 0.4- 880915 809 0.3+ 0.5+ 881007 807 0.5+ 0.1-
880908 809 0.1- 0.5- 880915 809 0.1- 0.5+ 881103 807 0.6+ 0.5-
880912 809 0.2- 0.0 880920 809 1.7+ 2.0+ 881105 807 0.2+ 1.1-
880912 809 0.2- 0.0 880920 809 1.8+ 1.9+ 900129 033 0.1+ 0.6+
880912 809 0.3- 0.1- 880920 809 1.4+ 2.1+ 900129 033 0.5- 0.9+

1988 RQ5 = 1964 TF1 = 1982 JA1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 154.99321 (1950.0) P Q
n 0.20237037 Peri. 155.13683 +0.97763376 +0.20989248
a 2.8732369 Node 192.76848 -0.20162603 +0.91735100
e 0.0512307 Incl. 3.45473 -0.05982619 +0.33824886
P 4.87 H 13.2 G 0.25
Residuals in seconds of arc
641008 330 0.0 0.0 880902 809 1.6- 0.2+ 880908 809 0.5- 0.3-
820515 675 0.3+ 0.6- 880902 809 1.6- 0.1+ 880908 809 0.1- 0.3-
820516 675 1.7- 0.6- 880902 809 1.5- 0.2- 880908 809 0.1- 0.3-
820516 675 0.9- 0.3+ 880905 809 0.8+ 0.4- 880909 809 0.9+ 0.7+
820517 675 2.2+ 0.4+ 880905 809 0.7+ 0.5- 880909 809 1.1+ 0.7+
820518 675 0.2+ 0.4+ 880905 809 0.6+ 0.3- 880909 809 1.4+ 0.4+

1988 VO2 = 1951 YB
Id. E. F. Helin (1990 obs.), G. V. Williams
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams
M 185.16099 (1950.0) P Q
n 0.26581707 Peri. 129.84174 +0.46815360 -0.87588981
a 2.3956038 Node 291.87553 +0.76736434 +0.46853694
e 0.1443150 Incl. 7.23245 +0.43815999 +0.11528306
P 3.71 H 13.0 G 0.25
Residuals in seconds of arc
511222 711 (1.3+ 7.3+)Y 881113 675 0.4+ 0.3- 890103 675 0.3+ 1.6+
511222 711 0.1+ 1.2- Y 881206 675 0.8+ 0.0 900426 675 1.0- 0.2+
511222 711 (7.1+ 5.0+)Y 881207 675 (1.3+ 4.3-) 900428 675 0.0 0.2+
881112 675 1.7- 1.4- 890103 675 0.2+ 1.4+ 900428 675 0.8+ 0.9-

1988 VM3 = 1978 NV4
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 276.00367 (1950.0) P Q
n 0.30806606 Peri. 340.84393 +0.92707155 +0.37487949
a 2.1712349 Node 357.13704 -0.33870105 +0.83537804
e 0.1704040 Incl. 2.21043 -0.16068585 +0.40200608
P 3.20 H 14.4 G 0.25
Residuals in seconds of arc
780710 675 0.6- 2.4+ Y 881112 888 0.9+ 0.3+ 881130 888 1.9- 0.1-
780711 675 0.6+ 2.4- Y 881114 888 0.4+ 1.1- 881205 888 0.3+ 0.5-
780713 675(61.7+ 3.6-)Y 881114 888 0.4+ 0.5- 881210 888 0.3- 0.0
881111 888 1.1- 2.4+ 881114 888 0.2- 1.0- 881210 888 1.2+ 0.7+
881111 888 (0.9- 3.6+) 881114 888 0.1+ 0.8-
881112 888 0.9+ 0.1+ 881130 888 0.7- 0.6+

1988 XO1
Id. E. F. Helin (1990 obs.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams
M 155.93668 (1950.0) P Q
n 0.21644180 Peri. 249.65018 +0.18775079 -0.98150809
a 2.7473215 Node 189.75554 +0.96312585 +0.19142017
e 0.1824888 Incl. 12.71772 +0.19271283 -0.00042963
P 4.55 H 11.5 G 0.25

Residuals in seconds of arc

881207 675	0.9-	3.0-	890207 675	0.0	0.4-	900428 675	0.8-	0.2+
881208 675	0.4+	0.9+	890207 675	0.4-	0.2+	900428 675	0.3-	0.5-
890103 675	1.3+	0.2-	900425 675	0.4+	0.3-			
890103 675	0.5-	2.3+	900425 675	0.6+	0.2+			

1989 CV = 1985 QZ5

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Nakano
M 330.52497		(1950.0)	P	Q
n 0.12565013	Peri.	216.75513	-0.46259436	+0.88562825
a 3.9478589	Node	25.76461	-0.78935623	-0.39045283
e 0.0670990	Incl.	5.39306	-0.40363746	-0.25141438
P 7.84	H	11.5	G 0.25	

Residuals in seconds of arc

850824 095	0.8+	1.5-	890210 372	0.1-	0.9-	890306 372	0.7-	1.5-
890204 372	0.2-	0.5-	890211 372	0.6-	0.9+	900325 372	2.2-	2.5-
890204 372	2.3-	0.3-	890213 372	0.1+	0.1-	900325 372	1.6+	1.4+
890210 372	0.9+	1.1+	890301 372	2.9+	0.8+			

1989 CK1 = 1986 XM

Id. C. S. Shoemaker (1990 obs.), C. M. Bardwell

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Bardwell
M 69.09266		(1950.0)	P	Q
n 0.08424048	Peri.	33.34313	-0.38730768	-0.86116743
a 5.1537462	Node	81.38537	+0.75617807	-0.50100822
e 0.1105414	Incl.	19.44932	+0.52743482	+0.08591522
P 11.70	H	9.5	G 0.25	

Residuals in seconds of arc

861202 688	0.2-	0.2+	890202 675	0.1+	1.6-	900327 675	0.2-	1.1+
861202 688	0.3-	0.5+	890307 675	0.6+	0.7-	900331 675	1.2+	1.2-
890111 675	0.3-	1.2+	890308 675	0.9-	2.6-	900401 675	0.3-	1.1+
890111 675	0.2-	1.4+	900221 675	0.6-	0.1+			
890202 675	0.7+	0.5+	900224 675	0.7+	0.6+			

1989 CW1 = 1950 TA1

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Nakano
M 123.66497		(1950.0)	P	Q
n 0.08532981	Peri.	105.70836	+0.37151951	-0.92332922
a 5.1097900	Node	322.02315	+0.77981776	+0.36712103
e 0.0503849	Incl.	9.08300	+0.50384275	+0.11262902
P 11.55	H	10.0	G 0.25	

Residuals in seconds of arc

501013 024	1.1+	2.1-	890209 809	0.6+	0.4-	890213 809	0.5-	0.8-
890110 033	1.7+	1.7+	890210 809	0.1-	0.3-	890213 372	(2.5-	2.6-)
890111 033	1.5+	1.3+	890210 809	0.1-	0.4-	890213 372	(6.2-	1.4-)
890112 033	1.9+	1.1+	890210 809	0.2-	0.3-	890214 809	0.5-	0.0
890208 809	0.2+	0.4+	890212 809	1.2-	0.2-	890214 809	0.8-	0.1-
890208 809	0.2+	0.5+	890212 809	1.1-	0.2-	890214 372	0.2-	1.1+
890208 809	0.6+	0.4+	890212 809	1.0-	0.3-	890214 372	(0.2-	3.2+)
890209 809	0.6+	0.5-	890213 809	0.8-	0.9-	900325 372	0.2-	1.6-
890209 809	0.6+	0.6-	890213 809	0.6-	0.8-	900325 372	1.5-	0.6-

1989 DJ = 1977 EH2 = 1983 OH = 1990 FO1

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Williams
M 148.18940		(1950.0)	P	Q
n 0.08105417	Peri.	74.41891	+0.70889930	-0.68088586
a 5.2879419	Node	327.80889	+0.43819749	+0.62959746
e 0.0575159	Incl.	20.20513	+0.55267055	+0.37416772
P 12.16	H	9.5	G 0.25	

Residuals in seconds of arc

770312	381	0.3+ 0.7+	890228	809	0.1- 0.1-	890303	809	0.2- 0.3-
770312	381	0.3+ 0.0	890228	809	0.0 0.1-	890303	809	0.3- 0.3-
830717	688	1.3+ 1.2-	890228	809	0.0 0.0	900330	675	0.4+ 0.5-
830717	688	0.2+ 0.5-	890302	809	0.0 0.3-	900331	675	1.8- 0.2+
890227	809	0.6- 0.2-	890302	809	0.0 0.0	900401	675	0.8- 1.3-
890227	809	0.5- 0.2-	890302	809	0.2+ 0.1-	900422	675	1.0+ 1.0+
890227	809	0.3- 0.2-	890303	809	0.3- 0.2-	900422	675	1.2+ 0.5+

1989 EO11
Id. C. S. Shoemaker (1990 obs.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5		(J-P)		Bardwell	
M 144.35954		(1950.0)	P		Q
n 0.08543548	Peri.	258.35045	+0.68805949		-0.68007647
a 5.1055759	Node	143.61064	+0.71054346		+0.70222900
e 0.0499670	Incl.	25.25540	-0.14731640		+0.21064292
P 11.54	H	10.0	G	0.25	

Residuals in seconds of arc

890109	675	0.0 0.5-	890309	675	0.3+ 0.8-	900420	675	0.0 0.9-
890109	675	0.5- 0.2+	900327	675	0.0 0.1+	900422	675	0.7- 0.2-
890309	675	0.1+ 0.5+	900327	675	0.9+ 0.3+			

1989 FC

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Green	
M 269.81445		(1950.0)	P		Q
n 0.95297605	Peri.	254.99459	+0.26124759		-0.96527180
a 1.0226995	Node	179.86079	+0.91522925		+0.24763522
e 0.3571004	Incl.	4.91251	+0.30676558		+0.08322945
P 1.03	H	20.5	G	0.25	

Residuals in seconds of arc

890331	675	0.3+ 0.9+	890429	688	0.5+ 0.2+	890523	675	0.0 0.1+
890331	675	0.9+ 0.1+	890429	688	0.8+ 0.1+	890605	688	0.5- 0.4-
890402	675	0.3- 1.3-	890429	675	0.1- 0.5+	890605	688	0.4- 0.2-
890403	675	0.7- 0.1-	890502	691	0.2+ 0.3+	900422	688	1.1+ 0.1-
890404	675	0.6- 0.3-	890502	691	0.1- 0.8+	900422	688	1.3- 0.4+
890408	675	0.1+ 0.6+	890522	675	0.7- 0.5-	900422	688	1.0+ 0.0
890408	675	1.1- 0.6+	890522	675	0.9+ 0.1-	900422	688	0.3- 0.3-
890409	801	(3.2+ 3.3+)	890522	675	0.3+ 0.7+	900422	688	0.3- 0.4-
890427	413	0.3- 0.4-	890523	675	0.0 0.7-	900422	688	0.4- 0.3-
890428	413	1.0- 0.0	890523	675	0.3+ 0.3-			
890429	688	0.2- 0.1+	890523	675	0.7+ 0.1-			

1989 QL
Id. R. H. McNaught (1976, 1979 and 1981 obs.)

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Williams	
M 224.41917		(1950.0)	P		Q
n 0.36852545	Peri.	151.98991	-0.25848545		+0.88877048
a 1.9267457	Node	100.90510	-0.94258522		-0.14627424
e 0.0736433	Incl.	22.67318	-0.21146718		-0.43438563
P 2.67	H	13.0	G	0.25	

Residuals in seconds of arc

761024	413	0.6+ 0.1-	810807	413	0.1- 2.4-	890903	413	0.9+ 0.4+
761024	413	0.6+ 0.5-	890826	413	0.2- 0.2-	890903	413	0.1+ 0.1+
791224	413	1.2- 0.7-	890826	413	0.0 1.2+	890903	413	1.2+ 0.5-
791224	413	0.5+ 1.5+	890826	413	0.3- 1.1+	890919	413	0.3+ 0.2+
810726	413	(1.6- 5.5+)	890826	413	0.4+ 0.8+	890921	413	0.3+ 0.1-
810726	413	0.1- 0.6+	890903	413	0.1+ 0.2+	890921	413	0.1+ 0.9-

890924 413 1.1- 0.0 890928 413 0.8+ 1.0+ 891009 413 1.3- 0.2+
890924 413 1.1- 0.4- 890928 413 0.7- 0.6-
890926 413 0.3+ 0.6- 891009 413 0.2- 1.4+

1989 QO
Id. R. H. McNaught (1973 and 1976 obs.)
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Williams
M 84.24243 (1950.0) P Q
n 0.37101265 Peri. 307.63847 +0.50698537 -0.76845241
a 1.9181250 Node 107.39261 +0.86170949 +0.44105758
e 0.1205880 Incl. 24.15152 +0.02055671 +0.46362604
P 2.66 H 15.0 G 0.25
Residuals in seconds of arc
730727 413 0.6+ 0.7+ 890826 413 1.2+ 0.1+ 890906 413 1.0- 0.4-
730728 413 0.5- 0.1+ 890903 413 0.0 0.1+ 890923 413 0.1- 0.4-
761023 413 1.8- 0.6- 890903 413 0.5- 0.2+ 890926 413 0.2+ 0.5+
761023 413 1.8+ 0.7+ 890903 413 0.2+ 0.1+ 891024 474 0.4- 0.6+
890826 413 0.9- 1.2- 890906 413 1.4+ 0.4- 891024 474 0.5- 0.1+

1989 SG = 1989 TV10 = 1934 UC = 1978 RV4 = 1978 TF3 = 1978 UB2
Id. S. Nakano (d, MPC 16208), K. Ichikawa
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Ichikawa
M 47.19510 (1950.0) P Q
n 0.26744098 Peri. 81.21704 +0.21235703 -0.97716650
a 2.3858966 Node 356.49859 +0.84475090 +0.18721270
e 0.1520068 Incl. 6.65642 +0.49122337 +0.10048399
P 3.69 H 13.1 G 0.25
Residuals in seconds of arc
341016 754 0.8- 0.3+ 890924 403 1.7- 0.2- 891001 809 0.4- 0.1+
341016 754 2.2- 0.2+ 890929 403 (0.9- 1.4+)Y 891001 809 0.0 0.0
780906 095 2.0- 0.5+ 890929 403 (3.4- 2.0-)Y 891001 809 0.4+ 0.1+
781004 095 3.0- 2.1- 890930 809 0.6+ 0.4+ 891007 403 2.8+ 0.3+
781024 095 4.1+ 1.5- 890930 809 1.2+ 0.3+ 891007 403 0.8- 2.0+ Y
890924 403 3.1- 1.7- 890930 809 1.6+ 0.2+

1989 UR
Epoch 1990 Nov. 5.0 ET = JDE 2448200. Bardwell
M 233.70426 (1950.0) P Q
n 0.87782714 Peri. 289.28274 -0.94494385 -0.29331851
a 1.0802644 Node 233.92013 +0.32425391 -0.89898049
e 0.3563506 Incl. 10.34056 -0.04405130 -0.32526656
P 1.12 H 18.0 G 0.25
From 15 observations 1989 Oct. 25-Nov. 28, mean residual 1".2.

1989 UF7 = 1976 GY4 = 1985 UA7
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 209.61957 (1950.0) P Q
n 0.25605901 Peri. 226.30963 +0.12610522 +0.99142866
a 2.4560809 Node 50.96633 -0.89699438 +0.12866350
e 0.1109383 Incl. 2.52025 -0.42367269 +0.02269179
P 3.85 H 13.7 G 0.25
Residuals in seconds of arc
760402 095 0.7+ 1.8+ 890907 033 2.1- 1.1+ 891025 033 0.6+ 0.3-
851018 095 1.0- 2.5+ 891023 033 1.1+ 0.6- 891025 033 1.3+ 0.3+
890907 033 0.9- 1.0+ 891023 033 0.4+ 0.9- 891027 033 0.7- 1.0-

1989 XC1 = 1962 QB = 1971 QJ1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 101.69933		(1950.0)	P	Q
n 0.22297062	Peri.	271.69731	+0.95504090	-0.25791222
a 2.6934213	Node	103.26831	+0.29427456	+0.88461878
e 0.1166503	Incl.	8.63984	-0.03604671	+0.38849826
P 4.42	H	12.4	G 0.25	

Residuals in seconds of arc

620828 760	0.3-	0.8+	891106 809	0.3-	0.4-	891202 809	0.9-	0.3+
710820 095 (5.6+	11.5-)		891106 809	0.2+	0.5-	891203 809	0.7+	0.1-
710824 095	0.4+	0.8-	891202 809	0.0	0.4+	891203 809	0.1+	0.1+
891106 809	1.1+	0.2+	891202 809	0.4-	0.5+	891203 809	0.6-	0.3-

1989 YF = 1970 EH1 = 1973 AF4 = 1980 DR2
Id. G. V. Williams, H. Kaneda
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams

M 309.83216		(1950.0)	P	Q
n 0.28787580	Peri.	140.27158	-0.09052992	+0.98962367
a 2.2716085	Node	124.25607	-0.94456398	-0.04981876
e 0.1840232	Incl.	7.75827	-0.31559979	-0.13477051
P 3.42	H	13.0	G 0.25	

Residuals in seconds of arc

700313 095	0.4+	0.5+	900102 567	0.9+	0.0	900217 567	1.3+	0.7-
730103 095 (2.6-	6.0-)		900102 567	0.2-	0.3+	900218 567	1.5+	0.2+
800220 095	0.9-	1.8-	900104 567	0.3+	0.4-	900218 567	0.7+	0.1-
891230 567	0.3-	0.4+	900104 567	0.9-	0.5-	900222 567	0.7+	0.6+
891230 567	0.5-	0.0	900105 400	2.2-	0.2-	900222 567	1.0+	0.7+
891231 567	1.4-	0.7-	900105 400	0.1+	1.6+	900224 567	0.7-	0.9+
891231 567	0.6-	1.3-	900217 567	1.3+	0.1+	900224 567	0.6-	1.0+

1989 YT = 1931 RE1 = 1968 QB
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 135.30422		(1950.0)	P	Q
n 0.23911465	Peri.	300.60891	+0.90890137	+0.41525119
a 2.5707820	Node	34.89704	-0.35600903	+0.82046061
e 0.2888124	Incl.	3.83579	-0.21715403	+0.39295145
P 4.12	H	13.4	G 0.25	

Residuals in seconds of arc

310912 690	1.8+	2.4-	891129 033	1.2-	0.4-	891229 888	1.2-	0.8-
310916 690 (7.4-	0.3-)		891129 033	0.8-	0.5+	891229 888	0.6-	0.9-
310921 690	0.7-	0.0	891220 888	2.7+	1.2-	900101 888	2.2-	0.9-
680819 095	0.7-	1.9+	891220 888	2.9+	1.0-	900101 888	1.3-	0.6-
891128 033	2.0-	2.8+	891228 888	1.3+	0.1+			
891128 033	1.6+	1.7+	891228 888	0.3+	1.5+			

1989 YU5 = 1940 RA1 = 1975 YO = 1982 YK = 1982 YH4
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda

M 141.49117		(1950.0)	P	Q
n 0.28379519	Peri.	105.43383	+0.95716624	-0.28736059
a 2.2933272	Node	271.27618	+0.25017683	+0.88245366
e 0.2786918	Incl.	2.03205	+0.14575439	+0.37242373
P 3.47	H	14.8	G 0.25	

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

400907 119(0.04-	0.04-)X		891229 511	0.2+	0.7-	900124 033	0.3-	0.2+
751224 330	0.7-	1.1-	891229 511	0.5-	0.4+	900124 033	0.1+	0.0
821216 511	0.3-	1.4+	891230 511	0.2-	0.3-			
821223 095	2.0+	0.0	891230 511	0.3-	0.0			

1990 BG
Epoch 1990 Feb. 18.0 ET = JDE 2447940.5 Green
M 311.13786 (1950.0) P Q
n 0.54305908 Peri. 135.66515 -0.28581658 +0.77860655
a 1.4878917 Node 109.85824 -0.95756352 -0.25465831
e 0.5703516 Incl. 36.43861 +0.03716171 -0.57351633
P 1.81 H 14.0 G 0.25
From 15 observations 1990 Jan. 21-Mar. 24.

1990 BW
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Marsden
M 312.18940 (1950.0) P Q
n 0.36875499 Peri. 150.81187 +0.14161182 +0.93544368
a 1.9259460 Node 125.43834 -0.96773898 +0.19969273
e 0.0477899 Incl. 23.42275 -0.20839231 -0.29166409
P 2.67 H 14.0 G 0.25
Residuals in seconds of arc

880617 675	0.6+	0.2+	900121 675	0.2-	0.4+	900126 675	1.0-	0.6+
880617 675	0.9+	0.0	900124 675	1.0+	0.3-	900127 675	0.0	0.5-
880808 675	1.1-	0.3-	900124 033	1.0+	1.0+	900127 675	0.1-	0.6+
880808 675	1.1-	0.6-	900125 033	1.7+	1.8-	900227 675	0.5-	0.8-
900121 675	0.9+	0.7-	900126 675	2.6-	0.0	900227 675	0.1+	0.6+

1990 DJ = 1973 GA
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams
M 49.68748 (1950.0) P Q
n 0.40157903 Peri. 56.81348 -0.85604792 +0.48283015
a 1.8195175 Node 150.76795 -0.50093172 -0.86297944
e 0.1262708 Incl. 22.20351 +0.12747304 -0.14880034
P 2.45 H 13.0 G 0.25
Residuals in seconds of arc

730406 662	0.9+	0.4+	900227 675	1.1+	0.5-	900322 675	0.0	0.5+
730406 662	0.7+	2.5-	900228 675	1.5-	1.6+	900324 675	0.1+	0.0
730408 662	0.8-	2.6+	900301 675	0.3+	1.1-	900324 675	0.6+	0.2-
730408 662	0.8-	0.6-	900322 675	0.5-	0.2-			

1990 EA = 1975 XK
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 103.85365 (1950.0) P Q
n 0.29293934 Peri. 342.42348 -0.56241592 -0.82332526
a 2.2453510 Node 141.70092 +0.77261417 -0.55615658
e 0.1234537 Incl. 7.07300 +0.29454317 -0.11324919
P 3.36 H 14.4 G 0.25
Residuals in seconds of arc

751201 805	0.1-	0.1+	900304 402	0.4-	0.4+	900321 402	0.5-	1.6+
751204 805	0.6-	0.4-	900305 402	0.3-	0.7+	900322 402	1.0+	0.0
751205 805	0.7+	0.3+	900305 402	0.7+	1.5-	900322 402	1.2-	0.9-
900304 402	0.0	0.2+	900321 402	0.7+	0.5-			

1990 FR = 1986 LJ1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Williams
M 61.34063 (1950.0) P Q
n 0.23630332 Peri. 58.35585 -0.96992192 -0.11180700
a 2.5911369 Node 114.43609 +0.04391258 -0.95406521
e 0.3025411 Incl. 13.73861 +0.23942255 -0.27795461
P 4.17 H 13.0 G 0.25

Residuals in seconds of arc

860608	675	0.7-	0.7-	900323	675	0.0	0.0	900425	675	0.2+	1.5-
860608	675	0.5+	0.0	900325	675	0.0	0.1-	900428	675	0.5-	0.7+
860609	675	0.2+	0.7+	900325	675	0.3+	0.1+	900428	675	0.0	1.2+
900323	675	0.4-	0.1+	900425	675	0.4+	0.5-				

1990 FT = 1978 CF = 1981 WK7 = 1987 SH14

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 80.37046		(1950.0)		P	Q
n 0.15579804	Peri.	138.04708		-0.65729443	-0.75250508
a 3.4205404	Node	352.69831		+0.57586615	-0.46620577
e 0.0849890	Incl.	18.93088		+0.48615039	-0.46517555
P 6.33	H	11.1	G	0.25	

Residuals in seconds of arc

780213	809	0.0	0.8+	900318	400	(4.0-	2.9-)	900329	400	0.6+	0.8+
780214	809	0.3+	0.2-	900318	400	2.8-	0.4+	900329	400	2.3+	0.2+
811125	095	0.3-	0.4+	900325	400	0.2-	0.7-				
870922	095	0.1+	0.0	900325	400	0.0	0.8-				

1990 FC1 = 1975 TL6 = 1989 AR9 = 1989 CX7

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P)				Nakano	
M 5.19054		(1950.0)		P	Q
n 0.17496027	Peri.	103.66701		-0.66765141	+0.70163850
a 3.1659979	Node	121.60229		-0.74435494	-0.62315573
e 0.0976121	Incl.	16.99105		-0.01331603	-0.34551461
P 5.63	H	11.5	G	0.25	

Residuals in seconds of arc

751001	808	0.8+	0.0	890109	033	0.7+	0.1-	900326	402	0.4+	0.3+
751002	808	1.0-	1.8-	890109	033	1.1+	0.1+	900402	402	1.2+	1.1+
751002	808	(0.7-	3.6-)	890201	033	1.2-	0.5-	900402	402	0.4-	1.4-
751004	808	0.6+	1.0+	890202	033	0.7-	0.4+	900424	402	1.5-	0.4-
751004	808	0.3-	0.6+	900326	402	0.1-	0.0	900424	402	0.3+	0.4+

1990 FM1 = 1976 GM6

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5				Kaneda	
M 76.26164		(1950.0)		P	Q
n 0.21072250	Peri.	41.77122		-0.95077926	-0.28481955
a 2.7968045	Node	121.28977		+0.23269657	-0.91637369
e 0.1611623	Incl.	8.21138		+0.20462429	-0.28131315
P 4.68	H	12.5	G	0.25	

Residuals in seconds of arc

760403	095	0.3-	0.7-	900419	400	0.5-	0.4-	900429	385	0.2-	0.7-	Y
760407	095	0.2+	0.9+	900419	400	1.1-	0.1-	900429	898	0.7+	0.4+	
900327	400	0.3-	1.4+	900423	385	1.0-	0.3-	900429	898	1.4+	0.1+	
900327	400	2.3-	0.8-	900423	385	0.2-	0.9-	900430	385	2.4+	1.8-	Y
900330	400	1.1+	0.4-	900429	385	0.2+	1.1+	Y	900430	385	0.2-	1.8+ Y
900330	400	2.4+	0.3+	900429	385	2.3-	0.2+	Y				

1990 FS1 = 1982 KP1 = 1985 DP1

Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P)				Marsden	
M 116.38112		(1950.0)		P	Q
n 0.23130693	Peri.	339.30840		-0.25941105	-0.94553296
a 2.6283174	Node	125.22370		+0.91643074	-0.30525223
e 0.1130205	Incl.	13.92974		+0.30473039	+0.11308627
P 4.26	H	12.5	G	0.25	

Residuals in seconds of arc

820522	381	0.1+	0.2-	820523	381	0.2-	0.4-	820524	381	1.0-	0.2-
820522	381	1.2+	1.2+	820523	381	0.2+	0.4+	850224	675	(18.9-	3.4+)

850224 675 0.2- 0.5+ 900325 675 1.0+ 0.3+ 900426 675 0.5- 0.7-
900323 675 0.4- 0.3- 900325 675 0.3+ 1.3+ 900427 675 0.2- 0.3-
900323 675 0.2+ 0.4- 900426 675 0.9+ 0.7- 900427 675 1.5- 0.2+

1990 HA
Epoch 1990 Apr. 19.0 ET = JDE 2448000.5 Marsden
M 14.20765 (1950.0) P Q
n 0.26698091 Peri. 307.46855 -0.67206850 -0.74046853
a 2.3886320 Node 184.76956 +0.69853998 -0.63151233
e 0.6677221 Incl. 3.79464 +0.24569458 -0.22999680
P 3.69 H 17.0 G 0.25
From 24 observations 1990 Apr. 17-May 2.

2557 P-L = 1990 FN1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 24.38800 (1950.0) P Q
n 0.28752805 Peri. 234.83140 -0.36436775 +0.93103992
a 2.2734351 Node 13.84212 -0.82484298 -0.31267853
e 0.1712184 Incl. 4.80009 -0.43228485 -0.18814037
P 3.43 H 13.8 G 0.25
Residuals in seconds of arc
600924 675 0.8- 0.8- 601017 675 0.4+ 0.8+ 900329 400 1.0- 0.1-
600926 675 0.2- 0.2- 601022 675 0.3- 0.0 900329 400 0.9- 1.4-
600928 675 0.3+ 0.3+ 601025 675 0.1- 0.0 900330 400 1.0+ 1.2+
600929 675 0.9+ 0.7+ 601026 675 0.7- 0.2- 900330 400 1.1+ 0.8+

2647 P-L = 1986 TE6
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 19.47953 (1950.0) P Q
n 0.26593938 Peri. 28.12342 +0.71220880 -0.70192836
a 2.3948645 Node 16.46541 +0.63899478 +0.64389910
e 0.1779336 Incl. 1.50215 +0.29059302 +0.30445118
P 3.71 H 14.6 G 0.25
Residuals in seconds of arc
600924 675 (0.2- 4.7-) 601022 675 0.8- 1.2+ 861003 095 1.0+ 0.6+
600926 675 0.3- 0.8+ 601025 675 0.2- 0.0 861010 046 (1.4- 5.8-)
600928 675 0.1+ 0.7- 601025 675 0.7+ 1.5+ 861010 046 0.3+ 3.5-
600929 675 1.0+ 0.8- 601026 675 1.0- 0.8+
601022 675 1.1- 0.5- 601026 675 0.2+ 0.5+

3066 P-L = 1978 TK6 = 1978 TF8 = 1987 TZ
Id. H. Kaneda
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Nakano
M 248.32068 (1950.0) P Q
n 0.22001188 Peri. 167.34424 +0.95078487 -0.28961014
a 2.7175150 Node 210.20475 +0.26175487 +0.94096879
e 0.0306150 Incl. 12.64772 +0.16580869 +0.17522471
P 4.48 H 13.3 G 0.25
Residuals in seconds of arc
600925 675 1.2- 1.4+ 600929 675 0.1- 1.3- 871002 095 0.1+ 0.4-
600927 675 1.0+ 0.0 781002 095 (2.3- 14.6+)
600928 675 0.3+ 0.4- 781008 095 0.2- 0.7+

4226 P-L = 1977 EY7
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 265.02811 (1950.0) P Q
n 0.26450889 Peri. 236.35334 -0.76896374 -0.63860097
a 2.4034912 Node 263.94075 +0.59596694 -0.69924930
e 0.1253198 Incl. 1.71294 +0.23133996 -0.32130860
P 3.73 H 15.5 G 0.25
Residuals in seconds of arc

600925	675	0.0	0.6-	600928	675	0.4-	0.5+	770312	381	1.0-	0.9-
600926	675	0.3+	0.7+	600928	675	0.4+	0.5-	770314	381	0.1-	0.0
600926	675	0.4-	0.1-	770312	381	0.7+	0.7+	770314	381	0.4+	0.2+

4274 P-L = 1990 EC4
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 70.54491 (1950.0) P Q
n 0.28268985 Peri. 247.91420 -0.97730642 -0.20859237
a 2.2993060 Node 280.03069 +0.20552740 -0.89155718
e 0.0736038 Incl. 2.14736 +0.05128989 -0.40201371
P 3.49 H 16.0 G 0.25
Residuals in seconds of arc

600924	675	0.4+	0.4+	601022	675	0.0	0.2+	900304	809	0.3-	0.9+
600925	675	0.3-	0.4-	900302	809	1.0-	0.2-	900304	809	0.2+	0.5+
600926	675	0.1+	0.2-	900302	809	0.4+	0.7+	900304	809	0.3+	0.6-
600928	675	0.2-	0.0	900302	809	0.4+	1.3-				

4594 P-L = 1981 EU32 = 1990 FA1
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 36.65015 (1950.0) P Q
n 0.22016325 Peri. 43.82459 -0.79840163 +0.60132233
a 2.7162747 Node 172.93380 -0.59819279 -0.78623889
e 0.2022293 Incl. 14.63694 -0.06870395 -0.14226688
P 4.48 H 12.0 G 0.25
Residuals in seconds of arc

600924	675	0.6-	1.0+	601026	675	0.0	0.7+	900326	402	1.0-	0.3-
600926	675	0.5-	0.2-	810304	808	0.3+	2.1+	900326	402	1.2-	0.8+
600927	675	1.0+	1.2+	900322	402	0.3+	0.2+	900402	402	0.4+	0.7-
600928	675	0.2-	0.2-	900322	402	0.1-	1.1+	900402	402	0.0	0.8-
601022	675	0.1-	0.0	900325	402	0.4+	0.5+				
601025	675	0.1-	0.9+	900325	402	1.3+	0.0				

3269 T-2 = 1987 SY9
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 Kaneda
M 230.94856 (1950.0) P Q
n 0.21184862 Peri. 215.95109 +0.92781930 -0.37121853
a 2.7868844 Node 165.70265 +0.36746065 +0.89258383
e 0.2376930 Incl. 8.55044 +0.06421851 +0.25591193
P 4.65 H 15.0 G 0.25
Residuals in seconds of arc

730919	675	1.0+	2.0+	730925	675	1.1-	0.8+	731004	675	1.9+	0.6-
730919	675	0.4+	0.8+	730925	675	(4.2+	4.6-)	731004	675	(1.2+	5.3+)
730919	675	0.1+	0.4+	730925	675	0.3-	0.4-	731005	675	1.8-	1.2+
730919	675	0.3+	0.4+	730929	675	0.9-	0.0	731005	675	1.0-	1.0+
730920	675	0.8+	0.7+	730929	675	2.3+	1.4-	870929	033	0.2+	0.2+
730920	675	1.0-	0.4-	730929	675	2.0-	0.2-	870929	033	0.1+	0.2+
730924	675	0.3+	2.4-	730929	675	2.2+	1.5-	870930	033	0.2-	0.9+
730924	675	0.4+	1.3+	730930	675	1.8-	1.8-	870930	033	0.9-	0.5+
730924	675	1.7+	1.3-	730930	675	2.1-	2.0-	871001	033	0.2+	0.3+
730924	675	0.8-	0.8+	731004	675	2.2+	0.4+				
730925	675	(4.2+	4.4-)	731004	675	(1.9+	4.7+)				

1182 T-3 = 1990 EM4
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 296.09837 (1950.0) P Q
n 0.19348475 Peri. 314.76535 +0.26879395 +0.96042373
a 2.9605501 Node 330.59650 -0.83631070 +0.19508817
e 0.0204669 Incl. 8.55668 -0.47784331 +0.19881363
P 5.09 H 14.0 G 0.25
Residuals in seconds of arc

771007 675	0.2-	1.6-	771016 675	1.3-	0.5-	900302 809	0.2+	1.1+
771011 675	1.9+	0.3+	771017 675	0.8-	0.3+	900302 809	0.2-	1.0+
771011 675	0.1+	1.3+	771017 675	0.7-	0.4+	900304 809	0.0	0.2-
771012 675	0.9+	0.8+	771022 675	0.4+	1.7-	900304 809	0.2+	1.2-
771012 675	0.9+	0.5+	771022 675	0.7+	1.5+	900304 809	1.2-	0.9-
771016 675	1.7-	1.2-	900302 809	0.9+	0.2+			

1214 T-3 = 1987 RD = 1990 ED3
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 177.36219 (1950.0) P Q
n 0.18982948 Peri. 65.49192 +0.84447863 -0.52829136
a 2.9984339 Node 326.20178 +0.41589646 +0.75048163
e 0.0984567 Incl. 9.11413 +0.33746997 +0.39709641
P 5.19 H 12.5 G 0.25
Residuals in seconds of arc

771016 675	0.4-	0.7+	870901 046	0.6-	0.5+	900302 809	0.3-	0.0
771016 675	0.9-	0.2+	870901 046	2.4+	0.8+	900302 809	0.6-	0.5-
771017 675	0.0	1.6+	870902 809	2.5-	0.7+	900304 809	0.7+	0.0
771017 675	0.4-	0.2-	870902 809	1.5-	0.9+	900304 809	0.3+	0.2+
771022 675	0.7+	0.7-	870902 809	0.3-	1.2+	900304 809	0.6-	0.2+
771022 675	1.0+	1.7-	870902 095	0.7+	2.3-			
870827 095	1.9+	1.9-	900302 809	0.4+	0.1-			

3166 T-3 = 1990 EV4
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 98.11876 (1950.0) P Q
n 0.26502266 Peri. 305.80772 -0.56760540 -0.82330023
a 2.4003887 Node 178.77458 +0.76848652 -0.53021425
e 0.1589516 Incl. 2.45715 +0.29538547 -0.20260696
P 3.72 H 15.5 G 0.25
Residuals in seconds of arc

771007 675	1.3+	0.9+	771016 675	0.5+	0.6-	900302 809	0.2-	0.6-
771011 675	1.4-	0.2-	771017 675	0.6-	0.2+	900302 809	0.2-	0.8-
771011 675	0.3-	0.6+	771017 675	0.9+	1.3+	900304 809	0.5-	1.0+
771012 675	0.4-	0.9-	771021 675	0.5+	0.1-	900304 809	0.1+	0.9+
771012 675	0.2+	1.3-	771021 675	0.6-	0.4+	900304 809	0.2-	0.2+
771016 675	0.1-	0.2-	900302 809	1.0+	0.7-			

4046 T-3 = 1990 HL
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Nakano
M 6.83217 (1950.0) P Q
n 0.28615212 Peri. 166.95779 +0.14954263 +0.98523790
a 2.2807216 Node 111.59371 -0.91497742 +0.16983458
e 0.1527352 Incl. 5.14151 -0.37477102 -0.02150578
P 3.44 H 14.5 G 0.25
Residuals in seconds of arc

771007 675	2.0+	1.0+	771012 675	0.1-	1.9-	771016 675	2.3-	0.9+
771011 675	0.1-	1.0-	771012 675	0.8-	1.1-	771017 675	0.8-	0.9+
771011 675	1.4-	1.6-	771016 675	1.7-	1.5+	771017 675	0.2-	1.2+

771021 675 1.6+ 0.4+ 771022 675 0.5+ 0.1+ 900424 372 (4.2+ 0.2+)
771021 675 1.0+ 0.0 900418 372 0.5- 1.8- 900429 372 0.1+ 0.7-
771022 675 2.3+ 0.0 900418 372 0.7+ 1.7+ 900429 372 0.3- 0.9+

5175 T-3 = 1989 YK6
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Oishi
M 36.87389 (1950.0) P Q
n 0.25872535 Peri. 50.60401 -0.87732450 -0.44208164
a 2.4391823 Node 102.42645 +0.36009791 -0.86363553
e 0.1718583 Incl. 11.02297 +0.31722424 -0.24227565
P 3.81 H 14.6 G 0.25
Residuals in seconds of arc
771016 675 0.4- 1.2+ 771017 675 1.0- 0.7+ 891230 511 0.6- 1.4+
771016 675 0.4+ 0.3- 771021 675 0.2- 1.8- 891230 511 0.0 0.4-
771017 675 0.5+ 1.2+ 771021 675 0.7+ 1.0- 900102 511 0.6+ 0.9-

5193 T-3 = 1980 DV
Epoch 1990 Nov. 5.0 ET = JDE 2448200.5 (J-P) Oishi
M 317.01021 (1950.0) P Q
n 0.18884920 Peri. 83.60599 -0.56899820 +0.81554823
a 3.0088011 Node 150.90818 -0.81382958 -0.54005912
e 0.1958183 Incl. 12.52732 -0.11799351 -0.20788755
P 5.22 H 13.1 G 0.25
Residuals in seconds of arc
771016 675 0.5+ 0.6- 771022 675 0.0 1.0+ 800220 095 (0.3- 3.7-)
771016 675 0.4+ 0.1+ 800214 046 0.3+ 0.6+ 800221 046 0.5+ 0.6-
771017 675 0.9- 1.1- 800214 046 0.1+ 0.9+ 800221 046 1.0- 0.7-
771017 675 0.2- 1.0- 800215 046 0.6+ 0.7- 800222 046 1.0- 0.6-
771021 675 (2.5+ 1.4+) 800215 046 (2.2- 4.6+) 800222 046 0.4- 1.1+
771021 675 0.2+ 1.6+ 800219 046 0.8+ 0.9- 800223 046 (2.7+ 0.5-)
771022 675 (0.9- 2.6+) 800219 046 (3.7+ 2.5-) 800223 046 0.4+ 0.7+

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NEW NAMES OF MINOR PLANETS.

(2706) Borovsky = 1980 VW
Discovered 1980 Nov. 11 by Z. Vavrova at Klet.
Named in memory of Karel Havlicek Borovsky (1821-1856), Czech writer, poet and journalist.

(2766) Leuwenhoek = 1982 FE1
Discovered 1982 Mar. 23 by Z. Vavrova at Klet.
Named in memory of Antonius van Leuwenhoek (1632-1723), inventor of the microscope.

(3022) Dobermann = 1980 SH
Discovered 1980 Sept. 16 by Z. Vavrova at Klet.
Named in honor of Karl Friedrich Louis Dobermann (1834-1894), German zoologist and amateur astronomer.

(3069) Heyrovsky = 1982 UG2
Discovered 1982 Oct. 16 by Z. Vavrova at Klet.
Named in honor of Jaroslav Heyrovsky (1890-1967), Czech physicist and inventor of polarography, recipient of the the 1959 Nobel Prize for Chemistry.

(3153) Lincoln = 1984 SH3

Discovered 1984 Sept. 28 by B. A. Skiff at the Anderson Mesa Station of the Lowell Observatory.

Named in memory of Abraham Lincoln (1809-1865), sixteenth president of the United States. Lincoln served tirelessly during the great drama of the American Civil War as commander-in-chief of the Union armies in a struggle to preserve the country. A self-taught prairie lawyer, Lincoln rose to greatness through sheer determination and hard work. His election as president in 1860 sparked the southern secession movement, which had smoldered for decades. Lincoln's brilliance as a politician and army strategist is well documented. His efforts to preserve the Union and emancipate American slaves ended in Union victory just days before he was assassinated at Ford's Theatre in Washington, D.C., on Good Friday, 1865 Apr. 14. Name proposed and citation prepared by David J. Eicher.

(3154) Grant = 1984 SO3

Discovered 1984 Sept. 28 by B. A. Skiff at the Anderson Mesa Station of the Lowell Observatory.

Named in memory of Ulysses Simpson Grant (1822-1885), eighteenth president of the United States and lieutenant general commanding the armies of the Union during the American Civil War. Grant served with distinction as a young lieutenant during the Mexican War and afterward resigned his commission to enter civilian life. Having failed at several dozen occupations, a poor, distraught Grant entered the volunteer service as a colonel at the outbreak of the Civil War. Grant captured Fort Donelson on the Tennessee River and Vicksburg on the Mississippi, and this transformed him from an obscure army commander to the best-known general in Blue. In the spring of 1864 Lincoln promoted him to general-in-chief; his crunching "May Campaign" through Virginia ended in Lee's surrender at Appomattox Court House on 1865 Apr. 9. Name proposed and citation prepared by David J. Eicher.

(3155) Lee = 1984 SP3

Discovered 1984 Sept. 28 by B. A. Skiff at the Anderson Mesa Station of the Lowell Observatory.

Named in memory of Robert Edward Lee (1807-1870), general-in-chief of the Confederate States of America during the American Civil War. The son of Revolutionary War patriot Henry "Lighthorse Harry" Lee and great-grand-nephew of George Washington, Robert E. Lee attended the U.S. Military Academy at West Point and distinguished himself in the Mexican War. He was a career soldier whose expertise as an engineer served the U.S. Army well until his native state, Virginia, seceded from the Union. Lee's actions throughout the Civil War demonstrated a cunning ability to out-command many of his opponents, despite having a smaller, poorly-fed army. With his grandfatherly bearing and grey-white beard, Lee came to epitomize the southern gentleman, and, after the war was over, he stirred dream-like memories of an Old South that would never return. Name proposed and citation prepared by David J. Eicher.

(3235) Melchior = 1981 EL1

Discovered 1981 Mar. 6 by H. Debehogne and G. De Sanctis at the European Southern Observatory.

Named in honor of Paul Melchior, well-known geophysicist, general secretary of the IUGG since 1971 and director of the Royal Observatory of Belgium. His demonstration of the relationship of astronomical phenomena (precession-nutation) and geophysical phenomena (earth tides) was the basis of the IAU nutation series adopted in 1979. His development of a world tidal gravitational network permitted the evaluation of the indirect effects

of the oceanic tides and revealed a correlation between the amplitudes of the earth tides and tectonic features.

(3505) Byrd = 1983 AM

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

Named in honor of Deborah Byrd, writer and producer of "Star Date", a radio program that since 1978 has broadcast astronomical news and information over several hundred stations in the United States. Byrd began her career providing public information via telephone messages and brochures for the University of Texas McDonald Observatory. This has progressed to include the popular radio program, a series of brief spots for television and more extensive writing for magazines such as "Physics Today", "Highlights for Children", "Astronomy" and "Sky and Telescope". In 1979 she founded the Texas Star Party, now one of the largest meetings for amateur astronomers in North America, which takes place each year near the McDonald Observatory in west Texas. Citation provided by D. H. Levy at the request of the discoverer.

(3592) Nedbal = 1980 CT

Discovered 1980 Feb. 15 by Z. Vavrova at Klet.

Named in memory of the Czech composer and conductor Oskar Nedbal (1874-1930).

(3735) Trebon = 1983 XS

Discovered 1983 Dec. 4 by Z. Vavrova at Klet.

Named in honor of the discoverer’s home town in South Bohemia.

(3838) Epona = 1986 WA

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

Named for the Gaulish goddess of horses and horseriders, specifically with respect to those on Palomar Mountain, where this object was discovered. The name derives from the ancient Indo-European word "Ekwos", which gave among others the words Epos (in Gaulish), Hippos (in Greek) and Equus (in Latin). Horses have been long used by mankind in their conquest of new worlds, and there is hope that rockets with large "horsepower" will let us soon explore earth-crossing asteroids such as this one. Citation written by the discoverer with the very knowledgeable help of J. P. Rivet and at the suggestion of many other French amateur astronomers.

(3879) Machar = 1983 QA

Discovered 1983 Aug. 16 by Z. Vavrova at Klet.

Named in honor of the Czech writer and poet, Josef Svatopluk Machar (1864-1942), whose work is close to the discoverer’s heart.

(4037) Ikeya = 1987 EC

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

Named in honor of Kaoru Ikeya, one of the most eminent Japanese amateur astronomers. Since 1963 he has discovered five comets, including the sungrazer Comet Ikeya-Seki (1965 VIII), and two extra-galactic supernovae. He has ground many large telescopic mirrors, which are in good use at observatories in Japan. Name proposed by T. Urata. Citation prepared by Y. Murai and I. Hasegawa.

(4105) Tsia = 1989 EK

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

Named in honor of the ancient sun symbol used by Indians of the Zia Pueblo in central New Mexico (one of the Seven Golden Cities of Cibola sought by Coronado). Although the symbol’s name is normally written "Zia",

"Tsia" is the spelling in Keresan, the native language of the Zia Pueblo Indians. The symbol now adorns the New Mexico state flag and is often taken as an emblem of the state. It represents first and foremost the sun, the giver of life. From this symbolic sun there radiate four rays consisting of four tongues each; these represent the four cardinal directions (north, south, east and west), the four seasons (spring, summer, fall and winter) and the four stages of life (childhood, youth, adulthood and old age). Also, as ascribed in the official salute to the New Mexico state flag, the Zia is the "symbol of perfect friendship among united cultures". Name proposed by the discoverer, following a suggestion by Louie V. Burke as part of a project during an undergraduate astronomy class at New Mexico State University. Citation prepared by Alan Hale, instructor of the class.

(4179) Toutatis = 1989 AC

Discovered 1989 Jan. 4 by C. Pollas at Caussols

Named after the Gaulish god, protector of the tribe. This totemic deity is well known because of the cartoon series "Les aventures d'Asterix" by Uderzo and Goscinny. This tells the stories of two almost fearless heroes living in the last village under siege in Roman-occupied Gaul in 50 B.C., and whose only fear is that the sky may fall onto their heads one day. Since this object is the Apollo object with the smallest inclination known, it is a good candidate to fall on our heads one of these days... But as the chief of the village always says: "C'est pas demain la veille..." Citation written by the discoverer and A. Maury and endorsed by J. D. Mulholland, who with Maury obtained the discovery plates.

(4218) Demottoni = 1988 BK3

Discovered 1988 Jan. 16 by H. Debehogne at the European Southern Observatory.

Named in memory of Glauco de Mottoni y Palacios (1901-1988), Italian astronomer, engineer and collaborator at the Milan and Paris Observatories. A specialist in the visual observation of the planet Mars, he distinguished himself with a large cartographic work on the aspect of the Martian surface between 1907 and 1971. He designed telescopes, often in an unconventional manner. A keen popularizer of astronomy, he founded the "Urania" association in Genoa in 1951 and directed it until his death.

(4250) Perun = 1984 UG

Discovered 1984 Oct. 20 by Z. Vavrova at Klet.

Named in honor of the Slavic god of thunder.

(4290) Heisei = 1989 UK3

Discovered 1989 Oct. 30 by T. Seki at Geisei.

Named for the Japanese new era, or "Gengo", which began on 1989 Jan. 8. Heisei was taken from an old Chinese book "Shihchi" by Ssu-ma Chien and from "Shu Ching", one of the Chinese Five Classics. The name embodies the hope that peace will be achieved inside and outside the country, on the earth and in the heavens. This minor planet was discovered in the first year of Heisei. The Christian era 1990 corresponds to Japanese era 2650.

(4318) Bata = 1980 DE1

Discovered 1980 Feb. 21 by Z. Vavrova at Klet.

Named in honor of Tomas Bata (1876-1932), world-renowned Czech businessman.

(4333) Sinton = 1983 RO2

Discovered 1983 Sept. 4 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named in honor of William M. Sinton, planetary astronomer at the Institute for Astronomy, University of Hawaii, on the occasion of his retirement. Sinton came to Hawaii in 1966 from the Lowell Observatory, where he had already established himself in the field of infrared astronomy and was codiscoverer of CO in Alpha Orionis. Instrumental in the development of Mauna Kea as a premier astronomical observatory, Sinton was responsible for the specification and design of the computer operating environment for the University's 2.24-m telescope, one of the first telescopes to be computer controlled. He has been a pioneer in bringing new technology and ideas to the subject of thermal infrared studies of the planets, particularly Venus and Mars. He has habitually selected technically difficult problems to work on, including some of the very earliest spectroscopy with interferometers, thermal emission spectroscopy of the stars and planets, time-resolved radiometry of the satellites of Jupiter, the first astronomical far-infrared work with a Helium-3 bolometer, near-infrared studies of the dark hemisphere of Venus, and the thermal properties of the satellites of Jupiter during their mutual eclipses and occultations. Citation prepared at the discoverer's request by D. P. Cruikshank and D. J. Tholen.

(4337) Arecibo = 1985 GB

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

Named for the Arecibo Observatory in Puerto Rico, site of the largest filled-aperture telescope in the world. Arecibo is the principal research facility of the National Astronomy and Ionosphere Center and is used for radio astronomy, planetary radar astronomy and ionospheric investigations. Radar echoes obtained at Arecibo have provided valuable information about the physical and dynamical properties of about fifty minor planets, five comets, the terrestrial planets, the Galilean satellites and Saturn's rings. Name suggested and citation provided by S. J. Ostro.

(4338) Velez = 1985 PB1

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

Named in honor of Reinaldo Velez, senior telescope operator at the Arecibo Observatory for the past fifteen years and currently head of AO's Department of Telescope and Computer Operations. Rey's expertise, dedication and extensive experience with the telescope have contributed critically to hundreds of radar/radio astronomy experiments. In particular, his direct assistance with radar observations of main-belt and earth-approaching minor planets has been a key element in the success of that research. Name suggested and citation provided by S. J. Ostro.

(4349) Tiburcio = 1989 LX

Discovered 1989 June 5 by W. Landgraf at the European Southern Observatory.

Named in honor of Julio Cesar dos Santos Tiburcio, a Brazilian amateur astronomer and student of information science.

(4370) Dickens = 1982 SL

Discovered 1982 Sept. 22 by E. Bowell at the Anderson Mesa Station of the Lowell Observatory.

Named for the great English novelist Charles Dickens (1812-1870). Dickens' works include "The Pickwick Papers", "Little Dorrit", "A Christmas Carol", "Oliver Twist", "Great Expectations" and "David Copperfield", the last of which was based on his personal experiences. He created several comic characters, but he was most concerned with the social consequences of crime, corruption and moral evil. Most of his novels were first

published in monthly installments, for popular consumption. Dickens later made successful reading tours of England and the United States, and several of his novels have been dramatized on the stage and on film. Name suggested and citation provided by S. J. Ostro.

(4373) Crespo = 1985 PB

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

Named in honor of Antonio Crespo, electrical engineer at the Arecibo Observatory. For more than a decade, Crespo has been singularly responsible for maintaining the operational capability of the high-power transmitter used for all Arecibo planetary radar astronomy observations. The transmitter system is extremely complex; its outstanding performance throughout the 1980s is a credit to Crespo's expertise and hard work. Name suggested and citation provided by S. J. Ostro.

(4378) Voigt = 1988 JF

Discovered 1988 May 14 by W. Landgraf at the European Southern Observatory.

Named in honor of Hans-Heinrich Voigt, known for his work on radiative transfer and stellar atmospheres, as well as for his studies of Cp, Ap and magnetic stars. An outstanding teacher, he has been a great inspiration to the discoverer. Voigt served as director of the Gottingen Observatory from 1975 to 1983 and as presidents of the Gottingen Academy of Sciences and IAU Commissions 38 and 46.

(4381) Uenohara = 1989 WD1

Discovered 1989 Nov. 22 by N. Kawasato at Uenohara.

Named for the small town on the edge of which is the observing station where this minor planet was discovered. The town, in Yamanashi prefecture, is located in central Japan, about 100 km from Tokyo.

(4382) Stravinsky = 1989 WQ3

Discovered 1989 Nov. 29 by F. Borngen at Tautenburg.

Named in memory of the famous composer Igor Stravinsky (1882-1971), known for his very versatile musical creations, including ballet music and operas. The discoverer finds his psalm symphony (1930) particularly impressive. Born in Russia, Stravinsky lived in Switzerland and France before moving to the United States in 1939.

(4396) Gressmann = 1981 JH

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

Named in honor of Michael Gressmann, renowned astronomical optician of Falkensee, near Berlin. Scholar and successor to the famous Alfred Wilke, Gressmann has for the past 20 years manufactured numerous telescope optics both for amateur astronomers and for observatories and institutes. These high-quality products also contain special laser and infrared optics of Gressmann's own design. Founder and leader of an East German working group on asteroids, he is also a distinguished popularizer of astronomy in his country. Name proposed by the discoverer following a suggestion from L. D. Schmadel, who also prepared the citation.

(4406) Mahler = 1987 YD1

Discovered 1987 Dec. 22 by F. Borngen at Tautenburg.

Named in honor of the great Austrian composer, conductor and opera-director Gustav Mahler (1860-1911). Mahler's creative endeavor was concentrated mainly to ten daring and unusual symphonies, supplemented by

some lieder-groups, e.g. the four-part cycle "Lieder eines fahrenden Gesellen" and the cycle "Kindertotenlieder".

(4433) Goldstone = 1981 QP

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

Named for the Goldstone Deep Space Communications Complex in Southern California's Mojave Desert. Goldstone is part of the National and Aeronautics and Space Administration's Deep Space Network, which is managed, technically directed and operated by the Jet Propulsion Laboratory of the California Institute of Technology. Since 1962, the DSN has played a critical role in NASA's exploration of the solar system using unmanned spacecraft. The radio antennas at Goldstone and at similar facilities near Canberra, Australia, and Madrid, Spain, are used to receive spacecraft telemetry and to transmit commands to the spacecraft. The largest antenna at Goldstone, Deep Space Station 14, is also used for planetary radar astronomy. It was in 1968 that Goldstone observations of (1566) Icarus, carried out by R. M. Goldstein, yielded the first detection of radar echoes from a minor planet. Name suggested and citation provided by S. J. Ostro.

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EPHEMERIDES.

Comet Cernis-Kuichi-Nakamura (1990b) Elements MPC 16378

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1990 05 29		08 44.13	+24 53.0	1.813	1.578	60.2	33.9	10.8
1990 06 08		09 09.69	+19 27.0					
1990 06 18		09 31.48	+14 39.4	2.193	1.804	54.5	27.3	11.8
1990 06 28		09 50.68	+10 24.5					
1990 07 08		10 08.04	+06 36.3	2.595	2.038	46.8	21.3	12.7
1990 07 18		10 24.05	+03 09.4					
1990 07 28		10 39.03	-00 00.6	2.987	2.273	37.9	15.9	13.4

Periodic Comet Wild 4 (1990a) Elements MPC 16378

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1990 05 29		10 01.98	+13 44.6	1.899	2.007	80.9	29.9	13.4
1990 06 08		10 18.83	+11 50.7					
1990 06 18		10 36.57	+09 48.4	2.074	1.992	71.1	28.9	13.6
1990 06 28		10 55.02	+07 38.8					
1990 07 08		11 14.04	+05 23.1	2.246	1.989	62.3	26.9	13.7
1990 07 18		11 33.51	+03 02.8					
1990 07 28		11 53.38	+00 39.2	2.417	1.999	54.1	24.3	13.9
1990 08 07		12 13.58	-01 46.0					
1990 08 17		12 34.09	-04 11.1	2.584	2.020	46.2	21.2	14.1
1990 08 27		12 54.90	-06 34.8					
1990 09 06		13 15.99	-08 55.3	2.746	2.052	38.3	17.7	14.3
1990 09 16		13 37.36	-11 11.2					
1990 09 26		13 59.01	-13 21.0	2.899	2.095	30.3	14.0	14.5

1990 HA a,e,i = 2.39, 0.67, 4 Elements MPC 16438

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 05 29		13 59.09	-04 18.1	0.587	1.519	141.8	24.4	17.8
1990 06 08		14 07.03	-05 43.3					
1990 06 18		14 15.85	-07 05.7	0.887	1.711	127.9	27.9	19.0
1990 06 28		14 25.59	-08 26.2					
1990 07 08		14 36.19	-09 44.6	1.230	1.894	114.6	29.2	20.0
1990 07 18		14 47.54	-11 00.6					
1990 07 28		14 59.56	-12 13.7	1.604	2.067	101.8	28.7	20.7

Comet Austin (1989c1) Elements MPC 16378

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m1
1990	05 29	18 51.13	-09 21.6	0.250	1.219	141.7	31.0	5.3
1990	06 03	17 42.58	-21 04.7					
1990	06 08	16 53.13	-27 36.2	0.388	1.401	174.8	3.7	6.9
1990	06 13	16 19.64	-31 02.1					
1990	06 18	15 57.21	-32 54.8	0.595	1.576	155.0	15.8	8.3
1990	06 23	15 42.17	-34 00.3					
1990	06 28	15 32.16	-34 41.3	0.832	1.744	141.1	21.5	9.5
1990	07 03	15 25.69	-35 08.8					
1990	07 08	15 21.76	-35 28.7	1.084	1.906	130.1	24.1	10.5
1990	07 13	15 19.71	-35 44.4					
1990	07 18	15 19.11	-35 57.6	1.349	2.062	120.7	25.1	11.3
1990	07 23	15 19.64	-36 09.5					
1990	07 28	15 21.10	-36 20.8	1.622	2.215	112.1	25.1	12.0
1990	08 02	15 23.29	-36 31.9					
1990	08 07	15 26.10	-36 43.1	1.901	2.363	104.1	24.6	12.6
1990	08 12	15 29.41	-36 54.4					
1990	08 17	15 33.16	-37 05.9	2.183	2.507	96.4	23.7	13.2
1990	08 27	15 41.72	-37 29.7					
1990	09 06	15 51.41	-37 54.6	2.746	2.786	81.7	21.0	14.1
1990	09 16	16 01.95	-38 20.1					
1990	09 26	16 13.16	-38 46.1	3.293	3.053	67.5	17.7	14.9
1990	10 06	16 24.88	-39 12.2					
1990	10 16	16 36.98	-39 38.2	3.803	3.310	53.6	14.0	15.6

(4183) 1959 LM a,e,i = 1.98, 0.64, 7 Elements MPC 15220

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	05 29	22 17.77	-09 14.0	1.788	2.114	93.9	28.6	18.6
1990	06 08	22 19.63	-08 35.6					
1990	06 18	22 18.38	-08 13.2	1.660	2.253	112.5	24.6	18.5
1990	06 28	22 13.80	-08 08.3					
1990	07 08	22 05.91	-08 21.3	1.556	2.381	134.4	17.8	18.3
1990	07 18	21 55.01	-08 51.0					
1990	07 28	21 41.81	-09 34.0	1.523	2.499	159.2	8.3	18.0
1990	08 07	21 27.47	-10 24.9					
1990	08 17	21 13.36	-11 17.5	1.599	2.607	172.5	2.9	18.0
1990	08 27	21 00.78	-12 06.2					
1990	09 06	20 50.69	-12 47.1	1.792	2.705	148.6	11.2	18.6
1990	09 16	20 43.56	-13 18.3					
1990	09 26	20 39.51	-13 39.3	2.079	2.794	126.5	16.8	19.2
1990	10 06	20 38.35	-13 50.4					
1990	10 16	20 39.75	-13 52.1	2.422	2.874	106.8	19.4	19.7
1990	10 26	20 43.36	-13 45.1					
1990	11 05	20 48.82	-13 29.8	2.788	2.945	89.2	19.7	20.0

1990 BG a,e,i = 1.49, 0.57, 36 Elements MPC 16436

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	05 29	01 43.13	+26 37.3	0.538	0.659	36.0	115.3	16.1
1990	06 08	02 03.75	+12 11.0					
1990	06 18	02 31.08	+01 13.9	0.649	0.793	51.3	88.9	15.5
1990	06 28	02 59.34	-06 33.1					
1990	07 08	03 25.81	-12 15.9	0.803	0.982	64.0	68.6	15.7
1990	07 18	03 49.49	-16 47.8					
1990	07 28	04 09.92	-20 43.1	0.929	1.176	74.3	56.2	16.0
1990	08 07	04 26.85	-24 21.9					
1990	08 17	04 40.09	-27 55.6	1.014	1.358	84.1	47.9	16.3
1990	08 27	04 49.23	-31 30.1					

1990 09 06	04 53.74	-35 05.3	1.068	1.523	94.3	41.3	16.5
1990 09 16	04 52.98	-38 37.2					
1990 09 26	04 46.17	-41 56.0	1.111	1.672	104.4	35.5	16.6
1990 10 06	04 32.85	-44 46.0					
1990 10 16	04 13.30	-46 48.3	1.166	1.803	112.7	30.7	16.8

Periodic Comet Swift-Gehrels Elements MPC 13045

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1990 06	18	20 21.33	-24 57.8	2.065	2.947	143.8	11.7	21.3
1990 06	28	20 15.57	-25 07.7					
1990 07	08	20 07.31	-25 18.3	1.801	2.797	165.6	5.2	20.7
1990 07	18	19 57.00	-25 26.1					
1990 07	28	19 45.45	-25 27.4	1.640	2.644	168.8	4.3	20.3
1990 08	07	19 33.88	-25 19.3					
1990 08	17	19 23.54	-25 01.0	1.587	2.488	145.5	13.3	20.0
1990 08	27	19 15.57	-24 33.4					
1990 09	06	19 10.77	-23 58.5	1.618	2.332	123.5	21.1	19.7
1990 09	16	19 09.49	-23 18.1					
1990 09	26	19 11.84	-22 33.4	1.696	2.175	104.5	26.5	19.5
1990 10	06	19 17.65	-21 44.1					
1990 10	16	19 26.67	-20 49.4	1.784	2.019	88.4	29.6	19.3
1990 10	26	19 38.61	-19 47.6					
1990 11	05	19 53.19	-18 36.6	1.860	1.867	75.0	30.9	19.1
1990 11	15	20 10.12	-17 14.3					
1990 11	25	20 29.19	-15 38.5	1.912	1.724	63.9	31.0	18.8
1990 12	05	20 50.17	-13 47.2					
1990 12	15	21 12.88	-11 39.1	1.938	1.593	55.0	30.4	18.5
1990 12	25	21 37.20	-09 13.1					
1991 01	04	22 03.00	-06 29.2	1.946	1.483	48.2	29.6	18.2
1991 01	14	22 30.22	-03 28.5					
1991 01	24	22 58.79	-00 12.8	1.948	1.403	43.2	28.7	17.9
1991 02	03	23 28.69	+03 14.1					
1991 02	13	23 59.89	+06 47.4	1.961	1.360	39.9	27.7	17.8
1991 02	23	00 32.36	+10 20.9					
1991 03	05	01 06.00	+13 47.5	2.005	1.361	37.6	26.4	17.8
1991 03	15	01 40.67	+16 59.9					
1991 03	25	02 16.15	+19 51.5	2.091	1.405	35.6	24.4	18.1
1991 04	04	02 52.09	+22 16.7					
1991 04	14	03 28.11	+24 11.7	2.222	1.486	33.1	21.6	18.5

Periodic Comet Honda-Mrkos-Pajdusakova Elements MPC 12128

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1990 06	18	22 25.25	-13 44.2	0.887	1.587	112.9	36.1	20.8
1990 06	23	22 38.70	-12 59.9					
1990 06	28	22 54.20	-12 08.2	0.699	1.459	115.2	39.1	19.7
1990 07	03	23 12.59	-11 05.2					
1990 07	08	23 35.13	-09 44.8	0.528	1.326	114.4	44.3	18.5
1990 07	13	00 03.64	-07 57.4					
1990 07	18	00 40.71	-05 28.5	0.385	1.188	107.2	54.8	17.1
1990 07	23	01 29.34	-02 01.6					
1990 07	28	02 31.19	+02 27.7	0.297	1.047	87.9	75.6	15.7
1990 08	02	03 42.62	+07 21.7					
1990 08	07	04 53.46	+11 27.0	0.308	0.905	60.9	101.8	14.8
1990 08	12	05 54.28	+14 04.0					
1990 08	17	06 42.59	+15 26.7	0.414	0.767	43.5	114.7	14.4
1990 08	22	07 20.67	+16 02.8					
1990 08	27	07 51.83	+16 10.8	0.577	0.644	36.3	111.6	13.9
1990 09	01	08 18.87	+15 59.1					
1990 09	06	08 43.74	+15 30.5	0.775	0.560	33.5	96.7	13.7

1990 09 11	09 07.62	+14 45.3						
1990 09 16	09 30.94	+13 44.1	0.992	0.546	31.7	75.5	14.0	
1990 09 21	09 53.59	+12 29.6						
1990 09 26	10 15.23	+11 05.8	1.200	0.608	30.4	56.5	15.2	
1990 10 01	10 35.59	+09 37.2						
1990 10 06	10 54.55	+08 07.4	1.382	0.720	30.1	44.1	16.6	
1990 10 11	11 12.13	+06 38.9						
1990 10 16	11 28.40	+05 13.3	1.535	0.855	31.2	37.1	17.9	
1990 10 21	11 43.48	+03 51.7						
1990 10 26	11 57.48	+02 34.5	1.663	0.997	33.4	33.3	19.1	
1990 10 31	12 10.50	+01 22.1						
1990 11 05	12 22.65	+00 14.4	1.767	1.138	36.7	31.4	20.1	

1989 UR a,e,i = 1.08, 0.36, 10 Elements MPC 16434

Date	ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1990 06 18	23 23.73	+12 45.8	0.846	1.312	-1.48	-1.2	19.9	
1990 06 28	23 32.89	+15 44.2						
1990 07 08	23 38.79	+18 31.2	0.752	1.380	-2.18	-0.5	19.6	
1990 07 18	23 40.64	+21 02.8						
1990 07 28	23 37.36	+23 10.7	0.645	1.428	-3.31	-2.6	19.2	
1990 08 07	23 27.97	+24 41.2						
1990 08 17	23 11.97	+25 14.5	0.551	1.457	-4.78	-11.4	18.7	
1990 08 27	22 50.17	+24 26.8						
1990 09 06	22 25.63	+22 05.3	0.502	1.465	-5.57	-26.6	18.2	
1990 09 16	22 02.63	+18 22.8						
1990 09 26	21 44.98	+13 57.4	0.525	1.454	-4.54	-31.2	18.4	
1990 10 06	21 34.52	+09 34.3						
1990 10 16	21 31.14	+05 43.2	0.609	1.424	-2.96	-22.6	19.0	
1990 10 26	21 33.94	+02 37.0						
1990 11 05	21 41.76	+00 17.1	0.720	1.373	-1.95	-12.8	19.5	

Periodic Comet Kearns-Kwee Elements MPC 12123

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	m2
1990 06 18	02 56.53	+23 58.8	3.263	2.538	37.8	14.2	18.1	
1990 06 28	03 15.90	+25 26.6						
1990 07 08	03 35.67	+26 48.2	3.039	2.468	47.5	17.7	17.8	
1990 07 18	03 55.79	+28 02.5						
1990 07 28	04 16.16	+29 08.9	2.799	2.404	57.2	20.8	17.5	
1990 08 07	04 36.65	+30 06.7						
1990 08 17	04 57.11	+30 55.5	2.549	2.348	67.1	23.4	17.2	
1990 08 27	05 17.34	+31 35.2						
1990 09 06	05 37.10	+32 05.8	2.295	2.301	77.6	25.3	16.9	
1990 09 16	05 56.13	+32 28.0						
1990 09 26	06 14.08	+32 42.6	2.045	2.263	89.1	26.3	16.6	
1990 10 06	06 30.62	+32 51.0						
1990 10 16	06 45.34	+32 54.5	1.805	2.236	102.0	25.9	16.3	
1990 10 26	06 57.80	+32 54.8						
1990 11 05	07 07.56	+32 53.2	1.588	2.220	116.9	23.5	16.0	
1990 11 15	07 14.16	+32 50.6						
1990 11 25	07 17.25	+32 46.8	1.409	2.215	134.5	18.5	15.7	
1990 12 05	07 16.69	+32 39.9						
1990 12 15	07 12.72	+32 26.8	1.292	2.223	154.7	10.9	15.5	
1990 12 25	07 06.08	+32 04.0						
1991 01 04	06 58.06	+31 28.7	1.264	2.241	171.3	3.8	15.5	
1991 01 14	06 50.21	+30 41.0						
1991 01 24	06 43.97	+29 43.9	1.337	2.271	155.8	10.2	15.7	
1991 02 03	06 40.41	+28 41.6						
1991 02 13	06 39.95	+27 38.3	1.501	2.311	135.5	17.4	16.0	
1991 02 23	06 42.64	+26 36.6						

1991 03 05	06 48.22	+25 37.4	1.733	2.361	117.5	21.9	16.4
1991 03 15	06 56.25	+24 40.3					
1991 03 25	07 06.33	+23 44.2	2.008	2.419	101.9	23.8	16.8
1991 04 04	07 18.02	+22 47.9					
1991 04 14	07 30.96	+21 50.0	2.307	2.484	88.1	23.8	17.3
1991 04 24	07 44.86	+20 49.6					
1991 05 04	07 59.42	+19 45.8	2.614	2.555	75.5	22.5	17.7
1991 05 14	08 14.45	+18 38.3					
1991 05 24	08 29.79	+17 26.5	2.919	2.632	63.7	20.2	18.0
1991 06 03	08 45.27	+16 10.6					
1991 06 13	09 00.79	+14 50.6	3.210	2.713	52.4	17.3	18.4
1991 06 23	09 16.28	+13 26.8					
1991 07 03	09 31.67	+11 59.4	3.478	2.797	41.4	13.9	18.7
1991 07 13	09 46.90	+10 28.9					
1991 07 23	10 01.94	+08 55.8	3.714	2.885	30.4	10.3	19.0

1975 VV2 a,e,i = 3.10, 0.19, 17 Elements MPC 16421

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 05 29		14 14.98	-16 06.6	2.258	3.177	150.0	9.2	18.3
1990 06 08		14 08.86	-16 12.7					
1990 06 18		14 04.84	-16 25.1	2.404	3.141	128.7	14.6	18.6
1990 06 28		14 03.07	-16 45.3					
1990 07 08		14 03.55	-17 13.5	2.612	3.104	109.6	18.0	18.9

3066 P-L a,e,i = 2.72, 0.03, 13 Elements MPC 16438

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 05 29		14 31.90	-08 36.4	1.858	2.788	151.0	10.2	17.4
1990 06 08		14 27.24	-07 48.0					
1990 06 18		14 24.75	-07 16.6	2.020	2.784	130.0	16.2	17.8
1990 06 28		14 24.56	-07 02.1					
1990 07 08		14 26.61	-07 03.0	2.243	2.781	111.4	19.9	18.1

1986 QS3 a,e,i = 3.01, 0.07, 11 Elements MPC 16427

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 05 29		14 45.30	+01 17.3	1.997	2.904	147.6	10.8	17.1
1990 06 08		14 40.08	+01 08.6					
1990 06 18		14 36.78	+00 43.0	2.143	2.892	128.9	15.9	17.4
1990 06 28		14 35.60	+00 02.3					
1990 07 08		14 36.59	-00 50.6	2.350	2.880	111.3	19.2	17.7

1982 UT6 a,e,i = 2.84, 0.09, 2 Elements MPC 16425

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 05 29		15 23.78	-20 53.7	1.899	2.896	166.9	4.5	17.1
1990 06 08		15 16.04	-20 24.7					
1990 06 18		15 10.06	-19 59.5	1.990	2.879	144.6	11.8	17.5
1990 06 28		15 06.32	-19 41.2					
1990 07 08		15 05.04	-19 31.7	2.163	2.861	124.2	17.1	17.9
1990 07 18		15 06.20	-19 31.5					
1990 07 28		15 09.69	-19 40.5	2.387	2.843	106.3	20.0	18.1

1981 DQ a,e,i = 2.58, 0.07, 13 Elements MPC 16423

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 05 29		16 56.80	-11 48.7	1.735	2.732	166.9	4.8	16.7
1990 06 08		16 47.71	-10 50.8					
1990 06 18		16 38.95	-10 03.3	1.750	2.726	159.8	7.4	16.9
1990 06 28		16 31.42	-09 29.1					
1990 07 08		16 25.85	-09 09.5	1.864	2.719	139.5	14.0	17.2
1990 07 18		16 22.62	-09 03.9					
1990 07 28		16 21.90	-09 10.8	2.053	2.711	120.3	18.9	17.6

1987 UV1 a,e,i = 2.41, 0.14, 2 Elements MPC 16428

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 05 29	17 24.10	-26 11.6	1.415	2.407	164.6	6.4	17.1
1990 06 08	17 13.91	-26 02.7					
1990 06 18	17 03.13	-25 46.9	1.367	2.375	170.8	3.9	16.9
1990 06 28	16 53.19	-25 25.9					
1990 07 08	16 45.34	-25 03.4	1.419	2.344	148.0	13.3	17.3
1990 07 18	16 40.40	-24 42.9					
1990 07 28	16 38.77	-24 27.3	1.550	2.312	127.4	20.4	17.7
1990 08 07	16 40.50	-24 17.9					
1990 08 17	16 45.37	-24 14.5	1.731	2.281	109.7	24.7	18.0

1989 CH1 a,e,i = 2.60, 0.05, 16 Elements MPC 14622

Date ET	R. A. (1950)	Decl.	Delta	r	Variation		V
1990 05 29	19 17.89	-10 28.5	1.850	2.673	-1.29	+3.1	16.2
1990 06 08	19 13.24	-10 54.8					
1990 06 18	19 06.37	-11 35.3	1.717	2.681	-1.43	+3.4	15.8
1990 06 28	18 57.84	-12 29.1					
1990 07 08	18 48.56	-13 33.4	1.681	2.689	-1.50	+3.6	15.6
1990 07 18	18 39.55	-14 44.4					
1990 07 28	18 31.77	-15 57.9	1.753	2.695	-1.46	+3.8	15.9
1990 08 07	18 26.05	-17 10.2					
1990 08 17	18 22.83	-18 18.7	1.918	2.702	-1.35	+3.8	16.3

1988 AE5 a,e,i = 3.04, 0.03, 10 Elements MPC 16429

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06 18	20 06.68	-11 23.7	2.075	2.955	143.7	11.8	17.1
1990 06 28	20 01.41	-11 48.3					
1990 07 08	19 54.60	-12 24.2	1.967	2.959	164.5	5.3	16.7
1990 07 18	19 46.90	-13 09.2					
1990 07 28	19 39.12	-14 00.1	1.963	2.963	167.7	4.2	16.7
1990 08 07	19 32.10	-14 53.4					
1990 08 17	19 26.57	-15 45.8	2.066	2.968	147.1	10.7	17.0
1990 08 27	19 23.05	-16 34.7					
1990 09 06	19 21.83	-17 18.1	2.257	2.973	126.8	15.8	17.4

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

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06 18	20 10.90	-23 25.6	1.751	2.655	146.0	12.3	17.0
1990 06 28	20 06.06	-23 50.4					
1990 07 08	19 59.14	-24 17.9	1.620	2.622	167.5	4.8	16.5
1990 07 18	19 50.90	-24 44.2					
1990 07 28	19 42.33	-25 05.8	1.588	2.590	168.4	4.5	16.4
1990 08 07	19 34.60	-25 19.9					
1990 08 17	19 28.67	-25 25.7	1.656	2.562	146.5	12.6	16.8
1990 08 27	19 25.25	-25 23.3					
1990 09 06	19 24.71	-25 13.7	1.804	2.536	126.5	18.6	17.1

1985 PC2 a,e,i = 3.08, 0.25, 5 Elements MPC 14019

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06 18	20 11.93	-18 46.4	2.011	2.902	144.9	11.6	17.5
1990 06 28	20 06.94	-19 14.4					
1990 07 08	20 00.06	-19 49.2	1.852	2.852	166.9	4.6	17.0
1990 07 18	19 51.90	-20 27.8					
1990 07 28	19 43.32	-21 06.8	1.797	2.802	169.9	3.7	16.8
1990 08 07	19 35.32	-21 42.9					
1990 08 17	19 28.80	-22 13.7	1.846	2.752	147.2	11.5	17.1
1990 08 27	19 24.47	-22 38.1					
1990 09 06	19 22.77	-22 55.5	1.981	2.704	126.4	17.5	17.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 13.65	-01 38.9	1.947	2.782	137.4	14.3	17.4
1990	06 28	20 08.29	-01 02.6					
1990	07 08	20 01.09	-00 43.1	1.797	2.749	154.3	9.2	17.0
1990	07 18	19 52.67	-00 42.0					
1990	07 28	19 43.88	-00 59.7	1.742	2.715	159.1	7.7	16.9
1990	08 07	19 35.68	-01 34.0					
1990	08 17	19 28.94	-02 21.1	1.786	2.680	145.1	12.5	17.1
1990	08 27	19 24.34	-03 16.2					
1990	09 06	19 22.27	-04 14.5	1.915	2.645	126.8	17.8	17.3

1988 BG4 a,e,i = 2.66, 0.19, 13 Elements MPC 14792

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 20.53	-21 39.3	1.848	2.733	143.5	12.8	16.7
1990	06 28	20 14.04	-21 21.4					
1990	07 08	20 05.34	-21 04.4	1.696	2.694	166.0	5.2	16.2
1990	07 18	19 55.19	-20 46.5					
1990	07 28	19 44.62	-20 26.1	1.647	2.654	170.2	3.7	16.0
1990	08 07	19 34.82	-20 02.7					
1990	08 17	19 26.80	-19 36.7	1.705	2.613	147.0	12.2	16.4
1990	08 27	19 21.31	-19 08.8					
1990	09 06	19 18.75	-18 39.7	1.847	2.572	126.0	18.5	16.7

1984 WM1 a,e,i = 2.27, 0.11, 6 Elements MPC 12205

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 23.68	-25 41.2	1.619	2.509	143.4	14.0	17.7
1990	06 28	20 16.70	-26 02.4					
1990	07 08	20 07.20	-26 23.3	1.504	2.501	165.4	5.9	17.3
1990	07 18	19 56.08	-26 39.1					
1990	07 28	19 44.62	-26 46.0	1.490	2.492	167.9	4.9	17.2
1990	08 07	19 34.21	-26 42.0					
1990	08 17	19 26.00	-26 27.9	1.578	2.481	145.7	13.3	17.6
1990	08 27	19 20.74	-26 05.6					
1990	09 06	19 18.75	-25 37.4	1.747	2.468	125.1	19.5	18.0

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 19.01	-18 24.2	2.029	2.907	143.2	12.1	16.5
1990	06 28	20 13.36	-18 11.1					
1990	07 08	20 05.91	-18 02.3	1.904	2.898	165.1	5.2	16.1
1990	07 18	19 57.32	-17 56.2					
1990	07 28	19 48.46	-17 51.6	1.882	2.889	171.1	3.1	16.0
1990	08 07	19 40.31	-17 47.0					
1990	08 17	19 33.67	-17 41.6	1.967	2.881	148.8	10.5	16.4
1990	08 27	19 29.14	-17 35.0					
1990	09 06	19 27.06	-17 26.5	2.140	2.874	128.1	16.0	16.7

6372 P-L a,e,i = 2.67, 0.12, 3 Elements MPC 16242

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 19.02	-15 06.9	1.454	2.341	142.2	15.4	18.4
1990	06 28	20 14.40	-15 04.6					
1990	07 08	20 07.45	-15 13.0	1.348	2.341	163.6	7.1	18.0
1990	07 18	19 59.01	-15 29.9					
1990	07 28	19 50.20	-15 52.6	1.335	2.344	170.9	3.9	17.8
1990	08 07	19 42.28	-16 17.6					
1990	08 17	19 36.30	-16 41.7	1.420	2.349	149.5	12.7	18.3
1990	08 27	19 32.95	-17 02.9					
1990	09 06	19 32.59	-17 19.3	1.584	2.357	129.4	19.3	18.7

1984 DX a,e,i = 2.58, 0.24, 4 Elements MPC 13475

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 22.40	-16 26.6	2.145	3.010	141.9	12.0	18.7
1990	06 28	20 16.70	-16 47.8					
1990	07 08	20 09.08	-17 16.8	1.985	2.976	164.1	5.4	18.2
1990	07 18	20 00.14	-17 51.0					
1990	07 28	19 50.67	-18 27.5	1.932	2.940	171.7	2.9	18.0
1990	08 07	19 41.66	-19 03.0					
1990	08 17	19 33.97	-19 35.2	1.988	2.902	148.7	10.4	18.4
1990	08 27	19 28.33	-20 02.4					
1990	09 06	19 25.18	-20 23.9	2.135	2.861	127.3	16.3	18.7

(4331) 1983 HC a,e,i = 2.23, 0.21, 6 Elements MPC 15688

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 17.33	-25 54.0	0.836	1.766	144.8	19.4	15.4
1990	06 28	20 15.29	-27 14.3					
1990	07 08	20 09.66	-28 39.2	0.767	1.767	164.3	9.0	14.9
1990	07 18	20 01.58	-29 57.1					
1990	07 28	19 52.84	-30 56.9	0.773	1.776	166.1	7.9	14.9
1990	08 07	19 45.55	-31 31.7					
1990	08 17	19 41.29	-31 41.0	0.857	1.793	147.0	17.9	15.4
1990	08 27	19 40.93	-31 28.0					
1990	09 06	19 44.63	-30 56.8	1.002	1.816	129.3	25.4	16.0

(4215) 1987 VE1 a,e,i = 2.42, 0.06, 6 Elements MPC 15234

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 25.45	-12 57.4	1.635	2.500	140.0	15.1	16.0
1990	06 28	20 19.63	-12 44.2					
1990	07 08	20 11.59	-12 41.8	1.526	2.511	161.4	7.4	15.6
1990	07 18	20 02.12	-12 49.2					
1990	07 28	19 52.27	-13 04.3	1.514	2.520	169.9	4.1	15.4
1990	08 07	19 43.24	-13 24.2					
1990	08 17	19 36.00	-13 46.1	1.605	2.529	149.3	11.8	15.9
1990	08 27	19 31.25	-14 07.6					
1990	09 06	19 29.34	-14 26.6	1.781	2.537	128.8	18.0	16.3

(4122) Ferrari a,e,i = 2.56, 0.05, 13 Elements MPC 14774

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 26.00	-08 54.5	1.681	2.532	138.3	15.5	16.3
1990	06 28	20 20.06	-08 01.2					
1990	07 08	20 11.98	-07 20.1	1.572	2.543	157.9	8.7	15.9
1990	07 18	20 02.55	-06 52.5					
1990	07 28	19 52.77	-06 38.7	1.559	2.554	165.1	5.9	15.8
1990	08 07	19 43.78	-06 37.2					
1990	08 17	19 36.51	-06 45.5	1.648	2.565	148.3	12.0	16.2
1990	08 27	19 31.63	-07 00.4					
1990	09 06	19 29.49	-07 18.3	1.821	2.576	128.8	17.7	16.6

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 27.84	-31 27.8	2.335	3.202	142.6	11.1	16.5
1990	06 28	20 21.86	-31 57.4					
1990	07 08	20 13.98	-32 23.4	2.216	3.198	161.9	5.7	16.2
1990	07 18	20 04.85	-32 41.6					
1990	07 28	19 55.35	-32 48.9	2.203	3.194	164.8	4.8	16.1
1990	08 07	19 46.46	-32 43.6					
1990	08 17	19 39.01	-32 26.4	2.296	3.188	146.2	10.2	16.4
1990	08 27	19 33.64	-31 59.1					
1990	09 06	19 30.71	-31 24.1	2.480	3.182	126.3	14.8	16.7

1949 QQ1 a,e,i = 3.00, 0.10, 9 Elements MPC 13480

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	20 26.37	-23 03.9	2.160	3.029	142.4	11.8	16.5
1990 06	28	20 20.85	-23 06.9					
1990 07	08	20 13.42	-23 11.4	2.019	3.010	164.3	5.2	16.1
1990 07	18	20 04.72	-23 14.8					
1990 07	28	19 55.57	-23 14.8	1.983	2.991	171.9	2.7	15.9
1990 08	07	19 46.95	-23 09.7					
1990 08	17	19 39.72	-22 59.1	2.055	2.972	149.5	9.9	16.3
1990 08	27	19 34.51	-22 43.5					
1990 09	06	19 31.73	-22 23.5	2.218	2.953	128.5	15.5	16.6

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	20 24.38	-08 31.2	1.887	2.732	138.5	14.3	17.8
1990 06	28	20 19.78	-09 06.2					
1990 07	08	20 13.07	-09 58.6	1.715	2.691	159.4	7.6	17.3
1990 07	18	20 04.80	-11 06.8					
1990 07	28	19 55.77	-12 27.1	1.642	2.649	170.1	3.8	17.0
1990 08	07	19 47.05	-13 54.0					
1990 08	17	19 39.60	-15 21.4	1.677	2.605	150.3	11.1	17.3
1990 08	27	19 34.28	-16 44.4					
1990 09	06	19 31.64	-17 59.2	1.804	2.562	129.1	17.8	17.6

1982 BJ a,e,i = 2.32, 0.19, 24 Elements MPC 10828

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	20 32.00	-15 29.3	1.742	2.599	139.4	14.7	18.0
1990 06	28	20 25.87	-17 07.1					
1990 07	08	20 17.40	-18 58.0	1.640	2.628	162.8	6.6	17.6
1990 07	18	20 07.31	-20 55.1					
1990 07	28	19 56.62	-22 49.9	1.645	2.655	172.3	2.9	17.5
1990 08	07	19 46.54	-24 34.6					
1990 08	17	19 38.15	-26 04.2	1.764	2.679	148.4	11.4	18.0
1990 08	27	19 32.23	-27 16.7					
1990 09	06	19 29.22	-28 12.7	1.973	2.701	126.8	17.4	18.4

1985 AE a,e,i = 2.37, 0.08, 2 Elements MPC 12005

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	20 31.75	-17 42.2	1.702	2.566	140.1	14.7	18.4
1990 06	28	20 26.32	-18 04.7					
1990 07	08	20 18.54	-18 35.7	1.580	2.568	162.4	6.9	18.0
1990 07	18	20 09.11	-19 11.7					
1990 07	28	19 59.06	-19 48.5	1.556	2.568	173.7	2.5	17.7
1990 08	07	19 49.60	-20 22.1					
1990 08	17	19 41.78	-20 50.0	1.637	2.567	150.4	11.2	18.2
1990 08	27	19 36.39	-21 10.6					
1990 09	06	19 33.88	-21 23.8	1.805	2.564	129.2	17.7	18.6

1987 RJ a,e,i = 2.22, 0.12, 3 Elements MPC 12448

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	20 29.89	-21 47.8	1.227	2.118	141.4	17.4	16.9
1990 06	28	20 25.98	-22 25.9					
1990 07	08	20 18.90	-23 12.7	1.098	2.092	163.0	8.2	16.3
1990 07	18	20 09.41	-24 02.3					
1990 07	28	19 58.83	-24 47.4	1.057	2.067	171.6	4.1	16.0
1990 08	07	19 48.89	-25 22.0					
1990 08	17	19 41.11	-25 43.1	1.107	2.044	149.1	14.7	16.5
1990 08	27	19 36.63	-25 50.3					
1990 09	06	19 35.98	-25 45.1	1.232	2.022	128.8	22.8	16.9

4009 P-L a,e,i = 2.43, 0.19, 2 Elements MPC 12688

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 27.39	-21 41.4	1.122	2.022	142.0	18.0	16.7
1990	06 28	20 24.50	-21 49.6					
1990	07 08	20 18.46	-22 04.3	1.004	1.999	163.1	8.5	16.1
1990	07 18	20 10.09	-22 21.3					
1990	07 28	20 00.73	-22 35.5	0.969	1.981	173.3	3.5	15.8
1990	08 07	19 52.10	-22 42.8					
1990	08 17	19 45.69	-22 41.3	1.021	1.968	150.9	14.5	16.3
1990	08 27	19 42.54	-22 30.8					
1990	09 06	19 43.12	-22 11.9	1.145	1.961	131.2	22.8	16.8

(4156) 1988 BE a,e,i = 2.70, 0.19, 14 Elements MPC 14940

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 36.59	-23 49.9	2.227	3.077	140.2	12.2	16.7
1990	06 28	20 30.44	-23 47.8					
1990	07 08	20 22.22	-23 46.3	2.068	3.052	162.3	5.8	16.3
1990	07 18	20 12.54	-23 42.8					
1990	07 28	20 02.24	-23 34.9	2.015	3.026	173.0	2.3	16.1
1990	08 07	19 52.32	-23 21.1					
1990	08 17	19 43.72	-23 01.2	2.075	2.997	150.4	9.6	16.4
1990	08 27	19 37.14	-22 36.1					
1990	09 06	19 33.05	-22 06.9	2.229	2.967	128.9	15.3	16.7

1989 EO1 a,e,i = 2.31, 0.05, 6 Elements MPC 15252

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 38.27	-25 18.7	1.481	2.353	140.1	16.1	17.5
1990	06 28	20 32.47	-25 35.0					
1990	07 08	20 23.81	-25 52.6	1.375	2.362	161.8	7.7	17.0
1990	07 18	20 13.18	-26 06.2					
1990	07 28	20 01.87	-26 11.5	1.362	2.371	171.1	3.8	16.9
1990	08 07	19 51.36	-26 05.7					
1990	08 17	19 42.91	-25 49.2	1.450	2.379	149.5	12.5	17.3
1990	08 27	19 37.38	-25 23.7					
1990	09 06	19 35.14	-24 51.6	1.621	2.386	128.8	19.2	17.8

6547 P-L a,e,i = 2.43, 0.21, 3 Elements MPC 7602

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 32.08	-23 53.5	1.284	2.172	141.3	17.0	17.5
1990	06 28	20 28.92	-24 28.3					
1990	07 08	20 22.62	-25 09.5	1.138	2.129	162.1	8.4	16.9
1990	07 18	20 13.84	-25 51.4					
1990	07 28	20 03.78	-26 27.0	1.079	2.088	171.2	4.3	16.6
1990	08 07	19 54.08	-26 50.3					
1990	08 17	19 46.31	-26 58.9	1.111	2.051	149.8	14.4	17.0
1990	08 27	19 41.67	-26 52.9					
1990	09 06	19 40.80	-26 34.0	1.218	2.017	129.7	22.6	17.4

1989 CT a,e,i = 2.43, 0.15, 2 Elements MPC 14359

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 36.36	-17 41.6	1.391	2.258	139.0	17.2	16.3
1990	06 28	20 31.36	-17 48.6					
1990	07 08	20 23.69	-18 04.6	1.304	2.289	161.1	8.3	15.9
1990	07 18	20 14.23	-18 26.3					
1990	07 28	20 04.19	-18 49.6	1.308	2.321	174.9	2.2	15.6
1990	08 07	19 54.95	-19 10.6					
1990	08 17	19 47.65	-19 26.9	1.412	2.354	152.0	11.7	16.2
1990	08 27	19 43.06	-19 37.4					
1990	09 06	19 41.54	-19 41.4	1.599	2.387	131.2	18.5	16.7

(4282) 1987 UQ1 a,e,i = 2.39, 0.15, 3 Elements MPC 15543

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 37.53	-20 51.0	1.752	2.609	139.5	14.6	17.1
1990	06 28	20 32.35	-21 07.7					
1990	07 08	20 24.64	-21 30.0	1.601	2.585	161.6	7.1	16.6
1990	07 18	20 15.04	-21 54.4					
1990	07 28	20 04.53	-22 16.8	1.547	2.559	174.2	2.3	16.3
1990	08 07	19 54.36	-22 33.6					
1990	08 17	19 45.69	-22 43.0	1.599	2.532	150.9	11.2	16.7
1990	08 27	19 39.44	-22 44.5					
1990	09 06	19 36.14	-22 38.7	1.739	2.503	129.5	18.1	17.1

1987 RM1 a,e,i = 2.24, 0.07, 4 Elements MPC 14352

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 36.10	-14 54.6	1.291	2.158	138.3	18.3	16.6
1990	06 28	20 31.86	-15 16.0					
1990	07 08	20 24.73	-15 51.8	1.188	2.172	160.1	9.2	16.1
1990	07 18	20 15.53	-16 38.3					
1990	07 28	20 05.48	-17 29.9	1.172	2.186	174.9	2.4	15.8
1990	08 07	19 56.06	-18 20.6					
1990	08 17	19 48.58	-19 05.7	1.253	2.200	152.2	12.4	16.4
1990	08 27	19 43.95	-19 42.1					
1990	09 06	19 42.63	-20 08.5	1.416	2.215	131.4	20.0	16.9

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 37.39	-19 37.0	2.435	3.272	139.3	11.7	18.1
1990	06 28	20 31.93	-19 43.1					
1990	07 08	20 24.68	-19 53.2	2.292	3.272	161.3	5.7	17.8
1990	07 18	20 16.19	-20 05.2					
1990	07 28	20 07.16	-20 16.7	2.256	3.269	175.5	1.4	17.5
1990	08 07	19 58.44	-20 25.7					
1990	08 17	19 50.78	-20 30.8	2.333	3.265	152.5	8.2	17.9
1990	08 27	19 44.82	-20 31.7					
1990	09 06	19 40.96	-20 28.1	2.508	3.259	131.0	13.5	18.2

1985 CJ1 a,e,i = 2.42, 0.13, 4 Elements MPC 14616

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 39.68	-23 06.9	1.871	2.724	139.4	14.0	17.7
1990	06 28	20 34.33	-23 45.8					
1990	07 08	20 26.59	-24 29.1	1.741	2.723	161.3	6.9	17.3
1990	07 18	20 17.10	-25 12.1					
1990	07 28	20 06.81	-25 49.9	1.711	2.720	172.1	2.9	17.1
1990	08 07	19 56.90	-26 18.4					
1990	08 17	19 48.44	-26 35.7	1.788	2.715	150.4	10.6	17.5
1990	08 27	19 42.26	-26 42.0					
1990	09 06	19 38.87	-26 38.4	1.956	2.708	129.3	16.7	17.9

(4081) 1983 RC2 a,e,i = 2.38, 0.09, 2 Elements MPC 14602

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 37.66	-16 42.2	1.293	2.161	138.4	18.2	15.7
1990	06 28	20 34.13	-16 40.5					
1990	07 08	20 27.68	-16 49.8	1.174	2.157	159.8	9.4	15.2
1990	07 18	20 19.03	-17 07.6					
1990	07 28	20 09.37	-17 30.2	1.142	2.156	175.7	2.0	14.8
1990	08 07	20 00.17	-17 53.1					
1990	08 17	19 52.78	-18 12.9	1.204	2.157	153.3	12.2	15.3
1990	08 27	19 48.17	-18 27.4					
1990	09 06	19 46.87	-18 35.1	1.346	2.160	132.6	20.1	15.8

(4124) 1986 SE a,e,i = 2.79, 0.03, 4 Elements MPC 14775

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 39.60	-21 37.2	2.015	2.862	139.2	13.4	17.0
1990	06 28	20 34.83	-21 53.0					
1990	07 08	20 27.92	-22 13.1	1.879	2.859	160.9	6.7	16.6
1990	07 18	20 19.45	-22 34.2					
1990	07 28	20 10.26	-22 52.9	1.843	2.856	174.9	1.8	16.3
1990	08 07	20 01.37	-23 06.4					
1990	08 17	19 53.72	-23 12.9	1.915	2.852	152.6	9.4	16.7
1990	08 27	19 48.06	-23 12.3					
1990	09 06	19 44.86	-23 04.8	2.080	2.848	131.4	15.4	17.1

1985 GV1 a,e,i = 2.59, 0.06, 15 Elements MPC 14474

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 37.01	+03 28.8	1.721	2.495	129.7	18.3	16.0
1990	06 28	20 33.10	+04 14.5					
1990	07 08	20 27.01	+04 37.6	1.598	2.507	146.2	13.0	15.7
1990	07 18	20 19.32	+04 35.2					
1990	07 28	20 10.89	+04 06.8	1.556	2.520	156.4	9.3	15.5
1990	08 07	20 02.76	+03 15.0					
1990	08 17	19 55.88	+02 05.2	1.609	2.532	149.2	11.8	15.7
1990	08 27	19 51.02	+00 44.4					
1990	09 06	19 48.68	-00 39.9	1.749	2.545	132.9	16.9	16.0

1989 AT6 a,e,i = 2.40, 0.15, 2 Elements MPC 14955

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 38.78	-18 17.6	1.215	2.088	138.6	18.8	16.4
1990	06 28	20 35.31	-18 44.9					
1990	07 08	20 28.84	-19 23.5	1.126	2.111	160.2	9.4	15.9
1990	07 18	20 20.19	-20 08.6					
1990	07 28	20 10.64	-20 53.8	1.122	2.136	176.1	1.9	15.6
1990	08 07	20 01.72	-21 33.3					
1990	08 17	19 54.75	-22 03.3	1.212	2.164	153.1	12.2	16.2
1990	08 27	19 50.64	-22 22.4					
1990	09 06	19 49.82	-22 30.4	1.382	2.194	132.6	19.8	16.8

(4104) Alu a,e,i = 2.54, 0.10, 16 Elements MPC 14610

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 44.01	-40 04.6	1.418	2.280	138.5	17.2	15.7
1990	06 28	20 40.57	-41 59.4					
1990	07 08	20 33.49	-43 46.1	1.330	2.278	152.1	12.1	15.4
1990	07 18	20 23.54	-45 12.9					
1990	07 28	20 12.14	-46 09.2	1.328	2.279	152.9	11.7	15.4
1990	08 07	20 01.21	-46 29.9					
1990	08 17	19 52.51	-46 16.3	1.411	2.283	140.1	16.5	15.7
1990	08 27	19 47.25	-45 34.3					
1990	09 06	19 45.96	-44 31.2	1.564	2.288	124.2	21.4	16.1

(4120) 1985 RS4 a,e,i = 3.16, 0.08, 7 Elements MPC 14774

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 37.65	-12 30.1	2.233	3.057	137.1	13.1	17.1
1990	06 28	20 33.66	-12 46.8					
1990	07 08	20 27.91	-13 13.9	2.105	3.073	158.3	7.0	16.8
1990	07 18	20 20.89	-13 49.3					
1990	07 28	20 13.28	-14 30.5	2.076	3.089	174.4	1.8	16.5
1990	08 07	20 05.88	-15 14.0					
1990	08 17	19 59.46	-15 56.6	2.157	3.105	155.0	7.9	16.9
1990	08 27	19 54.62	-16 35.6					
1990	09 06	19 51.81	-17 09.2	2.336	3.121	134.0	13.4	17.3

1988 EU a,e,i = 3.19, 0.12, 5 Elements MPC 13161

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 40.13	-25 36.9	2.541	3.380	139.7	11.2	16.8
1990	06 28	20 35.65	-26 08.7					
1990	07 08	20 29.34	-26 42.3	2.386	3.361	160.5	5.8	16.4
1990	07 18	20 21.68	-27 14.3					
1990	07 28	20 13.32	-27 41.2	2.334	3.341	171.1	2.7	16.2
1990	08 07	20 05.09	-28 00.2					
1990	08 17	19 57.77	-28 09.9	2.394	3.320	151.7	8.3	16.5
1990	08 27	19 52.04	-28 10.2					
1990	09 06	19 48.35	-28 01.7	2.550	3.299	130.9	13.3	16.8

1980 OG a,e,i = 2.25, 0.16, 5 Elements MPC 12576

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 38.21	-15 14.3	1.216	2.084	137.9	19.1	16.9
1990	06 28	20 36.01	-15 39.9					
1990	07 08	20 30.69	-16 22.7	1.067	2.049	159.0	10.3	16.3
1990	07 18	20 22.78	-17 19.9					
1990	07 28	20 13.32	-18 25.6	1.002	2.016	176.9	1.5	15.7
1990	08 07	20 03.89	-19 31.9					
1990	08 17	19 56.06	-20 31.9	1.027	1.986	153.7	13.0	16.2
1990	08 27	19 51.11	-21 20.8					
1990	09 06	19 49.85	-21 56.0	1.130	1.959	132.7	22.2	16.7

1982 UY6 a,e,i = 2.63, 0.25, 7 Elements MPC 14785

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 36.86	-30 02.0	1.193	2.081	140.7	18.0	16.4
1990	06 28	20 35.38	-30 59.0					
1990	07 08	20 30.52	-31 57.9	1.064	2.045	158.9	10.3	15.9
1990	07 18	20 22.90	-32 49.8					
1990	07 28	20 13.75	-33 25.7	1.016	2.015	165.5	7.2	15.6
1990	08 07	20 04.84	-33 38.6					
1990	08 17	19 57.84	-33 27.0	1.054	1.992	149.2	15.1	15.9
1990	08 27	19 54.03	-32 53.2					
1990	09 06	19 54.06	-32 01.7	1.163	1.975	130.8	22.7	16.4

1980 TV2 a,e,i = 2.28, 0.25, 6 Elements MPC 14946

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 47.25	-27 52.7	1.466	2.325	138.3	16.9	18.5
1990	06 28	20 43.32	-28 34.0					
1990	07 08	20 36.03	-29 19.0	1.292	2.269	158.6	9.4	17.9
1990	07 18	20 25.87	-30 00.5					
1990	07 28	20 13.92	-30 30.6	1.208	2.212	168.4	5.3	17.5
1990	08 07	20 01.83	-30 43.0					
1990	08 17	19 51.31	-30 35.3	1.220	2.154	149.4	13.8	17.8
1990	08 27	19 43.77	-30 09.2					
1990	09 06	19 40.05	-29 28.5	1.311	2.096	128.8	22.0	18.1

1982 CE a,e,i = 2.33, 0.12, 3 Elements MPC 14615

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 46.32	-14 13.8	1.617	2.449	135.7	16.8	17.8
1990	06 28	20 41.68	-14 31.6					
1990	07 08	20 34.49	-15 01.9	1.502	2.472	157.6	9.0	17.4
1990	07 18	20 25.42	-15 41.8					
1990	07 28	20 15.44	-16 26.9	1.480	2.494	176.3	1.5	17.0
1990	08 07	20 05.79	-17 12.4					
1990	08 17	19 57.57	-17 54.1	1.562	2.514	154.5	10.0	17.5
1990	08 27	19 51.65	-18 29.1					
1990	09 06	19 48.55	-18 56.1	1.736	2.532	133.0	16.9	18.0

1988 CL a,e,i = 2.70, 0.24, 10 Elements MPC 12946

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 47.84	-27 00.3	2.251	3.083	138.1	12.7	17.9
1990	06 28	20 42.57	-27 21.0					
1990	07 08	20 35.02	-27 42.6	2.076	3.047	159.1	6.8	17.5
1990	07 18	20 25.72	-28 00.9					
1990	07 28	20 15.44	-28 11.9	2.003	3.010	170.7	3.1	17.2
1990	08 07	20 05.23	-28 12.8					
1990	08 17	19 56.07	-28 02.6	2.041	2.970	151.4	9.4	17.5
1990	08 27	19 48.82	-27 42.0					
1990	09 06	19 44.06	-27 12.9	2.174	2.928	130.2	15.2	17.8

1974 ME a,e,i = 3.01, 0.05, 11 Elements MPC 15874

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 42.40	-25 37.9	2.019	2.866	139.2	13.4	15.9
1990	06 28	20 38.55	-26 41.3					
1990	07 08	20 32.49	-27 48.4	1.897	2.872	159.6	7.1	15.5
1990	07 18	20 24.75	-28 53.9					
1990	07 28	20 16.15	-29 52.0	1.875	2.879	169.1	3.8	15.4
1990	08 07	20 07.71	-30 37.9					
1990	08 17	20 00.40	-31 09.3	1.960	2.886	150.8	9.8	15.7
1990	08 27	19 55.02	-31 25.8					
1990	09 06	19 52.11	-31 28.9	2.135	2.894	130.6	15.3	16.1

(4345) Rachmaninoff a,e,i = 2.90, 0.04, 3 Elements MPC 15693

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 43.25	-16 44.1	2.182	3.007	137.2	13.3	17.2
1990	06 28	20 39.14	-17 04.1					
1990	07 08	20 33.08	-17 32.2	2.038	3.008	158.8	7.0	16.8
1990	07 18	20 25.55	-18 05.8					
1990	07 28	20 17.25	-18 41.8	1.994	3.009	177.9	0.7	16.4
1990	08 07	20 09.07	-19 16.6					
1990	08 17	20 01.84	-19 47.5	2.059	3.009	155.2	8.1	16.9
1990	08 27	19 56.28	-20 12.6					
1990	09 06	19 52.88	-20 30.9	2.222	3.008	133.7	14.0	17.2

1982 SO1 a,e,i = 2.58, 0.20, 13 Elements MPC 13685

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 36.74	+02 17.4	1.310	2.115	130.4	21.5	16.1
1990	06 28	20 35.54	+02 55.7					
1990	07 08	20 31.72	+03 06.1	1.169	2.094	146.7	15.4	15.7
1990	07 18	20 25.78	+02 44.3					
1990	07 28	20 18.60	+01 48.7	1.099	2.079	158.9	10.1	15.4
1990	08 07	20 11.43	+00 23.2					
1990	08 17	20 05.49	-01 24.1	1.114	2.068	153.0	12.8	15.5
1990	08 27	20 01.85	-03 22.5					
1990	09 06	20 01.21	-05 20.9	1.211	2.063	136.6	19.6	15.9

(4141) 1978 PG3 a,e,i = 2.57, 0.01, 9 Elements MPC 14935

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 51.77	-25 18.4	1.717	2.556	137.0	15.7	16.7
1990	06 28	20 47.03	-25 26.9					
1990	07 08	20 39.60	-25 37.2	1.586	2.558	158.3	8.5	16.3
1990	07 18	20 30.11	-25 45.0					
1990	07 28	20 19.59	-25 46.2	1.549	2.561	173.3	2.7	15.9
1990	08 07	20 09.32	-25 37.9					
1990	08 17	20 00.47	-25 19.5	1.617	2.563	153.4	10.2	16.4
1990	08 27	19 53.97	-24 52.1					
1990	09 06	19 50.36	-24 17.6	1.776	2.566	132.3	16.9	16.8

(4166) 1978 SZ6 a,e,i = 2.61, 0.03, 3 Elements MPC 15055

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 52.39	-18 53.6	1.844	2.667	135.7	15.4	16.8
1990	06 28	20 48.44	-19 02.0					
1990	07 08	20 42.05	-19 17.7	1.697	2.663	157.2	8.5	16.4
1990	07 18	20 33.75	-19 37.9					
1990	07 28	20 24.36	-19 59.2	1.643	2.659	179.2	0.3	15.9
1990	08 07	20 14.96	-20 17.8					
1990	08 17	20 06.62	-20 31.2	1.696	2.654	156.2	8.9	16.4
1990	08 27	20 00.24	-20 38.0					
1990	09 06	19 56.42	-20 37.8	1.843	2.649	134.5	15.7	16.8

1984 DE a,e,i = 2.66, 0.10, 7 Elements MPC 15708

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 54.03	-20 55.2	2.045	2.862	135.8	14.3	16.9
1990	06 28	20 49.65	-21 01.4					
1990	07 08	20 42.95	-21 12.6	1.884	2.849	157.3	7.9	16.5
1990	07 18	20 34.41	-21 26.0					
1990	07 28	20 24.82	-21 38.1	1.820	2.835	177.6	0.9	16.1
1990	08 07	20 15.18	-21 46.1					
1990	08 17	20 06.51	-21 48.0	1.866	2.820	155.8	8.5	16.5
1990	08 27	19 59.66	-21 43.1					
1990	09 06	19 55.22	-21 31.7	2.008	2.804	134.0	15.0	16.9

(4092) 1986 TJ4 a,e,i = 2.63, 0.25, 4 Elements MPC 14606

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 48.03	-13 45.7	1.421	2.258	135.2	18.5	16.8
1990	06 28	20 46.27	-13 20.2					
1990	07 08	20 41.66	-13 06.1	1.242	2.207	155.2	11.1	16.2
1990	07 18	20 34.58	-13 03.4					
1990	07 28	20 25.85	-13 11.0	1.147	2.159	174.0	2.8	15.6
1990	08 07	20 16.75	-13 25.8					
1990	08 17	20 08.65	-13 44.4	1.144	2.115	157.2	10.7	15.9
1990	08 27	20 02.81	-14 03.0					
1990	09 06	20 00.09	-14 18.5	1.226	2.075	136.2	19.6	16.3

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 52.52	-15 33.6	2.285	3.086	134.7	13.5	17.8
1990	06 28	20 48.23	-15 56.2					
1990	07 08	20 42.01	-16 27.5	2.156	3.114	156.4	7.5	17.5
1990	07 18	20 34.34	-17 04.9					
1990	07 28	20 25.89	-17 45.1	2.126	3.141	178.5	0.5	17.1
1990	08 07	20 17.48	-18 24.6					
1990	08 17	20 09.93	-19 00.4	2.209	3.167	157.2	7.1	17.6
1990	08 27	20 03.90	-19 30.4					
1990	09 06	19 59.88	-19 53.4	2.393	3.190	135.4	12.8	18.0

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 53.23	-24 14.3	1.475	2.321	136.6	17.5	18.0
1990	06 28	20 50.65	-24 53.4					
1990	07 08	20 44.98	-25 39.8	1.322	2.293	157.1	9.9	17.5
1990	07 18	20 36.71	-26 27.9					
1990	07 28	20 26.78	-27 10.4	1.256	2.266	172.1	3.6	17.1
1990	08 07	20 16.60	-27 41.0					
1990	08 17	20 07.63	-27 55.8	1.287	2.240	153.8	11.5	17.4
1990	08 27	20 01.13	-27 54.3					
1990	09 06	19 57.90	-27 38.2	1.402	2.216	133.1	19.4	17.8

(4013) 1979 OM15 a,e,i = 3.14, 0.19, 1 Elements MPC 14328

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 49.08	-17 00.2	1.881	2.705	135.9	15.1	16.4
1990	06 28	20 46.53	-17 08.5					
1990	07 08	20 41.72	-17 25.9	1.713	2.677	156.8	8.6	15.9
1990	07 18	20 35.05	-17 50.3					
1990	07 28	20 27.23	-18 18.6	1.637	2.652	179.0	0.4	15.4
1990	08 07	20 19.24	-18 47.0					
1990	08 17	20 12.08	-19 12.0	1.665	2.629	157.7	8.4	15.8
1990	08 27	20 06.64	-19 31.4					
1990	09 06	20 03.57	-19 43.5	1.786	2.609	136.3	15.5	16.2

1931 UD a,e,i = 2.62, 0.18, 13 Elements MPC 15873

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 00.32	-31 49.4	1.668	2.498	135.7	16.5	15.8
1990	06 28	20 56.46	-32 10.3					
1990	07 08	20 49.42	-32 29.4	1.501	2.460	155.0	10.1	15.3
1990	07 18	20 39.71	-32 40.4					
1990	07 28	20 28.34	-32 36.8	1.423	2.422	166.6	5.6	15.0
1990	08 07	20 16.77	-32 14.2					
1990	08 17	20 06.48	-31 32.4	1.445	2.385	151.7	11.6	15.2
1990	08 27	19 58.72	-30 34.1					
1990	09 06	19 54.23	-29 23.8	1.555	2.350	131.8	18.7	15.6

1982 TX a,e,i = 2.57, 0.43, 16 Elements MPC 11053

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 53.29	+05 38.7	1.792	2.518	125.1	19.3	19.1
1990	06 28	20 50.70	+07 01.5					
1990	07 08	20 45.51	+08 08.7	1.547	2.421	140.7	15.4	18.6
1990	07 18	20 37.90	+08 54.0					
1990	07 28	20 28.38	+09 11.3	1.378	2.322	151.6	12.0	18.2
1990	08 07	20 17.92	+08 56.8					
1990	08 17	20 07.74	+08 10.6	1.297	2.220	147.8	14.0	18.0
1990	08 27	19 59.12	+06 56.9					
1990	09 06	19 53.19	+05 23.9	1.299	2.117	132.8	20.4	18.1

1981 EJ15 a,e,i = 2.45, 0.17, 2 Elements MPC 10616

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 59.60	-15 42.5	1.747	2.552	133.1	16.9	19.0
1990	06 28	20 56.59	-15 42.8					
1990	07 08	20 50.91	-15 53.6	1.562	2.517	154.2	10.1	18.5
1990	07 18	20 42.94	-16 13.3					
1990	07 28	20 33.39	-16 38.9	1.465	2.480	176.8	1.3	18.0
1990	08 07	20 23.38	-17 06.4					
1990	08 17	20 14.11	-17 31.9	1.472	2.443	158.4	8.8	18.3
1990	08 27	20 06.70	-17 52.5					
1990	09 06	20 01.97	-18 06.3	1.573	2.405	136.2	16.9	18.7

1986 QN a,e,i = 2.56, 0.24, 5 Elements MPC 11639

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 56.00	-12 42.4	1.691	2.496	133.0	17.3	17.9
1990	06 28	20 53.89	-12 50.9					
1990	07 08	20 49.14	-13 14.1	1.490	2.442	153.6	10.7	17.4
1990	07 18	20 42.06	-13 51.2					
1990	07 28	20 33.30	-14 39.3	1.375	2.388	175.1	2.1	16.8
1990	08 07	20 23.92	-15 33.7					
1990	08 17	20 15.14	-16 28.8	1.362	2.334	158.8	9.0	17.0
1990	08 27	20 08.14	-17 19.6					
1990	09 06	20 03.85	-18 02.4	1.440	2.281	136.7	17.7	17.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 55.92	-13 02.0	1.541	2.355	133.1	18.4	17.6
1990	06 28	20 54.20	-12 57.3					
1990	07 08	20 49.75	-13 06.5	1.370	2.324	153.4	11.3	17.1
1990	07 18	20 42.94	-13 28.7					
1990	07 28	20 34.53	-14 01.6	1.283	2.296	174.4	2.5	16.6
1990	08 07	20 25.65	-14 40.7					
1990	08 17	20 17.56	-15 21.0	1.293	2.269	159.4	9.0	16.9
1990	08 27	20 11.42	-15 58.1					
1990	09 06	20 08.05	-16 28.4	1.393	2.245	137.9	17.5	17.3

1975 TX2 a,e,i = 2.49, 0.10, 8 Elements MPC 15699

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 03.29	-27 04.6	1.899	2.711	134.7	15.4	17.5
1990	06 28	20 59.72	-27 59.3					
1990	07 08	20 53.45	-28 58.8	1.747	2.702	154.9	9.2	17.1
1990	07 18	20 44.89	-29 57.0					
1990	07 28	20 34.85	-30 47.2	1.689	2.692	168.3	4.4	16.8
1990	08 07	20 24.49	-31 23.5					
1990	08 17	20 15.01	-31 42.9	1.737	2.680	153.1	9.8	17.1
1990	08 27	20 07.48	-31 44.9					
1990	09 06	20 02.64	-31 31.7	1.878	2.666	132.7	16.1	17.5

1967 DA a,e,i = 3.01, 0.28, 4 Elements MPC 13043

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 59.04	-15 23.7	3.074	3.841	133.2	11.1	18.5
1990	06 28	20 55.11	-15 42.6					
1990	07 08	20 49.62	-16 08.5	2.896	3.839	154.6	6.5	18.2
1990	07 18	20 42.89	-16 39.5					
1990	07 28	20 35.40	-17 13.5	2.821	3.835	177.0	0.8	17.8
1990	08 07	20 27.73	-17 47.8					
1990	08 17	20 20.48	-18 20.0	2.863	3.829	159.8	5.2	18.1
1990	08 27	20 14.23	-18 48.3					
1990	09 06	20 09.44	-19 11.3	3.013	3.820	137.8	10.2	18.4

1981 EZ2 a,e,i = 2.53, 0.10, 9 Elements MPC 14615

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 00.97	-04 16.5	1.767	2.528	128.5	18.3	17.1
1990	06 28	20 57.81	-03 46.3					
1990	07 08	20 52.24	-03 33.0	1.631	2.550	147.9	12.2	16.7
1990	07 18	20 44.73	-03 37.8					
1990	07 28	20 36.03	-04 00.4	1.578	2.572	164.6	6.0	16.5
1990	08 07	20 27.16	-04 37.8					
1990	08 17	20 19.12	-05 25.8	1.627	2.593	157.9	8.5	16.6
1990	08 27	20 12.80	-06 19.0					
1990	09 06	20 08.82	-07 12.3	1.771	2.614	138.6	14.8	17.1

1976 GD2 a,e,i = 2.25, 0.14, 8 Elements MPC 10830

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 01.07	-03 01.2	1.321	2.104	127.9	22.4	17.7
1990	06 28	20 58.65	-02 26.1					
1990	07 08	20 53.26	-02 14.1	1.210	2.135	146.8	15.1	17.3
1990	07 18	20 45.45	-02 27.1					
1990	07 28	20 36.16	-03 04.8	1.173	2.166	163.7	7.6	17.0
1990	08 07	20 26.73	-04 02.4					
1990	08 17	20 18.46	-05 13.1	1.228	2.198	157.6	10.1	17.2
1990	08 27	20 12.41	-06 28.7					
1990	09 06	20 09.27	-07 41.7	1.371	2.230	138.7	17.4	17.7

(4214) 1987 UX4 a,e,i = 2.42, 0.13, 4 Elements MPC 15234

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 05.00	-21 48.8	1.910	2.711	133.4	15.8	17.1
1990	06 28	21 01.32	-22 16.2					
1990	07 08	20 55.02	-22 50.7	1.746	2.700	154.7	9.3	16.7
1990	07 18	20 46.52	-23 28.3					
1990	07 28	20 36.57	-24 04.0	1.675	2.687	174.6	2.1	16.3
1990	08 07	20 26.27	-24 32.8					
1990	08 17	20 16.76	-24 51.5	1.711	2.672	157.0	8.5	16.6
1990	08 27	20 09.07	-24 58.8					
1990	09 06	20 03.93	-24 55.0	1.844	2.656	135.2	15.5	17.0

1987 SV17 a,e,i = 2.23, 0.15, 2 Elements MPC 15250

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 01.25	-16 23.8	1.350	2.173	132.9	20.0	17.2
1990	06 28	20 59.53	-16 16.6					
1990	07 08	20 54.58	-16 21.5	1.179	2.138	153.5	12.2	16.7
1990	07 18	20 46.74	-16 36.9					
1990	07 28	20 36.82	-16 59.4	1.088	2.102	176.6	1.7	16.0
1990	08 07	20 26.21	-17 23.9					
1990	08 17	20 16.47	-17 45.9	1.091	2.068	158.9	10.1	16.3
1990	08 27	20 09.05	-18 01.7					
1990	09 06	20 04.94	-18 09.4	1.179	2.035	136.9	19.8	16.8

1986 WP8 a,e,i = 3.12, 0.13, 2 Elements MPC 13163

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	20 59.25	-15 40.2	2.735	3.510	133.2	12.2	18.3
1990	06 28	20 55.67	-15 55.8					
1990	07 08	20 50.38	-16 18.9	2.568	3.512	154.5	7.2	17.9
1990	07 18	20 43.74	-16 47.6					
1990	07 28	20 36.24	-17 19.4	2.499	3.514	176.9	0.9	17.5
1990	08 07	20 28.56	-17 51.6					
1990	08 17	20 21.37	-18 21.6	2.545	3.514	160.0	5.7	17.9
1990	08 27	20 15.30	-18 47.2					
1990	09 06	20 10.84	-19 07.3	2.697	3.513	138.1	11.0	18.2

(4220) Flood a,e,i = 2.80, 0.19, 7 Elements MPC 15236

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 00.46	-07 39.7	2.502	3.250	130.0	13.8	18.3
1990	06 28	20 56.93	-07 29.2					
1990	07 08	20 51.53	-07 29.9	2.307	3.230	150.3	9.0	18.0
1990	07 18	20 44.59	-07 41.9					
1990	07 28	20 36.63	-08 04.2	2.206	3.208	168.5	3.6	17.7
1990	08 07	20 28.36	-08 34.8					
1990	08 17	20 20.54	-09 10.7	2.216	3.184	159.4	6.4	17.8
1990	08 27	20 13.88	-09 49.0					
1990	09 06	20 08.97	-10 26.4	2.330	3.158	138.6	12.2	18.1

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 00.55	-14 17.9	2.194	2.976	132.5	14.6	16.8
1990	06 28	20 57.48	-14 13.6					
1990	07 08	20 52.34	-14 18.3	2.032	2.976	153.3	8.8	16.4
1990	07 18	20 45.54	-14 30.7					
1990	07 28	20 37.67	-14 48.7	1.963	2.976	174.7	1.8	16.0
1990	08 07	20 29.57	-15 09.5					
1990	08 17	20 22.08	-15 30.3	2.003	2.977	160.5	6.5	16.3
1990	08 27	20 15.96	-15 48.7					
1990	09 06	20 11.80	-16 03.0	2.144	2.977	138.9	12.9	16.7

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 00.52	-16 34.0	1.813	2.615	133.2	16.5	16.7
1990	06 28	20 57.96	-16 39.7					
1990	07 08	20 52.97	-16 55.3	1.671	2.623	154.1	9.8	16.3
1990	07 18	20 46.00	-17 18.3					
1990	07 28	20 37.80	-17 45.5	1.618	2.632	176.8	1.2	15.8
1990	08 07	20 29.36	-18 12.9					
1990	08 17	20 21.70	-18 36.9	1.668	2.643	160.0	7.5	16.2
1990	08 27	20 15.74	-18 55.1					
1990	09 06	20 12.09	-19 06.1	1.815	2.655	138.4	14.6	16.6

3074 P-L a,e,i = 2.97, 0.05, 9 Elements MPC 14628

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 00.20	-04 22.8	2.284	3.025	128.7	15.2	17.9
1990	06 28	20 57.03	-03 57.5					
1990	07 08	20 51.94	-03 45.7	2.123	3.034	148.0	10.2	17.6
1990	07 18	20 45.30	-03 48.0					
1990	07 28	20 37.68	-04 04.1	2.052	3.042	164.6	5.1	17.3
1990	08 07	20 29.84	-04 32.1					
1990	08 17	20 22.56	-05 09.0	2.086	3.051	158.5	7.0	17.5
1990	08 27	20 16.54	-05 51.1					
1990	09 06	20 12.34	-06 34.4	2.222	3.059	139.4	12.4	17.8

3102 T-2 a,e,i = 2.70, 0.14, 13 Elements MPC 15728

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 10.31	-34 02.8	2.280	3.071	133.7	13.8	17.5
1990	06 28	21 05.82	-34 49.9					
1990	07 08	20 58.78	-35 35.7	2.137	3.072	152.1	8.9	17.2
1990	07 18	20 49.65	-36 14.4					
1990	07 28	20 39.20	-36 40.1	2.089	3.072	162.3	5.8	17.0
1990	08 07	20 28.51	-36 48.7					
1990	08 17	20 18.67	-36 39.0	2.149	3.070	150.4	9.4	17.2
1990	08 27	20 10.62	-36 12.2					
1990	09 06	20 05.02	-35 31.4	2.304	3.066	131.5	14.2	17.6

1988 AG a,e,i = 2.81, 0.17, 9 Elements MPC 12944

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 08.24	-24 07.7	2.504	3.284	133.2	13.0	17.7
1990	06 28	21 04.08	-24 27.6					
1990	07 08	20 57.84	-24 51.0	2.338	3.283	154.2	7.8	17.4
1990	07 18	20 49.89	-25 14.6					
1990	07 28	20 40.85	-25 34.8	2.270	3.280	172.8	2.2	17.1
1990	08 07	20 31.54	-25 48.3					
1990	08 17	20 22.81	-25 53.2	2.315	3.275	157.7	6.7	17.3
1990	08 27	20 15.43	-25 48.7					
1990	09 06	20 09.99	-25 35.5	2.465	3.268	136.3	12.3	17.7

(4203) 1985 FD3 a,e,i = 2.60, 0.14, 29 Elements MPC 15228

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 38.59	-51 55.0	1.576	2.334	127.1	20.3	15.9
1990	06 28	21 31.22	-52 32.4					
1990	07 08	21 18.71	-52 53.0	1.480	2.355	140.5	15.9	15.7
1990	07 18	21 02.18	-52 43.8					
1990	07 28	20 43.72	-51 55.0	1.461	2.379	147.1	13.4	15.6
1990	08 07	20 26.04	-50 23.6					
1990	08 17	20 11.38	-48 16.0	1.533	2.404	140.7	15.5	15.8
1990	08 27	20 01.02	-45 43.6					
1990	09 06	19 55.27	-42 58.8	1.692	2.430	126.4	19.5	16.1

1981 ET16 a,e,i = 2.57, 0.20, 13 Elements MPC 10384

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	20 55.89	+04 32.5	1.301	2.061	125.2	23.8	17.6
1990 06	28	20 55.75	+05 31.7					
1990 07	08	20 52.81	+06 03.0	1.175	2.068	141.1	18.0	17.2
1990 07	18	20 47.49	+06 01.2					
1990 07	28	20 40.58	+05 23.7	1.114	2.080	155.1	11.9	17.0
1990 08	07	20 33.25	+04 12.5					
1990 08	17	20 26.74	+02 35.1	1.134	2.097	155.1	11.7	17.0
1990 08	27	20 22.16	+00 41.8					
1990 09	06	20 20.29	-01 15.5	1.239	2.118	140.8	17.5	17.4

4129 T-2 a,e,i = 2.30, 0.14, 5 Elements MPC 15085

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	21 10.10	-25 12.6	1.289	2.116	132.9	20.6	18.1
1990 06	28	21 07.72	-25 55.4					
1990 07	08	21 01.79	-26 45.0	1.189	2.146	153.3	12.3	17.7
1990 07	18	20 52.93	-27 34.2					
1990 07	28	20 42.25	-28 14.8	1.170	2.178	170.2	4.5	17.4
1990 08	07	20 31.36	-28 39.6					
1990 08	17	20 21.84	-28 45.8	1.246	2.210	156.0	10.7	17.8
1990 08	27	20 14.91	-28 34.0					
1990 09	06	20 11.30	-28 07.1	1.408	2.243	135.7	18.3	18.3

1987 SG13 a,e,i = 2.22, 0.11, 5 Elements MPC 15558

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	21 10.66	-23 54.7	1.494	2.306	132.6	18.9	18.0
1990 06	28	21 08.52	-24 29.8					
1990 07	08	21 03.09	-25 13.7	1.329	2.282	153.0	11.7	17.5
1990 07	18	20 54.69	-26 01.1					
1990 07	28	20 44.14	-26 44.4	1.247	2.257	171.4	3.9	17.1
1990 08	07	20 32.79	-27 16.4					
1990 08	17	20 22.22	-27 32.1	1.264	2.230	156.8	10.3	17.3
1990 08	27	20 13.85	-27 30.2					
1990 09	06	20 08.68	-27 12.2	1.369	2.204	135.5	18.7	17.7

9509 P-L a,e,i = 2.65, 0.26, 11 Elements MPC 16036

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	20 53.15	+00 49.8	1.202	1.993	127.7	23.8	18.0
1990 06	28	20 54.33	+01 42.3					
1990 07	08	20 52.69	+02 08.2	1.062	1.977	144.0	17.6	17.5
1990 07	18	20 48.55	+02 02.5					
1990 07	28	20 42.64	+01 22.2	0.988	1.970	159.0	10.7	17.1
1990 08	07	20 36.14	+00 10.1					
1990 08	17	20 30.34	-01 26.6	0.993	1.970	158.3	10.9	17.2
1990 08	27	20 26.46	-03 16.8					
1990 09	06	20 25.39	-05 08.4	1.080	1.978	142.6	18.0	17.6

1986 UD3 a,e,i = 2.62, 0.16, 12 Elements MPC 14949

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	21 06.54	-00 24.9	1.890	2.614	125.4	18.5	16.8
1990 06	28	21 04.38	+00 37.8					
1990 07	08	20 59.82	+01 25.8	1.692	2.578	143.2	13.7	16.4
1990 07	18	20 53.13	+01 55.6					
1990 07	28	20 44.86	+02 04.6	1.572	2.543	158.2	8.5	16.0
1990 08	07	20 35.90	+01 52.1					
1990 08	17	20 27.28	+01 20.4	1.549	2.508	156.0	9.4	16.0
1990 08	27	20 20.02	+00 33.8					
1990 09	06	20 14.96	-00 21.6	1.619	2.473	139.4	15.4	16.3

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 04.33	-19 17.6	1.881	2.679	133.0	16.1	16.8
1990	06 28	21 02.69	-19 34.9					
1990	07 08	20 58.62	-20 01.1	1.708	2.657	153.5	9.8	16.3
1990	07 18	20 52.46	-20 33.5					
1990	07 28	20 44.83	-21 08.0	1.624	2.637	175.1	1.9	15.9
1990	08 07	20 36.67	-21 39.8					
1990	08 17	20 29.03	-22 05.2	1.643	2.620	160.7	7.3	16.1
1990	08 27	20 22.88	-22 21.6					
1990	09 06	20 18.96	-22 27.7	1.758	2.605	139.2	14.7	16.5

1982 ST7 a,e,i = 2.57, 0.29, 4 Elements MPC 16231

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 09.55	-20 06.4	1.597	2.399	132.0	18.3	18.0
1990	06 28	21 08.28	-20 10.7					
1990	07 08	21 04.03	-20 24.0	1.386	2.335	152.3	11.7	17.5
1990	07 18	20 56.96	-20 43.8					
1990	07 28	20 47.67	-21 05.9	1.258	2.271	174.5	2.4	16.8
1990	08 07	20 37.28	-21 24.9					
1990	08 17	20 27.19	-21 36.2	1.228	2.208	160.5	8.8	17.0
1990	08 27	20 18.82	-21 37.1					
1990	09 06	20 13.33	-21 26.8	1.288	2.147	138.2	18.2	17.3

1981 WM4 a,e,i = 2.84, 0.21, 11 Elements MPC 15706

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 07.25	-04 51.5	1.792	2.540	127.3	18.5	16.1
1990	06 28	21 05.68	-03 49.2					
1990	07 08	21 01.62	-02 59.2	1.592	2.498	145.7	13.3	15.7
1990	07 18	20 55.34	-02 24.1					
1990	07 28	20 47.38	-02 06.3	1.472	2.458	162.1	7.3	15.3
1990	08 07	20 38.66	-02 06.0					
1990	08 17	20 30.25	-02 21.4	1.448	2.420	158.8	8.7	15.2
1990	08 27	20 23.21	-02 49.0					
1990	09 06	20 18.45	-03 23.6	1.517	2.384	140.7	15.5	15.5

1978 VY14 a,e,i = 2.65, 0.02, 3 Elements MPC 14613

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 12.16	-20 06.9	1.918	2.700	131.4	16.4	17.3
1990	06 28	21 09.72	-20 36.5					
1990	07 08	21 04.75	-21 15.2	1.759	2.701	152.3	10.1	17.0
1990	07 18	20 57.60	-21 59.4					
1990	07 28	20 48.92	-22 44.1	1.690	2.702	173.6	2.4	16.5
1990	08 07	20 39.70	-23 24.0					
1990	08 17	20 31.01	-23 55.1	1.727	2.702	160.3	7.3	16.8
1990	08 27	20 23.83	-24 14.9					
1990	09 06	20 18.92	-24 22.7	1.863	2.702	138.6	14.3	17.2

(4107) Rufino a,e,i = 2.55, 0.20, 18 Elements MPC 14611

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 13.90	-05 29.0	2.309	3.021	126.1	15.8	16.8
1990	06 28	21 11.34	-05 50.7					
1990	07 08	21 06.67	-06 29.0	2.103	3.004	146.6	10.7	16.4
1990	07 18	21 00.16	-07 23.7					
1990	07 28	20 52.27	-08 33.0	1.985	2.985	167.5	4.2	16.0
1990	08 07	20 43.72	-09 52.7					
1990	08 17	20 35.35	-11 17.6	1.978	2.963	163.4	5.6	16.0
1990	08 27	20 28.01	-12 42.1					
1990	09 06	20 22.41	-14 01.1	2.081	2.939	141.7	12.3	16.4

(4468) a,e,i = 2.36, 0.16, 1 Elements MPC 16406

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	21 18.15	-16 32.8	1.956	2.714	129.1	16.9	18.3
1990 06	28	21 15.46	-16 48.2					
1990 07	08	21 10.19	-17 14.6	1.769	2.699	150.2	10.8	17.9
1990 07	18	21 02.61	-17 49.7					
1990 07	28	20 53.32	-18 29.6	1.671	2.682	173.4	2.5	17.4
1990 08	07	20 43.26	-19 09.6					
1990 08	17	20 33.53	-19 45.1	1.680	2.663	162.5	6.6	17.6
1990 08	27	20 25.19	-20 12.8					
1990 09	06	20 19.10	-20 30.9	1.790	2.641	139.7	14.3	18.0

5161 T-2 a,e,i = 2.68, 0.17, 12 Elements MPC 16038

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	21 23.61	-26 18.2	2.132	2.893	130.1	15.6	18.5
1990 06	28	21 20.58	-26 34.4					
1990 07	08	21 14.91	-26 54.5	1.936	2.864	150.3	10.1	18.1
1990 07	18	21 06.88	-27 14.5					
1990 07	28	20 57.08	-27 29.5	1.829	2.833	169.1	3.9	17.7
1990 08	07	20 46.47	-27 34.7					
1990 08	17	20 36.16	-27 27.5	1.831	2.801	159.3	7.3	17.8
1990 08	27	20 27.24	-27 07.1					
1990 09	06	20 20.55	-26 34.6	1.934	2.768	138.2	14.1	18.1

1988 DJ a,e,i = 3.07, 0.05, 9 Elements MPC 13053

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	21 16.56	-05 20.0	2.542	3.239	125.4	14.8	18.8
1990 06	28	21 14.09	-04 56.0					
1990 07	08	21 09.74	-04 43.6	2.352	3.238	145.0	10.4	18.5
1990 07	18	21 03.78	-04 43.4					
1990 07	28	20 56.66	-04 55.2	2.248	3.236	163.8	5.0	18.2
1990 08	07	20 49.01	-05 17.6					
1990 08	17	20 41.54	-05 47.9	2.251	3.233	163.0	5.2	18.2
1990 08	27	20 34.96	-06 23.2					
1990 09	06	20 29.87	-06 59.9	2.361	3.230	143.8	10.6	18.5

4134 T-3 a,e,i = 2.73, 0.19, 4 Elements MPC 12802

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	21 19.71	-19 38.1	2.040	2.799	129.6	16.2	18.9
1990 06	28	21 18.14	-20 05.4					
1990 07	08	21 14.08	-20 42.8	1.832	2.760	150.1	10.6	18.4
1990 07	18	21 07.73	-21 27.5					
1990 07	28	20 59.57	-22 15.1	1.712	2.721	171.5	3.1	17.9
1990 08	07	20 50.44	-23 00.1					
1990 08	17	20 41.38	-23 37.6	1.697	2.680	162.5	6.5	18.0
1990 08	27	20 33.44	-24 04.1					
1990 09	06	20 27.56	-24 17.8	1.783	2.640	140.5	14.1	18.4

(4069) Blakee a,e,i = 2.17, 0.07, 2 Elements MPC 14598

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 06	18	21 21.95	-12 13.9	1.295	2.070	126.9	23.1	17.2
1990 06	28	21 21.35	-11 57.8					
1990 07	08	21 17.41	-11 58.5	1.159	2.085	146.8	15.5	16.8
1990 07	18	21 10.44	-12 15.5					
1990 07	28	21 01.18	-12 46.1	1.095	2.101	169.3	5.1	16.3
1990 08	07	20 50.95	-13 25.0					
1990 08	17	20 41.22	-14 06.0	1.123	2.118	165.1	7.0	16.4
1990 08	27	20 33.39	-14 43.4					
1990 09	06	20 28.46	-15 13.0	1.242	2.135	142.9	16.5	17.0

1987 YS1 a,e,i = 2.55, 0.12, 13 Elements MPC 14950

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 19.92	-07 28.0	2.105	2.820	125.6	17.0	18.2
1990	06 28	21 18.20	-07 46.8					
1990	07 08	21 14.21	-08 22.4	1.906	2.807	145.9	11.7	17.8
1990	07 18	21 08.16	-09 14.3					
1990	07 28	21 00.52	-10 20.5	1.791	2.792	167.8	4.4	17.3
1990	08 07	20 52.04	-11 36.5					
1990	08 17	20 43.64	-12 56.5	1.783	2.776	165.7	5.2	17.4
1990	08 27	20 36.23	-14 14.8					
1990	09 06	20 30.64	-15 26.1	1.882	2.758	143.4	12.6	17.7

1982 FG3 a,e,i = 2.26, 0.15, 2 Elements MPC 15243

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 24.37	-15 22.5	1.665	2.420	127.3	19.5	17.4
1990	06 28	21 23.11	-15 21.5					
1990	07 08	21 18.90	-15 33.2	1.469	2.391	147.7	13.1	16.9
1990	07 18	21 11.93	-15 56.2					
1990	07 28	21 02.71	-16 27.4	1.352	2.360	170.8	4.0	16.3
1990	08 07	20 52.26	-17 01.9					
1990	08 17	20 41.85	-17 34.5	1.335	2.327	164.9	6.5	16.4
1990	08 27	20 32.83	-18 00.9					
1990	09 06	20 26.29	-18 18.1	1.415	2.294	141.9	15.7	16.8

1977 DN4 a,e,i = 3.14, 0.12, 3 Elements MPC 12451

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 20.96	-16 55.1	2.690	3.417	128.6	13.4	18.4
1990	06 28	21 18.42	-17 16.0					
1990	07 08	21 14.00	-17 45.0	2.516	3.431	149.5	8.7	18.1
1990	07 18	21 07.99	-18 19.9					
1990	07 28	21 00.82	-18 57.8	2.436	3.444	171.7	2.4	17.8
1990	08 07	20 53.12	-19 35.3					
1990	08 17	20 45.60	-20 09.2	2.468	3.456	165.0	4.4	17.9
1990	08 27	20 38.94	-20 37.0					
1990	09 06	20 33.72	-20 57.2	2.609	3.466	142.9	10.1	18.3

1980 KR1 a,e,i = 2.19, 0.14, 5 Elements MPC 12959

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 20.55	-09 51.1	1.192	1.972	126.3	24.5	16.9
1990	06 28	21 20.77	-09 50.9					
1990	07 08	21 17.57	-10 12.5	1.073	1.999	146.0	16.5	16.4
1990	07 18	21 11.30	-10 55.5					
1990	07 28	21 02.72	-11 55.9	1.023	2.029	168.5	5.7	16.0
1990	08 07	20 53.17	-13 06.3					
1990	08 17	20 44.15	-14 18.1	1.063	2.060	165.9	6.9	16.2
1990	08 27	20 37.05	-15 23.2					
1990	09 06	20 32.86	-16 16.2	1.192	2.092	143.8	16.5	16.8

1981 EK26 a,e,i = 2.55, 0.12, 3 Elements MPC 15880

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 19.68	-12 22.1	1.511	2.276	127.4	20.8	19.1
1990	06 28	21 19.25	-12 23.6					
1990	07 08	21 15.94	-12 41.3	1.367	2.290	147.4	13.8	18.7
1990	07 18	21 10.04	-13 13.9					
1990	07 28	21 02.19	-13 58.1	1.299	2.305	169.8	4.5	18.2
1990	08 07	20 53.46	-14 48.5					
1990	08 17	20 45.07	-15 38.9	1.328	2.323	166.0	6.1	18.4
1990	08 27	20 38.19	-16 23.9					
1990	09 06	20 33.71	-16 59.5	1.452	2.342	143.9	14.7	18.9

(4033) Yatsugatake a,e,i = 2.24, 0.09, 5 Elements MPC 14336

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 27.49	-22 50.6	1.430	2.211	128.6	21.1	17.3
1990	06 28	21 26.39	-23 32.4					
1990	07 08	21 21.88	-24 25.4	1.300	2.232	148.7	13.7	16.9
1990	07 18	21 14.28	-25 23.7					
1990	07 28	21 04.35	-26 19.3	1.249	2.253	168.6	5.1	16.5
1990	08 07	20 53.43	-27 03.9					
1990	08 17	20 43.02	-27 31.5	1.294	2.274	160.5	8.6	16.8
1990	08 27	20 34.53	-27 40.1					
1990	09 06	20 28.94	-27 30.6	1.432	2.294	139.5	16.6	17.3

1989 CM1 a,e,i = 2.54, 0.15, 6 Elements MPC 14478

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 29.83	-23 46.7	1.562	2.332	128.3	20.0	16.2
1990	06 28	21 28.49	-24 13.2					
1990	07 08	21 23.97	-24 47.9	1.436	2.362	148.3	13.1	15.8
1990	07 18	21 16.63	-25 25.7					
1990	07 28	21 07.22	-26 00.3	1.391	2.394	168.3	4.9	15.5
1990	08 07	20 56.94	-26 25.1					
1990	08 17	20 47.15	-26 35.7	1.444	2.427	161.8	7.5	15.7
1990	08 27	20 39.05	-26 30.9					
1990	09 06	20 33.56	-26 11.6	1.593	2.460	141.0	14.9	16.2

(4181) 1938 DK1 a,e,i = 2.61, 0.13, 14 Elements MPC 15219

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 25.68	-06 10.4	2.268	2.955	123.7	16.6	17.1
1990	06 28	21 23.89	-06 27.8					
1990	07 08	21 19.95	-07 01.2	2.074	2.958	144.1	11.6	16.8
1990	07 18	21 14.07	-07 50.5					
1990	07 28	21 06.69	-08 53.8	1.964	2.958	165.7	4.9	16.4
1990	08 07	20 58.51	-10 07.1					
1990	08 17	20 50.33	-11 25.2	1.961	2.957	167.1	4.4	16.4
1990	08 27	20 43.00	-12 42.8					
1990	09 06	20 37.28	-13 54.6	2.069	2.954	145.2	11.2	16.7

(4344) Buxtehude a,e,i = 3.11, 0.12, 2 Elements MPC 15693

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 26.52	-15 37.1	2.359	3.079	126.9	15.3	17.5
1990	06 28	21 24.64	-15 53.9					
1990	07 08	21 20.65	-16 20.5	2.196	3.103	147.6	10.1	17.2
1990	07 18	21 14.84	-16 54.9					
1990	07 28	21 07.67	-17 34.1	2.122	3.126	169.9	3.3	16.9
1990	08 07	20 59.84	-18 14.0					
1990	08 17	20 52.14	-18 51.0	2.155	3.150	166.9	4.2	17.0
1990	08 27	20 45.34	-19 22.0					
1990	09 06	20 40.10	-19 44.9	2.297	3.173	144.7	10.6	17.4

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 24.99	-17 44.6	2.079	2.819	127.9	16.5	18.1
1990	06 28	21 24.09	-18 04.2					
1990	07 08	21 20.84	-18 34.3	1.887	2.802	148.1	11.1	17.7
1990	07 18	21 15.42	-19 12.6					
1990	07 28	21 08.30	-19 55.6	1.780	2.785	170.0	3.6	17.3
1990	08 07	21 00.24	-20 38.2					
1990	08 17	20 52.15	-21 16.0	1.777	2.770	165.9	5.1	17.3
1990	08 27	20 45.02	-21 45.1					
1990	09 06	20 39.66	-22 03.4	1.877	2.755	143.8	12.5	17.7

1985 TQ1 a,e,i = 3.17, 0.09, 9 Elements MPC 14195

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	06 18	21 29.77	-28 05.4	2.188	2.936	129.0	15.6	17.3
1990	06 28	21 28.43	-28 42.2					
1990	07 08	21 24.59	-29 23.9	2.014	2.926	148.1	10.6	16.9
1990	07 18	21 18.48	-30 05.8					
1990	07 28	21 10.61	-30 42.6	1.926	2.918	164.7	5.3	16.6
1990	08 07	21 01.81	-31 08.7					
1990	08 17	20 53.07	-31 20.2	1.942	2.910	159.1	7.1	16.7
1990	08 27	20 45.38	-31 15.6					
1990	09 06	20 39.58	-30 55.4	2.058	2.904	140.1	12.9	17.0

1989 GR6 a,e,i = 2.62, 0.19, 14 Elements MPC 14957

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 24.60	-18 44.5	1.549	2.466	147.3	12.9	15.6
1990	07 18	21 19.92	-20 18.7					
1990	07 28	21 12.98	-22 03.4	1.421	2.425	168.6	4.7	15.0
1990	08 07	21 04.55	-23 49.8					
1990	08 17	20 55.74	-25 28.3	1.395	2.385	164.0	6.7	15.1
1990	08 27	20 47.80	-26 50.9					
1990	09 06	20 41.91	-27 52.5	1.467	2.345	142.0	15.4	15.4
1990	09 16	20 38.86	-28 32.2					
1990	09 26	20 39.03	-28 51.0	1.613	2.307	122.0	21.6	15.8

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

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 27.98	-12 24.9	2.241	3.126	144.6	10.9	16.3
1990	07 18	21 21.87	-12 23.9					
1990	07 28	21 14.32	-12 29.9	2.142	3.138	166.5	4.3	16.0
1990	08 07	21 06.00	-12 40.5					
1990	08 17	20 57.68	-12 53.3	2.150	3.150	169.1	3.5	15.9
1990	08 27	20 50.14	-13 05.7					
1990	09 06	20 44.09	-13 15.4	2.268	3.161	147.0	10.0	16.3
1990	09 16	20 39.96	-13 21.1					
1990	09 26	20 38.00	-13 21.5	2.475	3.172	126.2	14.8	16.7

1988 EB a,e,i = 2.84, 0.22, 7 Elements MPC 13054

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 30.17	-24 27.9	2.516	3.413	146.8	9.4	17.2
1990	07 18	21 23.94	-25 11.3					
1990	07 28	21 16.16	-25 54.3	2.398	3.394	166.6	4.0	16.9
1990	08 07	21 07.47	-26 32.3					
1990	08 17	20 58.64	-27 01.6	2.392	3.374	163.2	5.0	16.9
1990	08 27	20 50.47	-27 19.6					
1990	09 06	20 43.71	-27 25.4	2.495	3.351	142.5	10.5	17.2
1990	09 16	20 38.86	-27 19.6					
1990	09 26	20 36.23	-27 03.3	2.684	3.327	122.1	14.8	17.5

1988 CH a,e,i = 2.56, 0.23, 5 Elements MPC 13052

Date	ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990	07 08	21 29.98	-10 16.8	1.988	2.868	143.3	12.2	17.4
1990	07 18	21 24.35	-10 46.0					
1990	07 28	21 16.87	-11 27.2	1.835	2.829	165.4	5.2	17.0
1990	08 07	21 08.19	-12 17.1					
1990	08 17	20 59.16	-13 11.4	1.787	2.789	169.5	3.8	16.8
1990	08 27	20 50.74	-14 05.2					
1990	09 06	20 43.87	-14 53.8	1.848	2.746	146.7	11.6	17.2
1990	09 16	20 39.19	-15 34.3					
1990	09 26	20 37.09	-16 04.8	1.995	2.702	125.4	17.6	17.5

1986 UM1 a,e,i = 2.76, 0.07, 6 Elements MPC 14790

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 31.77	-23 10.6	2.027	2.928	146.3	11.1	17.0
1990 07 18	21 25.70	-23 52.6					
1990 07 28	21 17.81	-24 35.2	1.923	2.921	166.8	4.6	16.6
1990 08 07	21 08.85	-25 12.9					
1990 08 17	20 59.75	-25 41.4	1.925	2.913	164.4	5.4	16.6
1990 08 27	20 51.49	-25 57.5					
1990 09 06	20 44.94	-26 00.2	2.032	2.905	143.4	11.9	17.0
1990 09 16	20 40.65	-25 50.4					
1990 09 26	20 38.92	-25 29.4	2.222	2.895	123.2	16.9	17.3

1987 RB6 a,e,i = 2.18, 0.14, 3 Elements MPC 15887

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 31.74	-20 20.4	0.972	1.901	145.9	17.4	16.1
1990 07 18	21 26.75	-21 12.2					
1990 07 28	21 18.74	-22 09.4	0.913	1.916	167.3	6.7	15.7
1990 08 07	21 09.04	-23 01.9					
1990 08 17	20 59.37	-23 41.1	0.938	1.935	165.8	7.4	15.8
1990 08 27	20 51.43	-24 01.5					
1990 09 06	20 46.53	-24 01.9	1.047	1.958	144.6	17.4	16.4
1990 09 16	20 45.20	-23 44.2					
1990 09 26	20 47.50	-23 11.0	1.222	1.983	125.8	24.2	16.9

1931 TS1 a,e,i = 2.91, 0.08, 2 Elements MPC 12795

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 31.89	-17 27.3	1.886	2.783	145.3	12.0	16.2
1990 07 18	21 26.66	-17 54.7					
1990 07 28	21 19.58	-18 27.7	1.768	2.768	167.3	4.6	15.8
1990 08 07	21 11.34	-19 02.0					
1990 08 17	21 02.88	-19 33.0	1.753	2.753	168.9	4.1	15.7
1990 08 27	20 55.16	-19 56.9					
1990 09 06	20 49.09	-20 11.4	1.842	2.740	146.5	11.7	16.1
1990 09 16	20 45.26	-20 15.4					
1990 09 26	20 43.99	-20 09.1	2.015	2.727	125.9	17.3	16.5

(4173) 1982 KG1 a,e,i = 2.36, 0.12, 4 Elements MPC 15058

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 36.40	-16 39.2	1.752	2.643	144.0	13.1	17.1
1990 07 18	21 30.40	-17 28.1					
1990 07 28	21 22.29	-18 24.8	1.642	2.640	166.6	5.1	16.7
1990 08 07	21 12.87	-19 23.2					
1990 08 17	21 03.16	-20 17.3	1.635	2.635	168.6	4.4	16.6
1990 08 27	20 54.28	-21 02.1					
1990 09 06	20 47.23	-21 34.3	1.734	2.628	145.6	12.5	17.0
1990 09 16	20 42.66	-21 52.9					
1990 09 26	20 40.90	-21 58.3	1.916	2.620	124.7	18.3	17.4

1968 OG1 a,e,i = 2.37, 0.18, 12 Elements MPC 14342

Date ET	R. A. (1950)	Decl.	Delta	r	Elong.	Phase	V
1990 07 08	21 34.49	-01 13.9	1.483	2.339	137.9	16.9	17.0
1990 07 18	21 29.06	-01 55.8					
1990 07 28	21 21.57	-03 01.5	1.404	2.379	158.8	8.9	16.6
1990 08 07	21 12.90	-04 26.7					
1990 08 17	21 04.13	-06 04.2	1.420	2.419	167.8	5.1	16.6
1990 08 27	20 56.39	-07 45.4					
1990 09 06	20 50.62	-09 21.5	1.538	2.457	148.9	12.2	17.0
1990 09 16	20 47.38	-10 46.7					
1990 09 26	20 46.89	-11 57.0	1.743	2.494	128.6	18.3	17.5